Pantheon Report

Generated at 2018-09-08 02:25:57 (UTC).

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

Repeated the test of 18 congestion control schemes 5 times.

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

NTP offsets were measured against `gps.ntp.br` and have been applied to correct the timestamps in logs.
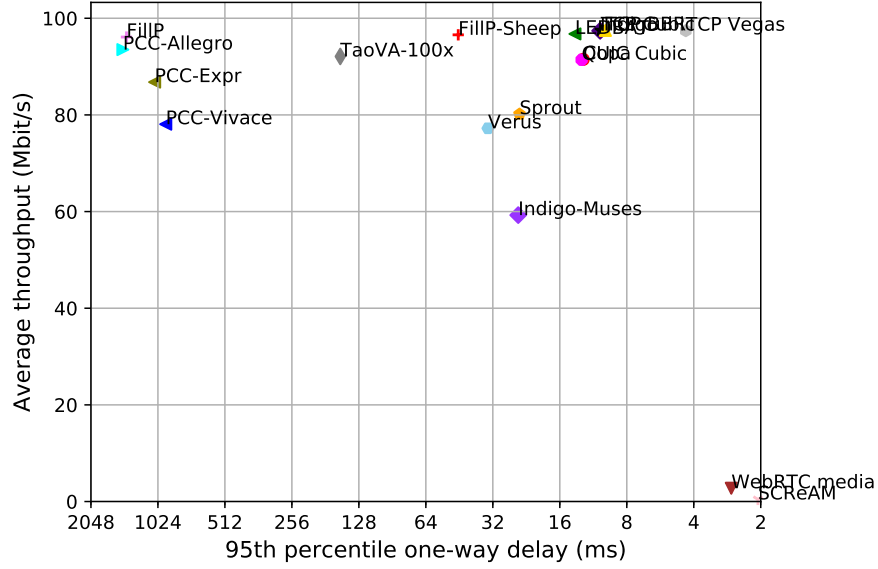
```
System info:
Linux 4.15.0-1020-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
net.ipv4.tcp_mem = 536870912 536870912 536870912

Git summary:
branch: muses @ e0a9b05ad97d268013b7cc9a9c95637b593a1b4c
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 7631aea3923a3598767c87765ae5103aca0678d3
third_party/pantheon-tunnel @ cbfce6db5ff5740dafe1771f813cd646339e1952
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
 M src/ScreamClient
 M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
```
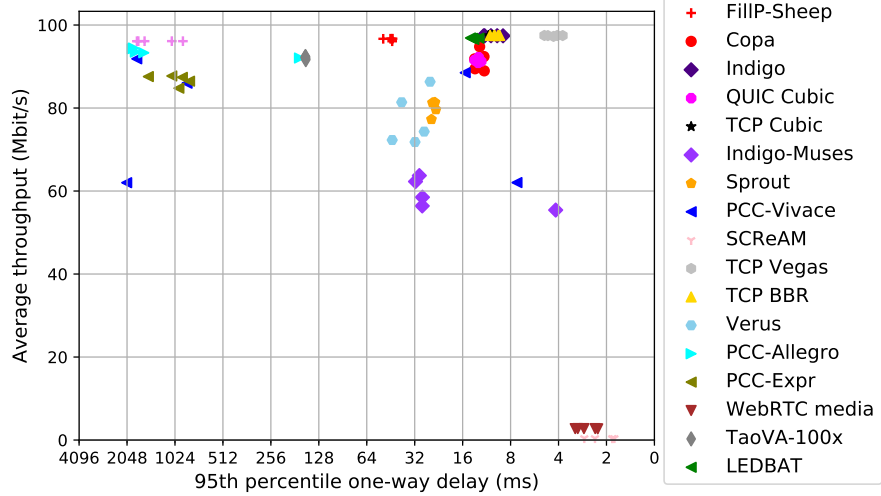
```
 M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

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

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

scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	59.28	40.92	32.99	9.40	9.75	12.61	0.16	0.23	1.09
Copa	5	54.93	39.50	30.83	11.97	12.79	14.45	0.05	0.09	0.15
TCP Cubic	5	59.61	40.64	32.49	10.42	10.45	10.62	0.08	0.15	0.24
FillP	5	59.44	39.53	31.29	1008.00	858.10	1319.61	5.63	6.65	16.40
FillP-Sheep	5	59.04	40.37	32.17	34.25	51.57	58.77	1.40	1.60	1.10
Indigo	5	59.68	40.68	32.45	9.59	10.89	9.11	0.05	0.99	0.29
LEDBAT	5	59.05	40.43	32.47	13.40	13.83	13.49	0.13	0.22	0.38
Indigo-Muses	5	24.98	26.38	50.51	3.08	4.81	25.78	0.01	0.02	1.90
PCC-Allegro	5	65.12	31.84	21.97	1592.13	223.63	7.04	9.04	1.96	0.06
PCC-Expr	5	59.11	26.52	30.46	691.22	424.54	264.22	6.96	5.15	3.35
QUIC Cubic	5	54.48	40.02	31.17	12.74	12.57	13.18	0.16	0.30	0.49
SCReAM	5	0.22	0.22	0.22	2.06	2.06	2.05	0.00	0.00	0.21
Sprout	5	43.40	39.31	32.19	22.95	24.36	25.54	0.12	0.17	0.40
TaoVA-100x	5	55.23	39.49	31.81	154.42	155.69	155.75	0.53	1.12	2.71
TCP Vegas	5	51.82	48.42	40.22	3.57	3.92	4.72	0.01	0.02	0.05
Verus	5	41.89	37.08	32.03	28.75	23.56	173.37	0.06	0.05	0.14
PCC-Vivace	5	45.97	34.86	27.02	795.34	571.28	6.40	2.98	3.36	0.09
WebRTC media	5	1.51	0.85	0.40	2.67	2.78	2.67	0.02	0.00	0.07

```
Run 1: Statistics of TCP BBR

Start at: 2018-09-08 00:38:11
End at: 2018-09-08 00:38:41
Local clock offset: -4.023 ms
Remote clock offset: 0.37 ms


# Below is generated by plot.py at 2018-09-08 02:14:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.49 Mbit/s
95th percentile per-packet one-way delay: 9.582 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 59.31 Mbit/s
95th percentile per-packet one-way delay: 8.380 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 40.88 Mbit/s
95th percentile per-packet one-way delay: 9.737 ms
Loss rate: 0.28%
-- Flow 3:
Average throughput: 33.00 Mbit/s
95th percentile per-packet one-way delay: 15.848 ms
Loss rate: 1.23%
```
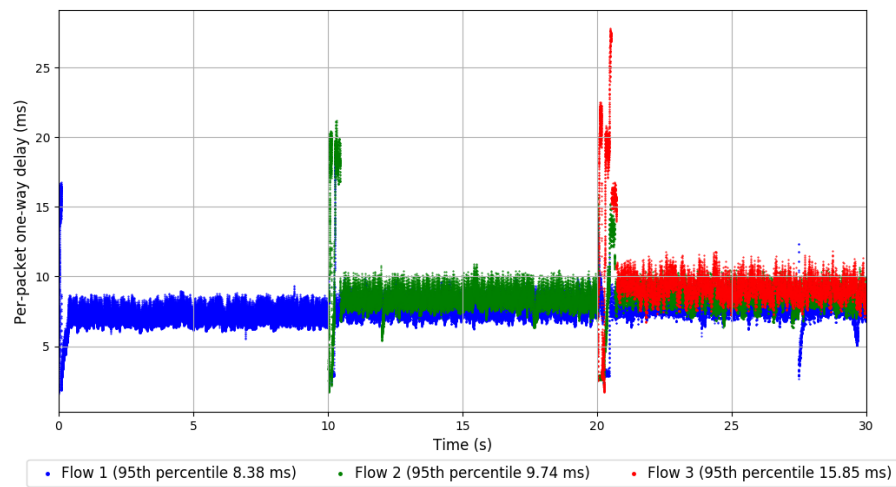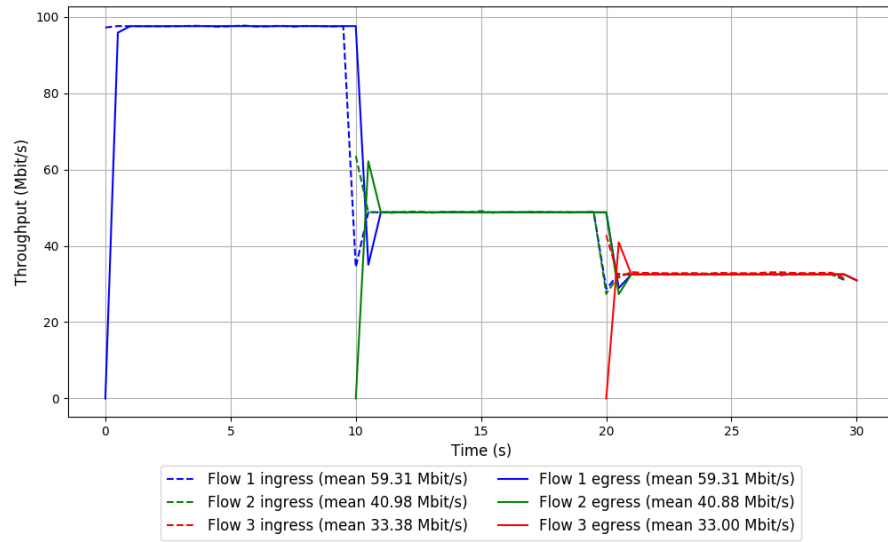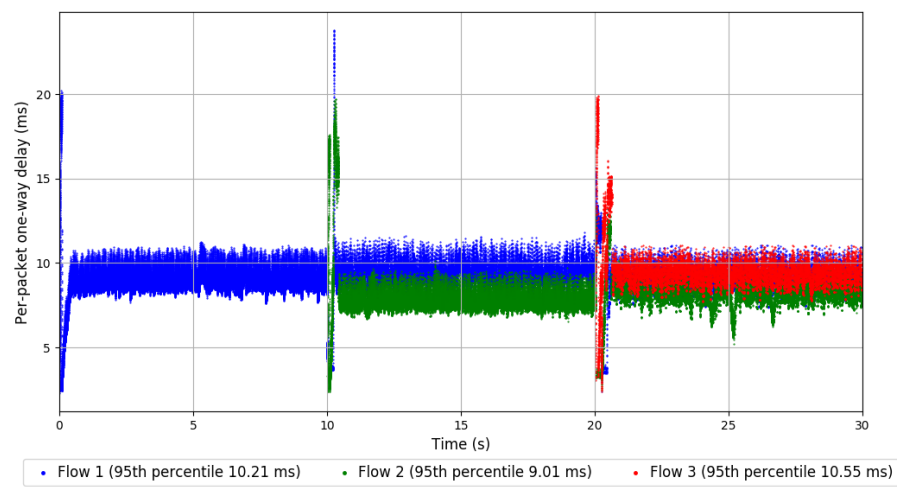
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2018-09-08 00:58:58
End at: 2018-09-08 00:59:28
Local clock offset: 0.616 ms
Remote clock offset: 0.59 ms


# Below is generated by plot.py at 2018-09-08 02:14:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 10.157 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 59.23 Mbit/s
95th percentile per-packet one-way delay: 10.213 ms
Loss rate: 0.19%
-- Flow 2:
Average throughput: 40.97 Mbit/s
95th percentile per-packet one-way delay: 9.014 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 33.02 Mbit/s
95th percentile per-packet one-way delay: 10.552 ms
Loss rate: 0.97%
```
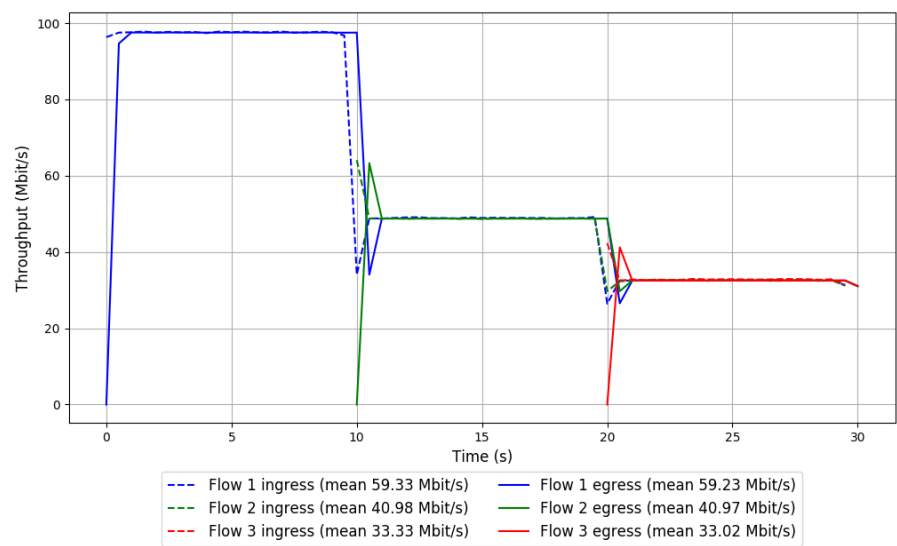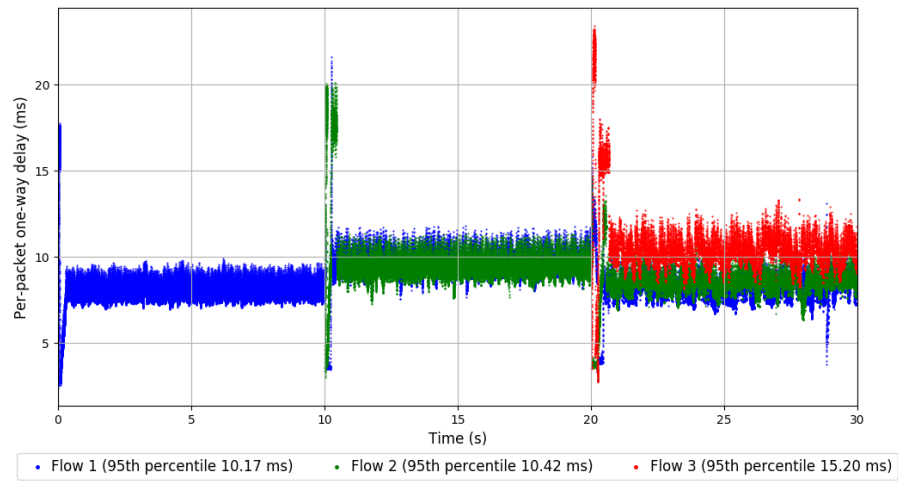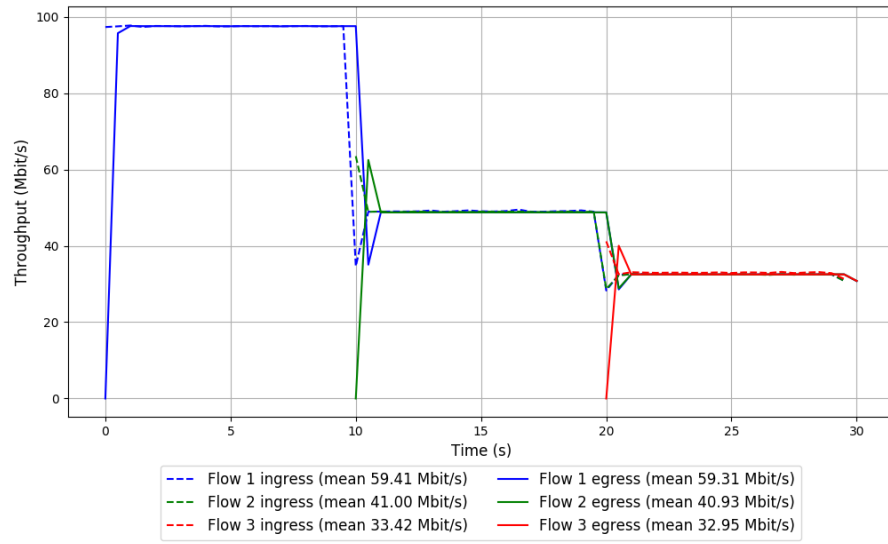
Run 2: Report of TCP BBR — Data Link

Flow 1 ingress (mean 59.33 Mbit/s)   Flow 1 egress (mean 59.23 Mbit/s)
Flow 2 ingress (mean 40.98 Mbit/s)   Flow 2 egress (mean 40.97 Mbit/s)
Flow 3 ingress (mean 33.33 Mbit/s)   Flow 3 egress (mean 33.02 Mbit/s)

Flow 1 (95th percentile 10.21 ms)   Flow 2 (95th percentile 9.01 ms)   Flow 3 (95th percentile 10.55 ms)

8

```
Run 3: Statistics of TCP BBR

Start at: 2018-09-08 01:19:45
End at: 2018-09-08 01:20:15
Local clock offset: -1.701 ms
Remote clock offset: 0.859 ms


# Below is generated by plot.py at 2018-09-08 02:14:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.51 Mbit/s
95th percentile per-packet one-way delay: 10.758 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 59.31 Mbit/s
95th percentile per-packet one-way delay: 10.170 ms
Loss rate: 0.19%
-- Flow 2:
Average throughput: 40.93 Mbit/s
95th percentile per-packet one-way delay: 10.421 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 32.95 Mbit/s
95th percentile per-packet one-way delay: 15.201 ms
Loss rate: 1.46%
```
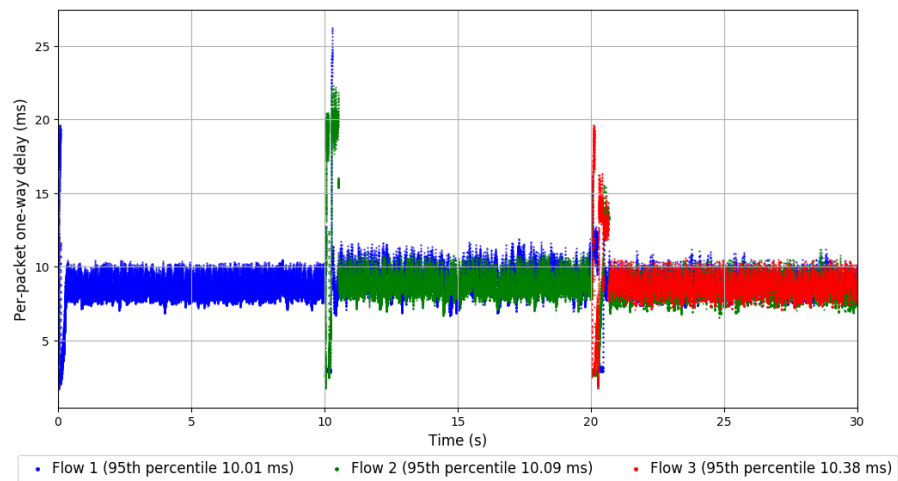
Run 3: Report of TCP BBR — Data Link

```
Run 4: Statistics of TCP BBR

Start at: 2018-09-08 01:40:32
End at: 2018-09-08 01:41:02
Local clock offset: -7.754 ms
Remote clock offset: 1.037 ms


# Below is generated by plot.py at 2018-09-08 02:14:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 10.038 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 59.26 Mbit/s
95th percentile per-packet one-way delay: 10.007 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 40.93 Mbit/s
95th percentile per-packet one-way delay: 10.094 ms
Loss rate: 0.37%
-- Flow 3:
Average throughput: 33.03 Mbit/s
95th percentile per-packet one-way delay: 10.385 ms
Loss rate: 0.36%
```
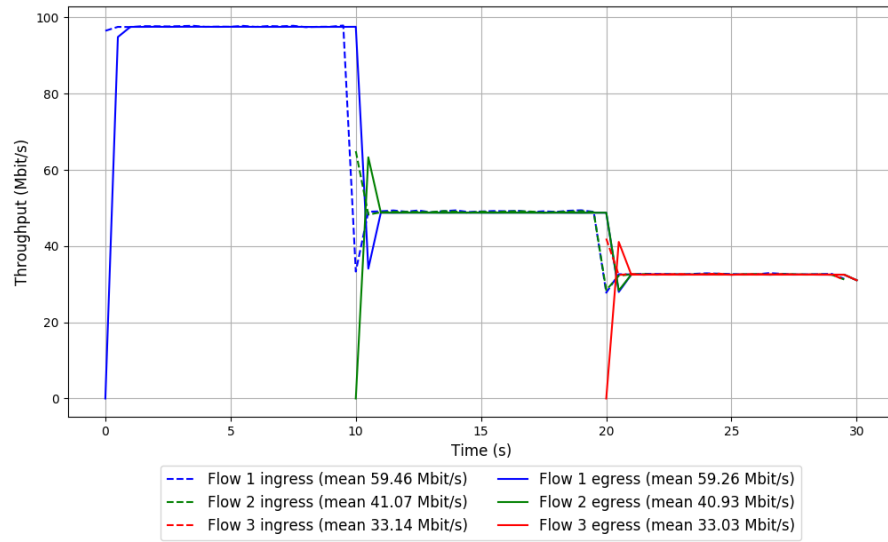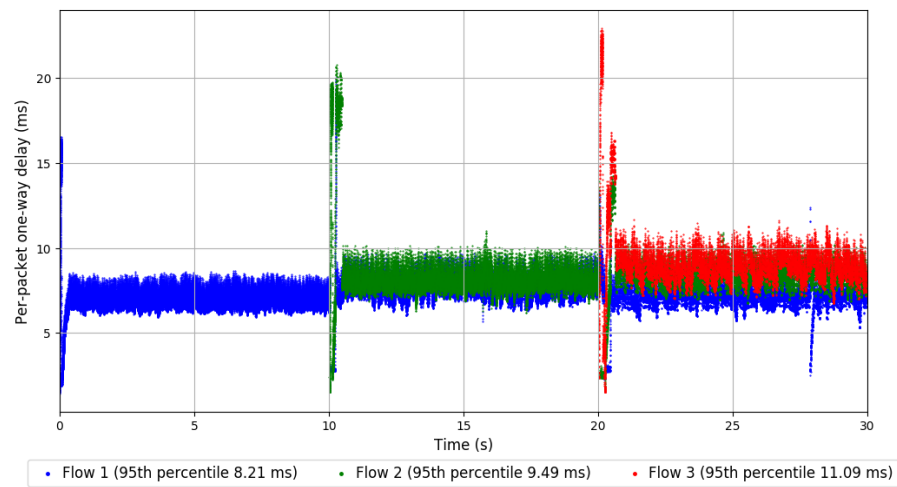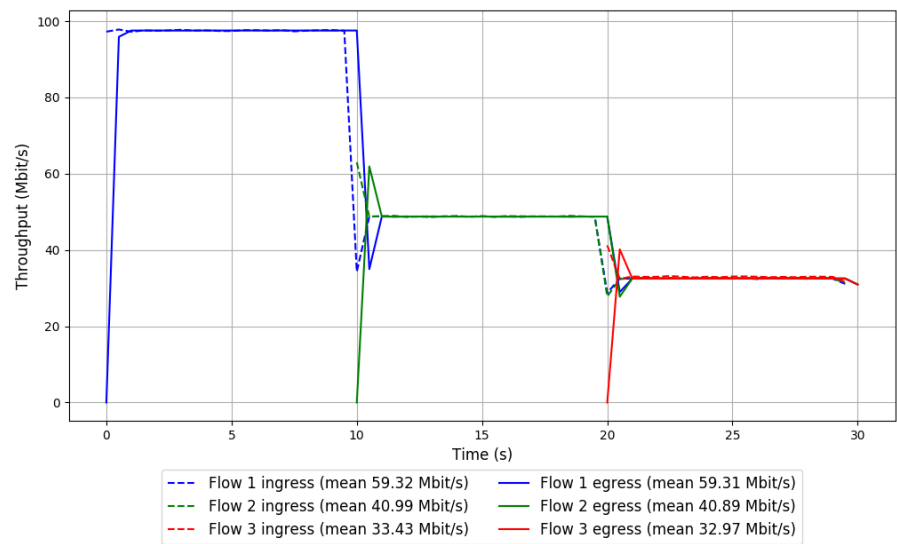
Run 4: Report of TCP BBR — Data Link

- - - Flow 1 ingress (mean 59.46 Mbit/s) ——— Flow 1 egress (mean 59.26 Mbit/s)
- - - Flow 2 ingress (mean 41.07 Mbit/s) ——— Flow 2 egress (mean 40.93 Mbit/s)
- - - Flow 3 ingress (mean 33.14 Mbit/s) ——— Flow 3 egress (mean 33.03 Mbit/s)

• Flow 1 (95th percentile 10.01 ms)   • Flow 2 (95th percentile 10.09 ms)   • Flow 3 (95th percentile 10.38 ms)

12

```
Run 5: Statistics of TCP BBR

Start at: 2018-09-08 02:01:19
End at: 2018-09-08 02:01:49
Local clock offset: -2.943 ms
Remote clock offset: 1.171 ms

# Below is generated by plot.py at 2018-09-08 02:14:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.49 Mbit/s
95th percentile per-packet one-way delay: 9.370 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 59.31 Mbit/s
95th percentile per-packet one-way delay: 8.207 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 40.89 Mbit/s
95th percentile per-packet one-way delay: 9.492 ms
Loss rate: 0.27%
-- Flow 3:
Average throughput: 32.97 Mbit/s
95th percentile per-packet one-way delay: 11.086 ms
Loss rate: 1.43%
```
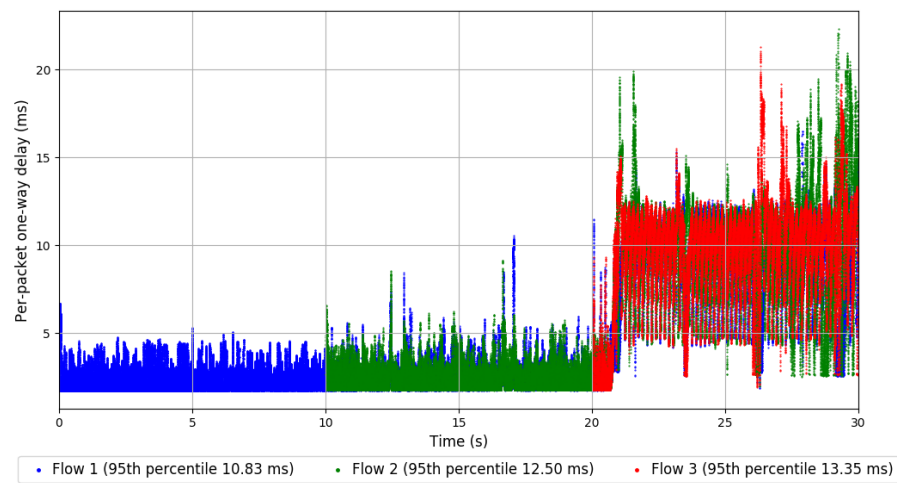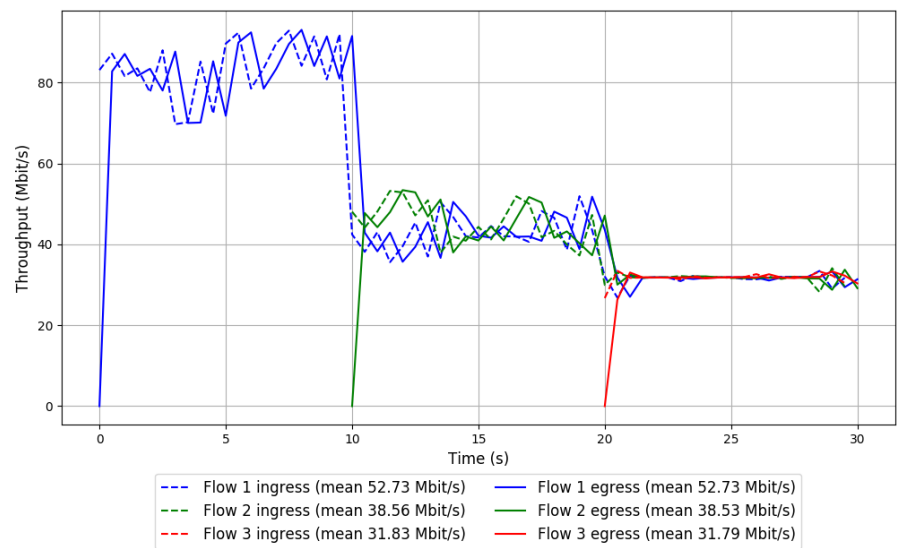
Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 59.32 Mbit/s)   Flow 1 egress (mean 59.31 Mbit/s)
Flow 2 ingress (mean 40.99 Mbit/s)   Flow 2 egress (mean 40.89 Mbit/s)
Flow 3 ingress (mean 33.43 Mbit/s)   Flow 3 egress (mean 32.97 Mbit/s)

Flow 1 (95th percentile 8.21 ms)   Flow 2 (95th percentile 9.49 ms)   Flow 3 (95th percentile 11.09 ms)

14

```
Run 1: Statistics of Copa

Start at: 2018-09-08 00:36:59
End at: 2018-09-08 00:37:29
Local clock offset: -3.974 ms
Remote clock offset: 0.35 ms


# Below is generated by plot.py at 2018-09-08 02:15:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.96 Mbit/s
95th percentile per-packet one-way delay: 11.706 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 52.73 Mbit/s
95th percentile per-packet one-way delay: 10.832 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 38.53 Mbit/s
95th percentile per-packet one-way delay: 12.497 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 31.79 Mbit/s
95th percentile per-packet one-way delay: 13.347 ms
Loss rate: 0.16%
```
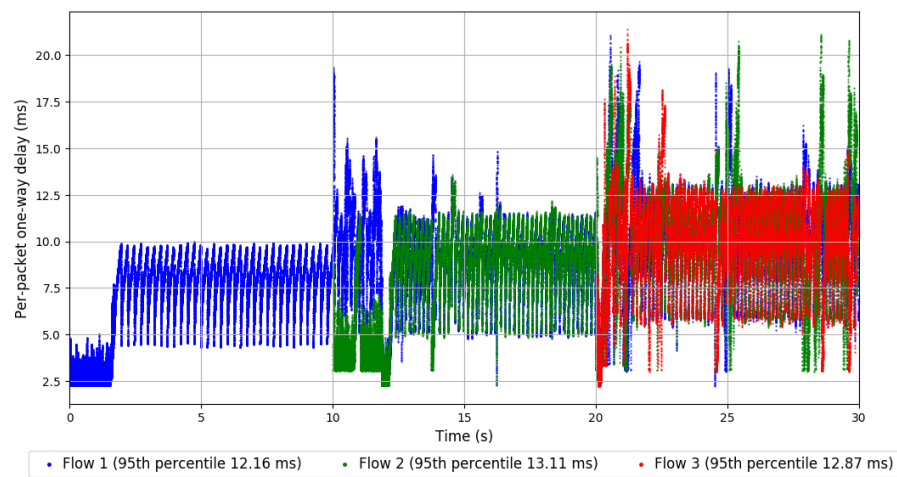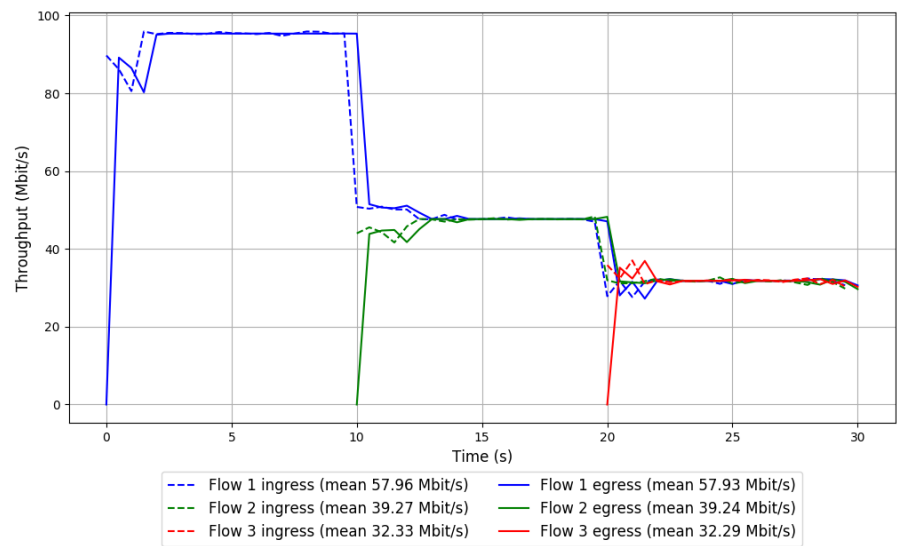
Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2018-09-08 00:57:45
End at: 2018-09-08 00:58:15
Local clock offset: 0.45 ms
Remote clock offset: 0.685 ms


# Below is generated by plot.py at 2018-09-08 02:15:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.79 Mbit/s
95th percentile per-packet one-way delay: 12.515 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 57.93 Mbit/s
95th percentile per-packet one-way delay: 12.163 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 39.24 Mbit/s
95th percentile per-packet one-way delay: 13.107 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 32.29 Mbit/s
95th percentile per-packet one-way delay: 12.874 ms
Loss rate: 0.18%
```
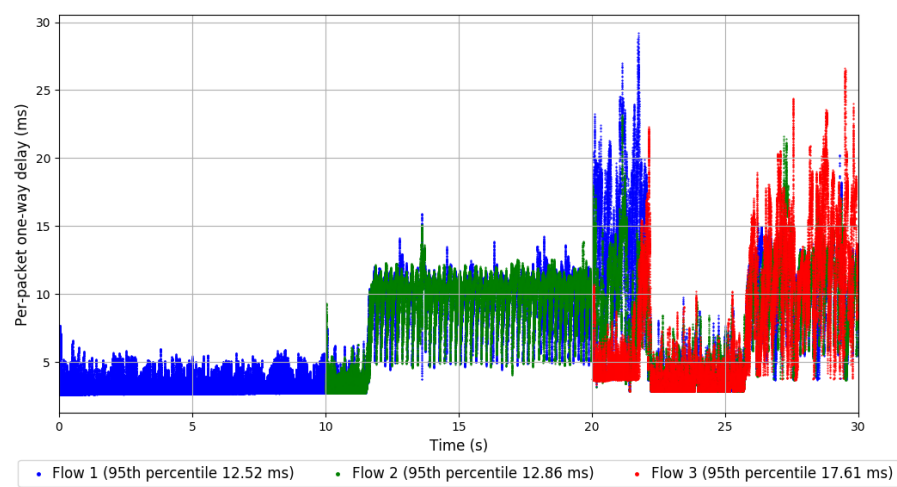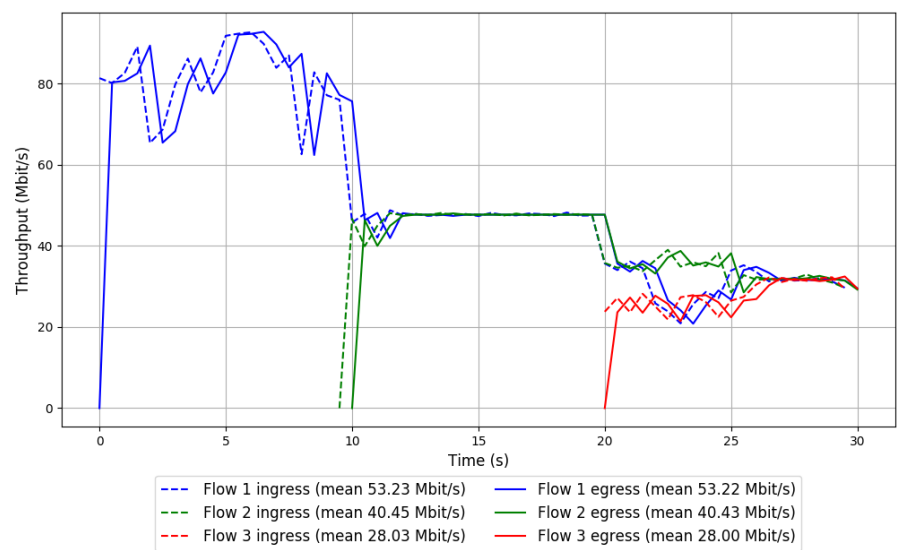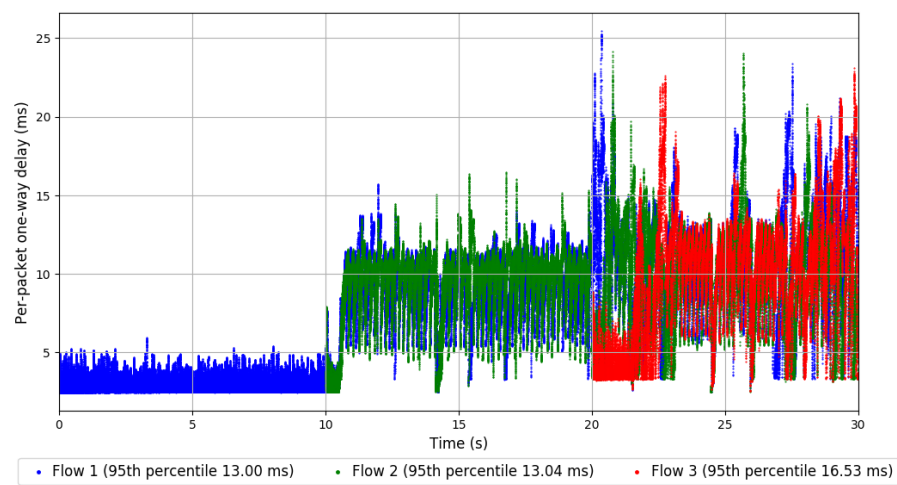
Run 2: Report of Copa — Data Link

- - - - Flow 1 ingress (mean 57.96 Mbit/s) ——— Flow 1 egress (mean 57.93 Mbit/s)
- - - - Flow 2 ingress (mean 39.27 Mbit/s) ——— Flow 2 egress (mean 39.24 Mbit/s)
- - - - Flow 3 ingress (mean 32.33 Mbit/s) ——— Flow 3 egress (mean 32.29 Mbit/s)

- Flow 1 (95th percentile 12.16 ms) • Flow 2 (95th percentile 13.11 ms) • Flow 3 (95th percentile 12.87 ms)

```
Run 3: Statistics of Copa

Start at: 2018-09-08 01:18:32
End at: 2018-09-08 01:19:02
Local clock offset: -1.041 ms
Remote clock offset: 0.75 ms


# Below is generated by plot.py at 2018-09-08 02:15:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.46 Mbit/s
95th percentile per-packet one-way delay: 13.382 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 53.22 Mbit/s
95th percentile per-packet one-way delay: 12.524 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 40.43 Mbit/s
95th percentile per-packet one-way delay: 12.855 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 28.00 Mbit/s
95th percentile per-packet one-way delay: 17.605 ms
Loss rate: 0.18%
```
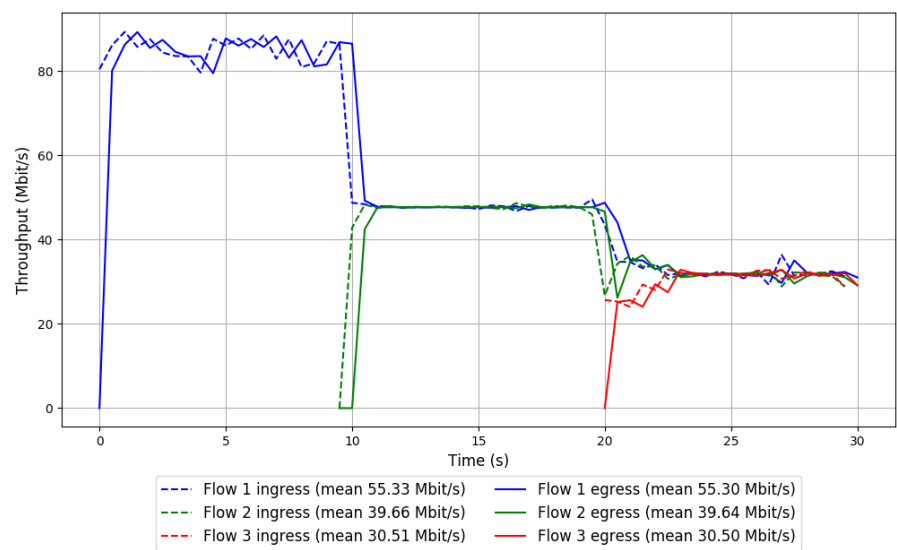
Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2018-09-08 01:39:20
End at: 2018-09-08 01:39:50
Local clock offset: -6.896 ms
Remote clock offset: 1.025 ms


# Below is generated by plot.py at 2018-09-08 02:16:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.84 Mbit/s
95th percentile per-packet one-way delay: 13.447 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 55.30 Mbit/s
95th percentile per-packet one-way delay: 13.002 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 39.64 Mbit/s
95th percentile per-packet one-way delay: 13.038 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 30.50 Mbit/s
95th percentile per-packet one-way delay: 16.531 ms
Loss rate: 0.07%
```
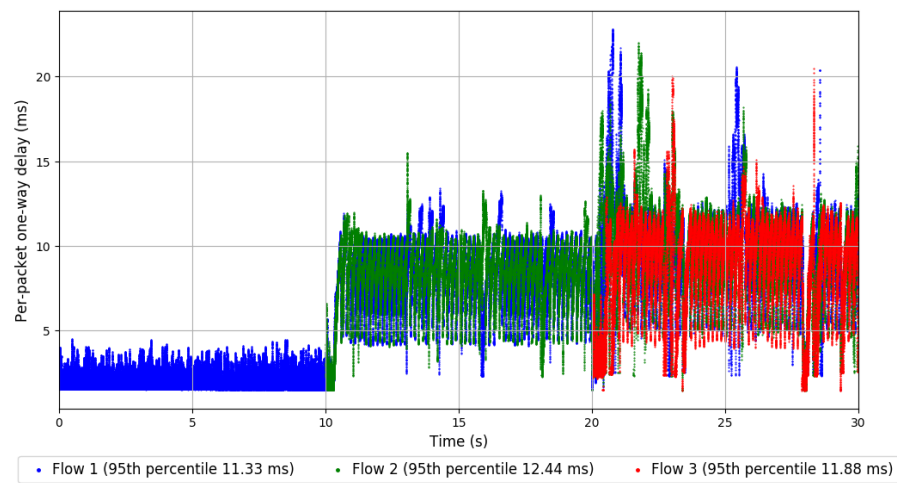
Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2018-09-08 02:00:07
End at: 2018-09-08 02:00:37
Local clock offset: -3.128 ms
Remote clock offset: 1.12 ms


# Below is generated by plot.py at 2018-09-08 02:16:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.40 Mbit/s
95th percentile per-packet one-way delay: 11.753 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 55.49 Mbit/s
95th percentile per-packet one-way delay: 11.331 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 39.68 Mbit/s
95th percentile per-packet one-way delay: 12.437 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 31.56 Mbit/s
95th percentile per-packet one-way delay: 11.885 ms
Loss rate: 0.14%
```
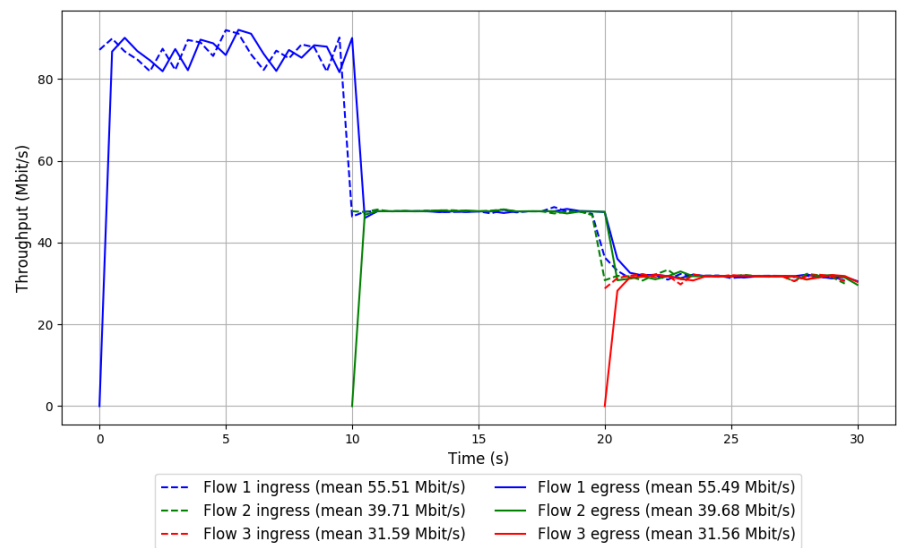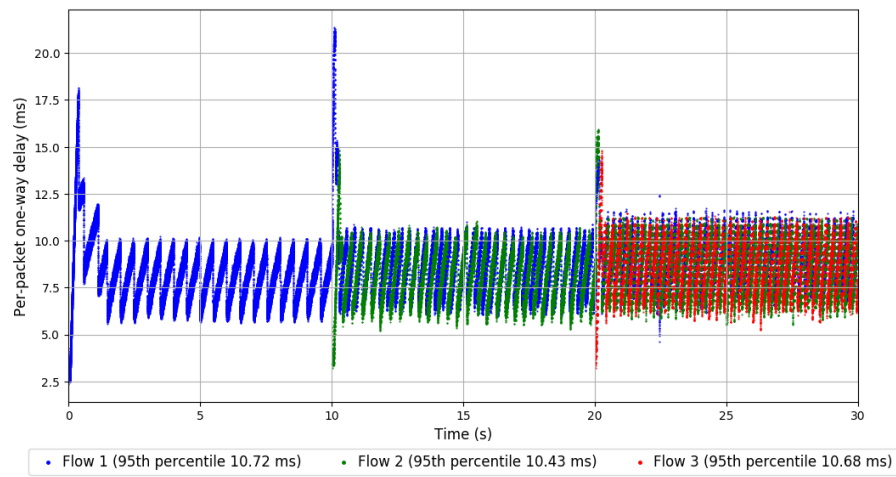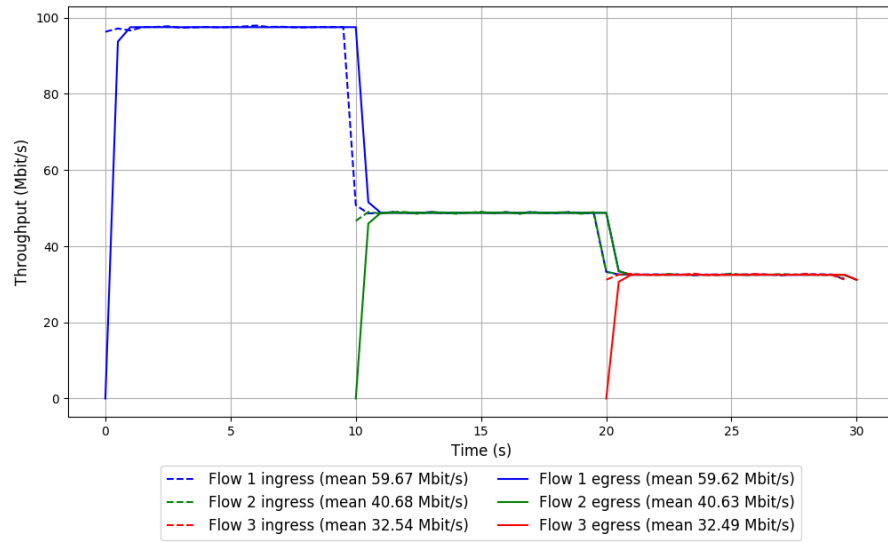
Run 5: Report of Copa — Data Link

Flow 1 ingress (mean 55.51 Mbit/s) --- Flow 1 egress (mean 55.49 Mbit/s)
Flow 2 ingress (mean 39.71 Mbit/s) --- Flow 2 egress (mean 39.68 Mbit/s)
Flow 3 ingress (mean 31.59 Mbit/s) --- Flow 3 egress (mean 31.56 Mbit/s)

Flow 1 (95th percentile 11.33 ms)   Flow 2 (95th percentile 12.44 ms)   Flow 3 (95th percentile 11.88 ms)

24

```
Run 1: Statistics of TCP Cubic

Start at: 2018-09-08 00:33:30
End at: 2018-09-08 00:34:00
Local clock offset: -3.154 ms
Remote clock offset: 0.267 ms


# Below is generated by plot.py at 2018-09-08 02:16:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 10.612 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 59.62 Mbit/s
95th percentile per-packet one-way delay: 10.718 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 40.63 Mbit/s
95th percentile per-packet one-way delay: 10.433 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 32.49 Mbit/s
95th percentile per-packet one-way delay: 10.680 ms
Loss rate: 0.23%
```
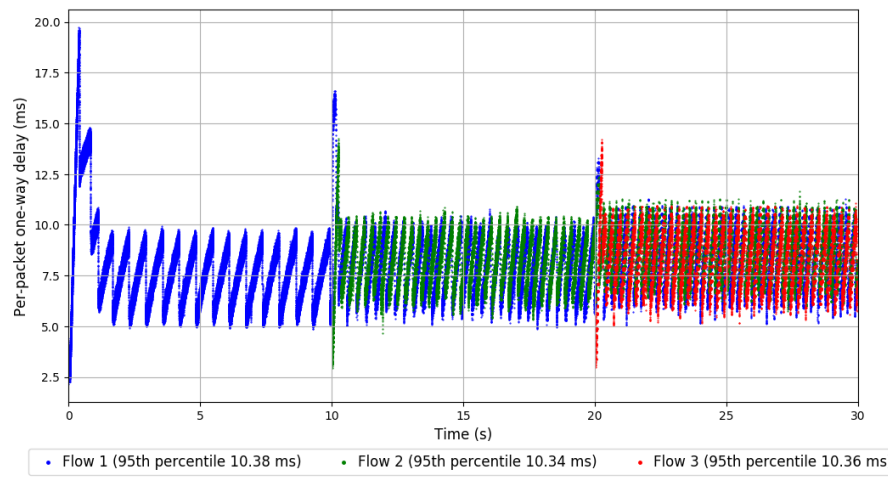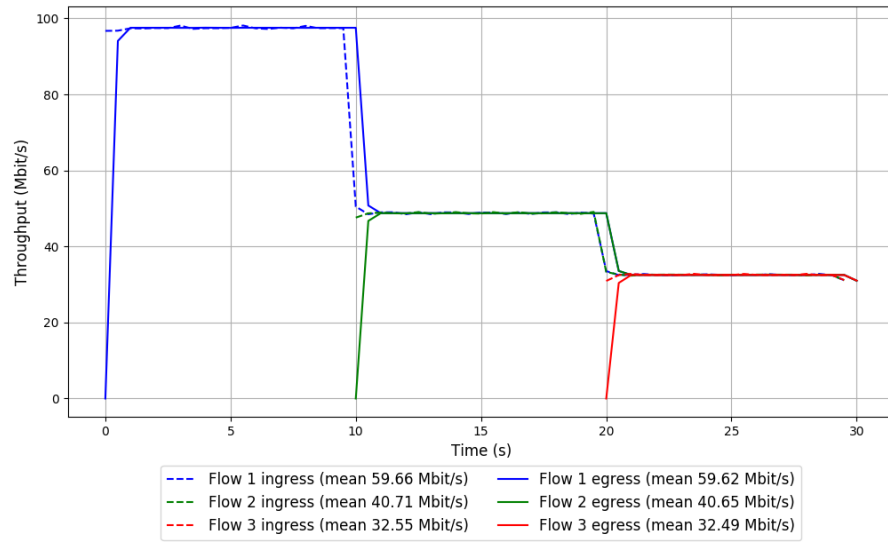
Run 1: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 59.67 Mbit/s) --- Flow 1 egress (mean 59.62 Mbit/s)
Flow 2 ingress (mean 40.68 Mbit/s) --- Flow 2 egress (mean 40.63 Mbit/s)
Flow 3 ingress (mean 32.54 Mbit/s) --- Flow 3 egress (mean 32.49 Mbit/s)

Flow 1 (95th percentile 10.72 ms)   Flow 2 (95th percentile 10.43 ms)   Flow 3 (95th percentile 10.68 ms)

26

```
Run 2: Statistics of TCP Cubic

Start at: 2018-09-08 00:54:16
End at: 2018-09-08 00:54:46
Local clock offset: -0.181 ms
Remote clock offset: 0.638 ms


# Below is generated by plot.py at 2018-09-08 02:16:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 10.362 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 59.62 Mbit/s
95th percentile per-packet one-way delay: 10.383 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 40.65 Mbit/s
95th percentile per-packet one-way delay: 10.340 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 32.49 Mbit/s
95th percentile per-packet one-way delay: 10.363 ms
Loss rate: 0.23%
```
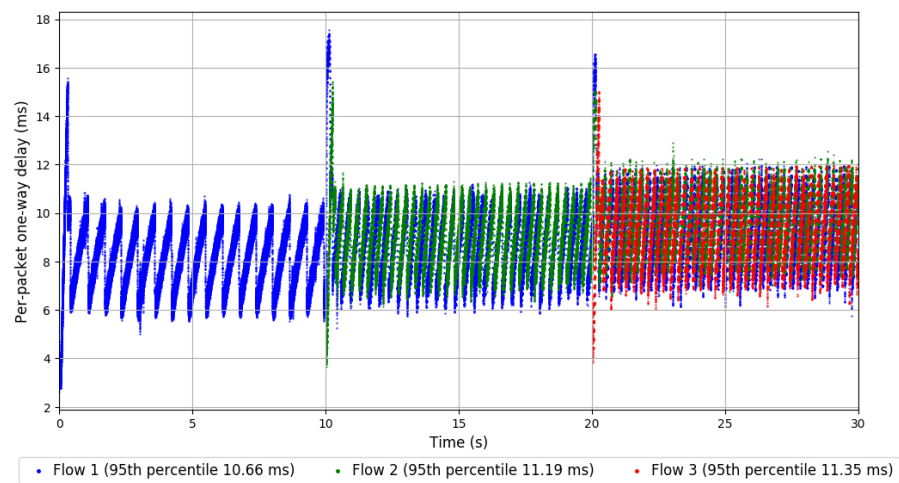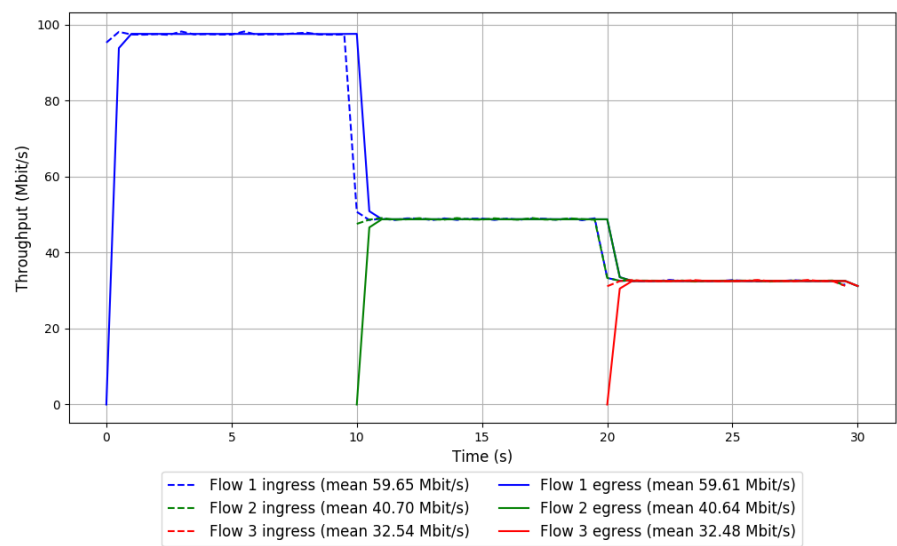
Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 59.66 Mbit/s) --- Flow 1 egress (mean 59.62 Mbit/s)
Flow 2 ingress (mean 40.71 Mbit/s) --- Flow 2 egress (mean 40.65 Mbit/s)
Flow 3 ingress (mean 32.55 Mbit/s) --- Flow 3 egress (mean 32.49 Mbit/s)

Flow 1 (95th percentile 10.38 ms)   Flow 2 (95th percentile 10.34 ms)   Flow 3 (95th percentile 10.36 ms)

```
Run 3: Statistics of TCP Cubic

Start at: 2018-09-08 01:15:03
End at: 2018-09-08 01:15:33
Local clock offset: 1.74 ms
Remote clock offset: 0.718 ms


# Below is generated by plot.py at 2018-09-08 02:16:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.46 Mbit/s
95th percentile per-packet one-way delay: 11.022 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 59.61 Mbit/s
95th percentile per-packet one-way delay: 10.660 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 40.64 Mbit/s
95th percentile per-packet one-way delay: 11.190 ms
Loss rate: 0.16%
-- Flow 3:
Average throughput: 32.48 Mbit/s
95th percentile per-packet one-way delay: 11.347 ms
Loss rate: 0.23%
```
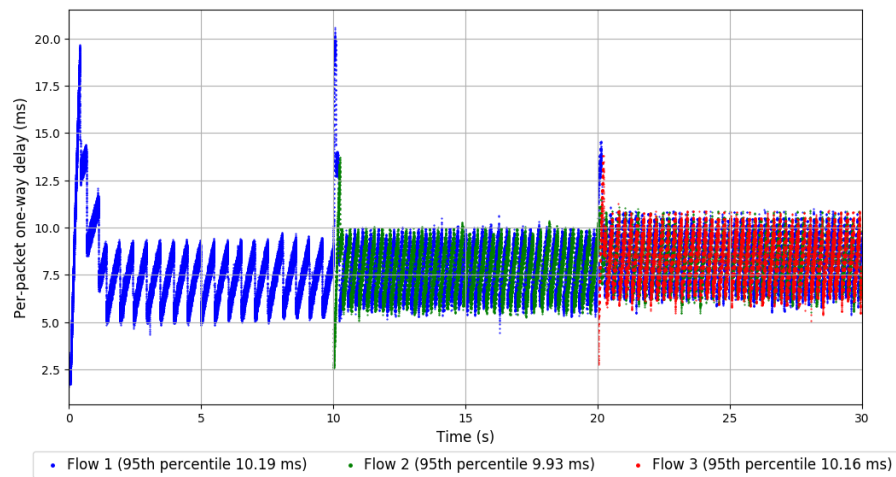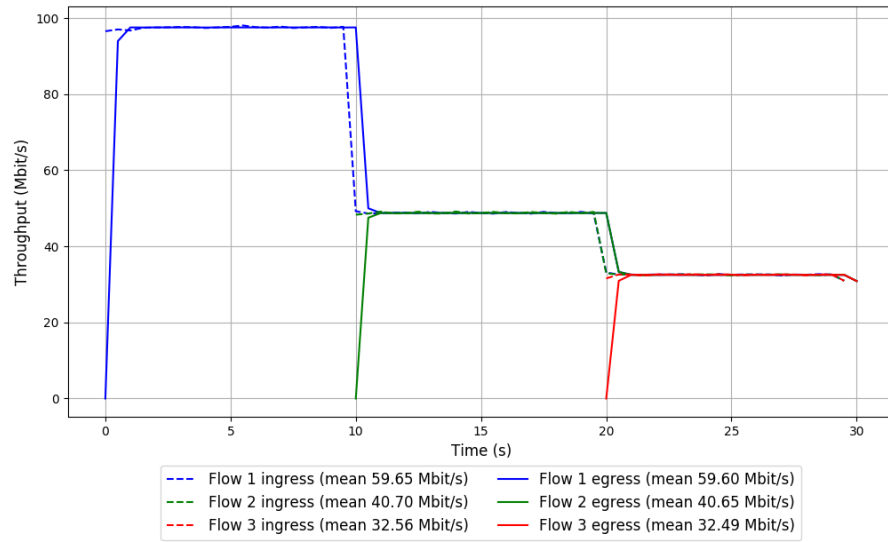
Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 59.65 Mbit/s)   Flow 1 egress (mean 59.61 Mbit/s)
Flow 2 ingress (mean 40.70 Mbit/s)   Flow 2 egress (mean 40.64 Mbit/s)
Flow 3 ingress (mean 32.54 Mbit/s)   Flow 3 egress (mean 32.48 Mbit/s)

Flow 1 (95th percentile 10.66 ms)   Flow 2 (95th percentile 11.19 ms)   Flow 3 (95th percentile 11.35 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2018-09-08 01:35:51
End at: 2018-09-08 01:36:21
Local clock offset: -7.144 ms
Remote clock offset: 0.981 ms


# Below is generated by plot.py at 2018-09-08 02:16:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 10.093 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 59.60 Mbit/s
95th percentile per-packet one-way delay: 10.193 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 40.65 Mbit/s
95th percentile per-packet one-way delay: 9.925 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 32.49 Mbit/s
95th percentile per-packet one-way delay: 10.158 ms
Loss rate: 0.24%
```
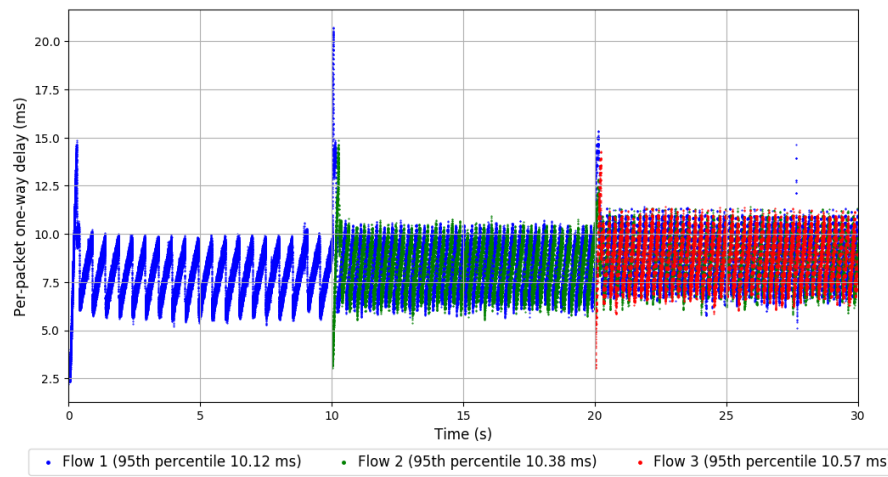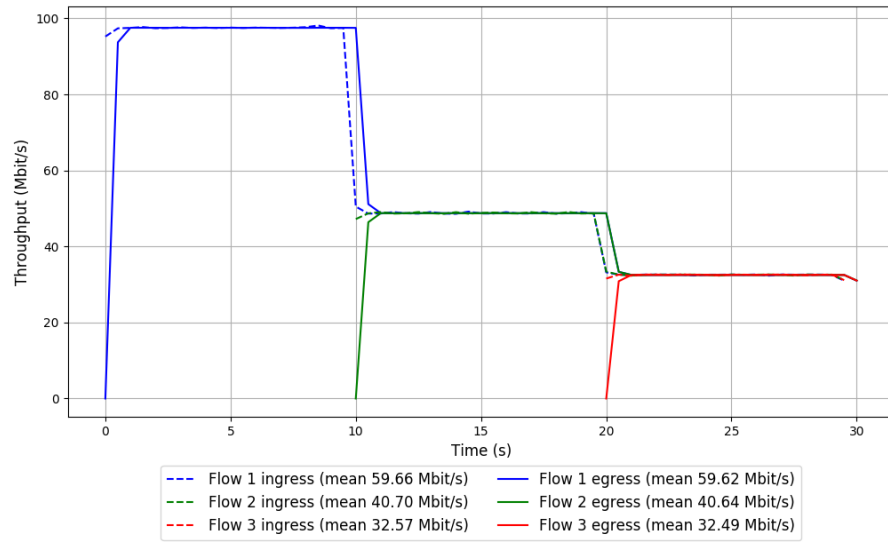
Run 4: Report of TCP Cubic — Data Link

```
Run 5: Statistics of TCP Cubic

Start at: 2018-09-08 01:56:38
End at: 2018-09-08 01:57:08
Local clock offset: -2.919 ms
Remote clock offset: 1.074 ms


# Below is generated by plot.py at 2018-09-08 02:16:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.46 Mbit/s
95th percentile per-packet one-way delay: 10.265 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 59.62 Mbit/s
95th percentile per-packet one-way delay: 10.121 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 40.64 Mbit/s
95th percentile per-packet one-way delay: 10.376 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 32.49 Mbit/s
95th percentile per-packet one-way delay: 10.570 ms
Loss rate: 0.25%
```
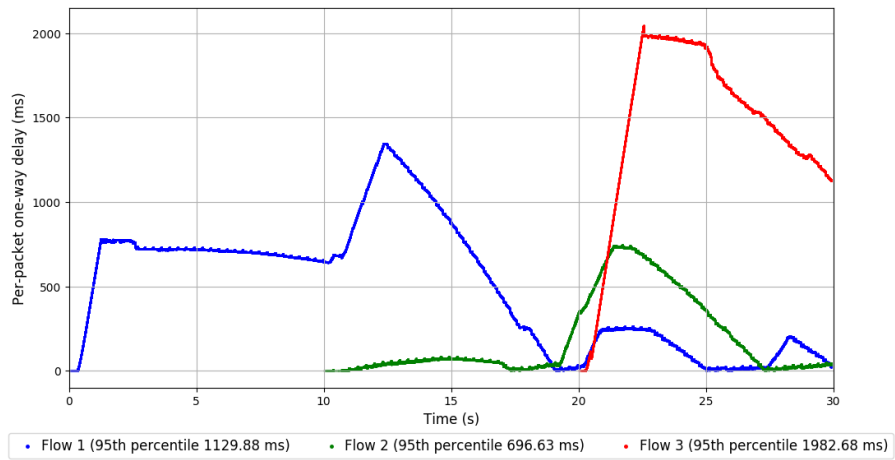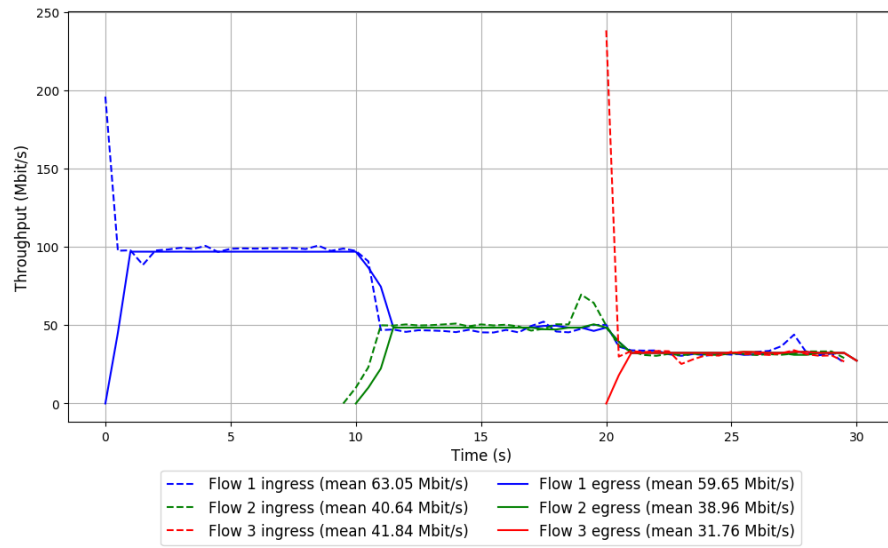
Run 5: Report of TCP Cubic — Data Link

```
Run 1: Statistics of FillP

Start at: 2018-09-08 00:42:40
End at: 2018-09-08 00:43:10
Local clock offset: -4.204 ms
Remote clock offset: 0.504 ms


# Below is generated by plot.py at 2018-09-08 02:16:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.11 Mbit/s
95th percentile per-packet one-way delay: 1589.335 ms
Loss rate: 7.57%
-- Flow 1:
Average throughput: 59.65 Mbit/s
95th percentile per-packet one-way delay: 1129.882 ms
Loss rate: 5.39%
-- Flow 2:
Average throughput: 38.96 Mbit/s
95th percentile per-packet one-way delay: 696.630 ms
Loss rate: 4.15%
-- Flow 3:
Average throughput: 31.76 Mbit/s
95th percentile per-packet one-way delay: 1982.676 ms
Loss rate: 24.14%
```
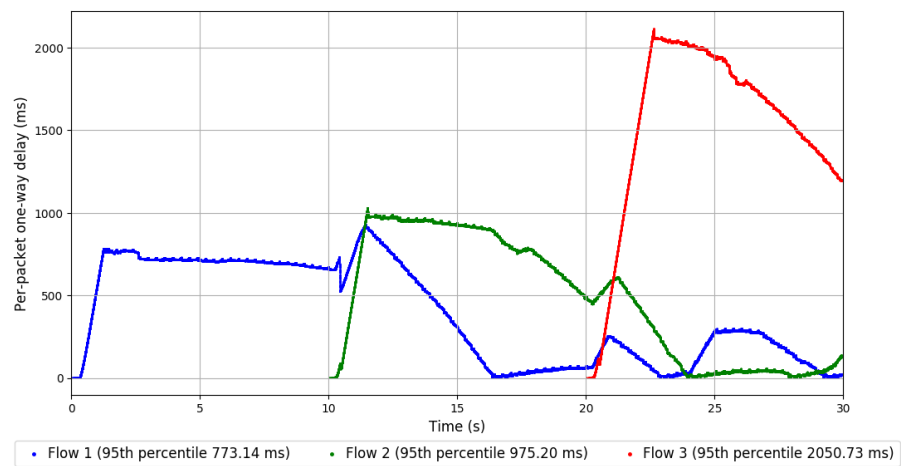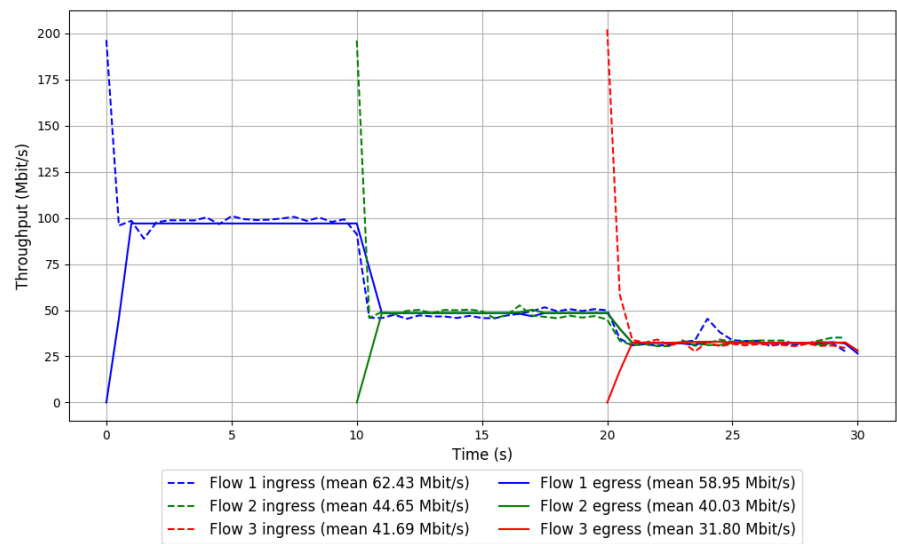
Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 63.05 Mbit/s) --- Flow 1 egress (mean 59.65 Mbit/s)
Flow 2 ingress (mean 40.64 Mbit/s) --- Flow 2 egress (mean 38.96 Mbit/s)
Flow 3 ingress (mean 41.84 Mbit/s) --- Flow 3 egress (mean 31.76 Mbit/s)

Flow 1 (95th percentile 1129.88 ms) • Flow 2 (95th percentile 696.63 ms) • Flow 3 (95th percentile 1982.68 ms)

```
Run 2: Statistics of FillP

Start at: 2018-09-08 01:03:27
End at: 2018-09-08 01:03:57
Local clock offset: 1.042 ms
Remote clock offset: 0.749 ms


# Below is generated by plot.py at 2018-09-08 02:16:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.12 Mbit/s
95th percentile per-packet one-way delay: 1739.516 ms
Loss rate: 9.29%
-- Flow 1:
Average throughput: 58.95 Mbit/s
95th percentile per-packet one-way delay: 773.145 ms
Loss rate: 5.59%
-- Flow 2:
Average throughput: 40.03 Mbit/s
95th percentile per-packet one-way delay: 975.200 ms
Loss rate: 10.34%
-- Flow 3:
Average throughput: 31.80 Mbit/s
95th percentile per-packet one-way delay: 2050.728 ms
Loss rate: 23.76%
```
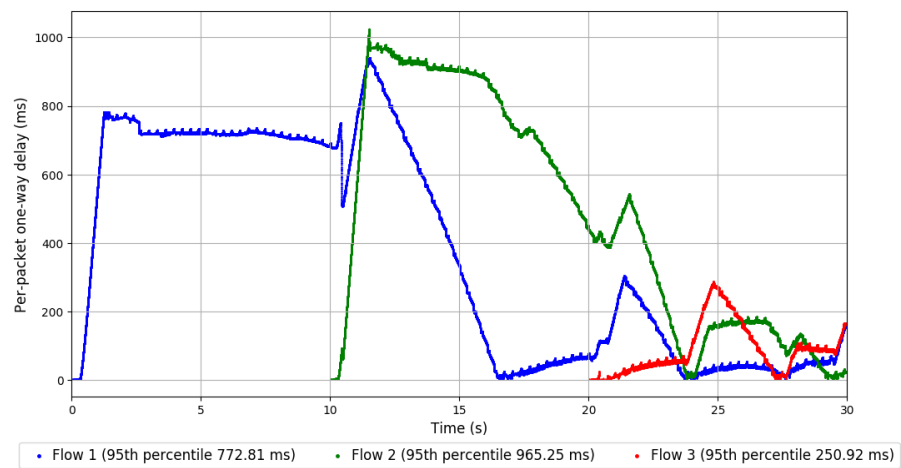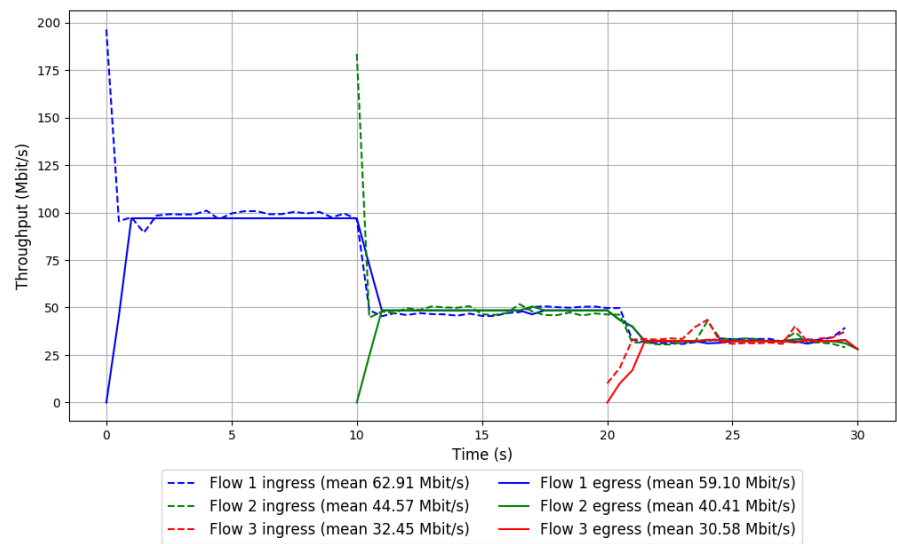
Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2018-09-08 01:24:15
End at: 2018-09-08 01:24:45
Local clock offset: -4.411 ms
Remote clock offset: 0.836 ms


# Below is generated by plot.py at 2018-09-08 02:16:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.11 Mbit/s
95th percentile per-packet one-way delay: 913.066 ms
Loss rate: 6.99%
-- Flow 1:
Average throughput: 59.10 Mbit/s
95th percentile per-packet one-way delay: 772.810 ms
Loss rate: 6.08%
-- Flow 2:
Average throughput: 40.41 Mbit/s
95th percentile per-packet one-way delay: 965.250 ms
Loss rate: 9.34%
-- Flow 3:
Average throughput: 30.58 Mbit/s
95th percentile per-packet one-way delay: 250.916 ms
Loss rate: 5.81%
```
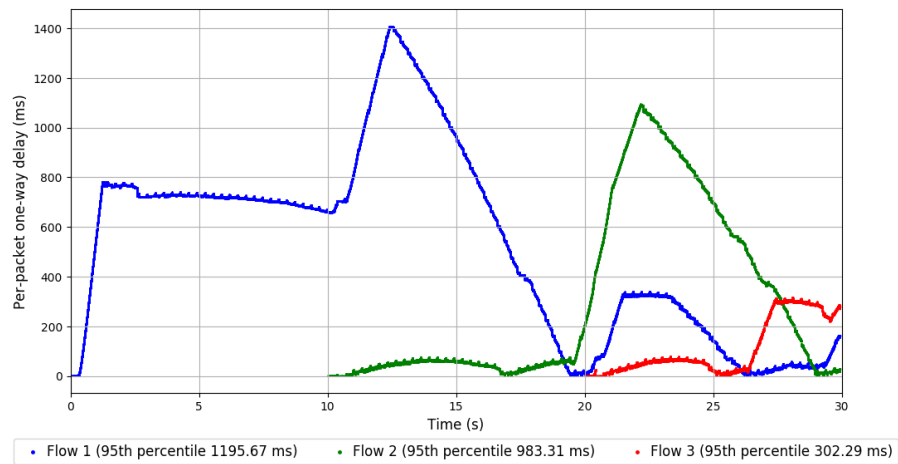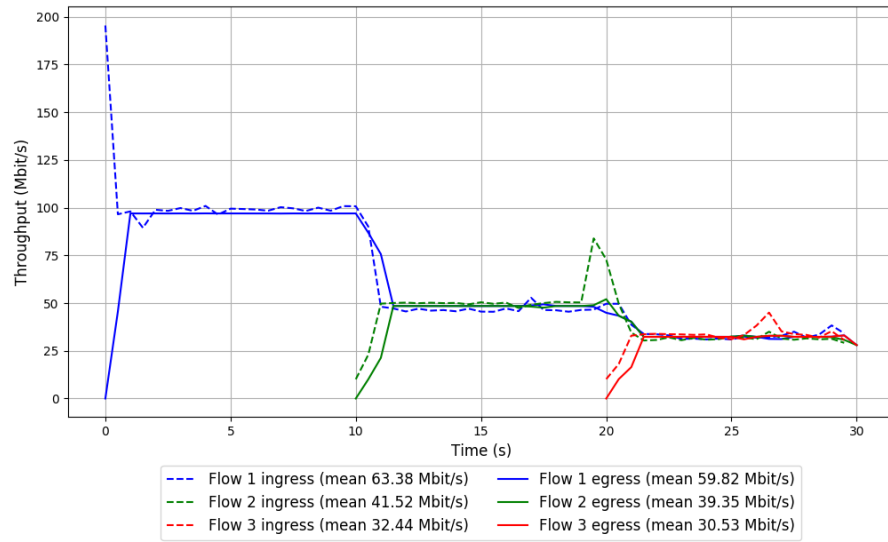
Run 3: Report of FillP — Data Link

Flow 1 ingress (mean 62.91 Mbit/s) --- Flow 1 egress (mean 59.10 Mbit/s)
Flow 2 ingress (mean 44.57 Mbit/s) --- Flow 2 egress (mean 40.41 Mbit/s)
Flow 3 ingress (mean 32.45 Mbit/s) --- Flow 3 egress (mean 30.58 Mbit/s)

Flow 1 (95th percentile 772.81 ms)   Flow 2 (95th percentile 965.25 ms)   Flow 3 (95th percentile 250.92 ms)

```
Run 4: Statistics of FillP

Start at: 2018-09-08 01:45:03
End at: 2018-09-08 01:45:33
Local clock offset: -7.579 ms
Remote clock offset: 1.131 ms


# Below is generated by plot.py at 2018-09-08 02:16:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.12 Mbit/s
95th percentile per-packet one-way delay: 1071.955 ms
Loss rate: 5.56%
-- Flow 1:
Average throughput: 59.82 Mbit/s
95th percentile per-packet one-way delay: 1195.666 ms
Loss rate: 5.63%
-- Flow 2:
Average throughput: 39.35 Mbit/s
95th percentile per-packet one-way delay: 983.307 ms
Loss rate: 5.26%
-- Flow 3:
Average throughput: 30.53 Mbit/s
95th percentile per-packet one-way delay: 302.291 ms
Loss rate: 5.90%
```
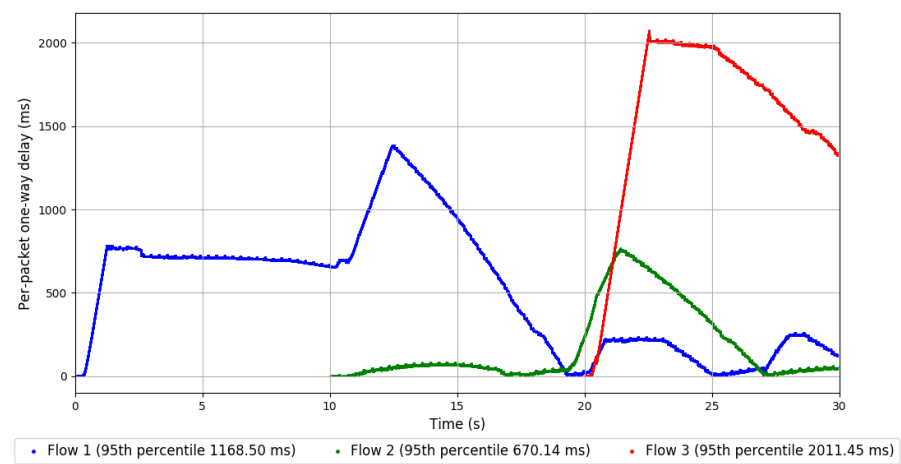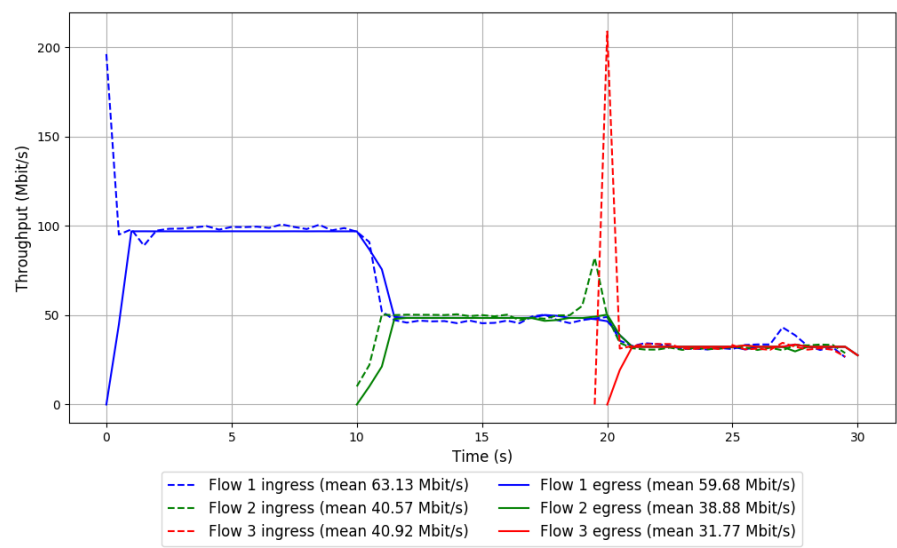
Run 4: Report of FillP — Data Link

Flow 1 ingress (mean 63.38 Mbit/s) --- Flow 1 egress (mean 59.82 Mbit/s)
Flow 2 ingress (mean 41.52 Mbit/s) --- Flow 2 egress (mean 39.35 Mbit/s)
Flow 3 ingress (mean 32.44 Mbit/s) --- Flow 3 egress (mean 30.53 Mbit/s)

Flow 1 (95th percentile 1195.67 ms)   Flow 2 (95th percentile 983.31 ms)   Flow 3 (95th percentile 302.29 ms)

42

```
Run 5: Statistics of FillP

Start at: 2018-09-08 02:05:50
End at: 2018-09-08 02:06:20
Local clock offset: -1.782 ms
Remote clock offset: 1.082 ms


# Below is generated by plot.py at 2018-09-08 02:17:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.10 Mbit/s
95th percentile per-packet one-way delay: 1775.876 ms
Loss rate: 7.34%
-- Flow 1:
Average throughput: 59.68 Mbit/s
95th percentile per-packet one-way delay: 1168.502 ms
Loss rate: 5.48%
-- Flow 2:
Average throughput: 38.88 Mbit/s
95th percentile per-packet one-way delay: 670.137 ms
Loss rate: 4.15%
-- Flow 3:
Average throughput: 31.77 Mbit/s
95th percentile per-packet one-way delay: 2011.453 ms
Loss rate: 22.37%
```
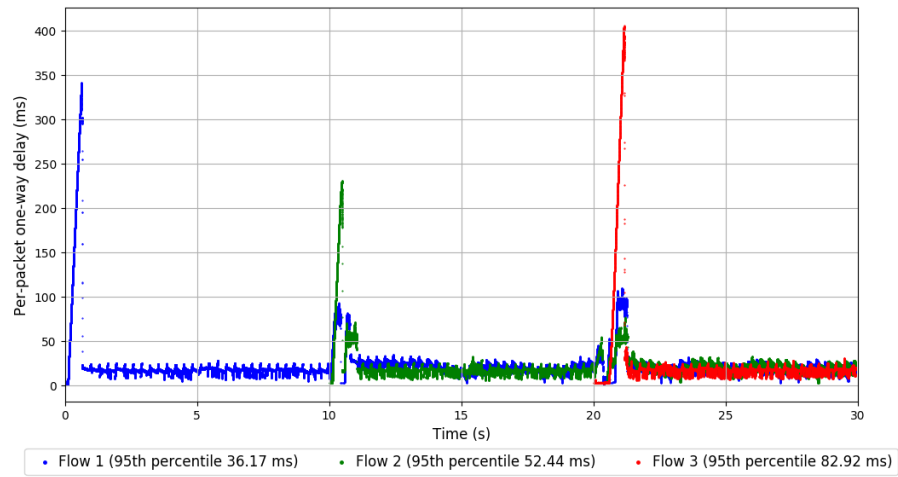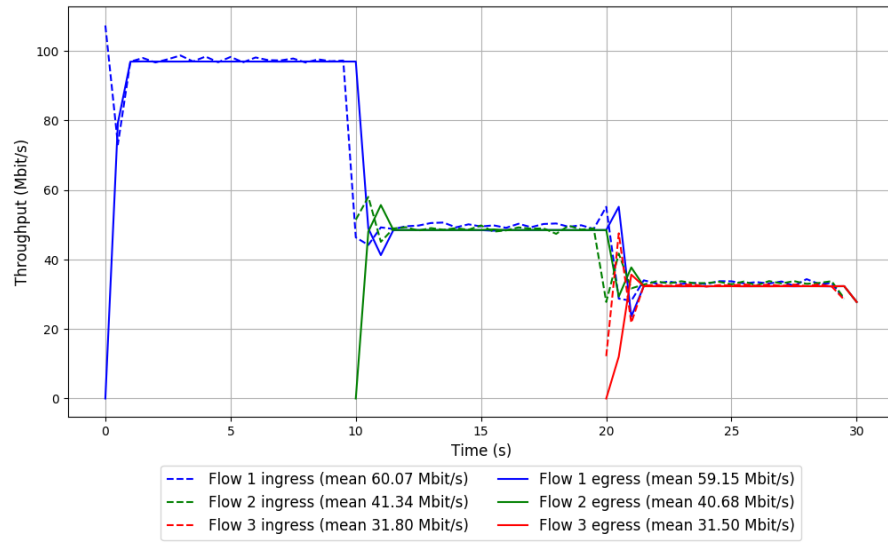
Run 5: Report of FillP — Data Link

44

```
Run 1: Statistics of FillP-Sheep

Start at: 2018-09-08 00:32:21
End at: 2018-09-08 00:32:51
Local clock offset: -3.09 ms
Remote clock offset: 0.354 ms


# Below is generated by plot.py at 2018-09-08 02:17:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.68 Mbit/s
95th percentile per-packet one-way delay: 50.445 ms
Loss rate: 1.48%
-- Flow 1:
Average throughput: 59.15 Mbit/s
95th percentile per-packet one-way delay: 36.166 ms
Loss rate: 1.51%
-- Flow 2:
Average throughput: 40.68 Mbit/s
95th percentile per-packet one-way delay: 52.442 ms
Loss rate: 1.62%
-- Flow 3:
Average throughput: 31.50 Mbit/s
95th percentile per-packet one-way delay: 82.915 ms
Loss rate: 1.00%
```
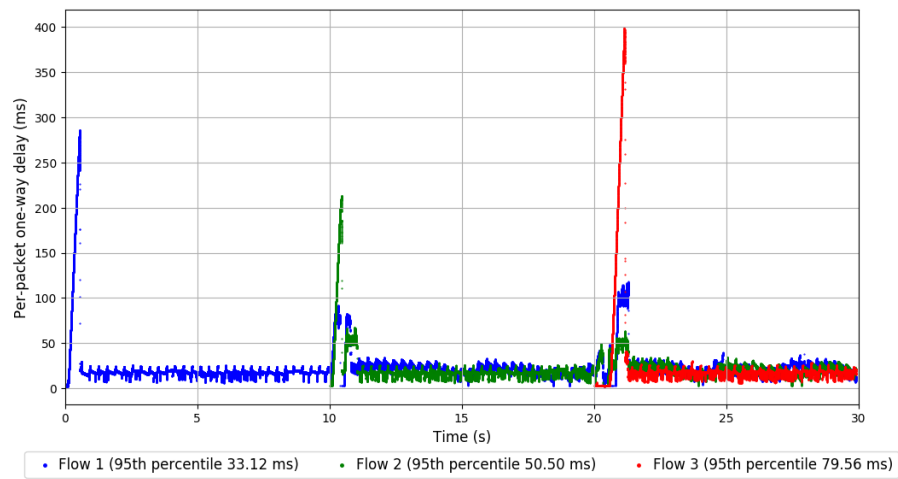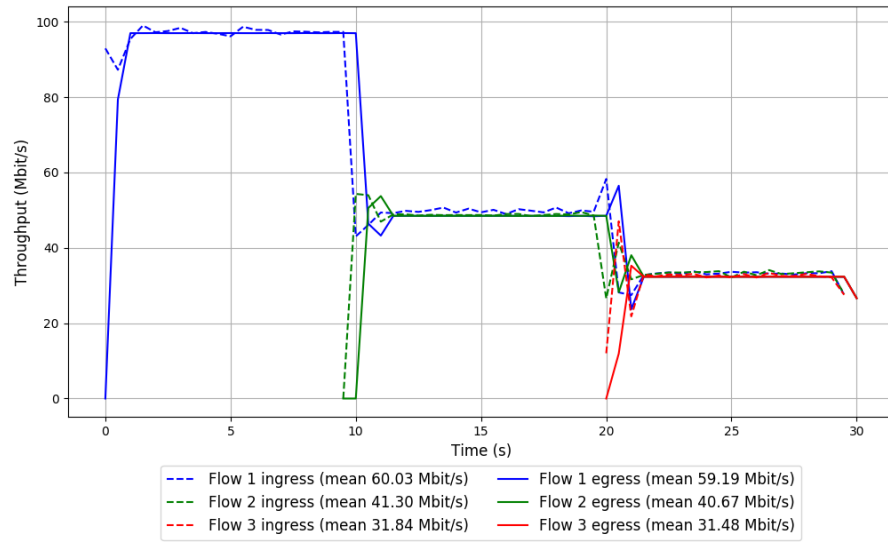
Run 1: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 60.07 Mbit/s)   Flow 1 egress (mean 59.15 Mbit/s)
Flow 2 ingress (mean 41.34 Mbit/s)   Flow 2 egress (mean 40.68 Mbit/s)
Flow 3 ingress (mean 31.80 Mbit/s)   Flow 3 egress (mean 31.50 Mbit/s)

Flow 1 (95th percentile 36.17 ms)   Flow 2 (95th percentile 52.44 ms)   Flow 3 (95th percentile 82.92 ms)

```
Run 2: Statistics of FillP-Sheep

Start at: 2018-09-08 00:53:07
End at: 2018-09-08 00:53:37
Local clock offset: -0.469 ms
Remote clock offset: 0.56 ms


# Below is generated by plot.py at 2018-09-08 02:17:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.68 Mbit/s
95th percentile per-packet one-way delay: 44.617 ms
Loss rate: 1.43%
-- Flow 1:
Average throughput: 59.19 Mbit/s
95th percentile per-packet one-way delay: 33.116 ms
Loss rate: 1.41%
-- Flow 2:
Average throughput: 40.67 Mbit/s
95th percentile per-packet one-way delay: 50.501 ms
Loss rate: 1.56%
-- Flow 3:
Average throughput: 31.48 Mbit/s
95th percentile per-packet one-way delay: 79.564 ms
Loss rate: 1.16%
```
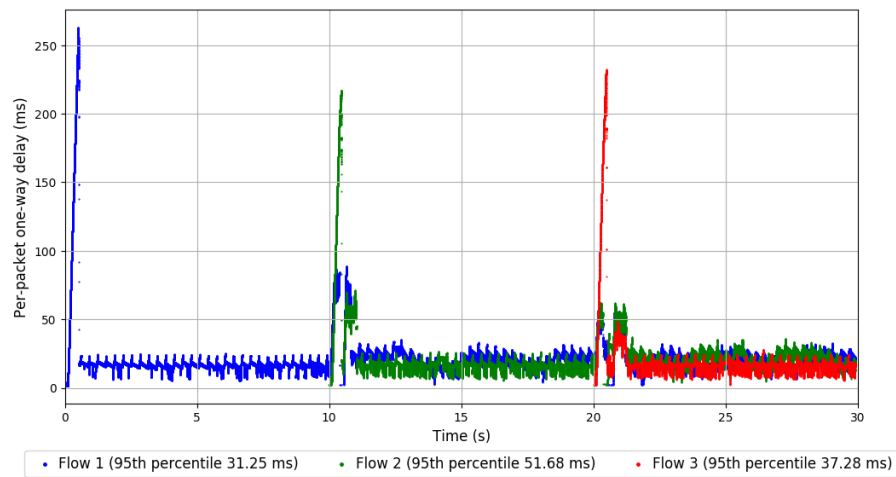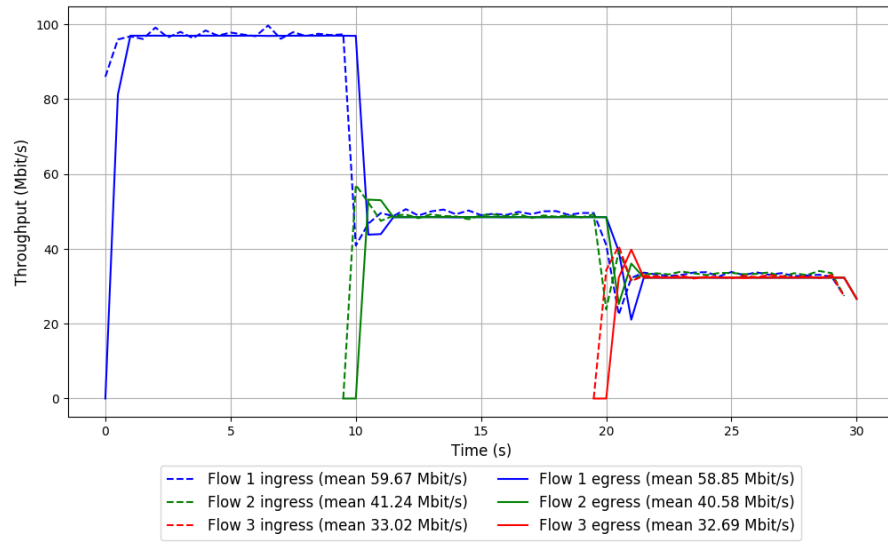
Run 2: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 60.03 Mbit/s)   Flow 1 egress (mean 59.19 Mbit/s)
Flow 2 ingress (mean 41.30 Mbit/s)   Flow 2 egress (mean 40.67 Mbit/s)
Flow 3 ingress (mean 31.84 Mbit/s)   Flow 3 egress (mean 31.48 Mbit/s)

Flow 1 (95th percentile 33.12 ms)   Flow 2 (95th percentile 50.50 ms)   Flow 3 (95th percentile 79.56 ms)

```
Run 3: Statistics of FillP-Sheep

Start at: 2018-09-08 01:13:54
End at: 2018-09-08 01:14:24
Local clock offset: 1.097 ms
Remote clock offset: 0.794 ms


# Below is generated by plot.py at 2018-09-08 02:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.70 Mbit/s
95th percentile per-packet one-way delay: 44.059 ms
Loss rate: 1.41%
-- Flow 1:
Average throughput: 58.85 Mbit/s
95th percentile per-packet one-way delay: 31.248 ms
Loss rate: 1.38%
-- Flow 2:
Average throughput: 40.58 Mbit/s
95th percentile per-packet one-way delay: 51.682 ms
Loss rate: 1.63%
-- Flow 3:
Average throughput: 32.69 Mbit/s
95th percentile per-packet one-way delay: 37.284 ms
Loss rate: 1.04%
```
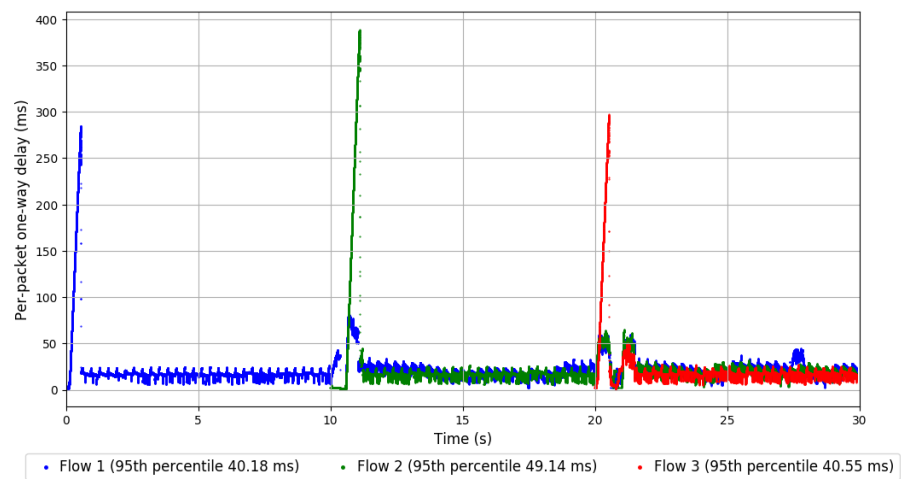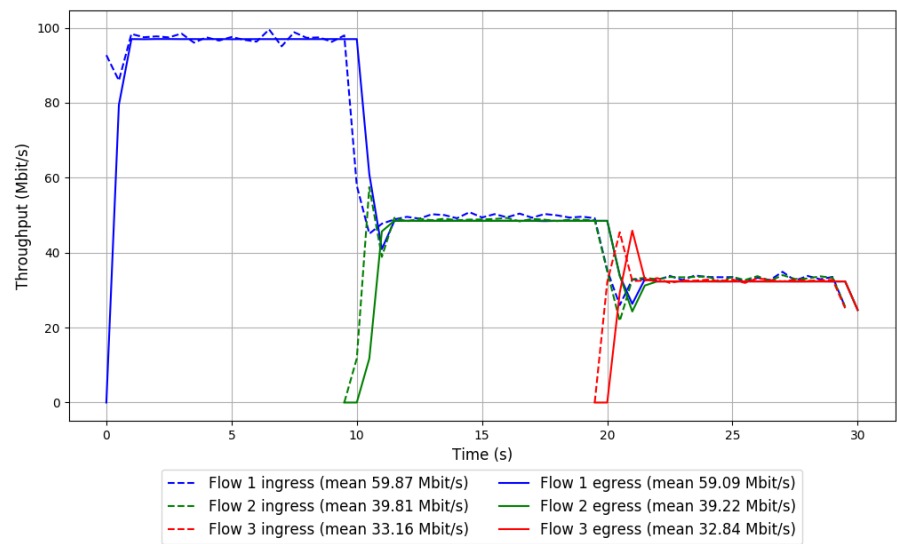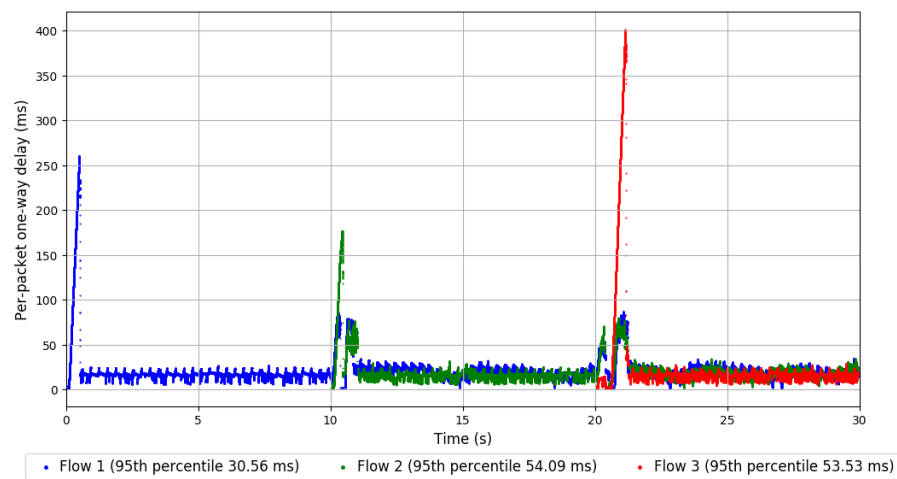
Run 3: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 59.67 Mbit/s) --- Flow 1 egress (mean 58.85 Mbit/s) ---
Flow 2 ingress (mean 41.24 Mbit/s) --- Flow 2 egress (mean 40.58 Mbit/s) ---
Flow 3 ingress (mean 33.02 Mbit/s) --- Flow 3 egress (mean 32.69 Mbit/s) ---

Flow 1 (95th percentile 31.25 ms) • Flow 2 (95th percentile 51.68 ms) • Flow 3 (95th percentile 37.28 ms)

```
Run 4: Statistics of FillP-Sheep

Start at: 2018-09-08 01:34:42
End at: 2018-09-08 01:35:12
Local clock offset: -7.004 ms
Remote clock offset: 0.98 ms


# Below is generated by plot.py at 2018-09-08 02:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.09 Mbit/s
95th percentile per-packet one-way delay: 44.315 ms
Loss rate: 1.33%
-- Flow 1:
Average throughput: 59.09 Mbit/s
95th percentile per-packet one-way delay: 40.179 ms
Loss rate: 1.31%
-- Flow 2:
Average throughput: 39.22 Mbit/s
95th percentile per-packet one-way delay: 49.141 ms
Loss rate: 1.49%
-- Flow 3:
Average throughput: 32.84 Mbit/s
95th percentile per-packet one-way delay: 40.554 ms
Loss rate: 1.01%
```
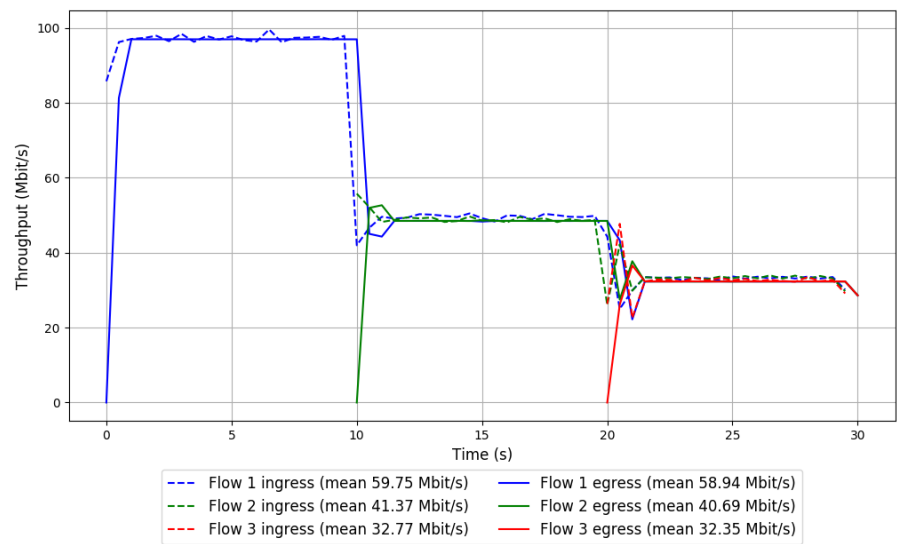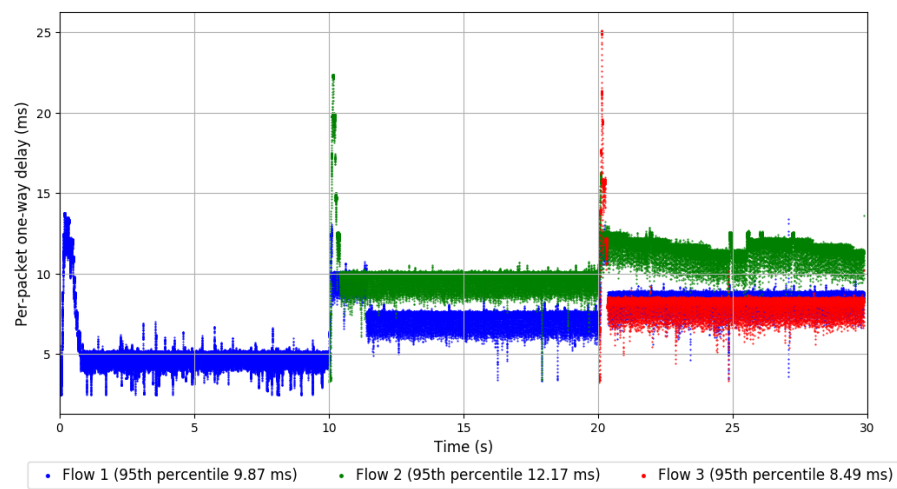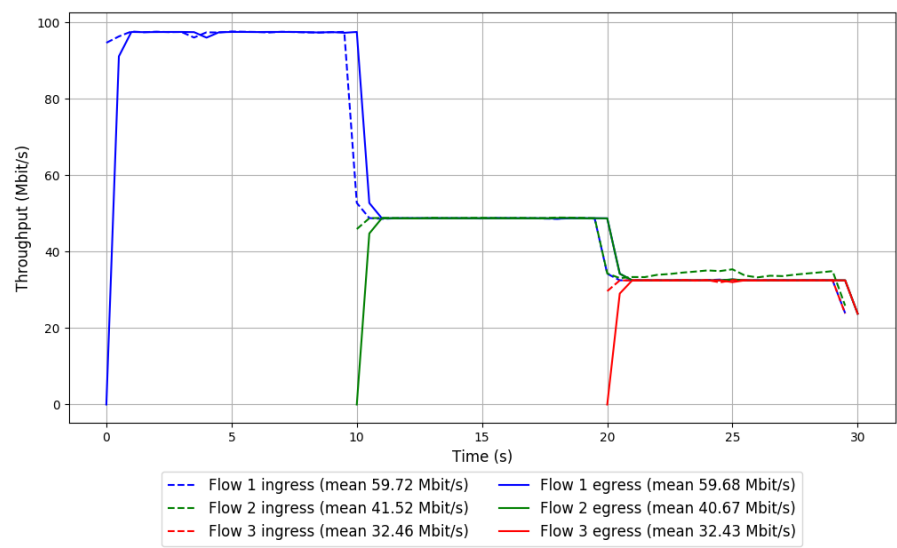
Run 4: Report of FillP-Sheep — Data Link

```
Run 5: Statistics of FillP-Sheep

Start at: 2018-09-08 01:55:29
End at: 2018-09-08 01:55:59
Local clock offset: -3.859 ms
Remote clock offset: 1.162 ms


# Below is generated by plot.py at 2018-09-08 02:18:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.70 Mbit/s
95th percentile per-packet one-way delay: 45.443 ms
Loss rate: 1.45%
-- Flow 1:
Average throughput: 58.94 Mbit/s
95th percentile per-packet one-way delay: 30.563 ms
Loss rate: 1.37%
-- Flow 2:
Average throughput: 40.69 Mbit/s
95th percentile per-packet one-way delay: 54.088 ms
Loss rate: 1.69%
-- Flow 3:
Average throughput: 32.35 Mbit/s
95th percentile per-packet one-way delay: 53.528 ms
Loss rate: 1.28%
```
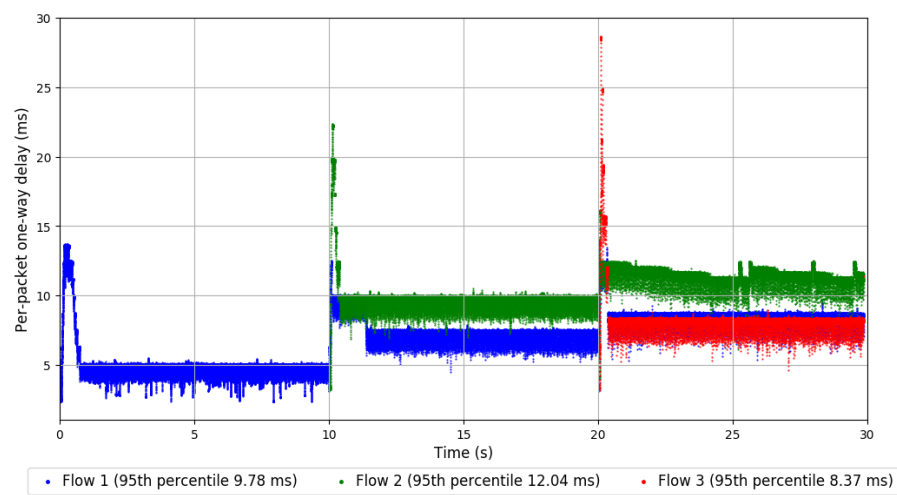
Run 5: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 59.75 Mbit/s) --- Flow 1 egress (mean 58.94 Mbit/s)
Flow 2 ingress (mean 41.37 Mbit/s) --- Flow 2 egress (mean 40.69 Mbit/s)
Flow 3 ingress (mean 32.77 Mbit/s) --- Flow 3 egress (mean 32.35 Mbit/s)

Flow 1 (95th percentile 30.56 ms)   Flow 2 (95th percentile 54.09 ms)   Flow 3 (95th percentile 53.53 ms)

```
Run 1: Statistics of Indigo

Start at: 2018-09-08 00:43:50
End at: 2018-09-08 00:44:20
Local clock offset: -3.516 ms
Remote clock offset: 0.434 ms


# Below is generated by plot.py at 2018-09-08 02:18:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.39 Mbit/s
95th percentile per-packet one-way delay: 11.816 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 59.68 Mbit/s
95th percentile per-packet one-way delay: 9.871 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 40.67 Mbit/s
95th percentile per-packet one-way delay: 12.172 ms
Loss rate: 2.08%
-- Flow 3:
Average throughput: 32.43 Mbit/s
95th percentile per-packet one-way delay: 8.486 ms
Loss rate: 0.10%
```
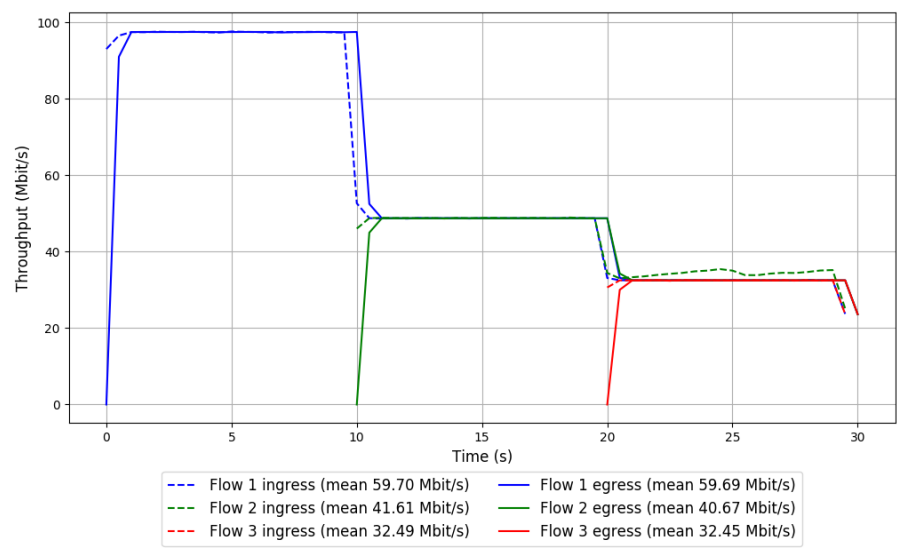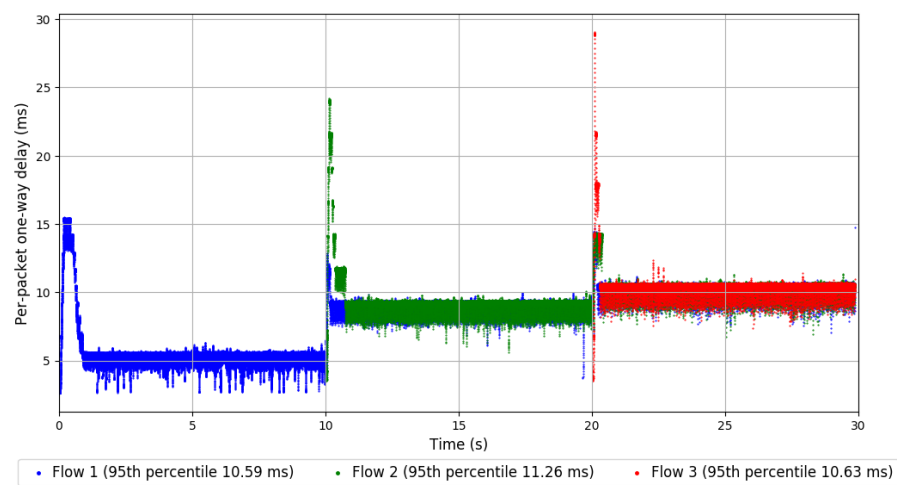
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-09-08 01:04:36
End at: 2018-09-08 01:05:06
Local clock offset: 1.235 ms
Remote clock offset: 0.688 ms


# Below is generated by plot.py at 2018-09-08 02:18:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.41 Mbit/s
95th percentile per-packet one-way delay: 11.647 ms
Loss rate: 0.67%
-- Flow 1:
Average throughput: 59.69 Mbit/s
95th percentile per-packet one-way delay: 9.776 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 40.67 Mbit/s
95th percentile per-packet one-way delay: 12.038 ms
Loss rate: 2.27%
-- Flow 3:
Average throughput: 32.45 Mbit/s
95th percentile per-packet one-way delay: 8.367 ms
Loss rate: 0.10%
```
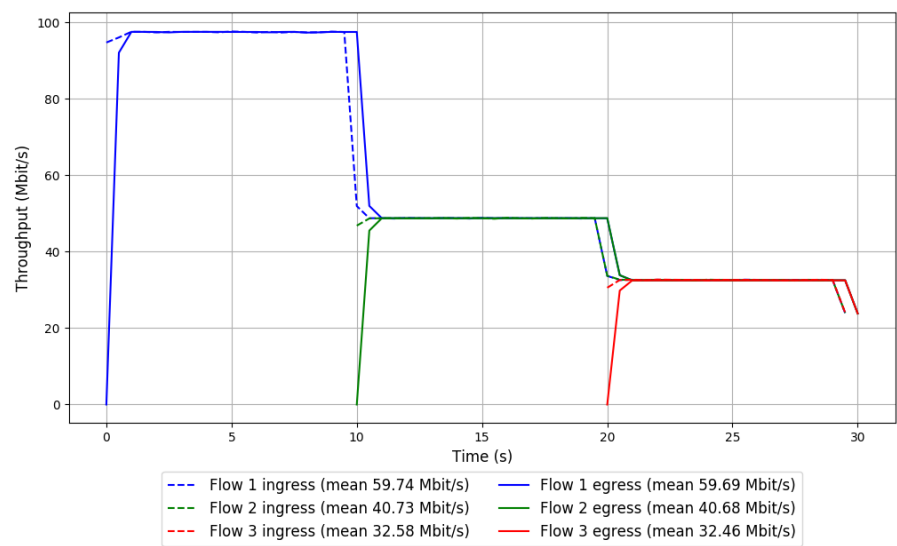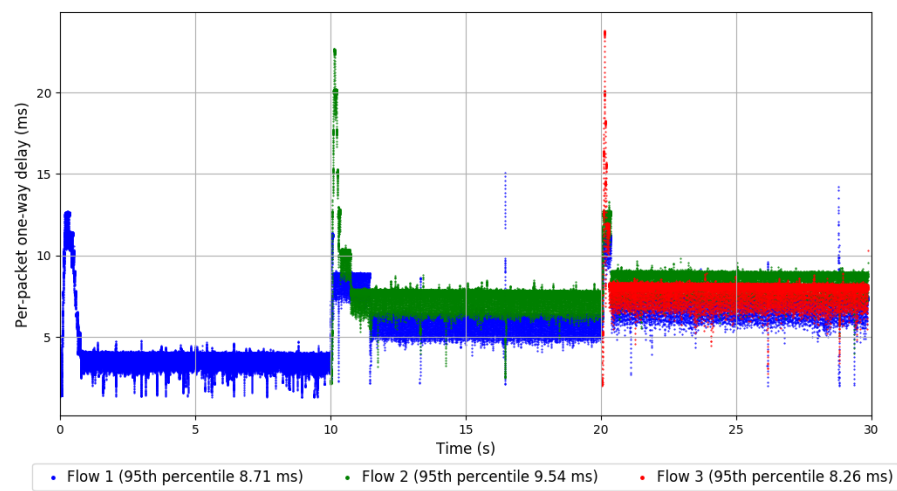
Run 2: Report of Indigo — Data Link

Flow 1 ingress (mean 59.70 Mbit/s) --- Flow 1 egress (mean 59.69 Mbit/s)
Flow 2 ingress (mean 41.61 Mbit/s) --- Flow 2 egress (mean 40.67 Mbit/s)
Flow 3 ingress (mean 32.49 Mbit/s) --- Flow 3 egress (mean 32.45 Mbit/s)

Flow 1 (95th percentile 9.78 ms)   Flow 2 (95th percentile 12.04 ms)   Flow 3 (95th percentile 8.37 ms)

```
Run 3: Statistics of Indigo

Start at: 2018-09-08 01:25:25
End at: 2018-09-08 01:25:55
Local clock offset: -4.035 ms
Remote clock offset: 0.836 ms


# Below is generated by plot.py at 2018-09-08 02:18:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.42 Mbit/s
95th percentile per-packet one-way delay: 10.626 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 59.69 Mbit/s
95th percentile per-packet one-way delay: 10.592 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 40.68 Mbit/s
95th percentile per-packet one-way delay: 11.264 ms
Loss rate: 0.16%
-- Flow 3:
Average throughput: 32.46 Mbit/s
95th percentile per-packet one-way delay: 10.635 ms
Loss rate: 0.42%
```
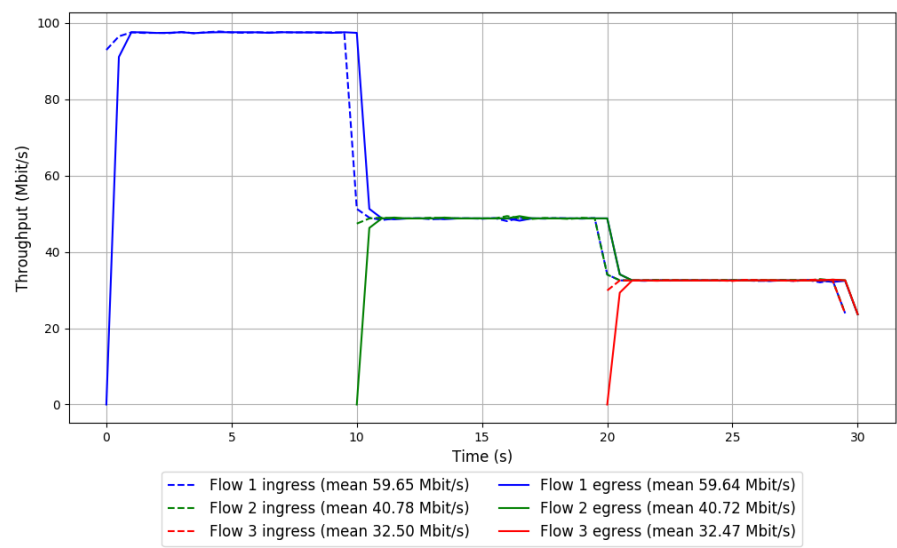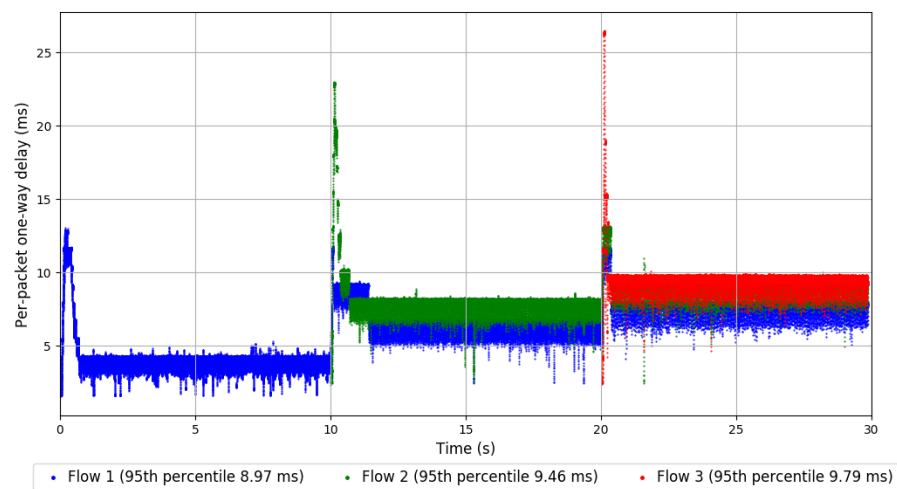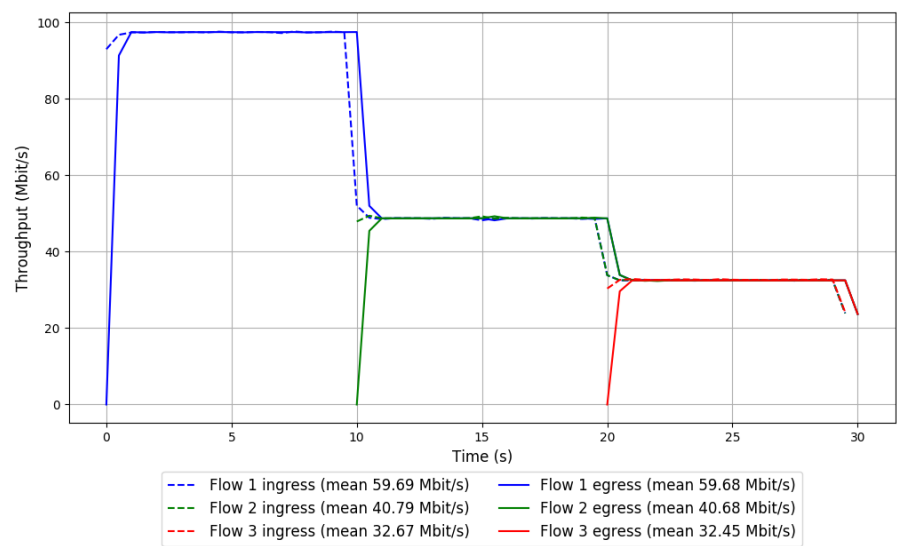
Run 3: Report of Indigo — Data Link

Flow 1 ingress (mean 59.74 Mbit/s) — Flow 1 egress (mean 59.69 Mbit/s)
Flow 2 ingress (mean 40.73 Mbit/s) — Flow 2 egress (mean 40.68 Mbit/s)
Flow 3 ingress (mean 32.58 Mbit/s) — Flow 3 egress (mean 32.46 Mbit/s)

Flow 1 (95th percentile 10.59 ms)   Flow 2 (95th percentile 11.26 ms)   Flow 3 (95th percentile 10.63 ms)

```
Run 4: Statistics of Indigo

Start at: 2018-09-08 01:46:12
End at: 2018-09-08 01:46:42
Local clock offset: -7.517 ms
Remote clock offset: 1.054 ms


# Below is generated by plot.py at 2018-09-08 02:18:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.40 Mbit/s
95th percentile per-packet one-way delay: 8.924 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 59.64 Mbit/s
95th percentile per-packet one-way delay: 8.713 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 40.72 Mbit/s
95th percentile per-packet one-way delay: 9.540 ms
Loss rate: 0.16%
-- Flow 3:
Average throughput: 32.47 Mbit/s
95th percentile per-packet one-way delay: 8.257 ms
Loss rate: 0.10%
```
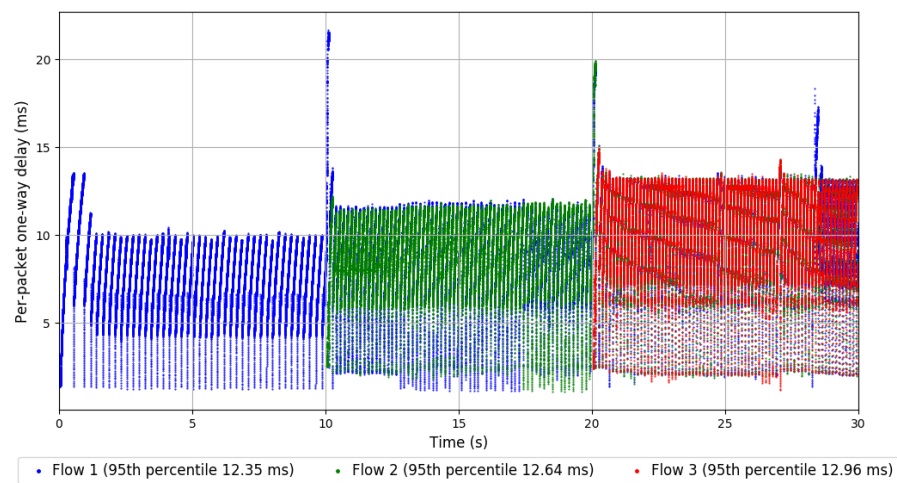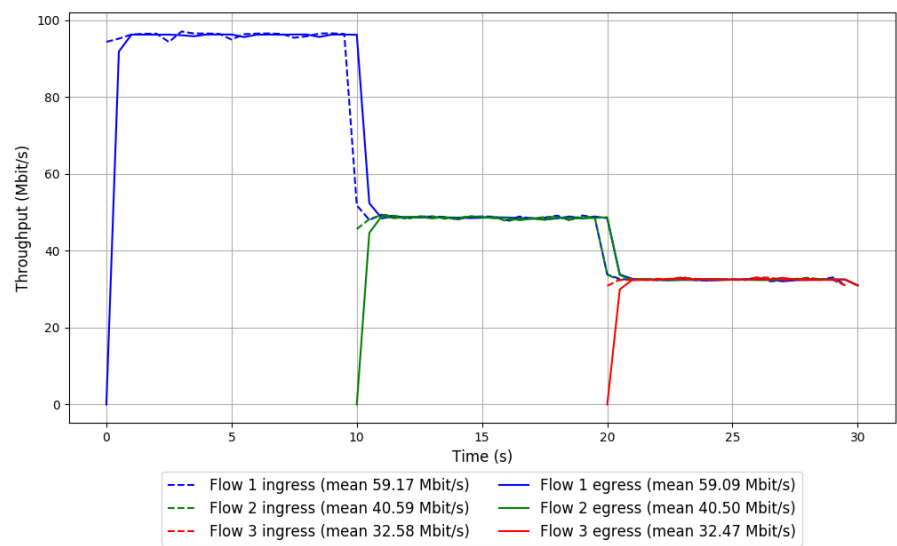
Run 4: Report of Indigo — Data Link

Flow 1 ingress (mean 59.65 Mbit/s) --- Flow 1 egress (mean 59.64 Mbit/s)
Flow 2 ingress (mean 40.78 Mbit/s) --- Flow 2 egress (mean 40.72 Mbit/s)
Flow 3 ingress (mean 32.50 Mbit/s) --- Flow 3 egress (mean 32.47 Mbit/s)

Flow 1 (95th percentile 8.71 ms) • Flow 2 (95th percentile 9.54 ms) • Flow 3 (95th percentile 8.26 ms)

```
Run 5: Statistics of Indigo

Start at: 2018-09-08 02:06:59
End at: 2018-09-08 02:07:29
Local clock offset: -2.481 ms
Remote clock offset: 1.093 ms


# Below is generated by plot.py at 2018-09-08 02:18:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.42 Mbit/s
95th percentile per-packet one-way delay: 9.713 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 59.68 Mbit/s
95th percentile per-packet one-way delay: 8.975 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 40.68 Mbit/s
95th percentile per-packet one-way delay: 9.461 ms
Loss rate: 0.27%
-- Flow 3:
Average throughput: 32.45 Mbit/s
95th percentile per-packet one-way delay: 9.795 ms
Loss rate: 0.72%
```
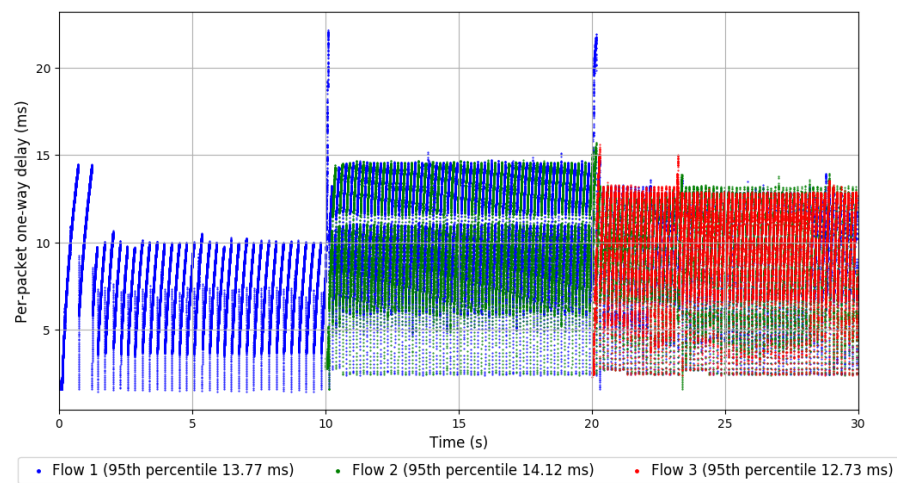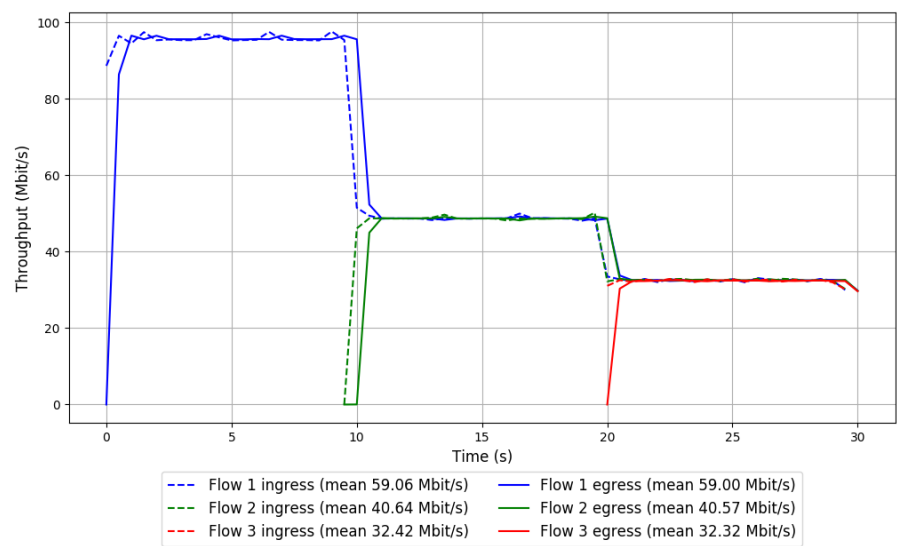
Run 5: Report of Indigo — Data Link

- - - - Flow 1 ingress (mean 59.69 Mbit/s) ——— Flow 1 egress (mean 59.68 Mbit/s)
- - - - Flow 2 ingress (mean 40.79 Mbit/s) ——— Flow 2 egress (mean 40.68 Mbit/s)
- - - - Flow 3 ingress (mean 32.67 Mbit/s) ——— Flow 3 egress (mean 32.45 Mbit/s)

• Flow 1 (95th percentile 8.97 ms)   • Flow 2 (95th percentile 9.46 ms)   • Flow 3 (95th percentile 9.79 ms)

```
Run 1: Statistics of LEDBAT

Start at: 2018-09-08 00:45:00
End at: 2018-09-08 00:45:30
Local clock offset: -4.289 ms
Remote clock offset: 0.525 ms

# Below is generated by plot.py at 2018-09-08 02:18:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.84 Mbit/s
95th percentile per-packet one-way delay: 12.642 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 59.09 Mbit/s
95th percentile per-packet one-way delay: 12.351 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 40.50 Mbit/s
95th percentile per-packet one-way delay: 12.644 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 32.47 Mbit/s
95th percentile per-packet one-way delay: 12.962 ms
Loss rate: 0.38%
```
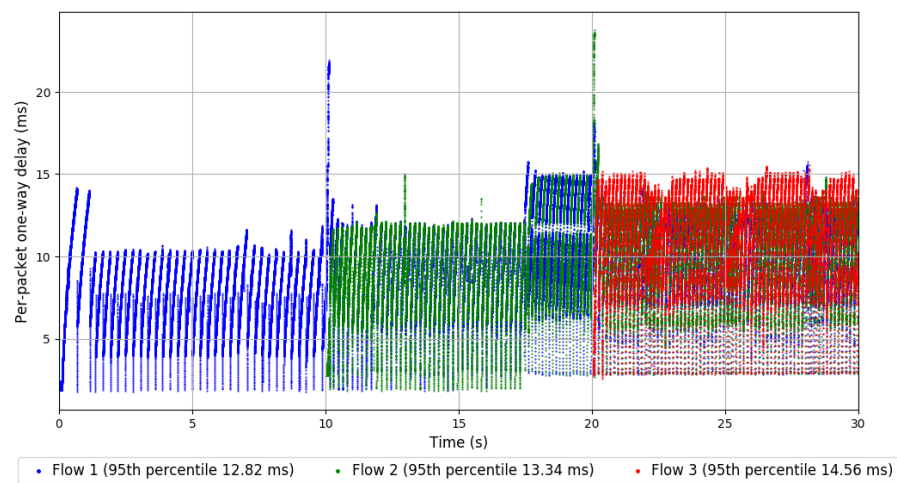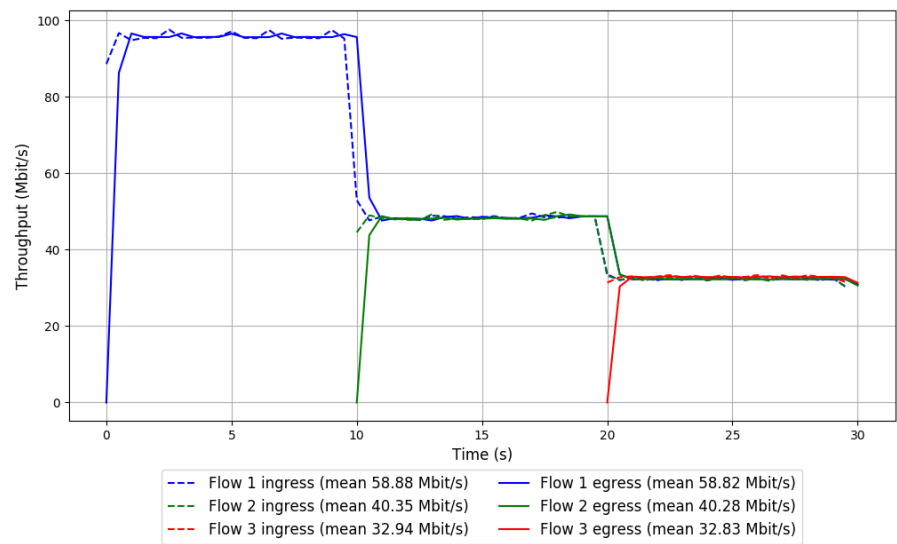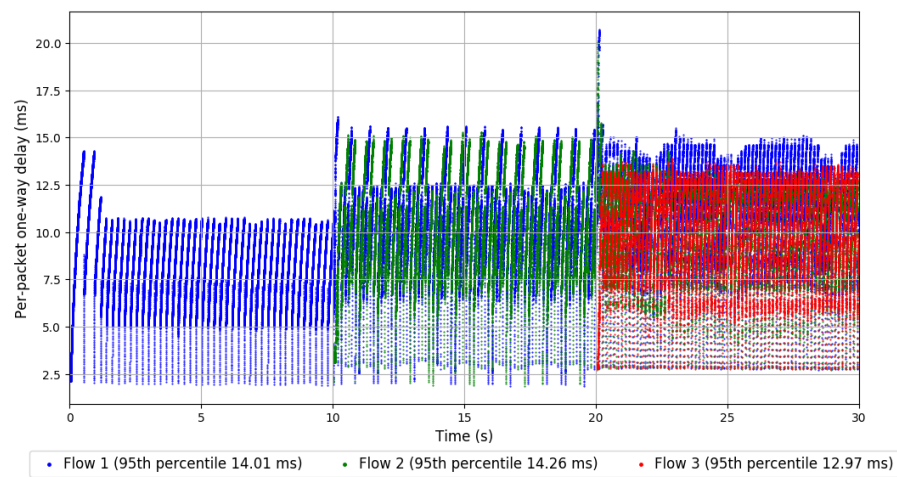
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-09-08 01:05:47
End at: 2018-09-08 01:06:17
Local clock offset: 0.522 ms
Remote clock offset: 0.668 ms

# Below is generated by plot.py at 2018-09-08 02:19:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.78 Mbit/s
95th percentile per-packet one-way delay: 13.869 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 59.00 Mbit/s
95th percentile per-packet one-way delay: 13.770 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 40.57 Mbit/s
95th percentile per-packet one-way delay: 14.118 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 32.32 Mbit/s
95th percentile per-packet one-way delay: 12.730 ms
Loss rate: 0.36%
```
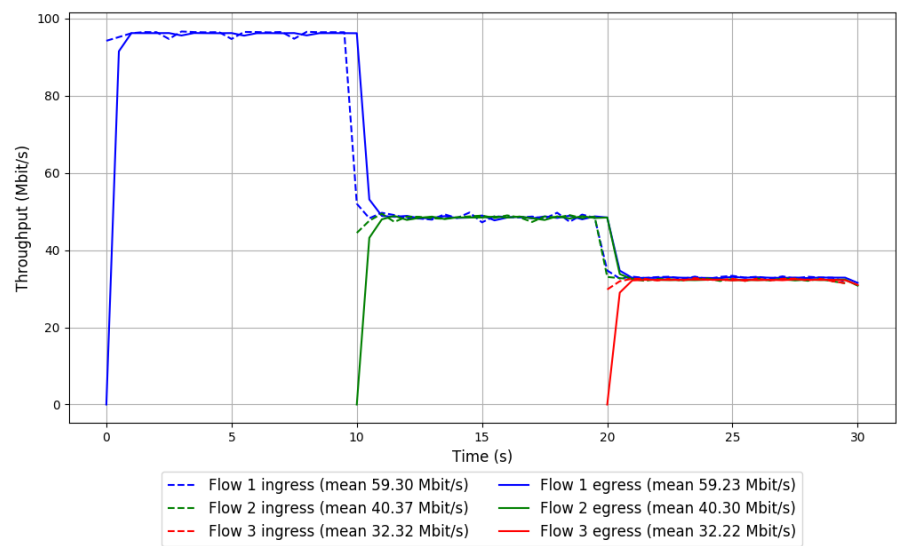
Run 2: Report of LEDBAT — Data Link

Flow 1 ingress (mean 59.06 Mbit/s) --- Flow 1 egress (mean 59.00 Mbit/s)
Flow 2 ingress (mean 40.64 Mbit/s) --- Flow 2 egress (mean 40.57 Mbit/s)
Flow 3 ingress (mean 32.42 Mbit/s) --- Flow 3 egress (mean 32.32 Mbit/s)

Flow 1 (95th percentile 13.77 ms) Flow 2 (95th percentile 14.12 ms) Flow 3 (95th percentile 12.73 ms)

68

```
Run 3: Statistics of LEDBAT

Start at: 2018-09-08 01:26:35
End at: 2018-09-08 01:27:05
Local clock offset: -5.135 ms
Remote clock offset: 0.869 ms


# Below is generated by plot.py at 2018-09-08 02:19:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.54 Mbit/s
95th percentile per-packet one-way delay: 13.602 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 58.82 Mbit/s
95th percentile per-packet one-way delay: 12.823 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 40.28 Mbit/s
95th percentile per-packet one-way delay: 13.337 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 32.83 Mbit/s
95th percentile per-packet one-way delay: 14.564 ms
Loss rate: 0.37%
```
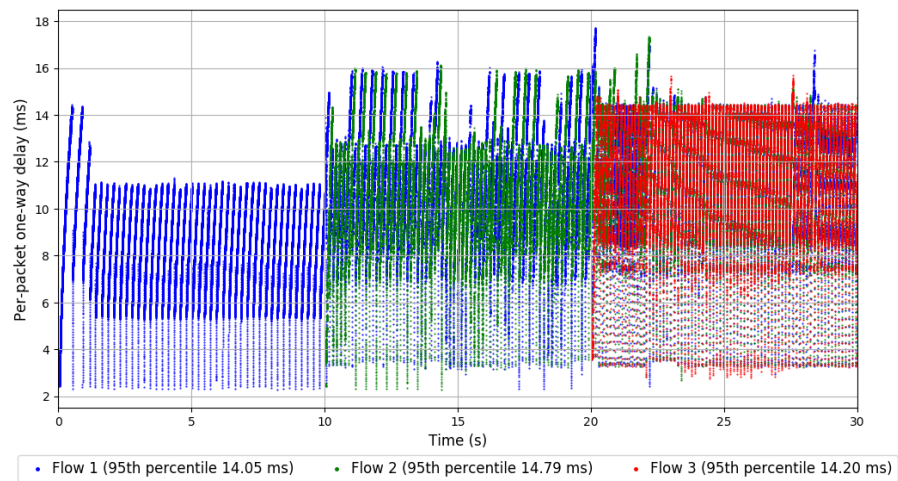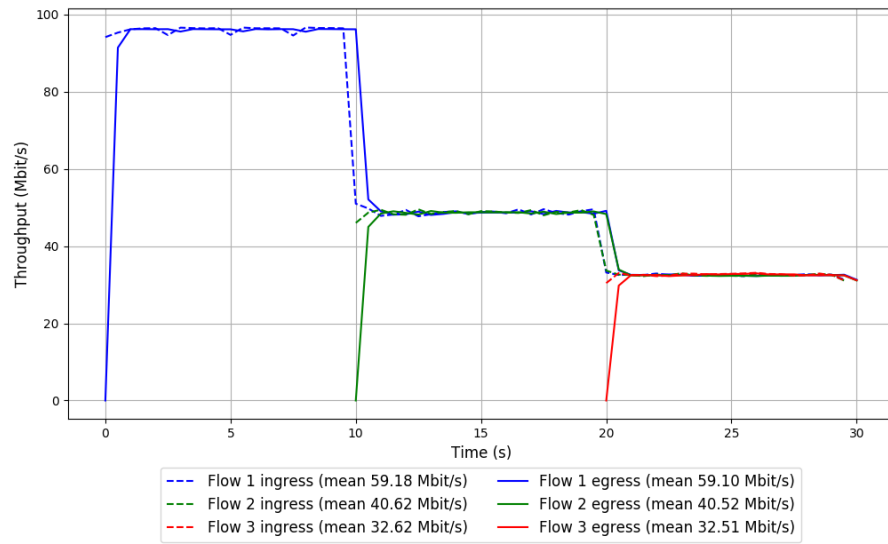
Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 58.88 Mbit/s) --- Flow 1 egress (mean 58.82 Mbit/s)
Flow 2 ingress (mean 40.35 Mbit/s) --- Flow 2 egress (mean 40.28 Mbit/s)
Flow 3 ingress (mean 32.94 Mbit/s) --- Flow 3 egress (mean 32.83 Mbit/s)

Flow 1 (95th percentile 12.82 ms)   Flow 2 (95th percentile 13.34 ms)   Flow 3 (95th percentile 14.56 ms)

70

```
Run 4: Statistics of LEDBAT

Start at: 2018-09-08 01:47:22
End at: 2018-09-08 01:47:52
Local clock offset: -6.012 ms
Remote clock offset: 1.164 ms


# Below is generated by plot.py at 2018-09-08 02:19:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.76 Mbit/s
95th percentile per-packet one-way delay: 14.005 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 59.23 Mbit/s
95th percentile per-packet one-way delay: 14.008 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 40.30 Mbit/s
95th percentile per-packet one-way delay: 14.257 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 32.22 Mbit/s
95th percentile per-packet one-way delay: 12.972 ms
Loss rate: 0.37%
```
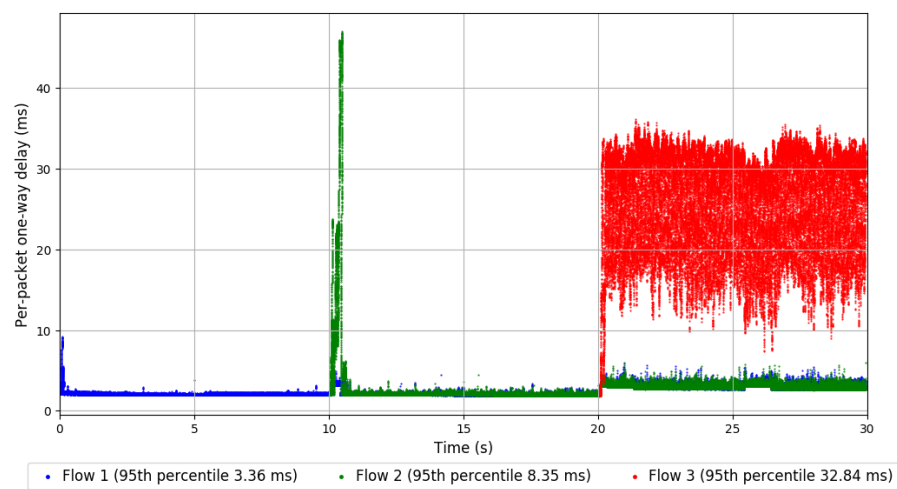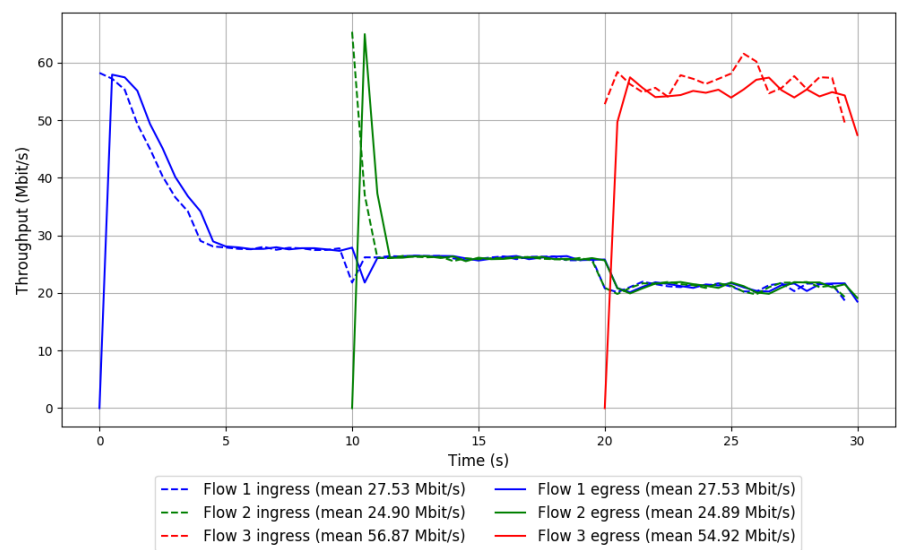
Run 4: Report of LEDBAT — Data Link

- - - Flow 1 ingress (mean 59.30 Mbit/s) —— Flow 1 egress (mean 59.23 Mbit/s)
- - - Flow 2 ingress (mean 40.37 Mbit/s) —— Flow 2 egress (mean 40.30 Mbit/s)
- - - Flow 3 ingress (mean 32.32 Mbit/s) —— Flow 3 egress (mean 32.22 Mbit/s)

• Flow 1 (95th percentile 14.01 ms)   • Flow 2 (95th percentile 14.26 ms)   • Flow 3 (95th percentile 12.97 ms)

72

```
Run 5: Statistics of LEDBAT

Start at: 2018-09-08 02:08:10
End at: 2018-09-08 02:08:40
Local clock offset: -1.624 ms
Remote clock offset: 1.034 ms

# Below is generated by plot.py at 2018-09-08 02:19:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.88 Mbit/s
95th percentile per-packet one-way delay: 14.292 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 59.10 Mbit/s
95th percentile per-packet one-way delay: 14.049 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 40.52 Mbit/s
95th percentile per-packet one-way delay: 14.788 ms
Loss rate: 0.24%
-- Flow 3:
Average throughput: 32.51 Mbit/s
95th percentile per-packet one-way delay: 14.204 ms
Loss rate: 0.40%
```
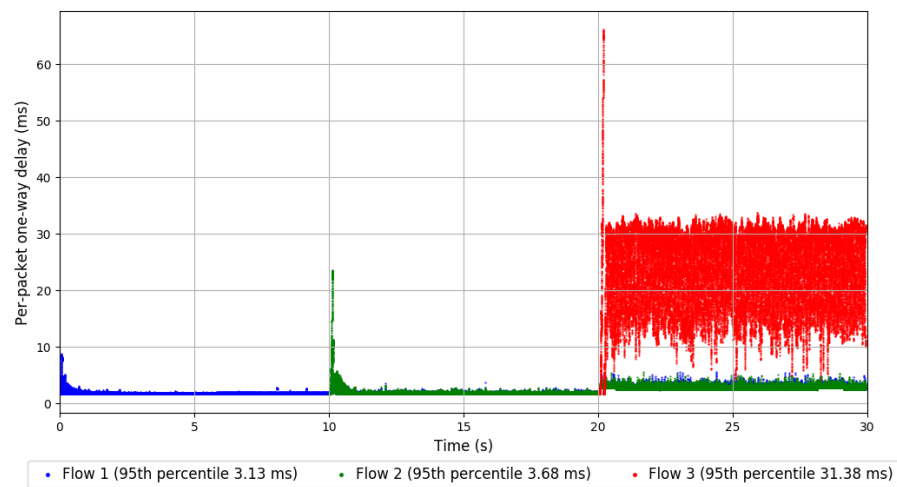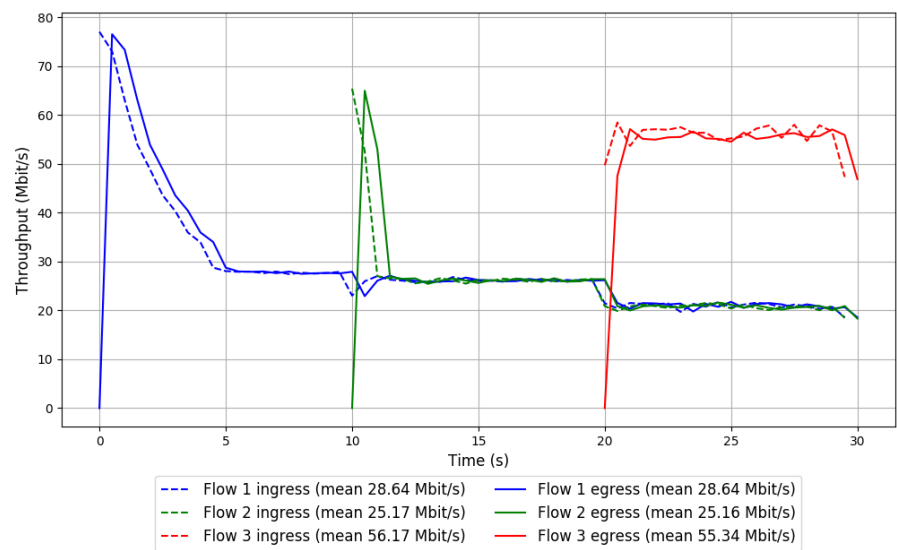
Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-09-08 00:46:11
End at: 2018-09-08 00:46:41
Local clock offset: -3.072 ms
Remote clock offset: 0.488 ms

# Below is generated by plot.py at 2018-09-08 02:19:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 62.29 Mbit/s
95th percentile per-packet one-way delay: 31.631 ms
Loss rate: 1.04%
-- Flow 1:
Average throughput: 27.53 Mbit/s
95th percentile per-packet one-way delay: 3.360 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 24.89 Mbit/s
95th percentile per-packet one-way delay: 8.350 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 54.92 Mbit/s
95th percentile per-packet one-way delay: 32.842 ms
Loss rate: 3.43%
```
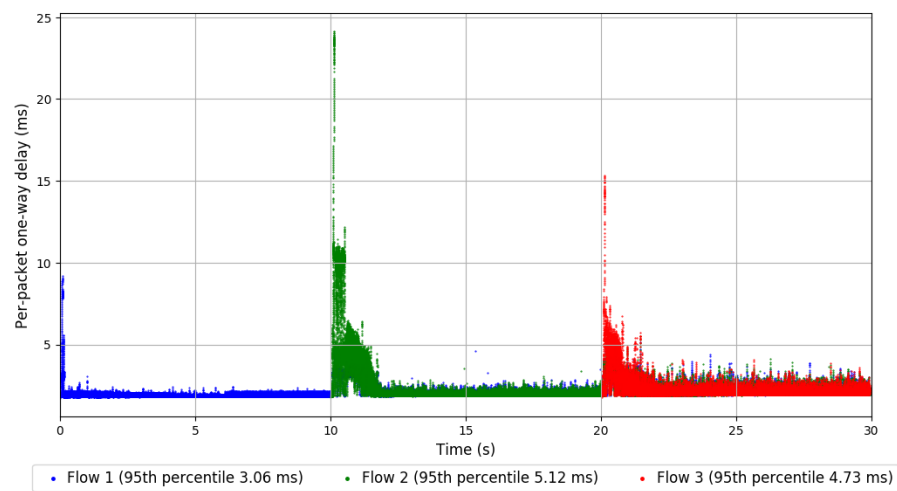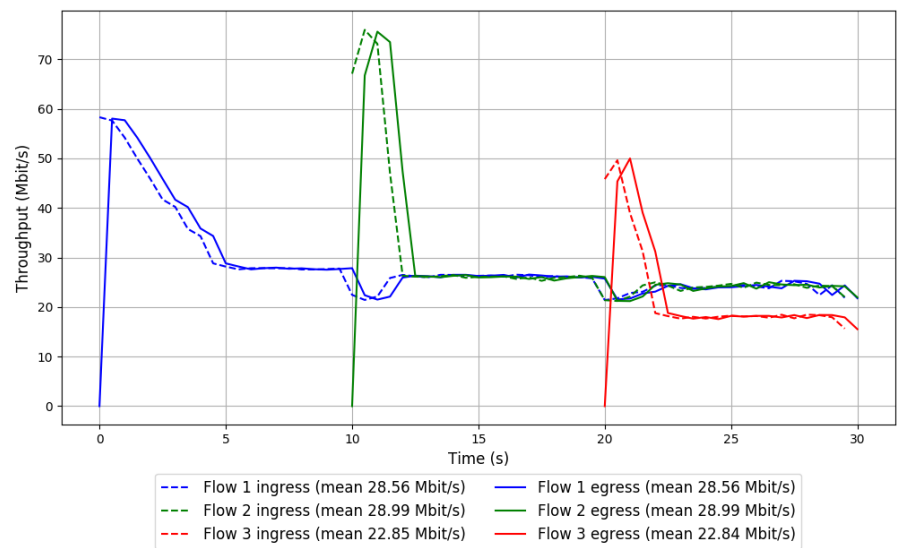
Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-09-08 01:06:57
End at: 2018-09-08 01:07:27
Local clock offset: 0.683 ms
Remote clock offset: 0.677 ms

# Below is generated by plot.py at 2018-09-08 02:19:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 63.72 Mbit/s
95th percentile per-packet one-way delay: 29.928 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 28.64 Mbit/s
95th percentile per-packet one-way delay: 3.127 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 25.16 Mbit/s
95th percentile per-packet one-way delay: 3.682 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 55.34 Mbit/s
95th percentile per-packet one-way delay: 31.378 ms
Loss rate: 1.48%
```
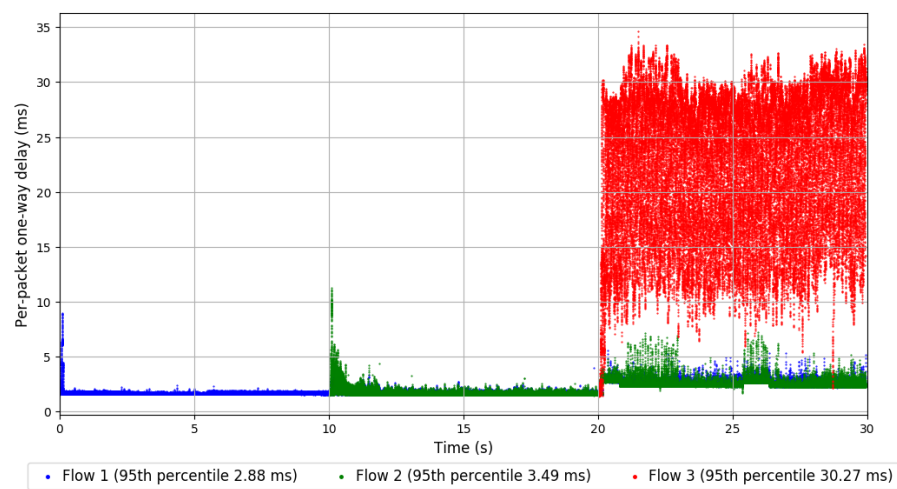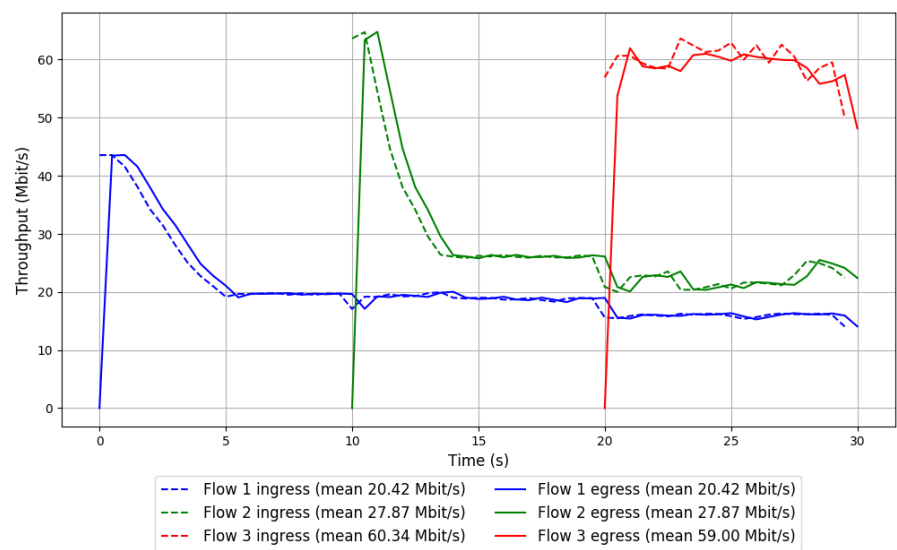
Run 2: Report of Indigo-Muses — Data Link

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-09-08 01:27:46
End at: 2018-09-08 01:28:16
Local clock offset: -5.502 ms
Remote clock offset: 0.906 ms

# Below is generated by plot.py at 2018-09-08 02:19:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 55.42 Mbit/s
95th percentile per-packet one-way delay: 4.169 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 28.56 Mbit/s
95th percentile per-packet one-way delay: 3.061 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 28.99 Mbit/s
95th percentile per-packet one-way delay: 5.119 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 22.84 Mbit/s
95th percentile per-packet one-way delay: 4.732 ms
Loss rate: 0.05%
```
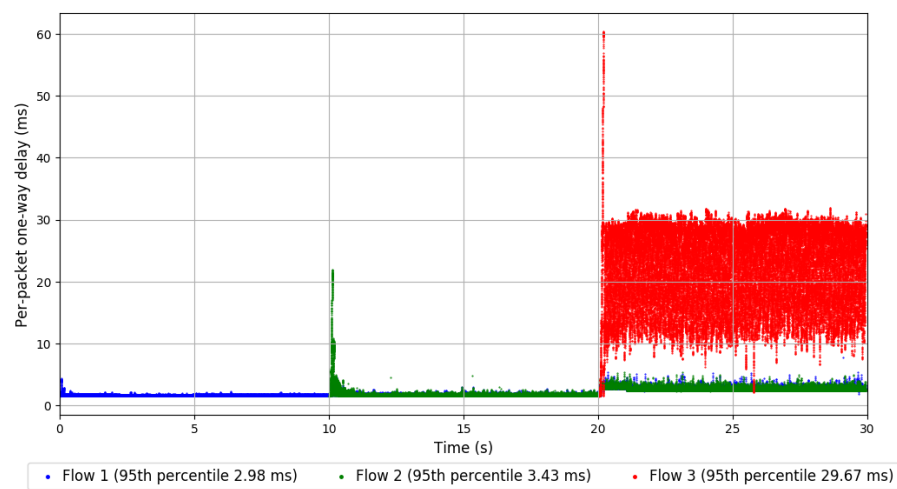
Run 3: Report of Indigo-Muses — Data Link

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-09-08 01:48:33
End at: 2018-09-08 01:49:03
Local clock offset: -6.105 ms
Remote clock offset: 0.989 ms


# Below is generated by plot.py at 2018-09-08 02:19:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 58.51 Mbit/s
95th percentile per-packet one-way delay: 28.613 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 20.42 Mbit/s
95th percentile per-packet one-way delay: 2.877 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 27.87 Mbit/s
95th percentile per-packet one-way delay: 3.491 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 59.00 Mbit/s
95th percentile per-packet one-way delay: 30.275 ms
Loss rate: 2.19%
```
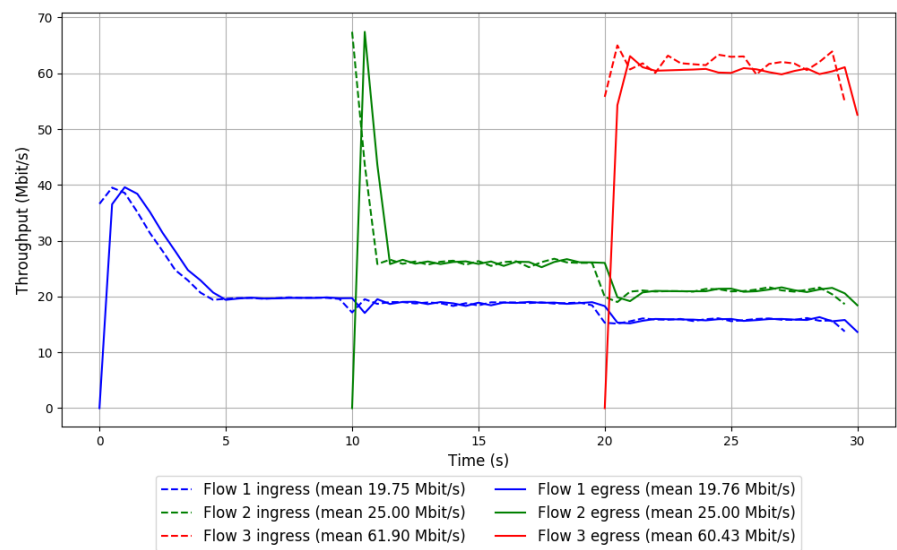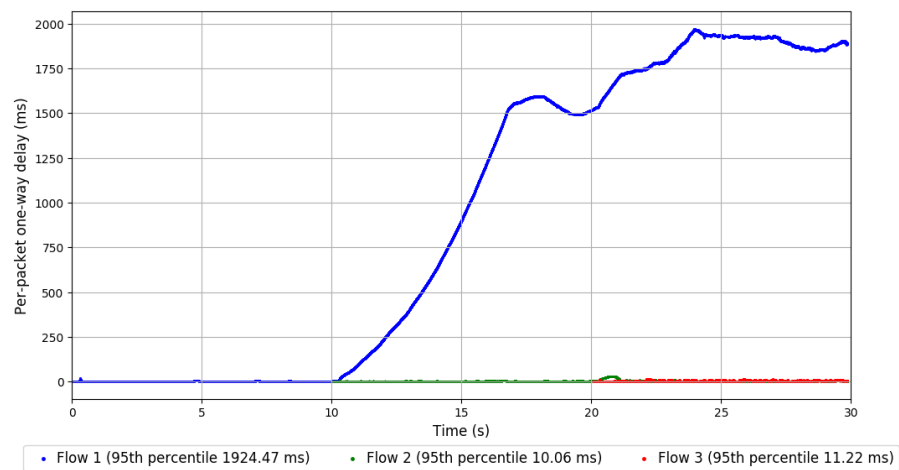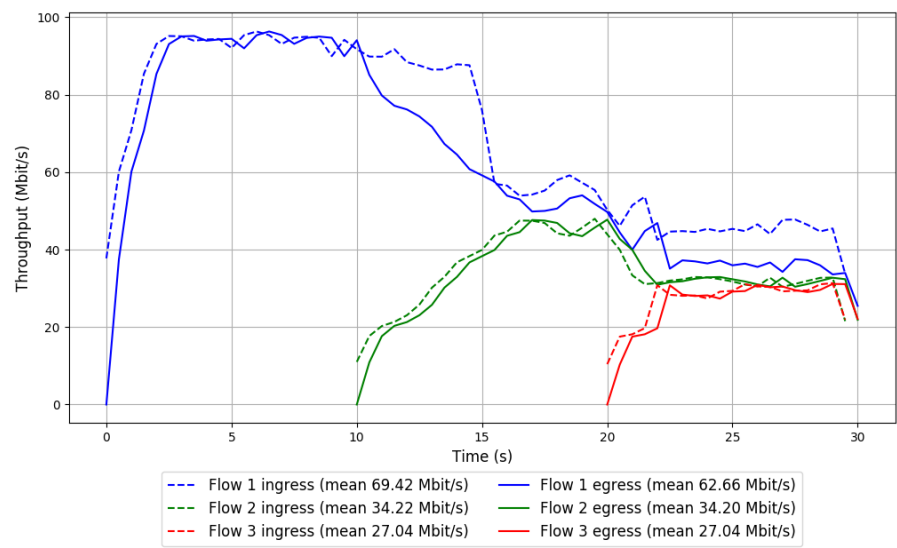
Run 4: Report of Indigo-Muses — Data Link

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-09-08 02:09:20
End at: 2018-09-08 02:09:50
Local clock offset: -2.339 ms
Remote clock offset: 1.073 ms


# Below is generated by plot.py at 2018-09-08 02:19:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 56.41 Mbit/s
95th percentile per-packet one-way delay: 28.694 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 19.76 Mbit/s
95th percentile per-packet one-way delay: 2.978 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 25.00 Mbit/s
95th percentile per-packet one-way delay: 3.431 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 60.43 Mbit/s
95th percentile per-packet one-way delay: 29.673 ms
Loss rate: 2.36%
```

Run 5: Report of Indigo-Muses — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-08 00:30:03
End at: 2018-09-08 00:30:33
Local clock offset: -3.031 ms
Remote clock offset: 0.343 ms


# Below is generated by plot.py at 2018-09-08 02:20:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.27 Mbit/s
95th percentile per-packet one-way delay: 1898.947 ms
Loss rate: 6.71%
-- Flow 1:
Average throughput: 62.66 Mbit/s
95th percentile per-packet one-way delay: 1924.471 ms
Loss rate: 9.75%
-- Flow 2:
Average throughput: 34.20 Mbit/s
95th percentile per-packet one-way delay: 10.060 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 27.04 Mbit/s
95th percentile per-packet one-way delay: 11.225 ms
Loss rate: 0.08%
```
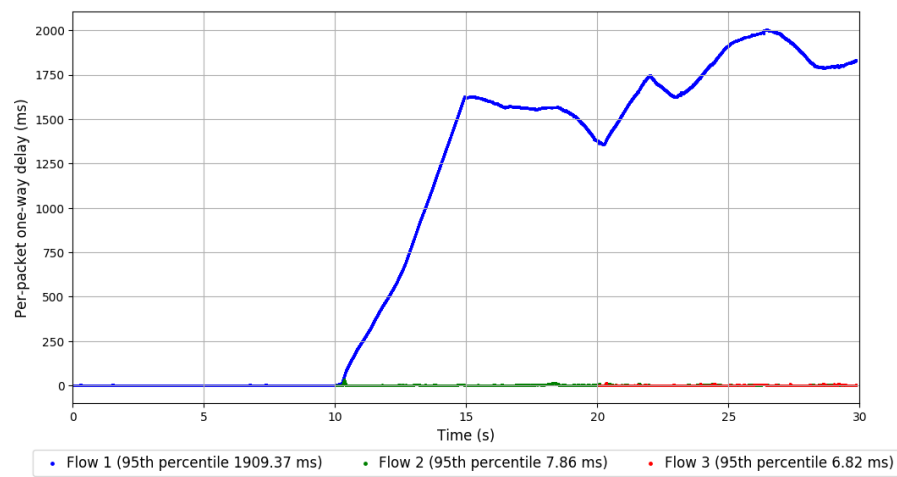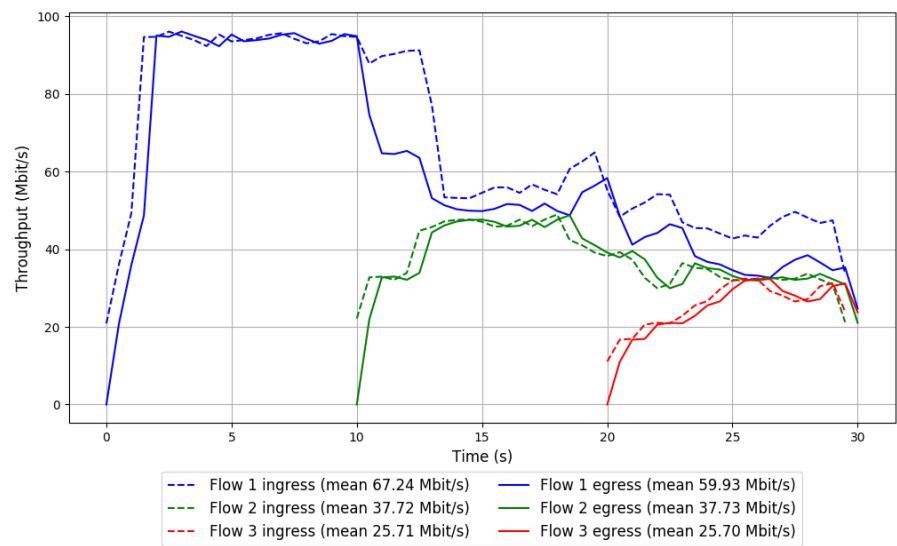
Run 1: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 69.42 Mbit/s)   Flow 1 egress (mean 62.66 Mbit/s)
Flow 2 ingress (mean 34.22 Mbit/s)   Flow 2 egress (mean 34.20 Mbit/s)
Flow 3 ingress (mean 27.04 Mbit/s)   Flow 3 egress (mean 27.04 Mbit/s)

Flow 1 (95th percentile 1924.47 ms)   Flow 2 (95th percentile 10.06 ms)   Flow 3 (95th percentile 11.22 ms)

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-09-08 00:50:50
End at: 2018-09-08 00:51:20
Local clock offset: -1.114 ms
Remote clock offset: 0.486 ms


# Below is generated by plot.py at 2018-09-08 02:20:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.47 Mbit/s
95th percentile per-packet one-way delay: 1815.870 ms
Loss rate: 7.26%
-- Flow 1:
Average throughput: 59.93 Mbit/s
95th percentile per-packet one-way delay: 1909.369 ms
Loss rate: 10.87%
-- Flow 2:
Average throughput: 37.73 Mbit/s
95th percentile per-packet one-way delay: 7.864 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 25.70 Mbit/s
95th percentile per-packet one-way delay: 6.822 ms
Loss rate: 0.09%
```
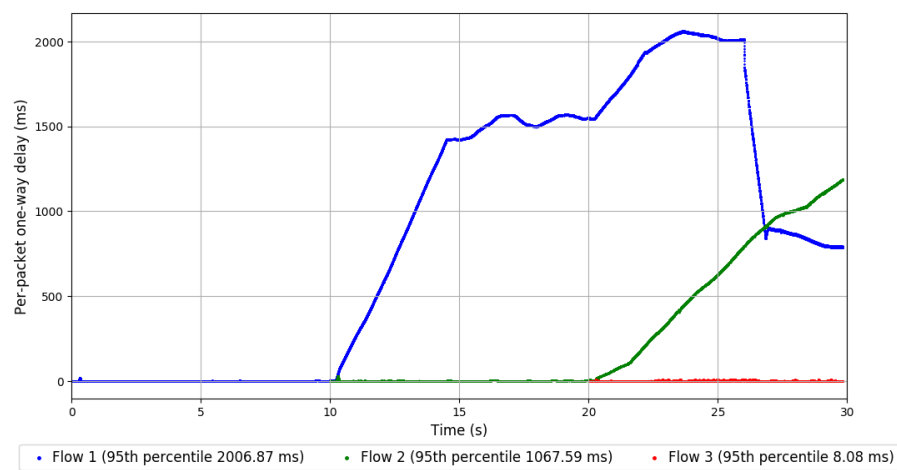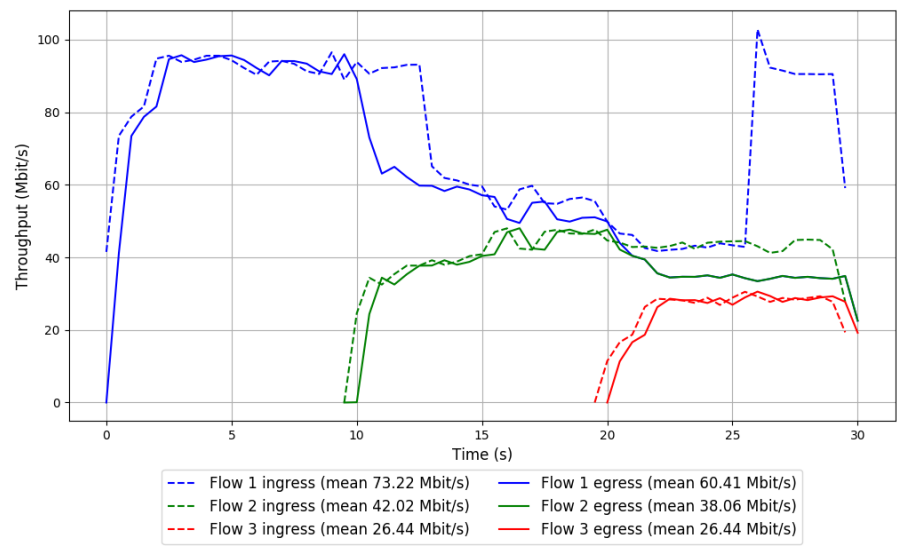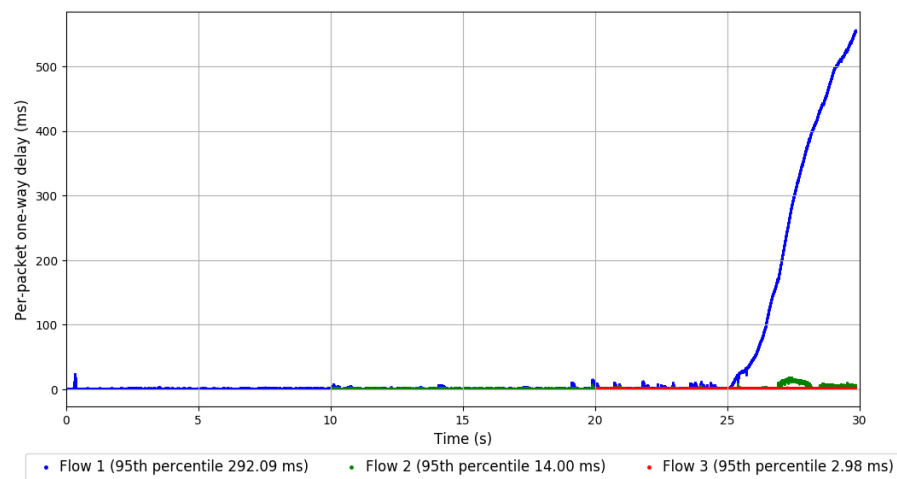
Run 2: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 67.24 Mbit/s) --- Flow 1 egress (mean 59.93 Mbit/s)
Flow 2 ingress (mean 37.72 Mbit/s) --- Flow 2 egress (mean 37.73 Mbit/s)
Flow 3 ingress (mean 25.71 Mbit/s) --- Flow 3 egress (mean 25.70 Mbit/s)

Flow 1 (95th percentile 1909.37 ms)   Flow 2 (95th percentile 7.86 ms)   Flow 3 (95th percentile 6.82 ms)

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-09-08 01:11:36
End at: 2018-09-08 01:12:06
Local clock offset: 1.634 ms
Remote clock offset: 0.746 ms


# Below is generated by plot.py at 2018-09-08 02:20:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.46 Mbit/s
95th percentile per-packet one-way delay: 1864.536 ms
Loss rate: 14.10%
-- Flow 1:
Average throughput: 60.41 Mbit/s
95th percentile per-packet one-way delay: 2006.869 ms
Loss rate: 17.55%
-- Flow 2:
Average throughput: 38.06 Mbit/s
95th percentile per-packet one-way delay: 1067.586 ms
Loss rate: 9.43%
-- Flow 3:
Average throughput: 26.44 Mbit/s
95th percentile per-packet one-way delay: 8.076 ms
Loss rate: 0.06%
```
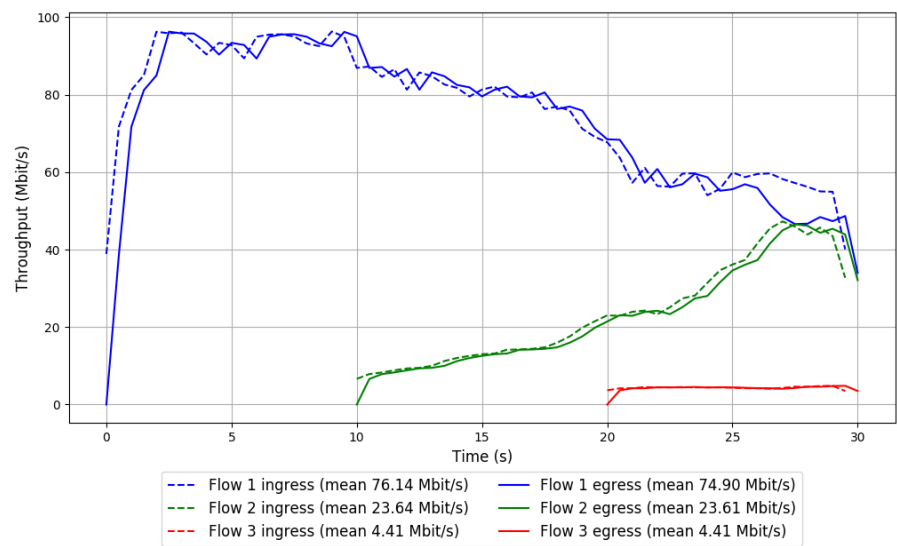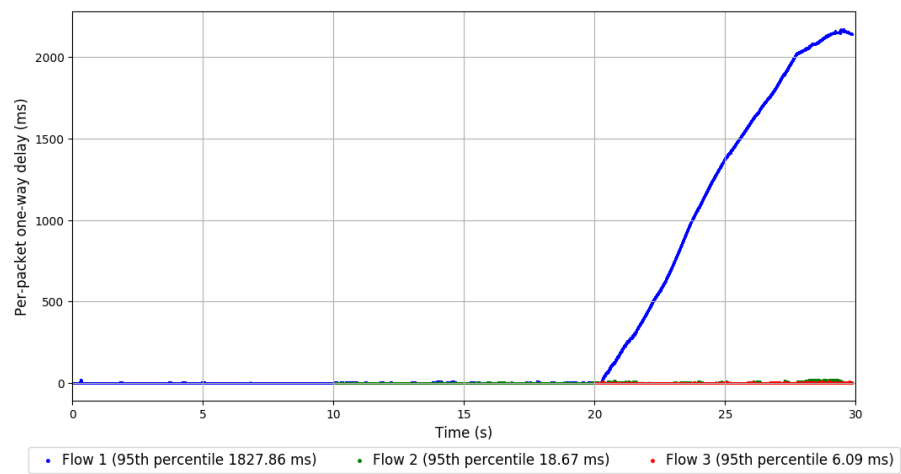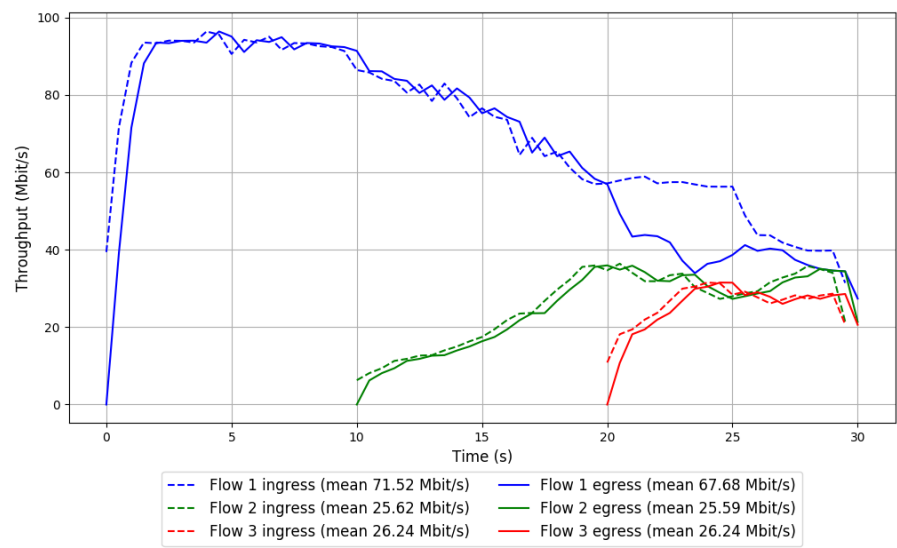
Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 73.22 Mbit/s)   Flow 1 egress (mean 60.41 Mbit/s)
Flow 2 ingress (mean 42.02 Mbit/s)   Flow 2 egress (mean 38.06 Mbit/s)
Flow 3 ingress (mean 26.44 Mbit/s)   Flow 3 egress (mean 26.44 Mbit/s)

Flow 1 (95th percentile 2006.87 ms)   Flow 2 (95th percentile 1067.59 ms)   Flow 3 (95th percentile 8.08 ms)

90

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-09-08 01:32:24
End at: 2018-09-08 01:32:54
Local clock offset: -6.641 ms
Remote clock offset: 0.973 ms


# Below is generated by plot.py at 2018-09-08 02:20:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.05 Mbit/s
95th percentile per-packet one-way delay: 169.266 ms
Loss rate: 1.38%
-- Flow 1:
Average throughput: 74.90 Mbit/s
95th percentile per-packet one-way delay: 292.093 ms
Loss rate: 1.66%
-- Flow 2:
Average throughput: 23.61 Mbit/s
95th percentile per-packet one-way delay: 13.996 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 4.41 Mbit/s
95th percentile per-packet one-way delay: 2.982 ms
Loss rate: 0.03%
```
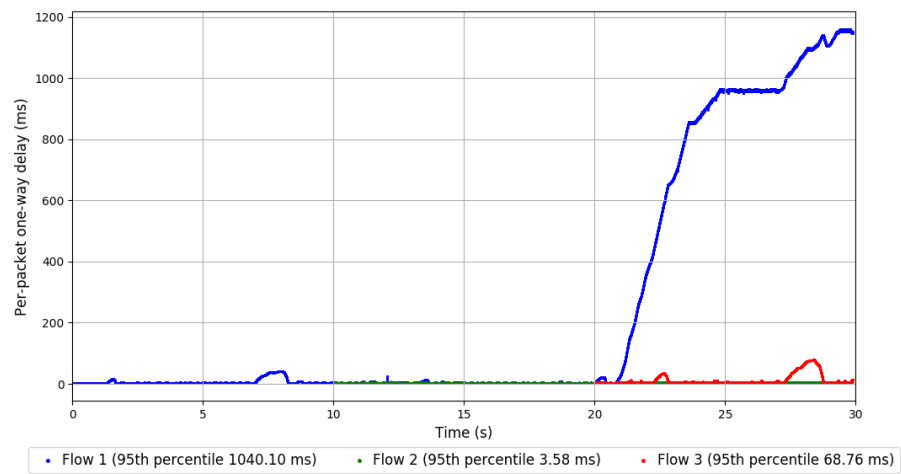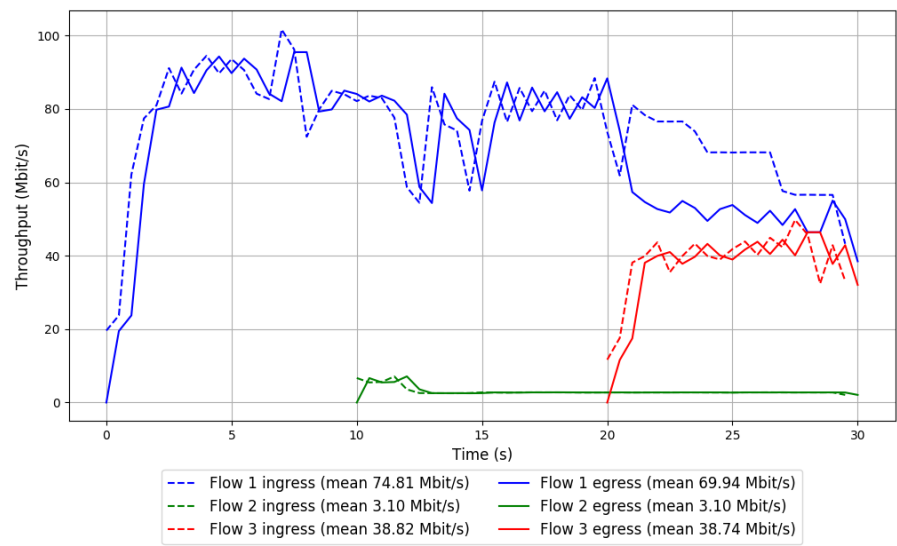
Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 76.14 Mbit/s) --- Flow 1 egress (mean 74.90 Mbit/s)
Flow 2 ingress (mean 23.64 Mbit/s) --- Flow 2 egress (mean 23.61 Mbit/s)
Flow 3 ingress (mean 4.41 Mbit/s) --- Flow 3 egress (mean 4.41 Mbit/s)

Flow 1 (95th percentile 292.09 ms)   •   Flow 2 (95th percentile 14.00 ms)   •   Flow 3 (95th percentile 2.98 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-09-08 01:53:11
End at: 2018-09-08 01:53:41
Local clock offset: -3.712 ms
Remote clock offset: 0.998 ms


# Below is generated by plot.py at 2018-09-08 02:20:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.31 Mbit/s
95th percentile per-packet one-way delay: 1607.117 ms
Loss rate: 3.99%
-- Flow 1:
Average throughput: 67.68 Mbit/s
95th percentile per-packet one-way delay: 1827.858 ms
Loss rate: 5.37%
-- Flow 2:
Average throughput: 25.59 Mbit/s
95th percentile per-packet one-way delay: 18.668 ms
Loss rate: 0.16%
-- Flow 3:
Average throughput: 26.24 Mbit/s
95th percentile per-packet one-way delay: 6.088 ms
Loss rate: 0.06%
```
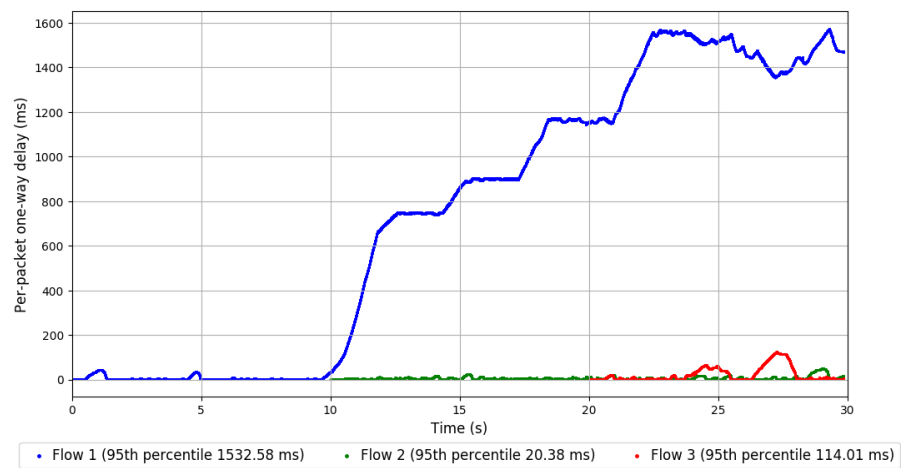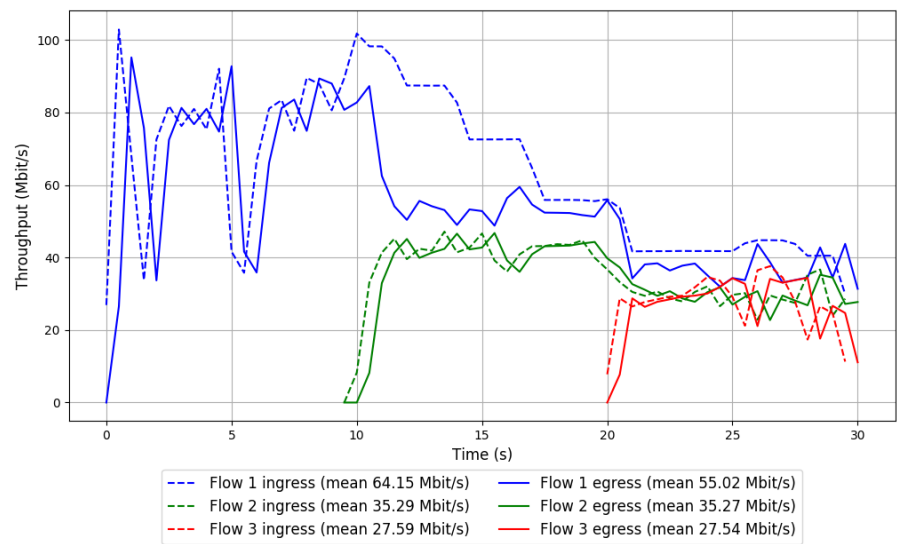
Run 5: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2018-09-08 00:34:39
End at: 2018-09-08 00:35:09
Local clock offset: -3.178 ms
Remote clock offset: 0.321 ms


# Below is generated by plot.py at 2018-09-08 02:21:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.78 Mbit/s
95th percentile per-packet one-way delay: 968.387 ms
Loss rate: 5.48%
-- Flow 1:
Average throughput: 69.94 Mbit/s
95th percentile per-packet one-way delay: 1040.100 ms
Loss rate: 6.53%
-- Flow 2:
Average throughput: 3.10 Mbit/s
95th percentile per-packet one-way delay: 3.576 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 38.74 Mbit/s
95th percentile per-packet one-way delay: 68.764 ms
Loss rate: 0.25%
```
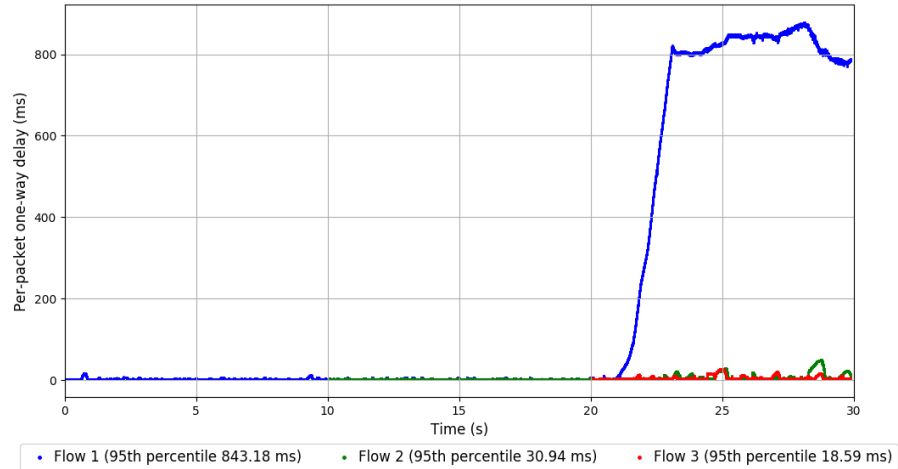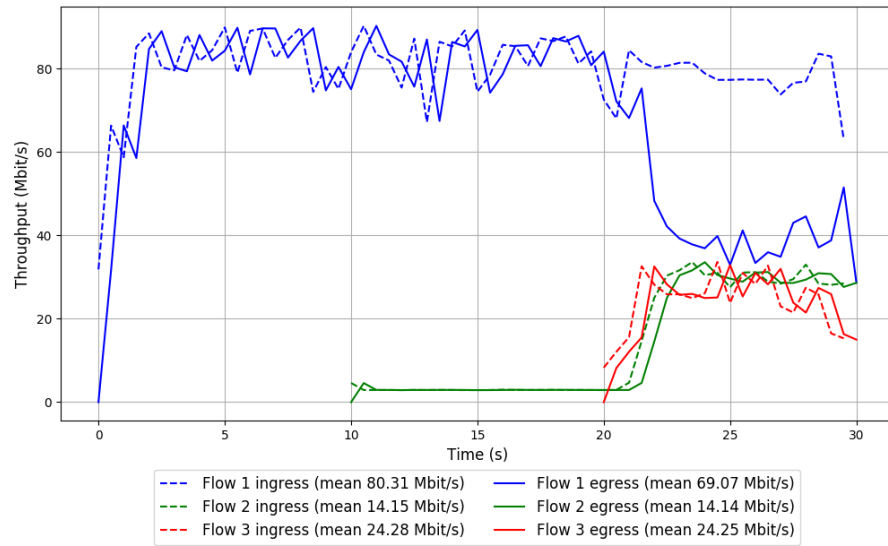
Run 1: Report of PCC-Expr — Data Link

```
Run 2: Statistics of PCC-Expr

Start at: 2018-09-08 00:55:25
End at: 2018-09-08 00:55:55
Local clock offset: -0.05 ms
Remote clock offset: 0.539 ms


# Below is generated by plot.py at 2018-09-08 02:21:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.58 Mbit/s
95th percentile per-packet one-way delay: 1505.741 ms
Loss rate: 9.49%
-- Flow 1:
Average throughput: 55.02 Mbit/s
95th percentile per-packet one-way delay: 1532.581 ms
Loss rate: 14.24%
-- Flow 2:
Average throughput: 35.27 Mbit/s
95th percentile per-packet one-way delay: 20.375 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 27.54 Mbit/s
95th percentile per-packet one-way delay: 114.014 ms
Loss rate: 0.24%
```
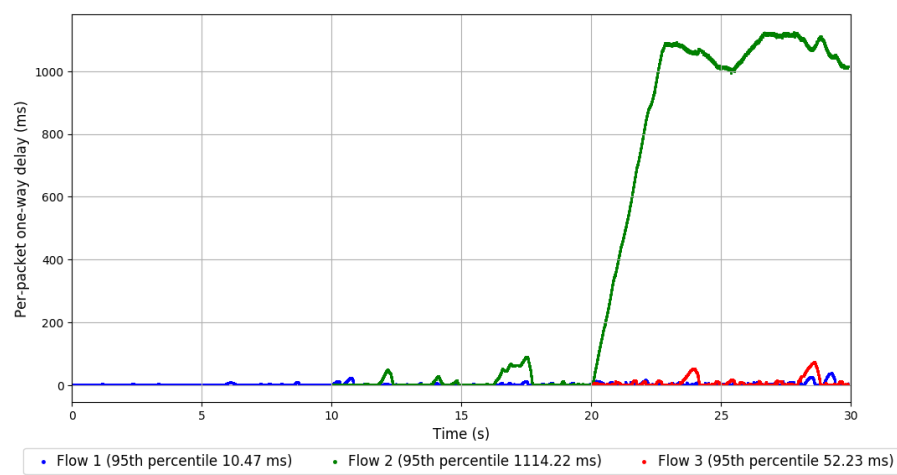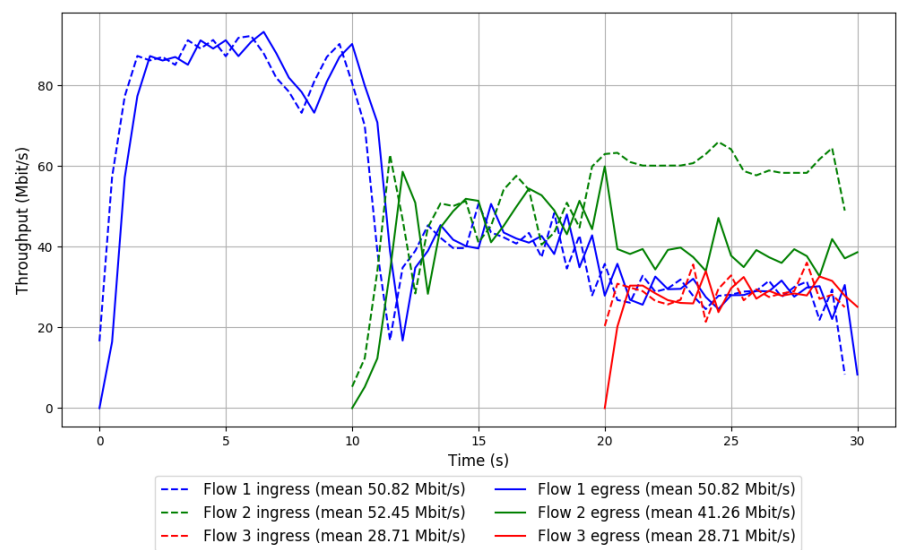
Run 2: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 64.15 Mbit/s) Flow 1 egress (mean 55.02 Mbit/s)
Flow 2 ingress (mean 35.29 Mbit/s) Flow 2 egress (mean 35.27 Mbit/s)
Flow 3 ingress (mean 27.59 Mbit/s) Flow 3 egress (mean 27.54 Mbit/s)

Flow 1 (95th percentile 1532.58 ms)   Flow 2 (95th percentile 20.38 ms)   Flow 3 (95th percentile 114.01 ms)

```
Run 3: Statistics of PCC-Expr

Start at: 2018-09-08 01:16:12
End at: 2018-09-08 01:16:42
Local clock offset: 0.138 ms
Remote clock offset: 0.859 ms

# Below is generated by plot.py at 2018-09-08 02:21:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.47 Mbit/s
95th percentile per-packet one-way delay: 829.814 ms
Loss rate: 11.53%
-- Flow 1:
Average throughput: 69.07 Mbit/s
95th percentile per-packet one-way delay: 843.181 ms
Loss rate: 14.01%
-- Flow 2:
Average throughput: 14.14 Mbit/s
95th percentile per-packet one-way delay: 30.942 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 24.25 Mbit/s
95th percentile per-packet one-way delay: 18.586 ms
Loss rate: 0.16%
```
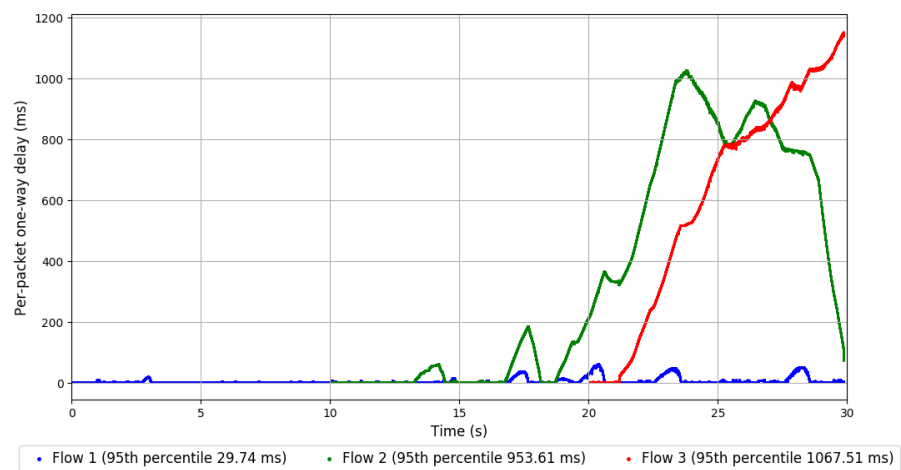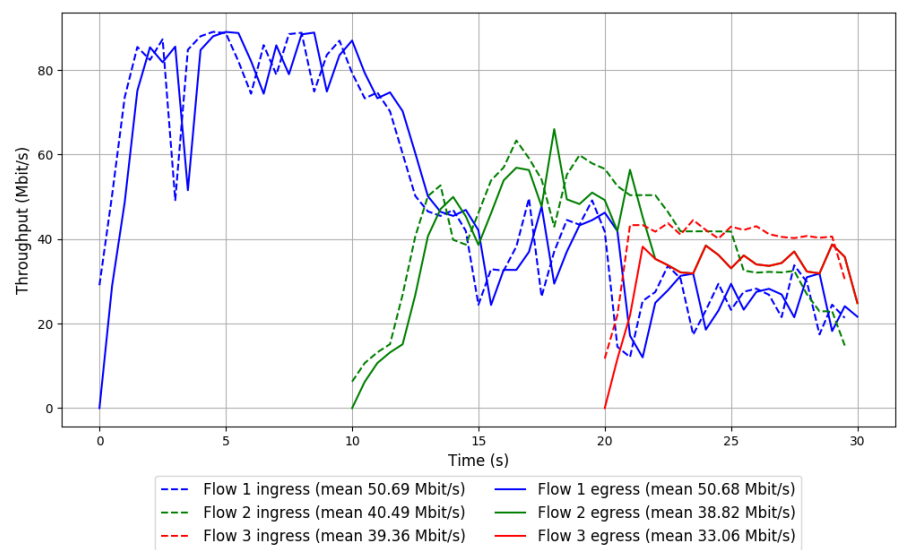
Run 3: Report of PCC-Expr — Data Link

```
Run 4: Statistics of PCC-Expr

Start at: 2018-09-08 01:37:00
End at: 2018-09-08 01:37:30
Local clock offset: -7.323 ms
Remote clock offset: 1.051 ms


# Below is generated by plot.py at 2018-09-08 02:22:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.72 Mbit/s
95th percentile per-packet one-way delay: 1072.827 ms
Loss rate: 7.85%
-- Flow 1:
Average throughput: 50.82 Mbit/s
95th percentile per-packet one-way delay: 10.474 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 41.26 Mbit/s
95th percentile per-packet one-way delay: 1114.216 ms
Loss rate: 21.39%
-- Flow 3:
Average throughput: 28.71 Mbit/s
95th percentile per-packet one-way delay: 52.228 ms
Loss rate: 0.07%
```

Run 4: Report of PCC-Expr — Data Link

```
Run 5: Statistics of PCC-Expr

Start at: 2018-09-08 01:57:47
End at: 2018-09-08 01:58:17
Local clock offset: -3.416 ms
Remote clock offset: 1.029 ms


# Below is generated by plot.py at 2018-09-08 02:22:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.40 Mbit/s
95th percentile per-packet one-way delay: 921.022 ms
Loss rate: 3.55%
-- Flow 1:
Average throughput: 50.68 Mbit/s
95th percentile per-packet one-way delay: 29.743 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 38.82 Mbit/s
95th percentile per-packet one-way delay: 953.614 ms
Loss rate: 4.14%
-- Flow 3:
Average throughput: 33.06 Mbit/s
95th percentile per-packet one-way delay: 1067.514 ms
Loss rate: 16.05%
```
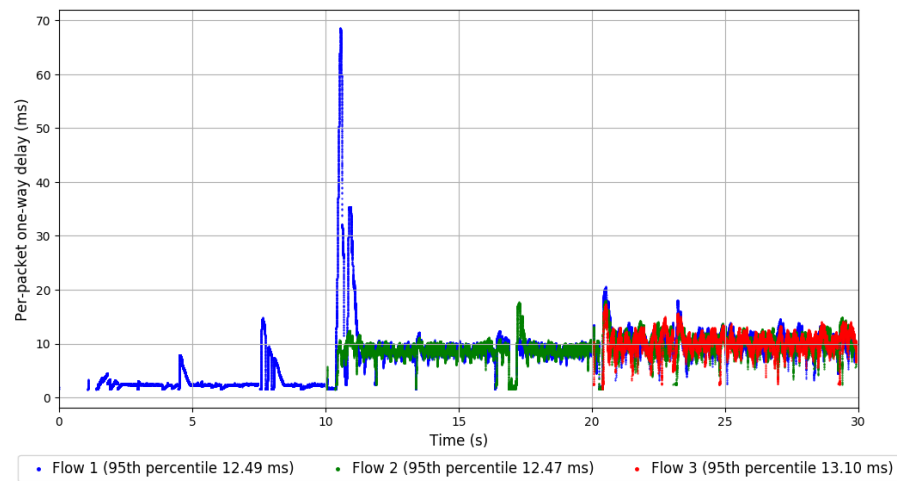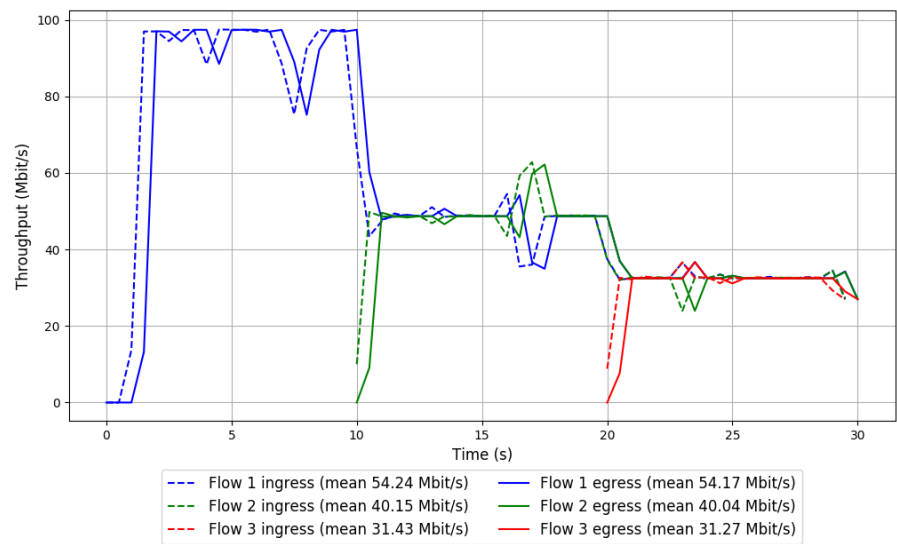
Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-09-08 00:31:12
End at: 2018-09-08 00:31:42
Local clock offset: -3.784 ms
Remote clock offset: 0.397 ms


# Below is generated by plot.py at 2018-09-08 02:22:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.14 Mbit/s
95th percentile per-packet one-way delay: 12.648 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 54.17 Mbit/s
95th percentile per-packet one-way delay: 12.490 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 40.04 Mbit/s
95th percentile per-packet one-way delay: 12.467 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 31.27 Mbit/s
95th percentile per-packet one-way delay: 13.103 ms
Loss rate: 0.56%
```
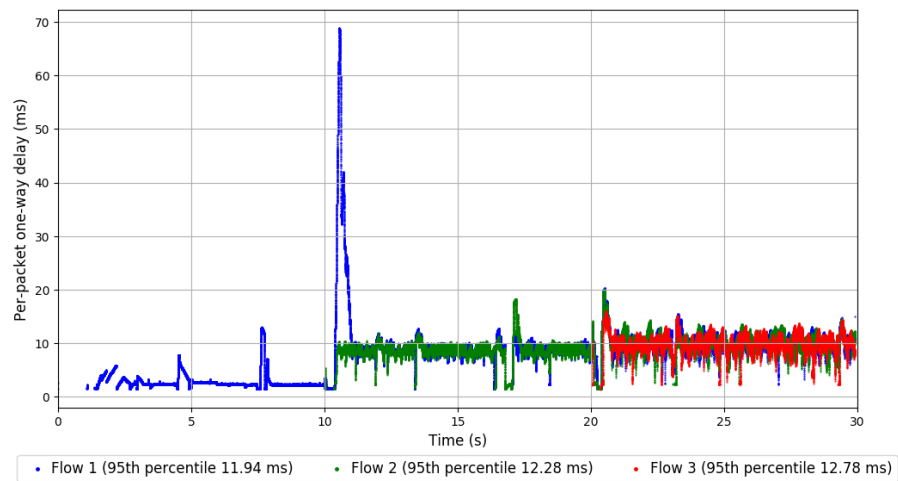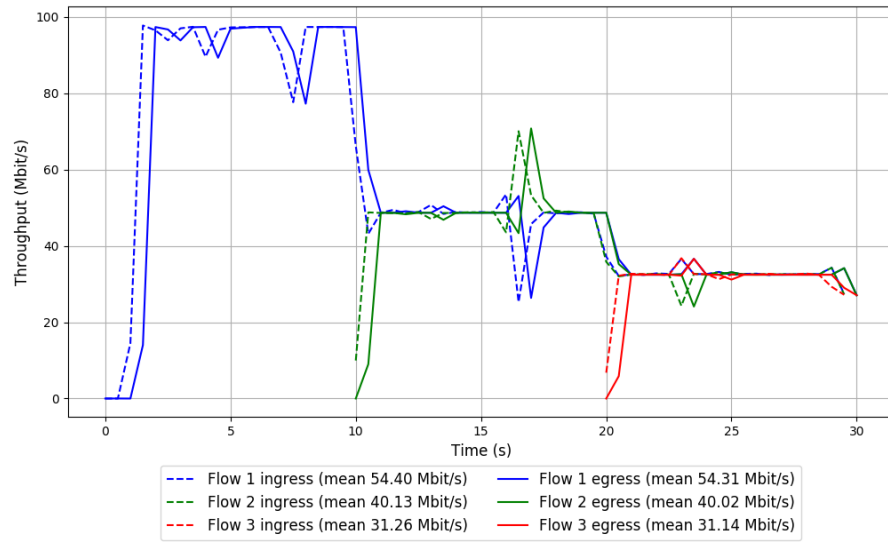
Run 1: Report of QUIC Cubic — Data Link

Legend:
- Flow 1 ingress (mean 54.24 Mbit/s) — Flow 1 egress (mean 54.17 Mbit/s)
- Flow 2 ingress (mean 40.15 Mbit/s) — Flow 2 egress (mean 40.04 Mbit/s)
- Flow 3 ingress (mean 31.43 Mbit/s) — Flow 3 egress (mean 31.27 Mbit/s)

Legend:
- Flow 1 (95th percentile 12.49 ms)
- Flow 2 (95th percentile 12.47 ms)
- Flow 3 (95th percentile 13.10 ms)

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-09-08 00:51:58
End at: 2018-09-08 00:52:28
Local clock offset: -1.528 ms
Remote clock offset: 0.46 ms


# Below is generated by plot.py at 2018-09-08 02:22:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.25 Mbit/s
95th percentile per-packet one-way delay: 12.227 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 54.31 Mbit/s
95th percentile per-packet one-way delay: 11.940 ms
Loss rate: 0.16%
-- Flow 2:
Average throughput: 40.02 Mbit/s
95th percentile per-packet one-way delay: 12.280 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 31.14 Mbit/s
95th percentile per-packet one-way delay: 12.781 ms
Loss rate: 0.46%
```
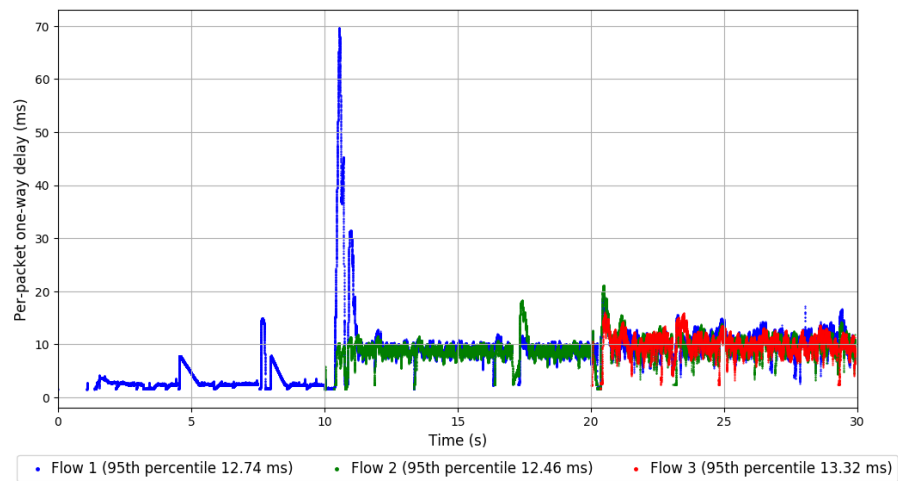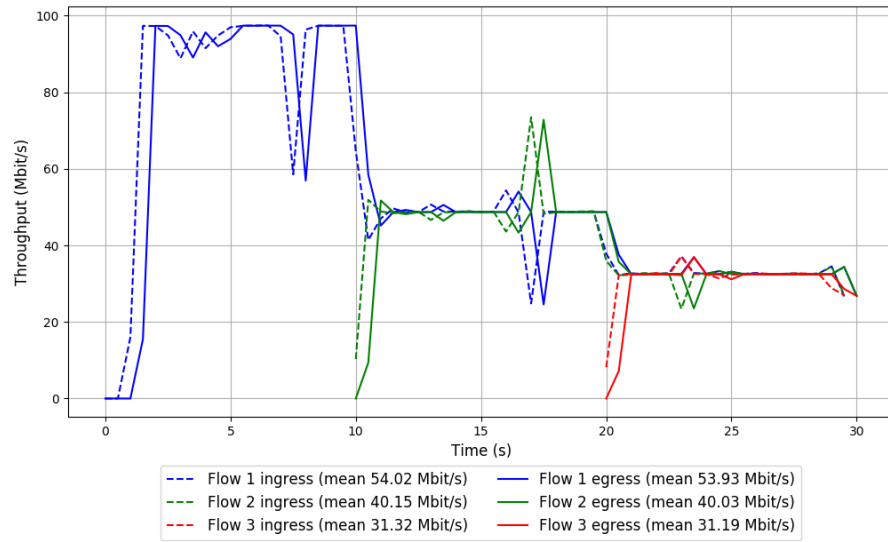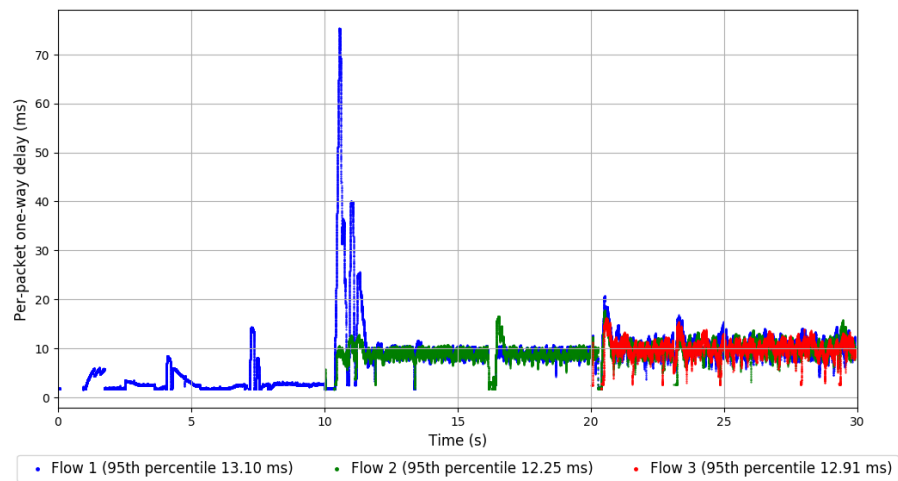
Run 2: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 54.40 Mbit/s) — Flow 1 egress (mean 54.31 Mbit/s)
Flow 2 ingress (mean 40.13 Mbit/s) — Flow 2 egress (mean 40.02 Mbit/s)
Flow 3 ingress (mean 31.26 Mbit/s) — Flow 3 egress (mean 31.14 Mbit/s)

Flow 1 (95th percentile 11.94 ms) · Flow 2 (95th percentile 12.28 ms) · Flow 3 (95th percentile 12.78 ms)

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-09-08 01:12:45
End at: 2018-09-08 01:13:15
Local clock offset: 1.036 ms
Remote clock offset: 0.83 ms


# Below is generated by plot.py at 2018-09-08 02:22:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.89 Mbit/s
95th percentile per-packet one-way delay: 12.781 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 53.93 Mbit/s
95th percentile per-packet one-way delay: 12.736 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 40.03 Mbit/s
95th percentile per-packet one-way delay: 12.457 ms
Loss rate: 0.31%
-- Flow 3:
Average throughput: 31.19 Mbit/s
95th percentile per-packet one-way delay: 13.322 ms
Loss rate: 0.46%
```
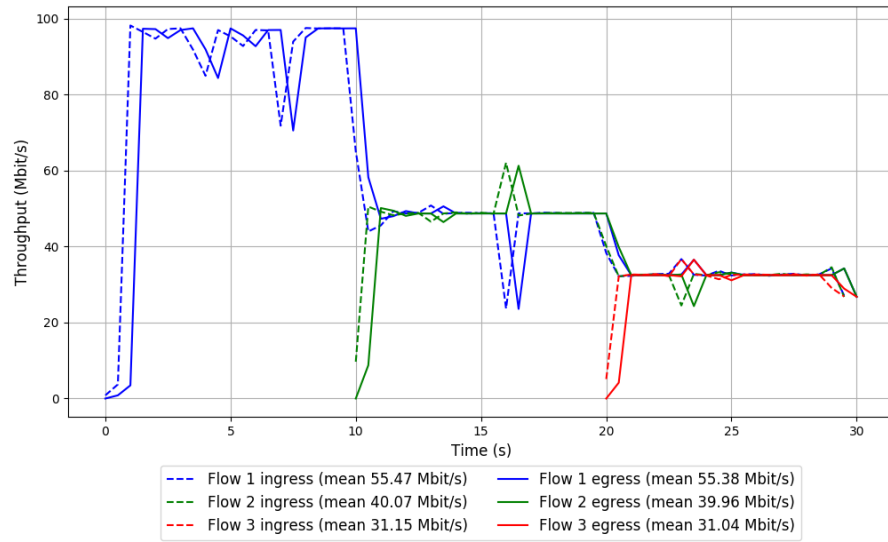
Run 3: Report of QUIC Cubic — Data Link

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-09-08 01:33:33
End at: 2018-09-08 01:34:03
Local clock offset: -6.764 ms
Remote clock offset: 0.946 ms


# Below is generated by plot.py at 2018-09-08 02:22:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.24 Mbit/s
95th percentile per-packet one-way delay: 12.712 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 55.38 Mbit/s
95th percentile per-packet one-way delay: 13.103 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 39.96 Mbit/s
95th percentile per-packet one-way delay: 12.247 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 31.04 Mbit/s
95th percentile per-packet one-way delay: 12.913 ms
Loss rate: 0.46%
```
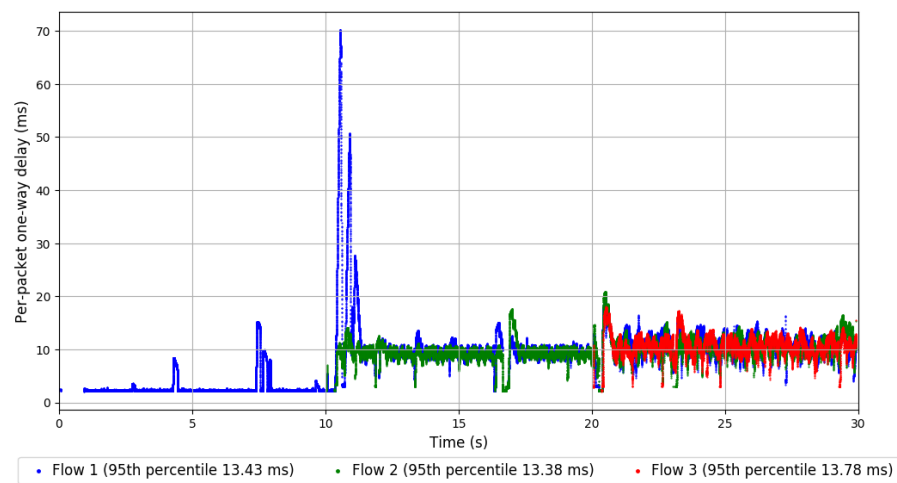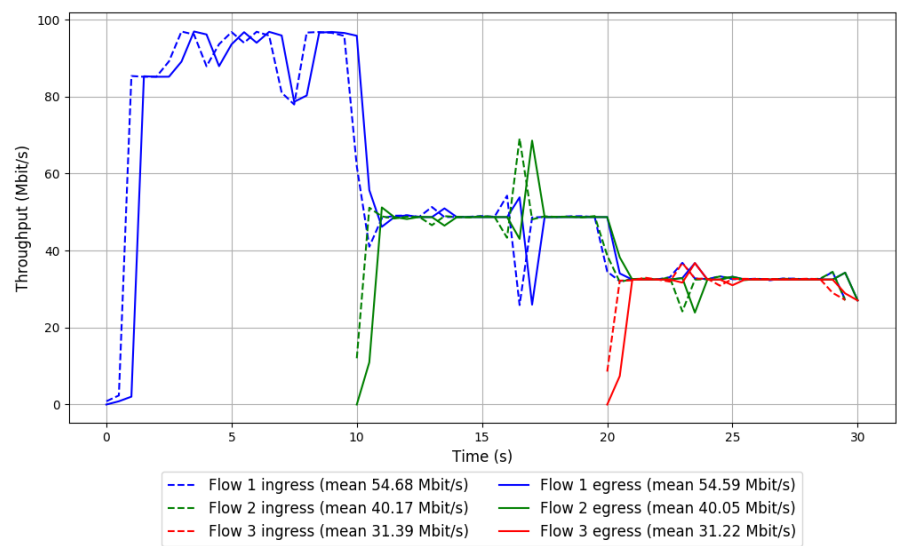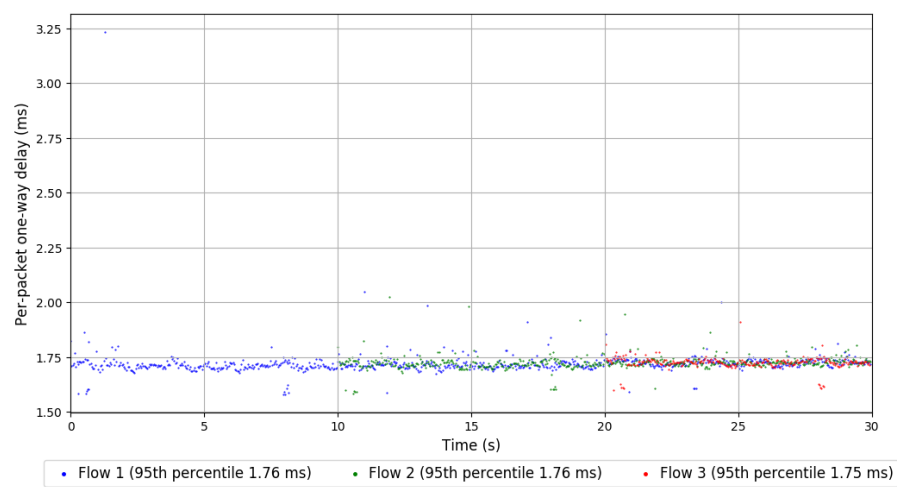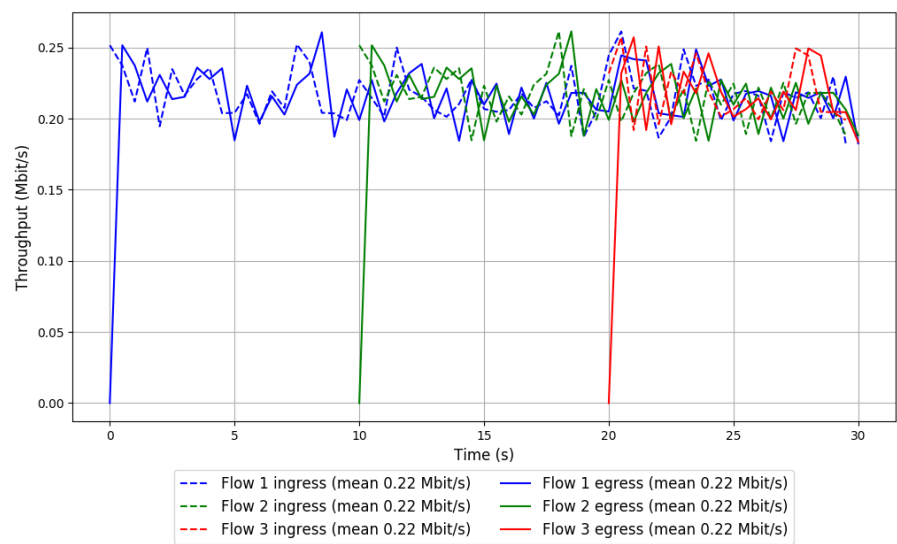
Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 55.47 Mbit/s)   Flow 1 egress (mean 55.38 Mbit/s)
Flow 2 ingress (mean 40.07 Mbit/s)   Flow 2 egress (mean 39.96 Mbit/s)
Flow 3 ingress (mean 31.15 Mbit/s)   Flow 3 egress (mean 31.04 Mbit/s)

Flow 1 (95th percentile 13.10 ms)   Flow 2 (95th percentile 12.25 ms)   Flow 3 (95th percentile 12.91 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-09-08 01:54:20
End at: 2018-09-08 01:54:50
Local clock offset: -3.409 ms
Remote clock offset: 1.136 ms


# Below is generated by plot.py at 2018-09-08 02:22:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.54 Mbit/s
95th percentile per-packet one-way delay: 13.461 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 54.59 Mbit/s
95th percentile per-packet one-way delay: 13.431 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 40.05 Mbit/s
95th percentile per-packet one-way delay: 13.379 ms
Loss rate: 0.31%
-- Flow 3:
Average throughput: 31.22 Mbit/s
95th percentile per-packet one-way delay: 13.780 ms
Loss rate: 0.53%
```
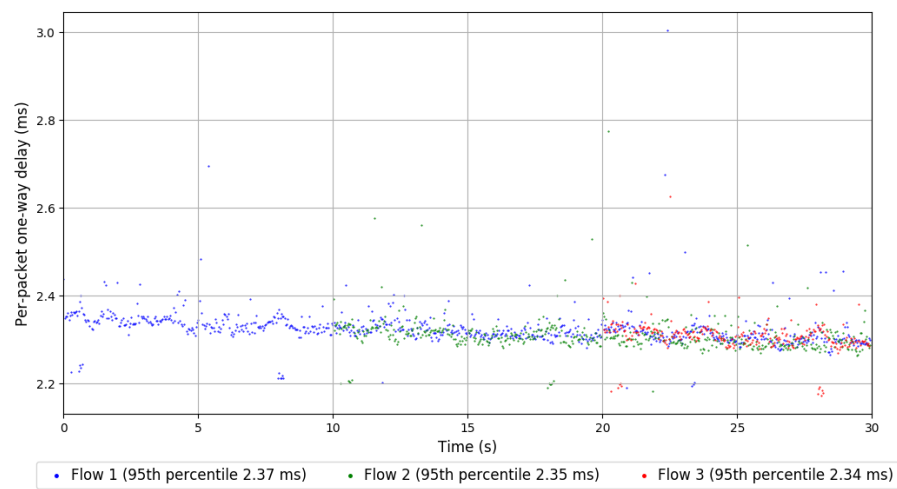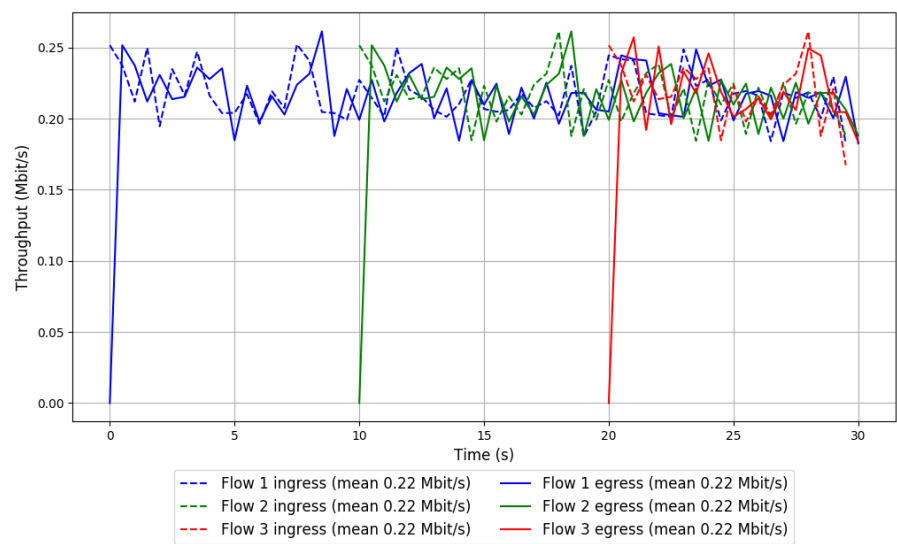
Run 5: Report of QUIC Cubic — Data Link

- - - Flow 1 ingress (mean 54.68 Mbit/s) ——— Flow 1 egress (mean 54.59 Mbit/s)
- - - Flow 2 ingress (mean 40.17 Mbit/s) ——— Flow 2 egress (mean 40.05 Mbit/s)
- - - Flow 3 ingress (mean 31.39 Mbit/s) ——— Flow 3 egress (mean 31.22 Mbit/s)

• Flow 1 (95th percentile 13.43 ms)   • Flow 2 (95th percentile 13.38 ms)   • Flow 3 (95th percentile 13.78 ms)

114

```
Run 1: Statistics of SCReAM

Start at: 2018-09-08 00:40:26
End at: 2018-09-08 00:40:56
Local clock offset: -4.115 ms
Remote clock offset: 0.42 ms


# Below is generated by plot.py at 2018-09-08 02:22:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1.759 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.759 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.764 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.755 ms
Loss rate: 0.35%
```
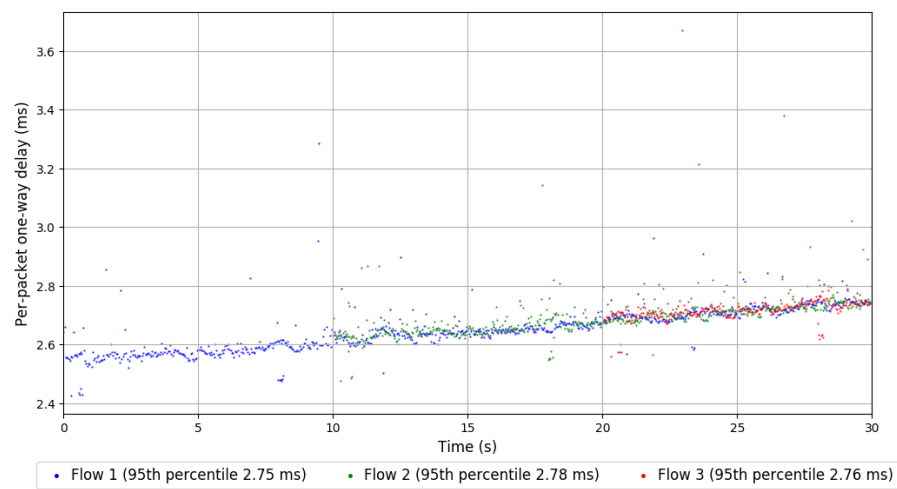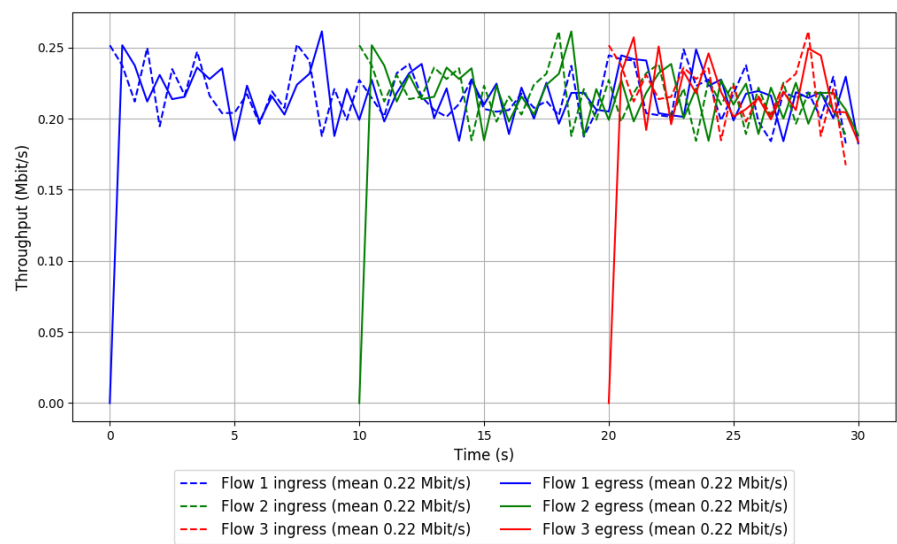
Run 1: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 1.76 ms)   Flow 2 (95th percentile 1.76 ms)   Flow 3 (95th percentile 1.75 ms)

```
Run 2: Statistics of SCReAM

Start at: 2018-09-08 01:01:13
End at: 2018-09-08 01:01:43
Local clock offset: 0.871 ms
Remote clock offset: 0.655 ms


# Below is generated by plot.py at 2018-09-08 02:22:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 2.362 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.371 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.351 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.342 ms
Loss rate: 0.00%
```
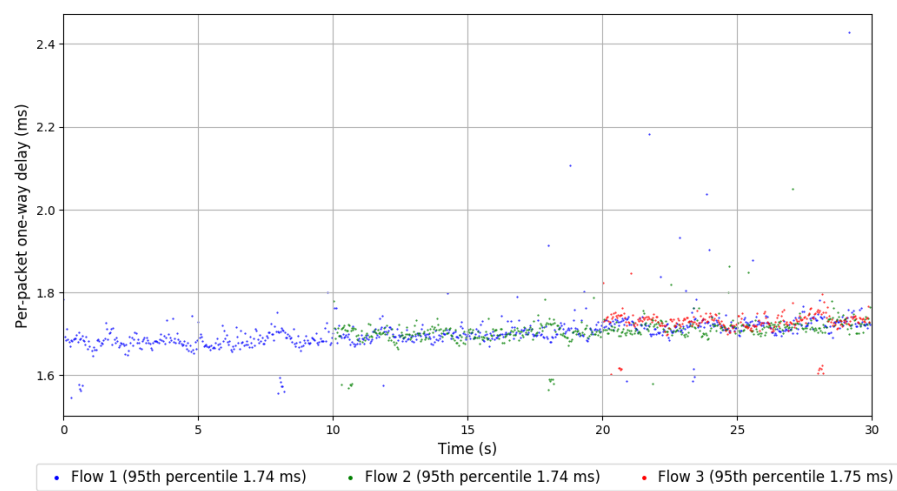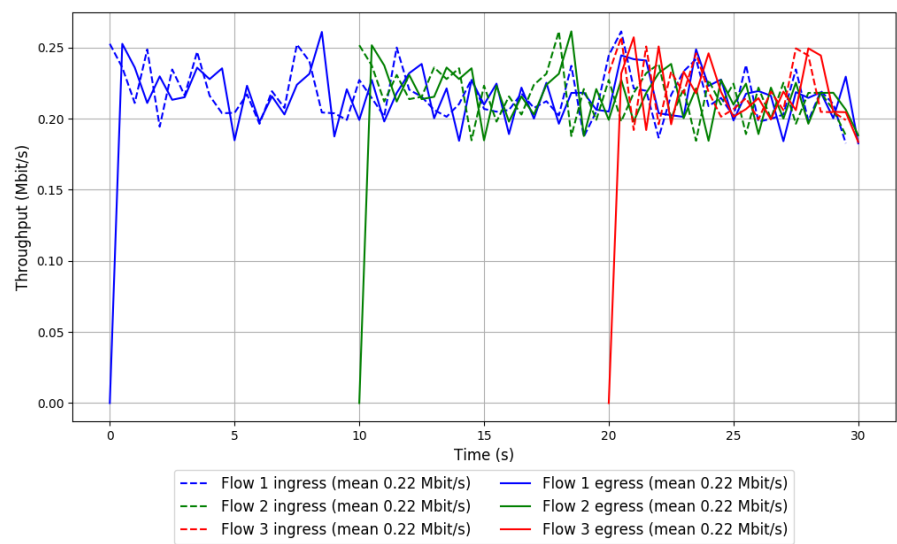
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-09-08 01:21:59
End at: 2018-09-08 01:22:29
Local clock offset: -2.746 ms
Remote clock offset: 0.928 ms

# Below is generated by plot.py at 2018-09-08 02:22:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 2.756 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.746 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.778 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.757 ms
Loss rate: 0.00%
```
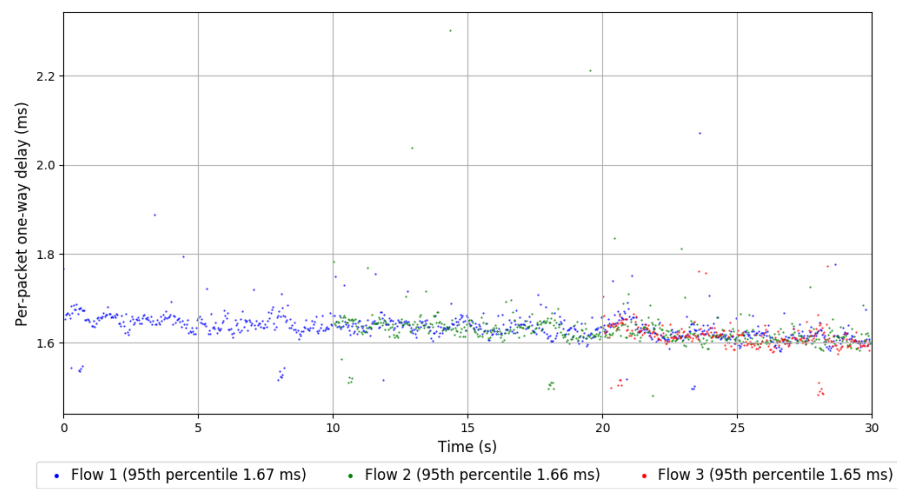
Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2018-09-08 01:42:47
End at: 2018-09-08 01:43:17
Local clock offset: -8.064 ms
Remote clock offset: 1.047 ms

# Below is generated by plot.py at 2018-09-08 02:22:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1.749 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.741 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.739 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.755 ms
Loss rate: 0.35%
```
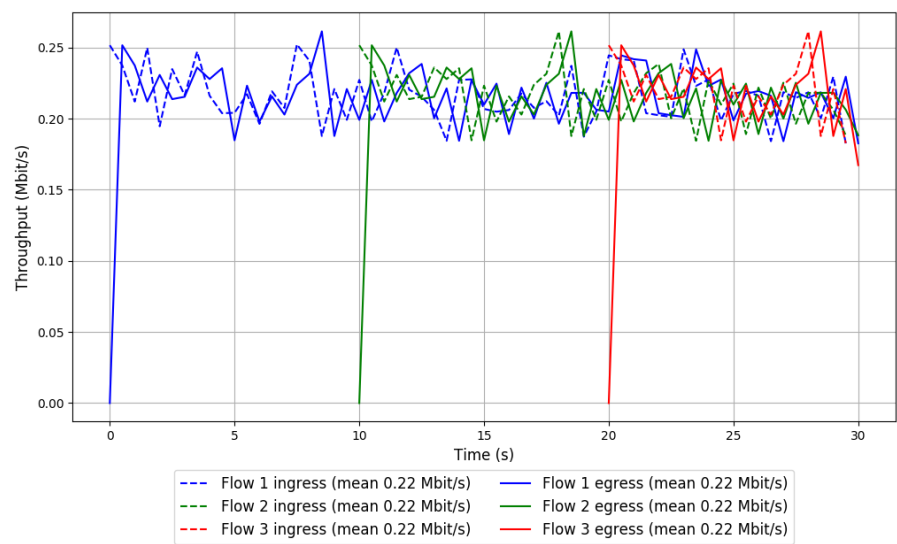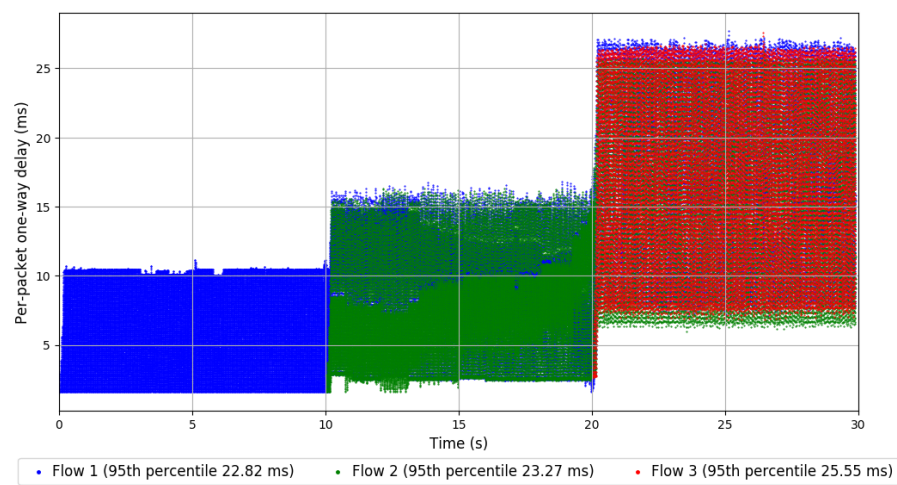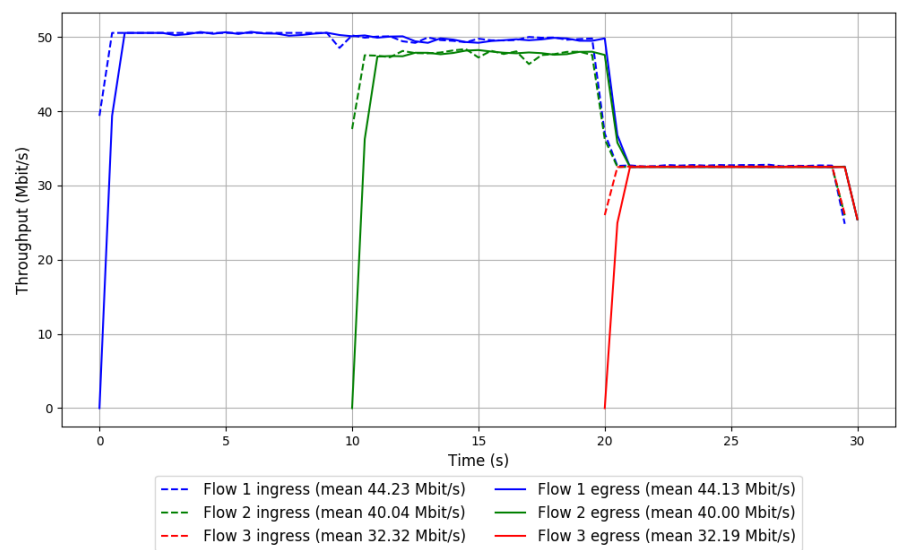
Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2018-09-08 02:03:34
End at: 2018-09-08 02:04:04
Local clock offset: -2.663 ms
Remote clock offset: 1.111 ms


# Below is generated by plot.py at 2018-09-08 02:22:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.668 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.673 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.663 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.648 ms
Loss rate: 0.35%
```

Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2018-09-08 00:35:51
End at: 2018-09-08 00:36:21
Local clock offset: -4.024 ms
Remote clock offset: 0.429 ms

# Below is generated by plot.py at 2018-09-08 02:22:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.36 Mbit/s
95th percentile per-packet one-way delay: 23.882 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 44.13 Mbit/s
95th percentile per-packet one-way delay: 22.821 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 40.00 Mbit/s
95th percentile per-packet one-way delay: 23.265 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 32.19 Mbit/s
95th percentile per-packet one-way delay: 25.546 ms
Loss rate: 0.41%
```
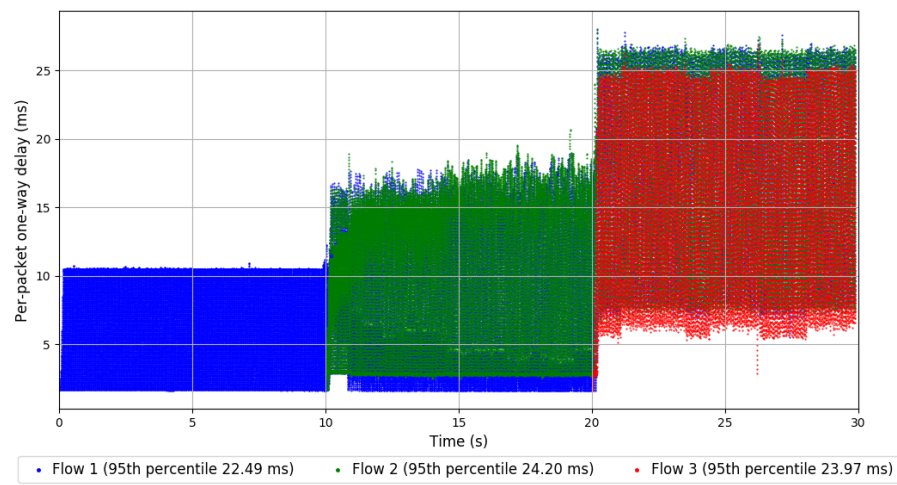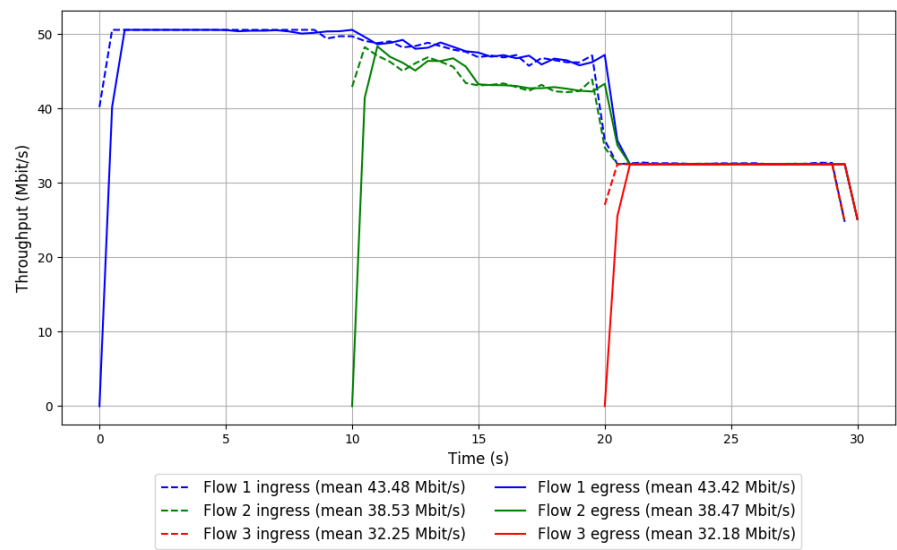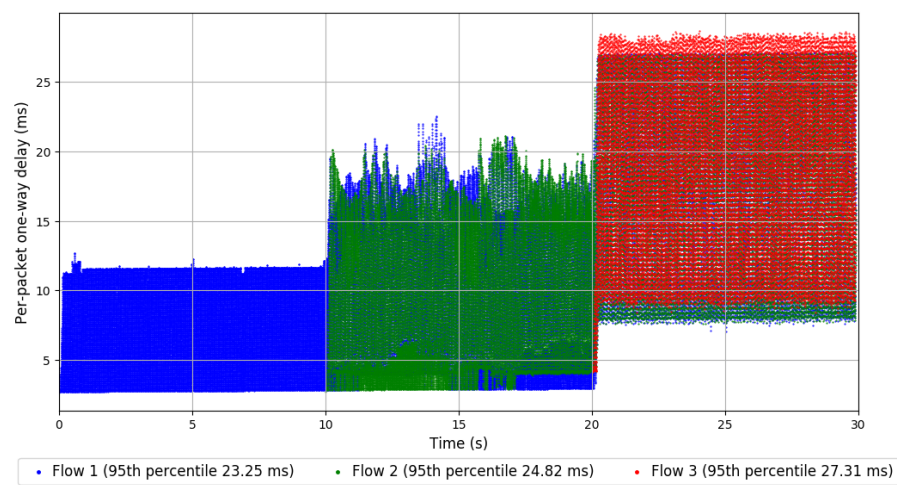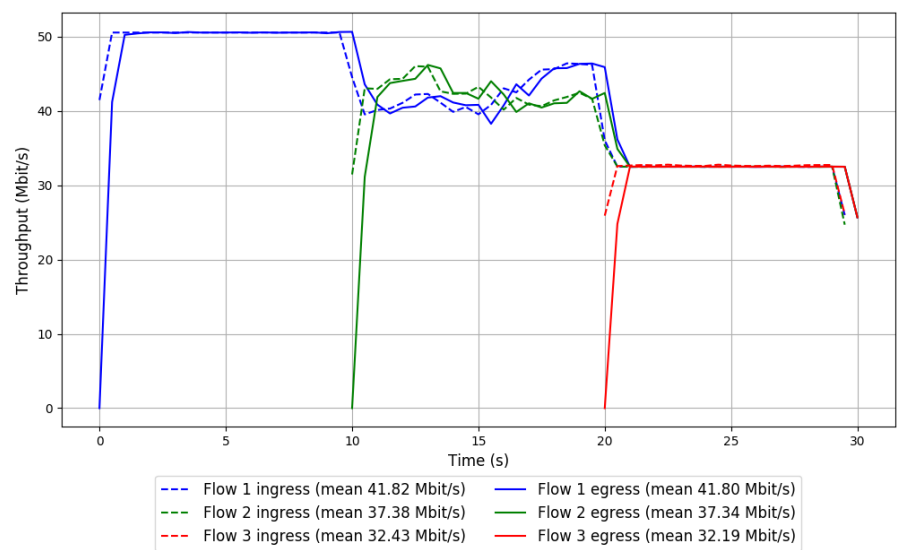
Run 1: Report of Sprout — Data Link

- - - Flow 1 ingress (mean 44.23 Mbit/s)   —— Flow 1 egress (mean 44.13 Mbit/s)
- - - Flow 2 ingress (mean 40.04 Mbit/s)   —— Flow 2 egress (mean 40.00 Mbit/s)
- - - Flow 3 ingress (mean 32.32 Mbit/s)   —— Flow 3 egress (mean 32.19 Mbit/s)

• Flow 1 (95th percentile 22.82 ms)   • Flow 2 (95th percentile 23.27 ms)   • Flow 3 (95th percentile 25.55 ms)

```
Run 2: Statistics of Sprout

Start at: 2018-09-08 00:56:38
End at: 2018-09-08 00:57:08
Local clock offset: -0.478 ms
Remote clock offset: 0.574 ms


# Below is generated by plot.py at 2018-09-08 02:22:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 79.63 Mbit/s
95th percentile per-packet one-way delay: 23.549 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 43.42 Mbit/s
95th percentile per-packet one-way delay: 22.491 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 38.47 Mbit/s
95th percentile per-packet one-way delay: 24.205 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 32.18 Mbit/s
95th percentile per-packet one-way delay: 23.967 ms
Loss rate: 0.17%
```
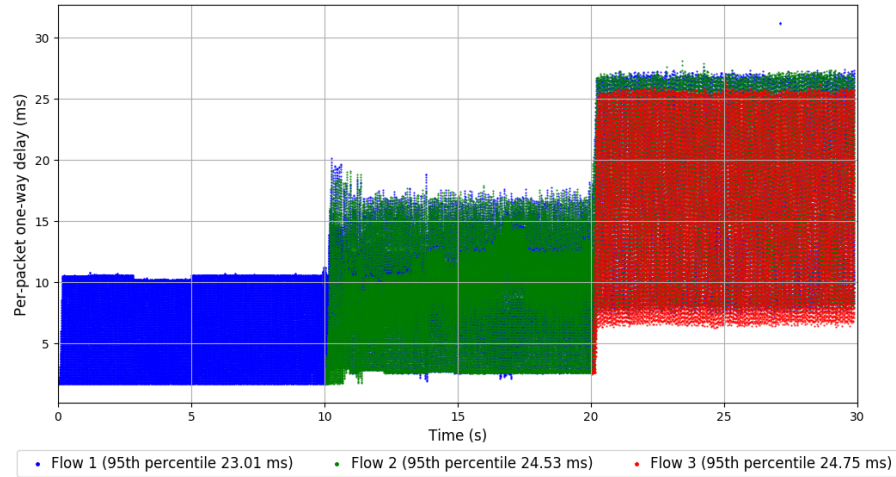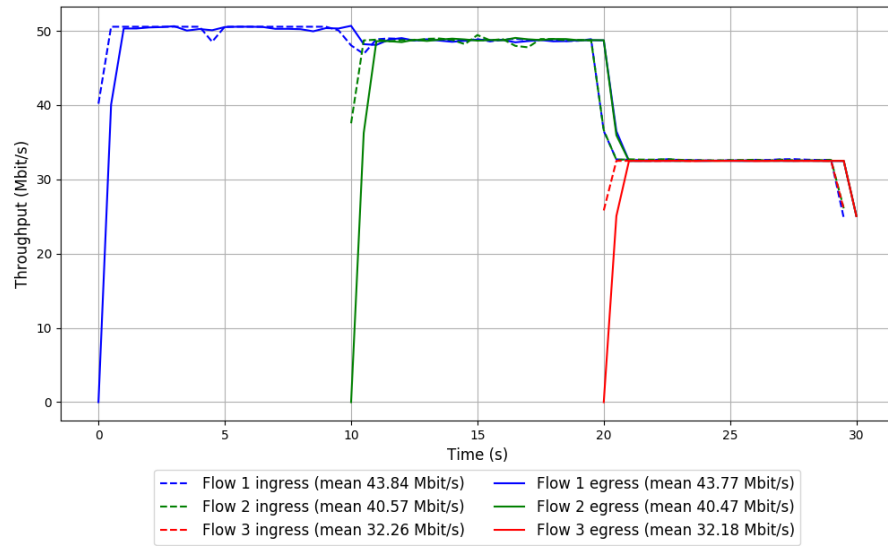
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-09-08 01:17:25
End at: 2018-09-08 01:17:55
Local clock offset: -0.072 ms
Remote clock offset: 0.872 ms


# Below is generated by plot.py at 2018-09-08 02:22:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 77.27 Mbit/s
95th percentile per-packet one-way delay: 25.117 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 41.80 Mbit/s
95th percentile per-packet one-way delay: 23.246 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 37.34 Mbit/s
95th percentile per-packet one-way delay: 24.820 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 32.19 Mbit/s
95th percentile per-packet one-way delay: 27.309 ms
Loss rate: 0.71%
```
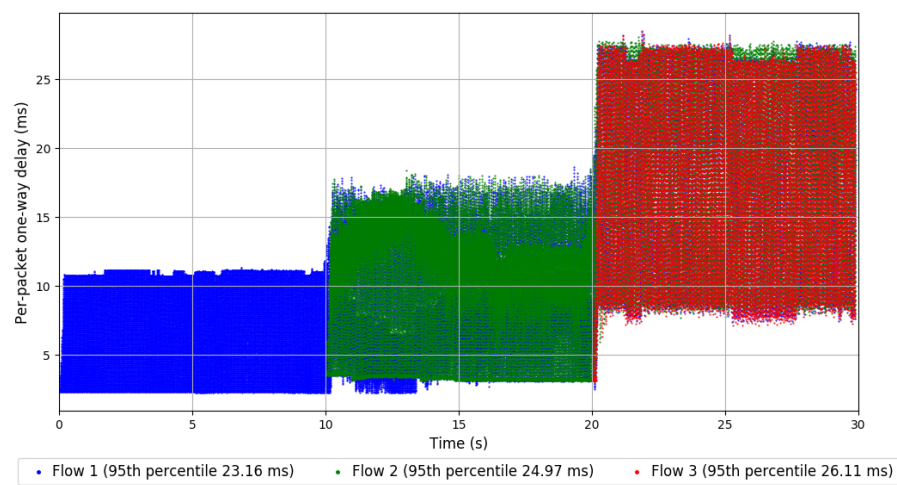
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2018-09-08 01:38:12
End at: 2018-09-08 01:38:42
Local clock offset: -7.452 ms
Remote clock offset: 1.063 ms


# Below is generated by plot.py at 2018-09-08 02:22:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.31 Mbit/s
95th percentile per-packet one-way delay: 24.094 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 43.77 Mbit/s
95th percentile per-packet one-way delay: 23.013 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 40.47 Mbit/s
95th percentile per-packet one-way delay: 24.530 ms
Loss rate: 0.24%
-- Flow 3:
Average throughput: 32.18 Mbit/s
95th percentile per-packet one-way delay: 24.752 ms
Loss rate: 0.26%
```
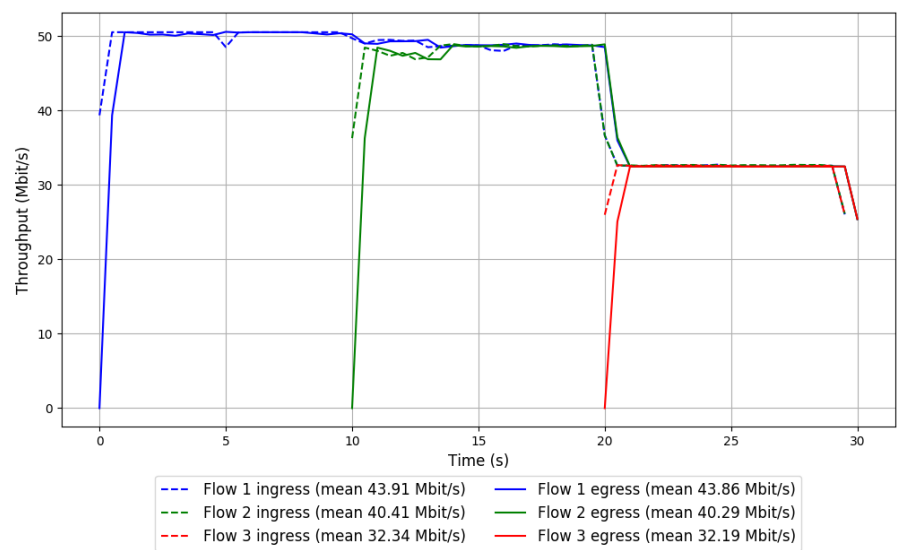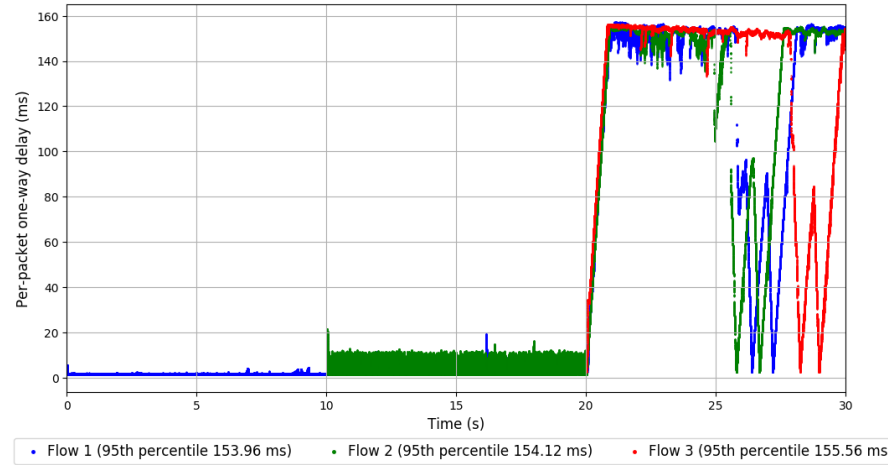
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-09-08 01:58:59
End at: 2018-09-08 01:59:29
Local clock offset: -2.562 ms
Remote clock offset: 1.104 ms


# Below is generated by plot.py at 2018-09-08 02:23:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.27 Mbit/s
95th percentile per-packet one-way delay: 24.756 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 43.86 Mbit/s
95th percentile per-packet one-way delay: 23.162 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 40.29 Mbit/s
95th percentile per-packet one-way delay: 24.971 ms
Loss rate: 0.33%
-- Flow 3:
Average throughput: 32.19 Mbit/s
95th percentile per-packet one-way delay: 26.108 ms
Loss rate: 0.45%
```
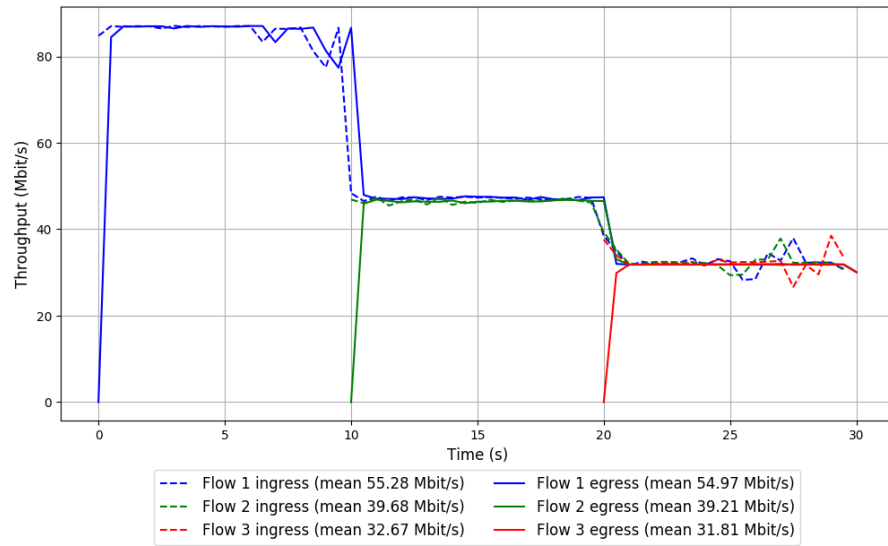
Run 5: Report of Sprout — Data Link

- - - Flow 1 ingress (mean 43.91 Mbit/s)   —— Flow 1 egress (mean 43.86 Mbit/s)
- - - Flow 2 ingress (mean 40.41 Mbit/s)   —— Flow 2 egress (mean 40.29 Mbit/s)
- - - Flow 3 ingress (mean 32.34 Mbit/s)   —— Flow 3 egress (mean 32.19 Mbit/s)

- Flow 1 (95th percentile 23.16 ms)   • Flow 2 (95th percentile 24.97 ms)   • Flow 3 (95th percentile 26.11 ms)

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

Start at: 2018-09-08 00:28:51
End at: 2018-09-08 00:29:21
Local clock offset: -3.775 ms
Remote clock offset: 0.331 ms


# Below is generated by plot.py at 2018-09-08 02:24:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.65 Mbit/s
95th percentile per-packet one-way delay: 154.528 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 54.97 Mbit/s
95th percentile per-packet one-way delay: 153.960 ms
Loss rate: 0.57%
-- Flow 2:
Average throughput: 39.21 Mbit/s
95th percentile per-packet one-way delay: 154.116 ms
Loss rate: 1.22%
-- Flow 3:
Average throughput: 31.81 Mbit/s
95th percentile per-packet one-way delay: 155.557 ms
Loss rate: 2.67%
```
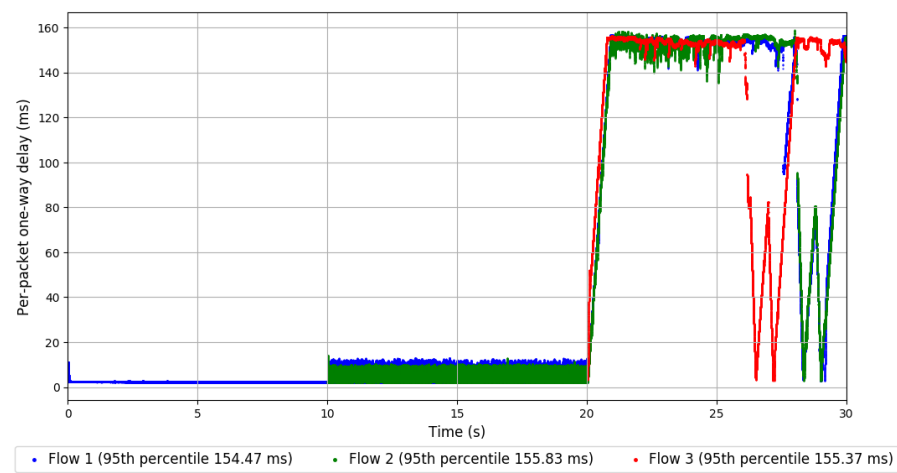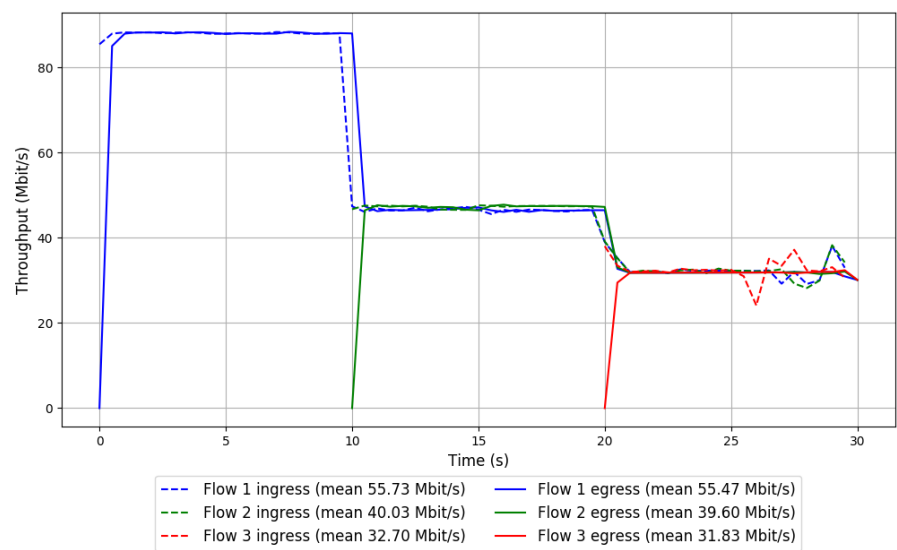
Run 1: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 55.28 Mbit/s) --- Flow 1 egress (mean 54.97 Mbit/s)
Flow 2 ingress (mean 39.68 Mbit/s) --- Flow 2 egress (mean 39.21 Mbit/s)
Flow 3 ingress (mean 32.67 Mbit/s) --- Flow 3 egress (mean 31.81 Mbit/s)

Flow 1 (95th percentile 153.96 ms)   Flow 2 (95th percentile 154.12 ms)   Flow 3 (95th percentile 155.56 ms)

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

Start at: 2018-09-08 00:49:37
End at: 2018-09-08 00:50:07
Local clock offset: -1.459 ms
Remote clock offset: 0.495 ms


# Below is generated by plot.py at 2018-09-08 02:24:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.41 Mbit/s
95th percentile per-packet one-way delay: 155.253 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 55.47 Mbit/s
95th percentile per-packet one-way delay: 154.470 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 39.60 Mbit/s
95th percentile per-packet one-way delay: 155.826 ms
Loss rate: 1.08%
-- Flow 3:
Average throughput: 31.83 Mbit/s
95th percentile per-packet one-way delay: 155.374 ms
Loss rate: 2.74%
```
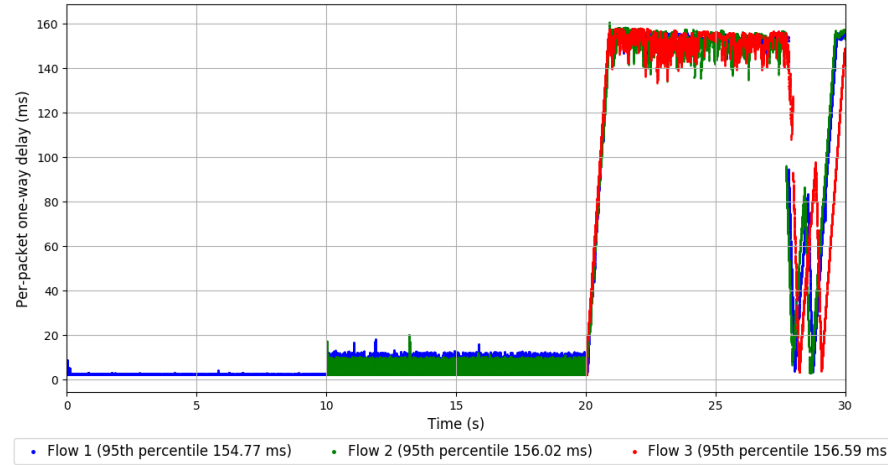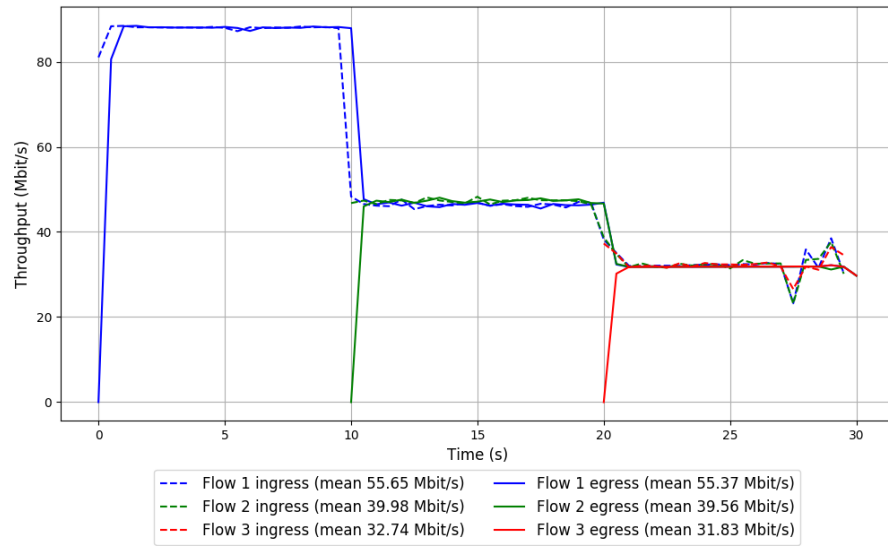
Run 2: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 55.73 Mbit/s)   Flow 1 egress (mean 55.47 Mbit/s)
Flow 2 ingress (mean 40.03 Mbit/s)   Flow 2 egress (mean 39.60 Mbit/s)
Flow 3 ingress (mean 32.70 Mbit/s)   Flow 3 egress (mean 31.83 Mbit/s)

Flow 1 (95th percentile 154.47 ms)   Flow 2 (95th percentile 155.83 ms)   Flow 3 (95th percentile 155.37 ms)

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

Start at: 2018-09-08 01:10:24
End at: 2018-09-08 01:10:54
Local clock offset: 1.617 ms
Remote clock offset: 0.715 ms


# Below is generated by plot.py at 2018-09-08 02:24:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.28 Mbit/s
95th percentile per-packet one-way delay: 155.390 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 55.37 Mbit/s
95th percentile per-packet one-way delay: 154.766 ms
Loss rate: 0.53%
-- Flow 2:
Average throughput: 39.56 Mbit/s
95th percentile per-packet one-way delay: 156.022 ms
Loss rate: 1.08%
-- Flow 3:
Average throughput: 31.83 Mbit/s
95th percentile per-packet one-way delay: 156.585 ms
Loss rate: 2.81%
```
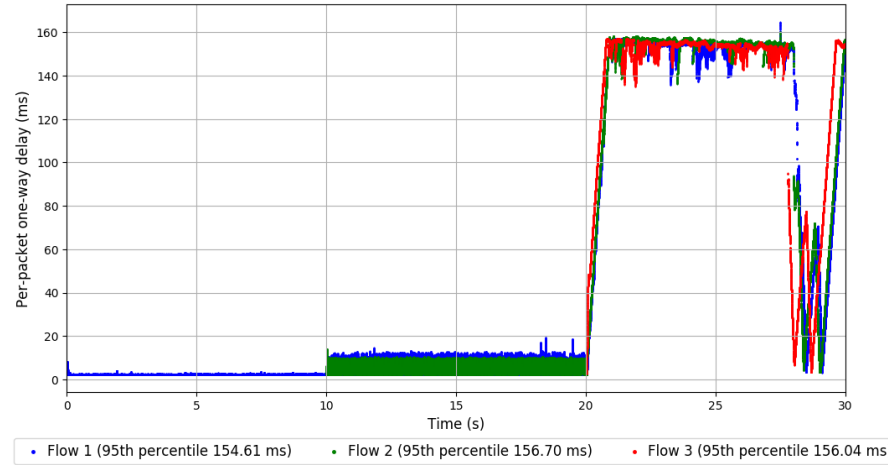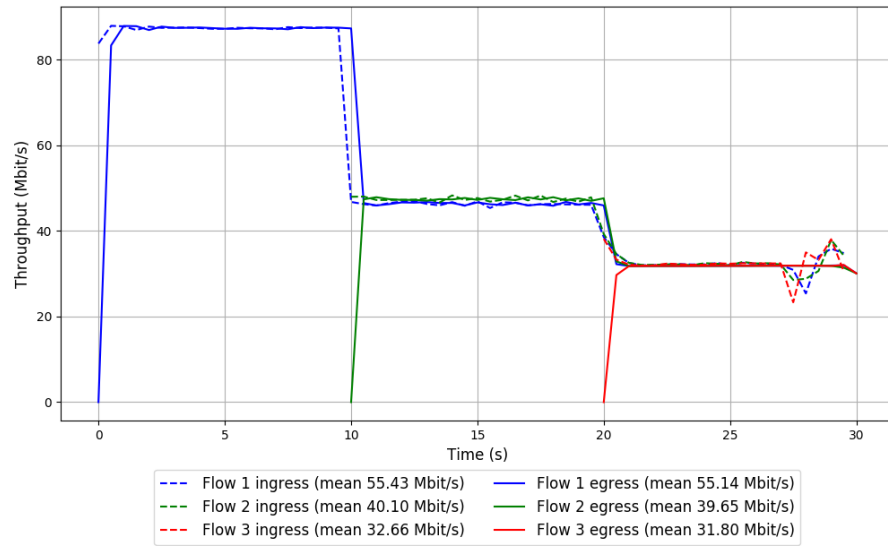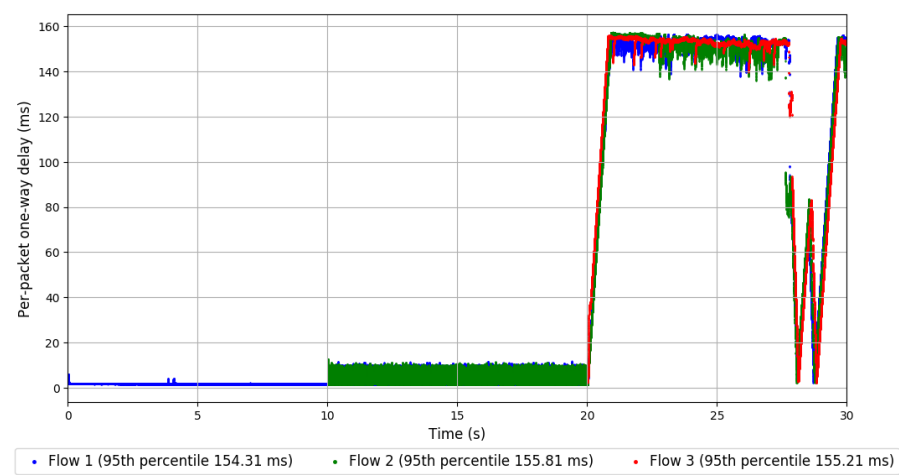
Run 3: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 55.65 Mbit/s) --- Flow 1 egress (mean 55.37 Mbit/s)
Flow 2 ingress (mean 39.98 Mbit/s) --- Flow 2 egress (mean 39.56 Mbit/s)
Flow 3 ingress (mean 32.74 Mbit/s) --- Flow 3 egress (mean 31.83 Mbit/s)

Flow 1 (95th percentile 154.77 ms) Flow 2 (95th percentile 156.02 ms) Flow 3 (95th percentile 156.59 ms)

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

Start at: 2018-09-08 01:31:12
End at: 2018-09-08 01:31:42
Local clock offset: -5.636 ms
Remote clock offset: 0.946 ms


# Below is generated by plot.py at 2018-09-08 02:24:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.12 Mbit/s
95th percentile per-packet one-way delay: 155.848 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 55.14 Mbit/s
95th percentile per-packet one-way delay: 154.608 ms
Loss rate: 0.53%
-- Flow 2:
Average throughput: 39.65 Mbit/s
95th percentile per-packet one-way delay: 156.696 ms
Loss rate: 1.13%
-- Flow 3:
Average throughput: 31.80 Mbit/s
95th percentile per-packet one-way delay: 156.037 ms
Loss rate: 2.70%
```
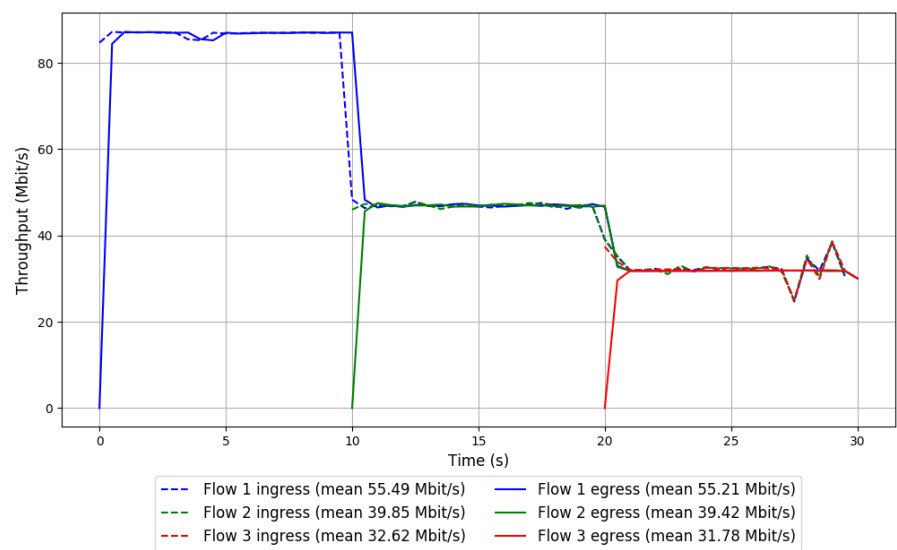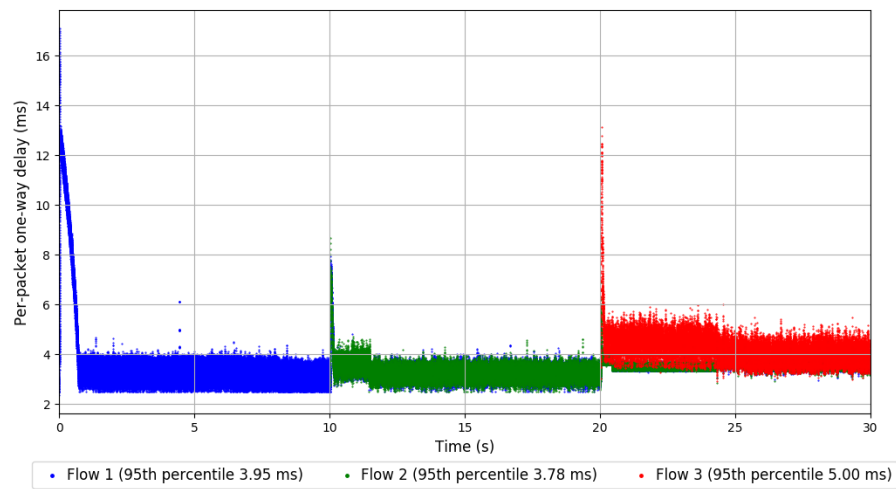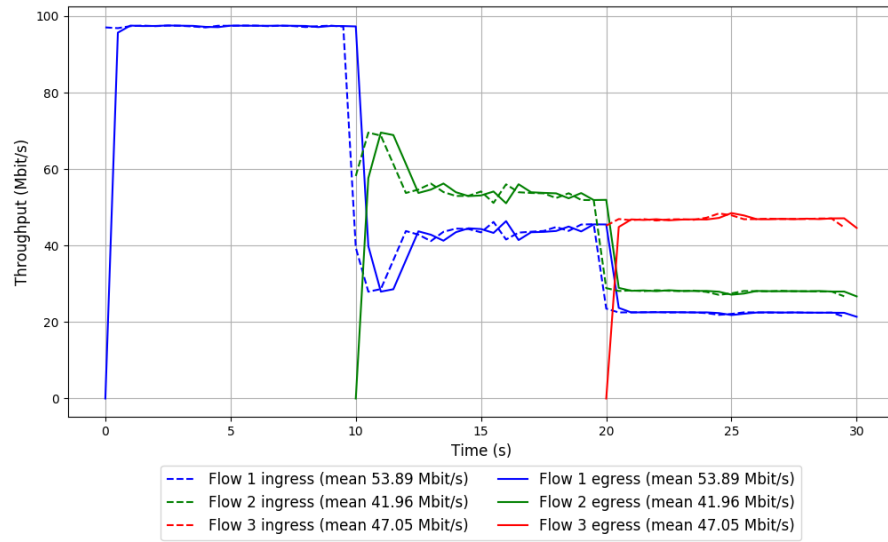
Run 4: Report of TaoVA-100x — Data Link

- - - Flow 1 ingress (mean 55.43 Mbit/s) —— Flow 1 egress (mean 55.14 Mbit/s)
- - - Flow 2 ingress (mean 40.10 Mbit/s) —— Flow 2 egress (mean 39.65 Mbit/s)
- - - Flow 3 ingress (mean 32.66 Mbit/s) —— Flow 3 egress (mean 31.80 Mbit/s)

- Flow 1 (95th percentile 154.61 ms)   - Flow 2 (95th percentile 156.70 ms)   - Flow 3 (95th percentile 156.04 ms)

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

Start at: 2018-09-08 01:51:59
End at: 2018-09-08 01:52:29
Local clock offset: -4.816 ms
Remote clock offset: 1.052 ms

# Below is generated by plot.py at 2018-09-08 02:24:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.01 Mbit/s
95th percentile per-packet one-way delay: 154.880 ms
Loss rate: 0.94%
-- Flow 1:
Average throughput: 55.21 Mbit/s
95th percentile per-packet one-way delay: 154.313 ms
Loss rate: 0.52%
-- Flow 2:
Average throughput: 39.42 Mbit/s
95th percentile per-packet one-way delay: 155.813 ms
Loss rate: 1.10%
-- Flow 3:
Average throughput: 31.78 Mbit/s
95th percentile per-packet one-way delay: 155.210 ms
Loss rate: 2.65%
```
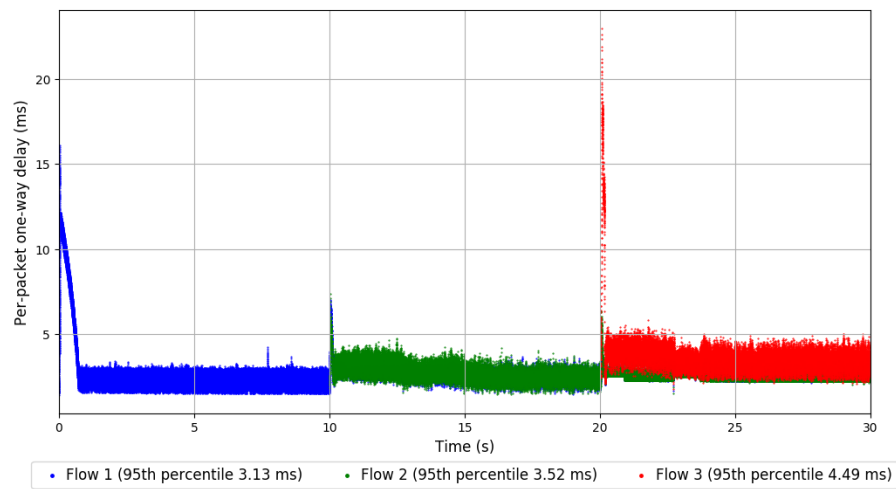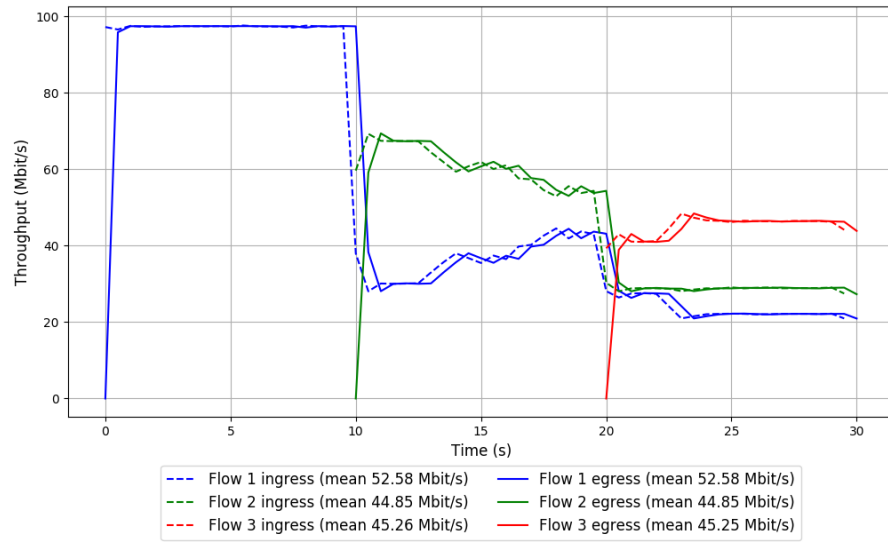
Run 5: Report of TaoVA-100x — Data Link

- - - - Flow 1 ingress (mean 55.49 Mbit/s)   —— Flow 1 egress (mean 55.21 Mbit/s)
- - - - Flow 2 ingress (mean 39.85 Mbit/s)   —— Flow 2 egress (mean 39.42 Mbit/s)
- - - - Flow 3 ingress (mean 32.62 Mbit/s)   —— Flow 3 egress (mean 31.78 Mbit/s)

• Flow 1 (95th percentile 154.31 ms)   • Flow 2 (95th percentile 155.81 ms)   • Flow 3 (95th percentile 155.21 ms)

144

```
Run 1: Statistics of TCP Vegas

Start at: 2018-09-08 00:27:42
End at: 2018-09-08 00:28:12
Local clock offset: -2.962 ms
Remote clock offset: 0.278 ms


# Below is generated by plot.py at 2018-09-08 02:24:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.45 Mbit/s
95th percentile per-packet one-way delay: 4.664 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 53.89 Mbit/s
95th percentile per-packet one-way delay: 3.947 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 41.96 Mbit/s
95th percentile per-packet one-way delay: 3.780 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 47.05 Mbit/s
95th percentile per-packet one-way delay: 5.000 ms
Loss rate: 0.05%
```
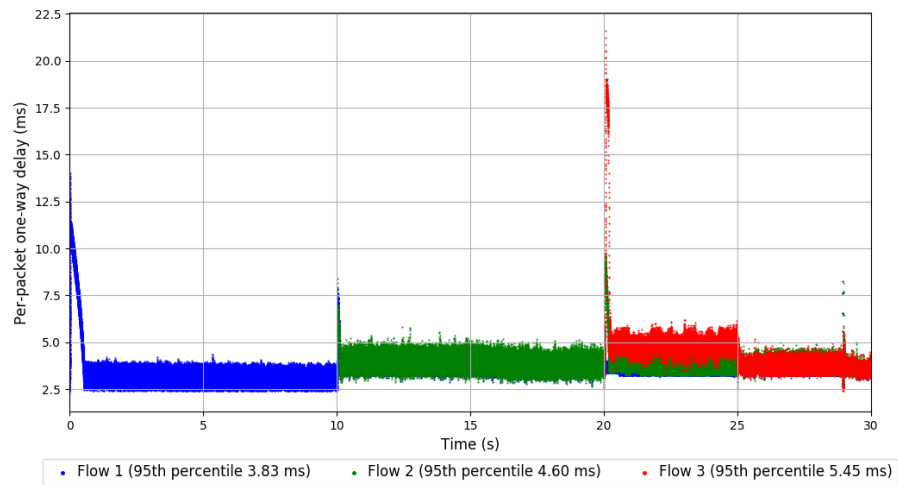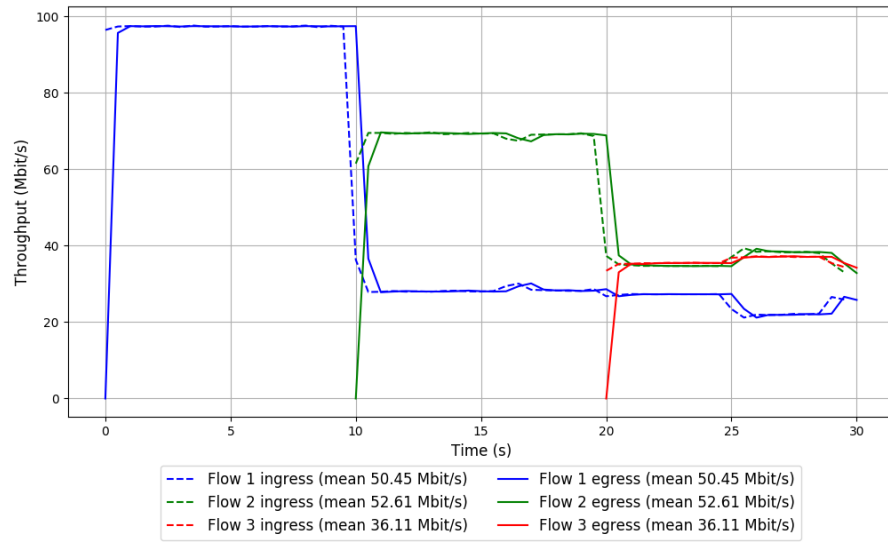
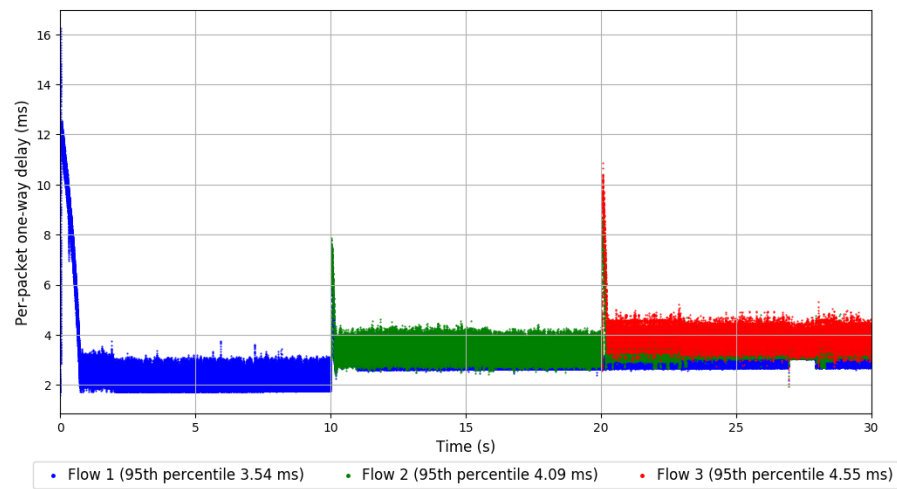Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-09-08 00:48:28
End at: 2018-09-08 00:48:58
Local clock offset: -2.594 ms
Remote clock offset: 0.491 ms


# Below is generated by plot.py at 2018-09-08 02:24:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 4.076 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 52.58 Mbit/s
95th percentile per-packet one-way delay: 3.133 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 44.85 Mbit/s
95th percentile per-packet one-way delay: 3.515 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 45.25 Mbit/s
95th percentile per-packet one-way delay: 4.494 ms
Loss rate: 0.07%
```
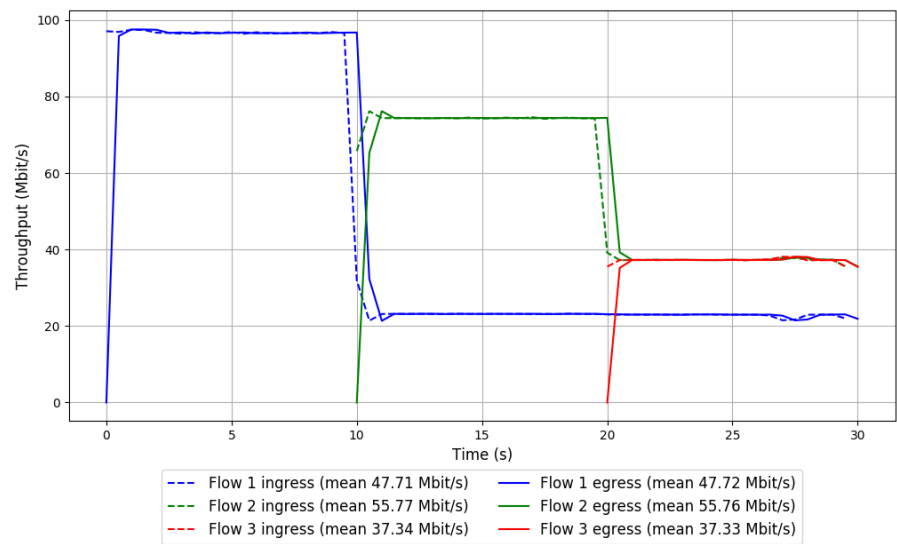
Run 2: Report of TCP Vegas — Data Link

148

```
Run 3: Statistics of TCP Vegas

Start at: 2018-09-08 01:09:14
End at: 2018-09-08 01:09:44
Local clock offset: 1.573 ms
Remote clock offset: 0.71 ms


# Below is generated by plot.py at 2018-09-08 02:24:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 4.908 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 50.45 Mbit/s
95th percentile per-packet one-way delay: 3.826 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 52.61 Mbit/s
95th percentile per-packet one-way delay: 4.598 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 36.11 Mbit/s
95th percentile per-packet one-way delay: 5.448 ms
Loss rate: 0.06%
```
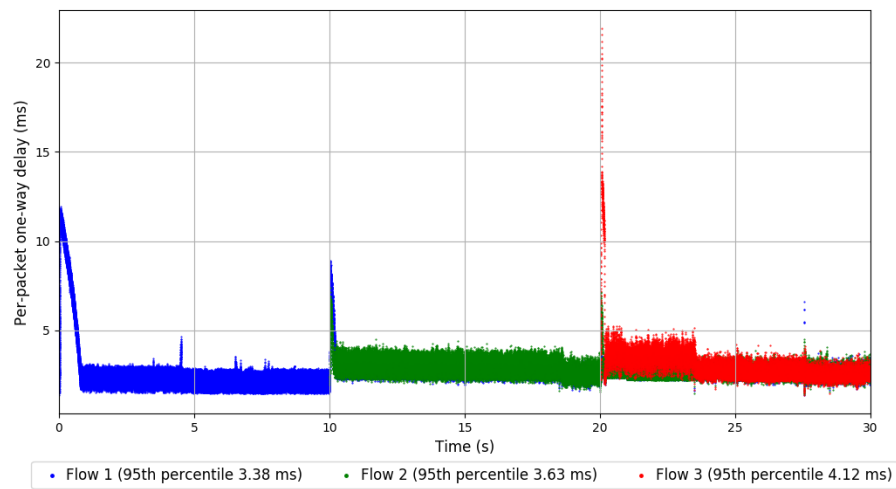
Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 50.45 Mbit/s) --- Flow 1 egress (mean 50.45 Mbit/s)
Flow 2 ingress (mean 52.61 Mbit/s) --- Flow 2 egress (mean 52.61 Mbit/s)
Flow 3 ingress (mean 36.11 Mbit/s) --- Flow 3 egress (mean 36.11 Mbit/s)

Flow 1 (95th percentile 3.83 ms)   Flow 2 (95th percentile 4.60 ms)   Flow 3 (95th percentile 5.45 ms)

150

```
Run 4: Statistics of TCP Vegas

Start at: 2018-09-08 01:30:03
End at: 2018-09-08 01:30:33
Local clock offset: -6.133 ms
Remote clock offset: 0.918 ms


# Below is generated by plot.py at 2018-09-08 02:24:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.26 Mbit/s
95th percentile per-packet one-way delay: 4.301 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 47.72 Mbit/s
95th percentile per-packet one-way delay: 3.537 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 55.76 Mbit/s
95th percentile per-packet one-way delay: 4.092 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 37.33 Mbit/s
95th percentile per-packet one-way delay: 4.549 ms
Loss rate: 0.05%
```
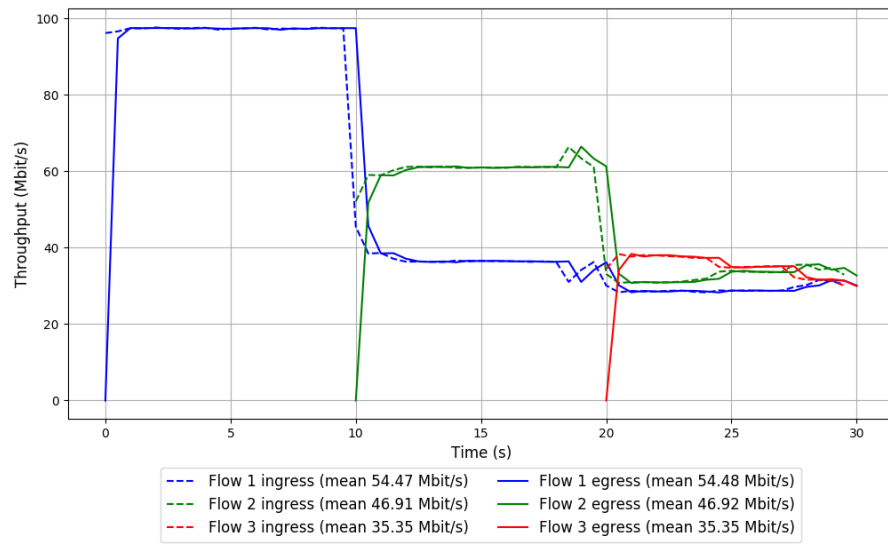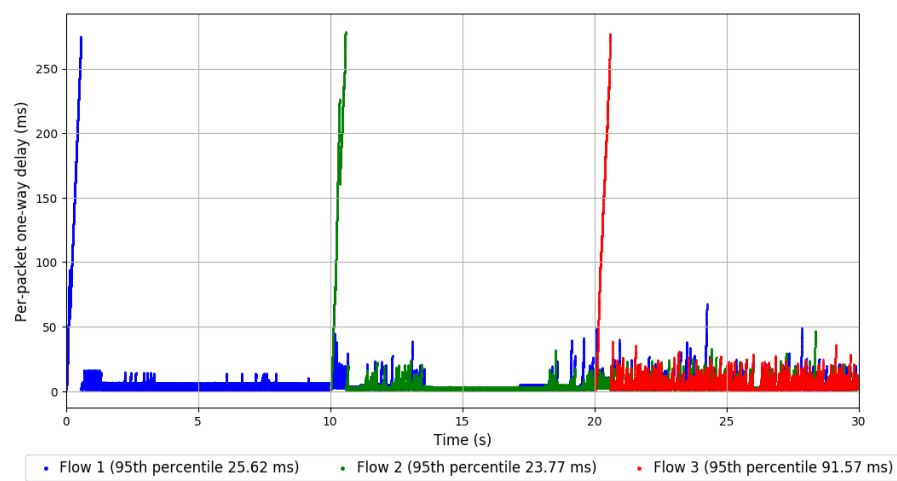
Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2018-09-08 01:50:50
End at: 2018-09-08 01:51:20
Local clock offset: -5.243 ms
Remote clock offset: 1.108 ms


# Below is generated by plot.py at 2018-09-08 02:24:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.46 Mbit/s
95th percentile per-packet one-way delay: 3.768 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 54.48 Mbit/s
95th percentile per-packet one-way delay: 3.385 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 46.92 Mbit/s
95th percentile per-packet one-way delay: 3.633 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 35.35 Mbit/s
95th percentile per-packet one-way delay: 4.122 ms
Loss rate: 0.03%
```
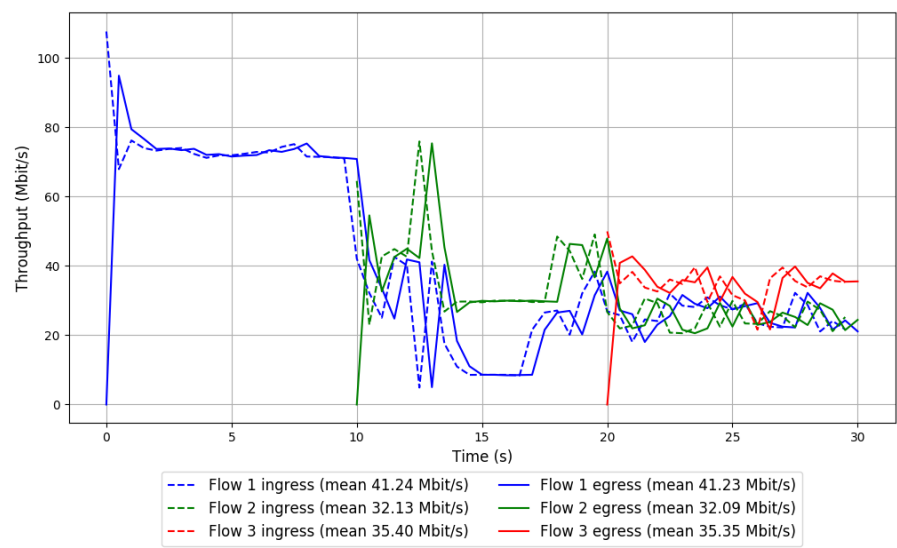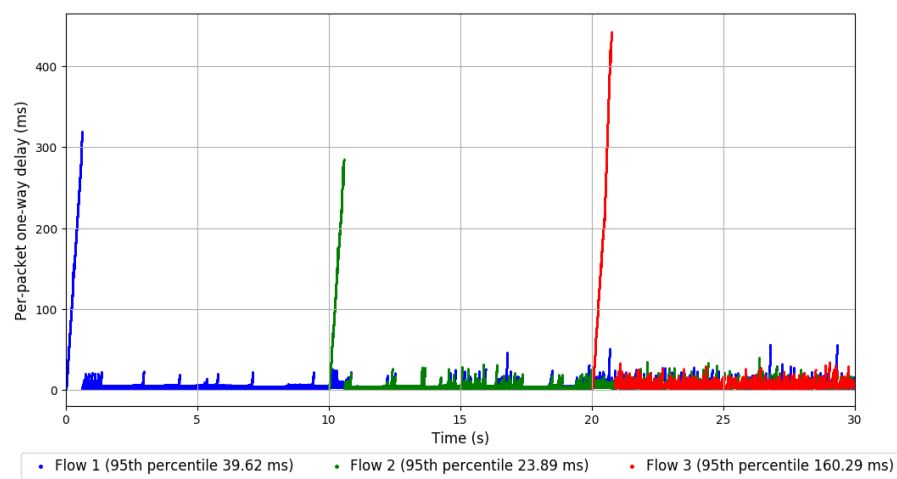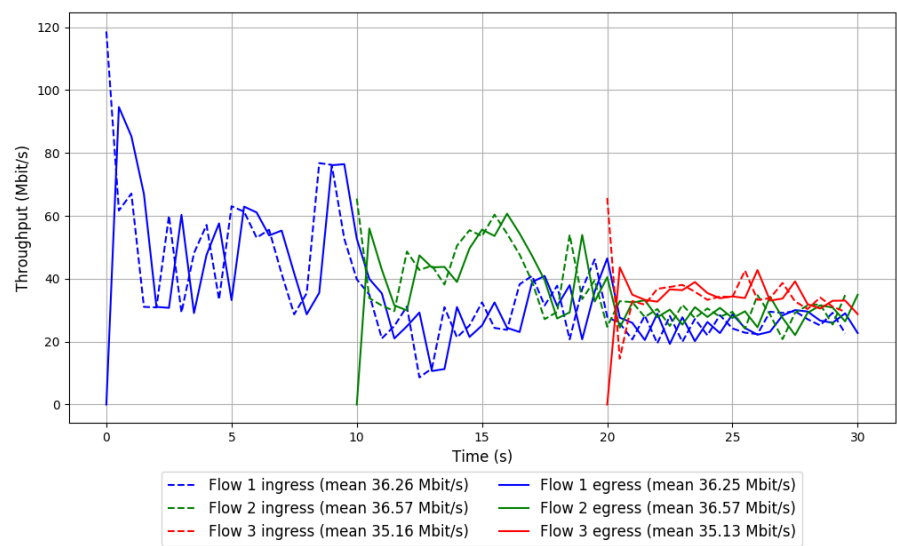
Run 5: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 54.47 Mbit/s) ---- Flow 1 egress (mean 54.48 Mbit/s)
Flow 2 ingress (mean 46.91 Mbit/s) ---- Flow 2 egress (mean 46.92 Mbit/s)
Flow 3 ingress (mean 35.35 Mbit/s) ---- Flow 3 egress (mean 35.35 Mbit/s)

• Flow 1 (95th percentile 3.38 ms)   • Flow 2 (95th percentile 3.63 ms)   • Flow 3 (95th percentile 4.12 ms)

```
Run 1: Statistics of Verus

Start at: 2018-09-08 00:47:19
End at: 2018-09-08 00:47:49
Local clock offset: -3.16 ms
Remote clock offset: 0.484 ms


# Below is generated by plot.py at 2018-09-08 02:25:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 74.32 Mbit/s
95th percentile per-packet one-way delay: 27.898 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 41.23 Mbit/s
95th percentile per-packet one-way delay: 25.625 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 32.09 Mbit/s
95th percentile per-packet one-way delay: 23.769 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 35.35 Mbit/s
95th percentile per-packet one-way delay: 91.569 ms
Loss rate: 0.04%
```
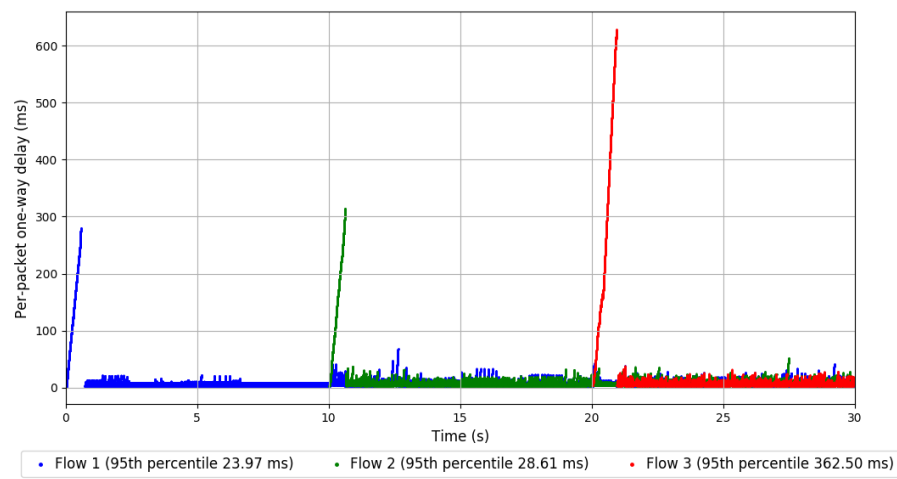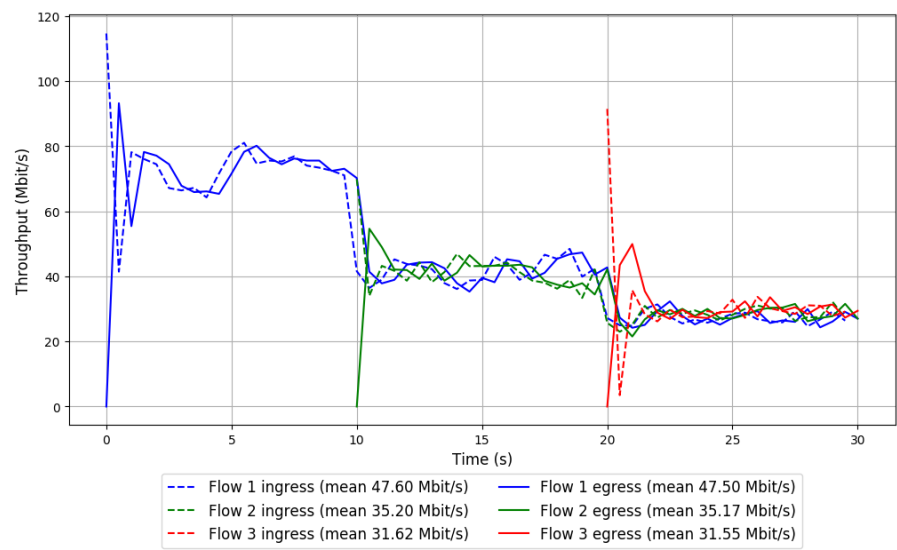
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-09-08 01:08:05
End at: 2018-09-08 01:08:35
Local clock offset: 1.487 ms
Remote clock offset: 0.727 ms


# Below is generated by plot.py at 2018-09-08 02:25:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 72.29 Mbit/s
95th percentile per-packet one-way delay: 44.300 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 36.25 Mbit/s
95th percentile per-packet one-way delay: 39.615 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 36.57 Mbit/s
95th percentile per-packet one-way delay: 23.885 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 35.13 Mbit/s
95th percentile per-packet one-way delay: 160.288 ms
Loss rate: 0.15%
```

Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-09-08 01:28:53
End at: 2018-09-08 01:29:23
Local clock offset: -5.148 ms
Remote clock offset: 0.974 ms


# Below is generated by plot.py at 2018-09-08 02:25:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.39 Mbit/s
95th percentile per-packet one-way delay: 38.624 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 47.50 Mbit/s
95th percentile per-packet one-way delay: 23.972 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 35.17 Mbit/s
95th percentile per-packet one-way delay: 28.605 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 31.55 Mbit/s
95th percentile per-packet one-way delay: 362.499 ms
Loss rate: 0.14%
```
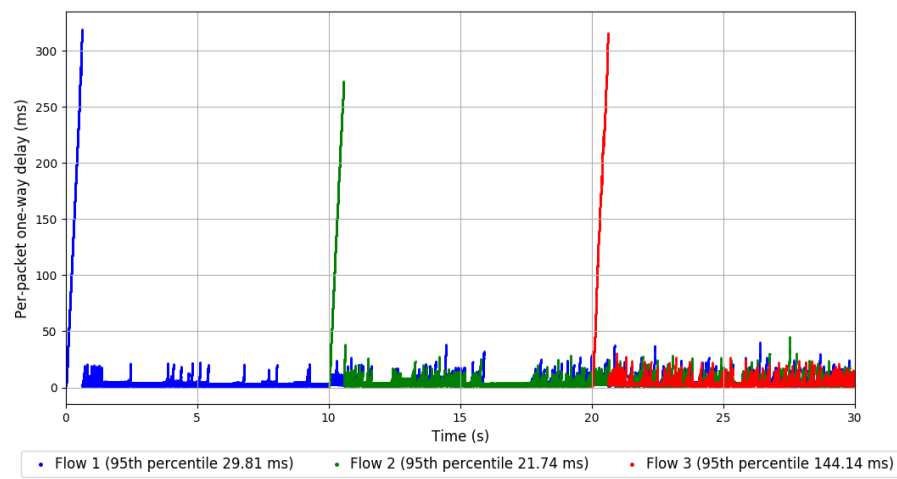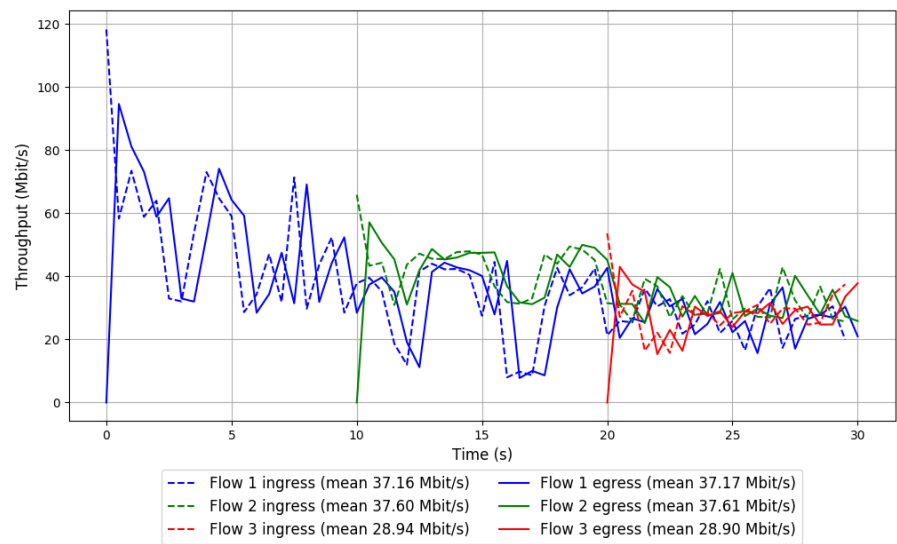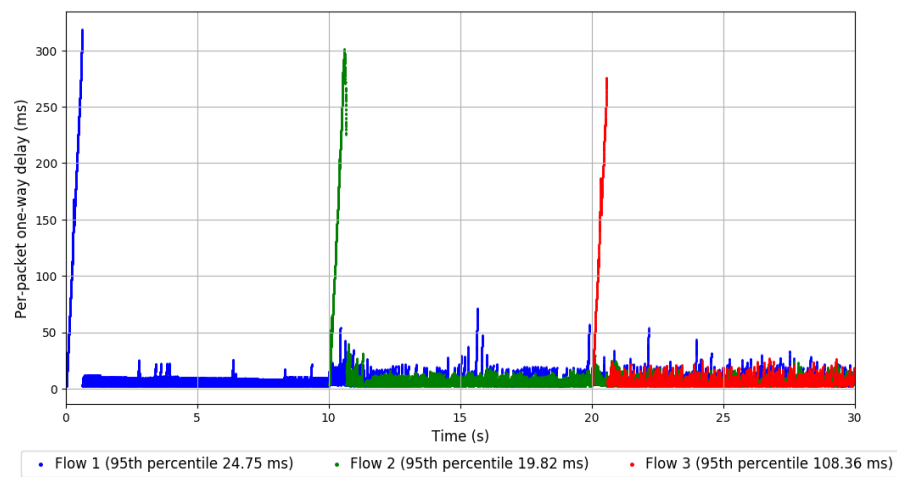
Run 3: Report of Verus — Data Link

- - - Flow 1 ingress (mean 47.60 Mbit/s) —— Flow 1 egress (mean 47.50 Mbit/s)
- - - Flow 2 ingress (mean 35.20 Mbit/s) —— Flow 2 egress (mean 35.17 Mbit/s)
- - - Flow 3 ingress (mean 31.62 Mbit/s) —— Flow 3 egress (mean 31.55 Mbit/s)

• Flow 1 (95th percentile 23.97 ms)   • Flow 2 (95th percentile 28.61 ms)   • Flow 3 (95th percentile 362.50 ms)

```
Run 4: Statistics of Verus

Start at: 2018-09-08 01:49:41
End at: 2018-09-08 01:50:11
Local clock offset: -5.606 ms
Remote clock offset: 1.187 ms


# Below is generated by plot.py at 2018-09-08 02:25:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 71.81 Mbit/s
95th percentile per-packet one-way delay: 31.849 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 37.17 Mbit/s
95th percentile per-packet one-way delay: 29.812 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 37.61 Mbit/s
95th percentile per-packet one-way delay: 21.738 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 28.90 Mbit/s
95th percentile per-packet one-way delay: 144.142 ms
Loss rate: 0.16%
```
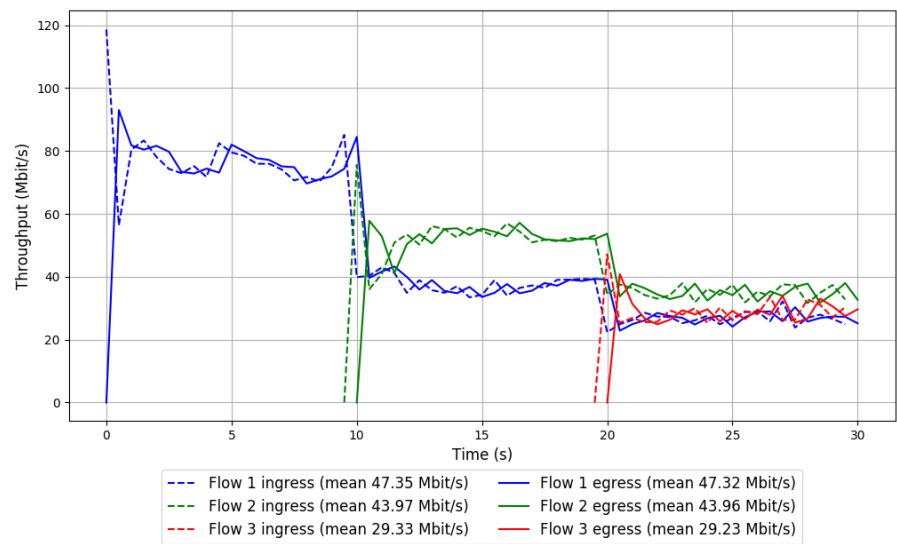
Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-09-08 02:10:28
End at: 2018-09-08 02:10:58
Local clock offset: -1.504 ms
Remote clock offset: 1.075 ms


# Below is generated by plot.py at 2018-09-08 02:25:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.33 Mbit/s
95th percentile per-packet one-way delay: 25.617 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 47.32 Mbit/s
95th percentile per-packet one-way delay: 24.746 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 43.96 Mbit/s
95th percentile per-packet one-way delay: 19.819 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 29.23 Mbit/s
95th percentile per-packet one-way delay: 108.362 ms
Loss rate: 0.21%
```
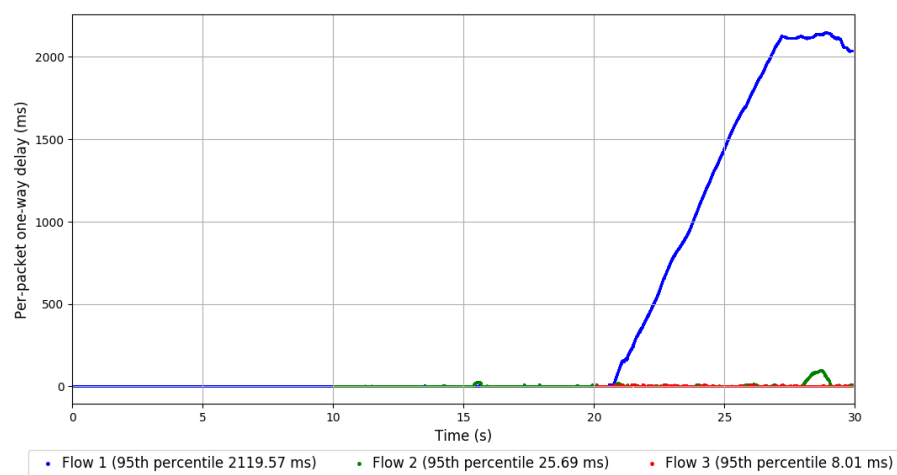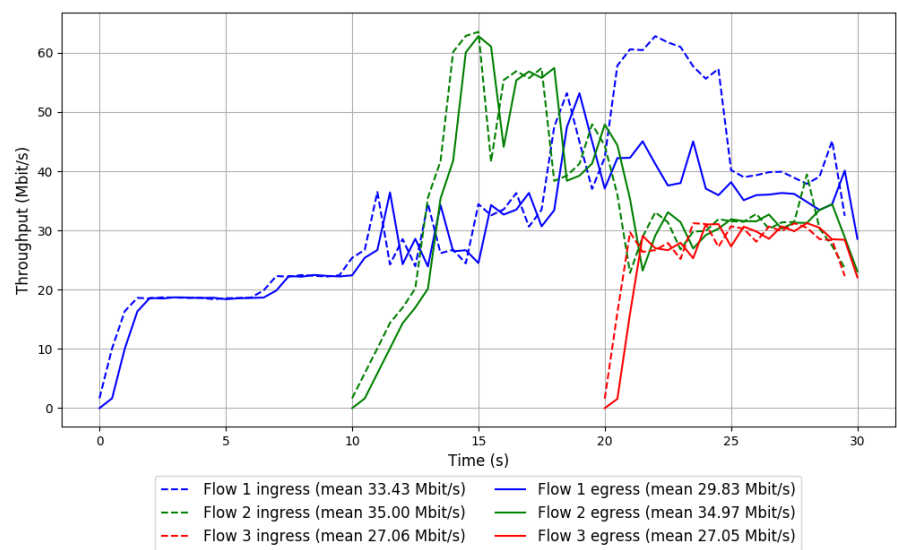
Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-09-08 00:41:31
End at: 2018-09-08 00:42:01
Local clock offset: -3.502 ms
Remote clock offset: 0.422 ms


# Below is generated by plot.py at 2018-09-08 02:25:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 62.01 Mbit/s
95th percentile per-packet one-way delay: 2059.225 ms
Loss rate: 5.55%
-- Flow 1:
Average throughput: 29.83 Mbit/s
95th percentile per-packet one-way delay: 2119.571 ms
Loss rate: 10.79%
-- Flow 2:
Average throughput: 34.97 Mbit/s
95th percentile per-packet one-way delay: 25.687 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 27.05 Mbit/s
95th percentile per-packet one-way delay: 8.007 ms
Loss rate: 0.07%
```
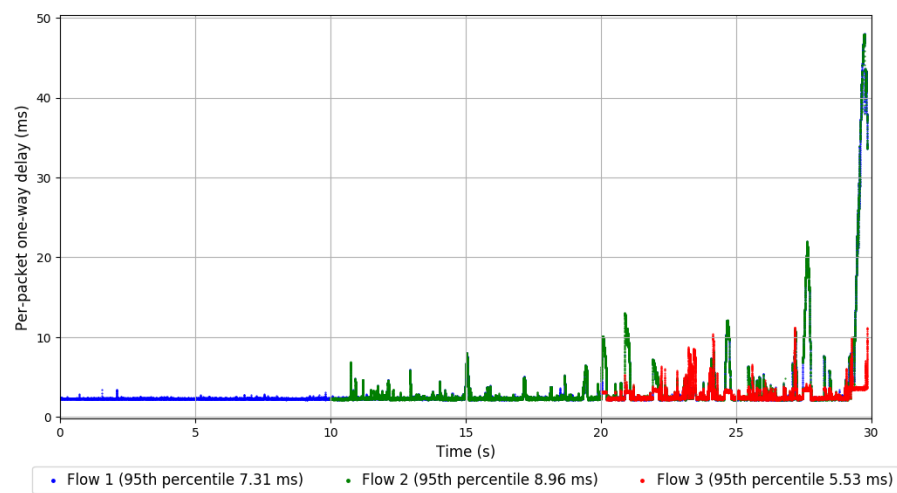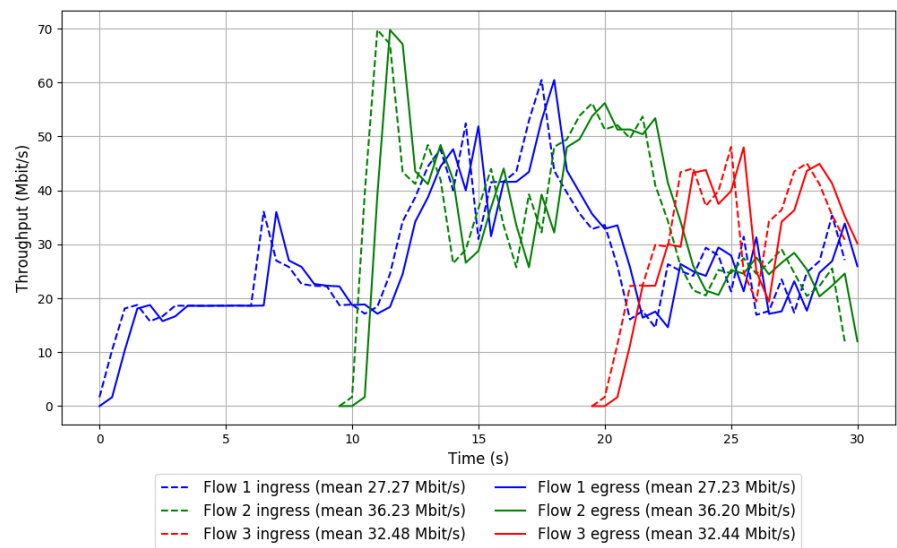
Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-09-08 01:02:18
End at: 2018-09-08 01:02:48
Local clock offset: 0.996 ms
Remote clock offset: 0.671 ms


# Below is generated by plot.py at 2018-09-08 02:25:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 62.04 Mbit/s
95th percentile per-packet one-way delay: 7.300 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 27.23 Mbit/s
95th percentile per-packet one-way delay: 7.312 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 36.20 Mbit/s
95th percentile per-packet one-way delay: 8.964 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 32.44 Mbit/s
95th percentile per-packet one-way delay: 5.527 ms
Loss rate: 0.16%
```
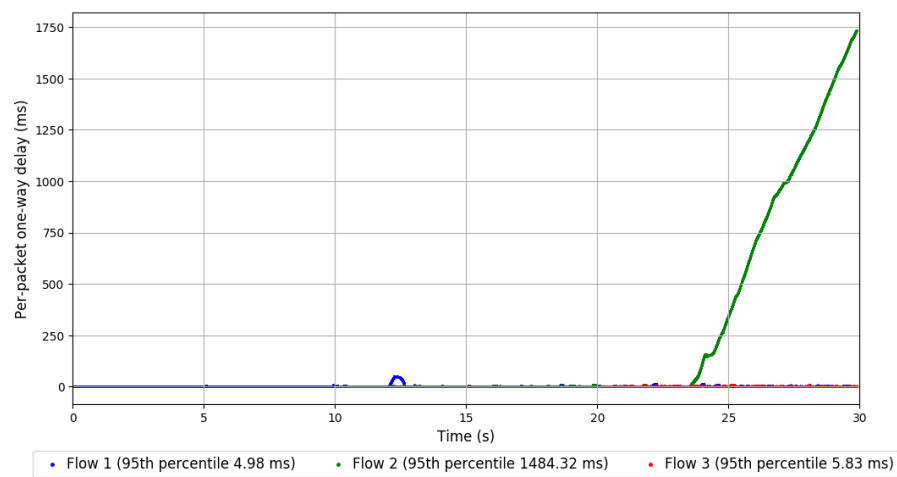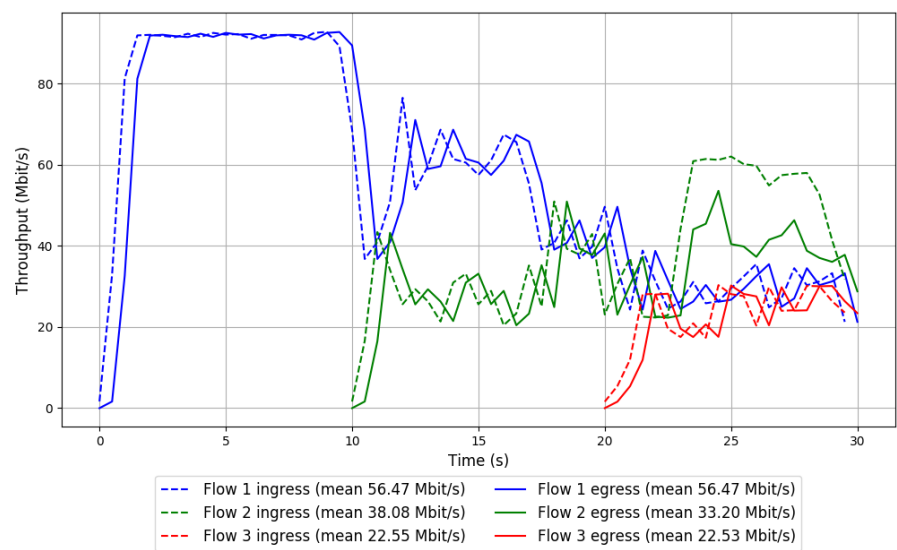
Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-09-08 01:23:05
End at: 2018-09-08 01:23:35
Local clock offset: -3.249 ms
Remote clock offset: 0.844 ms


# Below is generated by plot.py at 2018-09-08 02:25:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.98 Mbit/s
95th percentile per-packet one-way delay: 860.261 ms
Loss rate: 3.65%
-- Flow 1:
Average throughput: 56.47 Mbit/s
95th percentile per-packet one-way delay: 4.980 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 33.20 Mbit/s
95th percentile per-packet one-way delay: 1484.321 ms
Loss rate: 12.82%
-- Flow 3:
Average throughput: 22.53 Mbit/s
95th percentile per-packet one-way delay: 5.826 ms
Loss rate: 0.08%
```
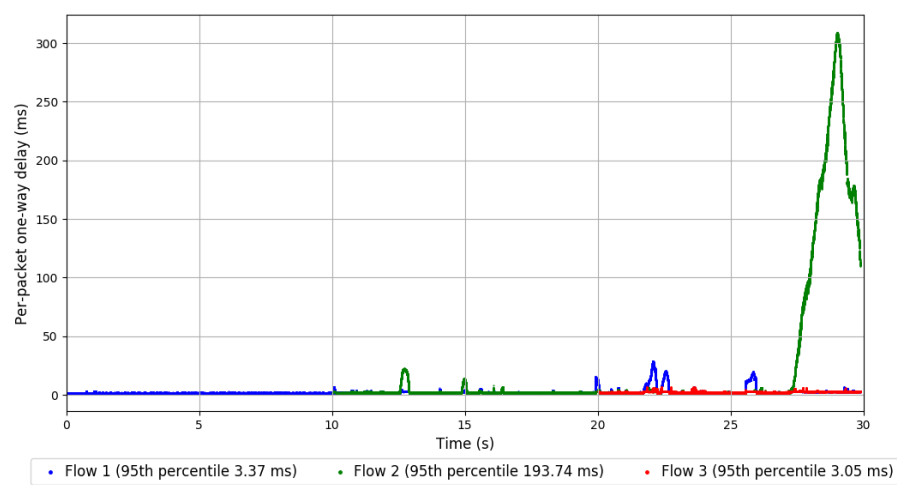
Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-09-08 01:43:52
End at: 2018-09-08 01:44:22
Local clock offset: -8.178 ms
Remote clock offset: 1.055 ms


# Below is generated by plot.py at 2018-09-08 02:25:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.51 Mbit/s
95th percentile per-packet one-way delay: 15.424 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 56.21 Mbit/s
95th percentile per-packet one-way delay: 3.369 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 35.70 Mbit/s
95th percentile per-packet one-way delay: 193.742 ms
Loss rate: 0.73%
-- Flow 3:
Average throughput: 25.93 Mbit/s
95th percentile per-packet one-way delay: 3.049 ms
Loss rate: 0.07%
```
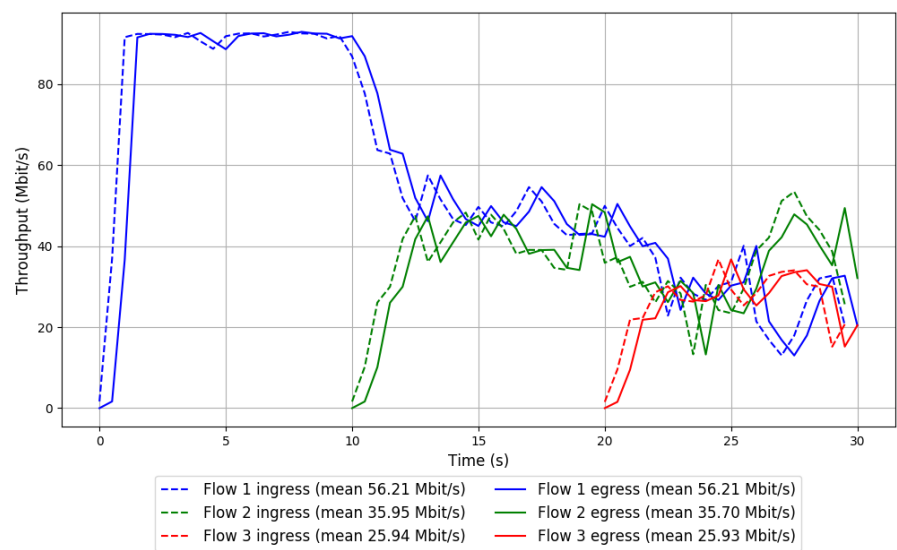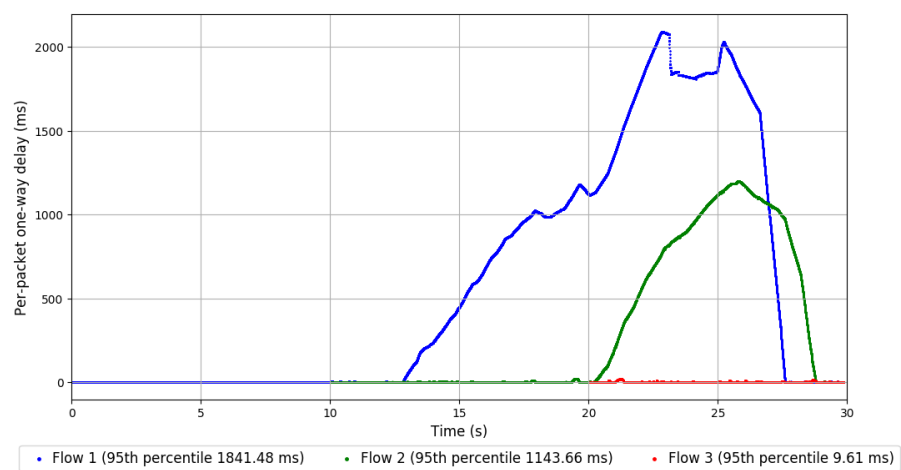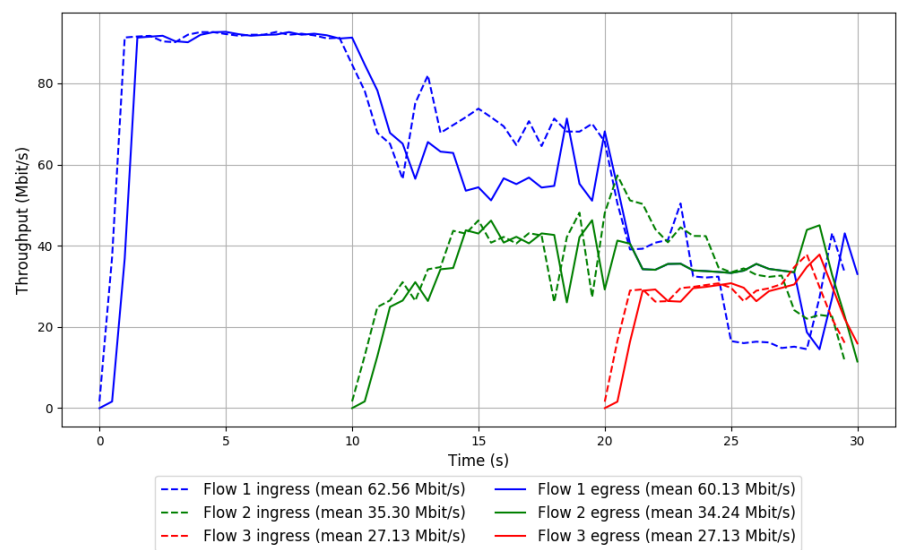
Run 4: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 56.21 Mbit/s) --- Flow 1 egress (mean 56.21 Mbit/s)
Flow 2 ingress (mean 35.95 Mbit/s) --- Flow 2 egress (mean 35.70 Mbit/s)
Flow 3 ingress (mean 25.94 Mbit/s) --- Flow 3 egress (mean 25.93 Mbit/s)

Flow 1 (95th percentile 3.37 ms)   Flow 2 (95th percentile 193.74 ms)   Flow 3 (95th percentile 3.05 ms)

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-09-08 02:04:39
End at: 2018-09-08 02:05:09
Local clock offset: -1.861 ms
Remote clock offset: 1.166 ms


# Below is generated by plot.py at 2018-09-08 02:25:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.86 Mbit/s
95th percentile per-packet one-way delay: 1779.939 ms
Loss rate: 3.32%
-- Flow 1:
Average throughput: 60.13 Mbit/s
95th percentile per-packet one-way delay: 1841.483 ms
Loss rate: 3.90%
-- Flow 2:
Average throughput: 34.24 Mbit/s
95th percentile per-packet one-way delay: 1143.662 ms
Loss rate: 3.03%
-- Flow 3:
Average throughput: 27.13 Mbit/s
95th percentile per-packet one-way delay: 9.613 ms
Loss rate: 0.06%
```
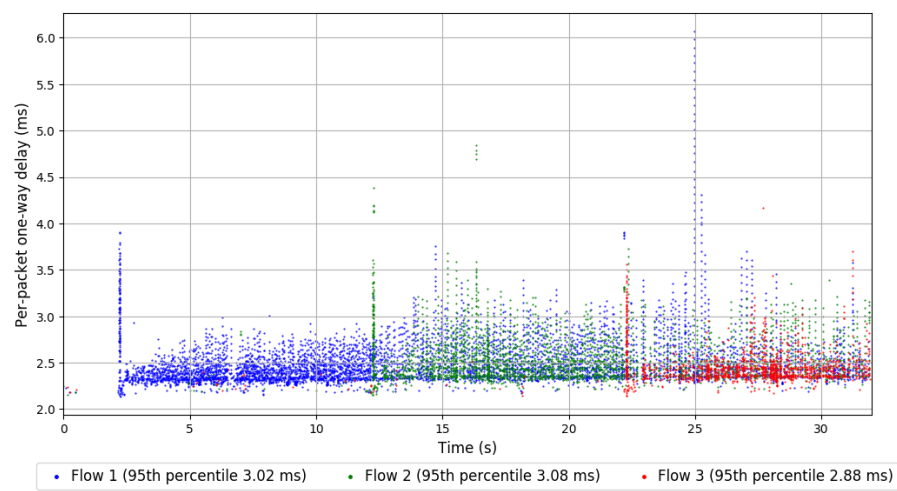
Run 5: Report of PCC-Vivace — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2018-09-08 00:39:20
End at: 2018-09-08 00:39:50
Local clock offset: -3.425 ms
Remote clock offset: 0.471 ms


# Below is generated by plot.py at 2018-09-08 02:25:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.77 Mbit/s
95th percentile per-packet one-way delay: 3.028 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.56 Mbit/s
95th percentile per-packet one-way delay: 3.023 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.81 Mbit/s
95th percentile per-packet one-way delay: 3.083 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 2.880 ms
Loss rate: 0.00%
```
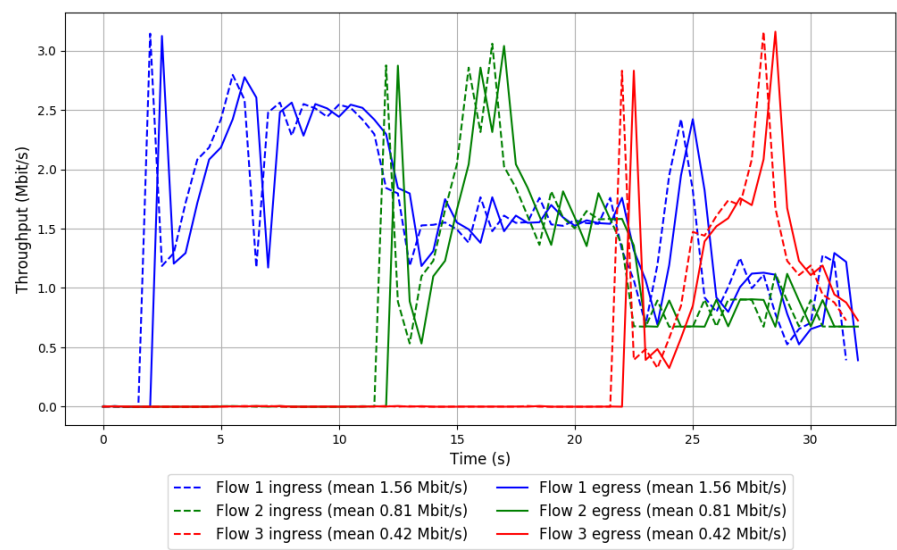
Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-09-08 01:00:07
End at: 2018-09-08 01:00:37
Local clock offset: 0.042 ms
Remote clock offset: 0.702 ms


# Below is generated by plot.py at 2018-09-08 02:25:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.71 Mbit/s
95th percentile per-packet one-way delay: 2.270 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.52 Mbit/s
95th percentile per-packet one-way delay: 2.209 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.87 Mbit/s
95th percentile per-packet one-way delay: 2.386 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 2.128 ms
Loss rate: 0.00%
```
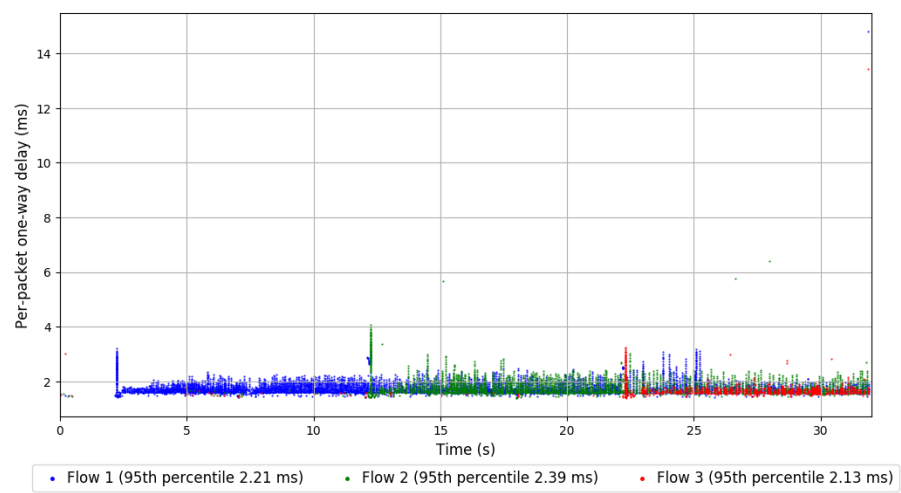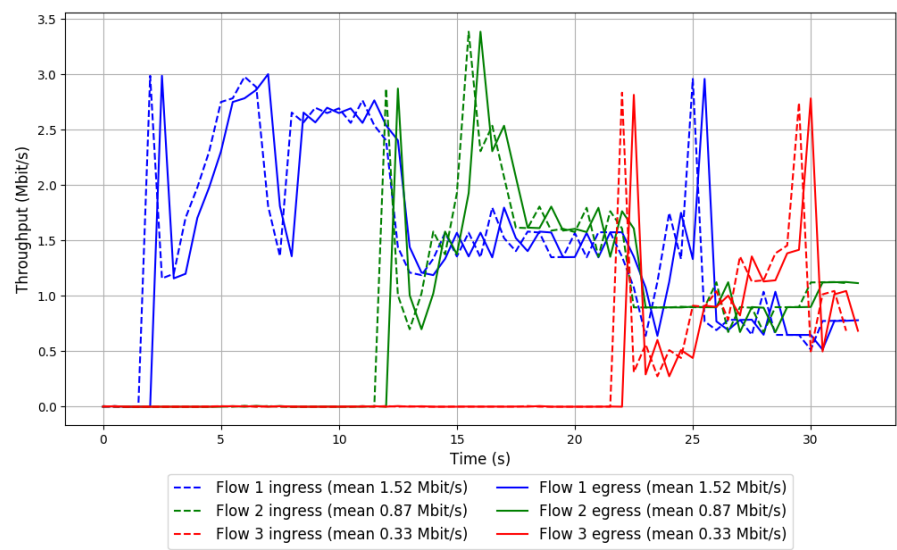
Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-09-08 01:20:54
End at: 2018-09-08 01:21:24
Local clock offset: -3.048 ms
Remote clock offset: 0.804 ms

# Below is generated by plot.py at 2018-09-08 02:25:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.76 Mbit/s
95th percentile per-packet one-way delay: 2.770 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 1.49 Mbit/s
95th percentile per-packet one-way delay: 2.669 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 0.86 Mbit/s
95th percentile per-packet one-way delay: 2.820 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 2.900 ms
Loss rate: 0.28%
```
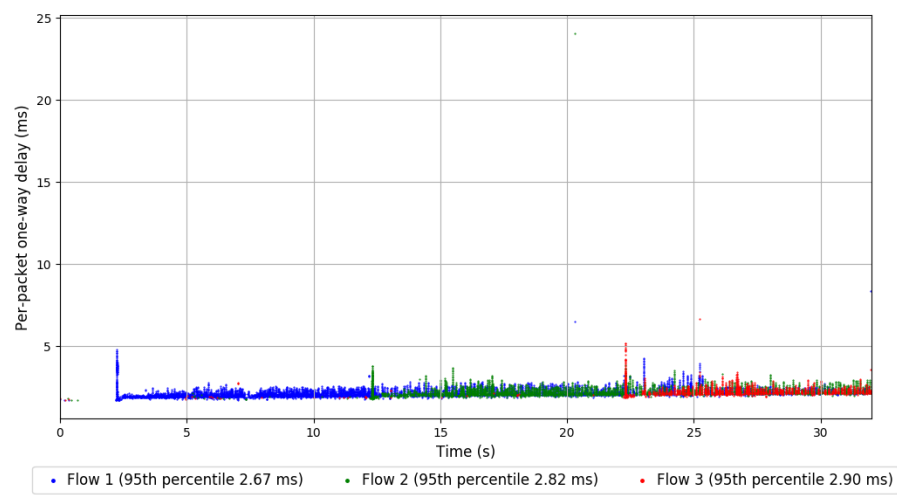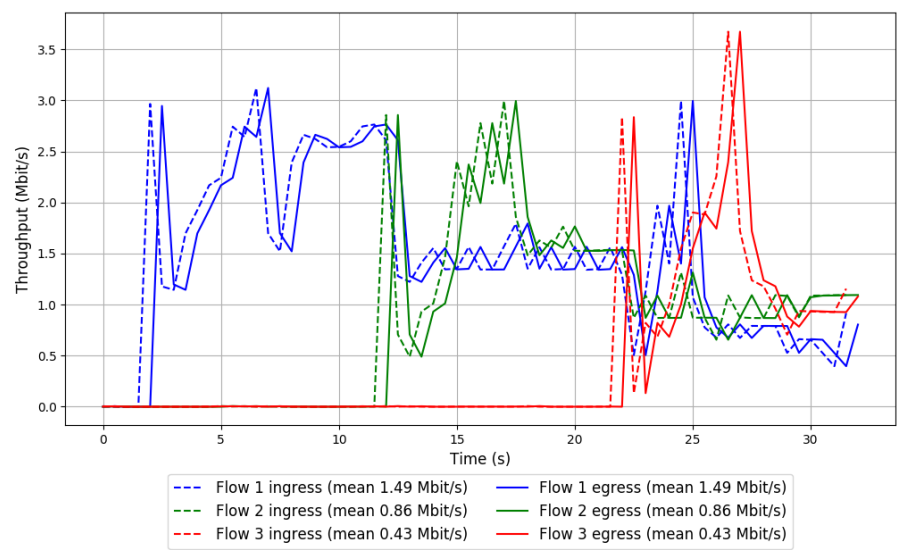
Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-09-08 01:41:42
End at: 2018-09-08 01:42:12
Local clock offset: -7.171 ms
Remote clock offset: 1.065 ms


# Below is generated by plot.py at 2018-09-08 02:25:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.75 Mbit/s
95th percentile per-packet one-way delay: 3.142 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.50 Mbit/s
95th percentile per-packet one-way delay: 3.101 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.86 Mbit/s
95th percentile per-packet one-way delay: 3.179 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 3.228 ms
Loss rate: 0.01%
```
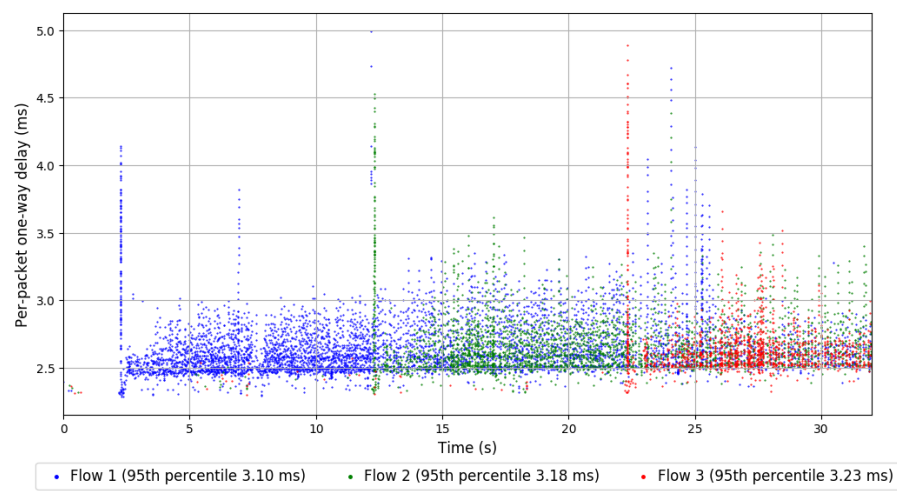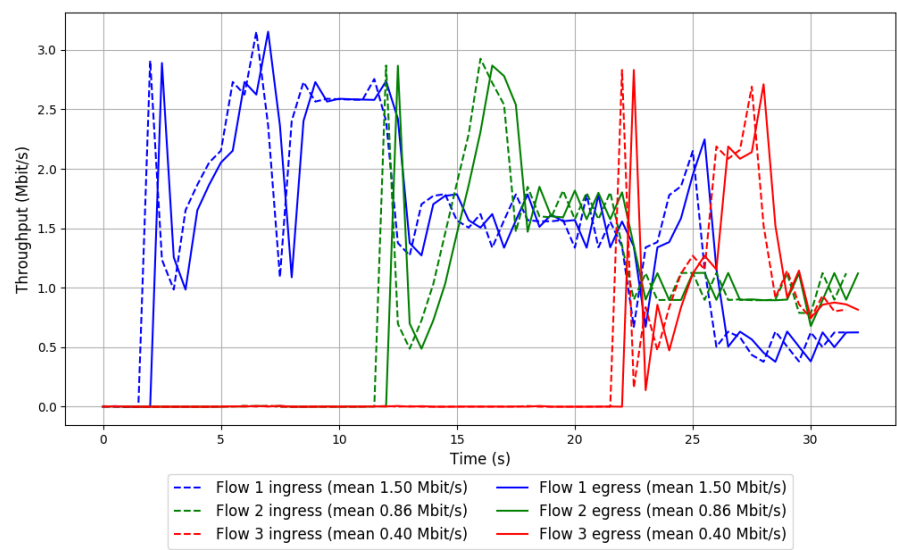
Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-09-08 02:02:29
End at: 2018-09-08 02:02:59
Local clock offset: -2.783 ms
Remote clock offset: 1.125 ms


# Below is generated by plot.py at 2018-09-08 02:25:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.76 Mbit/s
95th percentile per-packet one-way delay: 2.354 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 1.49 Mbit/s
95th percentile per-packet one-way delay: 2.332 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.87 Mbit/s
95th percentile per-packet one-way delay: 2.435 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 2.192 ms
Loss rate: 0.07%
```

Run 5: Report of WebRTC media — Data Link