Pantheon Report

Generated at 2018-10-27 02:54:42 (UTC).

Data path: GCE Tokyo on `ens4` (*remote*) →GCE Sydney on `ens4` (*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 `time.google.com` and have been applied to correct the timestamps in logs.
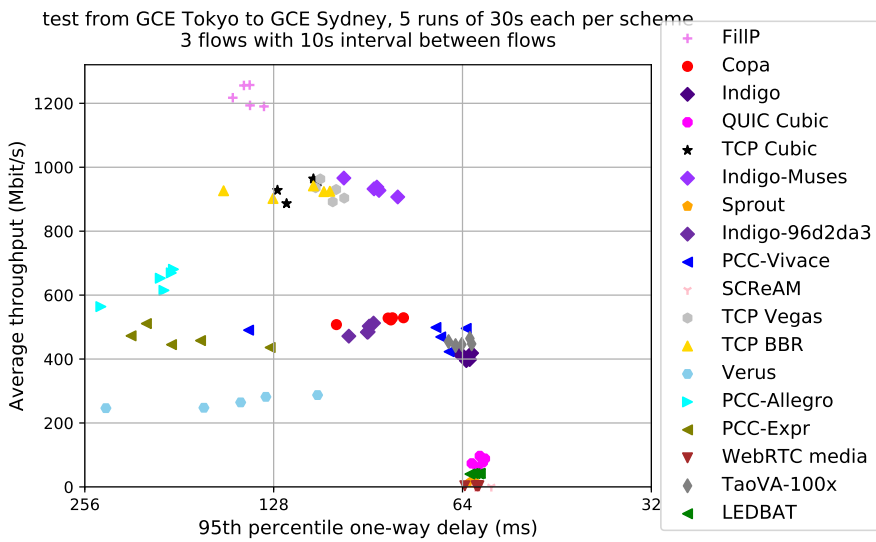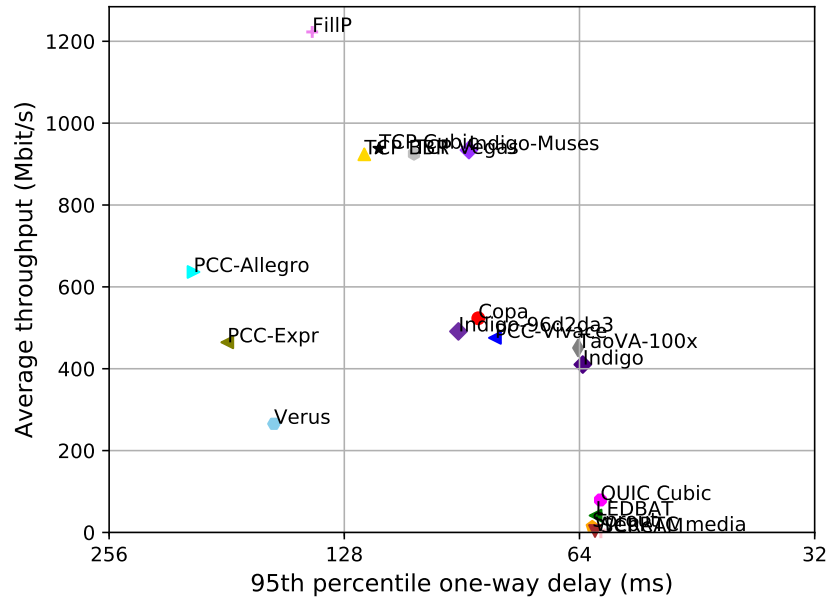
```
System info:
Linux 4.15.0-1021-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ 2e19c0464530faa92c63f8217c9971438a26a3be
third_party/fillp @ 5332fc9127c63565e13f4933b336c02d1aabdac6
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
 M src/ScreamClient
 M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
```

```
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

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

test from GCE Tokyo to GCE Sydney, 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	484.01	445.08	436.37	108.31	123.55	115.98	0.49	0.80	1.57
Copa	5	276.36	249.66	245.49	82.41	90.19	84.27	0.35	0.58	1.39
TCP Cubic	5	484.07	460.82	446.81	116.41	109.83	94.62	0.47	0.71	1.46
FillP	5	640.59	624.44	508.83	143.13	127.54	135.16	1.76	1.66	2.21
Indigo	5	218.23	202.63	177.25	62.25	63.24	63.32	0.39	0.63	1.45
Indigo-96d2da3	5	259.30	246.28	211.18	88.69	96.83	85.38	0.41	0.39	1.10
LEDBAT	5	26.62	17.90	8.71	60.29	60.64	60.03	0.67	1.18	2.39
Indigo-Muses	5	513.57	454.30	366.75	88.12	88.45	89.60	0.36	0.66	1.63
PCC-Allegro	5	369.38	281.91	244.74	197.31	131.92	205.57	6.58	1.75	4.43
PCC-Expr	5	257.58	225.33	175.28	183.18	141.65	139.81	3.30	1.26	3.90
QUIC Cubic	5	47.53	35.24	24.94	58.11	60.22	57.50	0.70	0.96	1.76
SCReAM	5	0.22	0.22	0.22	59.34	59.96	59.32	0.38	0.61	1.08
Sprout	5	7.36	6.68	6.60	59.55	61.69	60.98	0.42	0.71	1.26
TaoVA-100x	5	231.29	225.54	211.23	62.82	64.26	65.19	0.38	0.49	1.21
TCP Vegas	5	491.95	440.54	424.99	98.36	91.82	106.25	0.37	0.64	1.59
Verus	5	155.28	111.60	109.99	133.43	96.16	182.01	0.55	0.44	7.94
PCC-Vivace	5	294.42	233.10	80.28	74.75	103.97	59.24	0.41	1.19	2.47
WebRTC media	5	1.86	1.17	0.46	60.41	59.75	59.80	0.44	0.85	1.71

```
Run 1: Statistics of TCP BBR

Start at: 2018-10-26 21:43:16
End at: 2018-10-26 21:43:46
Local clock offset: 0.456 ms
Remote clock offset: 1.352 ms


# Below is generated by plot.py at 2018-10-27 00:39:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 941.73 Mbit/s
95th percentile per-packet one-way delay: 110.624 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 513.49 Mbit/s
95th percentile per-packet one-way delay: 95.152 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 429.30 Mbit/s
95th percentile per-packet one-way delay: 120.694 ms
Loss rate: 0.82%
-- Flow 3:
Average throughput: 432.24 Mbit/s
95th percentile per-packet one-way delay: 105.224 ms
Loss rate: 1.39%
```
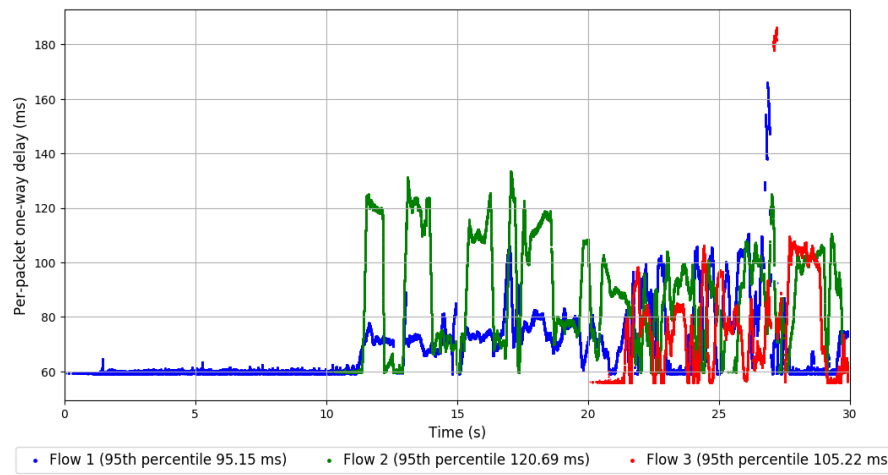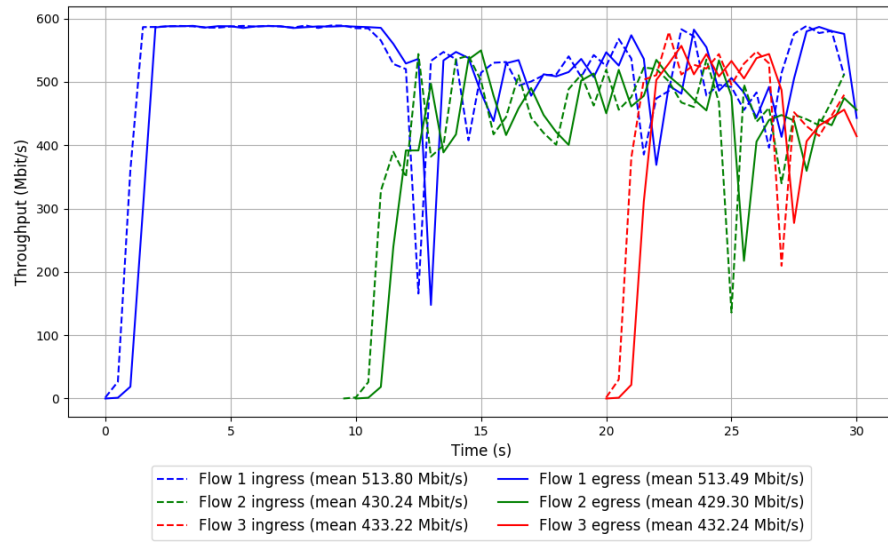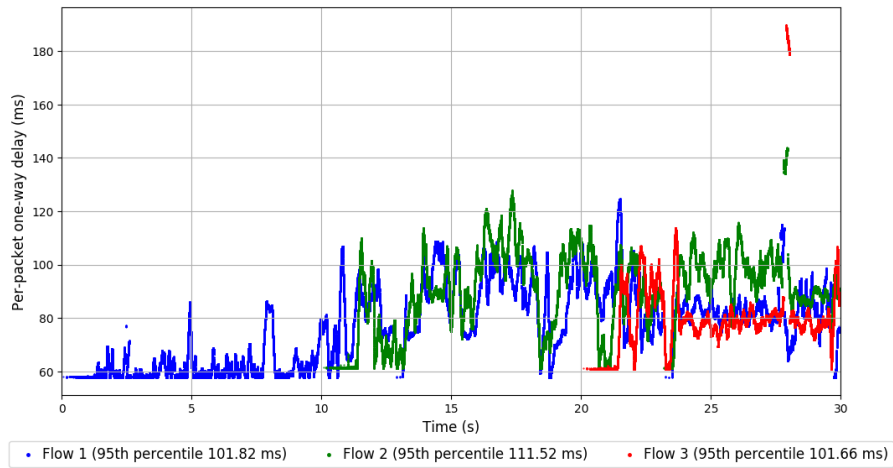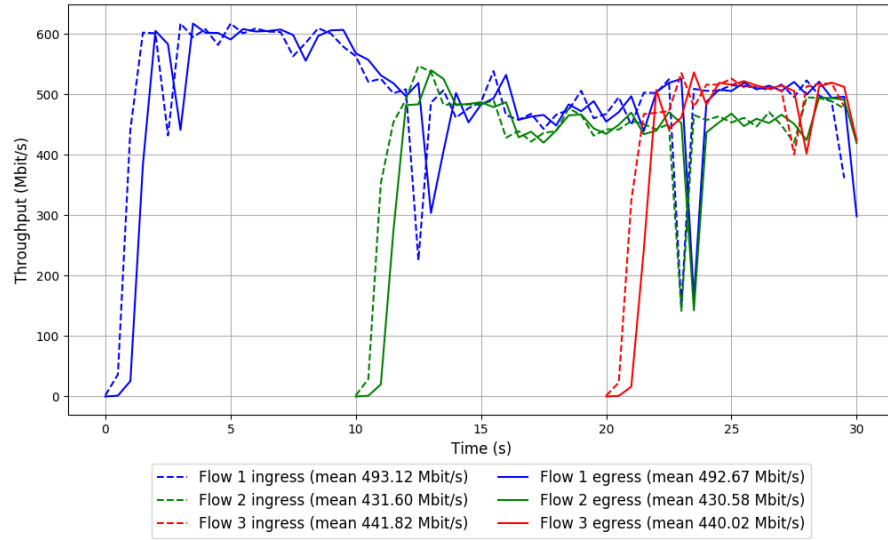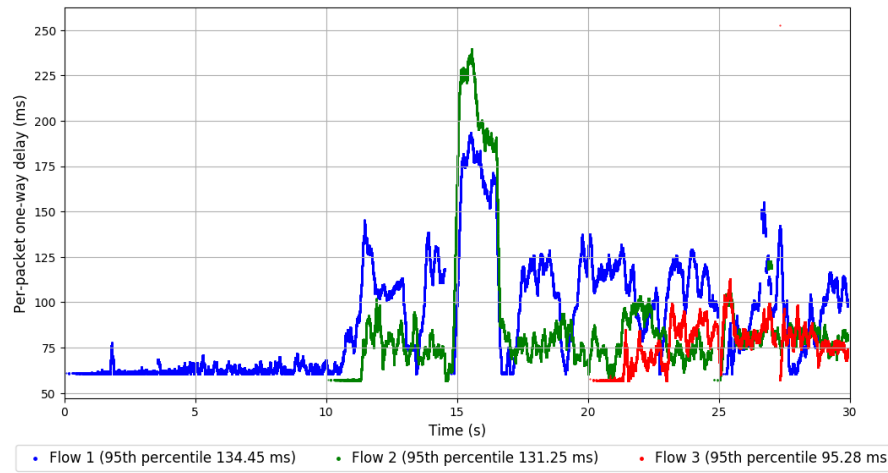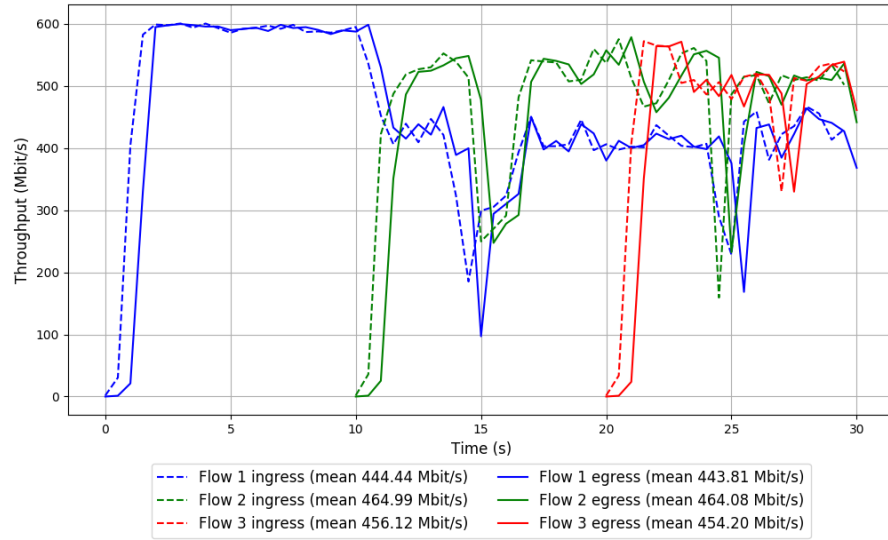
Run 1: Report of TCP BBR — Data Link

- - - Flow 1 ingress (mean 513.80 Mbit/s) —— Flow 1 egress (mean 513.49 Mbit/s)
- - - Flow 2 ingress (mean 430.24 Mbit/s) —— Flow 2 egress (mean 429.30 Mbit/s)
- - - Flow 3 ingress (mean 433.22 Mbit/s) —— Flow 3 egress (mean 432.24 Mbit/s)

• Flow 1 (95th percentile 95.15 ms)   • Flow 2 (95th percentile 120.69 ms)   • Flow 3 (95th percentile 105.22 ms)

```
Run 2: Statistics of TCP BBR

Start at: 2018-10-26 22:13:55
End at: 2018-10-26 22:14:25
Local clock offset: 0.314 ms
Remote clock offset: -0.49 ms


# Below is generated by plot.py at 2018-10-27 00:39:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 923.89 Mbit/s
95th percentile per-packet one-way delay: 106.439 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 492.67 Mbit/s
95th percentile per-packet one-way delay: 101.818 ms
Loss rate: 0.47%
-- Flow 2:
Average throughput: 430.58 Mbit/s
95th percentile per-packet one-way delay: 111.523 ms
Loss rate: 0.83%
-- Flow 3:
Average throughput: 440.02 Mbit/s
95th percentile per-packet one-way delay: 101.664 ms
Loss rate: 1.59%
```
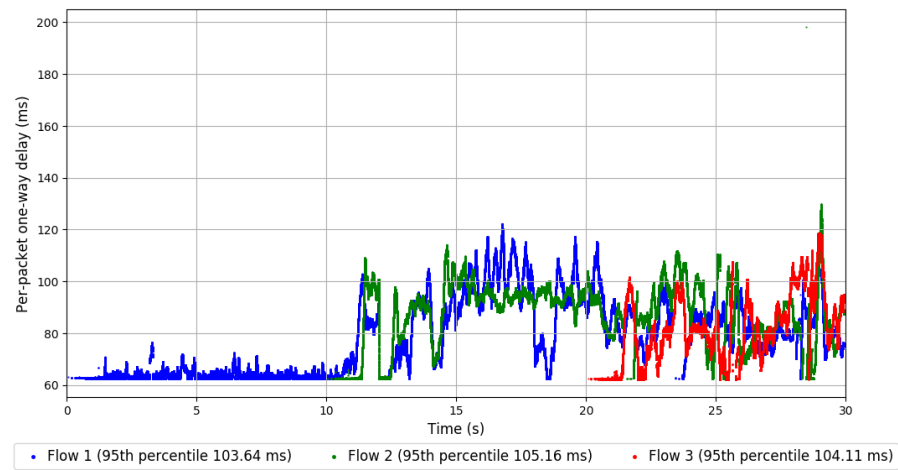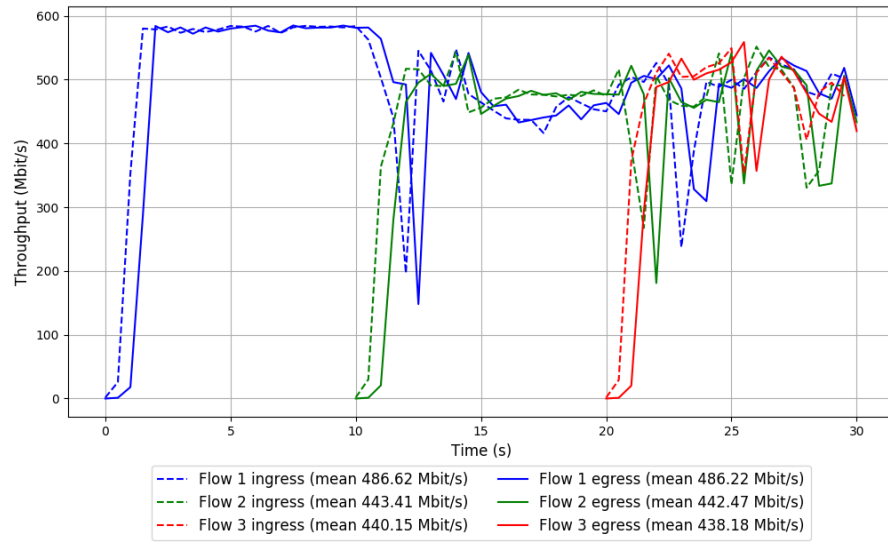
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-10-26 22:45:00
End at: 2018-10-26 22:45:30
Local clock offset: 0.359 ms
Remote clock offset: -0.037 ms


# Below is generated by plot.py at 2018-10-27 00:39:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 902.26 Mbit/s
95th percentile per-packet one-way delay: 128.302 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 443.81 Mbit/s
95th percentile per-packet one-way delay: 134.454 ms
Loss rate: 0.53%
-- Flow 2:
Average throughput: 464.08 Mbit/s
95th percentile per-packet one-way delay: 131.251 ms
Loss rate: 0.77%
-- Flow 3:
Average throughput: 454.20 Mbit/s
95th percentile per-packet one-way delay: 95.281 ms
Loss rate: 1.56%
```

Run 3: Report of TCP BBR — Data Link

```
Run 4: Statistics of TCP BBR

Start at: 2018-10-26 23:18:02
End at: 2018-10-26 23:18:32
Local clock offset: 0.927 ms
Remote clock offset: -1.415 ms


# Below is generated by plot.py at 2018-10-27 00:39:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 924.92 Mbit/s
95th percentile per-packet one-way delay: 104.149 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 486.22 Mbit/s
95th percentile per-packet one-way delay: 103.645 ms
Loss rate: 0.48%
-- Flow 2:
Average throughput: 442.47 Mbit/s
95th percentile per-packet one-way delay: 105.164 ms
Loss rate: 0.80%
-- Flow 3:
Average throughput: 438.18 Mbit/s
95th percentile per-packet one-way delay: 104.105 ms
Loss rate: 1.62%
```
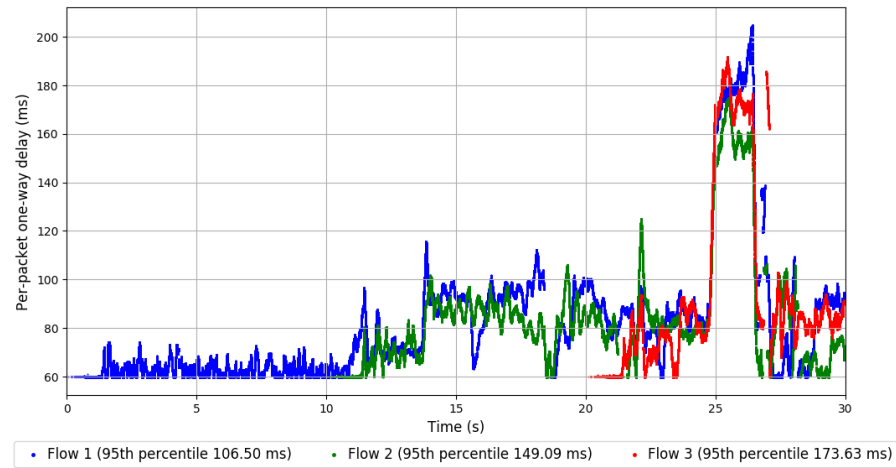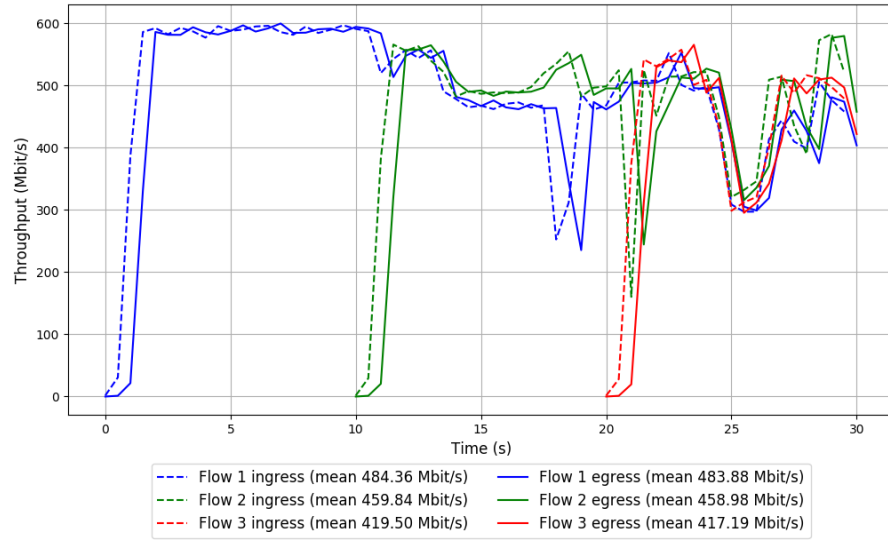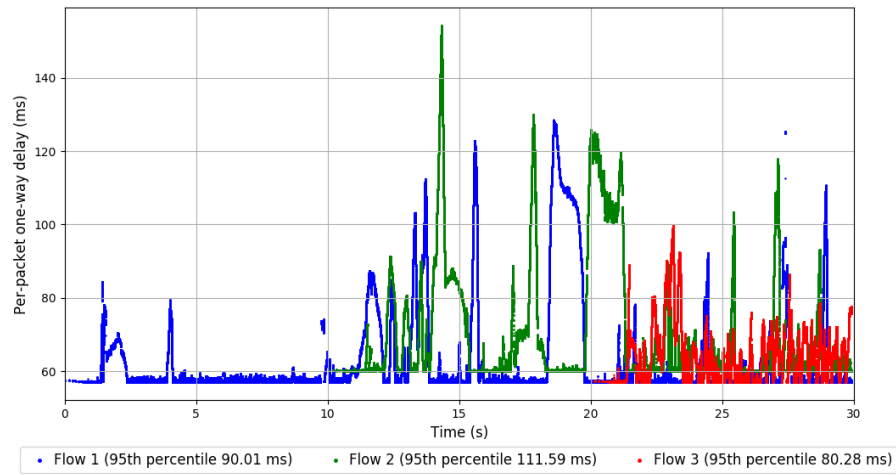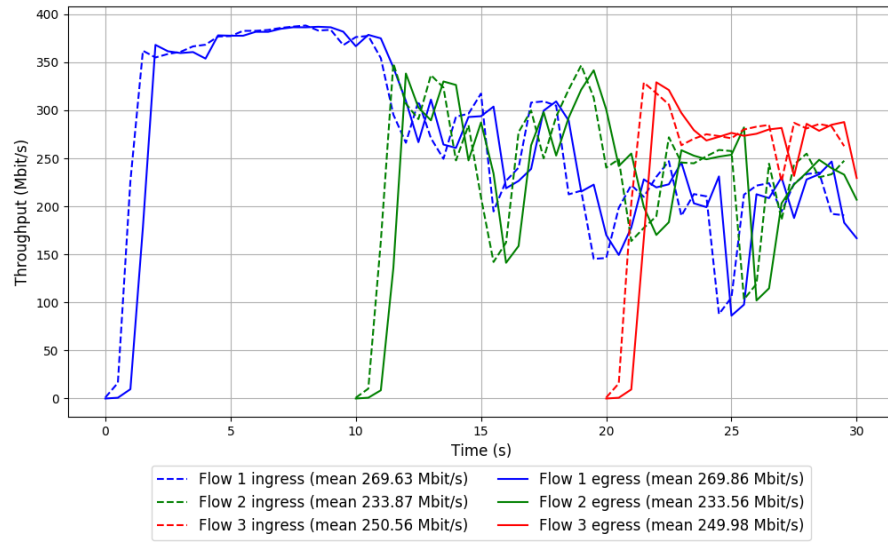
Run 4: Report of TCP BBR — Data Link

Flow 1 ingress (mean 486.62 Mbit/s) ---- Flow 1 egress (mean 486.22 Mbit/s)
Flow 2 ingress (mean 443.41 Mbit/s) ---- Flow 2 egress (mean 442.47 Mbit/s)
Flow 3 ingress (mean 440.15 Mbit/s) ---- Flow 3 egress (mean 438.18 Mbit/s)

Flow 1 (95th percentile 103.64 ms)   Flow 2 (95th percentile 105.16 ms)   Flow 3 (95th percentile 104.11 ms)

```
Run 5: Statistics of TCP BBR

Start at: 2018-10-26 23:49:19
End at: 2018-10-26 23:49:49
Local clock offset: 0.188 ms
Remote clock offset: 0.612 ms


# Below is generated by plot.py at 2018-10-27 00:39:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 926.51 Mbit/s
95th percentile per-packet one-way delay: 153.826 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 483.88 Mbit/s
95th percentile per-packet one-way delay: 106.500 ms
Loss rate: 0.49%
-- Flow 2:
Average throughput: 458.98 Mbit/s
95th percentile per-packet one-way delay: 149.095 ms
Loss rate: 0.77%
-- Flow 3:
Average throughput: 417.19 Mbit/s
95th percentile per-packet one-way delay: 173.627 ms
Loss rate: 1.70%
```

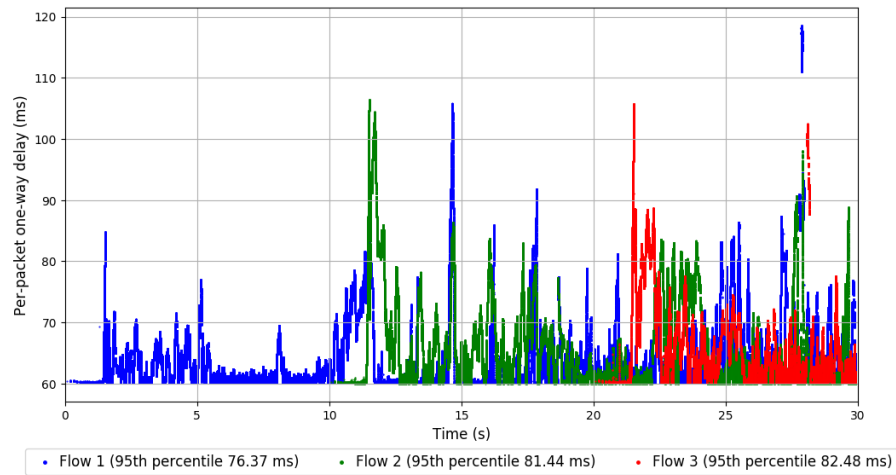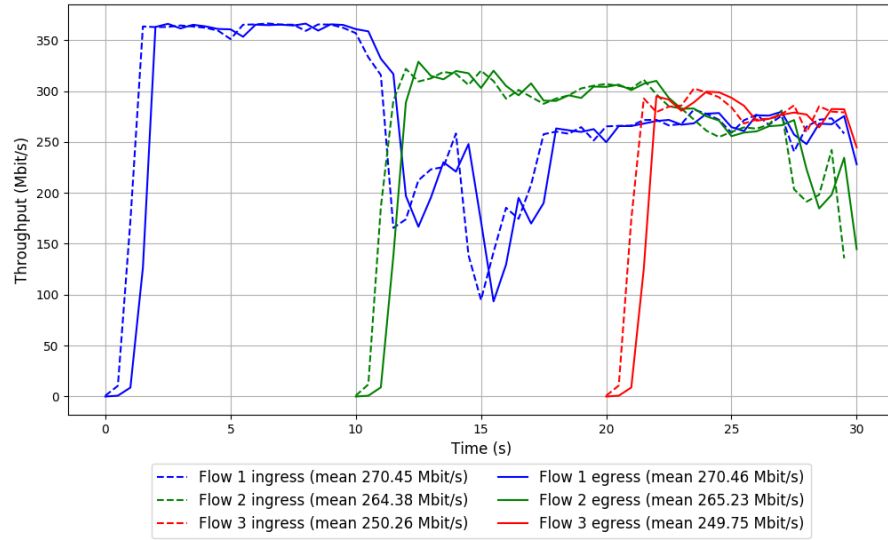Run 5: Report of TCP BBR — Data Link

14

```
Run 1: Statistics of Copa

Start at: 2018-10-26 21:45:16
End at: 2018-10-26 21:45:46
Local clock offset: -0.121 ms
Remote clock offset: -0.053 ms


# Below is generated by plot.py at 2018-10-27 00:39:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 507.69 Mbit/s
95th percentile per-packet one-way delay: 101.662 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 269.86 Mbit/s
95th percentile per-packet one-way delay: 90.011 ms
Loss rate: 0.30%
-- Flow 2:
Average throughput: 233.56 Mbit/s
95th percentile per-packet one-way delay: 111.588 ms
Loss rate: 0.72%
-- Flow 3:
Average throughput: 249.98 Mbit/s
95th percentile per-packet one-way delay: 80.280 ms
Loss rate: 1.38%
```
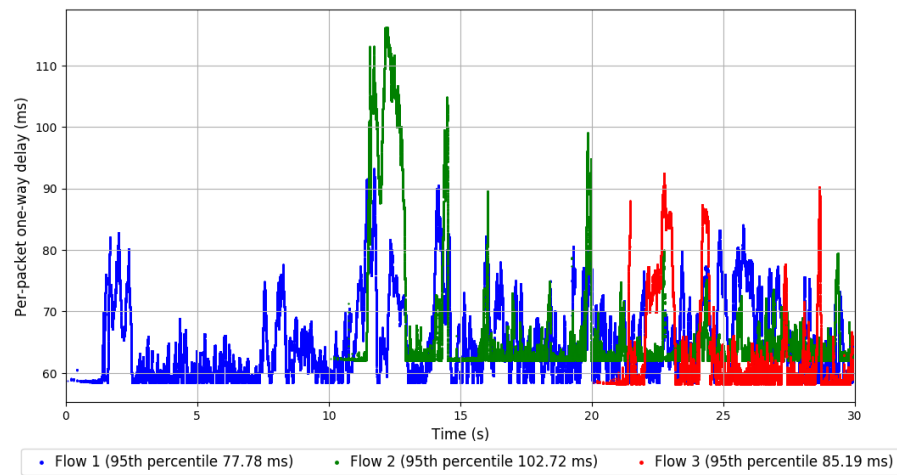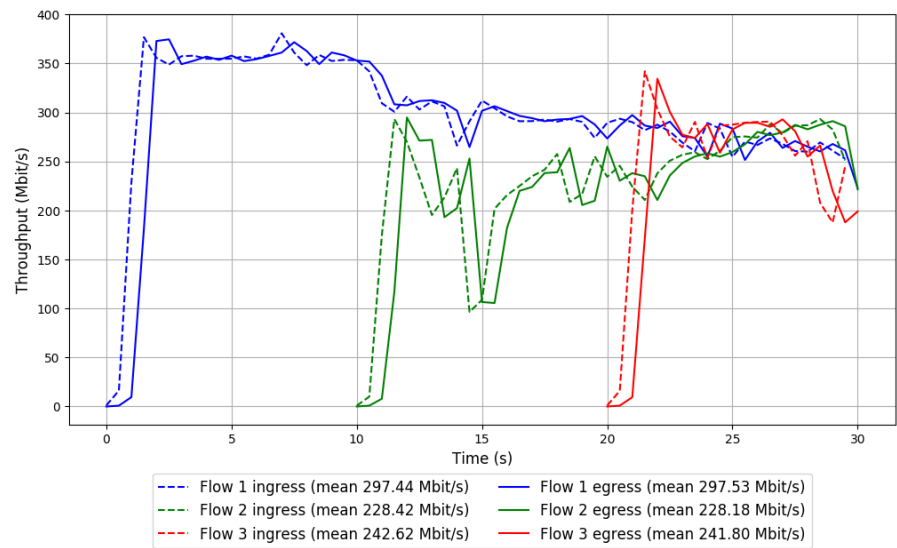
Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2018-10-26 22:15:55
End at: 2018-10-26 22:16:25
Local clock offset: -0.678 ms
Remote clock offset: -0.661 ms

# Below is generated by plot.py at 2018-10-27 00:39:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 529.14 Mbit/s
95th percentile per-packet one-way delay: 79.475 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 270.46 Mbit/s
95th percentile per-packet one-way delay: 76.372 ms
Loss rate: 0.39%
-- Flow 2:
Average throughput: 265.23 Mbit/s
95th percentile per-packet one-way delay: 81.436 ms
Loss rate: 0.27%
-- Flow 3:
Average throughput: 249.75 Mbit/s
95th percentile per-packet one-way delay: 82.480 ms
Loss rate: 1.38%
```
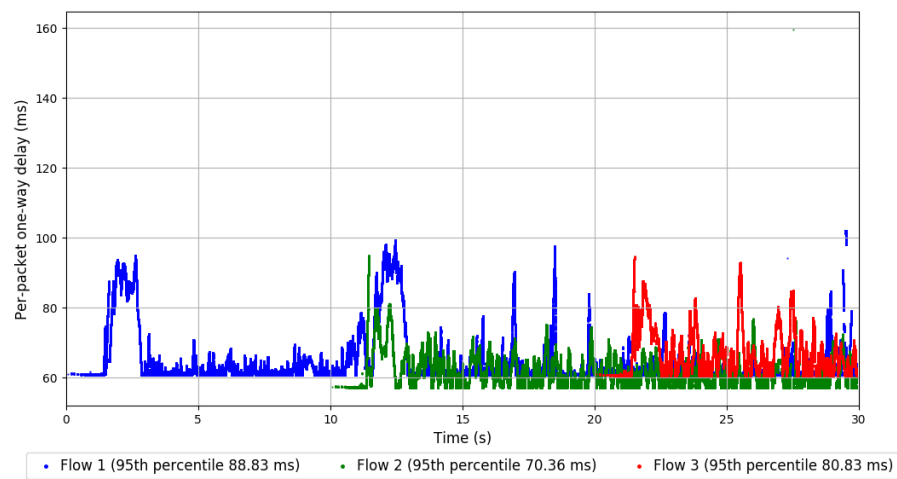
Run 2: Report of Copa — Data Link

18

```
Run 3: Statistics of Copa

Start at: 2018-10-26 22:47:10
End at: 2018-10-26 22:47:40
Local clock offset: 0.016 ms
Remote clock offset: -1.849 ms


# Below is generated by plot.py at 2018-10-27 00:40:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 529.00 Mbit/s
95th percentile per-packet one-way delay: 82.764 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 297.53 Mbit/s
95th percentile per-packet one-way delay: 77.781 ms
Loss rate: 0.35%
-- Flow 2:
Average throughput: 228.18 Mbit/s
95th percentile per-packet one-way delay: 102.716 ms
Loss rate: 0.70%
-- Flow 3:
Average throughput: 241.80 Mbit/s
95th percentile per-packet one-way delay: 85.194 ms
Loss rate: 1.48%
```

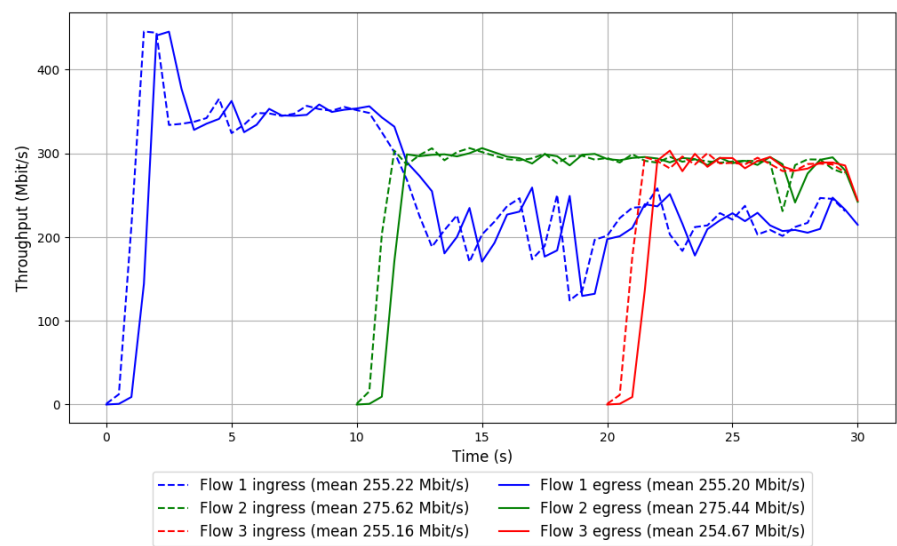Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2018-10-26 23:20:04
End at: 2018-10-26 23:20:34
Local clock offset: 0.23 ms
Remote clock offset: -0.352 ms


# Below is generated by plot.py at 2018-10-27 00:57:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 522.30 Mbit/s
95th percentile per-packet one-way delay: 83.245 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 255.20 Mbit/s
95th percentile per-packet one-way delay: 88.828 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 275.44 Mbit/s
95th percentile per-packet one-way delay: 70.360 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 254.67 Mbit/s
95th percentile per-packet one-way delay: 80.830 ms
Loss rate: 1.37%
```
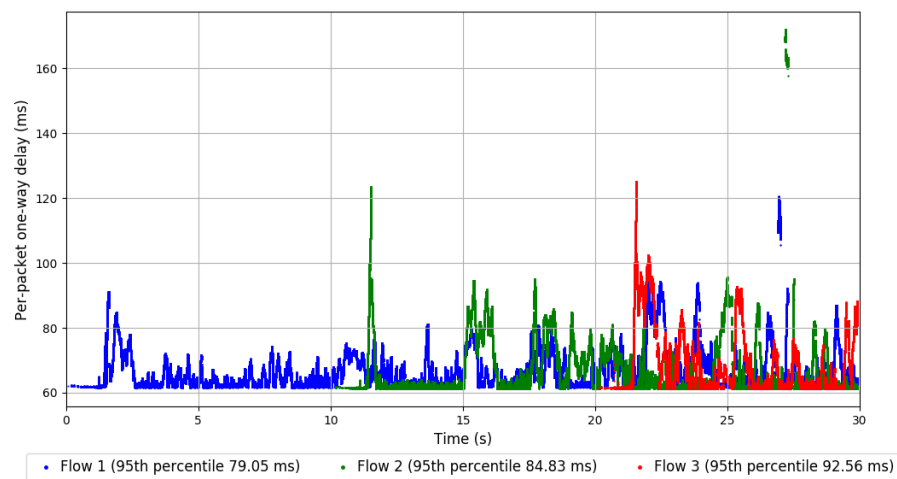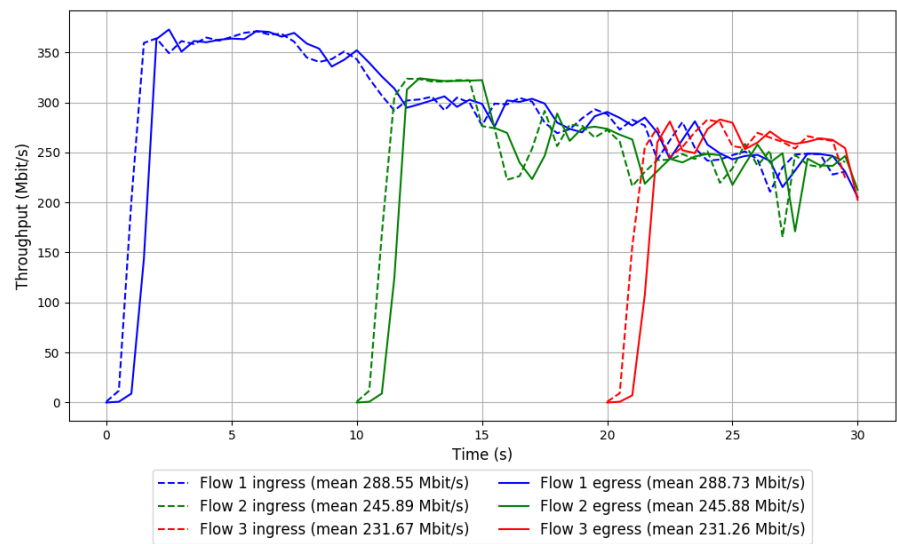
Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2018-10-26 23:51:29
End at: 2018-10-26 23:51:59
Local clock offset: -0.335 ms
Remote clock offset: -1.419 ms


# Below is generated by plot.py at 2018-10-27 00:58:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 528.26 Mbit/s
95th percentile per-packet one-way delay: 84.094 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 288.73 Mbit/s
95th percentile per-packet one-way delay: 79.052 ms
Loss rate: 0.33%
-- Flow 2:
Average throughput: 245.88 Mbit/s
95th percentile per-packet one-way delay: 84.825 ms
Loss rate: 0.59%
-- Flow 3:
Average throughput: 231.26 Mbit/s
95th percentile per-packet one-way delay: 92.562 ms
Loss rate: 1.36%
```
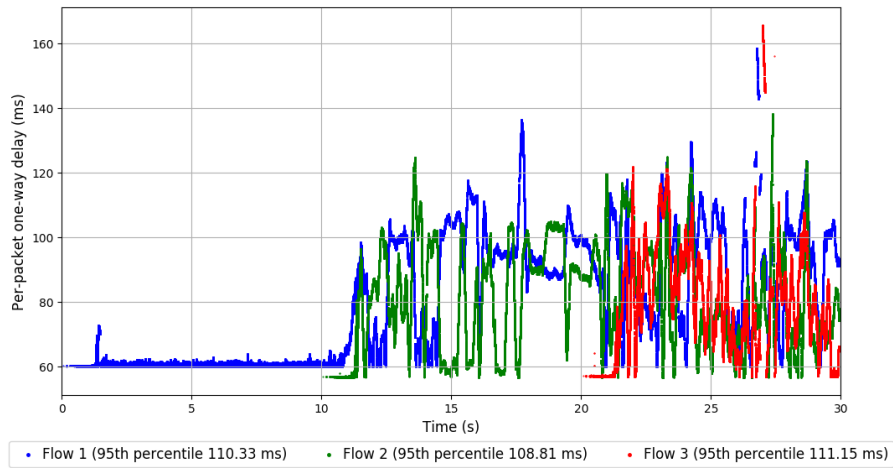
Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2018-10-26 21:49:06
End at: 2018-10-26 21:49:36
Local clock offset: 0.092 ms
Remote clock offset: 0.183 ms


# Below is generated by plot.py at 2018-10-27 00:58:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 955.55 Mbit/s
95th percentile per-packet one-way delay: 109.986 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 500.23 Mbit/s
95th percentile per-packet one-way delay: 110.329 ms
Loss rate: 0.47%
-- Flow 2:
Average throughput: 469.33 Mbit/s
95th percentile per-packet one-way delay: 108.814 ms
Loss rate: 0.74%
-- Flow 3:
Average throughput: 434.01 Mbit/s
95th percentile per-packet one-way delay: 111.148 ms
Loss rate: 1.59%
```
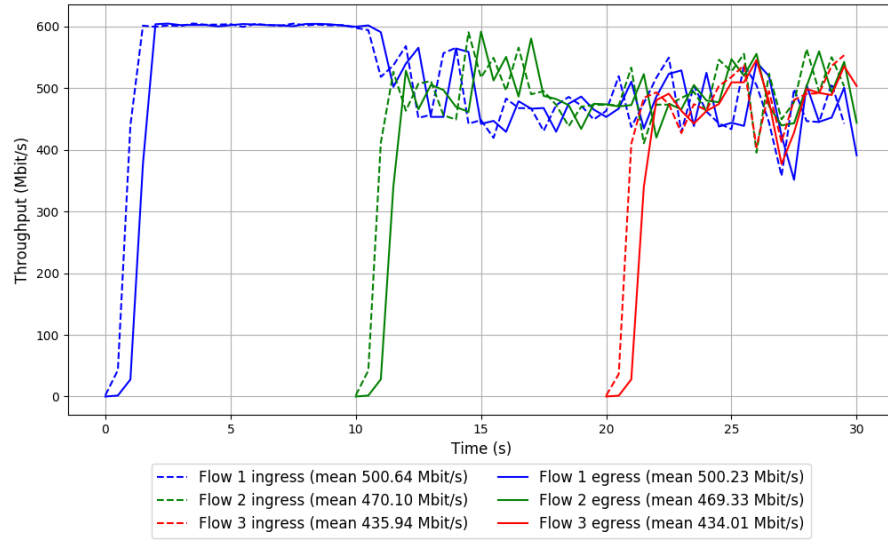
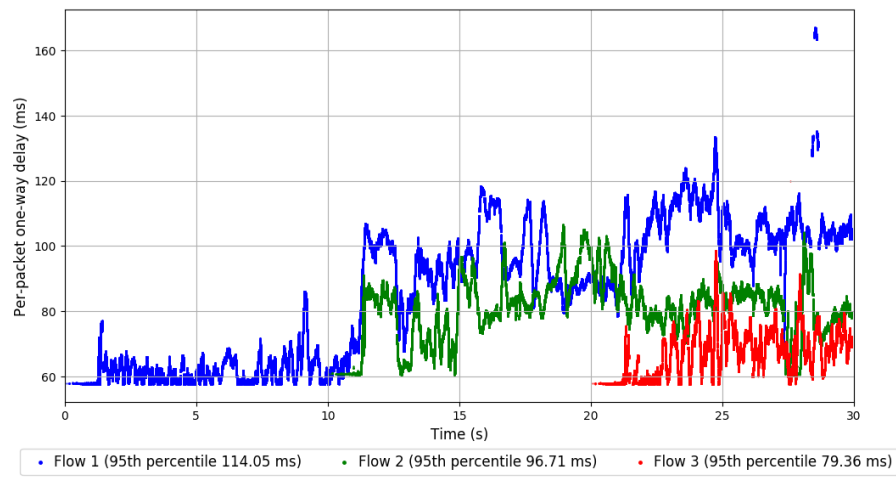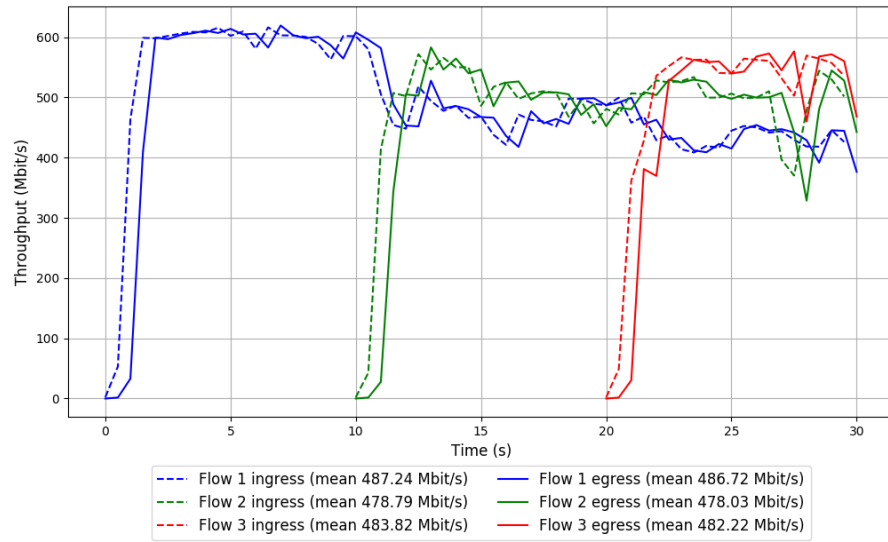Run 1: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 500.64 Mbit/s) --- Flow 1 egress (mean 500.23 Mbit/s)
Flow 2 ingress (mean 470.10 Mbit/s) --- Flow 2 egress (mean 469.33 Mbit/s)
Flow 3 ingress (mean 435.94 Mbit/s) --- Flow 3 egress (mean 434.01 Mbit/s)

Flow 1 (95th percentile 110.33 ms) • Flow 2 (95th percentile 108.81 ms) • Flow 3 (95th percentile 111.15 ms)

```
Run 2: Statistics of TCP Cubic

Start at: 2018-10-26 22:19:49
End at: 2018-10-26 22:20:19
Local clock offset: 0.681 ms
Remote clock offset: -0.117 ms


# Below is generated by plot.py at 2018-10-27 00:58:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 963.74 Mbit/s
95th percentile per-packet one-way delay: 110.610 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 486.72 Mbit/s
95th percentile per-packet one-way delay: 114.054 ms
Loss rate: 0.49%
-- Flow 2:
Average throughput: 478.03 Mbit/s
95th percentile per-packet one-way delay: 96.710 ms
Loss rate: 0.74%
-- Flow 3:
Average throughput: 482.22 Mbit/s
95th percentile per-packet one-way delay: 79.361 ms
Loss rate: 1.48%
```

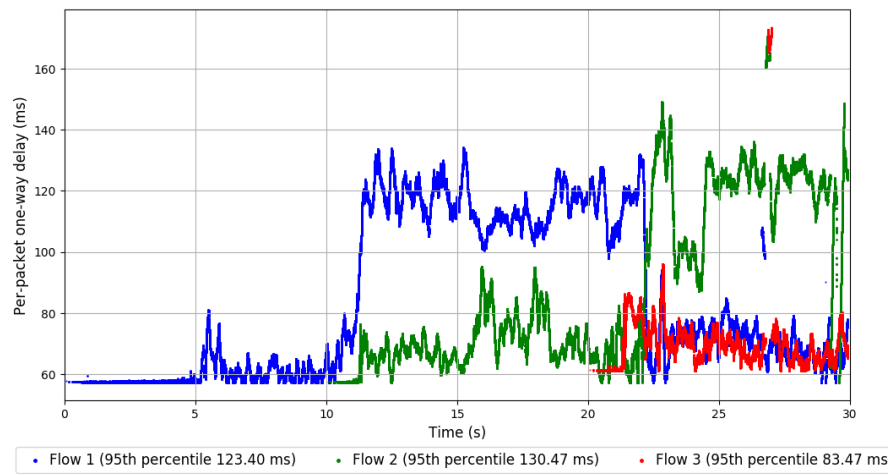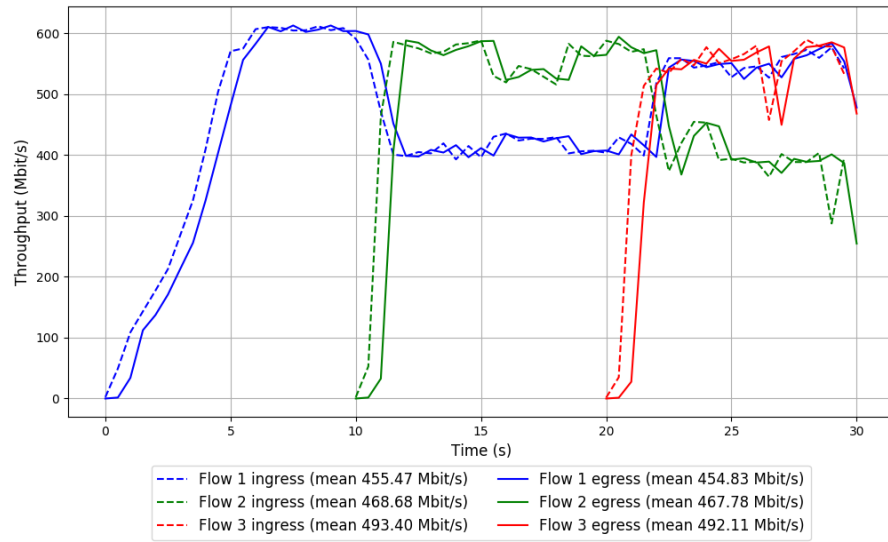Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 487.24 Mbit/s)   Flow 1 egress (mean 486.72 Mbit/s)
Flow 2 ingress (mean 478.79 Mbit/s)   Flow 2 egress (mean 478.03 Mbit/s)
Flow 3 ingress (mean 483.82 Mbit/s)   Flow 3 egress (mean 482.22 Mbit/s)

Flow 1 (95th percentile 114.05 ms)   Flow 2 (95th percentile 96.71 ms)   Flow 3 (95th percentile 79.36 ms)

```
Run 3: Statistics of TCP Cubic

Start at: 2018-10-26 22:51:20
End at: 2018-10-26 22:51:50
Local clock offset: 0.436 ms
Remote clock offset: -0.487 ms


# Below is generated by plot.py at 2018-10-27 00:58:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 928.07 Mbit/s
95th percentile per-packet one-way delay: 126.217 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 454.83 Mbit/s
95th percentile per-packet one-way delay: 123.399 ms
Loss rate: 0.52%
-- Flow 2:
Average throughput: 467.78 Mbit/s
95th percentile per-packet one-way delay: 130.469 ms
Loss rate: 0.76%
-- Flow 3:
Average throughput: 492.11 Mbit/s
95th percentile per-packet one-way delay: 83.475 ms
Loss rate: 1.45%
```
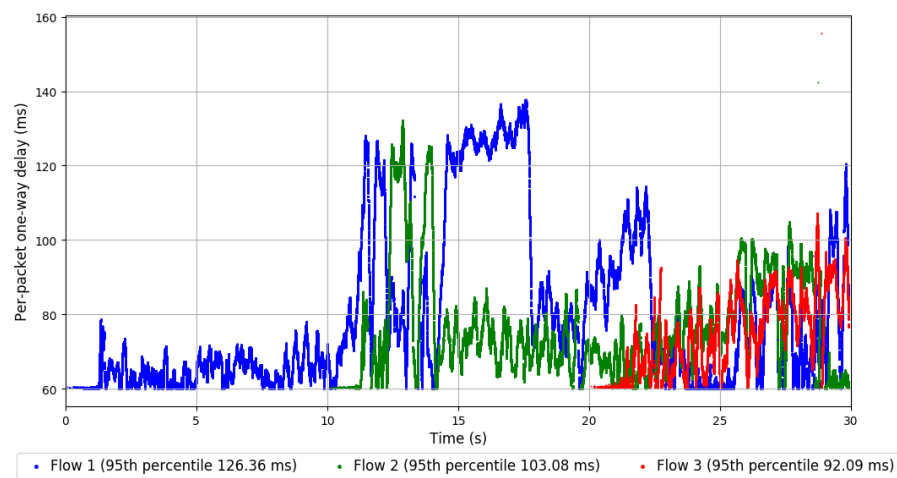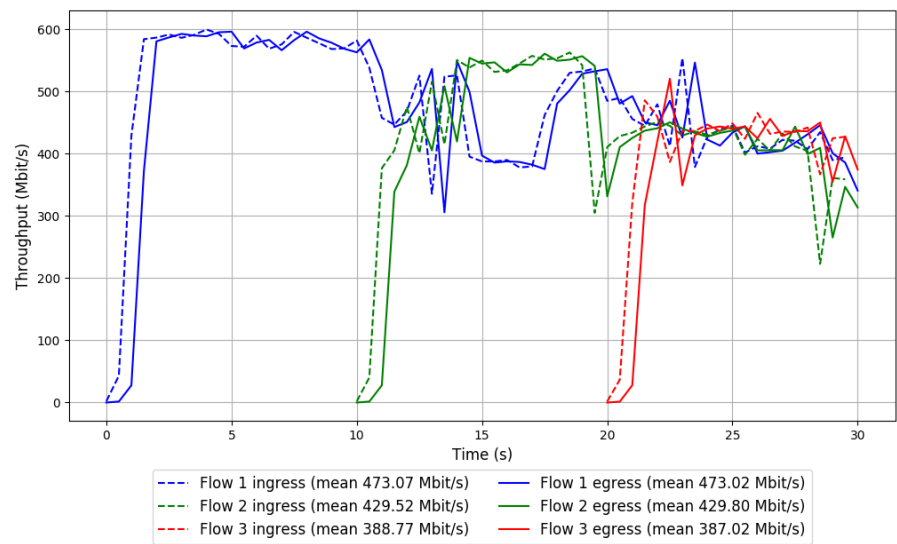
Run 3: Report of TCP Cubic — Data Link

- - - - Flow 1 ingress (mean 455.47 Mbit/s) ——— Flow 1 egress (mean 454.83 Mbit/s)
- - - - Flow 2 ingress (mean 468.68 Mbit/s) ——— Flow 2 egress (mean 467.78 Mbit/s)
- - - - Flow 3 ingress (mean 493.40 Mbit/s) ——— Flow 3 egress (mean 492.11 Mbit/s)

- Flow 1 (95th percentile 123.40 ms) • Flow 2 (95th percentile 130.47 ms) • Flow 3 (95th percentile 83.47 ms)
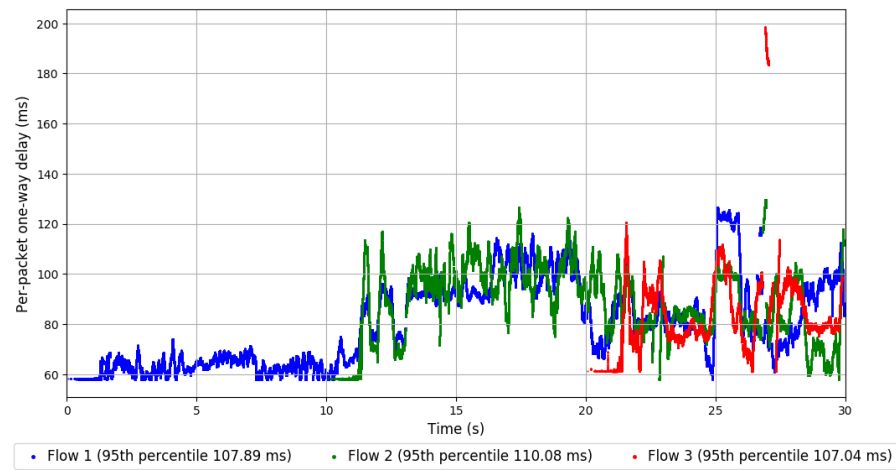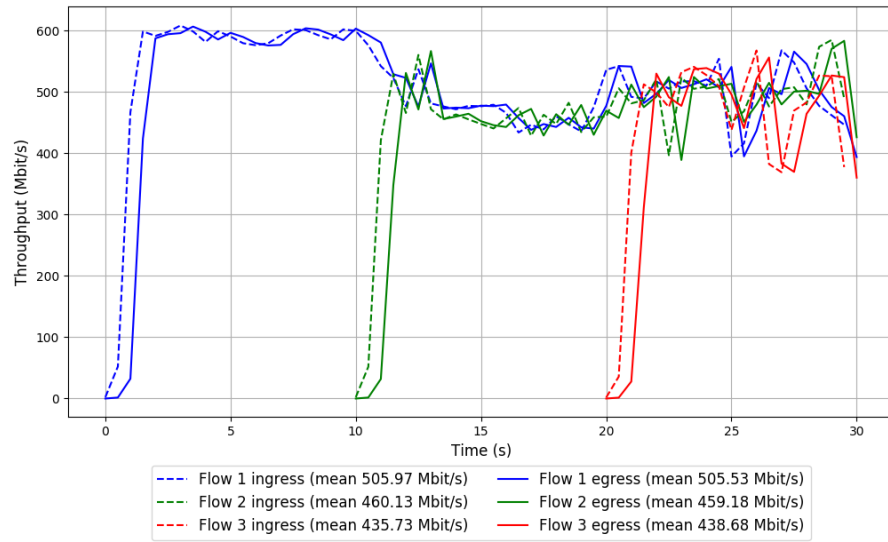
30

```
Run 4: Statistics of TCP Cubic

Start at: 2018-10-26 23:23:58
End at: 2018-10-26 23:24:28
Local clock offset: 0.225 ms
Remote clock offset: 0.151 ms


# Below is generated by plot.py at 2018-10-27 00:58:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 886.43 Mbit/s
95th percentile per-packet one-way delay: 122.081 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 473.02 Mbit/s
95th percentile per-packet one-way delay: 126.363 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 429.80 Mbit/s
95th percentile per-packet one-way delay: 103.078 ms
Loss rate: 0.52%
-- Flow 3:
Average throughput: 387.02 Mbit/s
95th percentile per-packet one-way delay: 92.090 ms
Loss rate: 1.62%
```
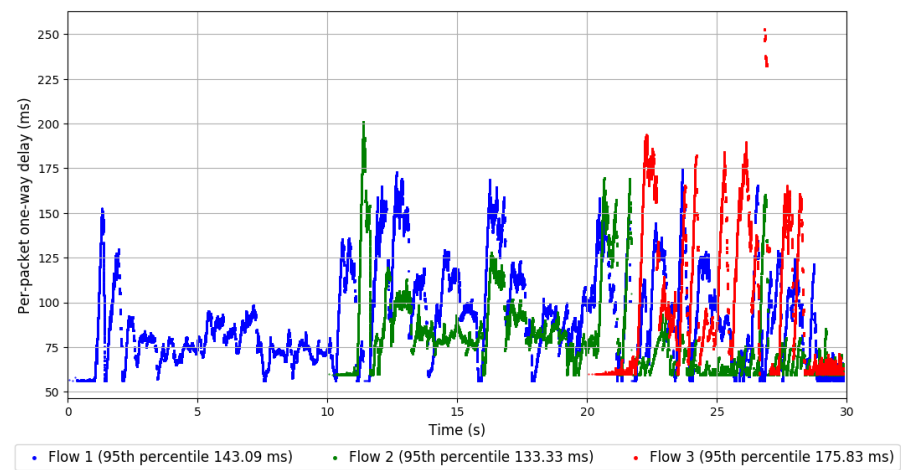
Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 473.07 Mbit/s)   Flow 1 egress (mean 473.02 Mbit/s)
Flow 2 ingress (mean 429.52 Mbit/s)   Flow 2 egress (mean 429.80 Mbit/s)
Flow 3 ingress (mean 388.77 Mbit/s)   Flow 3 egress (mean 387.02 Mbit/s)

Flow 1 (95th percentile 126.36 ms)   Flow 2 (95th percentile 103.08 ms)   Flow 3 (95th percentile 92.09 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2018-10-26 23:55:50
End at: 2018-10-26 23:56:20
Local clock offset: 0.274 ms
Remote clock offset: -0.643 ms


# Below is generated by plot.py at 2018-10-27 00:58:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 954.63 Mbit/s
95th percentile per-packet one-way delay: 108.744 ms
Loss rate: 0.67%
-- Flow 1:
Average throughput: 505.53 Mbit/s
95th percentile per-packet one-way delay: 107.890 ms
Loss rate: 0.47%
-- Flow 2:
Average throughput: 459.18 Mbit/s
95th percentile per-packet one-way delay: 110.082 ms
Loss rate: 0.77%
-- Flow 3:
Average throughput: 438.68 Mbit/s
95th percentile per-packet one-way delay: 107.036 ms
Loss rate: 1.15%
```
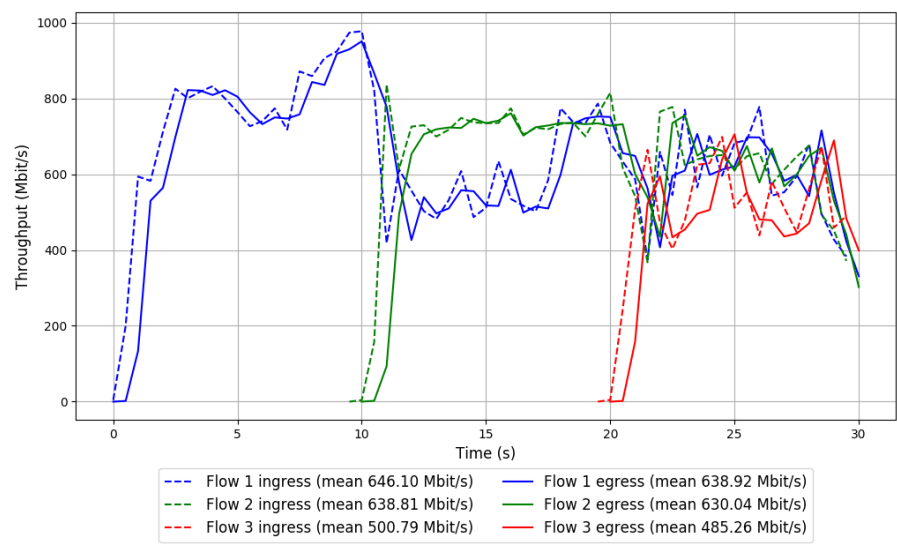
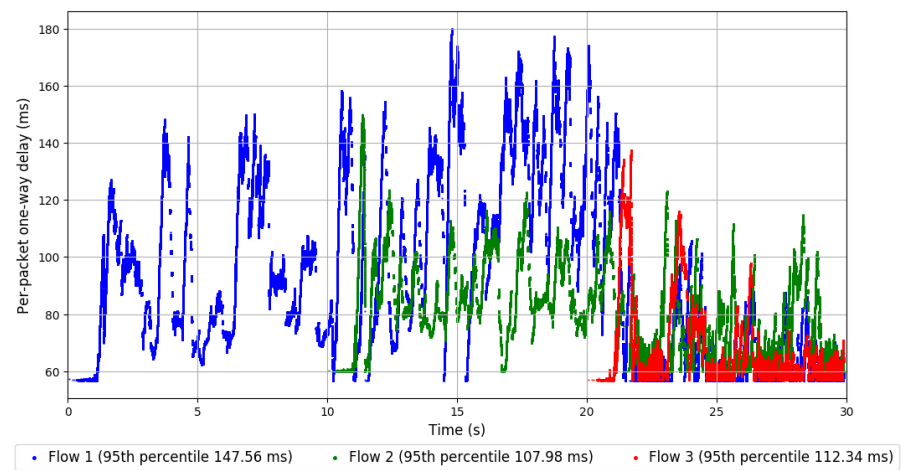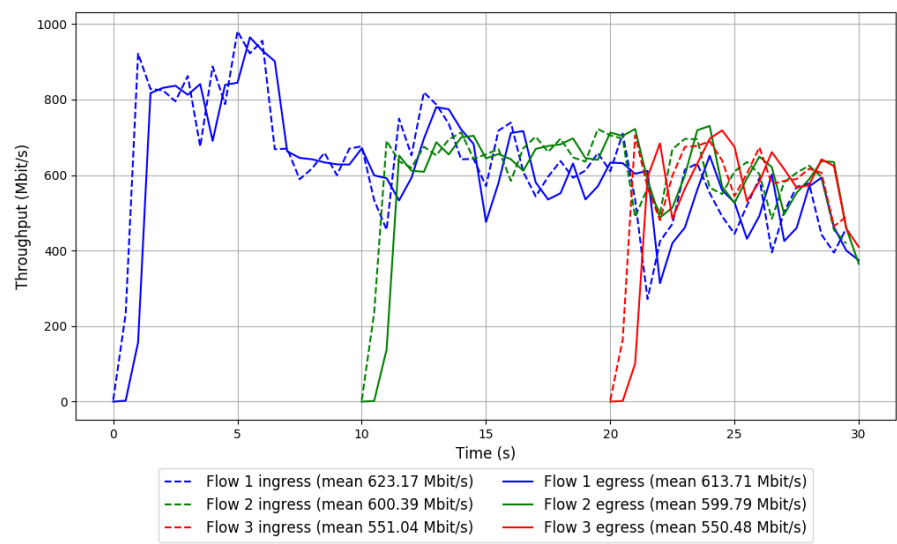Run 5: Report of TCP Cubic — Data Link

```
Run 1: Statistics of FillP

Start at: 2018-10-26 21:41:16
End at: 2018-10-26 21:41:46
Local clock offset: -0.991 ms
Remote clock offset: -0.34 ms


# Below is generated by plot.py at 2018-10-27 01:09:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1217.43 Mbit/s
95th percentile per-packet one-way delay: 148.708 ms
Loss rate: 2.02%
-- Flow 1:
Average throughput: 638.92 Mbit/s
95th percentile per-packet one-way delay: 143.088 ms
Loss rate: 1.50%
-- Flow 2:
Average throughput: 630.04 Mbit/s
95th percentile per-packet one-way delay: 133.330 ms
Loss rate: 1.92%
-- Flow 3:
Average throughput: 485.26 Mbit/s
95th percentile per-packet one-way delay: 175.827 ms
Loss rate: 4.27%
```

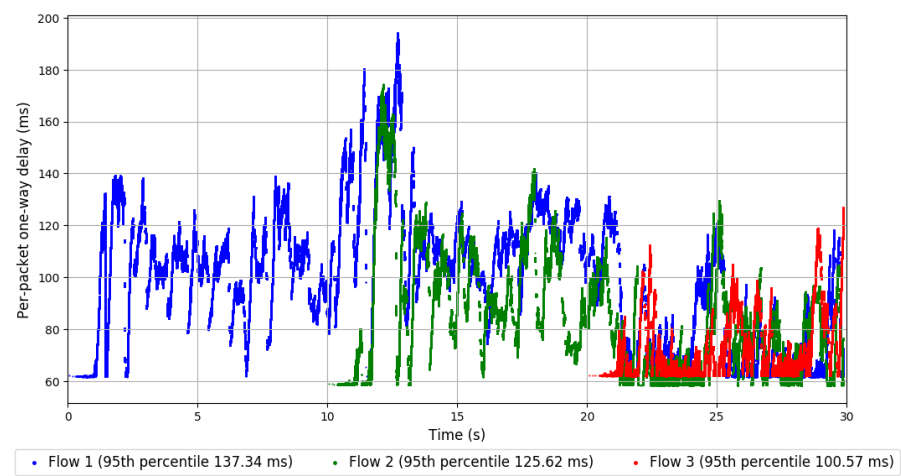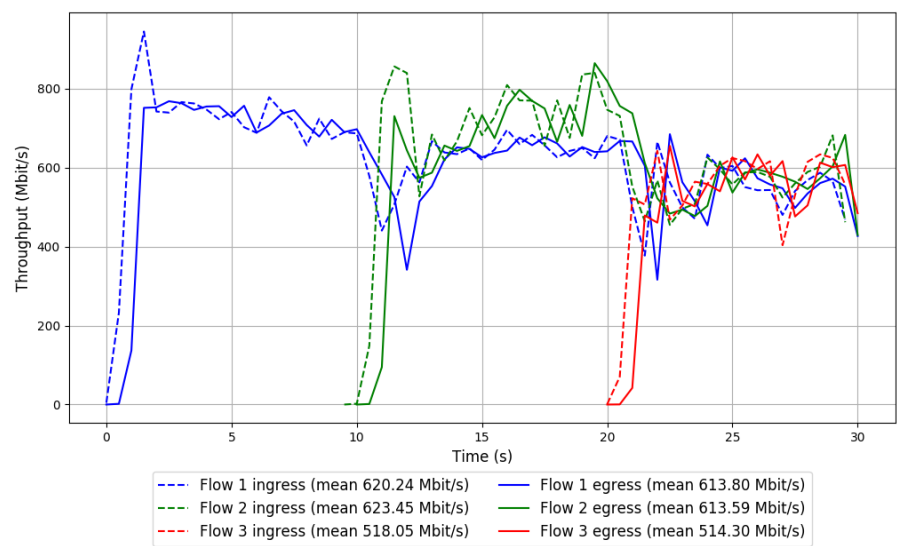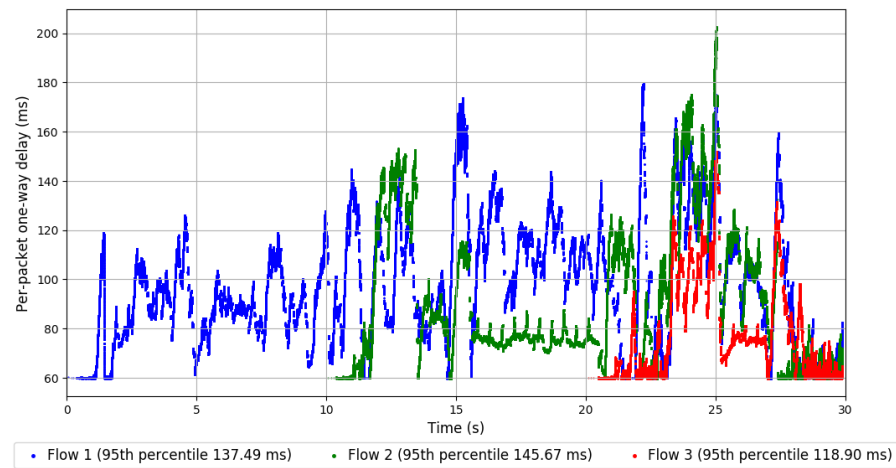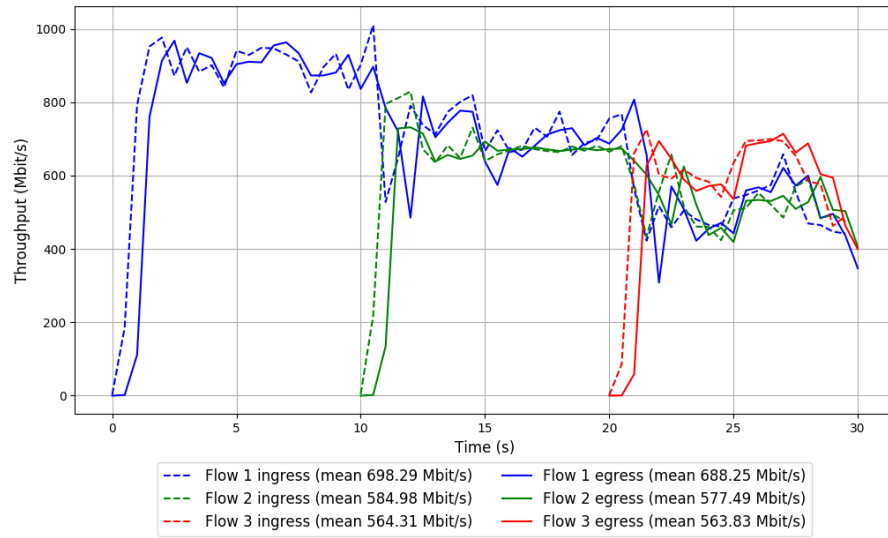Run 1: Report of FillP — Data Link

```
Run 2: Statistics of FillP

Start at: 2018-10-26 22:11:54
End at: 2018-10-26 22:12:24
Local clock offset: -0.309 ms
Remote clock offset: -0.364 ms

# Below is generated by plot.py at 2018-10-27 01:27:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1193.44 Mbit/s
95th percentile per-packet one-way delay: 139.590 ms
Loss rate: 1.40%
-- Flow 1:
Average throughput: 613.71 Mbit/s
95th percentile per-packet one-way delay: 147.557 ms
Loss rate: 1.90%
-- Flow 2:
Average throughput: 599.79 Mbit/s
95th percentile per-packet one-way delay: 107.982 ms
Loss rate: 0.69%
-- Flow 3:
Average throughput: 550.48 Mbit/s
95th percentile per-packet one-way delay: 112.341 ms
Loss rate: 1.26%
```

Run 2: Report of FillP — Data Link

Flow 1 ingress (mean 623.17 Mbit/s) --- Flow 1 egress (mean 613.71 Mbit/s)
Flow 2 ingress (mean 600.39 Mbit/s) --- Flow 2 egress (mean 599.79 Mbit/s)
Flow 3 ingress (mean 551.04 Mbit/s) --- Flow 3 egress (mean 550.48 Mbit/s)

Flow 1 (95th percentile 147.56 ms) · Flow 2 (95th percentile 107.98 ms) · Flow 3 (95th percentile 112.34 ms)
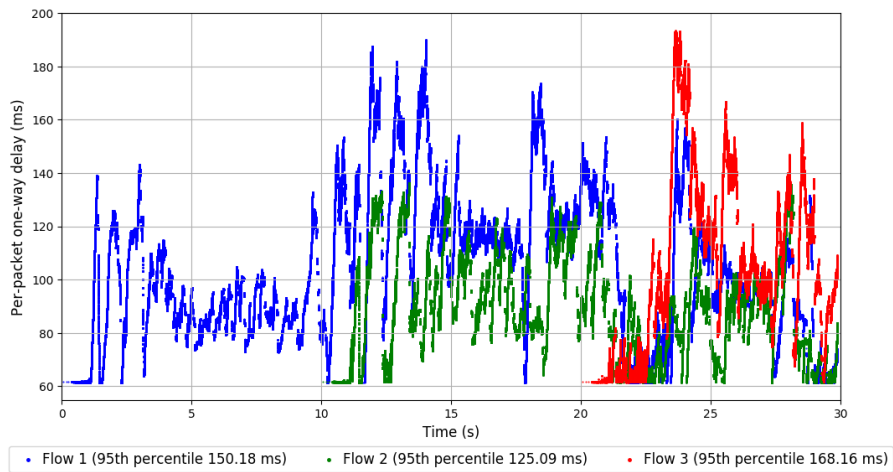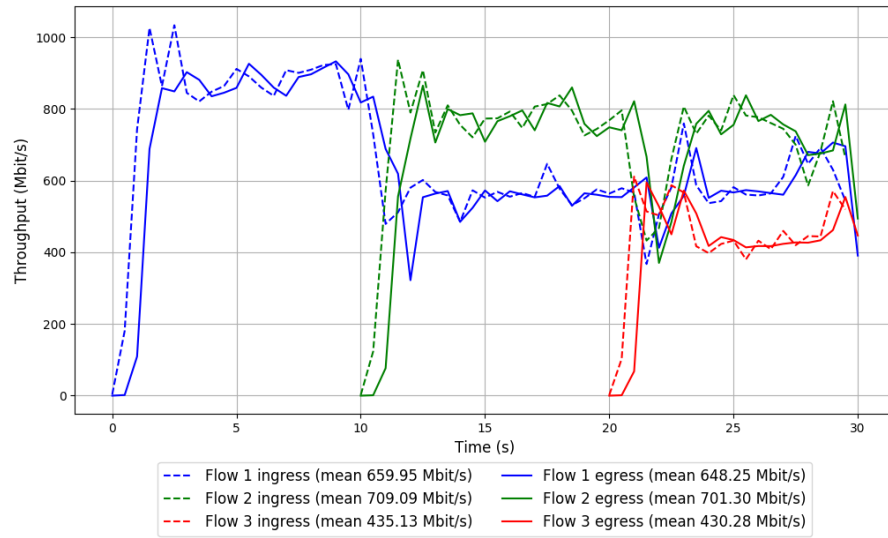
```
Run 3: Statistics of FillP

Start at: 2018-10-26 22:42:54
End at: 2018-10-26 22:43:24
Local clock offset: 0.577 ms
Remote clock offset: -1.178 ms


# Below is generated by plot.py at 2018-10-27 01:27:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1190.24 Mbit/s
95th percentile per-packet one-way delay: 132.624 ms
Loss rate: 1.75%
-- Flow 1:
Average throughput: 613.80 Mbit/s
95th percentile per-packet one-way delay: 137.345 ms
Loss rate: 1.45%
-- Flow 2:
Average throughput: 613.59 Mbit/s
95th percentile per-packet one-way delay: 125.622 ms
Loss rate: 2.14%
-- Flow 3:
Average throughput: 514.30 Mbit/s
95th percentile per-packet one-way delay: 100.572 ms
Loss rate: 1.92%
```

Run 3: Report of FillP — Data Link

- - - Flow 1 ingress (mean 620.24 Mbit/s) —— Flow 1 egress (mean 613.80 Mbit/s)
- - - Flow 2 ingress (mean 623.45 Mbit/s) —— Flow 2 egress (mean 613.59 Mbit/s)
- - - Flow 3 ingress (mean 518.05 Mbit/s) —— Flow 3 egress (mean 514.30 Mbit/s)

• Flow 1 (95th percentile 137.34 ms)   • Flow 2 (95th percentile 125.62 ms)   • Flow 3 (95th percentile 100.57 ms)

40

```
Run 4: Statistics of FillP

Start at: 2018-10-26 23:15:55
End at: 2018-10-26 23:16:25
Local clock offset: -0.617 ms
Remote clock offset: -0.221 ms


# Below is generated by plot.py at 2018-10-27 01:30:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1257.22 Mbit/s
95th percentile per-packet one-way delay: 139.778 ms
Loss rate: 1.75%
-- Flow 1:
Average throughput: 688.25 Mbit/s
95th percentile per-packet one-way delay: 137.489 ms
Loss rate: 1.81%
-- Flow 2:
Average throughput: 577.49 Mbit/s
95th percentile per-packet one-way delay: 145.666 ms
Loss rate: 1.87%
-- Flow 3:
Average throughput: 563.83 Mbit/s
95th percentile per-packet one-way delay: 118.901 ms
Loss rate: 1.29%
```
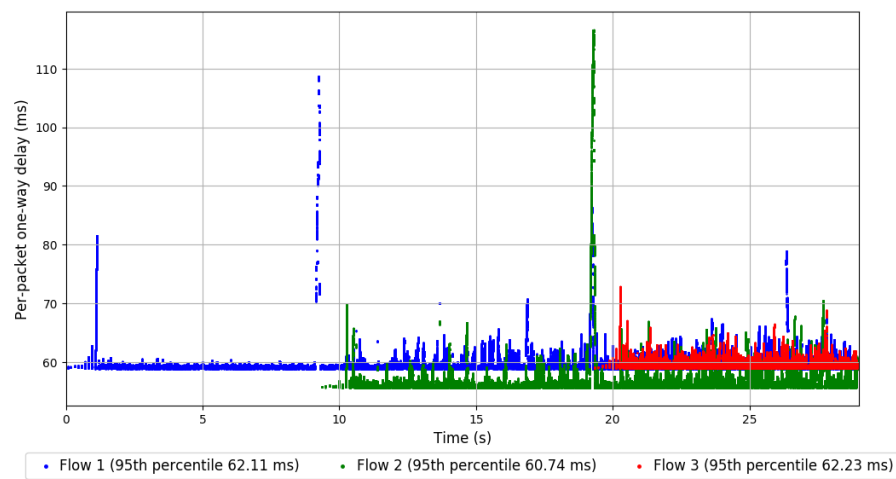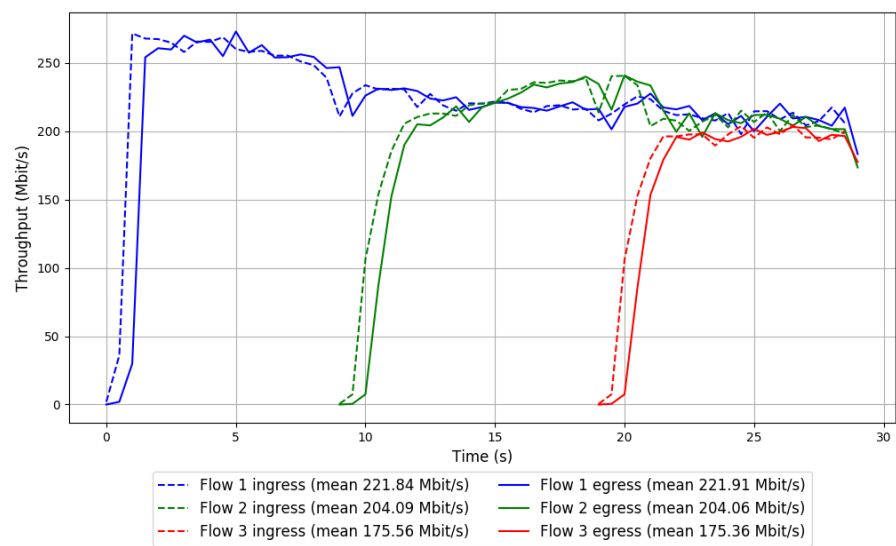
Run 4: Report of FillP — Data Link

Flow 1 ingress (mean 698.29 Mbit/s) --- Flow 1 egress (mean 688.25 Mbit/s)
Flow 2 ingress (mean 584.98 Mbit/s) --- Flow 2 egress (mean 577.49 Mbit/s)
Flow 3 ingress (mean 564.31 Mbit/s) --- Flow 3 egress (mean 563.83 Mbit/s)

Flow 1 (95th percentile 137.49 ms)   Flow 2 (95th percentile 145.67 ms)   Flow 3 (95th percentile 118.90 ms)

```
Run 5: Statistics of FillP

Start at: 2018-10-26 23:47:01
End at: 2018-10-26 23:47:31
Local clock offset: -0.139 ms
Remote clock offset: -1.437 ms


# Below is generated by plot.py at 2018-10-27 01:30:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1255.79 Mbit/s
95th percentile per-packet one-way delay: 142.761 ms
Loss rate: 2.00%
-- Flow 1:
Average throughput: 648.25 Mbit/s
95th percentile per-packet one-way delay: 150.182 ms
Loss rate: 2.16%
-- Flow 2:
Average throughput: 701.30 Mbit/s
95th percentile per-packet one-way delay: 125.090 ms
Loss rate: 1.69%
-- Flow 3:
Average throughput: 430.28 Mbit/s
95th percentile per-packet one-way delay: 168.162 ms
Loss rate: 2.30%
```
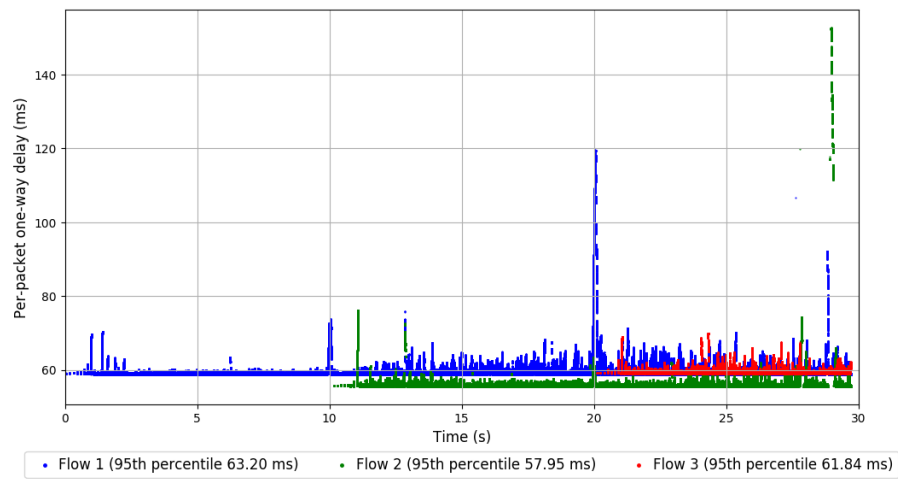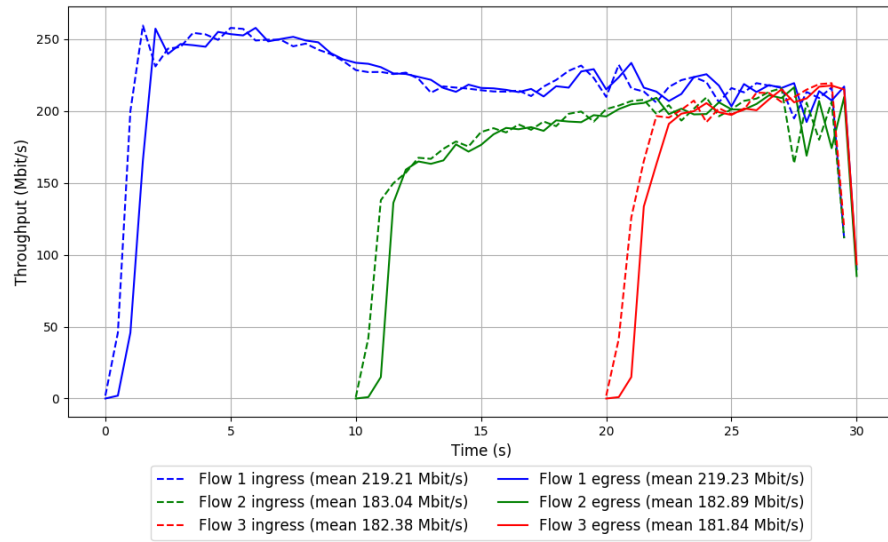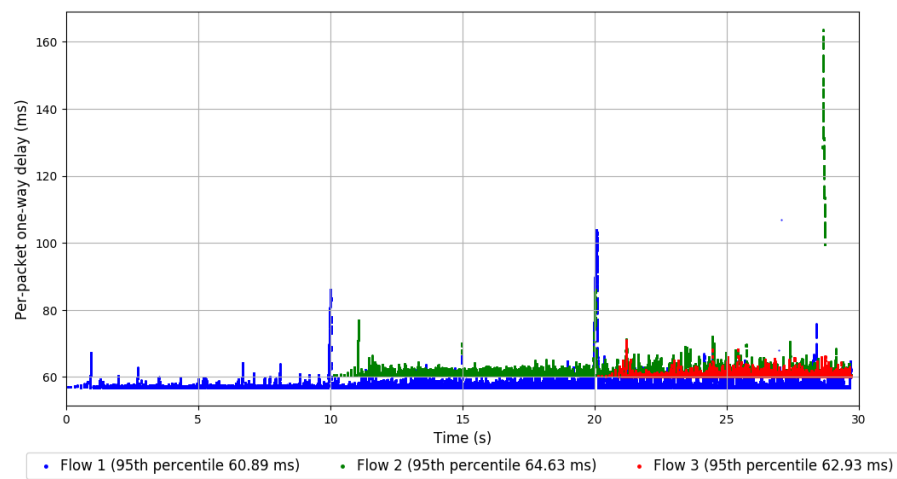
Run 5: Report of FillP — Data Link

- - - - Flow 1 ingress (mean 659.95 Mbit/s)   —— Flow 1 egress (mean 648.25 Mbit/s)
- - - - Flow 2 ingress (mean 709.09 Mbit/s)   —— Flow 2 egress (mean 701.30 Mbit/s)
- - - - Flow 3 ingress (mean 435.13 Mbit/s)   —— Flow 3 egress (mean 430.28 Mbit/s)

• Flow 1 (95th percentile 150.18 ms)   • Flow 2 (95th percentile 125.09 ms)   • Flow 3 (95th percentile 168.16 ms)
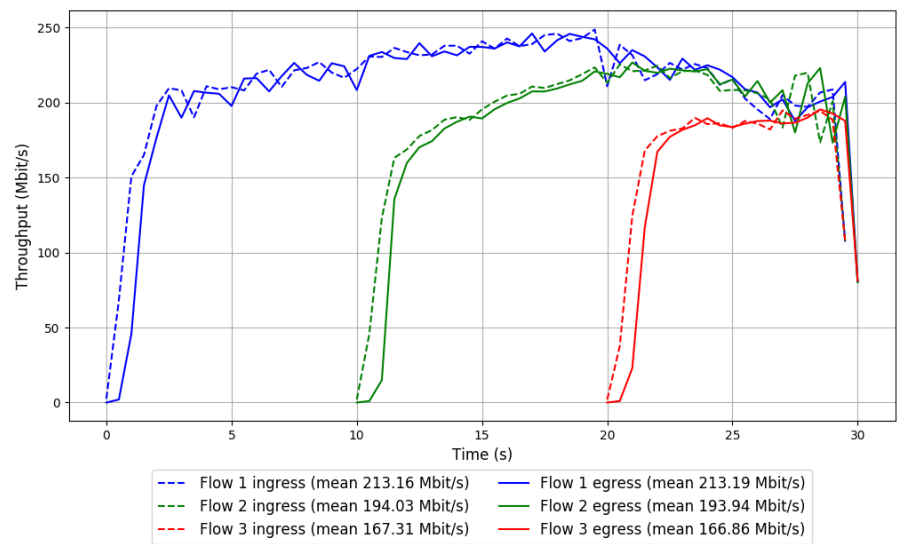
44

```
Run 1: Statistics of Indigo

Start at: 2018-10-26 21:47:16
End at: 2018-10-26 21:47:46
Local clock offset: 0.133 ms
Remote clock offset: 1.351 ms

# Below is generated by plot.py at 2018-10-27 01:30:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 418.52 Mbit/s
95th percentile per-packet one-way delay: 61.901 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 221.91 Mbit/s
95th percentile per-packet one-way delay: 62.107 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 204.06 Mbit/s
95th percentile per-packet one-way delay: 60.742 ms
Loss rate: 0.60%
-- Flow 3:
Average throughput: 175.36 Mbit/s
95th percentile per-packet one-way delay: 62.232 ms
Loss rate: 1.32%
```
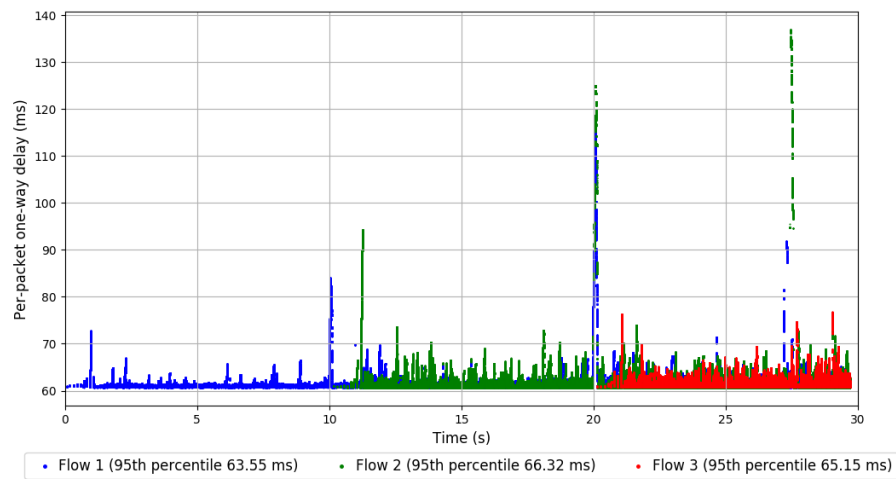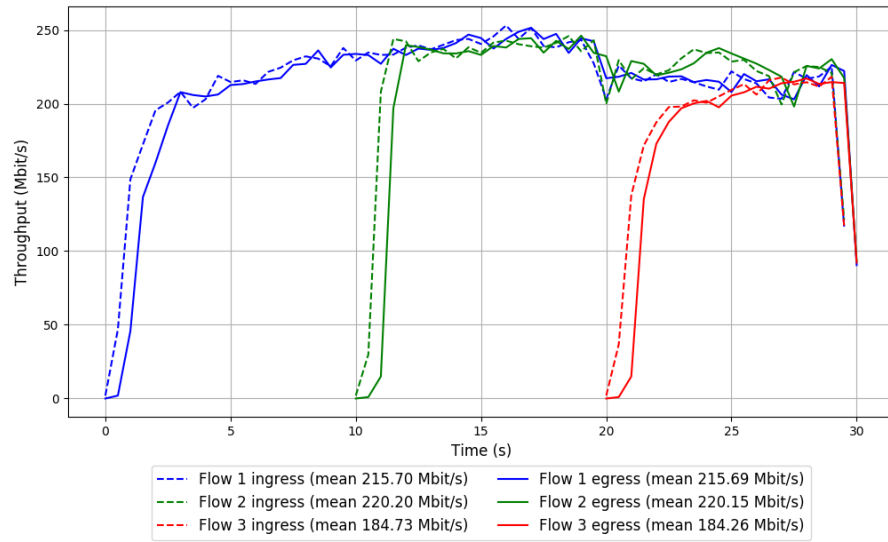
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-10-26 22:17:59
End at: 2018-10-26 22:18:29
Local clock offset: -0.926 ms
Remote clock offset: 0.4 ms


# Below is generated by plot.py at 2018-10-27 01:30:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 398.49 Mbit/s
95th percentile per-packet one-way delay: 62.335 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 219.23 Mbit/s
95th percentile per-packet one-way delay: 63.201 ms
Loss rate: 0.39%
-- Flow 2:
Average throughput: 182.89 Mbit/s
95th percentile per-packet one-way delay: 57.950 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 181.84 Mbit/s
95th percentile per-packet one-way delay: 61.840 ms
Loss rate: 1.52%
```
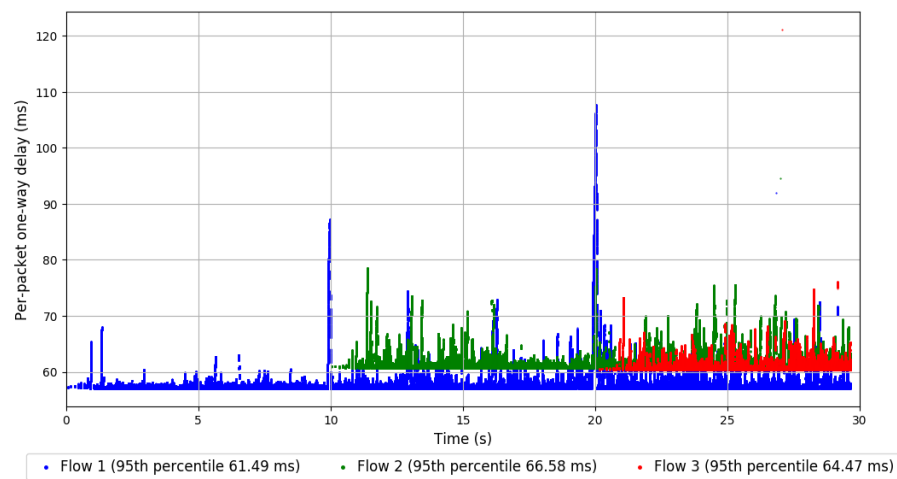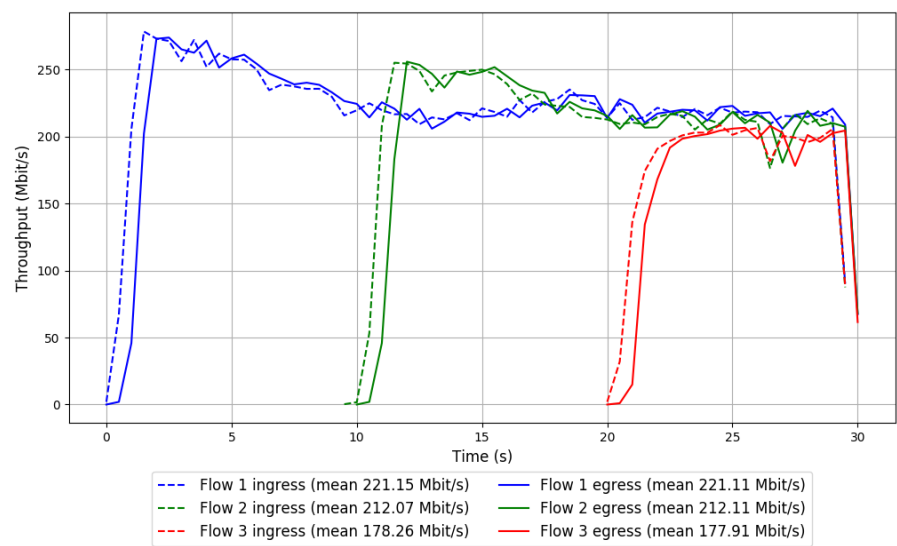
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-10-26 22:49:23
End at: 2018-10-26 22:49:53
Local clock offset: -0.636 ms
Remote clock offset: -0.844 ms


# Below is generated by plot.py at 2018-10-27 01:30:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 395.13 Mbit/s
95th percentile per-packet one-way delay: 63.106 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 213.19 Mbit/s
95th percentile per-packet one-way delay: 60.889 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 193.94 Mbit/s
95th percentile per-packet one-way delay: 64.629 ms
Loss rate: 0.66%
-- Flow 3:
Average throughput: 166.86 Mbit/s
95th percentile per-packet one-way delay: 62.928 ms
Loss rate: 1.51%
```

Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-10-26 23:22:06
End at: 2018-10-26 23:22:36
Local clock offset: -0.375 ms
Remote clock offset: -1.022 ms


# Below is generated by plot.py at 2018-10-27 01:30:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 420.23 Mbit/s
95th percentile per-packet one-way delay: 65.019 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 215.69 Mbit/s
95th percentile per-packet one-way delay: 63.550 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 220.15 Mbit/s
95th percentile per-packet one-way delay: 66.323 ms
Loss rate: 0.62%
-- Flow 3:
Average throughput: 184.26 Mbit/s
95th percentile per-packet one-way delay: 65.151 ms
Loss rate: 1.47%
```
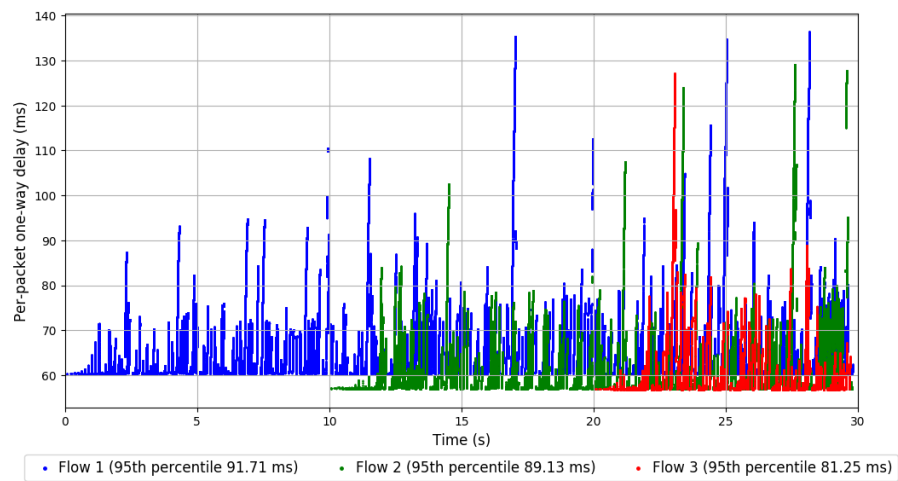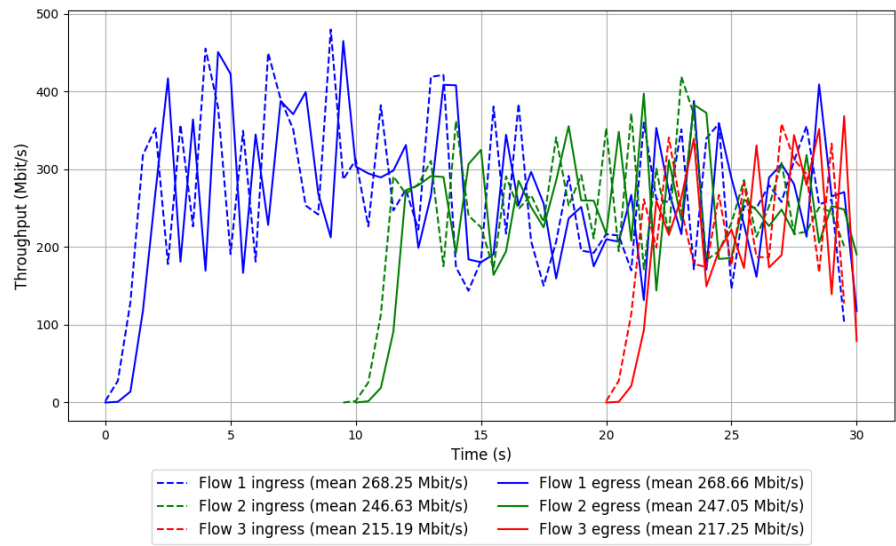
Run 4: Report of Indigo — Data Link

52

```
Run 5: Statistics of Indigo

Start at: 2018-10-26 23:53:47
End at: 2018-10-26 23:54:17
Local clock offset: -0.005 ms
Remote clock offset: -0.126 ms


# Below is generated by plot.py at 2018-10-27 01:30:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 418.67 Mbit/s
95th percentile per-packet one-way delay: 64.563 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 221.11 Mbit/s
95th percentile per-packet one-way delay: 61.490 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 212.11 Mbit/s
95th percentile per-packet one-way delay: 66.578 ms
Loss rate: 0.59%
-- Flow 3:
Average throughput: 177.91 Mbit/s
95th percentile per-packet one-way delay: 64.468 ms
Loss rate: 1.45%
```
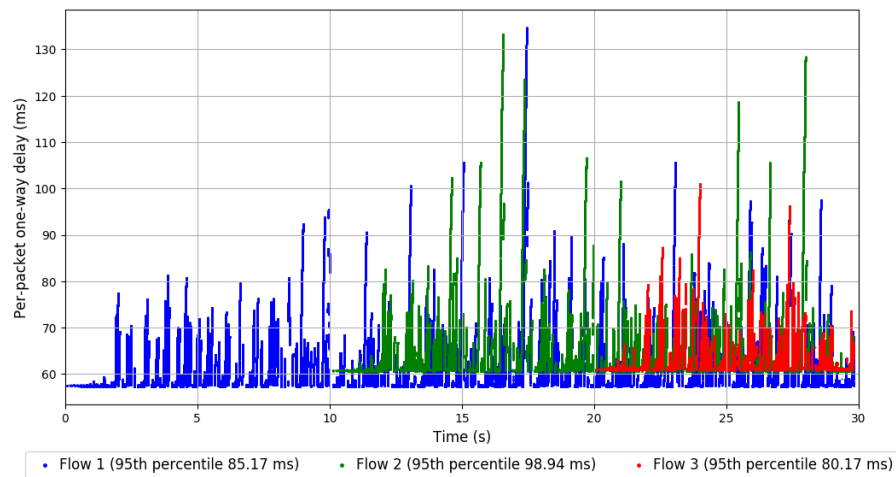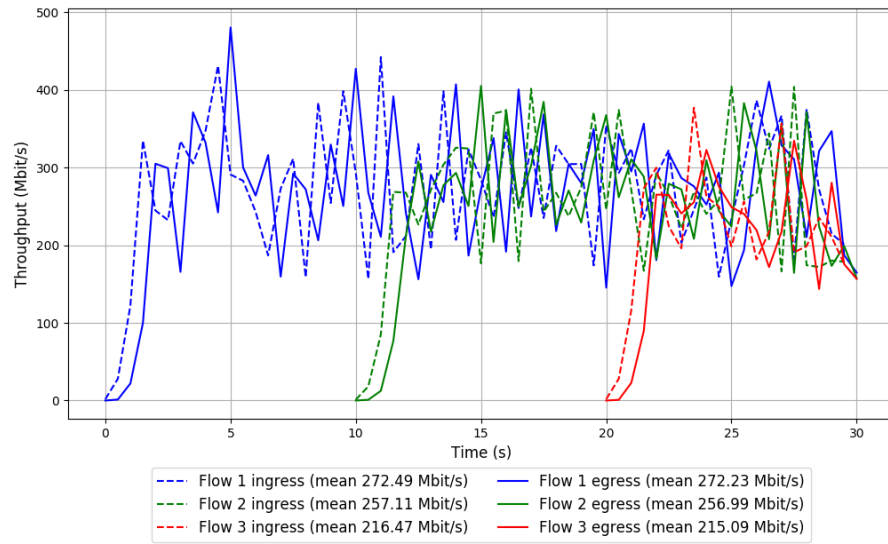
Run 5: Report of Indigo — Data Link

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

Start at: 2018-10-26 21:27:21
End at: 2018-10-26 21:27:51
Local clock offset: 0.461 ms
Remote clock offset: 0.561 ms


# Below is generated by plot.py at 2018-10-27 01:30:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 502.99 Mbit/s
95th percentile per-packet one-way delay: 90.130 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 268.66 Mbit/s
95th percentile per-packet one-way delay: 91.711 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 247.05 Mbit/s
95th percentile per-packet one-way delay: 89.133 ms
Loss rate: 0.50%
-- Flow 3:
Average throughput: 217.25 Mbit/s
95th percentile per-packet one-way delay: 81.250 ms
Loss rate: 1.15%
```
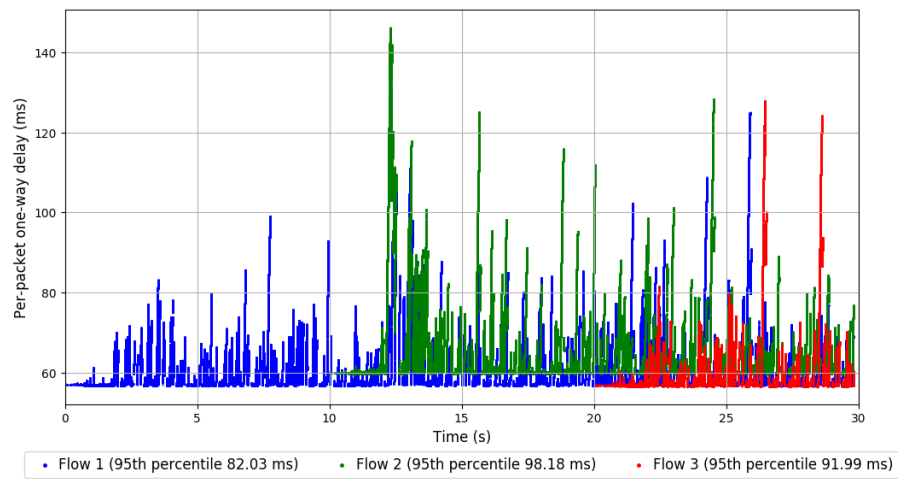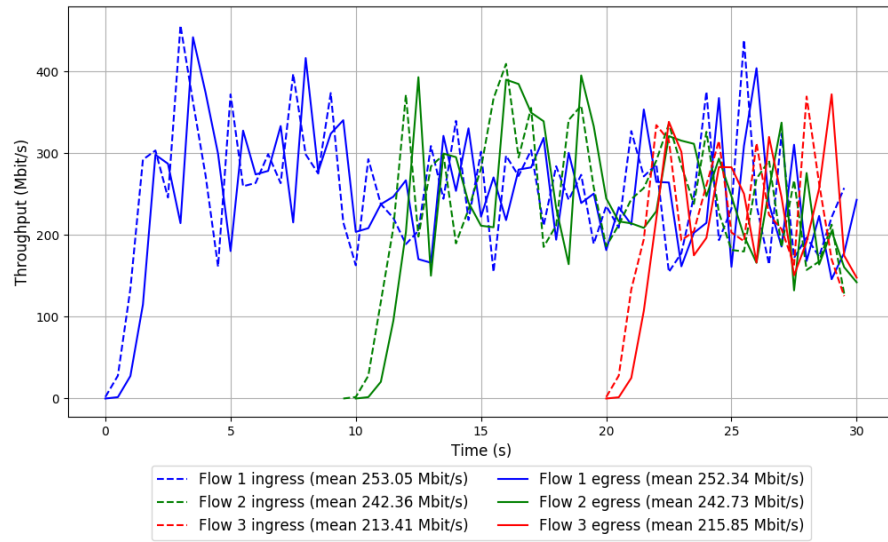
Run 1: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-10-26 21:57:55
End at: 2018-10-26 21:58:25
Local clock offset: 0.202 ms
Remote clock offset: -0.251 ms


# Below is generated by plot.py at 2018-10-27 01:30:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 512.44 Mbit/s
95th percentile per-packet one-way delay: 88.717 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 272.23 Mbit/s
95th percentile per-packet one-way delay: 85.171 ms
Loss rate: 0.44%
-- Flow 2:
Average throughput: 256.99 Mbit/s
95th percentile per-packet one-way delay: 98.942 ms
Loss rate: 0.32%
-- Flow 3:
Average throughput: 215.09 Mbit/s
95th percentile per-packet one-way delay: 80.172 ms
Loss rate: 1.51%
```

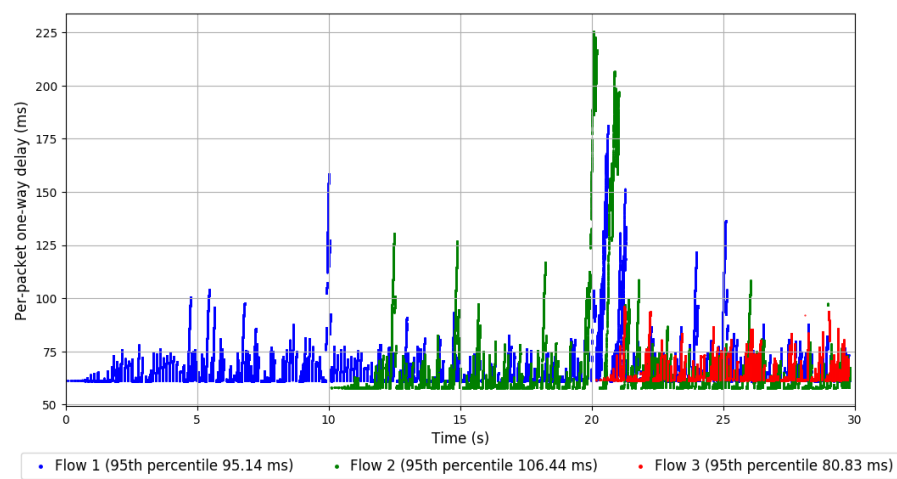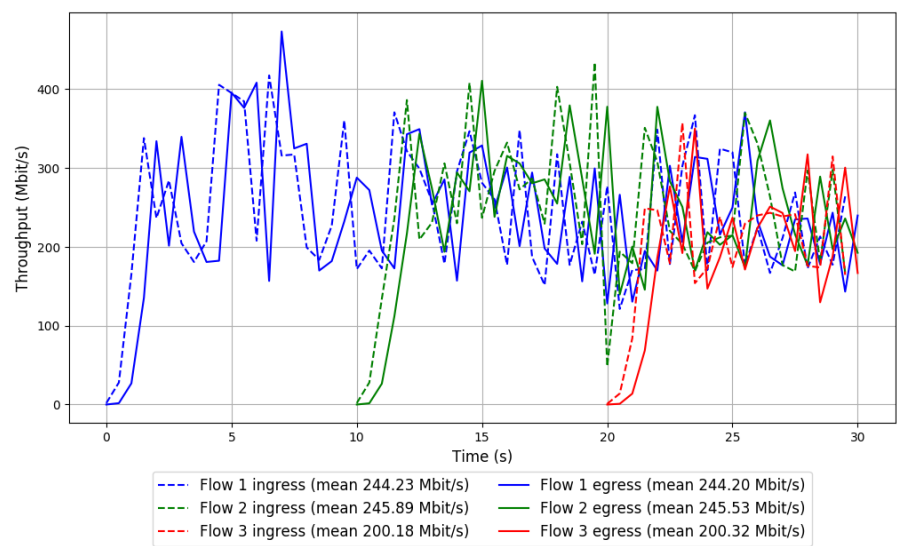Run 2: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-10-26 22:28:54
End at: 2018-10-26 22:29:24
Local clock offset: 0.31 ms
Remote clock offset: 0.246 ms


# Below is generated by plot.py at 2018-10-27 01:35:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 484.03 Mbit/s
95th percentile per-packet one-way delay: 90.751 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 252.34 Mbit/s
95th percentile per-packet one-way delay: 82.028 ms
Loss rate: 0.58%
-- Flow 2:
Average throughput: 242.73 Mbit/s
95th percentile per-packet one-way delay: 98.182 ms
Loss rate: 0.40%
-- Flow 3:
Average throughput: 215.85 Mbit/s
95th percentile per-packet one-way delay: 91.992 ms
Loss rate: 0.12%
```

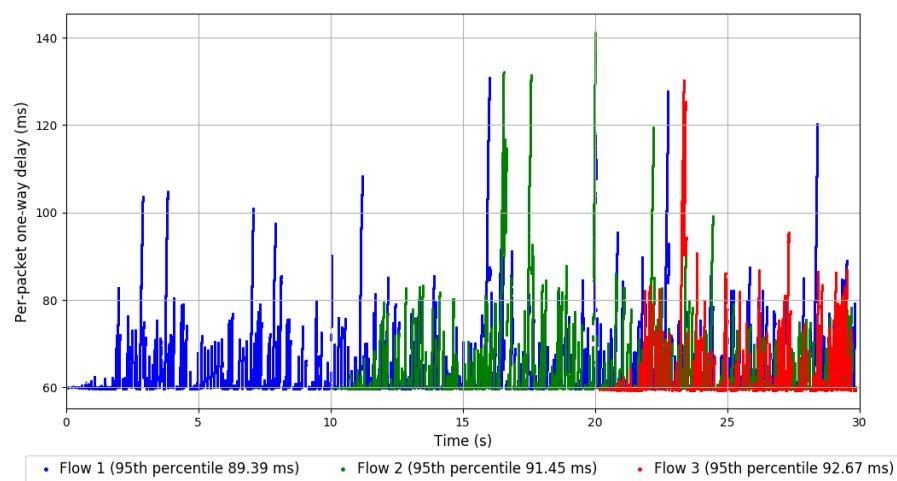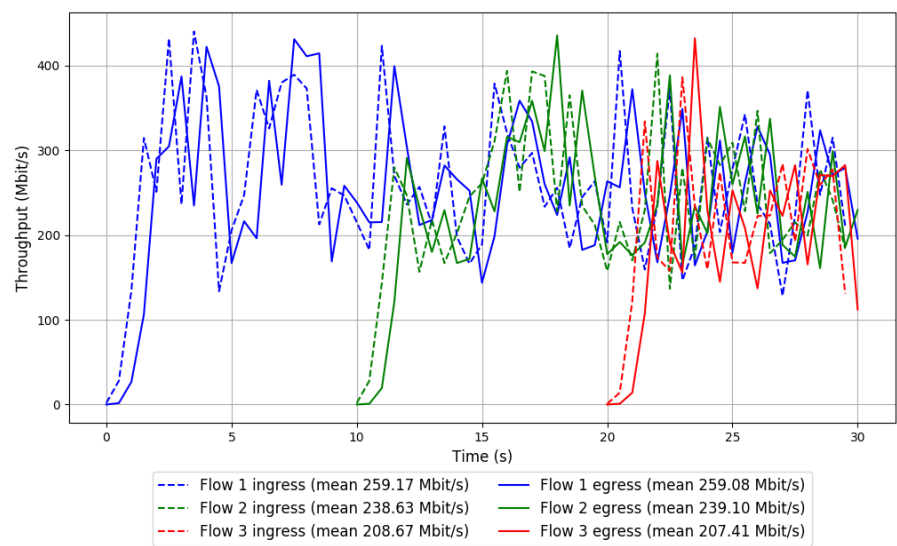Run 3: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-10-26 23:00:44
End at: 2018-10-26 23:01:14
Local clock offset: -0.62 ms
Remote clock offset: -1.815 ms


# Below is generated by plot.py at 2018-10-27 01:35:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 471.56 Mbit/s
95th percentile per-packet one-way delay: 97.133 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 244.20 Mbit/s
95th percentile per-packet one-way delay: 95.136 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 245.53 Mbit/s
95th percentile per-packet one-way delay: 106.445 ms
Loss rate: 0.43%
-- Flow 3:
Average throughput: 200.32 Mbit/s
95th percentile per-packet one-way delay: 80.827 ms
Loss rate: 1.19%
```

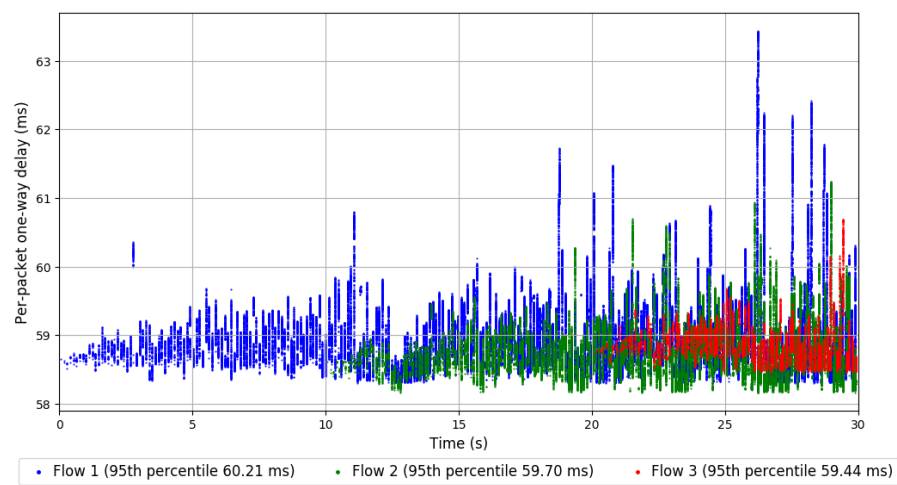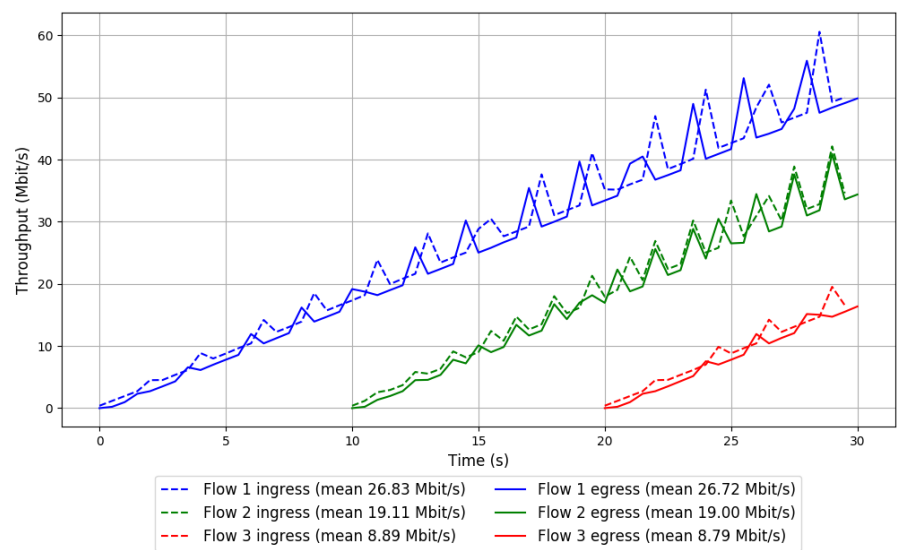Run 4: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-10-26 23:32:48
End at: 2018-10-26 23:33:18
Local clock offset: -0.677 ms
Remote clock offset: -0.156 ms


# Below is generated by plot.py at 2018-10-27 01:37:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 484.89 Mbit/s
95th percentile per-packet one-way delay: 90.484 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 259.08 Mbit/s
95th percentile per-packet one-way delay: 89.393 ms
Loss rate: 0.48%
-- Flow 2:
Average throughput: 239.10 Mbit/s
95th percentile per-packet one-way delay: 91.455 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 207.41 Mbit/s
95th percentile per-packet one-way delay: 92.670 ms
Loss rate: 1.55%
```

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

```
Run 1: Statistics of LEDBAT

Start at: 2018-10-26 21:54:11
End at: 2018-10-26 21:54:41
Local clock offset: 0.098 ms
Remote clock offset: -1.367 ms


# Below is generated by plot.py at 2018-10-27 01:37:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 42.22 Mbit/s
95th percentile per-packet one-way delay: 59.957 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 26.72 Mbit/s
95th percentile per-packet one-way delay: 60.209 ms
Loss rate: 0.78%
-- Flow 2:
Average throughput: 19.00 Mbit/s
95th percentile per-packet one-way delay: 59.698 ms
Loss rate: 1.14%
-- Flow 3:
Average throughput: 8.79 Mbit/s
95th percentile per-packet one-way delay: 59.435 ms
Loss rate: 2.38%
```
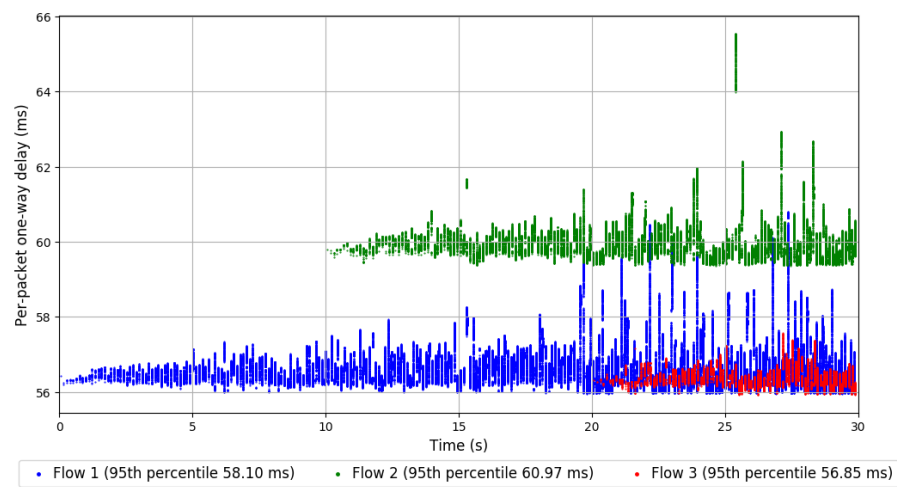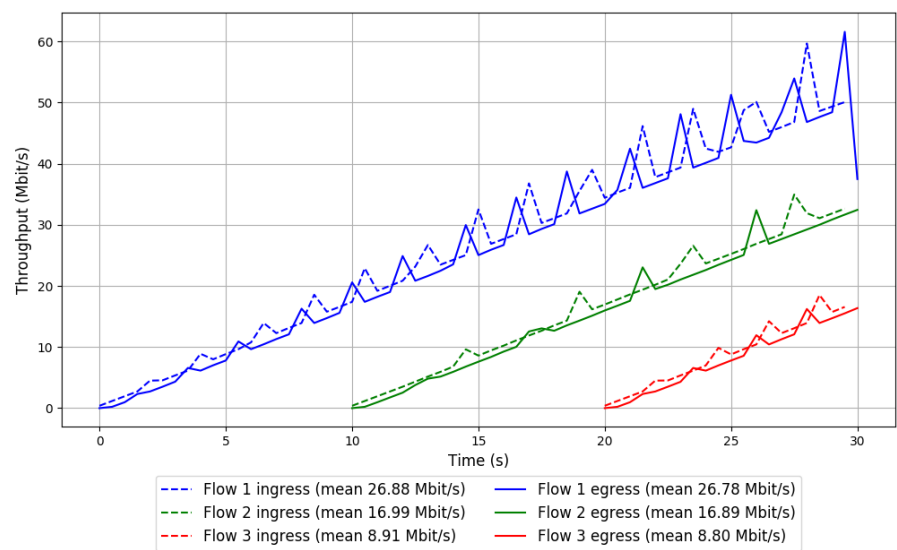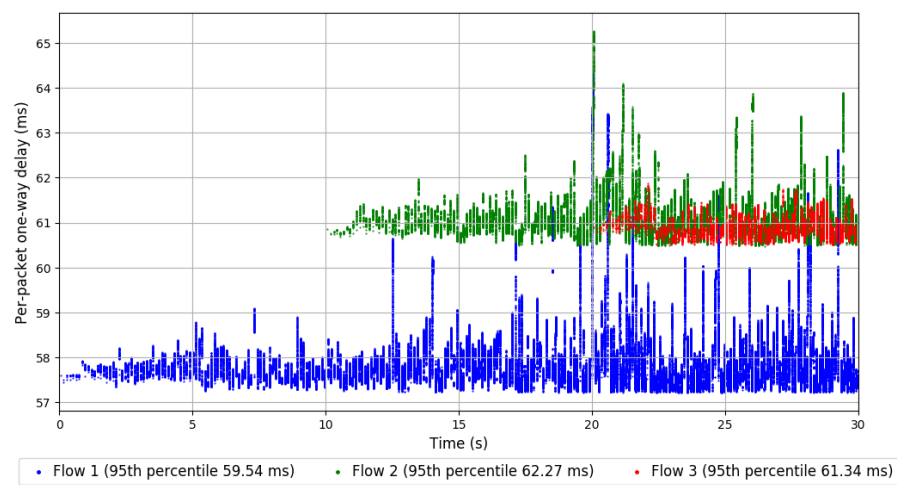
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-10-26 22:25:10
End at: 2018-10-26 22:25:40
Local clock offset: -0.46 ms
Remote clock offset: 0.186 ms


# Below is generated by plot.py at 2018-10-27 01:37:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 40.86 Mbit/s
95th percentile per-packet one-way delay: 60.283 ms
Loss rate: 1.02%
-- Flow 1:
Average throughput: 26.78 Mbit/s
95th percentile per-packet one-way delay: 58.098 ms
Loss rate: 0.78%
-- Flow 2:
Average throughput: 16.89 Mbit/s
95th percentile per-packet one-way delay: 60.971 ms
Loss rate: 1.21%
-- Flow 3:
Average throughput: 8.80 Mbit/s
95th percentile per-packet one-way delay: 56.850 ms
Loss rate: 2.38%
```
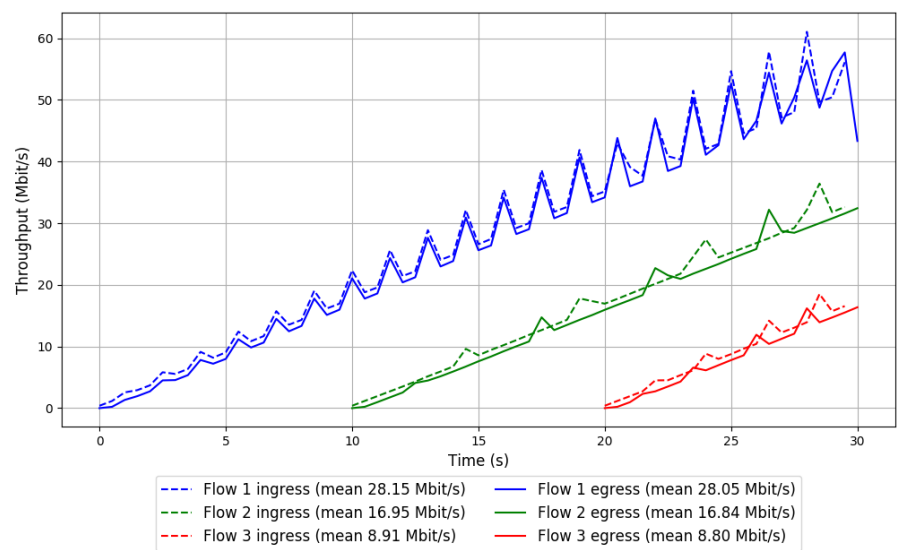
Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-10-26 22:57:00
End at: 2018-10-26 22:57:30
Local clock offset: 0.243 ms
Remote clock offset: -0.373 ms


# Below is generated by plot.py at 2018-10-27 01:37:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 42.12 Mbit/s
95th percentile per-packet one-way delay: 61.576 ms
Loss rate: 0.99%
-- Flow 1:
Average throughput: 28.05 Mbit/s
95th percentile per-packet one-way delay: 59.537 ms
Loss rate: 0.76%
-- Flow 2:
Average throughput: 16.84 Mbit/s
95th percentile per-packet one-way delay: 62.271 ms
Loss rate: 1.22%
-- Flow 3:
Average throughput: 8.80 Mbit/s
95th percentile per-packet one-way delay: 61.343 ms
Loss rate: 2.38%
```
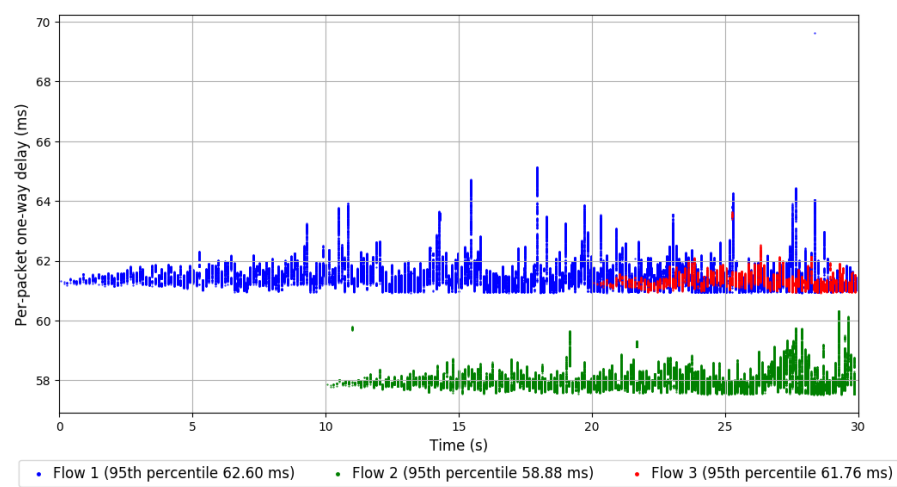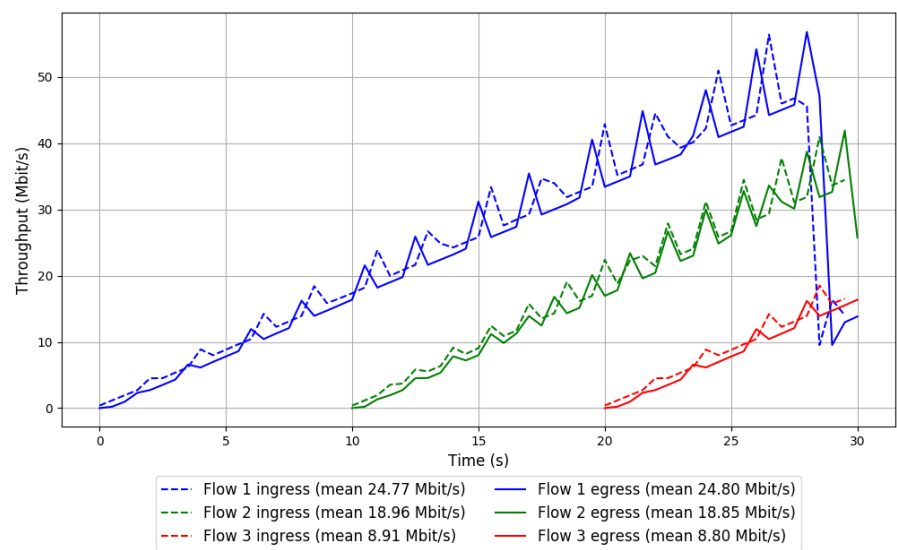
Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2018-10-26 23:29:02
End at: 2018-10-26 23:29:32
Local clock offset: 0.362 ms
Remote clock offset: -0.585 ms

# Below is generated by plot.py at 2018-10-27 01:37:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 40.18 Mbit/s
95th percentile per-packet one-way delay: 62.280 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 24.80 Mbit/s
95th percentile per-packet one-way delay: 62.600 ms
Loss rate: 0.24%
-- Flow 2:
Average throughput: 18.85 Mbit/s
95th percentile per-packet one-way delay: 58.877 ms
Loss rate: 1.15%
-- Flow 3:
Average throughput: 8.80 Mbit/s
95th percentile per-packet one-way delay: 61.759 ms
Loss rate: 2.38%
```
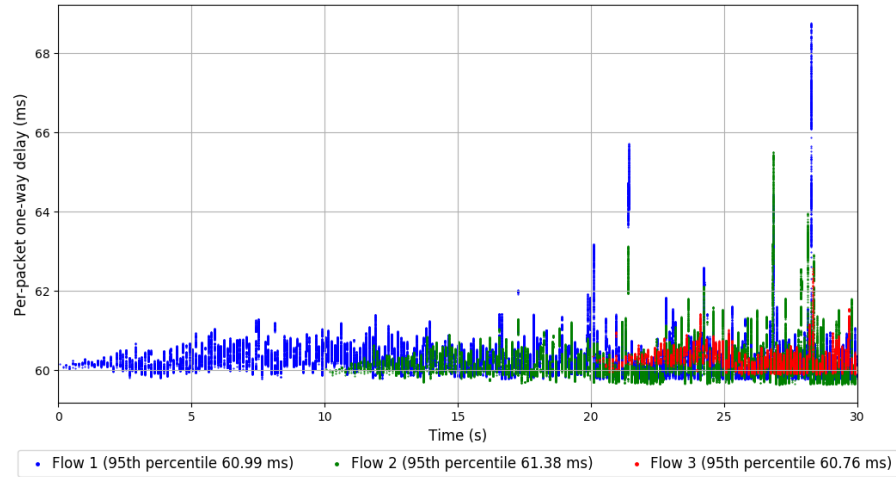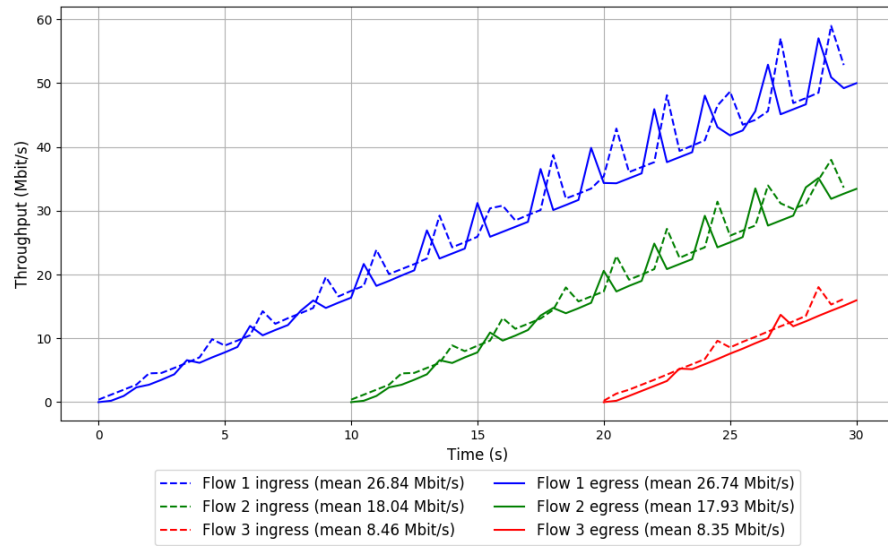
Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2018-10-27 00:01:16
End at: 2018-10-27 00:01:46
Local clock offset: -0.532 ms
Remote clock offset: -0.205 ms

# Below is generated by plot.py at 2018-10-27 01:37:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 41.40 Mbit/s
95th percentile per-packet one-way delay: 61.131 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 26.74 Mbit/s
95th percentile per-packet one-way delay: 60.987 ms
Loss rate: 0.78%
-- Flow 2:
Average throughput: 17.93 Mbit/s
95th percentile per-packet one-way delay: 61.375 ms
Loss rate: 1.18%
-- Flow 3:
Average throughput: 8.35 Mbit/s
95th percentile per-packet one-way delay: 60.757 ms
Loss rate: 2.44%
```
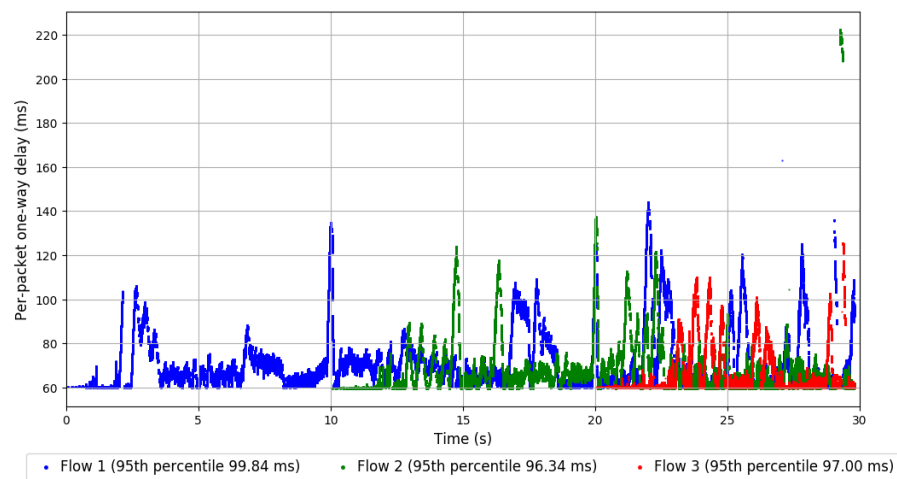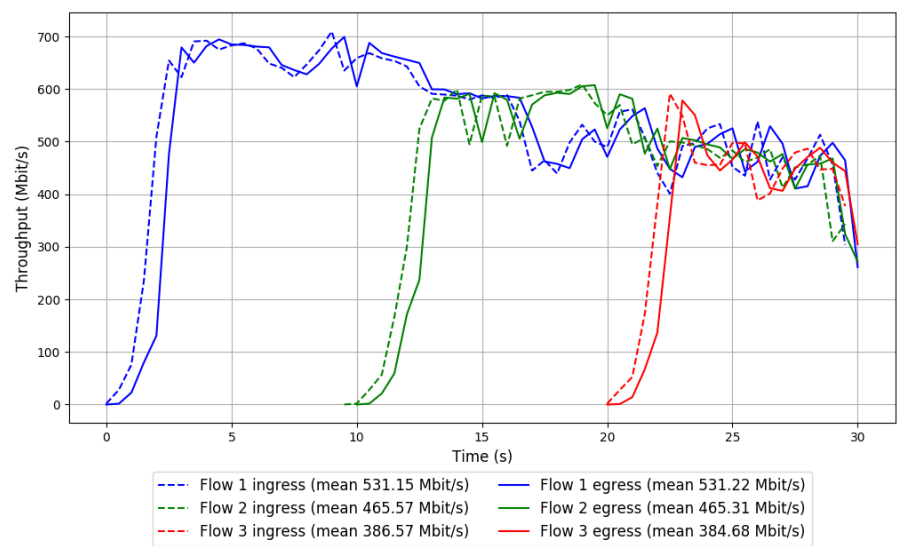
Run 5: Report of LEDBAT — Data Link

- - - Flow 1 ingress (mean 26.84 Mbit/s) —— Flow 1 egress (mean 26.74 Mbit/s)
- - - Flow 2 ingress (mean 18.04 Mbit/s) —— Flow 2 egress (mean 17.93 Mbit/s)
- - - Flow 3 ingress (mean 8.46 Mbit/s) —— Flow 3 egress (mean 8.35 Mbit/s)

• Flow 1 (95th percentile 60.99 ms)   • Flow 2 (95th percentile 61.38 ms)   • Flow 3 (95th percentile 60.76 ms)

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-10-26 21:37:35
End at: 2018-10-26 21:38:05
Local clock offset: -0.528 ms
Remote clock offset: -0.161 ms


# Below is generated by plot.py at 2018-10-27 01:49:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 966.17 Mbit/s
95th percentile per-packet one-way delay: 98.925 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 531.22 Mbit/s
95th percentile per-packet one-way delay: 99.841 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 465.31 Mbit/s
95th percentile per-packet one-way delay: 96.337 ms
Loss rate: 0.65%
-- Flow 3:
Average throughput: 384.68 Mbit/s
95th percentile per-packet one-way delay: 97.004 ms
Loss rate: 1.65%
```

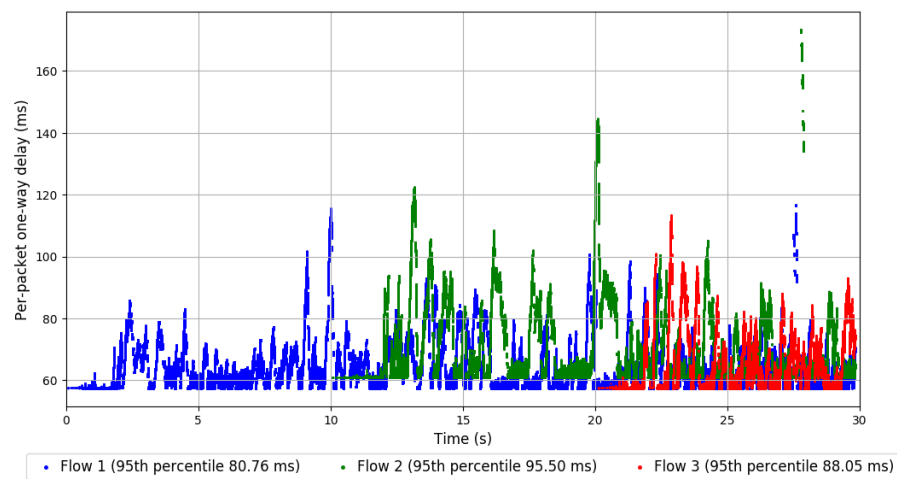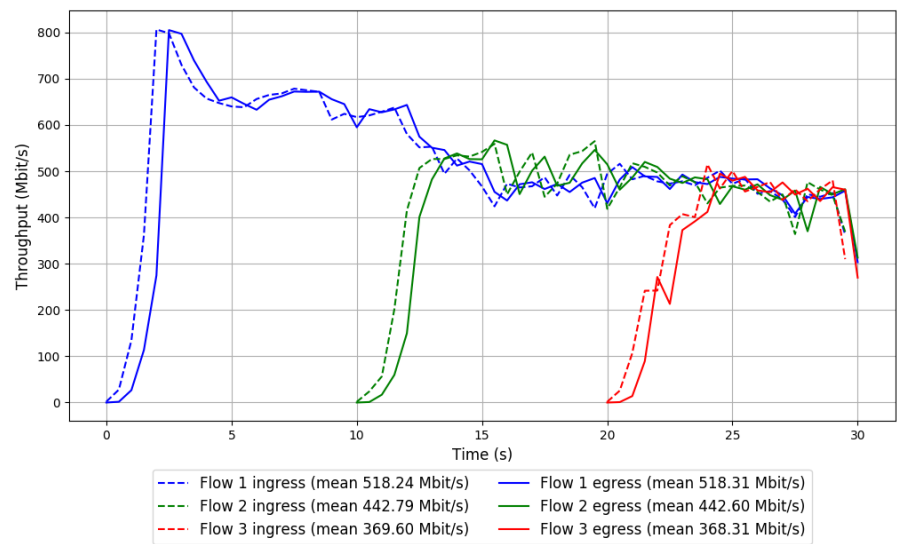Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-10-26 22:08:10
End at: 2018-10-26 22:08:40
Local clock offset: 0.435 ms
Remote clock offset: -0.284 ms

# Below is generated by plot.py at 2018-10-27 01:49:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 932.35 Mbit/s
95th percentile per-packet one-way delay: 88.558 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 518.31 Mbit/s
95th percentile per-packet one-way delay: 80.757 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 442.60 Mbit/s
95th percentile per-packet one-way delay: 95.505 ms
Loss rate: 0.65%
-- Flow 3:
Average throughput: 368.31 Mbit/s
95th percentile per-packet one-way delay: 88.045 ms
Loss rate: 1.53%
```

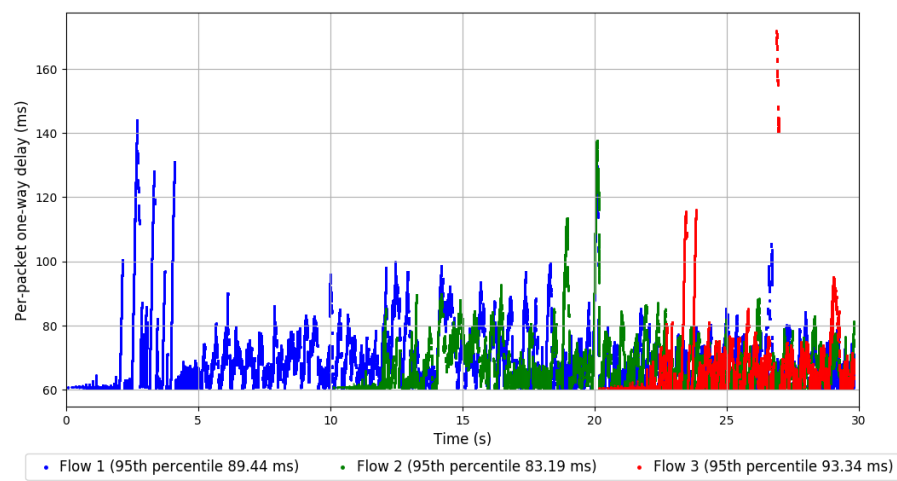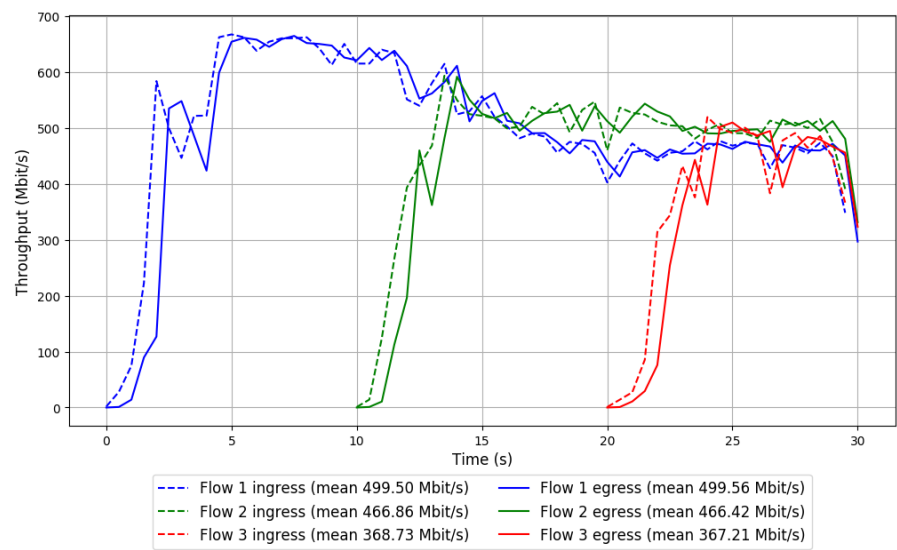Run 2: Report of Indigo-Muses — Data Link

78

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-10-26 22:39:10
End at: 2018-10-26 22:39:40
Local clock offset: 0.396 ms
Remote clock offset: -0.249 ms


# Below is generated by plot.py at 2018-10-27 01:50:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 927.45 Mbit/s
95th percentile per-packet one-way delay: 86.960 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 499.56 Mbit/s
95th percentile per-packet one-way delay: 89.442 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 466.42 Mbit/s
95th percentile per-packet one-way delay: 83.185 ms
Loss rate: 0.69%
-- Flow 3:
Average throughput: 367.21 Mbit/s
95th percentile per-packet one-way delay: 93.341 ms
Loss rate: 1.54%
```

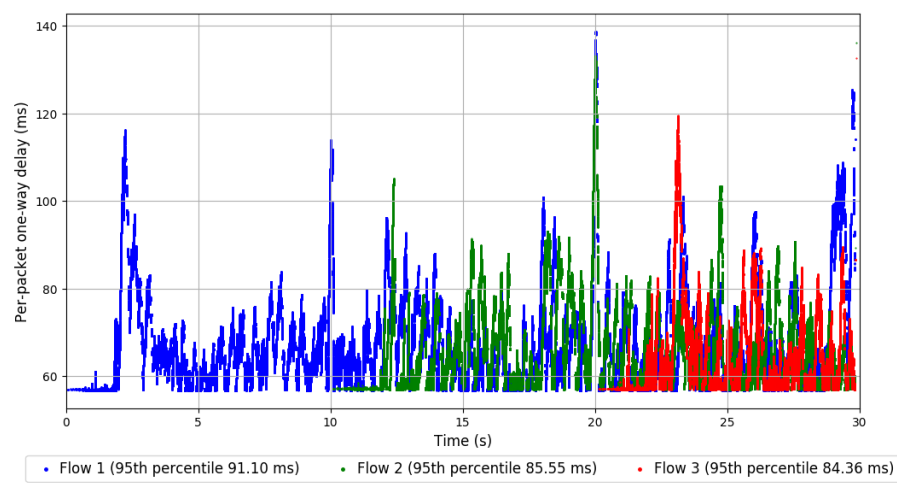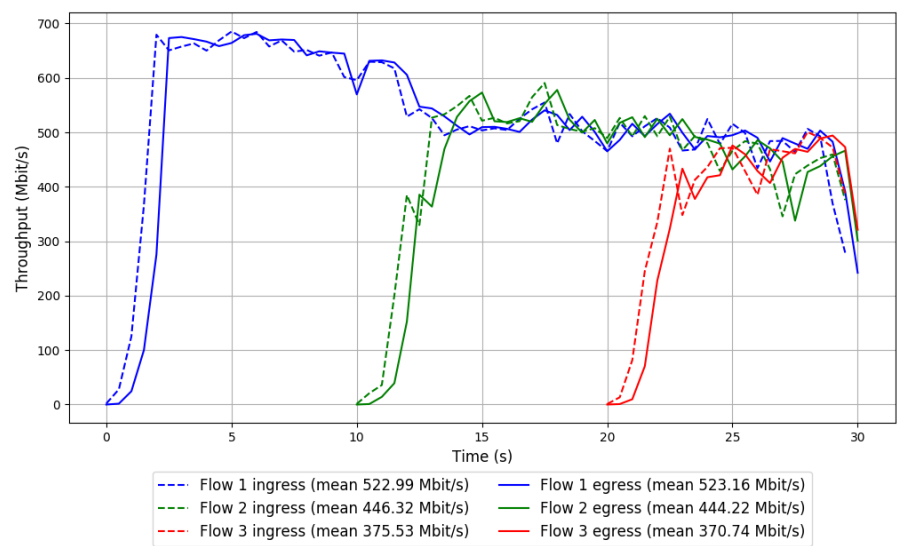Run 3: Report of Indigo-Muses — Data Link

80

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-10-26 23:11:47
End at: 2018-10-26 23:12:17
Local clock offset: -0.035 ms
Remote clock offset: -0.297 ms


# Below is generated by plot.py at 2018-10-27 01:50:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 937.91 Mbit/s
95th percentile per-packet one-way delay: 87.637 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 523.16 Mbit/s
95th percentile per-packet one-way delay: 91.096 ms
Loss rate: 0.28%
-- Flow 2:
Average throughput: 444.22 Mbit/s
95th percentile per-packet one-way delay: 85.545 ms
Loss rate: 0.71%
-- Flow 3:
Average throughput: 370.74 Mbit/s
95th percentile per-packet one-way delay: 84.357 ms
Loss rate: 1.74%
```

Run 4: Report of Indigo-Muses — Data Link

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-10-26 23:43:06
End at: 2018-10-26 23:43:36
Local clock offset: -1.064 ms
Remote clock offset: 1.211 ms


# Below is generated by plot.py at 2018-10-27 01:50:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 907.06 Mbit/s
95th percentile per-packet one-way delay: 81.175 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 495.61 Mbit/s
95th percentile per-packet one-way delay: 79.439 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 452.96 Mbit/s
95th percentile per-packet one-way delay: 81.672 ms
Loss rate: 0.60%
-- Flow 3:
Average throughput: 342.80 Mbit/s
95th percentile per-packet one-way delay: 85.254 ms
Loss rate: 1.70%
```
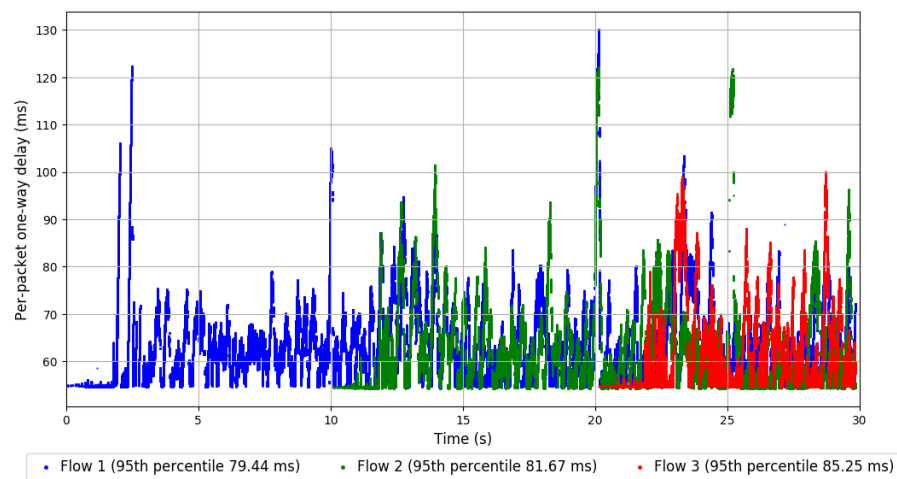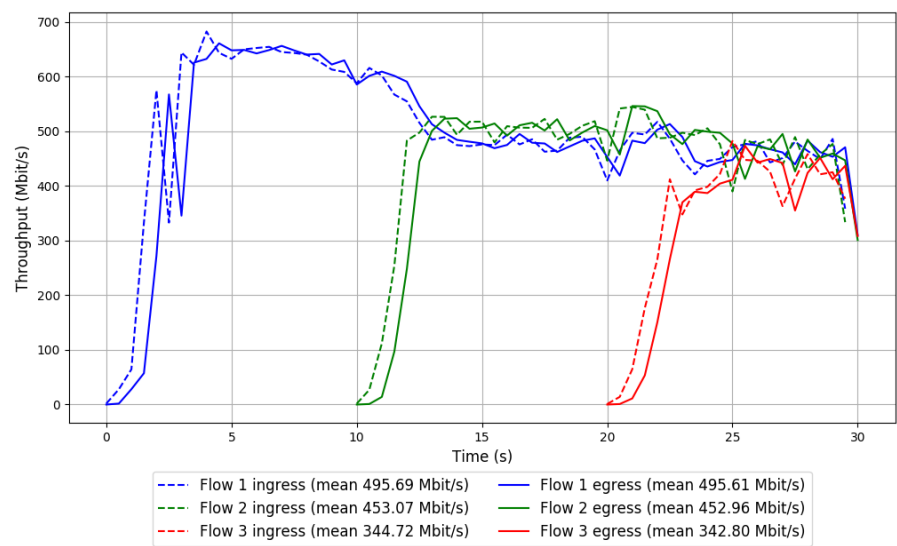
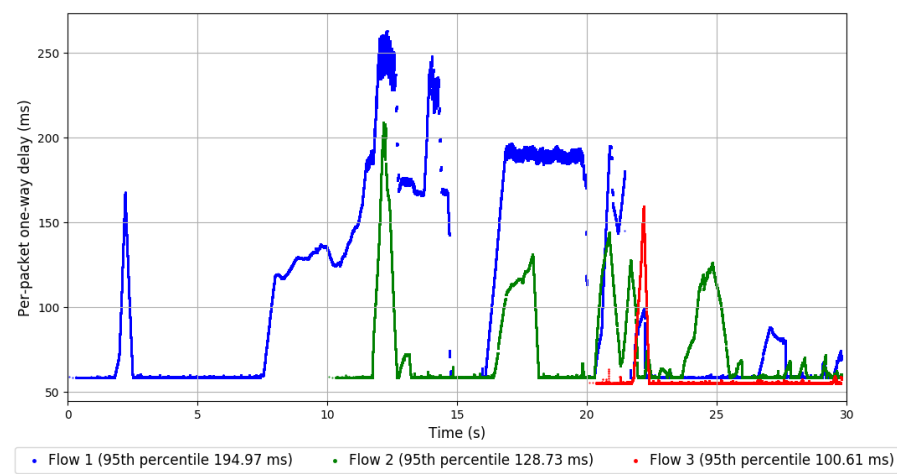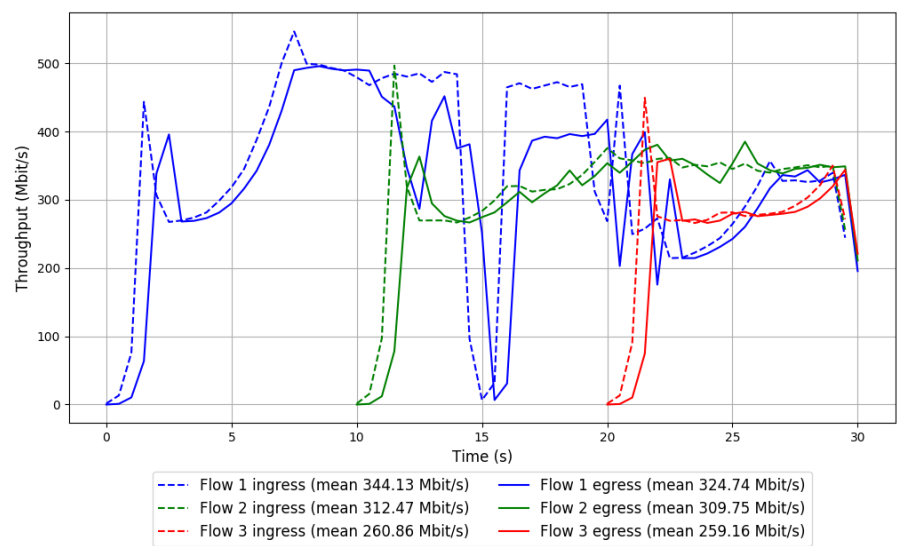Run 5: Report of Indigo-Muses — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-10-26 21:28:58
End at: 2018-10-26 21:29:28
Local clock offset: -0.964 ms
Remote clock offset: 0.717 ms


# Below is generated by plot.py at 2018-10-27 01:59:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 614.79 Mbit/s
95th percentile per-packet one-way delay: 191.425 ms
Loss rate: 3.96%
-- Flow 1:
Average throughput: 324.74 Mbit/s
95th percentile per-packet one-way delay: 194.970 ms
Loss rate: 6.01%
-- Flow 2:
Average throughput: 309.75 Mbit/s
95th percentile per-packet one-way delay: 128.727 ms
Loss rate: 1.46%
-- Flow 3:
Average throughput: 259.16 Mbit/s
95th percentile per-packet one-way delay: 100.608 ms
Loss rate: 1.81%
```

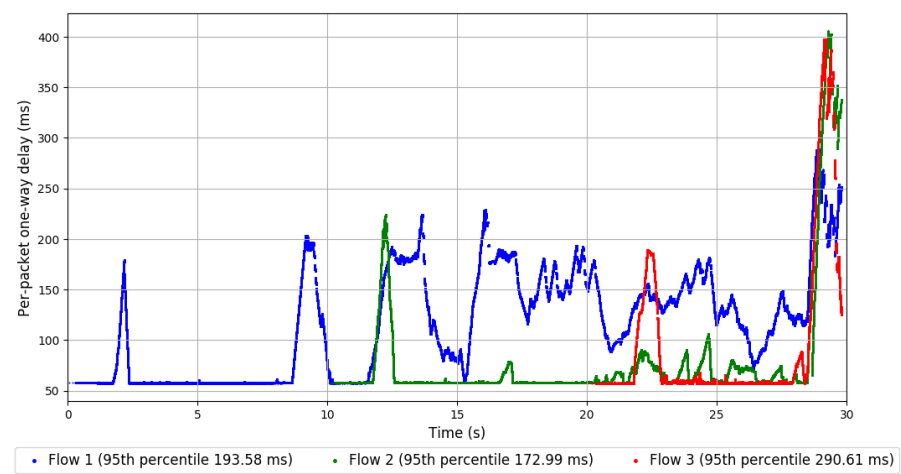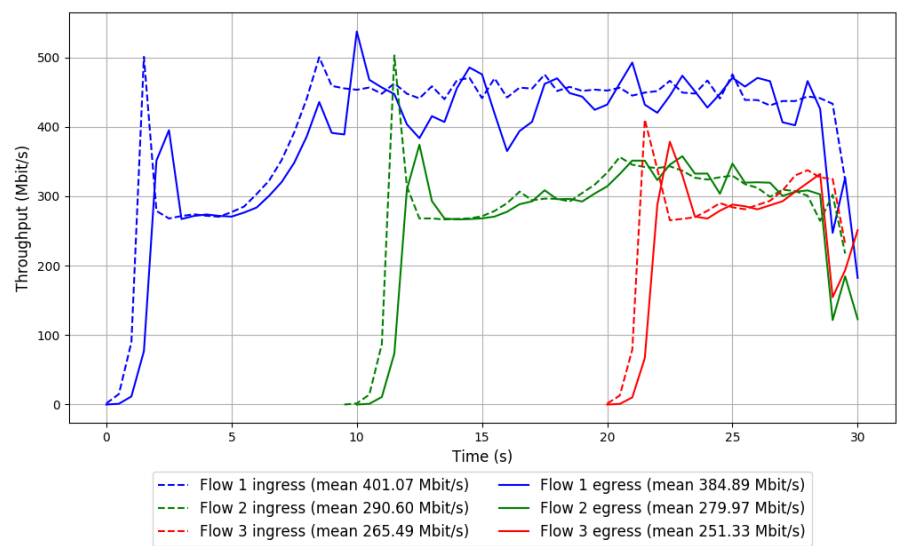Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-10-26 21:59:33
End at: 2018-10-26 22:00:03
Local clock offset: 0.278 ms
Remote clock offset: -0.284 ms


# Below is generated by plot.py at 2018-10-27 02:00:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 652.83 Mbit/s
95th percentile per-packet one-way delay: 194.057 ms
Loss rate: 4.61%
-- Flow 1:
Average throughput: 384.89 Mbit/s
95th percentile per-packet one-way delay: 193.582 ms
Loss rate: 4.40%
-- Flow 2:
Average throughput: 279.97 Mbit/s
95th percentile per-packet one-way delay: 172.994 ms
Loss rate: 4.21%
-- Flow 3:
Average throughput: 251.33 Mbit/s
95th percentile per-packet one-way delay: 290.612 ms
Loss rate: 6.43%
```

Run 2: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 401.07 Mbit/s) --- Flow 1 egress (mean 384.89 Mbit/s)
Flow 2 ingress (mean 290.60 Mbit/s) --- Flow 2 egress (mean 279.97 Mbit/s)
Flow 3 ingress (mean 265.49 Mbit/s) --- Flow 3 egress (mean 251.33 Mbit/s)

Flow 1 (95th percentile 193.58 ms)   Flow 2 (95th percentile 172.99 ms)   Flow 3 (95th percentile 290.61 ms)
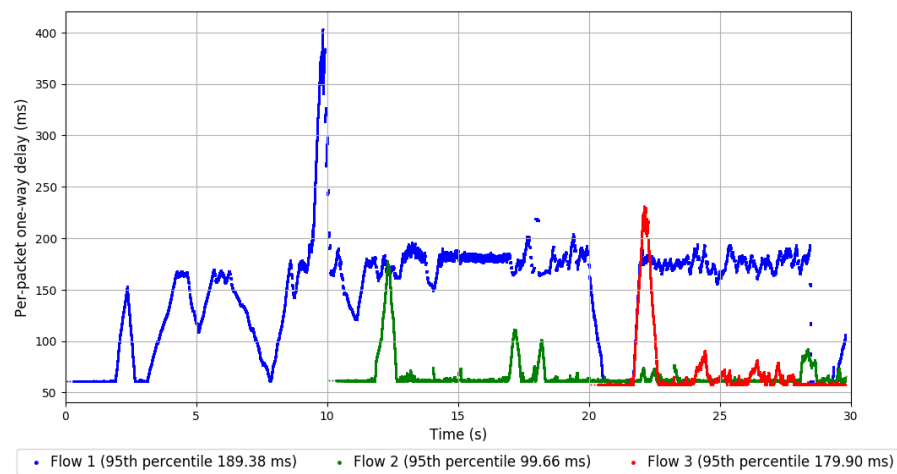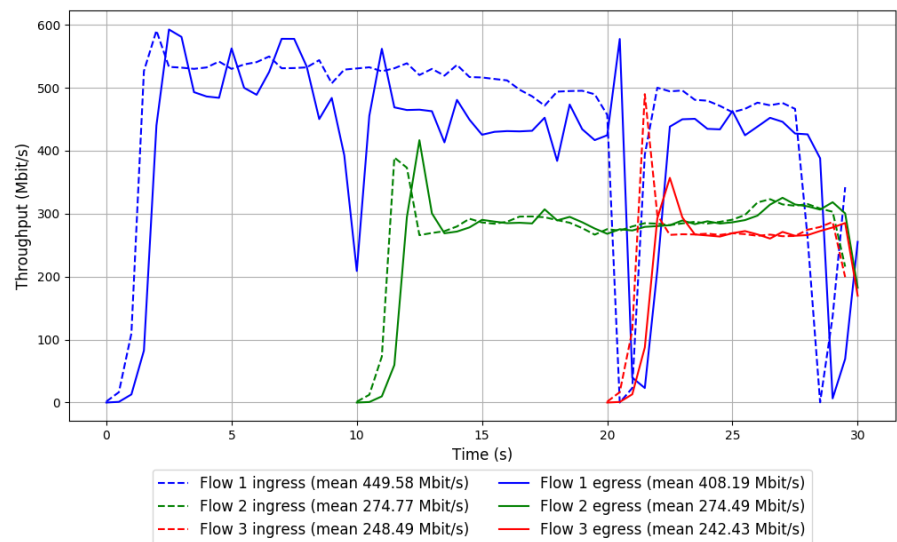
88

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-10-26 22:30:30
End at: 2018-10-26 22:31:00
Local clock offset: 0.295 ms
Remote clock offset: -0.688 ms


# Below is generated by plot.py at 2018-10-27 02:04:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 669.58 Mbit/s
95th percentile per-packet one-way delay: 186.371 ms
Loss rate: 6.60%
-- Flow 1:
Average throughput: 408.19 Mbit/s
95th percentile per-packet one-way delay: 189.377 ms
Loss rate: 9.56%
-- Flow 2:
Average throughput: 274.49 Mbit/s
95th percentile per-packet one-way delay: 99.656 ms
Loss rate: 0.68%
-- Flow 3:
Average throughput: 242.43 Mbit/s
95th percentile per-packet one-way delay: 179.901 ms
Loss rate: 3.57%
```
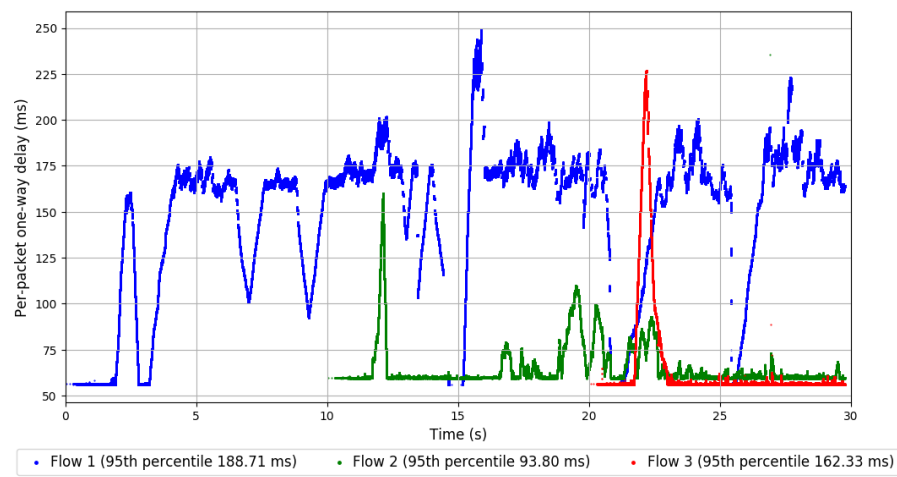
Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 449.58 Mbit/s) — — — Flow 1 egress (mean 408.19 Mbit/s)
Flow 2 ingress (mean 274.77 Mbit/s) — — — Flow 2 egress (mean 274.49 Mbit/s)
Flow 3 ingress (mean 248.49 Mbit/s) — — — Flow 3 egress (mean 242.43 Mbit/s)

Flow 1 (95th percentile 189.38 ms)   Flow 2 (95th percentile 99.66 ms)   Flow 3 (95th percentile 179.90 ms)

90

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-10-26 23:02:29
End at: 2018-10-26 23:02:59
Local clock offset: -0.563 ms
Remote clock offset: 0.014 ms


# Below is generated by plot.py at 2018-10-27 02:19:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 680.72 Mbit/s
95th percentile per-packet one-way delay: 184.900 ms
Loss rate: 7.82%
-- Flow 1:
Average throughput: 417.83 Mbit/s
95th percentile per-packet one-way delay: 188.708 ms
Loss rate: 11.45%
-- Flow 2:
Average throughput: 276.61 Mbit/s
95th percentile per-packet one-way delay: 93.801 ms
Loss rate: 0.66%
-- Flow 3:
Average throughput: 242.63 Mbit/s
95th percentile per-packet one-way delay: 162.331 ms
Loss rate: 3.01%
```
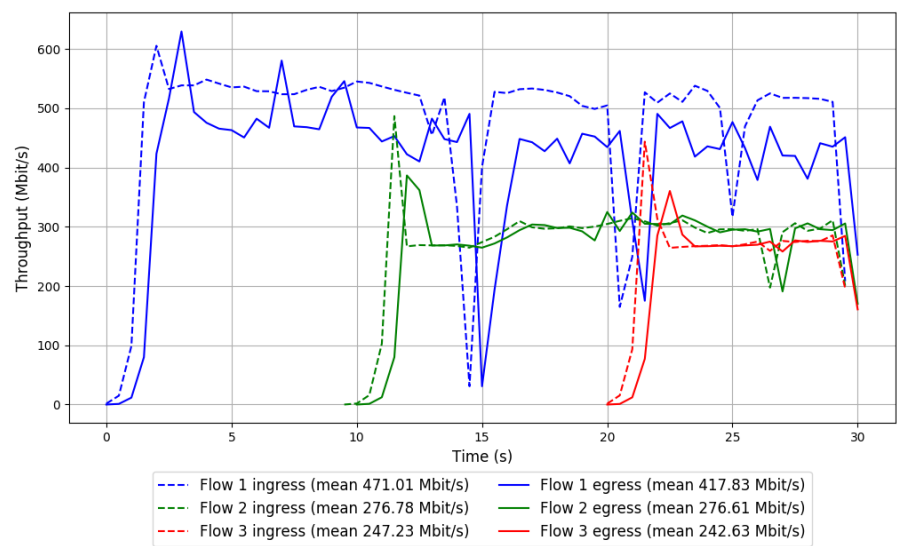
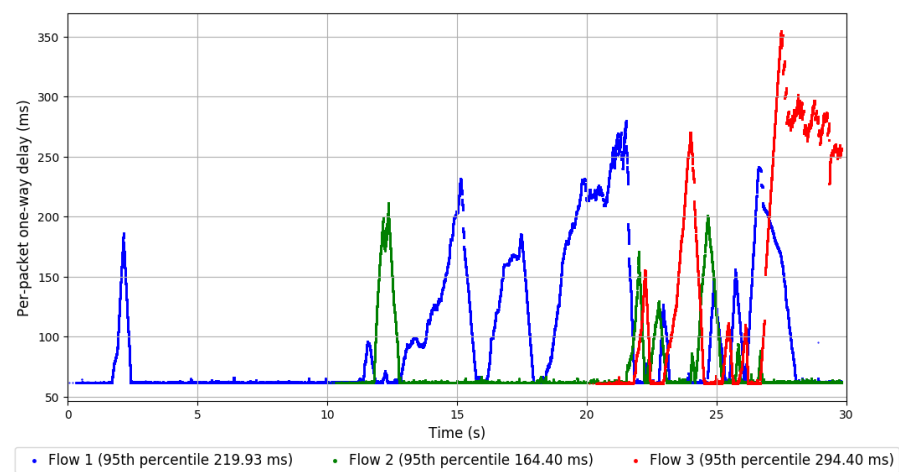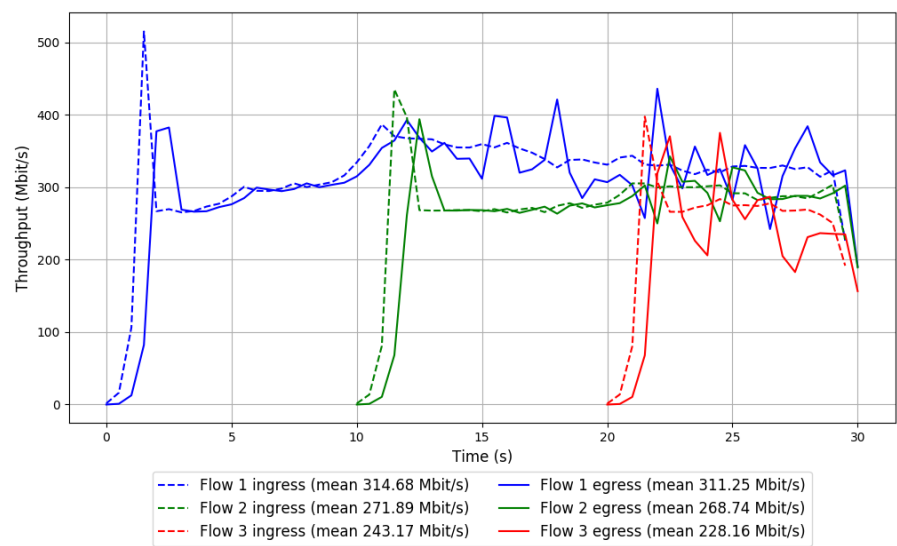Run 4: Report of PCC-Allegro — Data Link

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-10-26 23:34:25
End at: 2018-10-26 23:34:55
Local clock offset: 0.964 ms
Remote clock offset: -0.269 ms


# Below is generated by plot.py at 2018-10-27 02:19:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 563.99 Mbit/s
95th percentile per-packet one-way delay: 241.334 ms
Loss rate: 2.38%
-- Flow 1:
Average throughput: 311.25 Mbit/s
95th percentile per-packet one-way delay: 219.925 ms
Loss rate: 1.48%
-- Flow 2:
Average throughput: 268.74 Mbit/s
95th percentile per-packet one-way delay: 164.403 ms
Loss rate: 1.75%
-- Flow 3:
Average throughput: 228.16 Mbit/s
95th percentile per-packet one-way delay: 294.404 ms
Loss rate: 7.31%
```

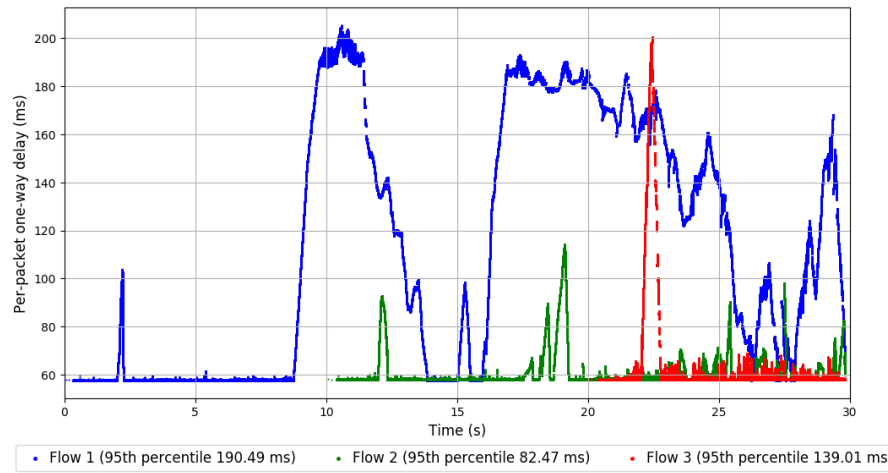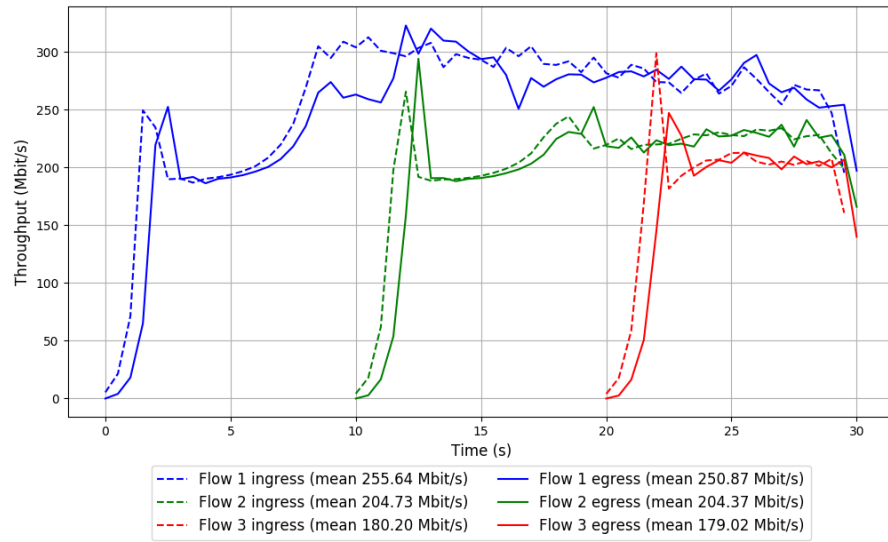Run 5: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 314.68 Mbit/s)   Flow 1 egress (mean 311.25 Mbit/s)
Flow 2 ingress (mean 271.89 Mbit/s)   Flow 2 egress (mean 268.74 Mbit/s)
Flow 3 ingress (mean 243.17 Mbit/s)   Flow 3 egress (mean 228.16 Mbit/s)

Flow 1 (95th percentile 219.93 ms)   Flow 2 (95th percentile 164.40 ms)   Flow 3 (95th percentile 294.40 ms)

94

```
Run 1: Statistics of PCC-Expr

Start at: 2018-10-26 21:51:06
End at: 2018-10-26 21:51:36
Local clock offset: -0.119 ms
Remote clock offset: -0.943 ms


# Below is generated by plot.py at 2018-10-27 02:19:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 445.09 Mbit/s
95th percentile per-packet one-way delay: 186.229 ms
Loss rate: 1.73%
-- Flow 1:
Average throughput: 250.87 Mbit/s
95th percentile per-packet one-way delay: 190.487 ms
Loss rate: 2.24%
-- Flow 2:
Average throughput: 204.37 Mbit/s
95th percentile per-packet one-way delay: 82.469 ms
Loss rate: 0.75%
-- Flow 3:
Average throughput: 179.02 Mbit/s
95th percentile per-packet one-way delay: 139.010 ms
Loss rate: 1.80%
```

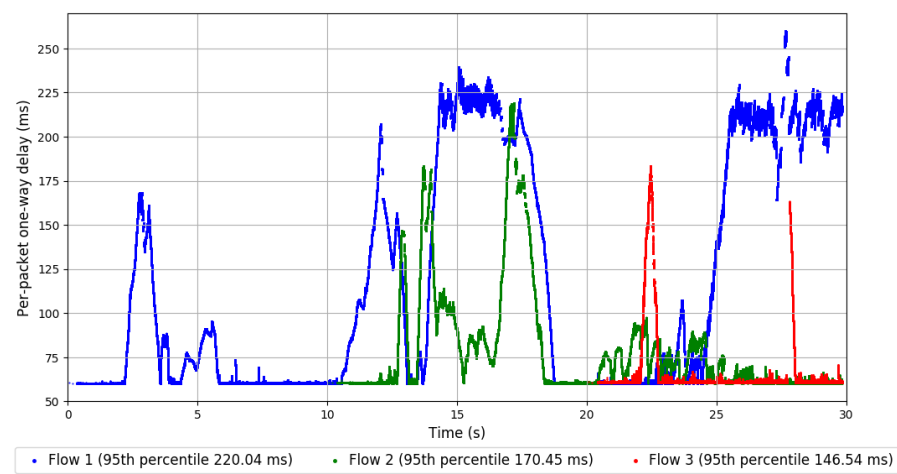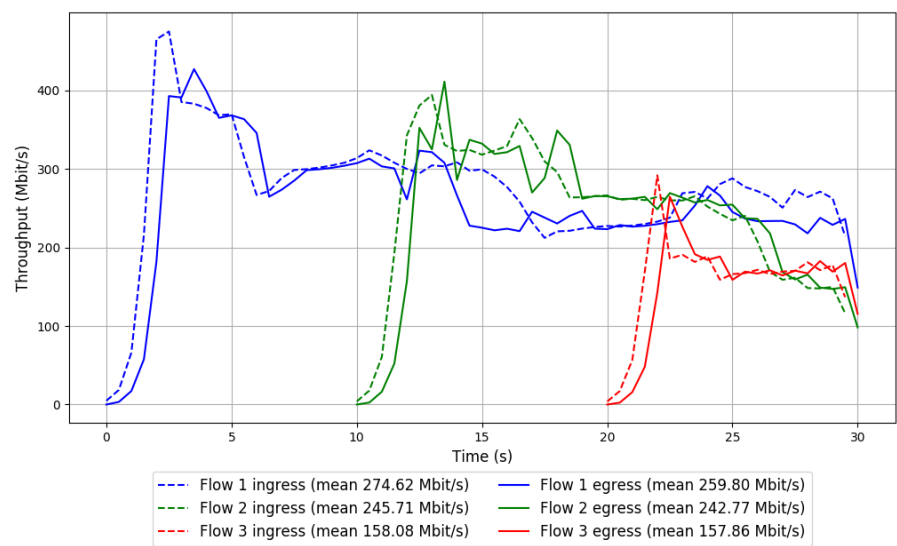Run 1: Report of PCC-Expr — Data Link

```
Run 2: Statistics of PCC-Expr

Start at: 2018-10-26 22:21:50
End at: 2018-10-26 22:22:20
Local clock offset: -0.493 ms
Remote clock offset: -0.795 ms


# Below is generated by plot.py at 2018-10-27 02:19:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 472.65 Mbit/s
95th percentile per-packet one-way delay: 216.028 ms
Loss rate: 3.98%
-- Flow 1:
Average throughput: 259.80 Mbit/s
95th percentile per-packet one-way delay: 220.043 ms
Loss rate: 5.78%
-- Flow 2:
Average throughput: 242.77 Mbit/s
95th percentile per-packet one-way delay: 170.448 ms
Loss rate: 1.79%
-- Flow 3:
Average throughput: 157.86 Mbit/s
95th percentile per-packet one-way delay: 146.540 ms
Loss rate: 1.37%
```
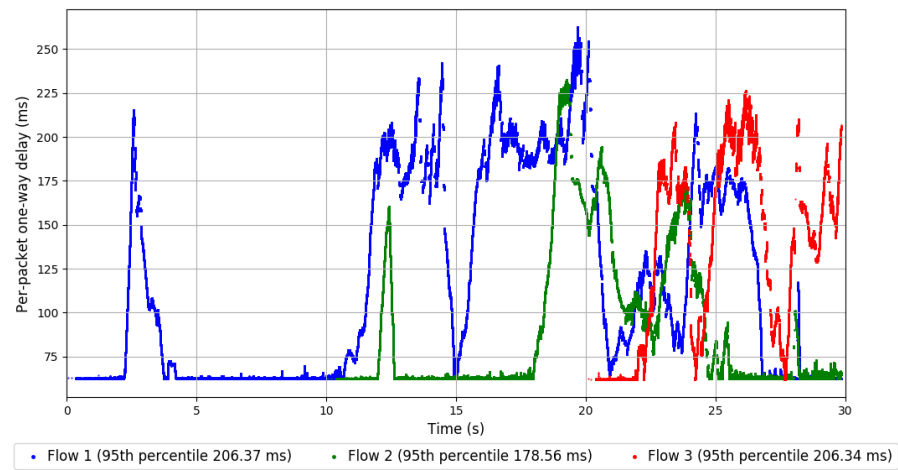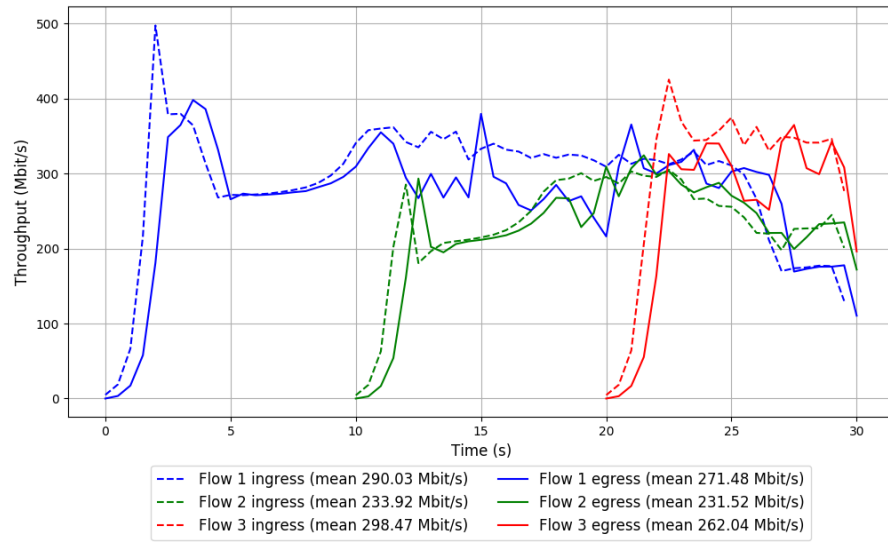
Run 2: Report of PCC-Expr — Data Link

98

```
Run 3: Statistics of PCC-Expr

Start at: 2018-10-26 22:53:33
End at: 2018-10-26 22:54:03
Local clock offset: 0.681 ms
Remote clock offset: -1.688 ms

# Below is generated by plot.py at 2018-10-27 02:19:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 510.93 Mbit/s
95th percentile per-packet one-way delay: 204.238 ms
Loss rate: 6.47%
-- Flow 1:
Average throughput: 271.48 Mbit/s
95th percentile per-packet one-way delay: 206.368 ms
Loss rate: 6.77%
-- Flow 2:
Average throughput: 231.52 Mbit/s
95th percentile per-packet one-way delay: 178.555 ms
Loss rate: 1.61%
-- Flow 3:
Average throughput: 262.04 Mbit/s
95th percentile per-packet one-way delay: 206.340 ms
Loss rate: 13.25%
```
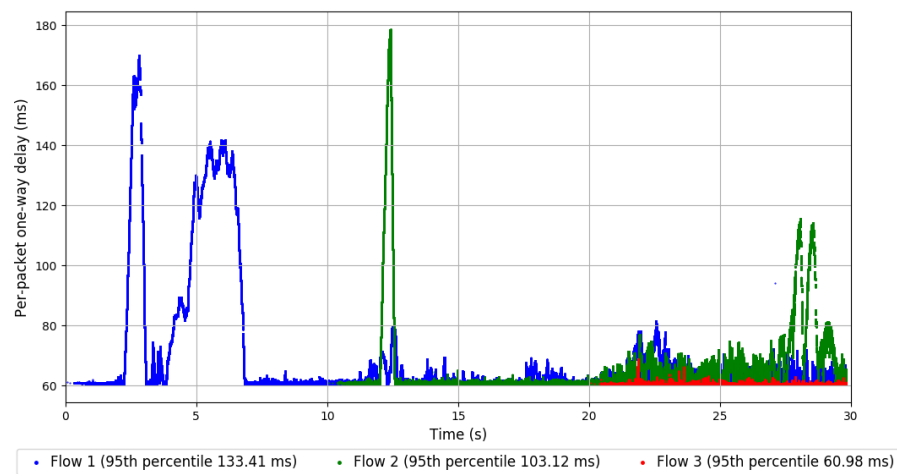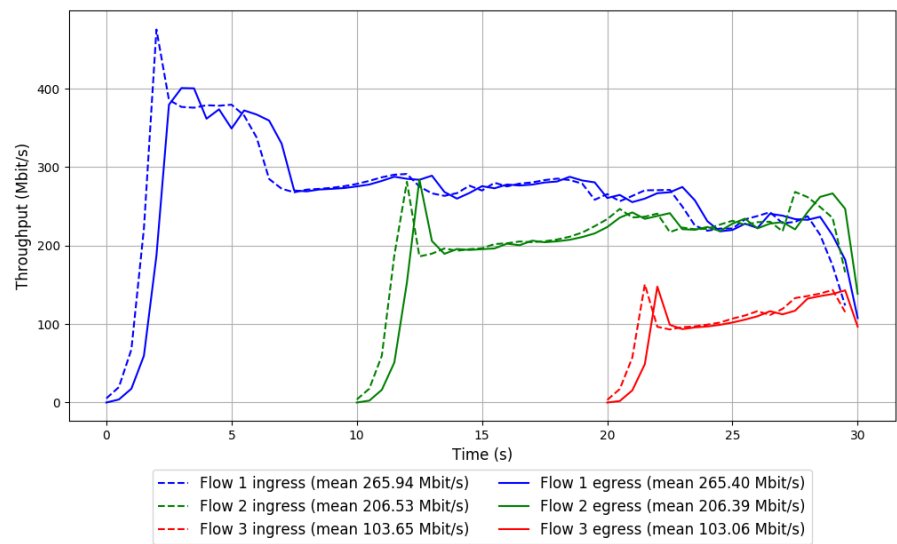
Run 3: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 290.03 Mbit/s)   Flow 1 egress (mean 271.48 Mbit/s)
Flow 2 ingress (mean 233.92 Mbit/s)   Flow 2 egress (mean 231.52 Mbit/s)
Flow 3 ingress (mean 298.47 Mbit/s)   Flow 3 egress (mean 262.04 Mbit/s)

Flow 1 (95th percentile 206.37 ms)   Flow 2 (95th percentile 178.56 ms)   Flow 3 (95th percentile 206.34 ms)

```
Run 4: Statistics of PCC-Expr

Start at: 2018-10-26 23:25:57
End at: 2018-10-26 23:26:27
Local clock offset: -0.583 ms
Remote clock offset: -0.885 ms


# Below is generated by plot.py at 2018-10-27 02:19:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 436.08 Mbit/s
95th percentile per-packet one-way delay: 129.670 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 265.40 Mbit/s
95th percentile per-packet one-way delay: 133.407 ms
Loss rate: 0.60%
-- Flow 2:
Average throughput: 206.39 Mbit/s
95th percentile per-packet one-way delay: 103.116 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 103.06 Mbit/s
95th percentile per-packet one-way delay: 60.983 ms
Loss rate: 1.77%
```
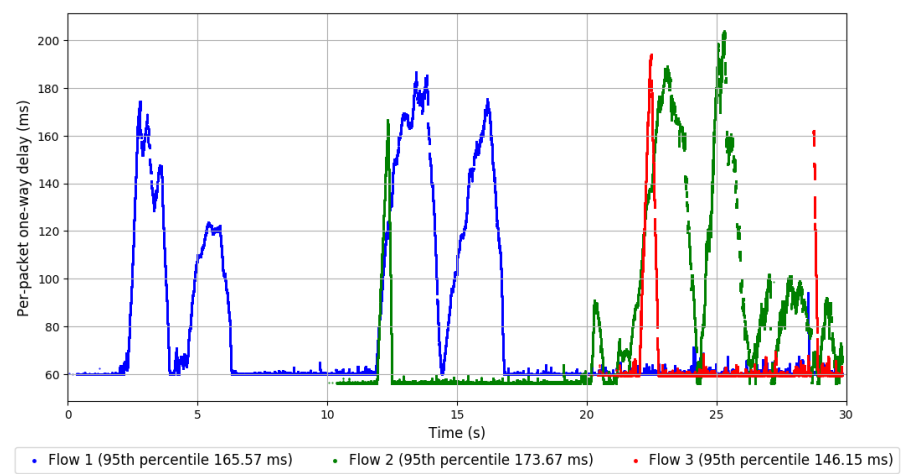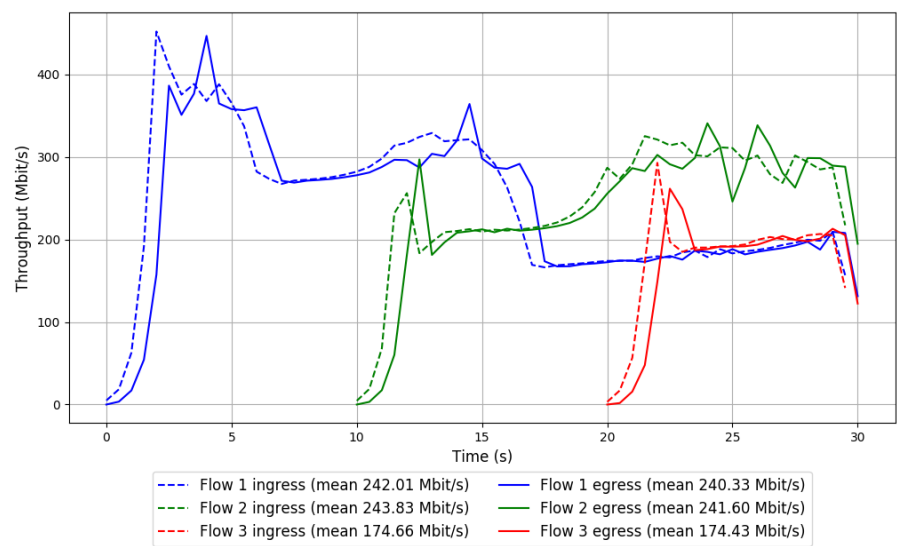
Run 4: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 265.94 Mbit/s) — Flow 1 egress (mean 265.40 Mbit/s)
Flow 2 ingress (mean 206.53 Mbit/s) — Flow 2 egress (mean 206.39 Mbit/s)
Flow 3 ingress (mean 103.65 Mbit/s) — Flow 3 egress (mean 103.06 Mbit/s)

Flow 1 (95th percentile 133.41 ms)   Flow 2 (95th percentile 103.12 ms)   Flow 3 (95th percentile 60.98 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2018-10-26 23:57:58
End at: 2018-10-26 23:58:28
Local clock offset: 0.457 ms
Remote clock offset: 1.148 ms


# Below is generated by plot.py at 2018-10-27 02:20:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 457.76 Mbit/s
95th percentile per-packet one-way delay: 167.420 ms
Loss rate: 1.26%
-- Flow 1:
Average throughput: 240.33 Mbit/s
95th percentile per-packet one-way delay: 165.573 ms
Loss rate: 1.09%
-- Flow 2:
Average throughput: 241.60 Mbit/s
95th percentile per-packet one-way delay: 173.672 ms
Loss rate: 1.49%
-- Flow 3:
Average throughput: 174.43 Mbit/s
95th percentile per-packet one-way delay: 146.153 ms
Loss rate: 1.32%
```
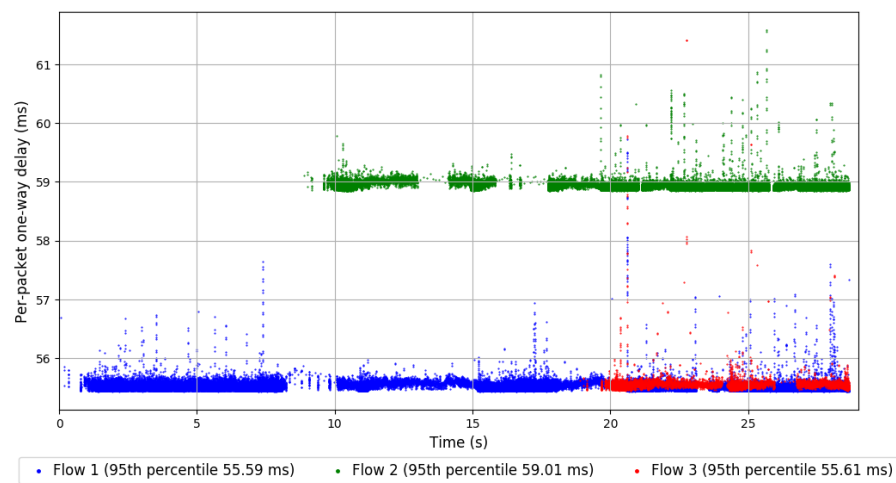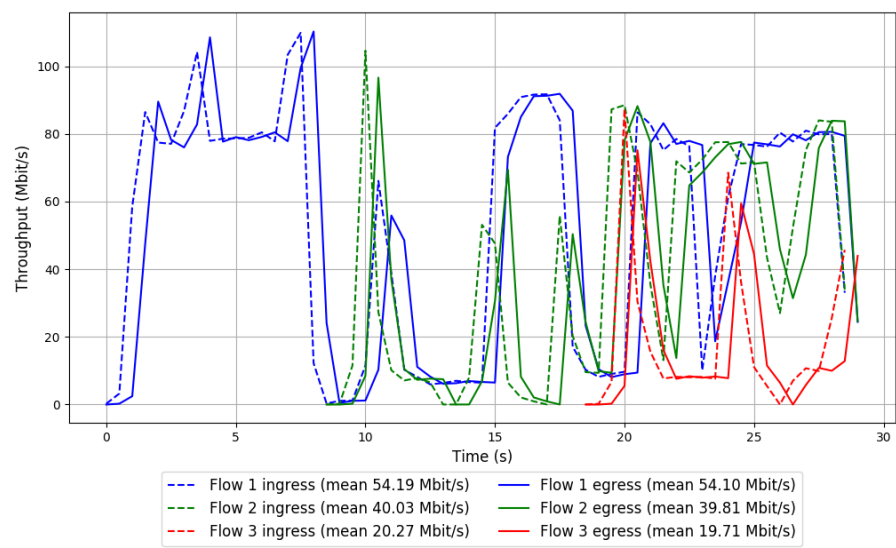
Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-10-26 21:55:27
End at: 2018-10-26 21:55:57
Local clock offset: -0.72 ms
Remote clock offset: 0.755 ms


# Below is generated by plot.py at 2018-10-27 02:20:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.34 Mbit/s
95th percentile per-packet one-way delay: 58.950 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 54.10 Mbit/s
95th percentile per-packet one-way delay: 55.589 ms
Loss rate: 0.56%
-- Flow 2:
Average throughput: 39.81 Mbit/s
95th percentile per-packet one-way delay: 59.008 ms
Loss rate: 1.14%
-- Flow 3:
Average throughput: 19.71 Mbit/s
95th percentile per-packet one-way delay: 55.609 ms
Loss rate: 3.89%
```
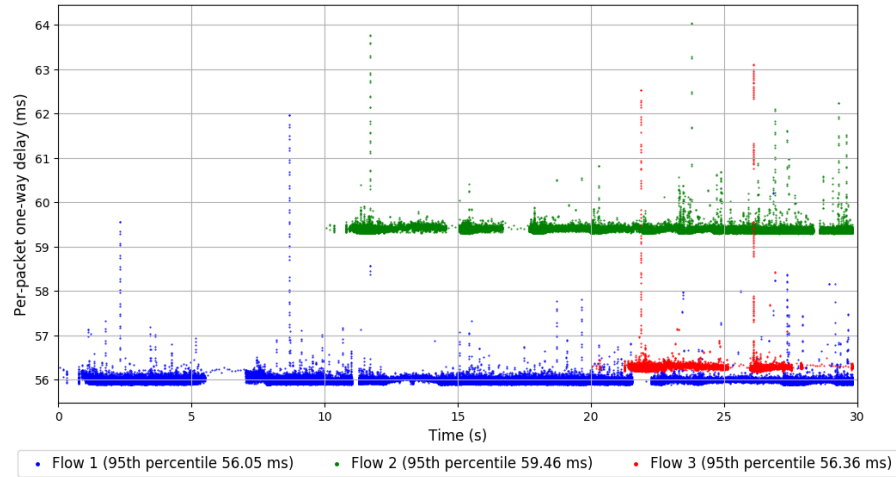
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-10-26 22:26:26
End at: 2018-10-26 22:26:56
Local clock offset: 0.338 ms
Remote clock offset: 0.988 ms


# Below is generated by plot.py at 2018-10-27 02:20:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 76.71 Mbit/s
95th percentile per-packet one-way delay: 59.409 ms
Loss rate: 0.94%
-- Flow 1:
Average throughput: 48.63 Mbit/s
95th percentile per-packet one-way delay: 56.049 ms
Loss rate: 0.79%
-- Flow 2:
Average throughput: 34.81 Mbit/s
95th percentile per-packet one-way delay: 59.458 ms
Loss rate: 1.03%
-- Flow 3:
Average throughput: 15.24 Mbit/s
95th percentile per-packet one-way delay: 56.356 ms
Loss rate: 1.92%
```
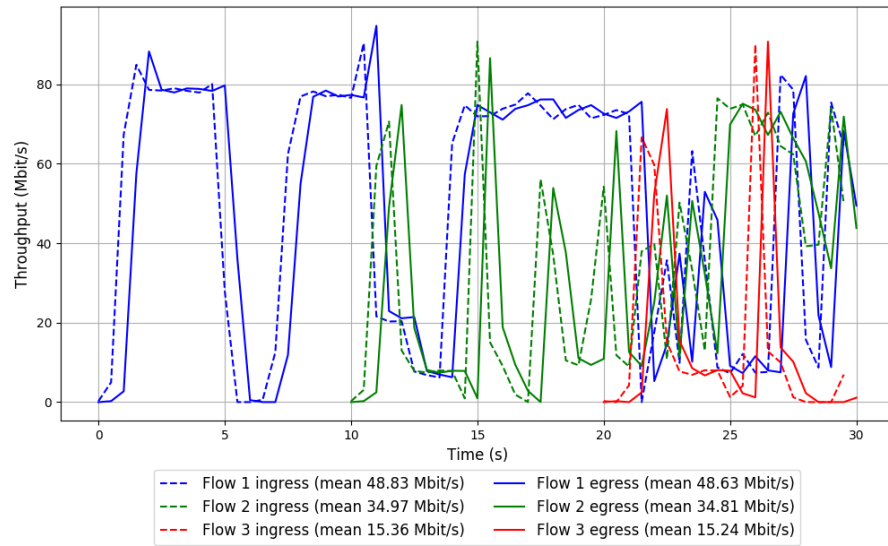
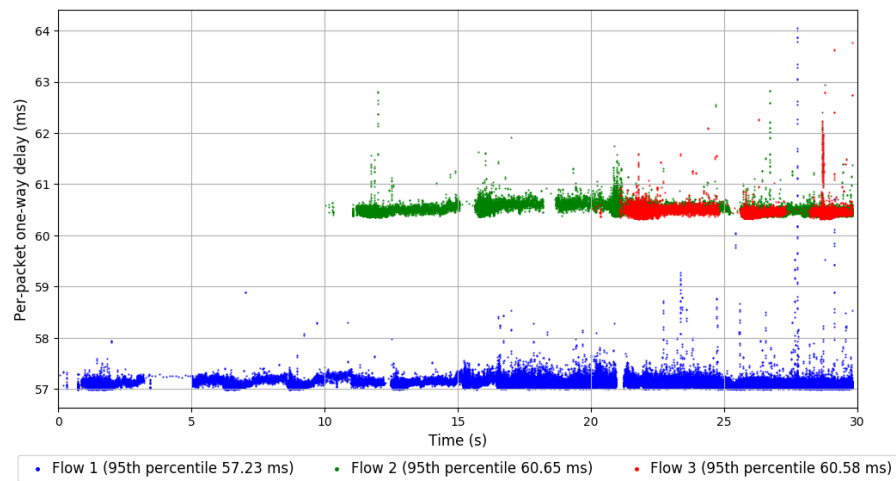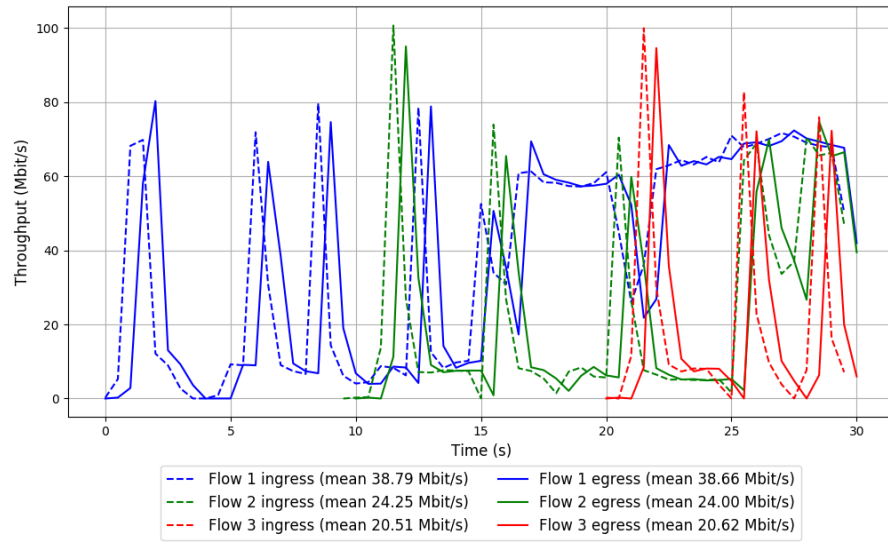Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-10-26 22:58:17
End at: 2018-10-26 22:58:47
Local clock offset: -0.019 ms
Remote clock offset: -0.397 ms


# Below is generated by plot.py at 2018-10-27 02:20:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 61.35 Mbit/s
95th percentile per-packet one-way delay: 60.560 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 38.66 Mbit/s
95th percentile per-packet one-way delay: 57.235 ms
Loss rate: 0.70%
-- Flow 2:
Average throughput: 24.00 Mbit/s
95th percentile per-packet one-way delay: 60.653 ms
Loss rate: 1.60%
-- Flow 3:
Average throughput: 20.62 Mbit/s
95th percentile per-packet one-way delay: 60.579 ms
Loss rate: 0.61%
```

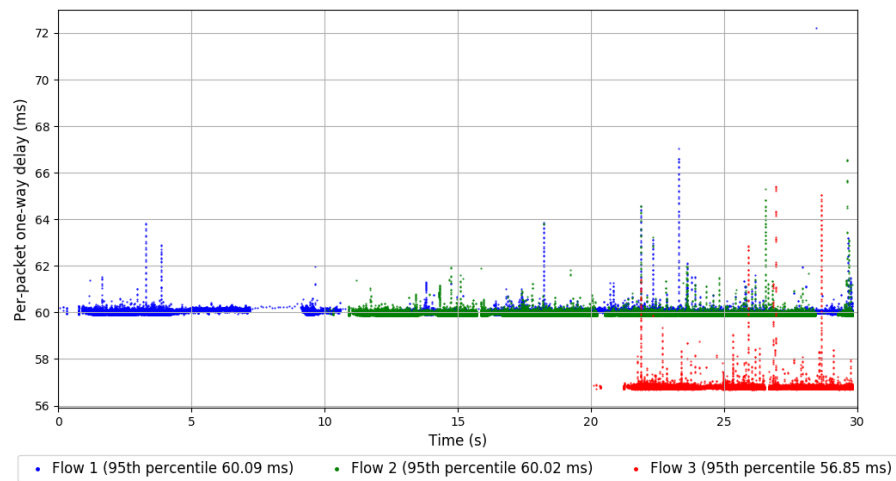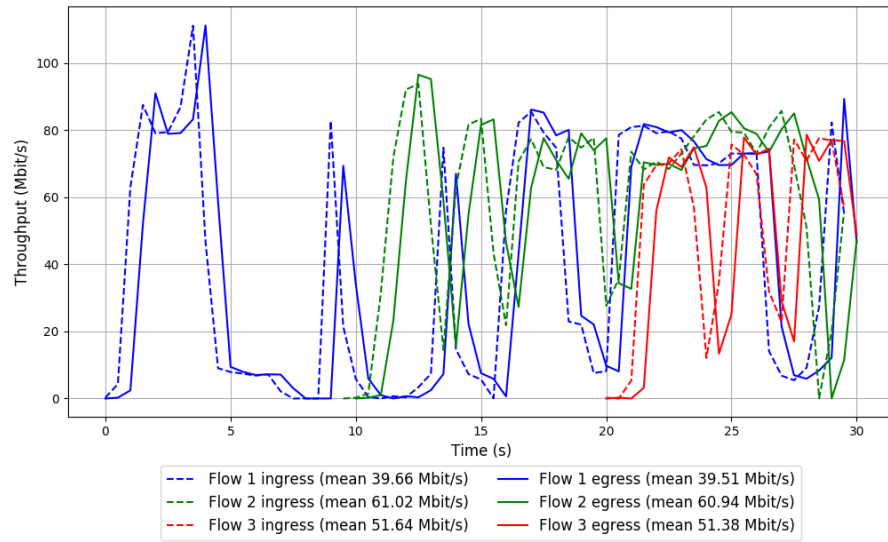## Run 3: Report of QUIC Cubic — Data Link

110

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-10-26 23:30:19
End at: 2018-10-26 23:30:49
Local clock offset: -0.616 ms
Remote clock offset: -0.377 ms


# Below is generated by plot.py at 2018-10-27 02:20:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.79 Mbit/s
95th percentile per-packet one-way delay: 60.055 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 39.51 Mbit/s
95th percentile per-packet one-way delay: 60.094 ms
Loss rate: 0.76%
-- Flow 2:
Average throughput: 60.94 Mbit/s
95th percentile per-packet one-way delay: 60.016 ms
Loss rate: 0.71%
-- Flow 3:
Average throughput: 51.38 Mbit/s
95th percentile per-packet one-way delay: 56.854 ms
Loss rate: 1.67%
```

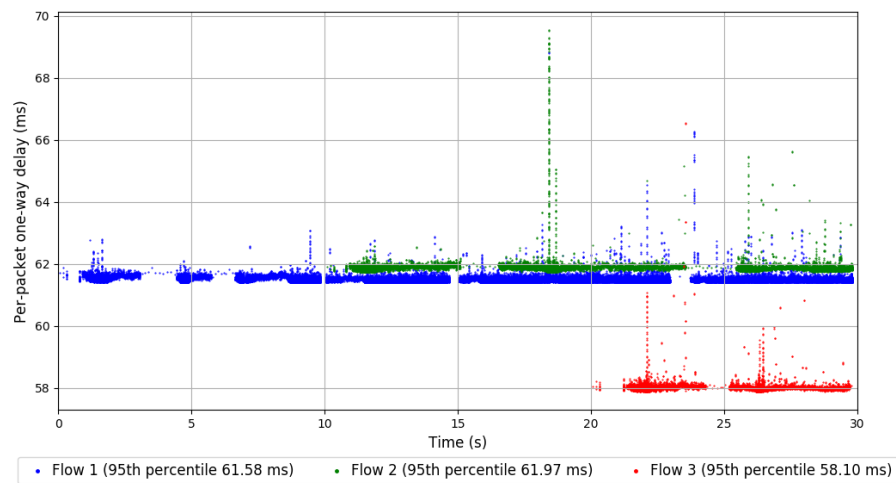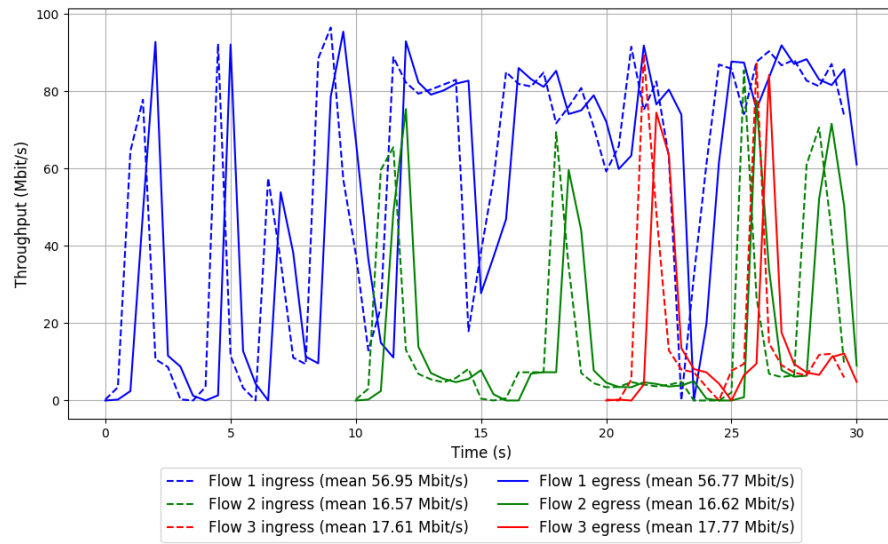Run 4: Report of QUIC Cubic — Data Link

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-10-27 00:02:34
End at: 2018-10-27 00:03:04
Local clock offset: 0.439 ms
Remote clock offset: -0.763 ms


# Below is generated by plot.py at 2018-10-27 02:20:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 73.59 Mbit/s
95th percentile per-packet one-way delay: 61.854 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 56.77 Mbit/s
95th percentile per-packet one-way delay: 61.581 ms
Loss rate: 0.70%
-- Flow 2:
Average throughput: 16.62 Mbit/s
95th percentile per-packet one-way delay: 61.968 ms
Loss rate: 0.34%
-- Flow 3:
Average throughput: 17.77 Mbit/s
95th percentile per-packet one-way delay: 58.099 ms
Loss rate: 0.72%
```
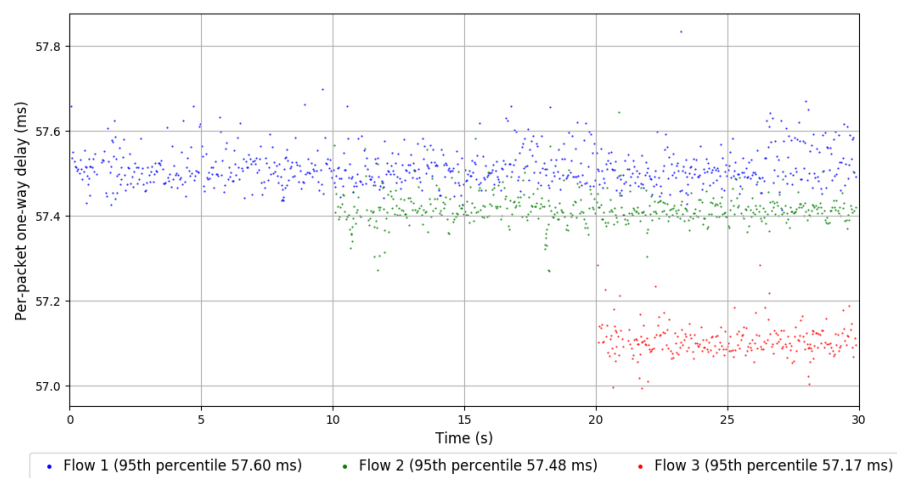
Run 5: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 56.95 Mbit/s)   Flow 1 egress (mean 56.77 Mbit/s)
Flow 2 ingress (mean 16.57 Mbit/s)   Flow 2 egress (mean 16.62 Mbit/s)
Flow 3 ingress (mean 17.61 Mbit/s)   Flow 3 egress (mean 17.77 Mbit/s)

Flow 1 (95th percentile 61.58 ms)   Flow 2 (95th percentile 61.97 ms)   Flow 3 (95th percentile 58.10 ms)
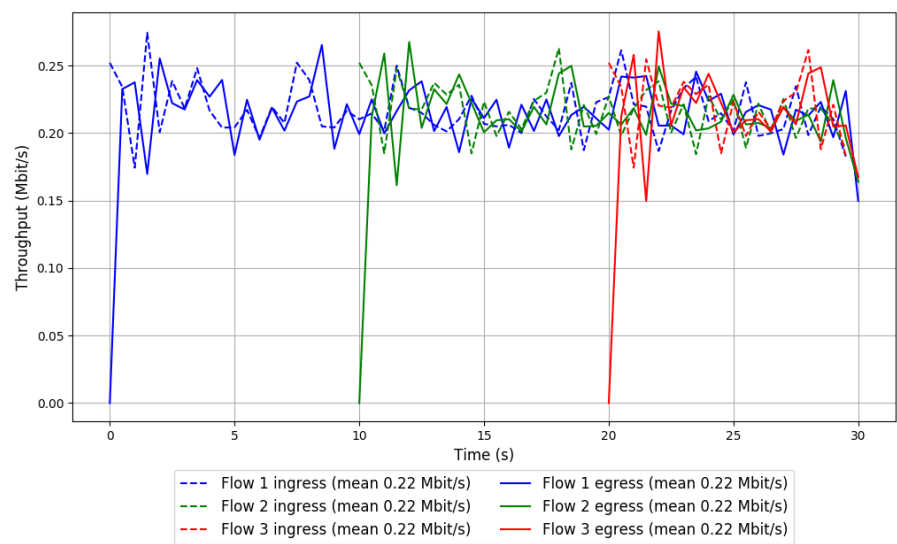
```
Run 1: Statistics of SCReAM

Start at: 2018-10-26 21:56:44
End at: 2018-10-26 21:57:14
Local clock offset: -0.497 ms
Remote clock offset: -0.715 ms


# Below is generated by plot.py at 2018-10-27 02:20:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 57.577 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.598 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.480 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.168 ms
Loss rate: 1.09%
```

Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2018-10-26 22:27:43
End at: 2018-10-26 22:28:13
Local clock offset: 0.358 ms
Remote clock offset: 0.354 ms

# Below is generated by plot.py at 2018-10-27 02:20:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 60.235 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.254 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.008 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.021 ms
Loss rate: 1.08%
```
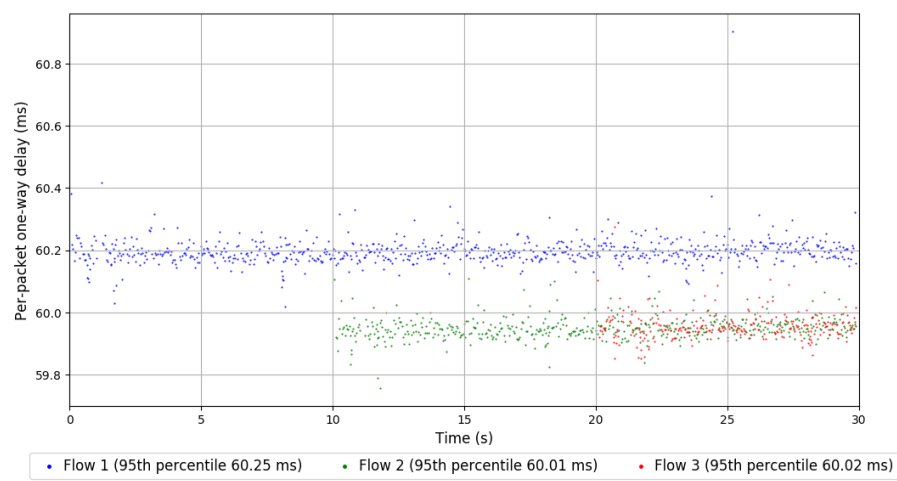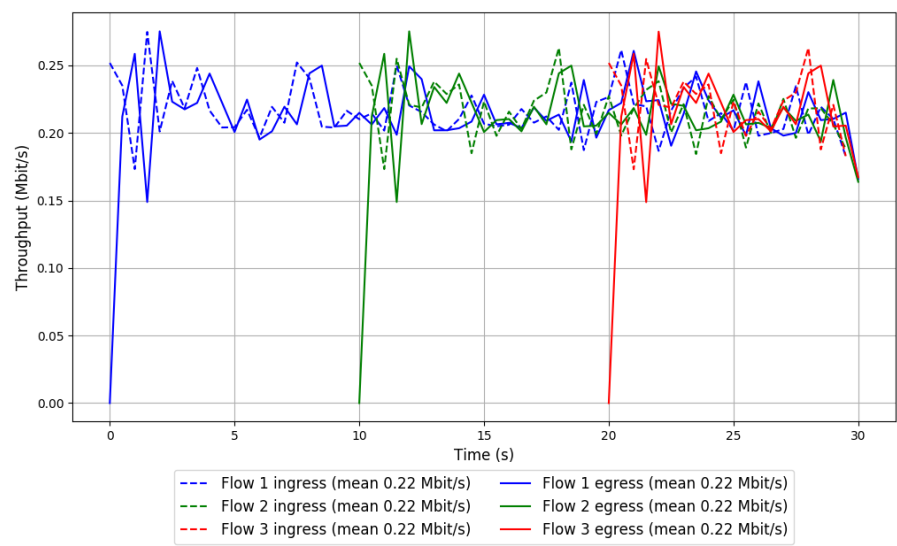
Run 2: Report of SCReAM — Data Link
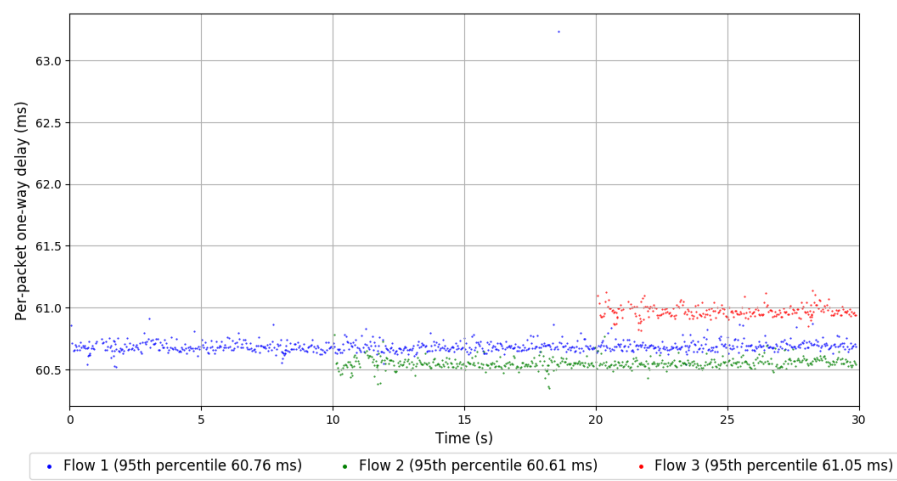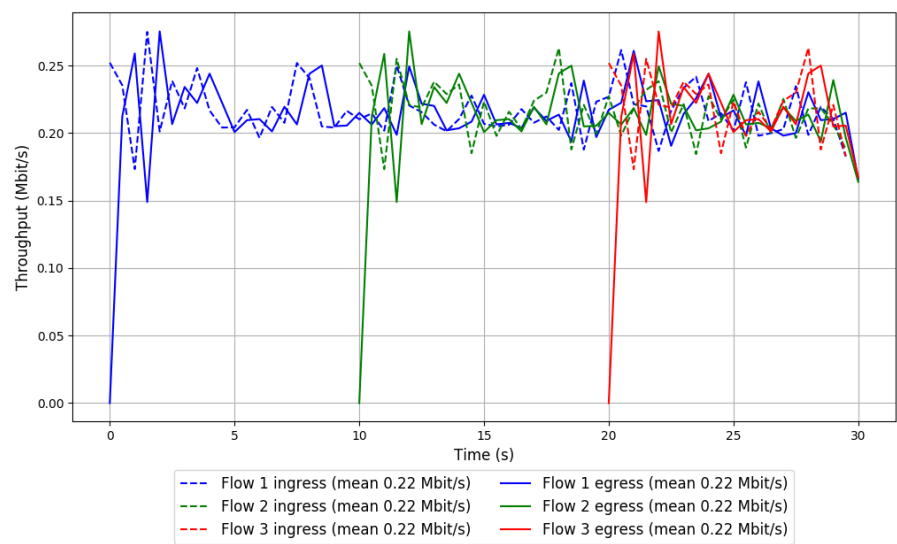

118

```
Run 3: Statistics of SCReAM

Start at: 2018-10-26 22:59:33
End at: 2018-10-26 23:00:03
Local clock offset: 0.063 ms
Remote clock offset: -0.418 ms


# Below is generated by plot.py at 2018-10-27 02:20:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 60.992 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.759 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.614 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 61.050 ms
Loss rate: 1.08%
```
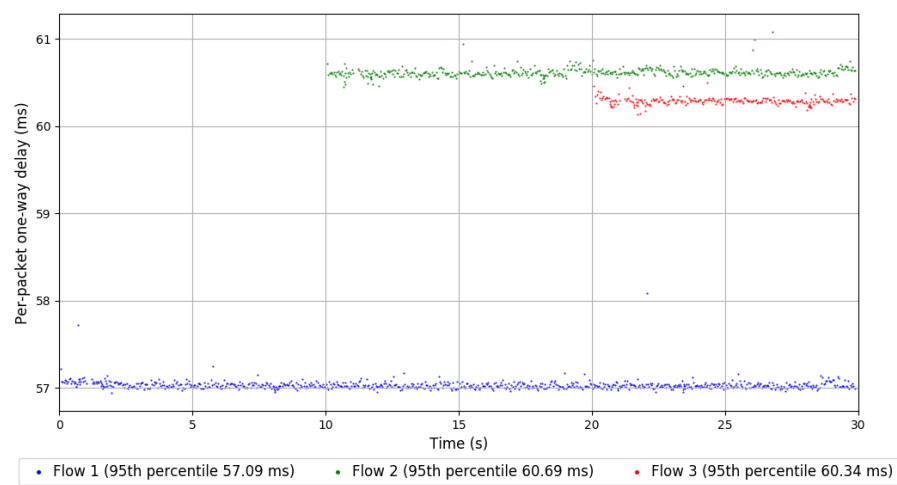
Run 3: Report of SCReAM — Data Link

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 60.76 ms)   Flow 2 (95th percentile 60.61 ms)   Flow 3 (95th percentile 61.05 ms)
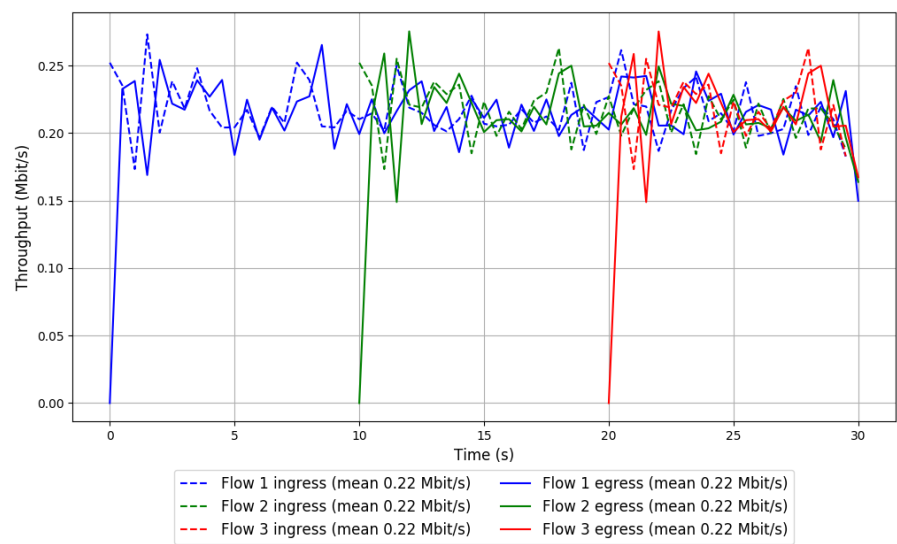
```
Run 4: Statistics of SCReAM

Start at: 2018-10-26 23:31:36
End at: 2018-10-26 23:32:06
Local clock offset: -0.771 ms
Remote clock offset: -0.909 ms


# Below is generated by plot.py at 2018-10-27 02:20:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 60.652 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.089 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.687 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.345 ms
Loss rate: 1.08%
```

Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2018-10-27 00:03:51
End at: 2018-10-27 00:04:21
Local clock offset: 0.61 ms
Remote clock offset: -0.06 ms


# Below is generated by plot.py at 2018-10-27 02:20:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 60.986 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.988 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.994 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 58.028 ms
Loss rate: 1.08%
```
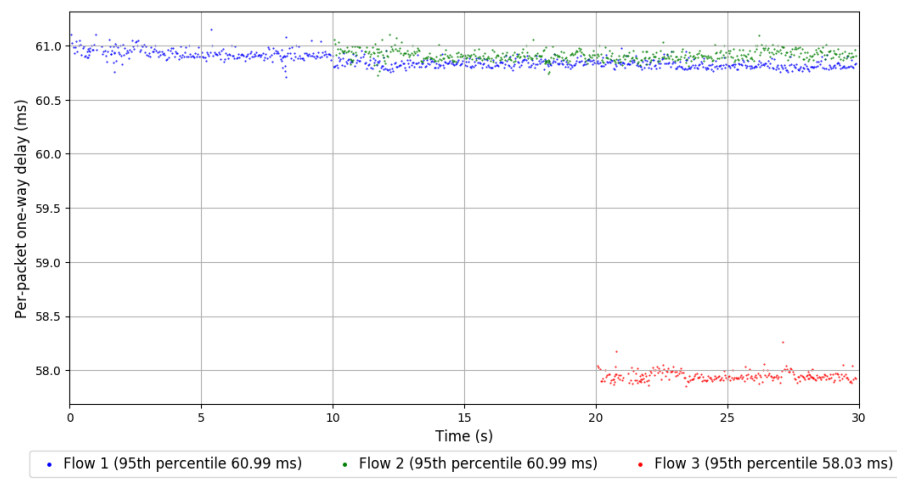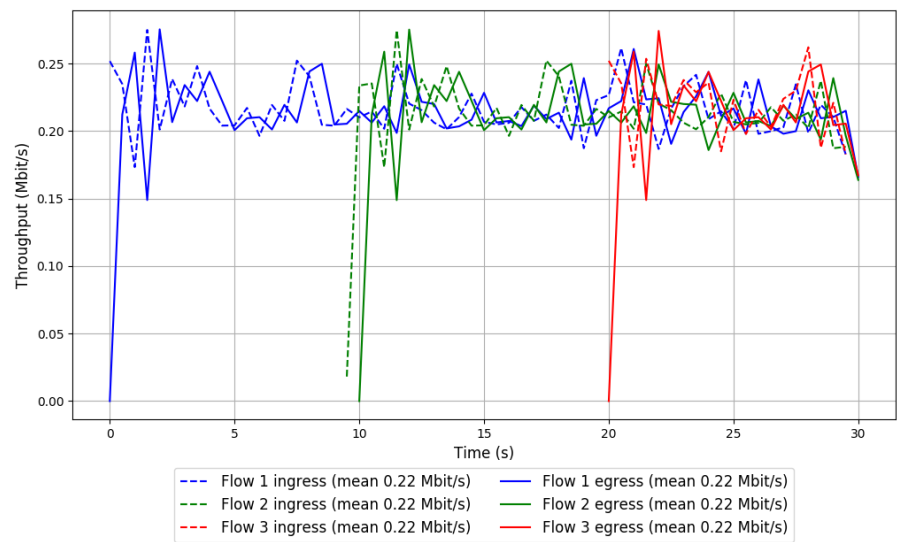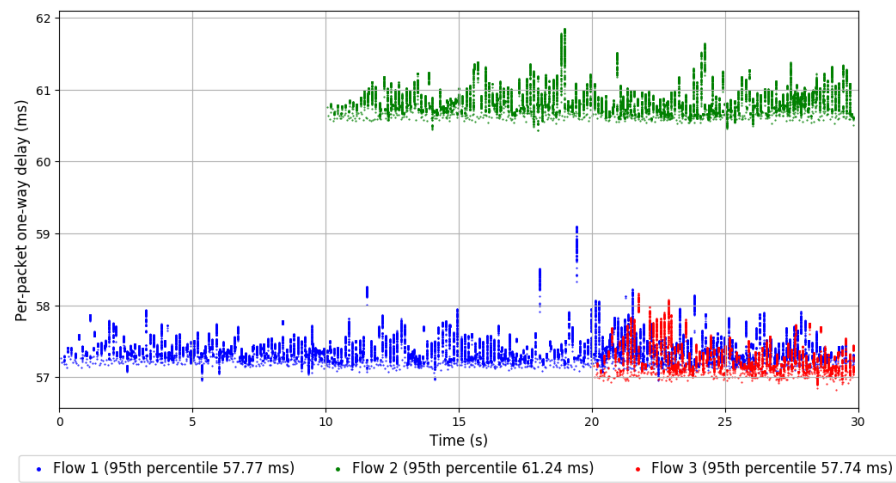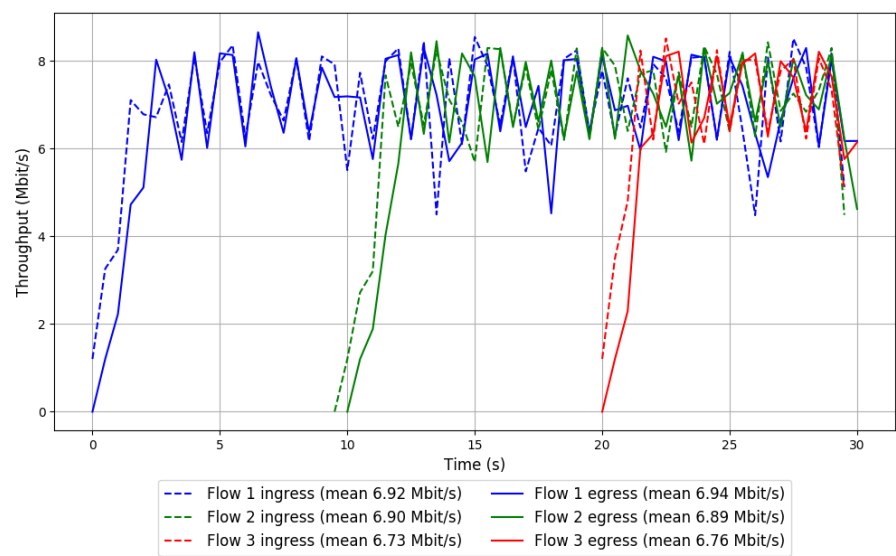
Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2018-10-26 21:52:58
End at: 2018-10-26 21:53:28
Local clock offset: -0.594 ms
Remote clock offset: -0.517 ms


# Below is generated by plot.py at 2018-10-27 02:20:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.73 Mbit/s
95th percentile per-packet one-way delay: 61.073 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 6.94 Mbit/s
95th percentile per-packet one-way delay: 57.772 ms
Loss rate: 0.24%
-- Flow 2:
Average throughput: 6.89 Mbit/s
95th percentile per-packet one-way delay: 61.238 ms
Loss rate: 0.71%
-- Flow 3:
Average throughput: 6.76 Mbit/s
95th percentile per-packet one-way delay: 57.736 ms
Loss rate: 0.68%
```

Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-10-26 22:23:57
End at: 2018-10-26 22:24:27
Local clock offset: 0.645 ms
Remote clock offset: 0.297 ms


# Below is generated by plot.py at 2018-10-27 02:20:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.11 Mbit/s
95th percentile per-packet one-way delay: 61.177 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 7.15 Mbit/s
95th percentile per-packet one-way delay: 60.851 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 7.18 Mbit/s
95th percentile per-packet one-way delay: 60.799 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 6.72 Mbit/s
95th percentile per-packet one-way delay: 61.509 ms
Loss rate: 1.41%
```
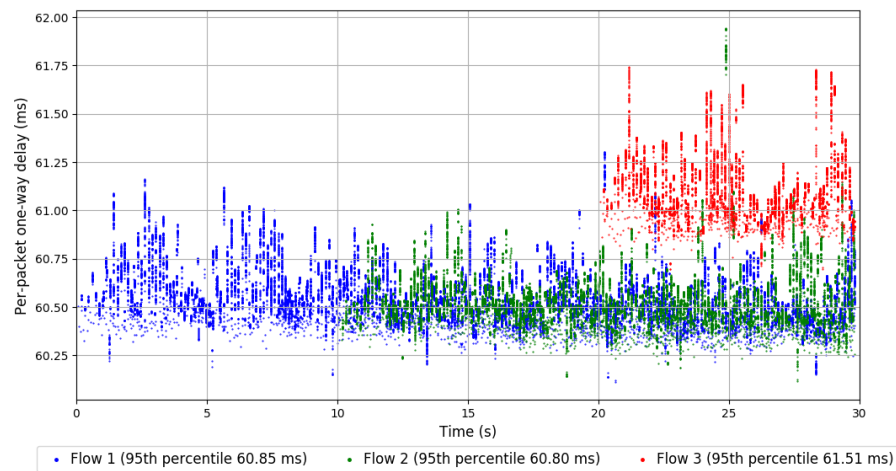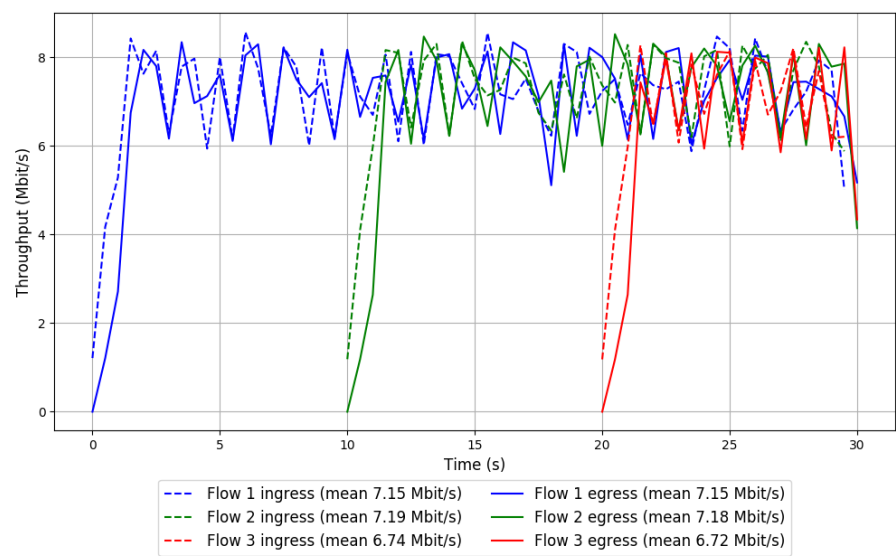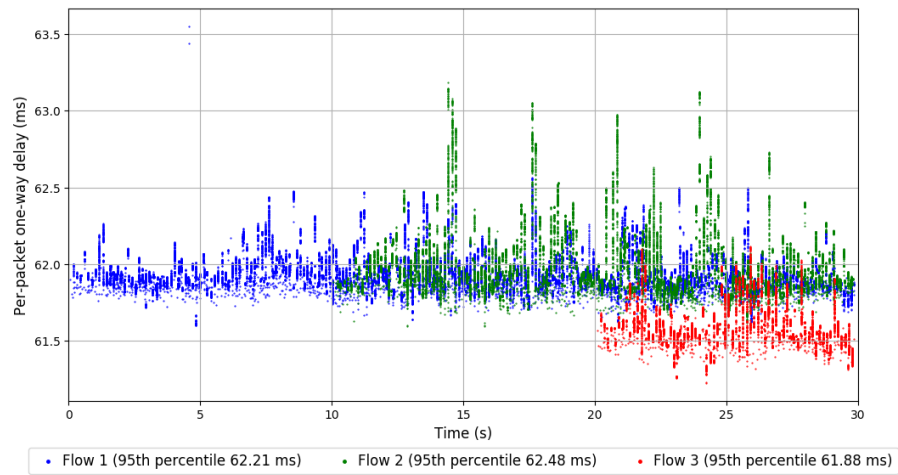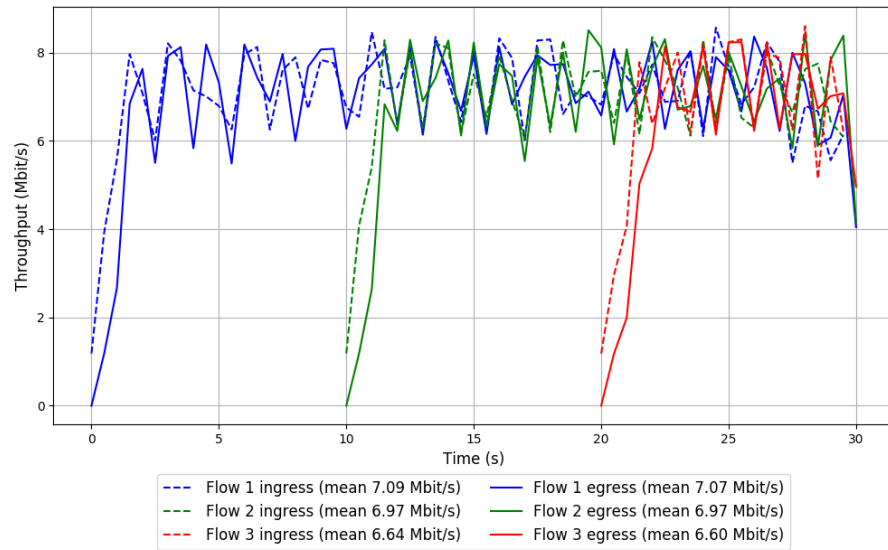
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-10-26 22:55:47
End at: 2018-10-26 22:56:17
Local clock offset: 0.161 ms
Remote clock offset: -1.168 ms


# Below is generated by plot.py at 2018-10-27 02:20:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.86 Mbit/s
95th percentile per-packet one-way delay: 62.282 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 7.07 Mbit/s
95th percentile per-packet one-way delay: 62.211 ms
Loss rate: 0.50%
-- Flow 2:
Average throughput: 6.97 Mbit/s
95th percentile per-packet one-way delay: 62.483 ms
Loss rate: 0.69%
-- Flow 3:
Average throughput: 6.60 Mbit/s
95th percentile per-packet one-way delay: 61.880 ms
Loss rate: 1.58%
```
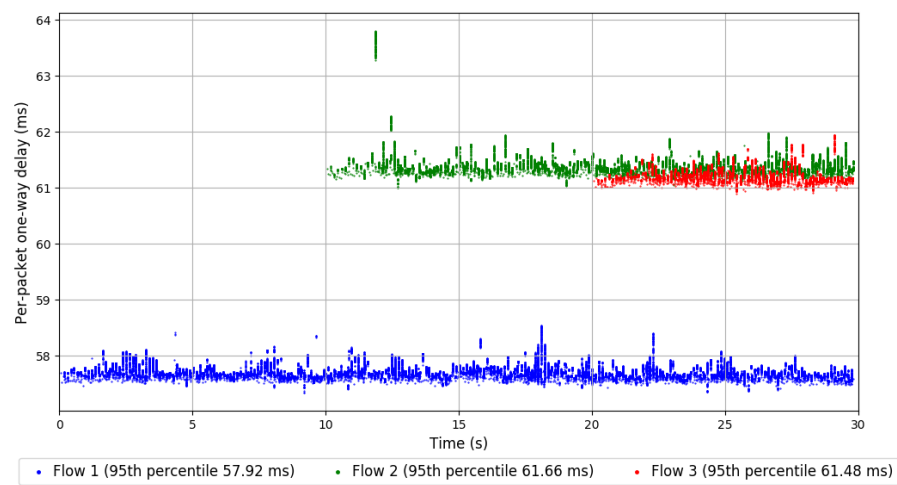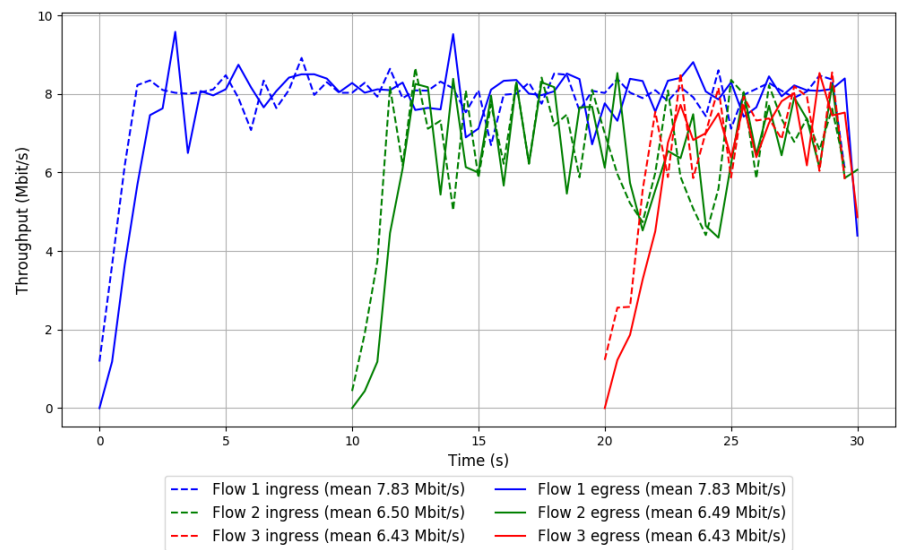
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2018-10-26 23:27:49
End at: 2018-10-26 23:28:19
Local clock offset: 0.489 ms
Remote clock offset: -0.343 ms


# Below is generated by plot.py at 2018-10-27 02:20:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.24 Mbit/s
95th percentile per-packet one-way delay: 61.501 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 7.83 Mbit/s
95th percentile per-packet one-way delay: 57.917 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 6.49 Mbit/s
95th percentile per-packet one-way delay: 61.660 ms
Loss rate: 0.79%
-- Flow 3:
Average throughput: 6.43 Mbit/s
95th percentile per-packet one-way delay: 61.481 ms
Loss rate: 1.57%
```
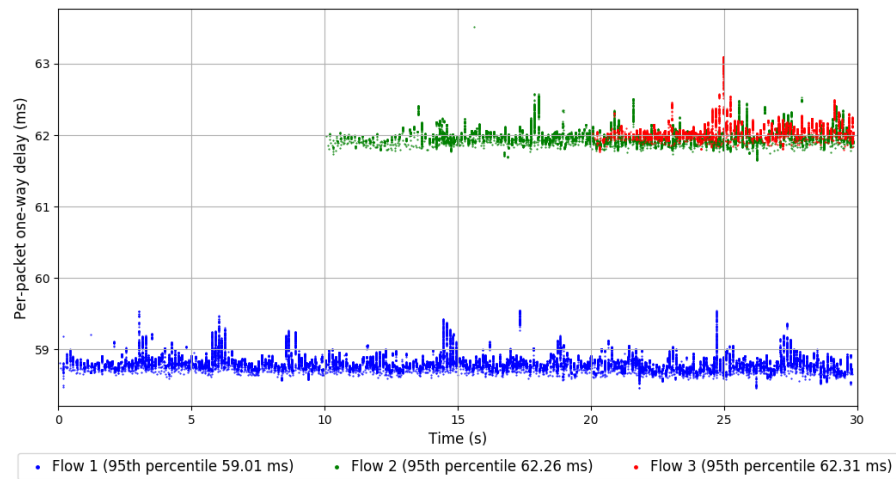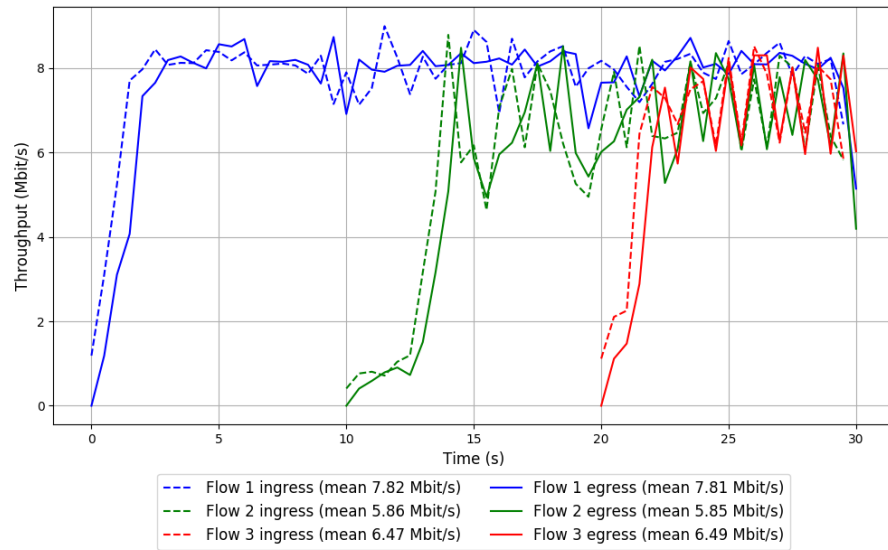
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-10-27 00:00:02
End at: 2018-10-27 00:00:32
Local clock offset: 0.7 ms
Remote clock offset: -0.758 ms


# Below is generated by plot.py at 2018-10-27 02:20:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.81 Mbit/s
95th percentile per-packet one-way delay: 62.157 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 7.81 Mbit/s
95th percentile per-packet one-way delay: 59.013 ms
Loss rate: 0.52%
-- Flow 2:
Average throughput: 5.85 Mbit/s
95th percentile per-packet one-way delay: 62.259 ms
Loss rate: 0.70%
-- Flow 3:
Average throughput: 6.49 Mbit/s
95th percentile per-packet one-way delay: 62.315 ms
Loss rate: 1.05%
```
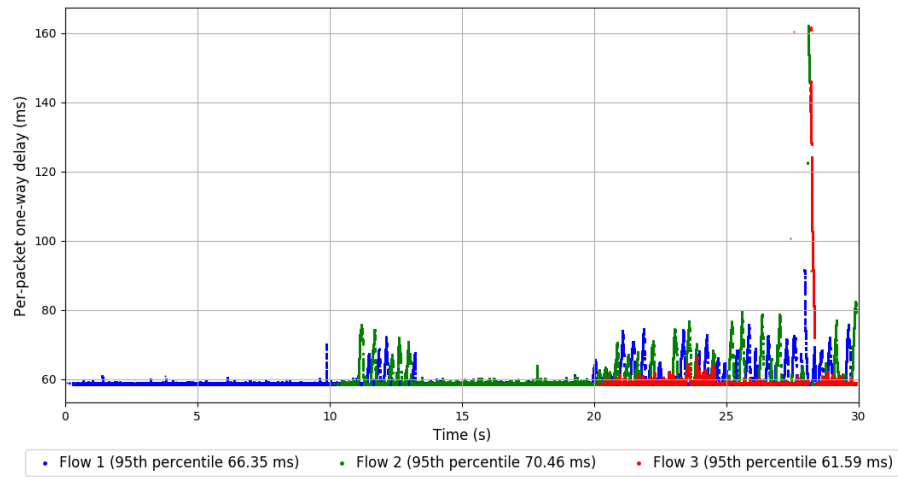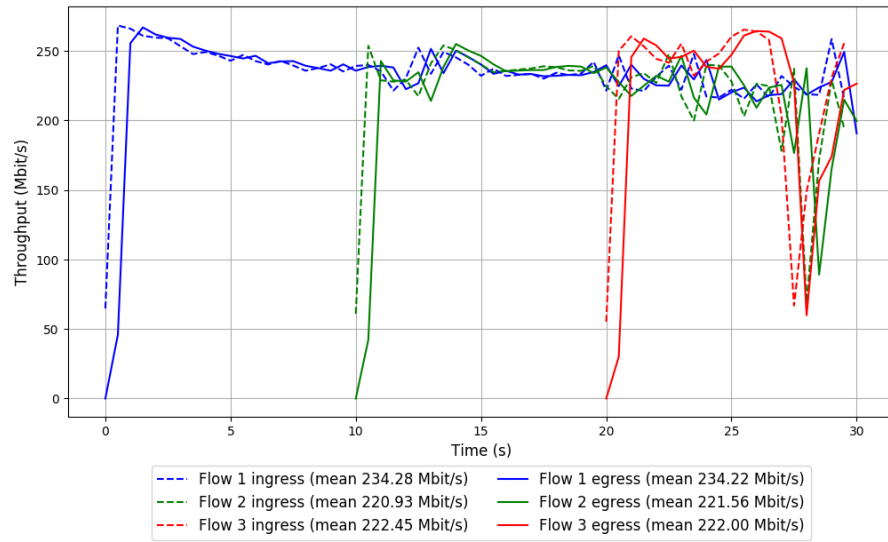
Run 5: Report of Sprout — Data Link

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

Start at: 2018-10-26 21:30:51
End at: 2018-10-26 21:31:21
Local clock offset: -0.157 ms
Remote clock offset: -1.638 ms


# Below is generated by plot.py at 2018-10-27 02:31:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 454.64 Mbit/s
95th percentile per-packet one-way delay: 67.363 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 234.22 Mbit/s
95th percentile per-packet one-way delay: 66.351 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 221.56 Mbit/s
95th percentile per-packet one-way delay: 70.461 ms
Loss rate: 0.29%
-- Flow 3:
Average throughput: 222.00 Mbit/s
95th percentile per-packet one-way delay: 61.595 ms
Loss rate: 1.36%
```

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

Flow 1 ingress (mean 234.28 Mbit/s) --- Flow 1 egress (mean 234.22 Mbit/s)
Flow 2 ingress (mean 220.93 Mbit/s) --- Flow 2 egress (mean 221.56 Mbit/s)
Flow 3 ingress (mean 222.45 Mbit/s) --- Flow 3 egress (mean 222.00 Mbit/s)

Flow 1 (95th percentile 66.35 ms)   Flow 2 (95th percentile 70.46 ms)   Flow 3 (95th percentile 61.59 ms)
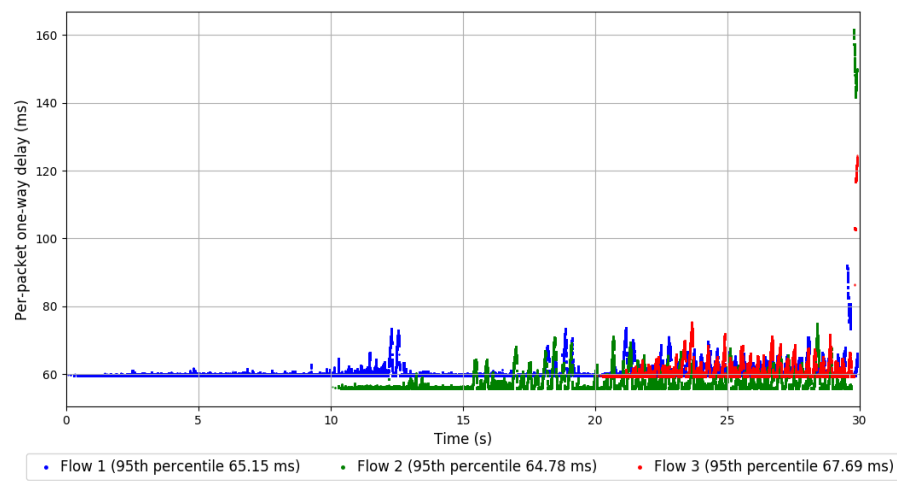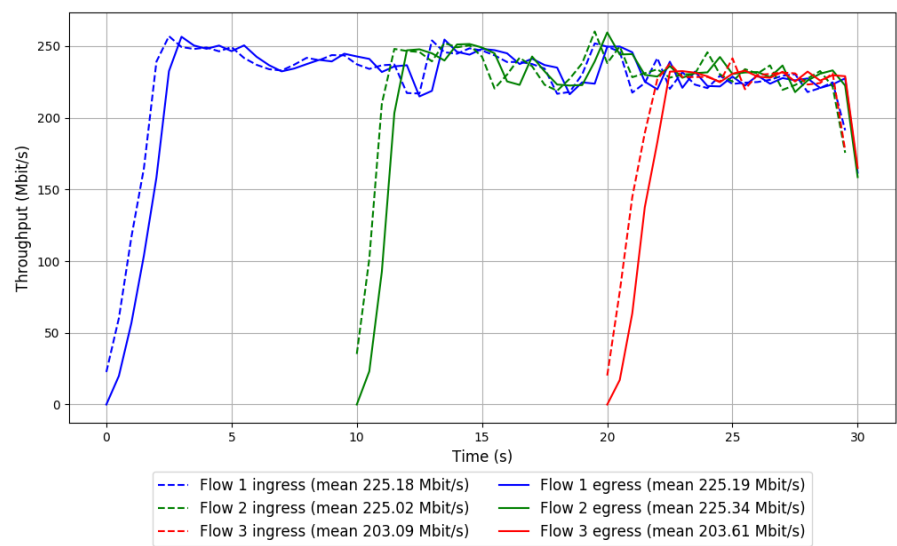
```
Run 2: Statistics of TaoVA-100x

Start at: 2018-10-26 22:01:29
End at: 2018-10-26 22:01:59
Local clock offset: -0.903 ms
Remote clock offset: -0.059 ms

# Below is generated by plot.py at 2018-10-27 02:31:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 442.19 Mbit/s
95th percentile per-packet one-way delay: 65.656 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 225.19 Mbit/s
95th percentile per-packet one-way delay: 65.147 ms
Loss rate: 0.39%
-- Flow 2:
Average throughput: 225.34 Mbit/s
95th percentile per-packet one-way delay: 64.783 ms
Loss rate: 0.43%
-- Flow 3:
Average throughput: 203.61 Mbit/s
95th percentile per-packet one-way delay: 67.690 ms
Loss rate: 0.93%
```

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

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

Start at: 2018-10-26 22:32:27
End at: 2018-10-26 22:32:58
Local clock offset: -0.579 ms
Remote clock offset: 0.242 ms

# Below is generated by plot.py at 2018-10-27 02:31:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 445.57 Mbit/s
95th percentile per-packet one-way delay: 64.162 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 225.33 Mbit/s
95th percentile per-packet one-way delay: 64.235 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 221.44 Mbit/s
95th percentile per-packet one-way delay: 64.947 ms
Loss rate: 0.58%
-- Flow 3:
Average throughput: 221.67 Mbit/s
95th percentile per-packet one-way delay: 63.037 ms
Loss rate: 1.11%
```
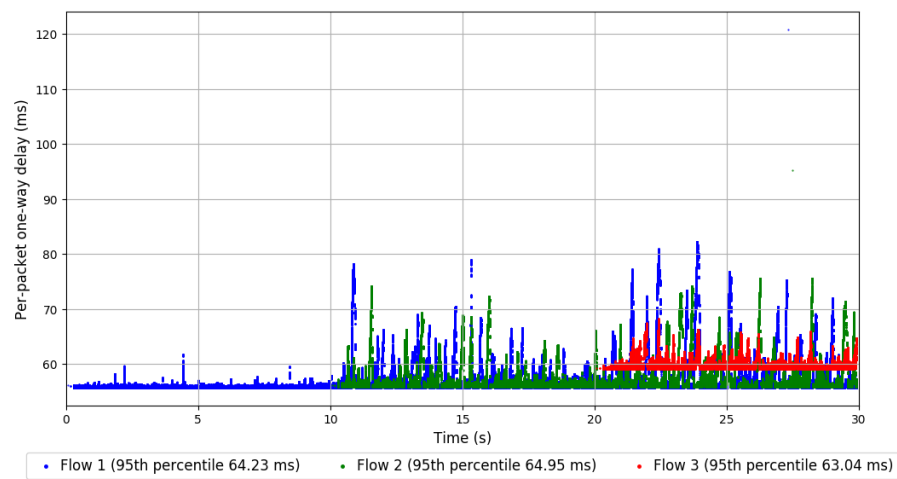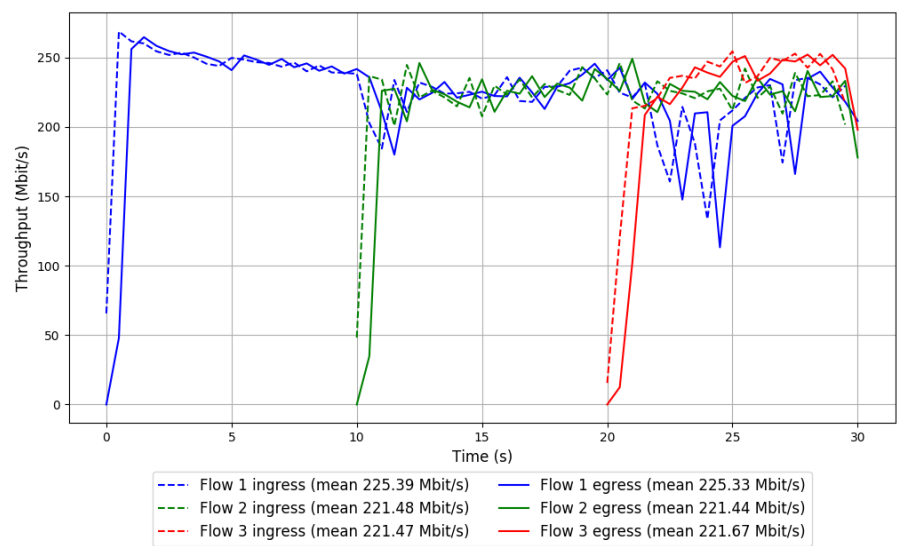
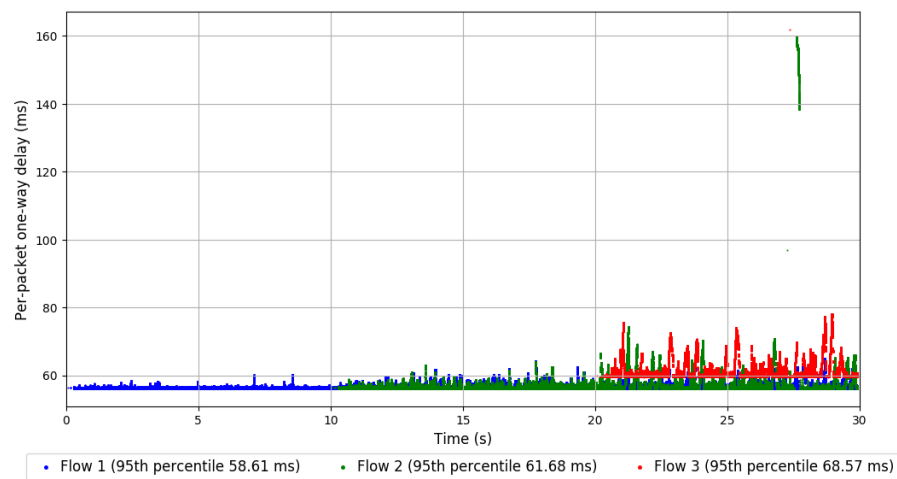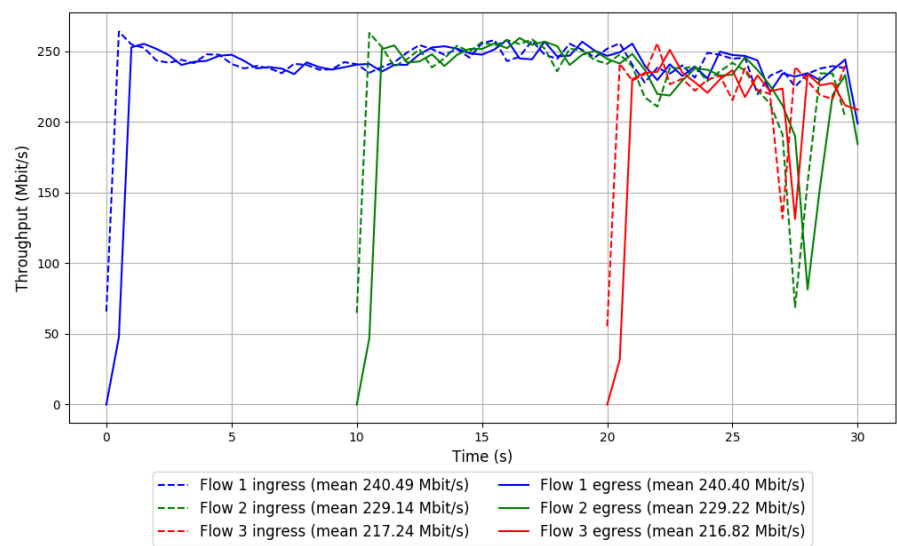Run 3: Report of TaoVA-100x — Data Link

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

Start at: 2018-10-26 23:04:39
End at: 2018-10-26 23:05:09
Local clock offset: -0.971 ms
Remote clock offset: -0.461 ms


# Below is generated by plot.py at 2018-10-27 02:31:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 464.29 Mbit/s
95th percentile per-packet one-way delay: 62.288 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 240.40 Mbit/s
95th percentile per-packet one-way delay: 58.612 ms
Loss rate: 0.42%
-- Flow 2:
Average throughput: 229.22 Mbit/s
95th percentile per-packet one-way delay: 61.678 ms
Loss rate: 0.54%
-- Flow 3:
Average throughput: 216.82 Mbit/s
95th percentile per-packet one-way delay: 68.573 ms
Loss rate: 1.37%
```

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

- - - Flow 1 ingress (mean 240.49 Mbit/s) —— Flow 1 egress (mean 240.40 Mbit/s)
- - - Flow 2 ingress (mean 229.14 Mbit/s) —— Flow 2 egress (mean 229.22 Mbit/s)
- - - Flow 3 ingress (mean 217.24 Mbit/s) —— Flow 3 egress (mean 216.82 Mbit/s)

• Flow 1 (95th percentile 58.61 ms) • Flow 2 (95th percentile 61.68 ms) • Flow 3 (95th percentile 68.57 ms)
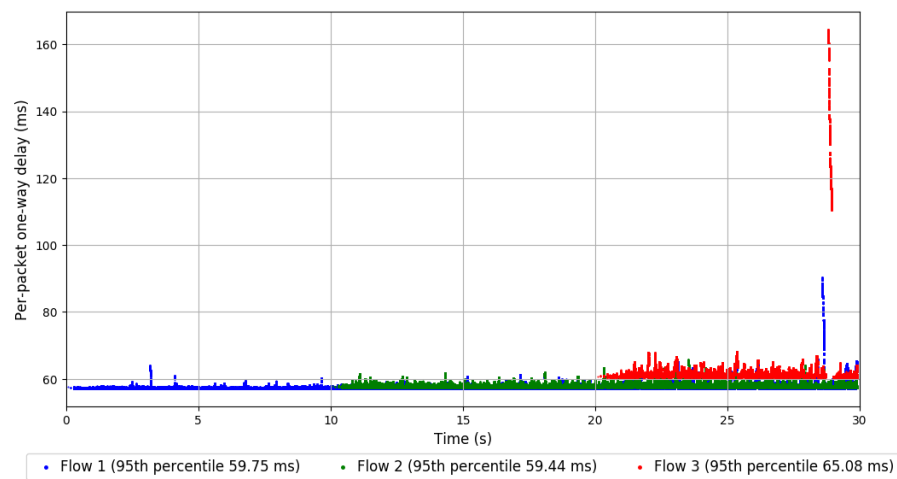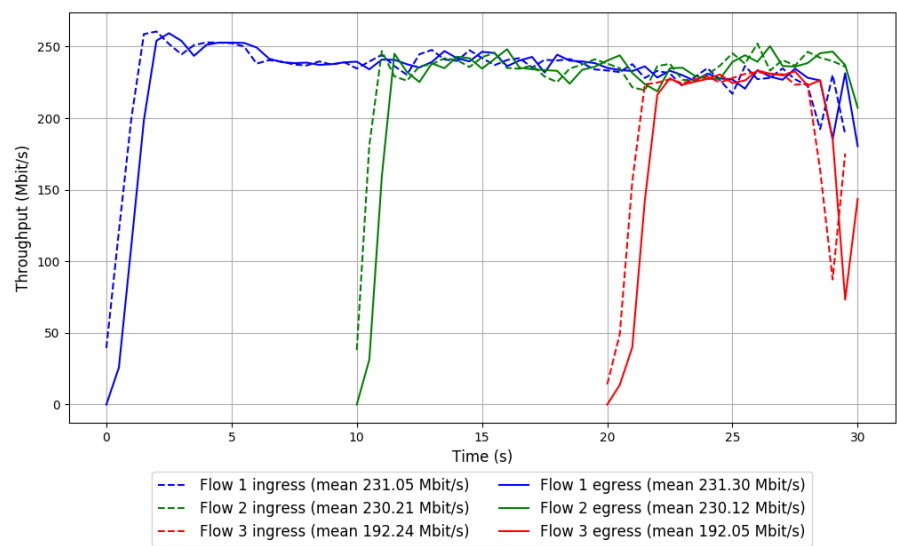
```
Run 5: Statistics of TaoVA-100x

Start at: 2018-10-26 23:36:18
End at: 2018-10-26 23:36:48
Local clock offset: 0.249 ms
Remote clock offset: -0.171 ms

# Below is generated by plot.py at 2018-10-27 02:32:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 447.49 Mbit/s
95th percentile per-packet one-way delay: 61.881 ms
Loss rate: 0.53%
-- Flow 1:
Average throughput: 231.30 Mbit/s
95th percentile per-packet one-way delay: 59.748 ms
Loss rate: 0.27%
-- Flow 2:
Average throughput: 230.12 Mbit/s
95th percentile per-packet one-way delay: 59.444 ms
Loss rate: 0.62%
-- Flow 3:
Average throughput: 192.05 Mbit/s
95th percentile per-packet one-way delay: 65.080 ms
Loss rate: 1.29%
```

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

Flow 1 ingress (mean 231.05 Mbit/s) ----- Flow 1 egress (mean 231.30 Mbit/s)
Flow 2 ingress (mean 230.21 Mbit/s) ----- Flow 2 egress (mean 230.12 Mbit/s)
Flow 3 ingress (mean 192.24 Mbit/s) ----- Flow 3 egress (mean 192.05 Mbit/s)

Flow 1 (95th percentile 59.75 ms)   Flow 2 (95th percentile 59.44 ms)   Flow 3 (95th percentile 65.08 ms)

144

```
Run 1: Statistics of TCP Vegas

Start at: 2018-10-26 21:35:36
End at: 2018-10-26 21:36:06
Local clock offset: -0.547 ms
Remote clock offset: -1.24 ms

# Below is generated by plot.py at 2018-10-27 02:39:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 963.35 Mbit/s
95th percentile per-packet one-way delay: 107.861 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 508.41 Mbit/s
95th percentile per-packet one-way delay: 89.422 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 479.46 Mbit/s
95th percentile per-packet one-way delay: 92.162 ms
Loss rate: 0.57%
-- Flow 3:
Average throughput: 412.88 Mbit/s
95th percentile per-packet one-way delay: 113.879 ms
Loss rate: 1.72%
```
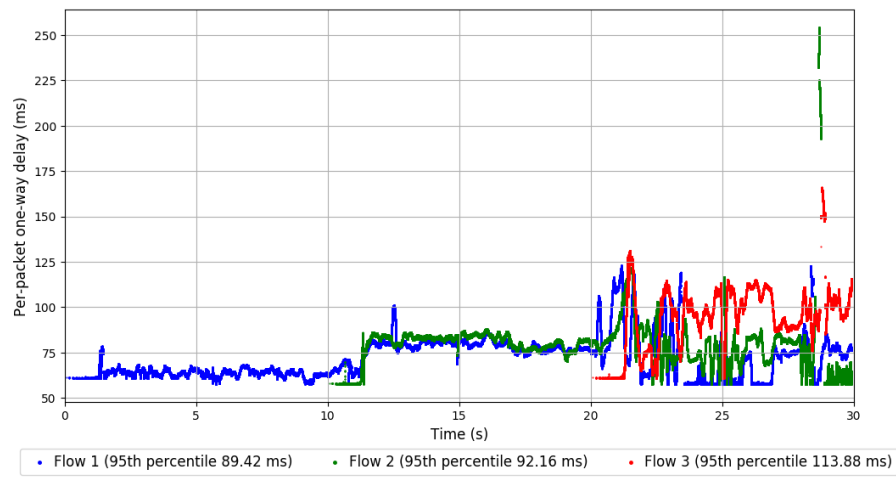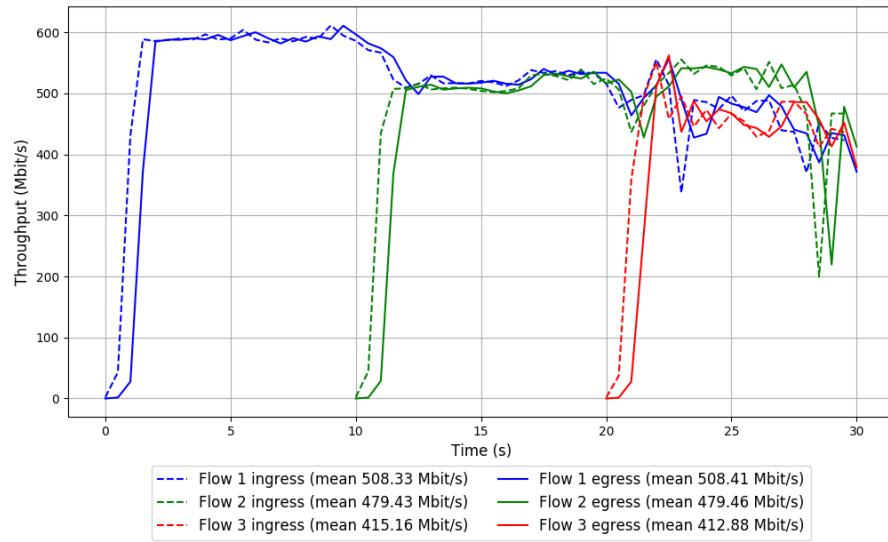
Run 1: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 508.33 Mbit/s) — Flow 1 egress (mean 508.41 Mbit/s)
Flow 2 ingress (mean 479.43 Mbit/s) — Flow 2 egress (mean 479.46 Mbit/s)
Flow 3 ingress (mean 415.16 Mbit/s) — Flow 3 egress (mean 412.88 Mbit/s)

Flow 1 (95th percentile 89.42 ms) • Flow 2 (95th percentile 92.16 ms) • Flow 3 (95th percentile 113.88 ms)

```
Run 2: Statistics of TCP Vegas

Start at: 2018-10-26 22:06:10
End at: 2018-10-26 22:06:40
Local clock offset: -0.704 ms
Remote clock offset: 0.538 ms


# Below is generated by plot.py at 2018-10-27 02:40:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 930.31 Mbit/s
95th percentile per-packet one-way delay: 101.758 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 486.13 Mbit/s
95th percentile per-packet one-way delay: 83.163 ms
Loss rate: 0.39%
-- Flow 2:
Average throughput: 443.38 Mbit/s
95th percentile per-packet one-way delay: 105.152 ms
Loss rate: 0.64%
-- Flow 3:
Average throughput: 452.56 Mbit/s
95th percentile per-packet one-way delay: 105.649 ms
Loss rate: 1.54%
```
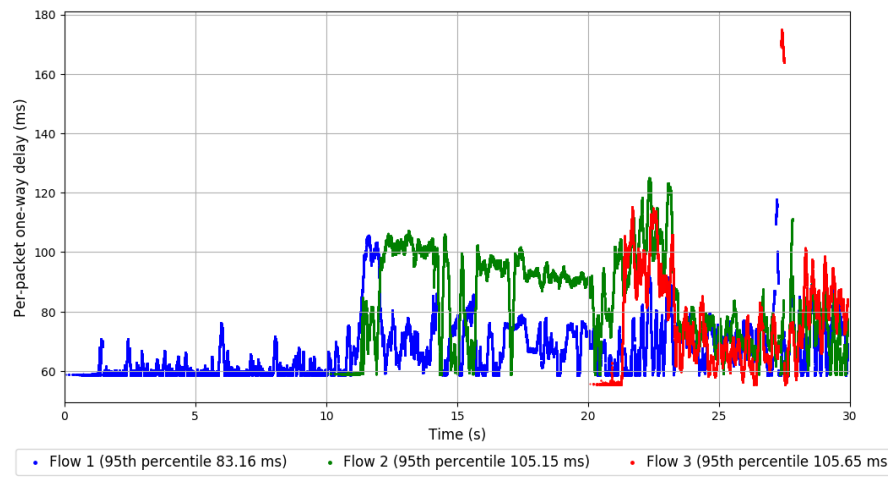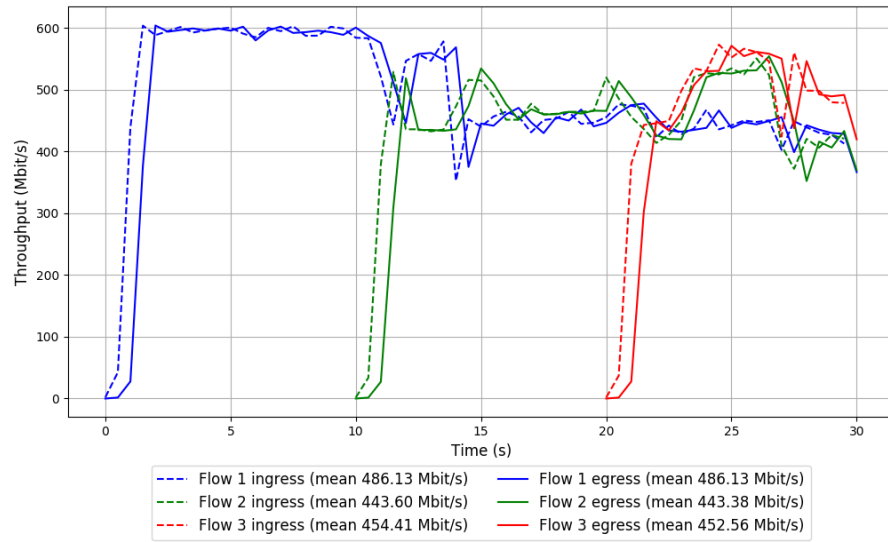
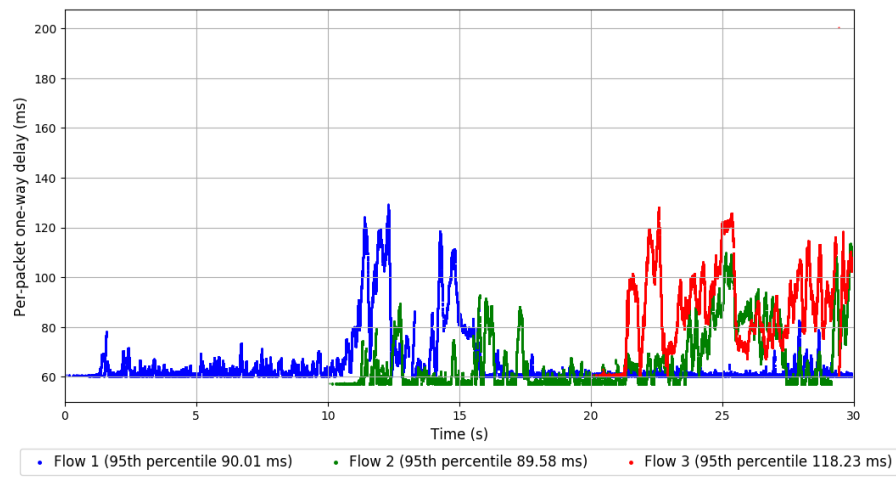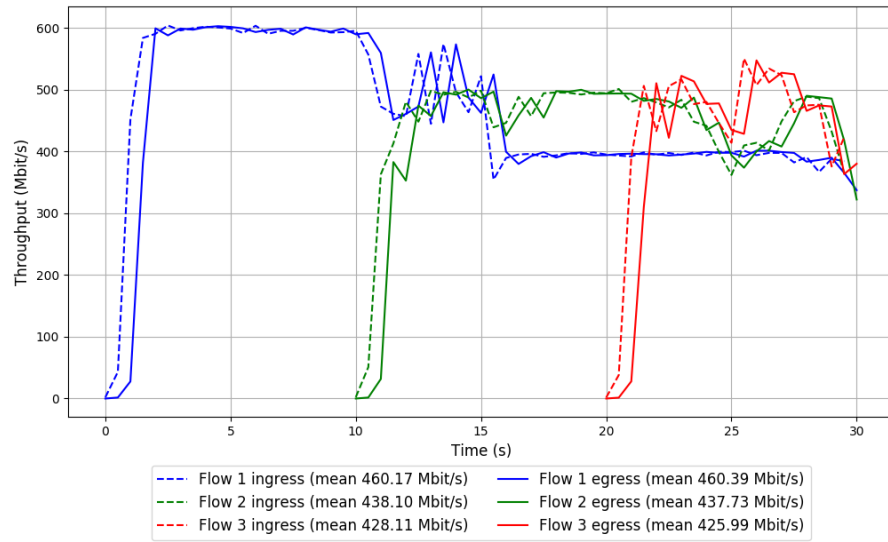Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-10-26 22:37:12
End at: 2018-10-26 22:37:42
Local clock offset: -0.787 ms
Remote clock offset: -1.021 ms


# Below is generated by plot.py at 2018-10-27 02:40:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 891.98 Mbit/s
95th percentile per-packet one-way delay: 103.050 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 460.39 Mbit/s
95th percentile per-packet one-way delay: 90.013 ms
Loss rate: 0.34%
-- Flow 2:
Average throughput: 437.73 Mbit/s
95th percentile per-packet one-way delay: 89.584 ms
Loss rate: 0.65%
-- Flow 3:
Average throughput: 425.99 Mbit/s
95th percentile per-packet one-way delay: 118.229 ms
Loss rate: 1.67%
```

Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 460.17 Mbit/s) ---- Flow 1 egress (mean 460.39 Mbit/s)
Flow 2 ingress (mean 438.10 Mbit/s) ---- Flow 2 egress (mean 437.73 Mbit/s)
Flow 3 ingress (mean 428.11 Mbit/s) ---- Flow 3 egress (mean 425.99 Mbit/s)

Flow 1 (95th percentile 90.01 ms)   Flow 2 (95th percentile 89.58 ms)   Flow 3 (95th percentile 118.23 ms)
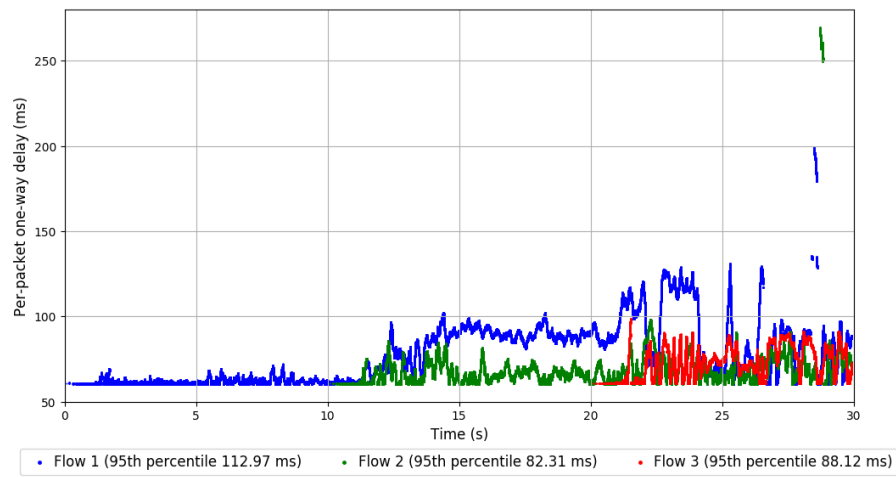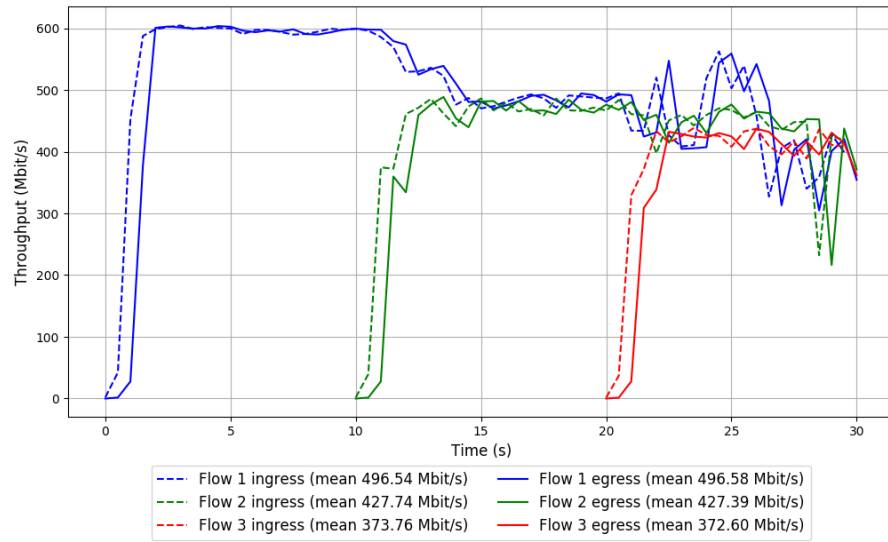
150

```
Run 4: Statistics of TCP Vegas

Start at: 2018-10-26 23:09:43
End at: 2018-10-26 23:10:13
Local clock offset: 0.191 ms
Remote clock offset: -0.294 ms


# Below is generated by plot.py at 2018-10-27 02:52:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 903.52 Mbit/s
95th percentile per-packet one-way delay: 98.788 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 496.58 Mbit/s
95th percentile per-packet one-way delay: 112.973 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 427.39 Mbit/s
95th percentile per-packet one-way delay: 82.312 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 372.60 Mbit/s
95th percentile per-packet one-way delay: 88.116 ms
Loss rate: 1.48%
```
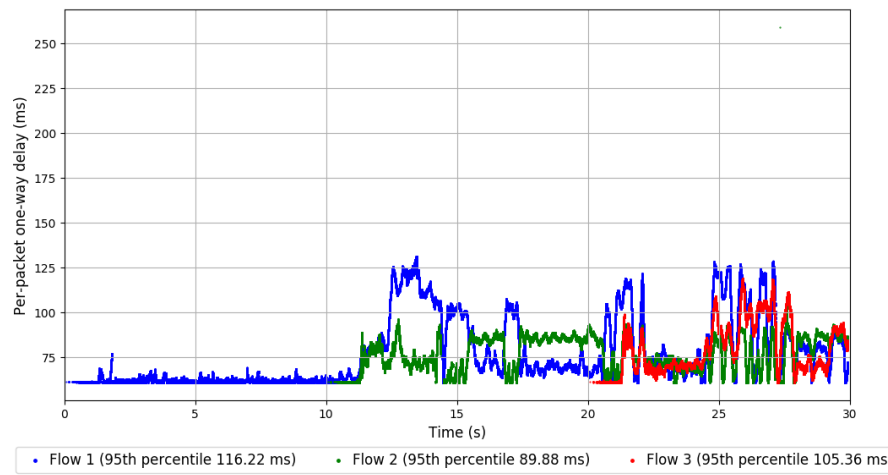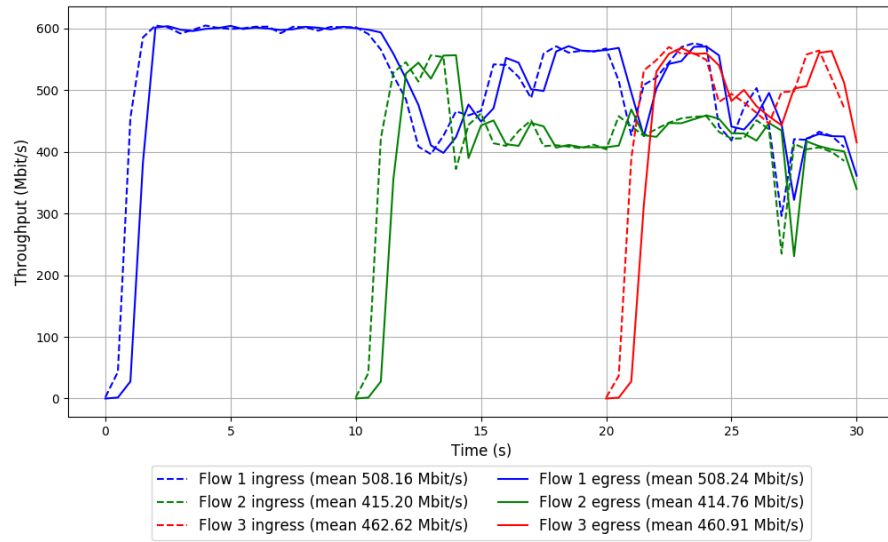
Run 4: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 496.54 Mbit/s) --- Flow 1 egress (mean 496.58 Mbit/s) ---
Flow 2 ingress (mean 427.74 Mbit/s) --- Flow 2 egress (mean 427.39 Mbit/s) ---
Flow 3 ingress (mean 373.76 Mbit/s) --- Flow 3 egress (mean 372.60 Mbit/s) ---

• Flow 1 (95th percentile 112.97 ms)   • Flow 2 (95th percentile 82.31 ms)   • Flow 3 (95th percentile 88.12 ms)

```
Run 5: Statistics of TCP Vegas

Start at: 2018-10-26 23:41:06
End at: 2018-10-26 23:41:36
Local clock offset: 0.458 ms
Remote clock offset: -0.144 ms


# Below is generated by plot.py at 2018-10-27 02:52:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 935.95 Mbit/s
95th percentile per-packet one-way delay: 109.713 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 508.24 Mbit/s
95th percentile per-packet one-way delay: 116.218 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 414.76 Mbit/s
95th percentile per-packet one-way delay: 89.881 ms
Loss rate: 0.69%
-- Flow 3:
Average throughput: 460.91 Mbit/s
95th percentile per-packet one-way delay: 105.365 ms
Loss rate: 1.54%
```

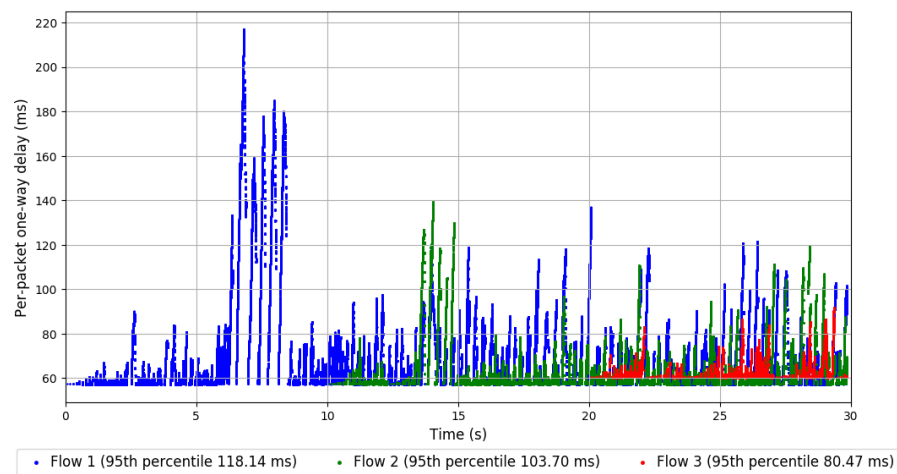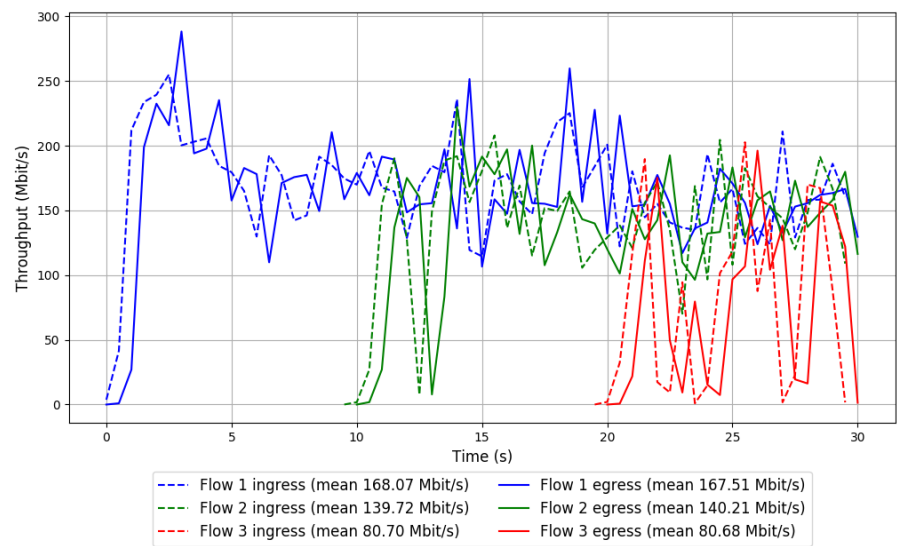## Run 5: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 508.16 Mbit/s) --- Flow 1 egress (mean 508.24 Mbit/s)
Flow 2 ingress (mean 415.20 Mbit/s) --- Flow 2 egress (mean 414.76 Mbit/s)
Flow 3 ingress (mean 462.62 Mbit/s) --- Flow 3 egress (mean 460.91 Mbit/s)

Flow 1 (95th percentile 116.22 ms) • Flow 2 (95th percentile 89.88 ms) • Flow 3 (95th percentile 105.36 ms)

154

```
Run 1: Statistics of Verus

Start at: 2018-10-26 21:32:45
End at: 2018-10-26 21:33:15
Local clock offset: -0.137 ms
Remote clock offset: -0.342 ms


# Below is generated by plot.py at 2018-10-27 02:52:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 287.29 Mbit/s
95th percentile per-packet one-way delay: 108.938 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 167.51 Mbit/s
95th percentile per-packet one-way delay: 118.137 ms
Loss rate: 0.72%
-- Flow 2:
Average throughput: 140.21 Mbit/s
95th percentile per-packet one-way delay: 103.699 ms
Loss rate: 0.23%
-- Flow 3:
Average throughput: 80.68 Mbit/s
95th percentile per-packet one-way delay: 80.466 ms
Loss rate: 0.02%
```
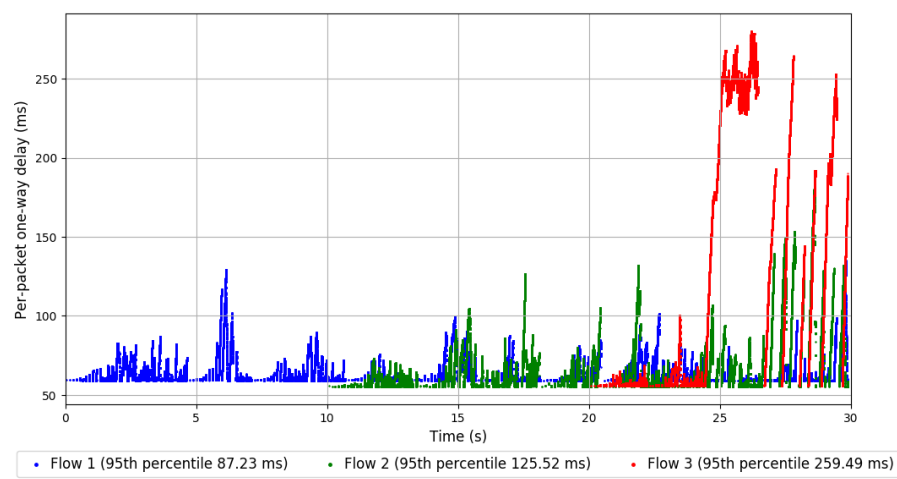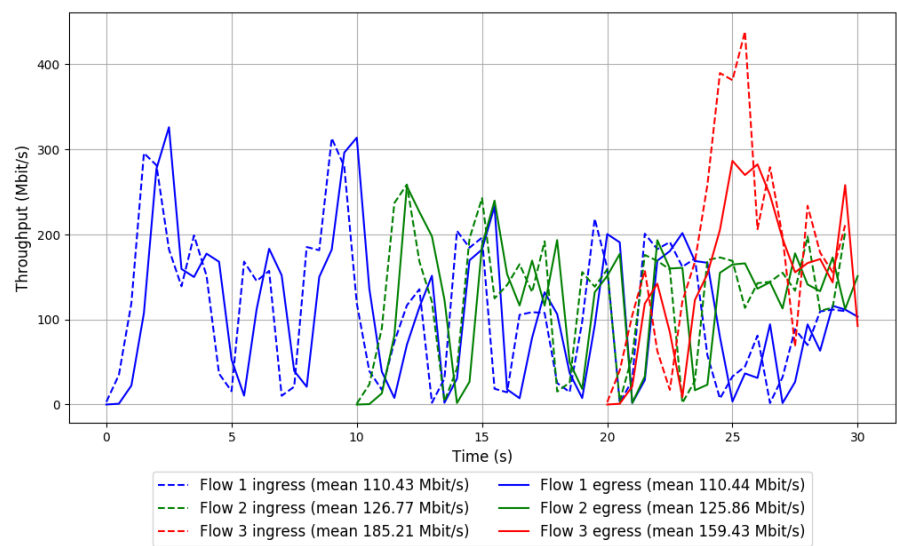
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-10-26 22:03:23
End at: 2018-10-26 22:03:53
Local clock offset: -0.392 ms
Remote clock offset: 0.932 ms


# Below is generated by plot.py at 2018-10-27 02:52:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 246.43 Mbit/s
95th percentile per-packet one-way delay: 236.922 ms
Loss rate: 4.04%
-- Flow 1:
Average throughput: 110.44 Mbit/s
95th percentile per-packet one-way delay: 87.235 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 125.86 Mbit/s
95th percentile per-packet one-way delay: 125.518 ms
Loss rate: 1.27%
-- Flow 3:
Average throughput: 159.43 Mbit/s
95th percentile per-packet one-way delay: 259.490 ms
Loss rate: 14.91%
```
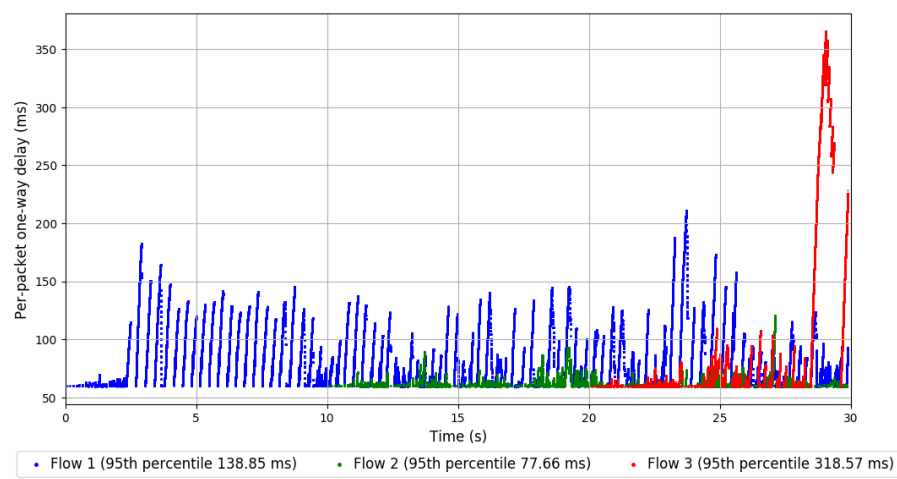
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-10-26 22:34:23
End at: 2018-10-26 22:34:53
Local clock offset: 0.731 ms
Remote clock offset: 0.996 ms


# Below is generated by plot.py at 2018-10-27 02:52:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 264.42 Mbit/s
95th percentile per-packet one-way delay: 144.471 ms
Loss rate: 3.06%
-- Flow 1:
Average throughput: 176.90 Mbit/s
95th percentile per-packet one-way delay: 138.854 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 80.25 Mbit/s
95th percentile per-packet one-way delay: 77.656 ms
Loss rate: 0.57%
-- Flow 3:
Average throughput: 104.23 Mbit/s
95th percentile per-packet one-way delay: 318.568 ms
Loss rate: 17.55%
```
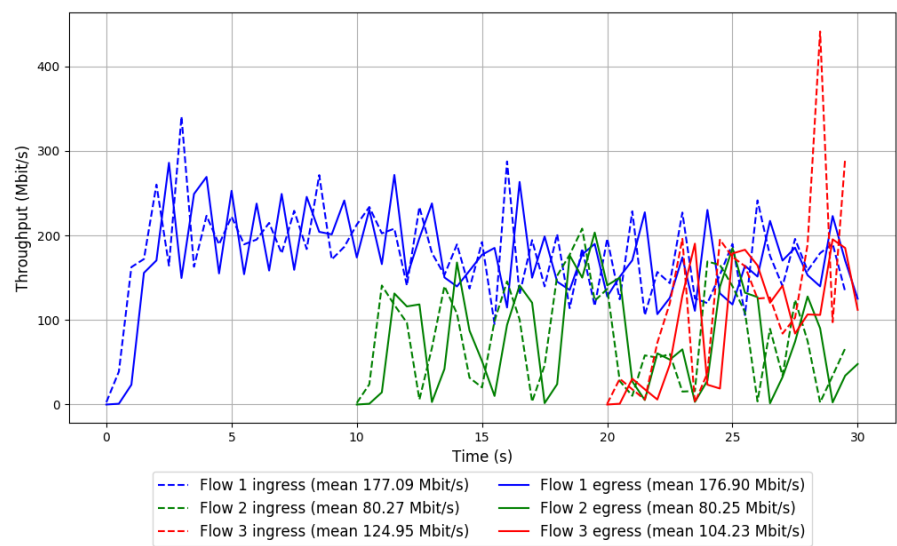
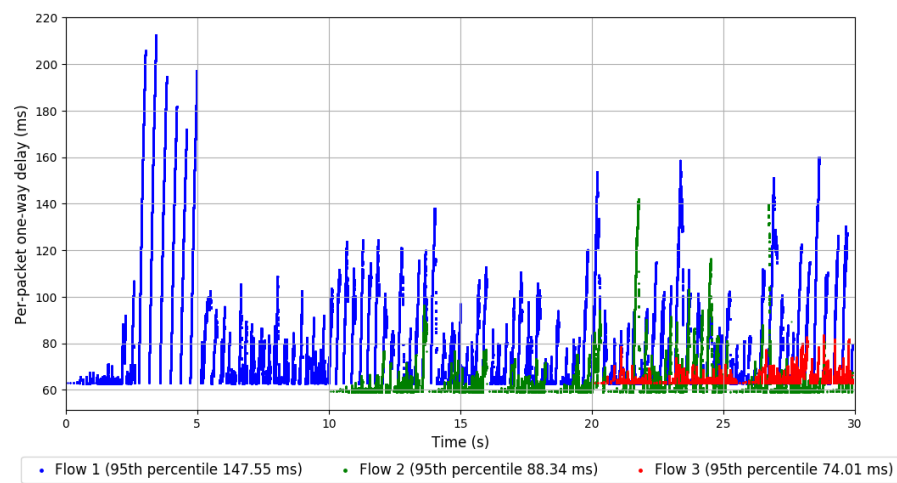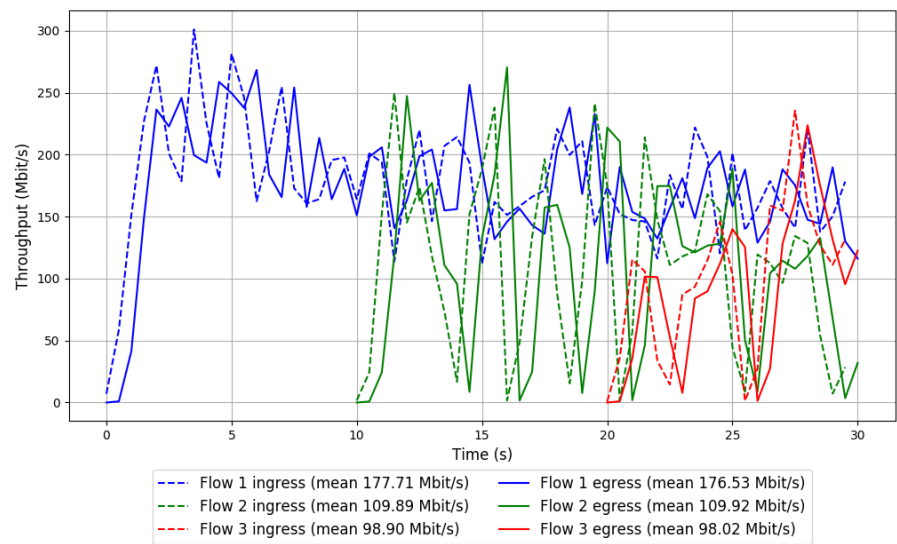Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-10-26 23:06:45
End at: 2018-10-26 23:07:15
Local clock offset: 1.022 ms
Remote clock offset: -1.678 ms


# Below is generated by plot.py at 2018-10-27 02:52:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 281.74 Mbit/s
95th percentile per-packet one-way delay: 131.700 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 176.53 Mbit/s
95th percentile per-packet one-way delay: 147.548 ms
Loss rate: 1.06%
-- Flow 2:
Average throughput: 109.92 Mbit/s
95th percentile per-packet one-way delay: 88.341 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 98.02 Mbit/s
95th percentile per-packet one-way delay: 74.007 ms
Loss rate: 1.98%
```

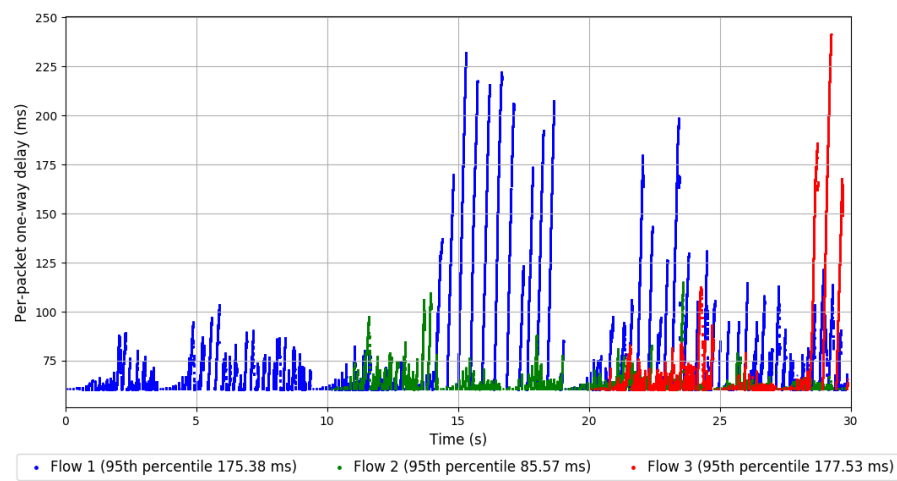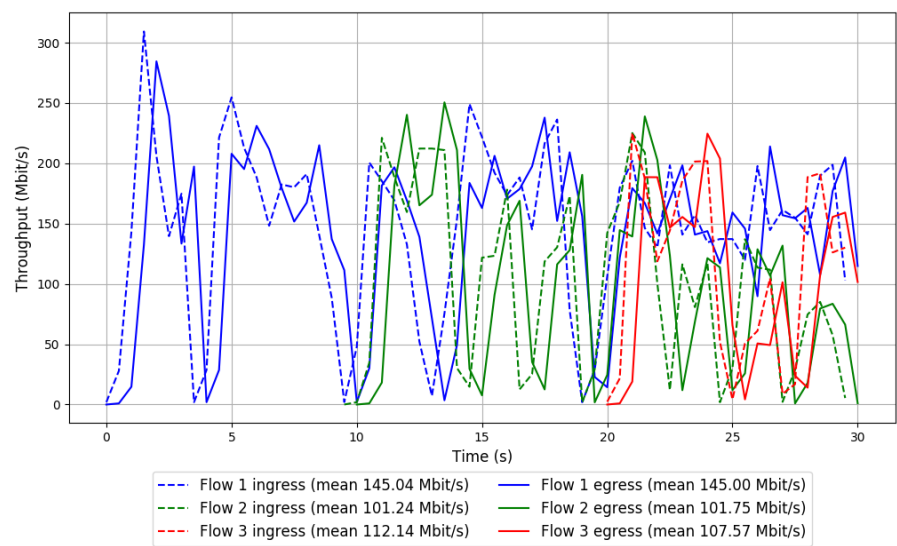Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-10-26 23:38:17
End at: 2018-10-26 23:38:47
Local clock offset: 0.279 ms
Remote clock offset: -0.037 ms

# Below is generated by plot.py at 2018-10-27 02:52:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 247.62 Mbit/s
95th percentile per-packet one-way delay: 165.345 ms
Loss rate: 1.05%
-- Flow 1:
Average throughput: 145.00 Mbit/s
95th percentile per-packet one-way delay: 175.377 ms
Loss rate: 0.42%
-- Flow 2:
Average throughput: 101.75 Mbit/s
95th percentile per-packet one-way delay: 85.571 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 107.57 Mbit/s
95th percentile per-packet one-way delay: 177.526 ms
Loss rate: 5.22%
```

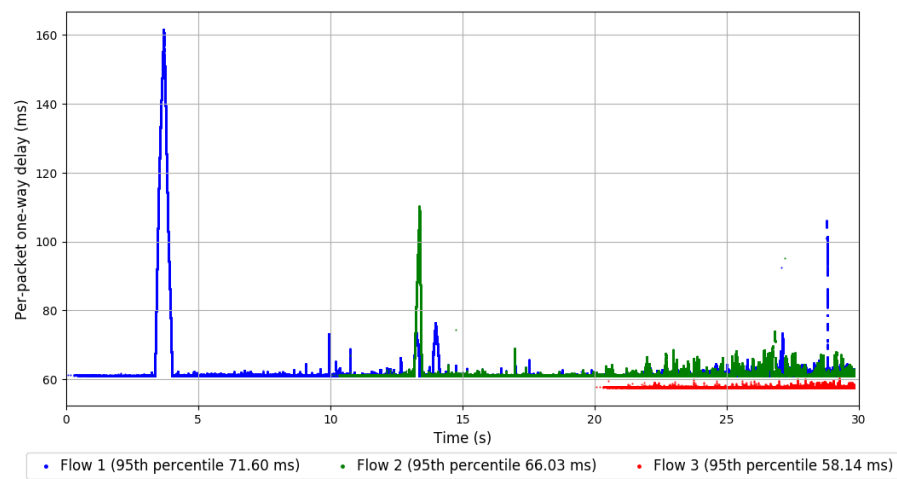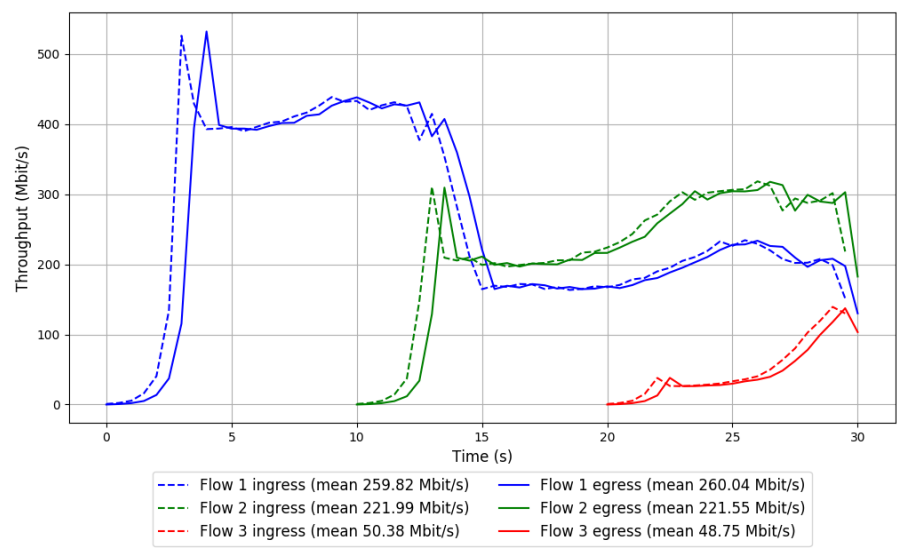Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-10-26 21:39:35
End at: 2018-10-26 21:40:05
Local clock offset: 0.27 ms
Remote clock offset: -0.256 ms


# Below is generated by plot.py at 2018-10-27 02:52:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 423.05 Mbit/s
95th percentile per-packet one-way delay: 67.222 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 260.04 Mbit/s
95th percentile per-packet one-way delay: 71.597 ms
Loss rate: 0.31%
-- Flow 2:
Average throughput: 221.55 Mbit/s
95th percentile per-packet one-way delay: 66.026 ms
Loss rate: 0.79%
-- Flow 3:
Average throughput: 48.75 Mbit/s
95th percentile per-packet one-way delay: 58.139 ms
Loss rate: 4.39%
```

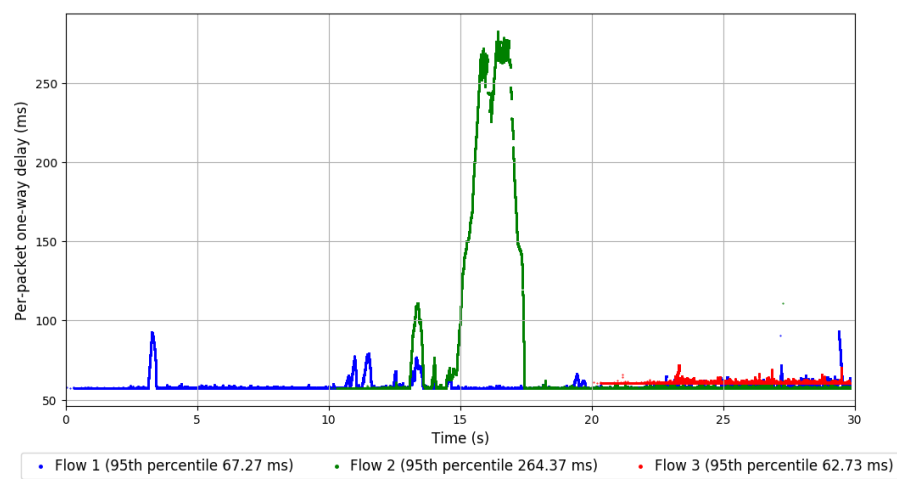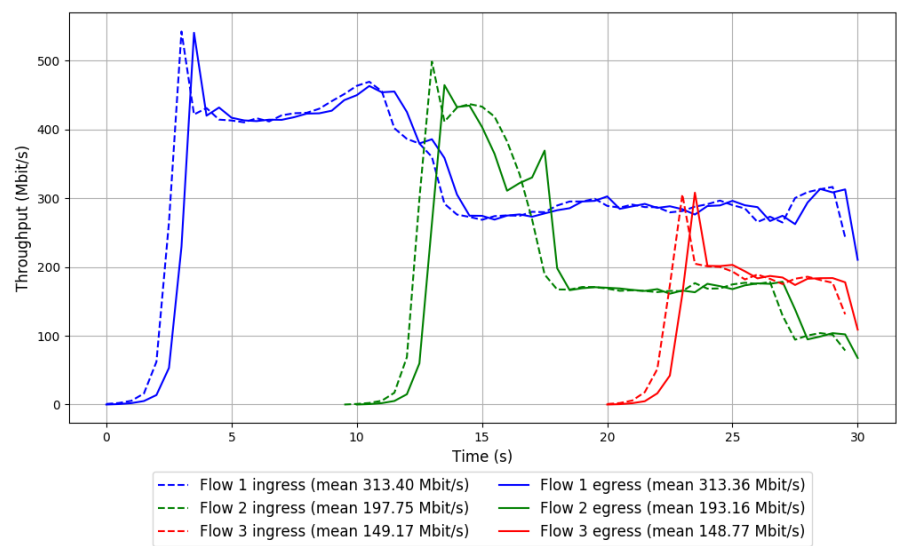# Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-10-26 22:10:08
End at: 2018-10-26 22:10:38
Local clock offset: 0.127 ms
Remote clock offset: -0.308 ms

# Below is generated by plot.py at 2018-10-27 02:53:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 490.35 Mbit/s
95th percentile per-packet one-way delay: 140.342 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 313.36 Mbit/s
95th percentile per-packet one-way delay: 67.271 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 193.16 Mbit/s
95th percentile per-packet one-way delay: 264.366 ms
Loss rate: 2.88%
-- Flow 3:
Average throughput: 148.77 Mbit/s
95th percentile per-packet one-way delay: 62.734 ms
Loss rate: 1.46%
```

Run 2: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 313.40 Mbit/s) --- Flow 1 egress (mean 313.36 Mbit/s)
Flow 2 ingress (mean 197.75 Mbit/s) --- Flow 2 egress (mean 193.16 Mbit/s)
Flow 3 ingress (mean 149.17 Mbit/s) --- Flow 3 egress (mean 148.77 Mbit/s)

Flow 1 (95th percentile 67.27 ms)   Flow 2 (95th percentile 264.37 ms)   Flow 3 (95th percentile 62.73 ms)
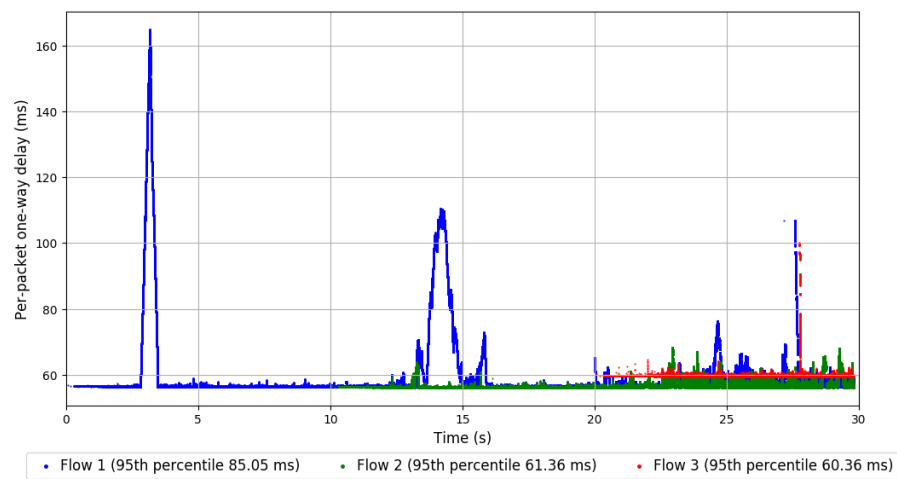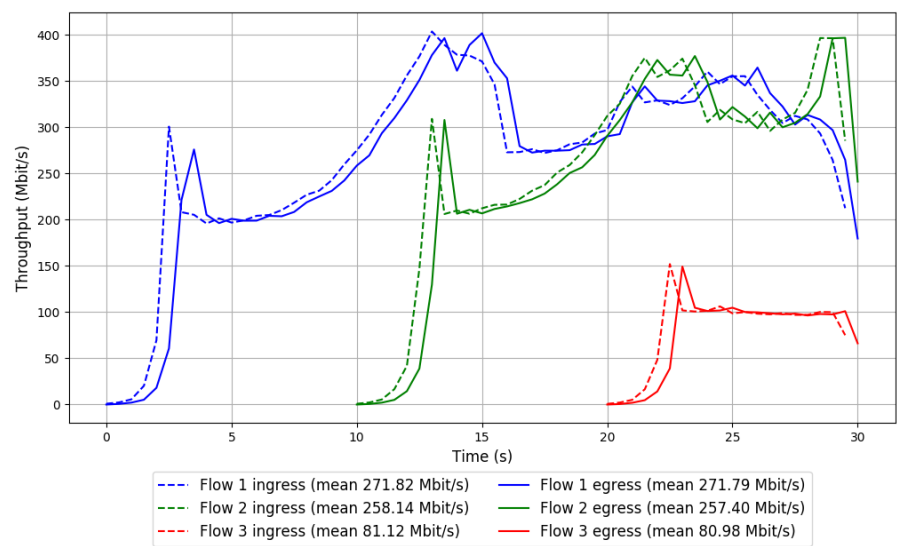
168

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-10-26 22:41:10
End at: 2018-10-26 22:41:40
Local clock offset: -0.688 ms
Remote clock offset: -0.314 ms


# Below is generated by plot.py at 2018-10-27 02:54:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 469.12 Mbit/s
95th percentile per-packet one-way delay: 69.331 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 271.79 Mbit/s
95th percentile per-packet one-way delay: 85.049 ms
Loss rate: 0.39%
-- Flow 2:
Average throughput: 257.40 Mbit/s
95th percentile per-packet one-way delay: 61.356 ms
Loss rate: 0.86%
-- Flow 3:
Average throughput: 80.98 Mbit/s
95th percentile per-packet one-way delay: 60.359 ms
Loss rate: 1.37%
```
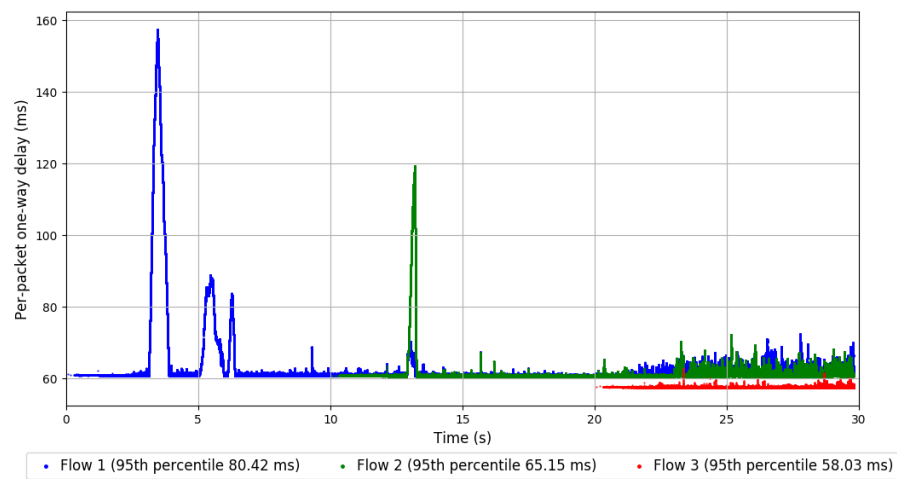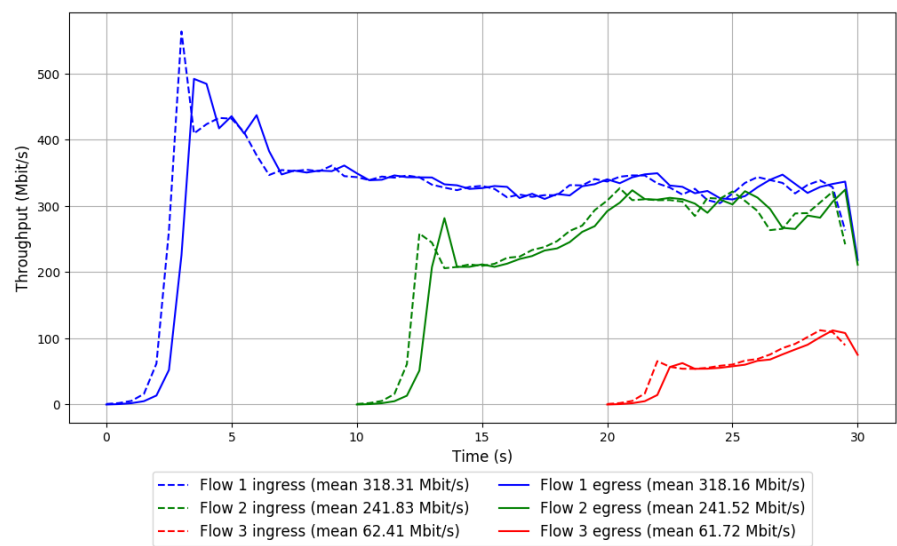
Run 3: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 271.82 Mbit/s) Flow 1 egress (mean 271.79 Mbit/s)
Flow 2 ingress (mean 258.14 Mbit/s) Flow 2 egress (mean 257.40 Mbit/s)
Flow 3 ingress (mean 81.12 Mbit/s) Flow 3 egress (mean 80.98 Mbit/s)

Flow 1 (95th percentile 85.05 ms) Flow 2 (95th percentile 61.36 ms) Flow 3 (95th percentile 60.36 ms)

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-10-26 23:14:02
End at: 2018-10-26 23:14:32
Local clock offset: 0.361 ms
Remote clock offset: -0.281 ms


# Below is generated by plot.py at 2018-10-27 02:54:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 498.69 Mbit/s
95th percentile per-packet one-way delay: 70.560 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 318.16 Mbit/s
95th percentile per-packet one-way delay: 80.416 ms
Loss rate: 0.44%
-- Flow 2:
Average throughput: 241.52 Mbit/s
95th percentile per-packet one-way delay: 65.150 ms
Loss rate: 0.72%
-- Flow 3:
Average throughput: 61.72 Mbit/s
95th percentile per-packet one-way delay: 58.026 ms
Loss rate: 2.26%
```

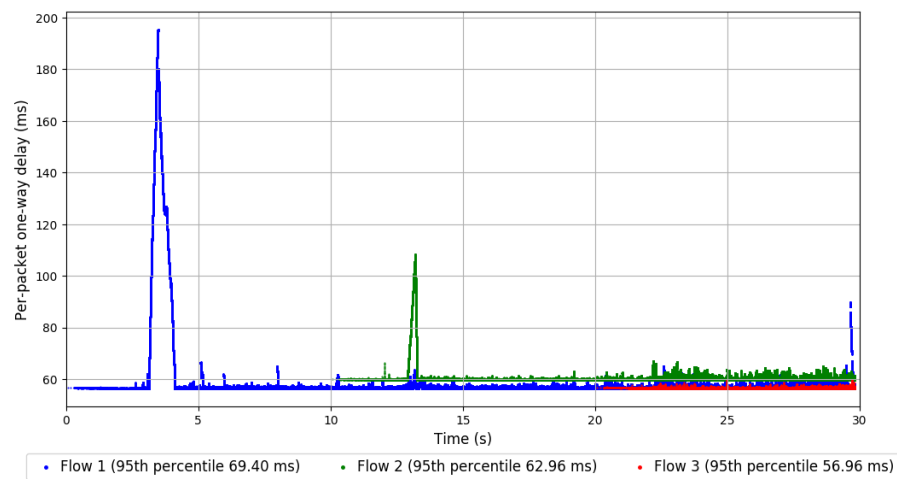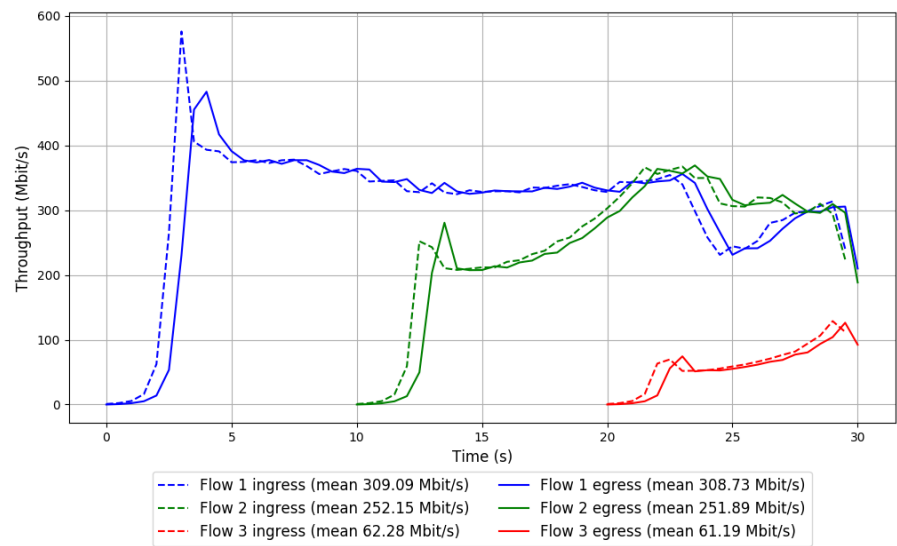Run 4: Report of PCC-Vivace — Data Link

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-10-26 23:45:06
End at: 2018-10-26 23:45:36
Local clock offset: -0.76 ms
Remote clock offset: -0.234 ms


# Below is generated by plot.py at 2018-10-27 02:54:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 495.84 Mbit/s
95th percentile per-packet one-way delay: 63.141 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 308.73 Mbit/s
95th percentile per-packet one-way delay: 69.399 ms
Loss rate: 0.52%
-- Flow 2:
Average throughput: 251.89 Mbit/s
95th percentile per-packet one-way delay: 62.964 ms
Loss rate: 0.70%
-- Flow 3:
Average throughput: 61.19 Mbit/s
95th percentile per-packet one-way delay: 56.956 ms
Loss rate: 2.88%
```

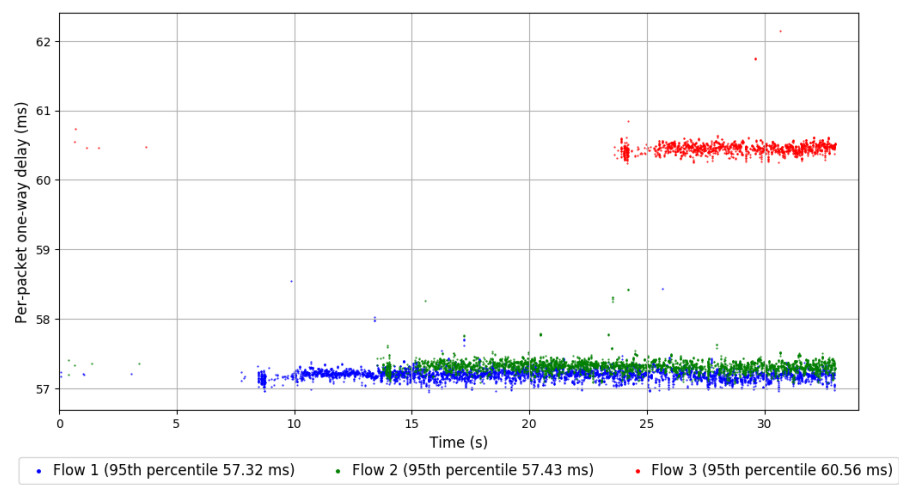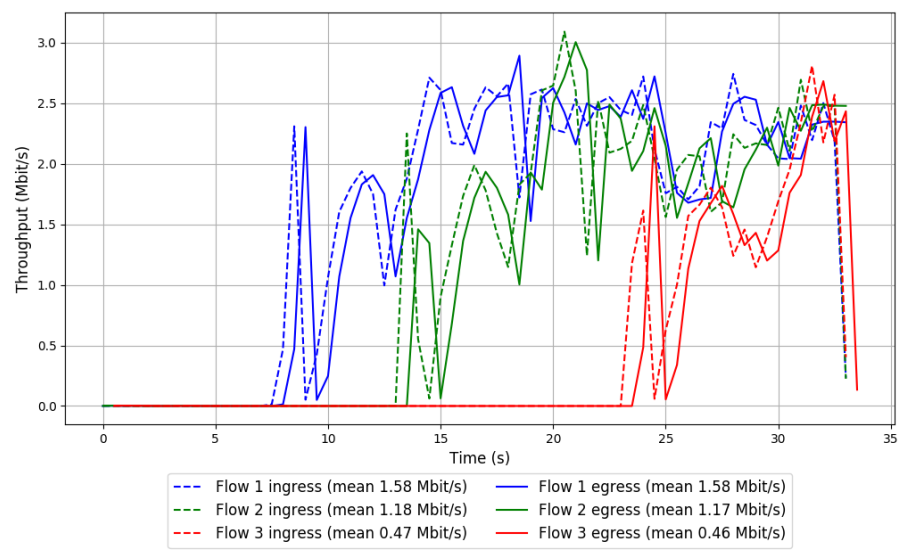Run 5: Report of PCC-Vivace — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2018-10-26 21:34:24
End at: 2018-10-26 21:34:54
Local clock offset: -1.021 ms
Remote clock offset: -1.018 ms


# Below is generated by plot.py at 2018-10-27 02:54:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.18 Mbit/s
95th percentile per-packet one-way delay: 60.481 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 1.58 Mbit/s
95th percentile per-packet one-way delay: 57.319 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 1.17 Mbit/s
95th percentile per-packet one-way delay: 57.428 ms
Loss rate: 0.58%
-- Flow 3:
Average throughput: 0.46 Mbit/s
95th percentile per-packet one-way delay: 60.557 ms
Loss rate: 2.22%
```

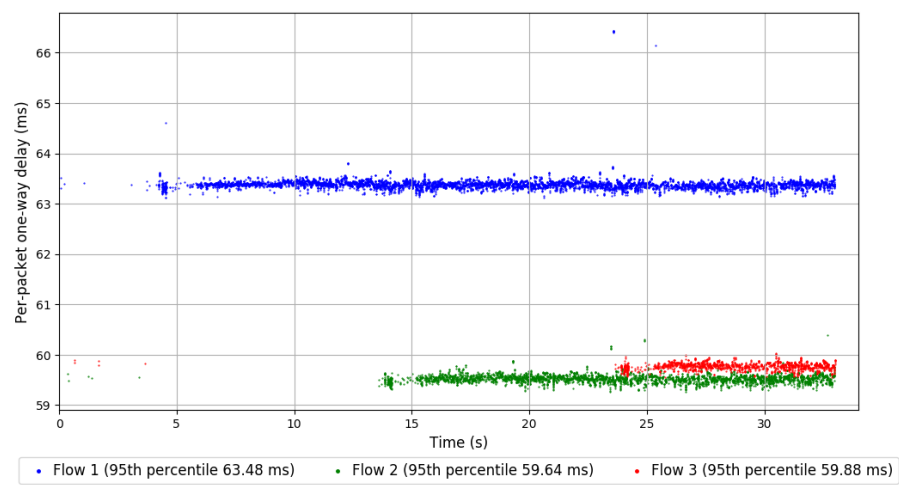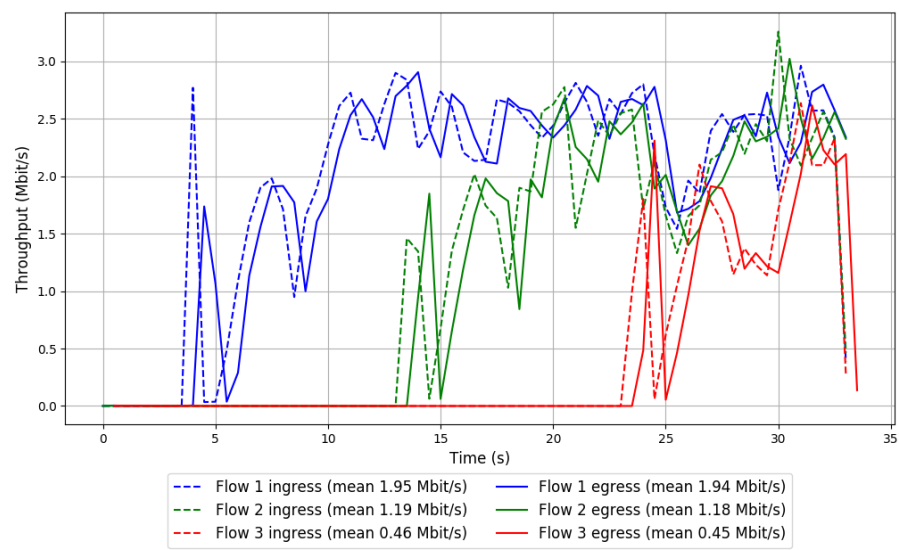Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-10-26 22:04:59
End at: 2018-10-26 22:05:29
Local clock offset: 1.007 ms
Remote clock offset: -1.704 ms


# Below is generated by plot.py at 2018-10-27 02:54:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.55 Mbit/s
95th percentile per-packet one-way delay: 63.459 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 1.94 Mbit/s
95th percentile per-packet one-way delay: 63.485 ms
Loss rate: 0.48%
-- Flow 2:
Average throughput: 1.18 Mbit/s
95th percentile per-packet one-way delay: 59.638 ms
Loss rate: 0.90%
-- Flow 3:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 59.878 ms
Loss rate: 1.85%
```

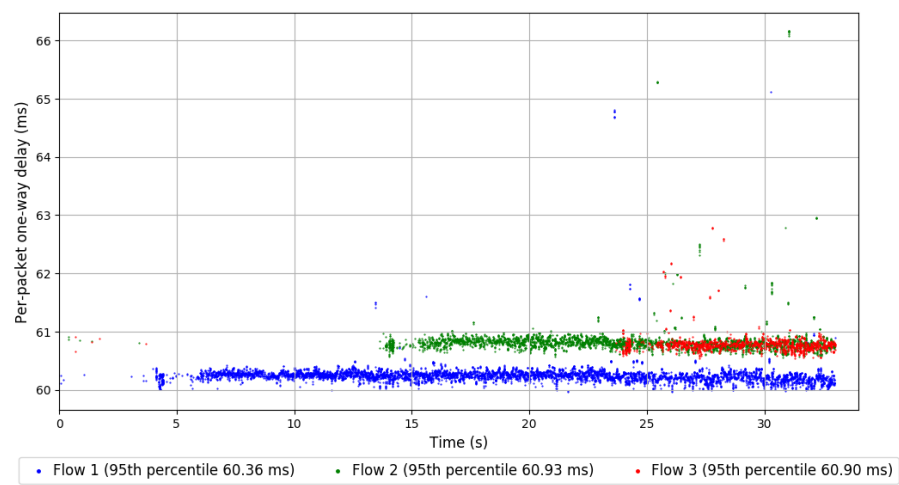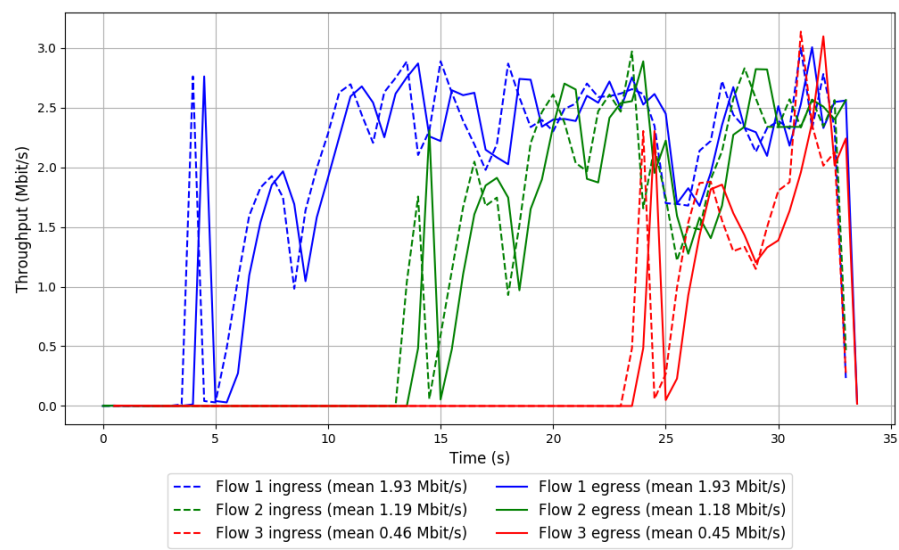Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-10-26 22:36:01
End at: 2018-10-26 22:36:31
Local clock offset: -0.047 ms
Remote clock offset: -0.333 ms

# Below is generated by plot.py at 2018-10-27 02:54:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.54 Mbit/s
95th percentile per-packet one-way delay: 60.887 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 60.357 ms
Loss rate: 0.35%
-- Flow 2:
Average throughput: 1.18 Mbit/s
95th percentile per-packet one-way delay: 60.934 ms
Loss rate: 0.90%
-- Flow 3:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 60.904 ms
Loss rate: 1.33%
```

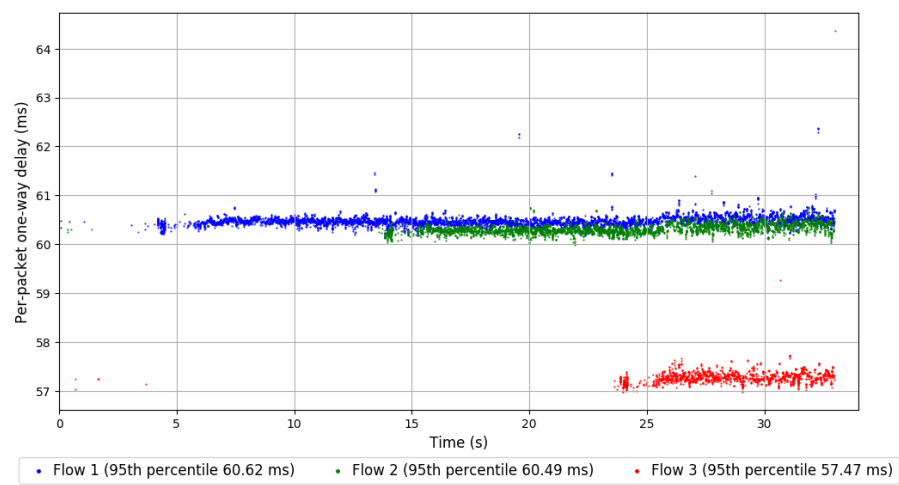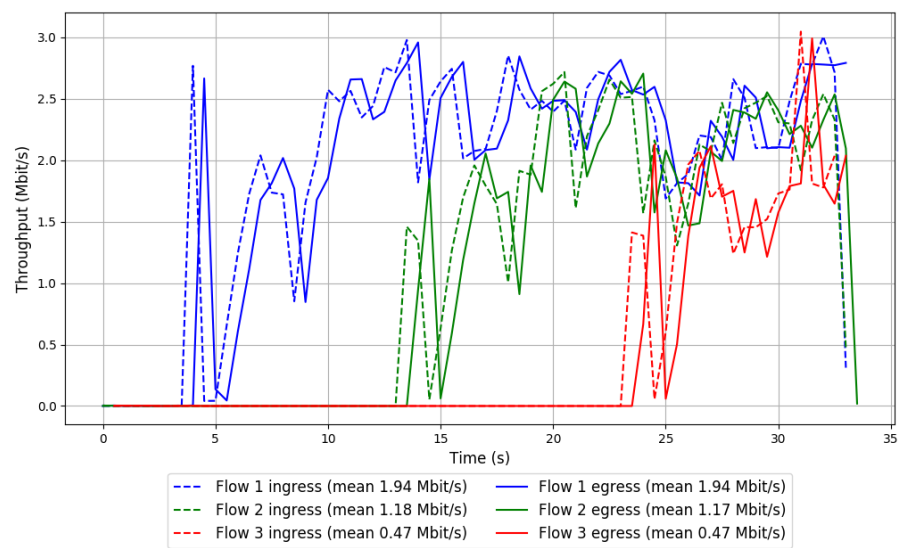Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-10-26 23:08:31
End at: 2018-10-26 23:09:01
Local clock offset: 0.027 ms
Remote clock offset: -0.238 ms


# Below is generated by plot.py at 2018-10-27 02:54:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.55 Mbit/s
95th percentile per-packet one-way delay: 60.588 ms
Loss rate: 0.80%
-- Flow 1:
Average throughput: 1.94 Mbit/s
95th percentile per-packet one-way delay: 60.622 ms
Loss rate: 0.54%
-- Flow 2:
Average throughput: 1.17 Mbit/s
95th percentile per-packet one-way delay: 60.492 ms
Loss rate: 1.18%
-- Flow 3:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 57.467 ms
Loss rate: 0.90%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-10-26 23:39:54
End at: 2018-10-26 23:40:24
Local clock offset: -1.294 ms
Remote clock offset: -0.982 ms


# Below is generated by plot.py at 2018-10-27 02:54:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.52 Mbit/s
95th percentile per-packet one-way delay: 60.272 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 60.277 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 1.16 Mbit/s
95th percentile per-packet one-way delay: 60.265 ms
Loss rate: 0.69%
-- Flow 3:
Average throughput: 0.46 Mbit/s
95th percentile per-packet one-way delay: 60.182 ms
Loss rate: 2.23%
```

Run 5: Report of WebRTC media — Data Link