Pantheon Report

Generated at 2018-11-30 13:40:25 (UTC).

Data path: GCE London on ens4 (*remote*) →GCE Tokyo on ens4 (*local*).

Repeated the test of 19 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.
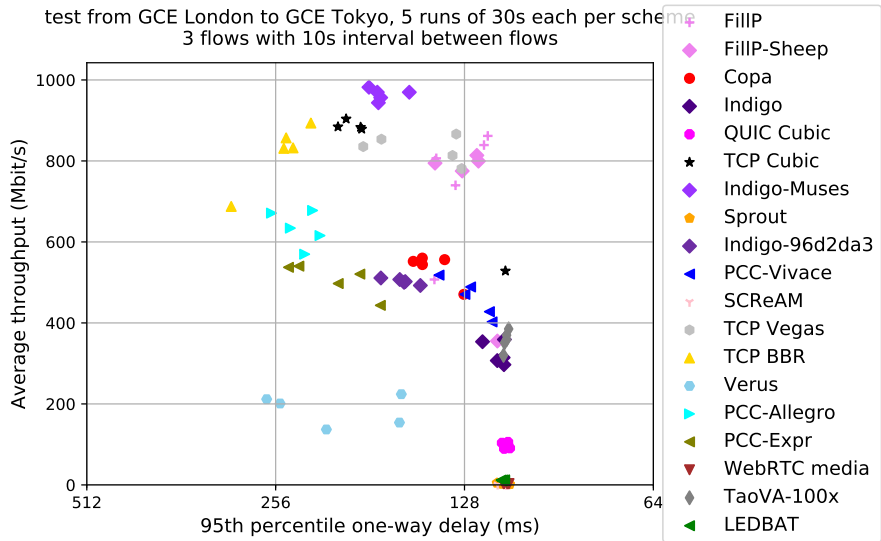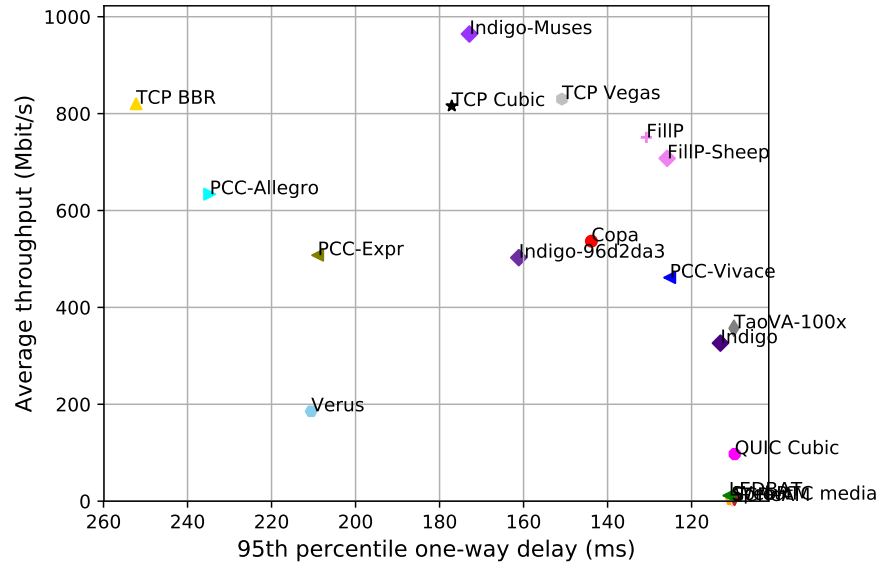
```
System info:
Linux 4.15.0-1024-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ 7b6dad87cde3ab65f7c4052140eb54098aa58e9d
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
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 London to GCE Tokyo, 5 runs of 30s each per scheme
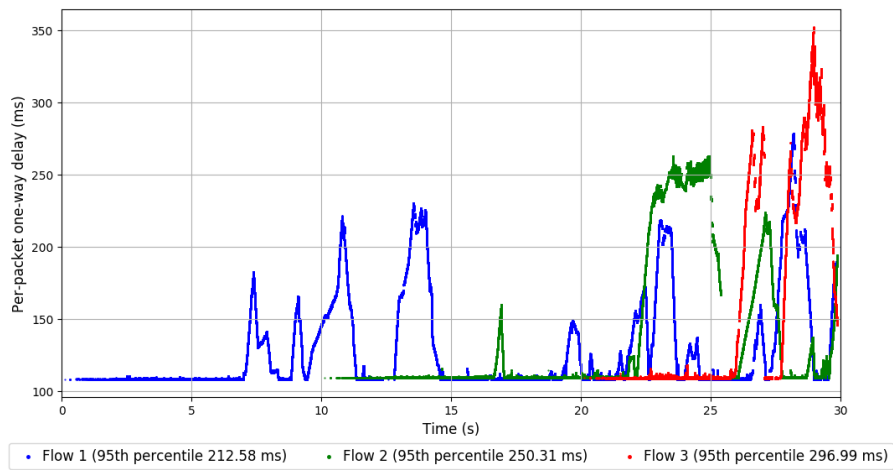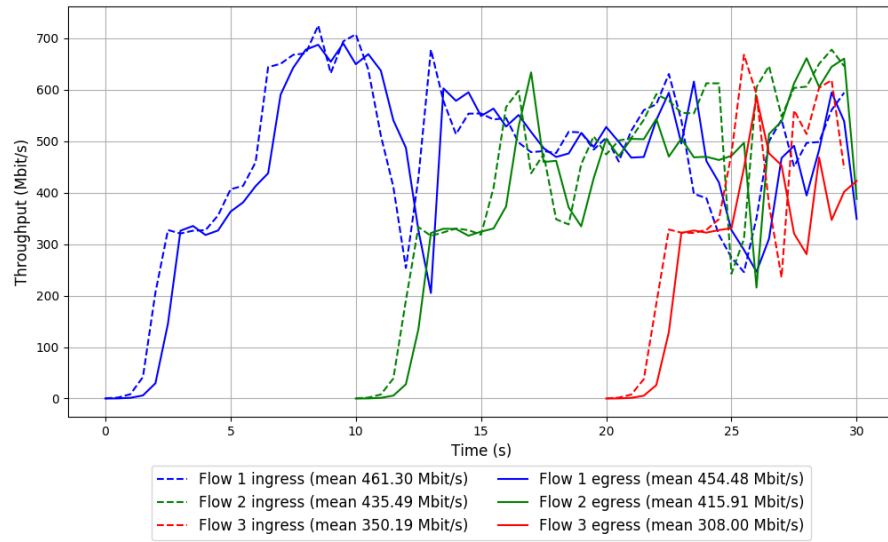3 flows with 10s interval between flows (mean of all runs by scheme)

test from GCE London to GCE Tokyo, 5 runs of 30s each per scheme
3 flows with 10s interval between flows

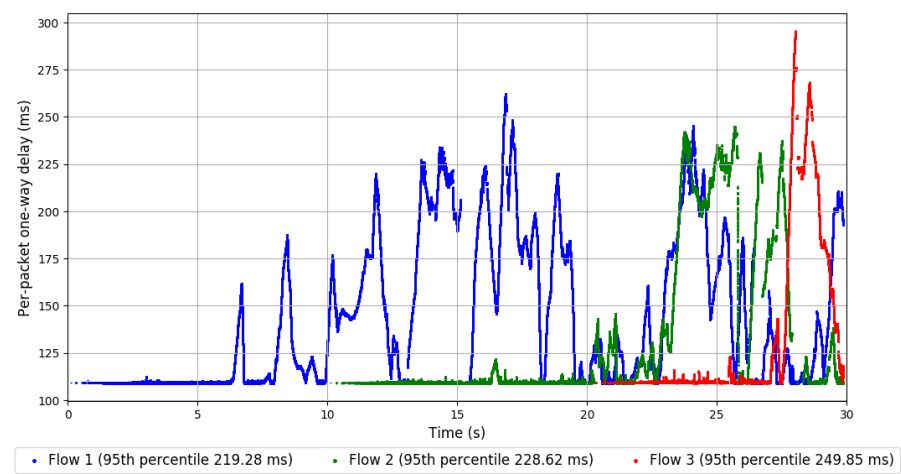| scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	460.71	388.85	311.25	239.06	265.55	245.36	3.16	4.39	6.24
Copa	5	291.09	266.21	210.29	136.07	141.26	150.71	0.72	1.10	3.15
TCP Cubic	5	469.42	367.43	312.81	176.83	174.50	155.11	0.82	1.19	3.81
FillP	5	451.21	335.29	237.55	137.76	114.64	112.84	0.79	1.01	2.58
FillP-Sheep	5	416.23	329.54	223.80	133.02	113.49	111.52	0.54	0.92	2.57
Indigo	5	180.73	154.48	131.66	112.05	112.69	114.05	0.71	1.13	2.75
Indigo-96d2da3	5	272.79	244.80	210.38	162.57	155.58	163.99	1.13	1.48	3.52
LEDBAT	5	7.41	5.11	2.50	110.41	111.16	109.87	1.43	2.21	4.46
Indigo-Muses	5	556.30	458.88	320.15	169.68	179.02	173.68	0.89	1.41	3.66
PCC-Allegro	5	334.76	337.45	232.60	232.71	200.39	241.15	4.71	5.75	5.86
PCC-Expr	5	286.98	240.57	189.04	217.76	183.14	181.26	4.60	4.52	4.15
QUIC Cubic	5	54.92	44.22	38.85	109.22	109.80	109.23	1.06	1.79	1.50
SCReAM	5	0.22	0.22	0.22	109.27	109.05	110.17	0.72	1.25	2.22
Sprout	5	1.46	1.45	1.41	109.36	109.51	110.54	0.79	1.99	3.27
TaoVA-100x	5	187.67	186.75	138.78	109.67	109.83	111.31	0.75	0.84	2.61
TCP Vegas	5	475.81	391.65	287.93	151.27	134.57	133.74	0.59	1.24	3.31
Verus	5	110.79	81.77	64.21	188.11	171.37	166.31	2.27	2.19	1.87
PCC-Vivace	5	282.71	200.02	142.54	121.75	146.80	115.93	0.86	1.37	3.17
WebRTC media	5	1.74	1.06	0.36	109.35	109.66	109.20	0.94	1.44	3.89

```
Run 1: Statistics of TCP BBR

Start at: 2018-11-30 08:15:22
End at: 2018-11-30 08:15:52
Local clock offset: -0.195 ms
Remote clock offset: -0.082 ms


# Below is generated by plot.py at 2018-11-30 11:33:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 831.18 Mbit/s
95th percentile per-packet one-way delay: 248.442 ms
Loss rate: 4.90%
-- Flow 1:
Average throughput: 454.48 Mbit/s
95th percentile per-packet one-way delay: 212.576 ms
Loss rate: 2.20%
-- Flow 2:
Average throughput: 415.91 Mbit/s
95th percentile per-packet one-way delay: 250.306 ms
Loss rate: 5.54%
-- Flow 3:
Average throughput: 308.00 Mbit/s
95th percentile per-packet one-way delay: 296.985 ms
Loss rate: 13.98%
```

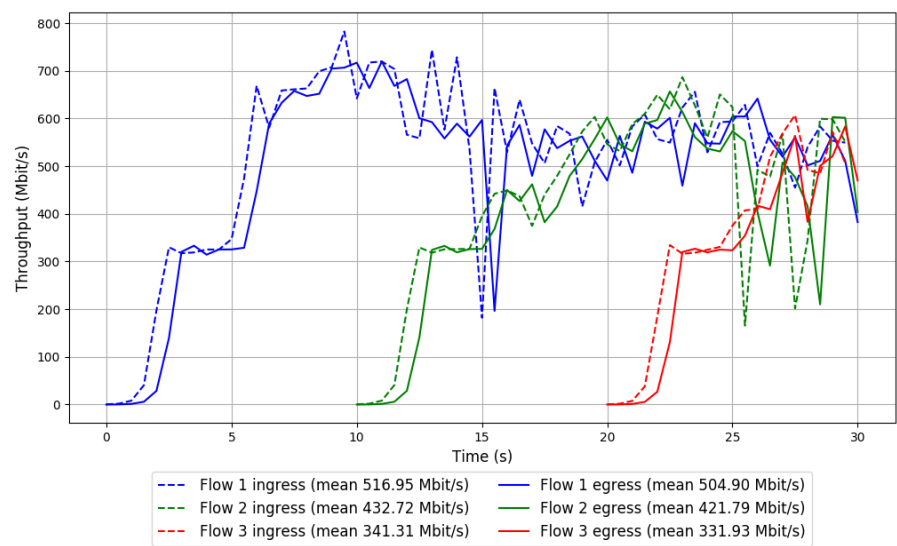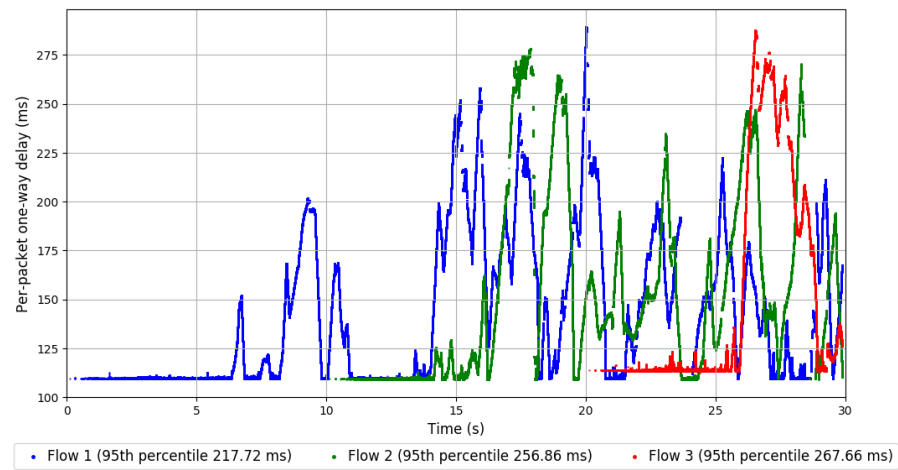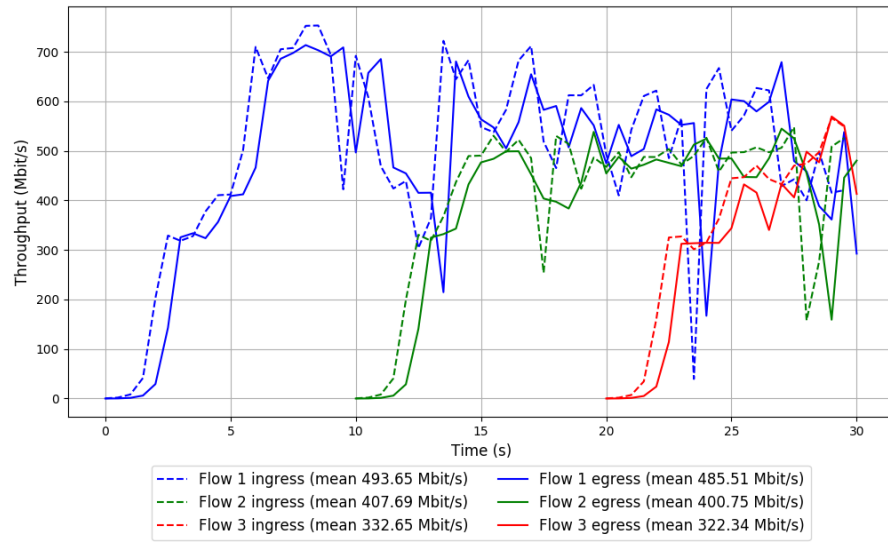Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 461.30 Mbit/s) --- Flow 1 egress (mean 454.48 Mbit/s)
Flow 2 ingress (mean 435.49 Mbit/s) --- Flow 2 egress (mean 415.91 Mbit/s)
Flow 3 ingress (mean 350.19 Mbit/s) --- Flow 3 egress (mean 308.00 Mbit/s)

Flow 1 (95th percentile 212.58 ms)   Flow 2 (95th percentile 250.31 ms)   Flow 3 (95th percentile 296.99 ms)

```
Run 2: Statistics of TCP BBR

Start at: 2018-11-30 08:49:45
End at: 2018-11-30 08:50:15
Local clock offset: -0.263 ms
Remote clock offset: -0.301 ms


# Below is generated by plot.py at 2018-11-30 11:35:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 893.54 Mbit/s
95th percentile per-packet one-way delay: 224.956 ms
Loss rate: 3.45%
-- Flow 1:
Average throughput: 504.90 Mbit/s
95th percentile per-packet one-way delay: 219.280 ms
Loss rate: 3.05%
-- Flow 2:
Average throughput: 421.79 Mbit/s
95th percentile per-packet one-way delay: 228.619 ms
Loss rate: 3.60%
-- Flow 3:
Average throughput: 331.93 Mbit/s
95th percentile per-packet one-way delay: 249.849 ms
Loss rate: 4.89%
```
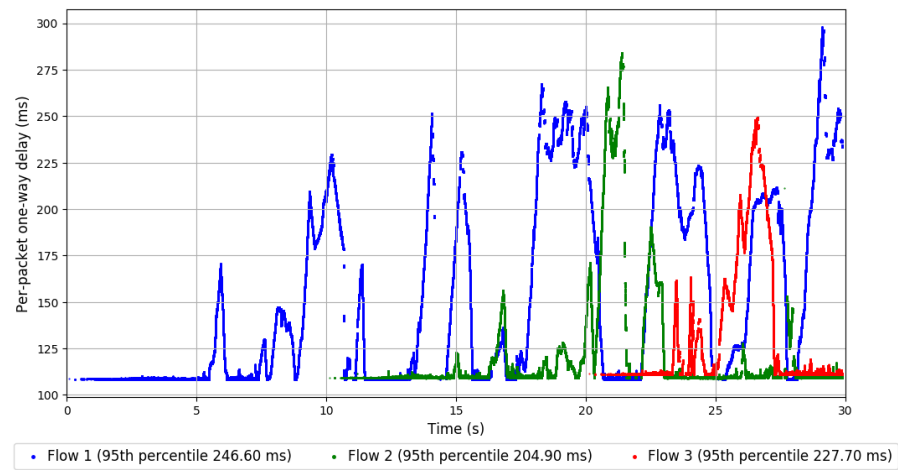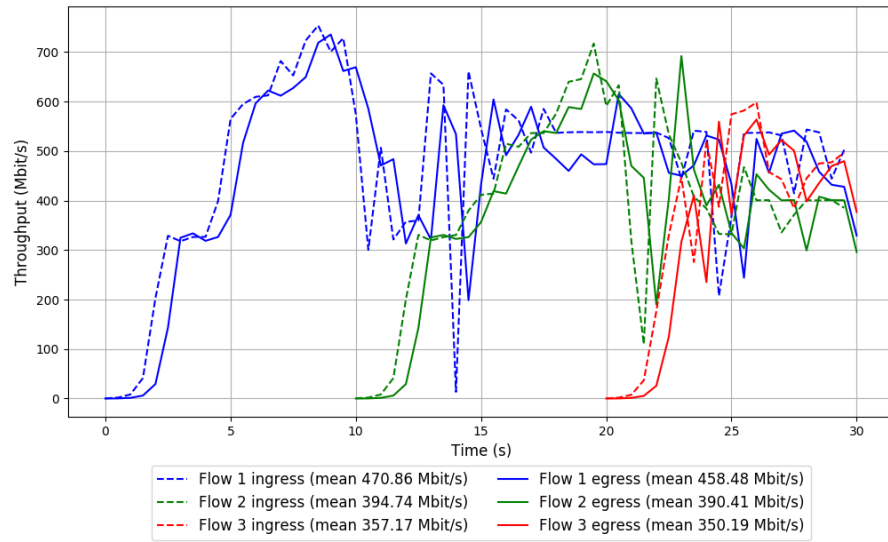
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-11-30 09:24:00
End at: 2018-11-30 09:24:30
Local clock offset: -0.158 ms
Remote clock offset: -0.354 ms


# Below is generated by plot.py at 2018-11-30 11:35:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 856.97 Mbit/s
95th percentile per-packet one-way delay: 246.337 ms
Loss rate: 2.87%
-- Flow 1:
Average throughput: 485.51 Mbit/s
95th percentile per-packet one-way delay: 217.716 ms
Loss rate: 2.37%
-- Flow 2:
Average throughput: 400.75 Mbit/s
95th percentile per-packet one-way delay: 256.860 ms
Loss rate: 2.79%
-- Flow 3:
Average throughput: 322.34 Mbit/s
95th percentile per-packet one-way delay: 267.660 ms
Loss rate: 5.29%
```
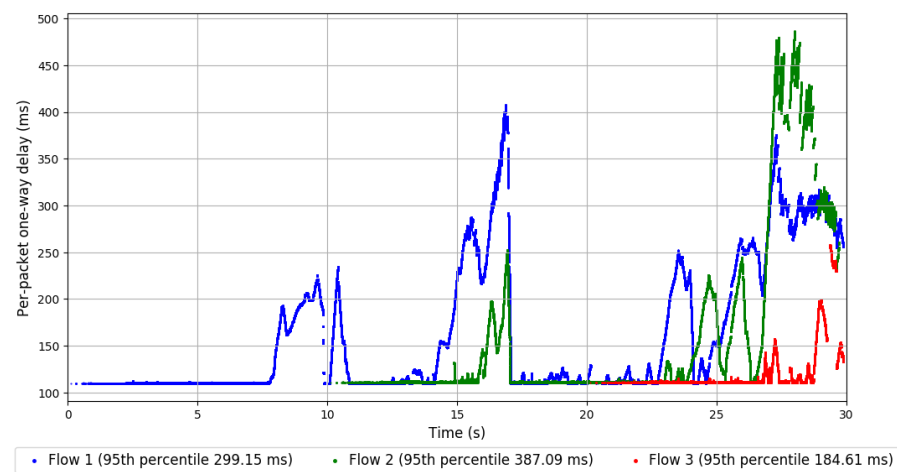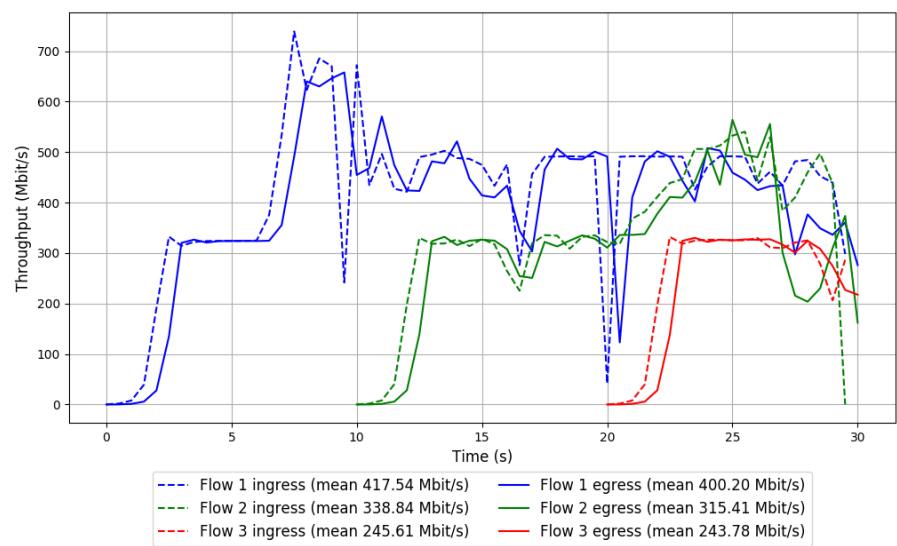
Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 493.65 Mbit/s)   Flow 1 egress (mean 485.51 Mbit/s)
Flow 2 ingress (mean 407.69 Mbit/s)   Flow 2 egress (mean 400.75 Mbit/s)
Flow 3 ingress (mean 332.65 Mbit/s)   Flow 3 egress (mean 322.34 Mbit/s)

Flow 1 (95th percentile 217.72 ms)   Flow 2 (95th percentile 256.86 ms)   Flow 3 (95th percentile 267.66 ms)

```
Run 4: Statistics of TCP BBR

Start at: 2018-11-30 09:58:39
End at: 2018-11-30 09:59:09
Local clock offset: -0.211 ms
Remote clock offset: -0.121 ms

# Below is generated by plot.py at 2018-11-30 11:35:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 832.27 Mbit/s
95th percentile per-packet one-way delay: 240.155 ms
Loss rate: 3.10%
-- Flow 1:
Average throughput: 458.48 Mbit/s
95th percentile per-packet one-way delay: 246.597 ms
Loss rate: 3.34%
-- Flow 2:
Average throughput: 390.41 Mbit/s
95th percentile per-packet one-way delay: 204.897 ms
Loss rate: 2.19%
-- Flow 3:
Average throughput: 350.19 Mbit/s
95th percentile per-packet one-way delay: 227.696 ms
Loss rate: 4.15%
```
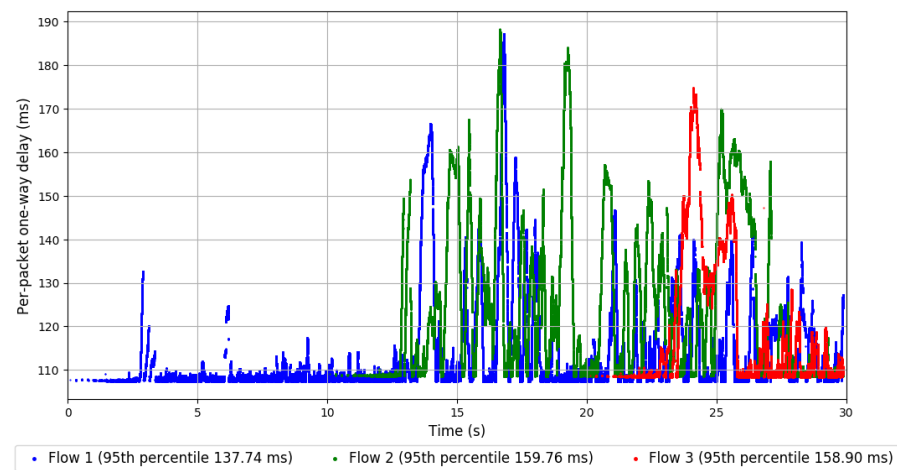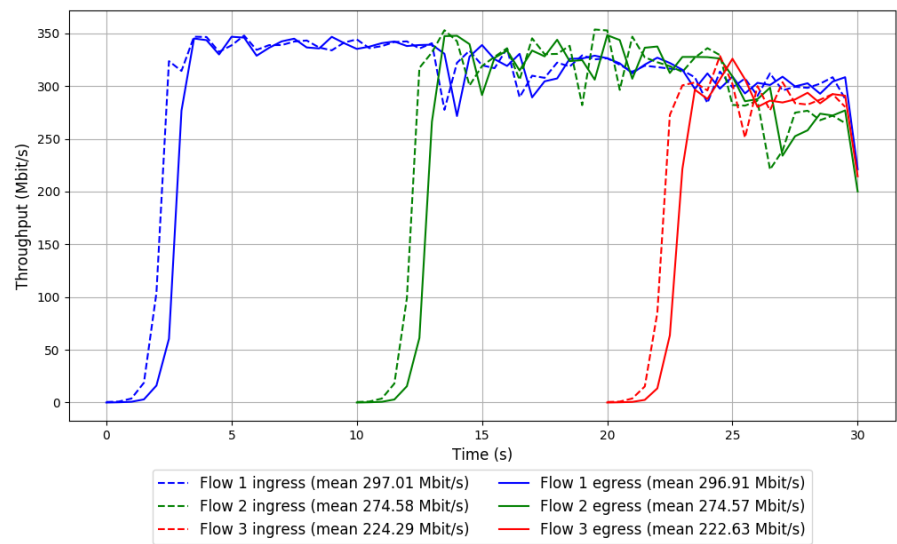
Run 4: Report of TCP BBR — Data Link

- - - Flow 1 ingress (mean 470.86 Mbit/s)   —— Flow 1 egress (mean 458.48 Mbit/s)
- - - Flow 2 ingress (mean 394.74 Mbit/s)   —— Flow 2 egress (mean 390.41 Mbit/s)
- - - Flow 3 ingress (mean 357.17 Mbit/s)   —— Flow 3 egress (mean 350.19 Mbit/s)

• Flow 1 (95th percentile 246.60 ms)   • Flow 2 (95th percentile 204.90 ms)   • Flow 3 (95th percentile 227.70 ms)

```
Run 5: Statistics of TCP BBR

Start at: 2018-11-30 10:33:14
End at: 2018-11-30 10:33:44
Local clock offset: 1.328 ms
Remote clock offset: -0.001 ms


# Below is generated by plot.py at 2018-11-30 11:35:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 687.66 Mbit/s
95th percentile per-packet one-way delay: 301.348 ms
Loss rate: 5.55%
-- Flow 1:
Average throughput: 400.20 Mbit/s
95th percentile per-packet one-way delay: 299.151 ms
Loss rate: 4.85%
-- Flow 2:
Average throughput: 315.41 Mbit/s
95th percentile per-packet one-way delay: 387.091 ms
Loss rate: 7.81%
-- Flow 3:
Average throughput: 243.78 Mbit/s
95th percentile per-packet one-way delay: 184.610 ms
Loss rate: 2.90%
```
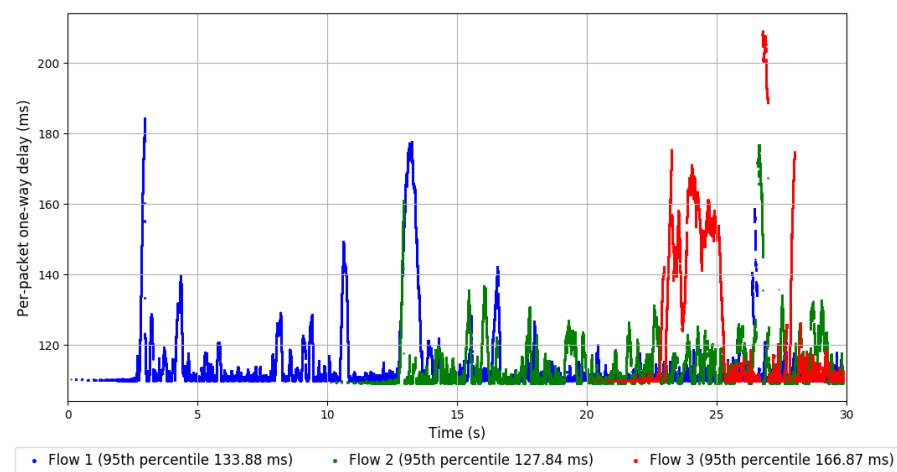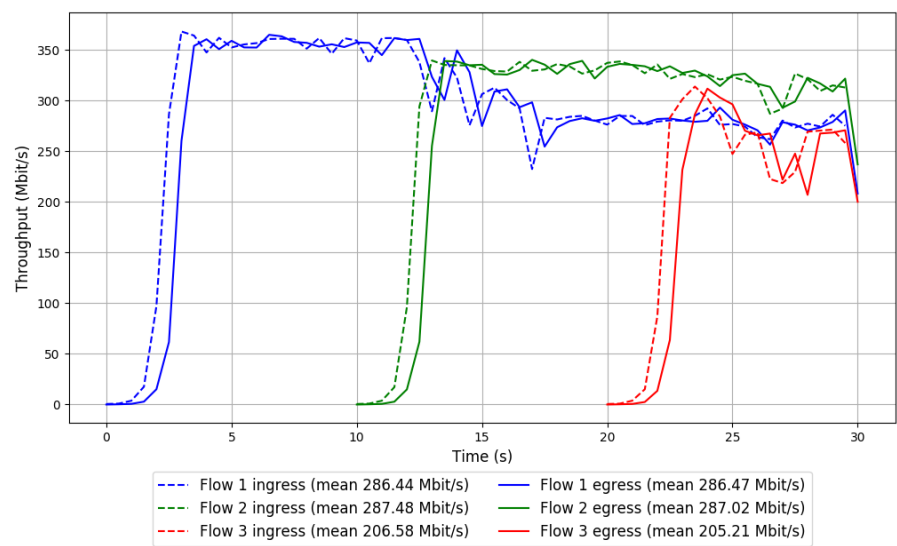
Run 5: Report of TCP BBR — Data Link

- Flow 1 ingress (mean 417.54 Mbit/s) --- Flow 1 egress (mean 400.20 Mbit/s)
- Flow 2 ingress (mean 338.84 Mbit/s) --- Flow 2 egress (mean 315.41 Mbit/s)
- Flow 3 ingress (mean 245.61 Mbit/s) --- Flow 3 egress (mean 243.78 Mbit/s)

- Flow 1 (95th percentile 299.15 ms)   • Flow 2 (95th percentile 387.09 ms)   • Flow 3 (95th percentile 184.61 ms)
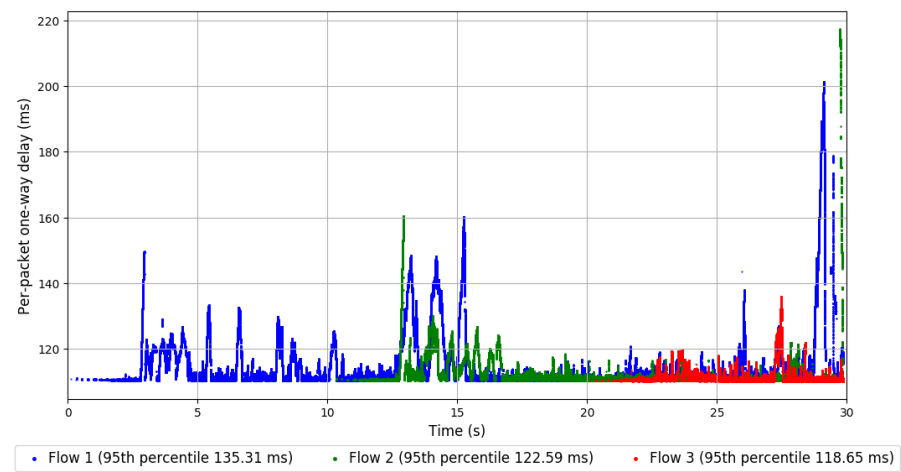
14

```
Run 1: Statistics of Copa

Start at: 2018-11-30 08:31:03
End at: 2018-11-30 08:31:33
Local clock offset: -0.807 ms
Remote clock offset: -0.208 ms

# Below is generated by plot.py at 2018-11-30 11:37:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 552.02 Mbit/s
95th percentile per-packet one-way delay: 154.479 ms
Loss rate: 1.16%
-- Flow 1:
Average throughput: 296.91 Mbit/s
95th percentile per-packet one-way delay: 137.739 ms
Loss rate: 0.76%
-- Flow 2:
Average throughput: 274.57 Mbit/s
95th percentile per-packet one-way delay: 159.763 ms
Loss rate: 1.10%
-- Flow 3:
Average throughput: 222.63 Mbit/s
95th percentile per-packet one-way delay: 158.903 ms
Loss rate: 2.87%
```
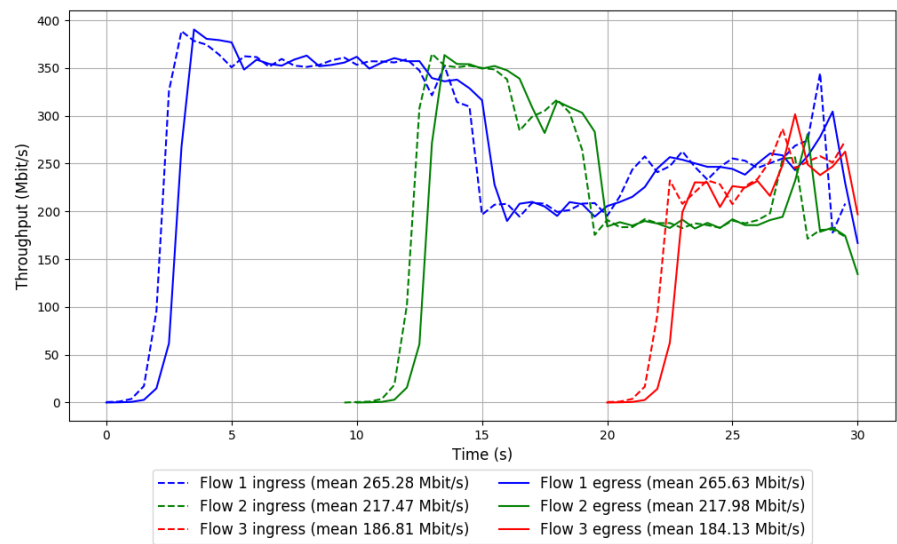
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 297.01 Mbit/s)   Flow 1 egress (mean 296.91 Mbit/s)
Flow 2 ingress (mean 274.58 Mbit/s)   Flow 2 egress (mean 274.57 Mbit/s)
Flow 3 ingress (mean 224.29 Mbit/s)   Flow 3 egress (mean 222.63 Mbit/s)

Flow 1 (95th percentile 137.74 ms)   Flow 2 (95th percentile 159.76 ms)   Flow 3 (95th percentile 158.90 ms)
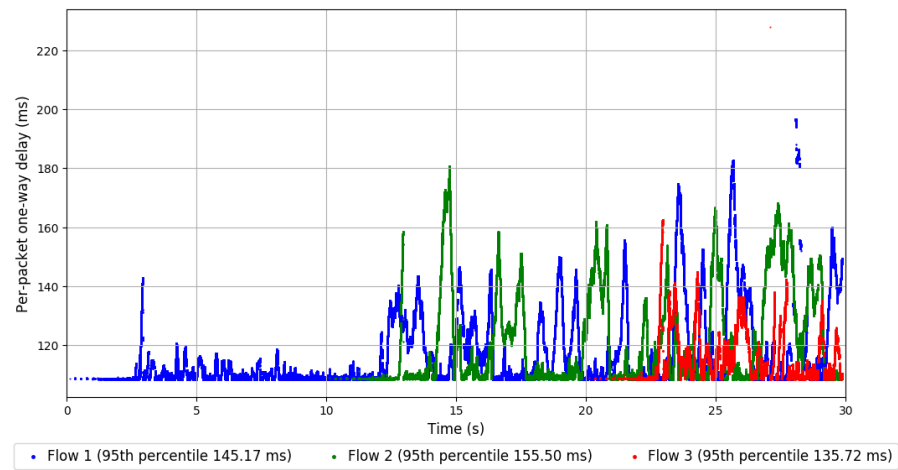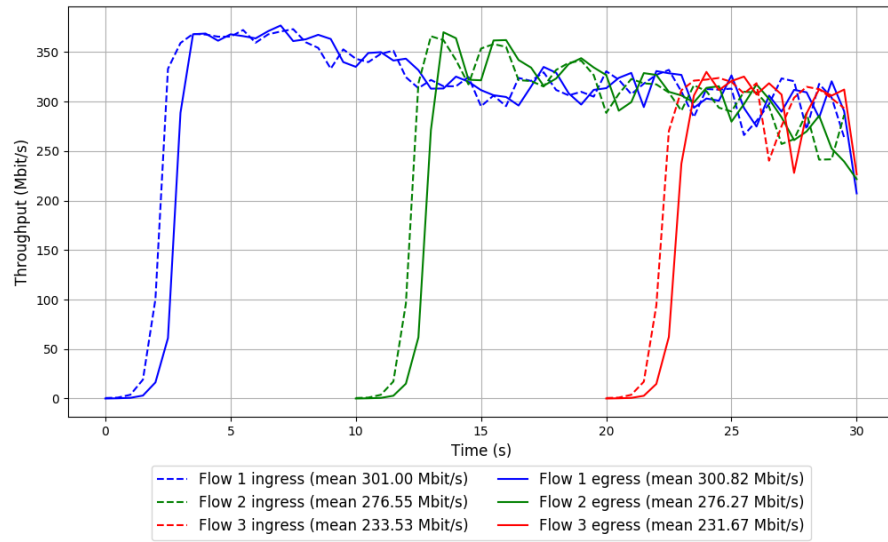
16

```
Run 2: Statistics of Copa

Start at: 2018-11-30 09:05:16
End at: 2018-11-30 09:05:46
Local clock offset: 0.593 ms
Remote clock offset: -0.344 ms

# Below is generated by plot.py at 2018-11-30 11:37:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 544.11 Mbit/s
95th percentile per-packet one-way delay: 149.385 ms
Loss rate: 1.18%
-- Flow 1:
Average throughput: 286.47 Mbit/s
95th percentile per-packet one-way delay: 133.875 ms
Loss rate: 0.72%
-- Flow 2:
Average throughput: 287.02 Mbit/s
95th percentile per-packet one-way delay: 127.841 ms
Loss rate: 1.25%
-- Flow 3:
Average throughput: 205.21 Mbit/s
95th percentile per-packet one-way delay: 166.870 ms
Loss rate: 2.86%
```
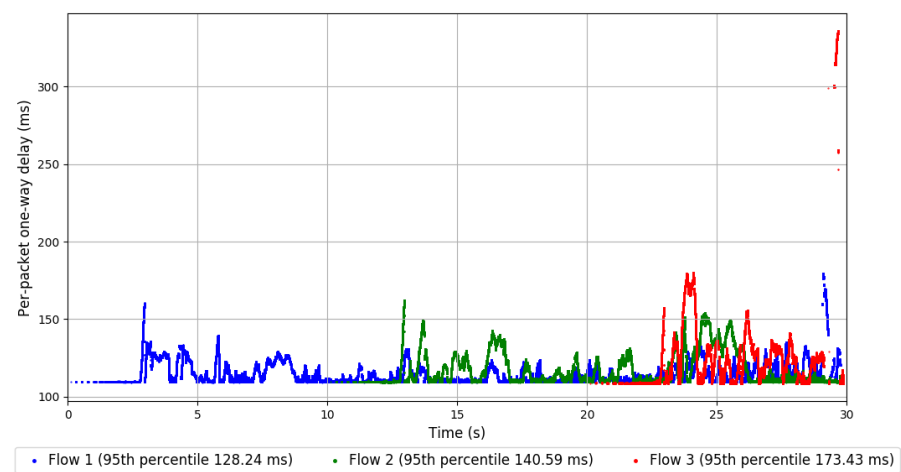
Run 2: Report of Copa — Data Link

Flow 1 ingress (mean 286.44 Mbit/s) — — — Flow 1 egress (mean 286.47 Mbit/s)
Flow 2 ingress (mean 287.48 Mbit/s) — — — Flow 2 egress (mean 287.02 Mbit/s)
Flow 3 ingress (mean 206.58 Mbit/s) — — — Flow 3 egress (mean 205.21 Mbit/s)

• Flow 1 (95th percentile 133.88 ms) • Flow 2 (95th percentile 127.84 ms) • Flow 3 (95th percentile 166.87 ms)
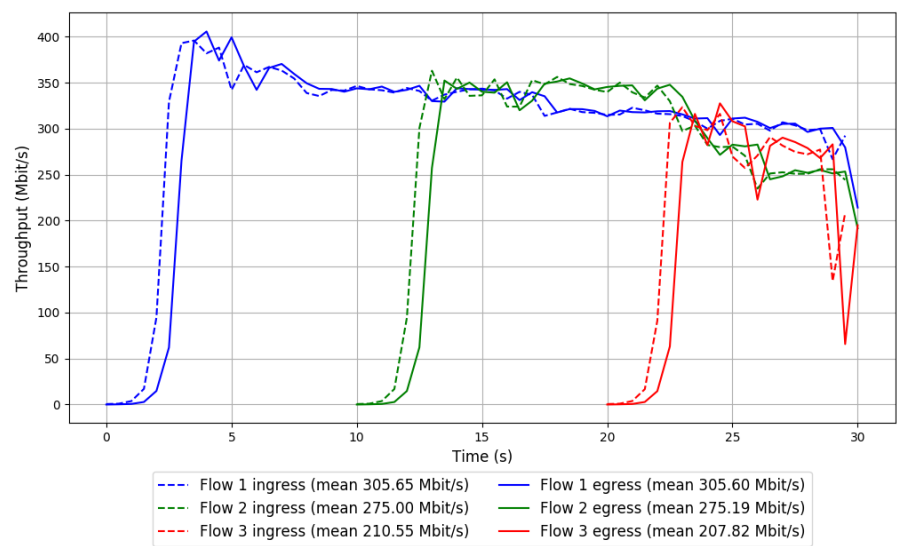
```
Run 3: Statistics of Copa

Start at: 2018-11-30 09:40:01
End at: 2018-11-30 09:40:31
Local clock offset: 1.096 ms
Remote clock offset: -0.115 ms


# Below is generated by plot.py at 2018-11-30 11:37:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 470.54 Mbit/s
95th percentile per-packet one-way delay: 128.299 ms
Loss rate: 1.09%
-- Flow 1:
Average throughput: 265.63 Mbit/s
95th percentile per-packet one-way delay: 135.308 ms
Loss rate: 0.60%
-- Flow 2:
Average throughput: 217.98 Mbit/s
95th percentile per-packet one-way delay: 122.589 ms
Loss rate: 0.93%
-- Flow 3:
Average throughput: 184.13 Mbit/s
95th percentile per-packet one-way delay: 118.647 ms
Loss rate: 3.59%
```
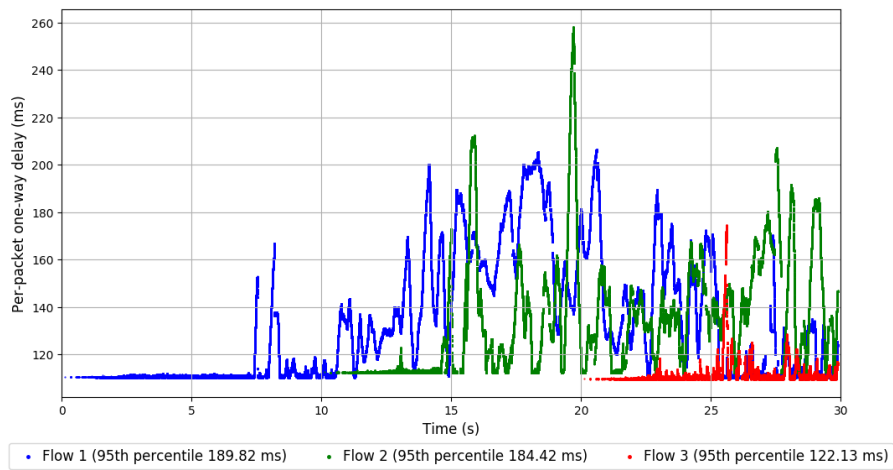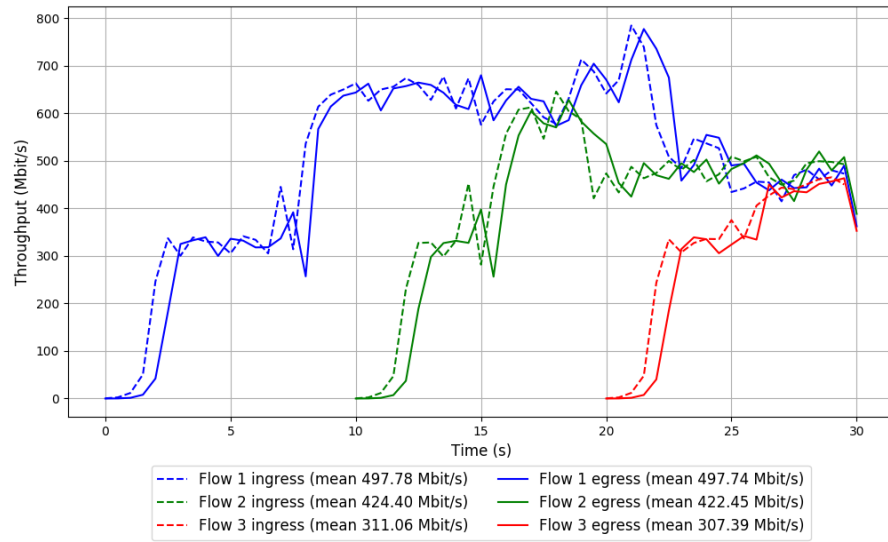
Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2018-11-30 10:14:12
End at: 2018-11-30 10:14:42
Local clock offset: 0.031 ms
Remote clock offset: -0.059 ms


# Below is generated by plot.py at 2018-11-30 11:52:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 560.07 Mbit/s
95th percentile per-packet one-way delay: 149.441 ms
Loss rate: 1.21%
-- Flow 1:
Average throughput: 300.82 Mbit/s
95th percentile per-packet one-way delay: 145.172 ms
Loss rate: 0.78%
-- Flow 2:
Average throughput: 276.27 Mbit/s
95th percentile per-packet one-way delay: 155.499 ms
Loss rate: 1.19%
-- Flow 3:
Average throughput: 231.67 Mbit/s
95th percentile per-packet one-way delay: 135.715 ms
Loss rate: 2.95%
```
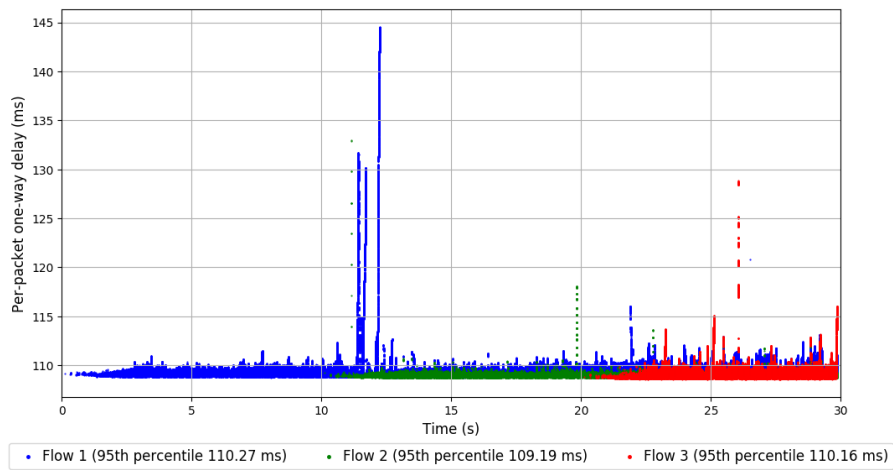
Run 4: Report of Copa — Data Link

Flow 1 ingress (mean 301.00 Mbit/s)   Flow 1 egress (mean 300.82 Mbit/s)
Flow 2 ingress (mean 276.55 Mbit/s)   Flow 2 egress (mean 276.27 Mbit/s)
Flow 3 ingress (mean 233.53 Mbit/s)   Flow 3 egress (mean 231.67 Mbit/s)

Flow 1 (95th percentile 145.17 ms)   Flow 2 (95th percentile 155.50 ms)   Flow 3 (95th percentile 135.72 ms)

```
Run 5: Statistics of Copa

Start at: 2018-11-30 10:48:48
End at: 2018-11-30 10:49:18
Local clock offset: -0.118 ms
Remote clock offset: -0.033 ms


# Below is generated by plot.py at 2018-11-30 11:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 556.29 Mbit/s
95th percentile per-packet one-way delay: 137.680 ms
Loss rate: 1.18%
-- Flow 1:
Average throughput: 305.60 Mbit/s
95th percentile per-packet one-way delay: 128.237 ms
Loss rate: 0.75%
-- Flow 2:
Average throughput: 275.19 Mbit/s
95th percentile per-packet one-way delay: 140.592 ms
Loss rate: 1.03%
-- Flow 3:
Average throughput: 207.82 Mbit/s
95th percentile per-packet one-way delay: 173.431 ms
Loss rate: 3.47%
```
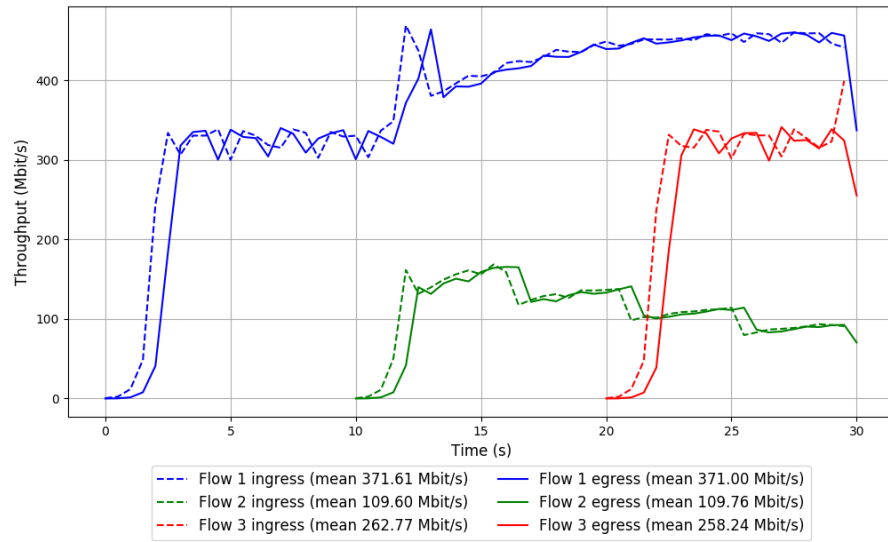
Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2018-11-30 08:23:06
End at: 2018-11-30 08:23:36
Local clock offset: 1.311 ms
Remote clock offset: -0.163 ms


# Below is generated by plot.py at 2018-11-30 11:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 878.84 Mbit/s
95th percentile per-packet one-way delay: 186.656 ms
Loss rate: 1.30%
-- Flow 1:
Average throughput: 497.74 Mbit/s
95th percentile per-packet one-way delay: 189.825 ms
Loss rate: 0.74%
-- Flow 2:
Average throughput: 422.45 Mbit/s
95th percentile per-packet one-way delay: 184.422 ms
Loss rate: 1.55%
-- Flow 3:
Average throughput: 307.39 Mbit/s
95th percentile per-packet one-way delay: 122.127 ms
Loss rate: 3.34%
```
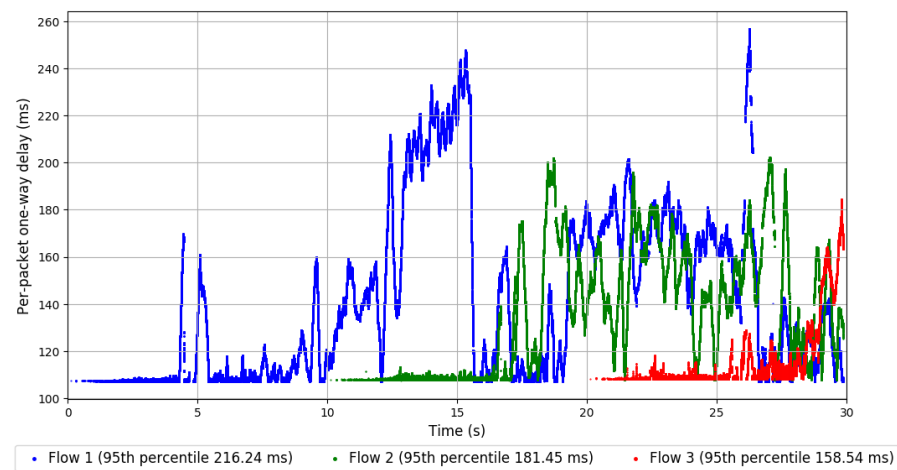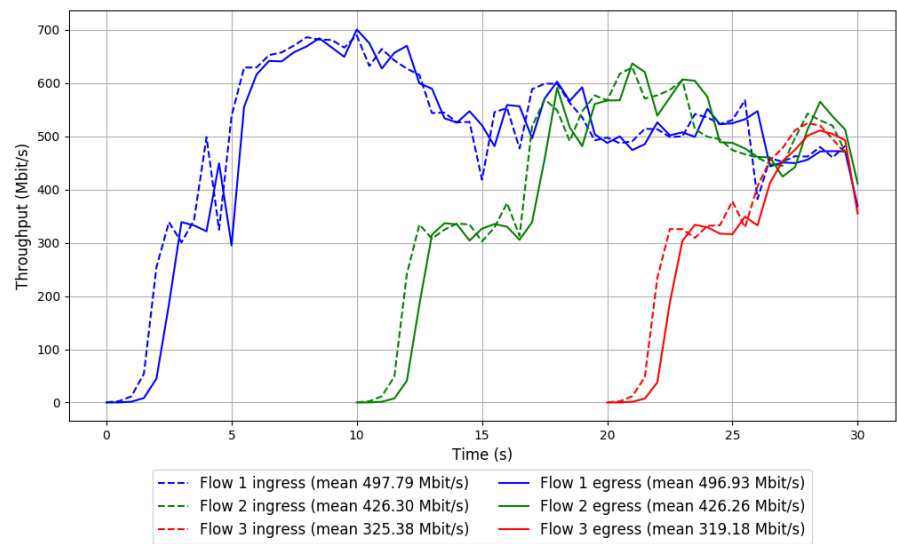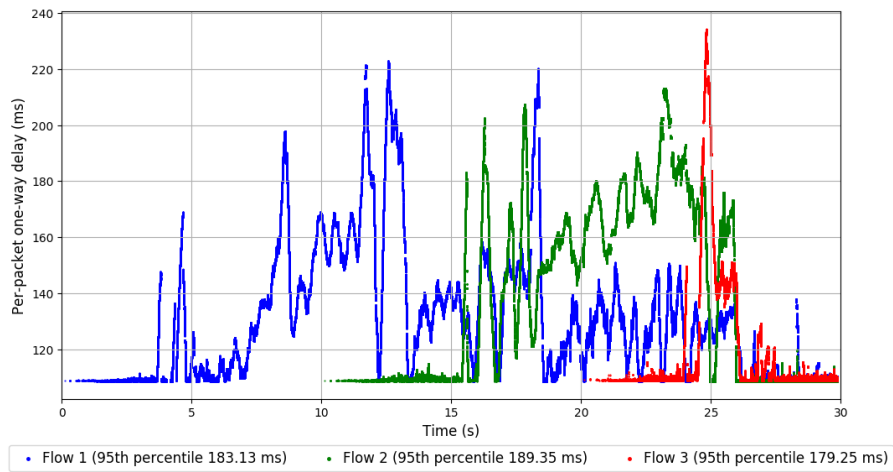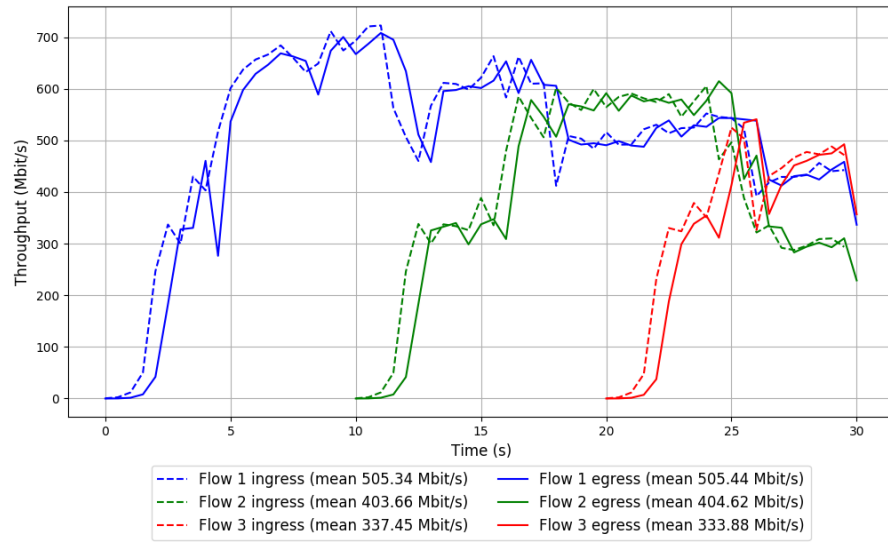
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-11-30 08:57:36
End at: 2018-11-30 08:58:06
Local clock offset: -0.78 ms
Remote clock offset: -0.35 ms


# Below is generated by plot.py at 2018-11-30 11:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 528.41 Mbit/s
95th percentile per-packet one-way delay: 110.144 ms
Loss rate: 1.40%
-- Flow 1:
Average throughput: 371.00 Mbit/s
95th percentile per-packet one-way delay: 110.273 ms
Loss rate: 0.90%
-- Flow 2:
Average throughput: 109.76 Mbit/s
95th percentile per-packet one-way delay: 109.191 ms
Loss rate: 0.95%
-- Flow 3:
Average throughput: 258.24 Mbit/s
95th percentile per-packet one-way delay: 110.160 ms
Loss rate: 3.89%
```

Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2018-11-30 09:31:46
End at: 2018-11-30 09:32:16
Local clock offset: -1.401 ms
Remote clock offset: -0.22 ms


# Below is generated by plot.py at 2018-11-30 11:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 884.38 Mbit/s
95th percentile per-packet one-way delay: 203.644 ms
Loss rate: 1.35%
-- Flow 1:
Average throughput: 496.93 Mbit/s
95th percentile per-packet one-way delay: 216.239 ms
Loss rate: 0.89%
-- Flow 2:
Average throughput: 426.26 Mbit/s
95th percentile per-packet one-way delay: 181.452 ms
Loss rate: 1.10%
-- Flow 3:
Average throughput: 319.18 Mbit/s
95th percentile per-packet one-way delay: 158.545 ms
Loss rate: 4.09%
```
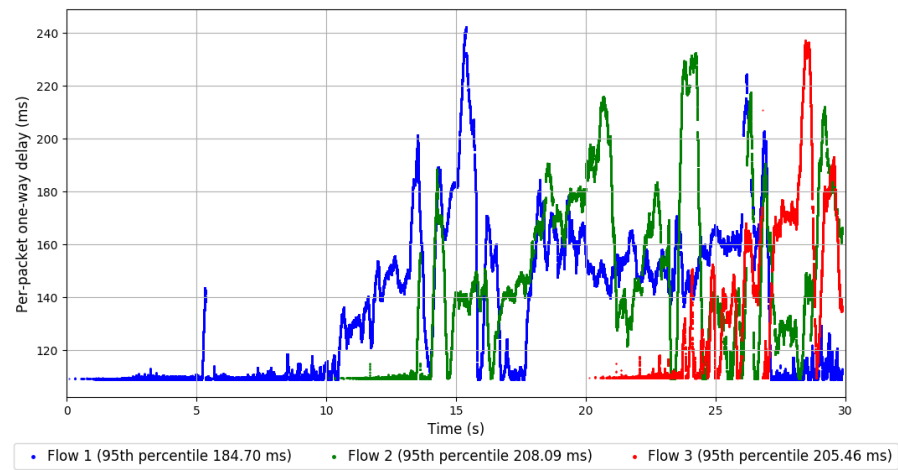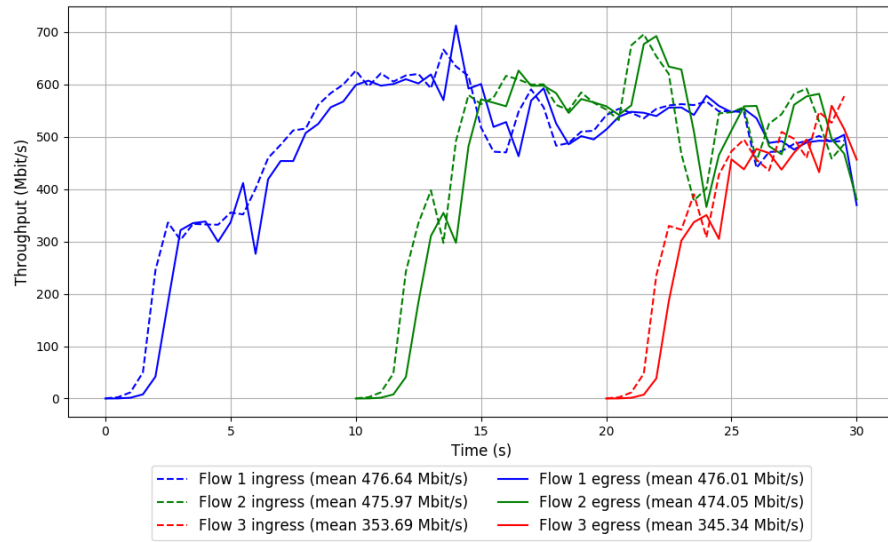
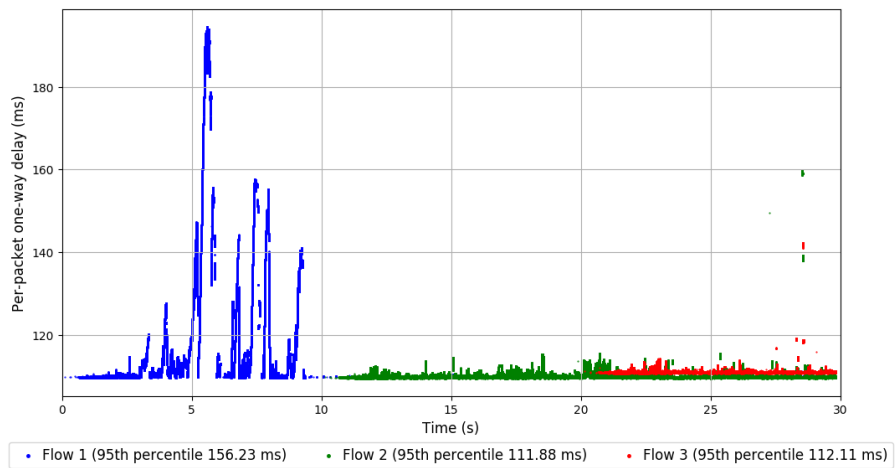Run 3: Report of TCP Cubic — Data Link

```
Run 4: Statistics of TCP Cubic

Start at: 2018-11-30 10:06:26
End at: 2018-11-30 10:06:56
Local clock offset: -0.556 ms
Remote clock offset: -0.079 ms


# Below is generated by plot.py at 2018-11-30 11:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 883.25 Mbit/s
95th percentile per-packet one-way delay: 187.427 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 505.44 Mbit/s
95th percentile per-packet one-way delay: 183.131 ms
Loss rate: 0.70%
-- Flow 2:
Average throughput: 404.62 Mbit/s
95th percentile per-packet one-way delay: 189.355 ms
Loss rate: 0.85%
-- Flow 3:
Average throughput: 333.88 Mbit/s
95th percentile per-packet one-way delay: 179.254 ms
Loss rate: 3.23%
```

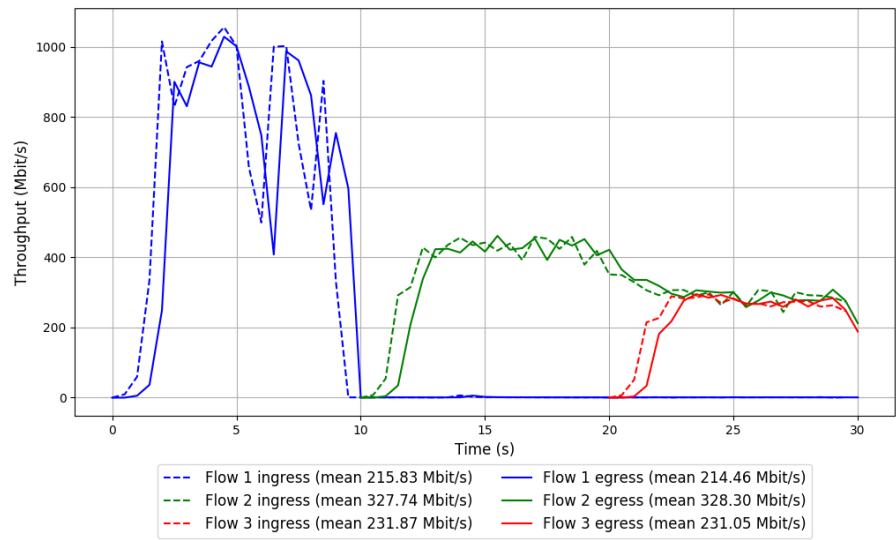Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 505.34 Mbit/s) ----   Flow 1 egress (mean 505.44 Mbit/s) ——
Flow 2 ingress (mean 403.66 Mbit/s) ----   Flow 2 egress (mean 404.62 Mbit/s) ——
Flow 3 ingress (mean 337.45 Mbit/s) ----   Flow 3 egress (mean 333.88 Mbit/s) ——

• Flow 1 (95th percentile 183.13 ms)   • Flow 2 (95th percentile 189.35 ms)   • Flow 3 (95th percentile 179.25 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2018-11-30 10:40:53
End at: 2018-11-30 10:41:23
Local clock offset: -0.182 ms
Remote clock offset: -0.05 ms


# Below is generated by plot.py at 2018-11-30 11:55:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 903.84 Mbit/s
95th percentile per-packet one-way delay: 197.646 ms
Loss rate: 1.55%
-- Flow 1:
Average throughput: 476.01 Mbit/s
95th percentile per-packet one-way delay: 184.702 ms
Loss rate: 0.86%
-- Flow 2:
Average throughput: 474.05 Mbit/s
95th percentile per-packet one-way delay: 208.087 ms
Loss rate: 1.50%
-- Flow 3:
Average throughput: 345.34 Mbit/s
95th percentile per-packet one-way delay: 205.461 ms
Loss rate: 4.51%
```
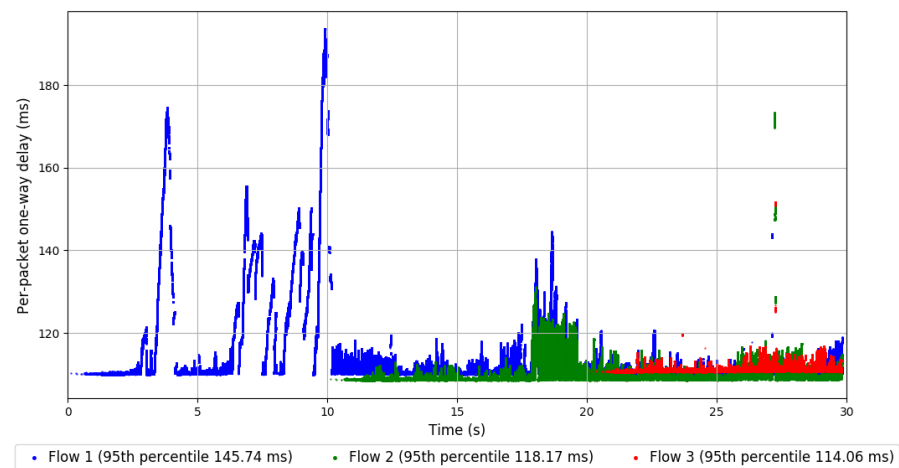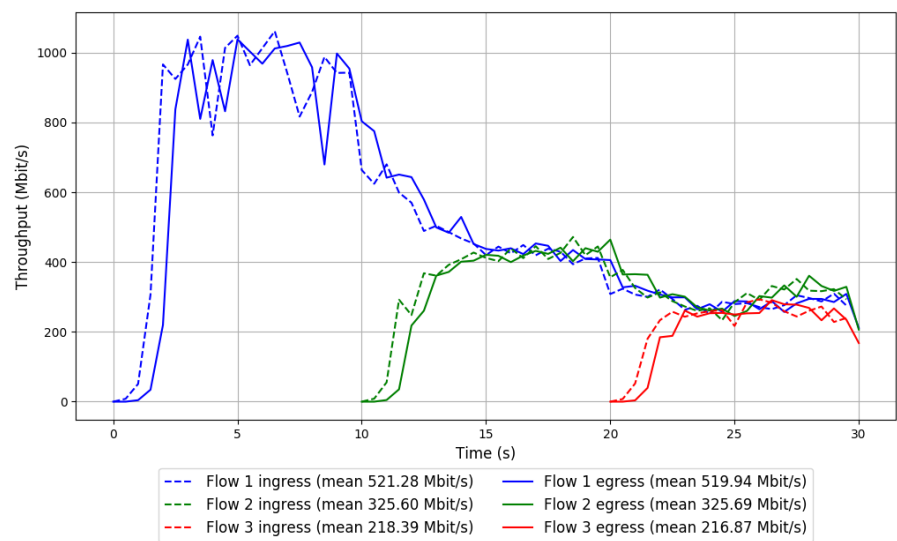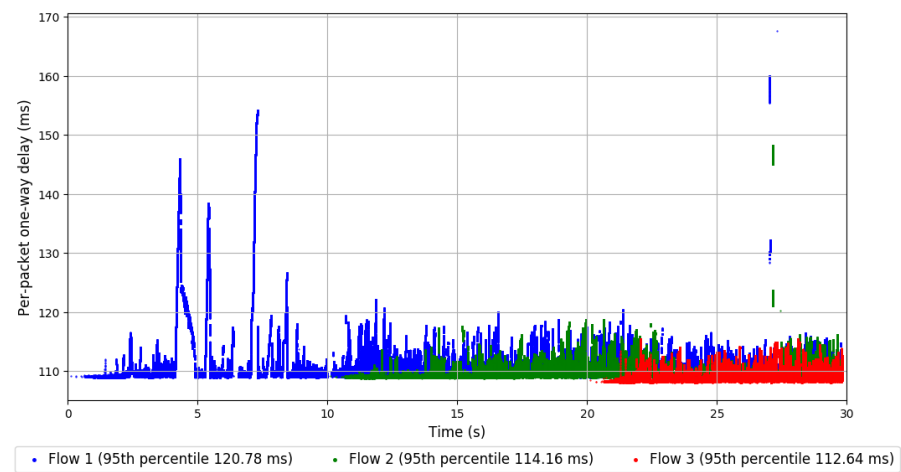
Run 5: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 476.64 Mbit/s) --- Flow 1 egress (mean 476.01 Mbit/s)
Flow 2 ingress (mean 475.97 Mbit/s) --- Flow 2 egress (mean 474.05 Mbit/s)
Flow 3 ingress (mean 353.69 Mbit/s) --- Flow 3 egress (mean 345.34 Mbit/s)

Flow 1 (95th percentile 184.70 ms)   Flow 2 (95th percentile 208.09 ms)   Flow 3 (95th percentile 205.46 ms)
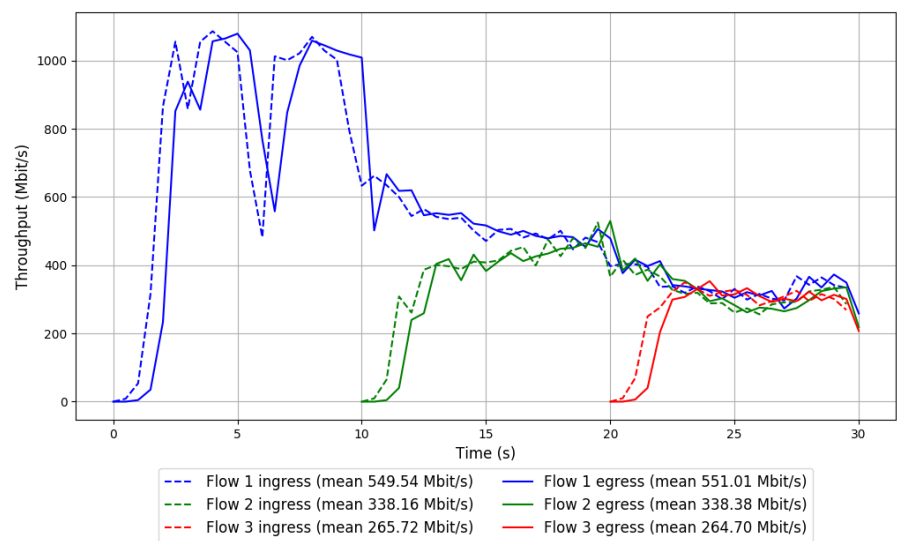
34

```
Run 1: Statistics of FillP

Start at: 2018-11-30 08:34:35
End at: 2018-11-30 08:35:05
Local clock offset: 1.297 ms
Remote clock offset: -0.269 ms


# Below is generated by plot.py at 2018-11-30 11:55:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 507.21 Mbit/s
95th percentile per-packet one-way delay: 142.942 ms
Loss rate: 1.37%
-- Flow 1:
Average throughput: 214.46 Mbit/s
95th percentile per-packet one-way delay: 156.233 ms
Loss rate: 1.34%
-- Flow 2:
Average throughput: 328.30 Mbit/s
95th percentile per-packet one-way delay: 111.877 ms
Loss rate: 1.01%
-- Flow 3:
Average throughput: 231.05 Mbit/s
95th percentile per-packet one-way delay: 112.108 ms
Loss rate: 2.51%
```
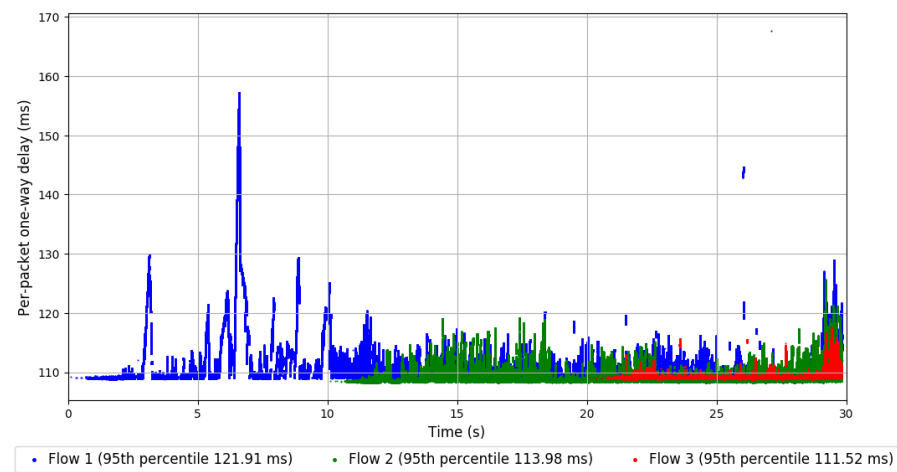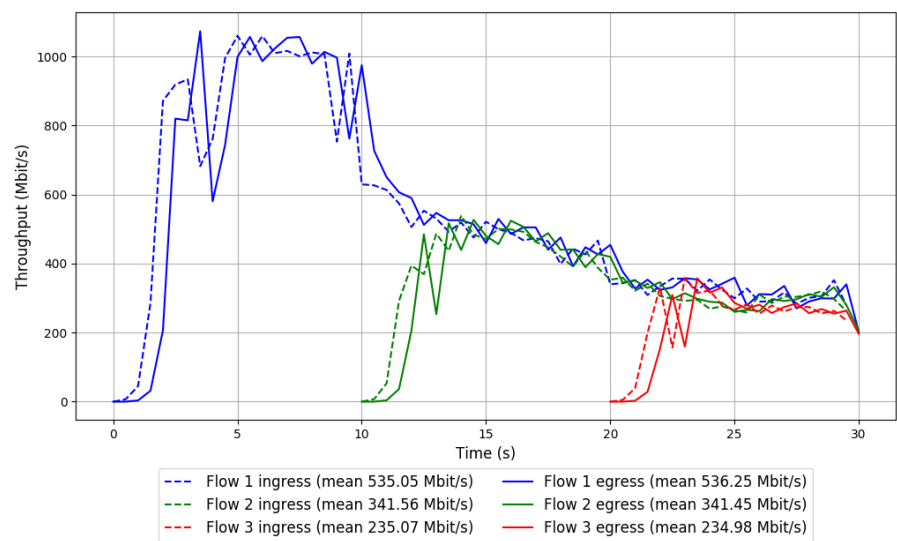
Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 215.83 Mbit/s)   Flow 1 egress (mean 214.46 Mbit/s)
Flow 2 ingress (mean 327.74 Mbit/s)   Flow 2 egress (mean 328.30 Mbit/s)
Flow 3 ingress (mean 231.87 Mbit/s)   Flow 3 egress (mean 231.05 Mbit/s)

Flow 1 (95th percentile 156.23 ms)   Flow 2 (95th percentile 111.88 ms)   Flow 3 (95th percentile 112.11 ms)

36

```
Run 2: Statistics of FillP

Start at: 2018-11-30 09:08:47
End at: 2018-11-30 09:09:17
Local clock offset: -0.142 ms
Remote clock offset: 0.033 ms

# Below is generated by plot.py at 2018-11-30 12:02:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 806.48 Mbit/s
95th percentile per-packet one-way delay: 141.965 ms
Loss rate: 1.19%
-- Flow 1:
Average throughput: 519.94 Mbit/s
95th percentile per-packet one-way delay: 145.739 ms
Loss rate: 0.96%
-- Flow 2:
Average throughput: 325.69 Mbit/s
95th percentile per-packet one-way delay: 118.167 ms
Loss rate: 1.14%
-- Flow 3:
Average throughput: 216.87 Mbit/s
95th percentile per-packet one-way delay: 114.057 ms
Loss rate: 2.92%
```
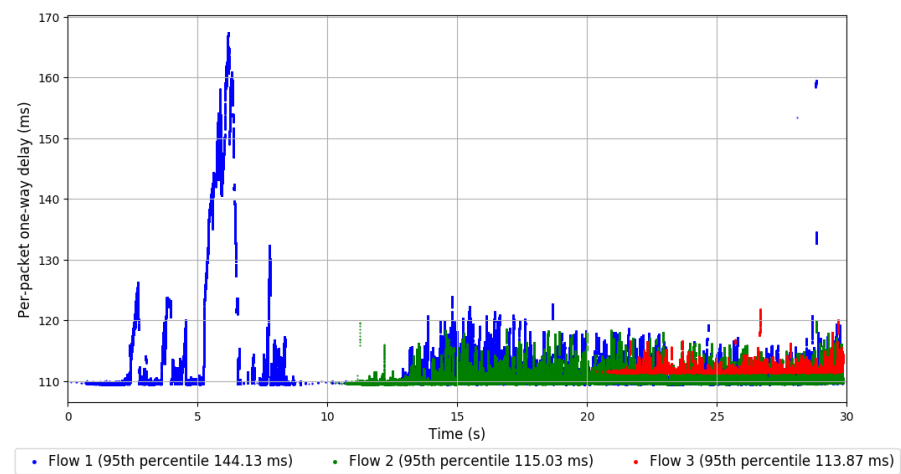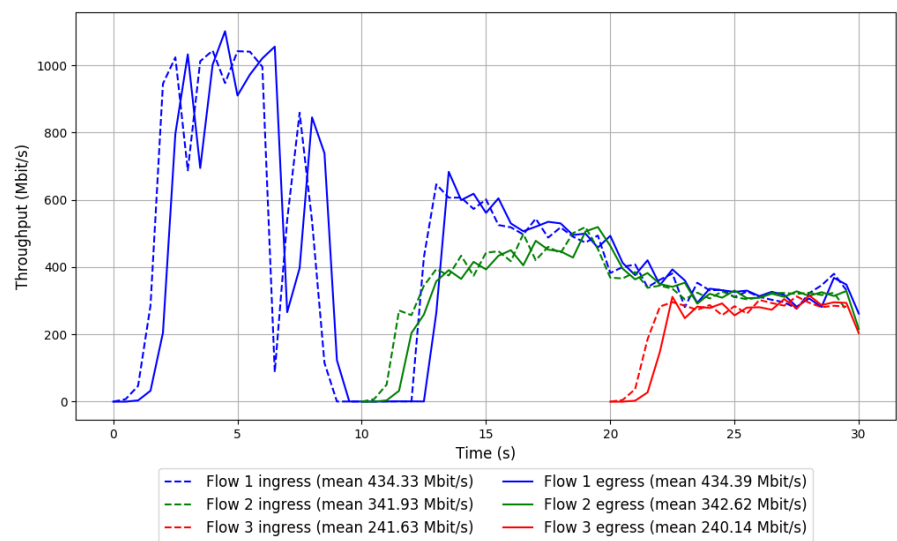
Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2018-11-30 09:43:25
End at: 2018-11-30 09:43:55
Local clock offset: -0.351 ms
Remote clock offset: -0.131 ms


# Below is generated by plot.py at 2018-11-30 12:10:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 861.82 Mbit/s
95th percentile per-packet one-way delay: 117.515 ms
Loss rate: 0.82%
-- Flow 1:
Average throughput: 551.01 Mbit/s
95th percentile per-packet one-way delay: 120.781 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 338.38 Mbit/s
95th percentile per-packet one-way delay: 114.158 ms
Loss rate: 1.04%
-- Flow 3:
Average throughput: 264.70 Mbit/s
95th percentile per-packet one-way delay: 112.645 ms
Loss rate: 2.53%
```
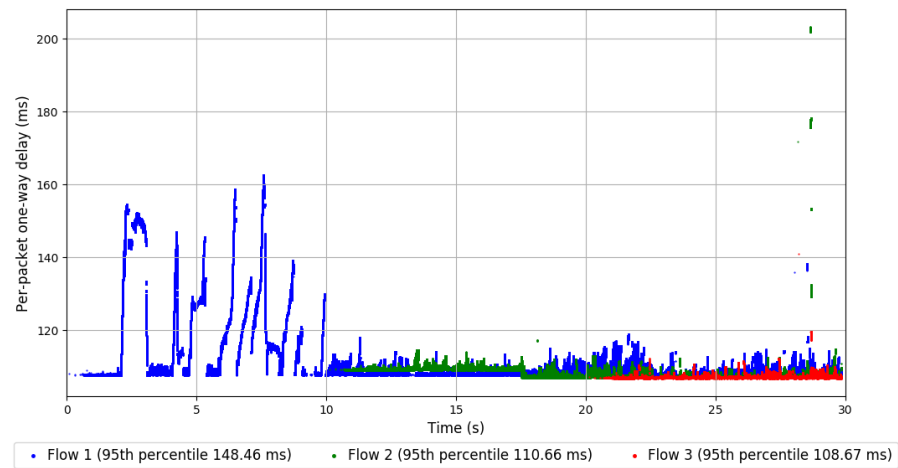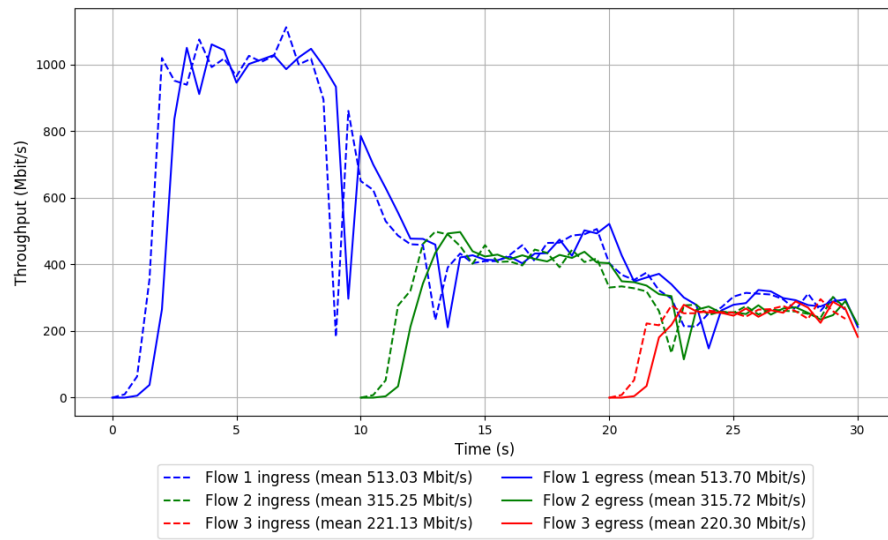
Run 3: Report of FillP — Data Link

Flow 1 ingress (mean 549.54 Mbit/s) — Flow 1 egress (mean 551.01 Mbit/s)
Flow 2 ingress (mean 338.16 Mbit/s) — Flow 2 egress (mean 338.38 Mbit/s)
Flow 3 ingress (mean 265.72 Mbit/s) — Flow 3 egress (mean 264.70 Mbit/s)

Flow 1 (95th percentile 120.78 ms)   Flow 2 (95th percentile 114.16 ms)   Flow 3 (95th percentile 112.64 ms)

40

```
Run 4: Statistics of FillP

Start at: 2018-11-30 10:17:47
End at: 2018-11-30 10:18:17
Local clock offset: -0.241 ms
Remote clock offset: -0.072 ms

# Below is generated by plot.py at 2018-11-30 12:12:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 839.19 Mbit/s
95th percentile per-packet one-way delay: 119.159 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 536.25 Mbit/s
95th percentile per-packet one-way delay: 121.909 ms
Loss rate: 0.50%
-- Flow 2:
Average throughput: 341.45 Mbit/s
95th percentile per-packet one-way delay: 113.981 ms
Loss rate: 0.98%
-- Flow 3:
Average throughput: 234.98 Mbit/s
95th percentile per-packet one-way delay: 111.518 ms
Loss rate: 2.20%
```
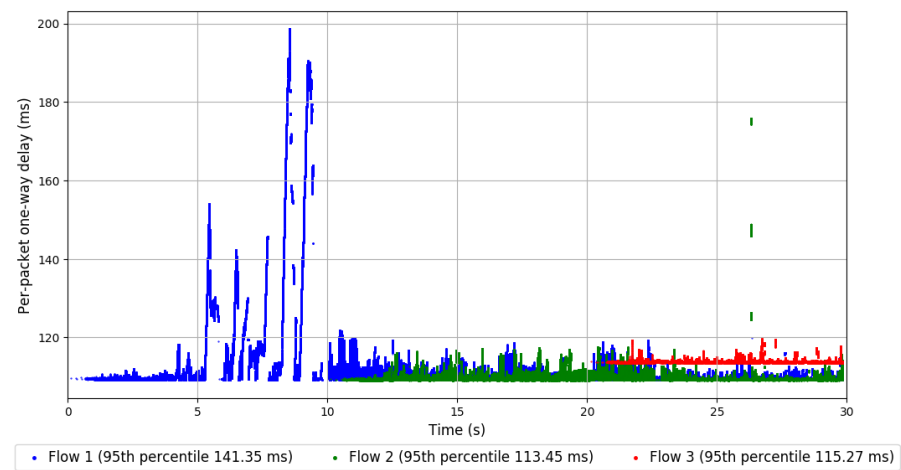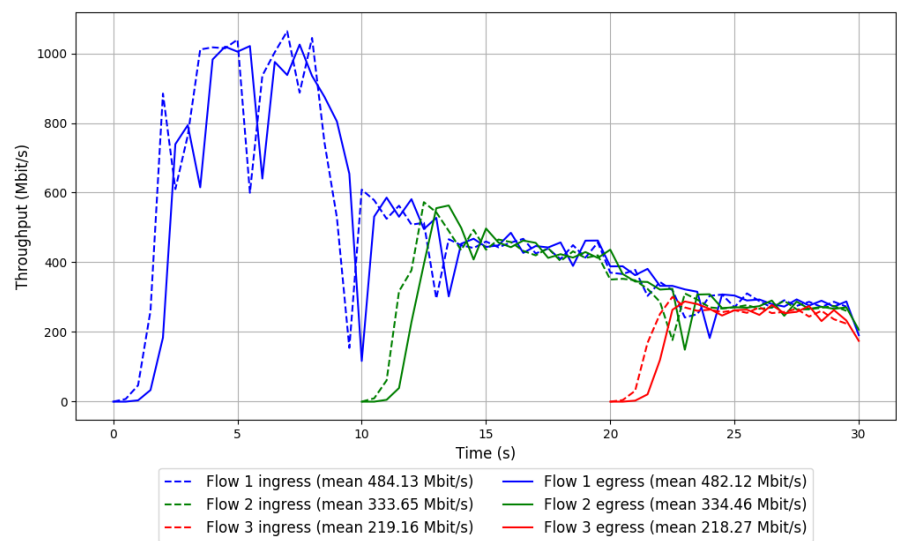
Run 4: Report of FillP — Data Link

```
Run 5: Statistics of FillP

Start at: 2018-11-30 10:52:21
End at: 2018-11-30 10:52:51
Local clock offset: 0.043 ms
Remote clock offset: -0.07 ms

# Below is generated by plot.py at 2018-11-30 12:12:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 739.83 Mbit/s
95th percentile per-packet one-way delay: 132.290 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 434.39 Mbit/s
95th percentile per-packet one-way delay: 144.134 ms
Loss rate: 0.68%
-- Flow 2:
Average throughput: 342.62 Mbit/s
95th percentile per-packet one-way delay: 115.025 ms
Loss rate: 0.90%
-- Flow 3:
Average throughput: 240.14 Mbit/s
95th percentile per-packet one-way delay: 113.871 ms
Loss rate: 2.73%
```

Run 5: Report of FillP — Data Link

```
Run 1: Statistics of FillP-Sheep

Start at: 2018-11-30 08:29:09
End at: 2018-11-30 08:29:39
Local clock offset: -1.524 ms
Remote clock offset: -0.234 ms


# Below is generated by plot.py at 2018-11-30 12:12:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 794.60 Mbit/s
95th percentile per-packet one-way delay: 142.627 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 513.70 Mbit/s
95th percentile per-packet one-way delay: 148.458 ms
Loss rate: 0.59%
-- Flow 2:
Average throughput: 315.72 Mbit/s
95th percentile per-packet one-way delay: 110.657 ms
Loss rate: 0.96%
-- Flow 3:
Average throughput: 220.30 Mbit/s
95th percentile per-packet one-way delay: 108.672 ms
Loss rate: 2.54%
```
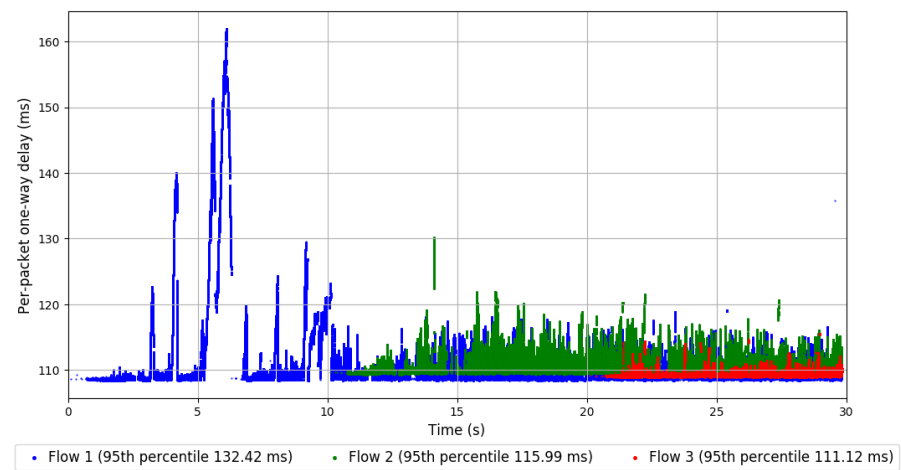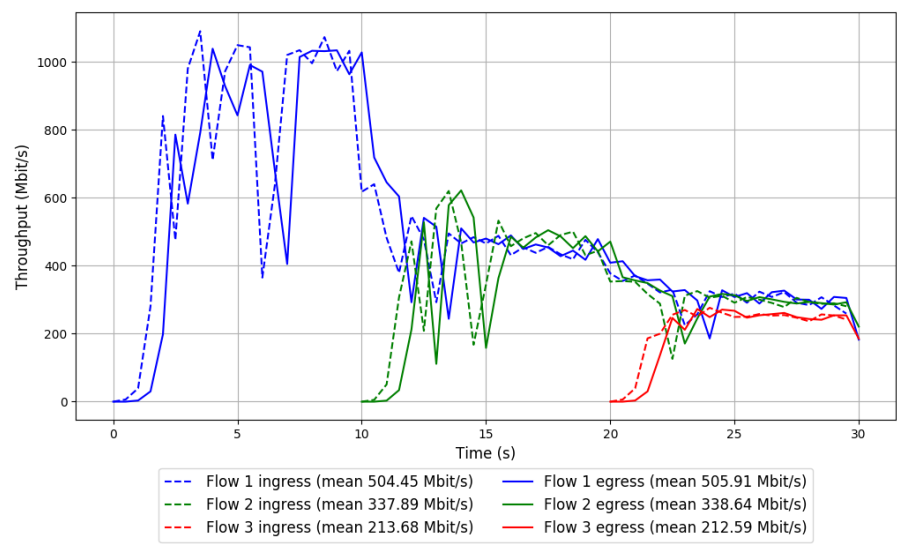
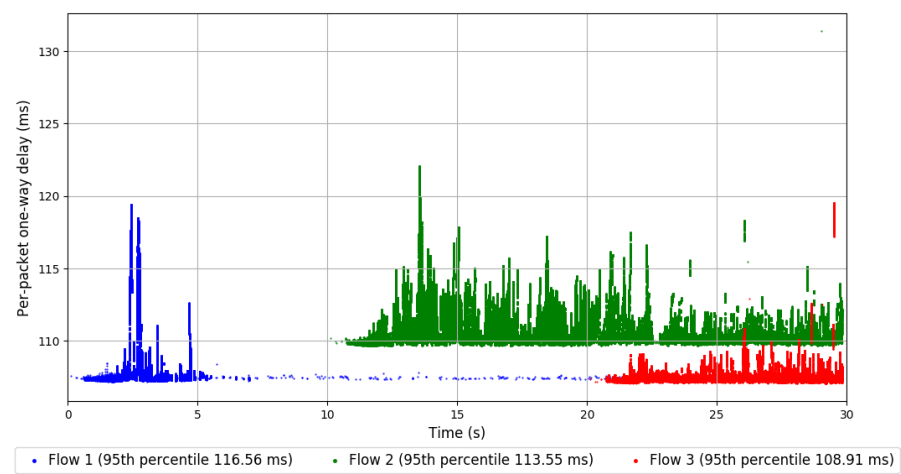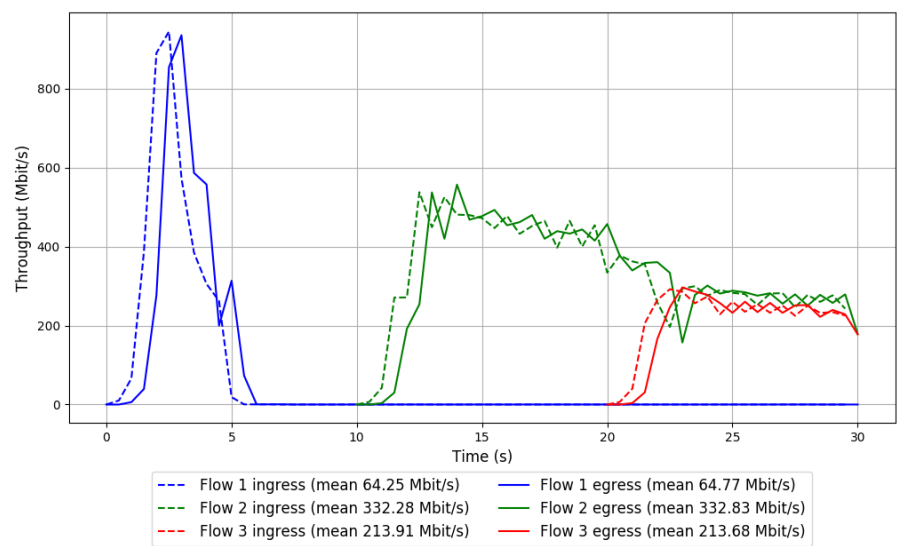Run 1: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 513.03 Mbit/s) --- Flow 1 egress (mean 513.70 Mbit/s)
Flow 2 ingress (mean 315.25 Mbit/s) --- Flow 2 egress (mean 315.72 Mbit/s)
Flow 3 ingress (mean 221.13 Mbit/s) --- Flow 3 egress (mean 220.30 Mbit/s)

Flow 1 (95th percentile 148.46 ms) • Flow 2 (95th percentile 110.66 ms) • Flow 3 (95th percentile 108.67 ms)
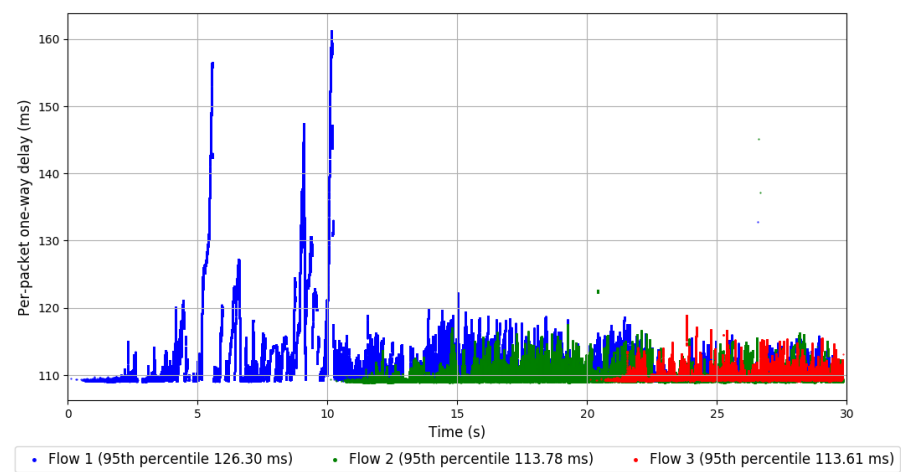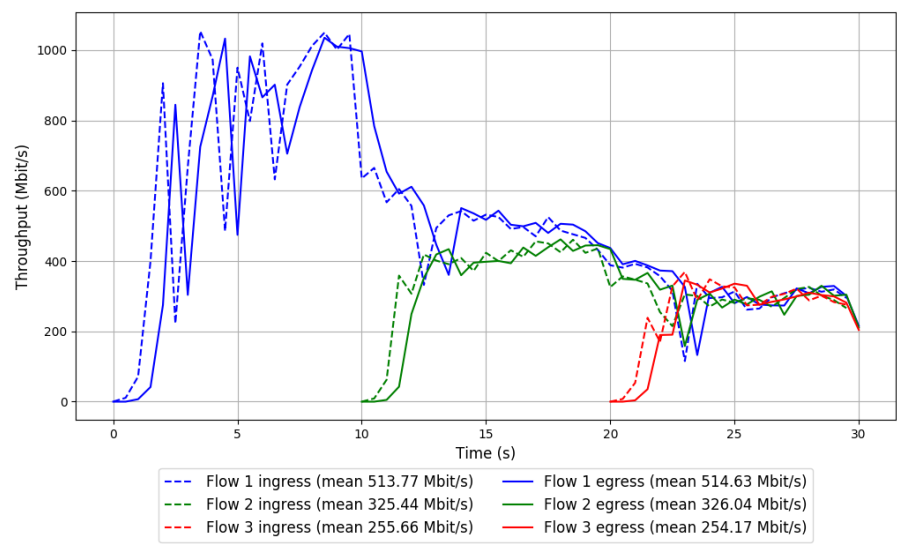
46

```
Run 2: Statistics of FillP-Sheep

Start at: 2018-11-30 09:03:22
End at: 2018-11-30 09:03:52
Local clock offset: -0.453 ms
Remote clock offset: -0.704 ms


# Below is generated by plot.py at 2018-11-30 12:12:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 775.09 Mbit/s
95th percentile per-packet one-way delay: 129.080 ms
Loss rate: 1.20%
-- Flow 1:
Average throughput: 482.12 Mbit/s
95th percentile per-packet one-way delay: 141.351 ms
Loss rate: 1.13%
-- Flow 2:
Average throughput: 334.46 Mbit/s
95th percentile per-packet one-way delay: 113.455 ms
Loss rate: 0.88%
-- Flow 3:
Average throughput: 218.27 Mbit/s
95th percentile per-packet one-way delay: 115.272 ms
Loss rate: 2.58%
```

Run 2: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 484.13 Mbit/s)   Flow 1 egress (mean 482.12 Mbit/s)
Flow 2 ingress (mean 333.65 Mbit/s)   Flow 2 egress (mean 334.46 Mbit/s)
Flow 3 ingress (mean 219.16 Mbit/s)   Flow 3 egress (mean 218.27 Mbit/s)

Flow 1 (95th percentile 141.35 ms)   Flow 2 (95th percentile 113.45 ms)   Flow 3 (95th percentile 115.27 ms)

```
Run 3: Statistics of FillP-Sheep

Start at: 2018-11-30 09:38:05
End at: 2018-11-30 09:38:35
Local clock offset: -0.169 ms
Remote clock offset: -0.15 ms

# Below is generated by plot.py at 2018-11-30 12:13:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 799.52 Mbit/s
95th percentile per-packet one-way delay: 121.609 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 505.91 Mbit/s
95th percentile per-packet one-way delay: 132.416 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 338.64 Mbit/s
95th percentile per-packet one-way delay: 115.993 ms
Loss rate: 0.93%
-- Flow 3:
Average throughput: 212.59 Mbit/s
95th percentile per-packet one-way delay: 111.116 ms
Loss rate: 2.64%
```

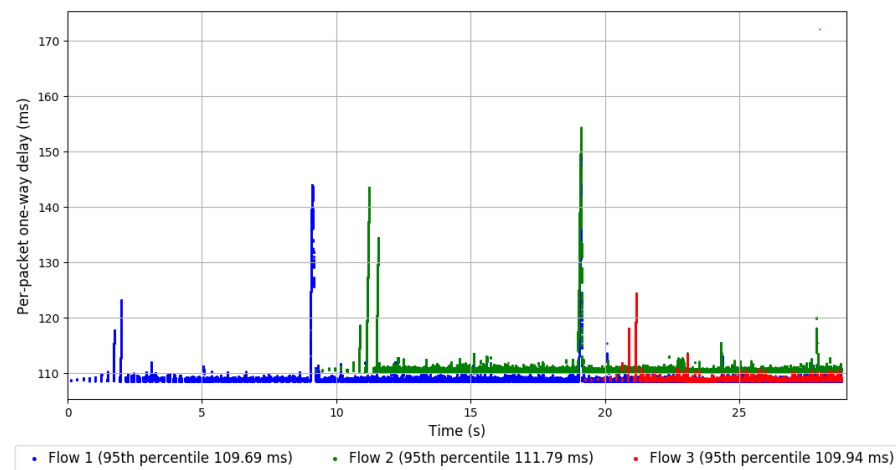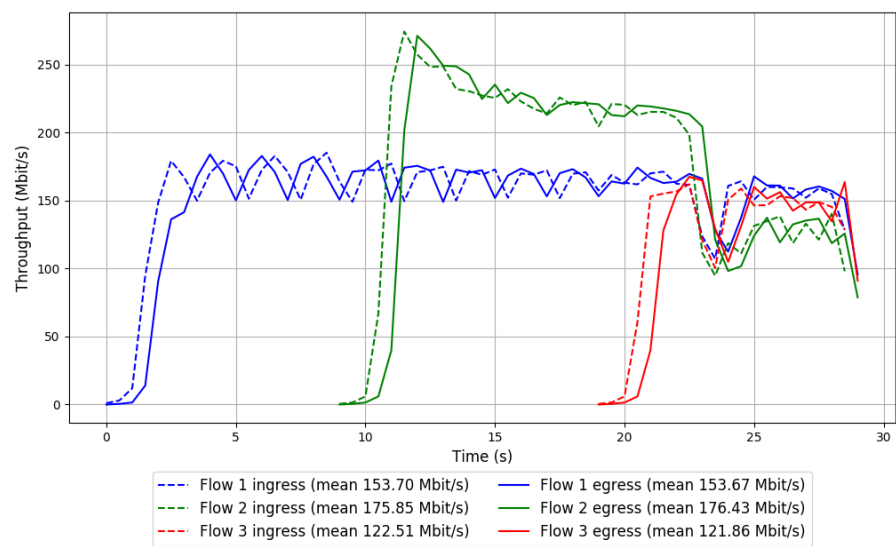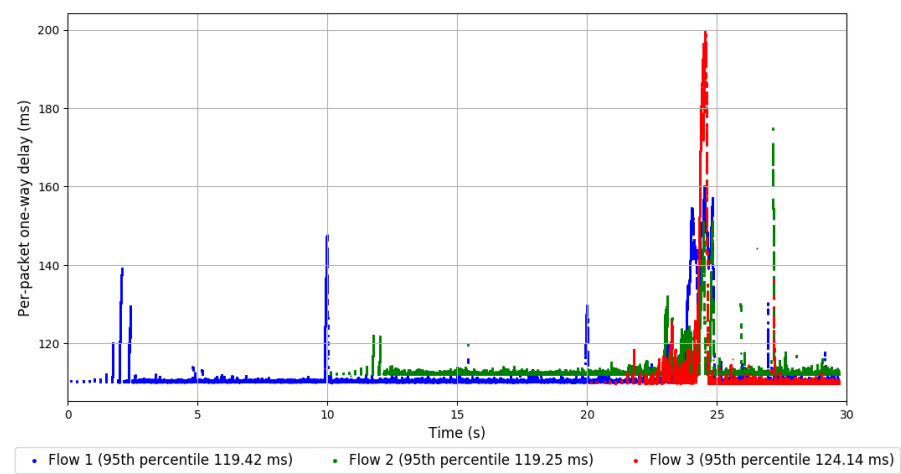# Run 3: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 504.45 Mbit/s) --- Flow 1 egress (mean 505.91 Mbit/s)
Flow 2 ingress (mean 337.89 Mbit/s) --- Flow 2 egress (mean 338.64 Mbit/s)
Flow 3 ingress (mean 213.68 Mbit/s) --- Flow 3 egress (mean 212.59 Mbit/s)

Flow 1 (95th percentile 132.42 ms) • Flow 2 (95th percentile 115.99 ms) • Flow 3 (95th percentile 111.12 ms)

```
Run 4: Statistics of FillP-Sheep

Start at: 2018-11-30 10:12:38
End at: 2018-11-30 10:13:08
Local clock offset: -1.322 ms
Remote clock offset: -0.054 ms


# Below is generated by plot.py at 2018-11-30 12:13:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 355.32 Mbit/s
95th percentile per-packet one-way delay: 113.446 ms
Loss rate: 1.05%
-- Flow 1:
Average throughput: 64.77 Mbit/s
95th percentile per-packet one-way delay: 116.556 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 332.83 Mbit/s
95th percentile per-packet one-way delay: 113.551 ms
Loss rate: 0.93%
-- Flow 3:
Average throughput: 213.68 Mbit/s
95th percentile per-packet one-way delay: 108.908 ms
Loss rate: 2.38%
```

Run 4: Report of FillP-Sheep — Data Link
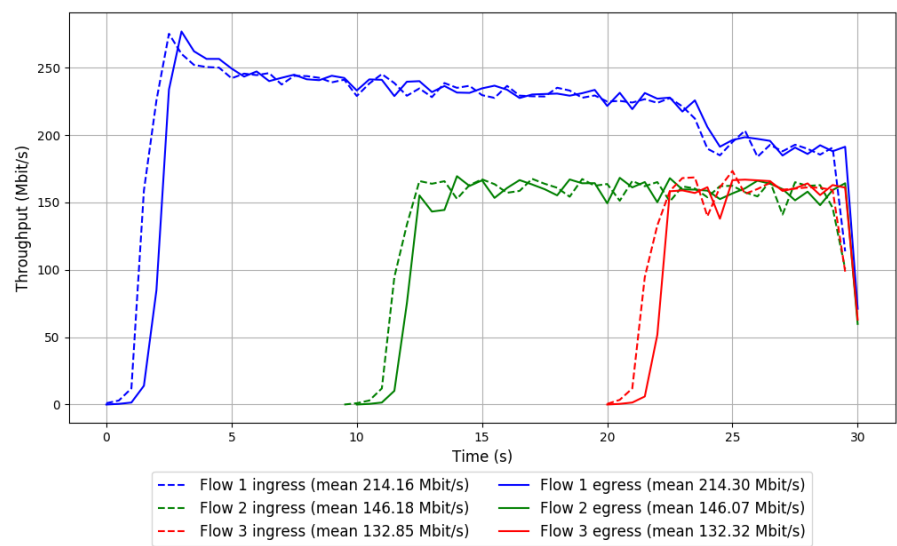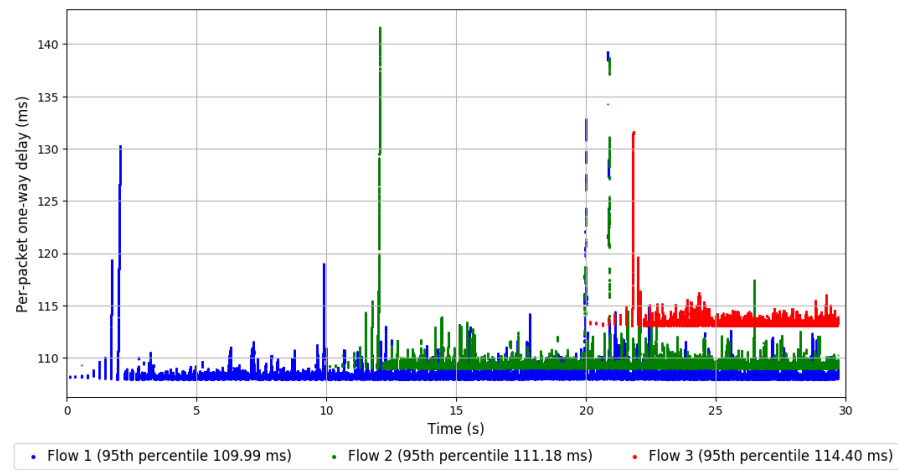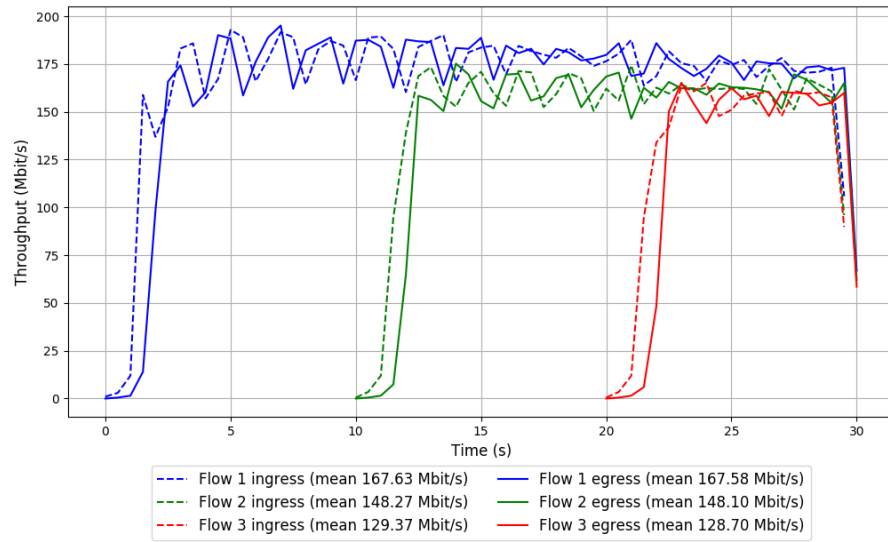
```
Run 5: Statistics of FillP-Sheep

Start at: 2018-11-30 10:46:52
End at: 2018-11-30 10:47:22
Local clock offset: -0.13 ms
Remote clock offset: -0.084 ms


# Below is generated by plot.py at 2018-11-30 12:24:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 813.70 Mbit/s
95th percentile per-packet one-way delay: 122.327 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 514.63 Mbit/s
95th percentile per-packet one-way delay: 126.296 ms
Loss rate: 0.53%
-- Flow 2:
Average throughput: 326.04 Mbit/s
95th percentile per-packet one-way delay: 113.783 ms
Loss rate: 0.89%
-- Flow 3:
Average throughput: 254.17 Mbit/s
95th percentile per-packet one-way delay: 113.608 ms
Loss rate: 2.73%
```

Run 5: Report of FillP-Sheep — Data Link

```
Run 1: Statistics of Indigo

Start at: 2018-11-30 08:10:17
End at: 2018-11-30 08:10:47
Local clock offset: -0.697 ms
Remote clock offset: -0.059 ms


# Below is generated by plot.py at 2018-11-30 12:24:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 314.45 Mbit/s
95th percentile per-packet one-way delay: 111.069 ms
Loss rate: 1.05%
-- Flow 1:
Average throughput: 153.67 Mbit/s
95th percentile per-packet one-way delay: 109.692 ms
Loss rate: 0.77%
-- Flow 2:
Average throughput: 176.43 Mbit/s
95th percentile per-packet one-way delay: 111.786 ms
Loss rate: 0.81%
-- Flow 3:
Average throughput: 121.86 Mbit/s
95th percentile per-packet one-way delay: 109.935 ms
Loss rate: 2.76%
```
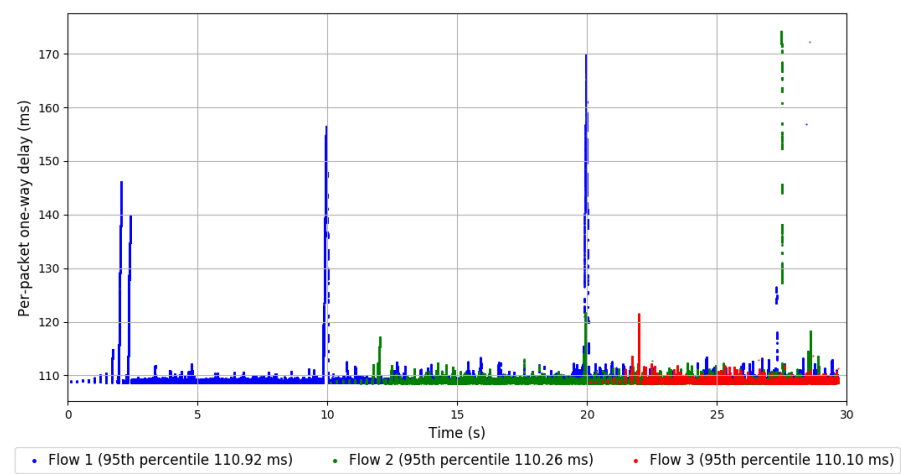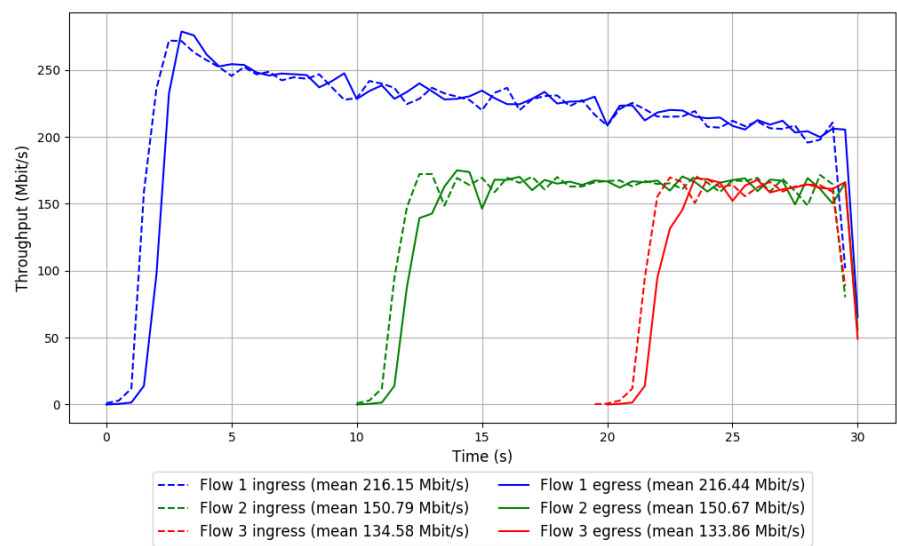
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-11-30 08:44:35
End at: 2018-11-30 08:45:05
Local clock offset: 0.906 ms
Remote clock offset: -0.329 ms

# Below is generated by plot.py at 2018-11-30 12:24:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 353.62 Mbit/s
95th percentile per-packet one-way delay: 119.812 ms
Loss rate: 1.05%
-- Flow 1:
Average throughput: 214.30 Mbit/s
95th percentile per-packet one-way delay: 119.419 ms
Loss rate: 0.65%
-- Flow 2:
Average throughput: 146.07 Mbit/s
95th percentile per-packet one-way delay: 119.250 ms
Loss rate: 1.19%
-- Flow 3:
Average throughput: 132.32 Mbit/s
95th percentile per-packet one-way delay: 124.139 ms
Loss rate: 2.67%
```
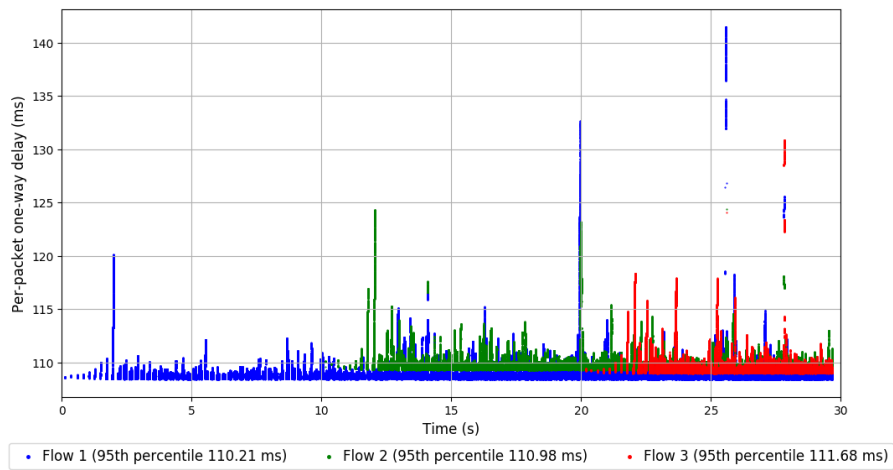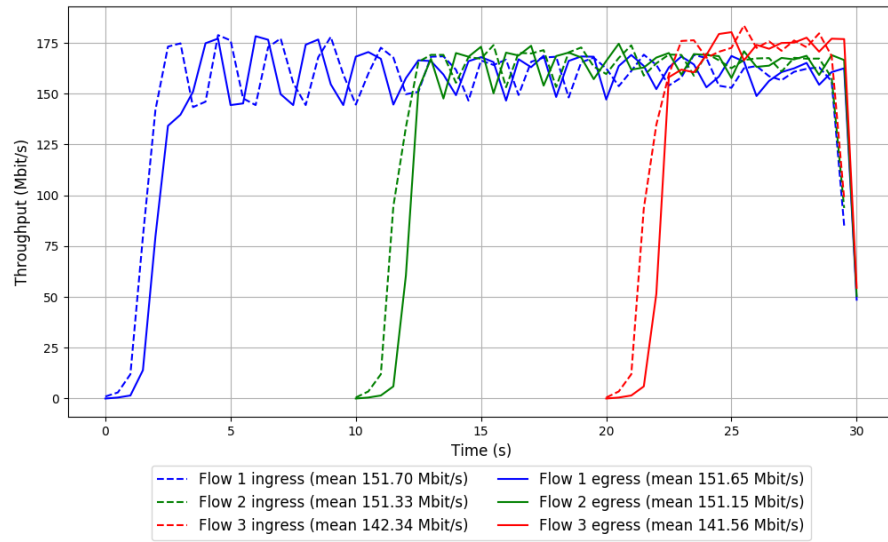
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-11-30 09:18:58
End at: 2018-11-30 09:19:28
Local clock offset: -0.151 ms
Remote clock offset: -0.006 ms


# Below is generated by plot.py at 2018-11-30 12:24:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 307.02 Mbit/s
95th percentile per-packet one-way delay: 113.492 ms
Loss rate: 1.19%
-- Flow 1:
Average throughput: 167.58 Mbit/s
95th percentile per-packet one-way delay: 109.990 ms
Loss rate: 0.76%
-- Flow 2:
Average throughput: 148.10 Mbit/s
95th percentile per-packet one-way delay: 111.176 ms
Loss rate: 1.22%
-- Flow 3:
Average throughput: 128.70 Mbit/s
95th percentile per-packet one-way delay: 114.398 ms
Loss rate: 2.80%
```
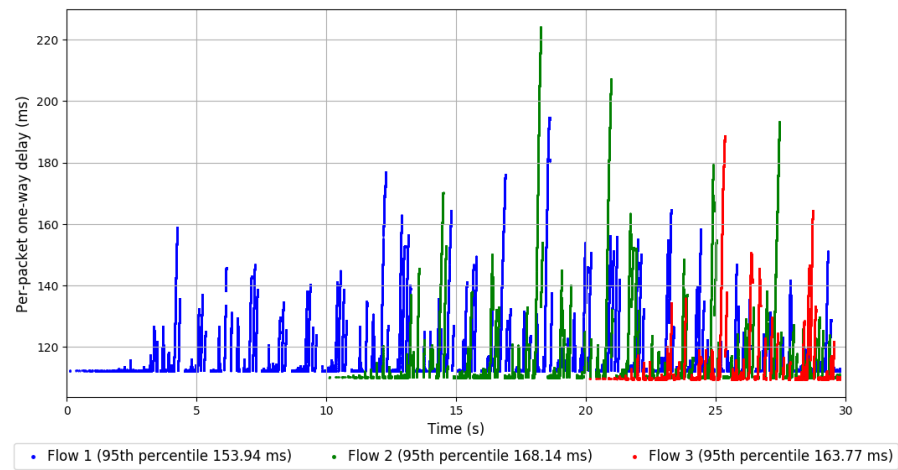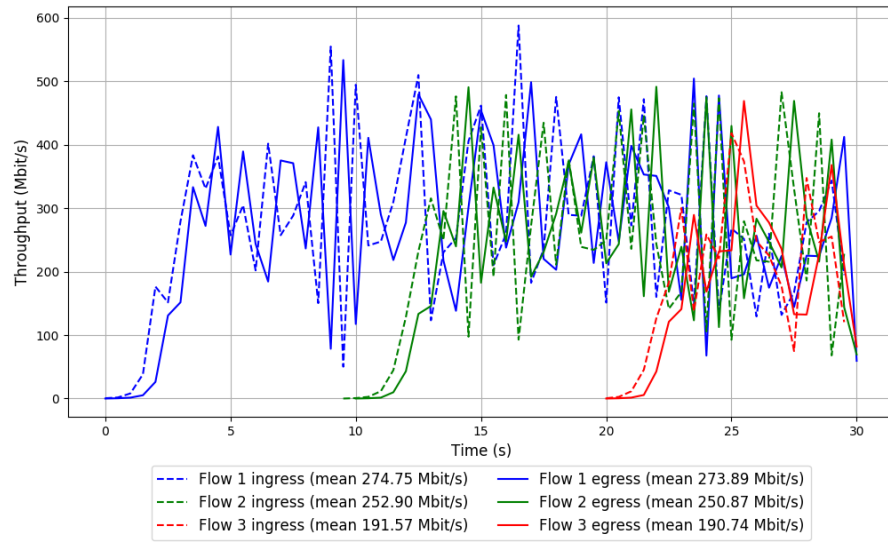
Run 3: Report of Indigo — Data Link

Flow 1 ingress (mean 167.63 Mbit/s)   Flow 1 egress (mean 167.58 Mbit/s)
Flow 2 ingress (mean 148.27 Mbit/s)   Flow 2 egress (mean 148.10 Mbit/s)
Flow 3 ingress (mean 129.37 Mbit/s)   Flow 3 egress (mean 128.70 Mbit/s)

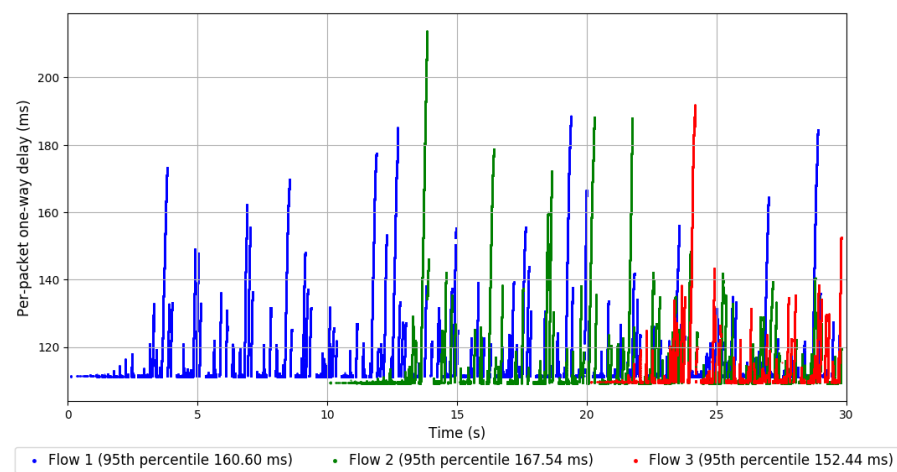Flow 1 (95th percentile 109.99 ms)   Flow 2 (95th percentile 111.18 ms)   Flow 3 (95th percentile 114.40 ms)

```
Run 4: Statistics of Indigo

Start at: 2018-11-30 09:53:29
End at: 2018-11-30 09:53:59
Local clock offset: -0.178 ms
Remote clock offset: -0.484 ms

# Below is generated by plot.py at 2018-11-30 12:25:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 359.09 Mbit/s
95th percentile per-packet one-way delay: 110.575 ms
Loss rate: 1.03%
-- Flow 1:
Average throughput: 216.44 Mbit/s
95th percentile per-packet one-way delay: 110.924 ms
Loss rate: 0.60%
-- Flow 2:
Average throughput: 150.67 Mbit/s
95th percentile per-packet one-way delay: 110.256 ms
Loss rate: 1.23%
-- Flow 3:
Average throughput: 133.86 Mbit/s
95th percentile per-packet one-way delay: 110.098 ms
Loss rate: 2.71%
```
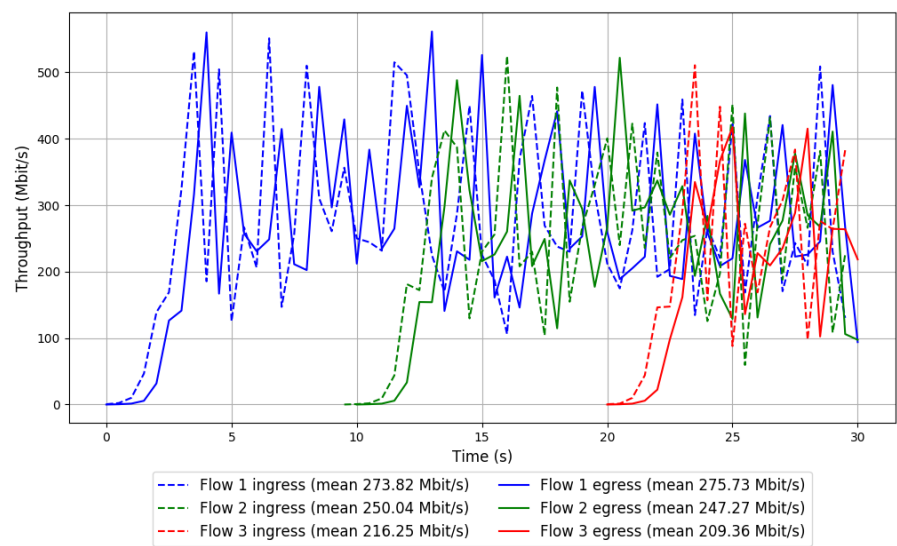
Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2018-11-30 10:28:07
End at: 2018-11-30 10:28:37
Local clock offset: -0.066 ms
Remote clock offset: -0.016 ms


# Below is generated by plot.py at 2018-11-30 12:25:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 296.94 Mbit/s
95th percentile per-packet one-way delay: 110.749 ms
Loss rate: 1.24%
-- Flow 1:
Average throughput: 151.65 Mbit/s
95th percentile per-packet one-way delay: 110.206 ms
Loss rate: 0.77%
-- Flow 2:
Average throughput: 151.15 Mbit/s
95th percentile per-packet one-way delay: 110.985 ms
Loss rate: 1.22%
-- Flow 3:
Average throughput: 141.56 Mbit/s
95th percentile per-packet one-way delay: 111.683 ms
Loss rate: 2.80%
```

Run 5: Report of Indigo — Data Link

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

Start at: 2018-11-30 08:25:13
End at: 2018-11-30 08:25:43
Local clock offset: 0.851 ms
Remote clock offset: -0.238 ms

# Below is generated by plot.py at 2018-11-30 12:25:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 502.13 Mbit/s
95th percentile per-packet one-way delay: 159.087 ms
Loss rate: 1.51%
-- Flow 1:
Average throughput: 273.89 Mbit/s
95th percentile per-packet one-way delay: 153.938 ms
Loss rate: 1.05%
-- Flow 2:
Average throughput: 250.87 Mbit/s
95th percentile per-packet one-way delay: 168.136 ms
Loss rate: 1.84%
-- Flow 3:
Average throughput: 190.74 Mbit/s
95th percentile per-packet one-way delay: 163.772 ms
Loss rate: 2.64%
```
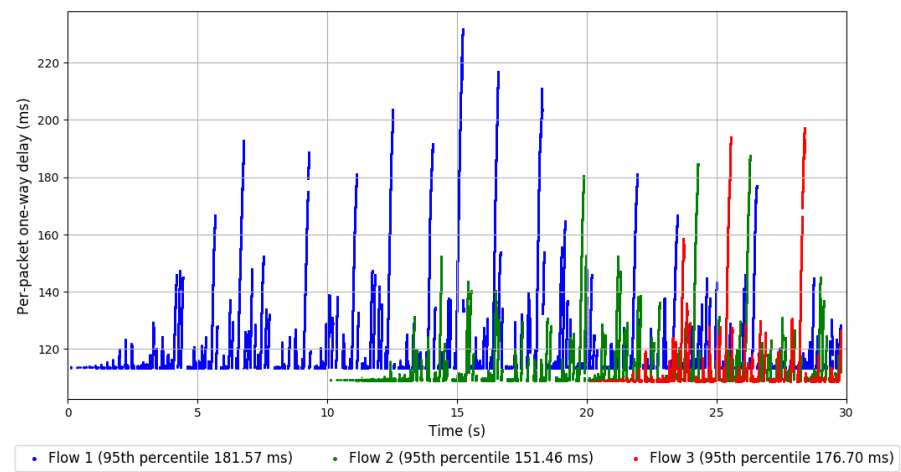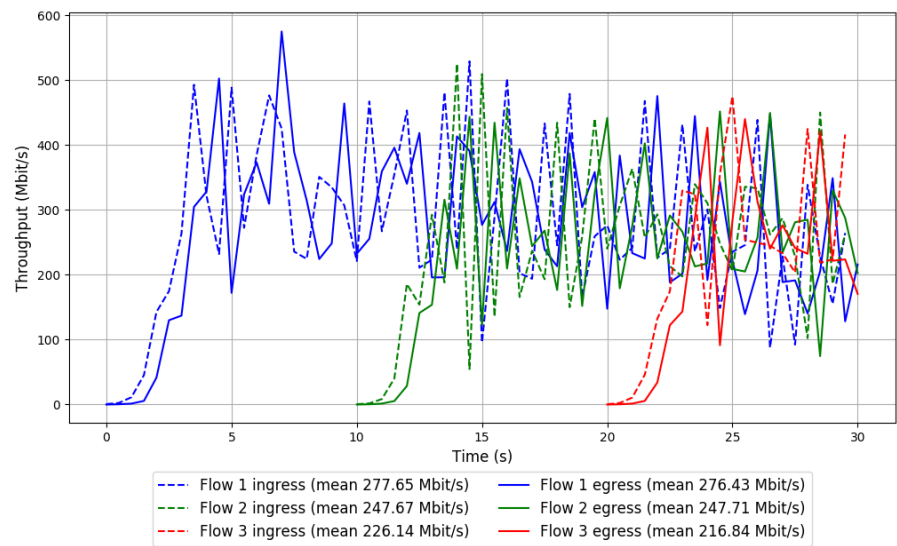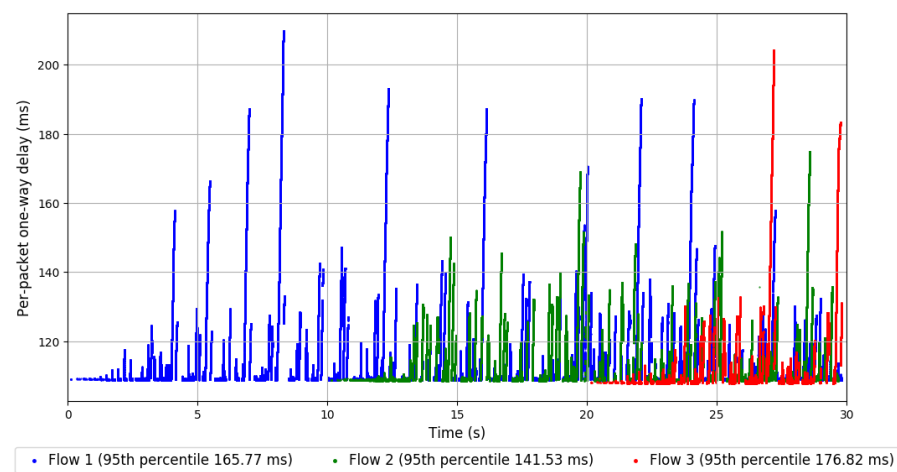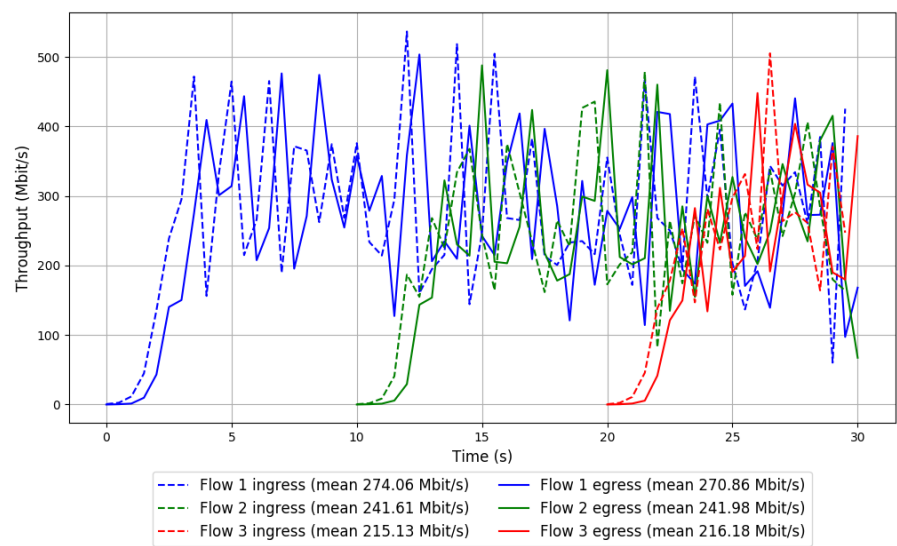
Run 1: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-11-30 08:59:24
End at: 2018-11-30 08:59:54
Local clock offset: 0.019 ms
Remote clock offset: -0.329 ms

# Below is generated by plot.py at 2018-11-30 12:25:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 507.24 Mbit/s
95th percentile per-packet one-way delay: 162.328 ms
Loss rate: 1.47%
-- Flow 1:
Average throughput: 275.73 Mbit/s
95th percentile per-packet one-way delay: 160.604 ms
Loss rate: 0.22%
-- Flow 2:
Average throughput: 247.27 Mbit/s
95th percentile per-packet one-way delay: 167.540 ms
Loss rate: 1.88%
-- Flow 3:
Average throughput: 209.36 Mbit/s
95th percentile per-packet one-way delay: 152.437 ms
Loss rate: 5.34%
```
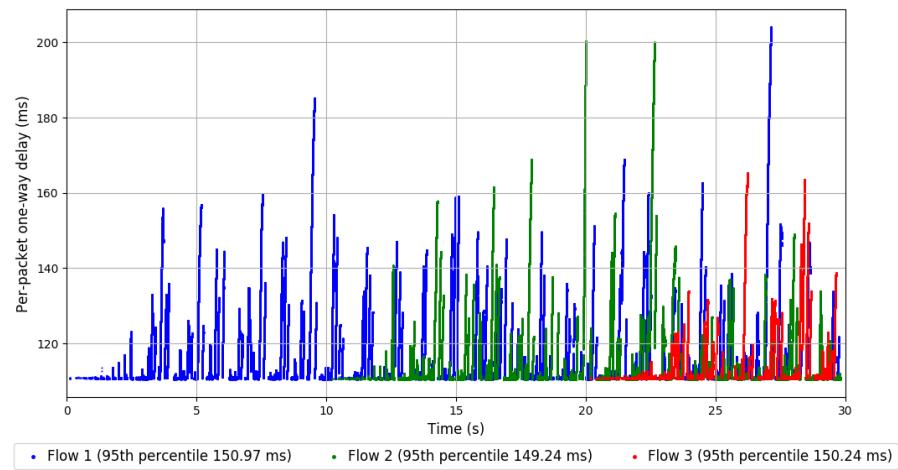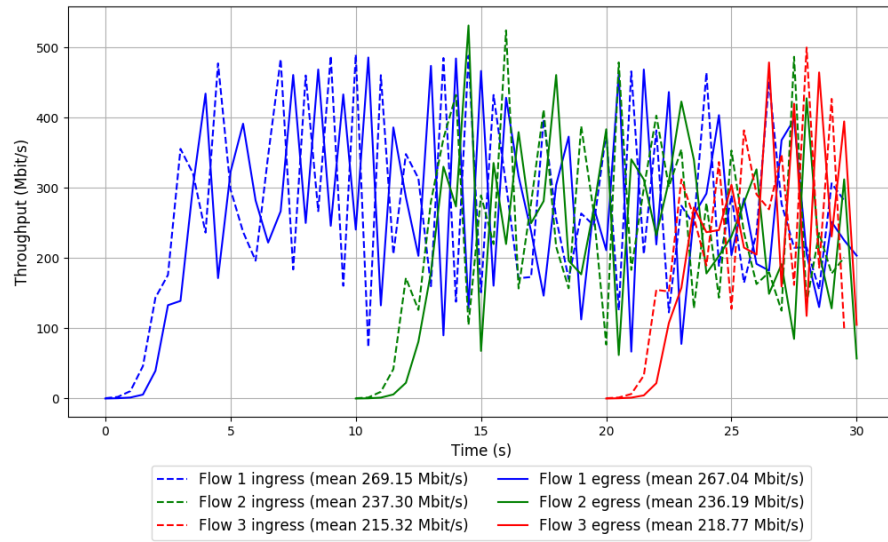
Run 2: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-11-30 09:33:57
End at: 2018-11-30 09:34:27
Local clock offset: -0.147 ms
Remote clock offset: 0.105 ms


# Below is generated by plot.py at 2018-11-30 12:27:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 511.00 Mbit/s
95th percentile per-packet one-way delay: 173.994 ms
Loss rate: 1.86%
-- Flow 1:
Average throughput: 276.43 Mbit/s
95th percentile per-packet one-way delay: 181.573 ms
Loss rate: 1.19%
-- Flow 2:
Average throughput: 247.71 Mbit/s
95th percentile per-packet one-way delay: 151.463 ms
Loss rate: 1.10%
-- Flow 3:
Average throughput: 216.84 Mbit/s
95th percentile per-packet one-way delay: 176.696 ms
Loss rate: 6.01%
```
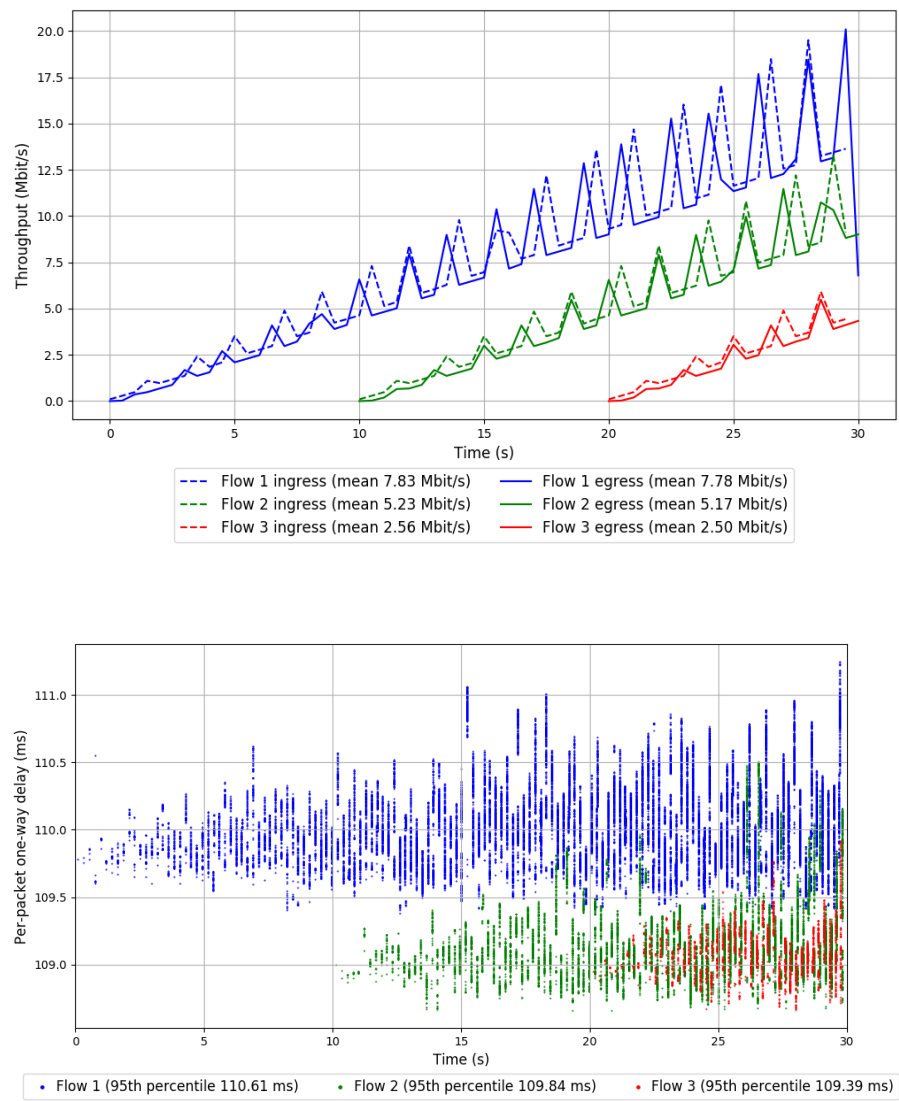
Run 3: Report of Indigo-96d2da3 — Data Link

- - - Flow 1 ingress (mean 277.65 Mbit/s) —— Flow 1 egress (mean 276.43 Mbit/s)
- - - Flow 2 ingress (mean 247.67 Mbit/s) —— Flow 2 egress (mean 247.71 Mbit/s)
- - - Flow 3 ingress (mean 226.14 Mbit/s) —— Flow 3 egress (mean 216.84 Mbit/s)

- Flow 1 (95th percentile 181.57 ms)　　• Flow 2 (95th percentile 151.46 ms)　　• Flow 3 (95th percentile 176.70 ms)

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

Start at: 2018-11-30 10:08:34
End at: 2018-11-30 10:09:04
Local clock offset: -0.551 ms
Remote clock offset: -0.074 ms


# Below is generated by plot.py at 2018-11-30 12:31:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 500.32 Mbit/s
95th percentile per-packet one-way delay: 159.793 ms
Loss rate: 1.47%
-- Flow 1:
Average throughput: 270.86 Mbit/s
95th percentile per-packet one-way delay: 165.771 ms
Loss rate: 1.80%
-- Flow 2:
Average throughput: 241.98 Mbit/s
95th percentile per-packet one-way delay: 141.525 ms
Loss rate: 1.01%
-- Flow 3:
Average throughput: 216.18 Mbit/s
95th percentile per-packet one-way delay: 176.820 ms
Loss rate: 1.24%
```

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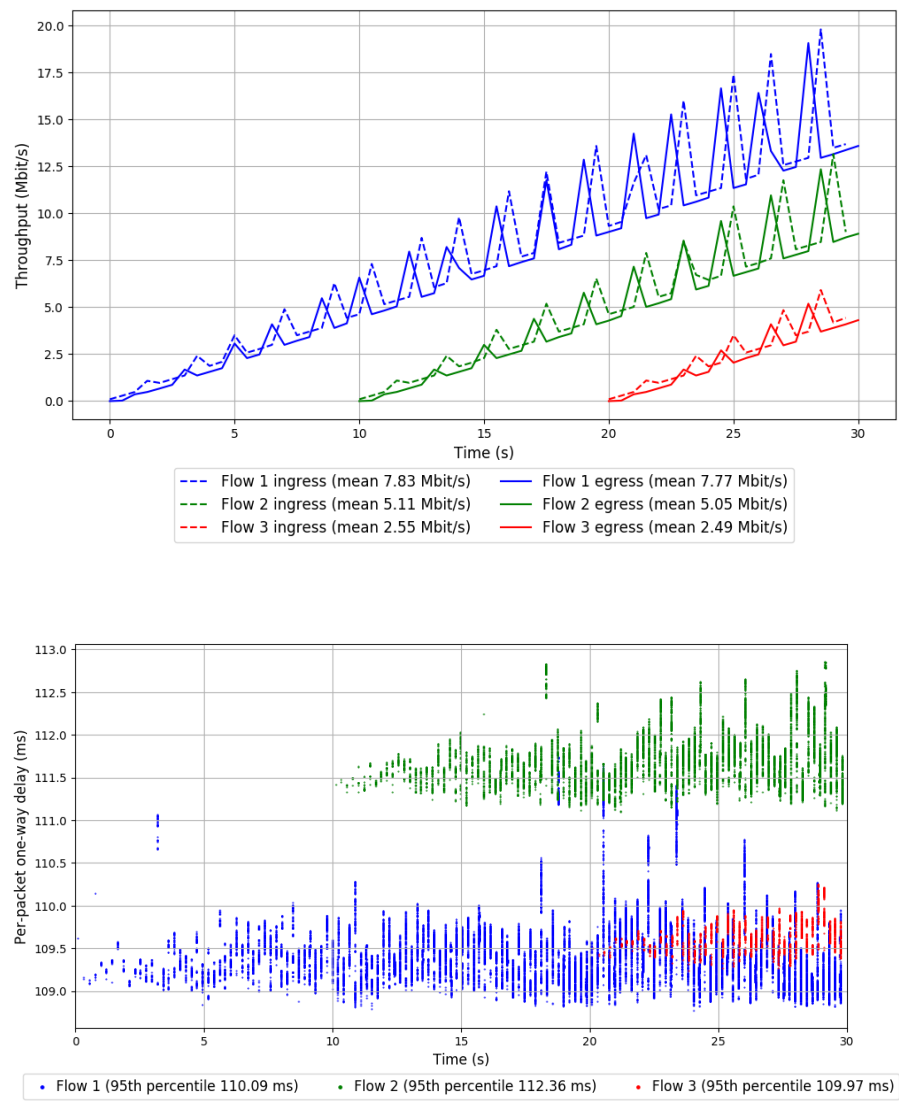
```
Run 5: Statistics of Indigo-96d2da3

Start at: 2018-11-30 10:43:03
End at: 2018-11-30 10:43:33
Local clock offset: 1.179 ms
Remote clock offset: -0.093 ms


# Below is generated by plot.py at 2018-11-30 12:32:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 492.50 Mbit/s
95th percentile per-packet one-way delay: 150.511 ms
Loss rate: 1.57%
-- Flow 1:
Average throughput: 267.04 Mbit/s
95th percentile per-packet one-way delay: 150.971 ms
Loss rate: 1.37%
-- Flow 2:
Average throughput: 236.19 Mbit/s
95th percentile per-packet one-way delay: 149.237 ms
Loss rate: 1.57%
-- Flow 3:
Average throughput: 218.77 Mbit/s
95th percentile per-packet one-way delay: 150.235 ms
Loss rate: 2.35%
```

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

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```
Run 1: Statistics of LEDBAT

Start at: 2018-11-30 08:14:04
End at: 2018-11-30 08:14:34
Local clock offset: -0.057 ms
Remote clock offset: -0.438 ms

# Below is generated by plot.py at 2018-11-30 12:32:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 11.98 Mbit/s
95th percentile per-packet one-way delay: 110.510 ms
Loss rate: 1.88%
-- Flow 1:
Average throughput: 7.78 Mbit/s
95th percentile per-packet one-way delay: 110.614 ms
Loss rate: 1.47%
-- Flow 2:
Average throughput: 5.17 Mbit/s
95th percentile per-packet one-way delay: 109.840 ms
Loss rate: 2.20%
-- Flow 3:
Average throughput: 2.50 Mbit/s
95th percentile per-packet one-way delay: 109.392 ms
Loss rate: 4.45%
```
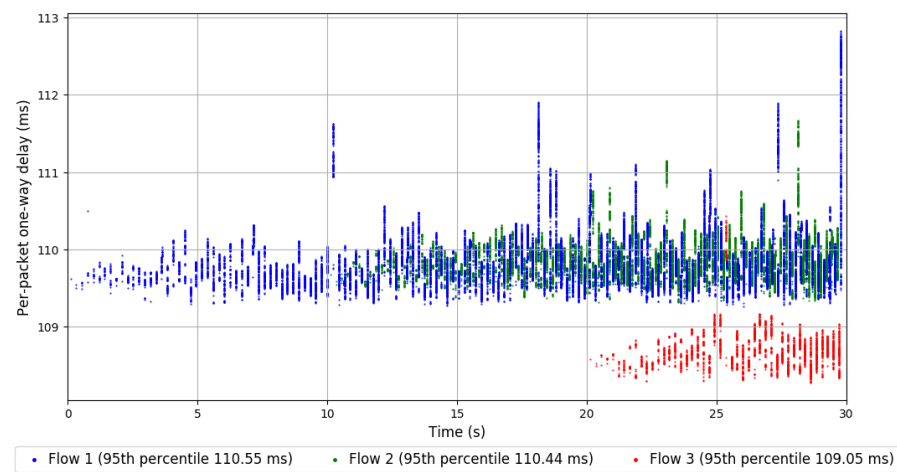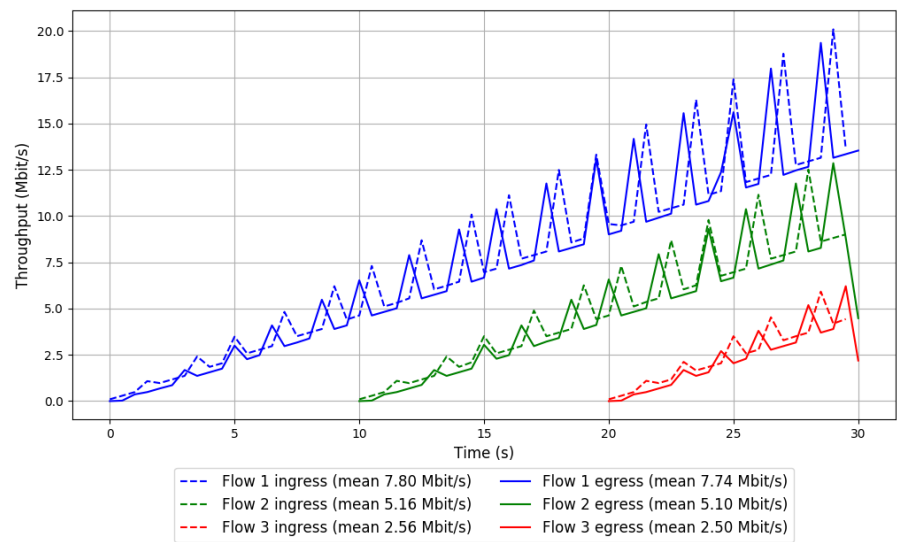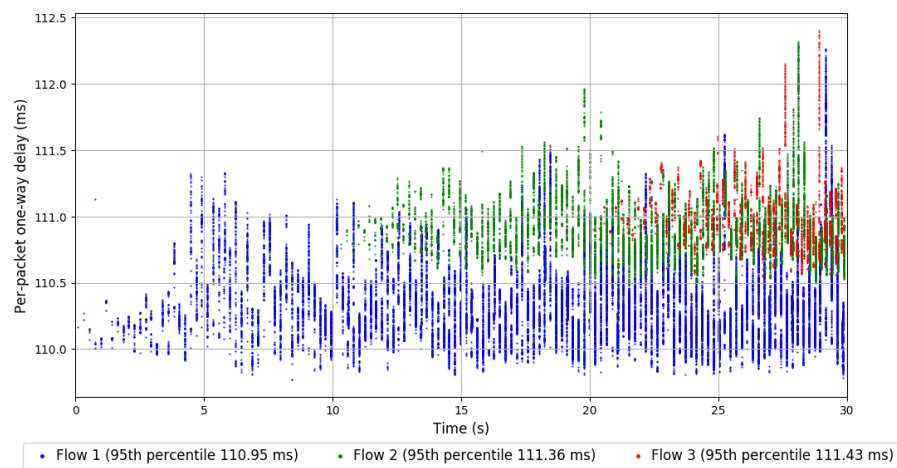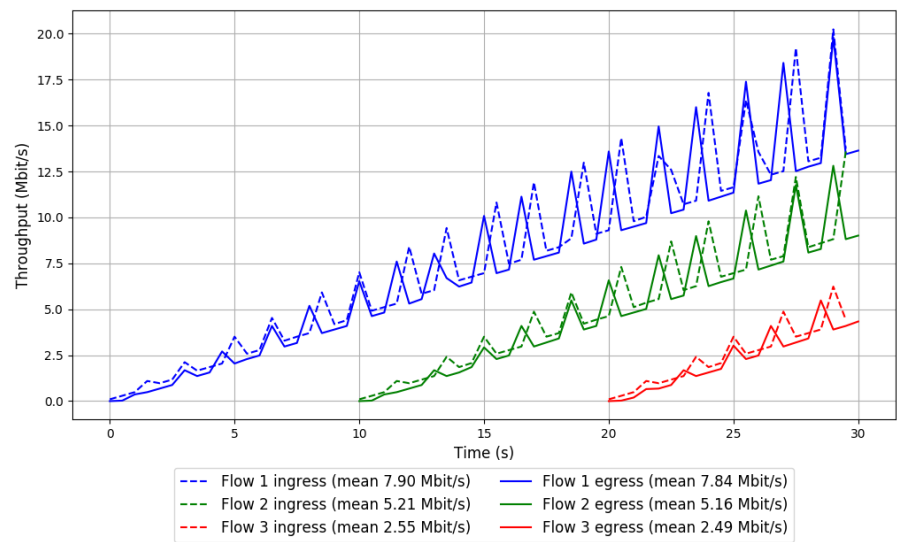
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-11-30 08:48:27
End at: 2018-11-30 08:48:57
Local clock offset: -0.093 ms
Remote clock offset: -0.319 ms

# Below is generated by plot.py at 2018-11-30 12:32:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 11.91 Mbit/s
95th percentile per-packet one-way delay: 111.931 ms
Loss rate: 1.89%
-- Flow 1:
Average throughput: 7.77 Mbit/s
95th percentile per-packet one-way delay: 110.090 ms
Loss rate: 1.47%
-- Flow 2:
Average throughput: 5.05 Mbit/s
95th percentile per-packet one-way delay: 112.356 ms
Loss rate: 2.23%
-- Flow 3:
Average throughput: 2.49 Mbit/s
95th percentile per-packet one-way delay: 109.969 ms
Loss rate: 4.46%
```

Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-11-30 09:22:42
End at: 2018-11-30 09:23:12
Local clock offset: -0.161 ms
Remote clock offset: -0.353 ms

# Below is generated by plot.py at 2018-11-30 12:32:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 11.91 Mbit/s
95th percentile per-packet one-way delay: 110.474 ms
Loss rate: 1.89%
-- Flow 1:
Average throughput: 7.74 Mbit/s
95th percentile per-packet one-way delay: 110.554 ms
Loss rate: 1.47%
-- Flow 2:
Average throughput: 5.10 Mbit/s
95th percentile per-packet one-way delay: 110.441 ms
Loss rate: 2.22%
-- Flow 3:
Average throughput: 2.50 Mbit/s
95th percentile per-packet one-way delay: 109.049 ms
Loss rate: 4.46%
```
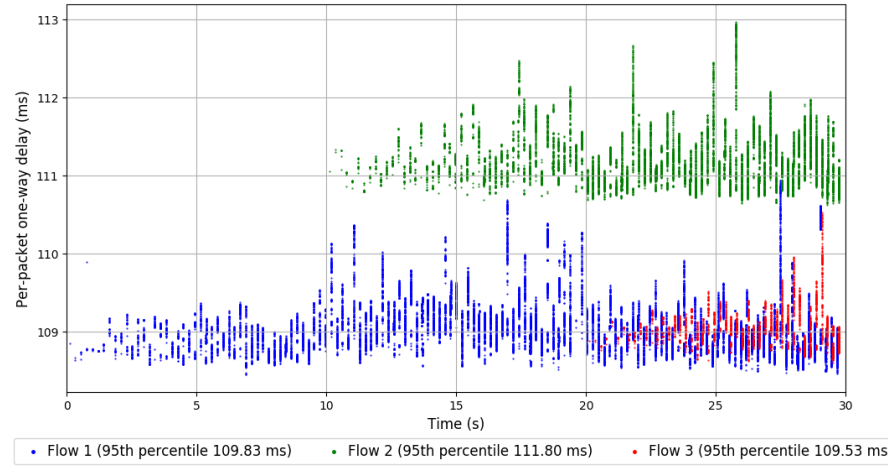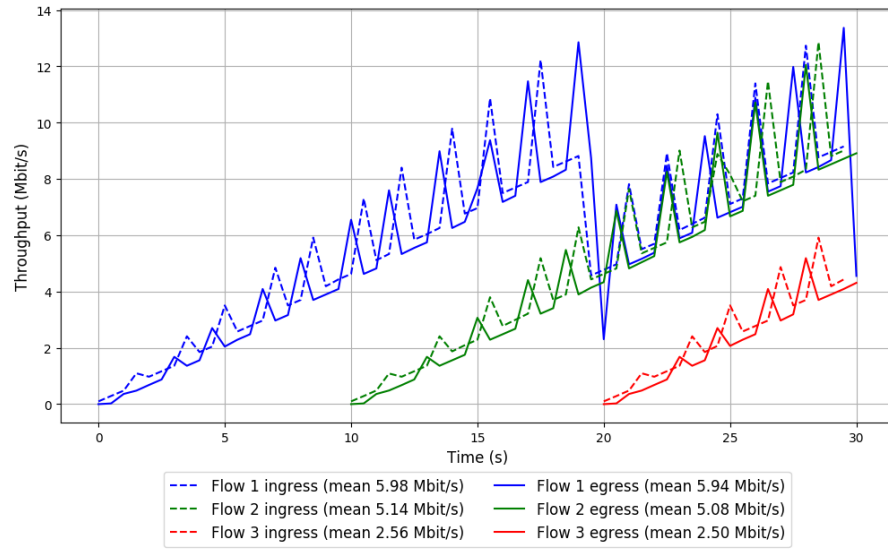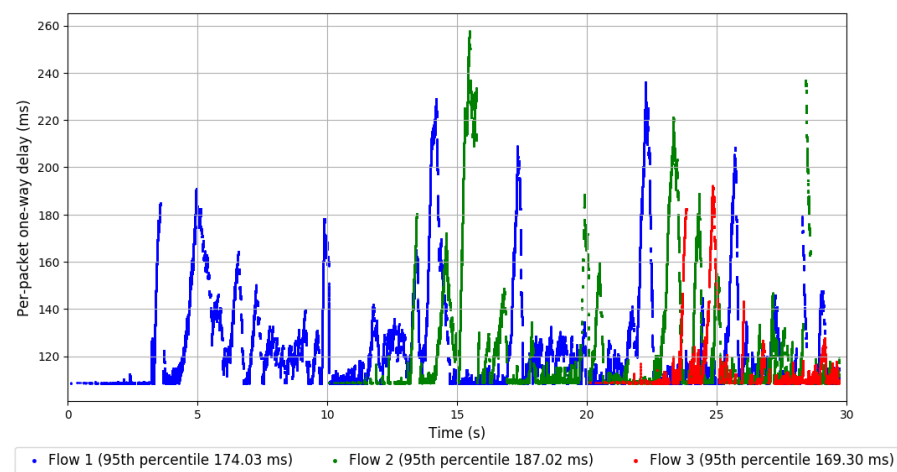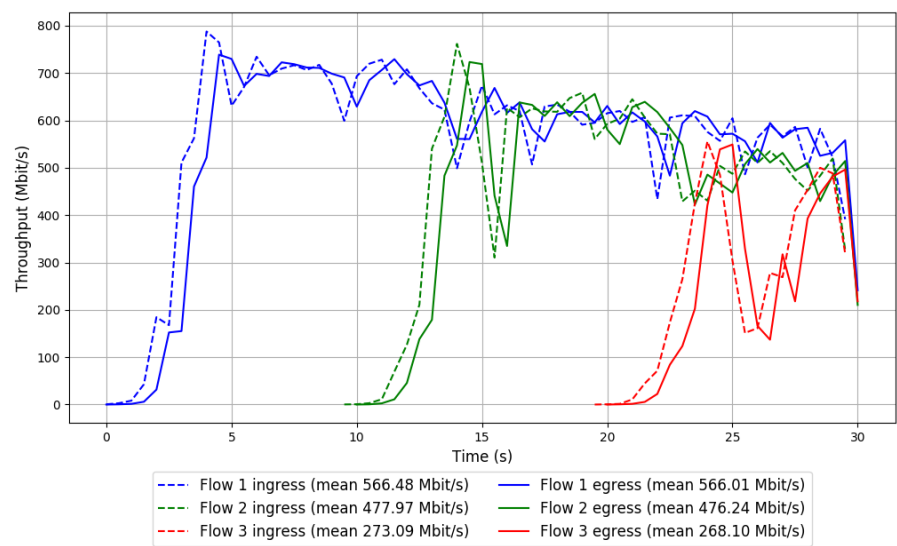
Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2018-11-30 09:57:21
End at: 2018-11-30 09:57:51
Local clock offset: 1.255 ms
Remote clock offset: -0.144 ms

# Below is generated by plot.py at 2018-11-30 12:32:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.06 Mbit/s
95th percentile per-packet one-way delay: 111.232 ms
Loss rate: 1.87%
-- Flow 1:
Average throughput: 7.84 Mbit/s
95th percentile per-packet one-way delay: 110.952 ms
Loss rate: 1.46%
-- Flow 2:
Average throughput: 5.16 Mbit/s
95th percentile per-packet one-way delay: 111.357 ms
Loss rate: 2.20%
-- Flow 3:
Average throughput: 2.49 Mbit/s
95th percentile per-packet one-way delay: 111.432 ms
Loss rate: 4.46%
```

Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2018-11-30 10:31:56
End at: 2018-11-30 10:32:26
Local clock offset: -0.473 ms
Remote clock offset: 0.011 ms


# Below is generated by plot.py at 2018-11-30 12:32:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.11 Mbit/s
95th percentile per-packet one-way delay: 111.521 ms
Loss rate: 1.87%
-- Flow 1:
Average throughput: 5.94 Mbit/s
95th percentile per-packet one-way delay: 109.825 ms
Loss rate: 1.30%
-- Flow 2:
Average throughput: 5.08 Mbit/s
95th percentile per-packet one-way delay: 111.797 ms
Loss rate: 2.22%
-- Flow 3:
Average throughput: 2.50 Mbit/s
95th percentile per-packet one-way delay: 109.526 ms
Loss rate: 4.46%
```

Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-11-30 08:20:54
End at: 2018-11-30 08:21:24
Local clock offset: -0.603 ms
Remote clock offset: -0.196 ms


# Below is generated by plot.py at 2018-11-30 12:43:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 969.70 Mbit/s
95th percentile per-packet one-way delay: 176.268 ms
Loss rate: 1.32%
-- Flow 1:
Average throughput: 566.01 Mbit/s
95th percentile per-packet one-way delay: 174.029 ms
Loss rate: 0.82%
-- Flow 2:
Average throughput: 476.24 Mbit/s
95th percentile per-packet one-way delay: 187.019 ms
Loss rate: 1.45%
-- Flow 3:
Average throughput: 268.10 Mbit/s
95th percentile per-packet one-way delay: 169.296 ms
Loss rate: 4.03%
```
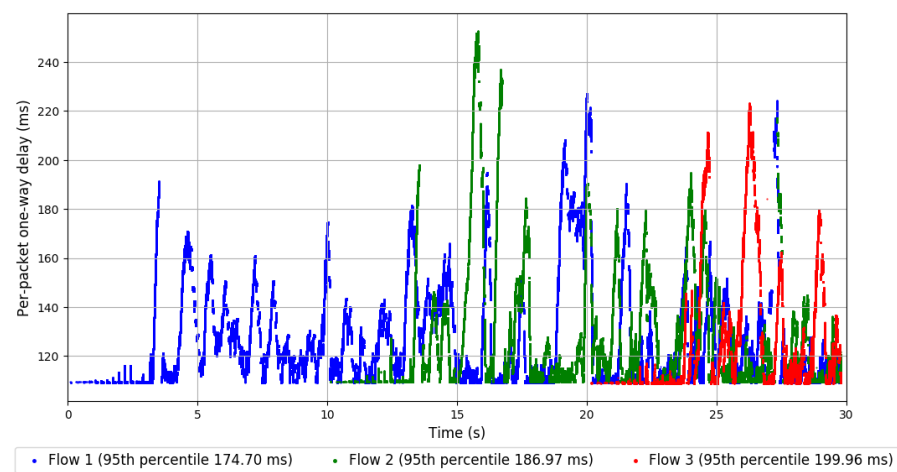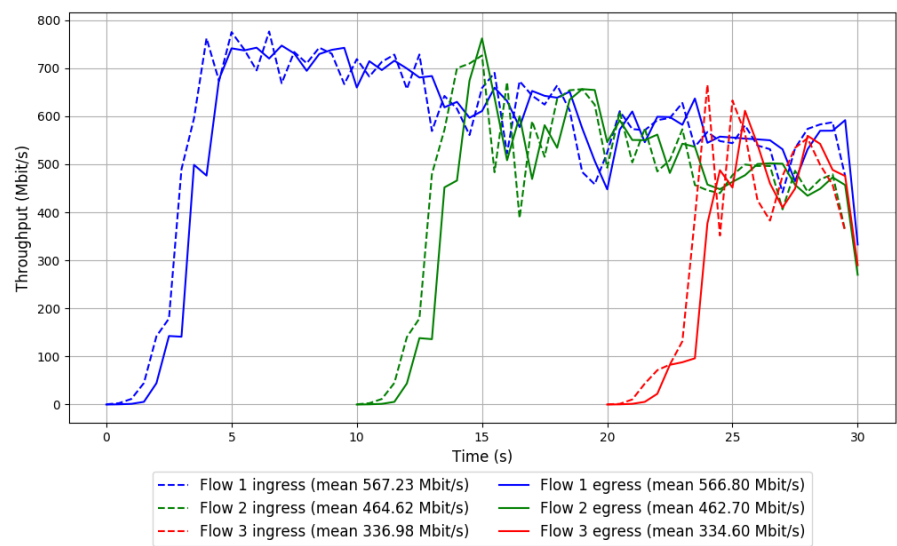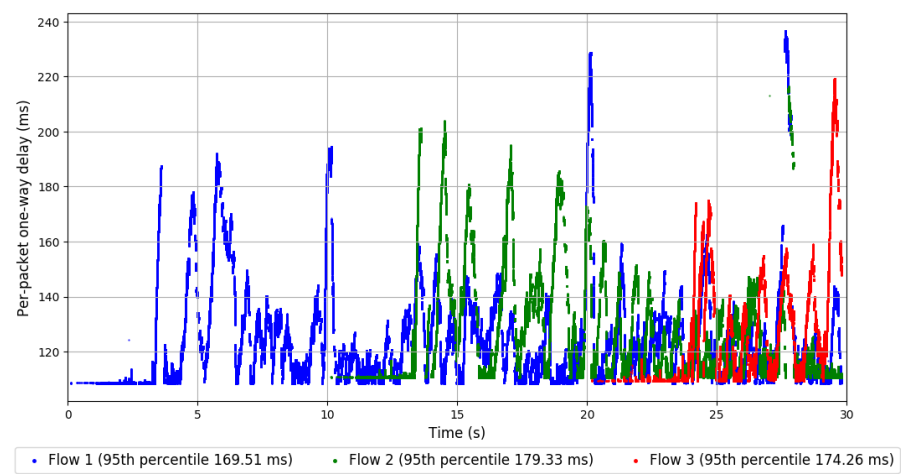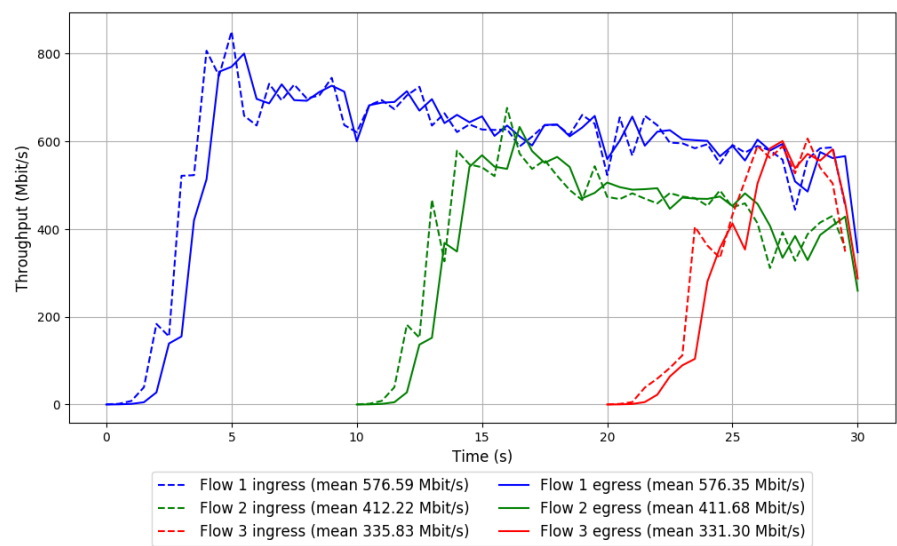
Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-11-30 08:55:23
End at: 2018-11-30 08:55:53
Local clock offset: 0.004 ms
Remote clock offset: -0.282 ms

# Below is generated by plot.py at 2018-11-30 12:43:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 981.99 Mbit/s
95th percentile per-packet one-way delay: 181.777 ms
Loss rate: 1.27%
-- Flow 1:
Average throughput: 566.80 Mbit/s
95th percentile per-packet one-way delay: 174.703 ms
Loss rate: 0.81%
-- Flow 2:
Average throughput: 462.70 Mbit/s
95th percentile per-packet one-way delay: 186.966 ms
Loss rate: 1.51%
-- Flow 3:
Average throughput: 334.60 Mbit/s
95th percentile per-packet one-way delay: 199.964 ms
Loss rate: 2.92%
```

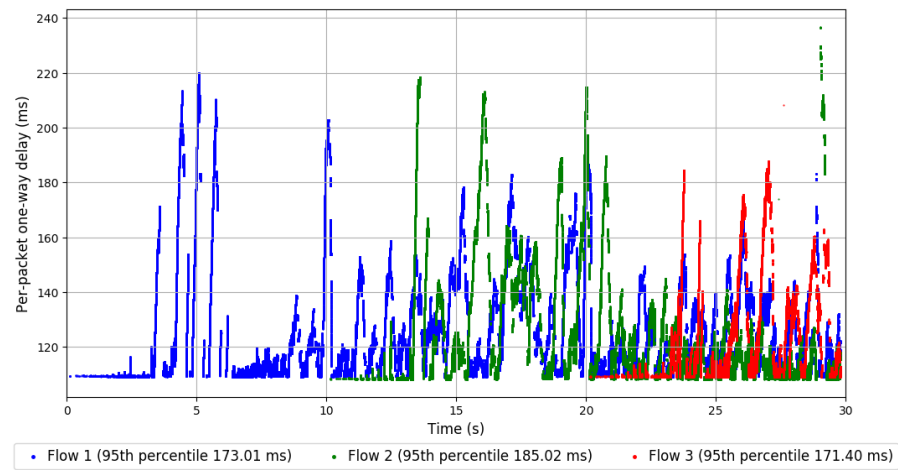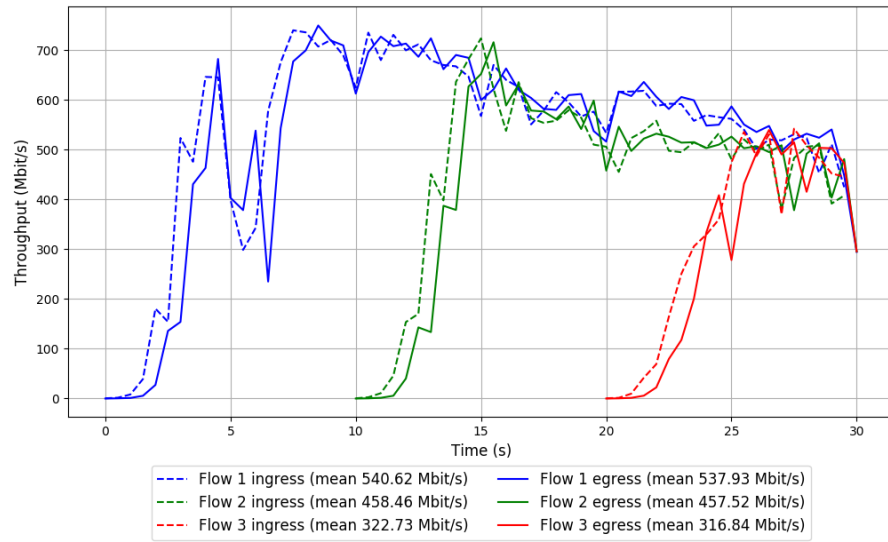Run 2: Report of Indigo-Muses — Data Link

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-11-30 09:29:34
End at: 2018-11-30 09:30:04
Local clock offset: -0.052 ms
Remote clock offset: -0.286 ms


# Below is generated by plot.py at 2018-11-30 12:43:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 956.41 Mbit/s
95th percentile per-packet one-way delay: 174.099 ms
Loss rate: 1.24%
-- Flow 1:
Average throughput: 576.35 Mbit/s
95th percentile per-packet one-way delay: 169.510 ms
Loss rate: 0.78%
-- Flow 2:
Average throughput: 411.68 Mbit/s
95th percentile per-packet one-way delay: 179.326 ms
Loss rate: 1.25%
-- Flow 3:
Average throughput: 331.30 Mbit/s
95th percentile per-packet one-way delay: 174.260 ms
Loss rate: 3.59%
```
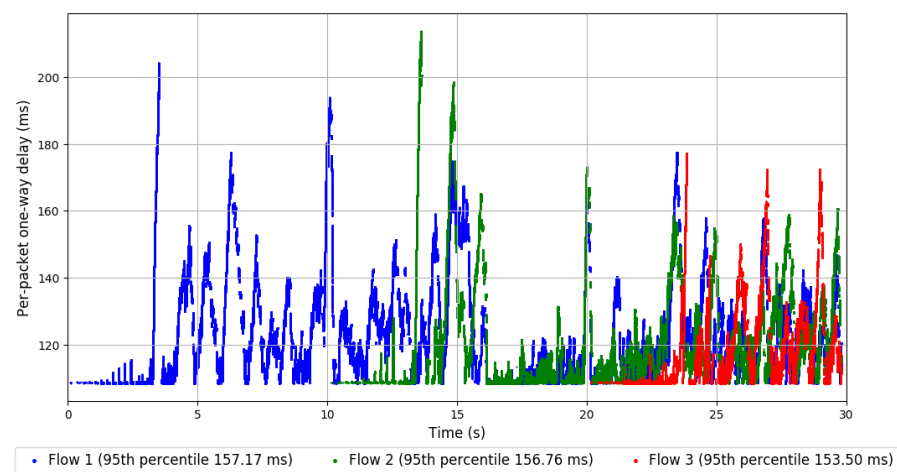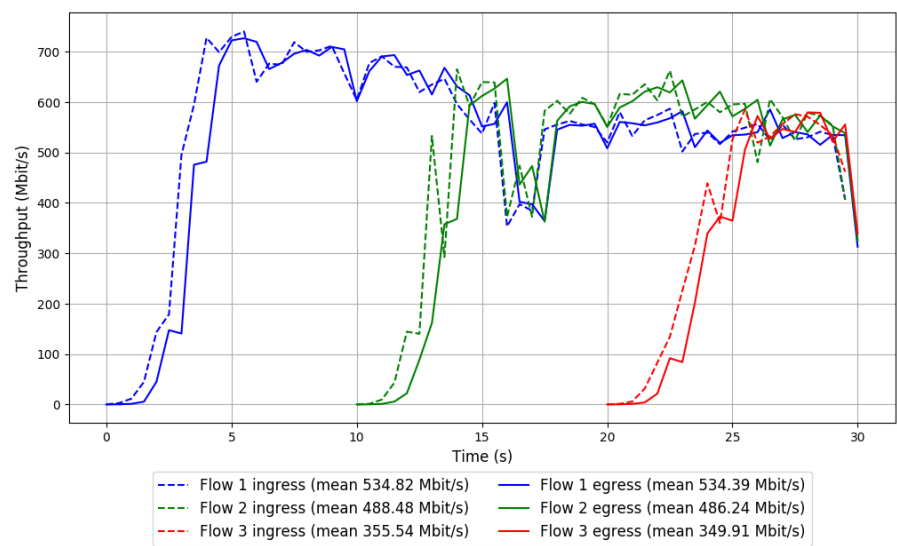
Run 3: Report of Indigo-Muses — Data Link

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-11-30 10:04:15
End at: 2018-11-30 10:04:45
Local clock offset: -0.148 ms
Remote clock offset: -0.041 ms


# Below is generated by plot.py at 2018-11-30 12:43:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 943.65 Mbit/s
95th percentile per-packet one-way delay: 175.586 ms
Loss rate: 1.56%
-- Flow 1:
Average throughput: 537.93 Mbit/s
95th percentile per-packet one-way delay: 173.009 ms
Loss rate: 1.22%
-- Flow 2:
Average throughput: 457.52 Mbit/s
95th percentile per-packet one-way delay: 185.024 ms
Loss rate: 1.28%
-- Flow 3:
Average throughput: 316.84 Mbit/s
95th percentile per-packet one-way delay: 171.400 ms
Loss rate: 4.01%
```
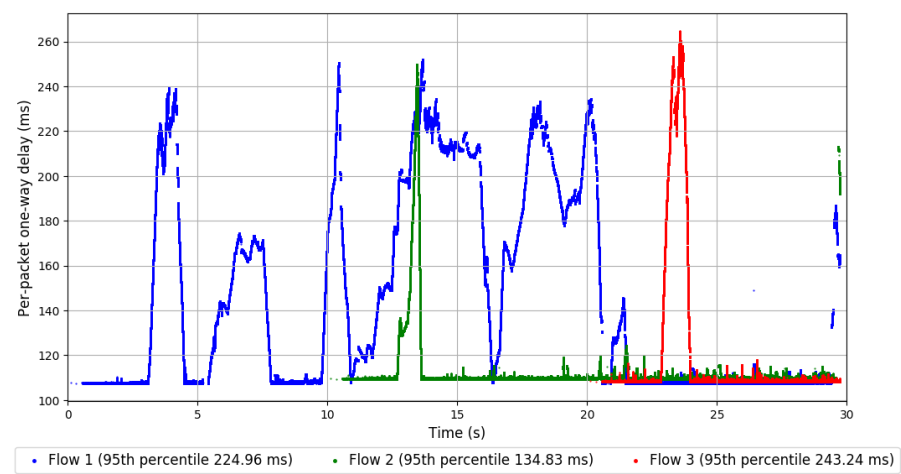
Run 4: Report of Indigo-Muses — Data Link

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-11-30 10:38:40
End at: 2018-11-30 10:39:11
Local clock offset: -0.793 ms
Remote clock offset: -0.052 ms

# Below is generated by plot.py at 2018-11-30 12:44:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 969.64 Mbit/s
95th percentile per-packet one-way delay: 156.743 ms
Loss rate: 1.41%
-- Flow 1:
Average throughput: 534.39 Mbit/s
95th percentile per-packet one-way delay: 157.170 ms
Loss rate: 0.81%
-- Flow 2:
Average throughput: 486.24 Mbit/s
95th percentile per-packet one-way delay: 156.762 ms
Loss rate: 1.56%
-- Flow 3:
Average throughput: 349.91 Mbit/s
95th percentile per-packet one-way delay: 153.497 ms
Loss rate: 3.75%
```

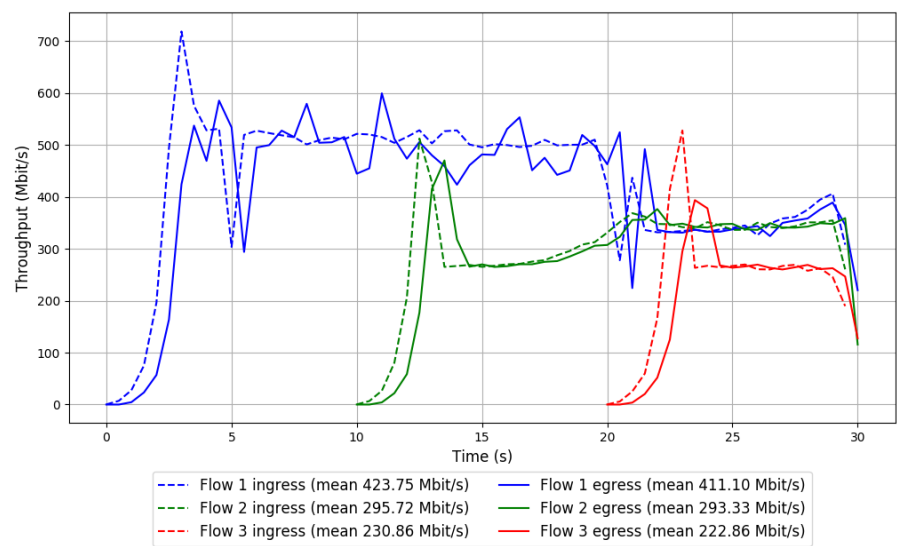Run 5: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 534.82 Mbit/s) — — — Flow 1 egress (mean 534.39 Mbit/s)
Flow 2 ingress (mean 488.48 Mbit/s) — — — Flow 2 egress (mean 486.24 Mbit/s)
Flow 3 ingress (mean 355.54 Mbit/s) — — — Flow 3 egress (mean 349.91 Mbit/s)

Flow 1 (95th percentile 157.17 ms)   Flow 2 (95th percentile 156.76 ms)   Flow 3 (95th percentile 153.50 ms)

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```
Run 1: Statistics of PCC-Allegro

Start at: 2018-11-30 08:36:17
End at: 2018-11-30 08:36:47
Local clock offset: -1.317 ms
Remote clock offset: -0.637 ms


# Below is generated by plot.py at 2018-11-30 12:52:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 677.71 Mbit/s
95th percentile per-packet one-way delay: 223.538 ms
Loss rate: 3.40%
-- Flow 1:
Average throughput: 411.10 Mbit/s
95th percentile per-packet one-way delay: 224.962 ms
Loss rate: 3.69%
-- Flow 2:
Average throughput: 293.33 Mbit/s
95th percentile per-packet one-way delay: 134.834 ms
Loss rate: 1.90%
-- Flow 3:
Average throughput: 222.86 Mbit/s
95th percentile per-packet one-way delay: 243.242 ms
Loss rate: 5.61%
```
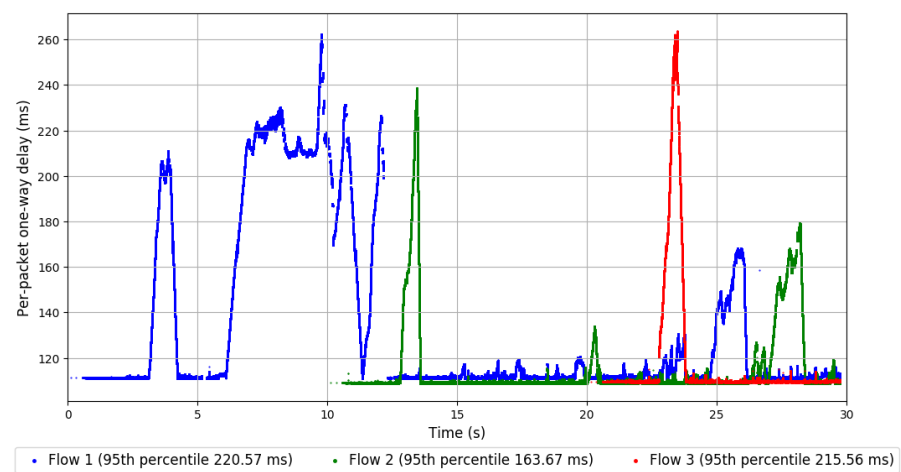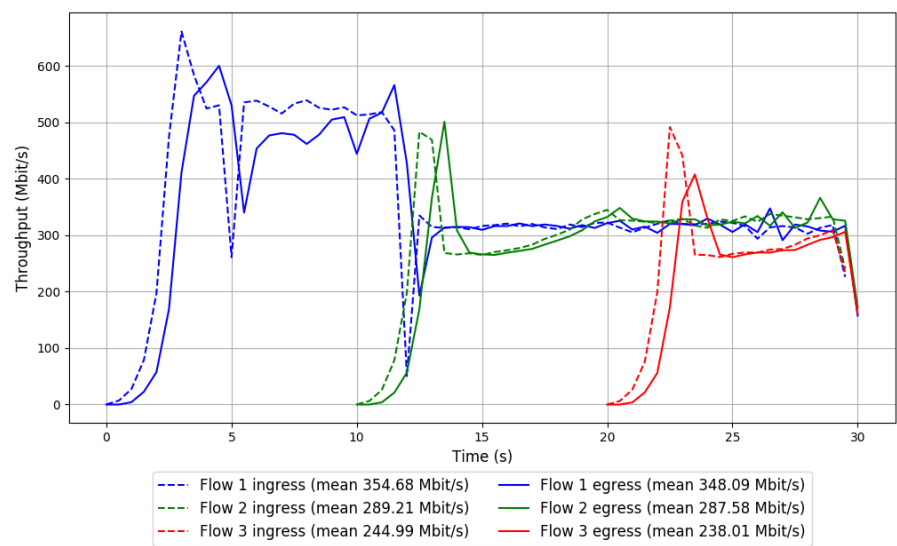
Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-11-30 09:10:43
End at: 2018-11-30 09:11:13
Local clock offset: -0.125 ms
Remote clock offset: -0.37 ms

# Below is generated by plot.py at 2018-11-30 12:55:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 615.70 Mbit/s
95th percentile per-packet one-way delay: 217.523 ms
Loss rate: 2.62%
-- Flow 1:
Average throughput: 348.09 Mbit/s
95th percentile per-packet one-way delay: 220.572 ms
Loss rate: 2.59%
-- Flow 2:
Average throughput: 287.58 Mbit/s
95th percentile per-packet one-way delay: 163.666 ms
Loss rate: 1.67%
-- Flow 3:
Average throughput: 238.01 Mbit/s
95th percentile per-packet one-way delay: 215.558 ms
Loss rate: 5.03%
```
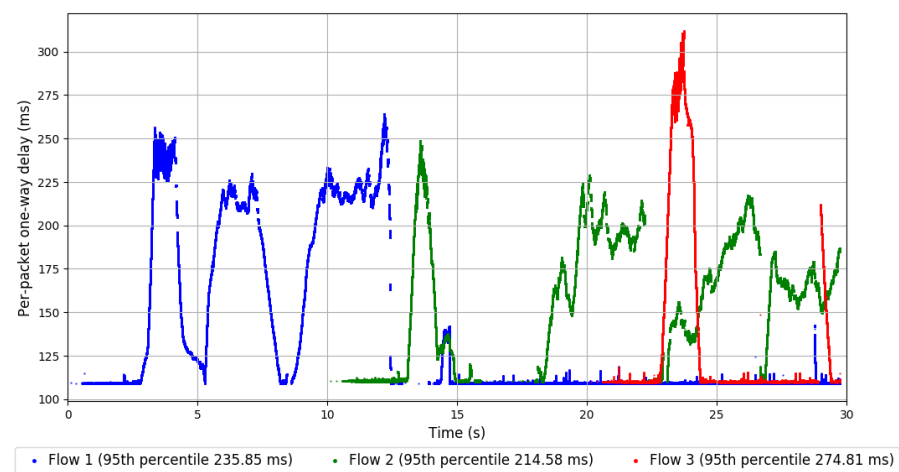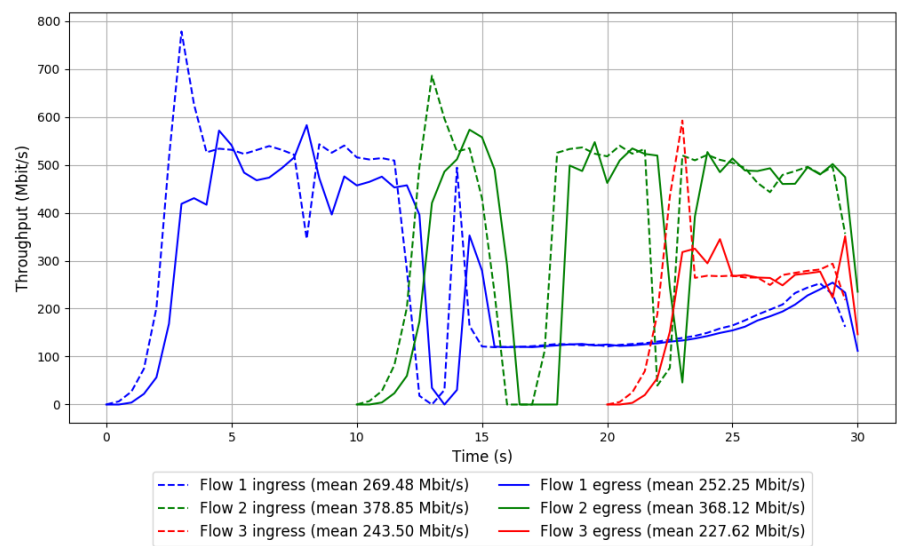
Run 2: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 354.68 Mbit/s)   Flow 1 egress (mean 348.09 Mbit/s)
Flow 2 ingress (mean 289.21 Mbit/s)   Flow 2 egress (mean 287.58 Mbit/s)
Flow 3 ingress (mean 244.99 Mbit/s)   Flow 3 egress (mean 238.01 Mbit/s)

Flow 1 (95th percentile 220.57 ms)   Flow 2 (95th percentile 163.67 ms)   Flow 3 (95th percentile 215.56 ms)
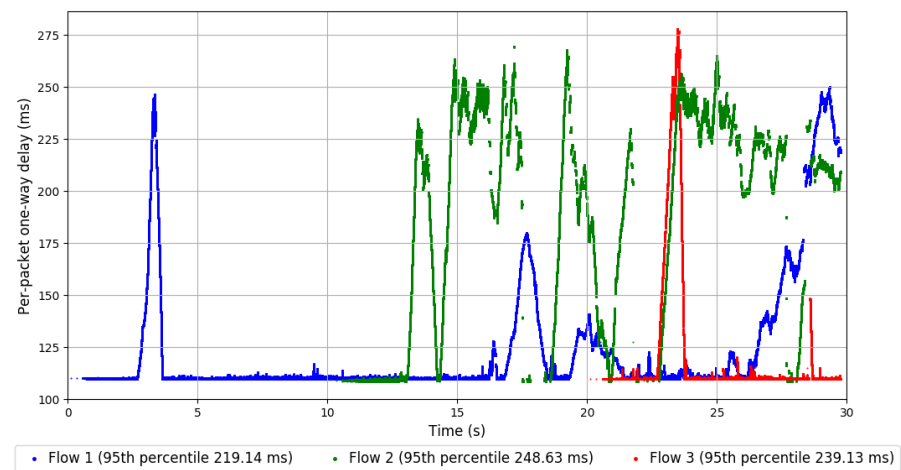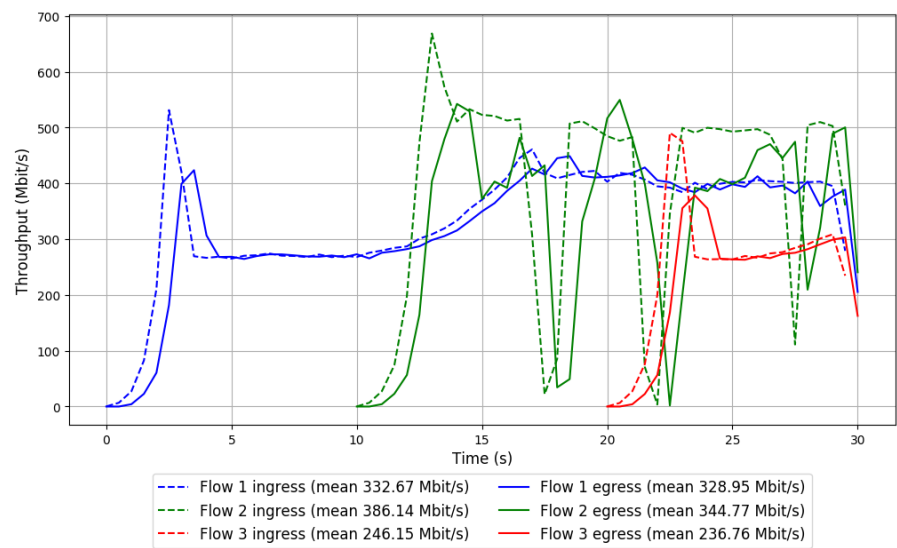
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```
Run 3: Statistics of PCC-Allegro

Start at: 2018-11-30 09:45:23
End at: 2018-11-30 09:45:53
Local clock offset: 0.43 ms
Remote clock offset: -0.19 ms

# Below is generated by plot.py at 2018-11-30 12:55:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 569.72 Mbit/s
95th percentile per-packet one-way delay: 230.118 ms
Loss rate: 5.95%
-- Flow 1:
Average throughput: 252.25 Mbit/s
95th percentile per-packet one-way delay: 235.847 ms
Loss rate: 7.07%
-- Flow 2:
Average throughput: 368.12 Mbit/s
95th percentile per-packet one-way delay: 214.579 ms
Loss rate: 3.91%
-- Flow 3:
Average throughput: 227.62 Mbit/s
95th percentile per-packet one-way delay: 274.813 ms
Loss rate: 8.59%
```
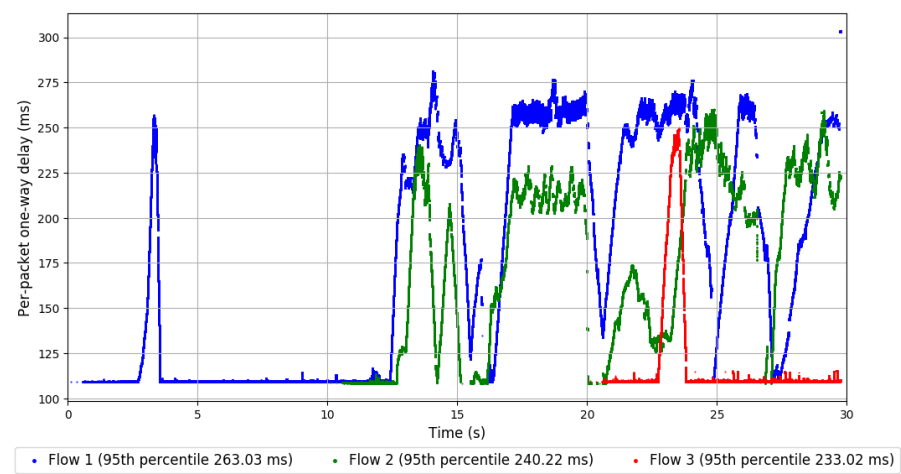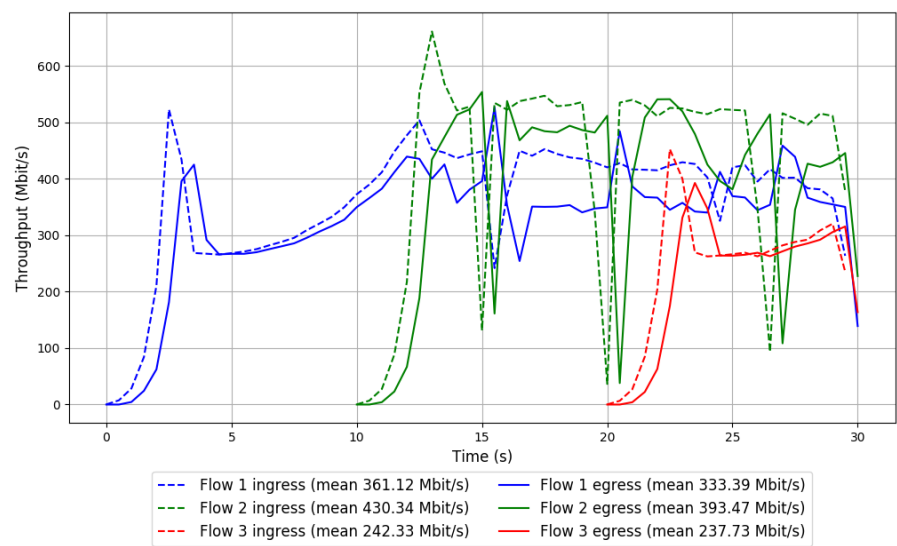
Run 3: Report of PCC-Allegro — Data Link

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-11-30 10:19:43
End at: 2018-11-30 10:20:13
Local clock offset: 0.09 ms
Remote clock offset: -0.042 ms


# Below is generated by plot.py at 2018-11-30 13:09:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 634.12 Mbit/s
95th percentile per-packet one-way delay: 242.546 ms
Loss rate: 6.12%
-- Flow 1:
Average throughput: 328.95 Mbit/s
95th percentile per-packet one-way delay: 219.140 ms
Loss rate: 1.85%
-- Flow 2:
Average throughput: 344.77 Mbit/s
95th percentile per-packet one-way delay: 248.635 ms
Loss rate: 11.70%
-- Flow 3:
Average throughput: 236.76 Mbit/s
95th percentile per-packet one-way delay: 239.126 ms
Loss rate: 5.97%
```

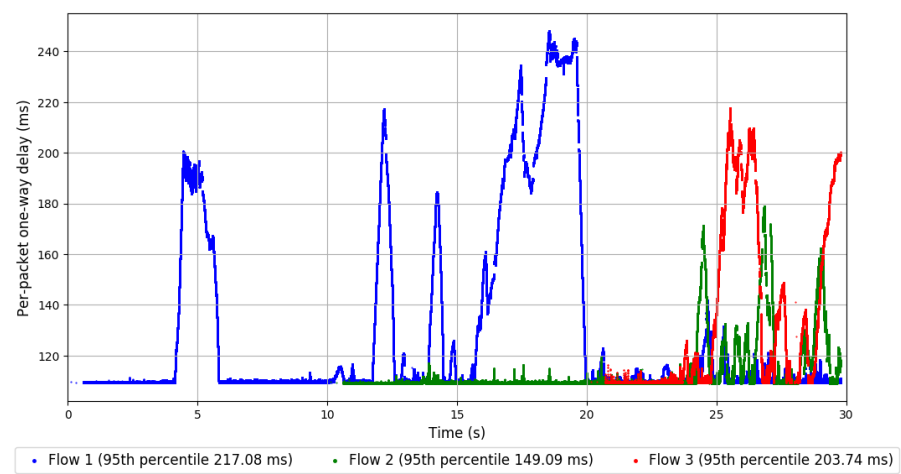## Run 4: Report of PCC-Allegro — Data Link

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-11-30 10:54:14
End at: 2018-11-30 10:54:44
Local clock offset: -0.068 ms
Remote clock offset: -0.023 ms

# Below is generated by plot.py at 2018-11-30 13:11:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 671.18 Mbit/s
95th percentile per-packet one-way delay: 259.923 ms
Loss rate: 8.37%
-- Flow 1:
Average throughput: 333.39 Mbit/s
95th percentile per-packet one-way delay: 263.029 ms
Loss rate: 8.36%
-- Flow 2:
Average throughput: 393.47 Mbit/s
95th percentile per-packet one-way delay: 240.219 ms
Loss rate: 9.57%
-- Flow 3:
Average throughput: 237.73 Mbit/s
95th percentile per-packet one-way delay: 233.018 ms
Loss rate: 4.08%
```

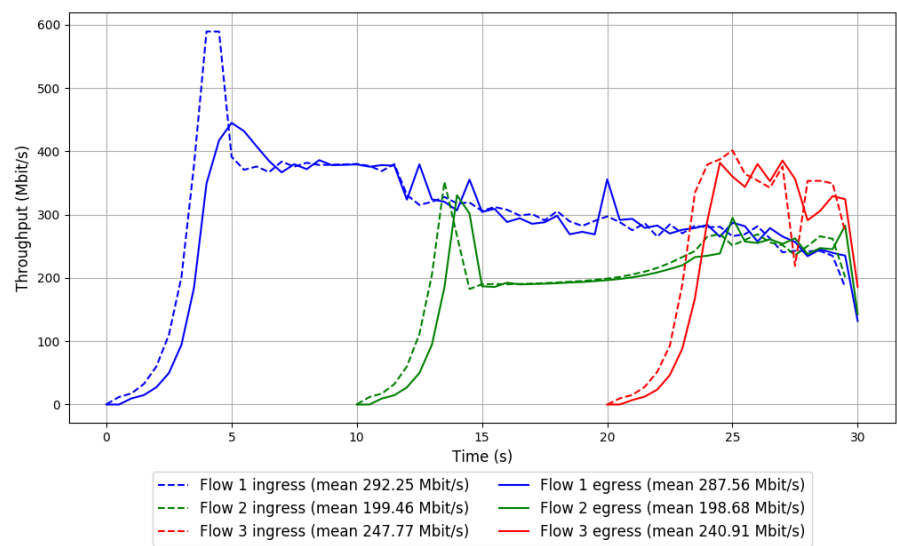Run 5: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2018-11-30 08:27:00
End at: 2018-11-30 08:27:30
Local clock offset: -0.05 ms
Remote clock offset: -0.213 ms


# Below is generated by plot.py at 2018-11-30 13:11:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 497.27 Mbit/s
95th percentile per-packet one-way delay: 203.496 ms
Loss rate: 2.53%
-- Flow 1:
Average throughput: 287.56 Mbit/s
95th percentile per-packet one-way delay: 217.082 ms
Loss rate: 2.33%
-- Flow 2:
Average throughput: 198.68 Mbit/s
95th percentile per-packet one-way delay: 149.088 ms
Loss rate: 1.49%
-- Flow 3:
Average throughput: 240.91 Mbit/s
95th percentile per-packet one-way delay: 203.737 ms
Loss rate: 4.93%
```

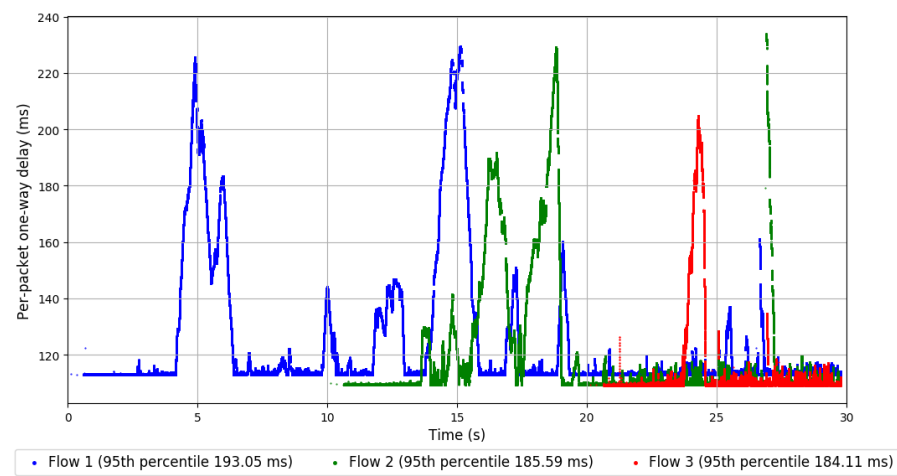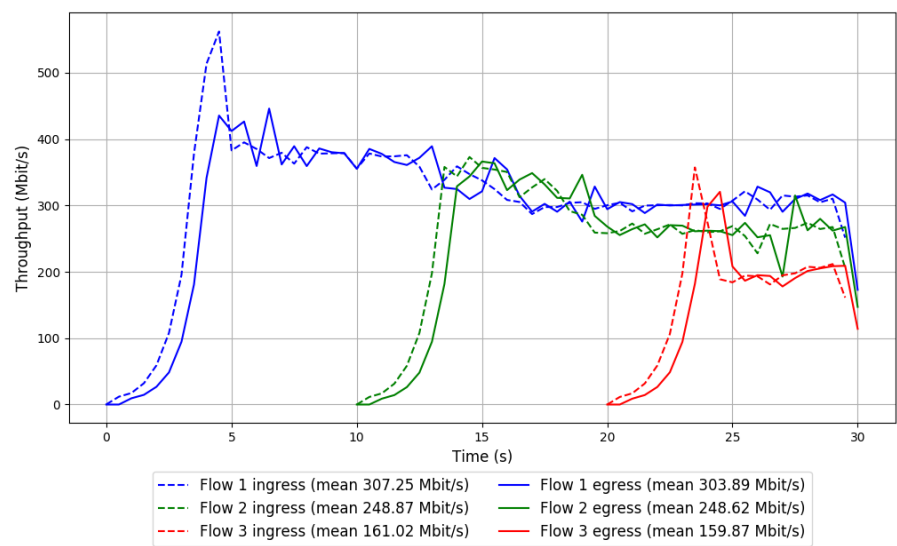Run 1: Report of PCC-Expr — Data Link

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```
Run 2: Statistics of PCC-Expr

Start at: 2018-11-30 09:01:11
End at: 2018-11-30 09:01:41
Local clock offset: -0.092 ms
Remote clock offset: -0.326 ms


# Below is generated by plot.py at 2018-11-30 13:11:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 520.55 Mbit/s
95th percentile per-packet one-way delay: 187.955 ms
Loss rate: 1.75%
-- Flow 1:
Average throughput: 303.89 Mbit/s
95th percentile per-packet one-way delay: 193.052 ms
Loss rate: 1.83%
-- Flow 2:
Average throughput: 248.62 Mbit/s
95th percentile per-packet one-way delay: 185.593 ms
Loss rate: 1.21%
-- Flow 3:
Average throughput: 159.87 Mbit/s
95th percentile per-packet one-way delay: 184.110 ms
Loss rate: 2.92%
```

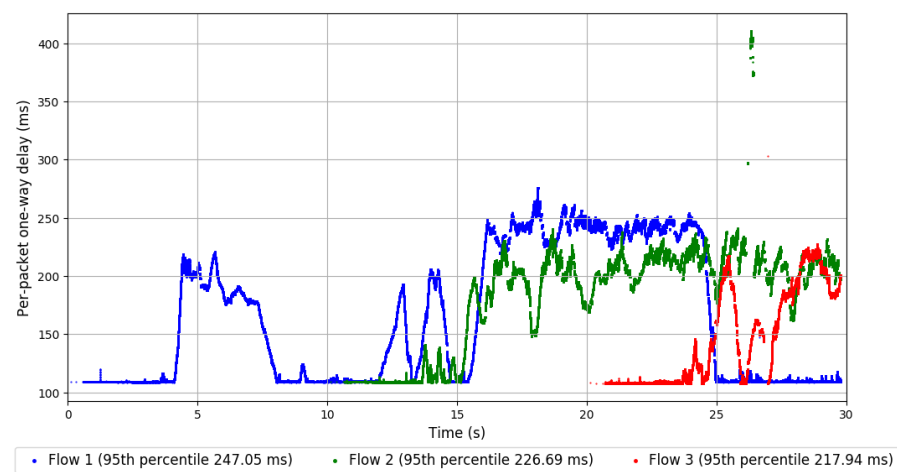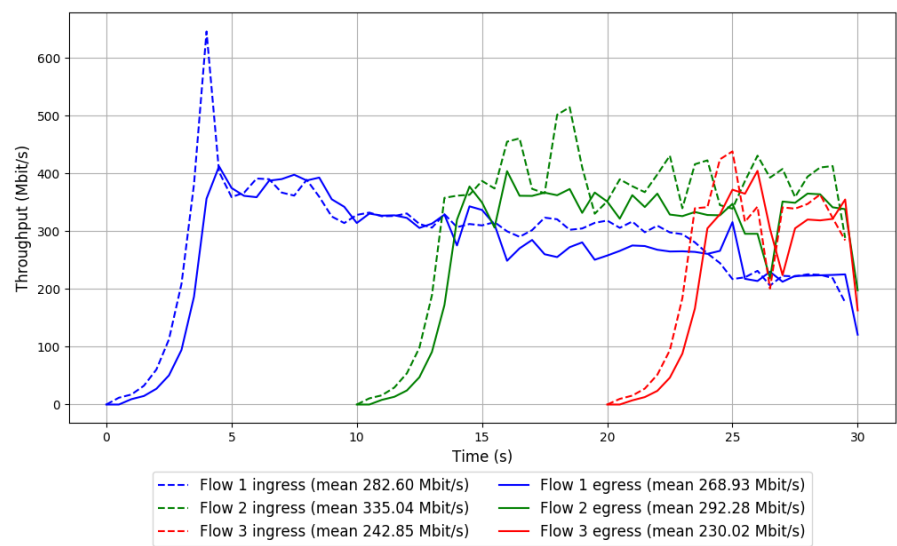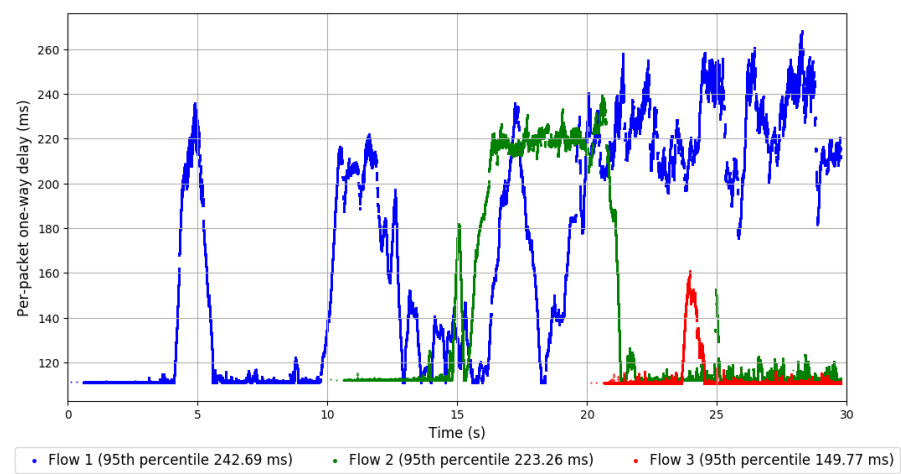# Run 2: Report of PCC-Expr — Data Link

- - - Flow 1 ingress (mean 307.25 Mbit/s)   —— Flow 1 egress (mean 303.89 Mbit/s)
- - - Flow 2 ingress (mean 248.87 Mbit/s)   —— Flow 2 egress (mean 248.62 Mbit/s)
- - - Flow 3 ingress (mean 161.02 Mbit/s)   —— Flow 3 egress (mean 159.87 Mbit/s)

• Flow 1 (95th percentile 193.05 ms)   • Flow 2 (95th percentile 185.59 ms)   • Flow 3 (95th percentile 184.11 ms)

```
Run 3: Statistics of PCC-Expr

Start at: 2018-11-30 09:35:49
End at: 2018-11-30 09:36:19
Local clock offset: -0.747 ms
Remote clock offset: -0.228 ms


# Below is generated by plot.py at 2018-11-30 13:11:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 537.29 Mbit/s
95th percentile per-packet one-way delay: 244.232 ms
Loss rate: 8.90%
-- Flow 1:
Average throughput: 268.93 Mbit/s
95th percentile per-packet one-way delay: 247.049 ms
Loss rate: 5.53%
-- Flow 2:
Average throughput: 292.28 Mbit/s
95th percentile per-packet one-way delay: 226.695 ms
Loss rate: 13.73%
-- Flow 3:
Average throughput: 230.02 Mbit/s
95th percentile per-packet one-way delay: 217.940 ms
Loss rate: 7.38%
```

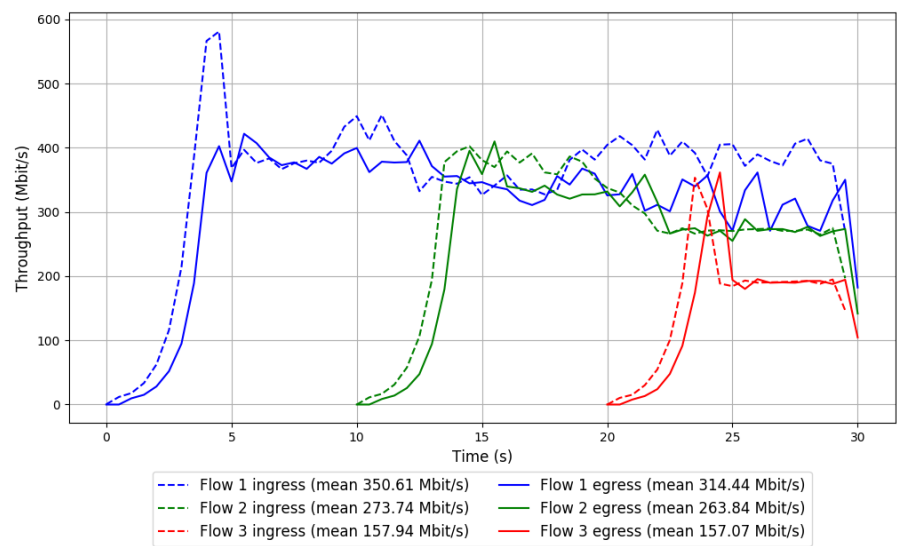Run 3: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 282.60 Mbit/s)   Flow 1 egress (mean 268.93 Mbit/s)
Flow 2 ingress (mean 335.04 Mbit/s)   Flow 2 egress (mean 292.28 Mbit/s)
Flow 3 ingress (mean 242.85 Mbit/s)   Flow 3 egress (mean 230.02 Mbit/s)

Flow 1 (95th percentile 247.05 ms)   Flow 2 (95th percentile 226.69 ms)   Flow 3 (95th percentile 217.94 ms)
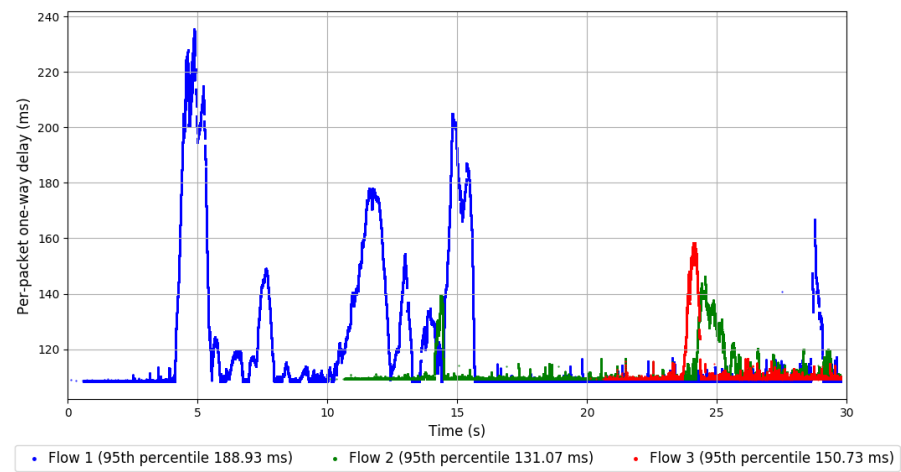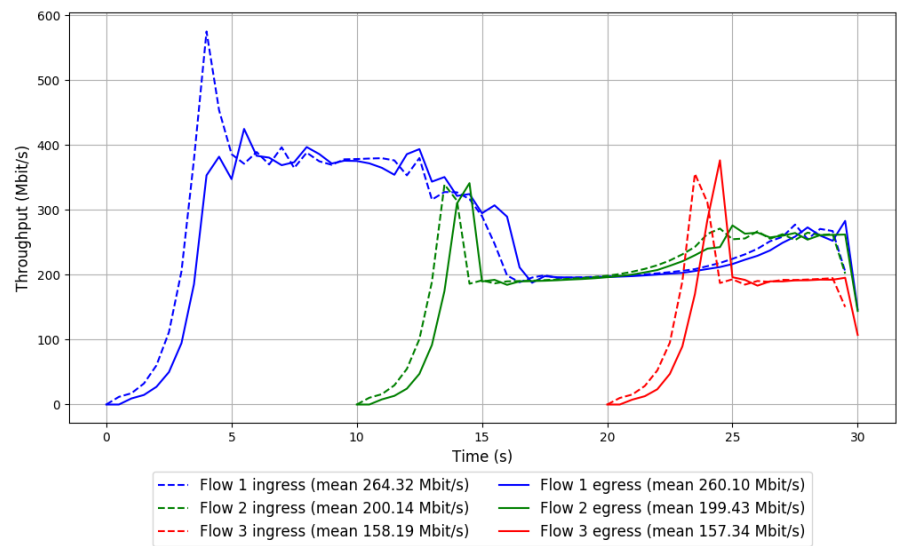
```
Run 4: Statistics of PCC-Expr

Start at: 2018-11-30 10:10:22
End at: 2018-11-30 10:10:52
Local clock offset: 1.163 ms
Remote clock offset: -0.461 ms


# Below is generated by plot.py at 2018-11-30 13:14:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 540.17 Mbit/s
95th percentile per-packet one-way delay: 235.091 ms
Loss rate: 8.29%
-- Flow 1:
Average throughput: 314.44 Mbit/s
95th percentile per-packet one-way delay: 242.694 ms
Loss rate: 10.97%
-- Flow 2:
Average throughput: 263.84 Mbit/s
95th percentile per-packet one-way delay: 223.262 ms
Loss rate: 4.71%
-- Flow 3:
Average throughput: 157.07 Mbit/s
95th percentile per-packet one-way delay: 149.768 ms
Loss rate: 2.76%
```

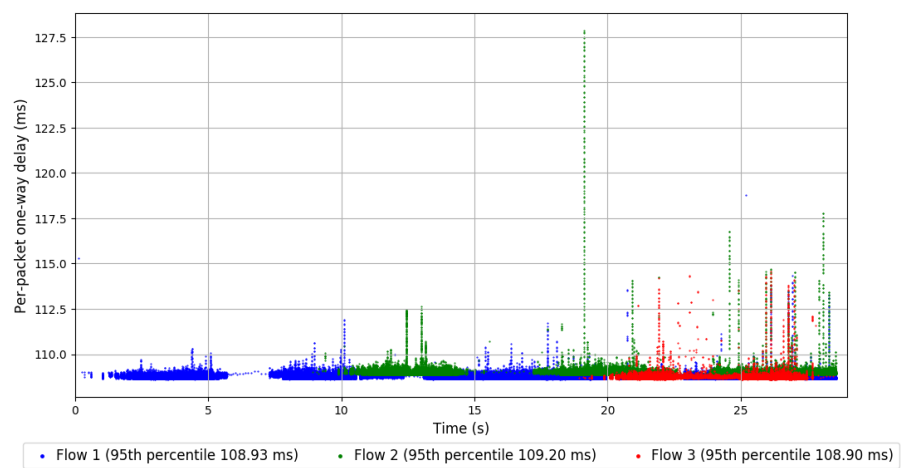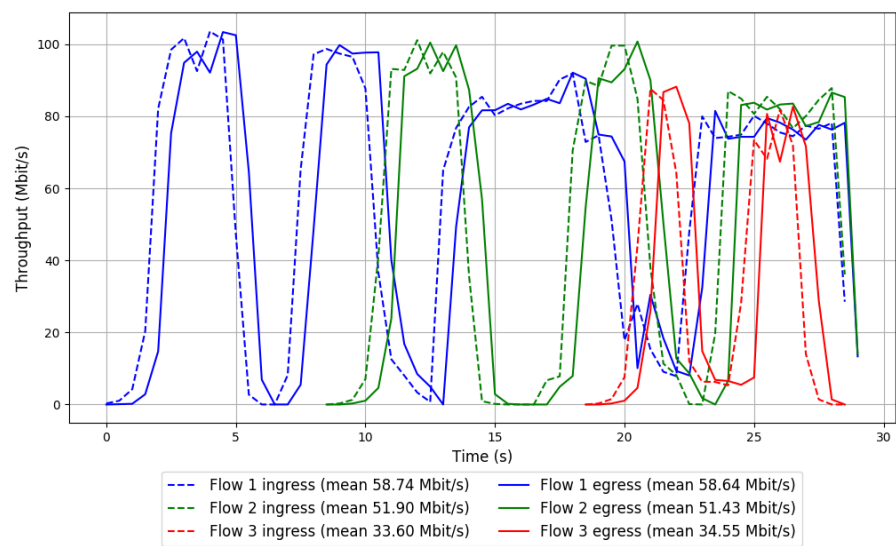Run 4: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 350.61 Mbit/s) --- Flow 1 egress (mean 314.44 Mbit/s)
Flow 2 ingress (mean 273.74 Mbit/s) --- Flow 2 egress (mean 263.84 Mbit/s)
Flow 3 ingress (mean 157.94 Mbit/s) --- Flow 3 egress (mean 157.07 Mbit/s)

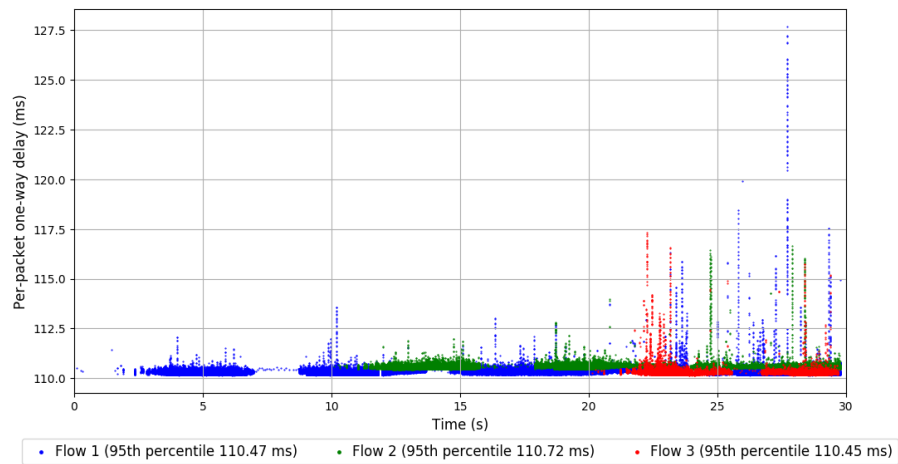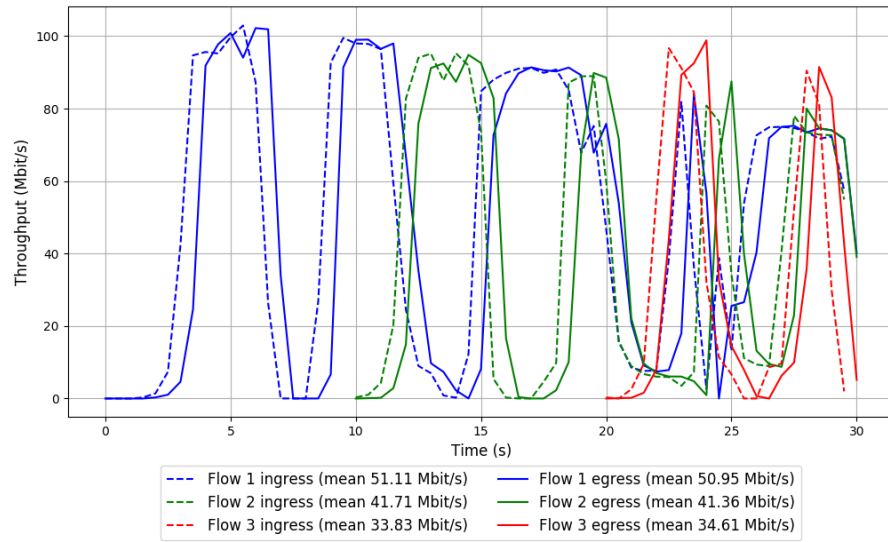Flow 1 (95th percentile 242.69 ms)   Flow 2 (95th percentile 223.26 ms)   Flow 3 (95th percentile 149.77 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2018-11-30 10:44:49
End at: 2018-11-30 10:45:19
Local clock offset: -0.148 ms
Remote clock offset: -0.001 ms


# Below is generated by plot.py at 2018-11-30 13:14:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 443.37 Mbit/s
95th percentile per-packet one-way delay: 174.351 ms
Loss rate: 2.11%
-- Flow 1:
Average throughput: 260.10 Mbit/s
95th percentile per-packet one-way delay: 188.925 ms
Loss rate: 2.32%
-- Flow 2:
Average throughput: 199.43 Mbit/s
95th percentile per-packet one-way delay: 131.070 ms
Loss rate: 1.45%
-- Flow 3:
Average throughput: 157.34 Mbit/s
95th percentile per-packet one-way delay: 150.732 ms
Loss rate: 2.76%
```

Run 5: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 264.32 Mbit/s) — Flow 1 egress (mean 260.10 Mbit/s)
Flow 2 ingress (mean 200.14 Mbit/s) — Flow 2 egress (mean 199.43 Mbit/s)
Flow 3 ingress (mean 158.19 Mbit/s) — Flow 3 egress (mean 157.34 Mbit/s)

Flow 1 (95th percentile 188.93 ms)   Flow 2 (95th percentile 131.07 ms)   Flow 3 (95th percentile 150.73 ms)

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```
Run 1: Statistics of QUIC Cubic

Start at: 2018-11-30 08:38:25
End at: 2018-11-30 08:38:55
Local clock offset: -0.441 ms
Remote clock offset: -0.227 ms


# Below is generated by plot.py at 2018-11-30 13:14:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 105.73 Mbit/s
95th percentile per-packet one-way delay: 109.106 ms
Loss rate: 1.20%
-- Flow 1:
Average throughput: 58.64 Mbit/s
95th percentile per-packet one-way delay: 108.927 ms
Loss rate: 0.95%
-- Flow 2:
Average throughput: 51.43 Mbit/s
95th percentile per-packet one-way delay: 109.203 ms
Loss rate: 1.99%
-- Flow 3:
Average throughput: 34.55 Mbit/s
95th percentile per-packet one-way delay: 108.901 ms
Loss rate: 0.00%
```
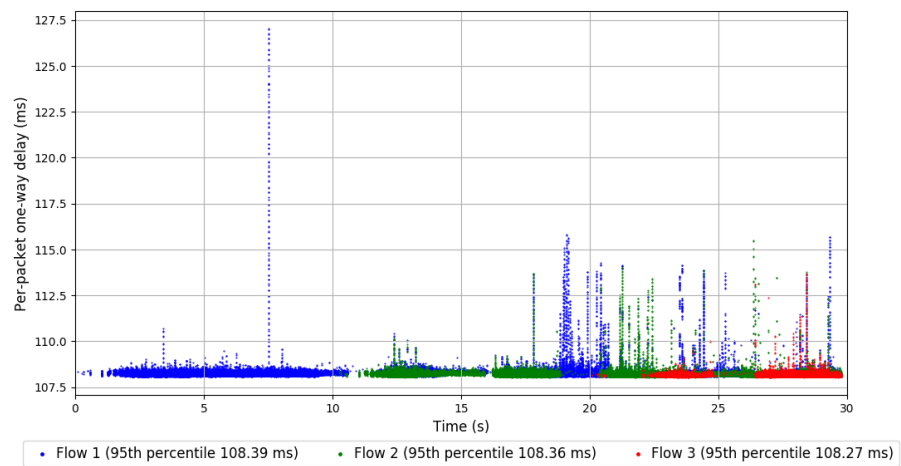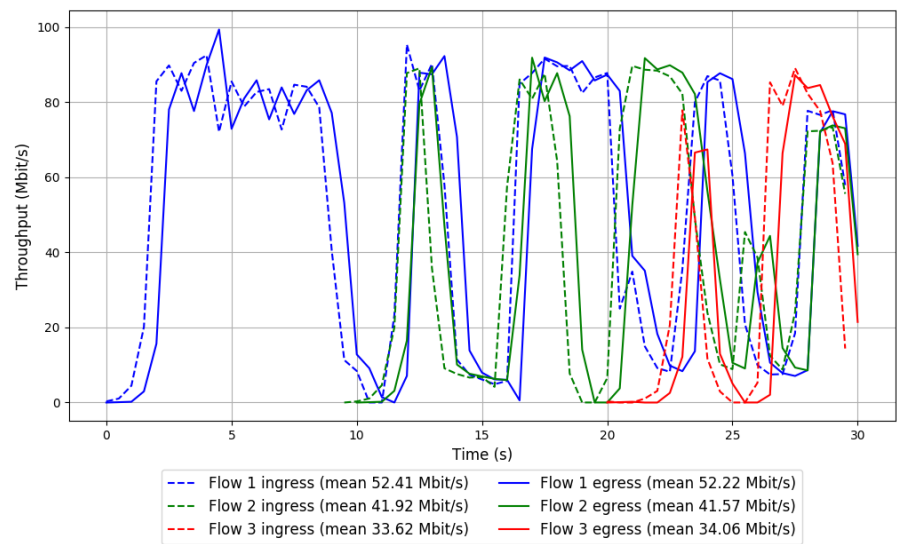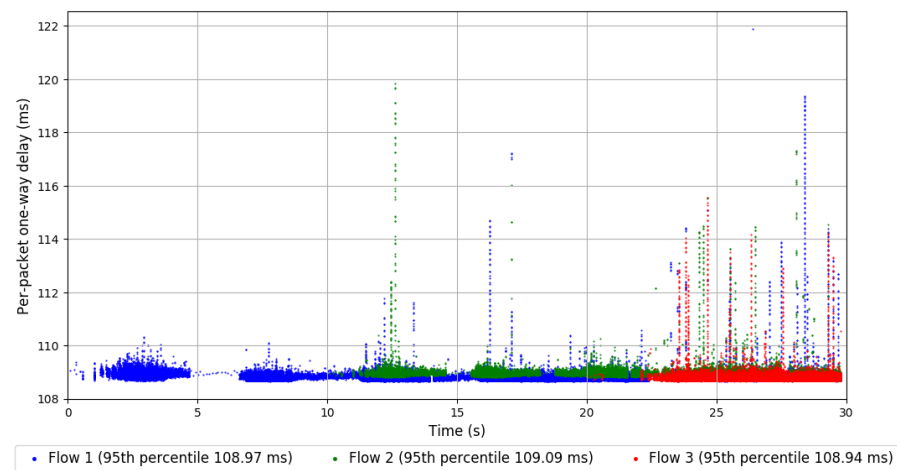
Run 1: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 58.74 Mbit/s)   Flow 1 egress (mean 58.64 Mbit/s)
Flow 2 ingress (mean 51.90 Mbit/s)   Flow 2 egress (mean 51.43 Mbit/s)
Flow 3 ingress (mean 33.60 Mbit/s)   Flow 3 egress (mean 34.55 Mbit/s)

Flow 1 (95th percentile 108.93 ms)   Flow 2 (95th percentile 109.20 ms)   Flow 3 (95th percentile 108.90 ms)

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-11-30 09:12:47
End at: 2018-11-30 09:13:17
Local clock offset: 1.178 ms
Remote clock offset: -0.343 ms


# Below is generated by plot.py at 2018-11-30 13:14:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.56 Mbit/s
95th percentile per-packet one-way delay: 110.649 ms
Loss rate: 1.20%
-- Flow 1:
Average throughput: 50.95 Mbit/s
95th percentile per-packet one-way delay: 110.469 ms
Loss rate: 1.06%
-- Flow 2:
Average throughput: 41.36 Mbit/s
95th percentile per-packet one-way delay: 110.720 ms
Loss rate: 1.94%
-- Flow 3:
Average throughput: 34.61 Mbit/s
95th percentile per-packet one-way delay: 110.455 ms
Loss rate: 0.00%
```

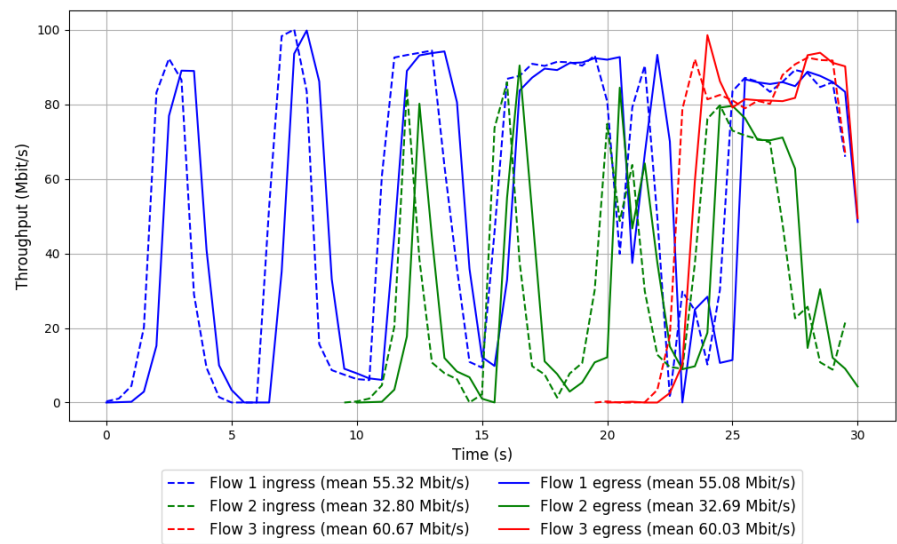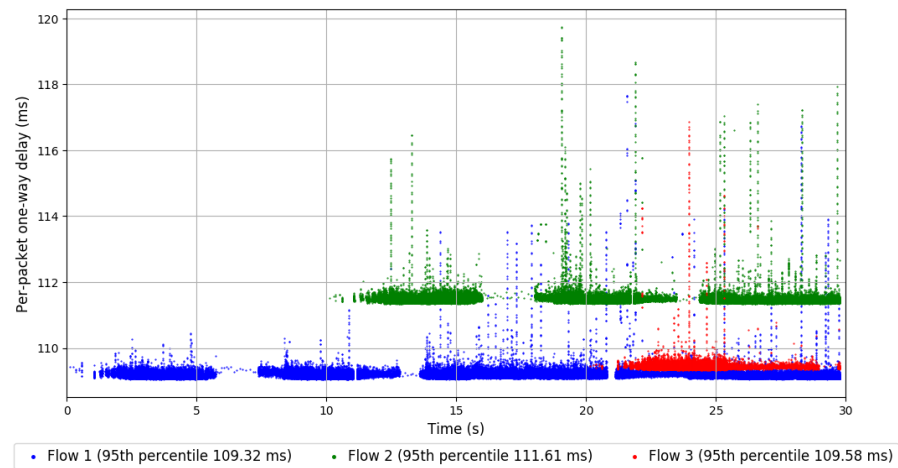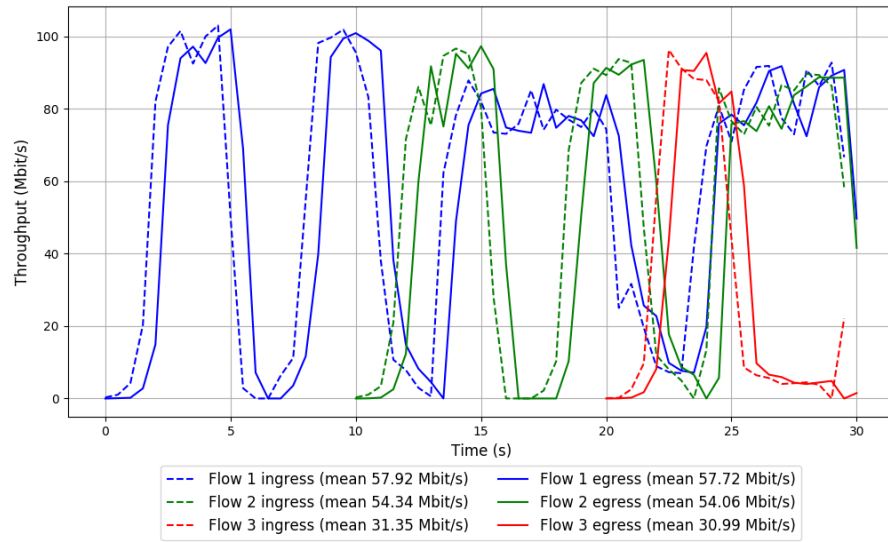Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-11-30 09:47:24
End at: 2018-11-30 09:47:54
Local clock offset: -0.068 ms
Remote clock offset: 0.224 ms


# Below is generated by plot.py at 2018-11-30 13:14:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.88 Mbit/s
95th percentile per-packet one-way delay: 108.374 ms
Loss rate: 1.32%
-- Flow 1:
Average throughput: 52.22 Mbit/s
95th percentile per-packet one-way delay: 108.392 ms
Loss rate: 1.08%
-- Flow 2:
Average throughput: 41.57 Mbit/s
95th percentile per-packet one-way delay: 108.362 ms
Loss rate: 1.93%
-- Flow 3:
Average throughput: 34.06 Mbit/s
95th percentile per-packet one-way delay: 108.273 ms
Loss rate: 0.92%
```
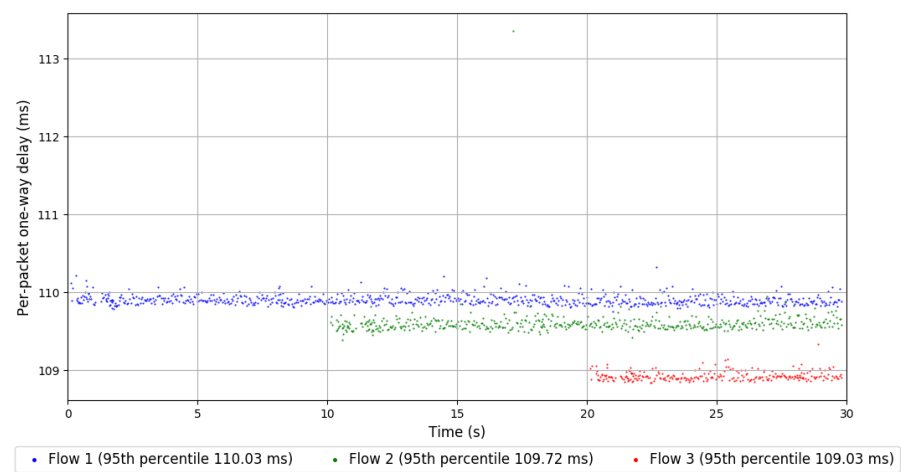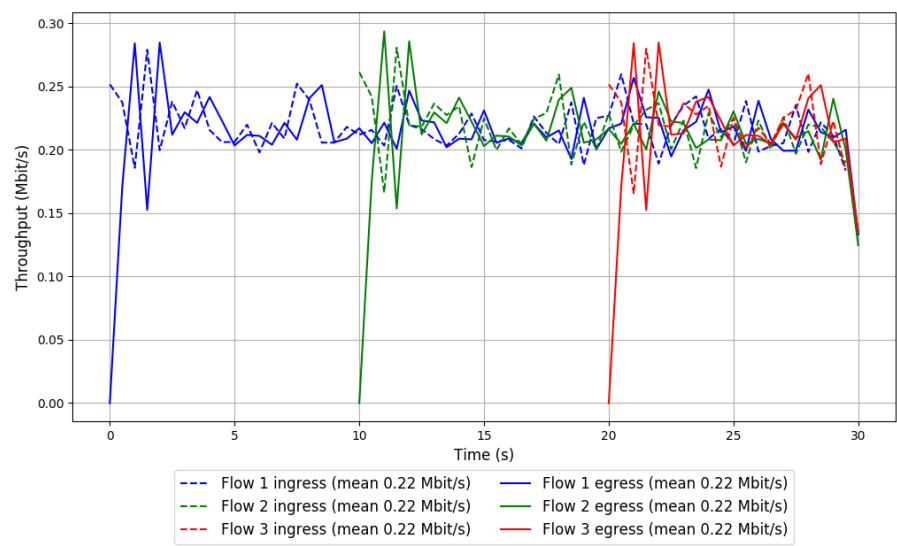
Run 3: Report of QUIC Cubic — Data Link

- Flow 1 ingress (mean 52.41 Mbit/s)
- Flow 1 egress (mean 52.22 Mbit/s)
- Flow 2 ingress (mean 41.92 Mbit/s)
- Flow 2 egress (mean 41.57 Mbit/s)
- Flow 3 ingress (mean 33.62 Mbit/s)
- Flow 3 egress (mean 34.06 Mbit/s)

- Flow 1 (95th percentile 108.39 ms)
- Flow 2 (95th percentile 108.36 ms)
- Flow 3 (95th percentile 108.27 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-11-30 10:21:49
End at: 2018-11-30 10:22:19
Local clock offset: -0.253 ms
Remote clock offset: -0.016 ms


# Below is generated by plot.py at 2018-11-30 13:14:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.33 Mbit/s
95th percentile per-packet one-way delay: 109.025 ms
Loss rate: 1.65%
-- Flow 1:
Average throughput: 55.08 Mbit/s
95th percentile per-packet one-way delay: 108.975 ms
Loss rate: 1.15%
-- Flow 2:
Average throughput: 32.69 Mbit/s
95th percentile per-packet one-way delay: 109.090 ms
Loss rate: 1.45%
-- Flow 3:
Average throughput: 60.03 Mbit/s
95th percentile per-packet one-way delay: 108.936 ms
Loss rate: 3.24%
```
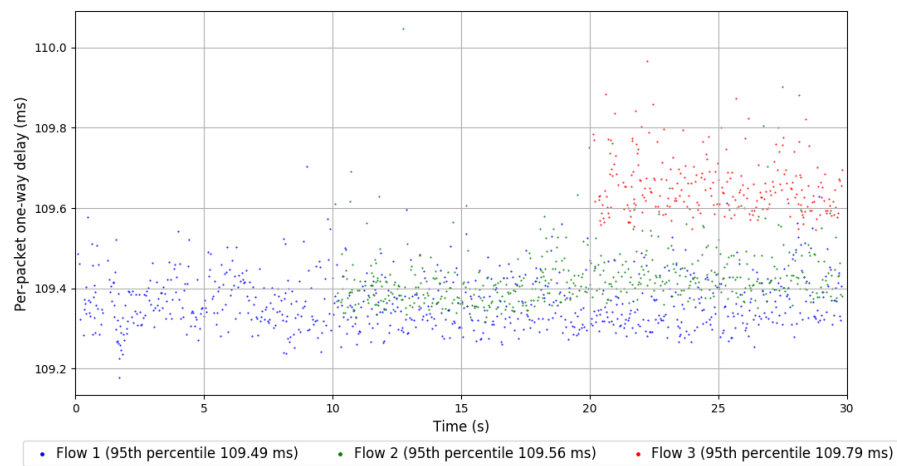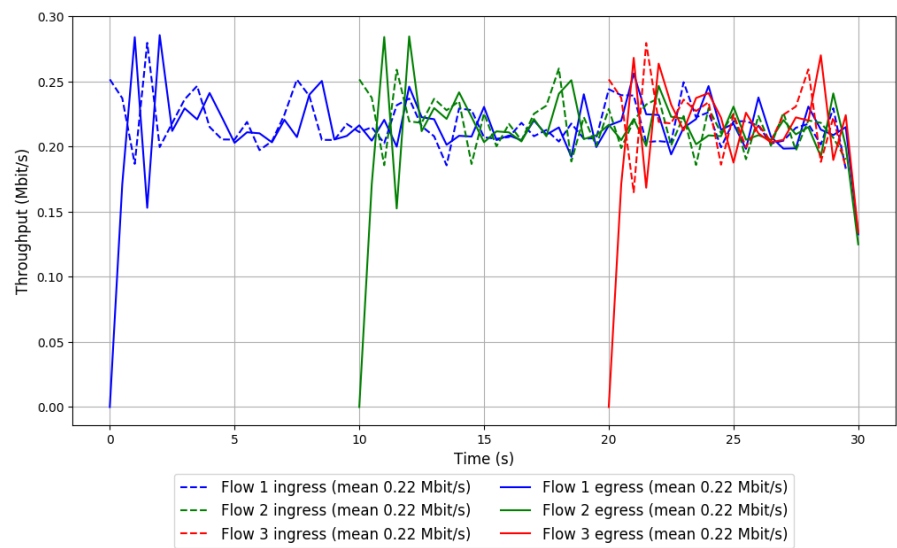
Run 4: Report of QUIC Cubic — Data Link

- - - - Flow 1 ingress (mean 55.32 Mbit/s)   —— Flow 1 egress (mean 55.08 Mbit/s)
- - - - Flow 2 ingress (mean 32.80 Mbit/s)   —— Flow 2 egress (mean 32.69 Mbit/s)
- - - - Flow 3 ingress (mean 60.67 Mbit/s)   —— Flow 3 egress (mean 60.03 Mbit/s)

- Flow 1 (95th percentile 108.97 ms)   • Flow 2 (95th percentile 109.09 ms)   • Flow 3 (95th percentile 108.94 ms)

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```
Run 5: Statistics of QUIC Cubic

Start at: 2018-11-30 10:56:24
End at: 2018-11-30 10:56:54
Local clock offset: -0.276 ms
Remote clock offset: -0.103 ms


# Below is generated by plot.py at 2018-11-30 13:14:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 103.59 Mbit/s
95th percentile per-packet one-way delay: 111.529 ms
Loss rate: 1.49%
-- Flow 1:
Average throughput: 57.72 Mbit/s
95th percentile per-packet one-way delay: 109.324 ms
Loss rate: 1.07%
-- Flow 2:
Average throughput: 54.06 Mbit/s
95th percentile per-packet one-way delay: 111.612 ms
Loss rate: 1.63%
-- Flow 3:
Average throughput: 30.99 Mbit/s
95th percentile per-packet one-way delay: 109.577 ms
Loss rate: 3.34%
```
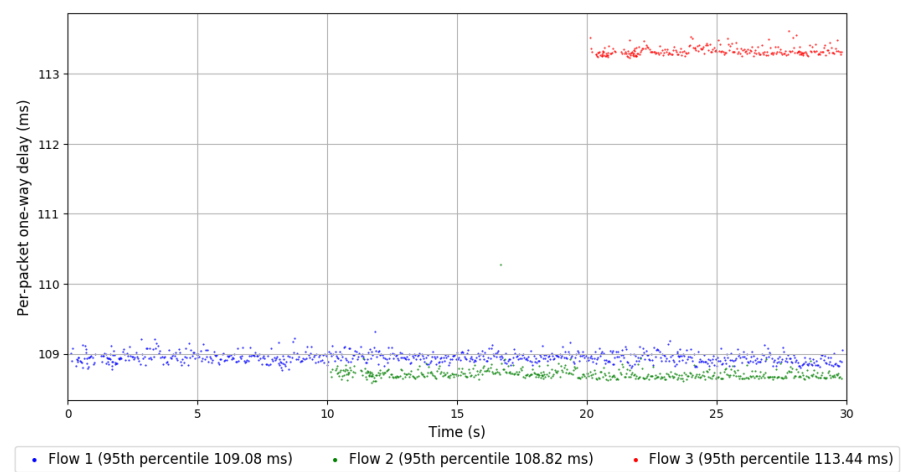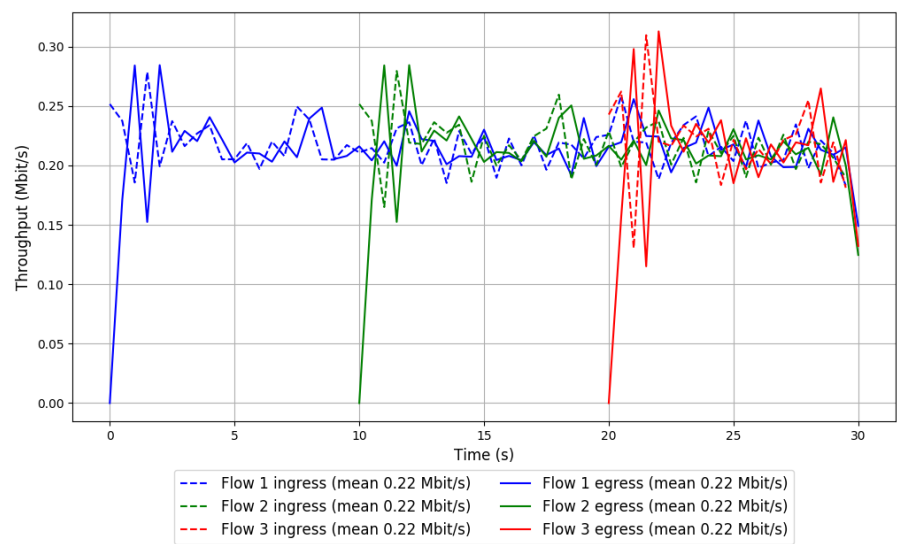
Run 5: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 57.92 Mbit/s)   Flow 1 egress (mean 57.72 Mbit/s)
Flow 2 ingress (mean 54.34 Mbit/s)   Flow 2 egress (mean 54.06 Mbit/s)
Flow 3 ingress (mean 31.35 Mbit/s)   Flow 3 egress (mean 30.99 Mbit/s)

Flow 1 (95th percentile 109.32 ms)   Flow 2 (95th percentile 111.61 ms)   Flow 3 (95th percentile 109.58 ms)

```
Run 1: Statistics of SCReAM

Start at: 2018-11-30 08:33:19
End at: 2018-11-30 08:33:49
Local clock offset: 0.126 ms
Remote clock offset: -0.579 ms


# Below is generated by plot.py at 2018-11-30 13:14:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 109.983 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.032 ms
Loss rate: 0.77%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.717 ms
Loss rate: 1.24%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.034 ms
Loss rate: 2.22%
```
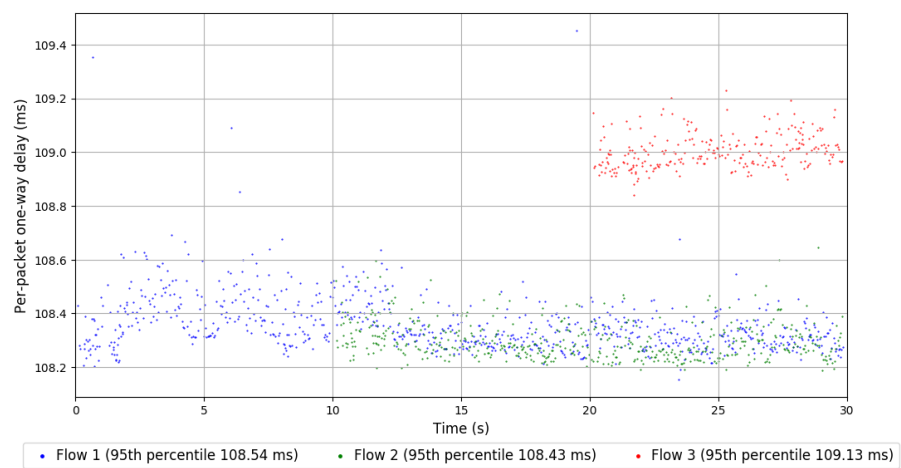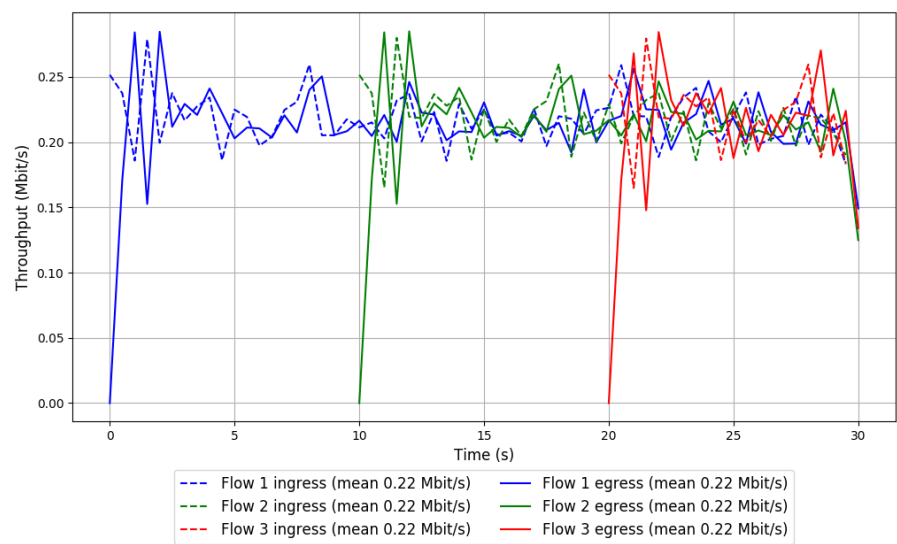
Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2018-11-30 09:07:31
End at: 2018-11-30 09:08:01
Local clock offset: -0.191 ms
Remote clock offset: -0.338 ms

# Below is generated by plot.py at 2018-11-30 13:14:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 109.682 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.490 ms
Loss rate: 0.77%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.557 ms
Loss rate: 1.25%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.794 ms
Loss rate: 2.22%
```
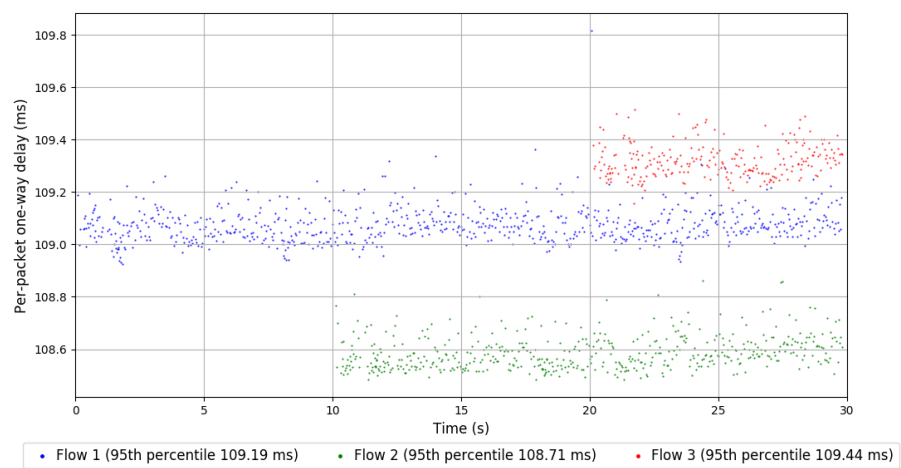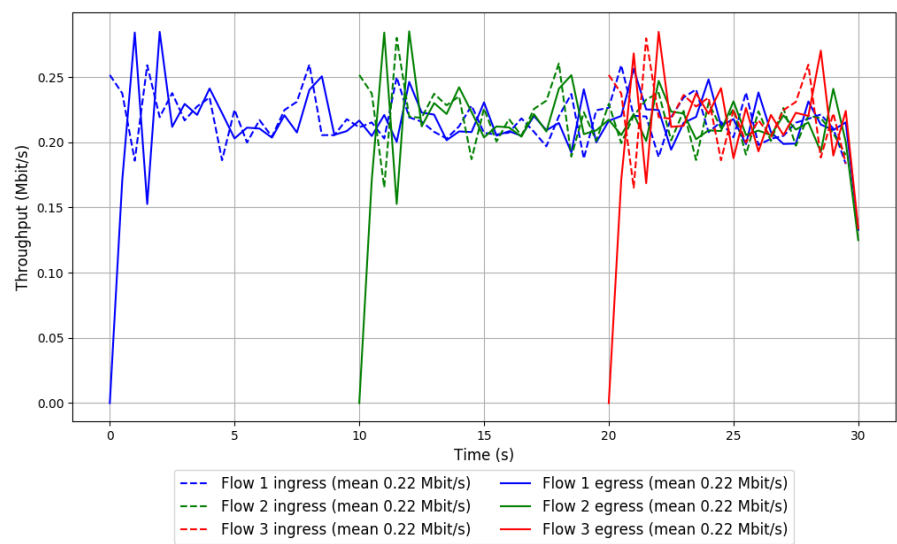
Run 2: Report of SCReAM — Data Link

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```
Run 3: Statistics of SCReAM

Start at: 2018-11-30 09:42:09
End at: 2018-11-30 09:42:39
Local clock offset: -0.575 ms
Remote clock offset: -0.136 ms


# Below is generated by plot.py at 2018-11-30 13:14:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 113.338 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.083 ms
Loss rate: 0.64%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 108.824 ms
Loss rate: 1.25%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 113.440 ms
Loss rate: 2.21%
```
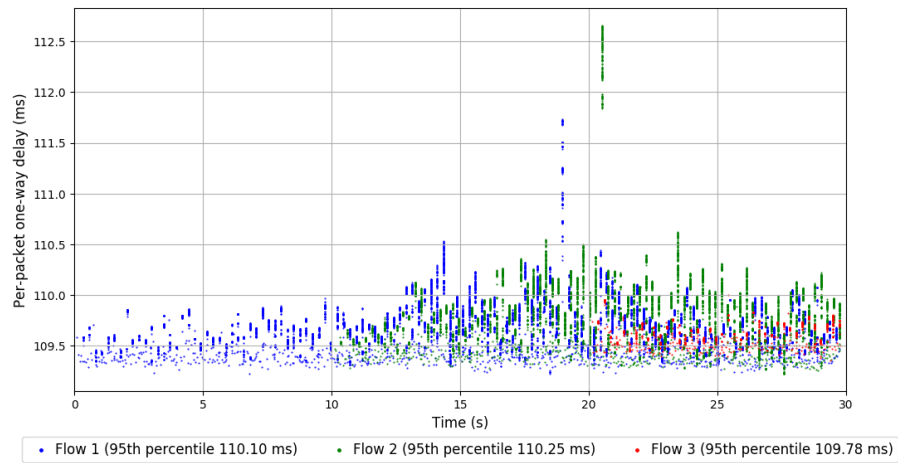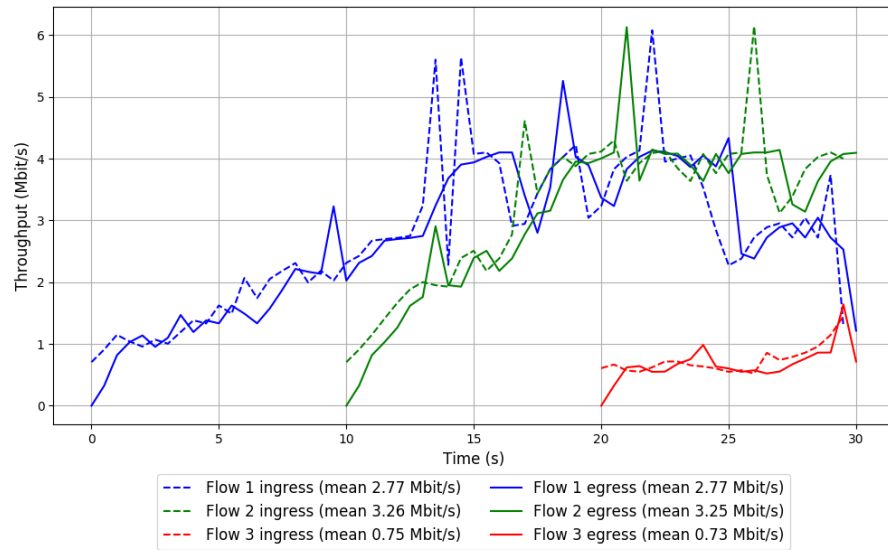
Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2018-11-30 10:16:30
End at: 2018-11-30 10:17:00
Local clock offset: -0.708 ms
Remote clock offset: -0.408 ms


# Below is generated by plot.py at 2018-11-30 13:14:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 109.029 ms
Loss rate: 1.11%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 108.538 ms
Loss rate: 0.64%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 108.430 ms
Loss rate: 1.25%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.132 ms
Loss rate: 2.22%
```

Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2018-11-30 10:51:05
End at: 2018-11-30 10:51:35
Local clock offset: -0.241 ms
Remote clock offset: -0.048 ms


# Below is generated by plot.py at 2018-11-30 13:14:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 109.344 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.195 ms
Loss rate: 0.77%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 108.709 ms
Loss rate: 1.24%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.444 ms
Loss rate: 2.22%
```
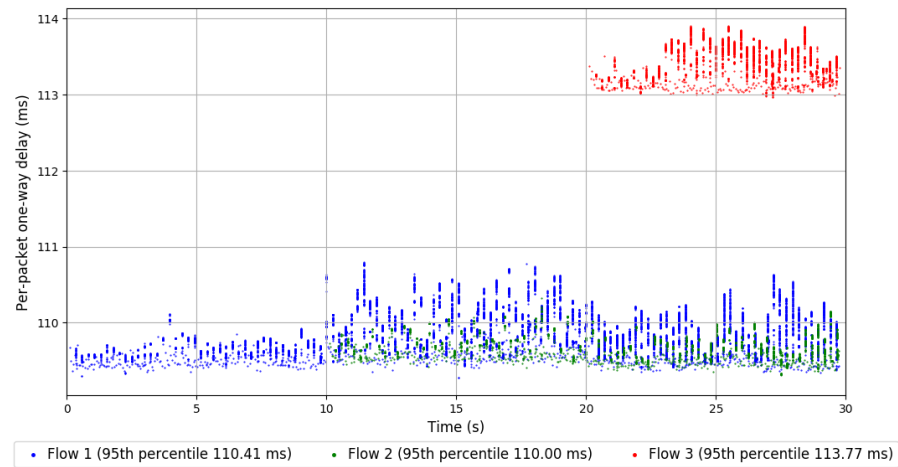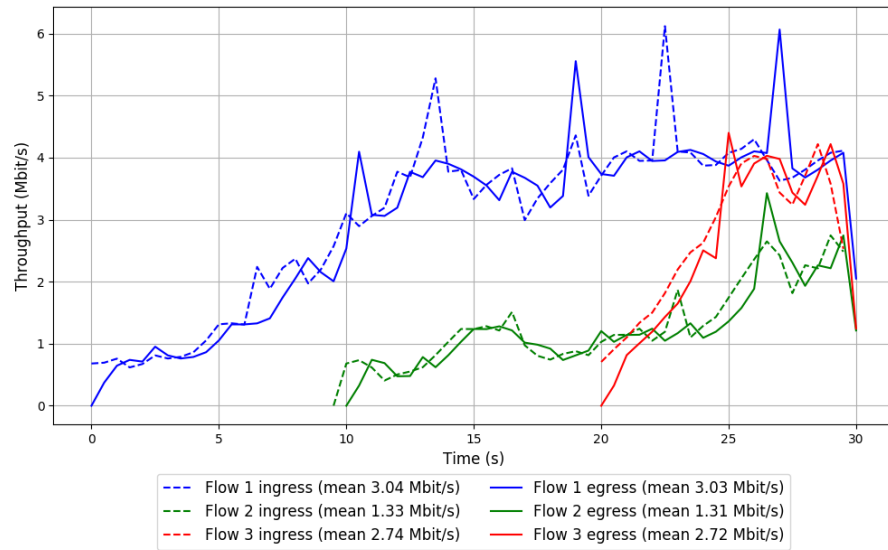
Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2018-11-30 08:39:49
End at: 2018-11-30 08:40:19
Local clock offset: -0.015 ms
Remote clock offset: -0.274 ms


# Below is generated by plot.py at 2018-11-30 13:14:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.16 Mbit/s
95th percentile per-packet one-way delay: 110.191 ms
Loss rate: 1.28%
-- Flow 1:
Average throughput: 2.77 Mbit/s
95th percentile per-packet one-way delay: 110.102 ms
Loss rate: 0.78%
-- Flow 2:
Average throughput: 3.25 Mbit/s
95th percentile per-packet one-way delay: 110.253 ms
Loss rate: 1.50%
-- Flow 3:
Average throughput: 0.73 Mbit/s
95th percentile per-packet one-way delay: 109.785 ms
Loss rate: 4.98%
```
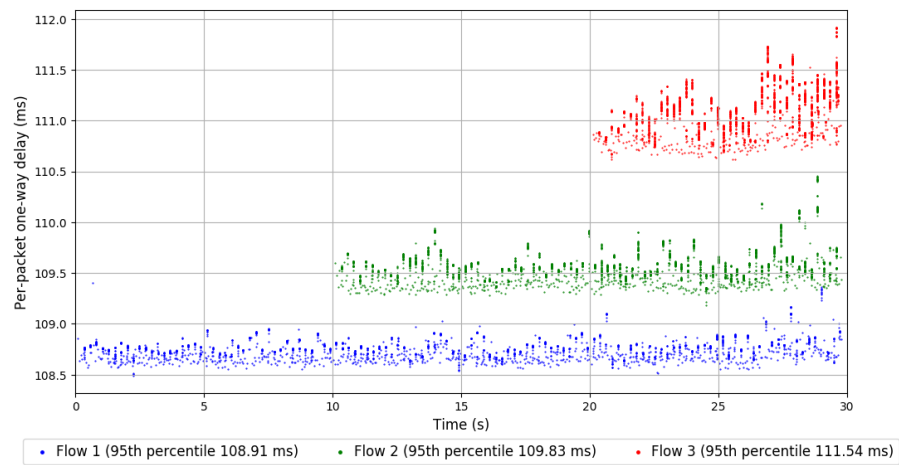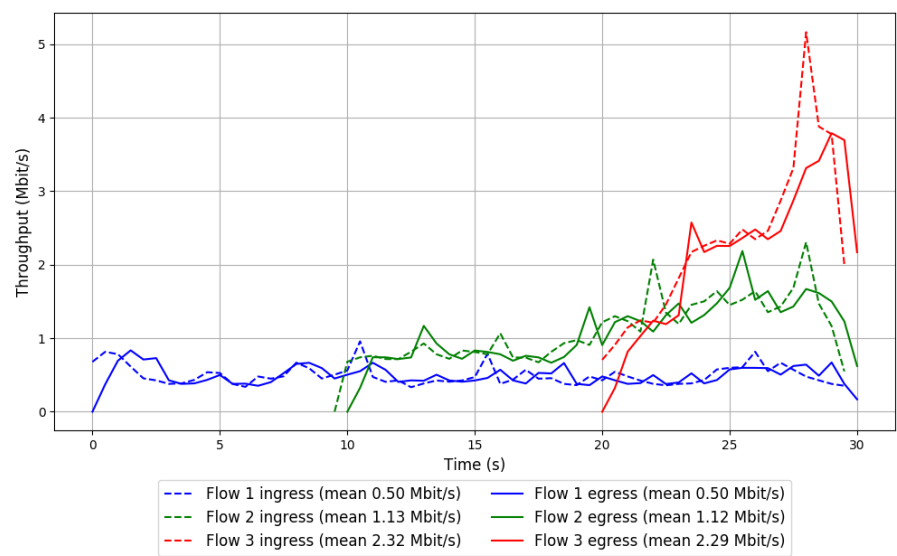
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-11-30 09:14:10
End at: 2018-11-30 09:14:40
Local clock offset: -0.062 ms
Remote clock offset: -0.351 ms


# Below is generated by plot.py at 2018-11-30 13:14:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.78 Mbit/s
95th percentile per-packet one-way delay: 113.600 ms
Loss rate: 1.61%
-- Flow 1:
Average throughput: 3.03 Mbit/s
95th percentile per-packet one-way delay: 110.405 ms
Loss rate: 1.14%
-- Flow 2:
Average throughput: 1.31 Mbit/s
95th percentile per-packet one-way delay: 109.997 ms
Loss rate: 2.42%
-- Flow 3:
Average throughput: 2.72 Mbit/s
95th percentile per-packet one-way delay: 113.767 ms
Loss rate: 2.39%
```
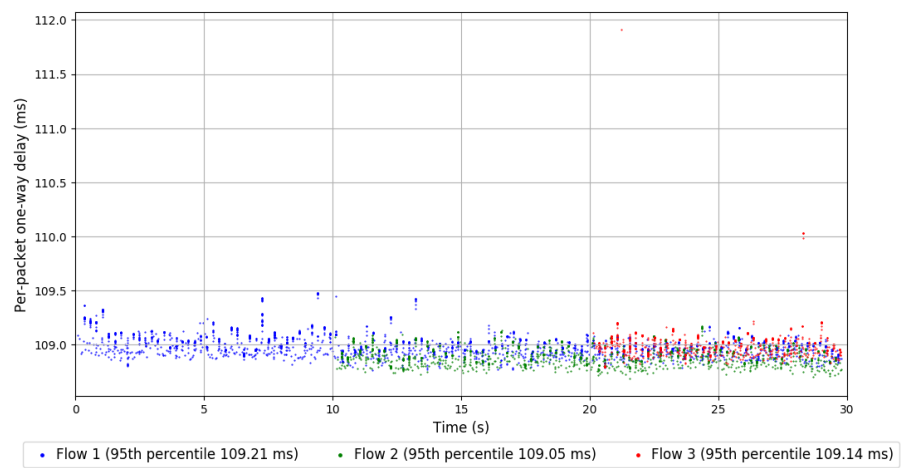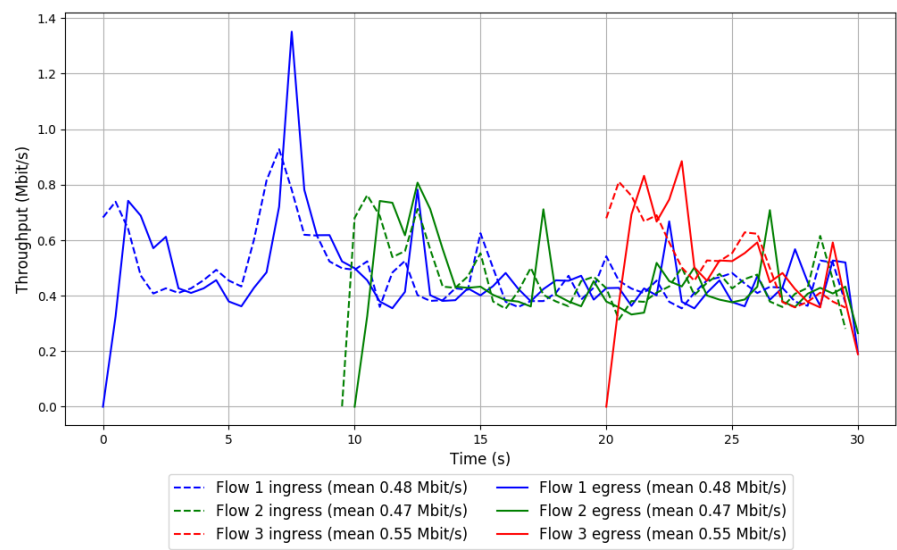
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-11-30 09:48:47
End at: 2018-11-30 09:49:17
Local clock offset: -0.071 ms
Remote clock offset: -0.14 ms

# Below is generated by plot.py at 2018-11-30 13:14:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.99 Mbit/s
95th percentile per-packet one-way delay: 111.377 ms
Loss rate: 2.06%
-- Flow 1:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 108.910 ms
Loss rate: 0.63%
-- Flow 2:
Average throughput: 1.12 Mbit/s
95th percentile per-packet one-way delay: 109.832 ms
Loss rate: 1.21%
-- Flow 3:
Average throughput: 2.29 Mbit/s
95th percentile per-packet one-way delay: 111.543 ms
Loss rate: 3.82%
```
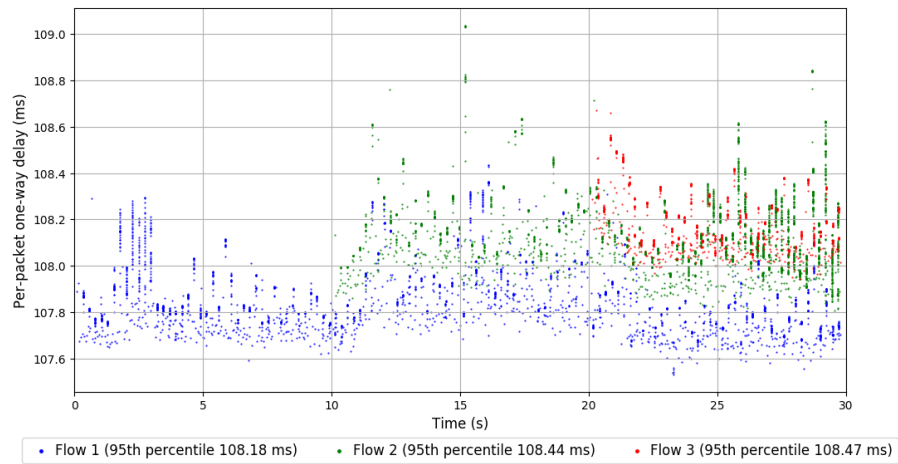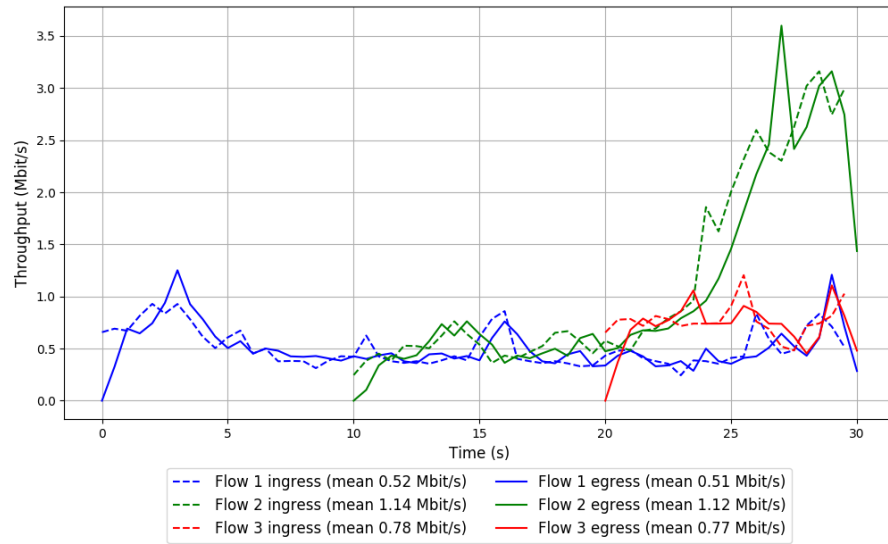
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2018-11-30 10:23:12
End at: 2018-11-30 10:23:42
Local clock offset: 0.304 ms
Remote clock offset: -0.045 ms


# Below is generated by plot.py at 2018-11-30 13:14:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.97 Mbit/s
95th percentile per-packet one-way delay: 109.153 ms
Loss rate: 1.05%
-- Flow 1:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 109.208 ms
Loss rate: 0.65%
-- Flow 2:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 109.053 ms
Loss rate: 1.36%
-- Flow 3:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 109.139 ms
Loss rate: 1.59%
```
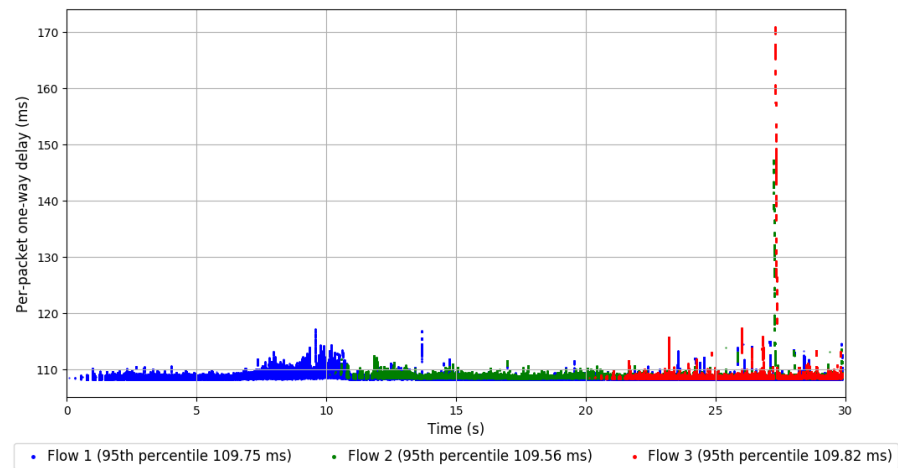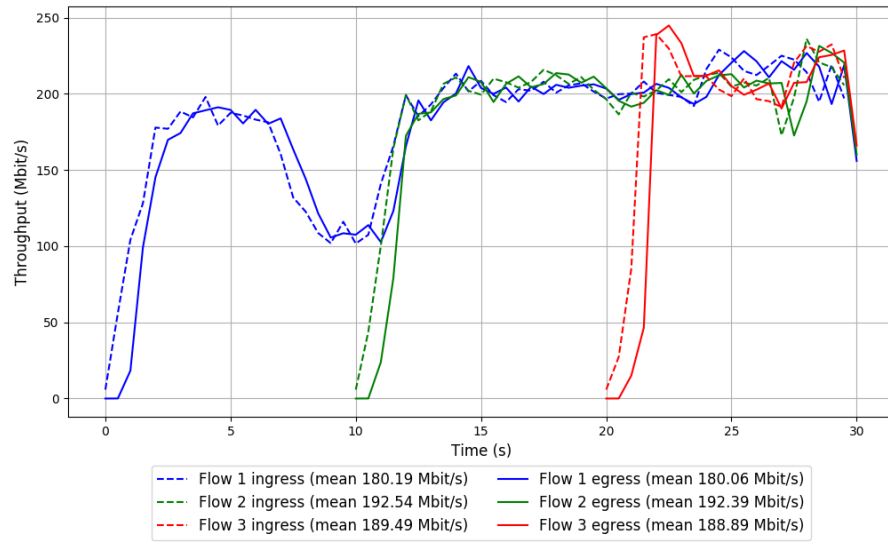
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-11-30 10:57:49
End at: 2018-11-30 10:58:19
Local clock offset: -1.563 ms
Remote clock offset: -0.043 ms

# Below is generated by plot.py at 2018-11-30 13:14:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.50 Mbit/s
95th percentile per-packet one-way delay: 108.385 ms
Loss rate: 2.56%
-- Flow 1:
Average throughput: 0.51 Mbit/s
95th percentile per-packet one-way delay: 108.177 ms
Loss rate: 0.76%
-- Flow 2:
Average throughput: 1.12 Mbit/s
95th percentile per-packet one-way delay: 108.437 ms
Loss rate: 3.44%
-- Flow 3:
Average throughput: 0.77 Mbit/s
95th percentile per-packet one-way delay: 108.466 ms
Loss rate: 3.58%
```

Run 5: Report of Sprout — Data Link

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

Start at: 2018-11-30 08:12:07
End at: 2018-11-30 08:12:37
Local clock offset: -0.776 ms
Remote clock offset: -0.062 ms


# Below is generated by plot.py at 2018-11-30 13:19:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 369.57 Mbit/s
95th percentile per-packet one-way delay: 109.681 ms
Loss rate: 1.22%
-- Flow 1:
Average throughput: 180.06 Mbit/s
95th percentile per-packet one-way delay: 109.751 ms
Loss rate: 0.80%
-- Flow 2:
Average throughput: 192.39 Mbit/s
95th percentile per-packet one-way delay: 109.561 ms
Loss rate: 1.18%
-- Flow 3:
Average throughput: 188.89 Mbit/s
95th percentile per-packet one-way delay: 109.824 ms
Loss rate: 2.52%
```
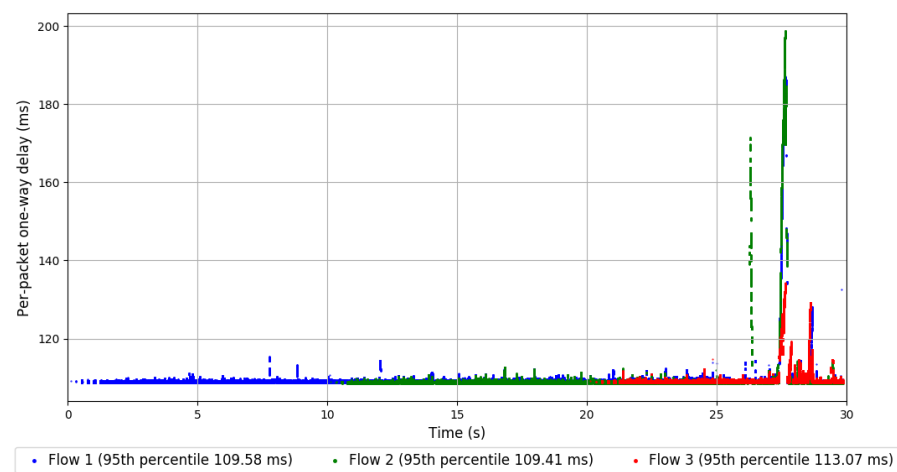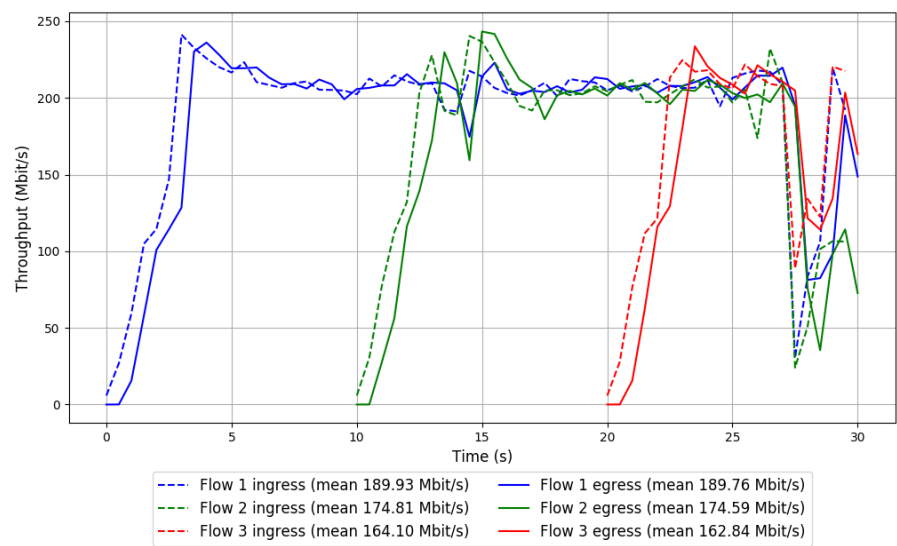
Run 1: Report of TaoVA-100x — Data Link

- - - Flow 1 ingress (mean 180.19 Mbit/s) —— Flow 1 egress (mean 180.06 Mbit/s)
- - - Flow 2 ingress (mean 192.54 Mbit/s) —— Flow 2 egress (mean 192.39 Mbit/s)
- - - Flow 3 ingress (mean 189.49 Mbit/s) —— Flow 3 egress (mean 188.89 Mbit/s)

- Flow 1 (95th percentile 109.75 ms)   • Flow 2 (95th percentile 109.56 ms)   • Flow 3 (95th percentile 109.82 ms)
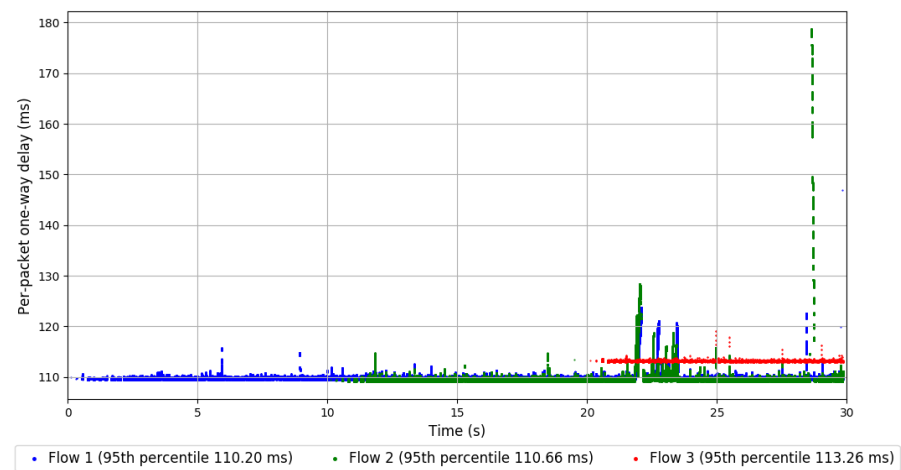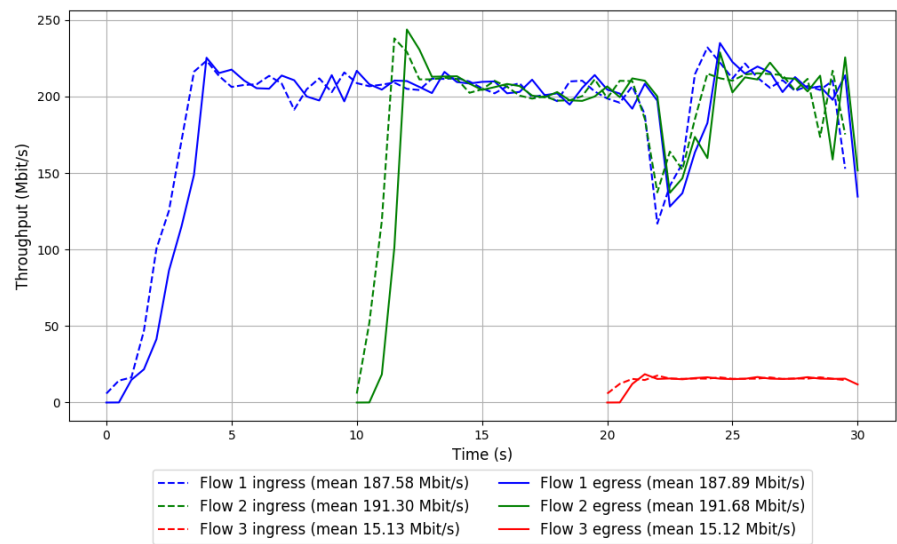
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```
Run 2: Statistics of TaoVA-100x

Start at: 2018-11-30 08:46:30
End at: 2018-11-30 08:47:00
Local clock offset: -0.05 ms
Remote clock offset: 0.047 ms

# Below is generated by plot.py at 2018-11-30 13:19:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 358.90 Mbit/s
95th percentile per-packet one-way delay: 109.669 ms
Loss rate: 1.13%
-- Flow 1:
Average throughput: 189.76 Mbit/s
95th percentile per-packet one-way delay: 109.580 ms
Loss rate: 0.82%
-- Flow 2:
Average throughput: 174.59 Mbit/s
95th percentile per-packet one-way delay: 109.414 ms
Loss rate: 0.78%
-- Flow 3:
Average throughput: 162.84 Mbit/s
95th percentile per-packet one-way delay: 113.073 ms
Loss rate: 2.95%
```
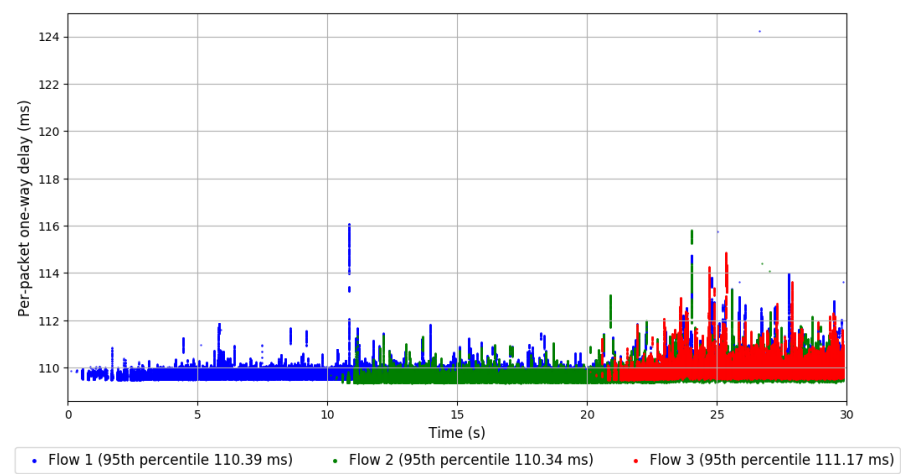
Run 2: Report of TaoVA-100x — Data Link

- Flow 1 ingress (mean 189.93 Mbit/s)
- Flow 1 egress (mean 189.76 Mbit/s)
- Flow 2 ingress (mean 174.81 Mbit/s)
- Flow 2 egress (mean 174.59 Mbit/s)
- Flow 3 ingress (mean 164.10 Mbit/s)
- Flow 3 egress (mean 162.84 Mbit/s)

- Flow 1 (95th percentile 109.58 ms)
- Flow 2 (95th percentile 109.41 ms)
- Flow 3 (95th percentile 113.07 ms)

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

Start at: 2018-11-30 09:20:49
End at: 2018-11-30 09:21:20
Local clock offset: 0.003 ms
Remote clock offset: -0.361 ms

# Below is generated by plot.py at 2018-11-30 13:19:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 319.92 Mbit/s
95th percentile per-packet one-way delay: 110.923 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 187.89 Mbit/s
95th percentile per-packet one-way delay: 110.202 ms
Loss rate: 0.58%
-- Flow 2:
Average throughput: 191.68 Mbit/s
95th percentile per-packet one-way delay: 110.662 ms
Loss rate: 0.98%
-- Flow 3:
Average throughput: 15.12 Mbit/s
95th percentile per-packet one-way delay: 113.263 ms
Loss rate: 2.30%
```
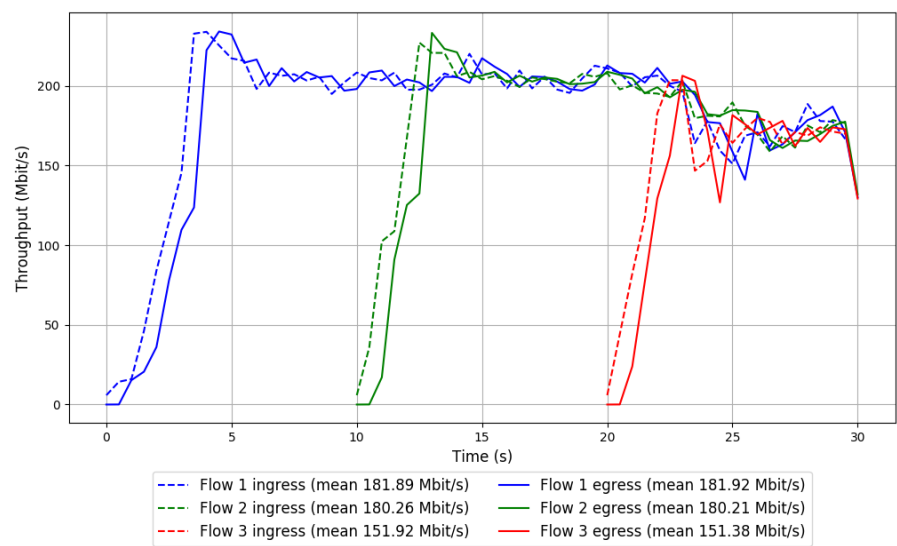
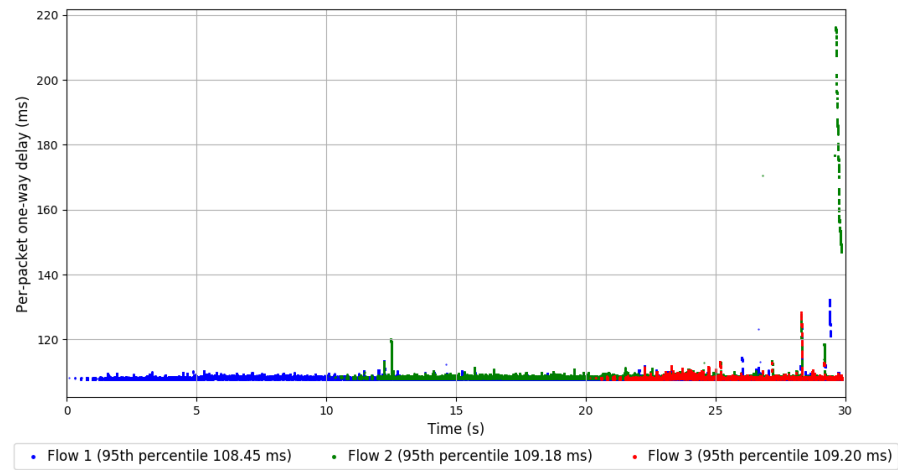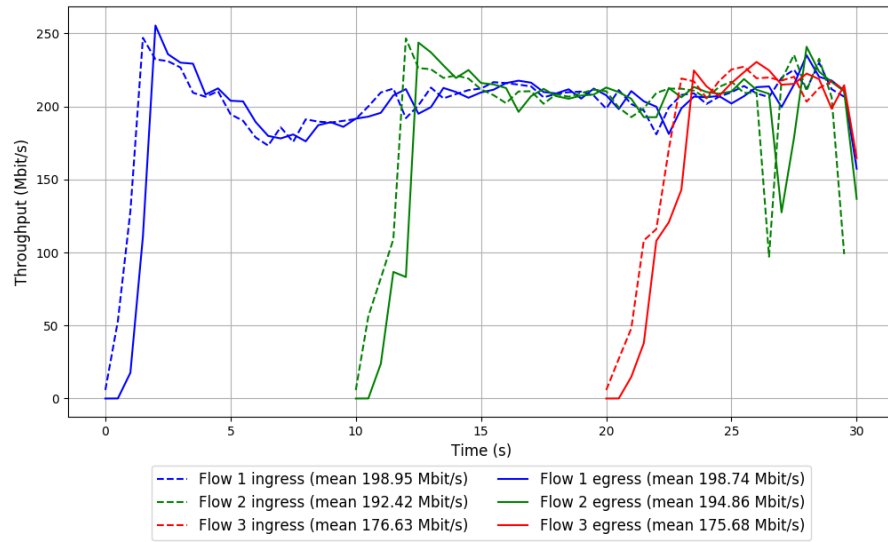# Run 3: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 187.58 Mbit/s) — Flow 1 egress (mean 187.89 Mbit/s)
Flow 2 ingress (mean 191.30 Mbit/s) — Flow 2 egress (mean 191.68 Mbit/s)
Flow 3 ingress (mean 15.13 Mbit/s) — Flow 3 egress (mean 15.12 Mbit/s)

Flow 1 (95th percentile 110.20 ms) • Flow 2 (95th percentile 110.66 ms) • Flow 3 (95th percentile 113.26 ms)

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

Start at: 2018-11-30 09:55:25
End at: 2018-11-30 09:55:55
Local clock offset: -0.075 ms
Remote clock offset: -0.46 ms

# Below is generated by plot.py at 2018-11-30 13:20:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 351.07 Mbit/s
95th percentile per-packet one-way delay: 110.503 ms
Loss rate: 1.12%
-- Flow 1:
Average throughput: 181.92 Mbit/s
95th percentile per-packet one-way delay: 110.385 ms
Loss rate: 0.71%
-- Flow 2:
Average throughput: 180.21 Mbit/s
95th percentile per-packet one-way delay: 110.337 ms
Loss rate: 1.14%
-- Flow 3:
Average throughput: 151.38 Mbit/s
95th percentile per-packet one-way delay: 111.169 ms
Loss rate: 2.54%
```

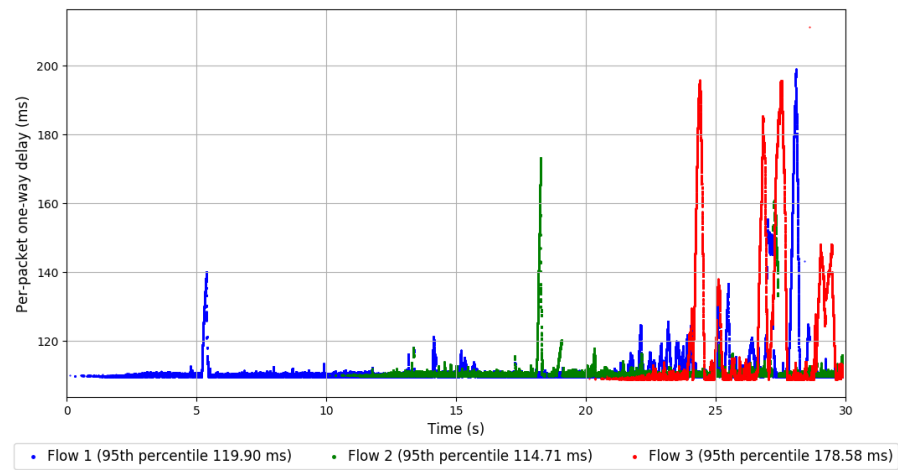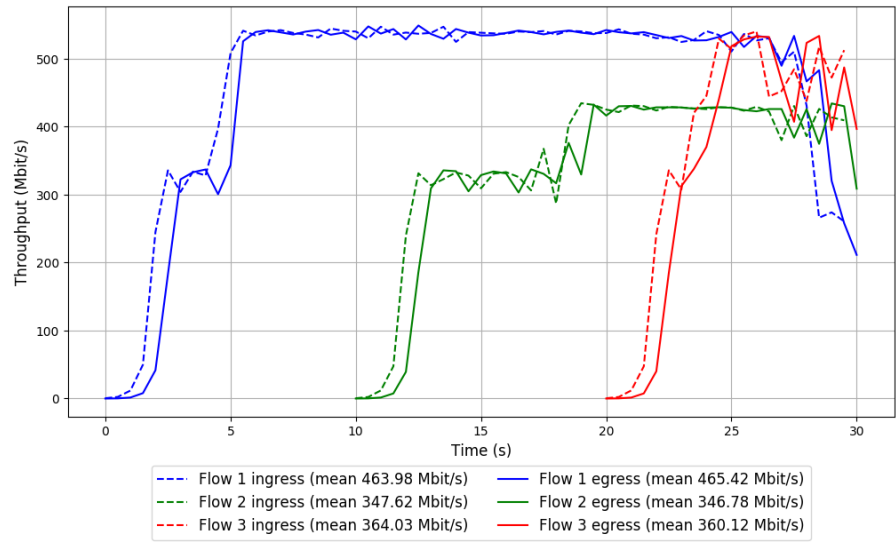# Run 4: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 181.89 Mbit/s)   Flow 1 egress (mean 181.92 Mbit/s)
Flow 2 ingress (mean 180.26 Mbit/s)   Flow 2 egress (mean 180.21 Mbit/s)
Flow 3 ingress (mean 151.92 Mbit/s)   Flow 3 egress (mean 151.38 Mbit/s)

Flow 1 (95th percentile 110.39 ms)   Flow 2 (95th percentile 110.34 ms)   Flow 3 (95th percentile 111.17 ms)

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

Start at: 2018-11-30 10:29:57
End at: 2018-11-30 10:30:27
Local clock offset: -1.364 ms
Remote clock offset: -0.008 ms

# Below is generated by plot.py at 2018-11-30 13:24:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 385.19 Mbit/s
95th percentile per-packet one-way delay: 108.848 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 198.74 Mbit/s
95th percentile per-packet one-way delay: 108.452 ms
Loss rate: 0.83%
-- Flow 2:
Average throughput: 194.86 Mbit/s
95th percentile per-packet one-way delay: 109.184 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 175.68 Mbit/s
95th percentile per-packet one-way delay: 109.198 ms
Loss rate: 2.72%
```
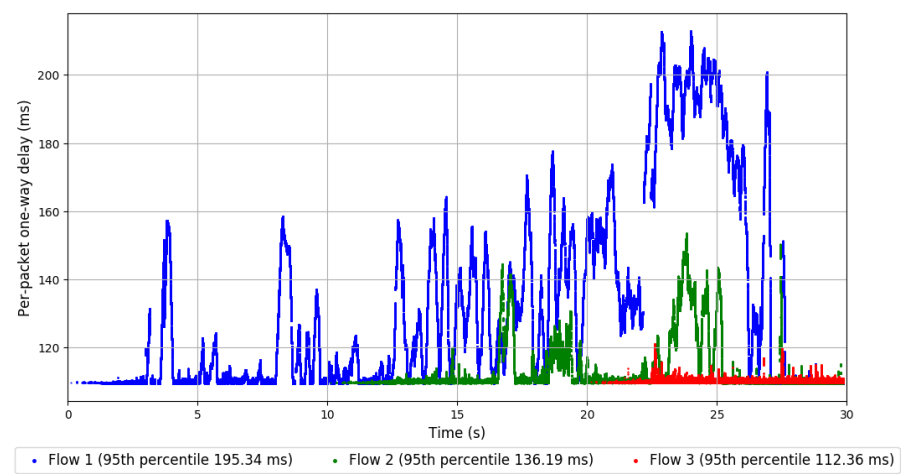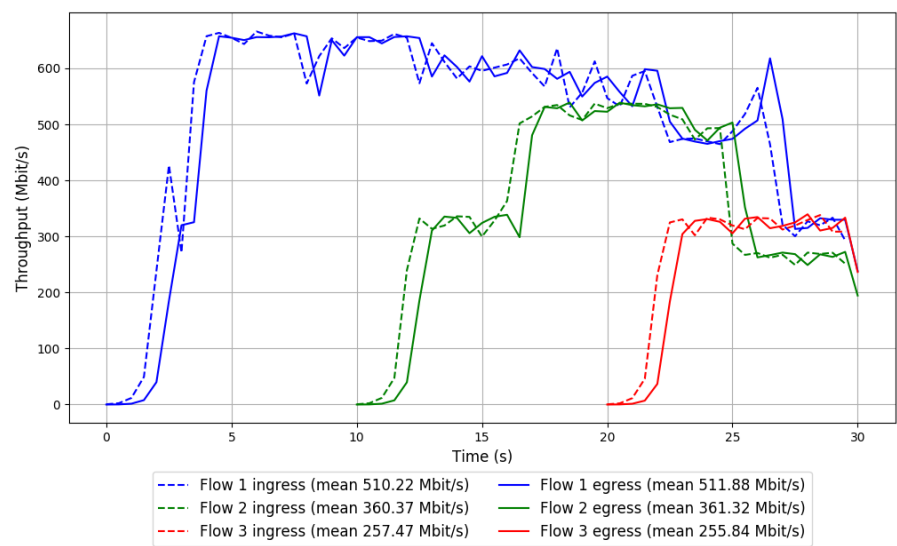
Run 5: Report of TaoVA-100x — Data Link

- - - Flow 1 ingress (mean 198.95 Mbit/s) —— Flow 1 egress (mean 198.74 Mbit/s)
- - - Flow 2 ingress (mean 192.42 Mbit/s) —— Flow 2 egress (mean 194.86 Mbit/s)
- - - Flow 3 ingress (mean 176.63 Mbit/s) —— Flow 3 egress (mean 175.68 Mbit/s)

• Flow 1 (95th percentile 108.45 ms)   • Flow 2 (95th percentile 109.18 ms)   • Flow 3 (95th percentile 109.20 ms)

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```
Run 1: Statistics of TCP Vegas

Start at: 2018-11-30 08:17:34
End at: 2018-11-30 08:18:04
Local clock offset: 0.641 ms
Remote clock offset: -0.102 ms


# Below is generated by plot.py at 2018-11-30 13:29:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 813.49 Mbit/s
95th percentile per-packet one-way delay: 133.746 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 465.42 Mbit/s
95th percentile per-packet one-way delay: 119.903 ms
Loss rate: 0.42%
-- Flow 2:
Average throughput: 346.78 Mbit/s
95th percentile per-packet one-way delay: 114.713 ms
Loss rate: 1.33%
-- Flow 3:
Average throughput: 360.12 Mbit/s
95th percentile per-packet one-way delay: 178.584 ms
Loss rate: 3.24%
```
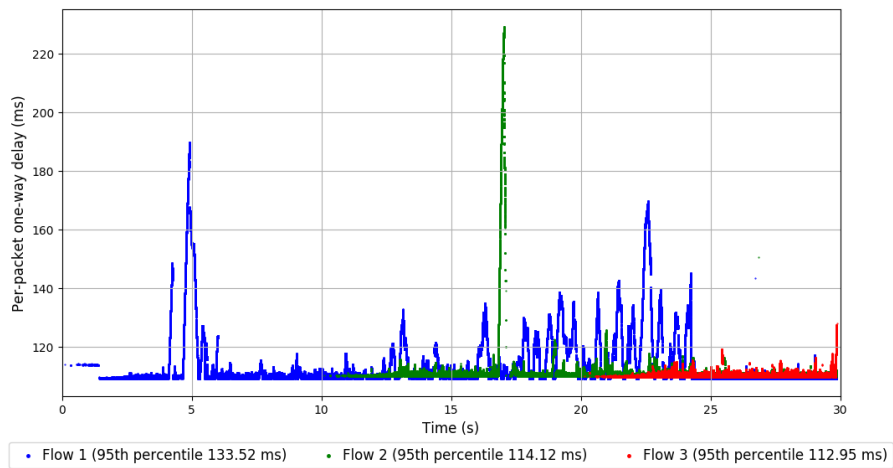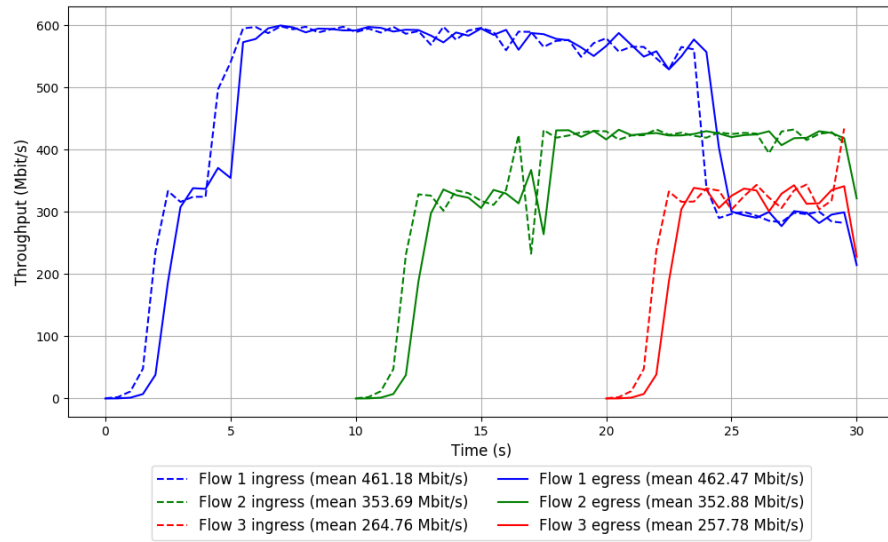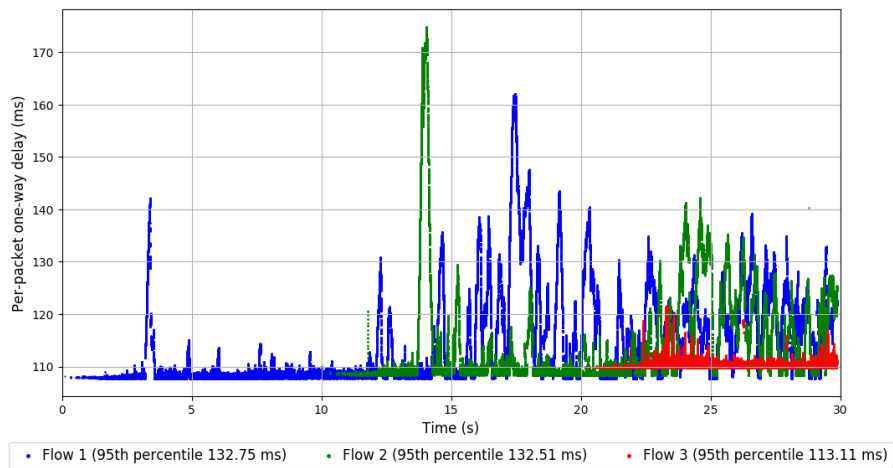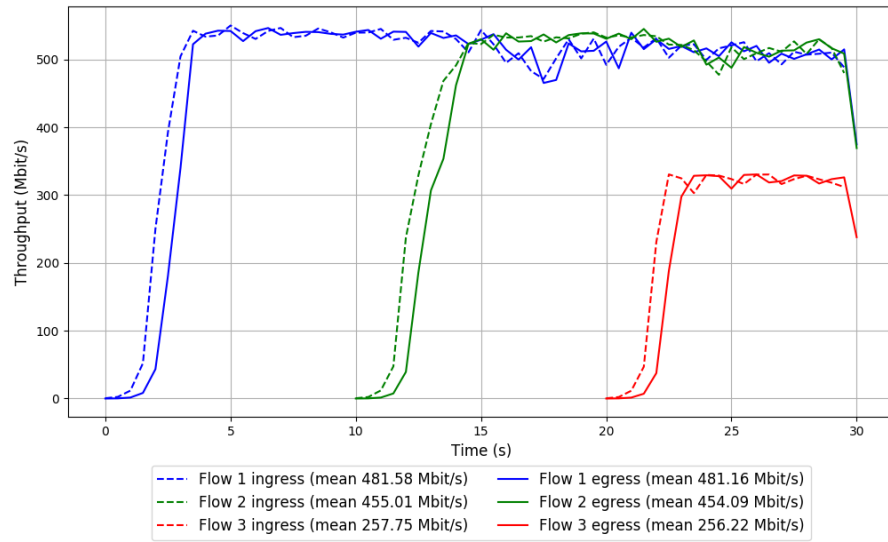
Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-11-30 08:52:01
End at: 2018-11-30 08:52:31
Local clock offset: 0.195 ms
Remote clock offset: -0.36 ms


# Below is generated by plot.py at 2018-11-30 13:30:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 835.41 Mbit/s
95th percentile per-packet one-way delay: 185.609 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 511.88 Mbit/s
95th percentile per-packet one-way delay: 195.344 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 361.32 Mbit/s
95th percentile per-packet one-way delay: 136.190 ms
Loss rate: 0.82%
-- Flow 3:
Average throughput: 255.84 Mbit/s
95th percentile per-packet one-way delay: 112.365 ms
Loss rate: 2.78%
```

Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-11-30 09:26:14
End at: 2018-11-30 09:26:44
Local clock offset: 0.693 ms
Remote clock offset: -0.32 ms

# Below is generated by plot.py at 2018-11-30 13:31:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 780.99 Mbit/s
95th percentile per-packet one-way delay: 129.402 ms
Loss rate: 1.21%
-- Flow 1:
Average throughput: 462.47 Mbit/s
95th percentile per-packet one-way delay: 133.523 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 352.88 Mbit/s
95th percentile per-packet one-way delay: 114.121 ms
Loss rate: 1.33%
-- Flow 3:
Average throughput: 257.78 Mbit/s
95th percentile per-packet one-way delay: 112.946 ms
Loss rate: 4.76%
```
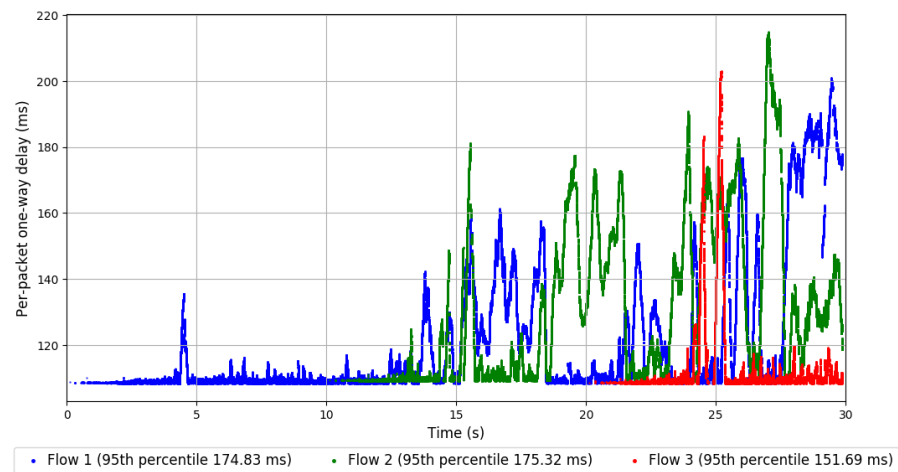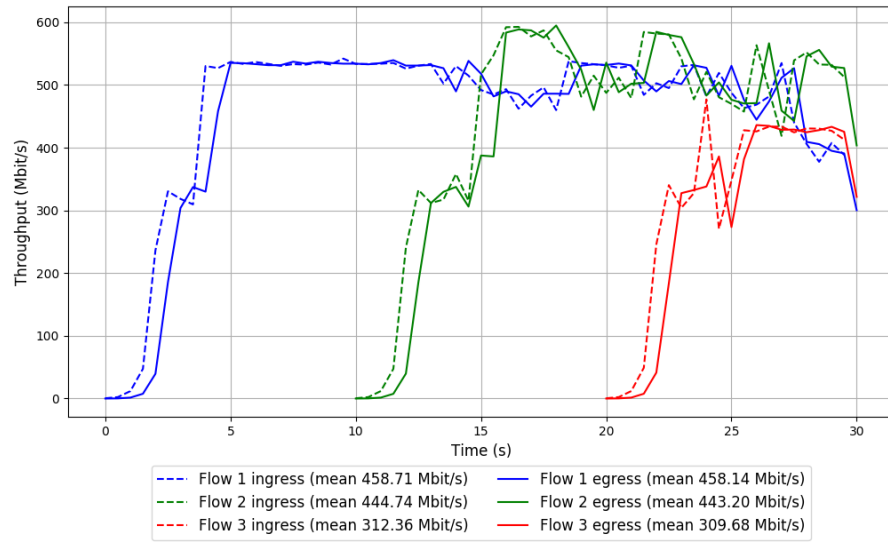
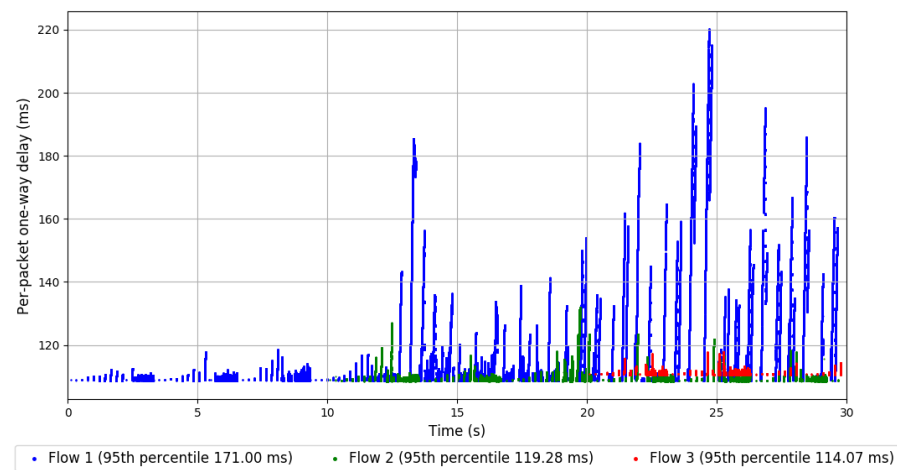Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2018-11-30 10:00:51
End at: 2018-11-30 10:01:21
Local clock offset: -0.803 ms
Remote clock offset: -0.121 ms


# Below is generated by plot.py at 2018-11-30 13:37:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 866.31 Mbit/s
95th percentile per-packet one-way delay: 131.944 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 481.16 Mbit/s
95th percentile per-packet one-way delay: 132.749 ms
Loss rate: 0.81%
-- Flow 2:
Average throughput: 454.09 Mbit/s
95th percentile per-packet one-way delay: 132.507 ms
Loss rate: 1.29%
-- Flow 3:
Average throughput: 256.22 Mbit/s
95th percentile per-packet one-way delay: 113.113 ms
Loss rate: 2.77%
```

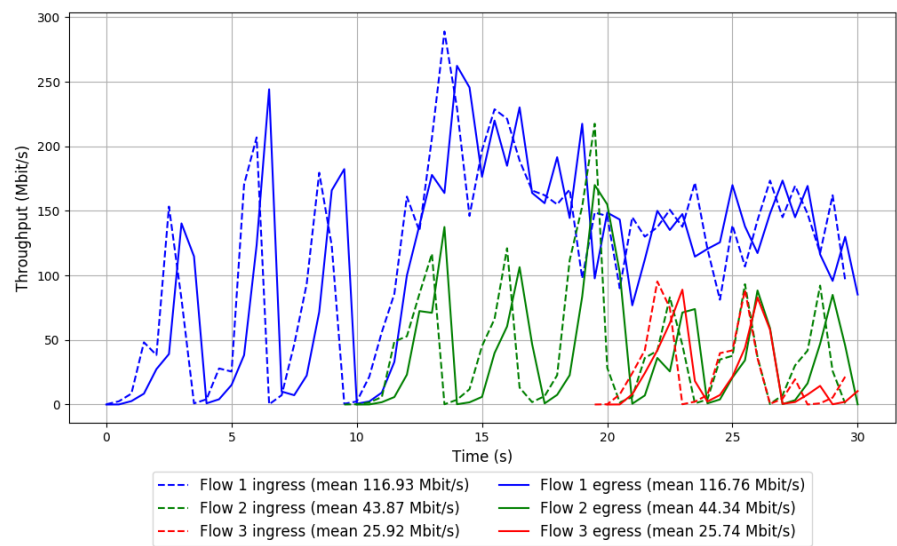## Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2018-11-30 10:35:16
End at: 2018-11-30 10:35:46
Local clock offset: -0.047 ms
Remote clock offset: -0.04 ms

# Below is generated by plot.py at 2018-11-30 13:38:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 853.65 Mbit/s
95th percentile per-packet one-way delay: 173.641 ms
Loss rate: 1.32%
-- Flow 1:
Average throughput: 458.14 Mbit/s
95th percentile per-packet one-way delay: 174.834 ms
Loss rate: 0.86%
-- Flow 2:
Average throughput: 443.20 Mbit/s
95th percentile per-packet one-way delay: 175.316 ms
Loss rate: 1.45%
-- Flow 3:
Average throughput: 309.68 Mbit/s
95th percentile per-packet one-way delay: 151.689 ms
Loss rate: 3.02%
```

Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2018-11-30 08:41:06
End at: 2018-11-30 08:41:36
Local clock offset: -0.67 ms
Remote clock offset: -0.297 ms


# Below is generated by plot.py at 2018-11-30 13:38:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 153.96 Mbit/s
95th percentile per-packet one-way delay: 162.511 ms
Loss rate: 1.21%
-- Flow 1:
Average throughput: 116.76 Mbit/s
95th percentile per-packet one-way delay: 170.997 ms
Loss rate: 1.38%
-- Flow 2:
Average throughput: 44.34 Mbit/s
95th percentile per-packet one-way delay: 119.283 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 25.74 Mbit/s
95th percentile per-packet one-way delay: 114.071 ms
Loss rate: 2.95%
```
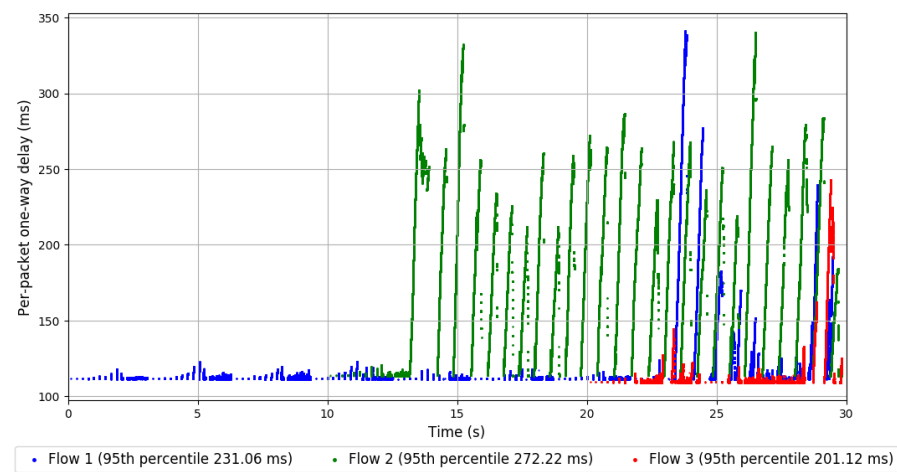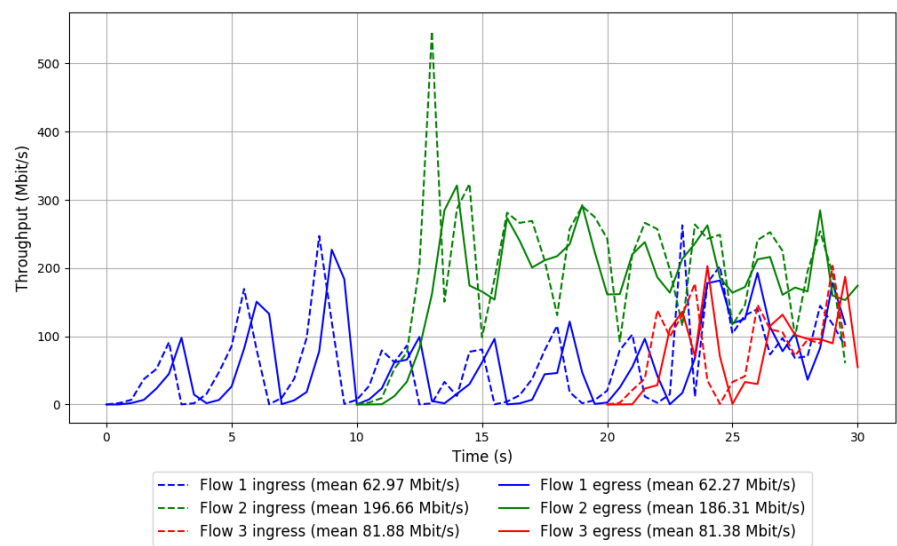
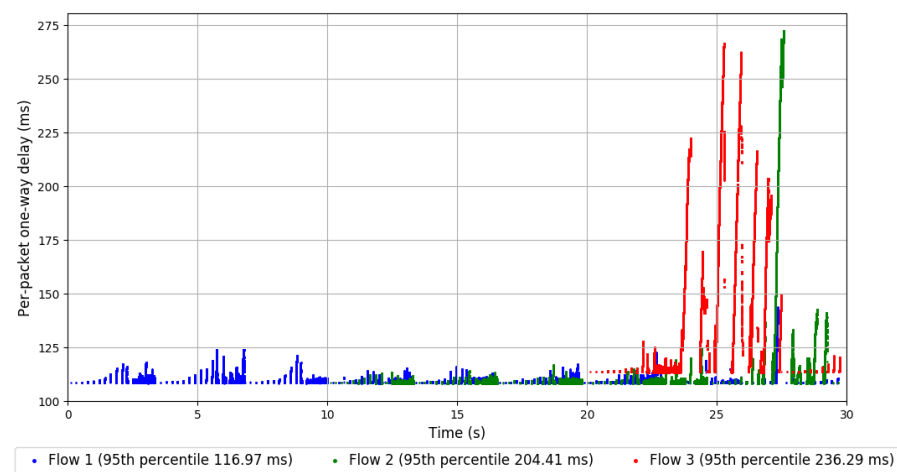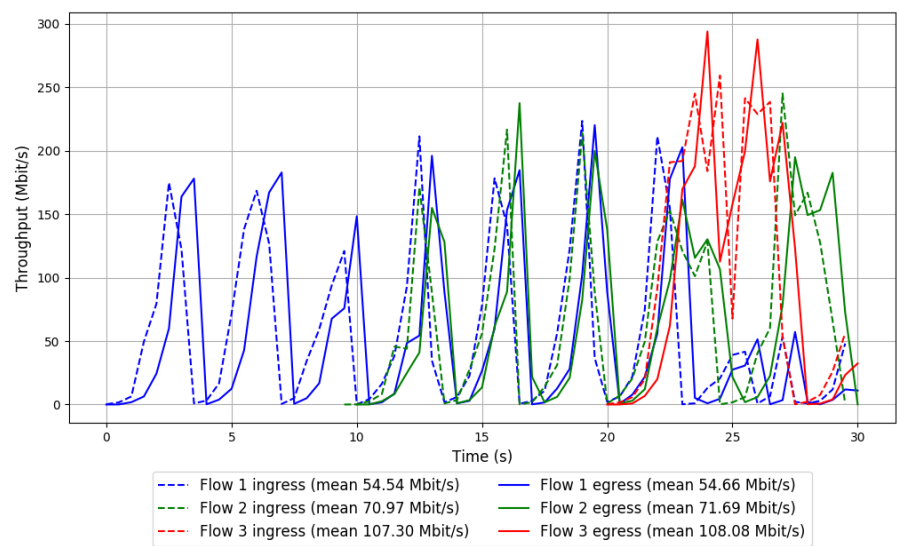# Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-11-30 09:15:28
End at: 2018-11-30 09:15:58
Local clock offset: -0.139 ms
Remote clock offset: -0.33 ms


# Below is generated by plot.py at 2018-11-30 13:38:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 211.69 Mbit/s
95th percentile per-packet one-way delay: 264.570 ms
Loss rate: 4.95%
-- Flow 1:
Average throughput: 62.27 Mbit/s
95th percentile per-packet one-way delay: 231.057 ms
Loss rate: 2.96%
-- Flow 2:
Average throughput: 186.31 Mbit/s
95th percentile per-packet one-way delay: 272.219 ms
Loss rate: 6.35%
-- Flow 3:
Average throughput: 81.38 Mbit/s
95th percentile per-packet one-way delay: 201.123 ms
Loss rate: 2.83%
```
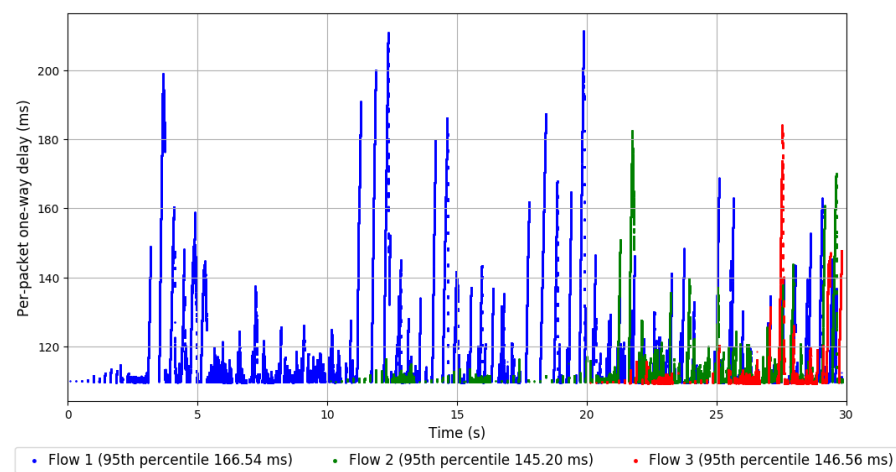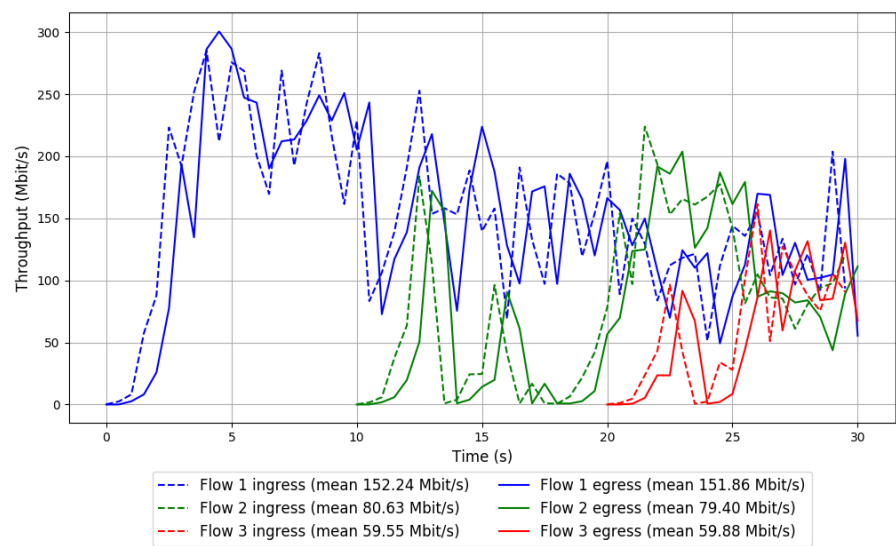
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-11-30 09:50:04
End at: 2018-11-30 09:50:34
Local clock offset: -0.149 ms
Remote clock offset: -0.107 ms


# Below is generated by plot.py at 2018-11-30 13:38:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 136.93 Mbit/s
95th percentile per-packet one-way delay: 212.504 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 54.66 Mbit/s
95th percentile per-packet one-way delay: 116.973 ms
Loss rate: 1.14%
-- Flow 2:
Average throughput: 71.69 Mbit/s
95th percentile per-packet one-way delay: 204.407 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 108.08 Mbit/s
95th percentile per-packet one-way delay: 236.295 ms
Loss rate: 1.53%
```

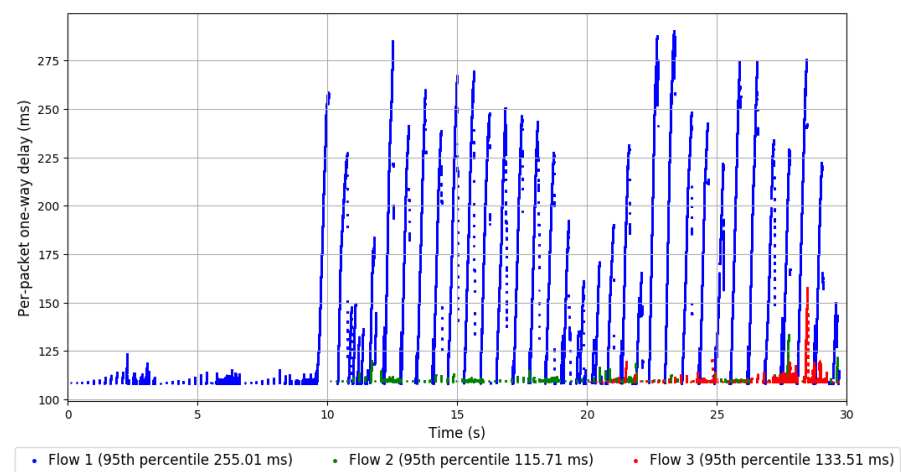## Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-11-30 10:24:29
End at: 2018-11-30 10:24:59
Local clock offset: -0.108 ms
Remote clock offset: -0.373 ms


# Below is generated by plot.py at 2018-11-30 13:38:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 224.03 Mbit/s
95th percentile per-packet one-way delay: 161.400 ms
Loss rate: 1.43%
-- Flow 1:
Average throughput: 151.86 Mbit/s
95th percentile per-packet one-way delay: 166.540 ms
Loss rate: 0.98%
-- Flow 2:
Average throughput: 79.40 Mbit/s
95th percentile per-packet one-way delay: 145.204 ms
Loss rate: 2.53%
-- Flow 3:
Average throughput: 59.88 Mbit/s
95th percentile per-packet one-way delay: 146.555 ms
Loss rate: 1.97%
```

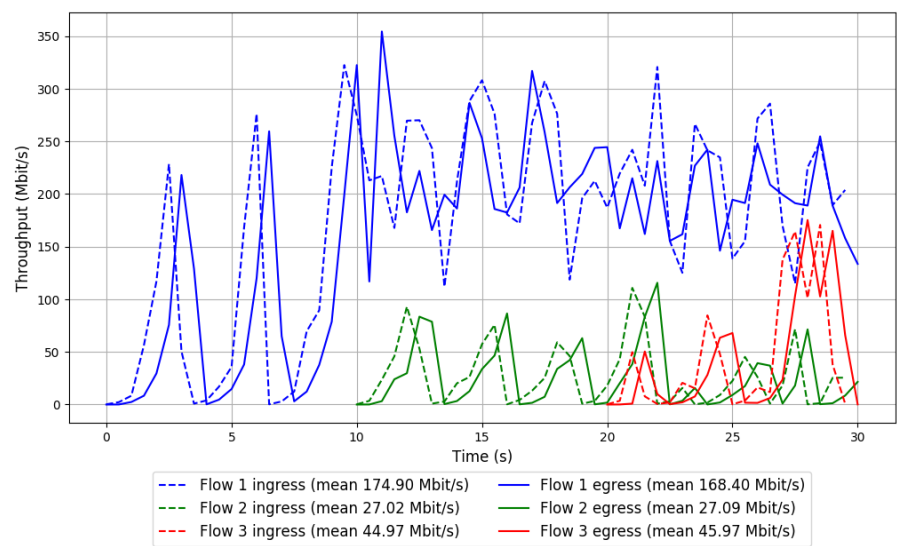# Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-11-30 10:59:06
End at: 2018-11-30 10:59:36
Local clock offset: -0.236 ms
Remote clock offset: -0.058 ms


# Below is generated by plot.py at 2018-11-30 13:38:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 201.07 Mbit/s
95th percentile per-packet one-way delay: 251.854 ms
Loss rate: 4.31%
-- Flow 1:
Average throughput: 168.40 Mbit/s
95th percentile per-packet one-way delay: 255.007 ms
Loss rate: 4.91%
-- Flow 2:
Average throughput: 27.09 Mbit/s
95th percentile per-packet one-way delay: 115.712 ms
Loss rate: 1.93%
-- Flow 3:
Average throughput: 45.97 Mbit/s
95th percentile per-packet one-way delay: 133.509 ms
Loss rate: 0.07%
```

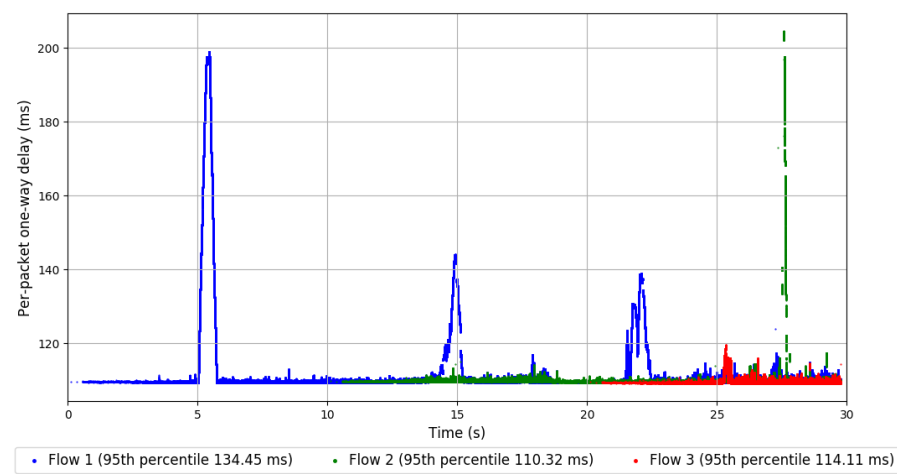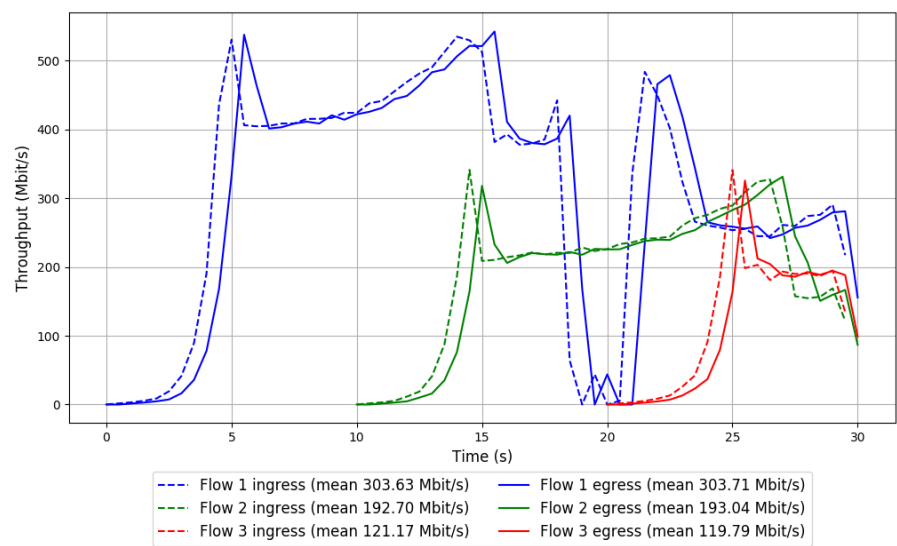## Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-11-30 08:42:41
End at: 2018-11-30 08:43:11
Local clock offset: -0.002 ms
Remote clock offset: -0.263 ms


# Below is generated by plot.py at 2018-11-30 13:39:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 470.48 Mbit/s
95th percentile per-packet one-way delay: 127.819 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 303.71 Mbit/s
95th percentile per-packet one-way delay: 134.451 ms
Loss rate: 0.71%
-- Flow 2:
Average throughput: 193.04 Mbit/s
95th percentile per-packet one-way delay: 110.324 ms
Loss rate: 0.93%
-- Flow 3:
Average throughput: 119.79 Mbit/s
95th percentile per-packet one-way delay: 114.114 ms
Loss rate: 3.28%
```

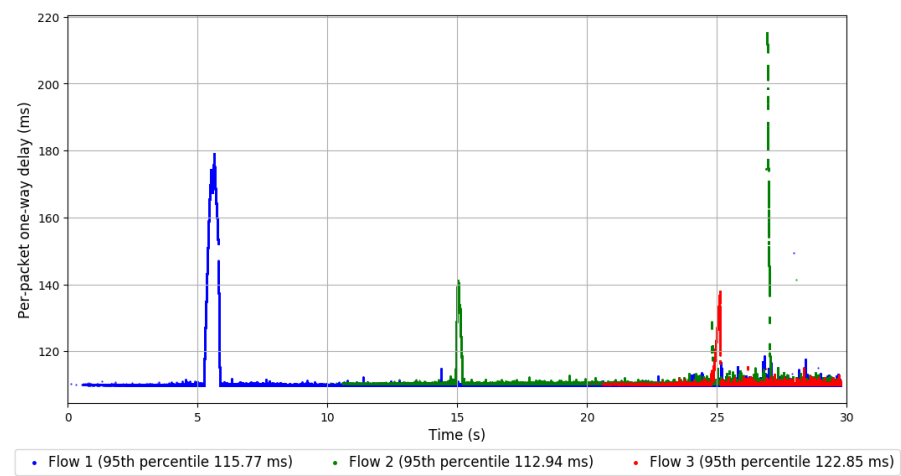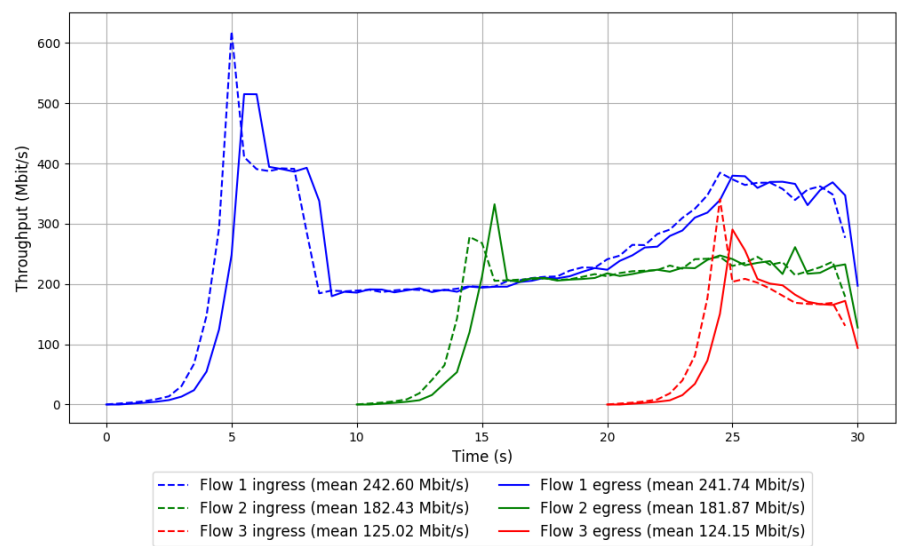Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-11-30 09:17:09
End at: 2018-11-30 09:17:39
Local clock offset: 0.783 ms
Remote clock offset: -0.363 ms


# Below is generated by plot.py at 2018-11-30 13:39:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 402.55 Mbit/s
95th percentile per-packet one-way delay: 115.695 ms
Loss rate: 1.38%
-- Flow 1:
Average throughput: 241.74 Mbit/s
95th percentile per-packet one-way delay: 115.765 ms
Loss rate: 1.09%
-- Flow 2:
Average throughput: 181.87 Mbit/s
95th percentile per-packet one-way delay: 112.940 ms
Loss rate: 1.42%
-- Flow 3:
Average throughput: 124.15 Mbit/s
95th percentile per-packet one-way delay: 122.848 ms
Loss rate: 2.92%
```

Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-11-30 09:51:38
End at: 2018-11-30 09:52:08
Local clock offset: 0.544 ms
Remote clock offset: 0.23 ms


# Below is generated by plot.py at 2018-11-30 13:39:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 427.80 Mbit/s
95th percentile per-packet one-way delay: 116.834 ms
Loss rate: 1.32%
-- Flow 1:
Average throughput: 257.79 Mbit/s
95th percentile per-packet one-way delay: 129.508 ms
Loss rate: 0.71%
-- Flow 2:
Average throughput: 192.94 Mbit/s
95th percentile per-packet one-way delay: 115.274 ms
Loss rate: 1.84%
-- Flow 3:
Average throughput: 129.84 Mbit/s
95th percentile per-packet one-way delay: 111.240 ms
Loss rate: 3.45%
```
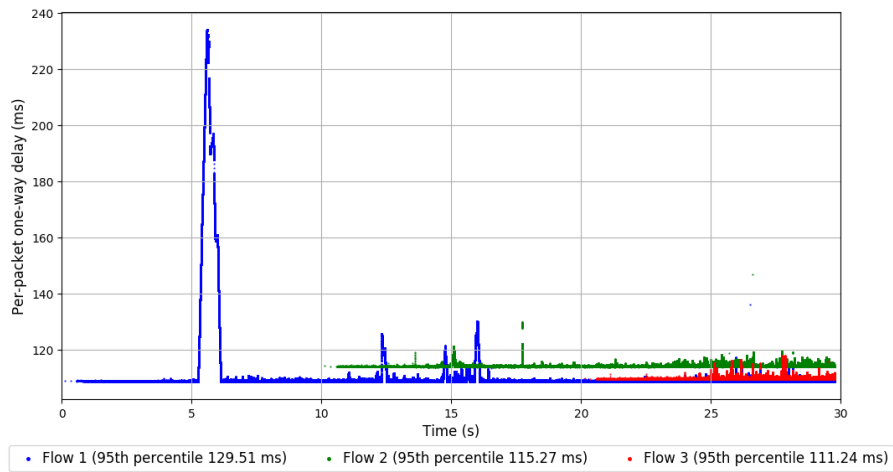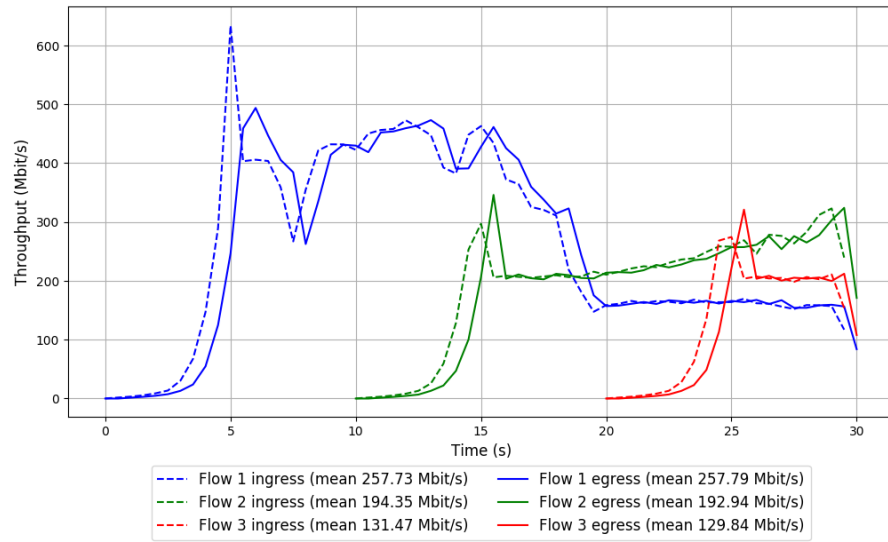
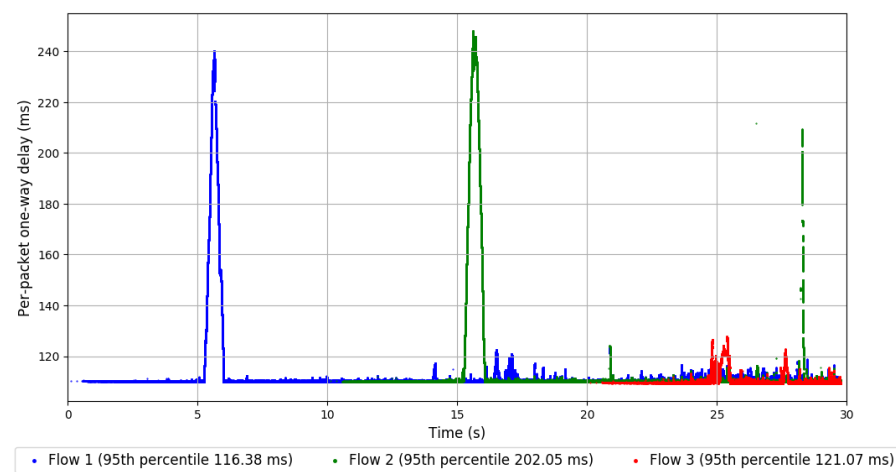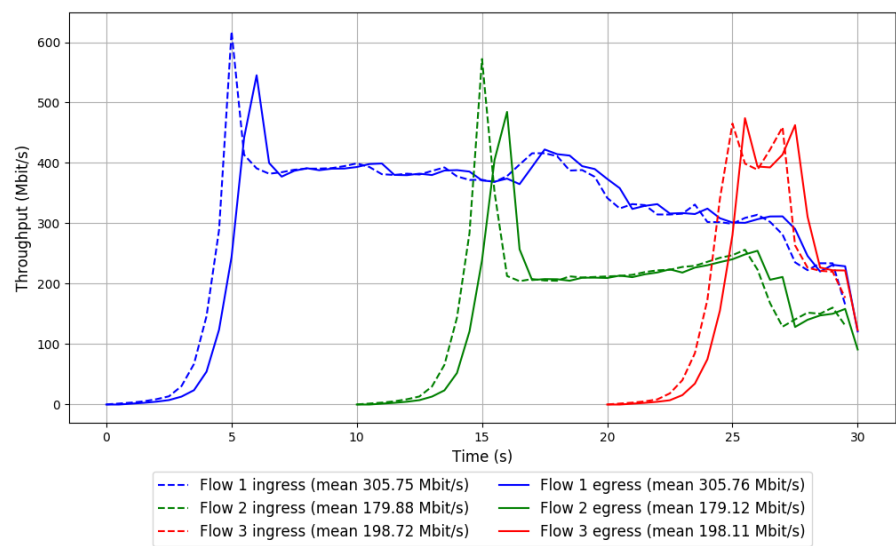Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-11-30 10:26:11
End at: 2018-11-30 10:26:41
Local clock offset: 0.866 ms
Remote clock offset: -0.019 ms


# Below is generated by plot.py at 2018-11-30 13:40:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 488.82 Mbit/s
95th percentile per-packet one-way delay: 125.182 ms
Loss rate: 1.19%
-- Flow 1:
Average throughput: 305.76 Mbit/s
95th percentile per-packet one-way delay: 116.375 ms
Loss rate: 0.77%
-- Flow 2:
Average throughput: 179.12 Mbit/s
95th percentile per-packet one-way delay: 202.053 ms
Loss rate: 1.53%
-- Flow 3:
Average throughput: 198.11 Mbit/s
95th percentile per-packet one-way delay: 121.070 ms
Loss rate: 2.53%
```

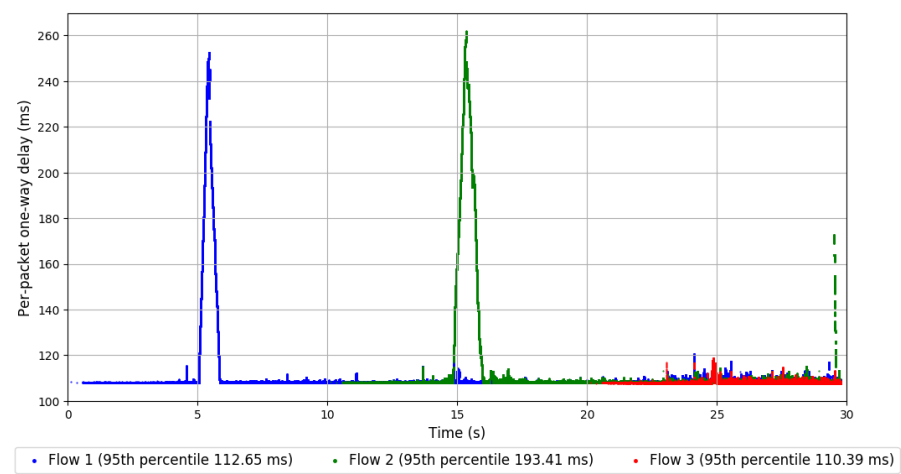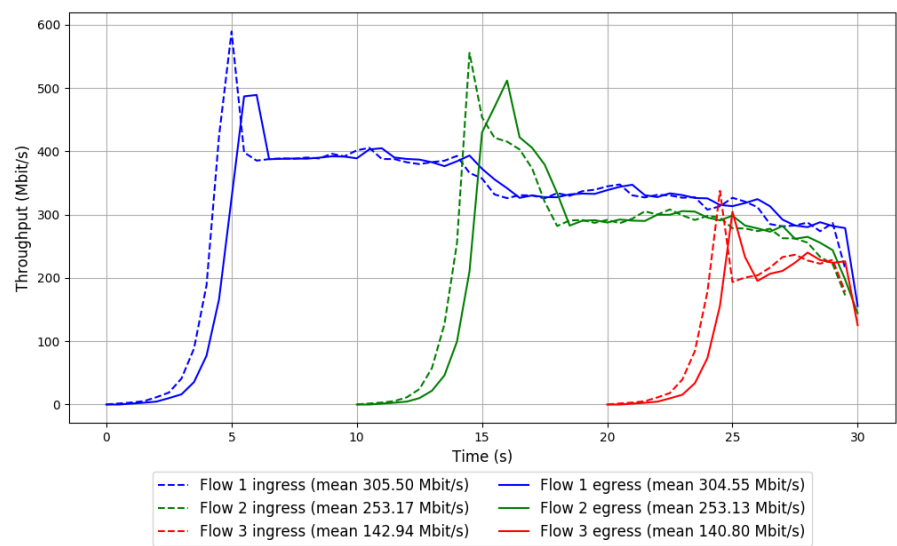# Run 4: Report of PCC-Vivace — Data Link

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-11-30 11:00:46
End at: 2018-11-30 11:01:16
Local clock offset: -1.438 ms
Remote clock offset: -0.077 ms


# Below is generated by plot.py at 2018-11-30 13:40:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 518.06 Mbit/s
95th percentile per-packet one-way delay: 140.550 ms
Loss rate: 1.31%
-- Flow 1:
Average throughput: 304.55 Mbit/s
95th percentile per-packet one-way delay: 112.647 ms
Loss rate: 1.04%
-- Flow 2:
Average throughput: 253.13 Mbit/s
95th percentile per-packet one-way delay: 193.406 ms
Loss rate: 1.13%
-- Flow 3:
Average throughput: 140.80 Mbit/s
95th percentile per-packet one-way delay: 110.390 ms
Loss rate: 3.69%
```

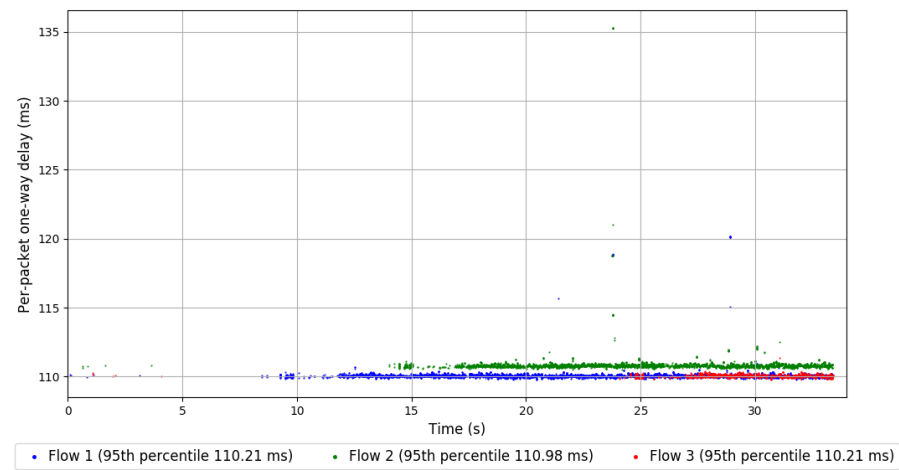# Run 5: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 305.50 Mbit/s) — — —   Flow 1 egress (mean 304.55 Mbit/s)
Flow 2 ingress (mean 253.17 Mbit/s) — — —   Flow 2 egress (mean 253.13 Mbit/s)
Flow 3 ingress (mean 142.94 Mbit/s) — — —   Flow 3 egress (mean 140.80 Mbit/s)

Flow 1 (95th percentile 112.65 ms)   Flow 2 (95th percentile 193.41 ms)   Flow 3 (95th percentile 110.39 ms)
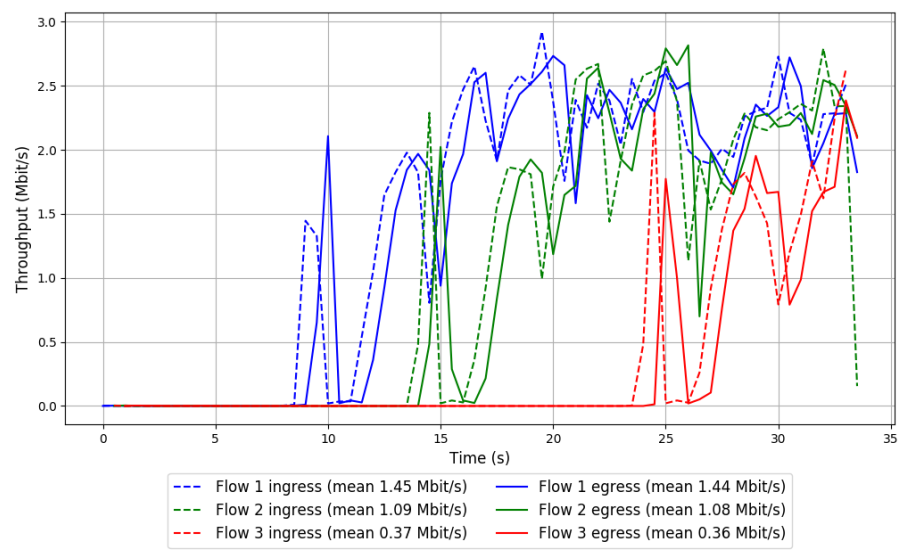
```
Run 1: Statistics of WebRTC media

Start at: 2018-11-30 08:19:37
End at: 2018-11-30 08:20:07
Local clock offset: 1.296 ms
Remote clock offset: -0.145 ms

# Below is generated by plot.py at 2018-11-30 13:40:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.85 Mbit/s
95th percentile per-packet one-way delay: 110.895 ms
Loss rate: 1.60%
-- Flow 1:
Average throughput: 1.44 Mbit/s
95th percentile per-packet one-way delay: 110.206 ms
Loss rate: 1.17%
-- Flow 2:
Average throughput: 1.08 Mbit/s
95th percentile per-packet one-way delay: 110.976 ms
Loss rate: 1.52%
-- Flow 3:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 110.208 ms
Loss rate: 3.55%
```

Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-11-30 08:54:06
End at: 2018-11-30 08:54:36
Local clock offset: -0.426 ms
Remote clock offset: 0.03 ms


# Below is generated by plot.py at 2018-11-30 13:40:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.22 Mbit/s
95th percentile per-packet one-way delay: 109.118 ms
Loss rate: 1.45%
-- Flow 1:
Average throughput: 1.84 Mbit/s
95th percentile per-packet one-way delay: 109.142 ms
Loss rate: 0.95%
-- Flow 2:
Average throughput: 1.05 Mbit/s
95th percentile per-packet one-way delay: 108.888 ms
Loss rate: 1.66%
-- Flow 3:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 109.099 ms
Loss rate: 3.37%
```
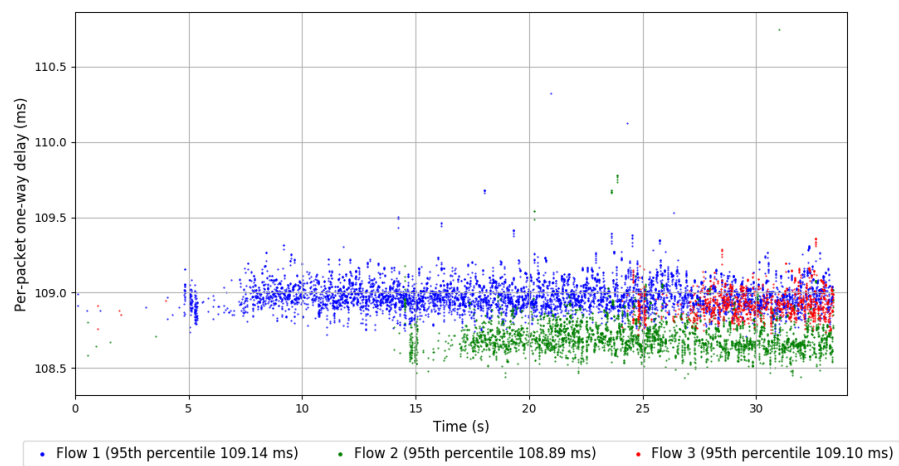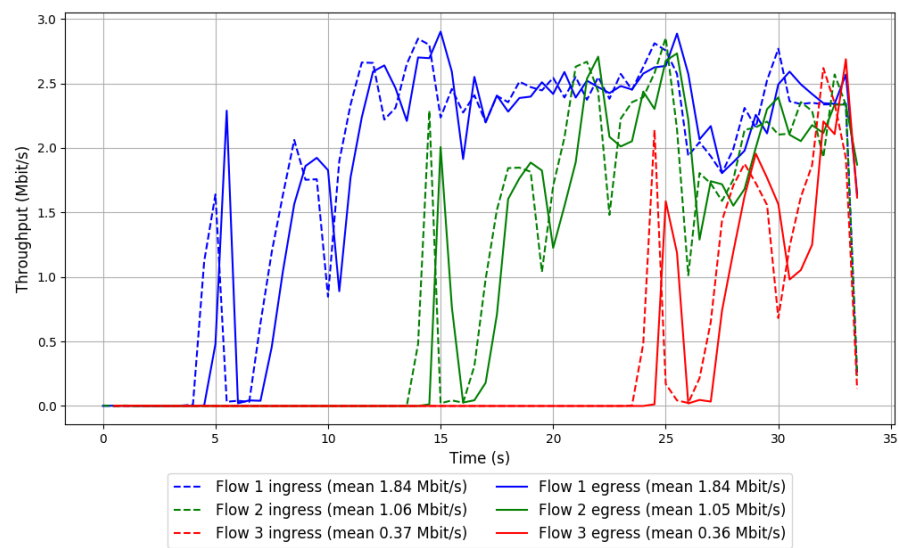
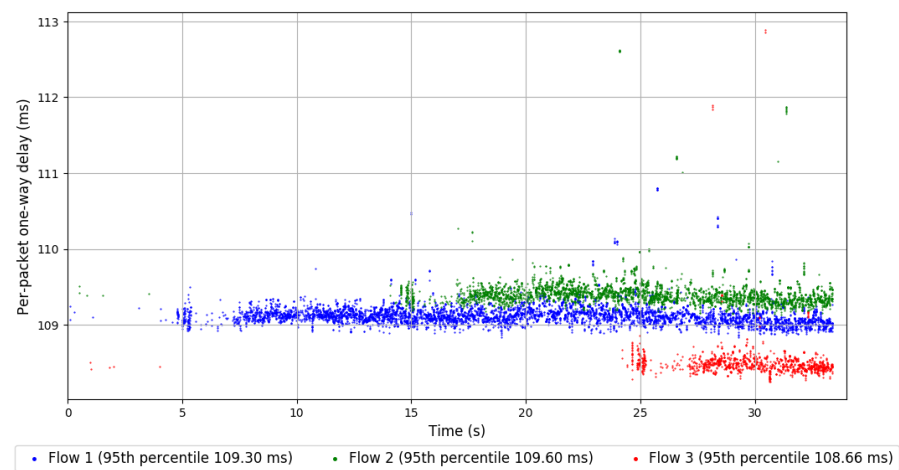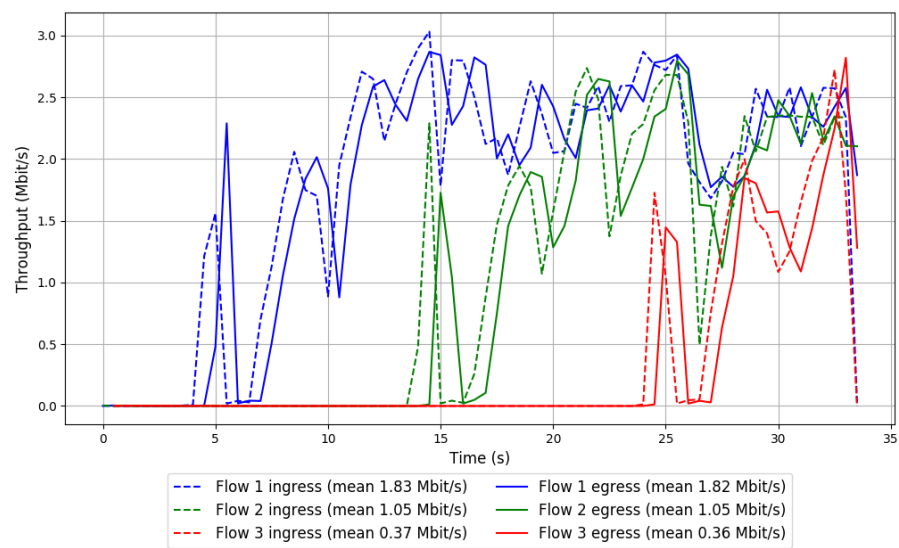Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-11-30 09:28:17
End at: 2018-11-30 09:28:47
Local clock offset: -0.204 ms
Remote clock offset: -0.278 ms


# Below is generated by plot.py at 2018-11-30 13:40:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.21 Mbit/s
95th percentile per-packet one-way delay: 109.509 ms
Loss rate: 1.26%
-- Flow 1:
Average throughput: 1.82 Mbit/s
95th percentile per-packet one-way delay: 109.300 ms
Loss rate: 0.77%
-- Flow 2:
Average throughput: 1.05 Mbit/s
95th percentile per-packet one-way delay: 109.601 ms
Loss rate: 1.34%
-- Flow 3:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 108.657 ms
Loss rate: 3.51%
```

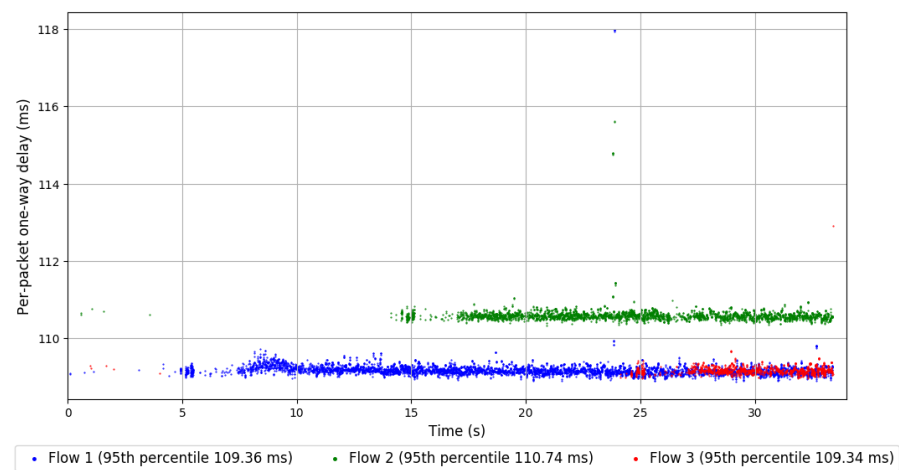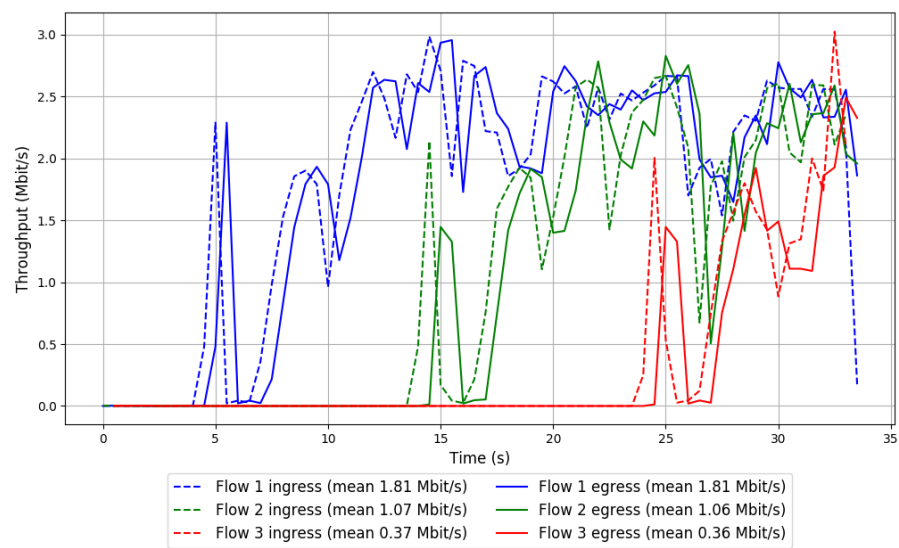Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-11-30 10:02:58
End at: 2018-11-30 10:03:28
Local clock offset: -0.13 ms
Remote clock offset: -0.097 ms

# Below is generated by plot.py at 2018-11-30 13:40:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.20 Mbit/s
95th percentile per-packet one-way delay: 110.663 ms
Loss rate: 1.32%
-- Flow 1:
Average throughput: 1.81 Mbit/s
95th percentile per-packet one-way delay: 109.355 ms
Loss rate: 0.91%
-- Flow 2:
Average throughput: 1.06 Mbit/s
95th percentile per-packet one-way delay: 110.739 ms
Loss rate: 1.33%
-- Flow 3:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 109.343 ms
Loss rate: 3.36%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-11-30 10:37:24
End at: 2018-11-30 10:37:54
Local clock offset: -0.881 ms
Remote clock offset: -0.042 ms


# Below is generated by plot.py at 2018-11-30 13:40:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.16 Mbit/s
95th percentile per-packet one-way delay: 108.697 ms
Loss rate: 1.57%
-- Flow 1:
Average throughput: 1.79 Mbit/s
95th percentile per-packet one-way delay: 108.733 ms
Loss rate: 0.91%
-- Flow 2:
Average throughput: 1.04 Mbit/s
95th percentile per-packet one-way delay: 108.101 ms
Loss rate: 1.34%
-- Flow 3:
Average throughput: 0.34 Mbit/s
95th percentile per-packet one-way delay: 108.678 ms
Loss rate: 5.64%
```

Run 5: Report of WebRTC media — Data Link