Pantheon Report

Generated at 2019-03-19 04:11:19 (UTC).

Data path: GCE Iowa on ens4 (*remote*) →GCE Sydney on ens4 (*local*).

Repeated the test of 21 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.
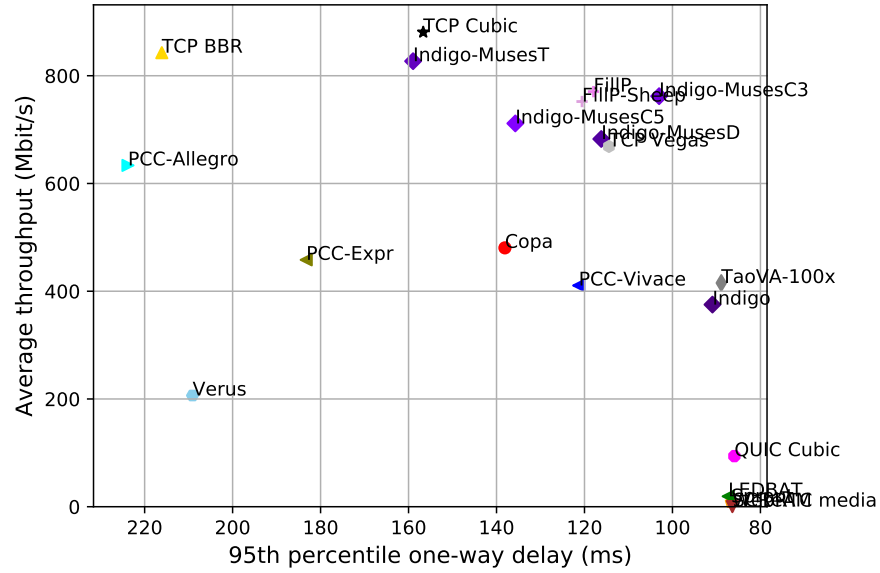
```
System info:
Linux 4.15.0-1028-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ 7a686f7c2ed0a333082c0bab1fa5c921ab47e6ee
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 5ce721187ad823da20955337730c746486ca4966
third_party/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
```
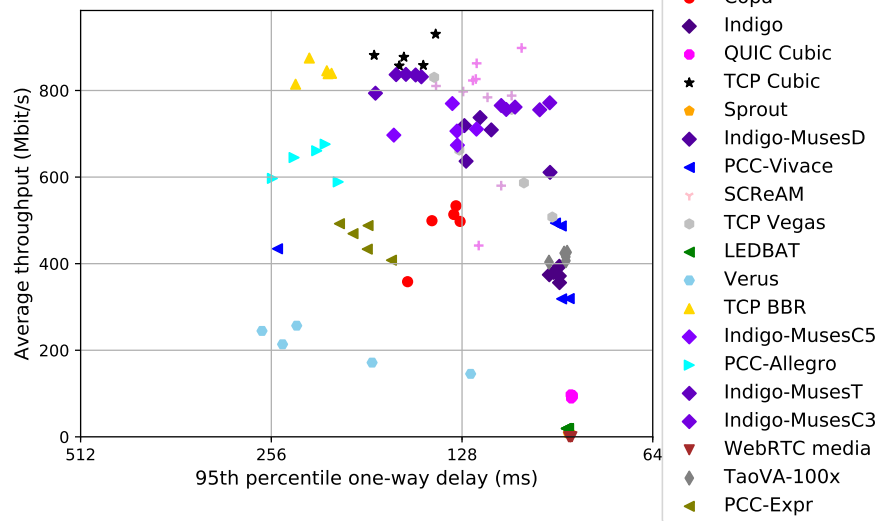
```
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

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

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

scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	453.97	404.90	365.72	219.84	203.03	189.87	2.72	1.92	3.63
Copa	5	264.88	221.18	209.20	122.61	146.57	161.59	0.42	1.01	2.31
TCP Cubic	5	475.71	427.85	367.99	146.69	138.14	146.29	0.65	1.00	2.44
FillP	5	449.51	360.89	248.93	129.24	92.03	90.25	0.81	0.74	1.99
FillP-Sheep	5	455.33	326.22	245.79	130.35	90.75	89.94	0.76	0.79	1.98
Indigo	5	202.43	185.23	152.25	91.00	90.57	90.95	0.60	0.90	2.07
Indigo-MusesC3	5	450.04	373.83	269.92	106.40	97.87	89.92	0.41	0.81	2.94
Indigo-MusesC5	5	435.91	372.92	135.12	143.47	114.10	87.54	0.44	0.70	3.06
Indigo-MusesD	5	432.76	291.02	231.70	122.22	106.47	95.14	0.54	0.95	3.02
Indigo-MusesT	5	491.54	403.06	283.88	168.68	120.50	91.59	0.64	0.71	3.11
LEDBAT	5	12.49	8.29	4.01	87.36	87.25	86.93	1.15	1.74	3.53
PCC-Allegro	5	373.45	279.10	230.87	223.46	161.29	237.60	6.97	1.85	5.29
PCC-Expr	5	260.91	216.32	165.45	172.62	159.91	129.38	2.04	1.68	2.31
QUIC Cubic	5	50.32	51.28	27.94	85.85	85.83	85.86	0.91	1.16	2.97
SCReAM	5	0.22	0.22	0.22	86.13	86.18	86.25	0.51	0.86	1.78
Sprout	5	4.39	4.11	2.90	86.61	86.66	86.69	0.72	0.93	3.23
TaoVA-100x	5	215.63	206.18	191.44	87.71	89.65	91.65	0.59	0.89	1.93
TCP Vegas	5	308.74	374.89	338.44	96.31	112.43	125.10	0.54	0.88	1.76
Verus	5	136.98	75.08	61.74	217.43	128.09	145.66	4.08	1.32	1.84
PCC-Vivace	5	250.51	192.81	99.00	141.79	87.71	90.00	1.04	1.04	3.04
WebRTC media	5	0.05	0.05	0.05	86.29	86.31	86.47	0.02	0.01	0.01

```
Run 1: Statistics of TCP BBR

Start at: 2019-03-18 22:30:47
End at: 2019-03-18 22:31:17
Local clock offset: 0.856 ms
Remote clock offset: 0.097 ms


# Below is generated by plot.py at 2019-03-19 01:57:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 845.68 Mbit/s
95th percentile per-packet one-way delay: 209.241 ms
Loss rate: 2.00%
-- Flow 1:
Average throughput: 446.18 Mbit/s
95th percentile per-packet one-way delay: 201.963 ms
Loss rate: 1.33%
-- Flow 2:
Average throughput: 408.38 Mbit/s
95th percentile per-packet one-way delay: 209.825 ms
Loss rate: 1.27%
-- Flow 3:
Average throughput: 390.22 Mbit/s
95th percentile per-packet one-way delay: 223.915 ms
Loss rate: 5.72%
```
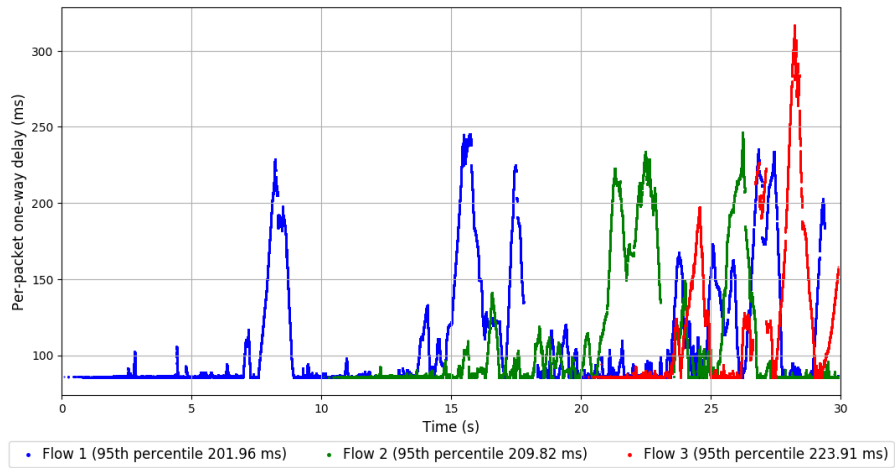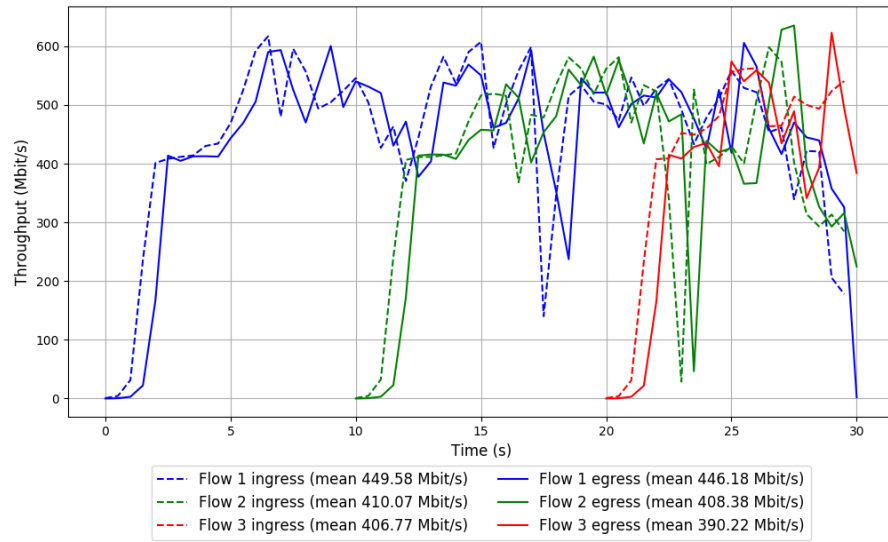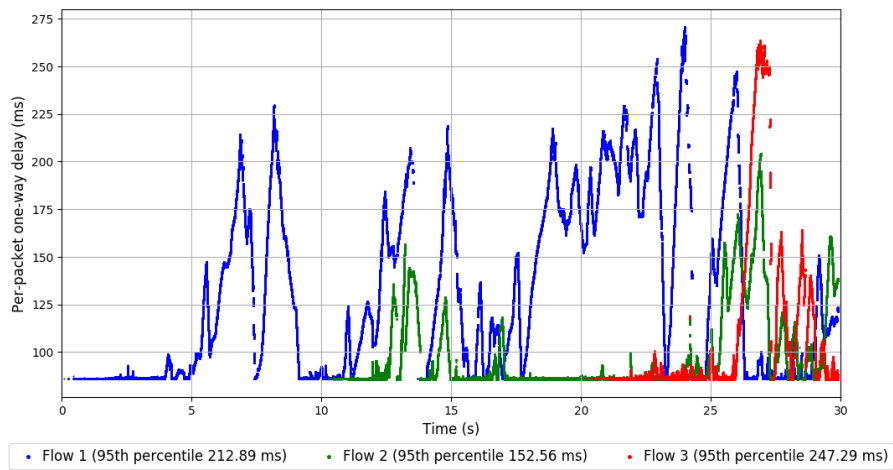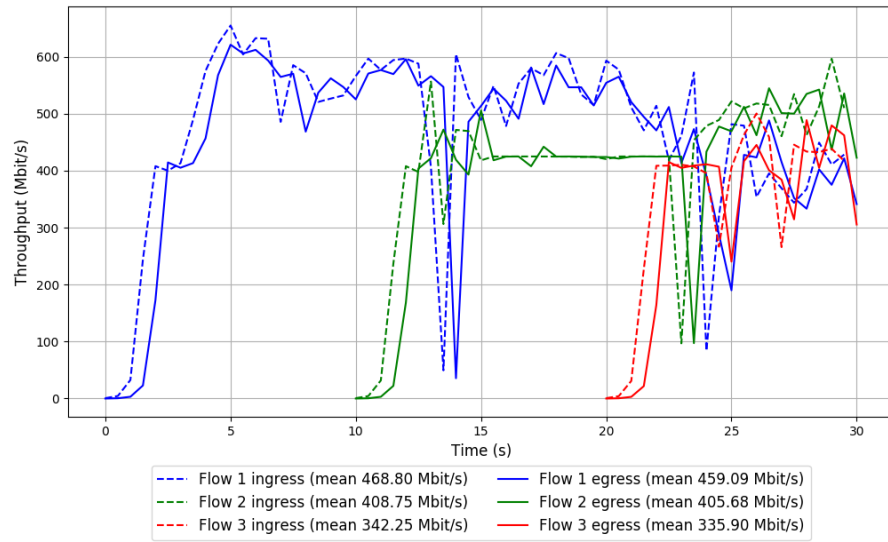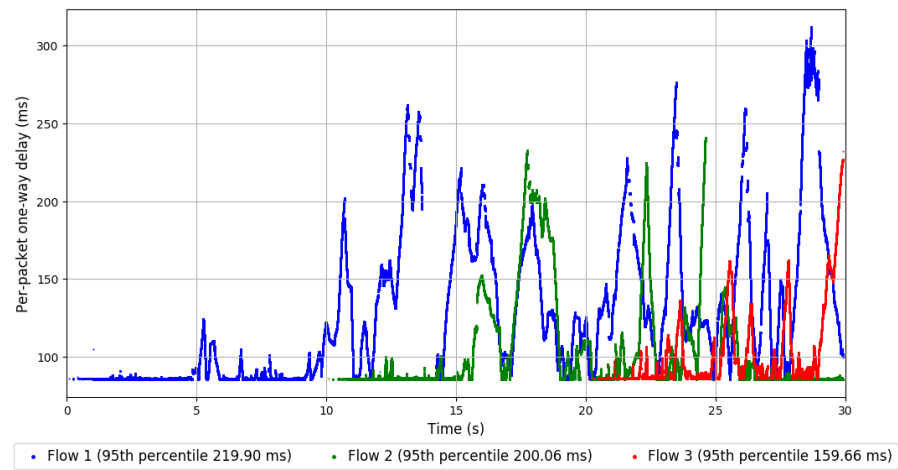
Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 449.58 Mbit/s) --- Flow 1 egress (mean 446.18 Mbit/s)
Flow 2 ingress (mean 410.07 Mbit/s) --- Flow 2 egress (mean 408.38 Mbit/s)
Flow 3 ingress (mean 406.77 Mbit/s) --- Flow 3 egress (mean 390.22 Mbit/s)

Flow 1 (95th percentile 201.96 ms) • Flow 2 (95th percentile 209.82 ms) • Flow 3 (95th percentile 223.91 ms)
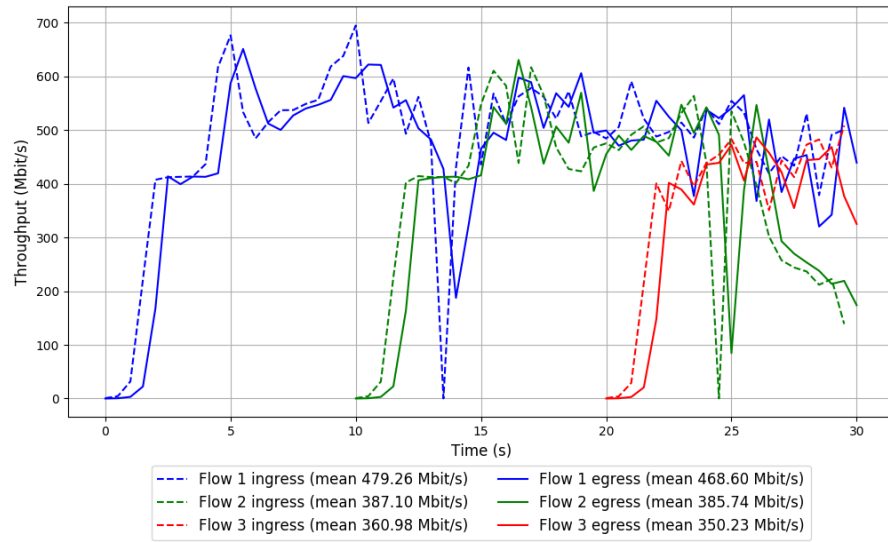
6

```
Run 2: Statistics of TCP BBR

Start at: 2019-03-18 23:08:13
End at: 2019-03-18 23:08:43
Local clock offset: 0.065 ms
Remote clock offset: -0.151 ms


# Below is generated by plot.py at 2019-03-19 01:57:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 838.87 Mbit/s
95th percentile per-packet one-way delay: 208.214 ms
Loss rate: 2.43%
-- Flow 1:
Average throughput: 459.09 Mbit/s
95th percentile per-packet one-way delay: 212.887 ms
Loss rate: 2.63%
-- Flow 2:
Average throughput: 405.68 Mbit/s
95th percentile per-packet one-way delay: 152.557 ms
Loss rate: 1.61%
-- Flow 3:
Average throughput: 335.90 Mbit/s
95th percentile per-packet one-way delay: 247.286 ms
Loss rate: 3.56%
```

Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2019-03-18 23:44:45
End at: 2019-03-18 23:45:15
Local clock offset: -0.347 ms
Remote clock offset: -0.165 ms


# Below is generated by plot.py at 2019-03-19 01:57:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 839.76 Mbit/s
95th percentile per-packet one-way delay: 205.688 ms
Loss rate: 2.37%
-- Flow 1:
Average throughput: 468.60 Mbit/s
95th percentile per-packet one-way delay: 219.903 ms
Loss rate: 2.79%
-- Flow 2:
Average throughput: 385.74 Mbit/s
95th percentile per-packet one-way delay: 200.058 ms
Loss rate: 0.49%
-- Flow 3:
Average throughput: 350.23 Mbit/s
95th percentile per-packet one-way delay: 159.665 ms
Loss rate: 4.66%
```
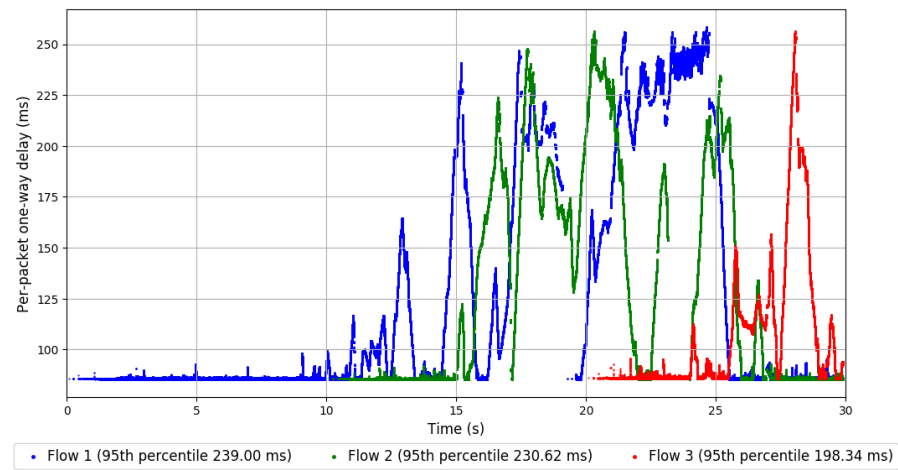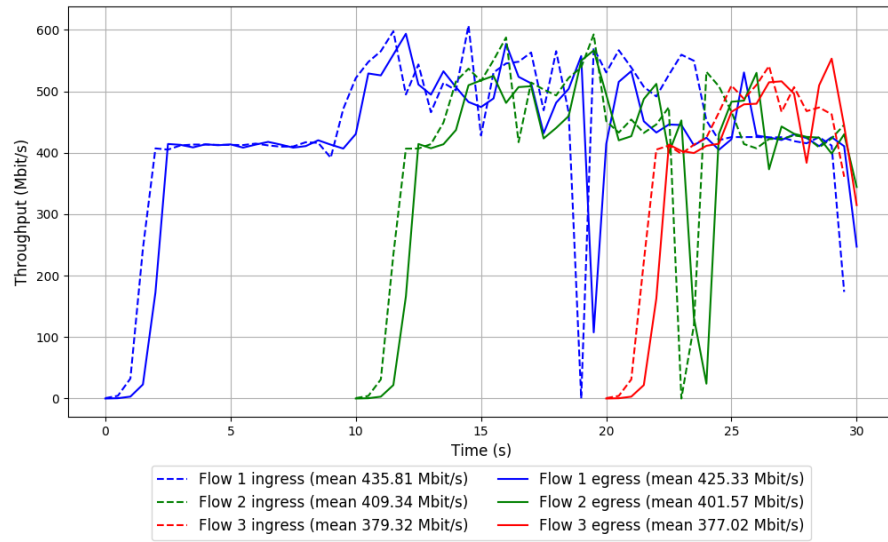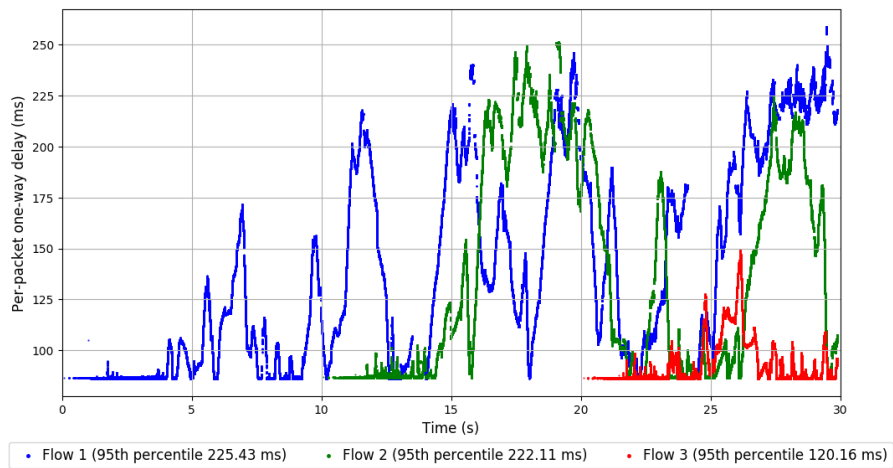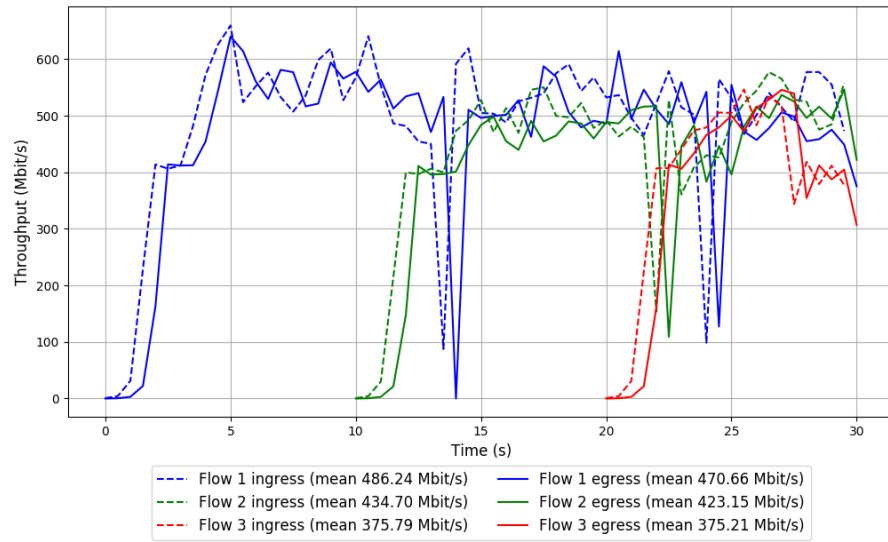
Run 3: Report of TCP BBR — Data Link

```
Run 4: Statistics of TCP BBR

Start at: 2019-03-19 00:21:59
End at: 2019-03-19 00:22:29
Local clock offset: -0.476 ms
Remote clock offset: 0.003 ms


# Below is generated by plot.py at 2019-03-19 01:57:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 814.56 Mbit/s
95th percentile per-packet one-way delay: 234.382 ms
Loss rate: 2.87%
-- Flow 1:
Average throughput: 425.33 Mbit/s
95th percentile per-packet one-way delay: 238.998 ms
Loss rate: 3.10%
-- Flow 2:
Average throughput: 401.57 Mbit/s
95th percentile per-packet one-way delay: 230.617 ms
Loss rate: 2.75%
-- Flow 3:
Average throughput: 377.02 Mbit/s
95th percentile per-packet one-way delay: 198.343 ms
Loss rate: 2.34%
```
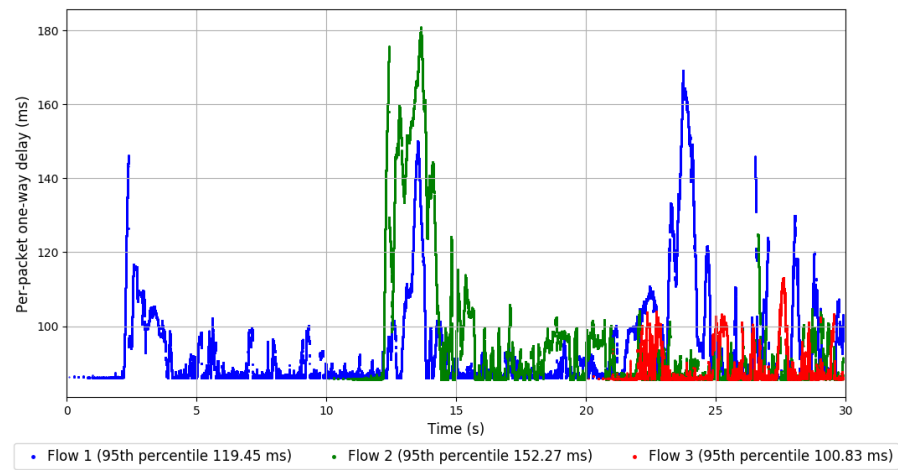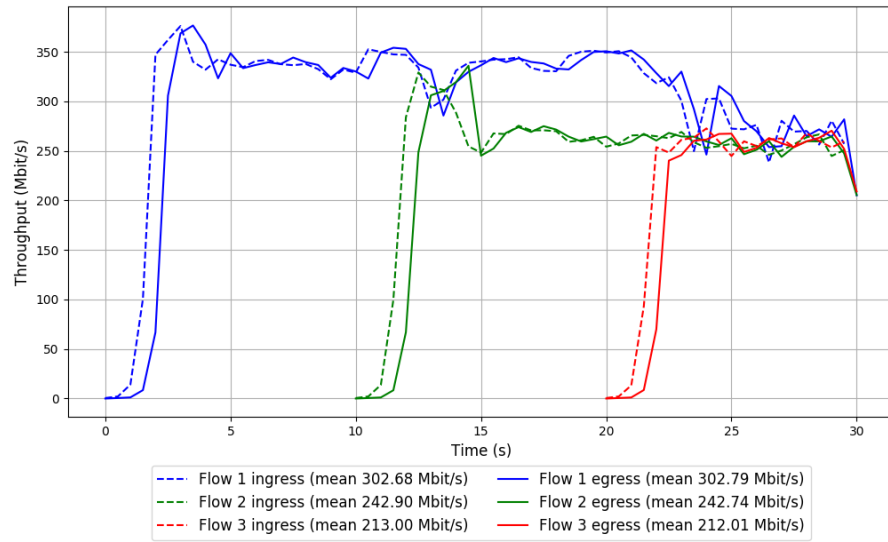
Run 4: Report of TCP BBR — Data Link

```
Run 5: Statistics of TCP BBR

Start at: 2019-03-19 00:59:08
End at: 2019-03-19 00:59:38
Local clock offset: 0.28 ms
Remote clock offset: -0.021 ms


# Below is generated by plot.py at 2019-03-19 01:58:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 875.01 Mbit/s
95th percentile per-packet one-way delay: 222.954 ms
Loss rate: 3.40%
-- Flow 1:
Average throughput: 470.66 Mbit/s
95th percentile per-packet one-way delay: 225.433 ms
Loss rate: 3.73%
-- Flow 2:
Average throughput: 423.15 Mbit/s
95th percentile per-packet one-way delay: 222.110 ms
Loss rate: 3.50%
-- Flow 3:
Average throughput: 375.21 Mbit/s
95th percentile per-packet one-way delay: 120.157 ms
Loss rate: 1.89%
```

Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 486.24 Mbit/s) — — — Flow 1 egress (mean 470.66 Mbit/s)
Flow 2 ingress (mean 434.70 Mbit/s) — — — Flow 2 egress (mean 423.15 Mbit/s)
Flow 3 ingress (mean 375.79 Mbit/s) — — — Flow 3 egress (mean 375.21 Mbit/s)

Flow 1 (95th percentile 225.43 ms)   Flow 2 (95th percentile 222.11 ms)   Flow 3 (95th percentile 120.16 ms)

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```
Run 1: Statistics of Copa

Start at: 2019-03-18 22:53:24
End at: 2019-03-18 22:53:54
Local clock offset: 1.144 ms
Remote clock offset: -0.245 ms


# Below is generated by plot.py at 2019-03-19 02:00:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 533.67 Mbit/s
95th percentile per-packet one-way delay: 130.846 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 302.79 Mbit/s
95th percentile per-packet one-way delay: 119.451 ms
Loss rate: 0.54%
-- Flow 2:
Average throughput: 242.74 Mbit/s
95th percentile per-packet one-way delay: 152.267 ms
Loss rate: 0.93%
-- Flow 3:
Average throughput: 212.01 Mbit/s
95th percentile per-packet one-way delay: 100.833 ms
Loss rate: 2.19%
```
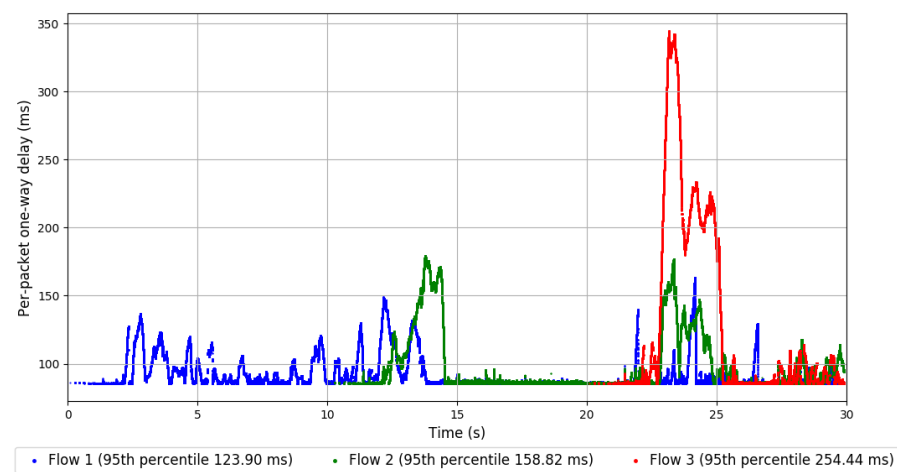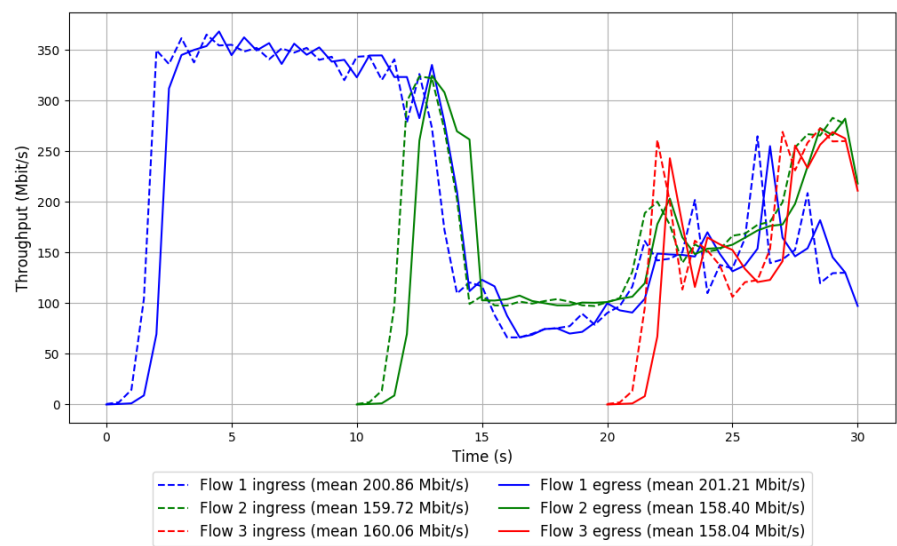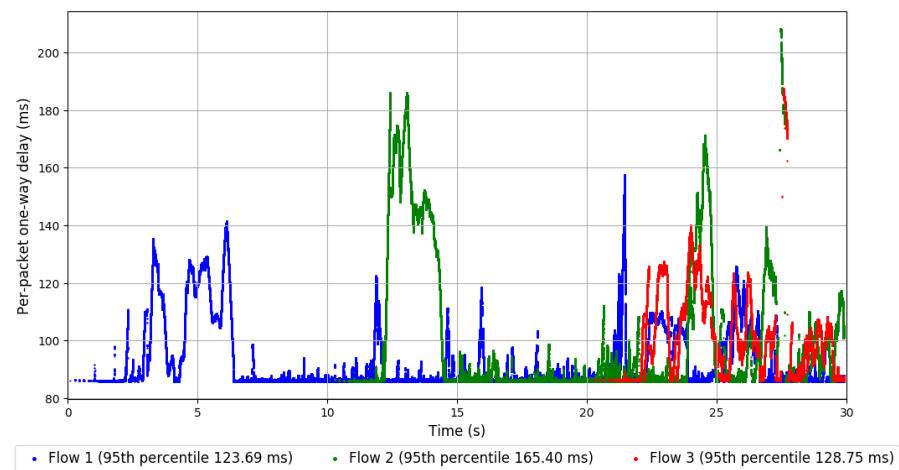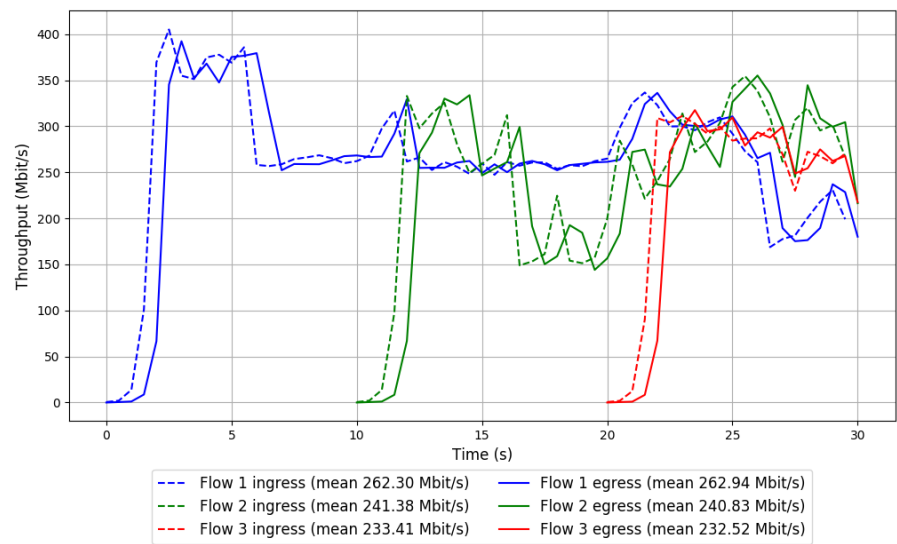
Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2019-03-18 23:30:39
End at: 2019-03-18 23:31:09
Local clock offset: -0.471 ms
Remote clock offset: -0.18 ms


# Below is generated by plot.py at 2019-03-19 02:00:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 358.37 Mbit/s
95th percentile per-packet one-way delay: 156.009 ms
Loss rate: 1.16%
-- Flow 1:
Average throughput: 201.21 Mbit/s
95th percentile per-packet one-way delay: 123.903 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 158.40 Mbit/s
95th percentile per-packet one-way delay: 158.819 ms
Loss rate: 1.68%
-- Flow 3:
Average throughput: 158.04 Mbit/s
95th percentile per-packet one-way delay: 254.438 ms
Loss rate: 2.97%
```

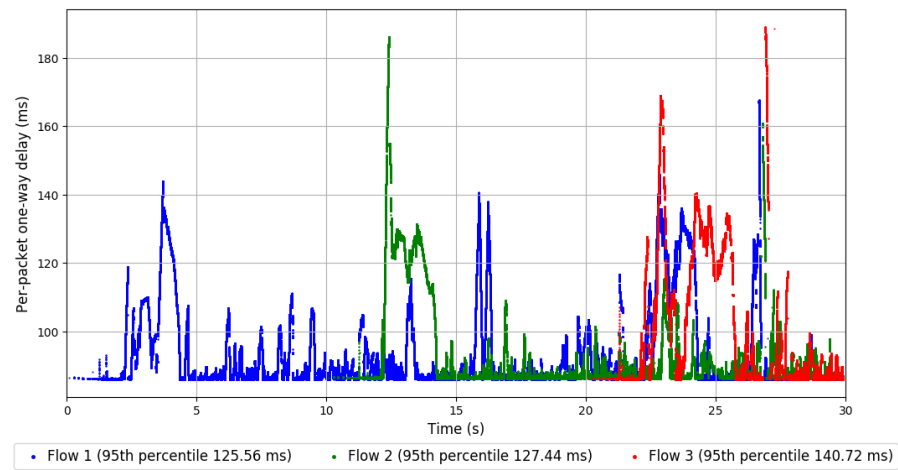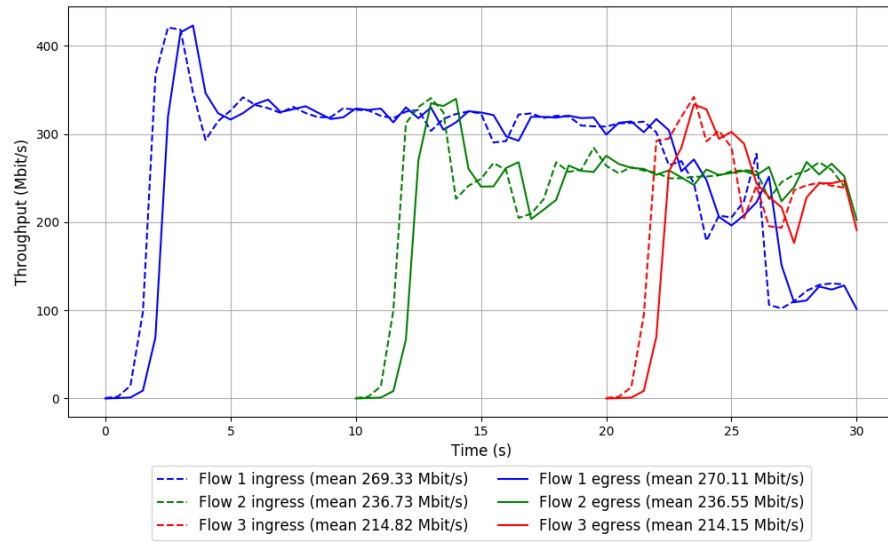Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2019-03-19 00:07:33
End at: 2019-03-19 00:08:03
Local clock offset: 0.023 ms
Remote clock offset: -0.088 ms


# Below is generated by plot.py at 2019-03-19 02:00:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 499.22 Mbit/s
95th percentile per-packet one-way delay: 142.795 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 262.94 Mbit/s
95th percentile per-packet one-way delay: 123.687 ms
Loss rate: 0.34%
-- Flow 2:
Average throughput: 240.83 Mbit/s
95th percentile per-packet one-way delay: 165.396 ms
Loss rate: 1.09%
-- Flow 3:
Average throughput: 232.52 Mbit/s
95th percentile per-packet one-way delay: 128.747 ms
Loss rate: 2.12%
```
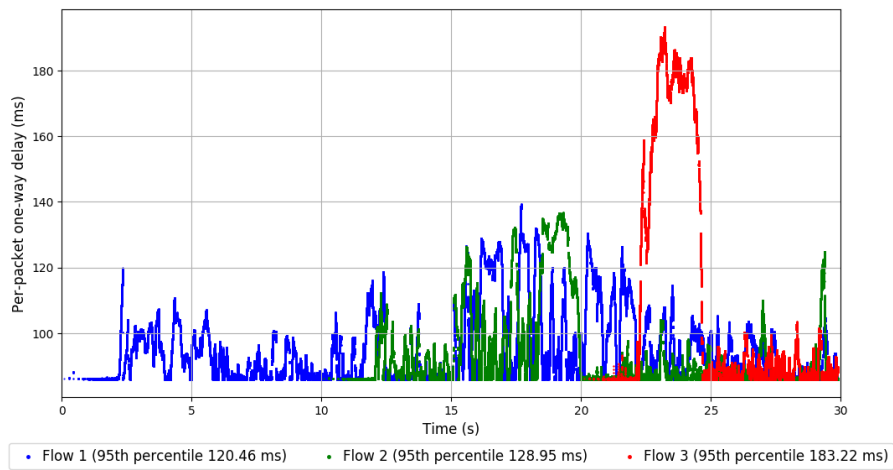
Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2019-03-19 00:44:15
End at: 2019-03-19 00:44:45
Local clock offset: 0.12 ms
Remote clock offset: -0.015 ms


# Below is generated by plot.py at 2019-03-19 02:11:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 497.56 Mbit/s
95th percentile per-packet one-way delay: 128.910 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 270.11 Mbit/s
95th percentile per-packet one-way delay: 125.562 ms
Loss rate: 0.29%
-- Flow 2:
Average throughput: 236.55 Mbit/s
95th percentile per-packet one-way delay: 127.436 ms
Loss rate: 0.94%
-- Flow 3:
Average throughput: 214.15 Mbit/s
95th percentile per-packet one-way delay: 140.724 ms
Loss rate: 2.02%
```
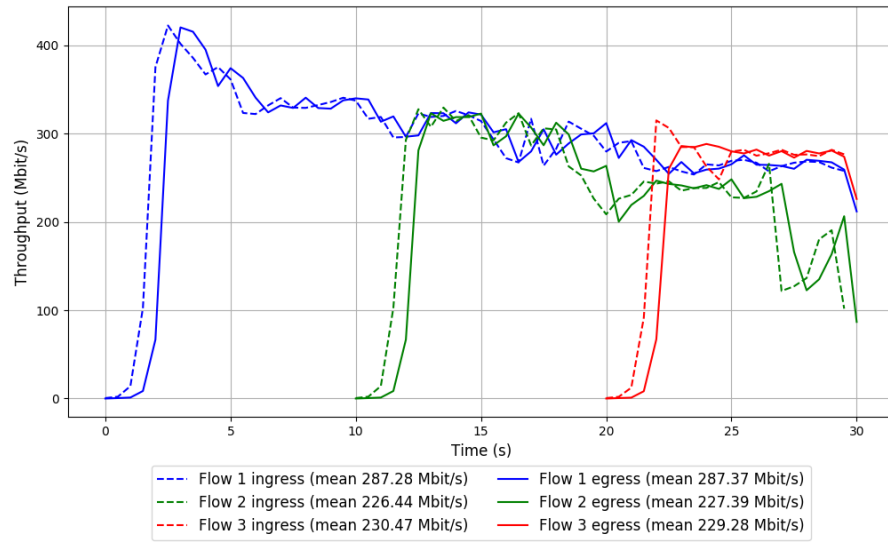
Run 4: Report of Copa — Data Link

Flow 1 ingress (mean 269.33 Mbit/s) --- Flow 1 egress (mean 270.11 Mbit/s)
Flow 2 ingress (mean 236.73 Mbit/s) --- Flow 2 egress (mean 236.55 Mbit/s)
Flow 3 ingress (mean 214.82 Mbit/s) --- Flow 3 egress (mean 214.15 Mbit/s)

Flow 1 (95th percentile 125.56 ms)   Flow 2 (95th percentile 127.44 ms)   Flow 3 (95th percentile 140.72 ms)

```
Run 5: Statistics of Copa

Start at: 2019-03-19 01:22:06
End at: 2019-03-19 01:22:36
Local clock offset: 0.04 ms
Remote clock offset: -0.037 ms


# Below is generated by plot.py at 2019-03-19 02:14:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 513.68 Mbit/s
95th percentile per-packet one-way delay: 131.894 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 287.37 Mbit/s
95th percentile per-packet one-way delay: 120.464 ms
Loss rate: 0.54%
-- Flow 2:
Average throughput: 227.39 Mbit/s
95th percentile per-packet one-way delay: 128.954 ms
Loss rate: 0.43%
-- Flow 3:
Average throughput: 229.28 Mbit/s
95th percentile per-packet one-way delay: 183.222 ms
Loss rate: 2.23%
```
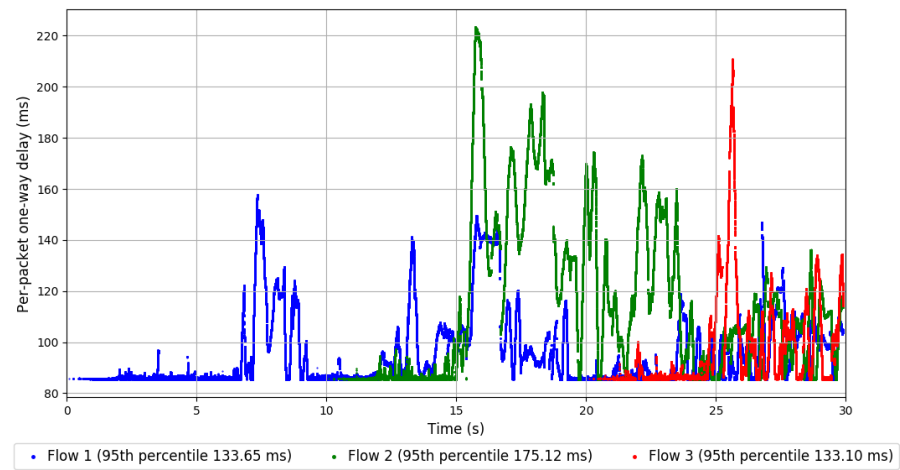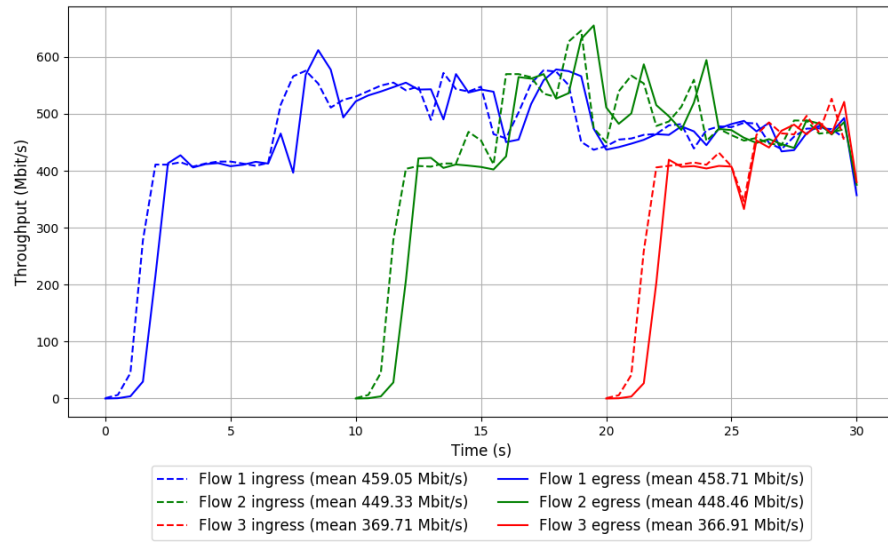
Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2019-03-18 22:23:38
End at: 2019-03-18 22:24:08
Local clock offset: 0.666 ms
Remote clock offset: 0.516 ms


# Below is generated by plot.py at 2019-03-19 02:14:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 877.03 Mbit/s
95th percentile per-packet one-way delay: 158.127 ms
Loss rate: 1.04%
-- Flow 1:
Average throughput: 458.71 Mbit/s
95th percentile per-packet one-way delay: 133.651 ms
Loss rate: 0.65%
-- Flow 2:
Average throughput: 448.46 Mbit/s
95th percentile per-packet one-way delay: 175.116 ms
Loss rate: 1.05%
-- Flow 3:
Average throughput: 366.91 Mbit/s
95th percentile per-packet one-way delay: 133.097 ms
Loss rate: 2.48%
```
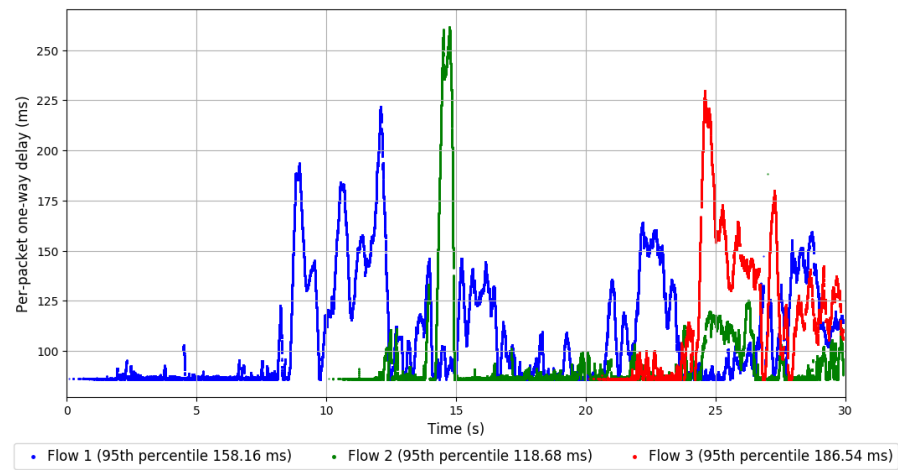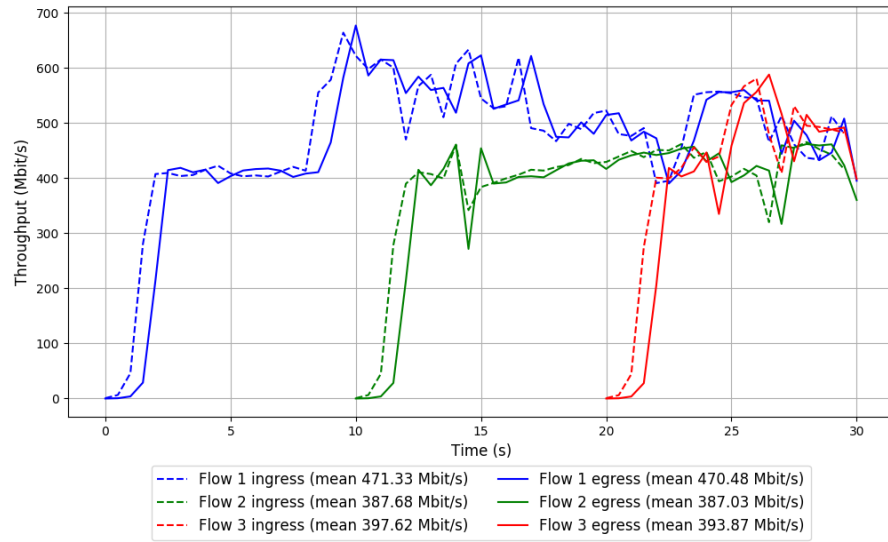
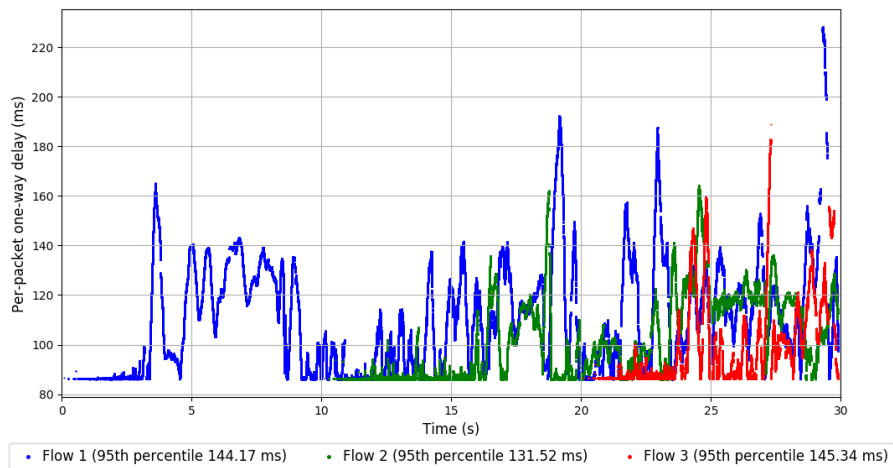Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2019-03-18 23:01:04
End at: 2019-03-18 23:01:34
Local clock offset: 0.594 ms
Remote clock offset: -0.156 ms


# Below is generated by plot.py at 2019-03-19 02:14:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 856.97 Mbit/s
95th percentile per-packet one-way delay: 160.794 ms
Loss rate: 1.12%
-- Flow 1:
Average throughput: 470.48 Mbit/s
95th percentile per-packet one-way delay: 158.157 ms
Loss rate: 0.75%
-- Flow 2:
Average throughput: 387.03 Mbit/s
95th percentile per-packet one-way delay: 118.679 ms
Loss rate: 1.03%
-- Flow 3:
Average throughput: 393.87 Mbit/s
95th percentile per-packet one-way delay: 186.542 ms
Loss rate: 2.65%
```

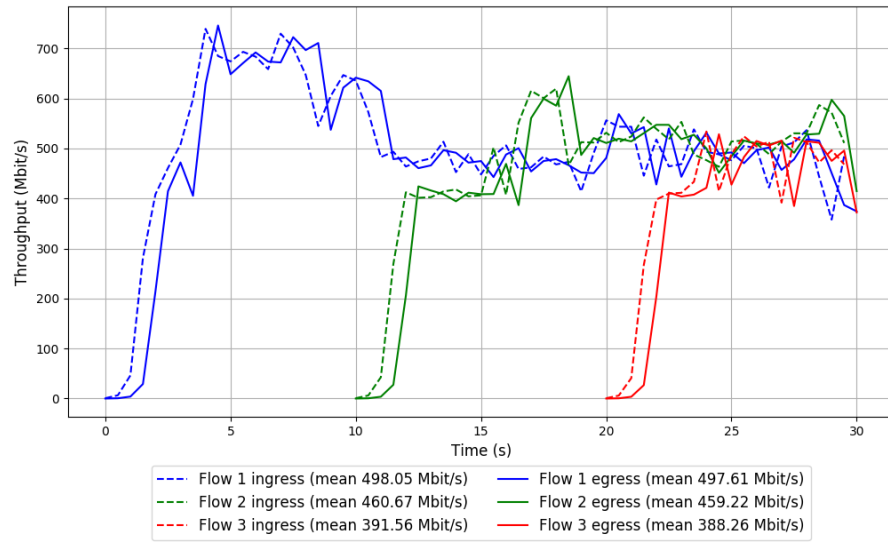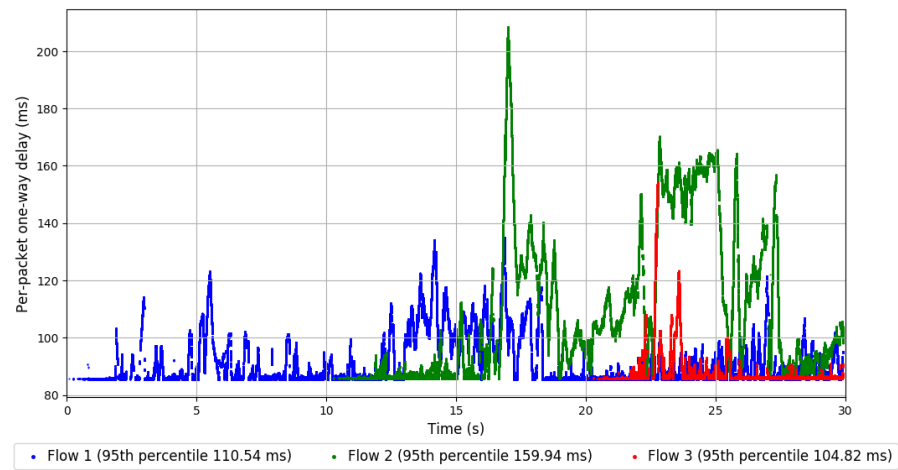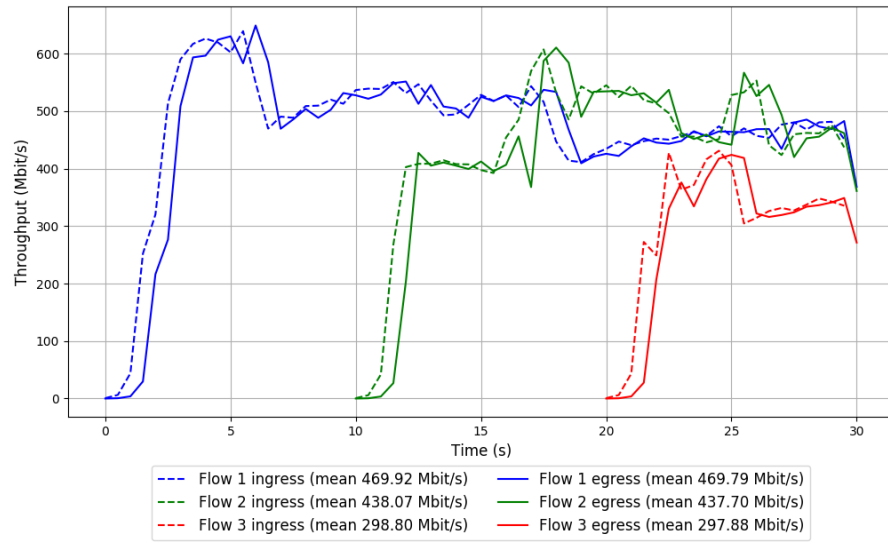Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 471.33 Mbit/s) — Flow 1 egress (mean 470.48 Mbit/s)
Flow 2 ingress (mean 387.68 Mbit/s) — Flow 2 egress (mean 387.03 Mbit/s)
Flow 3 ingress (mean 397.62 Mbit/s) — Flow 3 egress (mean 393.87 Mbit/s)

Flow 1 (95th percentile 158.16 ms)   Flow 2 (95th percentile 118.68 ms)   Flow 3 (95th percentile 186.54 ms)

```
Run 3: Statistics of TCP Cubic

Start at: 2019-03-18 23:37:36
End at: 2019-03-18 23:38:06
Local clock offset: 0.032 ms
Remote clock offset: -0.174 ms


# Below is generated by plot.py at 2019-03-19 02:14:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 930.24 Mbit/s
95th percentile per-packet one-way delay: 140.890 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 497.61 Mbit/s
95th percentile per-packet one-way delay: 144.169 ms
Loss rate: 0.67%
-- Flow 2:
Average throughput: 459.22 Mbit/s
95th percentile per-packet one-way delay: 131.523 ms
Loss rate: 1.17%
-- Flow 3:
Average throughput: 388.26 Mbit/s
95th percentile per-packet one-way delay: 145.337 ms
Loss rate: 2.56%
```

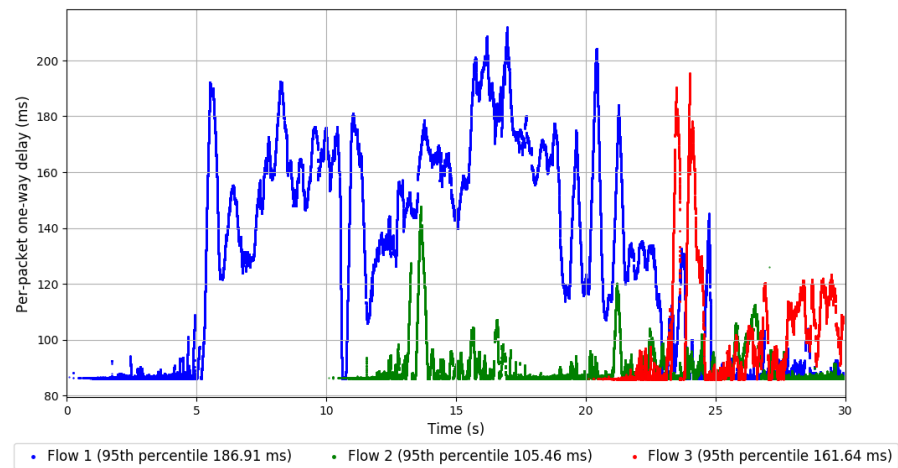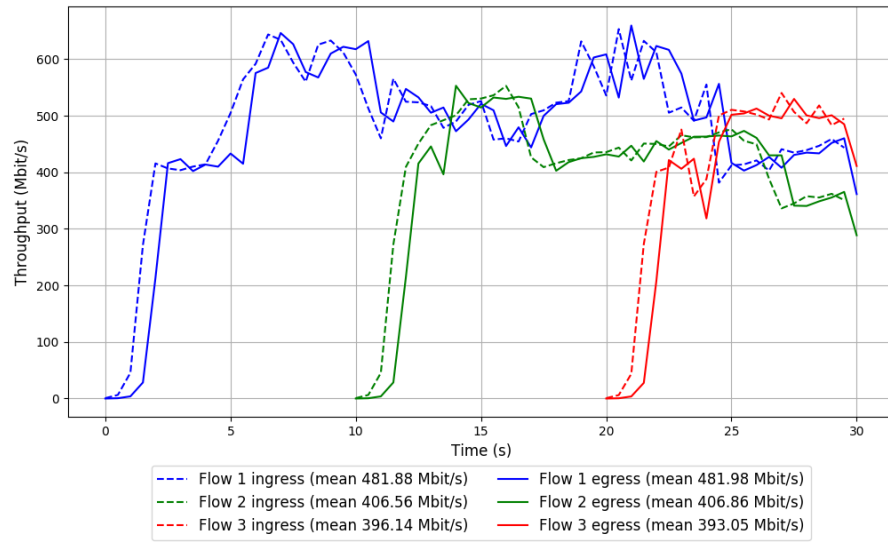Run 3: Report of TCP Cubic — Data Link

- - - Flow 1 ingress (mean 498.05 Mbit/s)   —— Flow 1 egress (mean 497.61 Mbit/s)
- - - Flow 2 ingress (mean 460.67 Mbit/s)   —— Flow 2 egress (mean 459.22 Mbit/s)
- - - Flow 3 ingress (mean 391.56 Mbit/s)   —— Flow 3 egress (mean 388.26 Mbit/s)

- Flow 1 (95th percentile 144.17 ms)   • Flow 2 (95th percentile 131.52 ms)   • Flow 3 (95th percentile 145.34 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2019-03-19 00:14:50
End at: 2019-03-19 00:15:20
Local clock offset: -0.481 ms
Remote clock offset: -0.029 ms


# Below is generated by plot.py at 2019-03-19 02:14:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 858.18 Mbit/s
95th percentile per-packet one-way delay: 147.343 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 469.79 Mbit/s
95th percentile per-packet one-way delay: 110.541 ms
Loss rate: 0.60%
-- Flow 2:
Average throughput: 437.70 Mbit/s
95th percentile per-packet one-way delay: 159.936 ms
Loss rate: 0.95%
-- Flow 3:
Average throughput: 297.88 Mbit/s
95th percentile per-packet one-way delay: 104.821 ms
Loss rate: 2.03%
```

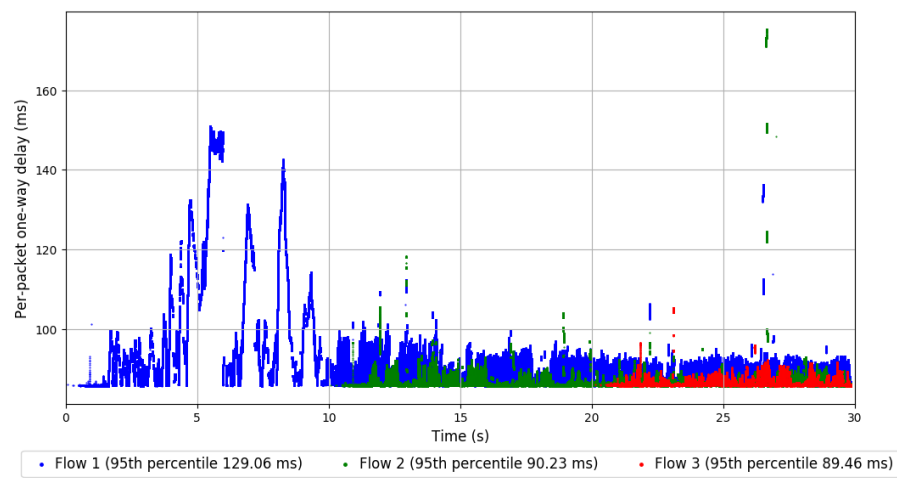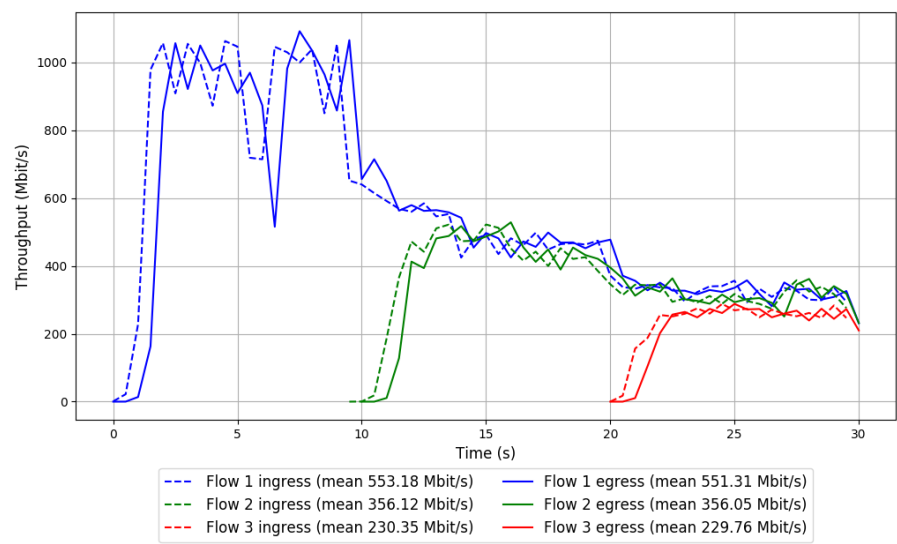Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 469.92 Mbit/s)   Flow 1 egress (mean 469.79 Mbit/s)
Flow 2 ingress (mean 438.07 Mbit/s)   Flow 2 egress (mean 437.70 Mbit/s)
Flow 3 ingress (mean 298.80 Mbit/s)   Flow 3 egress (mean 297.88 Mbit/s)

Flow 1 (95th percentile 110.54 ms)   Flow 2 (95th percentile 159.94 ms)   Flow 3 (95th percentile 104.82 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2019-03-19 00:51:51
End at: 2019-03-19 00:52:21
Local clock offset: -0.107 ms
Remote clock offset: -0.034 ms


# Below is generated by plot.py at 2019-03-19 02:15:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 881.41 Mbit/s
95th percentile per-packet one-way delay: 176.154 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 481.98 Mbit/s
95th percentile per-packet one-way delay: 186.909 ms
Loss rate: 0.56%
-- Flow 2:
Average throughput: 406.86 Mbit/s
95th percentile per-packet one-way delay: 105.460 ms
Loss rate: 0.79%
-- Flow 3:
Average throughput: 393.05 Mbit/s
95th percentile per-packet one-way delay: 161.640 ms
Loss rate: 2.50%
```

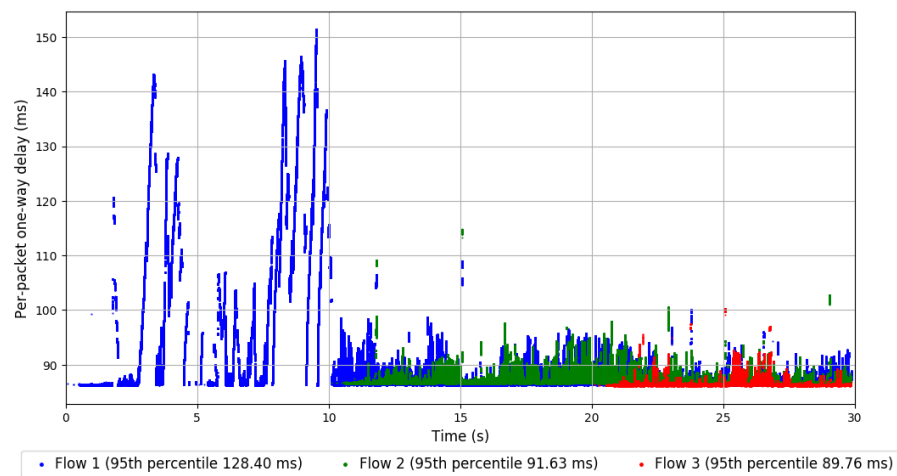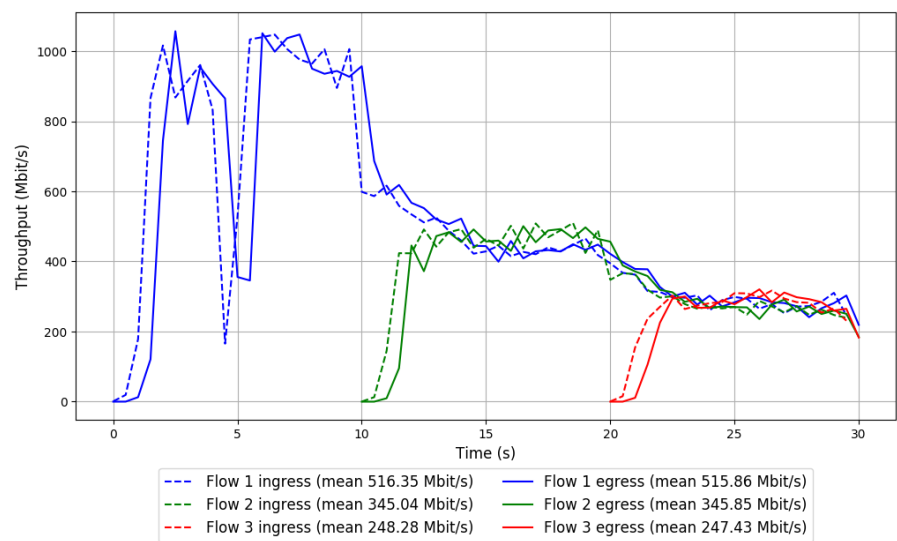Run 5: Report of TCP Cubic — Data Link

```
Run 1: Statistics of FillP

Start at: 2019-03-18 22:47:37
End at: 2019-03-18 22:48:07
Local clock offset: 1.224 ms
Remote clock offset: -0.149 ms


# Below is generated by plot.py at 2019-03-19 02:19:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 862.74 Mbit/s
95th percentile per-packet one-way delay: 121.368 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 551.31 Mbit/s
95th percentile per-packet one-way delay: 129.056 ms
Loss rate: 0.92%
-- Flow 2:
Average throughput: 356.05 Mbit/s
95th percentile per-packet one-way delay: 90.232 ms
Loss rate: 0.79%
-- Flow 3:
Average throughput: 229.76 Mbit/s
95th percentile per-packet one-way delay: 89.458 ms
Loss rate: 2.00%
```
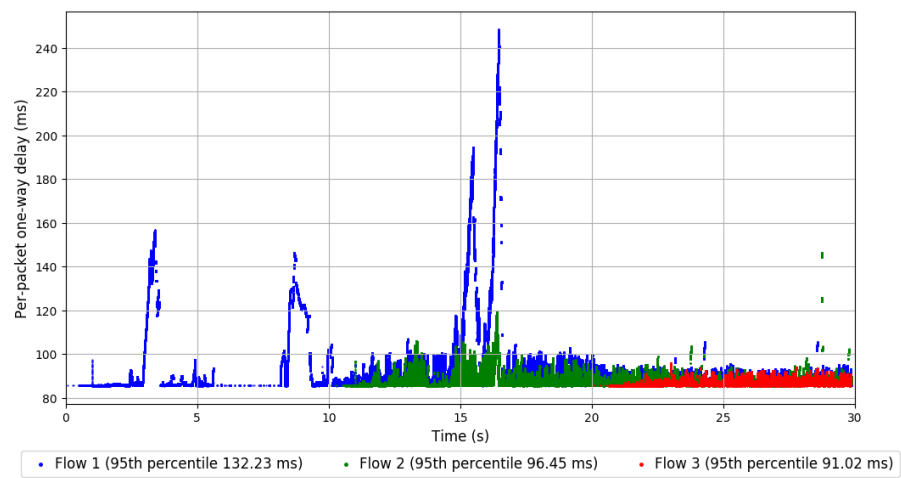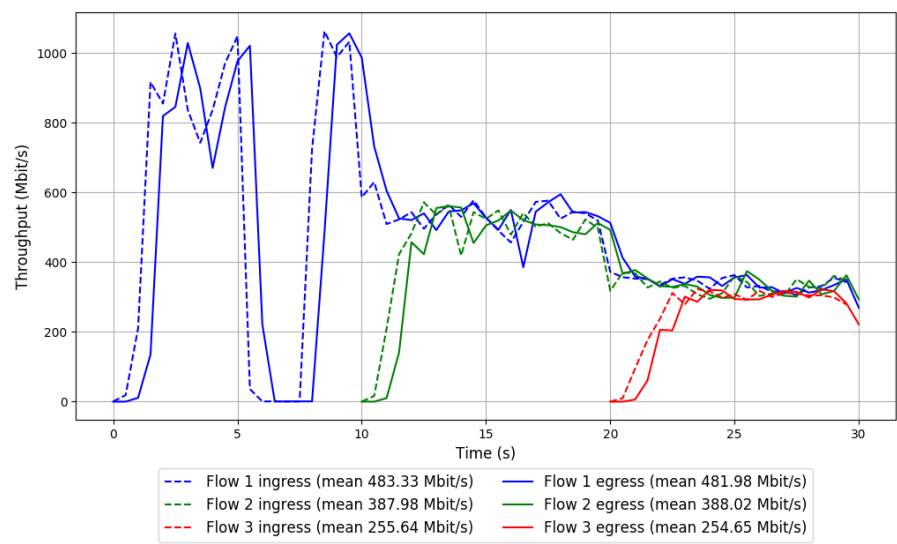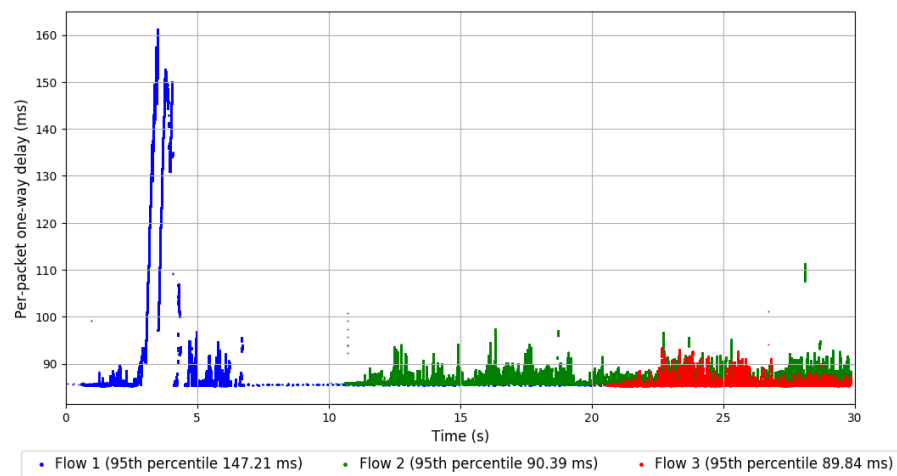
Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 553.18 Mbit/s) --- Flow 1 egress (mean 551.31 Mbit/s)
Flow 2 ingress (mean 356.12 Mbit/s) --- Flow 2 egress (mean 356.05 Mbit/s)
Flow 3 ingress (mean 230.35 Mbit/s) --- Flow 3 egress (mean 229.76 Mbit/s)

Flow 1 (95th percentile 129.06 ms)   Flow 2 (95th percentile 90.23 ms)   Flow 3 (95th percentile 89.46 ms)

36

```
Run 2: Statistics of FillP

Start at: 2019-03-18 23:24:44
End at: 2019-03-18 23:25:14
Local clock offset: 0.082 ms
Remote clock offset: -0.136 ms


# Below is generated by plot.py at 2019-03-19 02:29:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 826.47 Mbit/s
95th percentile per-packet one-way delay: 121.742 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 515.86 Mbit/s
95th percentile per-packet one-way delay: 128.401 ms
Loss rate: 0.67%
-- Flow 2:
Average throughput: 345.85 Mbit/s
95th percentile per-packet one-way delay: 91.630 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 247.43 Mbit/s
95th percentile per-packet one-way delay: 89.757 ms
Loss rate: 1.90%
```

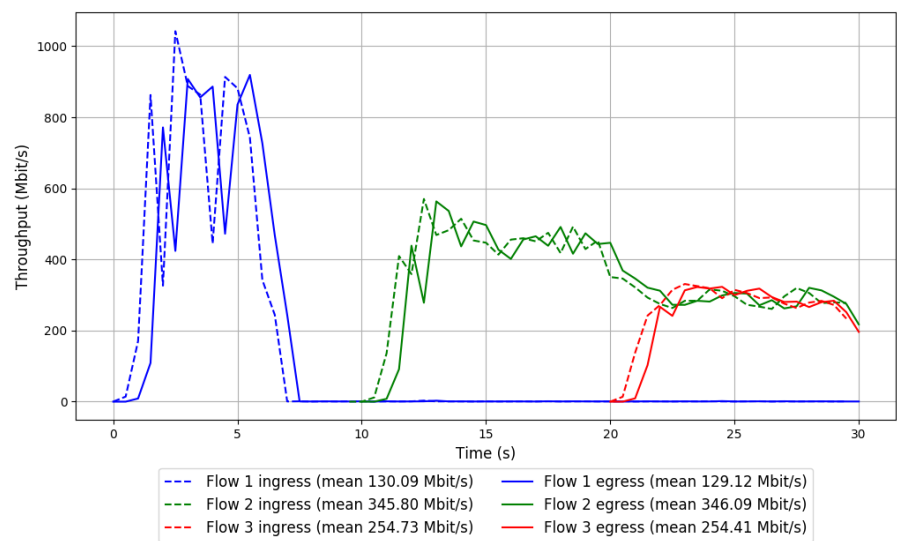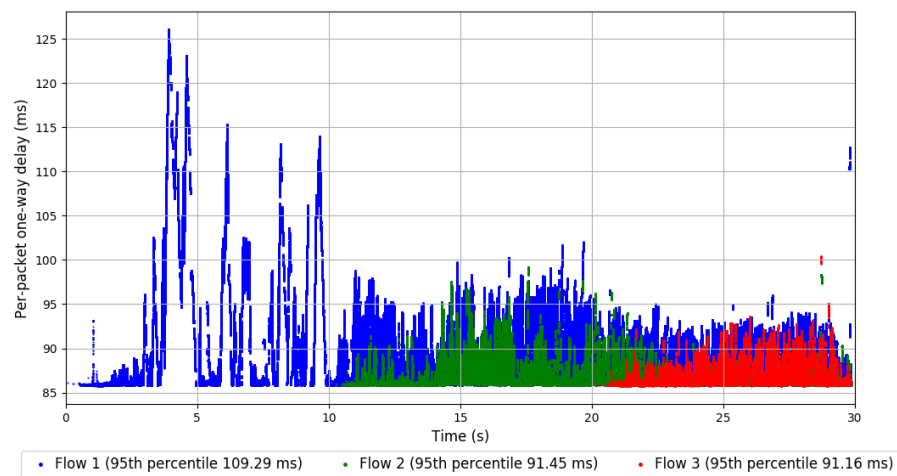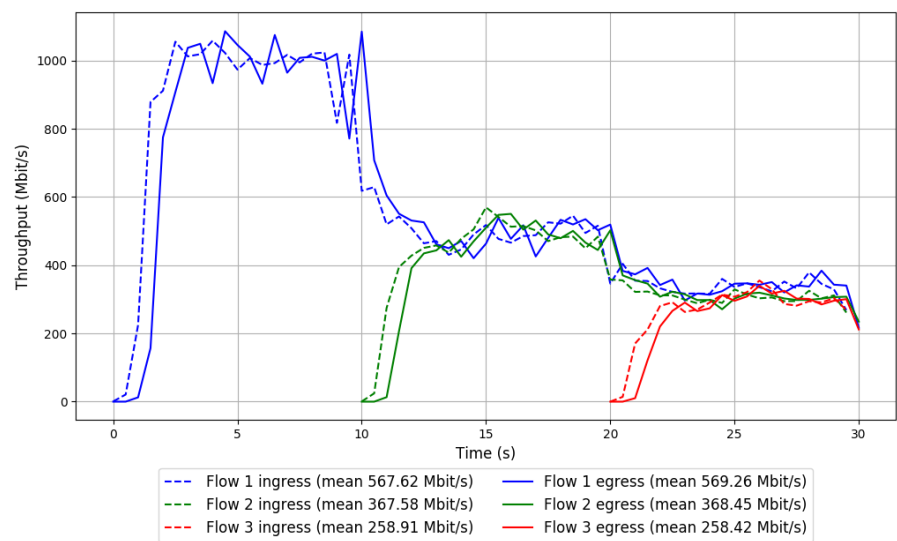Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2019-03-19 00:01:33
End at: 2019-03-19 00:02:03
Local clock offset: -0.53 ms
Remote clock offset: -0.217 ms


# Below is generated by plot.py at 2019-03-19 02:31:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 823.14 Mbit/s
95th percentile per-packet one-way delay: 123.060 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 481.98 Mbit/s
95th percentile per-packet one-way delay: 132.229 ms
Loss rate: 0.80%
-- Flow 2:
Average throughput: 388.02 Mbit/s
95th percentile per-packet one-way delay: 96.452 ms
Loss rate: 0.85%
-- Flow 3:
Average throughput: 254.65 Mbit/s
95th percentile per-packet one-way delay: 91.019 ms
Loss rate: 2.16%
```

Run 3: Report of FillP — Data Link

- - - Flow 1 ingress (mean 483.33 Mbit/s) —— Flow 1 egress (mean 481.98 Mbit/s)
- - - Flow 2 ingress (mean 387.98 Mbit/s) —— Flow 2 egress (mean 388.02 Mbit/s)
- - - Flow 3 ingress (mean 255.64 Mbit/s) —— Flow 3 egress (mean 254.65 Mbit/s)

• Flow 1 (95th percentile 132.23 ms) • Flow 2 (95th percentile 96.45 ms) • Flow 3 (95th percentile 91.02 ms)

40

```
Run 4: Statistics of FillP

Start at: 2019-03-19 00:38:37
End at: 2019-03-19 00:39:07
Local clock offset: -0.553 ms
Remote clock offset: 0.025 ms

# Below is generated by plot.py at 2019-03-19 02:31:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 441.89 Mbit/s
95th percentile per-packet one-way delay: 120.472 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 129.12 Mbit/s
95th percentile per-packet one-way delay: 147.207 ms
Loss rate: 1.38%
-- Flow 2:
Average throughput: 346.09 Mbit/s
95th percentile per-packet one-way delay: 90.391 ms
Loss rate: 0.78%
-- Flow 3:
Average throughput: 254.41 Mbit/s
95th percentile per-packet one-way delay: 89.839 ms
Loss rate: 1.93%
```
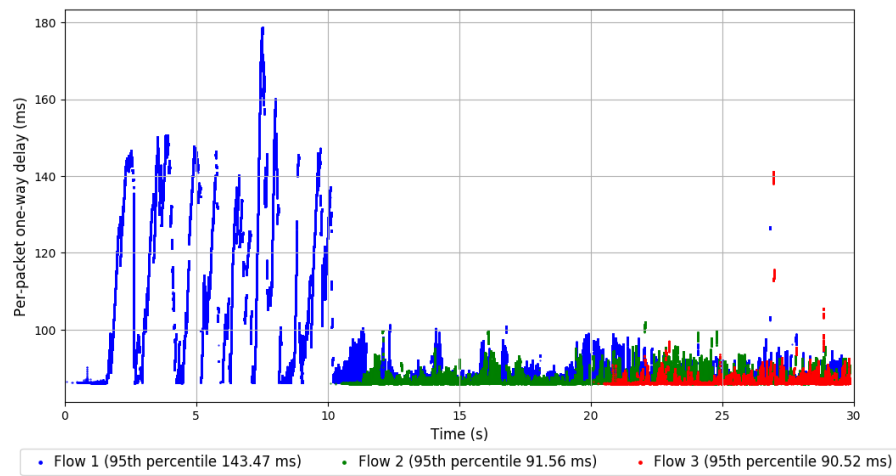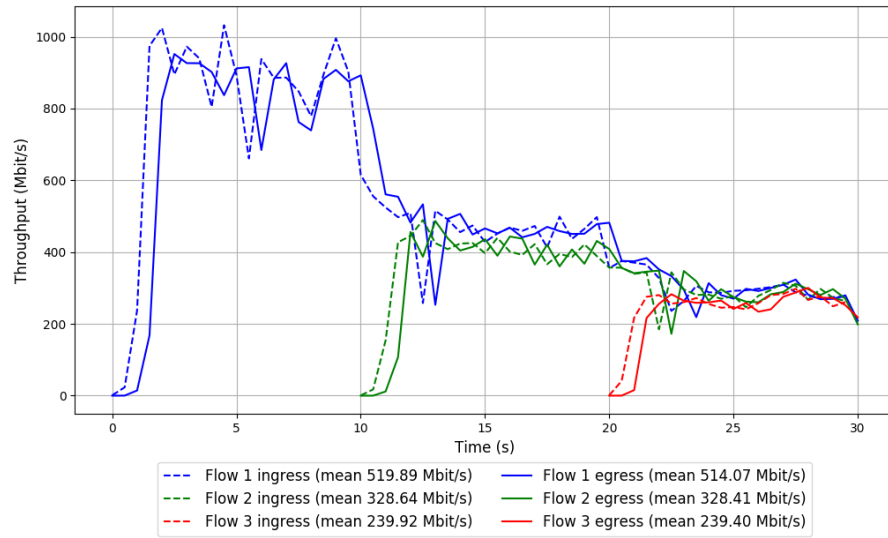
Run 4: Report of FillP — Data Link

```
Run 5: Statistics of FillP

Start at: 2019-03-19 01:15:58
End at: 2019-03-19 01:16:28
Local clock offset: -0.086 ms
Remote clock offset: -0.064 ms


# Below is generated by plot.py at 2019-03-19 02:34:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 898.24 Mbit/s
95th percentile per-packet one-way delay: 103.081 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 569.26 Mbit/s
95th percentile per-packet one-way delay: 109.294 ms
Loss rate: 0.29%
-- Flow 2:
Average throughput: 368.45 Mbit/s
95th percentile per-packet one-way delay: 91.449 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 258.42 Mbit/s
95th percentile per-packet one-way delay: 91.163 ms
Loss rate: 1.98%
```
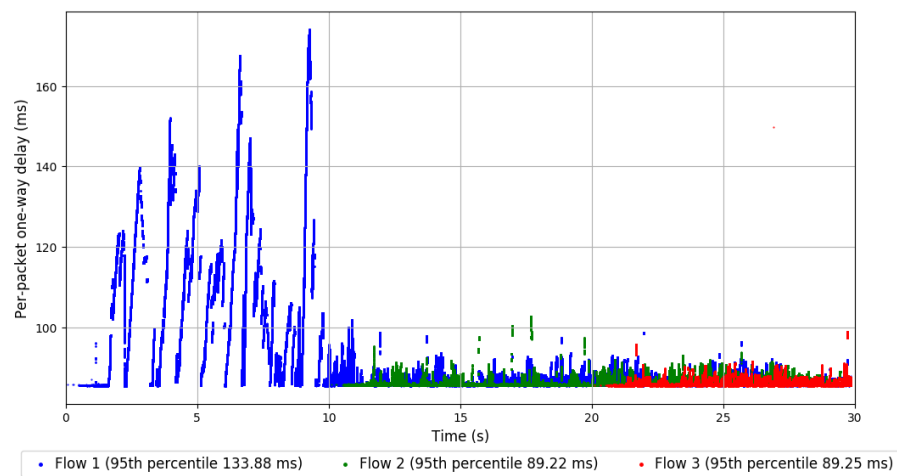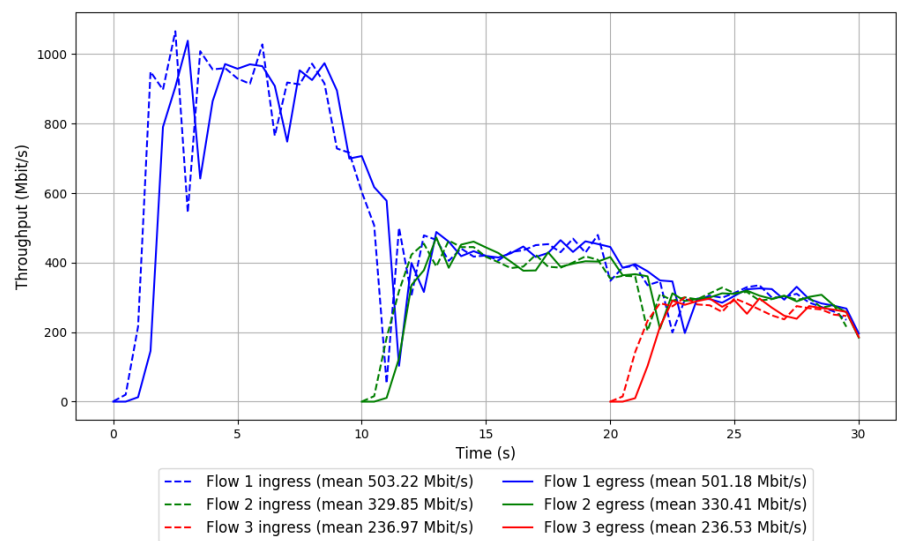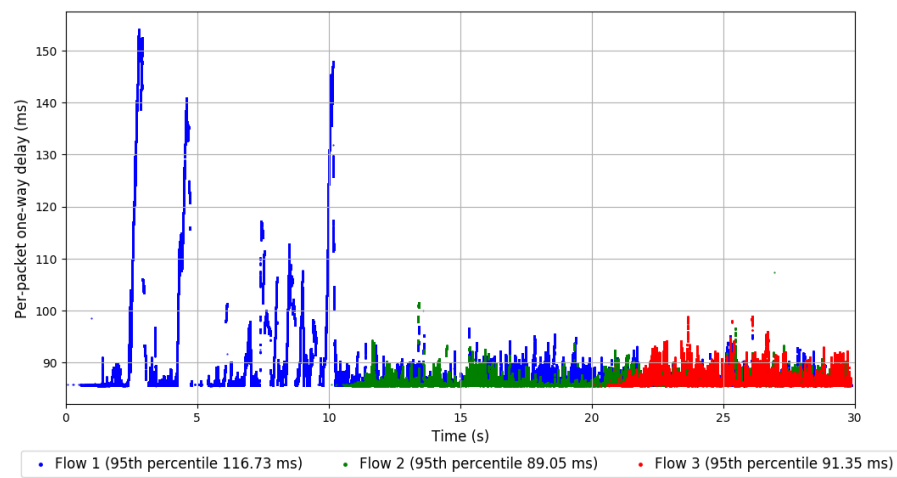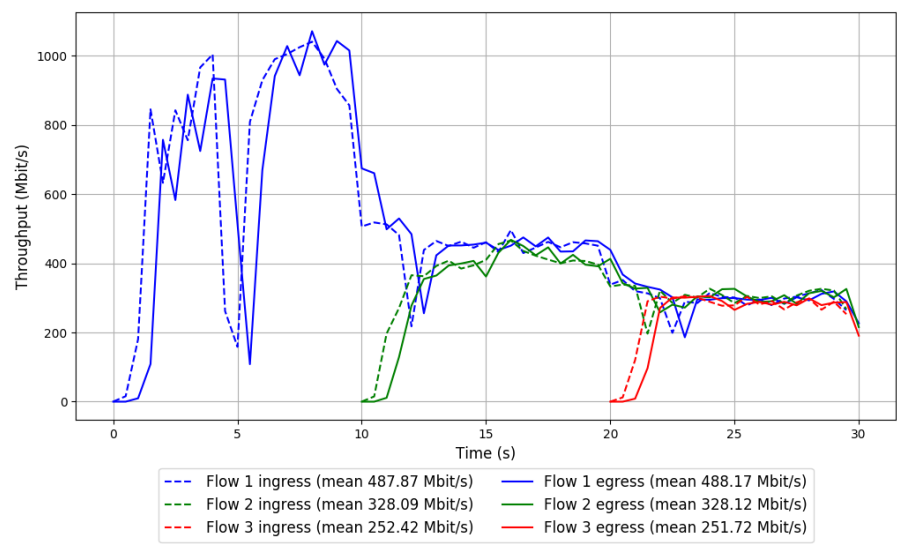
Run 5: Report of FillP — Data Link

Flow 1 ingress (mean 567.62 Mbit/s) --- Flow 1 egress (mean 569.26 Mbit/s)
Flow 2 ingress (mean 367.58 Mbit/s) --- Flow 2 egress (mean 368.45 Mbit/s)
Flow 3 ingress (mean 258.91 Mbit/s) --- Flow 3 egress (mean 258.42 Mbit/s)

Flow 1 (95th percentile 109.29 ms) • Flow 2 (95th percentile 91.45 ms) • Flow 3 (95th percentile 91.16 ms)

44

```
Run 1: Statistics of FillP-Sheep

Start at: 2019-03-18 22:55:34
End at: 2019-03-18 22:56:04
Local clock offset: 0.983 ms
Remote clock offset: -0.23 ms


# Below is generated by plot.py at 2019-03-19 02:34:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 810.36 Mbit/s
95th percentile per-packet one-way delay: 140.690 ms
Loss rate: 1.50%
-- Flow 1:
Average throughput: 514.07 Mbit/s
95th percentile per-packet one-way delay: 143.475 ms
Loss rate: 1.71%
-- Flow 2:
Average throughput: 328.41 Mbit/s
95th percentile per-packet one-way delay: 91.558 ms
Loss rate: 0.84%
-- Flow 3:
Average throughput: 239.40 Mbit/s
95th percentile per-packet one-way delay: 90.523 ms
Loss rate: 1.95%
```

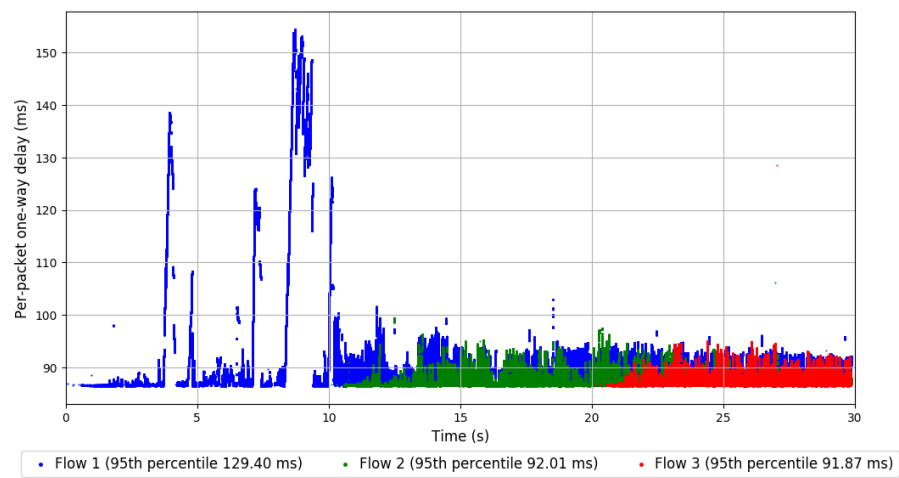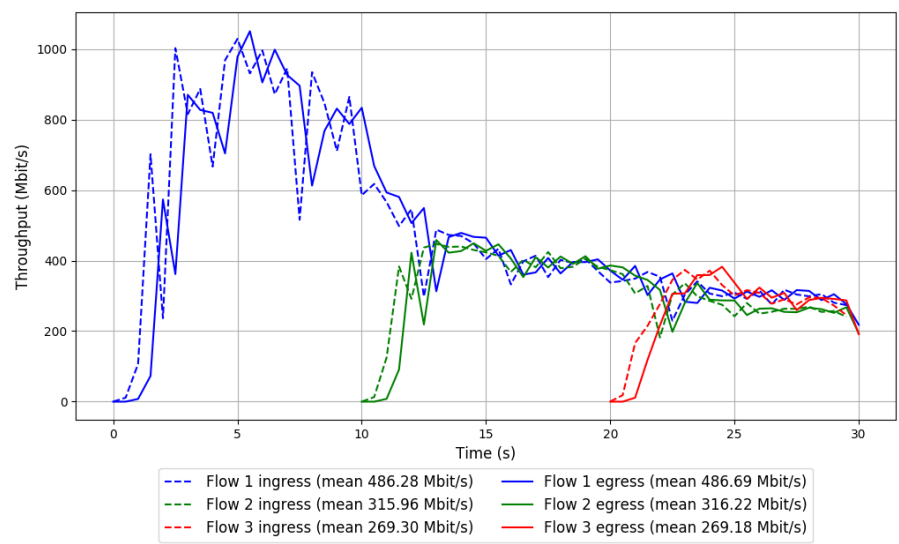Run 1: Report of FillP-Sheep — Data Link

- - - Flow 1 ingress (mean 519.89 Mbit/s) —— Flow 1 egress (mean 514.07 Mbit/s)
- - - Flow 2 ingress (mean 328.64 Mbit/s) —— Flow 2 egress (mean 328.41 Mbit/s)
- - - Flow 3 ingress (mean 239.92 Mbit/s) —— Flow 3 egress (mean 239.40 Mbit/s)

- Flow 1 (95th percentile 143.47 ms)   • Flow 2 (95th percentile 91.56 ms)   • Flow 3 (95th percentile 90.52 ms)

```
Run 2: Statistics of FillP-Sheep

Start at: 2019-03-18 23:32:31
End at: 2019-03-18 23:33:01
Local clock offset: -0.518 ms
Remote clock offset: -0.14 ms


# Below is generated by plot.py at 2019-03-19 02:34:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 797.64 Mbit/s
95th percentile per-packet one-way delay: 127.461 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 501.18 Mbit/s
95th percentile per-packet one-way delay: 133.875 ms
Loss rate: 0.98%
-- Flow 2:
Average throughput: 330.41 Mbit/s
95th percentile per-packet one-way delay: 89.219 ms
Loss rate: 0.73%
-- Flow 3:
Average throughput: 236.53 Mbit/s
95th percentile per-packet one-way delay: 89.249 ms
Loss rate: 1.95%
```

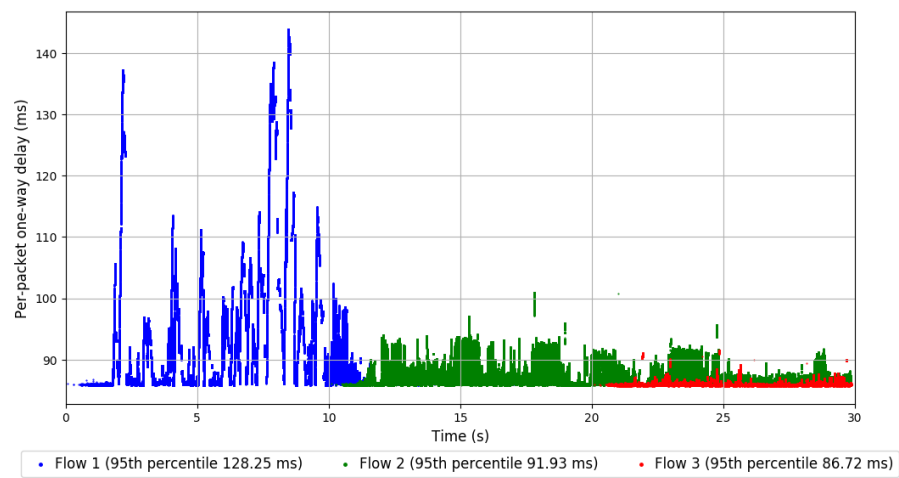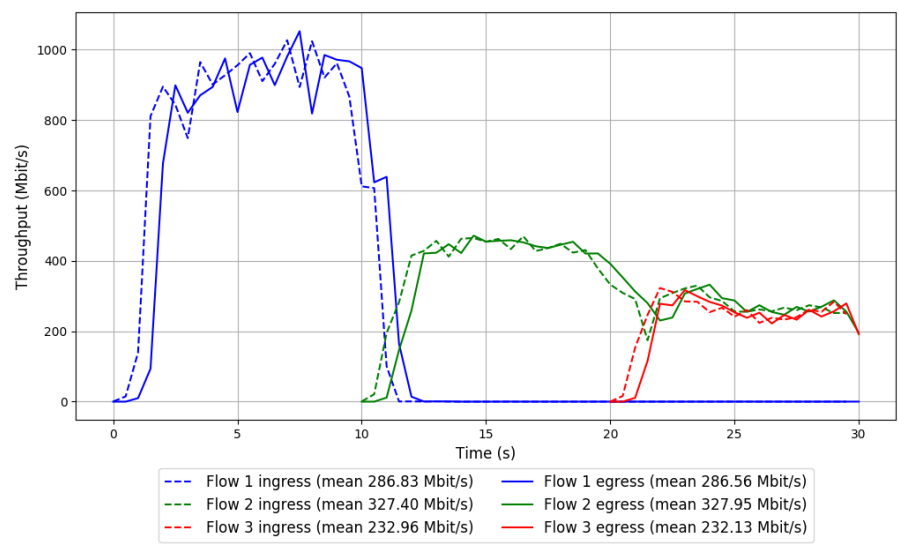Run 2: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 503.22 Mbit/s)   Flow 1 egress (mean 501.18 Mbit/s)
Flow 2 ingress (mean 329.85 Mbit/s)   Flow 2 egress (mean 330.41 Mbit/s)
Flow 3 ingress (mean 236.97 Mbit/s)   Flow 3 egress (mean 236.53 Mbit/s)

Flow 1 (95th percentile 133.88 ms)   Flow 2 (95th percentile 89.22 ms)   Flow 3 (95th percentile 89.25 ms)

```
Run 3: Statistics of FillP-Sheep

Start at: 2019-03-19 00:09:38
End at: 2019-03-19 00:10:08
Local clock offset: -0.384 ms
Remote clock offset: -0.045 ms


# Below is generated by plot.py at 2019-03-19 02:34:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 788.14 Mbit/s
95th percentile per-packet one-way delay: 106.885 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 488.17 Mbit/s
95th percentile per-packet one-way delay: 116.728 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 328.12 Mbit/s
95th percentile per-packet one-way delay: 89.049 ms
Loss rate: 0.90%
-- Flow 3:
Average throughput: 251.72 Mbit/s
95th percentile per-packet one-way delay: 91.351 ms
Loss rate: 2.09%
```
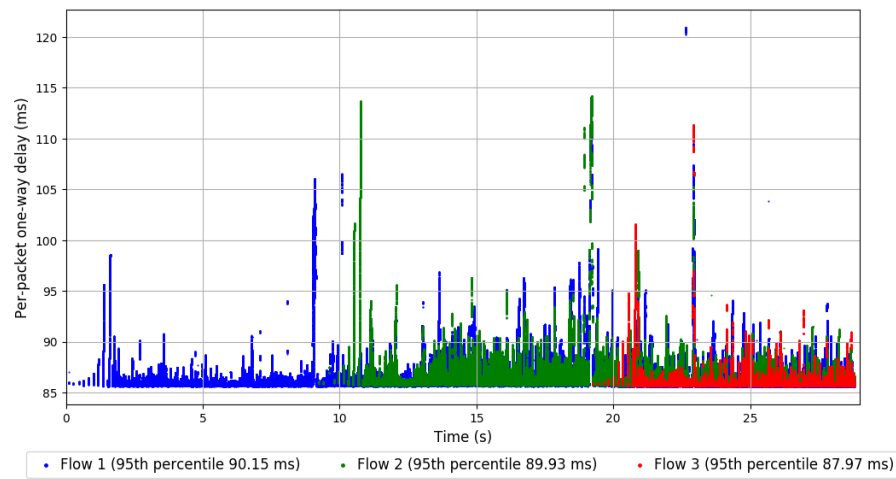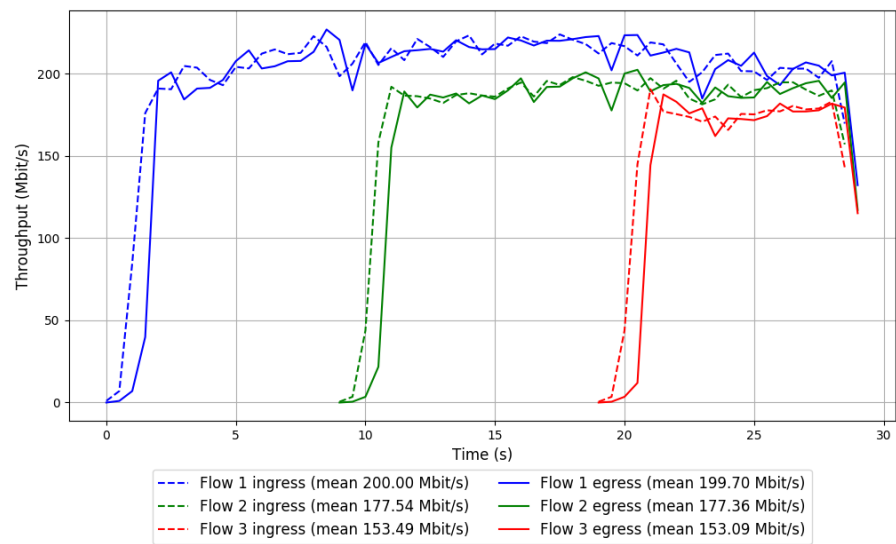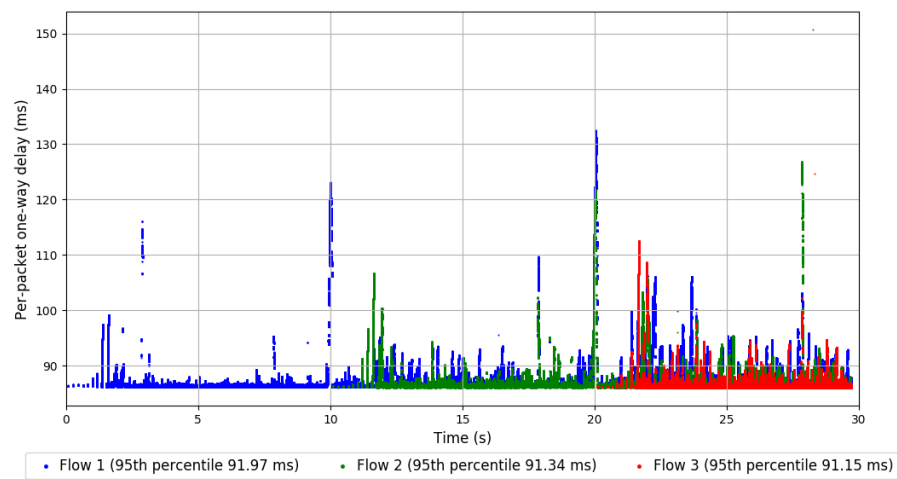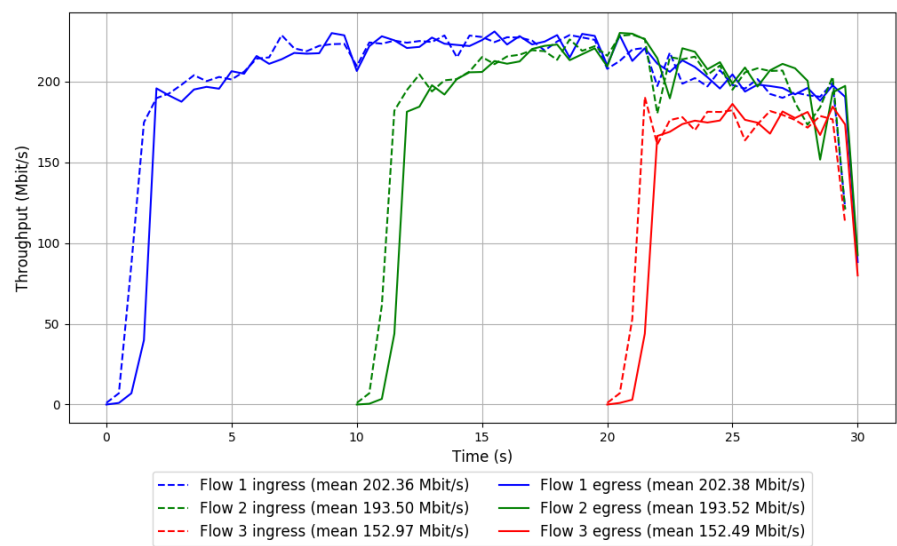
Run 3: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 487.87 Mbit/s) --- Flow 1 egress (mean 488.17 Mbit/s)
Flow 2 ingress (mean 328.09 Mbit/s) --- Flow 2 egress (mean 328.12 Mbit/s)
Flow 3 ingress (mean 252.42 Mbit/s) --- Flow 3 egress (mean 251.72 Mbit/s)

Flow 1 (95th percentile 116.73 ms) · Flow 2 (95th percentile 89.05 ms) · Flow 3 (95th percentile 91.35 ms)

50

```
Run 4: Statistics of FillP-Sheep

Start at: 2019-03-19 00:46:21
End at: 2019-03-19 00:46:51
Local clock offset: 0.356 ms
Remote clock offset: -0.004 ms


# Below is generated by plot.py at 2019-03-19 02:37:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 784.15 Mbit/s
95th percentile per-packet one-way delay: 116.680 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 486.69 Mbit/s
95th percentile per-packet one-way delay: 129.400 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 316.22 Mbit/s
95th percentile per-packet one-way delay: 92.014 ms
Loss rate: 0.73%
-- Flow 3:
Average throughput: 269.18 Mbit/s
95th percentile per-packet one-way delay: 91.871 ms
Loss rate: 1.78%
```

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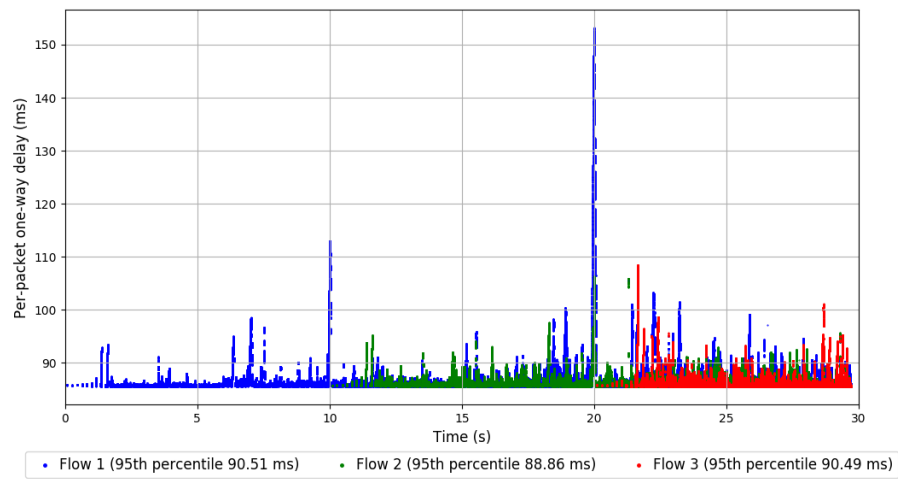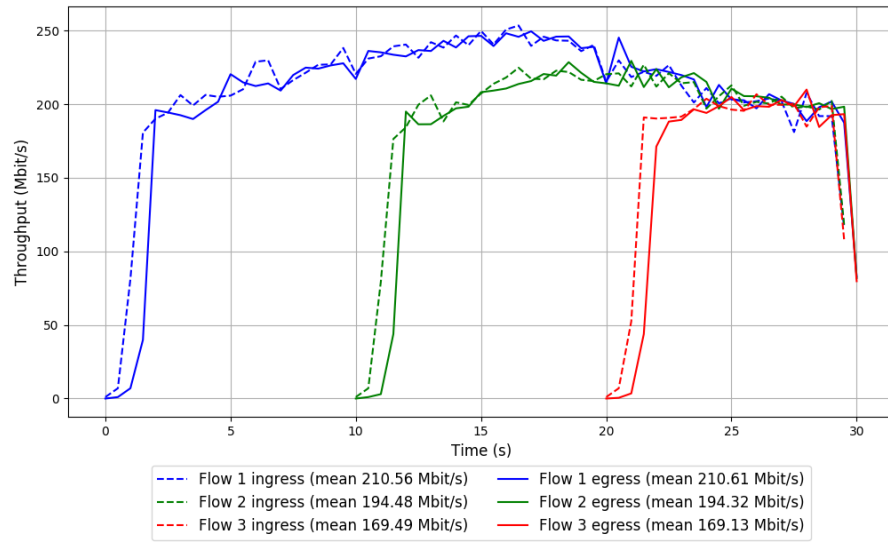
```
Run 5: Statistics of FillP-Sheep

Start at: 2019-03-19 01:24:14
End at: 2019-03-19 01:24:44
Local clock offset: -0.123 ms
Remote clock offset: -0.057 ms


# Below is generated by plot.py at 2019-03-19 02:37:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 580.16 Mbit/s
95th percentile per-packet one-way delay: 111.028 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 286.56 Mbit/s
95th percentile per-packet one-way delay: 128.249 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 327.95 Mbit/s
95th percentile per-packet one-way delay: 91.933 ms
Loss rate: 0.73%
-- Flow 3:
Average throughput: 232.13 Mbit/s
95th percentile per-packet one-way delay: 86.719 ms
Loss rate: 2.15%
```

Run 5: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 286.83 Mbit/s) --- Flow 1 egress (mean 286.56 Mbit/s)
Flow 2 ingress (mean 327.40 Mbit/s) --- Flow 2 egress (mean 327.95 Mbit/s)
Flow 3 ingress (mean 232.96 Mbit/s) --- Flow 3 egress (mean 232.13 Mbit/s)

Flow 1 (95th percentile 128.25 ms)   Flow 2 (95th percentile 91.93 ms)   Flow 3 (95th percentile 86.72 ms)

```
Run 1: Statistics of Indigo

Start at: 2019-03-18 22:43:51
End at: 2019-03-18 22:44:21
Local clock offset: 1.144 ms
Remote clock offset: -0.16 ms

# Below is generated by plot.py at 2019-03-19 02:42:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 371.59 Mbit/s
95th percentile per-packet one-way delay: 89.884 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 199.70 Mbit/s
95th percentile per-packet one-way delay: 90.152 ms
Loss rate: 0.75%
-- Flow 2:
Average throughput: 177.36 Mbit/s
95th percentile per-packet one-way delay: 89.926 ms
Loss rate: 0.97%
-- Flow 3:
Average throughput: 153.09 Mbit/s
95th percentile per-packet one-way delay: 87.973 ms
Loss rate: 2.03%
```
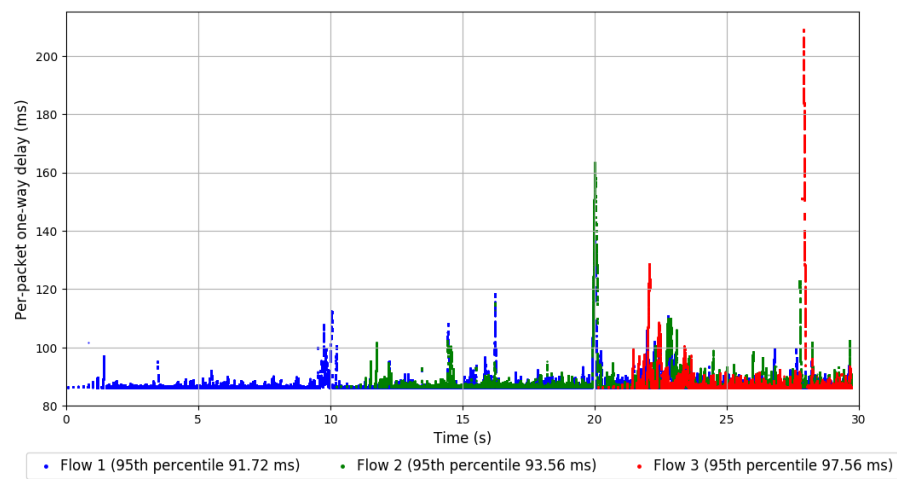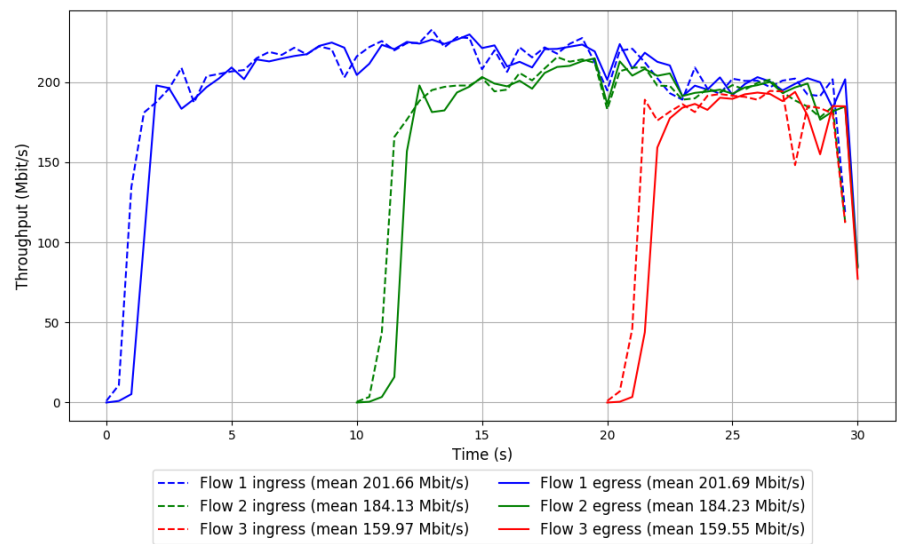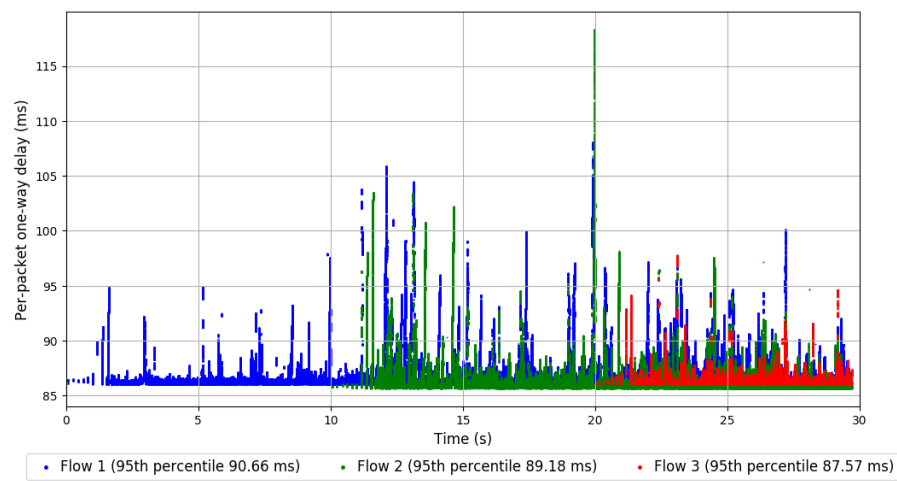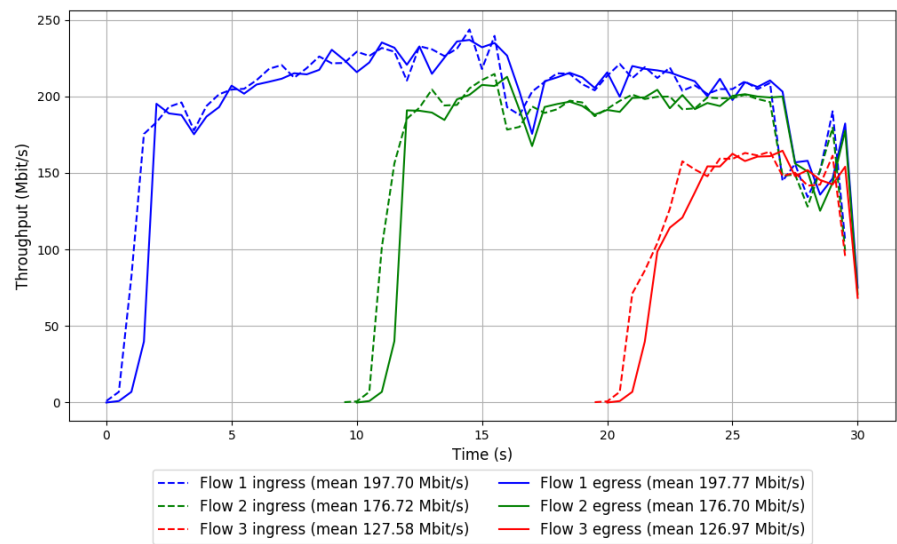
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2019-03-18 23:20:54
End at: 2019-03-18 23:21:24
Local clock offset: 0.076 ms
Remote clock offset: -0.092 ms


# Below is generated by plot.py at 2019-03-19 02:44:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 379.85 Mbit/s
95th percentile per-packet one-way delay: 91.761 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 202.38 Mbit/s
95th percentile per-packet one-way delay: 91.975 ms
Loss rate: 0.57%
-- Flow 2:
Average throughput: 193.52 Mbit/s
95th percentile per-packet one-way delay: 91.337 ms
Loss rate: 0.86%
-- Flow 3:
Average throughput: 152.49 Mbit/s
95th percentile per-packet one-way delay: 91.149 ms
Loss rate: 2.07%
```

Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2019-03-18 23:57:33
End at: 2019-03-18 23:58:03
Local clock offset: -0.474 ms
Remote clock offset: -0.173 ms


# Below is generated by plot.py at 2019-03-19 02:46:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 393.97 Mbit/s
95th percentile per-packet one-way delay: 89.879 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 210.61 Mbit/s
95th percentile per-packet one-way delay: 90.513 ms
Loss rate: 0.56%
-- Flow 2:
Average throughput: 194.32 Mbit/s
95th percentile per-packet one-way delay: 88.855 ms
Loss rate: 0.95%
-- Flow 3:
Average throughput: 169.13 Mbit/s
95th percentile per-packet one-way delay: 90.491 ms
Loss rate: 1.98%
```
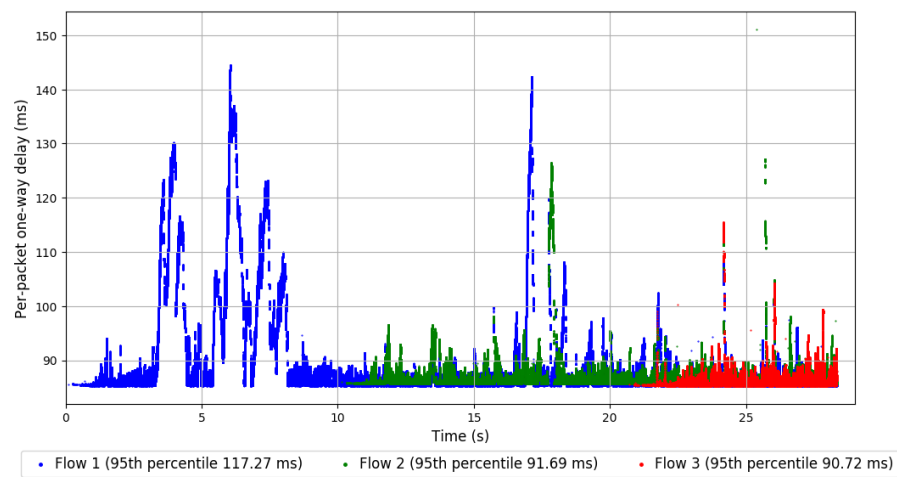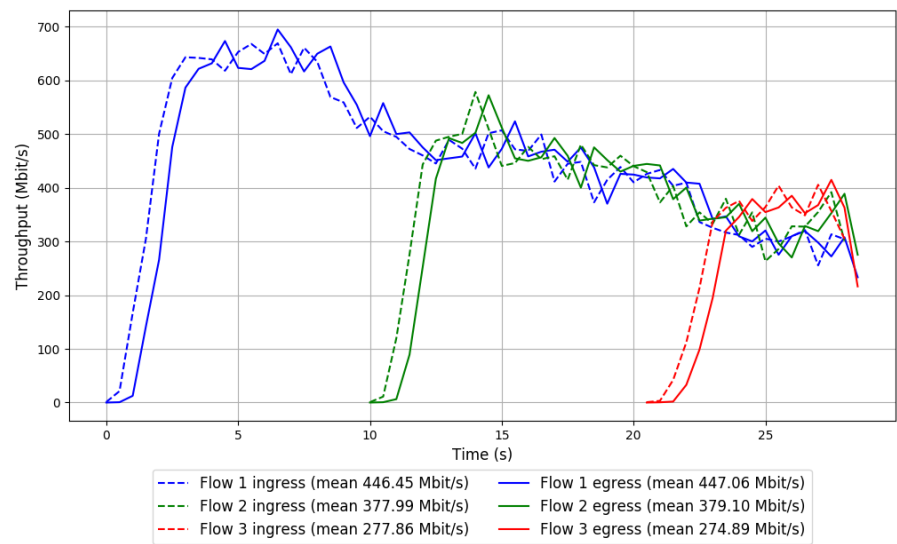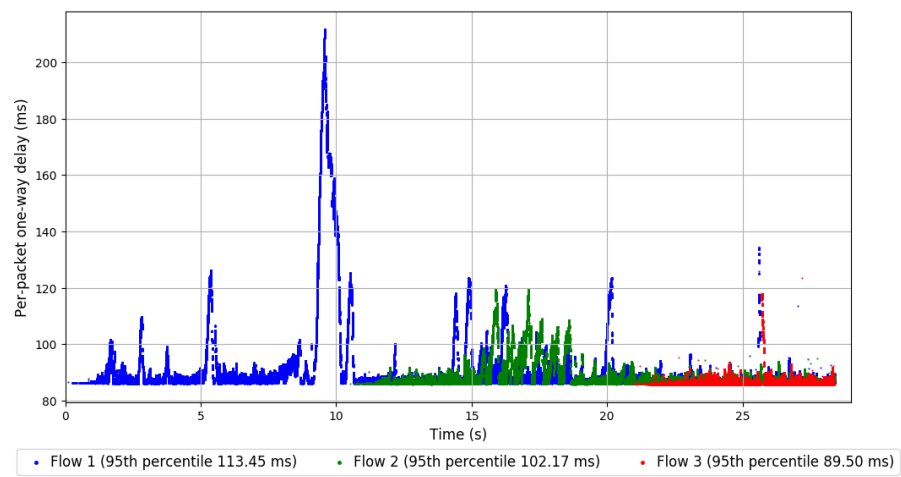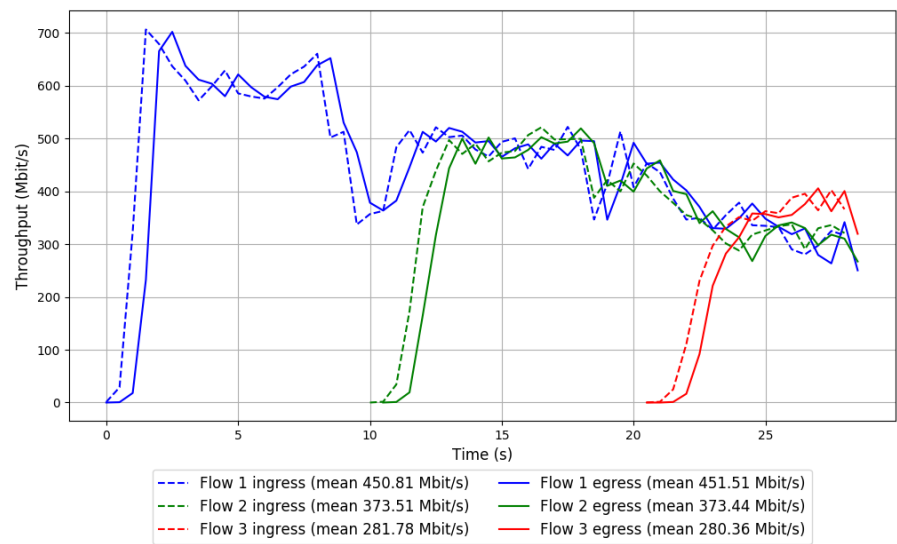
Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2019-03-19 00:34:44
End at: 2019-03-19 00:35:14
Local clock offset: 0.304 ms
Remote clock offset: 0.033 ms


# Below is generated by plot.py at 2019-03-19 02:46:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 374.38 Mbit/s
95th percentile per-packet one-way delay: 93.205 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 201.69 Mbit/s
95th percentile per-packet one-way delay: 91.720 ms
Loss rate: 0.59%
-- Flow 2:
Average throughput: 184.23 Mbit/s
95th percentile per-packet one-way delay: 93.564 ms
Loss rate: 0.82%
-- Flow 3:
Average throughput: 159.55 Mbit/s
95th percentile per-packet one-way delay: 97.556 ms
Loss rate: 2.02%
```
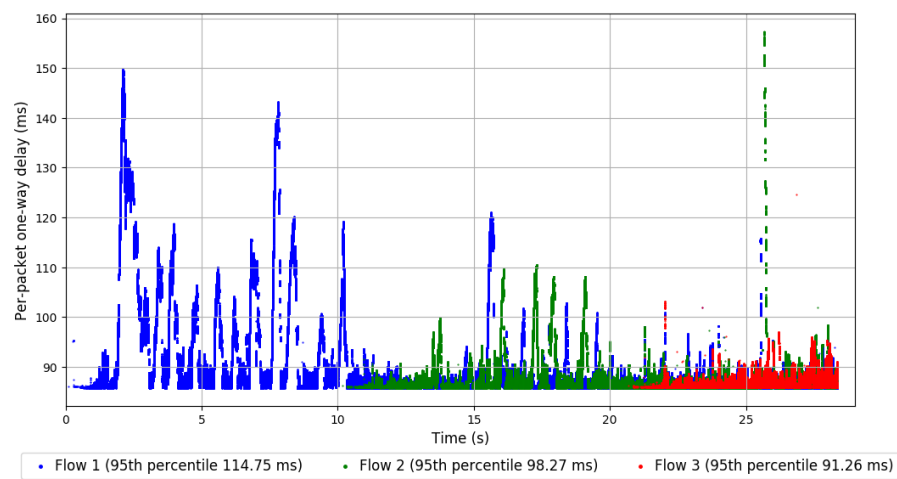
Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2019-03-19 01:12:10
End at: 2019-03-19 01:12:40
Local clock offset: -0.179 ms
Remote clock offset: -0.046 ms


# Below is generated by plot.py at 2019-03-19 02:46:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 356.14 Mbit/s
95th percentile per-packet one-way delay: 89.814 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 197.77 Mbit/s
95th percentile per-packet one-way delay: 90.664 ms
Loss rate: 0.55%
-- Flow 2:
Average throughput: 176.70 Mbit/s
95th percentile per-packet one-way delay: 89.183 ms
Loss rate: 0.88%
-- Flow 3:
Average throughput: 126.97 Mbit/s
95th percentile per-packet one-way delay: 87.569 ms
Loss rate: 2.23%
```

Run 5: Report of Indigo — Data Link

```
Run 1: Statistics of Indigo-MusesC3

Start at: 2019-03-18 22:45:42
End at: 2019-03-18 22:46:12
Local clock offset: 0.785 ms
Remote clock offset: -0.19 ms


# Below is generated by plot.py at 2019-03-19 02:48:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 765.28 Mbit/s
95th percentile per-packet one-way delay: 110.999 ms
Loss rate: 0.83%
-- Flow 1:
Average throughput: 447.06 Mbit/s
95th percentile per-packet one-way delay: 117.272 ms
Loss rate: 0.49%
-- Flow 2:
Average throughput: 379.10 Mbit/s
95th percentile per-packet one-way delay: 91.687 ms
Loss rate: 0.69%
-- Flow 3:
Average throughput: 274.89 Mbit/s
95th percentile per-packet one-way delay: 90.716 ms
Loss rate: 3.26%
```
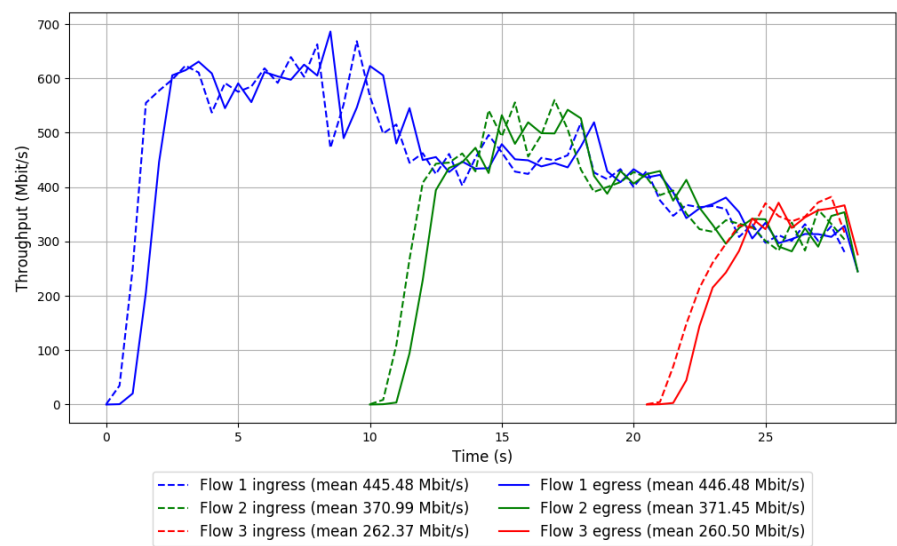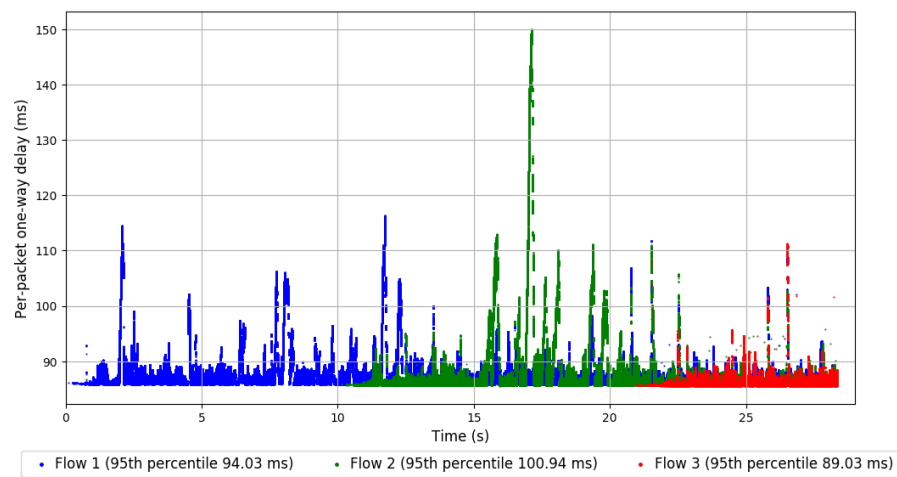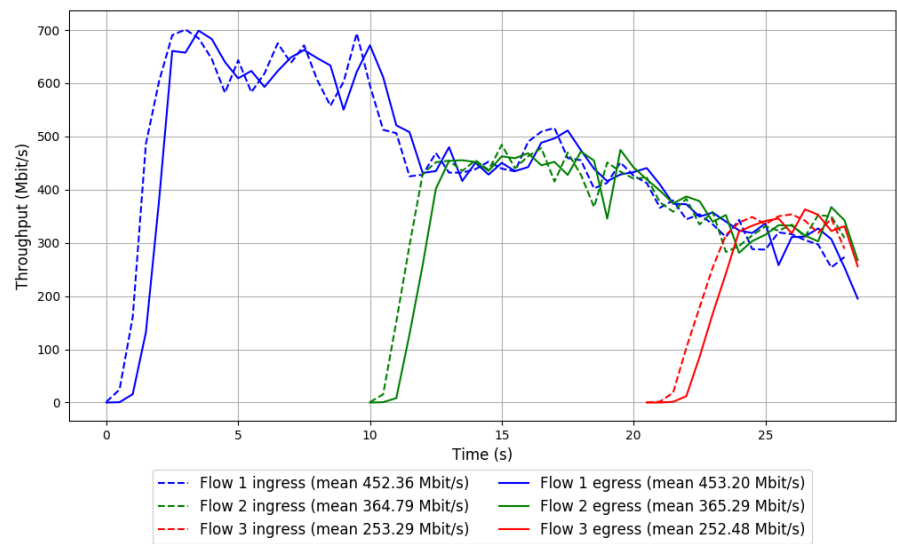
Run 1: Report of Indigo-MusesC3 — Data Link

```
Run 2: Statistics of Indigo-MusesC3

Start at: 2019-03-18 23:22:48
End at: 2019-03-18 23:23:18
Local clock offset: -0.31 ms
Remote clock offset: -0.152 ms


# Below is generated by plot.py at 2019-03-19 02:50:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 761.71 Mbit/s
95th percentile per-packet one-way delay: 105.568 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 451.51 Mbit/s
95th percentile per-packet one-way delay: 113.446 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 373.44 Mbit/s
95th percentile per-packet one-way delay: 102.169 ms
Loss rate: 0.96%
-- Flow 3:
Average throughput: 280.36 Mbit/s
95th percentile per-packet one-way delay: 89.500 ms
Loss rate: 2.77%
```
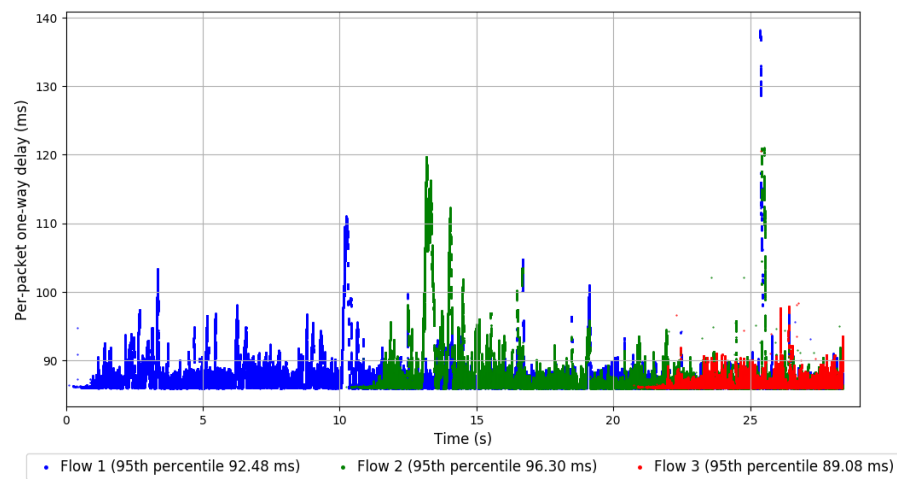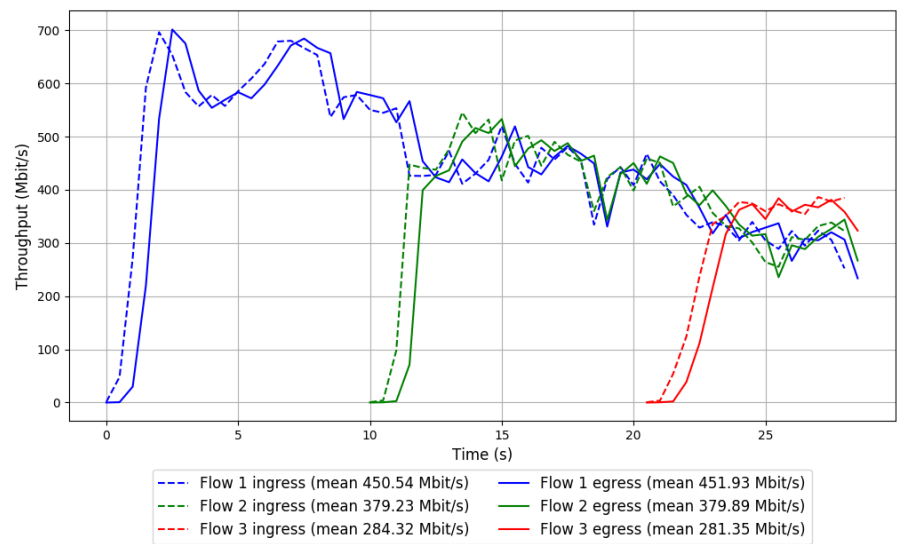
Run 2: Report of Indigo-MusesC3 — Data Link

- - - - Flow 1 ingress (mean 450.81 Mbit/s) ——— Flow 1 egress (mean 451.51 Mbit/s)
- - - - Flow 2 ingress (mean 373.51 Mbit/s) ——— Flow 2 egress (mean 373.44 Mbit/s)
- - - - Flow 3 ingress (mean 281.78 Mbit/s) ——— Flow 3 egress (mean 280.36 Mbit/s)

- Flow 1 (95th percentile 113.45 ms)   - Flow 2 (95th percentile 102.17 ms)   - Flow 3 (95th percentile 89.50 ms)

```
Run 3: Statistics of Indigo-MusesC3

Start at: 2019-03-18 23:59:35
End at: 2019-03-19 00:00:05
Local clock offset: -0.231 ms
Remote clock offset: -0.162 ms

# Below is generated by plot.py at 2019-03-19 02:52:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 756.18 Mbit/s
95th percentile per-packet one-way delay: 109.007 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 446.48 Mbit/s
95th percentile per-packet one-way delay: 114.753 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 371.45 Mbit/s
95th percentile per-packet one-way delay: 98.267 ms
Loss rate: 0.82%
-- Flow 3:
Average throughput: 260.50 Mbit/s
95th percentile per-packet one-way delay: 91.259 ms
Loss rate: 2.90%
```
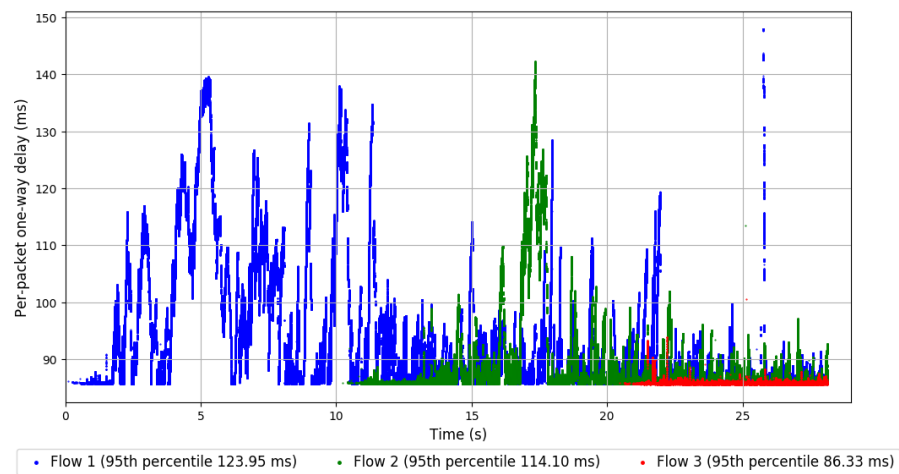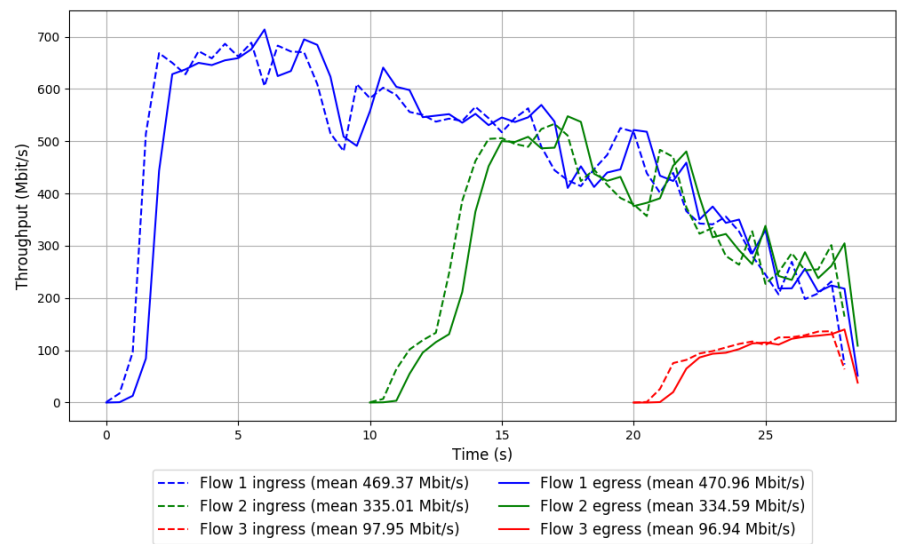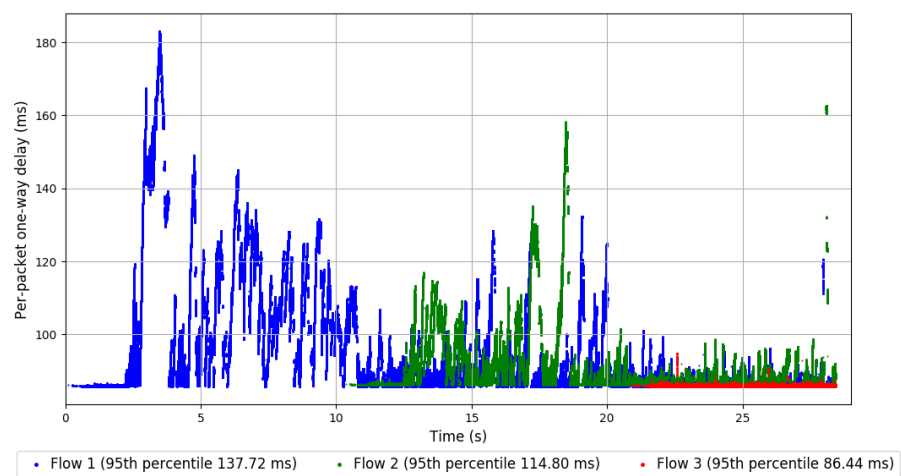
Run 3: Report of Indigo-MusesC3 — Data Link

Flow 1 ingress (mean 445.48 Mbit/s) — Flow 1 egress (mean 446.48 Mbit/s)
Flow 2 ingress (mean 370.99 Mbit/s) — Flow 2 egress (mean 371.45 Mbit/s)
Flow 3 ingress (mean 262.37 Mbit/s) — Flow 3 egress (mean 260.50 Mbit/s)

Flow 1 (95th percentile 114.75 ms)   Flow 2 (95th percentile 98.27 ms)   Flow 3 (95th percentile 91.26 ms)

```
Run 4: Statistics of Indigo-MusesC3

Start at: 2019-03-19 00:36:41
End at: 2019-03-19 00:37:11
Local clock offset: -0.324 ms
Remote clock offset: 0.056 ms

# Below is generated by plot.py at 2019-03-19 02:56:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 755.47 Mbit/s
95th percentile per-packet one-way delay: 96.526 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 453.20 Mbit/s
95th percentile per-packet one-way delay: 94.035 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 365.29 Mbit/s
95th percentile per-packet one-way delay: 100.937 ms
Loss rate: 0.80%
-- Flow 3:
Average throughput: 252.48 Mbit/s
95th percentile per-packet one-way delay: 89.032 ms
Loss rate: 2.54%
```

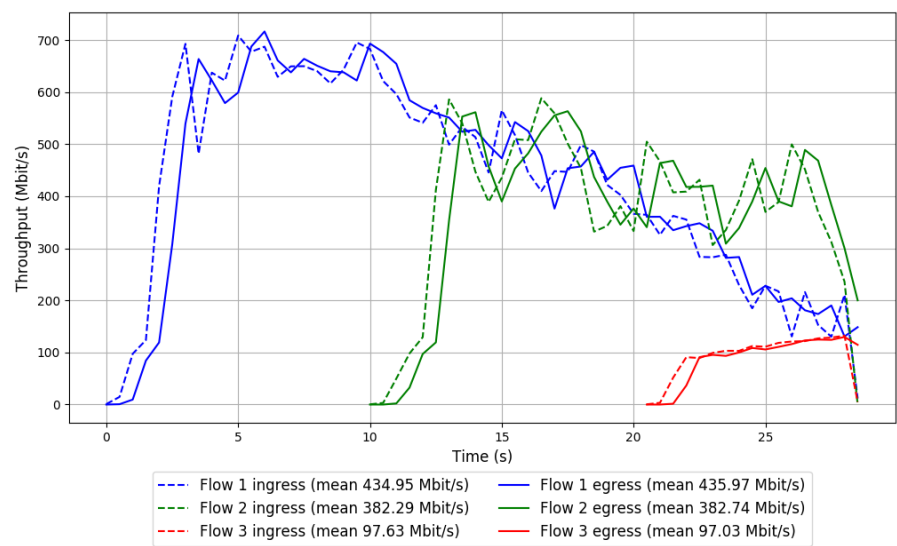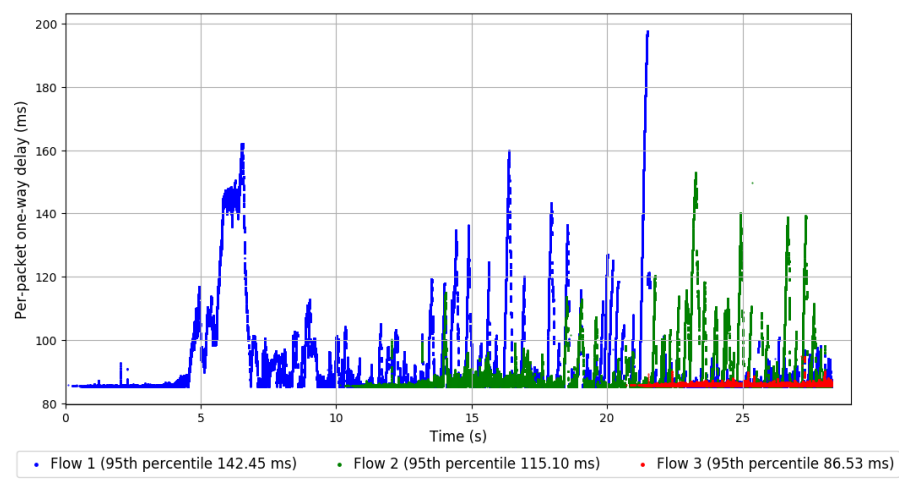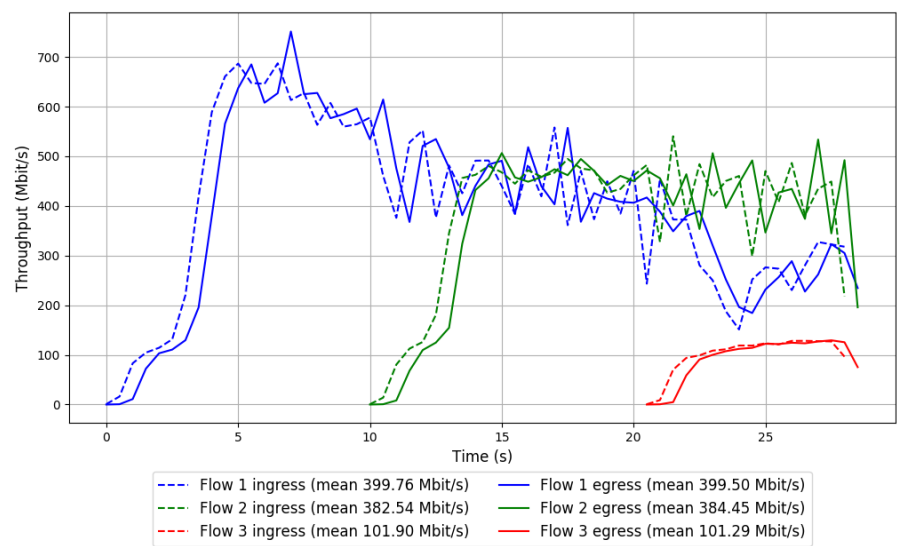Run 4: Report of Indigo-MusesC3 — Data Link

Flow 1 ingress (mean 452.36 Mbit/s)   Flow 1 egress (mean 453.20 Mbit/s)
Flow 2 ingress (mean 364.79 Mbit/s)   Flow 2 egress (mean 365.29 Mbit/s)
Flow 3 ingress (mean 253.29 Mbit/s)   Flow 3 egress (mean 252.48 Mbit/s)

Flow 1 (95th percentile 94.03 ms)   Flow 2 (95th percentile 100.94 ms)   Flow 3 (95th percentile 89.03 ms)

```
Run 5: Statistics of Indigo-MusesC3

Start at: 2019-03-19 01:14:02
End at: 2019-03-19 01:14:32
Local clock offset: 0.039 ms
Remote clock offset: -0.041 ms


# Below is generated by plot.py at 2019-03-19 02:59:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 771.64 Mbit/s
95th percentile per-packet one-way delay: 93.061 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 451.93 Mbit/s
95th percentile per-packet one-way delay: 92.477 ms
Loss rate: 0.31%
-- Flow 2:
Average throughput: 379.89 Mbit/s
95th percentile per-packet one-way delay: 96.300 ms
Loss rate: 0.77%
-- Flow 3:
Average throughput: 281.35 Mbit/s
95th percentile per-packet one-way delay: 89.075 ms
Loss rate: 3.23%
```
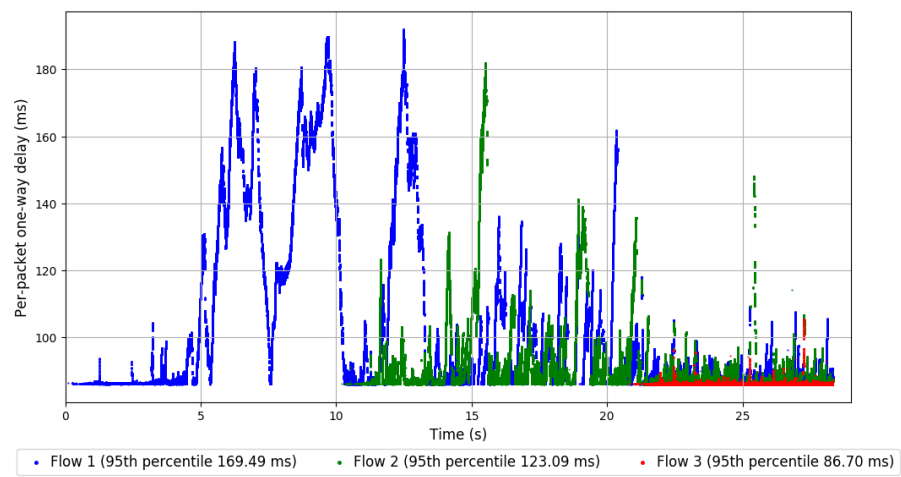
Run 5: Report of Indigo-MusesC3 — Data Link

- - - Flow 1 ingress (mean 450.54 Mbit/s)   —— Flow 1 egress (mean 451.93 Mbit/s)
- - - Flow 2 ingress (mean 379.23 Mbit/s)   —— Flow 2 egress (mean 379.89 Mbit/s)
- - - Flow 3 ingress (mean 284.32 Mbit/s)   —— Flow 3 egress (mean 281.35 Mbit/s)

• Flow 1 (95th percentile 92.48 ms)   • Flow 2 (95th percentile 96.30 ms)   • Flow 3 (95th percentile 89.08 ms)

```
Run 1: Statistics of Indigo-MusesC5

Start at: 2019-03-18 22:25:42
End at: 2019-03-18 22:26:12
Local clock offset: 0.937 ms
Remote clock offset: 0.345 ms


# Below is generated by plot.py at 2019-03-19 02:59:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 710.74 Mbit/s
95th percentile per-packet one-way delay: 121.474 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 470.96 Mbit/s
95th percentile per-packet one-way delay: 123.953 ms
Loss rate: 0.25%
-- Flow 2:
Average throughput: 334.59 Mbit/s
95th percentile per-packet one-way delay: 114.102 ms
Loss rate: 0.94%
-- Flow 3:
Average throughput: 96.94 Mbit/s
95th percentile per-packet one-way delay: 86.330 ms
Loss rate: 3.20%
```
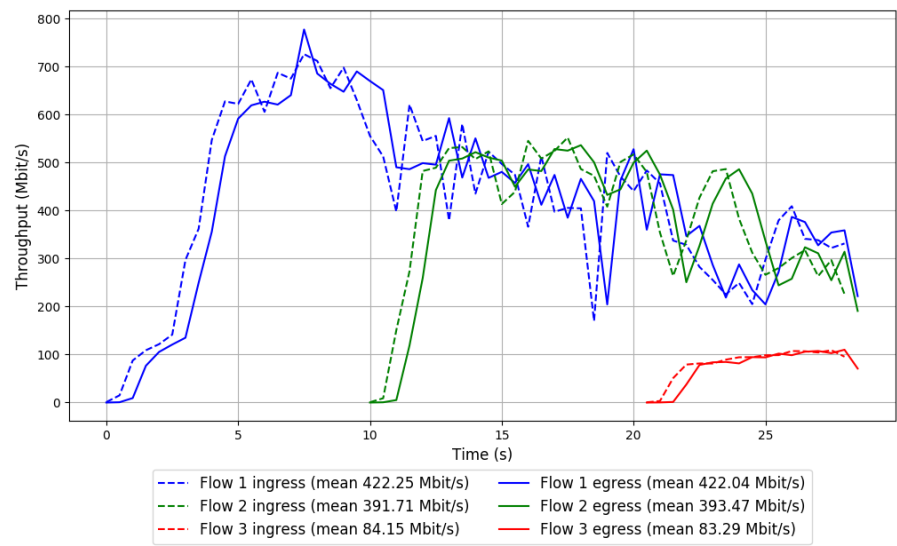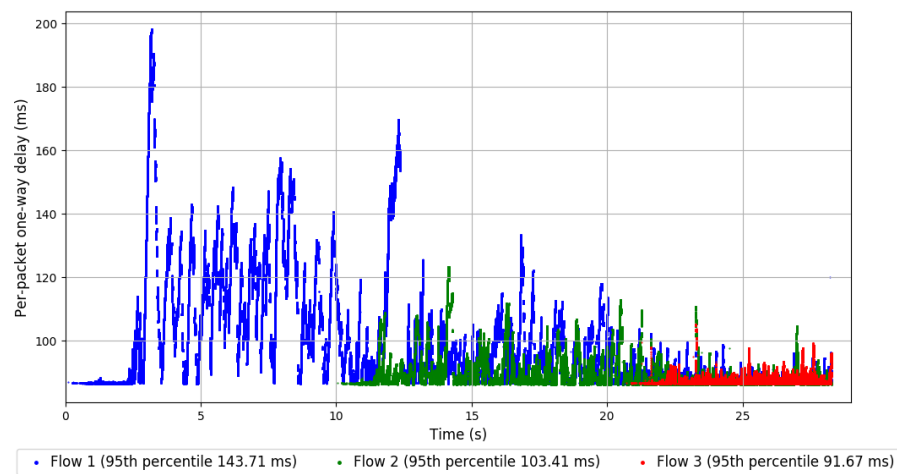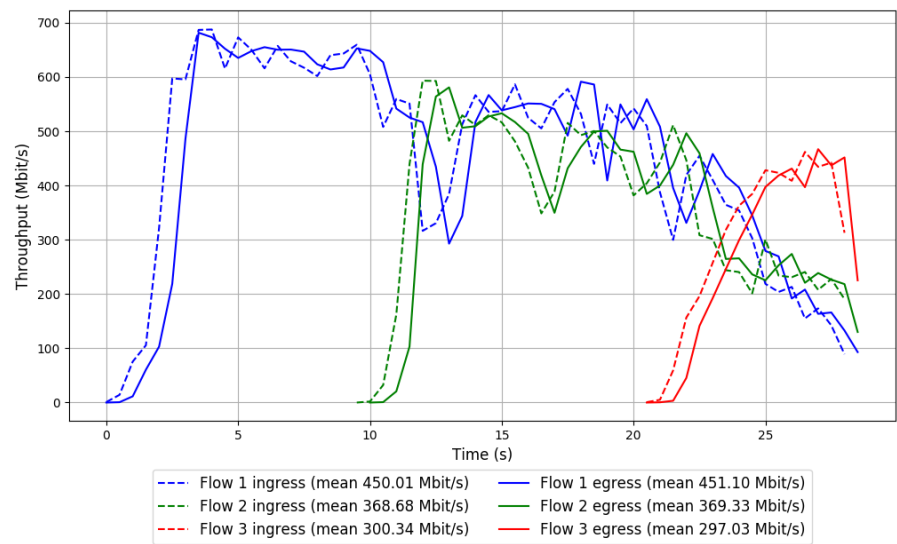
Run 1: Report of Indigo-MusesC5 — Data Link

```
Run 2: Statistics of Indigo-MusesC5

Start at: 2019-03-18 23:03:07
End at: 2019-03-18 23:03:37
Local clock offset: 0.273 ms
Remote clock offset: -0.186 ms


# Below is generated by plot.py at 2019-03-19 02:59:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 706.19 Mbit/s
95th percentile per-packet one-way delay: 130.397 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 435.97 Mbit/s
95th percentile per-packet one-way delay: 137.722 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 382.74 Mbit/s
95th percentile per-packet one-way delay: 114.800 ms
Loss rate: 0.74%
-- Flow 3:
Average throughput: 97.03 Mbit/s
95th percentile per-packet one-way delay: 86.444 ms
Loss rate: 2.82%
```

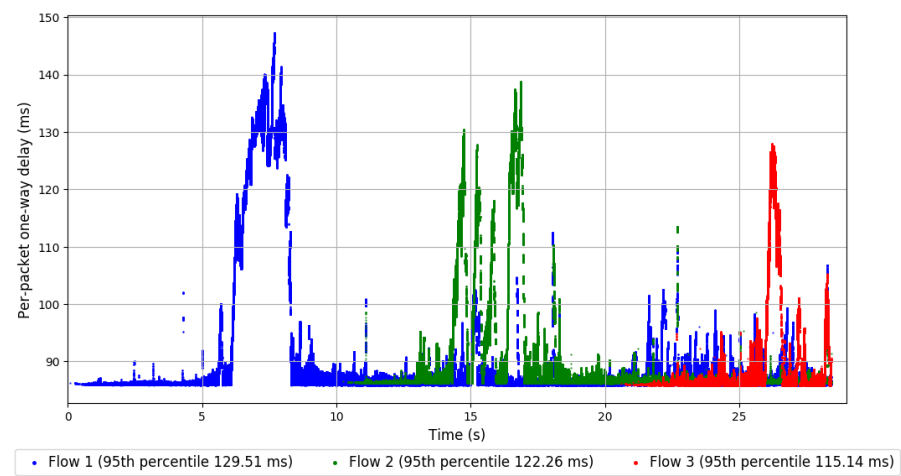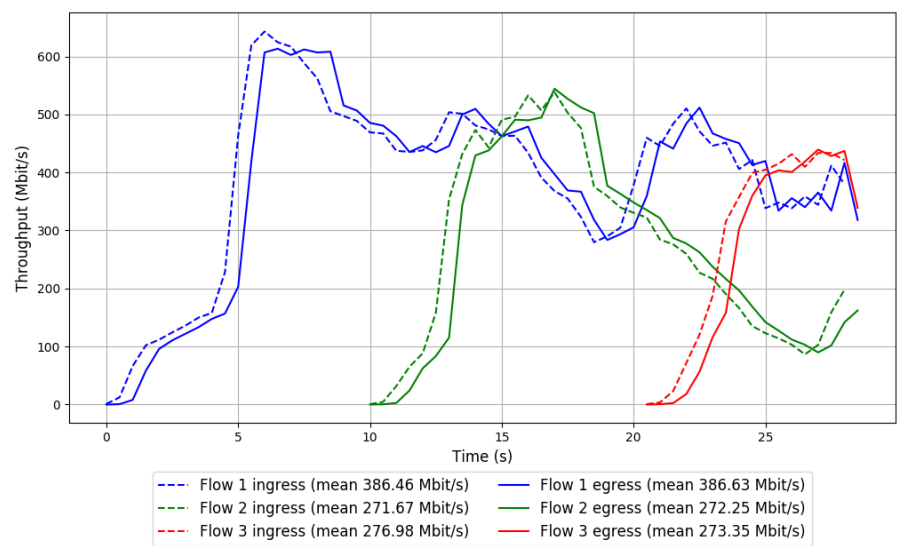Run 2: Report of Indigo-MusesC5 — Data Link

```
Run 3: Statistics of Indigo-MusesC5

Start at: 2019-03-18 23:39:43
End at: 2019-03-18 23:40:13
Local clock offset: -0.632 ms
Remote clock offset: -0.169 ms


# Below is generated by plot.py at 2019-03-19 02:59:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 673.74 Mbit/s
95th percentile per-packet one-way delay: 130.181 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 399.50 Mbit/s
95th percentile per-packet one-way delay: 142.446 ms
Loss rate: 0.67%
-- Flow 2:
Average throughput: 384.45 Mbit/s
95th percentile per-packet one-way delay: 115.103 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 101.29 Mbit/s
95th percentile per-packet one-way delay: 86.534 ms
Loss rate: 2.80%
```

Run 3: Report of Indigo-MusesC5 — Data Link

80

```
Run 4: Statistics of Indigo-MusesC5

Start at: 2019-03-19 00:16:53
End at: 2019-03-19 00:17:23
Local clock offset: 0.081 ms
Remote clock offset: -0.03 ms


# Below is generated by plot.py at 2019-03-19 03:01:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 696.88 Mbit/s
95th percentile per-packet one-way delay: 164.015 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 422.04 Mbit/s
95th percentile per-packet one-way delay: 169.494 ms
Loss rate: 0.67%
-- Flow 2:
Average throughput: 393.47 Mbit/s
95th percentile per-packet one-way delay: 123.089 ms
Loss rate: 0.49%
-- Flow 3:
Average throughput: 83.29 Mbit/s
95th percentile per-packet one-way delay: 86.703 ms
Loss rate: 3.21%
```
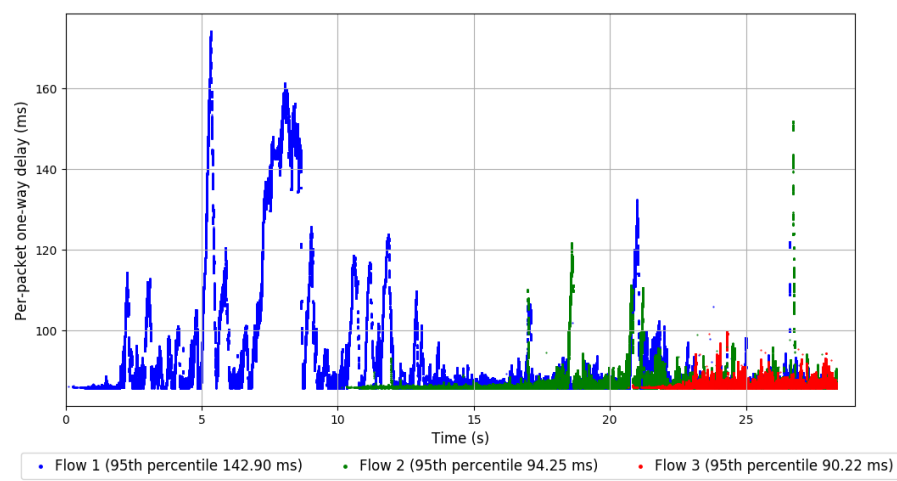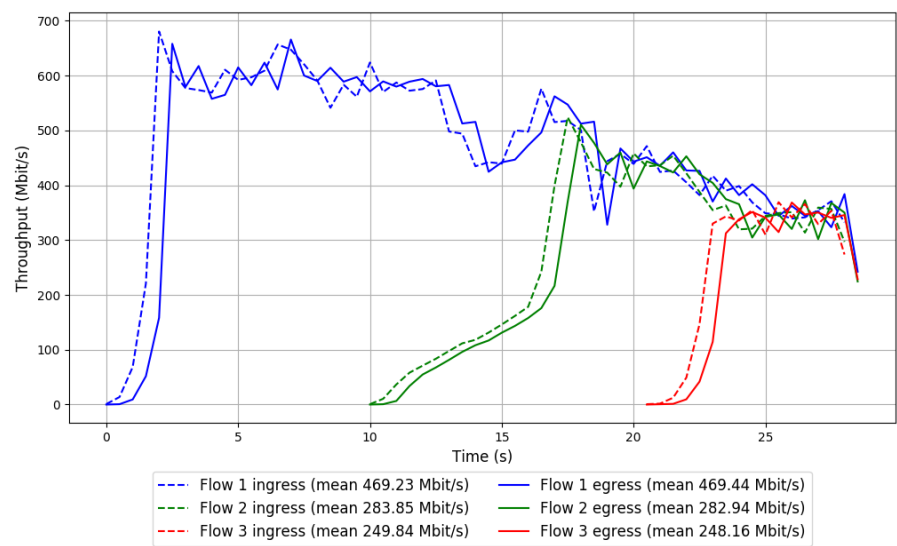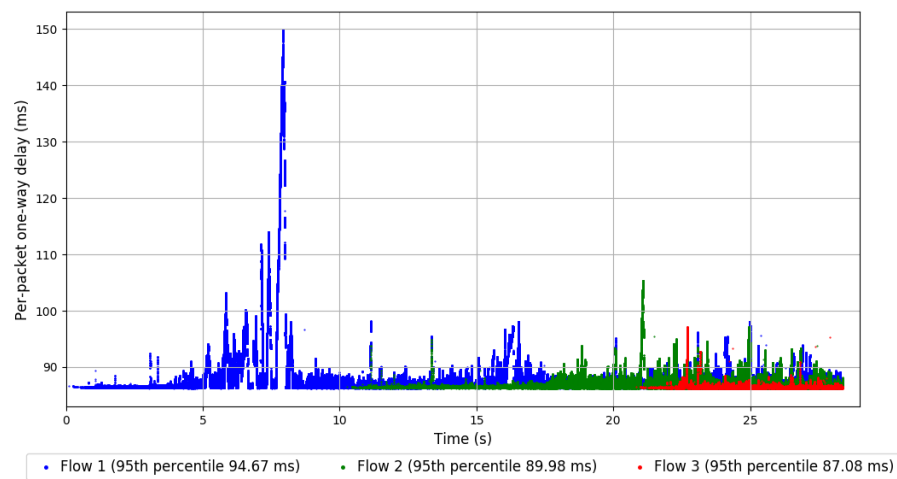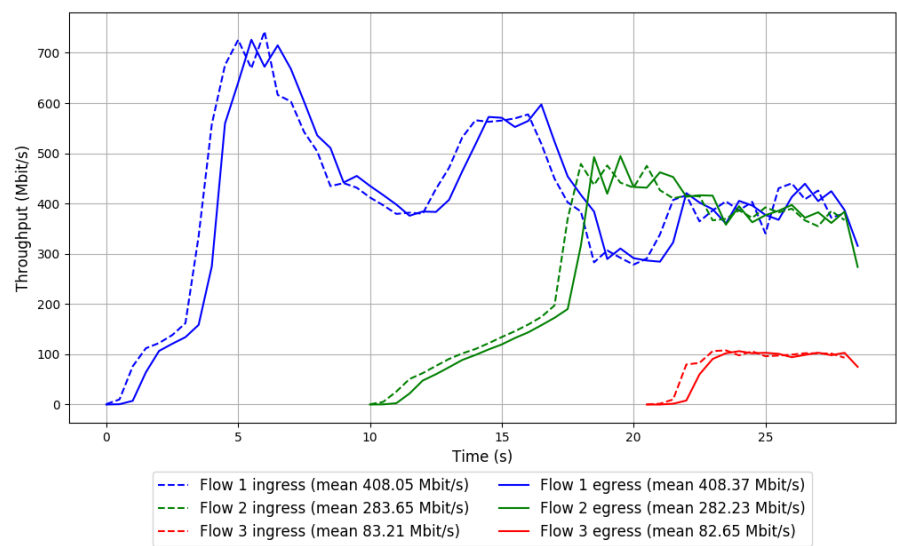
Run 4: Report of Indigo-MusesC5 — Data Link

```
Run 5: Statistics of Indigo-MusesC5

Start at: 2019-03-19 00:53:57
End at: 2019-03-19 00:54:27
Local clock offset: 0.278 ms
Remote clock offset: 0.009 ms


# Below is generated by plot.py at 2019-03-19 03:04:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 769.84 Mbit/s
95th percentile per-packet one-way delay: 132.587 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 451.10 Mbit/s
95th percentile per-packet one-way delay: 143.713 ms
Loss rate: 0.25%
-- Flow 2:
Average throughput: 369.33 Mbit/s
95th percentile per-packet one-way delay: 103.410 ms
Loss rate: 0.74%
-- Flow 3:
Average throughput: 297.03 Mbit/s
95th percentile per-packet one-way delay: 91.670 ms
Loss rate: 3.29%
```

Run 5: Report of Indigo-MusesC5 — Data Link

```
Run 1: Statistics of Indigo-MusesD

Start at: 2019-03-18 22:34:57
End at: 2019-03-18 22:35:27
Local clock offset: 1.238 ms
Remote clock offset: -0.005 ms


# Below is generated by plot.py at 2019-03-19 03:04:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 636.67 Mbit/s
95th percentile per-packet one-way delay: 126.126 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 386.63 Mbit/s
95th percentile per-packet one-way delay: 129.507 ms
Loss rate: 0.56%
-- Flow 2:
Average throughput: 272.25 Mbit/s
95th percentile per-packet one-way delay: 122.258 ms
Loss rate: 0.71%
-- Flow 3:
Average throughput: 273.35 Mbit/s
95th percentile per-packet one-way delay: 115.141 ms
Loss rate: 3.44%
```
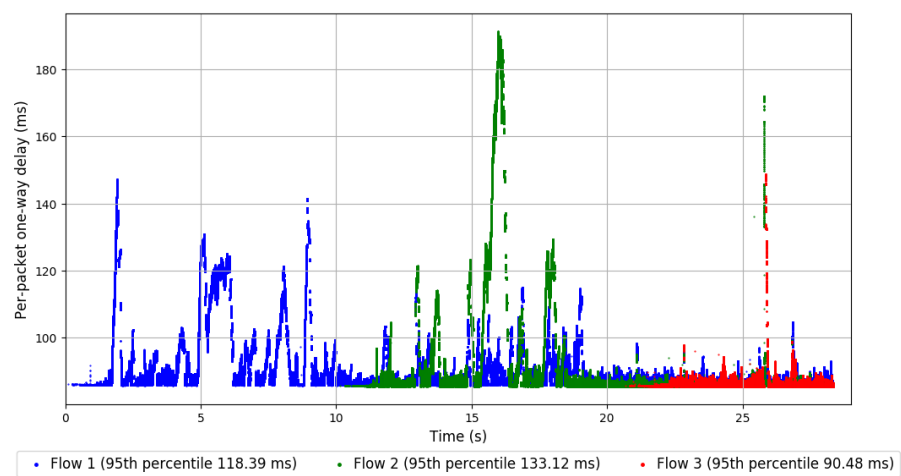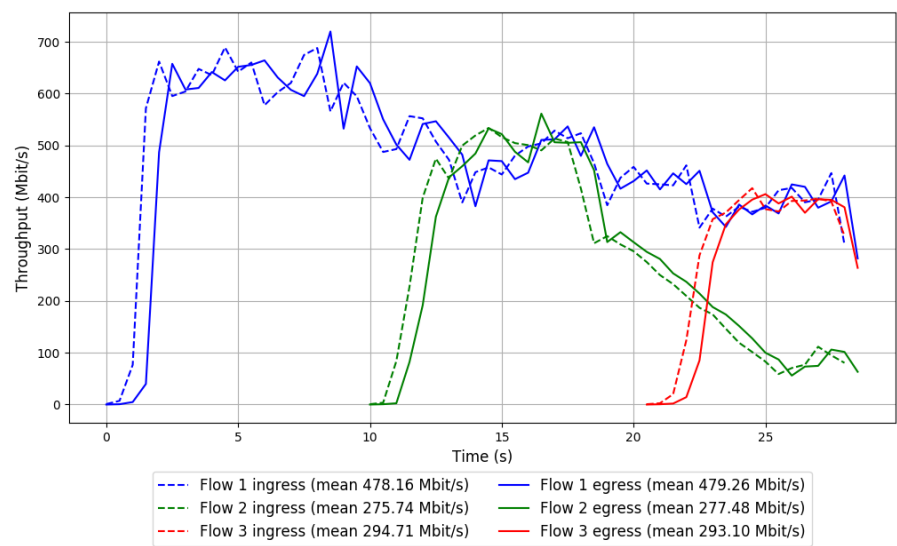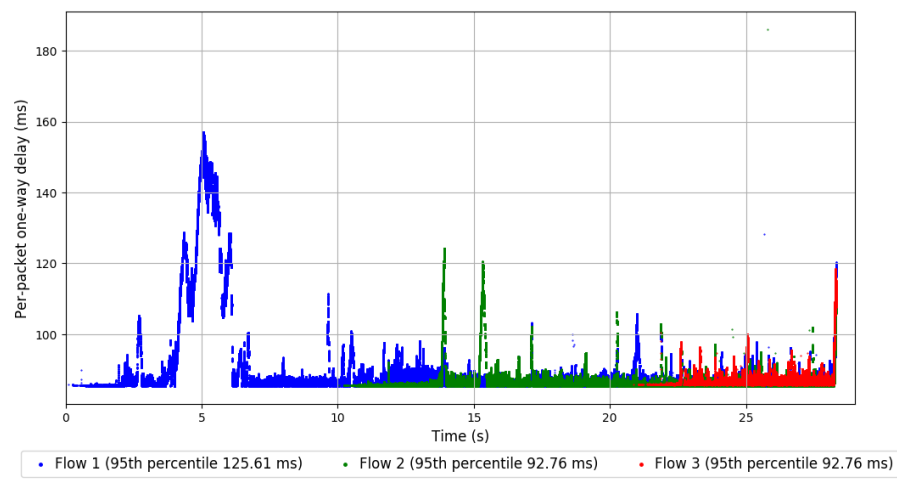
Run 1: Report of Indigo-MusesD — Data Link

```
Run 2: Statistics of Indigo-MusesD

Start at: 2019-03-18 23:11:58
End at: 2019-03-18 23:12:28
Local clock offset: -0.075 ms
Remote clock offset: -0.141 ms


# Below is generated by plot.py at 2019-03-19 03:10:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 718.90 Mbit/s
95th percentile per-packet one-way delay: 126.893 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 469.44 Mbit/s
95th percentile per-packet one-way delay: 142.902 ms
Loss rate: 0.56%
-- Flow 2:
Average throughput: 282.94 Mbit/s
95th percentile per-packet one-way delay: 94.245 ms
Loss rate: 1.26%
-- Flow 3:
Average throughput: 248.16 Mbit/s
95th percentile per-packet one-way delay: 90.216 ms
Loss rate: 2.85%
```

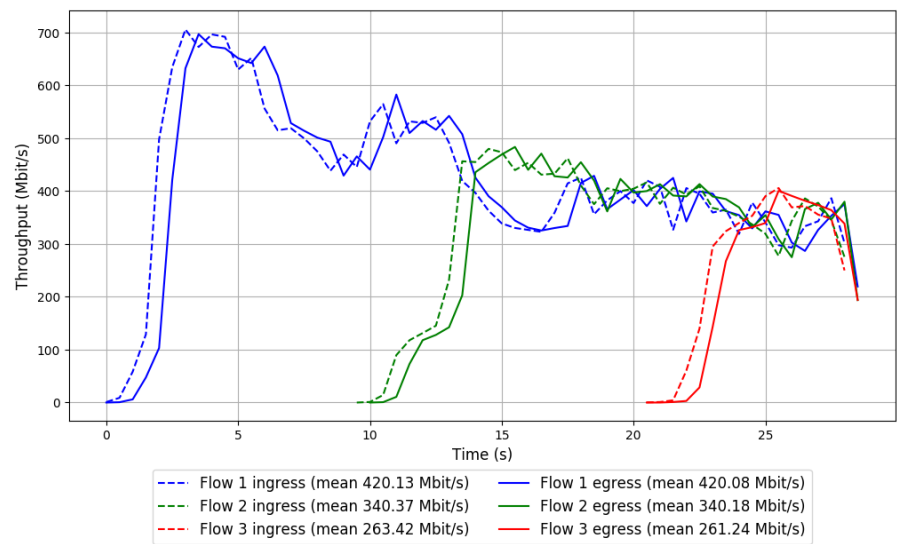Run 2: Report of Indigo-MusesD — Data Link

```
Run 3: Statistics of Indigo-MusesD

Start at: 2019-03-18 23:48:42
End at: 2019-03-18 23:49:12
Local clock offset: 0.248 ms
Remote clock offset: -0.169 ms


# Below is generated by plot.py at 2019-03-19 03:10:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 610.91 Mbit/s
95th percentile per-packet one-way delay: 92.963 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 408.37 Mbit/s
95th percentile per-packet one-way delay: 94.667 ms
Loss rate: 0.57%
-- Flow 2:
Average throughput: 282.23 Mbit/s
95th percentile per-packet one-way delay: 89.978 ms
Loss rate: 1.45%
-- Flow 3:
Average throughput: 82.65 Mbit/s
95th percentile per-packet one-way delay: 87.080 ms
Loss rate: 2.89%
```
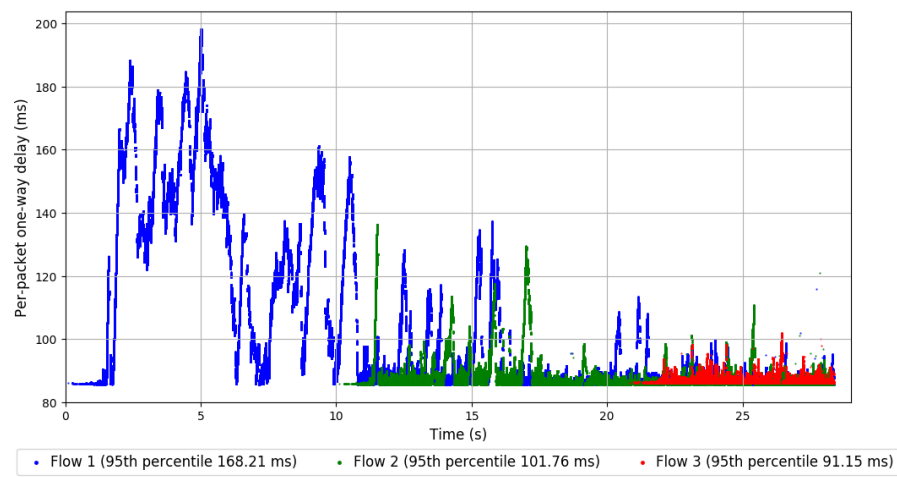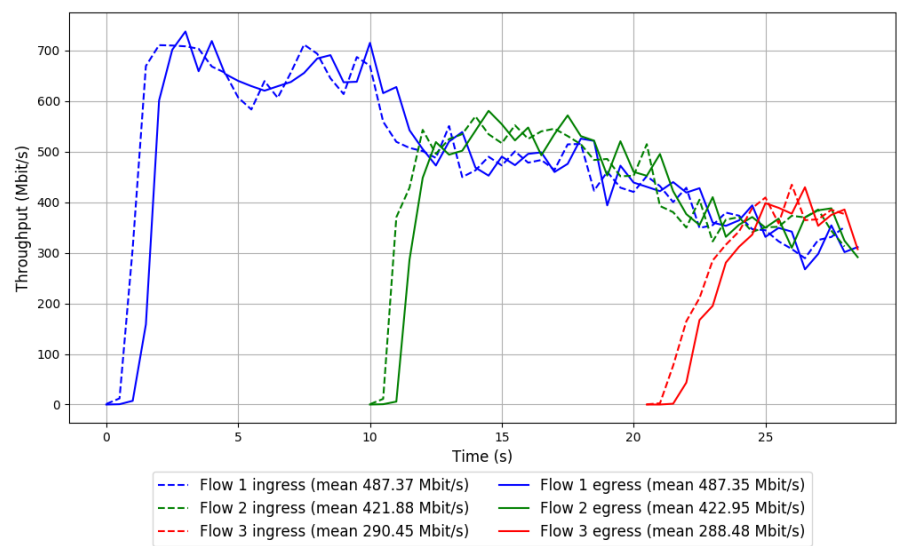
Run 3: Report of Indigo-MusesD — Data Link

```
Run 4: Statistics of Indigo-MusesD

Start at: 2019-03-19 00:25:45
End at: 2019-03-19 00:26:15
Local clock offset: -0.312 ms
Remote clock offset: 0.003 ms


# Below is generated by plot.py at 2019-03-19 03:11:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 737.54 Mbit/s
95th percentile per-packet one-way delay: 119.878 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 479.26 Mbit/s
95th percentile per-packet one-way delay: 118.388 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 277.48 Mbit/s
95th percentile per-packet one-way delay: 133.123 ms
Loss rate: 0.32%
-- Flow 3:
Average throughput: 293.10 Mbit/s
95th percentile per-packet one-way delay: 90.482 ms
Loss rate: 2.80%
```

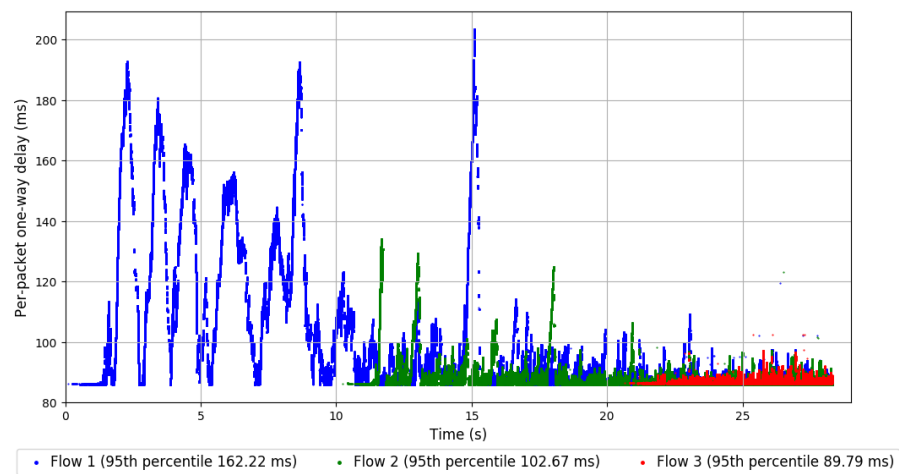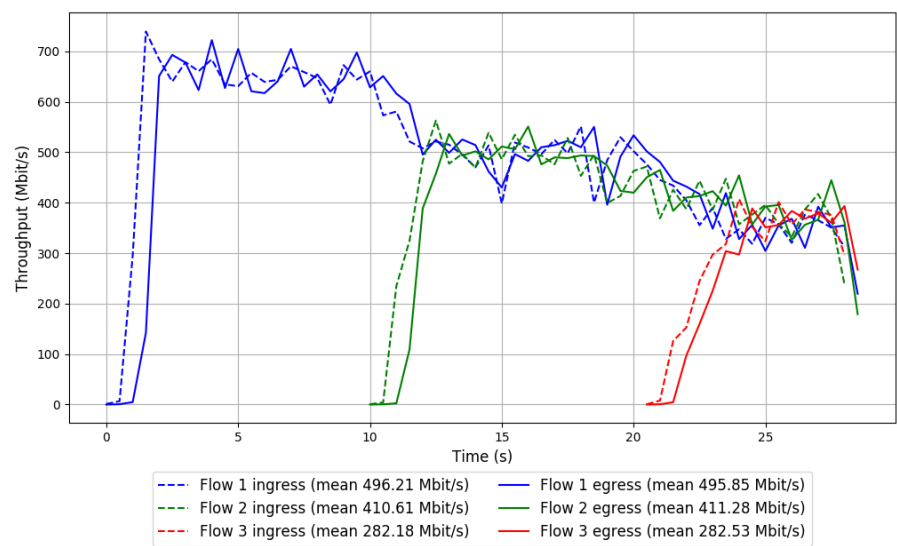Run 4: Report of Indigo-MusesD — Data Link

```
Run 5: Statistics of Indigo-MusesD

Start at: 2019-03-19 01:03:11
End at: 2019-03-19 01:03:41
Local clock offset: -0.547 ms
Remote clock offset: -0.031 ms


# Below is generated by plot.py at 2019-03-19 03:11:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 708.99 Mbit/s
95th percentile per-packet one-way delay: 115.084 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 420.08 Mbit/s
95th percentile per-packet one-way delay: 125.614 ms
Loss rate: 0.62%
-- Flow 2:
Average throughput: 340.18 Mbit/s
95th percentile per-packet one-way delay: 92.761 ms
Loss rate: 1.00%
-- Flow 3:
Average throughput: 261.24 Mbit/s
95th percentile per-packet one-way delay: 92.757 ms
Loss rate: 3.10%
```
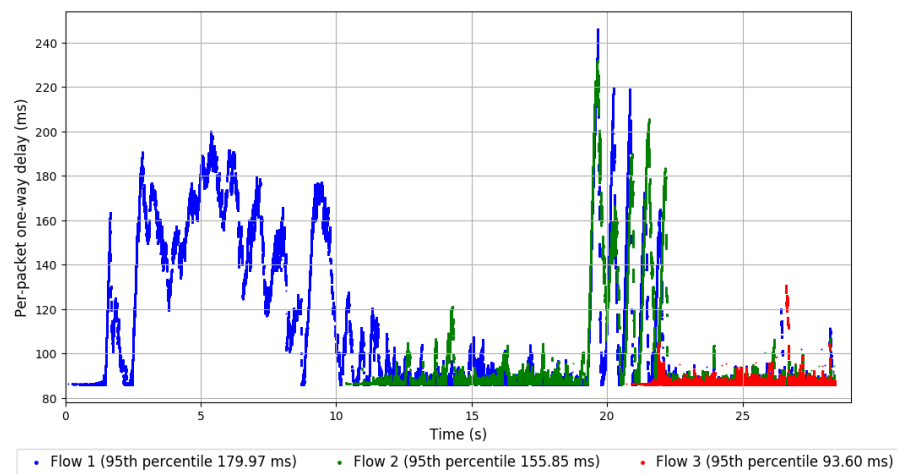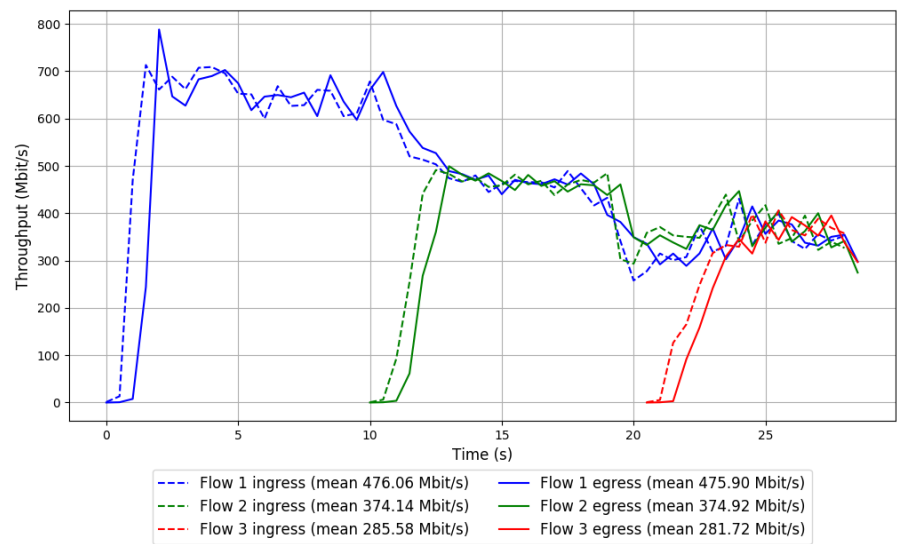
Run 5: Report of Indigo-MusesD — Data Link

```
Run 1: Statistics of Indigo-MusesT

Start at: 2019-03-18 22:28:49
End at: 2019-03-18 22:29:19
Local clock offset: 0.995 ms
Remote clock offset: 0.188 ms


# Below is generated by plot.py at 2019-03-19 03:14:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 837.21 Mbit/s
95th percentile per-packet one-way delay: 156.958 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 487.35 Mbit/s
95th percentile per-packet one-way delay: 168.212 ms
Loss rate: 0.61%
-- Flow 2:
Average throughput: 422.95 Mbit/s
95th percentile per-packet one-way delay: 101.759 ms
Loss rate: 0.64%
-- Flow 3:
Average throughput: 288.48 Mbit/s
95th percentile per-packet one-way delay: 91.148 ms
Loss rate: 2.90%
```

Run 1: Report of Indigo-MusesT — Data Link

```
Run 2: Statistics of Indigo-MusesT

Start at: 2019-03-18 23:06:14
End at: 2019-03-18 23:06:44
Local clock offset: 0.274 ms
Remote clock offset: -0.151 ms


# Below is generated by plot.py at 2019-03-19 03:17:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 835.85 Mbit/s
95th percentile per-packet one-way delay: 151.528 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 495.85 Mbit/s
95th percentile per-packet one-way delay: 162.222 ms
Loss rate: 0.70%
-- Flow 2:
Average throughput: 411.28 Mbit/s
95th percentile per-packet one-way delay: 102.665 ms
Loss rate: 0.78%
-- Flow 3:
Average throughput: 282.53 Mbit/s
95th percentile per-packet one-way delay: 89.789 ms
Loss rate: 2.09%
```
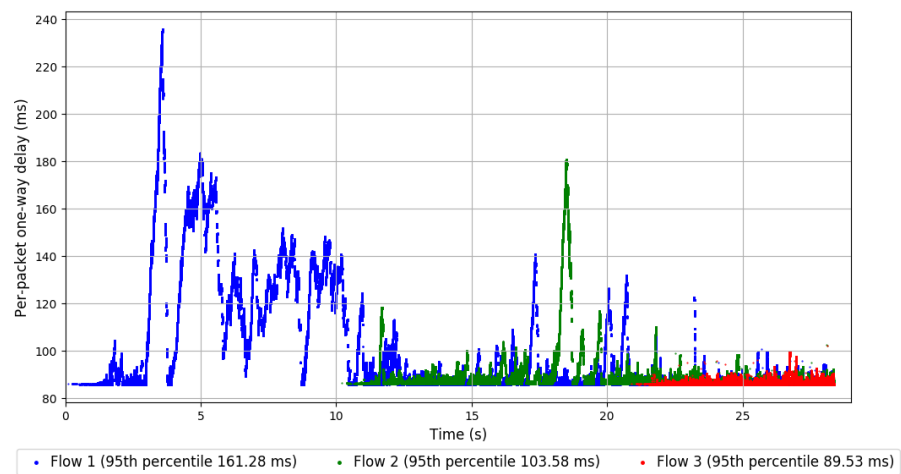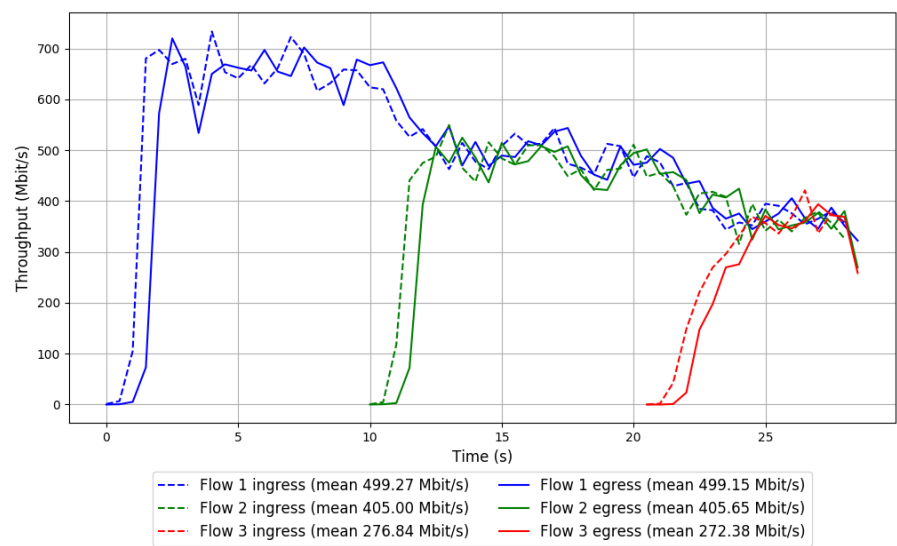
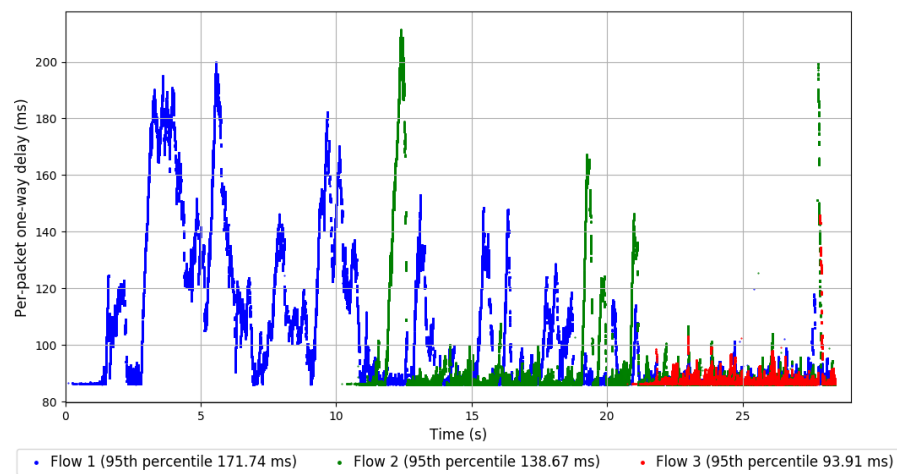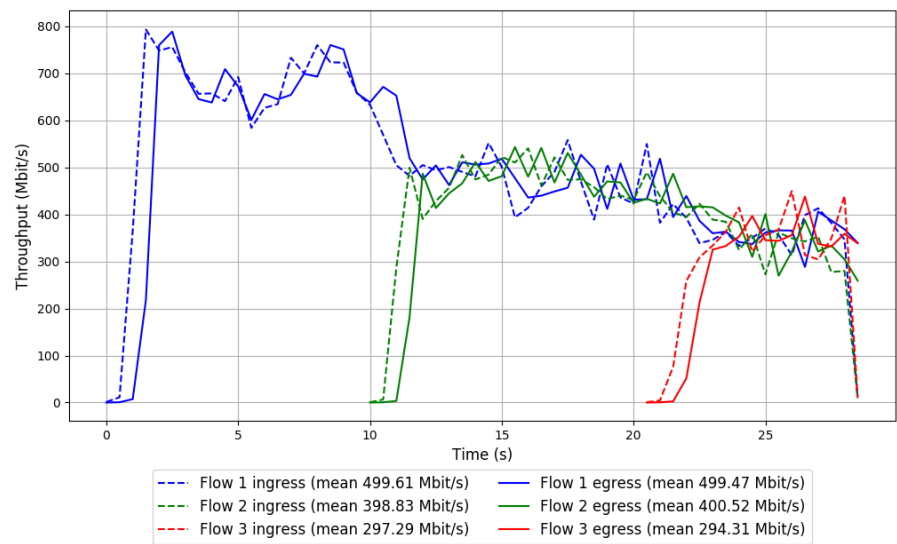Run 2: Report of Indigo-MusesT — Data Link

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```
Run 3: Statistics of Indigo-MusesT

Start at: 2019-03-18 23:42:48
End at: 2019-03-18 23:43:18
Local clock offset: 0.164 ms
Remote clock offset: -0.144 ms


# Below is generated by plot.py at 2019-03-19 03:19:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 793.74 Mbit/s
95th percentile per-packet one-way delay: 175.334 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 475.90 Mbit/s
95th percentile per-packet one-way delay: 179.973 ms
Loss rate: 0.64%
-- Flow 2:
Average throughput: 374.92 Mbit/s
95th percentile per-packet one-way delay: 155.852 ms
Loss rate: 0.76%
-- Flow 3:
Average throughput: 281.72 Mbit/s
95th percentile per-packet one-way delay: 93.600 ms
Loss rate: 3.52%
```

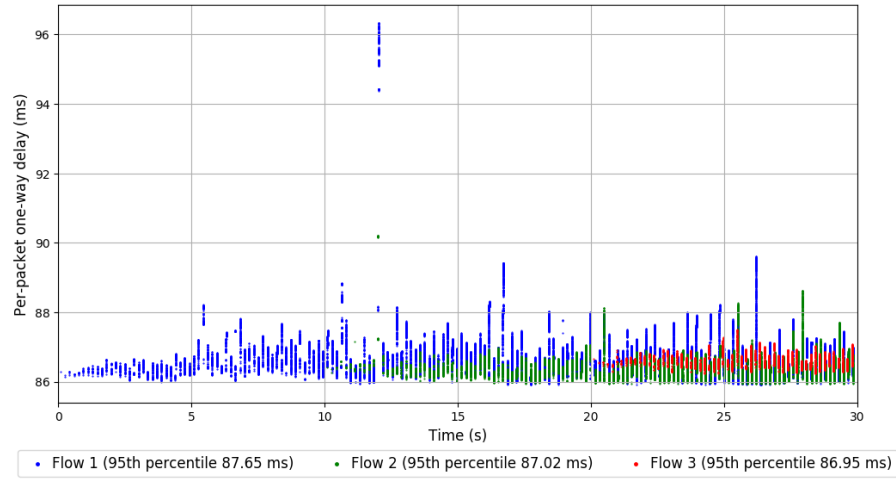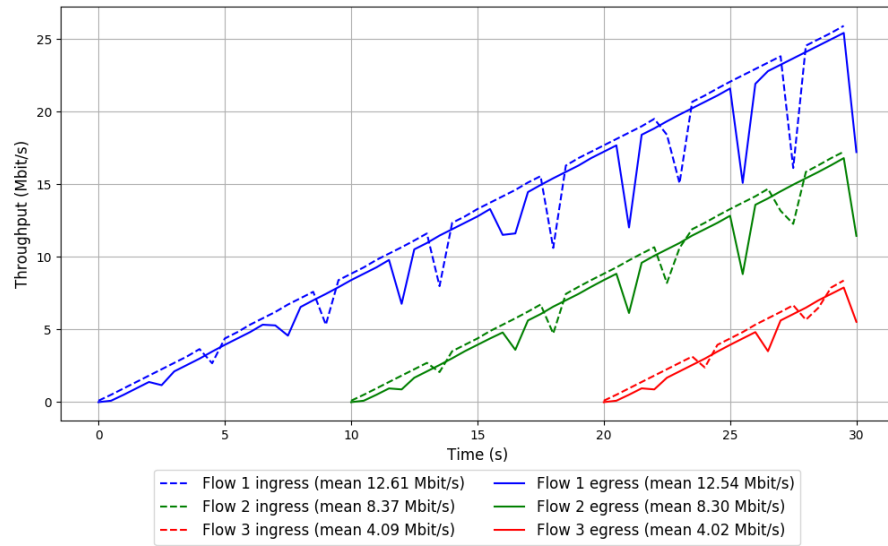Run 3: Report of Indigo-MusesT — Data Link

```
Run 4: Statistics of Indigo-MusesT

Start at: 2019-03-19 00:20:00
End at: 2019-03-19 00:20:30
Local clock offset: 0.009 ms
Remote clock offset: 0.002 ms


# Below is generated by plot.py at 2019-03-19 03:20:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 831.61 Mbit/s
95th percentile per-packet one-way delay: 148.394 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 499.15 Mbit/s
95th percentile per-packet one-way delay: 161.280 ms
Loss rate: 0.63%
-- Flow 2:
Average throughput: 405.65 Mbit/s
95th percentile per-packet one-way delay: 103.582 ms
Loss rate: 0.78%
-- Flow 3:
Average throughput: 272.38 Mbit/s
95th percentile per-packet one-way delay: 89.532 ms
Loss rate: 3.87%
```
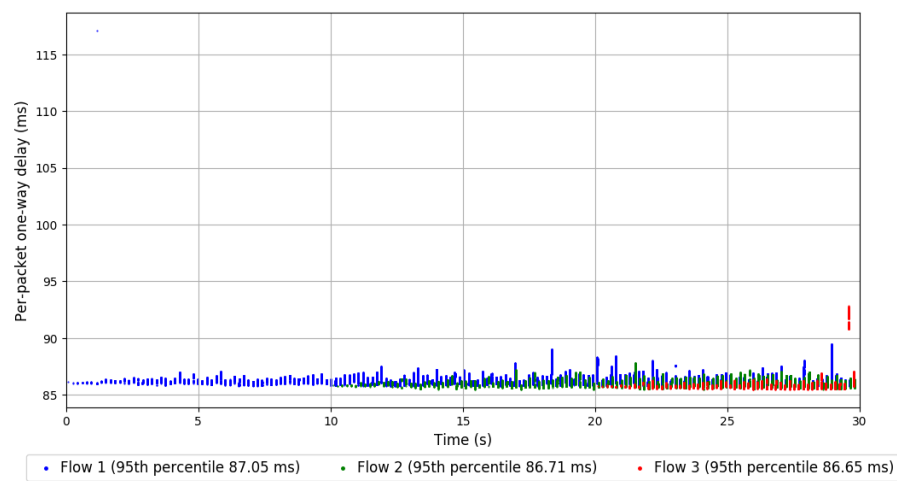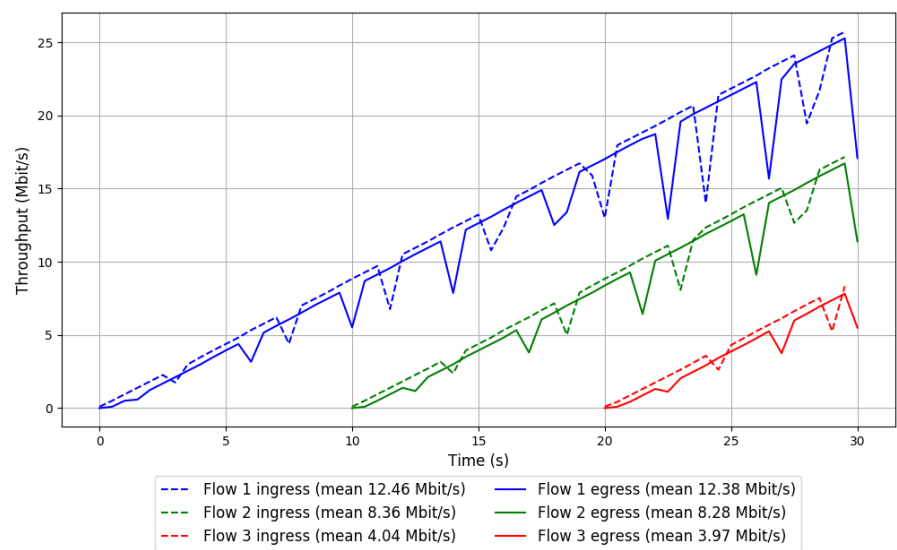
Run 4: Report of Indigo-MusesT — Data Link

- - - - Flow 1 ingress (mean 499.27 Mbit/s)   —— Flow 1 egress (mean 499.15 Mbit/s)
- - - - Flow 2 ingress (mean 405.00 Mbit/s)   —— Flow 2 egress (mean 405.65 Mbit/s)
- - - - Flow 3 ingress (mean 276.84 Mbit/s)   —— Flow 3 egress (mean 272.38 Mbit/s)

• Flow 1 (95th percentile 161.28 ms)   • Flow 2 (95th percentile 103.58 ms)   • Flow 3 (95th percentile 89.53 ms)

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```
Run 5: Statistics of Indigo-MusesT

Start at: 2019-03-19 00:57:08
End at: 2019-03-19 00:57:38
Local clock offset: 0.05 ms
Remote clock offset: -0.036 ms


# Below is generated by plot.py at 2019-03-19 03:24:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 836.64 Mbit/s
95th percentile per-packet one-way delay: 162.642 ms
Loss rate: 0.86%
-- Flow 1:
Average throughput: 499.47 Mbit/s
95th percentile per-packet one-way delay: 171.736 ms
Loss rate: 0.63%
-- Flow 2:
Average throughput: 400.52 Mbit/s
95th percentile per-packet one-way delay: 138.667 ms
Loss rate: 0.57%
-- Flow 3:
Average throughput: 294.31 Mbit/s
95th percentile per-packet one-way delay: 93.906 ms
Loss rate: 3.16%
```

Run 5: Report of Indigo-MusesT — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2019-03-18 22:38:44
End at: 2019-03-18 22:39:14
Local clock offset: 1.308 ms
Remote clock offset: -0.09 ms


# Below is generated by plot.py at 2019-03-19 03:24:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 19.35 Mbit/s
95th percentile per-packet one-way delay: 87.537 ms
Loss rate: 1.48%
-- Flow 1:
Average throughput: 12.54 Mbit/s
95th percentile per-packet one-way delay: 87.652 ms
Loss rate: 1.15%
-- Flow 2:
Average throughput: 8.30 Mbit/s
95th percentile per-packet one-way delay: 87.024 ms
Loss rate: 1.74%
-- Flow 3:
Average throughput: 4.02 Mbit/s
95th percentile per-packet one-way delay: 86.955 ms
Loss rate: 3.52%
```
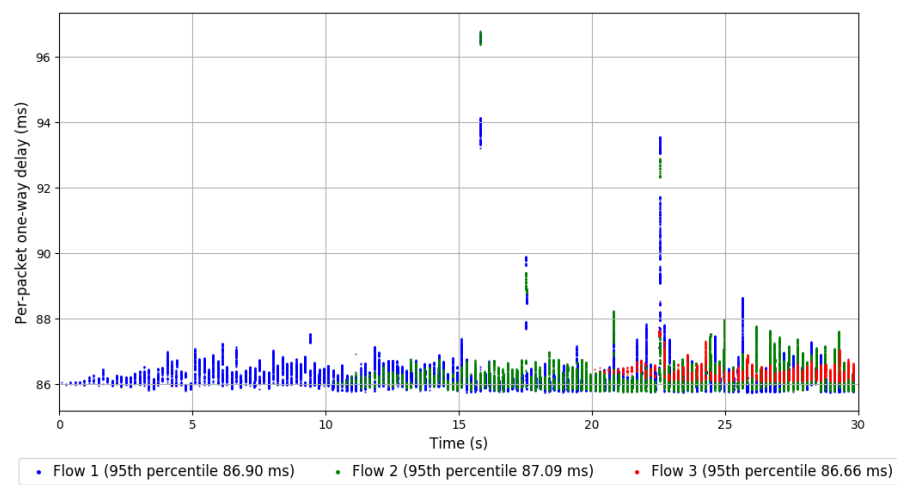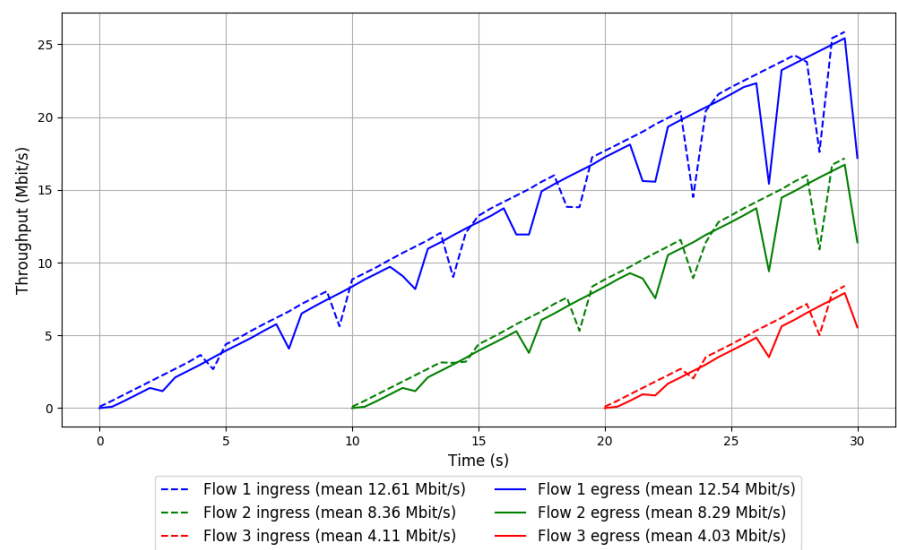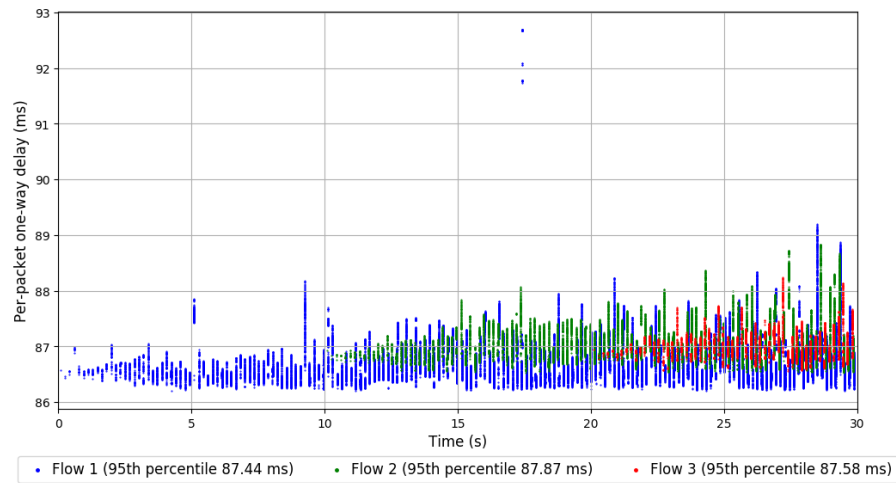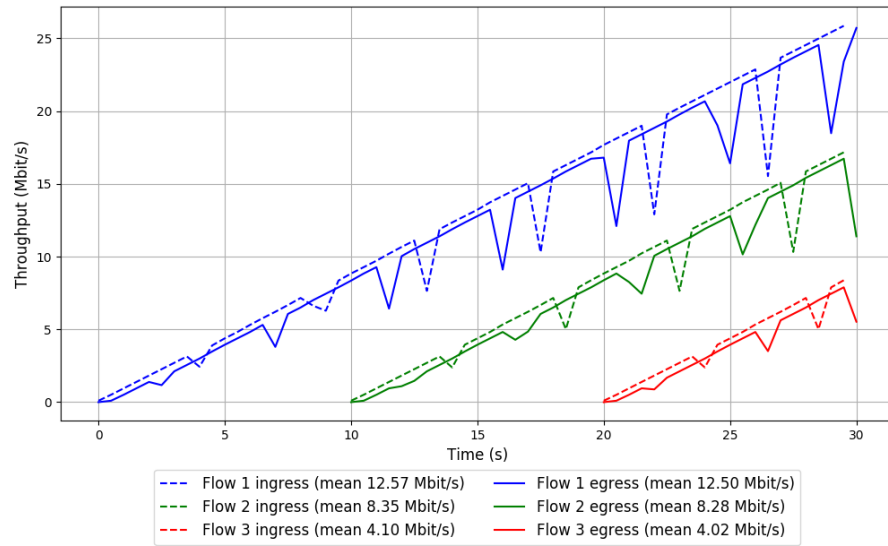
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2019-03-18 23:15:47
End at: 2019-03-18 23:16:17
Local clock offset: -0.45 ms
Remote clock offset: -0.138 ms


# Below is generated by plot.py at 2019-03-19 03:24:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 19.17 Mbit/s
95th percentile per-packet one-way delay: 86.922 ms
Loss rate: 1.49%
-- Flow 1:
Average throughput: 12.38 Mbit/s
95th percentile per-packet one-way delay: 87.053 ms
Loss rate: 1.16%
-- Flow 2:
Average throughput: 8.28 Mbit/s
95th percentile per-packet one-way delay: 86.710 ms
Loss rate: 1.73%
-- Flow 3:
Average throughput: 3.97 Mbit/s
95th percentile per-packet one-way delay: 86.654 ms
Loss rate: 3.55%
```
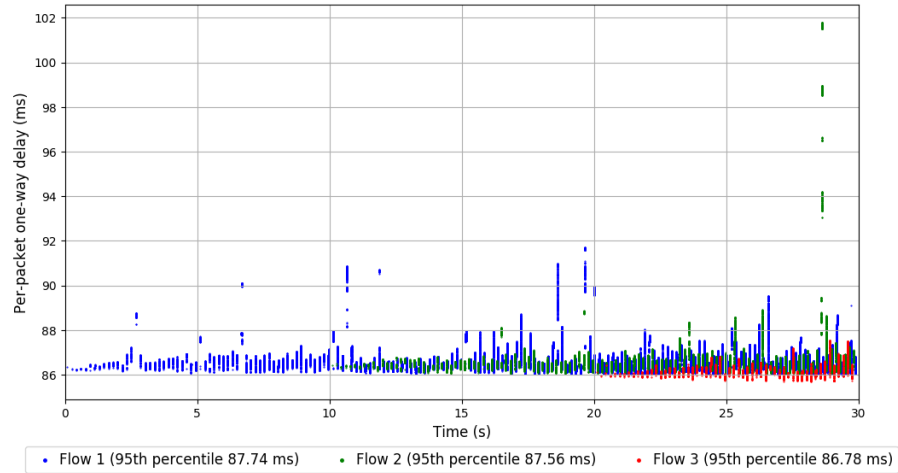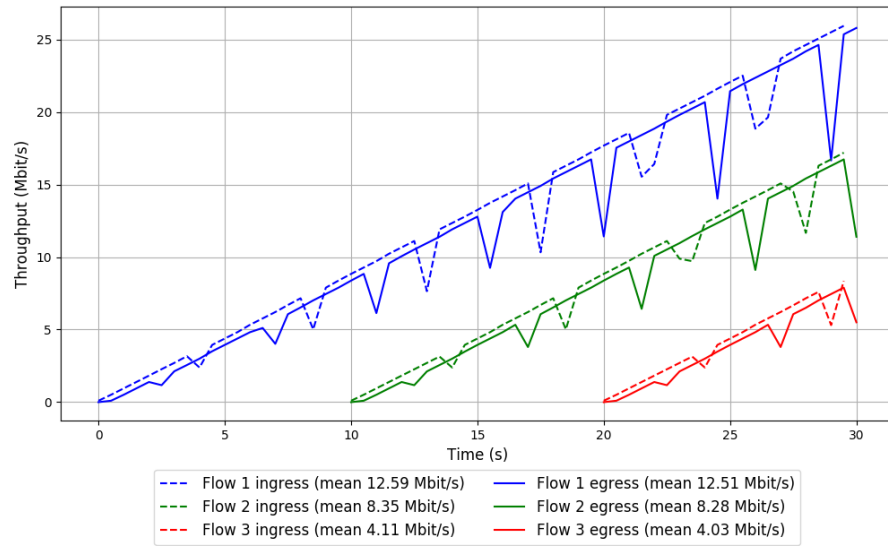
Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2019-03-18 23:52:26
End at: 2019-03-18 23:52:56
Local clock offset: -0.216 ms
Remote clock offset: -0.18 ms

# Below is generated by plot.py at 2019-03-19 03:24:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 19.35 Mbit/s
95th percentile per-packet one-way delay: 86.953 ms
Loss rate: 1.48%
-- Flow 1:
Average throughput: 12.54 Mbit/s
95th percentile per-packet one-way delay: 86.903 ms
Loss rate: 1.15%
-- Flow 2:
Average throughput: 8.29 Mbit/s
95th percentile per-packet one-way delay: 87.094 ms
Loss rate: 1.74%
-- Flow 3:
Average throughput: 4.03 Mbit/s
95th percentile per-packet one-way delay: 86.662 ms
Loss rate: 3.52%
```

Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 12.61 Mbit/s) ---- Flow 1 egress (mean 12.54 Mbit/s)
Flow 2 ingress (mean 8.36 Mbit/s) ---- Flow 2 egress (mean 8.29 Mbit/s)
Flow 3 ingress (mean 4.11 Mbit/s) ---- Flow 3 egress (mean 4.03 Mbit/s)

Flow 1 (95th percentile 86.90 ms)   Flow 2 (95th percentile 87.09 ms)   Flow 3 (95th percentile 86.66 ms)

```
Run 4: Statistics of LEDBAT

Start at: 2019-03-19 00:29:36
End at: 2019-03-19 00:30:06
Local clock offset: 0.336 ms
Remote clock offset: -0.009 ms


# Below is generated by plot.py at 2019-03-19 03:24:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 19.29 Mbit/s
95th percentile per-packet one-way delay: 87.609 ms
Loss rate: 1.48%
-- Flow 1:
Average throughput: 12.50 Mbit/s
95th percentile per-packet one-way delay: 87.440 ms
Loss rate: 1.15%
-- Flow 2:
Average throughput: 8.28 Mbit/s
95th percentile per-packet one-way delay: 87.873 ms
Loss rate: 1.74%
-- Flow 3:
Average throughput: 4.02 Mbit/s
95th percentile per-packet one-way delay: 87.583 ms
Loss rate: 3.52%
```
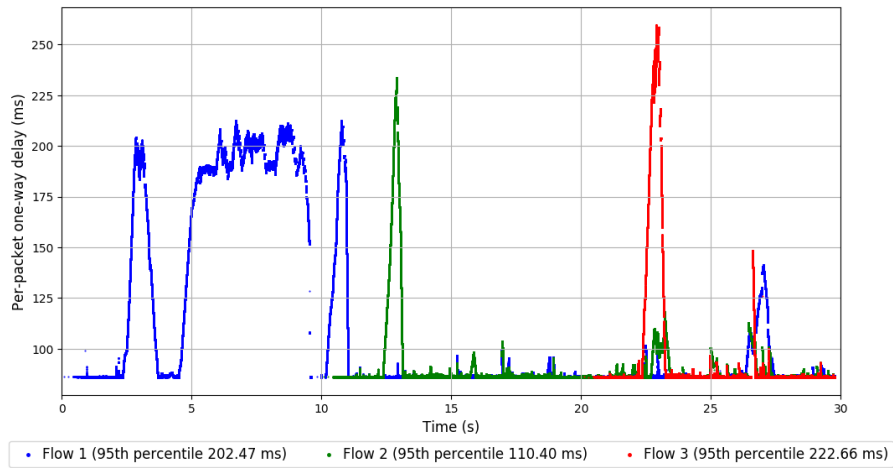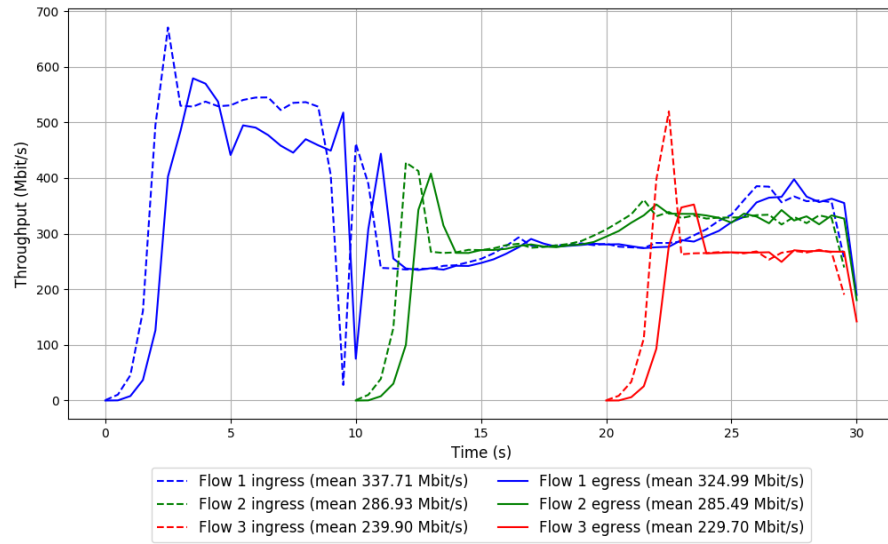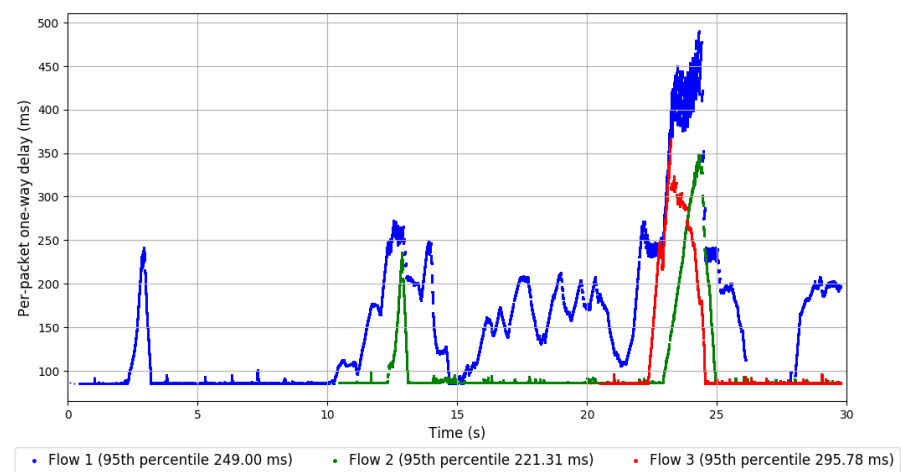
Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2019-03-19 01:07:03
End at: 2019-03-19 01:07:33
Local clock offset: -0.19 ms
Remote clock offset: -0.038 ms

# Below is generated by plot.py at 2019-03-19 03:24:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 19.31 Mbit/s
95th percentile per-packet one-way delay: 87.654 ms
Loss rate: 1.48%
-- Flow 1:
Average throughput: 12.51 Mbit/s
95th percentile per-packet one-way delay: 87.736 ms
Loss rate: 1.15%
-- Flow 2:
Average throughput: 8.28 Mbit/s
95th percentile per-packet one-way delay: 87.555 ms
Loss rate: 1.74%
-- Flow 3:
Average throughput: 4.03 Mbit/s
95th percentile per-packet one-way delay: 86.776 ms
Loss rate: 3.53%
```
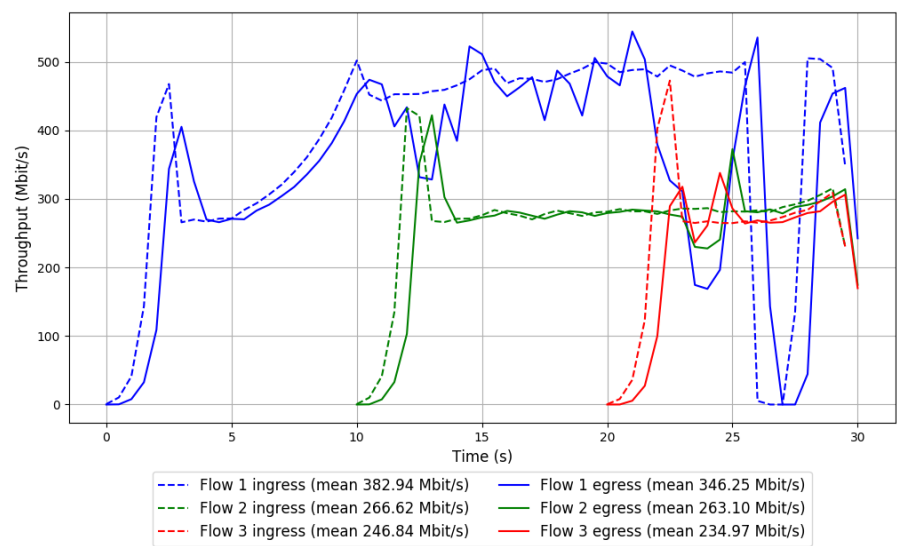
Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2019-03-18 22:49:30
End at: 2019-03-18 22:50:00
Local clock offset: 1.446 ms
Remote clock offset: -0.24 ms


# Below is generated by plot.py at 2019-03-19 03:33:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 588.89 Mbit/s
95th percentile per-packet one-way delay: 200.743 ms
Loss rate: 3.60%
-- Flow 1:
Average throughput: 324.99 Mbit/s
95th percentile per-packet one-way delay: 202.468 ms
Loss rate: 4.32%
-- Flow 2:
Average throughput: 285.49 Mbit/s
95th percentile per-packet one-way delay: 110.399 ms
Loss rate: 1.37%
-- Flow 3:
Average throughput: 229.70 Mbit/s
95th percentile per-packet one-way delay: 222.660 ms
Loss rate: 5.94%
```

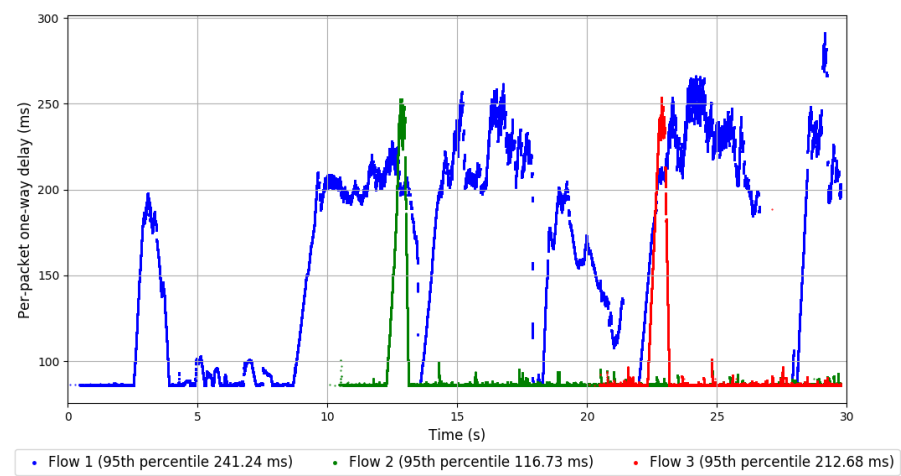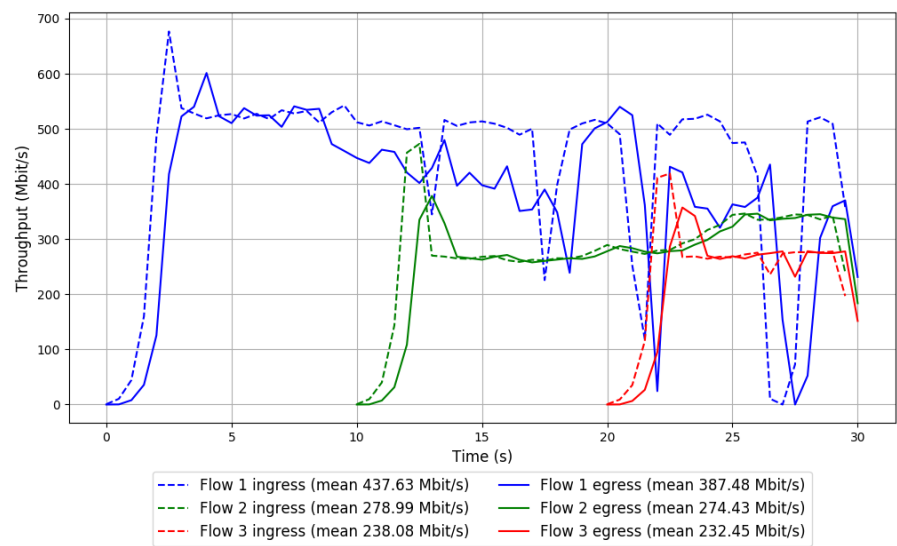Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2019-03-18 23:26:37
End at: 2019-03-18 23:27:07
Local clock offset: -0.213 ms
Remote clock offset: -0.151 ms


# Below is generated by plot.py at 2019-03-19 03:34:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 597.00 Mbit/s
95th percentile per-packet one-way delay: 254.994 ms
Loss rate: 7.46%
-- Flow 1:
Average throughput: 346.25 Mbit/s
95th percentile per-packet one-way delay: 249.000 ms
Loss rate: 10.10%
-- Flow 2:
Average throughput: 263.10 Mbit/s
95th percentile per-packet one-way delay: 221.310 ms
Loss rate: 2.18%
-- Flow 3:
Average throughput: 234.97 Mbit/s
95th percentile per-packet one-way delay: 295.779 ms
Loss rate: 6.49%
```
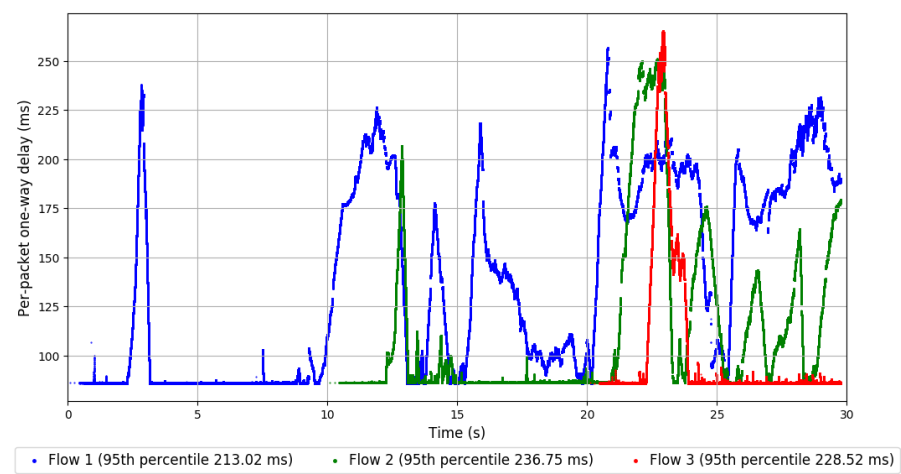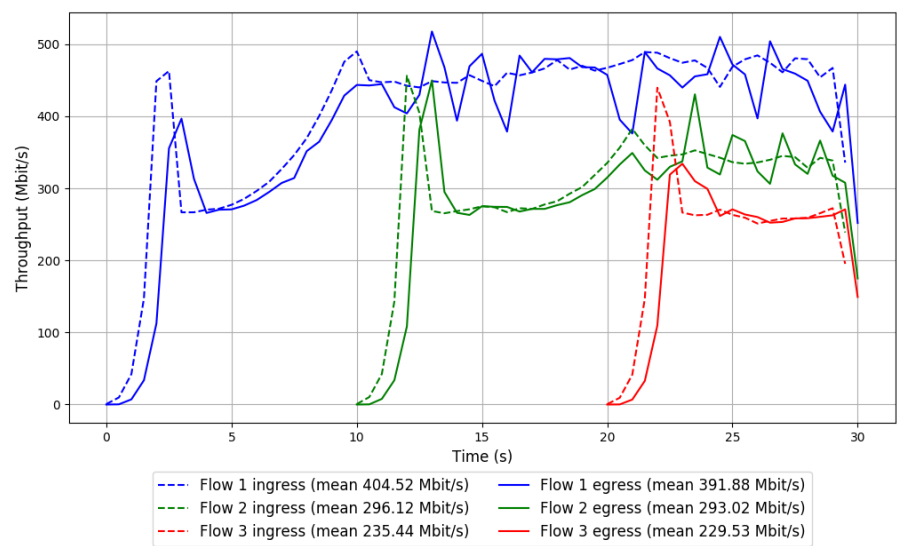
Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2019-03-19 00:03:26
End at: 2019-03-19 00:03:56
Local clock offset: -0.235 ms
Remote clock offset: -0.158 ms


# Below is generated by plot.py at 2019-03-19 03:36:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 645.09 Mbit/s
95th percentile per-packet one-way delay: 235.662 ms
Loss rate: 8.58%
-- Flow 1:
Average throughput: 387.48 Mbit/s
95th percentile per-packet one-way delay: 241.238 ms
Loss rate: 11.97%
-- Flow 2:
Average throughput: 274.43 Mbit/s
95th percentile per-packet one-way delay: 116.735 ms
Loss rate: 2.49%
-- Flow 3:
Average throughput: 232.45 Mbit/s
95th percentile per-packet one-way delay: 212.676 ms
Loss rate: 4.08%
```
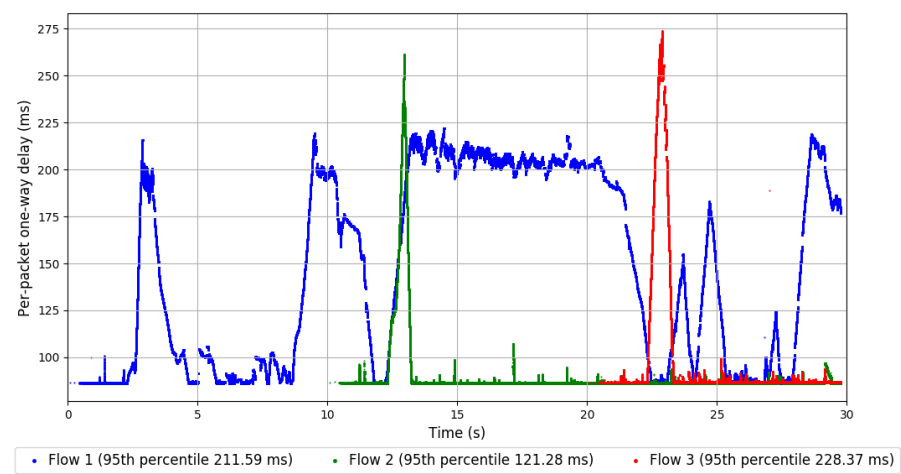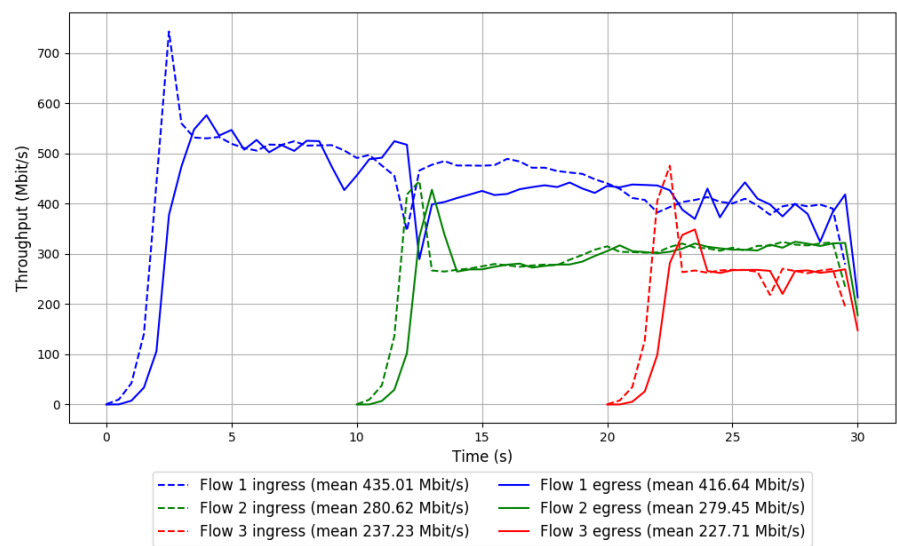
Run 3: Report of PCC-Allegro — Data Link

```
Run 4: Statistics of PCC-Allegro

Start at: 2019-03-19 00:40:13
End at: 2019-03-19 00:40:43
Local clock offset: 0.033 ms
Remote clock offset: 0.004 ms


# Below is generated by plot.py at 2019-03-19 03:39:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 660.80 Mbit/s
95th percentile per-packet one-way delay: 217.051 ms
Loss rate: 3.23%
-- Flow 1:
Average throughput: 391.88 Mbit/s
95th percentile per-packet one-way delay: 213.022 ms
Loss rate: 3.69%
-- Flow 2:
Average throughput: 293.02 Mbit/s
95th percentile per-packet one-way delay: 236.750 ms
Loss rate: 1.91%
-- Flow 3:
Average throughput: 229.53 Mbit/s
95th percentile per-packet one-way delay: 228.521 ms
Loss rate: 4.23%
```

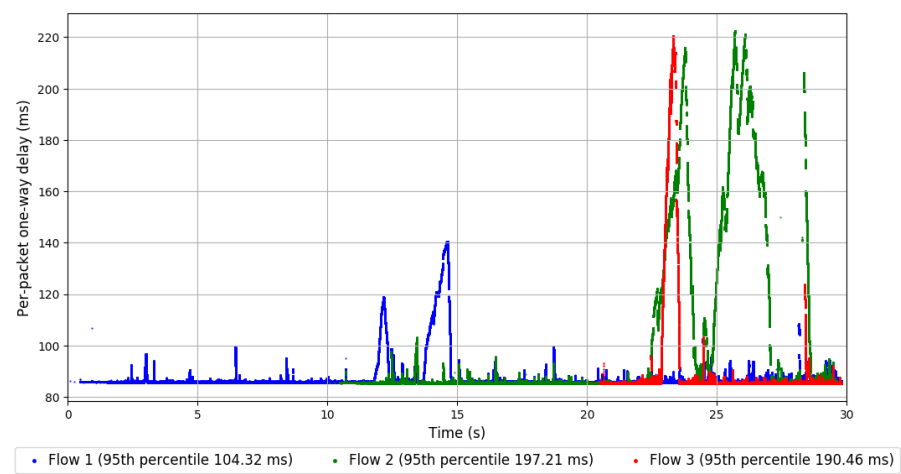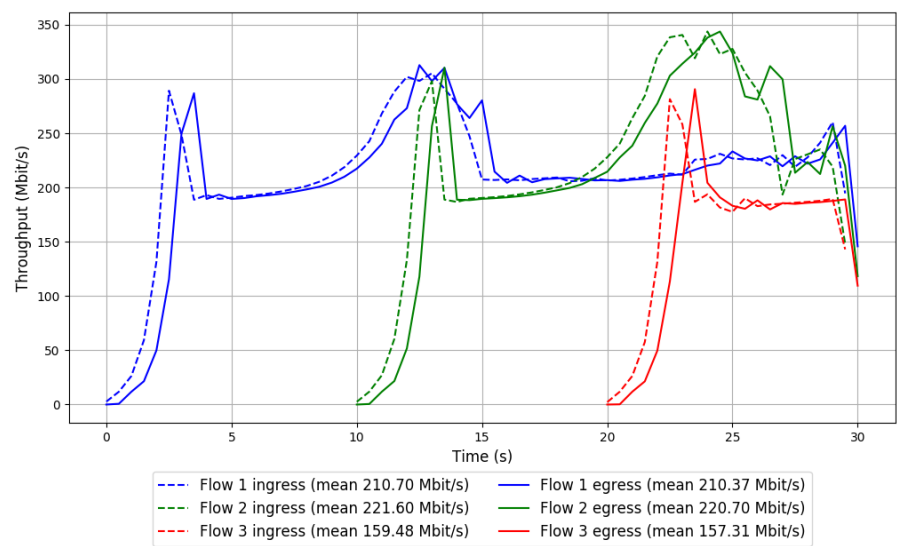# Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 404.52 Mbit/s)   Flow 1 egress (mean 391.88 Mbit/s)
Flow 2 ingress (mean 296.12 Mbit/s)   Flow 2 egress (mean 293.02 Mbit/s)
Flow 3 ingress (mean 235.44 Mbit/s)   Flow 3 egress (mean 229.53 Mbit/s)

Flow 1 (95th percentile 213.02 ms)   Flow 2 (95th percentile 236.75 ms)   Flow 3 (95th percentile 228.52 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2019-03-19 01:17:56
End at: 2019-03-19 01:18:26
Local clock offset: 0.112 ms
Remote clock offset: -0.045 ms


# Below is generated by plot.py at 2019-03-19 03:42:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 675.93 Mbit/s
95th percentile per-packet one-way delay: 210.489 ms
Loss rate: 3.95%
-- Flow 1:
Average throughput: 416.64 Mbit/s
95th percentile per-packet one-way delay: 211.589 ms
Loss rate: 4.78%
-- Flow 2:
Average throughput: 279.45 Mbit/s
95th percentile per-packet one-way delay: 121.277 ms
Loss rate: 1.28%
-- Flow 3:
Average throughput: 227.71 Mbit/s
95th percentile per-packet one-way delay: 228.367 ms
Loss rate: 5.71%
```
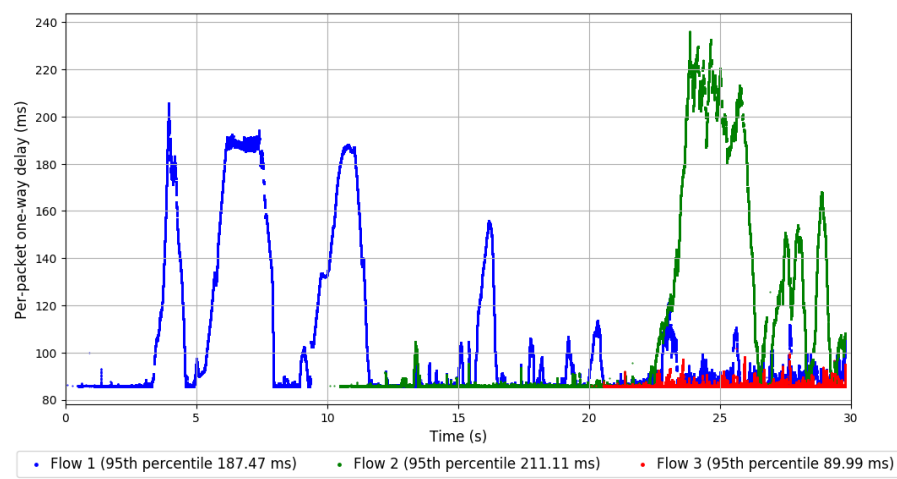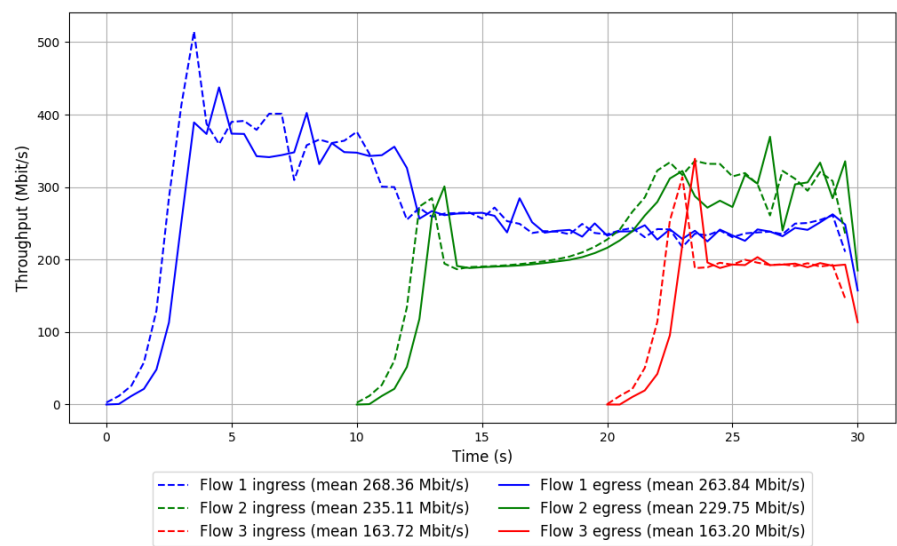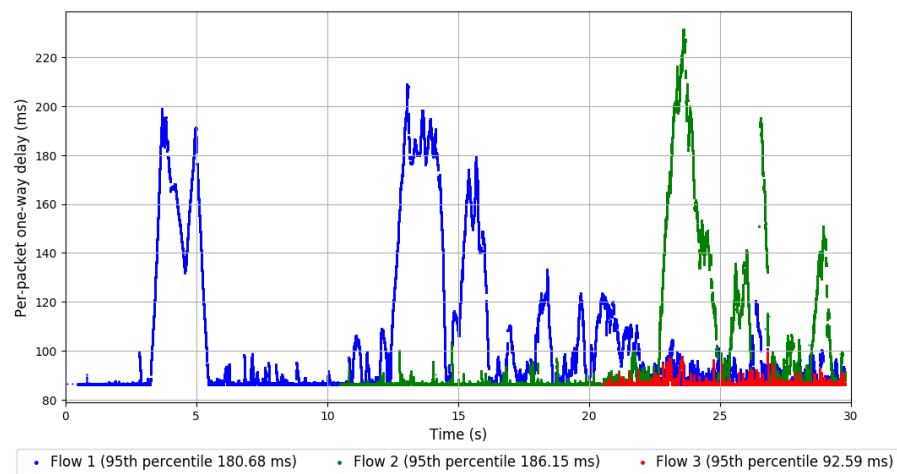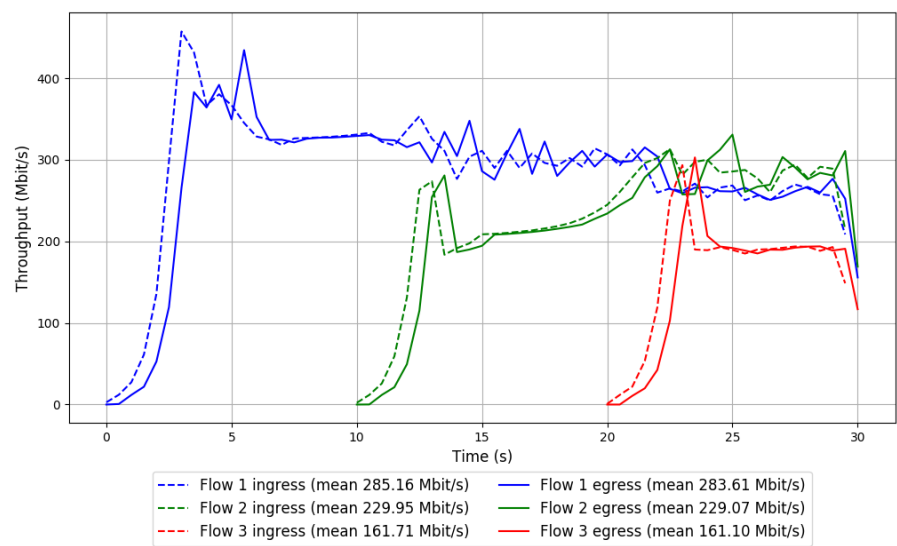
Run 5: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2019-03-18 22:51:28
End at: 2019-03-18 22:51:58
Local clock offset: 0.923 ms
Remote clock offset: -0.229 ms


# Below is generated by plot.py at 2019-03-19 03:42:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 407.99 Mbit/s
95th percentile per-packet one-way delay: 165.442 ms
Loss rate: 1.23%
-- Flow 1:
Average throughput: 210.37 Mbit/s
95th percentile per-packet one-way delay: 104.317 ms
Loss rate: 0.73%
-- Flow 2:
Average throughput: 220.70 Mbit/s
95th percentile per-packet one-way delay: 197.212 ms
Loss rate: 1.27%
-- Flow 3:
Average throughput: 157.31 Mbit/s
95th percentile per-packet one-way delay: 190.460 ms
Loss rate: 3.07%
```

Run 1: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 210.70 Mbit/s) --- Flow 1 egress (mean 210.37 Mbit/s)
Flow 2 ingress (mean 221.60 Mbit/s) --- Flow 2 egress (mean 220.70 Mbit/s)
Flow 3 ingress (mean 159.48 Mbit/s) --- Flow 3 egress (mean 157.31 Mbit/s)

Flow 1 (95th percentile 104.32 ms) • Flow 2 (95th percentile 197.21 ms) • Flow 3 (95th percentile 190.46 ms)

```
Run 2: Statistics of PCC-Expr

Start at: 2019-03-18 23:28:37
End at: 2019-03-18 23:29:07
Local clock offset: -0.389 ms
Remote clock offset: -0.161 ms


# Below is generated by plot.py at 2019-03-19 03:42:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 469.38 Mbit/s
95th percentile per-packet one-way delay: 190.257 ms
Loss rate: 2.52%
-- Flow 1:
Average throughput: 263.84 Mbit/s
95th percentile per-packet one-way delay: 187.465 ms
Loss rate: 2.26%
-- Flow 2:
Average throughput: 229.75 Mbit/s
95th percentile per-packet one-way delay: 211.109 ms
Loss rate: 3.13%
-- Flow 3:
Average throughput: 163.20 Mbit/s
95th percentile per-packet one-way delay: 89.993 ms
Loss rate: 2.05%
```
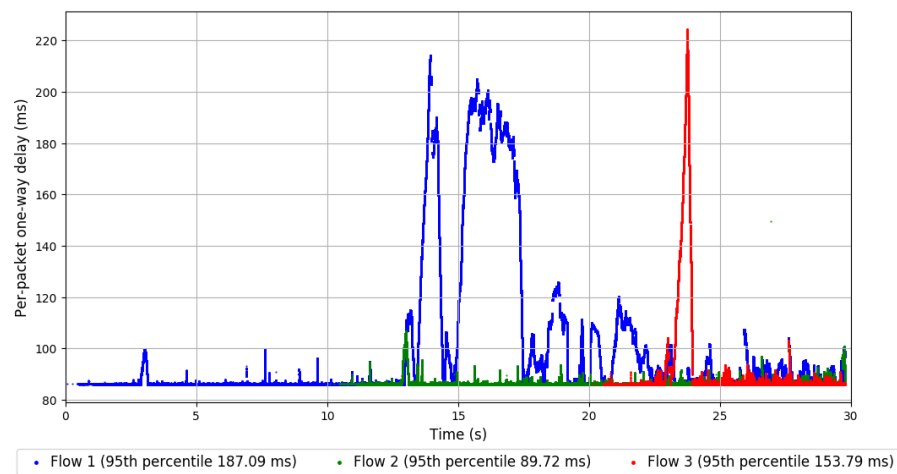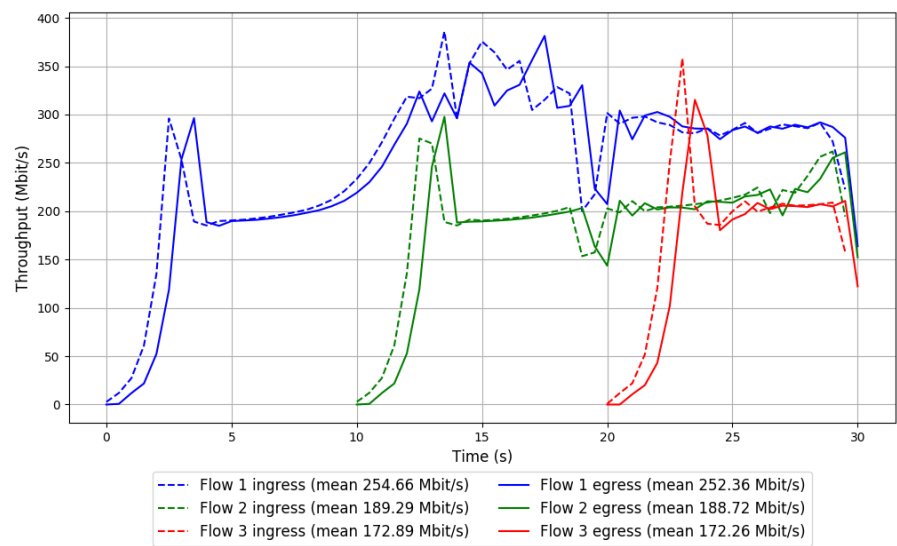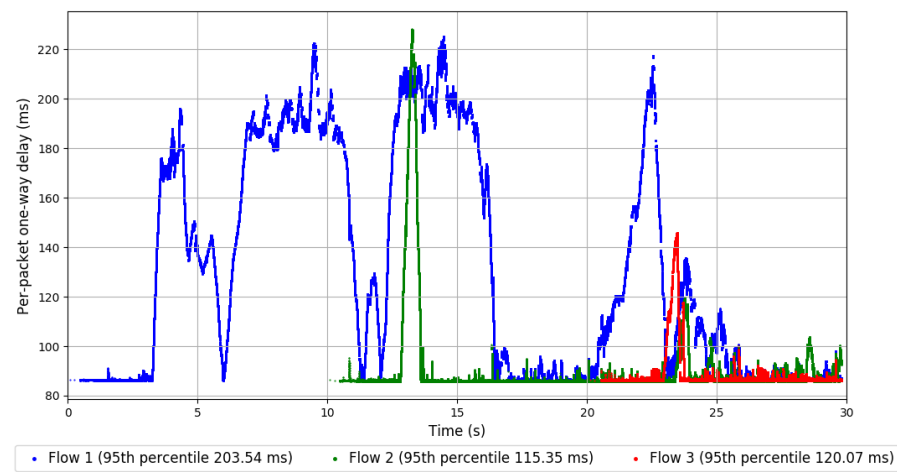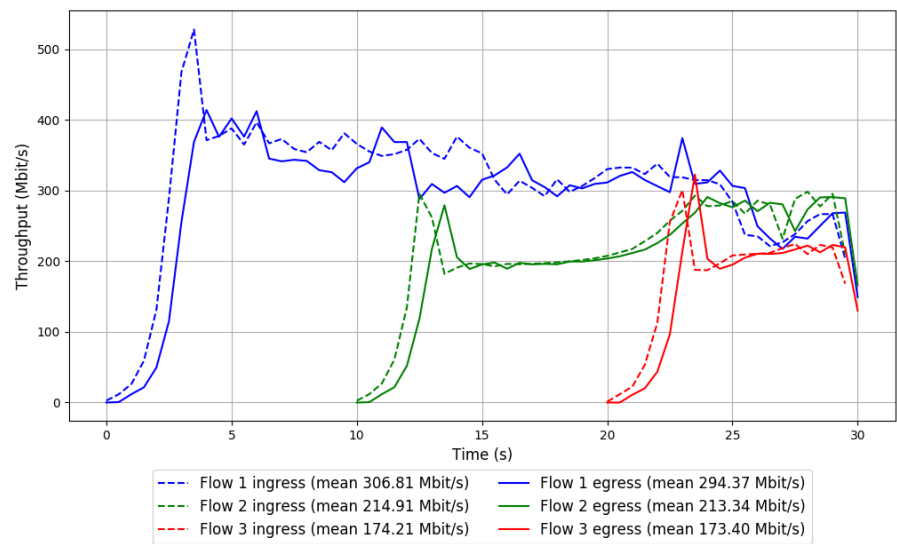
Run 2: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 268.36 Mbit/s)   Flow 1 egress (mean 263.84 Mbit/s)
Flow 2 ingress (mean 235.11 Mbit/s)   Flow 2 egress (mean 229.75 Mbit/s)
Flow 3 ingress (mean 163.72 Mbit/s)   Flow 3 egress (mean 163.20 Mbit/s)

Flow 1 (95th percentile 187.47 ms)   Flow 2 (95th percentile 211.11 ms)   Flow 3 (95th percentile 89.99 ms)

```
Run 3: Statistics of PCC-Expr

Start at: 2019-03-19 00:05:29
End at: 2019-03-19 00:05:59
Local clock offset: 0.276 ms
Remote clock offset: -0.125 ms


# Below is generated by plot.py at 2019-03-19 03:43:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 487.99 Mbit/s
95th percentile per-packet one-way delay: 180.143 ms
Loss rate: 1.27%
-- Flow 1:
Average throughput: 283.61 Mbit/s
95th percentile per-packet one-way delay: 180.683 ms
Loss rate: 1.12%
-- Flow 2:
Average throughput: 229.07 Mbit/s
95th percentile per-packet one-way delay: 186.150 ms
Loss rate: 1.24%
-- Flow 3:
Average throughput: 161.10 Mbit/s
95th percentile per-packet one-way delay: 92.594 ms
Loss rate: 2.11%
```
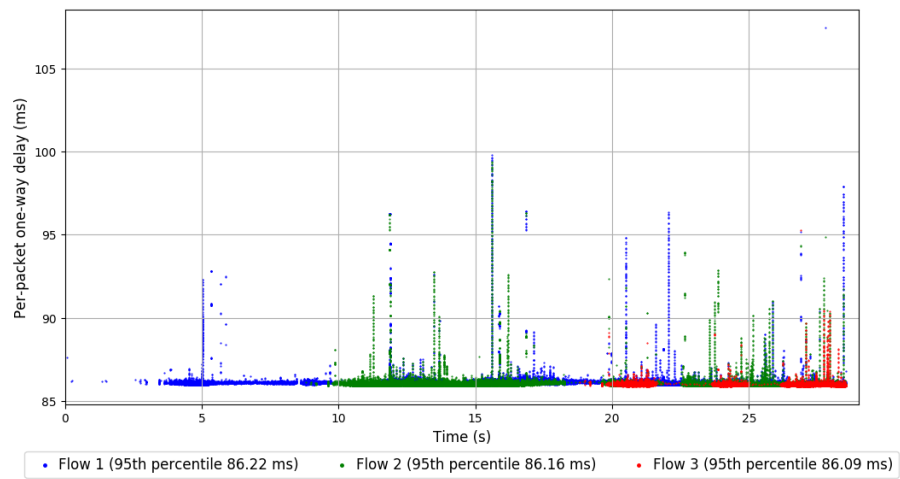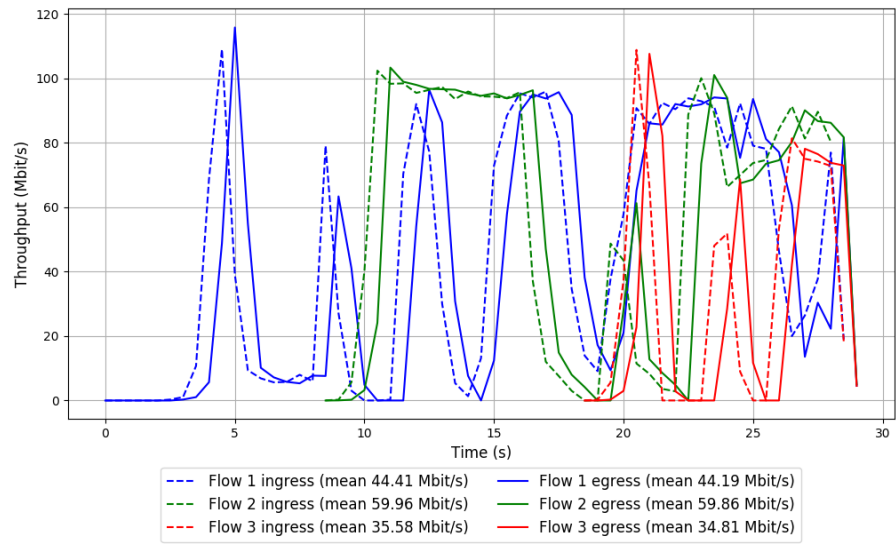
Run 3: Report of PCC-Expr — Data Link

```
Run 4: Statistics of PCC-Expr

Start at: 2019-03-19 00:42:17
End at: 2019-03-19 00:42:47
Local clock offset: 0.194 ms
Remote clock offset: 0.001 ms


# Below is generated by plot.py at 2019-03-19 03:48:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 433.55 Mbit/s
95th percentile per-packet one-way delay: 180.647 ms
Loss rate: 1.46%
-- Flow 1:
Average throughput: 252.36 Mbit/s
95th percentile per-packet one-way delay: 187.090 ms
Loss rate: 1.47%
-- Flow 2:
Average throughput: 188.72 Mbit/s
95th percentile per-packet one-way delay: 89.717 ms
Loss rate: 1.17%
-- Flow 3:
Average throughput: 172.26 Mbit/s
95th percentile per-packet one-way delay: 153.793 ms
Loss rate: 2.11%
```
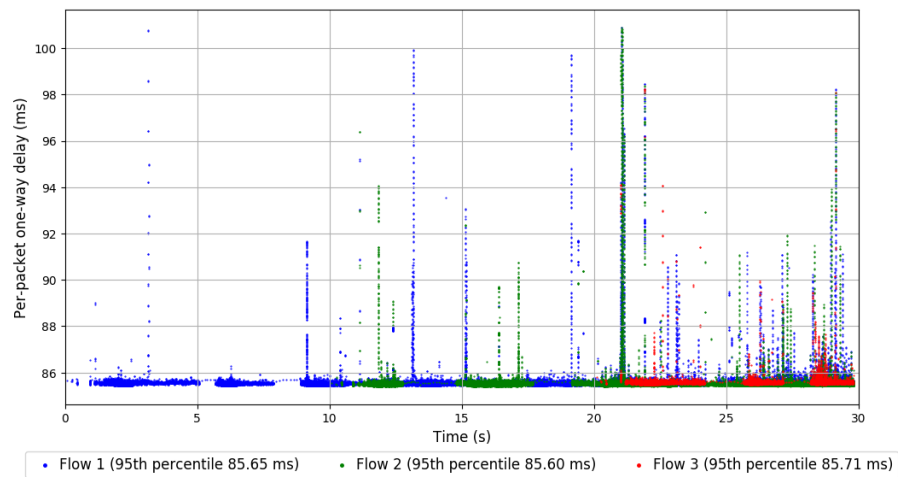
Run 4: Report of PCC-Expr — Data Link

```
Run 5: Statistics of PCC-Expr

Start at: 2019-03-19 01:20:02
End at: 2019-03-19 01:20:32
Local clock offset: -0.143 ms
Remote clock offset: -0.059 ms


# Below is generated by plot.py at 2019-03-19 03:51:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 492.32 Mbit/s
95th percentile per-packet one-way delay: 199.861 ms
Loss rate: 3.49%
-- Flow 1:
Average throughput: 294.37 Mbit/s
95th percentile per-packet one-way delay: 203.543 ms
Loss rate: 4.61%
-- Flow 2:
Average throughput: 213.34 Mbit/s
95th percentile per-packet one-way delay: 115.348 ms
Loss rate: 1.60%
-- Flow 3:
Average throughput: 173.40 Mbit/s
95th percentile per-packet one-way delay: 120.073 ms
Loss rate: 2.21%
```
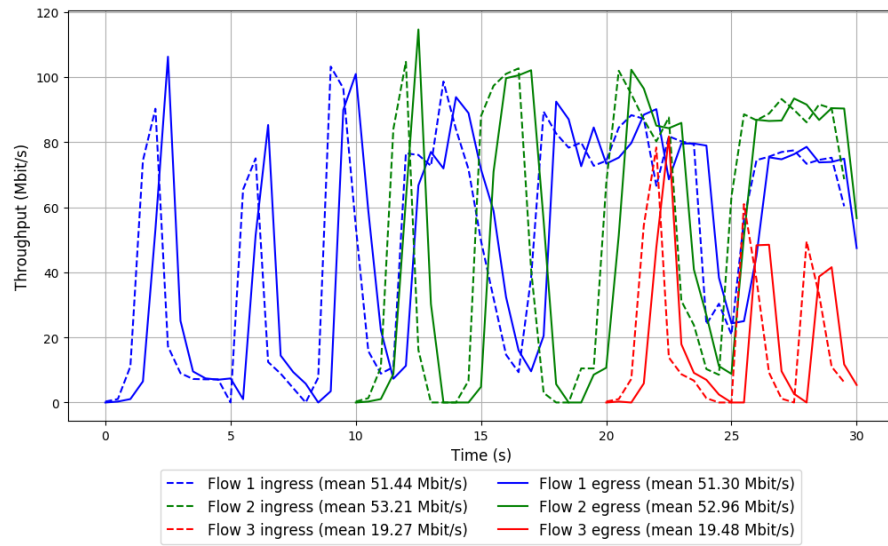
Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2019-03-18 22:42:30
End at: 2019-03-18 22:43:00
Local clock offset: 1.404 ms
Remote clock offset: -0.159 ms


# Below is generated by plot.py at 2019-03-19 03:51:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.55 Mbit/s
95th percentile per-packet one-way delay: 86.198 ms
Loss rate: 1.15%
-- Flow 1:
Average throughput: 44.19 Mbit/s
95th percentile per-packet one-way delay: 86.222 ms
Loss rate: 1.09%
-- Flow 2:
Average throughput: 59.86 Mbit/s
95th percentile per-packet one-way delay: 86.159 ms
Loss rate: 0.41%
-- Flow 3:
Average throughput: 34.81 Mbit/s
95th percentile per-packet one-way delay: 86.093 ms
Loss rate: 3.85%
```
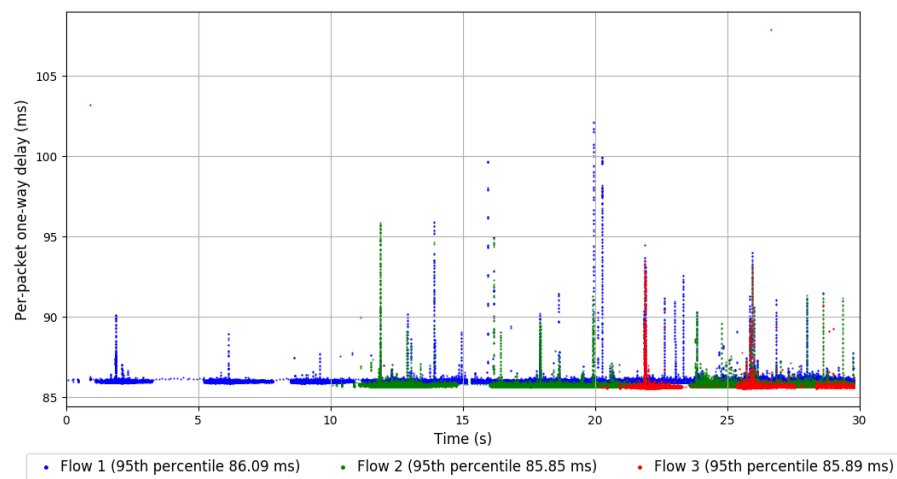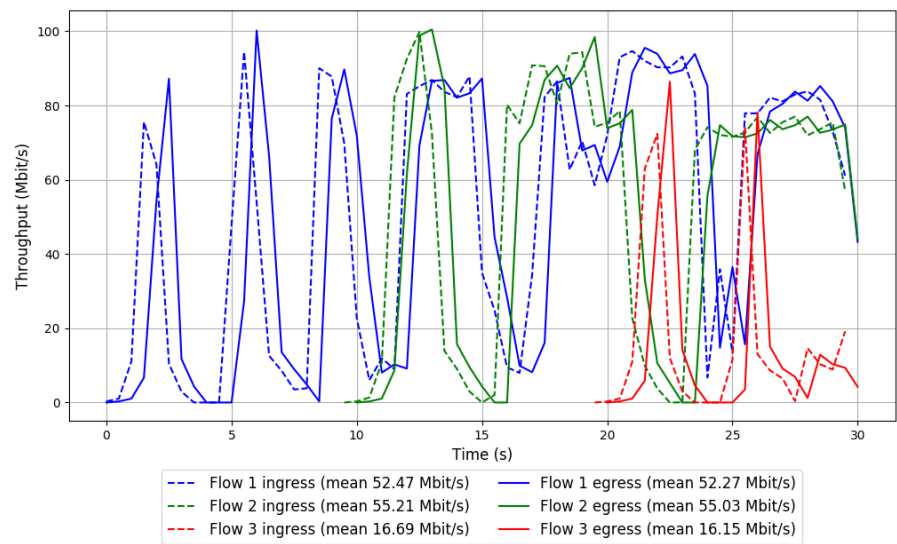
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2019-03-18 23:19:32
End at: 2019-03-18 23:20:02
Local clock offset: -0.524 ms
Remote clock offset: -0.135 ms


# Below is generated by plot.py at 2019-03-19 03:51:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.80 Mbit/s
95th percentile per-packet one-way delay: 85.641 ms
Loss rate: 1.02%
-- Flow 1:
Average throughput: 51.30 Mbit/s
95th percentile per-packet one-way delay: 85.646 ms
Loss rate: 0.85%
-- Flow 2:
Average throughput: 52.96 Mbit/s
95th percentile per-packet one-way delay: 85.604 ms
Loss rate: 1.33%
-- Flow 3:
Average throughput: 19.48 Mbit/s
95th percentile per-packet one-way delay: 85.707 ms
Loss rate: 0.65%
```
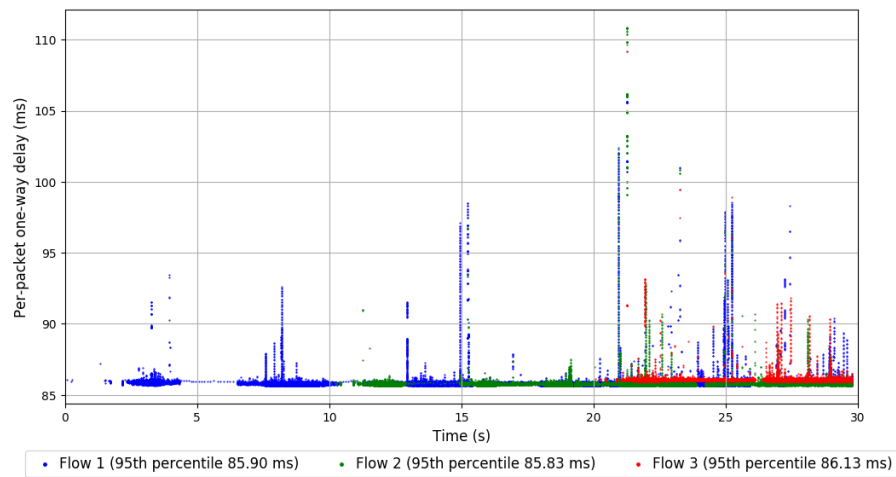
Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2019-03-18 23:56:12
End at: 2019-03-18 23:56:42
Local clock offset: -0.437 ms
Remote clock offset: -0.196 ms


# Below is generated by plot.py at 2019-03-19 03:51:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.08 Mbit/s
95th percentile per-packet one-way delay: 86.062 ms
Loss rate: 1.28%
-- Flow 1:
Average throughput: 52.27 Mbit/s
95th percentile per-packet one-way delay: 86.090 ms
Loss rate: 0.96%
-- Flow 2:
Average throughput: 55.03 Mbit/s
95th percentile per-packet one-way delay: 85.849 ms
Loss rate: 1.19%
-- Flow 3:
Average throughput: 16.15 Mbit/s
95th percentile per-packet one-way delay: 85.894 ms
Loss rate: 4.93%
```
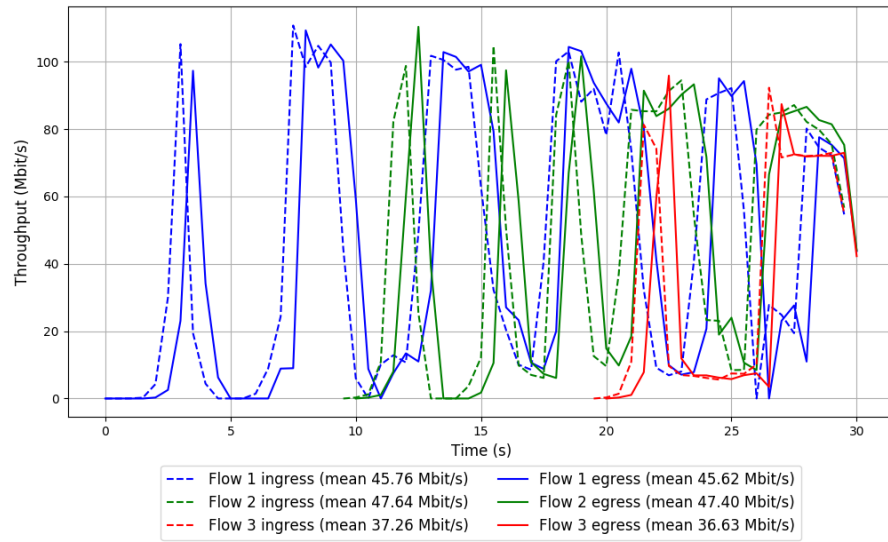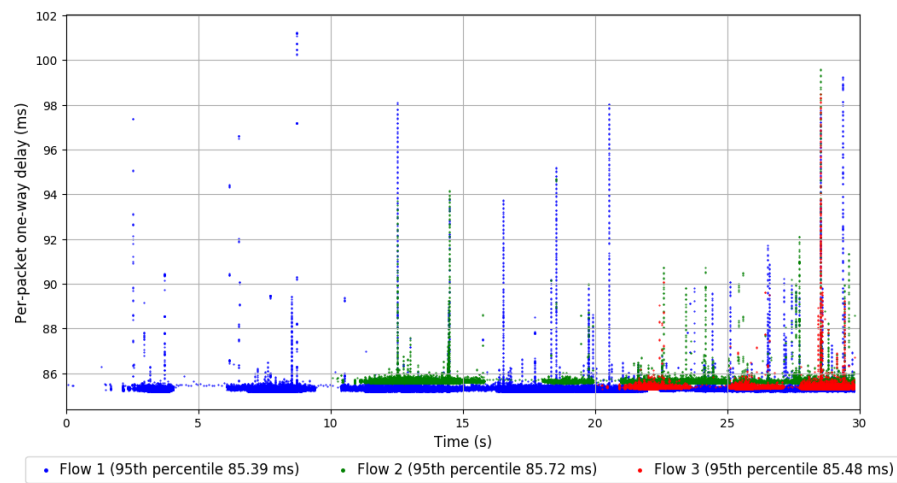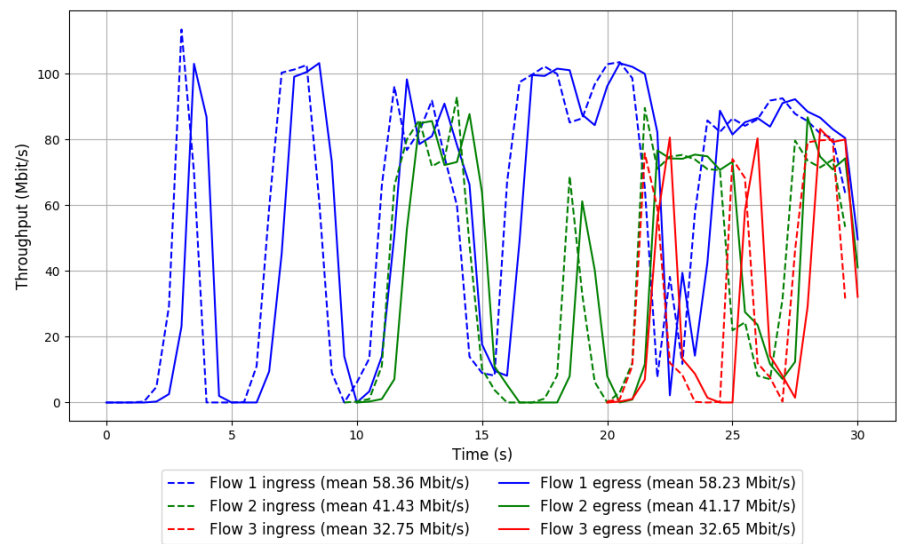
Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 52.47 Mbit/s)   Flow 1 egress (mean 52.27 Mbit/s)
Flow 2 ingress (mean 55.21 Mbit/s)   Flow 2 egress (mean 55.03 Mbit/s)
Flow 3 ingress (mean 16.69 Mbit/s)   Flow 3 egress (mean 16.15 Mbit/s)

Flow 1 (95th percentile 86.09 ms)   Flow 2 (95th percentile 85.85 ms)   Flow 3 (95th percentile 85.89 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2019-03-19 00:33:22
End at: 2019-03-19 00:33:52
Local clock offset: -0.171 ms
Remote clock offset: 0.063 ms


# Below is generated by plot.py at 2019-03-19 03:51:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.06 Mbit/s
95th percentile per-packet one-way delay: 86.052 ms
Loss rate: 1.39%
-- Flow 1:
Average throughput: 45.62 Mbit/s
95th percentile per-packet one-way delay: 85.901 ms
Loss rate: 0.87%
-- Flow 2:
Average throughput: 47.40 Mbit/s
95th percentile per-packet one-way delay: 85.833 ms
Loss rate: 1.36%
-- Flow 3:
Average throughput: 36.63 Mbit/s
95th percentile per-packet one-way delay: 86.129 ms
Loss rate: 3.41%
```
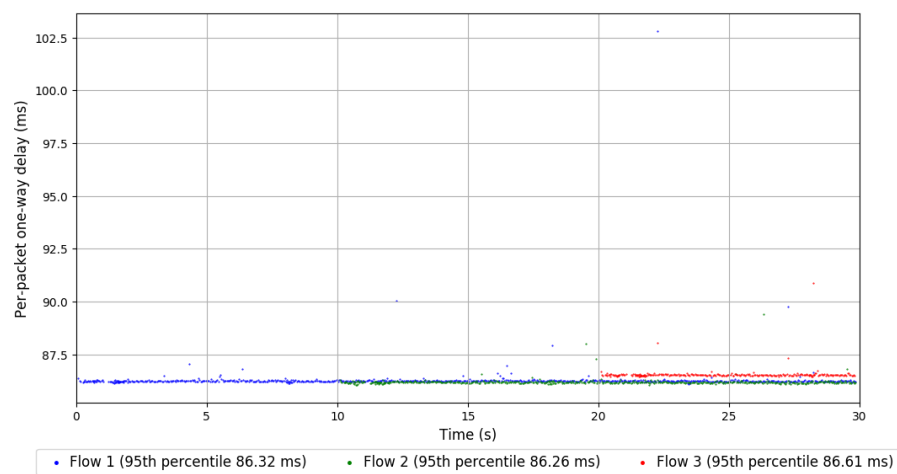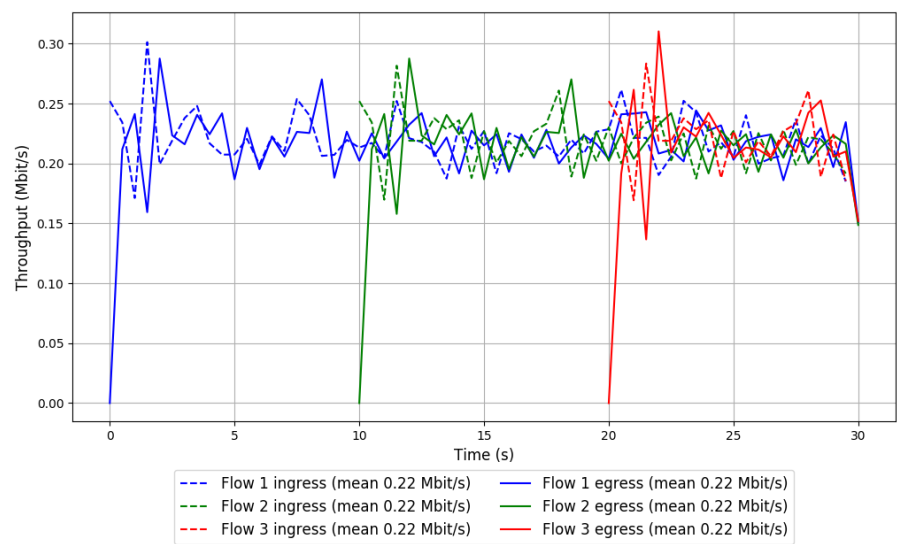
Run 4: Report of QUIC Cubic — Data Link

```
Run 5: Statistics of QUIC Cubic

Start at: 2019-03-19 01:10:49
End at: 2019-03-19 01:11:19
Local clock offset: -0.616 ms
Remote clock offset: 0.009 ms


# Below is generated by plot.py at 2019-03-19 03:51:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.22 Mbit/s
95th percentile per-packet one-way delay: 85.665 ms
Loss rate: 1.13%
-- Flow 1:
Average throughput: 58.23 Mbit/s
95th percentile per-packet one-way delay: 85.393 ms
Loss rate: 0.79%
-- Flow 2:
Average throughput: 41.17 Mbit/s
95th percentile per-packet one-way delay: 85.722 ms
Loss rate: 1.49%
-- Flow 3:
Average throughput: 32.65 Mbit/s
95th percentile per-packet one-way delay: 85.481 ms
Loss rate: 2.02%
```

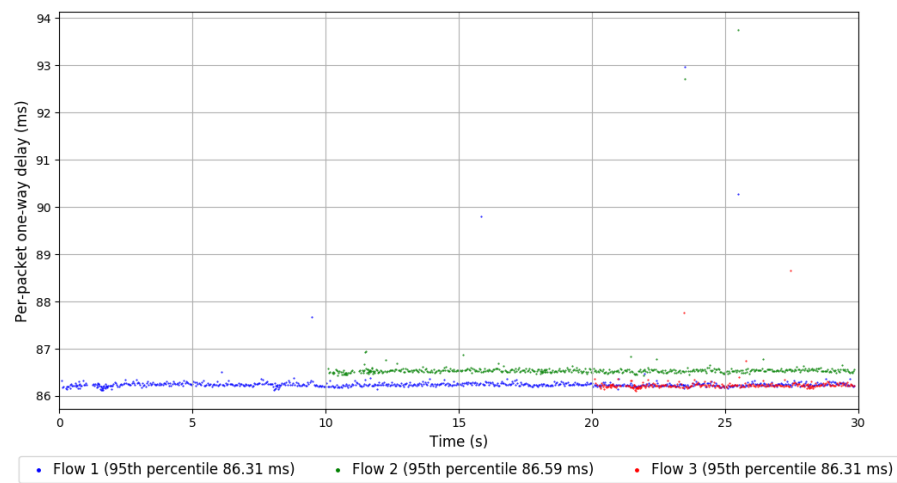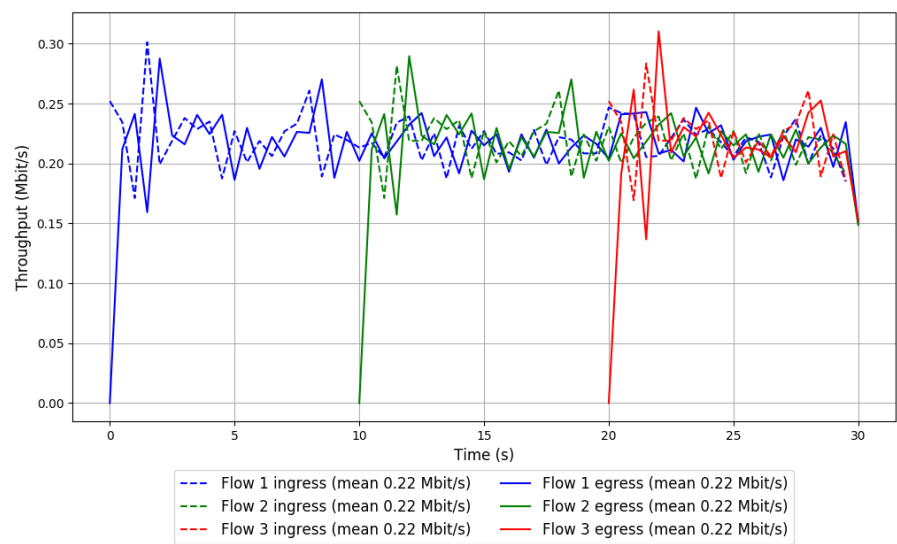Run 5: Report of QUIC Cubic — Data Link

```
Run 1: Statistics of SCReAM

Start at: 2019-03-18 22:41:15
End at: 2019-03-18 22:41:45
Local clock offset: 1.401 ms
Remote clock offset: -0.133 ms


# Below is generated by plot.py at 2019-03-19 03:51:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 86.552 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.319 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.260 ms
Loss rate: 0.82%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.606 ms
Loss rate: 1.85%
```
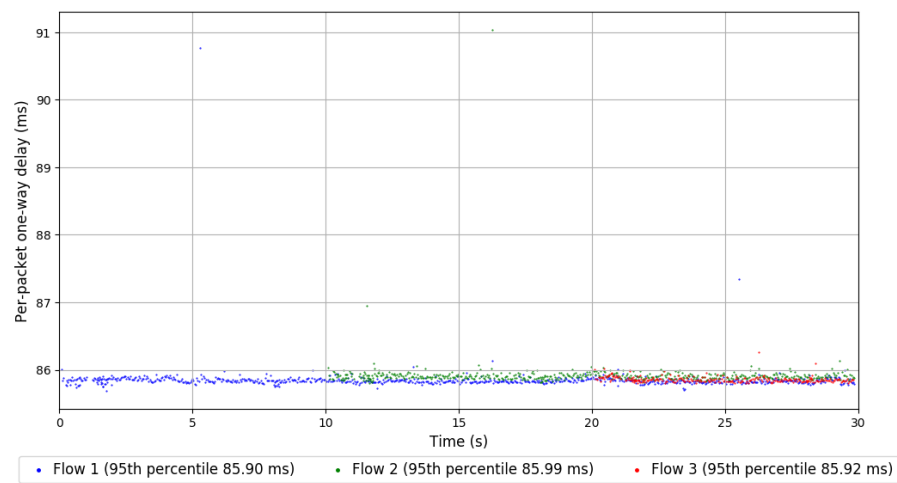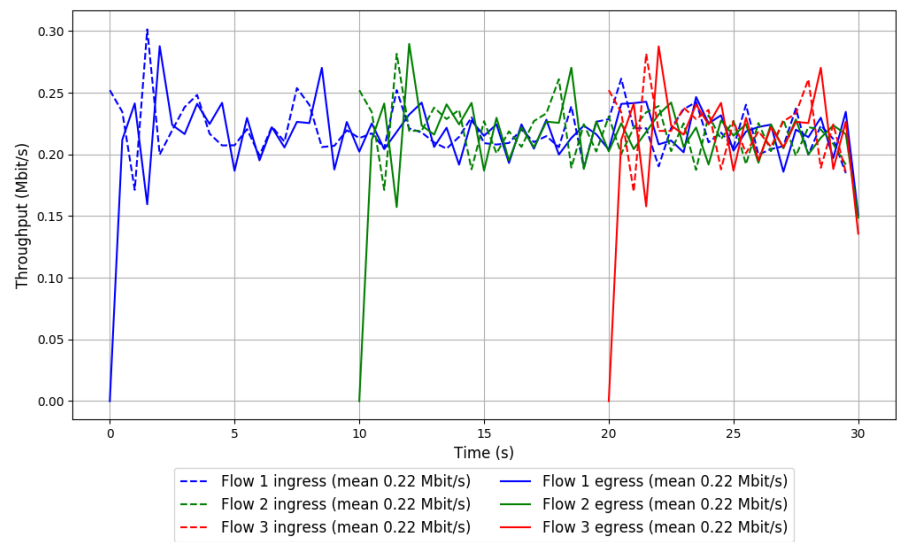
Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2019-03-18 23:18:18
End at: 2019-03-18 23:18:48
Local clock offset: 0.03 ms
Remote clock offset: -0.124 ms


# Below is generated by plot.py at 2019-03-19 03:51:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 86.565 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.306 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.590 ms
Loss rate: 0.82%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.310 ms
Loss rate: 1.85%
```
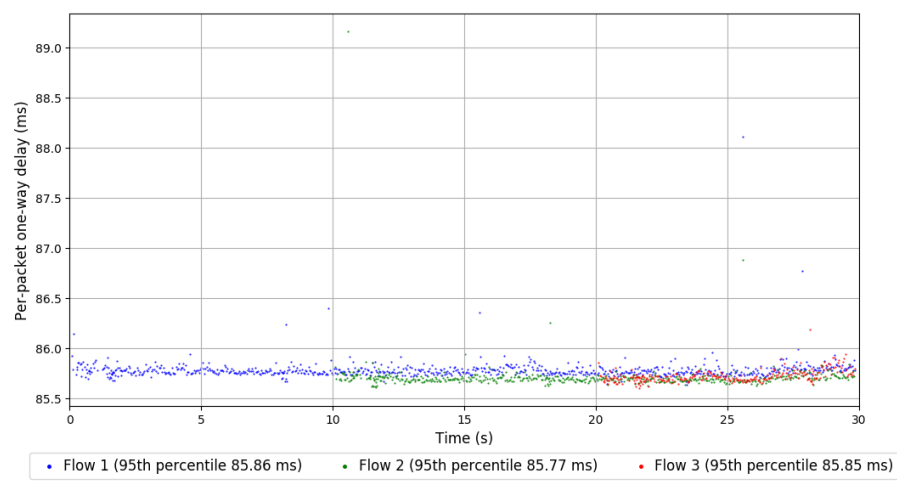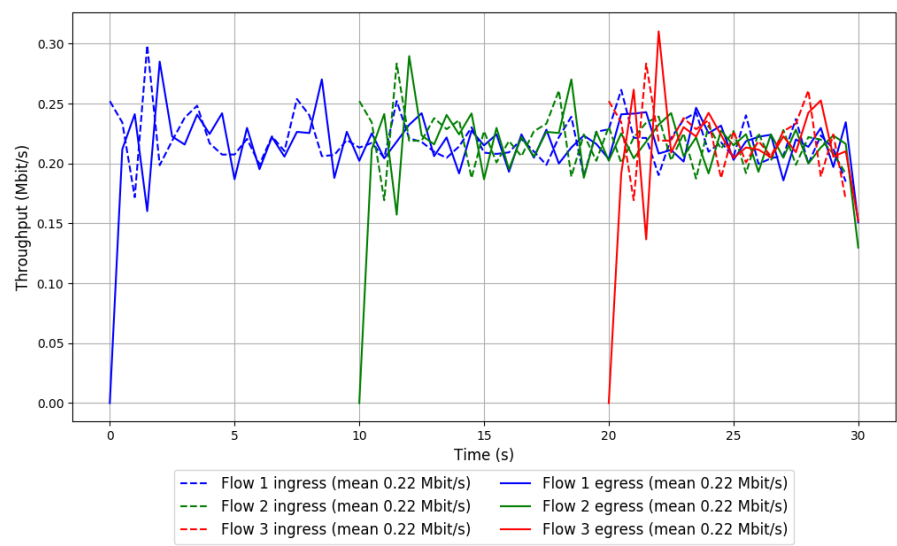
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2019-03-18 23:54:57
End at: 2019-03-18 23:55:27
Local clock offset: -0.423 ms
Remote clock offset: -0.216 ms


# Below is generated by plot.py at 2019-03-19 03:51:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 85.957 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.904 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.988 ms
Loss rate: 0.82%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.924 ms
Loss rate: 1.85%
```

Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2019-03-19 00:32:08
End at: 2019-03-19 00:32:38
Local clock offset: -0.353 ms
Remote clock offset: 0.061 ms


# Below is generated by plot.py at 2019-03-19 03:51:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 85.844 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.863 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.769 ms
Loss rate: 1.04%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.846 ms
Loss rate: 1.50%
```
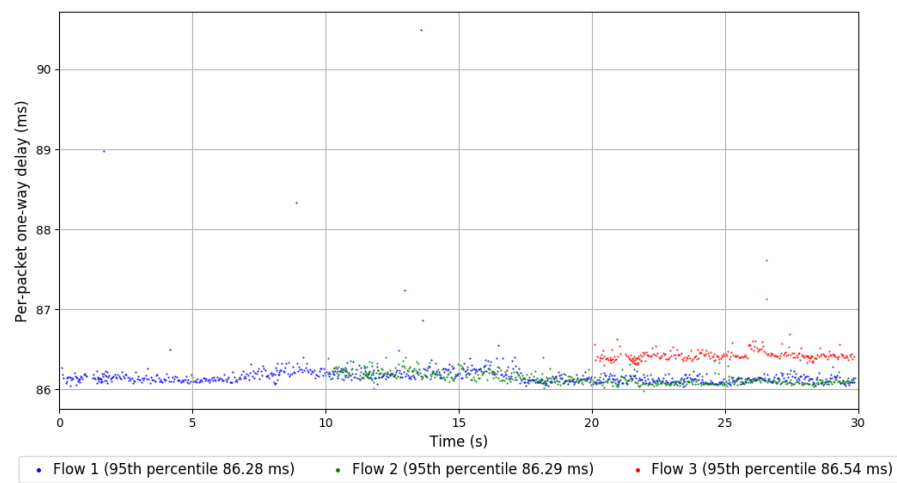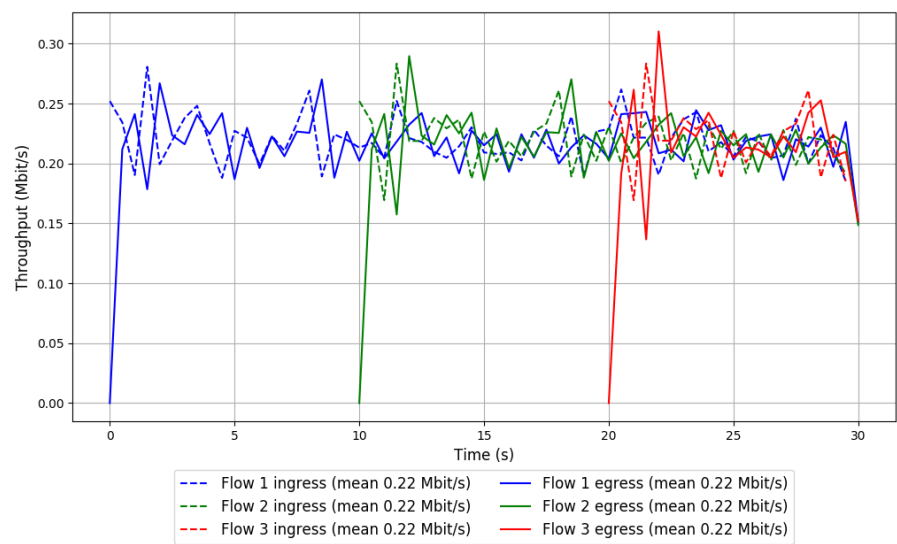
Run 4: Report of SCReAM — Data Link

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```
Run 5: Statistics of SCReAM

Start at: 2019-03-19 01:09:35
End at: 2019-03-19 01:10:05
Local clock offset: -0.007 ms
Remote clock offset: 0.013 ms


# Below is generated by plot.py at 2019-03-19 03:51:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 86.440 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.282 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.290 ms
Loss rate: 0.82%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.540 ms
Loss rate: 1.85%
```
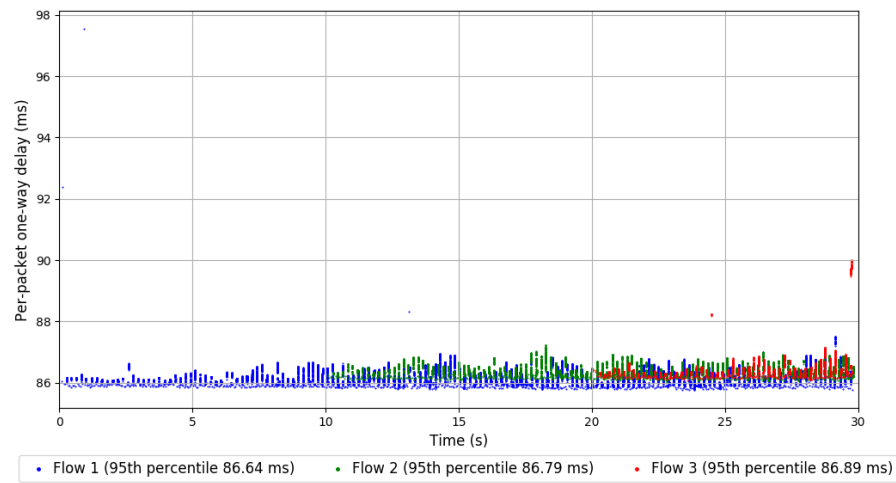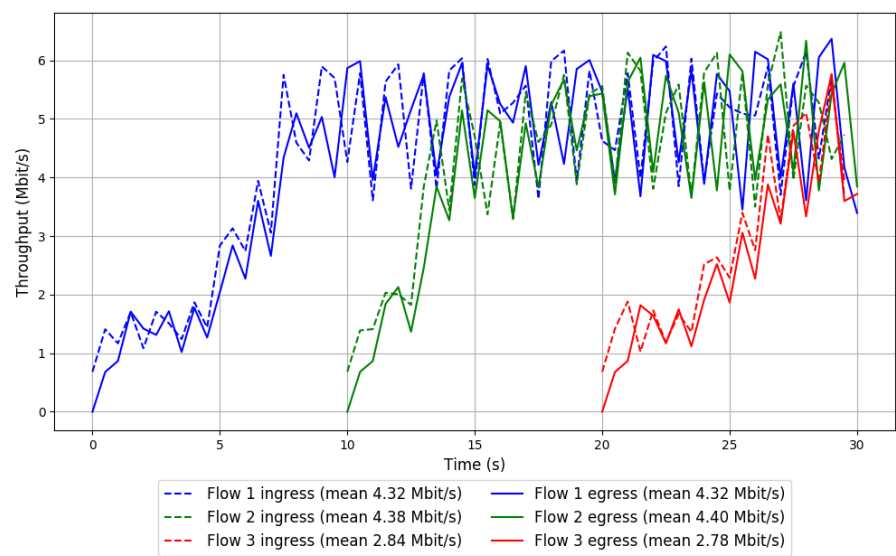
Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2019-03-18 22:27:33
End at: 2019-03-18 22:28:03
Local clock offset: 0.894 ms
Remote clock offset: 0.225 ms


# Below is generated by plot.py at 2019-03-19 03:51:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.14 Mbit/s
95th percentile per-packet one-way delay: 86.745 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 4.32 Mbit/s
95th percentile per-packet one-way delay: 86.636 ms
Loss rate: 0.71%
-- Flow 2:
Average throughput: 4.40 Mbit/s
95th percentile per-packet one-way delay: 86.787 ms
Loss rate: 0.51%
-- Flow 3:
Average throughput: 2.78 Mbit/s
95th percentile per-packet one-way delay: 86.892 ms
Loss rate: 4.00%
```
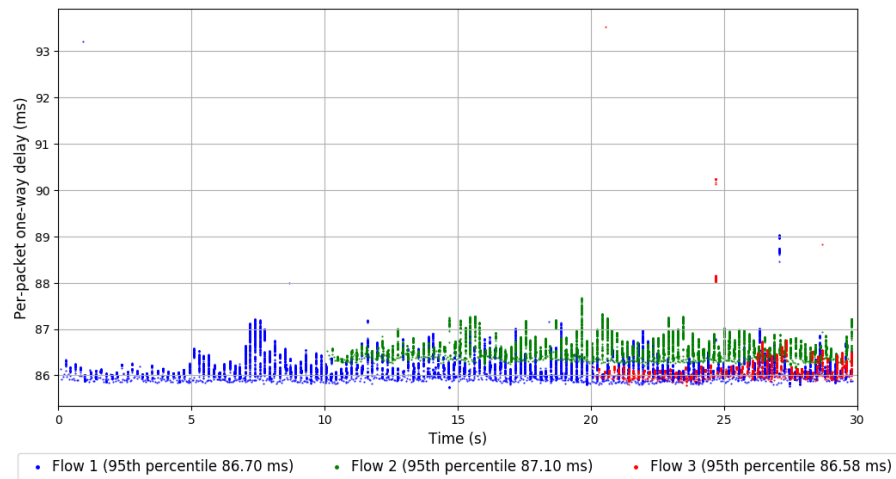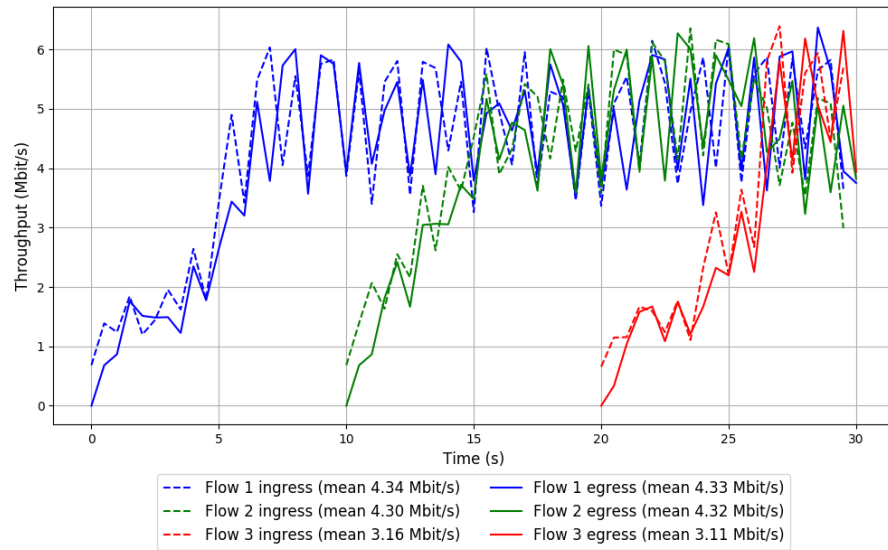
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2019-03-18 23:04:58
End at: 2019-03-18 23:05:28
Local clock offset: 0.168 ms
Remote clock offset: -0.15 ms


# Below is generated by plot.py at 2019-03-19 03:51:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.20 Mbit/s
95th percentile per-packet one-way delay: 86.914 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 4.33 Mbit/s
95th percentile per-packet one-way delay: 86.702 ms
Loss rate: 0.68%
-- Flow 2:
Average throughput: 4.32 Mbit/s
95th percentile per-packet one-way delay: 87.098 ms
Loss rate: 0.47%
-- Flow 3:
Average throughput: 3.11 Mbit/s
95th percentile per-packet one-way delay: 86.582 ms
Loss rate: 3.17%
```
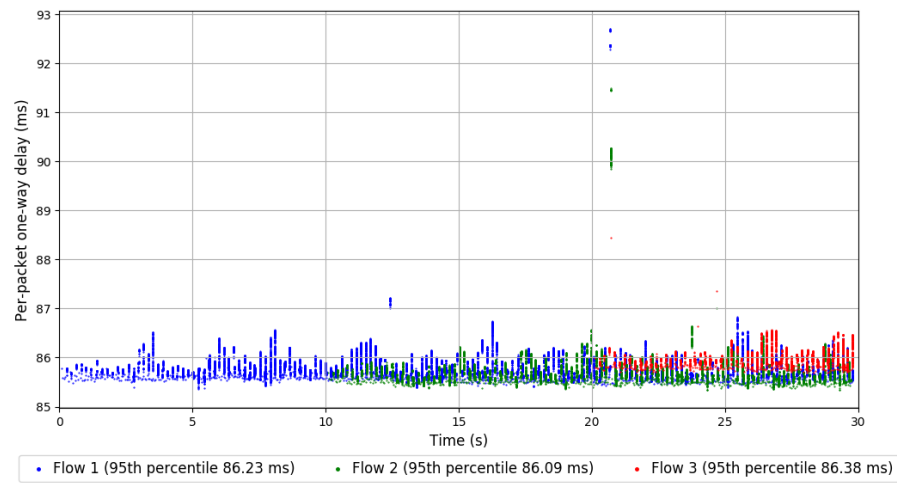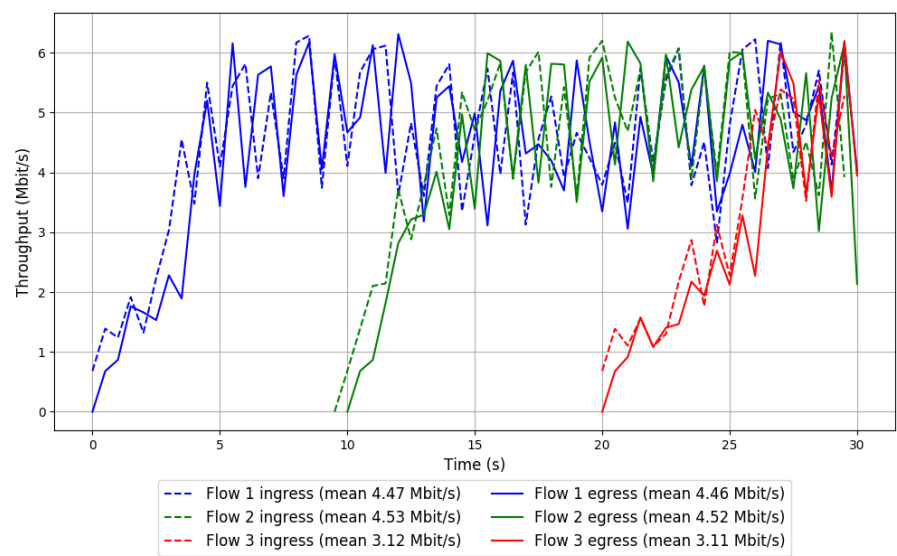
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2019-03-18 23:41:33
End at: 2019-03-18 23:42:03
Local clock offset: -0.655 ms
Remote clock offset: -0.157 ms


# Below is generated by plot.py at 2019-03-19 03:51:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.47 Mbit/s
95th percentile per-packet one-way delay: 86.223 ms
Loss rate: 1.04%
-- Flow 1:
Average throughput: 4.46 Mbit/s
95th percentile per-packet one-way delay: 86.227 ms
Loss rate: 0.74%
-- Flow 2:
Average throughput: 4.52 Mbit/s
95th percentile per-packet one-way delay: 86.095 ms
Loss rate: 1.10%
-- Flow 3:
Average throughput: 3.11 Mbit/s
95th percentile per-packet one-way delay: 86.378 ms
Loss rate: 2.17%
```
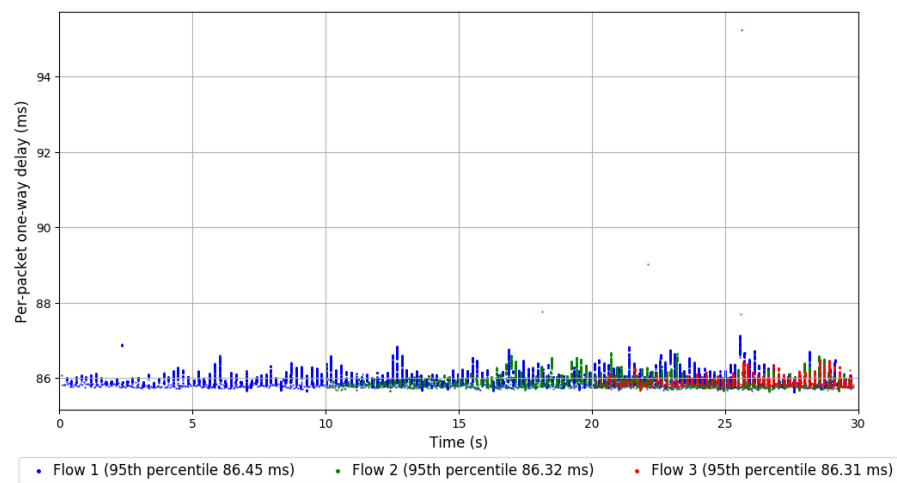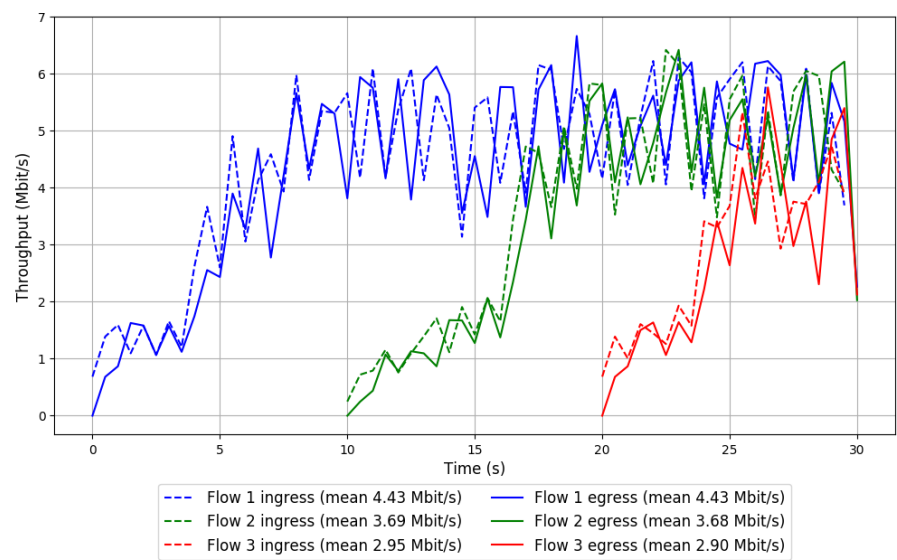
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2019-03-19 00:18:45
End at: 2019-03-19 00:19:15
Local clock offset: -0.231 ms
Remote clock offset: -0.014 ms


# Below is generated by plot.py at 2019-03-19 03:51:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 7.81 Mbit/s
95th percentile per-packet one-way delay: 86.392 ms
Loss rate: 1.16%
-- Flow 1:
Average throughput: 4.43 Mbit/s
95th percentile per-packet one-way delay: 86.450 ms
Loss rate: 0.69%
-- Flow 2:
Average throughput: 3.68 Mbit/s
95th percentile per-packet one-way delay: 86.324 ms
Loss rate: 1.29%
-- Flow 3:
Average throughput: 2.90 Mbit/s
95th percentile per-packet one-way delay: 86.311 ms
Loss rate: 3.01%
```
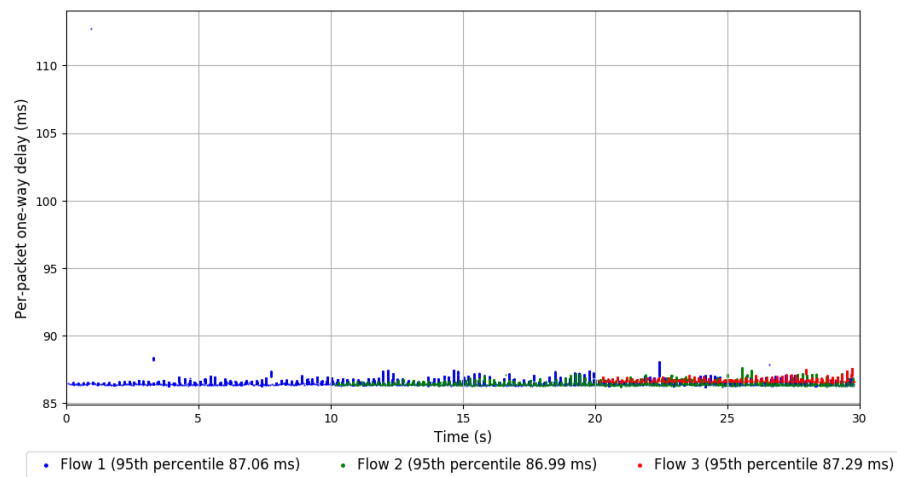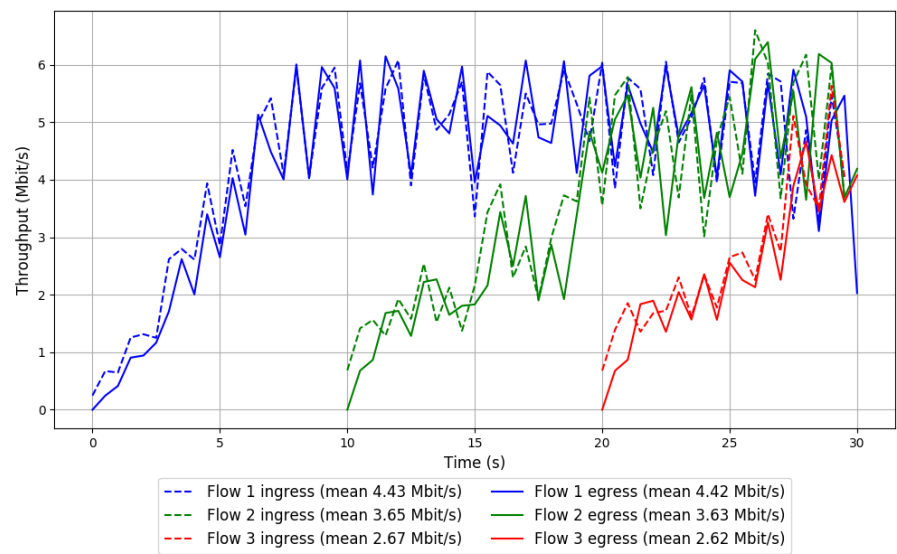
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2019-03-19 00:55:52
End at: 2019-03-19 00:56:22
Local clock offset: 0.213 ms
Remote clock offset: -0.031 ms


# Below is generated by plot.py at 2019-03-19 03:51:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 7.67 Mbit/s
95th percentile per-packet one-way delay: 87.057 ms
Loss rate: 1.27%
-- Flow 1:
Average throughput: 4.42 Mbit/s
95th percentile per-packet one-way delay: 87.057 ms
Loss rate: 0.77%
-- Flow 2:
Average throughput: 3.63 Mbit/s
95th percentile per-packet one-way delay: 86.993 ms
Loss rate: 1.26%
-- Flow 3:
Average throughput: 2.62 Mbit/s
95th percentile per-packet one-way delay: 87.294 ms
Loss rate: 3.79%
```
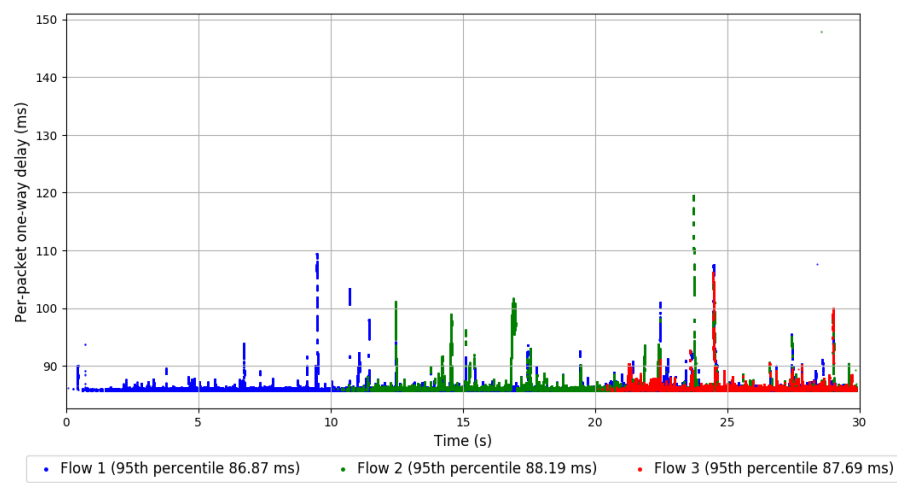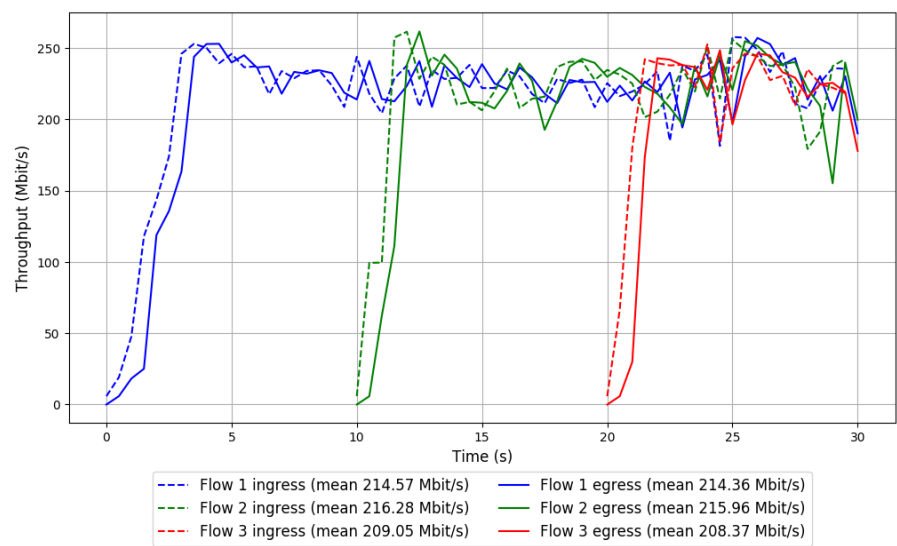
Run 5: Report of Sprout — Data Link

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

Start at: 2019-03-18 22:36:46
End at: 2019-03-18 22:37:16
Local clock offset: 1.163 ms
Remote clock offset: -0.052 ms


# Below is generated by plot.py at 2019-03-19 03:55:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 426.23 Mbit/s
95th percentile per-packet one-way delay: 87.368 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 214.36 Mbit/s
95th percentile per-packet one-way delay: 86.871 ms
Loss rate: 0.67%
-- Flow 2:
Average throughput: 215.96 Mbit/s
95th percentile per-packet one-way delay: 88.188 ms
Loss rate: 1.01%
-- Flow 3:
Average throughput: 208.37 Mbit/s
95th percentile per-packet one-way delay: 87.687 ms
Loss rate: 2.05%
```

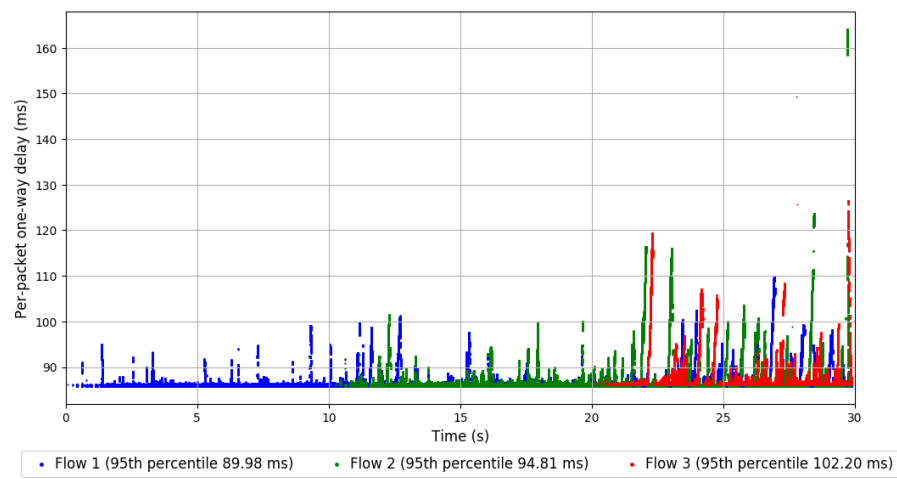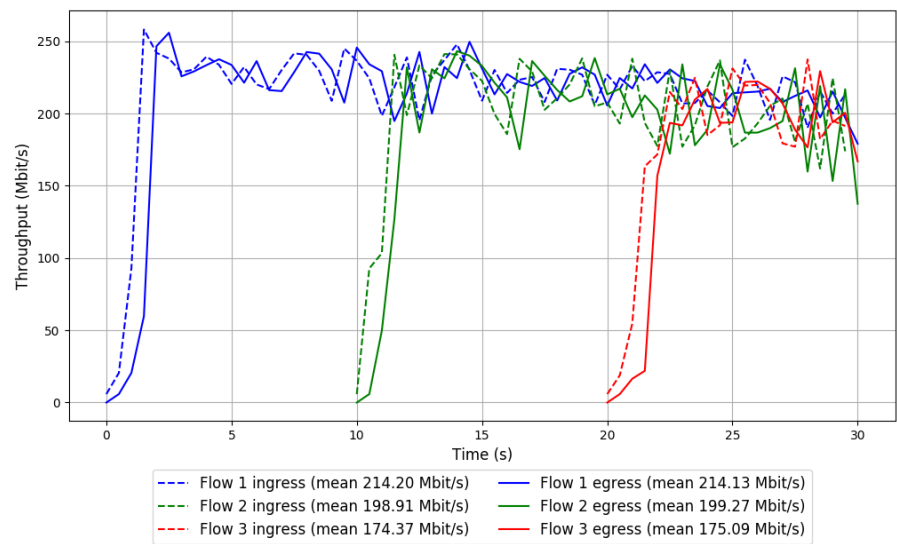Run 1: Report of TaoVA-100x — Data Link

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

Start at: 2019-03-18 23:13:50
End at: 2019-03-18 23:14:20
Local clock offset: -0.112 ms
Remote clock offset: -0.179 ms


# Below is generated by plot.py at 2019-03-19 03:55:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 403.46 Mbit/s
95th percentile per-packet one-way delay: 93.321 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 214.13 Mbit/s
95th percentile per-packet one-way delay: 89.978 ms
Loss rate: 0.61%
-- Flow 2:
Average throughput: 199.27 Mbit/s
95th percentile per-packet one-way delay: 94.814 ms
Loss rate: 1.05%
-- Flow 3:
Average throughput: 175.09 Mbit/s
95th percentile per-packet one-way delay: 102.197 ms
Loss rate: 1.43%
```

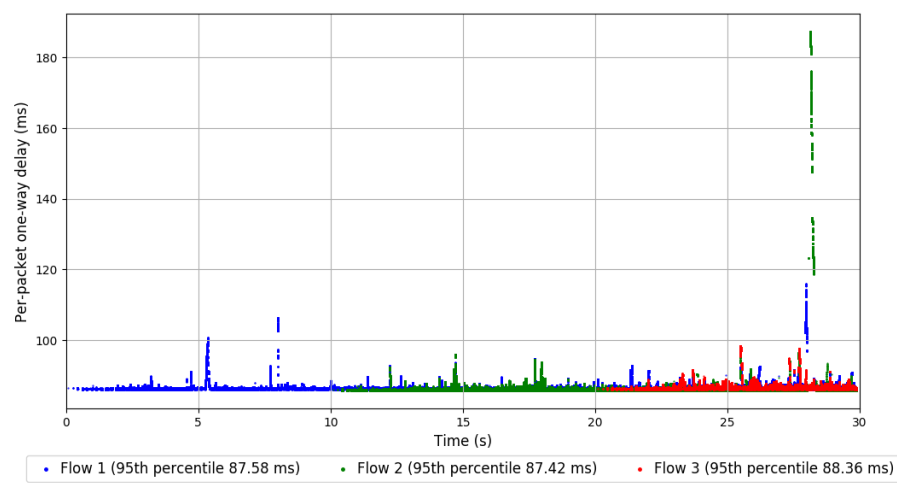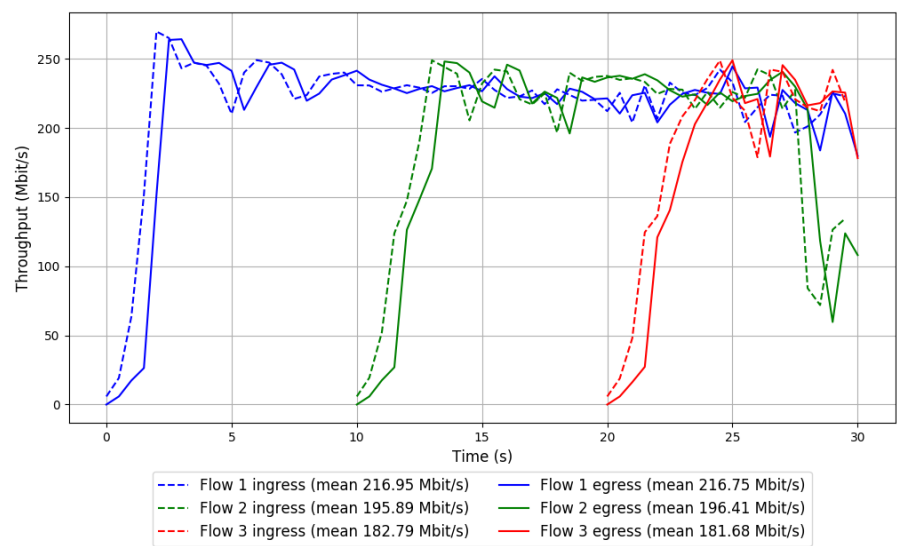# Run 2: Report of TaoVA-100x — Data Link

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

Start at: 2019-03-18 23:50:29
End at: 2019-03-18 23:50:59
Local clock offset: -0.214 ms
Remote clock offset: -0.175 ms


# Below is generated by plot.py at 2019-03-19 03:55:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 406.82 Mbit/s
95th percentile per-packet one-way delay: 87.745 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 216.75 Mbit/s
95th percentile per-packet one-way delay: 87.583 ms
Loss rate: 0.66%
-- Flow 2:
Average throughput: 196.41 Mbit/s
95th percentile per-packet one-way delay: 87.415 ms
Loss rate: 0.60%
-- Flow 3:
Average throughput: 181.68 Mbit/s
95th percentile per-packet one-way delay: 88.363 ms
Loss rate: 2.33%
```

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

- - - - Flow 1 ingress (mean 216.95 Mbit/s)   —— Flow 1 egress (mean 216.75 Mbit/s)
- - - - Flow 2 ingress (mean 195.89 Mbit/s)   —— Flow 2 egress (mean 196.41 Mbit/s)
- - - - Flow 3 ingress (mean 182.79 Mbit/s)   —— Flow 3 egress (mean 181.68 Mbit/s)

• Flow 1 (95th percentile 87.58 ms)   • Flow 2 (95th percentile 87.42 ms)   • Flow 3 (95th percentile 88.36 ms)

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

Start at: 2019-03-19 00:27:39
End at: 2019-03-19 00:28:09
Local clock offset: -0.303 ms
Remote clock offset: 0.026 ms


# Below is generated by plot.py at 2019-03-19 03:55:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 415.70 Mbit/s
95th percentile per-packet one-way delay: 87.786 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 210.69 Mbit/s
95th percentile per-packet one-way delay: 86.758 ms
Loss rate: 0.57%
-- Flow 2:
Average throughput: 211.99 Mbit/s
95th percentile per-packet one-way delay: 87.825 ms
Loss rate: 0.88%
-- Flow 3:
Average throughput: 195.82 Mbit/s
95th percentile per-packet one-way delay: 91.123 ms
Loss rate: 1.94%
```
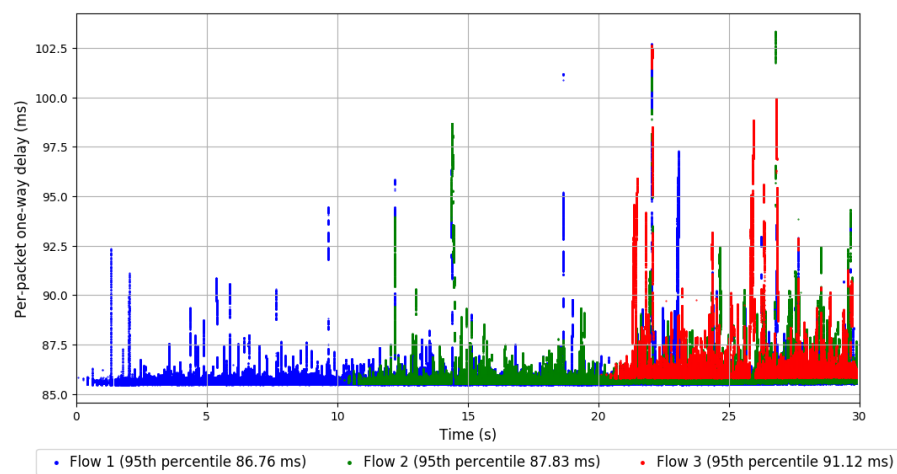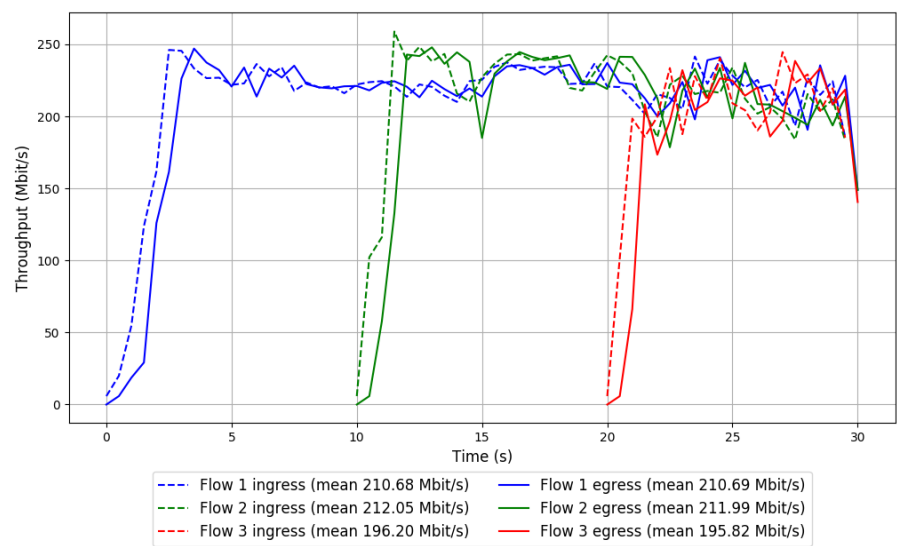
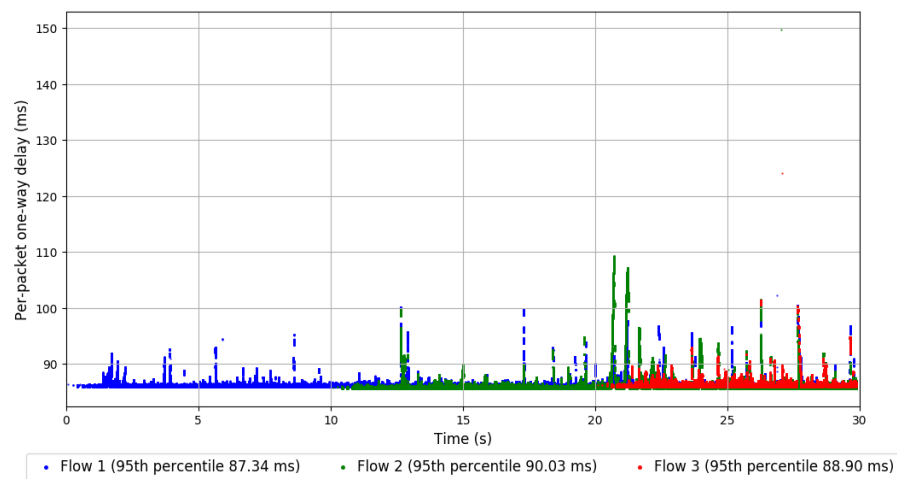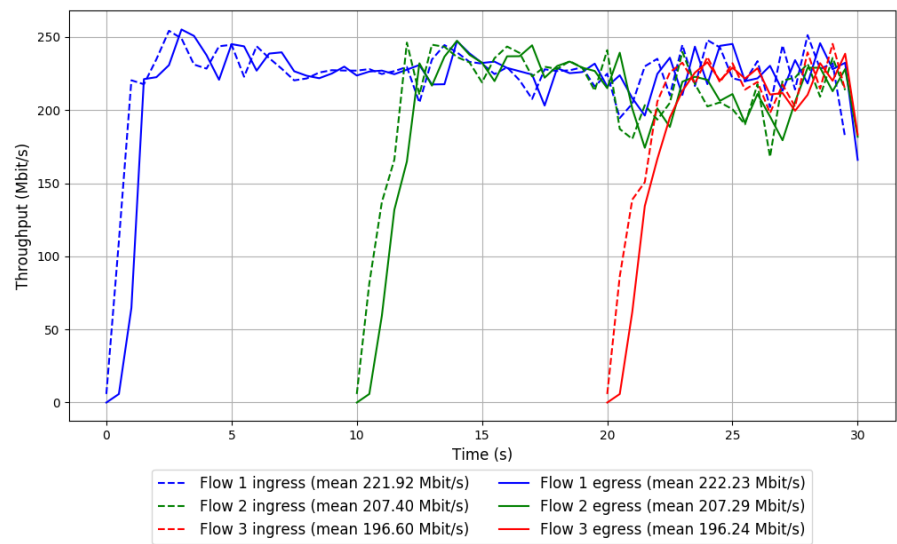Run 4: Report of TaoVA-100x — Data Link

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

Start at: 2019-03-19 01:05:04
End at: 2019-03-19 01:05:34
Local clock offset: -0.209 ms
Remote clock offset: -0.012 ms


# Below is generated by plot.py at 2019-03-19 03:57:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 424.35 Mbit/s
95th percentile per-packet one-way delay: 88.311 ms
Loss rate: 0.82%
-- Flow 1:
Average throughput: 222.23 Mbit/s
95th percentile per-packet one-way delay: 87.345 ms
Loss rate: 0.44%
-- Flow 2:
Average throughput: 207.29 Mbit/s
95th percentile per-packet one-way delay: 90.029 ms
Loss rate: 0.92%
-- Flow 3:
Average throughput: 196.24 Mbit/s
95th percentile per-packet one-way delay: 88.900 ms
Loss rate: 1.91%
```
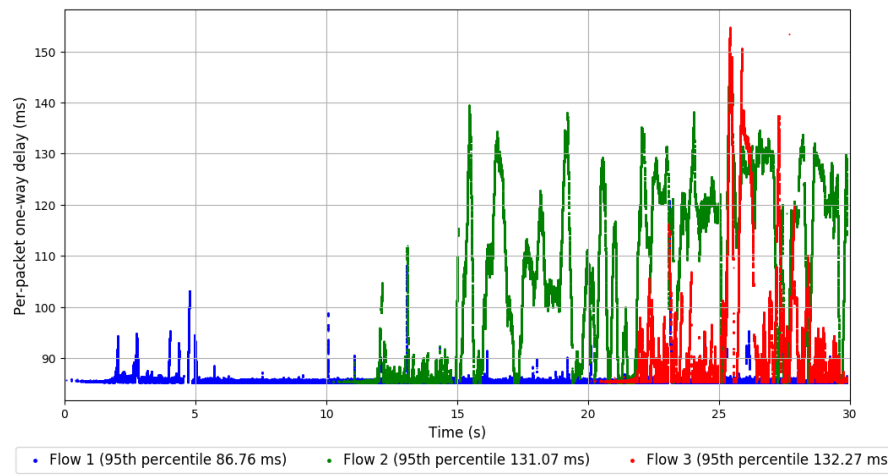
Run 5: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 221.92 Mbit/s)   Flow 1 egress (mean 222.23 Mbit/s)
Flow 2 ingress (mean 207.40 Mbit/s)   Flow 2 egress (mean 207.29 Mbit/s)
Flow 3 ingress (mean 196.60 Mbit/s)   Flow 3 egress (mean 196.24 Mbit/s)

Flow 1 (95th percentile 87.34 ms)   Flow 2 (95th percentile 90.03 ms)   Flow 3 (95th percentile 88.90 ms)

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```
Run 1: Statistics of TCP Vegas

Start at: 2019-03-18 22:20:03
End at: 2019-03-18 22:20:33
Local clock offset: 0.445 ms
Remote clock offset: 0.838 ms


# Below is generated by plot.py at 2019-03-19 03:57:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 662.45 Mbit/s
95th percentile per-packet one-way delay: 129.263 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 265.81 Mbit/s
95th percentile per-packet one-way delay: 86.762 ms
Loss rate: 0.57%
-- Flow 2:
Average throughput: 415.60 Mbit/s
95th percentile per-packet one-way delay: 131.072 ms
Loss rate: 1.03%
-- Flow 3:
Average throughput: 367.51 Mbit/s
95th percentile per-packet one-way delay: 132.272 ms
Loss rate: 1.28%
```
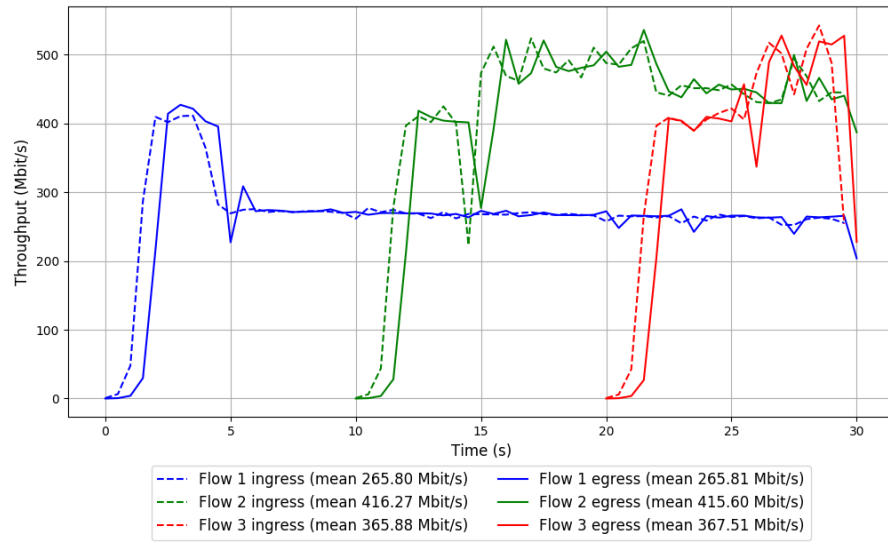
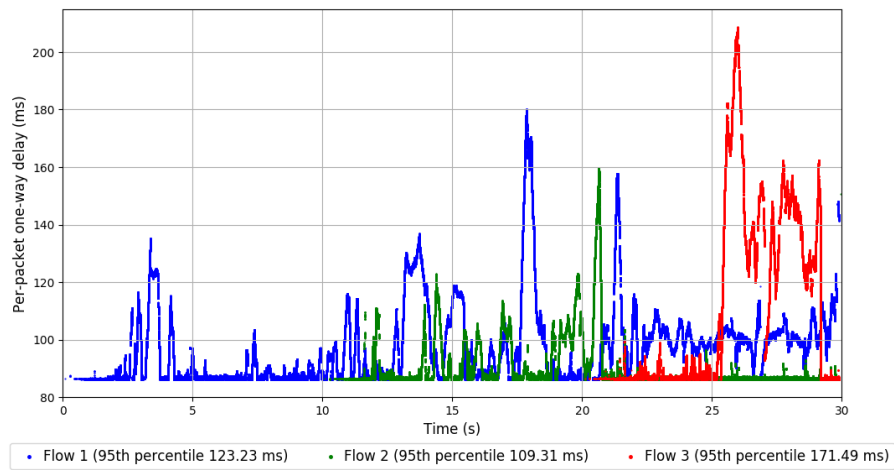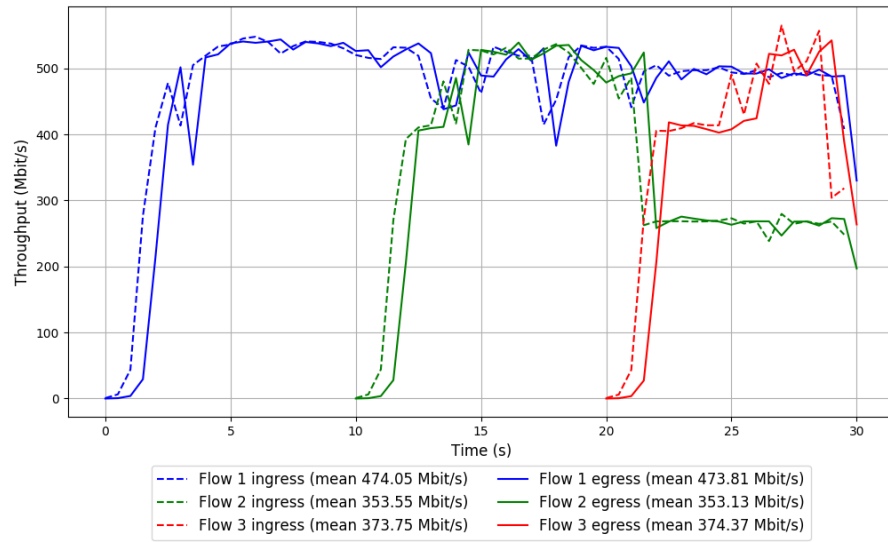Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2019-03-18 22:57:25
End at: 2019-03-18 22:57:55
Local clock offset: 1.147 ms
Remote clock offset: -0.226 ms


# Below is generated by plot.py at 2019-03-19 04:06:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 830.44 Mbit/s
95th percentile per-packet one-way delay: 141.653 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 473.81 Mbit/s
95th percentile per-packet one-way delay: 123.228 ms
Loss rate: 0.62%
-- Flow 2:
Average throughput: 353.13 Mbit/s
95th percentile per-packet one-way delay: 109.306 ms
Loss rate: 0.66%
-- Flow 3:
Average throughput: 374.37 Mbit/s
95th percentile per-packet one-way delay: 171.486 ms
Loss rate: 1.57%
```

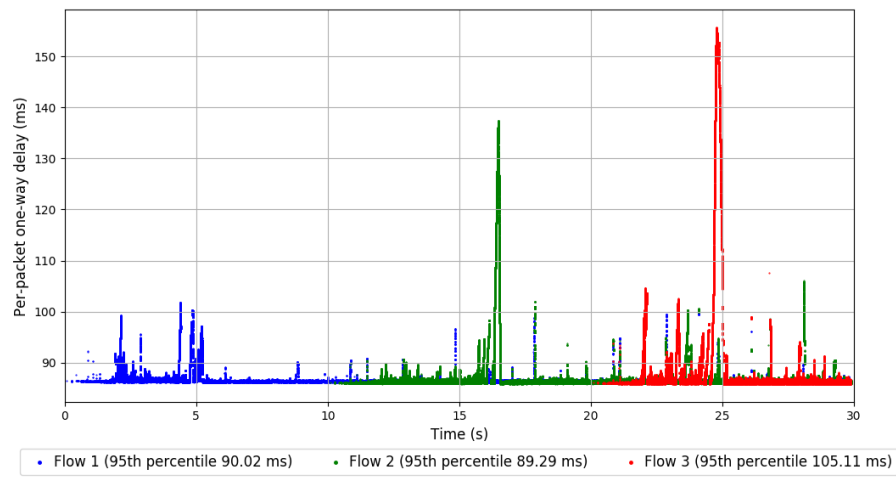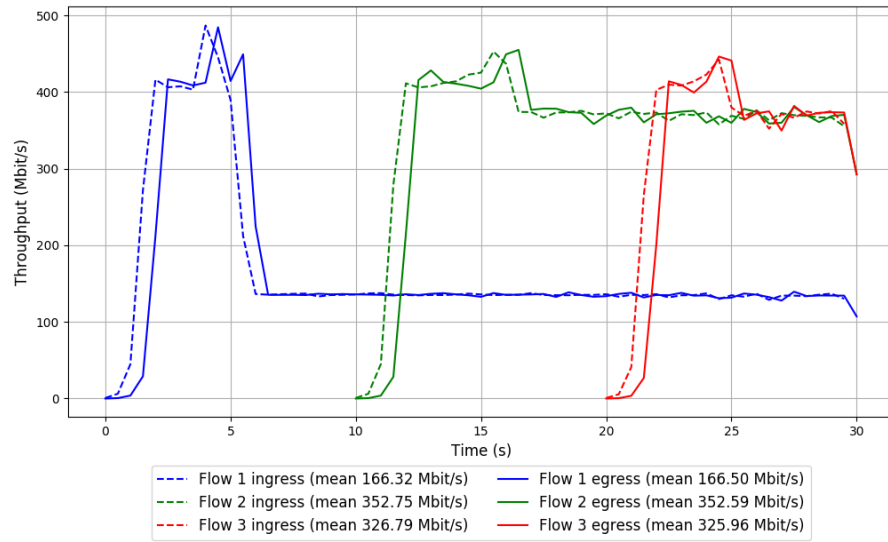Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2019-03-18 23:34:22
End at: 2019-03-18 23:34:52
Local clock offset: -0.164 ms
Remote clock offset: -0.148 ms


# Below is generated by plot.py at 2019-03-19 04:06:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 507.67 Mbit/s
95th percentile per-packet one-way delay: 92.189 ms
Loss rate: 0.99%
-- Flow 1:
Average throughput: 166.50 Mbit/s
95th percentile per-packet one-way delay: 90.024 ms
Loss rate: 0.47%
-- Flow 2:
Average throughput: 352.59 Mbit/s
95th percentile per-packet one-way delay: 89.293 ms
Loss rate: 0.91%
-- Flow 3:
Average throughput: 325.96 Mbit/s
95th percentile per-packet one-way delay: 105.112 ms
Loss rate: 1.97%
```

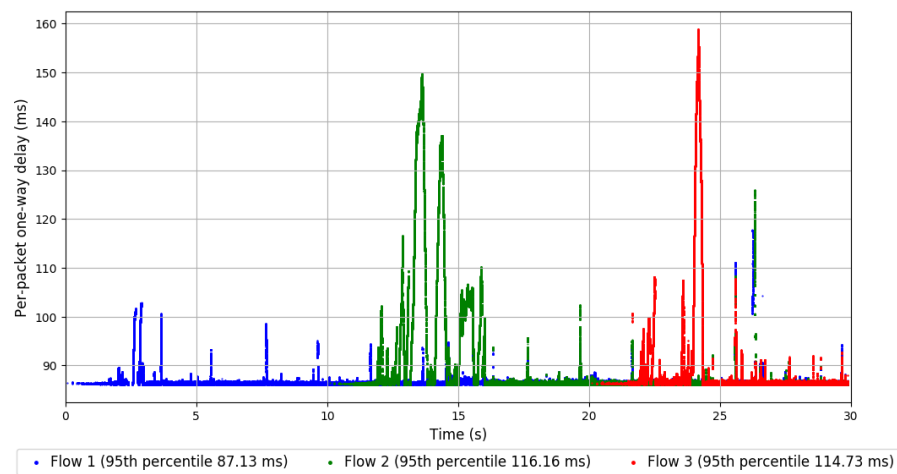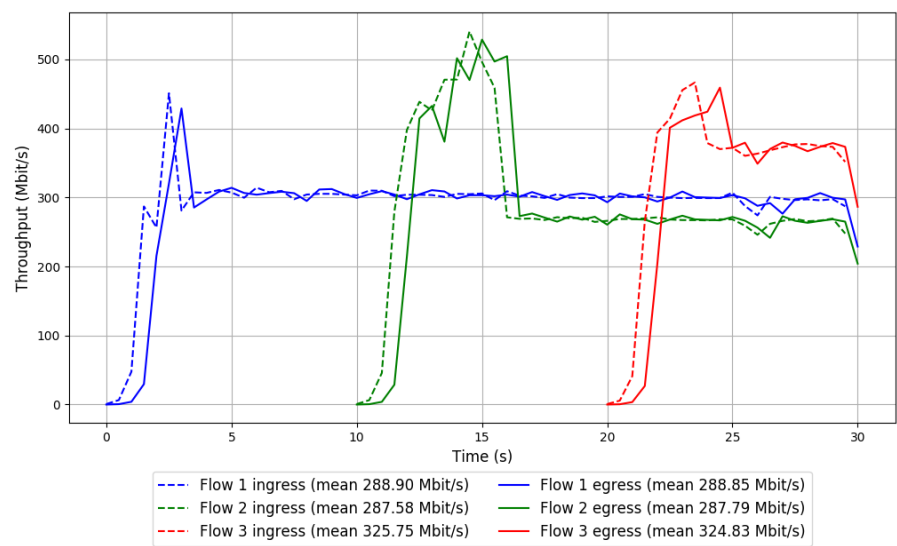Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2019-03-19 00:11:28
End at: 2019-03-19 00:11:58
Local clock offset: 0.286 ms
Remote clock offset: -0.053 ms


# Below is generated by plot.py at 2019-03-19 04:06:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 586.57 Mbit/s
95th percentile per-packet one-way delay: 102.222 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 288.85 Mbit/s
95th percentile per-packet one-way delay: 87.132 ms
Loss rate: 0.59%
-- Flow 2:
Average throughput: 287.79 Mbit/s
95th percentile per-packet one-way delay: 116.155 ms
Loss rate: 0.80%
-- Flow 3:
Average throughput: 324.83 Mbit/s
95th percentile per-packet one-way delay: 114.734 ms
Loss rate: 2.00%
```

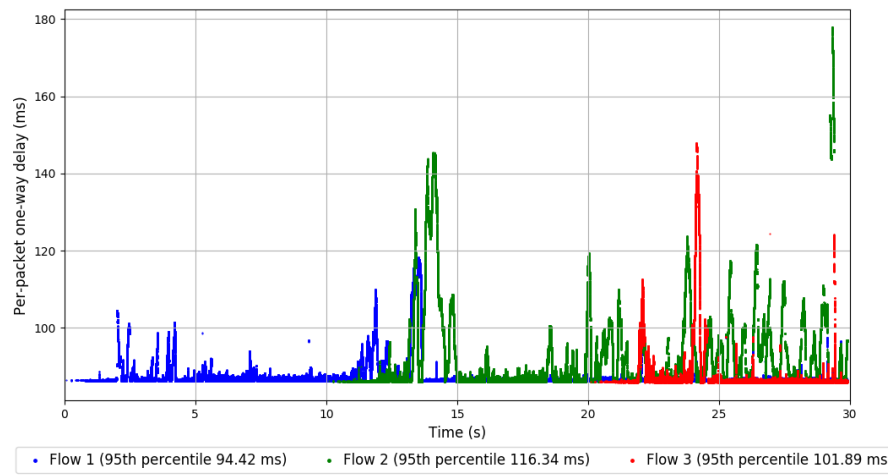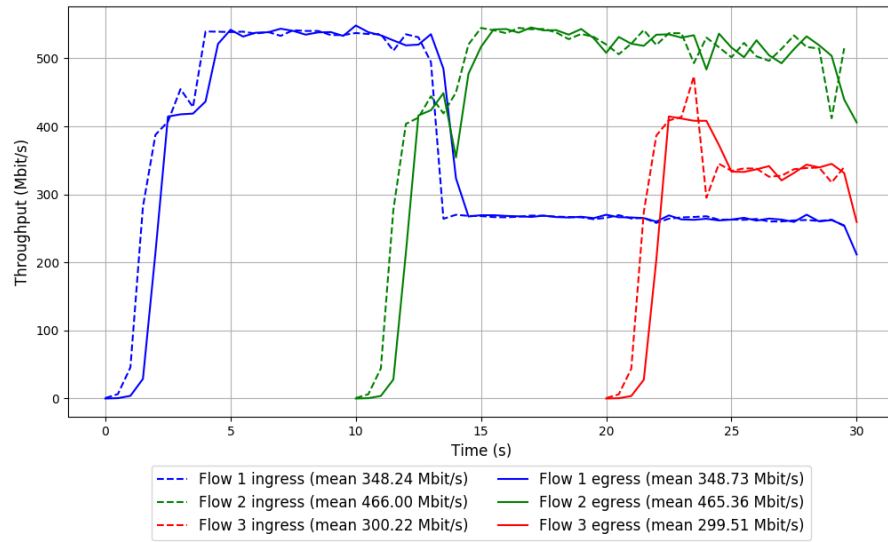# Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2019-03-19 00:48:12
End at: 2019-03-19 00:48:42
Local clock offset: -0.138 ms
Remote clock offset: -0.051 ms


# Below is generated by plot.py at 2019-03-19 04:09:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 756.25 Mbit/s
95th percentile per-packet one-way delay: 106.863 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 348.73 Mbit/s
95th percentile per-packet one-way delay: 94.420 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 465.36 Mbit/s
95th percentile per-packet one-way delay: 116.339 ms
Loss rate: 1.00%
-- Flow 3:
Average throughput: 299.51 Mbit/s
95th percentile per-packet one-way delay: 101.894 ms
Loss rate: 1.96%
```

Run 5: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 348.24 Mbit/s)   Flow 1 egress (mean 348.73 Mbit/s)
Flow 2 ingress (mean 466.00 Mbit/s)   Flow 2 egress (mean 465.36 Mbit/s)
Flow 3 ingress (mean 300.22 Mbit/s)   Flow 3 egress (mean 299.51 Mbit/s)

Flow 1 (95th percentile 94.42 ms)   Flow 2 (95th percentile 116.34 ms)   Flow 3 (95th percentile 101.89 ms)

```
Run 1: Statistics of Verus

Start at: 2019-03-18 22:21:56
End at: 2019-03-18 22:22:26
Local clock offset: 1.153 ms
Remote clock offset: 0.648 ms


# Below is generated by plot.py at 2019-03-19 04:09:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 256.78 Mbit/s
95th percentile per-packet one-way delay: 233.434 ms
Loss rate: 2.29%
-- Flow 1:
Average throughput: 155.18 Mbit/s
95th percentile per-packet one-way delay: 243.641 ms
Loss rate: 3.46%
-- Flow 2:
Average throughput: 130.80 Mbit/s
95th percentile per-packet one-way delay: 188.983 ms
Loss rate: 0.37%
-- Flow 3:
Average throughput: 45.84 Mbit/s
95th percentile per-packet one-way delay: 160.279 ms
Loss rate: 0.91%
```
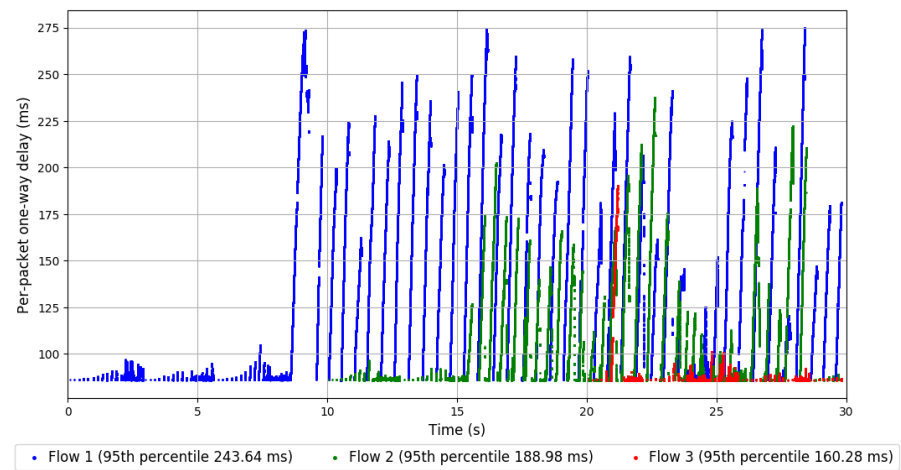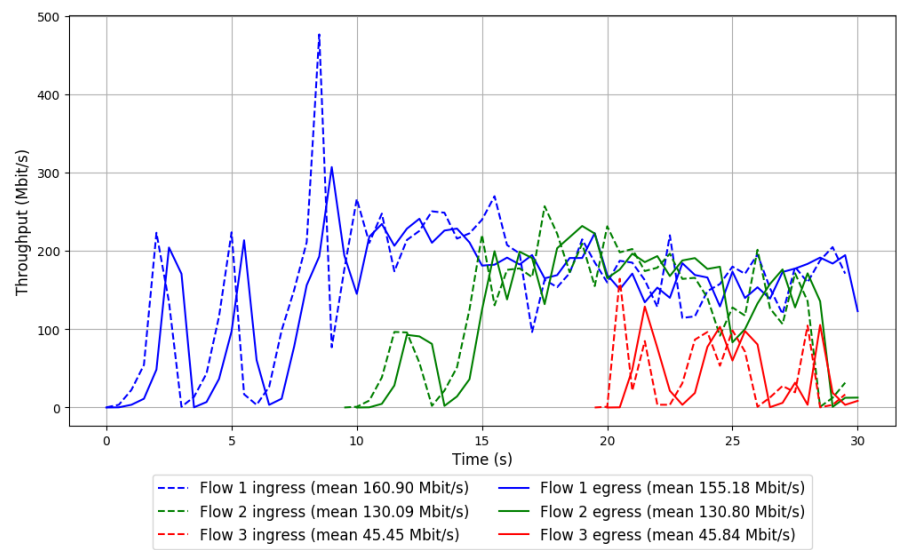
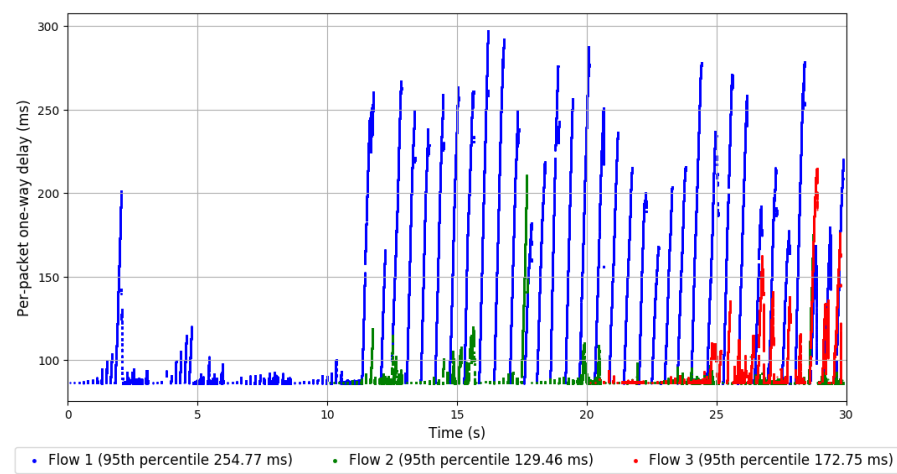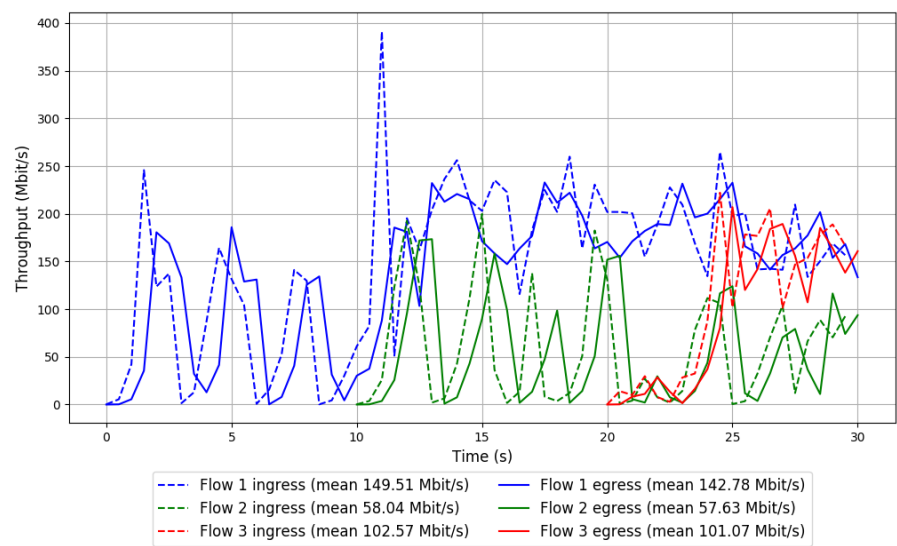Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2019-03-18 22:59:26
End at: 2019-03-18 22:59:56
Local clock offset: 0.836 ms
Remote clock offset: -0.198 ms


# Below is generated by plot.py at 2019-03-19 04:09:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 213.79 Mbit/s
95th percentile per-packet one-way delay: 245.750 ms
Loss rate: 3.94%
-- Flow 1:
Average throughput: 142.78 Mbit/s
95th percentile per-packet one-way delay: 254.774 ms
Loss rate: 4.67%
-- Flow 2:
Average throughput: 57.63 Mbit/s
95th percentile per-packet one-way delay: 129.463 ms
Loss rate: 0.99%
-- Flow 3:
Average throughput: 101.07 Mbit/s
95th percentile per-packet one-way delay: 172.746 ms
Loss rate: 4.06%
```
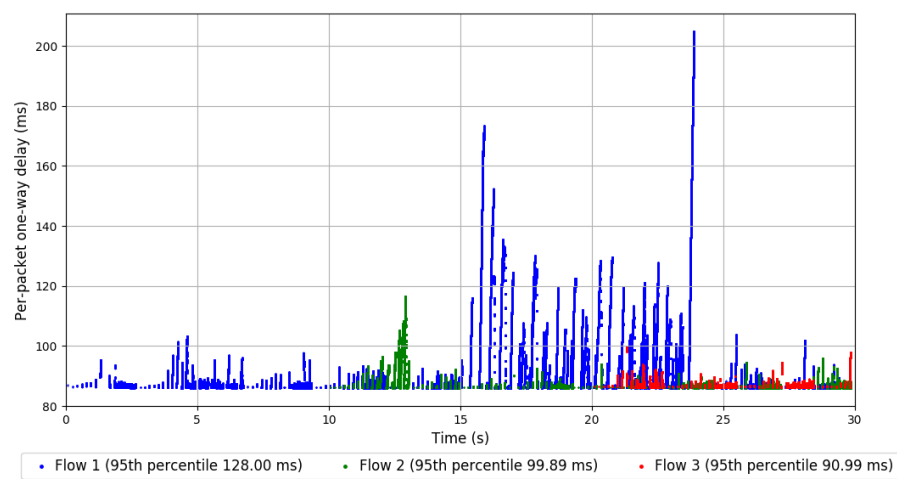
Run 2: Report of Verus — Data Link

Flow 1 ingress (mean 149.51 Mbit/s)   Flow 1 egress (mean 142.78 Mbit/s)
Flow 2 ingress (mean 58.04 Mbit/s)   Flow 2 egress (mean 57.63 Mbit/s)
Flow 3 ingress (mean 102.57 Mbit/s)   Flow 3 egress (mean 101.07 Mbit/s)

Flow 1 (95th percentile 254.77 ms)   Flow 2 (95th percentile 129.46 ms)   Flow 3 (95th percentile 172.75 ms)
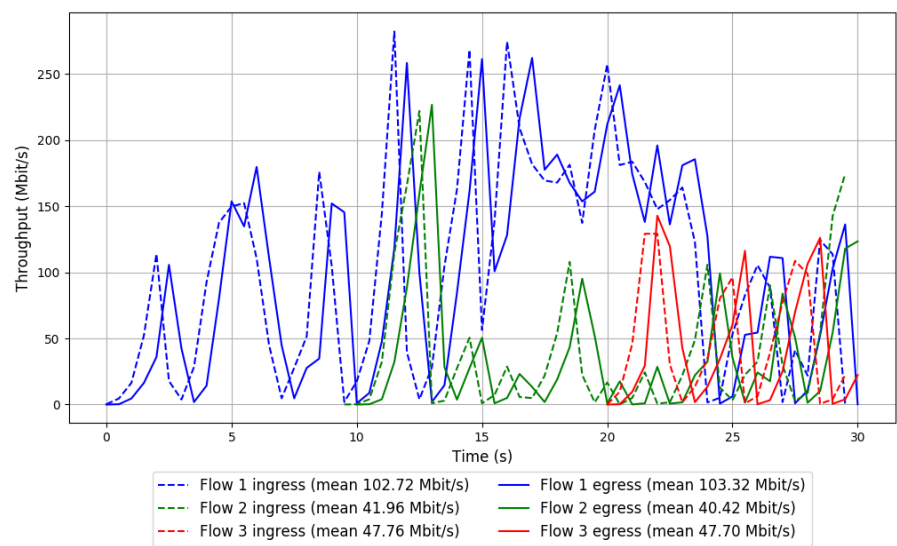
```
Run 3: Statistics of Verus

Start at: 2019-03-18 23:36:05
End at: 2019-03-18 23:36:35
Local clock offset: -0.014 ms
Remote clock offset: -0.135 ms


# Below is generated by plot.py at 2019-03-19 04:09:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 145.49 Mbit/s
95th percentile per-packet one-way delay: 124.057 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 103.32 Mbit/s
95th percentile per-packet one-way delay: 128.000 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 40.42 Mbit/s
95th percentile per-packet one-way delay: 99.891 ms
Loss rate: 4.51%
-- Flow 3:
Average throughput: 47.70 Mbit/s
95th percentile per-packet one-way delay: 90.988 ms
Loss rate: 0.00%
```
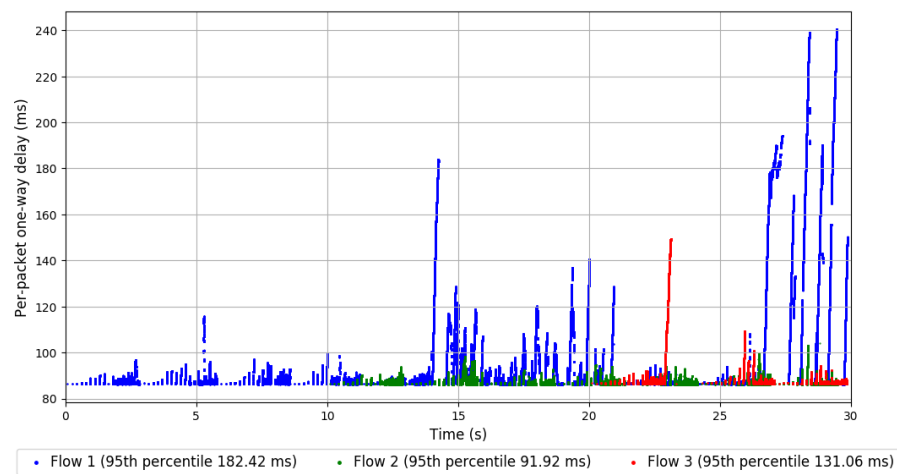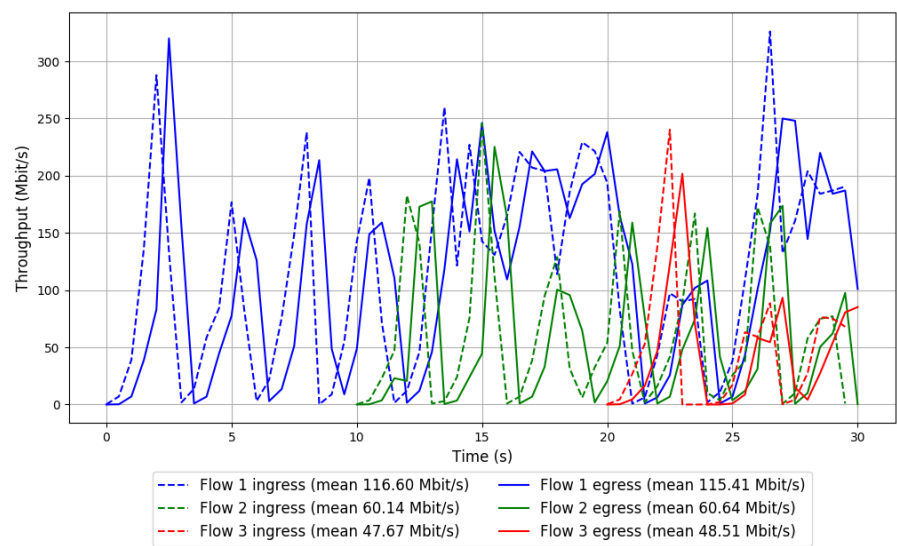
Run 3: Report of Verus — Data Link

Flow 1 ingress (mean 102.72 Mbit/s)   Flow 1 egress (mean 103.32 Mbit/s)
Flow 2 ingress (mean 41.96 Mbit/s)   Flow 2 egress (mean 40.42 Mbit/s)
Flow 3 ingress (mean 47.76 Mbit/s)   Flow 3 egress (mean 47.70 Mbit/s)

Flow 1 (95th percentile 128.00 ms)   Flow 2 (95th percentile 99.89 ms)   Flow 3 (95th percentile 90.99 ms)

```
Run 4: Statistics of Verus

Start at: 2019-03-19 00:13:16
End at: 2019-03-19 00:13:46
Local clock offset: 0.307 ms
Remote clock offset: -0.064 ms


# Below is generated by plot.py at 2019-03-19 04:09:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 171.48 Mbit/s
95th percentile per-packet one-way delay: 177.492 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 115.41 Mbit/s
95th percentile per-packet one-way delay: 182.423 ms
Loss rate: 1.28%
-- Flow 2:
Average throughput: 60.64 Mbit/s
95th percentile per-packet one-way delay: 91.921 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 48.51 Mbit/s
95th percentile per-packet one-way delay: 131.055 ms
Loss rate: 0.01%
```

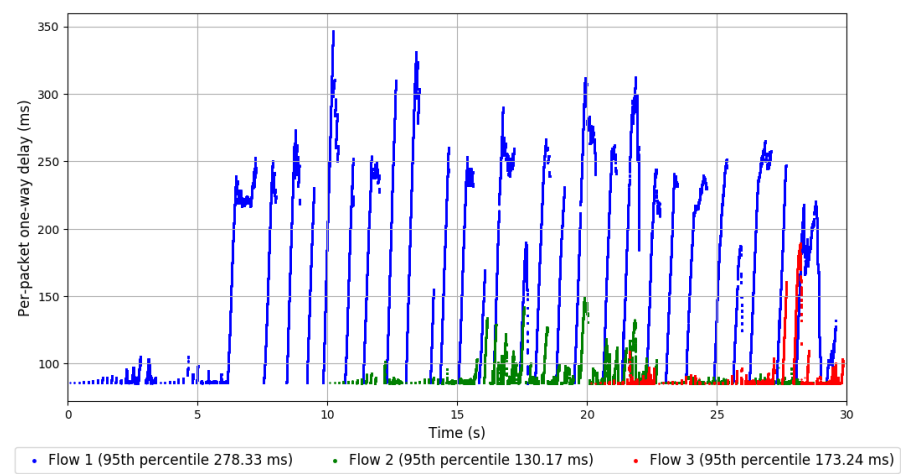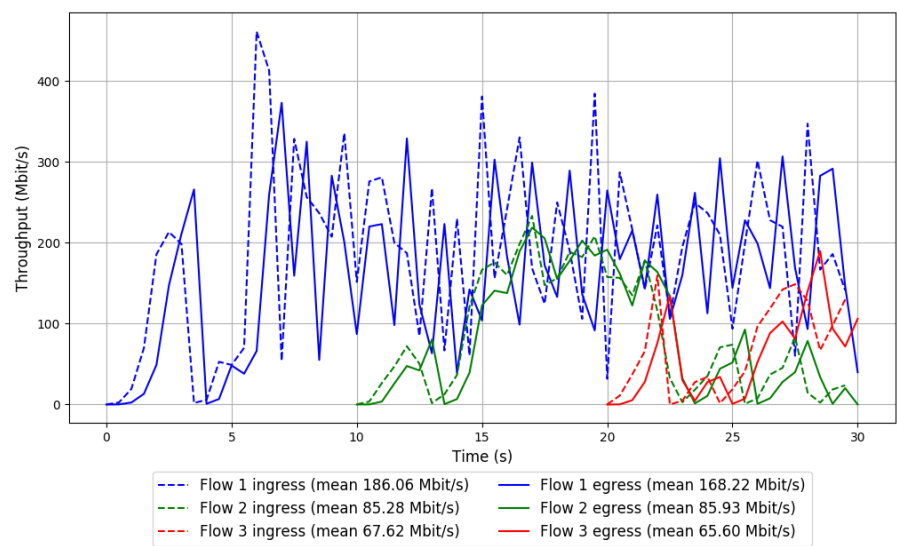Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2019-03-19 00:50:09
End at: 2019-03-19 00:50:39
Local clock offset: -0.335 ms
Remote clock offset: -0.021 ms


# Below is generated by plot.py at 2019-03-19 04:10:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 244.67 Mbit/s
95th percentile per-packet one-way delay: 264.817 ms
Loss rate: 8.23%
-- Flow 1:
Average throughput: 168.22 Mbit/s
95th percentile per-packet one-way delay: 278.327 ms
Loss rate: 11.00%
-- Flow 2:
Average throughput: 85.93 Mbit/s
95th percentile per-packet one-way delay: 130.170 ms
Loss rate: 0.70%
-- Flow 3:
Average throughput: 65.60 Mbit/s
95th percentile per-packet one-way delay: 173.244 ms
Loss rate: 4.22%
```

Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2019-03-18 22:33:02
End at: 2019-03-18 22:33:32
Local clock offset: 1.297 ms
Remote clock offset: 0.055 ms


# Below is generated by plot.py at 2019-03-19 04:10:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 487.05 Mbit/s
95th percentile per-packet one-way delay: 89.255 ms
Loss rate: 0.94%
-- Flow 1:
Average throughput: 304.13 Mbit/s
95th percentile per-packet one-way delay: 91.378 ms
Loss rate: 0.61%
-- Flow 2:
Average throughput: 199.69 Mbit/s
95th percentile per-packet one-way delay: 87.919 ms
Loss rate: 1.10%
-- Flow 3:
Average throughput: 154.74 Mbit/s
95th percentile per-packet one-way delay: 87.480 ms
Loss rate: 2.48%
```
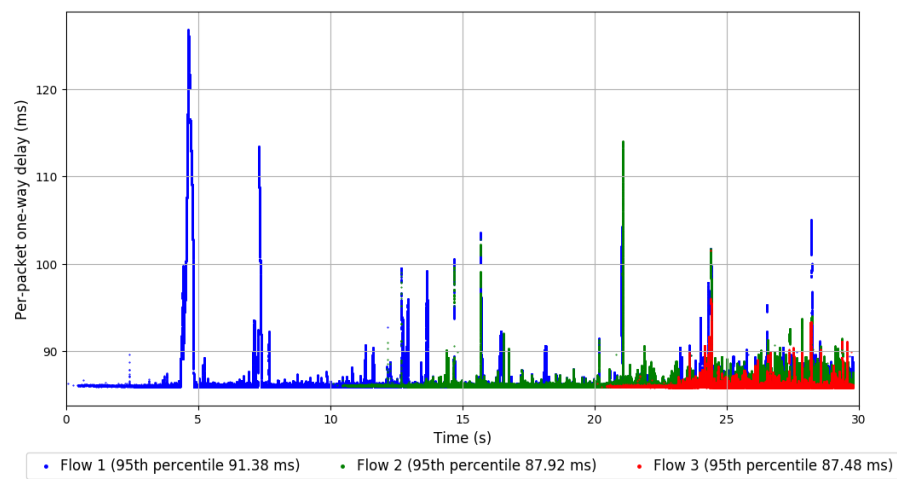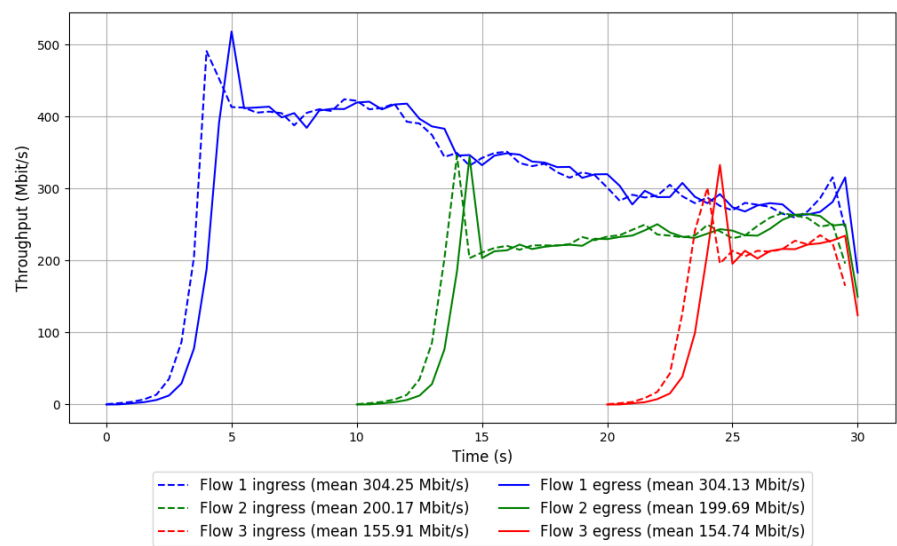
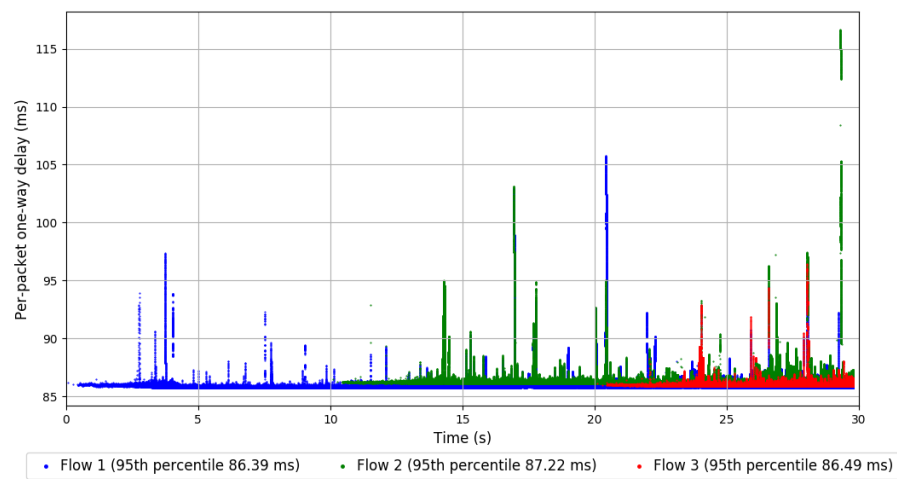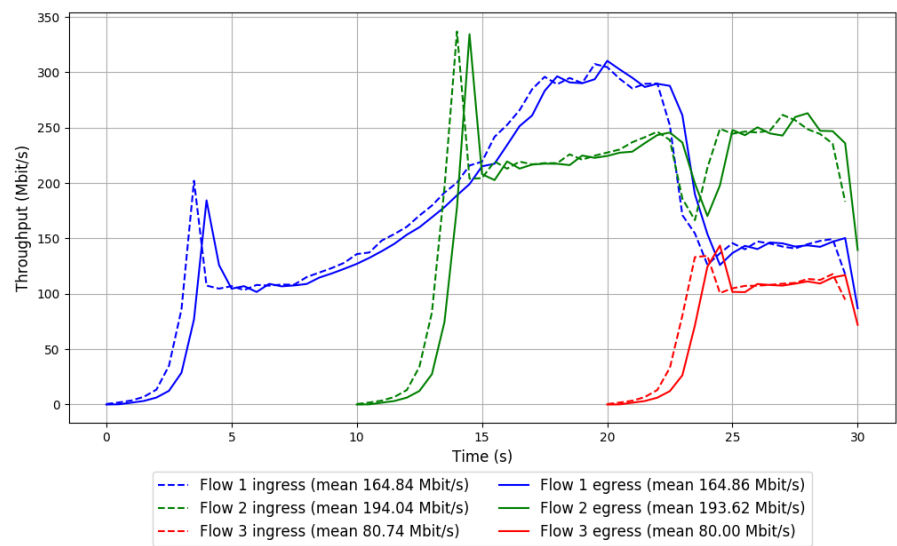# Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2019-03-18 23:10:19
End at: 2019-03-18 23:10:49
Local clock offset: -0.026 ms
Remote clock offset: -0.151 ms


# Below is generated by plot.py at 2019-03-19 04:10:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 319.31 Mbit/s
95th percentile per-packet one-way delay: 86.720 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 164.86 Mbit/s
95th percentile per-packet one-way delay: 86.385 ms
Loss rate: 0.57%
-- Flow 2:
Average throughput: 193.62 Mbit/s
95th percentile per-packet one-way delay: 87.220 ms
Loss rate: 1.09%
-- Flow 3:
Average throughput: 80.00 Mbit/s
95th percentile per-packet one-way delay: 86.489 ms
Loss rate: 2.65%
```

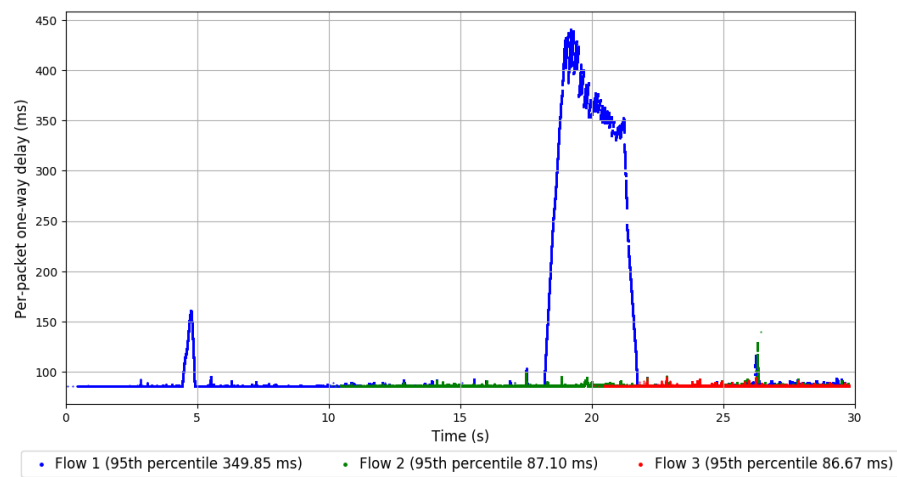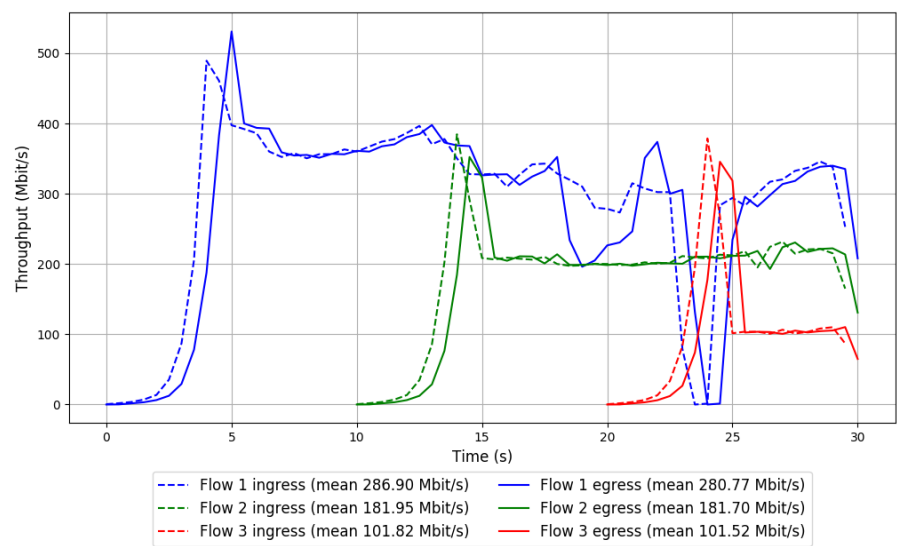## Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2019-03-18 23:46:54
End at: 2019-03-18 23:47:24
Local clock offset: -0.477 ms
Remote clock offset: -0.192 ms


# Below is generated by plot.py at 2019-03-19 04:11:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 434.37 Mbit/s
95th percentile per-packet one-way delay: 250.314 ms
Loss rate: 2.19%
-- Flow 1:
Average throughput: 280.77 Mbit/s
95th percentile per-packet one-way delay: 349.852 ms
Loss rate: 2.70%
-- Flow 2:
Average throughput: 181.70 Mbit/s
95th percentile per-packet one-way delay: 87.096 ms
Loss rate: 1.01%
-- Flow 3:
Average throughput: 101.52 Mbit/s
95th percentile per-packet one-way delay: 86.674 ms
Loss rate: 2.04%
```

Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2019-03-19 00:24:06
End at: 2019-03-19 00:24:36
Local clock offset: -0.208 ms
Remote clock offset: 0.02 ms


# Below is generated by plot.py at 2019-03-19 04:11:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 318.67 Mbit/s
95th percentile per-packet one-way delay: 89.137 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 184.84 Mbit/s
95th percentile per-packet one-way delay: 90.094 ms
Loss rate: 0.85%
-- Flow 2:
Average throughput: 192.85 Mbit/s
95th percentile per-packet one-way delay: 87.720 ms
Loss rate: 0.98%
-- Flow 3:
Average throughput: 18.31 Mbit/s
95th percentile per-packet one-way delay: 85.929 ms
Loss rate: 5.68%
```
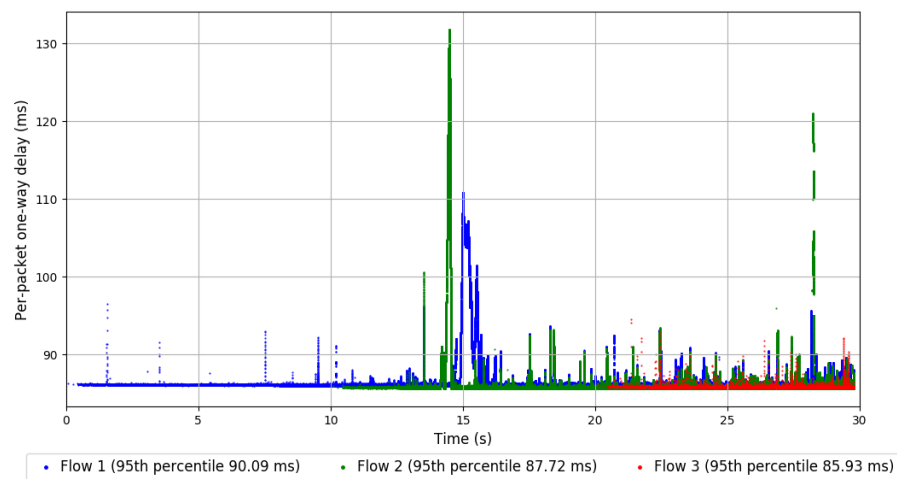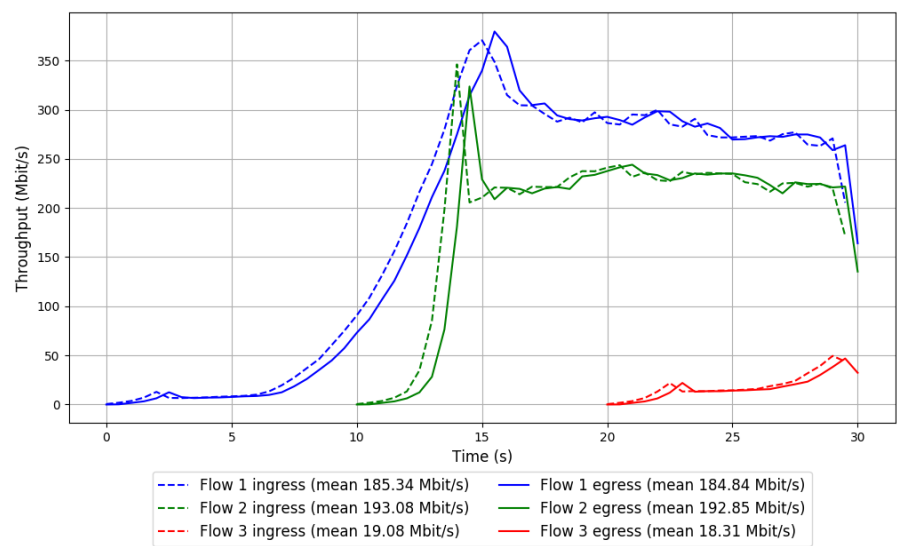
Run 4: Report of PCC-Vivace — Data Link

- - - - Flow 1 ingress (mean 185.34 Mbit/s)   —— Flow 1 egress (mean 184.84 Mbit/s)
- - - - Flow 2 ingress (mean 193.08 Mbit/s)   —— Flow 2 egress (mean 192.85 Mbit/s)
- - - - Flow 3 ingress (mean 19.08 Mbit/s)   —— Flow 3 egress (mean 18.31 Mbit/s)

- Flow 1 (95th percentile 90.09 ms)   • Flow 2 (95th percentile 87.72 ms)   • Flow 3 (95th percentile 85.93 ms)
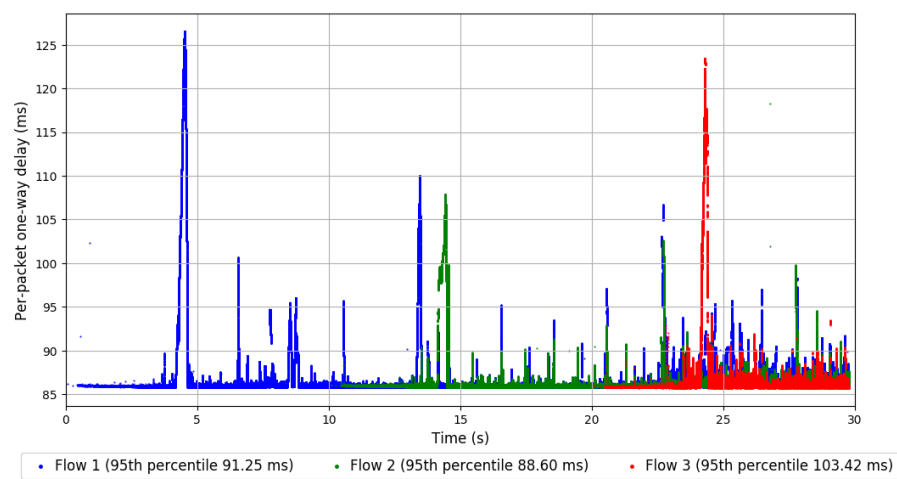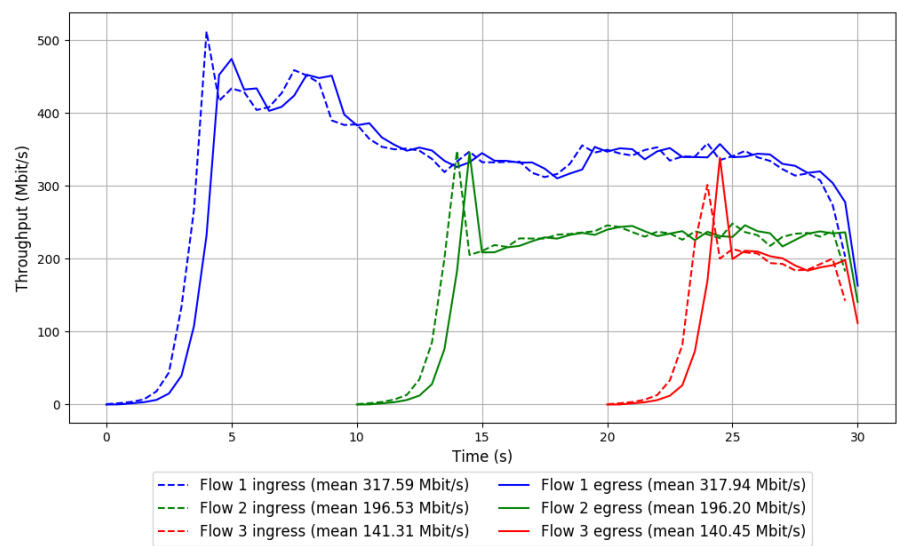
```
Run 5: Statistics of PCC-Vivace

Start at: 2019-03-19 01:01:19
End at: 2019-03-19 01:01:49
Local clock offset: -0.149 ms
Remote clock offset: -0.029 ms


# Below is generated by plot.py at 2019-03-19 04:11:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 493.78 Mbit/s
95th percentile per-packet one-way delay: 91.154 ms
Loss rate: 0.80%
-- Flow 1:
Average throughput: 317.94 Mbit/s
95th percentile per-packet one-way delay: 91.254 ms
Loss rate: 0.47%
-- Flow 2:
Average throughput: 196.20 Mbit/s
95th percentile per-packet one-way delay: 88.598 ms
Loss rate: 1.04%
-- Flow 3:
Average throughput: 140.45 Mbit/s
95th percentile per-packet one-way delay: 103.416 ms
Loss rate: 2.35%
```

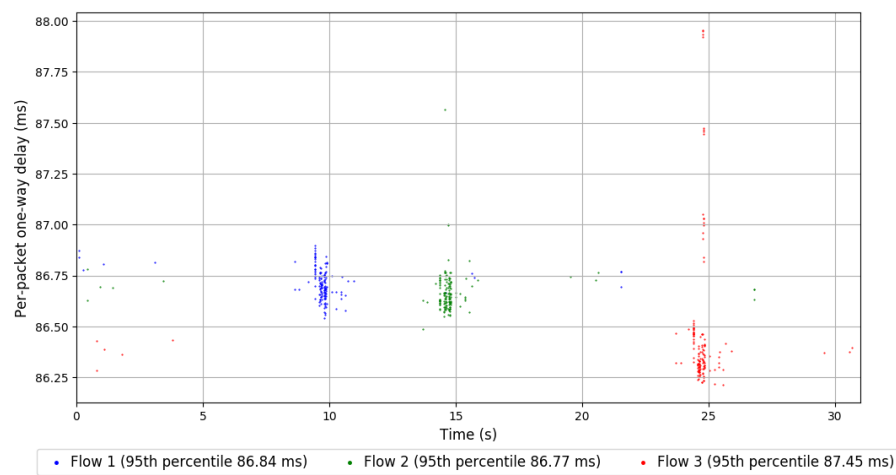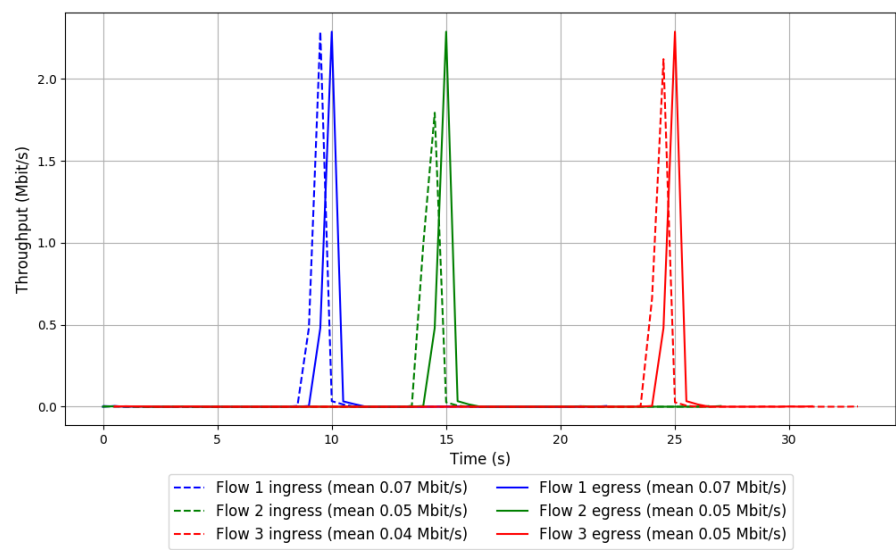Run 5: Report of PCC-Vivace — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2019-03-18 22:40:01
End at: 2019-03-18 22:40:31
Local clock offset: 1.544 ms
Remote clock offset: -0.105 ms


# Below is generated by plot.py at 2019-03-19 04:11:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 86.859 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 86.843 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.766 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 87.447 ms
Loss rate: 0.05%
```

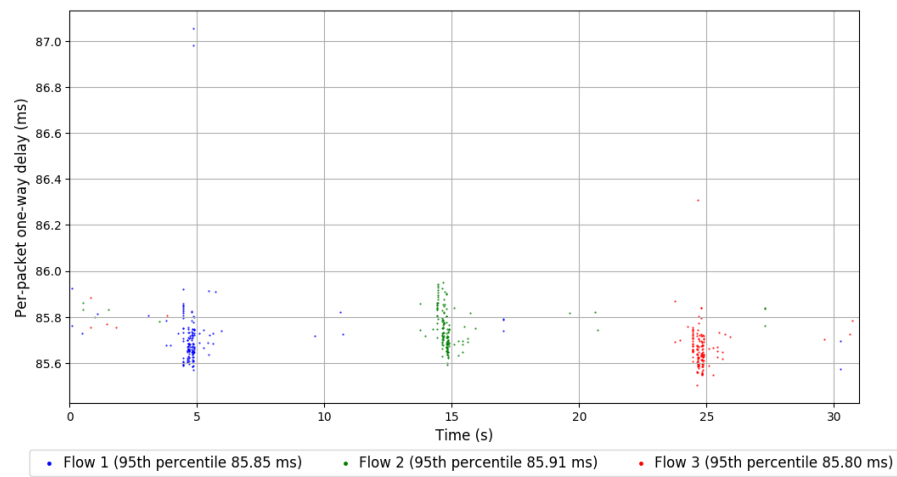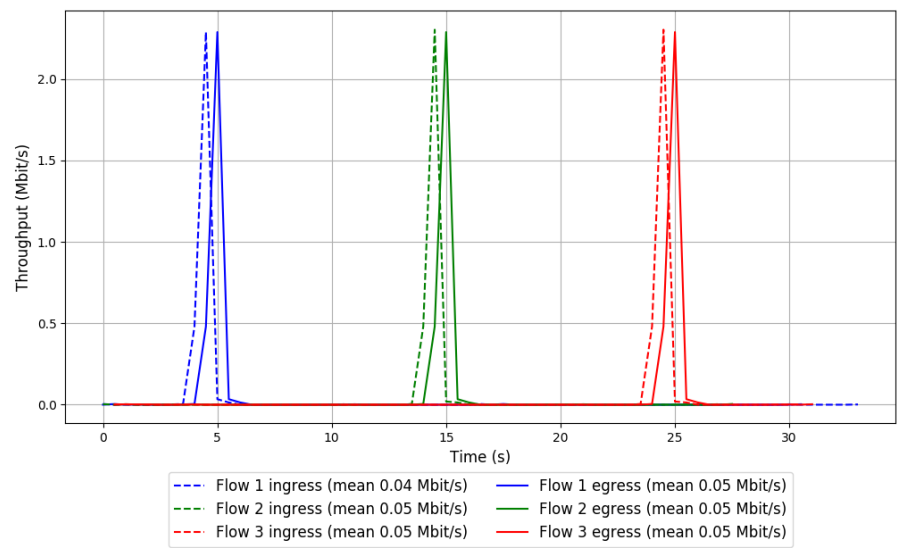Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2019-03-18 23:17:04
End at: 2019-03-18 23:17:34
Local clock offset: -0.43 ms
Remote clock offset: -0.111 ms


# Below is generated by plot.py at 2019-03-19 04:11:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 85.869 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 85.848 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 85.907 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 85.795 ms
Loss rate: 0.00%
```

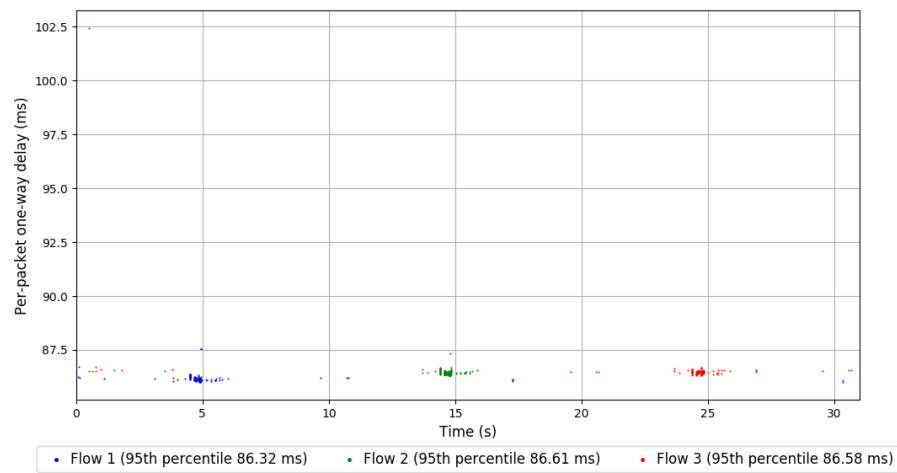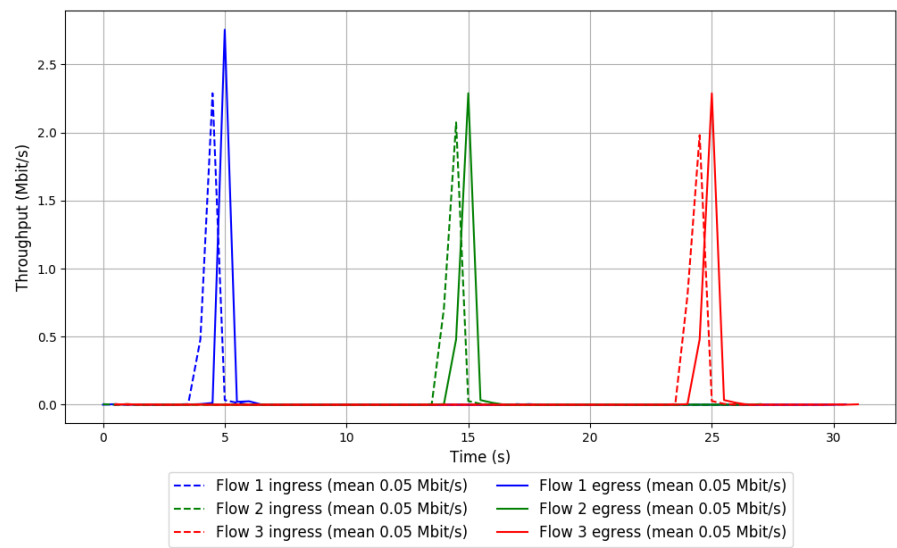Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2019-03-18 23:53:43
End at: 2019-03-18 23:54:13
Local clock offset: -0.072 ms
Remote clock offset: -0.199 ms


# Below is generated by plot.py at 2019-03-19 04:11:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 86.580 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.319 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.607 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.584 ms
Loss rate: 0.00%
```

Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2019-03-19 00:30:53
End at: 2019-03-19 00:31:23
Local clock offset: -0.134 ms
Remote clock offset: 0.013 ms


# Below is generated by plot.py at 2019-03-19 04:11:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 86.299 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.331 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.202 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.118 ms
Loss rate: 0.00%
```
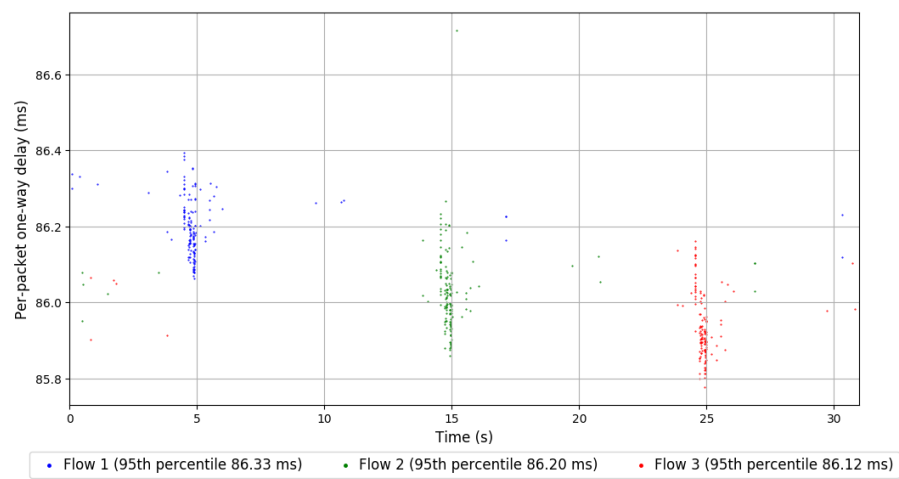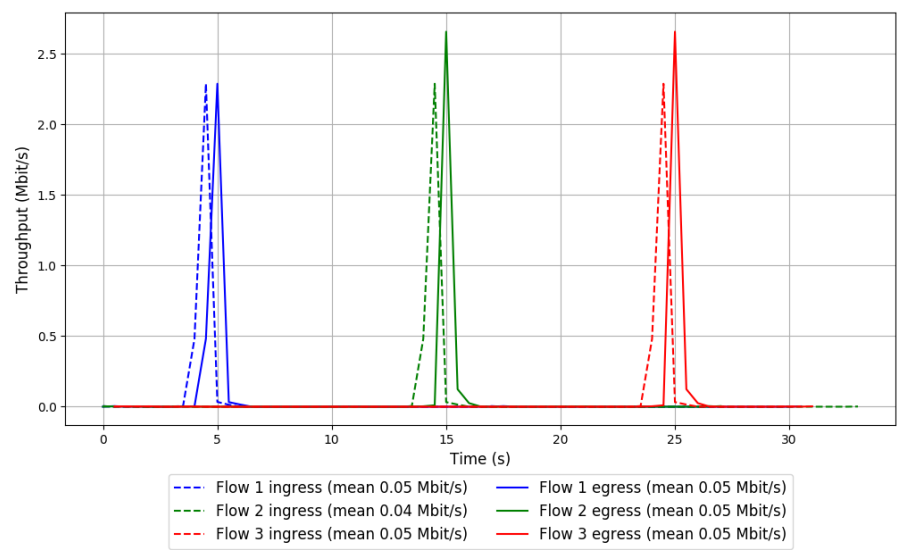
Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2019-03-19 01:08:20
End at: 2019-03-19 01:08:50
Local clock offset: -0.171 ms
Remote clock offset: -0.003 ms


# Below is generated by plot.py at 2019-03-19 04:11:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 86.321 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.131 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.047 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.381 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link