Pantheon Report

Generated at 2019-04-24 04:01:30 (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.
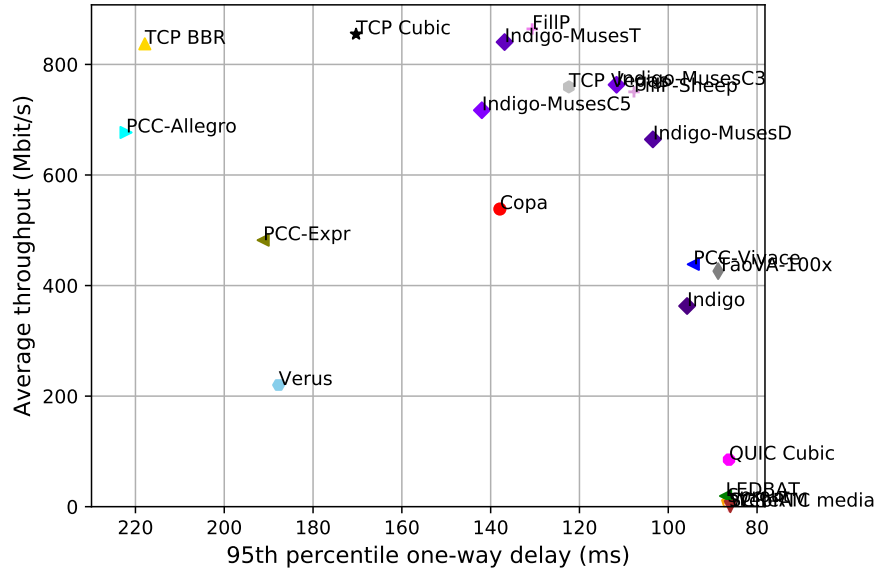
```
System info:
Linux 4.15.0-1028-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

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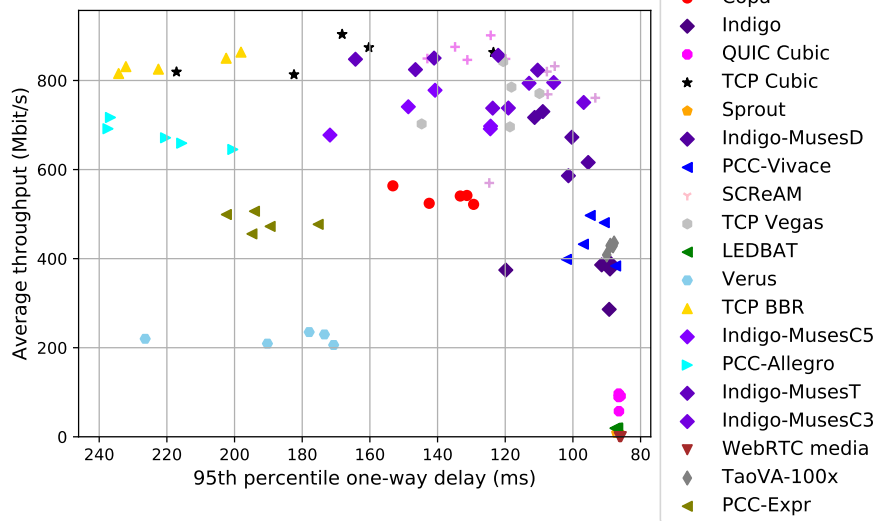
```
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

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	445.76	408.24	366.14	218.89	204.06	162.10	2.86	2.26	3.61
Copa	5	281.99	270.20	234.27	124.19	134.26	160.84	0.62	0.95	2.17
TCP Cubic	5	457.92	415.68	367.24	163.78	158.83	149.63	0.66	1.01	2.66
FillP	5	553.49	349.41	241.11	137.71	90.07	89.11	1.39	0.78	1.98
FillP-Sheep	5	461.86	316.69	239.85	114.58	90.96	88.61	0.63	0.75	1.94
Indigo	5	183.25	190.74	162.90	90.75	99.09	98.18	0.58	0.88	2.04
Indigo-MusesC3	5	453.76	368.22	271.79	112.71	110.80	92.02	0.47	0.84	2.75
Indigo-MusesC5	5	441.88	386.59	98.15	144.91	125.74	86.22	0.75	0.88	2.96
Indigo-MusesD	5	392.22	369.91	124.79	111.42	93.60	87.82	0.48	0.99	2.72
Indigo-MusesT	5	502.51	410.48	271.12	137.43	122.95	105.82	0.50	0.74	3.03
LEDBAT	5	12.50	8.28	4.03	87.15	87.03	86.57	1.15	1.74	3.52
PCC-Allegro	5	383.88	315.81	257.43	206.91	224.62	212.74	5.61	5.74	4.29
PCC-Expr	5	284.42	215.71	168.04	190.85	170.53	129.45	2.53	2.21	2.44
QUIC Cubic	5	44.79	45.24	30.31	86.32	86.19	86.13	0.83	1.24	2.92
SCReAM	5	0.22	0.22	0.22	86.25	86.06	86.01	0.54	1.00	1.70
Sprout	5	4.64	4.22	3.72	86.65	86.61	86.64	0.60	1.04	2.47
TaoVA-100x	5	215.90	218.10	198.97	88.88	88.58	88.80	0.60	0.91	1.92
TCP Vegas	5	419.11	366.42	294.88	105.50	127.00	103.72	0.64	0.74	1.91
Verus	5	128.17	109.09	62.90	183.98	180.33	144.19	0.78	1.93	2.32
PCC-Vivace	5	261.89	177.87	179.88	97.17	115.61	98.01	0.59	1.56	2.34
WebRTC media	5	0.05	0.05	0.05	85.98	85.94	85.90	0.00	0.00	0.00

```
Run 1: Statistics of TCP BBR

Start at: 2019-04-23 22:16:59
End at: 2019-04-23 22:17:29
Local clock offset: 1.086 ms
Remote clock offset: 0.22 ms


# Below is generated by plot.py at 2019-04-24 01:48:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 815.71 Mbit/s
95th percentile per-packet one-way delay: 234.258 ms
Loss rate: 3.40%
-- Flow 1:
Average throughput: 442.65 Mbit/s
95th percentile per-packet one-way delay: 235.550 ms
Loss rate: 3.45%
-- Flow 2:
Average throughput: 386.58 Mbit/s
95th percentile per-packet one-way delay: 137.402 ms
Loss rate: 1.52%
-- Flow 3:
Average throughput: 353.87 Mbit/s
95th percentile per-packet one-way delay: 248.189 ms
Loss rate: 7.15%
```
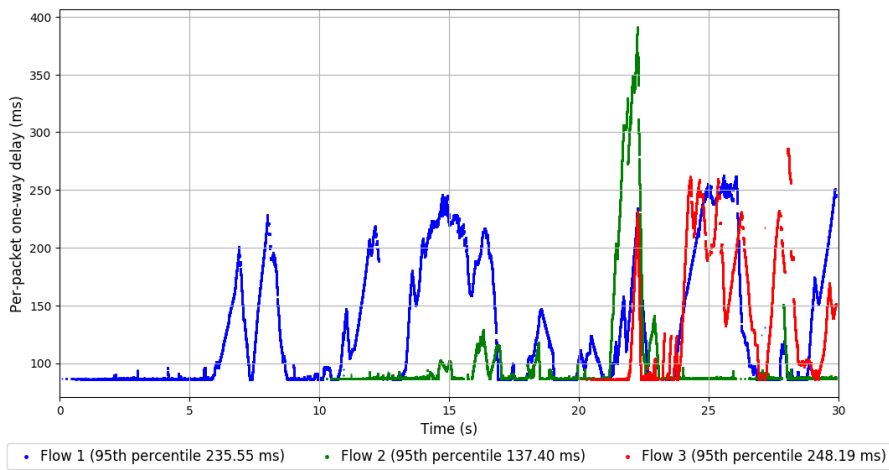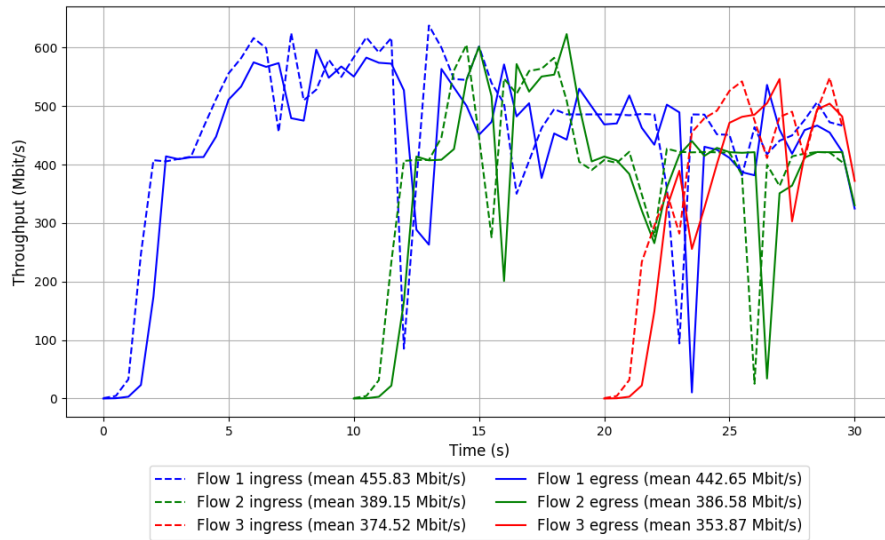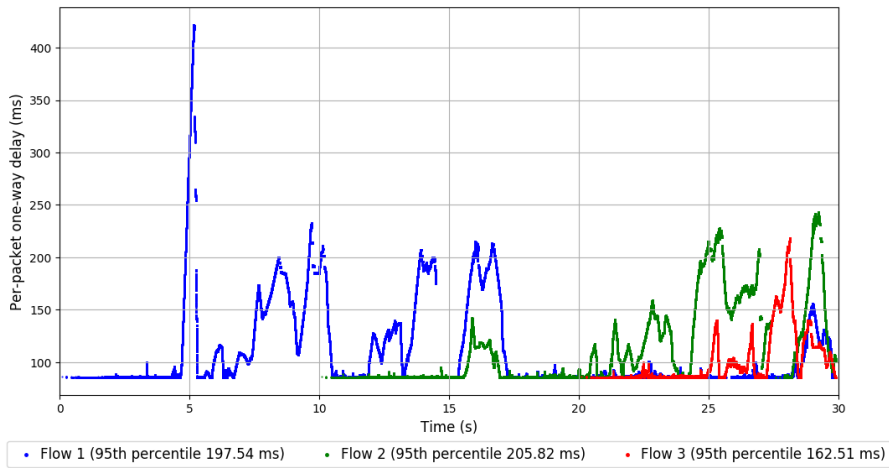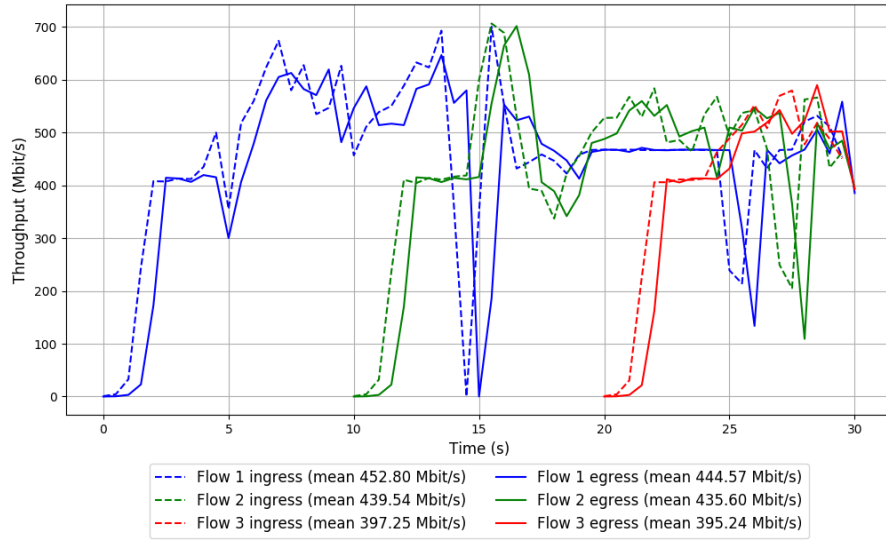
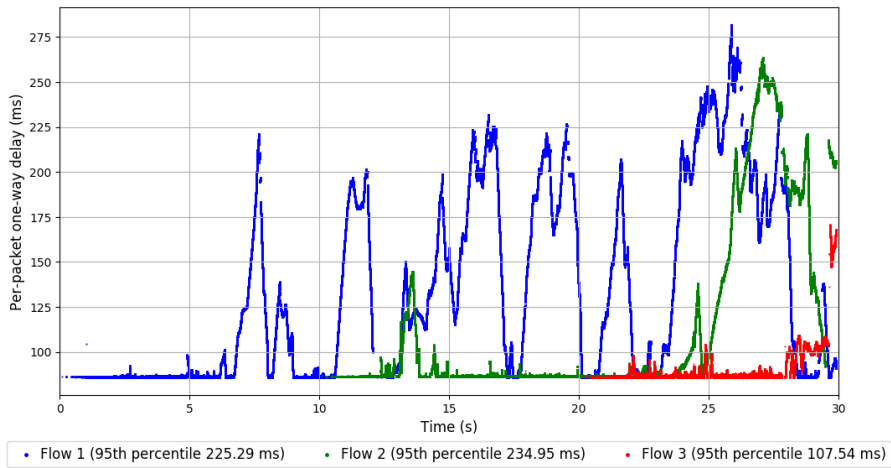Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2019-04-23 22:54:06
End at: 2019-04-23 22:54:36
Local clock offset: -0.201 ms
Remote clock offset: 0.053 ms


# Below is generated by plot.py at 2019-04-24 01:49:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 863.72 Mbit/s
95th percentile per-packet one-way delay: 198.097 ms
Loss rate: 2.15%
-- Flow 1:
Average throughput: 444.57 Mbit/s
95th percentile per-packet one-way delay: 197.540 ms
Loss rate: 2.38%
-- Flow 2:
Average throughput: 435.60 Mbit/s
95th percentile per-packet one-way delay: 205.817 ms
Loss rate: 1.75%
-- Flow 3:
Average throughput: 395.24 Mbit/s
95th percentile per-packet one-way delay: 162.509 ms
Loss rate: 2.23%
```

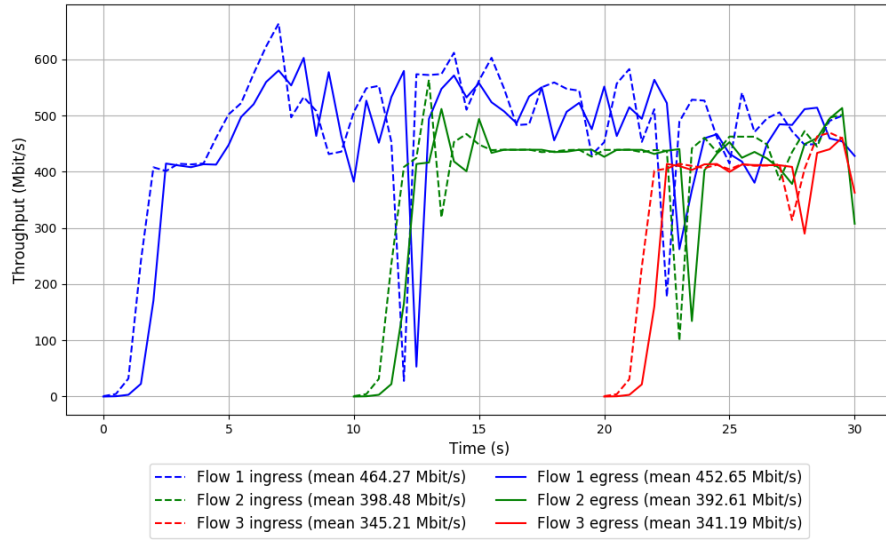Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2019-04-23 23:31:17
End at: 2019-04-23 23:31:47
Local clock offset: 0.014 ms
Remote clock offset: -0.005 ms

# Below is generated by plot.py at 2019-04-24 01:49:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 825.48 Mbit/s
95th percentile per-packet one-way delay: 222.502 ms
Loss rate: 2.81%
-- Flow 1:
Average throughput: 452.65 Mbit/s
95th percentile per-packet one-way delay: 225.295 ms
Loss rate: 3.07%
-- Flow 2:
Average throughput: 392.61 Mbit/s
95th percentile per-packet one-way delay: 234.950 ms
Loss rate: 2.33%
-- Flow 3:
Average throughput: 341.19 Mbit/s
95th percentile per-packet one-way delay: 107.537 ms
Loss rate: 2.88%
```
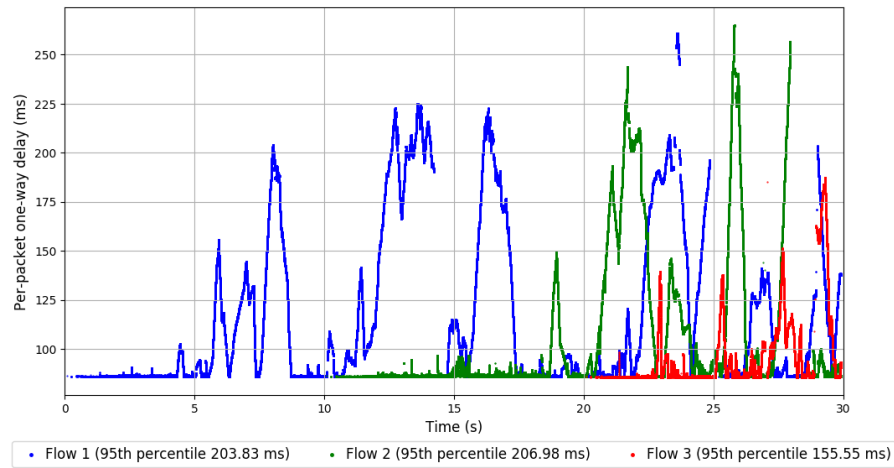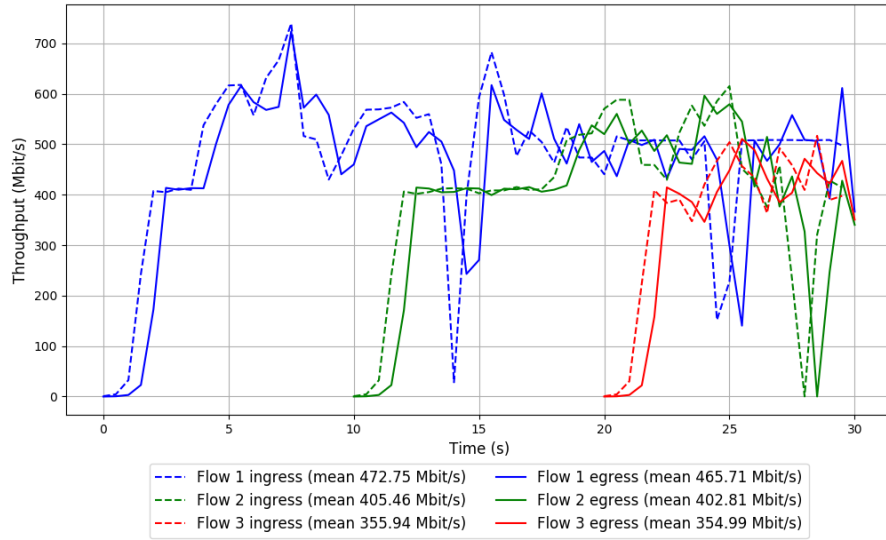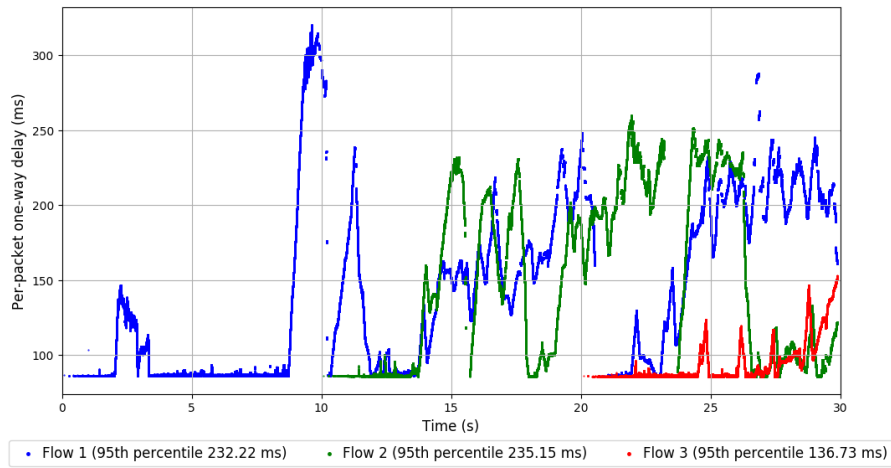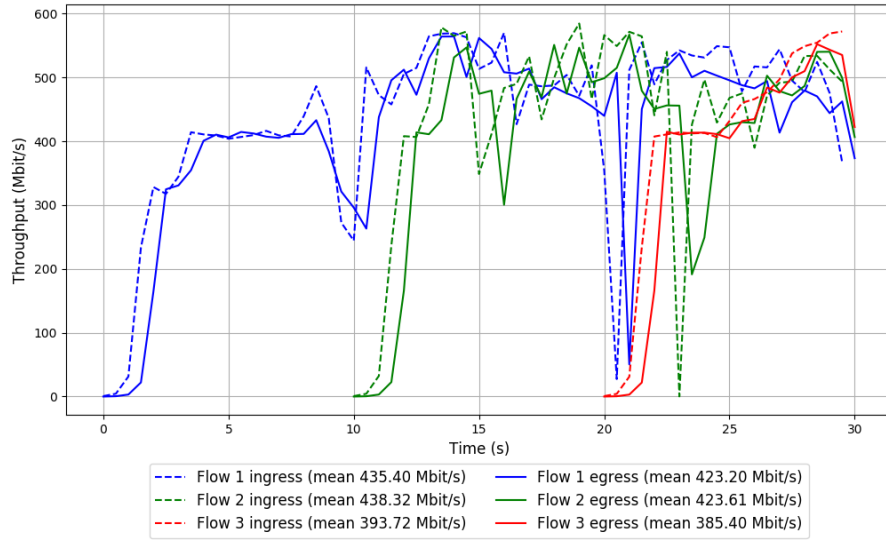
Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 464.27 Mbit/s) --- Flow 1 egress (mean 452.65 Mbit/s)
Flow 2 ingress (mean 398.48 Mbit/s) --- Flow 2 egress (mean 392.61 Mbit/s)
Flow 3 ingress (mean 345.21 Mbit/s) --- Flow 3 egress (mean 341.19 Mbit/s)

Flow 1 (95th percentile 225.29 ms) • Flow 2 (95th percentile 234.95 ms) • Flow 3 (95th percentile 107.54 ms)

```
Run 4: Statistics of TCP BBR

Start at: 2019-04-24 00:08:26
End at: 2019-04-24 00:08:56
Local clock offset: -0.291 ms
Remote clock offset: -0.035 ms


# Below is generated by plot.py at 2019-04-24 01:49:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 850.04 Mbit/s
95th percentile per-packet one-way delay: 202.472 ms
Loss rate: 1.88%
-- Flow 1:
Average throughput: 465.71 Mbit/s
95th percentile per-packet one-way delay: 203.827 ms
Loss rate: 2.06%
-- Flow 2:
Average throughput: 402.81 Mbit/s
95th percentile per-packet one-way delay: 206.981 ms
Loss rate: 1.51%
-- Flow 3:
Average throughput: 354.99 Mbit/s
95th percentile per-packet one-way delay: 155.554 ms
Loss rate: 2.00%
```

Run 4: Report of TCP BBR — Data Link

```
Run 5: Statistics of TCP BBR

Start at: 2019-04-24 00:45:58
End at: 2019-04-24 00:46:28
Local clock offset: -0.058 ms
Remote clock offset: -0.113 ms


# Below is generated by plot.py at 2019-04-24 01:49:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 831.20 Mbit/s
95th percentile per-packet one-way delay: 232.113 ms
Loss rate: 3.71%
-- Flow 1:
Average throughput: 423.20 Mbit/s
95th percentile per-packet one-way delay: 232.224 ms
Loss rate: 3.36%
-- Flow 2:
Average throughput: 423.61 Mbit/s
95th percentile per-packet one-way delay: 235.154 ms
Loss rate: 4.19%
-- Flow 3:
Average throughput: 385.40 Mbit/s
95th percentile per-packet one-way delay: 136.734 ms
Loss rate: 3.80%
```
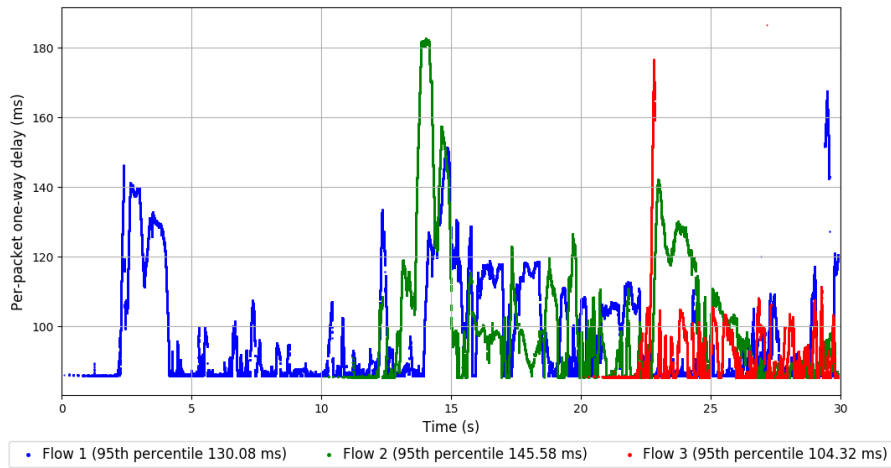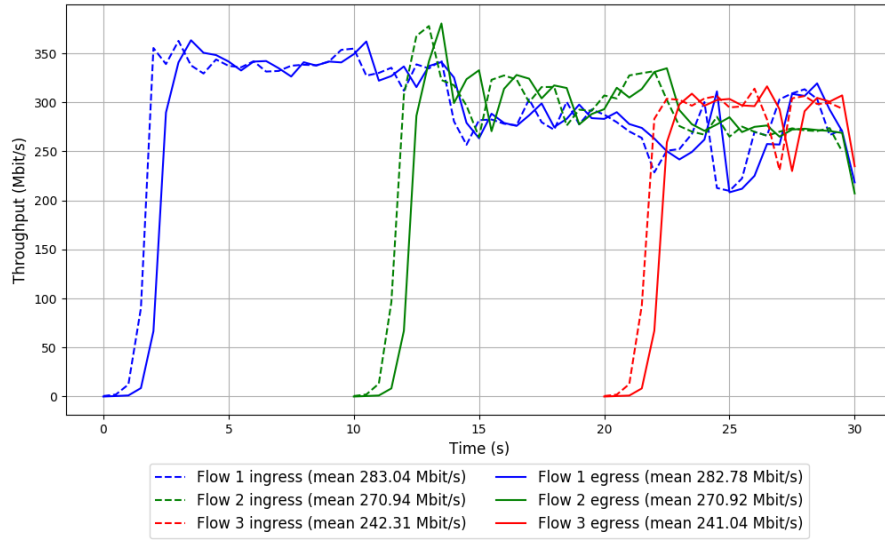
Run 5: Report of TCP BBR — Data Link

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```
Run 1: Statistics of Copa

Start at: 2019-04-23 22:41:40
End at: 2019-04-23 22:42:10
Local clock offset: -0.467 ms
Remote clock offset: 0.039 ms


# Below is generated by plot.py at 2019-04-24 01:51:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 541.84 Mbit/s
95th percentile per-packet one-way delay: 131.322 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 282.78 Mbit/s
95th percentile per-packet one-way delay: 130.079 ms
Loss rate: 0.66%
-- Flow 2:
Average throughput: 270.92 Mbit/s
95th percentile per-packet one-way delay: 145.576 ms
Loss rate: 0.87%
-- Flow 3:
Average throughput: 241.04 Mbit/s
95th percentile per-packet one-way delay: 104.319 ms
Loss rate: 2.25%
```
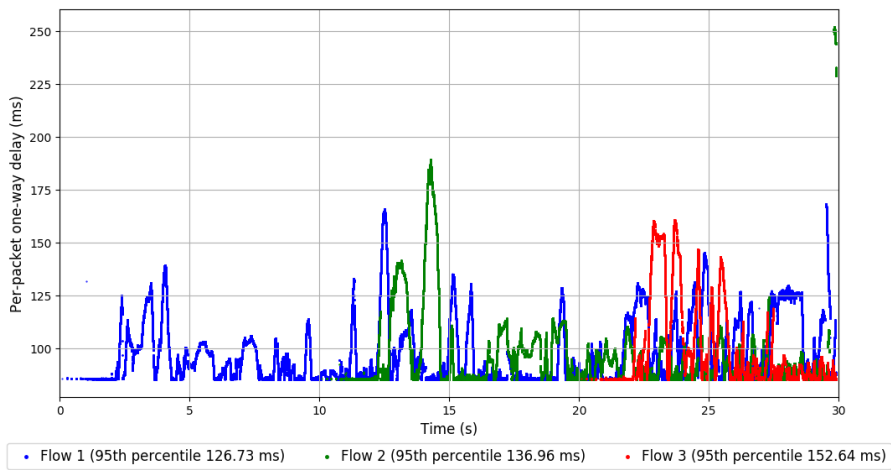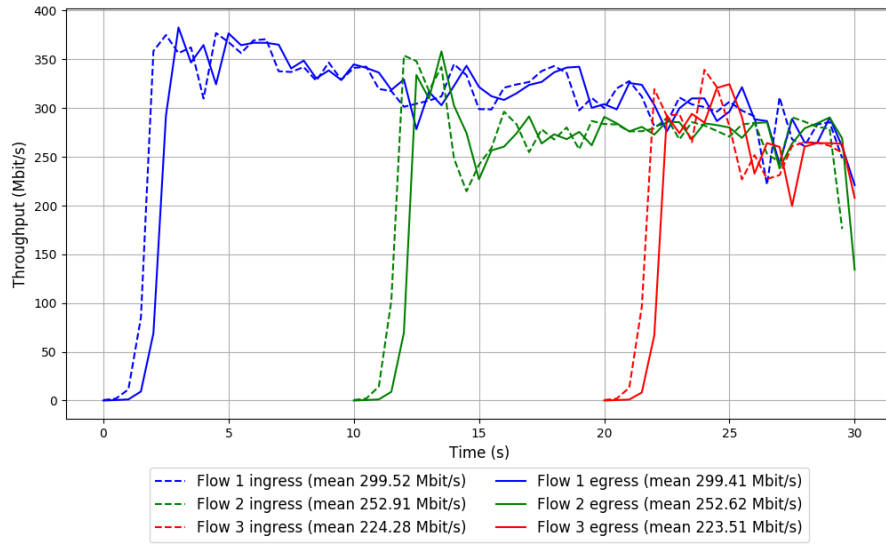
Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2019-04-23 23:18:56
End at: 2019-04-23 23:19:26
Local clock offset: -0.499 ms
Remote clock offset: 0.003 ms


# Below is generated by plot.py at 2019-04-24 01:51:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 540.61 Mbit/s
95th percentile per-packet one-way delay: 133.290 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 299.41 Mbit/s
95th percentile per-packet one-way delay: 126.731 ms
Loss rate: 0.61%
-- Flow 2:
Average throughput: 252.62 Mbit/s
95th percentile per-packet one-way delay: 136.962 ms
Loss rate: 0.98%
-- Flow 3:
Average throughput: 223.51 Mbit/s
95th percentile per-packet one-way delay: 152.641 ms
Loss rate: 2.07%
```
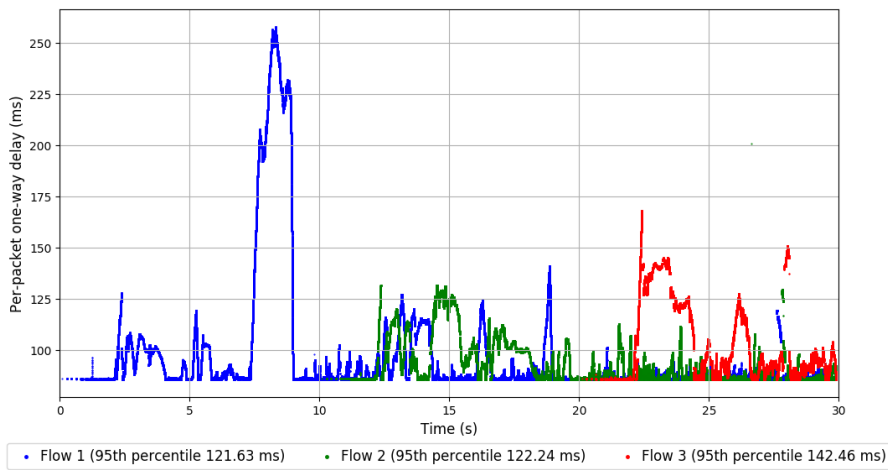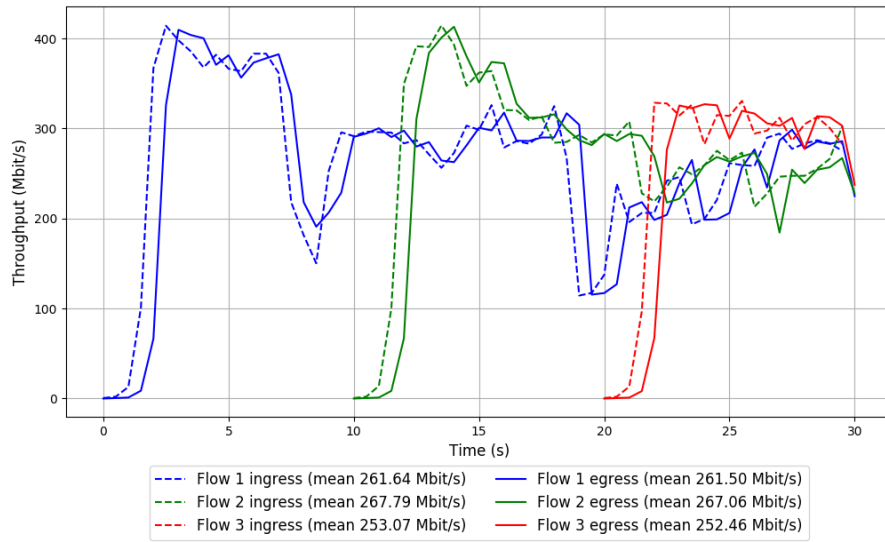
Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2019-04-23 23:56:13
End at: 2019-04-23 23:56:43
Local clock offset: 0.061 ms
Remote clock offset: -0.044 ms


# Below is generated by plot.py at 2019-04-24 01:51:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 521.86 Mbit/s
95th percentile per-packet one-way delay: 129.346 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 261.50 Mbit/s
95th percentile per-packet one-way delay: 121.627 ms
Loss rate: 0.63%
-- Flow 2:
Average throughput: 267.06 Mbit/s
95th percentile per-packet one-way delay: 122.238 ms
Loss rate: 1.13%
-- Flow 3:
Average throughput: 252.46 Mbit/s
95th percentile per-packet one-way delay: 142.459 ms
Loss rate: 1.97%
```

Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2019-04-24 00:33:29
End at: 2019-04-24 00:33:59
Local clock offset: 0.062 ms
Remote clock offset: 0.007 ms


# Below is generated by plot.py at 2019-04-24 02:07:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 563.51 Mbit/s
95th percentile per-packet one-way delay: 153.208 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 299.93 Mbit/s
95th percentile per-packet one-way delay: 114.524 ms
Loss rate: 0.57%
-- Flow 2:
Average throughput: 279.94 Mbit/s
95th percentile per-packet one-way delay: 130.555 ms
Loss rate: 0.94%
-- Flow 3:
Average throughput: 236.24 Mbit/s
95th percentile per-packet one-way delay: 213.291 ms
Loss rate: 2.32%
```
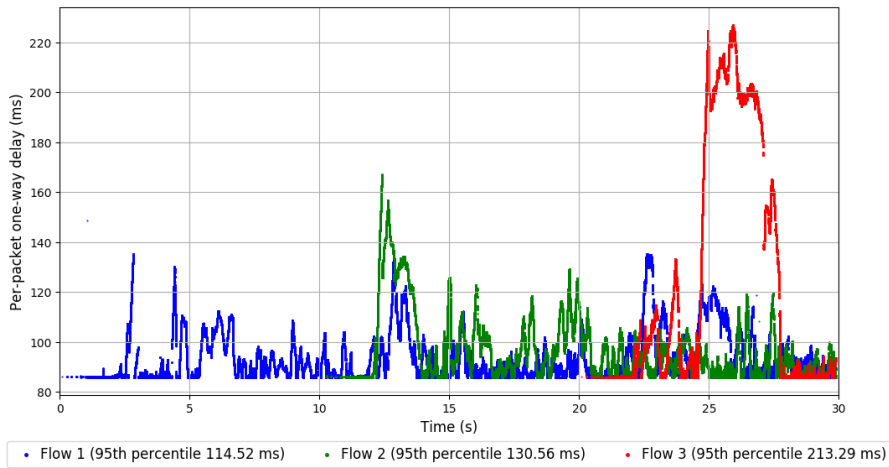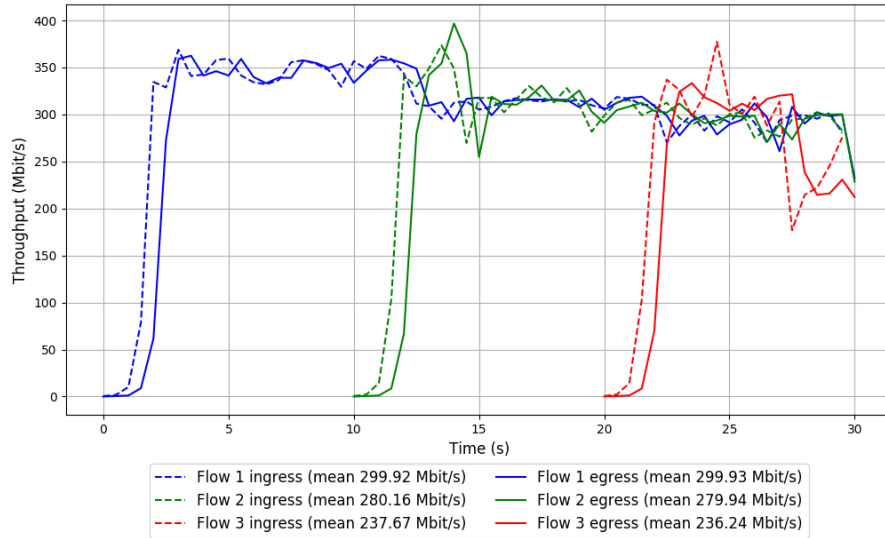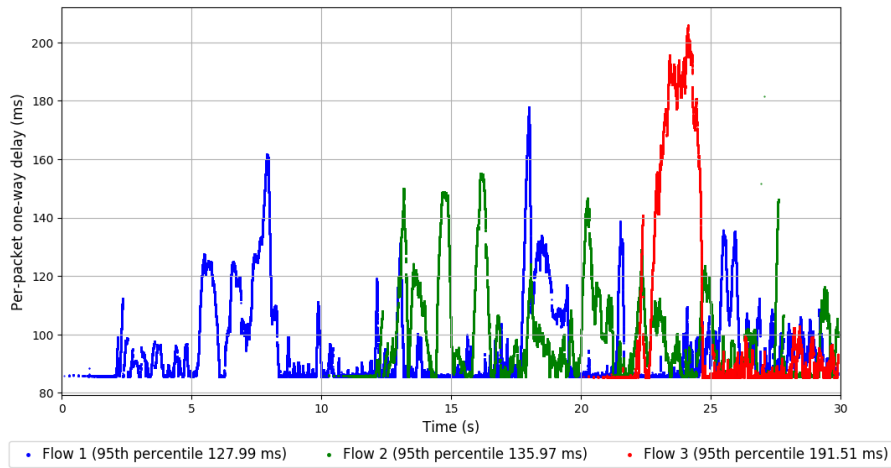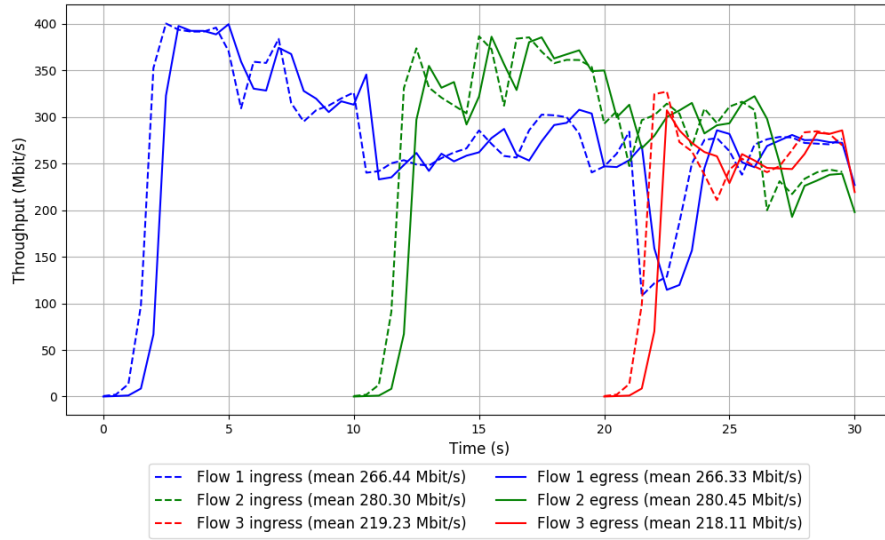
Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2019-04-24 01:11:16
End at: 2019-04-24 01:11:46
Local clock offset: -0.458 ms
Remote clock offset: -0.099 ms


# Below is generated by plot.py at 2019-04-24 02:07:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 524.24 Mbit/s
95th percentile per-packet one-way delay: 142.468 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 266.33 Mbit/s
95th percentile per-packet one-way delay: 127.992 ms
Loss rate: 0.62%
-- Flow 2:
Average throughput: 280.45 Mbit/s
95th percentile per-packet one-way delay: 135.973 ms
Loss rate: 0.81%
-- Flow 3:
Average throughput: 218.11 Mbit/s
95th percentile per-packet one-way delay: 191.515 ms
Loss rate: 2.23%
```
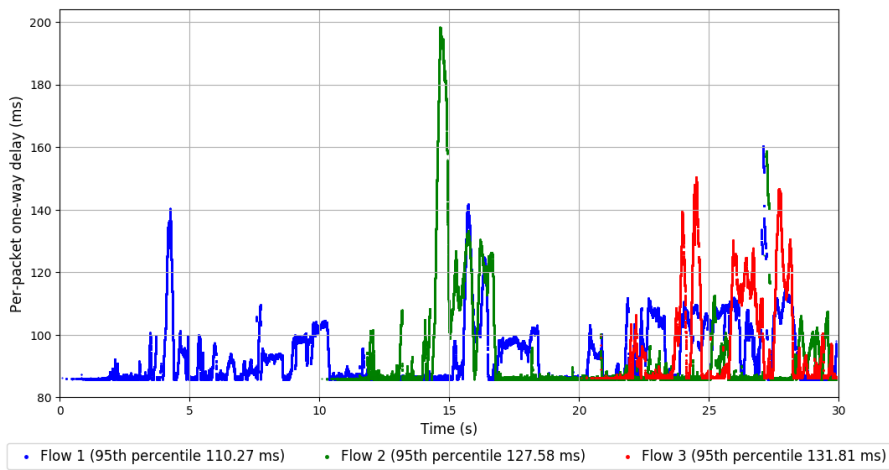
Run 5: Report of Copa — Data Link

Flow 1 ingress (mean 266.44 Mbit/s)   Flow 1 egress (mean 266.33 Mbit/s)
Flow 2 ingress (mean 280.30 Mbit/s)   Flow 2 egress (mean 280.45 Mbit/s)
Flow 3 ingress (mean 219.23 Mbit/s)   Flow 3 egress (mean 218.11 Mbit/s)

Flow 1 (95th percentile 127.99 ms)   Flow 2 (95th percentile 135.97 ms)   Flow 3 (95th percentile 191.51 ms)

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```
Run 1: Statistics of TCP Cubic

Start at: 2019-04-23 22:19:04
End at: 2019-04-23 22:19:34
Local clock offset: 0.682 ms
Remote clock offset: 0.198 ms


# Below is generated by plot.py at 2019-04-24 02:07:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 863.17 Mbit/s
95th percentile per-packet one-way delay: 123.485 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 470.88 Mbit/s
95th percentile per-packet one-way delay: 110.268 ms
Loss rate: 0.65%
-- Flow 2:
Average throughput: 400.92 Mbit/s
95th percentile per-packet one-way delay: 127.578 ms
Loss rate: 0.97%
-- Flow 3:
Average throughput: 383.45 Mbit/s
95th percentile per-packet one-way delay: 131.808 ms
Loss rate: 1.78%
```
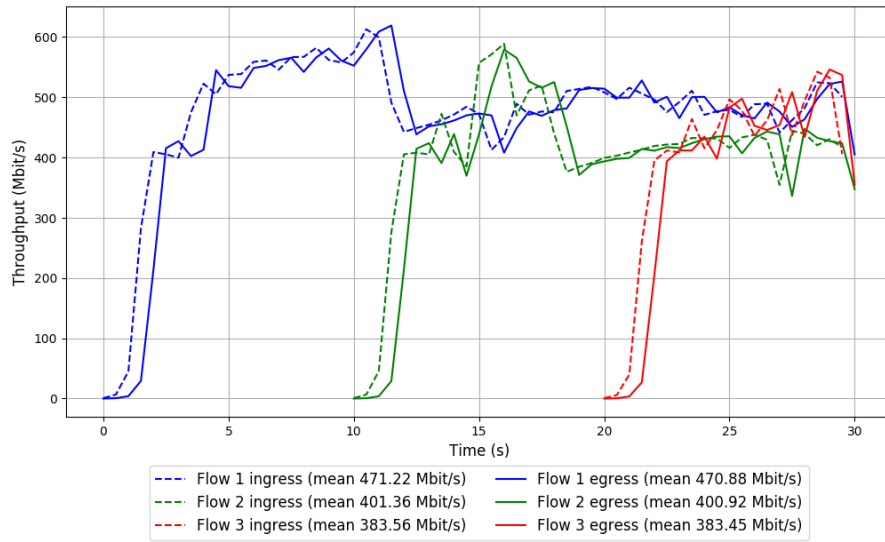
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2019-04-23 22:56:12
End at: 2019-04-23 22:56:42
Local clock offset: -0.174 ms
Remote clock offset: -0.02 ms


# Below is generated by plot.py at 2019-04-24 02:07:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 874.00 Mbit/s
95th percentile per-packet one-way delay: 160.298 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 478.15 Mbit/s
95th percentile per-packet one-way delay: 165.558 ms
Loss rate: 0.69%
-- Flow 2:
Average throughput: 428.75 Mbit/s
95th percentile per-packet one-way delay: 129.806 ms
Loss rate: 0.85%
-- Flow 3:
Average throughput: 338.02 Mbit/s
95th percentile per-packet one-way delay: 184.455 ms
Loss rate: 2.55%
```
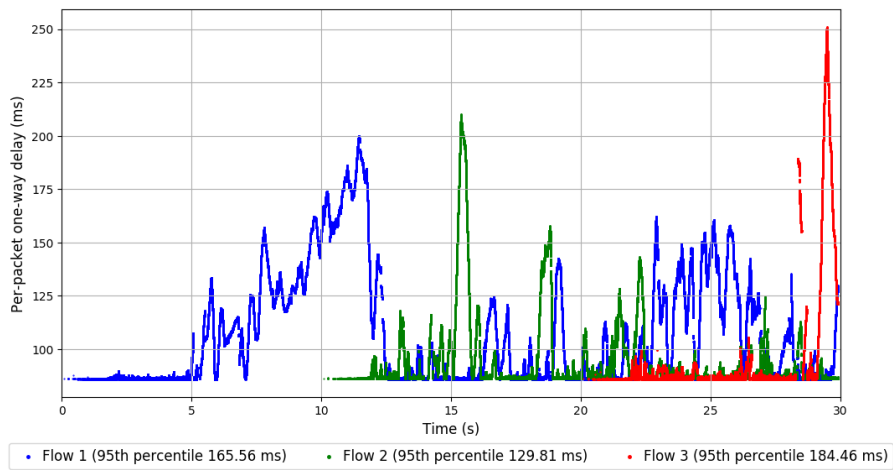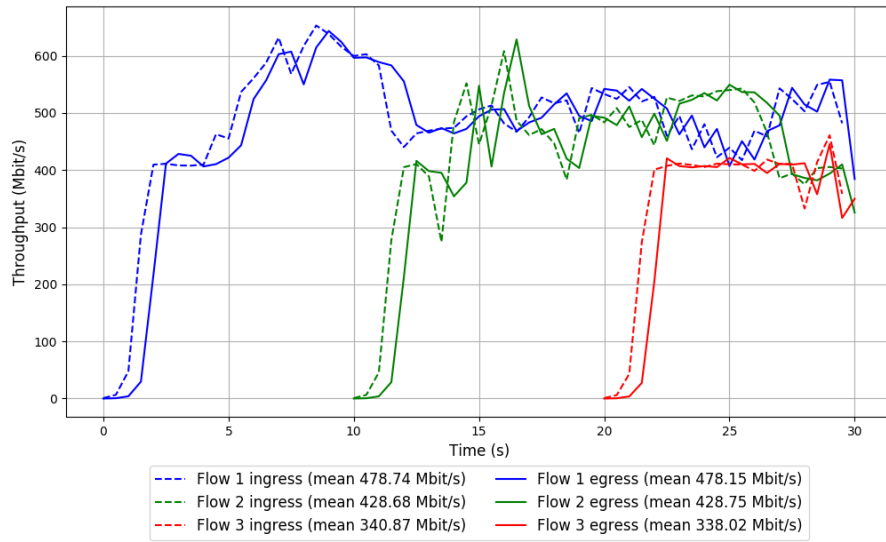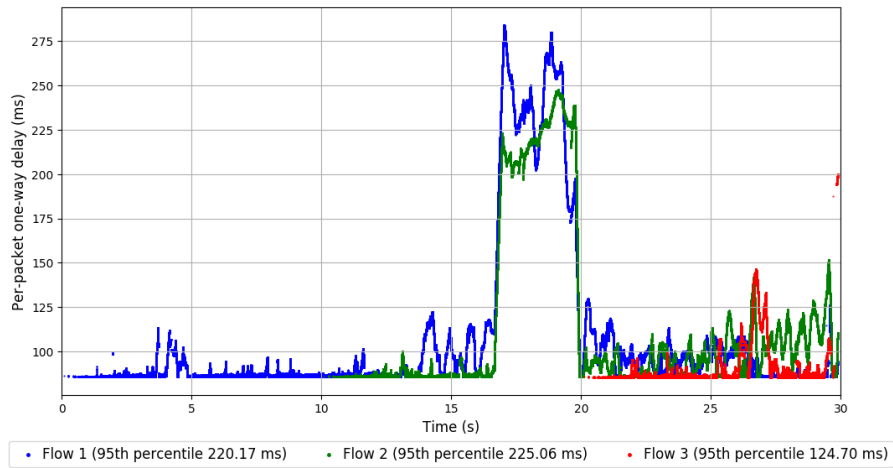
Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 478.74 Mbit/s) — — —   Flow 1 egress (mean 478.15 Mbit/s)
Flow 2 ingress (mean 428.68 Mbit/s) — — —   Flow 2 egress (mean 428.75 Mbit/s)
Flow 3 ingress (mean 340.87 Mbit/s) — — —   Flow 3 egress (mean 338.02 Mbit/s)

Flow 1 (95th percentile 165.56 ms)   Flow 2 (95th percentile 129.81 ms)   Flow 3 (95th percentile 184.46 ms)

```
Run 3: Statistics of TCP Cubic

Start at: 2019-04-23 23:33:21
End at: 2019-04-23 23:33:51
Local clock offset: -0.379 ms
Remote clock offset: -0.031 ms


# Below is generated by plot.py at 2019-04-24 02:07:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 819.28 Mbit/s
95th percentile per-packet one-way delay: 217.155 ms
Loss rate: 1.05%
-- Flow 1:
Average throughput: 421.67 Mbit/s
95th percentile per-packet one-way delay: 220.173 ms
Loss rate: 0.60%
-- Flow 2:
Average throughput: 416.29 Mbit/s
95th percentile per-packet one-way delay: 225.065 ms
Loss rate: 1.07%
-- Flow 3:
Average throughput: 369.00 Mbit/s
95th percentile per-packet one-way delay: 124.704 ms
Loss rate: 2.54%
```
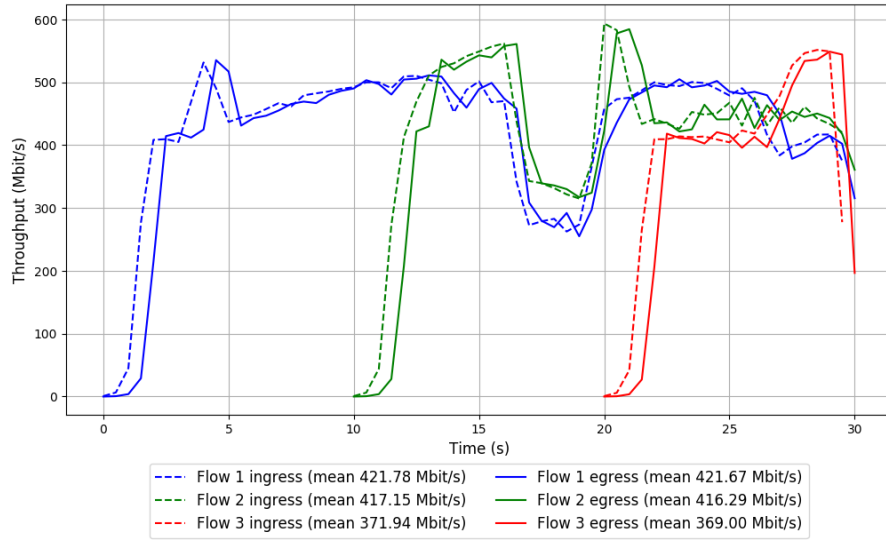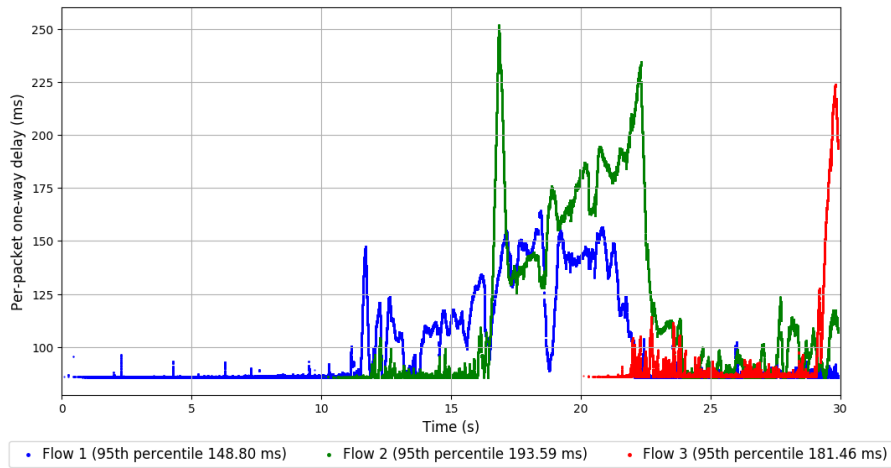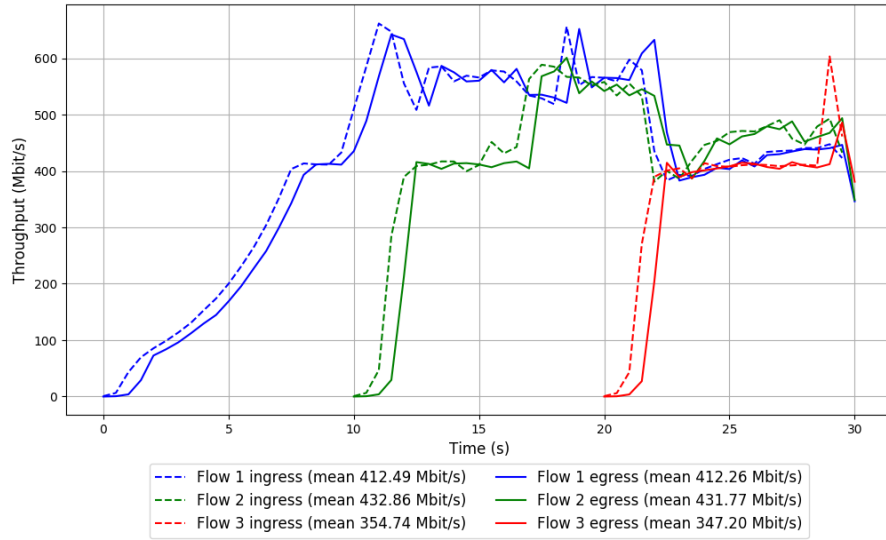
Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 421.78 Mbit/s) --- Flow 1 egress (mean 421.67 Mbit/s)
Flow 2 ingress (mean 417.15 Mbit/s) --- Flow 2 egress (mean 416.29 Mbit/s)
Flow 3 ingress (mean 371.94 Mbit/s) --- Flow 3 egress (mean 369.00 Mbit/s)

Flow 1 (95th percentile 220.17 ms) • Flow 2 (95th percentile 225.06 ms) • Flow 3 (95th percentile 124.70 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2019-04-24 00:10:33
End at: 2019-04-24 00:11:03
Local clock offset: -0.146 ms
Remote clock offset: -0.019 ms


# Below is generated by plot.py at 2019-04-24 02:07:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 813.17 Mbit/s
95th percentile per-packet one-way delay: 182.427 ms
Loss rate: 1.26%
-- Flow 1:
Average throughput: 412.26 Mbit/s
95th percentile per-packet one-way delay: 148.800 ms
Loss rate: 0.63%
-- Flow 2:
Average throughput: 431.77 Mbit/s
95th percentile per-packet one-way delay: 193.593 ms
Loss rate: 1.11%
-- Flow 3:
Average throughput: 347.20 Mbit/s
95th percentile per-packet one-way delay: 181.462 ms
Loss rate: 3.81%
```
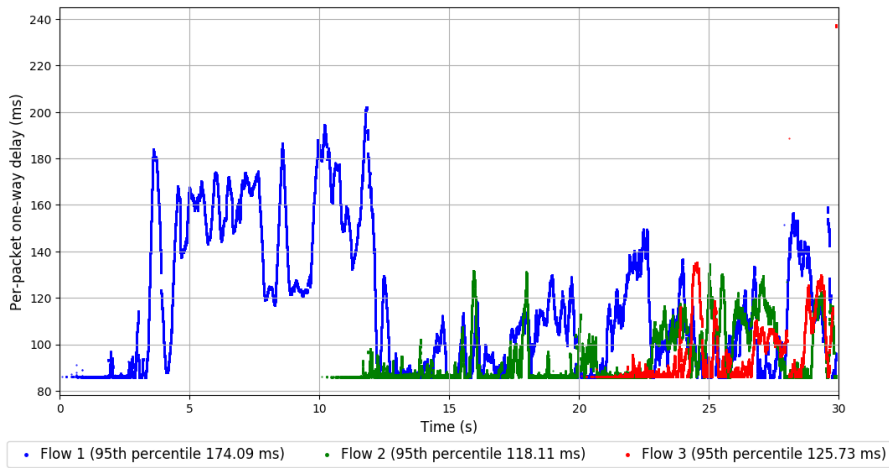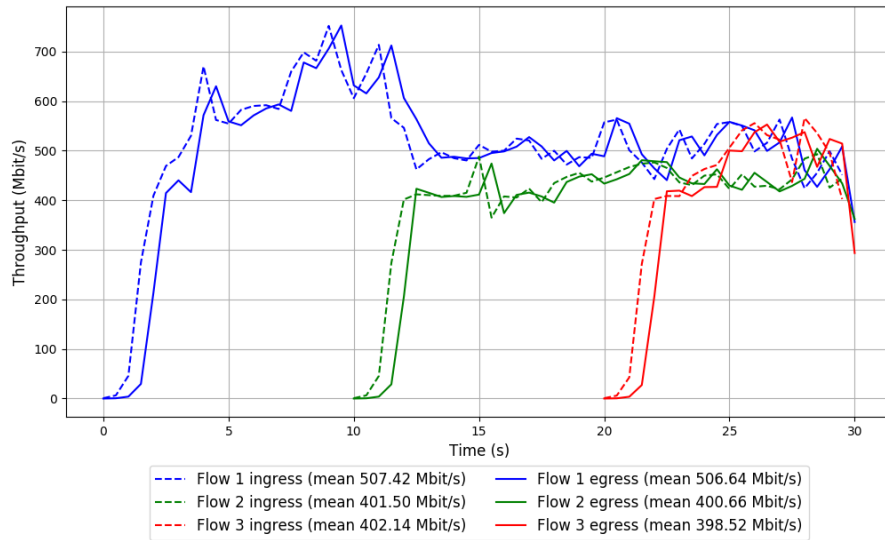
Run 4: Report of TCP Cubic — Data Link

```
Run 5: Statistics of TCP Cubic

Start at: 2019-04-24 00:48:05
End at: 2019-04-24 00:48:35
Local clock offset: -0.057 ms
Remote clock offset: -0.144 ms


# Below is generated by plot.py at 2019-04-24 02:08:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 903.72 Mbit/s
95th percentile per-packet one-way delay: 168.193 ms
Loss rate: 1.11%
-- Flow 1:
Average throughput: 506.64 Mbit/s
95th percentile per-packet one-way delay: 174.086 ms
Loss rate: 0.73%
-- Flow 2:
Average throughput: 400.66 Mbit/s
95th percentile per-packet one-way delay: 118.114 ms
Loss rate: 1.07%
-- Flow 3:
Average throughput: 398.52 Mbit/s
95th percentile per-packet one-way delay: 125.731 ms
Loss rate: 2.61%
```
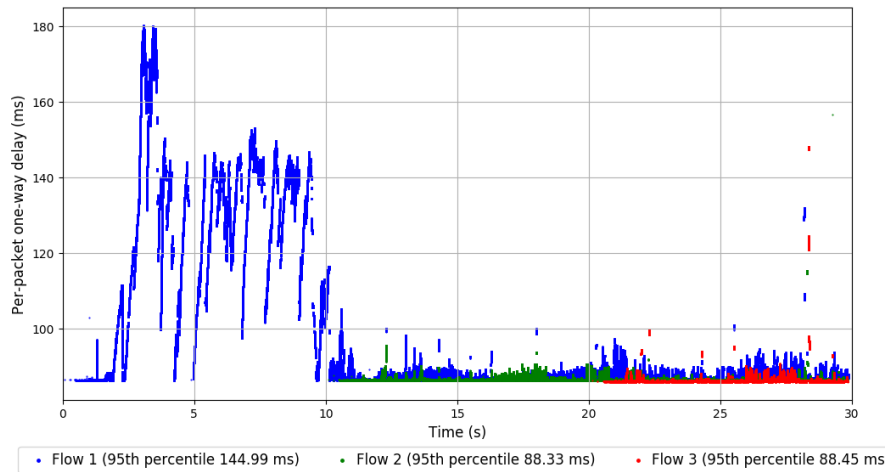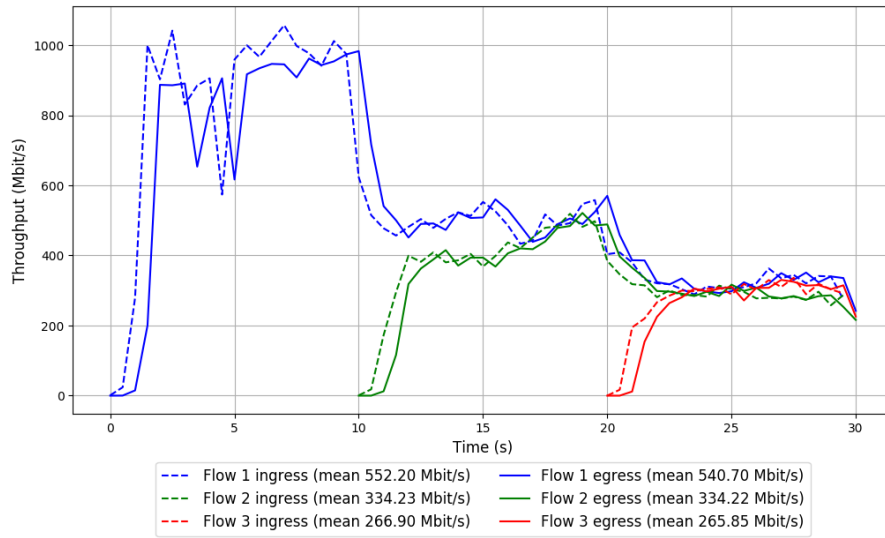
Run 5: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 507.42 Mbit/s)   Flow 1 egress (mean 506.64 Mbit/s)
Flow 2 ingress (mean 401.50 Mbit/s)   Flow 2 egress (mean 400.66 Mbit/s)
Flow 3 ingress (mean 402.14 Mbit/s)   Flow 3 egress (mean 398.52 Mbit/s)

Flow 1 (95th percentile 174.09 ms)   Flow 2 (95th percentile 118.11 ms)   Flow 3 (95th percentile 125.73 ms)

```
Run 1: Statistics of FillP

Start at: 2019-04-23 22:39:47
End at: 2019-04-23 22:40:17
Local clock offset: 0.155 ms
Remote clock offset: 0.013 ms


# Below is generated by plot.py at 2019-04-24 02:10:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 849.30 Mbit/s
95th percentile per-packet one-way delay: 143.015 ms
Loss rate: 2.14%
-- Flow 1:
Average throughput: 540.70 Mbit/s
95th percentile per-packet one-way delay: 144.994 ms
Loss rate: 2.65%
-- Flow 2:
Average throughput: 334.22 Mbit/s
95th percentile per-packet one-way delay: 88.335 ms
Loss rate: 0.88%
-- Flow 3:
Average throughput: 265.85 Mbit/s
95th percentile per-packet one-way delay: 88.449 ms
Loss rate: 2.16%
```
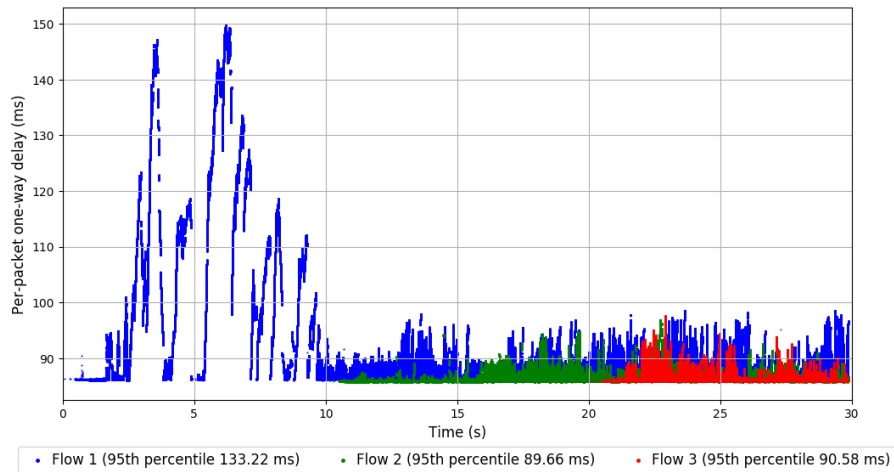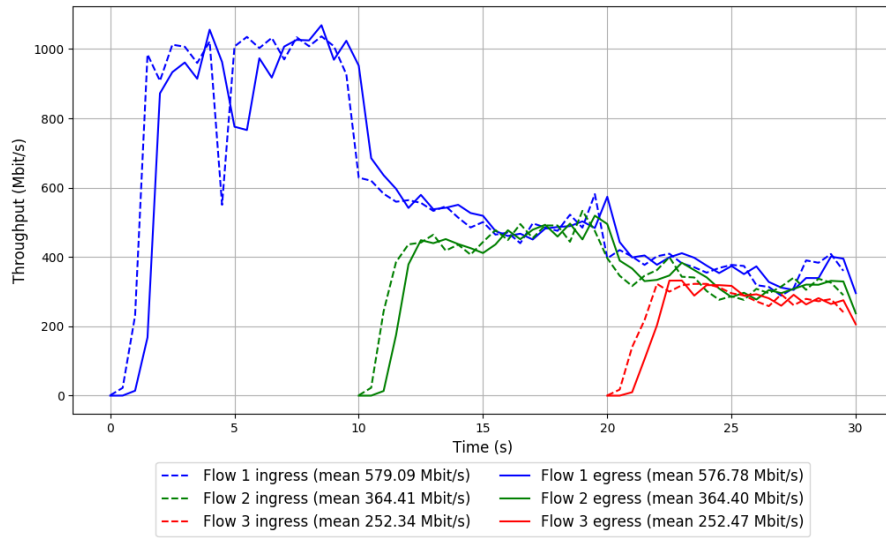
Run 1: Report of FillP — Data Link

```
Run 2: Statistics of FillP

Start at: 2019-04-23 23:17:00
End at: 2019-04-23 23:17:30
Local clock offset: -0.141 ms
Remote clock offset: 0.006 ms


# Below is generated by plot.py at 2019-04-24 02:22:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 901.40 Mbit/s
95th percentile per-packet one-way delay: 124.287 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 576.78 Mbit/s
95th percentile per-packet one-way delay: 133.220 ms
Loss rate: 0.95%
-- Flow 2:
Average throughput: 364.40 Mbit/s
95th percentile per-packet one-way delay: 89.663 ms
Loss rate: 0.77%
-- Flow 3:
Average throughput: 252.47 Mbit/s
95th percentile per-packet one-way delay: 90.577 ms
Loss rate: 1.71%
```
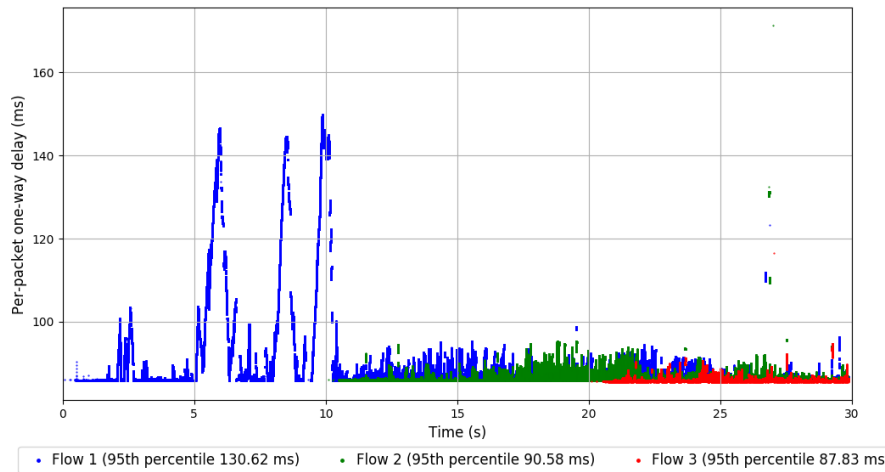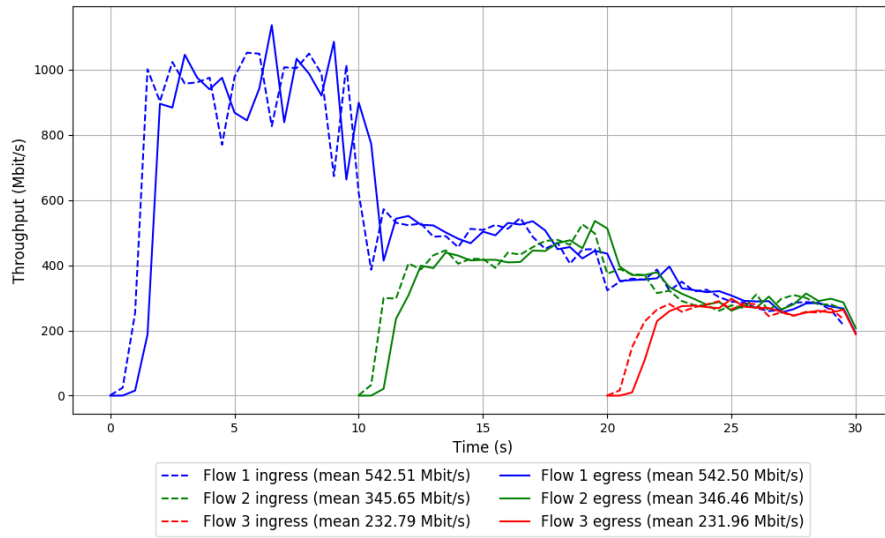
Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2019-04-23 23:54:20
End at: 2019-04-23 23:54:50
Local clock offset: -0.514 ms
Remote clock offset: -0.062 ms

# Below is generated by plot.py at 2019-04-24 02:22:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 848.47 Mbit/s
95th percentile per-packet one-way delay: 119.919 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 542.50 Mbit/s
95th percentile per-packet one-way delay: 130.624 ms
Loss rate: 0.58%
-- Flow 2:
Average throughput: 346.46 Mbit/s
95th percentile per-packet one-way delay: 90.576 ms
Loss rate: 0.70%
-- Flow 3:
Average throughput: 231.96 Mbit/s
95th percentile per-packet one-way delay: 87.833 ms
Loss rate: 1.96%
```
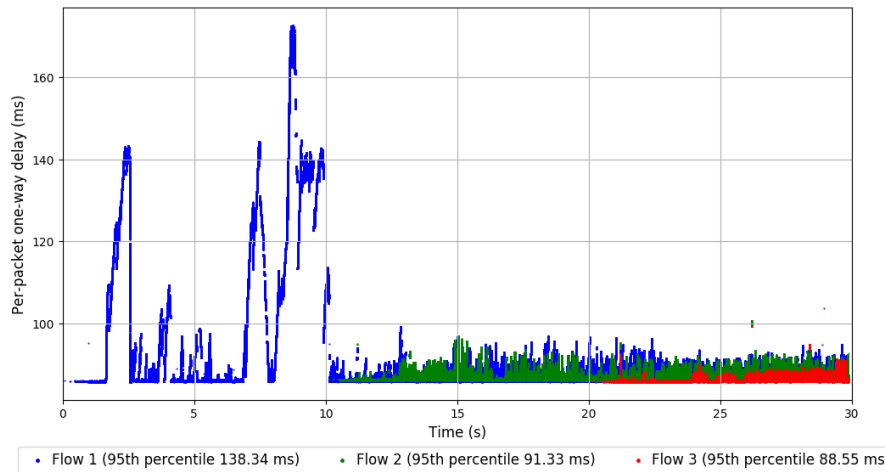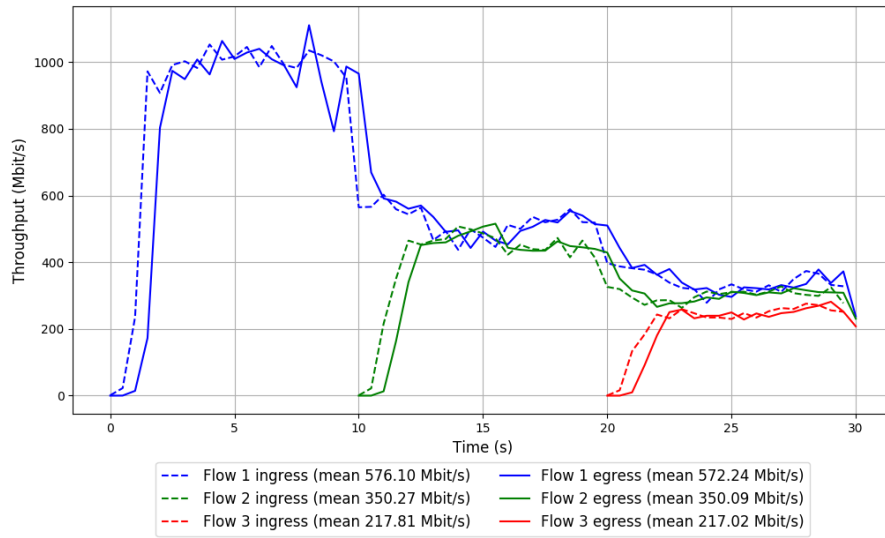
Run 3: Report of FillP — Data Link

Flow 1 ingress (mean 542.51 Mbit/s) --- Flow 1 egress (mean 542.50 Mbit/s)
Flow 2 ingress (mean 345.65 Mbit/s) --- Flow 2 egress (mean 346.46 Mbit/s)
Flow 3 ingress (mean 232.79 Mbit/s) --- Flow 3 egress (mean 231.96 Mbit/s)

Flow 1 (95th percentile 130.62 ms)   Flow 2 (95th percentile 90.58 ms)   Flow 3 (95th percentile 87.83 ms)

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```
Run 4: Statistics of FillP

Start at: 2019-04-24 00:31:34
End at: 2019-04-24 00:32:04
Local clock offset: -0.1 ms
Remote clock offset: 0.006 ms

# Below is generated by plot.py at 2019-04-24 02:22:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 875.42 Mbit/s
95th percentile per-packet one-way delay: 134.825 ms
Loss rate: 1.20%
-- Flow 1:
Average throughput: 572.24 Mbit/s
95th percentile per-packet one-way delay: 138.345 ms
Loss rate: 1.25%
-- Flow 2:
Average throughput: 350.09 Mbit/s
95th percentile per-packet one-way delay: 91.328 ms
Loss rate: 0.79%
-- Flow 3:
Average throughput: 217.02 Mbit/s
95th percentile per-packet one-way delay: 88.545 ms
Loss rate: 2.14%
```
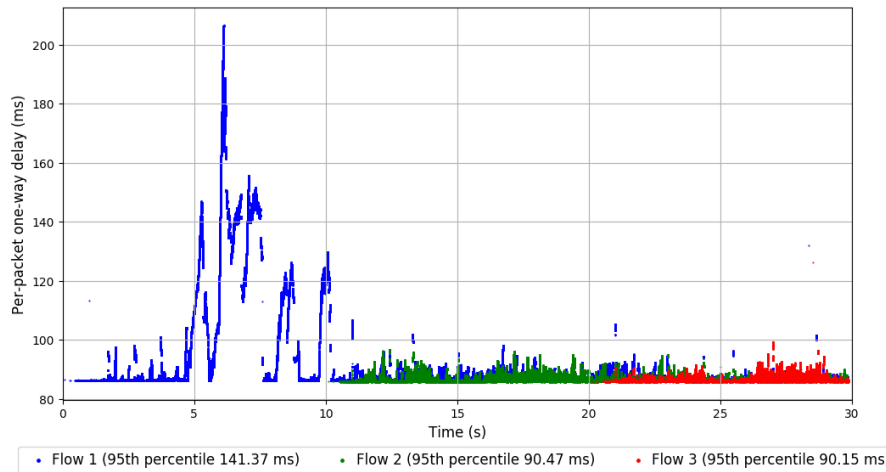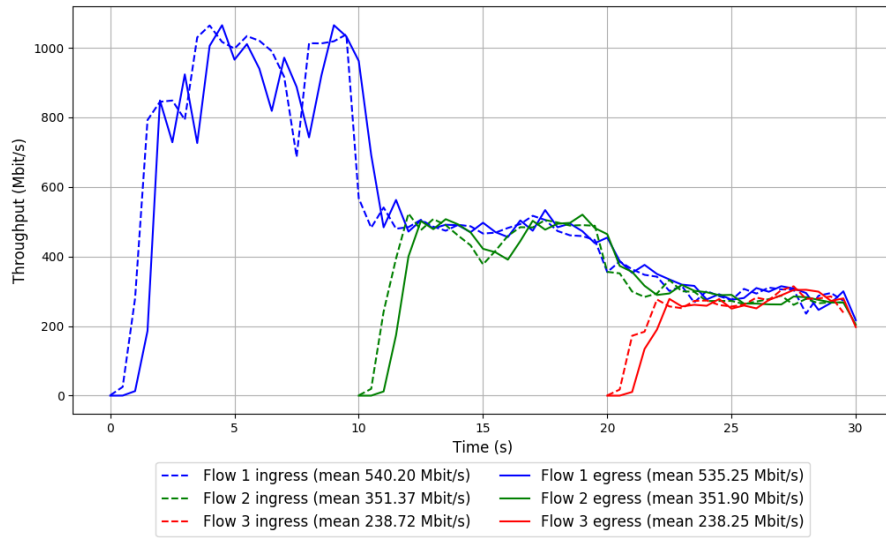
Run 4: Report of FillP — Data Link

```
Run 5: Statistics of FillP

Start at: 2019-04-24 01:09:23
End at: 2019-04-24 01:09:53
Local clock offset: 0.058 ms
Remote clock offset: -0.153 ms

# Below is generated by plot.py at 2019-04-24 02:23:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 846.27 Mbit/s
95th percentile per-packet one-way delay: 131.196 ms
Loss rate: 1.35%
-- Flow 1:
Average throughput: 535.25 Mbit/s
95th percentile per-packet one-way delay: 141.369 ms
Loss rate: 1.52%
-- Flow 2:
Average throughput: 351.90 Mbit/s
95th percentile per-packet one-way delay: 90.470 ms
Loss rate: 0.75%
-- Flow 3:
Average throughput: 238.25 Mbit/s
95th percentile per-packet one-way delay: 90.149 ms
Loss rate: 1.94%
```
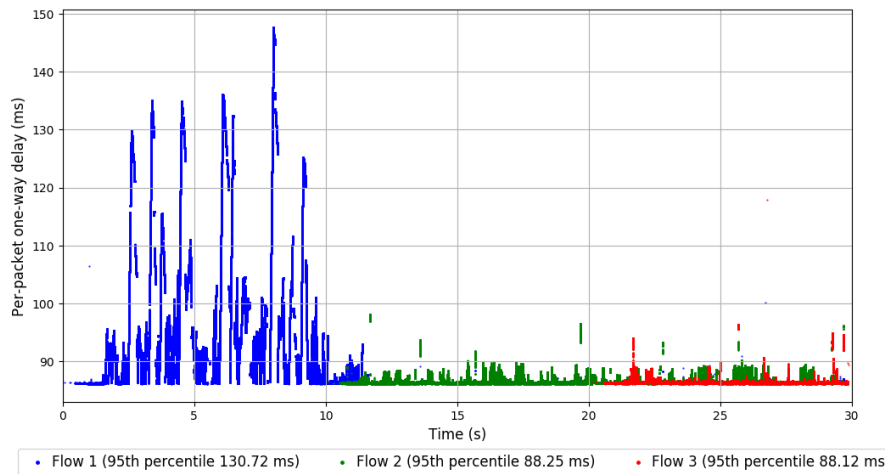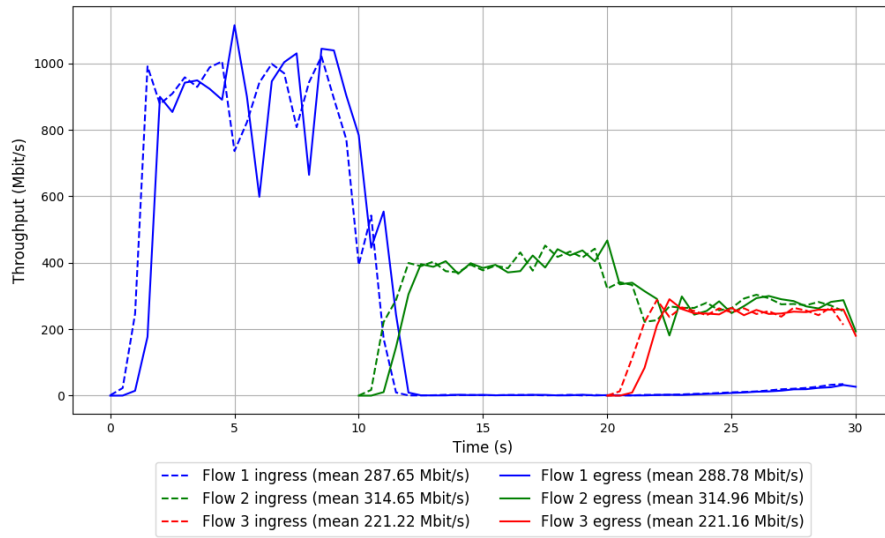
Run 5: Report of FillP — Data Link

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```
Run 1: Statistics of FillP-Sheep

Start at: 2019-04-23 22:32:06
End at: 2019-04-23 22:32:36
Local clock offset: 0.455 ms
Remote clock offset: 0.058 ms


# Below is generated by plot.py at 2019-04-24 02:23:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 569.91 Mbit/s
95th percentile per-packet one-way delay: 124.714 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 288.78 Mbit/s
95th percentile per-packet one-way delay: 130.719 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 314.96 Mbit/s
95th percentile per-packet one-way delay: 88.249 ms
Loss rate: 0.81%
-- Flow 3:
Average throughput: 221.16 Mbit/s
95th percentile per-packet one-way delay: 88.117 ms
Loss rate: 1.74%
```
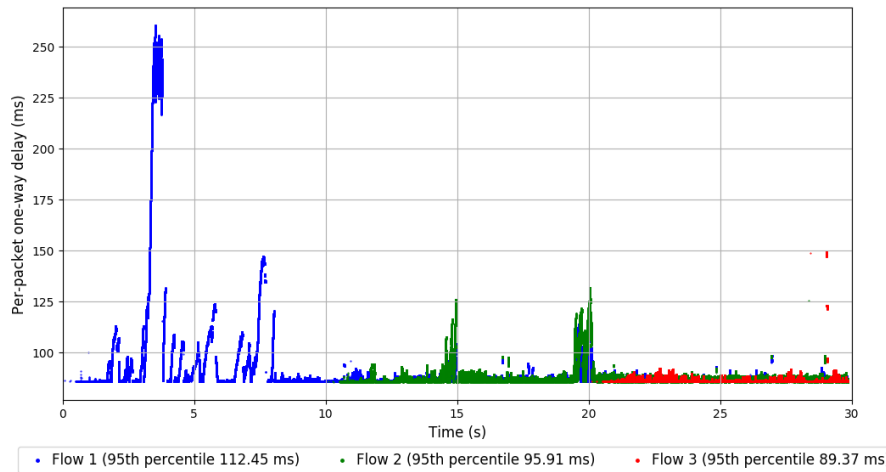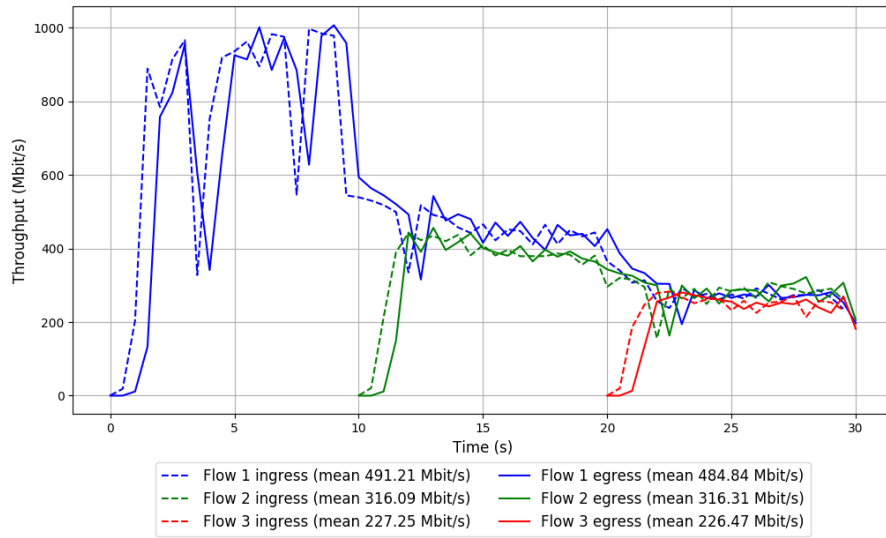
Run 1: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 287.65 Mbit/s) Flow 1 egress (mean 288.78 Mbit/s)
Flow 2 ingress (mean 314.65 Mbit/s) Flow 2 egress (mean 314.96 Mbit/s)
Flow 3 ingress (mean 221.22 Mbit/s) Flow 3 egress (mean 221.16 Mbit/s)

Flow 1 (95th percentile 130.72 ms) Flow 2 (95th percentile 88.25 ms) Flow 3 (95th percentile 88.12 ms)

```
Run 2: Statistics of FillP-Sheep

Start at: 2019-04-23 23:09:09
End at: 2019-04-23 23:09:39
Local clock offset: -0.57 ms
Remote clock offset: 0.013 ms


# Below is generated by plot.py at 2019-04-24 02:23:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 768.95 Mbit/s
95th percentile per-packet one-way delay: 107.458 ms
Loss rate: 1.56%
-- Flow 1:
Average throughput: 484.84 Mbit/s
95th percentile per-packet one-way delay: 112.452 ms
Loss rate: 1.80%
-- Flow 2:
Average throughput: 316.31 Mbit/s
95th percentile per-packet one-way delay: 95.910 ms
Loss rate: 0.80%
-- Flow 3:
Average throughput: 226.47 Mbit/s
95th percentile per-packet one-way delay: 89.367 ms
Loss rate: 2.11%
```
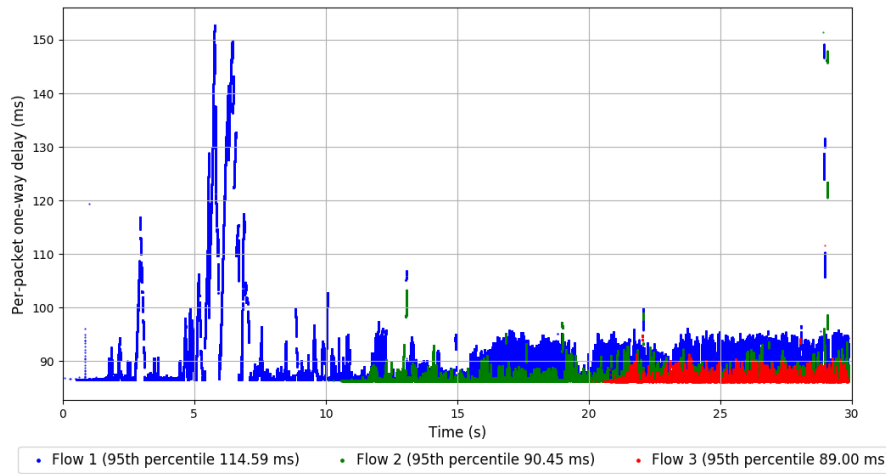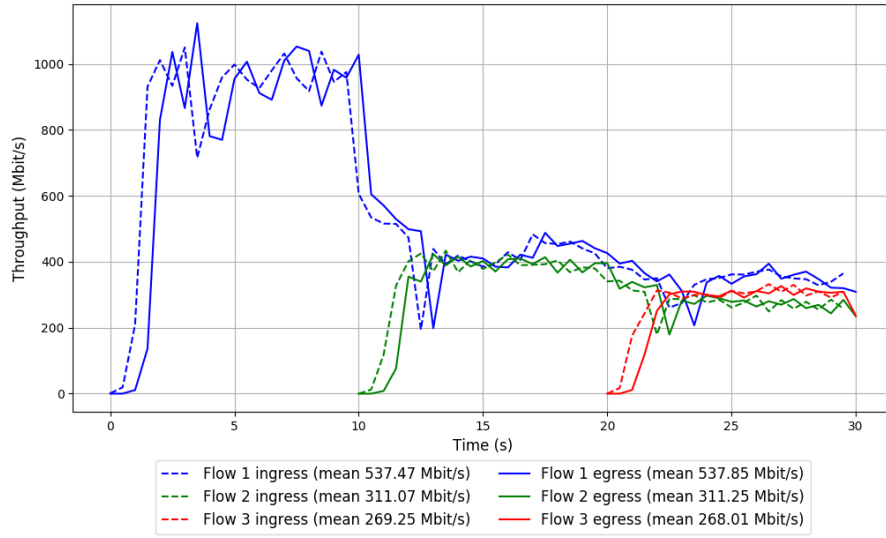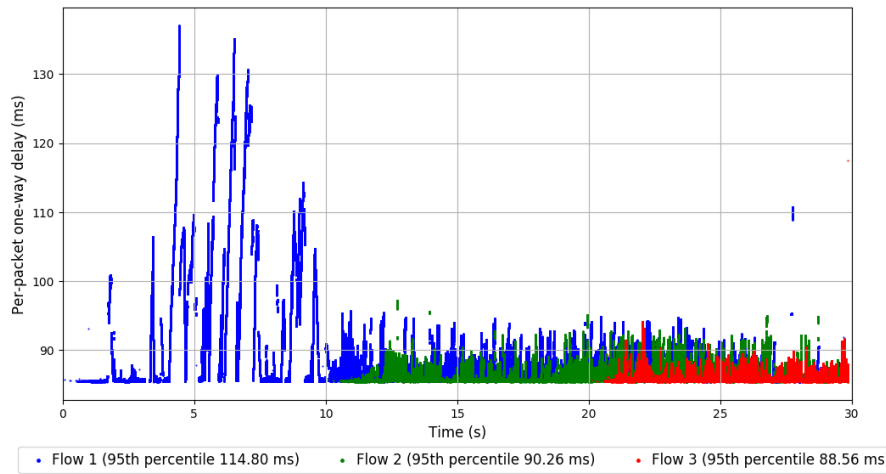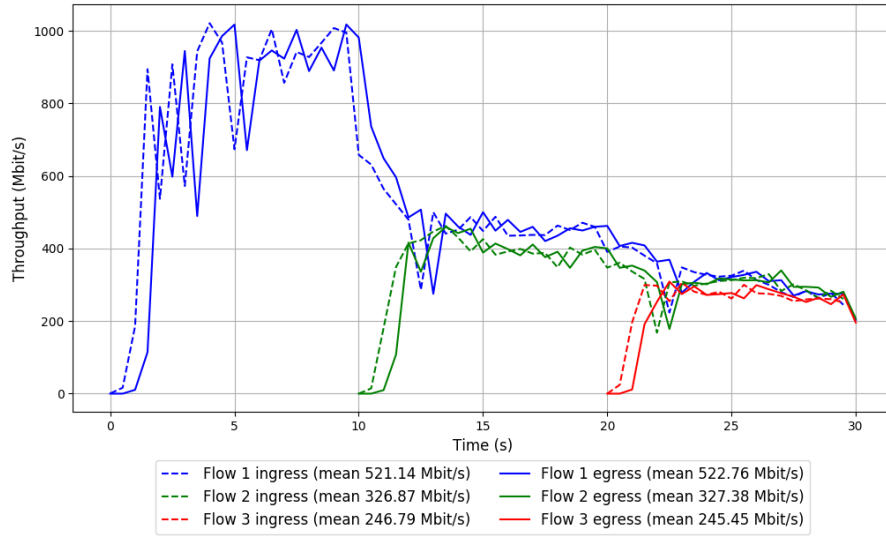
Run 2: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 491.21 Mbit/s)   Flow 1 egress (mean 484.84 Mbit/s)
Flow 2 ingress (mean 316.09 Mbit/s)   Flow 2 egress (mean 316.31 Mbit/s)
Flow 3 ingress (mean 227.25 Mbit/s)   Flow 3 egress (mean 226.47 Mbit/s)

Flow 1 (95th percentile 112.45 ms)   Flow 2 (95th percentile 95.91 ms)   Flow 3 (95th percentile 89.37 ms)

```
Run 3: Statistics of FillP-Sheep

Start at: 2019-04-23 23:46:24
End at: 2019-04-23 23:46:54
Local clock offset: 0.295 ms
Remote clock offset: -0.067 ms


# Below is generated by plot.py at 2019-04-24 02:25:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 832.12 Mbit/s
95th percentile per-packet one-way delay: 105.364 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 537.85 Mbit/s
95th percentile per-packet one-way delay: 114.592 ms
Loss rate: 0.50%
-- Flow 2:
Average throughput: 311.25 Mbit/s
95th percentile per-packet one-way delay: 90.453 ms
Loss rate: 0.69%
-- Flow 3:
Average throughput: 268.01 Mbit/s
95th percentile per-packet one-way delay: 88.996 ms
Loss rate: 2.24%
```

Run 3: Report of FillP-Sheep — Data Link

```
Run 4: Statistics of FillP-Sheep

Start at: 2019-04-24 00:23:33
End at: 2019-04-24 00:24:03
Local clock offset: -0.475 ms
Remote clock offset: -0.013 ms


# Below is generated by plot.py at 2019-04-24 02:28:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 819.99 Mbit/s
95th percentile per-packet one-way delay: 107.686 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 522.76 Mbit/s
95th percentile per-packet one-way delay: 114.797 ms
Loss rate: 0.29%
-- Flow 2:
Average throughput: 327.38 Mbit/s
95th percentile per-packet one-way delay: 90.258 ms
Loss rate: 0.75%
-- Flow 3:
Average throughput: 245.45 Mbit/s
95th percentile per-packet one-way delay: 88.565 ms
Loss rate: 2.04%
```
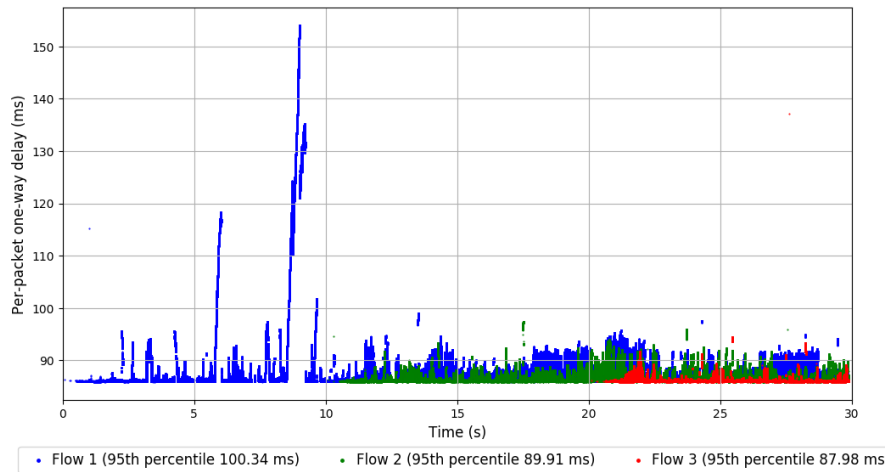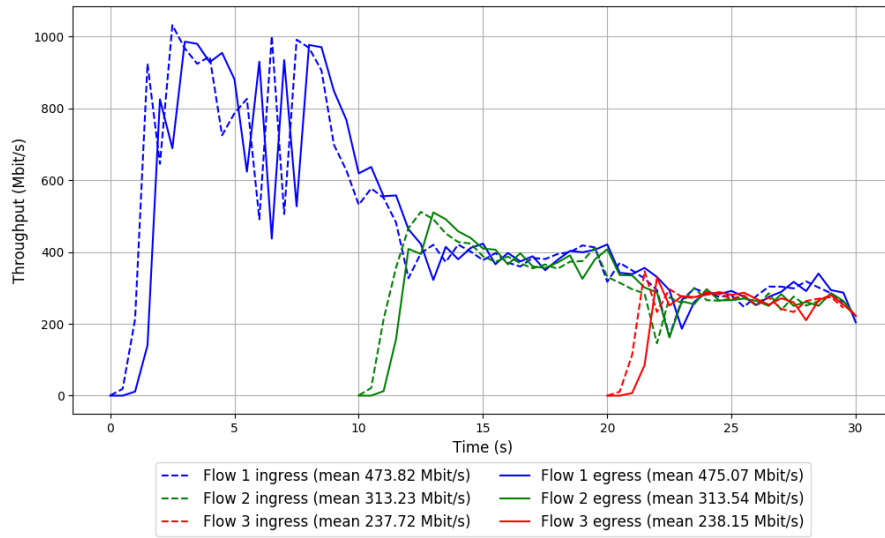
Run 4: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 521.14 Mbit/s) --- Flow 1 egress (mean 522.76 Mbit/s)
Flow 2 ingress (mean 326.87 Mbit/s) --- Flow 2 egress (mean 327.38 Mbit/s)
Flow 3 ingress (mean 246.79 Mbit/s) --- Flow 3 egress (mean 245.45 Mbit/s)

Flow 1 (95th percentile 114.80 ms) · Flow 2 (95th percentile 90.26 ms) · Flow 3 (95th percentile 88.56 ms)

```
Run 5: Statistics of FillP-Sheep

Start at: 2019-04-24 01:01:17
End at: 2019-04-24 01:01:47
Local clock offset: 0.185 ms
Remote clock offset: -0.168 ms


# Below is generated by plot.py at 2019-04-24 02:34:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 761.00 Mbit/s
95th percentile per-packet one-way delay: 93.375 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 475.07 Mbit/s
95th percentile per-packet one-way delay: 100.342 ms
Loss rate: 0.34%
-- Flow 2:
Average throughput: 313.54 Mbit/s
95th percentile per-packet one-way delay: 89.906 ms
Loss rate: 0.69%
-- Flow 3:
Average throughput: 238.15 Mbit/s
95th percentile per-packet one-way delay: 87.984 ms
Loss rate: 1.57%
```
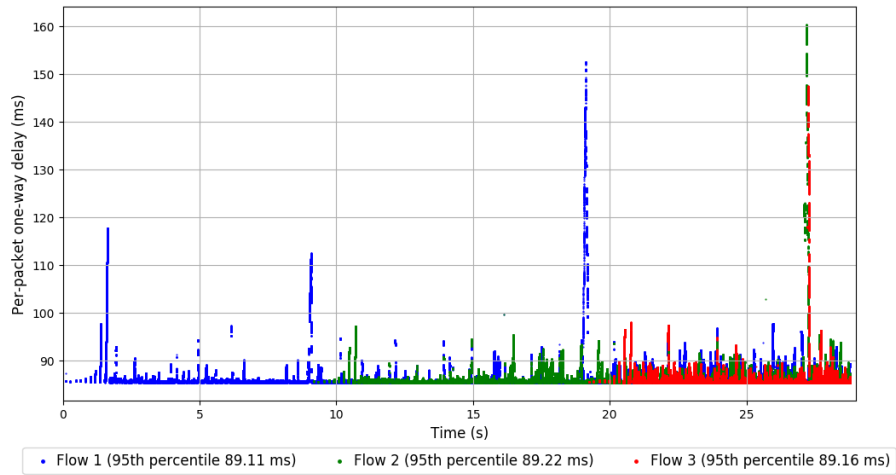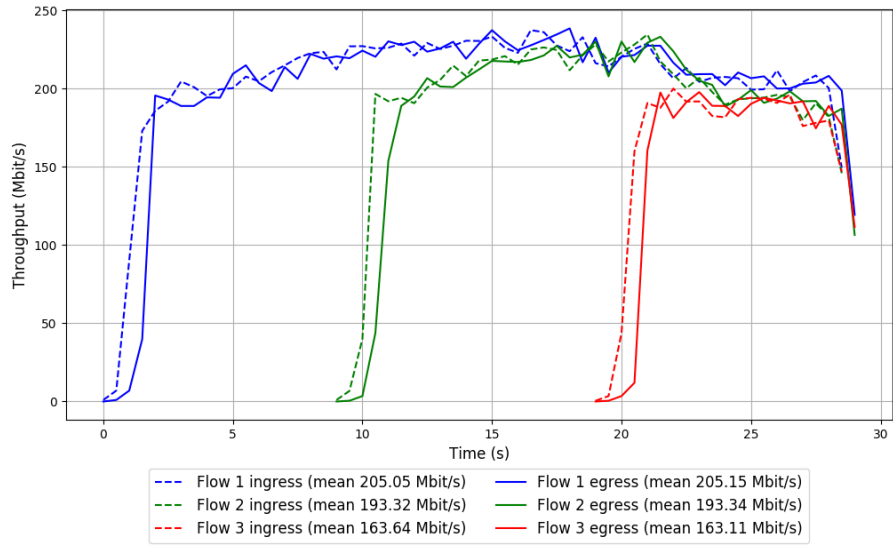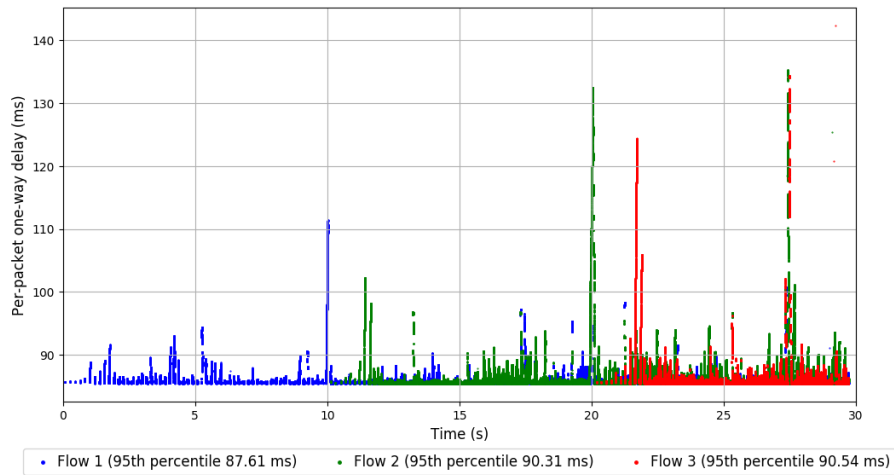
Run 5: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 473.82 Mbit/s)   Flow 1 egress (mean 475.07 Mbit/s)
Flow 2 ingress (mean 313.23 Mbit/s)   Flow 2 egress (mean 313.54 Mbit/s)
Flow 3 ingress (mean 237.72 Mbit/s)   Flow 3 egress (mean 238.15 Mbit/s)

Flow 1 (95th percentile 100.34 ms)   Flow 2 (95th percentile 89.91 ms)   Flow 3 (95th percentile 87.98 ms)

```
Run 1: Statistics of Indigo

Start at: 2019-04-23 22:27:00
End at: 2019-04-23 22:27:30
Local clock offset: -0.198 ms
Remote clock offset: 0.065 ms


# Below is generated by plot.py at 2019-04-24 02:34:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 391.64 Mbit/s
95th percentile per-packet one-way delay: 89.160 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 205.15 Mbit/s
95th percentile per-packet one-way delay: 89.114 ms
Loss rate: 0.56%
-- Flow 2:
Average throughput: 193.34 Mbit/s
95th percentile per-packet one-way delay: 89.215 ms
Loss rate: 0.86%
-- Flow 3:
Average throughput: 163.11 Mbit/s
95th percentile per-packet one-way delay: 89.159 ms
Loss rate: 2.09%
```
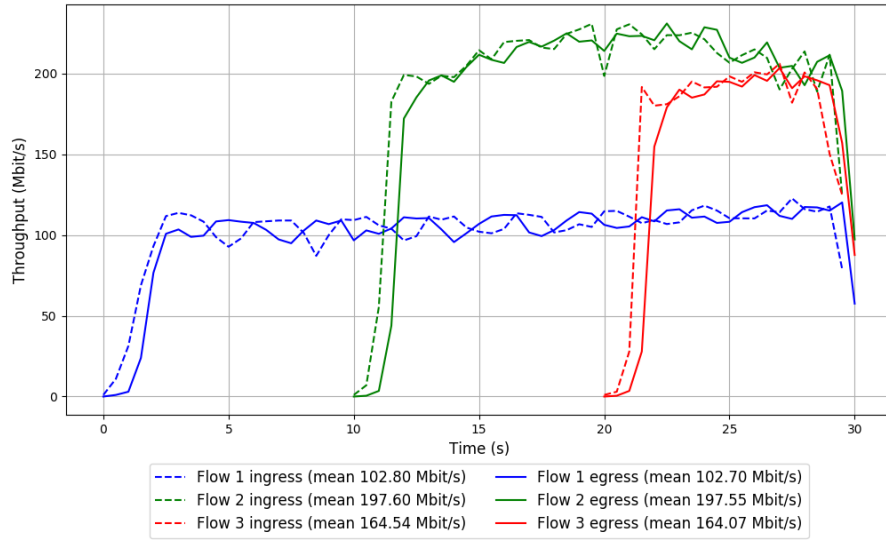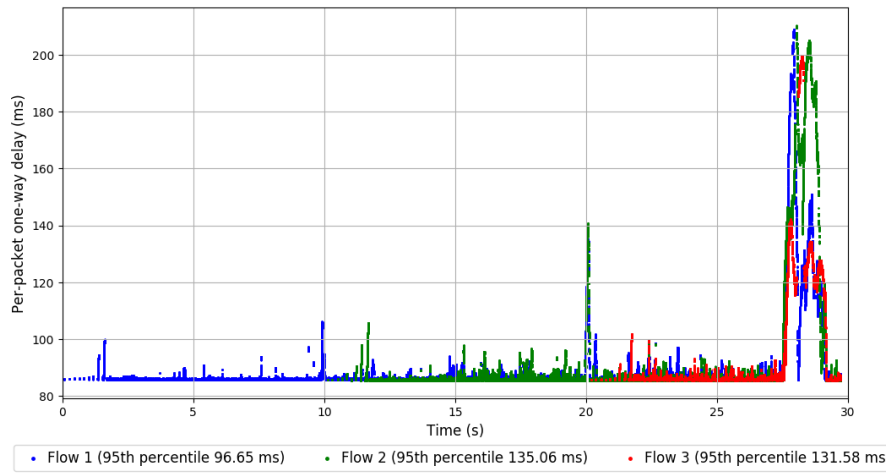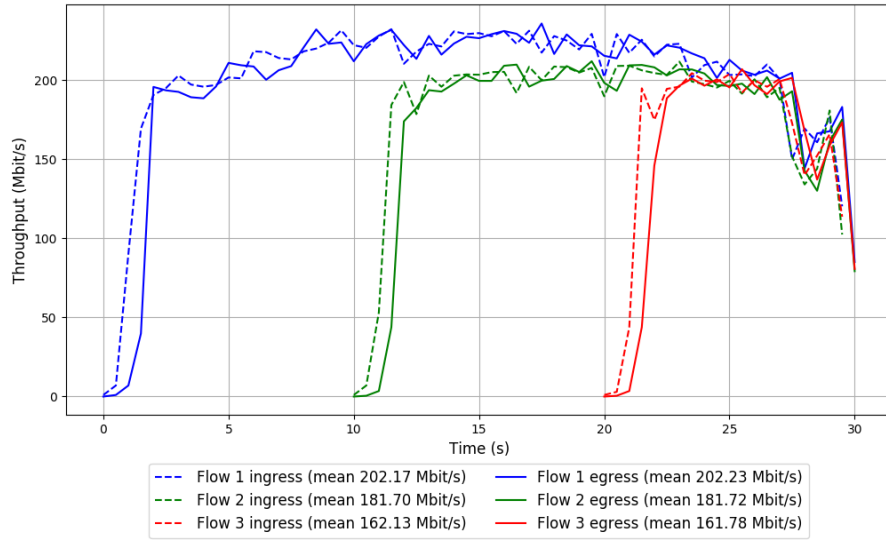
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2019-04-23 23:04:11
End at: 2019-04-23 23:04:41
Local clock offset: -0.398 ms
Remote clock offset: 0.011 ms


# Below is generated by plot.py at 2019-04-24 02:34:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 286.13 Mbit/s
95th percentile per-packet one-way delay: 89.271 ms
Loss rate: 1.04%
-- Flow 1:
Average throughput: 102.70 Mbit/s
95th percentile per-packet one-way delay: 87.608 ms
Loss rate: 0.67%
-- Flow 2:
Average throughput: 197.55 Mbit/s
95th percentile per-packet one-way delay: 90.308 ms
Loss rate: 0.90%
-- Flow 3:
Average throughput: 164.07 Mbit/s
95th percentile per-packet one-way delay: 90.539 ms
Loss rate: 2.07%
```
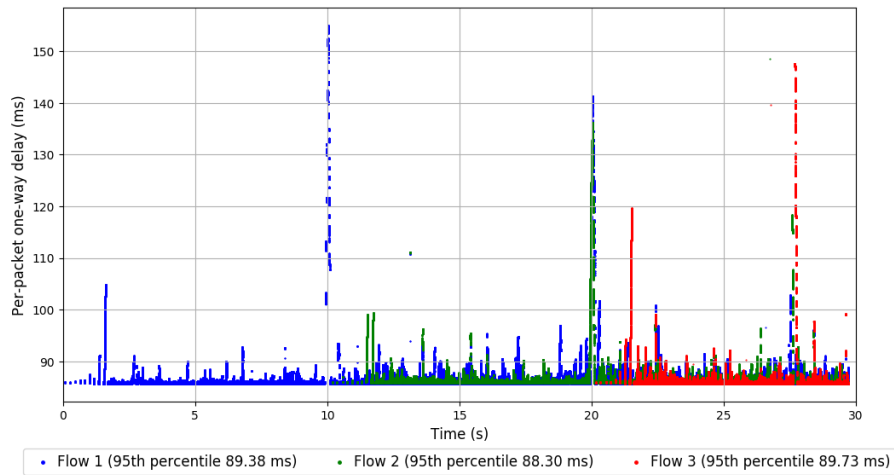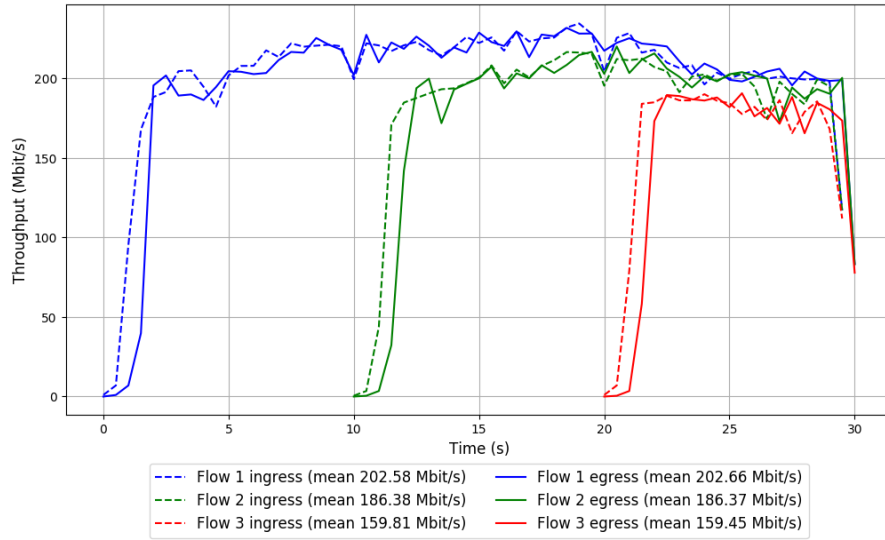
Run 2: Report of Indigo — Data Link

Flow 1 ingress (mean 102.80 Mbit/s) ----- Flow 1 egress (mean 102.70 Mbit/s) ——
Flow 2 ingress (mean 197.60 Mbit/s) ----- Flow 2 egress (mean 197.55 Mbit/s) ——
Flow 3 ingress (mean 164.54 Mbit/s) ----- Flow 3 egress (mean 164.07 Mbit/s) ——

Flow 1 (95th percentile 87.61 ms)   Flow 2 (95th percentile 90.31 ms)   Flow 3 (95th percentile 90.54 ms)

```
Run 3: Statistics of Indigo

Start at: 2019-04-23 23:41:15
End at: 2019-04-23 23:41:45
Local clock offset: -0.414 ms
Remote clock offset: -0.081 ms


# Below is generated by plot.py at 2019-04-24 02:36:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 374.42 Mbit/s
95th percentile per-packet one-way delay: 119.830 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 202.23 Mbit/s
95th percentile per-packet one-way delay: 96.652 ms
Loss rate: 0.55%
-- Flow 2:
Average throughput: 181.72 Mbit/s
95th percentile per-packet one-way delay: 135.063 ms
Loss rate: 0.85%
-- Flow 3:
Average throughput: 161.78 Mbit/s
95th percentile per-packet one-way delay: 131.577 ms
Loss rate: 1.98%
```
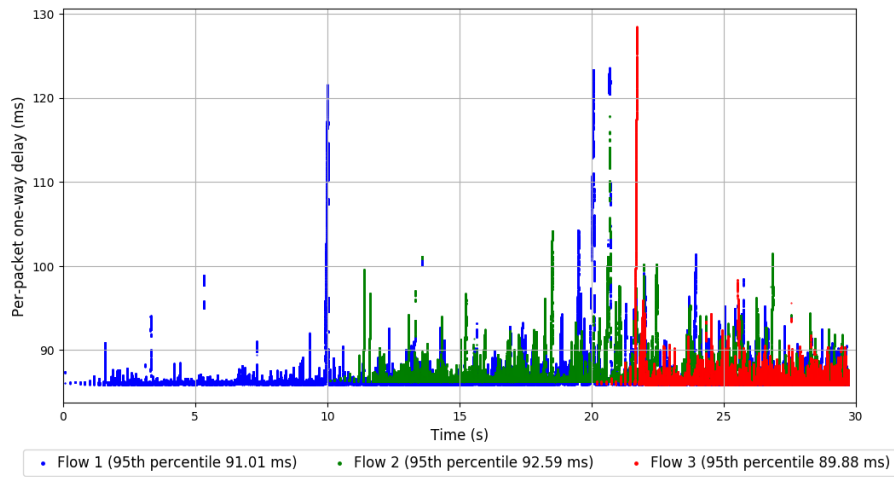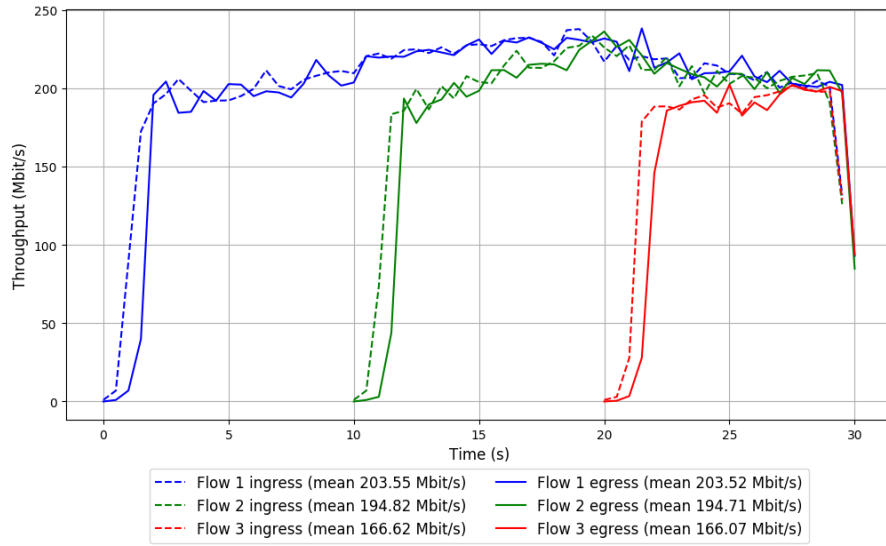
Run 3: Report of Indigo — Data Link

Flow 1 ingress (mean 202.17 Mbit/s) --- Flow 1 egress (mean 202.23 Mbit/s)
Flow 2 ingress (mean 181.70 Mbit/s) --- Flow 2 egress (mean 181.72 Mbit/s)
Flow 3 ingress (mean 162.13 Mbit/s) --- Flow 3 egress (mean 161.78 Mbit/s)

Flow 1 (95th percentile 96.65 ms) • Flow 2 (95th percentile 135.06 ms) • Flow 3 (95th percentile 131.58 ms)

```
Run 4: Statistics of Indigo

Start at: 2019-04-24 00:18:28
End at: 2019-04-24 00:18:58
Local clock offset: -0.117 ms
Remote clock offset: -0.002 ms


# Below is generated by plot.py at 2019-04-24 02:36:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 376.82 Mbit/s
95th percentile per-packet one-way delay: 89.043 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 202.66 Mbit/s
95th percentile per-packet one-way delay: 89.380 ms
Loss rate: 0.54%
-- Flow 2:
Average throughput: 186.37 Mbit/s
95th percentile per-packet one-way delay: 88.297 ms
Loss rate: 0.88%
-- Flow 3:
Average throughput: 159.45 Mbit/s
95th percentile per-packet one-way delay: 89.726 ms
Loss rate: 1.97%
```
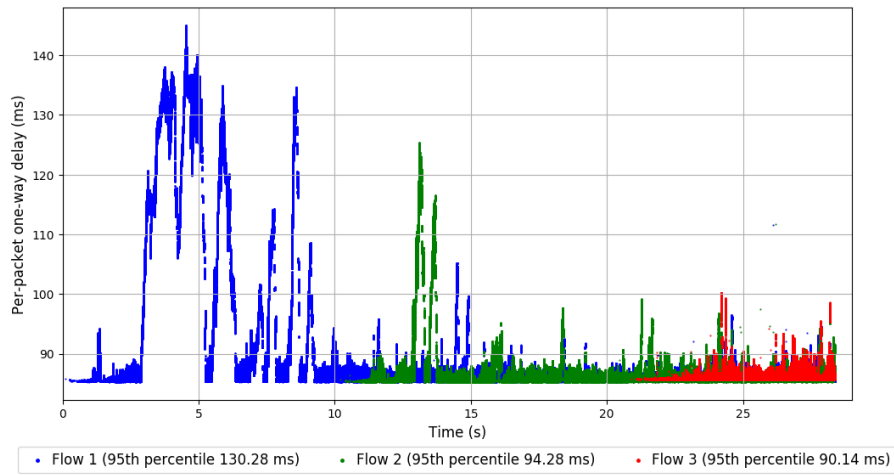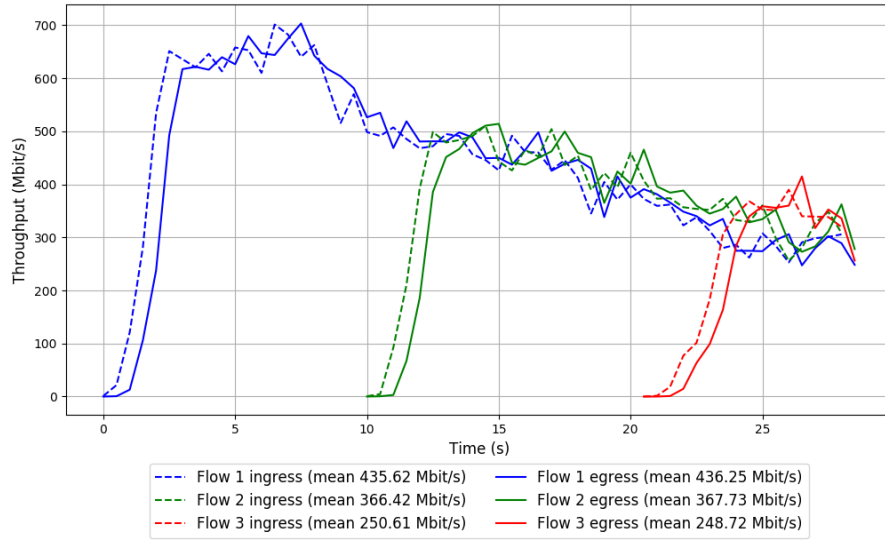
Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2019-04-24 00:56:06
End at: 2019-04-24 00:56:36
Local clock offset: 0.179 ms
Remote clock offset: -0.161 ms


# Below is generated by plot.py at 2019-04-24 02:36:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 385.95 Mbit/s
95th percentile per-packet one-way delay: 91.502 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 203.52 Mbit/s
95th percentile per-packet one-way delay: 91.012 ms
Loss rate: 0.59%
-- Flow 2:
Average throughput: 194.71 Mbit/s
95th percentile per-packet one-way delay: 92.590 ms
Loss rate: 0.92%
-- Flow 3:
Average throughput: 166.07 Mbit/s
95th percentile per-packet one-way delay: 89.880 ms
Loss rate: 2.11%
```
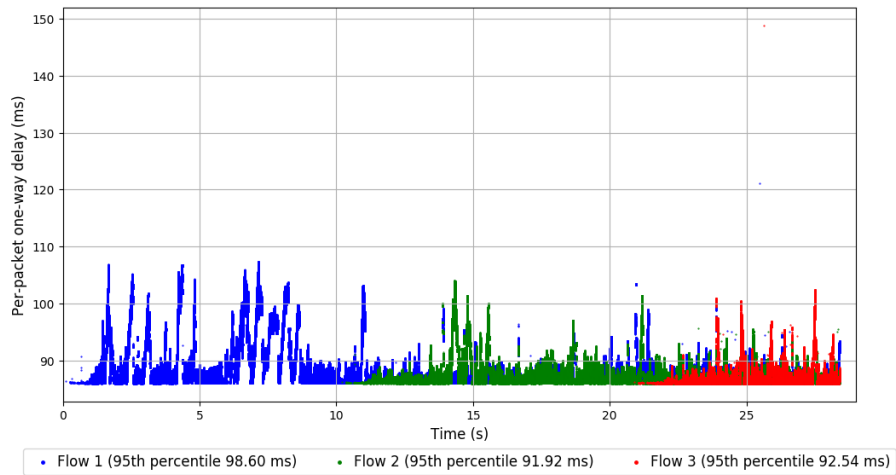
Run 5: Report of Indigo — Data Link

64

```
Run 1: Statistics of Indigo-MusesC3

Start at: 2019-04-23 22:23:10
End at: 2019-04-23 22:23:40
Local clock offset: -0.116 ms
Remote clock offset: 0.125 ms


# Below is generated by plot.py at 2019-04-24 02:39:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 737.93 Mbit/s
95th percentile per-packet one-way delay: 123.707 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 436.25 Mbit/s
95th percentile per-packet one-way delay: 130.283 ms
Loss rate: 0.47%
-- Flow 2:
Average throughput: 367.73 Mbit/s
95th percentile per-packet one-way delay: 94.283 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 248.72 Mbit/s
95th percentile per-packet one-way delay: 90.140 ms
Loss rate: 2.95%
```
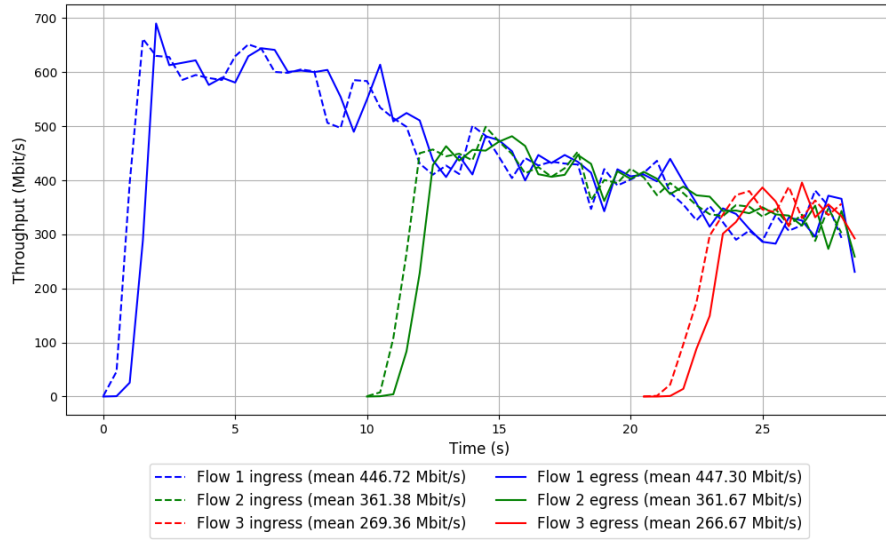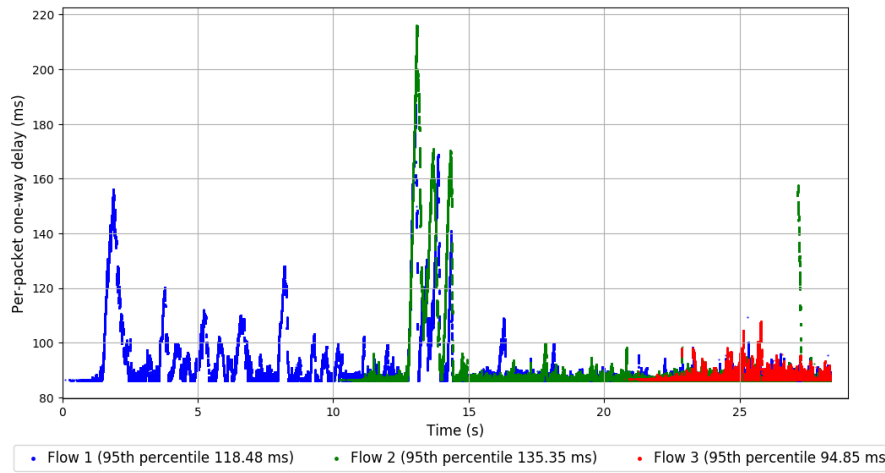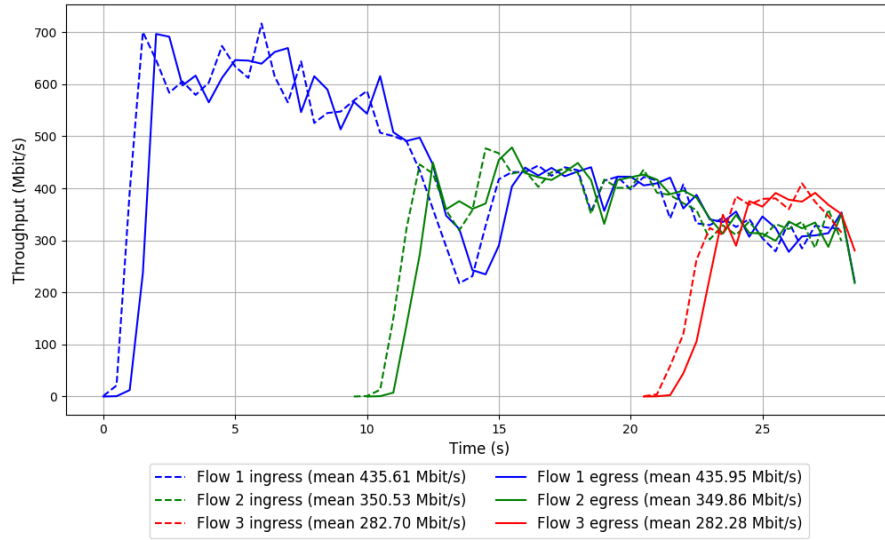
Run 1: Report of Indigo-MusesC3 — Data Link

```
Run 2: Statistics of Indigo-MusesC3

Start at: 2019-04-23 23:00:17
End at: 2019-04-23 23:00:47
Local clock offset: 0.044 ms
Remote clock offset: 0.017 ms


# Below is generated by plot.py at 2019-04-24 02:41:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 750.66 Mbit/s
95th percentile per-packet one-way delay: 96.813 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 447.30 Mbit/s
95th percentile per-packet one-way delay: 98.596 ms
Loss rate: 0.48%
-- Flow 2:
Average throughput: 361.67 Mbit/s
95th percentile per-packet one-way delay: 91.921 ms
Loss rate: 0.86%
-- Flow 3:
Average throughput: 266.67 Mbit/s
95th percentile per-packet one-way delay: 92.538 ms
Loss rate: 3.23%
```
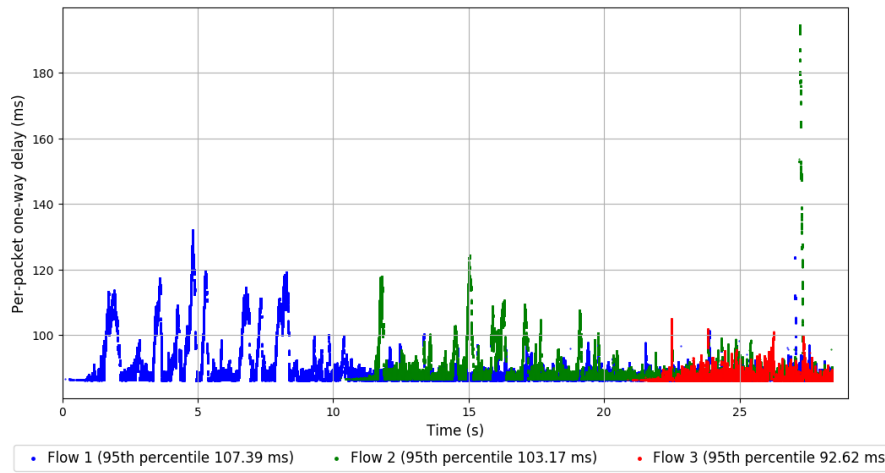
Run 2: Report of Indigo-MusesC3 — Data Link

```
Run 3: Statistics of Indigo-MusesC3

Start at: 2019-04-23 23:37:27
End at: 2019-04-23 23:37:57
Local clock offset: 0.28 ms
Remote clock offset: -0.025 ms


# Below is generated by plot.py at 2019-04-24 02:45:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 738.17 Mbit/s
95th percentile per-packet one-way delay: 119.073 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 435.95 Mbit/s
95th percentile per-packet one-way delay: 118.481 ms
Loss rate: 0.53%
-- Flow 2:
Average throughput: 349.86 Mbit/s
95th percentile per-packet one-way delay: 135.351 ms
Loss rate: 1.11%
-- Flow 3:
Average throughput: 282.28 Mbit/s
95th percentile per-packet one-way delay: 94.853 ms
Loss rate: 2.36%
```
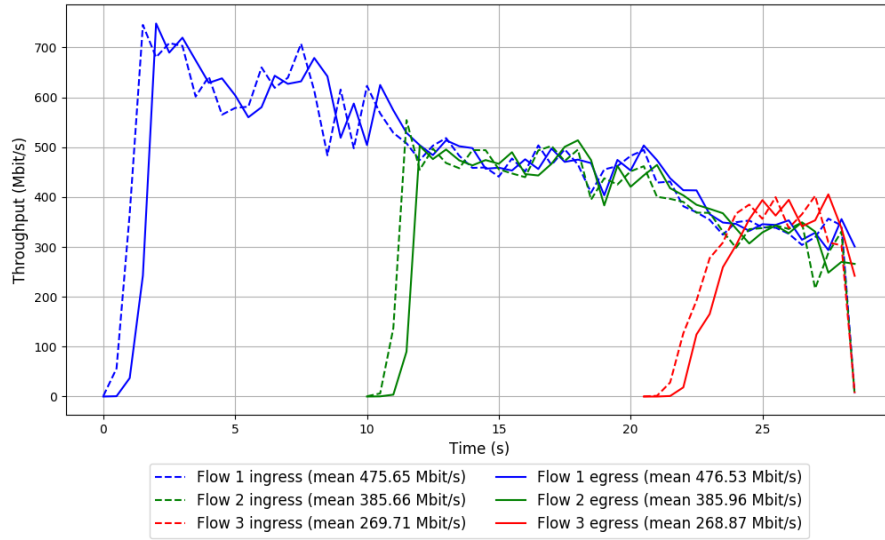
Run 3: Report of Indigo-MusesC3 — Data Link

```
Run 4: Statistics of Indigo-MusesC3

Start at: 2019-04-24 00:14:34
End at: 2019-04-24 00:15:04
Local clock offset: 0.307 ms
Remote clock offset: -0.03 ms

# Below is generated by plot.py at 2019-04-24 02:48:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 795.42 Mbit/s
95th percentile per-packet one-way delay: 105.682 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 476.53 Mbit/s
95th percentile per-packet one-way delay: 107.385 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 385.96 Mbit/s
95th percentile per-packet one-way delay: 103.174 ms
Loss rate: 0.87%
-- Flow 3:
Average throughput: 268.87 Mbit/s
95th percentile per-packet one-way delay: 92.619 ms
Loss rate: 2.63%
```
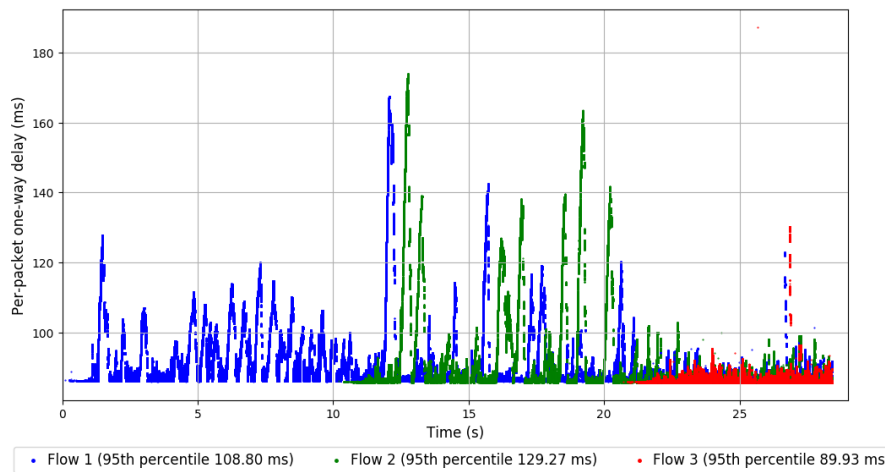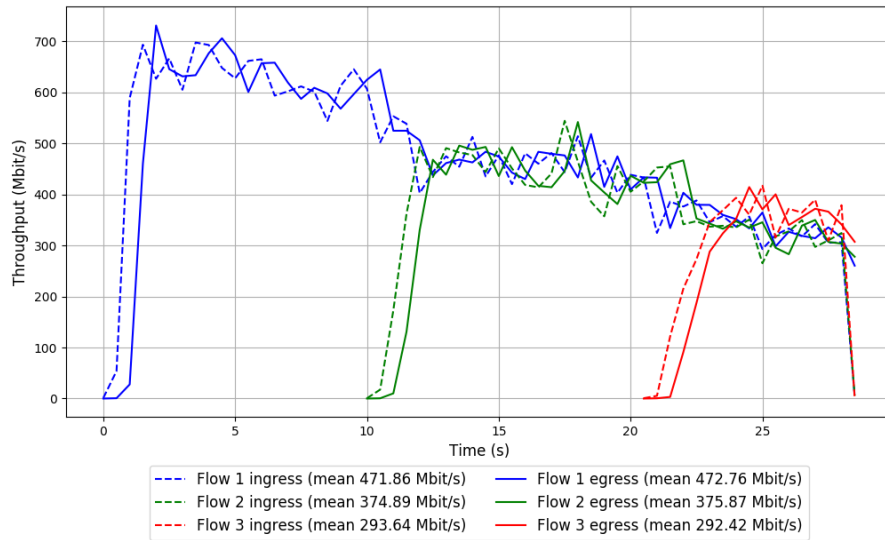
Run 4: Report of Indigo-MusesC3 — Data Link

- - - Flow 1 ingress (mean 475.65 Mbit/s)   —— Flow 1 egress (mean 476.53 Mbit/s)
- - - Flow 2 ingress (mean 385.66 Mbit/s)   —— Flow 2 egress (mean 385.96 Mbit/s)
- - - Flow 3 ingress (mean 269.71 Mbit/s)   —— Flow 3 egress (mean 268.87 Mbit/s)

- Flow 1 (95th percentile 107.39 ms)   • Flow 2 (95th percentile 103.17 ms)   • Flow 3 (95th percentile 92.62 ms)

```
Run 5: Statistics of Indigo-MusesC3

Start at: 2019-04-24 00:52:11
End at: 2019-04-24 00:52:41
Local clock offset: -0.012 ms
Remote clock offset: -0.168 ms


# Below is generated by plot.py at 2019-04-24 02:48:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 793.77 Mbit/s
95th percentile per-packet one-way delay: 112.952 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 472.76 Mbit/s
95th percentile per-packet one-way delay: 108.798 ms
Loss rate: 0.42%
-- Flow 2:
Average throughput: 375.87 Mbit/s
95th percentile per-packet one-way delay: 129.272 ms
Loss rate: 0.72%
-- Flow 3:
Average throughput: 292.42 Mbit/s
95th percentile per-packet one-way delay: 89.926 ms
Loss rate: 2.60%
```
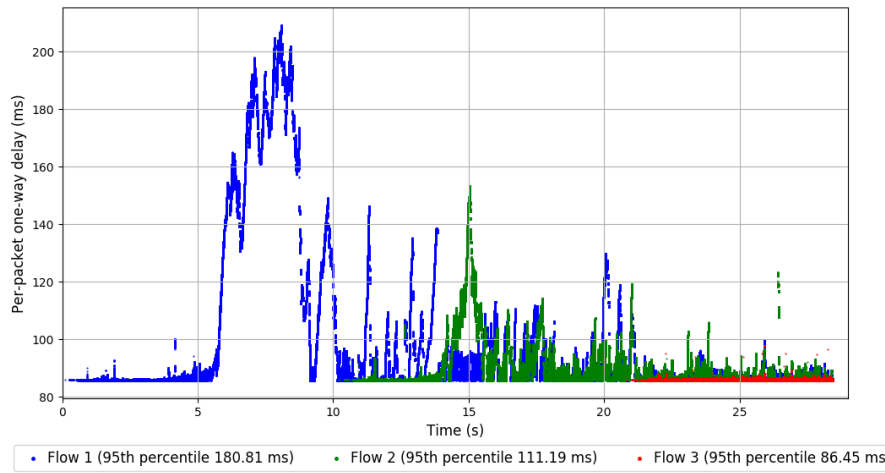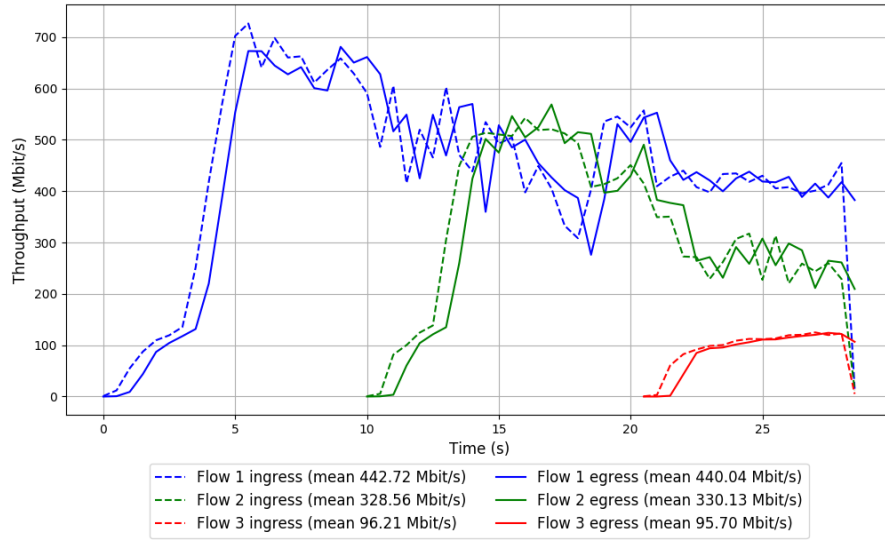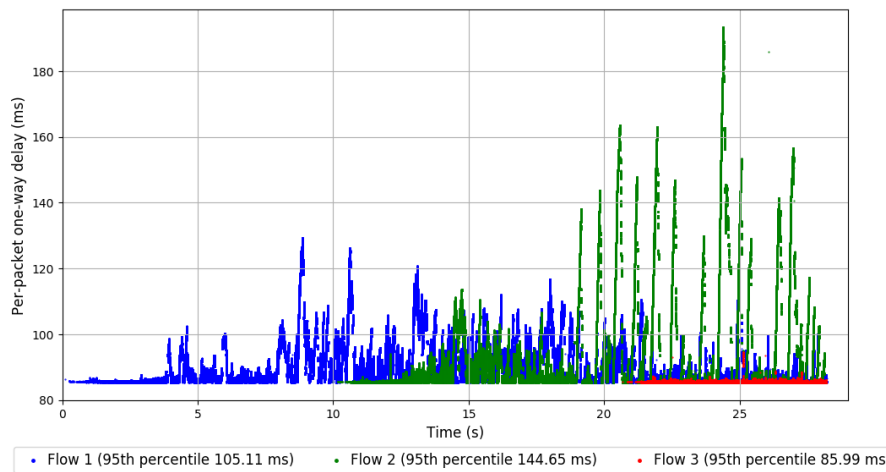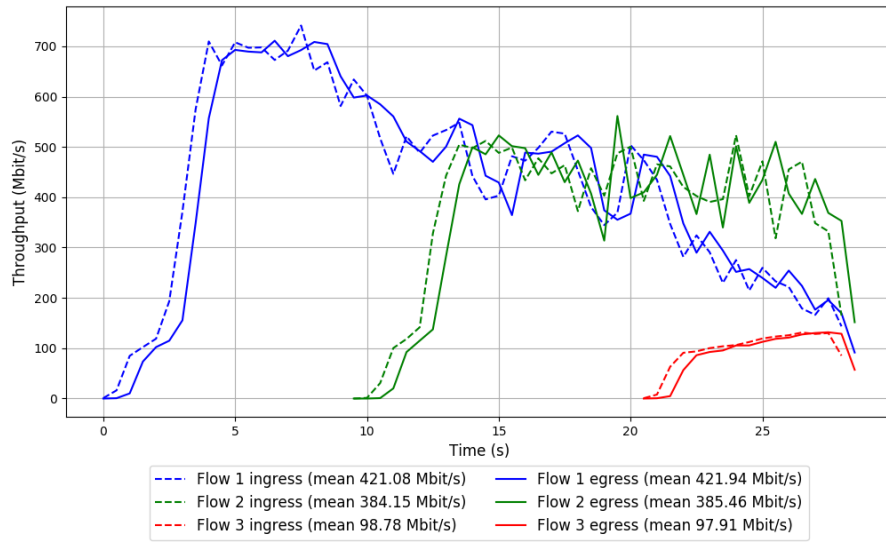
Run 5: Report of Indigo-MusesC3 — Data Link

- - - Flow 1 ingress (mean 471.86 Mbit/s) —— Flow 1 egress (mean 472.76 Mbit/s)
- - - Flow 2 ingress (mean 374.89 Mbit/s) —— Flow 2 egress (mean 375.87 Mbit/s)
- - - Flow 3 ingress (mean 293.64 Mbit/s) —— Flow 3 egress (mean 292.42 Mbit/s)

- Flow 1 (95th percentile 108.80 ms) - Flow 2 (95th percentile 129.27 ms) - Flow 3 (95th percentile 89.93 ms)

74

```
Run 1: Statistics of Indigo-MusesC5

Start at: 2019-04-23 22:36:37
End at: 2019-04-23 22:37:07
Local clock offset: -0.056 ms
Remote clock offset: 0.018 ms


# Below is generated by plot.py at 2019-04-24 02:48:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 677.45 Mbit/s
95th percentile per-packet one-way delay: 171.799 ms
Loss rate: 1.04%
-- Flow 1:
Average throughput: 440.04 Mbit/s
95th percentile per-packet one-way delay: 180.806 ms
Loss rate: 1.21%
-- Flow 2:
Average throughput: 330.13 Mbit/s
95th percentile per-packet one-way delay: 111.192 ms
Loss rate: 0.48%
-- Flow 3:
Average throughput: 95.70 Mbit/s
95th percentile per-packet one-way delay: 86.447 ms
Loss rate: 2.75%
```

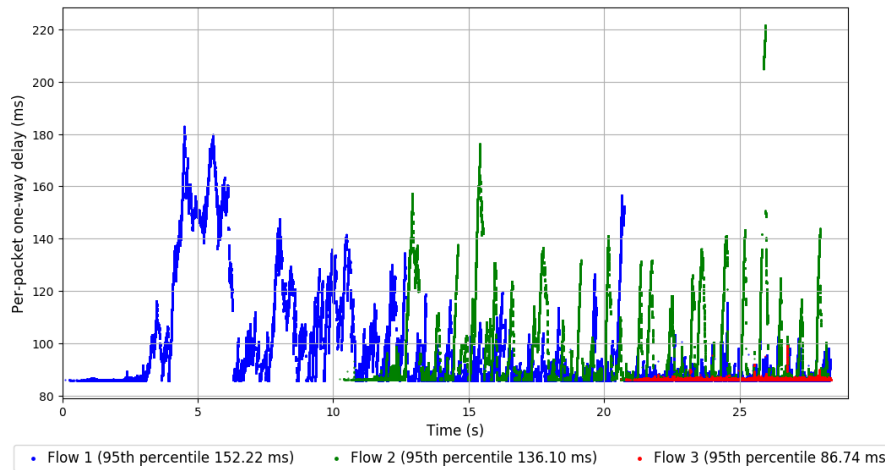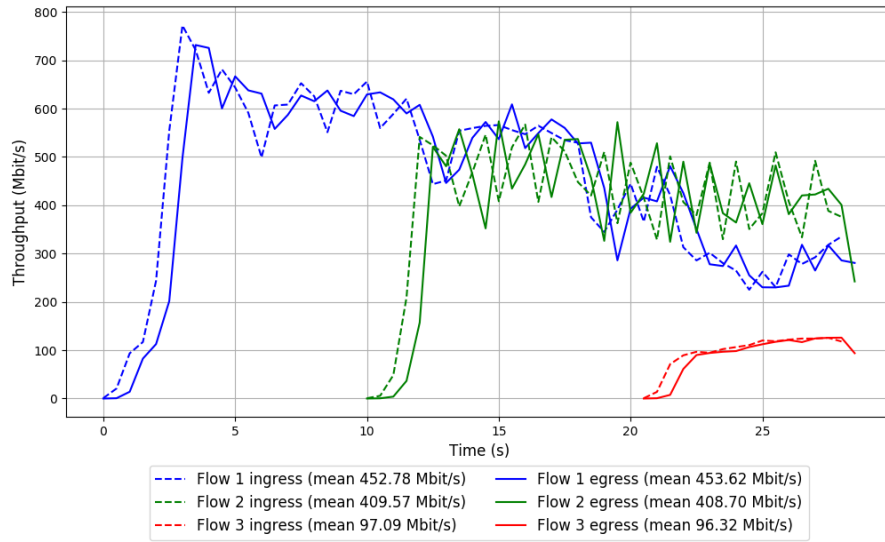Run 1: Report of Indigo-MusesC5 — Data Link

- - - - Flow 1 ingress (mean 442.72 Mbit/s) —— Flow 1 egress (mean 440.04 Mbit/s)
- - - - Flow 2 ingress (mean 328.56 Mbit/s) —— Flow 2 egress (mean 330.13 Mbit/s)
- - - - Flow 3 ingress (mean 96.21 Mbit/s) —— Flow 3 egress (mean 95.70 Mbit/s)

• Flow 1 (95th percentile 180.81 ms)   • Flow 2 (95th percentile 111.19 ms)   • Flow 3 (95th percentile 86.45 ms)

76

```
Run 2: Statistics of Indigo-MusesC5

Start at: 2019-04-23 23:13:49
End at: 2019-04-23 23:14:19
Local clock offset: -0.546 ms
Remote clock offset: 0.011 ms


# Below is generated by plot.py at 2019-04-24 02:48:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 697.50 Mbit/s
95th percentile per-packet one-way delay: 124.323 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 421.94 Mbit/s
95th percentile per-packet one-way delay: 105.107 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 385.46 Mbit/s
95th percentile per-packet one-way delay: 144.647 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 97.91 Mbit/s
95th percentile per-packet one-way delay: 85.989 ms
Loss rate: 3.15%
```
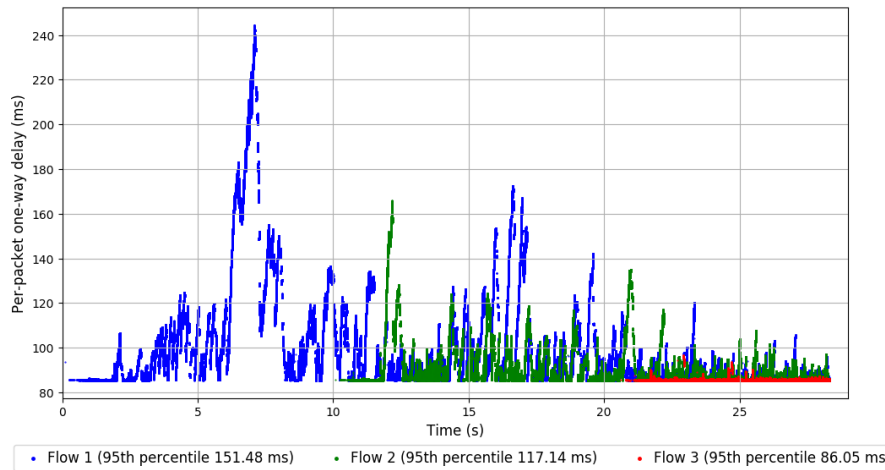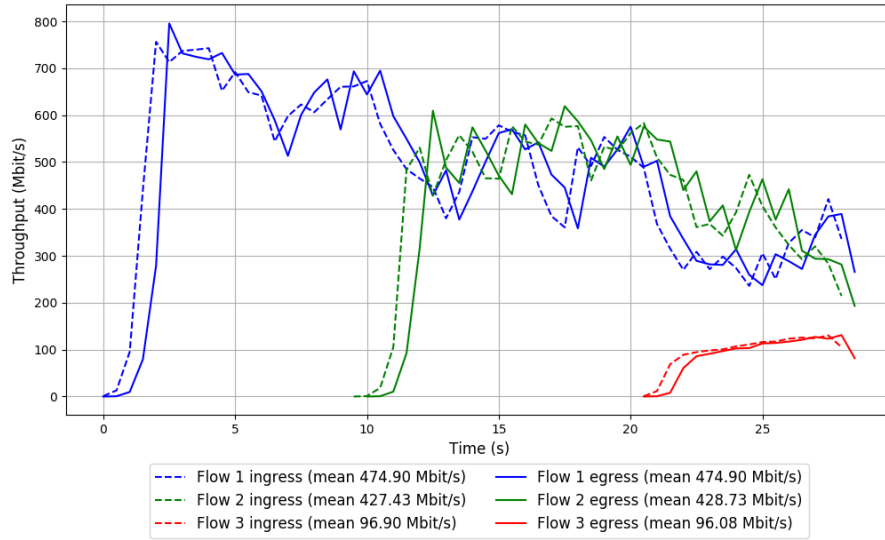
Run 2: Report of Indigo-MusesC5 — Data Link

```
Run 3: Statistics of Indigo-MusesC5

Start at: 2019-04-23 23:51:08
End at: 2019-04-23 23:51:38
Local clock offset: -0.138 ms
Remote clock offset: -0.019 ms


# Below is generated by plot.py at 2019-04-24 02:50:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 741.01 Mbit/s
95th percentile per-packet one-way delay: 148.641 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 453.62 Mbit/s
95th percentile per-packet one-way delay: 152.221 ms
Loss rate: 0.48%
-- Flow 2:
Average throughput: 408.70 Mbit/s
95th percentile per-packet one-way delay: 136.099 ms
Loss rate: 1.56%
-- Flow 3:
Average throughput: 96.32 Mbit/s
95th percentile per-packet one-way delay: 86.741 ms
Loss rate: 2.97%
```
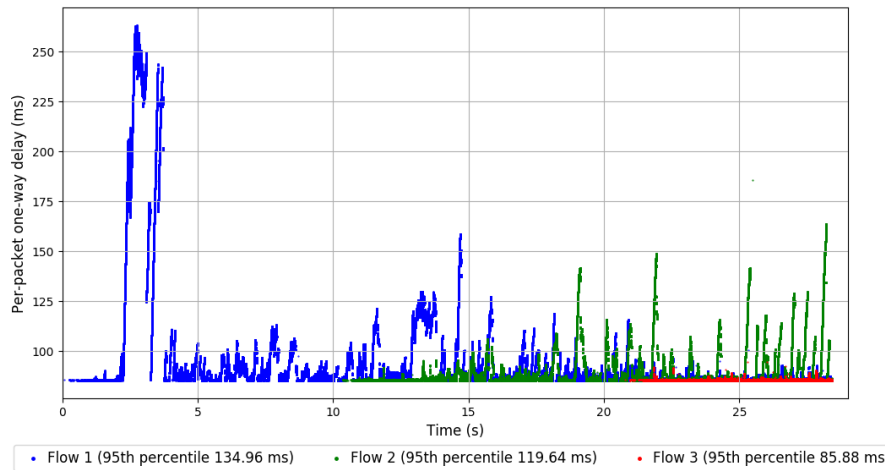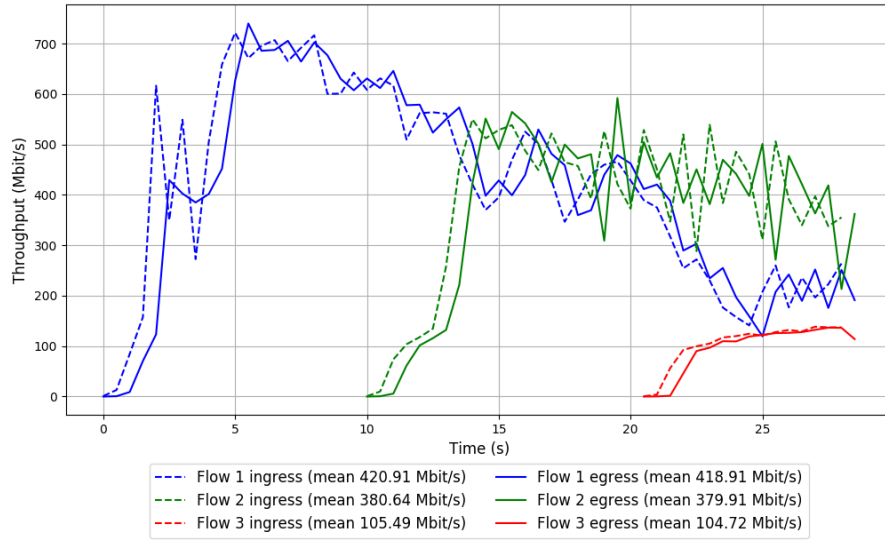
Run 3: Report of Indigo-MusesC5 — Data Link

Flow 1 ingress (mean 452.78 Mbit/s) Flow 1 egress (mean 453.62 Mbit/s)
Flow 2 ingress (mean 409.57 Mbit/s) Flow 2 egress (mean 408.70 Mbit/s)
Flow 3 ingress (mean 97.09 Mbit/s)   Flow 3 egress (mean 96.32 Mbit/s)

Flow 1 (95th percentile 152.22 ms)   Flow 2 (95th percentile 136.10 ms)   Flow 3 (95th percentile 86.74 ms)

```
Run 4: Statistics of Indigo-MusesC5

Start at: 2019-04-24 00:28:18
End at: 2019-04-24 00:28:48
Local clock offset: -0.448 ms
Remote clock offset: 0.004 ms


# Below is generated by plot.py at 2019-04-24 02:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 778.10 Mbit/s
95th percentile per-packet one-way delay: 140.745 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 474.90 Mbit/s
95th percentile per-packet one-way delay: 151.481 ms
Loss rate: 0.62%
-- Flow 2:
Average throughput: 428.73 Mbit/s
95th percentile per-packet one-way delay: 117.139 ms
Loss rate: 0.60%
-- Flow 3:
Average throughput: 96.08 Mbit/s
95th percentile per-packet one-way delay: 86.048 ms
Loss rate: 3.00%
```
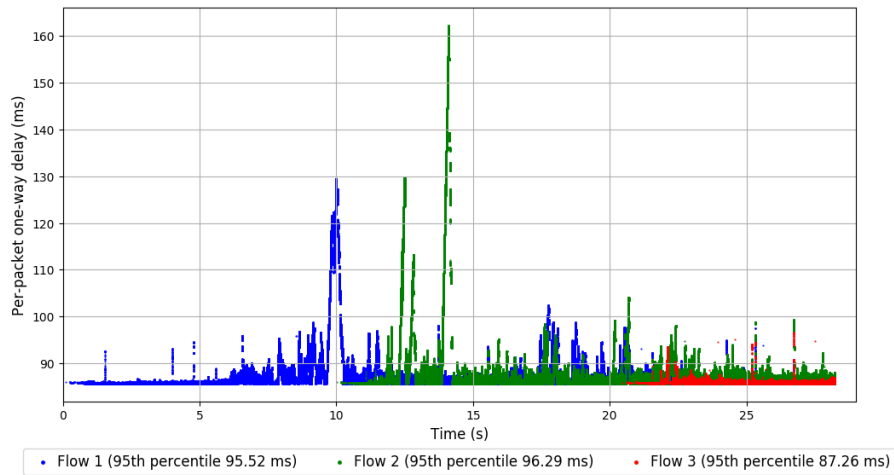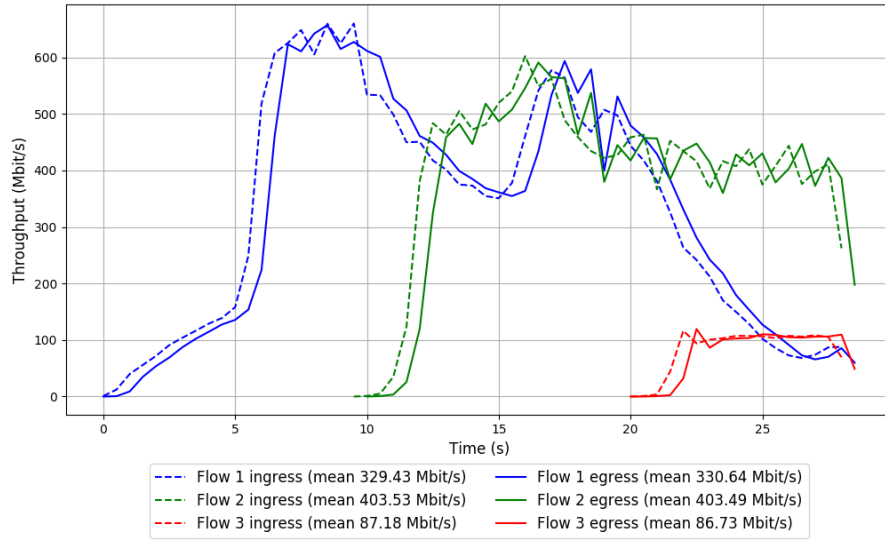
Run 4: Report of Indigo-MusesC5 — Data Link

```
Run 5: Statistics of Indigo-MusesC5

Start at: 2019-04-24 01:06:10
End at: 2019-04-24 01:06:40
Local clock offset: -0.408 ms
Remote clock offset: -0.19 ms


# Below is generated by plot.py at 2019-04-24 02:54:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 691.52 Mbit/s
95th percentile per-packet one-way delay: 124.405 ms
Loss rate: 1.13%
-- Flow 1:
Average throughput: 418.91 Mbit/s
95th percentile per-packet one-way delay: 134.955 ms
Loss rate: 1.03%
-- Flow 2:
Average throughput: 379.91 Mbit/s
95th percentile per-packet one-way delay: 119.638 ms
Loss rate: 1.09%
-- Flow 3:
Average throughput: 104.72 Mbit/s
95th percentile per-packet one-way delay: 85.884 ms
Loss rate: 2.93%
```
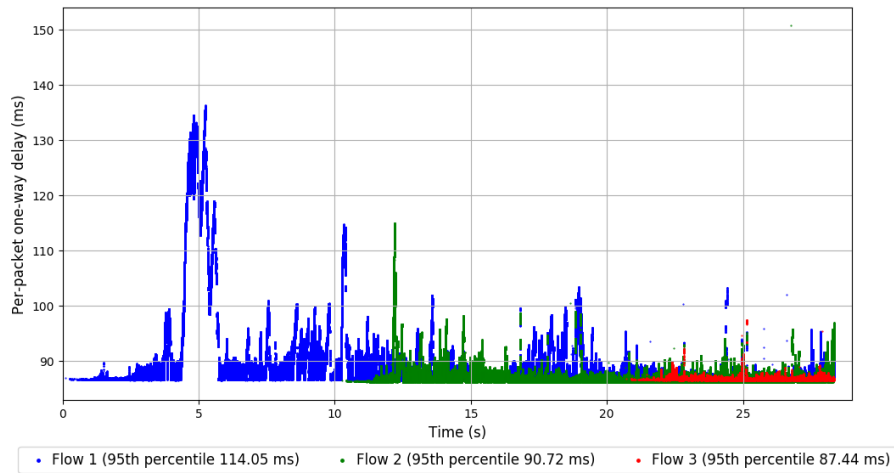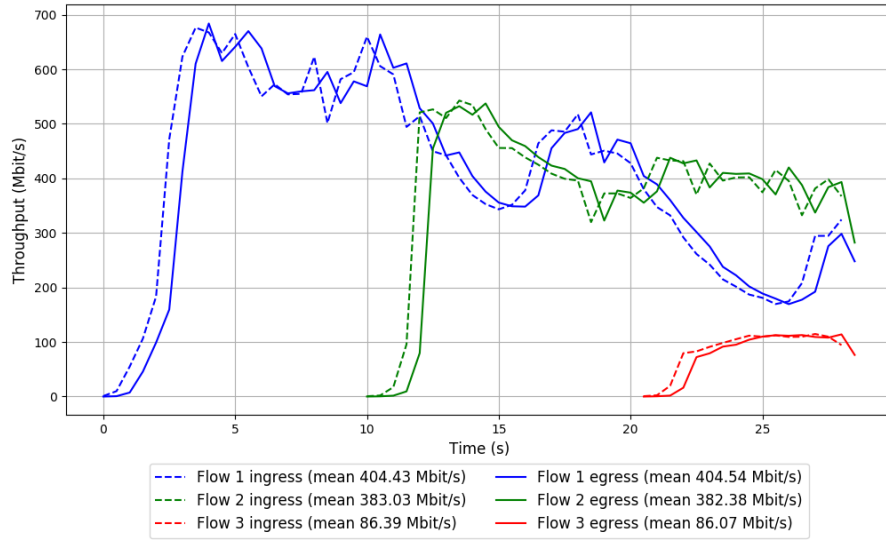
Run 5: Report of Indigo-MusesC5 — Data Link

Flow 1 ingress (mean 420.91 Mbit/s)   Flow 1 egress (mean 418.91 Mbit/s)
Flow 2 ingress (mean 380.64 Mbit/s)   Flow 2 egress (mean 379.91 Mbit/s)
Flow 3 ingress (mean 105.49 Mbit/s)   Flow 3 egress (mean 104.72 Mbit/s)

Flow 1 (95th percentile 134.96 ms)   Flow 2 (95th percentile 119.64 ms)   Flow 3 (95th percentile 85.88 ms)

```
Run 1: Statistics of Indigo-MusesD

Start at: 2019-04-23 22:15:12
End at: 2019-04-23 22:15:42
Local clock offset: 0.716 ms
Remote clock offset: 0.202 ms


# Below is generated by plot.py at 2019-04-24 02:56:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 615.91 Mbit/s
95th percentile per-packet one-way delay: 95.479 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 330.64 Mbit/s
95th percentile per-packet one-way delay: 95.516 ms
Loss rate: 0.24%
-- Flow 2:
Average throughput: 403.49 Mbit/s
95th percentile per-packet one-way delay: 96.291 ms
Loss rate: 0.94%
-- Flow 3:
Average throughput: 86.73 Mbit/s
95th percentile per-packet one-way delay: 87.260 ms
Loss rate: 2.65%
```
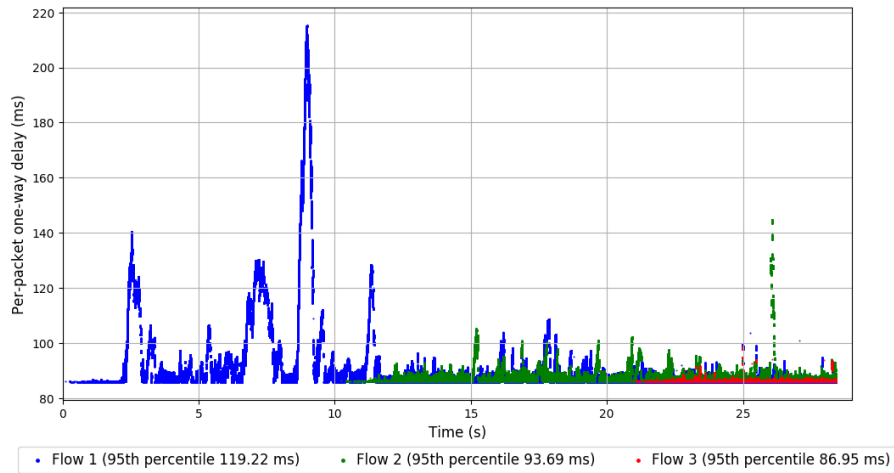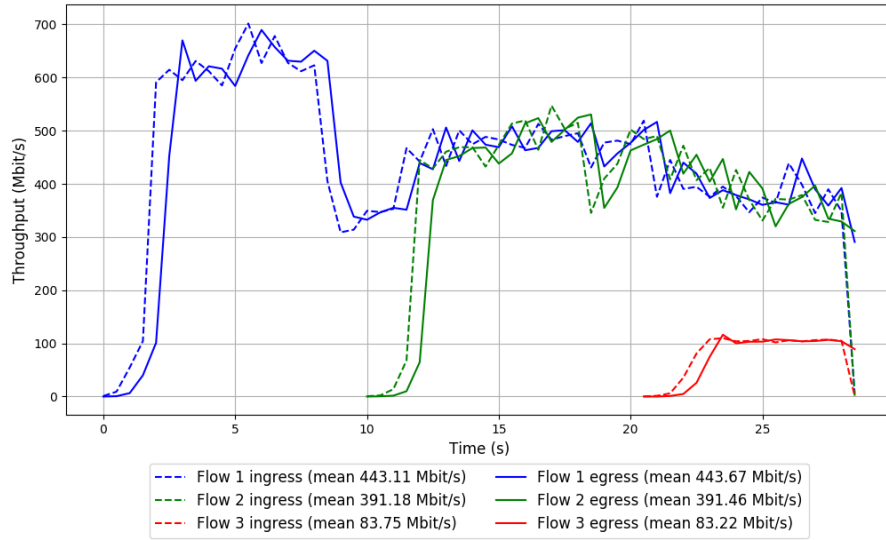
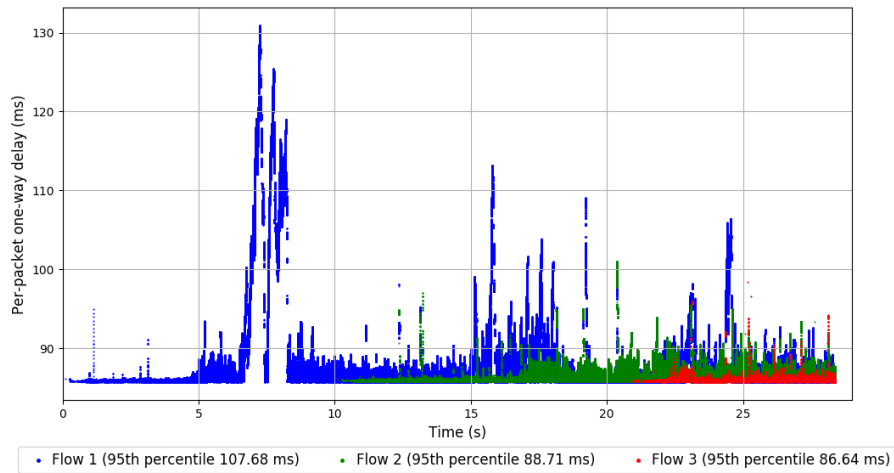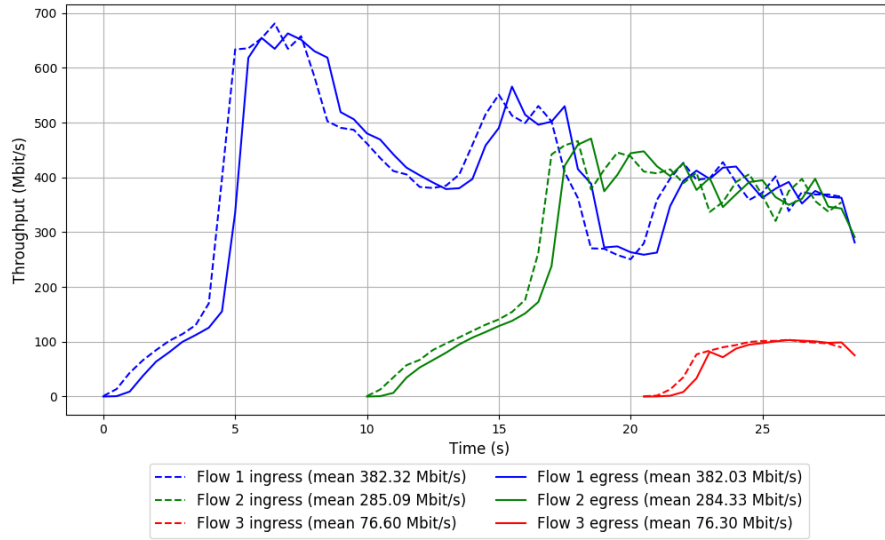Run 1: Report of Indigo-MusesD — Data Link

```
Run 2: Statistics of Indigo-MusesD

Start at: 2019-04-23 22:52:16
End at: 2019-04-23 22:52:46
Local clock offset: 0.214 ms
Remote clock offset: 0.035 ms


# Below is generated by plot.py at 2019-04-24 02:59:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 672.56 Mbit/s
95th percentile per-packet one-way delay: 100.311 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 404.54 Mbit/s
95th percentile per-packet one-way delay: 114.051 ms
Loss rate: 0.59%
-- Flow 2:
Average throughput: 382.38 Mbit/s
95th percentile per-packet one-way delay: 90.717 ms
Loss rate: 1.12%
-- Flow 3:
Average throughput: 86.07 Mbit/s
95th percentile per-packet one-way delay: 87.438 ms
Loss rate: 2.66%
```
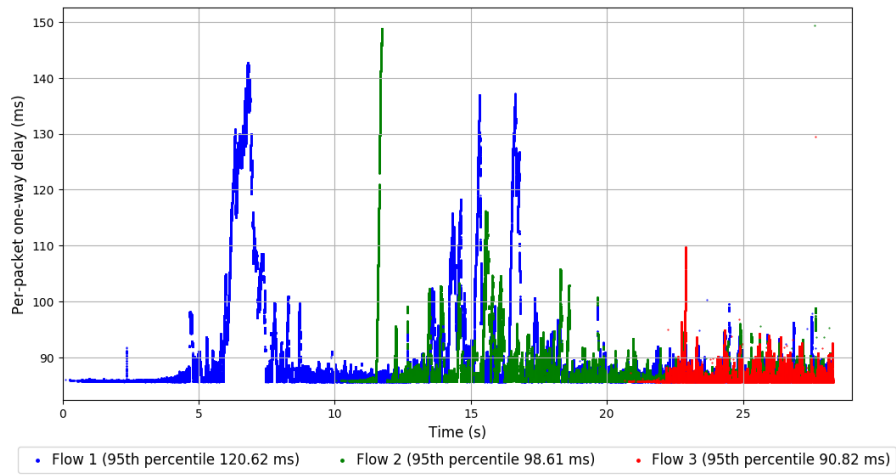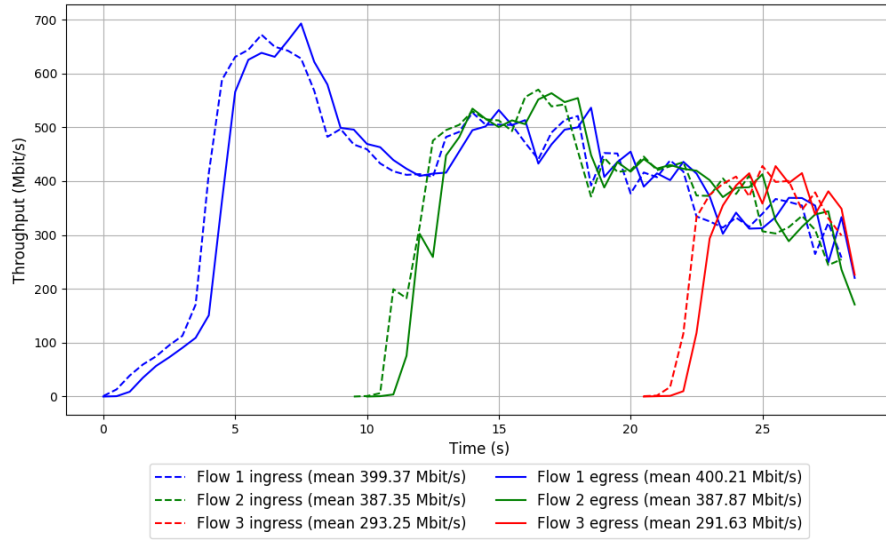
Run 2: Report of Indigo-MusesD — Data Link

```
Run 3: Statistics of Indigo-MusesD

Start at: 2019-04-23 23:29:25
End at: 2019-04-23 23:29:55
Local clock offset: -0.193 ms
Remote clock offset: 0.013 ms

# Below is generated by plot.py at 2019-04-24 03:00:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 716.99 Mbit/s
95th percentile per-packet one-way delay: 111.314 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 443.67 Mbit/s
95th percentile per-packet one-way delay: 119.220 ms
Loss rate: 0.48%
-- Flow 2:
Average throughput: 391.46 Mbit/s
95th percentile per-packet one-way delay: 93.688 ms
Loss rate: 0.86%
-- Flow 3:
Average throughput: 83.22 Mbit/s
95th percentile per-packet one-way delay: 86.955 ms
Loss rate: 2.94%
```

Run 3: Report of Indigo-MusesD — Data Link

Flow 1 ingress (mean 443.11 Mbit/s)   Flow 1 egress (mean 443.67 Mbit/s)
Flow 2 ingress (mean 391.18 Mbit/s)   Flow 2 egress (mean 391.46 Mbit/s)
Flow 3 ingress (mean 83.75 Mbit/s)   Flow 3 egress (mean 83.22 Mbit/s)

Flow 1 (95th percentile 119.22 ms)   Flow 2 (95th percentile 93.69 ms)   Flow 3 (95th percentile 86.95 ms)

```
Run 4: Statistics of Indigo-MusesD

Start at: 2019-04-24 00:06:41
End at: 2019-04-24 00:07:11
Local clock offset: -0.13 ms
Remote clock offset: -0.016 ms


# Below is generated by plot.py at 2019-04-24 03:00:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 586.12 Mbit/s
95th percentile per-packet one-way delay: 101.325 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 382.03 Mbit/s
95th percentile per-packet one-way delay: 107.682 ms
Loss rate: 0.68%
-- Flow 2:
Average throughput: 284.33 Mbit/s
95th percentile per-packet one-way delay: 88.713 ms
Loss rate: 1.20%
-- Flow 3:
Average throughput: 76.30 Mbit/s
95th percentile per-packet one-way delay: 86.635 ms
Loss rate: 2.60%
```
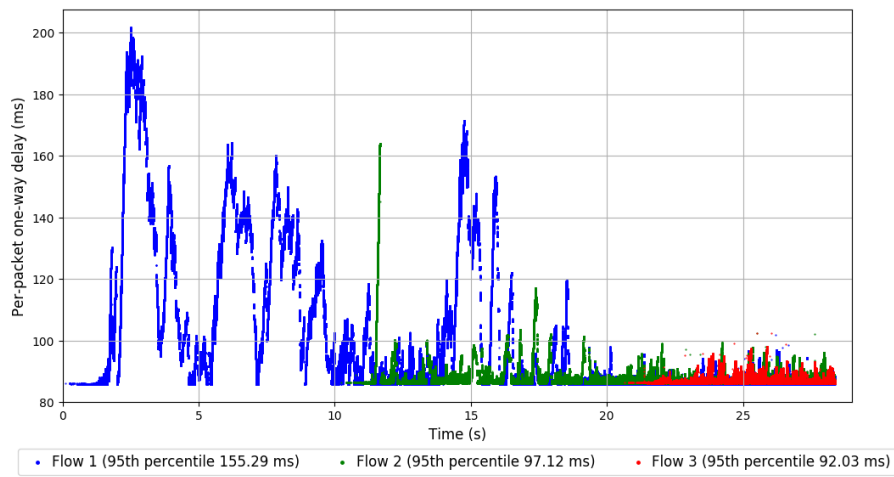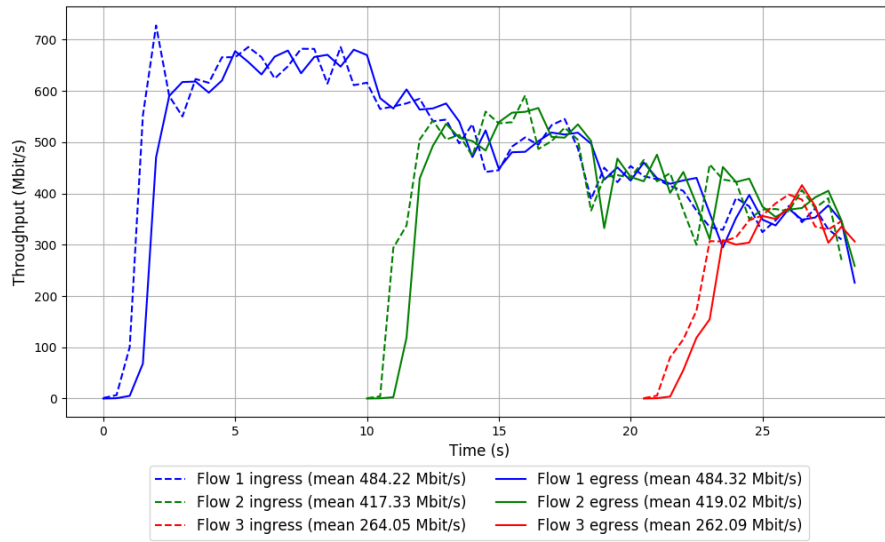
Run 4: Report of Indigo-MusesD — Data Link

Flow 1 ingress (mean 382.32 Mbit/s) --- Flow 1 egress (mean 382.03 Mbit/s)
Flow 2 ingress (mean 285.09 Mbit/s) --- Flow 2 egress (mean 284.33 Mbit/s)
Flow 3 ingress (mean 76.60 Mbit/s) --- Flow 3 egress (mean 76.30 Mbit/s)

Flow 1 (95th percentile 107.68 ms) • Flow 2 (95th percentile 88.71 ms) • Flow 3 (95th percentile 86.64 ms)

```
Run 5: Statistics of Indigo-MusesD

Start at: 2019-04-24 00:44:05
End at: 2019-04-24 00:44:35
Local clock offset: -0.082 ms
Remote clock offset: -0.096 ms


# Below is generated by plot.py at 2019-04-24 03:01:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 730.23 Mbit/s
95th percentile per-packet one-way delay: 108.888 ms
Loss rate: 0.82%
-- Flow 1:
Average throughput: 400.21 Mbit/s
95th percentile per-packet one-way delay: 120.619 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 387.87 Mbit/s
95th percentile per-packet one-way delay: 98.613 ms
Loss rate: 0.81%
-- Flow 3:
Average throughput: 291.63 Mbit/s
95th percentile per-packet one-way delay: 90.822 ms
Loss rate: 2.74%
```
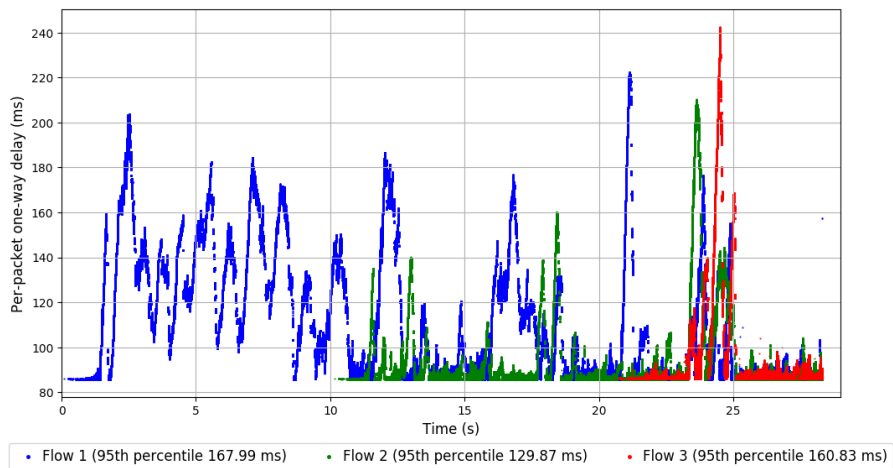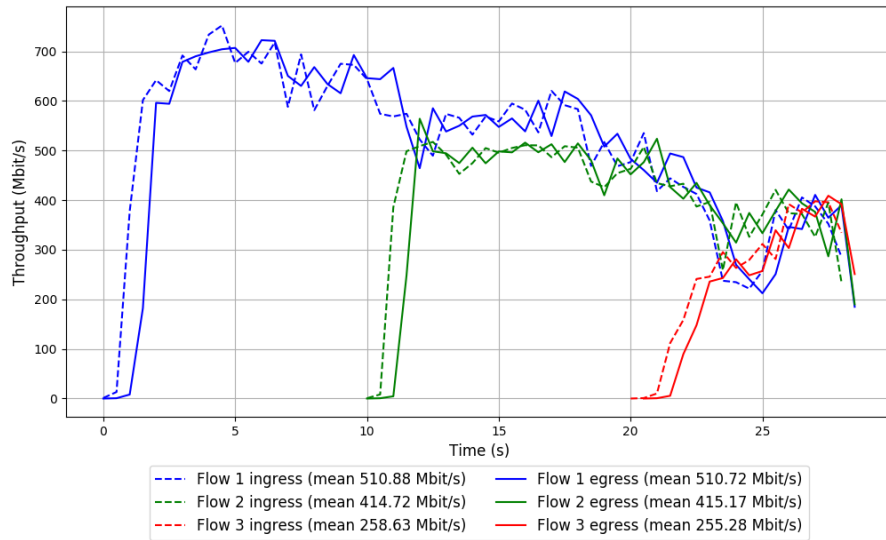
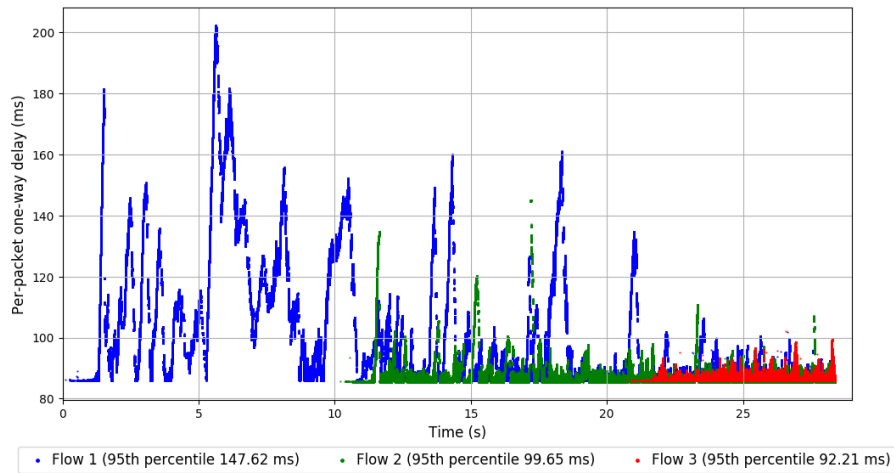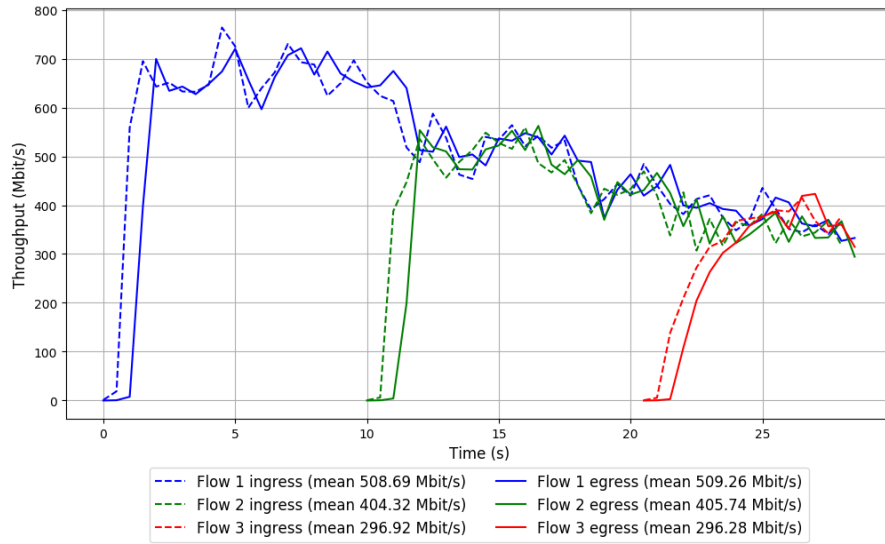Run 5: Report of Indigo-MusesD — Data Link

```
Run 1: Statistics of Indigo-MusesT

Start at: 2019-04-23 22:43:49
End at: 2019-04-23 22:44:19
Local clock offset: 0.045 ms
Remote clock offset: 0.025 ms


# Below is generated by plot.py at 2019-04-24 03:04:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 824.48 Mbit/s
95th percentile per-packet one-way delay: 146.534 ms
Loss rate: 0.81%
-- Flow 1:
Average throughput: 484.32 Mbit/s
95th percentile per-packet one-way delay: 155.286 ms
Loss rate: 0.61%
-- Flow 2:
Average throughput: 419.02 Mbit/s
95th percentile per-packet one-way delay: 97.117 ms
Loss rate: 0.60%
-- Flow 3:
Average throughput: 262.09 Mbit/s
95th percentile per-packet one-way delay: 92.025 ms
Loss rate: 2.92%
```
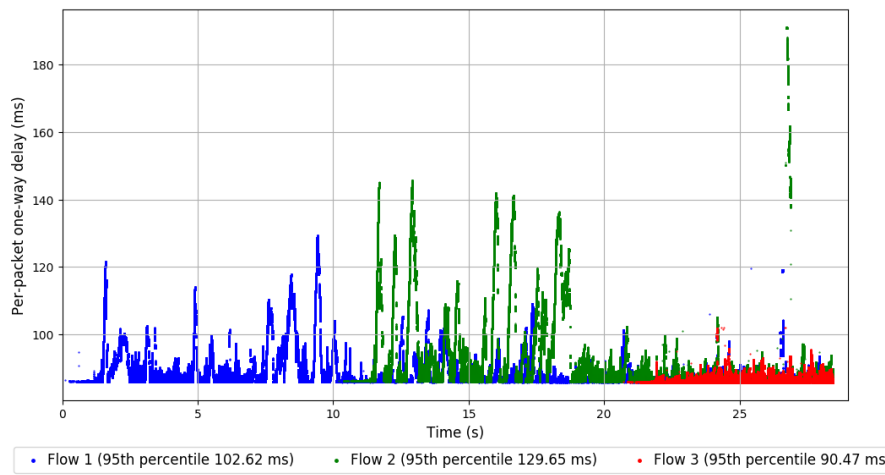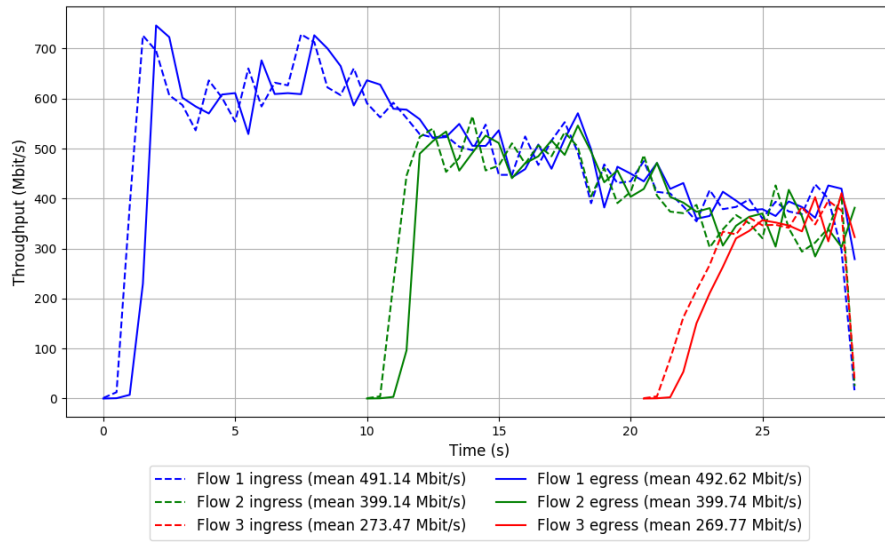
Run 1: Report of Indigo-MusesT — Data Link

```
Run 2: Statistics of Indigo-MusesT

Start at: 2019-04-23 23:21:06
End at: 2019-04-23 23:21:36
Local clock offset: -0.12 ms
Remote clock offset: 0.031 ms


# Below is generated by plot.py at 2019-04-24 03:07:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 847.73 Mbit/s
95th percentile per-packet one-way delay: 164.265 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 510.72 Mbit/s
95th percentile per-packet one-way delay: 167.993 ms
Loss rate: 0.60%
-- Flow 2:
Average throughput: 415.17 Mbit/s
95th percentile per-packet one-way delay: 129.873 ms
Loss rate: 0.84%
-- Flow 3:
Average throughput: 255.28 Mbit/s
95th percentile per-packet one-way delay: 160.832 ms
Loss rate: 3.45%
```
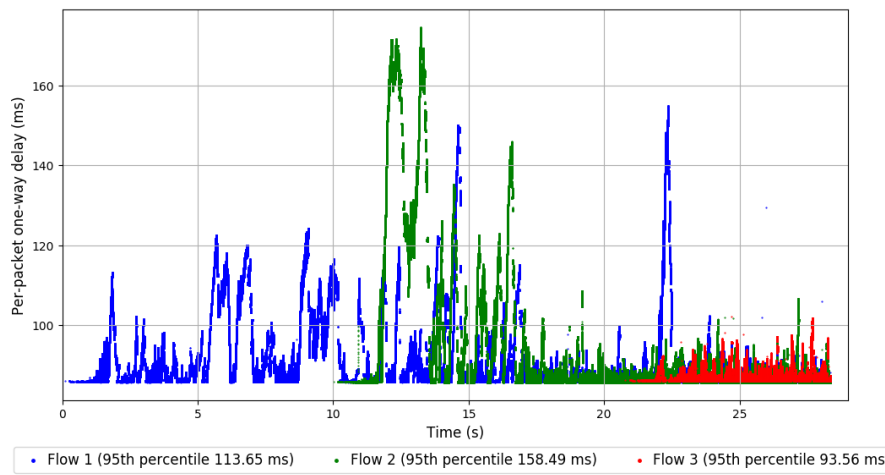
Run 2: Report of Indigo-MusesT — Data Link

```
Run 3: Statistics of Indigo-MusesT

Start at: 2019-04-23 23:58:22
End at: 2019-04-23 23:58:52
Local clock offset: -0.341 ms
Remote clock offset: -0.049 ms


# Below is generated by plot.py at 2019-04-24 03:09:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 850.27 Mbit/s
95th percentile per-packet one-way delay: 141.020 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 509.26 Mbit/s
95th percentile per-packet one-way delay: 147.616 ms
Loss rate: 0.50%
-- Flow 2:
Average throughput: 405.74 Mbit/s
95th percentile per-packet one-way delay: 99.649 ms
Loss rate: 0.60%
-- Flow 3:
Average throughput: 296.28 Mbit/s
95th percentile per-packet one-way delay: 92.206 ms
Loss rate: 2.41%
```
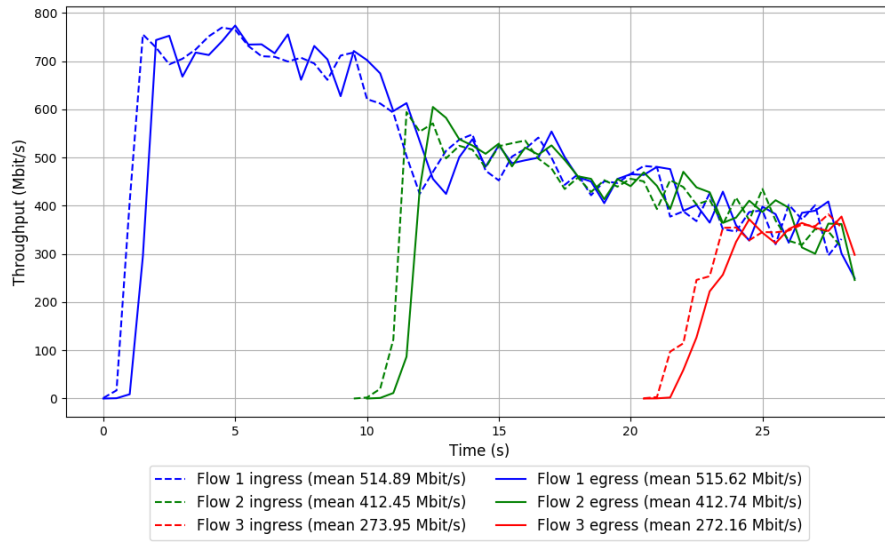
Run 3: Report of Indigo-MusesT — Data Link

```
Run 4: Statistics of Indigo-MusesT

Start at: 2019-04-24 00:35:41
End at: 2019-04-24 00:36:11
Local clock offset: -0.077 ms
Remote clock offset: -0.014 ms


# Below is generated by plot.py at 2019-04-24 03:10:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 823.20 Mbit/s
95th percentile per-packet one-way delay: 110.425 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 492.62 Mbit/s
95th percentile per-packet one-way delay: 102.617 ms
Loss rate: 0.31%
-- Flow 2:
Average throughput: 399.74 Mbit/s
95th percentile per-packet one-way delay: 129.645 ms
Loss rate: 0.79%
-- Flow 3:
Average throughput: 269.77 Mbit/s
95th percentile per-packet one-way delay: 90.471 ms
Loss rate: 3.50%
```
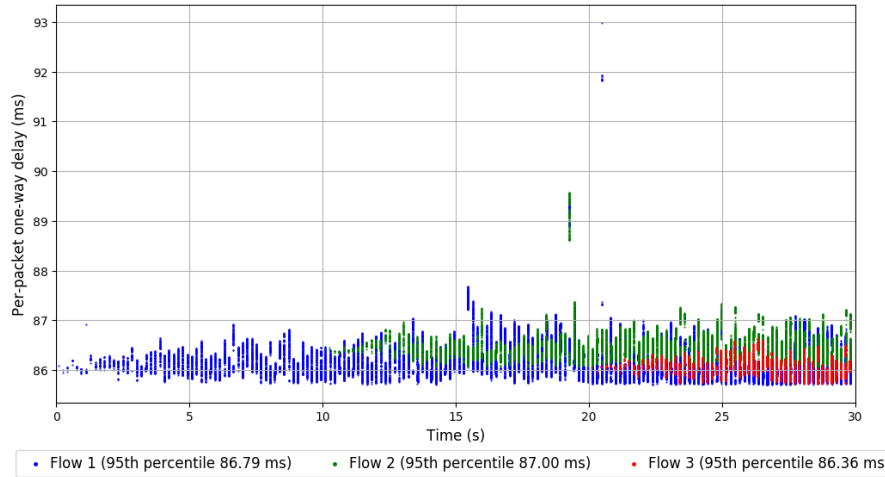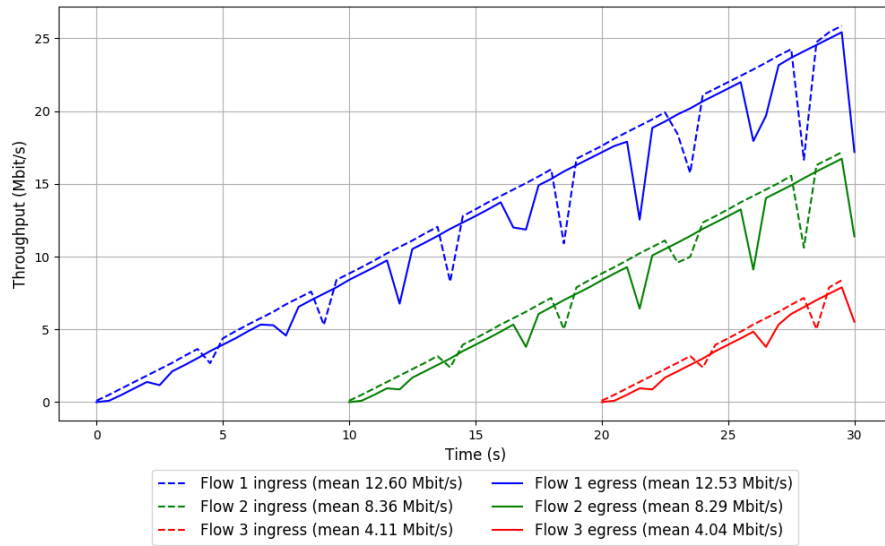
Run 4: Report of Indigo-MusesT — Data Link

```
Run 5: Statistics of Indigo-MusesT

Start at: 2019-04-24 01:13:24
End at: 2019-04-24 01:13:54
Local clock offset: -0.076 ms
Remote clock offset: -0.081 ms


# Below is generated by plot.py at 2019-04-24 03:13:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 856.46 Mbit/s
95th percentile per-packet one-way delay: 122.080 ms
Loss rate: 0.80%
-- Flow 1:
Average throughput: 515.62 Mbit/s
95th percentile per-packet one-way delay: 113.650 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 412.74 Mbit/s
95th percentile per-packet one-way delay: 158.488 ms
Loss rate: 0.86%
-- Flow 3:
Average throughput: 272.16 Mbit/s
95th percentile per-packet one-way delay: 93.565 ms
Loss rate: 2.89%
```
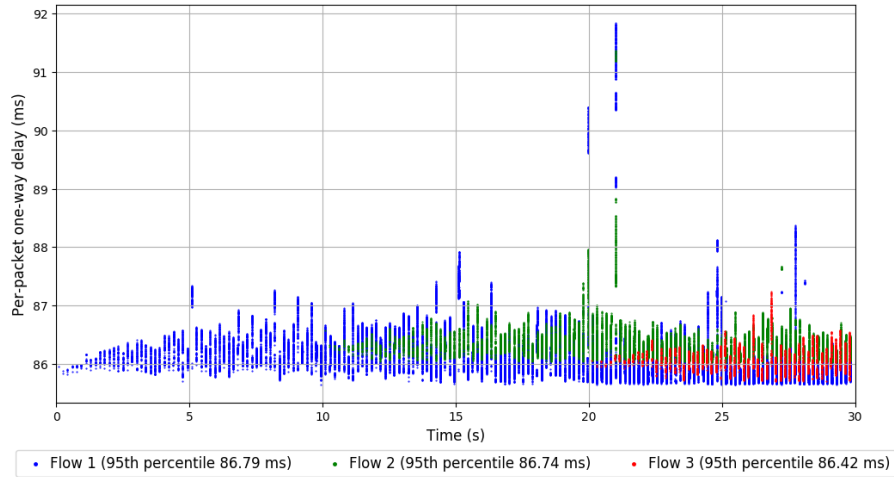
Run 5: Report of Indigo-MusesT — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2019-04-23 22:10:57
End at: 2019-04-23 22:11:27
Local clock offset: 0.669 ms
Remote clock offset: 0.164 ms


# Below is generated by plot.py at 2019-04-24 03:13:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 19.34 Mbit/s
95th percentile per-packet one-way delay: 86.867 ms
Loss rate: 1.48%
-- Flow 1:
Average throughput: 12.53 Mbit/s
95th percentile per-packet one-way delay: 86.790 ms
Loss rate: 1.15%
-- Flow 2:
Average throughput: 8.29 Mbit/s
95th percentile per-packet one-way delay: 86.995 ms
Loss rate: 1.73%
-- Flow 3:
Average throughput: 4.04 Mbit/s
95th percentile per-packet one-way delay: 86.360 ms
Loss rate: 3.52%
```
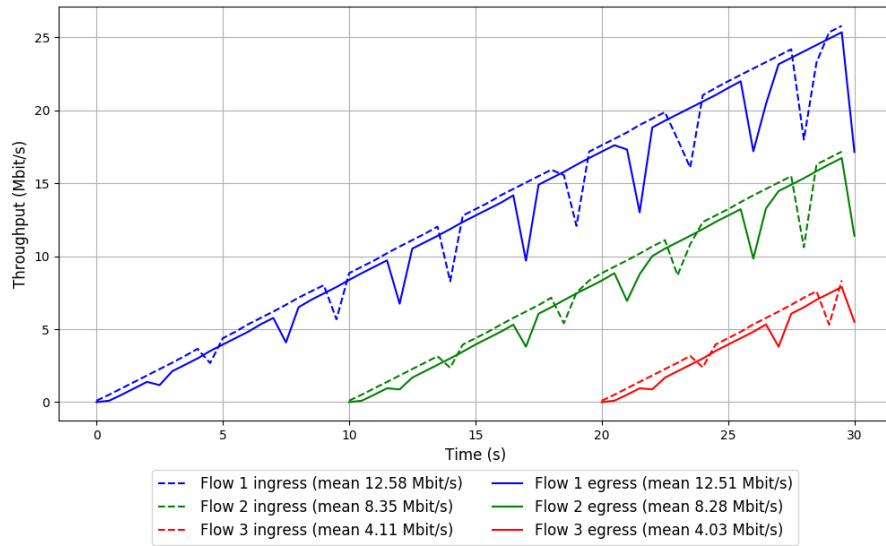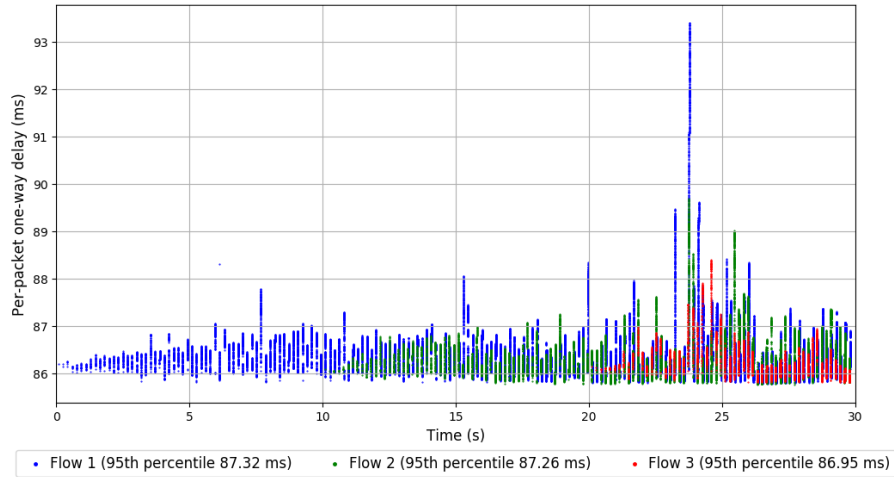
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2019-04-23 22:47:54
End at: 2019-04-23 22:48:24
Local clock offset: -0.187 ms
Remote clock offset: 0.055 ms

# Below is generated by plot.py at 2019-04-24 03:13:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 19.31 Mbit/s
95th percentile per-packet one-way delay: 86.754 ms
Loss rate: 1.48%
-- Flow 1:
Average throughput: 12.51 Mbit/s
95th percentile per-packet one-way delay: 86.791 ms
Loss rate: 1.15%
-- Flow 2:
Average throughput: 8.28 Mbit/s
95th percentile per-packet one-way delay: 86.740 ms
Loss rate: 1.74%
-- Flow 3:
Average throughput: 4.03 Mbit/s
95th percentile per-packet one-way delay: 86.419 ms
Loss rate: 3.52%
```
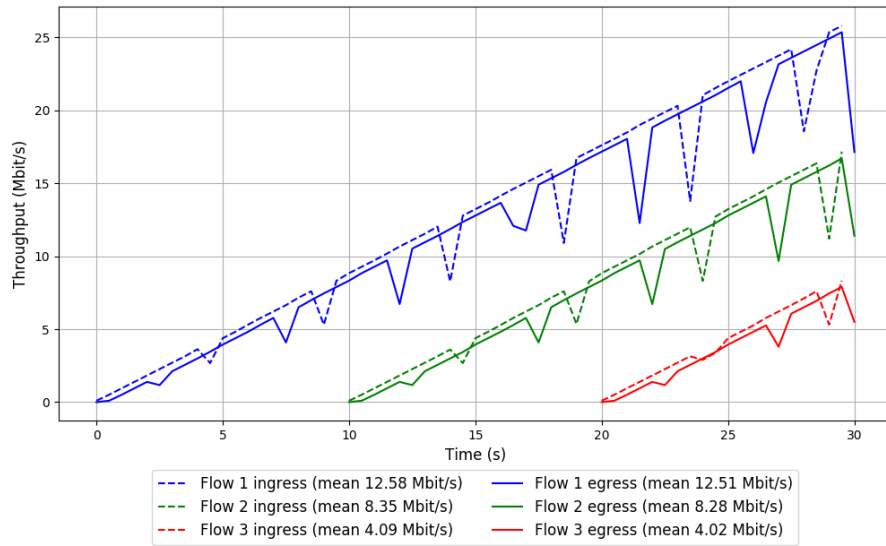
Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2019-04-23 23:25:09
End at: 2019-04-23 23:25:39
Local clock offset: -0.132 ms
Remote clock offset: 0.022 ms

# Below is generated by plot.py at 2019-04-24 03:13:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 19.30 Mbit/s
95th percentile per-packet one-way delay: 87.286 ms
Loss rate: 1.48%
-- Flow 1:
Average throughput: 12.51 Mbit/s
95th percentile per-packet one-way delay: 87.322 ms
Loss rate: 1.15%
-- Flow 2:
Average throughput: 8.28 Mbit/s
95th percentile per-packet one-way delay: 87.260 ms
Loss rate: 1.74%
-- Flow 3:
Average throughput: 4.02 Mbit/s
95th percentile per-packet one-way delay: 86.952 ms
Loss rate: 3.50%
```
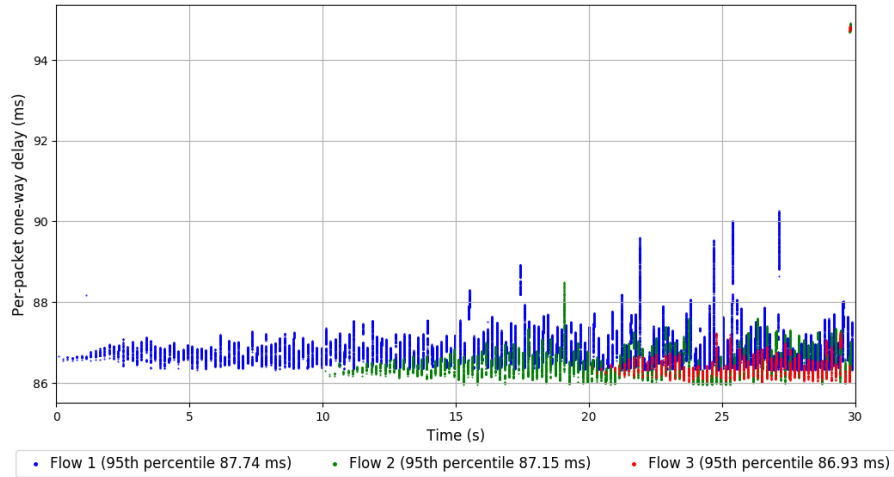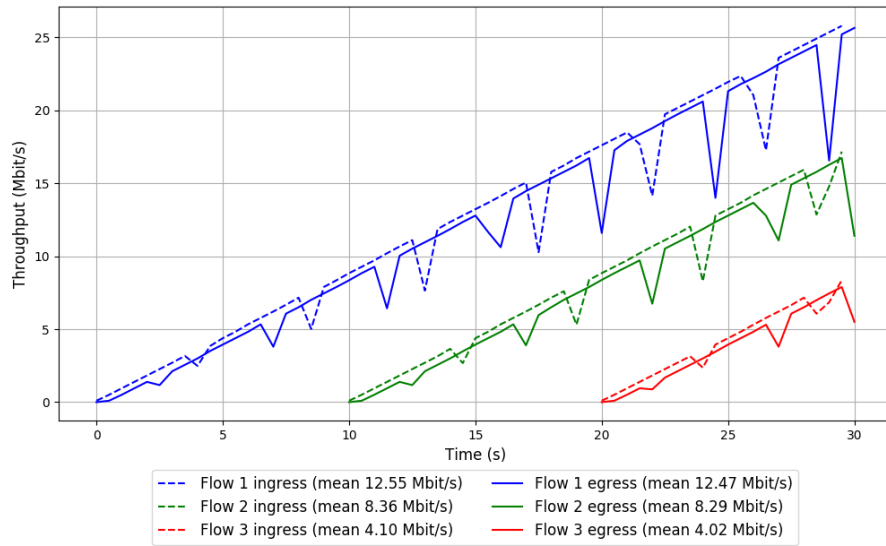
Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2019-04-24 00:02:22
End at: 2019-04-24 00:02:52
Local clock offset: 0.128 ms
Remote clock offset: -0.02 ms

# Below is generated by plot.py at 2019-04-24 03:13:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 19.26 Mbit/s
95th percentile per-packet one-way delay: 87.579 ms
Loss rate: 1.48%
-- Flow 1:
Average throughput: 12.47 Mbit/s
95th percentile per-packet one-way delay: 87.737 ms
Loss rate: 1.15%
-- Flow 2:
Average throughput: 8.29 Mbit/s
95th percentile per-packet one-way delay: 87.146 ms
Loss rate: 1.74%
-- Flow 3:
Average throughput: 4.02 Mbit/s
95th percentile per-packet one-way delay: 86.927 ms
Loss rate: 3.53%
```
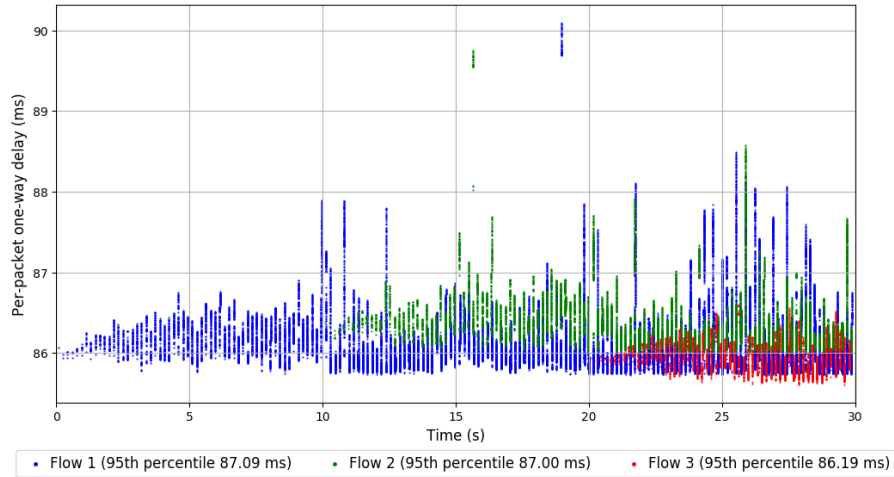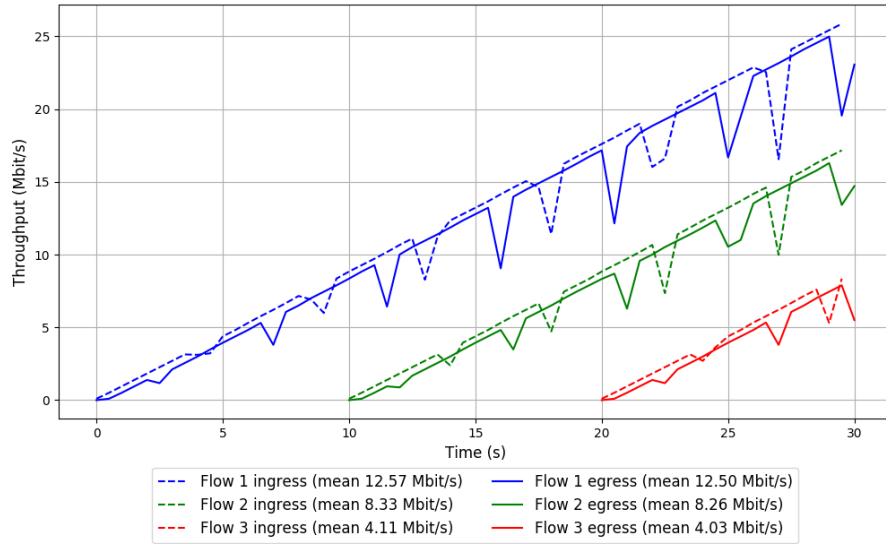
Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2019-04-24 00:39:44
End at: 2019-04-24 00:40:14
Local clock offset: -0.118 ms
Remote clock offset: -0.067 ms


# Below is generated by plot.py at 2019-04-24 03:13:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 19.29 Mbit/s
95th percentile per-packet one-way delay: 87.010 ms
Loss rate: 1.48%
-- Flow 1:
Average throughput: 12.50 Mbit/s
95th percentile per-packet one-way delay: 87.089 ms
Loss rate: 1.15%
-- Flow 2:
Average throughput: 8.26 Mbit/s
95th percentile per-packet one-way delay: 86.998 ms
Loss rate: 1.74%
-- Flow 3:
Average throughput: 4.03 Mbit/s
95th percentile per-packet one-way delay: 86.193 ms
Loss rate: 3.53%
```
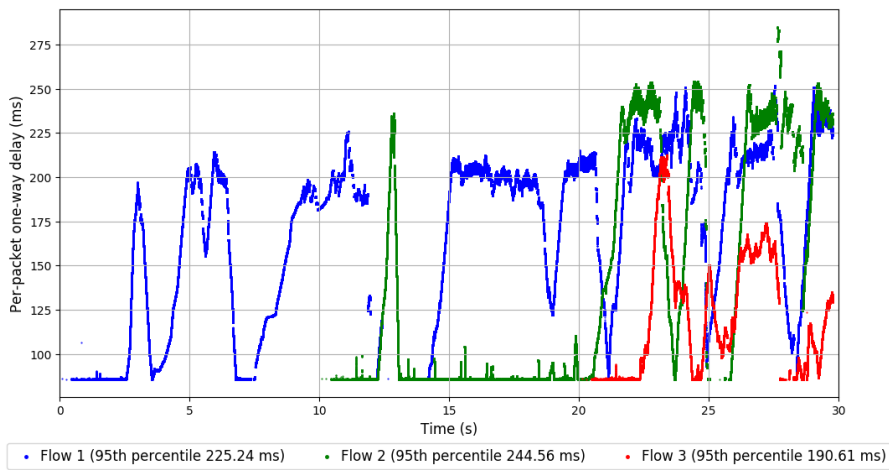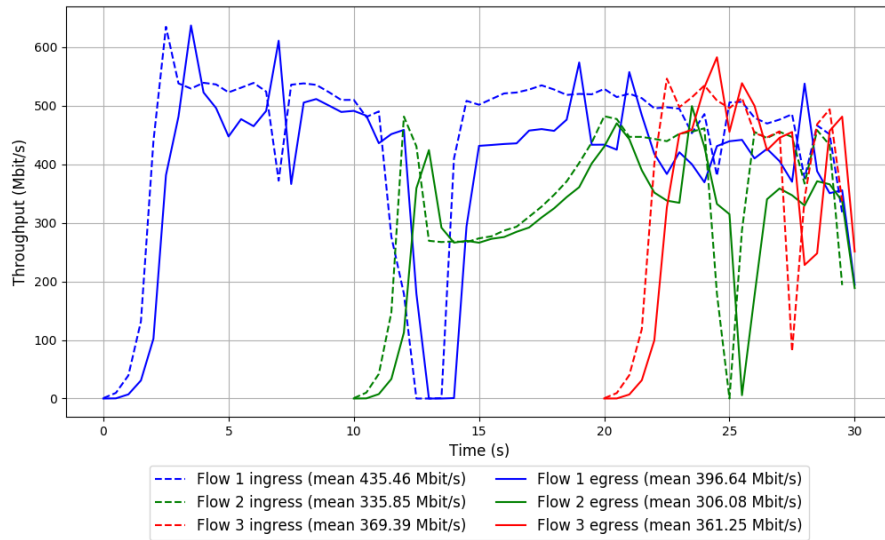
Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2019-04-23 22:45:46
End at: 2019-04-23 22:46:16
Local clock offset: -0.181 ms
Remote clock offset: 0.044 ms


# Below is generated by plot.py at 2019-04-24 03:26:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 716.97 Mbit/s
95th percentile per-packet one-way delay: 236.675 ms
Loss rate: 8.64%
-- Flow 1:
Average throughput: 396.64 Mbit/s
95th percentile per-packet one-way delay: 225.235 ms
Loss rate: 9.44%
-- Flow 2:
Average throughput: 306.08 Mbit/s
95th percentile per-packet one-way delay: 244.564 ms
Loss rate: 9.66%
-- Flow 3:
Average throughput: 361.25 Mbit/s
95th percentile per-packet one-way delay: 190.606 ms
Loss rate: 3.92%
```
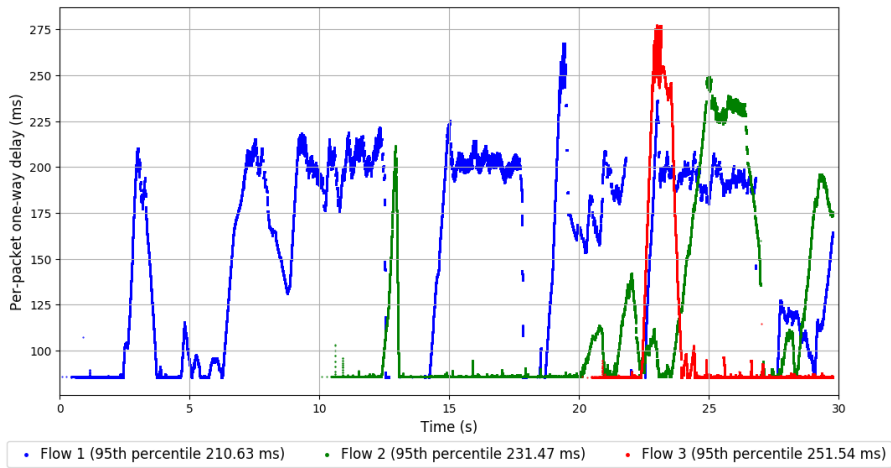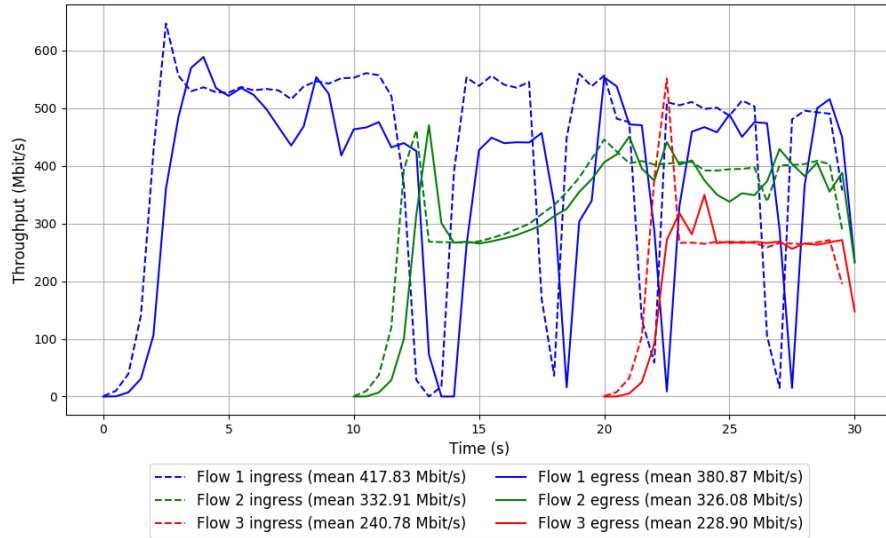
Run 1: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 435.46 Mbit/s) Flow 1 egress (mean 396.64 Mbit/s)
Flow 2 ingress (mean 335.85 Mbit/s) Flow 2 egress (mean 306.08 Mbit/s)
Flow 3 ingress (mean 369.39 Mbit/s) Flow 3 egress (mean 361.25 Mbit/s)

Flow 1 (95th percentile 225.24 ms) Flow 2 (95th percentile 244.56 ms) Flow 3 (95th percentile 190.61 ms)

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```
Run 2: Statistics of PCC-Allegro

Start at: 2019-04-23 23:23:05
End at: 2019-04-23 23:23:35
Local clock offset: -0.536 ms
Remote clock offset: 0.022 ms

# Below is generated by plot.py at 2019-04-24 03:26:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 671.39 Mbit/s
95th percentile per-packet one-way delay: 220.391 ms
Loss rate: 7.08%
-- Flow 1:
Average throughput: 380.87 Mbit/s
95th percentile per-packet one-way delay: 210.629 ms
Loss rate: 9.37%
-- Flow 2:
Average throughput: 326.08 Mbit/s
95th percentile per-packet one-way delay: 231.468 ms
Loss rate: 2.91%
-- Flow 3:
Average throughput: 228.90 Mbit/s
95th percentile per-packet one-way delay: 251.541 ms
Loss rate: 6.61%
```
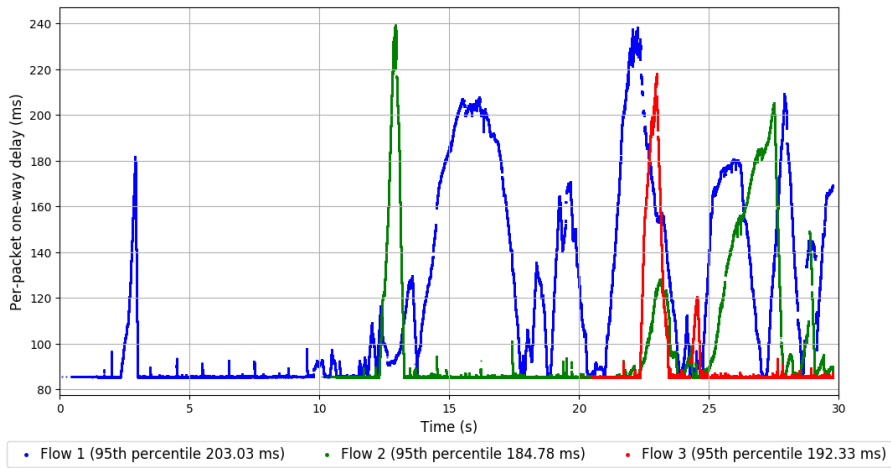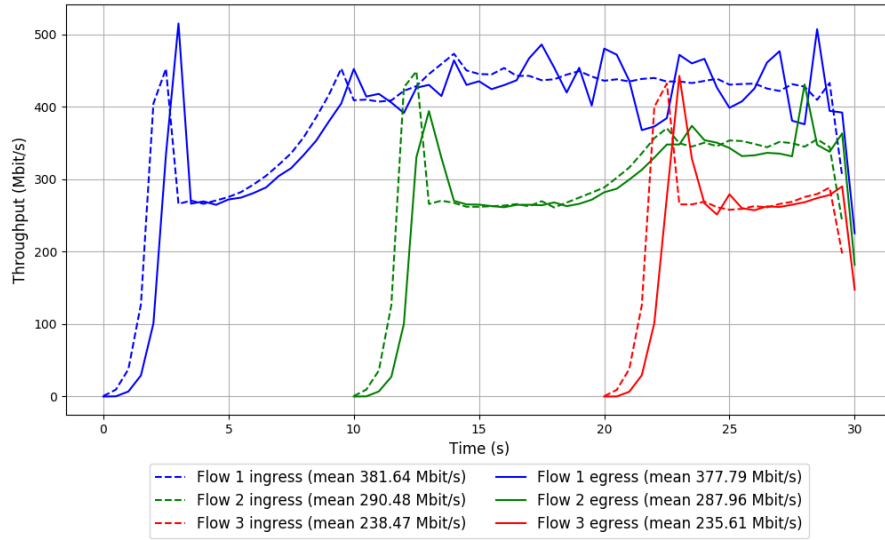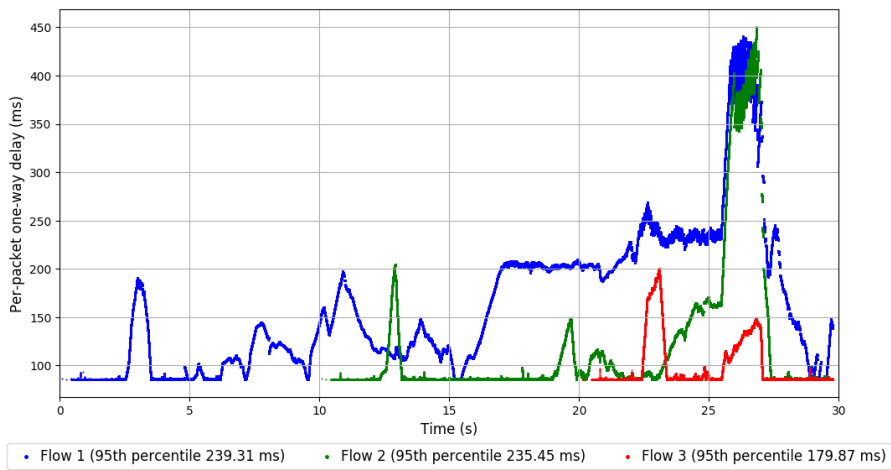
Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2019-04-24 00:00:21
End at: 2019-04-24 00:00:51
Local clock offset: -0.609 ms
Remote clock offset: -0.05 ms


# Below is generated by plot.py at 2019-04-24 03:26:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 645.20 Mbit/s
95th percentile per-packet one-way delay: 200.508 ms
Loss rate: 1.79%
-- Flow 1:
Average throughput: 377.79 Mbit/s
95th percentile per-packet one-way delay: 203.025 ms
Loss rate: 1.58%
-- Flow 2:
Average throughput: 287.96 Mbit/s
95th percentile per-packet one-way delay: 184.775 ms
Loss rate: 1.72%
-- Flow 3:
Average throughput: 235.61 Mbit/s
95th percentile per-packet one-way delay: 192.328 ms
Loss rate: 2.94%
```

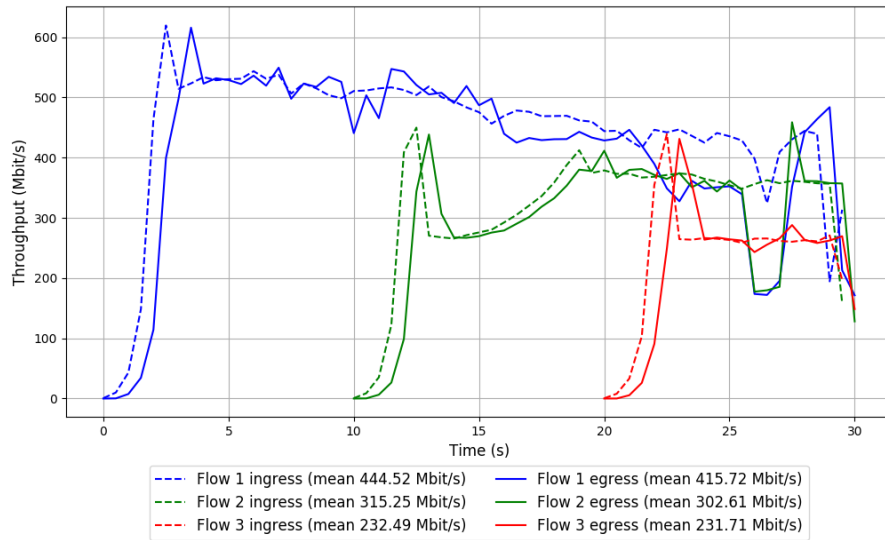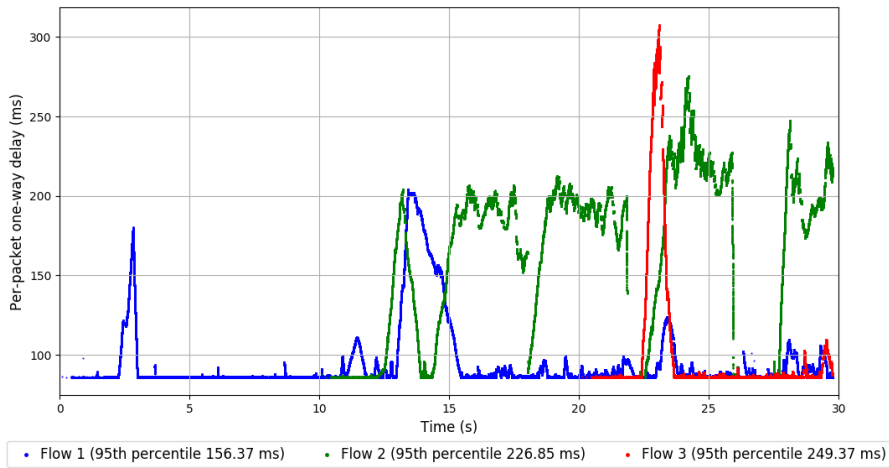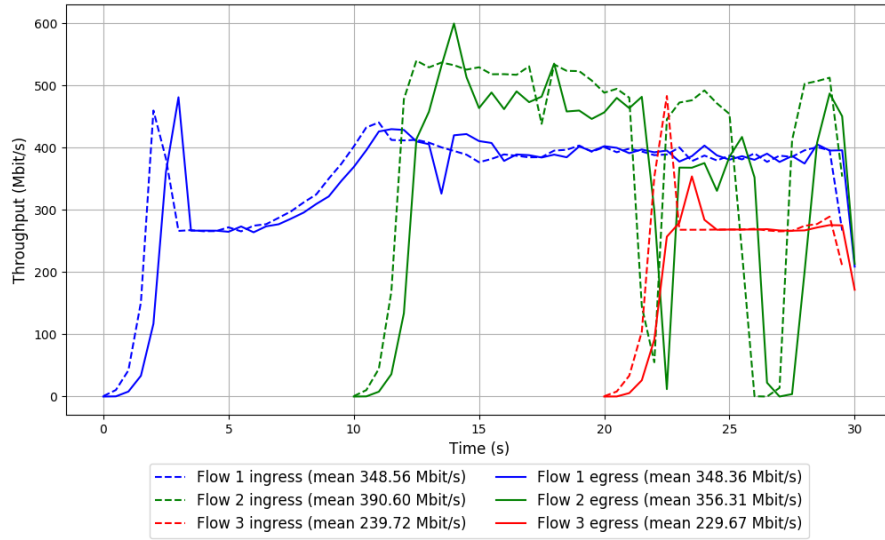Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 381.64 Mbit/s)   Flow 1 egress (mean 377.79 Mbit/s)
Flow 2 ingress (mean 290.48 Mbit/s)   Flow 2 egress (mean 287.96 Mbit/s)
Flow 3 ingress (mean 238.47 Mbit/s)   Flow 3 egress (mean 235.61 Mbit/s)

Flow 1 (95th percentile 203.03 ms)   Flow 2 (95th percentile 184.78 ms)   Flow 3 (95th percentile 192.33 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2019-04-24 00:37:39
End at: 2019-04-24 00:38:09
Local clock offset: -0.026 ms
Remote clock offset: -0.046 ms


# Below is generated by plot.py at 2019-04-24 03:29:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 691.68 Mbit/s
95th percentile per-packet one-way delay: 237.407 ms
Loss rate: 5.88%
-- Flow 1:
Average throughput: 415.72 Mbit/s
95th percentile per-packet one-way delay: 239.308 ms
Loss rate: 7.02%
-- Flow 2:
Average throughput: 302.61 Mbit/s
95th percentile per-packet one-way delay: 235.449 ms
Loss rate: 4.84%
-- Flow 3:
Average throughput: 231.71 Mbit/s
95th percentile per-packet one-way delay: 179.867 ms
Loss rate: 2.09%
```
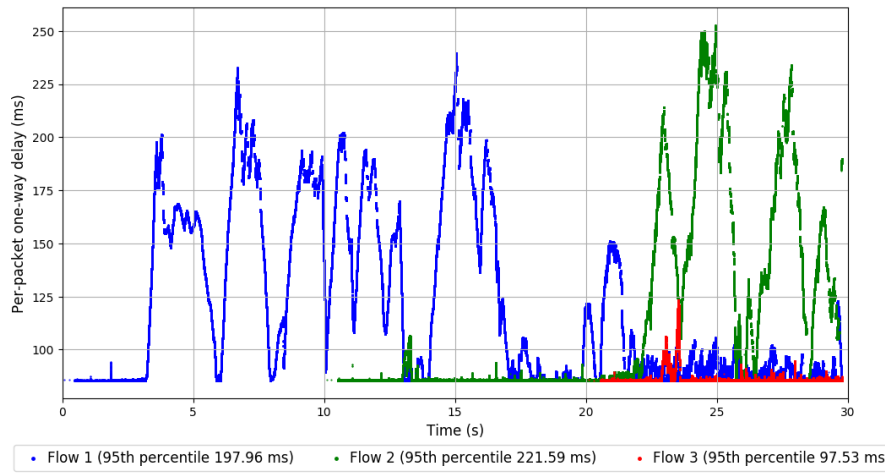
Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 444.52 Mbit/s) --- Flow 1 egress (mean 415.72 Mbit/s)
Flow 2 ingress (mean 315.25 Mbit/s) --- Flow 2 egress (mean 302.61 Mbit/s)
Flow 3 ingress (mean 232.49 Mbit/s) --- Flow 3 egress (mean 231.71 Mbit/s)

Flow 1 (95th percentile 239.31 ms)   Flow 2 (95th percentile 235.45 ms)   Flow 3 (95th percentile 179.87 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2019-04-24 01:15:23
End at: 2019-04-24 01:15:53
Local clock offset: -0.07 ms
Remote clock offset: -0.029 ms


# Below is generated by plot.py at 2019-04-24 03:31:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 659.25 Mbit/s
95th percentile per-packet one-way delay: 215.614 ms
Loss rate: 4.62%
-- Flow 1:
Average throughput: 348.36 Mbit/s
95th percentile per-packet one-way delay: 156.367 ms
Loss rate: 0.64%
-- Flow 2:
Average throughput: 356.31 Mbit/s
95th percentile per-packet one-way delay: 226.850 ms
Loss rate: 9.58%
-- Flow 3:
Average throughput: 229.67 Mbit/s
95th percentile per-packet one-way delay: 249.372 ms
Loss rate: 5.88%
```
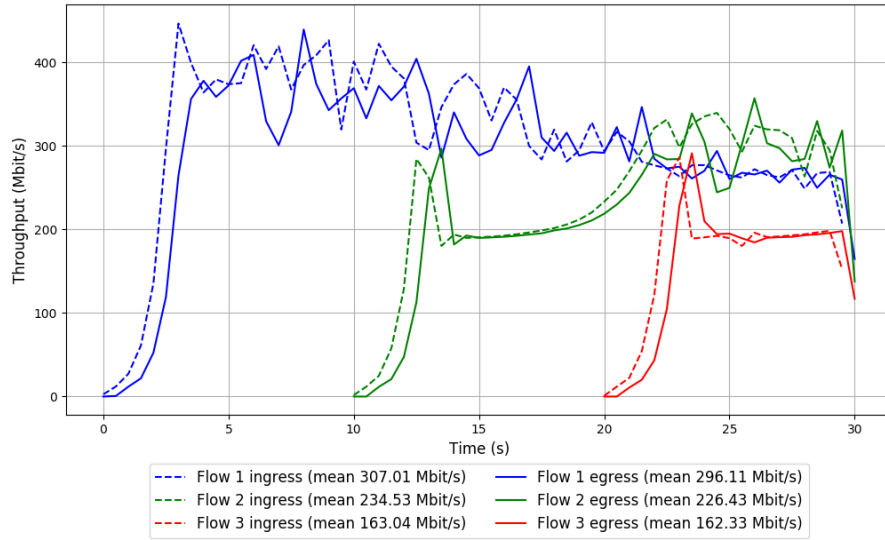
Run 5: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2019-04-23 22:21:06
End at: 2019-04-23 22:21:36
Local clock offset: 0.315 ms
Remote clock offset: 0.163 ms


# Below is generated by plot.py at 2019-04-24 03:31:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 499.07 Mbit/s
95th percentile per-packet one-way delay: 202.422 ms
Loss rate: 3.96%
-- Flow 1:
Average throughput: 296.11 Mbit/s
95th percentile per-packet one-way delay: 197.964 ms
Loss rate: 4.11%
-- Flow 2:
Average throughput: 226.43 Mbit/s
95th percentile per-packet one-way delay: 221.594 ms
Loss rate: 4.30%
-- Flow 3:
Average throughput: 162.33 Mbit/s
95th percentile per-packet one-way delay: 97.526 ms
Loss rate: 2.18%
```
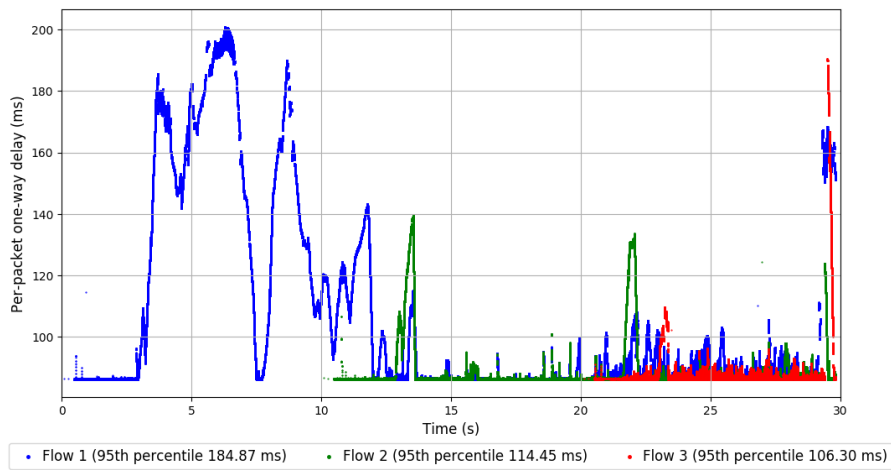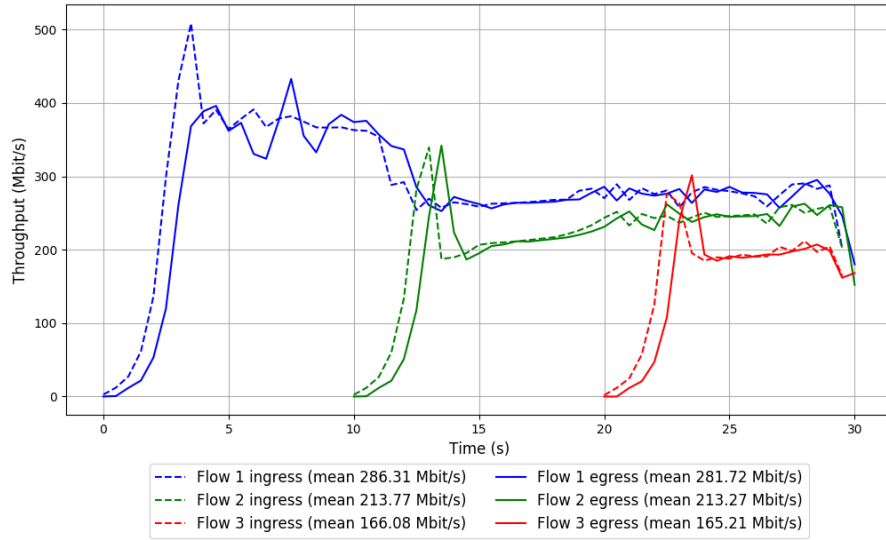
Run 1: Report of PCC-Expr — Data Link

```
Run 2: Statistics of PCC-Expr

Start at: 2019-04-23 22:58:16
End at: 2019-04-23 22:58:46
Local clock offset: 0.246 ms
Remote clock offset: 0.017 ms


# Below is generated by plot.py at 2019-04-24 03:31:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 477.02 Mbit/s
95th percentile per-packet one-way delay: 175.291 ms
Loss rate: 1.86%
-- Flow 1:
Average throughput: 281.72 Mbit/s
95th percentile per-packet one-way delay: 184.872 ms
Loss rate: 2.17%
-- Flow 2:
Average throughput: 213.27 Mbit/s
95th percentile per-packet one-way delay: 114.454 ms
Loss rate: 1.10%
-- Flow 3:
Average throughput: 165.21 Mbit/s
95th percentile per-packet one-way delay: 106.303 ms
Loss rate: 2.26%
```
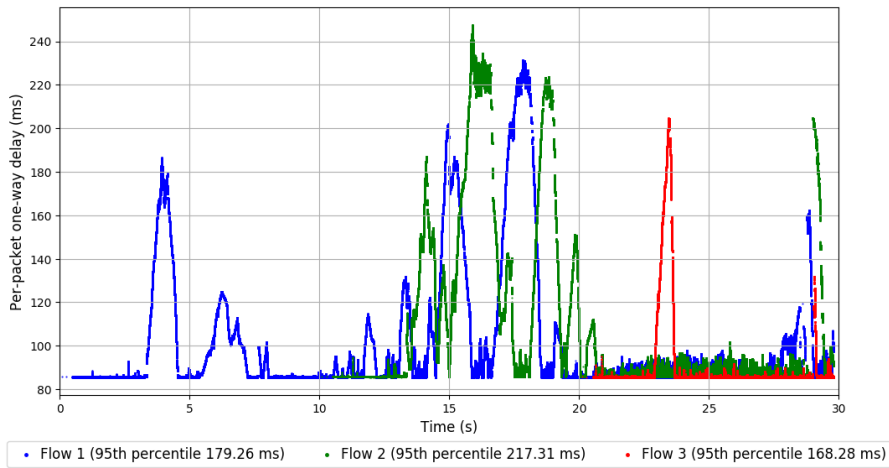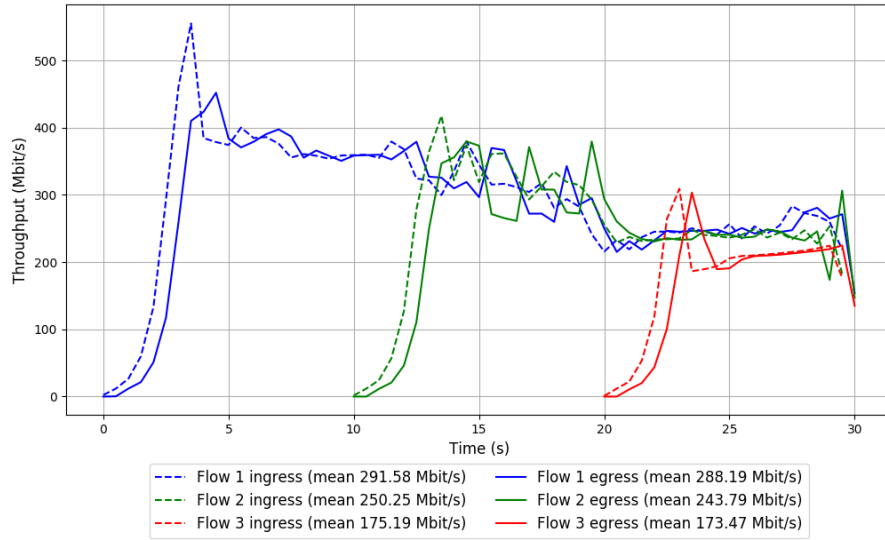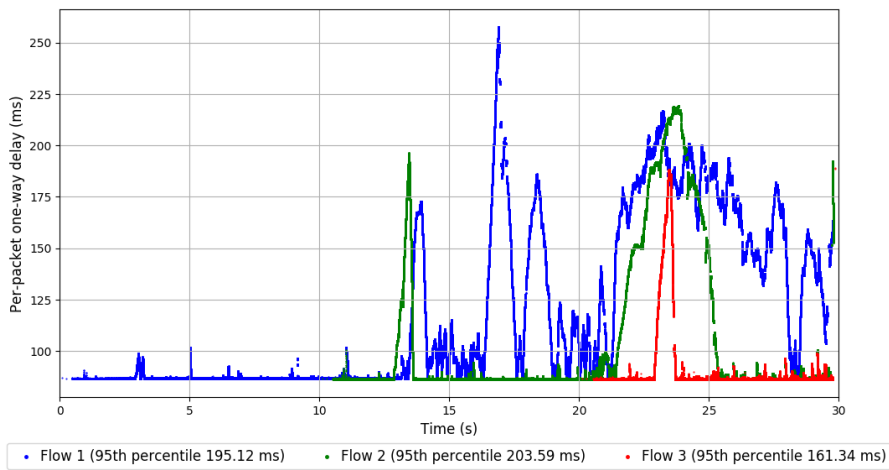
Run 2: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 286.31 Mbit/s)   Flow 1 egress (mean 281.72 Mbit/s)
Flow 2 ingress (mean 213.77 Mbit/s)   Flow 2 egress (mean 213.27 Mbit/s)
Flow 3 ingress (mean 166.08 Mbit/s)   Flow 3 egress (mean 165.21 Mbit/s)

Flow 1 (95th percentile 184.87 ms)   Flow 2 (95th percentile 114.45 ms)   Flow 3 (95th percentile 106.30 ms)

```
Run 3: Statistics of PCC-Expr

Start at: 2019-04-23 23:35:22
End at: 2019-04-23 23:35:52
Local clock offset: -0.311 ms
Remote clock offset: -0.036 ms

# Below is generated by plot.py at 2019-04-24 03:31:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 506.40 Mbit/s
95th percentile per-packet one-way delay: 194.122 ms
Loss rate: 2.39%
-- Flow 1:
Average throughput: 288.19 Mbit/s
95th percentile per-packet one-way delay: 179.258 ms
Loss rate: 1.74%
-- Flow 2:
Average throughput: 243.79 Mbit/s
95th percentile per-packet one-way delay: 217.313 ms
Loss rate: 3.43%
-- Flow 3:
Average throughput: 173.47 Mbit/s
95th percentile per-packet one-way delay: 168.279 ms
Loss rate: 2.71%
```
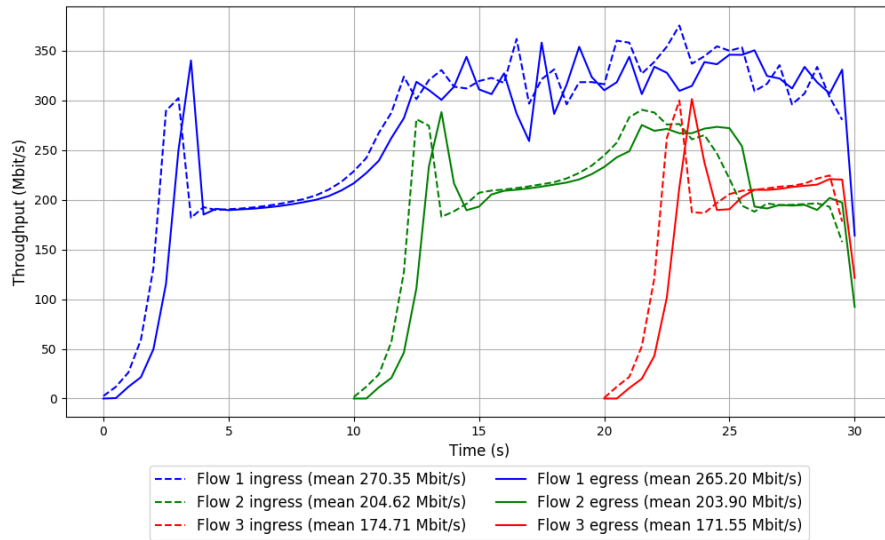
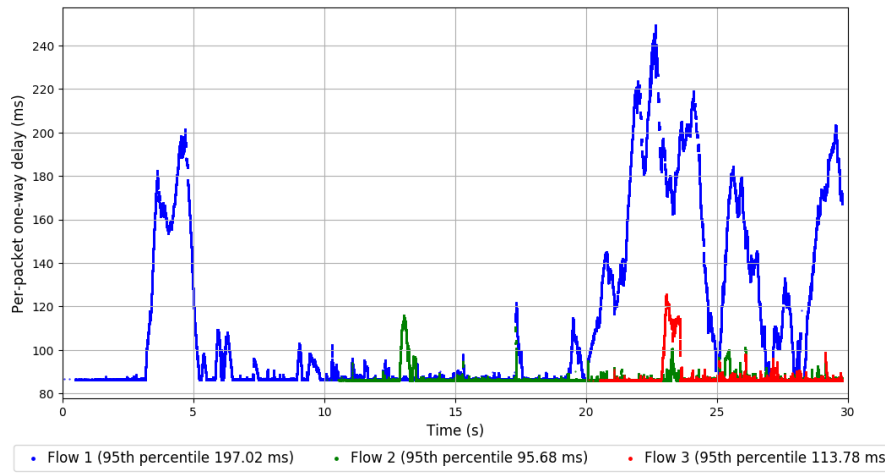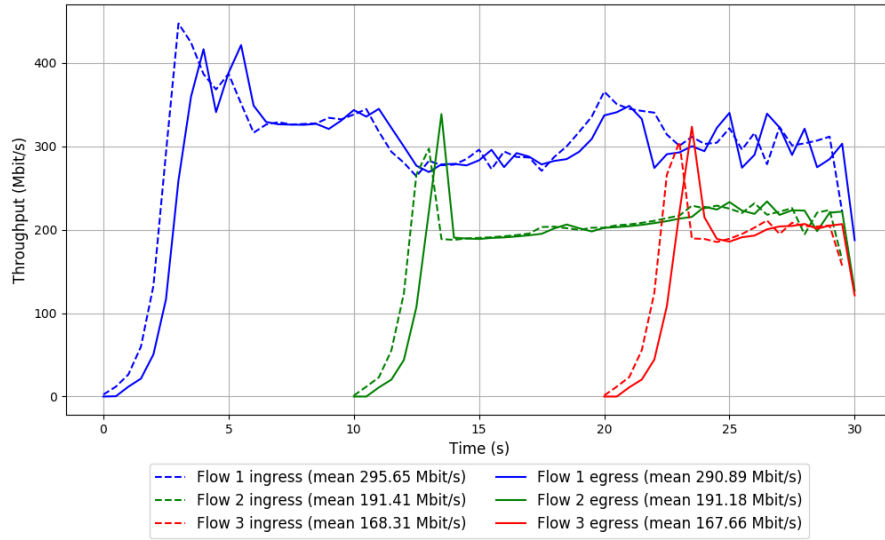Run 3: Report of PCC-Expr — Data Link

```
Run 4: Statistics of PCC-Expr

Start at: 2019-04-24 00:12:33
End at: 2019-04-24 00:13:04
Local clock offset: 0.375 ms
Remote clock offset: -0.011 ms


# Below is generated by plot.py at 2019-04-24 03:39:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 455.62 Mbit/s
95th percentile per-packet one-way delay: 194.870 ms
Loss rate: 2.16%
-- Flow 1:
Average throughput: 265.20 Mbit/s
95th percentile per-packet one-way delay: 195.116 ms
Loss rate: 2.47%
-- Flow 2:
Average throughput: 203.90 Mbit/s
95th percentile per-packet one-way delay: 203.595 ms
Loss rate: 1.22%
-- Flow 3:
Average throughput: 171.55 Mbit/s
95th percentile per-packet one-way delay: 161.344 ms
Loss rate: 2.89%
```

Run 4: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 270.35 Mbit/s)   Flow 1 egress (mean 265.20 Mbit/s)
Flow 2 ingress (mean 204.62 Mbit/s)   Flow 2 egress (mean 203.90 Mbit/s)
Flow 3 ingress (mean 174.71 Mbit/s)   Flow 3 egress (mean 171.55 Mbit/s)

Flow 1 (95th percentile 195.12 ms)   Flow 2 (95th percentile 203.59 ms)   Flow 3 (95th percentile 161.34 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2019-04-24 00:50:09
End at: 2019-04-24 00:50:39
Local clock offset: 0.215 ms
Remote clock offset: -0.103 ms


# Below is generated by plot.py at 2019-04-24 03:40:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 472.38 Mbit/s
95th percentile per-packet one-way delay: 189.490 ms
Loss rate: 1.86%
-- Flow 1:
Average throughput: 290.89 Mbit/s
95th percentile per-packet one-way delay: 197.020 ms
Loss rate: 2.18%
-- Flow 2:
Average throughput: 191.18 Mbit/s
95th percentile per-packet one-way delay: 95.678 ms
Loss rate: 0.99%
-- Flow 3:
Average throughput: 167.66 Mbit/s
95th percentile per-packet one-way delay: 113.784 ms
Loss rate: 2.14%
```
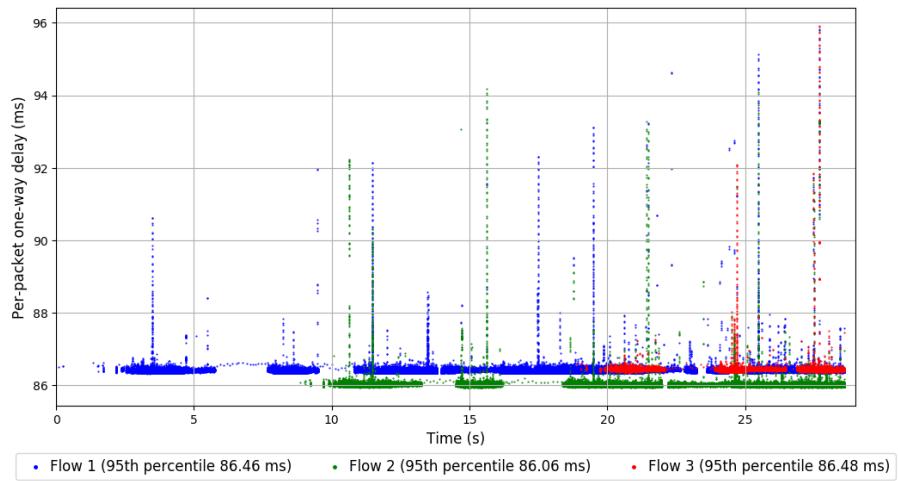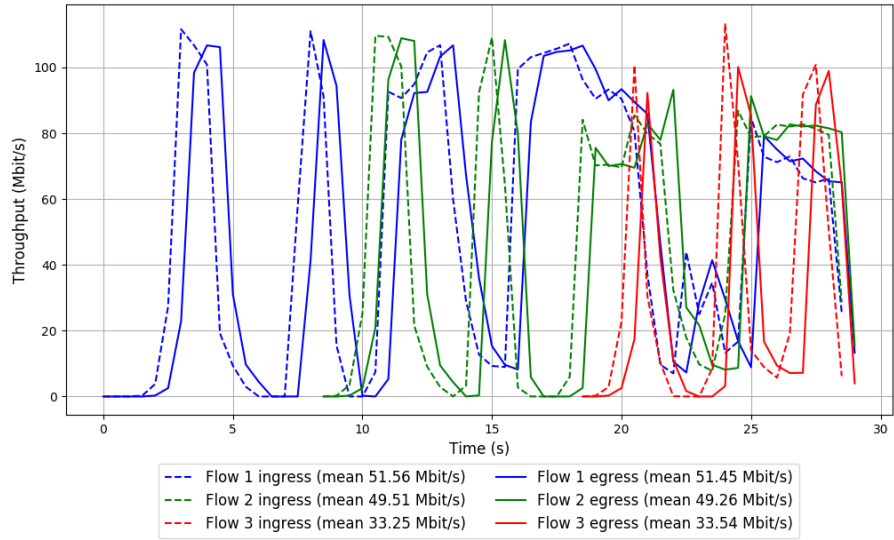
Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2019-04-23 22:38:27
End at: 2019-04-23 22:38:57
Local clock offset: 0.177 ms
Remote clock offset: 0.035 ms


# Below is generated by plot.py at 2019-04-24 03:40:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.98 Mbit/s
95th percentile per-packet one-way delay: 86.455 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 51.45 Mbit/s
95th percentile per-packet one-way delay: 86.464 ms
Loss rate: 0.81%
-- Flow 2:
Average throughput: 49.26 Mbit/s
95th percentile per-packet one-way delay: 86.062 ms
Loss rate: 1.35%
-- Flow 3:
Average throughput: 33.54 Mbit/s
95th percentile per-packet one-way delay: 86.479 ms
Loss rate: 0.88%
```
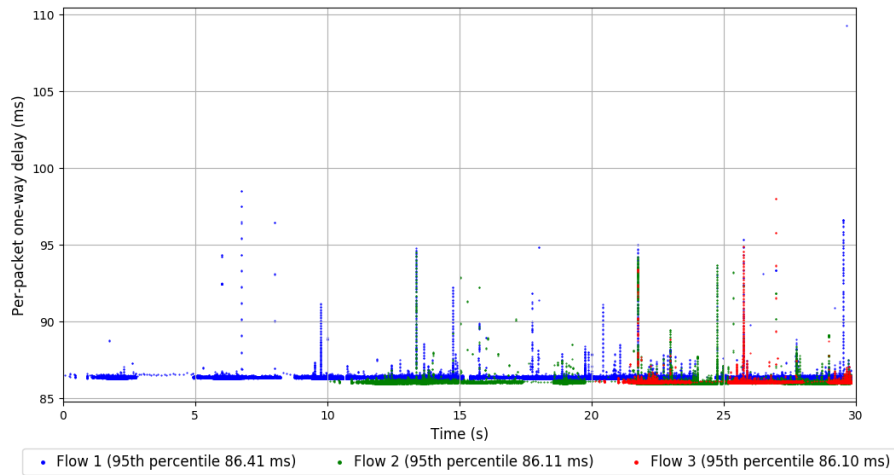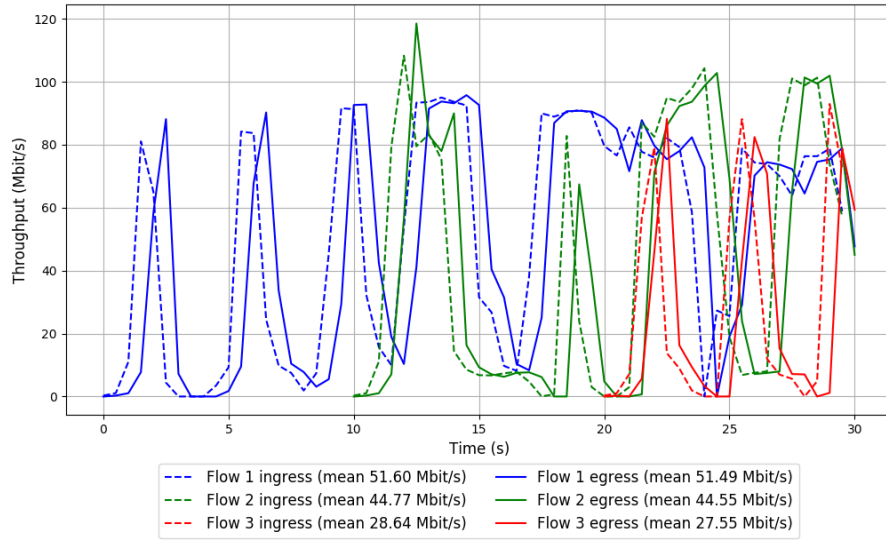
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2019-04-23 23:15:40
End at: 2019-04-23 23:16:10
Local clock offset: 0.068 ms
Remote clock offset: 0.005 ms


# Below is generated by plot.py at 2019-04-24 03:40:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.02 Mbit/s
95th percentile per-packet one-way delay: 86.391 ms
Loss rate: 1.46%
-- Flow 1:
Average throughput: 51.49 Mbit/s
95th percentile per-packet one-way delay: 86.406 ms
Loss rate: 0.79%
-- Flow 2:
Average throughput: 44.55 Mbit/s
95th percentile per-packet one-way delay: 86.105 ms
Loss rate: 1.35%
-- Flow 3:
Average throughput: 27.55 Mbit/s
95th percentile per-packet one-way delay: 86.102 ms
Loss rate: 5.48%
```
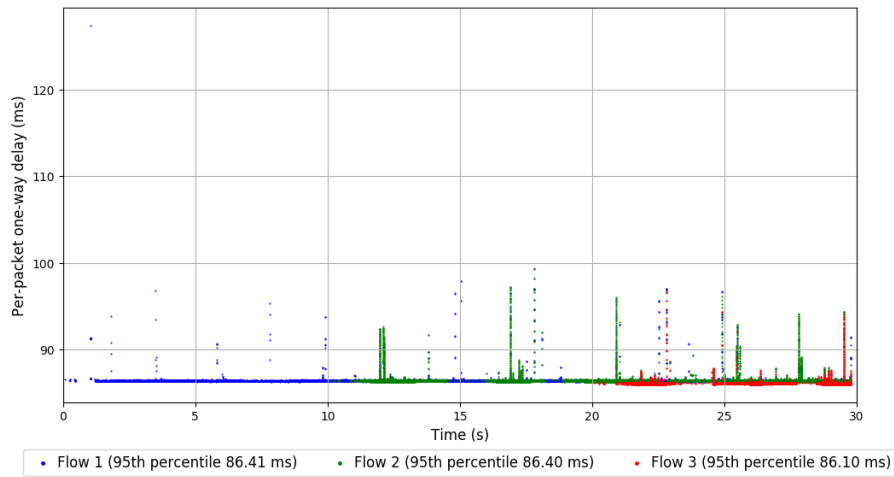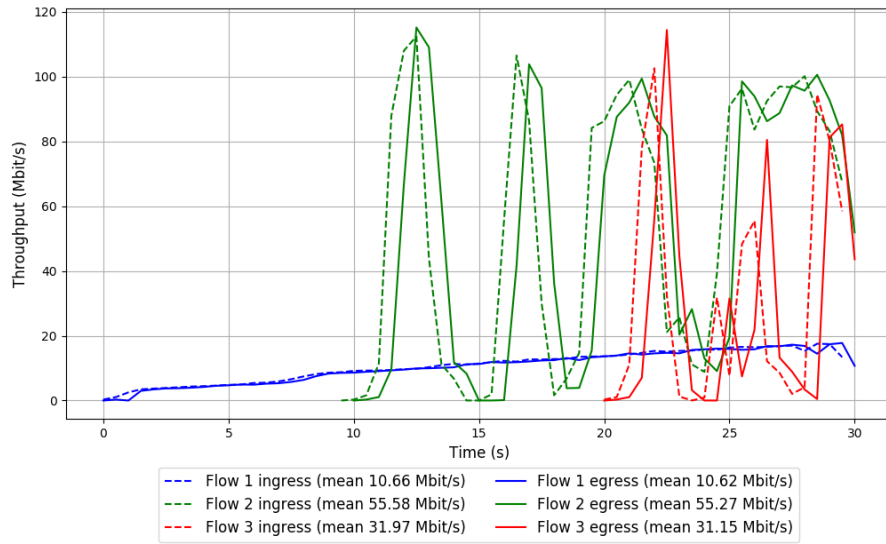
Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2019-04-23 23:53:02
End at: 2019-04-23 23:53:32
Local clock offset: 0.078 ms
Remote clock offset: -0.035 ms


# Below is generated by plot.py at 2019-04-24 03:40:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 57.47 Mbit/s
95th percentile per-packet one-way delay: 86.394 ms
Loss rate: 1.83%
-- Flow 1:
Average throughput: 10.62 Mbit/s
95th percentile per-packet one-way delay: 86.414 ms
Loss rate: 0.94%
-- Flow 2:
Average throughput: 55.27 Mbit/s
95th percentile per-packet one-way delay: 86.396 ms
Loss rate: 1.40%
-- Flow 3:
Average throughput: 31.15 Mbit/s
95th percentile per-packet one-way delay: 86.098 ms
Loss rate: 4.21%
```
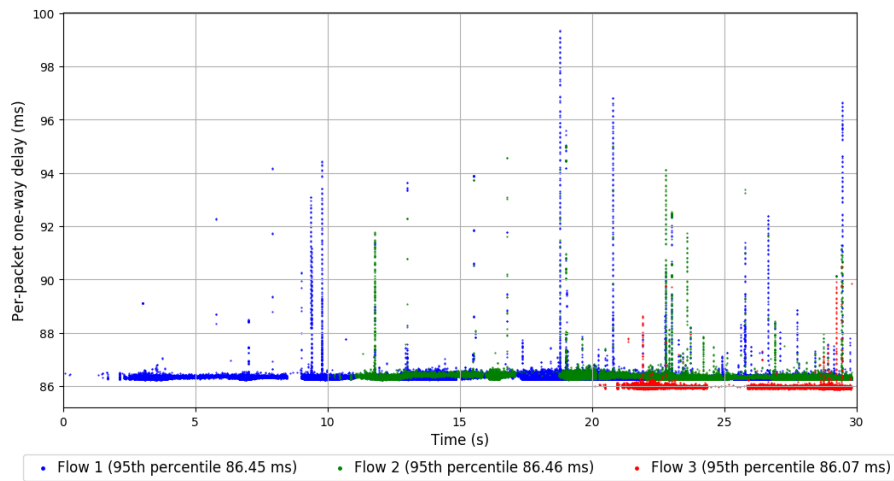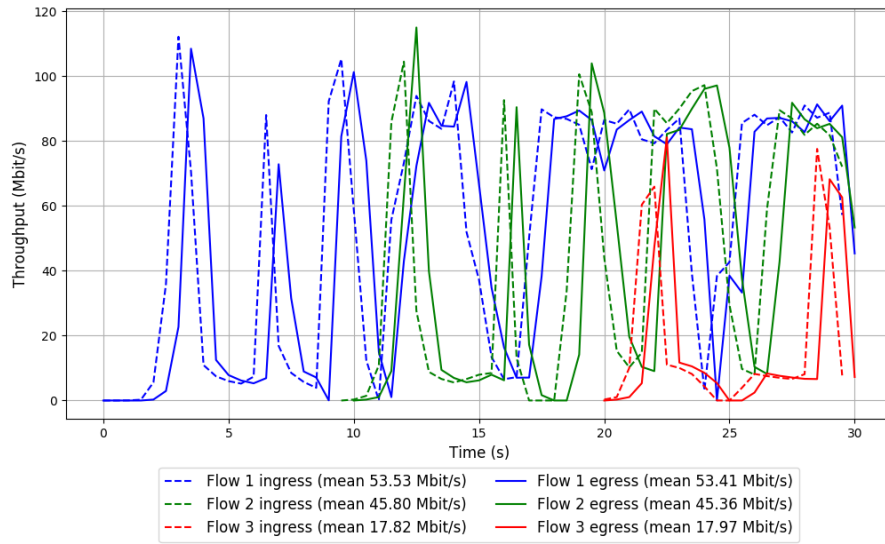
Run 3: Report of QUIC Cubic — Data Link

```
Run 4: Statistics of QUIC Cubic

Start at: 2019-04-24 00:30:14
End at: 2019-04-24 00:30:44
Local clock offset: 0.095 ms
Remote clock offset: 0.027 ms


# Below is generated by plot.py at 2019-04-24 03:40:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.36 Mbit/s
95th percentile per-packet one-way delay: 86.450 ms
Loss rate: 1.15%
-- Flow 1:
Average throughput: 53.41 Mbit/s
95th percentile per-packet one-way delay: 86.449 ms
Loss rate: 0.80%
-- Flow 2:
Average throughput: 45.36 Mbit/s
95th percentile per-packet one-way delay: 86.461 ms
Loss rate: 1.81%
-- Flow 3:
Average throughput: 17.97 Mbit/s
95th percentile per-packet one-way delay: 86.067 ms
Loss rate: 0.87%
```
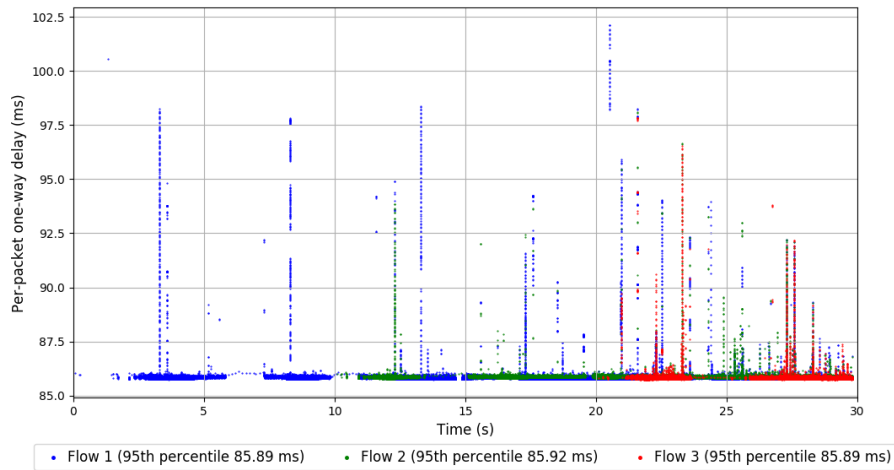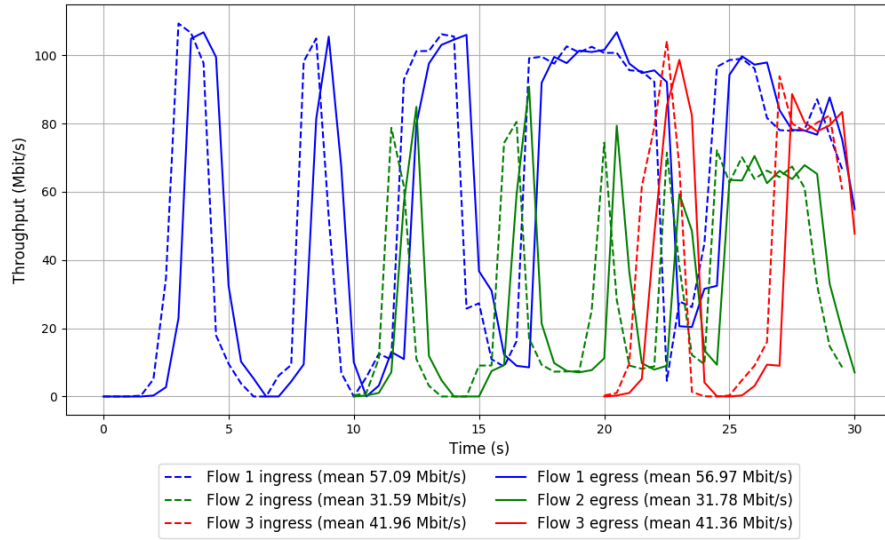
Run 4: Report of QUIC Cubic — Data Link

```
Run 5: Statistics of QUIC Cubic

Start at: 2019-04-24 01:08:02
End at: 2019-04-24 01:08:32
Local clock offset: -0.025 ms
Remote clock offset: -0.262 ms


# Below is generated by plot.py at 2019-04-24 03:40:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.56 Mbit/s
95th percentile per-packet one-way delay: 85.901 ms
Loss rate: 1.03%
-- Flow 1:
Average throughput: 56.97 Mbit/s
95th percentile per-packet one-way delay: 85.887 ms
Loss rate: 0.80%
-- Flow 2:
Average throughput: 31.78 Mbit/s
95th percentile per-packet one-way delay: 85.921 ms
Loss rate: 0.29%
-- Flow 3:
Average throughput: 41.36 Mbit/s
95th percentile per-packet one-way delay: 85.885 ms
Loss rate: 3.14%
```
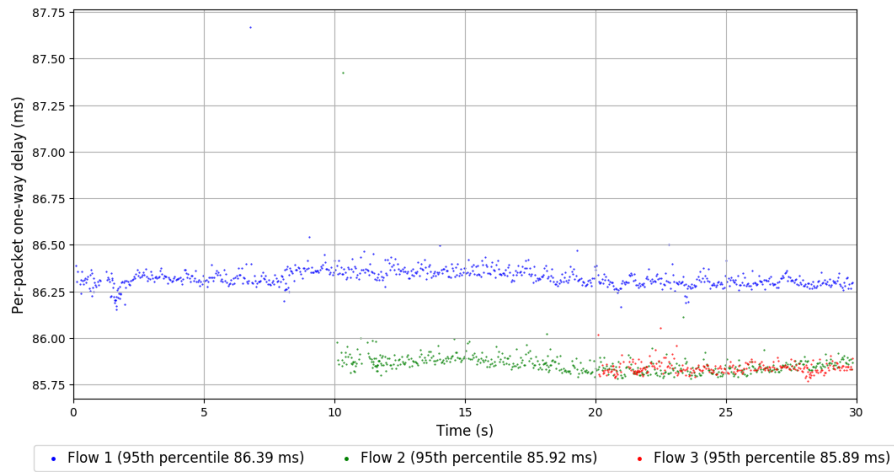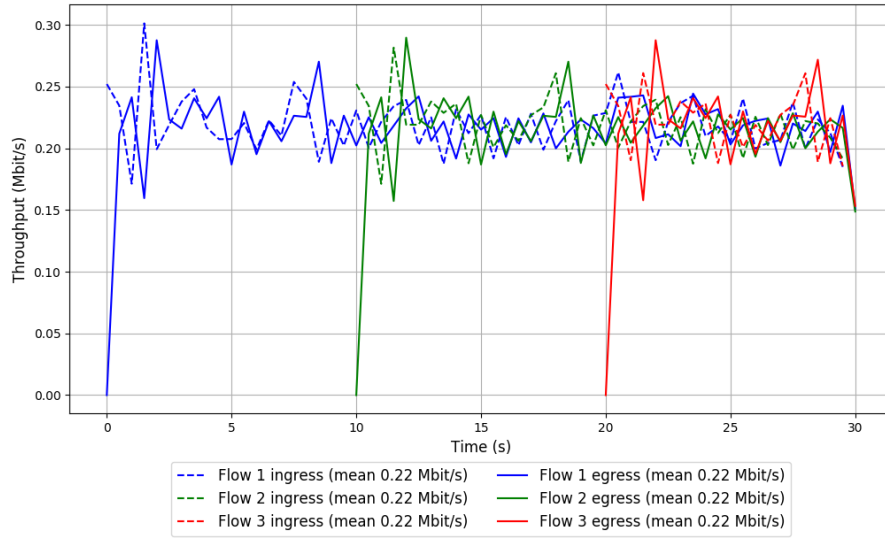
Run 5: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 57.09 Mbit/s)   Flow 1 egress (mean 56.97 Mbit/s)
Flow 2 ingress (mean 31.59 Mbit/s)   Flow 2 egress (mean 31.78 Mbit/s)
Flow 3 ingress (mean 41.96 Mbit/s)   Flow 3 egress (mean 41.36 Mbit/s)

Flow 1 (95th percentile 85.89 ms)   Flow 2 (95th percentile 85.92 ms)   Flow 3 (95th percentile 85.89 ms)

```
Run 1: Statistics of SCReAM

Start at: 2019-04-23 22:33:46
End at: 2019-04-23 22:34:16
Local clock offset: -0.042 ms
Remote clock offset: 0.048 ms

# Below is generated by plot.py at 2019-04-24 03:40:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 86.377 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.395 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.925 ms
Loss rate: 0.82%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.886 ms
Loss rate: 1.46%
```
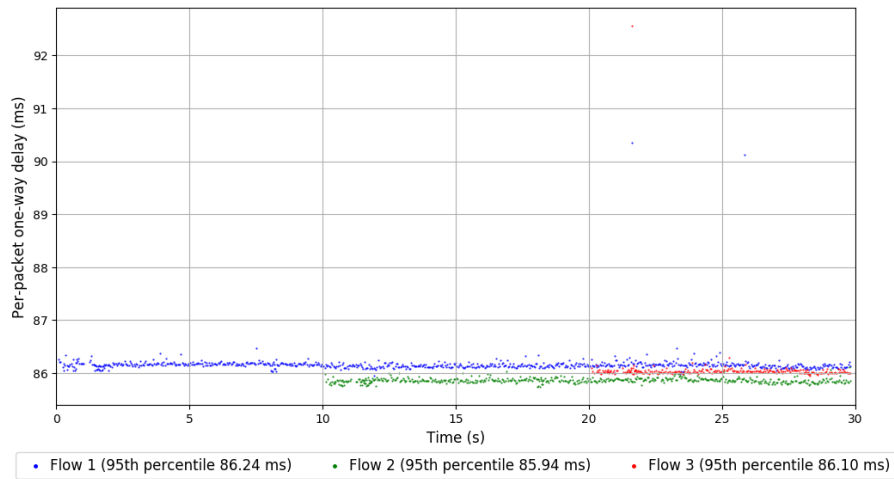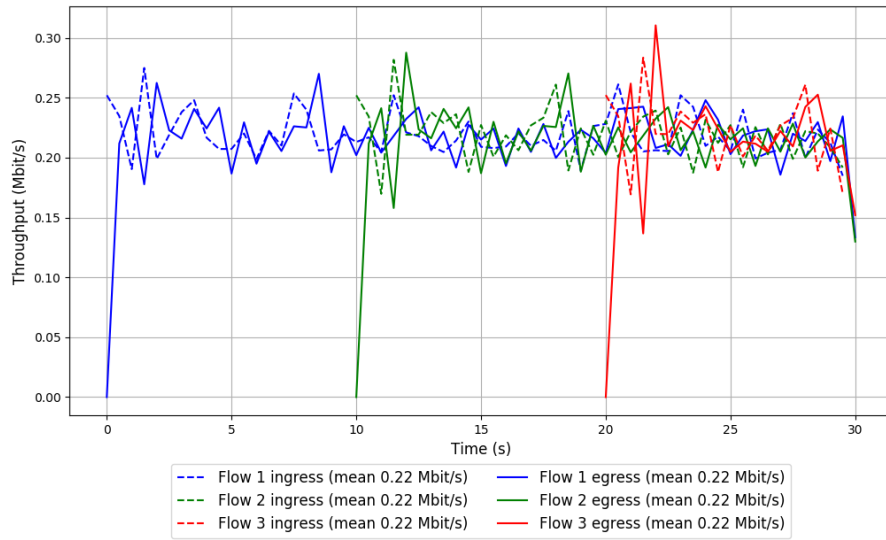
Run 1: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 86.39 ms)   Flow 2 (95th percentile 85.92 ms)   Flow 3 (95th percentile 85.89 ms)

```
Run 2: Statistics of SCReAM

Start at: 2019-04-23 23:10:58
End at: 2019-04-23 23:11:28
Local clock offset: -0.33 ms
Remote clock offset: 0.018 ms


# Below is generated by plot.py at 2019-04-24 03:40:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 86.207 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.241 ms
Loss rate: 0.64%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.943 ms
Loss rate: 1.04%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.102 ms
Loss rate: 1.50%
```
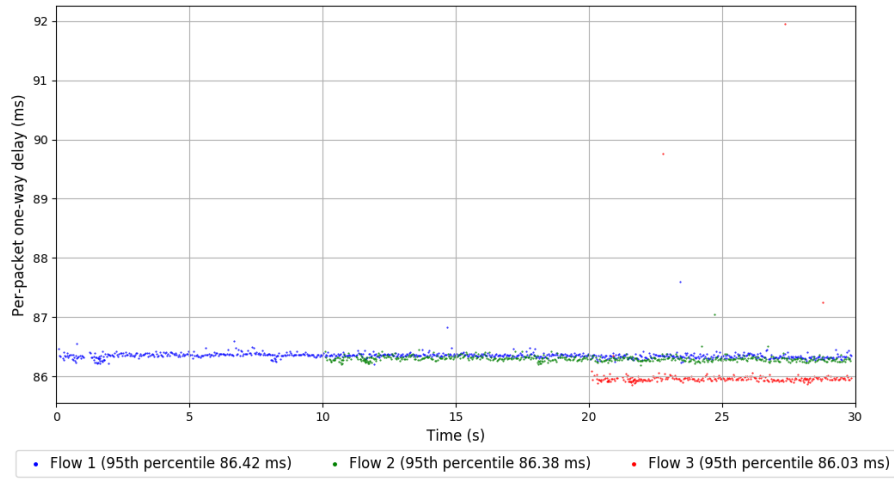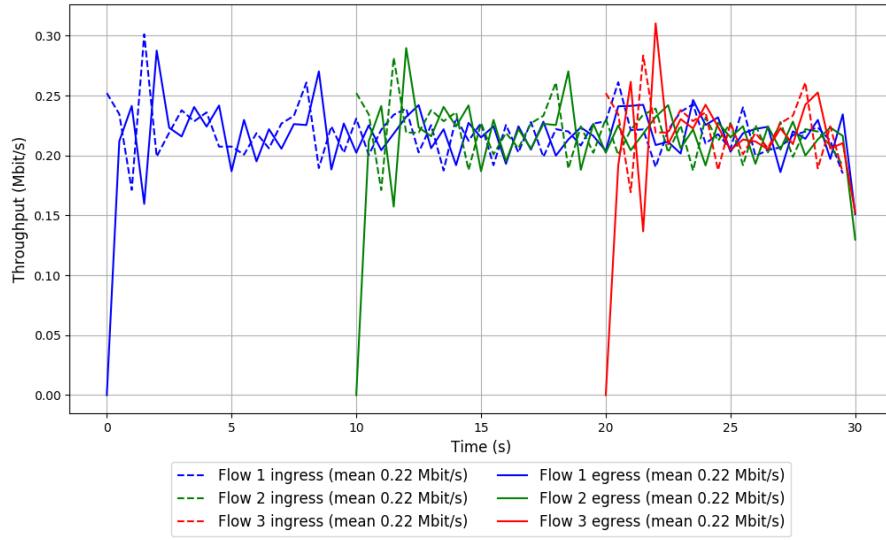
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2019-04-23 23:48:16
End at: 2019-04-23 23:48:46
Local clock offset: -0.091 ms
Remote clock offset: -0.027 ms


# Below is generated by plot.py at 2019-04-24 03:40:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 86.405 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.419 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.383 ms
Loss rate: 1.04%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.032 ms
Loss rate: 1.85%
```
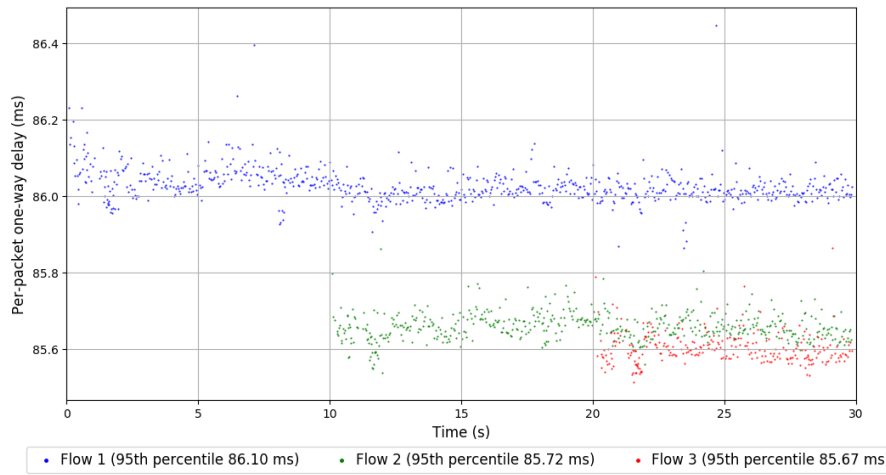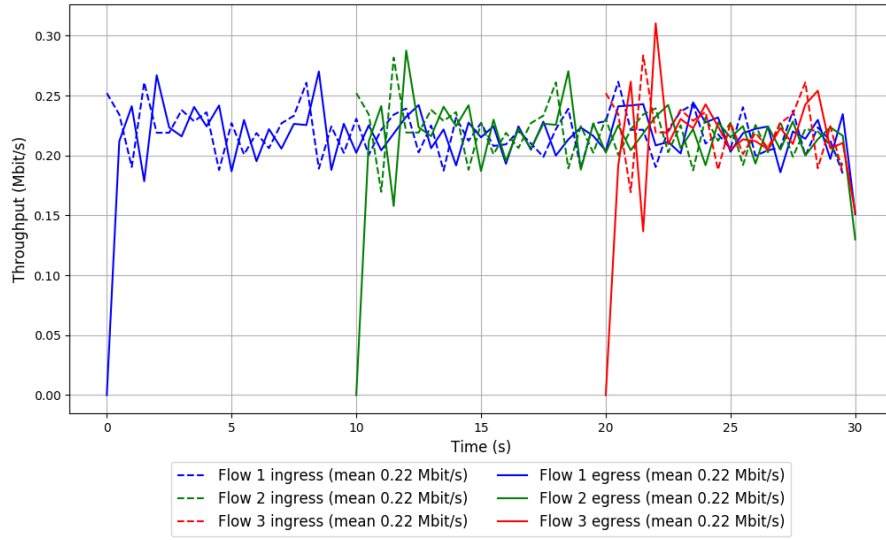
Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2019-04-24 00:25:25
End at: 2019-04-24 00:25:55
Local clock offset: -0.38 ms
Remote clock offset: 0.02 ms


# Below is generated by plot.py at 2019-04-24 03:40:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 86.075 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.099 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.716 ms
Loss rate: 1.04%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.669 ms
Loss rate: 1.85%
```
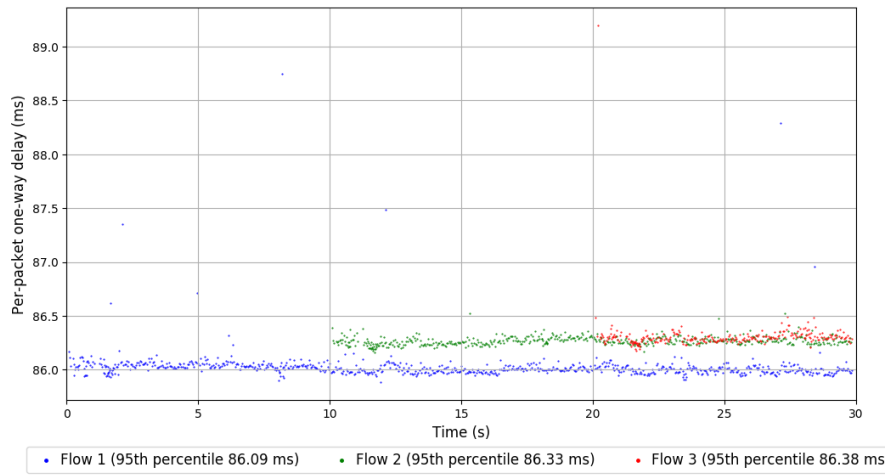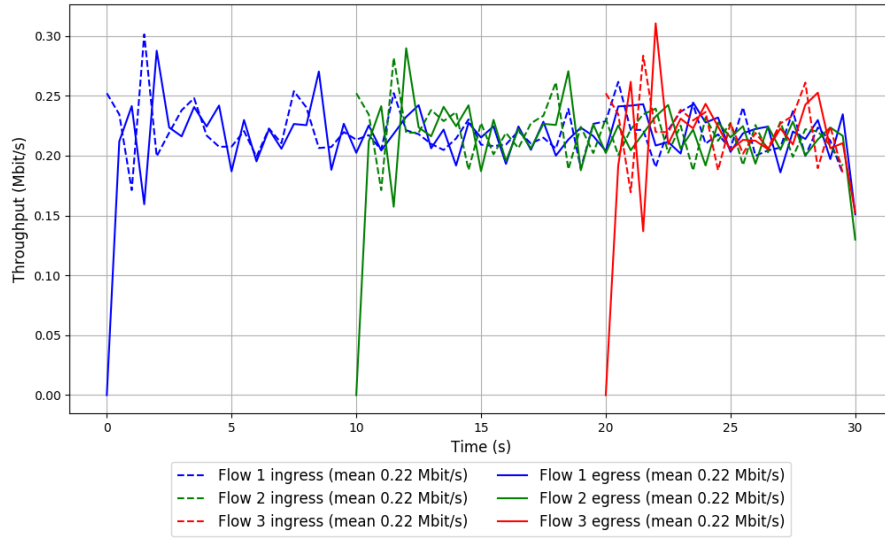
Run 4: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 86.10 ms)   Flow 2 (95th percentile 85.72 ms)   Flow 3 (95th percentile 85.67 ms)

```
Run 5: Statistics of SCReAM

Start at: 2019-04-24 01:03:08
End at: 2019-04-24 01:03:38
Local clock offset: 0.015 ms
Remote clock offset: -0.197 ms


# Below is generated by plot.py at 2019-04-24 03:40:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 86.333 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.093 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.333 ms
Loss rate: 1.04%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.381 ms
Loss rate: 1.85%
```
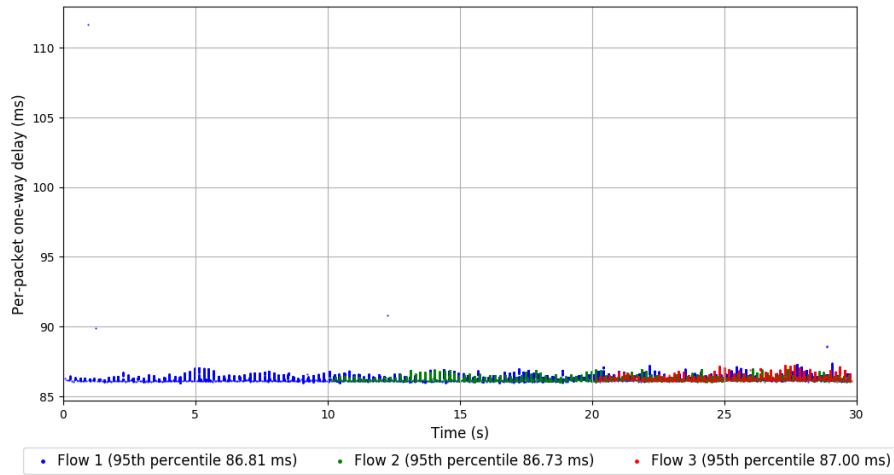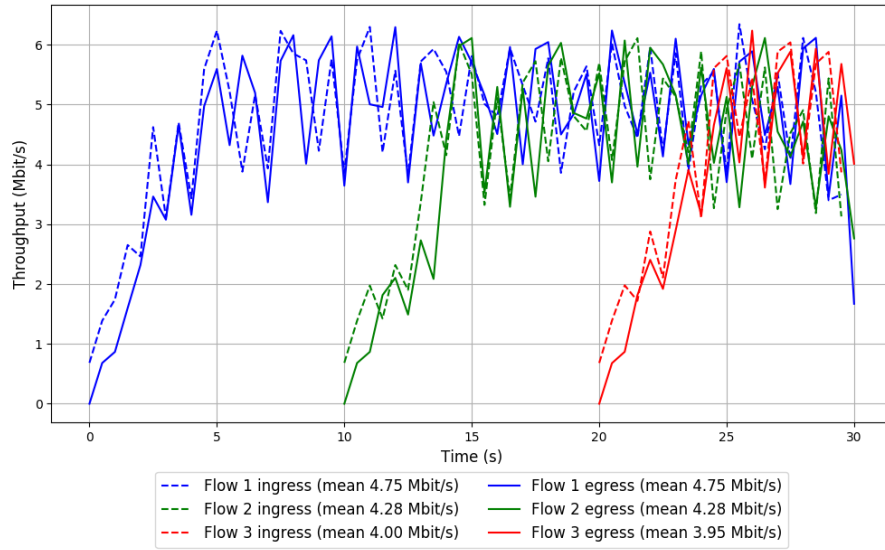
Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2019-04-23 22:30:50
End at: 2019-04-23 22:31:20
Local clock offset: 0.276 ms
Remote clock offset: 0.055 ms


# Below is generated by plot.py at 2019-04-24 03:40:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.87 Mbit/s
95th percentile per-packet one-way delay: 86.818 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 4.75 Mbit/s
95th percentile per-packet one-way delay: 86.812 ms
Loss rate: 0.64%
-- Flow 2:
Average throughput: 4.28 Mbit/s
95th percentile per-packet one-way delay: 86.735 ms
Loss rate: 0.92%
-- Flow 3:
Average throughput: 3.95 Mbit/s
95th percentile per-packet one-way delay: 87.000 ms
Loss rate: 2.42%
```
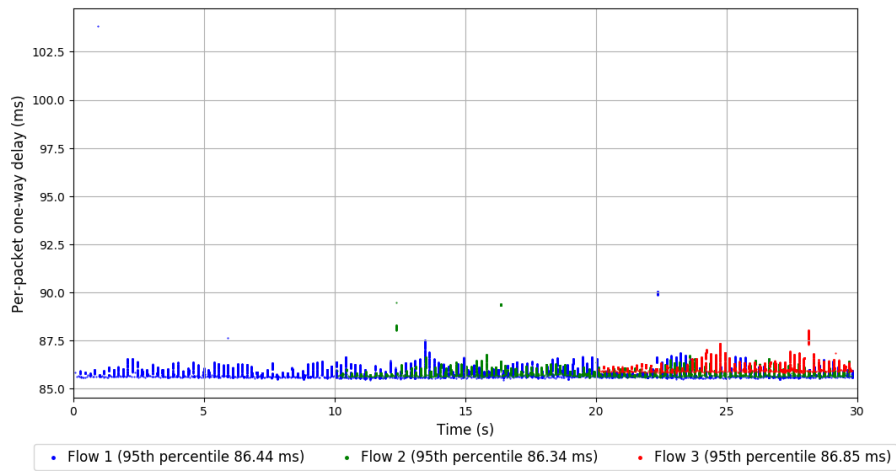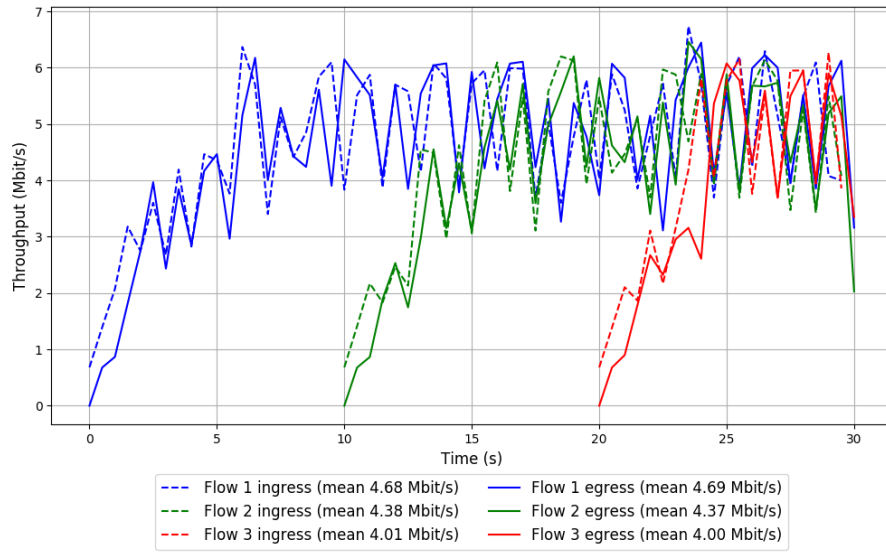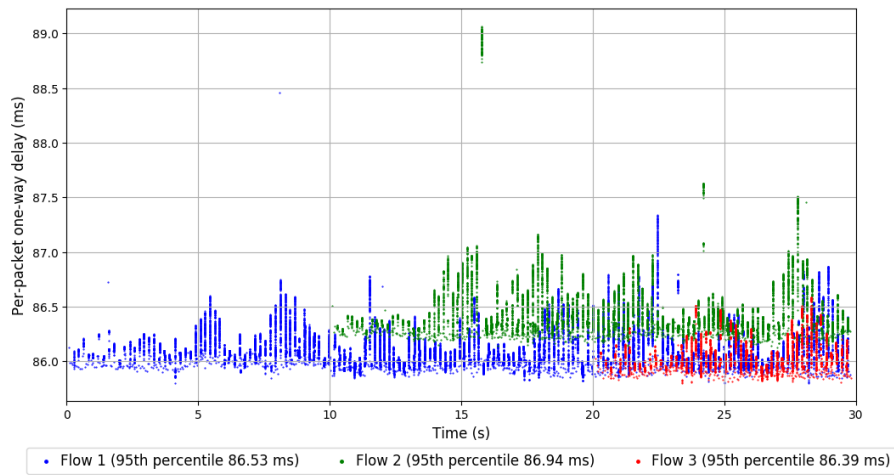
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2019-04-23 23:07:53
End at: 2019-04-23 23:08:23
Local clock offset: -0.403 ms
Remote clock offset: 0.029 ms


# Below is generated by plot.py at 2019-04-24 03:40:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.89 Mbit/s
95th percentile per-packet one-way delay: 86.514 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 4.69 Mbit/s
95th percentile per-packet one-way delay: 86.445 ms
Loss rate: 0.30%
-- Flow 2:
Average throughput: 4.37 Mbit/s
95th percentile per-packet one-way delay: 86.336 ms
Loss rate: 1.18%
-- Flow 3:
Average throughput: 4.00 Mbit/s
95th percentile per-packet one-way delay: 86.851 ms
Loss rate: 2.06%
```
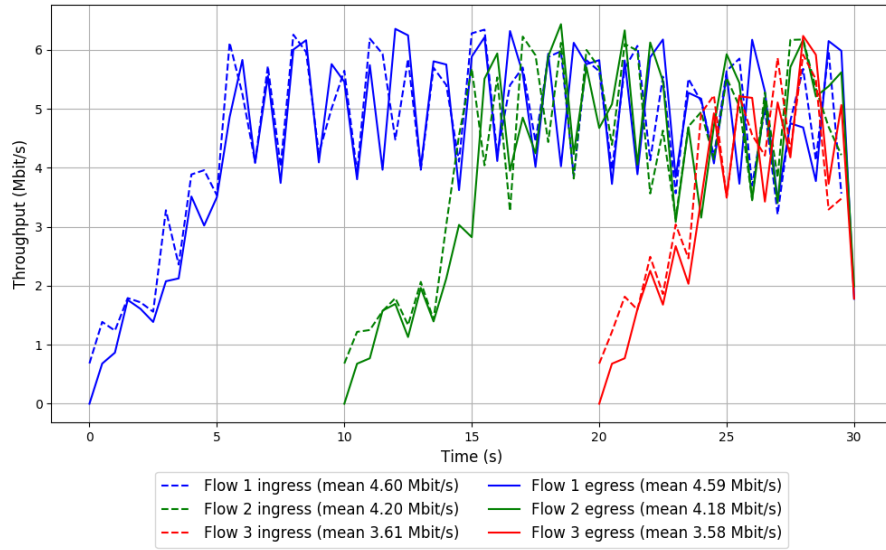
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2019-04-23 23:45:07
End at: 2019-04-23 23:45:37
Local clock offset: -0.099 ms
Remote clock offset: -0.026 ms


# Below is generated by plot.py at 2019-04-24 03:40:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.53 Mbit/s
95th percentile per-packet one-way delay: 86.745 ms
Loss rate: 1.11%
-- Flow 1:
Average throughput: 4.59 Mbit/s
95th percentile per-packet one-way delay: 86.528 ms
Loss rate: 0.65%
-- Flow 2:
Average throughput: 4.18 Mbit/s
95th percentile per-packet one-way delay: 86.938 ms
Loss rate: 1.34%
-- Flow 3:
Average throughput: 3.58 Mbit/s
95th percentile per-packet one-way delay: 86.391 ms
Loss rate: 2.39%
```
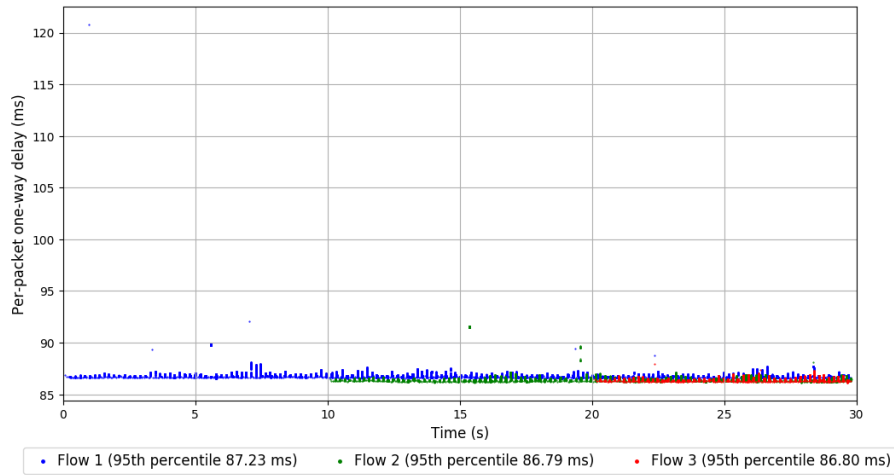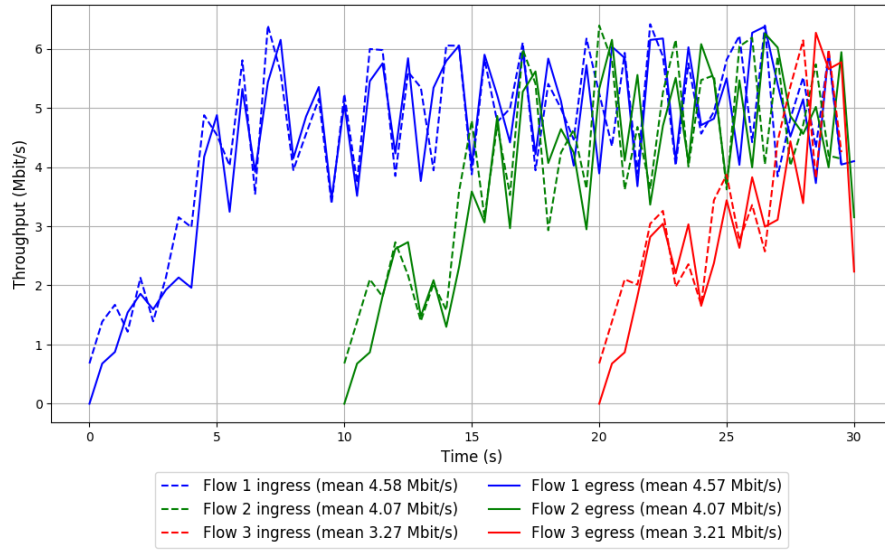
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2019-04-24 00:22:17
End at: 2019-04-24 00:22:47
Local clock offset: 0.316 ms
Remote clock offset: 0.024 ms

# Below is generated by plot.py at 2019-04-24 03:40:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.31 Mbit/s
95th percentile per-packet one-way delay: 87.132 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 4.57 Mbit/s
95th percentile per-packet one-way delay: 87.235 ms
Loss rate: 0.72%
-- Flow 2:
Average throughput: 4.07 Mbit/s
95th percentile per-packet one-way delay: 86.790 ms
Loss rate: 0.71%
-- Flow 3:
Average throughput: 3.21 Mbit/s
95th percentile per-packet one-way delay: 86.803 ms
Loss rate: 3.46%
```
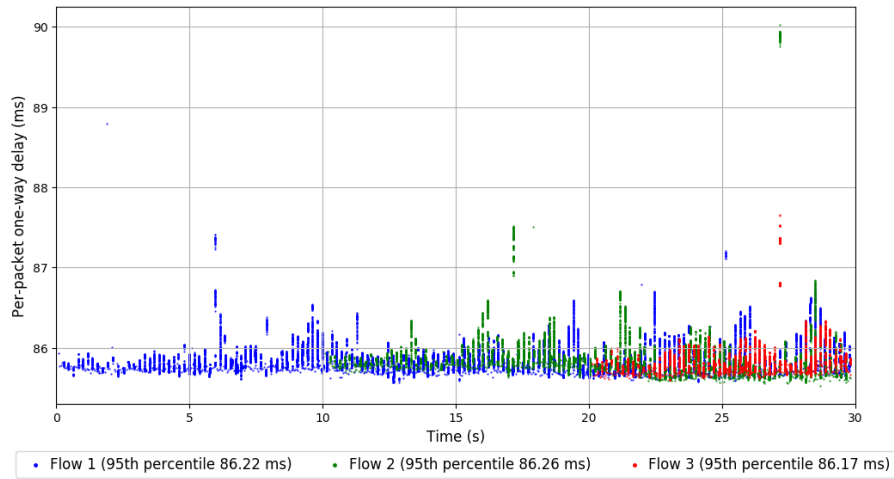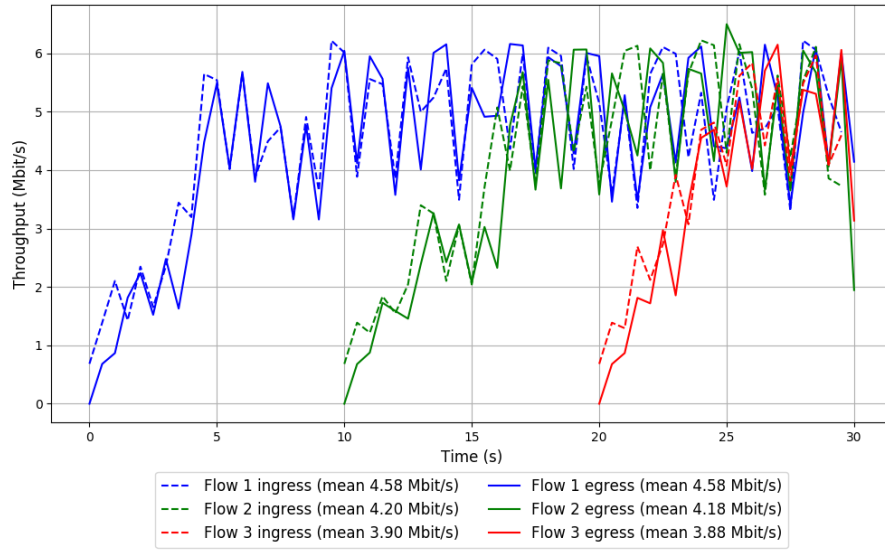
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2019-04-24 01:00:02
End at: 2019-04-24 01:00:32
Local clock offset: -0.196 ms
Remote clock offset: -0.179 ms


# Below is generated by plot.py at 2019-04-24 03:40:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.62 Mbit/s
95th percentile per-packet one-way delay: 86.225 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 4.58 Mbit/s
95th percentile per-packet one-way delay: 86.224 ms
Loss rate: 0.67%
-- Flow 2:
Average throughput: 4.18 Mbit/s
95th percentile per-packet one-way delay: 86.257 ms
Loss rate: 1.07%
-- Flow 3:
Average throughput: 3.88 Mbit/s
95th percentile per-packet one-way delay: 86.168 ms
Loss rate: 2.00%
```

Run 5: Report of Sprout — Data Link

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

Start at: 2019-04-23 22:28:52
End at: 2019-04-23 22:29:22
Local clock offset: 0.303 ms
Remote clock offset: 0.052 ms


# Below is generated by plot.py at 2019-04-24 03:44:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 428.62 Mbit/s
95th percentile per-packet one-way delay: 88.143 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 220.24 Mbit/s
95th percentile per-packet one-way delay: 88.119 ms
Loss rate: 0.50%
-- Flow 2:
Average throughput: 222.65 Mbit/s
95th percentile per-packet one-way delay: 87.822 ms
Loss rate: 0.69%
-- Flow 3:
Average throughput: 184.15 Mbit/s
95th percentile per-packet one-way delay: 88.636 ms
Loss rate: 1.84%
```
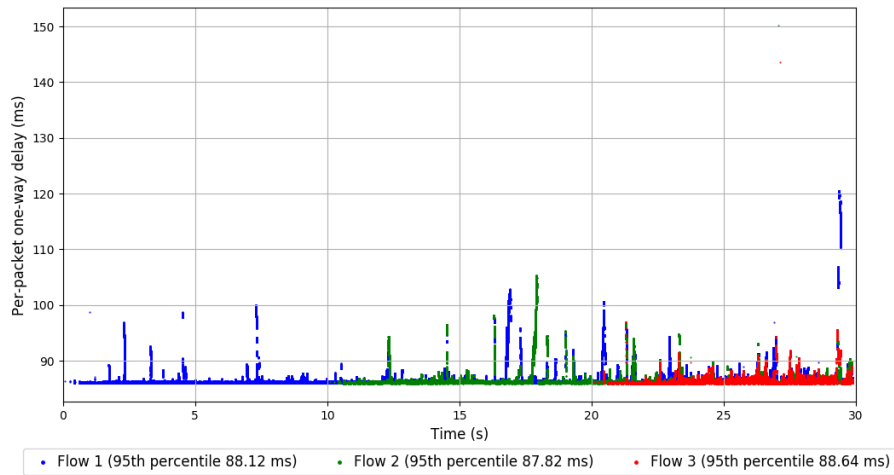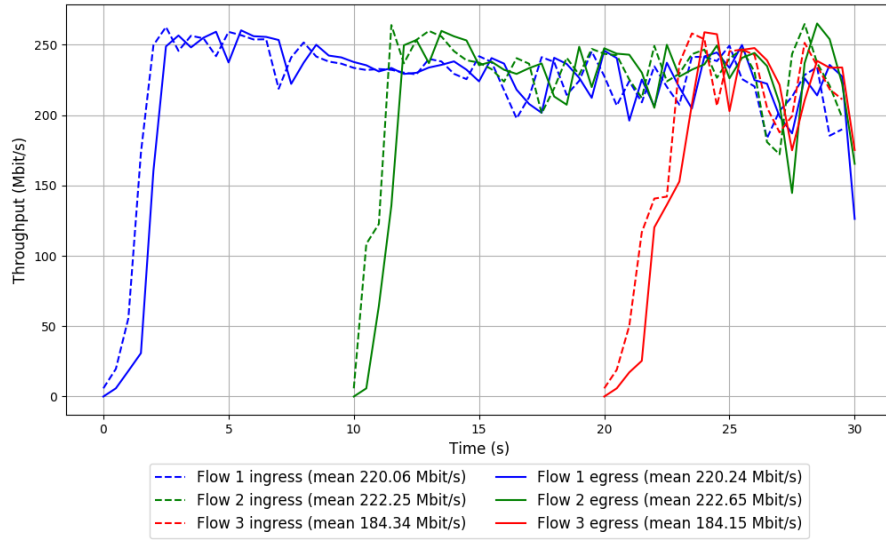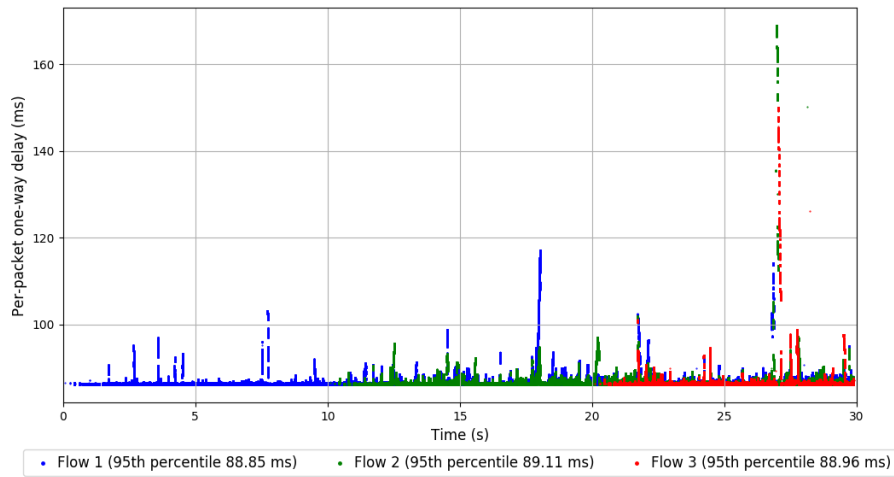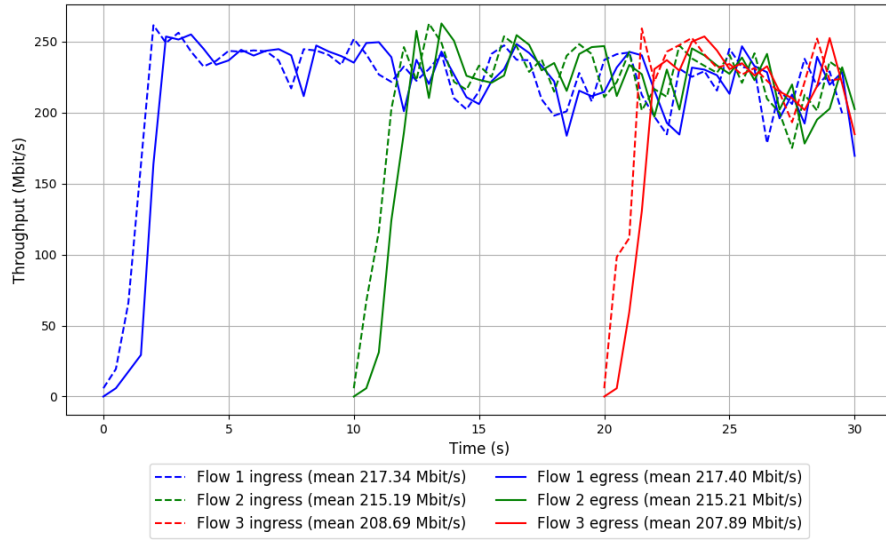
Run 1: Report of TaoVA-100x — Data Link

- - - - Flow 1 ingress (mean 220.06 Mbit/s)   —— Flow 1 egress (mean 220.24 Mbit/s)
- - - - Flow 2 ingress (mean 222.25 Mbit/s)   —— Flow 2 egress (mean 222.65 Mbit/s)
- - - - Flow 3 ingress (mean 184.34 Mbit/s)   —— Flow 3 egress (mean 184.15 Mbit/s)

• Flow 1 (95th percentile 88.12 ms)   • Flow 2 (95th percentile 87.82 ms)   • Flow 3 (95th percentile 88.64 ms)

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

Start at: 2019-04-23 23:05:55
End at: 2019-04-23 23:06:25
Local clock offset: 0.254 ms
Remote clock offset: 0.018 ms


# Below is generated by plot.py at 2019-04-24 03:44:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 428.56 Mbit/s
95th percentile per-packet one-way delay: 88.945 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 217.40 Mbit/s
95th percentile per-packet one-way delay: 88.848 ms
Loss rate: 0.55%
-- Flow 2:
Average throughput: 215.21 Mbit/s
95th percentile per-packet one-way delay: 89.106 ms
Loss rate: 0.86%
-- Flow 3:
Average throughput: 207.89 Mbit/s
95th percentile per-packet one-way delay: 88.961 ms
Loss rate: 2.10%
```
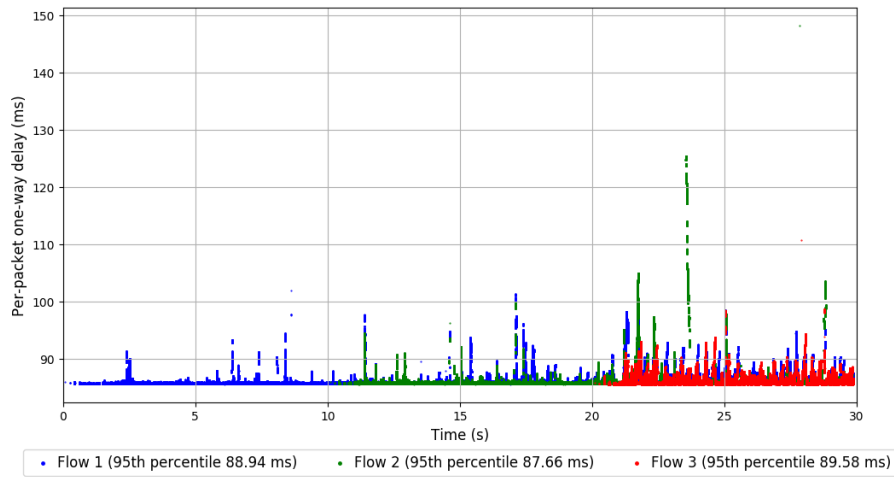
Run 2: Report of TaoVA-100x — Data Link

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

Start at: 2019-04-23 23:43:08
End at: 2019-04-23 23:43:38
Local clock offset: -0.159 ms
Remote clock offset: -0.003 ms


# Below is generated by plot.py at 2019-04-24 03:45:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 430.04 Mbit/s
95th percentile per-packet one-way delay: 88.919 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 217.39 Mbit/s
95th percentile per-packet one-way delay: 88.944 ms
Loss rate: 0.66%
-- Flow 2:
Average throughput: 223.26 Mbit/s
95th percentile per-packet one-way delay: 87.658 ms
Loss rate: 0.97%
-- Flow 3:
Average throughput: 195.85 Mbit/s
95th percentile per-packet one-way delay: 89.582 ms
Loss rate: 1.69%
```
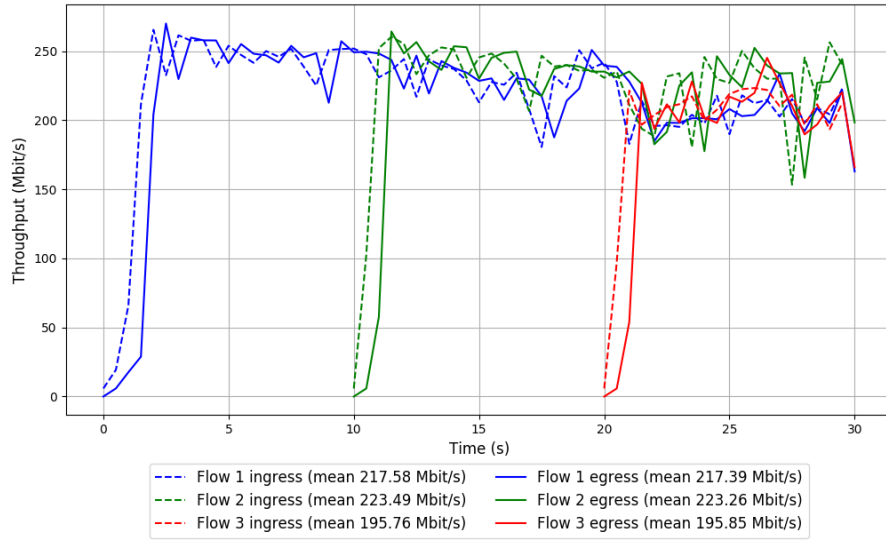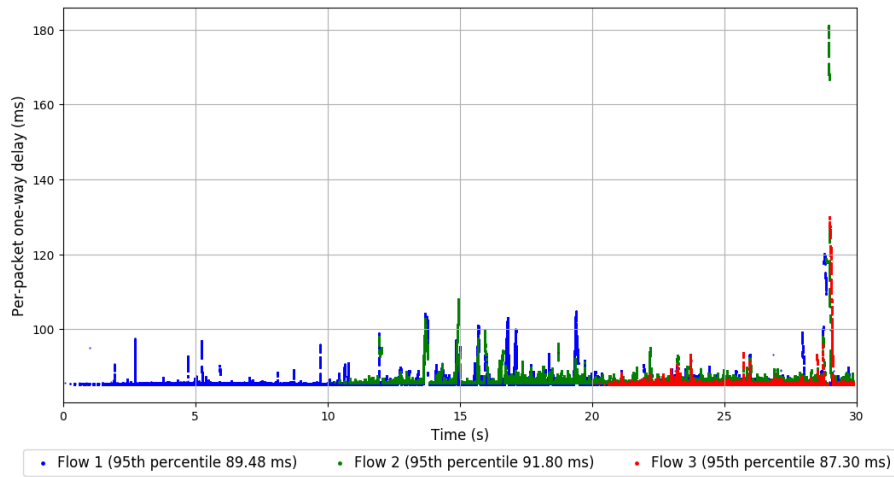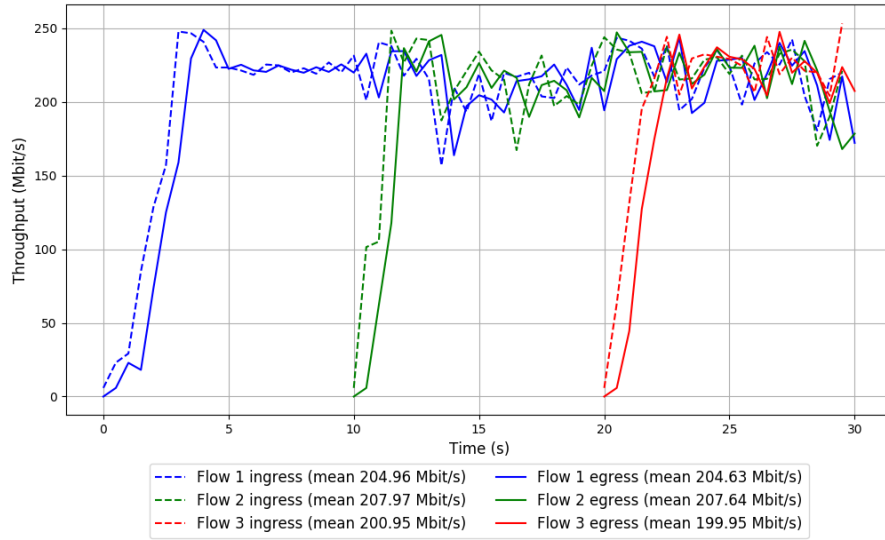
Run 3: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 217.58 Mbit/s) --- Flow 1 egress (mean 217.39 Mbit/s)
Flow 2 ingress (mean 223.49 Mbit/s) --- Flow 2 egress (mean 223.26 Mbit/s)
Flow 3 ingress (mean 195.76 Mbit/s) --- Flow 3 egress (mean 195.85 Mbit/s)

Flow 1 (95th percentile 88.94 ms) · Flow 2 (95th percentile 87.66 ms) · Flow 3 (95th percentile 89.58 ms)

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

Start at: 2019-04-24 00:20:21
End at: 2019-04-24 00:20:51
Local clock offset: -0.538 ms
Remote clock offset: 0.005 ms

# Below is generated by plot.py at 2019-04-24 03:45:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 408.23 Mbit/s
95th percentile per-packet one-way delay: 89.999 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 204.63 Mbit/s
95th percentile per-packet one-way delay: 89.485 ms
Loss rate: 0.73%
-- Flow 2:
Average throughput: 207.64 Mbit/s
95th percentile per-packet one-way delay: 91.800 ms
Loss rate: 1.02%
-- Flow 3:
Average throughput: 199.95 Mbit/s
95th percentile per-packet one-way delay: 87.303 ms
Loss rate: 2.23%
```
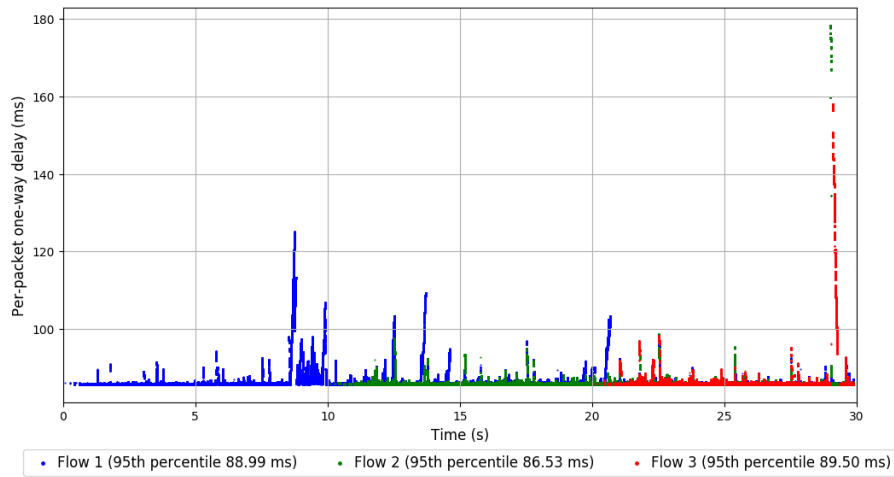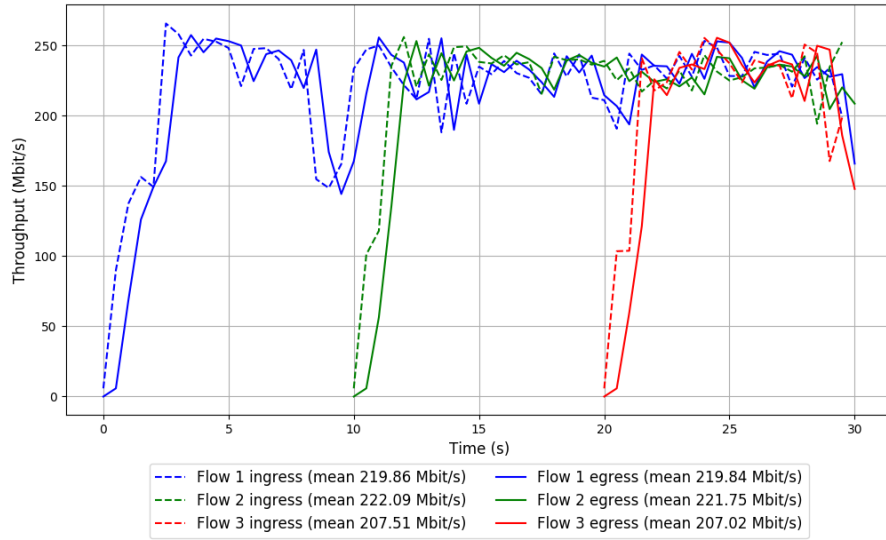
Run 4: Report of TaoVA-100x — Data Link

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

Start at: 2019-04-24 00:58:02
End at: 2019-04-24 00:58:32
Local clock offset: -0.002 ms
Remote clock offset: -0.156 ms

# Below is generated by plot.py at 2019-04-24 03:46:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 435.12 Mbit/s
95th percentile per-packet one-way delay: 87.821 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 219.84 Mbit/s
95th percentile per-packet one-way delay: 88.990 ms
Loss rate: 0.58%
-- Flow 2:
Average throughput: 221.75 Mbit/s
95th percentile per-packet one-way delay: 86.530 ms
Loss rate: 1.02%
-- Flow 3:
Average throughput: 207.02 Mbit/s
95th percentile per-packet one-way delay: 89.502 ms
Loss rate: 1.76%
```
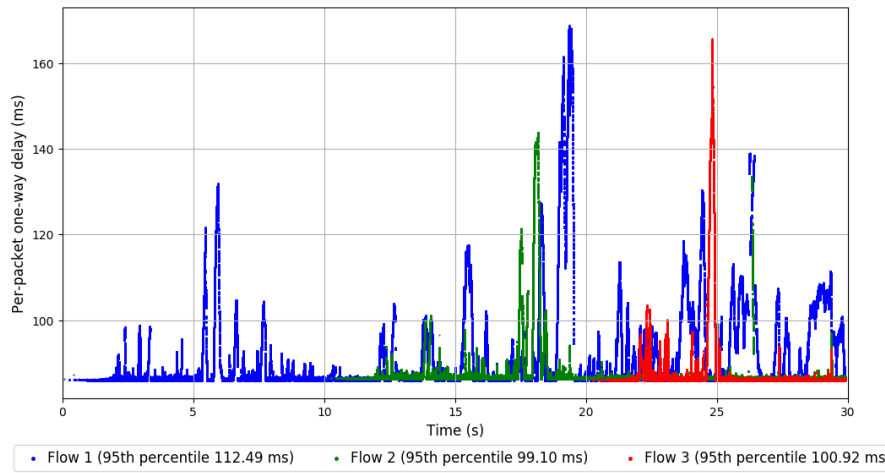
Run 5: Report of TaoVA-100x — Data Link

```
Run 1: Statistics of TCP Vegas

Start at: 2019-04-23 22:25:02
End at: 2019-04-23 22:25:32
Local clock offset: 0.504 ms
Remote clock offset: 0.121 ms


# Below is generated by plot.py at 2019-04-24 03:46:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 770.70 Mbit/s
95th percentile per-packet one-way delay: 109.894 ms
Loss rate: 0.81%
-- Flow 1:
Average throughput: 475.95 Mbit/s
95th percentile per-packet one-way delay: 112.487 ms
Loss rate: 0.65%
-- Flow 2:
Average throughput: 309.96 Mbit/s
95th percentile per-packet one-way delay: 99.104 ms
Loss rate: 0.80%
-- Flow 3:
Average throughput: 270.63 Mbit/s
95th percentile per-packet one-way delay: 100.915 ms
Loss rate: 1.73%
```
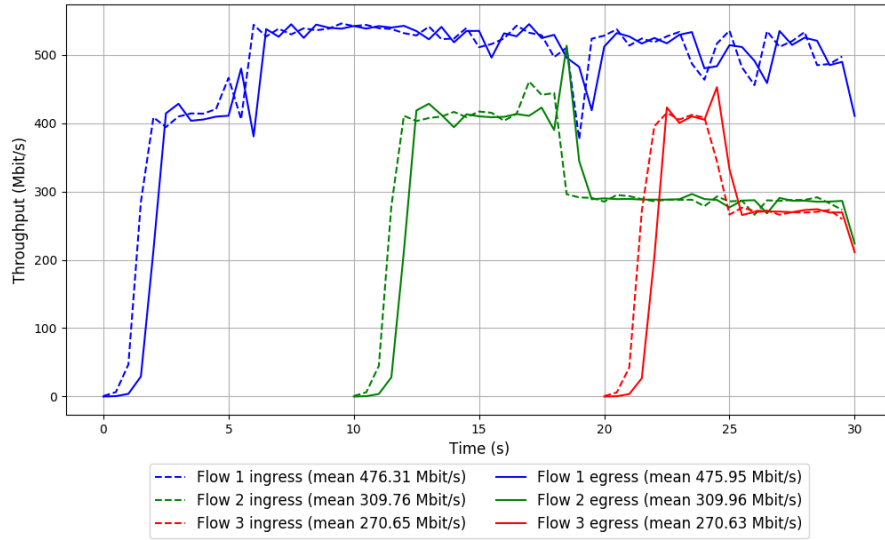
Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2019-04-23 23:02:11
End at: 2019-04-23 23:02:41
Local clock offset: 0.302 ms
Remote clock offset: 0.044 ms


# Below is generated by plot.py at 2019-04-24 03:56:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 842.56 Mbit/s
95th percentile per-packet one-way delay: 120.591 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 460.51 Mbit/s
95th percentile per-packet one-way delay: 106.213 ms
Loss rate: 0.67%
-- Flow 2:
Average throughput: 433.91 Mbit/s
95th percentile per-packet one-way delay: 124.811 ms
Loss rate: 1.07%
-- Flow 3:
Average throughput: 285.40 Mbit/s
95th percentile per-packet one-way delay: 106.848 ms
Loss rate: 2.03%
```
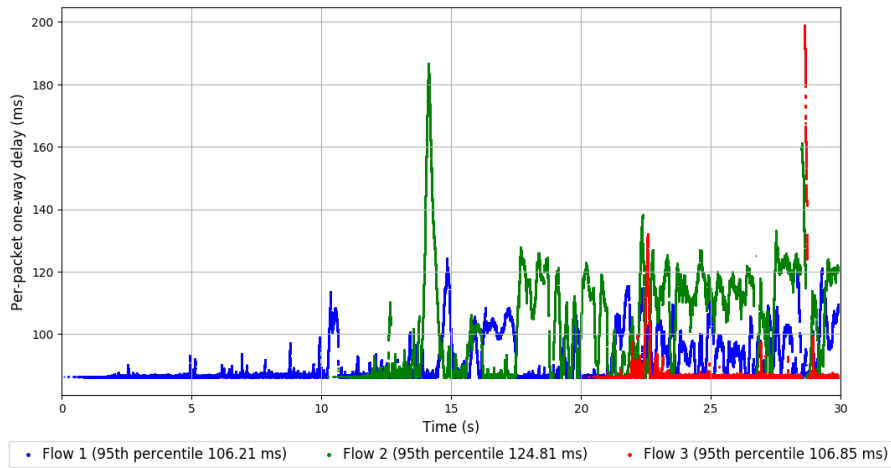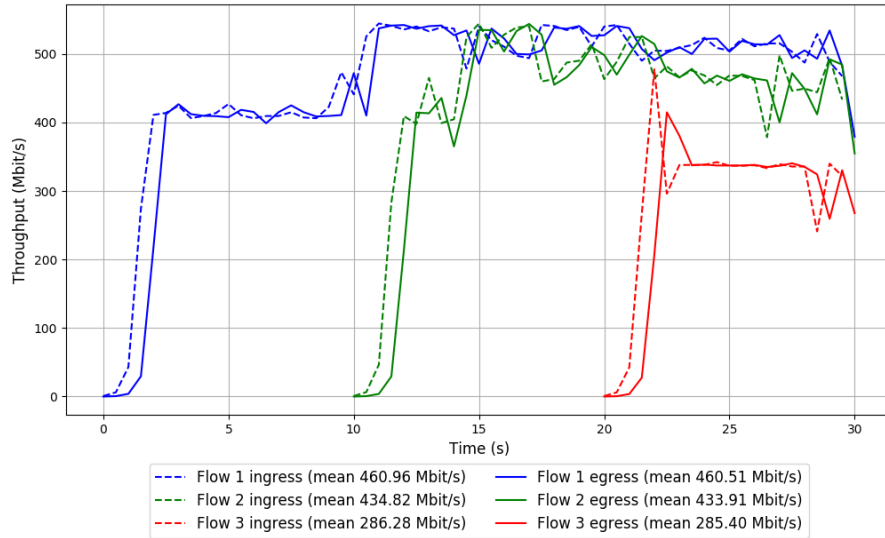
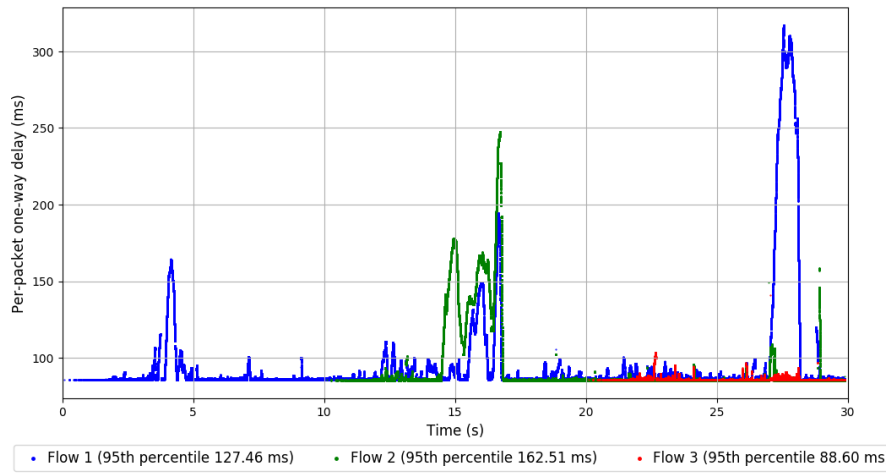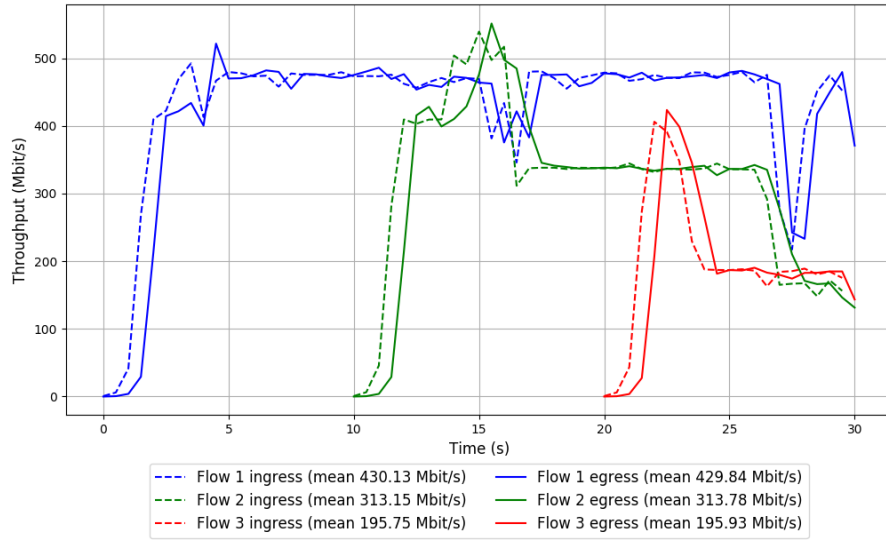Run 2: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 460.96 Mbit/s) —— Flow 1 egress (mean 460.51 Mbit/s)
Flow 2 ingress (mean 434.82 Mbit/s) —— Flow 2 egress (mean 433.91 Mbit/s)
Flow 3 ingress (mean 286.28 Mbit/s) —— Flow 3 egress (mean 285.40 Mbit/s)

Flow 1 (95th percentile 106.21 ms)   Flow 2 (95th percentile 124.81 ms)   Flow 3 (95th percentile 106.85 ms)

```
Run 3: Statistics of TCP Vegas

Start at: 2019-04-23 23:39:20
End at: 2019-04-23 23:39:50
Local clock offset: -0.539 ms
Remote clock offset: -0.006 ms


# Below is generated by plot.py at 2019-04-24 03:56:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 702.51 Mbit/s
95th percentile per-packet one-way delay: 144.702 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 429.84 Mbit/s
95th percentile per-packet one-way delay: 127.461 ms
Loss rate: 0.64%
-- Flow 2:
Average throughput: 313.78 Mbit/s
95th percentile per-packet one-way delay: 162.508 ms
Loss rate: 0.65%
-- Flow 3:
Average throughput: 195.93 Mbit/s
95th percentile per-packet one-way delay: 88.596 ms
Loss rate: 1.64%
```
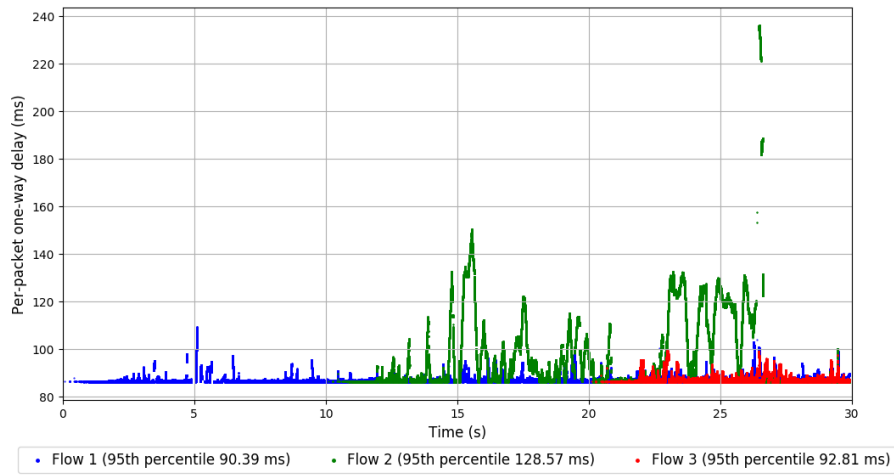
Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2019-04-24 00:16:30
End at: 2019-04-24 00:17:00
Local clock offset: 0.281 ms
Remote clock offset: -0.026 ms


# Below is generated by plot.py at 2019-04-24 03:58:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 785.09 Mbit/s
95th percentile per-packet one-way delay: 118.165 ms
Loss rate: 0.82%
-- Flow 1:
Average throughput: 404.30 Mbit/s
95th percentile per-packet one-way delay: 90.393 ms
Loss rate: 0.62%
-- Flow 2:
Average throughput: 403.84 Mbit/s
95th percentile per-packet one-way delay: 128.568 ms
Loss rate: 0.58%
-- Flow 3:
Average throughput: 342.59 Mbit/s
95th percentile per-packet one-way delay: 92.809 ms
Loss rate: 2.08%
```
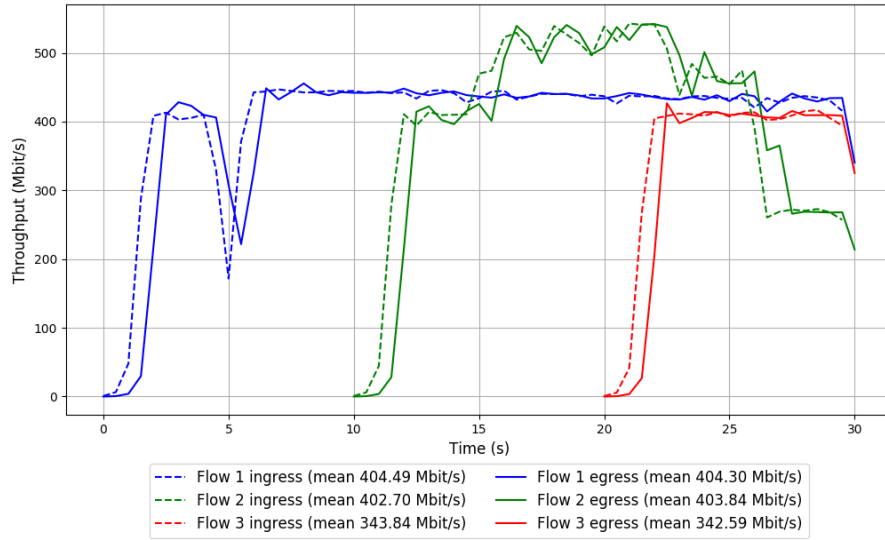
Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2019-04-24 00:54:07
End at: 2019-04-24 00:54:37
Local clock offset: -0.02 ms
Remote clock offset: -0.154 ms


# Below is generated by plot.py at 2019-04-24 03:58:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 695.88 Mbit/s
95th percentile per-packet one-way delay: 118.615 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 324.94 Mbit/s
95th percentile per-packet one-way delay: 90.928 ms
Loss rate: 0.62%
-- Flow 2:
Average throughput: 370.60 Mbit/s
95th percentile per-packet one-way delay: 120.008 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 379.83 Mbit/s
95th percentile per-packet one-way delay: 129.455 ms
Loss rate: 2.07%
```
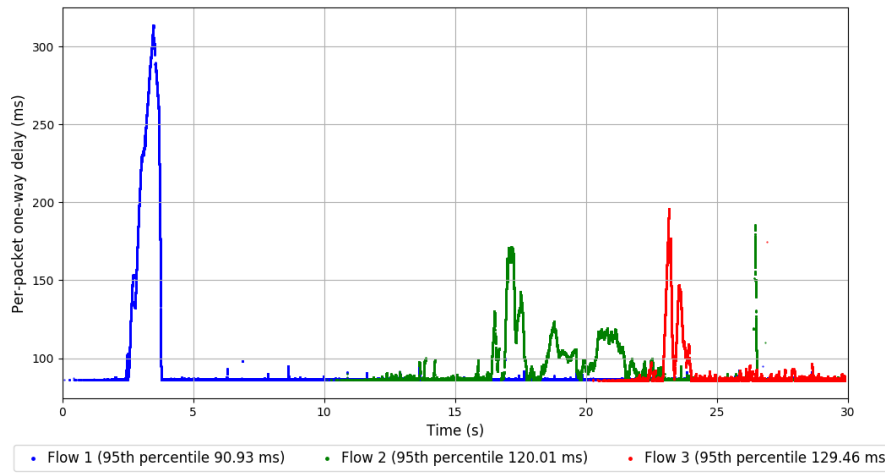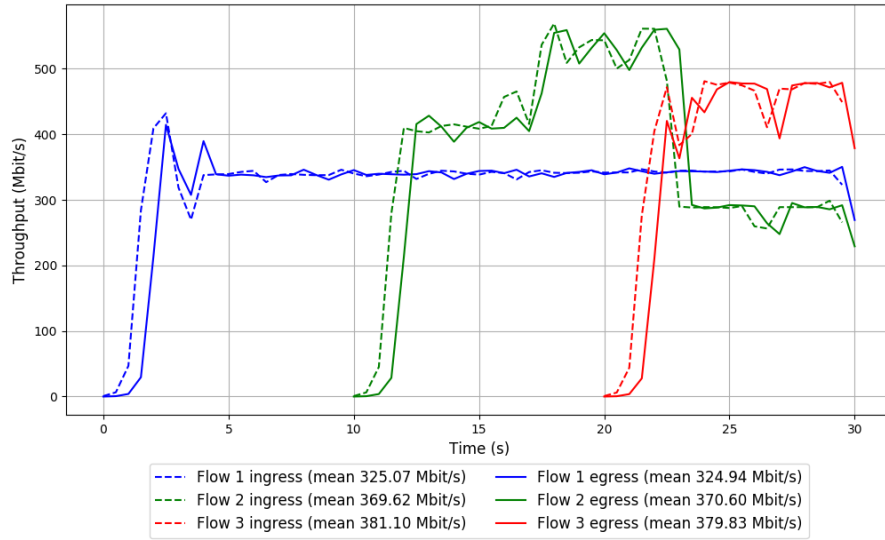
Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2019-04-23 22:35:01
End at: 2019-04-23 22:35:31
Local clock offset: -0.4 ms
Remote clock offset: 0.028 ms

# Below is generated by plot.py at 2019-04-24 03:58:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 206.16 Mbit/s
95th percentile per-packet one-way delay: 170.706 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 125.21 Mbit/s
95th percentile per-packet one-way delay: 182.500 ms
Loss rate: 0.33%
-- Flow 2:
Average throughput: 109.33 Mbit/s
95th percentile per-packet one-way delay: 116.575 ms
Loss rate: 1.11%
-- Flow 3:
Average throughput: 26.45 Mbit/s
95th percentile per-packet one-way delay: 103.466 ms
Loss rate: 0.19%
```
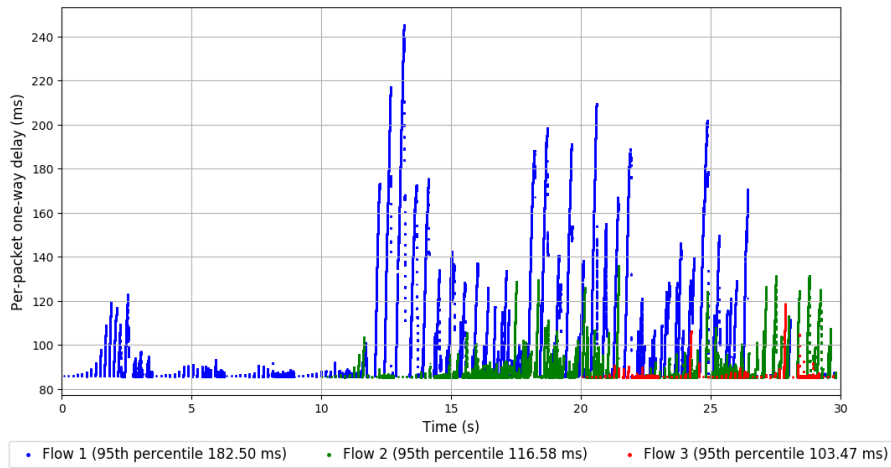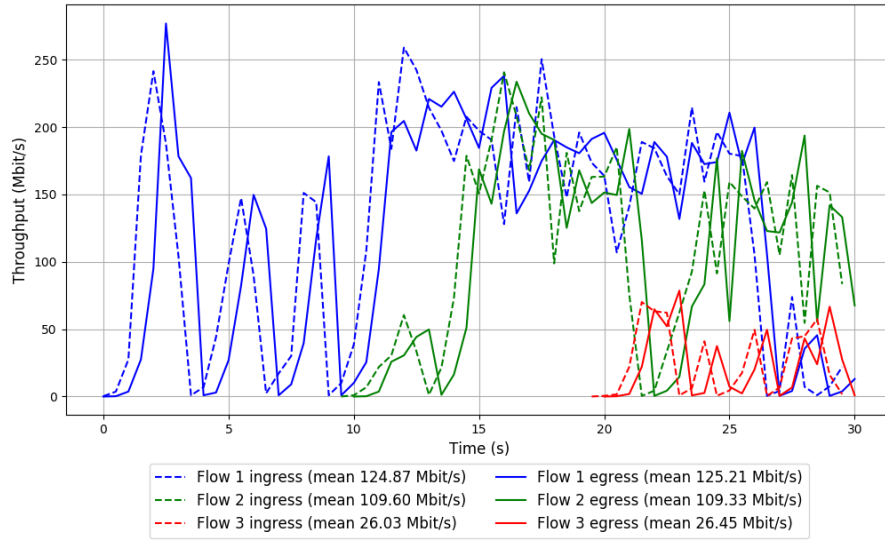
Run 1: Report of Verus — Data Link

Flow 1 ingress (mean 124.87 Mbit/s)   Flow 1 egress (mean 125.21 Mbit/s)
Flow 2 ingress (mean 109.60 Mbit/s)   Flow 2 egress (mean 109.33 Mbit/s)
Flow 3 ingress (mean 26.03 Mbit/s)   Flow 3 egress (mean 26.45 Mbit/s)

Flow 1 (95th percentile 182.50 ms)   Flow 2 (95th percentile 116.58 ms)   Flow 3 (95th percentile 103.47 ms)

```
Run 2: Statistics of Verus

Start at: 2019-04-23 23:12:12
End at: 2019-04-23 23:12:42
Local clock offset: 0.002 ms
Remote clock offset: 0.032 ms

# Below is generated by plot.py at 2019-04-24 03:58:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 209.25 Mbit/s
95th percentile per-packet one-way delay: 190.281 ms
Loss rate: 1.65%
-- Flow 1:
Average throughput: 137.74 Mbit/s
95th percentile per-packet one-way delay: 188.548 ms
Loss rate: 0.61%
-- Flow 2:
Average throughput: 60.74 Mbit/s
95th percentile per-packet one-way delay: 137.495 ms
Loss rate: 1.96%
-- Flow 3:
Average throughput: 96.94 Mbit/s
95th percentile per-packet one-way delay: 215.624 ms
Loss rate: 5.59%
```
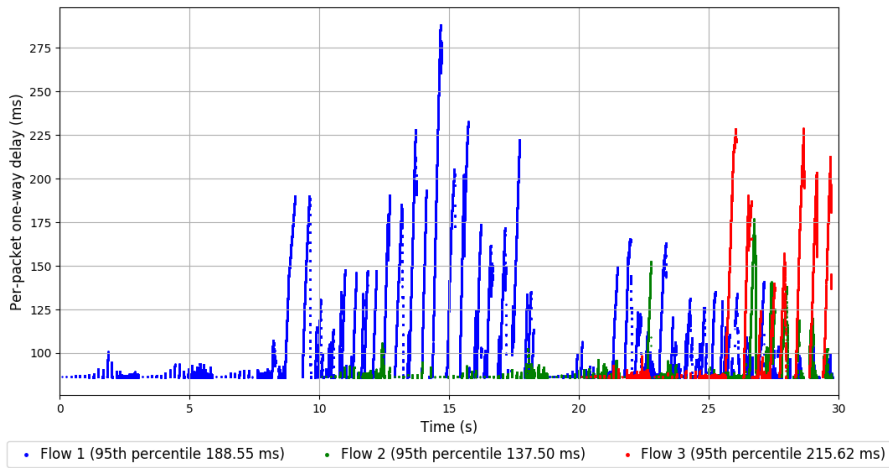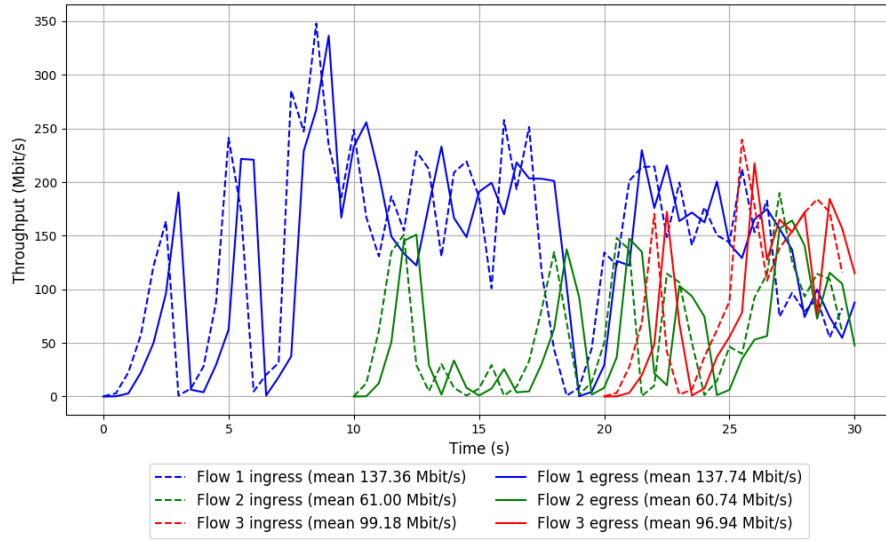
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2019-04-23 23:49:30
End at: 2019-04-23 23:50:00
Local clock offset: -0.139 ms
Remote clock offset: 0.001 ms


# Below is generated by plot.py at 2019-04-24 03:58:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 220.03 Mbit/s
95th percentile per-packet one-way delay: 226.408 ms
Loss rate: 2.21%
-- Flow 1:
Average throughput: 122.81 Mbit/s
95th percentile per-packet one-way delay: 191.588 ms
Loss rate: 2.03%
-- Flow 2:
Average throughput: 120.45 Mbit/s
95th percentile per-packet one-way delay: 293.904 ms
Loss rate: 2.99%
-- Flow 3:
Average throughput: 58.75 Mbit/s
95th percentile per-packet one-way delay: 165.919 ms
Loss rate: 0.01%
```
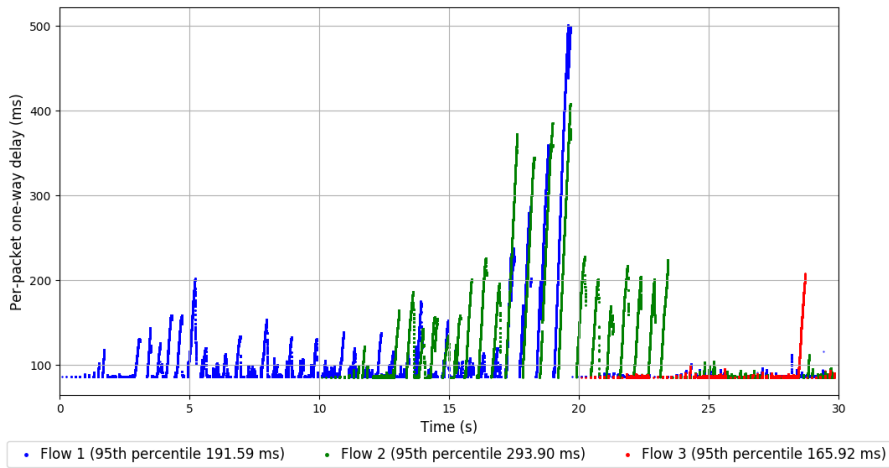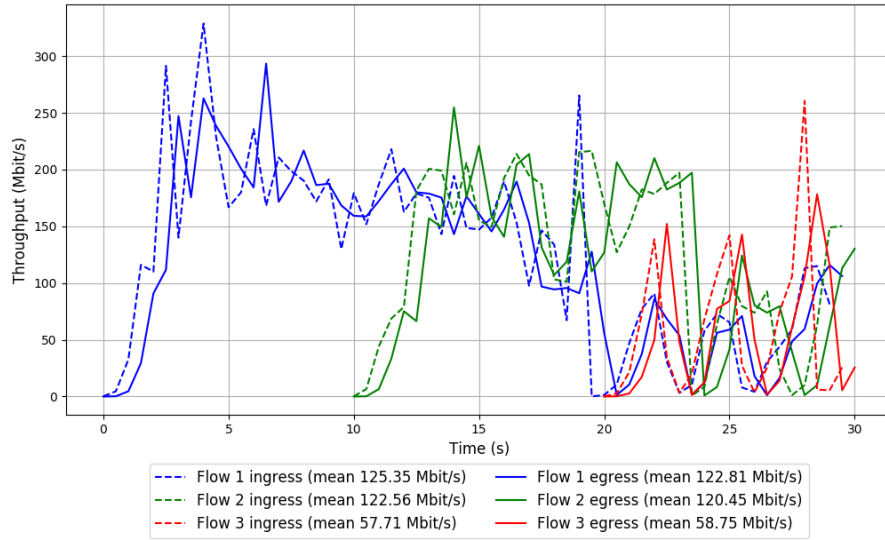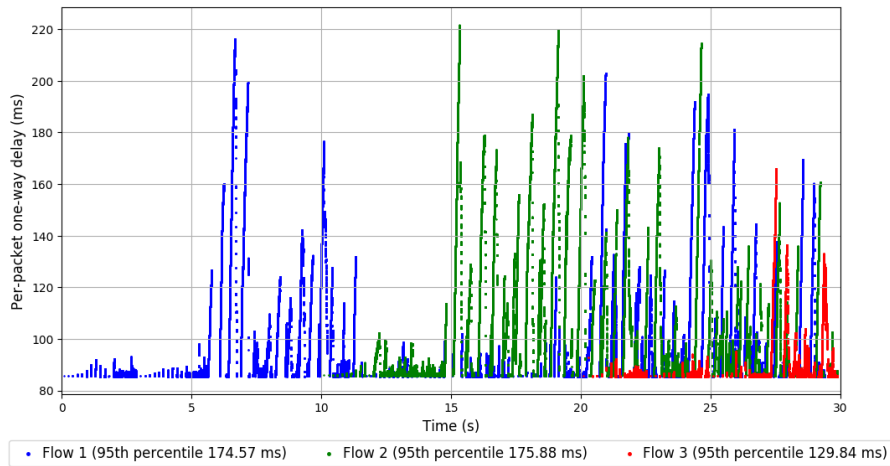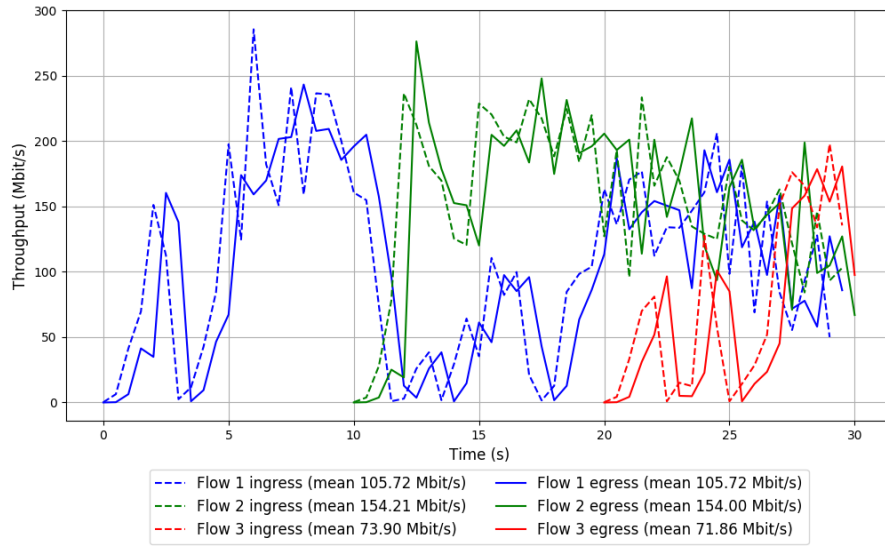
Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2019-04-24 00:26:39
End at: 2019-04-24 00:27:09
Local clock offset: -0.496 ms
Remote clock offset: -0.002 ms


# Below is generated by plot.py at 2019-04-24 03:58:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 229.82 Mbit/s
95th percentile per-packet one-way delay: 173.438 ms
Loss rate: 0.81%
-- Flow 1:
Average throughput: 105.72 Mbit/s
95th percentile per-packet one-way delay: 174.571 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 154.00 Mbit/s
95th percentile per-packet one-way delay: 175.883 ms
Loss rate: 0.91%
-- Flow 3:
Average throughput: 71.86 Mbit/s
95th percentile per-packet one-way delay: 129.836 ms
Loss rate: 3.78%
```

Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2019-04-24 01:04:23
End at: 2019-04-24 01:04:53
Local clock offset: -0.392 ms
Remote clock offset: -0.21 ms


# Below is generated by plot.py at 2019-04-24 03:59:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 235.13 Mbit/s
95th percentile per-packet one-way delay: 177.940 ms
Loss rate: 1.52%
-- Flow 1:
Average throughput: 149.38 Mbit/s
95th percentile per-packet one-way delay: 182.716 ms
Loss rate: 0.93%
-- Flow 2:
Average throughput: 100.94 Mbit/s
95th percentile per-packet one-way delay: 177.792 ms
Loss rate: 2.66%
-- Flow 3:
Average throughput: 60.49 Mbit/s
95th percentile per-packet one-way delay: 106.105 ms
Loss rate: 2.01%
```
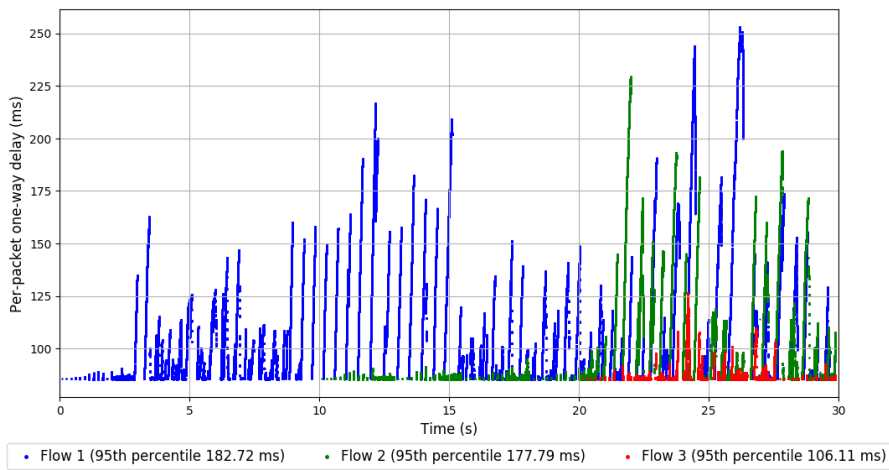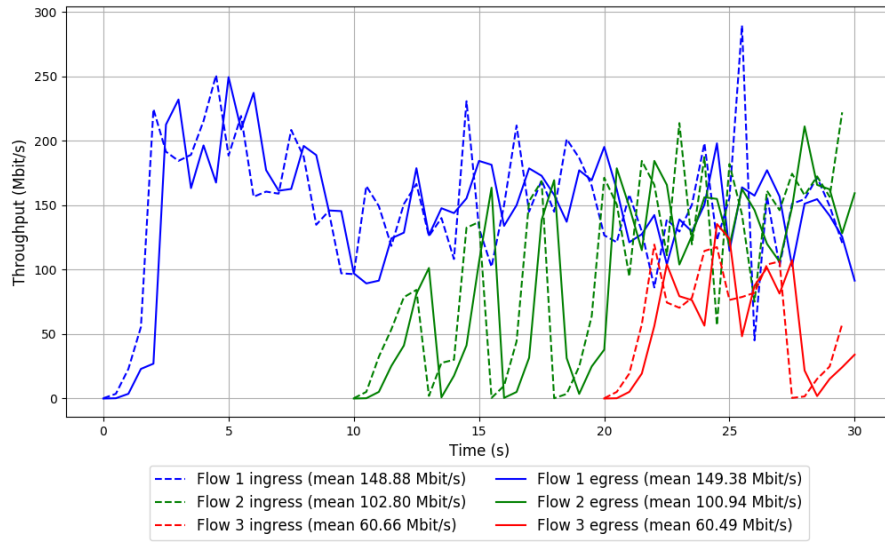
Run 5: Report of Verus — Data Link

194

```
Run 1: Statistics of PCC-Vivace

Start at: 2019-04-23 22:13:28
End at: 2019-04-23 22:13:58
Local clock offset: 0.71 ms
Remote clock offset: 0.216 ms


# Below is generated by plot.py at 2019-04-24 03:59:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 383.55 Mbit/s
95th percentile per-packet one-way delay: 87.372 ms
Loss rate: 1.08%
-- Flow 1:
Average throughput: 215.45 Mbit/s
95th percentile per-packet one-way delay: 87.352 ms
Loss rate: 0.77%
-- Flow 2:
Average throughput: 180.95 Mbit/s
95th percentile per-packet one-way delay: 87.058 ms
Loss rate: 1.08%
-- Flow 3:
Average throughput: 147.90 Mbit/s
95th percentile per-packet one-way delay: 90.028 ms
Loss rate: 2.43%
```
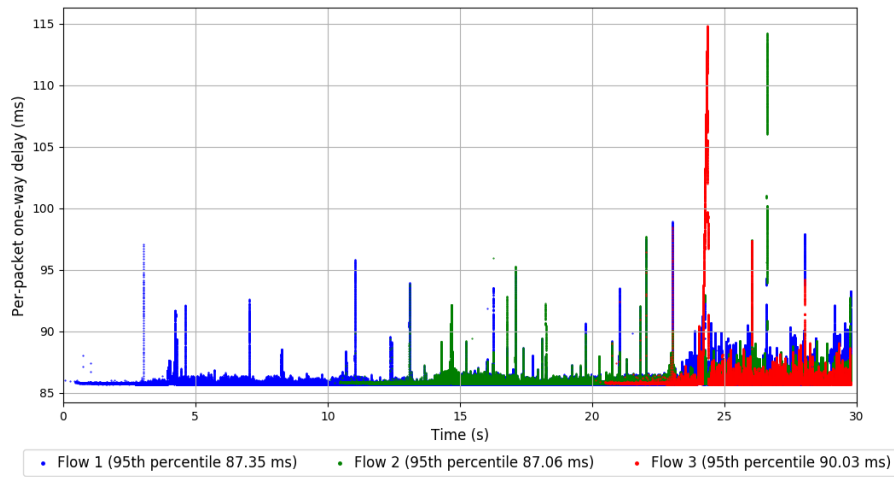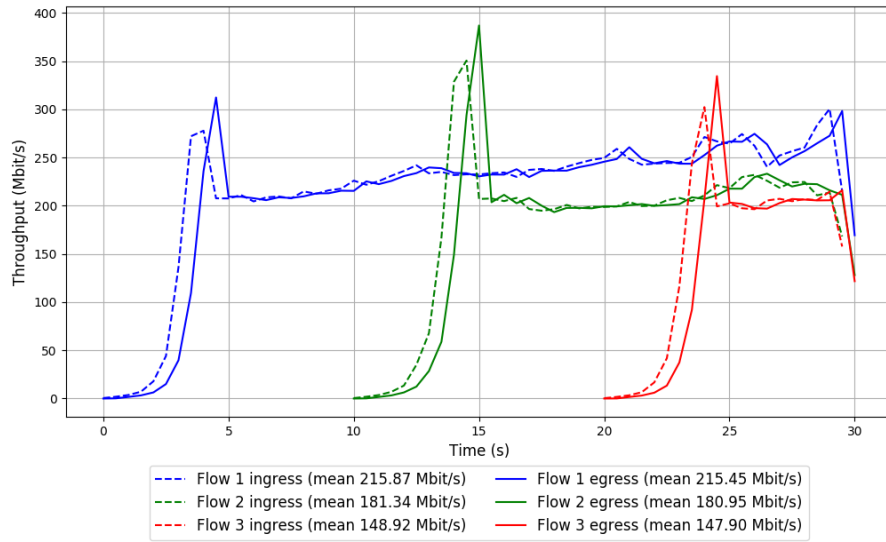
Run 1: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 215.87 Mbit/s) — Flow 1 egress (mean 215.45 Mbit/s)
Flow 2 ingress (mean 181.34 Mbit/s) — Flow 2 egress (mean 180.95 Mbit/s)
Flow 3 ingress (mean 148.92 Mbit/s) — Flow 3 egress (mean 147.90 Mbit/s)

Flow 1 (95th percentile 87.35 ms)   Flow 2 (95th percentile 87.06 ms)   Flow 3 (95th percentile 90.03 ms)

```
Run 2: Statistics of PCC-Vivace

Start at: 2019-04-23 22:50:25
End at: 2019-04-23 22:50:55
Local clock offset: -0.192 ms
Remote clock offset: 0.048 ms


# Below is generated by plot.py at 2019-04-24 04:01:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 496.99 Mbit/s
95th percentile per-packet one-way delay: 94.890 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 318.68 Mbit/s
95th percentile per-packet one-way delay: 111.236 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 195.33 Mbit/s
95th percentile per-packet one-way delay: 88.909 ms
Loss rate: 1.06%
-- Flow 3:
Average throughput: 149.54 Mbit/s
95th percentile per-packet one-way delay: 87.721 ms
Loss rate: 2.64%
```
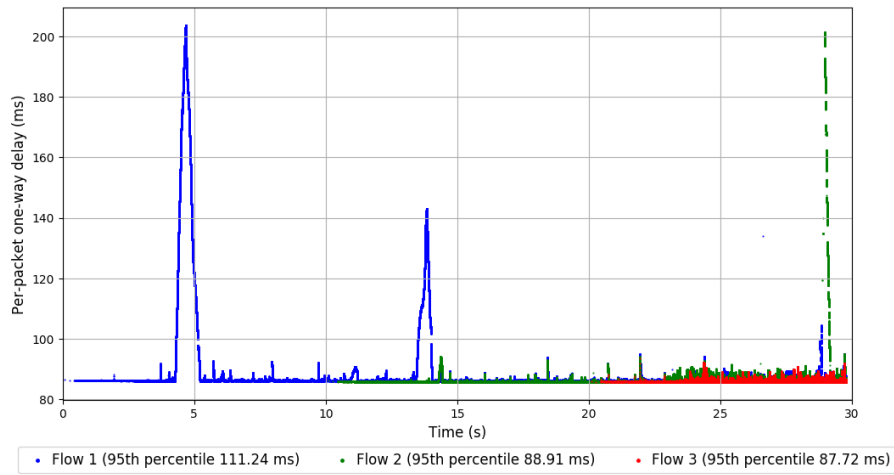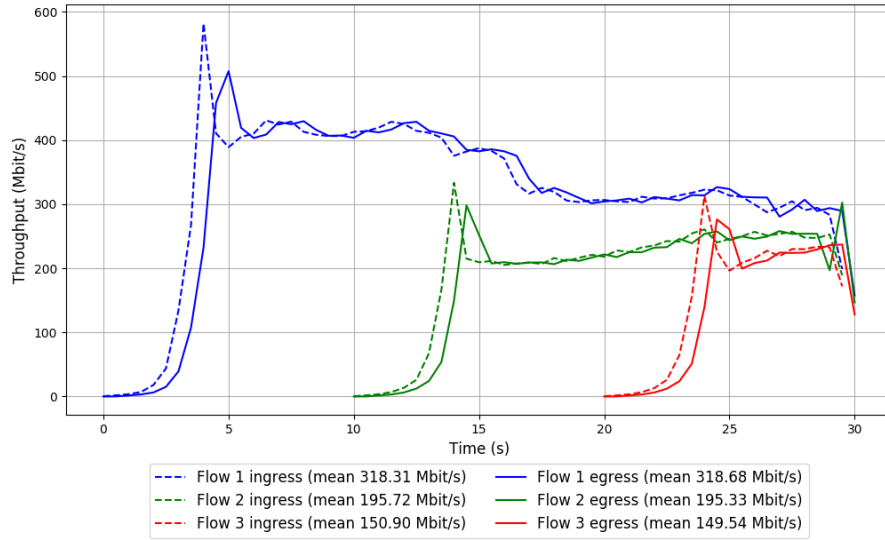
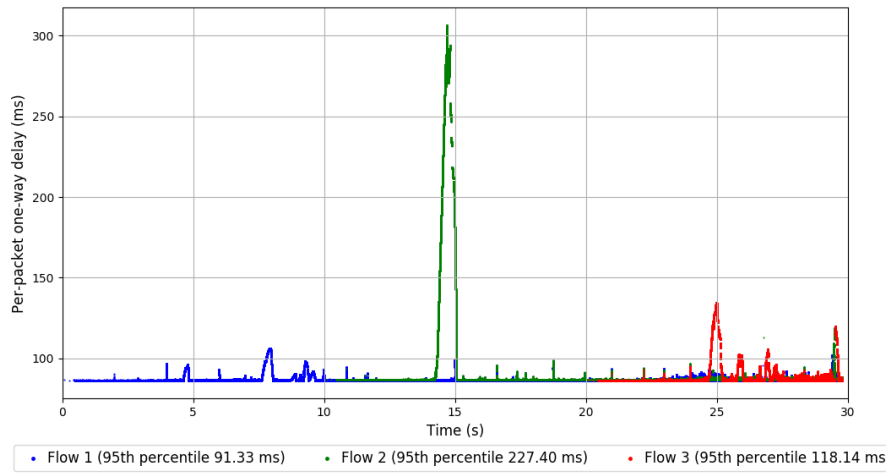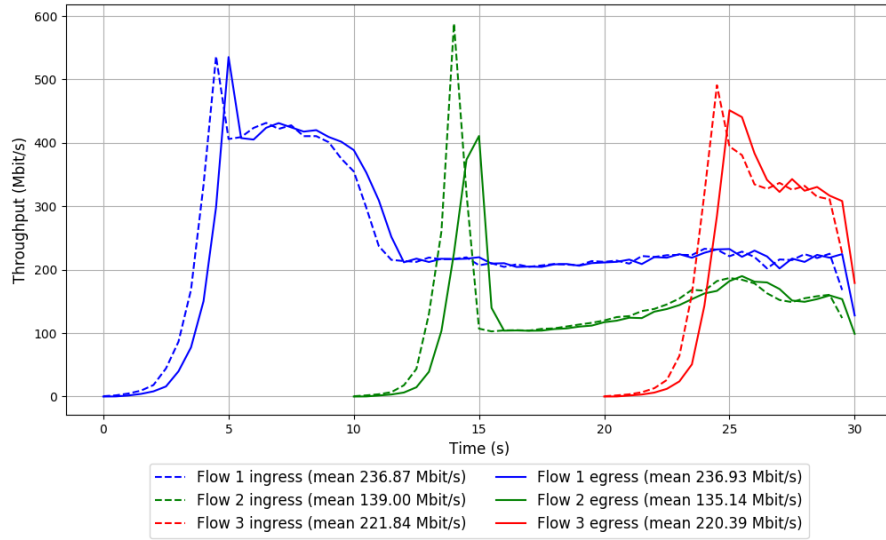# Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2019-04-23 23:27:39
End at: 2019-04-23 23:28:09
Local clock offset: 0.301 ms
Remote clock offset: -0.005 ms


# Below is generated by plot.py at 2019-04-24 04:01:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 398.34 Mbit/s
95th percentile per-packet one-way delay: 101.913 ms
Loss rate: 1.60%
-- Flow 1:
Average throughput: 236.93 Mbit/s
95th percentile per-packet one-way delay: 91.325 ms
Loss rate: 0.56%
-- Flow 2:
Average throughput: 135.14 Mbit/s
95th percentile per-packet one-way delay: 227.404 ms
Loss rate: 3.63%
-- Flow 3:
Average throughput: 220.39 Mbit/s
95th percentile per-packet one-way delay: 118.140 ms
Loss rate: 2.40%
```

Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2019-04-24 00:04:53
End at: 2019-04-24 00:05:23
Local clock offset: 0.282 ms
Remote clock offset: -0.04 ms


# Below is generated by plot.py at 2019-04-24 04:01:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 432.45 Mbit/s
95th percentile per-packet one-way delay: 96.904 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 235.07 Mbit/s
95th percentile per-packet one-way delay: 97.798 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 180.37 Mbit/s
95th percentile per-packet one-way delay: 87.942 ms
Loss rate: 1.02%
-- Flow 3:
Average throughput: 238.98 Mbit/s
95th percentile per-packet one-way delay: 106.677 ms
Loss rate: 1.73%
```
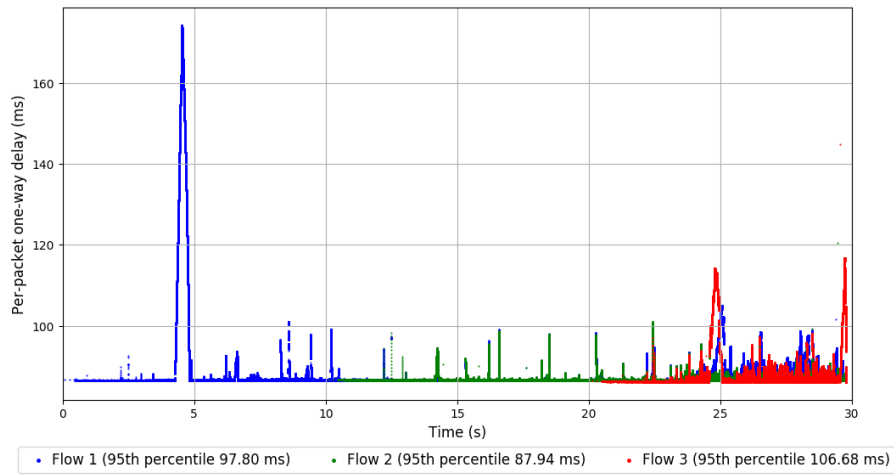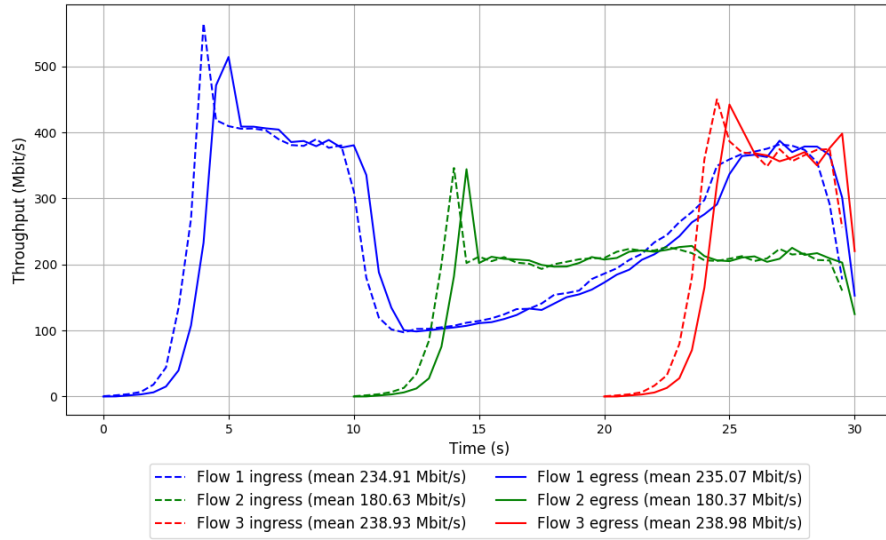
Run 4: Report of PCC-Vivace — Data Link

- Flow 1 ingress (mean 234.91 Mbit/s)
- Flow 1 egress (mean 235.07 Mbit/s)
- Flow 2 ingress (mean 180.63 Mbit/s)
- Flow 2 egress (mean 180.37 Mbit/s)
- Flow 3 ingress (mean 238.93 Mbit/s)
- Flow 3 egress (mean 238.98 Mbit/s)

- Flow 1 (95th percentile 97.80 ms)
- Flow 2 (95th percentile 87.94 ms)
- Flow 3 (95th percentile 106.68 ms)

```
Run 5: Statistics of PCC-Vivace

Start at: 2019-04-24 00:42:15
End at: 2019-04-24 00:42:45
Local clock offset: -0.048 ms
Remote clock offset: -0.086 ms


# Below is generated by plot.py at 2019-04-24 04:01:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 480.80 Mbit/s
95th percentile per-packet one-way delay: 90.731 ms
Loss rate: 0.94%
-- Flow 1:
Average throughput: 303.30 Mbit/s
95th percentile per-packet one-way delay: 98.148 ms
Loss rate: 0.66%
-- Flow 2:
Average throughput: 197.58 Mbit/s
95th percentile per-packet one-way delay: 86.757 ms
Loss rate: 1.01%
-- Flow 3:
Average throughput: 142.58 Mbit/s
95th percentile per-packet one-way delay: 87.493 ms
Loss rate: 2.50%
```
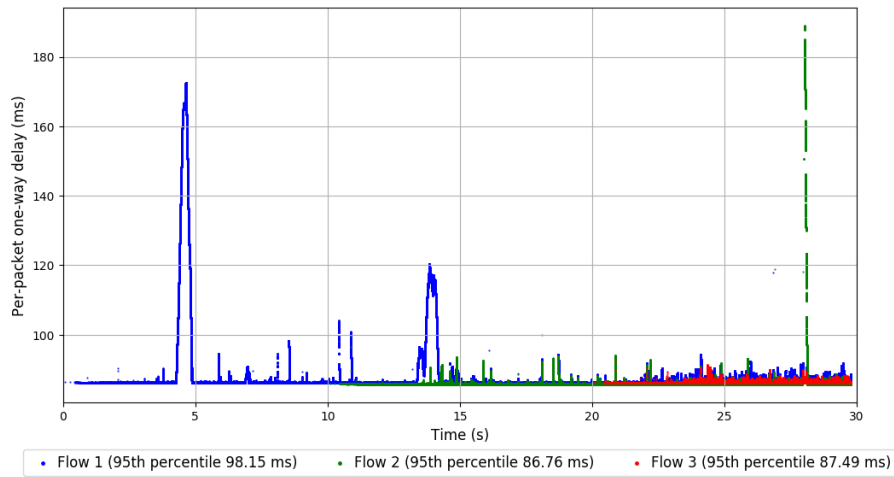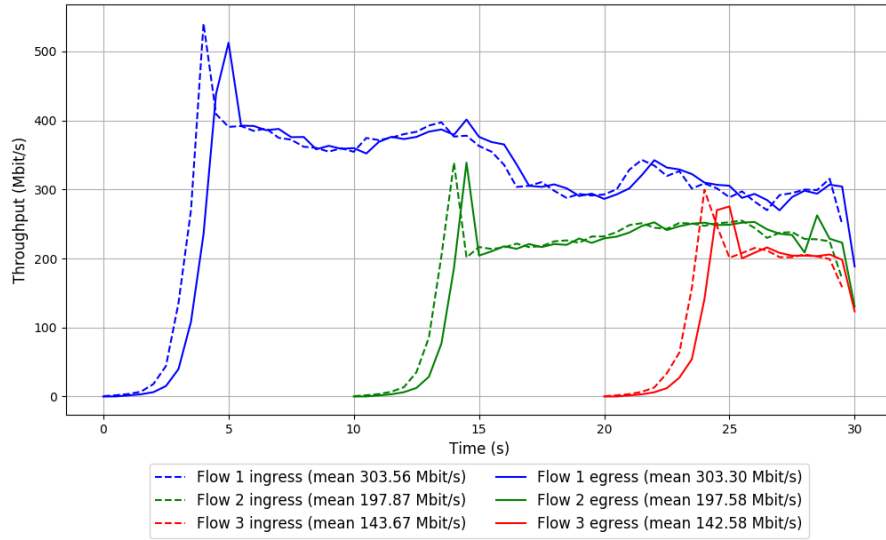
Run 5: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 303.56 Mbit/s) — Flow 1 egress (mean 303.30 Mbit/s)
Flow 2 ingress (mean 197.87 Mbit/s) — Flow 2 egress (mean 197.58 Mbit/s)
Flow 3 ingress (mean 143.67 Mbit/s) — Flow 3 egress (mean 142.58 Mbit/s)

Flow 1 (95th percentile 98.15 ms) • Flow 2 (95th percentile 86.76 ms) • Flow 3 (95th percentile 87.49 ms)

```
Run 1: Statistics of WebRTC media

Start at: 2019-04-23 22:12:14
End at: 2019-04-23 22:12:44
Local clock offset: 0.263 ms
Remote clock offset: 0.195 ms


# Below is generated by plot.py at 2019-04-24 04:01:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 85.905 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 85.912 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 85.910 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 85.514 ms
Loss rate: 0.00%
```
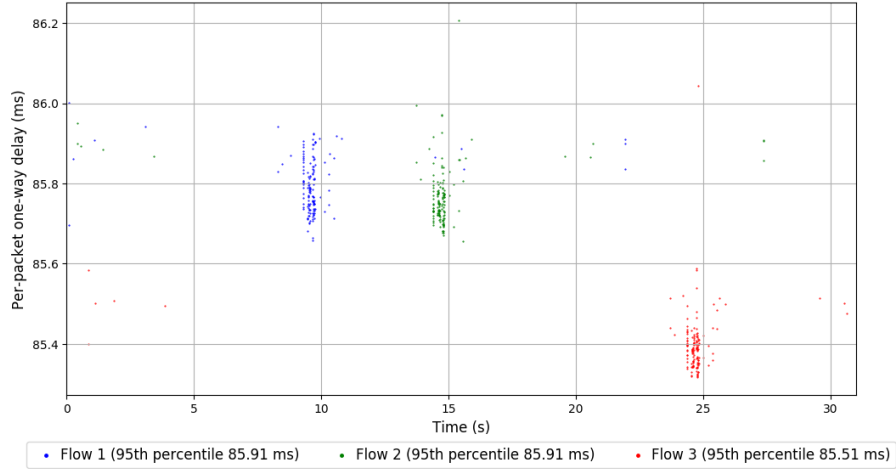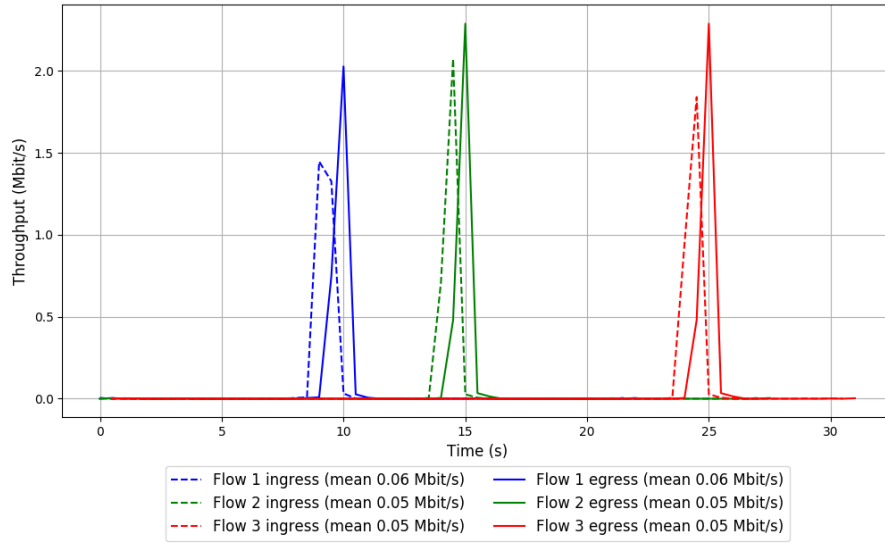
Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2019-04-23 22:49:11
End at: 2019-04-23 22:49:41
Local clock offset: -0.372 ms
Remote clock offset: 0.024 ms


# Below is generated by plot.py at 2019-04-24 04:01:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 86.176 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.168 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 85.857 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.198 ms
Loss rate: 0.00%
```
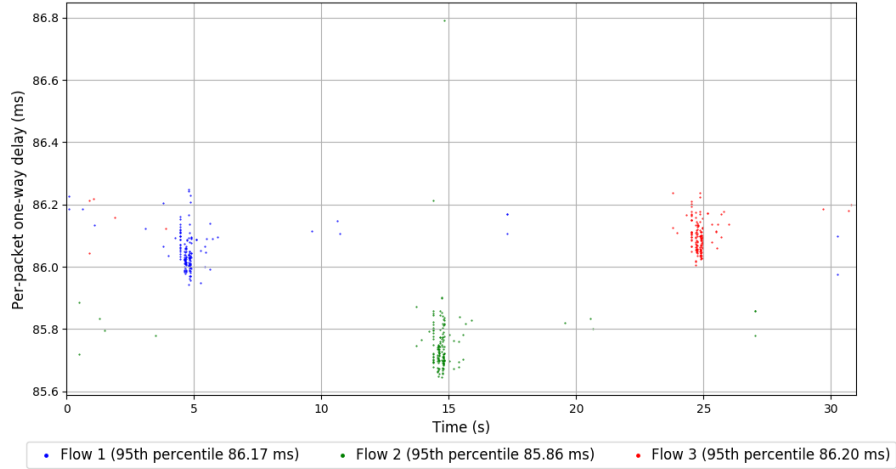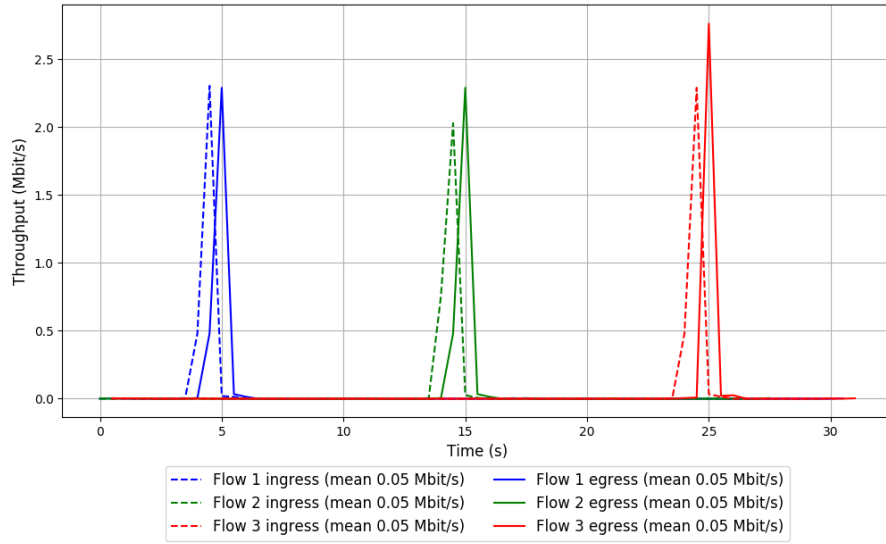
Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2019-04-23 23:26:26
End at: 2019-04-23 23:26:56
Local clock offset: -0.134 ms
Remote clock offset: -0.002 ms


# Below is generated by plot.py at 2019-04-24 04:01:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 86.326 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.046 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.374 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.092 ms
Loss rate: 0.00%
```
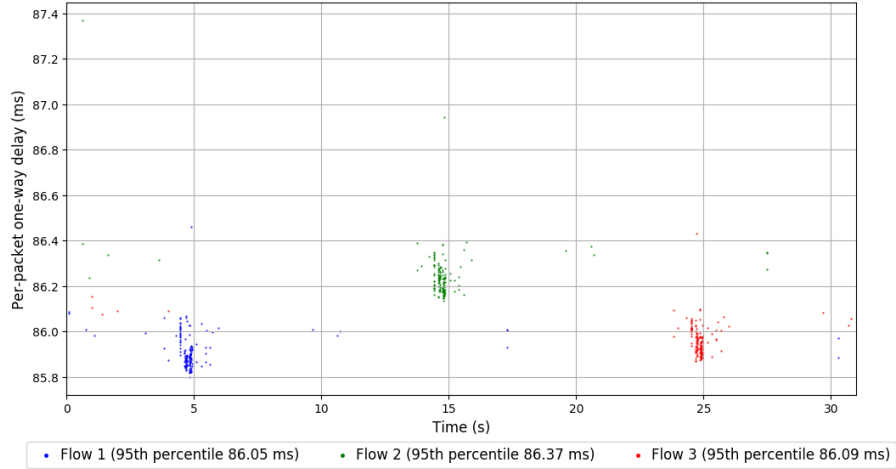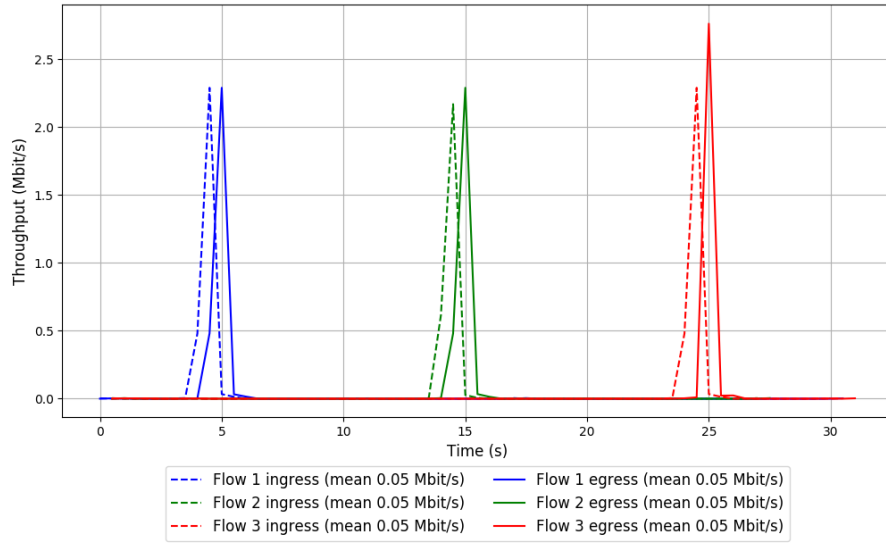
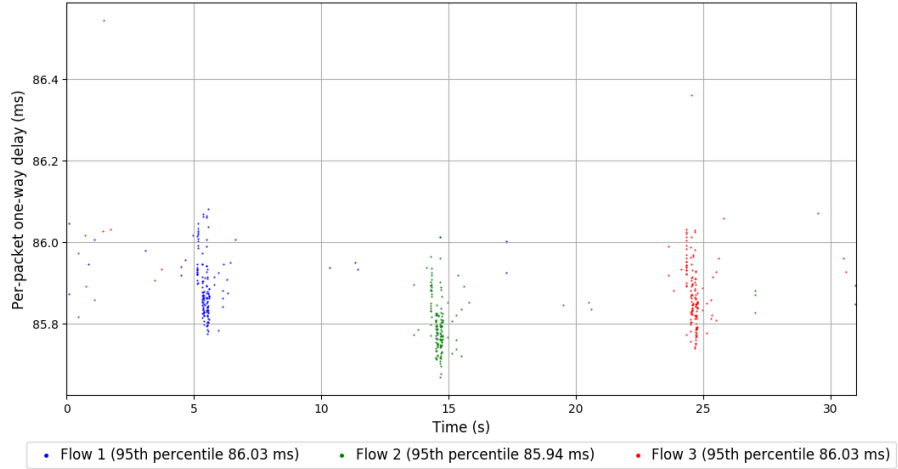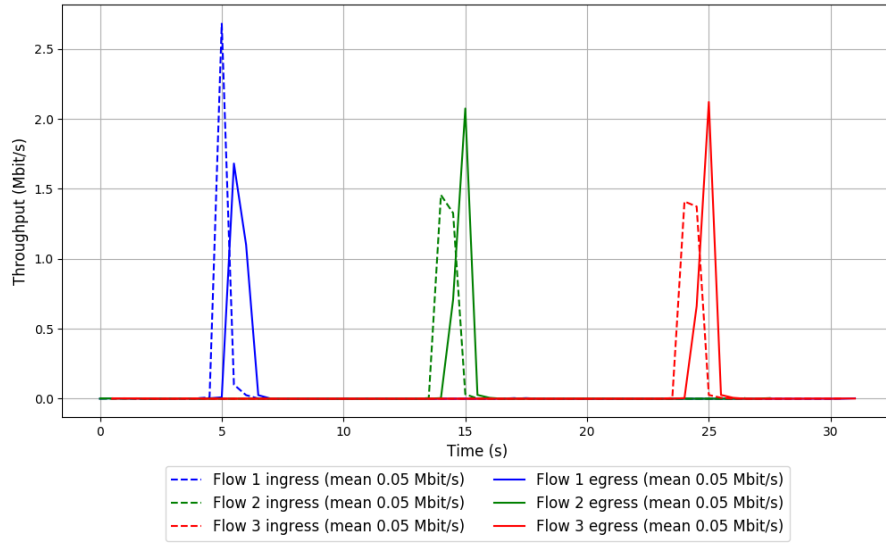Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2019-04-24 00:03:39
End at: 2019-04-24 00:04:09
Local clock offset: -0.185 ms
Remote clock offset: -0.043 ms


# Below is generated by plot.py at 2019-04-24 04:01:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 86.019 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.034 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 85.936 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 86.026 ms
Loss rate: 0.00%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2019-04-24 00:41:01
End at: 2019-04-24 00:41:31
Local clock offset: -0.453 ms
Remote clock offset: -0.085 ms


# Below is generated by plot.py at 2019-04-24 04:01:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 85.694 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 85.732 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 85.627 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 85.680 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link