Pantheon Report

Generated at 2019-03-10 03:36:00 (UTC).

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

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.
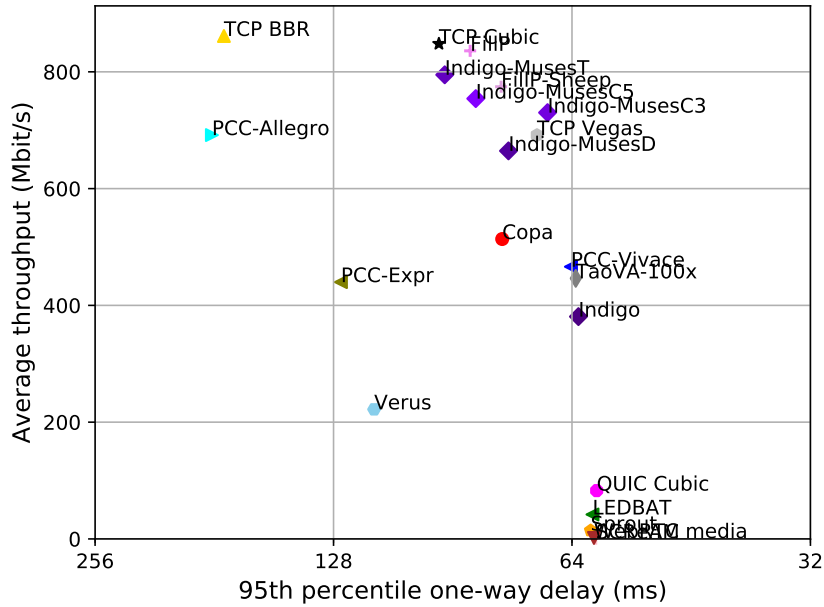
```
System info:
Linux 4.15.0-1026-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

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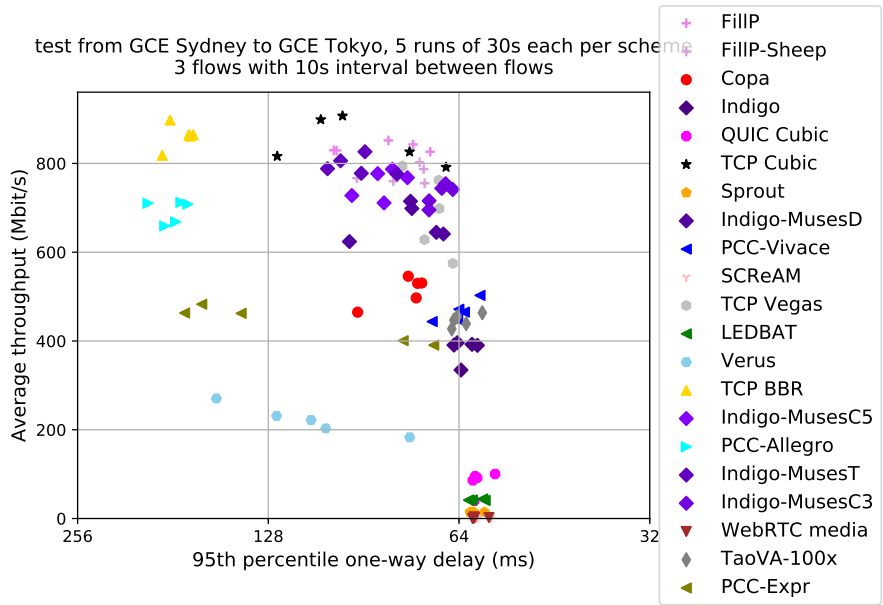
```
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

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

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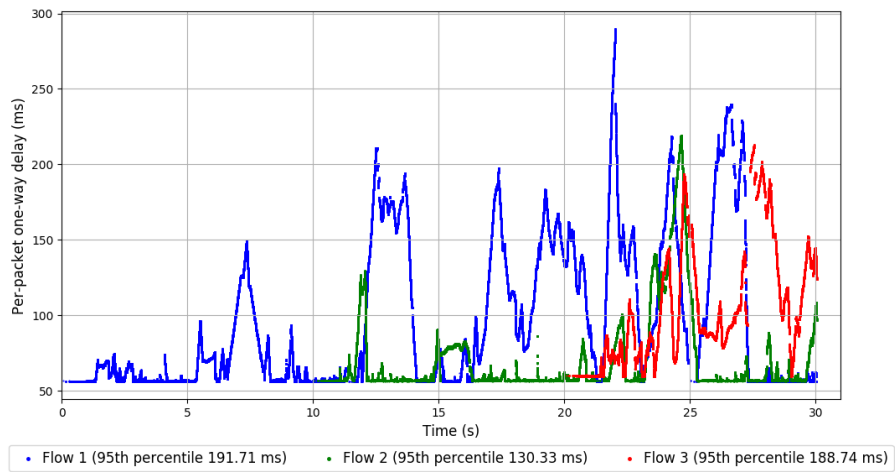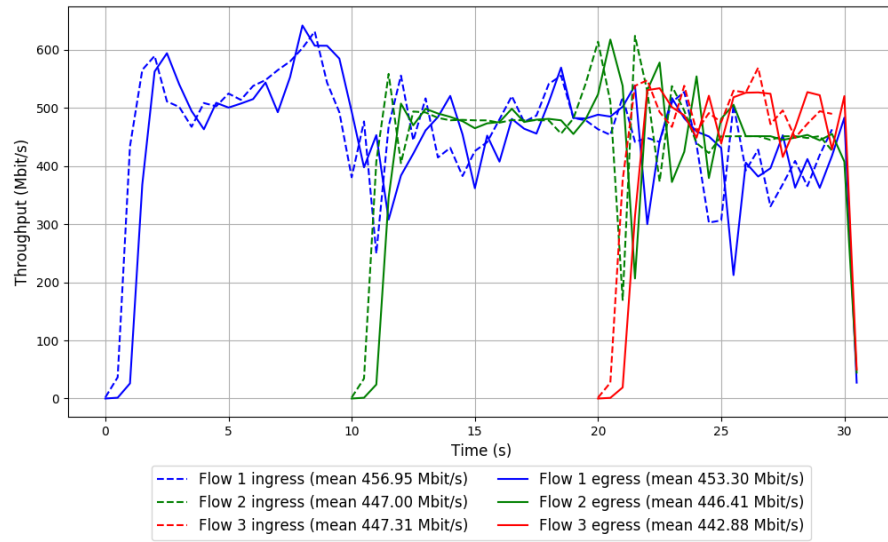3 flows with 10s interval between flows

scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	458.21	410.12	391.37	168.30	169.09	169.38	0.51	0.57	0.70
Copa	5	270.24	249.25	233.17	71.67	79.92	87.62	0.00	0.00	0.01
TCP Cubic	5	451.01	423.41	346.21	76.94	95.82	85.03	0.00	0.01	0.08
FillP	5	540.29	327.28	235.29	94.15	62.60	60.70	0.16	0.00	0.01
FillP-Sheep	5	499.47	302.33	223.21	85.12	61.78	60.91	0.08	0.00	0.02
Indigo	5	196.66	193.82	171.26	62.54	63.66	60.52	0.00	0.01	0.00
Indigo-MusesC3	5	434.60	358.07	243.89	69.62	68.72	61.17	0.00	0.01	0.01
Indigo-MusesC5	5	471.05	389.53	120.27	85.16	77.76	59.25	0.02	0.02	0.04
Indigo-MusesD	5	393.21	319.18	243.40	81.63	72.88	62.21	0.05	0.02	0.25
Indigo-MusesT	5	483.29	386.82	232.31	96.65	77.78	62.49	0.00	0.00	0.02
LEDBAT	5	27.41	17.21	9.18	59.91	60.36	59.02	0.00	0.00	0.00
PCC-Allegro	5	394.75	323.88	249.15	182.05	158.67	115.13	4.20	2.73	0.44
PCC-Expr	5	252.55	208.02	148.53	127.42	101.03	78.39	0.77	0.36	0.08
QUIC Cubic	5	44.92	44.36	25.55	59.60	58.17	57.52	0.00	0.00	0.00
SCReAM	5	0.22	0.22	0.22	57.76	58.51	58.43	0.00	0.00	0.00
Sprout	5	7.46	7.04	6.98	58.68	60.00	58.50	0.00	0.00	0.00
TaoVA-100x	5	228.93	219.89	213.04	61.53	62.93	66.46	0.01	0.01	0.01
TCP Vegas	5	358.33	356.09	289.34	65.11	72.81	69.29	0.00	0.00	0.00
Verus	5	127.67	102.09	80.99	114.62	118.02	80.05	0.14	0.18	0.00
PCC-Vivace	5	288.93	210.12	113.99	65.04	60.45	68.02	0.02	0.06	0.02
WebRTC media	5	0.86	0.55	0.24	58.79	58.66	58.70	0.00	0.01	0.00

```
Run 1: Statistics of TCP BBR

Start at: 2019-03-09 21:43:51
End at: 2019-03-09 21:44:21
Local clock offset: -0.237 ms
Remote clock offset: -0.731 ms


# Below is generated by plot.py at 2019-03-10 01:19:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 897.68 Mbit/s
95th percentile per-packet one-way delay: 182.923 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 453.30 Mbit/s
95th percentile per-packet one-way delay: 191.710 ms
Loss rate: 0.83%
-- Flow 2:
Average throughput: 446.41 Mbit/s
95th percentile per-packet one-way delay: 130.330 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 442.88 Mbit/s
95th percentile per-packet one-way delay: 188.737 ms
Loss rate: 1.05%
```
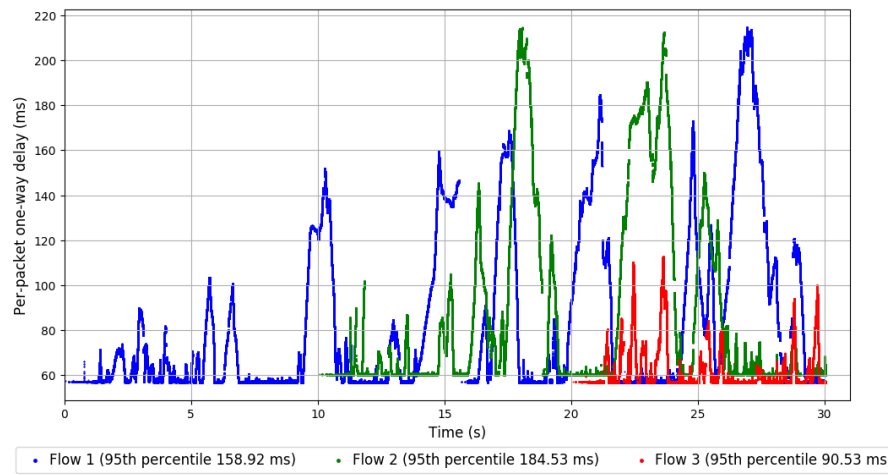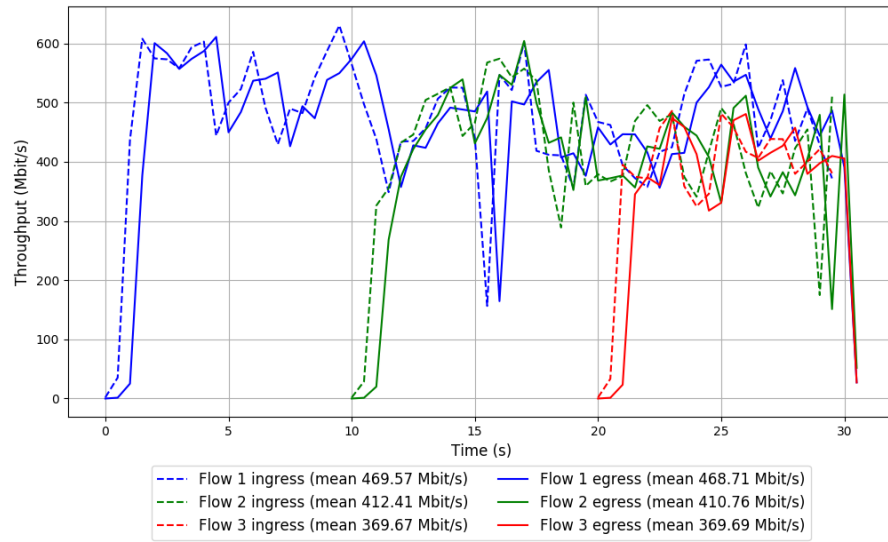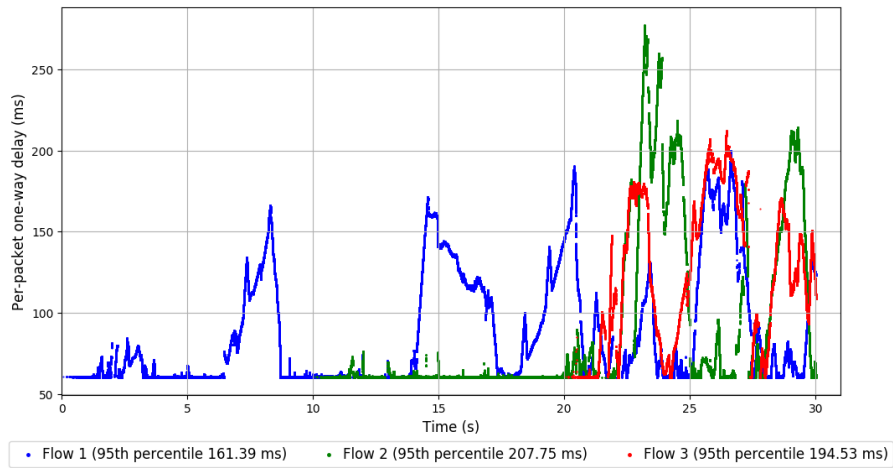
Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 456.95 Mbit/s) — Flow 1 egress (mean 453.30 Mbit/s)
Flow 2 ingress (mean 447.00 Mbit/s) — Flow 2 egress (mean 446.41 Mbit/s)
Flow 3 ingress (mean 447.31 Mbit/s) — Flow 3 egress (mean 442.88 Mbit/s)

Flow 1 (95th percentile 191.71 ms)   Flow 2 (95th percentile 130.33 ms)   Flow 3 (95th percentile 188.74 ms)
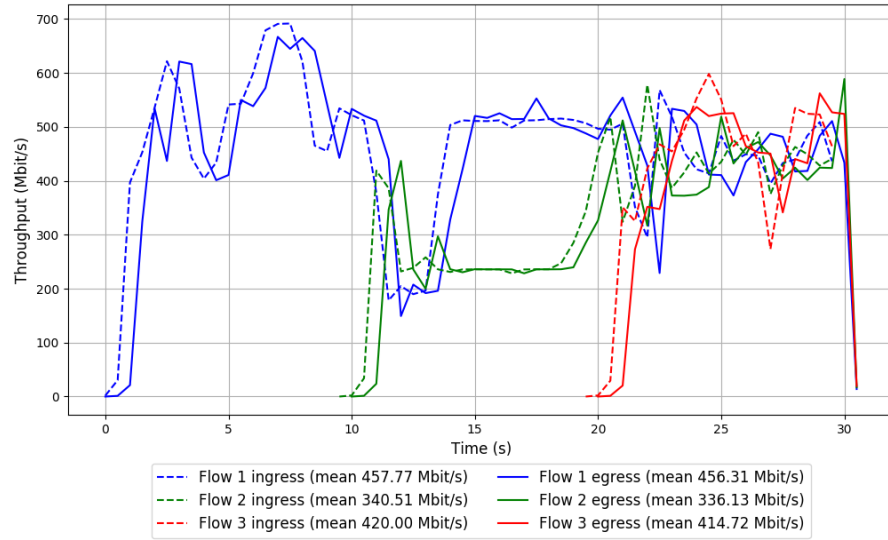
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```
Run 2: Statistics of TCP BBR

Start at: 2019-03-09 22:24:27
End at: 2019-03-09 22:24:57
Local clock offset: -0.269 ms
Remote clock offset: -0.21 ms


# Below is generated by plot.py at 2019-03-10 01:19:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 865.11 Mbit/s
95th percentile per-packet one-way delay: 170.786 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 468.71 Mbit/s
95th percentile per-packet one-way delay: 158.922 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 410.76 Mbit/s
95th percentile per-packet one-way delay: 184.533 ms
Loss rate: 0.40%
-- Flow 3:
Average throughput: 369.69 Mbit/s
95th percentile per-packet one-way delay: 90.526 ms
Loss rate: 0.00%
```
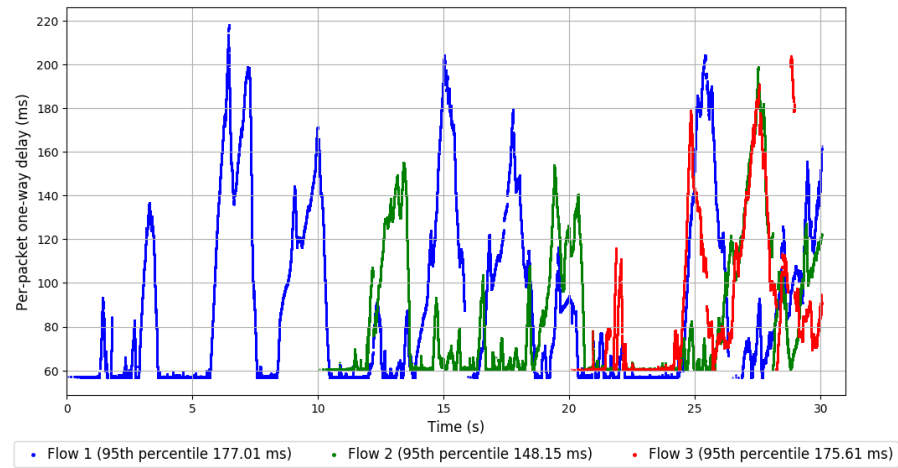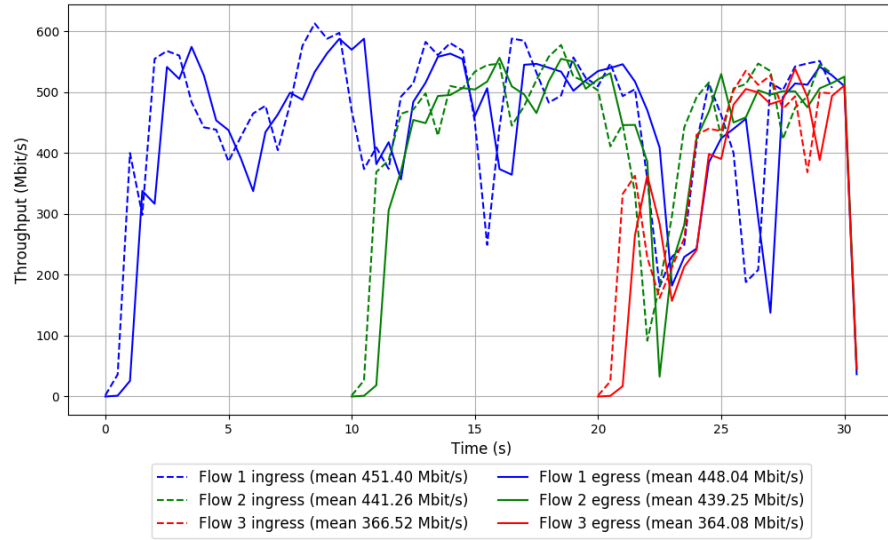
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2019-03-09 23:05:29
End at: 2019-03-09 23:05:59
Local clock offset: -0.604 ms
Remote clock offset: -0.239 ms


# Below is generated by plot.py at 2019-03-10 01:19:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 818.34 Mbit/s
95th percentile per-packet one-way delay: 188.227 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 456.31 Mbit/s
95th percentile per-packet one-way delay: 161.389 ms
Loss rate: 0.32%
-- Flow 2:
Average throughput: 336.13 Mbit/s
95th percentile per-packet one-way delay: 207.750 ms
Loss rate: 1.28%
-- Flow 3:
Average throughput: 414.72 Mbit/s
95th percentile per-packet one-way delay: 194.529 ms
Loss rate: 1.26%
```
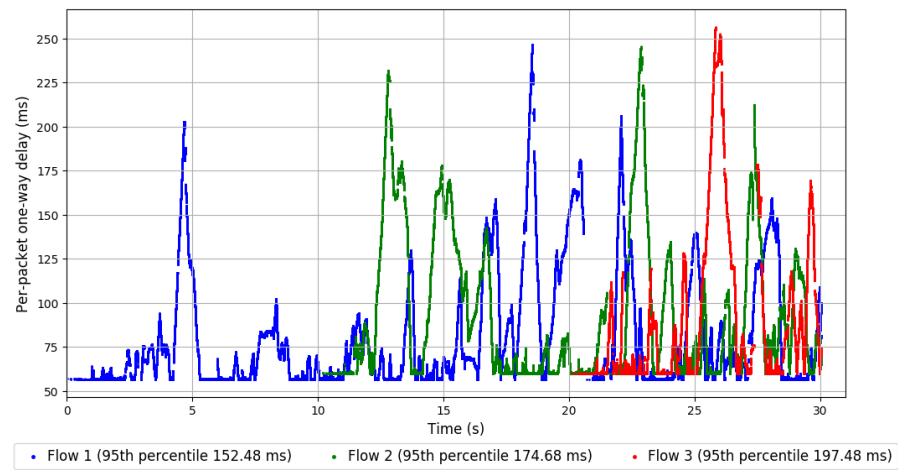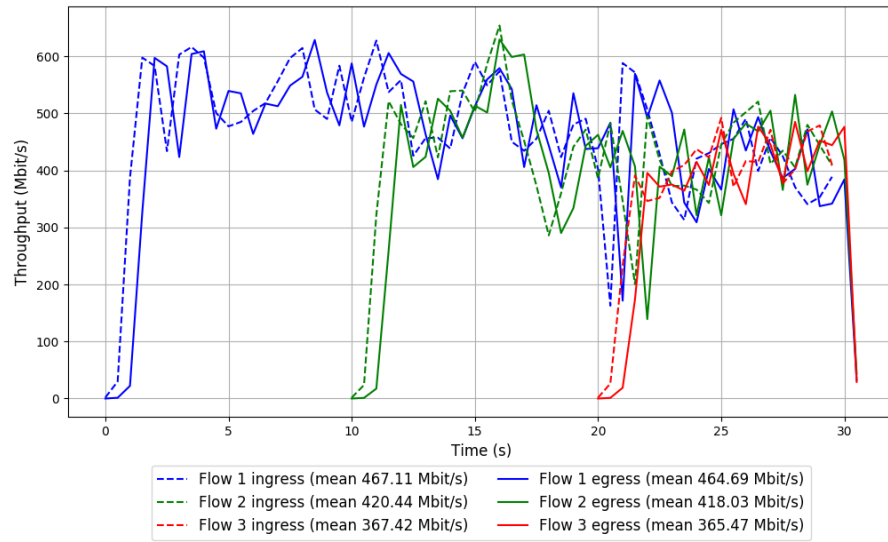
Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 457.77 Mbit/s) --- Flow 1 egress (mean 456.31 Mbit/s)
Flow 2 ingress (mean 340.51 Mbit/s) --- Flow 2 egress (mean 336.13 Mbit/s)
Flow 3 ingress (mean 420.00 Mbit/s) --- Flow 3 egress (mean 414.72 Mbit/s)

Flow 1 (95th percentile 161.39 ms)   Flow 2 (95th percentile 207.75 ms)   Flow 3 (95th percentile 194.53 ms)

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```
Run 4: Statistics of TCP BBR

Start at: 2019-03-09 23:47:18
End at: 2019-03-09 23:47:48
Local clock offset: -0.689 ms
Remote clock offset: -0.068 ms


# Below is generated by plot.py at 2019-03-10 01:19:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 861.54 Mbit/s
95th percentile per-packet one-way delay: 170.088 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 448.04 Mbit/s
95th percentile per-packet one-way delay: 177.011 ms
Loss rate: 0.73%
-- Flow 2:
Average throughput: 439.25 Mbit/s
95th percentile per-packet one-way delay: 148.145 ms
Loss rate: 0.46%
-- Flow 3:
Average throughput: 364.08 Mbit/s
95th percentile per-packet one-way delay: 175.606 ms
Loss rate: 0.66%
```
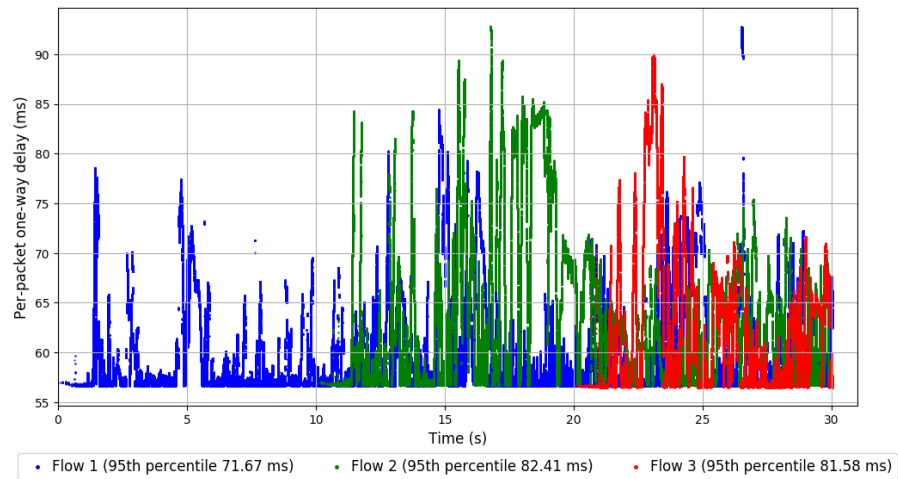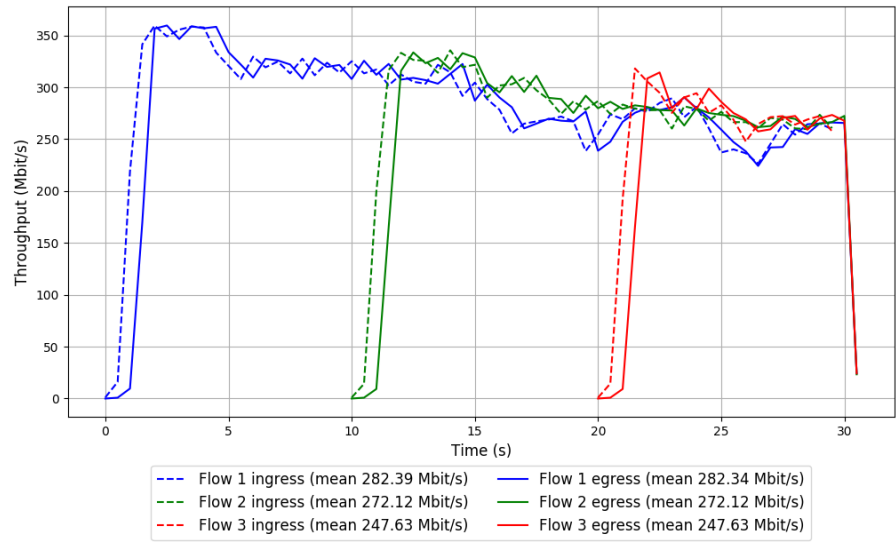
Run 4: Report of TCP BBR — Data Link

```
Run 5: Statistics of TCP BBR

Start at: 2019-03-10 00:28:04
End at: 2019-03-10 00:28:34
Local clock offset: 0.079 ms
Remote clock offset: -0.116 ms


# Below is generated by plot.py at 2019-03-10 01:19:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 864.53 Mbit/s
95th percentile per-packet one-way delay: 168.142 ms
Loss rate: 0.53%
-- Flow 1:
Average throughput: 464.69 Mbit/s
95th percentile per-packet one-way delay: 152.480 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 418.03 Mbit/s
95th percentile per-packet one-way delay: 174.676 ms
Loss rate: 0.57%
-- Flow 3:
Average throughput: 365.47 Mbit/s
95th percentile per-packet one-way delay: 197.484 ms
Loss rate: 0.53%
```
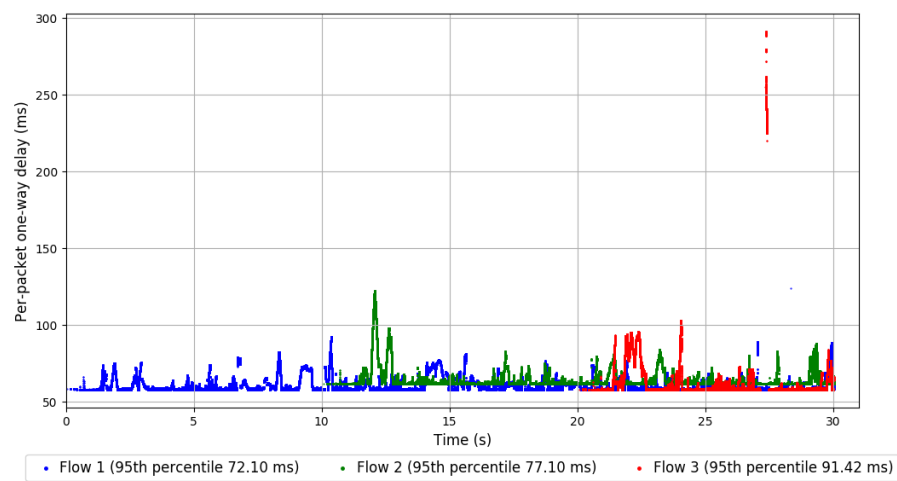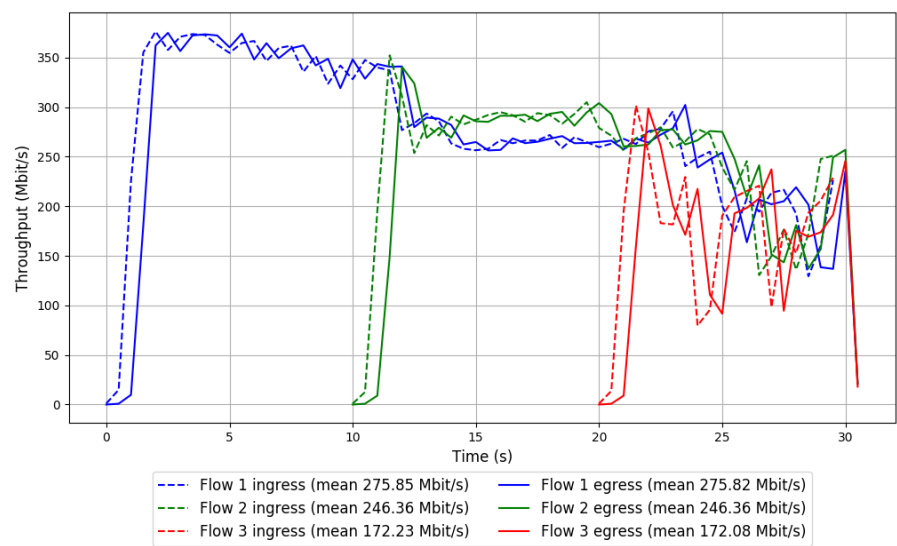
Run 5: Report of TCP BBR — Data Link

- - - Flow 1 ingress (mean 467.11 Mbit/s)   —— Flow 1 egress (mean 464.69 Mbit/s)
- - - Flow 2 ingress (mean 420.44 Mbit/s)   —— Flow 2 egress (mean 418.03 Mbit/s)
- - - Flow 3 ingress (mean 367.42 Mbit/s)   —— Flow 3 egress (mean 365.47 Mbit/s)

• Flow 1 (95th percentile 152.48 ms)   • Flow 2 (95th percentile 174.68 ms)   • Flow 3 (95th percentile 197.48 ms)

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```
Run 1: Statistics of Copa

Start at: 2019-03-09 21:55:19
End at: 2019-03-09 21:55:49
Local clock offset: -0.342 ms
Remote clock offset: -0.278 ms


# Below is generated by plot.py at 2019-03-10 01:21:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 545.79 Mbit/s
95th percentile per-packet one-way delay: 76.976 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 282.34 Mbit/s
95th percentile per-packet one-way delay: 71.666 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 272.12 Mbit/s
95th percentile per-packet one-way delay: 82.411 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 247.63 Mbit/s
95th percentile per-packet one-way delay: 81.581 ms
Loss rate: 0.00%
```
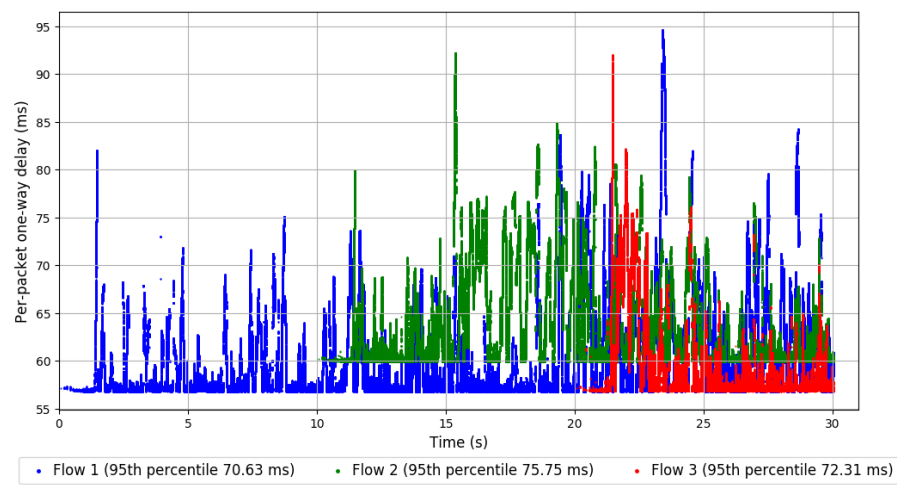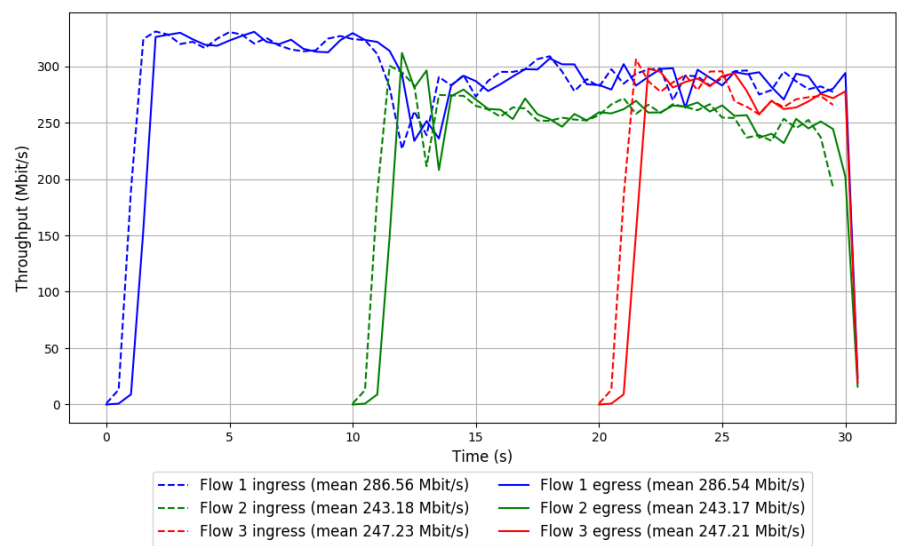
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 282.39 Mbit/s)   Flow 1 egress (mean 282.34 Mbit/s)
Flow 2 ingress (mean 272.12 Mbit/s)   Flow 2 egress (mean 272.12 Mbit/s)
Flow 3 ingress (mean 247.63 Mbit/s)   Flow 3 egress (mean 247.63 Mbit/s)

• Flow 1 (95th percentile 71.67 ms)   • Flow 2 (95th percentile 82.41 ms)   • Flow 3 (95th percentile 81.58 ms)

```
Run 2: Statistics of Copa

Start at: 2019-03-09 22:35:59
End at: 2019-03-09 22:36:29
Local clock offset: -0.726 ms
Remote clock offset: 0.412 ms


# Below is generated by plot.py at 2019-03-10 01:21:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 497.00 Mbit/s
95th percentile per-packet one-way delay: 74.782 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 275.82 Mbit/s
95th percentile per-packet one-way delay: 72.098 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 246.36 Mbit/s
95th percentile per-packet one-way delay: 77.102 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 172.08 Mbit/s
95th percentile per-packet one-way delay: 91.418 ms
Loss rate: 0.03%
```
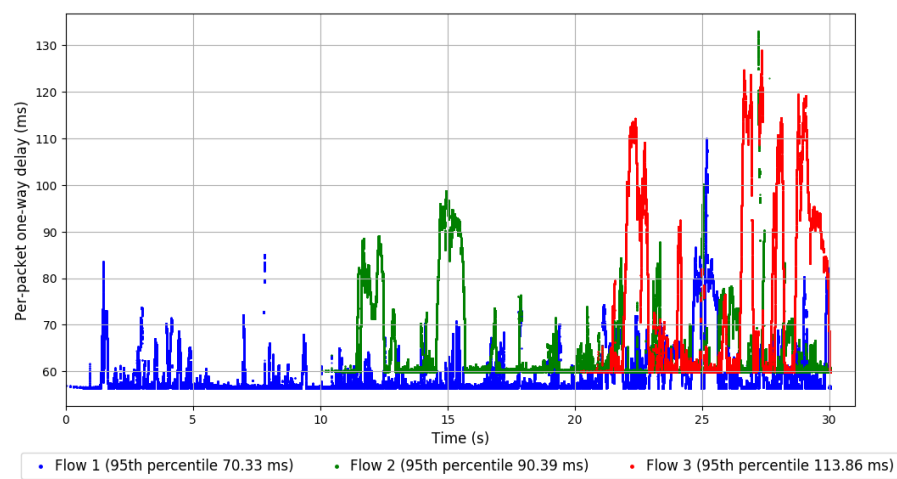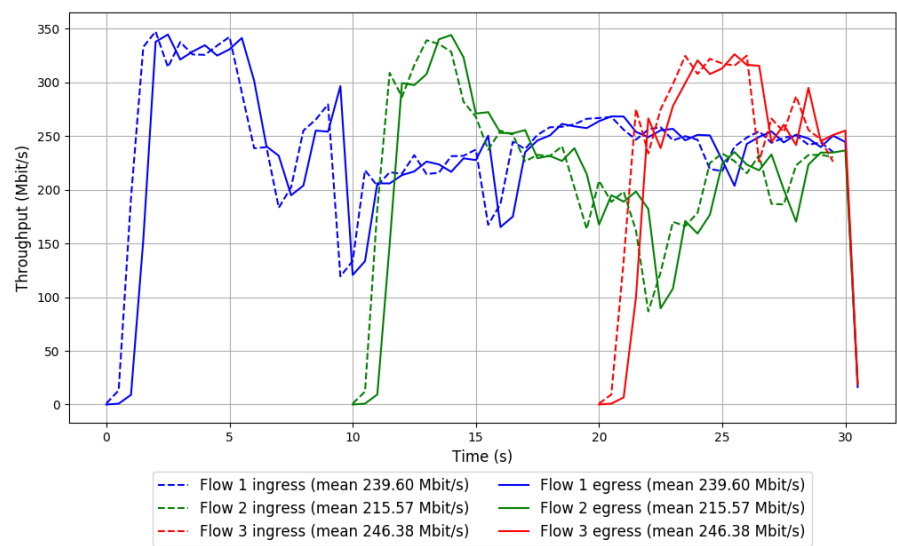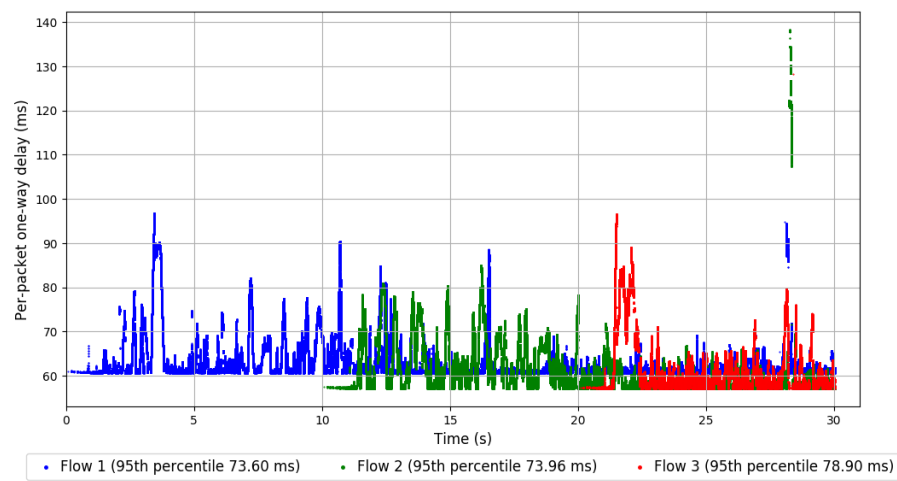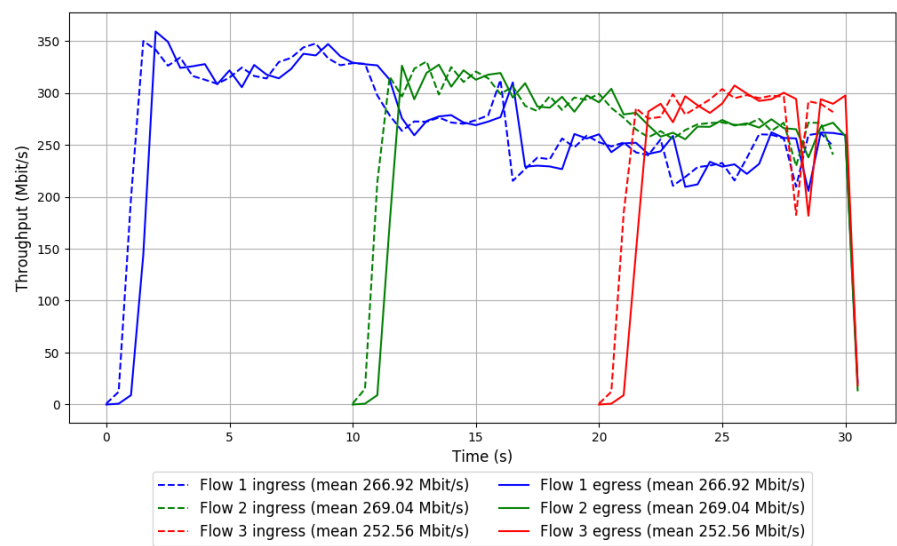
Run 2: Report of Copa — Data Link

Flow 1 ingress (mean 275.85 Mbit/s) --- Flow 1 egress (mean 275.82 Mbit/s)
Flow 2 ingress (mean 246.36 Mbit/s) --- Flow 2 egress (mean 246.36 Mbit/s)
Flow 3 ingress (mean 172.23 Mbit/s) --- Flow 3 egress (mean 172.08 Mbit/s)

Flow 1 (95th percentile 72.10 ms)   Flow 2 (95th percentile 77.10 ms)   Flow 3 (95th percentile 91.42 ms)

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```
Run 3: Statistics of Copa

Start at: 2019-03-09 23:17:01
End at: 2019-03-09 23:17:31
Local clock offset: -0.609 ms
Remote clock offset: -0.176 ms


# Below is generated by plot.py at 2019-03-10 01:21:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 530.61 Mbit/s
95th percentile per-packet one-way delay: 73.289 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 286.54 Mbit/s
95th percentile per-packet one-way delay: 70.633 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 243.17 Mbit/s
95th percentile per-packet one-way delay: 75.752 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 247.21 Mbit/s
95th percentile per-packet one-way delay: 72.315 ms
Loss rate: 0.00%
```
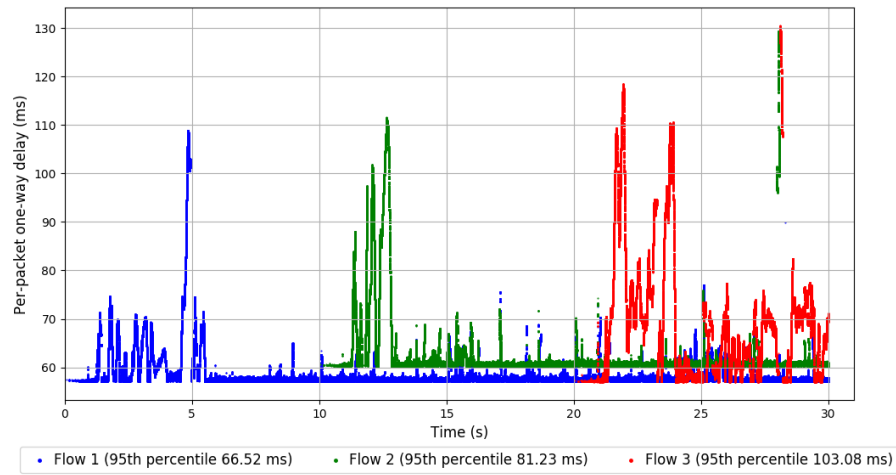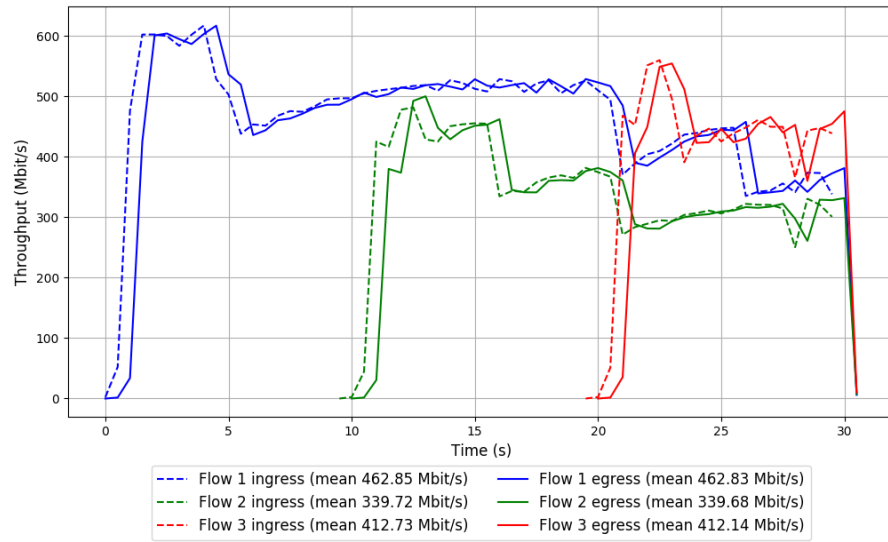
Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2019-03-09 23:57:57
End at: 2019-03-09 23:58:27
Local clock offset: -0.454 ms
Remote clock offset: -0.05 ms

# Below is generated by plot.py at 2019-03-10 01:33:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 464.89 Mbit/s
95th percentile per-packet one-way delay: 92.525 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 239.60 Mbit/s
95th percentile per-packet one-way delay: 70.332 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 215.57 Mbit/s
95th percentile per-packet one-way delay: 90.392 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 246.38 Mbit/s
95th percentile per-packet one-way delay: 113.865 ms
Loss rate: 0.00%
```

Run 4: Report of Copa — Data Link

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```
Run 5: Statistics of Copa

Start at: 2019-03-10 00:39:40
End at: 2019-03-10 00:40:10
Local clock offset: -0.27 ms
Remote clock offset: -0.251 ms


# Below is generated by plot.py at 2019-03-10 01:36:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 529.90 Mbit/s
95th percentile per-packet one-way delay: 74.402 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 266.92 Mbit/s
95th percentile per-packet one-way delay: 73.601 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 269.04 Mbit/s
95th percentile per-packet one-way delay: 73.957 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 252.56 Mbit/s
95th percentile per-packet one-way delay: 78.899 ms
Loss rate: 0.00%
```
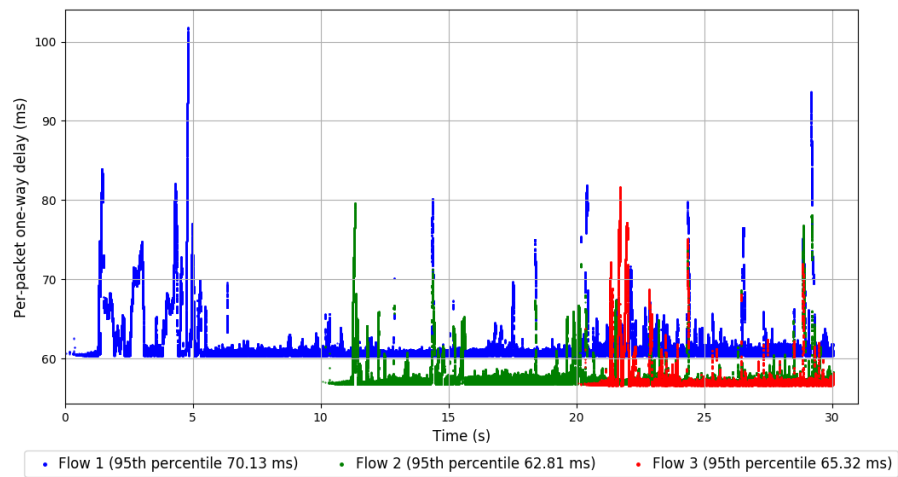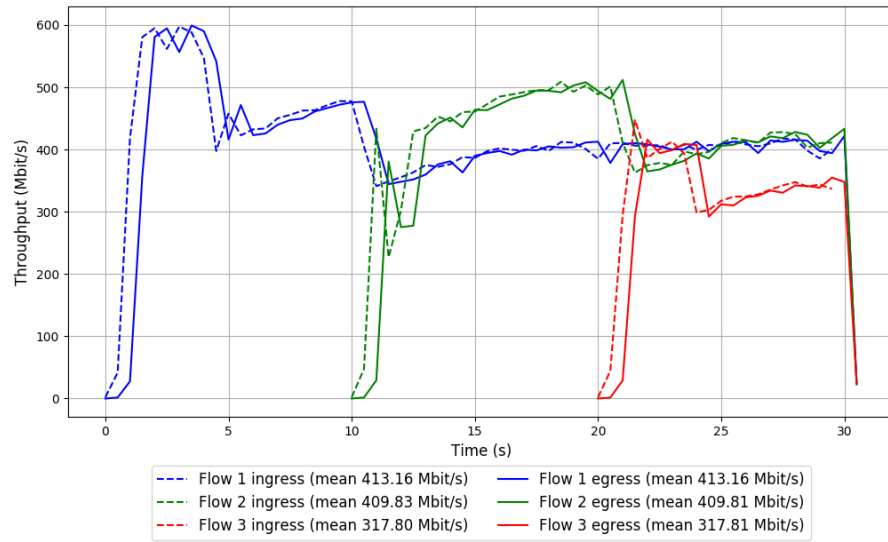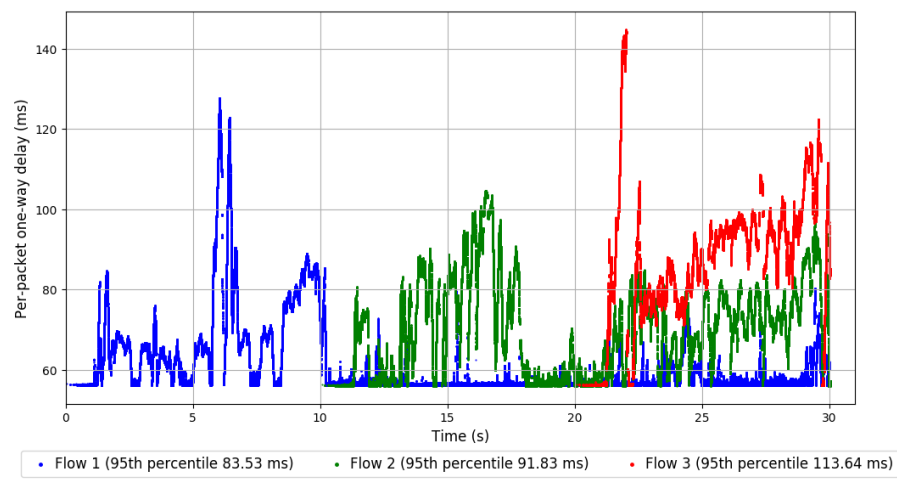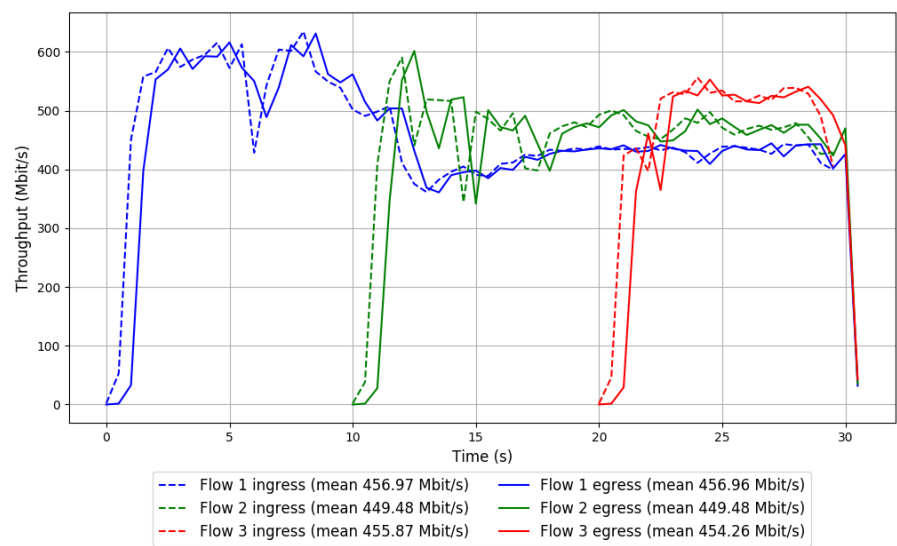
Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2019-03-09 21:19:39
End at: 2019-03-09 21:20:09
Local clock offset: -0.476 ms
Remote clock offset: -0.217 ms


# Below is generated by plot.py at 2019-03-10 01:36:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 826.24 Mbit/s
95th percentile per-packet one-way delay: 76.607 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 462.83 Mbit/s
95th percentile per-packet one-way delay: 66.518 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 339.68 Mbit/s
95th percentile per-packet one-way delay: 81.227 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 412.14 Mbit/s
95th percentile per-packet one-way delay: 103.080 ms
Loss rate: 0.09%
```
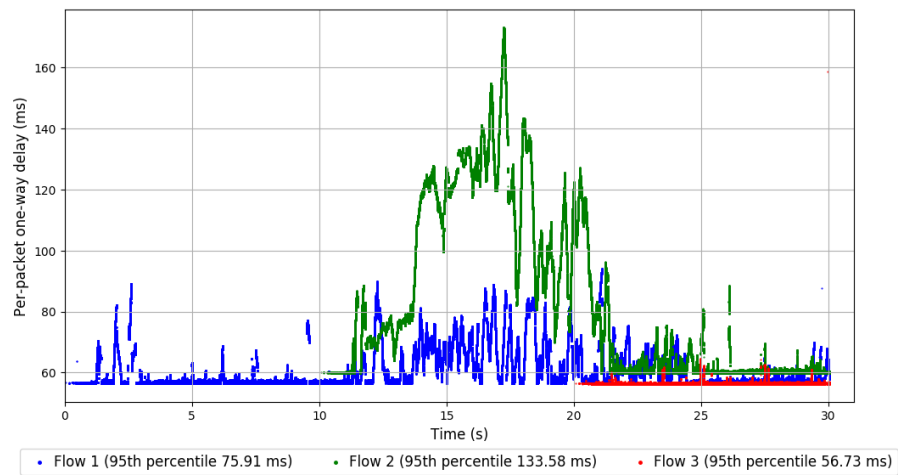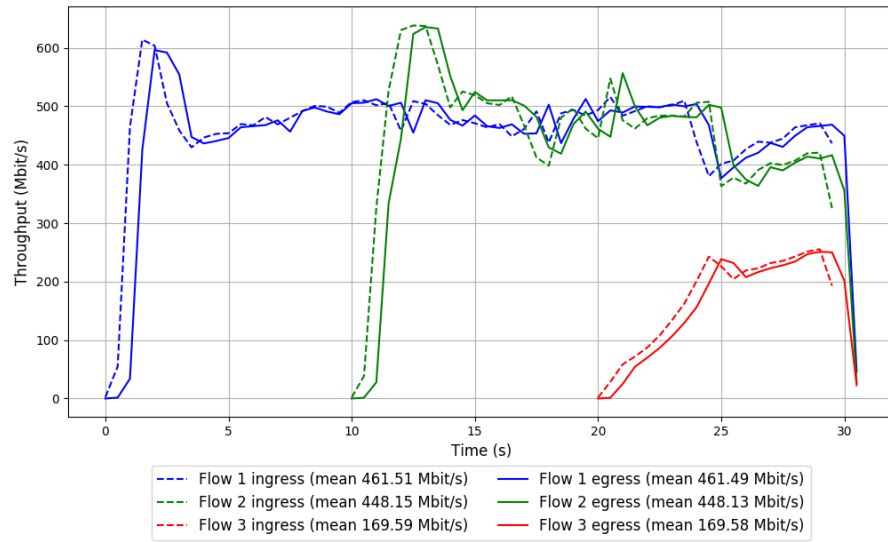
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2019-03-09 22:00:54
End at: 2019-03-09 22:01:24
Local clock offset: -0.352 ms
Remote clock offset: -0.31 ms


# Below is generated by plot.py at 2019-03-10 01:36:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 791.65 Mbit/s
95th percentile per-packet one-way delay: 67.091 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 413.16 Mbit/s
95th percentile per-packet one-way delay: 70.129 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 409.81 Mbit/s
95th percentile per-packet one-way delay: 62.815 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 317.81 Mbit/s
95th percentile per-packet one-way delay: 65.320 ms
Loss rate: 0.00%
```

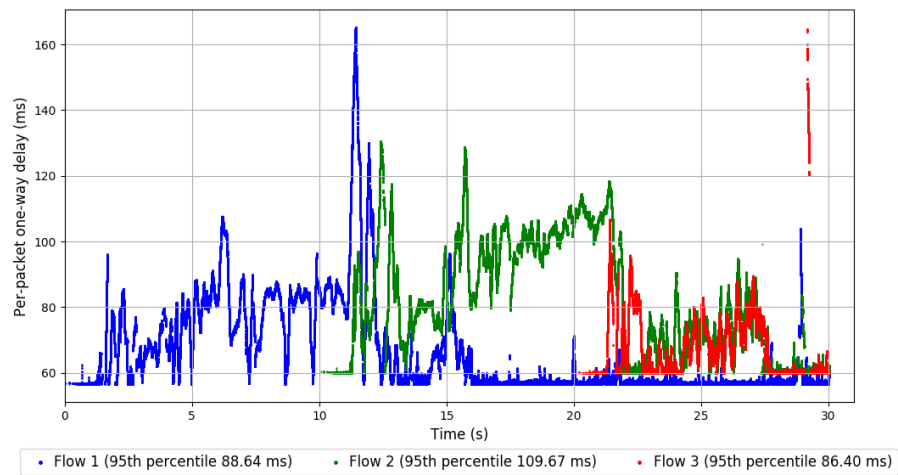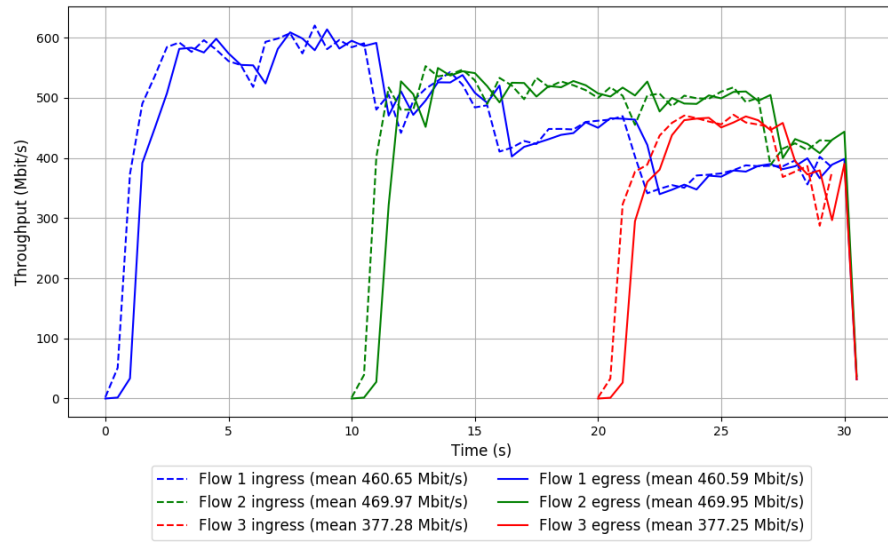Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2019-03-09 22:41:44
End at: 2019-03-09 22:42:14
Local clock offset: -0.241 ms
Remote clock offset: -0.779 ms


# Below is generated by plot.py at 2019-03-10 01:36:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 907.17 Mbit/s
95th percentile per-packet one-way delay: 97.745 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 456.96 Mbit/s
95th percentile per-packet one-way delay: 83.525 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 449.48 Mbit/s
95th percentile per-packet one-way delay: 91.828 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 454.26 Mbit/s
95th percentile per-packet one-way delay: 113.639 ms
Loss rate: 0.32%
```
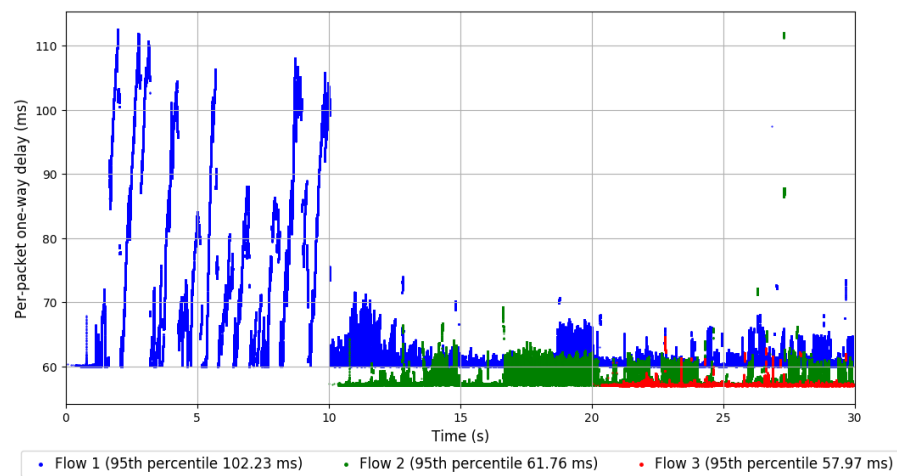
Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 456.97 Mbit/s) — Flow 1 egress (mean 456.96 Mbit/s)
Flow 2 ingress (mean 449.48 Mbit/s) — Flow 2 egress (mean 449.48 Mbit/s)
Flow 3 ingress (mean 455.87 Mbit/s) — Flow 3 egress (mean 454.26 Mbit/s)

Flow 1 (95th percentile 83.53 ms)   Flow 2 (95th percentile 91.83 ms)   Flow 3 (95th percentile 113.64 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2019-03-09 23:22:48
End at: 2019-03-09 23:23:18
Local clock offset: -0.169 ms
Remote clock offset: -0.003 ms


# Below is generated by plot.py at 2019-03-10 01:36:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 816.24 Mbit/s
95th percentile per-packet one-way delay: 123.924 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 461.49 Mbit/s
95th percentile per-packet one-way delay: 75.909 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 448.13 Mbit/s
95th percentile per-packet one-way delay: 133.576 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 169.58 Mbit/s
95th percentile per-packet one-way delay: 56.726 ms
Loss rate: 0.01%
```

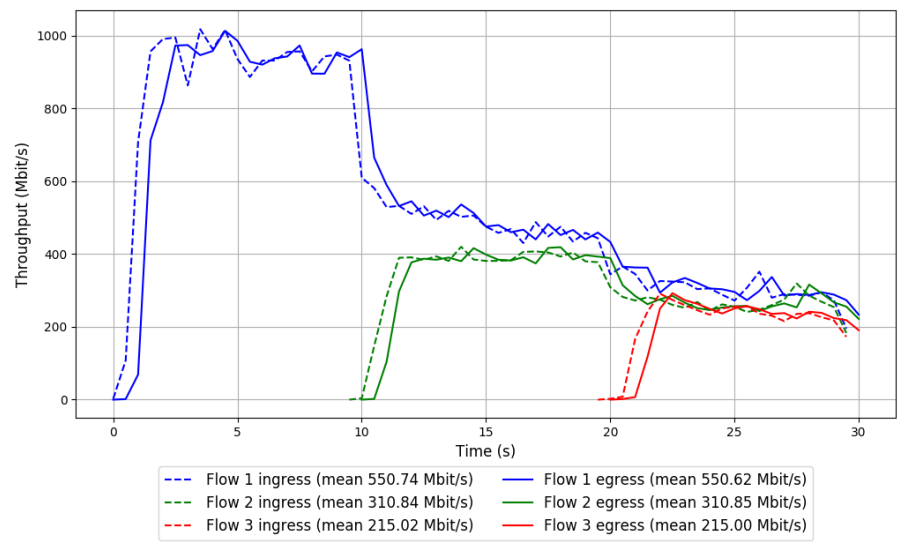Run 4: Report of TCP Cubic — Data Link

```
Run 5: Statistics of TCP Cubic

Start at: 2019-03-10 00:03:32
End at: 2019-03-10 00:04:02
Local clock offset: -1.127 ms
Remote clock offset: -0.68 ms


# Below is generated by plot.py at 2019-03-10 01:37:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 898.76 Mbit/s
95th percentile per-packet one-way delay: 105.784 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 460.59 Mbit/s
95th percentile per-packet one-way delay: 88.641 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 469.95 Mbit/s
95th percentile per-packet one-way delay: 109.672 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 377.25 Mbit/s
95th percentile per-packet one-way delay: 86.397 ms
Loss rate: 0.00%
```
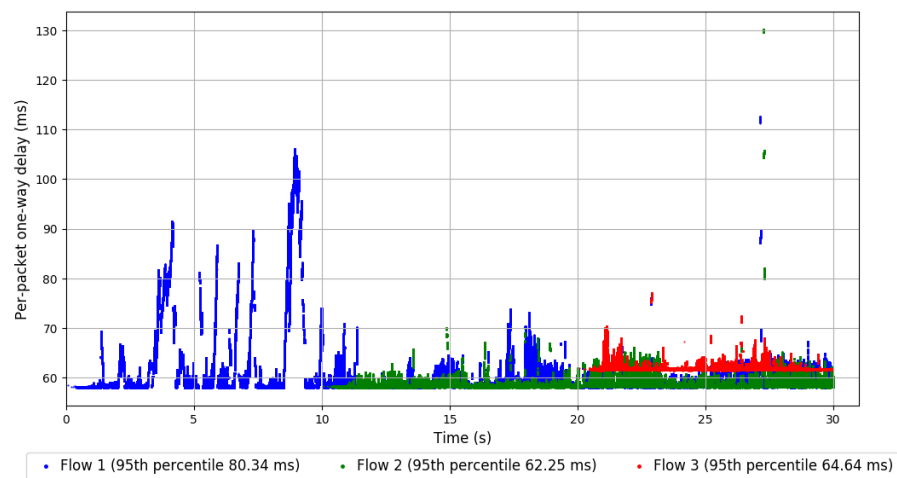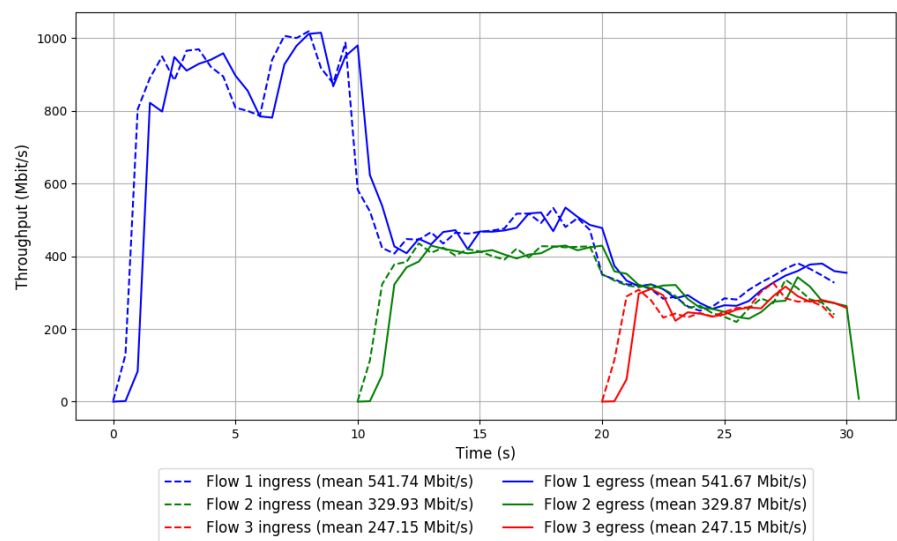
Run 5: Report of TCP Cubic — Data Link

```
Run 1: Statistics of FillP

Start at: 2019-03-09 21:35:43
End at: 2019-03-09 21:36:13
Local clock offset: -0.501 ms
Remote clock offset: -0.298 ms

# Below is generated by plot.py at 2019-03-10 01:39:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 829.10 Mbit/s
95th percentile per-packet one-way delay: 99.890 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 550.62 Mbit/s
95th percentile per-packet one-way delay: 102.233 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 310.85 Mbit/s
95th percentile per-packet one-way delay: 61.756 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 215.00 Mbit/s
95th percentile per-packet one-way delay: 57.974 ms
Loss rate: 0.01%
```
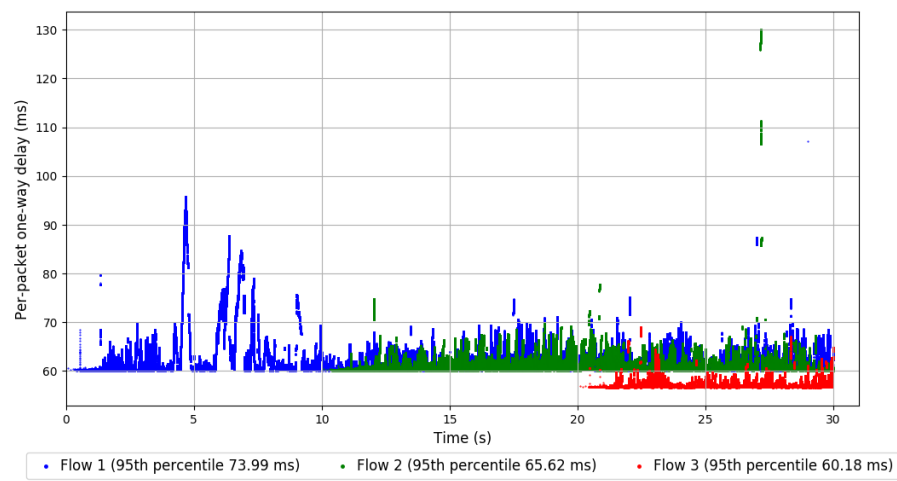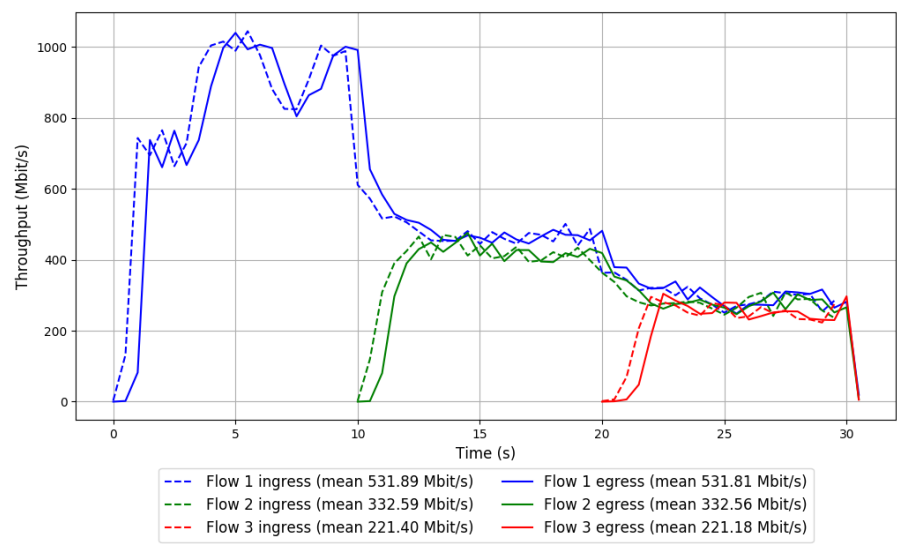
Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 550.74 Mbit/s)   Flow 1 egress (mean 550.62 Mbit/s)
Flow 2 ingress (mean 310.84 Mbit/s)   Flow 2 egress (mean 310.85 Mbit/s)
Flow 3 ingress (mean 215.02 Mbit/s)   Flow 3 egress (mean 215.00 Mbit/s)

Flow 1 (95th percentile 102.23 ms)   Flow 2 (95th percentile 61.76 ms)   Flow 3 (95th percentile 57.97 ms)

```
Run 2: Statistics of FillP

Start at: 2019-03-09 22:16:54
End at: 2019-03-09 22:17:24
Local clock offset: -0.697 ms
Remote clock offset: 0.621 ms


# Below is generated by plot.py at 2019-03-10 01:51:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 842.79 Mbit/s
95th percentile per-packet one-way delay: 75.651 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 541.67 Mbit/s
95th percentile per-packet one-way delay: 80.337 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 329.87 Mbit/s
95th percentile per-packet one-way delay: 62.247 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 247.15 Mbit/s
95th percentile per-packet one-way delay: 64.645 ms
Loss rate: 0.00%
```
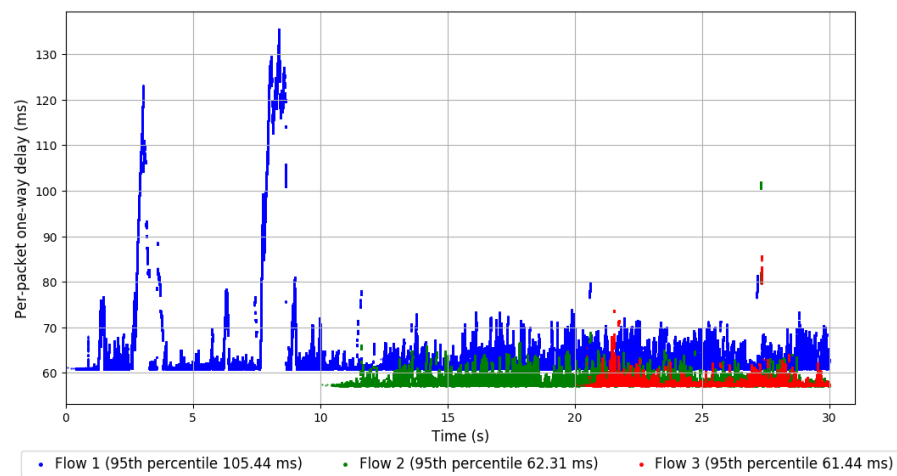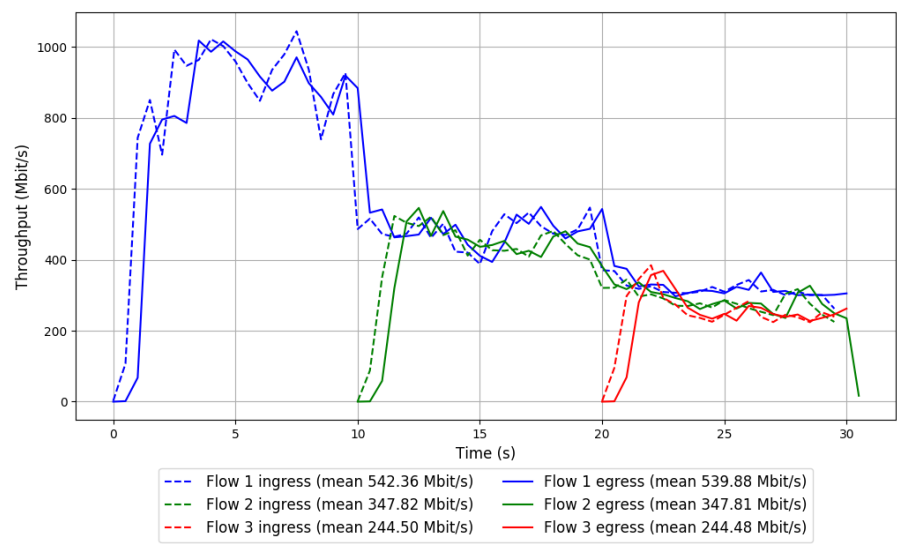
Run 2: Report of FillP — Data Link

Legend:
- Flow 1 ingress (mean 541.74 Mbit/s) — Flow 1 egress (mean 541.67 Mbit/s)
- Flow 2 ingress (mean 329.93 Mbit/s) — Flow 2 egress (mean 329.87 Mbit/s)
- Flow 3 ingress (mean 247.15 Mbit/s) — Flow 3 egress (mean 247.15 Mbit/s)

Legend:
- Flow 1 (95th percentile 80.34 ms)
- Flow 2 (95th percentile 62.25 ms)
- Flow 3 (95th percentile 64.64 ms)

```
Run 3: Statistics of FillP

Start at: 2019-03-09 22:57:58
End at: 2019-03-09 22:58:28
Local clock offset: -0.149 ms
Remote clock offset: -0.226 ms

# Below is generated by plot.py at 2019-03-10 01:51:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 826.34 Mbit/s
95th percentile per-packet one-way delay: 71.055 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 531.81 Mbit/s
95th percentile per-packet one-way delay: 73.988 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 332.56 Mbit/s
95th percentile per-packet one-way delay: 65.624 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 221.18 Mbit/s
95th percentile per-packet one-way delay: 60.182 ms
Loss rate: 0.02%
```
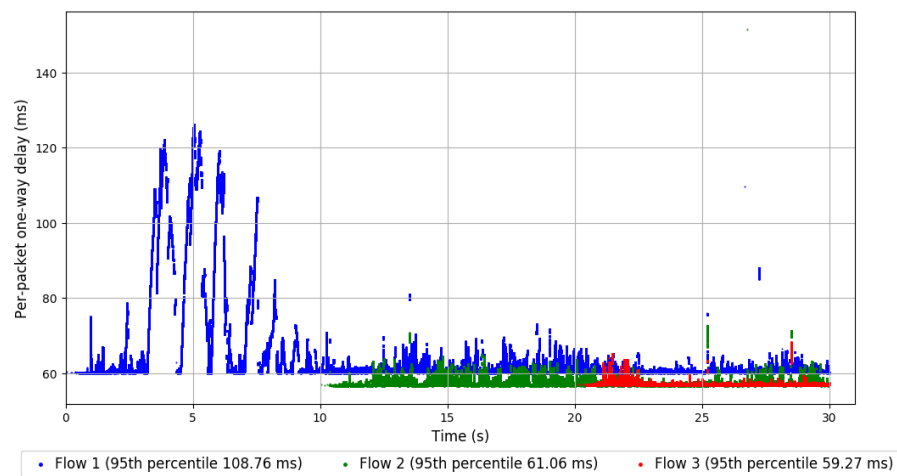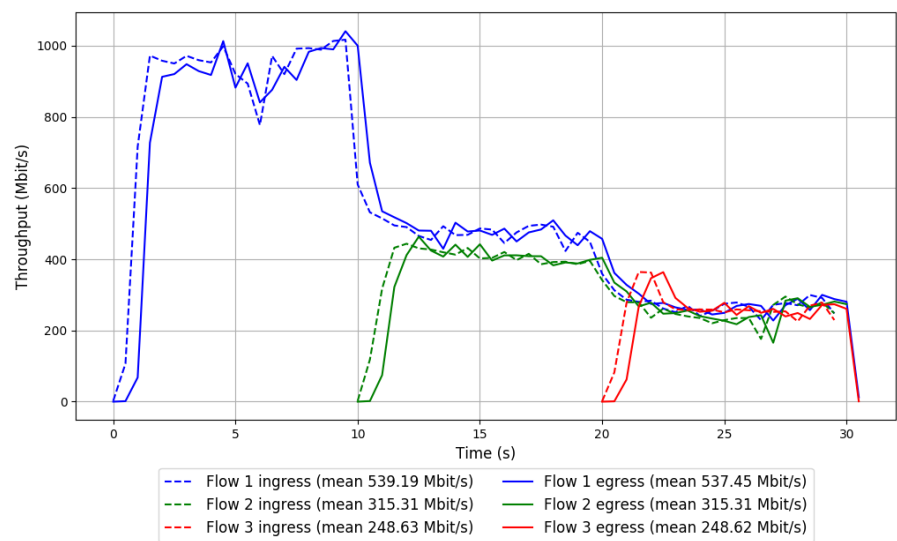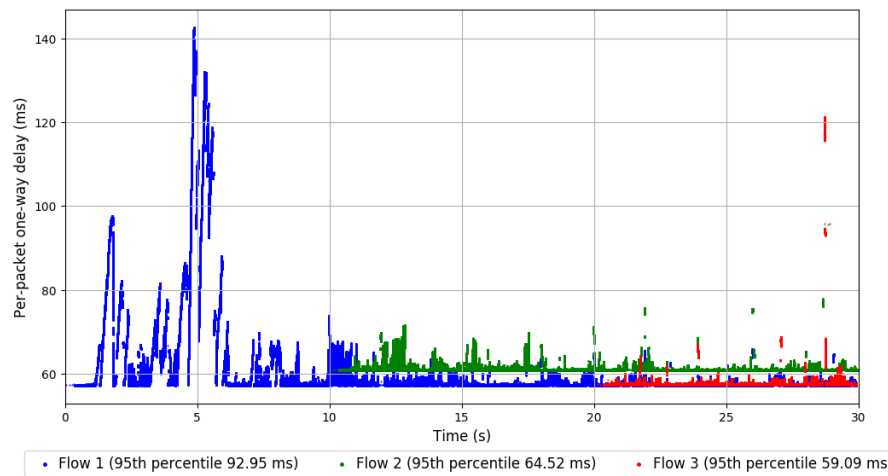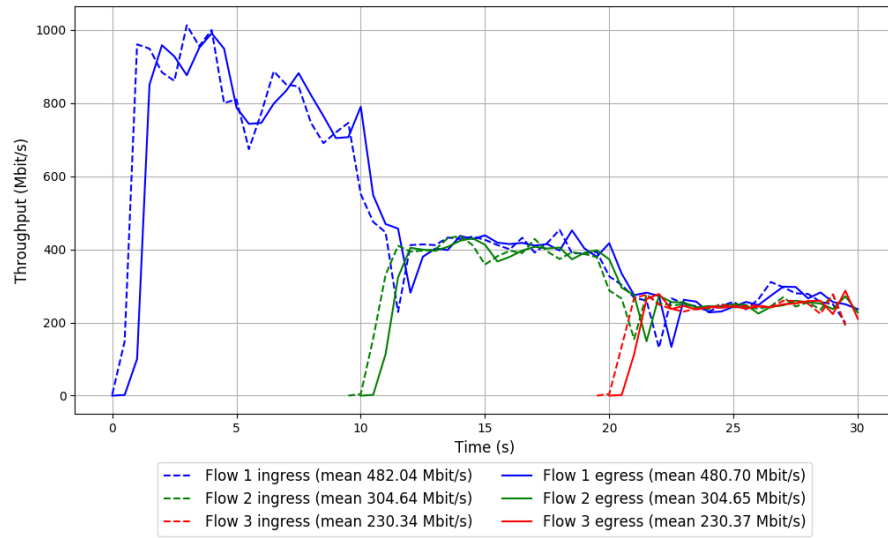
Run 3: Report of FillP — Data Link

- - - Flow 1 ingress (mean 531.89 Mbit/s)   —— Flow 1 egress (mean 531.81 Mbit/s)
- - - Flow 2 ingress (mean 332.59 Mbit/s)   —— Flow 2 egress (mean 332.56 Mbit/s)
- - - Flow 3 ingress (mean 221.40 Mbit/s)   —— Flow 3 egress (mean 221.18 Mbit/s)

• Flow 1 (95th percentile 73.99 ms)   • Flow 2 (95th percentile 65.62 ms)   • Flow 3 (95th percentile 60.18 ms)

```
Run 4: Statistics of FillP

Start at: 2019-03-09 23:39:47
End at: 2019-03-09 23:40:17
Local clock offset: -1.076 ms
Remote clock offset: -0.14 ms


# Below is generated by plot.py at 2019-03-10 01:52:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 851.95 Mbit/s
95th percentile per-packet one-way delay: 82.737 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 539.88 Mbit/s
95th percentile per-packet one-way delay: 105.436 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 347.81 Mbit/s
95th percentile per-packet one-way delay: 62.315 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 244.48 Mbit/s
95th percentile per-packet one-way delay: 61.437 ms
Loss rate: 0.01%
```
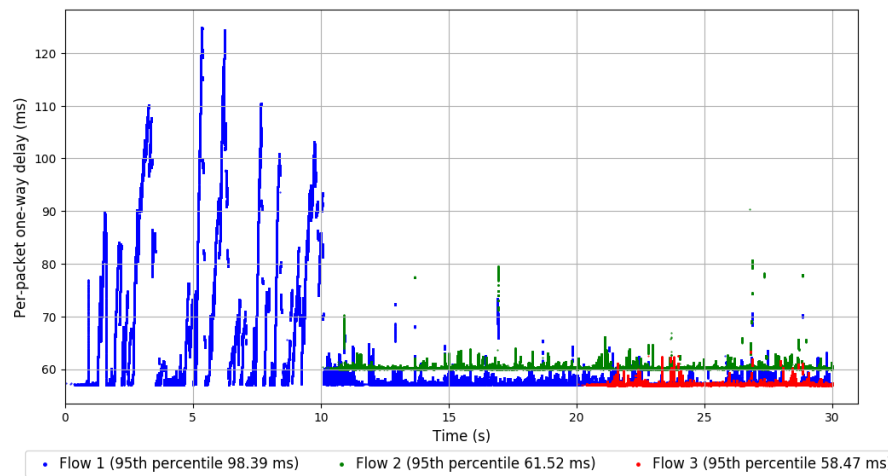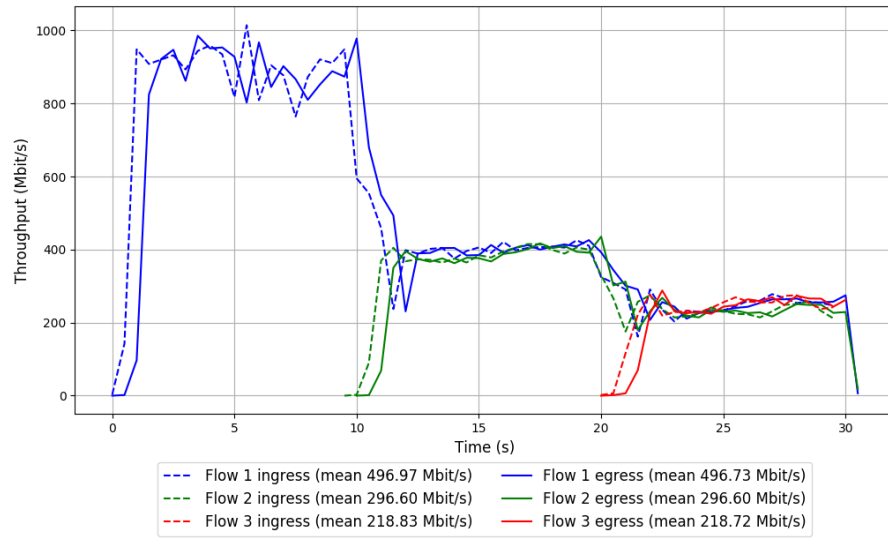
Run 4: Report of FillP — Data Link

```
Run 5: Statistics of FillP

Start at: 2019-03-10 00:20:48
End at: 2019-03-10 00:21:18
Local clock offset: -0.473 ms
Remote clock offset: 0.003 ms


# Below is generated by plot.py at 2019-03-10 01:53:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 829.66 Mbit/s
95th percentile per-packet one-way delay: 100.894 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 537.45 Mbit/s
95th percentile per-packet one-way delay: 108.756 ms
Loss rate: 0.32%
-- Flow 2:
Average throughput: 315.31 Mbit/s
95th percentile per-packet one-way delay: 61.063 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 248.62 Mbit/s
95th percentile per-packet one-way delay: 59.269 ms
Loss rate: 0.00%
```
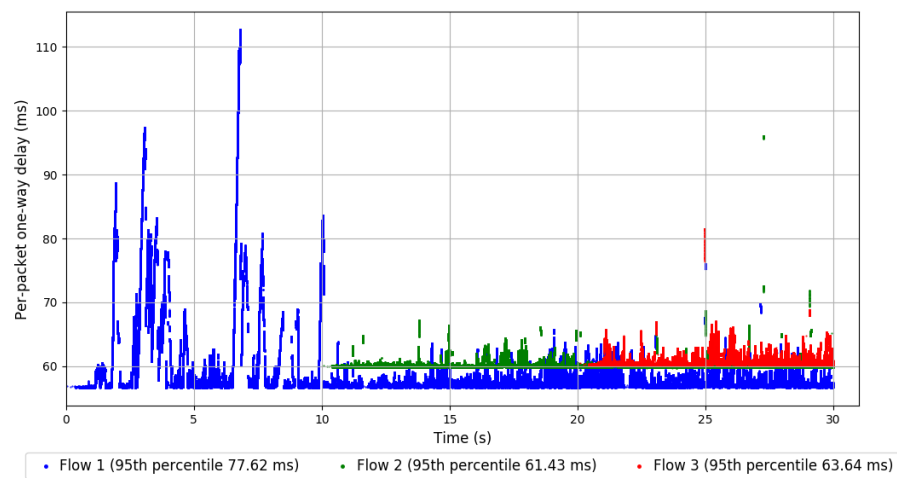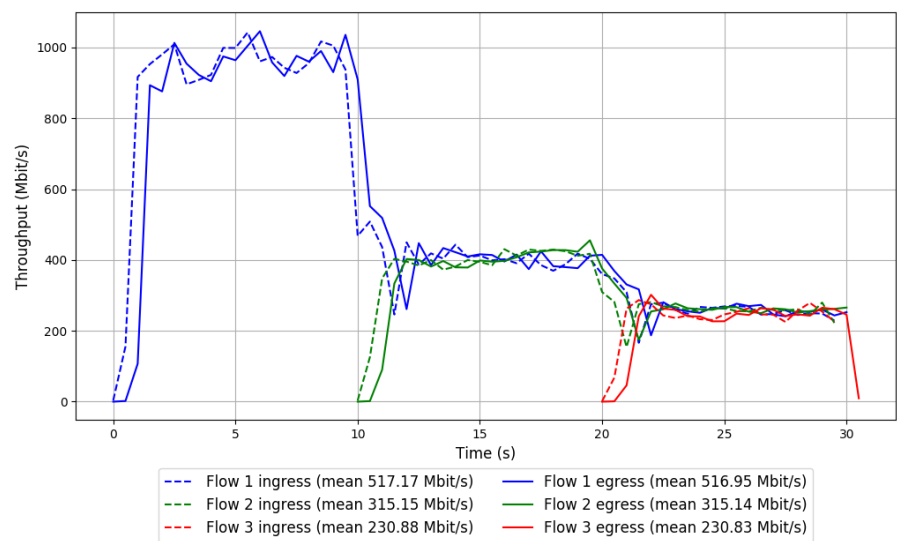
Run 5: Report of FillP — Data Link

```
Run 1: Statistics of FillP-Sheep

Start at: 2019-03-09 21:48:32
End at: 2019-03-09 21:49:02
Local clock offset: -0.752 ms
Remote clock offset: -0.094 ms


# Below is generated by plot.py at 2019-03-10 01:53:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 760.13 Mbit/s
95th percentile per-packet one-way delay: 81.265 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 480.70 Mbit/s
95th percentile per-packet one-way delay: 92.948 ms
Loss rate: 0.28%
-- Flow 2:
Average throughput: 304.65 Mbit/s
95th percentile per-packet one-way delay: 64.516 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 230.37 Mbit/s
95th percentile per-packet one-way delay: 59.086 ms
Loss rate: 0.00%
```
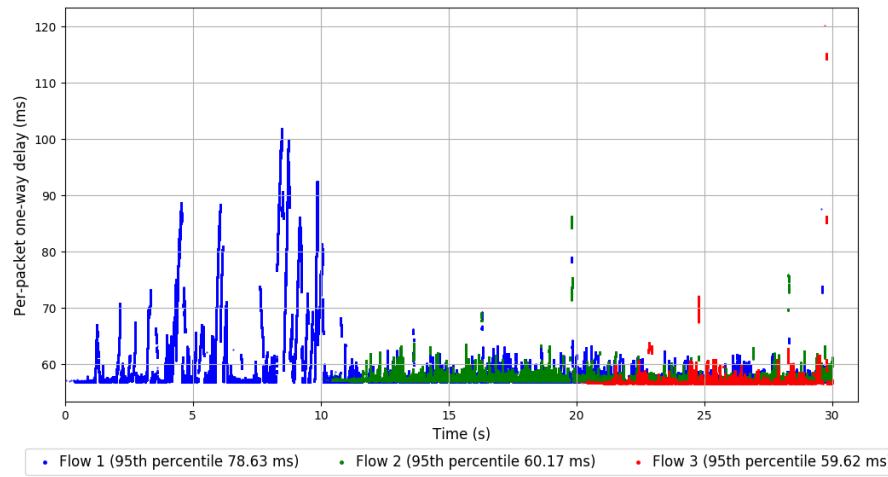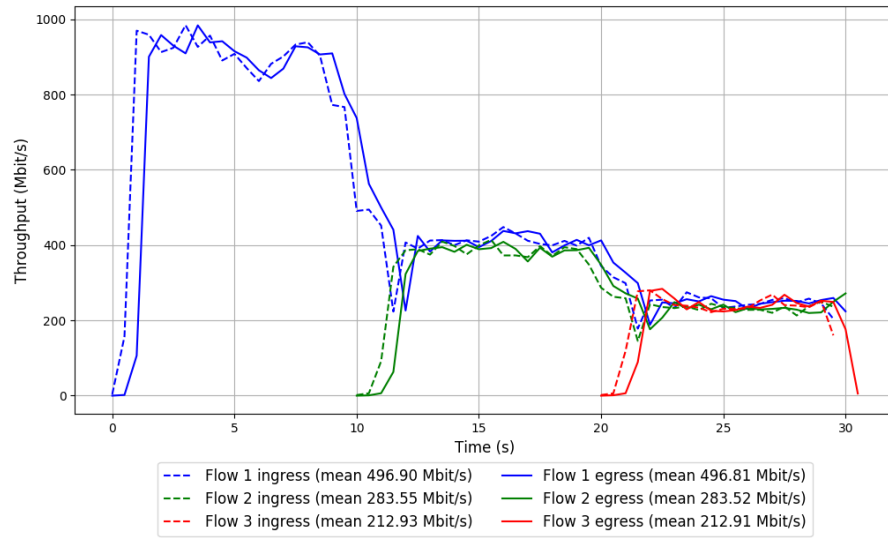
Run 1: Report of FillP-Sheep — Data Link

- - - - Flow 1 ingress (mean 482.04 Mbit/s)   —— Flow 1 egress (mean 480.70 Mbit/s)
- - - - Flow 2 ingress (mean 304.64 Mbit/s)   —— Flow 2 egress (mean 304.65 Mbit/s)
- - - - Flow 3 ingress (mean 230.34 Mbit/s)   —— Flow 3 egress (mean 230.37 Mbit/s)

- Flow 1 (95th percentile 92.95 ms)   • Flow 2 (95th percentile 64.52 ms)   • Flow 3 (95th percentile 59.09 ms)
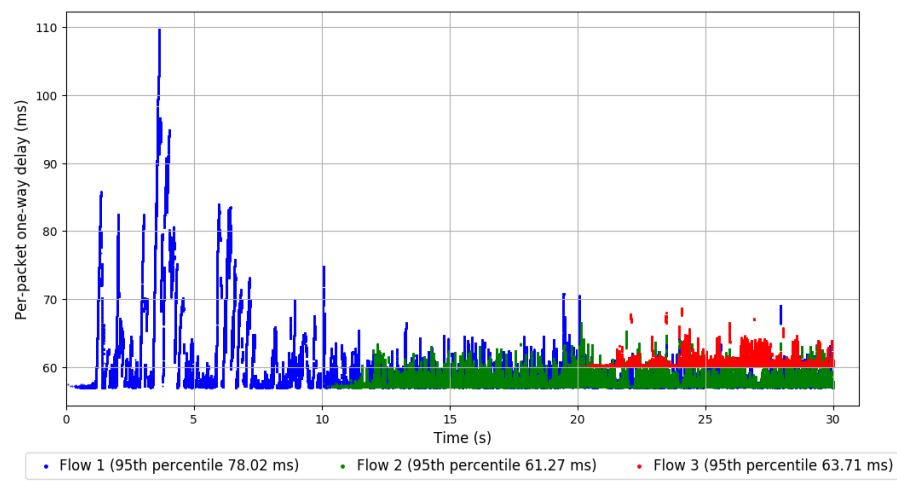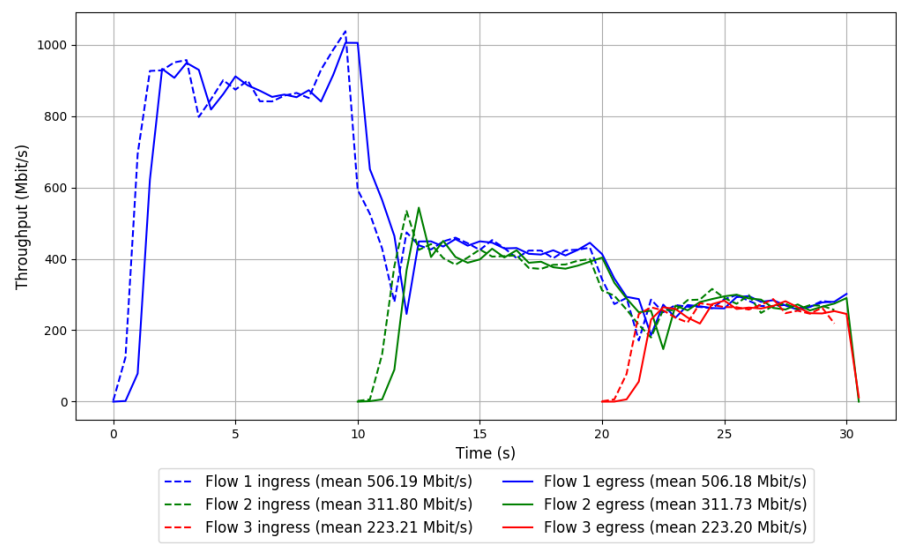
46

```
Run 2: Statistics of FillP-Sheep

Start at: 2019-03-09 22:29:06
End at: 2019-03-09 22:29:36
Local clock offset: -0.641 ms
Remote clock offset: -0.347 ms


# Below is generated by plot.py at 2019-03-10 01:53:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 766.77 Mbit/s
95th percentile per-packet one-way delay: 92.774 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 496.73 Mbit/s
95th percentile per-packet one-way delay: 98.395 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 296.60 Mbit/s
95th percentile per-packet one-way delay: 61.525 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 218.72 Mbit/s
95th percentile per-packet one-way delay: 58.474 ms
Loss rate: 0.05%
```
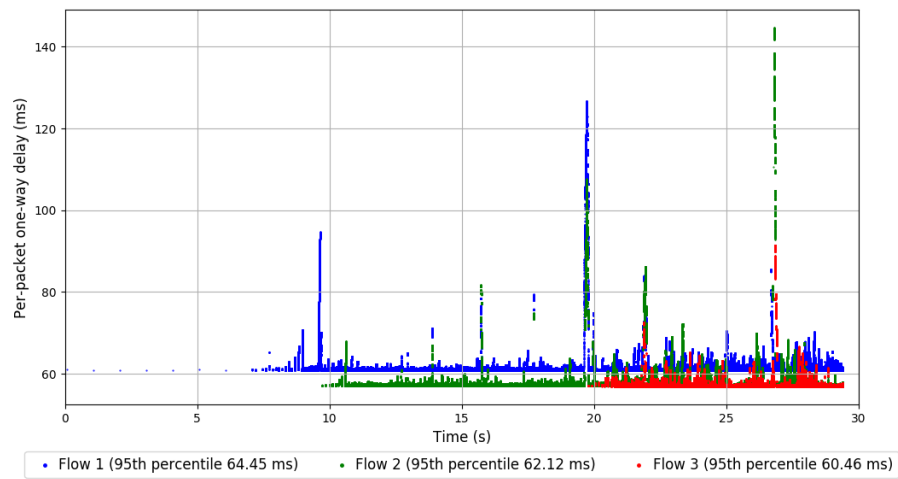
Run 2: Report of FillP-Sheep — Data Link

- --- Flow 1 ingress (mean 496.97 Mbit/s)
- —— Flow 1 egress (mean 496.73 Mbit/s)
- --- Flow 2 ingress (mean 296.60 Mbit/s)
- —— Flow 2 egress (mean 296.60 Mbit/s)
- --- Flow 3 ingress (mean 218.83 Mbit/s)
- —— Flow 3 egress (mean 218.72 Mbit/s)

- • Flow 1 (95th percentile 98.39 ms)
- • Flow 2 (95th percentile 61.52 ms)
- • Flow 3 (95th percentile 58.47 ms)

48

```
Run 3: Statistics of FillP-Sheep

Start at: 2019-03-09 23:10:11
End at: 2019-03-09 23:10:41
Local clock offset: -0.166 ms
Remote clock offset: -0.231 ms


# Below is generated by plot.py at 2019-03-10 01:55:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 802.77 Mbit/s
95th percentile per-packet one-way delay: 73.865 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 516.95 Mbit/s
95th percentile per-packet one-way delay: 77.621 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 315.14 Mbit/s
95th percentile per-packet one-way delay: 61.433 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 230.83 Mbit/s
95th percentile per-packet one-way delay: 63.644 ms
Loss rate: 0.02%
```

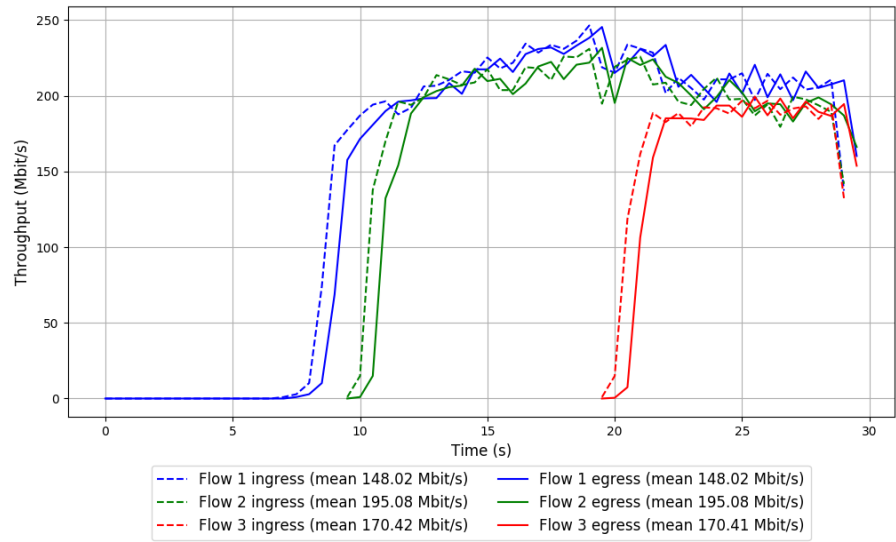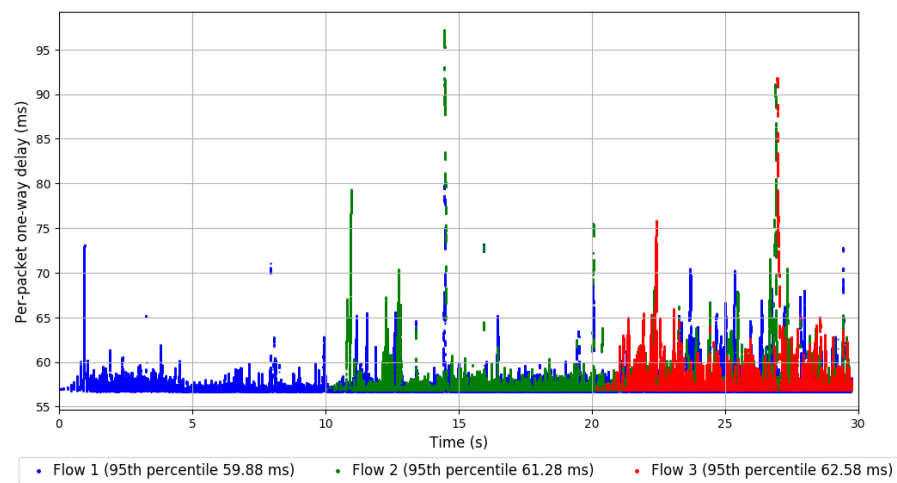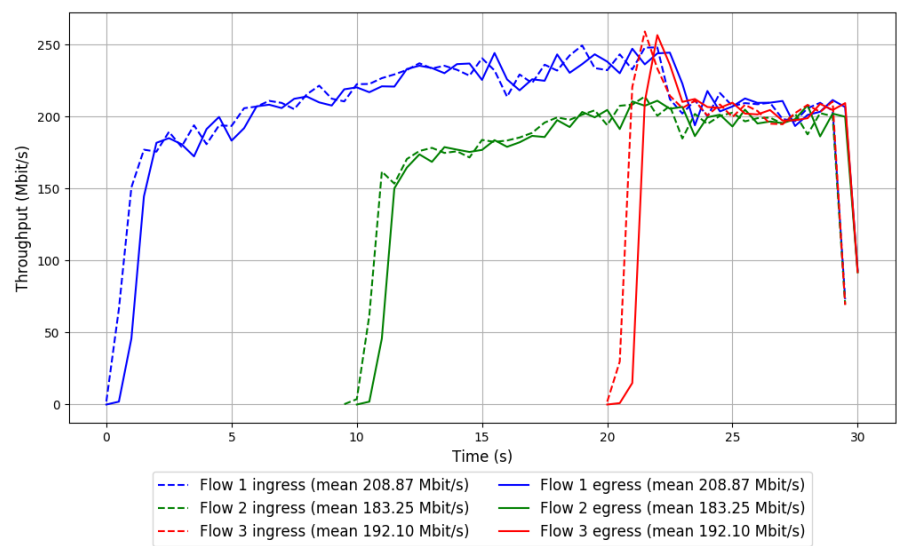Run 3: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 517.17 Mbit/s)   Flow 1 egress (mean 516.95 Mbit/s)
Flow 2 ingress (mean 315.15 Mbit/s)   Flow 2 egress (mean 315.14 Mbit/s)
Flow 3 ingress (mean 230.88 Mbit/s)   Flow 3 egress (mean 230.83 Mbit/s)

Flow 1 (95th percentile 77.62 ms)   Flow 2 (95th percentile 61.43 ms)   Flow 3 (95th percentile 63.64 ms)

```
Run 4: Statistics of FillP-Sheep

Start at: 2019-03-09 23:51:51
End at: 2019-03-09 23:52:21
Local clock offset: -0.684 ms
Remote clock offset: 0.004 ms


# Below is generated by plot.py at 2019-03-10 01:56:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 755.39 Mbit/s
95th percentile per-packet one-way delay: 72.518 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 496.81 Mbit/s
95th percentile per-packet one-way delay: 78.628 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 283.52 Mbit/s
95th percentile per-packet one-way delay: 60.168 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 212.91 Mbit/s
95th percentile per-packet one-way delay: 59.616 ms
Loss rate: 0.01%
```

Run 4: Report of FillP-Sheep — Data Link

```
Run 5: Statistics of FillP-Sheep

Start at: 2019-03-10 00:32:46
End at: 2019-03-10 00:33:16
Local clock offset: -0.189 ms
Remote clock offset: -0.078 ms


# Below is generated by plot.py at 2019-03-10 02:09:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 787.23 Mbit/s
95th percentile per-packet one-way delay: 72.771 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 506.18 Mbit/s
95th percentile per-packet one-way delay: 78.019 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 311.73 Mbit/s
95th percentile per-packet one-way delay: 61.268 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 223.20 Mbit/s
95th percentile per-packet one-way delay: 63.710 ms
Loss rate: 0.00%
```
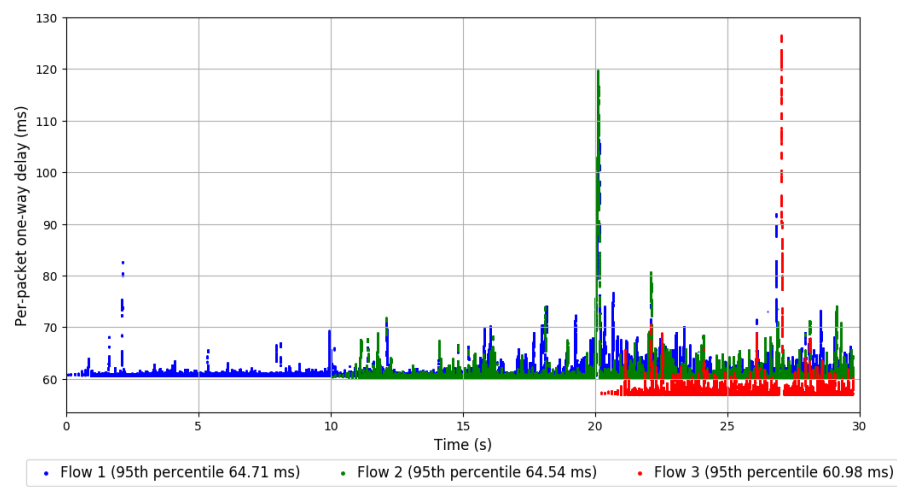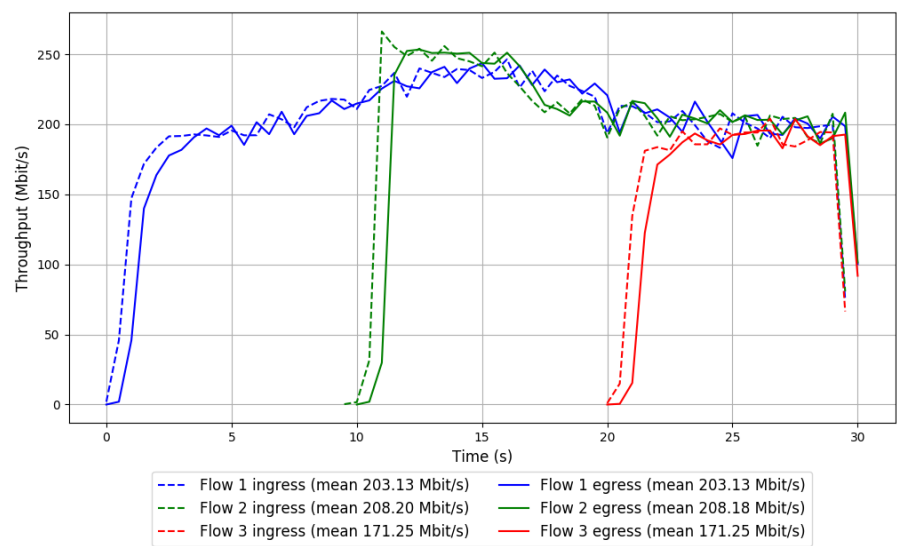
Run 5: Report of FillP-Sheep — Data Link
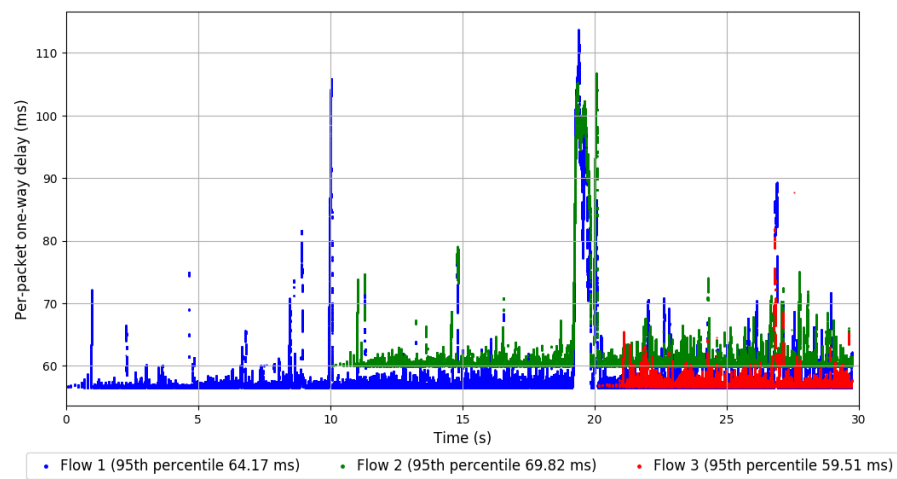

- - - - Flow 1 ingress (mean 506.19 Mbit/s)   —— Flow 1 egress (mean 506.18 Mbit/s)
- - - - Flow 2 ingress (mean 311.80 Mbit/s)   —— Flow 2 egress (mean 311.73 Mbit/s)
- - - - Flow 3 ingress (mean 223.21 Mbit/s)   —— Flow 3 egress (mean 223.20 Mbit/s)

- Flow 1 (95th percentile 78.02 ms)   • Flow 2 (95th percentile 61.27 ms)   • Flow 3 (95th percentile 63.71 ms)
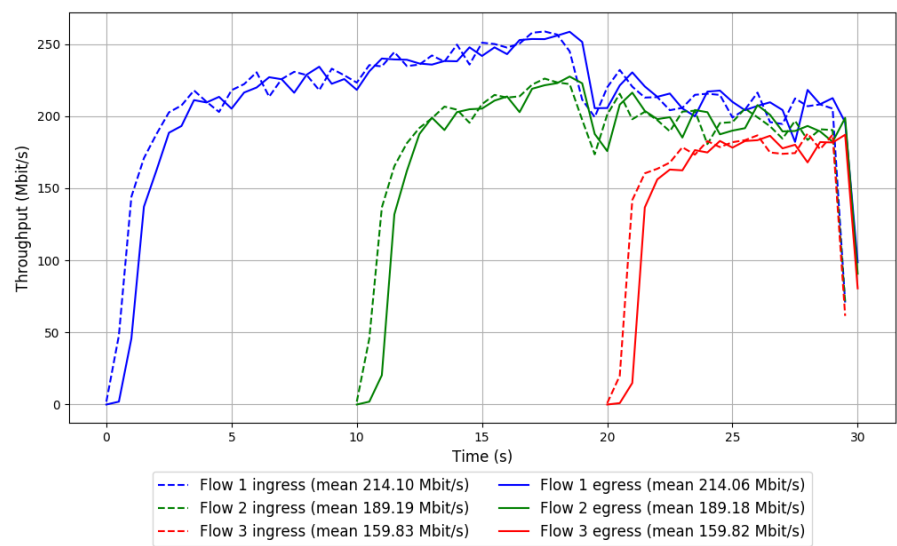
```
Run 1: Statistics of Indigo

Start at: 2019-03-09 21:25:26
End at: 2019-03-09 21:25:56
Local clock offset: -0.449 ms
Remote clock offset: -0.033 ms


# Below is generated by plot.py at 2019-03-10 02:09:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 334.59 Mbit/s
95th percentile per-packet one-way delay: 63.542 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 148.02 Mbit/s
95th percentile per-packet one-way delay: 64.454 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 195.08 Mbit/s
95th percentile per-packet one-way delay: 62.115 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 170.41 Mbit/s
95th percentile per-packet one-way delay: 60.459 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2019-03-09 22:06:51
End at: 2019-03-09 22:07:21
Local clock offset: -0.399 ms
Remote clock offset: -0.142 ms


# Below is generated by plot.py at 2019-03-10 02:09:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 392.42 Mbit/s
95th percentile per-packet one-way delay: 61.049 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 208.87 Mbit/s
95th percentile per-packet one-way delay: 59.876 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 183.25 Mbit/s
95th percentile per-packet one-way delay: 61.282 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 192.10 Mbit/s
95th percentile per-packet one-way delay: 62.580 ms
Loss rate: 0.00%
```
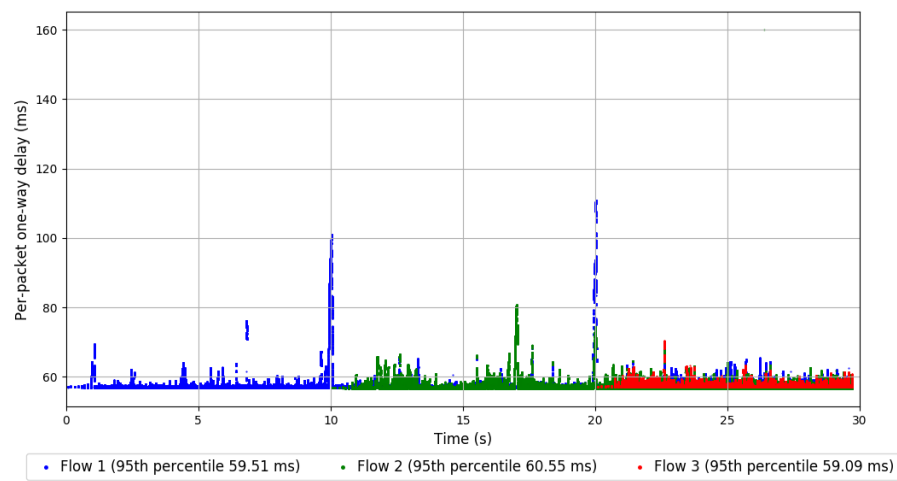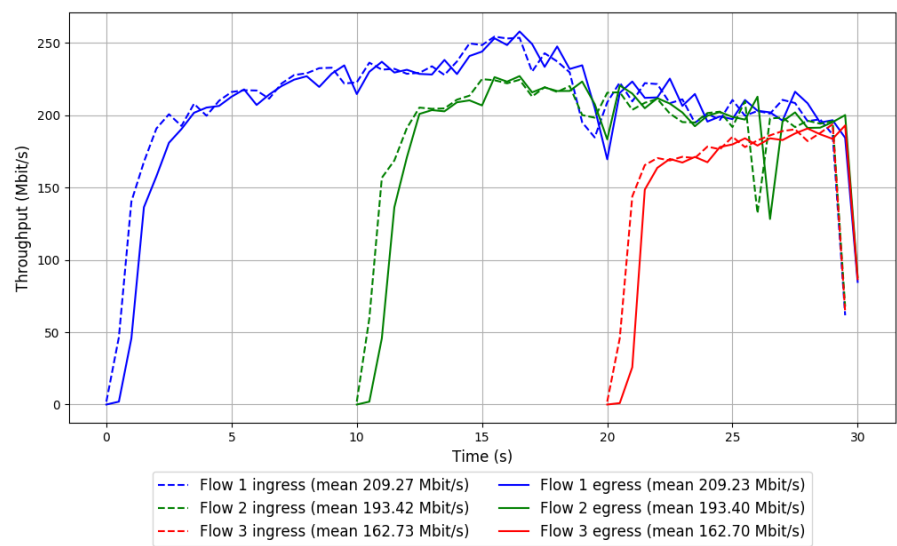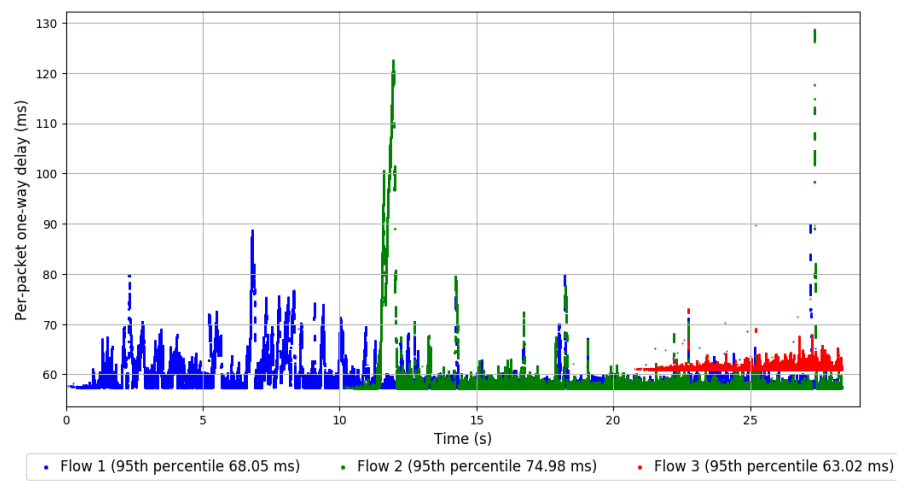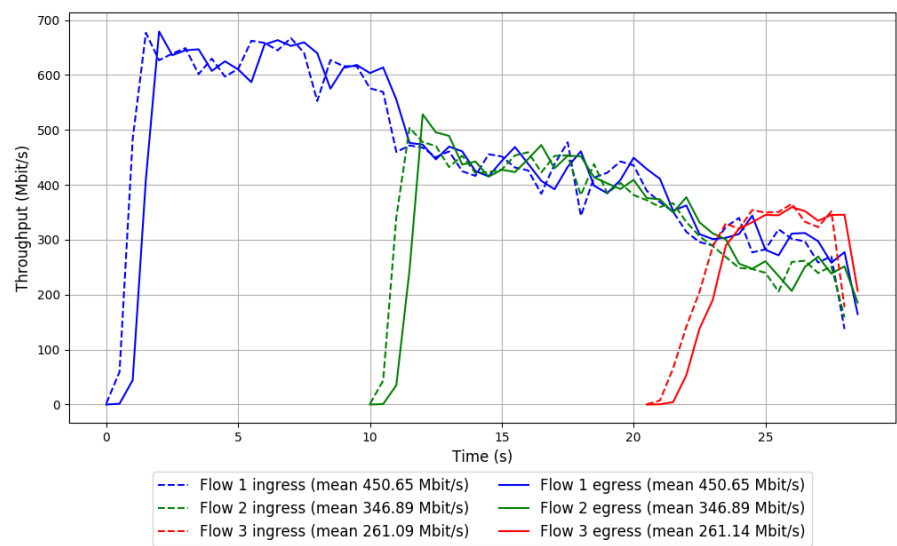
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2019-03-09 22:48:01
End at: 2019-03-09 22:48:31
Local clock offset: -0.349 ms
Remote clock offset: 0.061 ms


# Below is generated by plot.py at 2019-03-10 02:09:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 396.08 Mbit/s
95th percentile per-packet one-way delay: 64.408 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 203.13 Mbit/s
95th percentile per-packet one-way delay: 64.709 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 208.18 Mbit/s
95th percentile per-packet one-way delay: 64.542 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 171.25 Mbit/s
95th percentile per-packet one-way delay: 60.985 ms
Loss rate: 0.00%
```

Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2019-03-09 23:29:11
End at: 2019-03-09 23:29:41
Local clock offset: -0.41 ms
Remote clock offset: -0.182 ms


# Below is generated by plot.py at 2019-03-10 02:09:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 390.73 Mbit/s
95th percentile per-packet one-way delay: 65.192 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 214.06 Mbit/s
95th percentile per-packet one-way delay: 64.165 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 189.18 Mbit/s
95th percentile per-packet one-way delay: 69.816 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 159.82 Mbit/s
95th percentile per-packet one-way delay: 59.505 ms
Loss rate: 0.00%
```
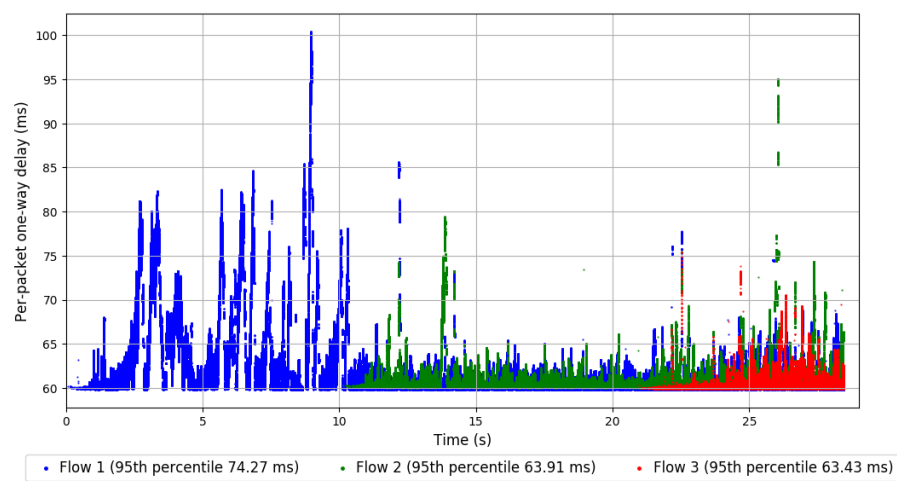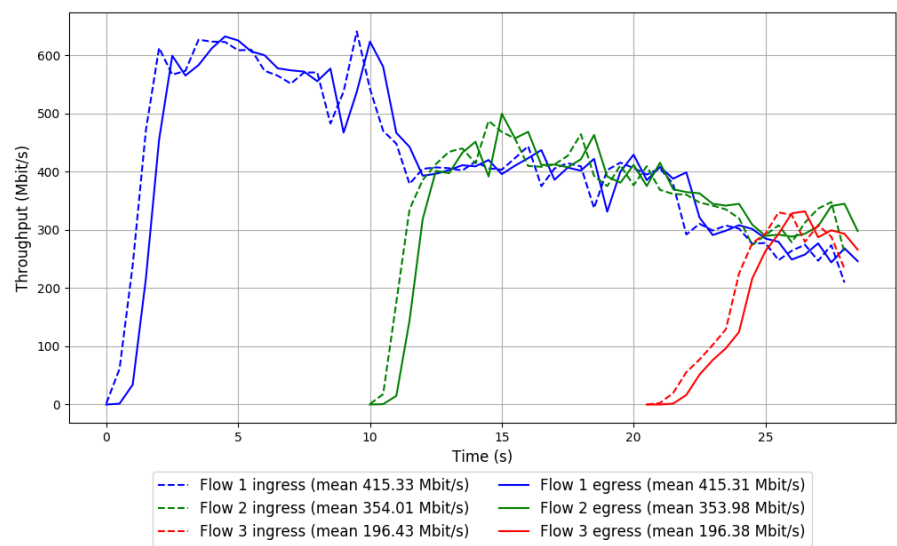
Run 4: Report of Indigo — Data Link

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```
Run 5: Statistics of Indigo

Start at: 2019-03-10 00:09:48
End at: 2019-03-10 00:10:18
Local clock offset: -0.345 ms
Remote clock offset: 0.175 ms

# Below is generated by plot.py at 2019-03-10 02:09:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 390.16 Mbit/s
95th percentile per-packet one-way delay: 59.868 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 209.23 Mbit/s
95th percentile per-packet one-way delay: 59.510 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 193.40 Mbit/s
95th percentile per-packet one-way delay: 60.555 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 162.70 Mbit/s
95th percentile per-packet one-way delay: 59.089 ms
Loss rate: 0.01%
```
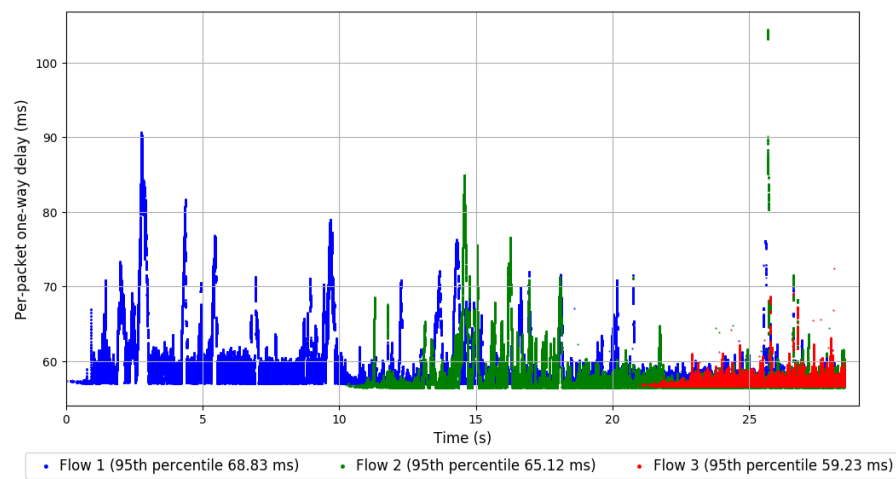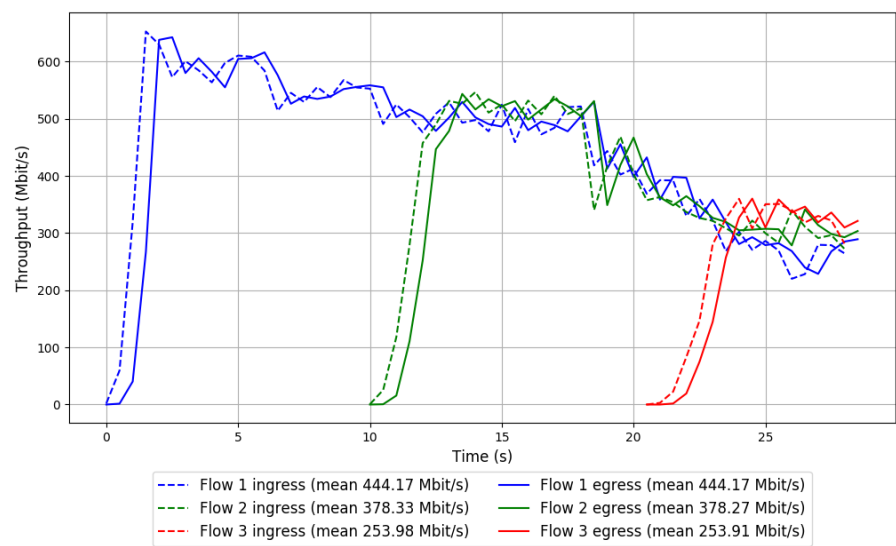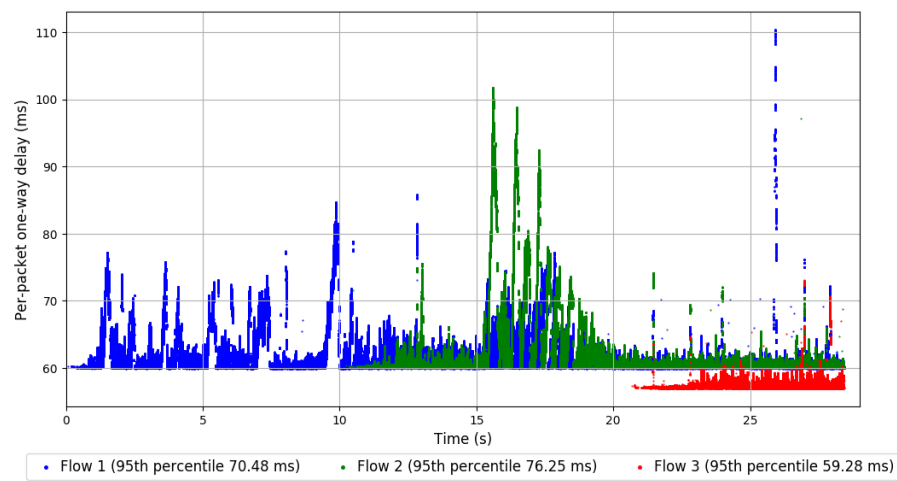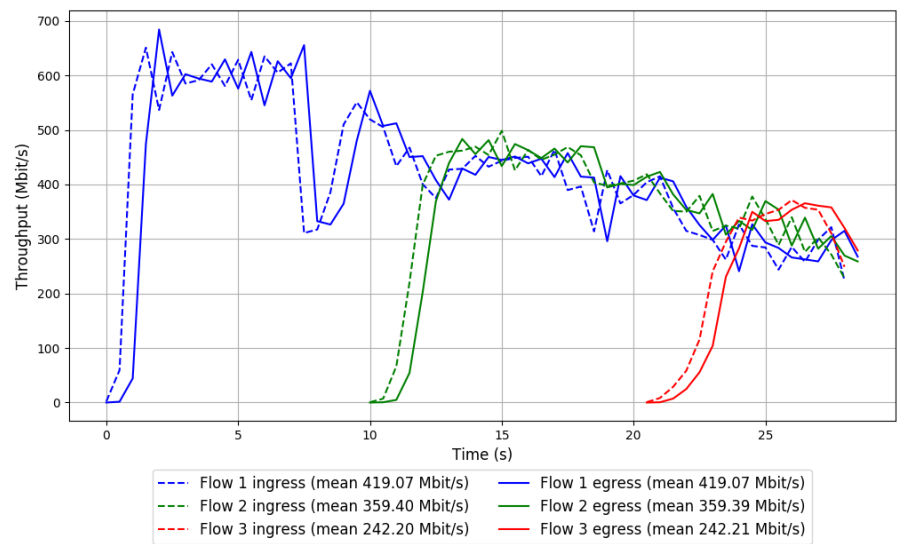
Run 5: Report of Indigo — Data Link

```
Run 1: Statistics of Indigo-MusesC3

Start at: 2019-03-09 21:33:39
End at: 2019-03-09 21:34:09
Local clock offset: -0.712 ms
Remote clock offset: -0.006 ms

# Below is generated by plot.py at 2019-03-10 02:09:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 743.91 Mbit/s
95th percentile per-packet one-way delay: 68.133 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 450.65 Mbit/s
95th percentile per-packet one-way delay: 68.046 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 346.89 Mbit/s
95th percentile per-packet one-way delay: 74.979 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 261.14 Mbit/s
95th percentile per-packet one-way delay: 63.017 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo-MusesC3 — Data Link

```
Run 2: Statistics of Indigo-MusesC3

Start at: 2019-03-09 22:14:46
End at: 2019-03-09 22:15:16
Local clock offset: -0.247 ms
Remote clock offset: -0.482 ms


# Below is generated by plot.py at 2019-03-10 02:10:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 695.36 Mbit/s
95th percentile per-packet one-way delay: 71.382 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 415.31 Mbit/s
95th percentile per-packet one-way delay: 74.265 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 353.98 Mbit/s
95th percentile per-packet one-way delay: 63.910 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 196.38 Mbit/s
95th percentile per-packet one-way delay: 63.428 ms
Loss rate: 0.02%
```

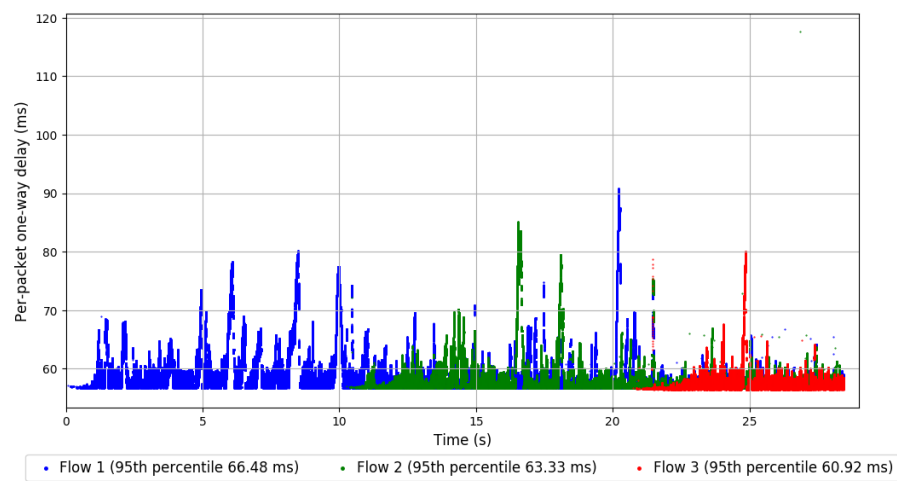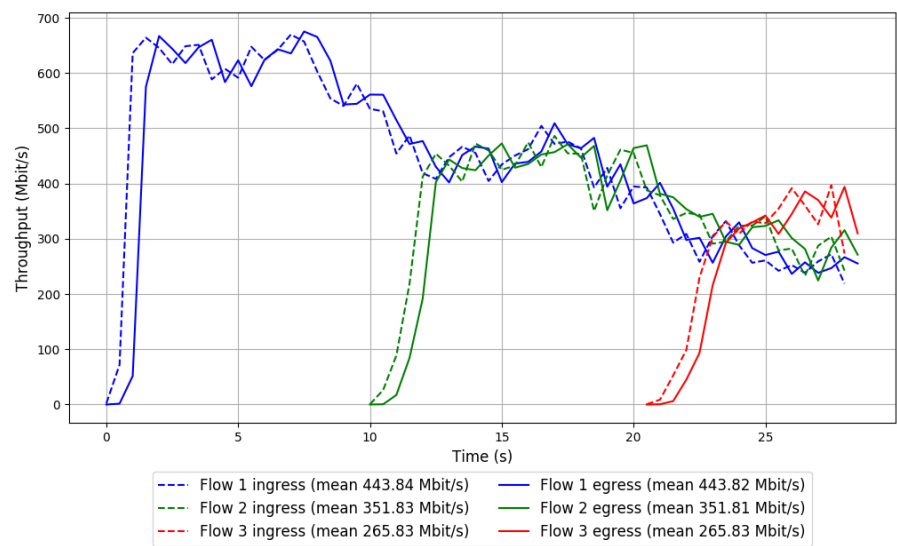Run 2: Report of Indigo-MusesC3 — Data Link

```
Run 3: Statistics of Indigo-MusesC3

Start at: 2019-03-09 22:55:57
End at: 2019-03-09 22:56:27
Local clock offset: -0.312 ms
Remote clock offset: -0.195 ms


# Below is generated by plot.py at 2019-03-10 02:16:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 754.34 Mbit/s
95th percentile per-packet one-way delay: 67.197 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 444.17 Mbit/s
95th percentile per-packet one-way delay: 68.832 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 378.27 Mbit/s
95th percentile per-packet one-way delay: 65.121 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 253.91 Mbit/s
95th percentile per-packet one-way delay: 59.231 ms
Loss rate: 0.03%
```

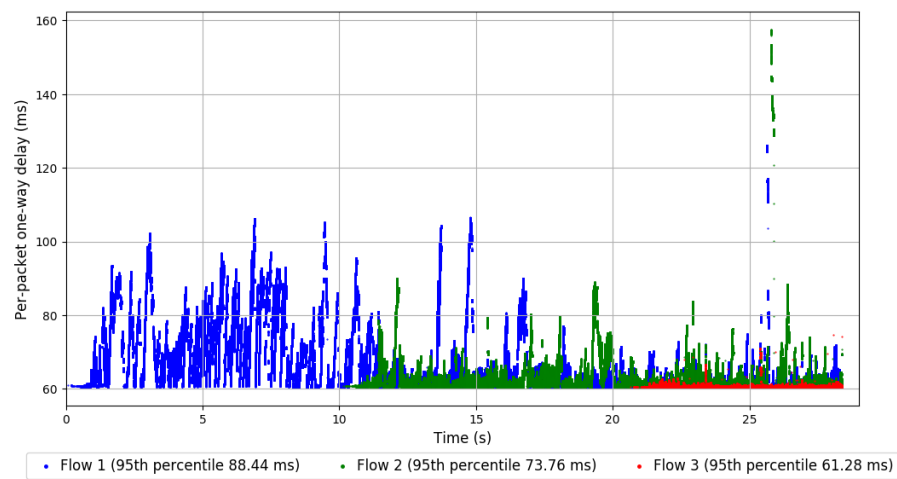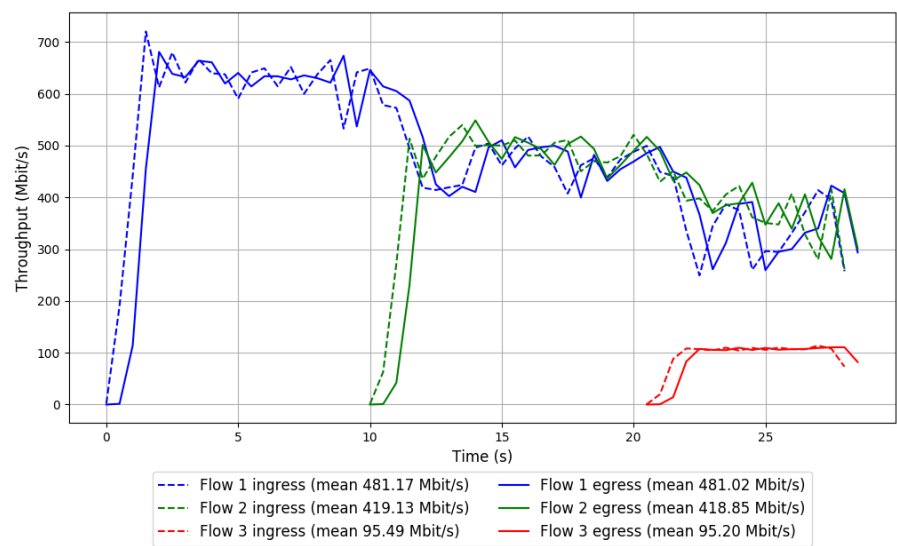Run 3: Report of Indigo-MusesC3 — Data Link

Flow 1 ingress (mean 444.17 Mbit/s) --- Flow 1 egress (mean 444.17 Mbit/s)
Flow 2 ingress (mean 378.33 Mbit/s) --- Flow 2 egress (mean 378.27 Mbit/s)
Flow 3 ingress (mean 253.98 Mbit/s) --- Flow 3 egress (mean 253.91 Mbit/s)

Flow 1 (95th percentile 68.83 ms) • Flow 2 (95th percentile 65.12 ms) • Flow 3 (95th percentile 59.23 ms)
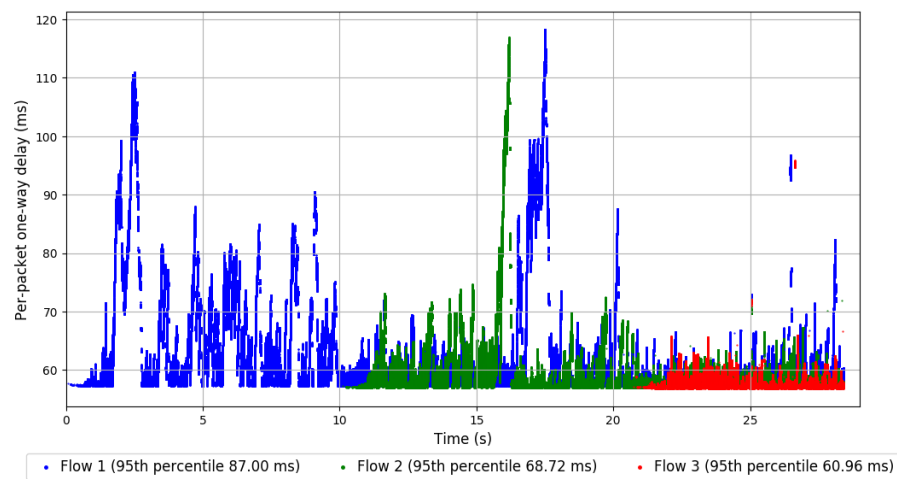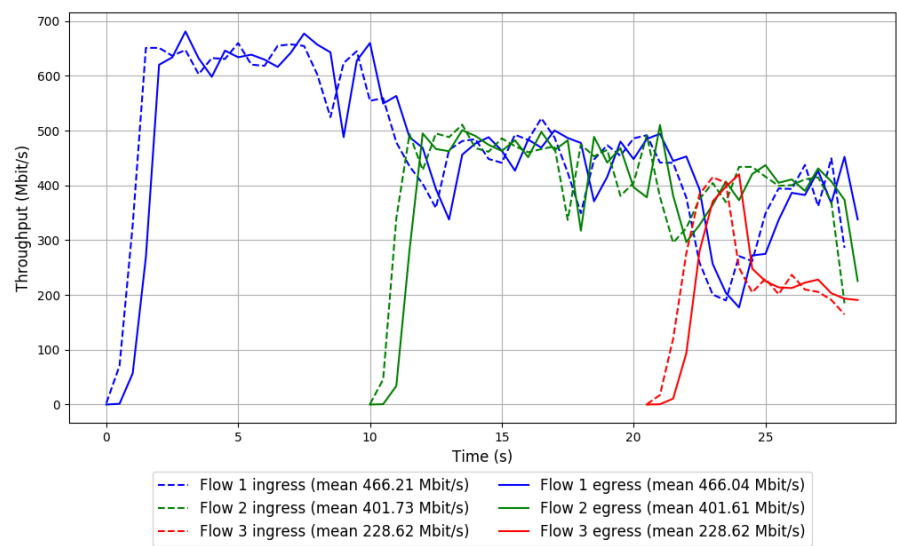
```
Run 4: Statistics of Indigo-MusesC3

Start at: 2019-03-09 23:37:45
End at: 2019-03-09 23:38:15
Local clock offset: -0.731 ms
Remote clock offset: -0.349 ms


# Below is generated by plot.py at 2019-03-10 02:18:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 715.79 Mbit/s
95th percentile per-packet one-way delay: 71.355 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 419.07 Mbit/s
95th percentile per-packet one-way delay: 70.478 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 359.39 Mbit/s
95th percentile per-packet one-way delay: 76.246 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 242.21 Mbit/s
95th percentile per-packet one-way delay: 59.276 ms
Loss rate: 0.00%
```

Run 4: Report of Indigo-MusesC3 — Data Link

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```
Run 5: Statistics of Indigo-MusesC3

Start at: 2019-03-10 00:18:43
End at: 2019-03-10 00:19:13
Local clock offset: -1.039 ms
Remote clock offset: -0.529 ms


# Below is generated by plot.py at 2019-03-10 02:20:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 741.32 Mbit/s
95th percentile per-packet one-way delay: 65.492 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 443.82 Mbit/s
95th percentile per-packet one-way delay: 66.477 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 351.81 Mbit/s
95th percentile per-packet one-way delay: 63.327 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 265.83 Mbit/s
95th percentile per-packet one-way delay: 60.917 ms
Loss rate: 0.00%
```

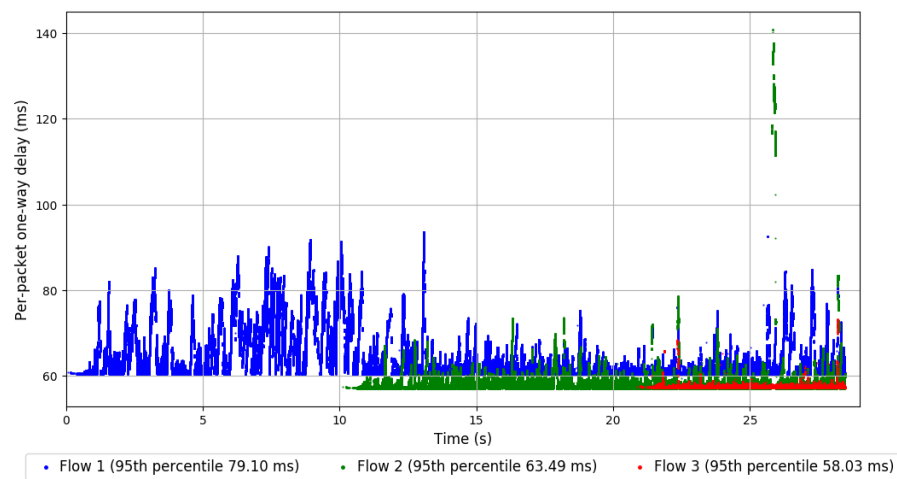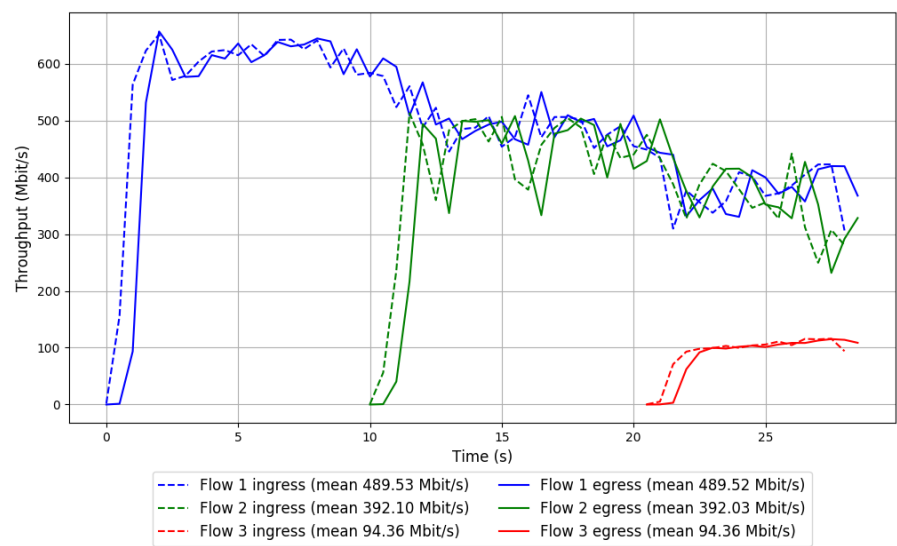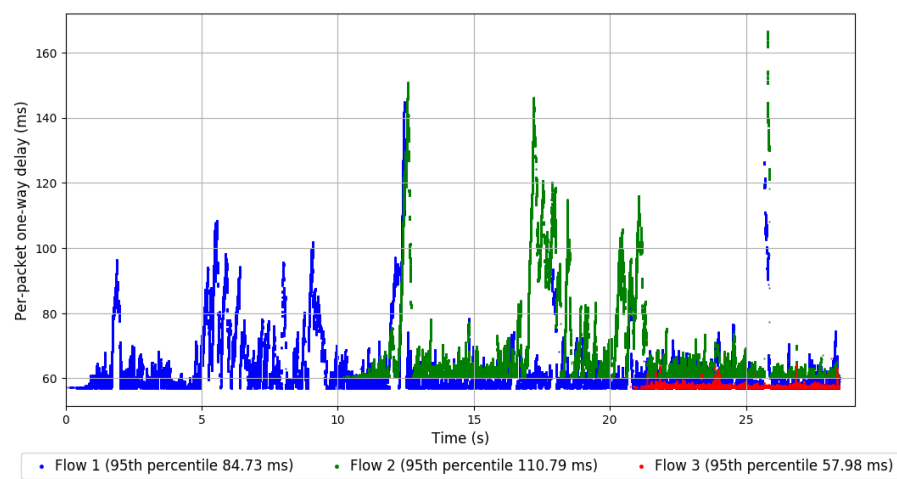Run 5: Report of Indigo-MusesC3 — Data Link

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```
Run 1: Statistics of Indigo-MusesC5

Start at: 2019-03-09 21:41:19
End at: 2019-03-09 21:41:49
Local clock offset: -0.604 ms
Remote clock offset: -0.013 ms


# Below is generated by plot.py at 2019-03-10 02:21:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 776.98 Mbit/s
95th percentile per-packet one-way delay: 86.019 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 481.02 Mbit/s
95th percentile per-packet one-way delay: 88.443 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 418.85 Mbit/s
95th percentile per-packet one-way delay: 73.759 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 95.20 Mbit/s
95th percentile per-packet one-way delay: 61.283 ms
Loss rate: 0.20%
```

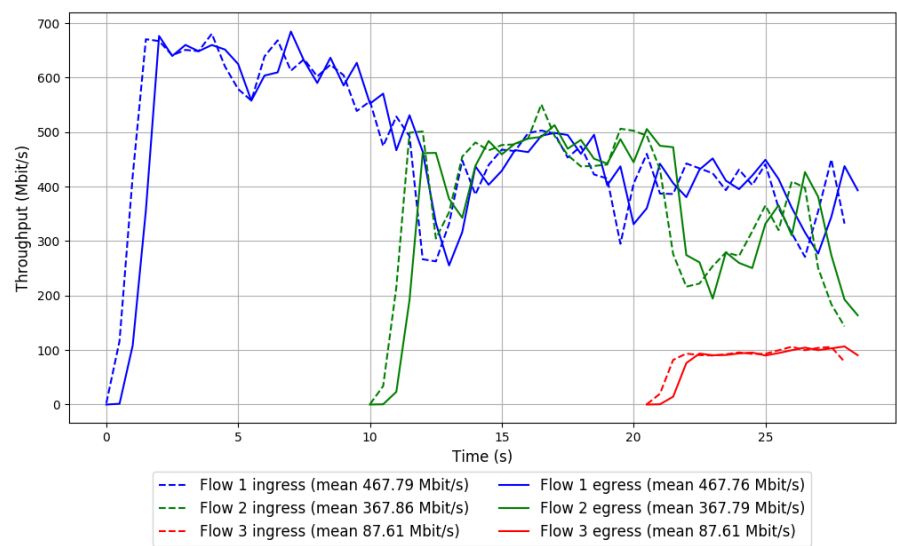Run 1: Report of Indigo-MusesC5 — Data Link

```
Run 2: Statistics of Indigo-MusesC5

Start at: 2019-03-09 22:22:09
End at: 2019-03-09 22:22:39
Local clock offset: -0.653 ms
Remote clock offset: -0.348 ms


# Below is generated by plot.py at 2019-03-10 02:22:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 787.02 Mbit/s
95th percentile per-packet one-way delay: 81.529 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 466.04 Mbit/s
95th percentile per-packet one-way delay: 86.998 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 401.61 Mbit/s
95th percentile per-packet one-way delay: 68.718 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 228.62 Mbit/s
95th percentile per-packet one-way delay: 60.959 ms
Loss rate: 0.00%
```

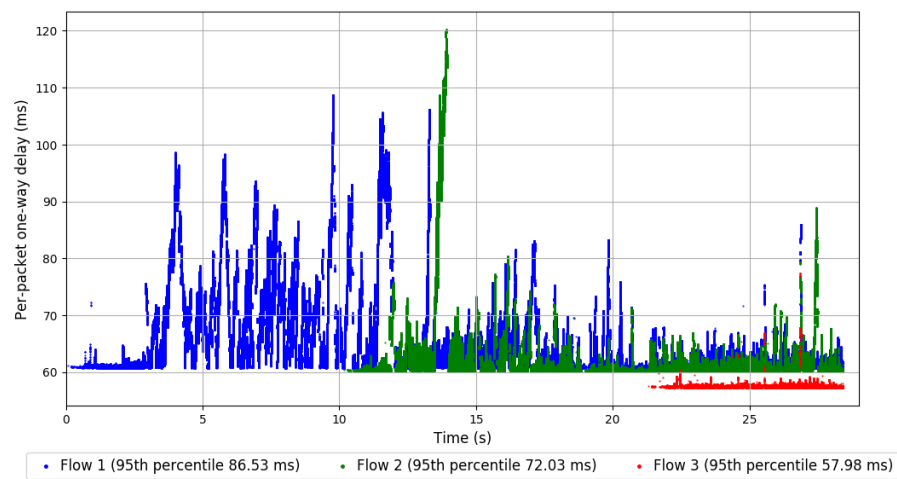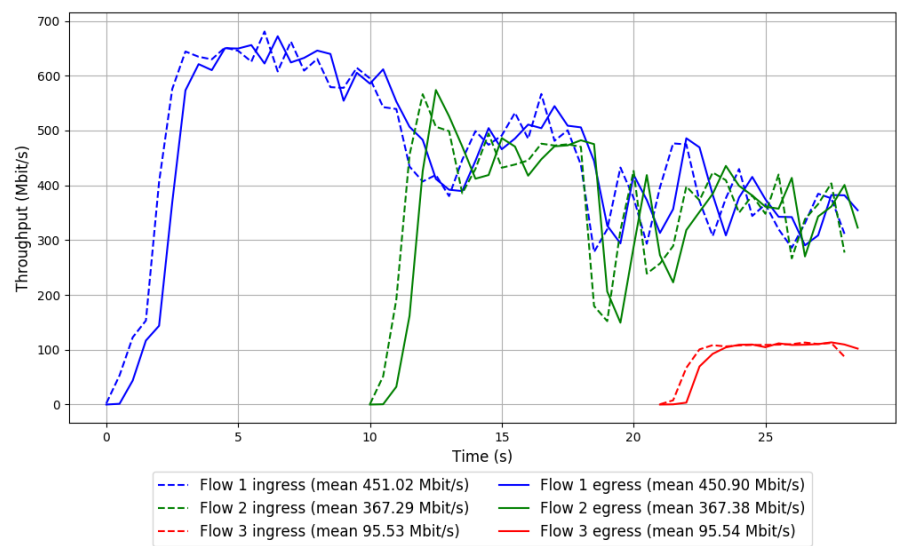Run 2: Report of Indigo-MusesC5 — Data Link

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```
Run 3: Statistics of Indigo-MusesC5

Start at: 2019-03-09 23:03:16
End at: 2019-03-09 23:03:46
Local clock offset: -0.813 ms
Remote clock offset: -0.076 ms


# Below is generated by plot.py at 2019-03-10 02:23:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 767.91 Mbit/s
95th percentile per-packet one-way delay: 77.205 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 489.52 Mbit/s
95th percentile per-packet one-way delay: 79.099 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 392.03 Mbit/s
95th percentile per-packet one-way delay: 63.487 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 94.36 Mbit/s
95th percentile per-packet one-way delay: 58.028 ms
Loss rate: 0.00%
```

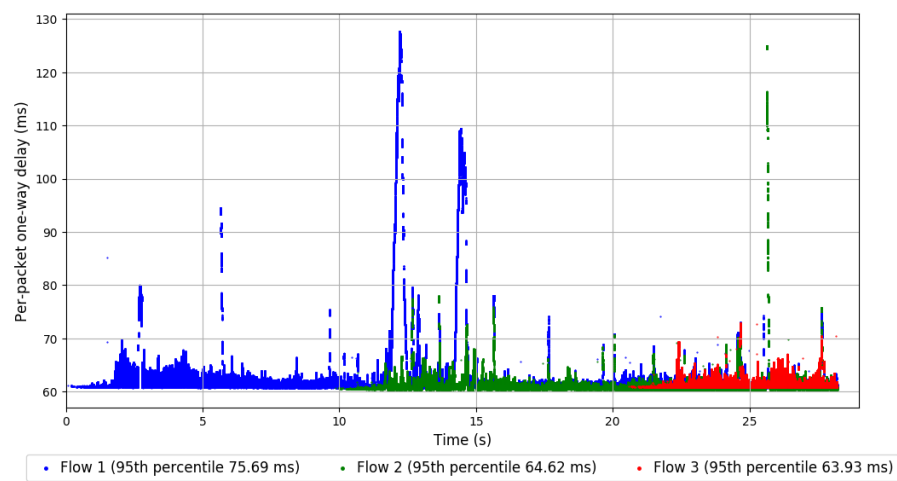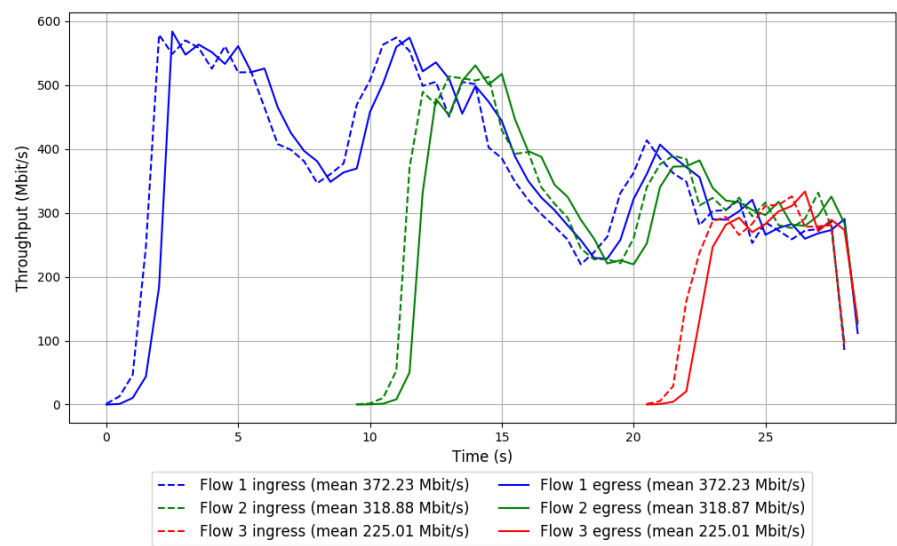Run 3: Report of Indigo-MusesC5 — Data Link

```
Run 4: Statistics of Indigo-MusesC5

Start at: 2019-03-09 23:45:17
End at: 2019-03-09 23:45:47
Local clock offset: -1.058 ms
Remote clock offset: -0.249 ms


# Below is generated by plot.py at 2019-03-10 02:23:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 727.73 Mbit/s
95th percentile per-packet one-way delay: 94.480 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 467.76 Mbit/s
95th percentile per-packet one-way delay: 84.732 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 367.79 Mbit/s
95th percentile per-packet one-way delay: 110.790 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 87.61 Mbit/s
95th percentile per-packet one-way delay: 57.975 ms
Loss rate: 0.00%
```

Run 4: Report of Indigo-MusesC5 — Data Link

```
Run 5: Statistics of Indigo-MusesC5

Start at: 2019-03-10 00:25:52
End at: 2019-03-10 00:26:22
Local clock offset: -0.63 ms
Remote clock offset: -0.123 ms


# Below is generated by plot.py at 2019-03-10 02:23:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 711.06 Mbit/s
95th percentile per-packet one-way delay: 84.054 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 450.90 Mbit/s
95th percentile per-packet one-way delay: 86.527 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 367.38 Mbit/s
95th percentile per-packet one-way delay: 72.027 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 95.54 Mbit/s
95th percentile per-packet one-way delay: 57.983 ms
Loss rate: 0.00%
```
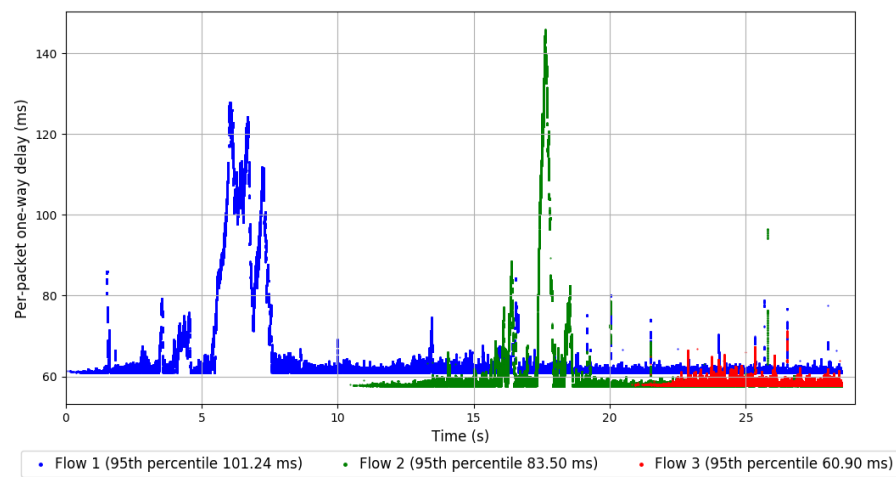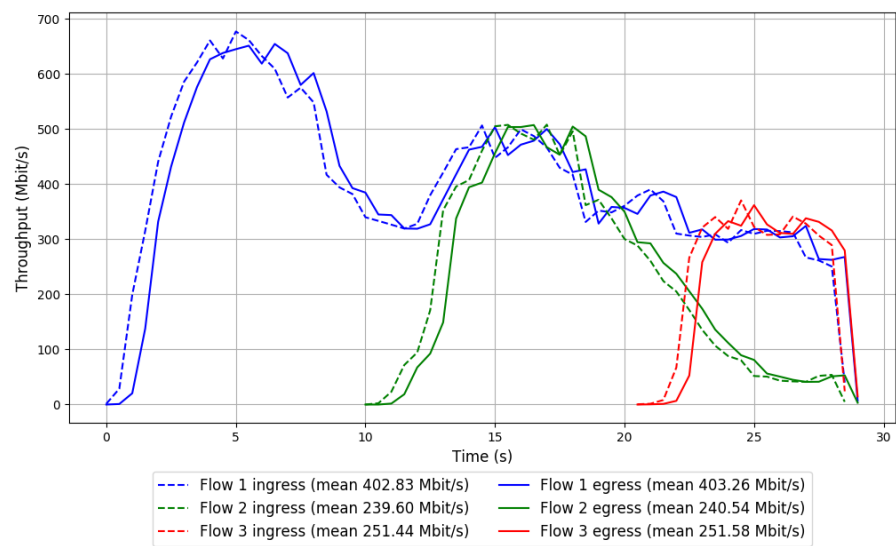
Run 5: Report of Indigo-MusesC5 — Data Link

```
Run 1: Statistics of Indigo-MusesD

Start at: 2019-03-09 21:31:31
End at: 2019-03-09 21:32:01
Local clock offset: -0.677 ms
Remote clock offset: -0.115 ms


# Below is generated by plot.py at 2019-03-10 02:28:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 641.06 Mbit/s
95th percentile per-packet one-way delay: 67.746 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 372.23 Mbit/s
95th percentile per-packet one-way delay: 75.691 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 318.87 Mbit/s
95th percentile per-packet one-way delay: 64.623 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 225.01 Mbit/s
95th percentile per-packet one-way delay: 63.927 ms
Loss rate: 0.00%
```
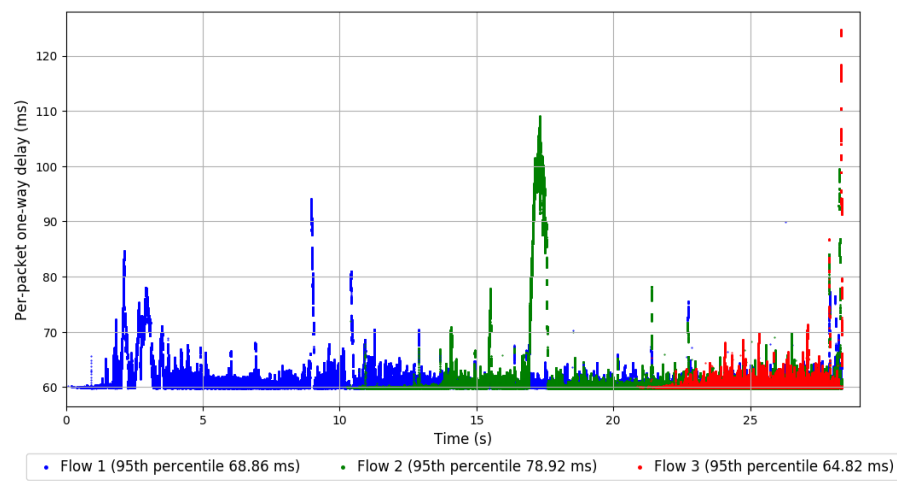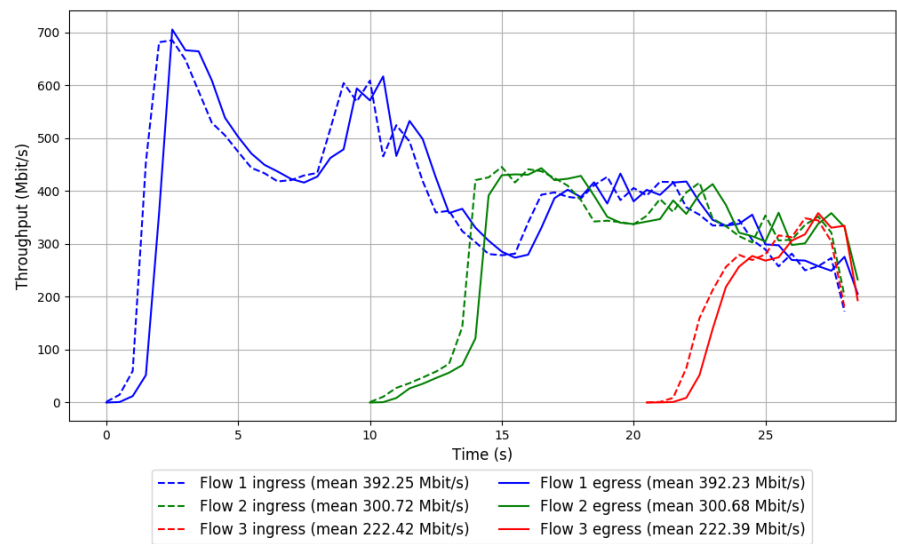
Run 1: Report of Indigo-MusesD — Data Link

```
Run 2: Statistics of Indigo-MusesD

Start at: 2019-03-09 22:12:48
End at: 2019-03-09 22:13:18
Local clock offset: -0.462 ms
Remote clock offset: 0.571 ms


# Below is generated by plot.py at 2019-03-10 02:30:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 623.98 Mbit/s
95th percentile per-packet one-way delay: 95.307 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 403.26 Mbit/s
95th percentile per-packet one-way delay: 101.243 ms
Loss rate: 0.23%
-- Flow 2:
Average throughput: 240.54 Mbit/s
95th percentile per-packet one-way delay: 83.496 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 251.58 Mbit/s
95th percentile per-packet one-way delay: 60.897 ms
Loss rate: 1.21%
```
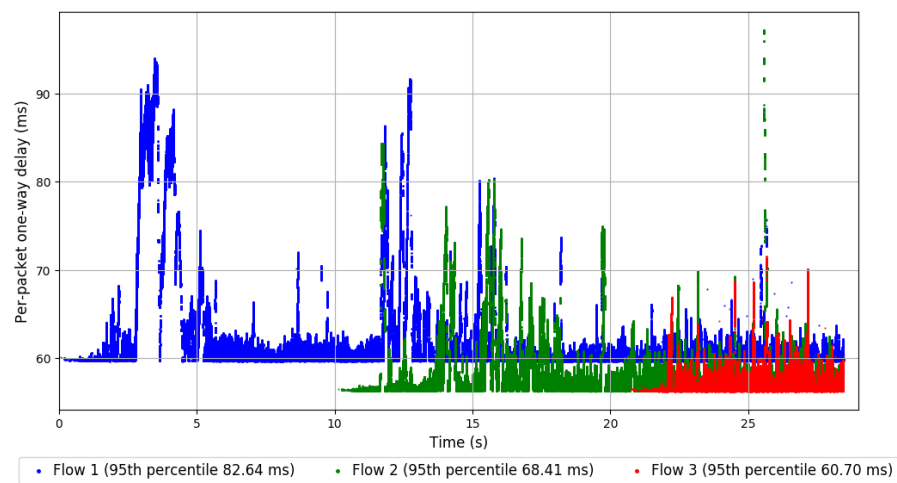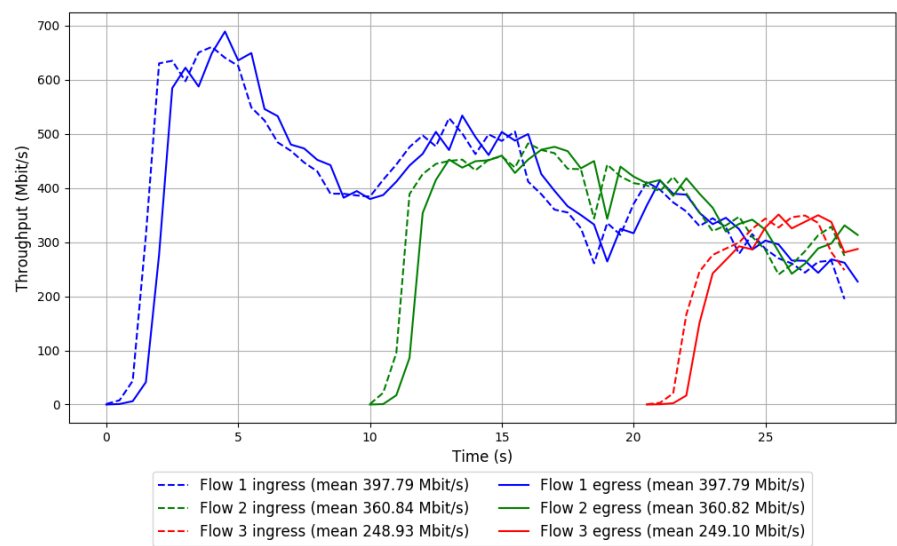
Run 2: Report of Indigo-MusesD — Data Link

```
Run 3: Statistics of Indigo-MusesD

Start at: 2019-03-09 22:53:51
End at: 2019-03-09 22:54:21
Local clock offset: -0.129 ms
Remote clock offset: -0.222 ms


# Below is generated by plot.py at 2019-03-10 02:31:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 644.77 Mbit/s
95th percentile per-packet one-way delay: 69.517 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 392.23 Mbit/s
95th percentile per-packet one-way delay: 68.856 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 300.68 Mbit/s
95th percentile per-packet one-way delay: 78.915 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 222.39 Mbit/s
95th percentile per-packet one-way delay: 64.817 ms
Loss rate: 0.04%
```
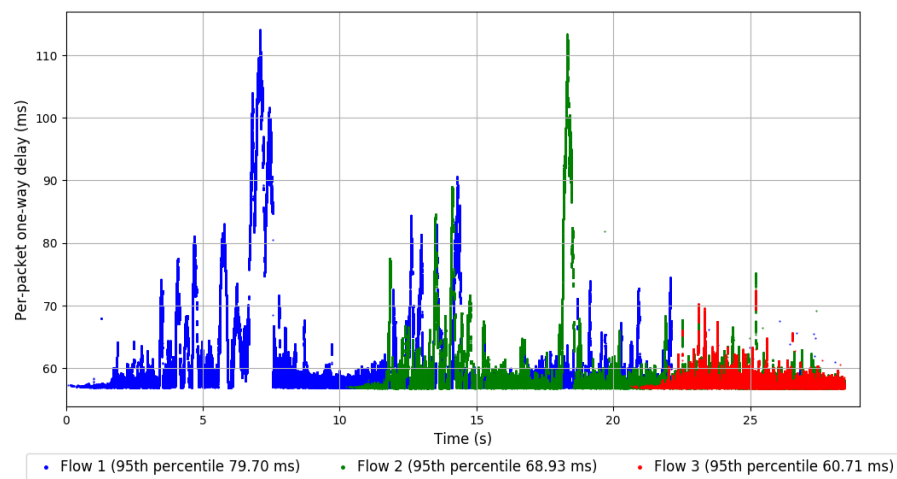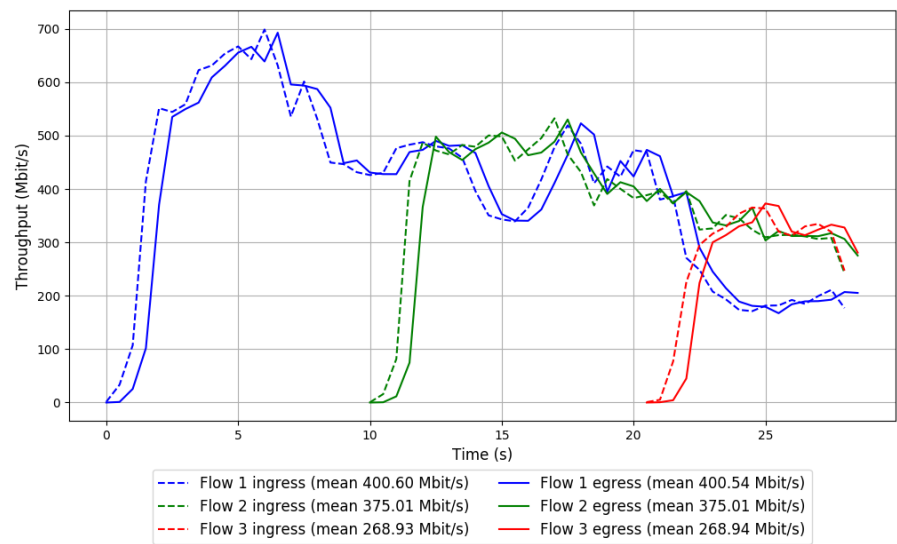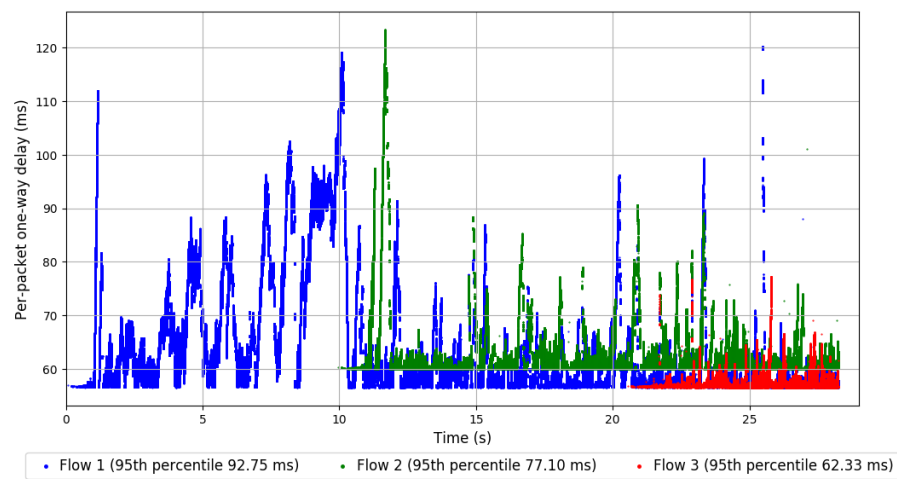
Run 3: Report of Indigo-MusesD — Data Link

- - - Flow 1 ingress (mean 392.25 Mbit/s)   —— Flow 1 egress (mean 392.23 Mbit/s)
- - - Flow 2 ingress (mean 300.72 Mbit/s)   —— Flow 2 egress (mean 300.68 Mbit/s)
- - - Flow 3 ingress (mean 222.42 Mbit/s)   —— Flow 3 egress (mean 222.39 Mbit/s)

• Flow 1 (95th percentile 68.86 ms)   • Flow 2 (95th percentile 78.92 ms)   • Flow 3 (95th percentile 64.82 ms)

```
Run 4: Statistics of Indigo-MusesD

Start at: 2019-03-09 23:35:44
End at: 2019-03-09 23:36:14
Local clock offset: -0.242 ms
Remote clock offset: -0.18 ms


# Below is generated by plot.py at 2019-03-10 02:34:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 698.48 Mbit/s
95th percentile per-packet one-way delay: 75.972 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 397.79 Mbit/s
95th percentile per-packet one-way delay: 82.642 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 360.82 Mbit/s
95th percentile per-packet one-way delay: 68.411 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 249.10 Mbit/s
95th percentile per-packet one-way delay: 60.699 ms
Loss rate: 0.00%
```

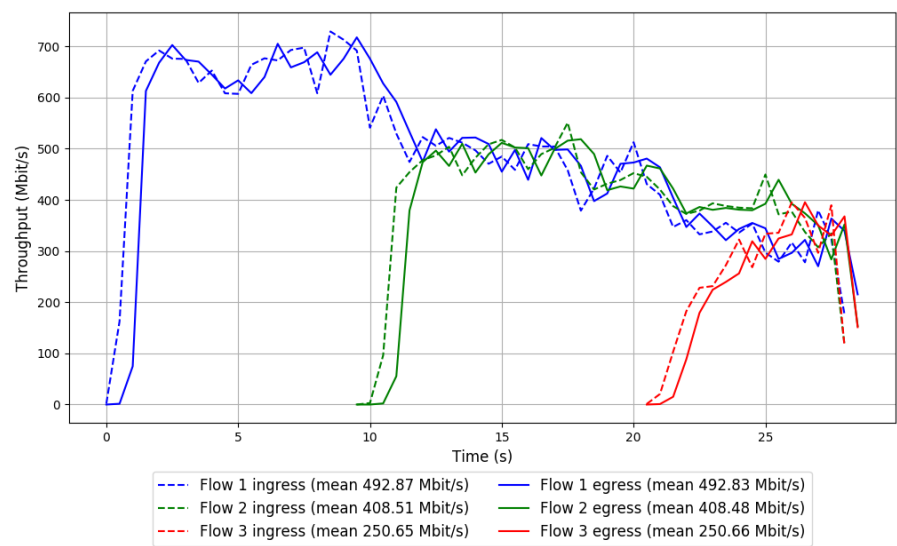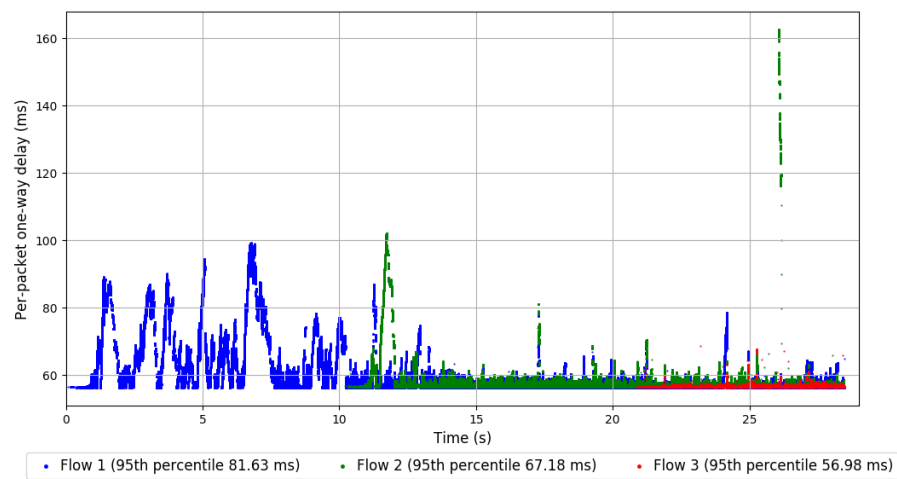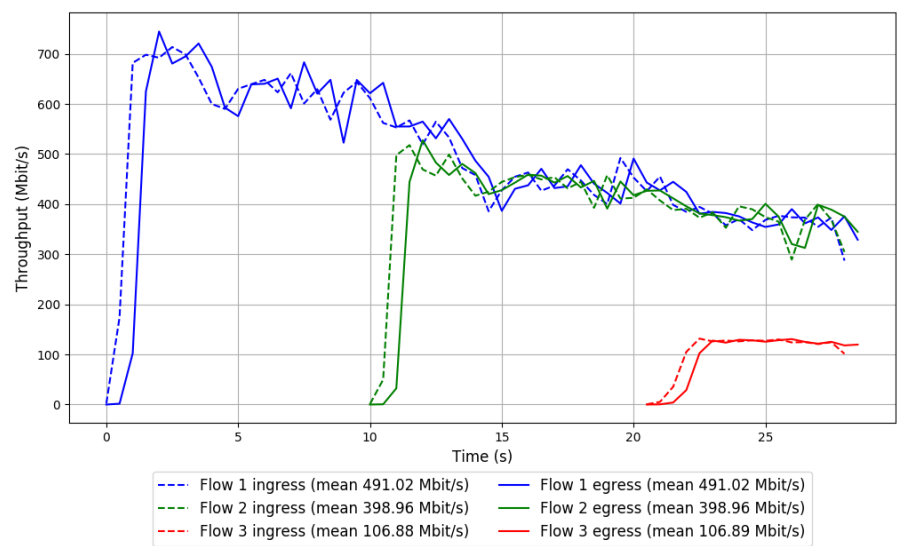Run 4: Report of Indigo-MusesD — Data Link

```
Run 5: Statistics of Indigo-MusesD

Start at: 2019-03-10 00:16:31
End at: 2019-03-10 00:17:01
Local clock offset: -0.78 ms
Remote clock offset: 0.075 ms


# Below is generated by plot.py at 2019-03-10 02:35:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 714.79 Mbit/s
95th percentile per-packet one-way delay: 76.346 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 400.54 Mbit/s
95th percentile per-packet one-way delay: 79.696 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 375.01 Mbit/s
95th percentile per-packet one-way delay: 68.933 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 268.94 Mbit/s
95th percentile per-packet one-way delay: 60.714 ms
Loss rate: 0.00%
```
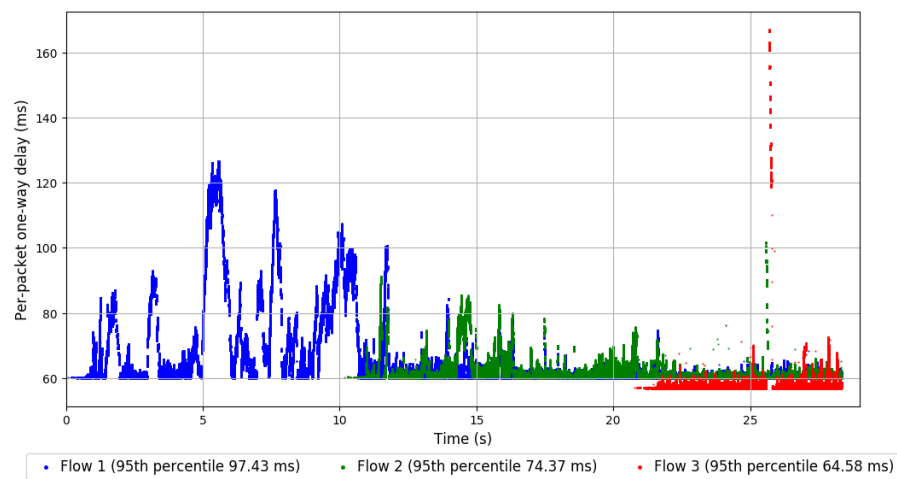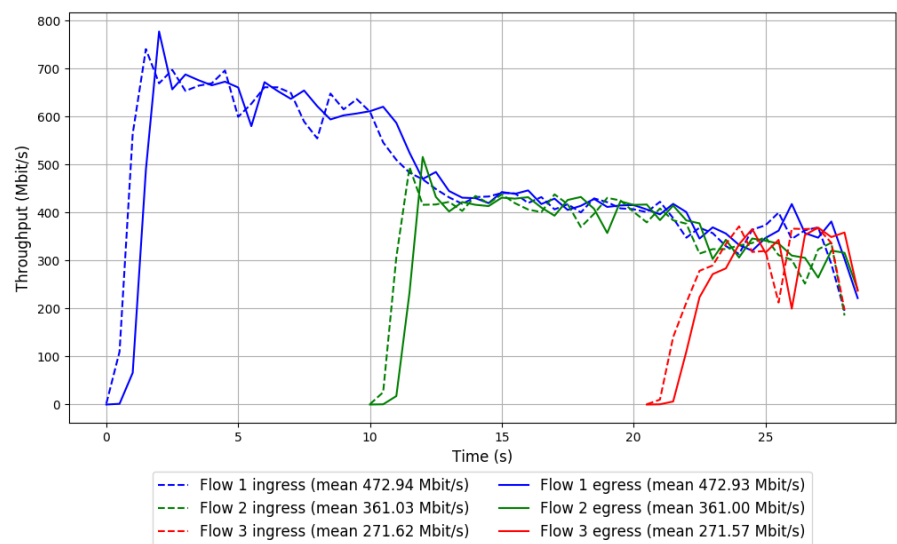
Run 5: Report of Indigo-MusesD — Data Link

```
Run 1: Statistics of Indigo-MusesT

Start at: 2019-03-09 21:27:31
End at: 2019-03-09 21:28:01
Local clock offset: -0.668 ms
Remote clock offset: -0.892 ms


# Below is generated by plot.py at 2019-03-10 02:38:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 826.34 Mbit/s
95th percentile per-packet one-way delay: 90.090 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 492.83 Mbit/s
95th percentile per-packet one-way delay: 92.755 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 408.48 Mbit/s
95th percentile per-packet one-way delay: 77.096 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 250.66 Mbit/s
95th percentile per-packet one-way delay: 62.330 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo-MusesT — Data Link

```
Run 2: Statistics of Indigo-MusesT

Start at: 2019-03-09 22:08:53
End at: 2019-03-09 22:09:23
Local clock offset: 0.017 ms
Remote clock offset: -0.226 ms


# Below is generated by plot.py at 2019-03-10 02:38:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 776.25 Mbit/s
95th percentile per-packet one-way delay: 80.190 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 491.02 Mbit/s
95th percentile per-packet one-way delay: 81.630 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 398.96 Mbit/s
95th percentile per-packet one-way delay: 67.176 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 106.89 Mbit/s
95th percentile per-packet one-way delay: 56.982 ms
Loss rate: 0.00%
```

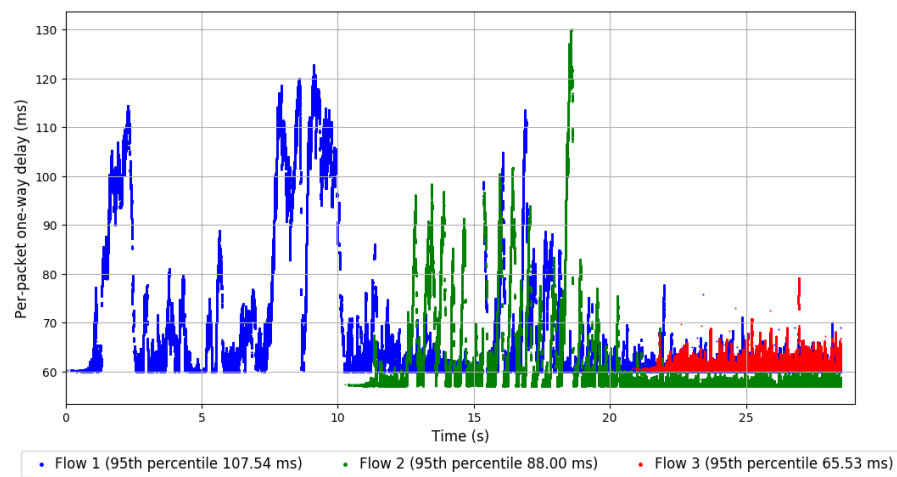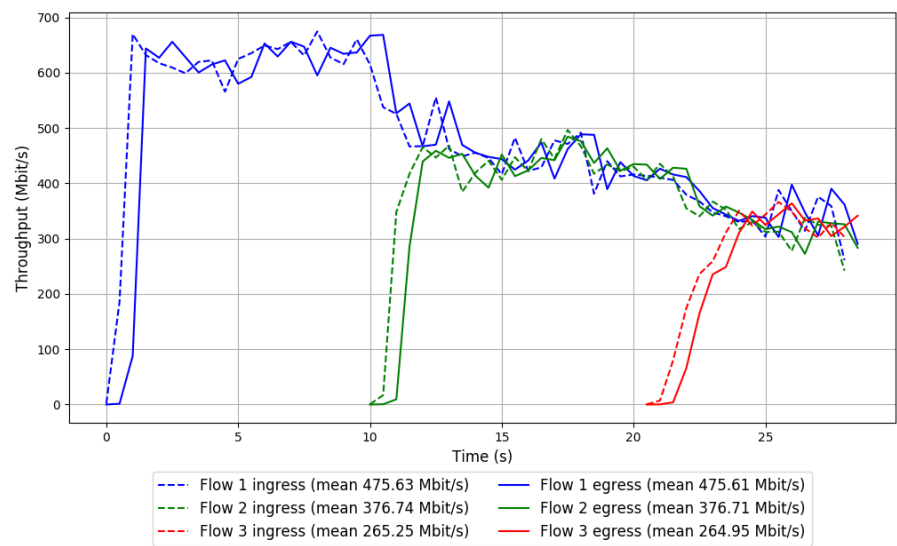Run 2: Report of Indigo-MusesT — Data Link

```
Run 3: Statistics of Indigo-MusesT

Start at: 2019-03-09 22:50:10
End at: 2019-03-09 22:50:40
Local clock offset: -0.358 ms
Remote clock offset: -0.165 ms


# Below is generated by plot.py at 2019-03-10 02:38:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 777.83 Mbit/s
95th percentile per-packet one-way delay: 91.293 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 472.93 Mbit/s
95th percentile per-packet one-way delay: 97.434 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 361.00 Mbit/s
95th percentile per-packet one-way delay: 74.370 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 271.57 Mbit/s
95th percentile per-packet one-way delay: 64.583 ms
Loss rate: 0.00%
```
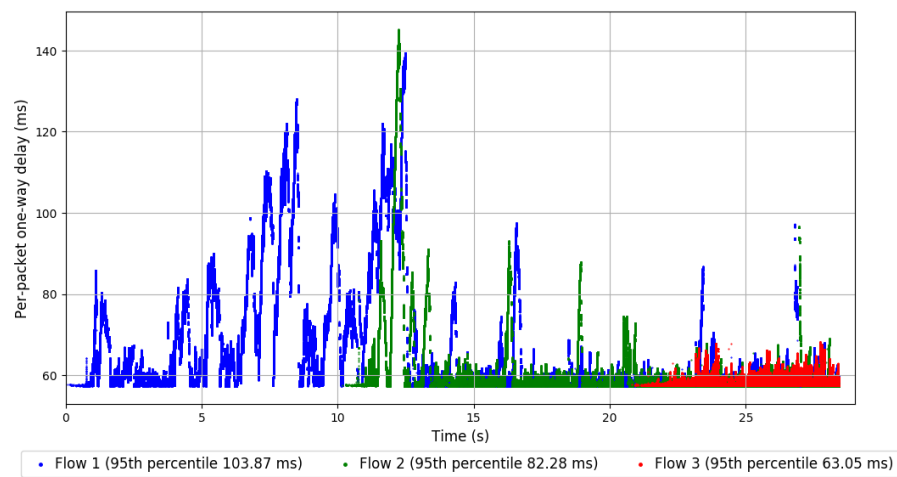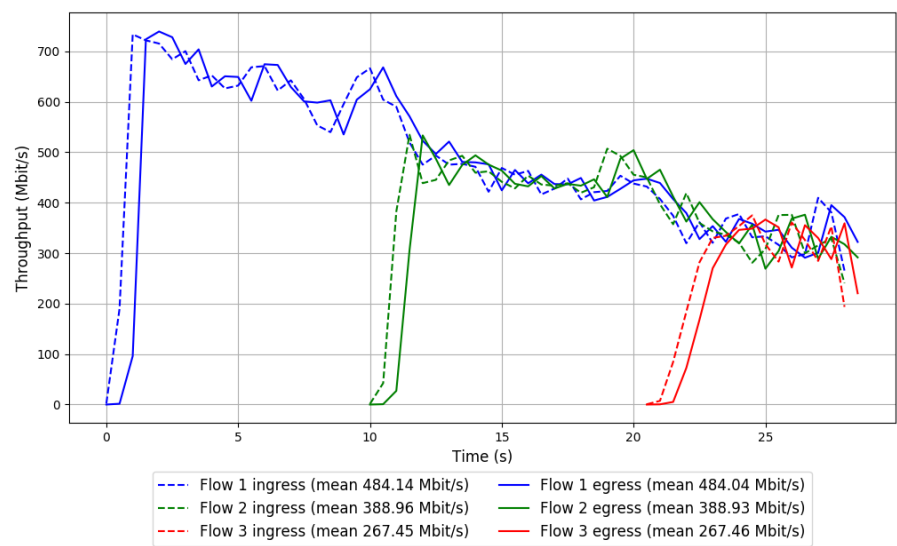
Run 3: Report of Indigo-MusesT — Data Link

Flow 1 ingress (mean 472.94 Mbit/s) — Flow 1 egress (mean 472.93 Mbit/s)
Flow 2 ingress (mean 361.03 Mbit/s) — Flow 2 egress (mean 361.00 Mbit/s)
Flow 3 ingress (mean 271.62 Mbit/s) — Flow 3 egress (mean 271.57 Mbit/s)

Flow 1 (95th percentile 97.43 ms)   Flow 2 (95th percentile 74.37 ms)   Flow 3 (95th percentile 64.58 ms)

```
Run 4: Statistics of Indigo-MusesT

Start at: 2019-03-09 23:31:25
End at: 2019-03-09 23:31:55
Local clock offset: -0.862 ms
Remote clock offset: -0.196 ms


# Below is generated by plot.py at 2019-03-10 02:43:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 788.15 Mbit/s
95th percentile per-packet one-way delay: 103.221 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 475.61 Mbit/s
95th percentile per-packet one-way delay: 107.541 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 376.71 Mbit/s
95th percentile per-packet one-way delay: 87.997 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 264.95 Mbit/s
95th percentile per-packet one-way delay: 65.526 ms
Loss rate: 0.12%
```

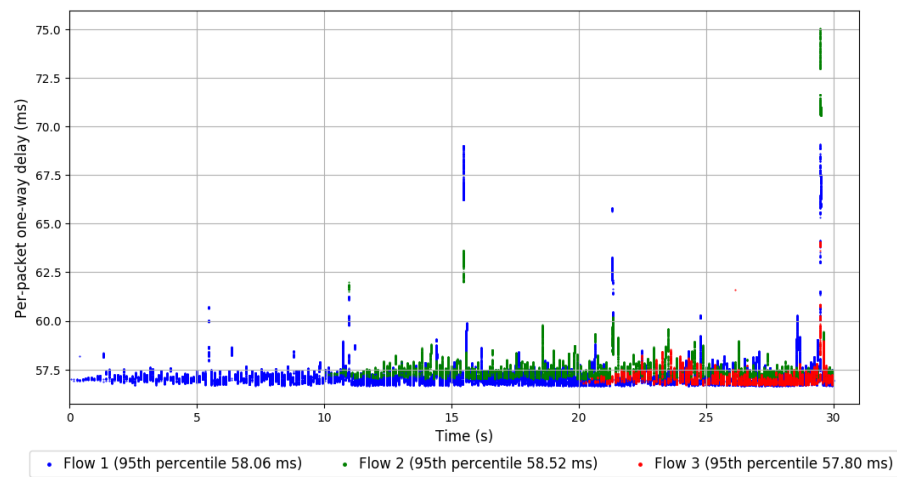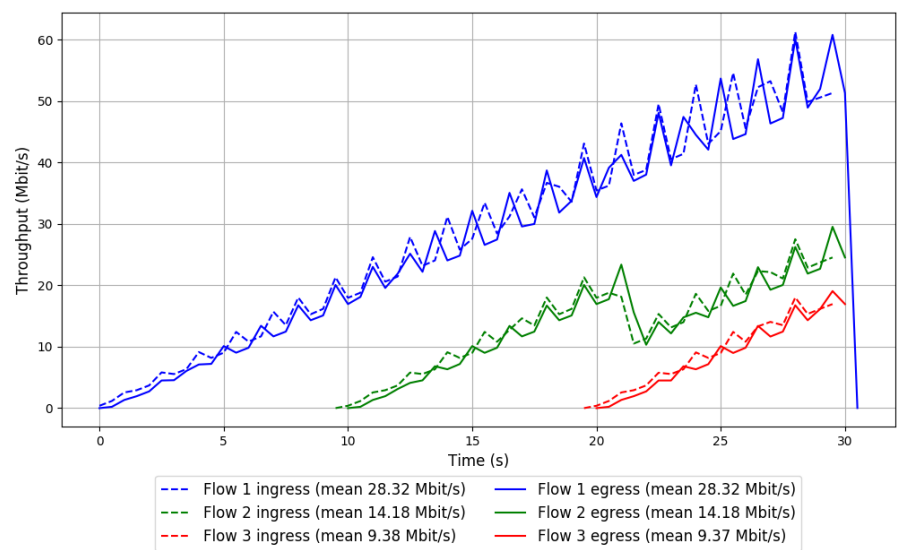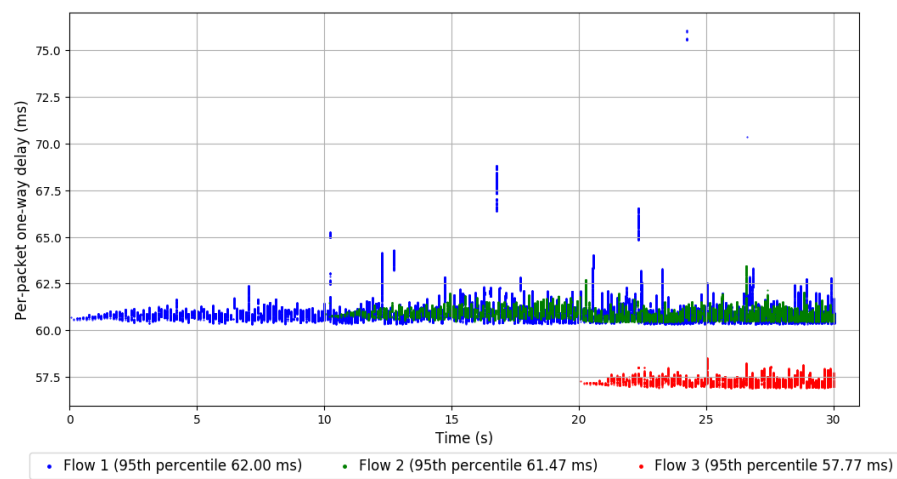# Run 4: Report of Indigo-MusesT — Data Link

Flow 1 ingress (mean 475.63 Mbit/s) ---- Flow 1 egress (mean 475.61 Mbit/s) ——
Flow 2 ingress (mean 376.74 Mbit/s) ---- Flow 2 egress (mean 376.71 Mbit/s) ——
Flow 3 ingress (mean 265.25 Mbit/s) ---- Flow 3 egress (mean 264.95 Mbit/s) ——

Flow 1 (95th percentile 107.54 ms) • Flow 2 (95th percentile 88.00 ms) • Flow 3 (95th percentile 65.53 ms)

```
Run 5: Statistics of Indigo-MusesT

Start at: 2019-03-10 00:12:05
End at: 2019-03-10 00:12:35
Local clock offset: -1.205 ms
Remote clock offset: 0.099 ms


# Below is generated by plot.py at 2019-03-10 02:45:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 806.02 Mbit/s
95th percentile per-packet one-way delay: 98.441 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 484.04 Mbit/s
95th percentile per-packet one-way delay: 103.872 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 388.93 Mbit/s
95th percentile per-packet one-way delay: 82.285 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 267.46 Mbit/s
95th percentile per-packet one-way delay: 63.050 ms
Loss rate: 0.00%
```

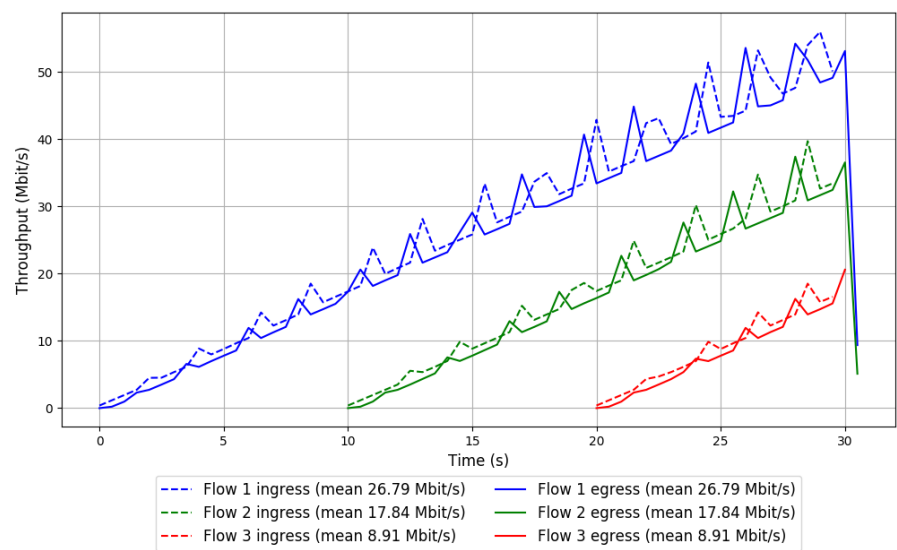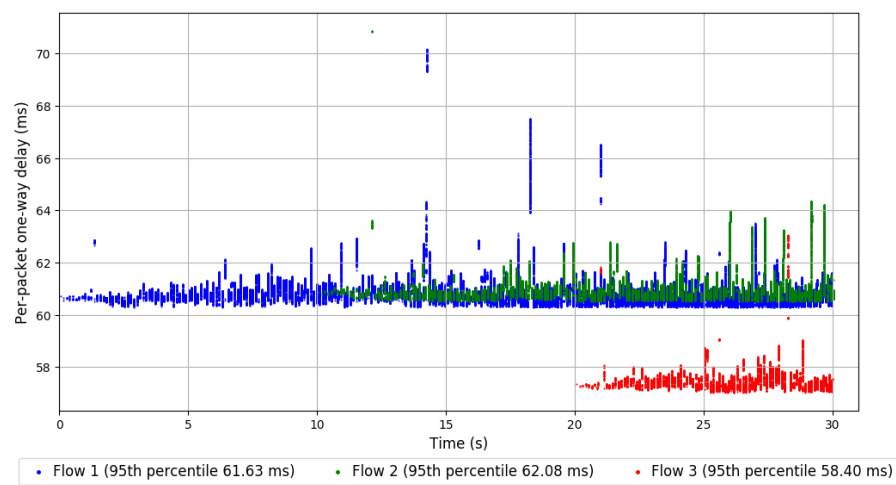Run 5: Report of Indigo-MusesT — Data Link

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```
Run 1: Statistics of LEDBAT

Start at: 2019-03-09 21:24:08
End at: 2019-03-09 21:24:38
Local clock offset: -0.284 ms
Remote clock offset: -0.142 ms


# Below is generated by plot.py at 2019-03-10 02:45:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 40.83 Mbit/s
95th percentile per-packet one-way delay: 58.213 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 28.32 Mbit/s
95th percentile per-packet one-way delay: 58.056 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 14.18 Mbit/s
95th percentile per-packet one-way delay: 58.519 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 9.37 Mbit/s
95th percentile per-packet one-way delay: 57.805 ms
Loss rate: 0.00%
```
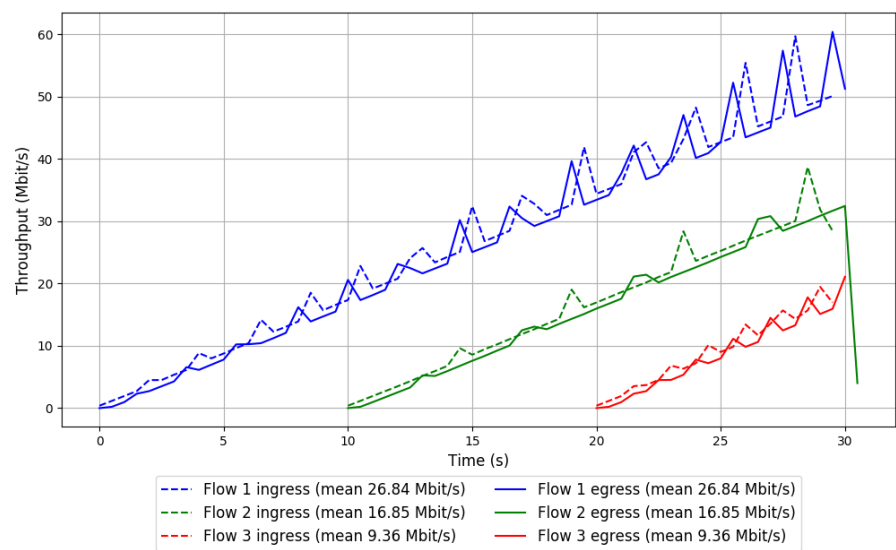
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2019-03-09 22:05:33
End at: 2019-03-09 22:06:03
Local clock offset: -0.422 ms
Remote clock offset: -0.014 ms


# Below is generated by plot.py at 2019-03-10 02:45:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 41.61 Mbit/s
95th percentile per-packet one-way delay: 61.813 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 26.79 Mbit/s
95th percentile per-packet one-way delay: 61.997 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 17.84 Mbit/s
95th percentile per-packet one-way delay: 61.470 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 8.91 Mbit/s
95th percentile per-packet one-way delay: 57.768 ms
Loss rate: 0.00%
```
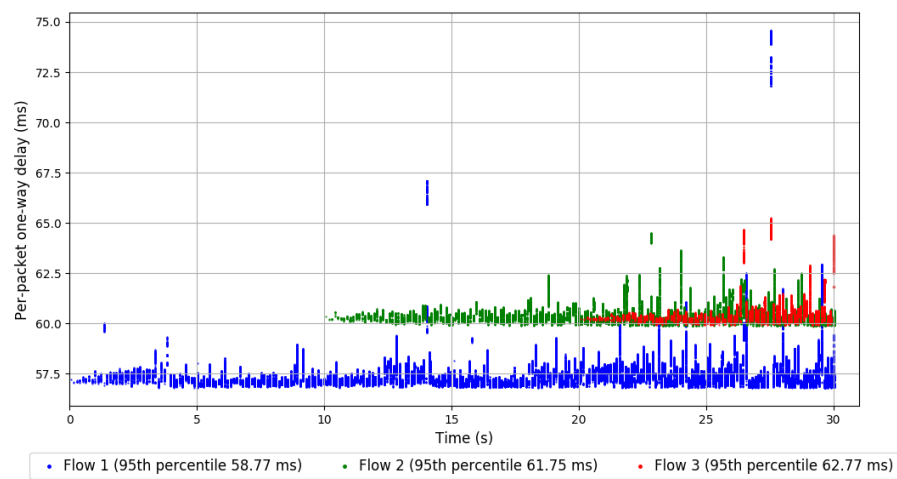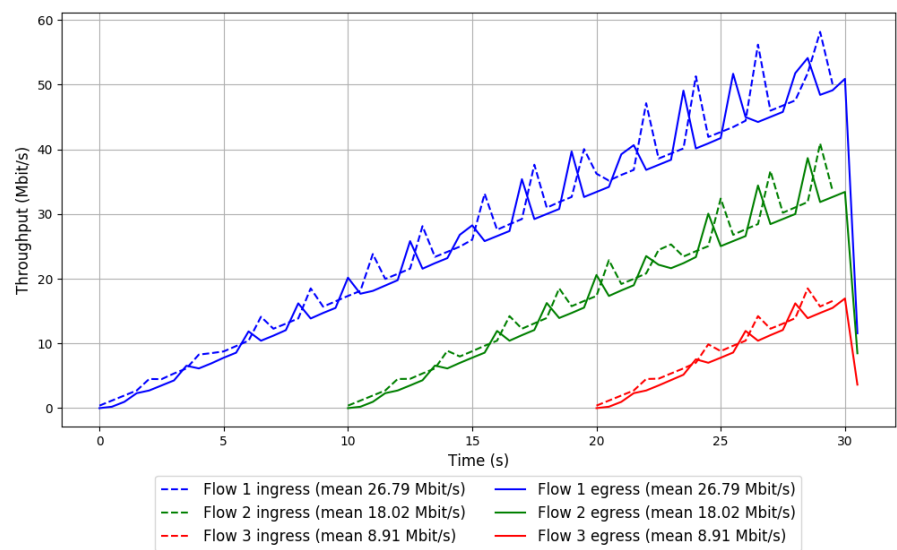
Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2019-03-09 22:46:44
End at: 2019-03-09 22:47:14
Local clock offset: -0.501 ms
Remote clock offset: -0.183 ms


# Below is generated by plot.py at 2019-03-10 02:45:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 41.10 Mbit/s
95th percentile per-packet one-way delay: 61.766 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 26.84 Mbit/s
95th percentile per-packet one-way delay: 61.627 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 16.85 Mbit/s
95th percentile per-packet one-way delay: 62.076 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 9.36 Mbit/s
95th percentile per-packet one-way delay: 58.397 ms
Loss rate: 0.00%
```
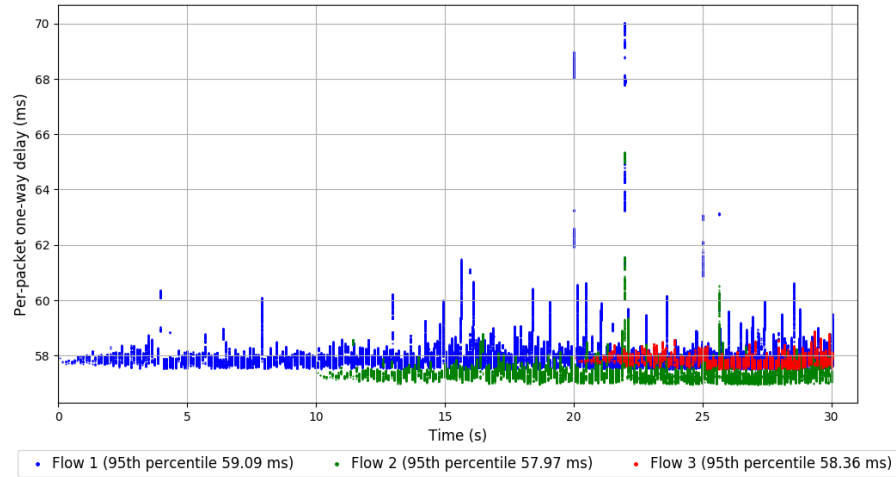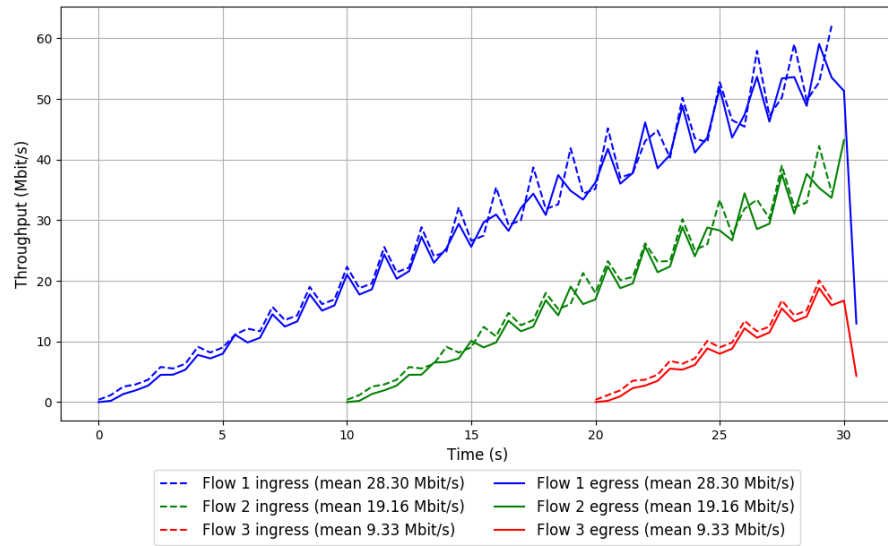
Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2019-03-09 23:27:52
End at: 2019-03-09 23:28:22
Local clock offset: -0.618 ms
Remote clock offset: -0.09 ms


# Below is generated by plot.py at 2019-03-10 02:45:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 41.73 Mbit/s
95th percentile per-packet one-way delay: 60.996 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 26.79 Mbit/s
95th percentile per-packet one-way delay: 58.768 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 18.02 Mbit/s
95th percentile per-packet one-way delay: 61.747 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 8.91 Mbit/s
95th percentile per-packet one-way delay: 62.773 ms
Loss rate: 0.00%
```
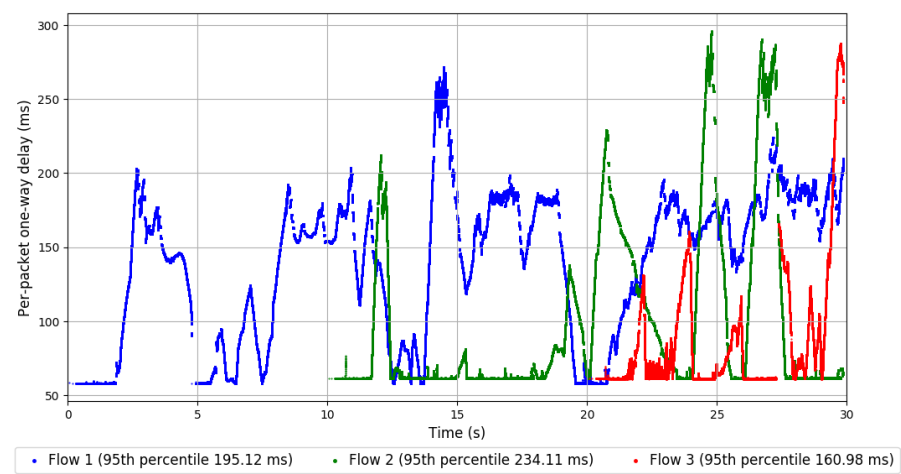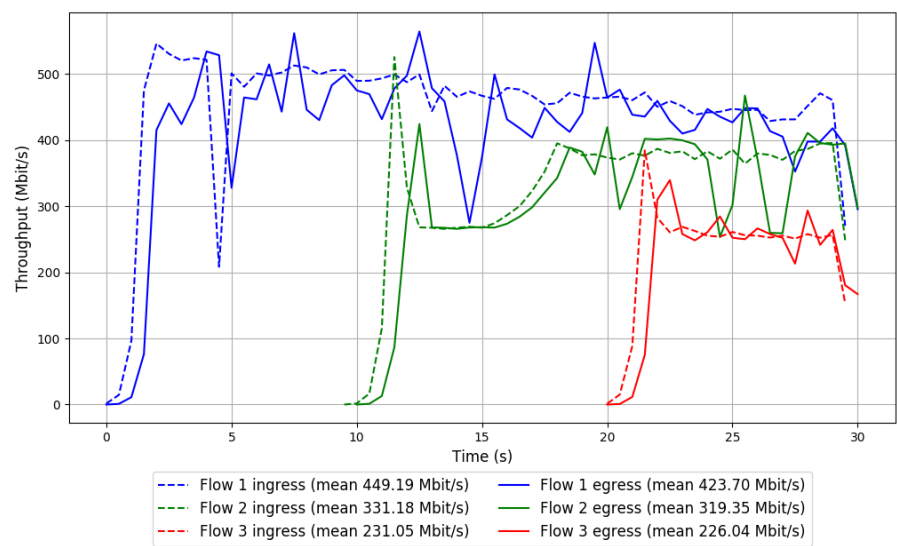
Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2019-03-10 00:08:29
End at: 2019-03-10 00:08:59
Local clock offset: -0.762 ms
Remote clock offset: 0.358 ms


# Below is generated by plot.py at 2019-03-10 02:45:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 44.13 Mbit/s
95th percentile per-packet one-way delay: 58.726 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 28.30 Mbit/s
95th percentile per-packet one-way delay: 59.091 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 19.16 Mbit/s
95th percentile per-packet one-way delay: 57.974 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 9.33 Mbit/s
95th percentile per-packet one-way delay: 58.358 ms
Loss rate: 0.00%
```
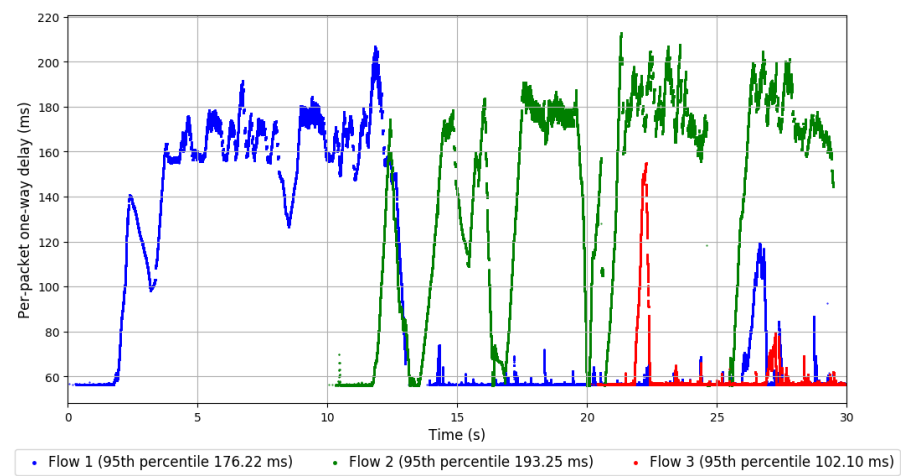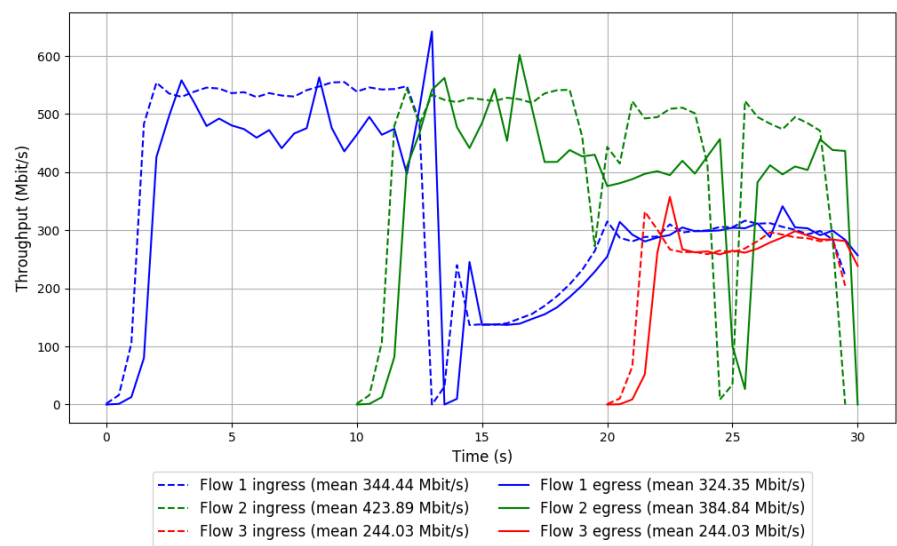
Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2019-03-09 21:50:34
End at: 2019-03-09 21:51:04
Local clock offset: -0.385 ms
Remote clock offset: 0.639 ms


# Below is generated by plot.py at 2019-03-10 03:02:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 710.39 Mbit/s
95th percentile per-packet one-way delay: 198.238 ms
Loss rate: 4.69%
-- Flow 1:
Average throughput: 423.70 Mbit/s
95th percentile per-packet one-way delay: 195.125 ms
Loss rate: 5.66%
-- Flow 2:
Average throughput: 319.35 Mbit/s
95th percentile per-packet one-way delay: 234.108 ms
Loss rate: 3.57%
-- Flow 3:
Average throughput: 226.04 Mbit/s
95th percentile per-packet one-way delay: 160.979 ms
Loss rate: 2.16%
```
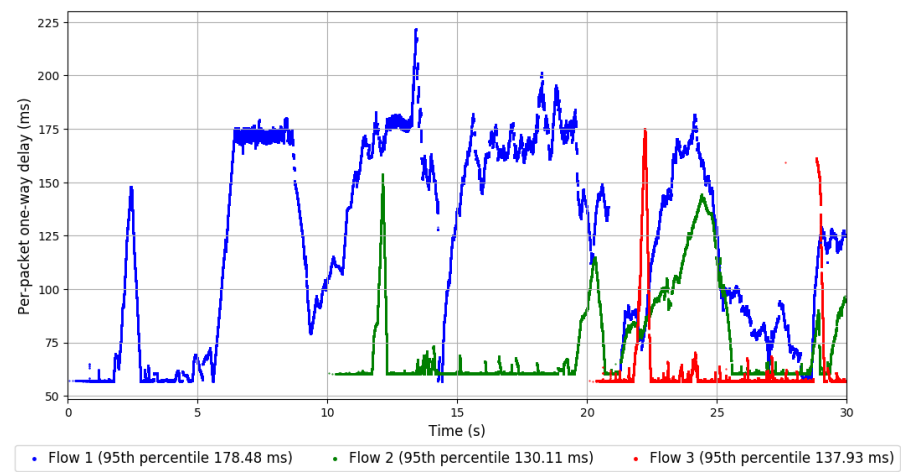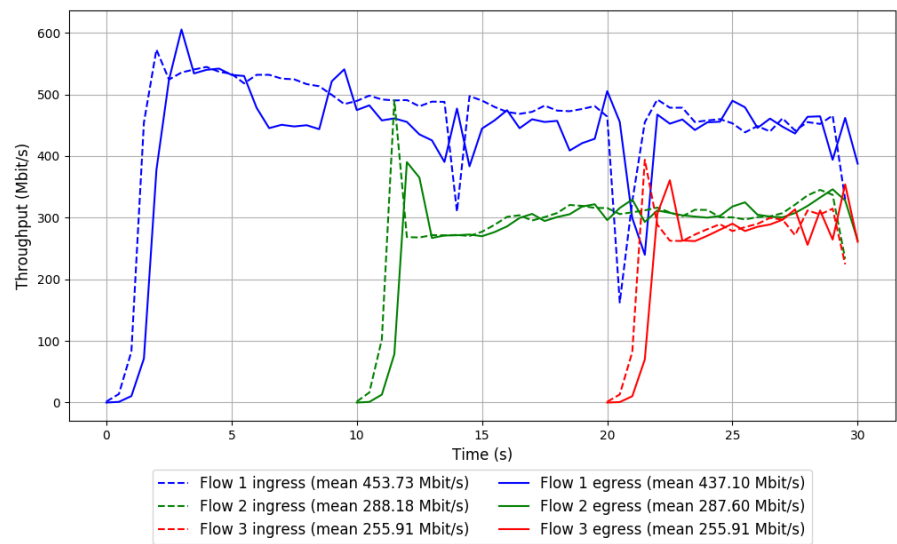
Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2019-03-09 22:31:02
End at: 2019-03-09 22:31:32
Local clock offset: -0.056 ms
Remote clock offset: -0.377 ms


# Below is generated by plot.py at 2019-03-10 03:02:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 659.09 Mbit/s
95th percentile per-packet one-way delay: 186.519 ms
Loss rate: 6.52%
-- Flow 1:
Average throughput: 324.35 Mbit/s
95th percentile per-packet one-way delay: 176.225 ms
Loss rate: 5.83%
-- Flow 2:
Average throughput: 384.84 Mbit/s
95th percentile per-packet one-way delay: 193.254 ms
Loss rate: 9.21%
-- Flow 3:
Average throughput: 244.03 Mbit/s
95th percentile per-packet one-way delay: 102.100 ms
Loss rate: 0.00%
```

Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2019-03-09 23:12:13
End at: 2019-03-09 23:12:43
Local clock offset: -0.439 ms
Remote clock offset: -0.001 ms


# Below is generated by plot.py at 2019-03-10 03:03:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 712.37 Mbit/s
95th percentile per-packet one-way delay: 175.858 ms
Loss rate: 2.32%
-- Flow 1:
Average throughput: 437.10 Mbit/s
95th percentile per-packet one-way delay: 178.477 ms
Loss rate: 3.65%
-- Flow 2:
Average throughput: 287.60 Mbit/s
95th percentile per-packet one-way delay: 130.106 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 255.91 Mbit/s
95th percentile per-packet one-way delay: 137.933 ms
Loss rate: 0.00%
```
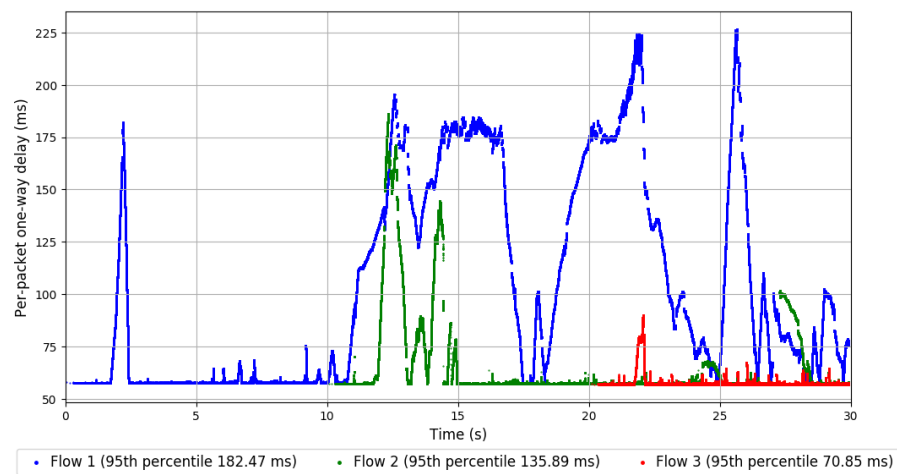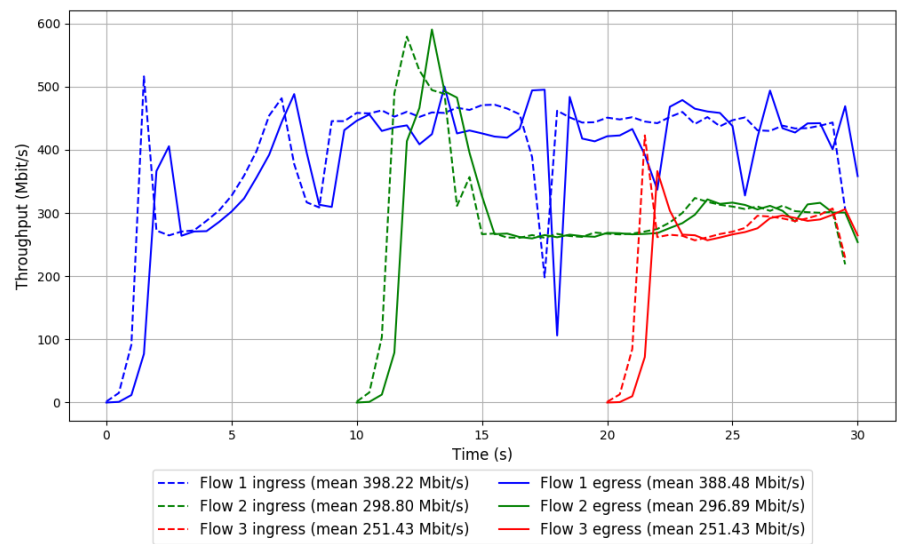
Run 3: Report of PCC-Allegro — Data Link

```
Run 4: Statistics of PCC-Allegro

Start at: 2019-03-09 23:53:53
End at: 2019-03-09 23:54:24
Local clock offset: -0.471 ms
Remote clock offset: 0.485 ms


# Below is generated by plot.py at 2019-03-10 03:03:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 668.48 Mbit/s
95th percentile per-packet one-way delay: 179.294 ms
Loss rate: 1.61%
-- Flow 1:
Average throughput: 388.48 Mbit/s
95th percentile per-packet one-way delay: 182.470 ms
Loss rate: 2.43%
-- Flow 2:
Average throughput: 296.89 Mbit/s
95th percentile per-packet one-way delay: 135.891 ms
Loss rate: 0.64%
-- Flow 3:
Average throughput: 251.43 Mbit/s
95th percentile per-packet one-way delay: 70.851 ms
Loss rate: 0.00%
```

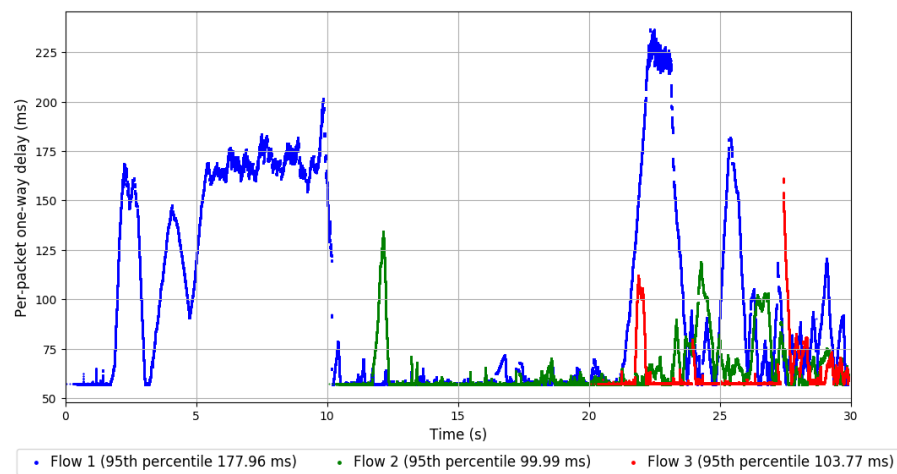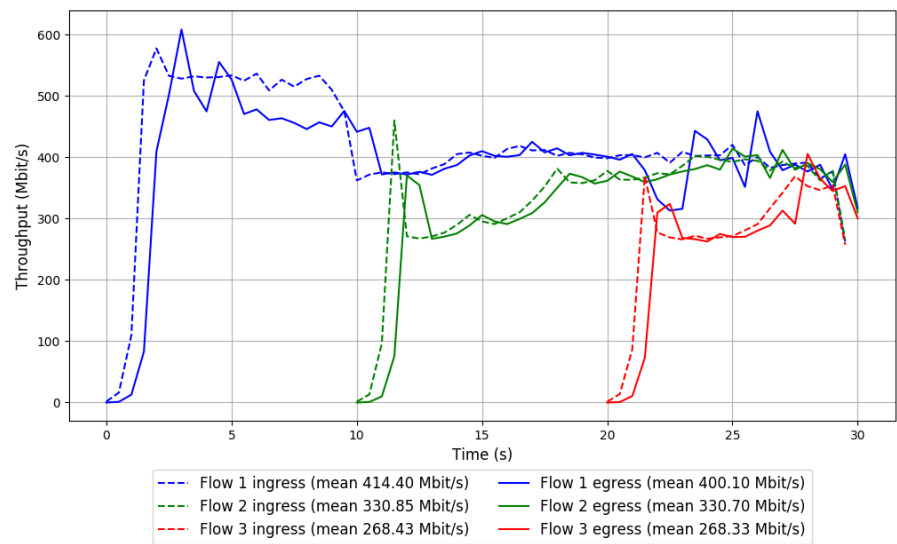Run 4: Report of PCC-Allegro — Data Link

```
Run 5: Statistics of PCC-Allegro

Start at: 2019-03-10 00:34:58
End at: 2019-03-10 00:35:28
Local clock offset: -0.322 ms
Remote clock offset: -0.267 ms


# Below is generated by plot.py at 2019-03-10 03:04:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 708.11 Mbit/s
95th percentile per-packet one-way delay: 171.510 ms
Loss rate: 1.99%
-- Flow 1:
Average throughput: 400.10 Mbit/s
95th percentile per-packet one-way delay: 177.955 ms
Loss rate: 3.44%
-- Flow 2:
Average throughput: 330.70 Mbit/s
95th percentile per-packet one-way delay: 99.993 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 268.33 Mbit/s
95th percentile per-packet one-way delay: 103.766 ms
Loss rate: 0.02%
```

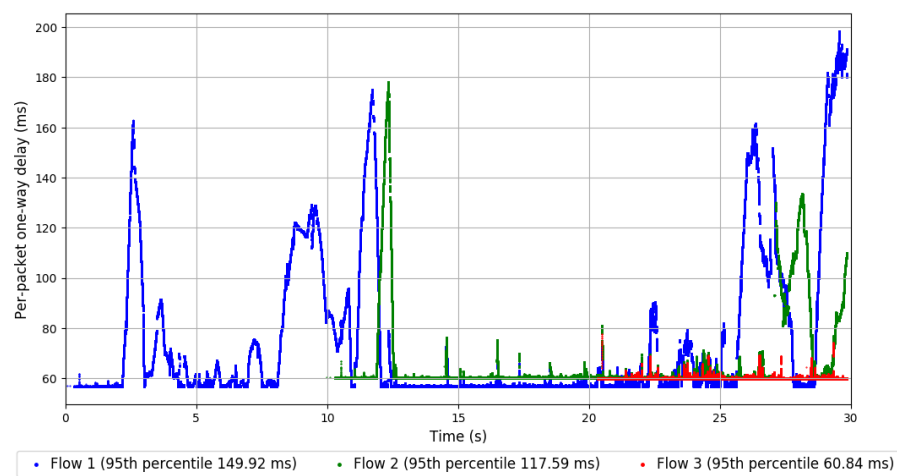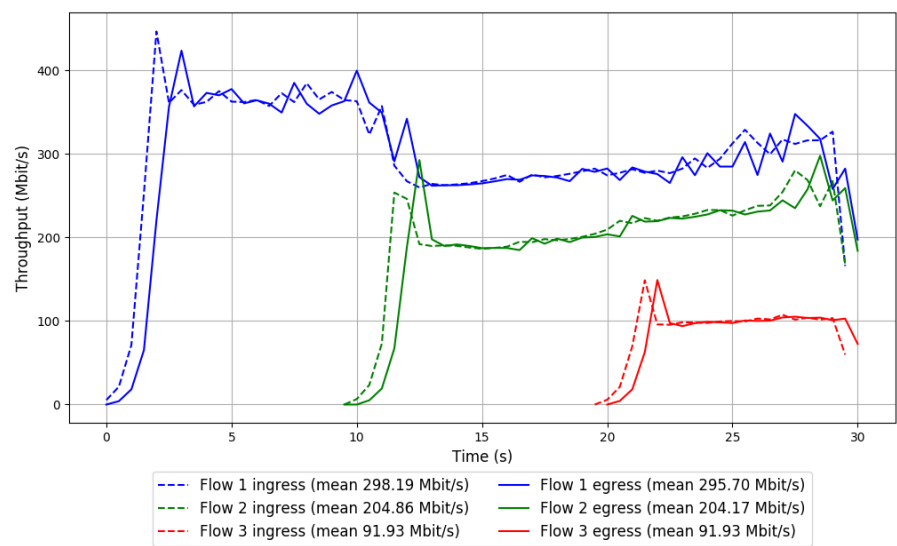Run 5: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2019-03-09 21:46:17
End at: 2019-03-09 21:46:47
Local clock offset: 0.09 ms
Remote clock offset: 0.093 ms


# Below is generated by plot.py at 2019-03-10 03:04:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 462.22 Mbit/s
95th percentile per-packet one-way delay: 141.307 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 295.70 Mbit/s
95th percentile per-packet one-way delay: 149.916 ms
Loss rate: 0.82%
-- Flow 2:
Average throughput: 204.17 Mbit/s
95th percentile per-packet one-way delay: 117.594 ms
Loss rate: 0.34%
-- Flow 3:
Average throughput: 91.93 Mbit/s
95th percentile per-packet one-way delay: 60.842 ms
Loss rate: 0.00%
```
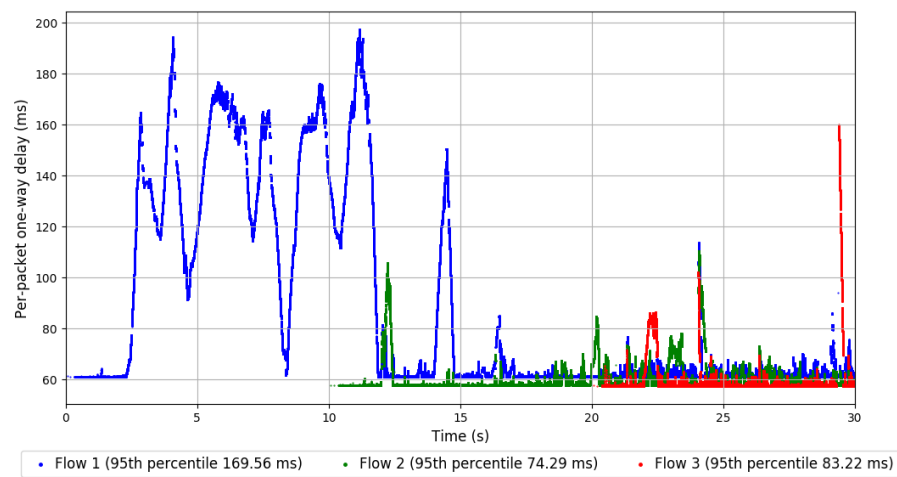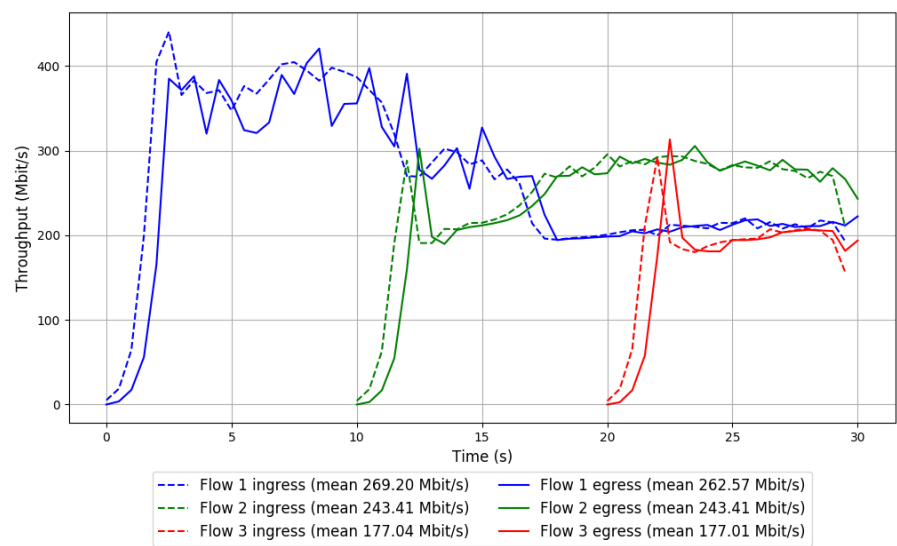
Run 1: Report of PCC-Expr — Data Link

```
Run 2: Statistics of PCC-Expr

Start at: 2019-03-09 22:26:53
End at: 2019-03-09 22:27:23
Local clock offset: -0.865 ms
Remote clock offset: -0.161 ms


# Below is generated by plot.py at 2019-03-10 03:04:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 482.80 Mbit/s
95th percentile per-packet one-way delay: 163.047 ms
Loss rate: 1.36%
-- Flow 1:
Average throughput: 262.57 Mbit/s
95th percentile per-packet one-way delay: 169.559 ms
Loss rate: 2.47%
-- Flow 2:
Average throughput: 243.41 Mbit/s
95th percentile per-packet one-way delay: 74.291 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 177.01 Mbit/s
95th percentile per-packet one-way delay: 83.225 ms
Loss rate: 0.02%
```

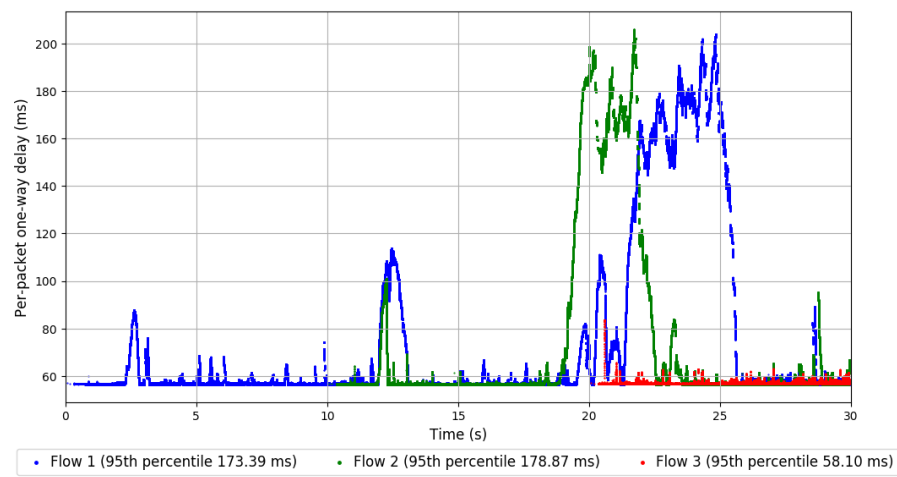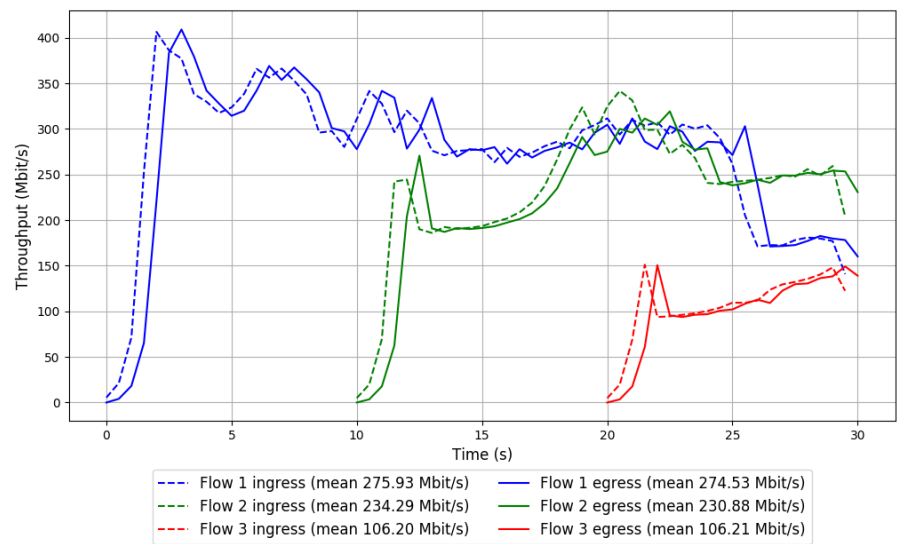Run 2: Report of PCC-Expr — Data Link

```
Run 3: Statistics of PCC-Expr

Start at: 2019-03-09 23:07:55
End at: 2019-03-09 23:08:25
Local clock offset: -0.294 ms
Remote clock offset: -0.381 ms


# Below is generated by plot.py at 2019-03-10 03:04:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 463.08 Mbit/s
95th percentile per-packet one-way delay: 173.553 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 274.53 Mbit/s
95th percentile per-packet one-way delay: 173.390 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 230.88 Mbit/s
95th percentile per-packet one-way delay: 178.873 ms
Loss rate: 1.44%
-- Flow 3:
Average throughput: 106.21 Mbit/s
95th percentile per-packet one-way delay: 58.097 ms
Loss rate: 0.00%
```
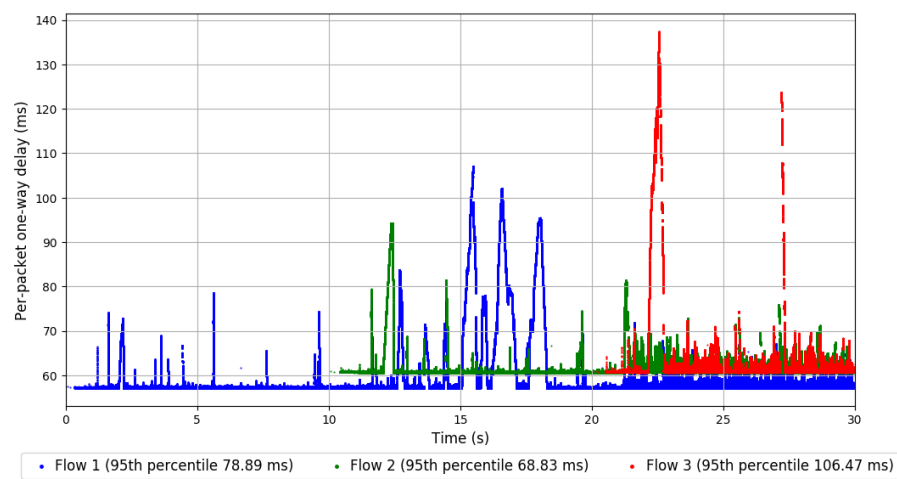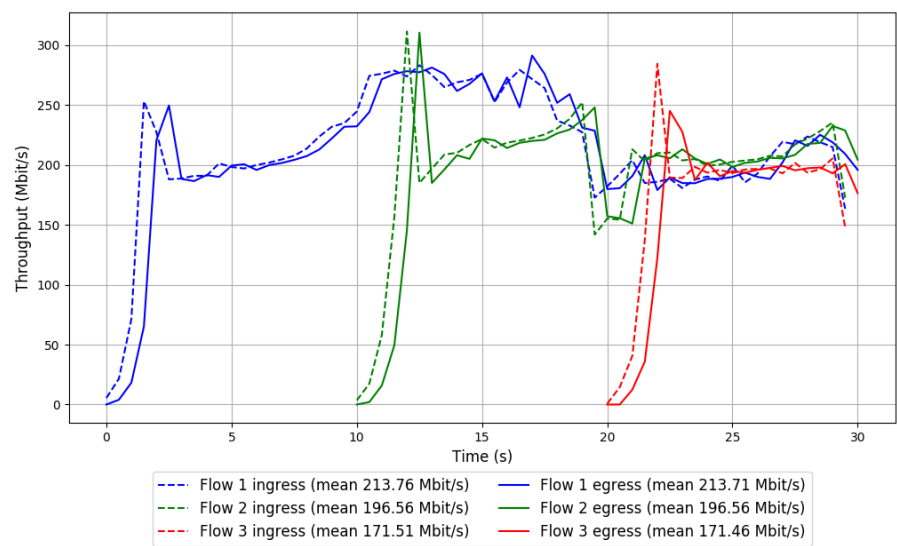
Run 3: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 275.93 Mbit/s) Flow 1 egress (mean 274.53 Mbit/s)
Flow 2 ingress (mean 234.29 Mbit/s) Flow 2 egress (mean 230.88 Mbit/s)
Flow 3 ingress (mean 106.20 Mbit/s) Flow 3 egress (mean 106.21 Mbit/s)

Flow 1 (95th percentile 173.39 ms) Flow 2 (95th percentile 178.87 ms) Flow 3 (95th percentile 58.10 ms)

```
Run 4: Statistics of PCC-Expr

Start at: 2019-03-09 23:49:40
End at: 2019-03-09 23:50:10
Local clock offset: -1.085 ms
Remote clock offset: 0.087 ms


# Below is generated by plot.py at 2019-03-10 03:09:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 400.61 Mbit/s
95th percentile per-packet one-way delay: 78.414 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 213.71 Mbit/s
95th percentile per-packet one-way delay: 78.892 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 196.56 Mbit/s
95th percentile per-packet one-way delay: 68.828 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 171.46 Mbit/s
95th percentile per-packet one-way delay: 106.466 ms
Loss rate: 0.02%
```
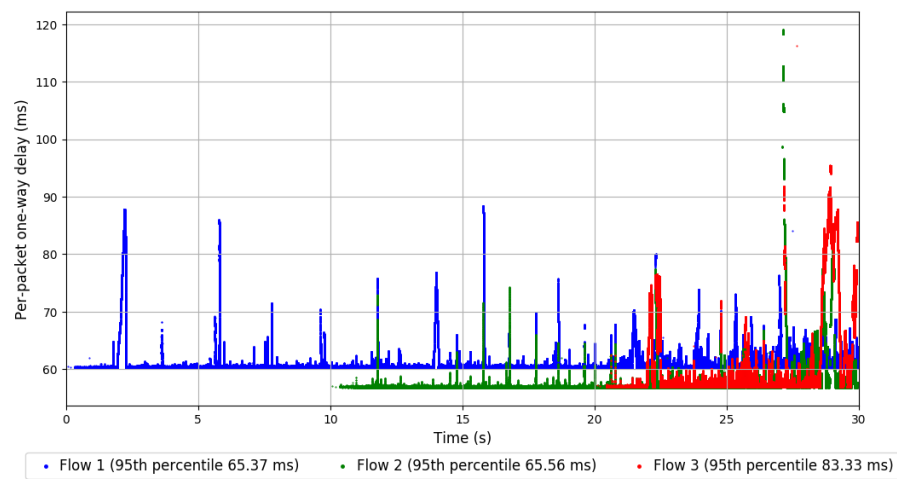
Run 4: Report of PCC-Expr — Data Link

```
Run 5: Statistics of PCC-Expr

Start at: 2019-03-10 00:30:36
End at: 2019-03-10 00:31:06
Local clock offset: 0.167 ms
Remote clock offset: 0.144 ms


# Below is generated by plot.py at 2019-03-10 03:13:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 390.58 Mbit/s
95th percentile per-packet one-way delay: 70.163 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 216.23 Mbit/s
95th percentile per-packet one-way delay: 65.367 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 165.08 Mbit/s
95th percentile per-packet one-way delay: 65.561 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 196.06 Mbit/s
95th percentile per-packet one-way delay: 83.334 ms
Loss rate: 0.36%
```
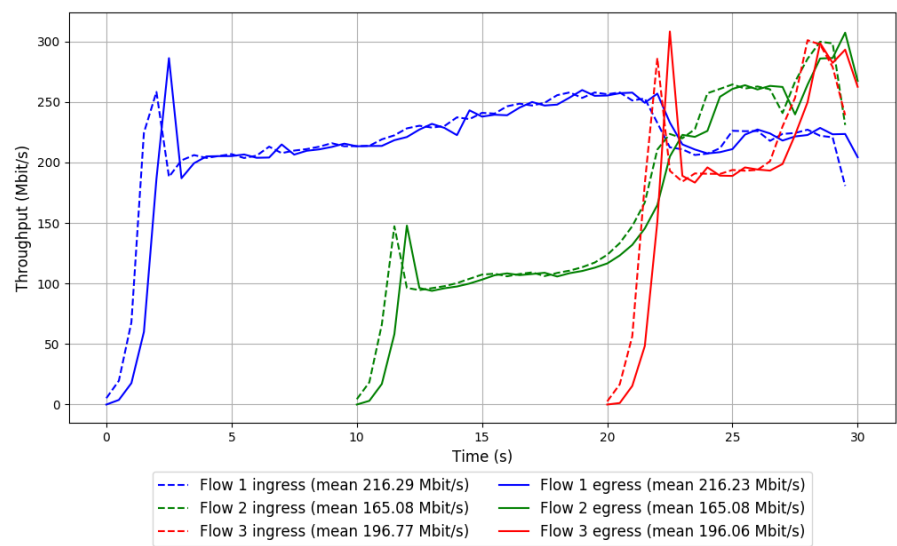
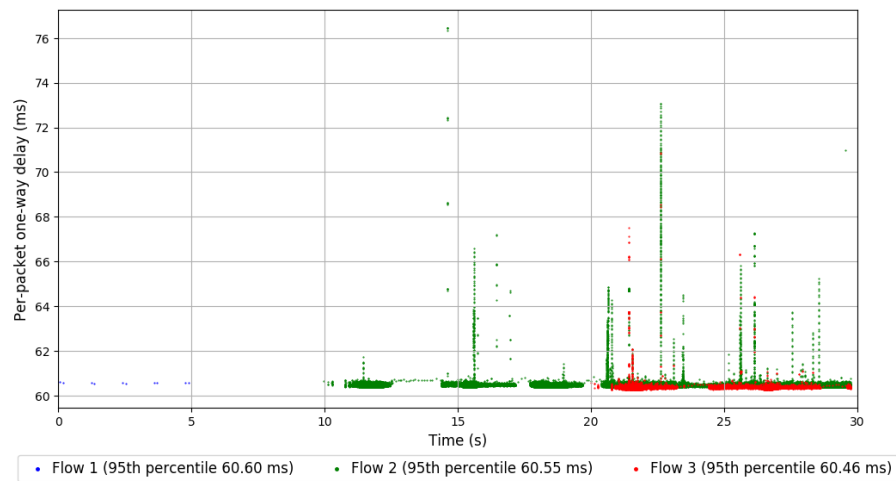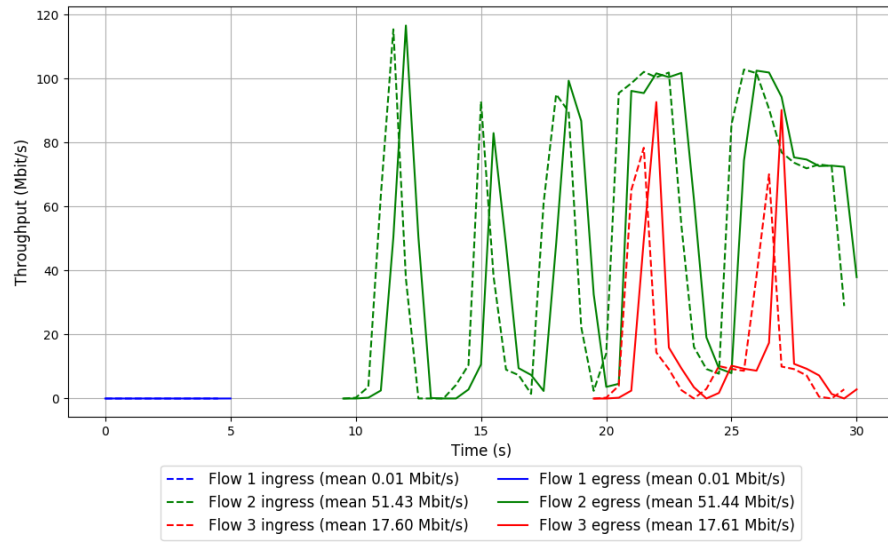Run 5: Report of PCC-Expr — Data Link

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```
Run 1: Statistics of QUIC Cubic

Start at: 2019-03-09 21:22:53
End at: 2019-03-09 21:23:23
Local clock offset: -0.5 ms
Remote clock offset: -0.285 ms


# Below is generated by plot.py at 2019-03-10 03:13:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 40.03 Mbit/s
95th percentile per-packet one-way delay: 60.544 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 60.605 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 51.44 Mbit/s
95th percentile per-packet one-way delay: 60.550 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 17.61 Mbit/s
95th percentile per-packet one-way delay: 60.456 ms
Loss rate: 0.00%
```

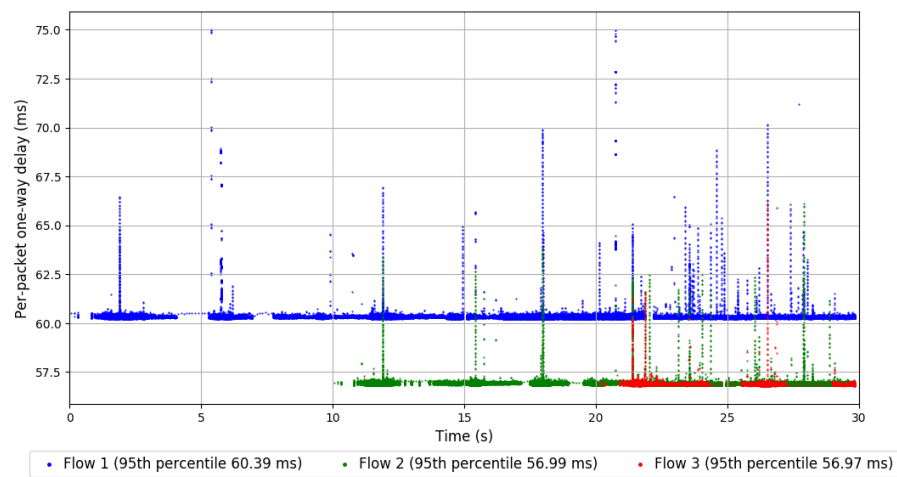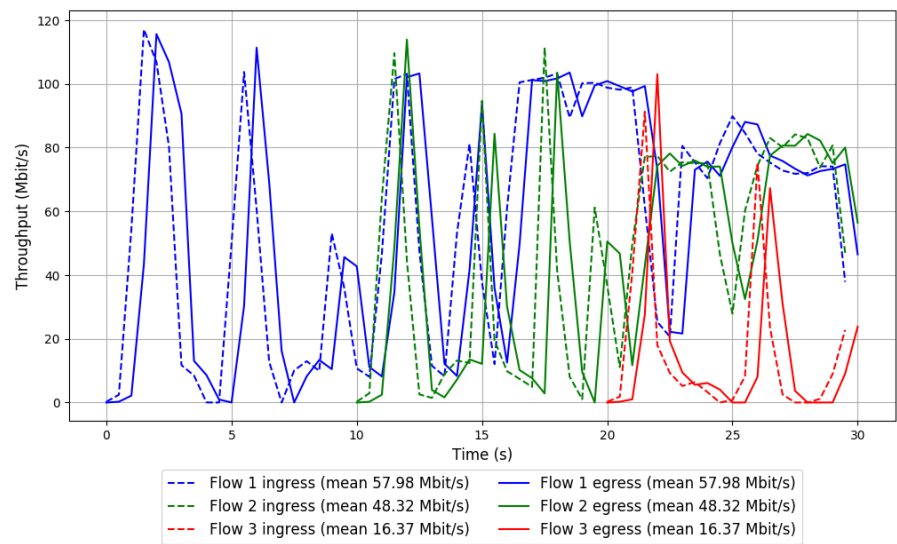Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2019-03-09 22:04:14
End at: 2019-03-09 22:04:44
Local clock offset: -0.156 ms
Remote clock offset: -0.035 ms


# Below is generated by plot.py at 2019-03-10 03:13:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.43 Mbit/s
95th percentile per-packet one-way delay: 60.365 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 57.98 Mbit/s
95th percentile per-packet one-way delay: 60.390 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 48.32 Mbit/s
95th percentile per-packet one-way delay: 56.986 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 16.37 Mbit/s
95th percentile per-packet one-way delay: 56.970 ms
Loss rate: 0.00%
```

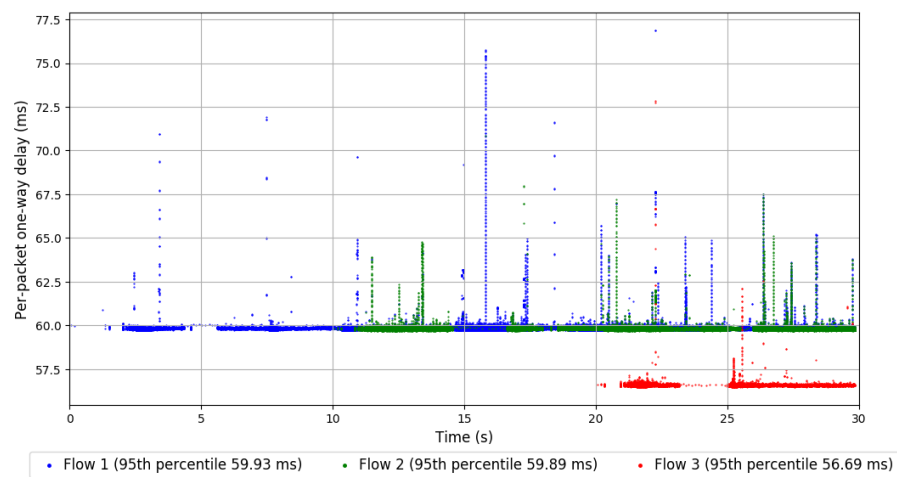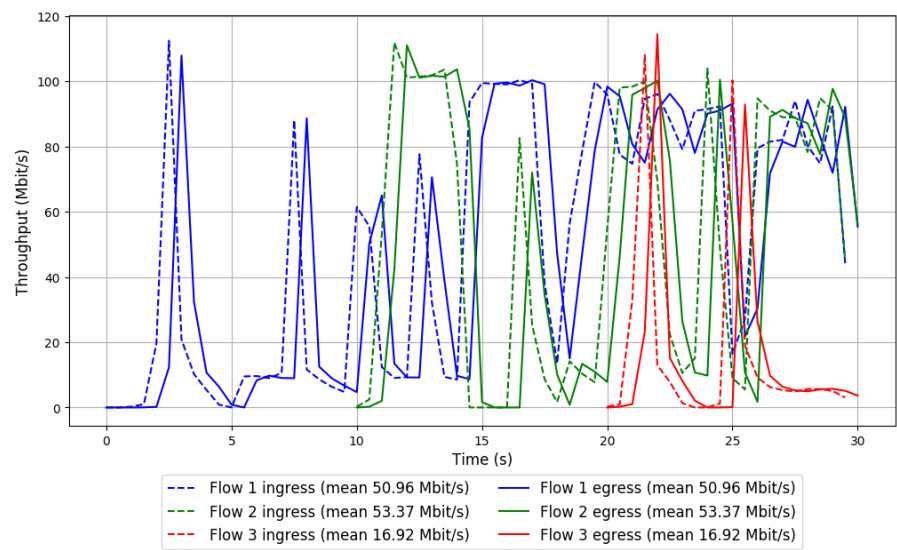Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2019-03-09 22:45:22
End at: 2019-03-09 22:45:52
Local clock offset: -0.247 ms
Remote clock offset: -0.323 ms


# Below is generated by plot.py at 2019-03-10 03:13:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.94 Mbit/s
95th percentile per-packet one-way delay: 59.910 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.96 Mbit/s
95th percentile per-packet one-way delay: 59.927 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 53.37 Mbit/s
95th percentile per-packet one-way delay: 59.888 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 16.92 Mbit/s
95th percentile per-packet one-way delay: 56.690 ms
Loss rate: 0.00%
```

Run 3: Report of QUIC Cubic — Data Link

```
Run 4: Statistics of QUIC Cubic

Start at: 2019-03-09 23:26:30
End at: 2019-03-09 23:27:00
Local clock offset: -0.26 ms
Remote clock offset: -0.64 ms


# Below is generated by plot.py at 2019-03-10 03:13:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 100.35 Mbit/s
95th percentile per-packet one-way delay: 56.140 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 56.79 Mbit/s
95th percentile per-packet one-way delay: 56.163 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 36.82 Mbit/s
95th percentile per-packet one-way delay: 56.115 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 58.47 Mbit/s
95th percentile per-packet one-way delay: 55.850 ms
Loss rate: 0.00%
```
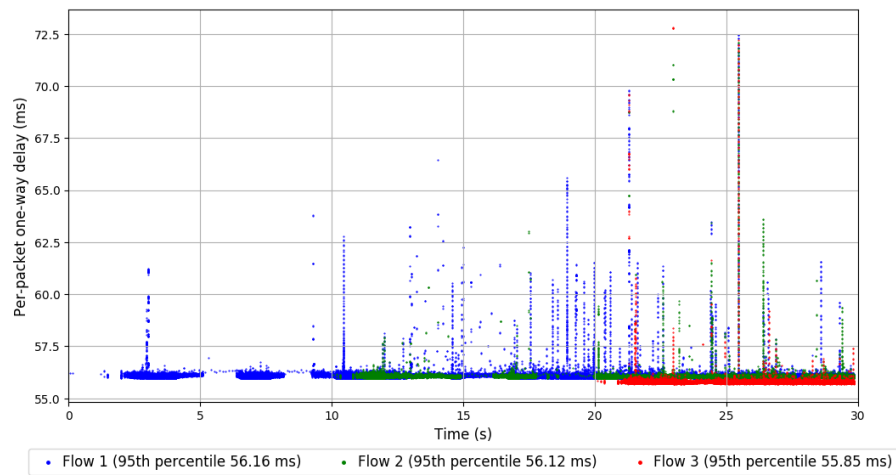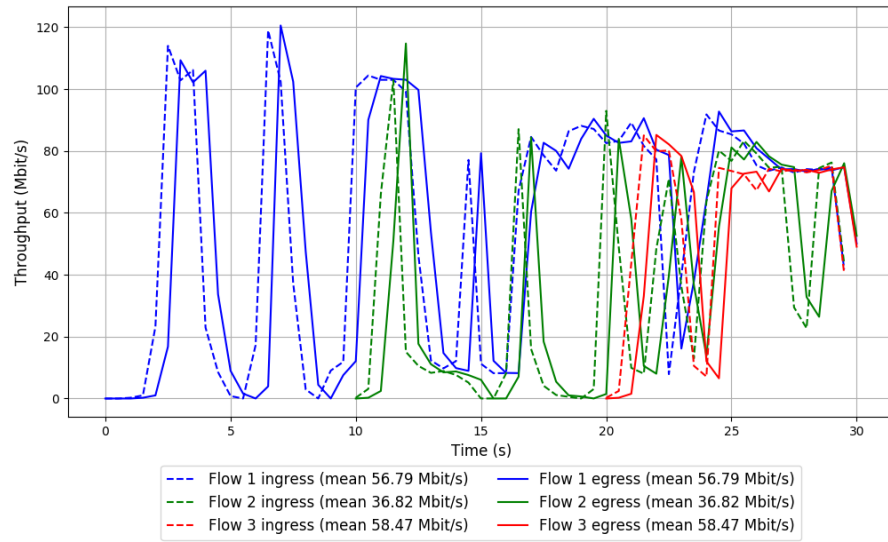
Run 4: Report of QUIC Cubic — Data Link

```
Run 5: Statistics of QUIC Cubic

Start at: 2019-03-10 00:07:08
End at: 2019-03-10 00:07:38
Local clock offset: -1.004 ms
Remote clock offset: 0.03 ms


# Below is generated by plot.py at 2019-03-10 03:13:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.03 Mbit/s
95th percentile per-packet one-way delay: 60.882 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 58.85 Mbit/s
95th percentile per-packet one-way delay: 60.906 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 31.85 Mbit/s
95th percentile per-packet one-way delay: 57.291 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 18.36 Mbit/s
95th percentile per-packet one-way delay: 57.626 ms
Loss rate: 0.00%
```
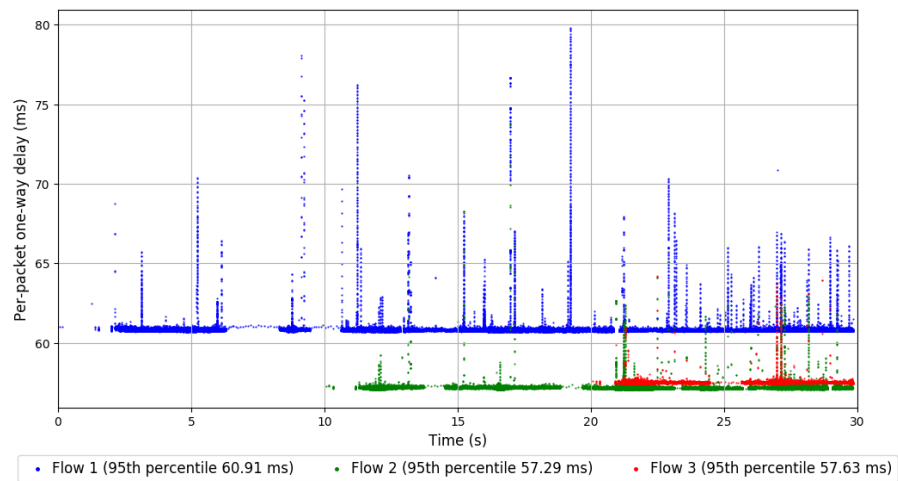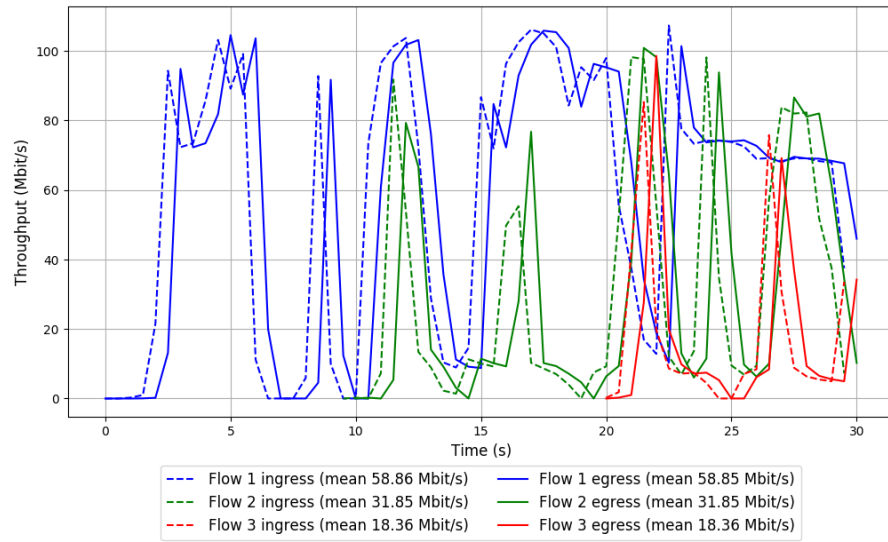
Run 5: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 58.86 Mbit/s) — — — Flow 1 egress (mean 58.85 Mbit/s)
Flow 2 ingress (mean 31.85 Mbit/s) — — — Flow 2 egress (mean 31.85 Mbit/s)
Flow 3 ingress (mean 18.36 Mbit/s) — — — Flow 3 egress (mean 18.36 Mbit/s)

Flow 1 (95th percentile 60.91 ms)   Flow 2 (95th percentile 57.29 ms)   Flow 3 (95th percentile 57.63 ms)
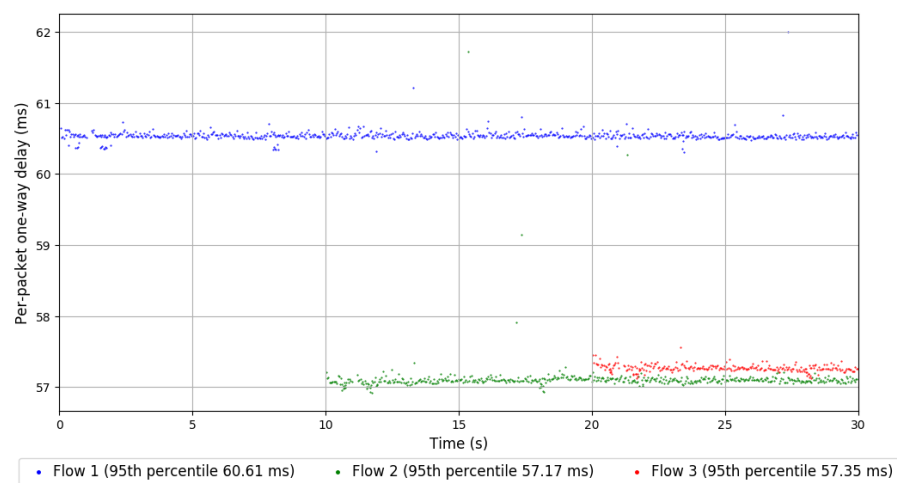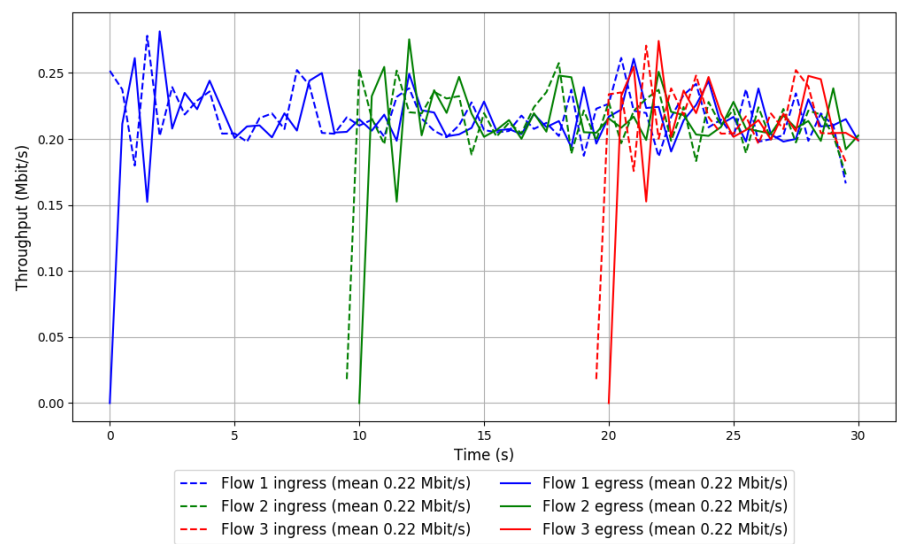
```
Run 1: Statistics of SCReAM

Start at: 2019-03-09 21:59:42
End at: 2019-03-09 22:00:12
Local clock offset: -0.37 ms
Remote clock offset: -0.168 ms

# Below is generated by plot.py at 2019-03-10 03:13:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 60.586 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.609 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.170 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.354 ms
Loss rate: 0.00%
```
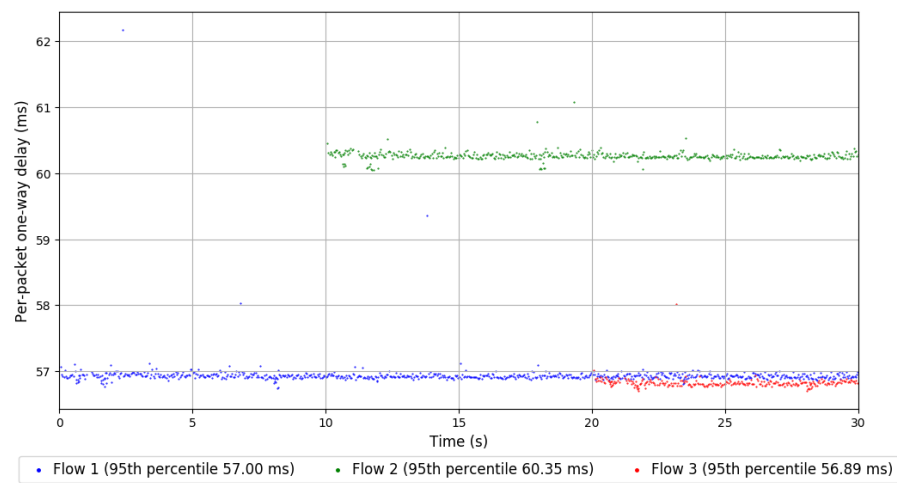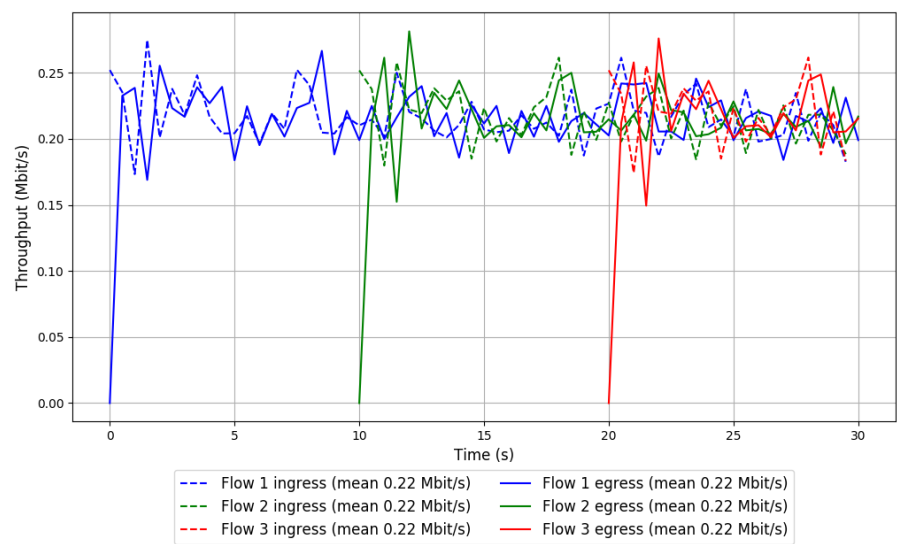
Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2019-03-09 22:40:31
End at: 2019-03-09 22:41:01
Local clock offset: -0.445 ms
Remote clock offset: -0.308 ms


# Below is generated by plot.py at 2019-03-10 03:13:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 60.310 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 56.996 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.346 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 56.888 ms
Loss rate: 0.00%
```

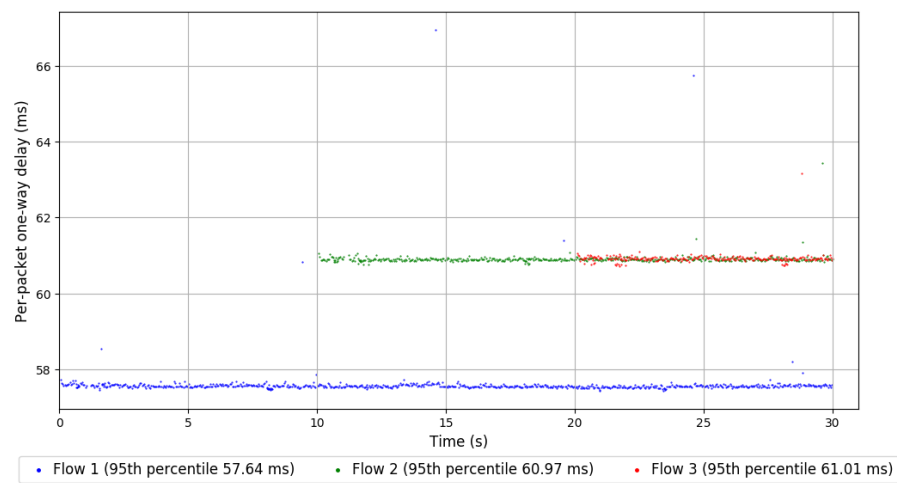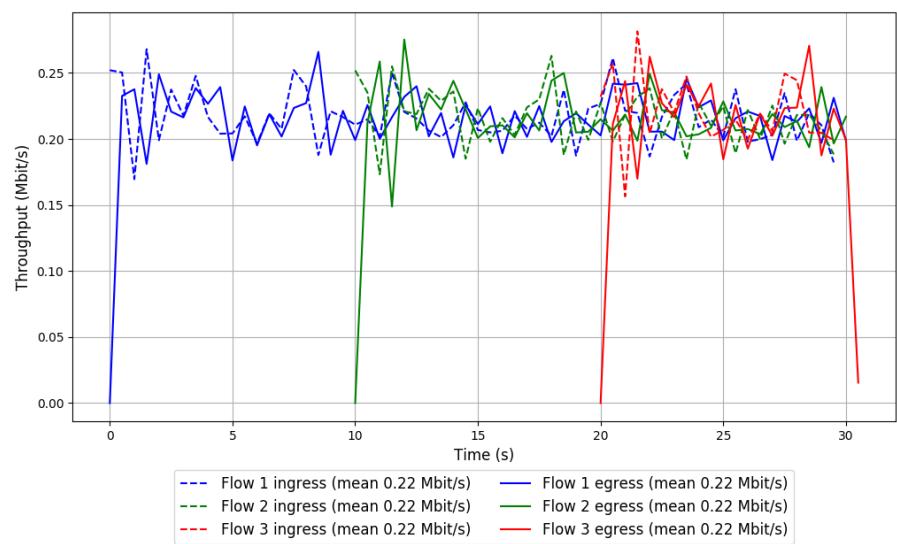# Run 2: Report of SCReAM — Data Link

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```
Run 3: Statistics of SCReAM

Start at: 2019-03-09 23:21:36
End at: 2019-03-09 23:22:06
Local clock offset: -1.006 ms
Remote clock offset: -0.085 ms


# Below is generated by plot.py at 2019-03-10 03:13:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 60.967 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.641 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.972 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 61.008 ms
Loss rate: 0.00%
```

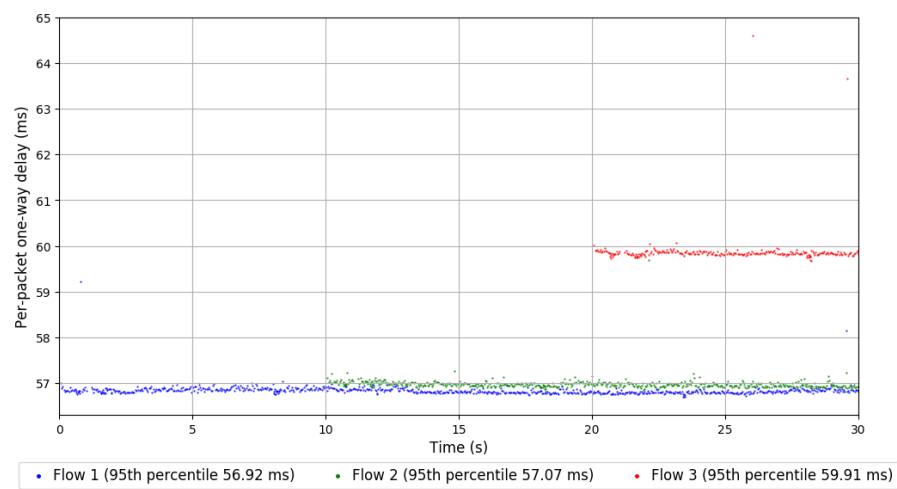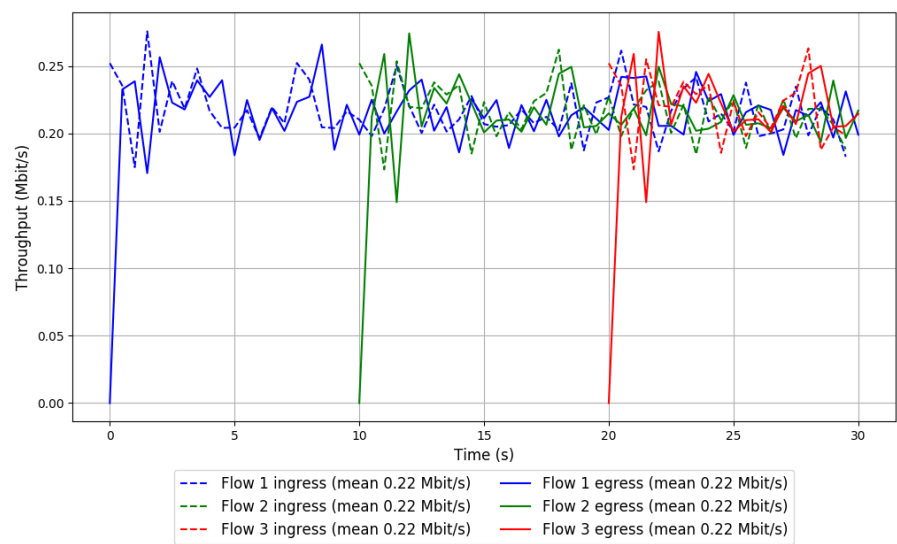# Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2019-03-10 00:02:20
End at: 2019-03-10 00:02:50
Local clock offset: -0.471 ms
Remote clock offset: 0.019 ms


# Below is generated by plot.py at 2019-03-10 03:13:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 59.861 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 56.923 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.069 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 59.914 ms
Loss rate: 0.00%
```

Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2019-03-10 00:44:21
End at: 2019-03-10 00:44:51
Local clock offset: 0.292 ms
Remote clock offset: -0.38 ms


# Below is generated by plot.py at 2019-03-10 03:13:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 56.951 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 56.651 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 56.983 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 56.994 ms
Loss rate: 0.00%
```
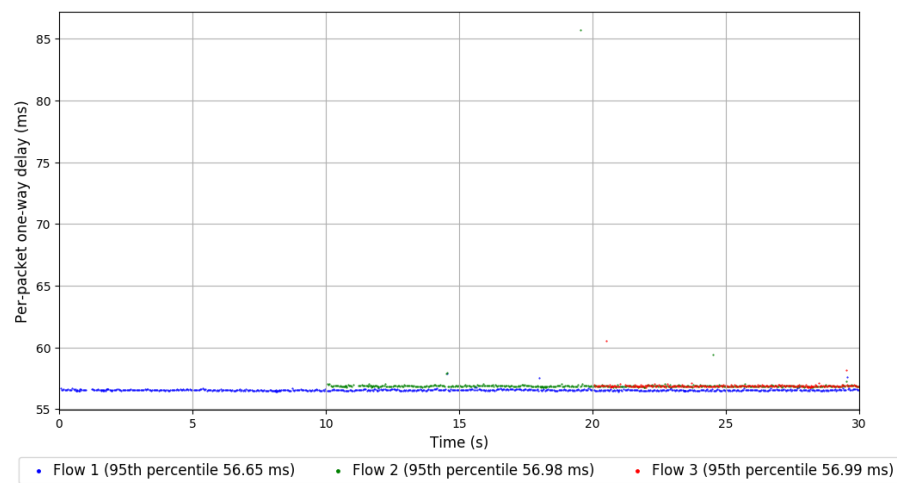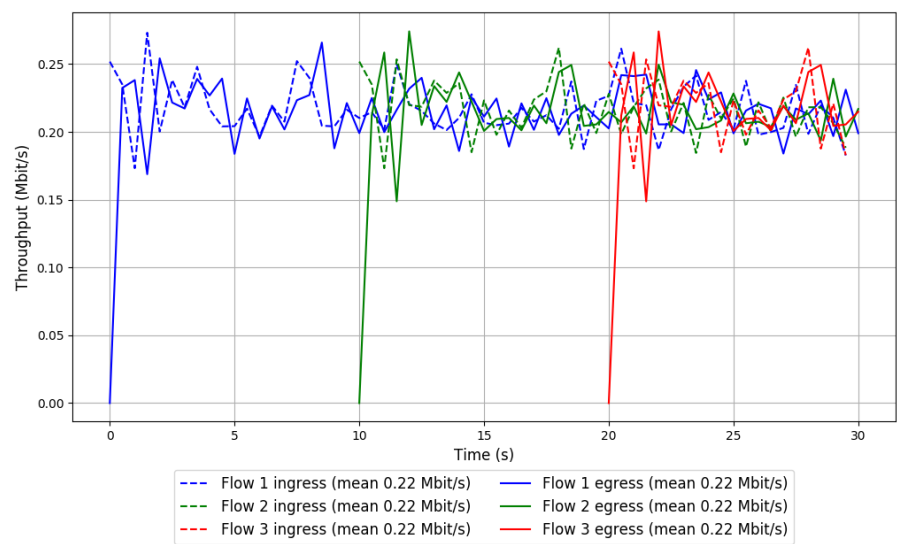
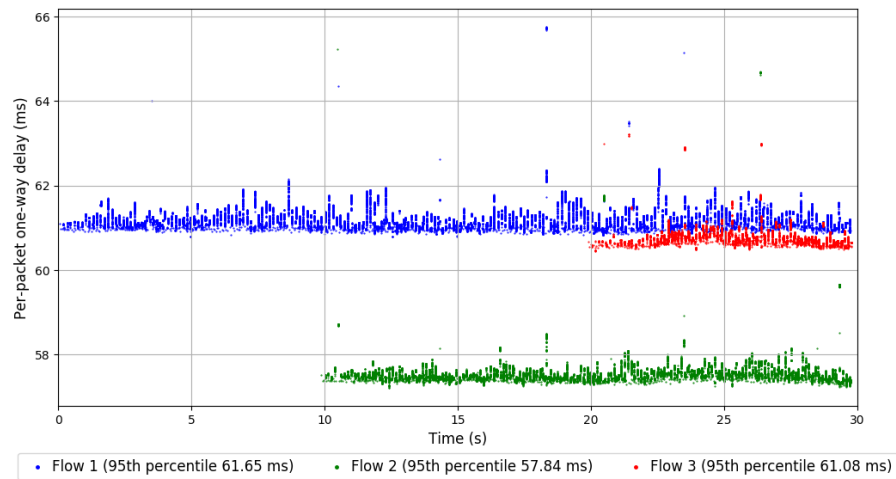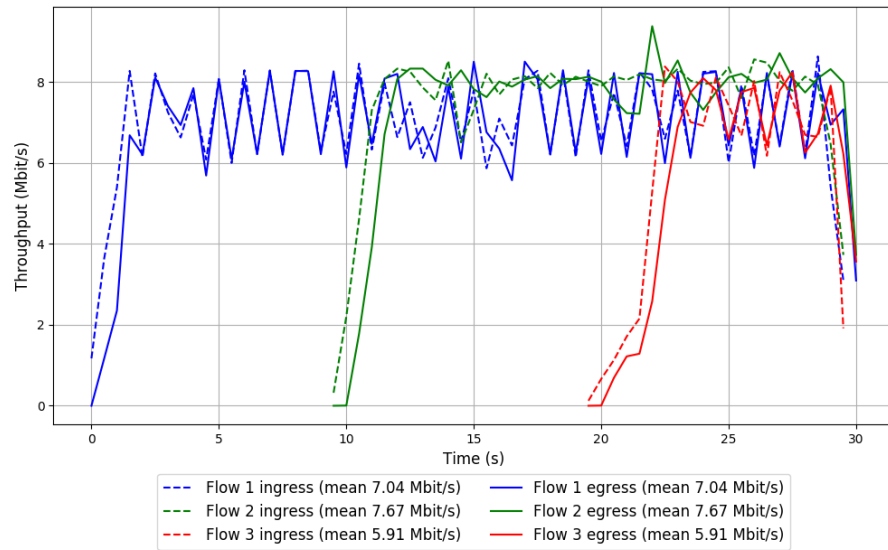## Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2019-03-09 21:37:45
End at: 2019-03-09 21:38:15
Local clock offset: -0.748 ms
Remote clock offset: -0.357 ms


# Below is generated by plot.py at 2019-03-10 03:13:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.13 Mbit/s
95th percentile per-packet one-way delay: 61.517 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.04 Mbit/s
95th percentile per-packet one-way delay: 61.651 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 7.67 Mbit/s
95th percentile per-packet one-way delay: 57.840 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 5.91 Mbit/s
95th percentile per-packet one-way delay: 61.076 ms
Loss rate: 0.00%
```
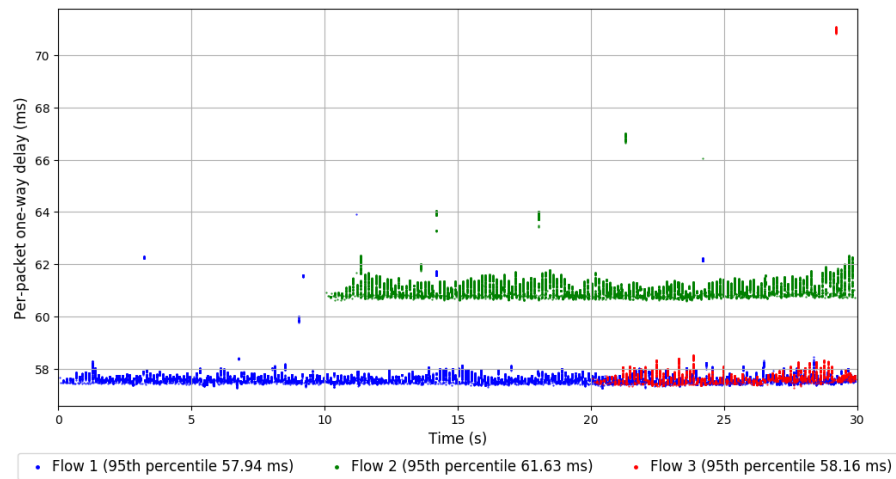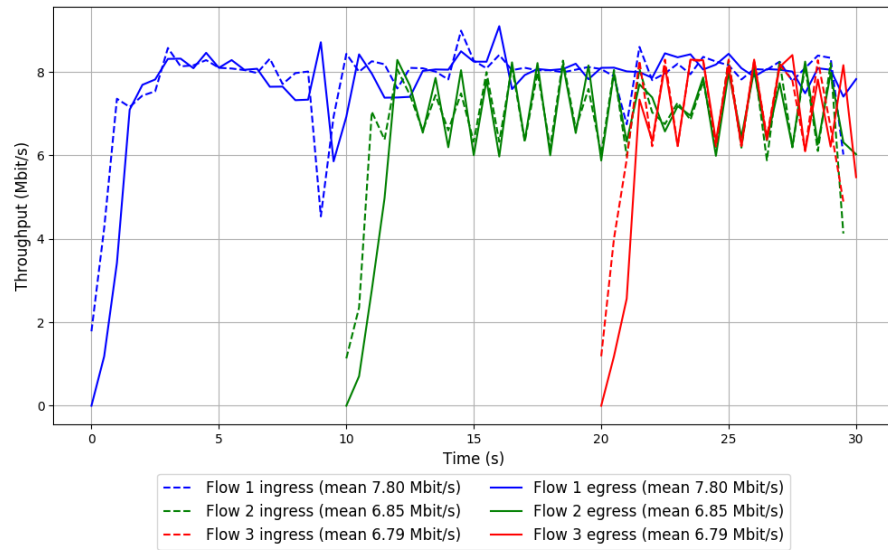
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2019-03-09 22:18:47
End at: 2019-03-09 22:19:17
Local clock offset: -0.691 ms
Remote clock offset: -0.212 ms


# Below is generated by plot.py at 2019-03-10 03:13:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.59 Mbit/s
95th percentile per-packet one-way delay: 61.407 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.80 Mbit/s
95th percentile per-packet one-way delay: 57.943 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 6.85 Mbit/s
95th percentile per-packet one-way delay: 61.628 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 6.79 Mbit/s
95th percentile per-packet one-way delay: 58.155 ms
Loss rate: 0.00%
```
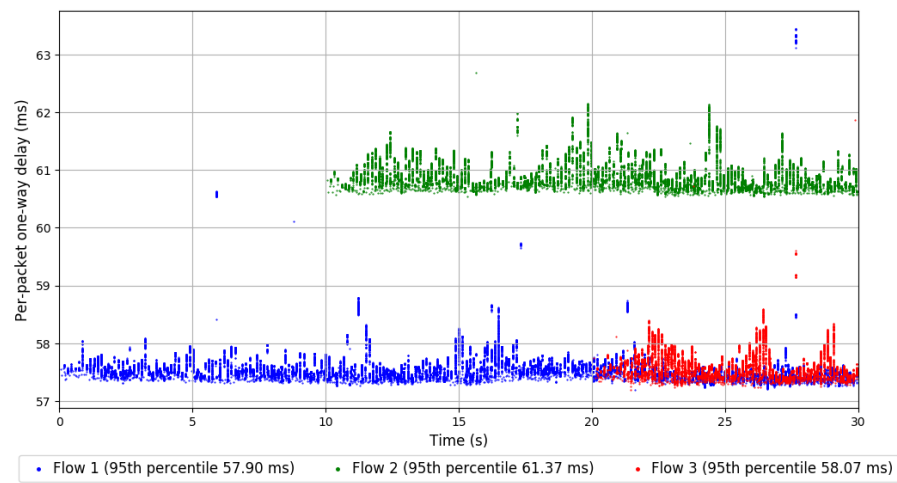
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2019-03-09 23:00:02
End at: 2019-03-09 23:00:32
Local clock offset: -0.697 ms
Remote clock offset: -0.095 ms


# Below is generated by plot.py at 2019-03-10 03:13:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.12 Mbit/s
95th percentile per-packet one-way delay: 61.153 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 6.99 Mbit/s
95th percentile per-packet one-way delay: 57.901 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 7.04 Mbit/s
95th percentile per-packet one-way delay: 61.367 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 7.40 Mbit/s
95th percentile per-packet one-way delay: 58.069 ms
Loss rate: 0.00%
```
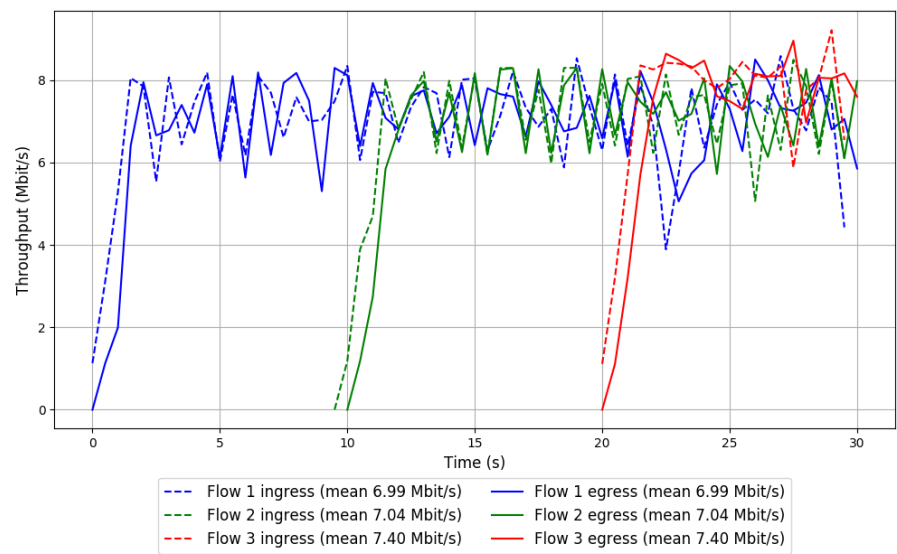
Run 3: Report of Sprout — Data Link

Run 4: Statistics of Sprout

Start at: 2019-03-09 23:41:56
End at: 2019-03-09 23:42:26
Local clock offset: -1.024 ms
Remote clock offset: 0.356 ms

Below is generated by plot.py at 2019-03-10 03:13:24
Datalink statistics
-- Total of 3 flows:
Average throughput: 14.59 Mbit/s
95th percentile per-packet one-way delay: 58.339 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.74 Mbit/s
95th percentile per-packet one-way delay: 58.370 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 6.71 Mbit/s
95th percentile per-packet one-way delay: 58.300 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 7.25 Mbit/s
95th percentile per-packet one-way delay: 58.108 ms
Loss rate: 0.00%
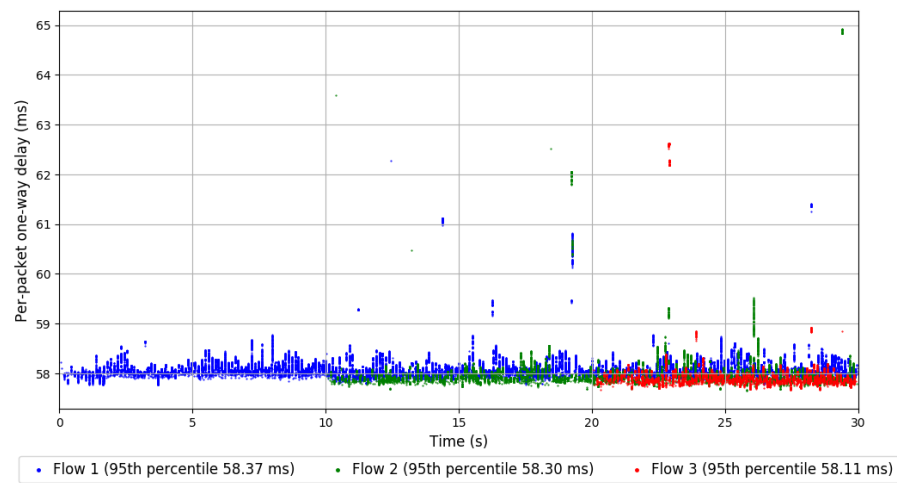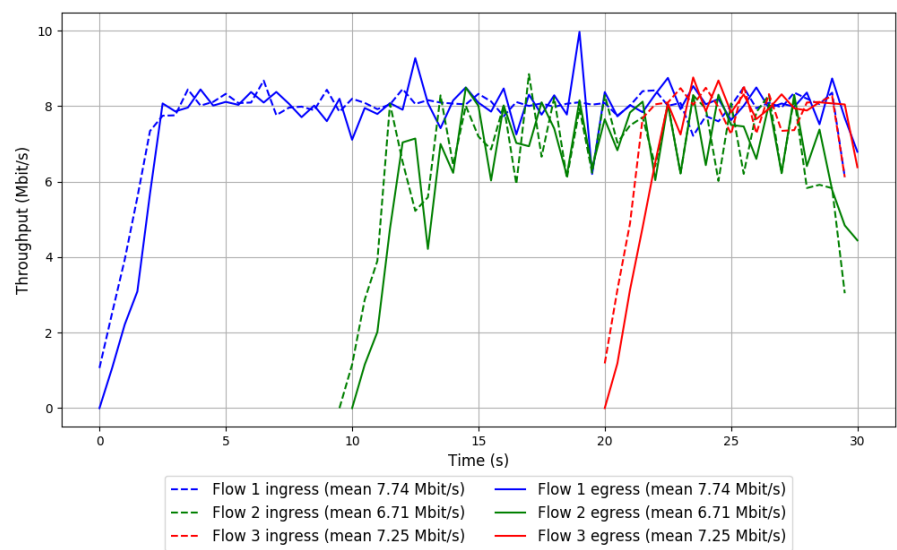
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2019-03-10 00:22:43
End at: 2019-03-10 00:23:13
Local clock offset: -0.367 ms
Remote clock offset: -0.16 ms


# Below is generated by plot.py at 2019-03-10 03:13:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.83 Mbit/s
95th percentile per-packet one-way delay: 60.694 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.72 Mbit/s
95th percentile per-packet one-way delay: 57.531 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 6.95 Mbit/s
95th percentile per-packet one-way delay: 60.881 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 7.56 Mbit/s
95th percentile per-packet one-way delay: 57.092 ms
Loss rate: 0.00%
```
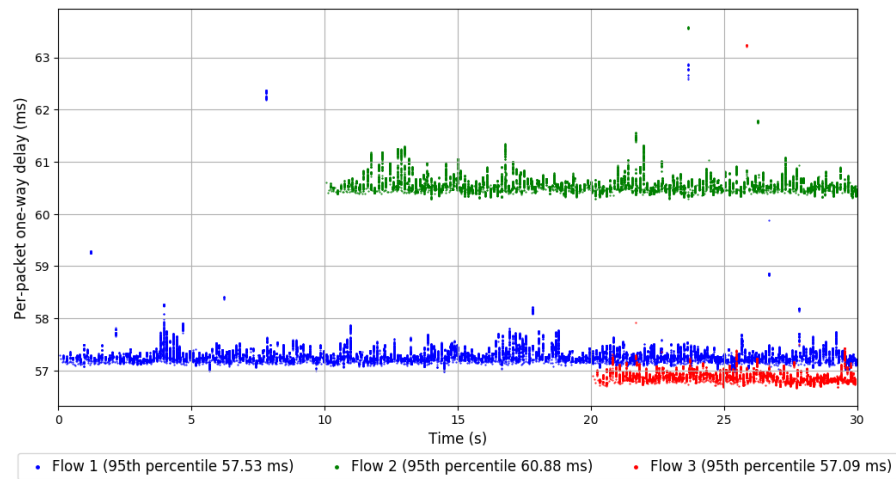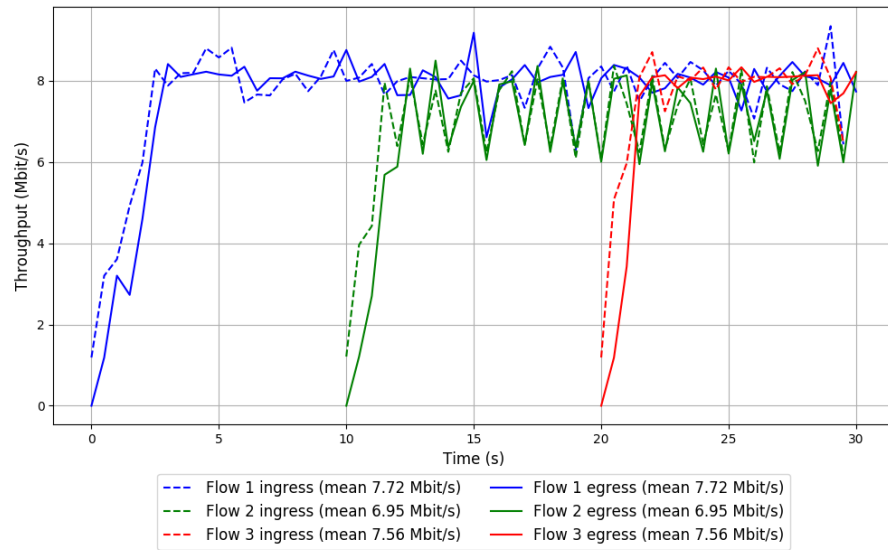
Run 5: Report of Sprout — Data Link

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

Start at: 2019-03-09 21:53:02
End at: 2019-03-09 21:53:32
Local clock offset: 0.035 ms
Remote clock offset: -0.253 ms


# Below is generated by plot.py at 2019-03-10 03:20:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 454.28 Mbit/s
95th percentile per-packet one-way delay: 64.415 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 231.38 Mbit/s
95th percentile per-packet one-way delay: 63.026 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 220.64 Mbit/s
95th percentile per-packet one-way delay: 65.043 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 227.10 Mbit/s
95th percentile per-packet one-way delay: 65.965 ms
Loss rate: 0.00%
```
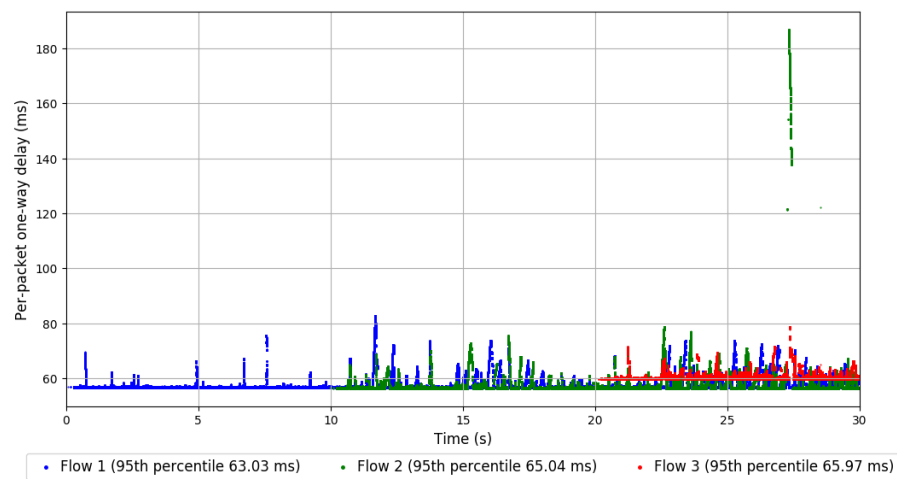
Run 1: Report of TaoVA-100x — Data Link

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

Start at: 2019-03-09 22:33:22
End at: 2019-03-09 22:33:52
Local clock offset: -0.715 ms
Remote clock offset: -0.306 ms


# Below is generated by plot.py at 2019-03-10 03:20:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 463.57 Mbit/s
95th percentile per-packet one-way delay: 58.809 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 233.25 Mbit/s
95th percentile per-packet one-way delay: 58.178 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 227.46 Mbit/s
95th percentile per-packet one-way delay: 59.393 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 237.30 Mbit/s
95th percentile per-packet one-way delay: 59.340 ms
Loss rate: 0.01%
```
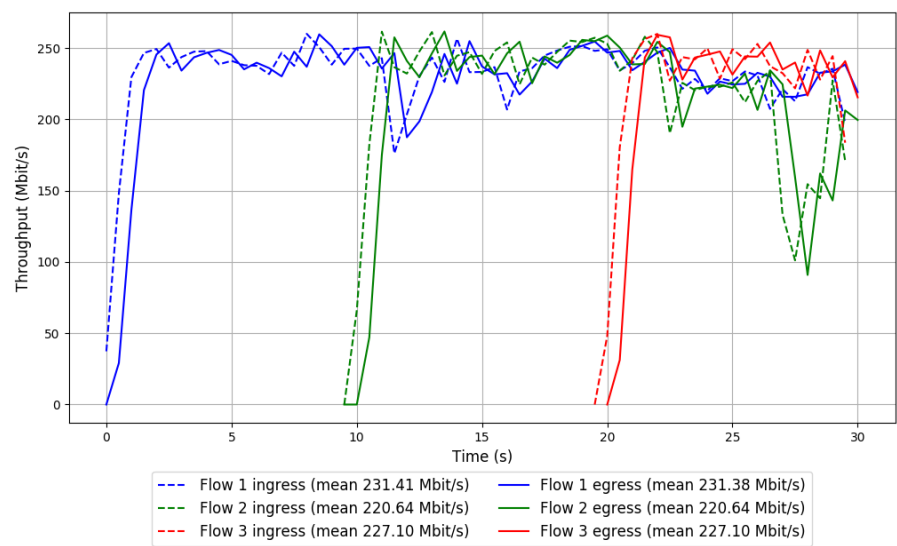
Run 2: Report of TaoVA-100x — Data Link

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

Start at: 2019-03-09 23:14:25
End at: 2019-03-09 23:14:55
Local clock offset: -0.773 ms
Remote clock offset: -0.186 ms


# Below is generated by plot.py at 2019-03-10 03:20:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 447.29 Mbit/s
95th percentile per-packet one-way delay: 65.222 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 224.39 Mbit/s
95th percentile per-packet one-way delay: 64.957 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 229.11 Mbit/s
95th percentile per-packet one-way delay: 61.704 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 211.55 Mbit/s
95th percentile per-packet one-way delay: 69.741 ms
Loss rate: 0.00%
```

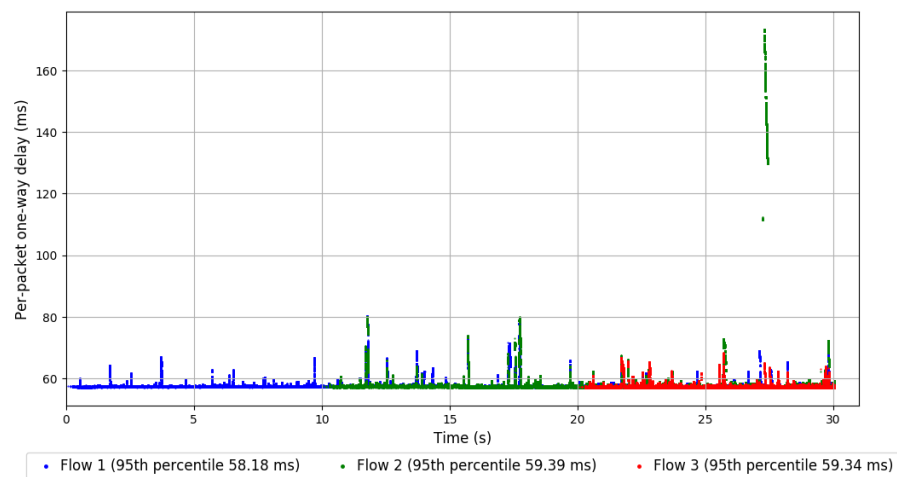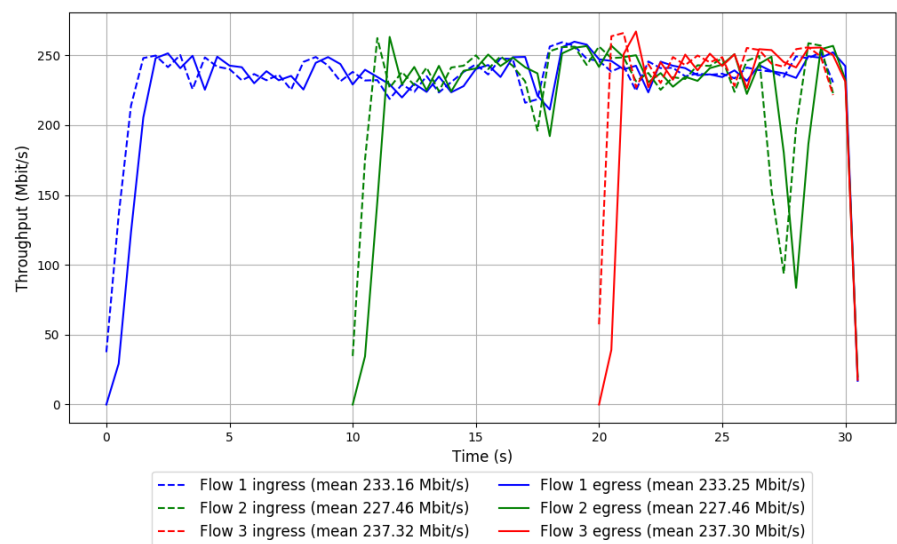## Run 3: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 224.39 Mbit/s) --- Flow 1 egress (mean 224.39 Mbit/s)
Flow 2 ingress (mean 229.10 Mbit/s) --- Flow 2 egress (mean 229.11 Mbit/s)
Flow 3 ingress (mean 211.55 Mbit/s) --- Flow 3 egress (mean 211.55 Mbit/s)

Flow 1 (95th percentile 64.96 ms)   Flow 2 (95th percentile 61.70 ms)   Flow 3 (95th percentile 69.74 ms)
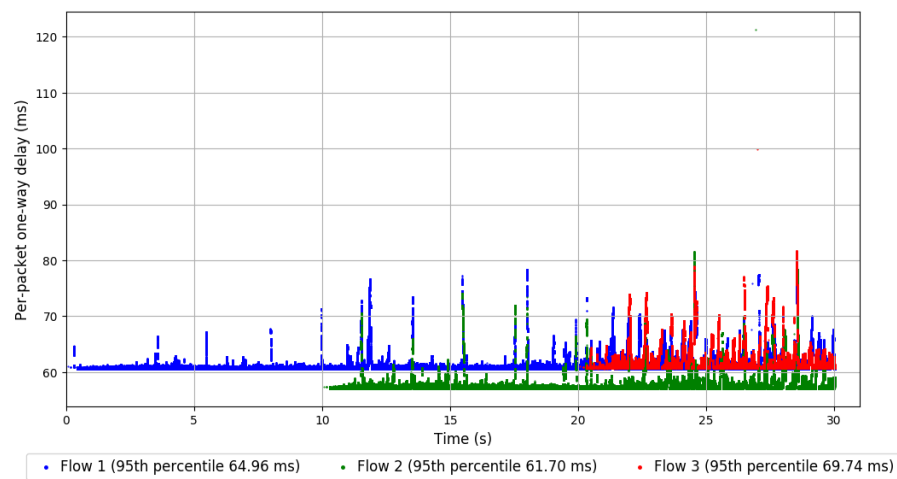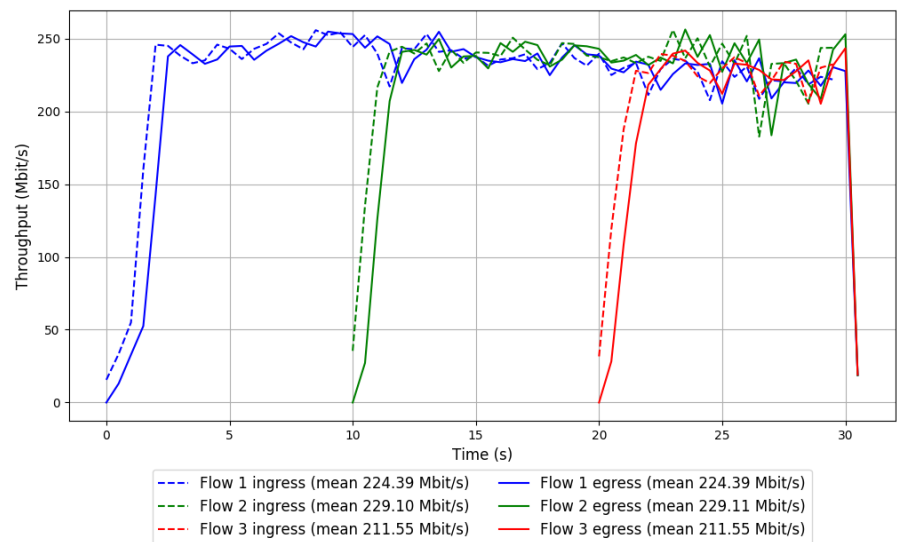
```
Run 4: Statistics of TaoVA-100x

Start at: 2019-03-09 23:56:02
End at: 2019-03-09 23:56:32
Local clock offset: -0.706 ms
Remote clock offset: 0.033 ms

# Below is generated by plot.py at 2019-03-10 03:20:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 438.91 Mbit/s
95th percentile per-packet one-way delay: 62.365 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 232.52 Mbit/s
95th percentile per-packet one-way delay: 59.756 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 218.03 Mbit/s
95th percentile per-packet one-way delay: 61.451 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 184.30 Mbit/s
95th percentile per-packet one-way delay: 67.123 ms
Loss rate: 0.00%
```
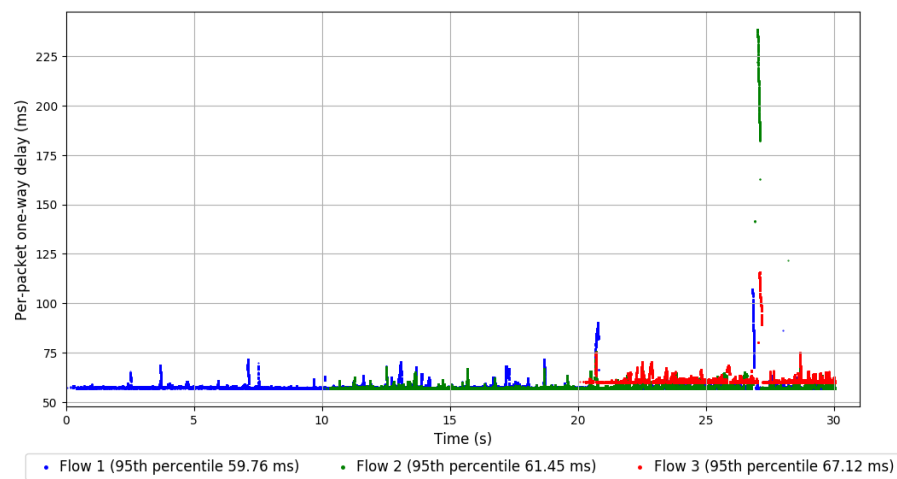
Run 4: Report of TaoVA-100x — Data Link

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

Start at: 2019-03-10 00:37:22
End at: 2019-03-10 00:37:52
Local clock offset: -0.033 ms
Remote clock offset: -0.022 ms

# Below is generated by plot.py at 2019-03-10 03:20:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 427.23 Mbit/s
95th percentile per-packet one-way delay: 65.708 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 223.13 Mbit/s
95th percentile per-packet one-way delay: 61.716 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 204.21 Mbit/s
95th percentile per-packet one-way delay: 67.054 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 204.97 Mbit/s
95th percentile per-packet one-way delay: 70.148 ms
Loss rate: 0.03%
```
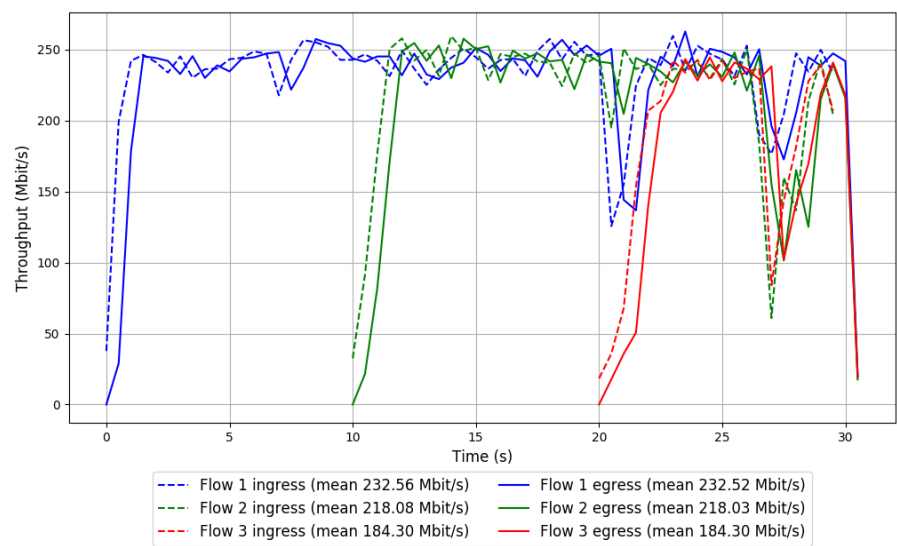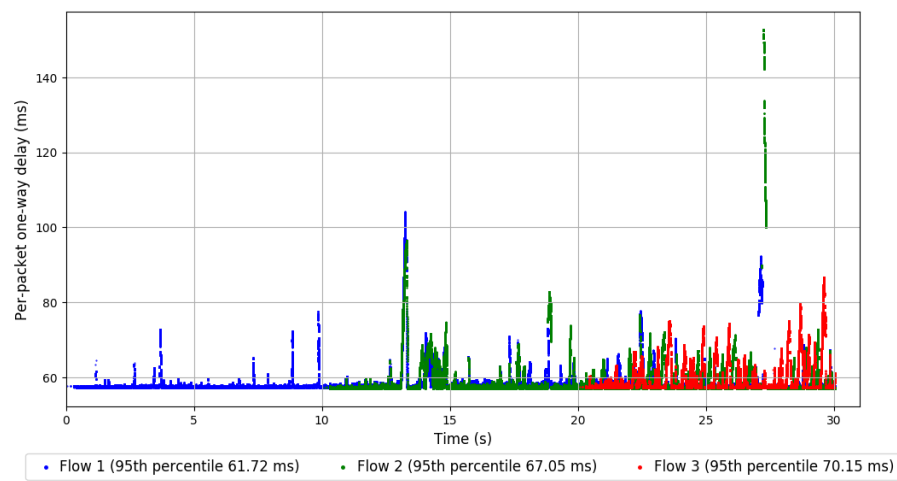
Run 5: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 223.17 Mbit/s)   Flow 1 egress (mean 223.13 Mbit/s)
Flow 2 ingress (mean 204.25 Mbit/s)   Flow 2 egress (mean 204.21 Mbit/s)
Flow 3 ingress (mean 205.06 Mbit/s)   Flow 3 egress (mean 204.97 Mbit/s)

Flow 1 (95th percentile 61.72 ms)   Flow 2 (95th percentile 67.05 ms)   Flow 3 (95th percentile 70.15 ms)

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```
Run 1: Statistics of TCP Vegas

Start at: 2019-03-09 21:57:37
End at: 2019-03-09 21:58:07
Local clock offset: -0.403 ms
Remote clock offset: 0.003 ms


# Below is generated by plot.py at 2019-03-10 03:20:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 762.32 Mbit/s
95th percentile per-packet one-way delay: 68.891 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 420.57 Mbit/s
95th percentile per-packet one-way delay: 66.097 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 377.06 Mbit/s
95th percentile per-packet one-way delay: 73.751 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 272.31 Mbit/s
95th percentile per-packet one-way delay: 62.482 ms
Loss rate: 0.00%
```
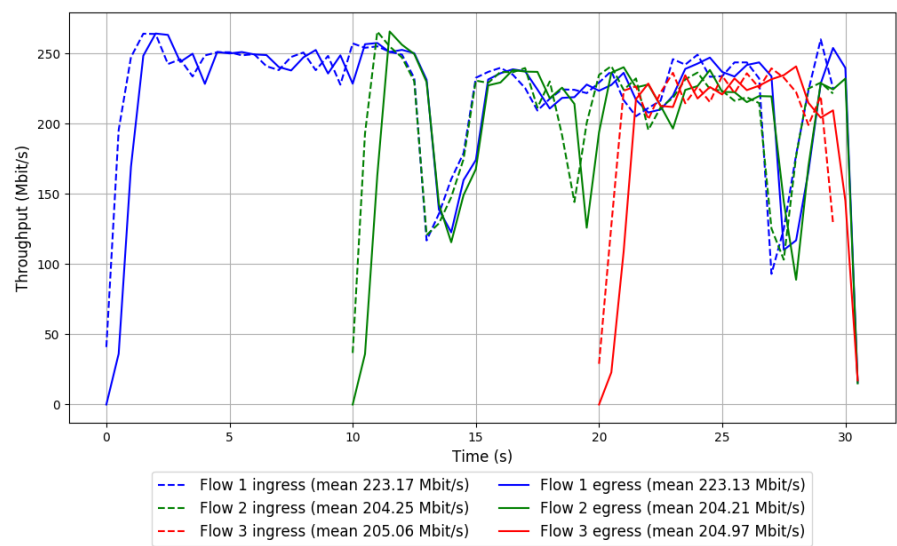
Run 1: Report of TCP Vegas — Data Link

- Flow 1 ingress (mean 420.57 Mbit/s)
- Flow 1 egress (mean 420.57 Mbit/s)
- Flow 2 ingress (mean 377.07 Mbit/s)
- Flow 2 egress (mean 377.06 Mbit/s)
- Flow 3 ingress (mean 272.30 Mbit/s)
- Flow 3 egress (mean 272.31 Mbit/s)

- Flow 1 (95th percentile 66.10 ms)
- Flow 2 (95th percentile 73.75 ms)
- Flow 3 (95th percentile 62.48 ms)

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```
Run 2: Statistics of TCP Vegas

Start at: 2019-03-09 22:38:25
End at: 2019-03-09 22:38:55
Local clock offset: -0.308 ms
Remote clock offset: -0.353 ms


# Below is generated by plot.py at 2019-03-10 03:25:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 794.30 Mbit/s
95th percentile per-packet one-way delay: 78.622 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 459.19 Mbit/s
95th percentile per-packet one-way delay: 74.831 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 337.20 Mbit/s
95th percentile per-packet one-way delay: 85.496 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 332.96 Mbit/s
95th percentile per-packet one-way delay: 71.020 ms
Loss rate: 0.00%
```
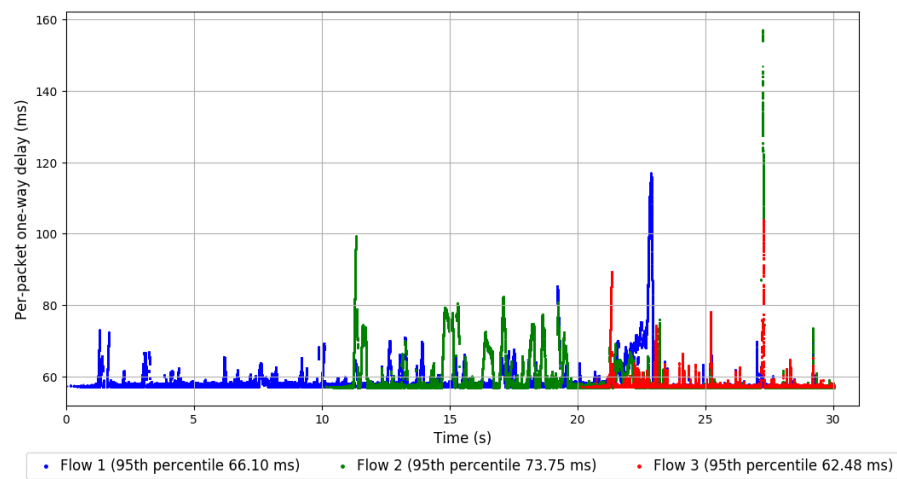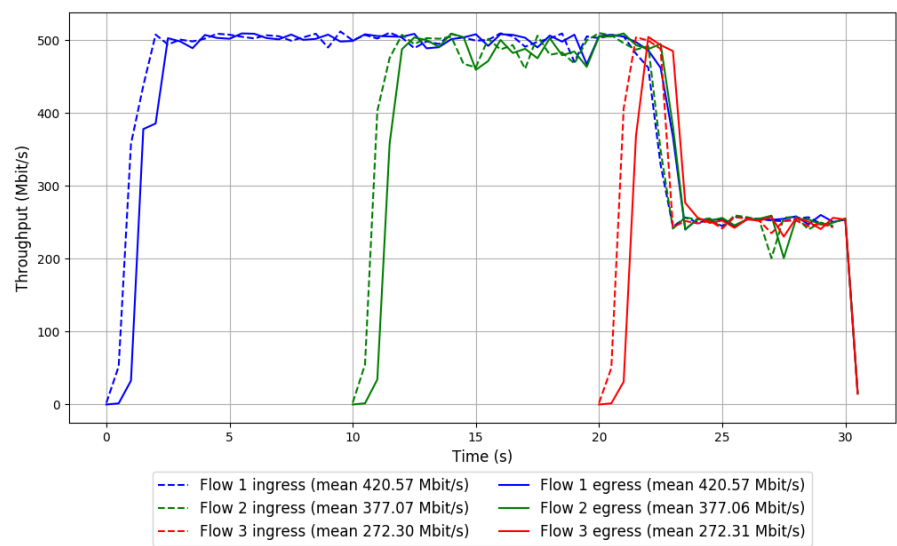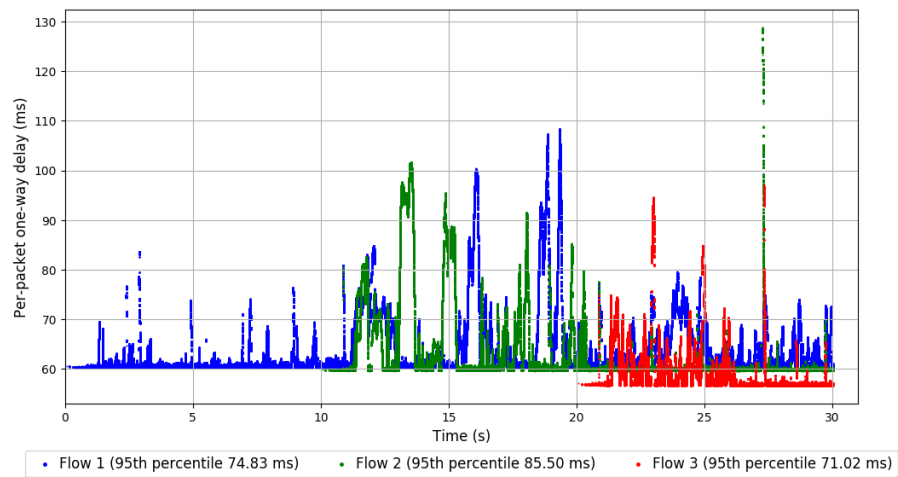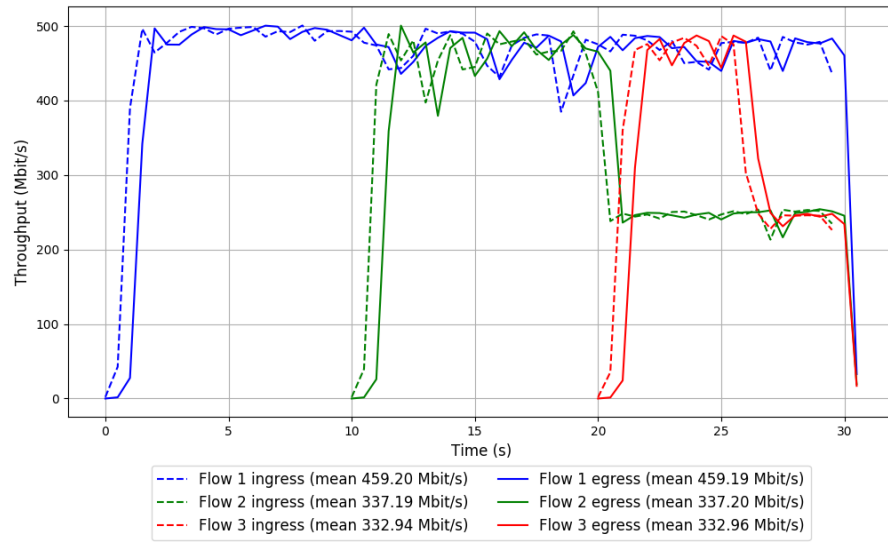
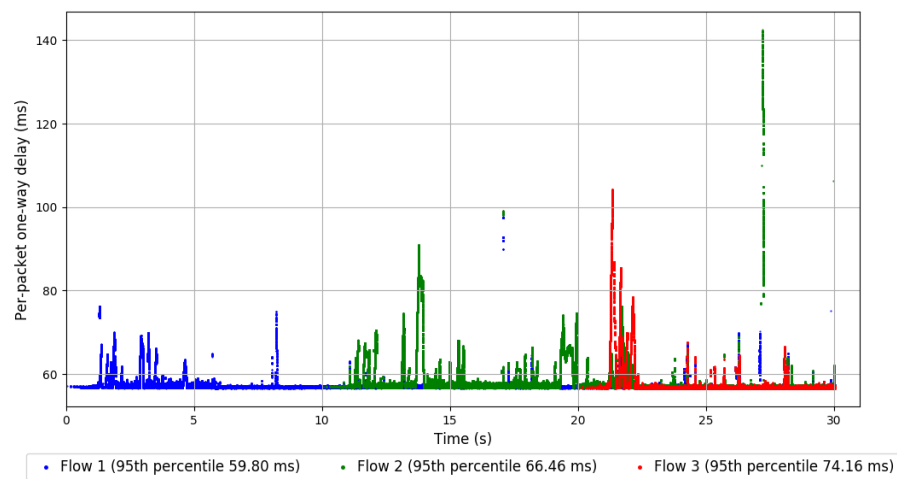Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2019-03-09 23:19:38
End at: 2019-03-09 23:20:08
Local clock offset: -0.344 ms
Remote clock offset: -0.079 ms


# Below is generated by plot.py at 2019-03-10 03:26:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 574.81 Mbit/s
95th percentile per-packet one-way delay: 65.469 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 250.18 Mbit/s
95th percentile per-packet one-way delay: 59.804 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 370.94 Mbit/s
95th percentile per-packet one-way delay: 66.459 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 233.44 Mbit/s
95th percentile per-packet one-way delay: 74.159 ms
Loss rate: 0.00%
```

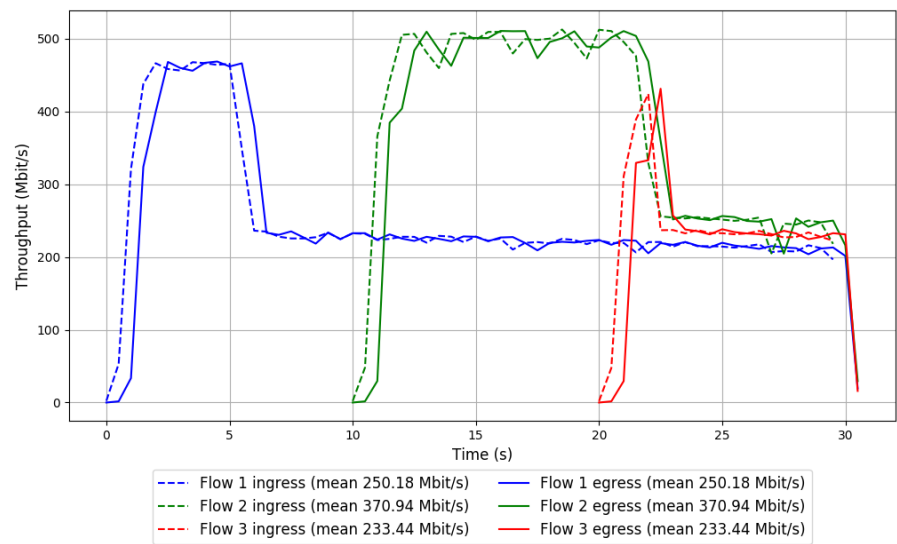## Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2019-03-10 00:00:08
End at: 2019-03-10 00:00:38
Local clock offset: -0.311 ms
Remote clock offset: 0.518 ms


# Below is generated by plot.py at 2019-03-10 03:32:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 698.31 Mbit/s
95th percentile per-packet one-way delay: 68.736 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 402.04 Mbit/s
95th percentile per-packet one-way delay: 66.635 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 276.07 Mbit/s
95th percentile per-packet one-way delay: 60.272 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 338.45 Mbit/s
95th percentile per-packet one-way delay: 77.819 ms
Loss rate: 0.00%
```

Run 4: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 402.04 Mbit/s) Flow 1 egress (mean 402.04 Mbit/s)
Flow 2 ingress (mean 276.07 Mbit/s) Flow 2 egress (mean 276.07 Mbit/s)
Flow 3 ingress (mean 338.46 Mbit/s) Flow 3 egress (mean 338.45 Mbit/s)

Flow 1 (95th percentile 66.64 ms) Flow 2 (95th percentile 60.27 ms) Flow 3 (95th percentile 77.82 ms)

```
Run 5: Statistics of TCP Vegas

Start at: 2019-03-10 00:42:16
End at: 2019-03-10 00:42:46
Local clock offset: -0.024 ms
Remote clock offset: -0.37 ms


# Below is generated by plot.py at 2019-03-10 03:32:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 628.24 Mbit/s
95th percentile per-packet one-way delay: 72.563 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 259.67 Mbit/s
95th percentile per-packet one-way delay: 58.165 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 419.17 Mbit/s
95th percentile per-packet one-way delay: 78.092 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 269.54 Mbit/s
95th percentile per-packet one-way delay: 60.985 ms
Loss rate: 0.00%
```
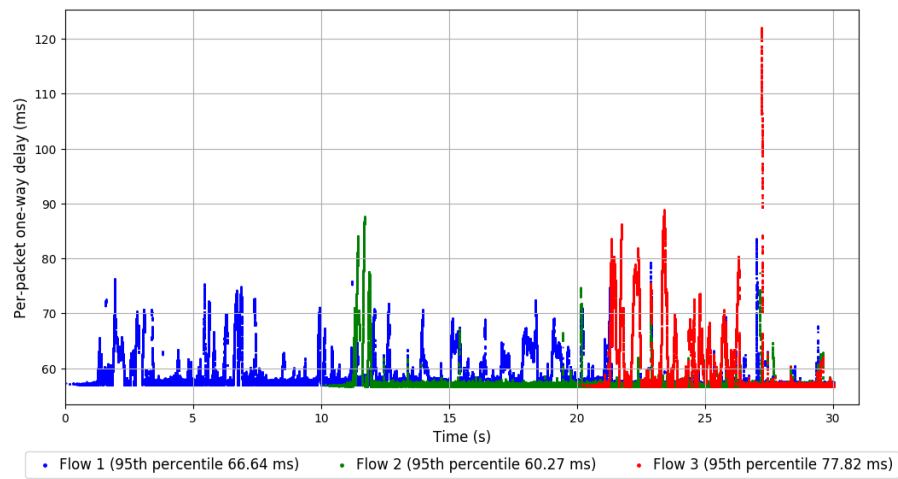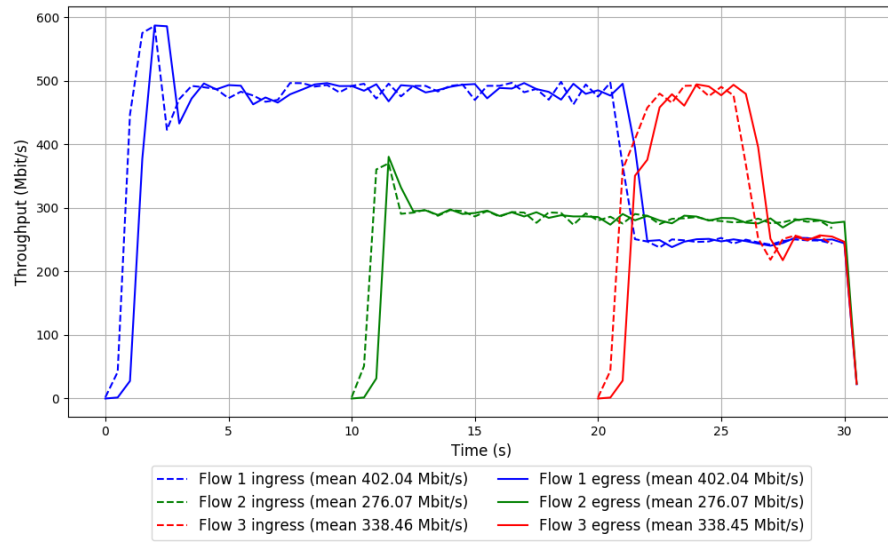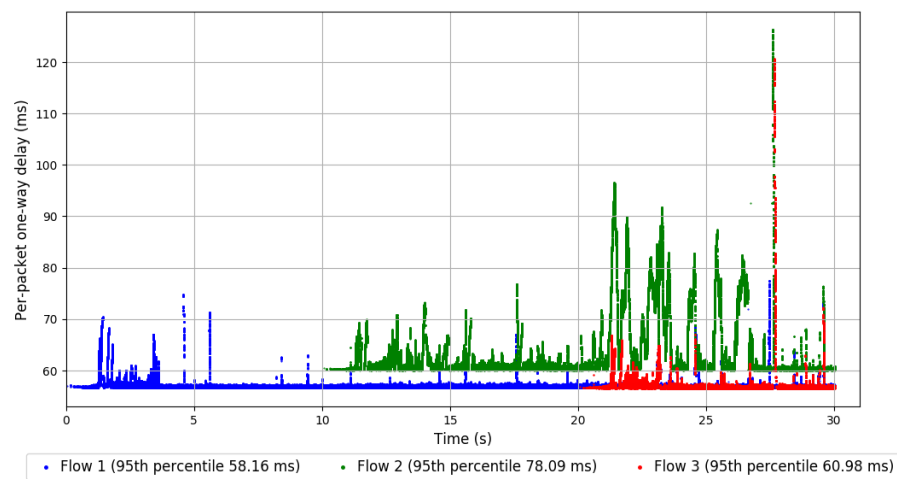
Run 5: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 259.67 Mbit/s)   Flow 1 egress (mean 259.67 Mbit/s)
Flow 2 ingress (mean 419.17 Mbit/s)   Flow 2 egress (mean 419.17 Mbit/s)
Flow 3 ingress (mean 269.55 Mbit/s)   Flow 3 egress (mean 269.54 Mbit/s)

Flow 1 (95th percentile 58.16 ms)   Flow 2 (95th percentile 78.09 ms)   Flow 3 (95th percentile 60.98 ms)

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```
Run 1: Statistics of Verus

Start at: 2019-03-09 21:29:47
End at: 2019-03-09 21:30:17
Local clock offset: -0.278 ms
Remote clock offset: 0.121 ms


# Below is generated by plot.py at 2019-03-10 03:32:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 203.14 Mbit/s
95th percentile per-packet one-way delay: 103.880 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 108.66 Mbit/s
95th percentile per-packet one-way delay: 96.874 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 97.66 Mbit/s
95th percentile per-packet one-way delay: 200.106 ms
Loss rate: 0.89%
-- Flow 3:
Average throughput: 90.18 Mbit/s
95th percentile per-packet one-way delay: 66.947 ms
Loss rate: 0.00%
```
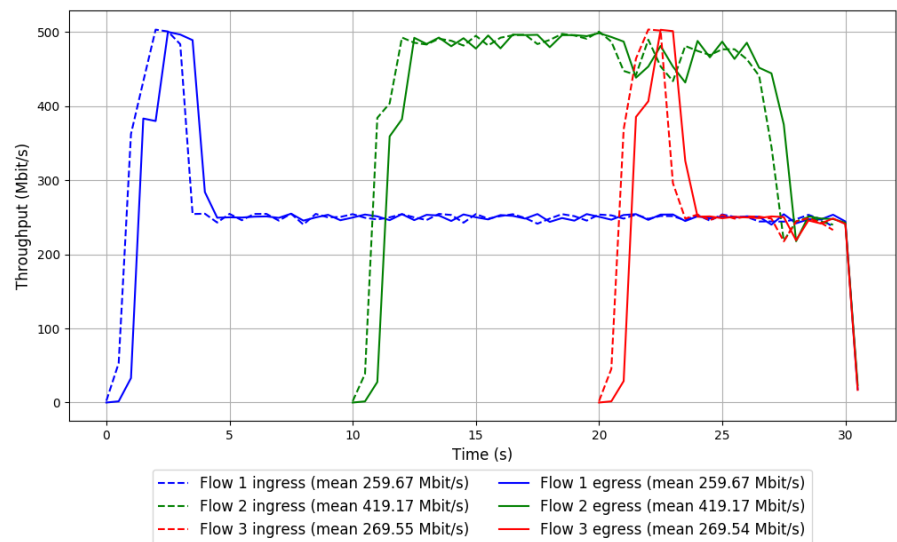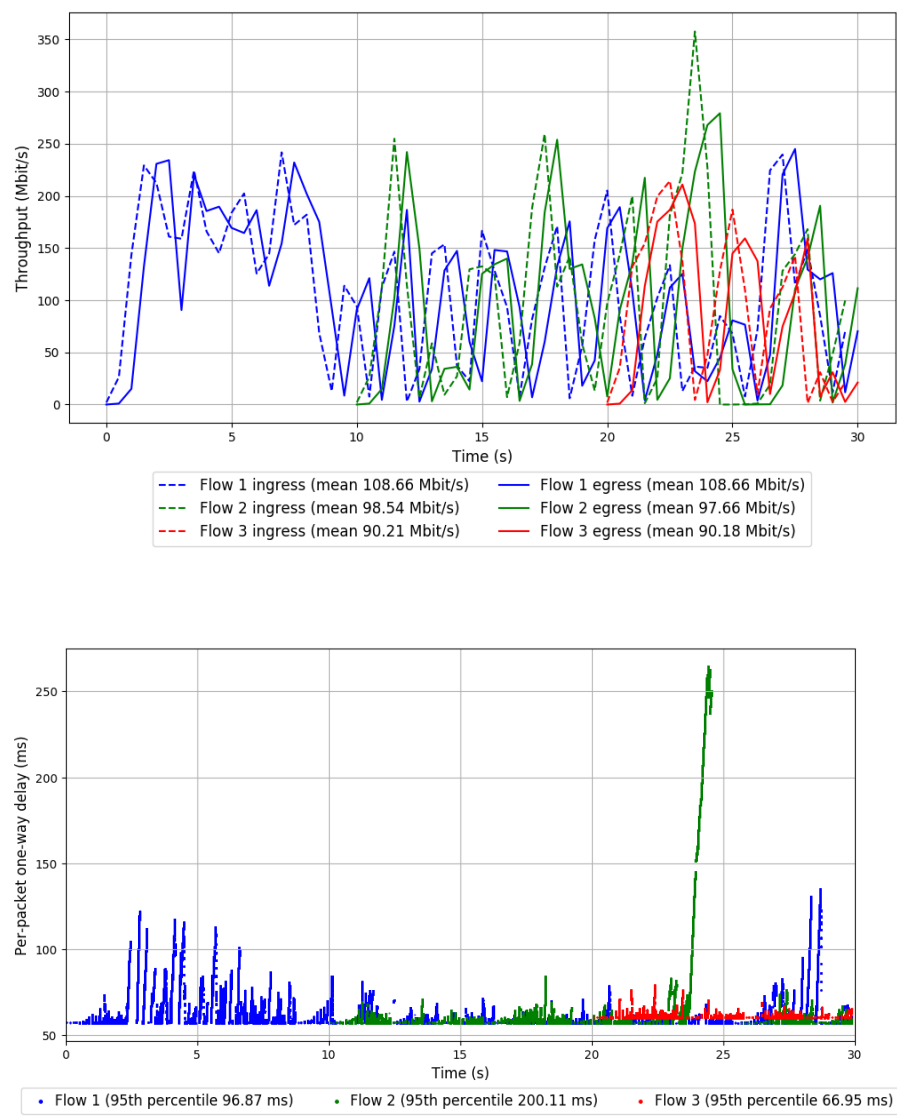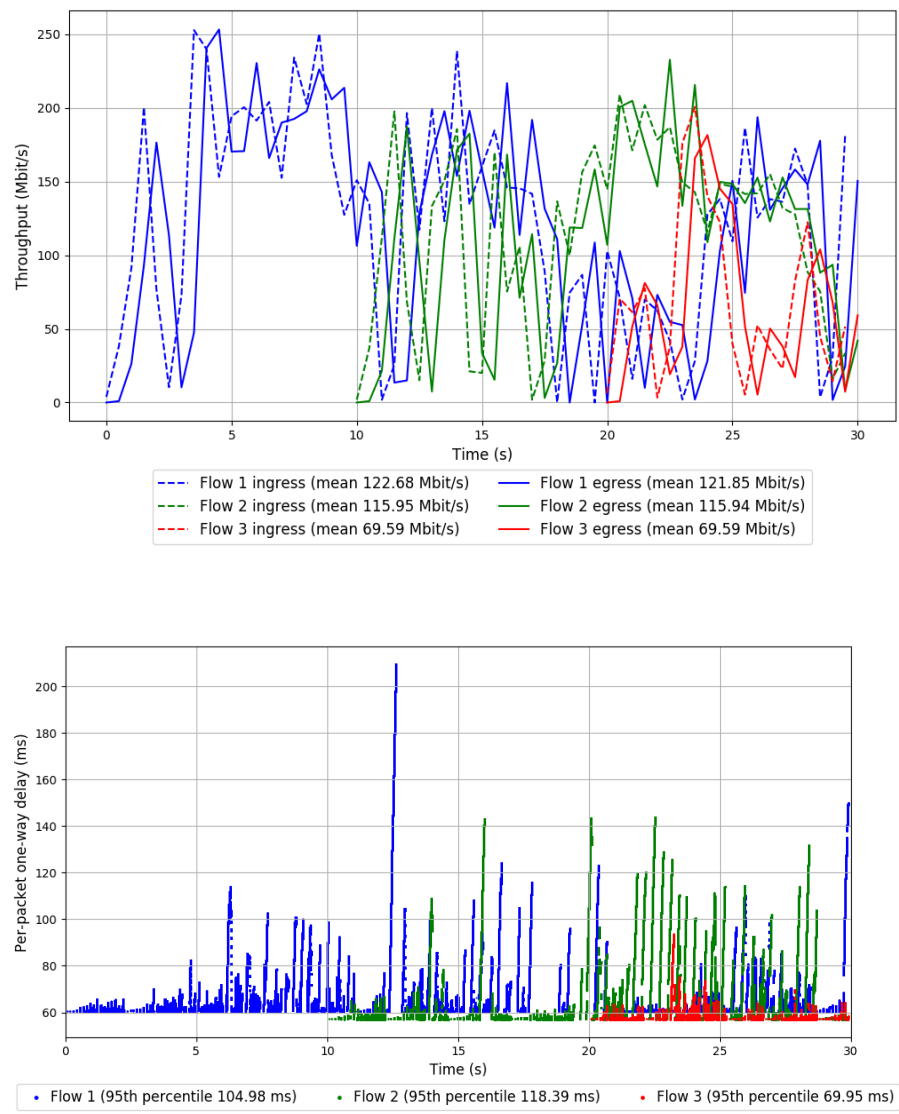
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2019-03-09 22:11:05
End at: 2019-03-09 22:11:35
Local clock offset: -0.672 ms
Remote clock offset: -0.339 ms


# Below is generated by plot.py at 2019-03-10 03:32:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 221.88 Mbit/s
95th percentile per-packet one-way delay: 109.567 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 121.85 Mbit/s
95th percentile per-packet one-way delay: 104.982 ms
Loss rate: 0.55%
-- Flow 2:
Average throughput: 115.94 Mbit/s
95th percentile per-packet one-way delay: 118.387 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 69.59 Mbit/s
95th percentile per-packet one-way delay: 69.946 ms
Loss rate: 0.00%
```

Run 2: Report of Verus — Data Link

Flow 1 ingress (mean 122.68 Mbit/s) ----- Flow 1 egress (mean 121.85 Mbit/s)
Flow 2 ingress (mean 115.95 Mbit/s) ----- Flow 2 egress (mean 115.94 Mbit/s)
Flow 3 ingress (mean 69.59 Mbit/s) ----- Flow 3 egress (mean 69.59 Mbit/s)

Flow 1 (95th percentile 104.98 ms)   Flow 2 (95th percentile 118.39 ms)   Flow 3 (95th percentile 69.95 ms)
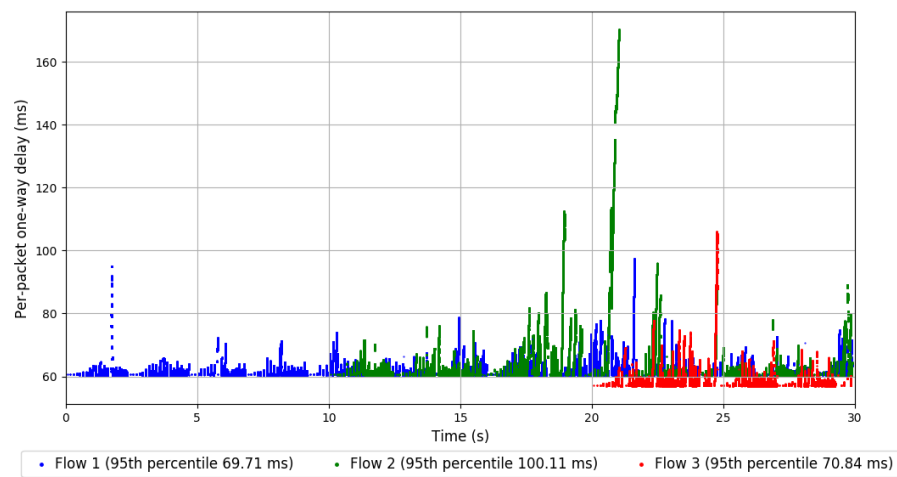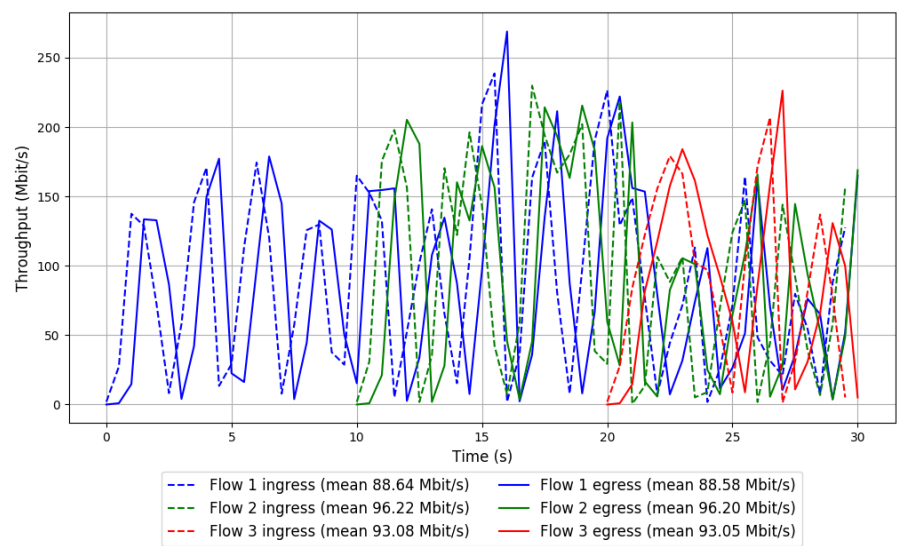
```
Run 3: Statistics of Verus

Start at: 2019-03-09 22:52:16
End at: 2019-03-09 22:52:46
Local clock offset: -0.659 ms
Remote clock offset: -0.193 ms


# Below is generated by plot.py at 2019-03-10 03:32:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 182.92 Mbit/s
95th percentile per-packet one-way delay: 76.550 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 88.58 Mbit/s
95th percentile per-packet one-way delay: 69.708 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 96.20 Mbit/s
95th percentile per-packet one-way delay: 100.111 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 93.05 Mbit/s
95th percentile per-packet one-way delay: 70.837 ms
Loss rate: 0.00%
```

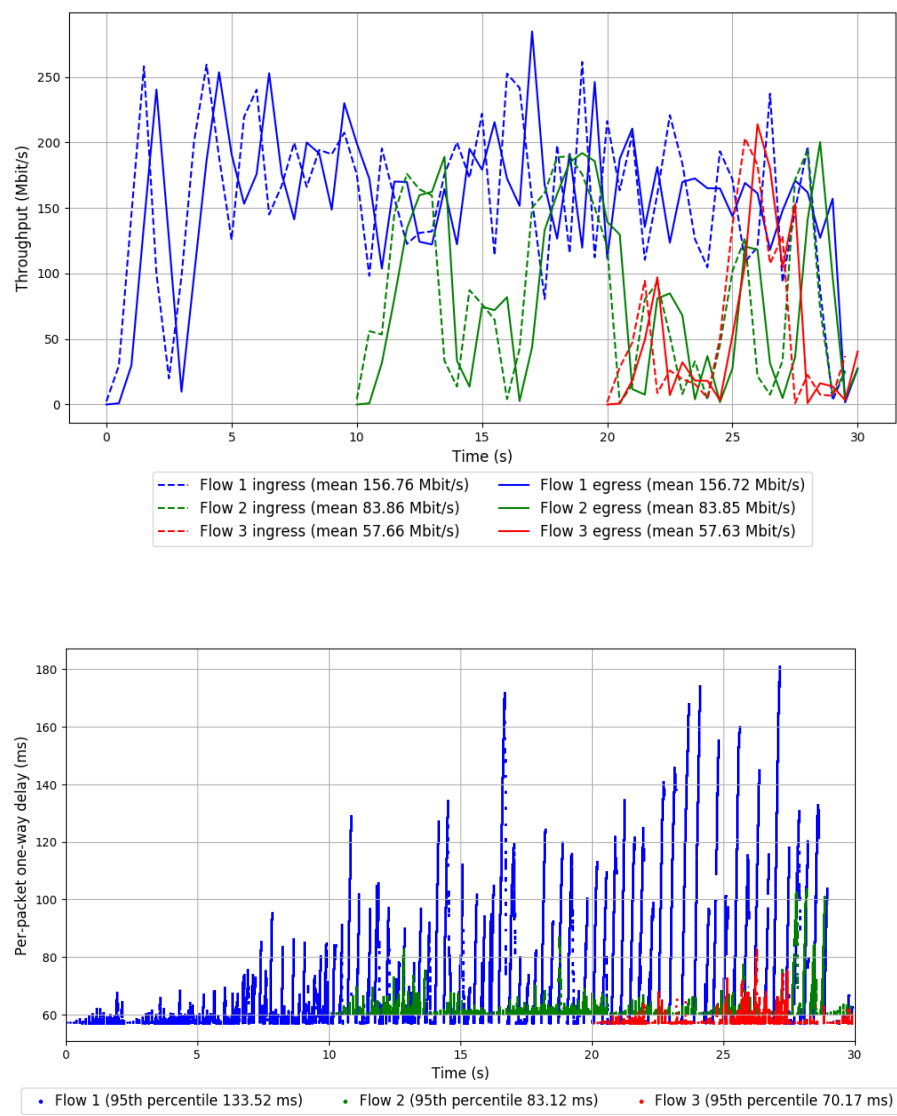## Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2019-03-09 23:33:56
End at: 2019-03-09 23:34:26
Local clock offset: -0.652 ms
Remote clock offset: -0.037 ms


# Below is generated by plot.py at 2019-03-10 03:32:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 231.18 Mbit/s
95th percentile per-packet one-way delay: 124.206 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 156.72 Mbit/s
95th percentile per-packet one-way delay: 133.517 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 83.85 Mbit/s
95th percentile per-packet one-way delay: 83.119 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 57.63 Mbit/s
95th percentile per-packet one-way delay: 70.170 ms
Loss rate: 0.02%
```

Run 4: Report of Verus — Data Link

Flow 1 ingress (mean 156.76 Mbit/s)   Flow 1 egress (mean 156.72 Mbit/s)
Flow 2 ingress (mean 83.86 Mbit/s)   Flow 2 egress (mean 83.85 Mbit/s)
Flow 3 ingress (mean 57.66 Mbit/s)   Flow 3 egress (mean 57.63 Mbit/s)

Flow 1 (95th percentile 133.52 ms)   Flow 2 (95th percentile 83.12 ms)   Flow 3 (95th percentile 70.17 ms)
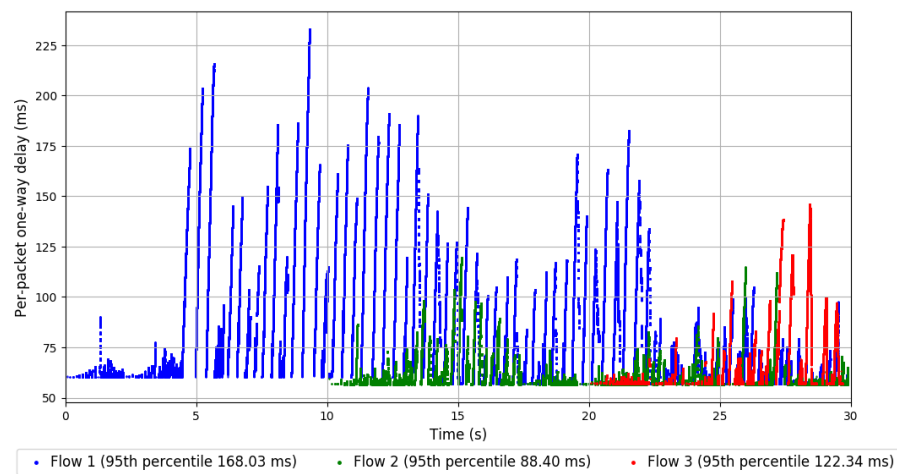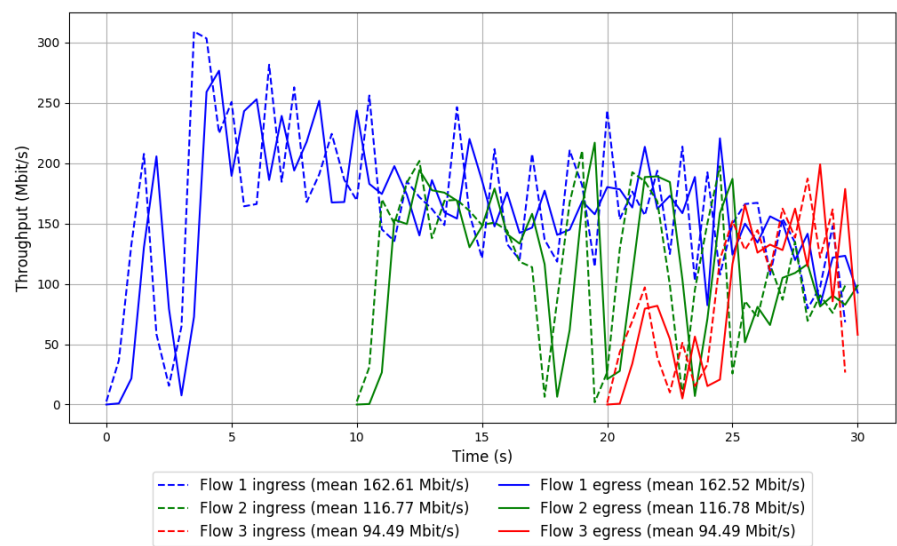
```
Run 5: Statistics of Verus

Start at: 2019-03-10 00:14:31
End at: 2019-03-10 00:15:01
Local clock offset: -0.823 ms
Remote clock offset: -0.028 ms


# Below is generated by plot.py at 2019-03-10 03:34:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 270.51 Mbit/s
95th percentile per-packet one-way delay: 154.592 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 162.52 Mbit/s
95th percentile per-packet one-way delay: 168.034 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 116.78 Mbit/s
95th percentile per-packet one-way delay: 88.397 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 94.49 Mbit/s
95th percentile per-packet one-way delay: 122.344 ms
Loss rate: 0.00%
```

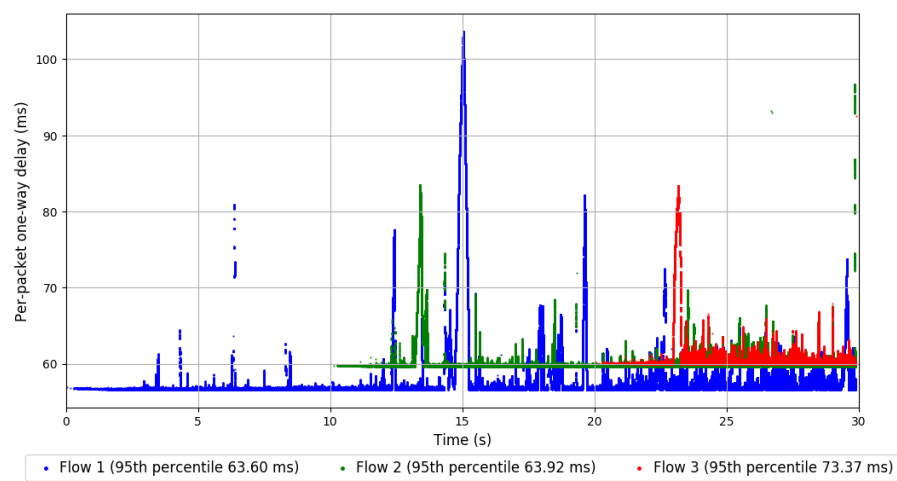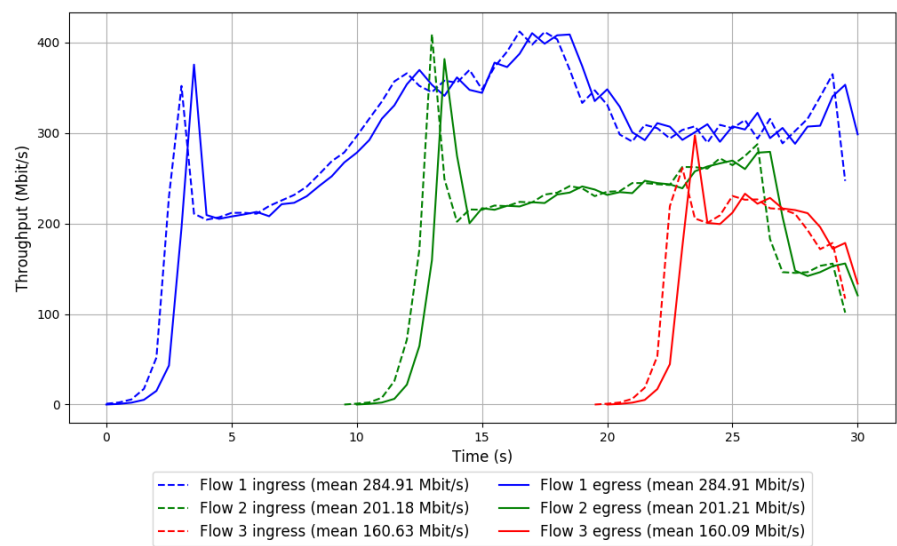Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2019-03-09 21:39:00
End at: 2019-03-09 21:39:30
Local clock offset: 0.099 ms
Remote clock offset: -0.052 ms


# Below is generated by plot.py at 2019-03-10 03:35:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 471.51 Mbit/s
95th percentile per-packet one-way delay: 64.052 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 284.91 Mbit/s
95th percentile per-packet one-way delay: 63.600 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 201.21 Mbit/s
95th percentile per-packet one-way delay: 63.918 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 160.09 Mbit/s
95th percentile per-packet one-way delay: 73.370 ms
Loss rate: 0.12%
```
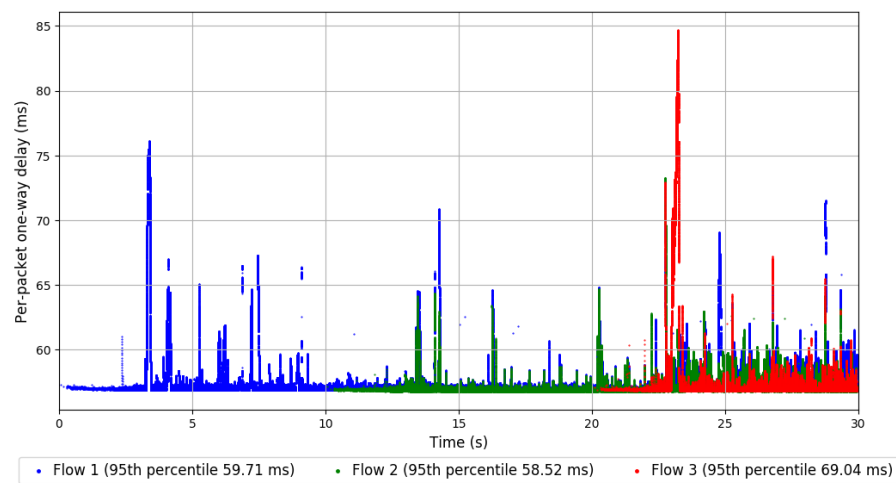
Run 1: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 284.91 Mbit/s) — — — Flow 1 egress (mean 284.91 Mbit/s)
Flow 2 ingress (mean 201.18 Mbit/s) — — — Flow 2 egress (mean 201.21 Mbit/s)
Flow 3 ingress (mean 160.63 Mbit/s) — — — Flow 3 egress (mean 160.09 Mbit/s)

Flow 1 (95th percentile 63.60 ms)   Flow 2 (95th percentile 63.92 ms)   Flow 3 (95th percentile 73.37 ms)
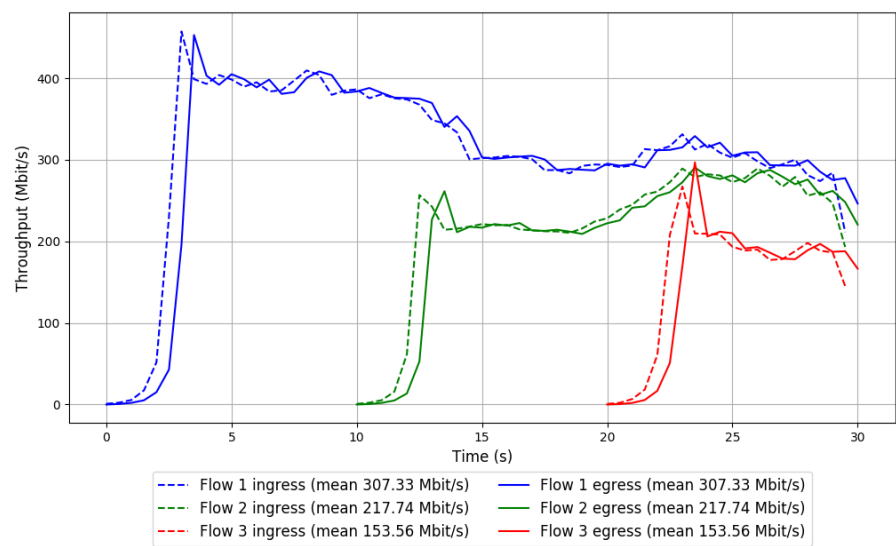
```
Run 2: Statistics of PCC-Vivace

Start at: 2019-03-09 22:20:00
End at: 2019-03-09 22:20:30
Local clock offset: -0.433 ms
Remote clock offset: -0.164 ms


# Below is generated by plot.py at 2019-03-10 03:35:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 502.73 Mbit/s
95th percentile per-packet one-way delay: 59.309 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 307.33 Mbit/s
95th percentile per-packet one-way delay: 59.707 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 217.74 Mbit/s
95th percentile per-packet one-way delay: 58.517 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 153.56 Mbit/s
95th percentile per-packet one-way delay: 69.036 ms
Loss rate: 0.00%
```

Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2019-03-09 23:01:16
End at: 2019-03-09 23:01:46
Local clock offset: -0.95 ms
Remote clock offset: -0.35 ms


# Below is generated by plot.py at 2019-03-10 03:35:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 448.18 Mbit/s
95th percentile per-packet one-way delay: 64.326 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 311.36 Mbit/s
95th percentile per-packet one-way delay: 65.798 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 184.84 Mbit/s
95th percentile per-packet one-way delay: 58.983 ms
Loss rate: 0.32%
-- Flow 3:
Average throughput: 42.33 Mbit/s
95th percentile per-packet one-way delay: 60.683 ms
Loss rate: 0.00%
```
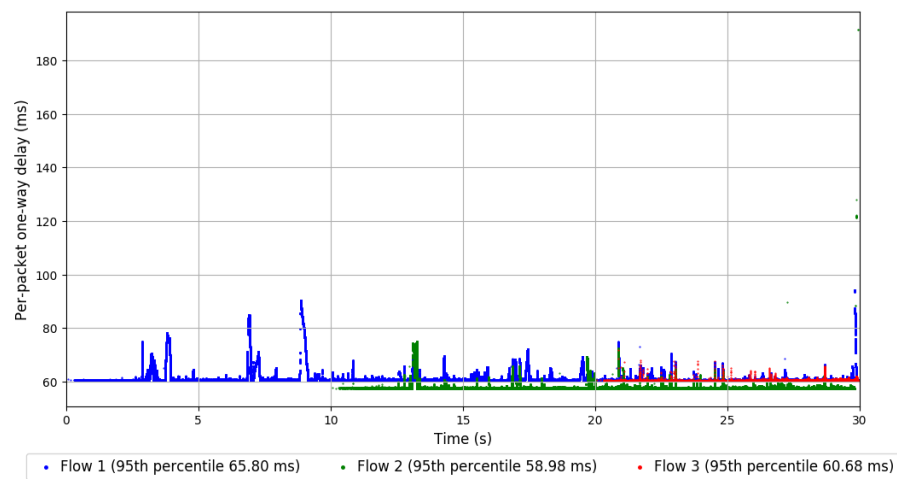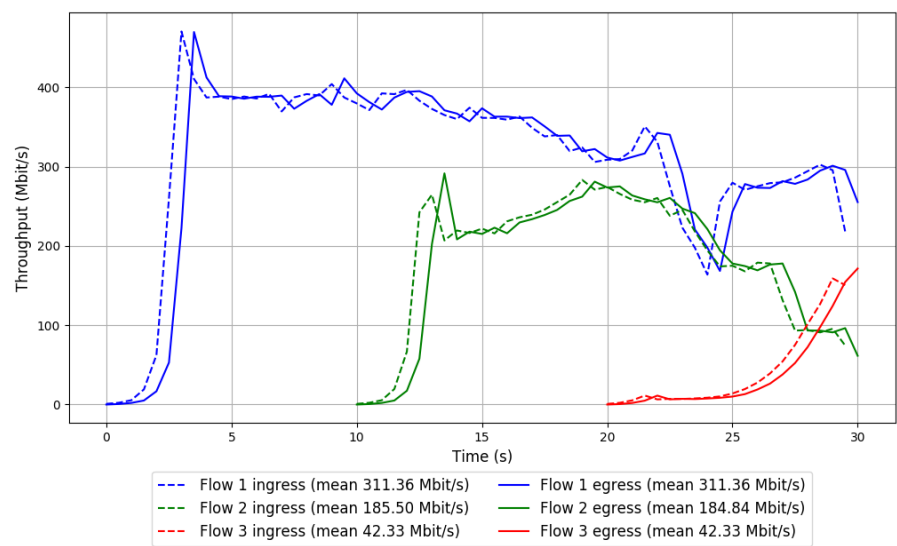
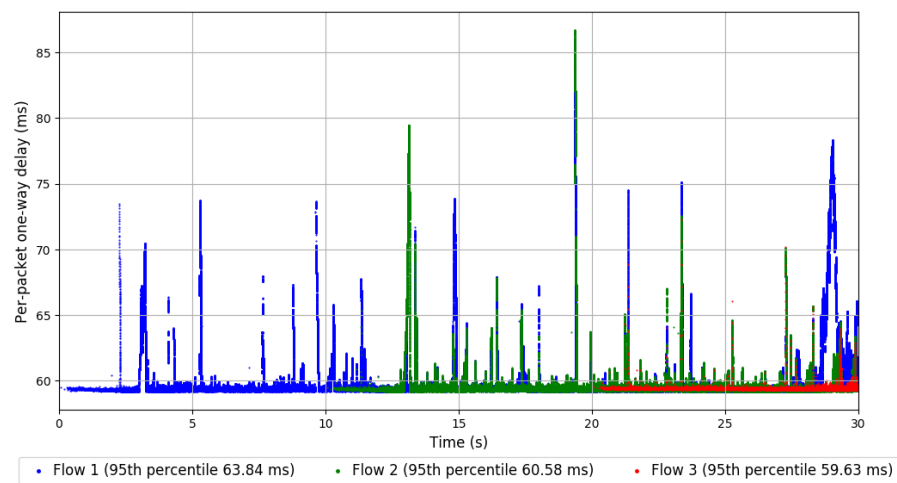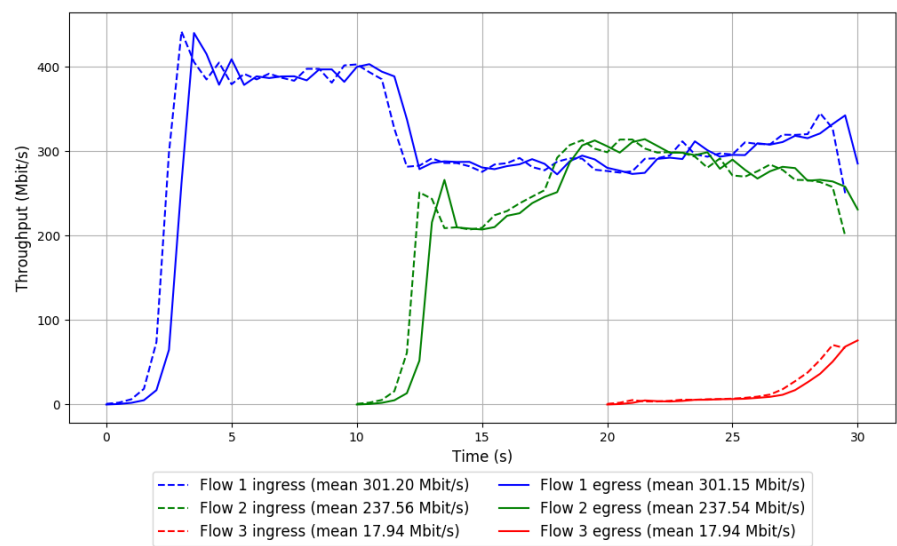# Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2019-03-09 23:43:10
End at: 2019-03-09 23:43:40
Local clock offset: -0.221 ms
Remote clock offset: -0.547 ms


# Below is generated by plot.py at 2019-03-10 03:35:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 465.05 Mbit/s
95th percentile per-packet one-way delay: 62.766 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 301.15 Mbit/s
95th percentile per-packet one-way delay: 63.845 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 237.54 Mbit/s
95th percentile per-packet one-way delay: 60.581 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 17.94 Mbit/s
95th percentile per-packet one-way delay: 59.626 ms
Loss rate: 0.00%
```

Run 4: Report of PCC-Vivace — Data Link

```
Run 5: Statistics of PCC-Vivace

Start at: 2019-03-10 00:23:57
End at: 2019-03-10 00:24:27
Local clock offset: -0.283 ms
Remote clock offset: 0.24 ms


# Below is generated by plot.py at 2019-03-10 03:35:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 443.72 Mbit/s
95th percentile per-packet one-way delay: 70.565 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 239.91 Mbit/s
95th percentile per-packet one-way delay: 72.250 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 209.26 Mbit/s
95th percentile per-packet one-way delay: 60.234 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 196.05 Mbit/s
95th percentile per-packet one-way delay: 77.408 ms
Loss rate: 0.00%
```
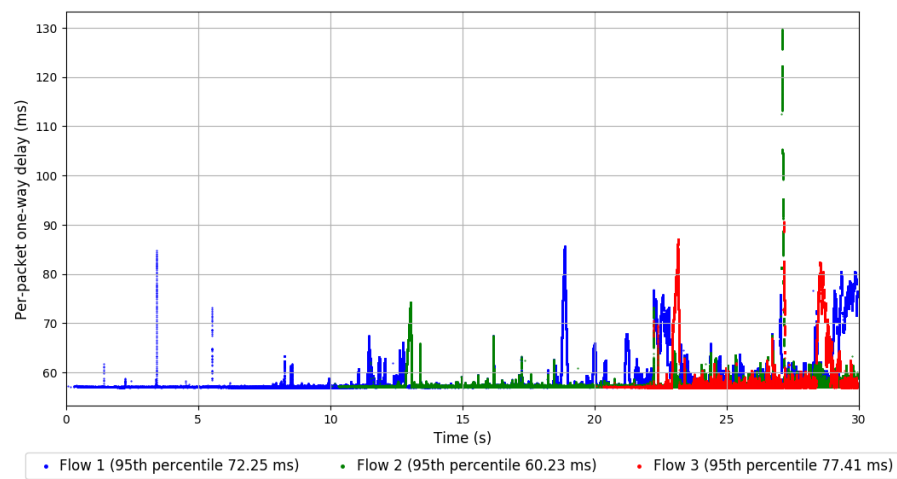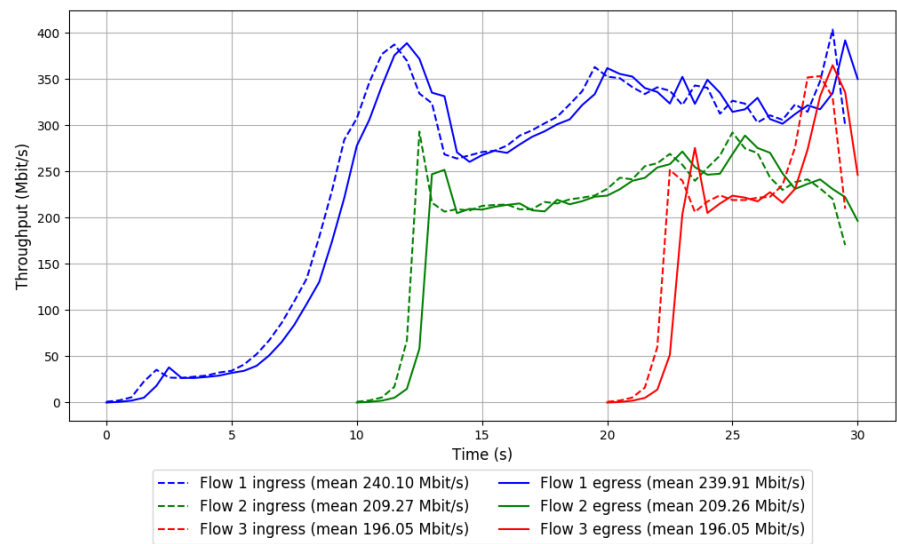
Run 5: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 240.10 Mbit/s) --- Flow 1 egress (mean 239.91 Mbit/s)
Flow 2 ingress (mean 209.27 Mbit/s) --- Flow 2 egress (mean 209.26 Mbit/s)
Flow 3 ingress (mean 196.05 Mbit/s) --- Flow 3 egress (mean 196.05 Mbit/s)

Flow 1 (95th percentile 72.25 ms) • Flow 2 (95th percentile 60.23 ms) • Flow 3 (95th percentile 77.41 ms)
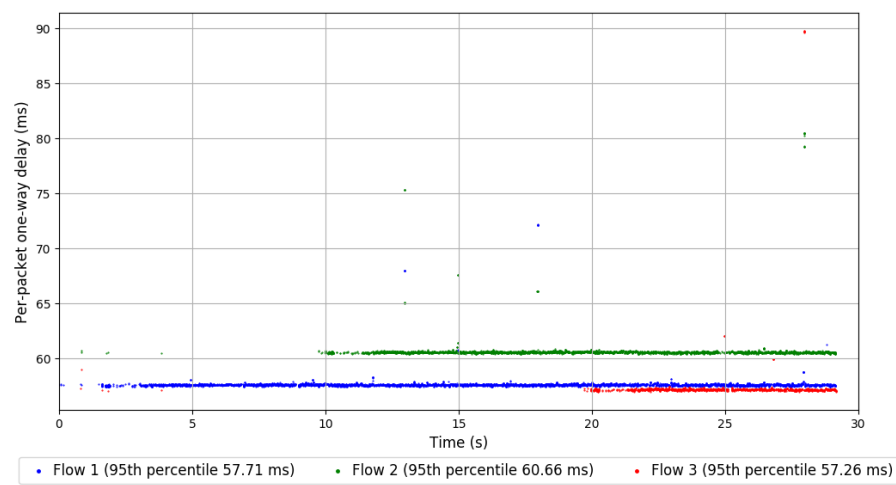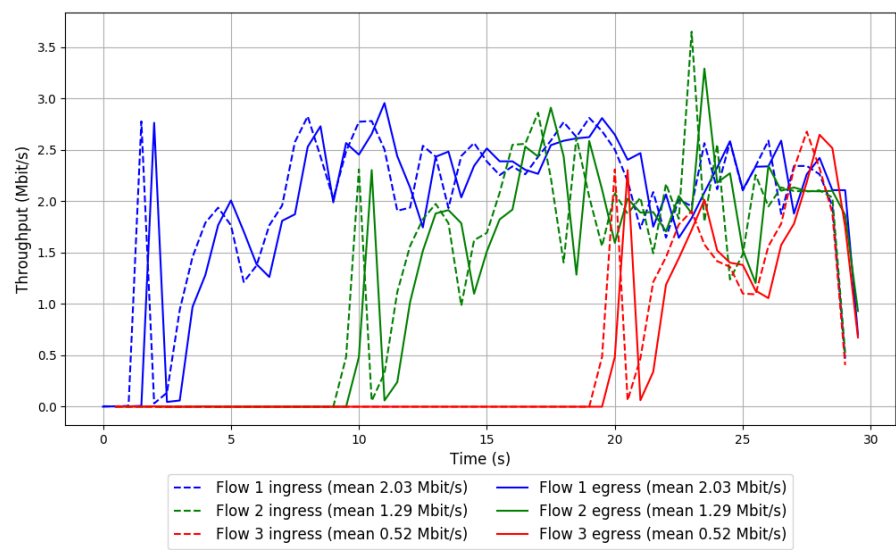
```
Run 1: Statistics of WebRTC media

Start at: 2019-03-09 21:21:40
End at: 2019-03-09 21:22:10
Local clock offset: -0.463 ms
Remote clock offset: -0.182 ms


# Below is generated by plot.py at 2019-03-10 03:35:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.79 Mbit/s
95th percentile per-packet one-way delay: 60.617 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.03 Mbit/s
95th percentile per-packet one-way delay: 57.706 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.29 Mbit/s
95th percentile per-packet one-way delay: 60.662 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.52 Mbit/s
95th percentile per-packet one-way delay: 57.262 ms
Loss rate: 0.00%
```

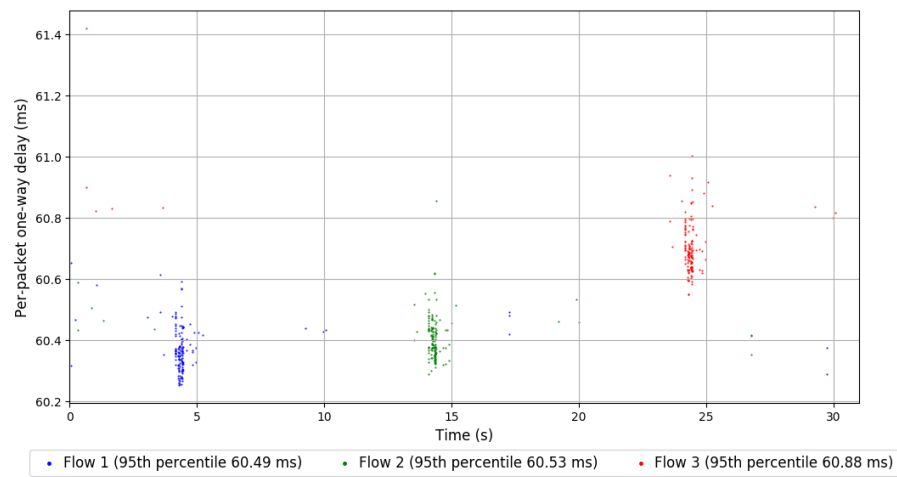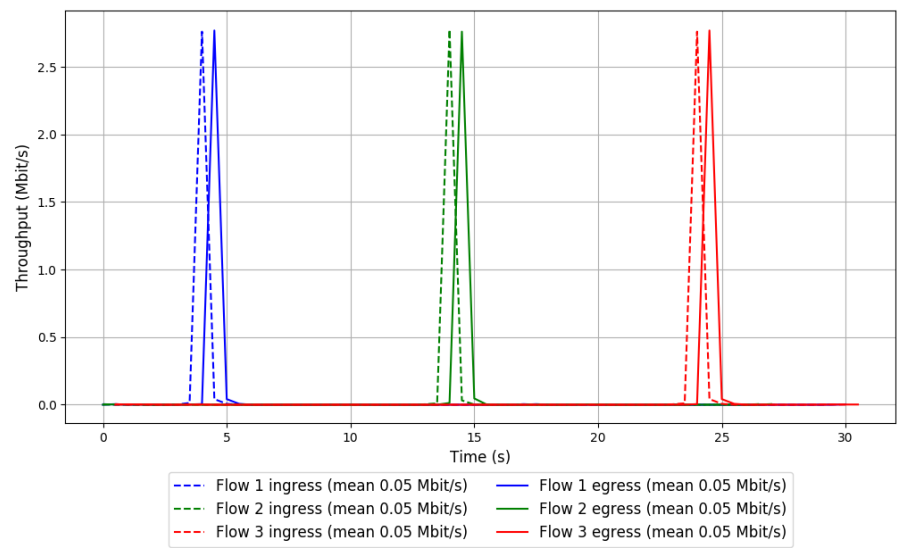Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2019-03-09 22:03:02
End at: 2019-03-09 22:03:32
Local clock offset: -0.396 ms
Remote clock offset: -0.134 ms


# Below is generated by plot.py at 2019-03-10 03:35:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 60.799 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 60.493 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 60.533 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 60.883 ms
Loss rate: 0.00%
```

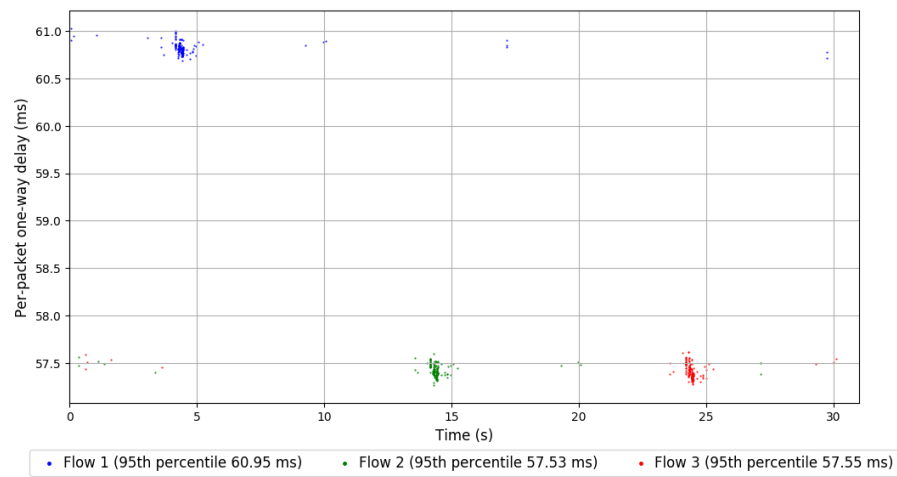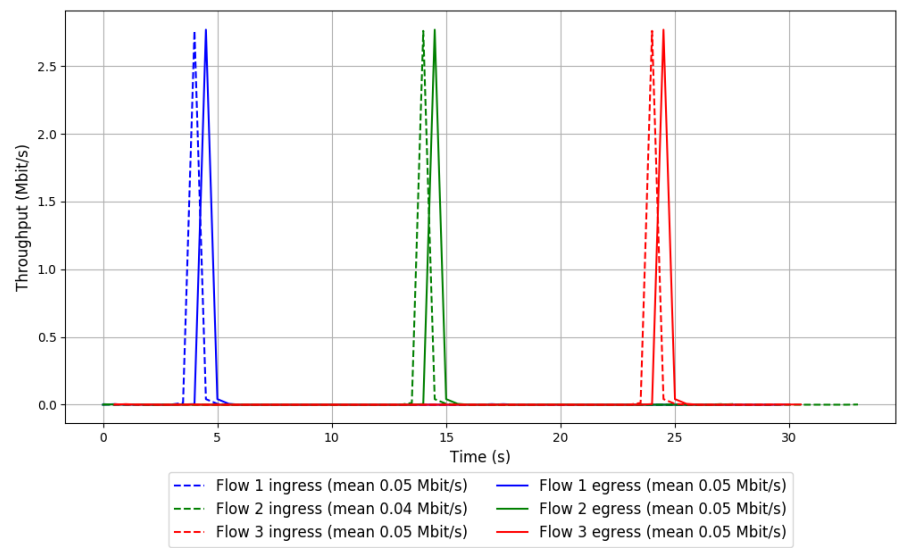Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2019-03-09 22:44:10
End at: 2019-03-09 22:44:40
Local clock offset: -0.669 ms
Remote clock offset: -0.083 ms


# Below is generated by plot.py at 2019-03-10 03:35:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 60.894 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 60.947 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 57.530 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 57.550 ms
Loss rate: 0.00%
```

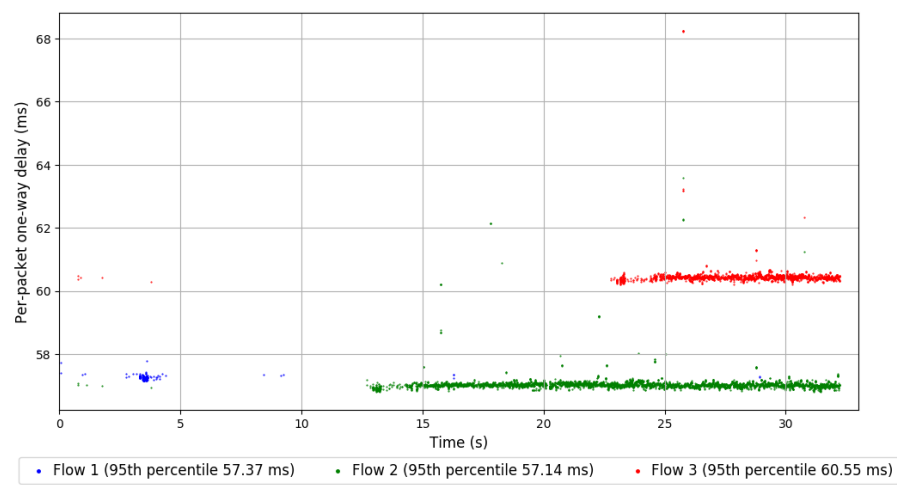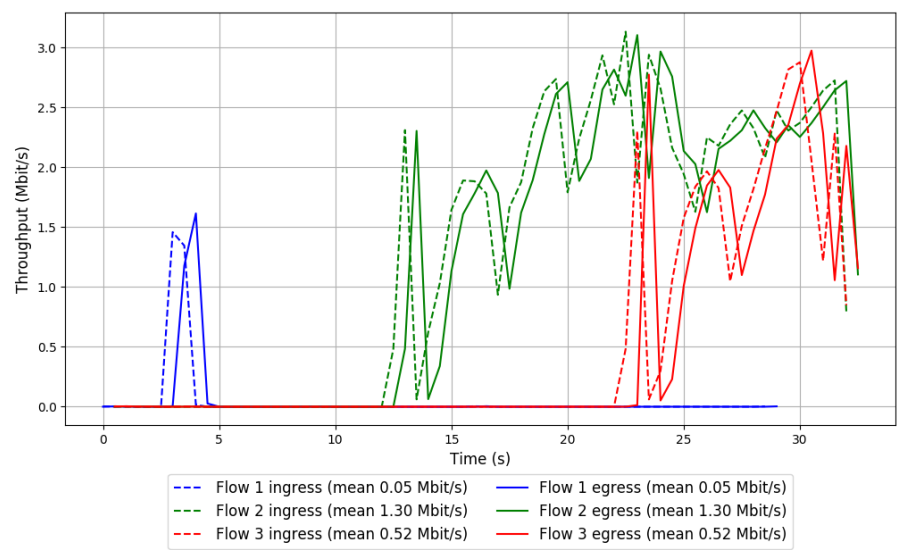Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2019-03-09 23:25:17
End at: 2019-03-09 23:25:47
Local clock offset: -0.599 ms
Remote clock offset: -0.161 ms


# Below is generated by plot.py at 2019-03-10 03:35:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.82 Mbit/s
95th percentile per-packet one-way delay: 60.489 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 57.368 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.30 Mbit/s
95th percentile per-packet one-way delay: 57.141 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.52 Mbit/s
95th percentile per-packet one-way delay: 60.547 ms
Loss rate: 0.00%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2019-03-10 00:05:56
End at: 2019-03-10 00:06:26
Local clock offset: -0.918 ms
Remote clock offset: -0.05 ms


# Below is generated by plot.py at 2019-03-10 03:35:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.21 Mbit/s
95th percentile per-packet one-way delay: 57.410 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.12 Mbit/s
95th percentile per-packet one-way delay: 57.411 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 57.437 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 57.257 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link