Pantheon Report

Generated at 2019-03-09 16:33:56 (UTC).

Data path: Stanford on eno1 (*remote*) →AWS California 1 on ens5 (*local*).

Repeated the test of 21 congestion control schemes 5 times.

Each test lasted for 30 seconds running 3 flows with 10-second interval between two flows.

NTP offsets were measured against time.stanford.edu and have been applied to correct the timestamps in logs.
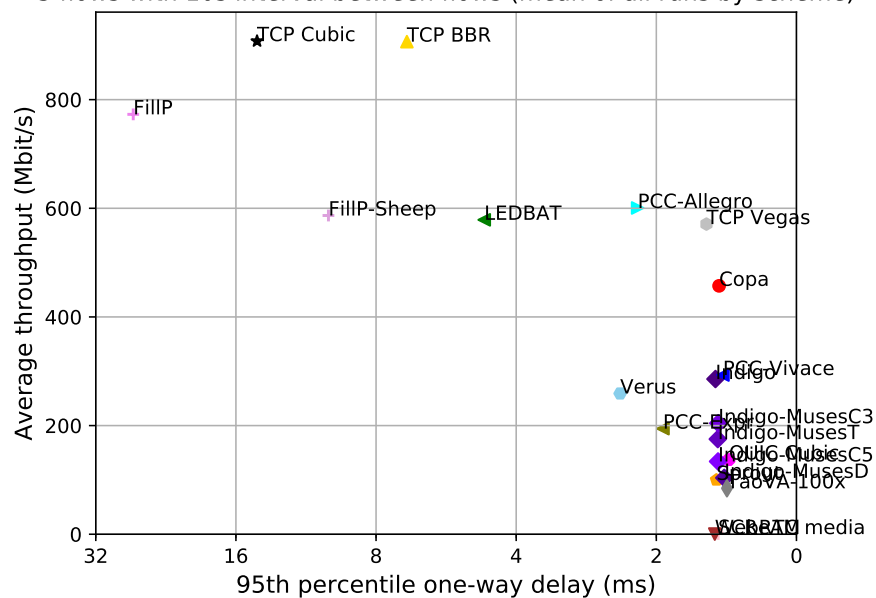
```
System info:
Linux 4.15.0-1031-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

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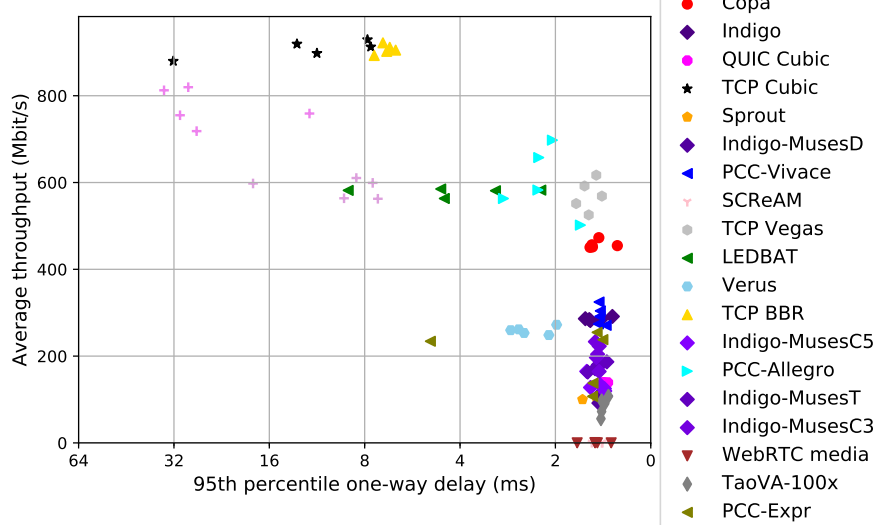
```
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from Stanford to AWS California 1, 5 runs of 30s each per scheme
3 flows with 10s interval between flows (mean of all runs by scheme)

test from Stanford to AWS California 1, 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	527.79	404.76	328.70	6.89	6.41	6.55	0.02	0.03	0.06
Copa	5	276.54	211.78	119.54	1.13	1.06	0.98	0.00	0.01	0.02
TCP Cubic	5	533.25	401.84	321.18	14.78	7.69	7.93	0.02	0.03	0.07
FillP	5	465.85	320.40	283.59	22.81	18.52	34.02	0.05	0.07	0.27
FillP-Sheep	5	428.42	202.18	72.84	10.76	6.40	2.09	0.00	0.00	0.00
Indigo	5	152.76	141.45	118.55	1.10	1.17	1.30	0.01	0.01	0.05
Indigo-MusesC3	5	153.85	66.15	32.90	1.12	1.10	1.03	0.01	0.01	0.02
Indigo-MusesC5	5	89.04	56.35	34.86	1.09	1.11	0.99	0.00	0.00	0.01
Indigo-MusesD	5	64.71	44.43	39.52	1.03	1.01	1.02	0.00	0.00	0.01
Indigo-MusesT	5	134.82	49.00	35.76	1.13	1.10	1.07	0.00	0.01	0.03
LEDBAT	5	354.00	246.97	185.75	5.12	4.16	2.01	0.01	0.01	0.00
PCC-Allegro	5	455.59	178.00	81.28	3.03	1.50	1.29	0.00	0.01	0.02
PCC-Expr	5	135.02	79.96	18.68	1.88	1.17	1.05	0.01	0.01	0.02
QUIC Cubic	5	73.84	66.91	57.44	0.96	0.96	0.99	0.00	0.01	0.01
SCReAM	5	0.22	0.22	0.22	1.11	1.12	1.11	0.00	0.00	0.00
Sprout	5	50.24	50.17	49.97	1.14	1.14	1.14	0.01	0.02	0.03
TaoVA-100x	5	28.22	52.15	65.12	1.00	0.99	0.99	0.00	0.01	0.01
TCP Vegas	5	274.11	308.42	274.74	1.53	1.37	1.41	0.00	0.01	0.01
Verus	5	163.82	102.82	81.46	2.57	1.74	1.44	0.00	0.01	0.01
PCC-Vivace	5	199.18	102.38	78.22	1.02	1.16	1.16	0.00	0.01	0.02
WebRTC media	5	0.05	0.05	0.17	1.16	1.15	1.16	0.00	0.03	0.01

```
Run 1: Statistics of TCP BBR

Start at: 2019-03-09 13:22:06
End at: 2019-03-09 13:22:36
Local clock offset: 0.036 ms
Remote clock offset: 0.281 ms


# Below is generated by plot.py at 2019-03-09 15:44:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 905.13 Mbit/s
95th percentile per-packet one-way delay: 6.388 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 525.97 Mbit/s
95th percentile per-packet one-way delay: 6.459 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 404.92 Mbit/s
95th percentile per-packet one-way delay: 6.069 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 329.72 Mbit/s
95th percentile per-packet one-way delay: 6.288 ms
Loss rate: 0.06%
```
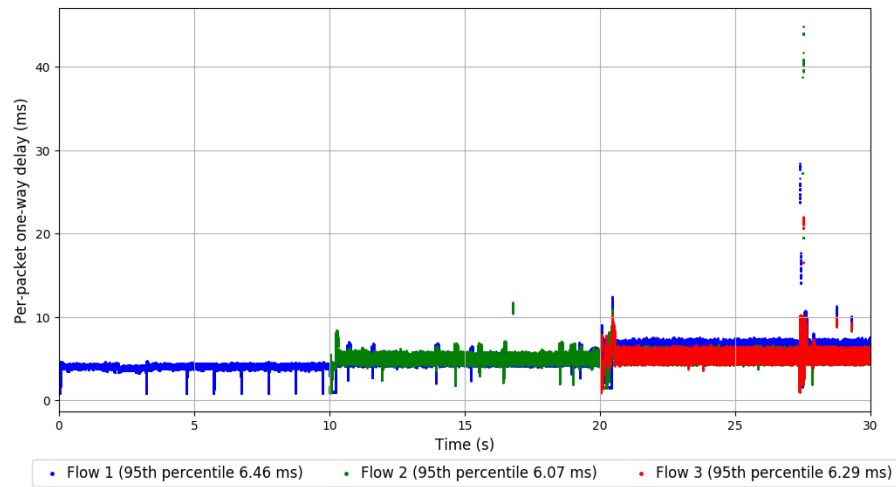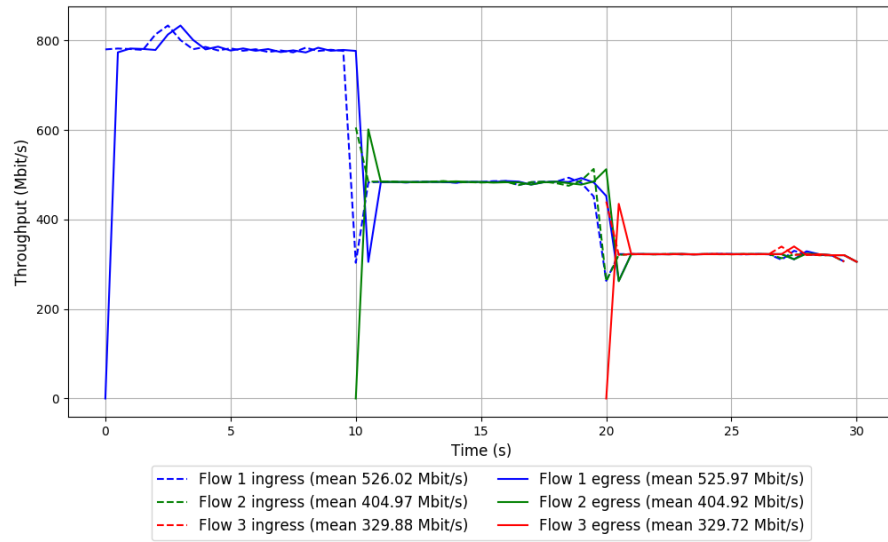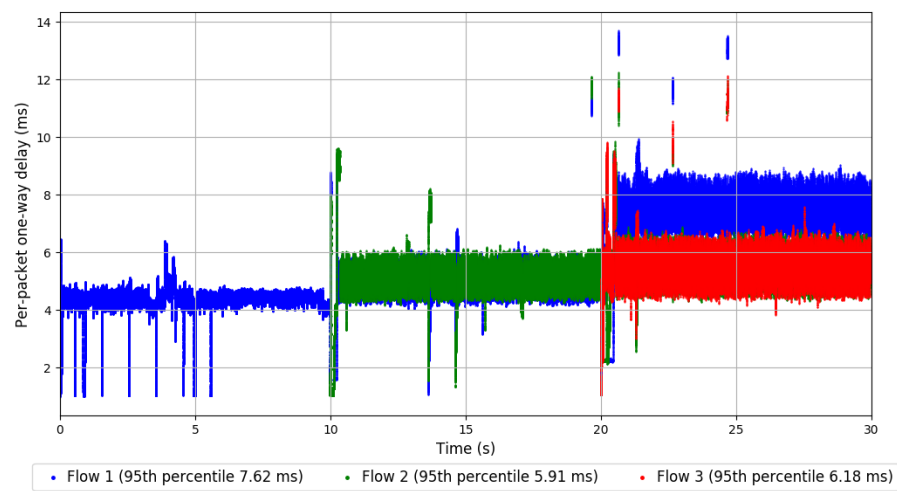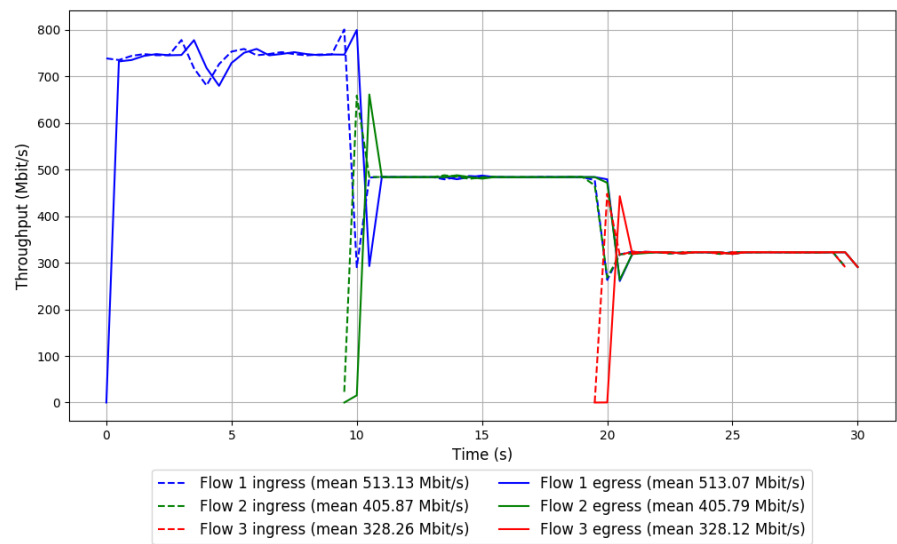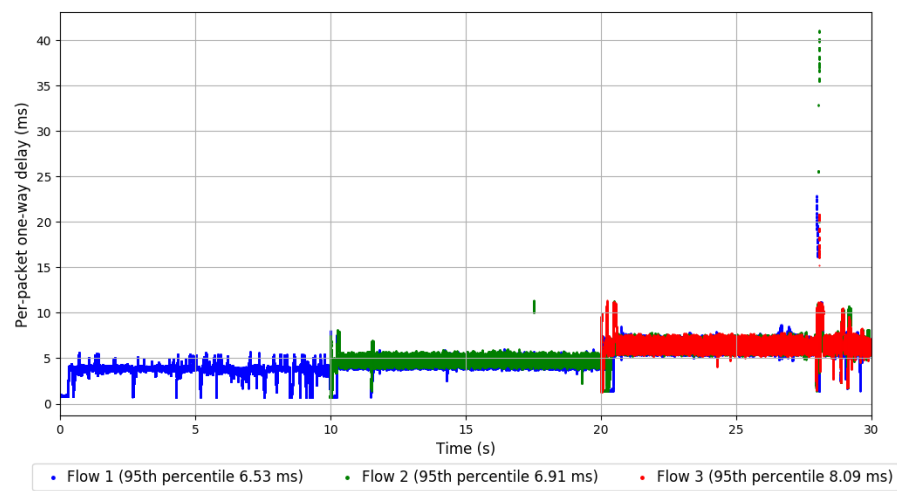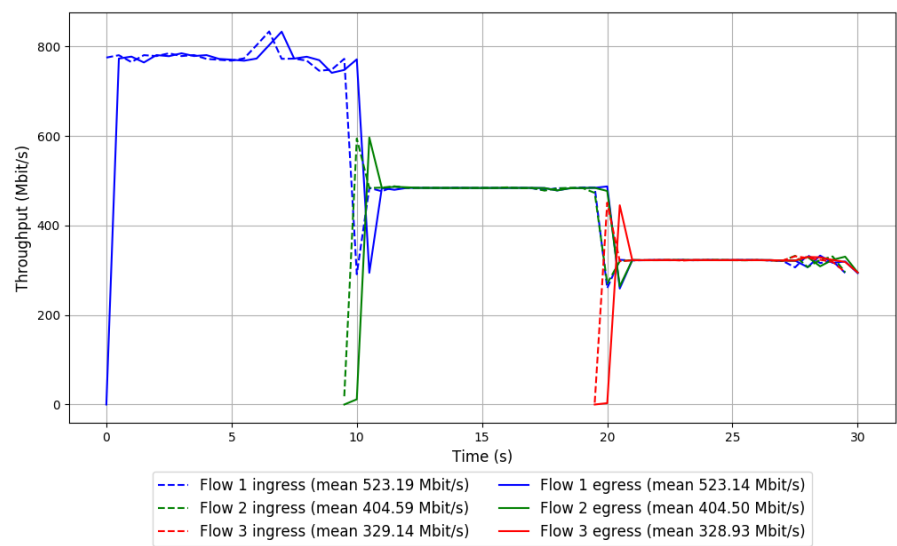
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2019-03-09 13:52:24
End at: 2019-03-09 13:52:54
Local clock offset: -1.86 ms
Remote clock offset: 1.314 ms


# Below is generated by plot.py at 2019-03-09 15:44:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 892.76 Mbit/s
95th percentile per-packet one-way delay: 7.464 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 513.07 Mbit/s
95th percentile per-packet one-way delay: 7.623 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 405.79 Mbit/s
95th percentile per-packet one-way delay: 5.911 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 328.12 Mbit/s
95th percentile per-packet one-way delay: 6.185 ms
Loss rate: 0.05%
```
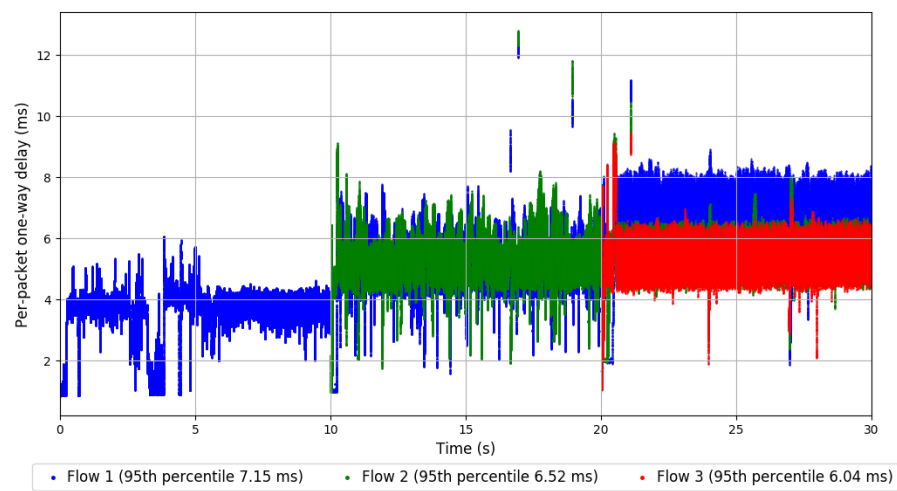
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2019-03-09 14:22:41
End at: 2019-03-09 14:23:11
Local clock offset: -1.091 ms
Remote clock offset: -0.326 ms


# Below is generated by plot.py at 2019-03-09 15:44:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 902.34 Mbit/s
95th percentile per-packet one-way delay: 6.815 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 523.14 Mbit/s
95th percentile per-packet one-way delay: 6.531 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 404.50 Mbit/s
95th percentile per-packet one-way delay: 6.909 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 328.93 Mbit/s
95th percentile per-packet one-way delay: 8.091 ms
Loss rate: 0.09%
```

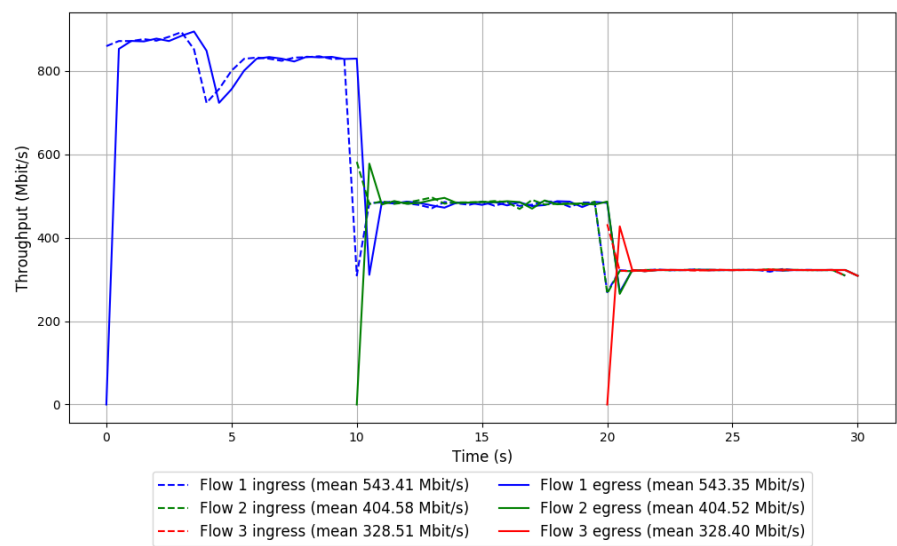Run 3: Report of TCP BBR — Data Link

```
Run 4: Statistics of TCP BBR

Start at: 2019-03-09 14:53:13
End at: 2019-03-09 14:53:43
Local clock offset: 0.958 ms
Remote clock offset: -1.615 ms


# Below is generated by plot.py at 2019-03-09 15:44:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 921.95 Mbit/s
95th percentile per-packet one-way delay: 7.006 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 543.35 Mbit/s
95th percentile per-packet one-way delay: 7.150 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 404.52 Mbit/s
95th percentile per-packet one-way delay: 6.522 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 328.40 Mbit/s
95th percentile per-packet one-way delay: 6.036 ms
Loss rate: 0.06%
```
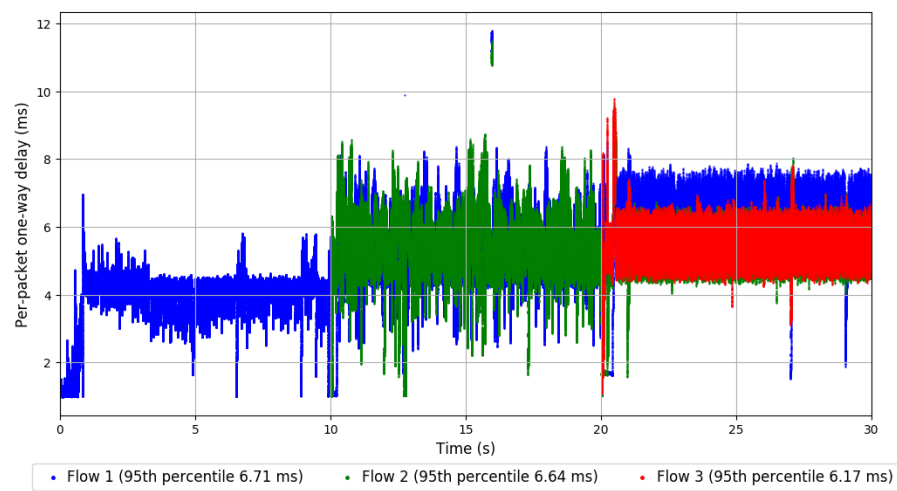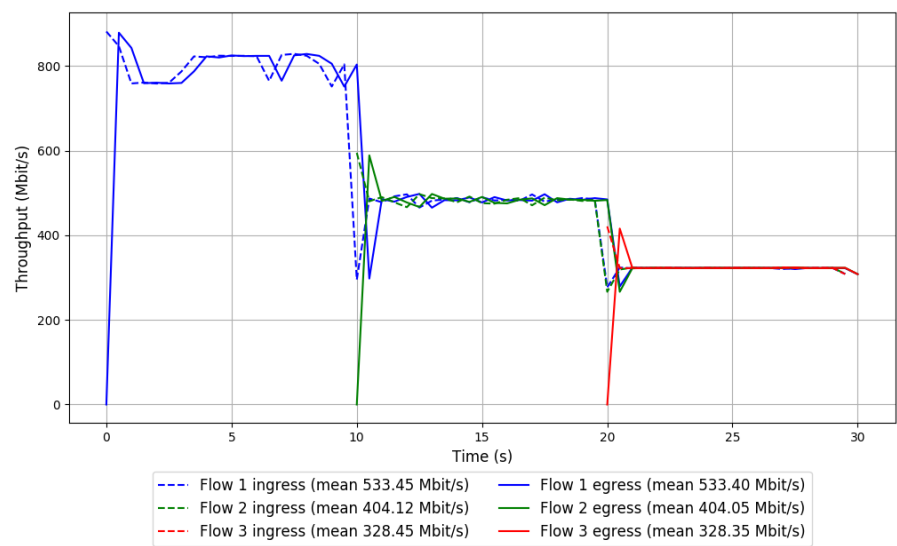
Run 4: Report of TCP BBR — Data Link

```
Run 5: Statistics of TCP BBR

Start at: 2019-03-09 15:23:31
End at: 2019-03-09 15:24:01
Local clock offset: 0.666 ms
Remote clock offset: 5.061 ms

# Below is generated by plot.py at 2019-03-09 15:44:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 911.58 Mbit/s
95th percentile per-packet one-way delay: 6.668 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 533.40 Mbit/s
95th percentile per-packet one-way delay: 6.712 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 404.05 Mbit/s
95th percentile per-packet one-way delay: 6.636 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 328.35 Mbit/s
95th percentile per-packet one-way delay: 6.174 ms
Loss rate: 0.06%
```

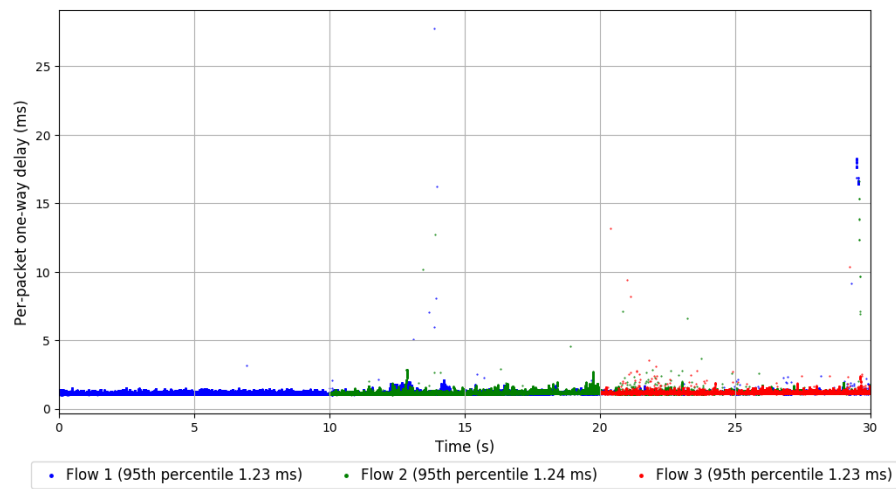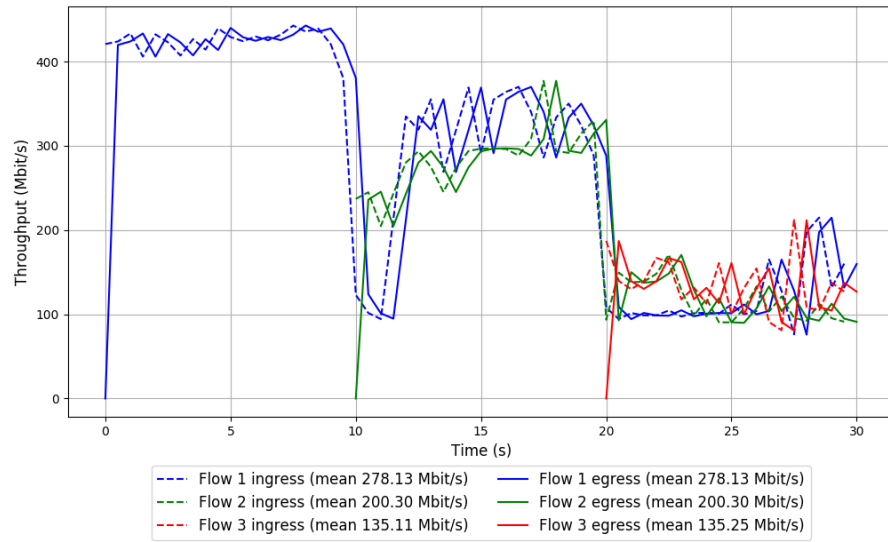Run 5: Report of TCP BBR — Data Link

```
Run 1: Statistics of Copa

Start at: 2019-03-09 13:17:29
End at: 2019-03-09 13:17:59
Local clock offset: -0.02 ms
Remote clock offset: -0.809 ms


# Below is generated by plot.py at 2019-03-09 15:44:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 456.45 Mbit/s
95th percentile per-packet one-way delay: 1.234 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 278.13 Mbit/s
95th percentile per-packet one-way delay: 1.231 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 200.30 Mbit/s
95th percentile per-packet one-way delay: 1.242 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 135.25 Mbit/s
95th percentile per-packet one-way delay: 1.228 ms
Loss rate: 0.02%
```
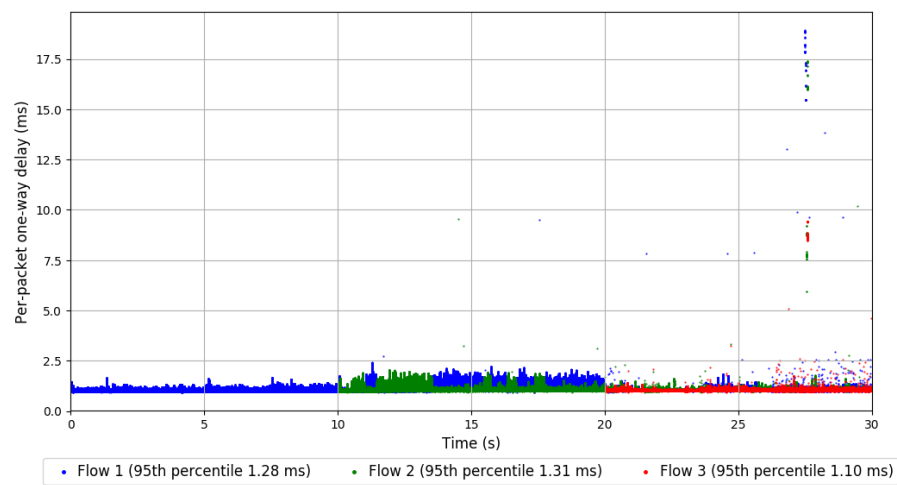
Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2019-03-09 13:47:48
End at: 2019-03-09 13:48:18
Local clock offset: -0.987 ms
Remote clock offset: 1.587 ms


# Below is generated by plot.py at 2019-03-09 15:44:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 450.63 Mbit/s
95th percentile per-packet one-way delay: 1.274 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 281.71 Mbit/s
95th percentile per-packet one-way delay: 1.282 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 196.74 Mbit/s
95th percentile per-packet one-way delay: 1.306 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 114.35 Mbit/s
95th percentile per-packet one-way delay: 1.096 ms
Loss rate: 0.02%
```
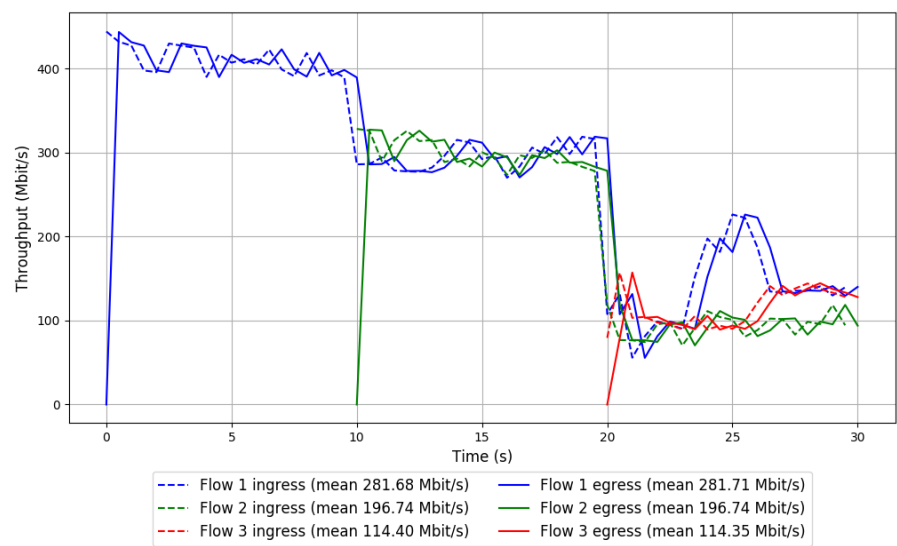
Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2019-03-09 14:18:04
End at: 2019-03-09 14:18:34
Local clock offset: -2.228 ms
Remote clock offset: 1.041 ms


# Below is generated by plot.py at 2019-03-09 15:44:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 454.57 Mbit/s
95th percentile per-packet one-way delay: 0.701 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 279.65 Mbit/s
95th percentile per-packet one-way delay: 0.728 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 211.28 Mbit/s
95th percentile per-packet one-way delay: 0.580 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 103.30 Mbit/s
95th percentile per-packet one-way delay: 0.482 ms
Loss rate: 0.02%
```
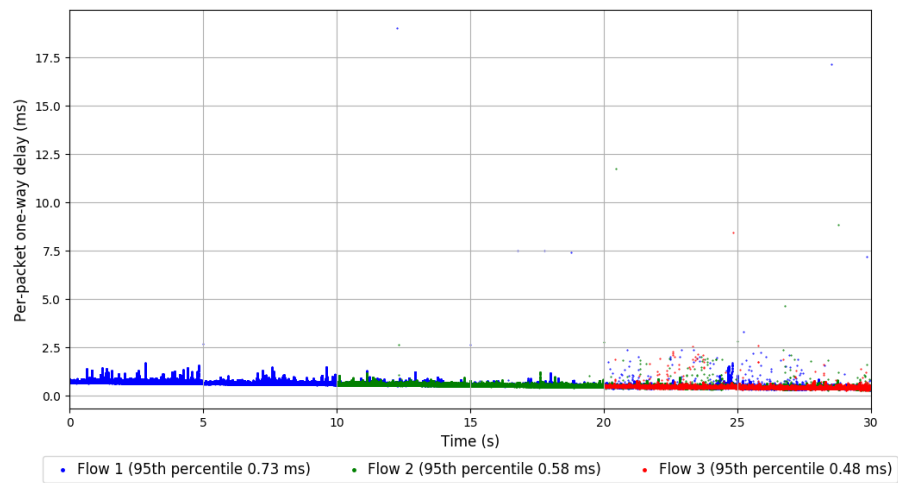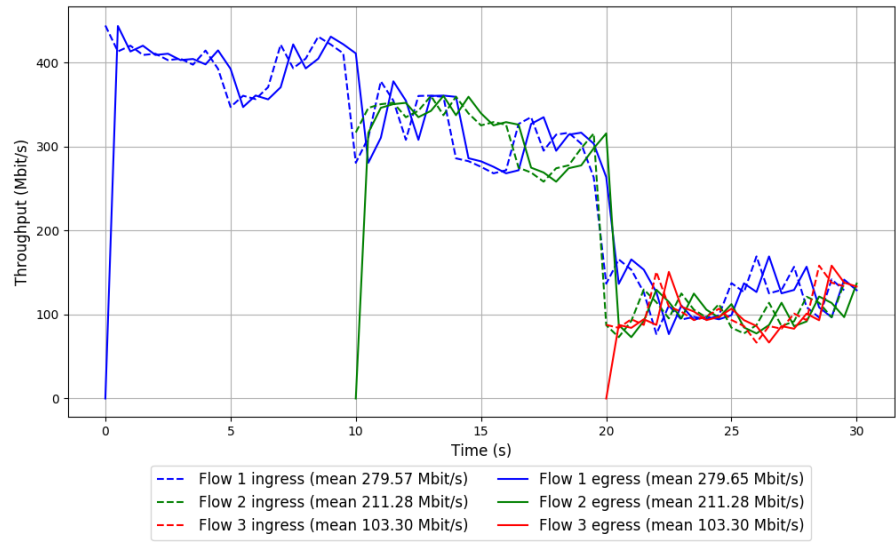
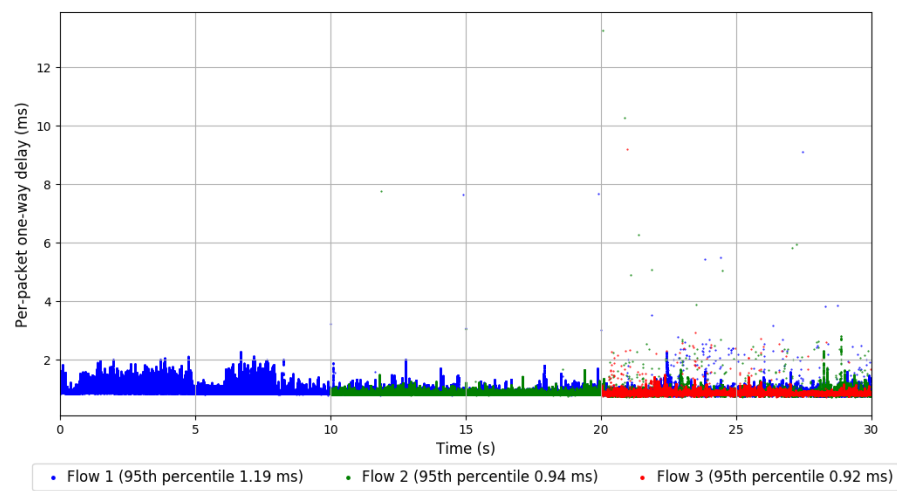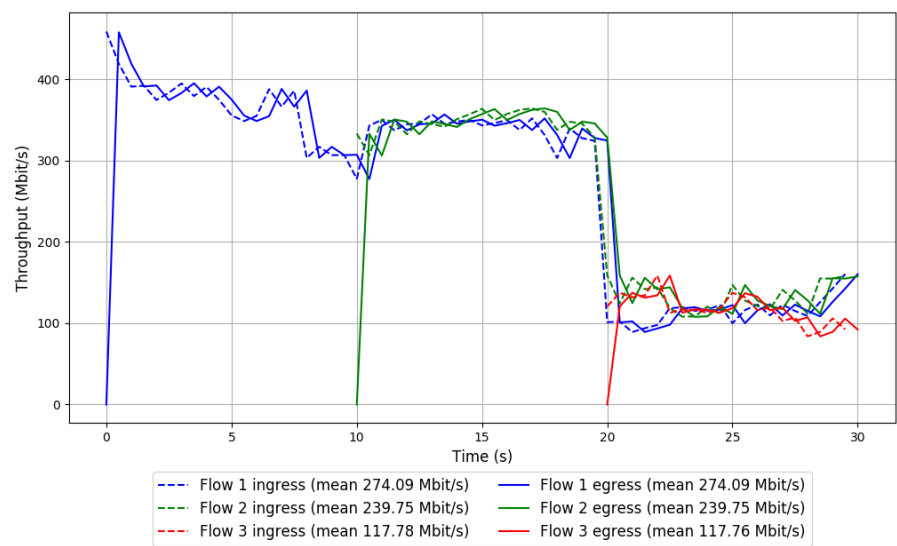Run 3: Report of Copa — Data Link

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```
Run 4: Statistics of Copa

Start at: 2019-03-09 14:48:34
End at: 2019-03-09 14:49:04
Local clock offset: 0.802 ms
Remote clock offset: -2.759 ms


# Below is generated by plot.py at 2019-03-09 15:54:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 472.90 Mbit/s
95th percentile per-packet one-way delay: 1.089 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 274.09 Mbit/s
95th percentile per-packet one-way delay: 1.188 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 239.75 Mbit/s
95th percentile per-packet one-way delay: 0.937 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 117.76 Mbit/s
95th percentile per-packet one-way delay: 0.924 ms
Loss rate: 0.03%
```

Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2019-03-09 15:18:55
End at: 2019-03-09 15:19:25
Local clock offset: 0.948 ms
Remote clock offset: 4.692 ms


# Below is generated by plot.py at 2019-03-09 15:54:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 451.57 Mbit/s
95th percentile per-packet one-way delay: 1.223 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 269.10 Mbit/s
95th percentile per-packet one-way delay: 1.238 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 210.82 Mbit/s
95th percentile per-packet one-way delay: 1.220 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 127.04 Mbit/s
95th percentile per-packet one-way delay: 1.151 ms
Loss rate: 0.03%
```
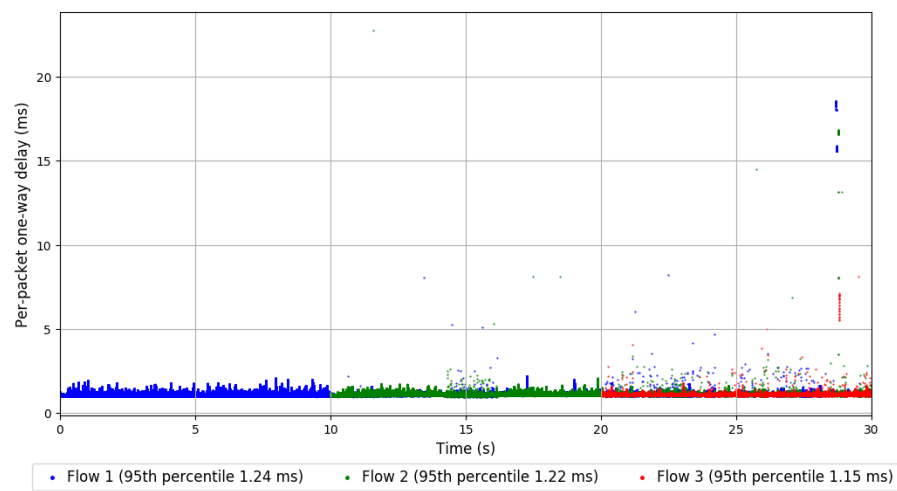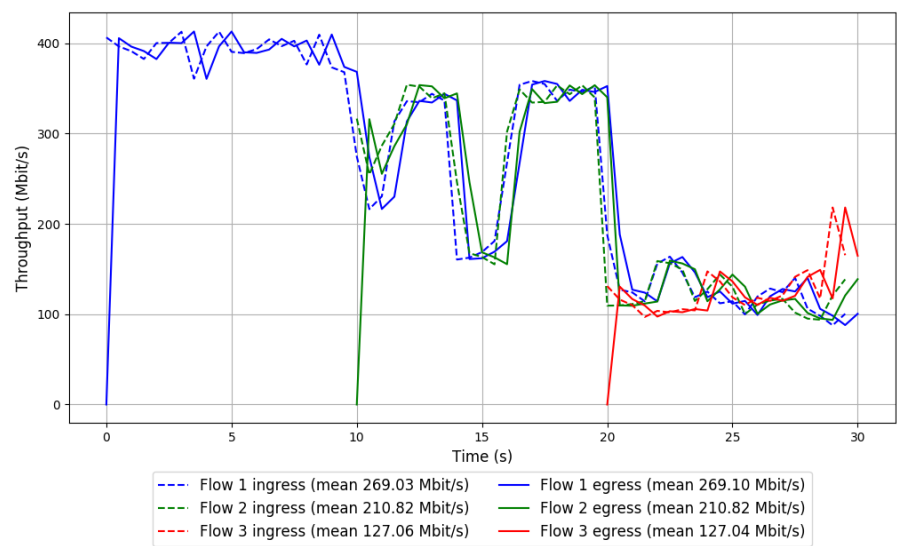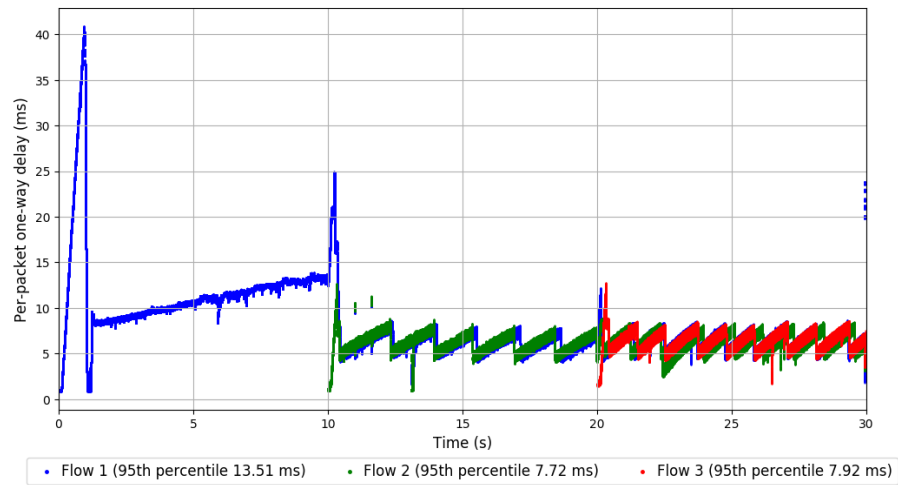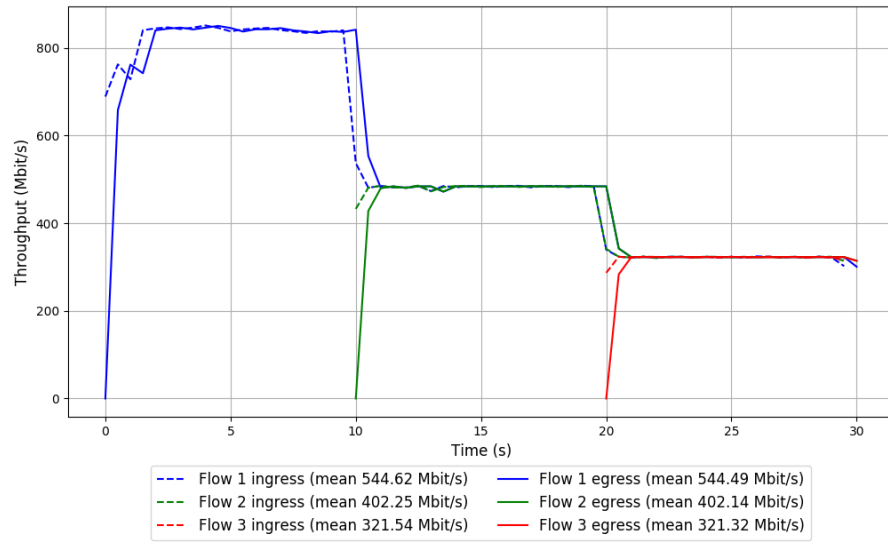
Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2019-03-09 13:11:13
End at: 2019-03-09 13:11:43
Local clock offset: -0.051 ms
Remote clock offset: -2.836 ms


# Below is generated by plot.py at 2019-03-09 15:54:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 919.30 Mbit/s
95th percentile per-packet one-way delay: 13.088 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 544.49 Mbit/s
95th percentile per-packet one-way delay: 13.514 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 402.14 Mbit/s
95th percentile per-packet one-way delay: 7.721 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 321.32 Mbit/s
95th percentile per-packet one-way delay: 7.923 ms
Loss rate: 0.08%
```

Run 1: Report of TCP Cubic — Data Link

- - - Flow 1 ingress (mean 544.62 Mbit/s)   —— Flow 1 egress (mean 544.49 Mbit/s)
- - - Flow 2 ingress (mean 402.25 Mbit/s)   —— Flow 2 egress (mean 402.14 Mbit/s)
- - - Flow 3 ingress (mean 321.54 Mbit/s)   —— Flow 3 egress (mean 321.32 Mbit/s)

• Flow 1 (95th percentile 13.51 ms)   • Flow 2 (95th percentile 7.72 ms)   • Flow 3 (95th percentile 7.92 ms)

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```
Run 2: Statistics of TCP Cubic

Start at: 2019-03-09 13:41:36
End at: 2019-03-09 13:42:06
Local clock offset: 0.05 ms
Remote clock offset: 1.706 ms


# Below is generated by plot.py at 2019-03-09 15:54:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 879.68 Mbit/s
95th percentile per-packet one-way delay: 32.163 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 504.91 Mbit/s
95th percentile per-packet one-way delay: 33.247 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 402.53 Mbit/s
95th percentile per-packet one-way delay: 7.568 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 320.93 Mbit/s
95th percentile per-packet one-way delay: 7.656 ms
Loss rate: 0.06%
```
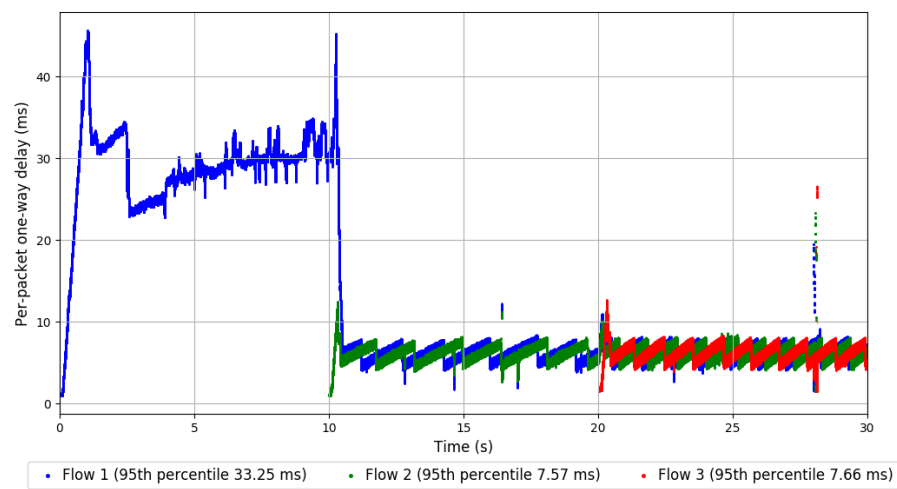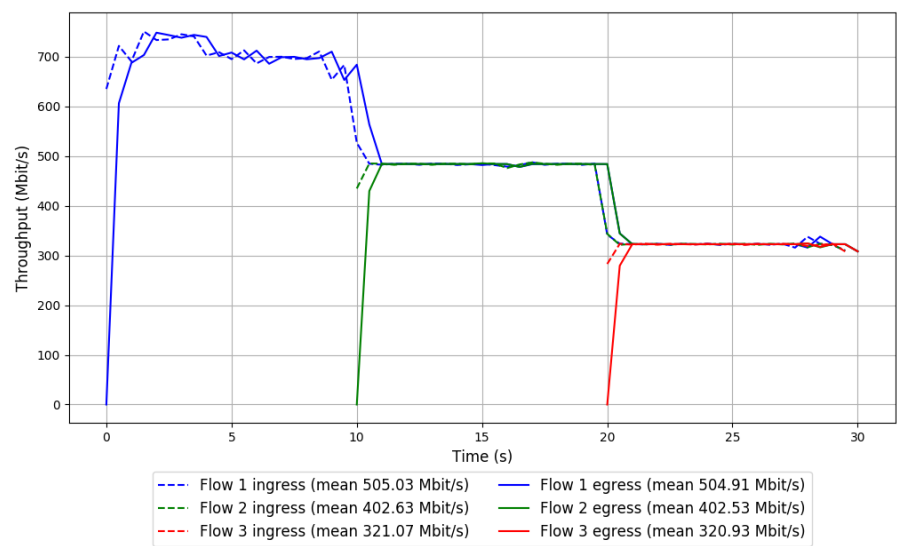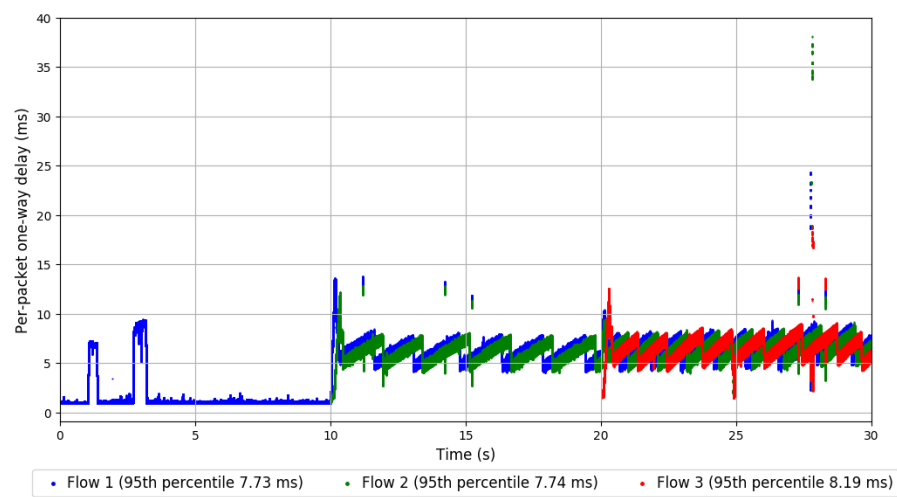
Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 505.03 Mbit/s)   Flow 1 egress (mean 504.91 Mbit/s)
Flow 2 ingress (mean 402.63 Mbit/s)   Flow 2 egress (mean 402.53 Mbit/s)
Flow 3 ingress (mean 321.07 Mbit/s)   Flow 3 egress (mean 320.93 Mbit/s)

• Flow 1 (95th percentile 33.25 ms)   • Flow 2 (95th percentile 7.57 ms)   • Flow 3 (95th percentile 7.66 ms)

```
Run 3: Statistics of TCP Cubic

Start at: 2019-03-09 14:11:55
End at: 2019-03-09 14:12:25
Local clock offset: -3.522 ms
Remote clock offset: 1.203 ms


# Below is generated by plot.py at 2019-03-09 15:54:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 929.13 Mbit/s
95th percentile per-packet one-way delay: 7.839 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 554.95 Mbit/s
95th percentile per-packet one-way delay: 7.731 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 401.01 Mbit/s
95th percentile per-packet one-way delay: 7.736 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 322.34 Mbit/s
95th percentile per-packet one-way delay: 8.185 ms
Loss rate: 0.07%
```
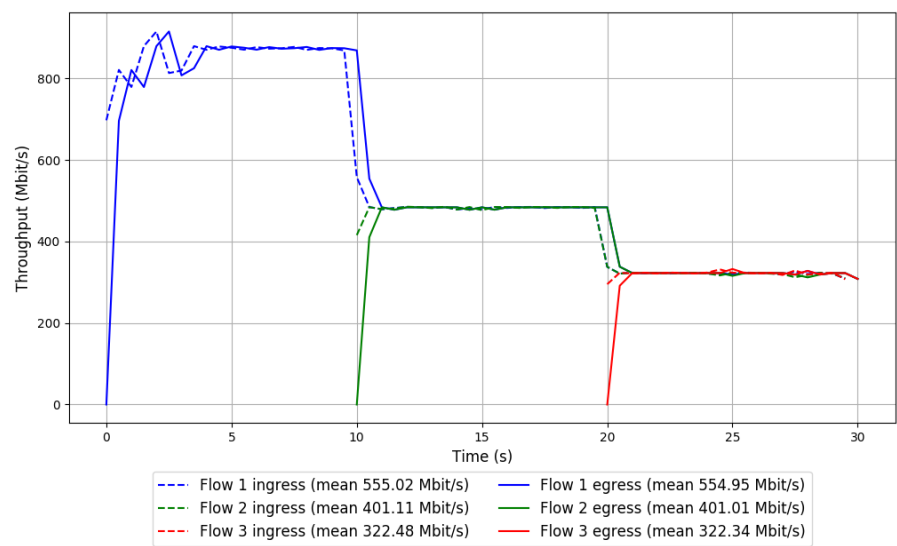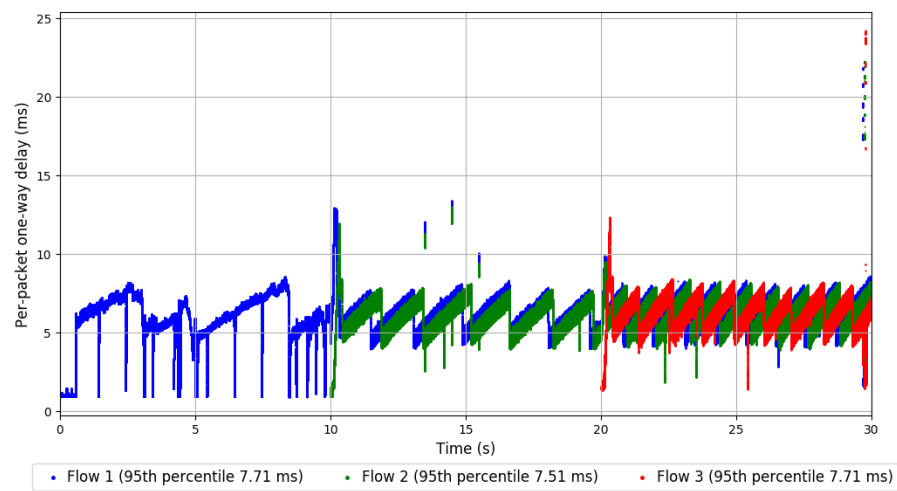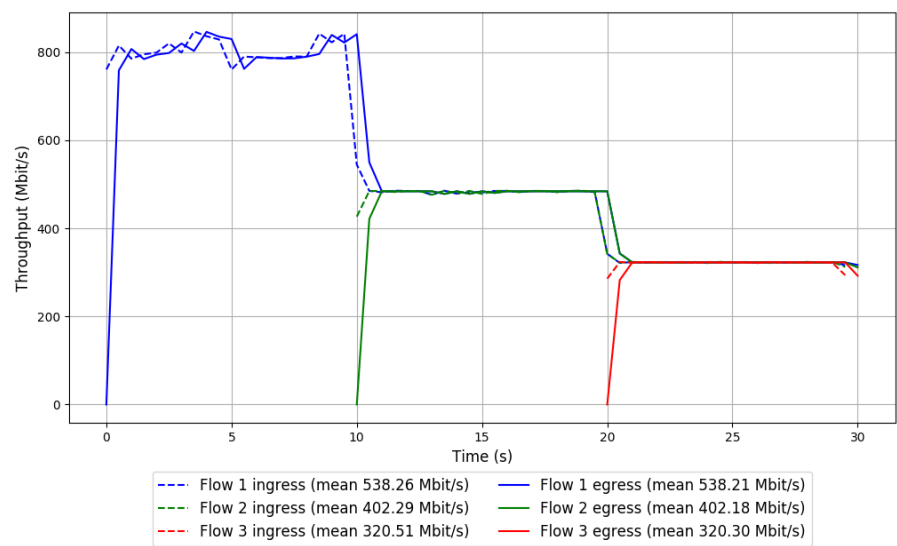
Run 3: Report of TCP Cubic — Data Link

- - - Flow 1 ingress (mean 555.02 Mbit/s) —— Flow 1 egress (mean 554.95 Mbit/s)
- - - Flow 2 ingress (mean 401.11 Mbit/s) —— Flow 2 egress (mean 401.01 Mbit/s)
- - - Flow 3 ingress (mean 322.48 Mbit/s) —— Flow 3 egress (mean 322.34 Mbit/s)

• Flow 1 (95th percentile 7.73 ms)   • Flow 2 (95th percentile 7.74 ms)   • Flow 3 (95th percentile 8.19 ms)

30

```
Run 4: Statistics of TCP Cubic

Start at: 2019-03-09 14:42:17
End at: 2019-03-09 14:42:47
Local clock offset: 0.587 ms
Remote clock offset: -2.502 ms


# Below is generated by plot.py at 2019-03-09 15:54:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 912.59 Mbit/s
95th percentile per-packet one-way delay: 7.653 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 538.21 Mbit/s
95th percentile per-packet one-way delay: 7.708 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 402.18 Mbit/s
95th percentile per-packet one-way delay: 7.510 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 320.30 Mbit/s
95th percentile per-packet one-way delay: 7.705 ms
Loss rate: 0.08%
```
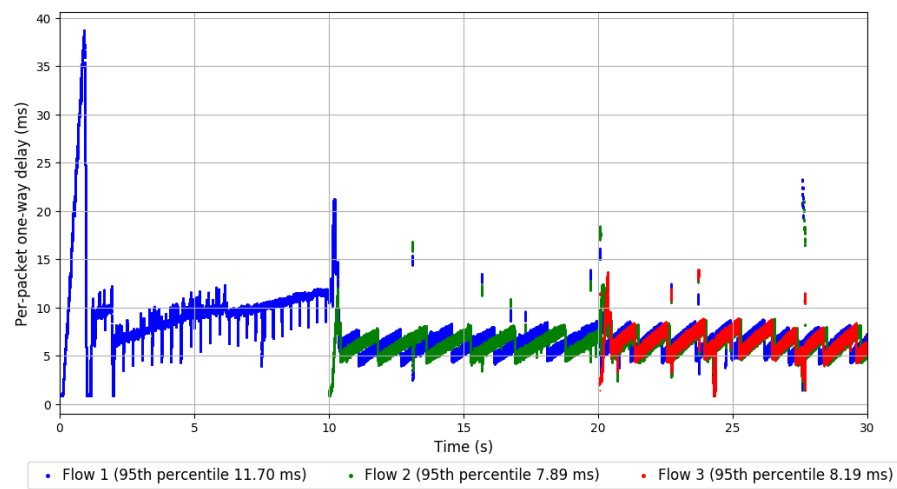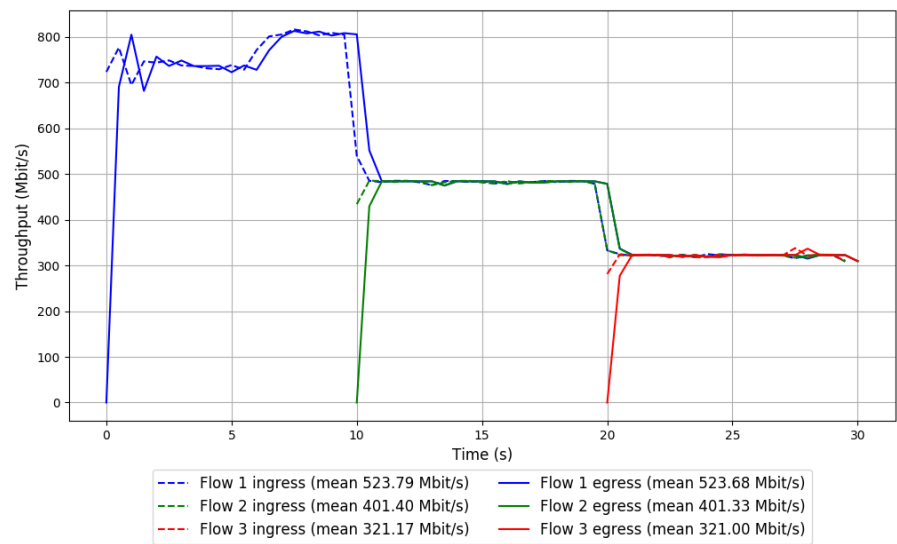
Run 4: Report of TCP Cubic — Data Link

```
Run 5: Statistics of TCP Cubic

Start at: 2019-03-09 15:12:49
End at: 2019-03-09 15:13:19
Local clock offset: 1.426 ms
Remote clock offset: 4.155 ms


# Below is generated by plot.py at 2019-03-09 15:54:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 897.79 Mbit/s
95th percentile per-packet one-way delay: 11.320 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 523.68 Mbit/s
95th percentile per-packet one-way delay: 11.697 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 401.33 Mbit/s
95th percentile per-packet one-way delay: 7.893 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 321.00 Mbit/s
95th percentile per-packet one-way delay: 8.190 ms
Loss rate: 0.07%
```

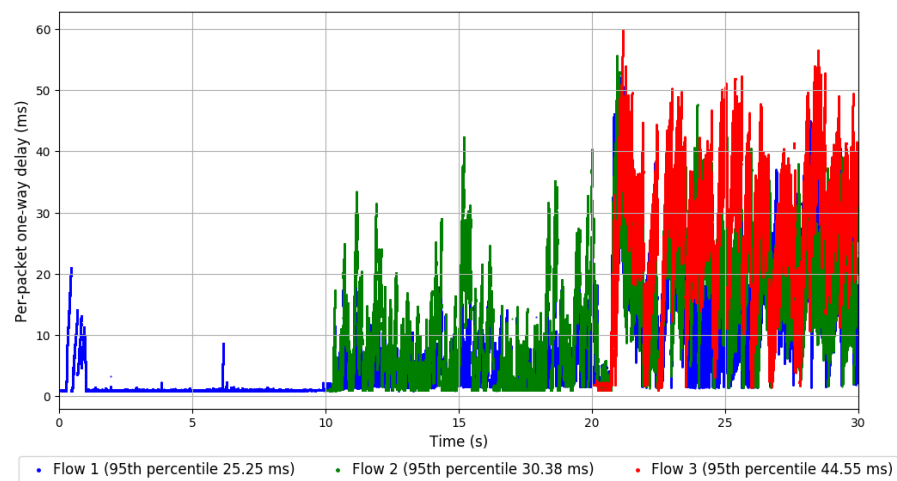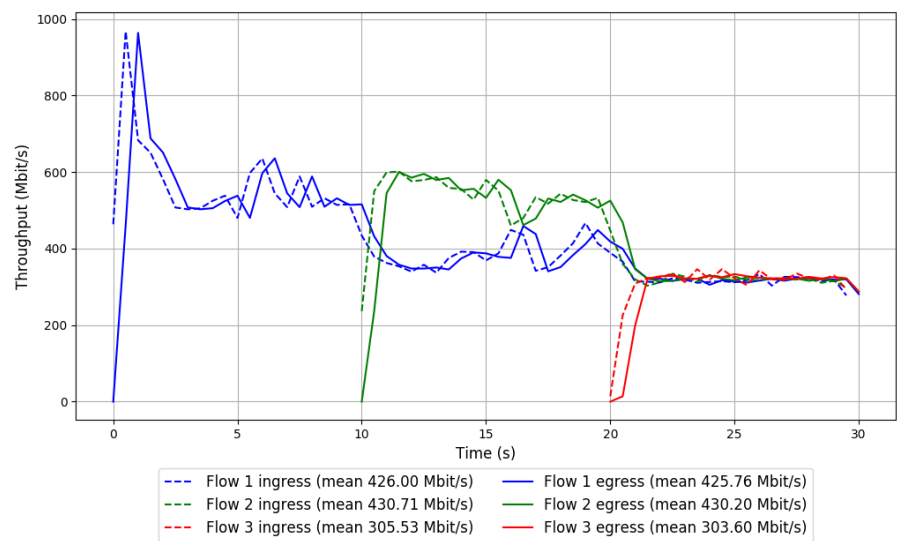Run 5: Report of TCP Cubic — Data Link

```
Run 1: Statistics of FillP

Start at: 2019-03-09 13:15:53
End at: 2019-03-09 13:16:23
Local clock offset: -0.034 ms
Remote clock offset: -1.142 ms


# Below is generated by plot.py at 2019-03-09 15:55:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 812.50 Mbit/s
95th percentile per-packet one-way delay: 34.393 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 425.76 Mbit/s
95th percentile per-packet one-way delay: 25.247 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 430.20 Mbit/s
95th percentile per-packet one-way delay: 30.379 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 303.60 Mbit/s
95th percentile per-packet one-way delay: 44.555 ms
Loss rate: 0.65%
```
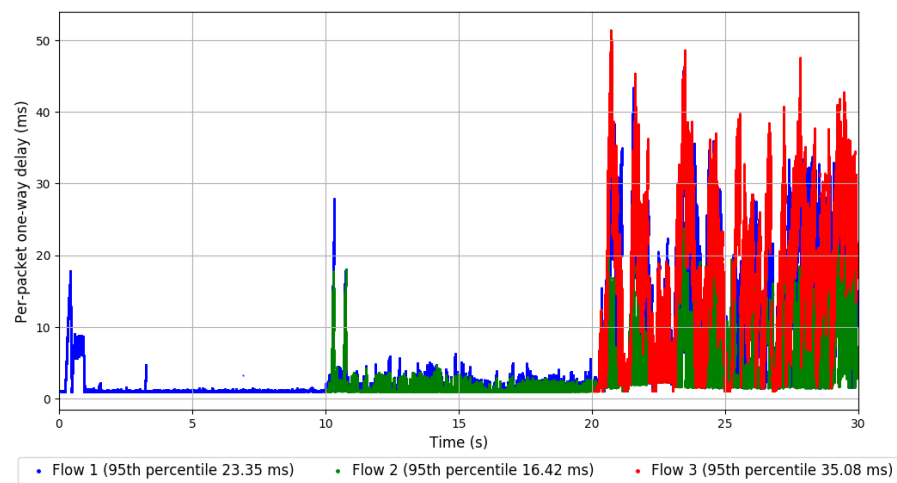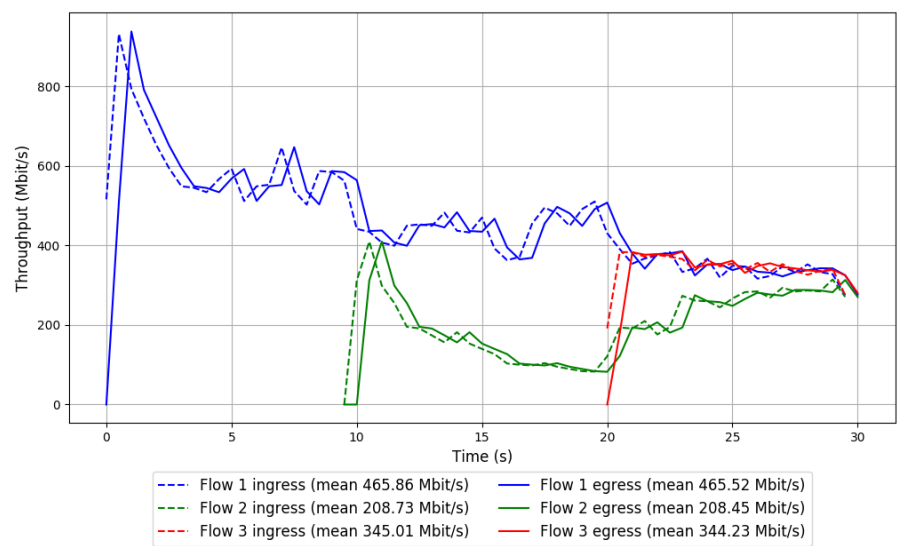
Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 426.00 Mbit/s) --- Flow 1 egress (mean 425.76 Mbit/s)
Flow 2 ingress (mean 430.71 Mbit/s) --- Flow 2 egress (mean 430.20 Mbit/s)
Flow 3 ingress (mean 305.53 Mbit/s) --- Flow 3 egress (mean 303.60 Mbit/s)

Flow 1 (95th percentile 25.25 ms)   Flow 2 (95th percentile 30.38 ms)   Flow 3 (95th percentile 44.55 ms)
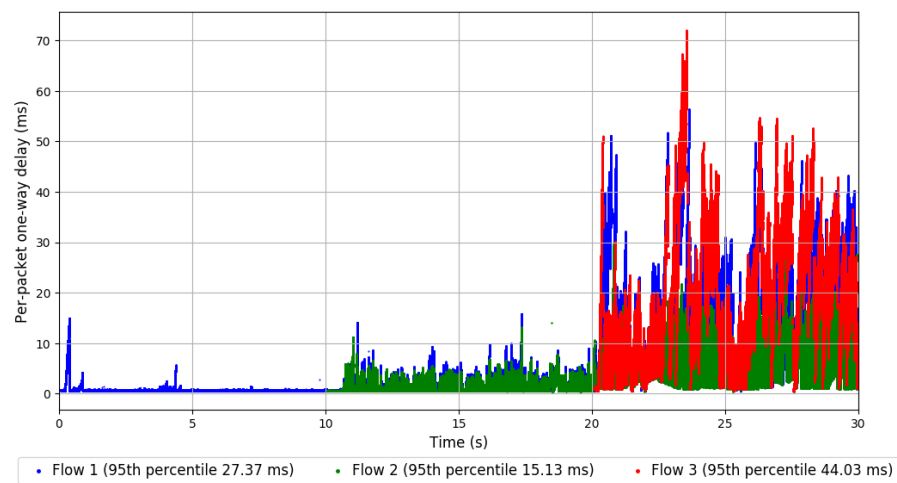
```
Run 2: Statistics of FillP

Start at: 2019-03-09 13:46:14
End at: 2019-03-09 13:46:44
Local clock offset: -0.584 ms
Remote clock offset: 1.646 ms


# Below is generated by plot.py at 2019-03-09 16:03:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 718.43 Mbit/s
95th percentile per-packet one-way delay: 27.140 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 465.52 Mbit/s
95th percentile per-packet one-way delay: 23.346 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 208.45 Mbit/s
95th percentile per-packet one-way delay: 16.424 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 344.23 Mbit/s
95th percentile per-packet one-way delay: 35.078 ms
Loss rate: 0.24%
```

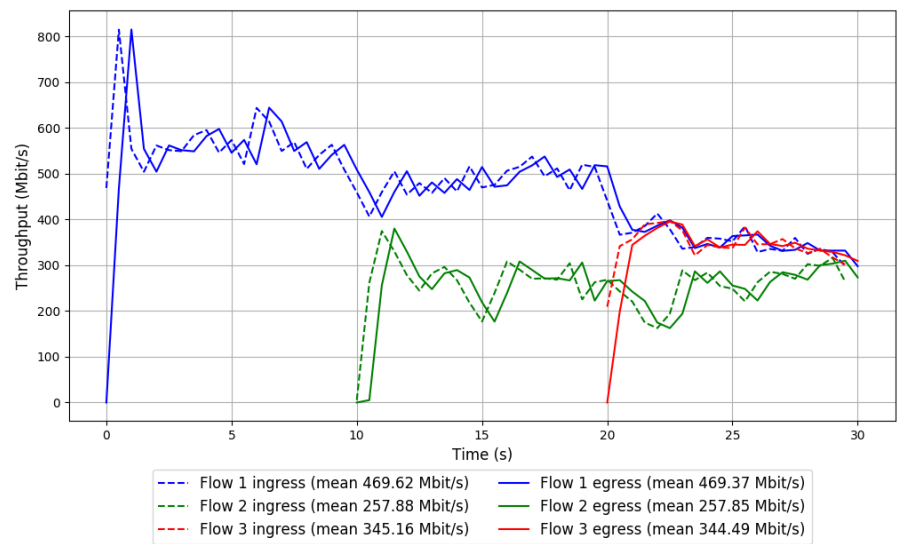Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2019-03-09 14:16:30
End at: 2019-03-09 14:17:00
Local clock offset: -2.799 ms
Remote clock offset: 1.265 ms

# Below is generated by plot.py at 2019-03-09 16:04:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 755.03 Mbit/s
95th percentile per-packet one-way delay: 30.618 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 469.37 Mbit/s
95th percentile per-packet one-way delay: 27.367 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 257.85 Mbit/s
95th percentile per-packet one-way delay: 15.135 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 344.49 Mbit/s
95th percentile per-packet one-way delay: 44.033 ms
Loss rate: 0.18%
```
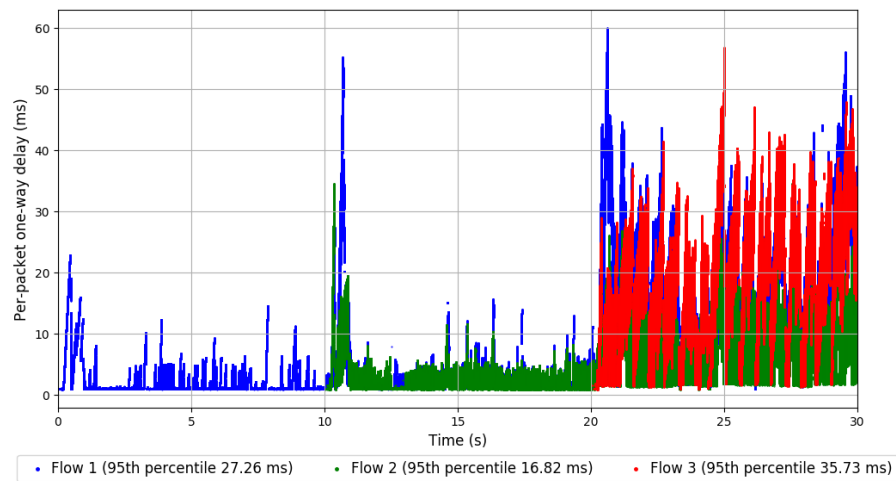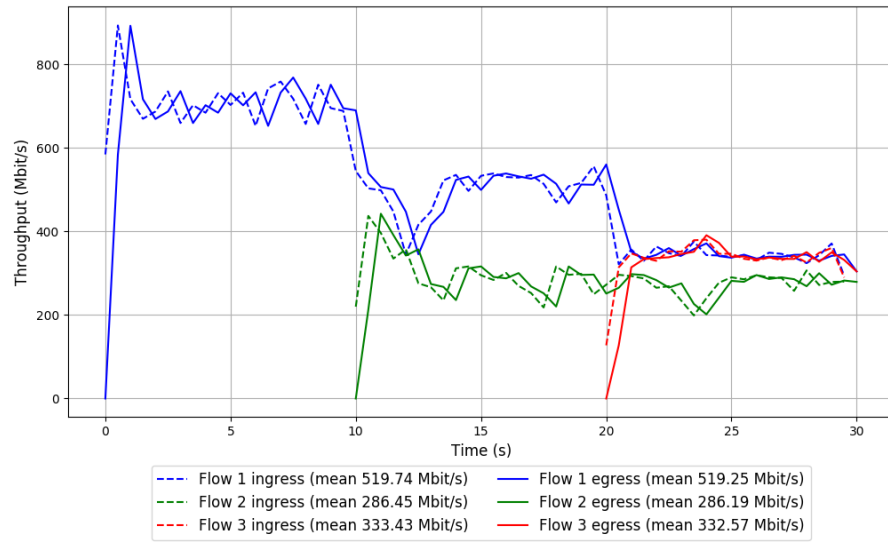
Run 3: Report of FillP — Data Link

Flow 1 ingress (mean 469.62 Mbit/s) --- Flow 1 egress (mean 469.37 Mbit/s)
Flow 2 ingress (mean 257.88 Mbit/s) --- Flow 2 egress (mean 257.85 Mbit/s)
Flow 3 ingress (mean 345.16 Mbit/s) --- Flow 3 egress (mean 344.49 Mbit/s)

Flow 1 (95th percentile 27.37 ms)   Flow 2 (95th percentile 15.13 ms)   Flow 3 (95th percentile 44.03 ms)

```
Run 4: Statistics of FillP

Start at: 2019-03-09 14:46:57
End at: 2019-03-09 14:47:27
Local clock offset: 0.741 ms
Remote clock offset: -2.765 ms


# Below is generated by plot.py at 2019-03-09 16:05:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 819.65 Mbit/s
95th percentile per-packet one-way delay: 28.841 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 519.25 Mbit/s
95th percentile per-packet one-way delay: 27.256 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 286.19 Mbit/s
95th percentile per-packet one-way delay: 16.825 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 332.57 Mbit/s
95th percentile per-packet one-way delay: 35.725 ms
Loss rate: 0.28%
```
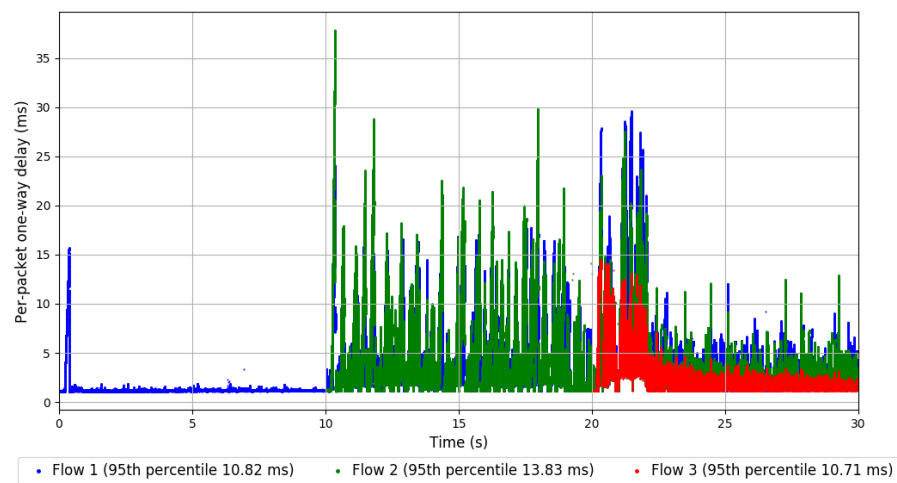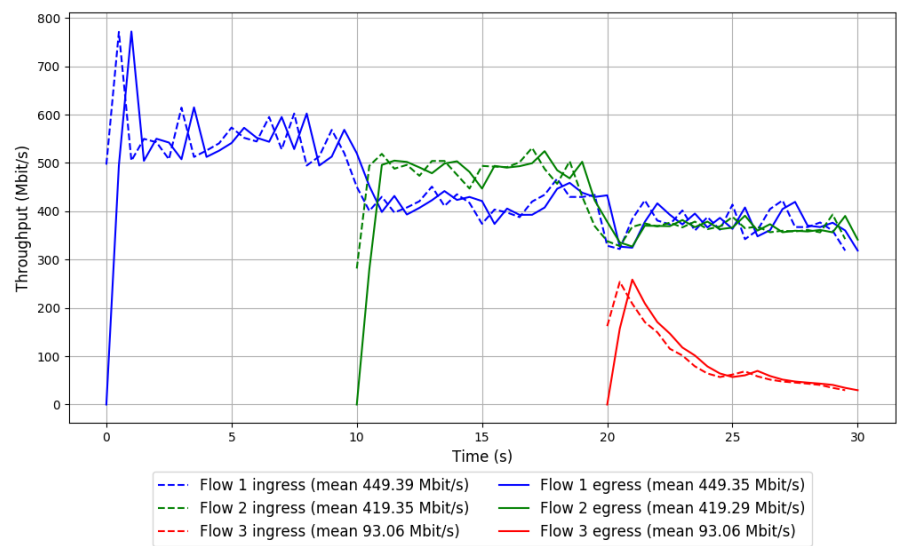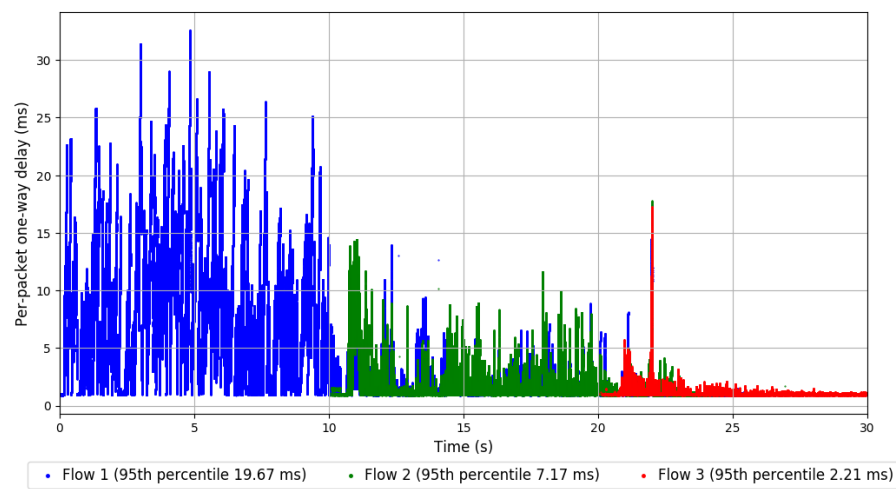
Run 4: Report of FillP — Data Link

```
Run 5: Statistics of FillP

Start at: 2019-03-09 15:17:20
End at: 2019-03-09 15:17:50
Local clock offset: 1.12 ms
Remote clock offset: 4.502 ms


# Below is generated by plot.py at 2019-03-09 16:05:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 759.00 Mbit/s
95th percentile per-packet one-way delay: 11.949 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 449.35 Mbit/s
95th percentile per-packet one-way delay: 10.816 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 419.29 Mbit/s
95th percentile per-packet one-way delay: 13.830 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 93.06 Mbit/s
95th percentile per-packet one-way delay: 10.710 ms
Loss rate: 0.00%
```
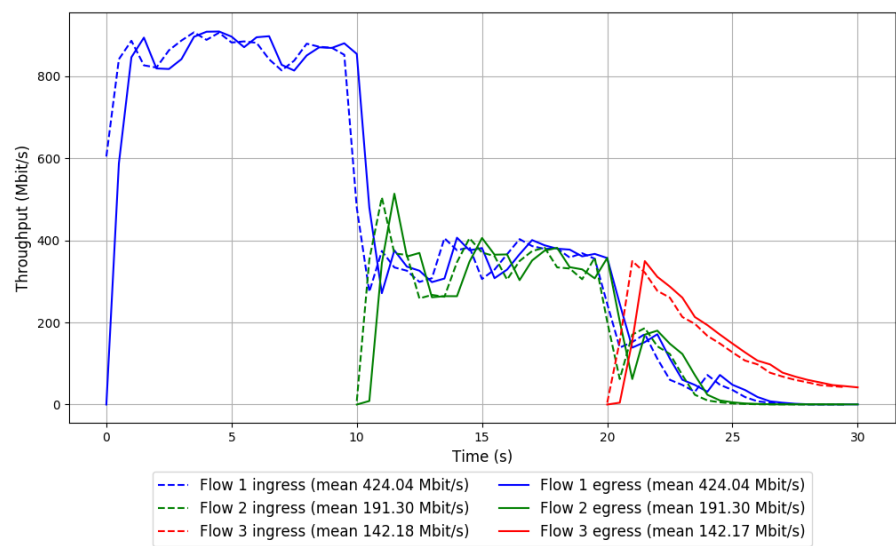
Run 5: Report of FillP — Data Link

```
Run 1: Statistics of FillP-Sheep

Start at: 2019-03-09 13:08:27
End at: 2019-03-09 13:08:57
Local clock offset: -0.017 ms
Remote clock offset: -4.077 ms


# Below is generated by plot.py at 2019-03-09 16:05:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 597.79 Mbit/s
95th percentile per-packet one-way delay: 18.009 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 424.04 Mbit/s
95th percentile per-packet one-way delay: 19.670 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 191.30 Mbit/s
95th percentile per-packet one-way delay: 7.168 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 142.17 Mbit/s
95th percentile per-packet one-way delay: 2.213 ms
Loss rate: 0.02%
```
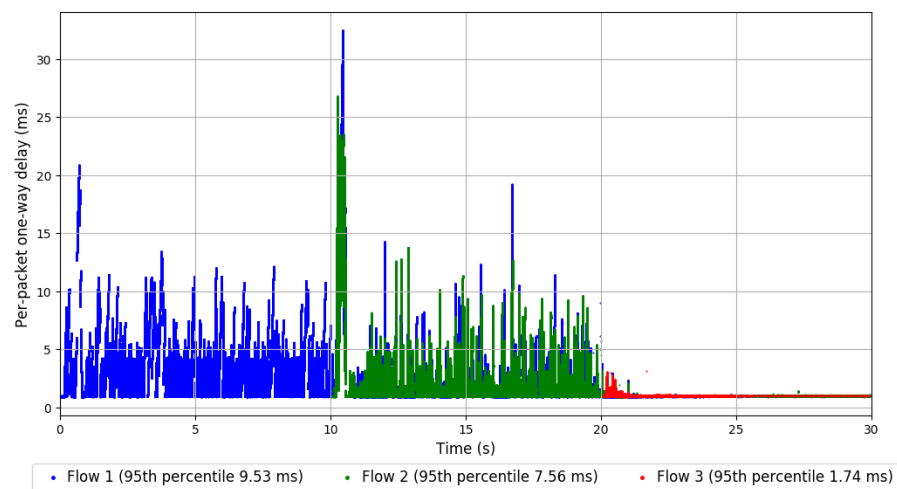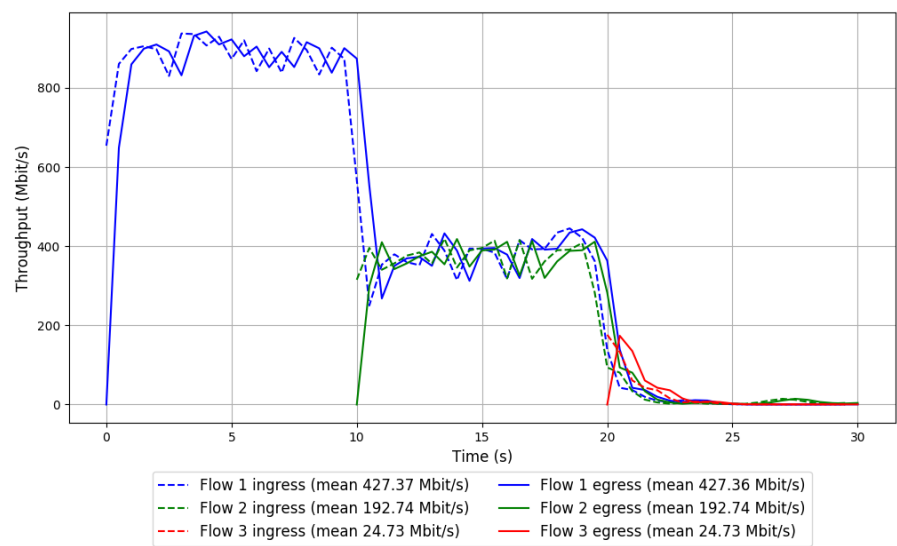
Run 1: Report of FillP-Sheep — Data Link

- - - - Flow 1 ingress (mean 424.04 Mbit/s) ——— Flow 1 egress (mean 424.04 Mbit/s)
- - - - Flow 2 ingress (mean 191.30 Mbit/s) ——— Flow 2 egress (mean 191.30 Mbit/s)
- - - - Flow 3 ingress (mean 142.18 Mbit/s) ——— Flow 3 egress (mean 142.17 Mbit/s)

- Flow 1 (95th percentile 19.67 ms)   - Flow 2 (95th percentile 7.17 ms)   - Flow 3 (95th percentile 2.21 ms)

```
Run 2: Statistics of FillP-Sheep

Start at: 2019-03-09 13:38:50
End at: 2019-03-09 13:39:20
Local clock offset: 0.048 ms
Remote clock offset: 1.625 ms


# Below is generated by plot.py at 2019-03-09 16:05:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 563.69 Mbit/s
95th percentile per-packet one-way delay: 9.295 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 427.36 Mbit/s
95th percentile per-packet one-way delay: 9.532 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 192.74 Mbit/s
95th percentile per-packet one-way delay: 7.559 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 24.73 Mbit/s
95th percentile per-packet one-way delay: 1.737 ms
Loss rate: 0.00%
```
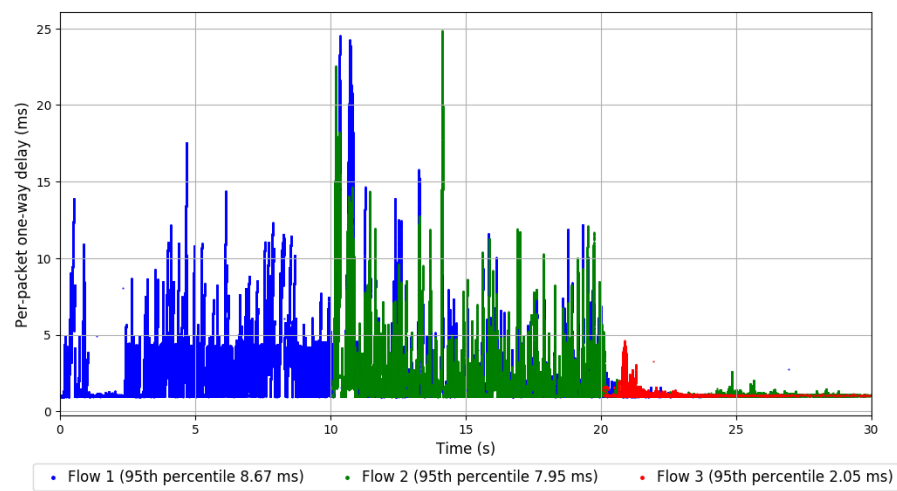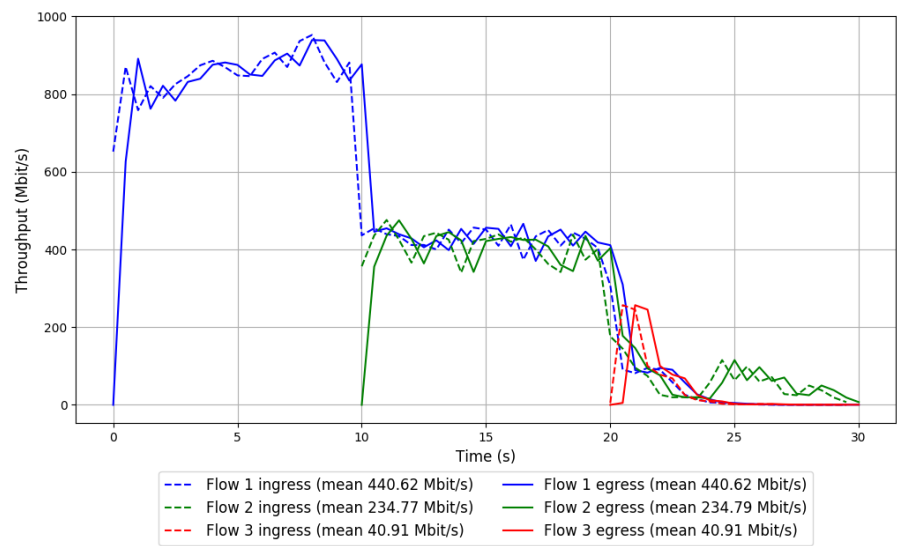
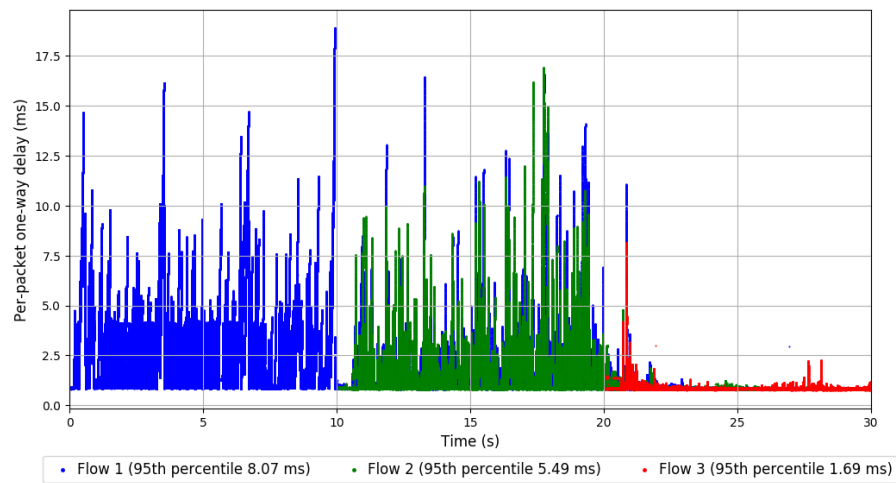# Run 2: Report of FillP-Sheep — Data Link

```
Run 3: Statistics of FillP-Sheep

Start at: 2019-03-09 14:09:08
End at: 2019-03-09 14:09:38
Local clock offset: -3.385 ms
Remote clock offset: 1.161 ms


# Below is generated by plot.py at 2019-03-09 16:05:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 610.37 Mbit/s
95th percentile per-packet one-way delay: 8.500 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 440.62 Mbit/s
95th percentile per-packet one-way delay: 8.672 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 234.79 Mbit/s
95th percentile per-packet one-way delay: 7.948 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 40.91 Mbit/s
95th percentile per-packet one-way delay: 2.053 ms
Loss rate: 0.00%
```

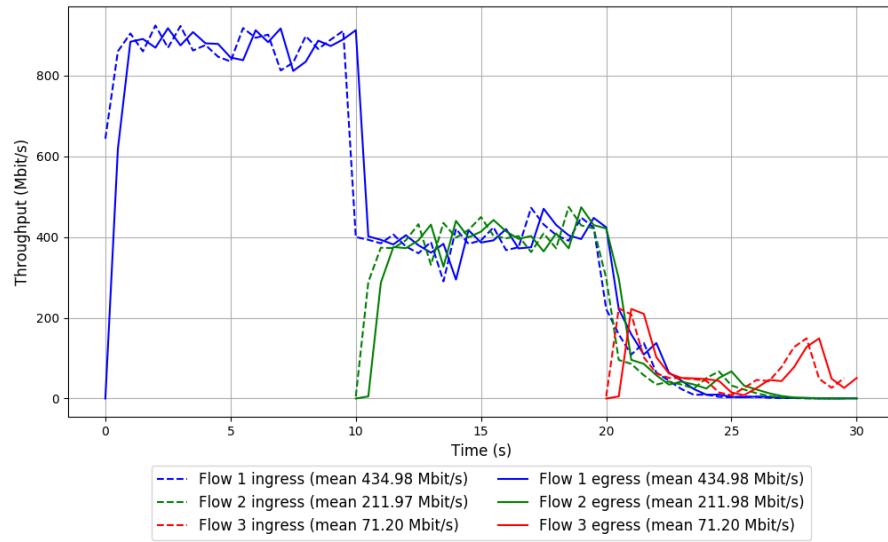Run 3: Report of FillP-Sheep — Data Link

```
Run 4: Statistics of FillP-Sheep

Start at: 2019-03-09 14:39:30
End at: 2019-03-09 14:40:00
Local clock offset: 0.485 ms
Remote clock offset: -2.284 ms


# Below is generated by plot.py at 2019-03-09 16:05:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 599.15 Mbit/s
95th percentile per-packet one-way delay: 7.547 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 434.98 Mbit/s
95th percentile per-packet one-way delay: 8.075 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 211.98 Mbit/s
95th percentile per-packet one-way delay: 5.486 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 71.20 Mbit/s
95th percentile per-packet one-way delay: 1.694 ms
Loss rate: 0.00%
```
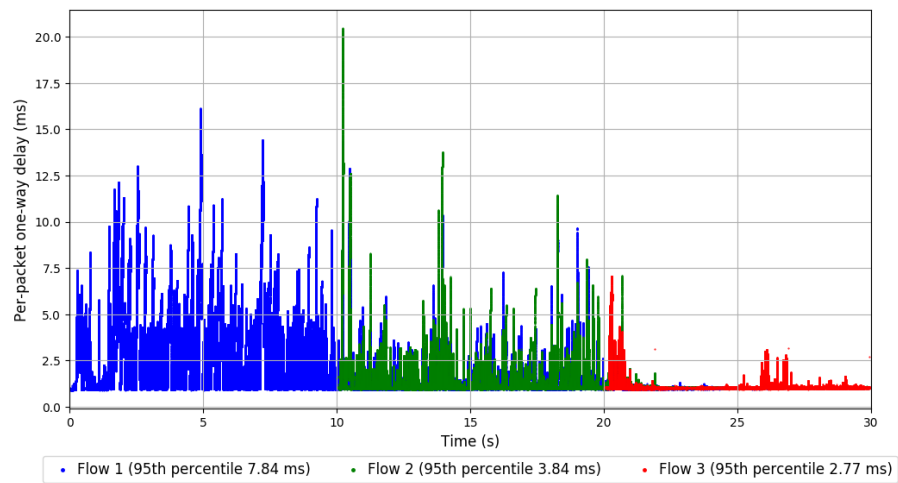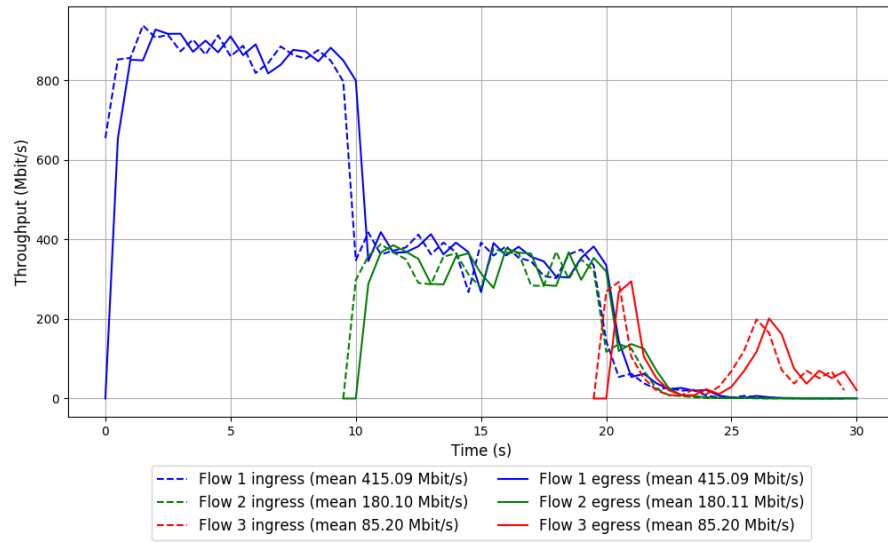
Run 4: Report of FillP-Sheep — Data Link

```
Run 5: Statistics of FillP-Sheep

Start at: 2019-03-09 15:10:03
End at: 2019-03-09 15:10:33
Local clock offset: 1.382 ms
Remote clock offset: 3.732 ms


# Below is generated by plot.py at 2019-03-09 16:10:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 562.56 Mbit/s
95th percentile per-packet one-way delay: 7.269 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 415.09 Mbit/s
95th percentile per-packet one-way delay: 7.840 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 180.11 Mbit/s
95th percentile per-packet one-way delay: 3.840 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 85.20 Mbit/s
95th percentile per-packet one-way delay: 2.772 ms
Loss rate: 0.00%
```

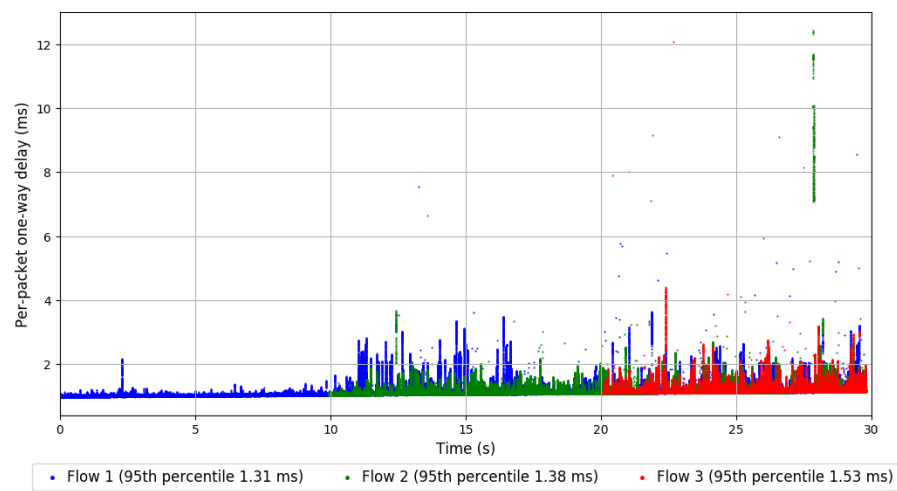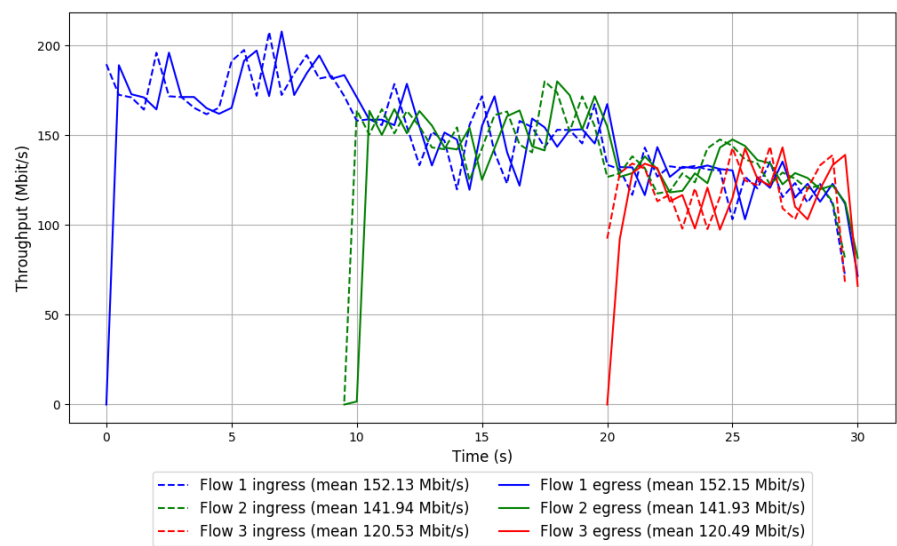Run 5: Report of FillP-Sheep — Data Link

```
Run 1: Statistics of Indigo

Start at: 2019-03-09 13:14:27
End at: 2019-03-09 13:14:57
Local clock offset: -0.059 ms
Remote clock offset: -1.642 ms


# Below is generated by plot.py at 2019-03-09 16:10:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 286.22 Mbit/s
95th percentile per-packet one-way delay: 1.372 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 152.15 Mbit/s
95th percentile per-packet one-way delay: 1.310 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 141.93 Mbit/s
95th percentile per-packet one-way delay: 1.375 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 120.49 Mbit/s
95th percentile per-packet one-way delay: 1.526 ms
Loss rate: 0.05%
```
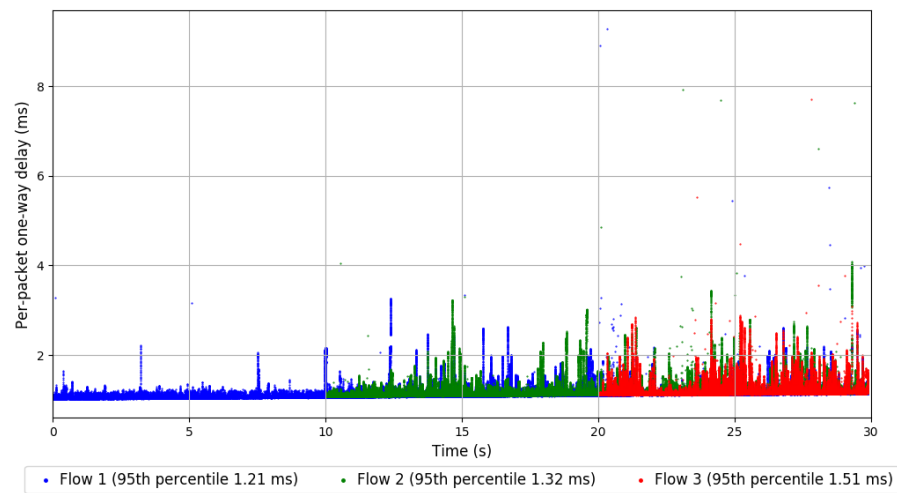
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2019-03-09 13:44:48
End at: 2019-03-09 13:45:18
Local clock offset: -0.135 ms
Remote clock offset: 1.751 ms


# Below is generated by plot.py at 2019-03-09 16:10:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 284.20 Mbit/s
95th percentile per-packet one-way delay: 1.289 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 151.85 Mbit/s
95th percentile per-packet one-way delay: 1.209 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 142.57 Mbit/s
95th percentile per-packet one-way delay: 1.319 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 114.45 Mbit/s
95th percentile per-packet one-way delay: 1.511 ms
Loss rate: 0.04%
```
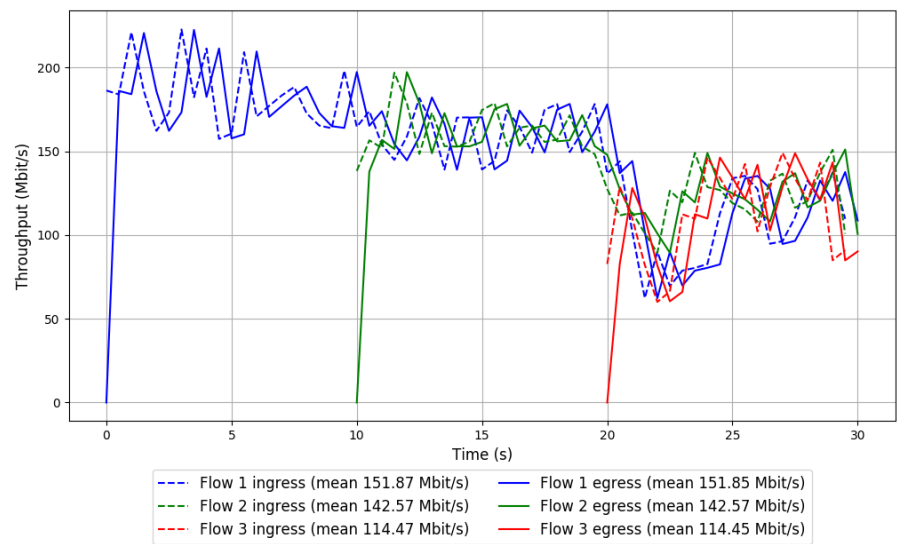
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2019-03-09 14:15:03
End at: 2019-03-09 14:15:33
Local clock offset: -3.336 ms
Remote clock offset: 1.169 ms


# Below is generated by plot.py at 2019-03-09 16:10:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 291.41 Mbit/s
95th percentile per-packet one-way delay: 0.805 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 155.57 Mbit/s
95th percentile per-packet one-way delay: 0.803 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 142.49 Mbit/s
95th percentile per-packet one-way delay: 0.777 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 125.24 Mbit/s
95th percentile per-packet one-way delay: 0.876 ms
Loss rate: 0.11%
```
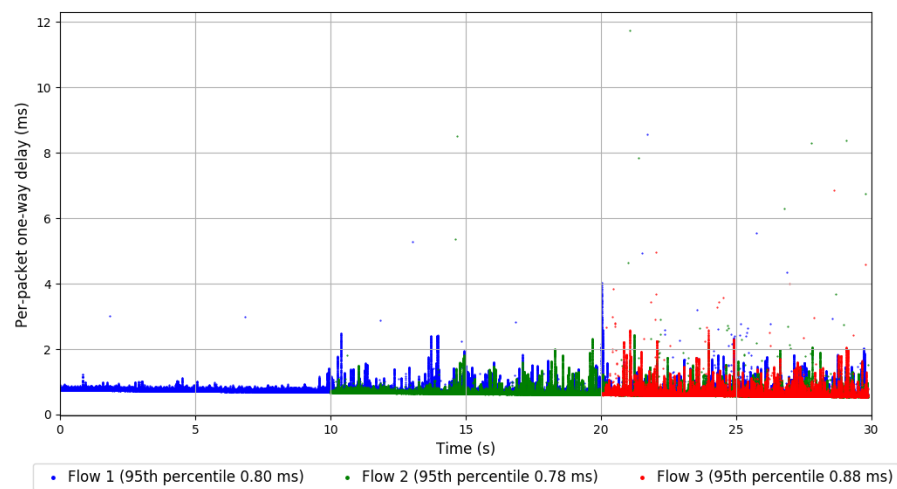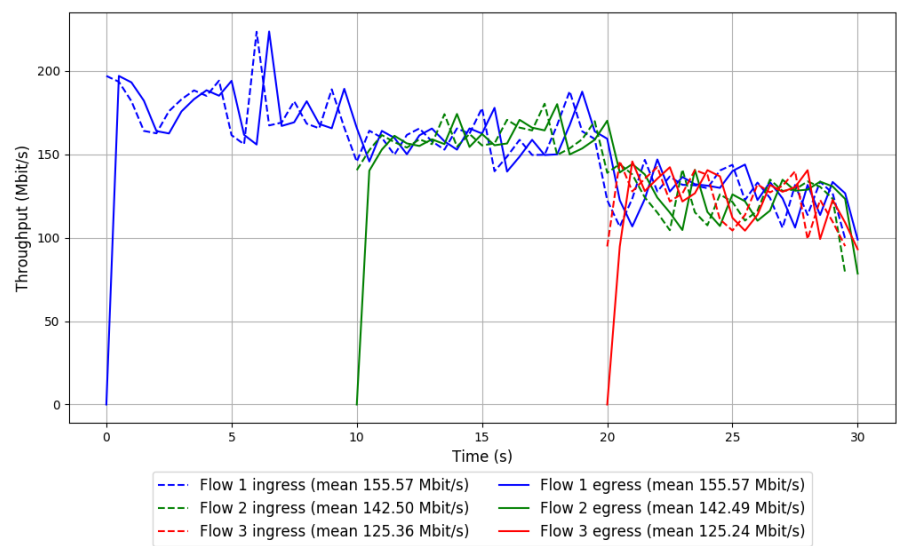
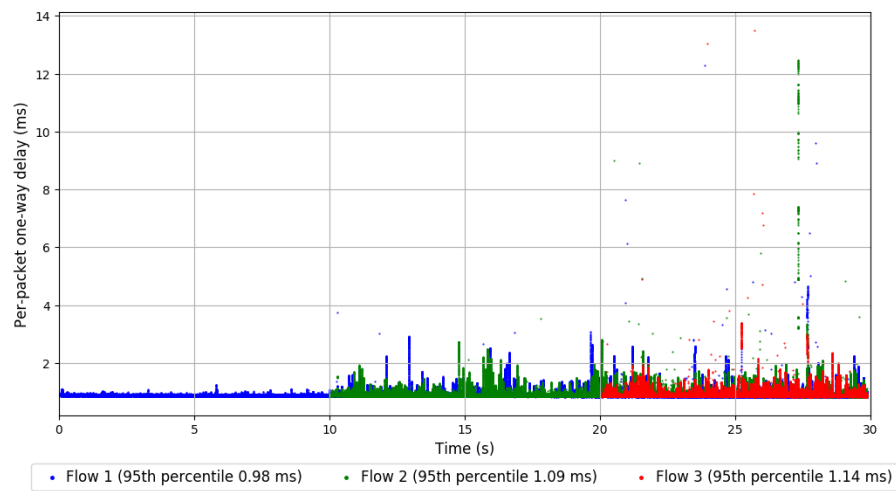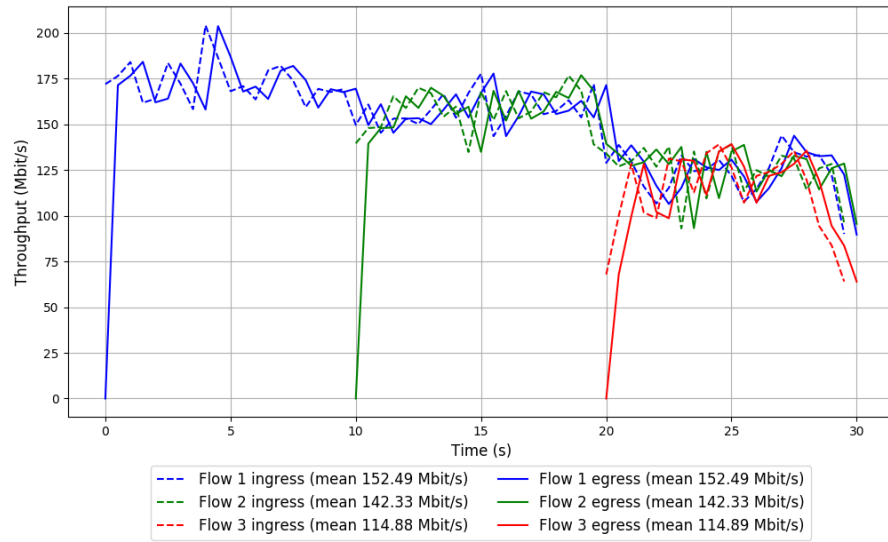Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2019-03-09 14:45:31
End at: 2019-03-09 14:46:01
Local clock offset: 0.691 ms
Remote clock offset: -2.632 ms


# Below is generated by plot.py at 2019-03-09 16:10:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 284.73 Mbit/s
95th percentile per-packet one-way delay: 1.047 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 152.49 Mbit/s
95th percentile per-packet one-way delay: 0.976 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 142.33 Mbit/s
95th percentile per-packet one-way delay: 1.088 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 114.89 Mbit/s
95th percentile per-packet one-way delay: 1.141 ms
Loss rate: 0.02%
```

Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2019-03-09 15:15:54
End at: 2019-03-09 15:16:24
Local clock offset: 1.282 ms
Remote clock offset: 4.45 ms


# Below is generated by plot.py at 2019-03-09 16:10:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 281.97 Mbit/s
95th percentile per-packet one-way delay: 1.268 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 151.73 Mbit/s
95th percentile per-packet one-way delay: 1.180 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 137.94 Mbit/s
95th percentile per-packet one-way delay: 1.313 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 117.69 Mbit/s
95th percentile per-packet one-way delay: 1.433 ms
Loss rate: 0.01%
```
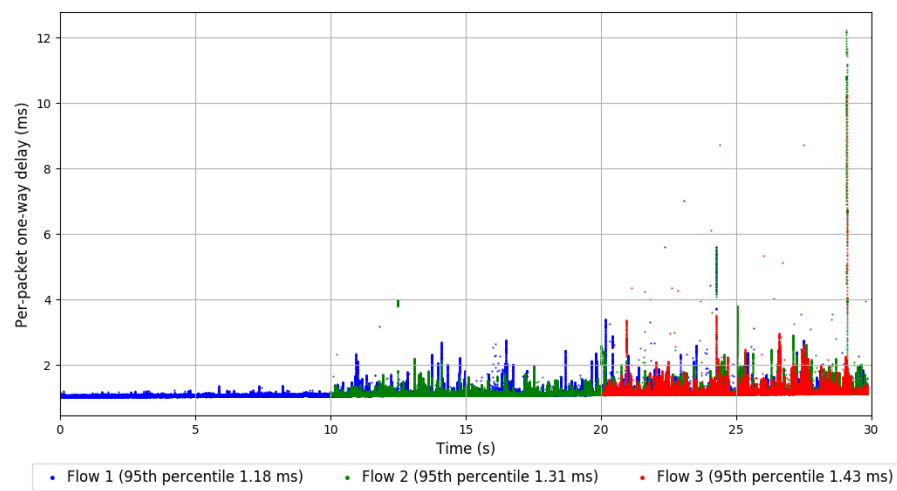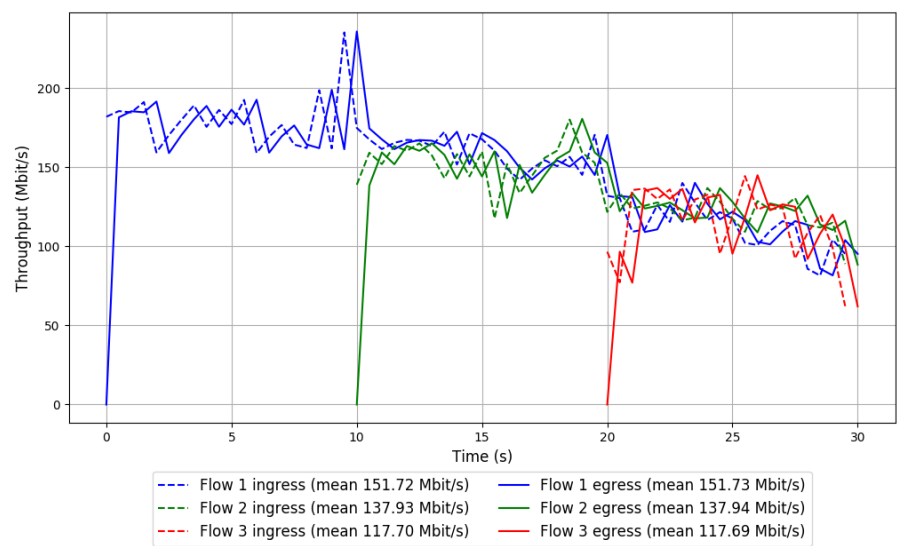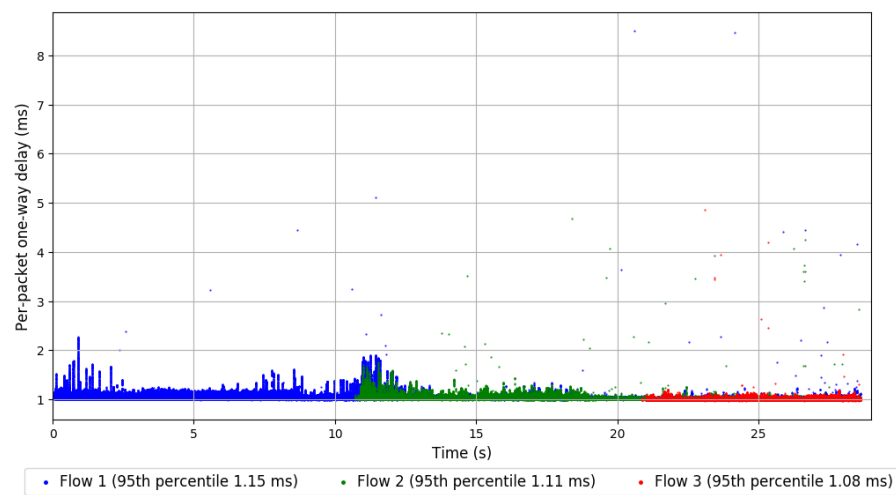
Run 5: Report of Indigo — Data Link

Flow 1 ingress (mean 151.72 Mbit/s) --- Flow 1 egress (mean 151.73 Mbit/s)
Flow 2 ingress (mean 137.93 Mbit/s) --- Flow 2 egress (mean 137.94 Mbit/s)
Flow 3 ingress (mean 117.70 Mbit/s) --- Flow 3 egress (mean 117.69 Mbit/s)

Flow 1 (95th percentile 1.18 ms) • Flow 2 (95th percentile 1.31 ms) • Flow 3 (95th percentile 1.43 ms)
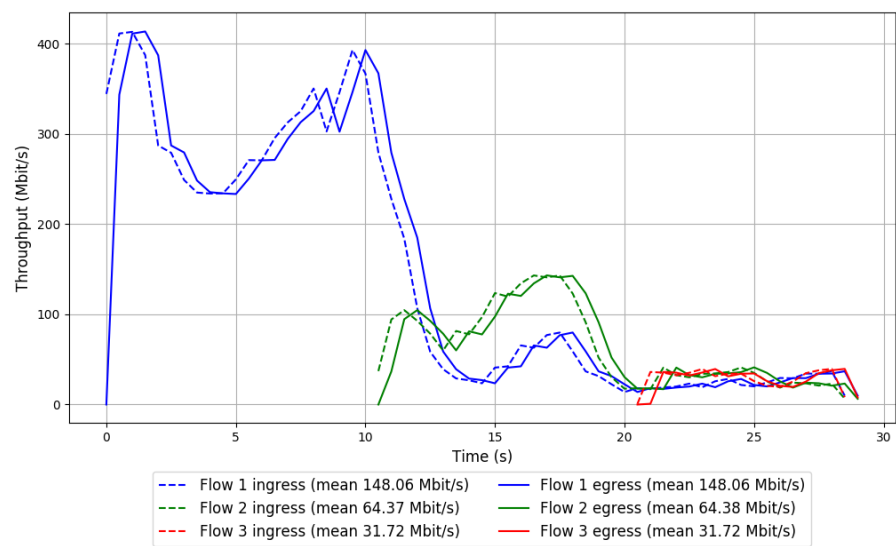
```
Run 1: Statistics of Indigo-MusesC3

Start at: 2019-03-09 13:07:06
End at: 2019-03-09 13:07:36
Local clock offset: -0.012 ms
Remote clock offset: -4.062 ms


# Below is generated by plot.py at 2019-03-09 16:10:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 196.88 Mbit/s
95th percentile per-packet one-way delay: 1.141 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 148.06 Mbit/s
95th percentile per-packet one-way delay: 1.146 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 64.38 Mbit/s
95th percentile per-packet one-way delay: 1.109 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 31.72 Mbit/s
95th percentile per-packet one-way delay: 1.077 ms
Loss rate: 0.05%
```
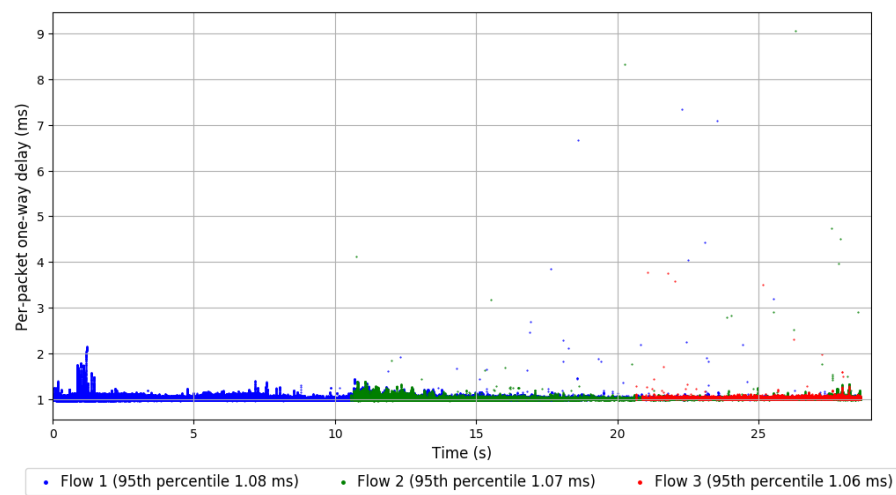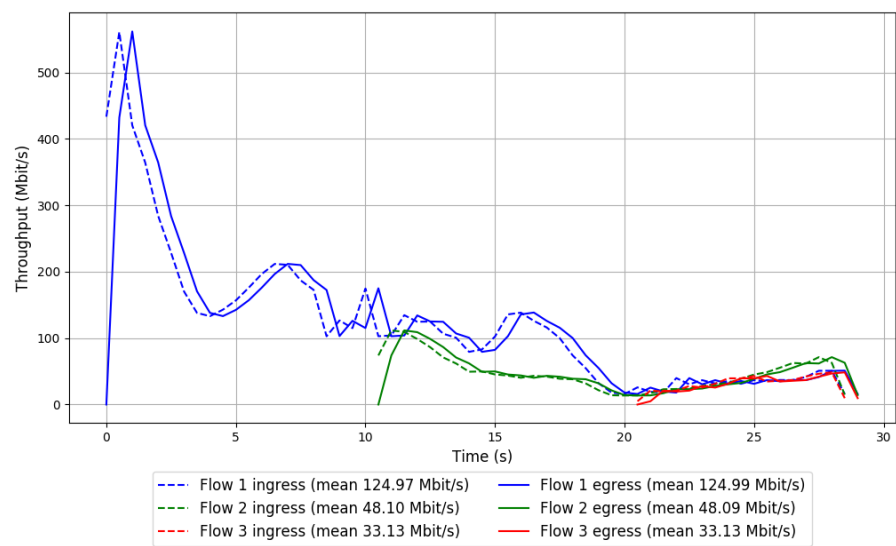
Run 1: Report of Indigo-MusesC3 — Data Link

- - - Flow 1 ingress (mean 148.06 Mbit/s) —— Flow 1 egress (mean 148.06 Mbit/s)
- - - Flow 2 ingress (mean 64.37 Mbit/s) —— Flow 2 egress (mean 64.38 Mbit/s)
- - - Flow 3 ingress (mean 31.72 Mbit/s) —— Flow 3 egress (mean 31.72 Mbit/s)

• Flow 1 (95th percentile 1.15 ms)   • Flow 2 (95th percentile 1.11 ms)   • Flow 3 (95th percentile 1.08 ms)

```
Run 2: Statistics of Indigo-MusesC3

Start at: 2019-03-09 13:37:30
End at: 2019-03-09 13:38:00
Local clock offset: 0.041 ms
Remote clock offset: 1.534 ms


# Below is generated by plot.py at 2019-03-09 16:10:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 164.54 Mbit/s
95th percentile per-packet one-way delay: 1.082 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 124.99 Mbit/s
95th percentile per-packet one-way delay: 1.085 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 48.09 Mbit/s
95th percentile per-packet one-way delay: 1.069 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 33.13 Mbit/s
95th percentile per-packet one-way delay: 1.057 ms
Loss rate: 0.00%
```
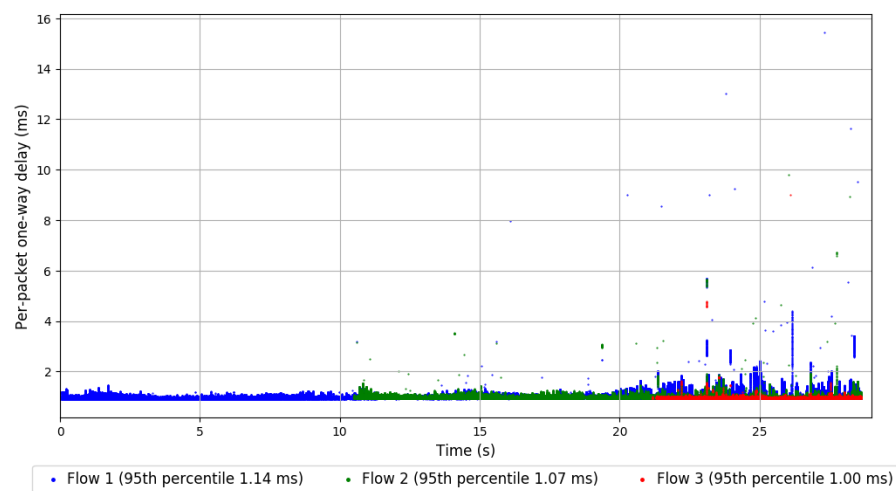
Run 2: Report of Indigo-MusesC3 — Data Link

```
Run 3: Statistics of Indigo-MusesC3

Start at: 2019-03-09 14:07:48
End at: 2019-03-09 14:08:18
Local clock offset: -3.3 ms
Remote clock offset: 1.229 ms


# Below is generated by plot.py at 2019-03-09 16:10:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 204.25 Mbit/s
95th percentile per-packet one-way delay: 1.115 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 146.10 Mbit/s
95th percentile per-packet one-way delay: 1.142 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 81.80 Mbit/s
95th percentile per-packet one-way delay: 1.072 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 24.37 Mbit/s
95th percentile per-packet one-way delay: 0.998 ms
Loss rate: 0.03%
```
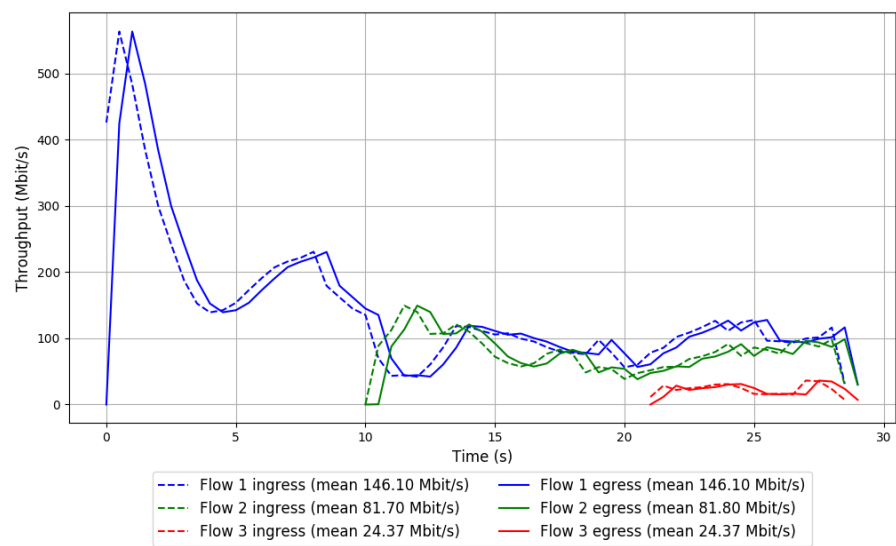
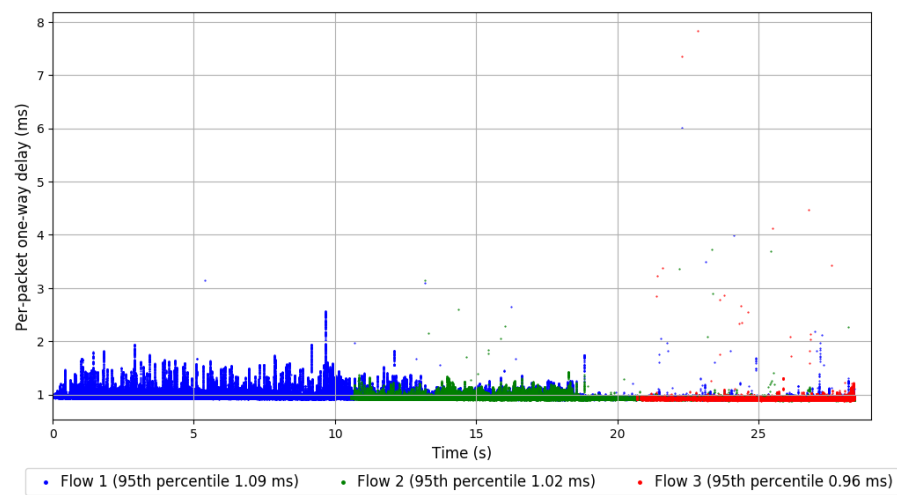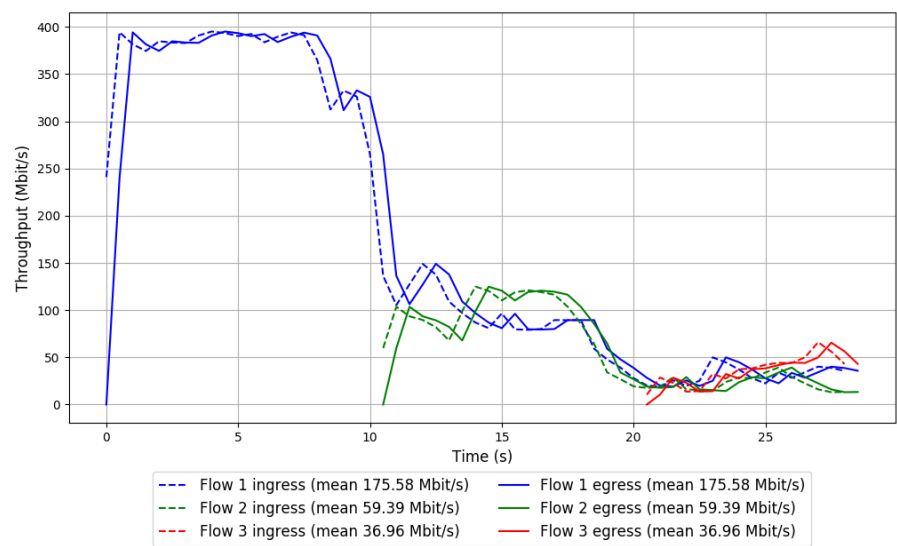Run 3: Report of Indigo-MusesC3 — Data Link

- - - Flow 1 ingress (mean 146.10 Mbit/s)   —— Flow 1 egress (mean 146.10 Mbit/s)
- - - Flow 2 ingress (mean 81.70 Mbit/s)   —— Flow 2 egress (mean 81.80 Mbit/s)
- - - Flow 3 ingress (mean 24.37 Mbit/s)   —— Flow 3 egress (mean 24.37 Mbit/s)

• Flow 1 (95th percentile 1.14 ms)   • Flow 2 (95th percentile 1.07 ms)   • Flow 3 (95th percentile 1.00 ms)

```
Run 4: Statistics of Indigo-MusesC3

Start at: 2019-03-09 14:38:09
End at: 2019-03-09 14:38:39
Local clock offset: 0.426 ms
Remote clock offset: -2.286 ms


# Below is generated by plot.py at 2019-03-09 16:10:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 222.91 Mbit/s
95th percentile per-packet one-way delay: 1.080 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 175.58 Mbit/s
95th percentile per-packet one-way delay: 1.091 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 59.39 Mbit/s
95th percentile per-packet one-way delay: 1.020 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 36.96 Mbit/s
95th percentile per-packet one-way delay: 0.958 ms
Loss rate: 0.00%
```
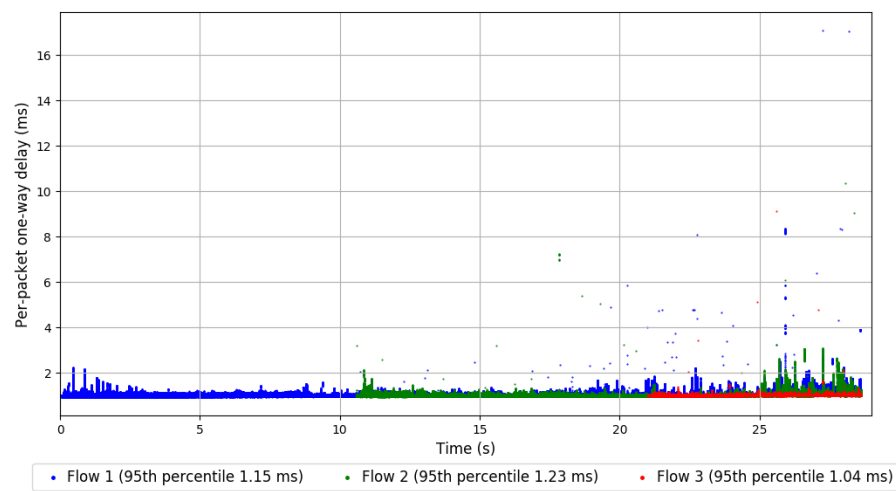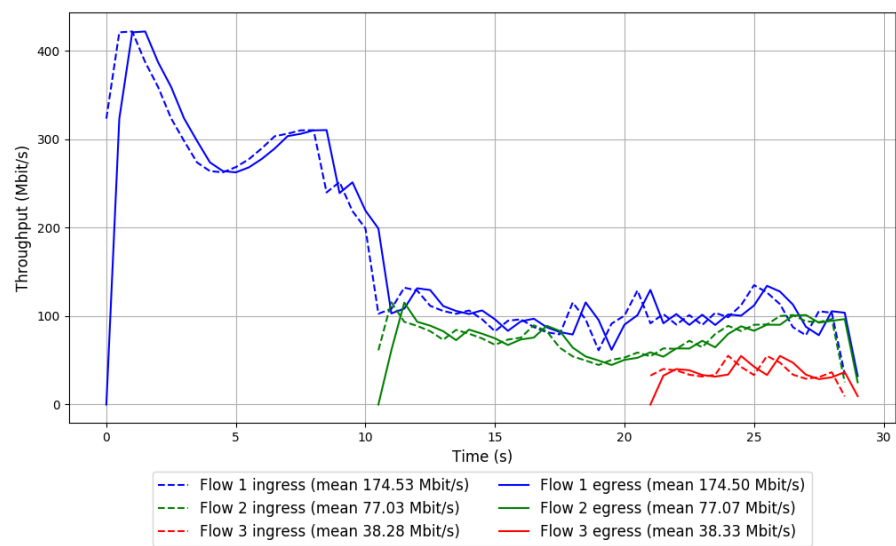
Run 4: Report of Indigo-MusesC3 — Data Link

```
Run 5: Statistics of Indigo-MusesC3

Start at: 2019-03-09 15:08:42
End at: 2019-03-09 15:09:12
Local clock offset: 1.34 ms
Remote clock offset: 3.554 ms


# Below is generated by plot.py at 2019-03-09 16:10:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 233.24 Mbit/s
95th percentile per-packet one-way delay: 1.162 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 174.50 Mbit/s
95th percentile per-packet one-way delay: 1.154 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 77.07 Mbit/s
95th percentile per-packet one-way delay: 1.227 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 38.33 Mbit/s
95th percentile per-packet one-way delay: 1.043 ms
Loss rate: 0.00%
```

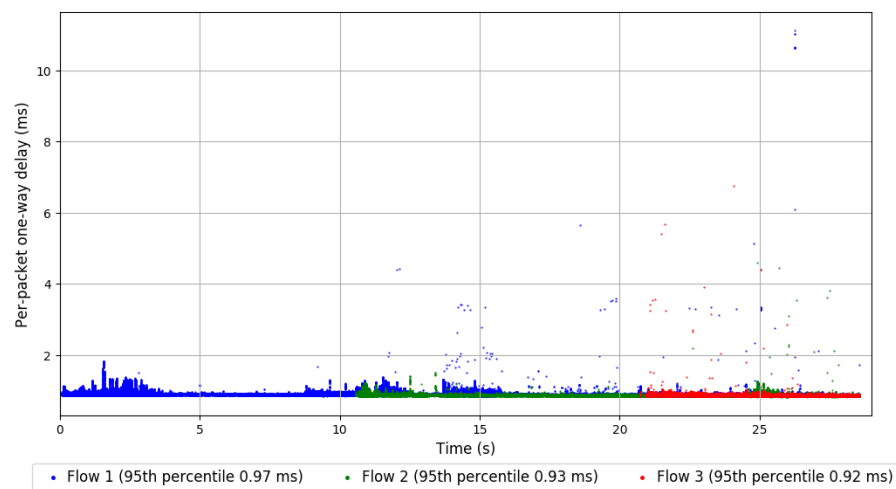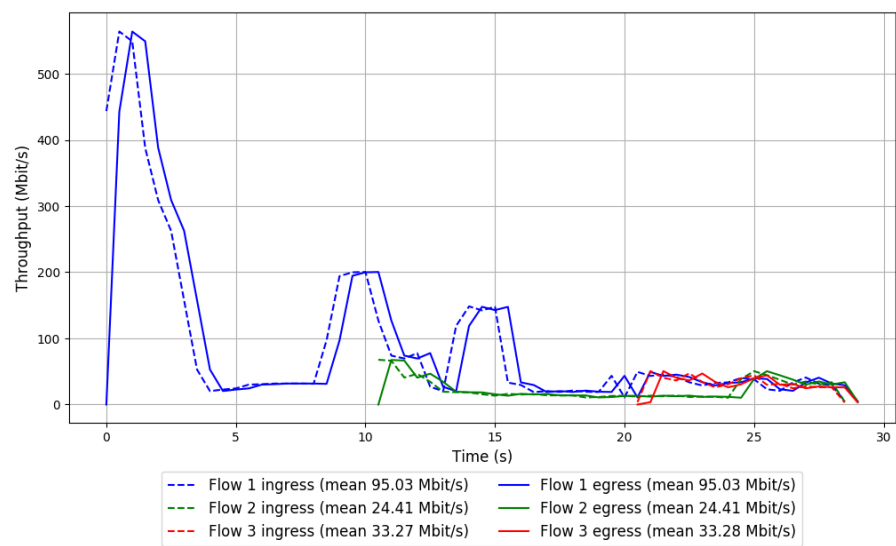Run 5: Report of Indigo-MusesC3 — Data Link

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```
Run 1: Statistics of Indigo-MusesC5

Start at: 2019-03-09 12:58:57
End at: 2019-03-09 12:59:27
Local clock offset: 0.027 ms
Remote clock offset: -3.448 ms


# Below is generated by plot.py at 2019-03-09 16:10:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 119.53 Mbit/s
95th percentile per-packet one-way delay: 0.964 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 95.03 Mbit/s
95th percentile per-packet one-way delay: 0.972 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 24.41 Mbit/s
95th percentile per-packet one-way delay: 0.929 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 33.28 Mbit/s
95th percentile per-packet one-way delay: 0.922 ms
Loss rate: 0.00%
```
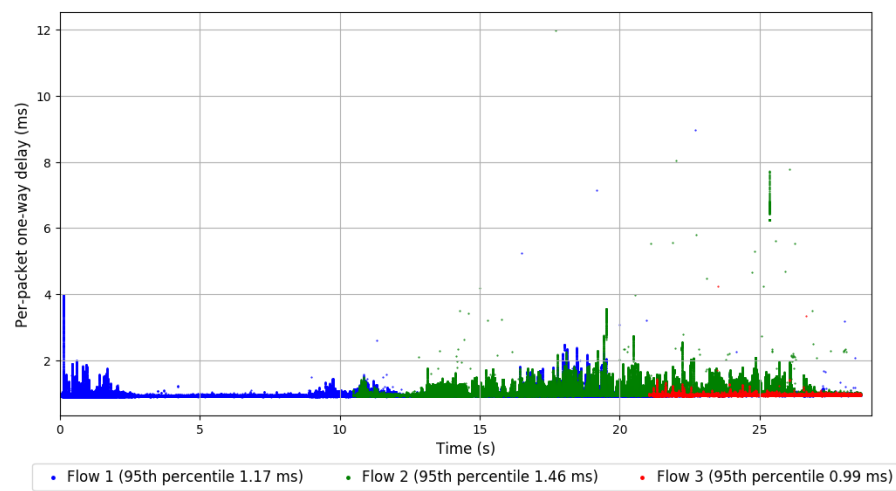
Run 1: Report of Indigo-MusesC5 — Data Link

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```
Run 2: Statistics of Indigo-MusesC5

Start at: 2019-03-09 13:29:23
End at: 2019-03-09 13:29:53
Local clock offset: 0.054 ms
Remote clock offset: 1.085 ms

# Below is generated by plot.py at 2019-03-09 16:10:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 164.85 Mbit/s
95th percentile per-packet one-way delay: 1.343 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 87.09 Mbit/s
95th percentile per-packet one-way delay: 1.174 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 108.18 Mbit/s
95th percentile per-packet one-way delay: 1.458 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 34.77 Mbit/s
95th percentile per-packet one-way delay: 0.990 ms
Loss rate: 0.00%
```
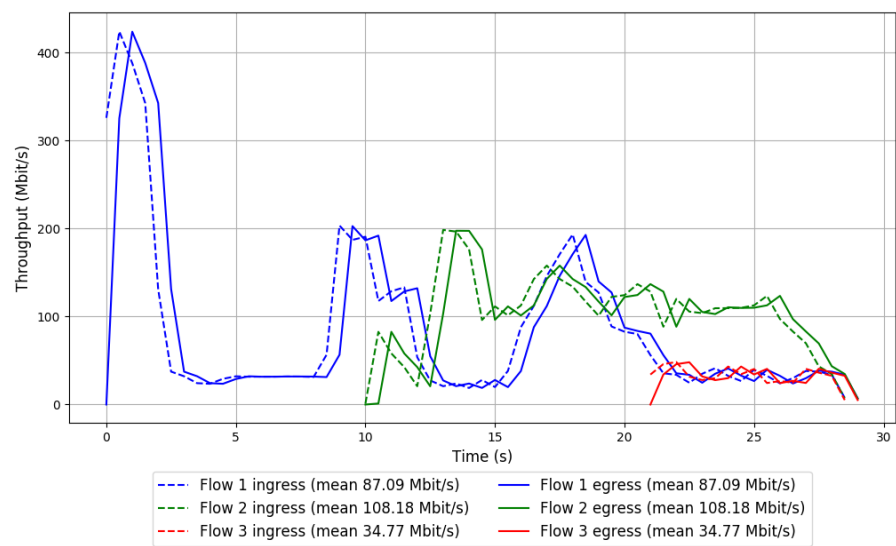
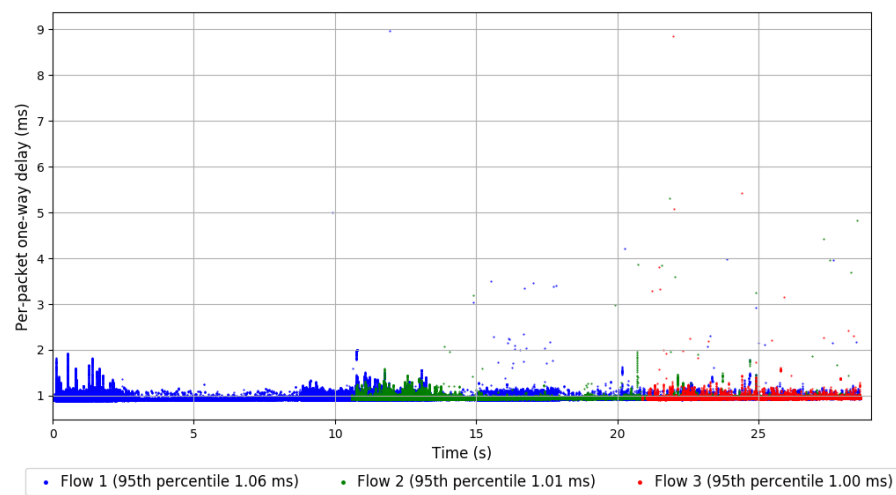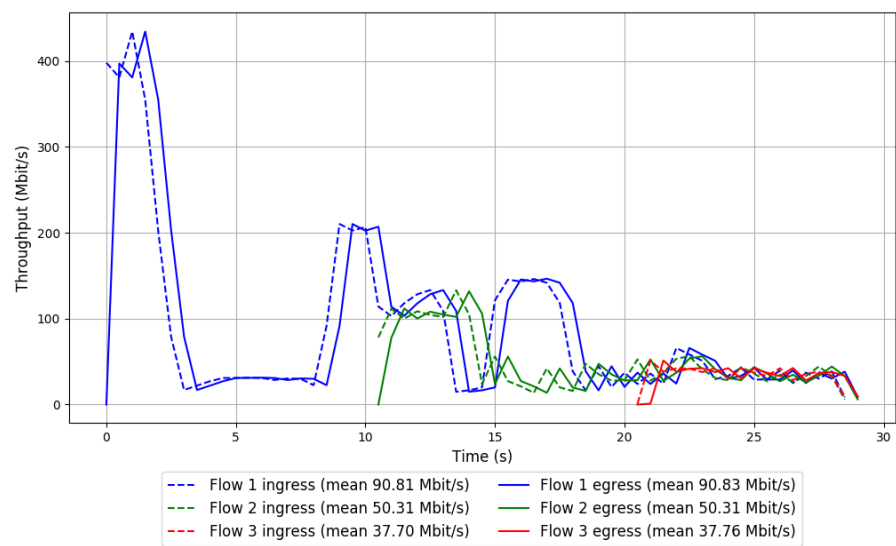Run 2: Report of Indigo-MusesC5 — Data Link

```
Run 3: Statistics of Indigo-MusesC5

Start at: 2019-03-09 13:59:41
End at: 2019-03-09 14:00:11
Local clock offset: -2.715 ms
Remote clock offset: 1.288 ms

# Below is generated by plot.py at 2019-03-09 16:10:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 132.71 Mbit/s
95th percentile per-packet one-way delay: 1.051 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 90.83 Mbit/s
95th percentile per-packet one-way delay: 1.065 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 50.31 Mbit/s
95th percentile per-packet one-way delay: 1.006 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 37.76 Mbit/s
95th percentile per-packet one-way delay: 1.001 ms
Loss rate: 0.01%
```

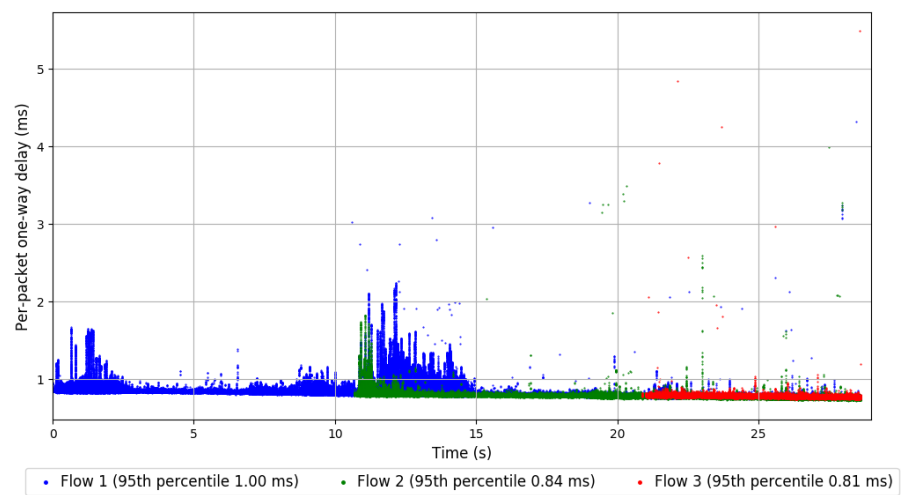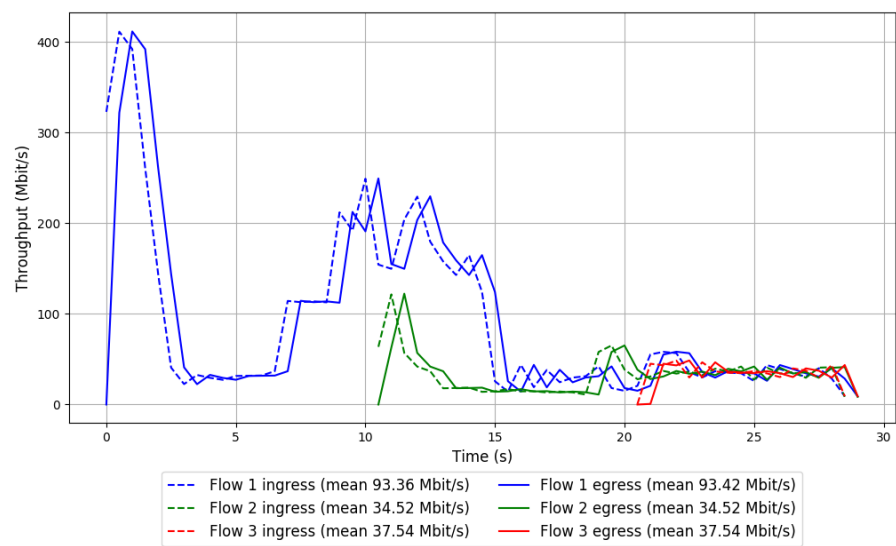Run 3: Report of Indigo-MusesC5 — Data Link

- - - Flow 1 ingress (mean 90.81 Mbit/s) —— Flow 1 egress (mean 90.83 Mbit/s)
- - - Flow 2 ingress (mean 50.31 Mbit/s) —— Flow 2 egress (mean 50.31 Mbit/s)
- - - Flow 3 ingress (mean 37.70 Mbit/s) —— Flow 3 egress (mean 37.76 Mbit/s)

- Flow 1 (95th percentile 1.06 ms)   • Flow 2 (95th percentile 1.01 ms)   • Flow 3 (95th percentile 1.00 ms)

```
Run 4: Statistics of Indigo-MusesC5

Start at: 2019-03-09 14:30:00
End at: 2019-03-09 14:30:30
Local clock offset: -0.099 ms
Remote clock offset: -1.496 ms


# Below is generated by plot.py at 2019-03-09 16:10:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 125.16 Mbit/s
95th percentile per-packet one-way delay: 0.973 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 93.42 Mbit/s
95th percentile per-packet one-way delay: 1.004 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 34.52 Mbit/s
95th percentile per-packet one-way delay: 0.844 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 37.54 Mbit/s
95th percentile per-packet one-way delay: 0.807 ms
Loss rate: 0.01%
```
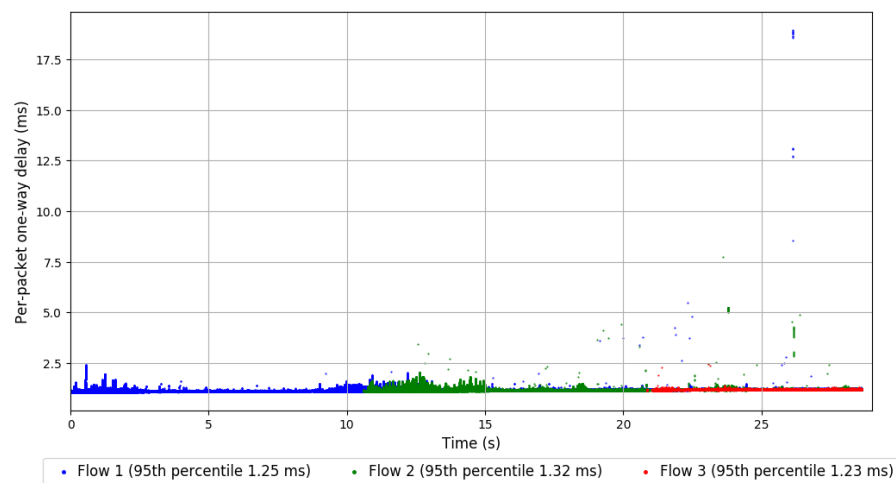
Run 4: Report of Indigo-MusesC5 — Data Link

```
Run 5: Statistics of Indigo-MusesC5

Start at: 2019-03-09 15:00:34
End at: 2019-03-09 15:01:04
Local clock offset: 1.159 ms
Remote clock offset: 1.606 ms


# Below is generated by plot.py at 2019-03-09 16:10:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 127.73 Mbit/s
95th percentile per-packet one-way delay: 1.264 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 78.82 Mbit/s
95th percentile per-packet one-way delay: 1.245 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 64.32 Mbit/s
95th percentile per-packet one-way delay: 1.320 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 30.95 Mbit/s
95th percentile per-packet one-way delay: 1.228 ms
Loss rate: 0.03%
```
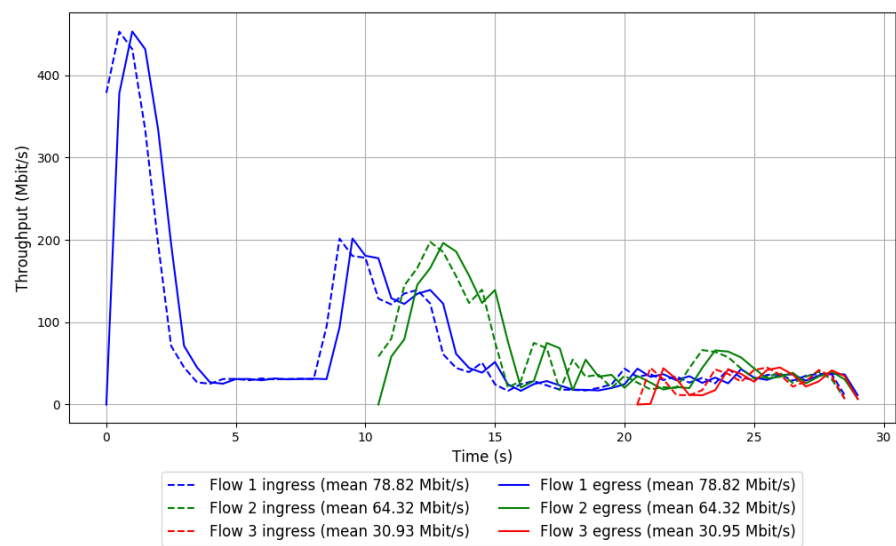
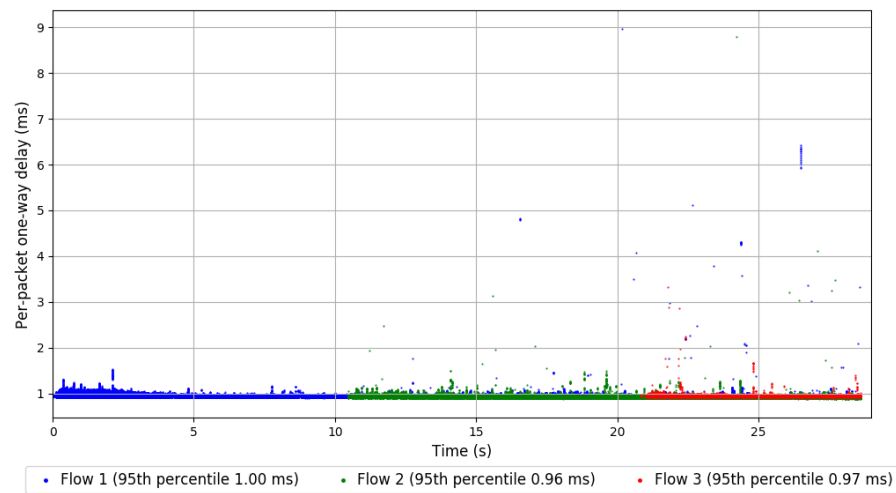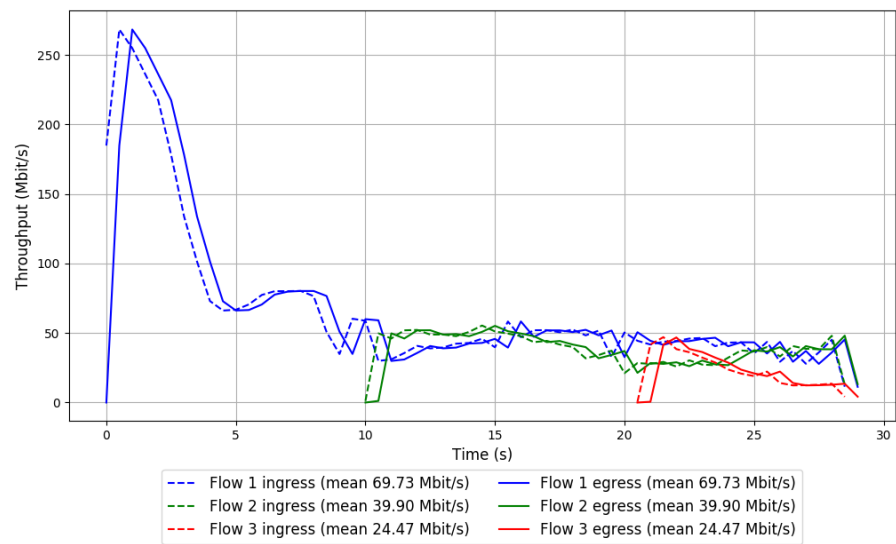Run 5: Report of Indigo-MusesC5 — Data Link

```
Run 1: Statistics of Indigo-MusesD

Start at: 2019-03-09 13:04:30
End at: 2019-03-09 13:05:00
Local clock offset: 0.005 ms
Remote clock offset: -3.851 ms


# Below is generated by plot.py at 2019-03-09 16:10:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 101.68 Mbit/s
95th percentile per-packet one-way delay: 0.993 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 69.73 Mbit/s
95th percentile per-packet one-way delay: 1.003 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 39.90 Mbit/s
95th percentile per-packet one-way delay: 0.958 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 24.47 Mbit/s
95th percentile per-packet one-way delay: 0.974 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo-MusesD — Data Link

```
Run 2: Statistics of Indigo-MusesD

Start at: 2019-03-09 13:34:54
End at: 2019-03-09 13:35:24
Local clock offset: 0.05 ms
Remote clock offset: 1.375 ms


# Below is generated by plot.py at 2019-03-09 16:10:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.79 Mbit/s
95th percentile per-packet one-way delay: 1.088 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 53.09 Mbit/s
95th percentile per-packet one-way delay: 1.099 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 43.33 Mbit/s
95th percentile per-packet one-way delay: 1.077 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 40.41 Mbit/s
95th percentile per-packet one-way delay: 1.058 ms
Loss rate: 0.00%
```
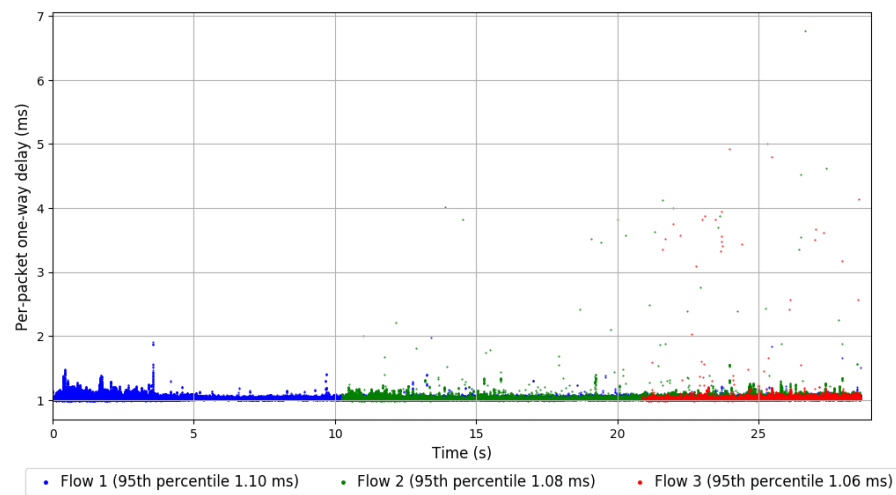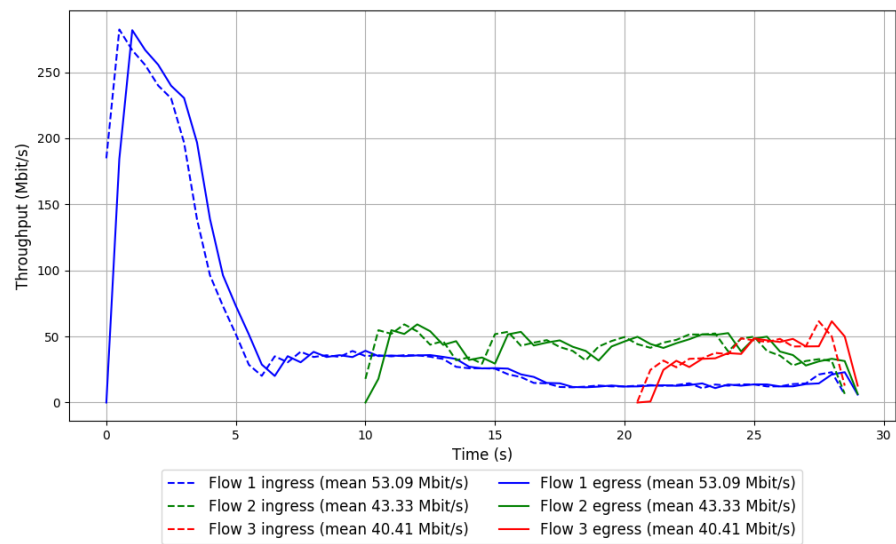
Run 2: Report of Indigo-MusesD — Data Link

```
Run 3: Statistics of Indigo-MusesD

Start at: 2019-03-09 14:05:11
End at: 2019-03-09 14:05:41
Local clock offset: -3.148 ms
Remote clock offset: 1.113 ms


# Below is generated by plot.py at 2019-03-09 16:10:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 107.55 Mbit/s
95th percentile per-packet one-way delay: 1.103 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 66.94 Mbit/s
95th percentile per-packet one-way delay: 1.103 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 44.19 Mbit/s
95th percentile per-packet one-way delay: 1.094 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 45.33 Mbit/s
95th percentile per-packet one-way delay: 1.109 ms
Loss rate: 0.00%
```
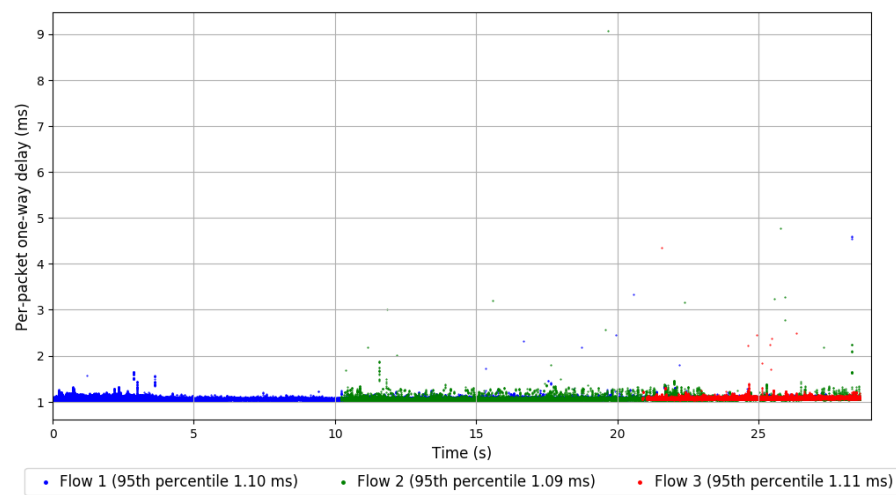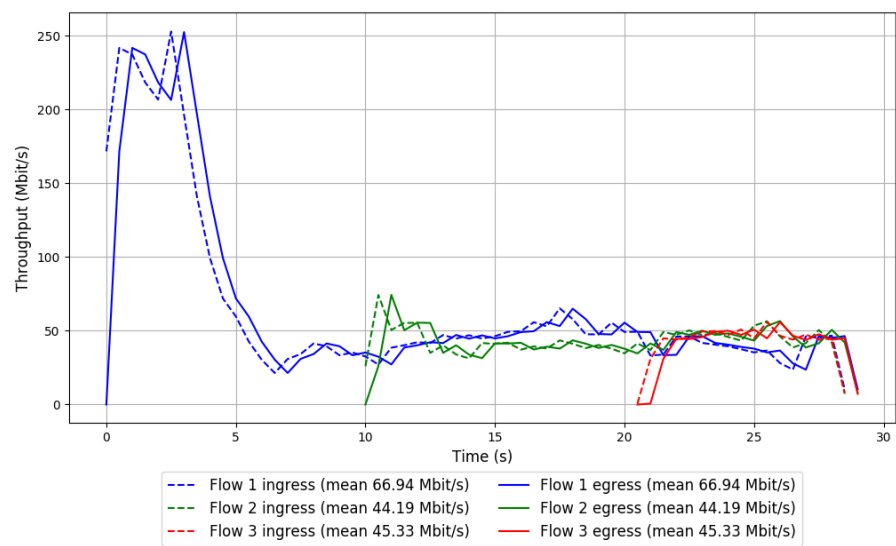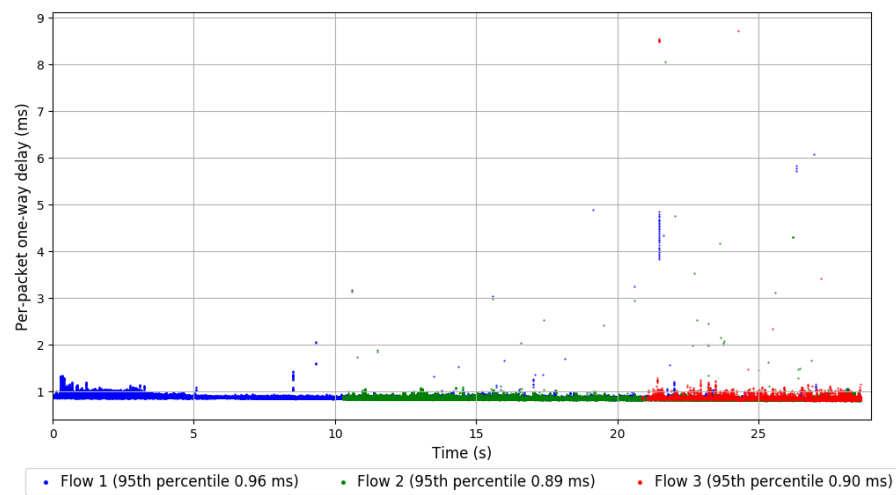
Run 3: Report of Indigo-MusesD — Data Link

- - - Flow 1 ingress (mean 66.94 Mbit/s) —— Flow 1 egress (mean 66.94 Mbit/s)
- - - Flow 2 ingress (mean 44.19 Mbit/s) —— Flow 2 egress (mean 44.19 Mbit/s)
- - - Flow 3 ingress (mean 45.33 Mbit/s) —— Flow 3 egress (mean 45.33 Mbit/s)

- Flow 1 (95th percentile 1.10 ms)   • Flow 2 (95th percentile 1.09 ms)   • Flow 3 (95th percentile 1.11 ms)

```
Run 4: Statistics of Indigo-MusesD

Start at: 2019-03-09 14:35:32
End at: 2019-03-09 14:36:02
Local clock offset: 0.298 ms
Remote clock offset: -2.04 ms


# Below is generated by plot.py at 2019-03-09 16:10:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 107.82 Mbit/s
95th percentile per-packet one-way delay: 0.948 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 65.57 Mbit/s
95th percentile per-packet one-way delay: 0.964 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 52.41 Mbit/s
95th percentile per-packet one-way delay: 0.890 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 32.02 Mbit/s
95th percentile per-packet one-way delay: 0.900 ms
Loss rate: 0.00%
```
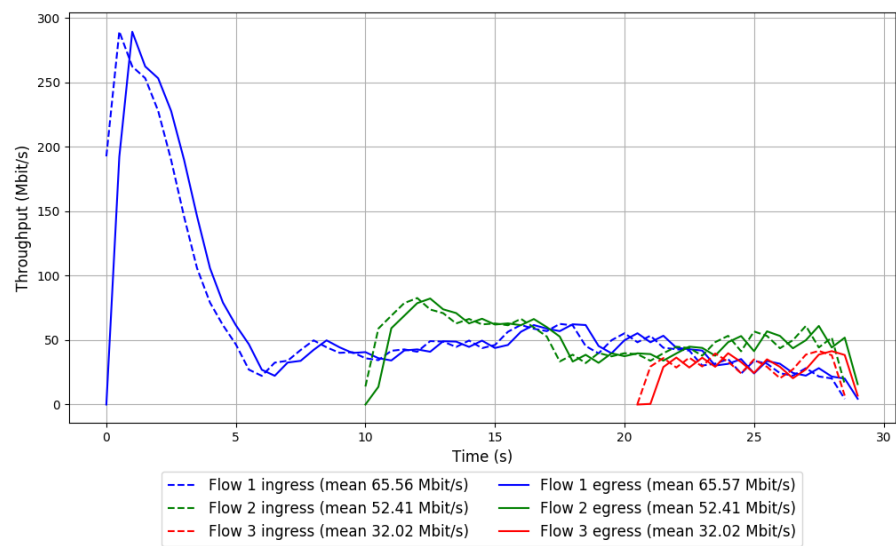
Run 4: Report of Indigo-MusesD — Data Link

```
Run 5: Statistics of Indigo-MusesD

Start at: 2019-03-09 15:06:05
End at: 2019-03-09 15:06:35
Local clock offset: 1.282 ms
Remote clock offset: 3.107 ms


# Below is generated by plot.py at 2019-03-09 16:10:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 109.82 Mbit/s
95th percentile per-packet one-way delay: 1.020 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 68.22 Mbit/s
95th percentile per-packet one-way delay: 1.002 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 42.31 Mbit/s
95th percentile per-packet one-way delay: 1.016 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 55.36 Mbit/s
95th percentile per-packet one-way delay: 1.052 ms
Loss rate: 0.03%
```
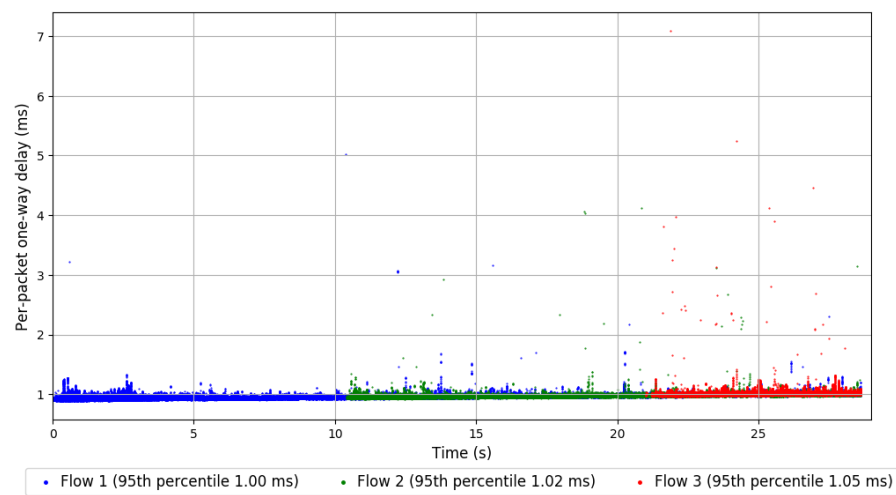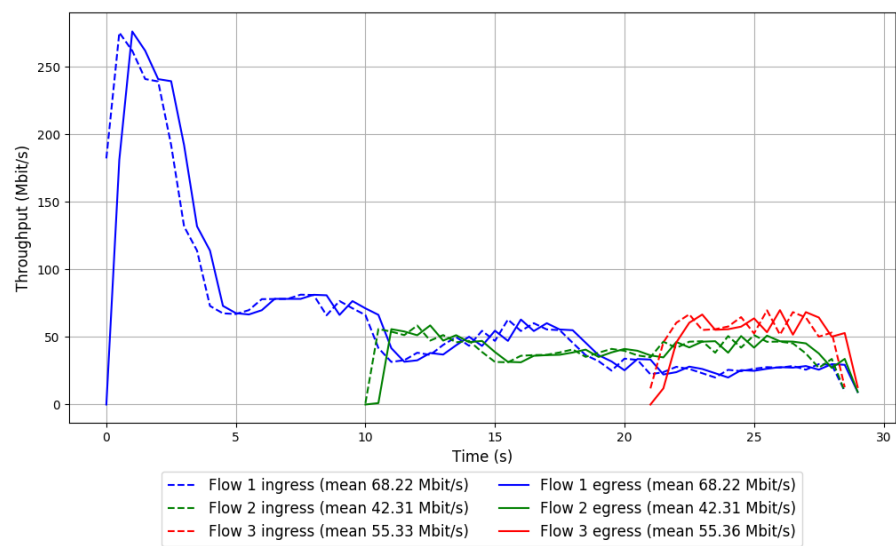
Run 5: Report of Indigo-MusesD — Data Link

```
Run 1: Statistics of Indigo-MusesT

Start at: 2019-03-09 13:23:50
End at: 2019-03-09 13:24:20
Local clock offset: 0.038 ms
Remote clock offset: 0.457 ms


# Below is generated by plot.py at 2019-03-09 16:11:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 179.73 Mbit/s
95th percentile per-packet one-way delay: 1.100 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 129.83 Mbit/s
95th percentile per-packet one-way delay: 1.101 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 63.99 Mbit/s
95th percentile per-packet one-way delay: 1.104 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 37.30 Mbit/s
95th percentile per-packet one-way delay: 1.060 ms
Loss rate: 0.06%
```
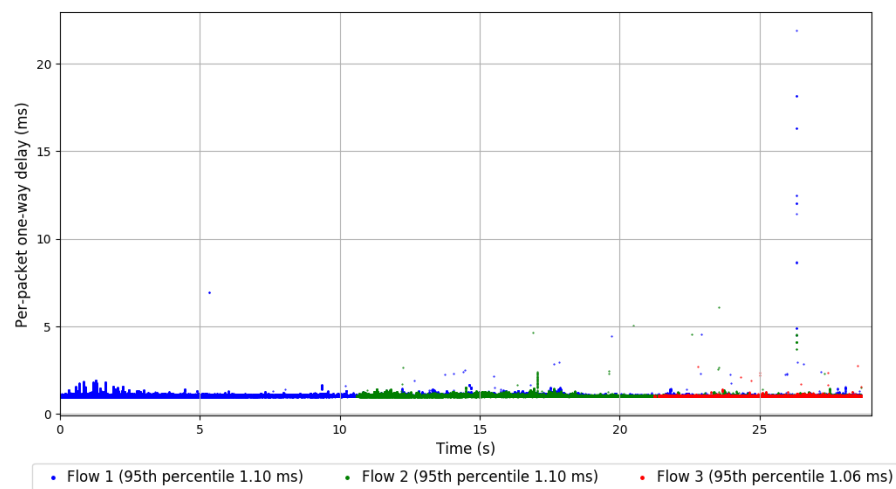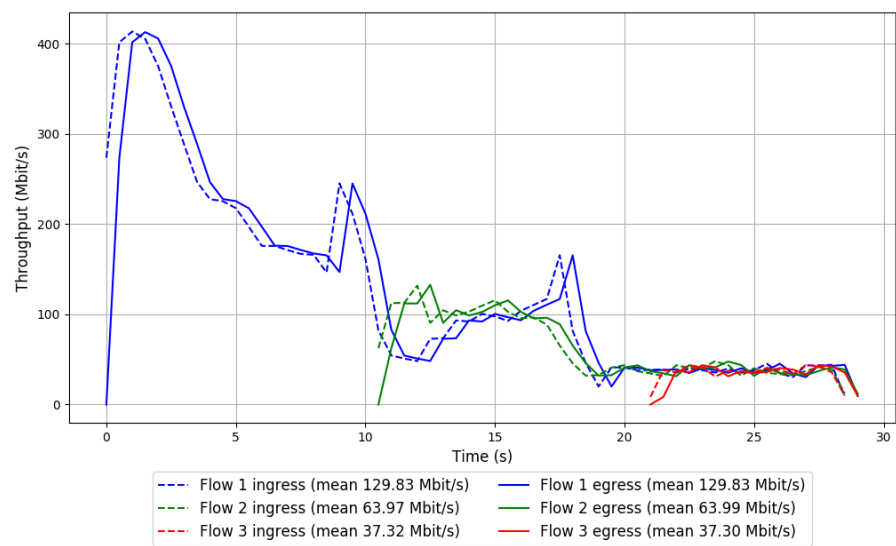
Run 1: Report of Indigo-MusesT — Data Link

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```
Run 2: Statistics of Indigo-MusesT

Start at: 2019-03-09 13:54:08
End at: 2019-03-09 13:54:38
Local clock offset: -2.102 ms
Remote clock offset: 1.319 ms


# Below is generated by plot.py at 2019-03-09 16:11:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 174.90 Mbit/s
95th percentile per-packet one-way delay: 1.102 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 136.97 Mbit/s
95th percentile per-packet one-way delay: 1.104 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 45.44 Mbit/s
95th percentile per-packet one-way delay: 1.091 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 35.94 Mbit/s
95th percentile per-packet one-way delay: 1.107 ms
Loss rate: 0.00%
```
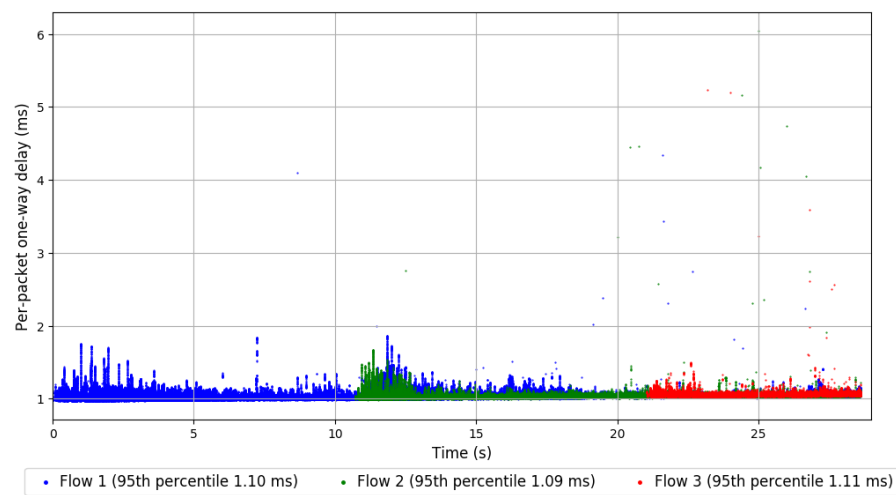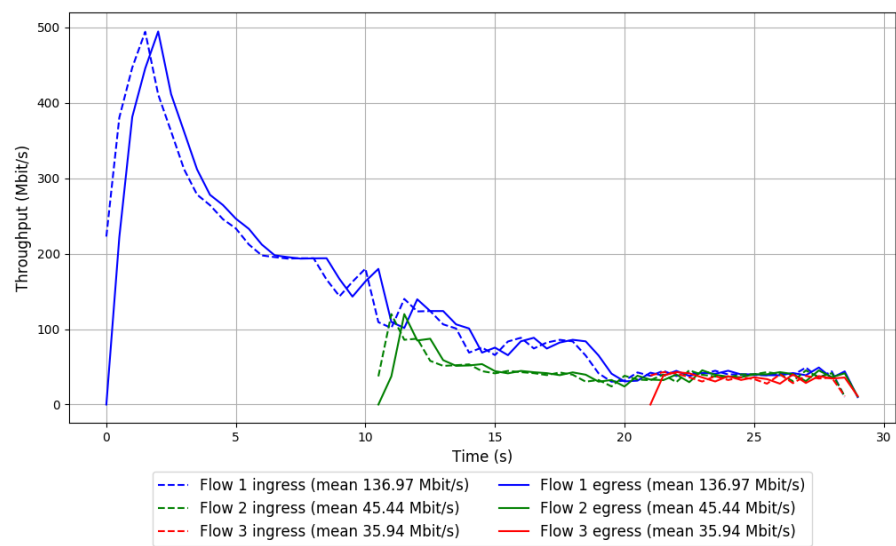
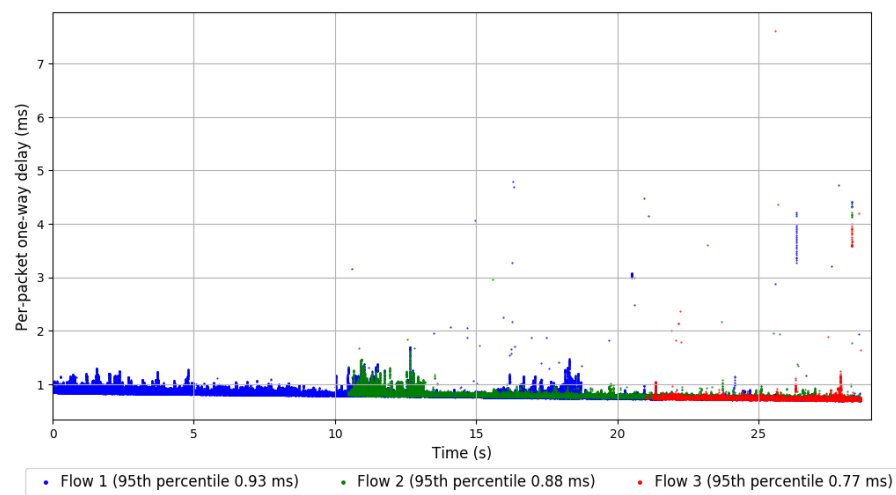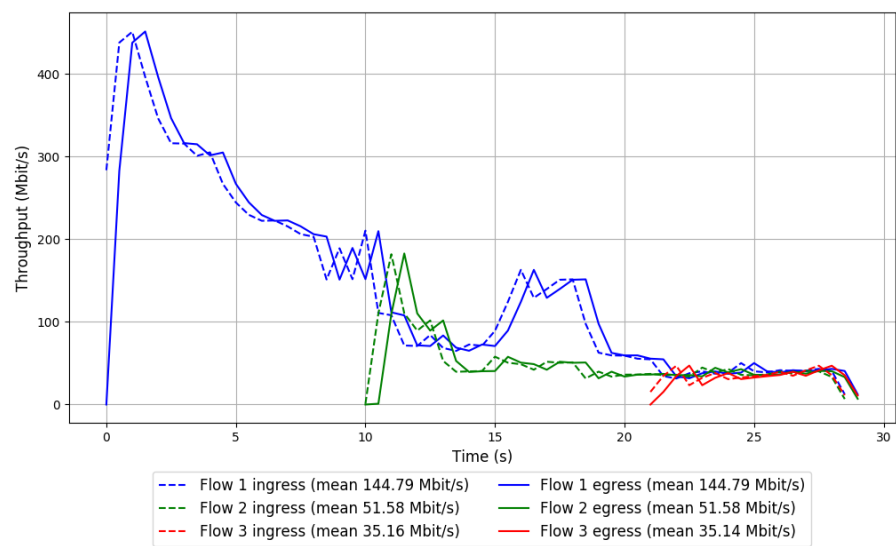Run 2: Report of Indigo-MusesT — Data Link

```
Run 3: Statistics of Indigo-MusesT

Start at: 2019-03-09 14:24:25
End at: 2019-03-09 14:24:55
Local clock offset: -0.777 ms
Remote clock offset: -0.721 ms


# Below is generated by plot.py at 2019-03-09 16:11:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 186.79 Mbit/s
95th percentile per-packet one-way delay: 0.921 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 144.79 Mbit/s
95th percentile per-packet one-way delay: 0.928 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 51.58 Mbit/s
95th percentile per-packet one-way delay: 0.875 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 35.14 Mbit/s
95th percentile per-packet one-way delay: 0.769 ms
Loss rate: 0.07%
```

Run 3: Report of Indigo-MusesT — Data Link

Flow 1 ingress (mean 144.79 Mbit/s) — Flow 1 egress (mean 144.79 Mbit/s)
Flow 2 ingress (mean 51.58 Mbit/s) — Flow 2 egress (mean 51.58 Mbit/s)
Flow 3 ingress (mean 35.16 Mbit/s) — Flow 3 egress (mean 35.14 Mbit/s)

Flow 1 (95th percentile 0.93 ms)   Flow 2 (95th percentile 0.88 ms)   Flow 3 (95th percentile 0.77 ms)
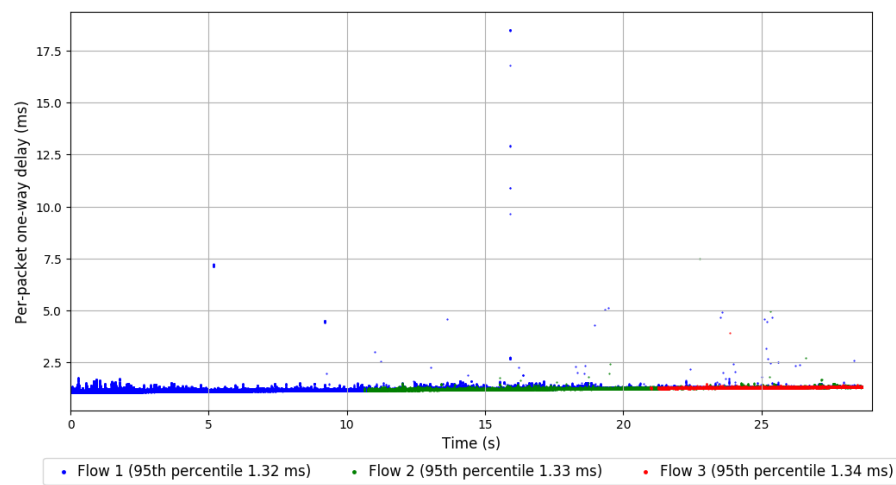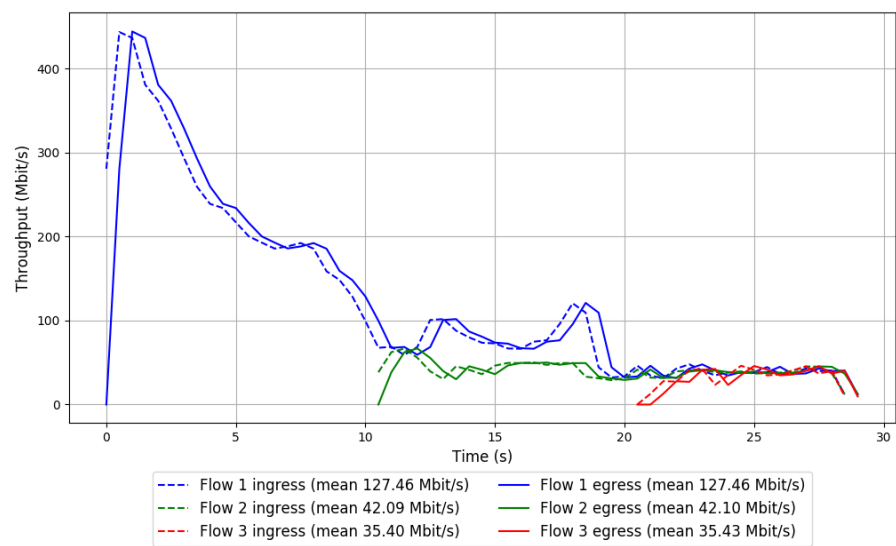
```
Run 4: Statistics of Indigo-MusesT

Start at: 2019-03-09 14:54:58
End at: 2019-03-09 14:55:28
Local clock offset: 1.014 ms
Remote clock offset: -0.736 ms


# Below is generated by plot.py at 2019-03-09 16:11:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 163.37 Mbit/s
95th percentile per-packet one-way delay: 1.323 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 127.46 Mbit/s
95th percentile per-packet one-way delay: 1.317 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 42.10 Mbit/s
95th percentile per-packet one-way delay: 1.327 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 35.43 Mbit/s
95th percentile per-packet one-way delay: 1.336 ms
Loss rate: 0.02%
```
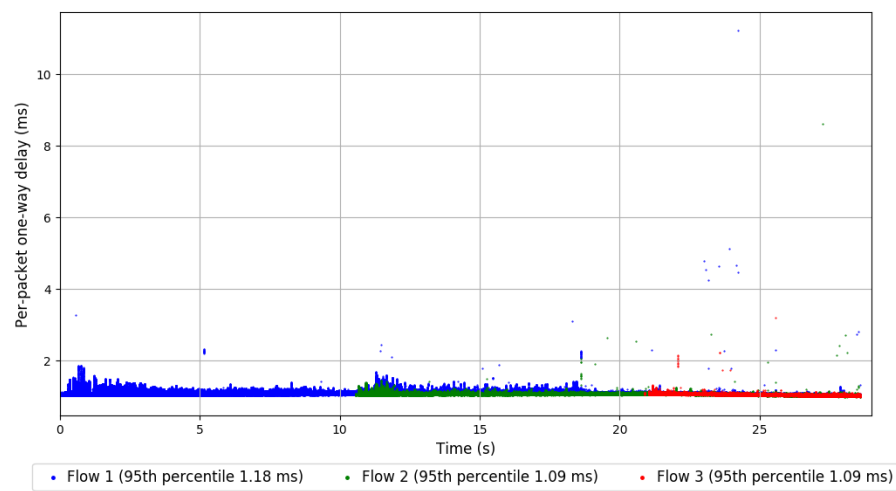
Run 4: Report of Indigo-MusesT — Data Link

Flow 1 ingress (mean 127.46 Mbit/s)   Flow 1 egress (mean 127.46 Mbit/s)
Flow 2 ingress (mean 42.09 Mbit/s)   Flow 2 egress (mean 42.10 Mbit/s)
Flow 3 ingress (mean 35.40 Mbit/s)   Flow 3 egress (mean 35.43 Mbit/s)

Flow 1 (95th percentile 1.32 ms)   Flow 2 (95th percentile 1.33 ms)   Flow 3 (95th percentile 1.34 ms)

```
Run 5: Statistics of Indigo-MusesT

Start at: 2019-03-09 15:25:15
End at: 2019-03-09 15:25:45
Local clock offset: 0.607 ms
Remote clock offset: 5.162 ms


# Below is generated by plot.py at 2019-03-09 16:12:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 170.88 Mbit/s
95th percentile per-packet one-way delay: 1.168 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 135.06 Mbit/s
95th percentile per-packet one-way delay: 1.181 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 41.87 Mbit/s
95th percentile per-packet one-way delay: 1.089 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 34.98 Mbit/s
95th percentile per-packet one-way delay: 1.087 ms
Loss rate: 0.00%
```
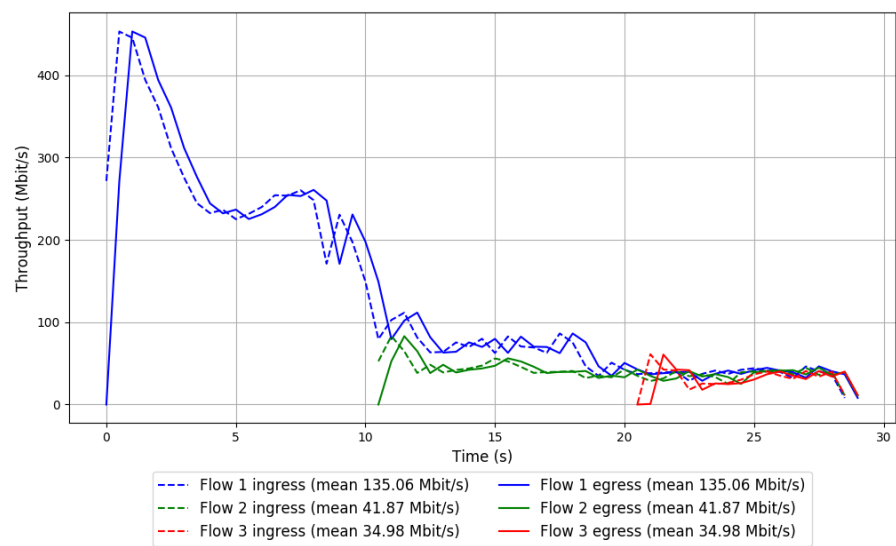
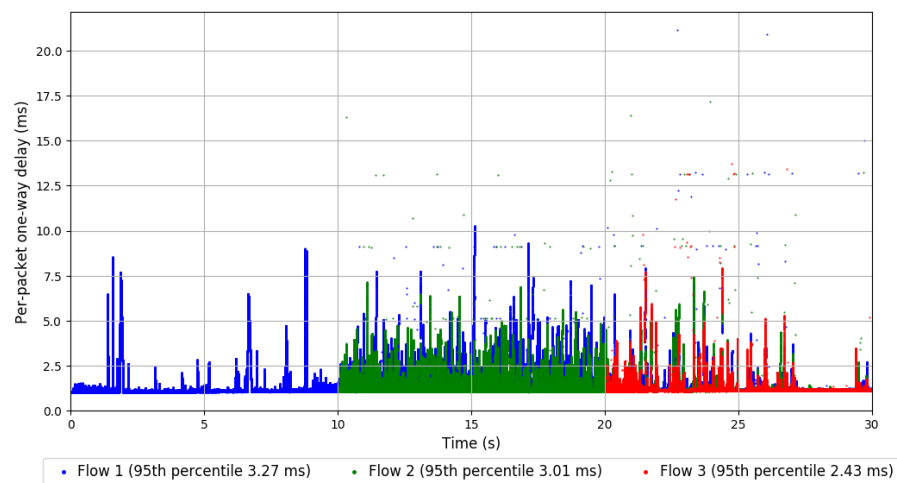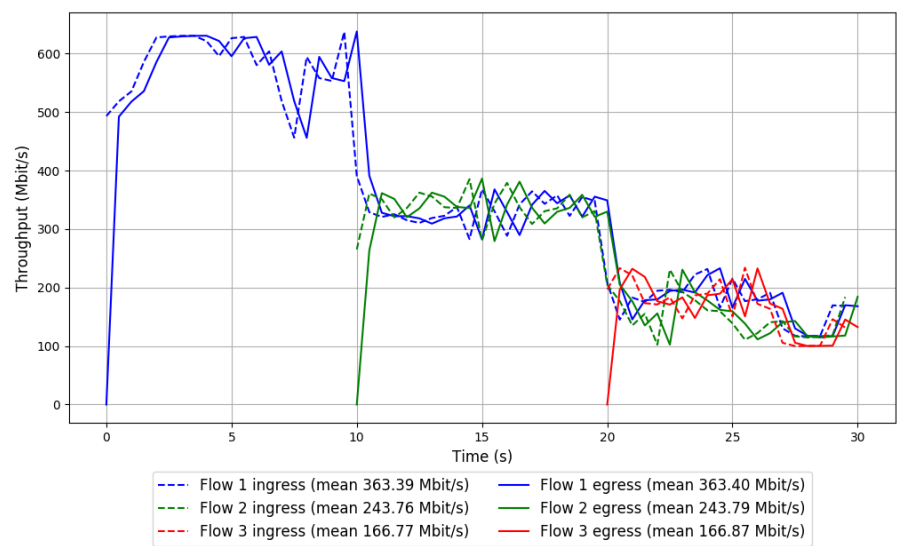# Run 5: Report of Indigo-MusesT — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2019-03-09 13:19:12
End at: 2019-03-09 13:19:42
Local clock offset: 0.015 ms
Remote clock offset: -0.379 ms


# Below is generated by plot.py at 2019-03-09 16:16:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 581.10 Mbit/s
95th percentile per-packet one-way delay: 3.093 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 363.40 Mbit/s
95th percentile per-packet one-way delay: 3.269 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 243.79 Mbit/s
95th percentile per-packet one-way delay: 3.012 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 166.87 Mbit/s
95th percentile per-packet one-way delay: 2.430 ms
Loss rate: 0.00%
```

Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2019-03-09 13:49:31
End at: 2019-03-09 13:50:01
Local clock offset: -1.375 ms
Remote clock offset: 1.417 ms


# Below is generated by plot.py at 2019-03-09 16:17:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 582.47 Mbit/s
95th percentile per-packet one-way delay: 2.224 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 344.55 Mbit/s
95th percentile per-packet one-way delay: 2.022 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 257.44 Mbit/s
95th percentile per-packet one-way delay: 2.633 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 220.97 Mbit/s
95th percentile per-packet one-way delay: 2.184 ms
Loss rate: 0.00%
```
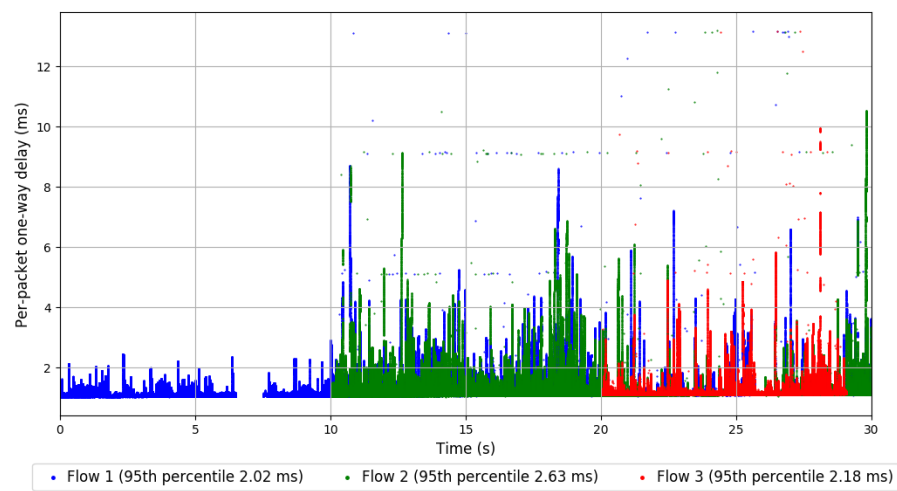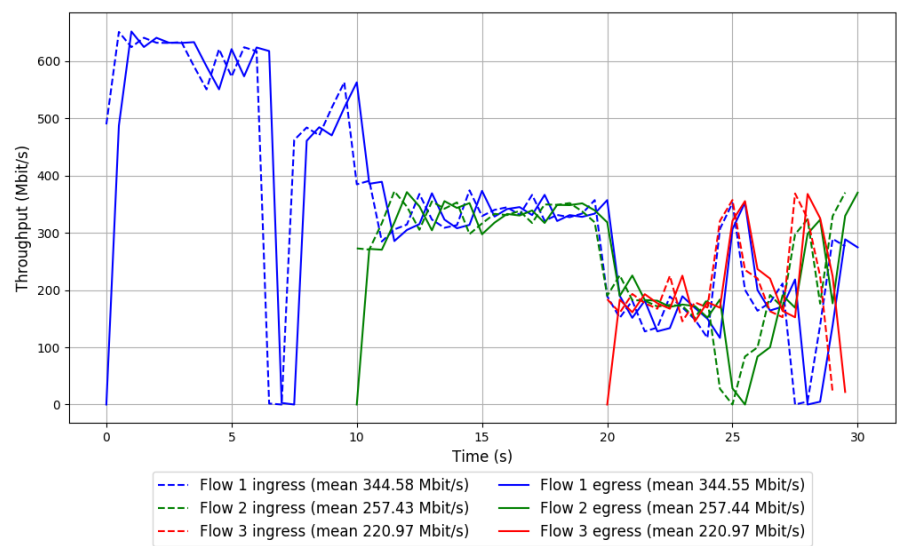
Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2019-03-09 14:19:47
End at: 2019-03-09 14:20:17
Local clock offset: -1.705 ms
Remote clock offset: 0.46 ms


# Below is generated by plot.py at 2019-03-09 16:17:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 585.10 Mbit/s
95th percentile per-packet one-way delay: 4.604 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 360.05 Mbit/s
95th percentile per-packet one-way delay: 5.795 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 243.01 Mbit/s
95th percentile per-packet one-way delay: 1.824 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 190.47 Mbit/s
95th percentile per-packet one-way delay: 1.621 ms
Loss rate: 0.00%
```
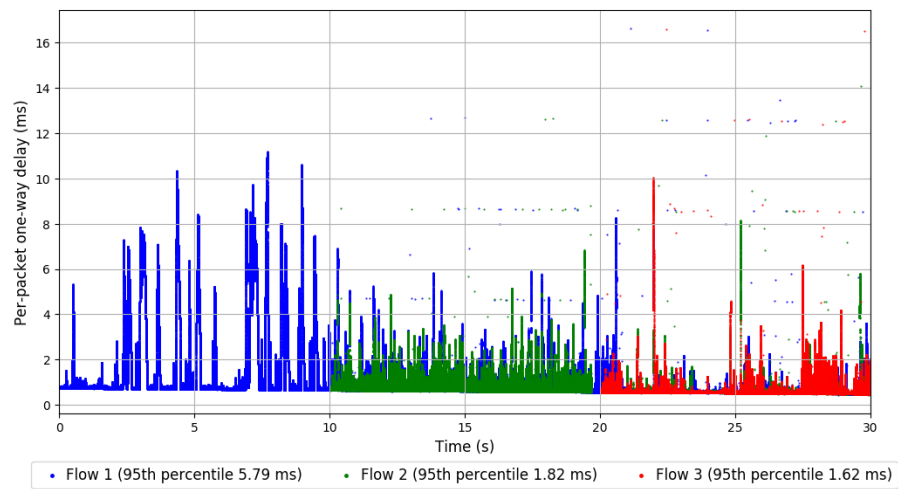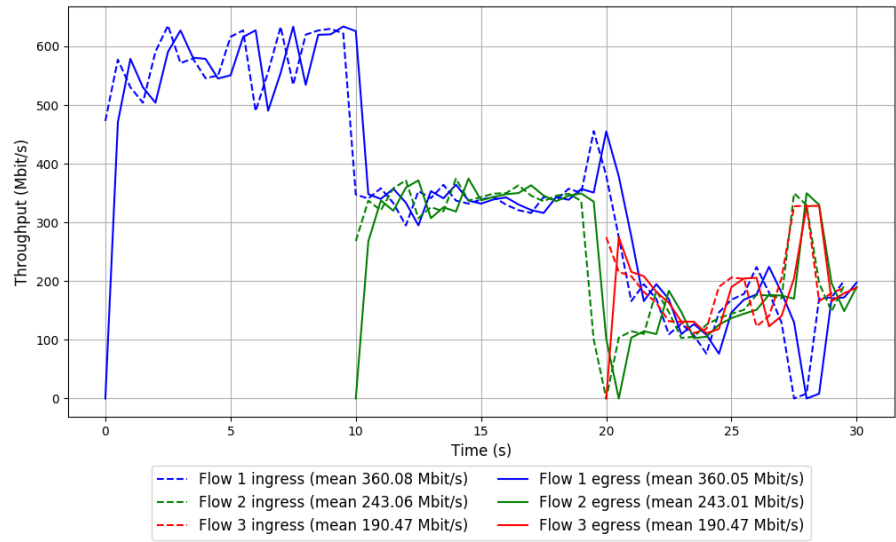
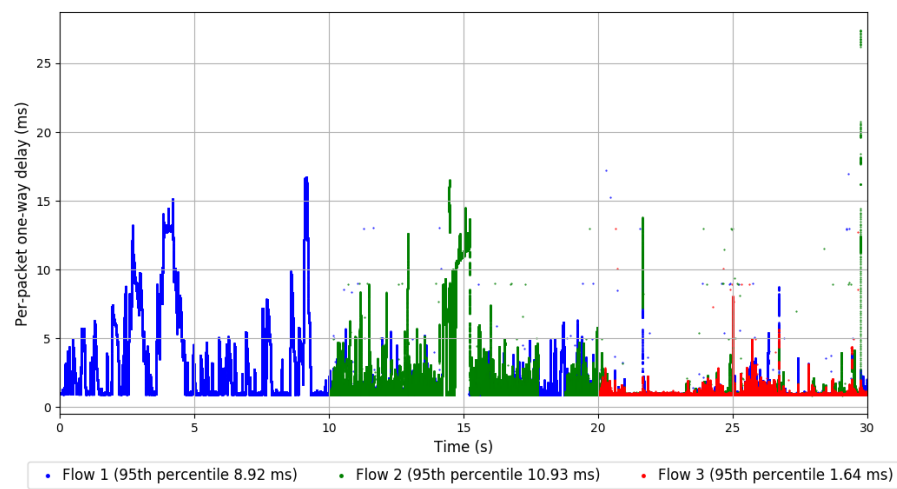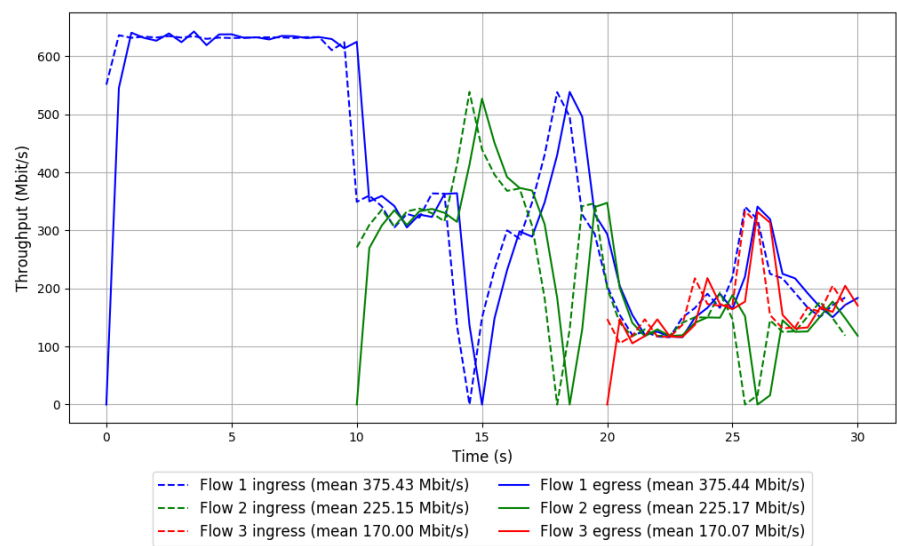## Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2019-03-09 14:50:19
End at: 2019-03-09 14:50:49
Local clock offset: 0.869 ms
Remote clock offset: -2.898 ms


# Below is generated by plot.py at 2019-03-09 16:18:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 581.85 Mbit/s
95th percentile per-packet one-way delay: 9.021 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 375.44 Mbit/s
95th percentile per-packet one-way delay: 8.919 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 225.17 Mbit/s
95th percentile per-packet one-way delay: 10.930 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 170.07 Mbit/s
95th percentile per-packet one-way delay: 1.644 ms
Loss rate: 0.02%
```

Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2019-03-09 15:20:38
End at: 2019-03-09 15:21:08
Local clock offset: 0.832 ms
Remote clock offset: 4.892 ms


# Below is generated by plot.py at 2019-03-09 16:18:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 563.20 Mbit/s
95th percentile per-packet one-way delay: 4.486 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 326.55 Mbit/s
95th percentile per-packet one-way delay: 5.583 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 265.42 Mbit/s
95th percentile per-packet one-way delay: 2.411 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 180.39 Mbit/s
95th percentile per-packet one-way delay: 2.190 ms
Loss rate: 0.00%
```
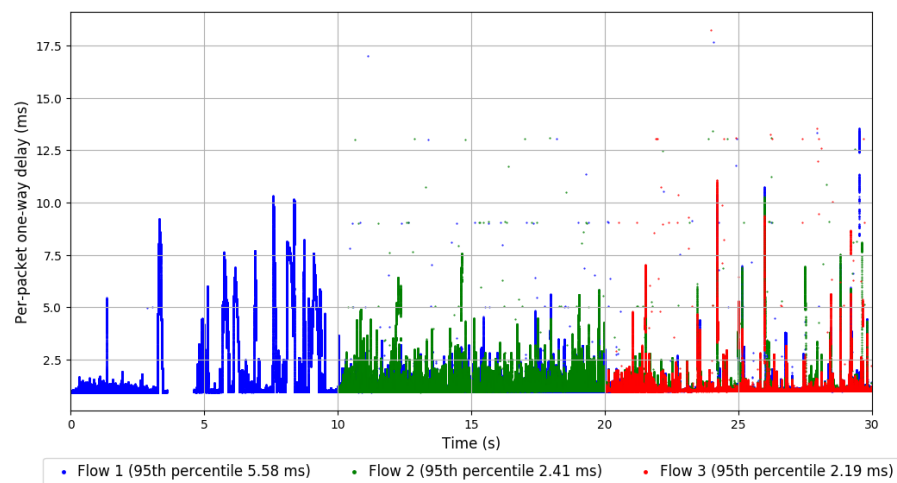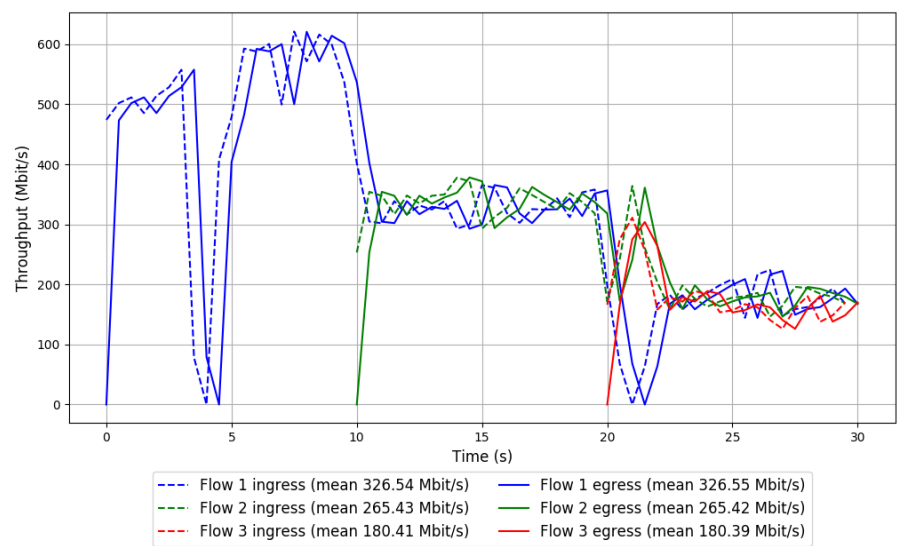
Run 5: Report of LEDBAT — Data Link

Flow 1 ingress (mean 326.54 Mbit/s) --- Flow 1 egress (mean 326.55 Mbit/s)
Flow 2 ingress (mean 265.43 Mbit/s) --- Flow 2 egress (mean 265.42 Mbit/s)
Flow 3 ingress (mean 180.41 Mbit/s) --- Flow 3 egress (mean 180.39 Mbit/s)

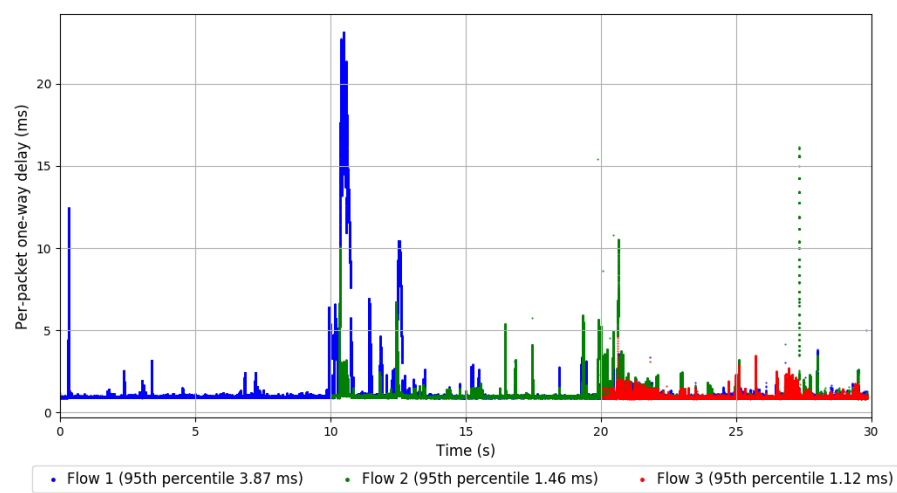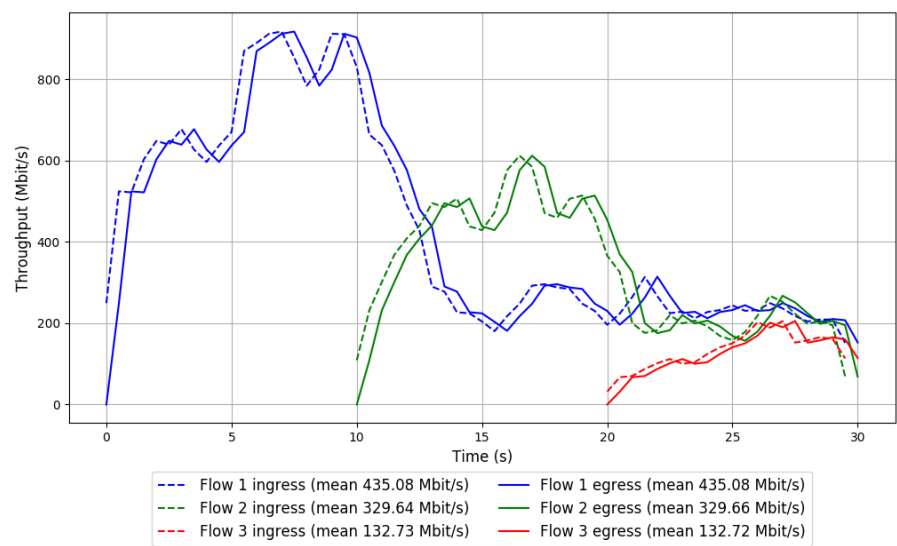Flow 1 (95th percentile 5.58 ms) • Flow 2 (95th percentile 2.41 ms) • Flow 3 (95th percentile 2.19 ms)

```
Run 1: Statistics of PCC-Allegro

Start at: 2019-03-09 12:54:37
End at: 2019-03-09 12:55:07
Local clock offset: 0.027 ms
Remote clock offset: -3.157 ms


# Below is generated by plot.py at 2019-03-09 16:19:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 697.65 Mbit/s
95th percentile per-packet one-way delay: 2.044 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 435.08 Mbit/s
95th percentile per-packet one-way delay: 3.871 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 329.66 Mbit/s
95th percentile per-packet one-way delay: 1.456 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 132.72 Mbit/s
95th percentile per-packet one-way delay: 1.123 ms
Loss rate: 0.02%
```

Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2019-03-09 13:25:10
End at: 2019-03-09 13:25:40
Local clock offset: 0.038 ms
Remote clock offset: 0.621 ms


# Below is generated by plot.py at 2019-03-09 16:19:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 501.86 Mbit/s
95th percentile per-packet one-way delay: 1.476 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 393.23 Mbit/s
95th percentile per-packet one-way delay: 1.341 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 155.26 Mbit/s
95th percentile per-packet one-way delay: 1.626 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 16.61 Mbit/s
95th percentile per-packet one-way delay: 1.226 ms
Loss rate: 0.03%
```
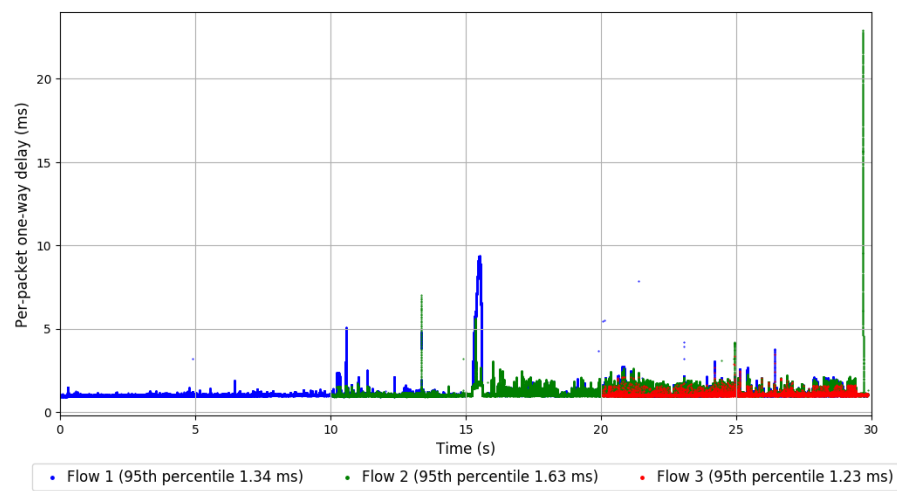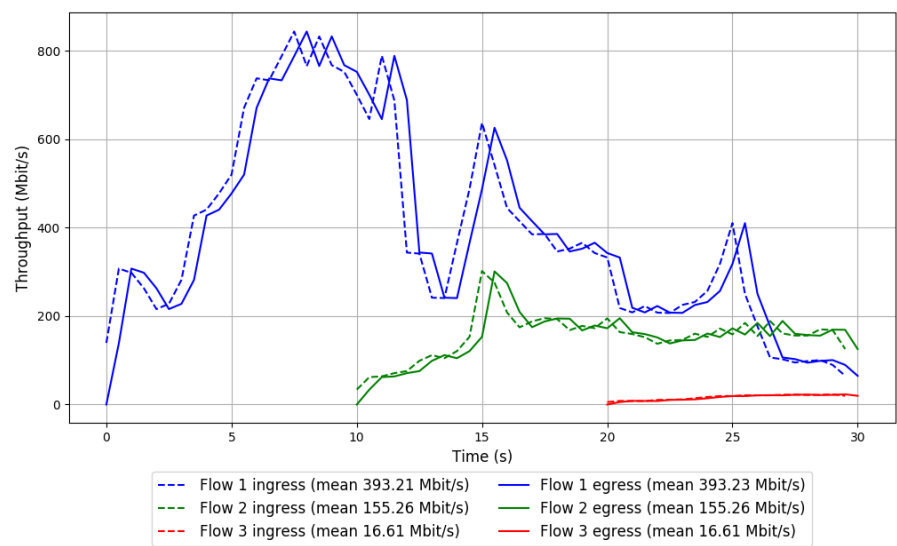
Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2019-03-09 13:55:28
End at: 2019-03-09 13:55:58
Local clock offset: -2.289 ms
Remote clock offset: 1.32 ms


# Below is generated by plot.py at 2019-03-09 16:19:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 563.15 Mbit/s
95th percentile per-packet one-way delay: 2.918 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 443.31 Mbit/s
95th percentile per-packet one-way delay: 4.246 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 161.18 Mbit/s
95th percentile per-packet one-way delay: 1.444 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 38.83 Mbit/s
95th percentile per-packet one-way delay: 1.191 ms
Loss rate: 0.04%
```
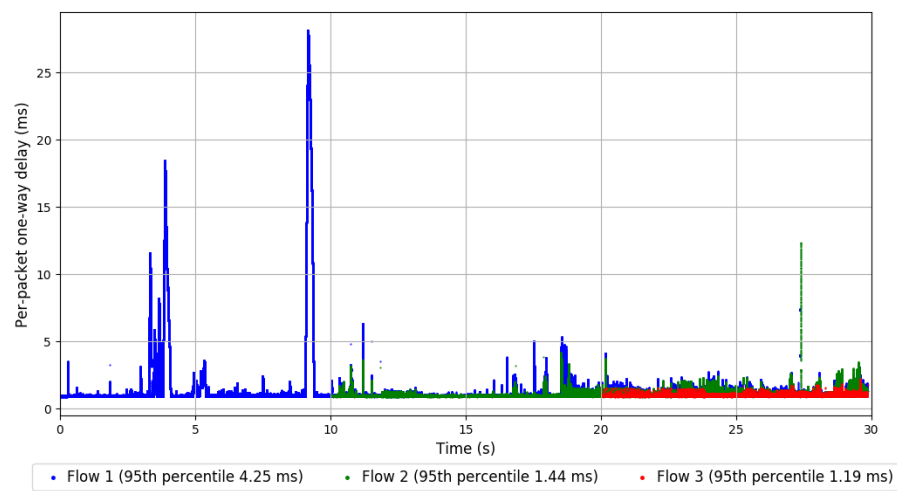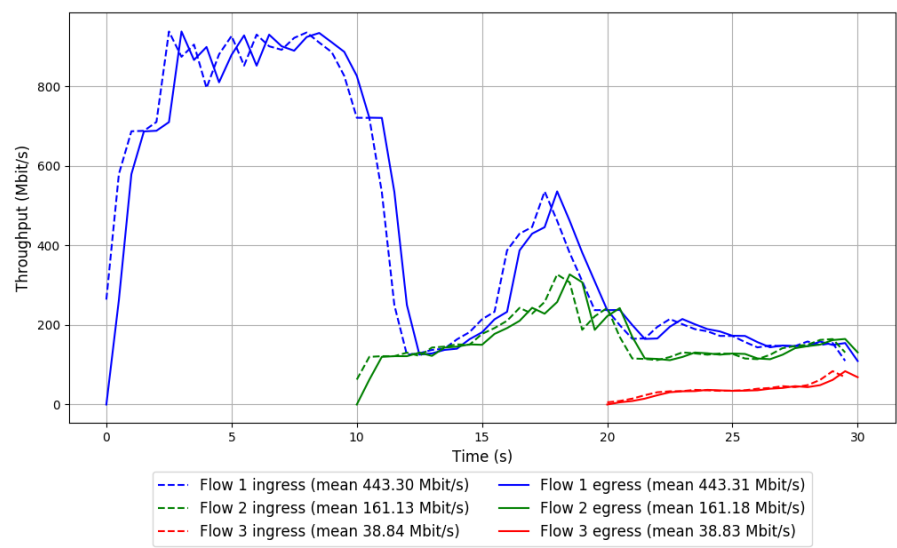
Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 443.30 Mbit/s) --- Flow 1 egress (mean 443.31 Mbit/s)
Flow 2 ingress (mean 161.13 Mbit/s) --- Flow 2 egress (mean 161.18 Mbit/s)
Flow 3 ingress (mean 38.84 Mbit/s) --- Flow 3 egress (mean 38.83 Mbit/s)

Flow 1 (95th percentile 4.25 ms)   Flow 2 (95th percentile 1.44 ms)   Flow 3 (95th percentile 1.19 ms)
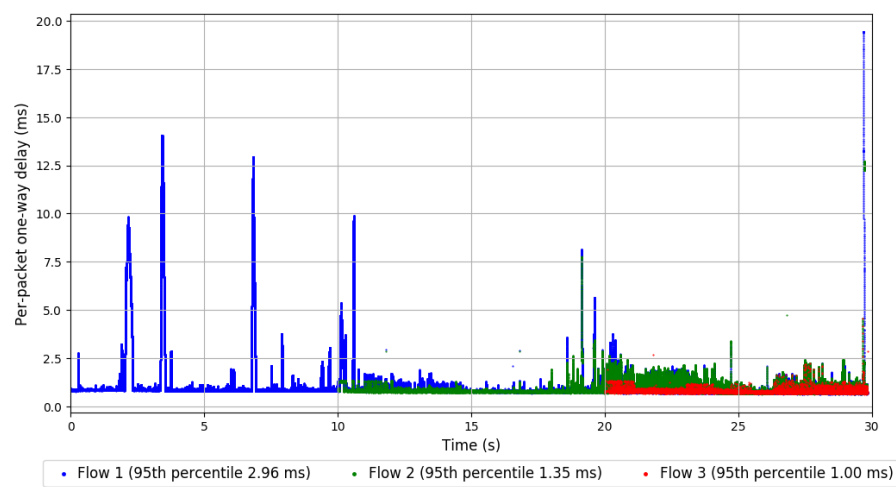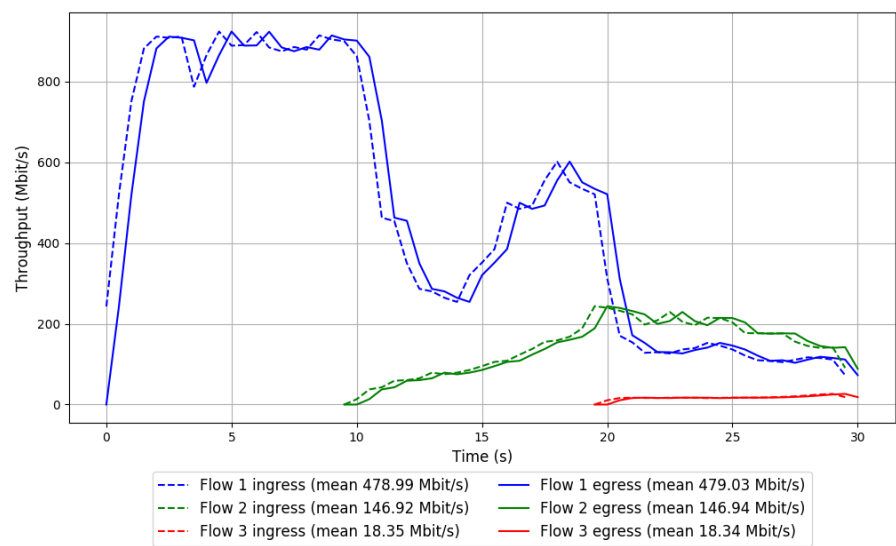
```
Run 4: Statistics of PCC-Allegro

Start at: 2019-03-09 14:25:45
End at: 2019-03-09 14:26:15
Local clock offset: -0.564 ms
Remote clock offset: -0.922 ms


# Below is generated by plot.py at 2019-03-09 16:24:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 582.69 Mbit/s
95th percentile per-packet one-way delay: 2.271 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 479.03 Mbit/s
95th percentile per-packet one-way delay: 2.960 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 146.94 Mbit/s
95th percentile per-packet one-way delay: 1.346 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 18.34 Mbit/s
95th percentile per-packet one-way delay: 0.999 ms
Loss rate: 0.02%
```
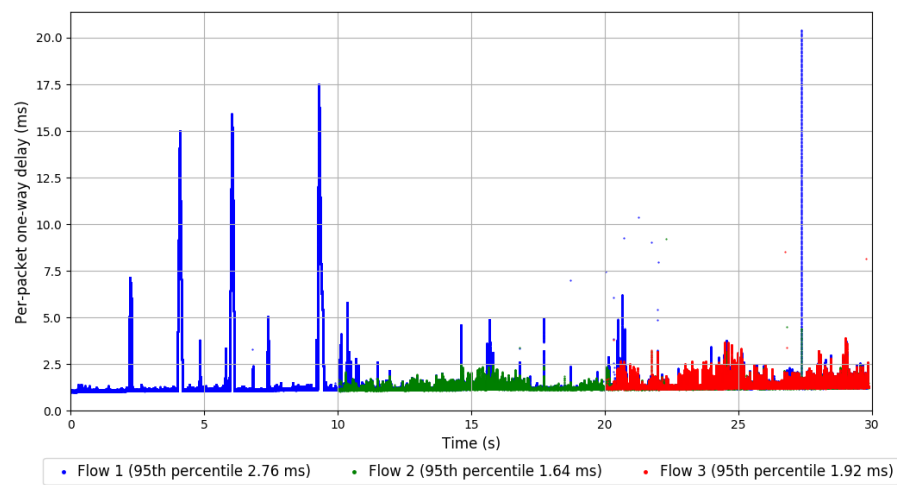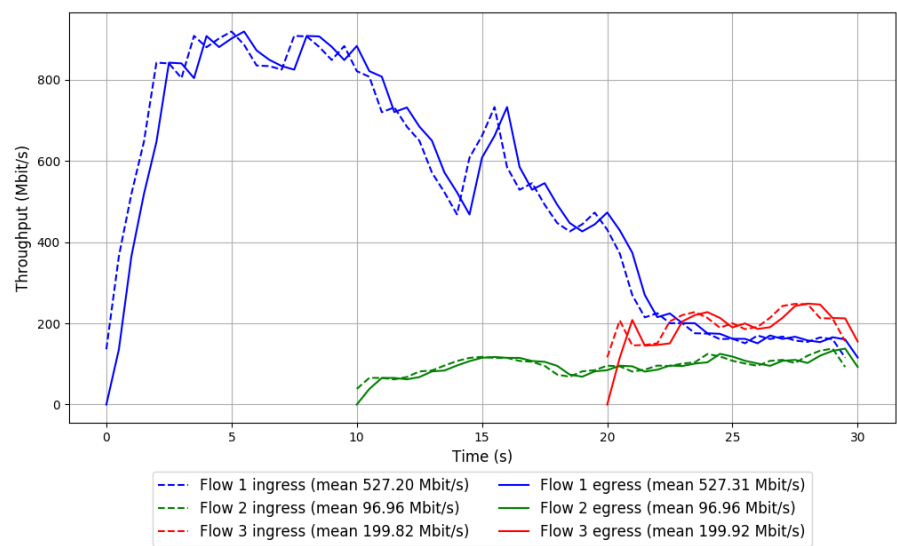
Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 478.99 Mbit/s) --- Flow 1 egress (mean 479.03 Mbit/s)
Flow 2 ingress (mean 146.92 Mbit/s) --- Flow 2 egress (mean 146.94 Mbit/s)
Flow 3 ingress (mean 18.35 Mbit/s) --- Flow 3 egress (mean 18.34 Mbit/s)

Flow 1 (95th percentile 2.96 ms)   Flow 2 (95th percentile 1.35 ms)   Flow 3 (95th percentile 1.00 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2019-03-09 14:56:17
End at: 2019-03-09 14:56:47
Local clock offset: 1.031 ms
Remote clock offset: -0.049 ms


# Below is generated by plot.py at 2019-03-09 16:25:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 657.51 Mbit/s
95th percentile per-packet one-way delay: 2.257 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 527.31 Mbit/s
95th percentile per-packet one-way delay: 2.757 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 96.96 Mbit/s
95th percentile per-packet one-way delay: 1.635 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 199.92 Mbit/s
95th percentile per-packet one-way delay: 1.924 ms
Loss rate: 0.01%
```

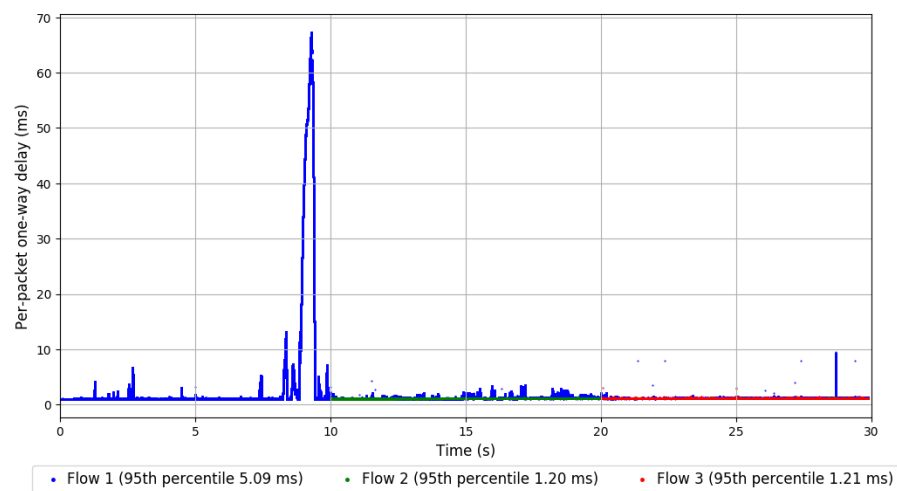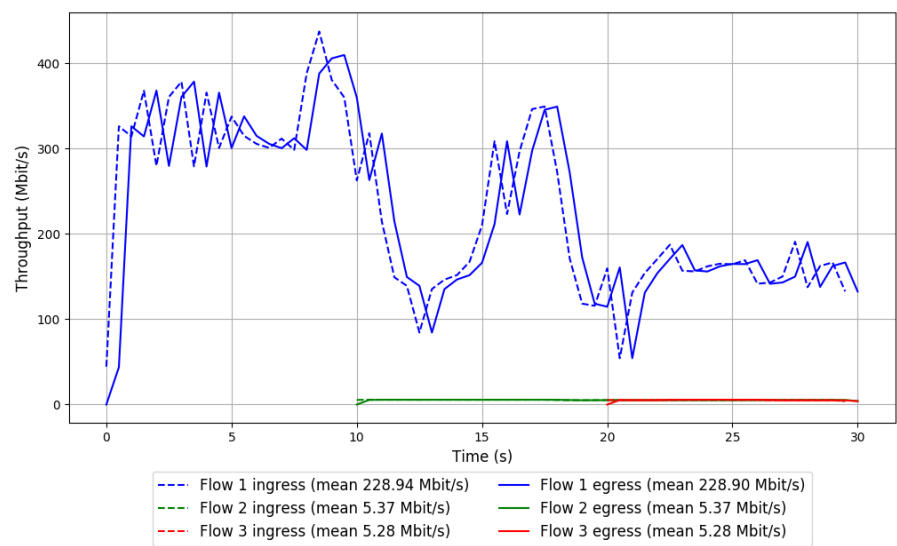Run 5: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2019-03-09 13:12:58
End at: 2019-03-09 13:13:28
Local clock offset: -0.059 ms
Remote clock offset: -2.189 ms


# Below is generated by plot.py at 2019-03-09 16:25:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 234.22 Mbit/s
95th percentile per-packet one-way delay: 4.964 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 228.90 Mbit/s
95th percentile per-packet one-way delay: 5.091 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 5.37 Mbit/s
95th percentile per-packet one-way delay: 1.196 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 5.28 Mbit/s
95th percentile per-packet one-way delay: 1.213 ms
Loss rate: 0.02%
```
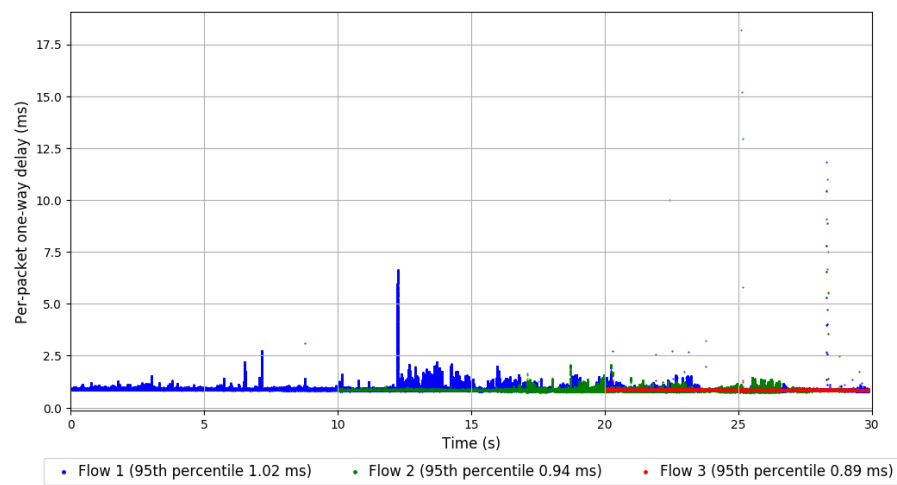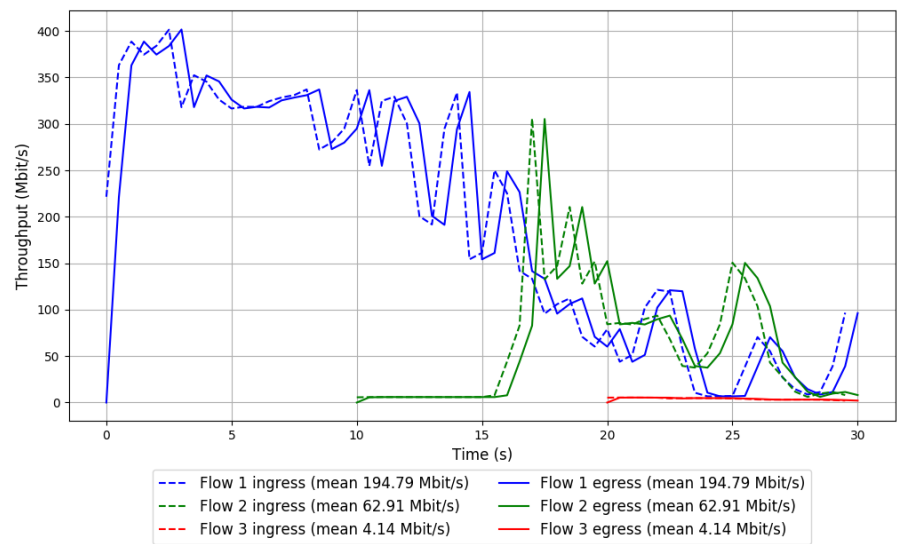
Run 1: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 228.94 Mbit/s) Flow 1 egress (mean 228.90 Mbit/s)
Flow 2 ingress (mean 5.37 Mbit/s) Flow 2 egress (mean 5.37 Mbit/s)
Flow 3 ingress (mean 5.28 Mbit/s) Flow 3 egress (mean 5.28 Mbit/s)

Flow 1 (95th percentile 5.09 ms) Flow 2 (95th percentile 1.20 ms) Flow 3 (95th percentile 1.21 ms)

```
Run 2: Statistics of PCC-Expr

Start at: 2019-03-09 13:43:19
End at: 2019-03-09 13:43:49
Local clock offset: 0.036 ms
Remote clock offset: 1.894 ms

# Below is generated by plot.py at 2019-03-09 16:25:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 238.00 Mbit/s
95th percentile per-packet one-way delay: 1.005 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 194.79 Mbit/s
95th percentile per-packet one-way delay: 1.021 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 62.91 Mbit/s
95th percentile per-packet one-way delay: 0.944 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 4.14 Mbit/s
95th percentile per-packet one-way delay: 0.887 ms
Loss rate: 0.03%
```
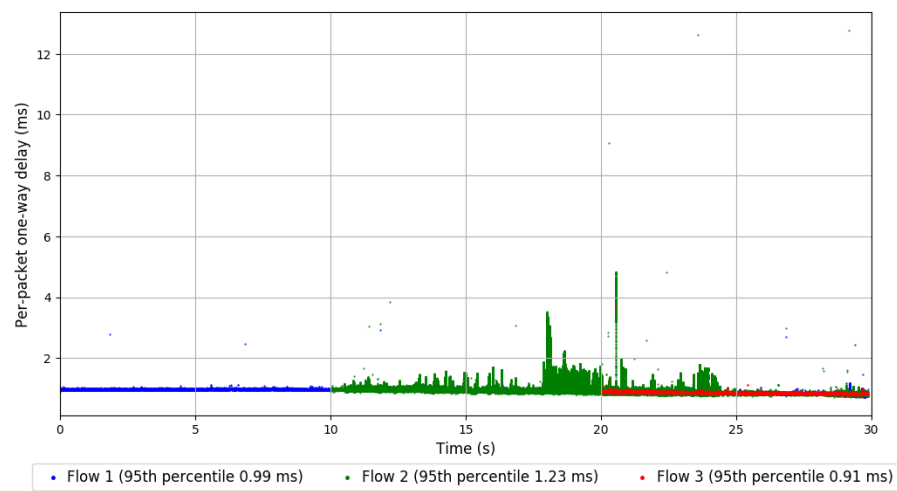
Run 2: Report of PCC-Expr — Data Link

```
Run 3: Statistics of PCC-Expr

Start at: 2019-03-09 14:13:40
End at: 2019-03-09 14:14:10
Local clock offset: -3.627 ms
Remote clock offset: 1.216 ms


# Below is generated by plot.py at 2019-03-09 16:25:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 137.66 Mbit/s
95th percentile per-packet one-way delay: 1.212 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.08 Mbit/s
95th percentile per-packet one-way delay: 0.986 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 193.45 Mbit/s
95th percentile per-packet one-way delay: 1.231 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 5.84 Mbit/s
95th percentile per-packet one-way delay: 0.906 ms
Loss rate: 0.02%
```
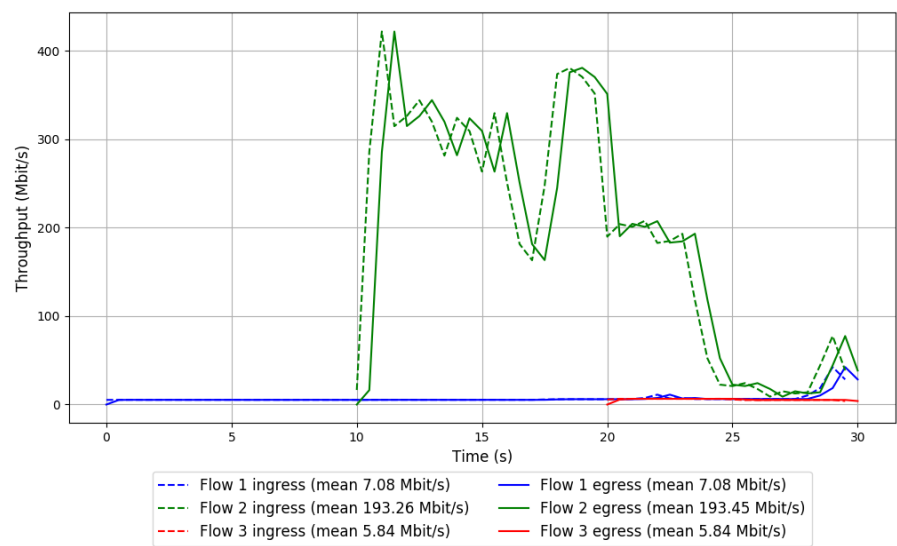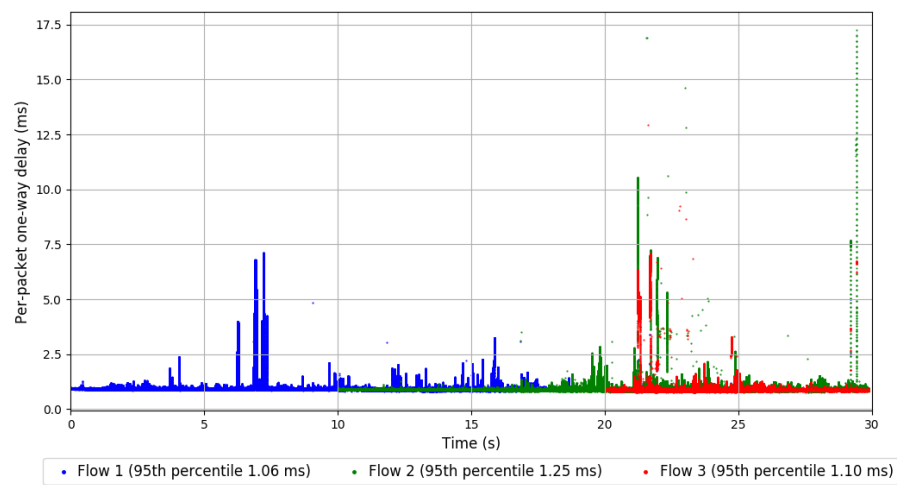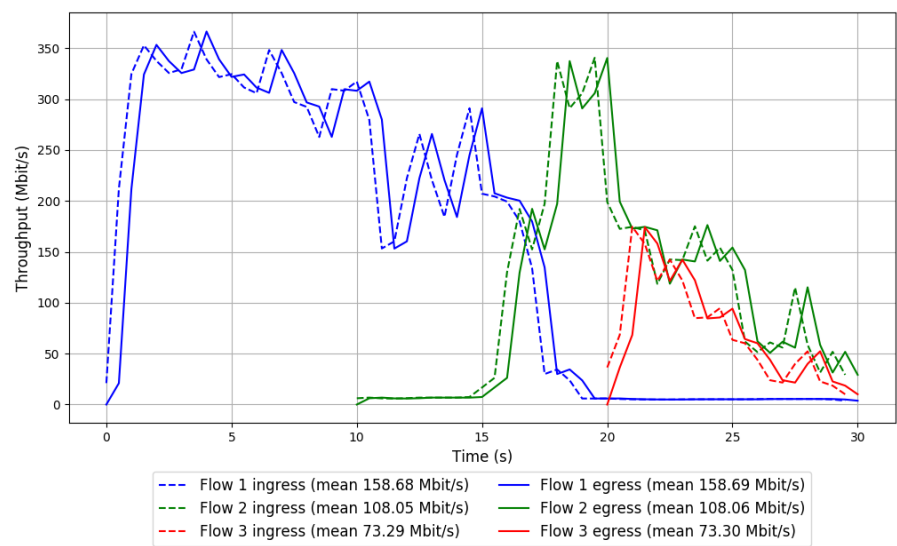
Run 3: Report of PCC-Expr — Data Link

- - - Flow 1 ingress (mean 7.08 Mbit/s) —— Flow 1 egress (mean 7.08 Mbit/s)
- - - Flow 2 ingress (mean 193.26 Mbit/s) —— Flow 2 egress (mean 193.45 Mbit/s)
- - - Flow 3 ingress (mean 5.84 Mbit/s) —— Flow 3 egress (mean 5.84 Mbit/s)

• Flow 1 (95th percentile 0.99 ms)   • Flow 2 (95th percentile 1.23 ms)   • Flow 3 (95th percentile 0.91 ms)

```
Run 4: Statistics of PCC-Expr

Start at: 2019-03-09 14:44:01
End at: 2019-03-09 14:44:31
Local clock offset: 0.648 ms
Remote clock offset: -2.552 ms

# Below is generated by plot.py at 2019-03-09 16:25:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 254.70 Mbit/s
95th percentile per-packet one-way delay: 1.126 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 158.69 Mbit/s
95th percentile per-packet one-way delay: 1.058 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 108.06 Mbit/s
95th percentile per-packet one-way delay: 1.246 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 73.30 Mbit/s
95th percentile per-packet one-way delay: 1.097 ms
Loss rate: 0.00%
```
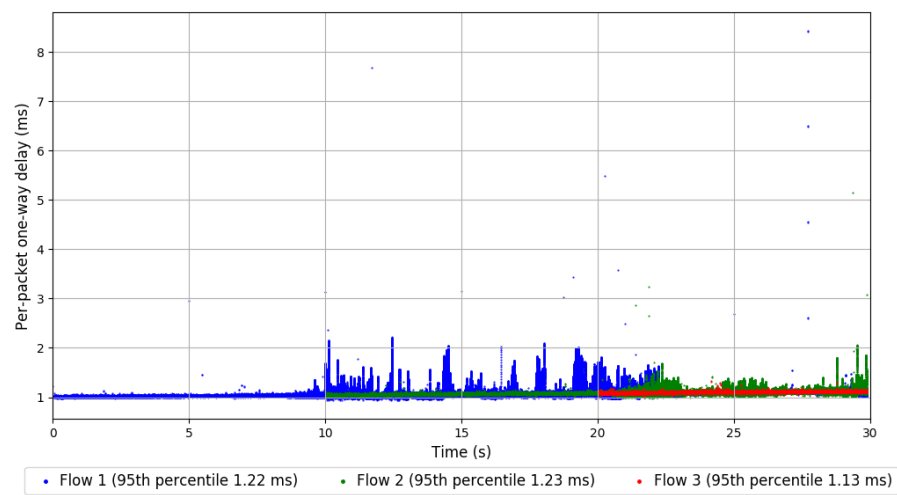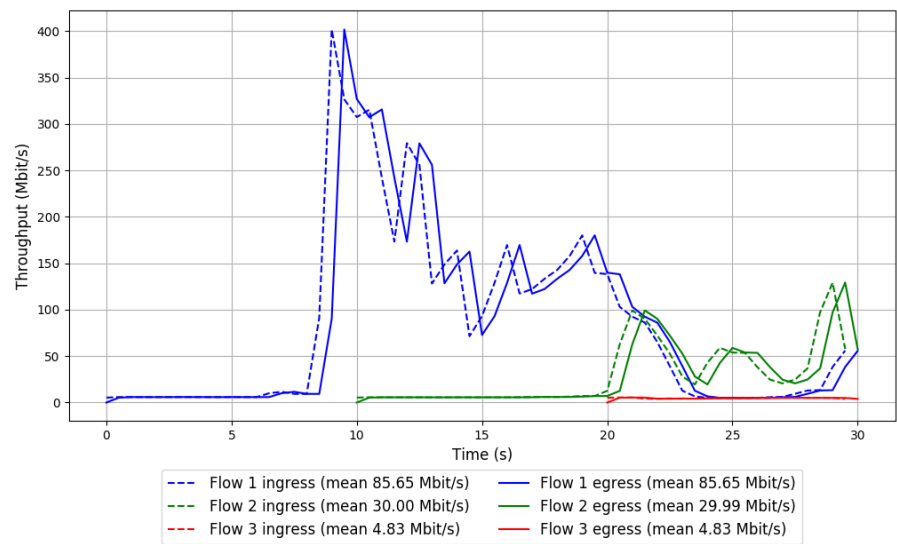
Run 4: Report of PCC-Expr — Data Link

```
Run 5: Statistics of PCC-Expr

Start at: 2019-03-09 15:14:33
End at: 2019-03-09 15:15:03
Local clock offset: 1.444 ms
Remote clock offset: 4.35 ms


# Below is generated by plot.py at 2019-03-09 16:25:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 107.18 Mbit/s
95th percentile per-packet one-way delay: 1.221 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 85.65 Mbit/s
95th percentile per-packet one-way delay: 1.223 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 29.99 Mbit/s
95th percentile per-packet one-way delay: 1.227 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 4.83 Mbit/s
95th percentile per-packet one-way delay: 1.134 ms
Loss rate: 0.03%
```
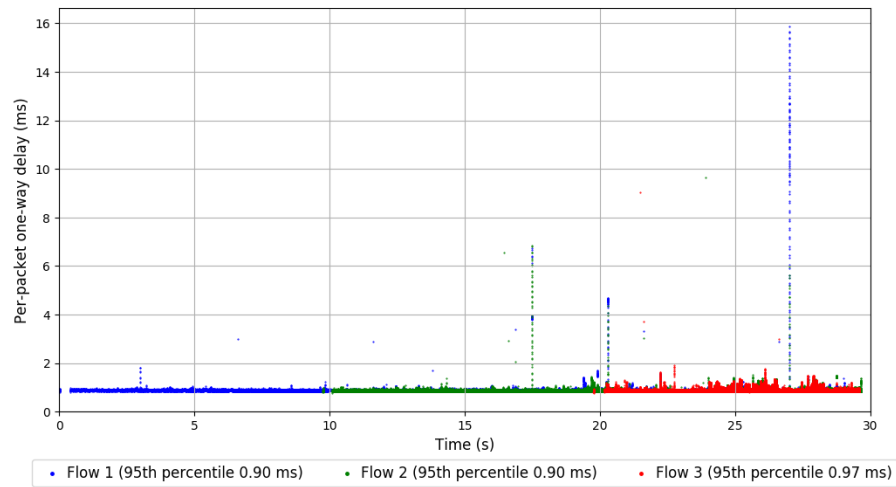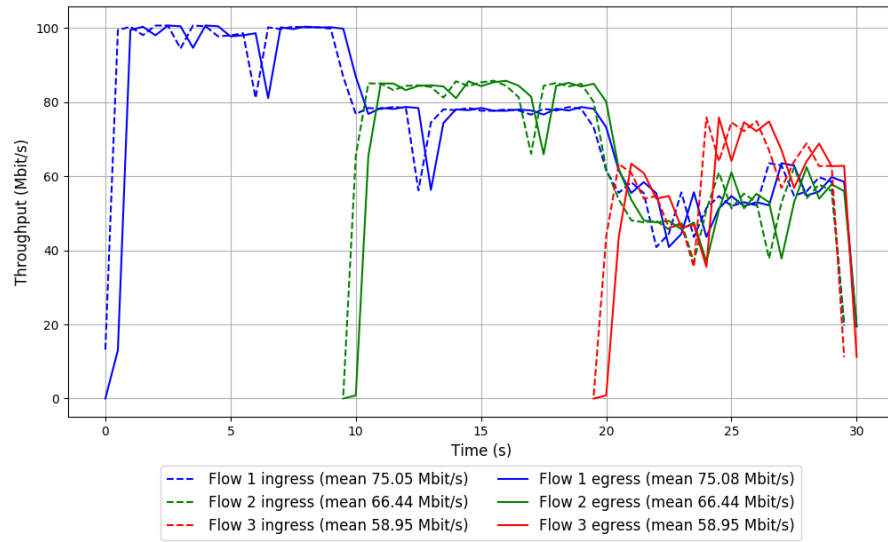
Run 5: Report of PCC-Expr — Data Link

- - - Flow 1 ingress (mean 85.65 Mbit/s) —— Flow 1 egress (mean 85.65 Mbit/s)
- - - Flow 2 ingress (mean 30.00 Mbit/s) —— Flow 2 egress (mean 29.99 Mbit/s)
- - - Flow 3 ingress (mean 4.83 Mbit/s) —— Flow 3 egress (mean 4.83 Mbit/s)

- Flow 1 (95th percentile 1.22 ms) • Flow 2 (95th percentile 1.23 ms) • Flow 3 (95th percentile 1.13 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2019-03-09 13:05:47
End at: 2019-03-09 13:06:17
Local clock offset: -0.008 ms
Remote clock offset: -3.851 ms


# Below is generated by plot.py at 2019-03-09 16:25:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 139.27 Mbit/s
95th percentile per-packet one-way delay: 0.899 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 75.08 Mbit/s
95th percentile per-packet one-way delay: 0.895 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 66.44 Mbit/s
95th percentile per-packet one-way delay: 0.899 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 58.95 Mbit/s
95th percentile per-packet one-way delay: 0.972 ms
Loss rate: 0.00%
```
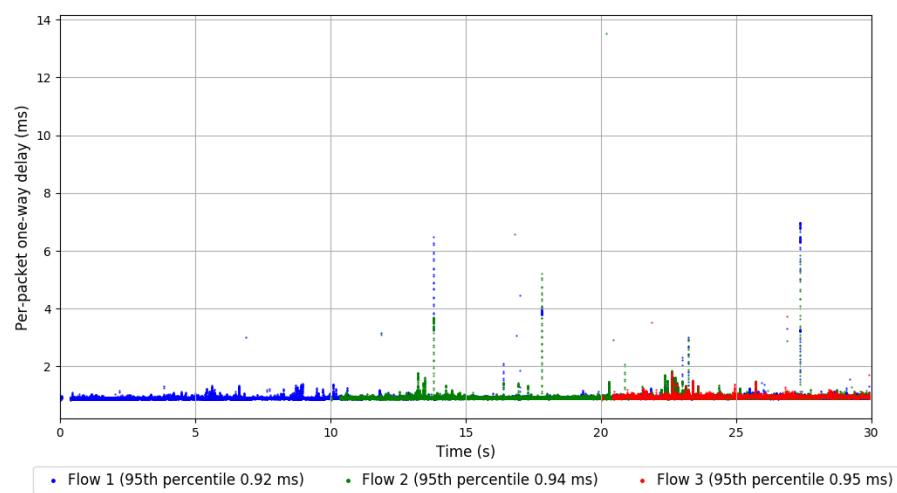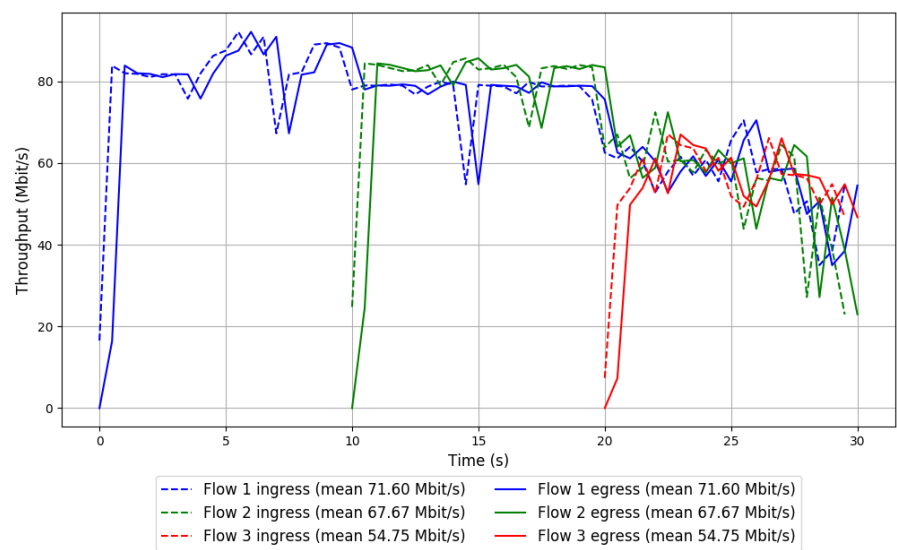
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2019-03-09 13:36:12
End at: 2019-03-09 13:36:42
Local clock offset: 0.044 ms
Remote clock offset: 1.578 ms


# Below is generated by plot.py at 2019-03-09 16:25:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 134.75 Mbit/s
95th percentile per-packet one-way delay: 0.934 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 71.60 Mbit/s
95th percentile per-packet one-way delay: 0.921 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 67.67 Mbit/s
95th percentile per-packet one-way delay: 0.935 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 54.75 Mbit/s
95th percentile per-packet one-way delay: 0.953 ms
Loss rate: 0.01%
```
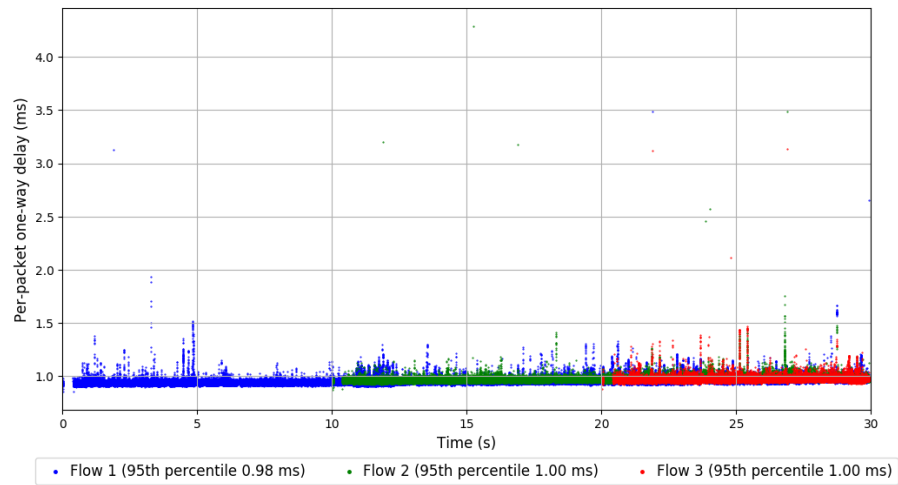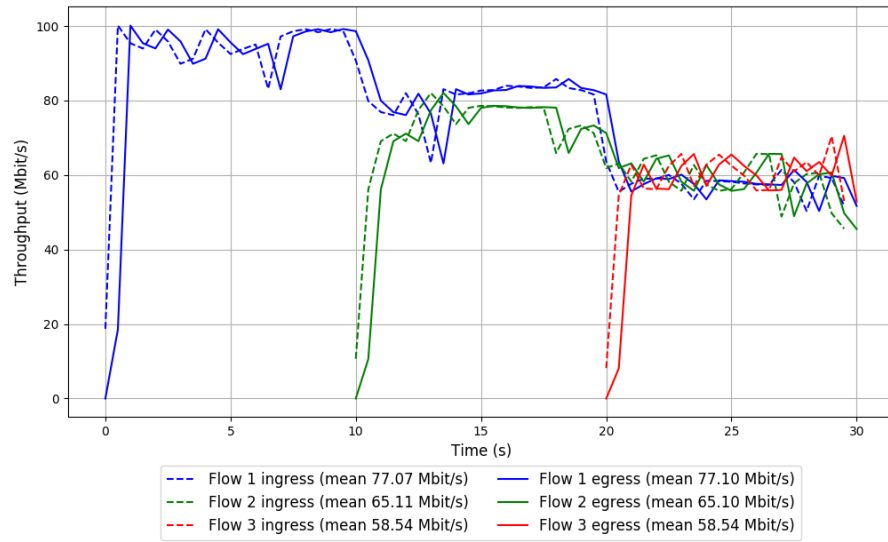
Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2019-03-09 14:06:29
End at: 2019-03-09 14:06:59
Local clock offset: -3.229 ms
Remote clock offset: 1.217 ms


# Below is generated by plot.py at 2019-03-09 16:25:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 139.76 Mbit/s
95th percentile per-packet one-way delay: 0.995 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 77.10 Mbit/s
95th percentile per-packet one-way delay: 0.985 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 65.10 Mbit/s
95th percentile per-packet one-way delay: 0.999 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 58.54 Mbit/s
95th percentile per-packet one-way delay: 1.002 ms
Loss rate: 0.01%
```
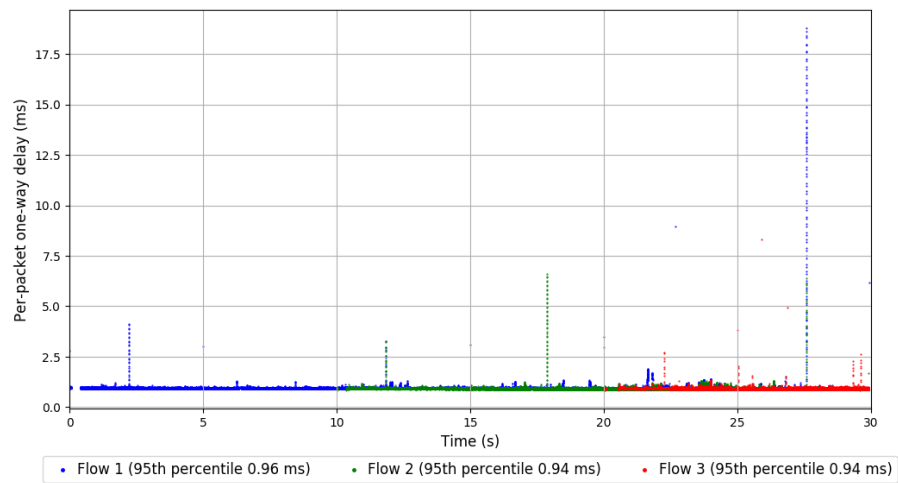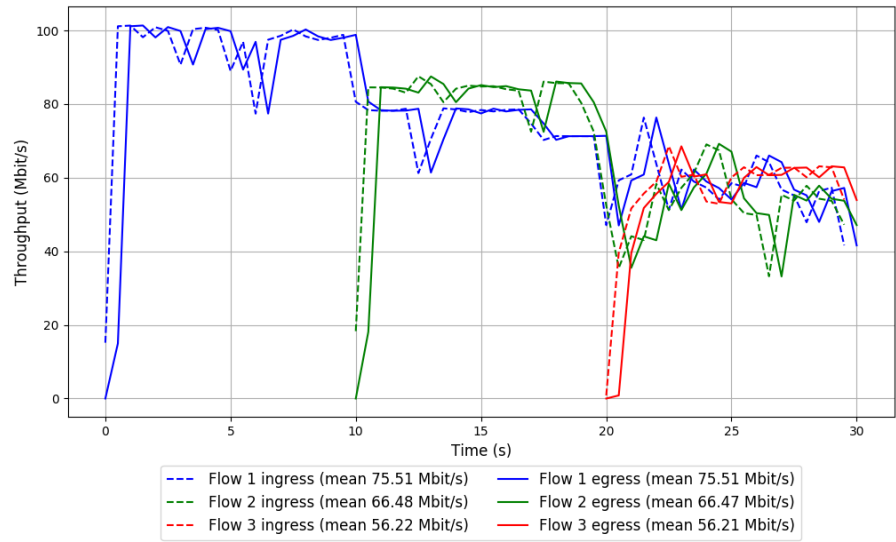
Run 3: Report of QUIC Cubic — Data Link

- - - - Flow 1 ingress (mean 77.07 Mbit/s) ——— Flow 1 egress (mean 77.10 Mbit/s)
- - - - Flow 2 ingress (mean 65.11 Mbit/s) ——— Flow 2 egress (mean 65.10 Mbit/s)
- - - - Flow 3 ingress (mean 58.54 Mbit/s) ——— Flow 3 egress (mean 58.54 Mbit/s)

• Flow 1 (95th percentile 0.98 ms) • Flow 2 (95th percentile 1.00 ms) • Flow 3 (95th percentile 1.00 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2019-03-09 14:36:50
End at: 2019-03-09 14:37:20
Local clock offset: 0.361 ms
Remote clock offset: -2.188 ms


# Below is generated by plot.py at 2019-03-09 16:25:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 138.33 Mbit/s
95th percentile per-packet one-way delay: 0.953 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 75.51 Mbit/s
95th percentile per-packet one-way delay: 0.958 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 66.47 Mbit/s
95th percentile per-packet one-way delay: 0.938 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 56.21 Mbit/s
95th percentile per-packet one-way delay: 0.944 ms
Loss rate: 0.02%
```
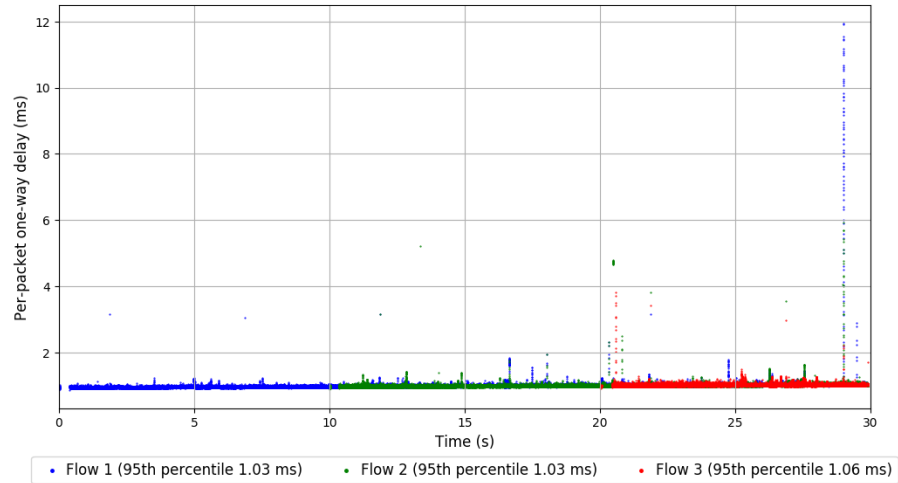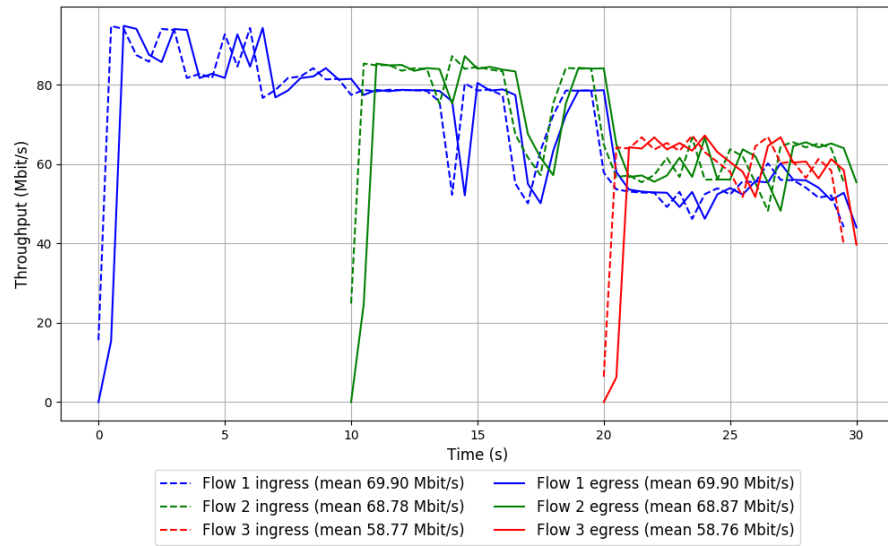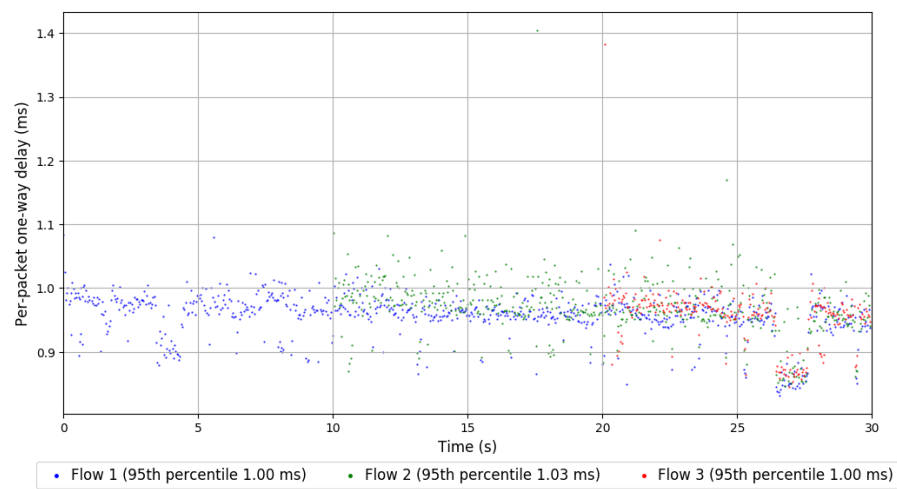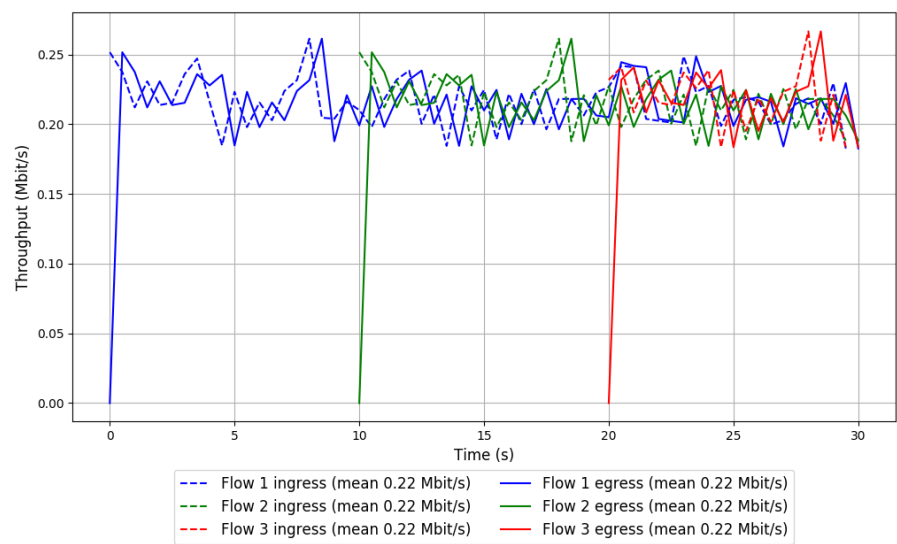
Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 75.51 Mbit/s) ---- Flow 1 egress (mean 75.51 Mbit/s)
Flow 2 ingress (mean 66.48 Mbit/s) ---- Flow 2 egress (mean 66.47 Mbit/s)
Flow 3 ingress (mean 56.22 Mbit/s) ---- Flow 3 egress (mean 56.21 Mbit/s)

Flow 1 (95th percentile 0.96 ms)   Flow 2 (95th percentile 0.94 ms)   Flow 3 (95th percentile 0.94 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2019-03-09 15:07:23
End at: 2019-03-09 15:07:53
Local clock offset: 1.328 ms
Remote clock offset: 3.334 ms


# Below is generated by plot.py at 2019-03-09 16:25:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 135.15 Mbit/s
95th percentile per-packet one-way delay: 1.038 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 69.90 Mbit/s
95th percentile per-packet one-way delay: 1.032 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 68.87 Mbit/s
95th percentile per-packet one-way delay: 1.034 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 58.76 Mbit/s
95th percentile per-packet one-way delay: 1.060 ms
Loss rate: 0.01%
```

Run 5: Report of QUIC Cubic — Data Link

```
Run 1: Statistics of SCReAM

Start at: 2019-03-09 12:57:43
End at: 2019-03-09 12:58:13
Local clock offset: 0.023 ms
Remote clock offset: -3.372 ms


# Below is generated by plot.py at 2019-03-09 16:25:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.014 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.000 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.034 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 0.999 ms
Loss rate: 0.00%
```
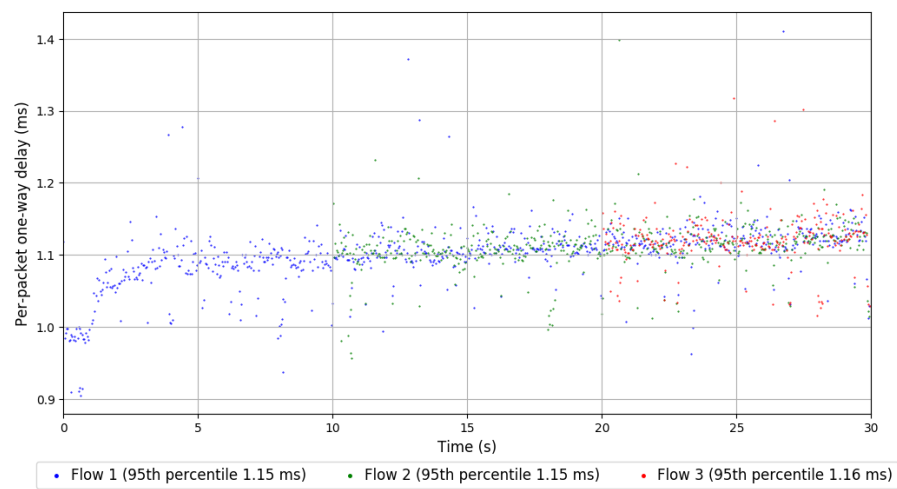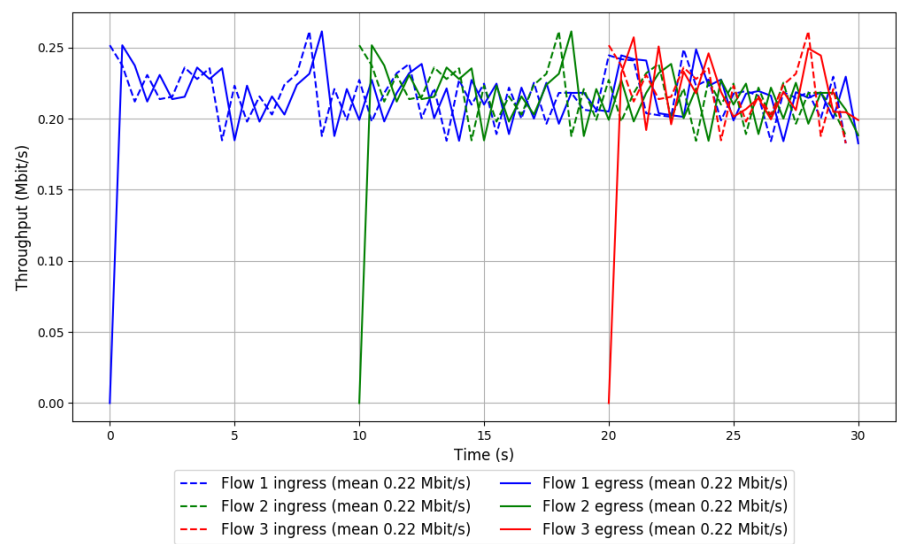
Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2019-03-09 13:28:09
End at: 2019-03-09 13:28:39
Local clock offset: 0.045 ms
Remote clock offset: 0.912 ms


# Below is generated by plot.py at 2019-03-09 16:25:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.151 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.146 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.149 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.164 ms
Loss rate: 0.00%
```
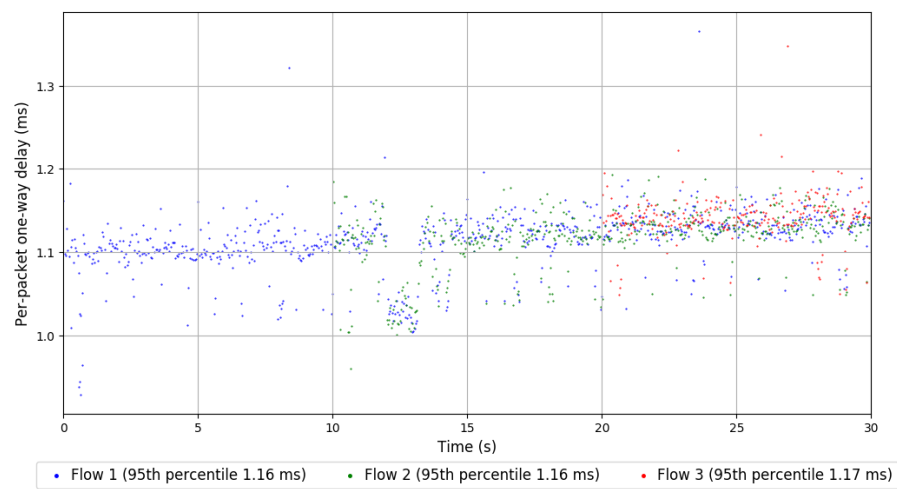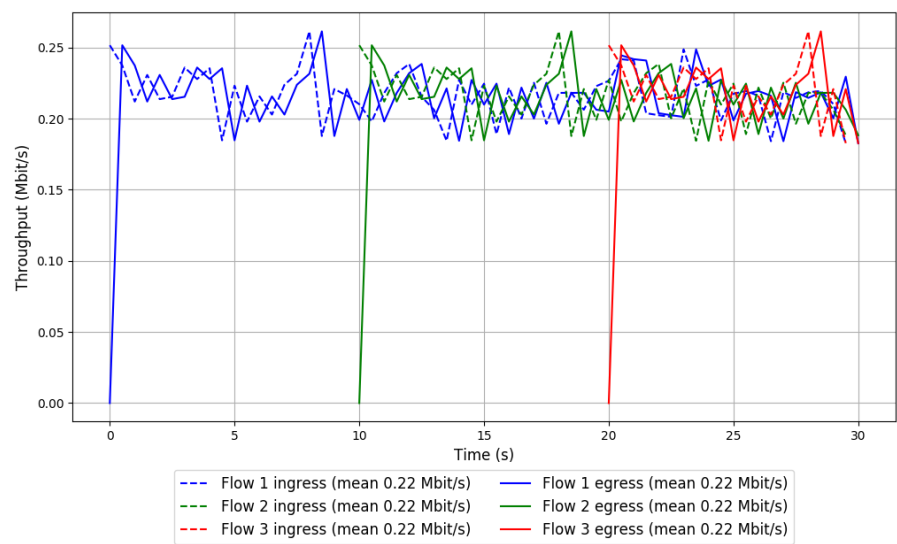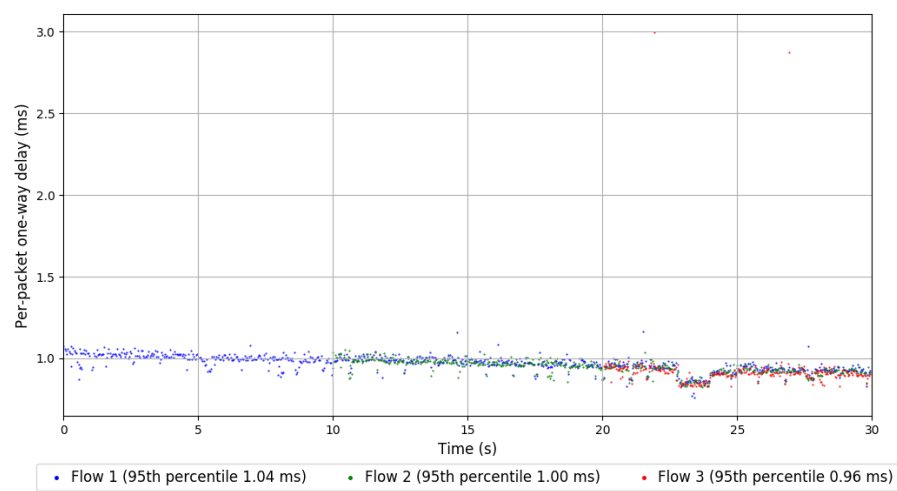
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2019-03-09 13:58:27
End at: 2019-03-09 13:58:57
Local clock offset: -2.608 ms
Remote clock offset: 1.213 ms


# Below is generated by plot.py at 2019-03-09 16:25:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.163 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.157 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.162 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.173 ms
Loss rate: 0.00%
```
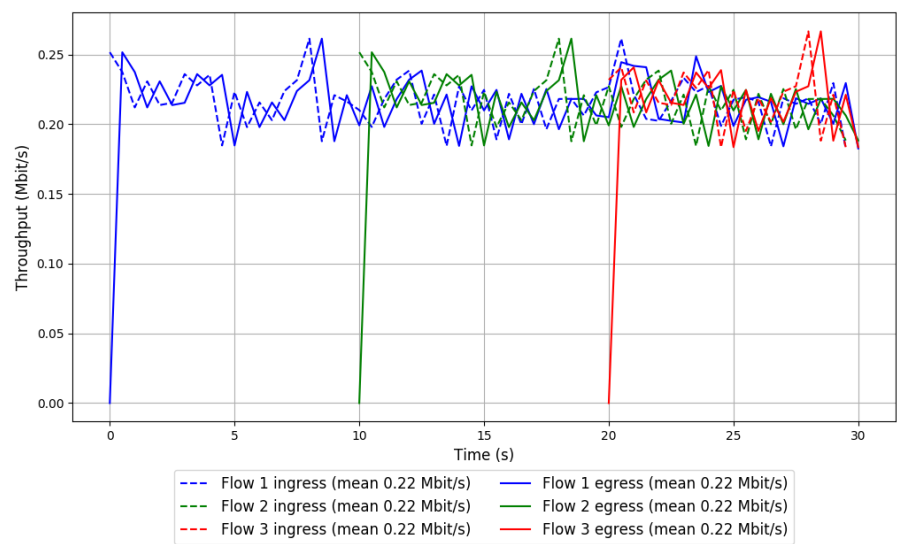
Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2019-03-09 14:28:46
End at: 2019-03-09 14:29:16
Local clock offset: -0.214 ms
Remote clock offset: -1.411 ms


# Below is generated by plot.py at 2019-03-09 16:25:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.026 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.036 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.005 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 0.959 ms
Loss rate: 0.00%
```
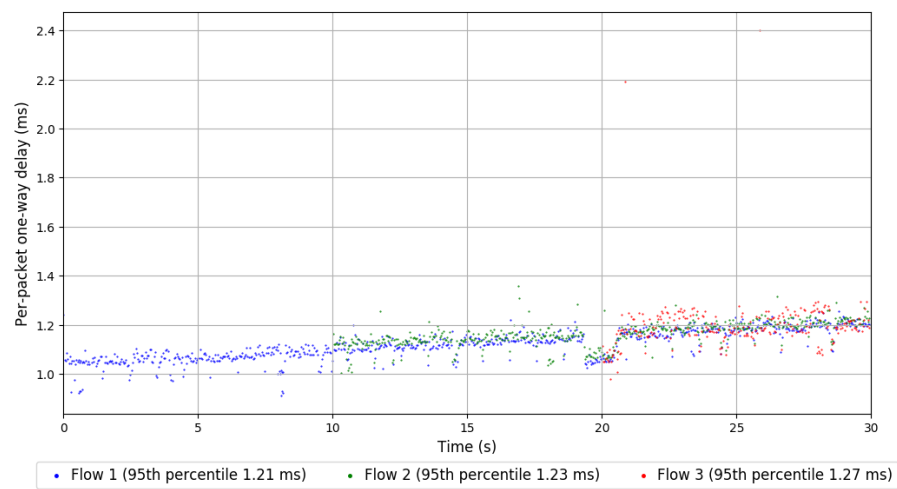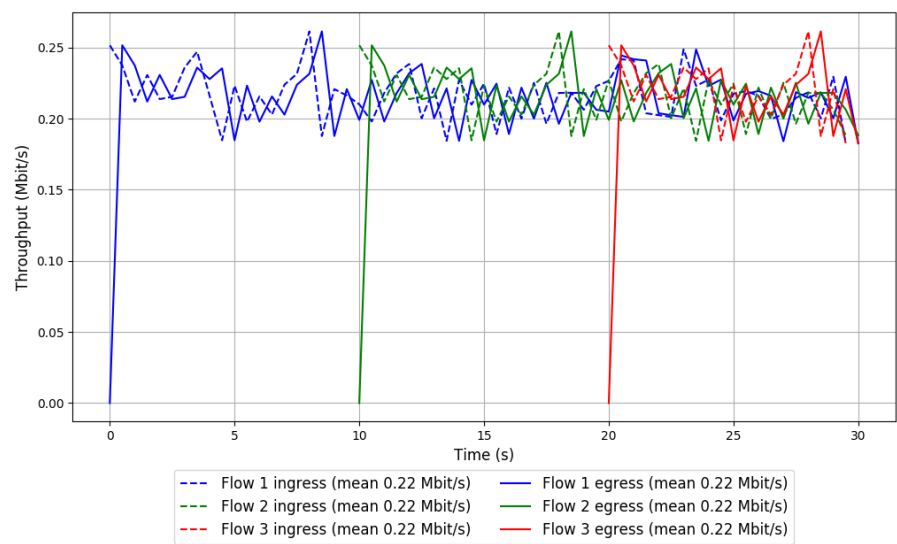
Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2019-03-09 14:59:20
End at: 2019-03-09 14:59:50
Local clock offset: 1.113 ms
Remote clock offset: 1.311 ms


# Below is generated by plot.py at 2019-03-09 16:25:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.237 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.208 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.230 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.270 ms
Loss rate: 0.00%
```
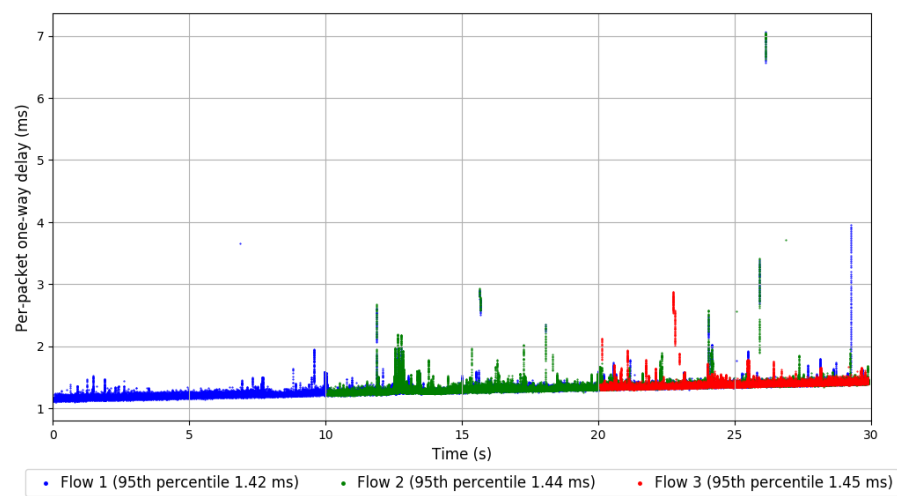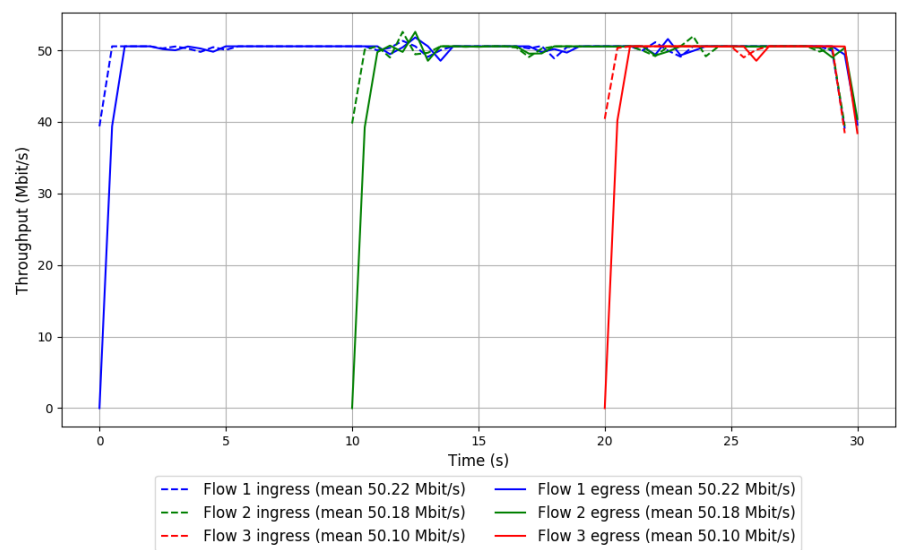
Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2019-03-09 13:09:57
End at: 2019-03-09 13:10:27
Local clock offset: -0.032 ms
Remote clock offset: -3.726 ms


# Below is generated by plot.py at 2019-03-09 16:25:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 100.07 Mbit/s
95th percentile per-packet one-way delay: 1.431 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.22 Mbit/s
95th percentile per-packet one-way delay: 1.418 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 50.18 Mbit/s
95th percentile per-packet one-way delay: 1.441 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 50.10 Mbit/s
95th percentile per-packet one-way delay: 1.450 ms
Loss rate: 0.00%
```
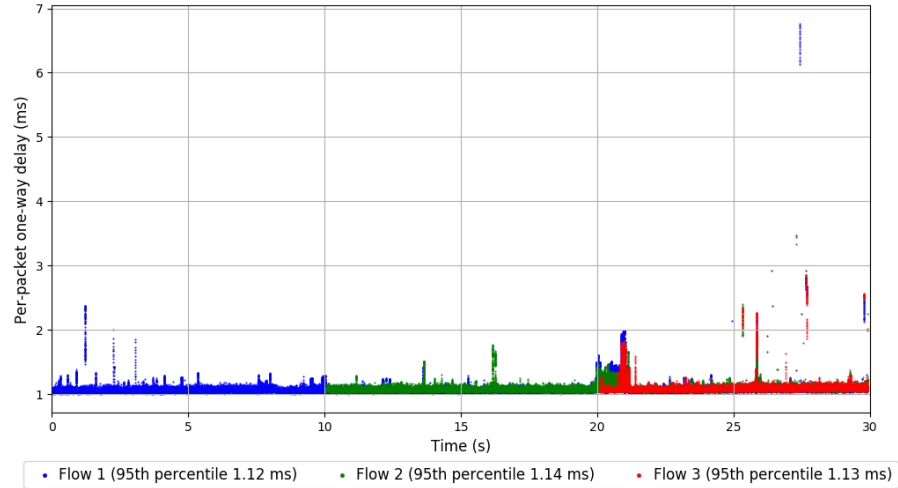
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2019-03-09 13:40:19
End at: 2019-03-09 13:40:49
Local clock offset: 0.045 ms
Remote clock offset: 1.647 ms


# Below is generated by plot.py at 2019-03-09 16:25:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 100.07 Mbit/s
95th percentile per-packet one-way delay: 1.129 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 50.25 Mbit/s
95th percentile per-packet one-way delay: 1.120 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 50.16 Mbit/s
95th percentile per-packet one-way delay: 1.137 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 50.06 Mbit/s
95th percentile per-packet one-way delay: 1.132 ms
Loss rate: 0.08%
```
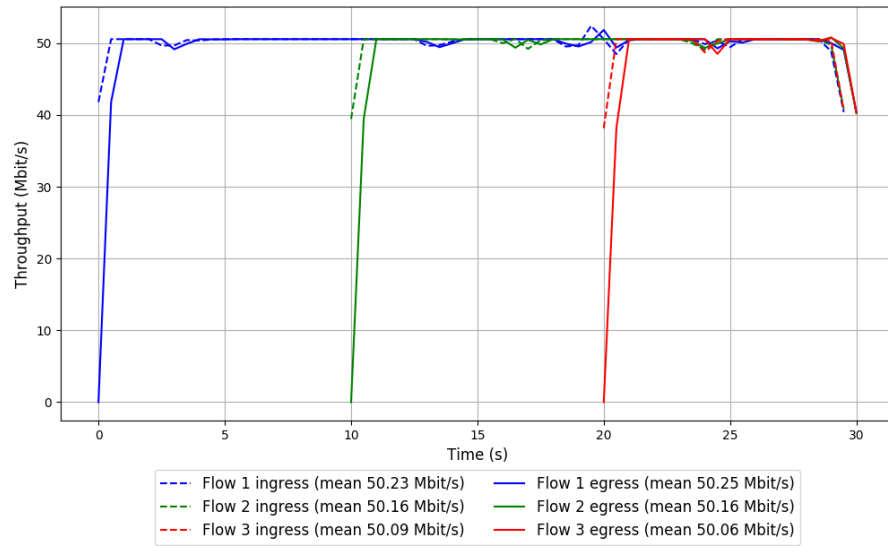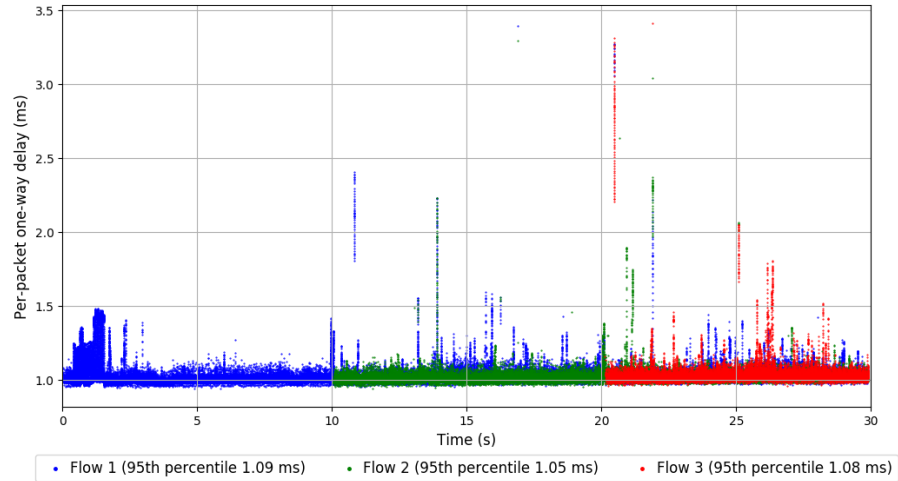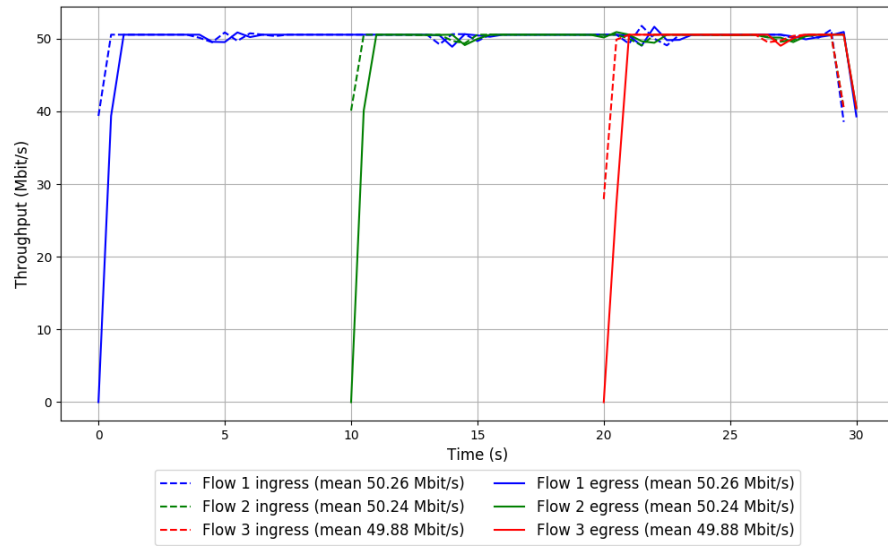
Run 2: Report of Sprout — Data Link

- - - Flow 1 ingress (mean 50.23 Mbit/s) ——— Flow 1 egress (mean 50.25 Mbit/s)
- - - Flow 2 ingress (mean 50.16 Mbit/s) ——— Flow 2 egress (mean 50.16 Mbit/s)
- - - Flow 3 ingress (mean 50.09 Mbit/s) ——— Flow 3 egress (mean 50.06 Mbit/s)

• Flow 1 (95th percentile 1.12 ms)　　• Flow 2 (95th percentile 1.14 ms)　　• Flow 3 (95th percentile 1.13 ms)

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```
Run 3: Statistics of Sprout

Start at: 2019-03-09 14:10:39
End at: 2019-03-09 14:11:09
Local clock offset: -3.462 ms
Remote clock offset: 1.204 ms


# Below is generated by plot.py at 2019-03-09 16:25:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 99.94 Mbit/s
95th percentile per-packet one-way delay: 1.073 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.26 Mbit/s
95th percentile per-packet one-way delay: 1.090 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 50.24 Mbit/s
95th percentile per-packet one-way delay: 1.053 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 49.88 Mbit/s
95th percentile per-packet one-way delay: 1.079 ms
Loss rate: 0.00%
```
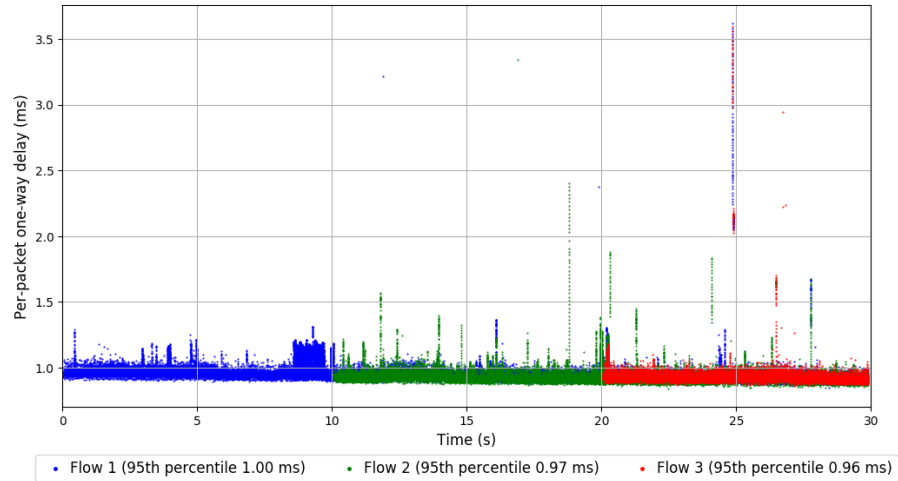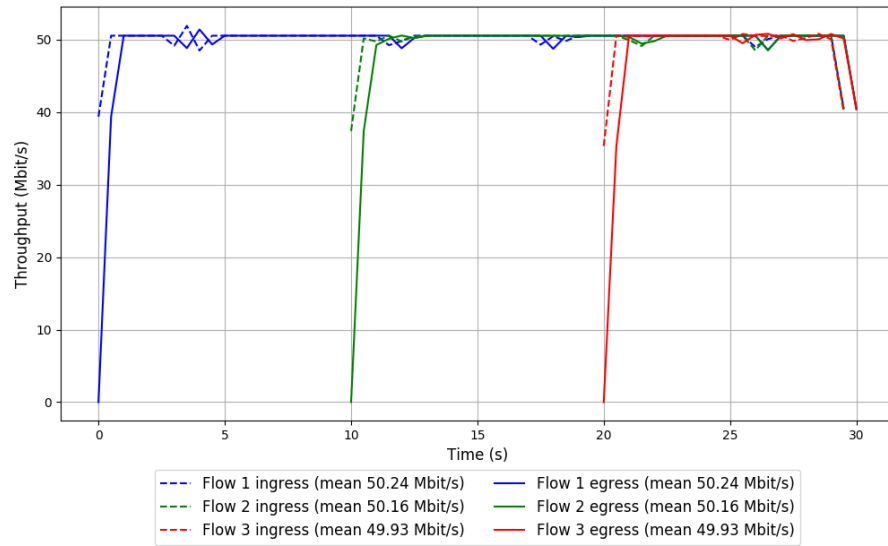
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2019-03-09 14:41:01
End at: 2019-03-09 14:41:31
Local clock offset: 0.539 ms
Remote clock offset: -2.415 ms


# Below is generated by plot.py at 2019-03-09 16:25:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 100.02 Mbit/s
95th percentile per-packet one-way delay: 0.984 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.24 Mbit/s
95th percentile per-packet one-way delay: 0.997 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 50.16 Mbit/s
95th percentile per-packet one-way delay: 0.970 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 49.93 Mbit/s
95th percentile per-packet one-way delay: 0.960 ms
Loss rate: 0.00%
```
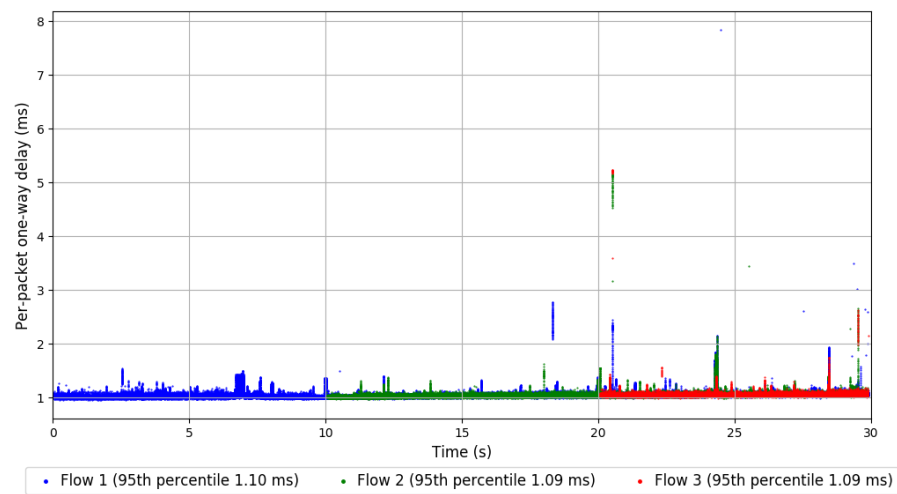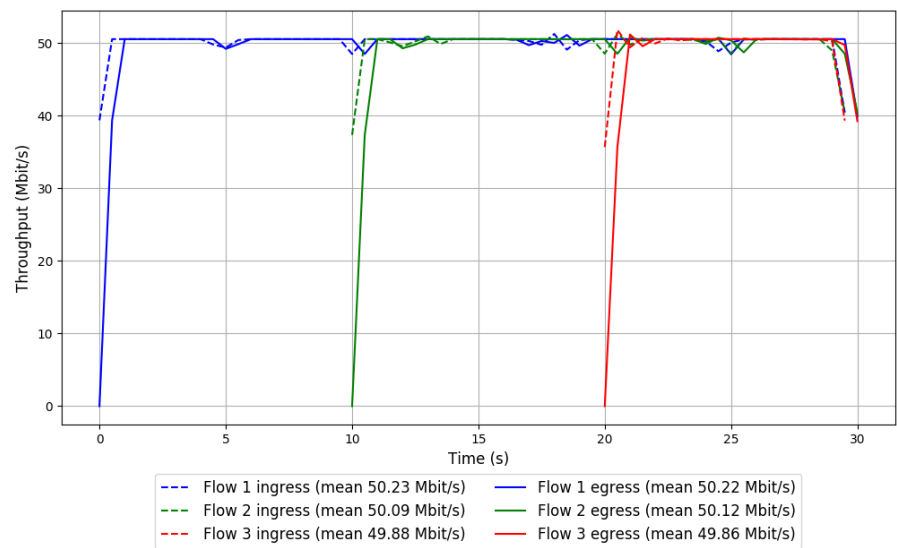
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2019-03-09 15:11:33
End at: 2019-03-09 15:12:03
Local clock offset: 1.401 ms
Remote clock offset: 3.924 ms


# Below is generated by plot.py at 2019-03-09 16:25:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 99.95 Mbit/s
95th percentile per-packet one-way delay: 1.094 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 50.22 Mbit/s
95th percentile per-packet one-way delay: 1.097 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 50.12 Mbit/s
95th percentile per-packet one-way delay: 1.090 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 49.86 Mbit/s
95th percentile per-packet one-way delay: 1.094 ms
Loss rate: 0.06%
```
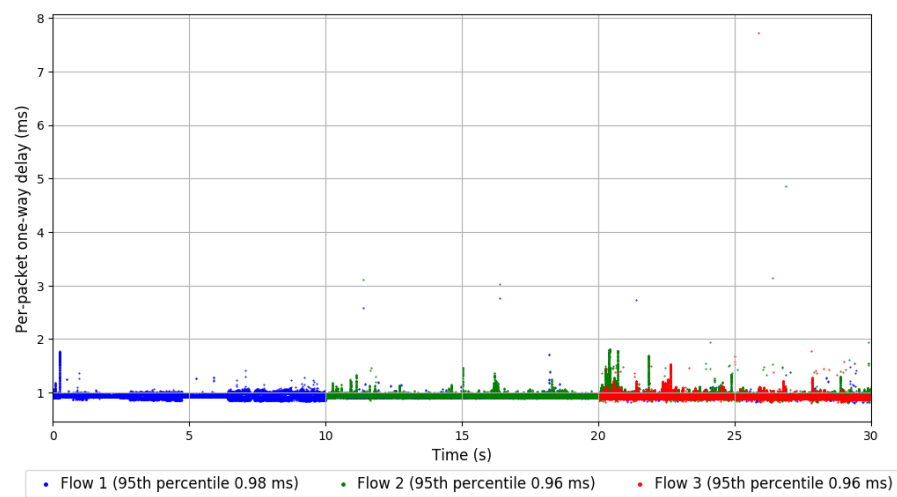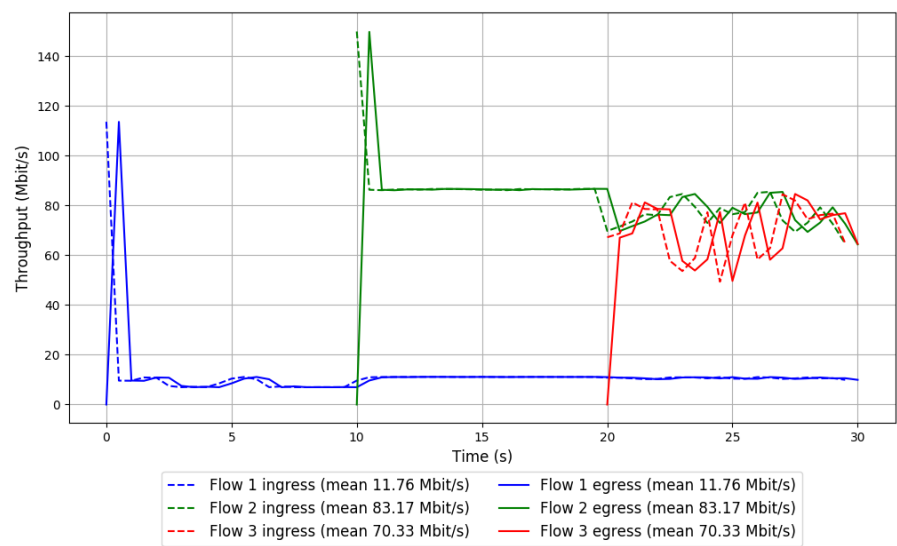
Run 5: Report of Sprout — Data Link

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

Start at: 2019-03-09 13:03:10
End at: 2019-03-09 13:03:40
Local clock offset: 0.027 ms
Remote clock offset: -3.752 ms

# Below is generated by plot.py at 2019-03-09 16:25:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.43 Mbit/s
95th percentile per-packet one-way delay: 0.966 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 11.76 Mbit/s
95th percentile per-packet one-way delay: 0.977 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 83.17 Mbit/s
95th percentile per-packet one-way delay: 0.965 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 70.33 Mbit/s
95th percentile per-packet one-way delay: 0.960 ms
Loss rate: 0.02%
```

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

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

Start at: 2019-03-09 13:33:36
End at: 2019-03-09 13:34:06
Local clock offset: 0.054 ms
Remote clock offset: 1.328 ms


# Below is generated by plot.py at 2019-03-09 16:25:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 72.26 Mbit/s
95th percentile per-packet one-way delay: 1.031 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 58.51 Mbit/s
95th percentile per-packet one-way delay: 1.025 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 13.88 Mbit/s
95th percentile per-packet one-way delay: 1.046 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 13.56 Mbit/s
95th percentile per-packet one-way delay: 1.048 ms
Loss rate: 0.01%
```
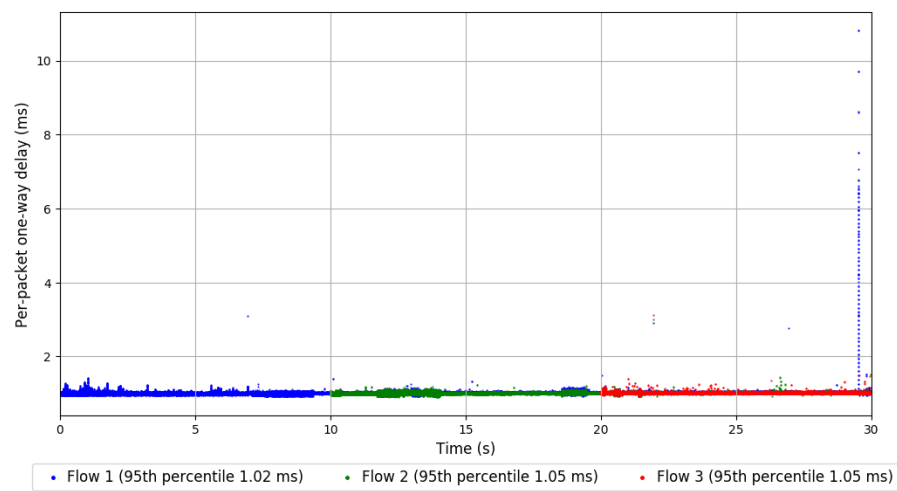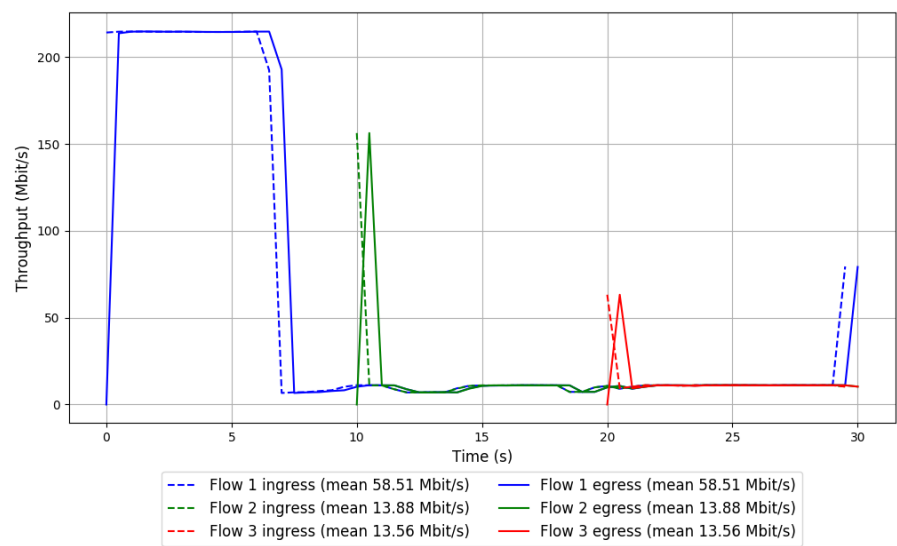
Run 2: Report of TaoVA-100x — Data Link

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

Start at: 2019-03-09 14:03:53
End at: 2019-03-09 14:04:23
Local clock offset: -3.03 ms
Remote clock offset: 1.199 ms


# Below is generated by plot.py at 2019-03-09 16:25:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 55.84 Mbit/s
95th percentile per-packet one-way delay: 1.045 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 14.56 Mbit/s
95th percentile per-packet one-way delay: 1.057 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 19.55 Mbit/s
95th percentile per-packet one-way delay: 1.041 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 85.28 Mbit/s
95th percentile per-packet one-way delay: 1.037 ms
Loss rate: 0.02%
```
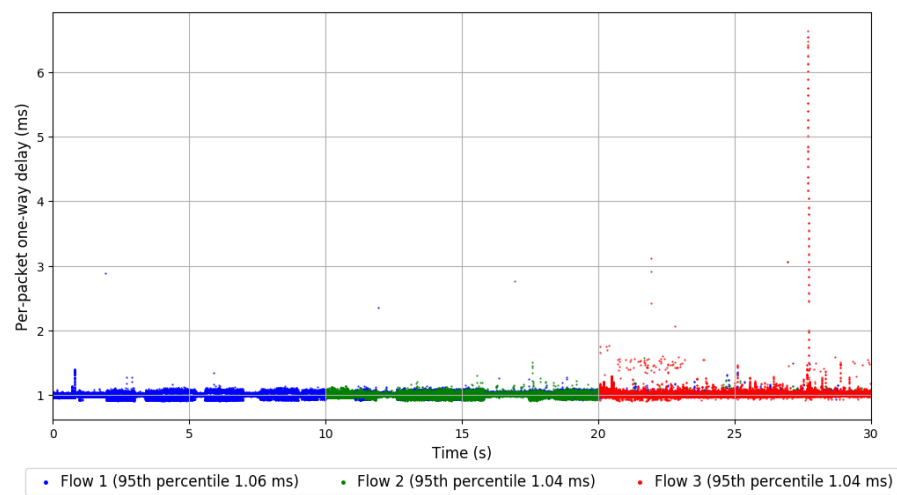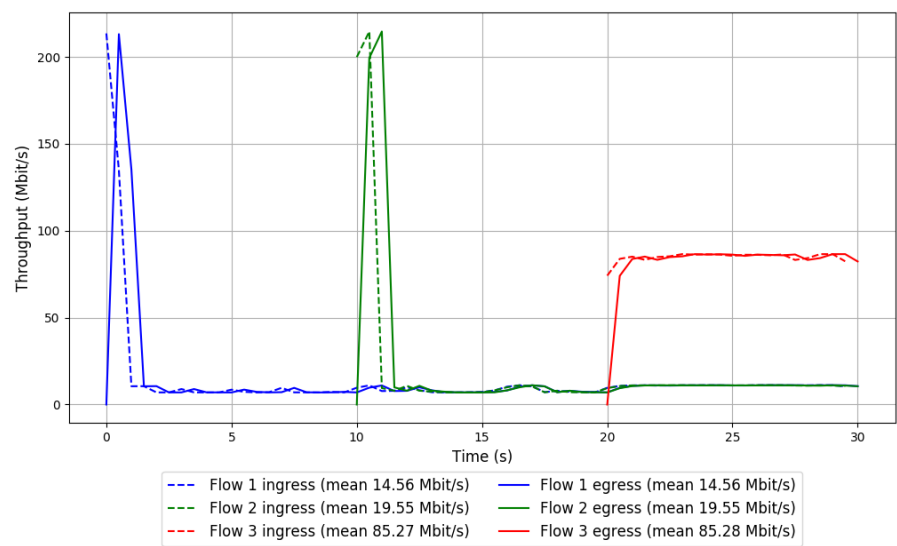
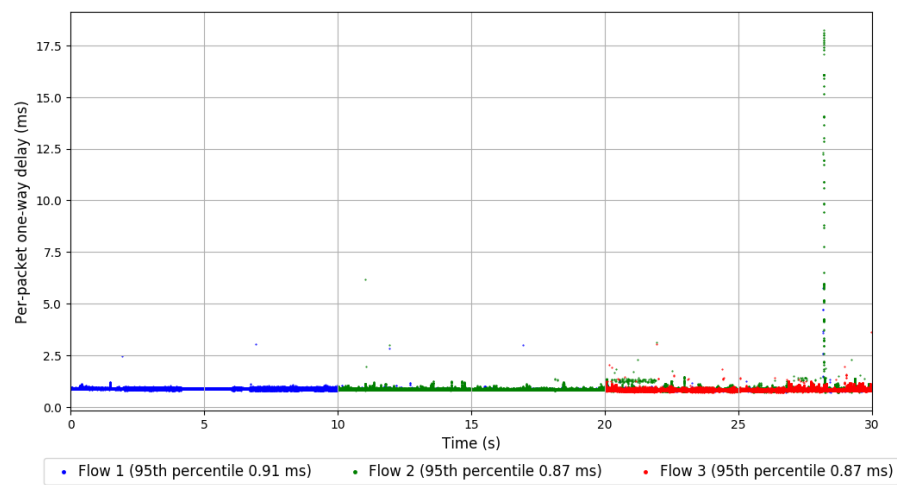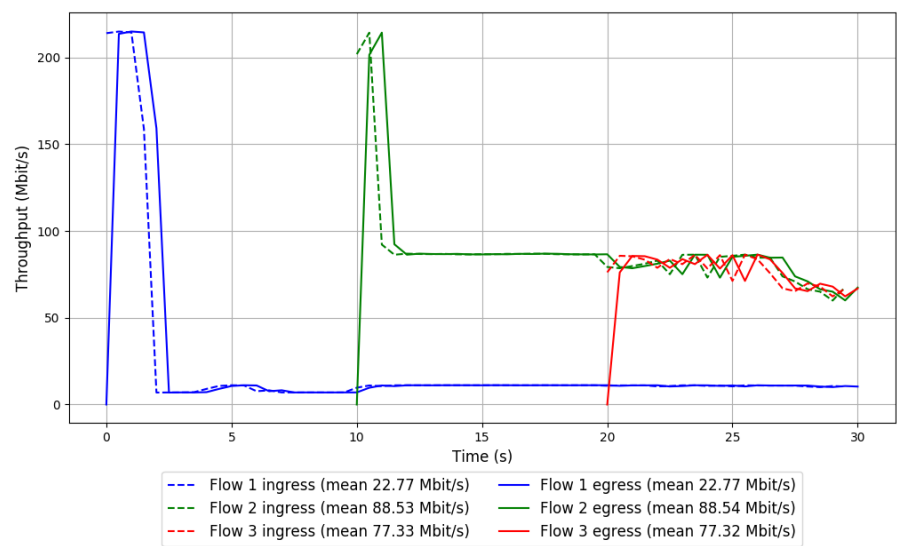## Run 3: Report of TaoVA-100x — Data Link

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

Start at: 2019-03-09 14:34:11
End at: 2019-03-09 14:34:41
Local clock offset: 0.223 ms
Remote clock offset: -1.913 ms

# Below is generated by plot.py at 2019-03-09 16:26:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 107.38 Mbit/s
95th percentile per-packet one-way delay: 0.888 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 22.77 Mbit/s
95th percentile per-packet one-way delay: 0.905 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 88.54 Mbit/s
95th percentile per-packet one-way delay: 0.870 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 77.32 Mbit/s
95th percentile per-packet one-way delay: 0.869 ms
Loss rate: 0.01%
```

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

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

Start at: 2019-03-09 15:04:45
End at: 2019-03-09 15:05:15
Local clock offset: 1.259 ms
Remote clock offset: 2.842 ms


# Below is generated by plot.py at 2019-03-09 16:26:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.76 Mbit/s
95th percentile per-packet one-way delay: 1.030 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 33.51 Mbit/s
95th percentile per-packet one-way delay: 1.028 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 55.60 Mbit/s
95th percentile per-packet one-way delay: 1.023 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 79.10 Mbit/s
95th percentile per-packet one-way delay: 1.045 ms
Loss rate: 0.01%
```
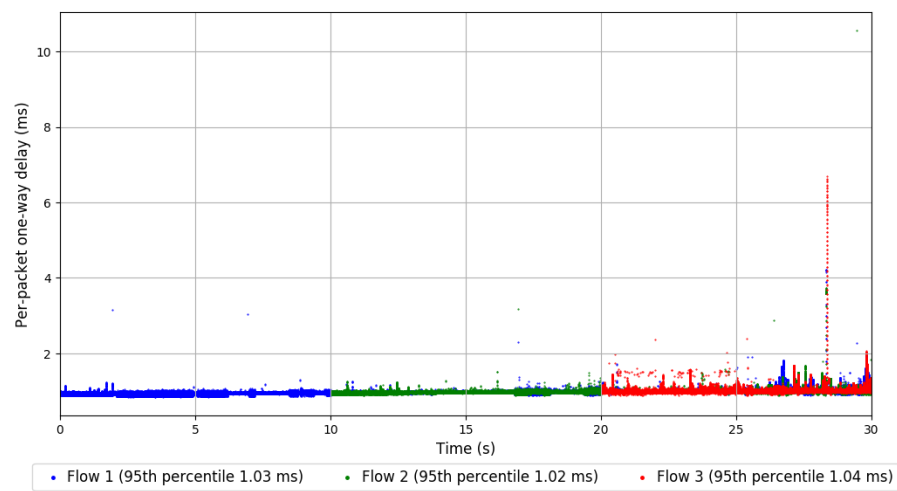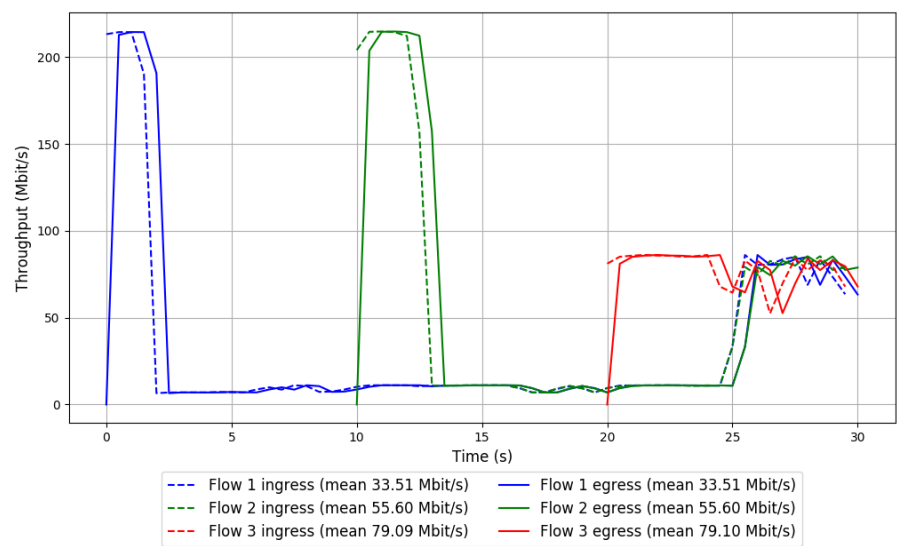
Run 5: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 33.51 Mbit/s)   Flow 1 egress (mean 33.51 Mbit/s)
Flow 2 ingress (mean 55.60 Mbit/s)   Flow 2 egress (mean 55.60 Mbit/s)
Flow 3 ingress (mean 79.09 Mbit/s)   Flow 3 egress (mean 79.10 Mbit/s)

Flow 1 (95th percentile 1.03 ms)   Flow 2 (95th percentile 1.02 ms)   Flow 3 (95th percentile 1.04 ms)
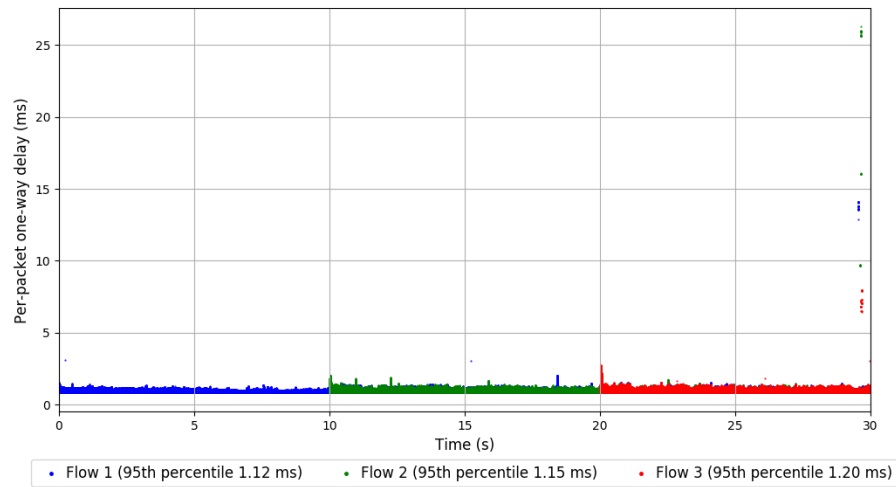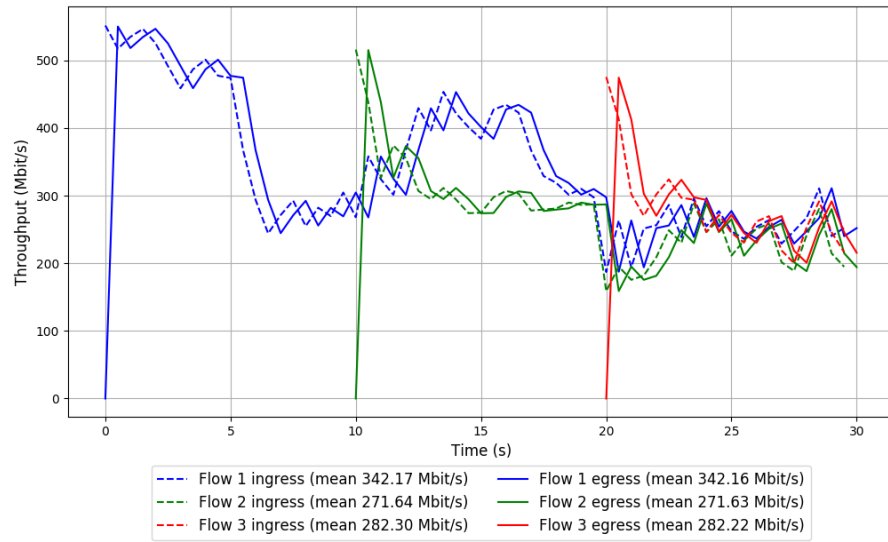
```
Run 1: Statistics of TCP Vegas

Start at: 2019-03-09 12:56:08
End at: 2019-03-09 12:56:38
Local clock offset: 0.02 ms
Remote clock offset: -3.244 ms


# Below is generated by plot.py at 2019-03-09 16:31:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 616.95 Mbit/s
95th percentile per-packet one-way delay: 1.143 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 342.16 Mbit/s
95th percentile per-packet one-way delay: 1.116 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 271.63 Mbit/s
95th percentile per-packet one-way delay: 1.151 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 282.22 Mbit/s
95th percentile per-packet one-way delay: 1.201 ms
Loss rate: 0.02%
```

Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2019-03-09 13:26:36
End at: 2019-03-09 13:27:06
Local clock offset: 0.043 ms
Remote clock offset: 0.785 ms


# Below is generated by plot.py at 2019-03-09 16:31:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 592.05 Mbit/s
95th percentile per-packet one-way delay: 1.389 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 297.00 Mbit/s
95th percentile per-packet one-way delay: 2.869 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 312.57 Mbit/s
95th percentile per-packet one-way delay: 1.290 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 261.32 Mbit/s
95th percentile per-packet one-way delay: 1.330 ms
Loss rate: 0.01%
```
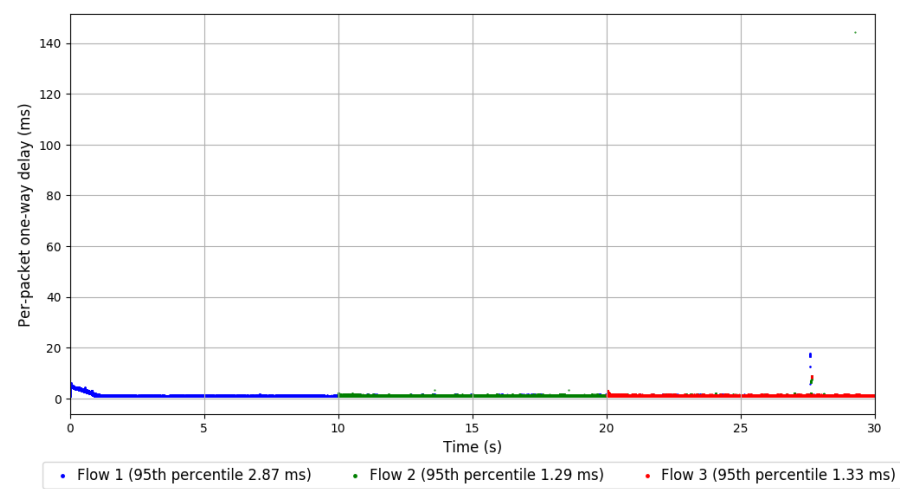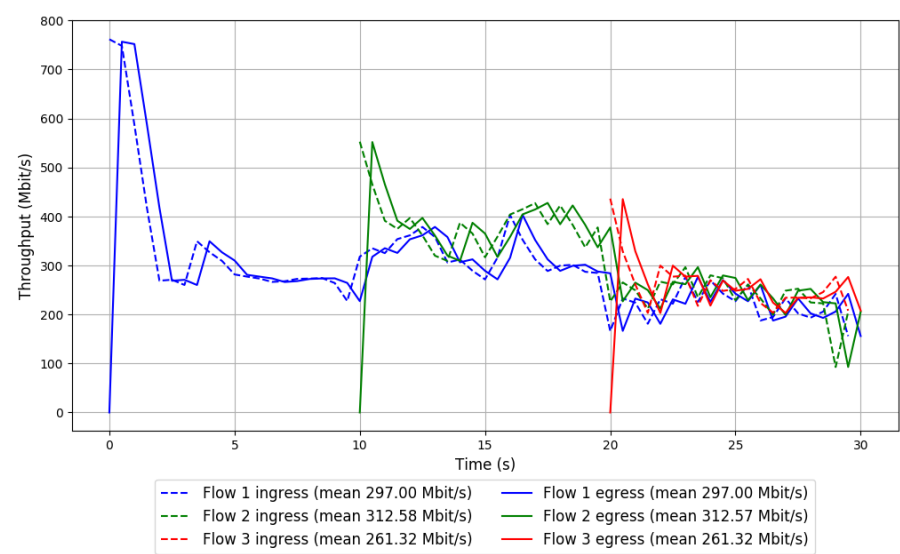
Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2019-03-09 13:56:56
End at: 2019-03-09 13:57:26
Local clock offset: -2.448 ms
Remote clock offset: 1.286 ms


# Below is generated by plot.py at 2019-03-09 16:31:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 525.38 Mbit/s
95th percentile per-packet one-way delay: 1.301 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 233.44 Mbit/s
95th percentile per-packet one-way delay: 1.218 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 299.89 Mbit/s
95th percentile per-packet one-way delay: 1.805 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 276.75 Mbit/s
95th percentile per-packet one-way delay: 1.342 ms
Loss rate: 0.02%
```
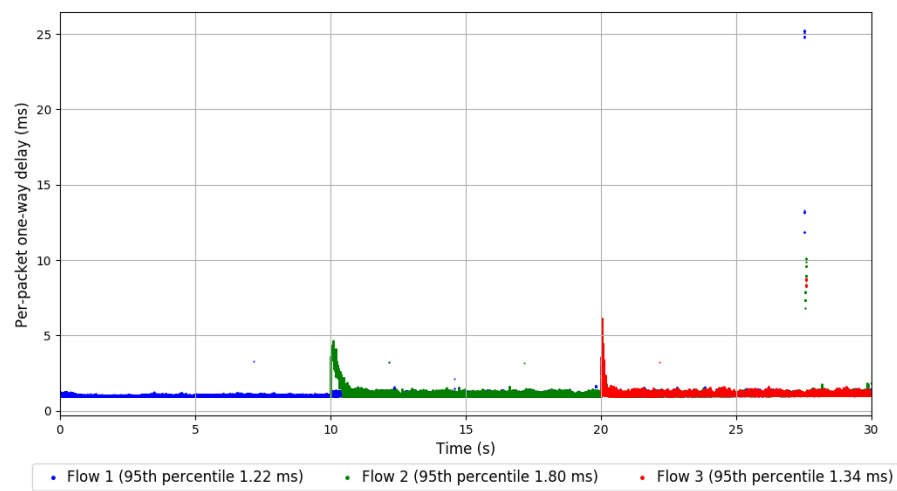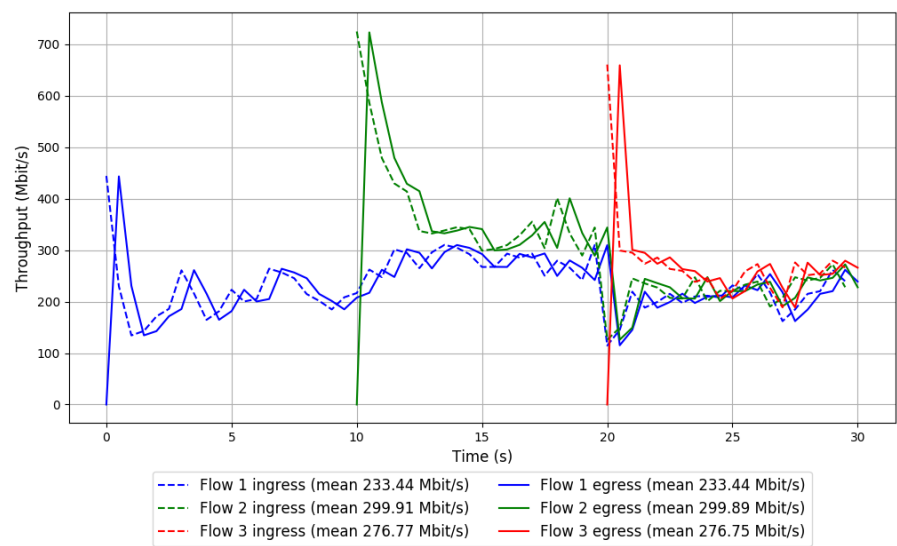
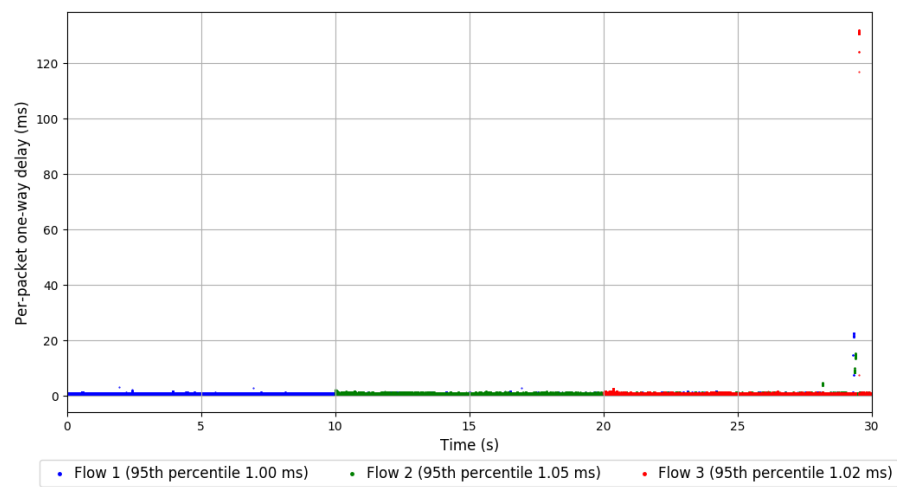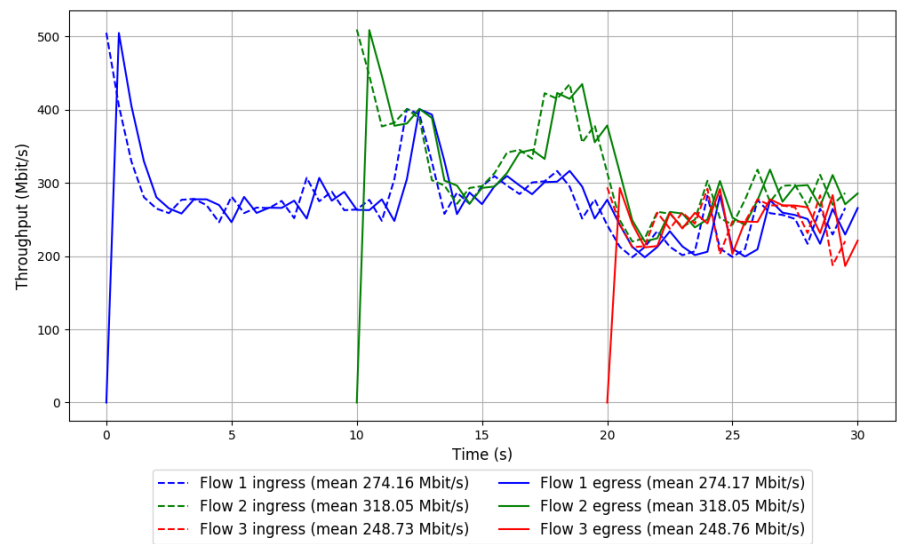Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2019-03-09 14:27:13
End at: 2019-03-09 14:27:43
Local clock offset: -0.378 ms
Remote clock offset: -1.086 ms


# Below is generated by plot.py at 2019-03-09 16:31:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 568.70 Mbit/s
95th percentile per-packet one-way delay: 1.025 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 274.17 Mbit/s
95th percentile per-packet one-way delay: 0.998 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 318.05 Mbit/s
95th percentile per-packet one-way delay: 1.052 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 248.76 Mbit/s
95th percentile per-packet one-way delay: 1.025 ms
Loss rate: 0.01%
```

Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2019-03-09 14:57:47
End at: 2019-03-09 14:58:17
Local clock offset: 1.073 ms
Remote clock offset: 0.68 ms


# Below is generated by plot.py at 2019-03-09 16:31:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 551.48 Mbit/s
95th percentile per-packet one-way delay: 1.565 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 223.77 Mbit/s
95th percentile per-packet one-way delay: 1.454 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 339.97 Mbit/s
95th percentile per-packet one-way delay: 1.551 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 304.64 Mbit/s
95th percentile per-packet one-way delay: 2.139 ms
Loss rate: 0.01%
```
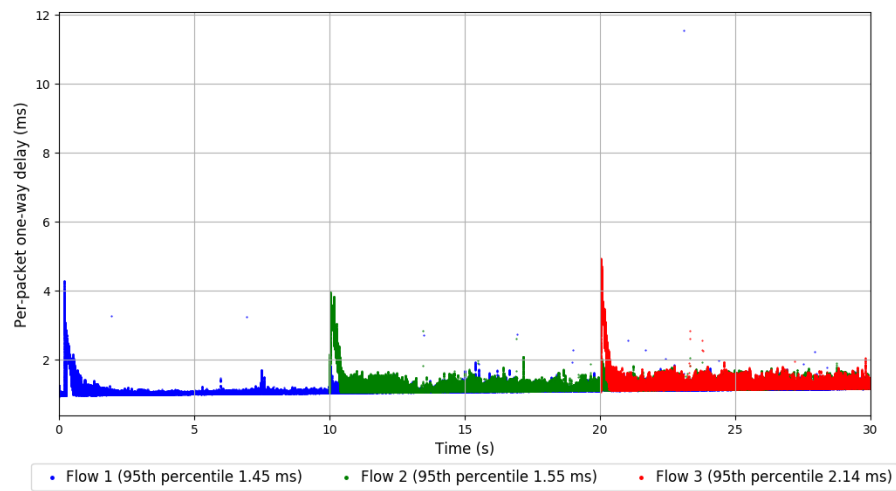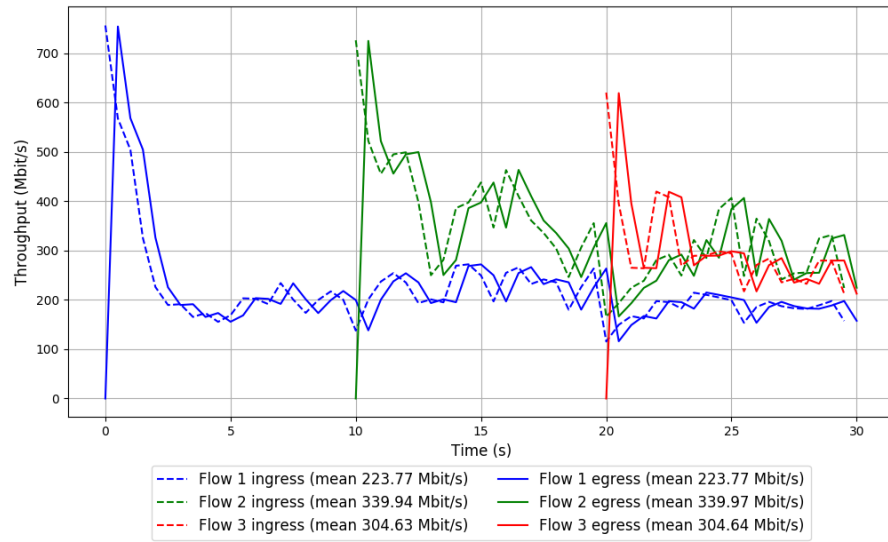
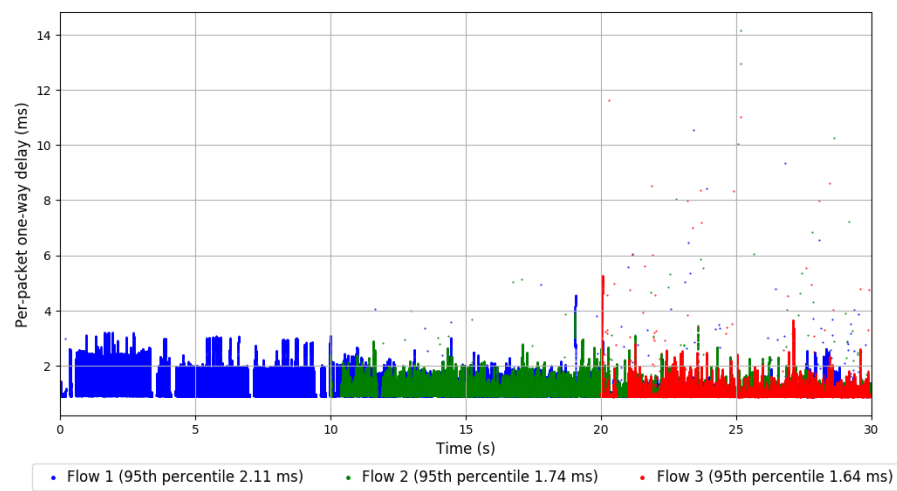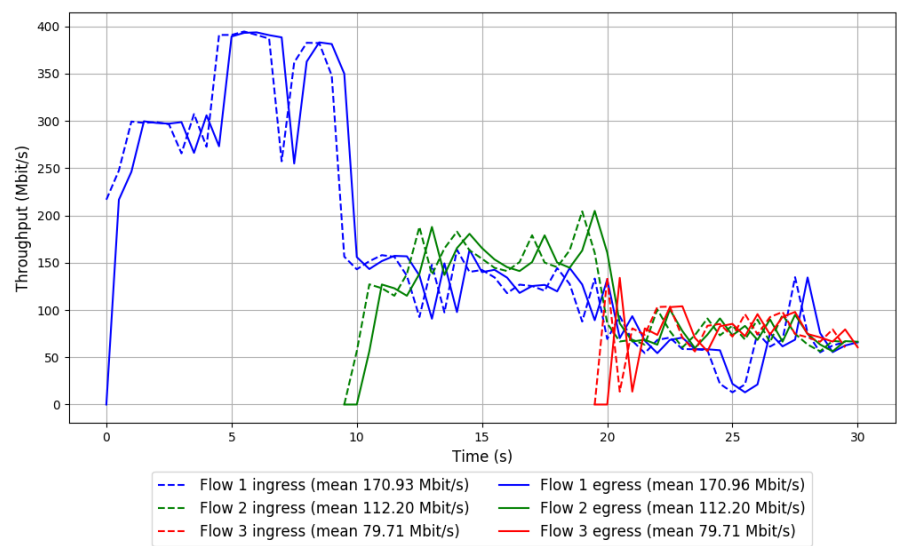Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2019-03-09 13:00:15
End at: 2019-03-09 13:00:45
Local clock offset: 0.017 ms
Remote clock offset: -3.585 ms

# Below is generated by plot.py at 2019-03-09 16:31:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 272.21 Mbit/s
95th percentile per-packet one-way delay: 1.974 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 170.96 Mbit/s
95th percentile per-packet one-way delay: 2.112 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 112.20 Mbit/s
95th percentile per-packet one-way delay: 1.739 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 79.71 Mbit/s
95th percentile per-packet one-way delay: 1.637 ms
Loss rate: 0.00%
```

Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2019-03-09 13:30:43
End at: 2019-03-09 13:31:13
Local clock offset: 0.053 ms
Remote clock offset: 1.224 ms


# Below is generated by plot.py at 2019-03-09 16:31:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 248.52 Mbit/s
95th percentile per-packet one-way delay: 2.097 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 159.94 Mbit/s
95th percentile per-packet one-way delay: 2.290 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 84.81 Mbit/s
95th percentile per-packet one-way delay: 1.702 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 96.59 Mbit/s
95th percentile per-packet one-way delay: 1.362 ms
Loss rate: 0.03%
```
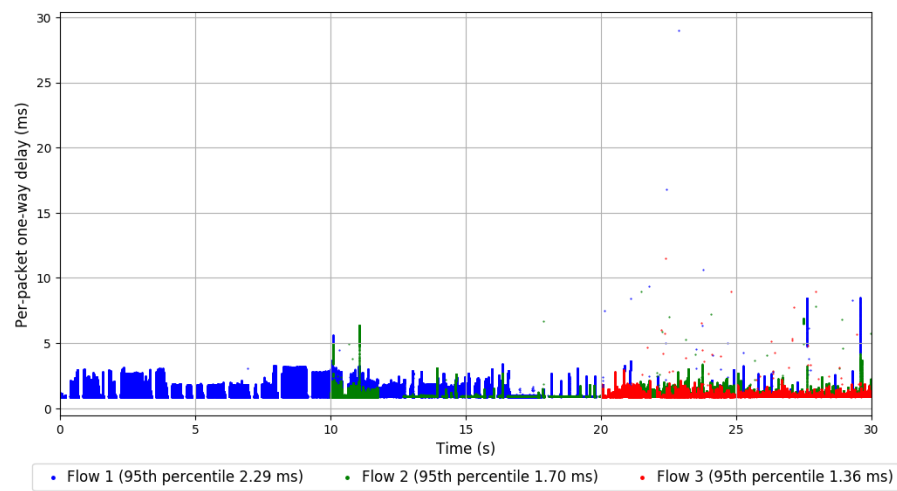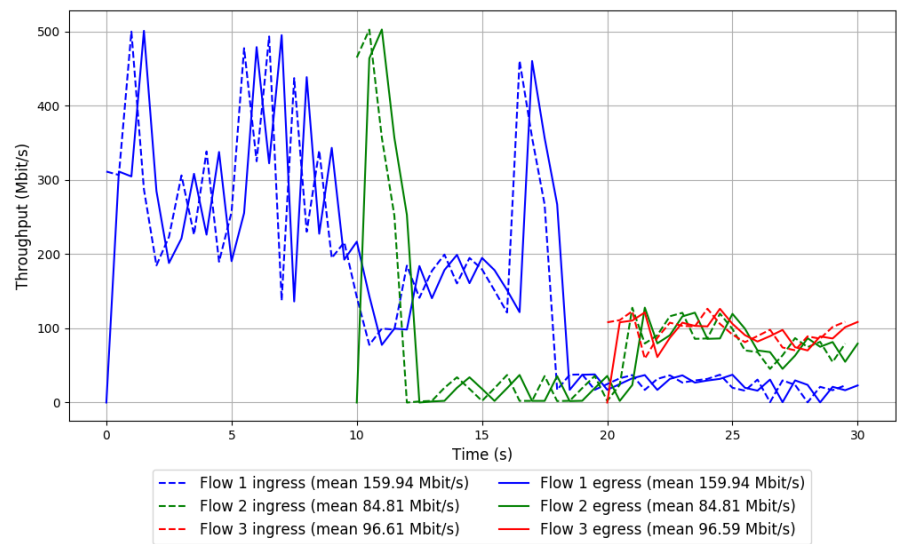
Run 2: Report of Verus — Data Link

Flow 1 ingress (mean 159.94 Mbit/s) --- Flow 1 egress (mean 159.94 Mbit/s)
Flow 2 ingress (mean 84.81 Mbit/s) --- Flow 2 egress (mean 84.81 Mbit/s)
Flow 3 ingress (mean 96.61 Mbit/s) --- Flow 3 egress (mean 96.59 Mbit/s)

Flow 1 (95th percentile 2.29 ms)   Flow 2 (95th percentile 1.70 ms)   Flow 3 (95th percentile 1.36 ms)
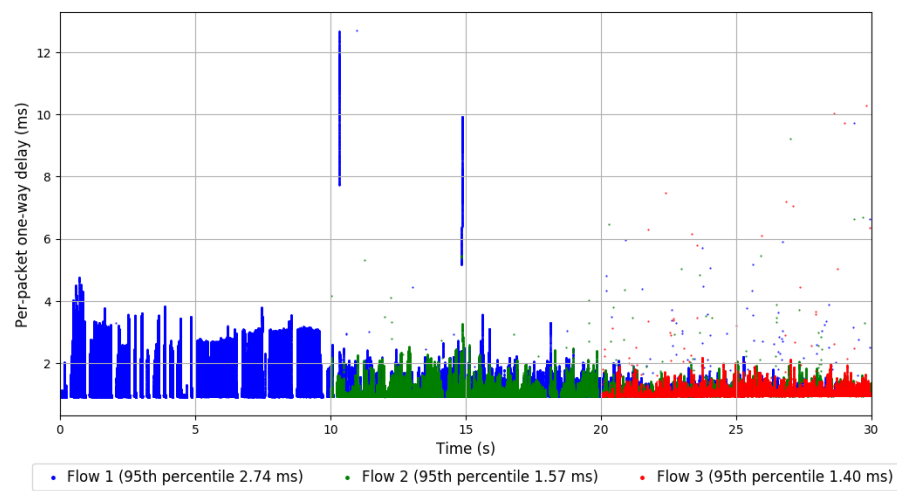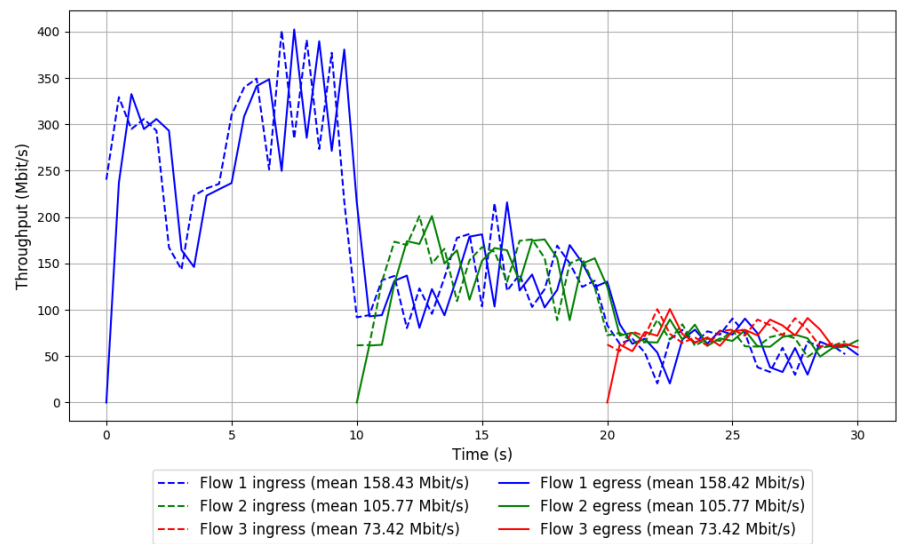
```
Run 3: Statistics of Verus

Start at: 2019-03-09 14:01:00
End at: 2019-03-09 14:01:30
Local clock offset: -2.83 ms
Remote clock offset: 1.234 ms


# Below is generated by plot.py at 2019-03-09 16:31:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 253.29 Mbit/s
95th percentile per-packet one-way delay: 2.511 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 158.42 Mbit/s
95th percentile per-packet one-way delay: 2.742 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 105.77 Mbit/s
95th percentile per-packet one-way delay: 1.570 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 73.42 Mbit/s
95th percentile per-packet one-way delay: 1.396 ms
Loss rate: 0.00%
```
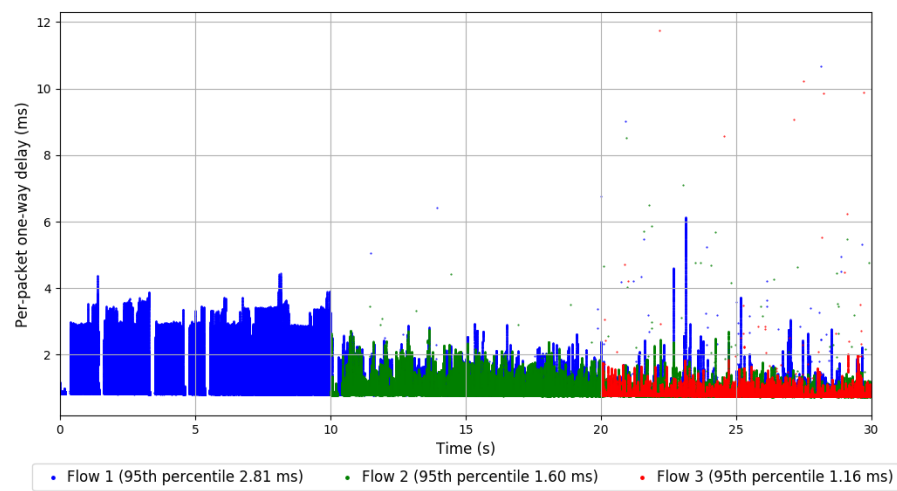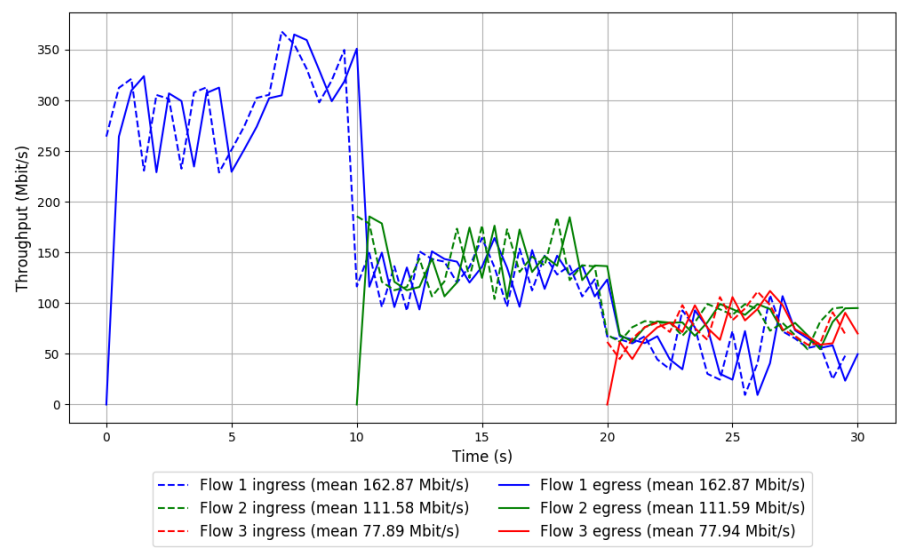
Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2019-03-09 14:31:19
End at: 2019-03-09 14:31:49
Local clock offset: -0.002 ms
Remote clock offset: -1.629 ms


# Below is generated by plot.py at 2019-03-09 16:32:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 261.66 Mbit/s
95th percentile per-packet one-way delay: 2.611 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 162.87 Mbit/s
95th percentile per-packet one-way delay: 2.805 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 111.59 Mbit/s
95th percentile per-packet one-way delay: 1.605 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 77.94 Mbit/s
95th percentile per-packet one-way delay: 1.158 ms
Loss rate: 0.00%
```

Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2019-03-09 15:01:52
End at: 2019-03-09 15:02:22
Local clock offset: 1.192 ms
Remote clock offset: 2.038 ms


# Below is generated by plot.py at 2019-03-09 16:32:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 259.73 Mbit/s
95th percentile per-packet one-way delay: 2.768 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 166.91 Mbit/s
95th percentile per-packet one-way delay: 2.922 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 99.73 Mbit/s
95th percentile per-packet one-way delay: 2.065 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 79.64 Mbit/s
95th percentile per-packet one-way delay: 1.646 ms
Loss rate: 0.00%
```
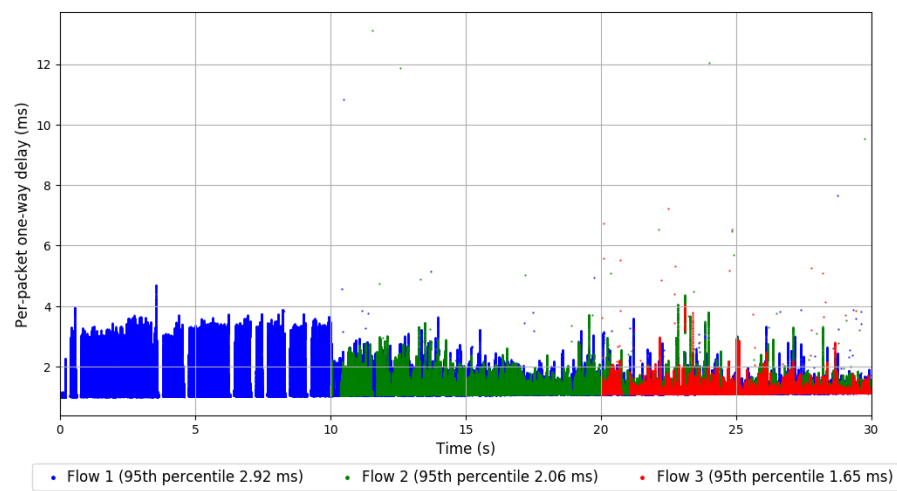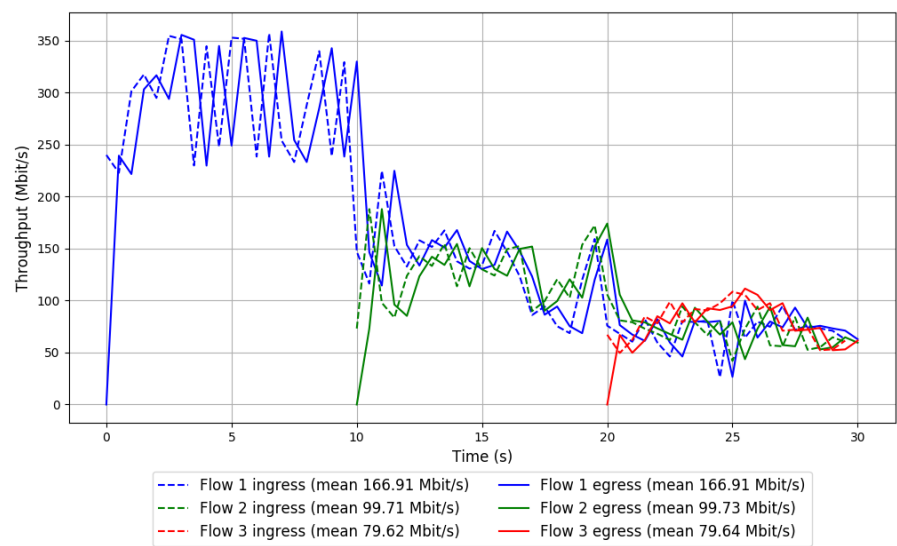
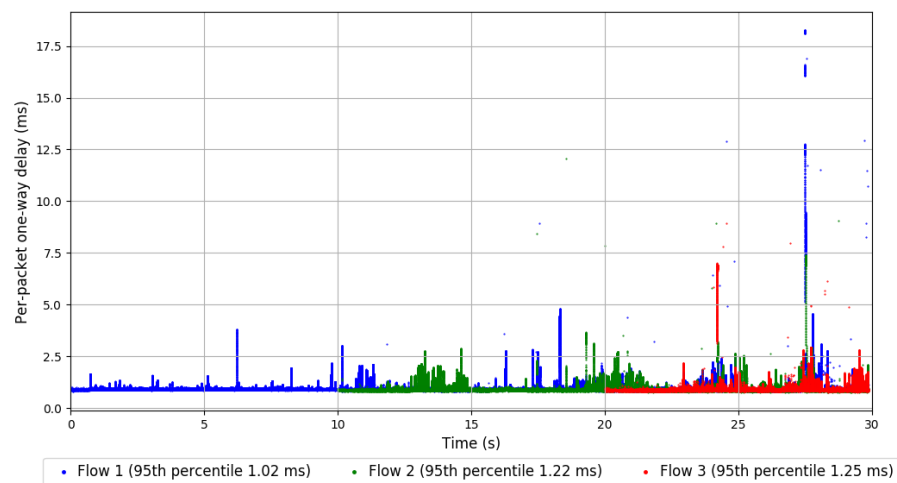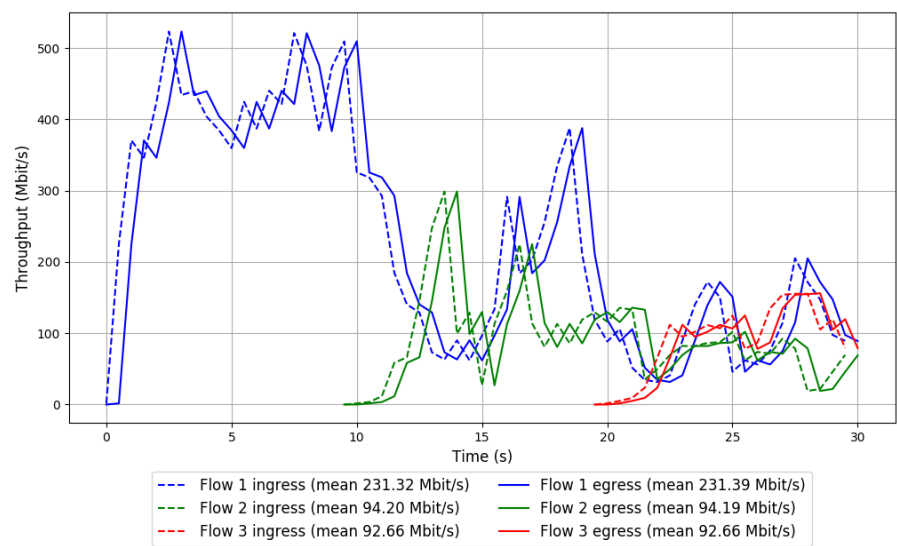## Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2019-03-09 13:01:41
End at: 2019-03-09 13:02:11
Local clock offset: 0.003 ms
Remote clock offset: -3.661 ms


# Below is generated by plot.py at 2019-03-09 16:33:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 324.64 Mbit/s
95th percentile per-packet one-way delay: 1.085 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 231.39 Mbit/s
95th percentile per-packet one-way delay: 1.025 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 94.19 Mbit/s
95th percentile per-packet one-way delay: 1.219 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 92.66 Mbit/s
95th percentile per-packet one-way delay: 1.255 ms
Loss rate: 0.01%
```

Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2019-03-09 13:32:08
End at: 2019-03-09 13:32:38
Local clock offset: 0.053 ms
Remote clock offset: 1.22 ms


# Below is generated by plot.py at 2019-03-09 16:33:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 291.42 Mbit/s
95th percentile per-packet one-way delay: 1.070 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 204.97 Mbit/s
95th percentile per-packet one-way delay: 1.045 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 92.88 Mbit/s
95th percentile per-packet one-way delay: 1.191 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 74.81 Mbit/s
95th percentile per-packet one-way delay: 1.225 ms
Loss rate: 0.02%
```
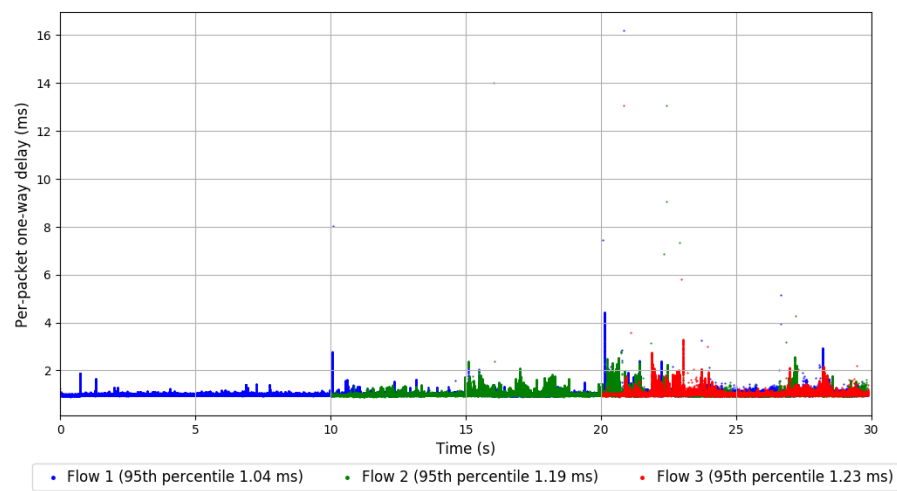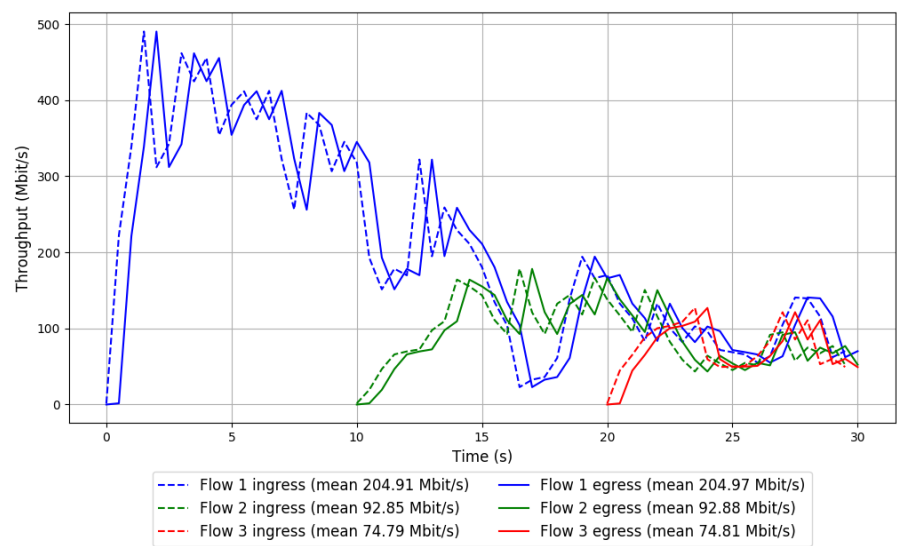
Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2019-03-09 14:02:25
End at: 2019-03-09 14:02:55
Local clock offset: -2.932 ms
Remote clock offset: 1.227 ms


# Below is generated by plot.py at 2019-03-09 16:33:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 304.20 Mbit/s
95th percentile per-packet one-way delay: 1.059 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 211.23 Mbit/s
95th percentile per-packet one-way delay: 1.009 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 102.46 Mbit/s
95th percentile per-packet one-way delay: 1.239 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 75.27 Mbit/s
95th percentile per-packet one-way delay: 1.189 ms
Loss rate: 0.02%
```

Run 3: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 211.22 Mbit/s) --- Flow 1 egress (mean 211.23 Mbit/s)
Flow 2 ingress (mean 102.46 Mbit/s) --- Flow 2 egress (mean 102.46 Mbit/s)
Flow 3 ingress (mean 75.24 Mbit/s) --- Flow 3 egress (mean 75.27 Mbit/s)

Flow 1 (95th percentile 1.01 ms) • Flow 2 (95th percentile 1.24 ms) • Flow 3 (95th percentile 1.19 ms)

```
Run 4: Statistics of PCC-Vivace

Start at: 2019-03-09 14:32:44
End at: 2019-03-09 14:33:14
Local clock offset: 0.113 ms
Remote clock offset: -1.835 ms


# Below is generated by plot.py at 2019-03-09 16:33:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 270.90 Mbit/s
95th percentile per-packet one-way delay: 0.936 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 171.82 Mbit/s
95th percentile per-packet one-way delay: 0.932 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 119.16 Mbit/s
95th percentile per-packet one-way delay: 0.944 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 60.16 Mbit/s
95th percentile per-packet one-way delay: 0.984 ms
Loss rate: 0.03%
```
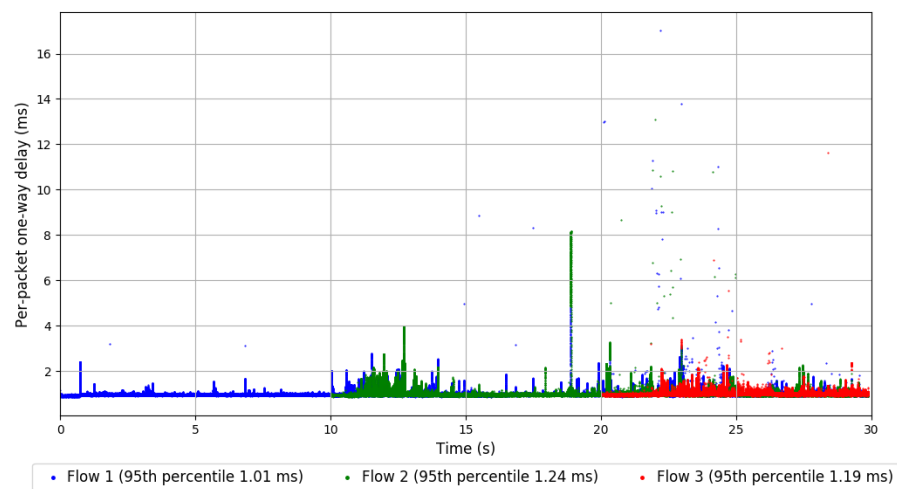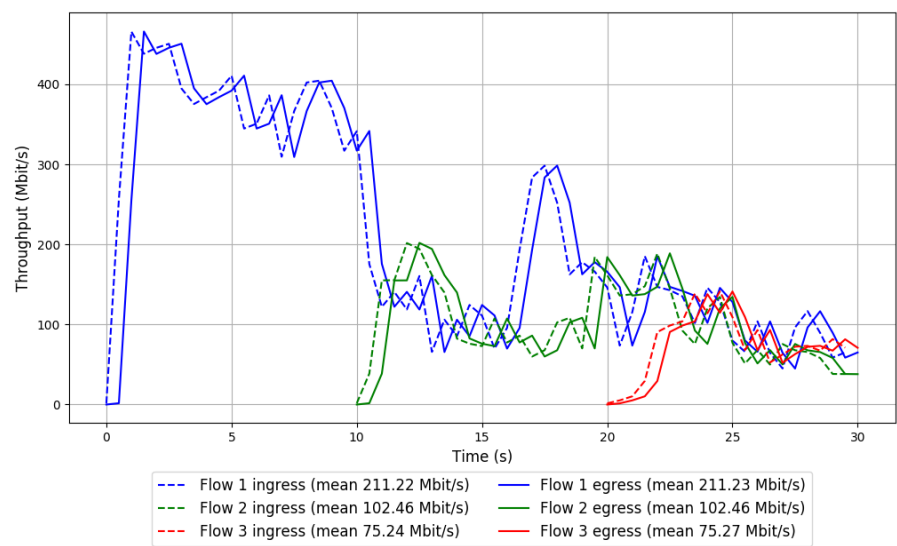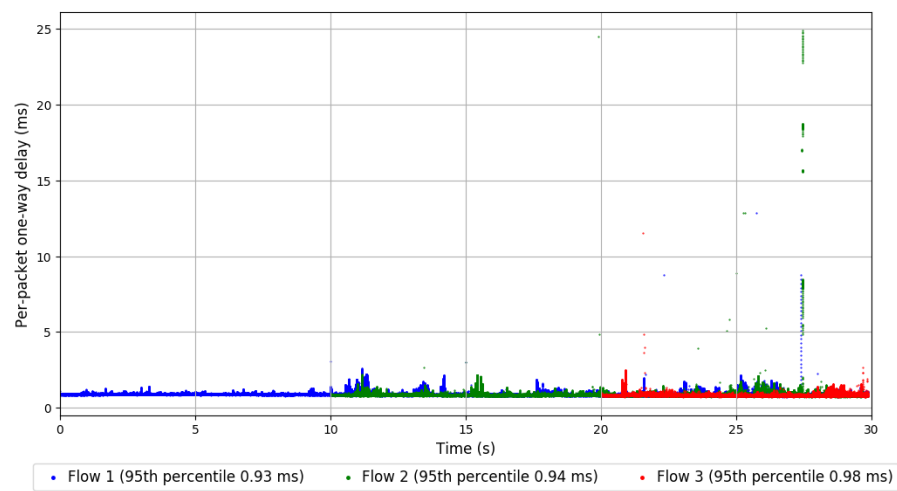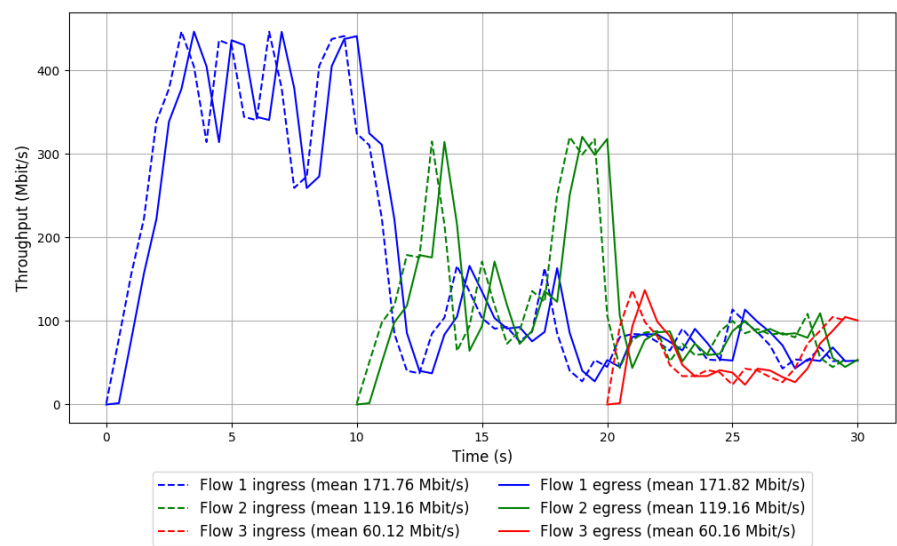
Run 4: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 171.76 Mbit/s) --- Flow 1 egress (mean 171.82 Mbit/s)
Flow 2 ingress (mean 119.16 Mbit/s) --- Flow 2 egress (mean 119.16 Mbit/s)
Flow 3 ingress (mean 60.12 Mbit/s) --- Flow 3 egress (mean 60.16 Mbit/s)

Flow 1 (95th percentile 0.93 ms) • Flow 2 (95th percentile 0.94 ms) • Flow 3 (95th percentile 0.98 ms)

```
Run 5: Statistics of PCC-Vivace

Start at: 2019-03-09 15:03:18
End at: 2019-03-09 15:03:48
Local clock offset: 1.226 ms
Remote clock offset: 2.494 ms


# Below is generated by plot.py at 2019-03-09 16:33:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 274.18 Mbit/s
95th percentile per-packet one-way delay: 1.100 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 176.49 Mbit/s
95th percentile per-packet one-way delay: 1.065 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 103.20 Mbit/s
95th percentile per-packet one-way delay: 1.202 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 88.18 Mbit/s
95th percentile per-packet one-way delay: 1.136 ms
Loss rate: 0.01%
```
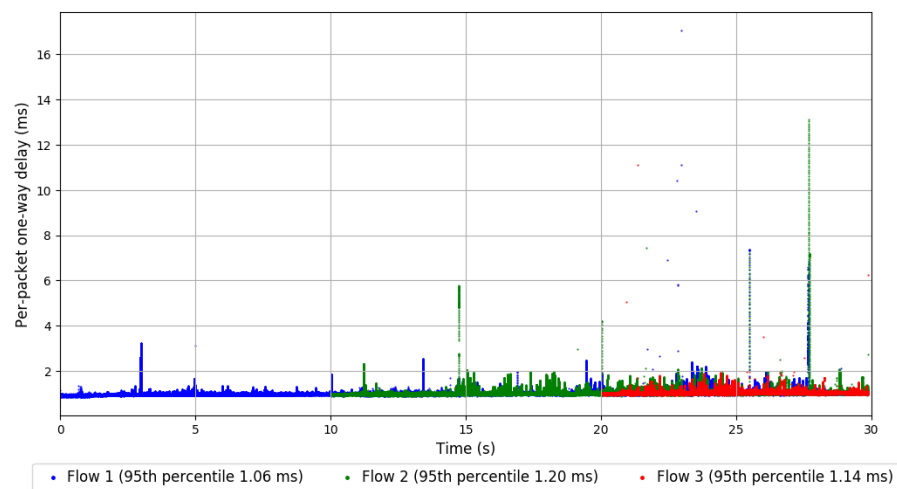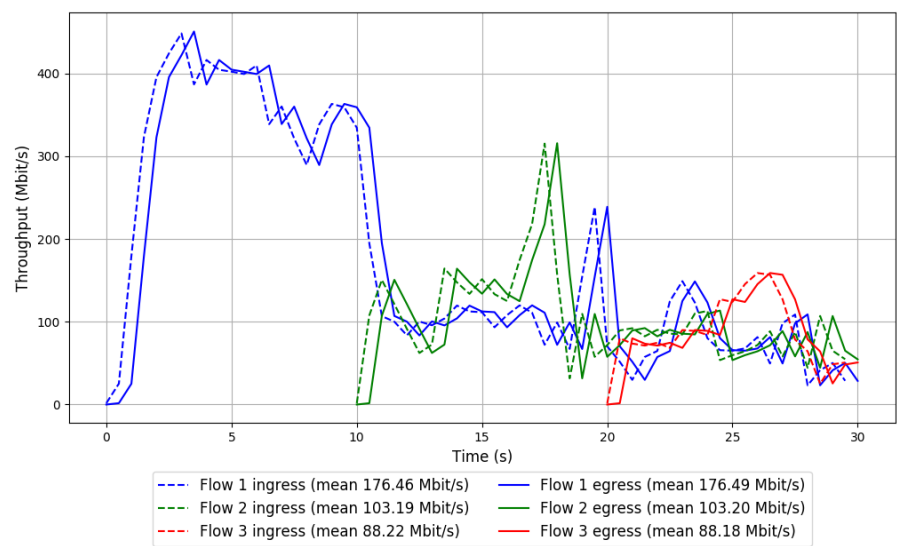
Run 5: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 176.46 Mbit/s) — Flow 1 egress (mean 176.49 Mbit/s)
Flow 2 ingress (mean 103.19 Mbit/s) — Flow 2 egress (mean 103.20 Mbit/s)
Flow 3 ingress (mean 88.22 Mbit/s) — Flow 3 egress (mean 88.18 Mbit/s)

Flow 1 (95th percentile 1.06 ms) — Flow 2 (95th percentile 1.20 ms) — Flow 3 (95th percentile 1.14 ms)
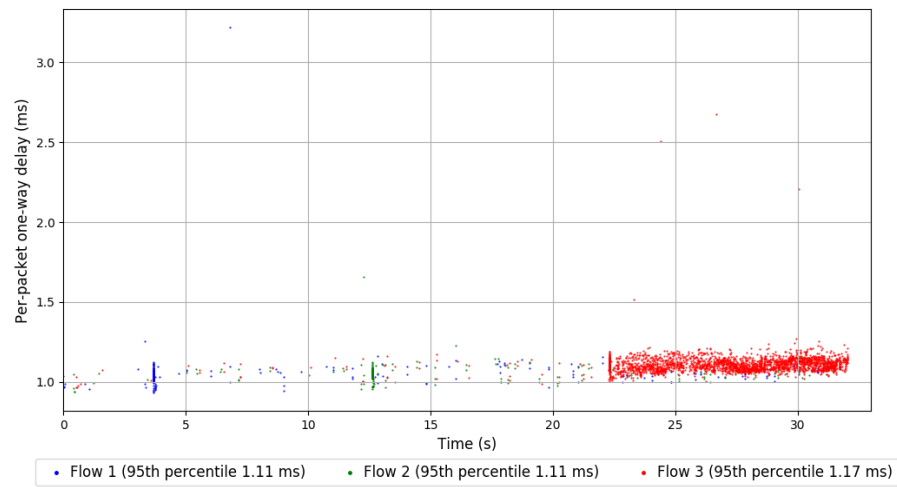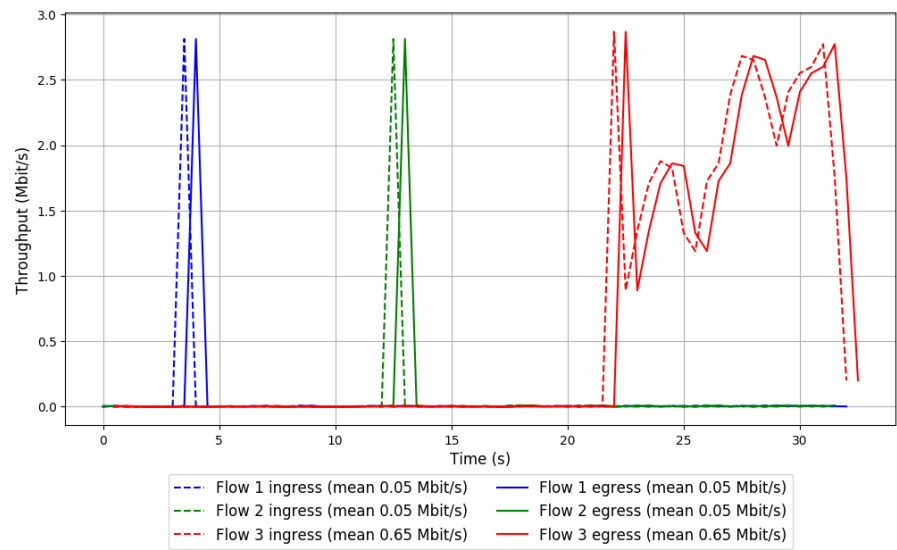
```
Run 1: Statistics of WebRTC media

Start at: 2019-03-09 13:20:52
End at: 2019-03-09 13:21:22
Local clock offset: 0.012 ms
Remote clock offset: -0.036 ms


# Below is generated by plot.py at 2019-03-09 16:33:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 1.168 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 1.115 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 1.113 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 1.172 ms
Loss rate: 0.00%
```

Run 1: Report of WebRTC media — Data Link

Flow 1 ingress (mean 0.05 Mbit/s) ⸺ Flow 1 egress (mean 0.05 Mbit/s)
Flow 2 ingress (mean 0.05 Mbit/s) ⸺ Flow 2 egress (mean 0.05 Mbit/s)
Flow 3 ingress (mean 0.65 Mbit/s) ⸺ Flow 3 egress (mean 0.65 Mbit/s)

Flow 1 (95th percentile 1.11 ms)   Flow 2 (95th percentile 1.11 ms)   Flow 3 (95th percentile 1.17 ms)

```
Run 2: Statistics of WebRTC media

Start at: 2019-03-09 13:51:10
End at: 2019-03-09 13:51:40
Local clock offset: -1.685 ms
Remote clock offset: 1.418 ms


# Below is generated by plot.py at 2019-03-09 16:33:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 1.120 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 1.098 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 1.093 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 1.162 ms
Loss rate: 0.00%
```
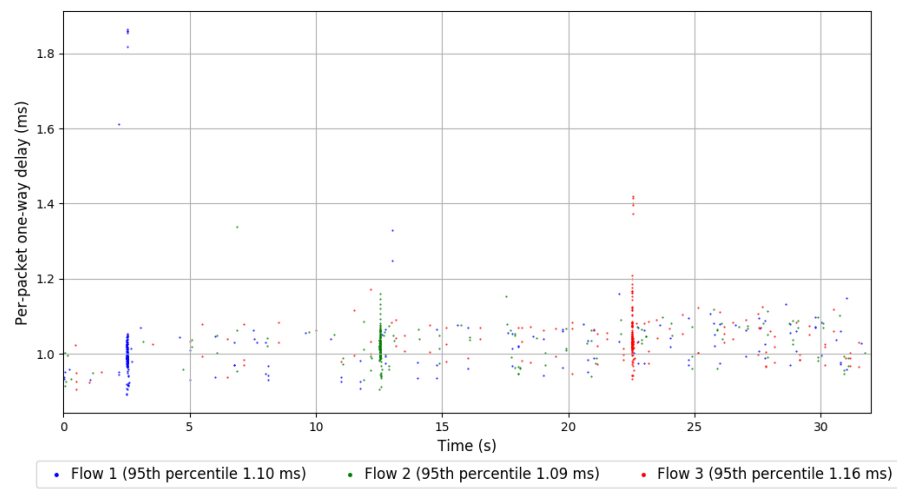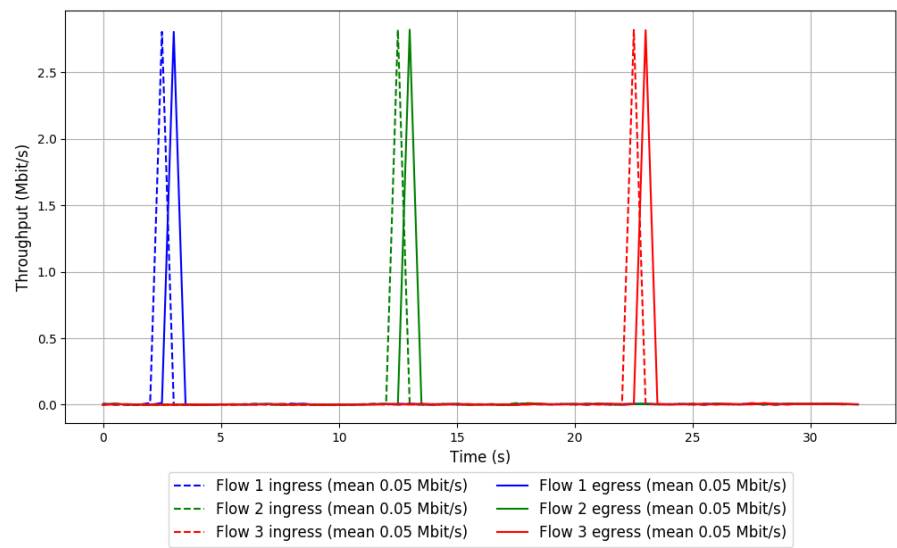
Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2019-03-09 14:21:27
End at: 2019-03-09 14:21:57
Local clock offset: -1.331 ms
Remote clock offset: -0.0 ms


# Below is generated by plot.py at 2019-03-09 16:33:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 0.830 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 0.889 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 0.805 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 0.779 ms
Loss rate: 0.00%
```
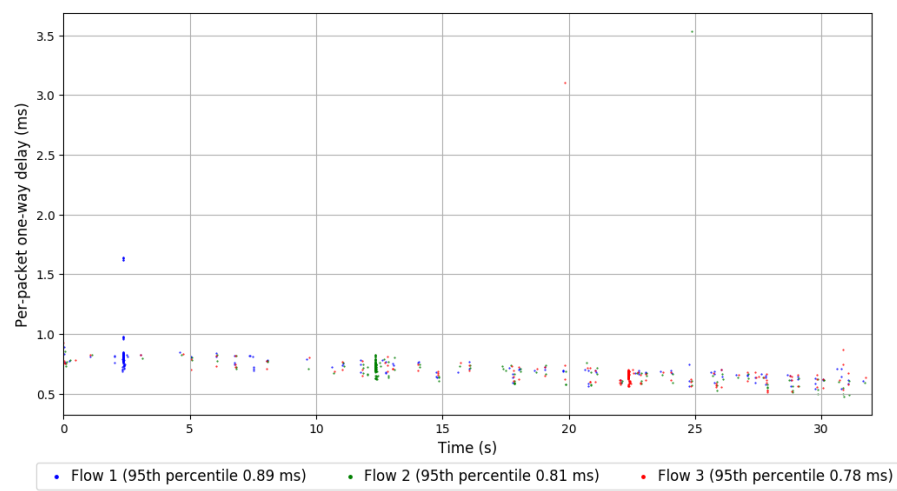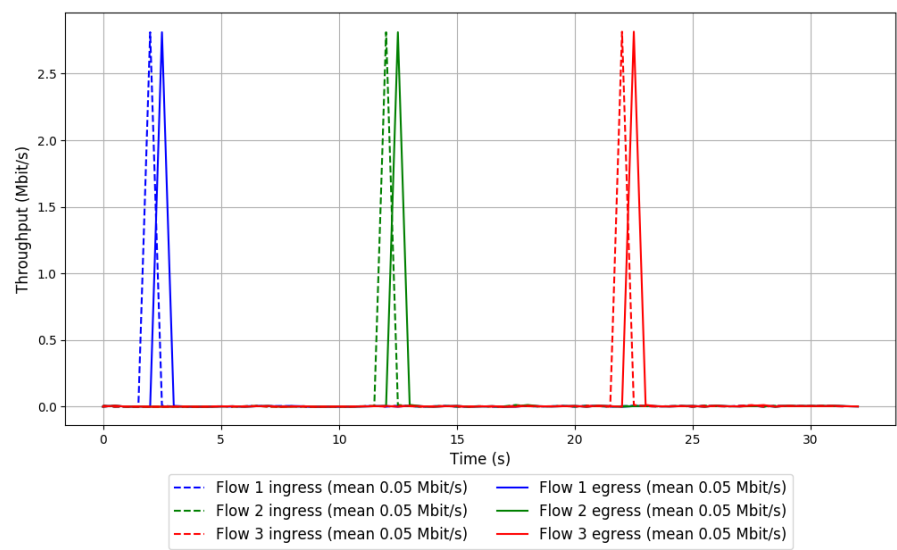
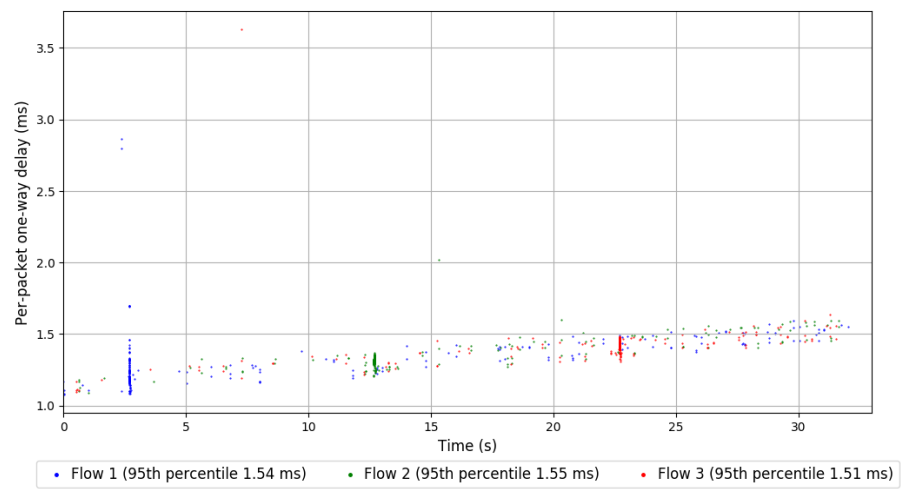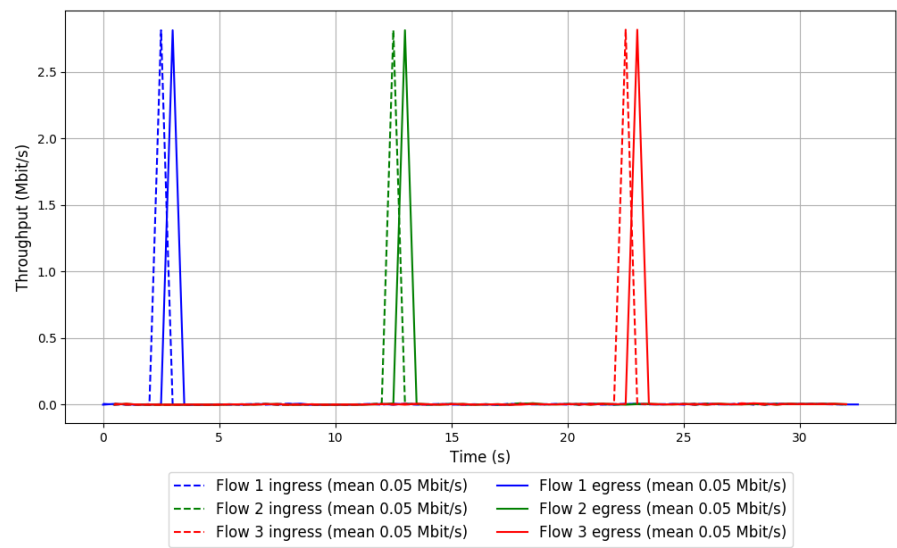Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2019-03-09 14:51:59
End at: 2019-03-09 14:52:29
Local clock offset: 0.915 ms
Remote clock offset: -2.771 ms


# Below is generated by plot.py at 2019-03-09 16:33:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 1.543 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 1.545 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 1.552 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 1.511 ms
Loss rate: 0.00%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2019-03-09 15:22:17
End at: 2019-03-09 15:22:47
Local clock offset: 0.737 ms
Remote clock offset: 4.953 ms


# Below is generated by plot.py at 2019-03-09 16:33:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 1.167 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 1.166 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 1.164 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 1.176 ms
Loss rate: 0.06%
```

Run 5: Report of WebRTC media — Data Link