# Pantheon Report

Generated at 2019-02-20 02:41:56 (UTC).

Data path: AWS California 2 on `ens5` (*local*) →Mexico on `em1` (*remote*).

Repeated the test of 21 congestion control schemes 5 times.

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

NTP offsets were measured against `time.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
```
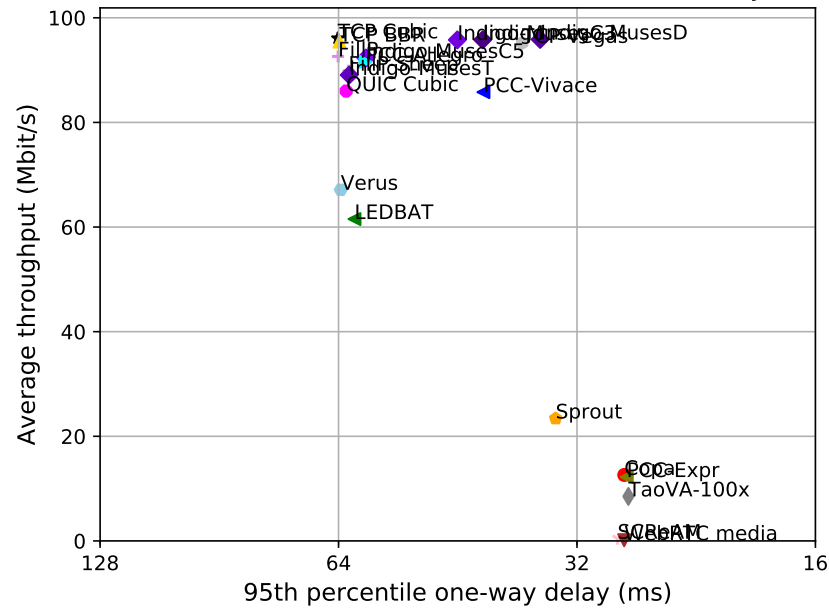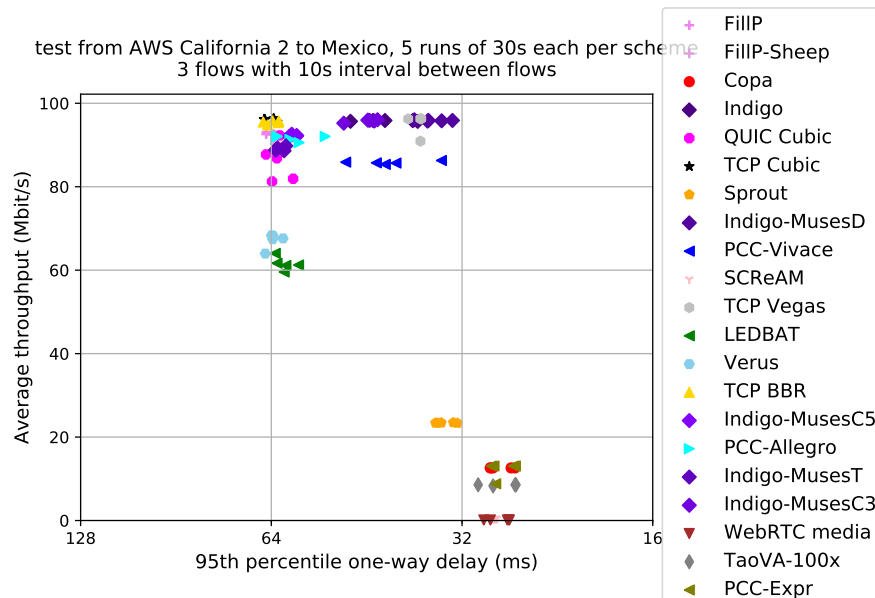
```
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

## test from AWS California 2 to Mexico, 5 runs of 30s each per scheme
## 3 flows with 10s interval between flows (mean of all runs by scheme)



## test from AWS California 2 to Mexico, 5 runs of 30s each per scheme
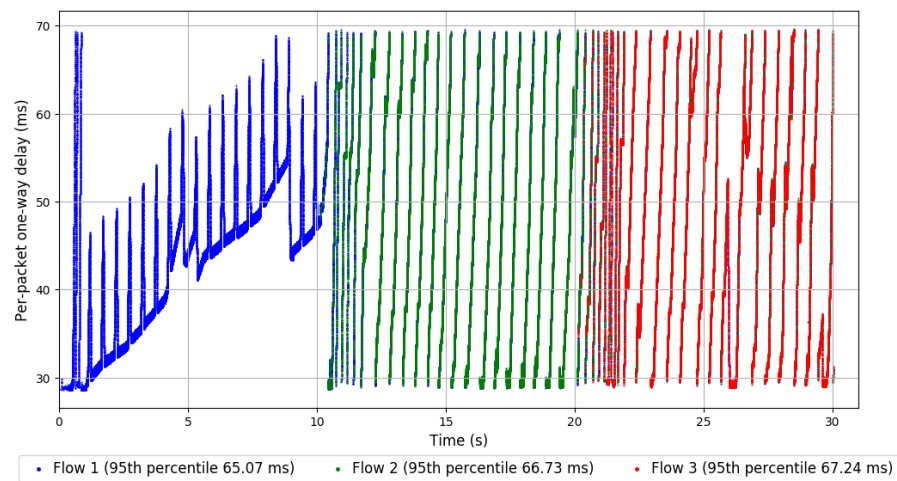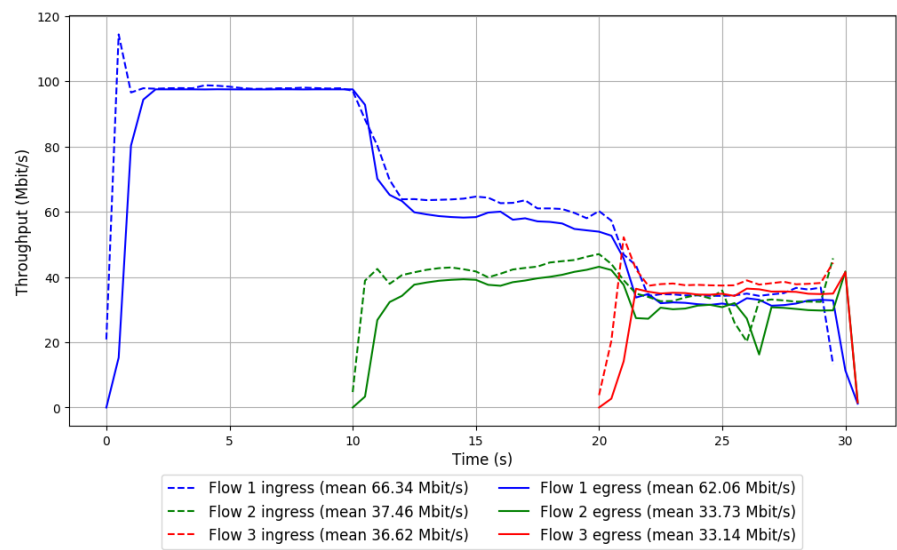## 3 flows with 10s interval between flows



3

| 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 | 62.51 | 34.01 | 32.46 | 62.90 | 64.75 | 65.42 | 6.51 | 10.33 | 12.52 |
| Copa | 5 | 9.28 | 5.00 | 0.02 | 27.98 | 27.70 | 27.89 | 71.01 | 77.08 | 91.86 |
| TCP Cubic | 5 | 72.77 | 22.49 | 25.03 | 63.93 | 65.42 | 57.75 | 0.80 | 0.58 | 0.58 |
| FillP | 5 | 57.66 | 41.47 | 22.47 | 62.60 | 65.15 | 65.05 | 29.76 | 47.63 | 55.09 |
| FillP-Sheep | 5 | 57.70 | 40.32 | 16.20 | 60.71 | 63.69 | 61.98 | 9.20 | 15.92 | 16.09 |
| Indigo | 5 | 67.27 | 26.61 | 33.34 | 39.15 | 44.25 | 48.95 | 0.03 | 0.11 | 0.26 |
| Indigo-MusesC3 | 5 | 52.51 | 50.40 | 35.09 | 41.33 | 45.15 | 53.85 | 0.35 | 0.62 | 2.49 |
| Indigo-MusesC5 | 5 | 58.29 | 50.75 | 3.29 | 57.69 | 60.51 | 60.85 | 10.99 | 17.72 | 26.20 |
| Indigo-MusesD | 5 | 55.92 | 44.68 | 36.51 | 34.74 | 35.28 | 38.03 | 0.02 | 0.00 | 0.02 |
| Indigo-MusesT | 5 | 60.38 | 42.48 | 3.45 | 60.49 | 63.68 | 62.65 | 22.60 | 38.41 | 31.38 |
| LEDBAT | 5 | 40.85 | 20.61 | 21.09 | 60.67 | 62.49 | 51.03 | 0.15 | 0.32 | 0.06 |
| PCC-Allegro | 5 | 80.70 | 11.32 | 10.16 | 58.56 | 61.01 | 63.24 | 3.21 | 4.18 | 7.43 |
| PCC-Expr | 5 | 6.55 | 6.21 | 4.65 | 27.65 | 27.70 | 27.73 | 52.75 | 35.70 | 31.67 |
| QUIC Cubic | 5 | 65.07 | 24.67 | 13.87 | 62.40 | 62.81 | 62.87 | 1.85 | 0.77 | 0.61 |
| SCReAM | 5 | 0.21 | 0.21 | 0.22 | 28.43 | 28.44 | 28.42 | 0.00 | 0.00 | 0.00 |
| Sprout | 5 | 11.78 | 11.74 | 11.55 | 33.55 | 34.22 | 35.14 | 0.02 | 0.01 | 0.00 |
| TaoVA-100x | 5 | 0.00 | 8.30 | 9.00 | 26.69 | 28.26 | 27.24 | 95.92 | 80.45 | 76.83 |
| TCP Vegas | 5 | 71.27 | 26.29 | 19.33 | 37.99 | 35.02 | 34.17 | 0.41 | 0.06 | 0.00 |
| Verus | 5 | 40.53 | 31.42 | 20.24 | 63.20 | 70.99 | 63.84 | 29.58 | 38.13 | 40.61 |
| PCC-Vivace | 5 | 65.59 | 22.97 | 14.88 | 38.48 | 44.82 | 47.66 | 0.03 | 0.04 | 0.05 |
| WebRTC media | 5 | 0.05 | 0.05 | 0.05 | 27.83 | 27.86 | 27.95 | 0.00 | 0.00 | 0.00 |

```
Run 1: Statistics of TCP BBR

Start at: 2019-02-20 00:29:52
End at: 2019-02-20 00:30:22
Local clock offset: -5.561 ms
Remote clock offset: -7.086 ms


# Below is generated by plot.py at 2019-02-20 02:31:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.51 Mbit/s
95th percentile per-packet one-way delay: 65.899 ms
Loss rate: 7.71%
-- Flow 1:
Average throughput: 62.06 Mbit/s
95th percentile per-packet one-way delay: 65.066 ms
Loss rate: 6.45%
-- Flow 2:
Average throughput: 33.73 Mbit/s
95th percentile per-packet one-way delay: 66.727 ms
Loss rate: 10.03%
-- Flow 3:
Average throughput: 33.14 Mbit/s
95th percentile per-packet one-way delay: 67.240 ms
Loss rate: 9.82%
```
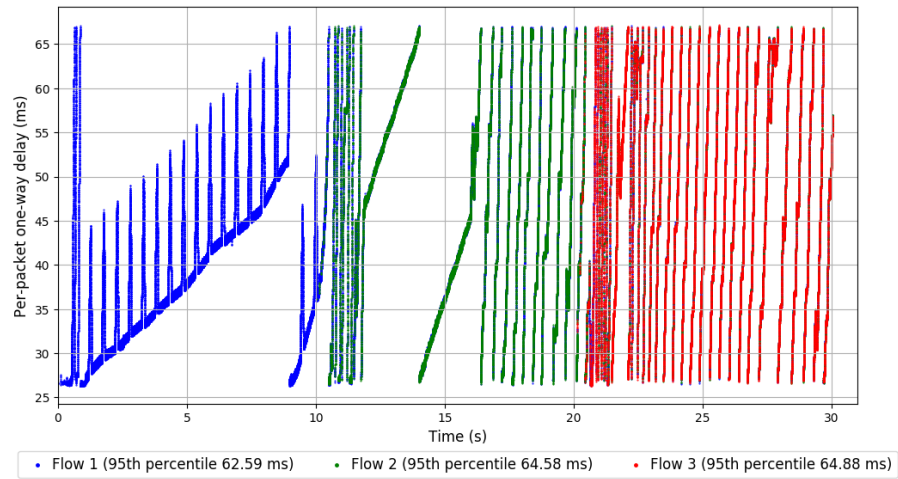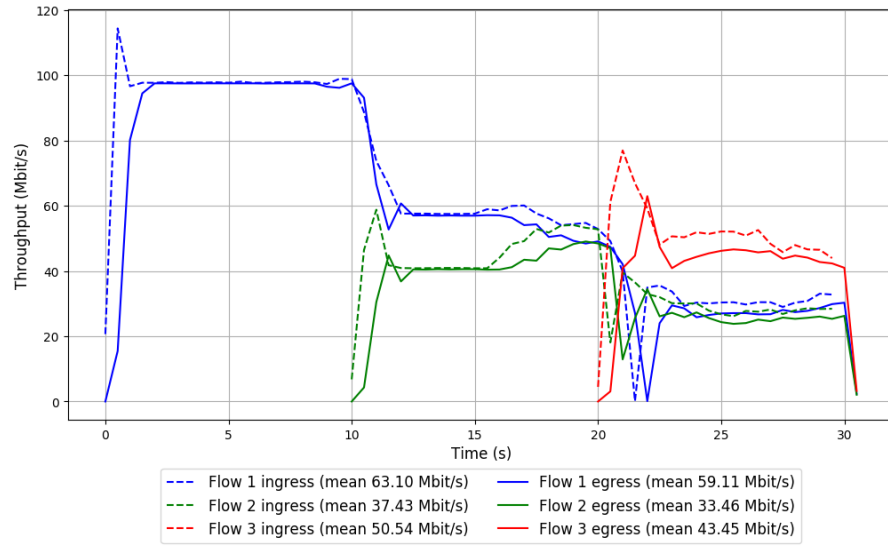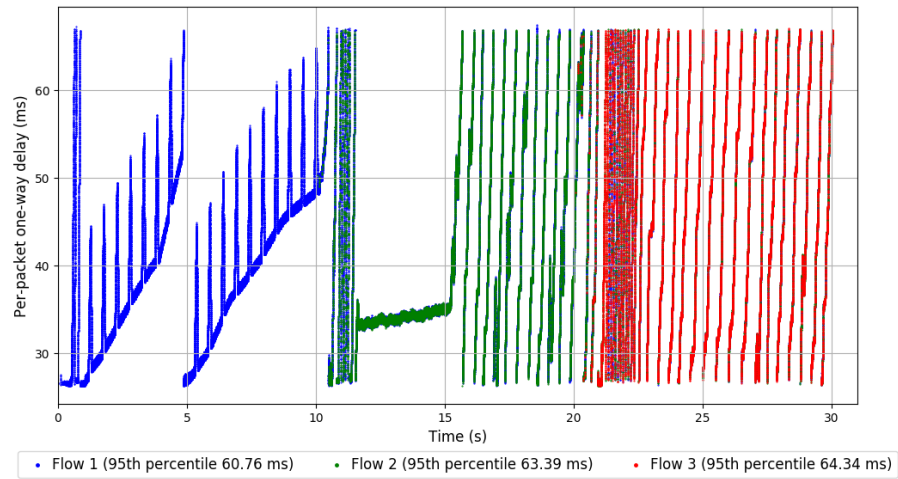
Run 1: Report of TCP BBR — Data Link



Flow 1 ingress (mean 66.34 Mbit/s)     Flow 1 egress (mean 62.06 Mbit/s)
Flow 2 ingress (mean 37.46 Mbit/s)     Flow 2 egress (mean 33.73 Mbit/s)
Flow 3 ingress (mean 36.62 Mbit/s)     Flow 3 egress (mean 33.14 Mbit/s)



Flow 1 (95th percentile 65.07 ms)     Flow 2 (95th percentile 66.73 ms)     Flow 3 (95th percentile 67.24 ms)

6

```
Run 2: Statistics of TCP BBR

Start at: 2019-02-20 00:55:46
End at: 2019-02-20 00:56:16
Local clock offset: 2.321 ms
Remote clock offset: -8.427 ms


# Below is generated by plot.py at 2019-02-20 02:31:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.82 Mbit/s
95th percentile per-packet one-way delay: 63.727 ms
Loss rate: 8.51%
-- Flow 1:
Average throughput: 59.11 Mbit/s
95th percentile per-packet one-way delay: 62.593 ms
Loss rate: 6.22%
-- Flow 2:
Average throughput: 33.46 Mbit/s
95th percentile per-packet one-way delay: 64.582 ms
Loss rate: 10.51%
-- Flow 3:
Average throughput: 43.45 Mbit/s
95th percentile per-packet one-way delay: 64.880 ms
Loss rate: 14.10%
```

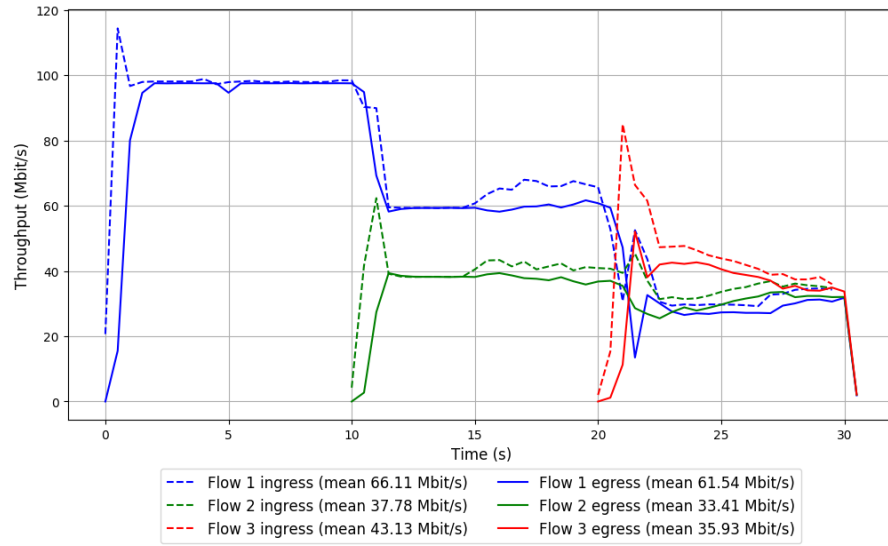Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2019-02-20 01:21:07
End at: 2019-02-20 01:21:37
Local clock offset: 1.109 ms
Remote clock offset: -6.607 ms


# Below is generated by plot.py at 2019-02-20 02:31:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.72 Mbit/s
95th percentile per-packet one-way delay: 62.278 ms
Loss rate: 9.30%
-- Flow 1:
Average throughput: 61.54 Mbit/s
95th percentile per-packet one-way delay: 60.756 ms
Loss rate: 6.84%
-- Flow 2:
Average throughput: 33.41 Mbit/s
95th percentile per-packet one-way delay: 63.390 ms
Loss rate: 11.57%
-- Flow 3:
Average throughput: 35.93 Mbit/s
95th percentile per-packet one-way delay: 64.341 ms
Loss rate: 16.67%
```
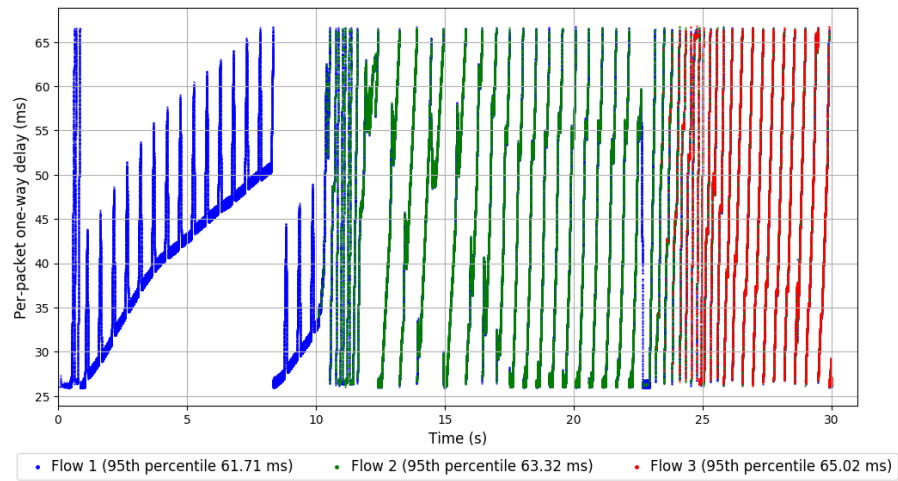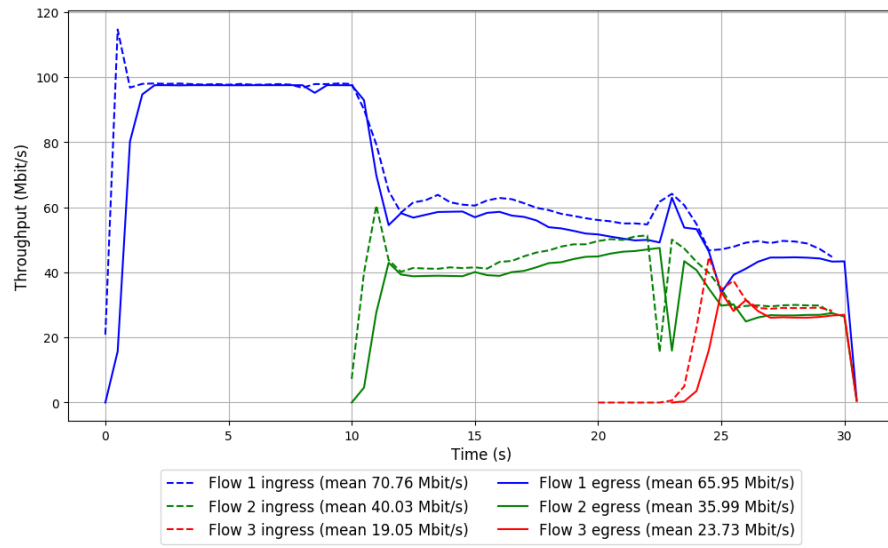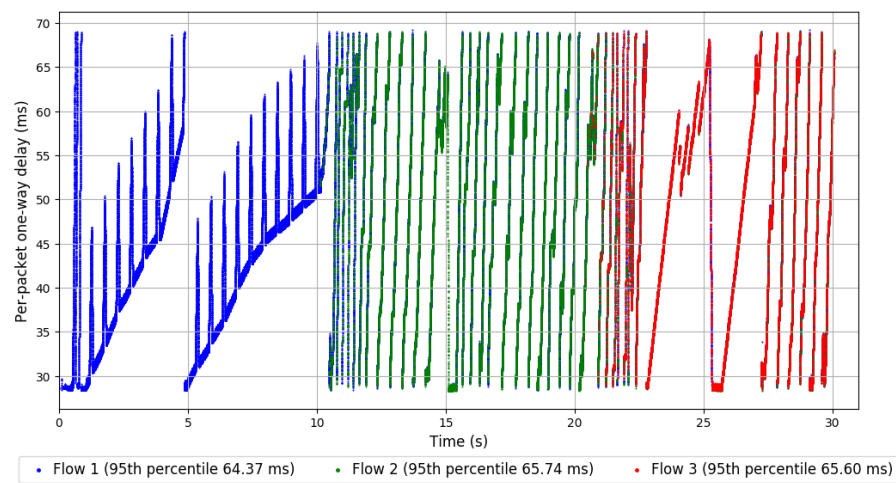
Run 3: Report of TCP BBR — Data Link



Flow 1 ingress (mean 66.11 Mbit/s) ----  Flow 1 egress (mean 61.54 Mbit/s) ——
Flow 2 ingress (mean 37.78 Mbit/s) ----  Flow 2 egress (mean 33.41 Mbit/s) ——
Flow 3 ingress (mean 43.13 Mbit/s) ----  Flow 3 egress (mean 35.93 Mbit/s) ——



· Flow 1 (95th percentile 60.76 ms)    · Flow 2 (95th percentile 63.39 ms)    · Flow 3 (95th percentile 64.34 ms)

```
Run 4: Statistics of TCP BBR

Start at: 2019-02-20 01:46:43
End at: 2019-02-20 01:47:13
Local clock offset: 0.591 ms
Remote clock offset: -5.568 ms


# Below is generated by plot.py at 2019-02-20 02:31:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.36 Mbit/s
95th percentile per-packet one-way delay: 62.428 ms
Loss rate: 8.09%
-- Flow 1:
Average throughput: 65.95 Mbit/s
95th percentile per-packet one-way delay: 61.714 ms
Loss rate: 6.80%
-- Flow 2:
Average throughput: 35.99 Mbit/s
95th percentile per-packet one-way delay: 63.320 ms
Loss rate: 10.13%
-- Flow 3:
Average throughput: 23.73 Mbit/s
95th percentile per-packet one-way delay: 65.023 ms
Loss rate: 13.90%
```

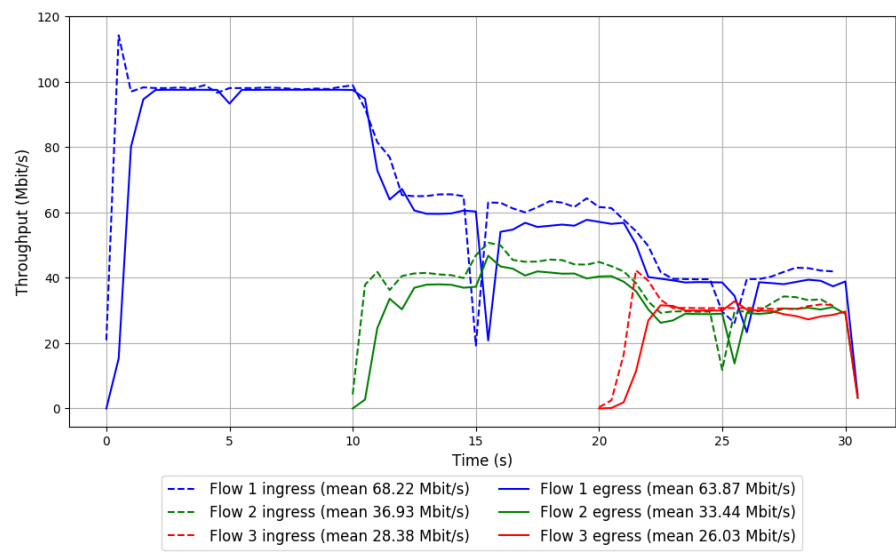Run 4: Report of TCP BBR — Data Link

```
Run 5: Statistics of TCP BBR

Start at: 2019-02-20 02:11:59
End at: 2019-02-20 02:12:29
Local clock offset: 0.429 ms
Remote clock offset: -2.055 ms


# Below is generated by plot.py at 2019-02-20 02:31:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.80 Mbit/s
95th percentile per-packet one-way delay: 64.870 ms
Loss rate: 7.19%
-- Flow 1:
Average throughput: 63.87 Mbit/s
95th percentile per-packet one-way delay: 64.371 ms
Loss rate: 6.26%
-- Flow 2:
Average throughput: 33.44 Mbit/s
95th percentile per-packet one-way delay: 65.744 ms
Loss rate: 9.40%
-- Flow 3:
Average throughput: 26.03 Mbit/s
95th percentile per-packet one-way delay: 65.598 ms
Loss rate: 8.11%
```
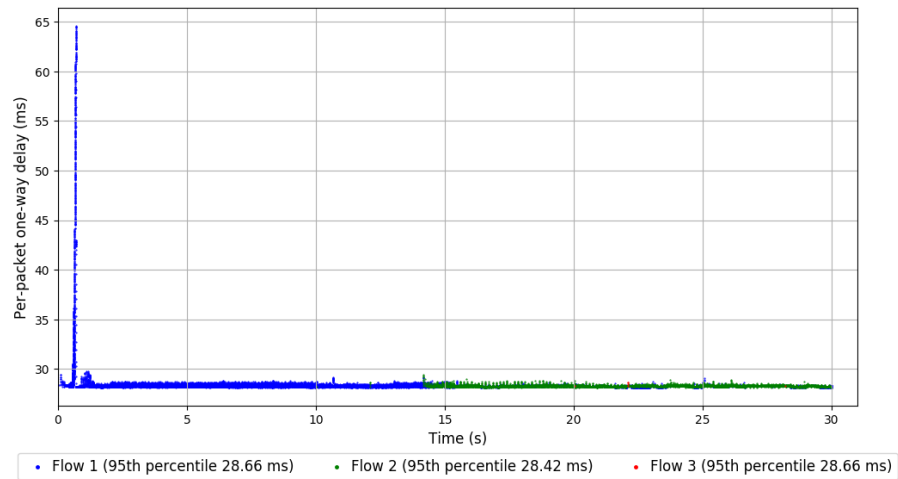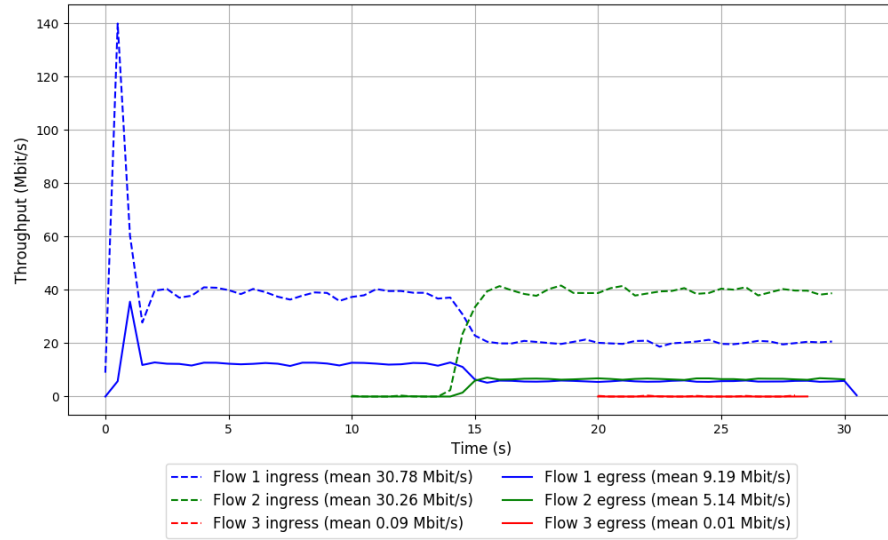
Run 5: Report of TCP BBR — Data Link



Flow 1 ingress (mean 68.22 Mbit/s)    Flow 1 egress (mean 63.87 Mbit/s)
Flow 2 ingress (mean 36.93 Mbit/s)    Flow 2 egress (mean 33.44 Mbit/s)
Flow 3 ingress (mean 28.38 Mbit/s)    Flow 3 egress (mean 26.03 Mbit/s)



Flow 1 (95th percentile 64.37 ms)    Flow 2 (95th percentile 65.74 ms)    Flow 3 (95th percentile 65.60 ms)
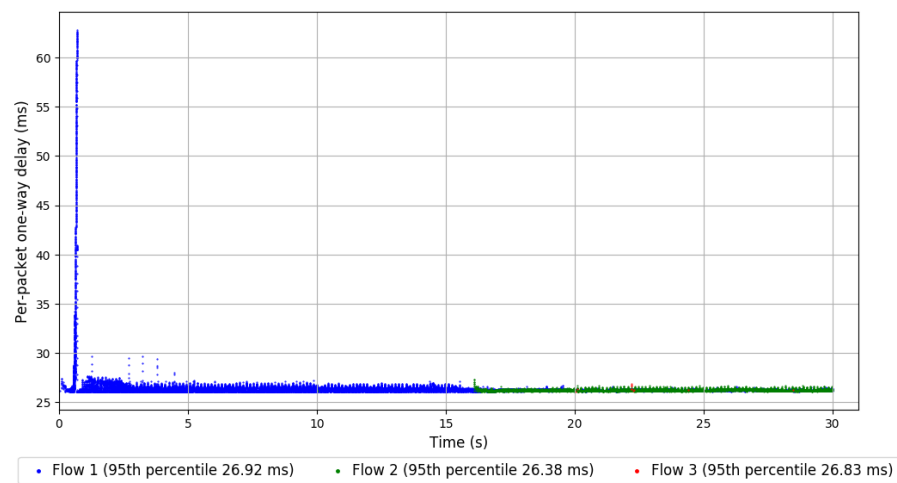
14

```
Run 1: Statistics of Copa

Start at: 2019-02-20 00:24:51
End at: 2019-02-20 00:25:21
Local clock offset: -5.348 ms
Remote clock offset: -7.339 ms


# Below is generated by plot.py at 2019-02-20 02:31:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 28.592 ms
Loss rate: 75.24%
-- Flow 1:
Average throughput: 9.19 Mbit/s
95th percentile per-packet one-way delay: 28.658 ms
Loss rate: 70.14%
-- Flow 2:
Average throughput: 5.14 Mbit/s
95th percentile per-packet one-way delay: 28.418 ms
Loss rate: 83.01%
-- Flow 3:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 28.656 ms
Loss rate: 91.81%
```
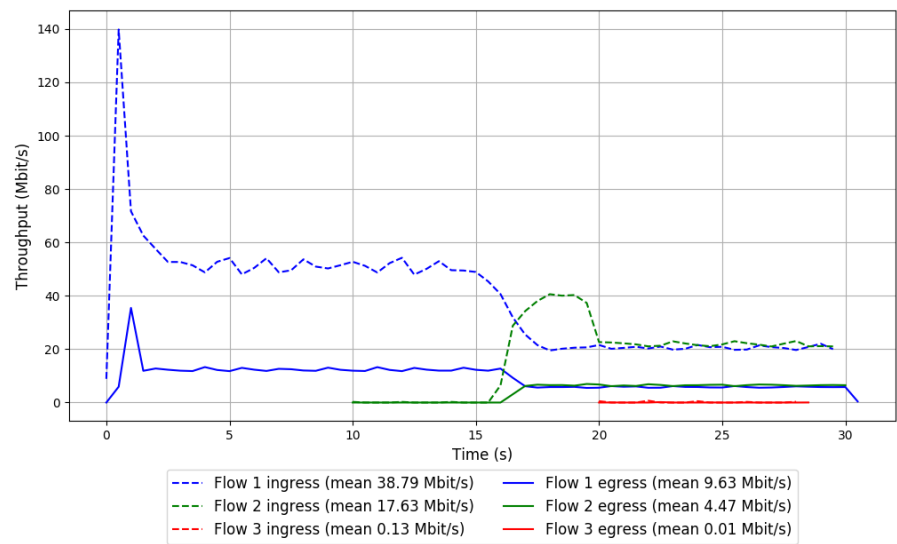
Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2019-02-20 00:50:55
End at: 2019-02-20 00:51:25
Local clock offset: 1.732 ms
Remote clock offset: -8.857 ms


# Below is generated by plot.py at 2019-02-20 02:31:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 26.777 ms
Loss rate: 75.05%
-- Flow 1:
Average throughput: 9.63 Mbit/s
95th percentile per-packet one-way delay: 26.922 ms
Loss rate: 75.17%
-- Flow 2:
Average throughput: 4.47 Mbit/s
95th percentile per-packet one-way delay: 26.378 ms
Loss rate: 74.62%
-- Flow 3:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 26.827 ms
Loss rate: 89.05%
```
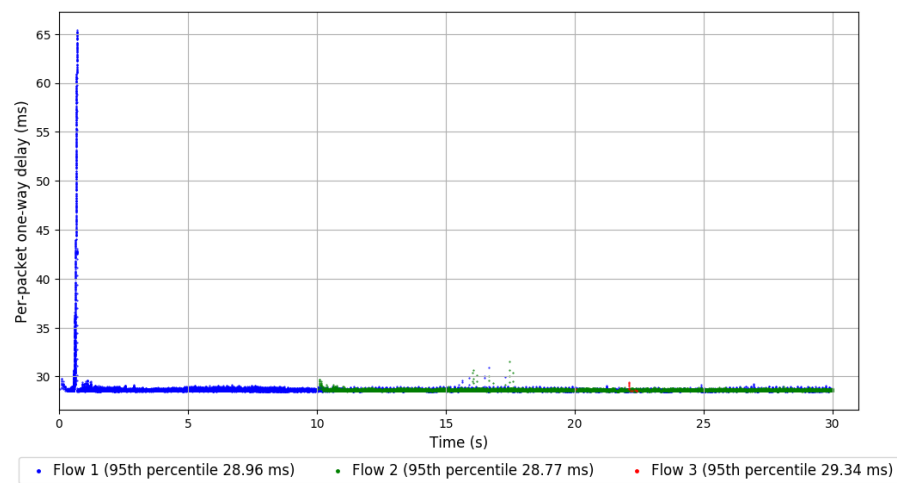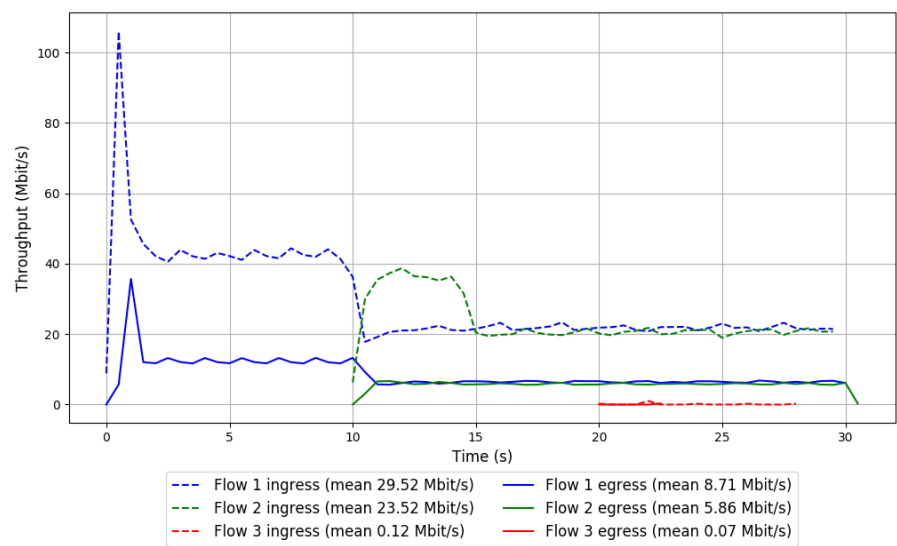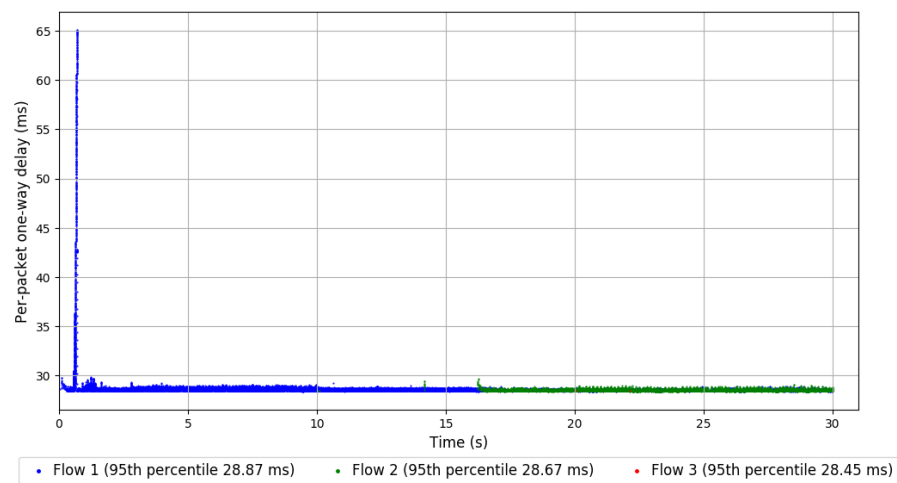
Run 2: Report of Copa — Data Link



Flow 1 ingress (mean 38.79 Mbit/s) --- Flow 1 egress (mean 9.63 Mbit/s)
Flow 2 ingress (mean 17.63 Mbit/s) --- Flow 2 egress (mean 4.47 Mbit/s)
Flow 3 ingress (mean 0.13 Mbit/s) --- Flow 3 egress (mean 0.01 Mbit/s)



Flow 1 (95th percentile 26.92 ms)    Flow 2 (95th percentile 26.38 ms)    Flow 3 (95th percentile 26.83 ms)

```
Run 3: Statistics of Copa

Start at: 2019-02-20 01:16:18
End at: 2019-02-20 01:16:48
Local clock offset: 1.128 ms
Remote clock offset: -4.58 ms


# Below is generated by plot.py at 2019-02-20 02:31:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 28.885 ms
Loss rate: 72.09%
-- Flow 1:
Average throughput: 8.71 Mbit/s
95th percentile per-packet one-way delay: 28.961 ms
Loss rate: 70.50%
-- Flow 2:
Average throughput: 5.86 Mbit/s
95th percentile per-packet one-way delay: 28.765 ms
Loss rate: 75.07%
-- Flow 3:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 29.339 ms
Loss rate: 84.06%
```
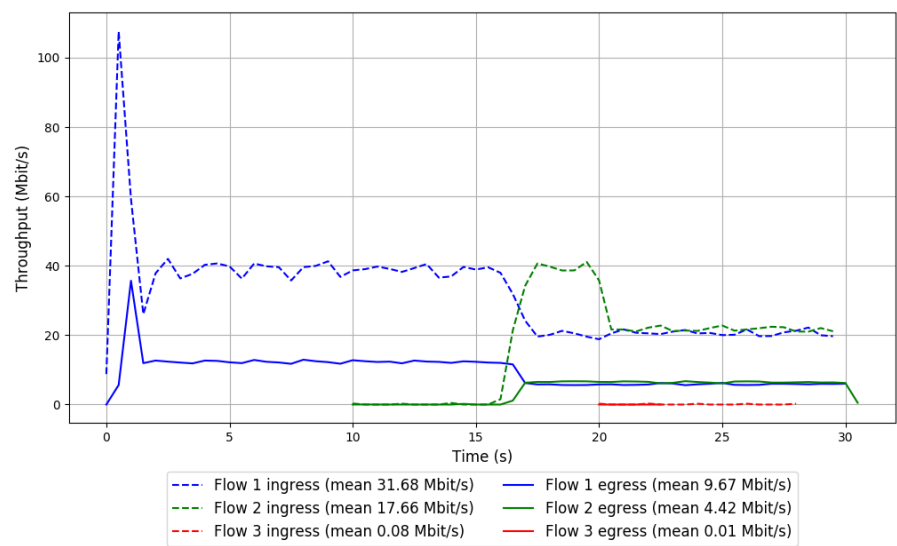
Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2019-02-20 01:41:54
End at: 2019-02-20 01:42:24
Local clock offset: 0.59 ms
Remote clock offset: -3.434 ms


# Below is generated by plot.py at 2019-02-20 02:31:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 28.812 ms
Loss rate: 70.97%
-- Flow 1:
Average throughput: 9.67 Mbit/s
95th percentile per-packet one-way delay: 28.874 ms
Loss rate: 69.47%
-- Flow 2:
Average throughput: 4.42 Mbit/s
95th percentile per-packet one-way delay: 28.673 ms
Loss rate: 74.97%
-- Flow 3:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 28.445 ms
Loss rate: 97.92%
```
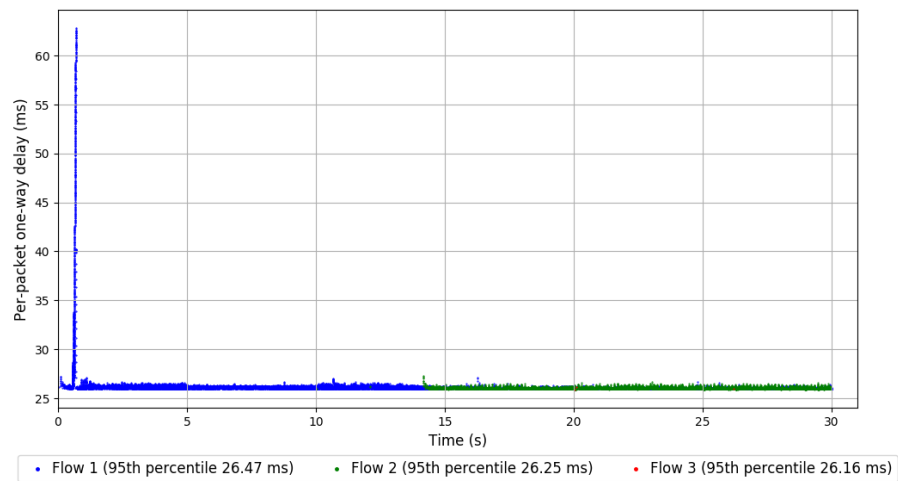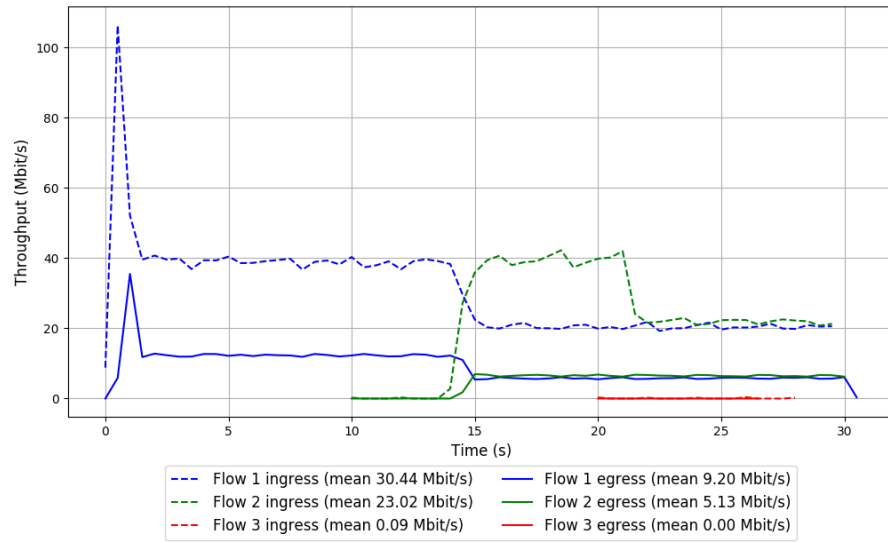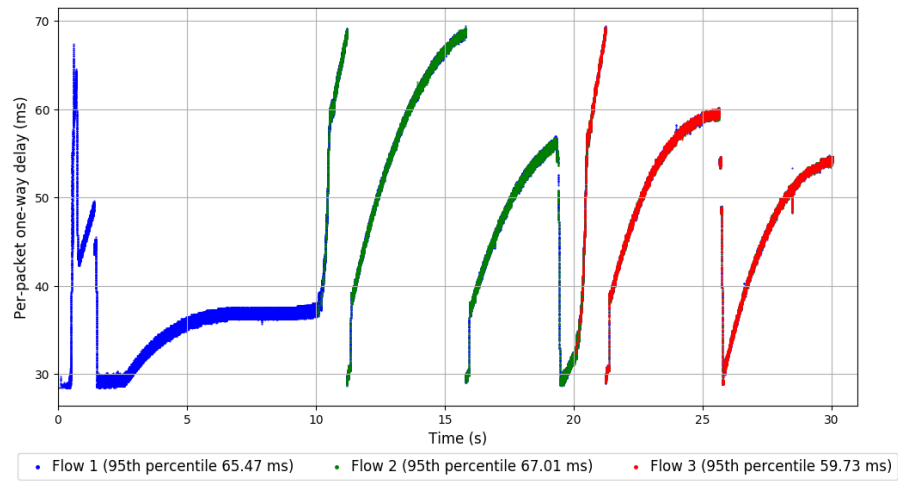
Run 4: Report of Copa — Data Link



Flow 1 ingress (mean 31.68 Mbit/s) — Flow 1 egress (mean 9.67 Mbit/s)
Flow 2 ingress (mean 17.66 Mbit/s) — Flow 2 egress (mean 4.42 Mbit/s)
Flow 3 ingress (mean 0.08 Mbit/s) — Flow 3 egress (mean 0.01 Mbit/s)



Flow 1 (95th percentile 28.87 ms)   Flow 2 (95th percentile 28.67 ms)   Flow 3 (95th percentile 28.45 ms)

```
Run 5: Statistics of Copa

Start at: 2019-02-20 02:07:10
End at: 2019-02-20 02:07:40
Local clock offset: 0.487 ms
Remote clock offset: -4.621 ms


# Below is generated by plot.py at 2019-02-20 02:31:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 26.390 ms
Loss rate: 72.44%
-- Flow 1:
Average throughput: 9.20 Mbit/s
95th percentile per-packet one-way delay: 26.469 ms
Loss rate: 69.78%
-- Flow 2:
Average throughput: 5.13 Mbit/s
95th percentile per-packet one-way delay: 26.253 ms
Loss rate: 77.72%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 26.158 ms
Loss rate: 96.47%
```
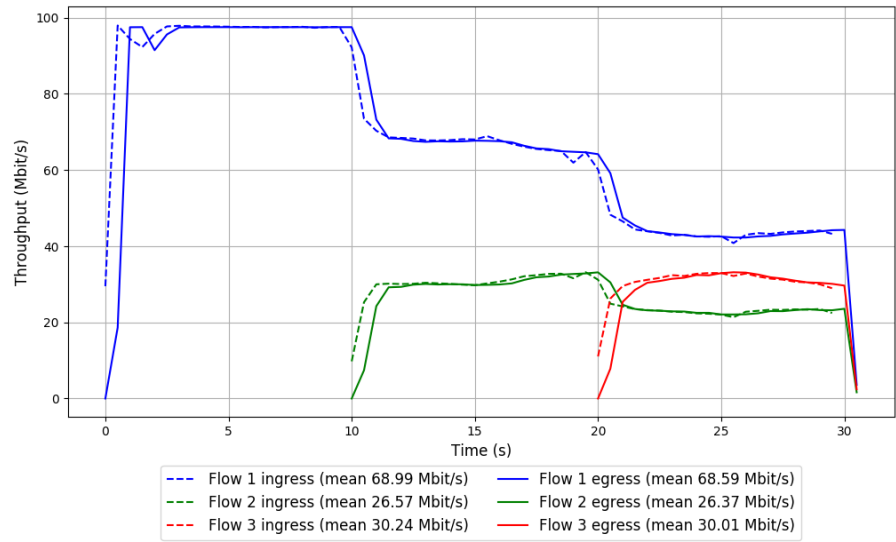
Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2019-02-20 00:32:21
End at: 2019-02-20 00:32:51
Local clock offset: -4.021 ms
Remote clock offset: -7.294 ms


# Below is generated by plot.py at 2019-02-20 02:31:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.17 Mbit/s
95th percentile per-packet one-way delay: 65.698 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 68.59 Mbit/s
95th percentile per-packet one-way delay: 65.473 ms
Loss rate: 0.49%
-- Flow 2:
Average throughput: 26.37 Mbit/s
95th percentile per-packet one-way delay: 67.012 ms
Loss rate: 0.64%
-- Flow 3:
Average throughput: 30.01 Mbit/s
95th percentile per-packet one-way delay: 59.730 ms
Loss rate: 0.56%
```
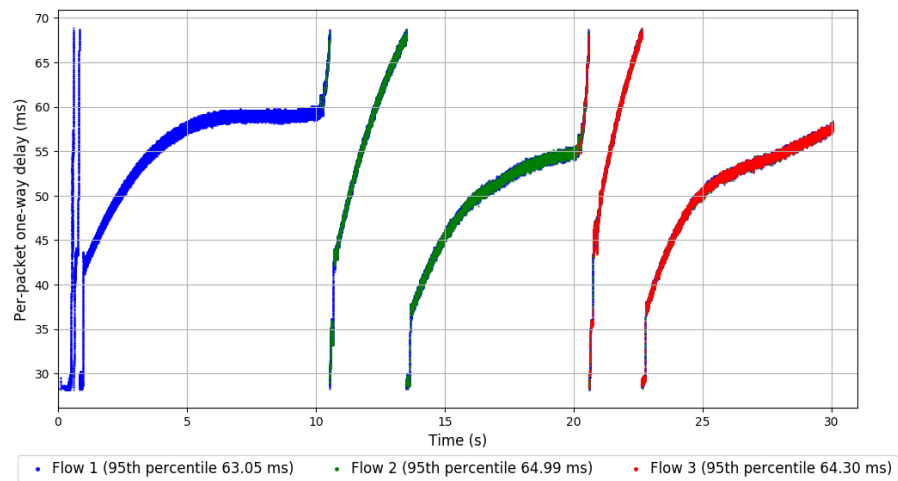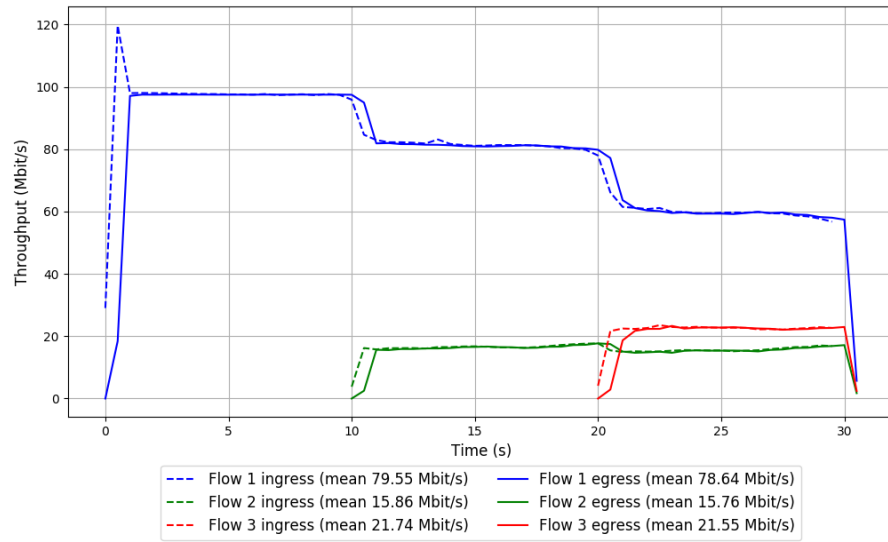
Run 1: Report of TCP Cubic — Data Link



- - - Flow 1 ingress (mean 68.99 Mbit/s) ——— Flow 1 egress (mean 68.59 Mbit/s)
- - - Flow 2 ingress (mean 26.57 Mbit/s) ——— Flow 2 egress (mean 26.37 Mbit/s)
- - - Flow 3 ingress (mean 30.24 Mbit/s) ——— Flow 3 egress (mean 30.01 Mbit/s)



• Flow 1 (95th percentile 65.47 ms)  • Flow 2 (95th percentile 67.01 ms)  • Flow 3 (95th percentile 59.73 ms)
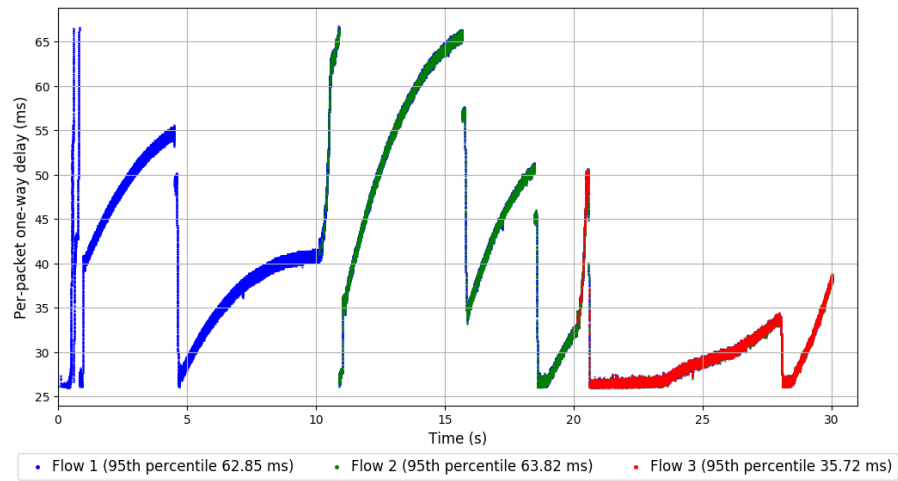
```
Run 2: Statistics of TCP Cubic

Start at: 2019-02-20 00:58:12
End at: 2019-02-20 00:58:42
Local clock offset: 2.601 ms
Remote clock offset: -6.39 ms


# Below is generated by plot.py at 2019-02-20 02:31:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.29 Mbit/s
95th percentile per-packet one-way delay: 63.505 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 78.64 Mbit/s
95th percentile per-packet one-way delay: 63.046 ms
Loss rate: 1.04%
-- Flow 2:
Average throughput: 15.76 Mbit/s
95th percentile per-packet one-way delay: 64.986 ms
Loss rate: 0.65%
-- Flow 3:
Average throughput: 21.55 Mbit/s
95th percentile per-packet one-way delay: 64.298 ms
Loss rate: 0.88%
```

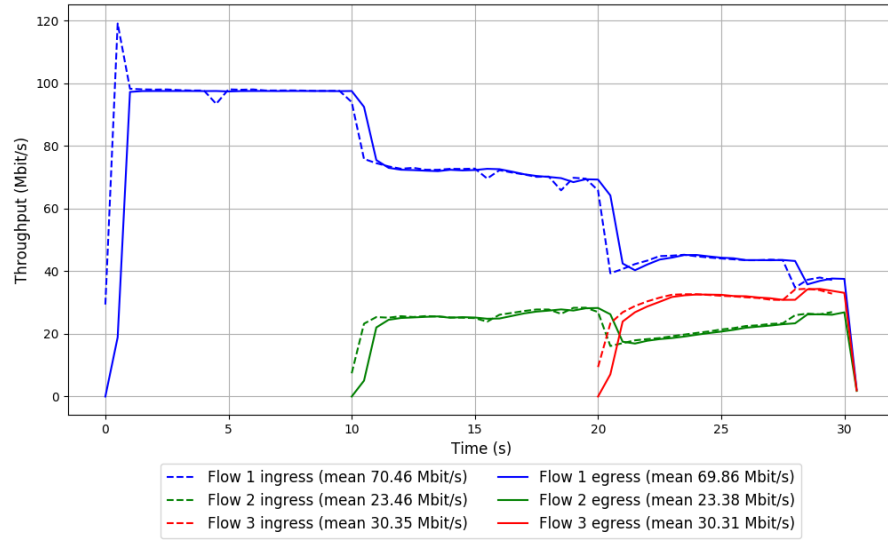Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2019-02-20 01:23:32
End at: 2019-02-20 01:24:02
Local clock offset: 1.144 ms
Remote clock offset: -6.754 ms


# Below is generated by plot.py at 2019-02-20 02:31:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.50 Mbit/s
95th percentile per-packet one-way delay: 62.657 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 69.86 Mbit/s
95th percentile per-packet one-way delay: 62.846 ms
Loss rate: 0.82%
-- Flow 2:
Average throughput: 23.38 Mbit/s
95th percentile per-packet one-way delay: 63.816 ms
Loss rate: 0.35%
-- Flow 3:
Average throughput: 30.31 Mbit/s
95th percentile per-packet one-way delay: 35.722 ms
Loss rate: 0.06%
```
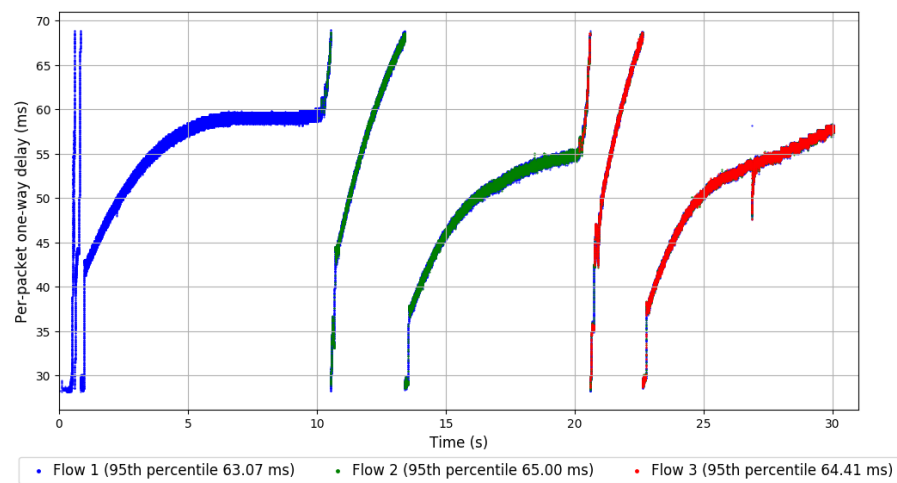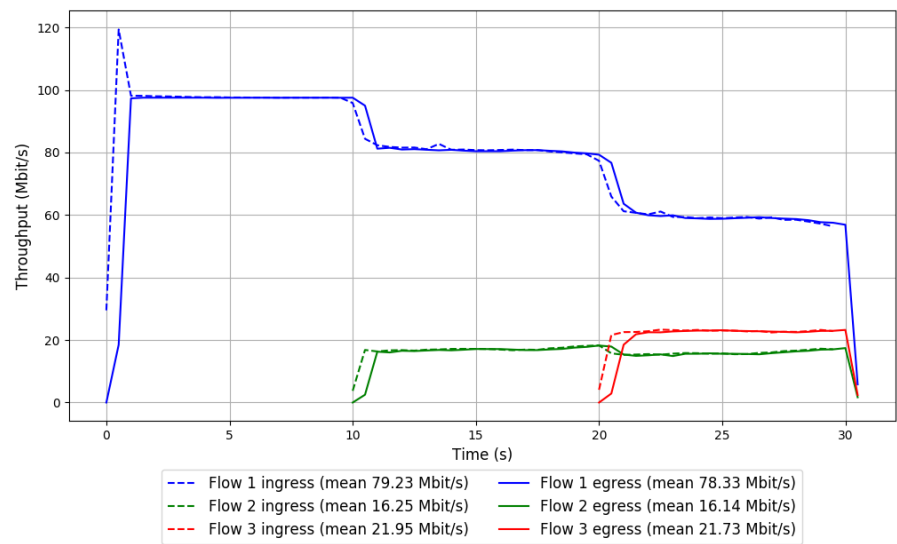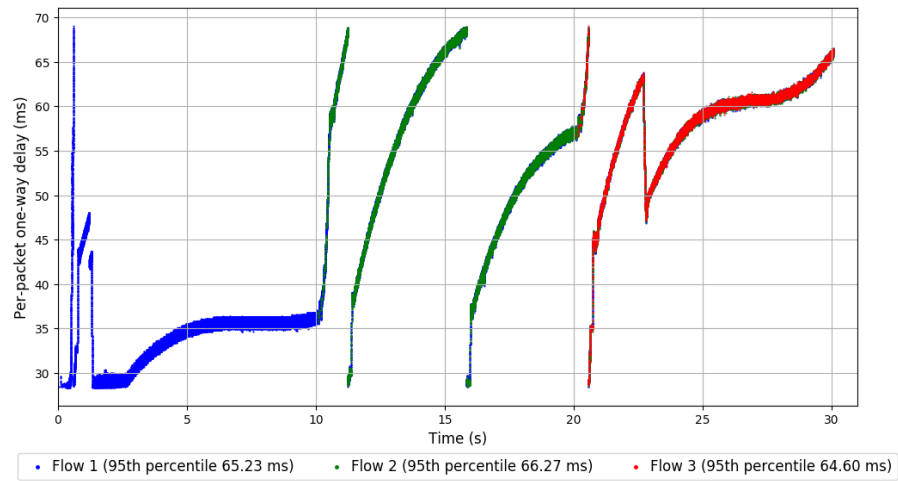
Run 3: Report of TCP Cubic — Data Link



Flow 1 ingress (mean 70.46 Mbit/s)    Flow 1 egress (mean 69.86 Mbit/s)
Flow 2 ingress (mean 23.46 Mbit/s)    Flow 2 egress (mean 23.38 Mbit/s)
Flow 3 ingress (mean 30.35 Mbit/s)    Flow 3 egress (mean 30.31 Mbit/s)



Flow 1 (95th percentile 62.85 ms)    Flow 2 (95th percentile 63.82 ms)    Flow 3 (95th percentile 35.72 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2019-02-20 01:49:08
End at: 2019-02-20 01:49:38
Local clock offset: 0.6 ms
Remote clock offset: -3.297 ms


# Below is generated by plot.py at 2019-02-20 02:32:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.30 Mbit/s
95th percentile per-packet one-way delay: 63.401 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 78.33 Mbit/s
95th percentile per-packet one-way delay: 63.070 ms
Loss rate: 1.03%
-- Flow 2:
Average throughput: 16.14 Mbit/s
95th percentile per-packet one-way delay: 65.001 ms
Loss rate: 0.64%
-- Flow 3:
Average throughput: 21.73 Mbit/s
95th percentile per-packet one-way delay: 64.407 ms
Loss rate: 0.95%
```

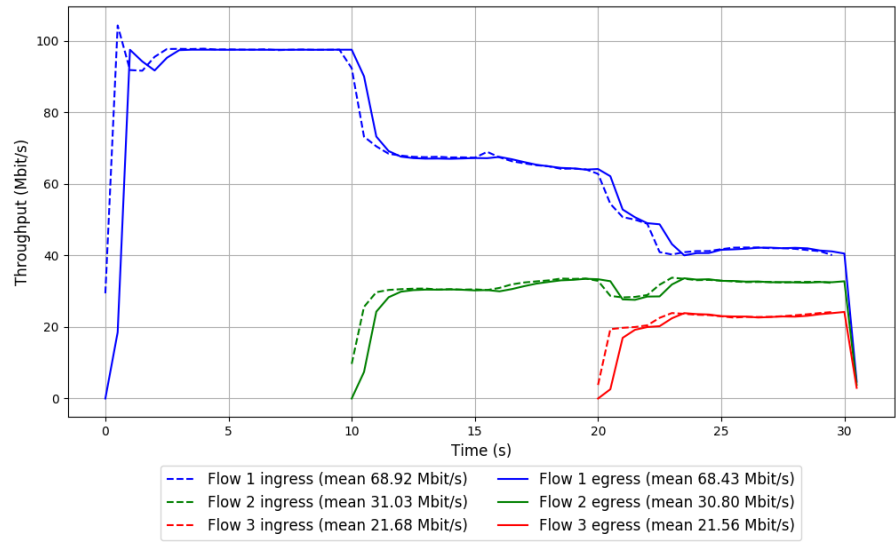Run 4: Report of TCP Cubic — Data Link

```
Run 5: Statistics of TCP Cubic

Start at: 2019-02-20 02:14:24
End at: 2019-02-20 02:14:54
Local clock offset: 0.422 ms
Remote clock offset: -1.943 ms


# Below is generated by plot.py at 2019-02-20 02:32:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.11 Mbit/s
95th percentile per-packet one-way delay: 65.480 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 68.43 Mbit/s
95th percentile per-packet one-way delay: 65.232 ms
Loss rate: 0.60%
-- Flow 2:
Average throughput: 30.80 Mbit/s
95th percentile per-packet one-way delay: 66.274 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 21.56 Mbit/s
95th percentile per-packet one-way delay: 64.601 ms
Loss rate: 0.46%
```
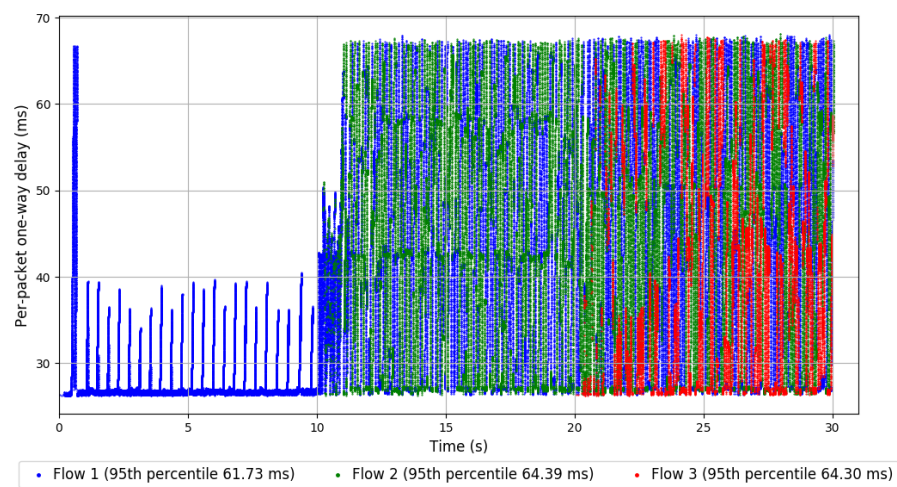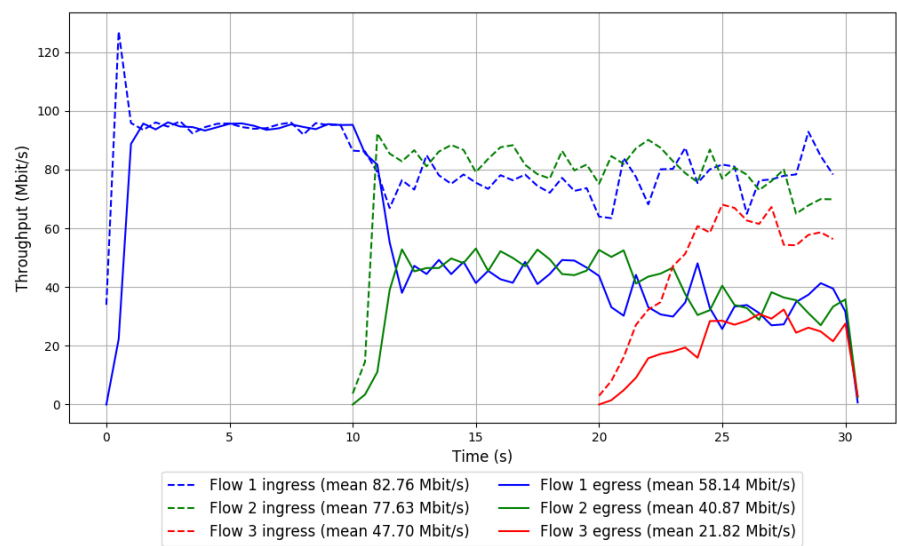
Run 5: Report of TCP Cubic — Data Link



- - - Flow 1 ingress (mean 68.92 Mbit/s)   —— Flow 1 egress (mean 68.43 Mbit/s)
- - - Flow 2 ingress (mean 31.03 Mbit/s)   —— Flow 2 egress (mean 30.80 Mbit/s)
- - - Flow 3 ingress (mean 21.68 Mbit/s)   —— Flow 3 egress (mean 21.56 Mbit/s)



• Flow 1 (95th percentile 65.23 ms)    • Flow 2 (95th percentile 66.27 ms)    • Flow 3 (95th percentile 64.60 ms)
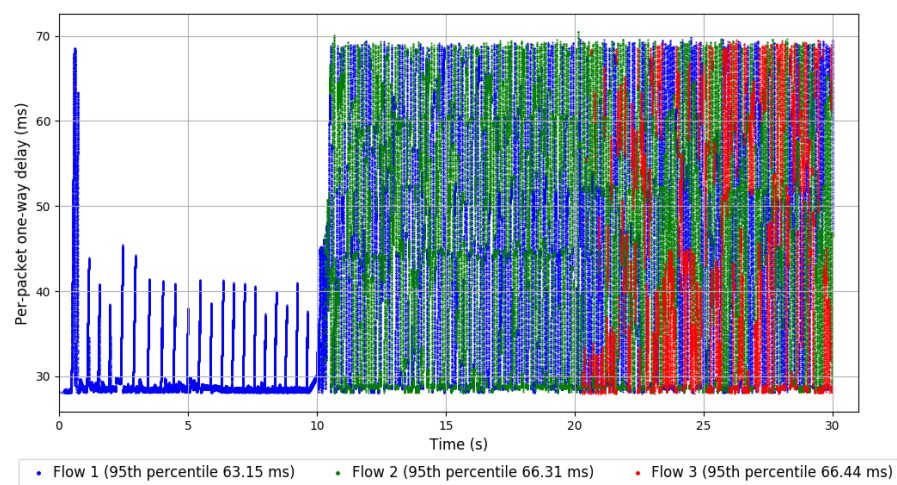
34

```
Run 1: Statistics of FillP

Start at: 2019-02-20 00:42:23
End at: 2019-02-20 00:42:53
Local clock offset: 0.156 ms
Remote clock offset: -8.975 ms


# Below is generated by plot.py at 2019-02-20 02:32:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.56 Mbit/s
95th percentile per-packet one-way delay: 63.354 ms
Loss rate: 38.31%
-- Flow 1:
Average throughput: 58.14 Mbit/s
95th percentile per-packet one-way delay: 61.725 ms
Loss rate: 29.68%
-- Flow 2:
Average throughput: 40.87 Mbit/s
95th percentile per-packet one-way delay: 64.388 ms
Loss rate: 47.28%
-- Flow 3:
Average throughput: 21.82 Mbit/s
95th percentile per-packet one-way delay: 64.303 ms
Loss rate: 54.13%
```
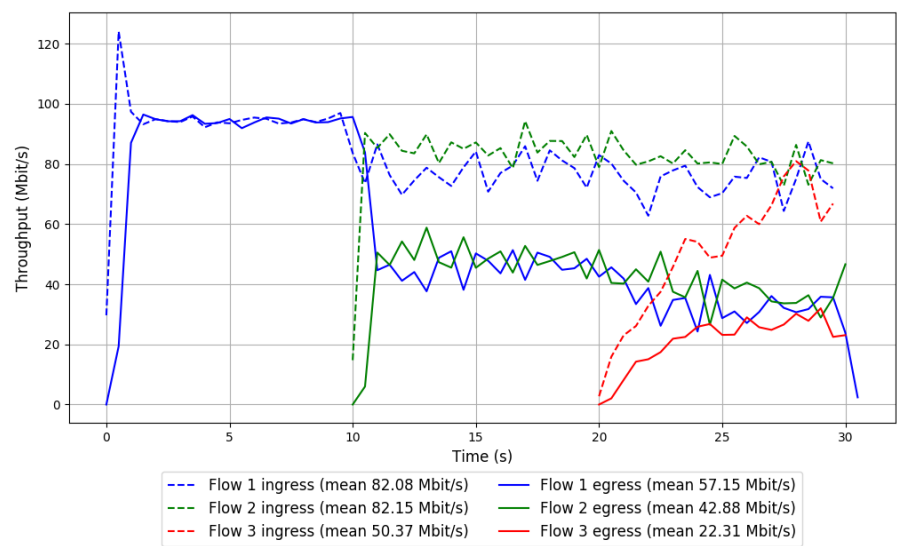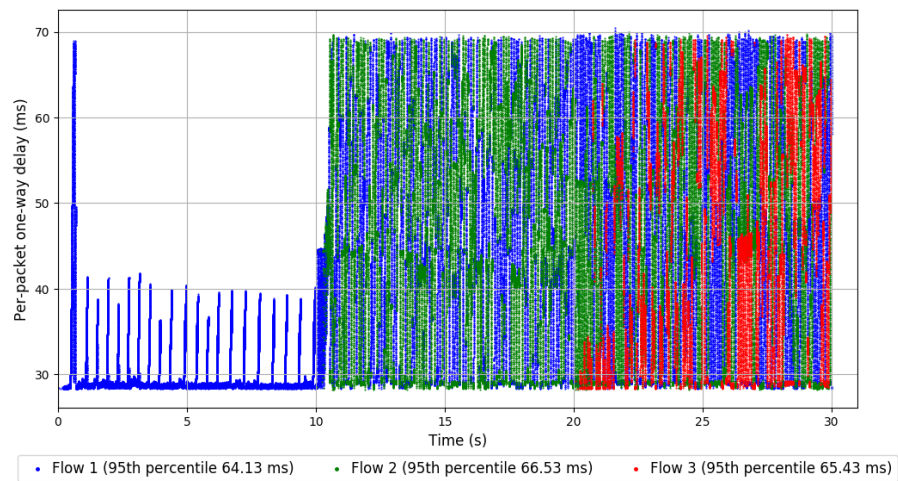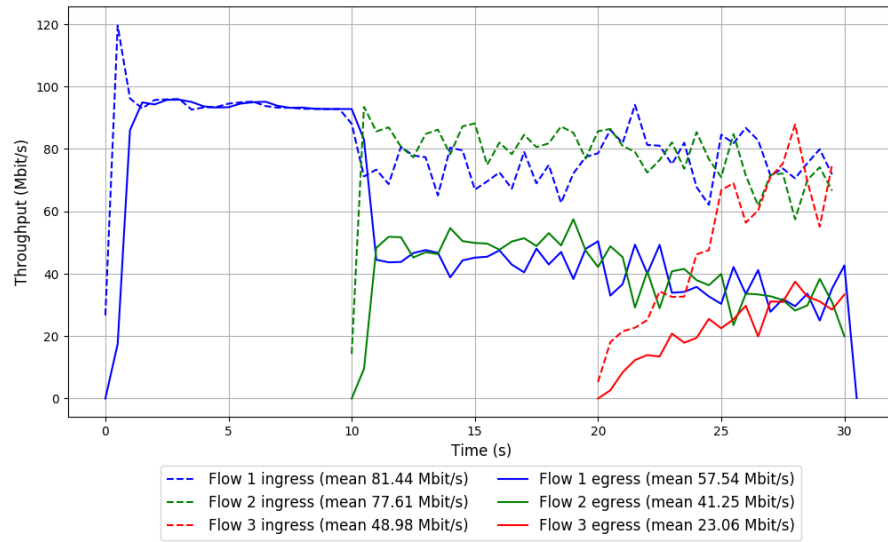
# Run 1: Report of FillP — Data Link



Flow 1 ingress (mean 82.76 Mbit/s) --- Flow 1 egress (mean 58.14 Mbit/s)
Flow 2 ingress (mean 77.63 Mbit/s) --- Flow 2 egress (mean 40.87 Mbit/s)
Flow 3 ingress (mean 47.70 Mbit/s) --- Flow 3 egress (mean 21.82 Mbit/s)



Flow 1 (95th percentile 61.73 ms)   Flow 2 (95th percentile 64.39 ms)   Flow 3 (95th percentile 64.30 ms)

```
Run 2: Statistics of FillP

Start at: 2019-02-20 01:07:55
End at: 2019-02-20 01:08:25
Local clock offset: 1.467 ms
Remote clock offset: -5.548 ms

# Below is generated by plot.py at 2019-02-20 02:32:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.06 Mbit/s
95th percentile per-packet one-way delay: 65.149 ms
Loss rate: 39.34%
-- Flow 1:
Average throughput: 57.15 Mbit/s
95th percentile per-packet one-way delay: 63.145 ms
Loss rate: 30.30%
-- Flow 2:
Average throughput: 42.88 Mbit/s
95th percentile per-packet one-way delay: 66.313 ms
Loss rate: 47.86%
-- Flow 3:
Average throughput: 22.31 Mbit/s
95th percentile per-packet one-way delay: 66.444 ms
Loss rate: 55.84%
```
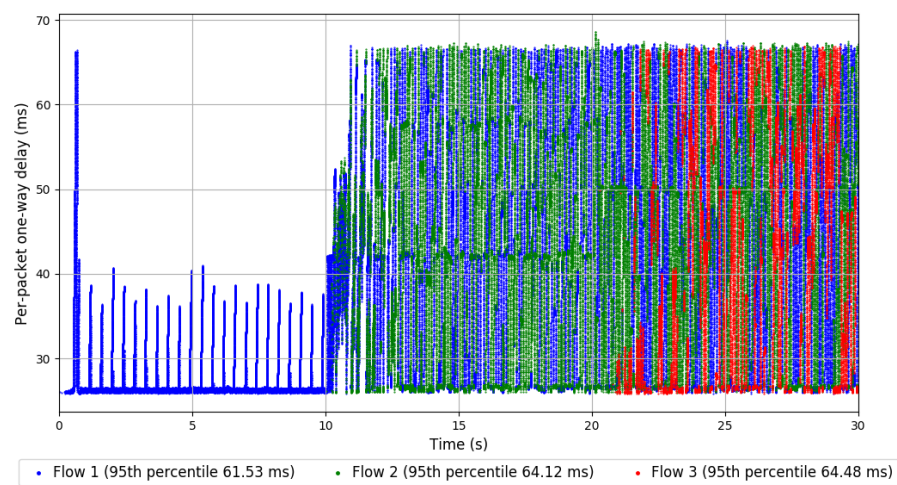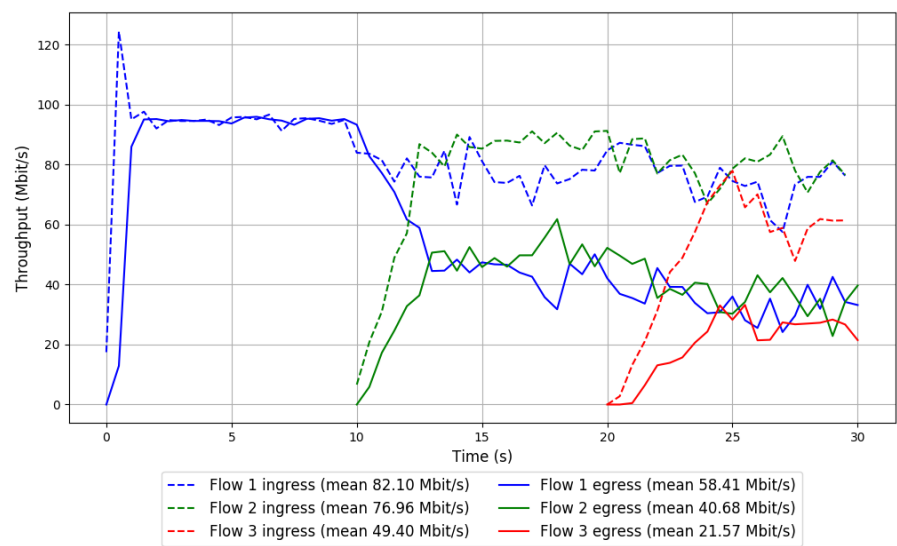
Run 2: Report of FillP — Data Link



Flow 1 ingress (mean 82.08 Mbit/s) --- Flow 1 egress (mean 57.15 Mbit/s)
Flow 2 ingress (mean 82.15 Mbit/s) --- Flow 2 egress (mean 42.88 Mbit/s)
Flow 3 ingress (mean 50.37 Mbit/s) --- Flow 3 egress (mean 22.31 Mbit/s)



Flow 1 (95th percentile 63.15 ms)    Flow 2 (95th percentile 66.31 ms)    Flow 3 (95th percentile 66.44 ms)

```
Run 3: Statistics of FillP

Start at: 2019-02-20 01:33:21
End at: 2019-02-20 01:33:51
Local clock offset: 0.95 ms
Remote clock offset: -3.686 ms


# Below is generated by plot.py at 2019-02-20 02:32:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.59 Mbit/s
95th percentile per-packet one-way delay: 65.230 ms
Loss rate: 37.98%
-- Flow 1:
Average throughput: 57.54 Mbit/s
95th percentile per-packet one-way delay: 64.132 ms
Loss rate: 29.34%
-- Flow 2:
Average throughput: 41.25 Mbit/s
95th percentile per-packet one-way delay: 66.530 ms
Loss rate: 46.89%
-- Flow 3:
Average throughput: 23.06 Mbit/s
95th percentile per-packet one-way delay: 65.427 ms
Loss rate: 52.98%
```

Run 3: Report of FillP — Data Link

```
Run 4: Statistics of FillP

Start at: 2019-02-20 01:58:48
End at: 2019-02-20 01:59:18
Local clock offset: 0.74 ms
Remote clock offset: -4.972 ms


# Below is generated by plot.py at 2019-02-20 02:33:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.42 Mbit/s
95th percentile per-packet one-way delay: 63.114 ms
Loss rate: 38.26%
-- Flow 1:
Average throughput: 58.41 Mbit/s
95th percentile per-packet one-way delay: 61.530 ms
Loss rate: 28.88%
-- Flow 2:
Average throughput: 40.68 Mbit/s
95th percentile per-packet one-way delay: 64.125 ms
Loss rate: 47.14%
-- Flow 3:
Average throughput: 21.57 Mbit/s
95th percentile per-packet one-way delay: 64.481 ms
Loss rate: 57.48%
```
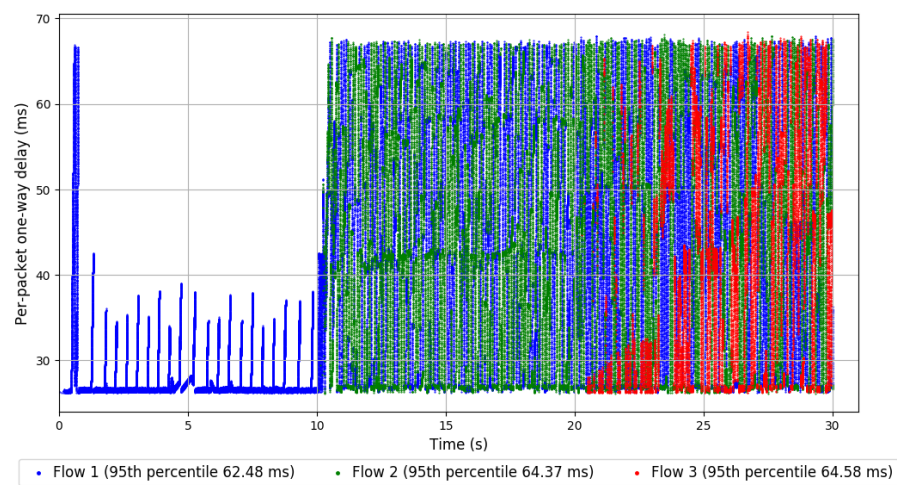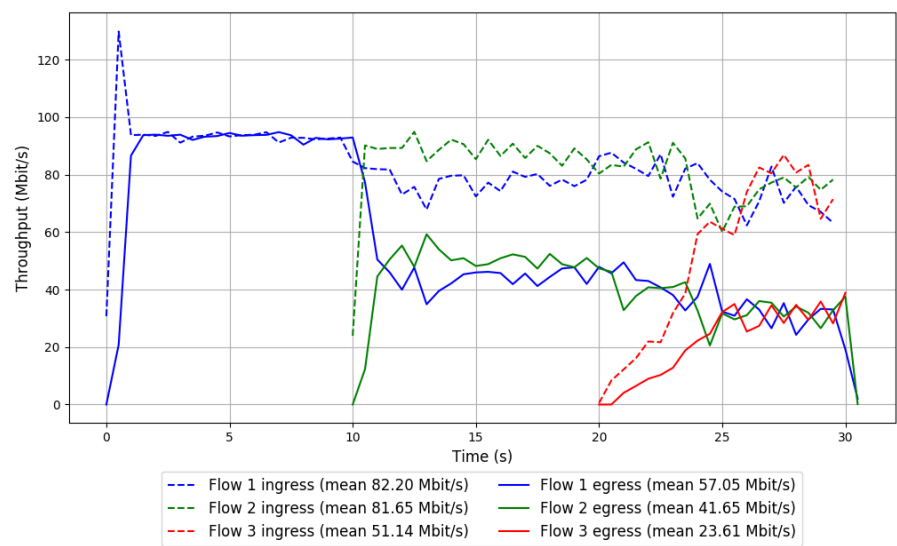
Run 4: Report of FillP — Data Link



Flow 1 ingress (mean 82.10 Mbit/s) --- Flow 1 egress (mean 58.41 Mbit/s) ---
Flow 2 ingress (mean 76.96 Mbit/s) --- Flow 2 egress (mean 40.68 Mbit/s) ---
Flow 3 ingress (mean 49.40 Mbit/s) --- Flow 3 egress (mean 21.57 Mbit/s) ---



Flow 1 (95th percentile 61.53 ms)   •   Flow 2 (95th percentile 64.12 ms)   •   Flow 3 (95th percentile 64.48 ms)

```
Run 5: Statistics of FillP

Start at: 2019-02-20 02:24:21
End at: 2019-02-20 02:24:51
Local clock offset: 0.444 ms
Remote clock offset: -3.68 ms

# Below is generated by plot.py at 2019-02-20 02:33:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.43 Mbit/s
95th percentile per-packet one-way delay: 63.557 ms
Loss rate: 39.80%
-- Flow 1:
Average throughput: 57.05 Mbit/s
95th percentile per-packet one-way delay: 62.478 ms
Loss rate: 30.58%
-- Flow 2:
Average throughput: 41.65 Mbit/s
95th percentile per-packet one-way delay: 64.374 ms
Loss rate: 48.99%
-- Flow 3:
Average throughput: 23.61 Mbit/s
95th percentile per-packet one-way delay: 64.576 ms
Loss rate: 55.00%
```
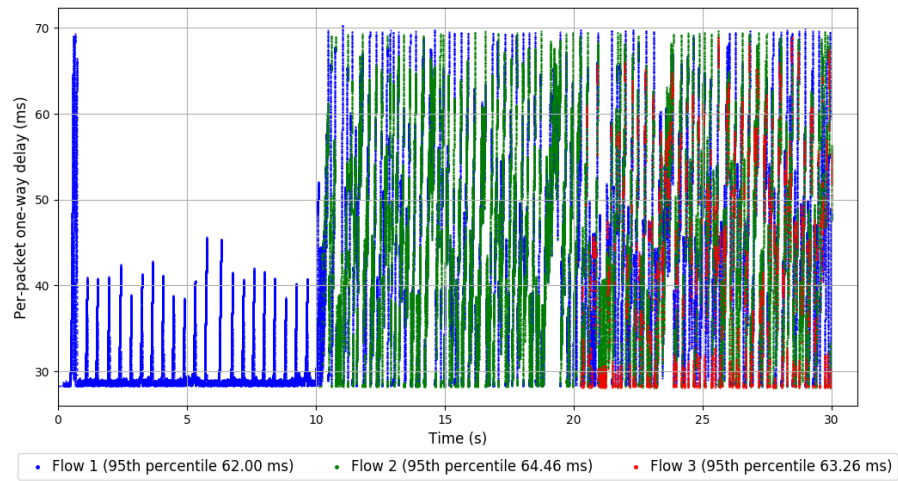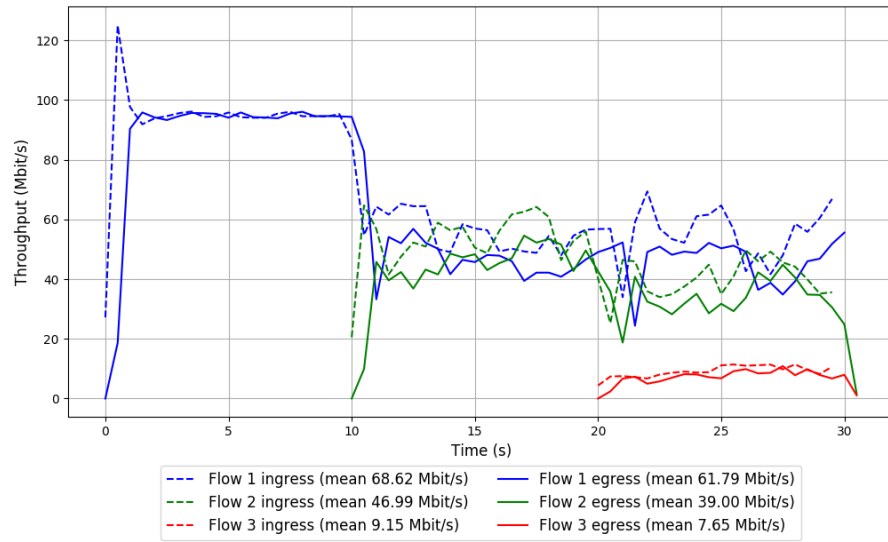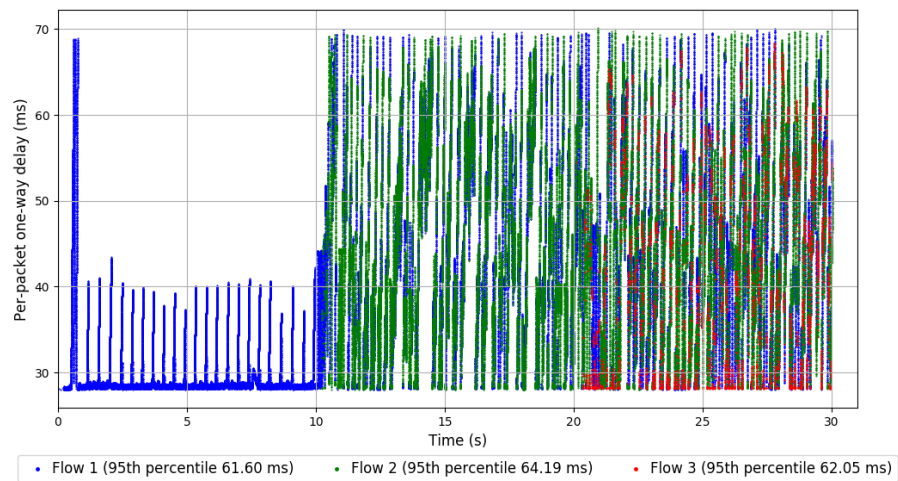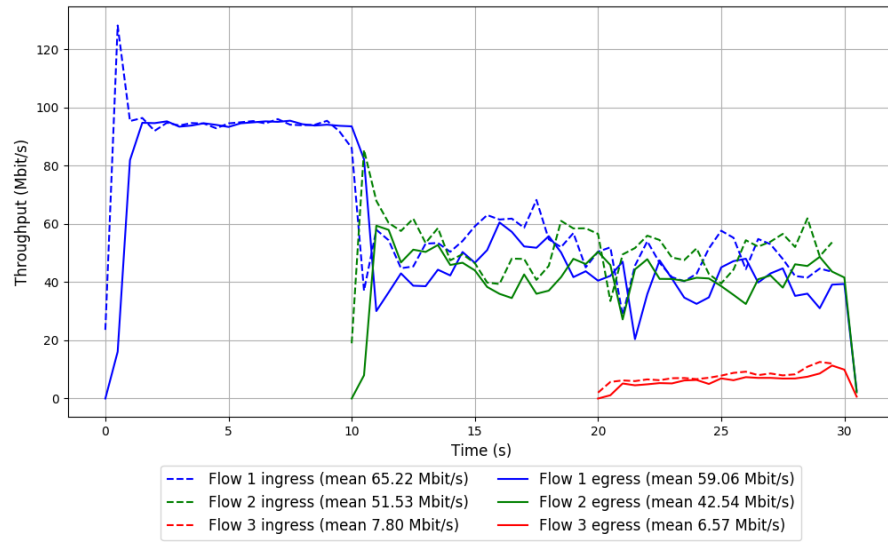
Run 5: Report of FillP — Data Link

```
Run 1: Statistics of FillP-Sheep

Start at: 2019-02-20 00:28:37
End at: 2019-02-20 00:29:07
Local clock offset: -5.514 ms
Remote clock offset: -7.13 ms


# Below is generated by plot.py at 2019-02-20 02:33:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.24 Mbit/s
95th percentile per-packet one-way delay: 63.229 ms
Loss rate: 12.23%
-- Flow 1:
Average throughput: 61.79 Mbit/s
95th percentile per-packet one-way delay: 61.996 ms
Loss rate: 9.90%
-- Flow 2:
Average throughput: 39.00 Mbit/s
95th percentile per-packet one-way delay: 64.463 ms
Loss rate: 16.94%
-- Flow 3:
Average throughput: 7.65 Mbit/s
95th percentile per-packet one-way delay: 63.256 ms
Loss rate: 16.29%
```

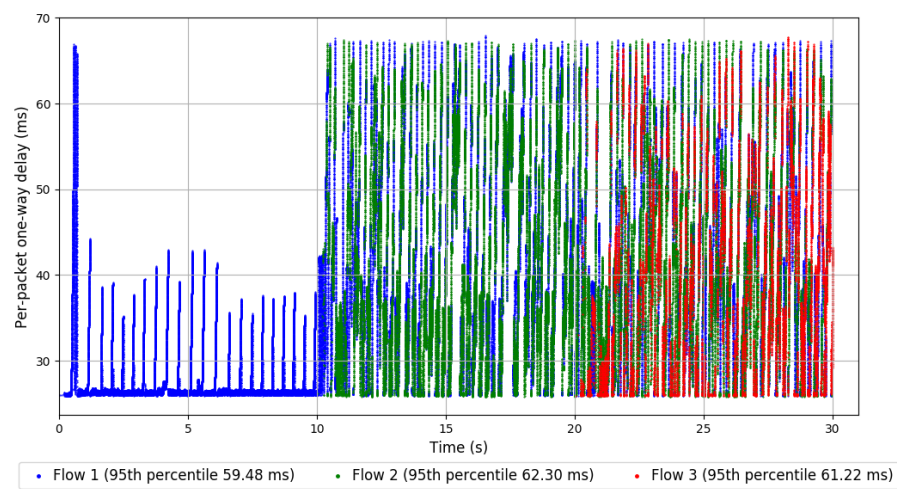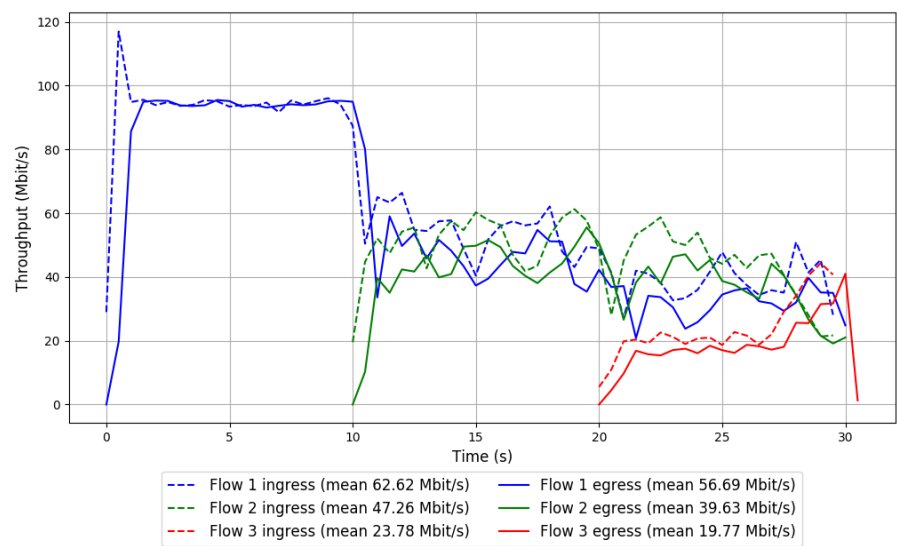Run 1: Report of FillP-Sheep — Data Link



Flow 1 ingress (mean 68.62 Mbit/s) --- Flow 1 egress (mean 61.79 Mbit/s)
Flow 2 ingress (mean 46.99 Mbit/s) --- Flow 2 egress (mean 39.00 Mbit/s)
Flow 3 ingress (mean 9.15 Mbit/s) --- Flow 3 egress (mean 7.65 Mbit/s)



Flow 1 (95th percentile 62.00 ms)  Flow 2 (95th percentile 64.46 ms)  Flow 3 (95th percentile 63.26 ms)

46

```
Run 2: Statistics of FillP-Sheep

Start at: 2019-02-20 00:54:33
End at: 2019-02-20 00:55:03
Local clock offset: 2.191 ms
Remote clock offset: -6.621 ms


# Below is generated by plot.py at 2019-02-20 02:33:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.54 Mbit/s
95th percentile per-packet one-way delay: 62.832 ms
Loss rate: 12.21%
-- Flow 1:
Average throughput: 59.06 Mbit/s
95th percentile per-packet one-way delay: 61.602 ms
Loss rate: 9.37%
-- Flow 2:
Average throughput: 42.54 Mbit/s
95th percentile per-packet one-way delay: 64.195 ms
Loss rate: 17.33%
-- Flow 3:
Average throughput: 6.57 Mbit/s
95th percentile per-packet one-way delay: 62.046 ms
Loss rate: 15.90%
```

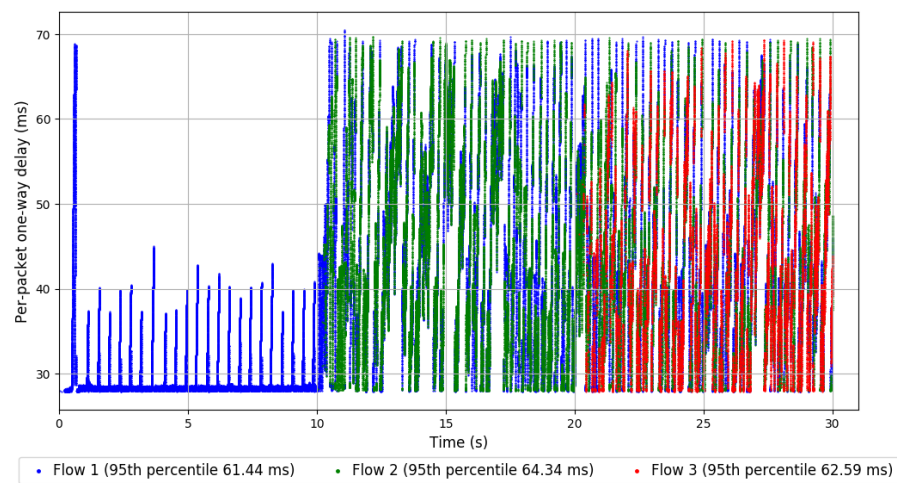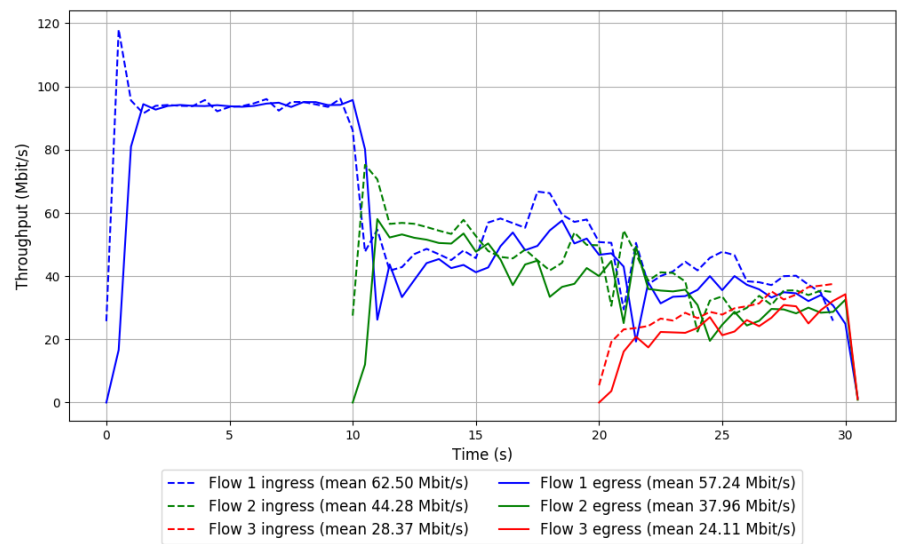Run 2: Report of FillP-Sheep — Data Link

```
Run 3: Statistics of FillP-Sheep

Start at: 2019-02-20 01:19:54
End at: 2019-02-20 01:20:24
Local clock offset: 1.095 ms
Remote clock offset: -6.927 ms


# Below is generated by plot.py at 2019-02-20 02:33:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.56 Mbit/s
95th percentile per-packet one-way delay: 60.916 ms
Loss rate: 12.09%
-- Flow 1:
Average throughput: 56.69 Mbit/s
95th percentile per-packet one-way delay: 59.483 ms
Loss rate: 9.47%
-- Flow 2:
Average throughput: 39.63 Mbit/s
95th percentile per-packet one-way delay: 62.301 ms
Loss rate: 16.15%
-- Flow 3:
Average throughput: 19.77 Mbit/s
95th percentile per-packet one-way delay: 61.216 ms
Loss rate: 16.76%
```

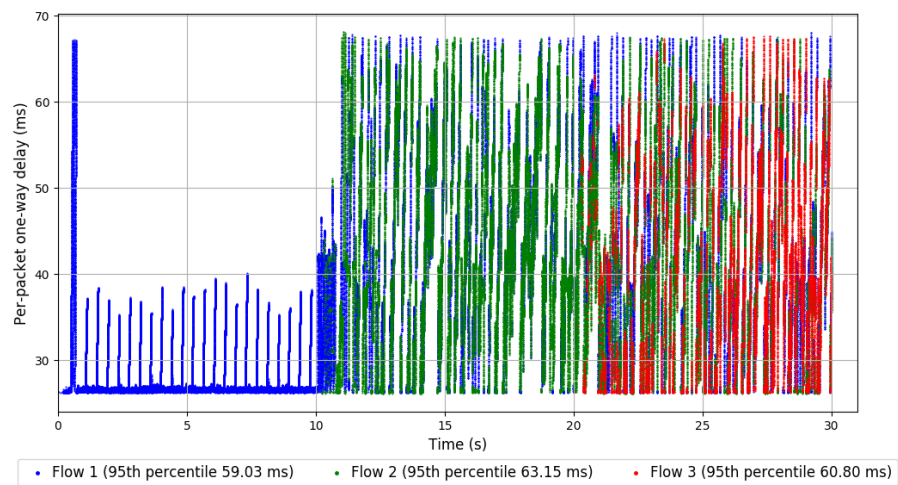Run 3: Report of FillP-Sheep — Data Link

```
Run 4: Statistics of FillP-Sheep

Start at: 2019-02-20 01:45:30
End at: 2019-02-20 01:46:00
Local clock offset: 0.579 ms
Remote clock offset: -3.546 ms


# Below is generated by plot.py at 2019-02-20 02:34:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.50 Mbit/s
95th percentile per-packet one-way delay: 62.687 ms
Loss rate: 10.70%
-- Flow 1:
Average throughput: 57.24 Mbit/s
95th percentile per-packet one-way delay: 61.439 ms
Loss rate: 8.38%
-- Flow 2:
Average throughput: 37.96 Mbit/s
95th percentile per-packet one-way delay: 64.342 ms
Loss rate: 14.21%
-- Flow 3:
Average throughput: 24.11 Mbit/s
95th percentile per-packet one-way delay: 62.592 ms
Loss rate: 15.09%
```

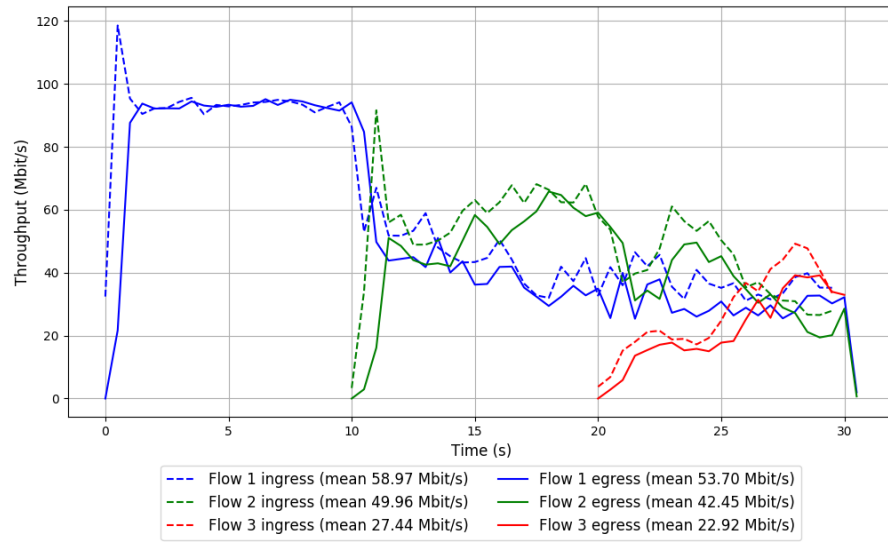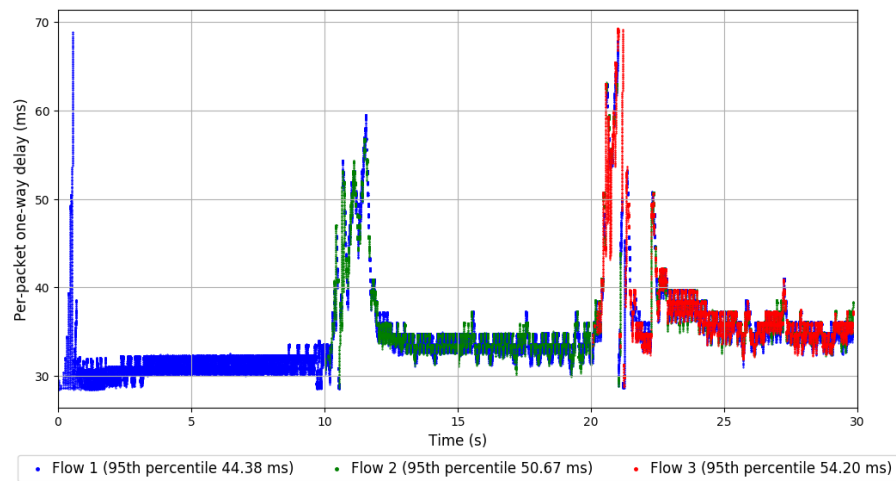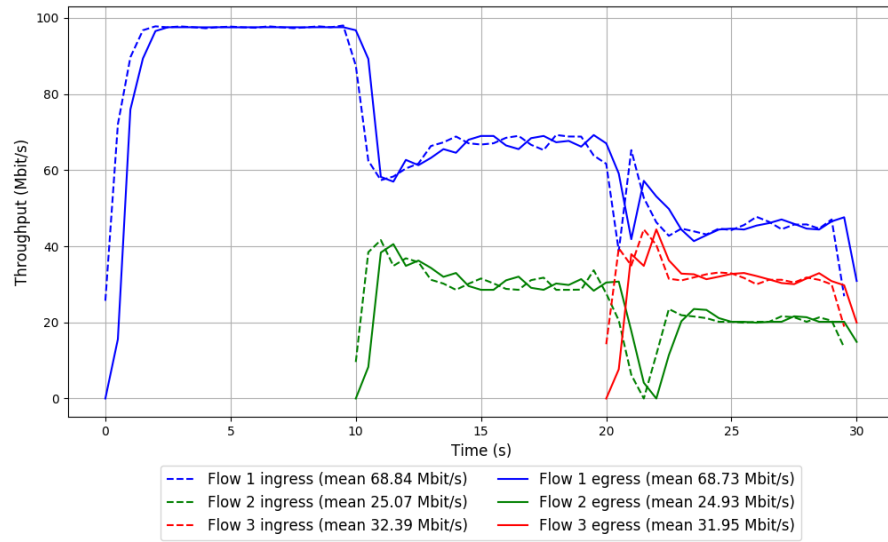Run 4: Report of FillP-Sheep — Data Link



Flow 1 ingress (mean 62.50 Mbit/s) --- Flow 1 egress (mean 57.24 Mbit/s)
Flow 2 ingress (mean 44.28 Mbit/s) --- Flow 2 egress (mean 37.96 Mbit/s)
Flow 3 ingress (mean 28.37 Mbit/s) --- Flow 3 egress (mean 24.11 Mbit/s)



Flow 1 (95th percentile 61.44 ms)   Flow 2 (95th percentile 64.34 ms)   Flow 3 (95th percentile 62.59 ms)

```
Run 5: Statistics of FillP-Sheep

Start at: 2019-02-20 02:10:46
End at: 2019-02-20 02:11:16
Local clock offset: 0.436 ms
Remote clock offset: -4.136 ms


# Below is generated by plot.py at 2019-02-20 02:34:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.56 Mbit/s
95th percentile per-packet one-way delay: 61.239 ms
Loss rate: 11.56%
-- Flow 1:
Average throughput: 53.70 Mbit/s
95th percentile per-packet one-way delay: 59.030 ms
Loss rate: 8.89%
-- Flow 2:
Average throughput: 42.45 Mbit/s
95th percentile per-packet one-way delay: 63.150 ms
Loss rate: 14.98%
-- Flow 3:
Average throughput: 22.92 Mbit/s
95th percentile per-packet one-way delay: 60.796 ms
Loss rate: 16.41%
```

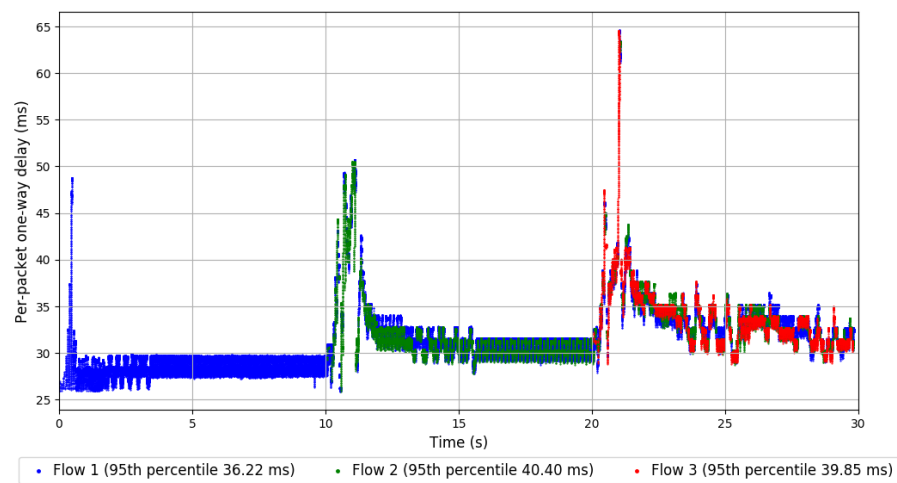Run 5: Report of FillP-Sheep — Data Link

```
Run 1: Statistics of Indigo

Start at: 2019-02-20 00:34:44
End at: 2019-02-20 00:35:14
Local clock offset: -2.597 ms
Remote clock offset: -7.121 ms


# Below is generated by plot.py at 2019-02-20 02:34:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.68 Mbit/s
95th percentile per-packet one-way delay: 48.001 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 68.73 Mbit/s
95th percentile per-packet one-way delay: 44.380 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 24.93 Mbit/s
95th percentile per-packet one-way delay: 50.670 ms
Loss rate: 0.53%
-- Flow 3:
Average throughput: 31.95 Mbit/s
95th percentile per-packet one-way delay: 54.203 ms
Loss rate: 1.30%
```

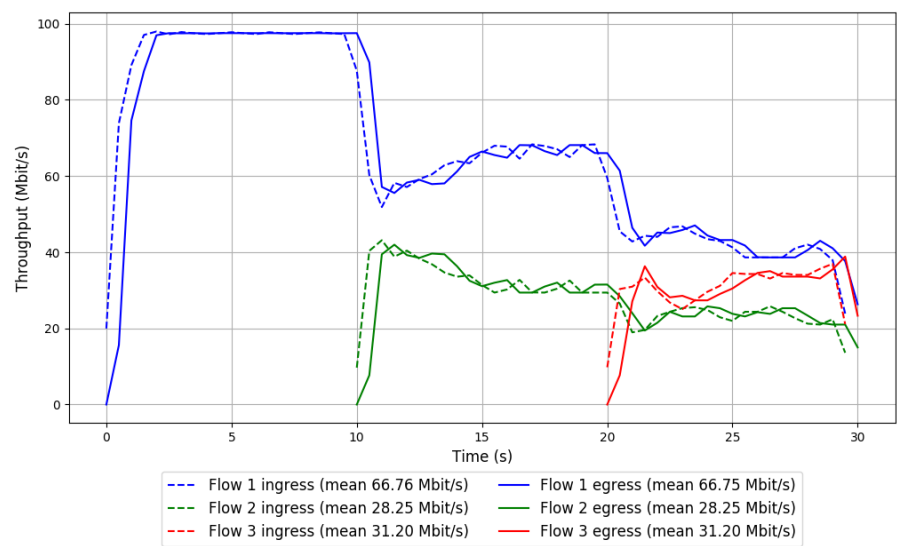Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2019-02-20 01:00:34
End at: 2019-02-20 01:01:04
Local clock offset: 2.617 ms
Remote clock offset: -8.273 ms


# Below is generated by plot.py at 2019-02-20 02:34:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.66 Mbit/s
95th percentile per-packet one-way delay: 37.600 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 66.75 Mbit/s
95th percentile per-packet one-way delay: 36.223 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 28.25 Mbit/s
95th percentile per-packet one-way delay: 40.402 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 31.20 Mbit/s
95th percentile per-packet one-way delay: 39.848 ms
Loss rate: 0.00%
```

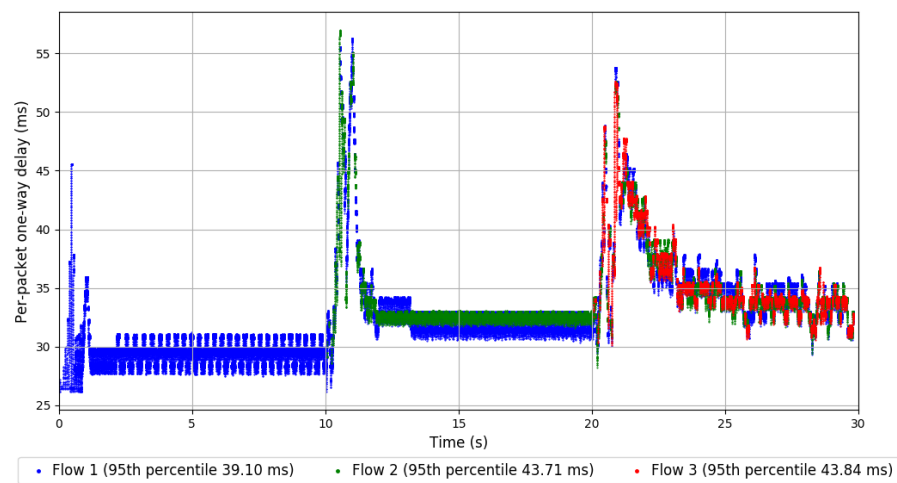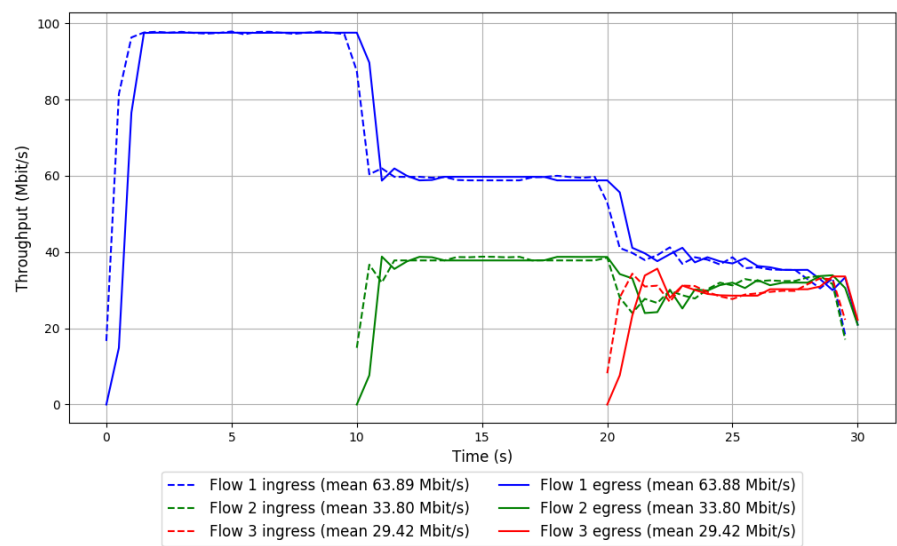# Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2019-02-20 01:25:54
End at: 2019-02-20 01:26:24
Local clock offset: 1.175 ms
Remote clock offset: -6.551 ms


# Below is generated by plot.py at 2019-02-20 02:34:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.87 Mbit/s
95th percentile per-packet one-way delay: 42.342 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 63.88 Mbit/s
95th percentile per-packet one-way delay: 39.099 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 33.80 Mbit/s
95th percentile per-packet one-way delay: 43.712 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 29.42 Mbit/s
95th percentile per-packet one-way delay: 43.841 ms
Loss rate: 0.00%
```

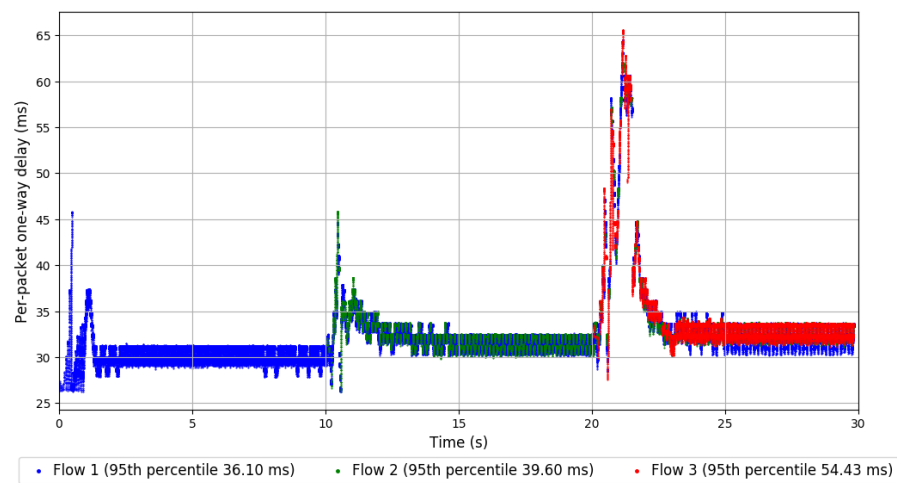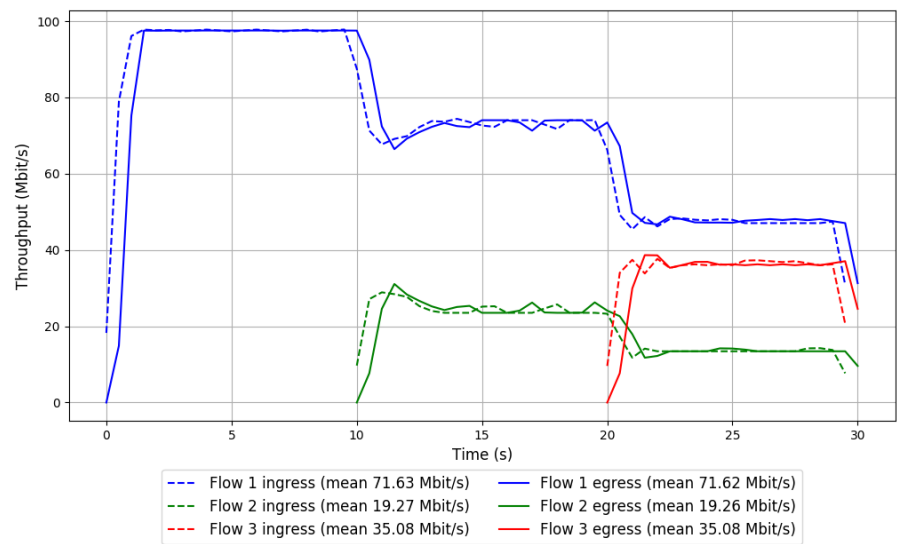Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2019-02-20 01:51:30
End at: 2019-02-20 01:52:00
Local clock offset: 0.614 ms
Remote clock offset: -5.063 ms


# Below is generated by plot.py at 2019-02-20 02:34:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.84 Mbit/s
95th percentile per-packet one-way delay: 38.285 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 71.62 Mbit/s
95th percentile per-packet one-way delay: 36.105 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 19.26 Mbit/s
95th percentile per-packet one-way delay: 39.602 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 35.08 Mbit/s
95th percentile per-packet one-way delay: 54.430 ms
Loss rate: 0.00%
```
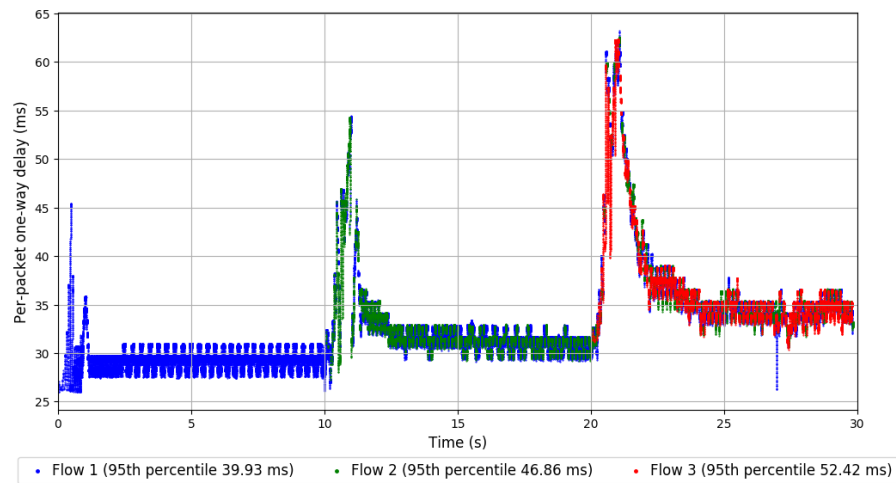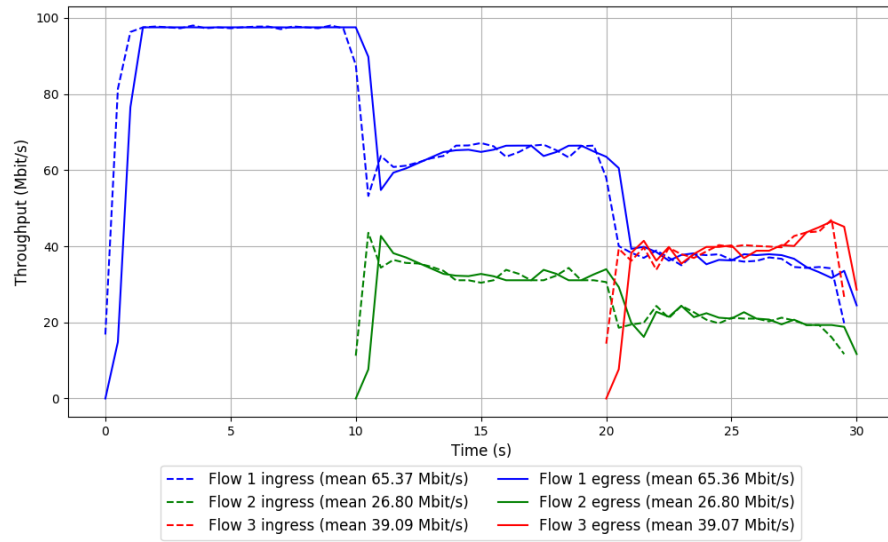
Run 4: Report of Indigo — Data Link



Flow 1 ingress (mean 71.63 Mbit/s) --- Flow 1 egress (mean 71.62 Mbit/s)
Flow 2 ingress (mean 19.27 Mbit/s) --- Flow 2 egress (mean 19.26 Mbit/s)
Flow 3 ingress (mean 35.08 Mbit/s) --- Flow 3 egress (mean 35.08 Mbit/s)



Flow 1 (95th percentile 36.10 ms)   Flow 2 (95th percentile 39.60 ms)   Flow 3 (95th percentile 54.43 ms)

```
Run 5: Statistics of Indigo

Start at: 2019-02-20 02:16:46
End at: 2019-02-20 02:17:16
Local clock offset: 0.415 ms
Remote clock offset: -4.223 ms


# Below is generated by plot.py at 2019-02-20 02:34:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.87 Mbit/s
95th percentile per-packet one-way delay: 44.226 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 65.36 Mbit/s
95th percentile per-packet one-way delay: 39.930 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 26.80 Mbit/s
95th percentile per-packet one-way delay: 46.859 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 39.07 Mbit/s
95th percentile per-packet one-way delay: 52.423 ms
Loss rate: 0.00%
```
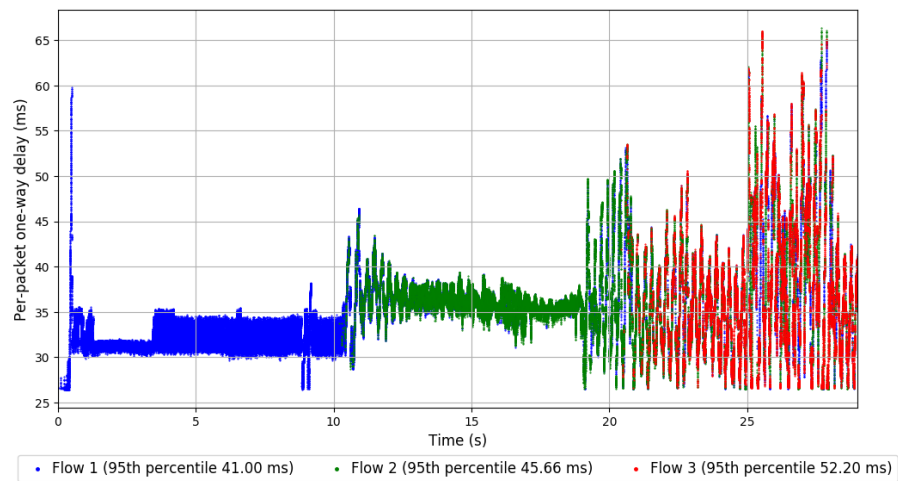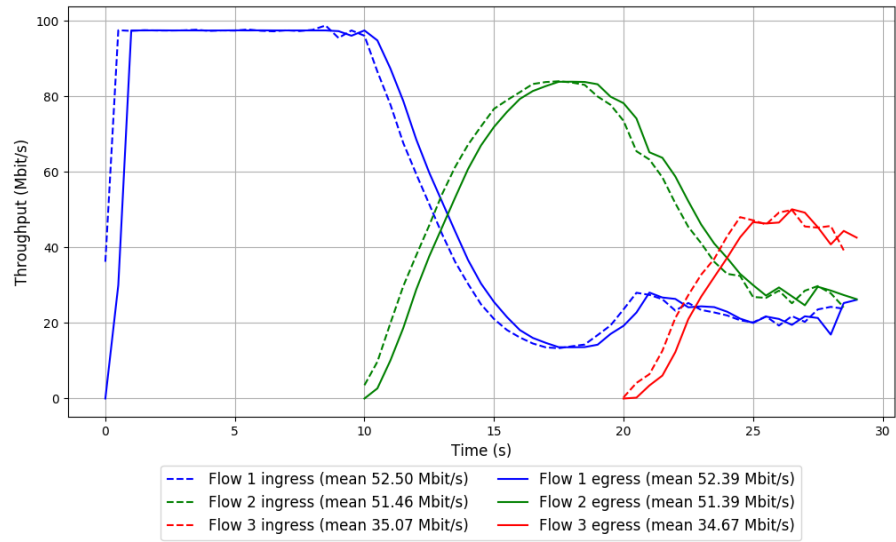
Run 5: Report of Indigo — Data Link

```
Run 1: Statistics of Indigo-MusesC3

Start at: 2019-02-20 00:43:40
End at: 2019-02-20 00:44:10
Local clock offset: 0.443 ms
Remote clock offset: -8.862 ms


# Below is generated by plot.py at 2019-02-20 02:34:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.96 Mbit/s
95th percentile per-packet one-way delay: 45.071 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 52.39 Mbit/s
95th percentile per-packet one-way delay: 41.003 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 51.39 Mbit/s
95th percentile per-packet one-way delay: 45.656 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 34.67 Mbit/s
95th percentile per-packet one-way delay: 52.199 ms
Loss rate: 1.15%
```

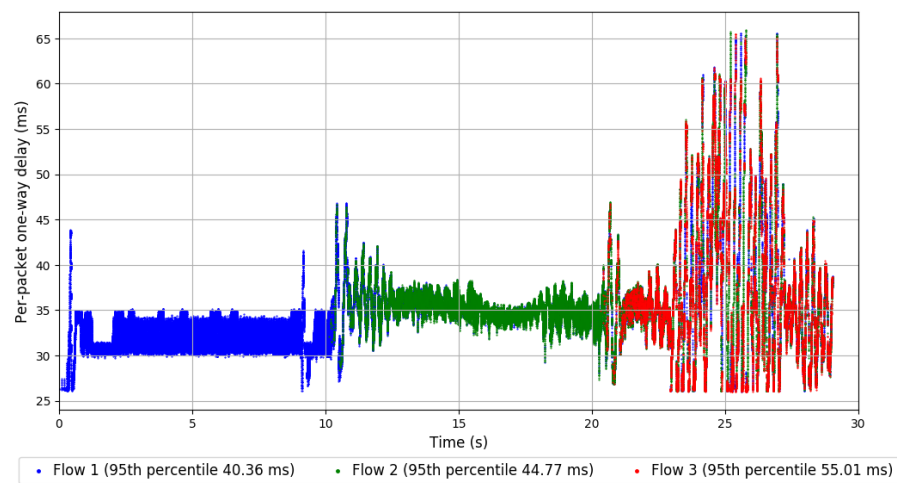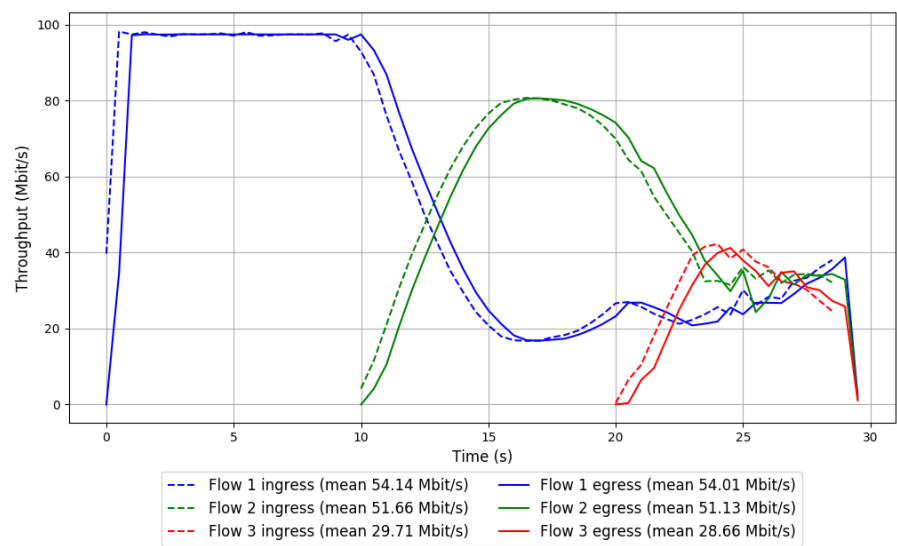Run 1: Report of Indigo-MusesC3 — Data Link



- - - Flow 1 ingress (mean 52.50 Mbit/s)  —— Flow 1 egress (mean 52.39 Mbit/s)
- - - Flow 2 ingress (mean 51.46 Mbit/s)  —— Flow 2 egress (mean 51.39 Mbit/s)
- - - Flow 3 ingress (mean 35.07 Mbit/s)  —— Flow 3 egress (mean 34.67 Mbit/s)



- Flow 1 (95th percentile 41.00 ms)   • Flow 2 (95th percentile 45.66 ms)   • Flow 3 (95th percentile 52.20 ms)

```
Run 2: Statistics of Indigo-MusesC3

Start at: 2019-02-20 01:09:10
End at: 2019-02-20 01:09:40
Local clock offset: 1.372 ms
Remote clock offset: -7.545 ms


# Below is generated by plot.py at 2019-02-20 02:35:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.89 Mbit/s
95th percentile per-packet one-way delay: 44.787 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 54.01 Mbit/s
95th percentile per-packet one-way delay: 40.364 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 51.13 Mbit/s
95th percentile per-packet one-way delay: 44.770 ms
Loss rate: 1.00%
-- Flow 3:
Average throughput: 28.66 Mbit/s
95th percentile per-packet one-way delay: 55.013 ms
Loss rate: 3.51%
```

Run 2: Report of Indigo-MusesC3 — Data Link

```
Run 3: Statistics of Indigo-MusesC3

Start at: 2019-02-20 01:34:38
End at: 2019-02-20 01:35:08
Local clock offset: 0.85 ms
Remote clock offset: -3.63 ms

# Below is generated by plot.py at 2019-02-20 02:35:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.23 Mbit/s
95th percentile per-packet one-way delay: 49.187 ms
Loss rate: 1.02%
-- Flow 1:
Average throughput: 53.59 Mbit/s
95th percentile per-packet one-way delay: 44.990 ms
Loss rate: 0.82%
-- Flow 2:
Average throughput: 49.48 Mbit/s
95th percentile per-packet one-way delay: 48.804 ms
Loss rate: 0.84%
-- Flow 3:
Average throughput: 31.33 Mbit/s
95th percentile per-packet one-way delay: 56.636 ms
Loss rate: 2.73%
```
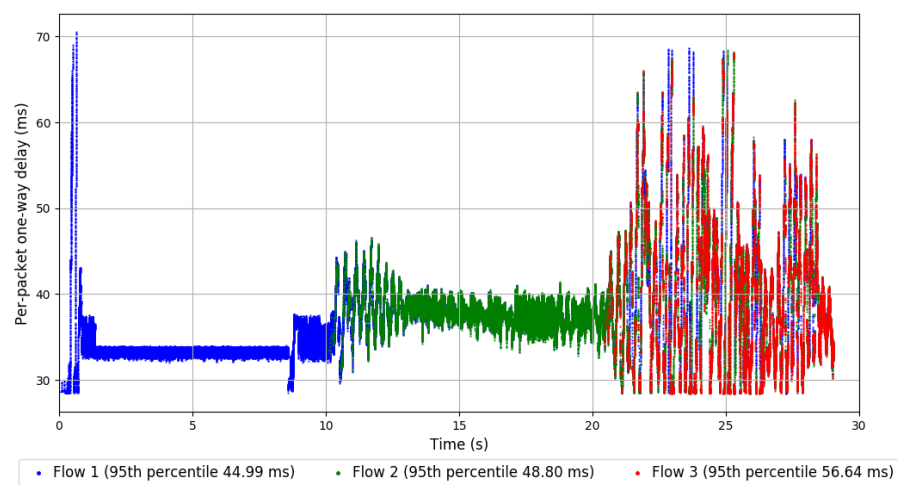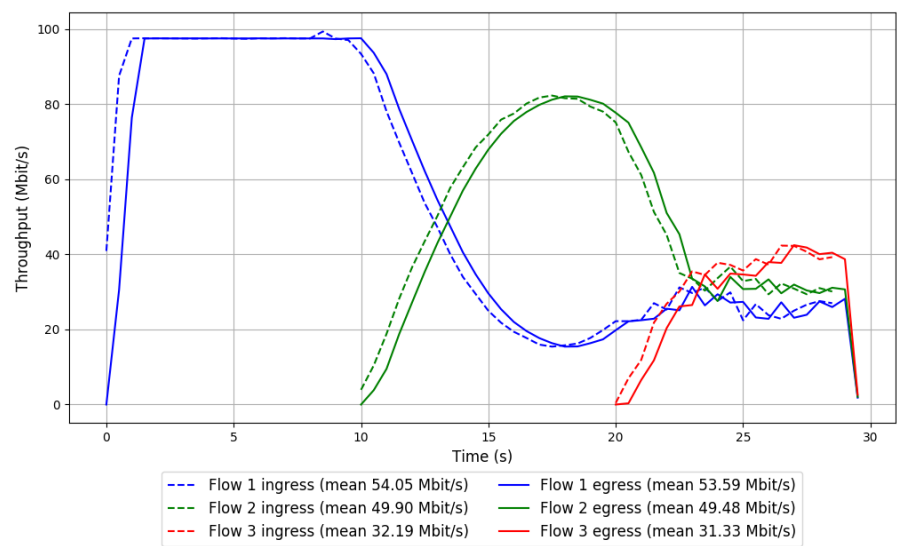
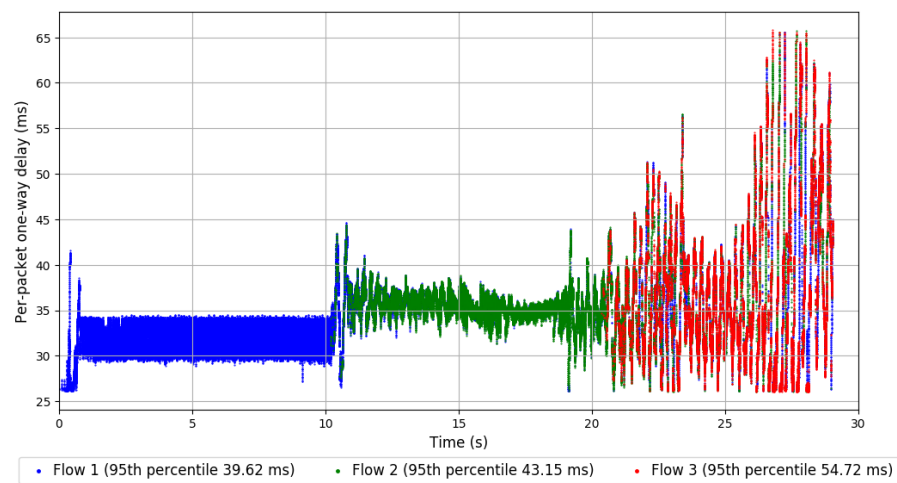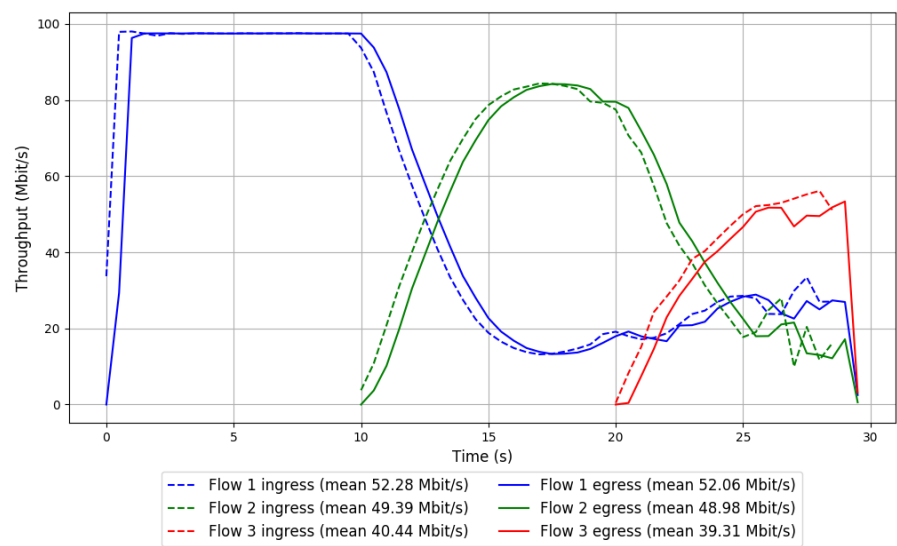Run 3: Report of Indigo-MusesC3 — Data Link



- - - Flow 1 ingress (mean 54.05 Mbit/s) ——— Flow 1 egress (mean 53.59 Mbit/s)
- - - Flow 2 ingress (mean 49.90 Mbit/s) ——— Flow 2 egress (mean 49.48 Mbit/s)
- - - Flow 3 ingress (mean 32.19 Mbit/s) ——— Flow 3 egress (mean 31.33 Mbit/s)



• Flow 1 (95th percentile 44.99 ms)   • Flow 2 (95th percentile 48.80 ms)   • Flow 3 (95th percentile 56.64 ms)

70

```
Run 4: Statistics of Indigo-MusesC3

Start at: 2019-02-20 02:00:01
End at: 2019-02-20 02:00:31
Local clock offset: 0.761 ms
Remote clock offset: -4.716 ms


# Below is generated by plot.py at 2019-02-20 02:35:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.75 Mbit/s
95th percentile per-packet one-way delay: 44.006 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 52.06 Mbit/s
95th percentile per-packet one-way delay: 39.616 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 48.98 Mbit/s
95th percentile per-packet one-way delay: 43.152 ms
Loss rate: 0.76%
-- Flow 3:
Average throughput: 39.31 Mbit/s
95th percentile per-packet one-way delay: 54.723 ms
Loss rate: 2.72%
```

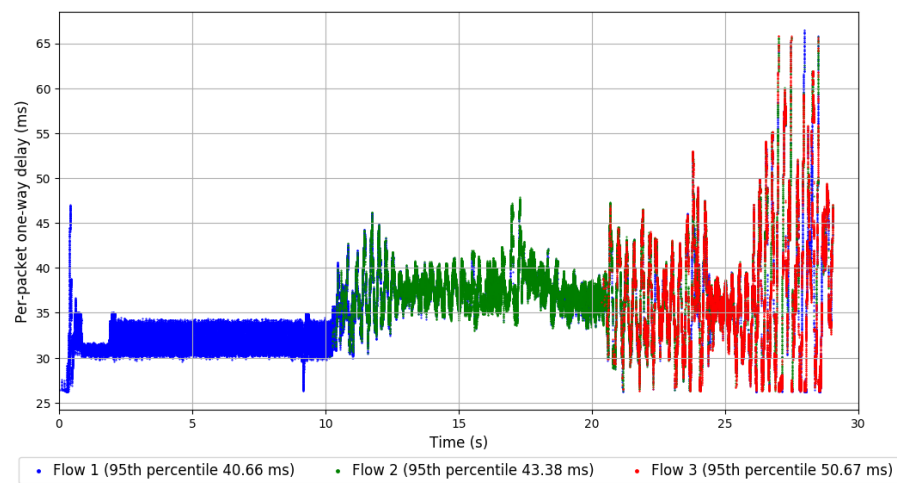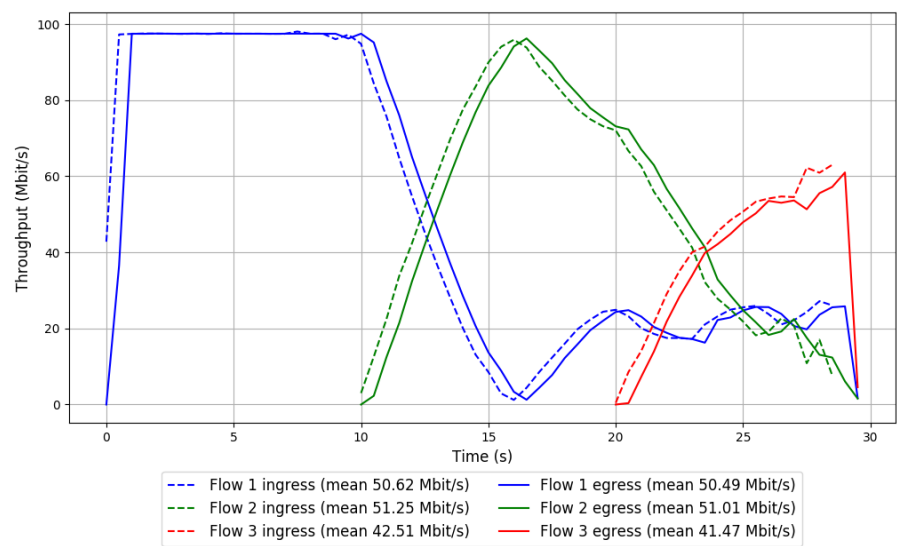Run 4: Report of Indigo-MusesC3 — Data Link



- - - - Flow 1 ingress (mean 52.28 Mbit/s) ——— Flow 1 egress (mean 52.06 Mbit/s)
- - - - Flow 2 ingress (mean 49.39 Mbit/s) ——— Flow 2 egress (mean 48.98 Mbit/s)
- - - - Flow 3 ingress (mean 40.44 Mbit/s) ——— Flow 3 egress (mean 39.31 Mbit/s)



- Flow 1 (95th percentile 39.62 ms)    - Flow 2 (95th percentile 43.15 ms)    - Flow 3 (95th percentile 54.72 ms)

```
Run 5: Statistics of Indigo-MusesC3

Start at: 2019-02-20 02:25:36
End at: 2019-02-20 02:26:06
Local clock offset: 0.446 ms
Remote clock offset: -3.684 ms


# Below is generated by plot.py at 2019-02-20 02:35:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.05 Mbit/s
95th percentile per-packet one-way delay: 43.507 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 50.49 Mbit/s
95th percentile per-packet one-way delay: 40.661 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 51.01 Mbit/s
95th percentile per-packet one-way delay: 43.382 ms
Loss rate: 0.39%
-- Flow 3:
Average throughput: 41.47 Mbit/s
95th percentile per-packet one-way delay: 50.675 ms
Loss rate: 2.33%
```

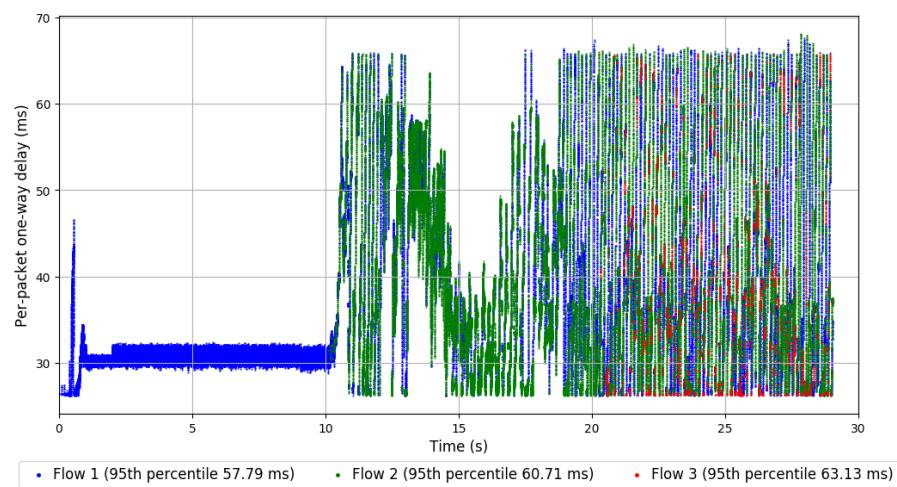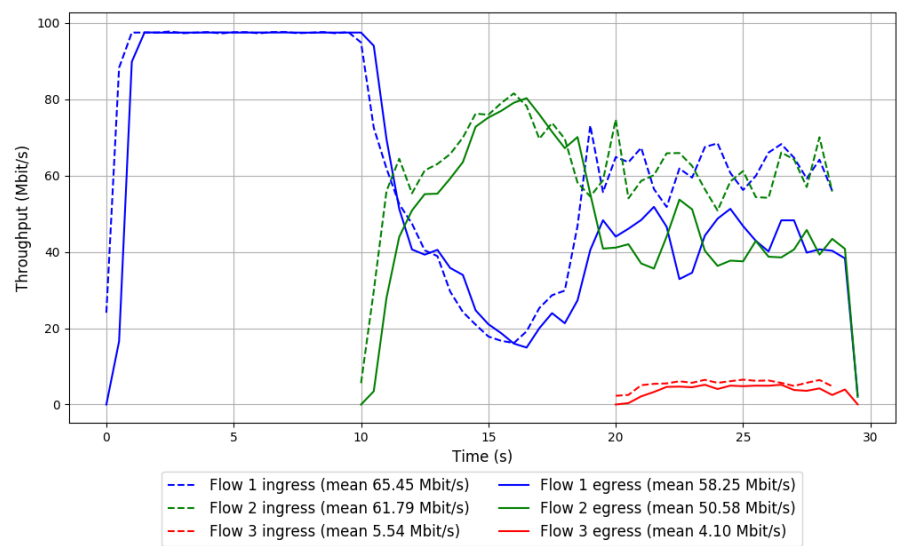Run 5: Report of Indigo-MusesC3 — Data Link



Flow 1 ingress (mean 50.62 Mbit/s) --- Flow 1 egress (mean 50.49 Mbit/s)
Flow 2 ingress (mean 51.25 Mbit/s) --- Flow 2 egress (mean 51.01 Mbit/s)
Flow 3 ingress (mean 42.51 Mbit/s) --- Flow 3 egress (mean 41.47 Mbit/s)



Flow 1 (95th percentile 40.66 ms)    Flow 2 (95th percentile 43.38 ms)    Flow 3 (95th percentile 50.67 ms)
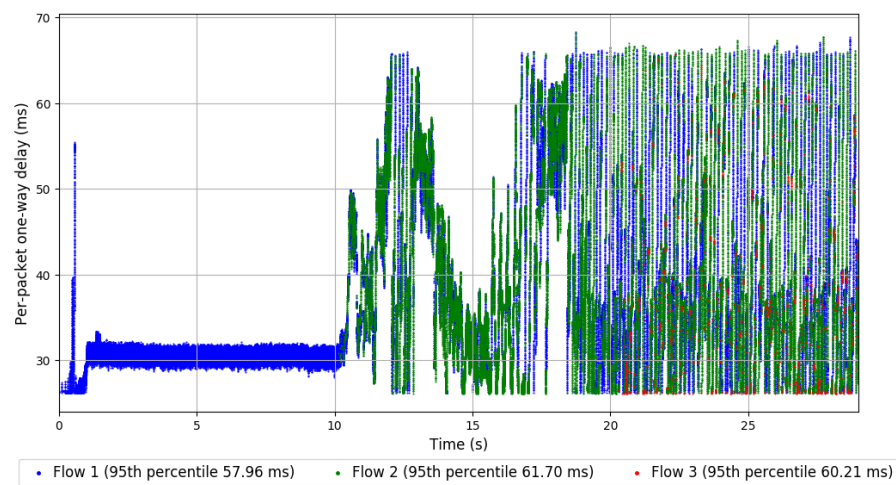
74

```
Run 1: Statistics of Indigo-MusesC5

Start at: 2019-02-20 00:22:24
End at: 2019-02-20 00:22:54
Local clock offset: -5.239 ms
Remote clock offset: -9.279 ms


# Below is generated by plot.py at 2019-02-20 02:35:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.47 Mbit/s
95th percentile per-packet one-way delay: 59.397 ms
Loss rate: 13.90%
-- Flow 1:
Average throughput: 58.25 Mbit/s
95th percentile per-packet one-way delay: 57.786 ms
Loss rate: 10.98%
-- Flow 2:
Average throughput: 50.58 Mbit/s
95th percentile per-packet one-way delay: 60.712 ms
Loss rate: 18.13%
-- Flow 3:
Average throughput: 4.10 Mbit/s
95th percentile per-packet one-way delay: 63.131 ms
Loss rate: 26.19%
```

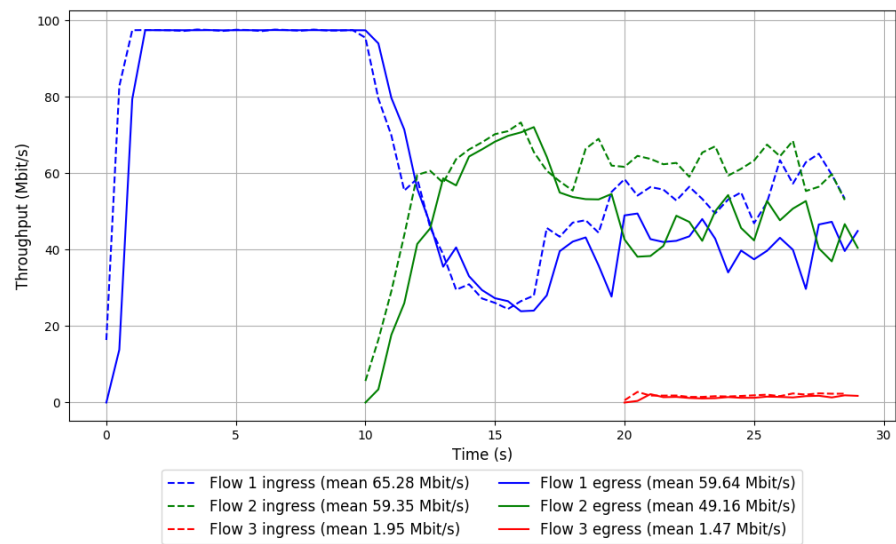Run 1: Report of Indigo-MusesC5 — Data Link



Flow 1 ingress (mean 65.45 Mbit/s) --- Flow 1 egress (mean 58.25 Mbit/s)
Flow 2 ingress (mean 61.79 Mbit/s) --- Flow 2 egress (mean 50.58 Mbit/s)
Flow 3 ingress (mean 5.54 Mbit/s) --- Flow 3 egress (mean 4.10 Mbit/s)



Flow 1 (95th percentile 57.79 ms)   Flow 2 (95th percentile 60.71 ms)   Flow 3 (95th percentile 63.13 ms)
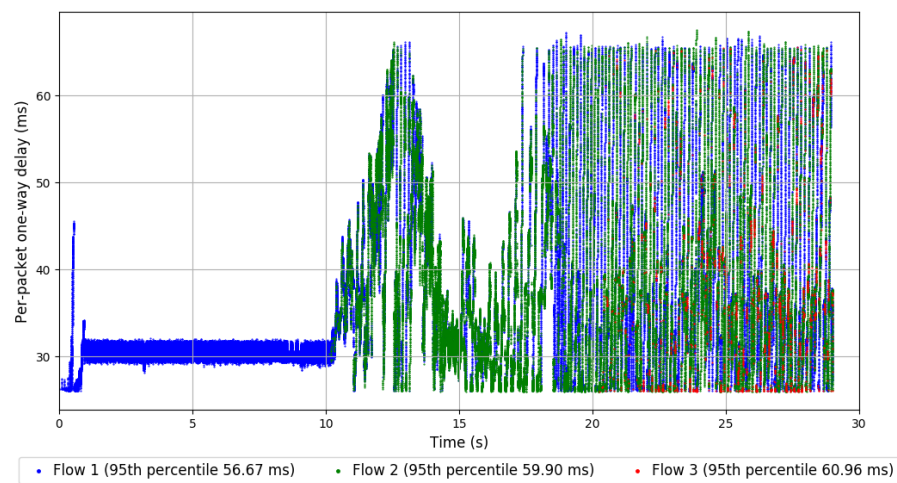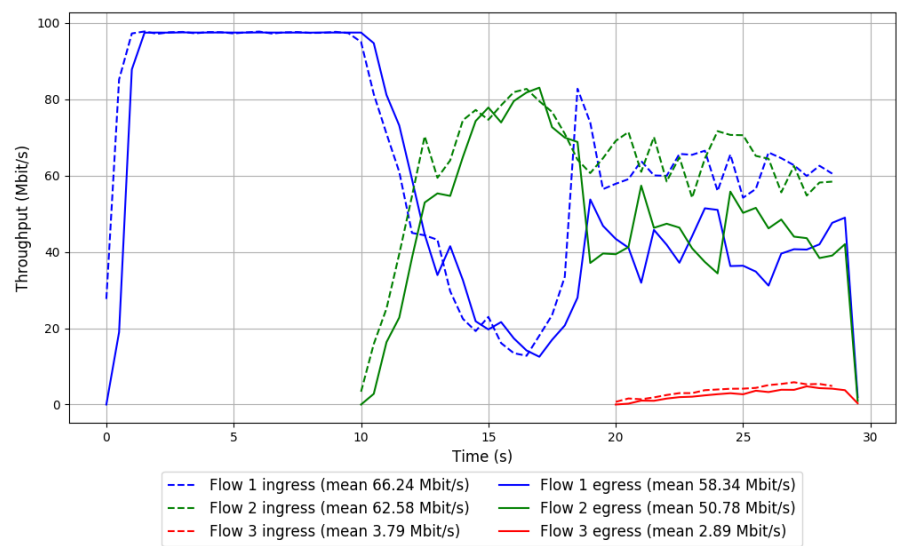
76

```
Run 2: Statistics of Indigo-MusesC5

Start at: 2019-02-20 00:48:26
End at: 2019-02-20 00:48:56
Local clock offset: 1.355 ms
Remote clock offset: -8.961 ms


# Below is generated by plot.py at 2019-02-20 02:35:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.11 Mbit/s
95th percentile per-packet one-way delay: 59.921 ms
Loss rate: 11.84%
-- Flow 1:
Average throughput: 59.64 Mbit/s
95th percentile per-packet one-way delay: 57.958 ms
Loss rate: 8.59%
-- Flow 2:
Average throughput: 49.16 Mbit/s
95th percentile per-packet one-way delay: 61.695 ms
Loss rate: 17.12%
-- Flow 3:
Average throughput: 1.47 Mbit/s
95th percentile per-packet one-way delay: 60.209 ms
Loss rate: 24.53%
```

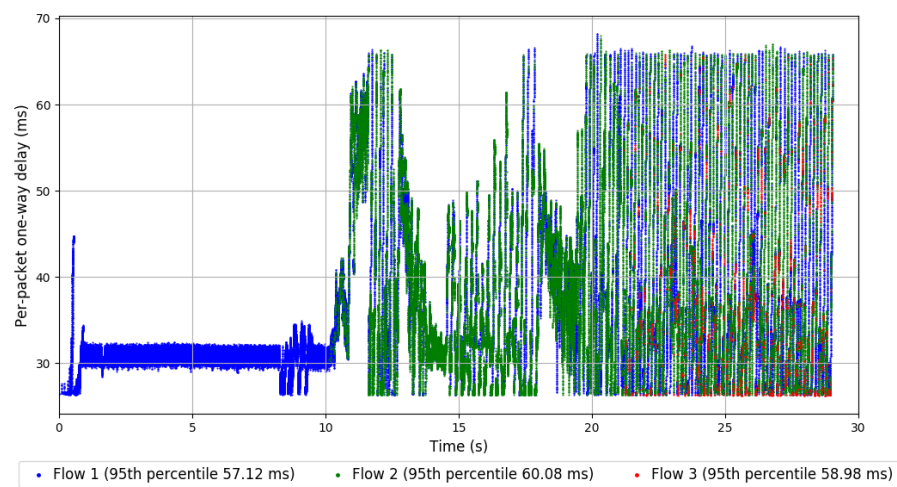Run 2: Report of Indigo-MusesC5 — Data Link



- - - - Flow 1 ingress (mean 65.28 Mbit/s) ——— Flow 1 egress (mean 59.64 Mbit/s)
- - - - Flow 2 ingress (mean 59.35 Mbit/s) ——— Flow 2 egress (mean 49.16 Mbit/s)
- - - - Flow 3 ingress (mean 1.95 Mbit/s) ——— Flow 3 egress (mean 1.47 Mbit/s)



- Flow 1 (95th percentile 57.96 ms)    • Flow 2 (95th percentile 61.70 ms)    • Flow 3 (95th percentile 60.21 ms)

```
Run 3: Statistics of Indigo-MusesC5

Start at: 2019-02-20 01:13:52
End at: 2019-02-20 01:14:22
Local clock offset: 1.164 ms
Remote clock offset: -7.238 ms


# Below is generated by plot.py at 2019-02-20 02:36:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.28 Mbit/s
95th percentile per-packet one-way delay: 58.355 ms
Loss rate: 14.64%
-- Flow 1:
Average throughput: 58.34 Mbit/s
95th percentile per-packet one-way delay: 56.675 ms
Loss rate: 11.89%
-- Flow 2:
Average throughput: 50.78 Mbit/s
95th percentile per-packet one-way delay: 59.896 ms
Loss rate: 18.86%
-- Flow 3:
Average throughput: 2.89 Mbit/s
95th percentile per-packet one-way delay: 60.963 ms
Loss rate: 23.79%
```
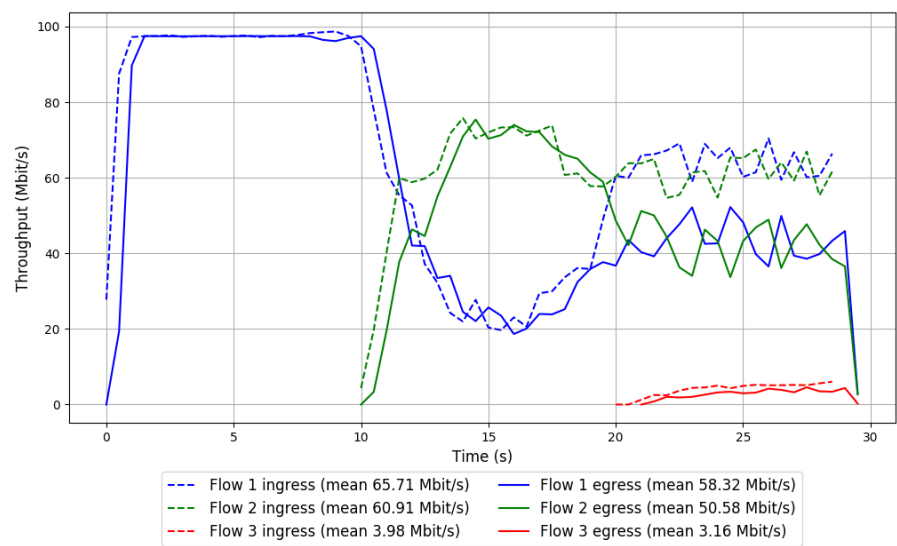
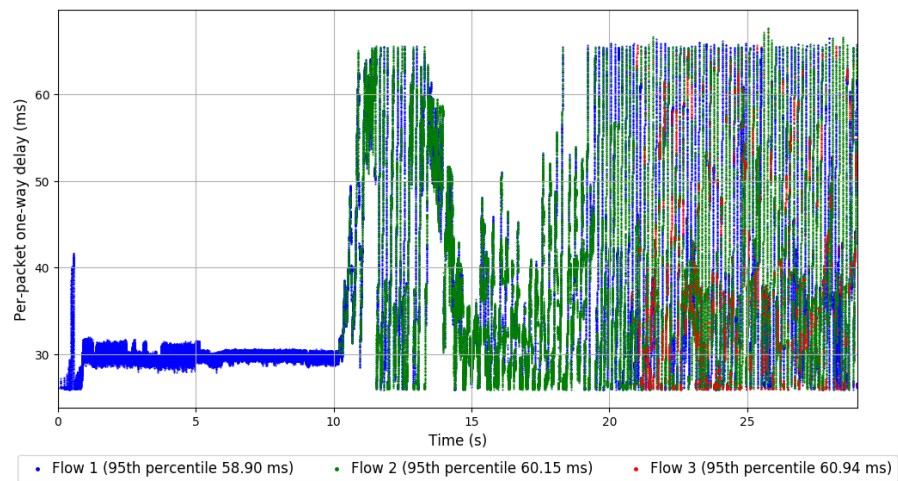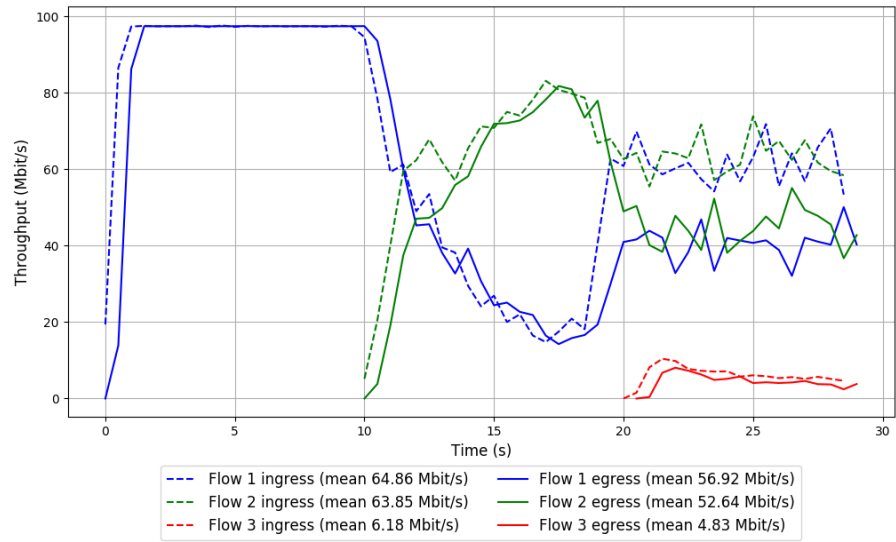Run 3: Report of Indigo-MusesC5 — Data Link



Flow 1 ingress (mean 66.24 Mbit/s) --- Flow 1 egress (mean 58.34 Mbit/s)
Flow 2 ingress (mean 62.58 Mbit/s) --- Flow 2 egress (mean 50.78 Mbit/s)
Flow 3 ingress (mean 3.79 Mbit/s) --- Flow 3 egress (mean 2.89 Mbit/s)



Flow 1 (95th percentile 56.67 ms)  Flow 2 (95th percentile 59.90 ms)  Flow 3 (95th percentile 60.96 ms)

```
Run 4: Statistics of Indigo-MusesC5

Start at: 2019-02-20 01:39:25
End at: 2019-02-20 01:39:55
Local clock offset: 0.647 ms
Remote clock offset: -5.671 ms


# Below is generated by plot.py at 2019-02-20 02:36:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.13 Mbit/s
95th percentile per-packet one-way delay: 58.416 ms
Loss rate: 13.58%
-- Flow 1:
Average throughput: 58.32 Mbit/s
95th percentile per-packet one-way delay: 57.123 ms
Loss rate: 11.24%
-- Flow 2:
Average throughput: 50.58 Mbit/s
95th percentile per-packet one-way delay: 60.079 ms
Loss rate: 16.96%
-- Flow 3:
Average throughput: 3.16 Mbit/s
95th percentile per-packet one-way delay: 58.979 ms
Loss rate: 29.78%
```

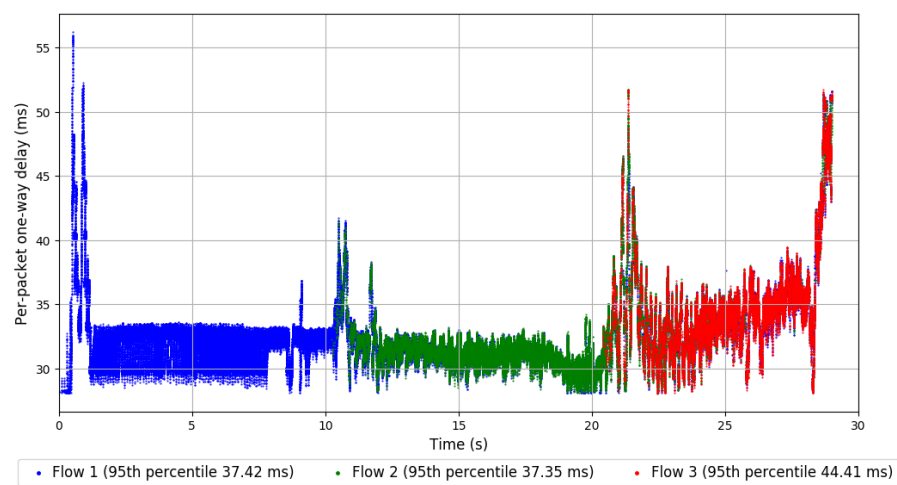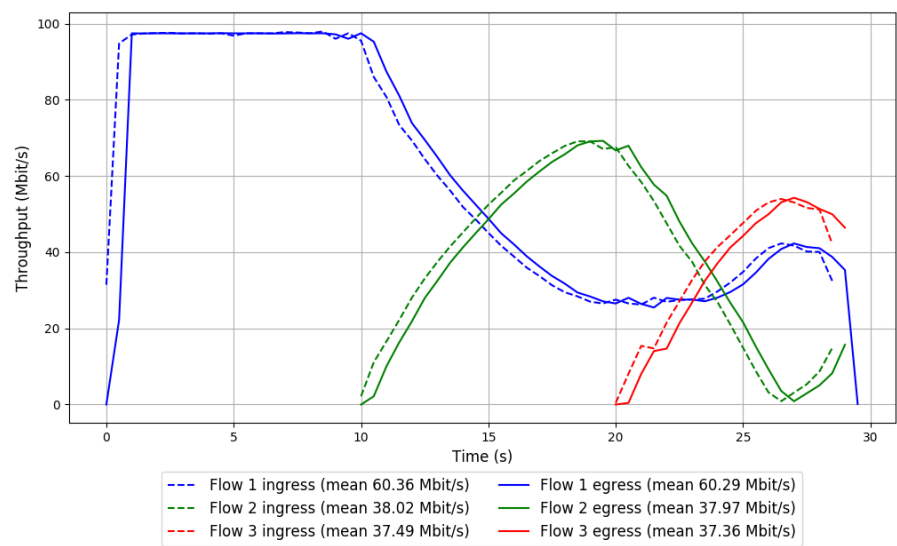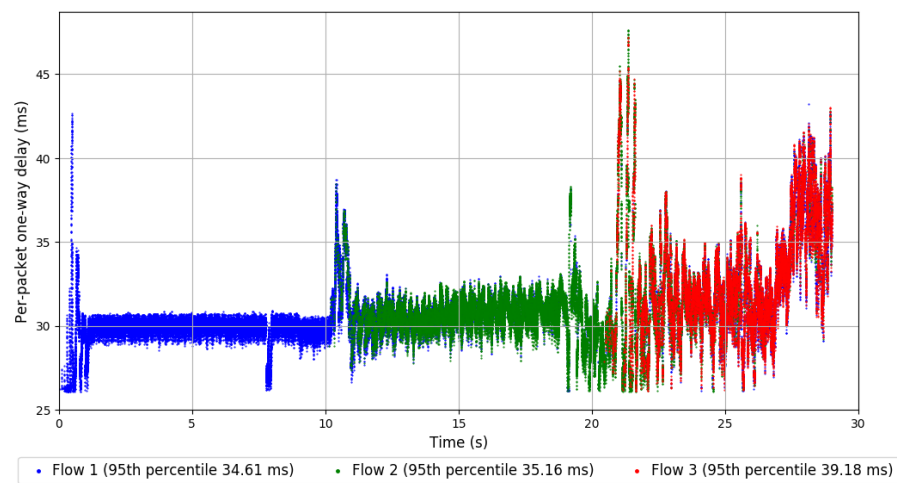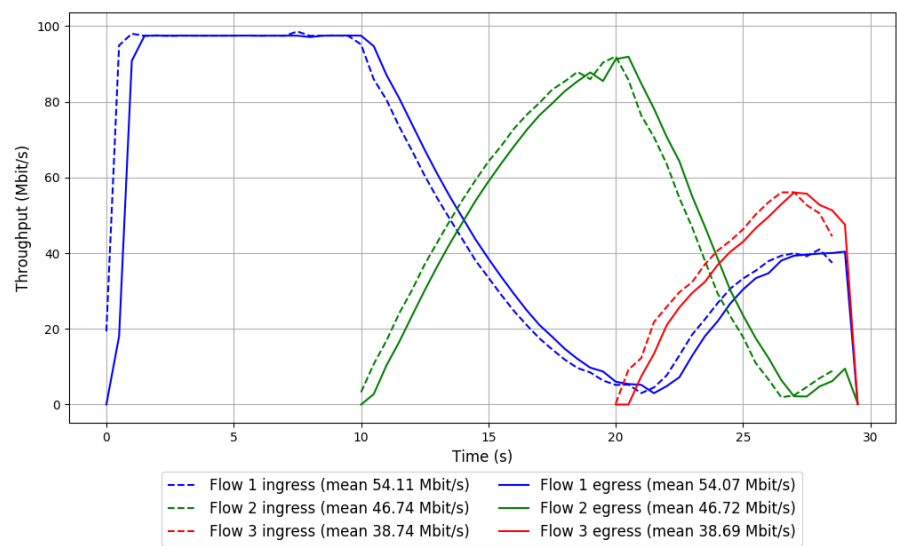Run 4: Report of Indigo-MusesC5 — Data Link

```
Run 5: Statistics of Indigo-MusesC5

Start at: 2019-02-20 02:04:44
End at: 2019-02-20 02:05:14
Local clock offset: 0.561 ms
Remote clock offset: -4.744 ms


# Below is generated by plot.py at 2019-02-20 02:36:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.58 Mbit/s
95th percentile per-packet one-way delay: 59.425 ms
Loss rate: 14.52%
-- Flow 1:
Average throughput: 56.92 Mbit/s
95th percentile per-packet one-way delay: 58.895 ms
Loss rate: 12.23%
-- Flow 2:
Average throughput: 52.64 Mbit/s
95th percentile per-packet one-way delay: 60.153 ms
Loss rate: 17.54%
-- Flow 3:
Average throughput: 4.83 Mbit/s
95th percentile per-packet one-way delay: 60.944 ms
Loss rate: 26.69%
```

Run 5: Report of Indigo-MusesC5 — Data Link



- - - Flow 1 ingress (mean 64.86 Mbit/s) ——— Flow 1 egress (mean 56.92 Mbit/s)
- - - Flow 2 ingress (mean 63.85 Mbit/s) ——— Flow 2 egress (mean 52.64 Mbit/s)
- - - Flow 3 ingress (mean 6.18 Mbit/s) ——— Flow 3 egress (mean 4.83 Mbit/s)



- Flow 1 (95th percentile 58.90 ms)   - Flow 2 (95th percentile 60.15 ms)   - Flow 3 (95th percentile 60.94 ms)

84

```
Run 1: Statistics of Indigo-MusesD

Start at: 2019-02-20 00:23:37
End at: 2019-02-20 00:24:07
Local clock offset: -5.314 ms
Remote clock offset: -7.402 ms


# Below is generated by plot.py at 2019-02-20 02:36:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.04 Mbit/s
95th percentile per-packet one-way delay: 38.054 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 60.29 Mbit/s
95th percentile per-packet one-way delay: 37.420 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 37.97 Mbit/s
95th percentile per-packet one-way delay: 37.354 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 37.36 Mbit/s
95th percentile per-packet one-way delay: 44.411 ms
Loss rate: 0.12%
```

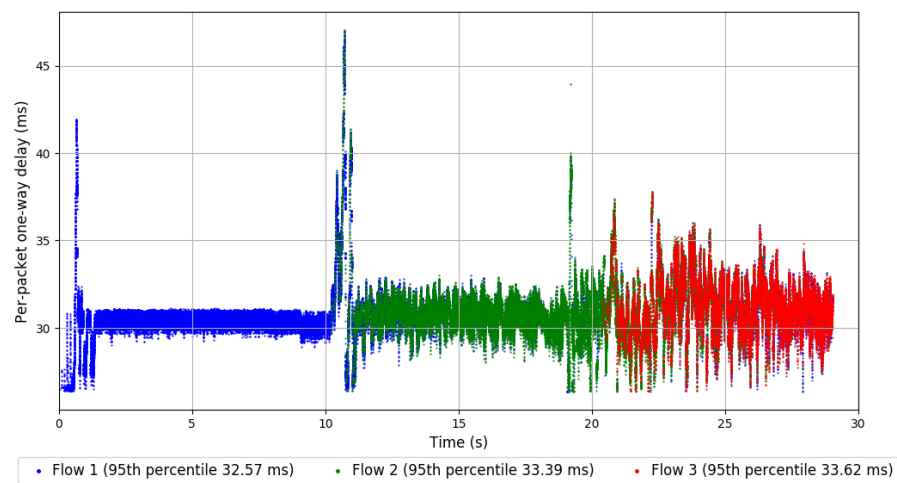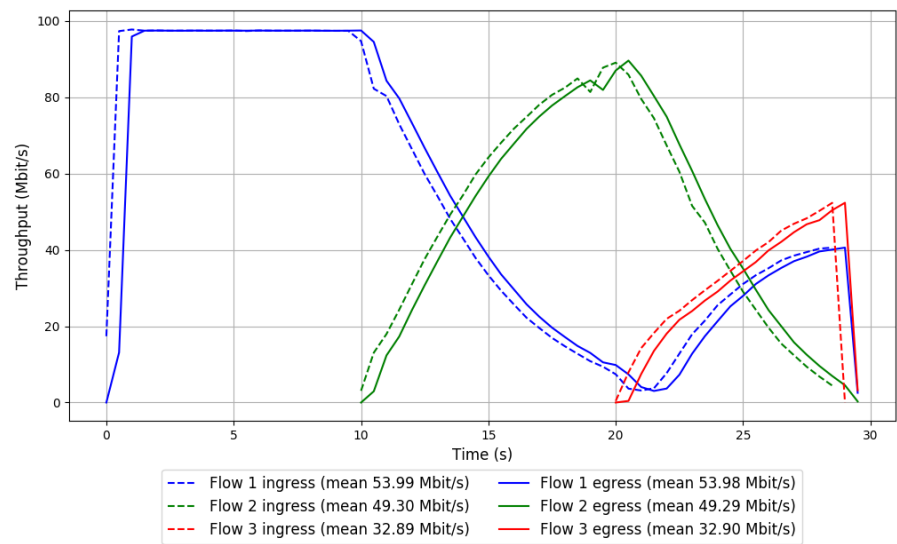Run 1: Report of Indigo-MusesD — Data Link

```
Run 2: Statistics of Indigo-MusesD

Start at: 2019-02-20 00:49:41
End at: 2019-02-20 00:50:11
Local clock offset: 1.546 ms
Remote clock offset: -8.898 ms


# Below is generated by plot.py at 2019-02-20 02:36:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.90 Mbit/s
95th percentile per-packet one-way delay: 36.160 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 54.07 Mbit/s
95th percentile per-packet one-way delay: 34.607 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 46.72 Mbit/s
95th percentile per-packet one-way delay: 35.156 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 38.69 Mbit/s
95th percentile per-packet one-way delay: 39.183 ms
Loss rate: 0.00%
```

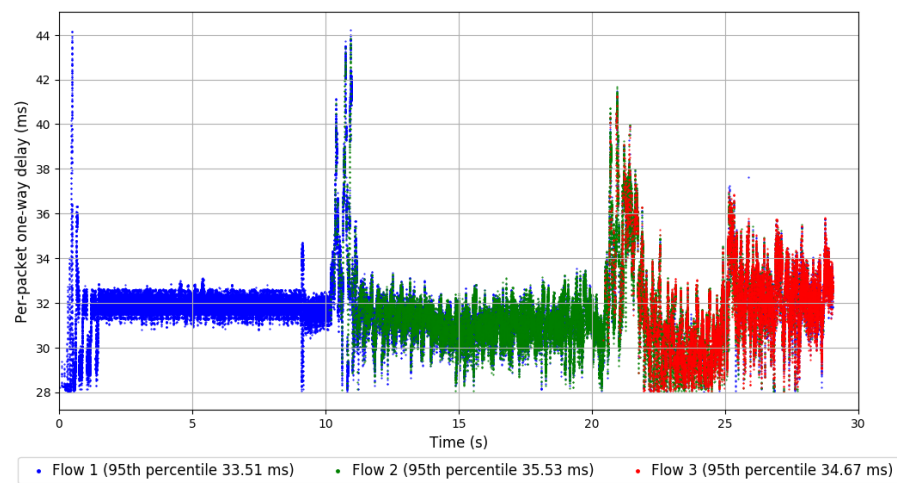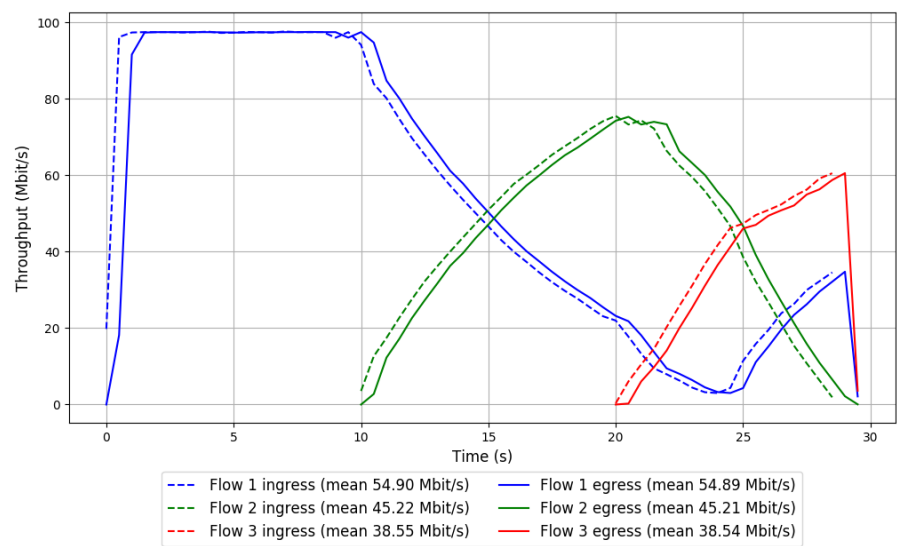Run 2: Report of Indigo-MusesD — Data Link

```
Run 3: Statistics of Indigo-MusesD

Start at: 2019-02-20 01:15:05
End at: 2019-02-20 01:15:35
Local clock offset: 1.123 ms
Remote clock offset: -6.799 ms


# Below is generated by plot.py at 2019-02-20 02:36:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.89 Mbit/s
95th percentile per-packet one-way delay: 33.134 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 53.98 Mbit/s
95th percentile per-packet one-way delay: 32.568 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 49.29 Mbit/s
95th percentile per-packet one-way delay: 33.389 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 32.90 Mbit/s
95th percentile per-packet one-way delay: 33.625 ms
Loss rate: 0.00%
```

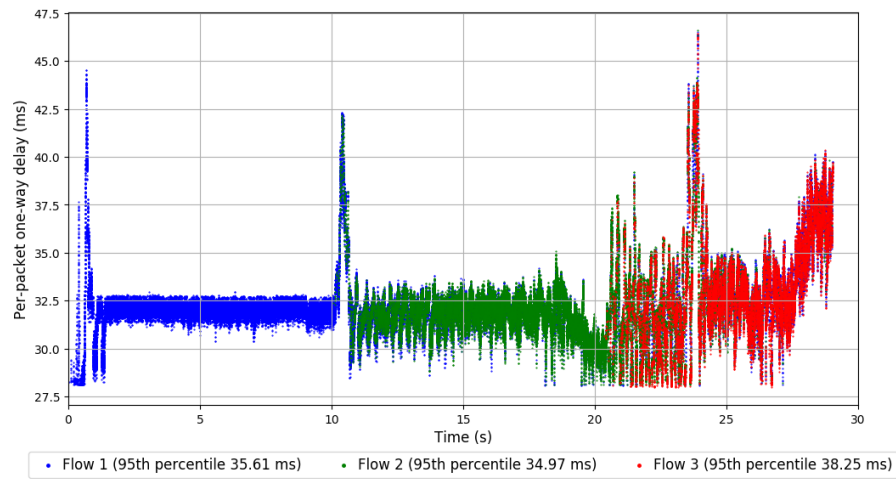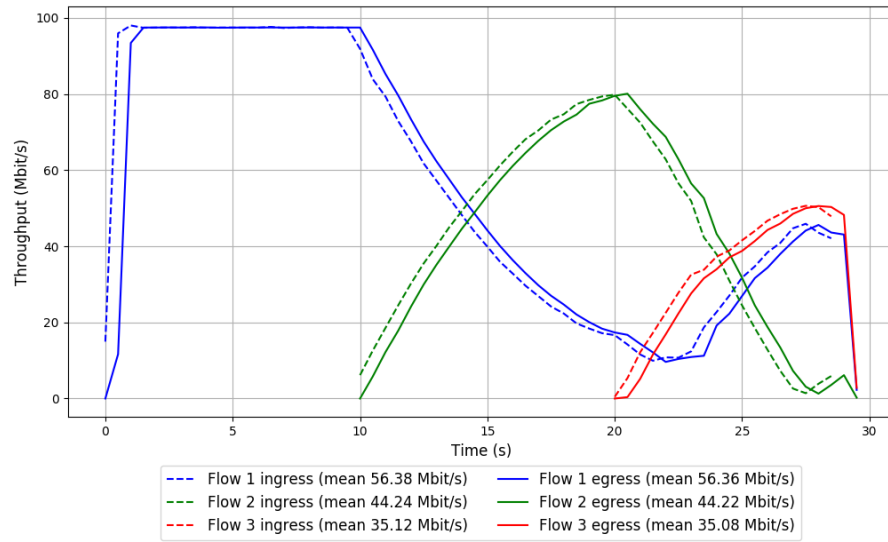Run 3: Report of Indigo-MusesD — Data Link



90

```
Run 4: Statistics of Indigo-MusesD

Start at: 2019-02-20 01:40:40
End at: 2019-02-20 01:41:10
Local clock offset: 0.639 ms
Remote clock offset: -3.841 ms


# Below is generated by plot.py at 2019-02-20 02:36:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.80 Mbit/s
95th percentile per-packet one-way delay: 34.459 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 54.89 Mbit/s
95th percentile per-packet one-way delay: 33.508 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 45.21 Mbit/s
95th percentile per-packet one-way delay: 35.529 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 38.54 Mbit/s
95th percentile per-packet one-way delay: 34.666 ms
Loss rate: 0.00%
```

Run 4: Report of Indigo-MusesD — Data Link

```
Run 5: Statistics of Indigo-MusesD

Start at: 2019-02-20 02:05:57
End at: 2019-02-20 02:06:27
Local clock offset: 0.508 ms
Remote clock offset: -2.592 ms


# Below is generated by plot.py at 2019-02-20 02:36:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.73 Mbit/s
95th percentile per-packet one-way delay: 36.276 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 56.36 Mbit/s
95th percentile per-packet one-way delay: 35.609 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 44.22 Mbit/s
95th percentile per-packet one-way delay: 34.973 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 35.08 Mbit/s
95th percentile per-packet one-way delay: 38.248 ms
Loss rate: 0.00%
```

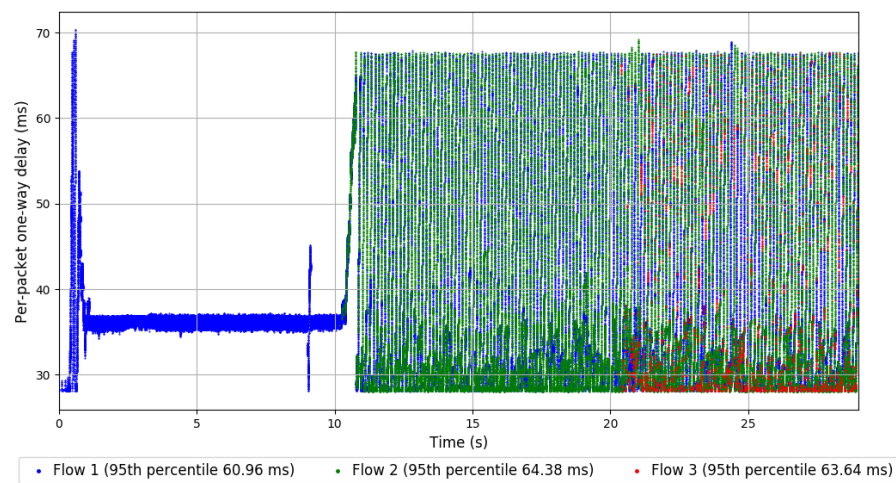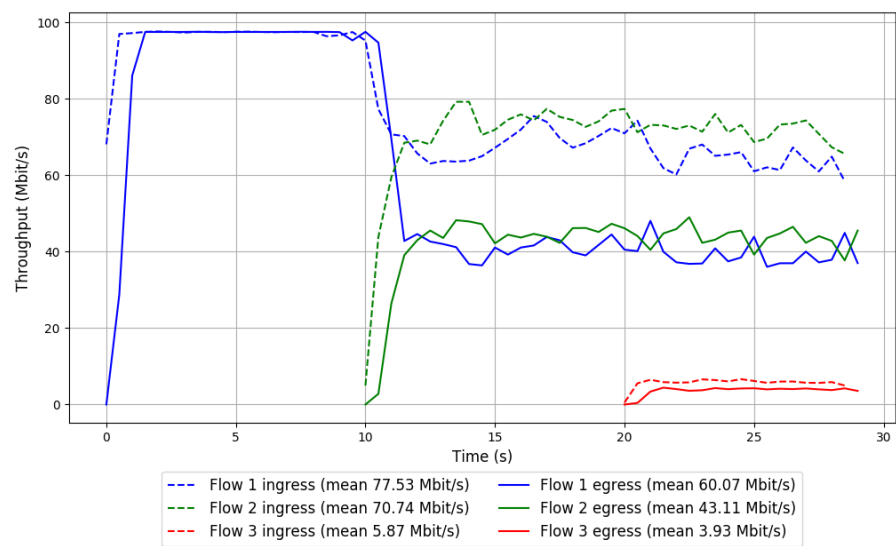Run 5: Report of Indigo-MusesD — Data Link

```
Run 1: Statistics of Indigo-MusesT

Start at: 2019-02-20 00:26:01
End at: 2019-02-20 00:26:31
Local clock offset: -5.402 ms
Remote clock offset: -7.453 ms


# Below is generated by plot.py at 2019-02-20 02:37:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.25 Mbit/s
95th percentile per-packet one-way delay: 62.570 ms
Loss rate: 28.66%
-- Flow 1:
Average throughput: 60.07 Mbit/s
95th percentile per-packet one-way delay: 60.961 ms
Loss rate: 22.44%
-- Flow 2:
Average throughput: 43.11 Mbit/s
95th percentile per-packet one-way delay: 64.381 ms
Loss rate: 38.99%
-- Flow 3:
Average throughput: 3.93 Mbit/s
95th percentile per-packet one-way delay: 63.640 ms
Loss rate: 32.84%
```

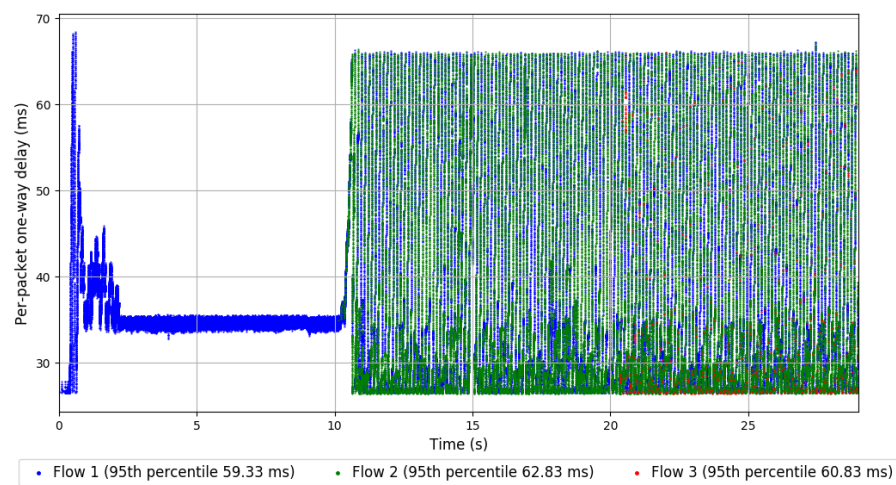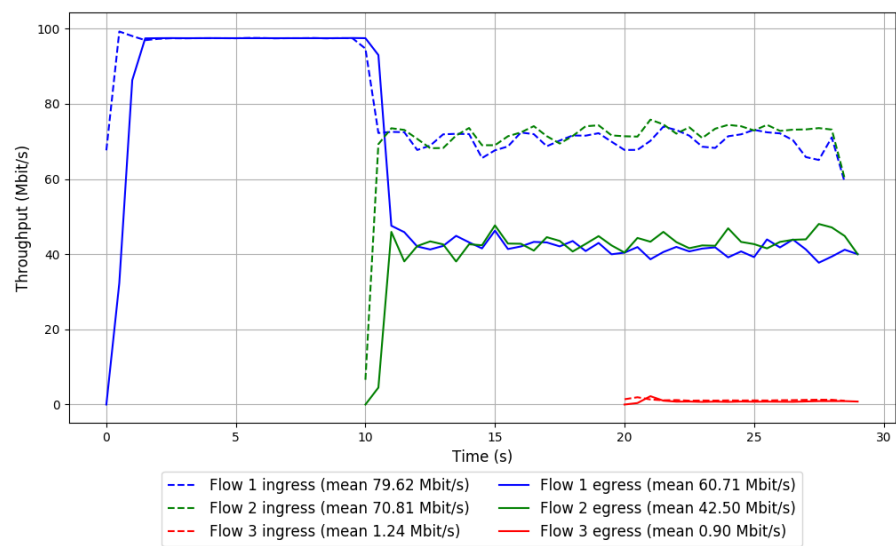Run 1: Report of Indigo-MusesT — Data Link



Flow 1 ingress (mean 77.53 Mbit/s) —— Flow 1 egress (mean 60.07 Mbit/s)
Flow 2 ingress (mean 70.74 Mbit/s) —— Flow 2 egress (mean 43.11 Mbit/s)
Flow 3 ingress (mean 5.87 Mbit/s) —— Flow 3 egress (mean 3.93 Mbit/s)



• Flow 1 (95th percentile 60.96 ms)    • Flow 2 (95th percentile 64.38 ms)    • Flow 3 (95th percentile 63.64 ms)

```
Run 2: Statistics of Indigo-MusesT

Start at: 2019-02-20 00:52:05
End at: 2019-02-20 00:52:35
Local clock offset: 1.875 ms
Remote clock offset: -8.494 ms


# Below is generated by plot.py at 2019-02-20 02:37:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.62 Mbit/s
95th percentile per-packet one-way delay: 61.097 ms
Loss rate: 29.67%
-- Flow 1:
Average throughput: 60.71 Mbit/s
95th percentile per-packet one-way delay: 59.332 ms
Loss rate: 23.72%
-- Flow 2:
Average throughput: 42.50 Mbit/s
95th percentile per-packet one-way delay: 62.832 ms
Loss rate: 39.96%
-- Flow 3:
Average throughput: 0.90 Mbit/s
95th percentile per-packet one-way delay: 60.833 ms
Loss rate: 28.21%
```

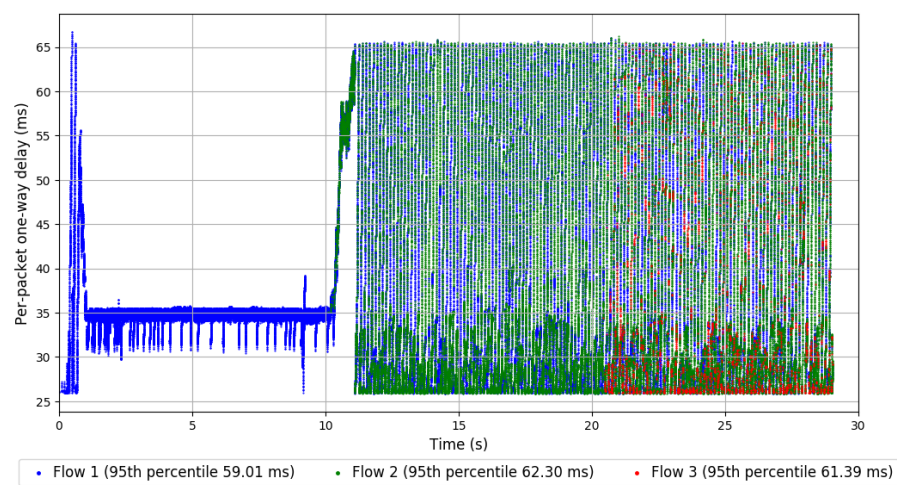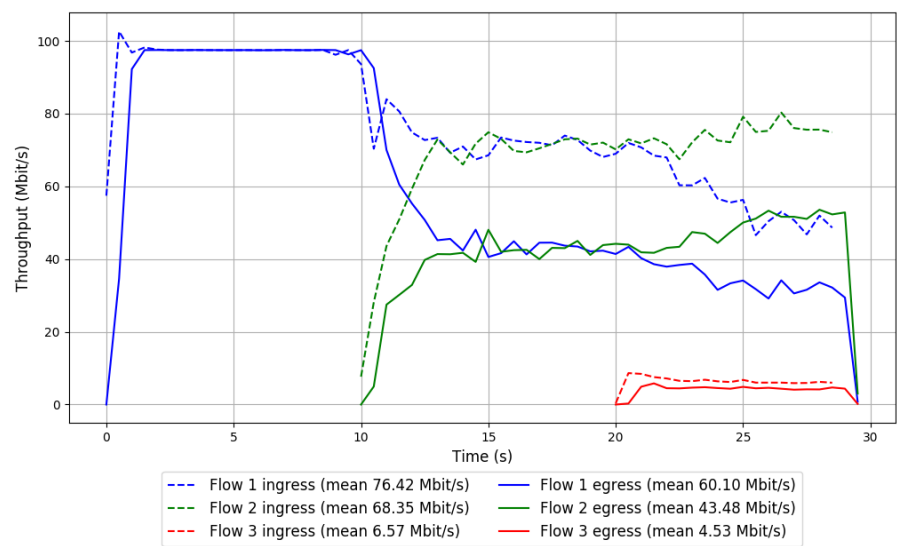Run 2: Report of Indigo-MusesT — Data Link

```
Run 3: Statistics of Indigo-MusesT

Start at: 2019-02-20 01:17:28
End at: 2019-02-20 01:17:58
Local clock offset: 1.116 ms
Remote clock offset: -7.087 ms


# Below is generated by plot.py at 2019-02-20 02:37:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.79 Mbit/s
95th percentile per-packet one-way delay: 60.708 ms
Loss rate: 26.97%
-- Flow 1:
Average throughput: 60.10 Mbit/s
95th percentile per-packet one-way delay: 59.014 ms
Loss rate: 21.36%
-- Flow 2:
Average throughput: 43.48 Mbit/s
95th percentile per-packet one-way delay: 62.302 ms
Loss rate: 36.41%
-- Flow 3:
Average throughput: 4.53 Mbit/s
95th percentile per-packet one-way delay: 61.387 ms
Loss rate: 31.07%
```

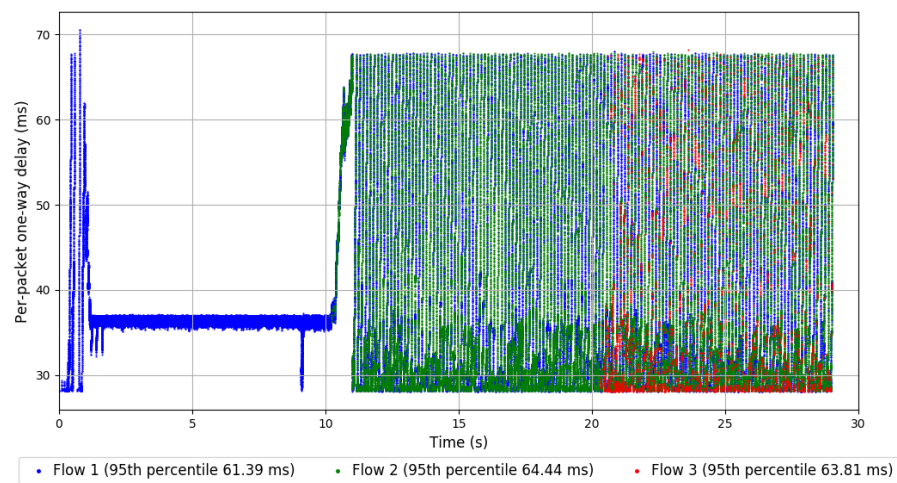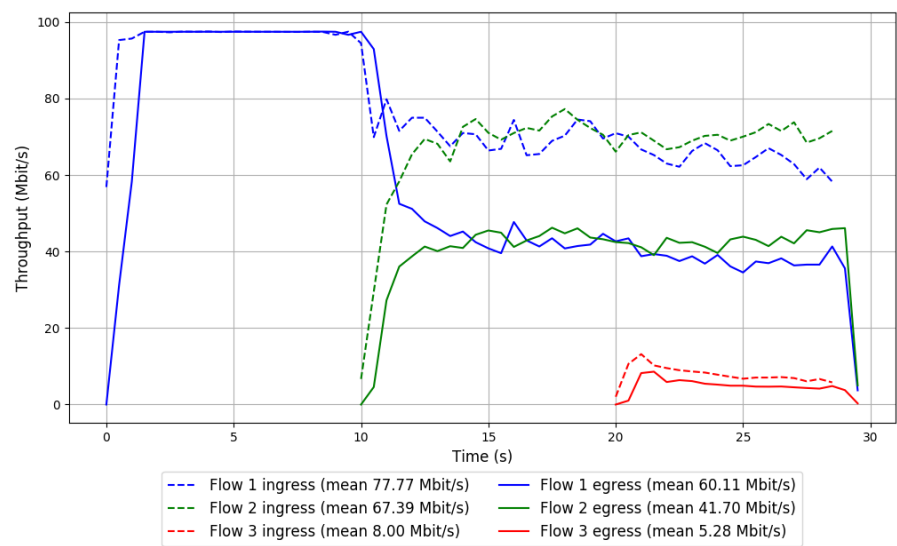Run 3: Report of Indigo-MusesT — Data Link



Flow 1 ingress (mean 76.42 Mbit/s) ---- Flow 1 egress (mean 60.10 Mbit/s)
Flow 2 ingress (mean 68.35 Mbit/s) ---- Flow 2 egress (mean 43.48 Mbit/s)
Flow 3 ingress (mean 6.57 Mbit/s) ---- Flow 3 egress (mean 4.53 Mbit/s)



Flow 1 (95th percentile 59.01 ms)   Flow 2 (95th percentile 62.30 ms)   Flow 3 (95th percentile 61.39 ms)

```
Run 4: Statistics of Indigo-MusesT

Start at: 2019-02-20 01:43:03
End at: 2019-02-20 01:43:33
Local clock offset: 0.609 ms
Remote clock offset: -3.619 ms


# Below is generated by plot.py at 2019-02-20 02:37:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.87 Mbit/s
95th percentile per-packet one-way delay: 62.851 ms
Loss rate: 28.30%
-- Flow 1:
Average throughput: 60.11 Mbit/s
95th percentile per-packet one-way delay: 61.387 ms
Loss rate: 22.62%
-- Flow 2:
Average throughput: 41.70 Mbit/s
95th percentile per-packet one-way delay: 64.439 ms
Loss rate: 38.05%
-- Flow 3:
Average throughput: 5.28 Mbit/s
95th percentile per-packet one-way delay: 63.812 ms
Loss rate: 33.84%
```

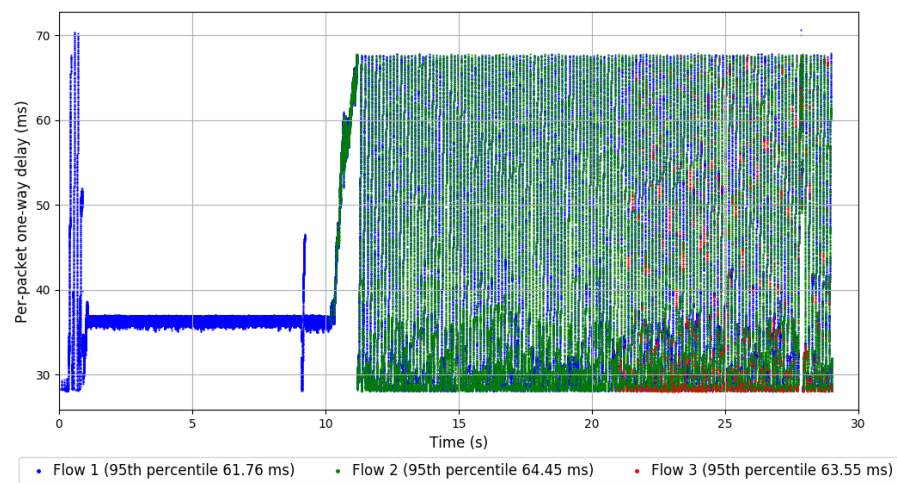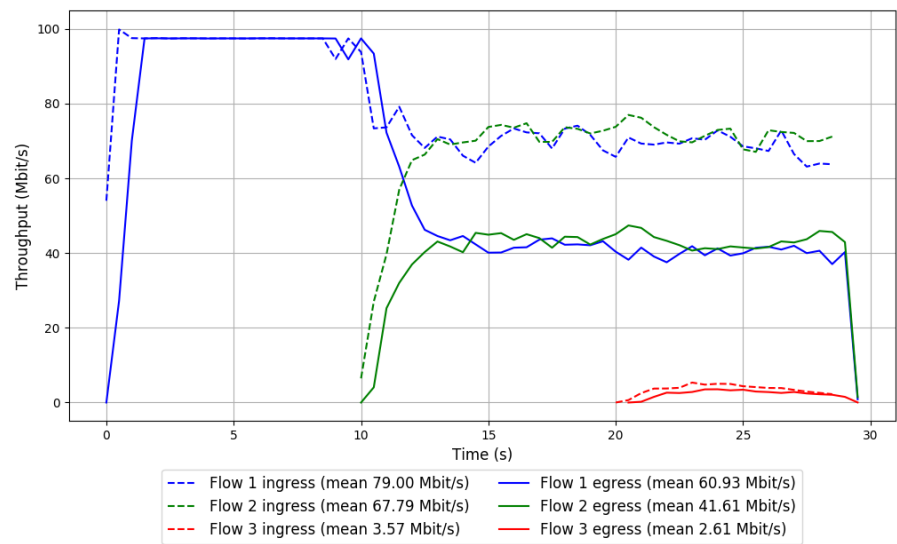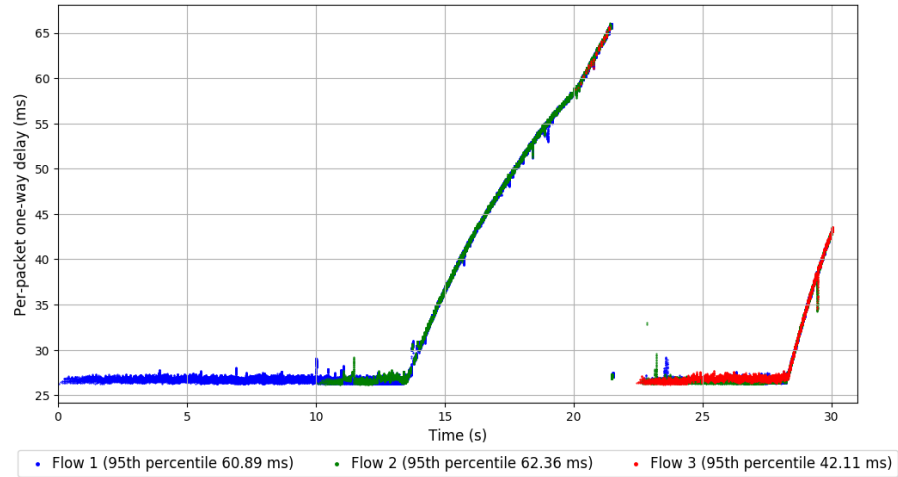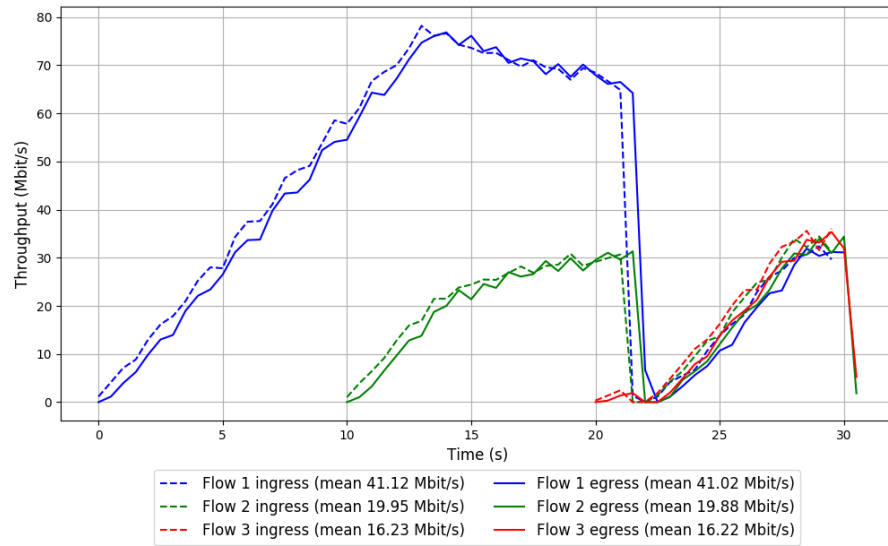Run 4: Report of Indigo-MusesT — Data Link



- - - Flow 1 ingress (mean 77.77 Mbit/s) —— Flow 1 egress (mean 60.11 Mbit/s)
- - - Flow 2 ingress (mean 67.39 Mbit/s) —— Flow 2 egress (mean 41.70 Mbit/s)
- - - Flow 3 ingress (mean 8.00 Mbit/s) —— Flow 3 egress (mean 5.28 Mbit/s)



• Flow 1 (95th percentile 61.39 ms)   • Flow 2 (95th percentile 64.44 ms)   • Flow 3 (95th percentile 63.81 ms)

```
Run 5: Statistics of Indigo-MusesT

Start at: 2019-02-20 02:08:20
End at: 2019-02-20 02:08:50
Local clock offset: 0.473 ms
Remote clock offset: -2.481 ms


# Below is generated by plot.py at 2019-02-20 02:37:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.78 Mbit/s
95th percentile per-packet one-way delay: 63.014 ms
Loss rate: 28.54%
-- Flow 1:
Average throughput: 60.93 Mbit/s
95th percentile per-packet one-way delay: 61.758 ms
Loss rate: 22.87%
-- Flow 2:
Average throughput: 41.61 Mbit/s
95th percentile per-packet one-way delay: 64.450 ms
Loss rate: 38.63%
-- Flow 3:
Average throughput: 2.61 Mbit/s
95th percentile per-packet one-way delay: 63.555 ms
Loss rate: 30.95%
```

Run 5: Report of Indigo-MusesT — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2019-02-20 00:39:46
End at: 2019-02-20 00:40:16
Local clock offset: -0.592 ms
Remote clock offset: -9.262 ms


# Below is generated by plot.py at 2019-02-20 02:37:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 59.57 Mbit/s
95th percentile per-packet one-way delay: 61.080 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 41.02 Mbit/s
95th percentile per-packet one-way delay: 60.890 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 19.88 Mbit/s
95th percentile per-packet one-way delay: 62.356 ms
Loss rate: 0.27%
-- Flow 3:
Average throughput: 16.22 Mbit/s
95th percentile per-packet one-way delay: 42.108 ms
Loss rate: 0.18%
```
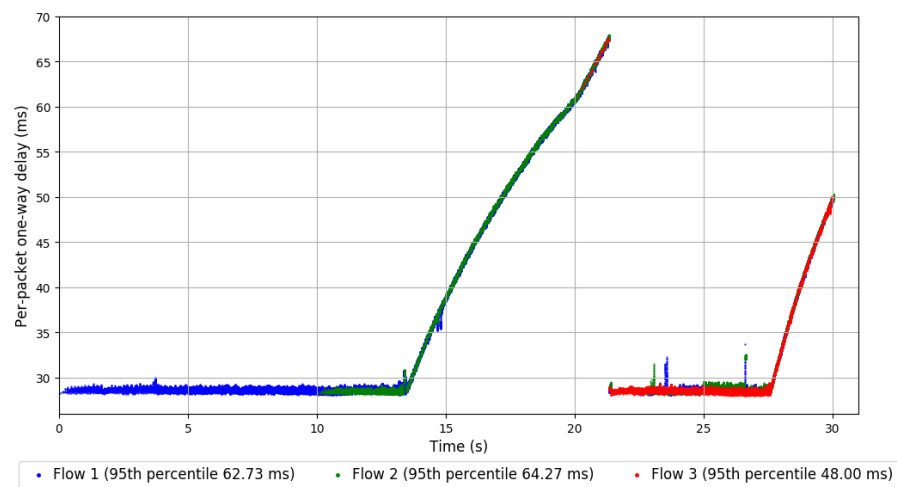
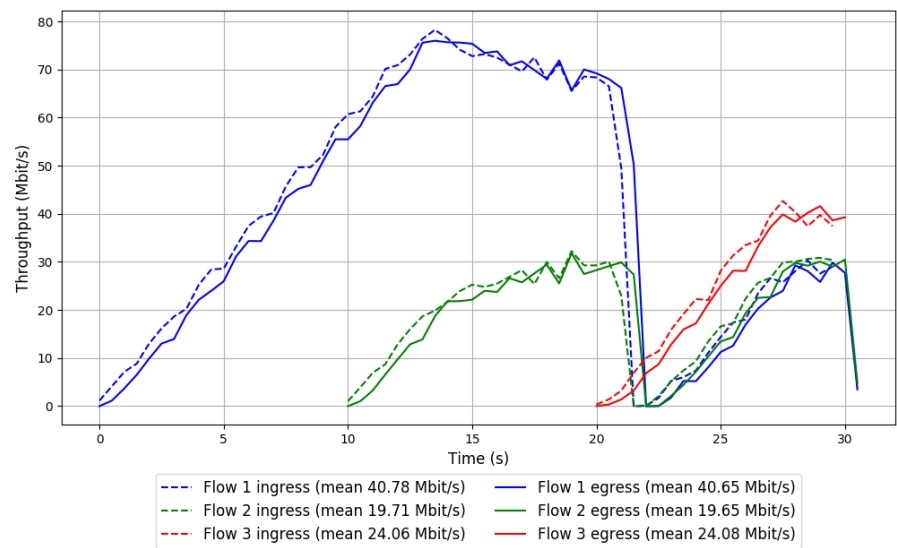Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2019-02-20 01:05:26
End at: 2019-02-20 01:05:56
Local clock offset: 1.764 ms
Remote clock offset: -5.697 ms


# Below is generated by plot.py at 2019-02-20 02:37:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 61.67 Mbit/s
95th percentile per-packet one-way delay: 62.686 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 40.65 Mbit/s
95th percentile per-packet one-way delay: 62.728 ms
Loss rate: 0.24%
-- Flow 2:
Average throughput: 19.65 Mbit/s
95th percentile per-packet one-way delay: 64.274 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 24.08 Mbit/s
95th percentile per-packet one-way delay: 47.996 ms
Loss rate: 0.00%
```
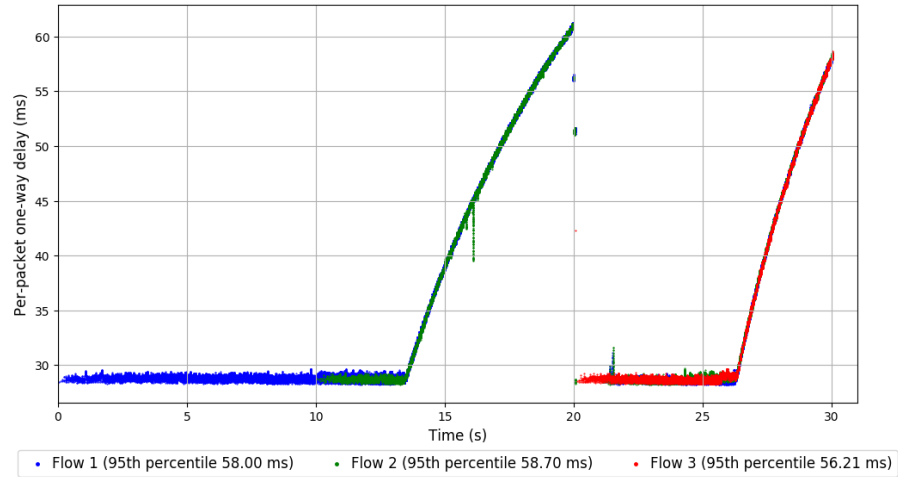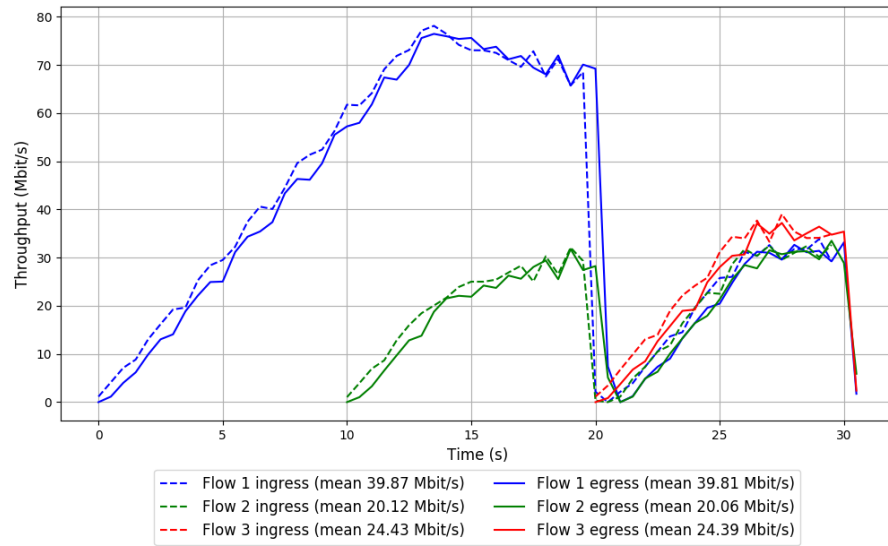
Run 2: Report of LEDBAT — Data Link



Flow 1 ingress (mean 40.78 Mbit/s)    Flow 1 egress (mean 40.65 Mbit/s)
Flow 2 ingress (mean 19.71 Mbit/s)    Flow 2 egress (mean 19.65 Mbit/s)
Flow 3 ingress (mean 24.06 Mbit/s)    Flow 3 egress (mean 24.08 Mbit/s)



Flow 1 (95th percentile 62.73 ms)    Flow 2 (95th percentile 64.27 ms)    Flow 3 (95th percentile 48.00 ms)

```
Run 3: Statistics of LEDBAT

Start at: 2019-02-20 01:30:53
End at: 2019-02-20 01:31:23
Local clock offset: 1.172 ms
Remote clock offset: -3.96 ms


# Below is generated by plot.py at 2019-02-20 02:37:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 61.24 Mbit/s
95th percentile per-packet one-way delay: 57.974 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 39.81 Mbit/s
95th percentile per-packet one-way delay: 57.998 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 20.06 Mbit/s
95th percentile per-packet one-way delay: 58.705 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 24.39 Mbit/s
95th percentile per-packet one-way delay: 56.214 ms
Loss rate: 0.00%
```
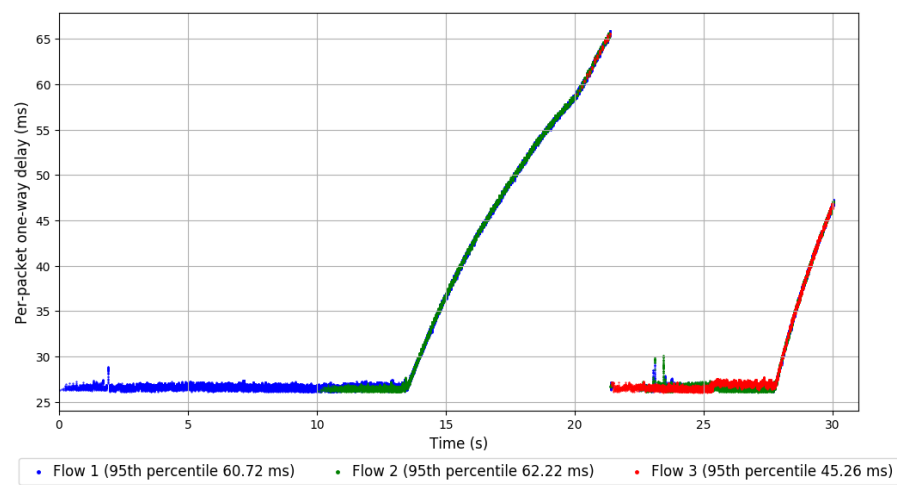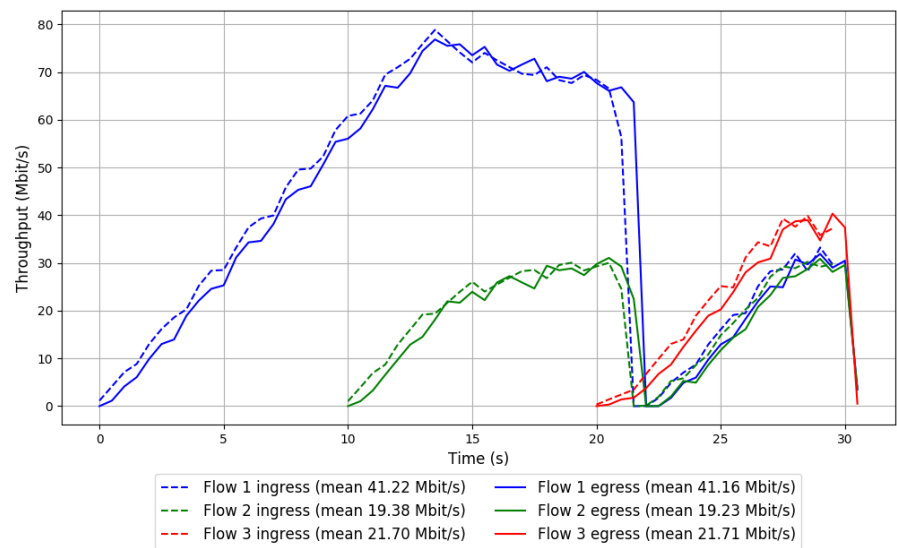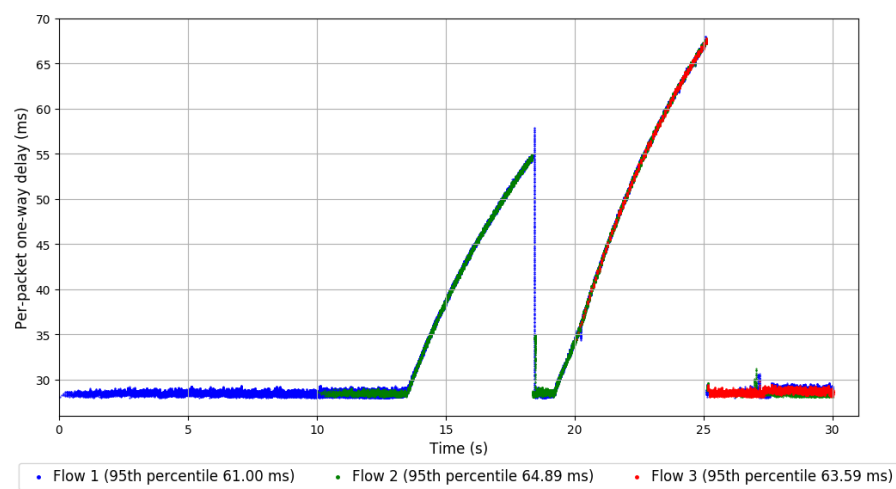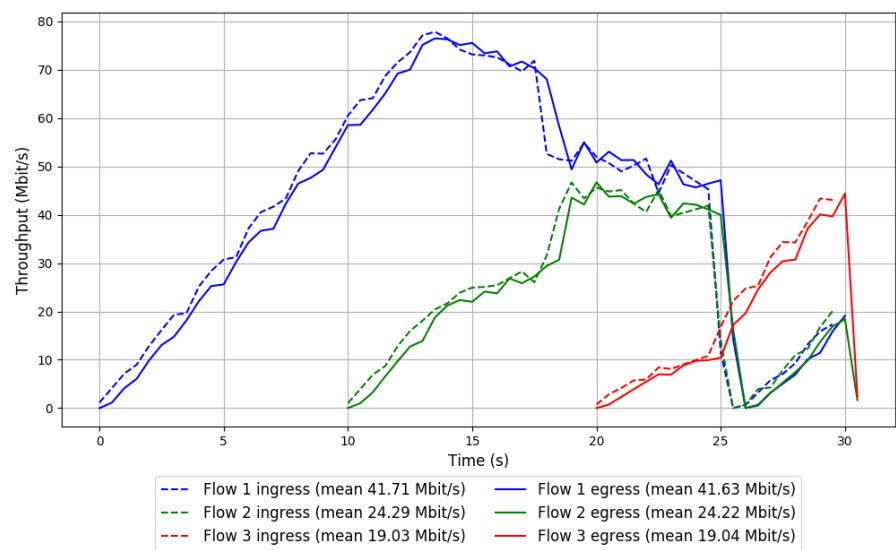
Run 3: Report of LEDBAT — Data Link



- - - - Flow 1 ingress (mean 39.87 Mbit/s) ——— Flow 1 egress (mean 39.81 Mbit/s)
- - - - Flow 2 ingress (mean 20.12 Mbit/s) ——— Flow 2 egress (mean 20.06 Mbit/s)
- - - - Flow 3 ingress (mean 24.43 Mbit/s) ——— Flow 3 egress (mean 24.39 Mbit/s)



• Flow 1 (95th percentile 58.00 ms)    • Flow 2 (95th percentile 58.70 ms)    • Flow 3 (95th percentile 56.21 ms)

```
Run 4: Statistics of LEDBAT

Start at: 2019-02-20 01:56:21
End at: 2019-02-20 01:56:51
Local clock offset: 0.681 ms
Remote clock offset: -5.057 ms

# Below is generated by plot.py at 2019-02-20 02:38:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 61.14 Mbit/s
95th percentile per-packet one-way delay: 60.710 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 41.16 Mbit/s
95th percentile per-packet one-way delay: 60.719 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 19.23 Mbit/s
95th percentile per-packet one-way delay: 62.224 ms
Loss rate: 0.69%
-- Flow 3:
Average throughput: 21.71 Mbit/s
95th percentile per-packet one-way delay: 45.262 ms
Loss rate: 0.08%
```
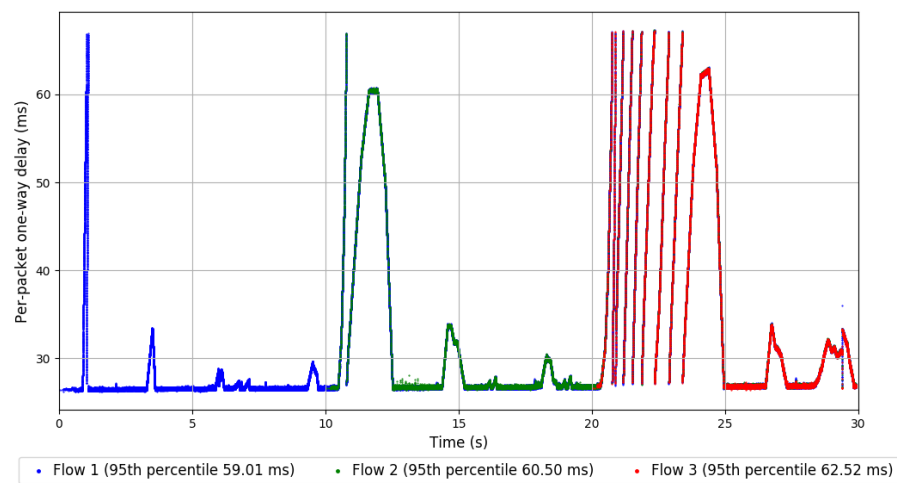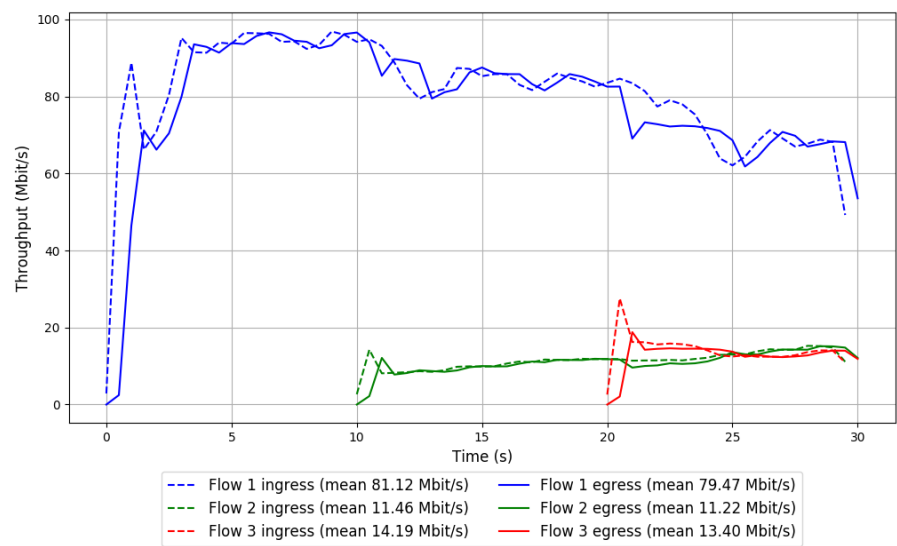
Run 4: Report of LEDBAT — Data Link



Flow 1 ingress (mean 41.22 Mbit/s)       Flow 1 egress (mean 41.16 Mbit/s)
Flow 2 ingress (mean 19.38 Mbit/s)       Flow 2 egress (mean 19.23 Mbit/s)
Flow 3 ingress (mean 21.70 Mbit/s)       Flow 3 egress (mean 21.71 Mbit/s)



Flow 1 (95th percentile 60.72 ms)       Flow 2 (95th percentile 62.22 ms)       Flow 3 (95th percentile 45.26 ms)

```
Run 5: Statistics of LEDBAT

Start at: 2019-02-20 02:21:46
End at: 2019-02-20 02:22:16
Local clock offset: 0.414 ms
Remote clock offset: -2.055 ms


# Below is generated by plot.py at 2019-02-20 02:38:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 64.03 Mbit/s
95th percentile per-packet one-way delay: 63.093 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 41.63 Mbit/s
95th percentile per-packet one-way delay: 61.000 ms
Loss rate: 0.19%
-- Flow 2:
Average throughput: 24.22 Mbit/s
95th percentile per-packet one-way delay: 64.888 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 19.04 Mbit/s
95th percentile per-packet one-way delay: 63.588 ms
Loss rate: 0.02%
```
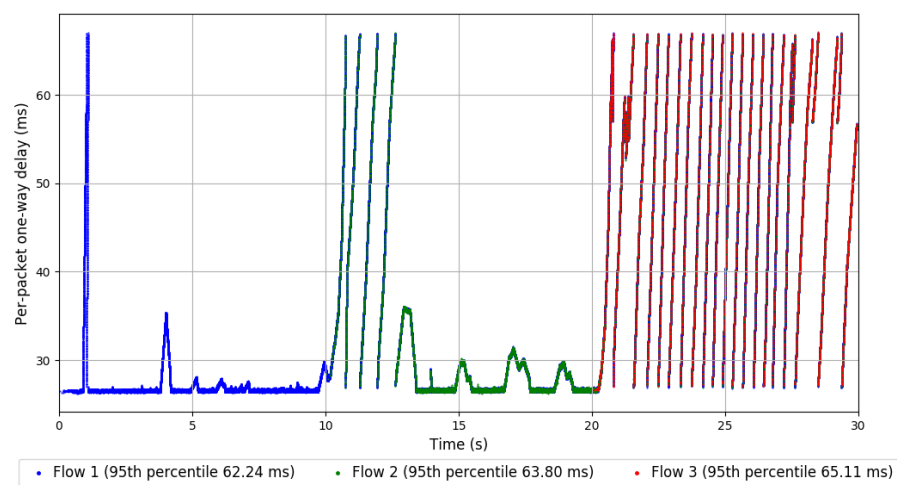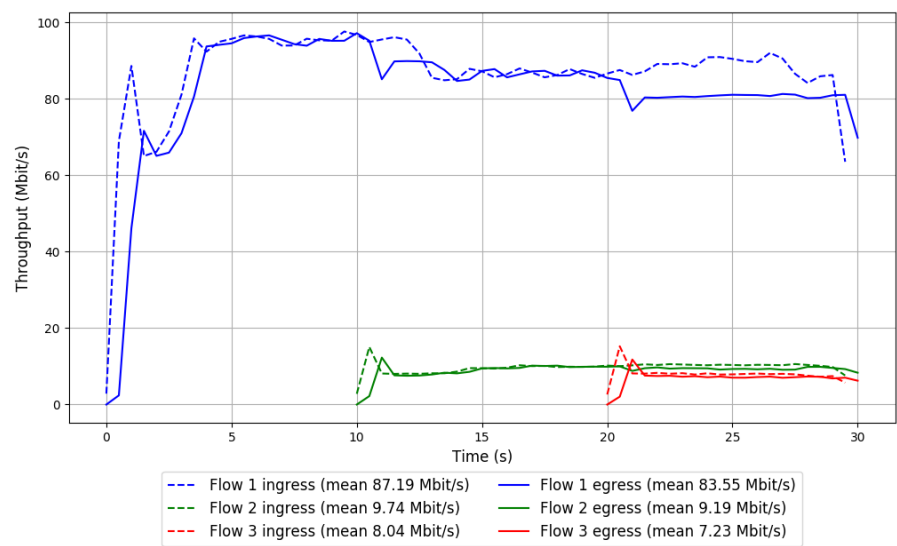
Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2019-02-20 00:31:08
End at: 2019-02-20 00:31:38
Local clock offset: -4.736 ms
Remote clock offset: -9.409 ms


# Below is generated by plot.py at 2019-02-20 02:38:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.35 Mbit/s
95th percentile per-packet one-way delay: 59.805 ms
Loss rate: 2.21%
-- Flow 1:
Average throughput: 79.47 Mbit/s
95th percentile per-packet one-way delay: 59.006 ms
Loss rate: 2.04%
-- Flow 2:
Average throughput: 11.22 Mbit/s
95th percentile per-packet one-way delay: 60.496 ms
Loss rate: 2.07%
-- Flow 3:
Average throughput: 13.40 Mbit/s
95th percentile per-packet one-way delay: 62.515 ms
Loss rate: 5.53%
```

Run 1: Report of PCC-Allegro — Data Link



- - - - Flow 1 ingress (mean 81.12 Mbit/s) —— Flow 1 egress (mean 79.47 Mbit/s)
- - - - Flow 2 ingress (mean 11.46 Mbit/s) —— Flow 2 egress (mean 11.22 Mbit/s)
- - - - Flow 3 ingress (mean 14.19 Mbit/s) —— Flow 3 egress (mean 13.40 Mbit/s)



• Flow 1 (95th percentile 59.01 ms)    • Flow 2 (95th percentile 60.50 ms)    • Flow 3 (95th percentile 62.52 ms)

116

```
Run 2: Statistics of PCC-Allegro

Start at: 2019-02-20 00:57:00
End at: 2019-02-20 00:57:30
Local clock offset: 2.47 ms
Remote clock offset: -8.294 ms


# Below is generated by plot.py at 2019-02-20 02:38:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.06 Mbit/s
95th percentile per-packet one-way delay: 62.605 ms
Loss rate: 4.33%
-- Flow 1:
Average throughput: 83.55 Mbit/s
95th percentile per-packet one-way delay: 62.241 ms
Loss rate: 4.07%
-- Flow 2:
Average throughput: 9.19 Mbit/s
95th percentile per-packet one-way delay: 63.803 ms
Loss rate: 5.50%
-- Flow 3:
Average throughput: 7.23 Mbit/s
95th percentile per-packet one-way delay: 65.108 ms
Loss rate: 9.76%
```
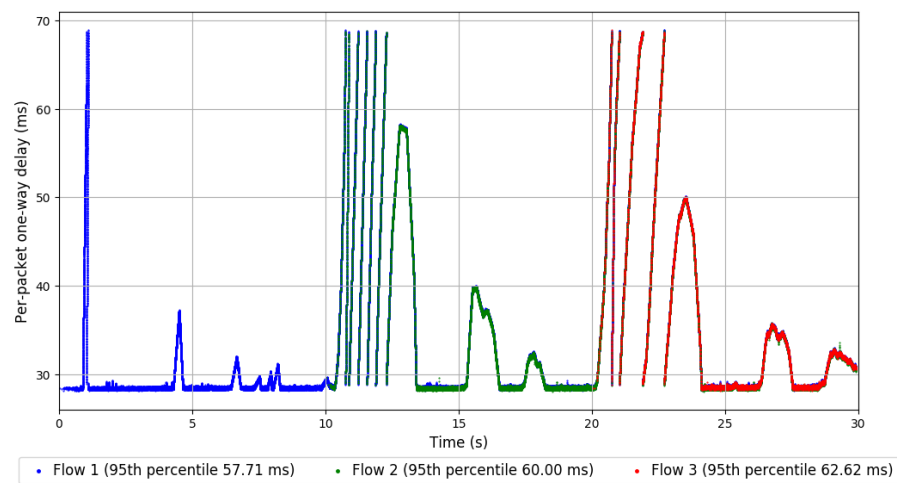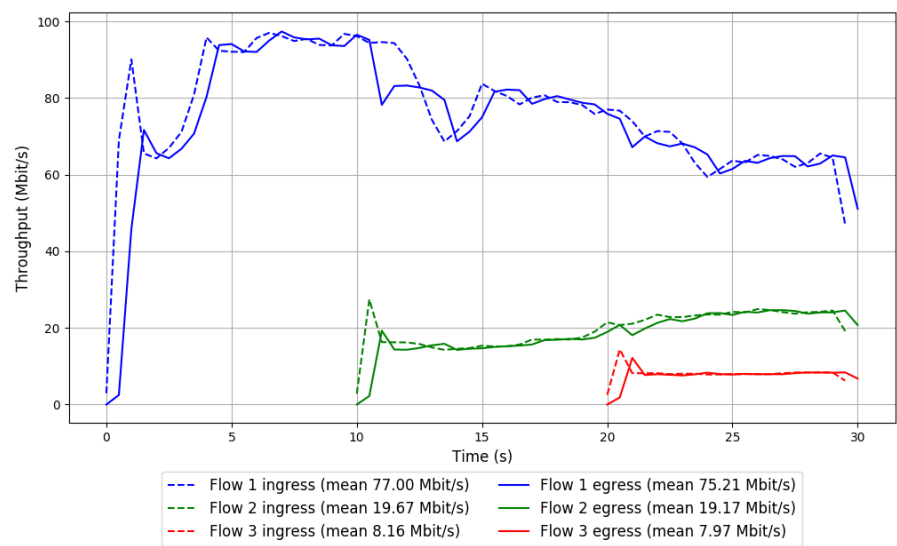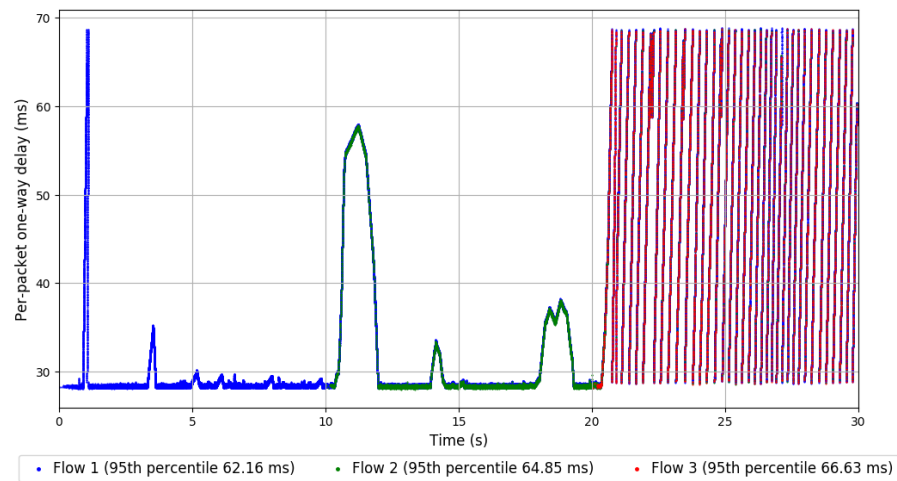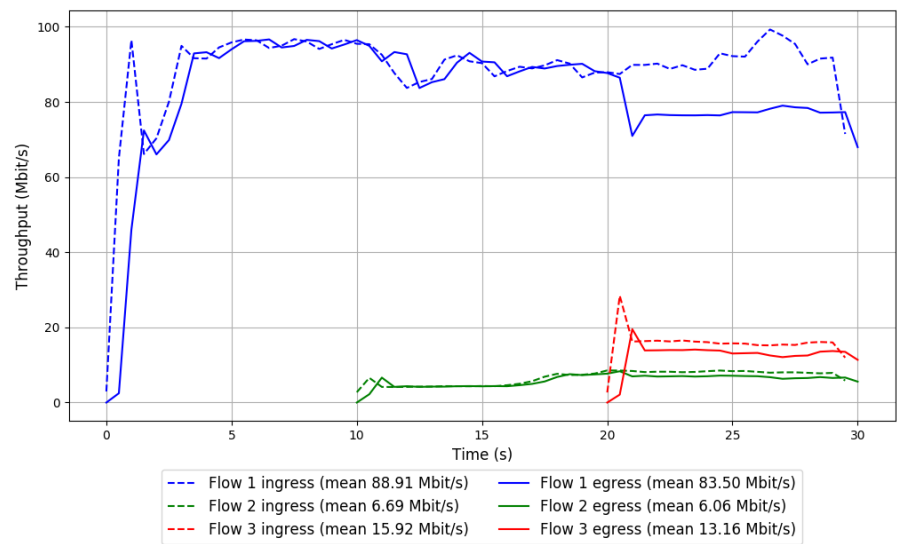
Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2019-02-20 01:22:20
End at: 2019-02-20 01:22:50
Local clock offset: 1.12 ms
Remote clock offset: -4.63 ms


# Below is generated by plot.py at 2019-02-20 02:38:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.59 Mbit/s
95th percentile per-packet one-way delay: 57.846 ms
Loss rate: 2.34%
-- Flow 1:
Average throughput: 75.21 Mbit/s
95th percentile per-packet one-way delay: 57.713 ms
Loss rate: 2.32%
-- Flow 2:
Average throughput: 19.17 Mbit/s
95th percentile per-packet one-way delay: 59.998 ms
Loss rate: 2.50%
-- Flow 3:
Average throughput: 7.97 Mbit/s
95th percentile per-packet one-way delay: 62.620 ms
Loss rate: 2.33%
```
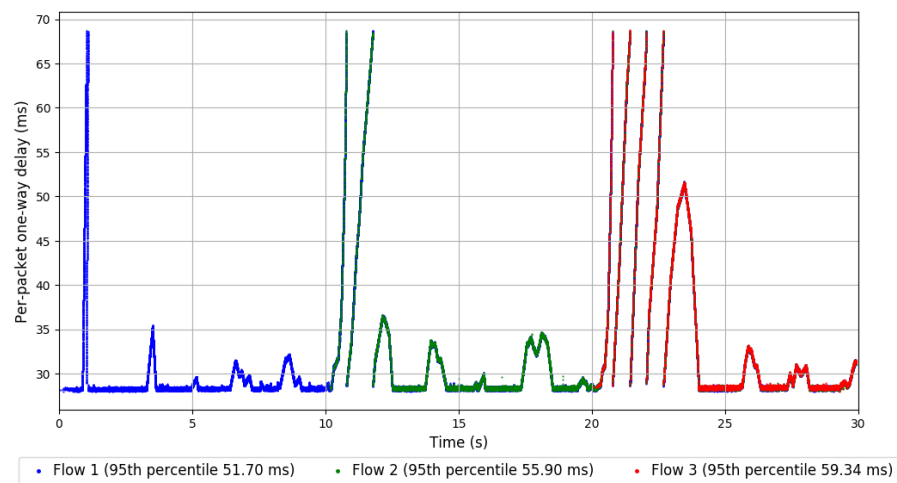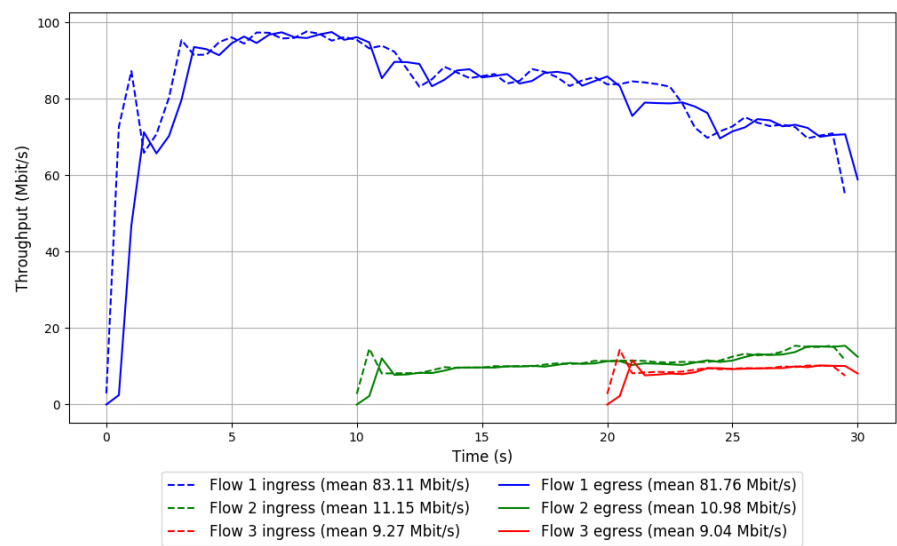
Run 3: Report of PCC-Allegro — Data Link



Flow 1 ingress (mean 77.00 Mbit/s) -------- Flow 1 egress (mean 75.21 Mbit/s)
Flow 2 ingress (mean 19.67 Mbit/s) -------- Flow 2 egress (mean 19.17 Mbit/s)
Flow 3 ingress (mean 8.16 Mbit/s) -------- Flow 3 egress (mean 7.97 Mbit/s)



Flow 1 (95th percentile 57.71 ms)    Flow 2 (95th percentile 60.00 ms)    Flow 3 (95th percentile 62.62 ms)

120

```
Run 4: Statistics of PCC-Allegro

Start at: 2019-02-20 01:47:56
End at: 2019-02-20 01:48:26
Local clock offset: 0.584 ms
Remote clock offset: -3.413 ms


# Below is generated by plot.py at 2019-02-20 02:38:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.88 Mbit/s
95th percentile per-packet one-way delay: 62.972 ms
Loss rate: 6.73%
-- Flow 1:
Average throughput: 83.50 Mbit/s
95th percentile per-packet one-way delay: 62.161 ms
Loss rate: 5.99%
-- Flow 2:
Average throughput: 6.06 Mbit/s
95th percentile per-packet one-way delay: 64.851 ms
Loss rate: 9.29%
-- Flow 3:
Average throughput: 13.16 Mbit/s
95th percentile per-packet one-way delay: 66.632 ms
Loss rate: 17.02%
```
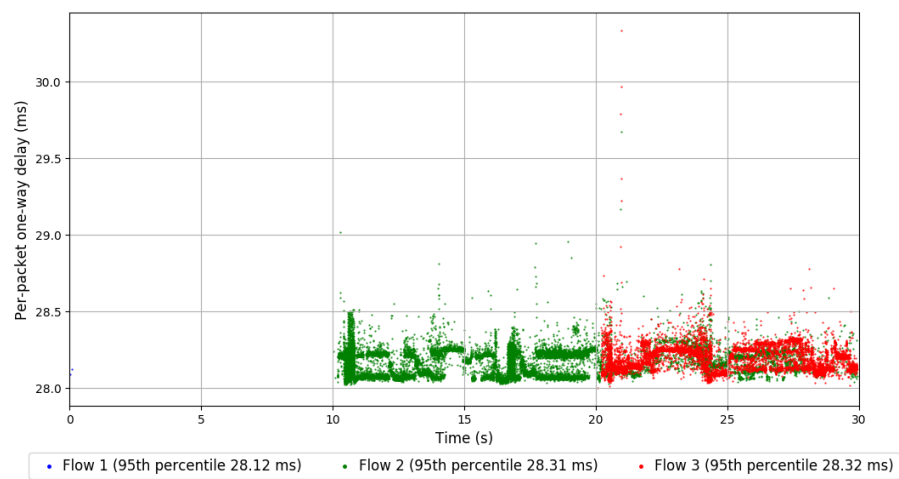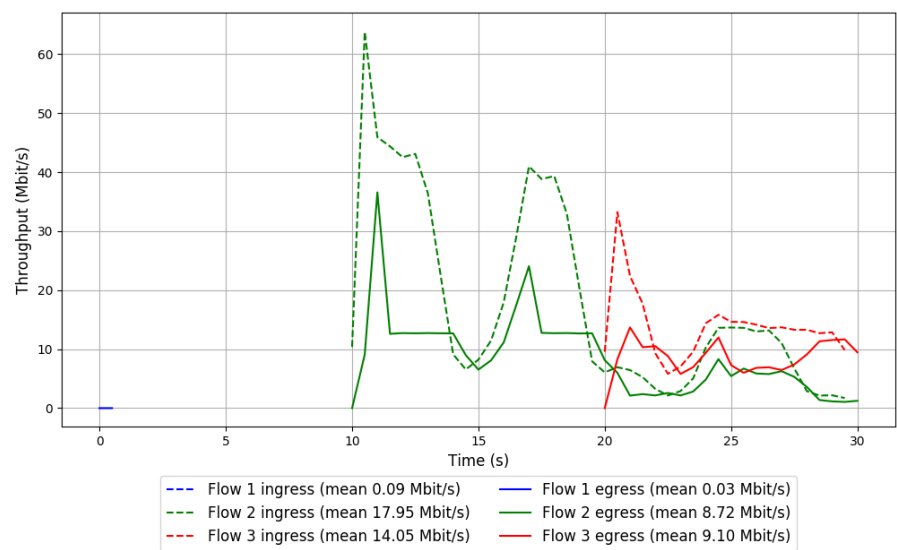
Run 4: Report of PCC-Allegro — Data Link



- - - Flow 1 ingress (mean 88.91 Mbit/s) —— Flow 1 egress (mean 83.50 Mbit/s)
- - - Flow 2 ingress (mean 6.69 Mbit/s) —— Flow 2 egress (mean 6.06 Mbit/s)
- - - Flow 3 ingress (mean 15.92 Mbit/s) —— Flow 3 egress (mean 13.16 Mbit/s)



• Flow 1 (95th percentile 62.16 ms)　　• Flow 2 (95th percentile 64.85 ms)　　• Flow 3 (95th percentile 66.63 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2019-02-20 02:13:12
End at: 2019-02-20 02:13:42
Local clock offset: 0.413 ms
Remote clock offset: -2.272 ms


# Below is generated by plot.py at 2019-02-20 02:38:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.04 Mbit/s
95th percentile per-packet one-way delay: 52.612 ms
Loss rate: 1.64%
-- Flow 1:
Average throughput: 81.76 Mbit/s
95th percentile per-packet one-way delay: 51.698 ms
Loss rate: 1.62%
-- Flow 2:
Average throughput: 10.98 Mbit/s
95th percentile per-packet one-way delay: 55.900 ms
Loss rate: 1.53%
-- Flow 3:
Average throughput: 9.04 Mbit/s
95th percentile per-packet one-way delay: 59.343 ms
Loss rate: 2.51%
```

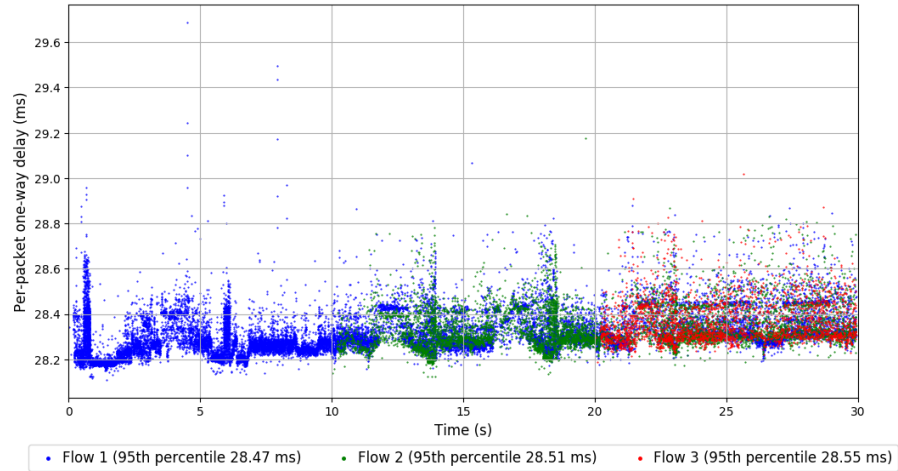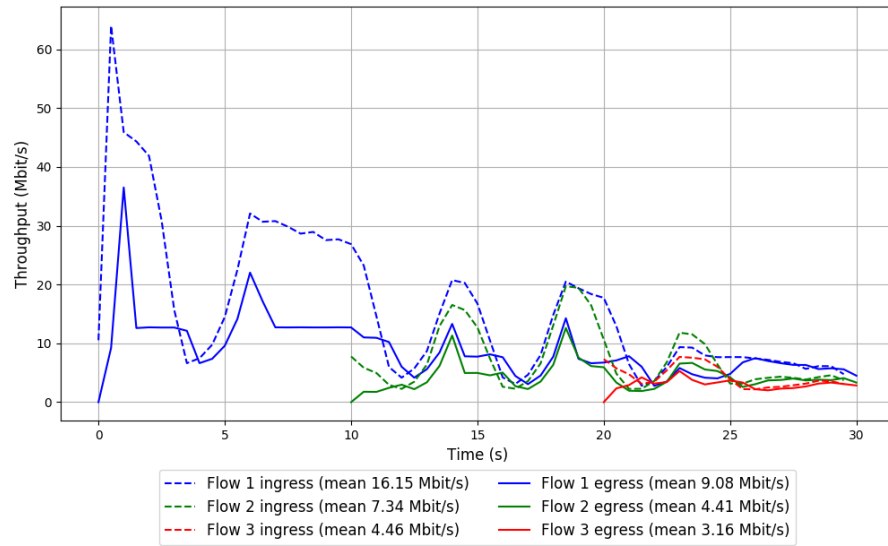# Run 5: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2019-02-20 00:21:15
End at: 2019-02-20 00:21:45
Local clock offset: -5.194 ms
Remote clock offset: -7.448 ms


# Below is generated by plot.py at 2019-02-20 02:38:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.81 Mbit/s
95th percentile per-packet one-way delay: 28.314 ms
Loss rate: 46.88%
-- Flow 1:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 28.120 ms
Loss rate: 85.71%
-- Flow 2:
Average throughput: 8.72 Mbit/s
95th percentile per-packet one-way delay: 28.310 ms
Loss rate: 51.41%
-- Flow 3:
Average throughput: 9.10 Mbit/s
95th percentile per-packet one-way delay: 28.318 ms
Loss rate: 35.23%
```
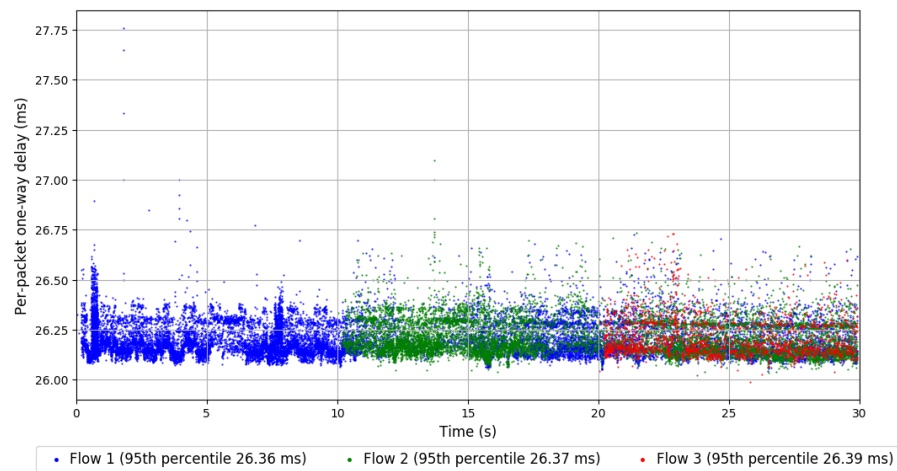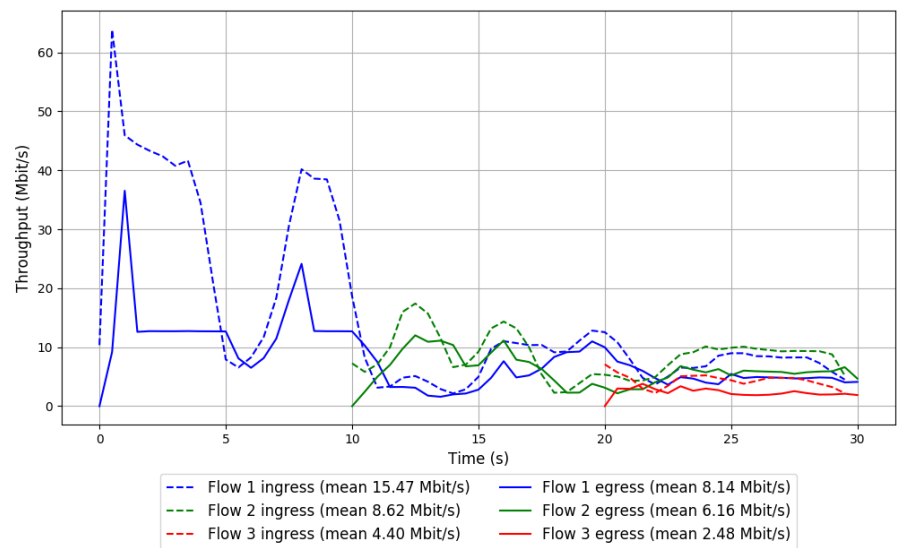
Run 1: Report of PCC-Expr — Data Link

```
Run 2: Statistics of PCC-Expr

Start at: 2019-02-20 00:47:16
End at: 2019-02-20 00:47:46
Local clock offset: 1.156 ms
Remote clock offset: -6.991 ms


# Below is generated by plot.py at 2019-02-20 02:38:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.06 Mbit/s
95th percentile per-packet one-way delay: 28.493 ms
Loss rate: 41.96%
-- Flow 1:
Average throughput: 9.08 Mbit/s
95th percentile per-packet one-way delay: 28.472 ms
Loss rate: 43.78%
-- Flow 2:
Average throughput: 4.41 Mbit/s
95th percentile per-packet one-way delay: 28.514 ms
Loss rate: 39.87%
-- Flow 3:
Average throughput: 3.16 Mbit/s
95th percentile per-packet one-way delay: 28.547 ms
Loss rate: 29.03%
```
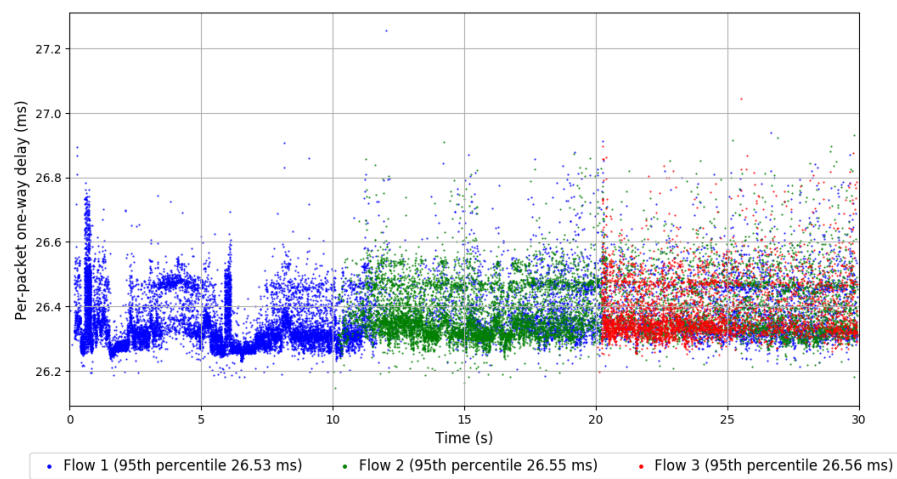
Run 2: Report of PCC-Expr — Data Link

```
Run 3: Statistics of PCC-Expr

Start at: 2019-02-20 01:12:42
End at: 2019-02-20 01:13:12
Local clock offset: 1.191 ms
Remote clock offset: -7.245 ms


# Below is generated by plot.py at 2019-02-20 02:38:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.06 Mbit/s
95th percentile per-packet one-way delay: 26.361 ms
Loss rate: 42.36%
-- Flow 1:
Average throughput: 8.14 Mbit/s
95th percentile per-packet one-way delay: 26.356 ms
Loss rate: 47.37%
-- Flow 2:
Average throughput: 6.16 Mbit/s
95th percentile per-packet one-way delay: 26.366 ms
Loss rate: 28.57%
-- Flow 3:
Average throughput: 2.48 Mbit/s
95th percentile per-packet one-way delay: 26.386 ms
Loss rate: 43.56%
```
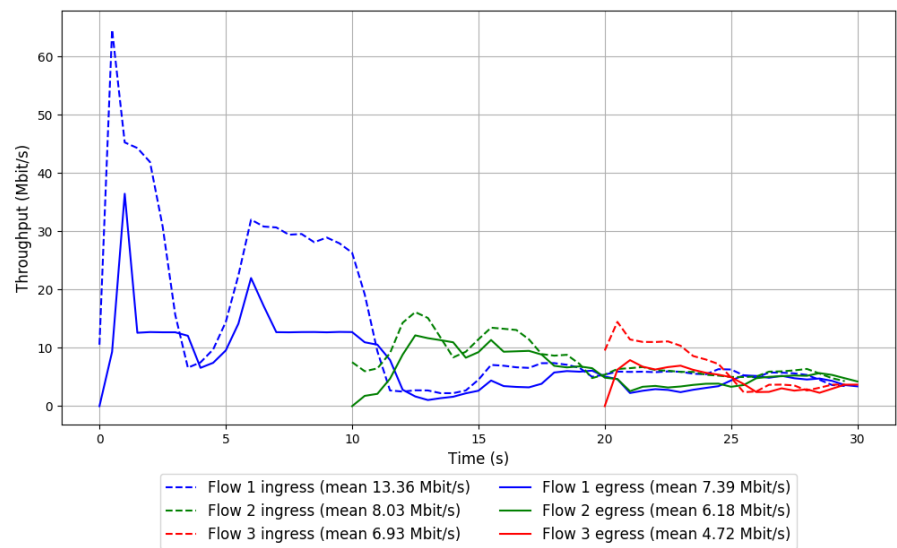
## Run 3: Report of PCC-Expr — Data Link

```
Run 4: Statistics of PCC-Expr

Start at: 2019-02-20 01:38:15
End at: 2019-02-20 01:38:45
Local clock offset: 0.693 ms
Remote clock offset: -5.753 ms

# Below is generated by plot.py at 2019-02-20 02:38:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.06 Mbit/s
95th percentile per-packet one-way delay: 26.541 ms
Loss rate: 37.76%
-- Flow 1:
Average throughput: 7.39 Mbit/s
95th percentile per-packet one-way delay: 26.531 ms
Loss rate: 44.66%
-- Flow 2:
Average throughput: 6.18 Mbit/s
95th percentile per-packet one-way delay: 26.547 ms
Loss rate: 23.04%
-- Flow 3:
Average throughput: 4.72 Mbit/s
95th percentile per-packet one-way delay: 26.564 ms
Loss rate: 31.90%
```
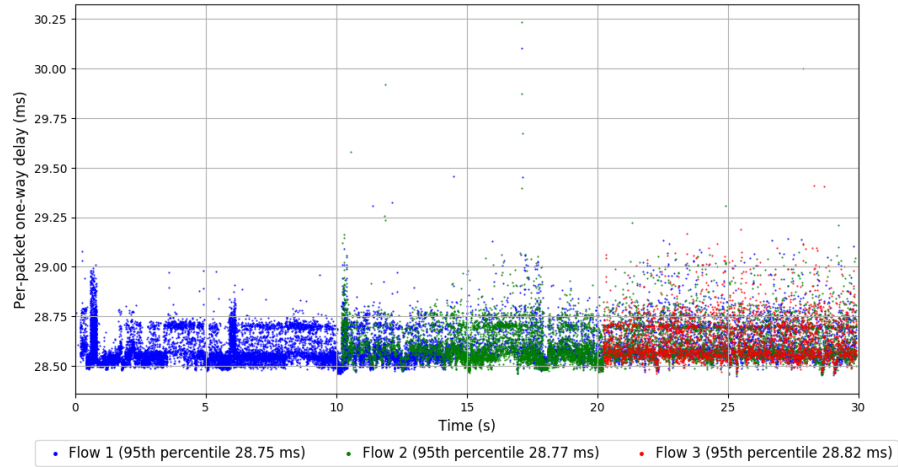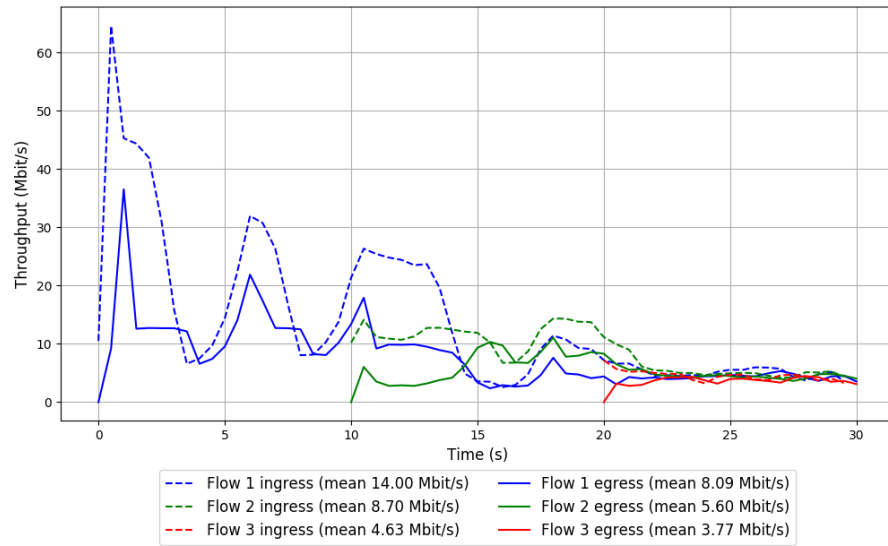
Run 4: Report of PCC-Expr — Data Link

```
Run 5: Statistics of PCC-Expr

Start at: 2019-02-20 02:03:34
End at: 2019-02-20 02:04:04
Local clock offset: 0.574 ms
Remote clock offset: -2.231 ms


# Below is generated by plot.py at 2019-02-20 02:38:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.06 Mbit/s
95th percentile per-packet one-way delay: 28.768 ms
Loss rate: 38.74%
-- Flow 1:
Average throughput: 8.09 Mbit/s
95th percentile per-packet one-way delay: 28.753 ms
Loss rate: 42.23%
-- Flow 2:
Average throughput: 5.60 Mbit/s
95th percentile per-packet one-way delay: 28.774 ms
Loss rate: 35.60%
-- Flow 3:
Average throughput: 3.77 Mbit/s
95th percentile per-packet one-way delay: 28.821 ms
Loss rate: 18.63%
```
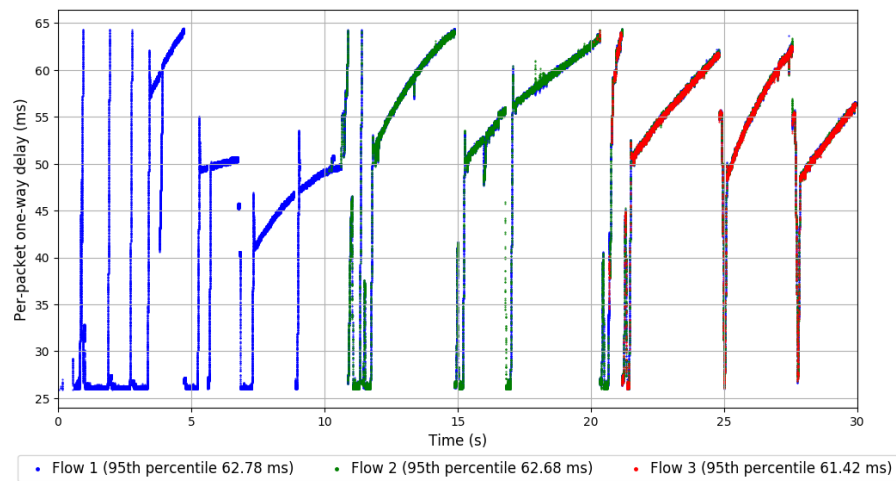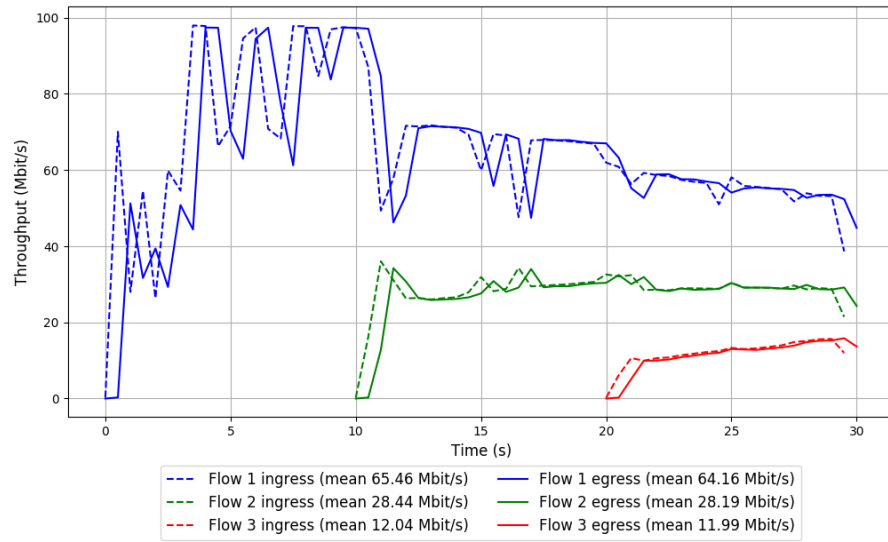
## Run 5: Report of PCC-Expr — Data Link



Flow 1 ingress (mean 14.00 Mbit/s)  ·  Flow 1 egress (mean 8.09 Mbit/s)
Flow 2 ingress (mean 8.70 Mbit/s)  ·  Flow 2 egress (mean 5.60 Mbit/s)
Flow 3 ingress (mean 4.63 Mbit/s)  ·  Flow 3 egress (mean 3.77 Mbit/s)



Flow 1 (95th percentile 28.75 ms)  ·  Flow 2 (95th percentile 28.77 ms)  ·  Flow 3 (95th percentile 28.82 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2019-02-20 00:27:20
End at: 2019-02-20 00:27:50
Local clock offset: -5.451 ms
Remote clock offset: -9.483 ms


# Below is generated by plot.py at 2019-02-20 02:39:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.81 Mbit/s
95th percentile per-packet one-way delay: 62.722 ms
Loss rate: 1.60%
-- Flow 1:
Average throughput: 64.16 Mbit/s
95th percentile per-packet one-way delay: 62.785 ms
Loss rate: 1.89%
-- Flow 2:
Average throughput: 28.19 Mbit/s
95th percentile per-packet one-way delay: 62.677 ms
Loss rate: 0.83%
-- Flow 3:
Average throughput: 11.99 Mbit/s
95th percentile per-packet one-way delay: 61.417 ms
Loss rate: 0.49%
```

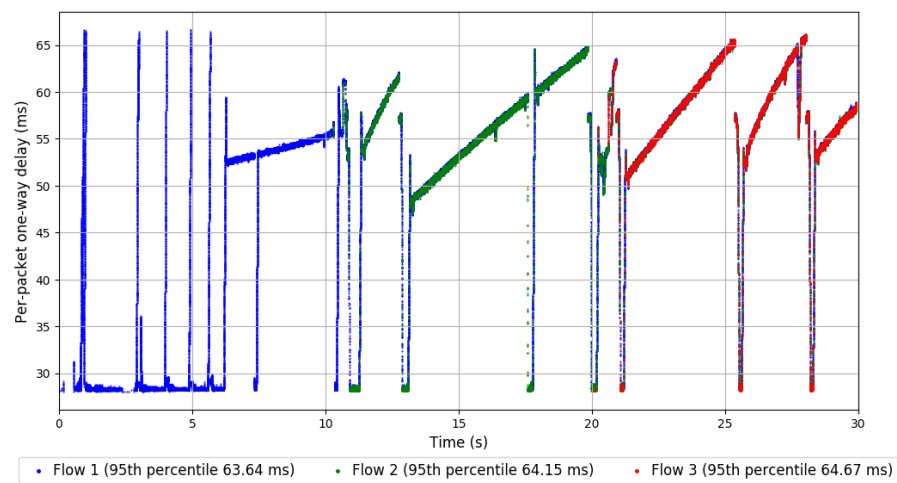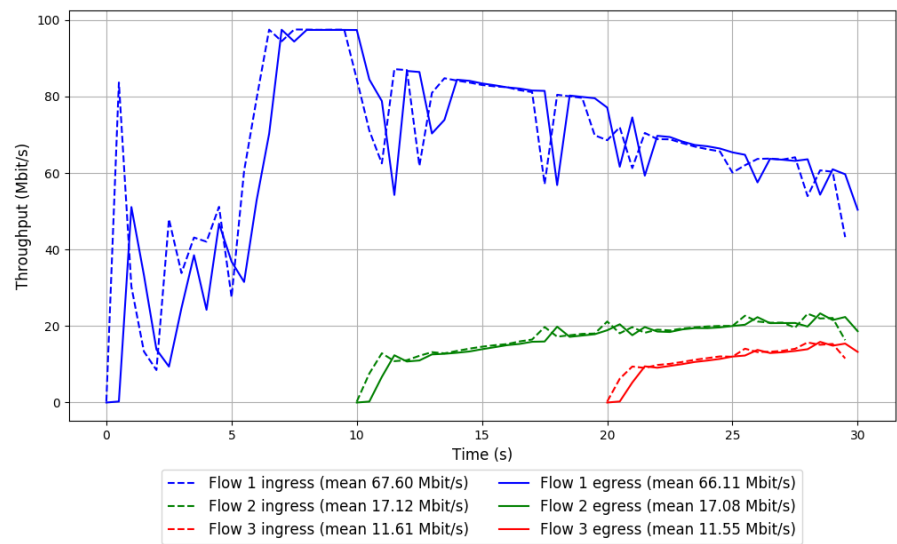Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2019-02-20 00:53:19
End at: 2019-02-20 00:53:49
Local clock offset: 2.055 ms
Remote clock offset: -6.662 ms


# Below is generated by plot.py at 2019-02-20 02:39:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.25 Mbit/s
95th percentile per-packet one-way delay: 63.831 ms
Loss rate: 1.75%
-- Flow 1:
Average throughput: 66.11 Mbit/s
95th percentile per-packet one-way delay: 63.642 ms
Loss rate: 2.10%
-- Flow 2:
Average throughput: 17.08 Mbit/s
95th percentile per-packet one-way delay: 64.150 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 11.55 Mbit/s
95th percentile per-packet one-way delay: 64.668 ms
Loss rate: 0.21%
```
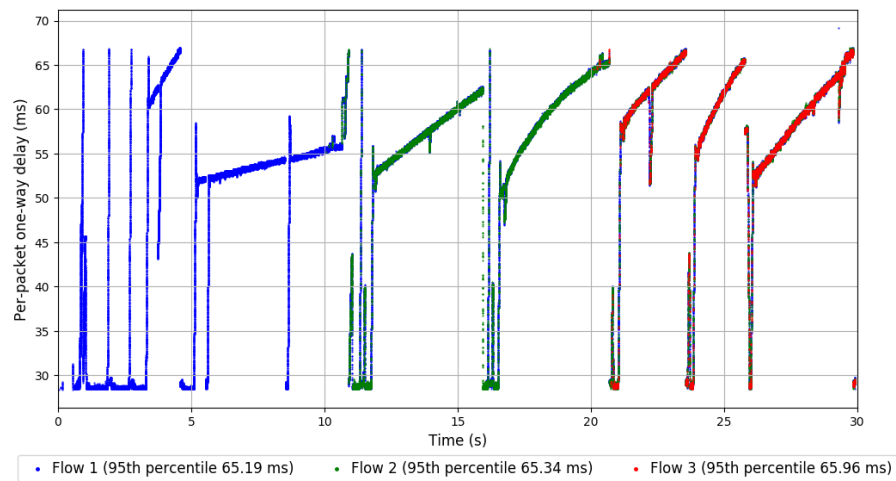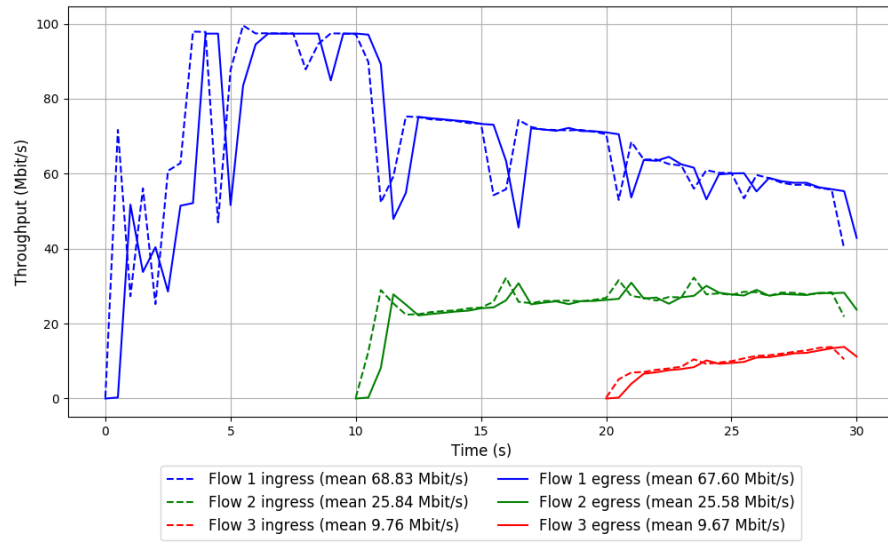
## Run 2: Report of QUIC Cubic — Data Link



Flow 1 ingress (mean 67.60 Mbit/s) --- Flow 1 egress (mean 66.11 Mbit/s)
Flow 2 ingress (mean 17.12 Mbit/s) --- Flow 2 egress (mean 17.08 Mbit/s)
Flow 3 ingress (mean 11.61 Mbit/s) --- Flow 3 egress (mean 11.55 Mbit/s)



Flow 1 (95th percentile 63.64 ms)   Flow 2 (95th percentile 64.15 ms)   Flow 3 (95th percentile 64.67 ms)

```
Run 3: Statistics of QUIC Cubic

Start at: 2019-02-20 01:18:41
End at: 2019-02-20 01:19:11
Local clock offset: 1.087 ms
Remote clock offset: -4.465 ms


# Below is generated by plot.py at 2019-02-20 02:39:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.73 Mbit/s
95th percentile per-packet one-way delay: 65.235 ms
Loss rate: 1.65%
-- Flow 1:
Average throughput: 67.60 Mbit/s
95th percentile per-packet one-way delay: 65.190 ms
Loss rate: 1.79%
-- Flow 2:
Average throughput: 25.58 Mbit/s
95th percentile per-packet one-way delay: 65.339 ms
Loss rate: 1.16%
-- Flow 3:
Average throughput: 9.67 Mbit/s
95th percentile per-packet one-way delay: 65.957 ms
Loss rate: 1.21%
```
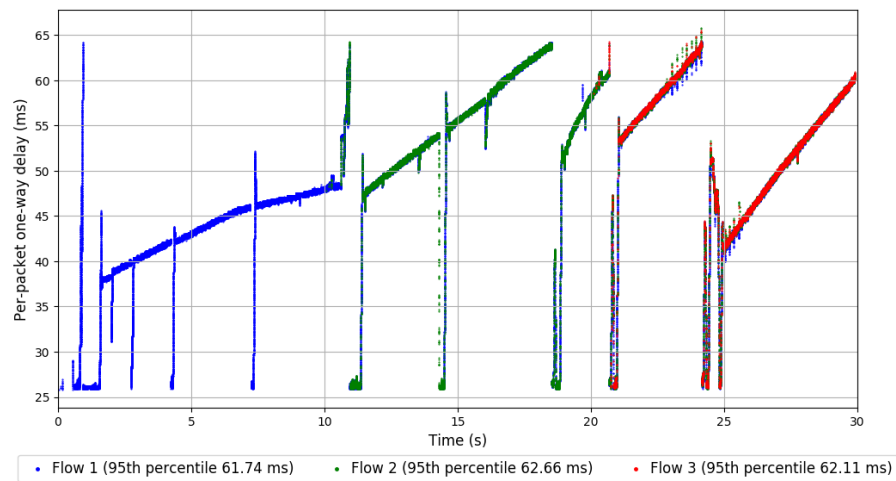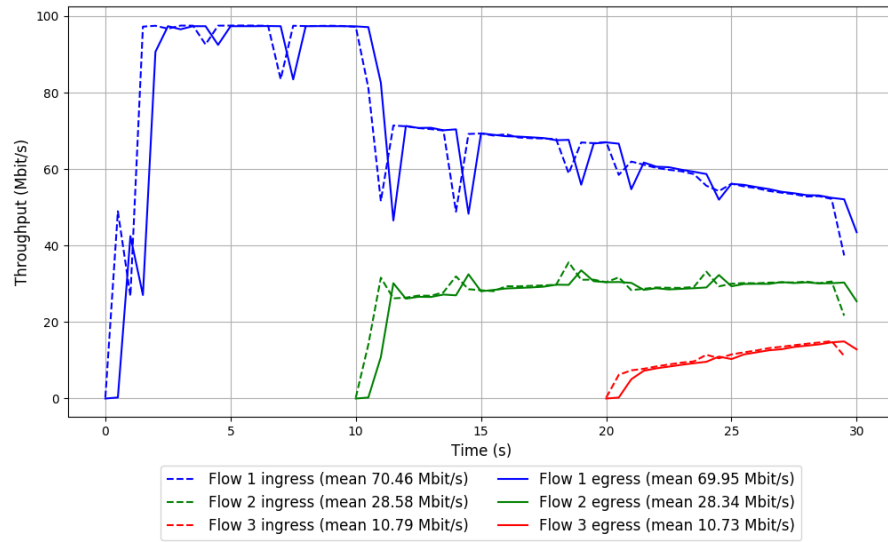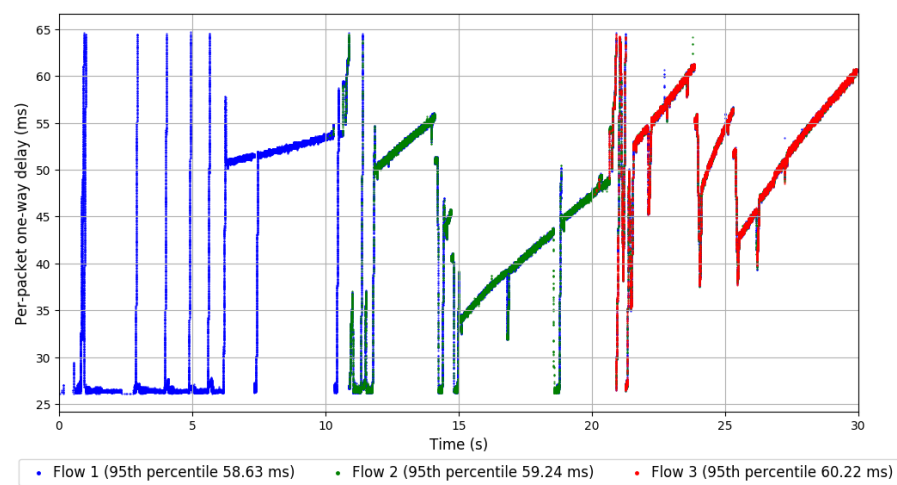
## Run 3: Report of QUIC Cubic — Data Link



Flow 1 ingress (mean 68.83 Mbit/s) — Flow 1 egress (mean 67.60 Mbit/s)
Flow 2 ingress (mean 25.84 Mbit/s) — Flow 2 egress (mean 25.58 Mbit/s)
Flow 3 ingress (mean 9.76 Mbit/s) — Flow 3 egress (mean 9.67 Mbit/s)



Flow 1 (95th percentile 65.19 ms)  Flow 2 (95th percentile 65.34 ms)  Flow 3 (95th percentile 65.96 ms)

140

```
Run 4: Statistics of QUIC Cubic

Start at: 2019-02-20 01:44:17
End at: 2019-02-20 01:44:47
Local clock offset: 0.598 ms
Remote clock offset: -5.697 ms


# Below is generated by plot.py at 2019-02-20 02:39:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.30 Mbit/s
95th percentile per-packet one-way delay: 62.062 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 69.95 Mbit/s
95th percentile per-packet one-way delay: 61.736 ms
Loss rate: 0.62%
-- Flow 2:
Average throughput: 28.34 Mbit/s
95th percentile per-packet one-way delay: 62.660 ms
Loss rate: 0.80%
-- Flow 3:
Average throughput: 10.73 Mbit/s
95th percentile per-packet one-way delay: 62.112 ms
Loss rate: 0.52%
```
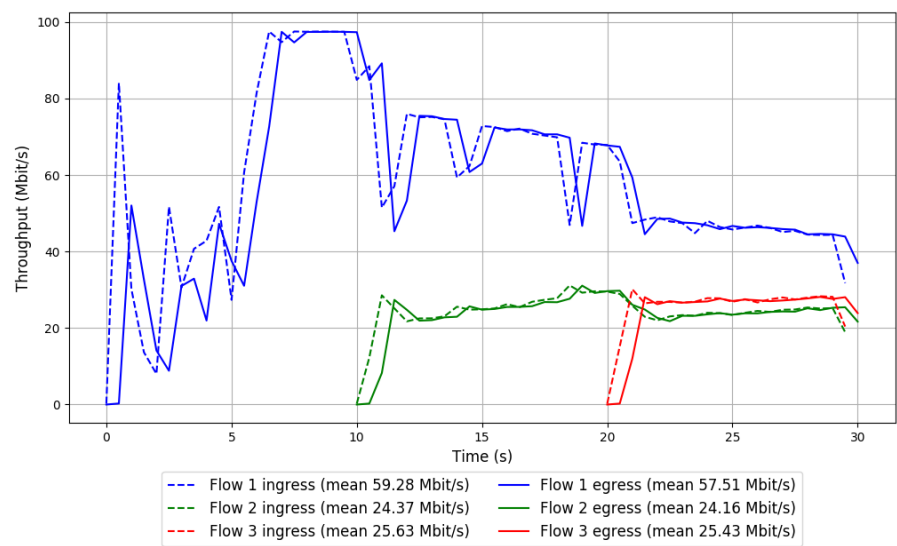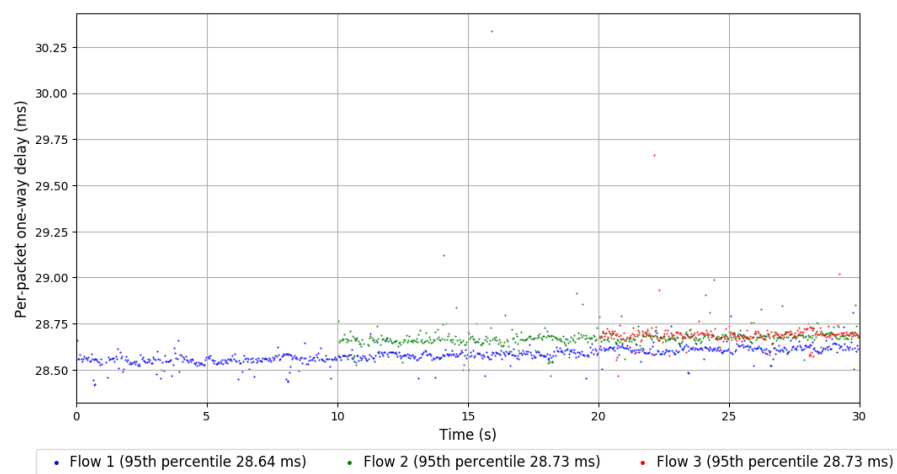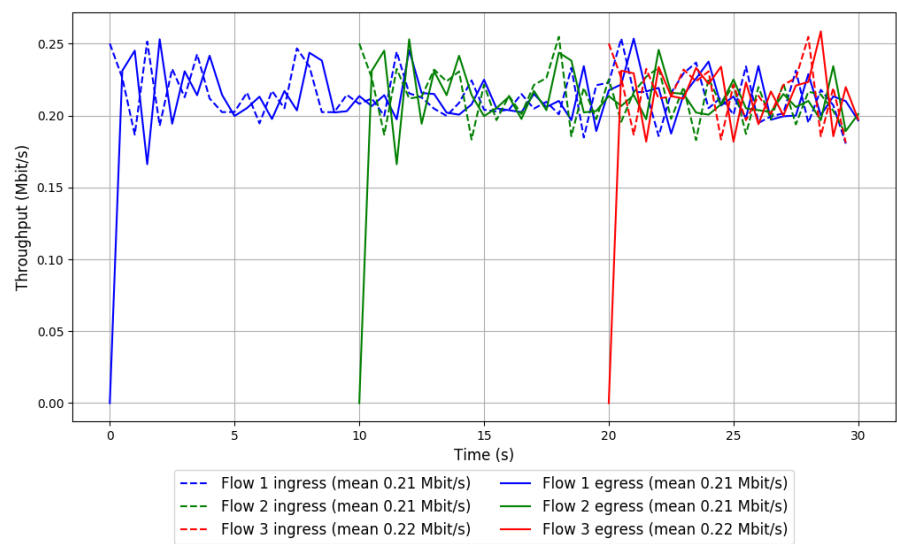
Run 4: Report of QUIC Cubic — Data Link



Flow 1 ingress (mean 70.46 Mbit/s) --- Flow 1 egress (mean 69.95 Mbit/s)
Flow 2 ingress (mean 28.58 Mbit/s) --- Flow 2 egress (mean 28.34 Mbit/s)
Flow 3 ingress (mean 10.79 Mbit/s) --- Flow 3 egress (mean 10.73 Mbit/s)



Flow 1 (95th percentile 61.74 ms)  Flow 2 (95th percentile 62.66 ms)  Flow 3 (95th percentile 62.11 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2019-02-20 02:09:33
End at: 2019-02-20 02:10:03
Local clock offset: 0.434 ms
Remote clock offset: -4.254 ms


# Below is generated by plot.py at 2019-02-20 02:39:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.91 Mbit/s
95th percentile per-packet one-way delay: 59.121 ms
Loss rate: 2.25%
-- Flow 1:
Average throughput: 57.51 Mbit/s
95th percentile per-packet one-way delay: 58.635 ms
Loss rate: 2.86%
-- Flow 2:
Average throughput: 24.16 Mbit/s
95th percentile per-packet one-way delay: 59.245 ms
Loss rate: 0.86%
-- Flow 3:
Average throughput: 25.43 Mbit/s
95th percentile per-packet one-way delay: 60.219 ms
Loss rate: 0.64%
```

Run 5: Report of QUIC Cubic — Data Link



Flow 1 ingress (mean 59.28 Mbit/s)  ---  Flow 1 egress (mean 57.51 Mbit/s)
Flow 2 ingress (mean 24.37 Mbit/s)  ---  Flow 2 egress (mean 24.16 Mbit/s)
Flow 3 ingress (mean 25.63 Mbit/s)  ---  Flow 3 egress (mean 25.43 Mbit/s)



Flow 1 (95th percentile 58.63 ms)     Flow 2 (95th percentile 59.24 ms)     Flow 3 (95th percentile 60.22 ms)
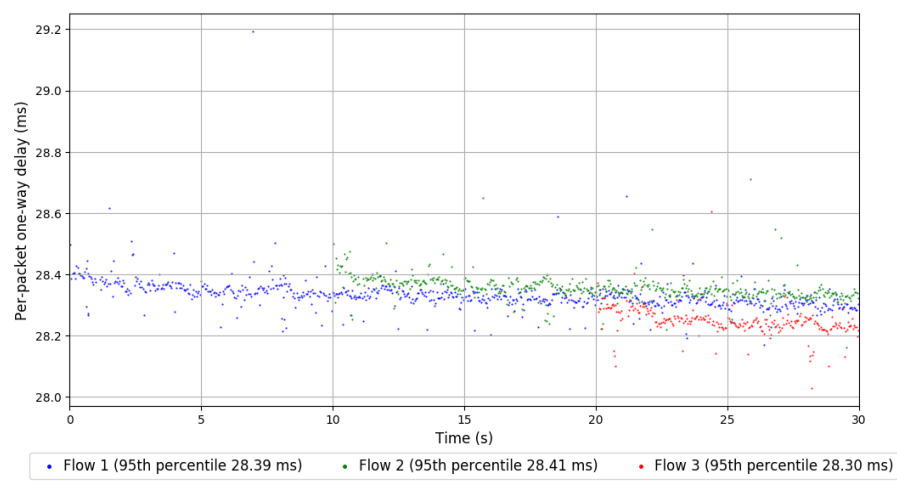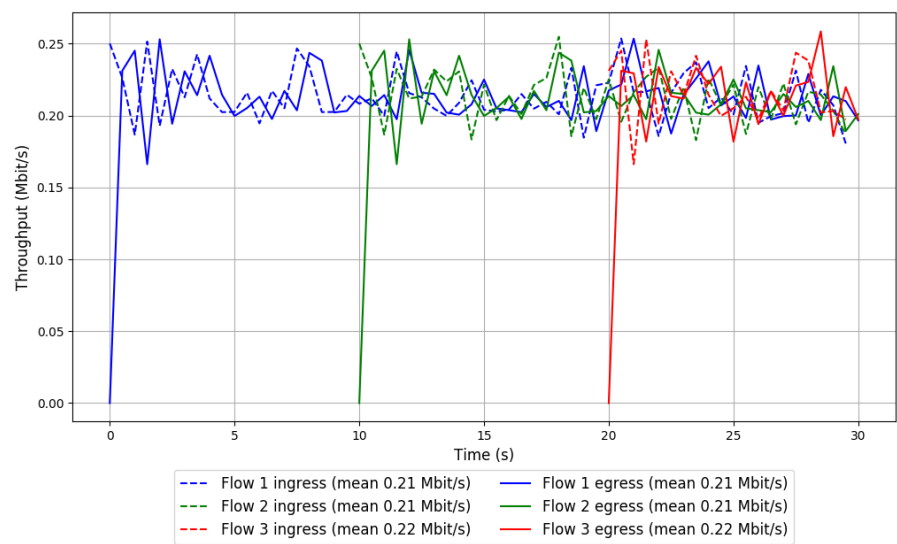
144

```
Run 1: Statistics of SCReAM

Start at: 2019-02-20 00:44:57
End at: 2019-02-20 00:45:27
Local clock offset: 0.732 ms
Remote clock offset: -6.84 ms


# Below is generated by plot.py at 2019-02-20 02:39:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 28.711 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 28.636 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 28.728 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 28.729 ms
Loss rate: 0.00%
```
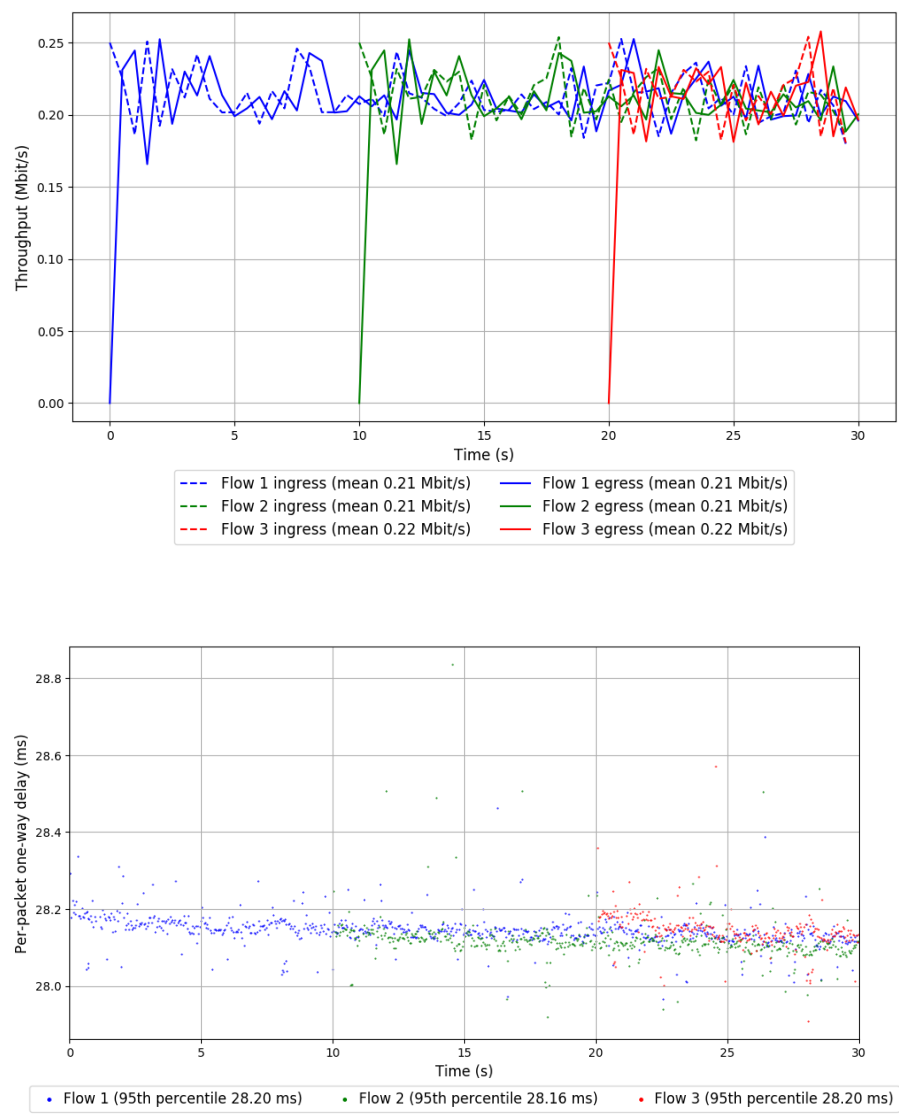
# Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2019-02-20 01:10:24
End at: 2019-02-20 01:10:54
Local clock offset: 1.291 ms
Remote clock offset: -5.367 ms


# Below is generated by plot.py at 2019-02-20 02:39:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 28.395 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 28.394 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 28.409 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 28.304 ms
Loss rate: 0.00%
```
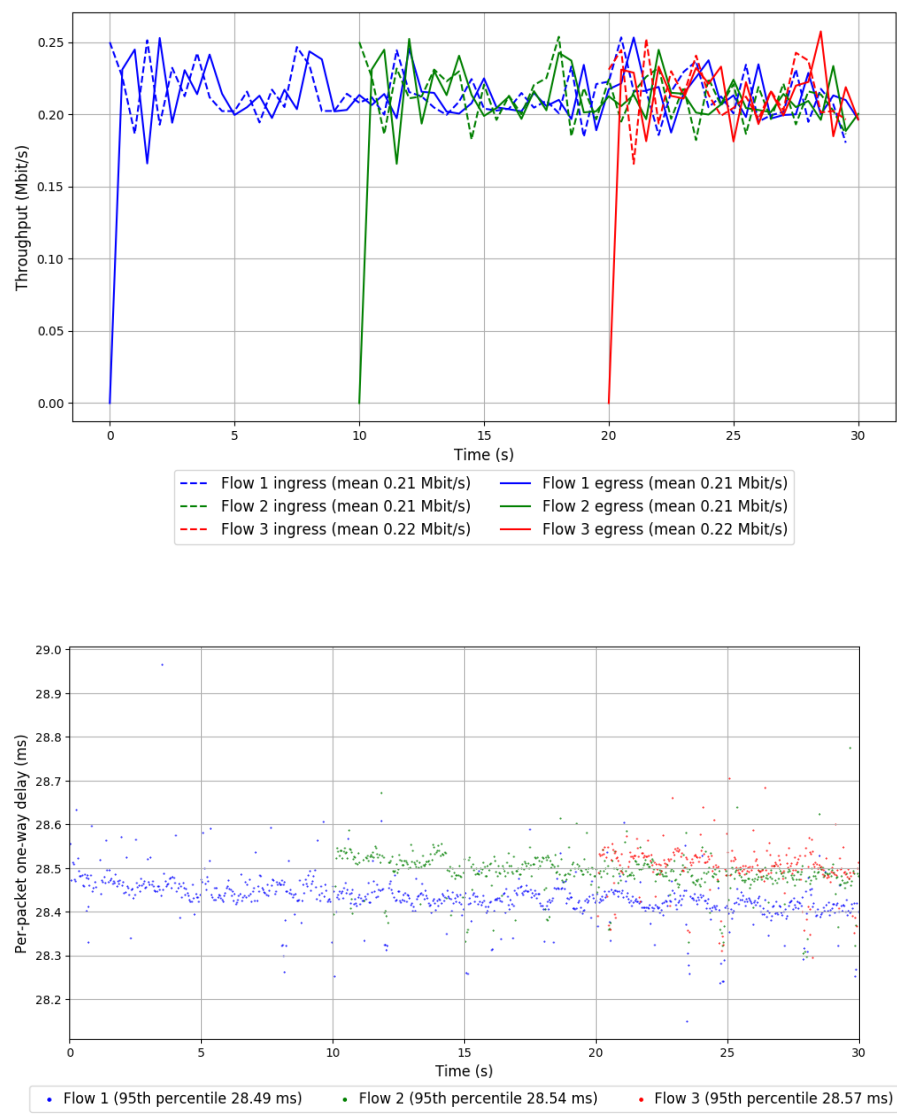
# Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2019-02-20 01:35:56
End at: 2019-02-20 01:36:26
Local clock offset: 0.805 ms
Remote clock offset: -4.059 ms


# Below is generated by plot.py at 2019-02-20 02:39:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 28.194 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 28.202 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 28.160 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 28.199 ms
Loss rate: 0.00%
```
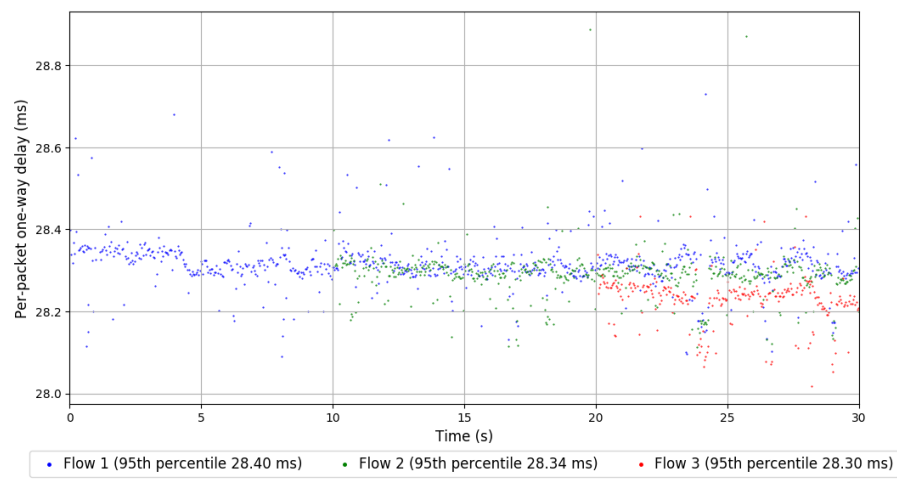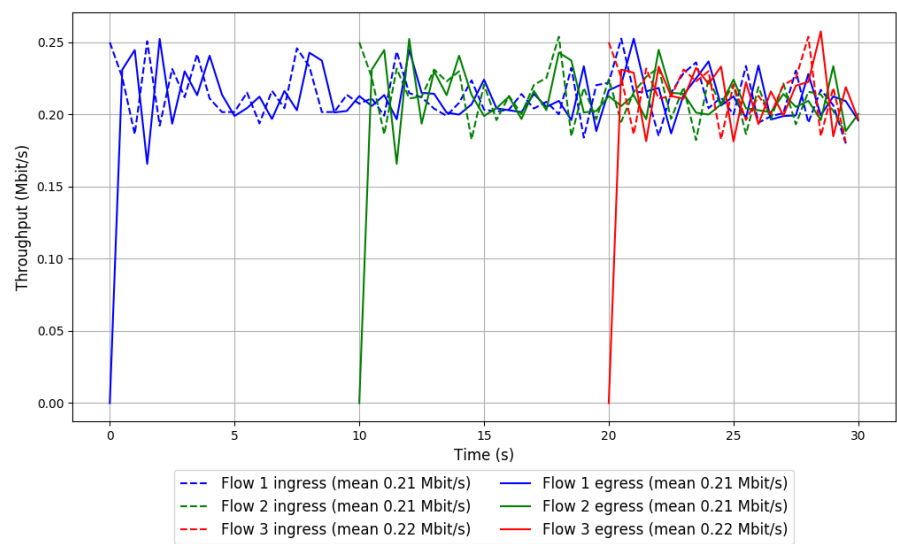
## Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2019-02-20 02:01:15
End at: 2019-02-20 02:01:45
Local clock offset: 0.667 ms
Remote clock offset: -2.485 ms


# Below is generated by plot.py at 2019-02-20 02:39:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 28.541 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 28.493 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 28.543 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 28.565 ms
Loss rate: 0.00%
```

# Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2019-02-20 02:26:50
End at: 2019-02-20 02:27:20
Local clock offset: 0.425 ms
Remote clock offset: -1.808 ms


# Below is generated by plot.py at 2019-02-20 02:39:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 28.370 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 28.400 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 28.335 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 28.301 ms
Loss rate: 0.00%
```
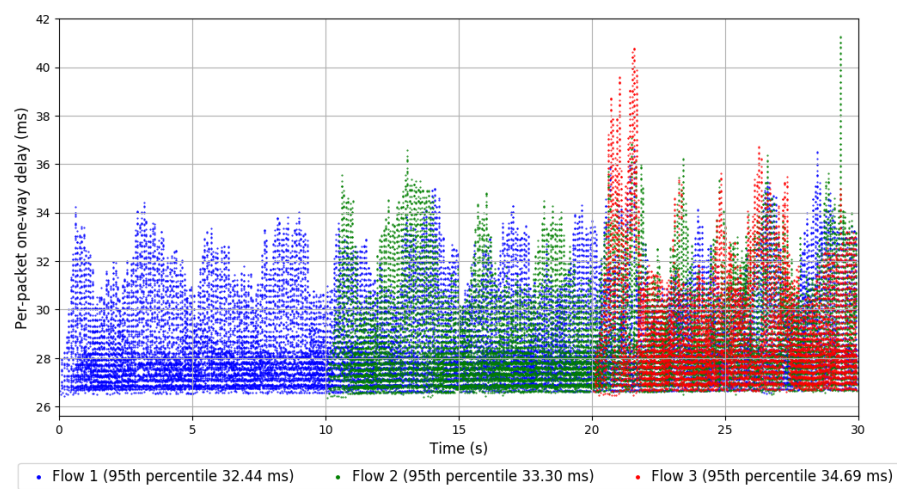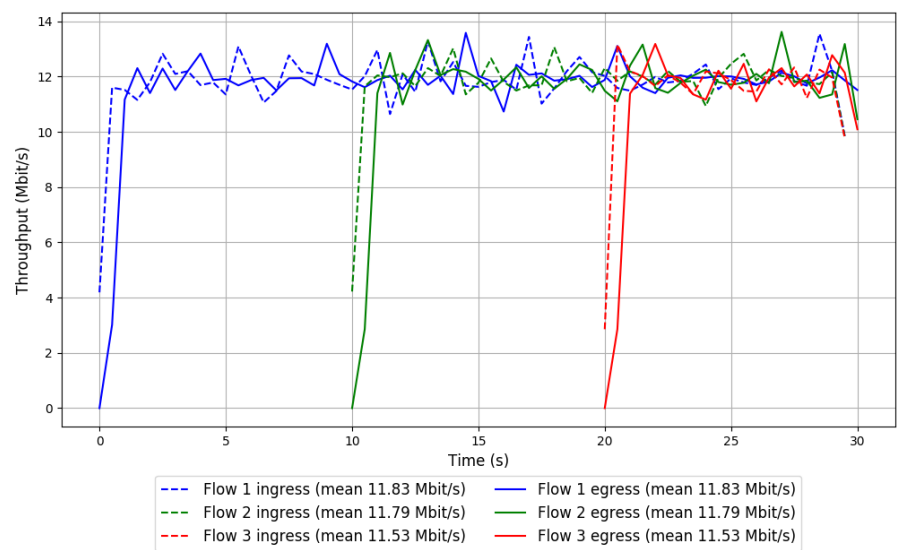
## Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2019-02-20 00:37:13
End at: 2019-02-20 00:37:43
Local clock offset: -1.51 ms
Remote clock offset: -9.006 ms


# Below is generated by plot.py at 2019-02-20 02:39:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 23.48 Mbit/s
95th percentile per-packet one-way delay: 33.026 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.83 Mbit/s
95th percentile per-packet one-way delay: 32.443 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 11.79 Mbit/s
95th percentile per-packet one-way delay: 33.298 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 11.53 Mbit/s
95th percentile per-packet one-way delay: 34.690 ms
Loss rate: 0.00%
```

Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2019-02-20 01:03:02
End at: 2019-02-20 01:03:32
Local clock offset: 2.097 ms
Remote clock offset: -5.737 ms


# Below is generated by plot.py at 2019-02-20 02:39:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 23.40 Mbit/s
95th percentile per-packet one-way delay: 35.235 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 11.78 Mbit/s
95th percentile per-packet one-way delay: 34.822 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 11.72 Mbit/s
95th percentile per-packet one-way delay: 35.055 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 11.58 Mbit/s
95th percentile per-packet one-way delay: 36.457 ms
Loss rate: 0.00%
```
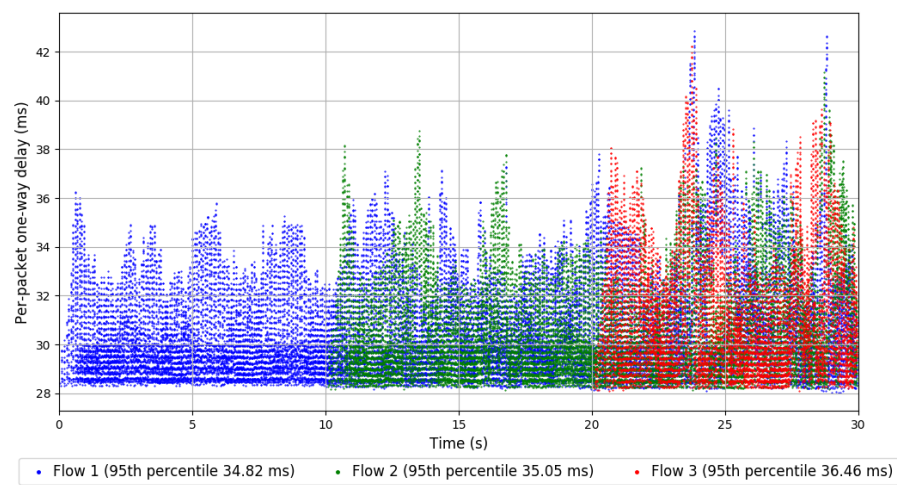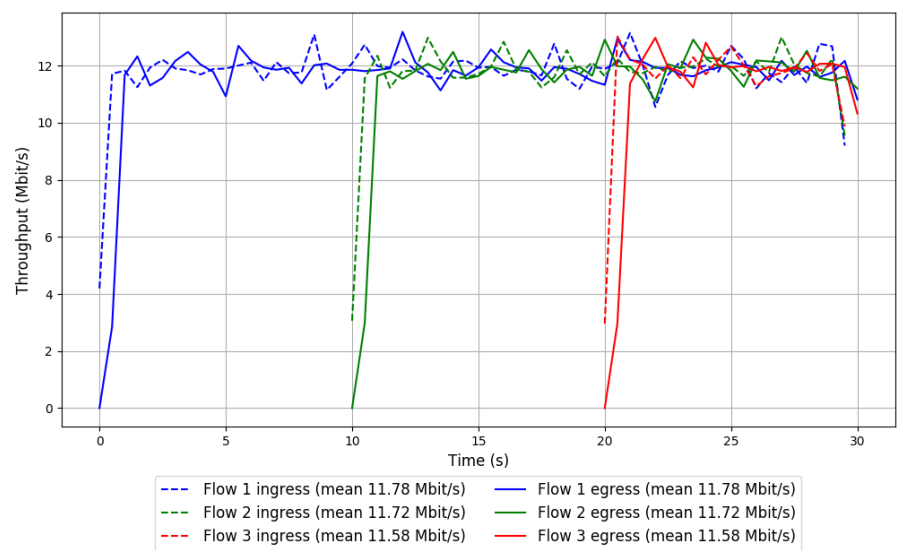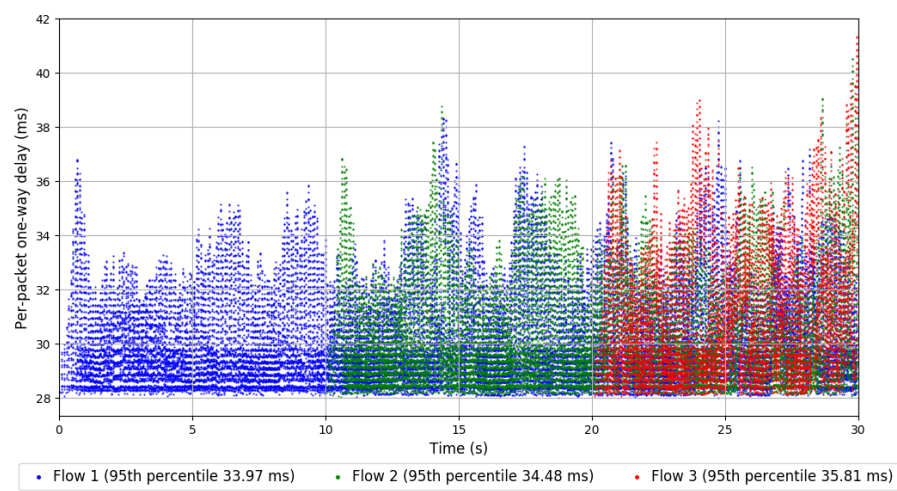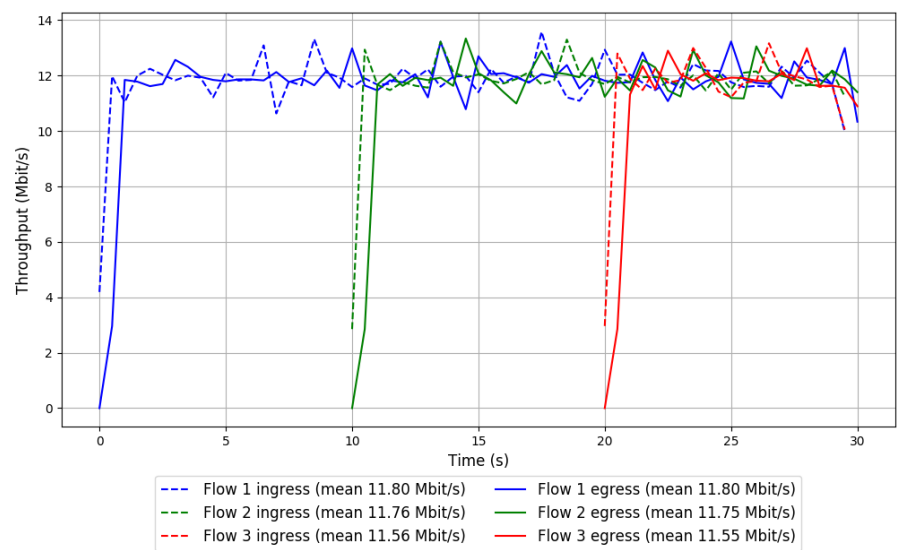
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2019-02-20 01:28:30
End at: 2019-02-20 01:29:00
Local clock offset: 1.215 ms
Remote clock offset: -4.37 ms


# Below is generated by plot.py at 2019-02-20 02:39:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 23.44 Mbit/s
95th percentile per-packet one-way delay: 34.501 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 11.80 Mbit/s
95th percentile per-packet one-way delay: 33.967 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 11.75 Mbit/s
95th percentile per-packet one-way delay: 34.477 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 11.55 Mbit/s
95th percentile per-packet one-way delay: 35.808 ms
Loss rate: 0.02%
```
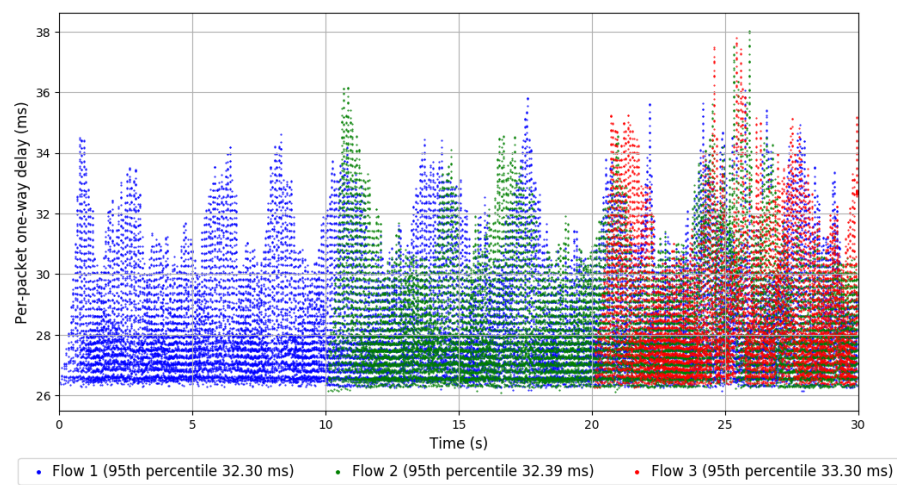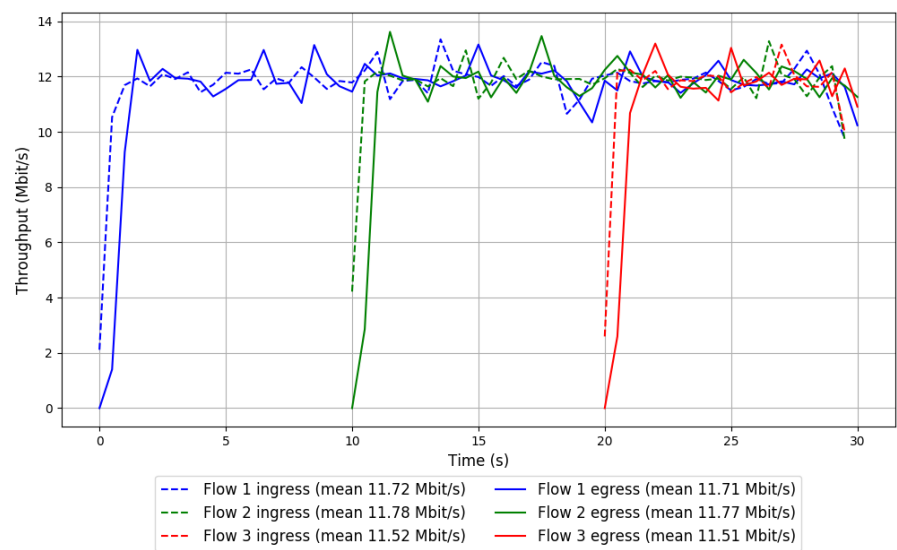
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2019-02-20 01:53:58
End at: 2019-02-20 01:54:28
Local clock offset: 0.634 ms
Remote clock offset: -4.937 ms


# Below is generated by plot.py at 2019-02-20 02:39:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 23.35 Mbit/s
95th percentile per-packet one-way delay: 32.536 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 11.71 Mbit/s
95th percentile per-packet one-way delay: 32.304 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 11.77 Mbit/s
95th percentile per-packet one-way delay: 32.393 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 11.51 Mbit/s
95th percentile per-packet one-way delay: 33.300 ms
Loss rate: 0.00%
```
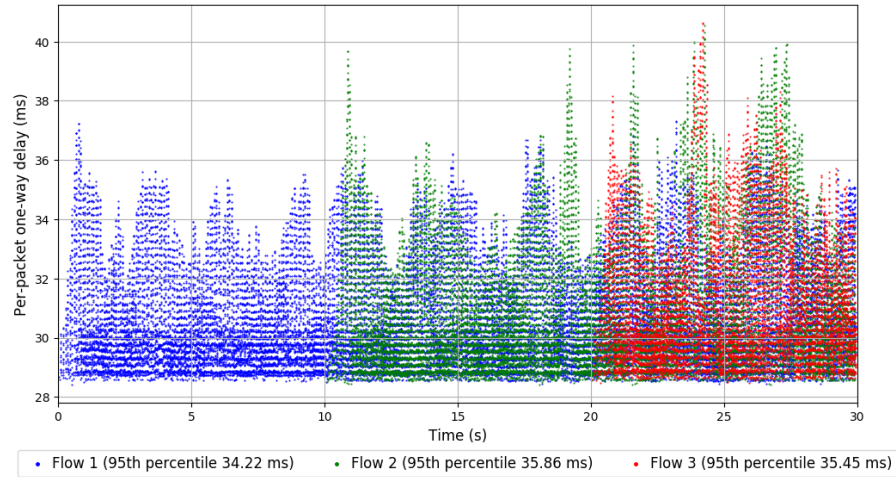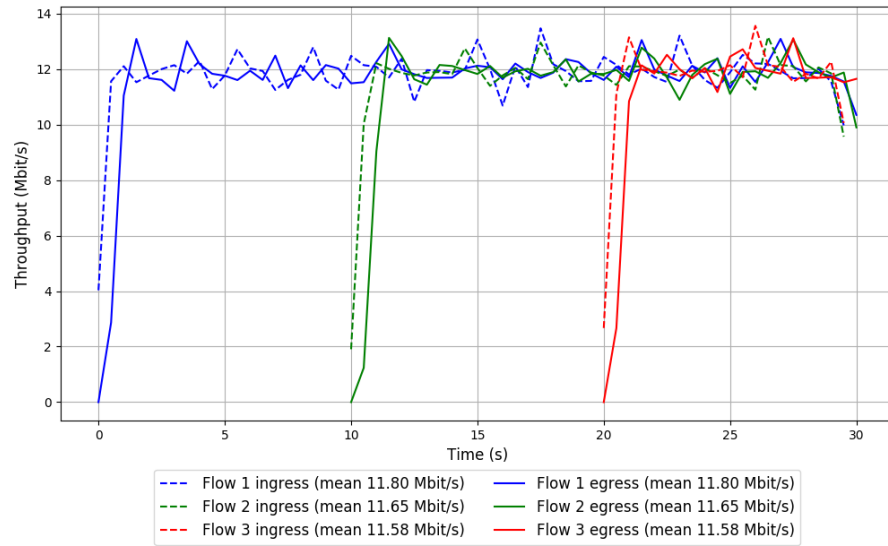
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2019-02-20 02:19:22
End at: 2019-02-20 02:19:52
Local clock offset: 0.417 ms
Remote clock offset: -1.611 ms


# Below is generated by plot.py at 2019-02-20 02:39:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 23.36 Mbit/s
95th percentile per-packet one-way delay: 34.934 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.80 Mbit/s
95th percentile per-packet one-way delay: 34.215 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 11.65 Mbit/s
95th percentile per-packet one-way delay: 35.859 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 11.58 Mbit/s
95th percentile per-packet one-way delay: 35.447 ms
Loss rate: 0.00%
```
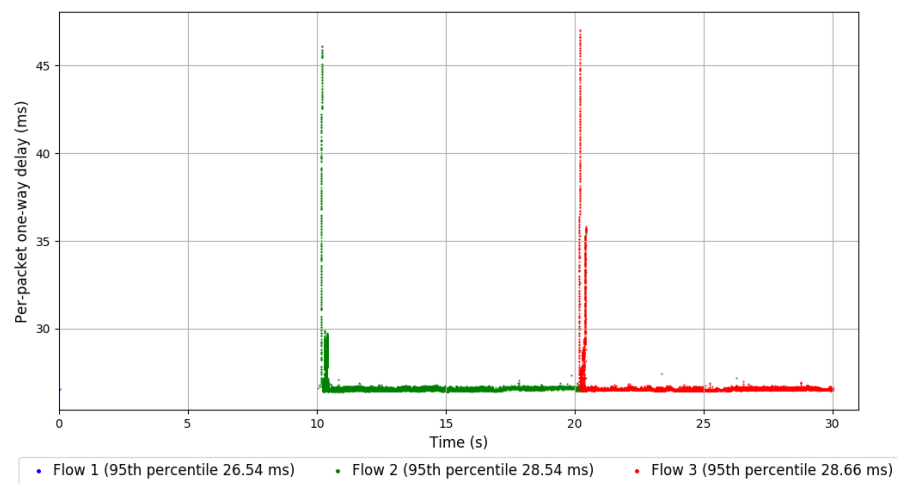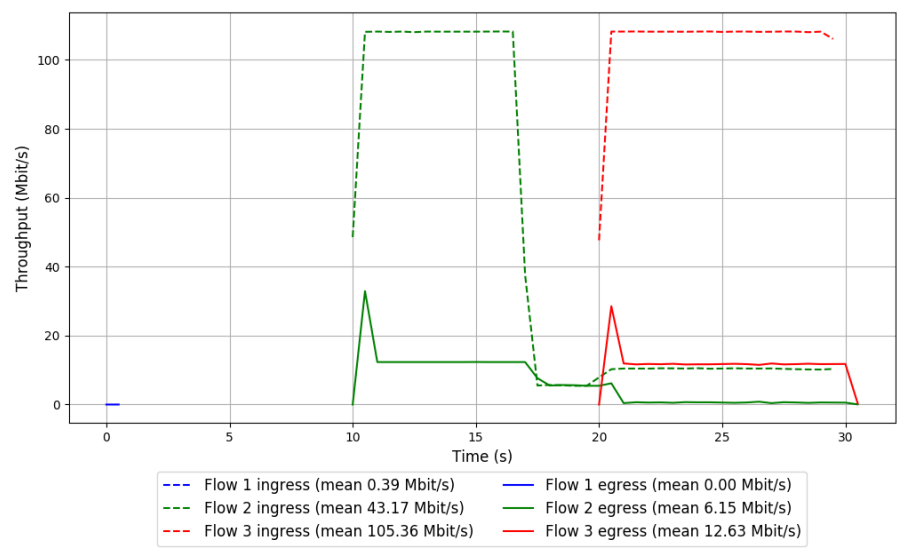
Run 5: Report of Sprout — Data Link

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

Start at: 2019-02-20 00:46:05
End at: 2019-02-20 00:46:35
Local clock offset: 0.97 ms
Remote clock offset: -8.802 ms


# Below is generated by plot.py at 2019-02-20 02:39:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.30 Mbit/s
95th percentile per-packet one-way delay: 28.584 ms
Loss rate: 86.99%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 26.540 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 6.15 Mbit/s
95th percentile per-packet one-way delay: 28.538 ms
Loss rate: 85.75%
-- Flow 3:
Average throughput: 12.63 Mbit/s
95th percentile per-packet one-way delay: 28.655 ms
Loss rate: 88.01%
```

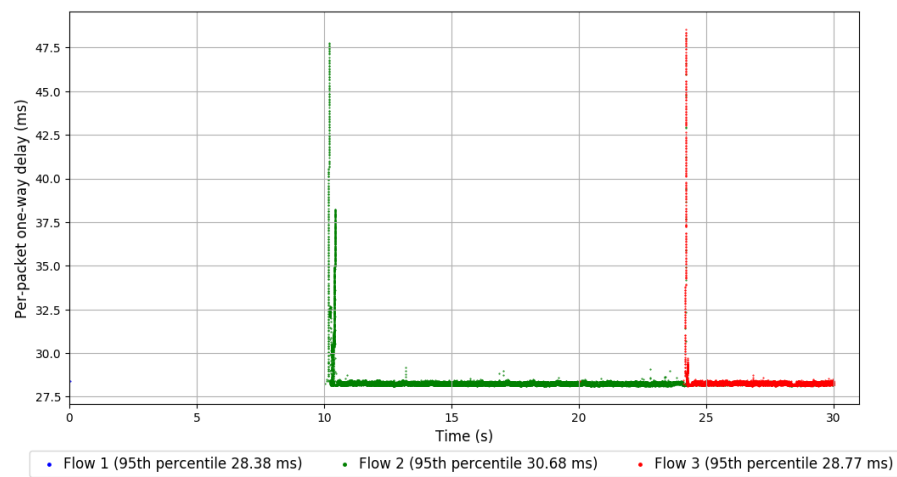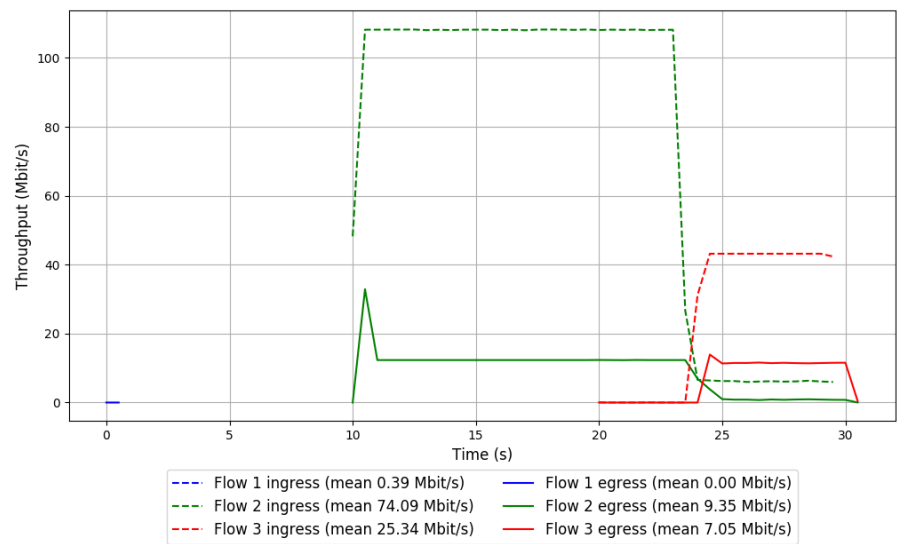Run 1: Report of TaoVA-100x — Data Link

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

Start at: 2019-02-20 01:11:32
End at: 2019-02-20 01:12:02
Local clock offset: 1.225 ms
Remote clock offset: -5.279 ms


# Below is generated by plot.py at 2019-02-20 02:39:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.57 Mbit/s
95th percentile per-packet one-way delay: 30.178 ms
Loss rate: 85.17%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 28.378 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 9.35 Mbit/s
95th percentile per-packet one-way delay: 30.678 ms
Loss rate: 87.39%
-- Flow 3:
Average throughput: 7.05 Mbit/s
95th percentile per-packet one-way delay: 28.766 ms
Loss rate: 72.19%
```

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



Flow 1 ingress (mean 0.39 Mbit/s)    Flow 1 egress (mean 0.00 Mbit/s)
Flow 2 ingress (mean 74.09 Mbit/s)   Flow 2 egress (mean 9.35 Mbit/s)
Flow 3 ingress (mean 25.34 Mbit/s)   Flow 3 egress (mean 7.05 Mbit/s)



Flow 1 (95th percentile 28.38 ms)    Flow 2 (95th percentile 30.68 ms)    Flow 3 (95th percentile 28.77 ms)
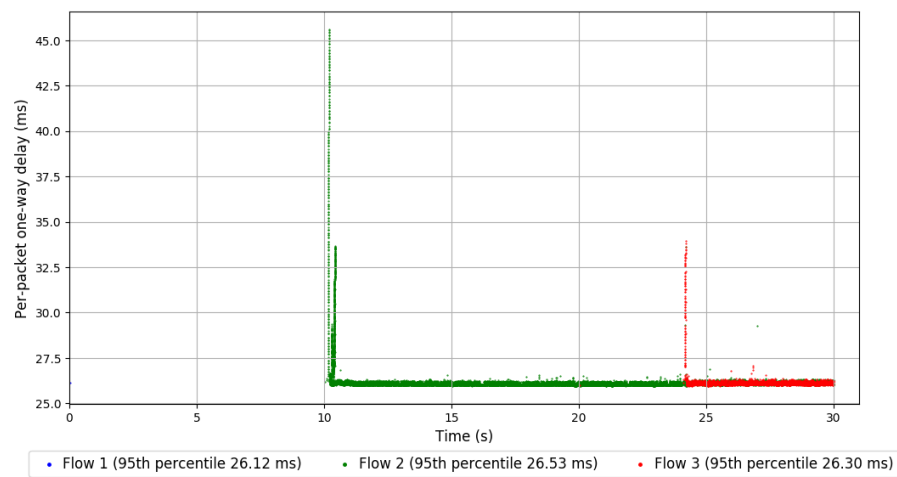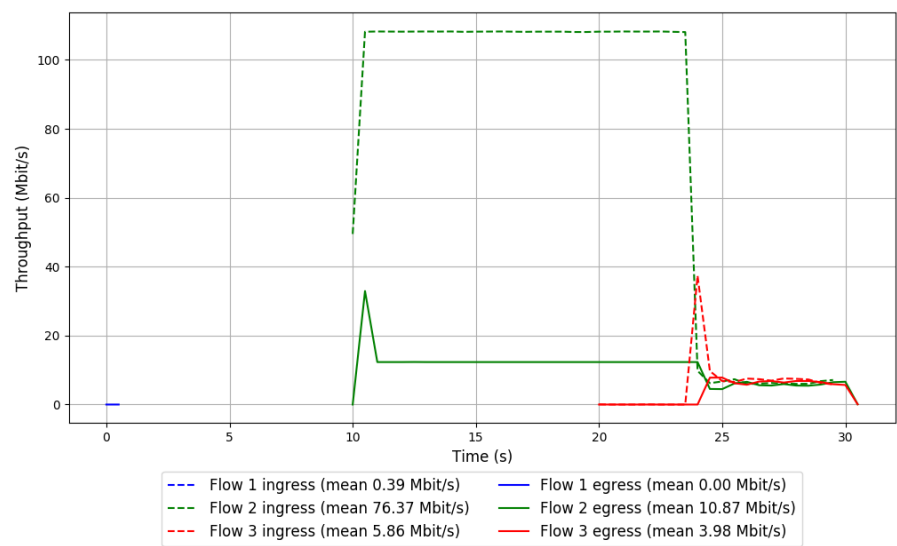
```
Run 3: Statistics of TaoVA-100x

Start at: 2019-02-20 01:37:05
End at: 2019-02-20 01:37:35
Local clock offset: 0.715 ms
Remote clock offset: -6.068 ms


# Below is generated by plot.py at 2019-02-20 02:39:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.57 Mbit/s
95th percentile per-packet one-way delay: 26.378 ms
Loss rate: 83.78%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 26.122 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 10.87 Mbit/s
95th percentile per-packet one-way delay: 26.530 ms
Loss rate: 85.76%
-- Flow 3:
Average throughput: 3.98 Mbit/s
95th percentile per-packet one-way delay: 26.298 ms
Loss rate: 32.10%
```

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



Flow 1 ingress (mean 0.39 Mbit/s) --- Flow 1 egress (mean 0.00 Mbit/s)
Flow 2 ingress (mean 76.37 Mbit/s) --- Flow 2 egress (mean 10.87 Mbit/s)
Flow 3 ingress (mean 5.86 Mbit/s) --- Flow 3 egress (mean 3.98 Mbit/s)



Flow 1 (95th percentile 26.12 ms)   Flow 2 (95th percentile 26.53 ms)   Flow 3 (95th percentile 26.30 ms)
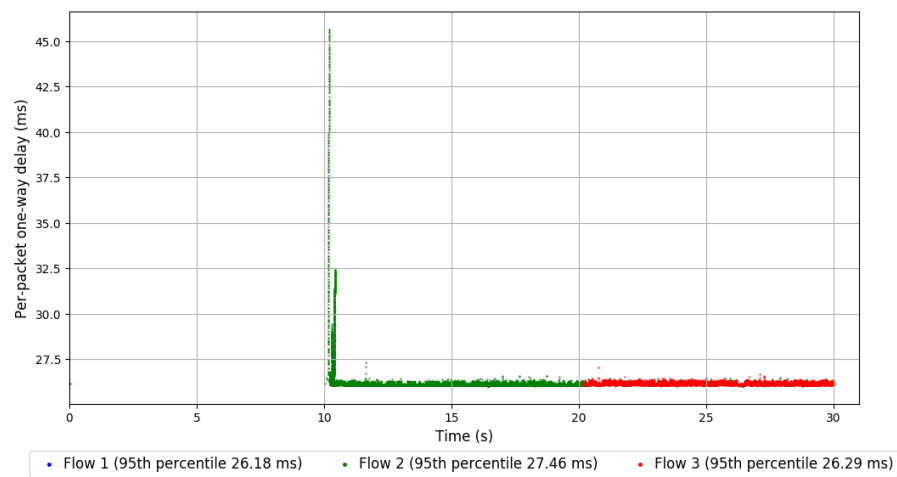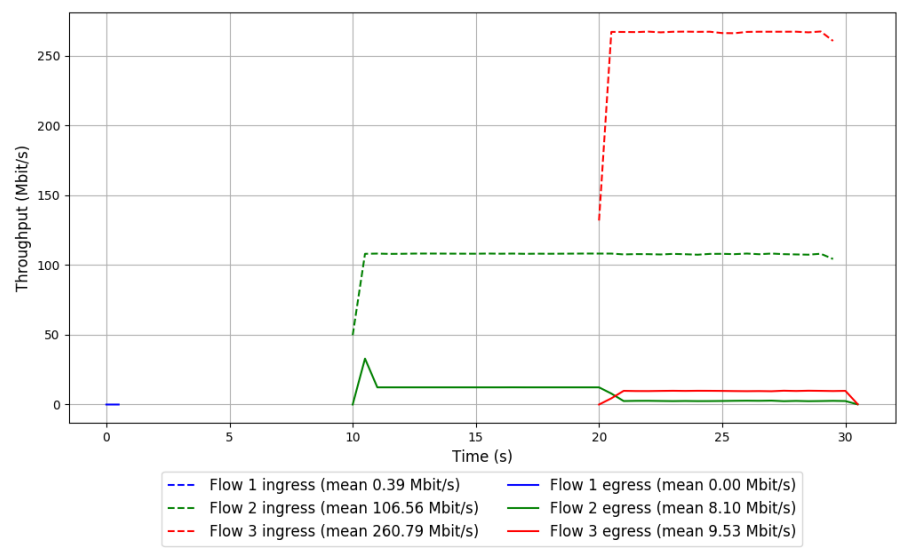
```
Run 4: Statistics of TaoVA-100x

Start at: 2019-02-20 02:02:23
End at: 2019-02-20 02:02:53
Local clock offset: 0.618 ms
Remote clock offset: -4.705 ms


# Below is generated by plot.py at 2019-02-20 02:40:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.57 Mbit/s
95th percentile per-packet one-way delay: 26.354 ms
Loss rate: 94.57%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 26.175 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 8.10 Mbit/s
95th percentile per-packet one-way delay: 27.456 ms
Loss rate: 92.39%
-- Flow 3:
Average throughput: 9.53 Mbit/s
95th percentile per-packet one-way delay: 26.287 ms
Loss rate: 96.35%
```

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



Flow 1 ingress (mean 0.39 Mbit/s) --- Flow 1 egress (mean 0.00 Mbit/s)
Flow 2 ingress (mean 106.56 Mbit/s) --- Flow 2 egress (mean 8.10 Mbit/s)
Flow 3 ingress (mean 260.79 Mbit/s) --- Flow 3 egress (mean 9.53 Mbit/s)



Flow 1 (95th percentile 26.18 ms)    Flow 2 (95th percentile 27.46 ms)    Flow 3 (95th percentile 26.29 ms)
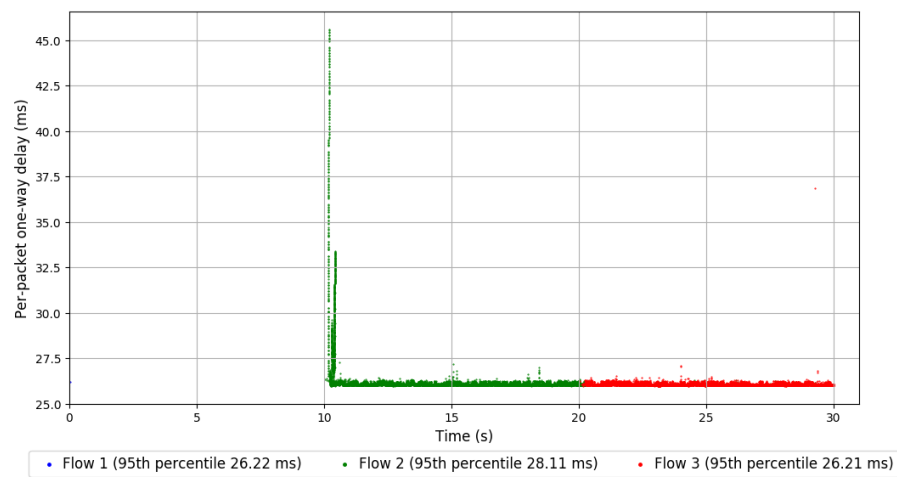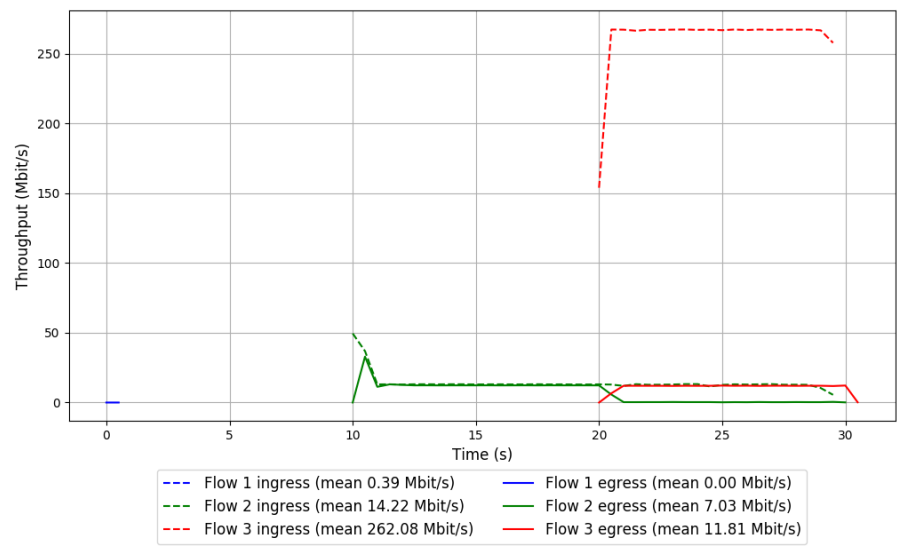
172

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

Start at: 2019-02-20 02:27:59
End at: 2019-02-20 02:28:29
Local clock offset: 0.441 ms
Remote clock offset: -3.866 ms


# Below is generated by plot.py at 2019-02-20 02:40:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.57 Mbit/s
95th percentile per-packet one-way delay: 26.307 ms
Loss rate: 91.13%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 26.224 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 7.03 Mbit/s
95th percentile per-packet one-way delay: 28.113 ms
Loss rate: 50.95%
-- Flow 3:
Average throughput: 11.81 Mbit/s
95th percentile per-packet one-way delay: 26.206 ms
Loss rate: 95.49%
```

Run 5: Report of TaoVA-100x — Data Link



Flow 1 ingress (mean 0.39 Mbit/s) --- Flow 1 egress (mean 0.00 Mbit/s)
Flow 2 ingress (mean 14.22 Mbit/s) --- Flow 2 egress (mean 7.03 Mbit/s)
Flow 3 ingress (mean 262.08 Mbit/s) --- Flow 3 egress (mean 11.81 Mbit/s)



Flow 1 (95th percentile 26.22 ms)  Flow 2 (95th percentile 28.11 ms)  Flow 3 (95th percentile 26.21 ms)
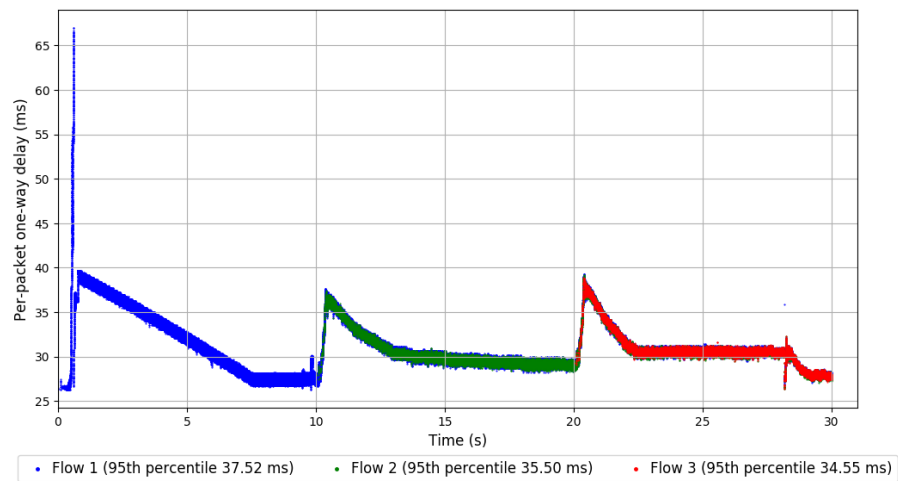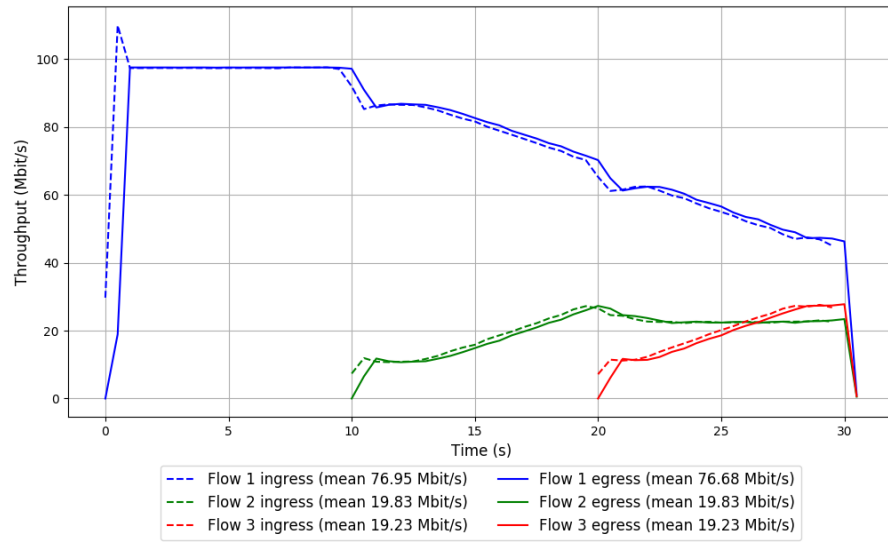
174

```
Run 1: Statistics of TCP Vegas

Start at: 2019-02-20 00:38:26
End at: 2019-02-20 00:38:56
Local clock offset: -1.072 ms
Remote clock offset: -9.226 ms


# Below is generated by plot.py at 2019-02-20 02:40:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.29 Mbit/s
95th percentile per-packet one-way delay: 37.238 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 76.68 Mbit/s
95th percentile per-packet one-way delay: 37.521 ms
Loss rate: 0.34%
-- Flow 2:
Average throughput: 19.83 Mbit/s
95th percentile per-packet one-way delay: 35.501 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 19.23 Mbit/s
95th percentile per-packet one-way delay: 34.551 ms
Loss rate: 0.00%
```

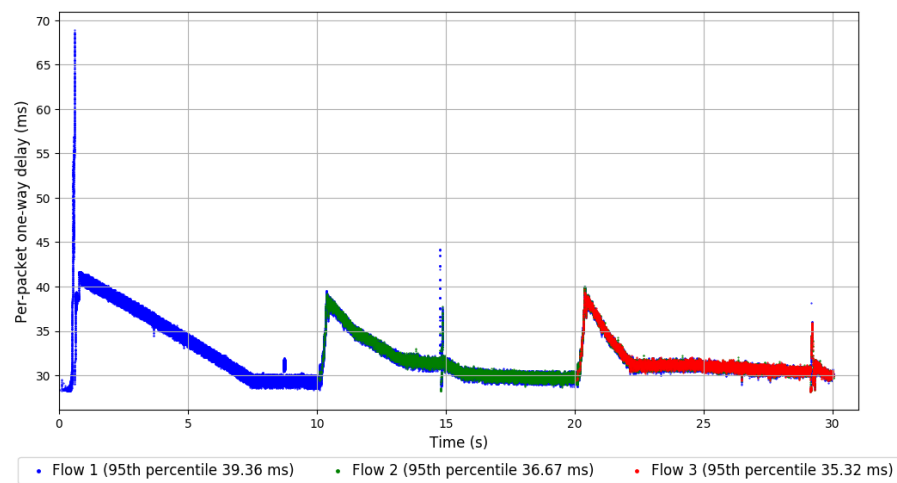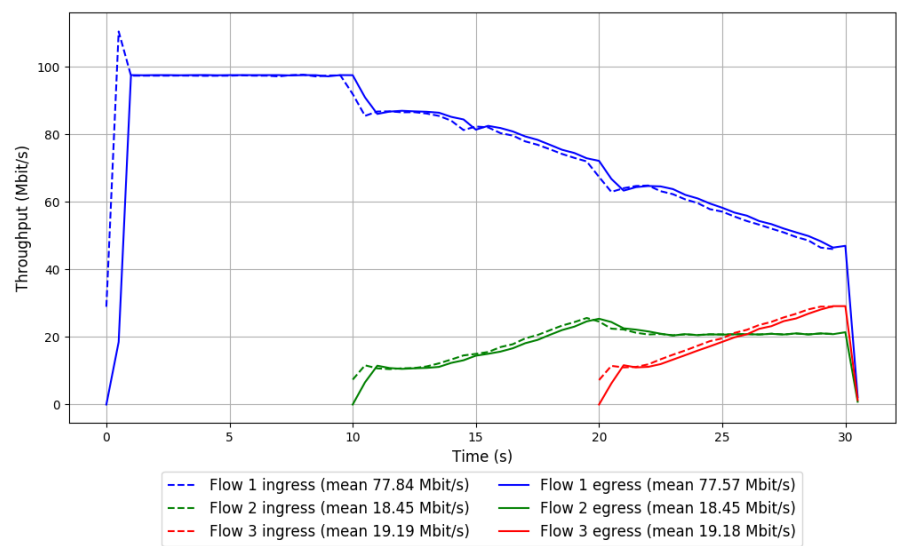Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2019-02-20 01:04:12
End at: 2019-02-20 01:04:42
Local clock offset: 1.937 ms
Remote clock offset: -5.647 ms


# Below is generated by plot.py at 2019-02-20 02:40:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.25 Mbit/s
95th percentile per-packet one-way delay: 38.917 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 77.57 Mbit/s
95th percentile per-packet one-way delay: 39.357 ms
Loss rate: 0.33%
-- Flow 2:
Average throughput: 18.45 Mbit/s
95th percentile per-packet one-way delay: 36.672 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 19.18 Mbit/s
95th percentile per-packet one-way delay: 35.322 ms
Loss rate: 0.00%
```

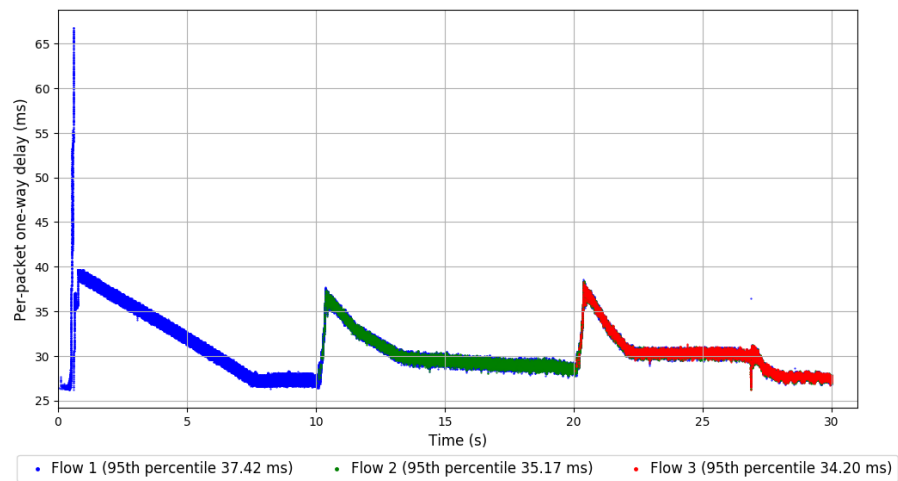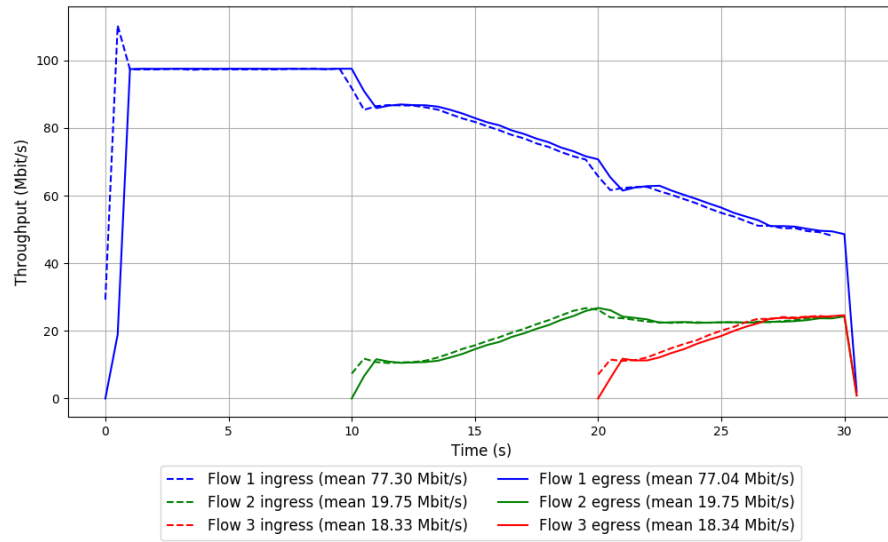Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2019-02-20 01:29:40
End at: 2019-02-20 01:30:10
Local clock offset: 1.244 ms
Remote clock offset: -6.126 ms


# Below is generated by plot.py at 2019-02-20 02:40:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.29 Mbit/s
95th percentile per-packet one-way delay: 37.115 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 77.04 Mbit/s
95th percentile per-packet one-way delay: 37.422 ms
Loss rate: 0.34%
-- Flow 2:
Average throughput: 19.75 Mbit/s
95th percentile per-packet one-way delay: 35.168 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 18.34 Mbit/s
95th percentile per-packet one-way delay: 34.204 ms
Loss rate: 0.00%
```

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



Flow 1 ingress (mean 77.30 Mbit/s) --- Flow 1 egress (mean 77.04 Mbit/s)
Flow 2 ingress (mean 19.75 Mbit/s) --- Flow 2 egress (mean 19.75 Mbit/s)
Flow 3 ingress (mean 18.33 Mbit/s) --- Flow 3 egress (mean 18.34 Mbit/s)



Flow 1 (95th percentile 37.42 ms)   Flow 2 (95th percentile 35.17 ms)   Flow 3 (95th percentile 34.20 ms)
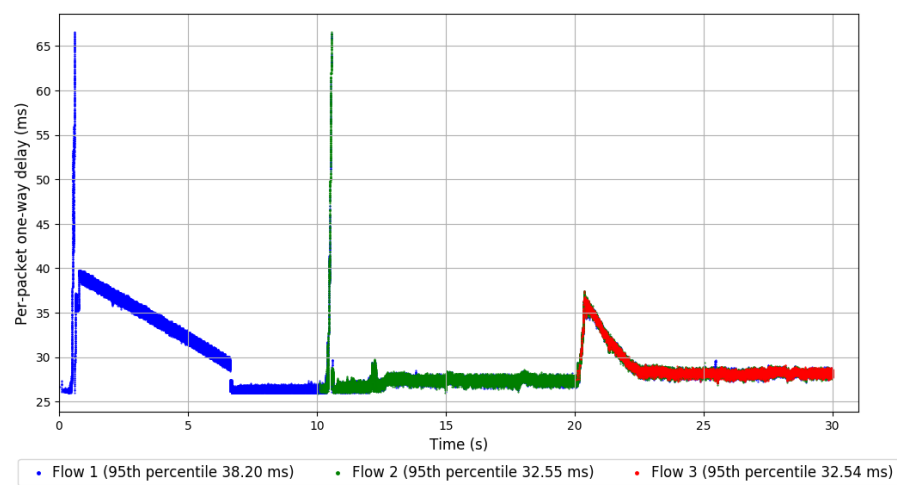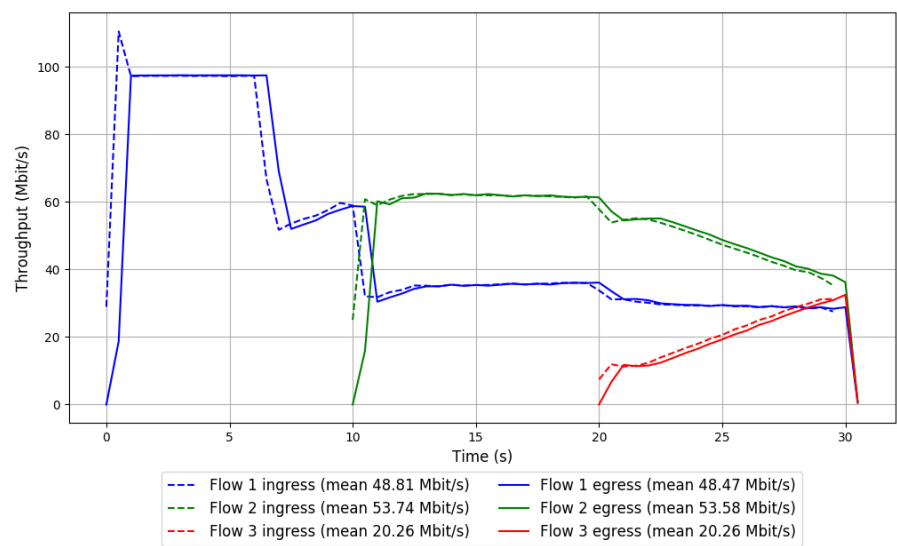
Run 4: Statistics of TCP Vegas

Start at: 2019-02-20 01:55:07
End at: 2019-02-20 01:55:37
Local clock offset: 0.659 ms
Remote clock offset: -5.162 ms


# Below is generated by plot.py at 2019-02-20 02:40:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.92 Mbit/s
95th percentile per-packet one-way delay: 37.221 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 48.47 Mbit/s
95th percentile per-packet one-way delay: 38.201 ms
Loss rate: 0.69%
-- Flow 2:
Average throughput: 53.58 Mbit/s
95th percentile per-packet one-way delay: 32.549 ms
Loss rate: 0.29%
-- Flow 3:
Average throughput: 20.26 Mbit/s
95th percentile per-packet one-way delay: 32.544 ms
Loss rate: 0.00%

# Run 4: Report of TCP Vegas — Data Link



Flow 1 ingress (mean 48.81 Mbit/s) — — — Flow 1 egress (mean 48.47 Mbit/s)
Flow 2 ingress (mean 53.74 Mbit/s) — — — Flow 2 egress (mean 53.58 Mbit/s)
Flow 3 ingress (mean 20.26 Mbit/s) — — — Flow 3 egress (mean 20.26 Mbit/s)



Flow 1 (95th percentile 38.20 ms)    Flow 2 (95th percentile 32.55 ms)    Flow 3 (95th percentile 32.54 ms)
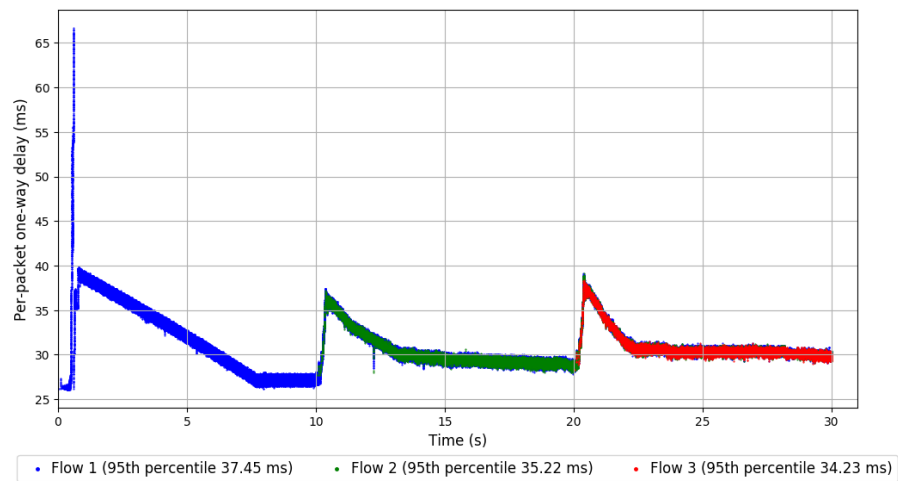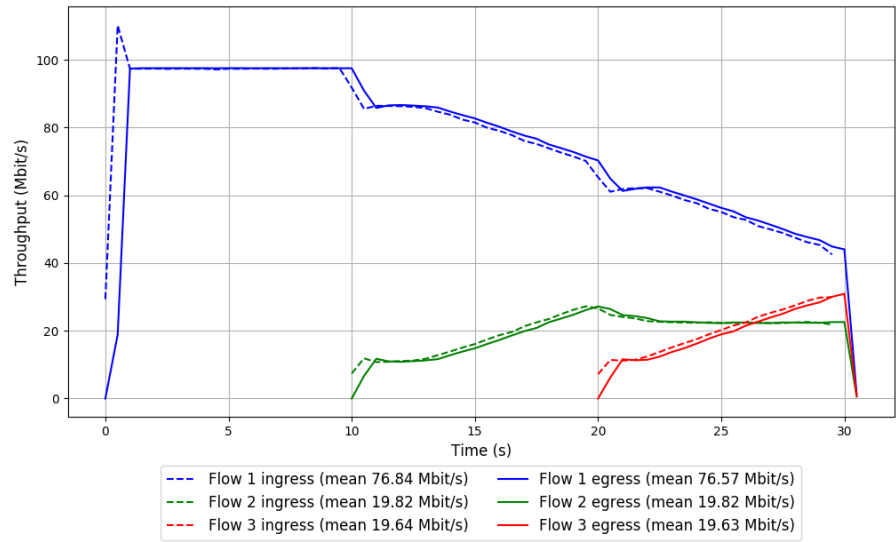
```
Run 5: Statistics of TCP Vegas

Start at: 2019-02-20 02:20:32
End at: 2019-02-20 02:21:02
Local clock offset: 0.416 ms
Remote clock offset: -4.145 ms


# Below is generated by plot.py at 2019-02-20 02:40:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.30 Mbit/s
95th percentile per-packet one-way delay: 37.168 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 76.57 Mbit/s
95th percentile per-packet one-way delay: 37.448 ms
Loss rate: 0.34%
-- Flow 2:
Average throughput: 19.82 Mbit/s
95th percentile per-packet one-way delay: 35.217 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 19.63 Mbit/s
95th percentile per-packet one-way delay: 34.233 ms
Loss rate: 0.00%
```

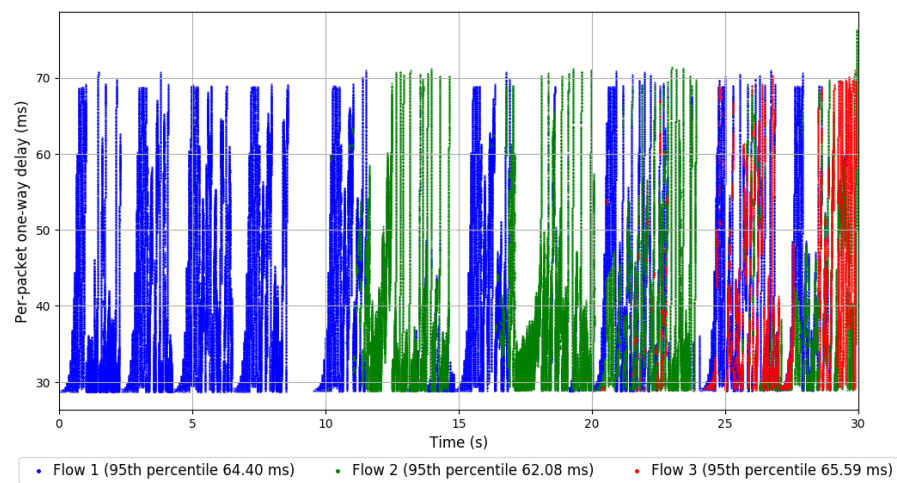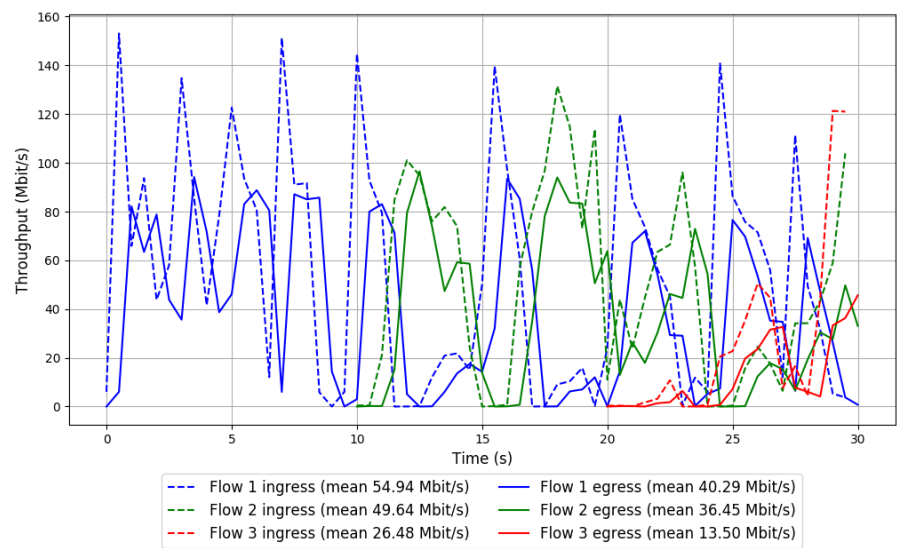Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2019-02-20 00:35:59
End at: 2019-02-20 00:36:29
Local clock offset: -1.94 ms
Remote clock offset: -6.712 ms


# Below is generated by plot.py at 2019-02-20 02:40:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 68.34 Mbit/s
95th percentile per-packet one-way delay: 63.953 ms
Loss rate: 28.64%
-- Flow 1:
Average throughput: 40.29 Mbit/s
95th percentile per-packet one-way delay: 64.398 ms
Loss rate: 26.83%
-- Flow 2:
Average throughput: 36.45 Mbit/s
95th percentile per-packet one-way delay: 62.084 ms
Loss rate: 26.42%
-- Flow 3:
Average throughput: 13.50 Mbit/s
95th percentile per-packet one-way delay: 65.594 ms
Loss rate: 48.93%
```

Run 1: Report of Verus — Data Link



Flow 1 ingress (mean 54.94 Mbit/s)    Flow 1 egress (mean 40.29 Mbit/s)
Flow 2 ingress (mean 49.64 Mbit/s)    Flow 2 egress (mean 36.45 Mbit/s)
Flow 3 ingress (mean 26.48 Mbit/s)    Flow 3 egress (mean 13.50 Mbit/s)



Flow 1 (95th percentile 64.40 ms)    Flow 2 (95th percentile 62.08 ms)    Flow 3 (95th percentile 65.59 ms)
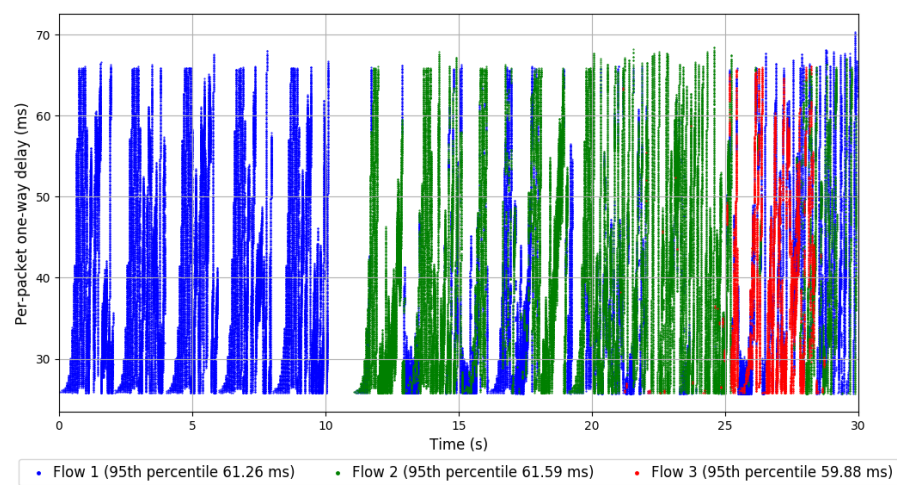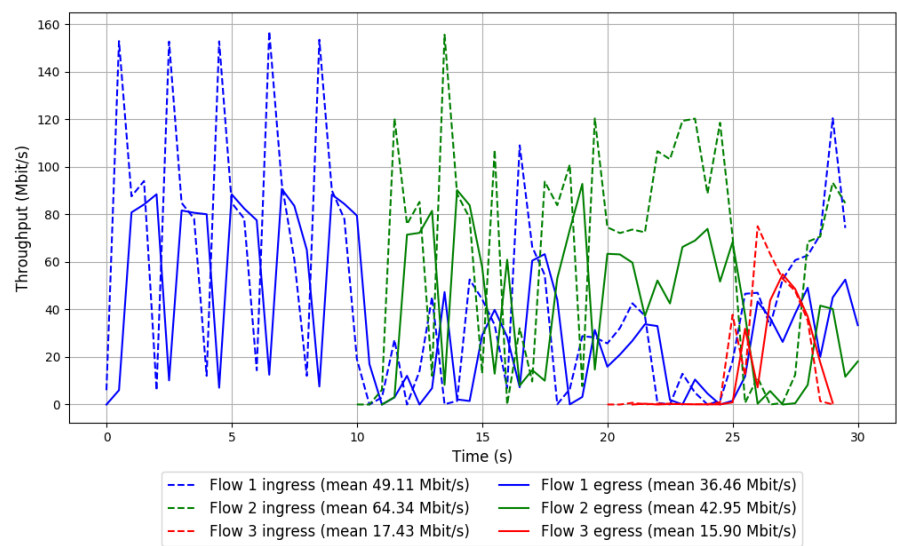
```
Run 2: Statistics of Verus

Start at: 2019-02-20 01:01:49
End at: 2019-02-20 01:02:19
Local clock offset: 2.358 ms
Remote clock offset: -8.172 ms


# Below is generated by plot.py at 2019-02-20 02:40:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 67.61 Mbit/s
95th percentile per-packet one-way delay: 61.328 ms
Loss rate: 30.46%
-- Flow 1:
Average throughput: 36.46 Mbit/s
95th percentile per-packet one-way delay: 61.261 ms
Loss rate: 25.68%
-- Flow 2:
Average throughput: 42.95 Mbit/s
95th percentile per-packet one-way delay: 61.586 ms
Loss rate: 36.55%
-- Flow 3:
Average throughput: 15.90 Mbit/s
95th percentile per-packet one-way delay: 59.881 ms
Loss rate: 25.87%
```

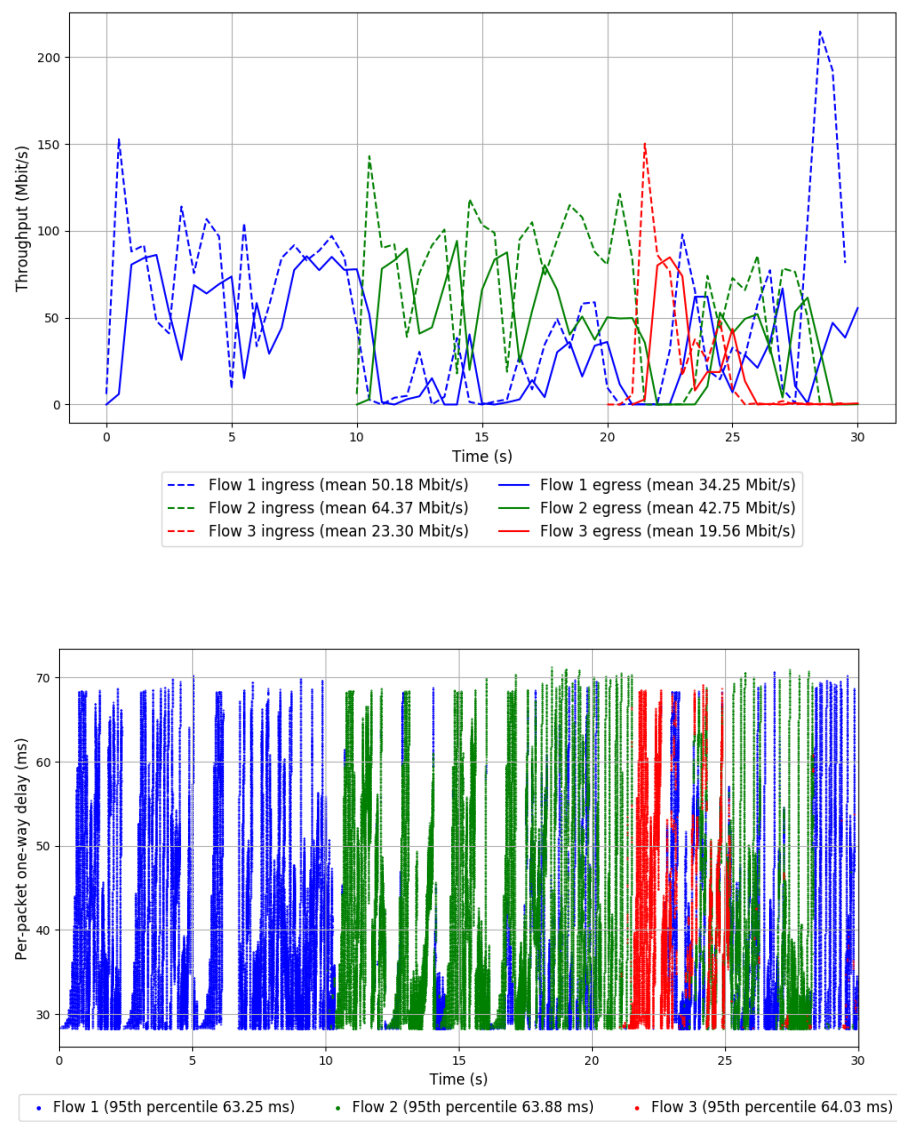Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2019-02-20 01:27:16
End at: 2019-02-20 01:27:46
Local clock offset: 1.177 ms
Remote clock offset: -4.243 ms


# Below is generated by plot.py at 2019-02-20 02:41:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 68.25 Mbit/s
95th percentile per-packet one-way delay: 63.582 ms
Loss rate: 32.08%
-- Flow 1:
Average throughput: 34.25 Mbit/s
95th percentile per-packet one-way delay: 63.252 ms
Loss rate: 31.75%
-- Flow 2:
Average throughput: 42.75 Mbit/s
95th percentile per-packet one-way delay: 63.876 ms
Loss rate: 33.84%
-- Flow 3:
Average throughput: 19.56 Mbit/s
95th percentile per-packet one-way delay: 64.031 ms
Loss rate: 24.53%
```

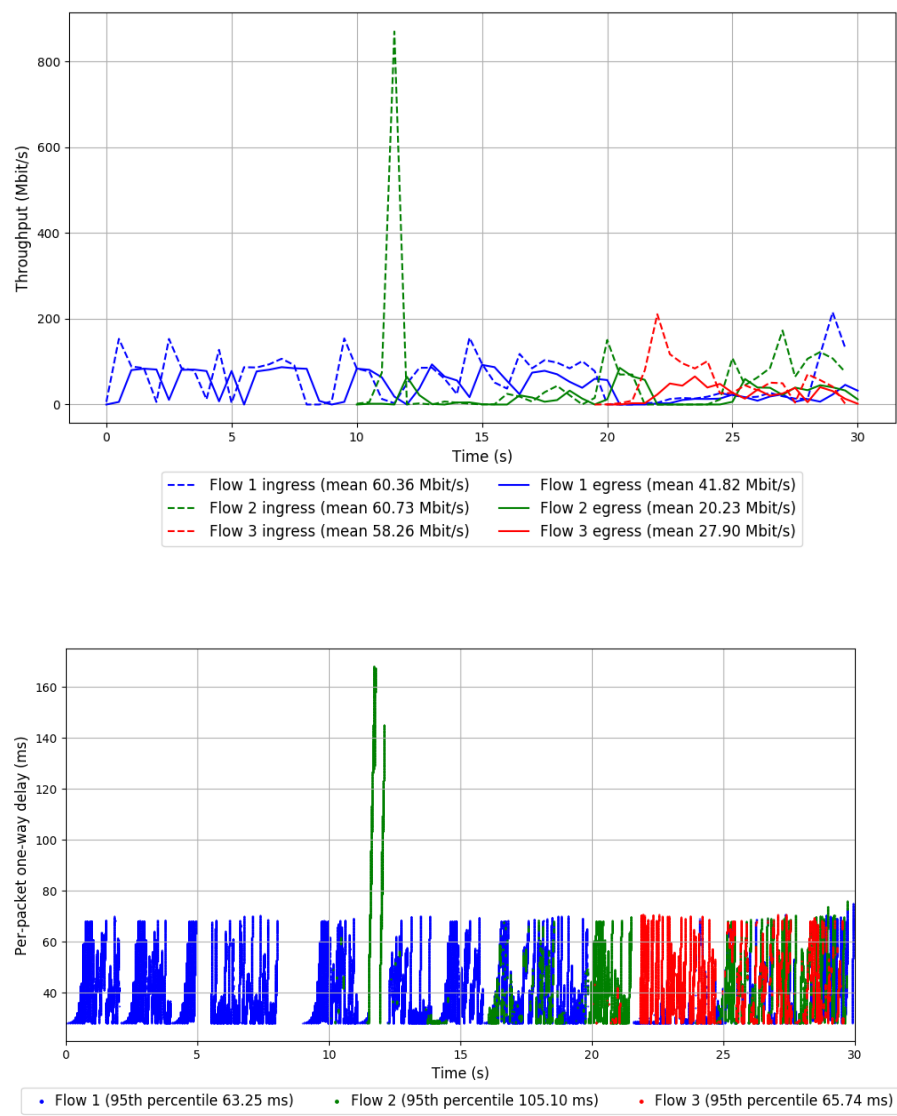Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2019-02-20 01:52:44
End at: 2019-02-20 01:53:14
Local clock offset: 0.612 ms
Remote clock offset: -3.182 ms


# Below is generated by plot.py at 2019-02-20 02:41:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 63.97 Mbit/s
95th percentile per-packet one-way delay: 65.424 ms
Loss rate: 46.09%
-- Flow 1:
Average throughput: 41.82 Mbit/s
95th percentile per-packet one-way delay: 63.249 ms
Loss rate: 30.61%
-- Flow 2:
Average throughput: 20.23 Mbit/s
95th percentile per-packet one-way delay: 105.096 ms
Loss rate: 66.65%
-- Flow 3:
Average throughput: 27.90 Mbit/s
95th percentile per-packet one-way delay: 65.743 ms
Loss rate: 52.23%
```

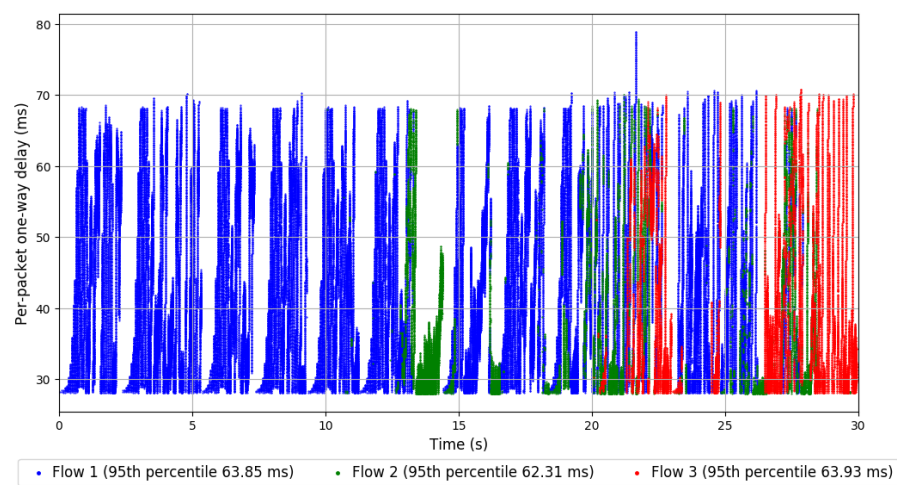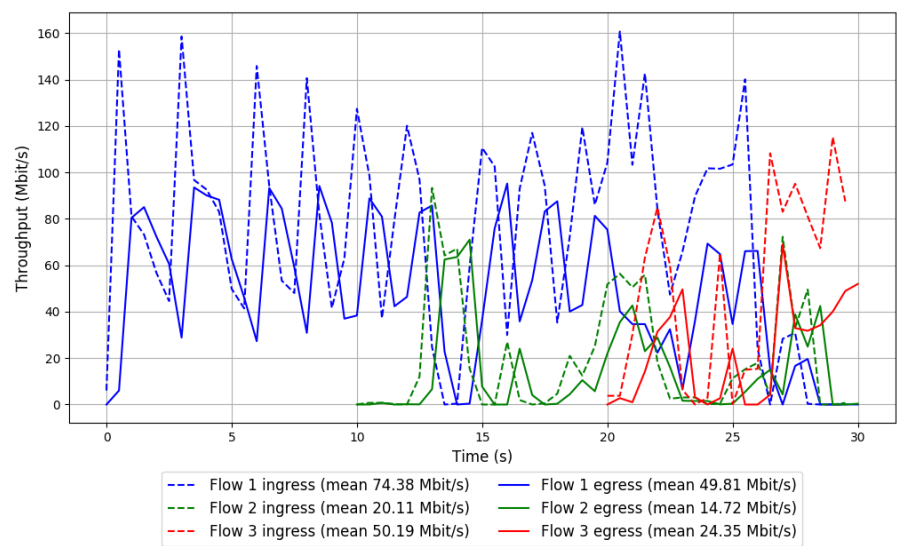## Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2019-02-20 02:18:08
End at: 2019-02-20 02:18:38
Local clock offset: 0.418 ms
Remote clock offset: -2.103 ms


# Below is generated by plot.py at 2019-02-20 02:41:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 67.42 Mbit/s
95th percentile per-packet one-way delay: 63.685 ms
Loss rate: 35.20%
-- Flow 1:
Average throughput: 49.81 Mbit/s
95th percentile per-packet one-way delay: 63.846 ms
Loss rate: 33.01%
-- Flow 2:
Average throughput: 14.72 Mbit/s
95th percentile per-packet one-way delay: 62.309 ms
Loss rate: 27.21%
-- Flow 3:
Average throughput: 24.35 Mbit/s
95th percentile per-packet one-way delay: 63.932 ms
Loss rate: 51.47%
```

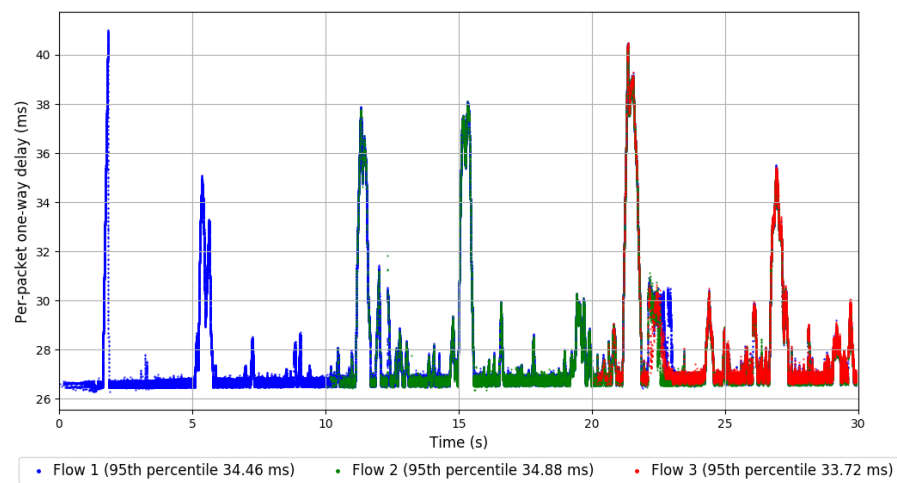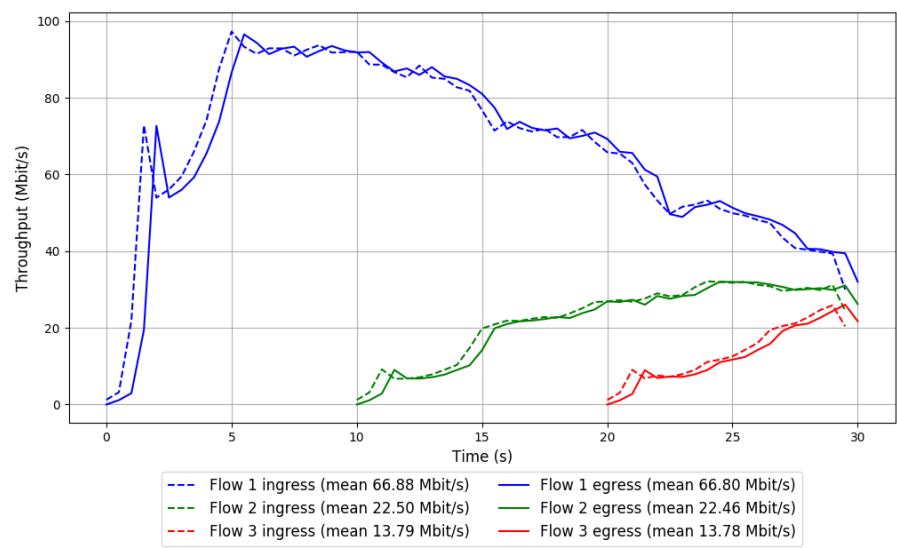Run 5: Report of Verus — Data Link





194

```
Run 1: Statistics of PCC-Vivace

Start at: 2019-02-20 00:41:03
End at: 2019-02-20 00:41:33
Local clock offset: -0.199 ms
Remote clock offset: -8.888 ms


# Below is generated by plot.py at 2019-02-20 02:41:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.29 Mbit/s
95th percentile per-packet one-way delay: 34.492 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 66.80 Mbit/s
95th percentile per-packet one-way delay: 34.458 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 22.46 Mbit/s
95th percentile per-packet one-way delay: 34.881 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 13.78 Mbit/s
95th percentile per-packet one-way delay: 33.719 ms
Loss rate: 0.08%
```

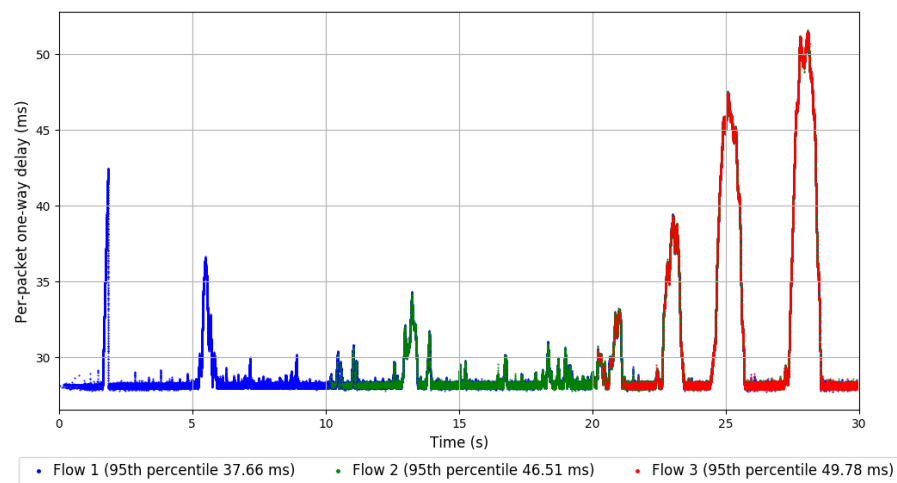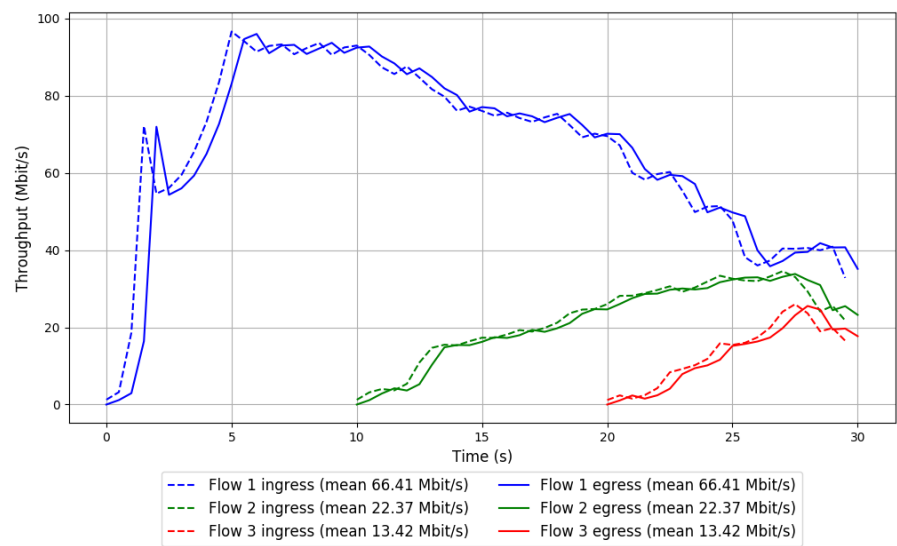Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2019-02-20 01:06:39
End at: 2019-02-20 01:07:09
Local clock offset: 1.602 ms
Remote clock offset: -5.781 ms


# Below is generated by plot.py at 2019-02-20 02:41:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.72 Mbit/s
95th percentile per-packet one-way delay: 43.695 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 66.41 Mbit/s
95th percentile per-packet one-way delay: 37.655 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 22.37 Mbit/s
95th percentile per-packet one-way delay: 46.512 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 13.42 Mbit/s
95th percentile per-packet one-way delay: 49.777 ms
Loss rate: 0.01%
```

Run 2: Report of PCC-Vivace — Data Link



- - - Flow 1 ingress (mean 66.41 Mbit/s) —— Flow 1 egress (mean 66.41 Mbit/s)
- - - Flow 2 ingress (mean 22.37 Mbit/s) —— Flow 2 egress (mean 22.37 Mbit/s)
- - - Flow 3 ingress (mean 13.42 Mbit/s) —— Flow 3 egress (mean 13.42 Mbit/s)



• Flow 1 (95th percentile 37.66 ms)   • Flow 2 (95th percentile 46.51 ms)   • Flow 3 (95th percentile 49.78 ms)
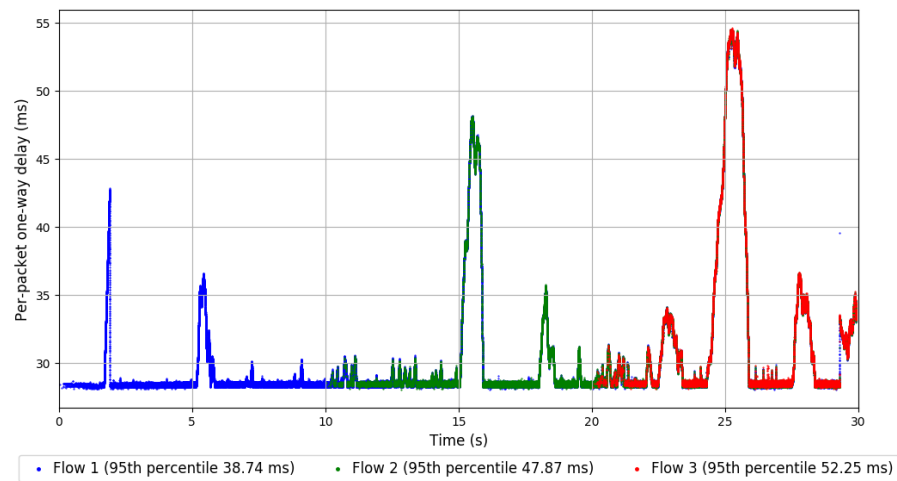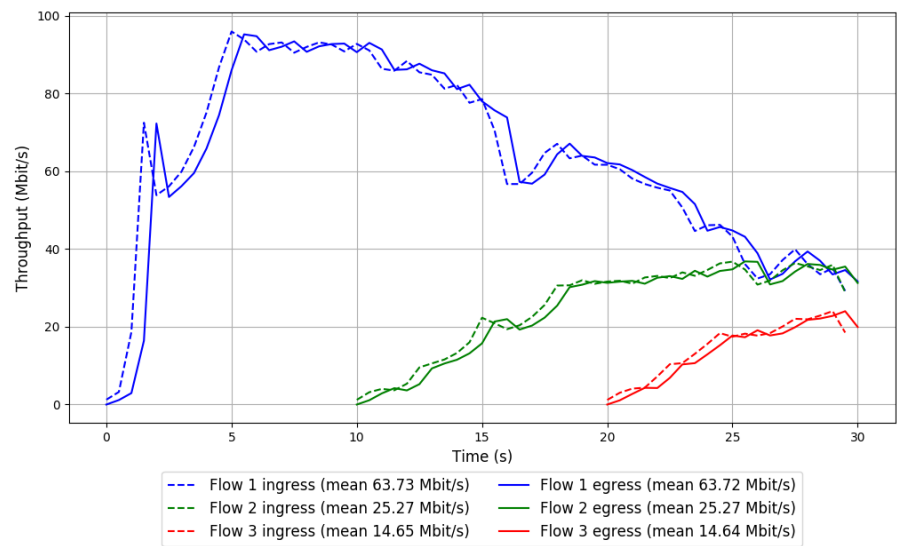
198

```
Run 3: Statistics of PCC-Vivace

Start at: 2019-02-20 01:32:06
End at: 2019-02-20 01:32:36
Local clock offset: 1.048 ms
Remote clock offset: -3.903 ms


# Below is generated by plot.py at 2019-02-20 02:41:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.36 Mbit/s
95th percentile per-packet one-way delay: 42.294 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 63.72 Mbit/s
95th percentile per-packet one-way delay: 38.737 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 25.27 Mbit/s
95th percentile per-packet one-way delay: 47.872 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 14.64 Mbit/s
95th percentile per-packet one-way delay: 52.249 ms
Loss rate: 0.00%
```

# Run 3: Report of PCC-Vivace — Data Link



Flow 1 ingress (mean 63.73 Mbit/s) --- Flow 1 egress (mean 63.72 Mbit/s)
Flow 2 ingress (mean 25.27 Mbit/s) --- Flow 2 egress (mean 25.27 Mbit/s)
Flow 3 ingress (mean 14.65 Mbit/s) --- Flow 3 egress (mean 14.64 Mbit/s)



Flow 1 (95th percentile 38.74 ms)  Flow 2 (95th percentile 47.87 ms)  Flow 3 (95th percentile 52.25 ms)
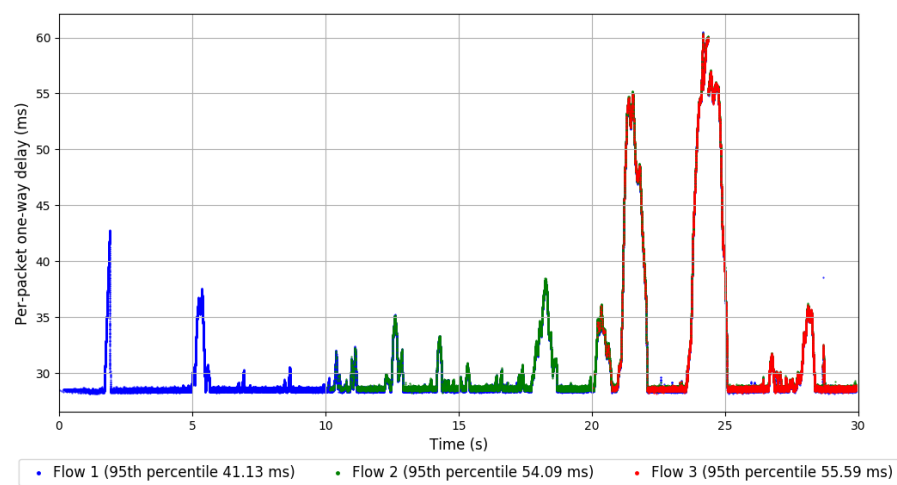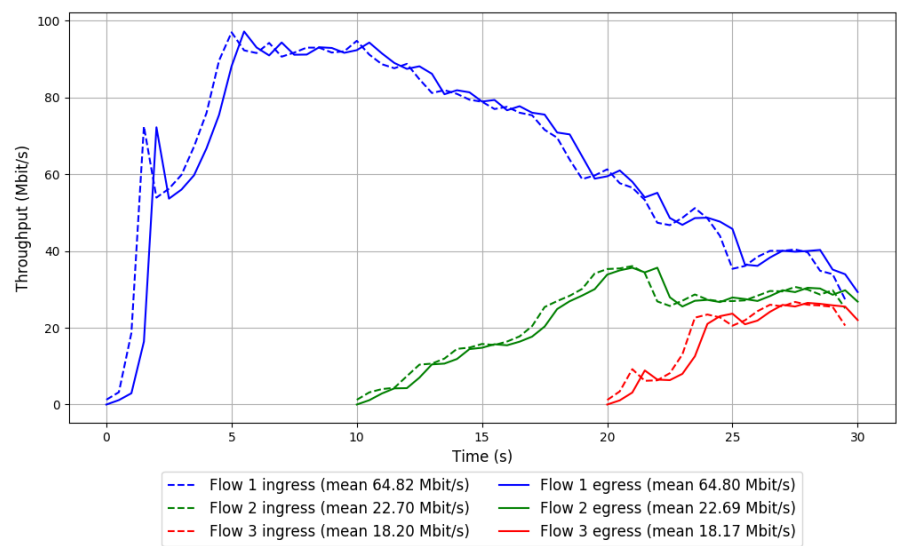
```
Run 4: Statistics of PCC-Vivace

Start at: 2019-02-20 01:57:33
End at: 2019-02-20 01:58:03
Local clock offset: 0.689 ms
Remote clock offset: -2.721 ms


# Below is generated by plot.py at 2019-02-20 02:41:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.89 Mbit/s
95th percentile per-packet one-way delay: 48.845 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 64.80 Mbit/s
95th percentile per-packet one-way delay: 41.132 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 22.69 Mbit/s
95th percentile per-packet one-way delay: 54.090 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 18.17 Mbit/s
95th percentile per-packet one-way delay: 55.594 ms
Loss rate: 0.15%
```

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



Flow 1 ingress (mean 64.82 Mbit/s) --- Flow 1 egress (mean 64.80 Mbit/s)
Flow 2 ingress (mean 22.70 Mbit/s) --- Flow 2 egress (mean 22.69 Mbit/s)
Flow 3 ingress (mean 18.20 Mbit/s) --- Flow 3 egress (mean 18.17 Mbit/s)



Flow 1 (95th percentile 41.13 ms)   Flow 2 (95th percentile 54.09 ms)   Flow 3 (95th percentile 55.59 ms)
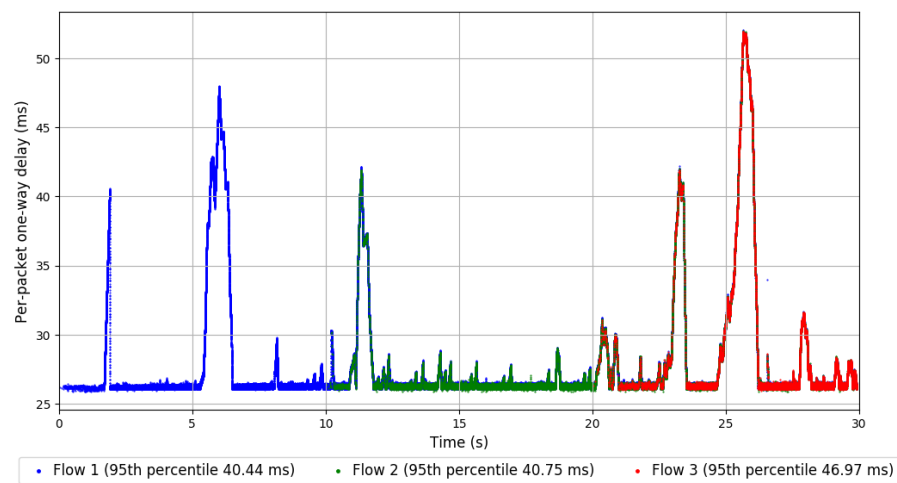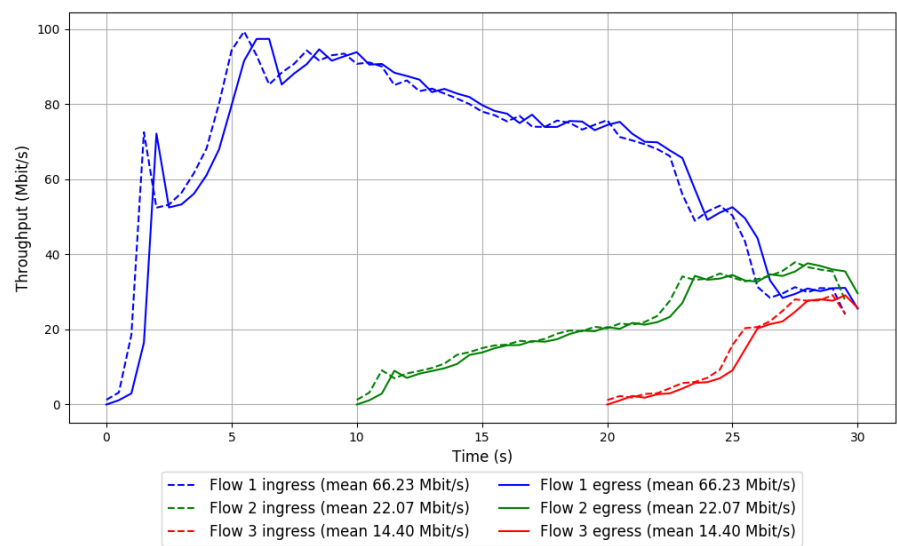
```
Run 5: Statistics of PCC-Vivace

Start at: 2019-02-20 02:22:59
End at: 2019-02-20 02:23:29
Local clock offset: 0.429 ms
Remote clock offset: -4.036 ms


# Below is generated by plot.py at 2019-02-20 02:41:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.67 Mbit/s
95th percentile per-packet one-way delay: 40.683 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 66.23 Mbit/s
95th percentile per-packet one-way delay: 40.443 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 22.07 Mbit/s
95th percentile per-packet one-way delay: 40.749 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 14.40 Mbit/s
95th percentile per-packet one-way delay: 46.970 ms
Loss rate: 0.00%
```
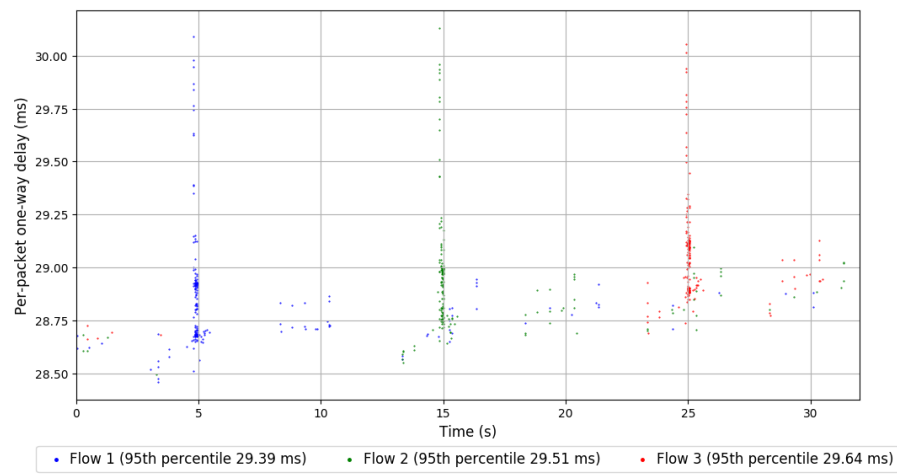
Run 5: Report of PCC-Vivace — Data Link



Flow 1 ingress (mean 66.23 Mbit/s) — Flow 1 egress (mean 66.23 Mbit/s)
Flow 2 ingress (mean 22.07 Mbit/s) — Flow 2 egress (mean 22.07 Mbit/s)
Flow 3 ingress (mean 14.40 Mbit/s) — Flow 3 egress (mean 14.40 Mbit/s)



Flow 1 (95th percentile 40.44 ms)   Flow 2 (95th percentile 40.75 ms)   Flow 3 (95th percentile 46.97 ms)
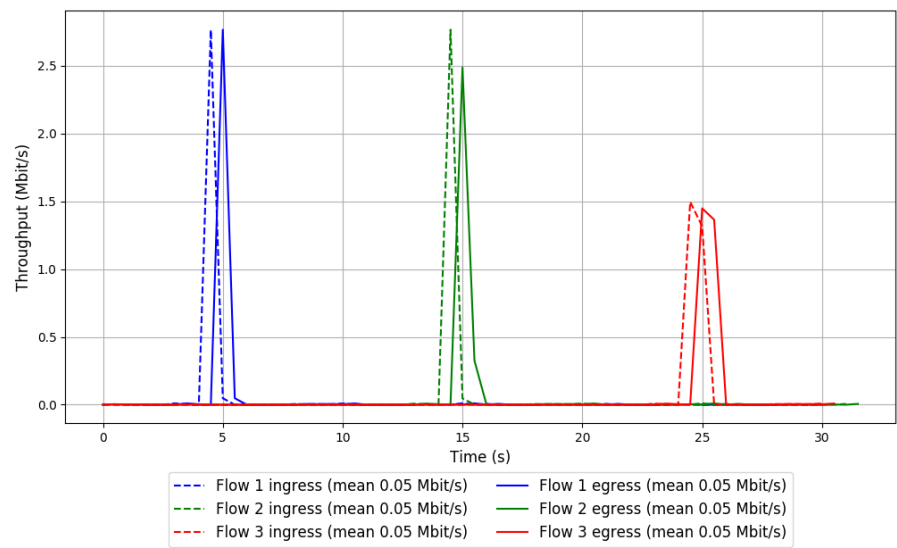
```
Run 1: Statistics of WebRTC media

Start at: 2019-02-20 00:33:35
End at: 2019-02-20 00:34:05
Local clock offset: -3.229 ms
Remote clock offset: -7.012 ms


# Below is generated by plot.py at 2019-02-20 02:41:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 29.568 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 29.386 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 29.510 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 29.637 ms
Loss rate: 0.00%
```

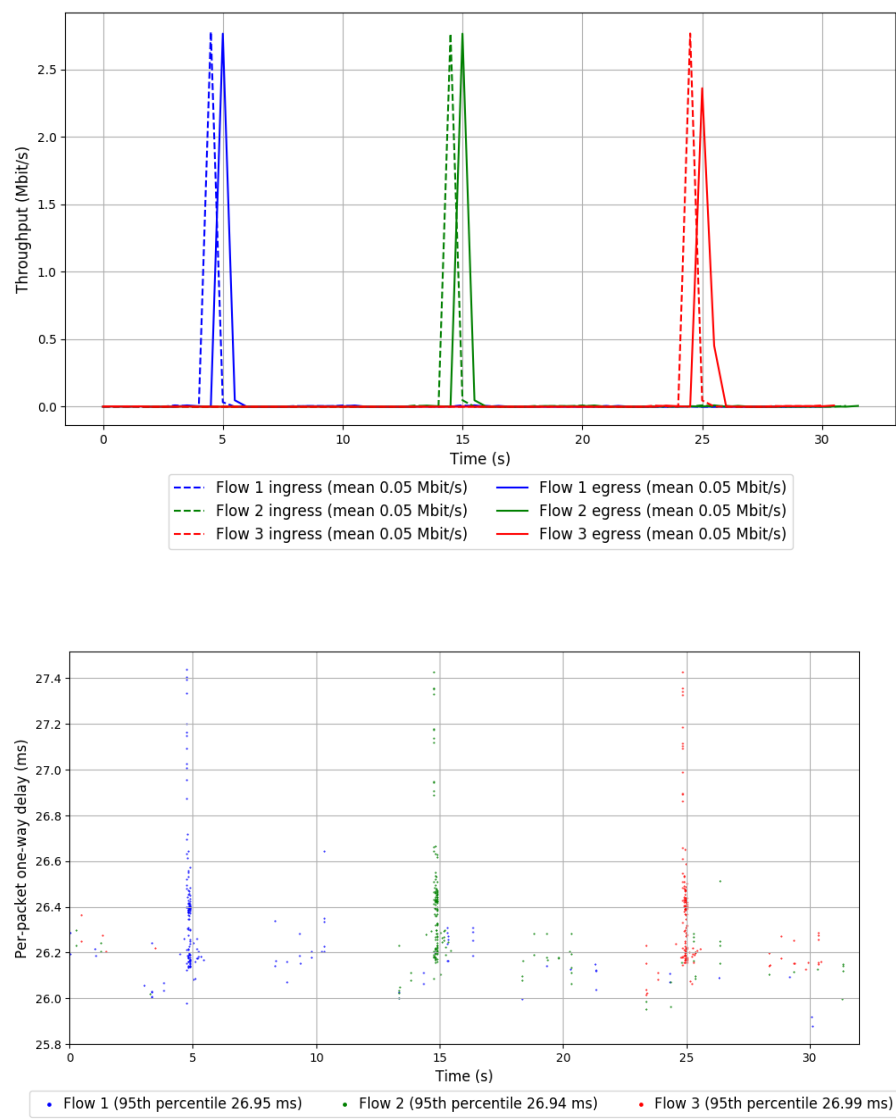Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2019-02-20 00:59:25
End at: 2019-02-20 00:59:56
Local clock offset: 2.728 ms
Remote clock offset: -8.261 ms


# Below is generated by plot.py at 2019-02-20 02:41:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 26.954 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 26.954 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 26.942 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 26.988 ms
Loss rate: 0.00%
```

Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2019-02-20 01:24:46
End at: 2019-02-20 01:25:16
Local clock offset: 1.148 ms
Remote clock offset: -6.47 ms


# Below is generated by plot.py at 2019-02-20 02:41:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 27.143 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 26.938 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 27.246 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 27.256 ms
Loss rate: 0.00%
```
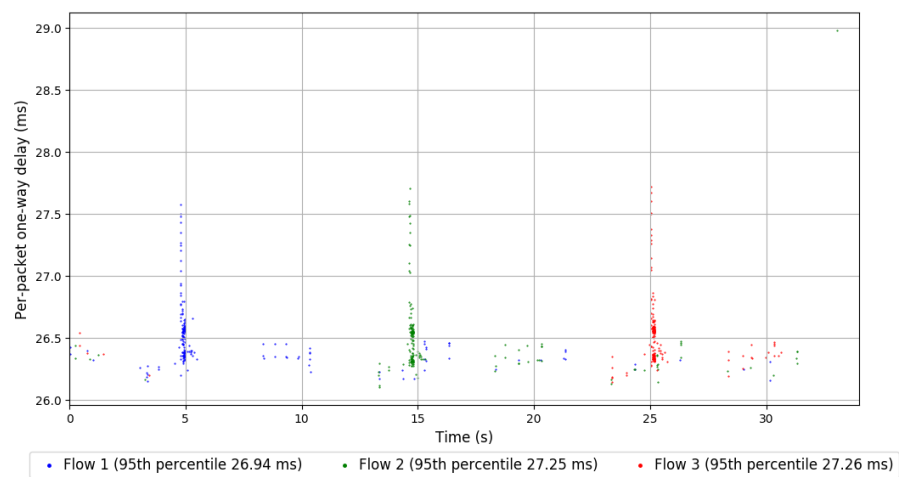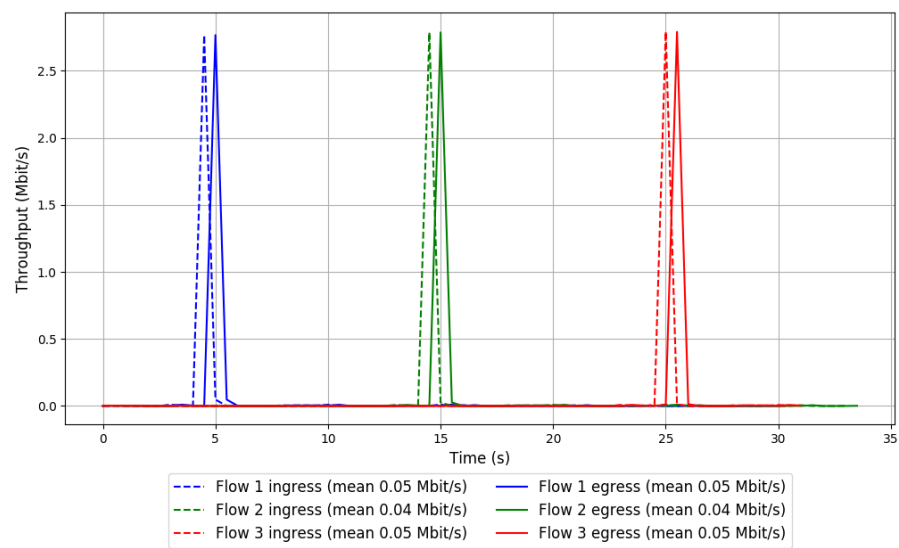
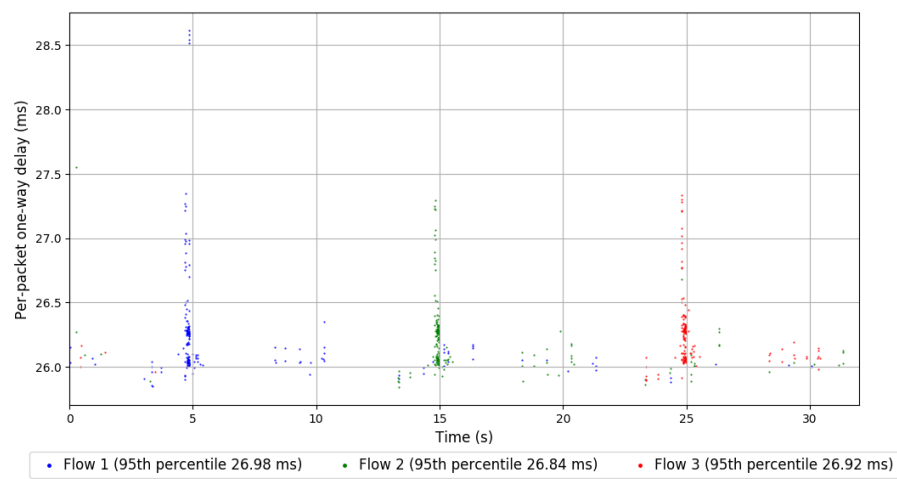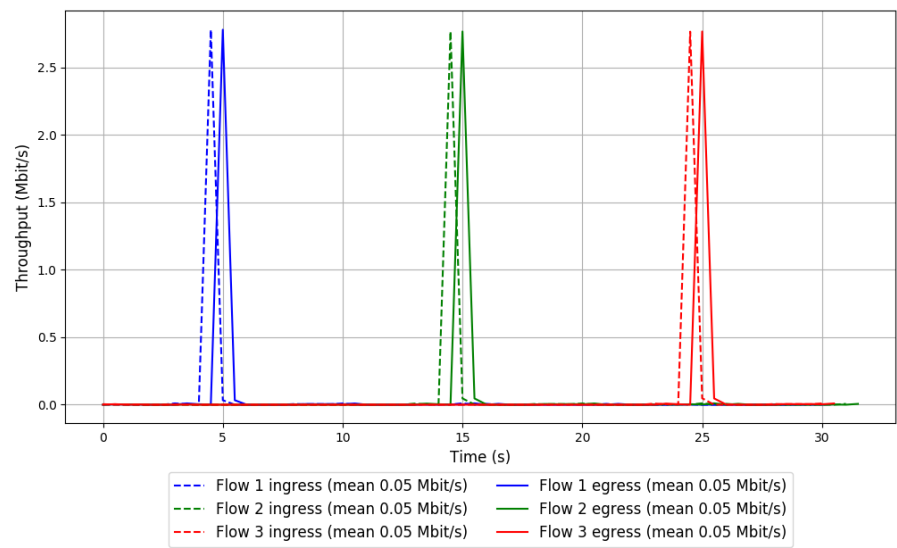Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2019-02-20 01:50:21
End at: 2019-02-20 01:50:51
Local clock offset: 0.596 ms
Remote clock offset: -5.371 ms


# Below is generated by plot.py at 2019-02-20 02:41:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 26.967 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 26.982 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 26.843 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 26.921 ms
Loss rate: 0.00%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2019-02-20 02:15:38
End at: 2019-02-20 02:16:08
Local clock offset: 0.426 ms
Remote clock offset: -2.201 ms


# Below is generated by plot.py at 2019-02-20 02:41:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 28.868 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 28.868 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 28.776 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 28.951 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link