# Pantheon Report

Generated at 2019-01-19 13:52:35 (UTC).

Data path: Brazil on `p4p1` (*remote*) →AWS Brazil 1 on `ens5` (*local*).

Repeated the test of 21 congestion control schemes 5 times.

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

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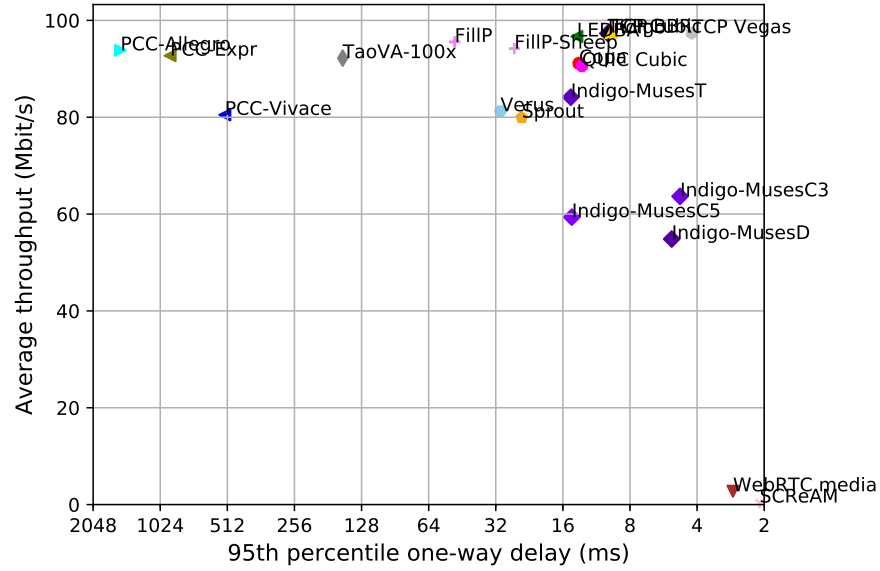
```
System info:
Linux 4.15.0-1031-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ c80a283586bf7b0cc1fe08c69c8f60d56498f81c
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ c3eee875824760ec5b2fd207fefe166e1afe2170
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
```
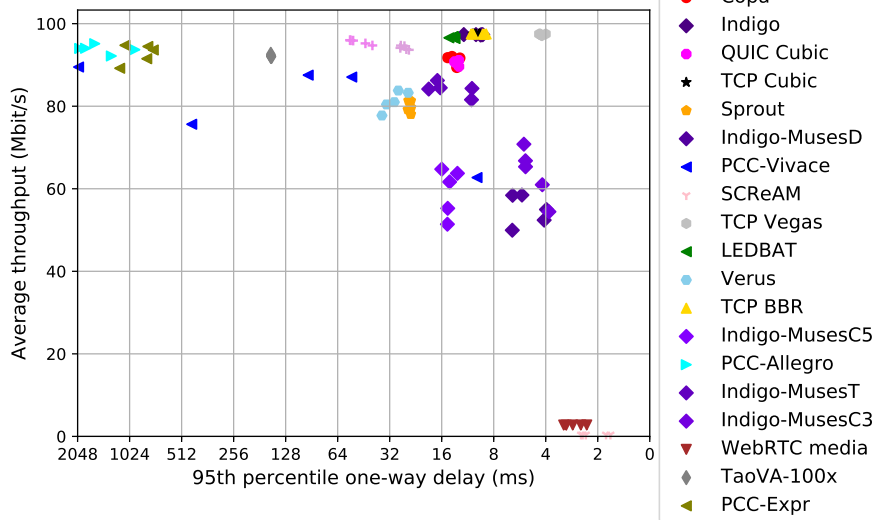
```
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

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



test from Brazil to AWS Brazil 1, 5 runs of 30s each per scheme
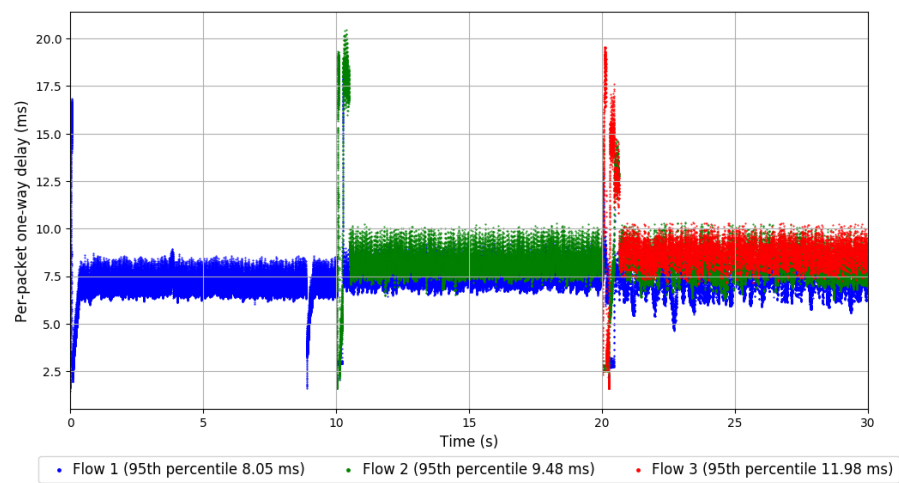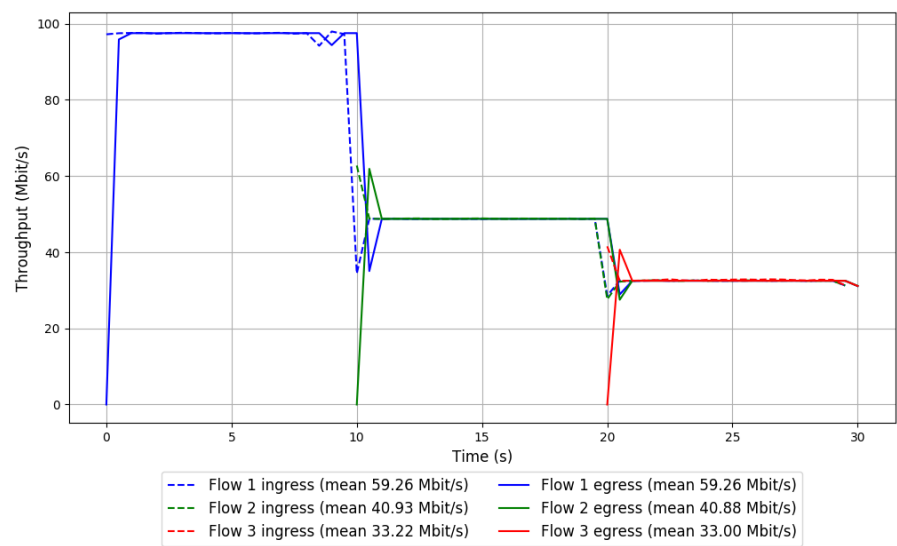3 flows with 10s interval between flows

| scheme | # runs | mean avg tput (Mbit/s) | | | mean 95th-%ile delay (ms) | | | mean loss rate (%) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | flow 1 | flow 2 | flow 3 | flow 1 | flow 2 | flow 3 | flow 1 | flow 2 | flow 3 |
| TCP BBR | 5 | 59.29 | 40.89 | 33.00 | 8.87 | 10.14 | 12.43 | 0.09 | 0.34 | 0.76 |
| Copa | 5 | 54.08 | 39.73 | 31.88 | 12.92 | 13.15 | 15.55 | 0.05 | 0.09 | 0.16 |
| TCP Cubic | 5 | 59.63 | 40.64 | 32.49 | 10.14 | 9.96 | 10.24 | 0.08 | 0.14 | 0.22 |
| FillP | 5 | 57.02 | 45.25 | 25.39 | 31.19 | 52.51 | 37.69 | 0.14 | 2.47 | 1.46 |
| FillP-Sheep | 5 | 61.08 | 36.97 | 25.57 | 26.16 | 24.62 | 49.93 | 0.04 | 0.04 | 0.24 |
| Indigo | 5 | 59.67 | 40.64 | 32.33 | 9.50 | 10.48 | 8.24 | 0.03 | 0.46 | 0.10 |
| Indigo-MusesC3 | 5 | 46.67 | 19.56 | 17.43 | 4.68 | 4.48 | 4.98 | 0.01 | 0.04 | 0.09 |
| Indigo-MusesC5 | 5 | 33.02 | 27.98 | 32.59 | 11.67 | 14.78 | 17.25 | 0.05 | 0.07 | 0.11 |
| Indigo-MusesD | 5 | 36.14 | 25.97 | 8.45 | 4.80 | 5.73 | 3.98 | 0.02 | 0.01 | 0.04 |
| Indigo-MusesT | 5 | 55.13 | 36.25 | 24.20 | 11.85 | 17.52 | 16.11 | 0.03 | 0.07 | 0.18 |
| LEDBAT | 5 | 58.96 | 40.42 | 32.50 | 13.39 | 14.10 | 13.84 | 0.12 | 0.22 | 0.37 |
| PCC-Allegro | 5 | 64.58 | 30.28 | 27.63 | 1620.12 | 755.52 | 34.74 | 12.37 | 7.85 | 0.26 |
| PCC-Expr | 5 | 57.98 | 38.17 | 28.32 | 694.76 | 737.80 | 96.31 | 24.90 | 6.48 | 0.58 |
| QUIC Cubic | 5 | 53.64 | 40.07 | 31.12 | 12.92 | 12.80 | 13.86 | 0.17 | 0.33 | 0.47 |
| SCReAM | 5 | 0.22 | 0.22 | 0.22 | 2.10 | 2.09 | 2.08 | 0.00 | 0.04 | 0.07 |
| Sprout | 5 | 43.33 | 39.02 | 32.21 | 23.32 | 24.60 | 25.54 | 0.13 | 0.19 | 0.21 |
| TaoVA-100x | 5 | 55.40 | 39.40 | 31.82 | 154.66 | 154.92 | 156.29 | 0.54 | 1.17 | 2.66 |
| TCP Vegas | 5 | 51.57 | 51.34 | 34.90 | 3.13 | 3.96 | 4.50 | 0.01 | 0.02 | 0.06 |
| Verus | 5 | 47.37 | 35.68 | 30.43 | 23.91 | 25.32 | 137.75 | 0.03 | 0.06 | 0.41 |
| PCC-Vivace | 5 | 48.41 | 34.95 | 26.74 | 21.69 | 548.79 | 155.06 | 0.47 | 2.22 | 3.31 |
| WebRTC media | 5 | 1.48 | 0.87 | 0.42 | 2.71 | 2.80 | 2.83 | 0.00 | 0.01 | 0.01 |

```
Run 1: Statistics of TCP BBR

Start at: 2019-01-19 11:45:11
End at: 2019-01-19 11:45:41
Local clock offset: -7.617 ms
Remote clock offset: -0.199 ms


# Below is generated by plot.py at 2019-01-19 13:39:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.44 Mbit/s
95th percentile per-packet one-way delay: 9.080 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 59.26 Mbit/s
95th percentile per-packet one-way delay: 8.055 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 40.88 Mbit/s
95th percentile per-packet one-way delay: 9.476 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 33.00 Mbit/s
95th percentile per-packet one-way delay: 11.985 ms
Loss rate: 0.71%
```
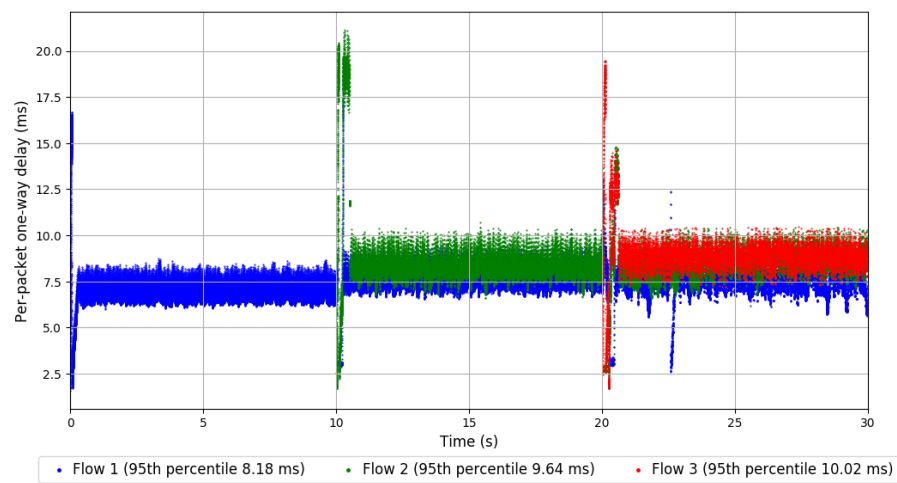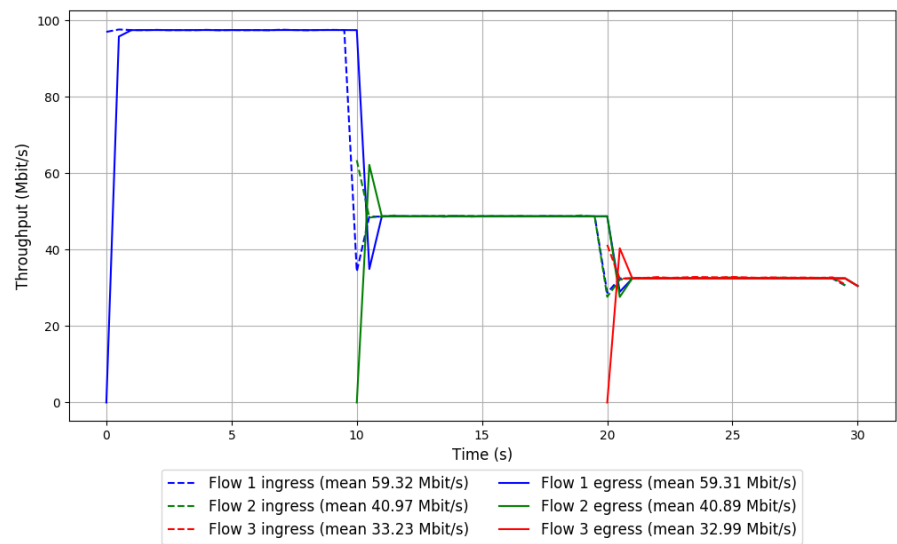
Run 1: Report of TCP BBR — Data Link



- - - - Flow 1 ingress (mean 59.26 Mbit/s)     —— Flow 1 egress (mean 59.26 Mbit/s)
- - - - Flow 2 ingress (mean 40.93 Mbit/s)     —— Flow 2 egress (mean 40.88 Mbit/s)
- - - - Flow 3 ingress (mean 33.22 Mbit/s)     —— Flow 3 egress (mean 33.00 Mbit/s)



• Flow 1 (95th percentile 8.05 ms)     • Flow 2 (95th percentile 9.48 ms)     • Flow 3 (95th percentile 11.98 ms)

```
Run 2: Statistics of TCP BBR

Start at: 2019-01-19 12:09:19
End at: 2019-01-19 12:09:49
Local clock offset: -7.713 ms
Remote clock offset: 0.346 ms


# Below is generated by plot.py at 2019-01-19 13:39:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.49 Mbit/s
95th percentile per-packet one-way delay: 9.242 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 59.31 Mbit/s
95th percentile per-packet one-way delay: 8.181 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 40.89 Mbit/s
95th percentile per-packet one-way delay: 9.645 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 32.99 Mbit/s
95th percentile per-packet one-way delay: 10.021 ms
Loss rate: 0.78%
```
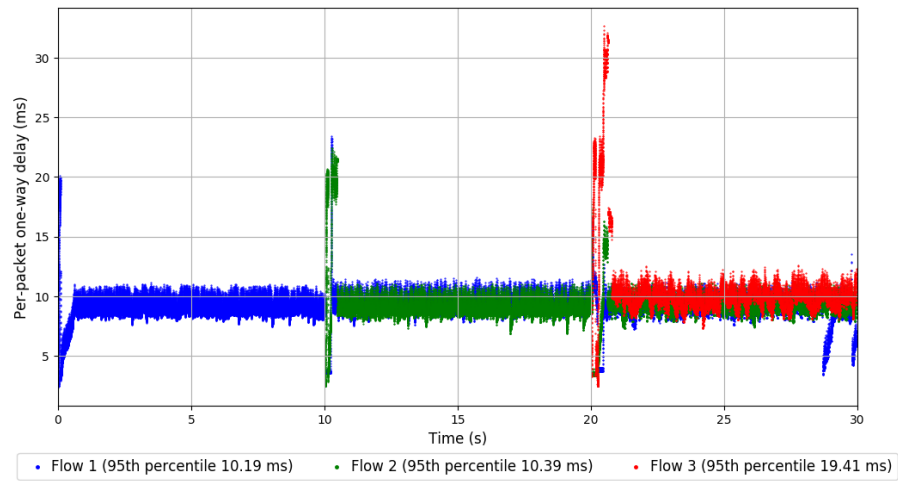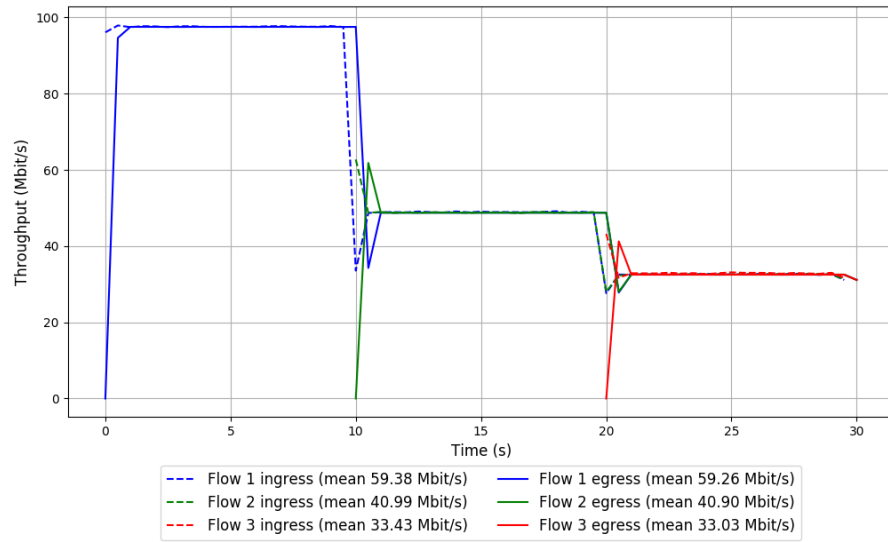
Run 2: Report of TCP BBR — Data Link



Flow 1 ingress (mean 59.32 Mbit/s) --- Flow 1 egress (mean 59.31 Mbit/s)
Flow 2 ingress (mean 40.97 Mbit/s) --- Flow 2 egress (mean 40.89 Mbit/s)
Flow 3 ingress (mean 33.23 Mbit/s) --- Flow 3 egress (mean 32.99 Mbit/s)



Flow 1 (95th percentile 8.18 ms)  •  Flow 2 (95th percentile 9.64 ms)  •  Flow 3 (95th percentile 10.02 ms)

```
Run 3: Statistics of TCP BBR

Start at: 2019-01-19 12:33:30
End at: 2019-01-19 12:34:00
Local clock offset: -6.621 ms
Remote clock offset: 1.034 ms


# Below is generated by plot.py at 2019-01-19 13:39:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.46 Mbit/s
95th percentile per-packet one-way delay: 10.527 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 59.26 Mbit/s
95th percentile per-packet one-way delay: 10.192 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 40.90 Mbit/s
95th percentile per-packet one-way delay: 10.392 ms
Loss rate: 0.23%
-- Flow 3:
Average throughput: 33.03 Mbit/s
95th percentile per-packet one-way delay: 19.415 ms
Loss rate: 1.23%
```
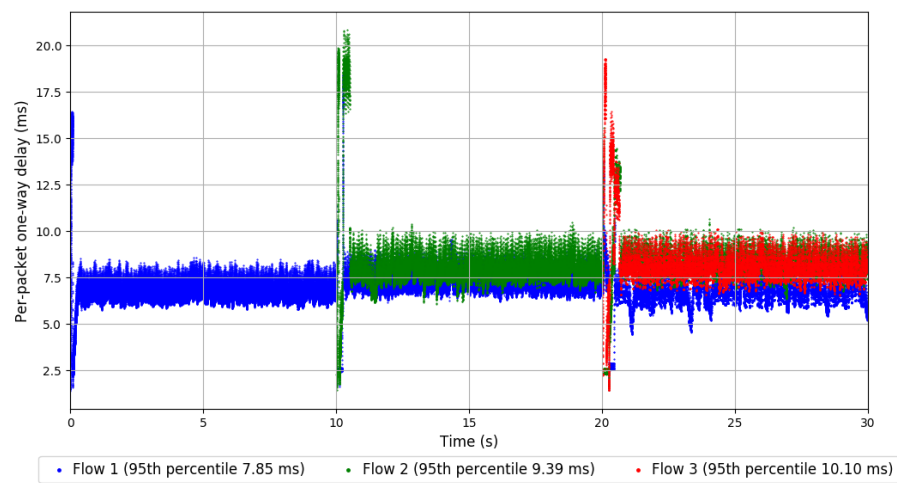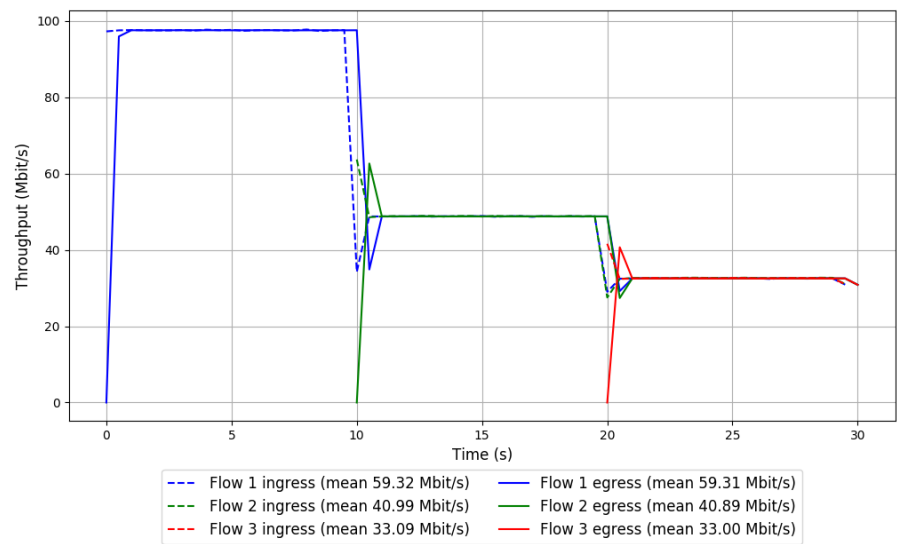
Run 3: Report of TCP BBR — Data Link



Flow 1 ingress (mean 59.38 Mbit/s)          Flow 1 egress (mean 59.26 Mbit/s)
Flow 2 ingress (mean 40.99 Mbit/s)          Flow 2 egress (mean 40.90 Mbit/s)
Flow 3 ingress (mean 33.43 Mbit/s)          Flow 3 egress (mean 33.03 Mbit/s)



Flow 1 (95th percentile 10.19 ms)     Flow 2 (95th percentile 10.39 ms)     Flow 3 (95th percentile 19.41 ms)

10

```
Run 4: Statistics of TCP BBR

Start at: 2019-01-19 12:57:43
End at: 2019-01-19 12:58:13
Local clock offset: -4.166 ms
Remote clock offset: 1.432 ms


# Below is generated by plot.py at 2019-01-19 13:39:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.50 Mbit/s
95th percentile per-packet one-way delay: 8.848 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 59.31 Mbit/s
95th percentile per-packet one-way delay: 7.852 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 40.89 Mbit/s
95th percentile per-packet one-way delay: 9.392 ms
Loss rate: 0.26%
-- Flow 3:
Average throughput: 33.00 Mbit/s
95th percentile per-packet one-way delay: 10.103 ms
Loss rate: 0.31%
```
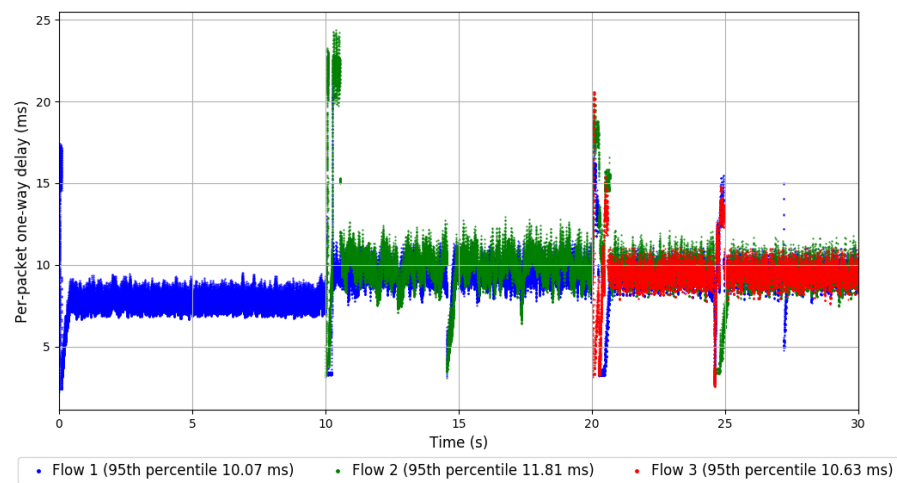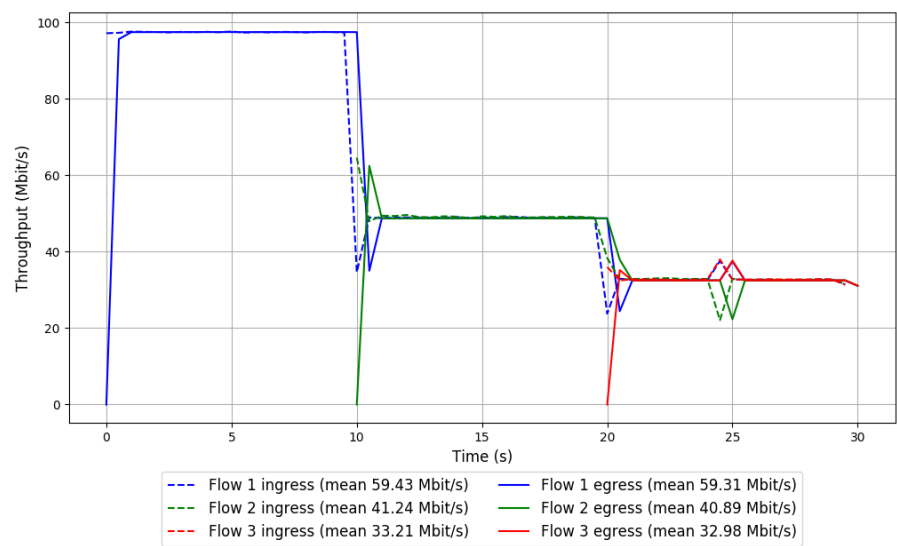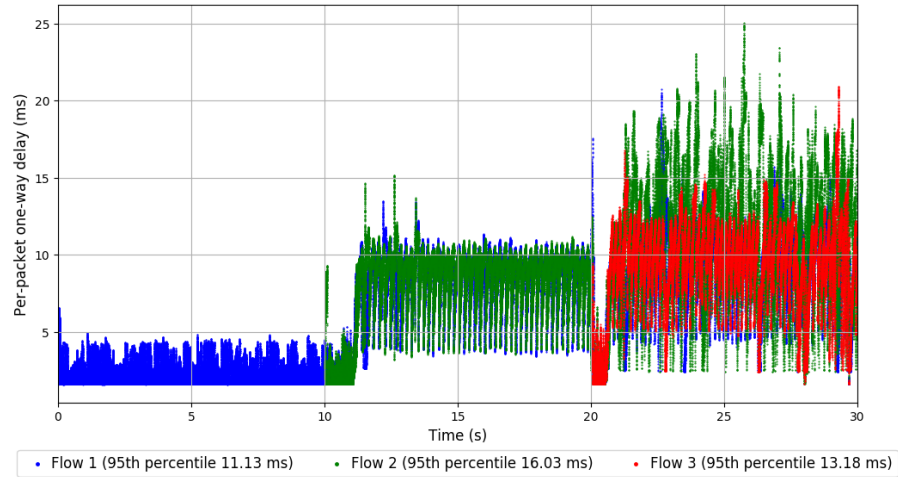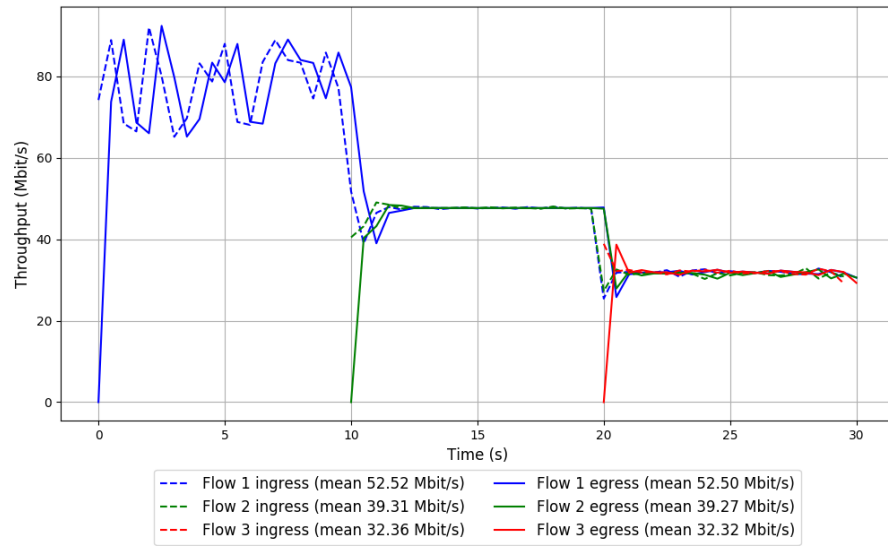
Run 4: Report of TCP BBR — Data Link



- - - Flow 1 ingress (mean 59.32 Mbit/s) —— Flow 1 egress (mean 59.31 Mbit/s)
- - - Flow 2 ingress (mean 40.99 Mbit/s) —— Flow 2 egress (mean 40.89 Mbit/s)
- - - Flow 3 ingress (mean 33.09 Mbit/s) —— Flow 3 egress (mean 33.00 Mbit/s)



• Flow 1 (95th percentile 7.85 ms)　　• Flow 2 (95th percentile 9.39 ms)　　• Flow 3 (95th percentile 10.10 ms)

```
Run 5: Statistics of TCP BBR

Start at: 2019-01-19 13:21:52
End at: 2019-01-19 13:22:22
Local clock offset: -1.081 ms
Remote clock offset: 1.551 ms


# Below is generated by plot.py at 2019-01-19 13:39:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.50 Mbit/s
95th percentile per-packet one-way delay: 10.791 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 59.31 Mbit/s
95th percentile per-packet one-way delay: 10.066 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 40.89 Mbit/s
95th percentile per-packet one-way delay: 11.809 ms
Loss rate: 0.87%
-- Flow 3:
Average throughput: 32.98 Mbit/s
95th percentile per-packet one-way delay: 10.632 ms
Loss rate: 0.77%
```

Run 5: Report of TCP BBR — Data Link

```
Run 1: Statistics of Copa

Start at: 2019-01-19 11:54:22
End at: 2019-01-19 11:54:52
Local clock offset: -7.716 ms
Remote clock offset: -0.071 ms


# Below is generated by plot.py at 2019-01-19 13:40:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.39 Mbit/s
95th percentile per-packet one-way delay: 13.094 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 52.50 Mbit/s
95th percentile per-packet one-way delay: 11.135 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 39.27 Mbit/s
95th percentile per-packet one-way delay: 16.031 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 32.32 Mbit/s
95th percentile per-packet one-way delay: 13.178 ms
Loss rate: 0.17%
```
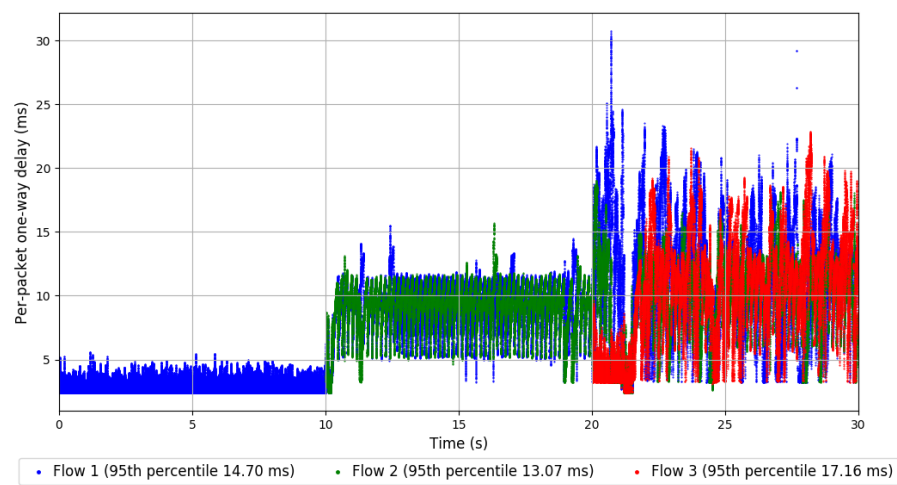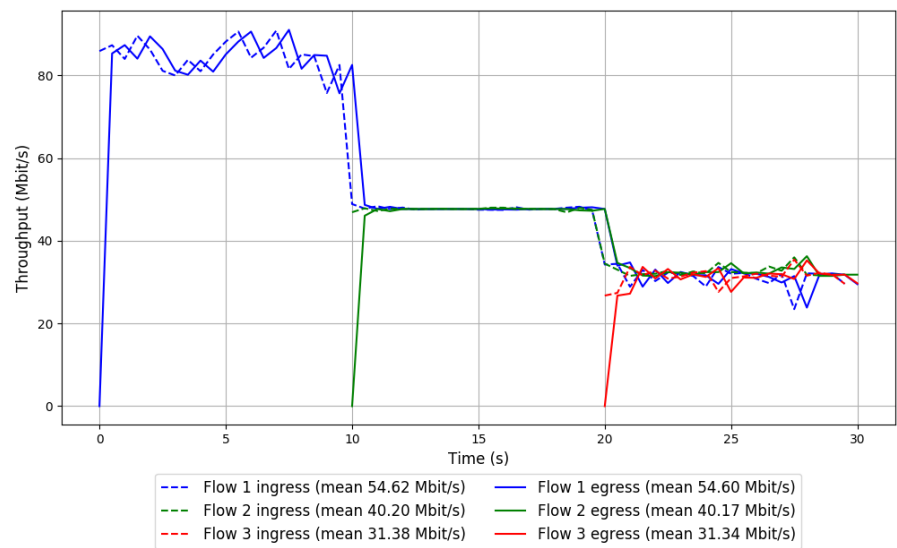
Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2019-01-19 12:18:30
End at: 2019-01-19 12:19:00
Local clock offset: -6.915 ms
Remote clock offset: 0.632 ms


# Below is generated by plot.py at 2019-01-19 13:40:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.76 Mbit/s
95th percentile per-packet one-way delay: 14.781 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 54.60 Mbit/s
95th percentile per-packet one-way delay: 14.702 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 40.17 Mbit/s
95th percentile per-packet one-way delay: 13.075 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 31.34 Mbit/s
95th percentile per-packet one-way delay: 17.155 ms
Loss rate: 0.16%
```
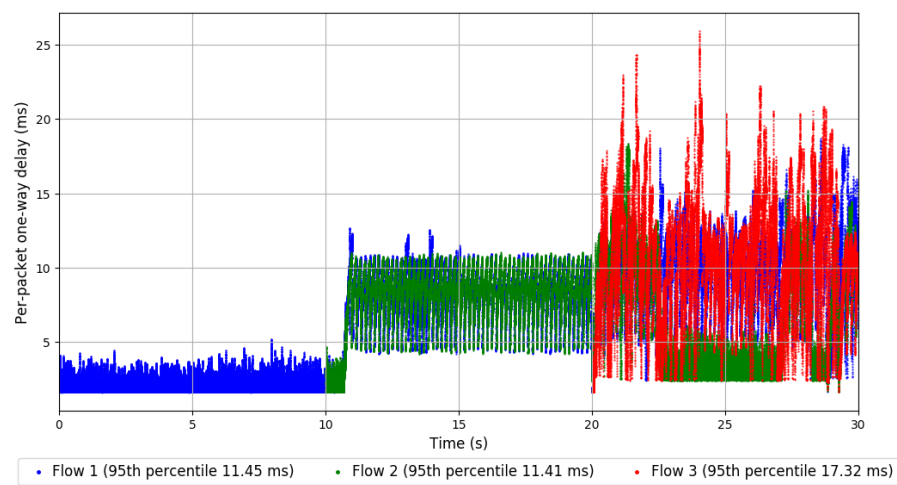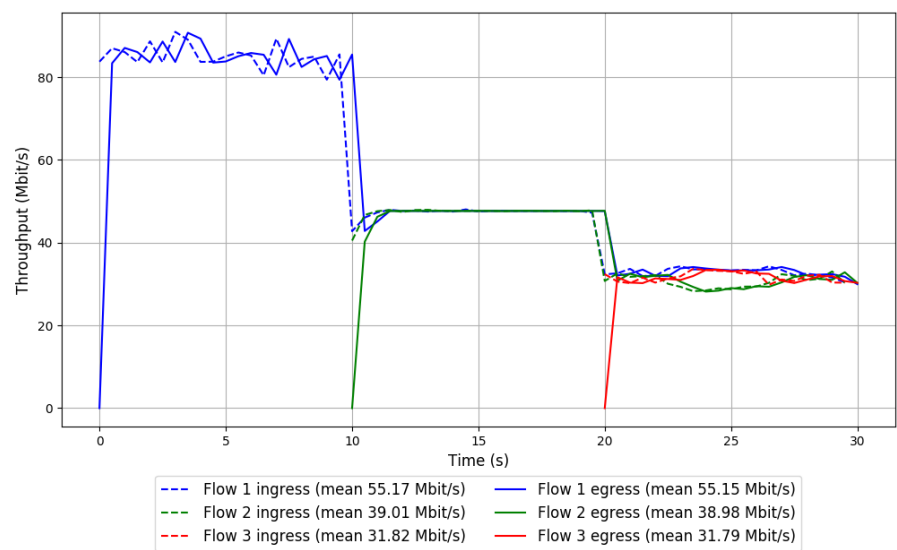
Run 2: Report of Copa — Data Link



- - - Flow 1 ingress (mean 54.62 Mbit/s)    — Flow 1 egress (mean 54.60 Mbit/s)
- - - Flow 2 ingress (mean 40.20 Mbit/s)    — Flow 2 egress (mean 40.17 Mbit/s)
- - - Flow 3 ingress (mean 31.38 Mbit/s)    — Flow 3 egress (mean 31.34 Mbit/s)



- Flow 1 (95th percentile 14.70 ms)     • Flow 2 (95th percentile 13.07 ms)     • Flow 3 (95th percentile 17.16 ms)

```
Run 3: Statistics of Copa

Start at: 2019-01-19 12:42:42
End at: 2019-01-19 12:43:12
Local clock offset: -7.355 ms
Remote clock offset: 1.217 ms


# Below is generated by plot.py at 2019-01-19 13:40:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.67 Mbit/s
95th percentile per-packet one-way delay: 12.556 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 55.15 Mbit/s
95th percentile per-packet one-way delay: 11.453 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 38.98 Mbit/s
95th percentile per-packet one-way delay: 11.410 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 31.79 Mbit/s
95th percentile per-packet one-way delay: 17.315 ms
Loss rate: 0.14%
```
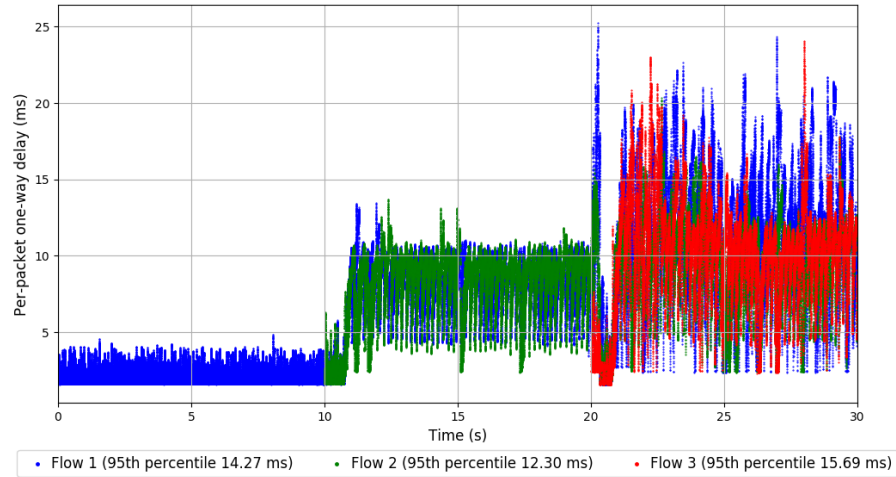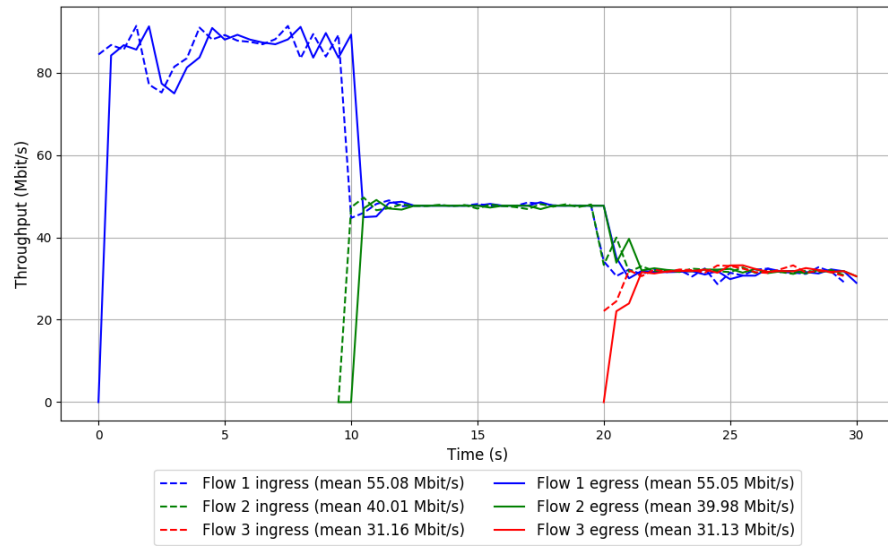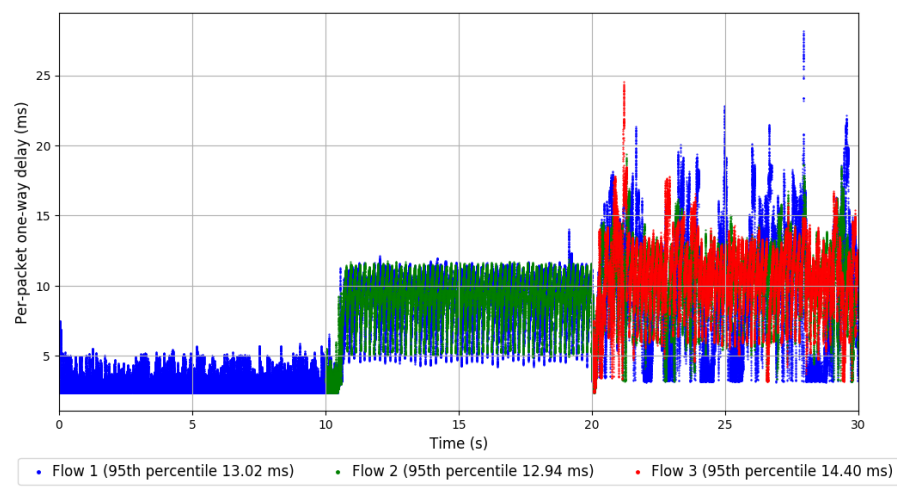
Run 3: Report of Copa — Data Link



Flow 1 ingress (mean 55.17 Mbit/s)     Flow 1 egress (mean 55.15 Mbit/s)
Flow 2 ingress (mean 39.01 Mbit/s)     Flow 2 egress (mean 38.98 Mbit/s)
Flow 3 ingress (mean 31.82 Mbit/s)     Flow 3 egress (mean 31.79 Mbit/s)



Flow 1 (95th percentile 11.45 ms)     Flow 2 (95th percentile 11.41 ms)     Flow 3 (95th percentile 17.32 ms)

```
Run 4: Statistics of Copa

Start at: 2019-01-19 13:06:54
End at: 2019-01-19 13:07:24
Local clock offset: -2.951 ms
Remote clock offset: 1.401 ms


# Below is generated by plot.py at 2019-01-19 13:41:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.05 Mbit/s
95th percentile per-packet one-way delay: 13.946 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 55.05 Mbit/s
95th percentile per-packet one-way delay: 14.273 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 39.98 Mbit/s
95th percentile per-packet one-way delay: 12.299 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 31.13 Mbit/s
95th percentile per-packet one-way delay: 15.690 ms
Loss rate: 0.13%
```
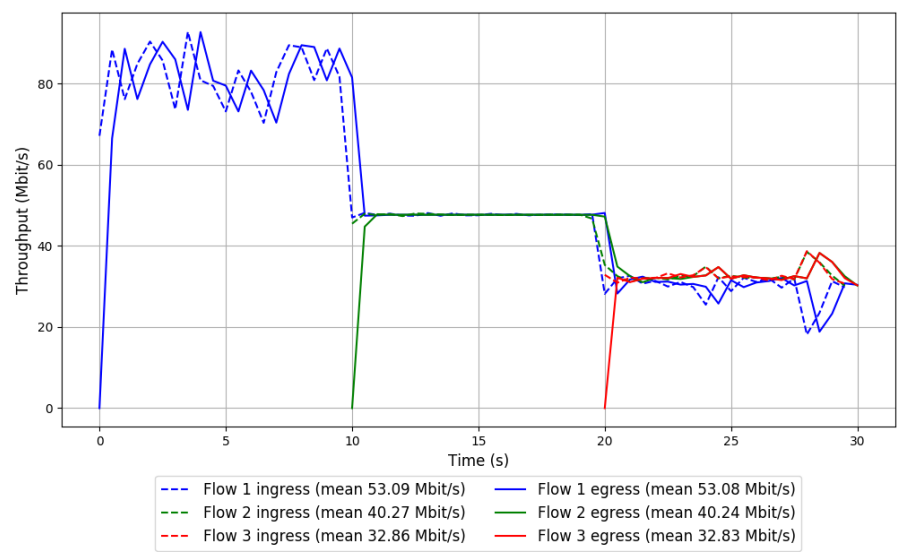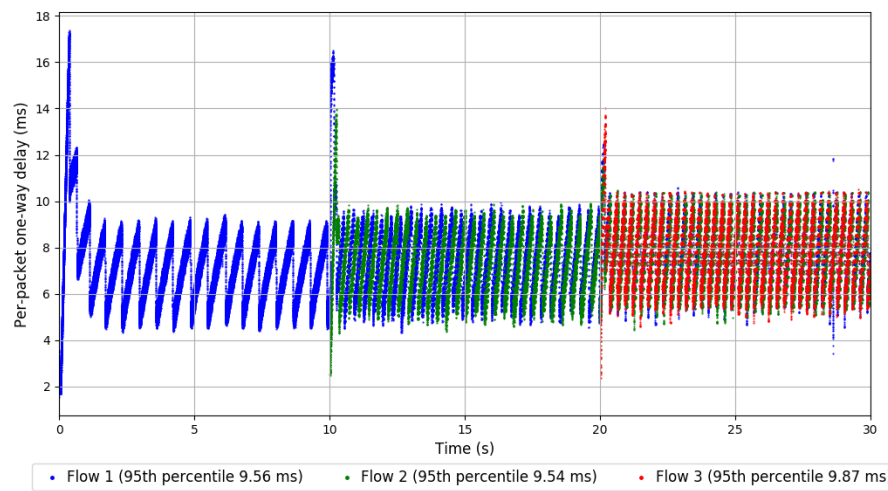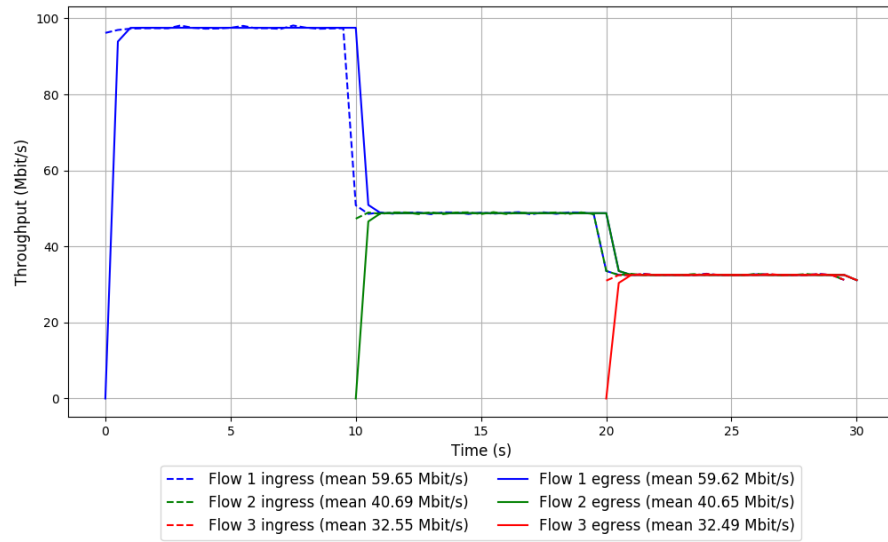
Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2019-01-19 13:31:05
End at: 2019-01-19 13:31:35
Local clock offset: -0.517 ms
Remote clock offset: 1.631 ms


# Below is generated by plot.py at 2019-01-19 13:41:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.79 Mbit/s
95th percentile per-packet one-way delay: 13.324 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 53.08 Mbit/s
95th percentile per-packet one-way delay: 13.021 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 40.24 Mbit/s
95th percentile per-packet one-way delay: 12.944 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 32.83 Mbit/s
95th percentile per-packet one-way delay: 14.397 ms
Loss rate: 0.18%
```
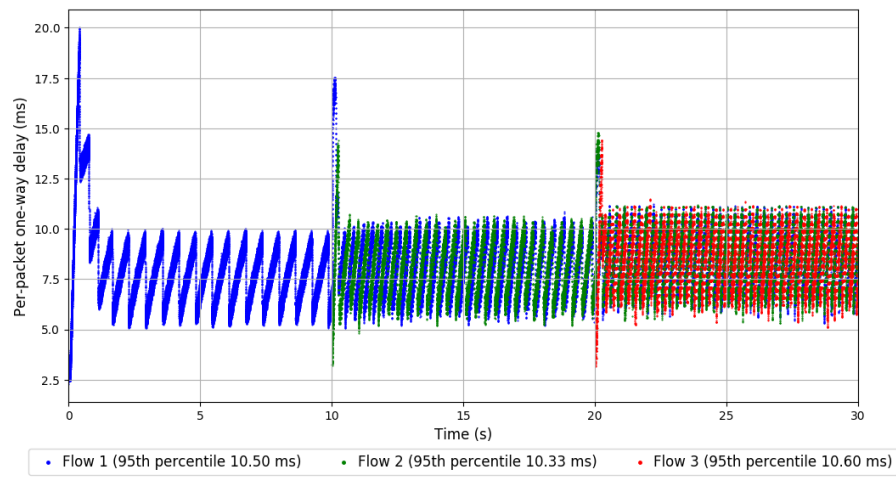
Run 5: Report of Copa — Data Link



Flow 1 ingress (mean 53.09 Mbit/s)    Flow 1 egress (mean 53.08 Mbit/s)
Flow 2 ingress (mean 40.27 Mbit/s)    Flow 2 egress (mean 40.24 Mbit/s)
Flow 3 ingress (mean 32.86 Mbit/s)    Flow 3 egress (mean 32.83 Mbit/s)



Flow 1 (95th percentile 13.02 ms)    Flow 2 (95th percentile 12.94 ms)    Flow 3 (95th percentile 14.40 ms)

```
Run 1: Statistics of TCP Cubic

Start at: 2019-01-19 11:42:54
End at: 2019-01-19 11:43:24
Local clock offset: -7.61 ms
Remote clock offset: -0.333 ms


# Below is generated by plot.py at 2019-01-19 13:41:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 9.612 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 59.62 Mbit/s
95th percentile per-packet one-way delay: 9.563 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 40.65 Mbit/s
95th percentile per-packet one-way delay: 9.539 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 32.49 Mbit/s
95th percentile per-packet one-way delay: 9.871 ms
Loss rate: 0.22%
```
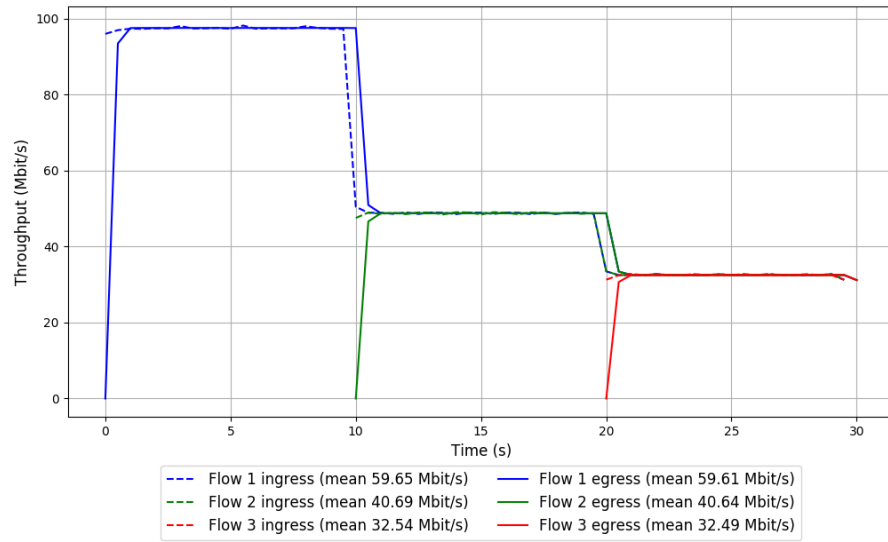
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2019-01-19 12:07:03
End at: 2019-01-19 12:07:33
Local clock offset: -6.945 ms
Remote clock offset: 0.331 ms


# Below is generated by plot.py at 2019-01-19 13:41:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 10.388 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 59.61 Mbit/s
95th percentile per-packet one-way delay: 10.499 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 40.64 Mbit/s
95th percentile per-packet one-way delay: 10.331 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 32.49 Mbit/s
95th percentile per-packet one-way delay: 10.597 ms
Loss rate: 0.22%
```
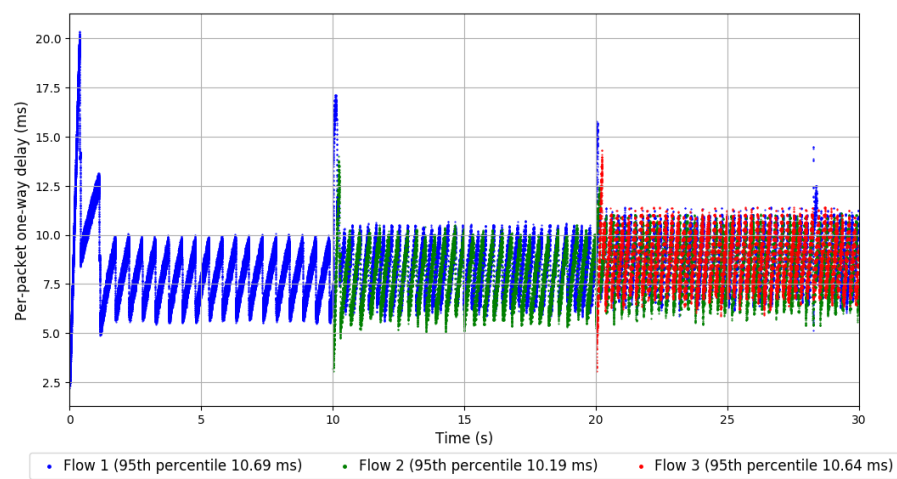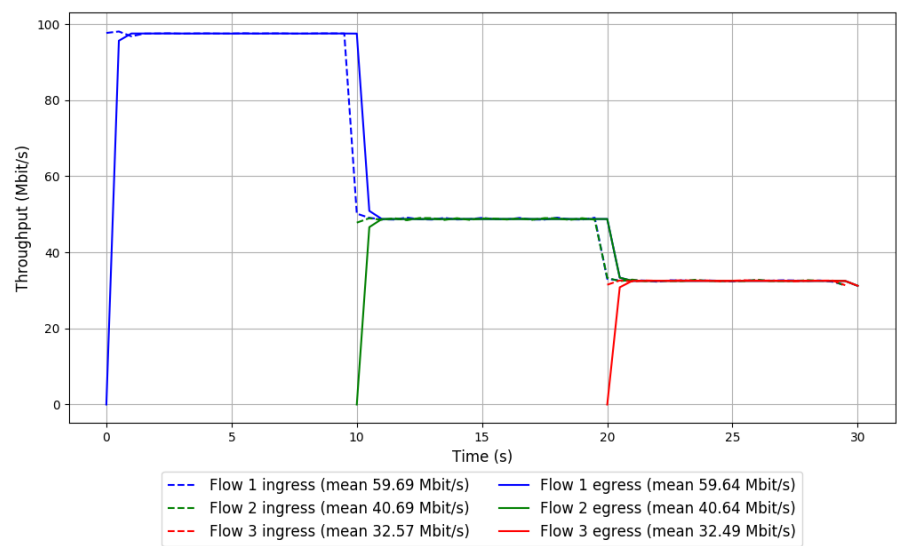
## Run 2: Report of TCP Cubic — Data Link



- - - - Flow 1 ingress (mean 59.65 Mbit/s) —— Flow 1 egress (mean 59.61 Mbit/s)
- - - - Flow 2 ingress (mean 40.69 Mbit/s) —— Flow 2 egress (mean 40.64 Mbit/s)
- - - - Flow 3 ingress (mean 32.54 Mbit/s) —— Flow 3 egress (mean 32.49 Mbit/s)



- Flow 1 (95th percentile 10.50 ms)   - Flow 2 (95th percentile 10.33 ms)   - Flow 3 (95th percentile 10.60 ms)

```
Run 3: Statistics of TCP Cubic

Start at: 2019-01-19 12:31:13
End at: 2019-01-19 12:31:43
Local clock offset: -6.699 ms
Remote clock offset: 1.072 ms


# Below is generated by plot.py at 2019-01-19 13:41:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.50 Mbit/s
95th percentile per-packet one-way delay: 10.553 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 59.64 Mbit/s
95th percentile per-packet one-way delay: 10.685 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 40.64 Mbit/s
95th percentile per-packet one-way delay: 10.188 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 32.49 Mbit/s
95th percentile per-packet one-way delay: 10.640 ms
Loss rate: 0.26%
```
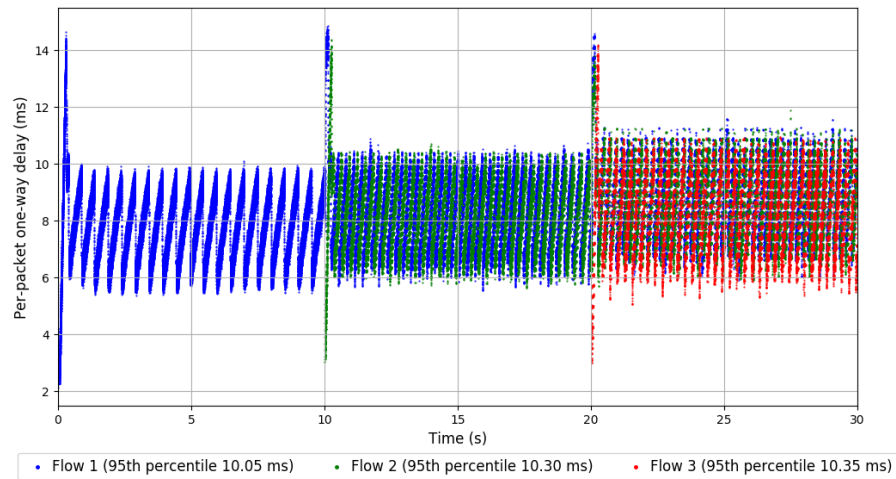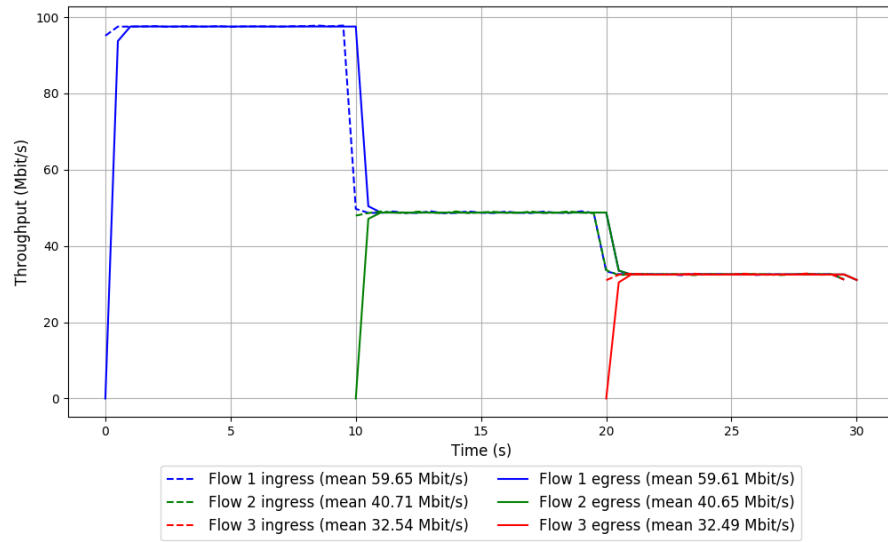
Run 3: Report of TCP Cubic — Data Link

```
Run 4: Statistics of TCP Cubic

Start at: 2019-01-19 12:55:26
End at: 2019-01-19 12:55:56
Local clock offset: -3.786 ms
Remote clock offset: 1.409 ms


# Below is generated by plot.py at 2019-01-19 13:41:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 10.141 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 59.61 Mbit/s
95th percentile per-packet one-way delay: 10.049 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 40.65 Mbit/s
95th percentile per-packet one-way delay: 10.299 ms
Loss rate: 0.16%
-- Flow 3:
Average throughput: 32.49 Mbit/s
95th percentile per-packet one-way delay: 10.353 ms
Loss rate: 0.21%
```
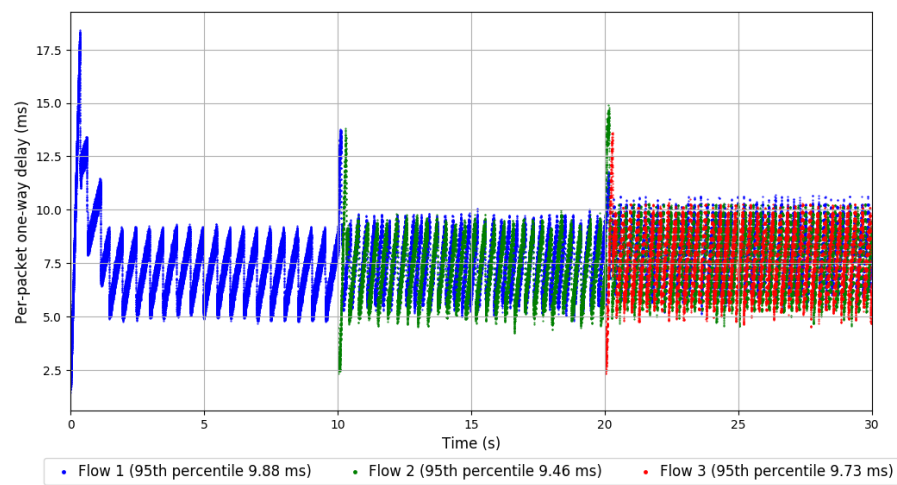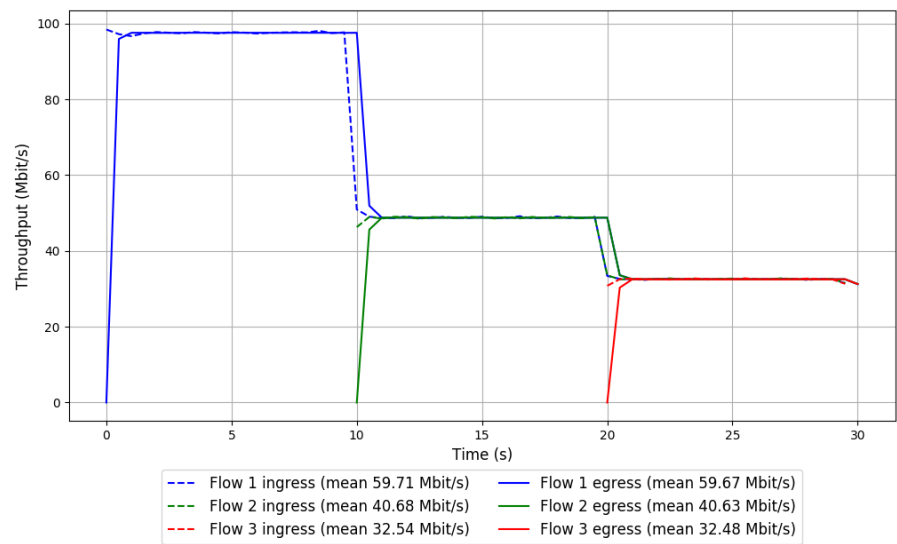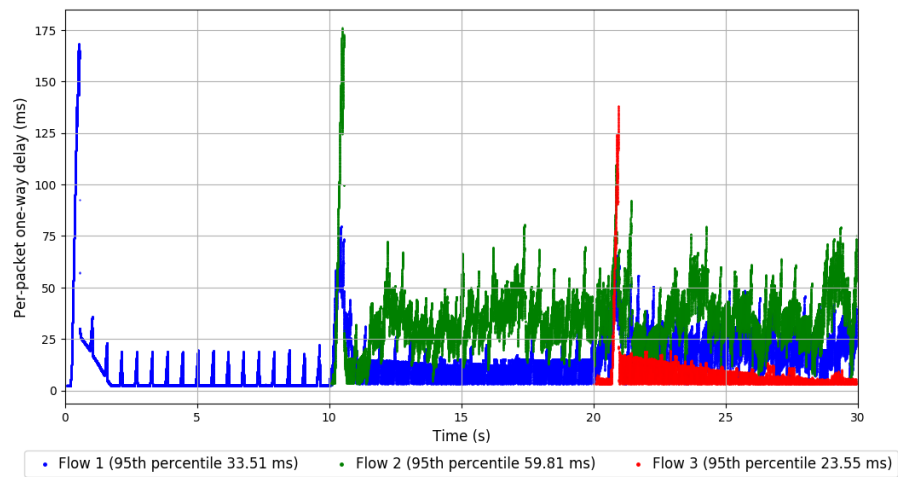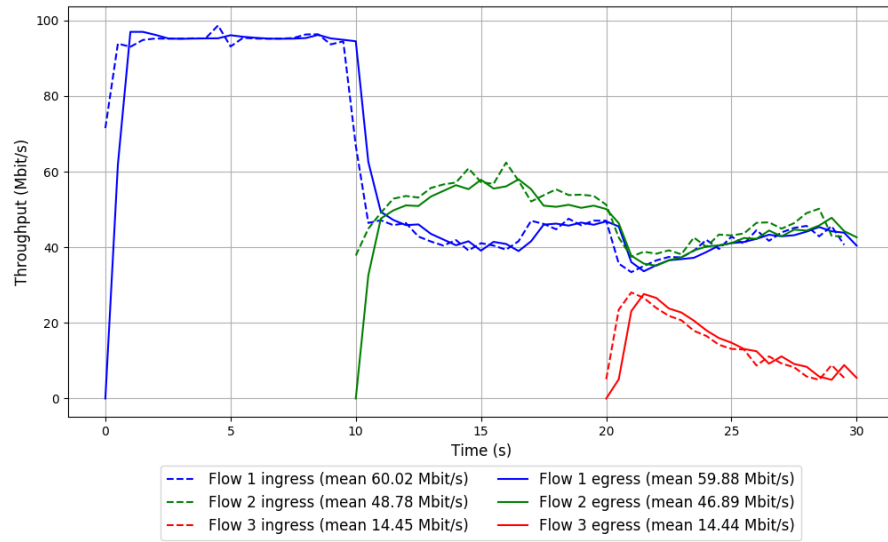
# Run 4: Report of TCP Cubic — Data Link



Flow 1 ingress (mean 59.65 Mbit/s) --- Flow 1 egress (mean 59.61 Mbit/s)
Flow 2 ingress (mean 40.71 Mbit/s) --- Flow 2 egress (mean 40.65 Mbit/s)
Flow 3 ingress (mean 32.54 Mbit/s) --- Flow 3 egress (mean 32.49 Mbit/s)



Flow 1 (95th percentile 10.05 ms)    Flow 2 (95th percentile 10.30 ms)    Flow 3 (95th percentile 10.35 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2019-01-19 13:19:36
End at: 2019-01-19 13:20:06
Local clock offset: -1.968 ms
Remote clock offset: 1.569 ms


# Below is generated by plot.py at 2019-01-19 13:41:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.50 Mbit/s
95th percentile per-packet one-way delay: 9.728 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 59.67 Mbit/s
95th percentile per-packet one-way delay: 9.883 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 40.63 Mbit/s
95th percentile per-packet one-way delay: 9.460 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 32.48 Mbit/s
95th percentile per-packet one-way delay: 9.727 ms
Loss rate: 0.21%
```
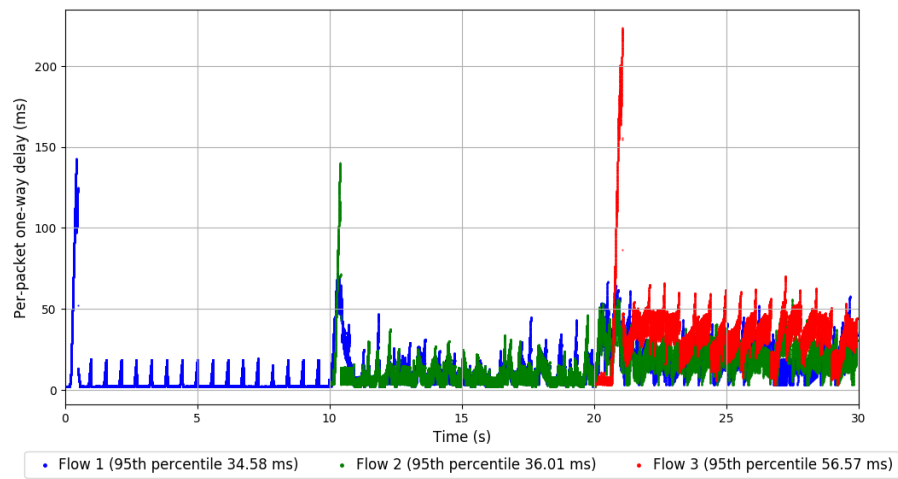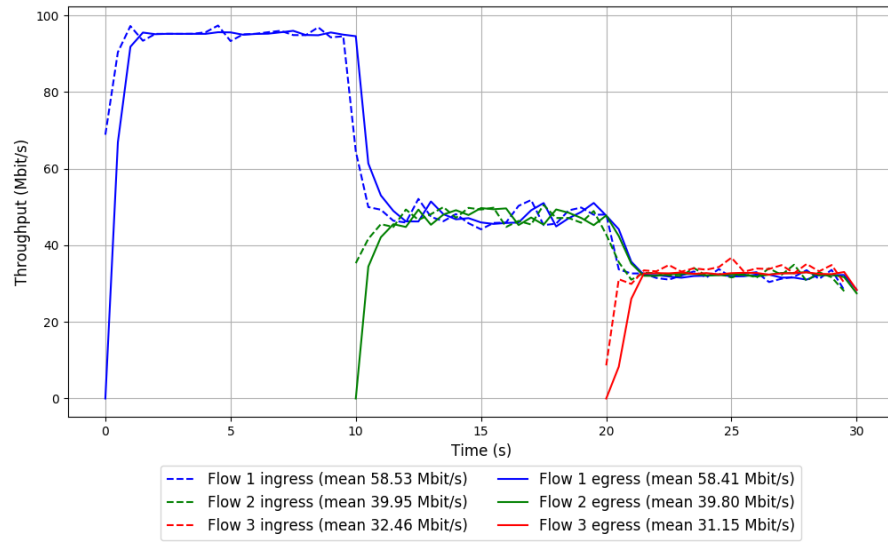
## Run 5: Report of TCP Cubic — Data Link



- - - - Flow 1 ingress (mean 59.71 Mbit/s) ——— Flow 1 egress (mean 59.67 Mbit/s)
- - - - Flow 2 ingress (mean 40.68 Mbit/s) ——— Flow 2 egress (mean 40.63 Mbit/s)
- - - - Flow 3 ingress (mean 32.54 Mbit/s) ——— Flow 3 egress (mean 32.48 Mbit/s)



- Flow 1 (95th percentile 9.88 ms)   • Flow 2 (95th percentile 9.46 ms)   • Flow 3 (95th percentile 9.73 ms)

```
Run 1: Statistics of FillP

Start at: 2019-01-19 11:41:46
End at: 2019-01-19 11:42:16
Local clock offset: -6.832 ms
Remote clock offset: -0.393 ms


# Below is generated by plot.py at 2019-01-19 13:41:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.90 Mbit/s
95th percentile per-packet one-way delay: 52.063 ms
Loss rate: 1.41%
-- Flow 1:
Average throughput: 59.88 Mbit/s
95th percentile per-packet one-way delay: 33.514 ms
Loss rate: 0.19%
-- Flow 2:
Average throughput: 46.89 Mbit/s
95th percentile per-packet one-way delay: 59.813 ms
Loss rate: 3.87%
-- Flow 3:
Average throughput: 14.44 Mbit/s
95th percentile per-packet one-way delay: 23.546 ms
Loss rate: 0.02%
```
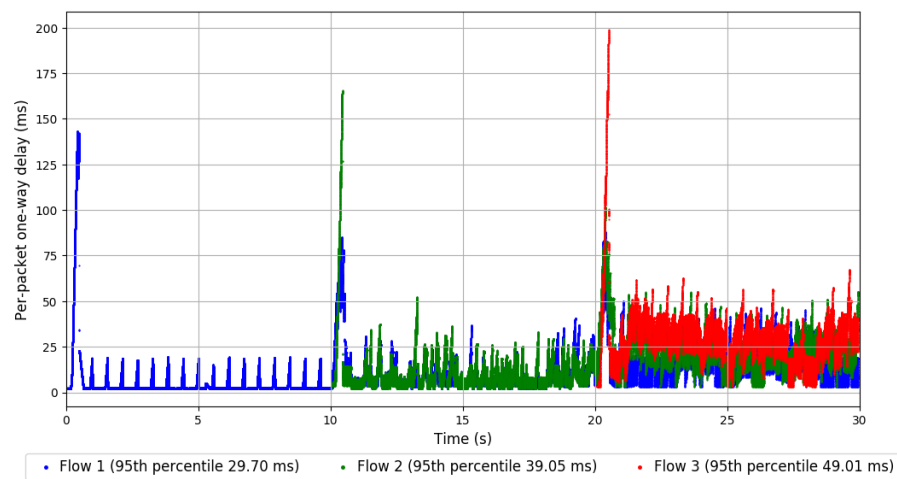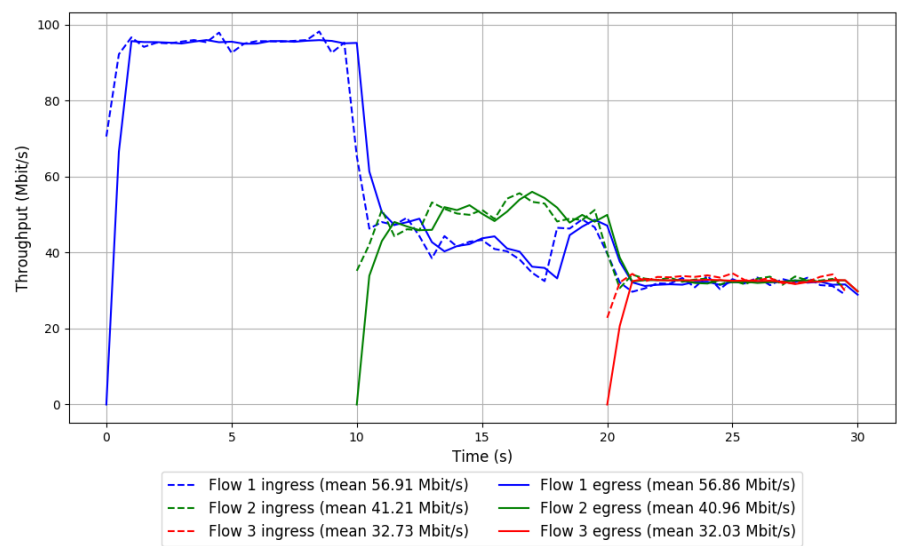
Run 1: Report of FillP — Data Link



Flow 1 ingress (mean 60.02 Mbit/s) ---- Flow 1 egress (mean 59.88 Mbit/s)
Flow 2 ingress (mean 48.78 Mbit/s) ---- Flow 2 egress (mean 46.89 Mbit/s)
Flow 3 ingress (mean 14.45 Mbit/s) ---- Flow 3 egress (mean 14.44 Mbit/s)



Flow 1 (95th percentile 33.51 ms)    Flow 2 (95th percentile 59.81 ms)    Flow 3 (95th percentile 23.55 ms)

```
Run 2: Statistics of FillP

Start at: 2019-01-19 12:05:54
End at: 2019-01-19 12:06:24
Local clock offset: -6.922 ms
Remote clock offset: 0.273 ms


# Below is generated by plot.py at 2019-01-19 13:42:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.22 Mbit/s
95th percentile per-packet one-way delay: 44.214 ms
Loss rate: 0.67%
-- Flow 1:
Average throughput: 58.41 Mbit/s
95th percentile per-packet one-way delay: 34.580 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 39.80 Mbit/s
95th percentile per-packet one-way delay: 36.009 ms
Loss rate: 0.38%
-- Flow 3:
Average throughput: 31.15 Mbit/s
95th percentile per-packet one-way delay: 56.567 ms
Loss rate: 4.10%
```
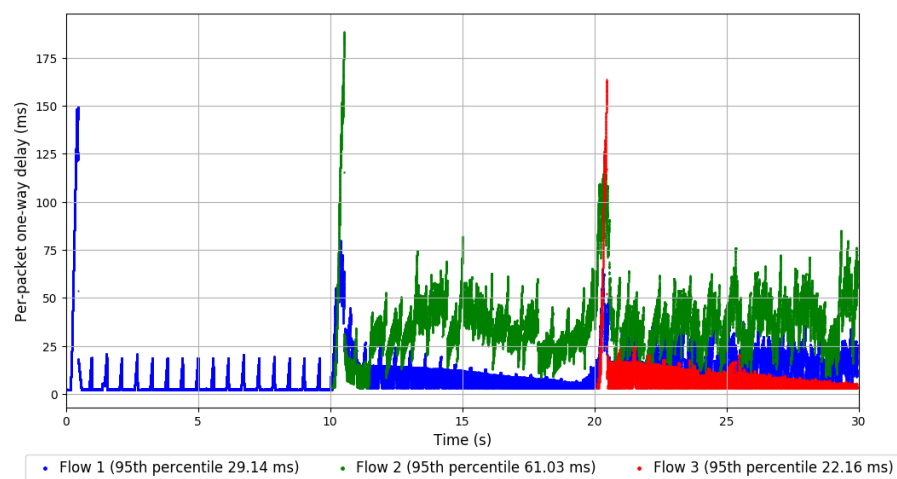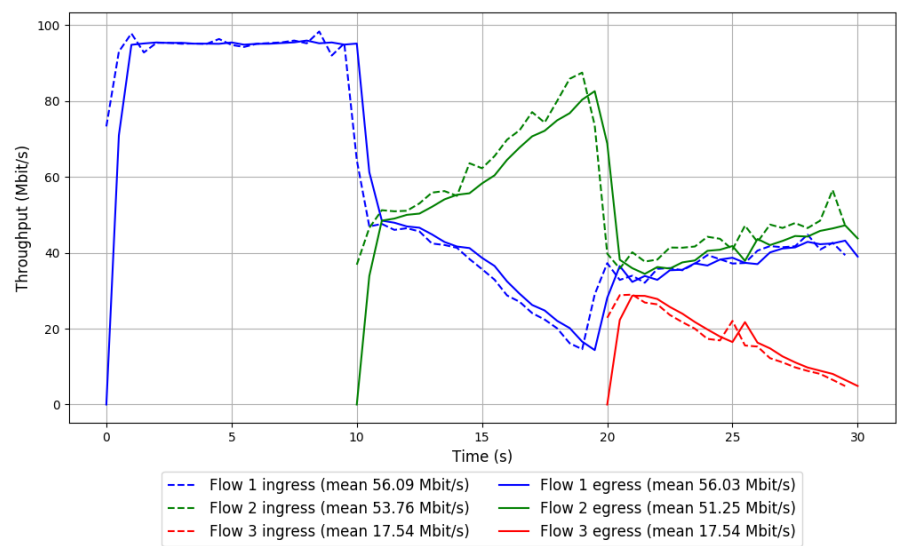
Run 2: Report of FillP — Data Link



- - - - Flow 1 ingress (mean 58.53 Mbit/s) —— Flow 1 egress (mean 58.41 Mbit/s)
- - - - Flow 2 ingress (mean 39.95 Mbit/s) —— Flow 2 egress (mean 39.80 Mbit/s)
- - - - Flow 3 ingress (mean 32.46 Mbit/s) —— Flow 3 egress (mean 31.15 Mbit/s)



• Flow 1 (95th percentile 34.58 ms)   • Flow 2 (95th percentile 36.01 ms)   • Flow 3 (95th percentile 56.57 ms)

```
Run 3: Statistics of FillP

Start at: 2019-01-19 12:30:05
End at: 2019-01-19 12:30:35
Local clock offset: -6.651 ms
Remote clock offset: 1.082 ms


# Below is generated by plot.py at 2019-01-19 13:42:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.73 Mbit/s
95th percentile per-packet one-way delay: 40.279 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 56.86 Mbit/s
95th percentile per-packet one-way delay: 29.699 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 40.96 Mbit/s
95th percentile per-packet one-way delay: 39.046 ms
Loss rate: 0.56%
-- Flow 3:
Average throughput: 32.03 Mbit/s
95th percentile per-packet one-way delay: 49.006 ms
Loss rate: 2.17%
```
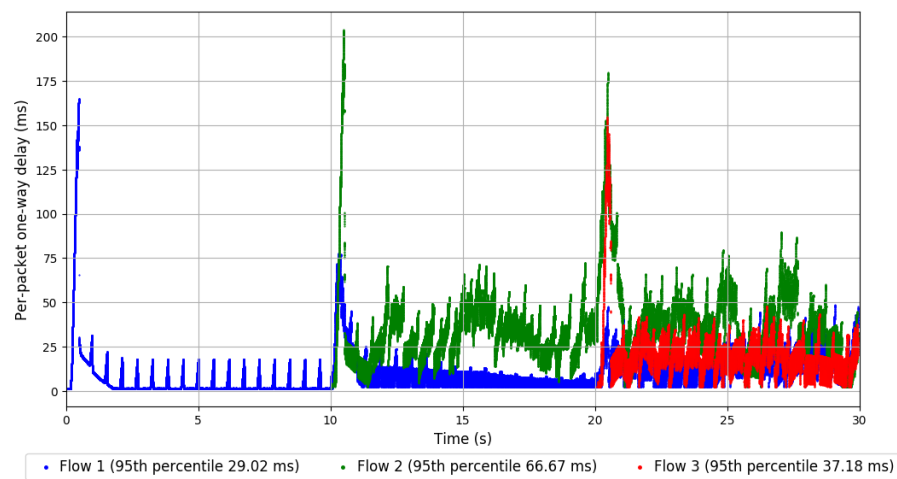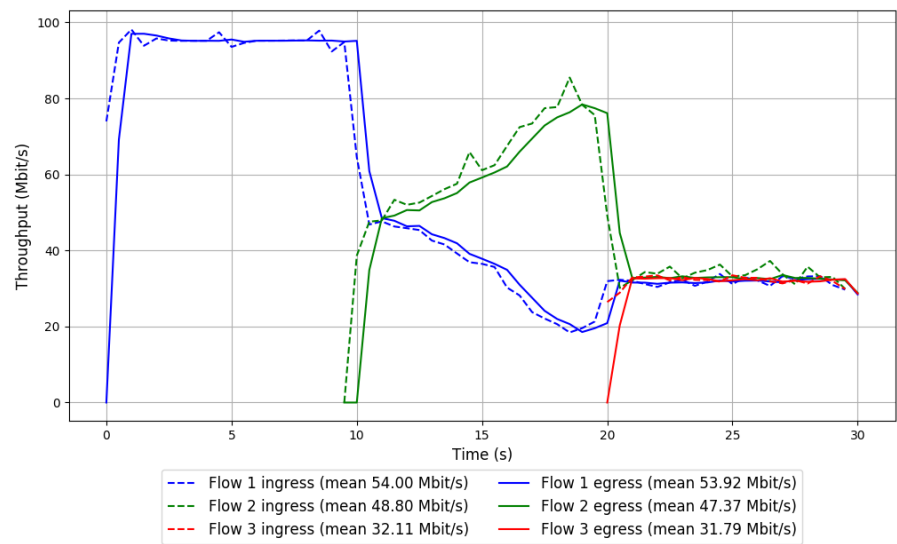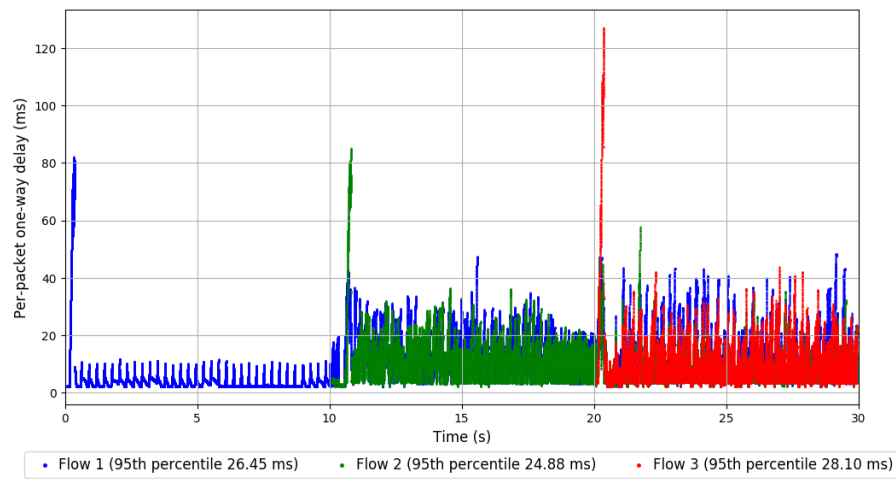
Run 3: Report of FillP — Data Link

```
Run 4: Statistics of FillP

Start at: 2019-01-19 12:54:17
End at: 2019-01-19 12:54:47
Local clock offset: -4.031 ms
Remote clock offset: 1.242 ms

# Below is generated by plot.py at 2019-01-19 13:42:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.96 Mbit/s
95th percentile per-packet one-way delay: 53.836 ms
Loss rate: 1.77%
-- Flow 1:
Average throughput: 56.03 Mbit/s
95th percentile per-packet one-way delay: 29.136 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 51.25 Mbit/s
95th percentile per-packet one-way delay: 61.033 ms
Loss rate: 4.67%
-- Flow 3:
Average throughput: 17.54 Mbit/s
95th percentile per-packet one-way delay: 22.159 ms
Loss rate: 0.01%
```
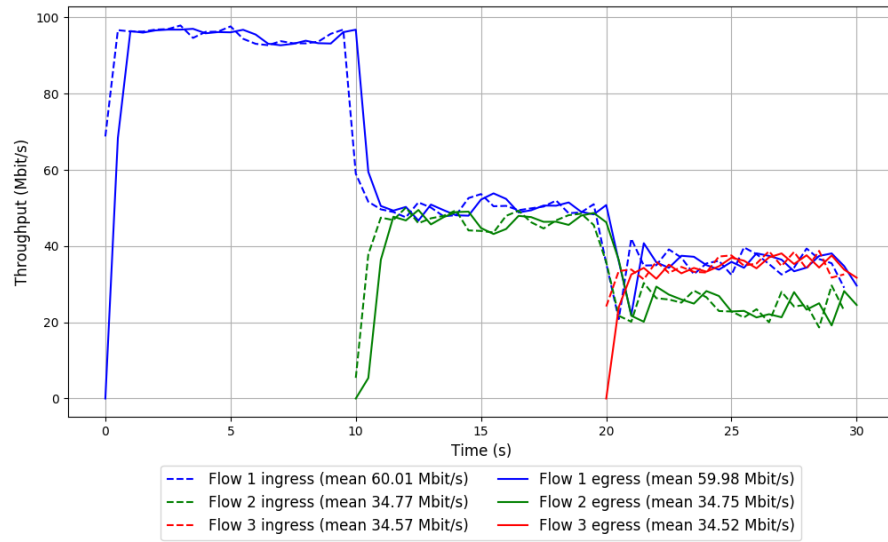
Run 4: Report of FillP — Data Link

```
Run 5: Statistics of FillP

Start at: 2019-01-19 13:18:27
End at: 2019-01-19 13:18:57
Local clock offset: -2.131 ms
Remote clock offset: 1.498 ms


# Below is generated by plot.py at 2019-01-19 13:42:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.00 Mbit/s
95th percentile per-packet one-way delay: 54.327 ms
Loss rate: 1.16%
-- Flow 1:
Average throughput: 53.92 Mbit/s
95th percentile per-packet one-way delay: 29.021 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 47.37 Mbit/s
95th percentile per-packet one-way delay: 66.672 ms
Loss rate: 2.89%
-- Flow 3:
Average throughput: 31.79 Mbit/s
95th percentile per-packet one-way delay: 37.182 ms
Loss rate: 0.99%
```
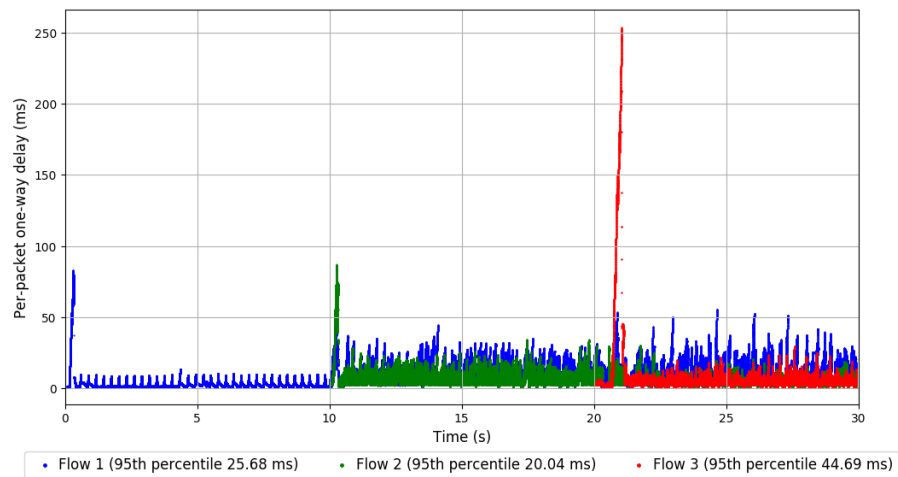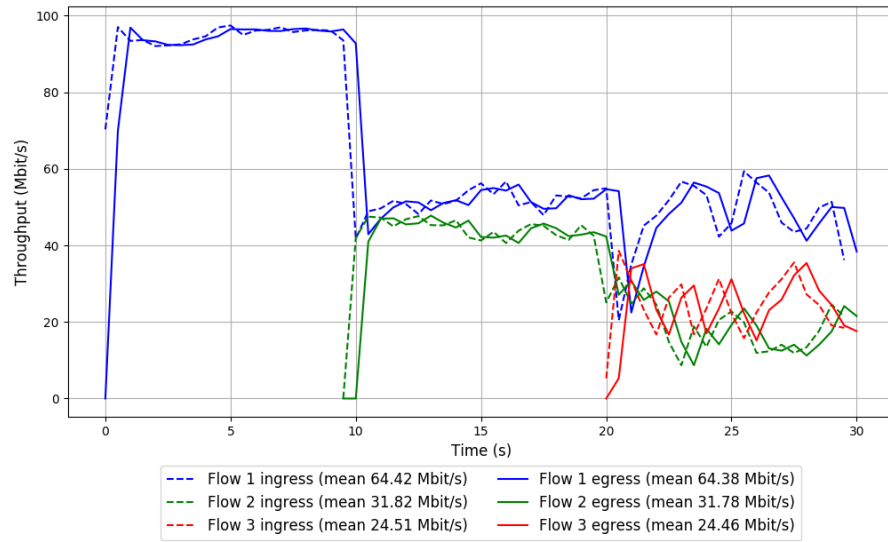
Run 5: Report of FillP — Data Link



Flow 1 ingress (mean 54.00 Mbit/s)　　Flow 1 egress (mean 53.92 Mbit/s)
Flow 2 ingress (mean 48.80 Mbit/s)　　Flow 2 egress (mean 47.37 Mbit/s)
Flow 3 ingress (mean 32.11 Mbit/s)　　Flow 3 egress (mean 31.79 Mbit/s)



Flow 1 (95th percentile 29.02 ms)　　Flow 2 (95th percentile 66.67 ms)　　Flow 3 (95th percentile 37.18 ms)

```
Run 1: Statistics of FillP-Sheep

Start at: 2019-01-19 11:37:16
End at: 2019-01-19 11:37:46
Local clock offset: -6.887 ms
Remote clock offset: -0.361 ms


# Below is generated by plot.py at 2019-01-19 13:42:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.56 Mbit/s
95th percentile per-packet one-way delay: 26.288 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 59.98 Mbit/s
95th percentile per-packet one-way delay: 26.449 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 34.75 Mbit/s
95th percentile per-packet one-way delay: 24.878 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 34.52 Mbit/s
95th percentile per-packet one-way delay: 28.100 ms
Loss rate: 0.20%
```
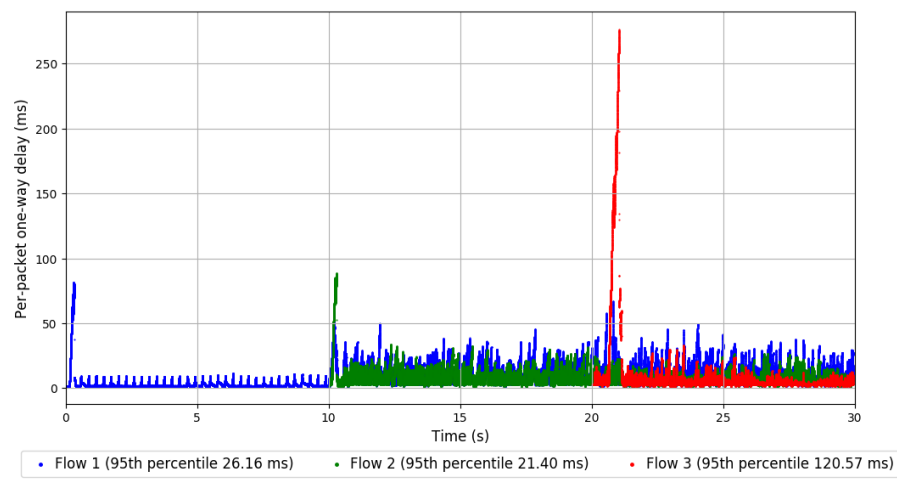
Run 1: Report of FillP-Sheep — Data Link

```
Run 2: Statistics of FillP-Sheep

Start at: 2019-01-19 12:01:26
End at: 2019-01-19 12:01:56
Local clock offset: -7.674 ms
Remote clock offset: 0.204 ms

# Below is generated by plot.py at 2019-01-19 13:42:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.65 Mbit/s
95th percentile per-packet one-way delay: 24.772 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 64.38 Mbit/s
95th percentile per-packet one-way delay: 25.678 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 31.78 Mbit/s
95th percentile per-packet one-way delay: 20.039 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 24.46 Mbit/s
95th percentile per-packet one-way delay: 44.690 ms
Loss rate: 0.26%
```
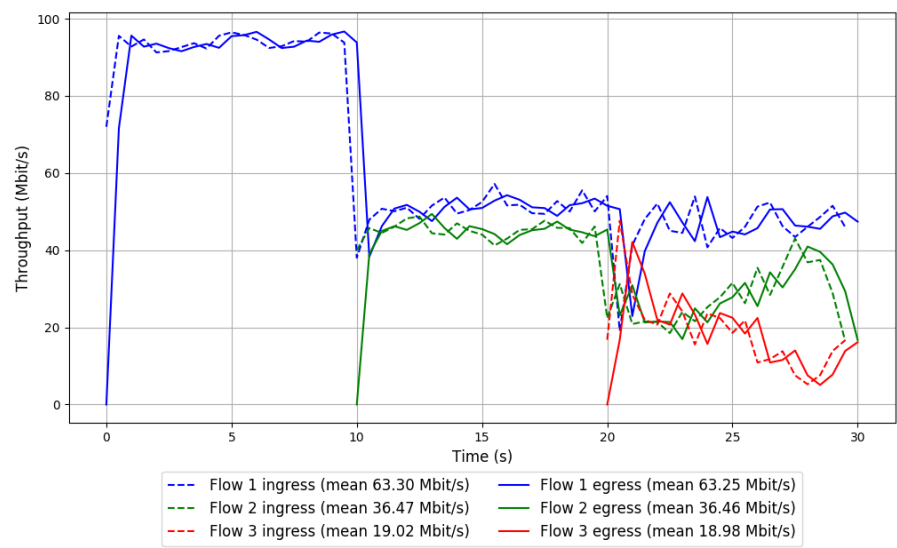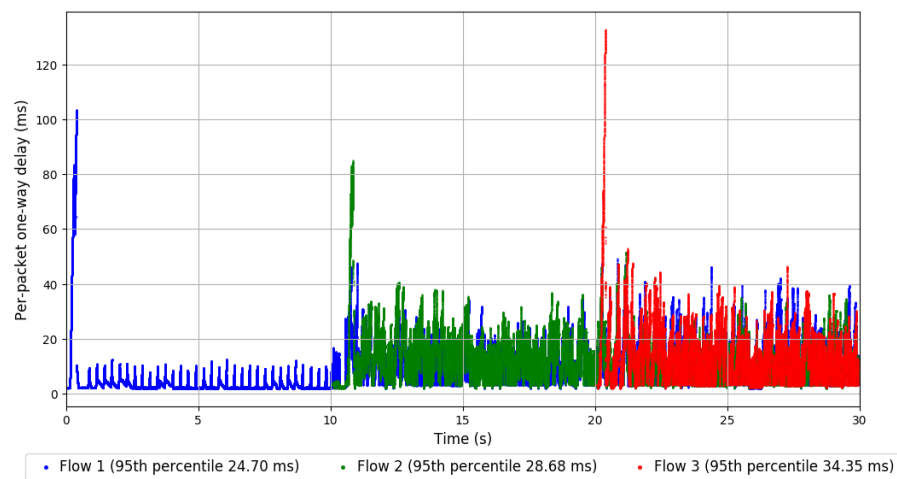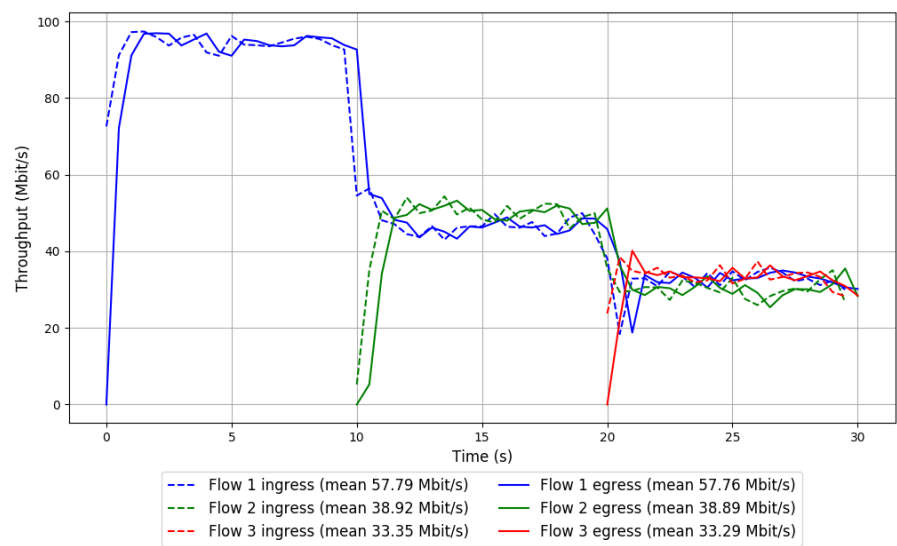
Run 2: Report of FillP-Sheep — Data Link



Flow 1 ingress (mean 64.42 Mbit/s)
Flow 1 egress (mean 64.38 Mbit/s)
Flow 2 ingress (mean 31.82 Mbit/s)
Flow 2 egress (mean 31.78 Mbit/s)
Flow 3 ingress (mean 24.51 Mbit/s)
Flow 3 egress (mean 24.46 Mbit/s)



Flow 1 (95th percentile 25.68 ms)
Flow 2 (95th percentile 20.04 ms)
Flow 3 (95th percentile 44.69 ms)

```
Run 3: Statistics of FillP-Sheep

Start at: 2019-01-19 12:25:35
End at: 2019-01-19 12:26:05
Local clock offset: -7.473 ms
Remote clock offset: 0.836 ms


# Below is generated by plot.py at 2019-01-19 13:42:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.82 Mbit/s
95th percentile per-packet one-way delay: 25.630 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 63.25 Mbit/s
95th percentile per-packet one-way delay: 26.157 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 36.46 Mbit/s
95th percentile per-packet one-way delay: 21.397 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 18.98 Mbit/s
95th percentile per-packet one-way delay: 120.574 ms
Loss rate: 0.17%
```
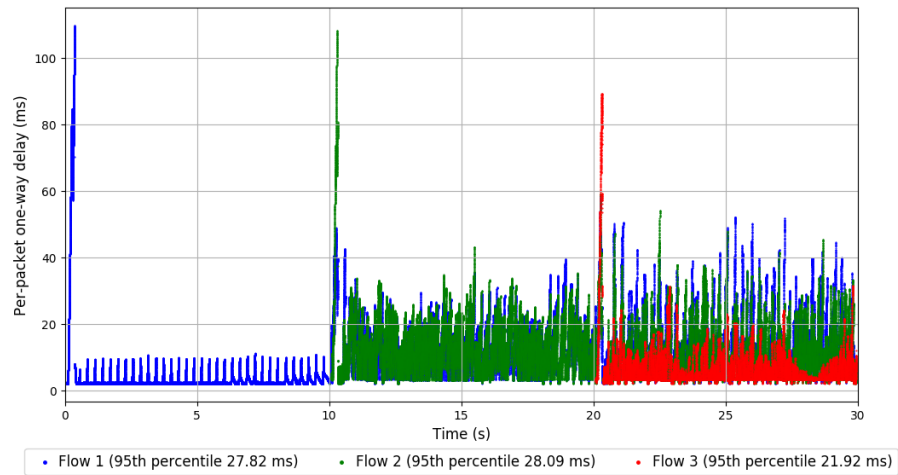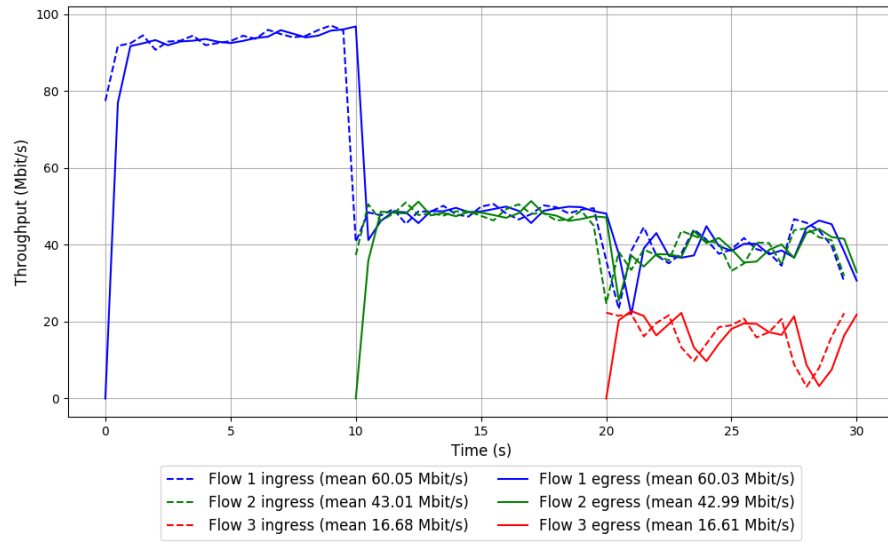
Run 3: Report of FillP-Sheep — Data Link



Flow 1 ingress (mean 63.30 Mbit/s) --- Flow 1 egress (mean 63.25 Mbit/s)
Flow 2 ingress (mean 36.47 Mbit/s) --- Flow 2 egress (mean 36.46 Mbit/s)
Flow 3 ingress (mean 19.02 Mbit/s) --- Flow 3 egress (mean 18.98 Mbit/s)



Flow 1 (95th percentile 26.16 ms)   Flow 2 (95th percentile 21.40 ms)   Flow 3 (95th percentile 120.57 ms)

```
Run 4: Statistics of FillP-Sheep

Start at: 2019-01-19 12:49:47
End at: 2019-01-19 12:50:17
Local clock offset: -5.329 ms
Remote clock offset: 1.348 ms


# Below is generated by plot.py at 2019-01-19 13:43:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.69 Mbit/s
95th percentile per-packet one-way delay: 27.577 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 57.76 Mbit/s
95th percentile per-packet one-way delay: 24.699 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 38.89 Mbit/s
95th percentile per-packet one-way delay: 28.680 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 33.29 Mbit/s
95th percentile per-packet one-way delay: 34.348 ms
Loss rate: 0.14%
```
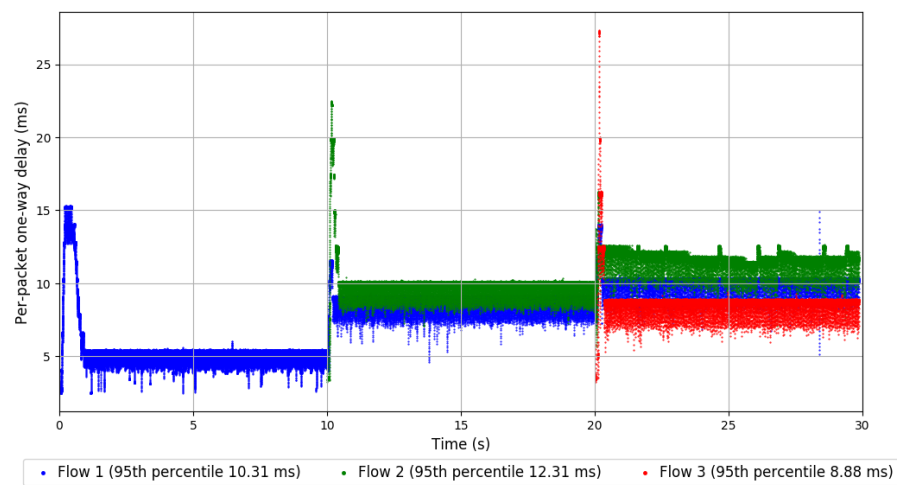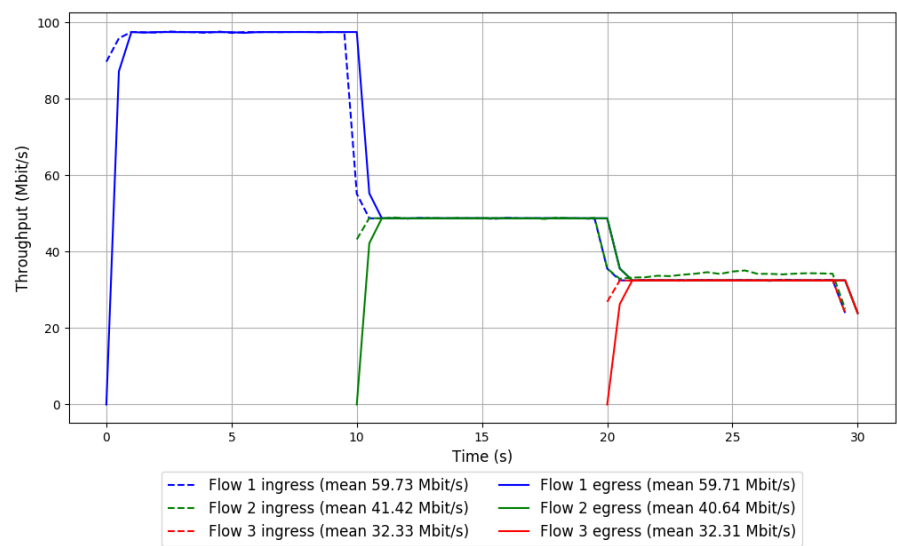
Run 4: Report of FillP-Sheep — Data Link



Flow 1 ingress (mean 57.79 Mbit/s) --- Flow 1 egress (mean 57.76 Mbit/s)
Flow 2 ingress (mean 38.92 Mbit/s) --- Flow 2 egress (mean 38.89 Mbit/s)
Flow 3 ingress (mean 33.35 Mbit/s) --- Flow 3 egress (mean 33.29 Mbit/s)



Flow 1 (95th percentile 24.70 ms)  Flow 2 (95th percentile 28.68 ms)  Flow 3 (95th percentile 34.35 ms)

```
Run 5: Statistics of FillP-Sheep

Start at: 2019-01-19 13:13:59
End at: 2019-01-19 13:14:29
Local clock offset: -1.616 ms
Remote clock offset: 1.524 ms

# Below is generated by plot.py at 2019-01-19 13:43:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.13 Mbit/s
95th percentile per-packet one-way delay: 27.781 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 60.03 Mbit/s
95th percentile per-packet one-way delay: 27.820 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 42.99 Mbit/s
95th percentile per-packet one-way delay: 28.090 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 16.61 Mbit/s
95th percentile per-packet one-way delay: 21.920 ms
Loss rate: 0.41%
```
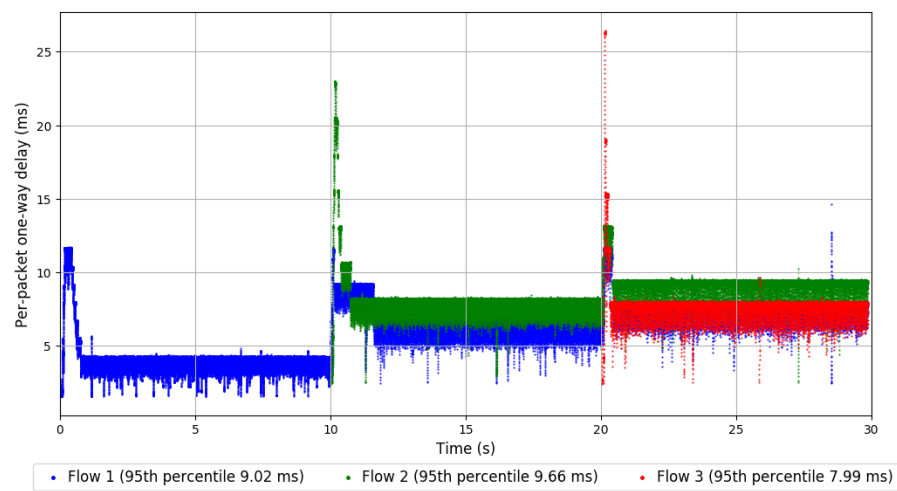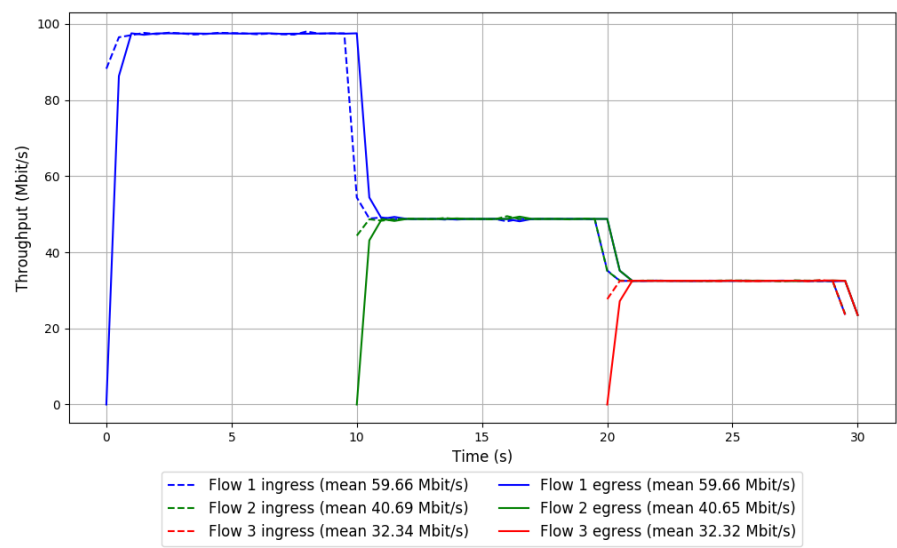
Run 5: Report of FillP-Sheep — Data Link

```
Run 1: Statistics of Indigo

Start at: 2019-01-19 11:49:44
End at: 2019-01-19 11:50:14
Local clock offset: -6.877 ms
Remote clock offset: -0.241 ms


# Below is generated by plot.py at 2019-01-19 13:43:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.36 Mbit/s
95th percentile per-packet one-way delay: 11.918 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 59.71 Mbit/s
95th percentile per-packet one-way delay: 10.310 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 40.64 Mbit/s
95th percentile per-packet one-way delay: 12.309 ms
Loss rate: 1.89%
-- Flow 3:
Average throughput: 32.31 Mbit/s
95th percentile per-packet one-way delay: 8.883 ms
Loss rate: 0.10%
```
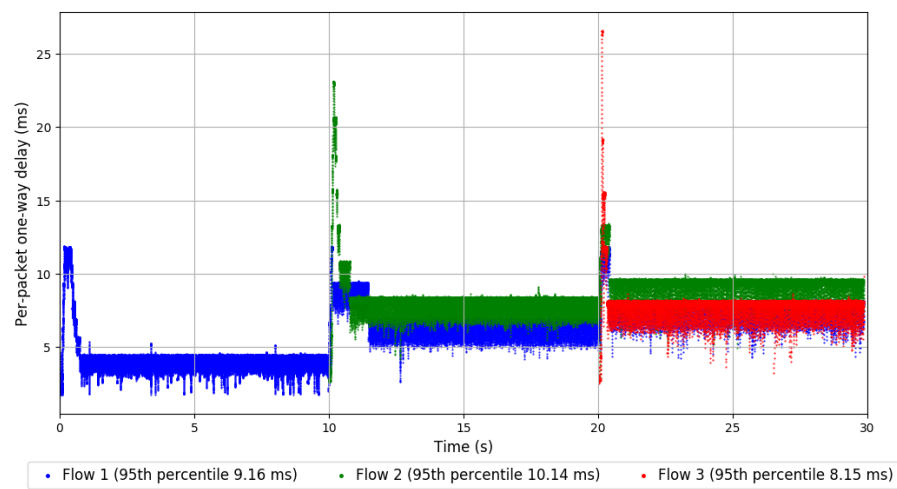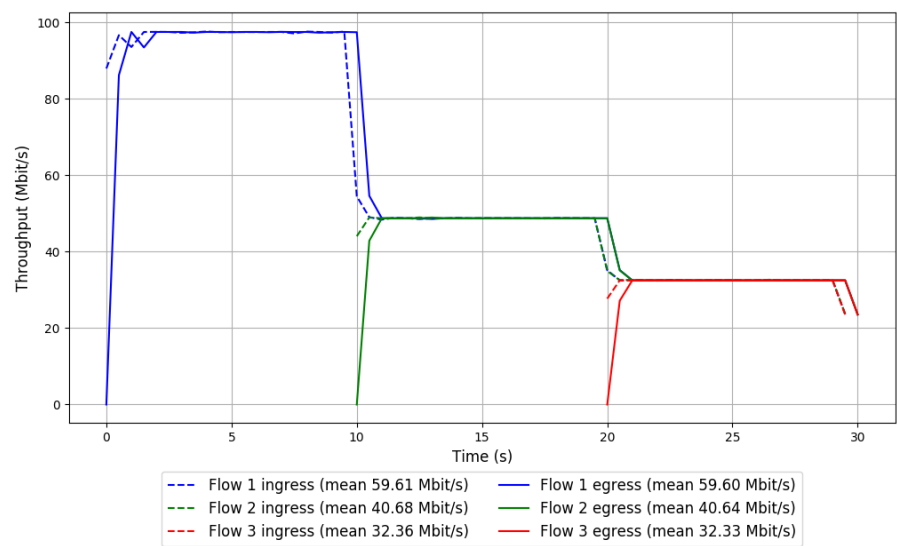
Run 1: Report of Indigo — Data Link



- - - Flow 1 ingress (mean 59.73 Mbit/s)     —— Flow 1 egress (mean 59.71 Mbit/s)
- - - Flow 2 ingress (mean 41.42 Mbit/s)     —— Flow 2 egress (mean 40.64 Mbit/s)
- - - Flow 3 ingress (mean 32.33 Mbit/s)     —— Flow 3 egress (mean 32.31 Mbit/s)



• Flow 1 (95th percentile 10.31 ms)     • Flow 2 (95th percentile 12.31 ms)     • Flow 3 (95th percentile 8.88 ms)

```
Run 2: Statistics of Indigo

Start at: 2019-01-19 12:13:53
End at: 2019-01-19 12:14:23
Local clock offset: -7.744 ms
Remote clock offset: 0.585 ms

# Below is generated by plot.py at 2019-01-19 13:43:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.32 Mbit/s
95th percentile per-packet one-way delay: 9.391 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 59.66 Mbit/s
95th percentile per-packet one-way delay: 9.022 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 40.65 Mbit/s
95th percentile per-packet one-way delay: 9.660 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 32.32 Mbit/s
95th percentile per-packet one-way delay: 7.990 ms
Loss rate: 0.09%
```
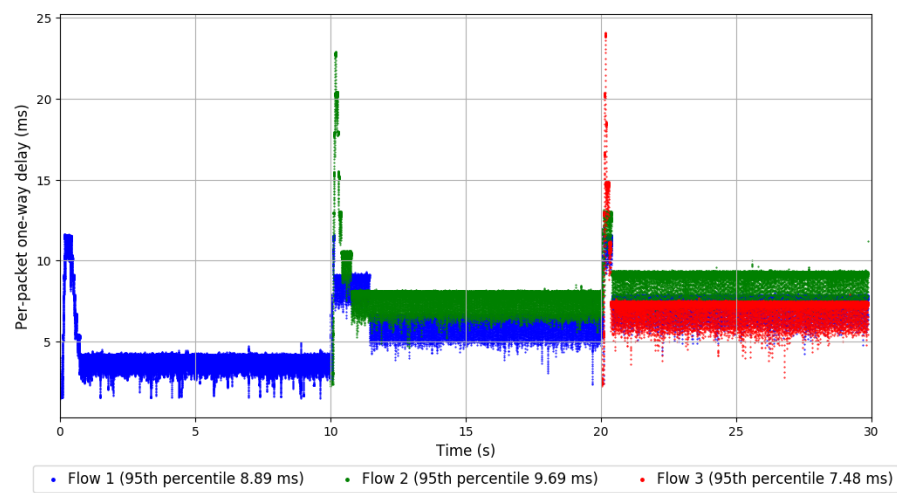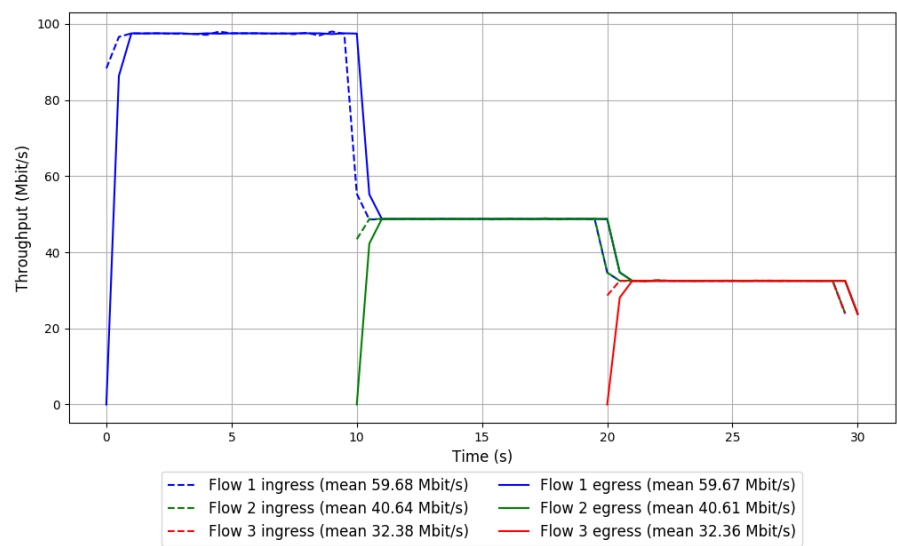
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2019-01-19 12:38:04
End at: 2019-01-19 12:38:34
Local clock offset: -7.361 ms
Remote clock offset: 1.021 ms


# Below is generated by plot.py at 2019-01-19 13:44:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.26 Mbit/s
95th percentile per-packet one-way delay: 9.545 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 59.60 Mbit/s
95th percentile per-packet one-way delay: 9.162 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 40.64 Mbit/s
95th percentile per-packet one-way delay: 10.143 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 32.33 Mbit/s
95th percentile per-packet one-way delay: 8.147 ms
Loss rate: 0.08%
```
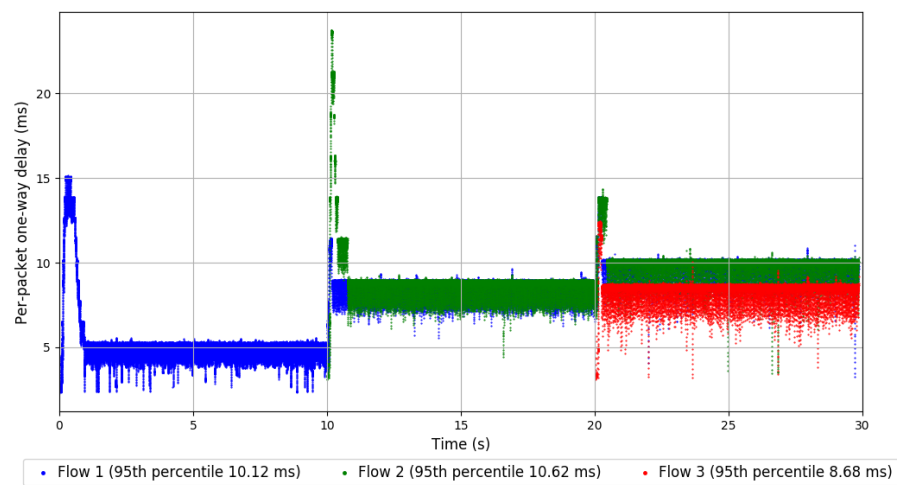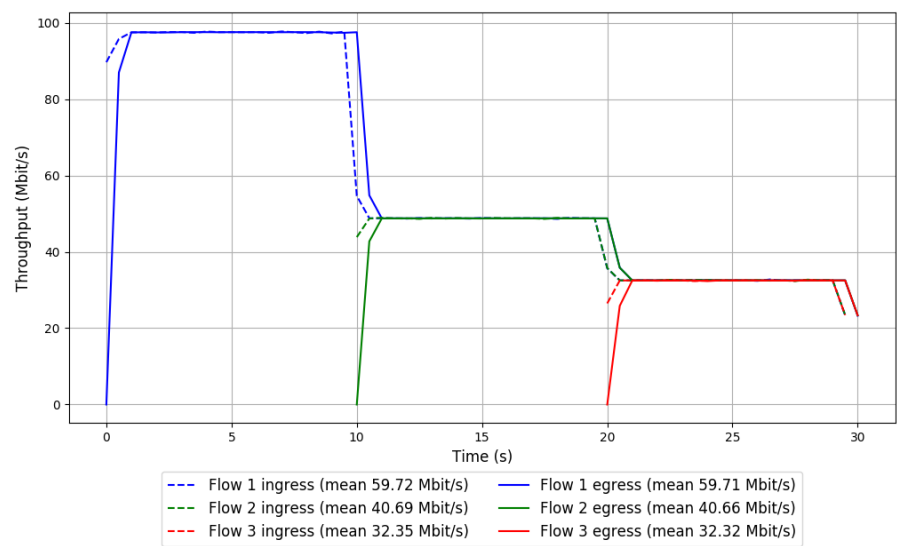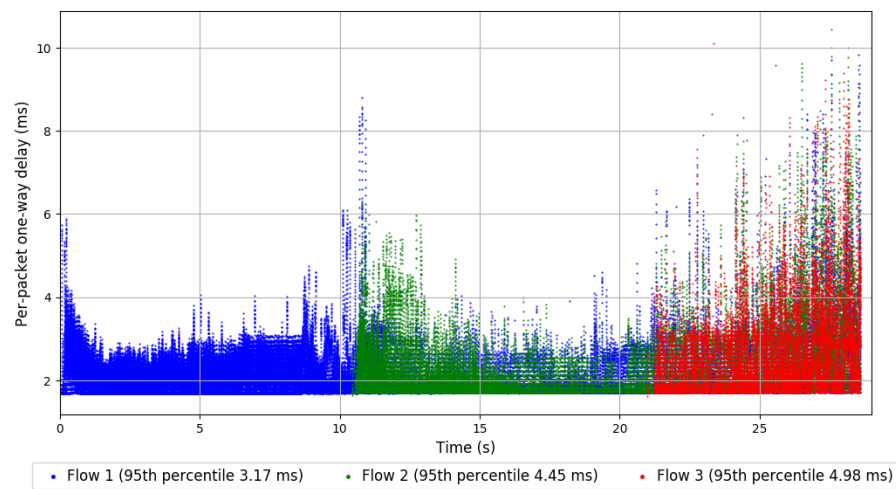
Run 3: Report of Indigo — Data Link



Flow 1 ingress (mean 59.61 Mbit/s) --- Flow 1 egress (mean 59.60 Mbit/s)
Flow 2 ingress (mean 40.68 Mbit/s) --- Flow 2 egress (mean 40.64 Mbit/s)
Flow 3 ingress (mean 32.36 Mbit/s) --- Flow 3 egress (mean 32.33 Mbit/s)



• Flow 1 (95th percentile 9.16 ms)  • Flow 2 (95th percentile 10.14 ms)  • Flow 3 (95th percentile 8.15 ms)

```
Run 4: Statistics of Indigo

Start at: 2019-01-19 13:02:16
End at: 2019-01-19 13:02:46
Local clock offset: -3.464 ms
Remote clock offset: 1.446 ms


# Below is generated by plot.py at 2019-01-19 13:44:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.33 Mbit/s
95th percentile per-packet one-way delay: 9.260 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 59.67 Mbit/s
95th percentile per-packet one-way delay: 8.892 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 40.61 Mbit/s
95th percentile per-packet one-way delay: 9.685 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 32.36 Mbit/s
95th percentile per-packet one-way delay: 7.476 ms
Loss rate: 0.10%
```
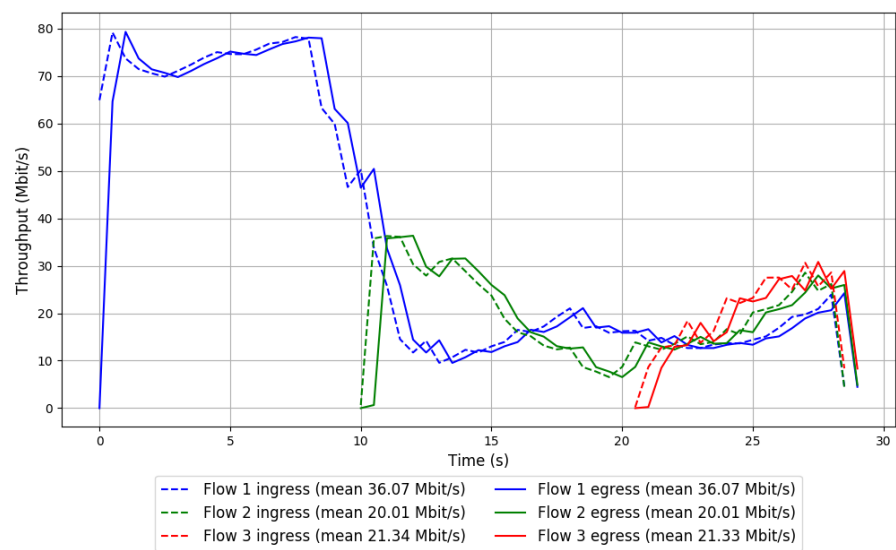
Run 4: Report of Indigo — Data Link



Flow 1 ingress (mean 59.68 Mbit/s)       Flow 1 egress (mean 59.67 Mbit/s)
Flow 2 ingress (mean 40.64 Mbit/s)       Flow 2 egress (mean 40.61 Mbit/s)
Flow 3 ingress (mean 32.38 Mbit/s)       Flow 3 egress (mean 32.36 Mbit/s)



Flow 1 (95th percentile 8.89 ms)    Flow 2 (95th percentile 9.69 ms)    Flow 3 (95th percentile 7.48 ms)

```
Run 5: Statistics of Indigo

Start at: 2019-01-19 13:26:27
End at: 2019-01-19 13:26:57
Local clock offset: -0.796 ms
Remote clock offset: 1.635 ms


# Below is generated by plot.py at 2019-01-19 13:44:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.35 Mbit/s
95th percentile per-packet one-way delay: 10.133 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 59.71 Mbit/s
95th percentile per-packet one-way delay: 10.116 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 40.66 Mbit/s
95th percentile per-packet one-way delay: 10.616 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 32.32 Mbit/s
95th percentile per-packet one-way delay: 8.682 ms
Loss rate: 0.11%
```
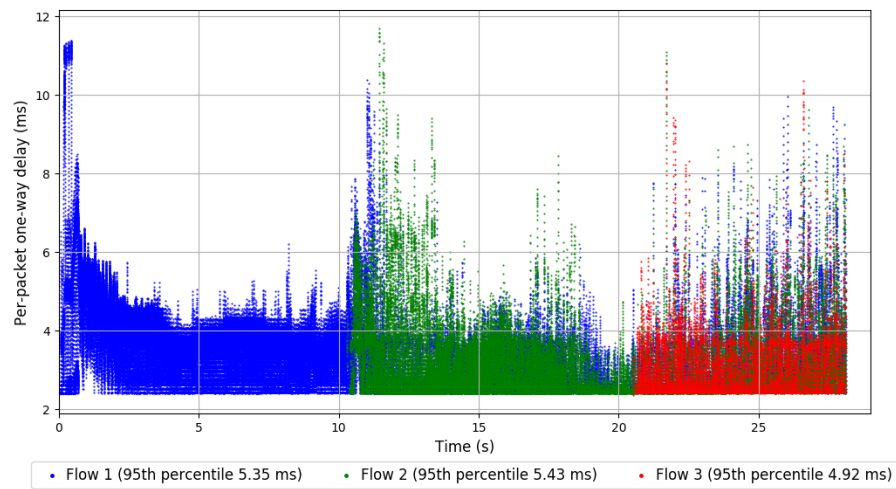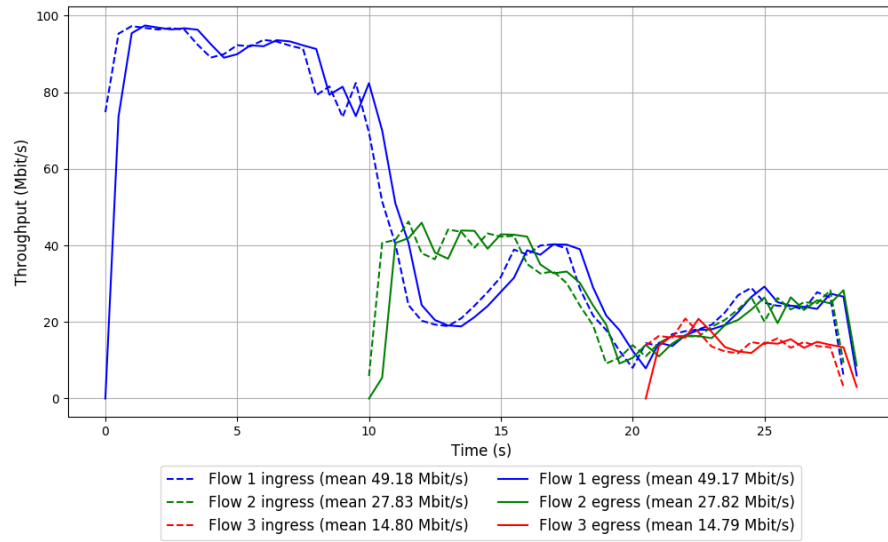
# Run 5: Report of Indigo — Data Link



Flow 1 ingress (mean 59.72 Mbit/s)    Flow 1 egress (mean 59.71 Mbit/s)
Flow 2 ingress (mean 40.69 Mbit/s)    Flow 2 egress (mean 40.66 Mbit/s)
Flow 3 ingress (mean 32.35 Mbit/s)    Flow 3 egress (mean 32.32 Mbit/s)



Flow 1 (95th percentile 10.12 ms)    Flow 2 (95th percentile 10.62 ms)    Flow 3 (95th percentile 8.68 ms)

```
Run 1: Statistics of Indigo-MusesC3

Start at: 2019-01-19 11:47:29
End at: 2019-01-19 11:47:59
Local clock offset: -7.62 ms
Remote clock offset: -0.233 ms


# Below is generated by plot.py at 2019-01-19 13:44:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 54.44 Mbit/s
95th percentile per-packet one-way delay: 3.833 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 36.07 Mbit/s
95th percentile per-packet one-way delay: 3.169 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 20.01 Mbit/s
95th percentile per-packet one-way delay: 4.450 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 21.33 Mbit/s
95th percentile per-packet one-way delay: 4.978 ms
Loss rate: 0.08%
```
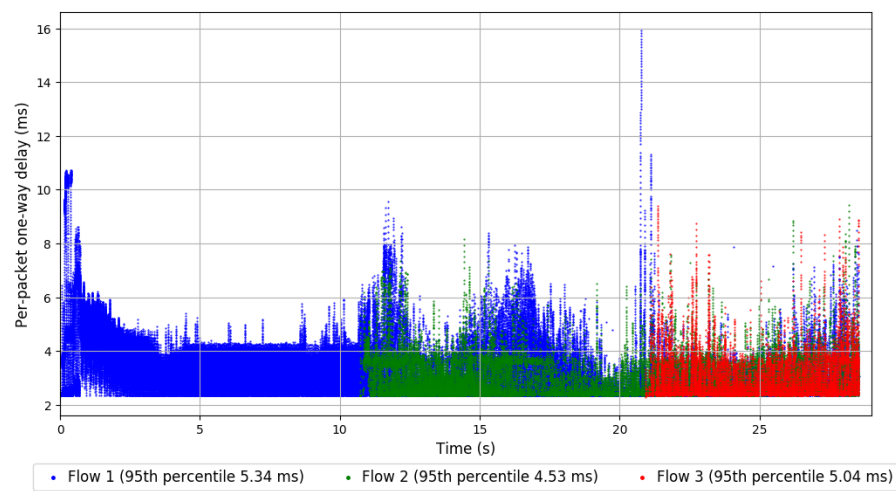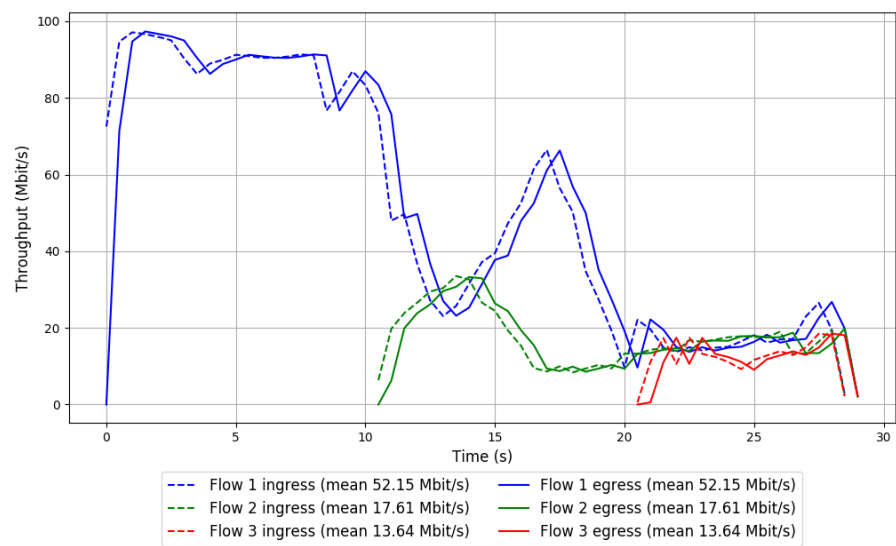
Run 1: Report of Indigo-MusesC3 — Data Link

```
Run 2: Statistics of Indigo-MusesC3

Start at: 2019-01-19 12:11:37
End at: 2019-01-19 12:12:07
Local clock offset: -6.968 ms
Remote clock offset: 0.482 ms


# Below is generated by plot.py at 2019-01-19 13:44:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 70.80 Mbit/s
95th percentile per-packet one-way delay: 5.352 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 49.17 Mbit/s
95th percentile per-packet one-way delay: 5.349 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 27.82 Mbit/s
95th percentile per-packet one-way delay: 5.435 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 14.79 Mbit/s
95th percentile per-packet one-way delay: 4.920 ms
Loss rate: 0.02%
```
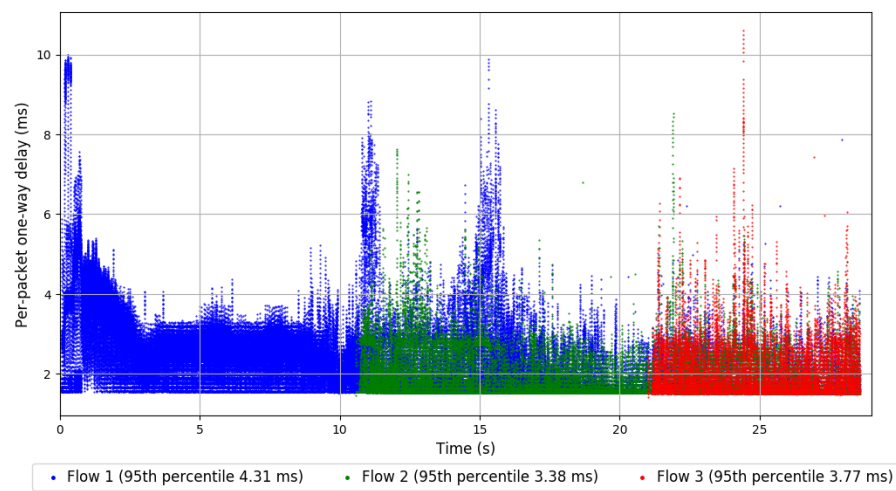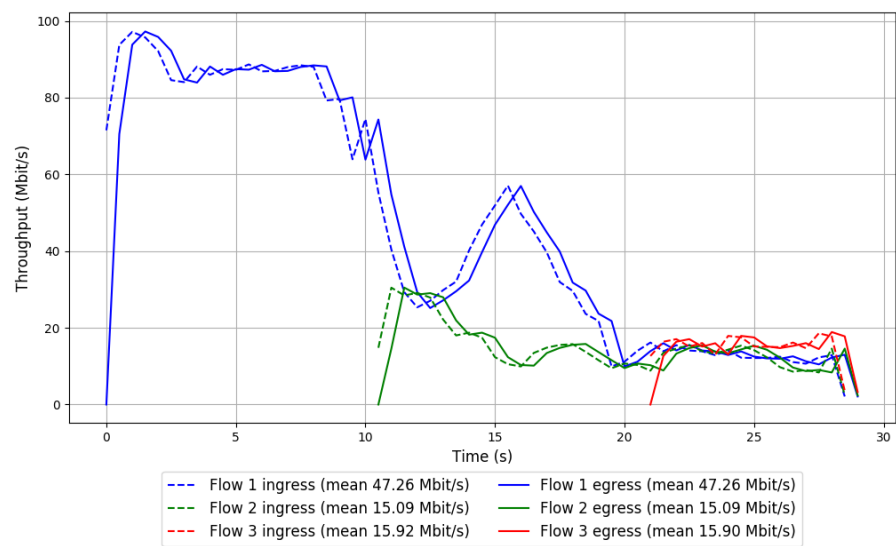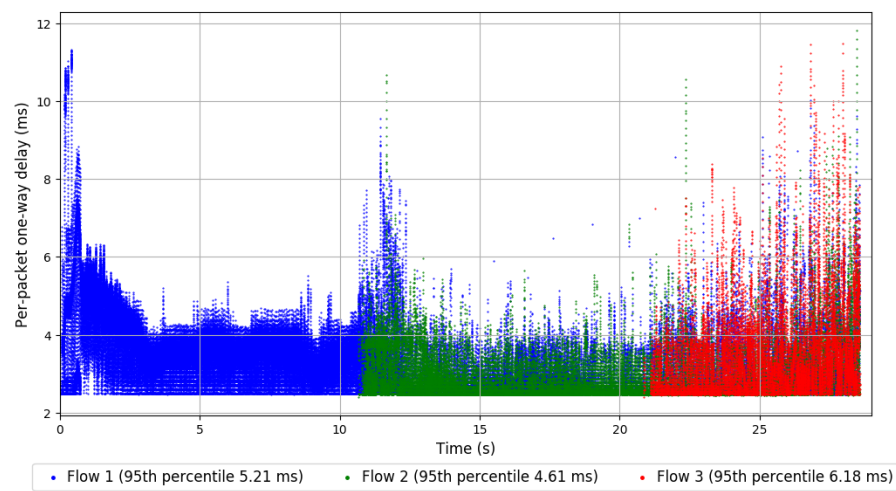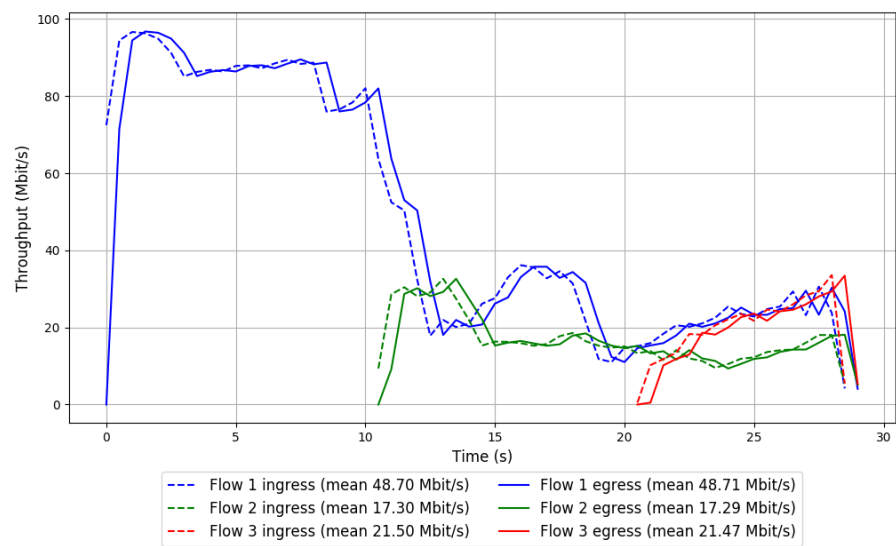
Run 2: Report of Indigo-MusesC3 — Data Link



Flow 1 ingress (mean 49.18 Mbit/s) --- Flow 1 egress (mean 49.17 Mbit/s)
Flow 2 ingress (mean 27.83 Mbit/s) --- Flow 2 egress (mean 27.82 Mbit/s)
Flow 3 ingress (mean 14.80 Mbit/s) --- Flow 3 egress (mean 14.79 Mbit/s)



• Flow 1 (95th percentile 5.35 ms)   • Flow 2 (95th percentile 5.43 ms)   • Flow 3 (95th percentile 4.92 ms)

```
Run 3: Statistics of Indigo-MusesC3

Start at: 2019-01-19 12:35:49
End at: 2019-01-19 12:36:19
Local clock offset: -6.61 ms
Remote clock offset: 1.167 ms


# Below is generated by plot.py at 2019-01-19 13:44:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 66.78 Mbit/s
95th percentile per-packet one-way delay: 5.241 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 52.15 Mbit/s
95th percentile per-packet one-way delay: 5.339 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 17.61 Mbit/s
95th percentile per-packet one-way delay: 4.526 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 13.64 Mbit/s
95th percentile per-packet one-way delay: 5.038 ms
Loss rate: 0.04%
```
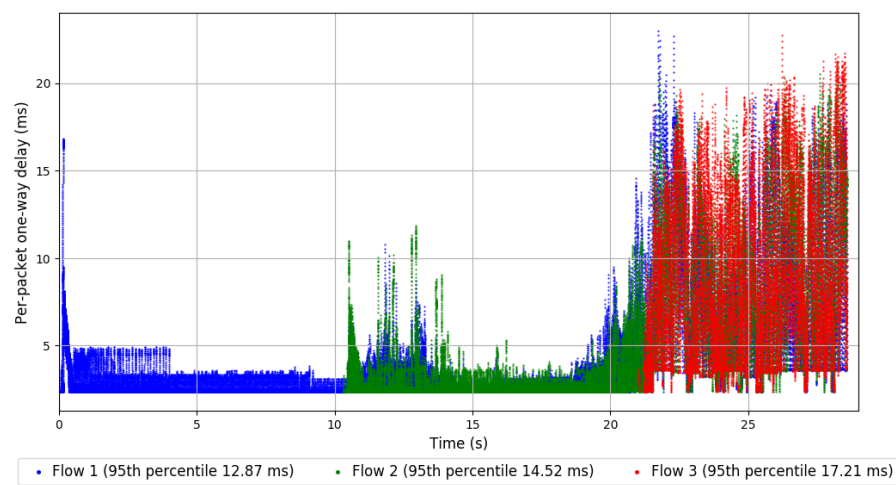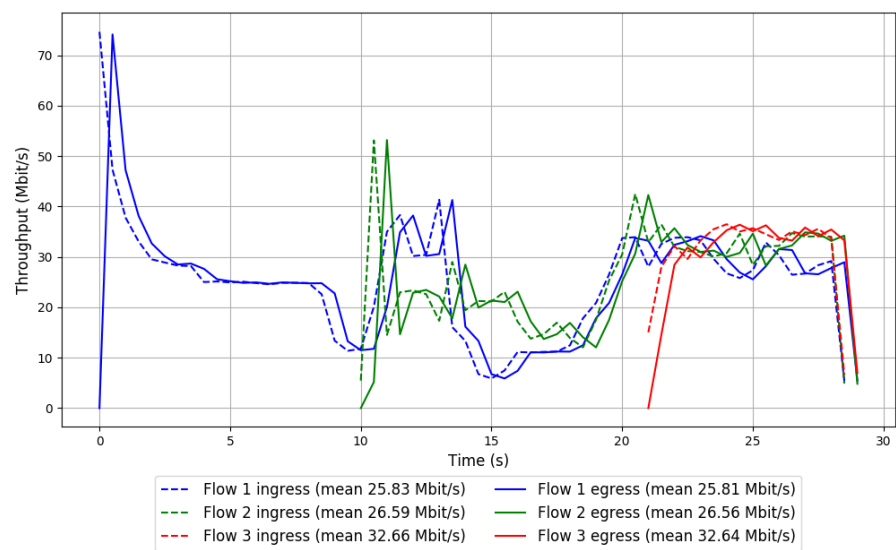
# Run 3: Report of Indigo-MusesC3 — Data Link



Flow 1 ingress (mean 52.15 Mbit/s) — Flow 1 egress (mean 52.15 Mbit/s)
Flow 2 ingress (mean 17.61 Mbit/s) — Flow 2 egress (mean 17.61 Mbit/s)
Flow 3 ingress (mean 13.64 Mbit/s) — Flow 3 egress (mean 13.64 Mbit/s)



Flow 1 (95th percentile 5.34 ms) • Flow 2 (95th percentile 4.53 ms) • Flow 3 (95th percentile 5.04 ms)

```
Run 4: Statistics of Indigo-MusesC3

Start at: 2019-01-19 13:00:00
End at: 2019-01-19 13:00:30
Local clock offset: -3.813 ms
Remote clock offset: 1.331 ms


# Below is generated by plot.py at 2019-01-19 13:44:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 60.98 Mbit/s
95th percentile per-packet one-way delay: 4.187 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 47.26 Mbit/s
95th percentile per-packet one-way delay: 4.313 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 15.09 Mbit/s
95th percentile per-packet one-way delay: 3.379 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 15.90 Mbit/s
95th percentile per-packet one-way delay: 3.770 ms
Loss rate: 0.15%
```
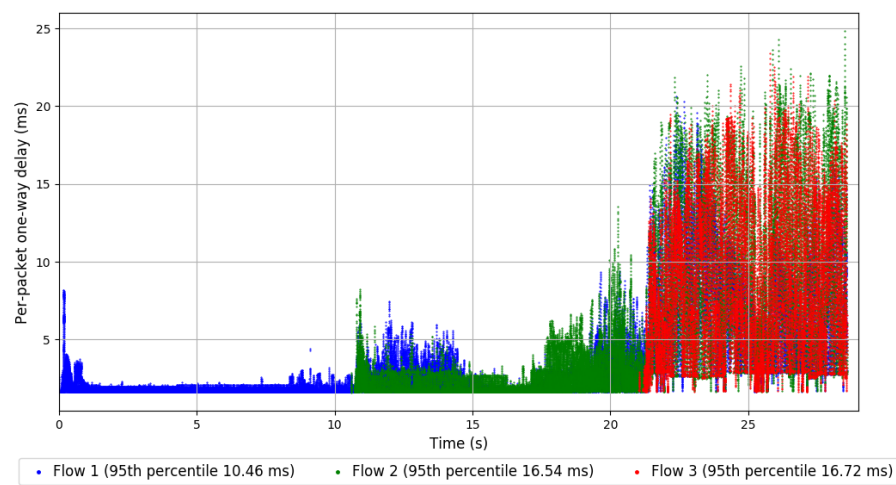
Run 4: Report of Indigo-MusesC3 — Data Link



- - - Flow 1 ingress (mean 47.26 Mbit/s) ——— Flow 1 egress (mean 47.26 Mbit/s)
- - - Flow 2 ingress (mean 15.09 Mbit/s) ——— Flow 2 egress (mean 15.09 Mbit/s)
- - - Flow 3 ingress (mean 15.92 Mbit/s) ——— Flow 3 egress (mean 15.90 Mbit/s)



• Flow 1 (95th percentile 4.31 ms)   • Flow 2 (95th percentile 3.38 ms)   • Flow 3 (95th percentile 3.77 ms)

```
Run 5: Statistics of Indigo-MusesC3

Start at: 2019-01-19 13:24:11
End at: 2019-01-19 13:24:41
Local clock offset: -0.936 ms
Remote clock offset: 1.467 ms


# Below is generated by plot.py at 2019-01-19 13:44:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 65.33 Mbit/s
95th percentile per-packet one-way delay: 5.236 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 48.71 Mbit/s
95th percentile per-packet one-way delay: 5.211 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 17.29 Mbit/s
95th percentile per-packet one-way delay: 4.606 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 21.47 Mbit/s
95th percentile per-packet one-way delay: 6.179 ms
Loss rate: 0.18%
```
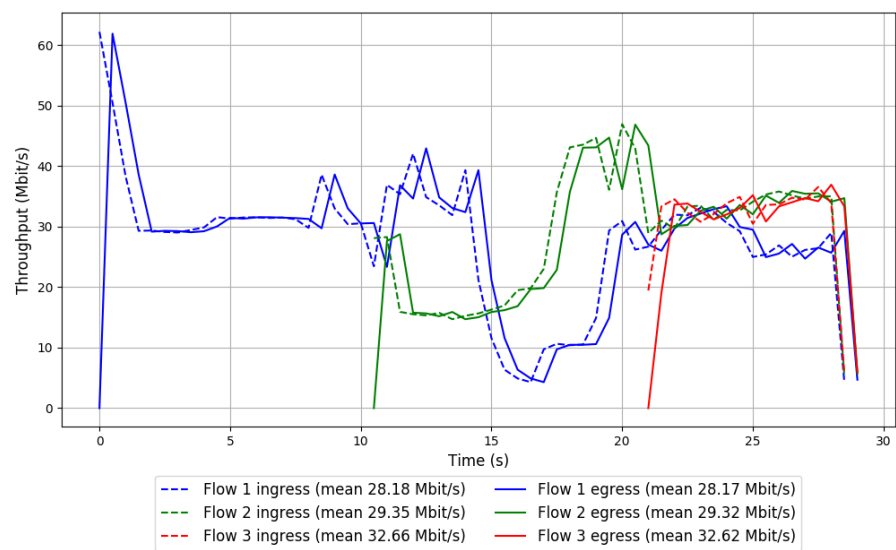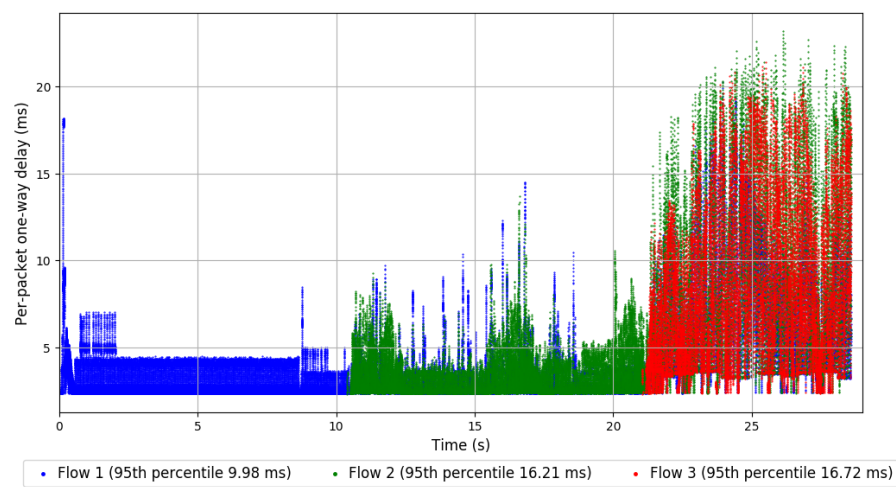
Run 5: Report of Indigo-MusesC3 — Data Link



74

```
Run 1: Statistics of Indigo-MusesC5

Start at: 2019-01-19 11:48:37
End at: 2019-01-19 11:49:07
Local clock offset: -6.866 ms
Remote clock offset: -0.131 ms

# Below is generated by plot.py at 2019-01-19 13:44:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 51.41 Mbit/s
95th percentile per-packet one-way delay: 14.831 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 25.81 Mbit/s
95th percentile per-packet one-way delay: 12.868 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 26.56 Mbit/s
95th percentile per-packet one-way delay: 14.515 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 32.64 Mbit/s
95th percentile per-packet one-way delay: 17.209 ms
Loss rate: 0.12%
```
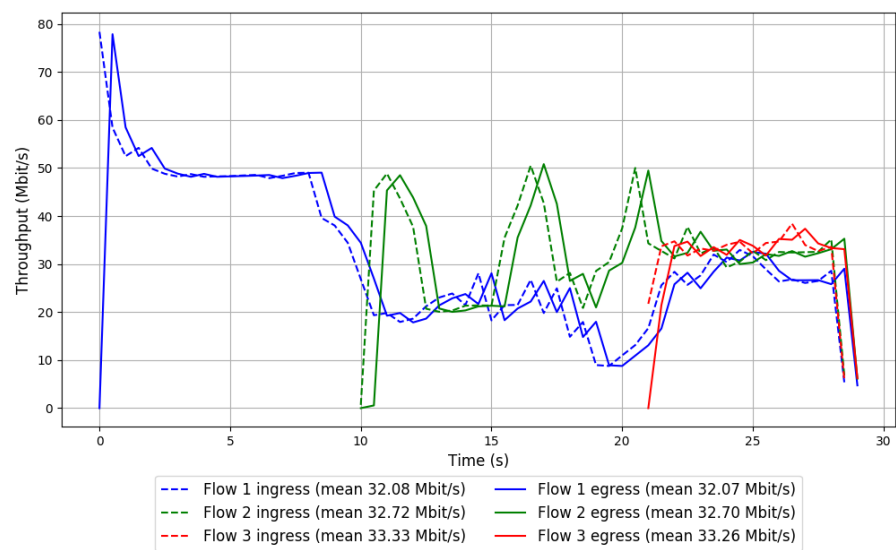
Run 1: Report of Indigo-MusesC5 — Data Link

```
Run 2: Statistics of Indigo-MusesC5

Start at: 2019-01-19 12:12:45
End at: 2019-01-19 12:13:15
Local clock offset: -7.719 ms
Remote clock offset: 0.516 ms


# Below is generated by plot.py at 2019-01-19 13:44:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 55.26 Mbit/s
95th percentile per-packet one-way delay: 14.769 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 28.17 Mbit/s
95th percentile per-packet one-way delay: 10.463 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 29.32 Mbit/s
95th percentile per-packet one-way delay: 16.536 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 32.62 Mbit/s
95th percentile per-packet one-way delay: 16.722 ms
Loss rate: 0.15%
```
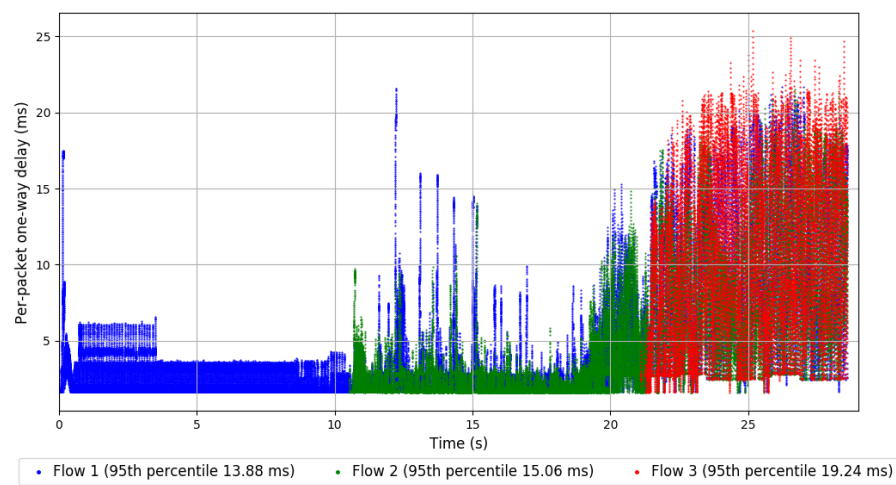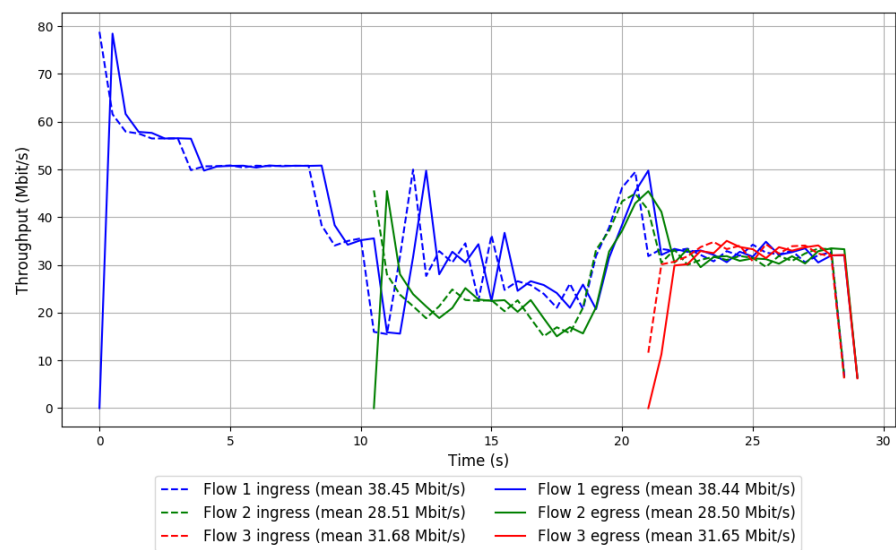
Run 2: Report of Indigo-MusesC5 — Data Link

```
Run 3: Statistics of Indigo-MusesC5

Start at: 2019-01-19 12:36:57
End at: 2019-01-19 12:37:27
Local clock offset: -6.615 ms
Remote clock offset: 1.153 ms


# Below is generated by plot.py at 2019-01-19 13:44:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 61.66 Mbit/s
95th percentile per-packet one-way delay: 14.402 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 32.07 Mbit/s
95th percentile per-packet one-way delay: 9.976 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 32.70 Mbit/s
95th percentile per-packet one-way delay: 16.208 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 33.26 Mbit/s
95th percentile per-packet one-way delay: 16.717 ms
Loss rate: 0.07%
```
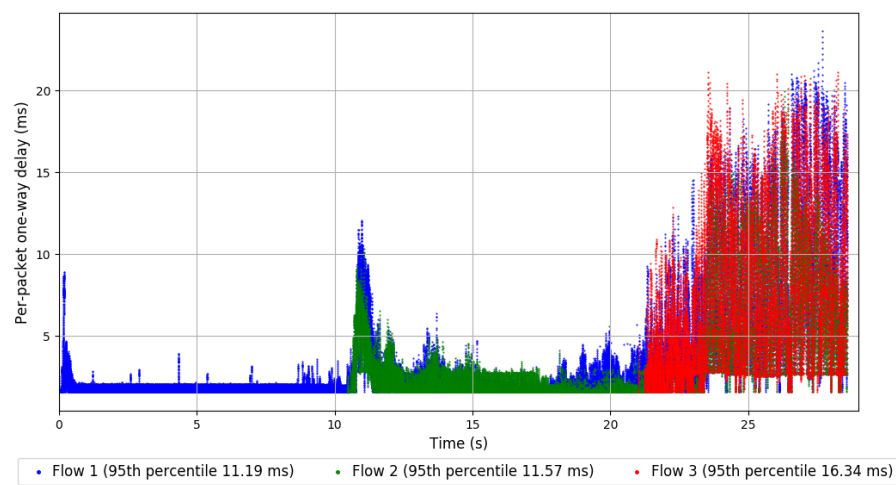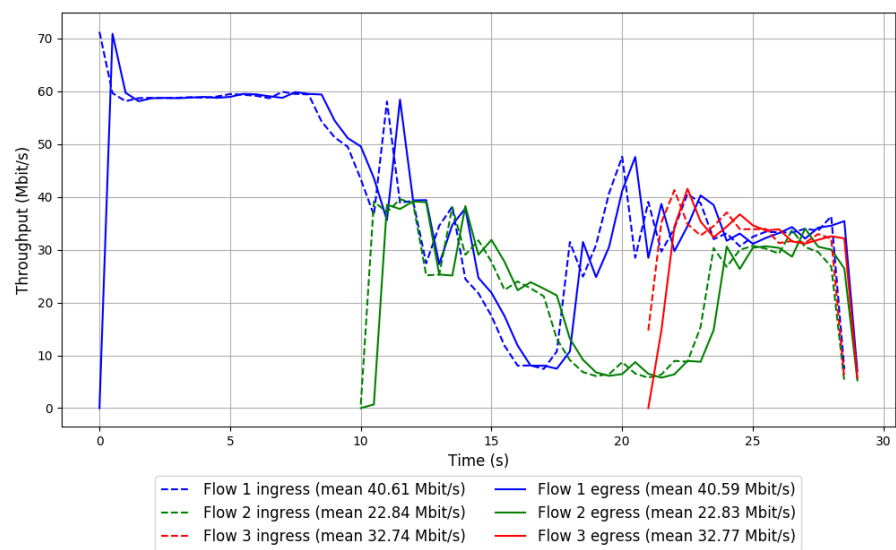
Run 3: Report of Indigo-MusesC5 — Data Link



Flow 1 ingress (mean 32.08 Mbit/s) — Flow 1 egress (mean 32.07 Mbit/s)
Flow 2 ingress (mean 32.72 Mbit/s) — Flow 2 egress (mean 32.70 Mbit/s)
Flow 3 ingress (mean 33.33 Mbit/s) — Flow 3 egress (mean 33.26 Mbit/s)



Flow 1 (95th percentile 9.98 ms) • Flow 2 (95th percentile 16.21 ms) • Flow 3 (95th percentile 16.72 ms)

```
Run 4: Statistics of Indigo-MusesC5

Start at: 2019-01-19 13:01:08
End at: 2019-01-19 13:01:38
Local clock offset: -3.599 ms
Remote clock offset: 1.328 ms


# Below is generated by plot.py at 2019-01-19 13:44:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 64.75 Mbit/s
95th percentile per-packet one-way delay: 15.987 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 38.44 Mbit/s
95th percentile per-packet one-way delay: 13.879 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 28.50 Mbit/s
95th percentile per-packet one-way delay: 15.060 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 31.65 Mbit/s
95th percentile per-packet one-way delay: 19.243 ms
Loss rate: 0.13%
```
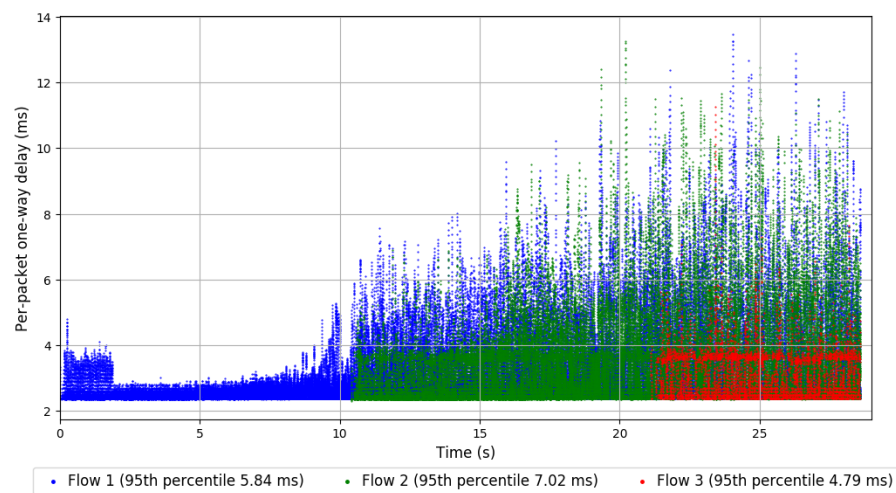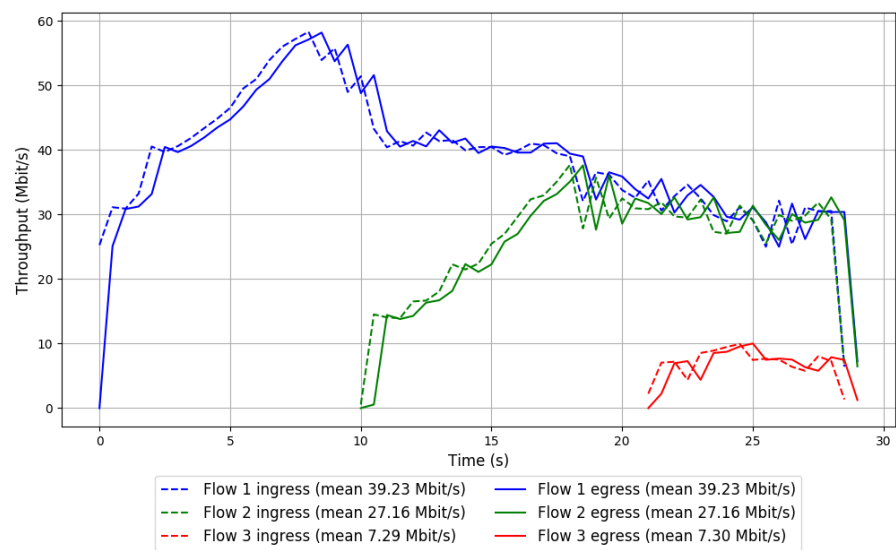
Run 4: Report of Indigo-MusesC5 — Data Link



82

```
Run 5: Statistics of Indigo-MusesC5

Start at: 2019-01-19 13:25:19
End at: 2019-01-19 13:25:49
Local clock offset: -1.633 ms
Remote clock offset: 1.59 ms


# Below is generated by plot.py at 2019-01-19 13:44:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 63.74 Mbit/s
95th percentile per-packet one-way delay: 12.976 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 40.59 Mbit/s
95th percentile per-packet one-way delay: 11.186 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 22.83 Mbit/s
95th percentile per-packet one-way delay: 11.567 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 32.77 Mbit/s
95th percentile per-packet one-way delay: 16.335 ms
Loss rate: 0.06%
```
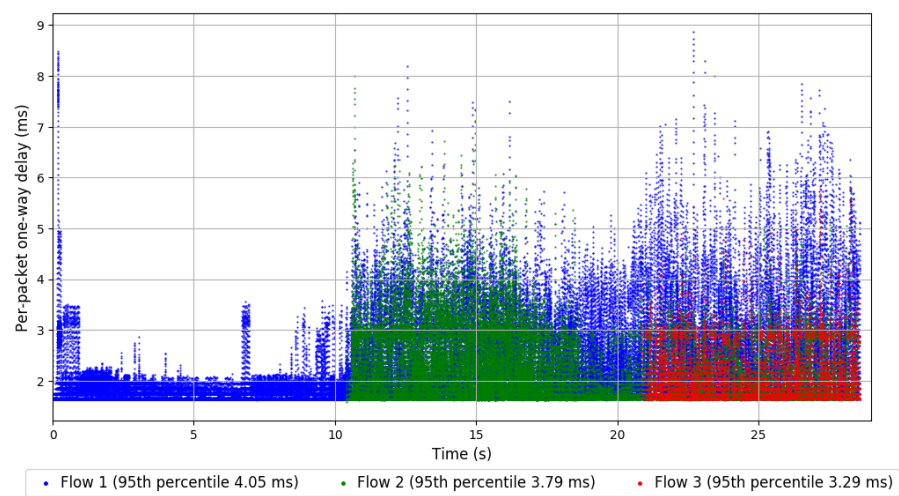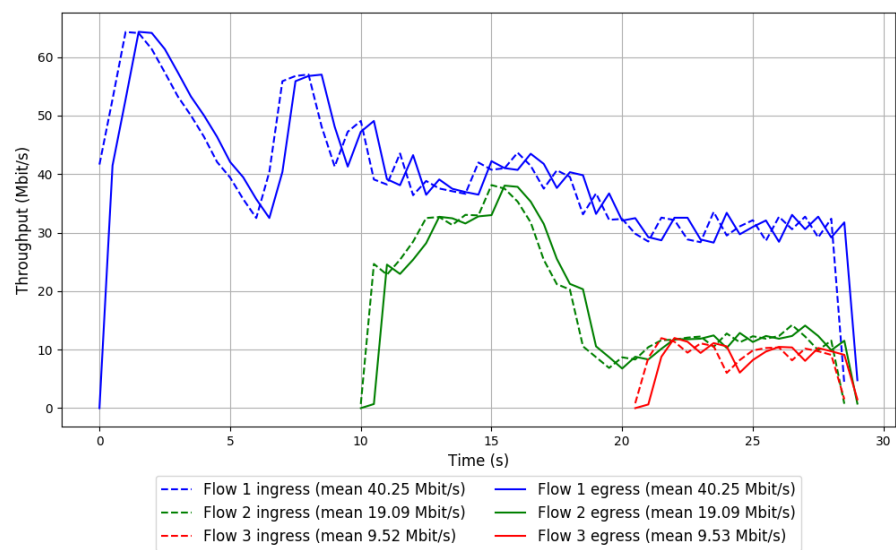
Run 5: Report of Indigo-MusesC5 — Data Link

```
Run 1: Statistics of Indigo-MusesD

Start at: 2019-01-19 11:56:47
End at: 2019-01-19 11:57:17
Local clock offset: -6.89 ms
Remote clock offset: 0.095 ms


# Below is generated by plot.py at 2019-01-19 13:44:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 58.42 Mbit/s
95th percentile per-packet one-way delay: 6.221 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 39.23 Mbit/s
95th percentile per-packet one-way delay: 5.844 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 27.16 Mbit/s
95th percentile per-packet one-way delay: 7.021 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 7.30 Mbit/s
95th percentile per-packet one-way delay: 4.790 ms
Loss rate: 0.09%
```
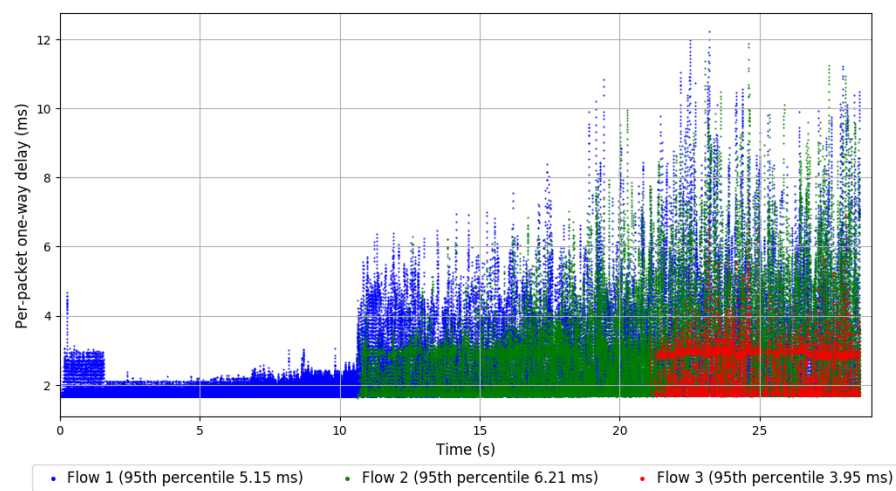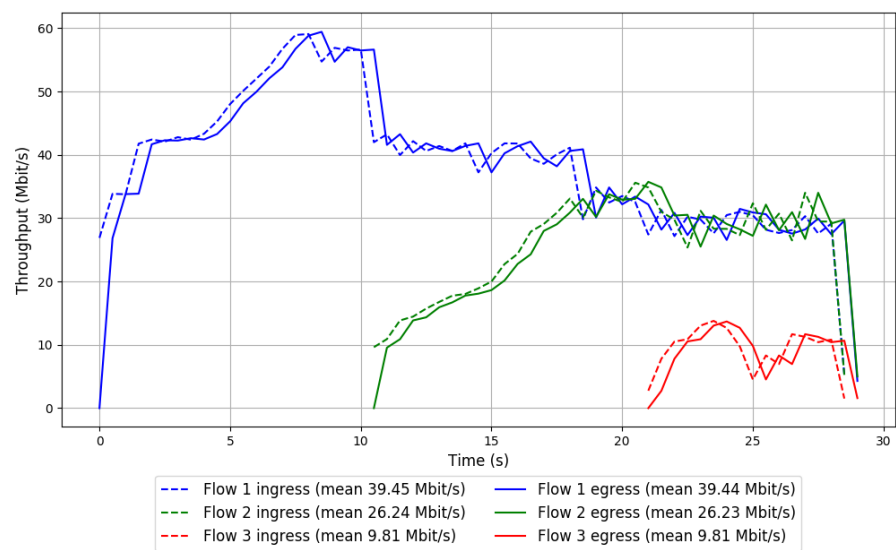
Run 1: Report of Indigo-MusesD — Data Link

```
Run 2: Statistics of Indigo-MusesD

Start at: 2019-01-19 12:20:55
End at: 2019-01-19 12:21:25
Local clock offset: -7.64 ms
Remote clock offset: 0.695 ms


# Below is generated by plot.py at 2019-01-19 13:44:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 54.98 Mbit/s
95th percentile per-packet one-way delay: 3.961 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 40.25 Mbit/s
95th percentile per-packet one-way delay: 4.046 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 19.09 Mbit/s
95th percentile per-packet one-way delay: 3.790 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 9.53 Mbit/s
95th percentile per-packet one-way delay: 3.289 ms
Loss rate: 0.02%
```

Run 2: Report of Indigo-MusesD — Data Link

```
Run 3: Statistics of Indigo-MusesD

Start at: 2019-01-19 12:45:07
End at: 2019-01-19 12:45:37
Local clock offset: -7.354 ms
Remote clock offset: 1.229 ms


# Below is generated by plot.py at 2019-01-19 13:44:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 58.48 Mbit/s
95th percentile per-packet one-way delay: 5.492 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 39.44 Mbit/s
95th percentile per-packet one-way delay: 5.153 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 26.23 Mbit/s
95th percentile per-packet one-way delay: 6.209 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 9.81 Mbit/s
95th percentile per-packet one-way delay: 3.954 ms
Loss rate: 0.06%
```
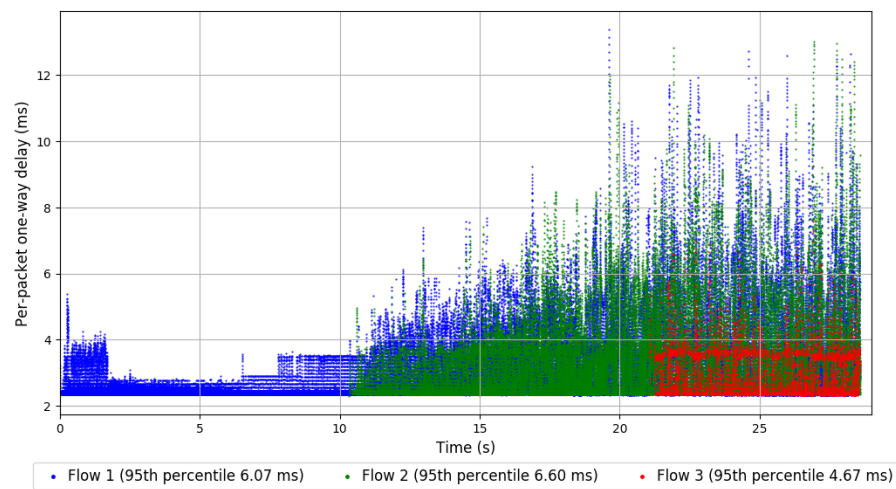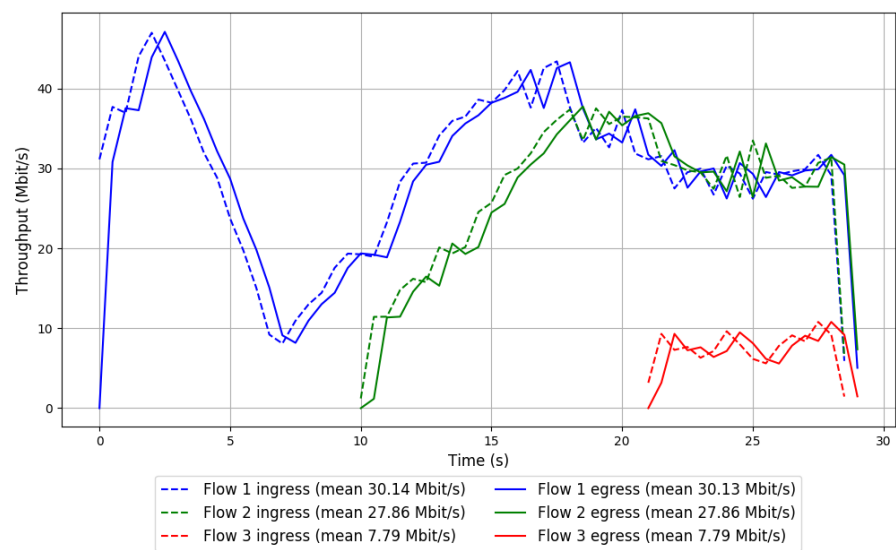
Run 3: Report of Indigo-MusesD — Data Link



90

```
Run 4: Statistics of Indigo-MusesD

Start at: 2019-01-19 13:09:18
End at: 2019-01-19 13:09:48
Local clock offset: -2.033 ms
Remote clock offset: 1.361 ms


# Below is generated by plot.py at 2019-01-19 13:44:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 49.96 Mbit/s
95th percentile per-packet one-way delay: 6.246 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 30.13 Mbit/s
95th percentile per-packet one-way delay: 6.072 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 27.86 Mbit/s
95th percentile per-packet one-way delay: 6.604 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 7.79 Mbit/s
95th percentile per-packet one-way delay: 4.668 ms
Loss rate: 0.00%
```
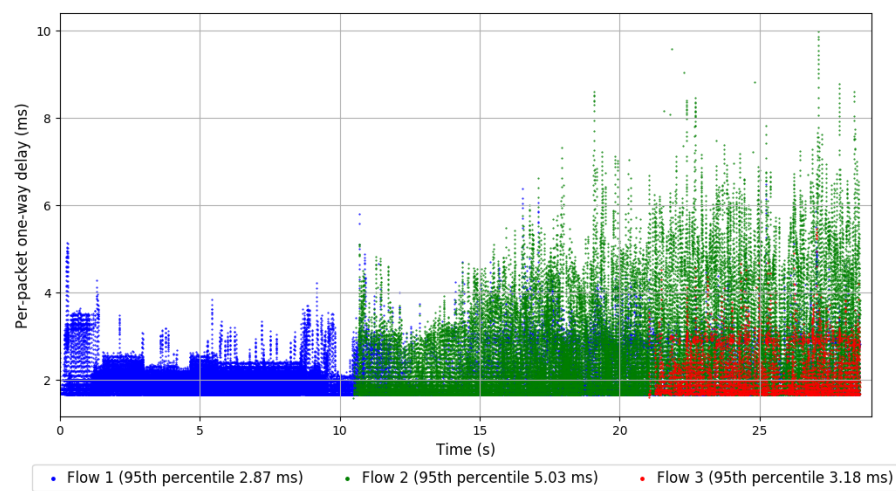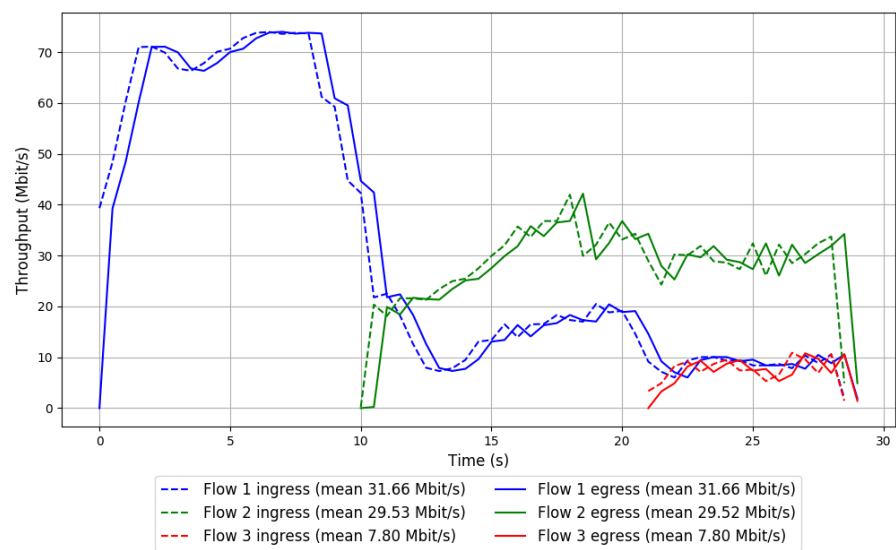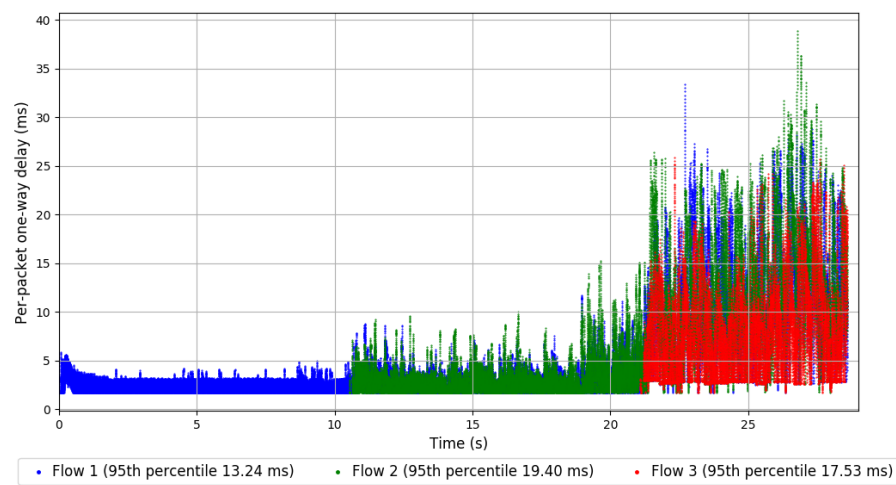
Run 4: Report of Indigo-MusesD — Data Link

```
Run 5: Statistics of Indigo-MusesD

Start at: 2019-01-19 13:33:29
End at: 2019-01-19 13:33:59
Local clock offset: -1.21 ms
Remote clock offset: 1.556 ms


# Below is generated by plot.py at 2019-01-19 13:45:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 52.40 Mbit/s
95th percentile per-packet one-way delay: 4.084 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 31.66 Mbit/s
95th percentile per-packet one-way delay: 2.866 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 29.52 Mbit/s
95th percentile per-packet one-way delay: 5.031 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 7.80 Mbit/s
95th percentile per-packet one-way delay: 3.178 ms
Loss rate: 0.02%
```

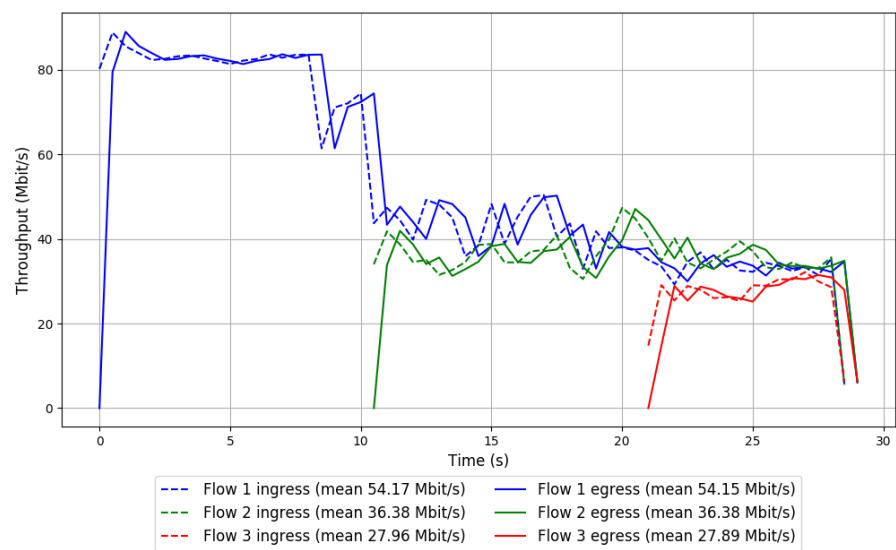Run 5: Report of Indigo-MusesD — Data Link

```
Run 1: Statistics of Indigo-MusesT

Start at: 2019-01-19 11:50:55
End at: 2019-01-19 11:51:25
Local clock offset: -7.619 ms
Remote clock offset: -0.153 ms


# Below is generated by plot.py at 2019-01-19 13:45:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.46 Mbit/s
95th percentile per-packet one-way delay: 16.310 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 54.15 Mbit/s
95th percentile per-packet one-way delay: 13.241 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 36.38 Mbit/s
95th percentile per-packet one-way delay: 19.401 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 27.89 Mbit/s
95th percentile per-packet one-way delay: 17.526 ms
Loss rate: 0.21%
```
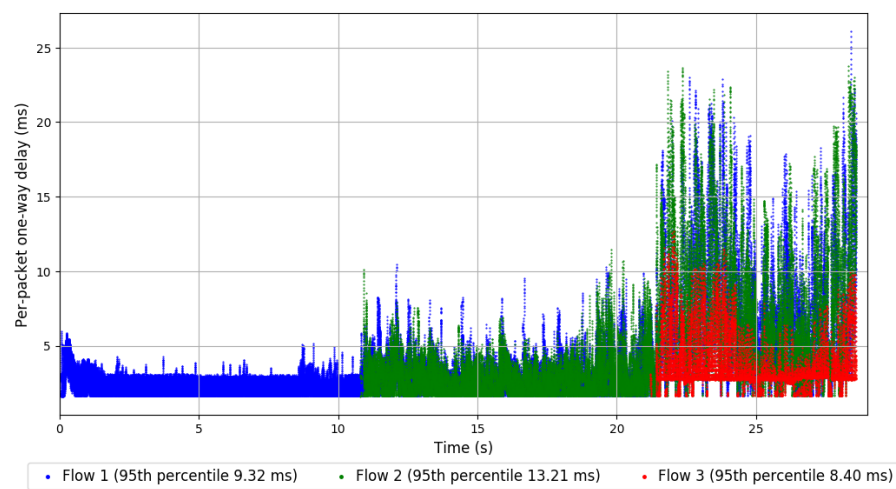
# Run 1: Report of Indigo-MusesT — Data Link

```
Run 2: Statistics of Indigo-MusesT

Start at: 2019-01-19 12:15:03
End at: 2019-01-19 12:15:33
Local clock offset: -7.803 ms
Remote clock offset: 0.539 ms


# Below is generated by plot.py at 2019-01-19 13:45:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.31 Mbit/s
95th percentile per-packet one-way delay: 10.688 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 55.91 Mbit/s
95th percentile per-packet one-way delay: 9.319 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 38.19 Mbit/s
95th percentile per-packet one-way delay: 13.205 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 17.88 Mbit/s
95th percentile per-packet one-way delay: 8.404 ms
Loss rate: 0.11%
```
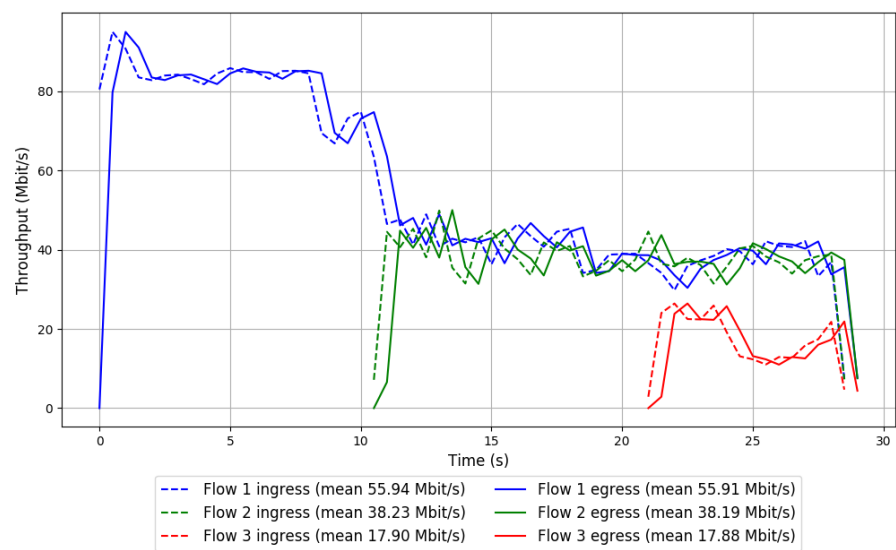
## Run 2: Report of Indigo-MusesT — Data Link

```
Run 3: Statistics of Indigo-MusesT

Start at: 2019-01-19 12:39:15
End at: 2019-01-19 12:39:45
Local clock offset: -7.354 ms
Remote clock offset: 1.148 ms


# Below is generated by plot.py at 2019-01-19 13:45:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.57 Mbit/s
95th percentile per-packet one-way delay: 10.759 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 54.93 Mbit/s
95th percentile per-packet one-way delay: 8.678 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 35.38 Mbit/s
95th percentile per-packet one-way delay: 14.580 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 17.23 Mbit/s
95th percentile per-packet one-way delay: 9.550 ms
Loss rate: 0.15%
```
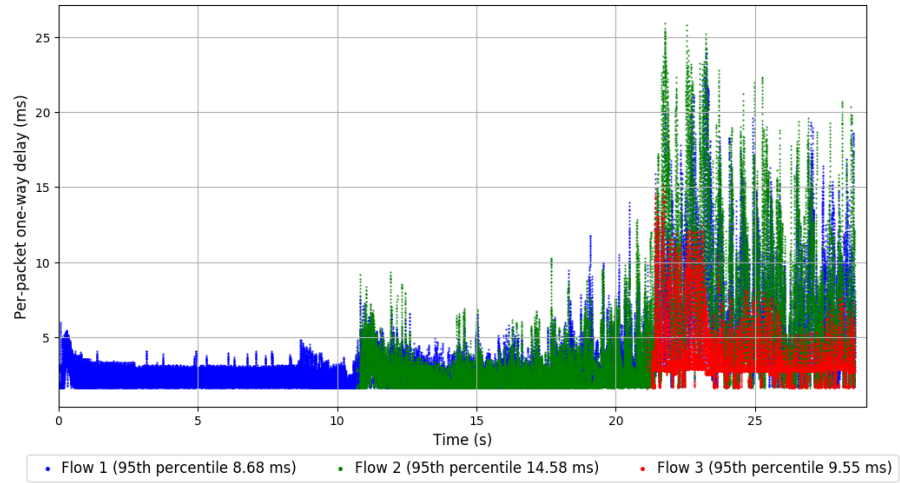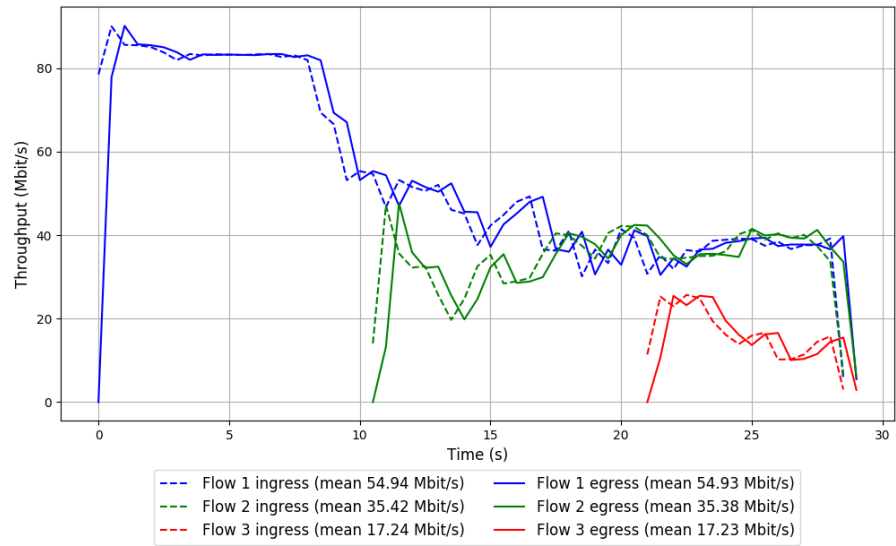
Run 3: Report of Indigo-MusesT — Data Link

```
Run 4: Statistics of Indigo-MusesT

Start at: 2019-01-19 13:03:26
End at: 2019-01-19 13:03:56
Local clock offset: -3.351 ms
Remote clock offset: 1.292 ms


# Below is generated by plot.py at 2019-01-19 13:45:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.16 Mbit/s
95th percentile per-packet one-way delay: 19.022 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 54.88 Mbit/s
95th percentile per-packet one-way delay: 13.629 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 34.32 Mbit/s
95th percentile per-packet one-way delay: 21.286 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 30.05 Mbit/s
95th percentile per-packet one-way delay: 26.133 ms
Loss rate: 0.34%
```
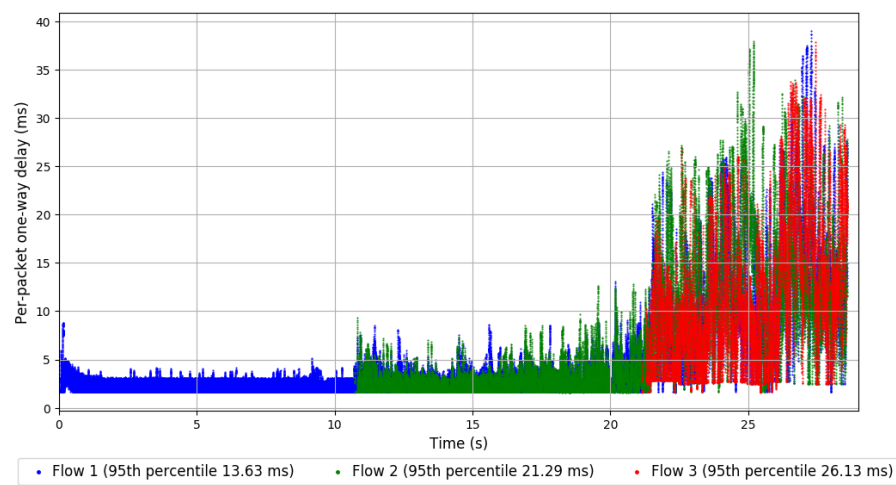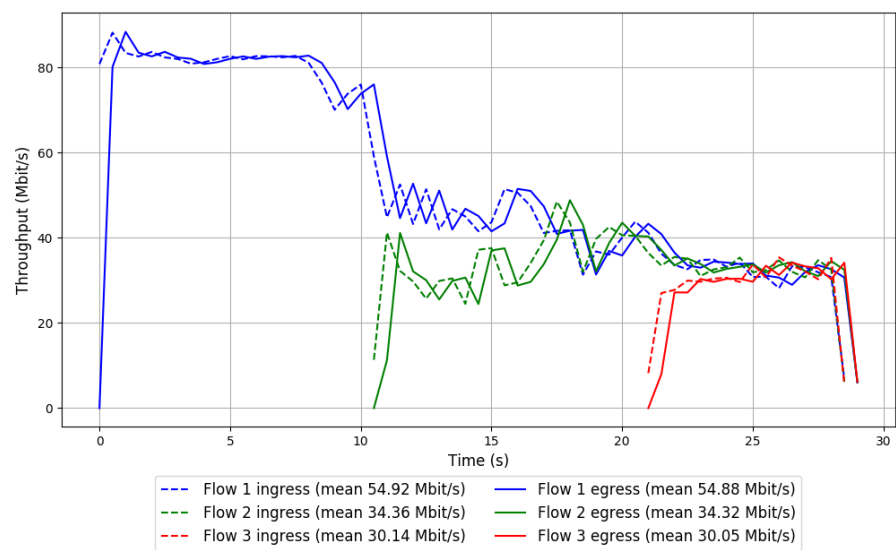
Run 4: Report of Indigo-MusesT — Data Link

```
Run 5: Statistics of Indigo-MusesT

Start at: 2019-01-19 13:27:37
End at: 2019-01-19 13:28:07
Local clock offset: -0.738 ms
Remote clock offset: 1.473 ms


# Below is generated by plot.py at 2019-01-19 13:45:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.23 Mbit/s
95th percentile per-packet one-way delay: 16.947 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 55.80 Mbit/s
95th percentile per-packet one-way delay: 14.392 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 37.00 Mbit/s
95th percentile per-packet one-way delay: 19.113 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 27.93 Mbit/s
95th percentile per-packet one-way delay: 18.939 ms
Loss rate: 0.11%
```
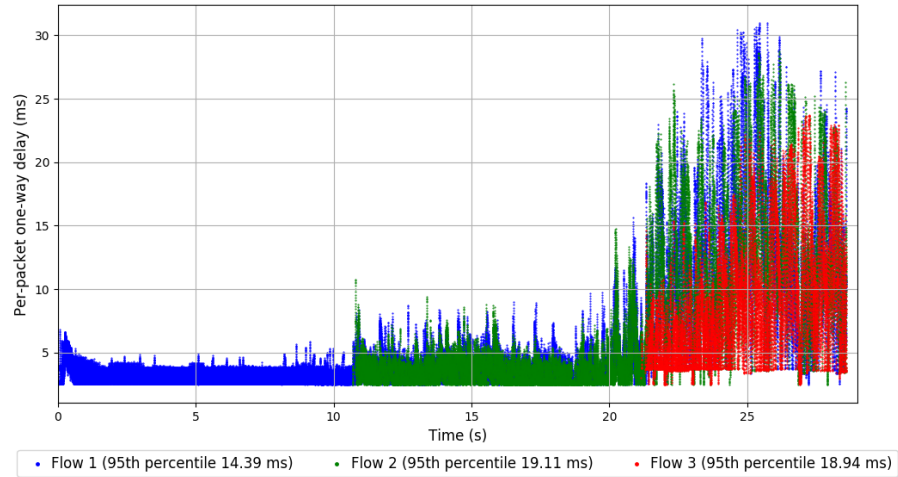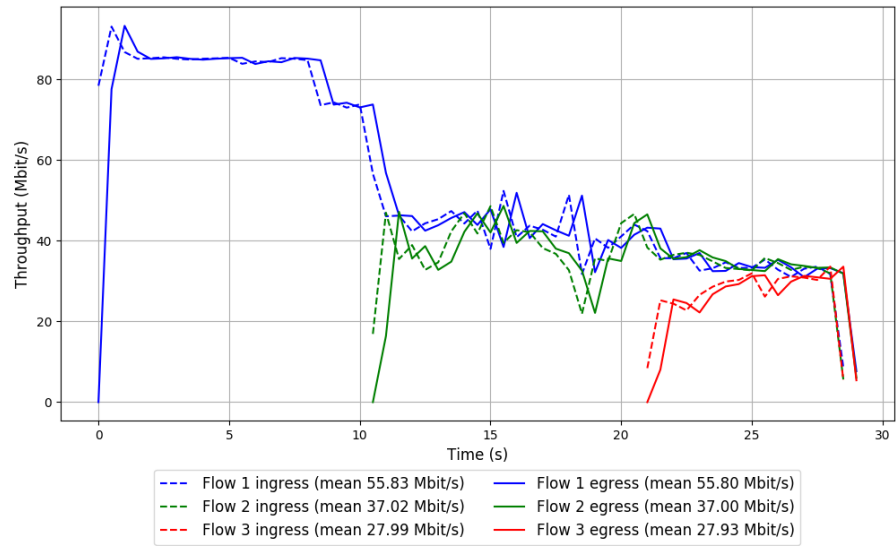
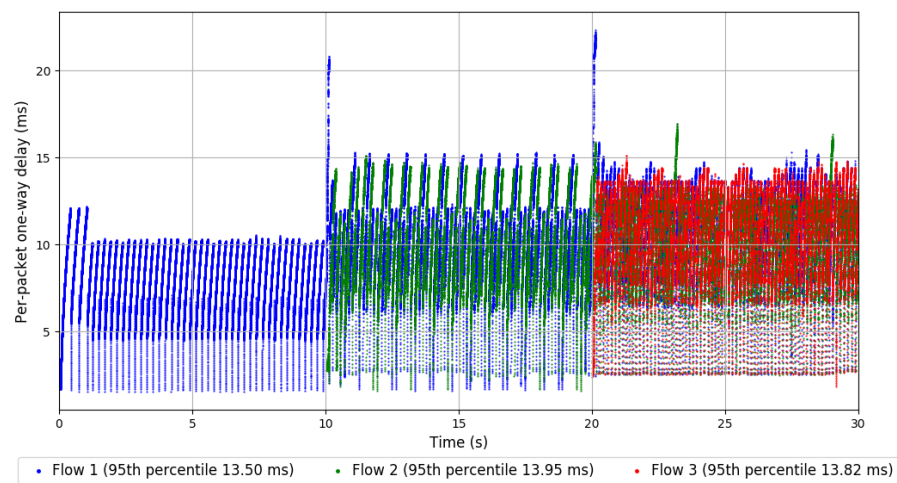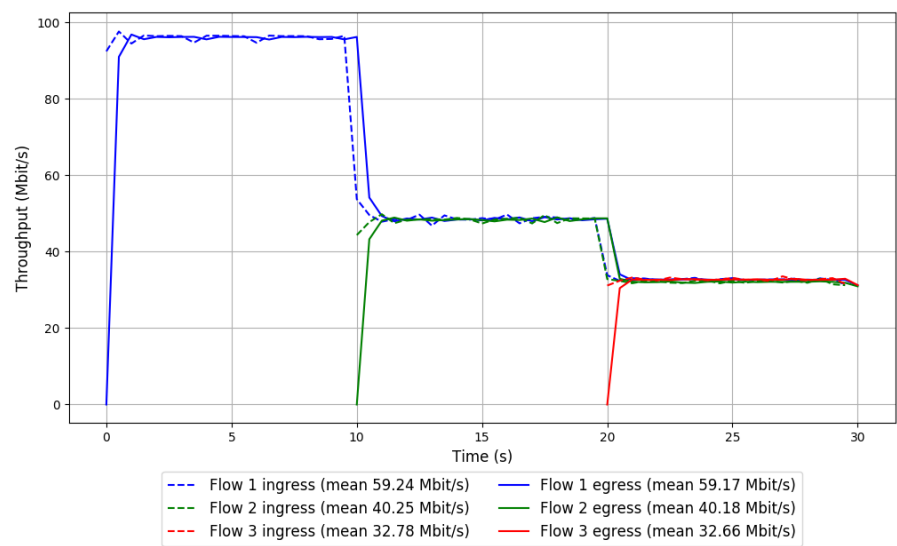Run 5: Report of Indigo-MusesT — Data Link





104

```
Run 1: Statistics of LEDBAT

Start at: 2019-01-19 11:59:03
End at: 2019-01-19 11:59:33
Local clock offset: -7.669 ms
Remote clock offset: 0.104 ms


# Below is generated by plot.py at 2019-01-19 13:45:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.77 Mbit/s
95th percentile per-packet one-way delay: 13.726 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 59.17 Mbit/s
95th percentile per-packet one-way delay: 13.499 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 40.18 Mbit/s
95th percentile per-packet one-way delay: 13.949 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 32.66 Mbit/s
95th percentile per-packet one-way delay: 13.821 ms
Loss rate: 0.41%
```

Run 1: Report of LEDBAT — Data Link



- - - Flow 1 ingress (mean 59.24 Mbit/s) —— Flow 1 egress (mean 59.17 Mbit/s)
- - - Flow 2 ingress (mean 40.25 Mbit/s) —— Flow 2 egress (mean 40.18 Mbit/s)
- - - Flow 3 ingress (mean 32.78 Mbit/s) —— Flow 3 egress (mean 32.66 Mbit/s)



• Flow 1 (95th percentile 13.50 ms)   • Flow 2 (95th percentile 13.95 ms)   • Flow 3 (95th percentile 13.82 ms)

```
Run 2: Statistics of LEDBAT

Start at: 2019-01-19 12:23:11
End at: 2019-01-19 12:23:41
Local clock offset: -6.762 ms
Remote clock offset: 0.731 ms


# Below is generated by plot.py at 2019-01-19 13:45:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.40 Mbit/s
95th percentile per-packet one-way delay: 13.401 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 58.74 Mbit/s
95th percentile per-packet one-way delay: 12.580 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 40.19 Mbit/s
95th percentile per-packet one-way delay: 13.245 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 32.83 Mbit/s
95th percentile per-packet one-way delay: 15.113 ms
Loss rate: 0.35%
```
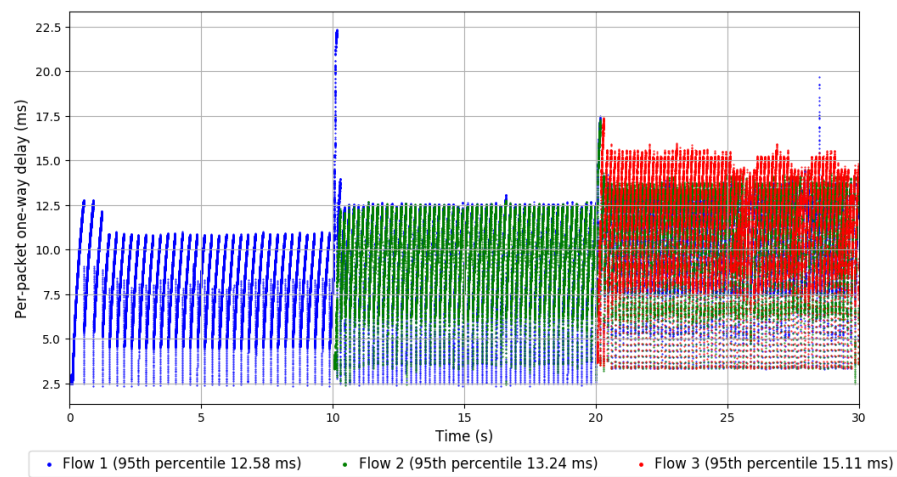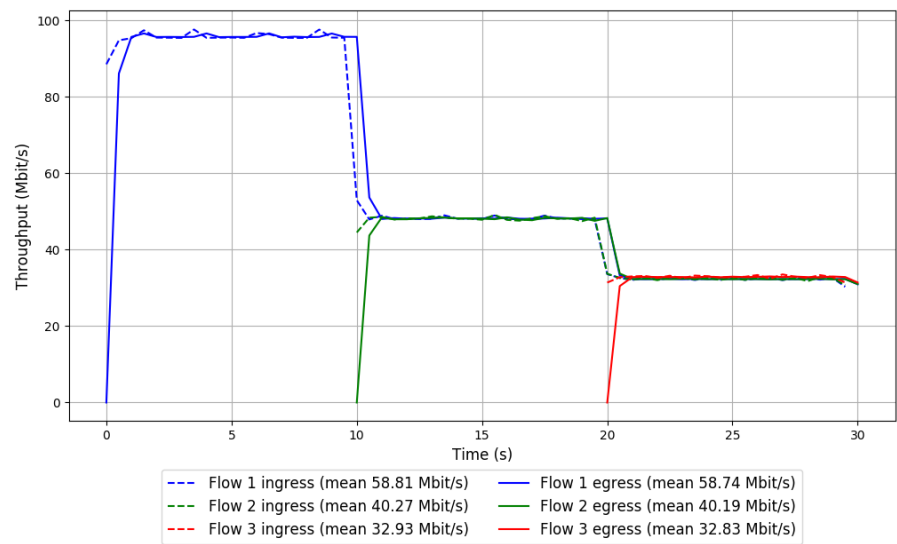
## Run 2: Report of LEDBAT — Data Link



Flow 1 ingress (mean 58.81 Mbit/s)    Flow 1 egress (mean 58.74 Mbit/s)
Flow 2 ingress (mean 40.27 Mbit/s)    Flow 2 egress (mean 40.19 Mbit/s)
Flow 3 ingress (mean 32.93 Mbit/s)    Flow 3 egress (mean 32.83 Mbit/s)



Flow 1 (95th percentile 12.58 ms)    Flow 2 (95th percentile 13.24 ms)    Flow 3 (95th percentile 15.11 ms)

108

```
Run 3: Statistics of LEDBAT

Start at: 2019-01-19 12:47:23
End at: 2019-01-19 12:47:53
Local clock offset: -6.449 ms
Remote clock offset: 1.336 ms


# Below is generated by plot.py at 2019-01-19 13:46:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.88 Mbit/s
95th percentile per-packet one-way delay: 13.709 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 59.19 Mbit/s
95th percentile per-packet one-way delay: 13.487 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 40.61 Mbit/s
95th percentile per-packet one-way delay: 14.235 ms
Loss rate: 0.24%
-- Flow 3:
Average throughput: 32.00 Mbit/s
95th percentile per-packet one-way delay: 12.932 ms
Loss rate: 0.39%
```
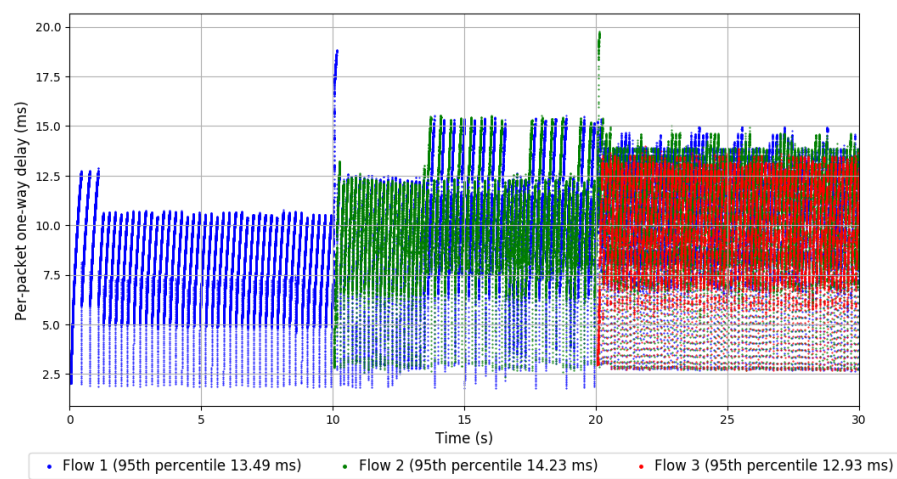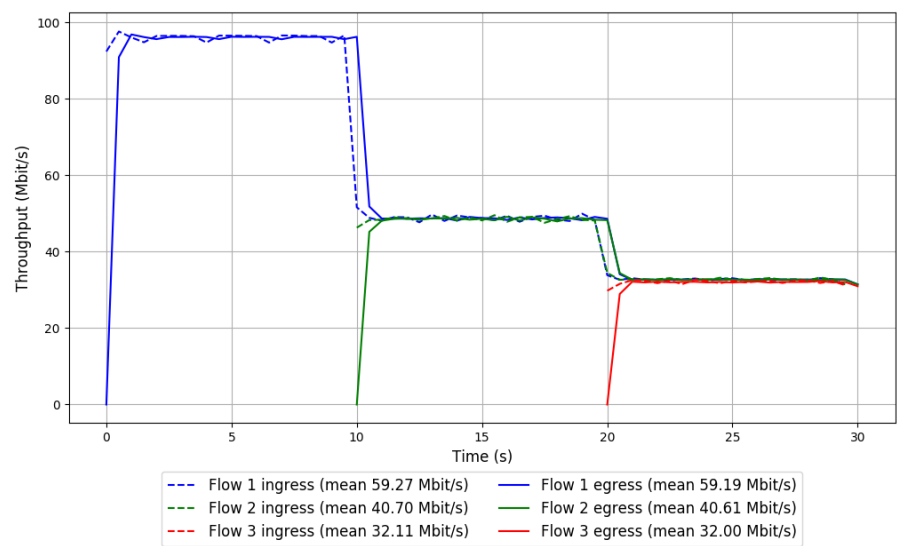
# Run 3: Report of LEDBAT — Data Link



- - - - Flow 1 ingress (mean 59.27 Mbit/s) ——— Flow 1 egress (mean 59.19 Mbit/s)
- - - - Flow 2 ingress (mean 40.70 Mbit/s) ——— Flow 2 egress (mean 40.61 Mbit/s)
- - - - Flow 3 ingress (mean 32.11 Mbit/s) ——— Flow 3 egress (mean 32.00 Mbit/s)



- Flow 1 (95th percentile 13.49 ms)   - Flow 2 (95th percentile 14.23 ms)   - Flow 3 (95th percentile 12.93 ms)

```
Run 4: Statistics of LEDBAT

Start at: 2019-01-19 13:11:35
End at: 2019-01-19 13:12:05
Local clock offset: -2.54 ms
Remote clock offset: 1.507 ms


# Below is generated by plot.py at 2019-01-19 13:46:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.76 Mbit/s
95th percentile per-packet one-way delay: 13.883 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 58.91 Mbit/s
95th percentile per-packet one-way delay: 13.480 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 40.46 Mbit/s
95th percentile per-packet one-way delay: 14.072 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 32.80 Mbit/s
95th percentile per-packet one-way delay: 14.141 ms
Loss rate: 0.39%
```
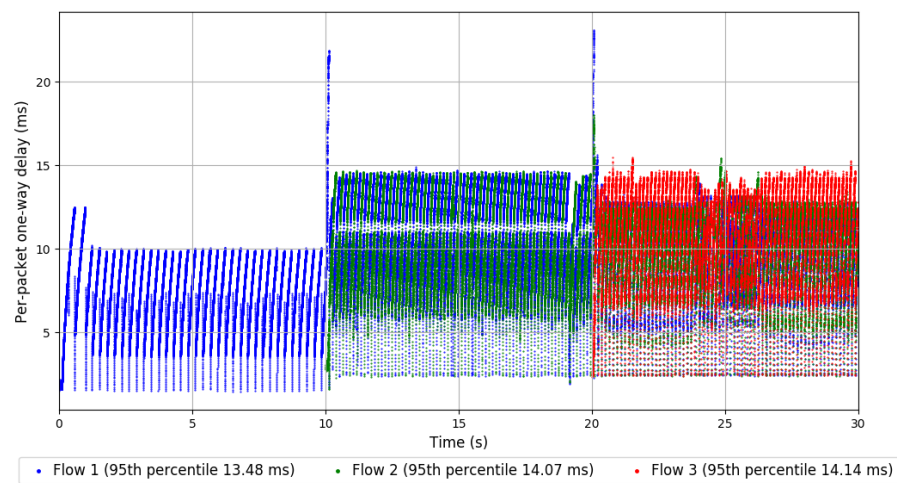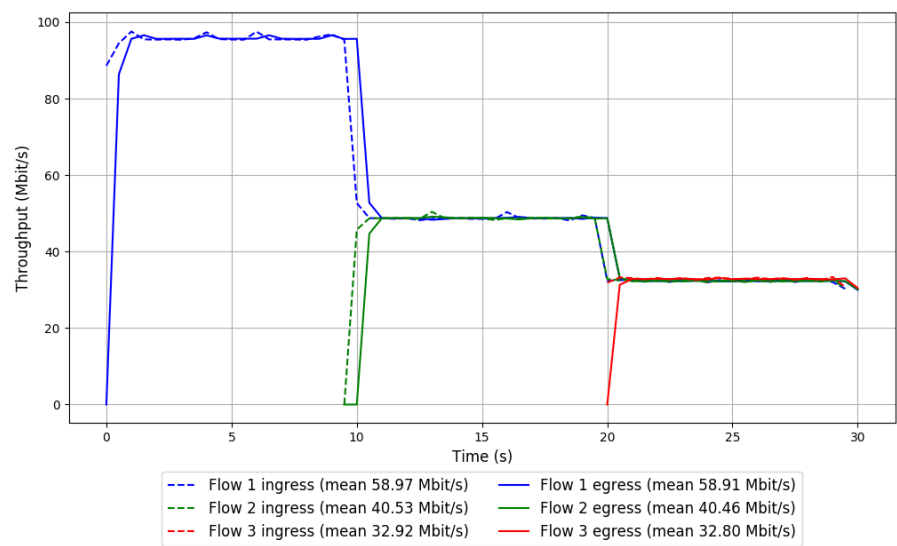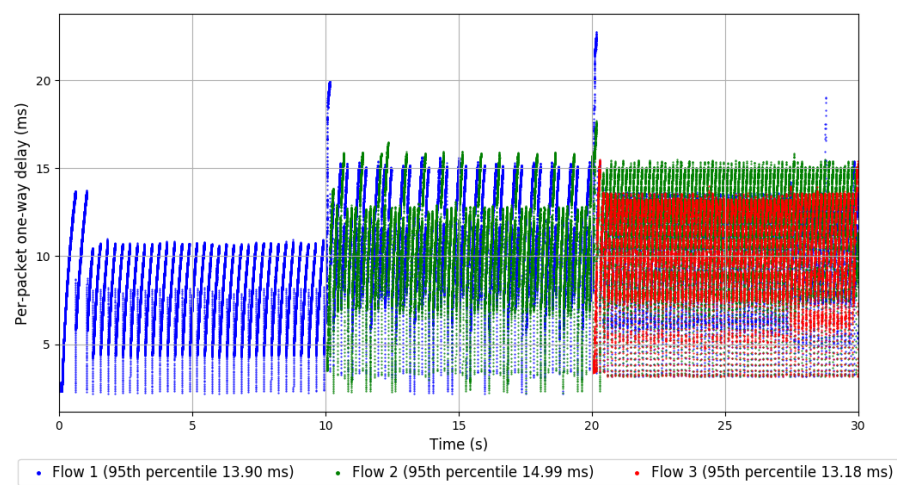
## Run 4: Report of LEDBAT — Data Link



Flow 1 ingress (mean 58.97 Mbit/s) --- Flow 1 egress (mean 58.91 Mbit/s)
Flow 2 ingress (mean 40.53 Mbit/s) --- Flow 2 egress (mean 40.46 Mbit/s)
Flow 3 ingress (mean 32.92 Mbit/s) --- Flow 3 egress (mean 32.80 Mbit/s)



• Flow 1 (95th percentile 13.48 ms)   • Flow 2 (95th percentile 14.07 ms)   • Flow 3 (95th percentile 14.14 ms)

112

```
Run 5: Statistics of LEDBAT

Start at: 2019-01-19 13:35:46
End at: 2019-01-19 13:36:16
Local clock offset: -0.273 ms
Remote clock offset: 1.747 ms


# Below is generated by plot.py at 2019-01-19 13:46:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.58 Mbit/s
95th percentile per-packet one-way delay: 14.544 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 58.81 Mbit/s
95th percentile per-packet one-way delay: 13.902 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 40.67 Mbit/s
95th percentile per-packet one-way delay: 14.994 ms
Loss rate: 0.23%
-- Flow 3:
Average throughput: 32.20 Mbit/s
95th percentile per-packet one-way delay: 13.184 ms
Loss rate: 0.32%
```
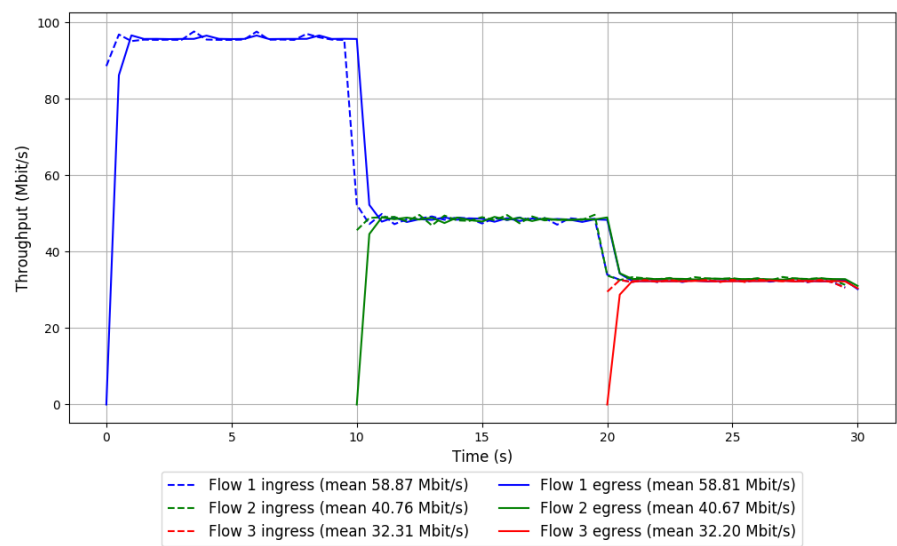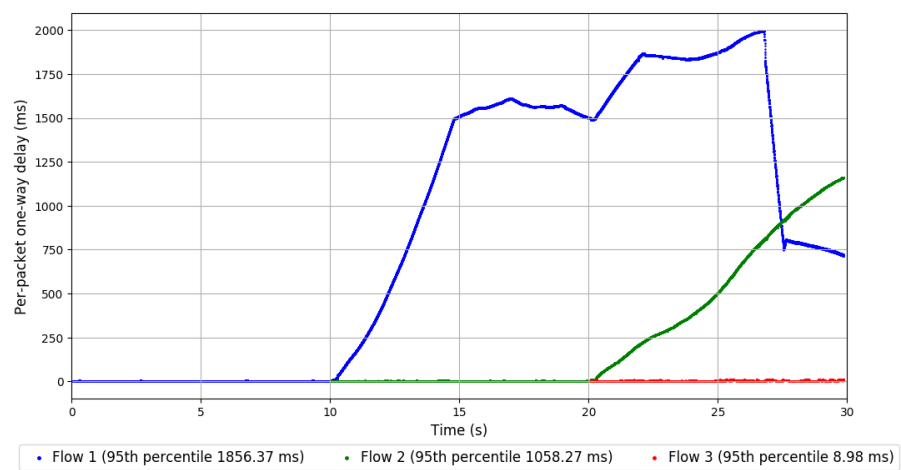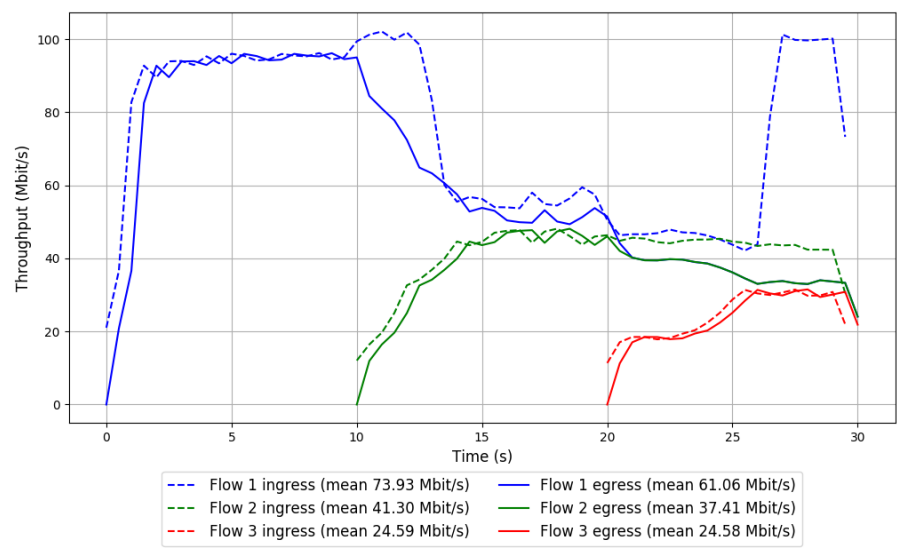
Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2019-01-19 11:46:20
End at: 2019-01-19 11:46:50
Local clock offset: -6.853 ms
Remote clock offset: -0.269 ms


# Below is generated by plot.py at 2019-01-19 13:46:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.04 Mbit/s
95th percentile per-packet one-way delay: 1841.298 ms
Loss rate: 14.14%
-- Flow 1:
Average throughput: 61.06 Mbit/s
95th percentile per-packet one-way delay: 1856.366 ms
Loss rate: 17.44%
-- Flow 2:
Average throughput: 37.41 Mbit/s
95th percentile per-packet one-way delay: 1058.265 ms
Loss rate: 9.43%
-- Flow 3:
Average throughput: 24.58 Mbit/s
95th percentile per-packet one-way delay: 8.983 ms
Loss rate: 0.08%
```
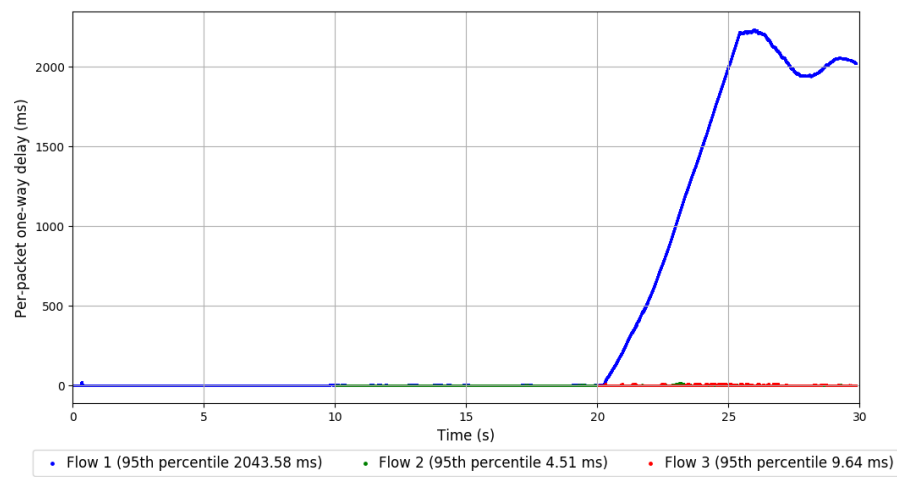
# Run 1: Report of PCC-Allegro — Data Link



- - - - Flow 1 ingress (mean 73.93 Mbit/s)      —— Flow 1 egress (mean 61.06 Mbit/s)
- - - - Flow 2 ingress (mean 41.30 Mbit/s)      —— Flow 2 egress (mean 37.41 Mbit/s)
- - - - Flow 3 ingress (mean 24.59 Mbit/s)      —— Flow 3 egress (mean 24.58 Mbit/s)



- Flow 1 (95th percentile 1856.37 ms)     • Flow 2 (95th percentile 1058.27 ms)     • Flow 3 (95th percentile 8.98 ms)

116

```
Run 2: Statistics of PCC-Allegro

Start at: 2019-01-19 12:10:29
End at: 2019-01-19 12:10:59
Local clock offset: -6.948 ms
Remote clock offset: 0.491 ms


# Below is generated by plot.py at 2019-01-19 13:46:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.00 Mbit/s
95th percentile per-packet one-way delay: 1990.812 ms
Loss rate: 3.94%
-- Flow 1:
Average throughput: 70.50 Mbit/s
95th percentile per-packet one-way delay: 2043.583 ms
Loss rate: 5.17%
-- Flow 2:
Average throughput: 21.78 Mbit/s
95th percentile per-packet one-way delay: 4.506 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 27.36 Mbit/s
95th percentile per-packet one-way delay: 9.640 ms
Loss rate: 0.05%
```
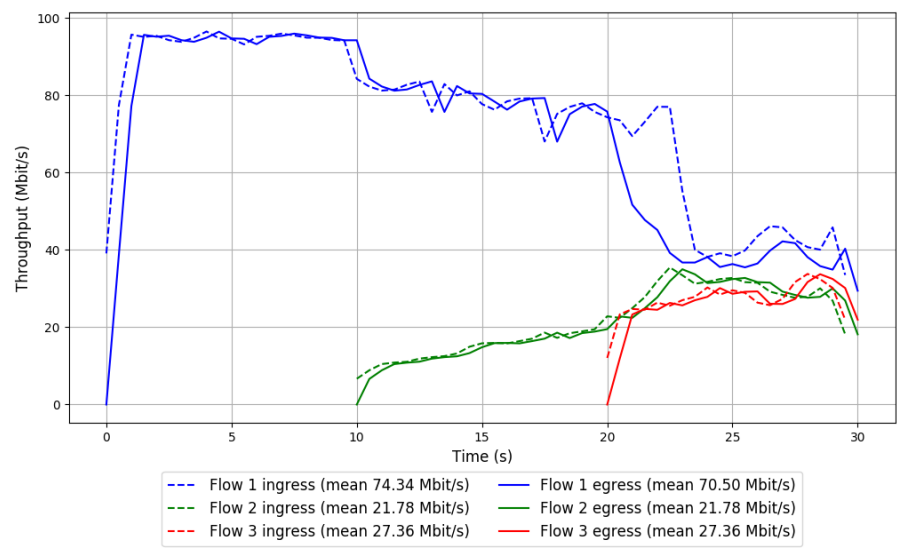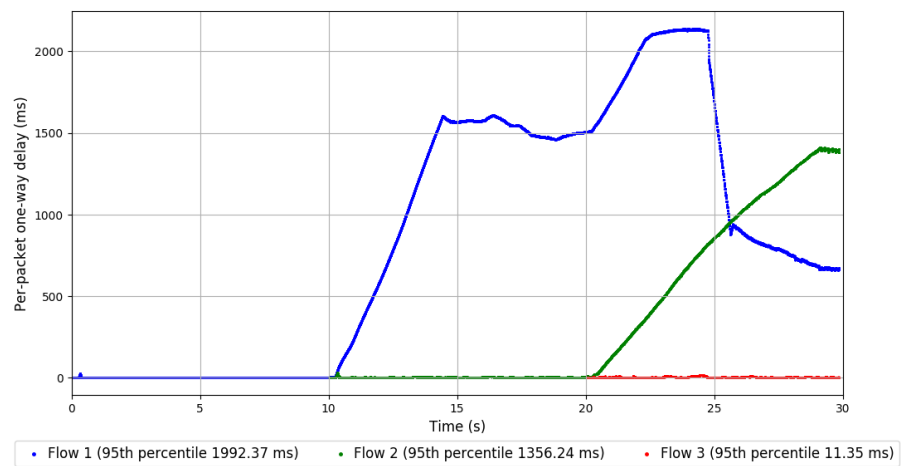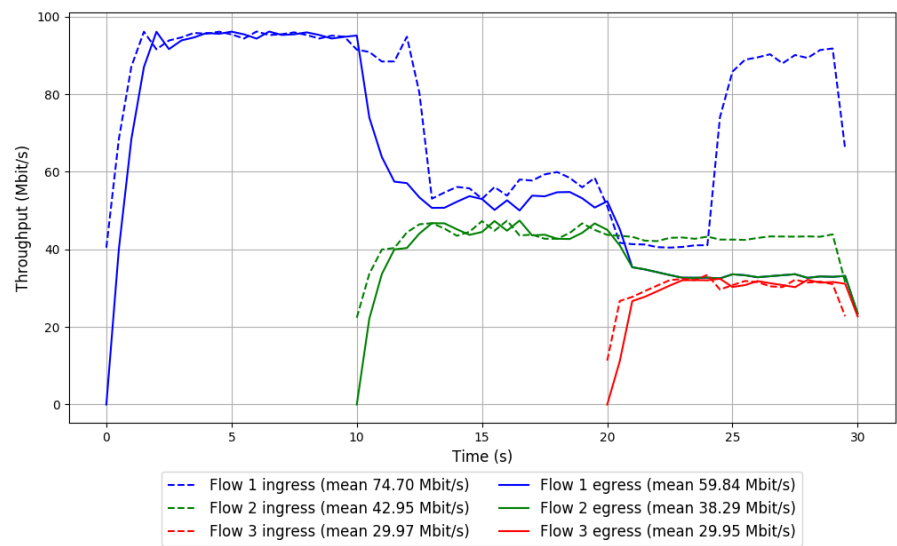
## Run 2: Report of PCC-Allegro — Data Link



- - - - Flow 1 ingress (mean 74.34 Mbit/s) ——— Flow 1 egress (mean 70.50 Mbit/s)
- - - - Flow 2 ingress (mean 21.78 Mbit/s) ——— Flow 2 egress (mean 21.78 Mbit/s)
- - - - Flow 3 ingress (mean 27.36 Mbit/s) ——— Flow 3 egress (mean 27.36 Mbit/s)



- Flow 1 (95th percentile 2043.58 ms)　　・ Flow 2 (95th percentile 4.51 ms)　　・ Flow 3 (95th percentile 9.64 ms)

118

```
Run 3: Statistics of PCC-Allegro

Start at: 2019-01-19 12:34:40
End at: 2019-01-19 12:35:10
Local clock offset: -6.618 ms
Remote clock offset: 1.084 ms


# Below is generated by plot.py at 2019-01-19 13:46:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.15 Mbit/s
95th percentile per-packet one-way delay: 1629.107 ms
Loss rate: 15.91%
-- Flow 1:
Average throughput: 59.84 Mbit/s
95th percentile per-packet one-way delay: 1992.370 ms
Loss rate: 19.92%
-- Flow 2:
Average throughput: 38.29 Mbit/s
95th percentile per-packet one-way delay: 1356.244 ms
Loss rate: 10.87%
-- Flow 3:
Average throughput: 29.95 Mbit/s
95th percentile per-packet one-way delay: 11.352 ms
Loss rate: 0.16%
```
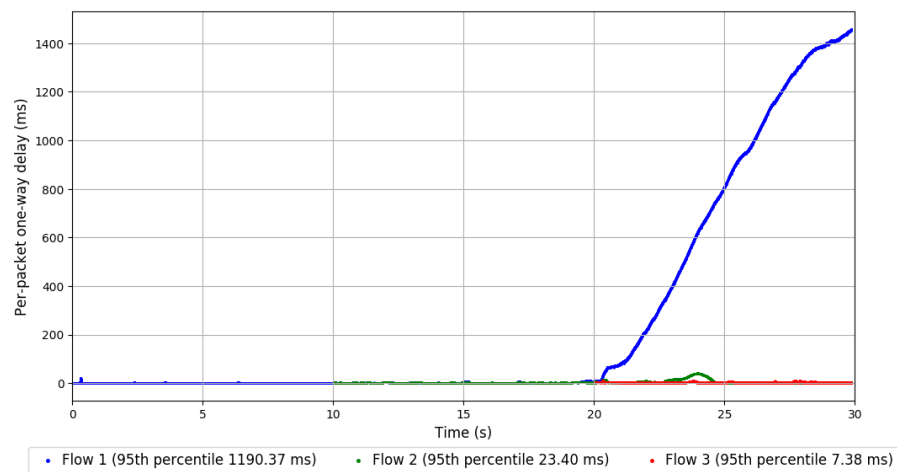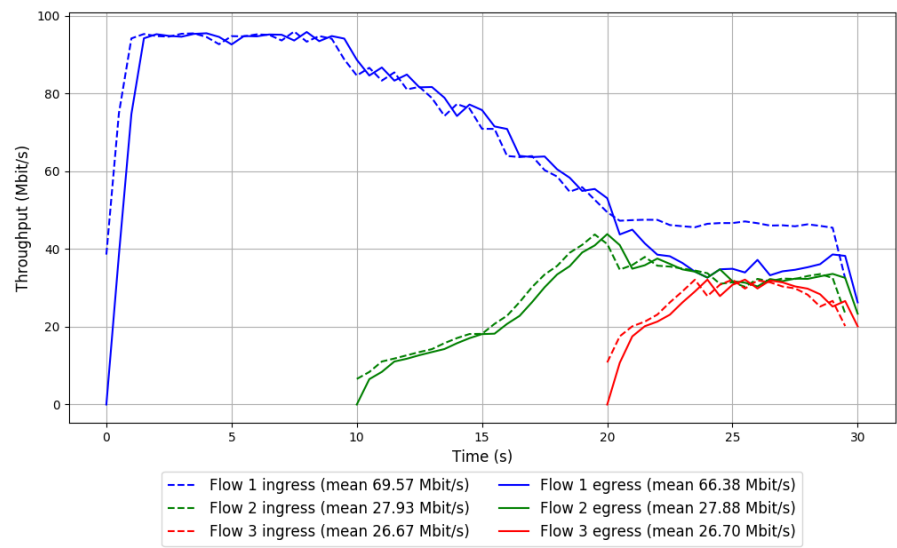
## Run 3: Report of PCC-Allegro — Data Link



Flow 1 ingress (mean 74.70 Mbit/s) --- Flow 1 egress (mean 59.84 Mbit/s)
Flow 2 ingress (mean 42.95 Mbit/s) --- Flow 2 egress (mean 38.29 Mbit/s)
Flow 3 ingress (mean 29.97 Mbit/s) --- Flow 3 egress (mean 29.95 Mbit/s)



Flow 1 (95th percentile 1992.37 ms)   Flow 2 (95th percentile 1356.24 ms)   Flow 3 (95th percentile 11.35 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2019-01-19 12:58:52
End at: 2019-01-19 12:59:22
Local clock offset: -4.019 ms
Remote clock offset: 1.28 ms


# Below is generated by plot.py at 2019-01-19 13:46:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.70 Mbit/s
95th percentile per-packet one-way delay: 954.487 ms
Loss rate: 3.34%
-- Flow 1:
Average throughput: 66.38 Mbit/s
95th percentile per-packet one-way delay: 1190.371 ms
Loss rate: 4.60%
-- Flow 2:
Average throughput: 27.88 Mbit/s
95th percentile per-packet one-way delay: 23.397 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 26.70 Mbit/s
95th percentile per-packet one-way delay: 7.380 ms
Loss rate: 0.04%
```
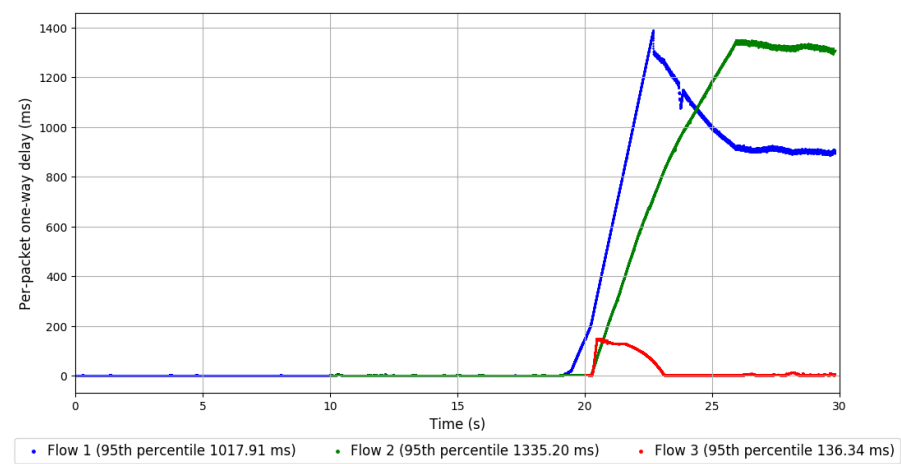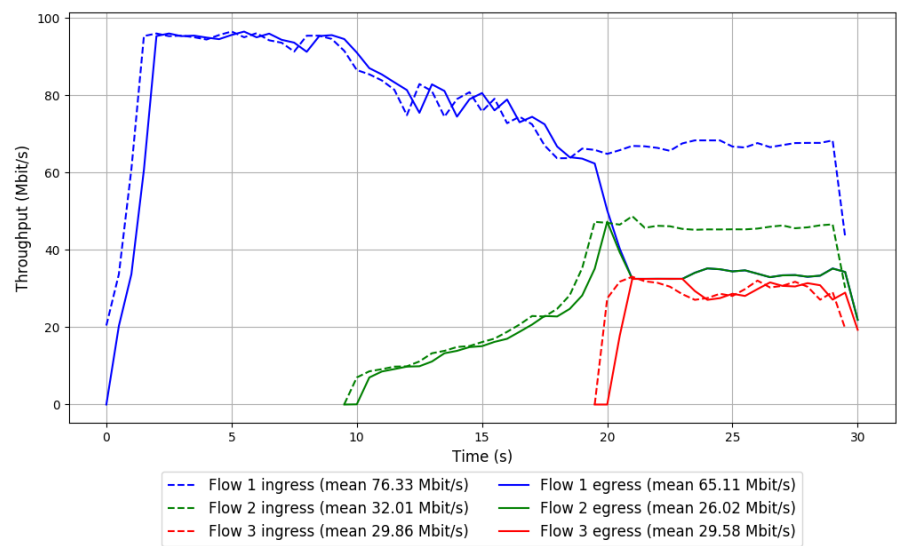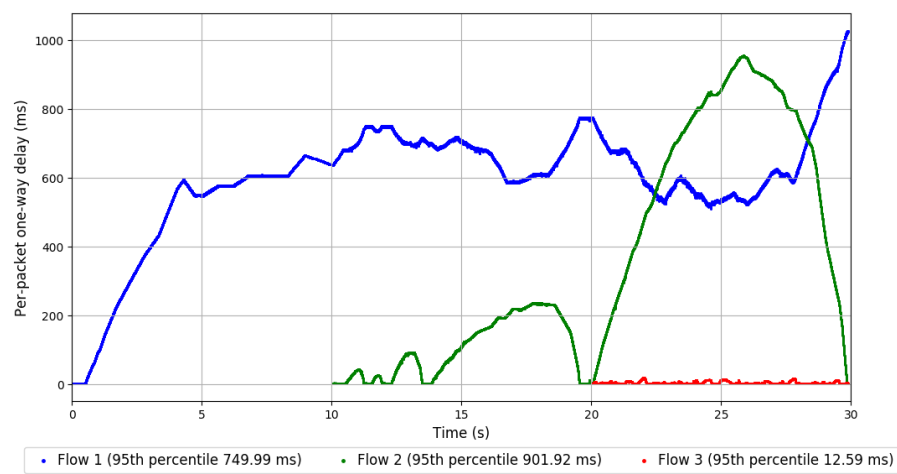
Run 4: Report of PCC-Allegro — Data Link



- - - Flow 1 ingress (mean 69.57 Mbit/s)   —— Flow 1 egress (mean 66.38 Mbit/s)
- - - Flow 2 ingress (mean 27.93 Mbit/s)   —— Flow 2 egress (mean 27.88 Mbit/s)
- - - Flow 3 ingress (mean 26.67 Mbit/s)   —— Flow 3 egress (mean 26.70 Mbit/s)



• Flow 1 (95th percentile 1190.37 ms)   • Flow 2 (95th percentile 23.40 ms)   • Flow 3 (95th percentile 7.38 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2019-01-19 13:23:02
End at: 2019-01-19 13:23:32
Local clock offset: -1.775 ms
Remote clock offset: 1.577 ms


# Below is generated by plot.py at 2019-01-19 13:47:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.17 Mbit/s
95th percentile per-packet one-way delay: 1306.127 ms
Loss rate: 14.25%
-- Flow 1:
Average throughput: 65.11 Mbit/s
95th percentile per-packet one-way delay: 1017.907 ms
Loss rate: 14.71%
-- Flow 2:
Average throughput: 26.02 Mbit/s
95th percentile per-packet one-way delay: 1335.204 ms
Loss rate: 18.72%
-- Flow 3:
Average throughput: 29.58 Mbit/s
95th percentile per-packet one-way delay: 136.343 ms
Loss rate: 0.97%
```
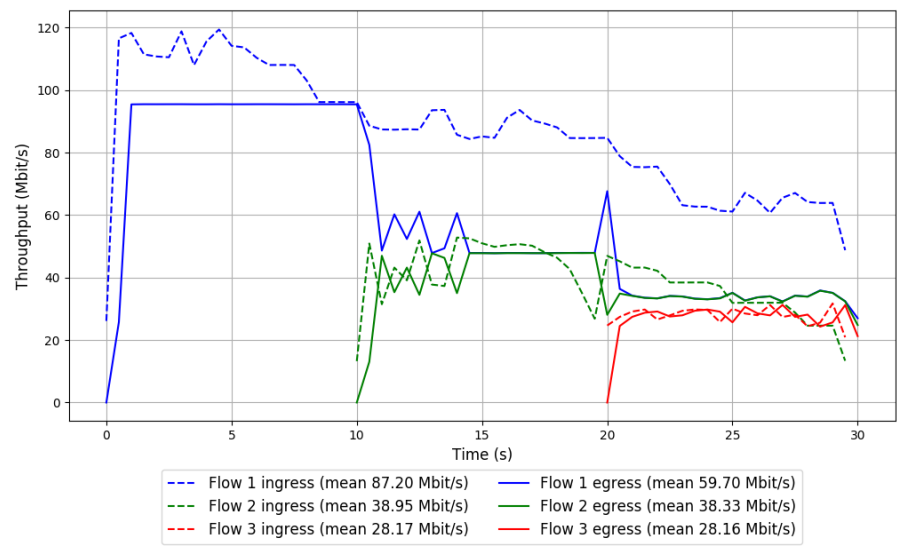
# Run 5: Report of PCC-Allegro — Data Link



- - - - Flow 1 ingress (mean 76.33 Mbit/s) ——— Flow 1 egress (mean 65.11 Mbit/s)
- - - - Flow 2 ingress (mean 32.01 Mbit/s) ——— Flow 2 egress (mean 26.02 Mbit/s)
- - - - Flow 3 ingress (mean 29.86 Mbit/s) ——— Flow 3 egress (mean 29.58 Mbit/s)



- Flow 1 (95th percentile 1017.91 ms)  - Flow 2 (95th percentile 1335.20 ms)  - Flow 3 (95th percentile 136.34 ms)

```
Run 1: Statistics of PCC-Expr

Start at: 2019-01-19 11:36:03
End at: 2019-01-19 11:36:33
Local clock offset: -7.562 ms
Remote clock offset: -0.546 ms

# Below is generated by plot.py at 2019-01-19 13:48:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.48 Mbit/s
95th percentile per-packet one-way delay: 803.491 ms
Loss rate: 22.84%
-- Flow 1:
Average throughput: 59.70 Mbit/s
95th percentile per-packet one-way delay: 749.990 ms
Loss rate: 31.56%
-- Flow 2:
Average throughput: 38.33 Mbit/s
95th percentile per-packet one-way delay: 901.921 ms
Loss rate: 1.62%
-- Flow 3:
Average throughput: 28.16 Mbit/s
95th percentile per-packet one-way delay: 12.594 ms
Loss rate: 0.06%
```
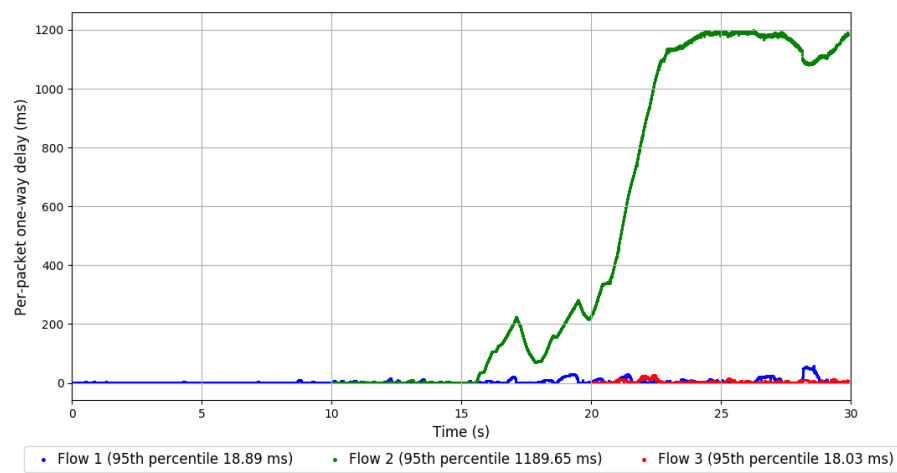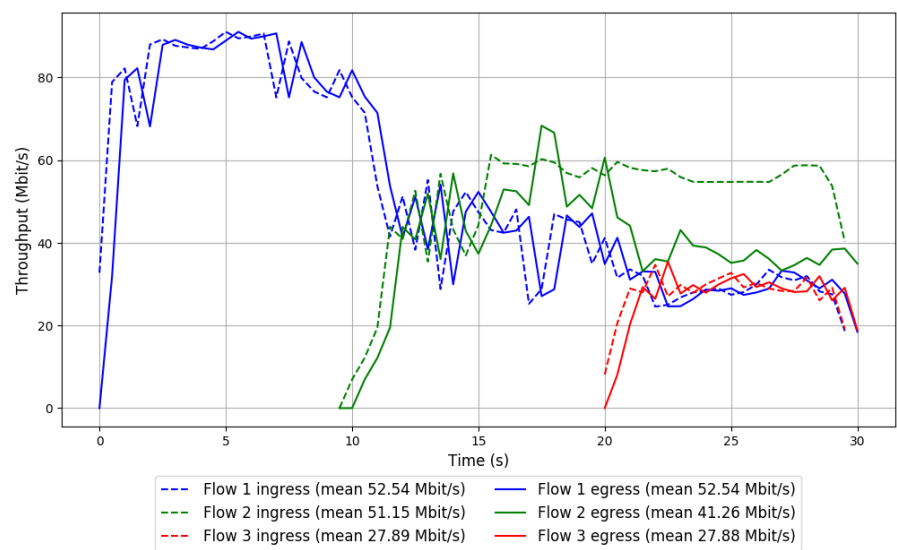
Run 1: Report of PCC-Expr — Data Link

```
Run 2: Statistics of PCC-Expr

Start at: 2019-01-19 12:00:14
End at: 2019-01-19 12:00:44
Local clock offset: -7.659 ms
Remote clock offset: 0.167 ms


# Below is generated by plot.py at 2019-01-19 13:48:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.19 Mbit/s
95th percentile per-packet one-way delay: 1169.041 ms
Loss rate: 6.89%
-- Flow 1:
Average throughput: 52.54 Mbit/s
95th percentile per-packet one-way delay: 18.893 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 41.26 Mbit/s
95th percentile per-packet one-way delay: 1189.647 ms
Loss rate: 19.33%
-- Flow 3:
Average throughput: 27.88 Mbit/s
95th percentile per-packet one-way delay: 18.032 ms
Loss rate: 0.08%
```
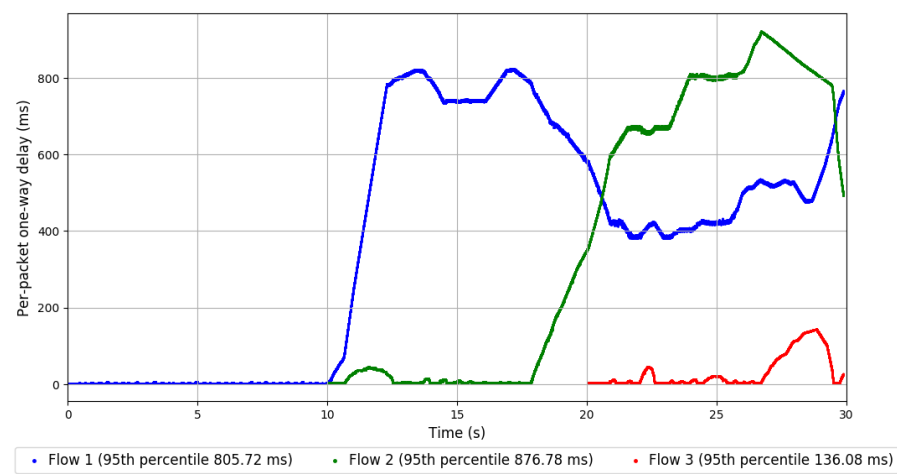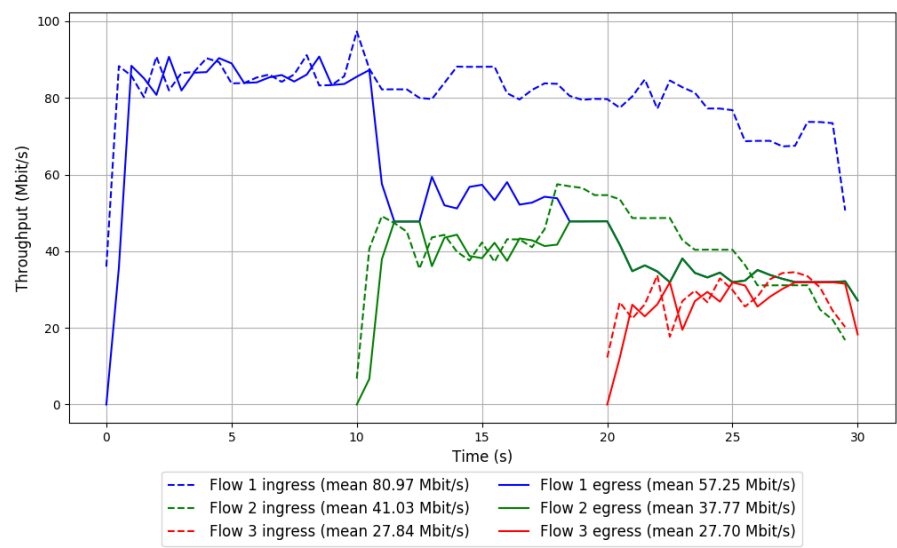
## Run 2: Report of PCC-Expr — Data Link



Flow 1 ingress (mean 52.54 Mbit/s)    Flow 1 egress (mean 52.54 Mbit/s)
Flow 2 ingress (mean 51.15 Mbit/s)    Flow 2 egress (mean 41.26 Mbit/s)
Flow 3 ingress (mean 27.89 Mbit/s)    Flow 3 egress (mean 27.88 Mbit/s)



Flow 1 (95th percentile 18.89 ms)    Flow 2 (95th percentile 1189.65 ms)    Flow 3 (95th percentile 18.03 ms)

```
Run 3: Statistics of PCC-Expr

Start at: 2019-01-19 12:24:22
End at: 2019-01-19 12:24:52
Local clock offset: -7.492 ms
Remote clock offset: 0.753 ms


# Below is generated by plot.py at 2019-01-19 13:48:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.51 Mbit/s
95th percentile per-packet one-way delay: 815.280 ms
Loss rate: 22.09%
-- Flow 1:
Average throughput: 57.25 Mbit/s
95th percentile per-packet one-way delay: 805.723 ms
Loss rate: 29.29%
-- Flow 2:
Average throughput: 37.77 Mbit/s
95th percentile per-packet one-way delay: 876.782 ms
Loss rate: 7.96%
-- Flow 3:
Average throughput: 27.70 Mbit/s
95th percentile per-packet one-way delay: 136.081 ms
Loss rate: 0.53%
```
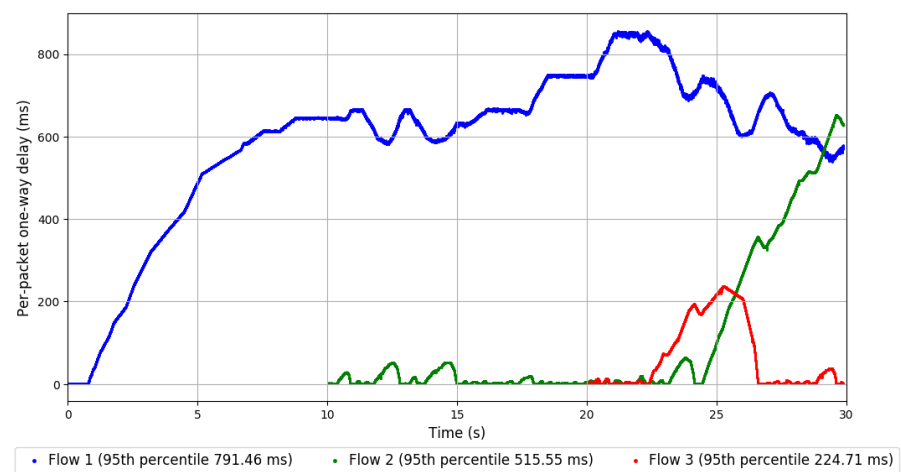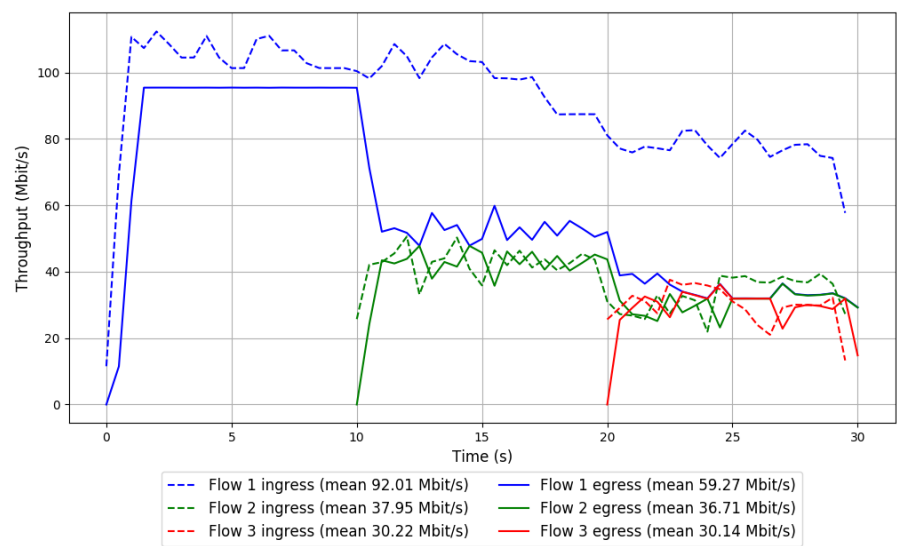
# Run 3: Report of PCC-Expr — Data Link



- - - Flow 1 ingress (mean 80.97 Mbit/s)     —— Flow 1 egress (mean 57.25 Mbit/s)
- - - Flow 2 ingress (mean 41.03 Mbit/s)     —— Flow 2 egress (mean 37.77 Mbit/s)
- - - Flow 3 ingress (mean 27.84 Mbit/s)     —— Flow 3 egress (mean 27.70 Mbit/s)



- Flow 1 (95th percentile 805.72 ms)     • Flow 2 (95th percentile 876.78 ms)     • Flow 3 (95th percentile 136.08 ms)

```
Run 4: Statistics of PCC-Expr

Start at: 2019-01-19 12:48:34
End at: 2019-01-19 12:49:04
Local clock offset: -6.593 ms
Remote clock offset: 1.267 ms


# Below is generated by plot.py at 2019-01-19 13:48:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.62 Mbit/s
95th percentile per-packet one-way delay: 747.373 ms
Loss rate: 26.42%
-- Flow 1:
Average throughput: 59.27 Mbit/s
95th percentile per-packet one-way delay: 791.464 ms
Loss rate: 35.60%
-- Flow 2:
Average throughput: 36.71 Mbit/s
95th percentile per-packet one-way delay: 515.551 ms
Loss rate: 3.26%
-- Flow 3:
Average throughput: 30.14 Mbit/s
95th percentile per-packet one-way delay: 224.711 ms
Loss rate: 0.32%
```
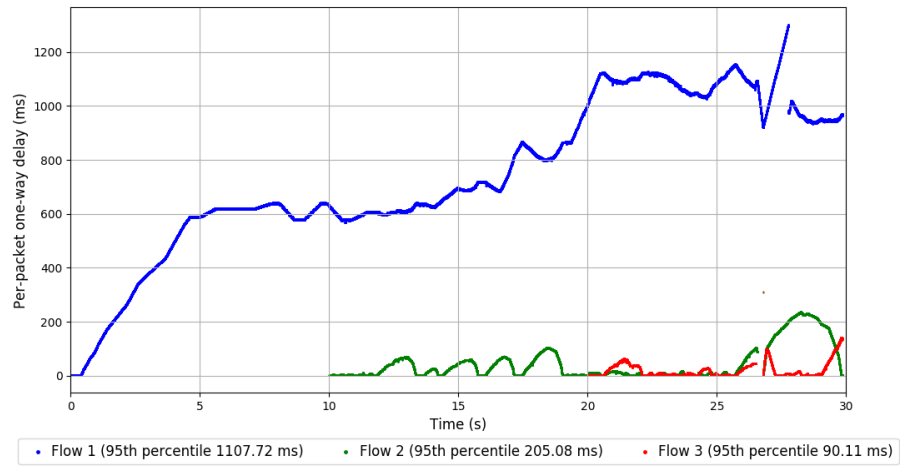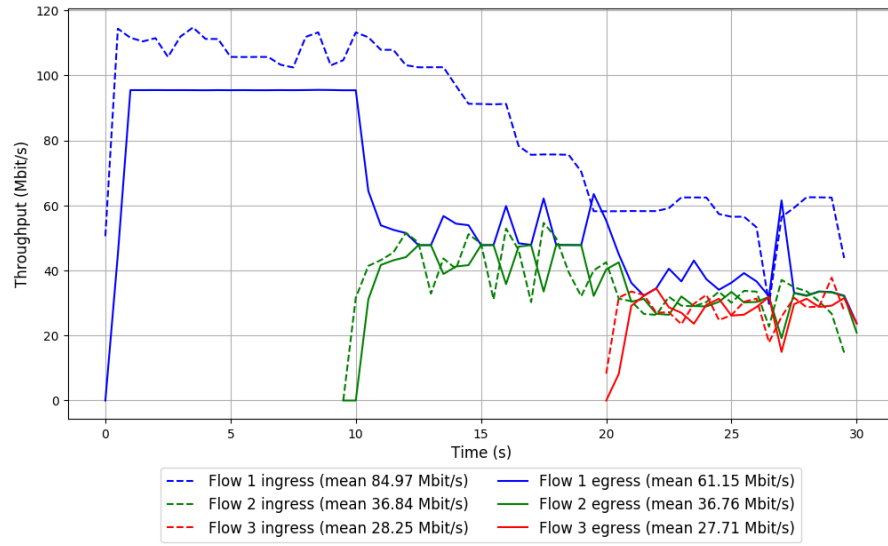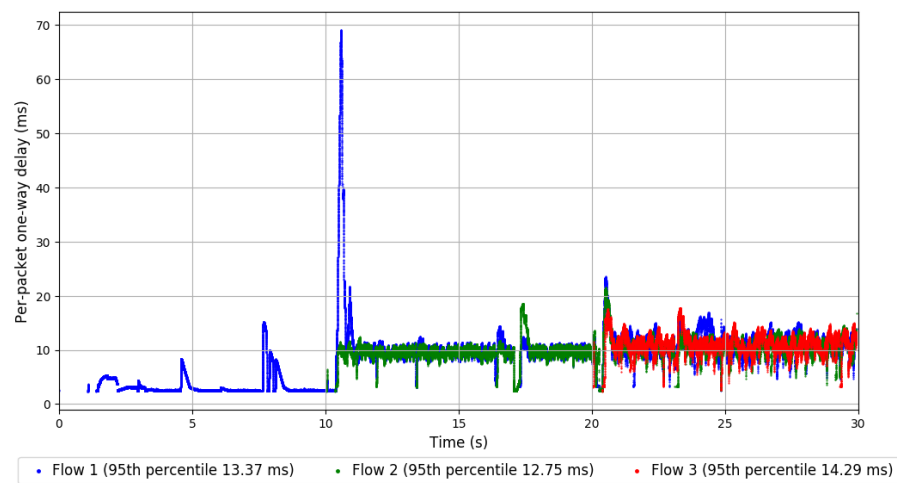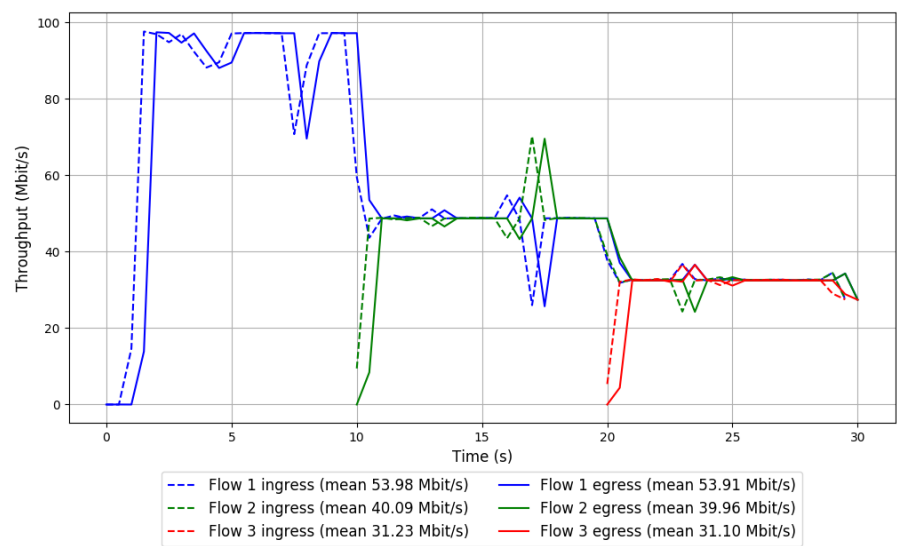
Run 4: Report of PCC-Expr — Data Link



Throughput (Mbit/s) vs Time (s)

- - - Flow 1 ingress (mean 92.01 Mbit/s) —— Flow 1 egress (mean 59.27 Mbit/s)
- - - Flow 2 ingress (mean 37.95 Mbit/s) —— Flow 2 egress (mean 36.71 Mbit/s)
- - - Flow 3 ingress (mean 30.22 Mbit/s) —— Flow 3 egress (mean 30.14 Mbit/s)



Per-packet one-way delay (ms) vs Time (s)

• Flow 1 (95th percentile 791.46 ms)    • Flow 2 (95th percentile 515.55 ms)    • Flow 3 (95th percentile 224.71 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2019-01-19 13:12:45
End at: 2019-01-19 13:13:15
Local clock offset: -2.439 ms
Remote clock offset: 1.457 ms


# Below is generated by plot.py at 2019-01-19 13:48:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.76 Mbit/s
95th percentile per-packet one-way delay: 1090.761 ms
Loss rate: 20.25%
-- Flow 1:
Average throughput: 61.15 Mbit/s
95th percentile per-packet one-way delay: 1107.719 ms
Loss rate: 28.05%
-- Flow 2:
Average throughput: 36.76 Mbit/s
95th percentile per-packet one-way delay: 205.076 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 27.71 Mbit/s
95th percentile per-packet one-way delay: 90.111 ms
Loss rate: 1.92%
```
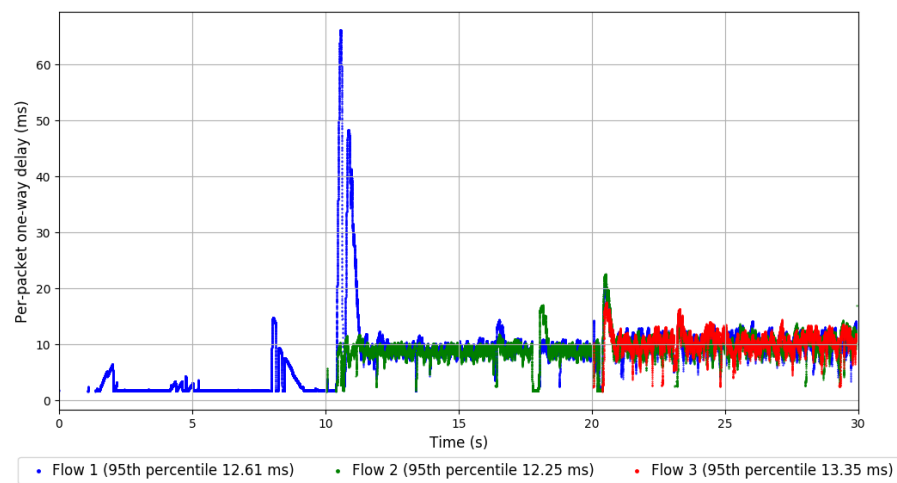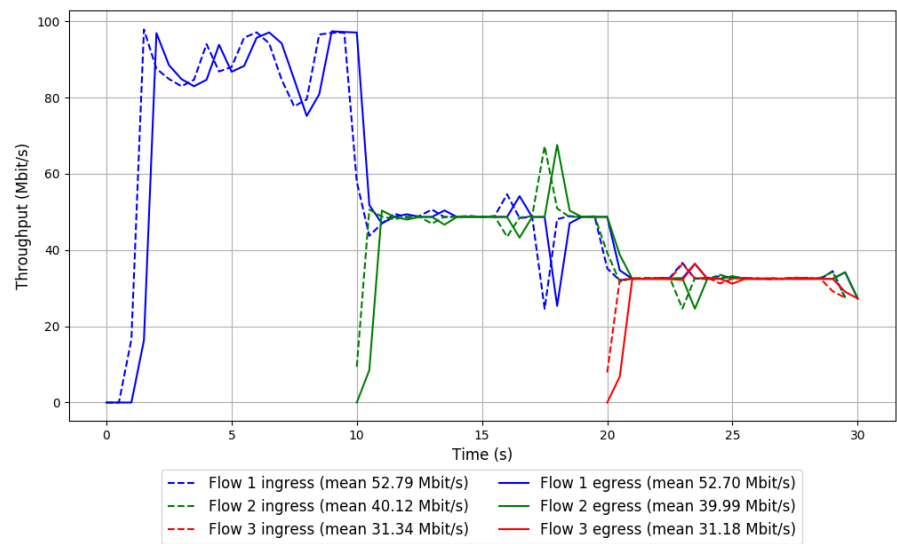
# Run 5: Report of PCC-Expr — Data Link



Flow 1 ingress (mean 84.97 Mbit/s)    Flow 1 egress (mean 61.15 Mbit/s)
Flow 2 ingress (mean 36.84 Mbit/s)    Flow 2 egress (mean 36.76 Mbit/s)
Flow 3 ingress (mean 28.25 Mbit/s)    Flow 3 egress (mean 27.71 Mbit/s)



Flow 1 (95th percentile 1107.72 ms)    Flow 2 (95th percentile 205.08 ms)    Flow 3 (95th percentile 90.11 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2019-01-19 11:57:54
End at: 2019-01-19 11:58:24
Local clock offset: -6.895 ms
Remote clock offset: 0.029 ms


# Below is generated by plot.py at 2019-01-19 13:48:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.77 Mbit/s
95th percentile per-packet one-way delay: 13.371 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 53.91 Mbit/s
95th percentile per-packet one-way delay: 13.369 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 39.96 Mbit/s
95th percentile per-packet one-way delay: 12.754 ms
Loss rate: 0.31%
-- Flow 3:
Average throughput: 31.10 Mbit/s
95th percentile per-packet one-way delay: 14.295 ms
Loss rate: 0.44%
```
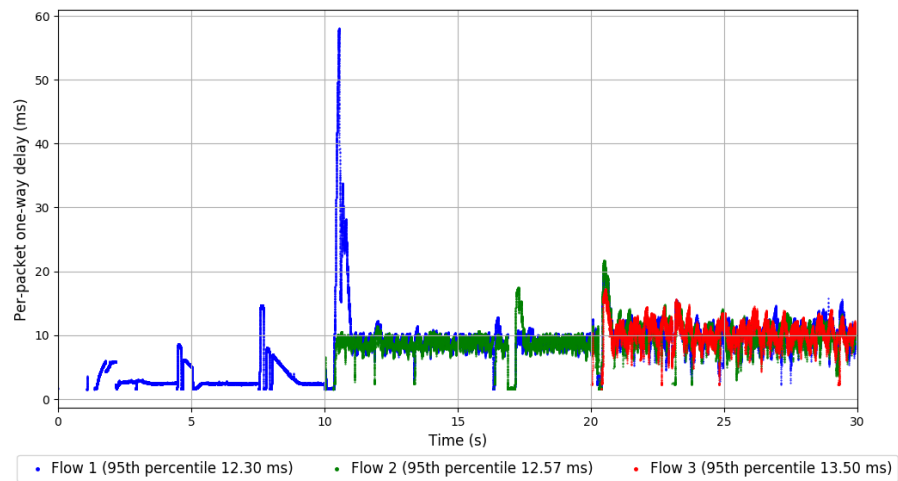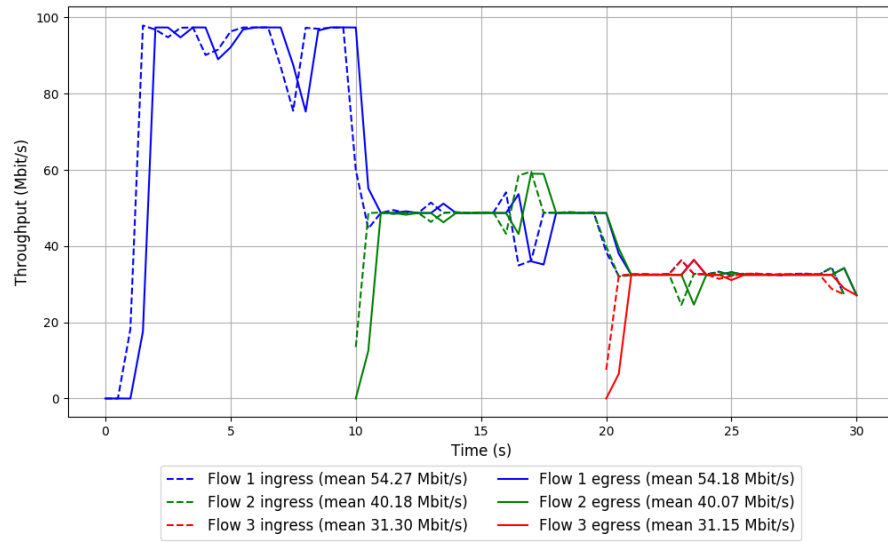
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2019-01-19 12:22:02
End at: 2019-01-19 12:22:32
Local clock offset: -7.541 ms
Remote clock offset: 0.763 ms


# Below is generated by plot.py at 2019-01-19 13:48:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.61 Mbit/s
95th percentile per-packet one-way delay: 12.705 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 52.70 Mbit/s
95th percentile per-packet one-way delay: 12.609 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 39.99 Mbit/s
95th percentile per-packet one-way delay: 12.251 ms
Loss rate: 0.31%
-- Flow 3:
Average throughput: 31.18 Mbit/s
95th percentile per-packet one-way delay: 13.351 ms
Loss rate: 0.53%
```
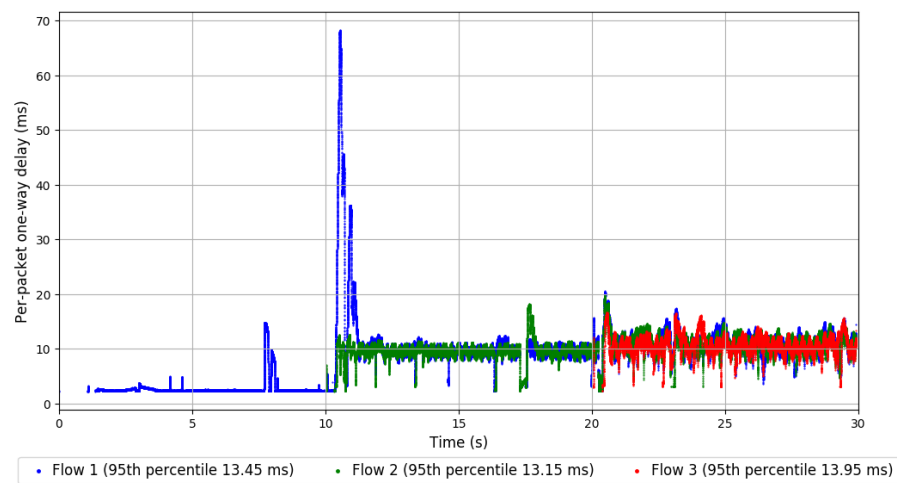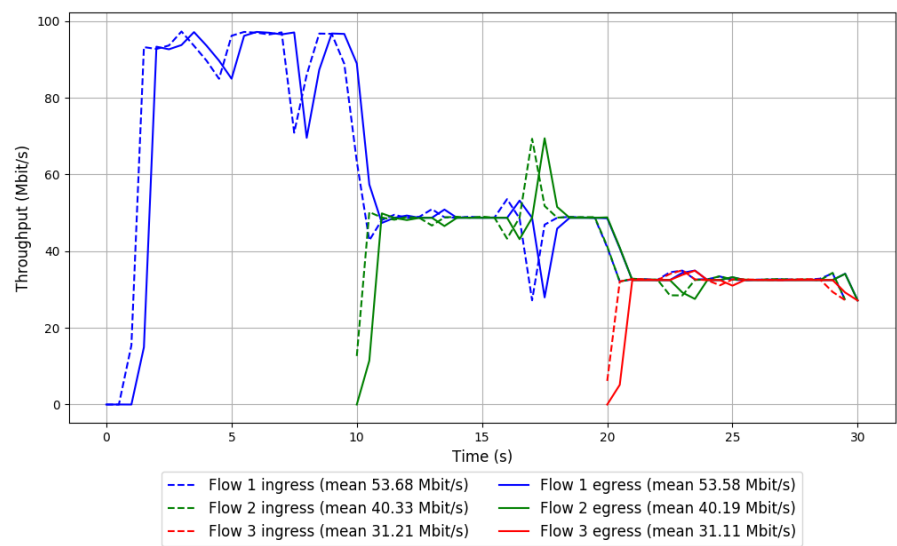
Run 2: Report of QUIC Cubic — Data Link



Flow 1 ingress (mean 52.79 Mbit/s)        Flow 1 egress (mean 52.70 Mbit/s)
Flow 2 ingress (mean 40.12 Mbit/s)        Flow 2 egress (mean 39.99 Mbit/s)
Flow 3 ingress (mean 31.34 Mbit/s)        Flow 3 egress (mean 31.18 Mbit/s)



Flow 1 (95th percentile 12.61 ms)      Flow 2 (95th percentile 12.25 ms)      Flow 3 (95th percentile 13.35 ms)

```
Run 3: Statistics of QUIC Cubic

Start at: 2019-01-19 12:46:14
End at: 2019-01-19 12:46:44
Local clock offset: -7.424 ms
Remote clock offset: 1.234 ms


# Below is generated by plot.py at 2019-01-19 13:48:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.14 Mbit/s
95th percentile per-packet one-way delay: 12.727 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 54.18 Mbit/s
95th percentile per-packet one-way delay: 12.300 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 40.07 Mbit/s
95th percentile per-packet one-way delay: 12.573 ms
Loss rate: 0.29%
-- Flow 3:
Average throughput: 31.15 Mbit/s
95th percentile per-packet one-way delay: 13.502 ms
Loss rate: 0.50%
```
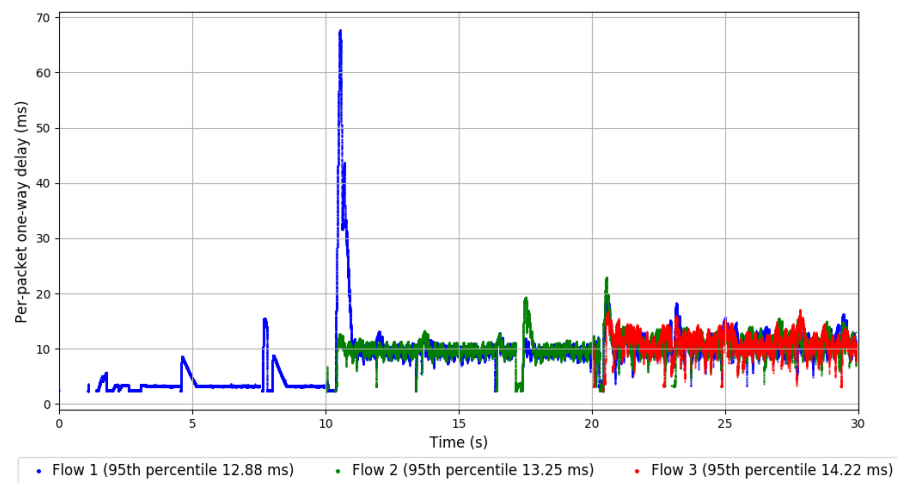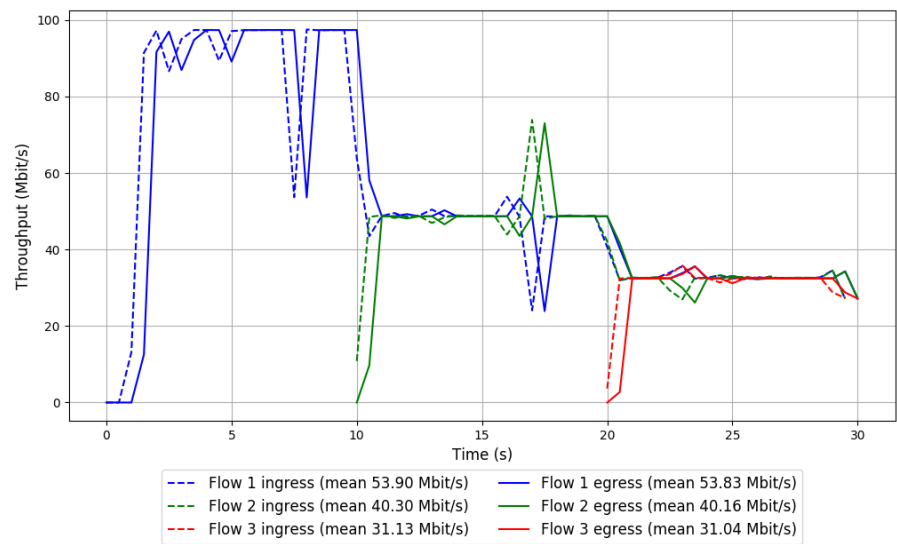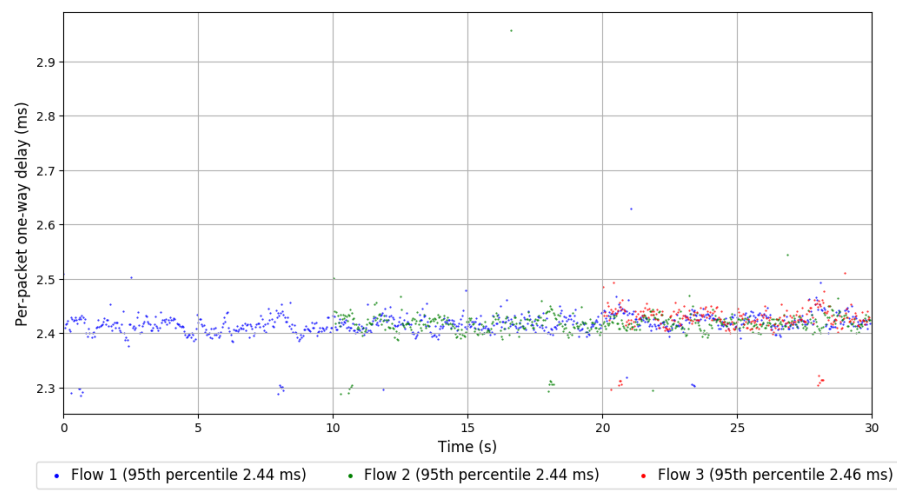
Run 3: Report of QUIC Cubic — Data Link



Flow 1 ingress (mean 54.27 Mbit/s) --- Flow 1 egress (mean 54.18 Mbit/s)
Flow 2 ingress (mean 40.18 Mbit/s) --- Flow 2 egress (mean 40.07 Mbit/s)
Flow 3 ingress (mean 31.30 Mbit/s) --- Flow 3 egress (mean 31.15 Mbit/s)



Flow 1 (95th percentile 12.30 ms)   Flow 2 (95th percentile 12.57 ms)   Flow 3 (95th percentile 13.50 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2019-01-19 13:10:25
End at: 2019-01-19 13:10:55
Local clock offset: -1.919 ms
Remote clock offset: 1.417 ms


# Below is generated by plot.py at 2019-01-19 13:49:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.60 Mbit/s
95th percentile per-packet one-way delay: 13.407 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 53.58 Mbit/s
95th percentile per-packet one-way delay: 13.453 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 40.19 Mbit/s
95th percentile per-packet one-way delay: 13.155 ms
Loss rate: 0.38%
-- Flow 3:
Average throughput: 31.11 Mbit/s
95th percentile per-packet one-way delay: 13.950 ms
Loss rate: 0.47%
```
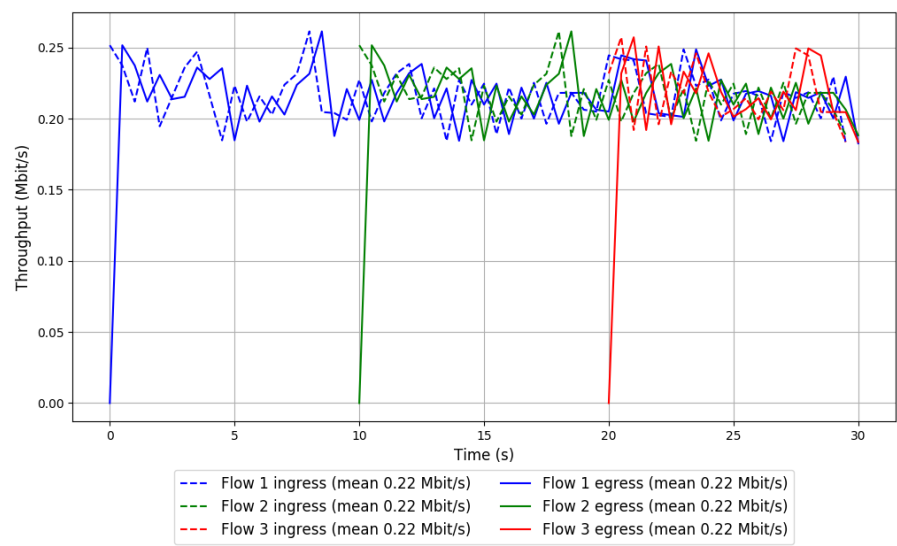
Run 4: Report of QUIC Cubic — Data Link





Run 4: Report of QUIC Cubic — Data Link





142

```
Run 5: Statistics of QUIC Cubic

Start at: 2019-01-19 13:34:37
End at: 2019-01-19 13:35:07
Local clock offset: -0.328 ms
Remote clock offset: 1.74 ms


# Below is generated by plot.py at 2019-01-19 13:49:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.79 Mbit/s
95th percentile per-packet one-way delay: 13.497 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 53.83 Mbit/s
95th percentile per-packet one-way delay: 12.883 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 40.16 Mbit/s
95th percentile per-packet one-way delay: 13.251 ms
Loss rate: 0.34%
-- Flow 3:
Average throughput: 31.04 Mbit/s
95th percentile per-packet one-way delay: 14.221 ms
Loss rate: 0.43%
```
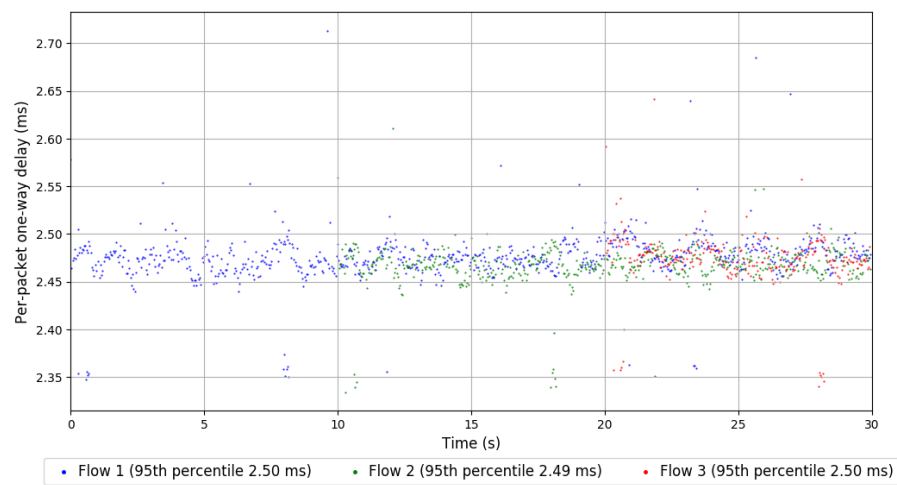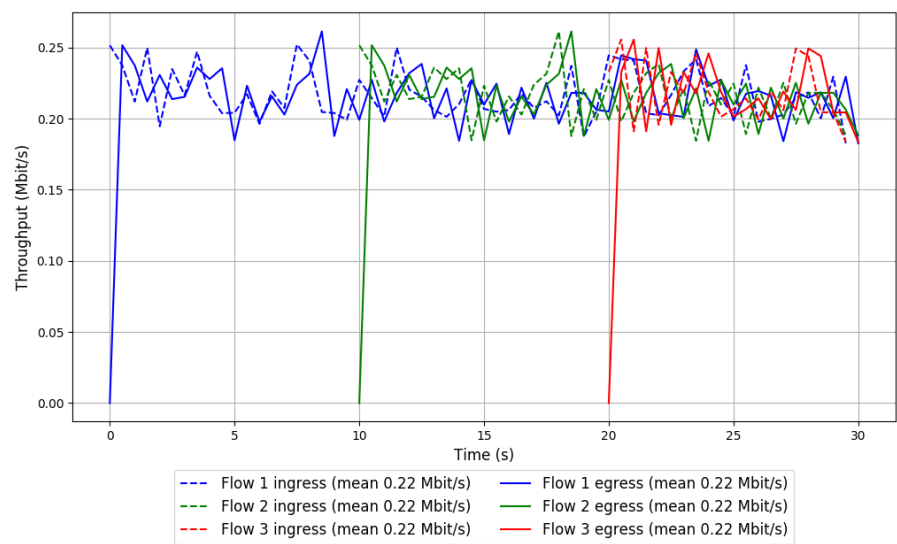
## Run 5: Report of QUIC Cubic — Data Link



Flow 1 ingress (mean 53.90 Mbit/s) --- Flow 1 egress (mean 53.83 Mbit/s)
Flow 2 ingress (mean 40.30 Mbit/s) --- Flow 2 egress (mean 40.16 Mbit/s)
Flow 3 ingress (mean 31.13 Mbit/s) --- Flow 3 egress (mean 31.04 Mbit/s)



Flow 1 (95th percentile 12.88 ms)   Flow 2 (95th percentile 13.25 ms)   Flow 3 (95th percentile 14.22 ms)

```
Run 1: Statistics of SCReAM

Start at: 2019-01-19 11:40:40
End at: 2019-01-19 11:41:10
Local clock offset: -6.83 ms
Remote clock offset: -0.354 ms


# Below is generated by plot.py at 2019-01-19 13:49:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 2.446 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.443 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.441 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.455 ms
Loss rate: 0.00%
```
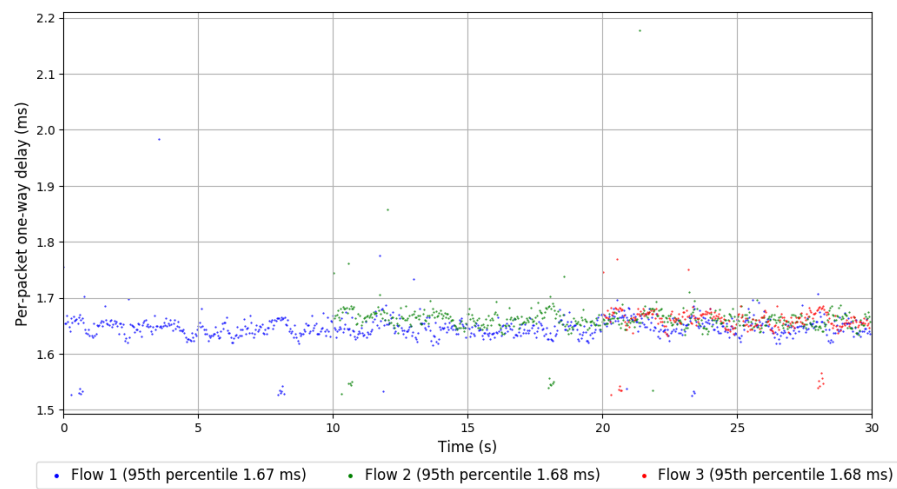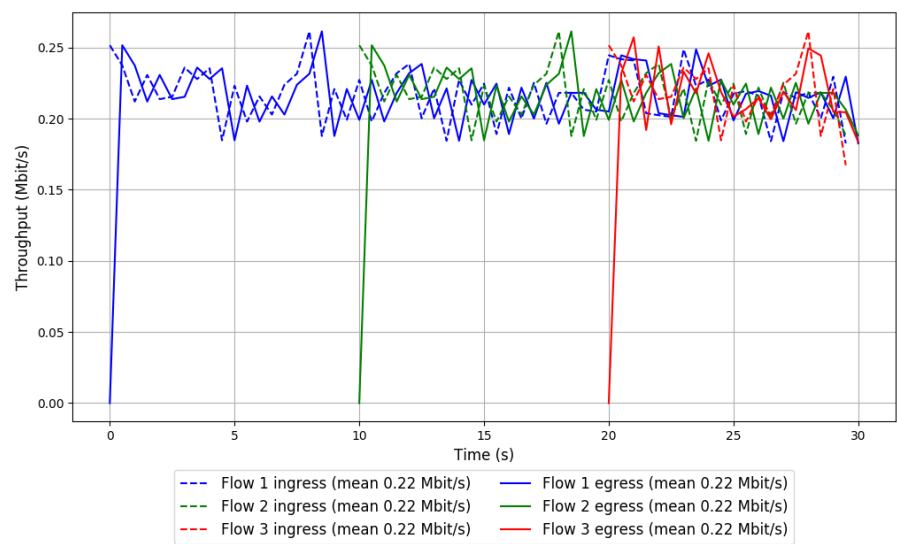
# Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2019-01-19 12:04:49
End at: 2019-01-19 12:05:19
Local clock offset: -6.92 ms
Remote clock offset: 0.225 ms


# Below is generated by plot.py at 2019-01-19 13:49:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 2.499 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.502 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.488 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.501 ms
Loss rate: 0.00%
```
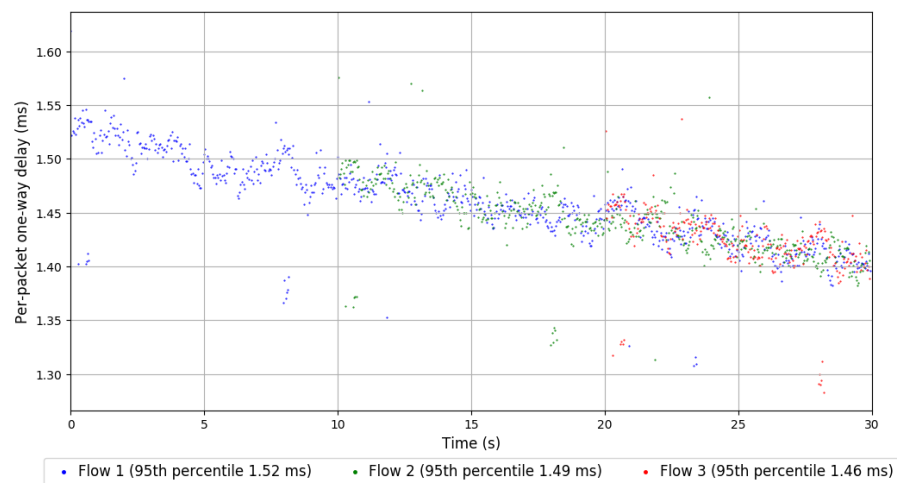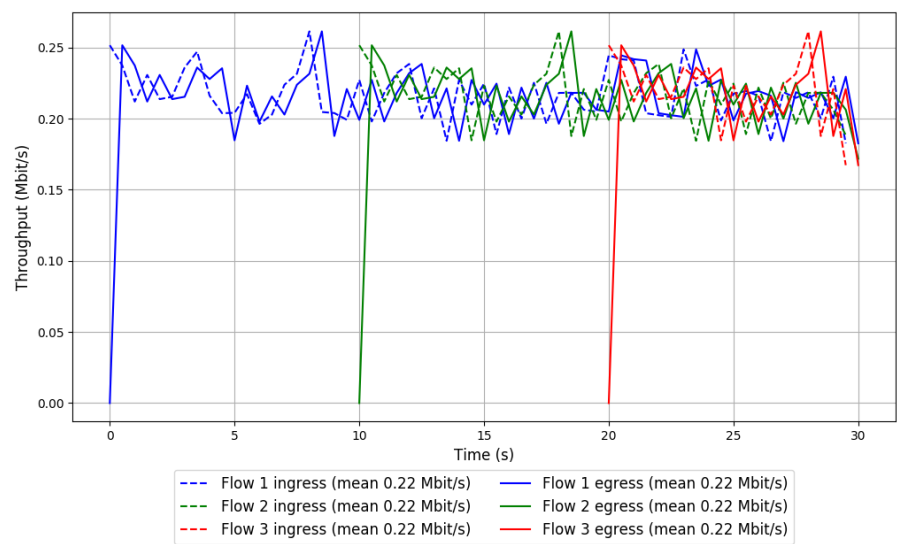
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2019-01-19 12:29:00
End at: 2019-01-19 12:29:30
Local clock offset: -7.42 ms
Remote clock offset: 0.997 ms


# Below is generated by plot.py at 2019-01-19 13:49:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.681 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.671 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.684 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.682 ms
Loss rate: 0.00%
```

## Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2019-01-19 12:53:12
End at: 2019-01-19 12:53:42
Local clock offset: -5.065 ms
Remote clock offset: 1.346 ms


# Below is generated by plot.py at 2019-01-19 13:49:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1.514 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.523 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.488 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.458 ms
Loss rate: 0.00%
```
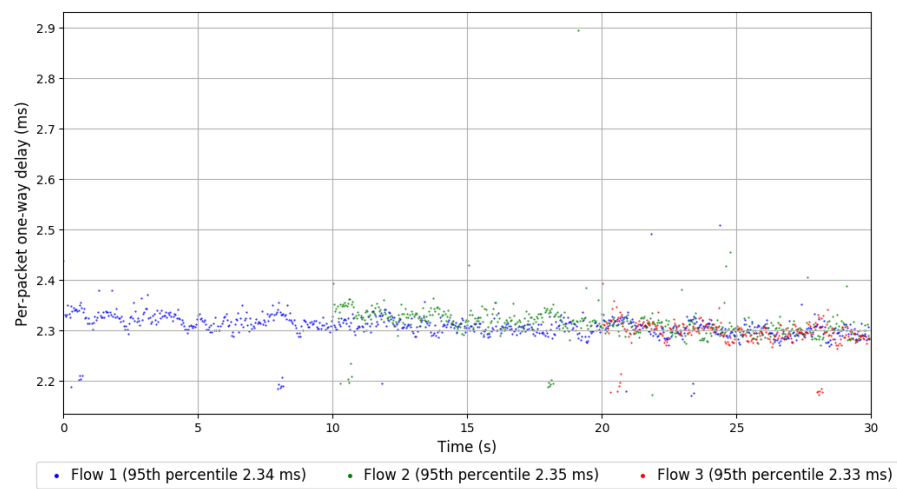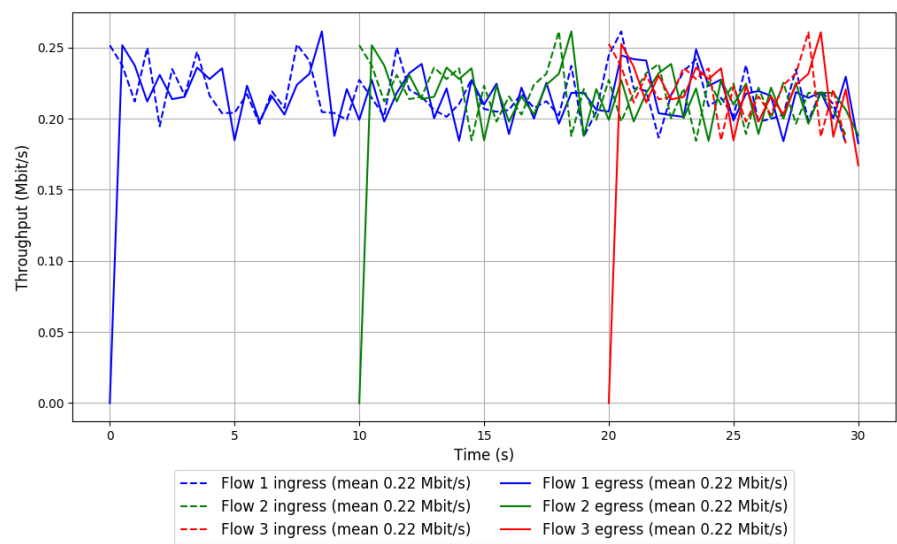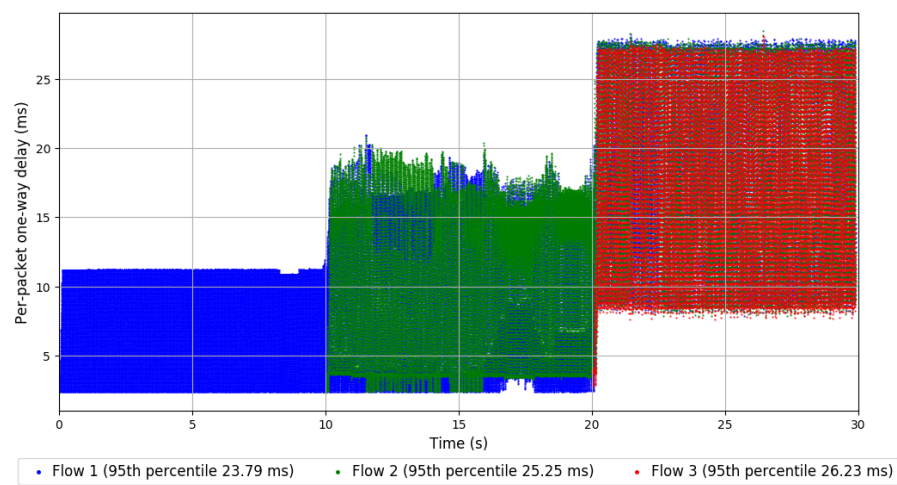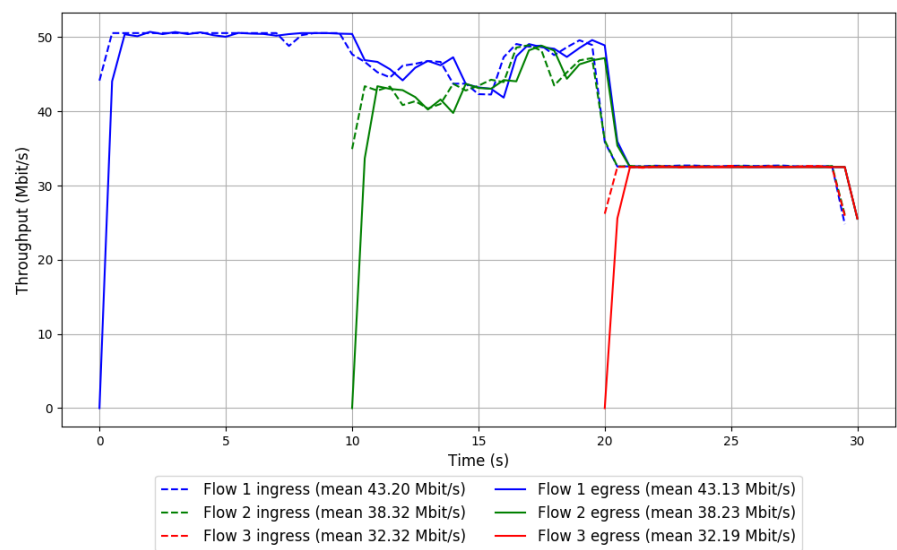
# Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2019-01-19 13:17:22
End at: 2019-01-19 13:17:52
Local clock offset: -1.376 ms
Remote clock offset: 1.556 ms


# Below is generated by plot.py at 2019-01-19 13:49:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 2.343 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.338 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.352 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.326 ms
Loss rate: 0.35%
```
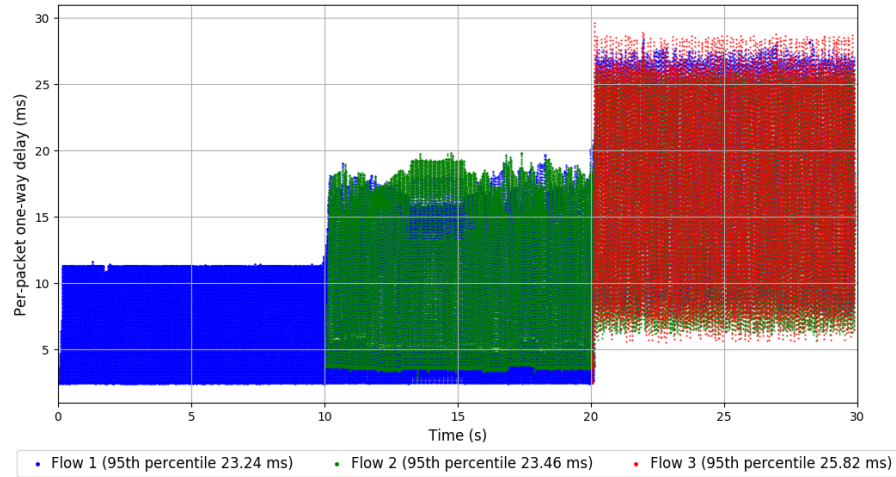
# Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2019-01-19 11:44:04
End at: 2019-01-19 11:44:34
Local clock offset: -6.85 ms
Remote clock offset: -0.235 ms


# Below is generated by plot.py at 2019-01-19 13:49:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 79.19 Mbit/s
95th percentile per-packet one-way delay: 25.098 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 43.13 Mbit/s
95th percentile per-packet one-way delay: 23.794 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 38.23 Mbit/s
95th percentile per-packet one-way delay: 25.247 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 32.19 Mbit/s
95th percentile per-packet one-way delay: 26.225 ms
Loss rate: 0.28%
```

# Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2019-01-19 12:08:12
End at: 2019-01-19 12:08:42
Local clock offset: -6.937 ms
Remote clock offset: 0.393 ms


# Below is generated by plot.py at 2019-01-19 13:49:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 78.05 Mbit/s
95th percentile per-packet one-way delay: 24.157 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 43.32 Mbit/s
95th percentile per-packet one-way delay: 23.239 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 36.16 Mbit/s
95th percentile per-packet one-way delay: 23.464 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 32.30 Mbit/s
95th percentile per-packet one-way delay: 25.820 ms
Loss rate: 0.11%
```
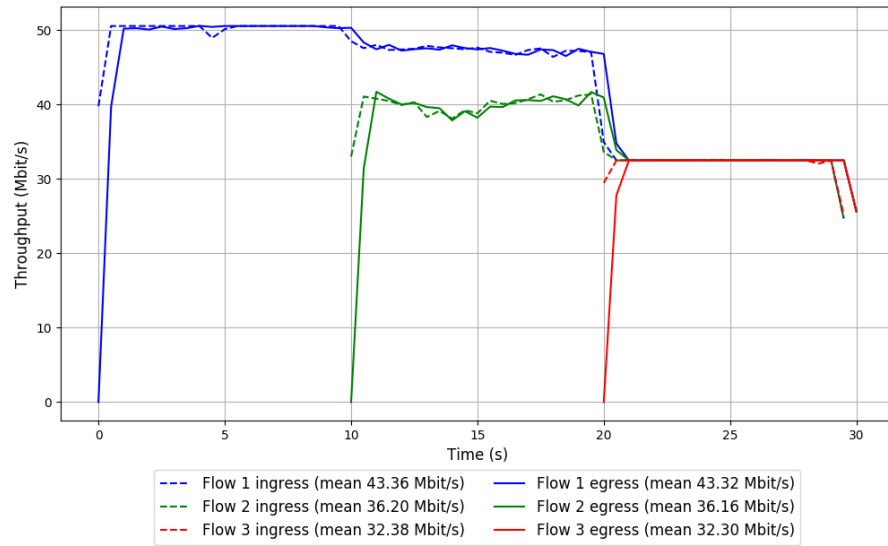
## Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2019-01-19 12:32:23
End at: 2019-01-19 12:32:53
Local clock offset: -6.627 ms
Remote clock offset: 1.044 ms


# Below is generated by plot.py at 2019-01-19 13:49:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.37 Mbit/s
95th percentile per-packet one-way delay: 24.873 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 43.79 Mbit/s
95th percentile per-packet one-way delay: 23.779 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 40.54 Mbit/s
95th percentile per-packet one-way delay: 25.369 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 32.18 Mbit/s
95th percentile per-packet one-way delay: 25.503 ms
Loss rate: 0.20%
```
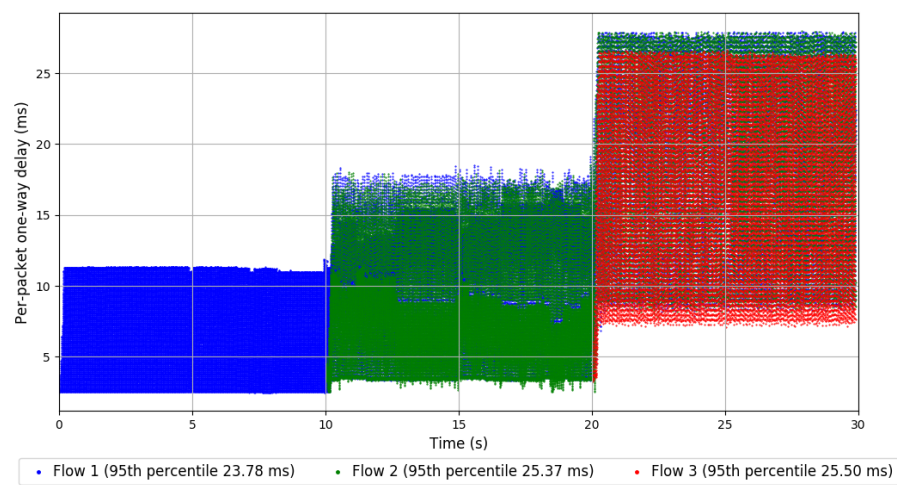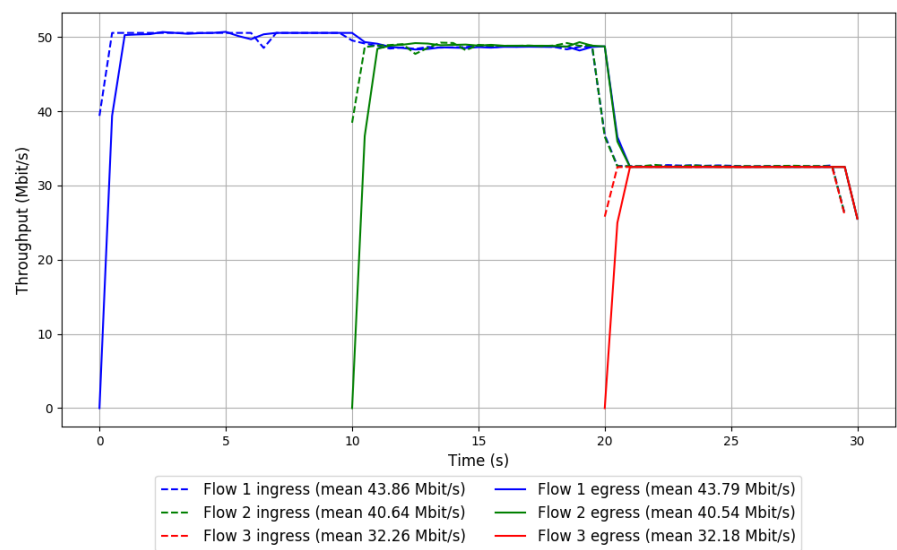
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2019-01-19 12:56:35
End at: 2019-01-19 12:57:05
Local clock offset: -4.361 ms
Remote clock offset: 1.363 ms


# Below is generated by plot.py at 2019-01-19 13:49:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.33 Mbit/s
95th percentile per-packet one-way delay: 24.172 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 43.77 Mbit/s
95th percentile per-packet one-way delay: 22.758 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 40.49 Mbit/s
95th percentile per-packet one-way delay: 24.363 ms
Loss rate: 0.27%
-- Flow 3:
Average throughput: 32.19 Mbit/s
95th percentile per-packet one-way delay: 25.447 ms
Loss rate: 0.39%
```
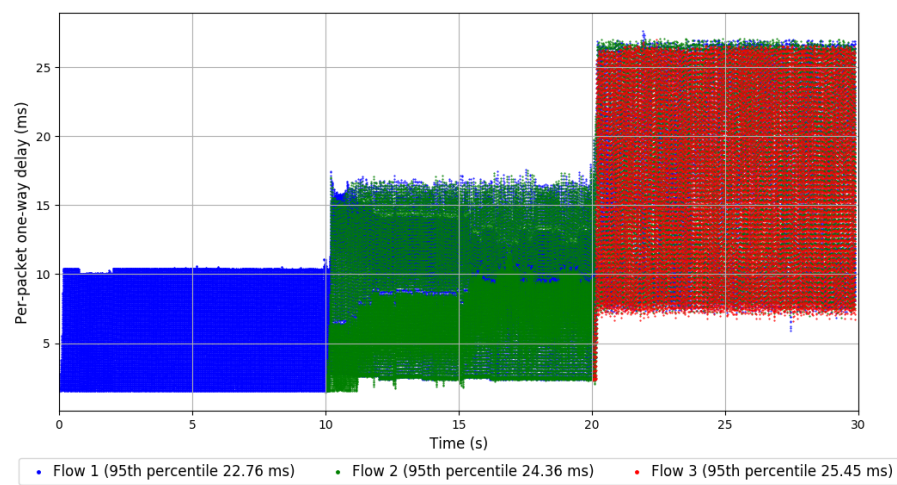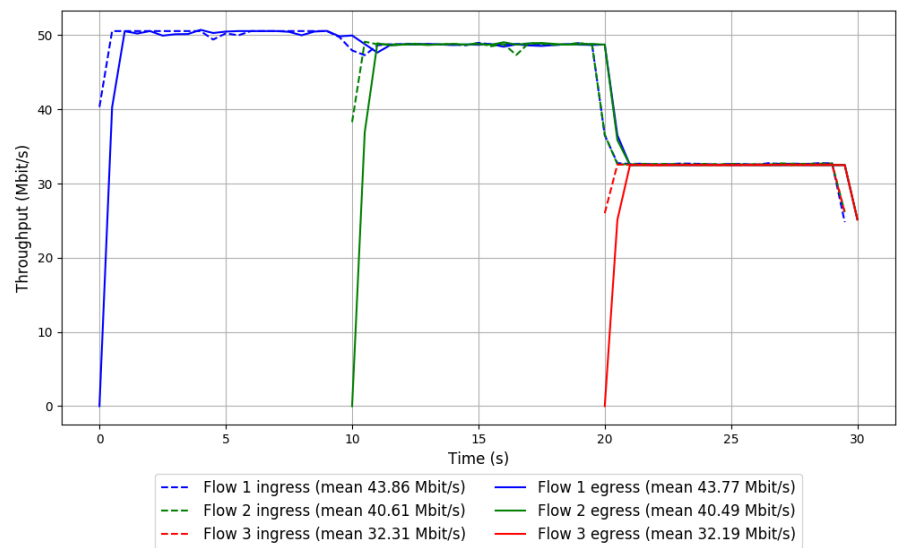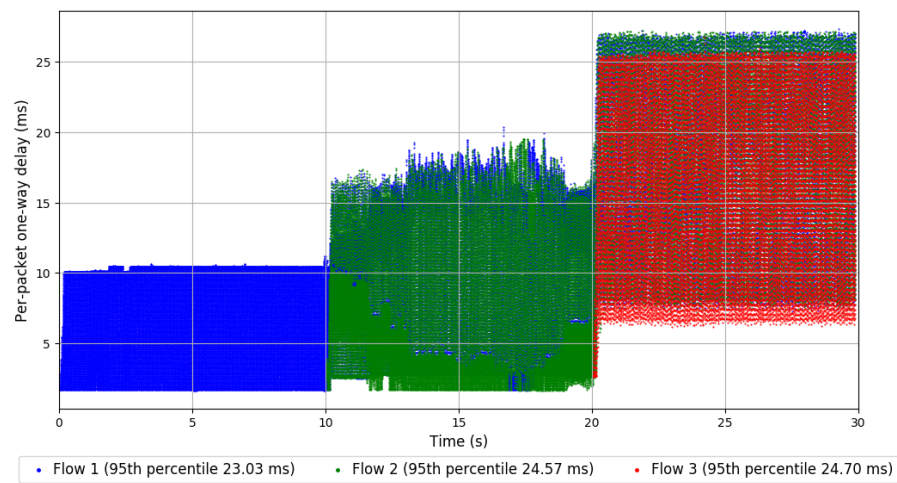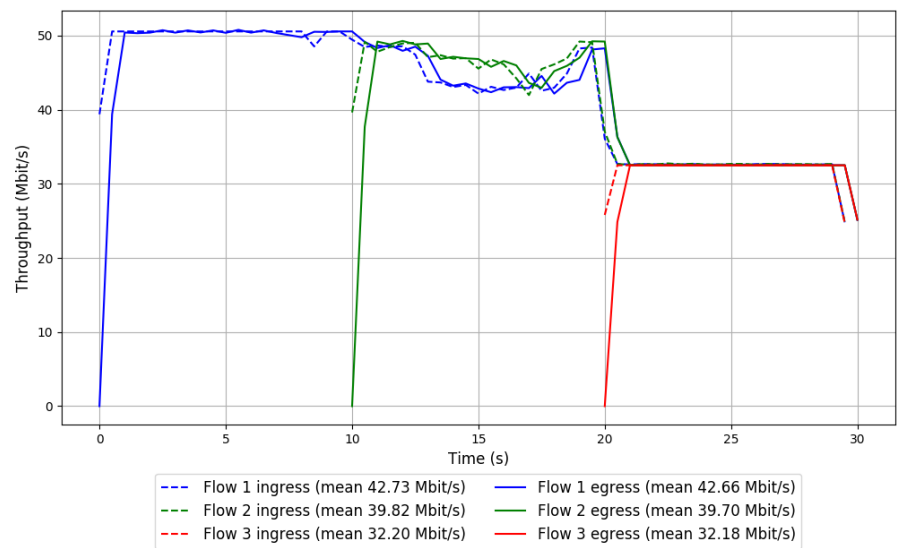
Run 4: Report of Sprout — Data Link



Flow 1 ingress (mean 43.86 Mbit/s) --- Flow 1 egress (mean 43.77 Mbit/s) ---
Flow 2 ingress (mean 40.61 Mbit/s) --- Flow 2 egress (mean 40.49 Mbit/s) ---
Flow 3 ingress (mean 32.31 Mbit/s) --- Flow 3 egress (mean 32.19 Mbit/s) ---



Flow 1 (95th percentile 22.76 ms) • Flow 2 (95th percentile 24.36 ms) • Flow 3 (95th percentile 25.45 ms)

```
Run 5: Statistics of Sprout

Start at: 2019-01-19 13:20:45
End at: 2019-01-19 13:21:15
Local clock offset: -1.913 ms
Remote clock offset: 1.501 ms


# Below is generated by plot.py at 2019-01-19 13:49:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 79.68 Mbit/s
95th percentile per-packet one-way delay: 24.089 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 42.66 Mbit/s
95th percentile per-packet one-way delay: 23.032 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 39.70 Mbit/s
95th percentile per-packet one-way delay: 24.569 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 32.18 Mbit/s
95th percentile per-packet one-way delay: 24.697 ms
Loss rate: 0.08%
```
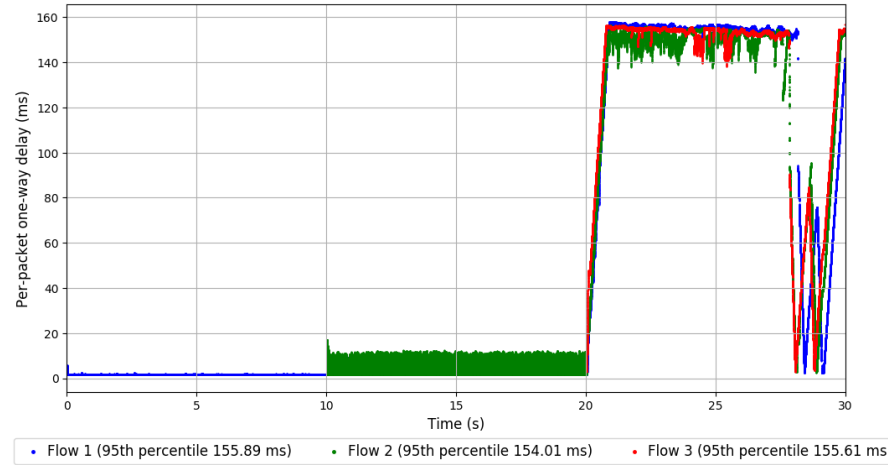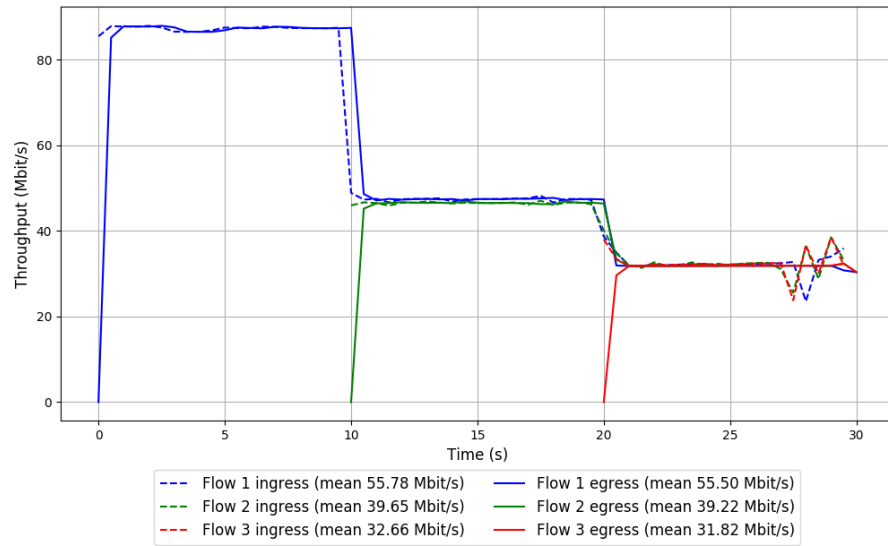
Run 5: Report of Sprout — Data Link

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

Start at: 2019-01-19 11:55:34
End at: 2019-01-19 11:56:04
Local clock offset: -7.633 ms
Remote clock offset: -0.116 ms


# Below is generated by plot.py at 2019-01-19 13:50:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.18 Mbit/s
95th percentile per-packet one-way delay: 155.472 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 55.50 Mbit/s
95th percentile per-packet one-way delay: 155.889 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 39.22 Mbit/s
95th percentile per-packet one-way delay: 154.010 ms
Loss rate: 1.09%
-- Flow 3:
Average throughput: 31.82 Mbit/s
95th percentile per-packet one-way delay: 155.611 ms
Loss rate: 2.59%
```
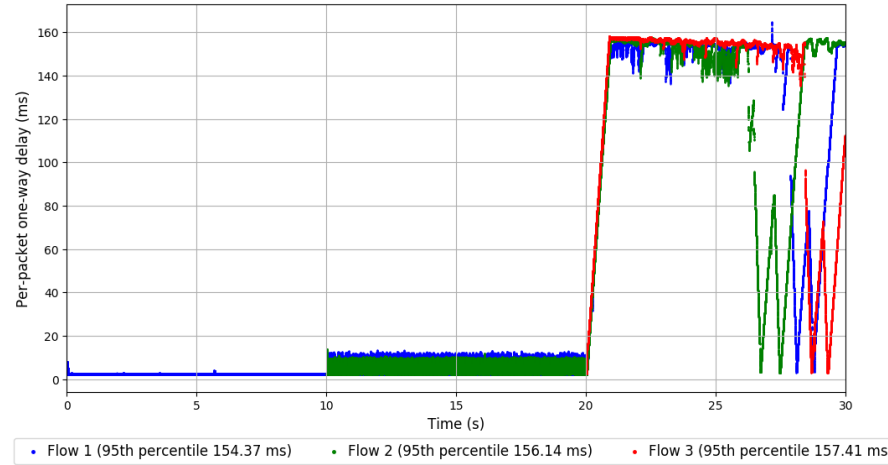
# Run 1: Report of TaoVA-100x — Data Link



Flow 1 ingress (mean 55.78 Mbit/s) --- Flow 1 egress (mean 55.50 Mbit/s)
Flow 2 ingress (mean 39.65 Mbit/s) --- Flow 2 egress (mean 39.22 Mbit/s)
Flow 3 ingress (mean 32.66 Mbit/s) --- Flow 3 egress (mean 31.82 Mbit/s)



Flow 1 (95th percentile 155.89 ms)   Flow 2 (95th percentile 154.01 ms)   Flow 3 (95th percentile 155.61 ms)

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

Start at: 2019-01-19 12:19:43
End at: 2019-01-19 12:20:13
Local clock offset: -6.845 ms
Remote clock offset: 0.785 ms


# Below is generated by plot.py at 2019-01-19 13:51:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.58 Mbit/s
95th percentile per-packet one-way delay: 156.034 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 55.60 Mbit/s
95th percentile per-packet one-way delay: 154.373 ms
Loss rate: 0.53%
-- Flow 2:
Average throughput: 39.65 Mbit/s
95th percentile per-packet one-way delay: 156.140 ms
Loss rate: 1.21%
-- Flow 3:
Average throughput: 31.82 Mbit/s
95th percentile per-packet one-way delay: 157.410 ms
Loss rate: 2.61%
```
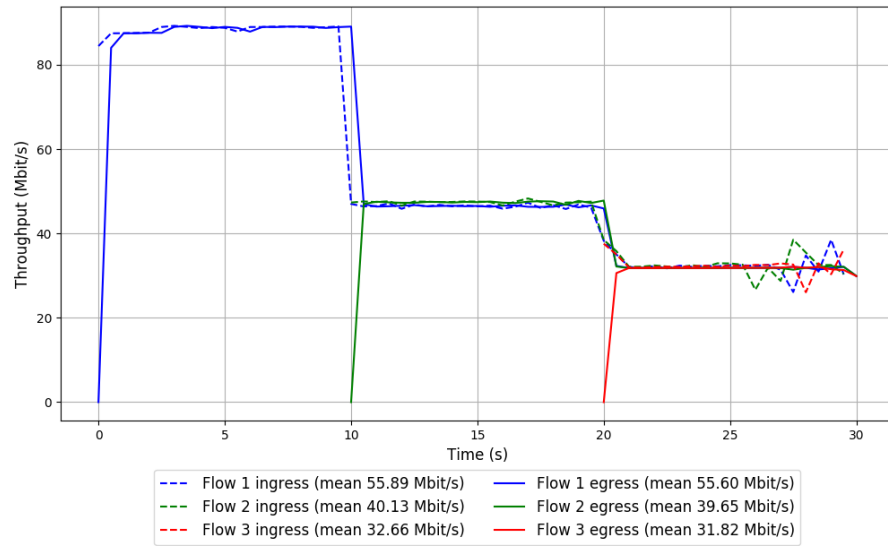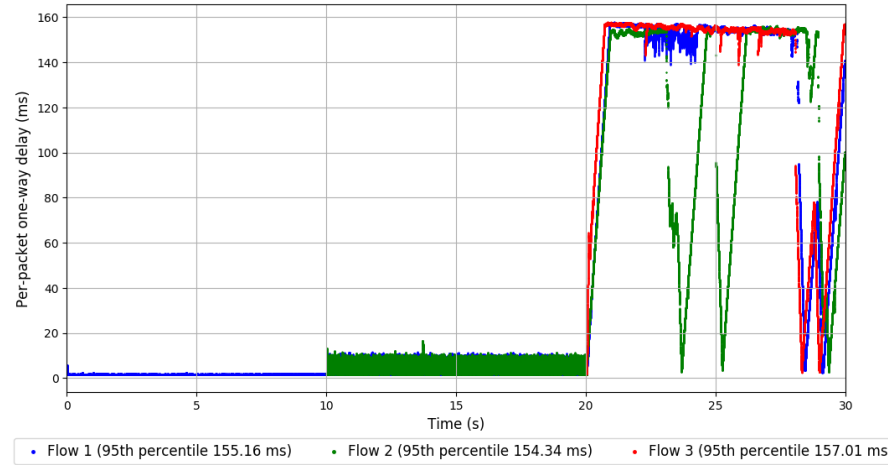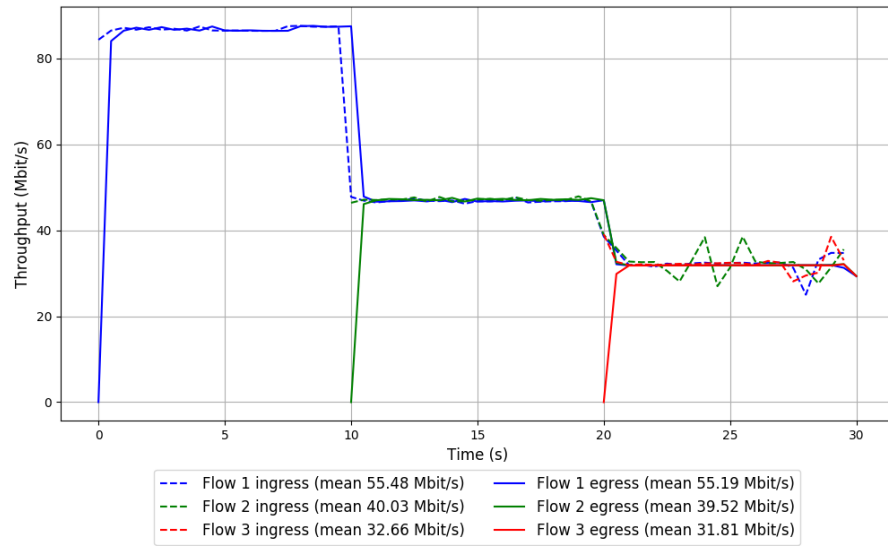
# Run 2: Report of TaoVA-100x — Data Link



Flow 1 ingress (mean 55.89 Mbit/s)          Flow 1 egress (mean 55.60 Mbit/s)
Flow 2 ingress (mean 40.13 Mbit/s)          Flow 2 egress (mean 39.65 Mbit/s)
Flow 3 ingress (mean 32.66 Mbit/s)          Flow 3 egress (mean 31.82 Mbit/s)



Flow 1 (95th percentile 154.37 ms)     Flow 2 (95th percentile 156.14 ms)     Flow 3 (95th percentile 157.41 ms)

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

Start at: 2019-01-19 12:43:54
End at: 2019-01-19 12:44:24
Local clock offset: -7.351 ms
Remote clock offset: 1.119 ms


# Below is generated by plot.py at 2019-01-19 13:51:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.07 Mbit/s
95th percentile per-packet one-way delay: 155.847 ms
Loss rate: 0.99%
-- Flow 1:
Average throughput: 55.19 Mbit/s
95th percentile per-packet one-way delay: 155.162 ms
Loss rate: 0.53%
-- Flow 2:
Average throughput: 39.52 Mbit/s
95th percentile per-packet one-way delay: 154.340 ms
Loss rate: 1.27%
-- Flow 3:
Average throughput: 31.81 Mbit/s
95th percentile per-packet one-way delay: 157.014 ms
Loss rate: 2.67%
```
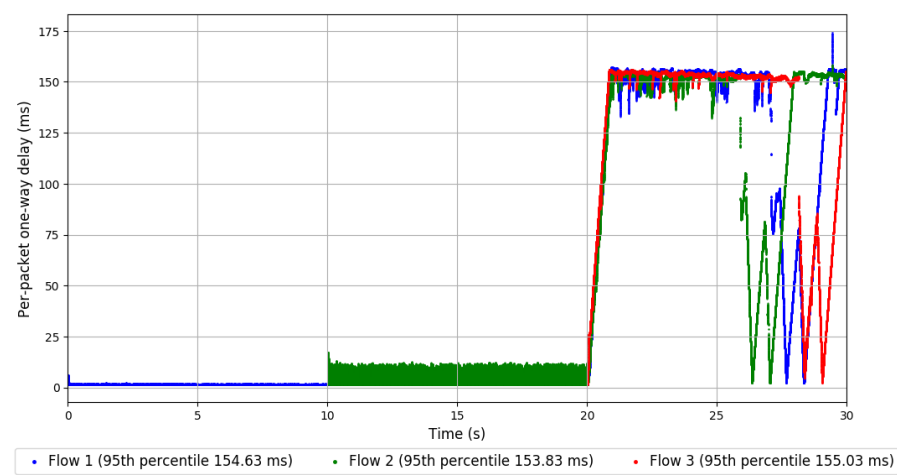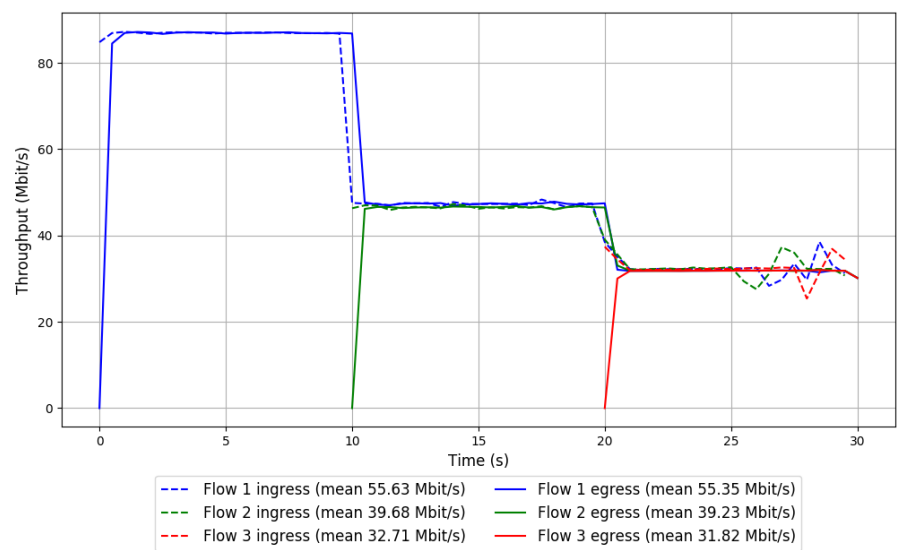
# Run 3: Report of TaoVA-100x — Data Link



Flow 1 ingress (mean 55.48 Mbit/s)       Flow 1 egress (mean 55.19 Mbit/s)
Flow 2 ingress (mean 40.03 Mbit/s)       Flow 2 egress (mean 39.52 Mbit/s)
Flow 3 ingress (mean 32.66 Mbit/s)       Flow 3 egress (mean 31.81 Mbit/s)



Flow 1 (95th percentile 155.16 ms)       Flow 2 (95th percentile 154.34 ms)       Flow 3 (95th percentile 157.01 ms)

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

Start at: 2019-01-19 13:08:06
End at: 2019-01-19 13:08:36
Local clock offset: -2.819 ms
Remote clock offset: 1.404 ms


# Below is generated by plot.py at 2019-01-19 13:51:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.05 Mbit/s
95th percentile per-packet one-way delay: 154.566 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 55.35 Mbit/s
95th percentile per-packet one-way delay: 154.628 ms
Loss rate: 0.54%
-- Flow 2:
Average throughput: 39.23 Mbit/s
95th percentile per-packet one-way delay: 153.834 ms
Loss rate: 1.18%
-- Flow 3:
Average throughput: 31.82 Mbit/s
95th percentile per-packet one-way delay: 155.030 ms
Loss rate: 2.76%
```
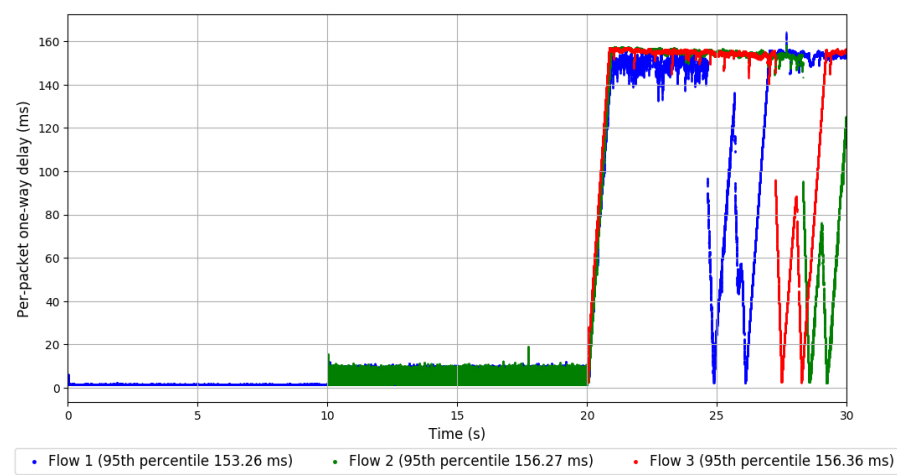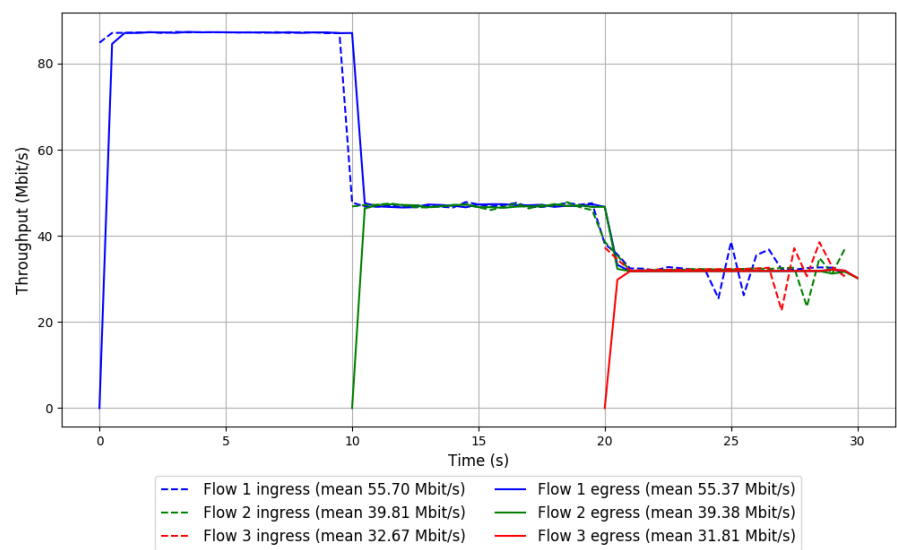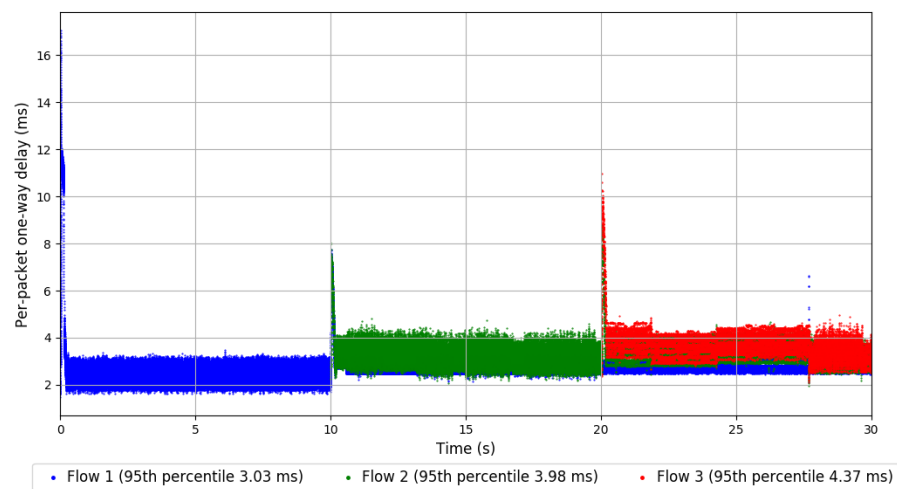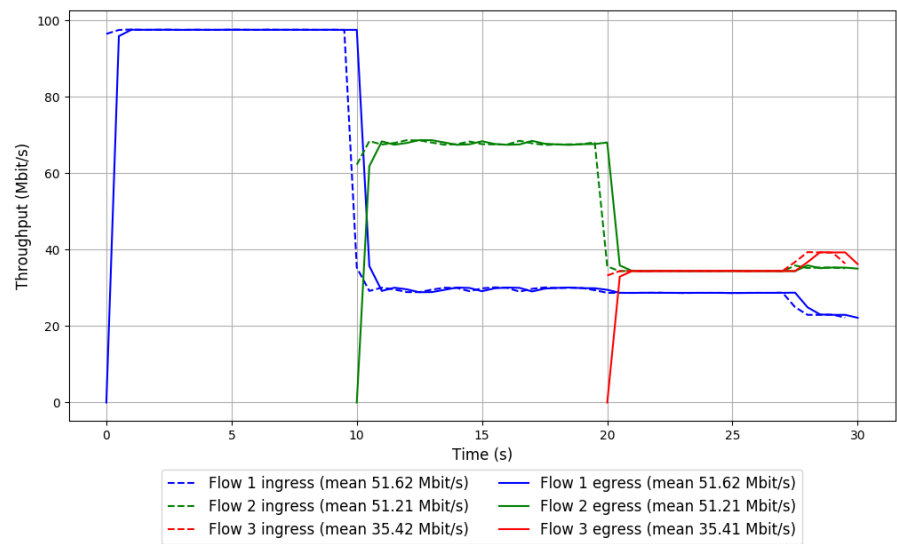
# Run 4: Report of TaoVA-100x — Data Link



- - - - Flow 1 ingress (mean 55.63 Mbit/s) ——— Flow 1 egress (mean 55.35 Mbit/s)
- - - - Flow 2 ingress (mean 39.68 Mbit/s) ——— Flow 2 egress (mean 39.23 Mbit/s)
- - - - Flow 3 ingress (mean 32.71 Mbit/s) ——— Flow 3 egress (mean 31.82 Mbit/s)



- Flow 1 (95th percentile 154.63 ms)   • Flow 2 (95th percentile 153.83 ms)   • Flow 3 (95th percentile 155.03 ms)

172

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

Start at: 2019-01-19 13:32:17
End at: 2019-01-19 13:32:47
Local clock offset: -1.219 ms
Remote clock offset: 1.694 ms


# Below is generated by plot.py at 2019-01-19 13:51:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.17 Mbit/s
95th percentile per-packet one-way delay: 155.584 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 55.37 Mbit/s
95th percentile per-packet one-way delay: 153.256 ms
Loss rate: 0.61%
-- Flow 2:
Average throughput: 39.38 Mbit/s
95th percentile per-packet one-way delay: 156.268 ms
Loss rate: 1.08%
-- Flow 3:
Average throughput: 31.81 Mbit/s
95th percentile per-packet one-way delay: 156.363 ms
Loss rate: 2.67%
```

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



- - - - Flow 1 ingress (mean 55.70 Mbit/s) ——— Flow 1 egress (mean 55.37 Mbit/s)
- - - - Flow 2 ingress (mean 39.81 Mbit/s) ——— Flow 2 egress (mean 39.38 Mbit/s)
- - - - Flow 3 ingress (mean 32.67 Mbit/s) ——— Flow 3 egress (mean 31.81 Mbit/s)



• Flow 1 (95th percentile 153.26 ms)    • Flow 2 (95th percentile 156.27 ms)    • Flow 3 (95th percentile 156.36 ms)

```
Run 1: Statistics of TCP Vegas

Start at: 2019-01-19 11:52:03
End at: 2019-01-19 11:52:33
Local clock offset: -7.627 ms
Remote clock offset: -0.037 ms


# Below is generated by plot.py at 2019-01-19 13:51:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.51 Mbit/s
95th percentile per-packet one-way delay: 3.998 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 51.62 Mbit/s
95th percentile per-packet one-way delay: 3.027 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 51.21 Mbit/s
95th percentile per-packet one-way delay: 3.984 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 35.41 Mbit/s
95th percentile per-packet one-way delay: 4.365 ms
Loss rate: 0.06%
```
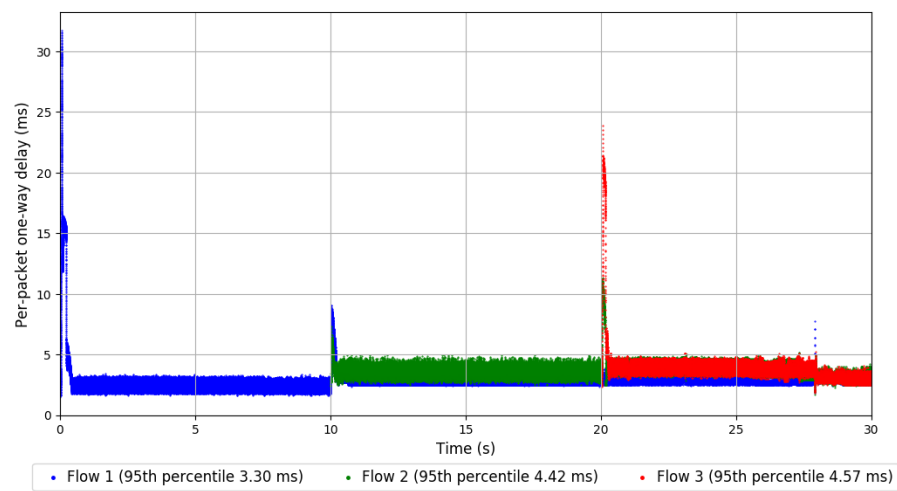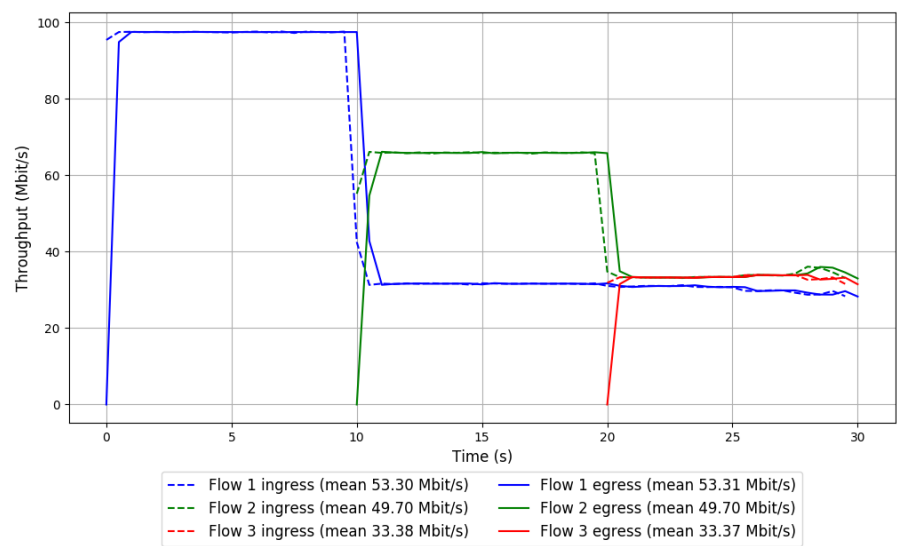
Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2019-01-19 12:16:12
End at: 2019-01-19 12:16:42
Local clock offset: -7.758 ms
Remote clock offset: 0.643 ms


# Below is generated by plot.py at 2019-01-19 13:51:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.49 Mbit/s
95th percentile per-packet one-way delay: 4.370 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 53.31 Mbit/s
95th percentile per-packet one-way delay: 3.303 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 49.70 Mbit/s
95th percentile per-packet one-way delay: 4.424 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 33.37 Mbit/s
95th percentile per-packet one-way delay: 4.569 ms
Loss rate: 0.05%
```
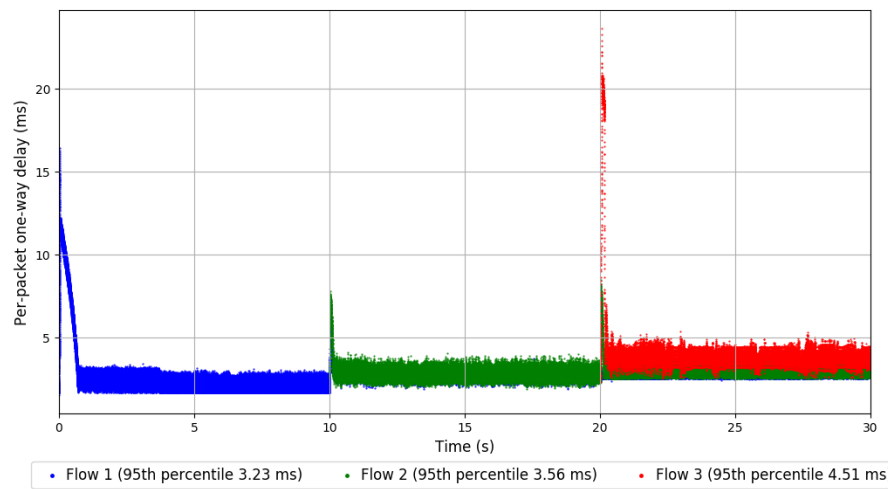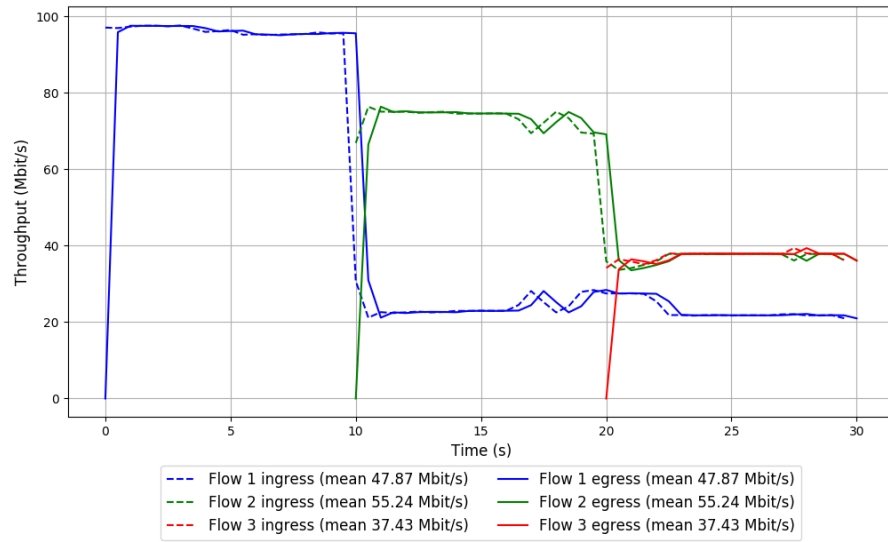
Run 2: Report of TCP Vegas — Data Link



Flow 1 ingress (mean 53.30 Mbit/s)  —— Flow 1 egress (mean 53.31 Mbit/s)
Flow 2 ingress (mean 49.70 Mbit/s)  —— Flow 2 egress (mean 49.70 Mbit/s)
Flow 3 ingress (mean 33.38 Mbit/s)  —— Flow 3 egress (mean 33.37 Mbit/s)



• Flow 1 (95th percentile 3.30 ms)    • Flow 2 (95th percentile 4.42 ms)    • Flow 3 (95th percentile 4.57 ms)

```
Run 3: Statistics of TCP Vegas

Start at: 2019-01-19 12:40:23
End at: 2019-01-19 12:40:53
Local clock offset: -7.352 ms
Remote clock offset: 1.135 ms


# Below is generated by plot.py at 2019-01-19 13:51:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.11 Mbit/s
95th percentile per-packet one-way delay: 4.205 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 47.87 Mbit/s
95th percentile per-packet one-way delay: 3.225 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 55.24 Mbit/s
95th percentile per-packet one-way delay: 3.560 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 37.43 Mbit/s
95th percentile per-packet one-way delay: 4.509 ms
Loss rate: 0.06%
```
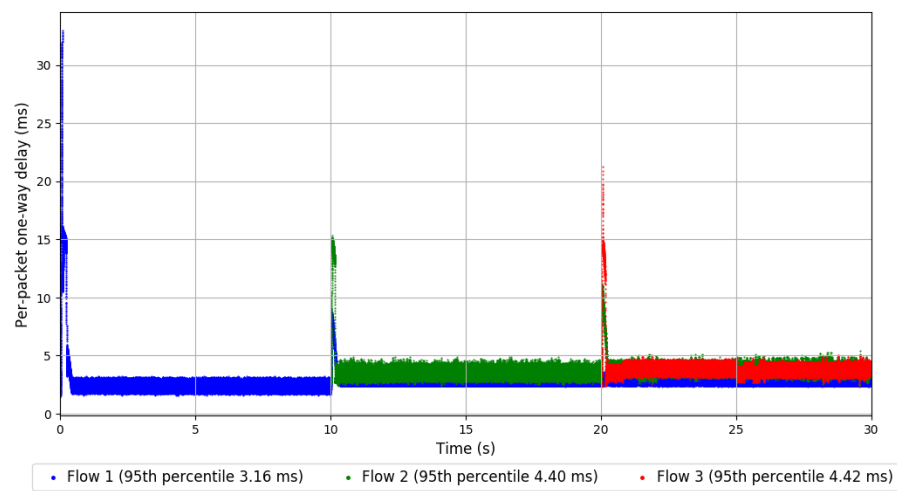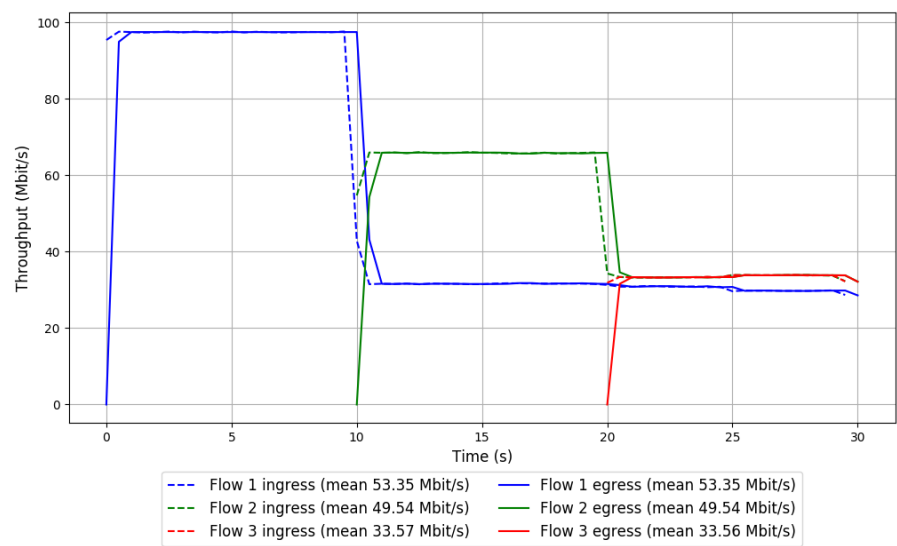
## Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2019-01-19 13:04:35
End at: 2019-01-19 13:05:05
Local clock offset: -3.174 ms
Remote clock offset: 1.467 ms


# Below is generated by plot.py at 2019-01-19 13:51:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.49 Mbit/s
95th percentile per-packet one-way delay: 4.302 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 53.35 Mbit/s
95th percentile per-packet one-way delay: 3.157 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 49.54 Mbit/s
95th percentile per-packet one-way delay: 4.401 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 33.56 Mbit/s
95th percentile per-packet one-way delay: 4.422 ms
Loss rate: 0.05%
```
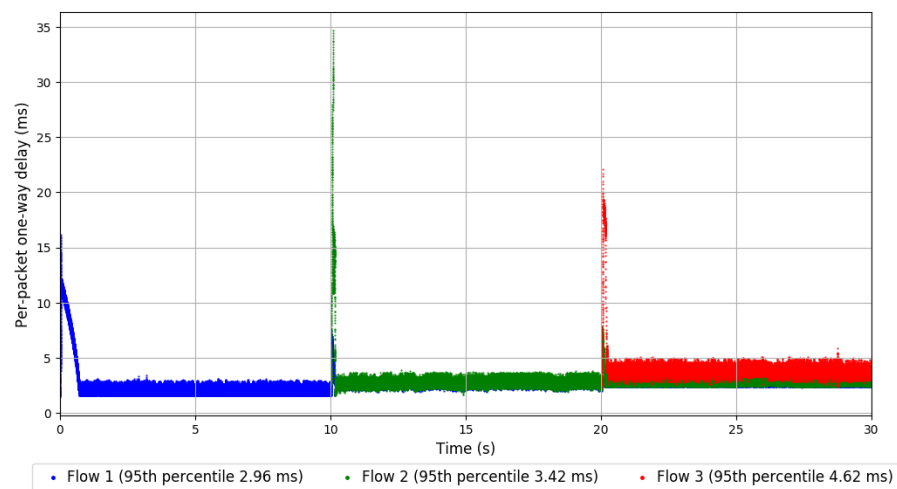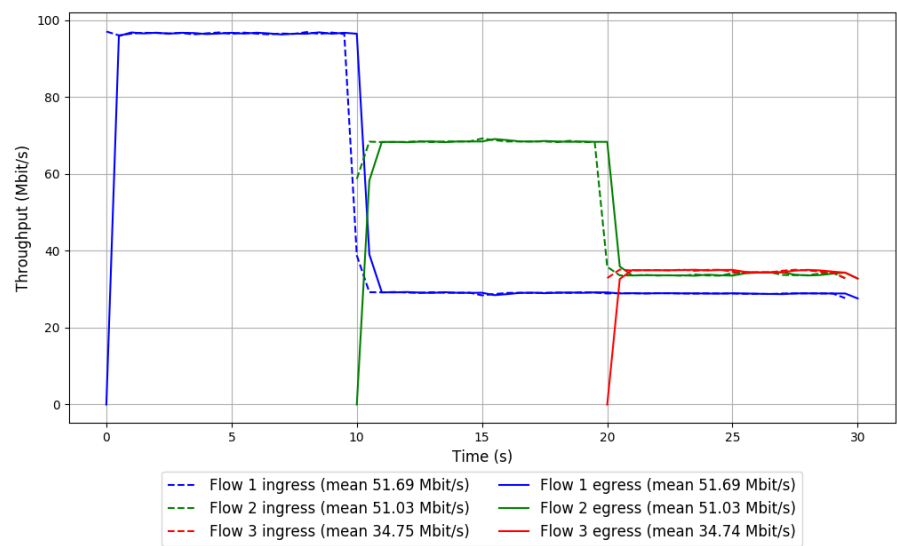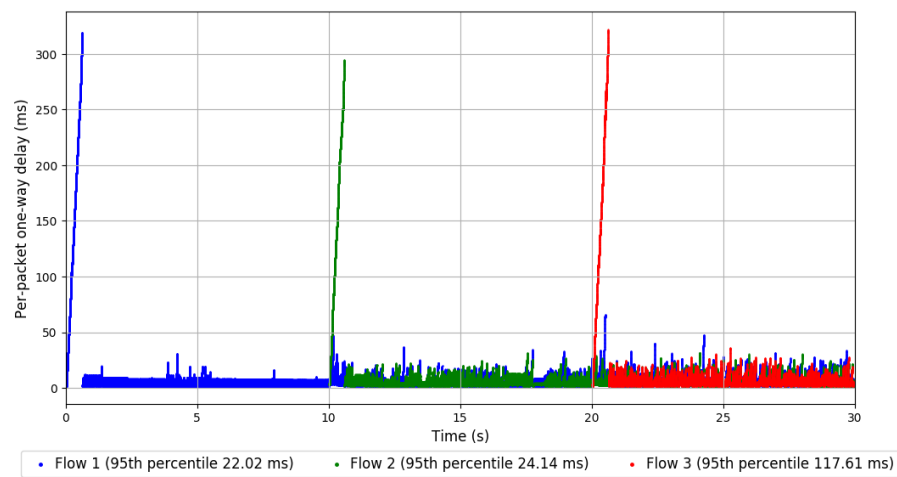
# Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2019-01-19 13:28:46
End at: 2019-01-19 13:29:16
Local clock offset: -1.429 ms
Remote clock offset: 1.663 ms


# Below is generated by plot.py at 2019-01-19 13:51:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.20 Mbit/s
95th percentile per-packet one-way delay: 4.248 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 51.69 Mbit/s
95th percentile per-packet one-way delay: 2.956 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 51.03 Mbit/s
95th percentile per-packet one-way delay: 3.425 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 34.74 Mbit/s
95th percentile per-packet one-way delay: 4.618 ms
Loss rate: 0.06%
```

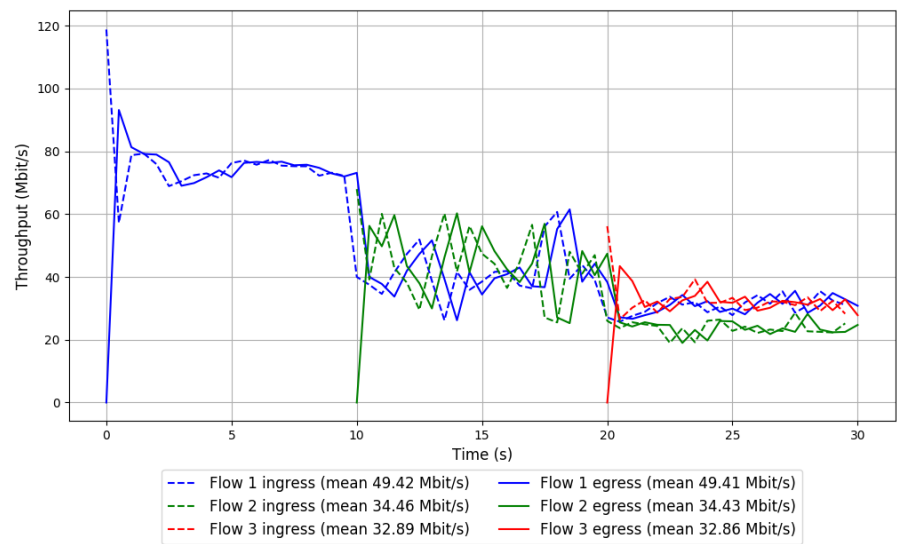# Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2019-01-19 11:53:12
End at: 2019-01-19 11:53:42
Local clock offset: -7.64 ms
Remote clock offset: -0.129 ms


# Below is generated by plot.py at 2019-01-19 13:51:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.25 Mbit/s
95th percentile per-packet one-way delay: 24.990 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 49.41 Mbit/s
95th percentile per-packet one-way delay: 22.017 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 34.43 Mbit/s
95th percentile per-packet one-way delay: 24.139 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 32.86 Mbit/s
95th percentile per-packet one-way delay: 117.612 ms
Loss rate: 0.11%
```
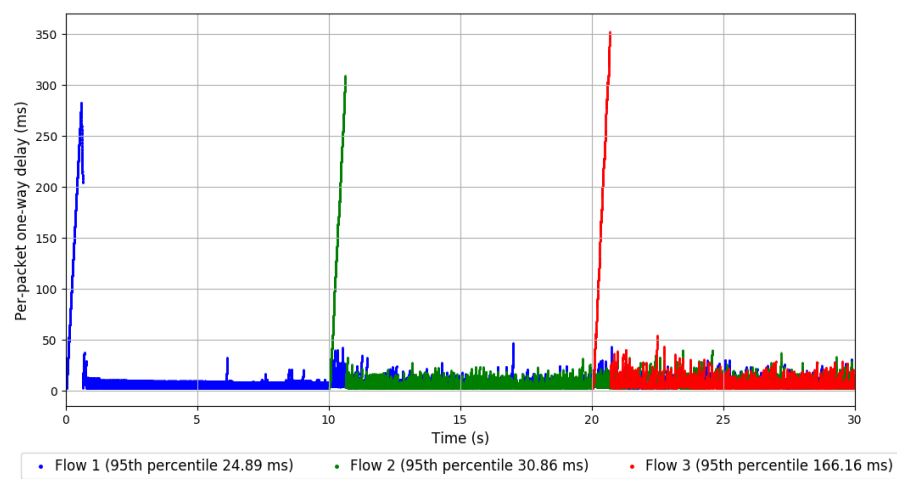
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2019-01-19 12:17:21
End at: 2019-01-19 12:17:51
Local clock offset: -6.961 ms
Remote clock offset: 0.705 ms


# Below is generated by plot.py at 2019-01-19 13:51:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 80.43 Mbit/s
95th percentile per-packet one-way delay: 33.396 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 47.56 Mbit/s
95th percentile per-packet one-way delay: 24.893 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 34.30 Mbit/s
95th percentile per-packet one-way delay: 30.859 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 30.19 Mbit/s
95th percentile per-packet one-way delay: 166.164 ms
Loss rate: 0.13%
```
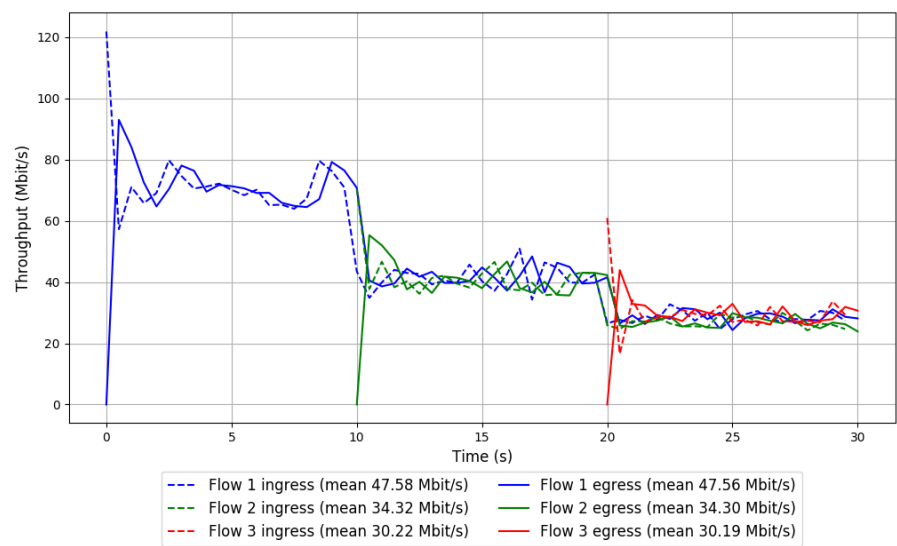
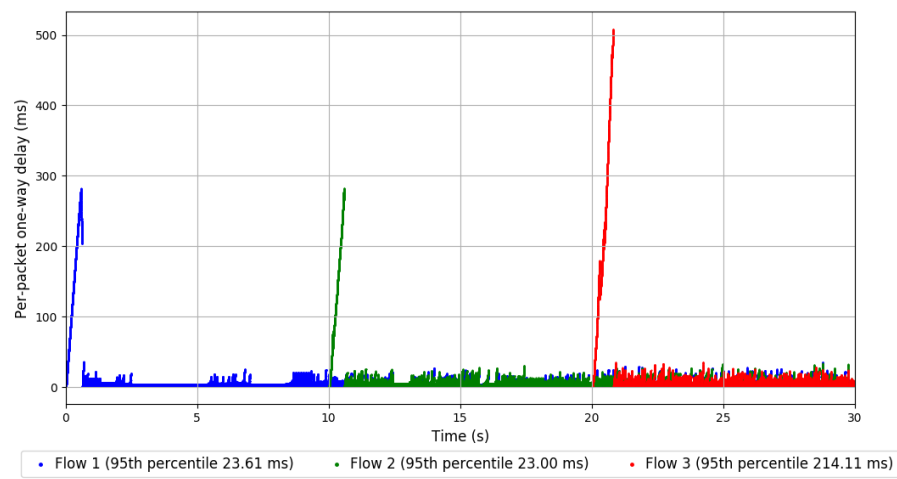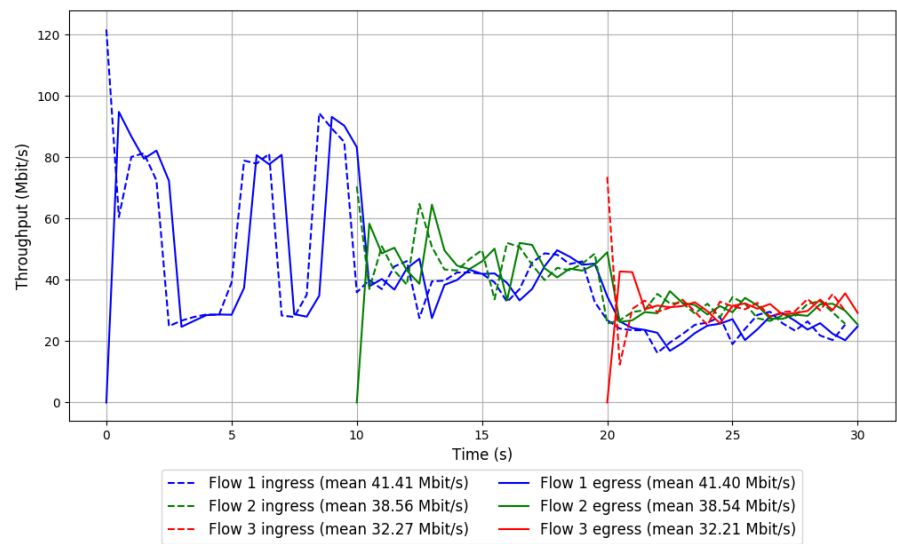## Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2019-01-19 12:41:32
End at: 2019-01-19 12:42:02
Local clock offset: -7.338 ms
Remote clock offset: 1.204 ms


# Below is generated by plot.py at 2019-01-19 13:51:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 77.75 Mbit/s
95th percentile per-packet one-way delay: 35.478 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 41.40 Mbit/s
95th percentile per-packet one-way delay: 23.615 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 38.54 Mbit/s
95th percentile per-packet one-way delay: 23.004 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 32.21 Mbit/s
95th percentile per-packet one-way delay: 214.106 ms
Loss rate: 0.20%
```
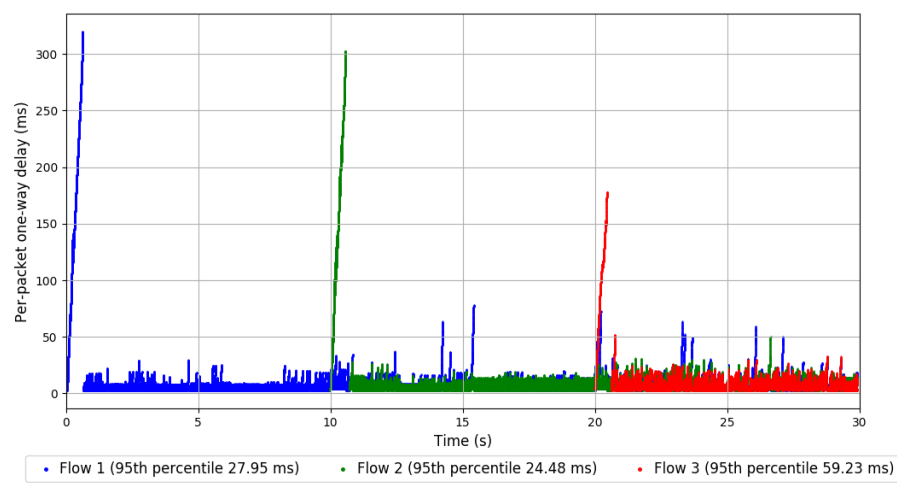
Run 3: Report of Verus — Data Link



Flow 1 ingress (mean 41.41 Mbit/s) --- Flow 1 egress (mean 41.40 Mbit/s)
Flow 2 ingress (mean 38.56 Mbit/s) --- Flow 2 egress (mean 38.54 Mbit/s)
Flow 3 ingress (mean 32.27 Mbit/s) --- Flow 3 egress (mean 32.21 Mbit/s)



Flow 1 (95th percentile 23.61 ms)   Flow 2 (95th percentile 23.00 ms)   Flow 3 (95th percentile 214.11 ms)

```
Run 4: Statistics of Verus

Start at: 2019-01-19 13:05:44
End at: 2019-01-19 13:06:14
Local clock offset: -2.276 ms
Remote clock offset: 1.476 ms


# Below is generated by plot.py at 2019-01-19 13:52:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.80 Mbit/s
95th percentile per-packet one-way delay: 28.522 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 49.88 Mbit/s
95th percentile per-packet one-way delay: 27.945 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 36.44 Mbit/s
95th percentile per-packet one-way delay: 24.482 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 28.94 Mbit/s
95th percentile per-packet one-way delay: 59.226 ms
Loss rate: 1.49%
```
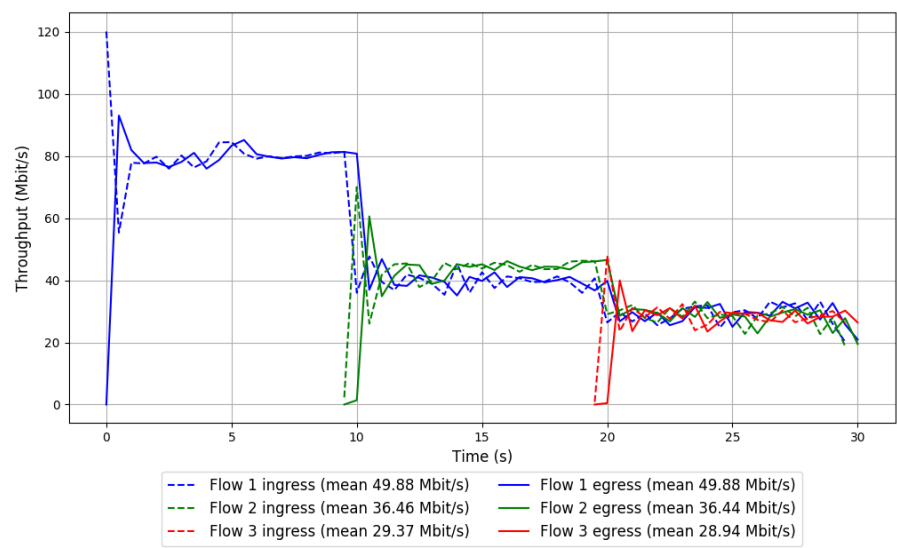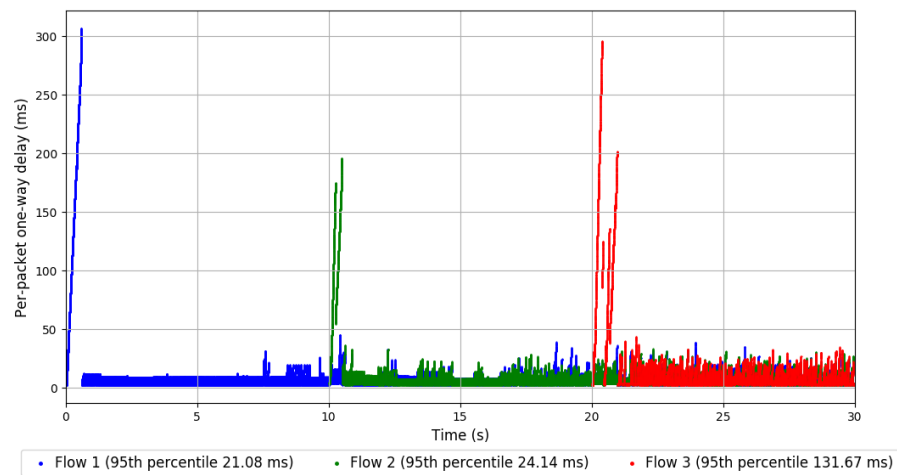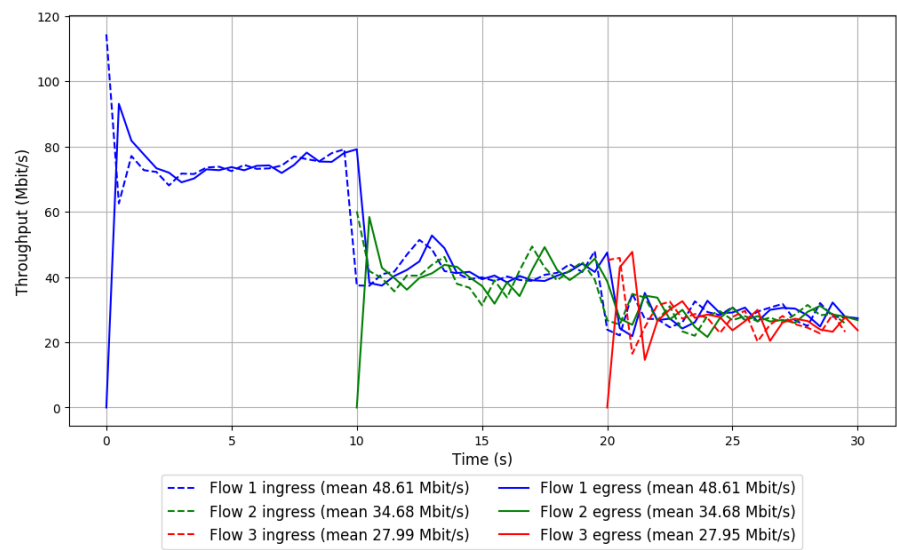
Run 4: Report of Verus — Data Link



Flow 1 ingress (mean 49.88 Mbit/s) --- Flow 1 egress (mean 49.88 Mbit/s)
Flow 2 ingress (mean 36.46 Mbit/s) --- Flow 2 egress (mean 36.44 Mbit/s)
Flow 3 ingress (mean 29.37 Mbit/s) --- Flow 3 egress (mean 28.94 Mbit/s)



Flow 1 (95th percentile 27.95 ms)   Flow 2 (95th percentile 24.48 ms)   Flow 3 (95th percentile 59.23 ms)

```
Run 5: Statistics of Verus

Start at: 2019-01-19 13:29:55
End at: 2019-01-19 13:30:25
Local clock offset: -0.594 ms
Remote clock offset: 1.608 ms


# Below is generated by plot.py at 2019-01-19 13:52:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 80.98 Mbit/s
95th percentile per-packet one-way delay: 30.084 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 48.61 Mbit/s
95th percentile per-packet one-way delay: 21.080 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 34.68 Mbit/s
95th percentile per-packet one-way delay: 24.137 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 27.95 Mbit/s
95th percentile per-packet one-way delay: 131.667 ms
Loss rate: 0.14%
```
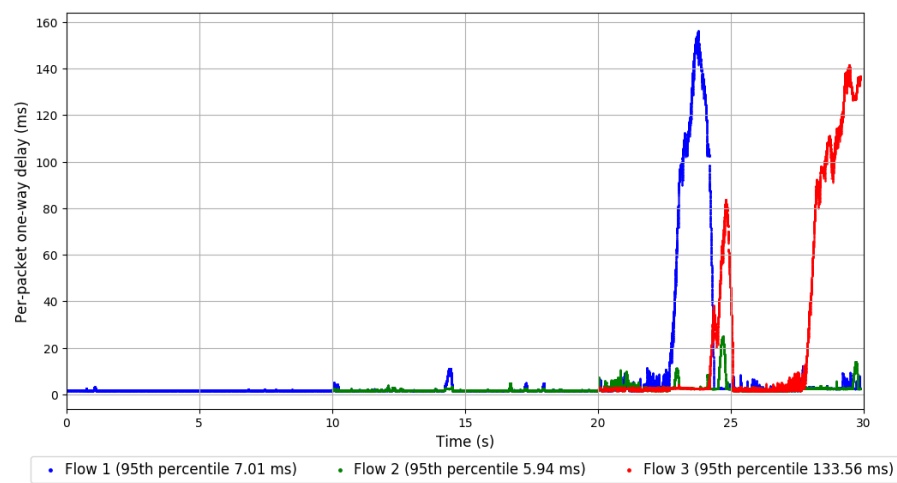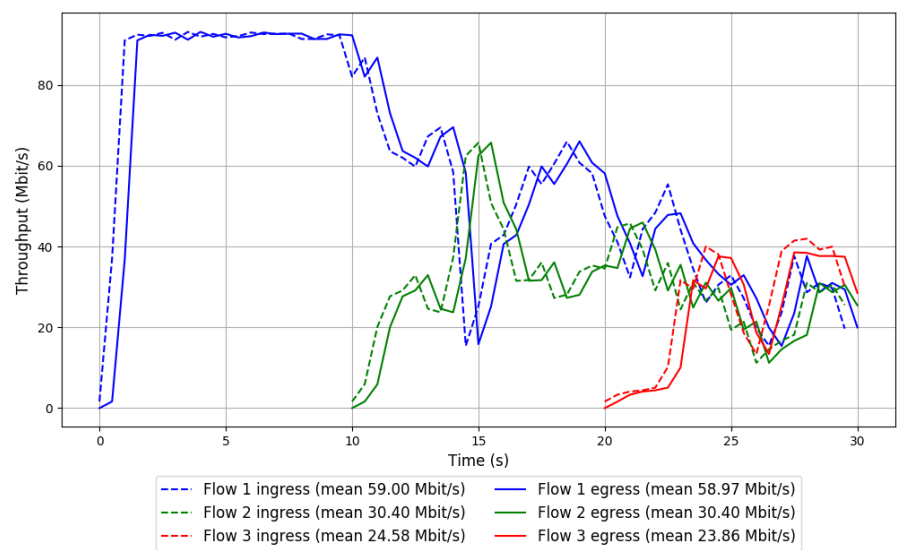
## Run 5: Report of Verus — Data Link



Flow 1 ingress (mean 48.61 Mbit/s) --- Flow 1 egress (mean 48.61 Mbit/s)
Flow 2 ingress (mean 34.68 Mbit/s) --- Flow 2 egress (mean 34.68 Mbit/s)
Flow 3 ingress (mean 27.99 Mbit/s) --- Flow 3 egress (mean 27.95 Mbit/s)



Flow 1 (95th percentile 21.08 ms)   Flow 2 (95th percentile 24.14 ms)   Flow 3 (95th percentile 131.67 ms)

```
Run 1: Statistics of PCC-Vivace

Start at: 2019-01-19 11:38:25
End at: 2019-01-19 11:38:55
Local clock offset: -7.564 ms
Remote clock offset: -0.408 ms

# Below is generated by plot.py at 2019-01-19 13:52:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.06 Mbit/s
95th percentile per-packet one-way delay: 53.067 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 58.97 Mbit/s
95th percentile per-packet one-way delay: 7.014 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 30.40 Mbit/s
95th percentile per-packet one-way delay: 5.943 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 23.86 Mbit/s
95th percentile per-packet one-way delay: 133.558 ms
Loss rate: 2.95%
```
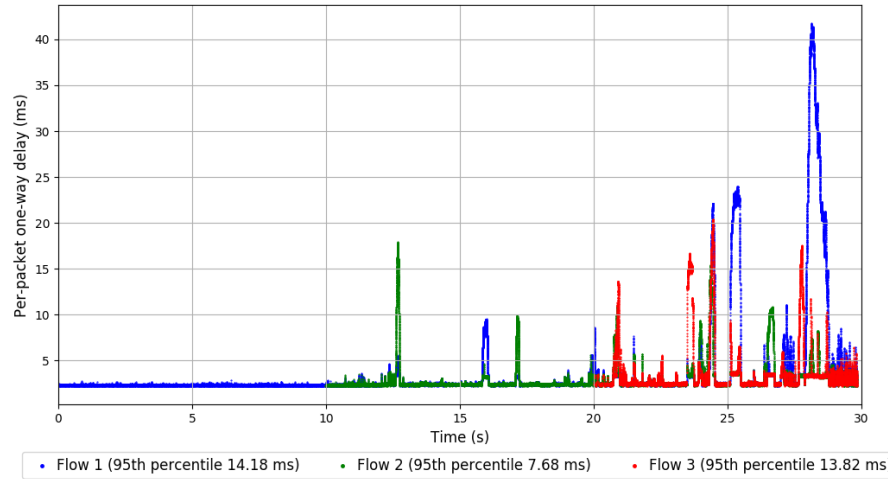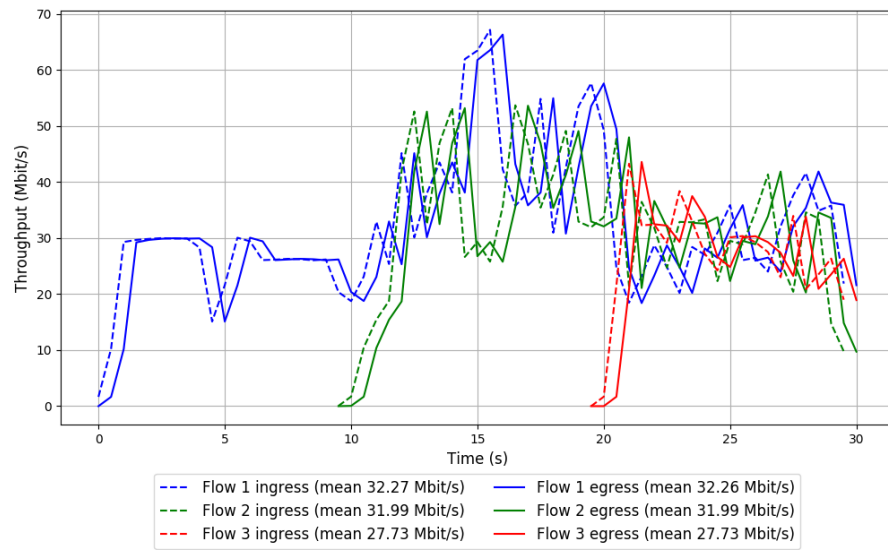
Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2019-01-19 12:02:35
End at: 2019-01-19 12:03:05
Local clock offset: -6.929 ms
Remote clock offset: 0.257 ms


# Below is generated by plot.py at 2019-01-19 13:52:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 62.71 Mbit/s
95th percentile per-packet one-way delay: 9.997 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 32.26 Mbit/s
95th percentile per-packet one-way delay: 14.183 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 31.99 Mbit/s
95th percentile per-packet one-way delay: 7.676 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 27.73 Mbit/s
95th percentile per-packet one-way delay: 13.820 ms
Loss rate: 0.05%
```

Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2019-01-19 12:26:44
End at: 2019-01-19 12:27:14
Local clock offset: -6.769 ms
Remote clock offset: 0.938 ms


# Below is generated by plot.py at 2019-01-19 13:52:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.53 Mbit/s
95th percentile per-packet one-way delay: 94.843 ms
Loss rate: 2.27%
-- Flow 1:
Average throughput: 53.48 Mbit/s
95th percentile per-packet one-way delay: 54.545 ms
Loss rate: 1.02%
-- Flow 2:
Average throughput: 36.84 Mbit/s
95th percentile per-packet one-way delay: 7.103 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 28.98 Mbit/s
95th percentile per-packet one-way delay: 599.179 ms
Loss rate: 13.33%
```
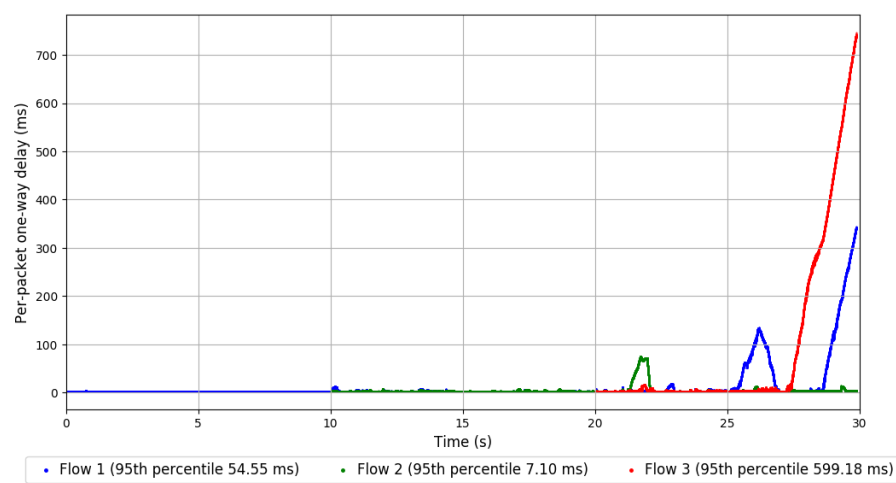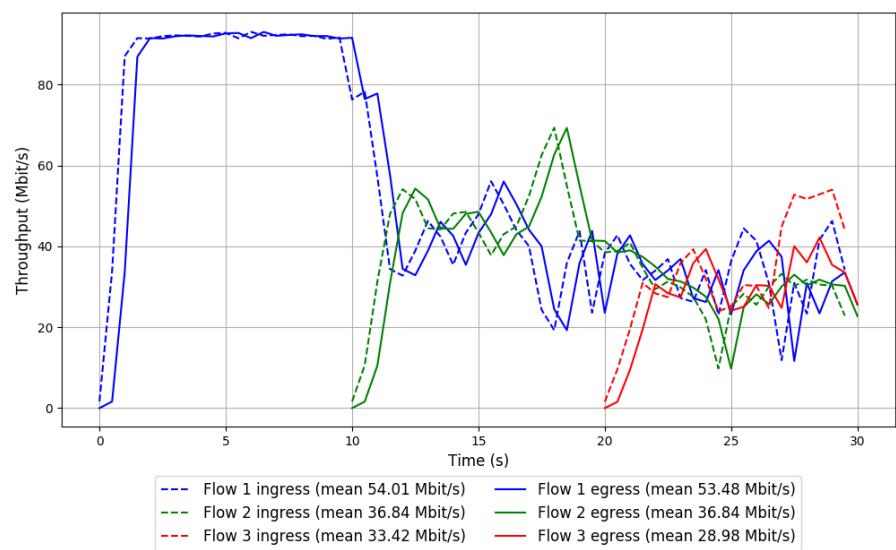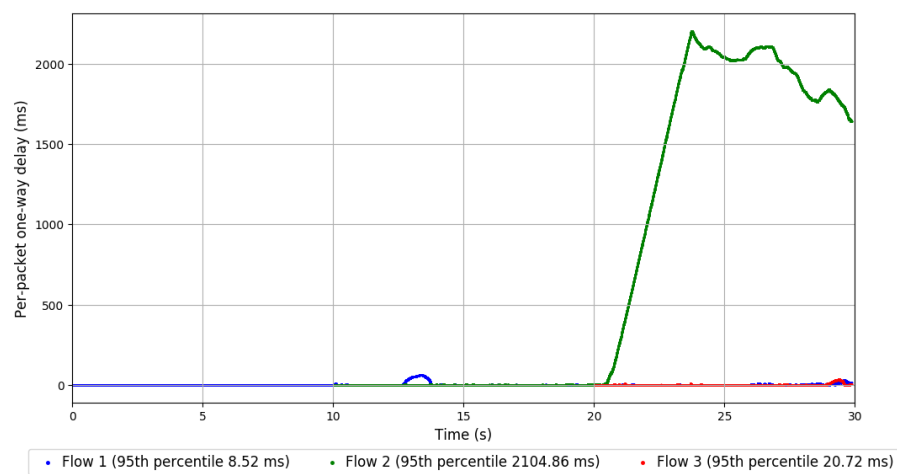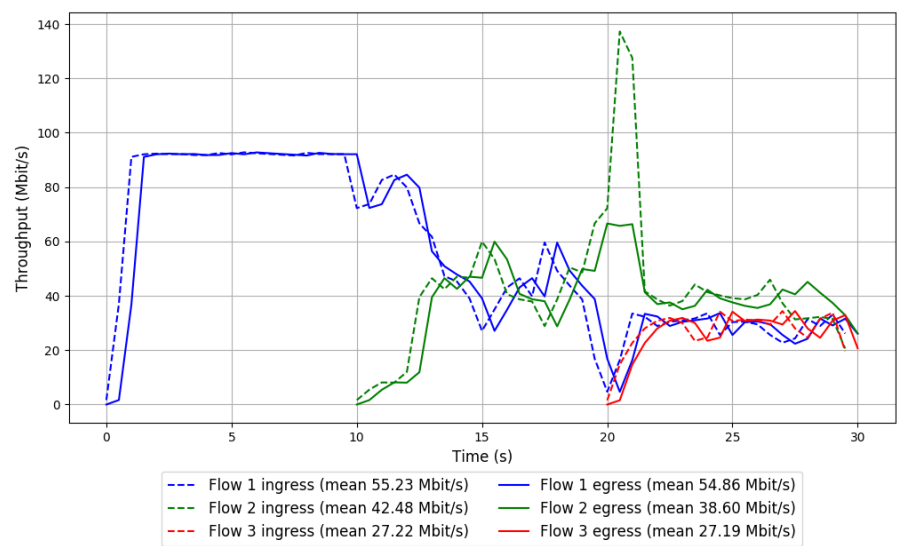
# Run 3: Report of PCC-Vivace — Data Link



Flow 1 ingress (mean 54.01 Mbit/s) --- Flow 1 egress (mean 53.48 Mbit/s)
Flow 2 ingress (mean 36.84 Mbit/s) --- Flow 2 egress (mean 36.84 Mbit/s)
Flow 3 ingress (mean 33.42 Mbit/s) --- Flow 3 egress (mean 28.98 Mbit/s)



Flow 1 (95th percentile 54.55 ms)   Flow 2 (95th percentile 7.10 ms)   Flow 3 (95th percentile 599.18 ms)

200

```
Run 4: Statistics of PCC-Vivace

Start at: 2019-01-19 12:50:56
End at: 2019-01-19 12:51:26
Local clock offset: -5.804 ms
Remote clock offset: 1.355 ms


# Below is generated by plot.py at 2019-01-19 13:52:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.49 Mbit/s
95th percentile per-packet one-way delay: 2022.527 ms
Loss rate: 3.21%
-- Flow 1:
Average throughput: 54.86 Mbit/s
95th percentile per-packet one-way delay: 8.524 ms
Loss rate: 0.68%
-- Flow 2:
Average throughput: 38.60 Mbit/s
95th percentile per-packet one-way delay: 2104.857 ms
Loss rate: 9.13%
-- Flow 3:
Average throughput: 27.19 Mbit/s
95th percentile per-packet one-way delay: 20.722 ms
Loss rate: 0.12%
```

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

```
Run 5: Statistics of PCC-Vivace

Start at: 2019-01-19 13:15:07
End at: 2019-01-19 13:15:37
Local clock offset: -2.278 ms
Remote clock offset: 1.486 ms


# Below is generated by plot.py at 2019-01-19 13:52:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 75.63 Mbit/s
95th percentile per-packet one-way delay: 447.669 ms
Loss rate: 0.94%
-- Flow 1:
Average throughput: 42.50 Mbit/s
95th percentile per-packet one-way delay: 24.194 ms
Loss rate: 0.55%
-- Flow 2:
Average throughput: 36.91 Mbit/s
95th percentile per-packet one-way delay: 618.386 ms
Loss rate: 1.89%
-- Flow 3:
Average throughput: 25.95 Mbit/s
95th percentile per-packet one-way delay: 8.019 ms
Loss rate: 0.09%
```
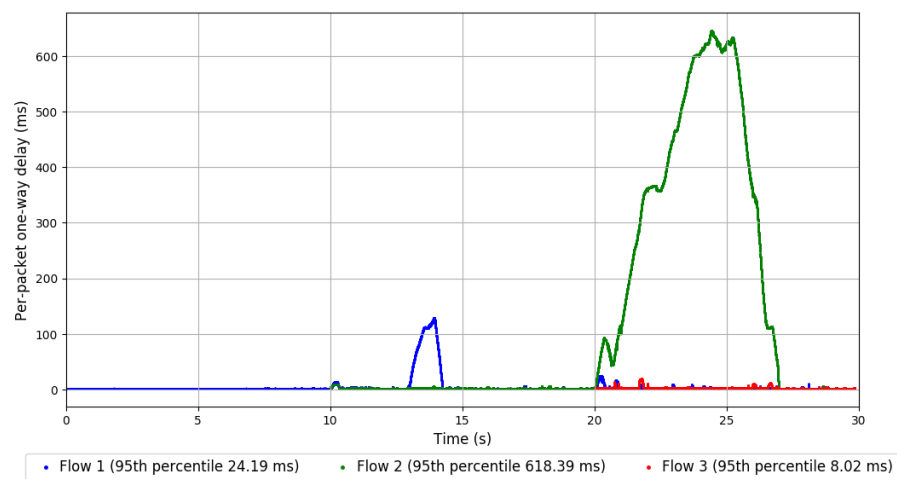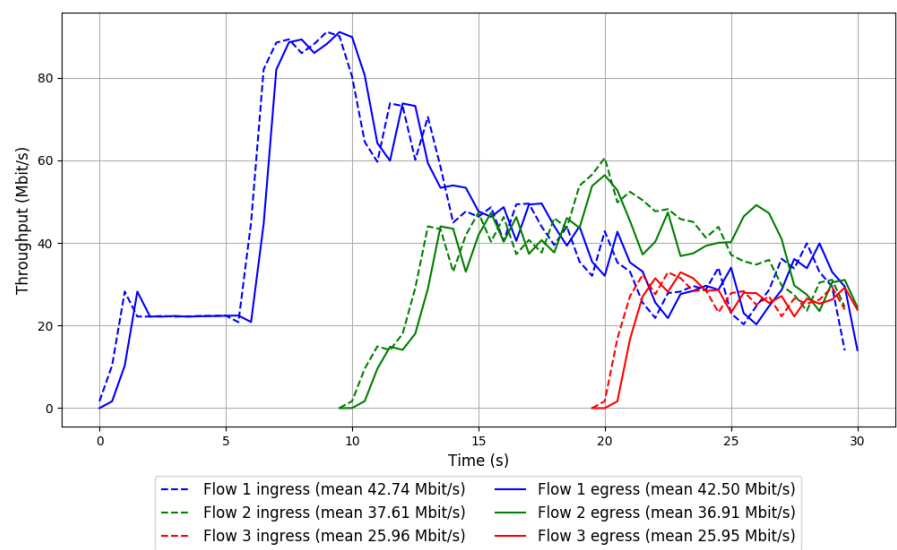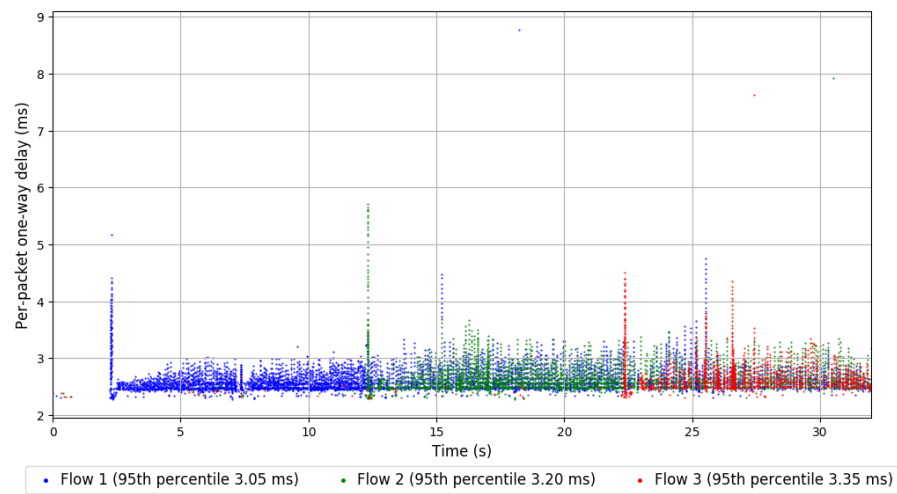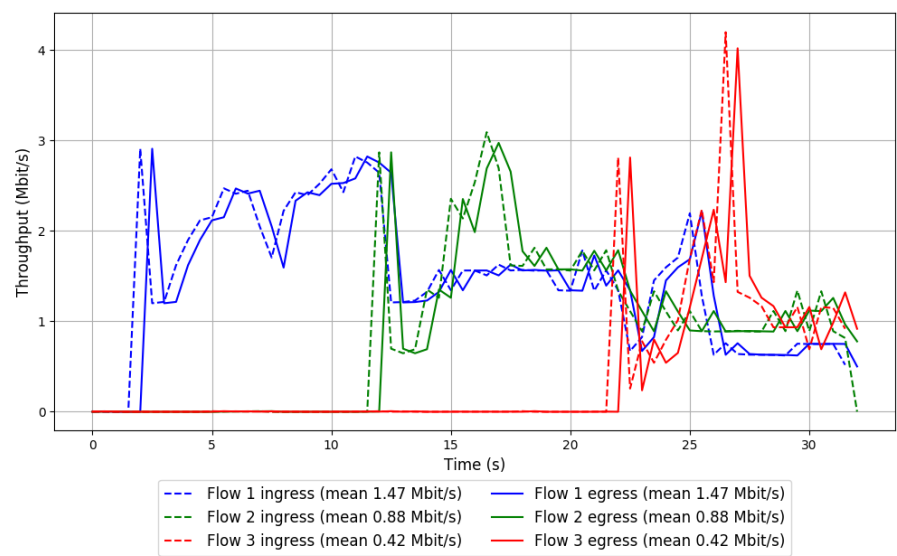
# Run 5: Report of PCC-Vivace — Data Link



Flow 1 ingress (mean 42.74 Mbit/s) --- Flow 1 egress (mean 42.50 Mbit/s)
Flow 2 ingress (mean 37.61 Mbit/s) --- Flow 2 egress (mean 36.91 Mbit/s)
Flow 3 ingress (mean 25.96 Mbit/s) --- Flow 3 egress (mean 25.95 Mbit/s)



Flow 1 (95th percentile 24.19 ms)   Flow 2 (95th percentile 618.39 ms)   Flow 3 (95th percentile 8.02 ms)

204

```
Run 1: Statistics of WebRTC media

Start at: 2019-01-19 11:39:35
End at: 2019-01-19 11:40:05
Local clock offset: -6.822 ms
Remote clock offset: -0.402 ms


# Below is generated by plot.py at 2019-01-19 13:52:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.75 Mbit/s
95th percentile per-packet one-way delay: 3.148 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 1.47 Mbit/s
95th percentile per-packet one-way delay: 3.050 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 0.88 Mbit/s
95th percentile per-packet one-way delay: 3.199 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 3.347 ms
Loss rate: 0.00%
```

Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2019-01-19 12:03:44
End at: 2019-01-19 12:04:14
Local clock offset: -7.677 ms
Remote clock offset: 0.121 ms


# Below is generated by plot.py at 2019-01-19 13:52:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.76 Mbit/s
95th percentile per-packet one-way delay: 2.506 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.49 Mbit/s
95th percentile per-packet one-way delay: 2.404 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.88 Mbit/s
95th percentile per-packet one-way delay: 2.573 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 2.595 ms
Loss rate: 0.00%
```
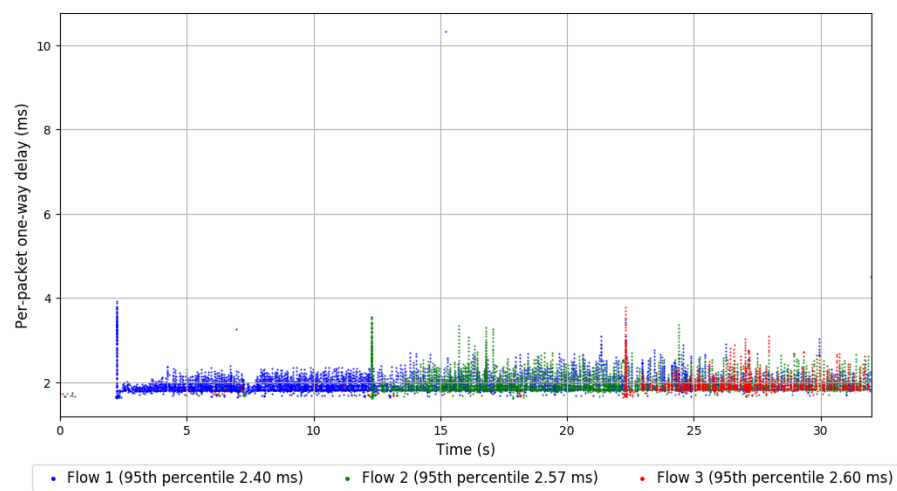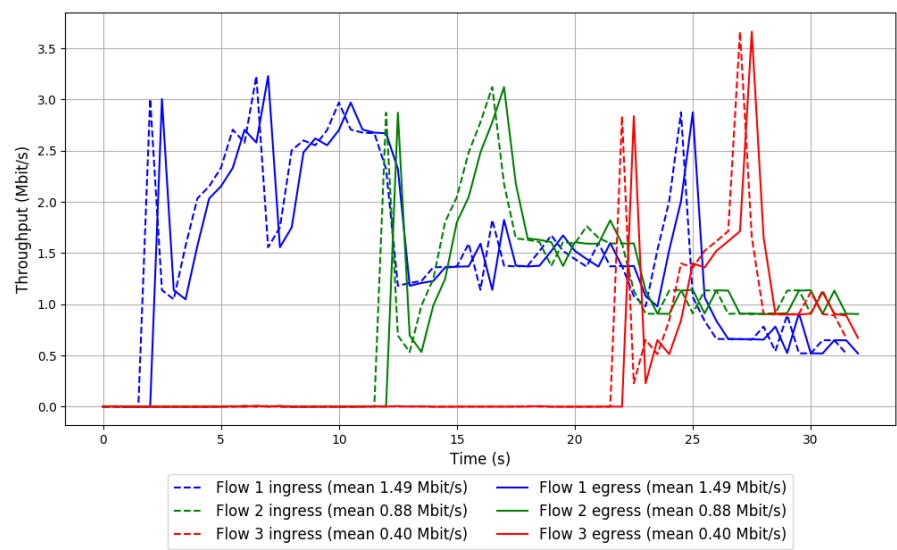
Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2019-01-19 12:27:54
End at: 2019-01-19 12:28:24
Local clock offset: -6.743 ms
Remote clock offset: 0.864 ms


# Below is generated by plot.py at 2019-01-19 13:52:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.72 Mbit/s
95th percentile per-packet one-way delay: 3.043 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.47 Mbit/s
95th percentile per-packet one-way delay: 3.106 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.82 Mbit/s
95th percentile per-packet one-way delay: 2.932 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 3.001 ms
Loss rate: 0.00%
```
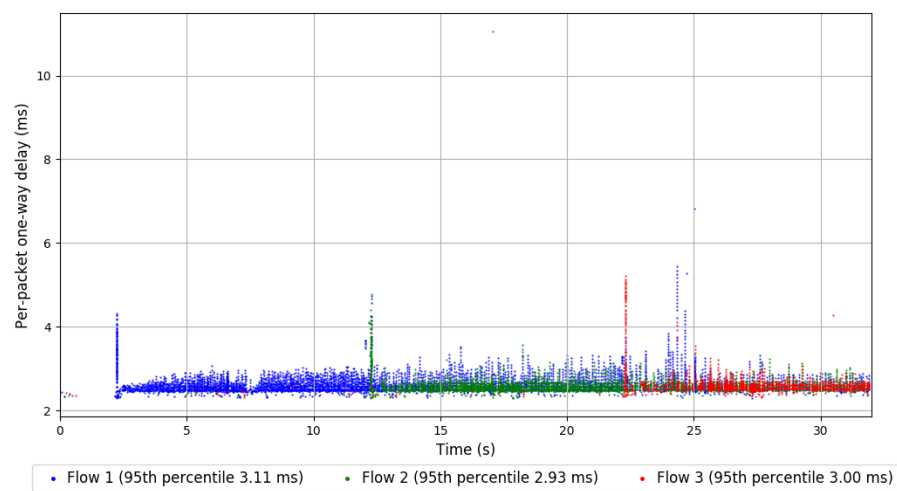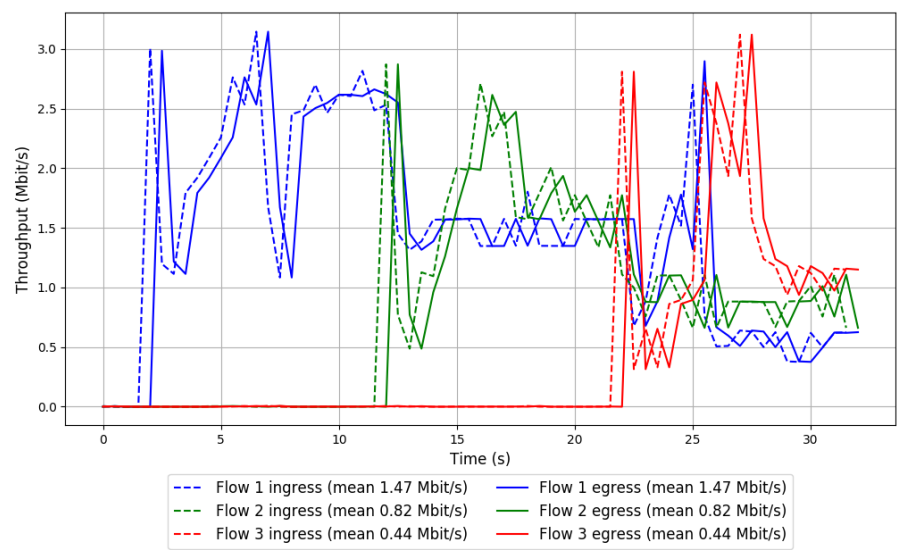
Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2019-01-19 12:52:07
End at: 2019-01-19 12:52:37
Local clock offset: -4.701 ms
Remote clock offset: 1.303 ms


# Below is generated by plot.py at 2019-01-19 13:52:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.76 Mbit/s
95th percentile per-packet one-way delay: 2.792 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.50 Mbit/s
95th percentile per-packet one-way delay: 2.764 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.89 Mbit/s
95th percentile per-packet one-way delay: 2.896 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 2.643 ms
Loss rate: 0.00%
```
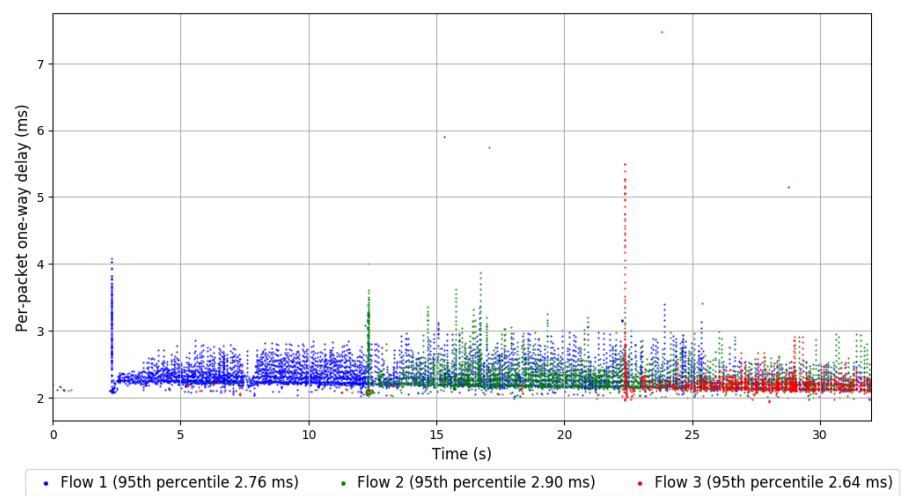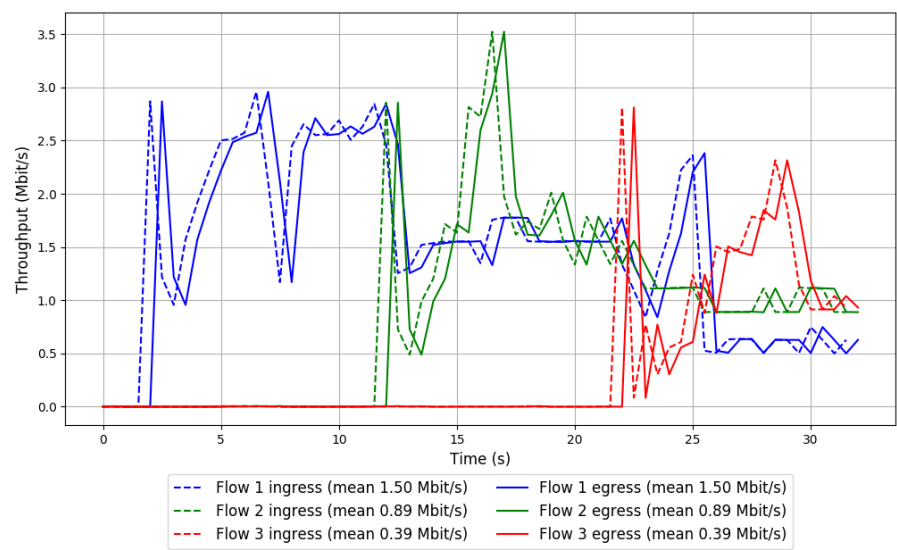
Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2019-01-19 13:16:17
End at: 2019-01-19 13:16:47
Local clock offset: -2.209 ms
Remote clock offset: 1.483 ms


# Below is generated by plot.py at 2019-01-19 13:52:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.77 Mbit/s
95th percentile per-packet one-way delay: 2.316 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 1.48 Mbit/s
95th percentile per-packet one-way delay: 2.213 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.86 Mbit/s
95th percentile per-packet one-way delay: 2.403 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 2.564 ms
Loss rate: 0.07%
```

Run 5: Report of WebRTC media — Data Link