# Pantheon Report

Generated at 2019-03-09 15:11:52 (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.
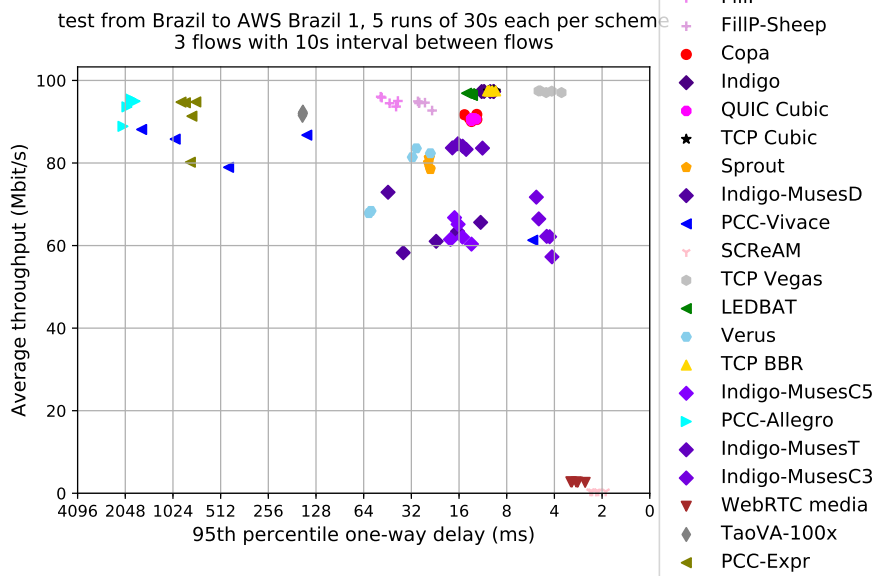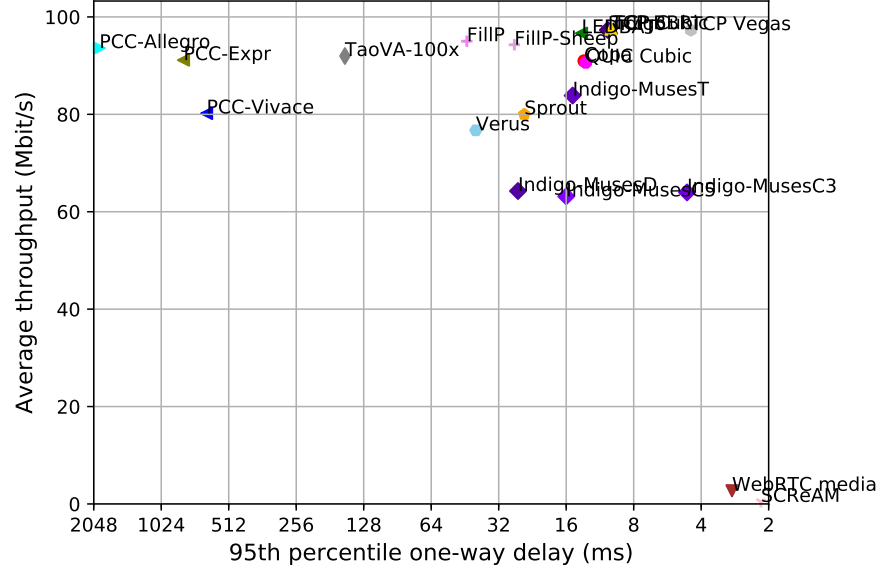
```
System info:
Linux 4.15.0-1031-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ 7a686f7c2ed0a333082c0bab1fa5c921ab47e6ee
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 5ce721187ad823da20955337730c746486ca4966
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
 M src/ScreamClient
 M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
```

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

test from 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 | 59.25 | 40.96 | 32.98 | 9.78 | 9.90 | 11.47 | 0.34 | 0.56 | 1.00 |
| Copa | 5 | 54.18 | 39.59 | 31.35 | 13.01 | 13.03 | 15.05 | 0.04 | 0.08 | 0.18 |
| TCP Cubic | 5 | 59.63 | 40.64 | 32.49 | 9.89 | 9.65 | 9.99 | 0.08 | 0.14 | 0.25 |
| FillP | 5 | 57.52 | 39.29 | 34.10 | 32.39 | 46.80 | 44.32 | 0.14 | 1.41 | 1.11 |
| FillP-Sheep | 5 | 56.57 | 38.73 | 35.94 | 23.37 | 28.45 | 35.77 | 0.03 | 0.05 | 0.23 |
| Indigo | 5 | 59.66 | 40.64 | 32.34 | 9.51 | 10.73 | 9.05 | 0.03 | 0.66 | 0.17 |
| Indigo-MusesC3 | 5 | 45.34 | 23.16 | 15.46 | 4.32 | 4.85 | 4.68 | 0.01 | 0.01 | 0.09 |
| Indigo-MusesC5 | 5 | 37.11 | 28.05 | 31.22 | 13.10 | 17.07 | 18.12 | 0.03 | 0.10 | 0.22 |
| Indigo-MusesD | 5 | 36.01 | 26.97 | 40.68 | 10.15 | 12.29 | 35.50 | 0.02 | 0.10 | 1.24 |
| Indigo-MusesT | 5 | 54.50 | 37.01 | 23.65 | 12.62 | 17.82 | 14.92 | 0.04 | 0.10 | 0.17 |
| LEDBAT | 5 | 59.07 | 40.60 | 31.74 | 13.30 | 13.98 | 13.64 | 0.13 | 0.23 | 0.39 |
| PCC-Allegro | 5 | 60.65 | 36.67 | 26.07 | 1985.46 | 710.16 | 9.01 | 12.24 | 6.72 | 0.09 |
| PCC-Expr | 5 | 57.64 | 36.43 | 28.08 | 847.48 | 197.70 | 89.69 | 27.75 | 4.60 | 0.60 |
| QUIC Cubic | 5 | 53.71 | 40.02 | 31.14 | 12.95 | 12.79 | 13.77 | 0.16 | 0.31 | 0.50 |
| SCReAM | 5 | 0.22 | 0.21 | 0.22 | 2.17 | 2.15 | 2.12 | 0.00 | 0.06 | 0.14 |
| Sprout | 5 | 42.69 | 40.12 | 32.18 | 22.74 | 24.62 | 26.47 | 0.09 | 0.18 | 0.54 |
| TaoVA-100x | 5 | 54.93 | 39.73 | 31.84 | 154.06 | 155.43 | 155.77 | 0.54 | 1.12 | 2.65 |
| TCP Vegas | 5 | 50.51 | 51.00 | 38.57 | 3.56 | 4.13 | 4.85 | 0.01 | 0.02 | 0.06 |
| Verus | 5 | 42.58 | 34.23 | 34.16 | 35.75 | 36.98 | 116.06 | 0.03 | 0.08 | 0.12 |
| PCC-Vivace | 5 | 47.86 | 35.94 | 25.47 | 222.74 | 589.58 | 13.55 | 0.74 | 1.52 | 0.09 |
| WebRTC media | 5 | 1.53 | 0.78 | 0.40 | 2.85 | 2.89 | 3.04 | 0.00 | 0.01 | 0.00 |

```
Run 1: Statistics of TCP BBR

Start at: 2019-03-09 12:59:16
End at: 2019-03-09 12:59:46
Local clock offset: -7.659 ms
Remote clock offset: 0.168 ms


# Below is generated by plot.py at 2019-03-09 14:58:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 10.313 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 59.22 Mbit/s
95th percentile per-packet one-way delay: 10.251 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 40.98 Mbit/s
95th percentile per-packet one-way delay: 9.896 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 32.97 Mbit/s
95th percentile per-packet one-way delay: 12.106 ms
Loss rate: 1.47%
```
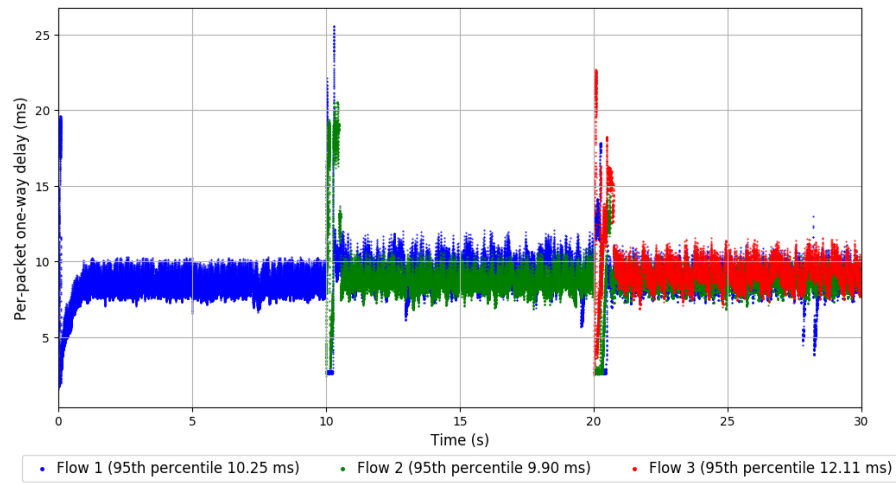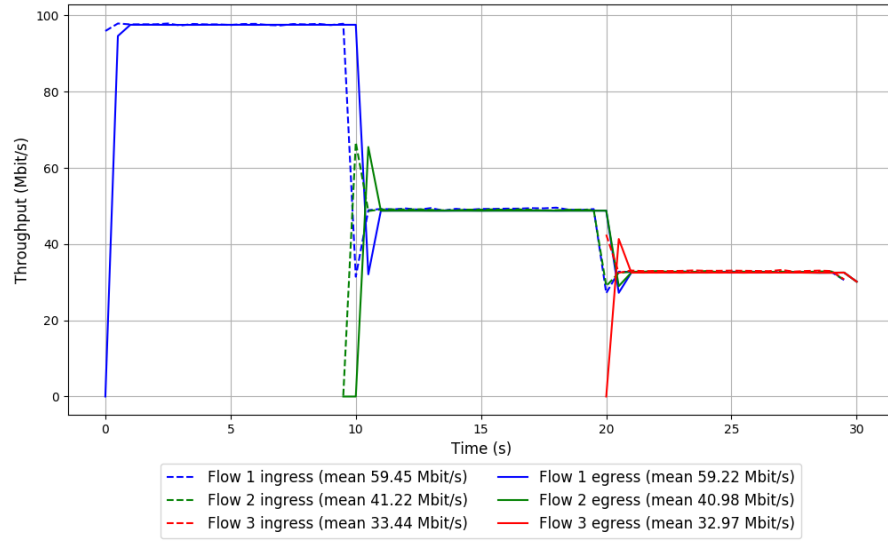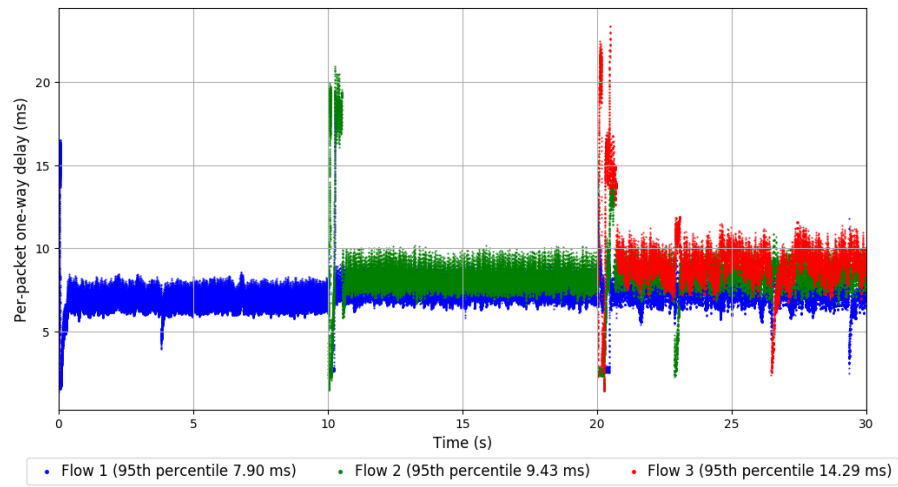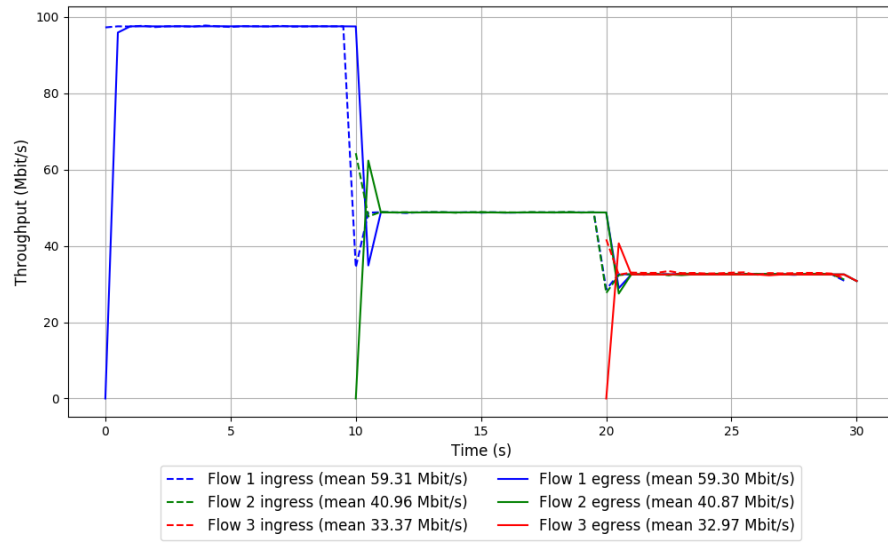
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2019-03-09 13:23:30
End at: 2019-03-09 13:24:00
Local clock offset: -3.886 ms
Remote clock offset: 0.585 ms


# Below is generated by plot.py at 2019-03-09 14:58:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 9.399 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 59.30 Mbit/s
95th percentile per-packet one-way delay: 7.896 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 40.87 Mbit/s
95th percentile per-packet one-way delay: 9.433 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 32.97 Mbit/s
95th percentile per-packet one-way delay: 14.292 ms
Loss rate: 1.25%
```
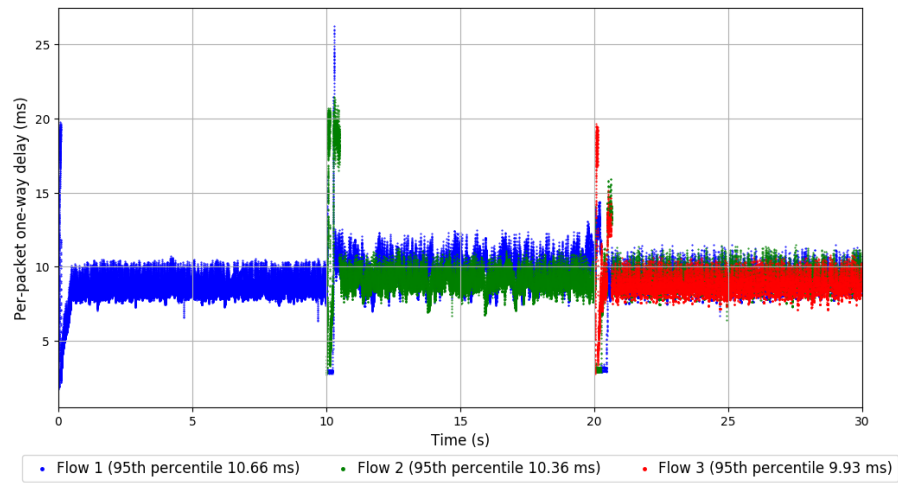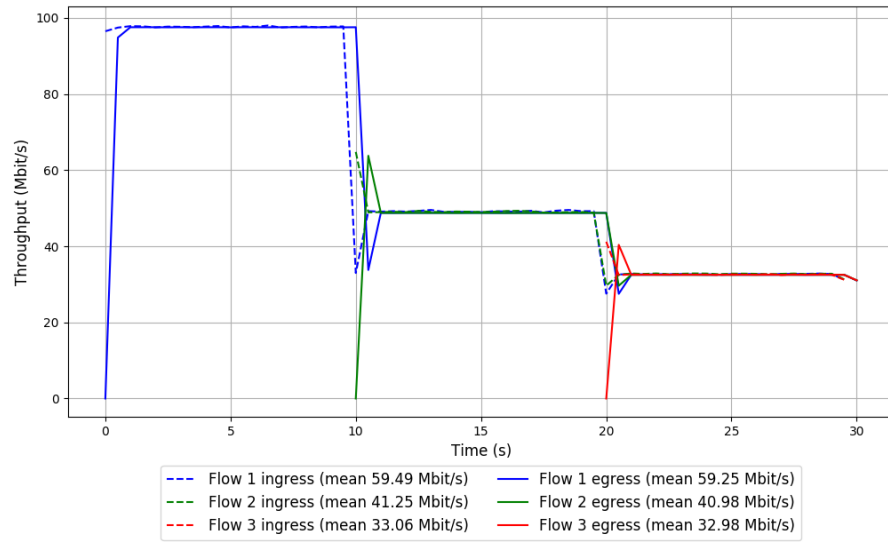
Run 2: Report of TCP BBR — Data Link



- - - Flow 1 ingress (mean 59.31 Mbit/s) —— Flow 1 egress (mean 59.30 Mbit/s)
- - - Flow 2 ingress (mean 40.96 Mbit/s) —— Flow 2 egress (mean 40.87 Mbit/s)
- - - Flow 3 ingress (mean 33.37 Mbit/s) —— Flow 3 egress (mean 32.97 Mbit/s)



- Flow 1 (95th percentile 7.90 ms)   • Flow 2 (95th percentile 9.43 ms)   • Flow 3 (95th percentile 14.29 ms)

```
Run 3: Statistics of TCP BBR

Start at: 2019-03-09 13:47:42
End at: 2019-03-09 13:48:12
Local clock offset: -3.292 ms
Remote clock offset: 0.77 ms


# Below is generated by plot.py at 2019-03-09 14:58:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 10.568 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 59.25 Mbit/s
95th percentile per-packet one-way delay: 10.661 ms
Loss rate: 0.42%
-- Flow 2:
Average throughput: 40.98 Mbit/s
95th percentile per-packet one-way delay: 10.359 ms
Loss rate: 0.68%
-- Flow 3:
Average throughput: 32.98 Mbit/s
95th percentile per-packet one-way delay: 9.933 ms
Loss rate: 0.28%
```
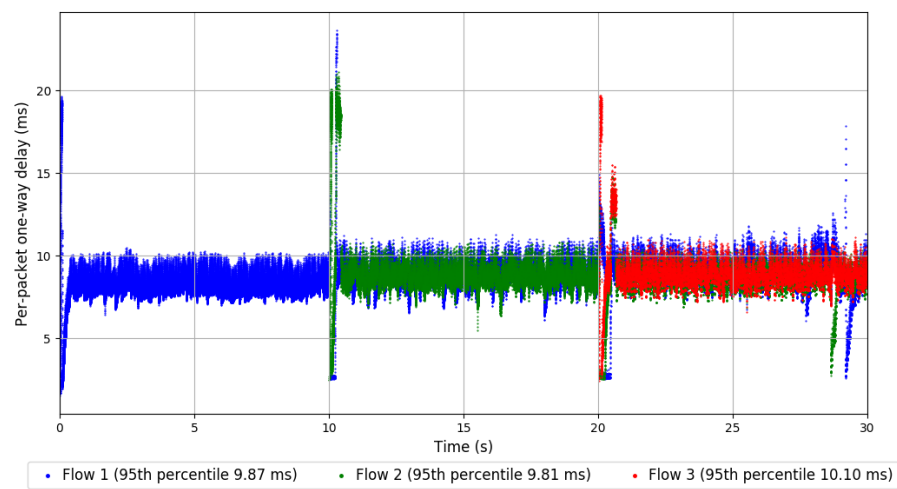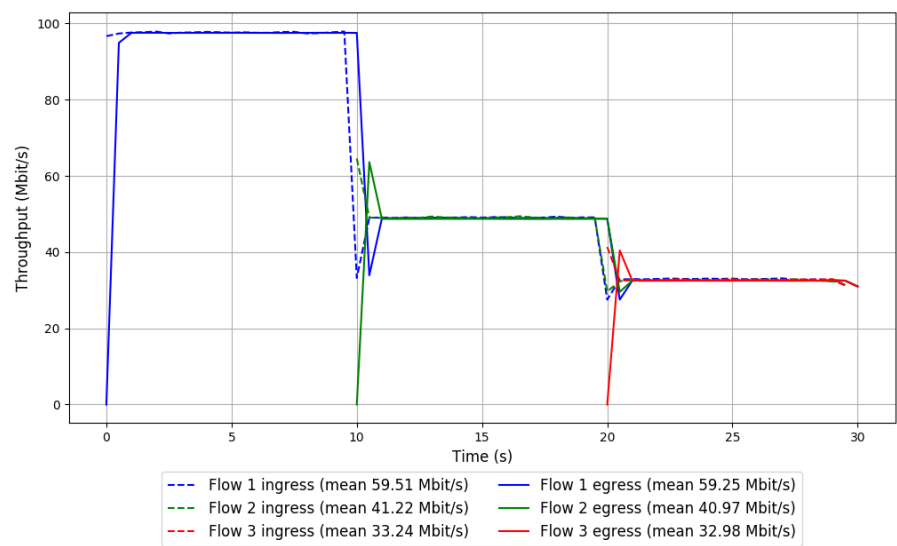
Run 3: Report of TCP BBR — Data Link



Flow 1 ingress (mean 59.49 Mbit/s) --- Flow 1 egress (mean 59.25 Mbit/s)
Flow 2 ingress (mean 41.25 Mbit/s) --- Flow 2 egress (mean 40.98 Mbit/s)
Flow 3 ingress (mean 33.06 Mbit/s) --- Flow 3 egress (mean 32.98 Mbit/s)



Flow 1 (95th percentile 10.66 ms)   Flow 2 (95th percentile 10.36 ms)   Flow 3 (95th percentile 9.93 ms)

```
Run 4: Statistics of TCP BBR

Start at: 2019-03-09 14:11:53
End at: 2019-03-09 14:12:23
Local clock offset: -7.803 ms
Remote clock offset: 0.964 ms


# Below is generated by plot.py at 2019-03-09 14:58:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 9.871 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 59.25 Mbit/s
95th percentile per-packet one-way delay: 9.868 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 40.97 Mbit/s
95th percentile per-packet one-way delay: 9.812 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 32.98 Mbit/s
95th percentile per-packet one-way delay: 10.096 ms
Loss rate: 0.83%
```
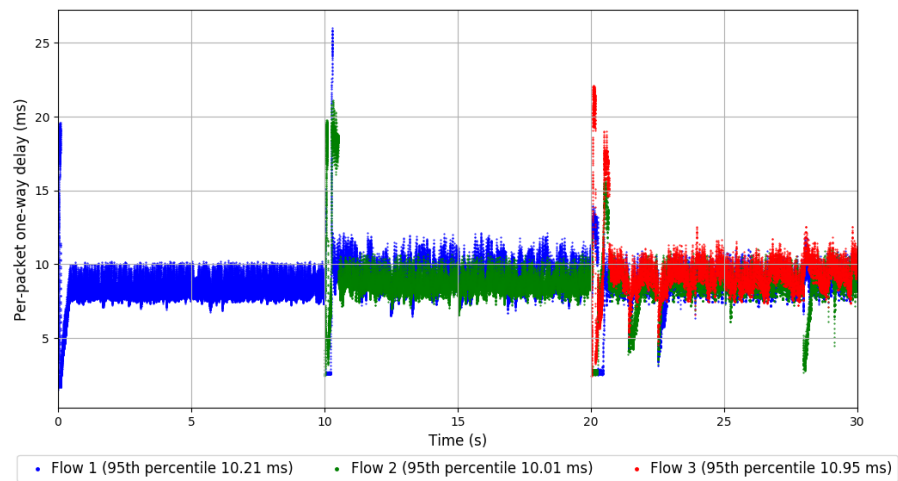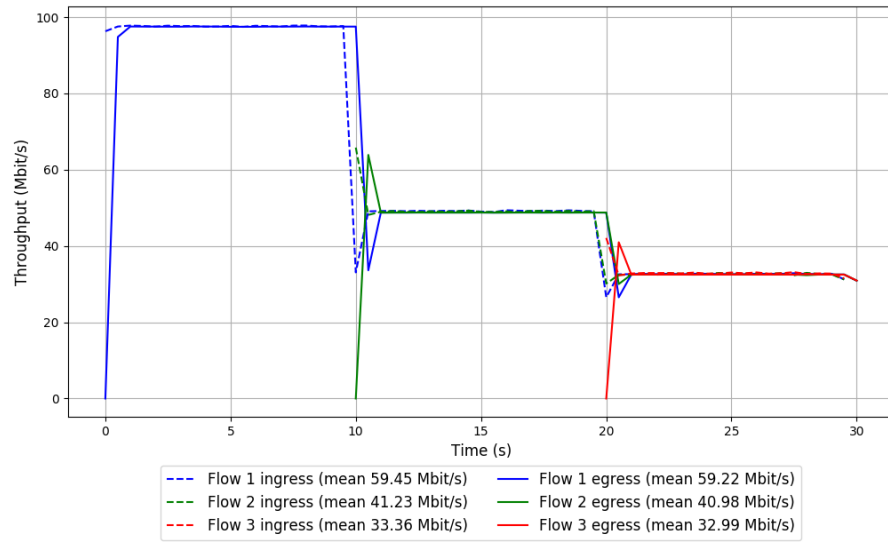
Run 4: Report of TCP BBR — Data Link

```
Run 5: Statistics of TCP BBR

Start at: 2019-03-09 14:36:07
End at: 2019-03-09 14:36:37
Local clock offset: -7.458 ms
Remote clock offset: 0.951 ms


# Below is generated by plot.py at 2019-03-09 14:58:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 10.296 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 59.22 Mbit/s
95th percentile per-packet one-way delay: 10.214 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 40.98 Mbit/s
95th percentile per-packet one-way delay: 10.007 ms
Loss rate: 0.64%
-- Flow 3:
Average throughput: 32.99 Mbit/s
95th percentile per-packet one-way delay: 10.946 ms
Loss rate: 1.16%
```
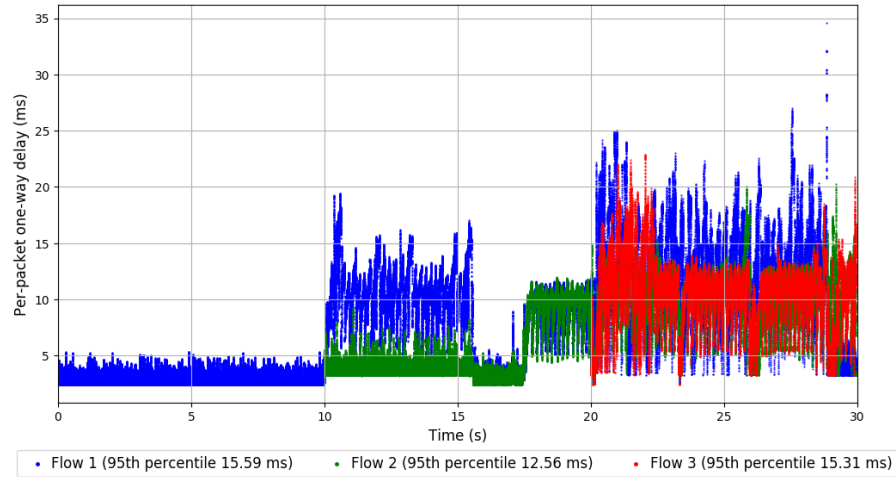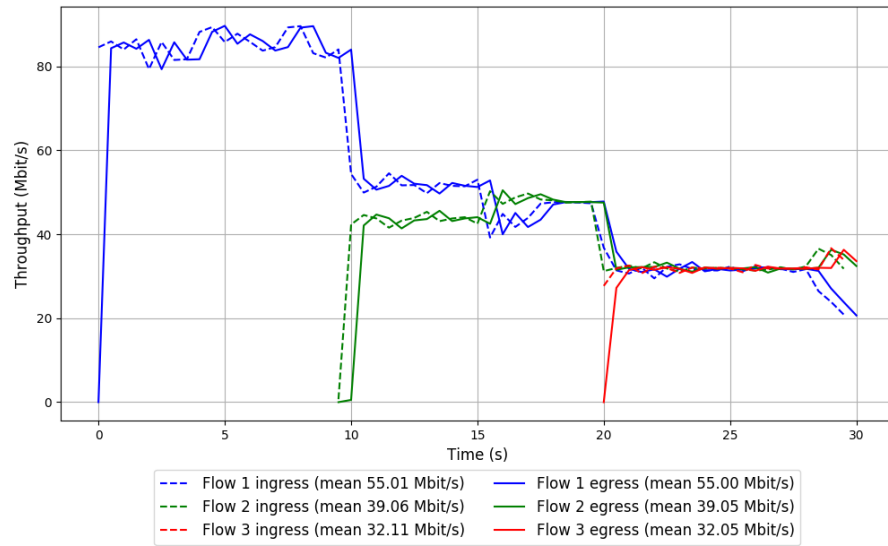
Run 5: Report of TCP BBR — Data Link



- - - Flow 1 ingress (mean 59.45 Mbit/s) ——— Flow 1 egress (mean 59.22 Mbit/s)
- - - Flow 2 ingress (mean 41.23 Mbit/s) ——— Flow 2 egress (mean 40.98 Mbit/s)
- - - Flow 3 ingress (mean 33.36 Mbit/s) ——— Flow 3 egress (mean 32.99 Mbit/s)



· Flow 1 (95th percentile 10.21 ms)   · Flow 2 (95th percentile 10.01 ms)   · Flow 3 (95th percentile 10.95 ms)

14

```
Run 1: Statistics of Copa

Start at: 2019-03-09 12:58:04
End at: 2019-03-09 12:58:34
Local clock offset: -6.896 ms
Remote clock offset: 0.153 ms


# Below is generated by plot.py at 2019-03-09 14:59:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.69 Mbit/s
95th percentile per-packet one-way delay: 14.773 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 55.00 Mbit/s
95th percentile per-packet one-way delay: 15.594 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 39.05 Mbit/s
95th percentile per-packet one-way delay: 12.556 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 32.05 Mbit/s
95th percentile per-packet one-way delay: 15.313 ms
Loss rate: 0.20%
```
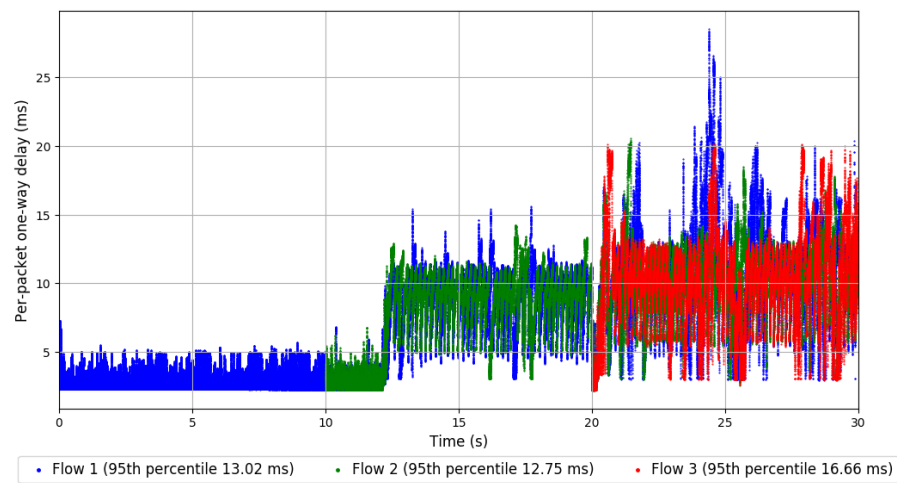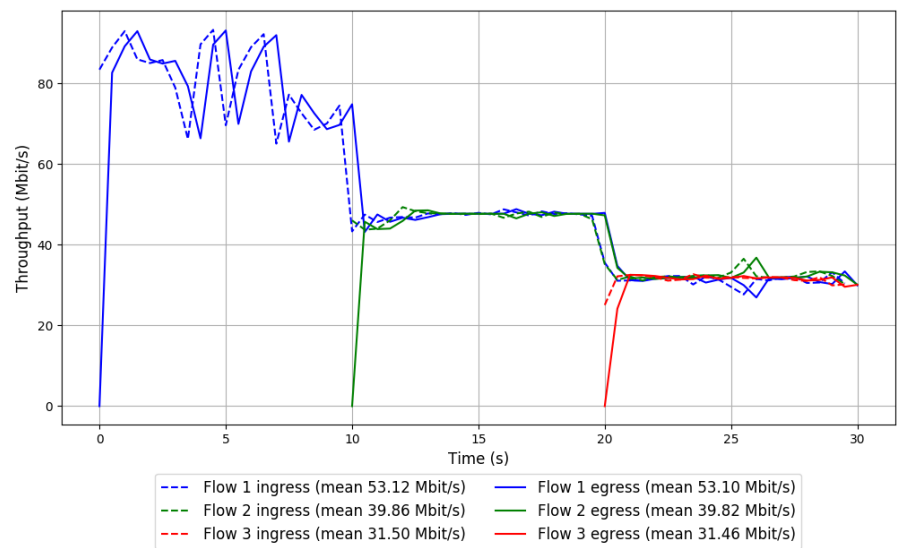
Run 1: Report of Copa — Data Link



Flow 1 ingress (mean 55.01 Mbit/s)  ----  Flow 1 egress (mean 55.00 Mbit/s) ——
Flow 2 ingress (mean 39.06 Mbit/s)  ----  Flow 2 egress (mean 39.05 Mbit/s) ——
Flow 3 ingress (mean 32.11 Mbit/s)  ----  Flow 3 egress (mean 32.05 Mbit/s) ——



• Flow 1 (95th percentile 15.59 ms)    • Flow 2 (95th percentile 12.56 ms)    • Flow 3 (95th percentile 15.31 ms)

Run 2: Statistics of Copa

Start at: 2019-03-09 13:22:18
End at: 2019-03-09 13:22:48
Local clock offset: -3.496 ms
Remote clock offset: 0.486 ms


# Below is generated by plot.py at 2019-03-09 14:59:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.06 Mbit/s
95th percentile per-packet one-way delay: 13.354 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 53.10 Mbit/s
95th percentile per-packet one-way delay: 13.021 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 39.82 Mbit/s
95th percentile per-packet one-way delay: 12.748 ms
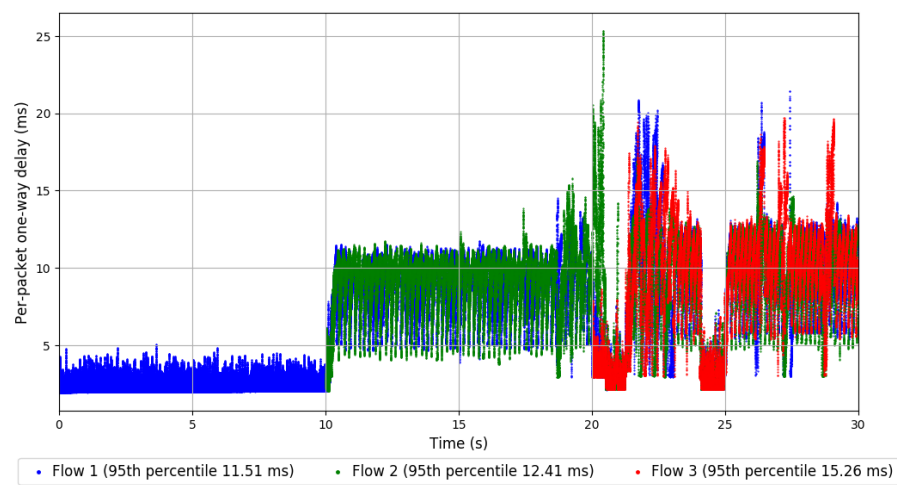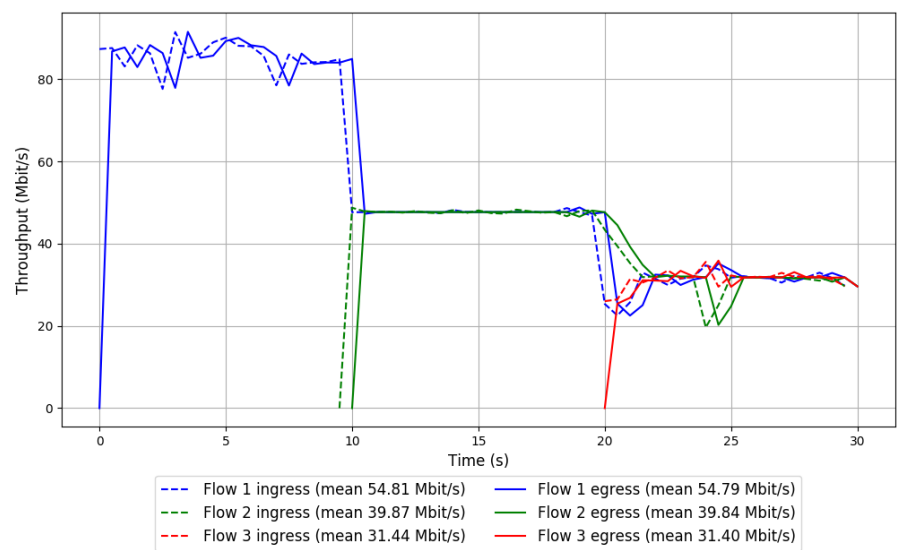Loss rate: 0.10%
-- Flow 3:
Average throughput: 31.46 Mbit/s
95th percentile per-packet one-way delay: 16.657 ms
Loss rate: 0.20%

Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2019-03-09 13:46:29
End at: 2019-03-09 13:46:59
Local clock offset: -2.648 ms
Remote clock offset: 0.754 ms


# Below is generated by plot.py at 2019-03-09 14:59:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.76 Mbit/s
95th percentile per-packet one-way delay: 12.370 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 54.79 Mbit/s
95th percentile per-packet one-way delay: 11.507 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 39.84 Mbit/s
95th percentile per-packet one-way delay: 12.409 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 31.40 Mbit/s
95th percentile per-packet one-way delay: 15.256 ms
Loss rate: 0.16%
```
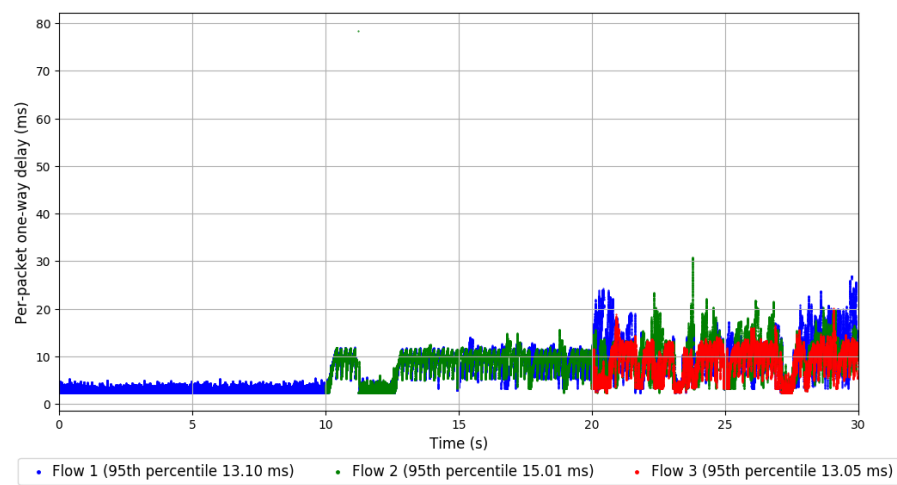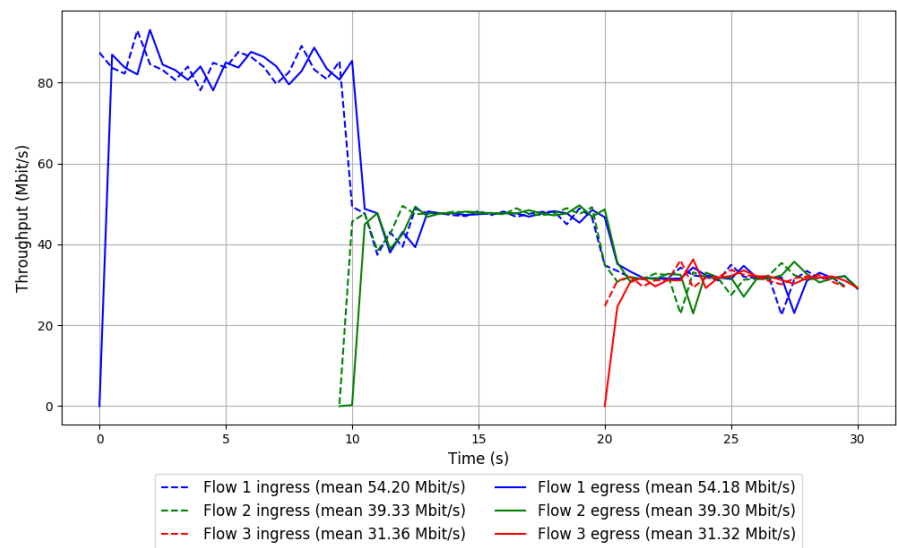
# Run 3: Report of Copa — Data Link



Flow 1 ingress (mean 54.81 Mbit/s)    Flow 1 egress (mean 54.79 Mbit/s)
Flow 2 ingress (mean 39.87 Mbit/s)    Flow 2 egress (mean 39.84 Mbit/s)
Flow 3 ingress (mean 31.44 Mbit/s)    Flow 3 egress (mean 31.40 Mbit/s)



Flow 1 (95th percentile 11.51 ms)    Flow 2 (95th percentile 12.41 ms)    Flow 3 (95th percentile 15.26 ms)

```
Run 4: Statistics of Copa

Start at: 2019-03-09 14:10:41
End at: 2019-03-09 14:11:11
Local clock offset: -7.042 ms
Remote clock offset: 0.862 ms


# Below is generated by plot.py at 2019-03-09 15:00:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.78 Mbit/s
95th percentile per-packet one-way delay: 13.731 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 54.18 Mbit/s
95th percentile per-packet one-way delay: 13.104 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 39.30 Mbit/s
95th percentile per-packet one-way delay: 15.008 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 31.32 Mbit/s
95th percentile per-packet one-way delay: 13.048 ms
Loss rate: 0.15%
```
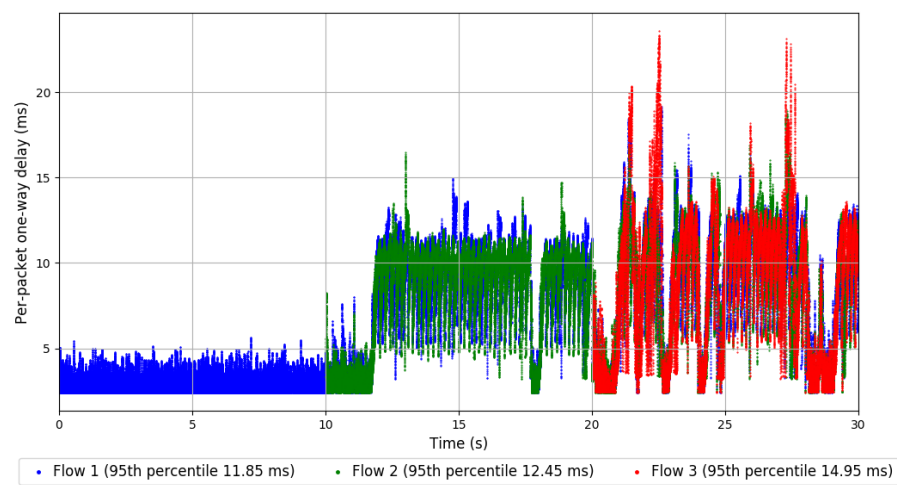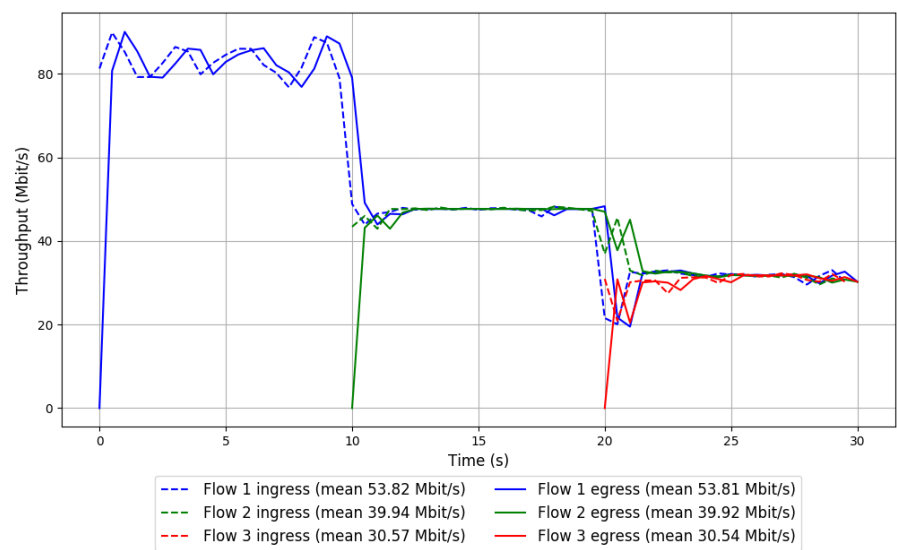
Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2019-03-09 14:34:55
End at: 2019-03-09 14:35:25
Local clock offset: -6.641 ms
Remote clock offset: 0.948 ms


# Below is generated by plot.py at 2019-03-09 15:00:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.54 Mbit/s
95th percentile per-packet one-way delay: 12.355 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 53.81 Mbit/s
95th percentile per-packet one-way delay: 11.847 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 39.92 Mbit/s
95th percentile per-packet one-way delay: 12.449 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 30.54 Mbit/s
95th percentile per-packet one-way delay: 14.953 ms
Loss rate: 0.18%
```
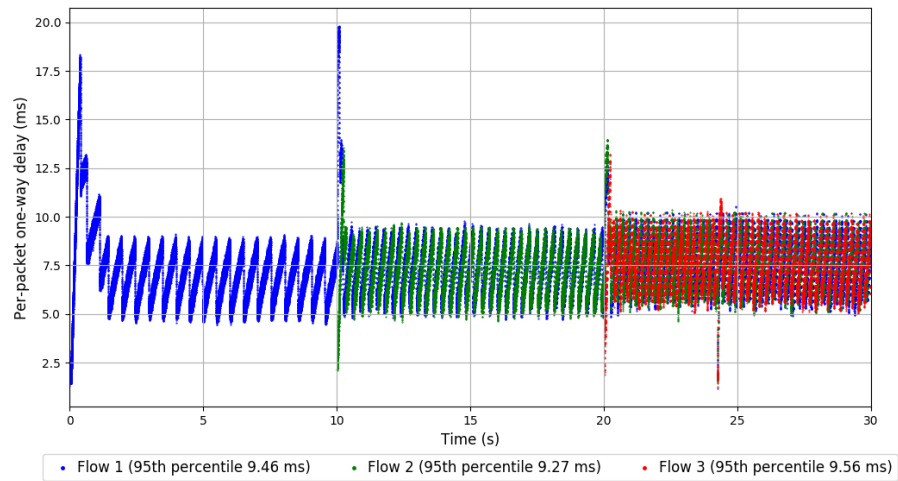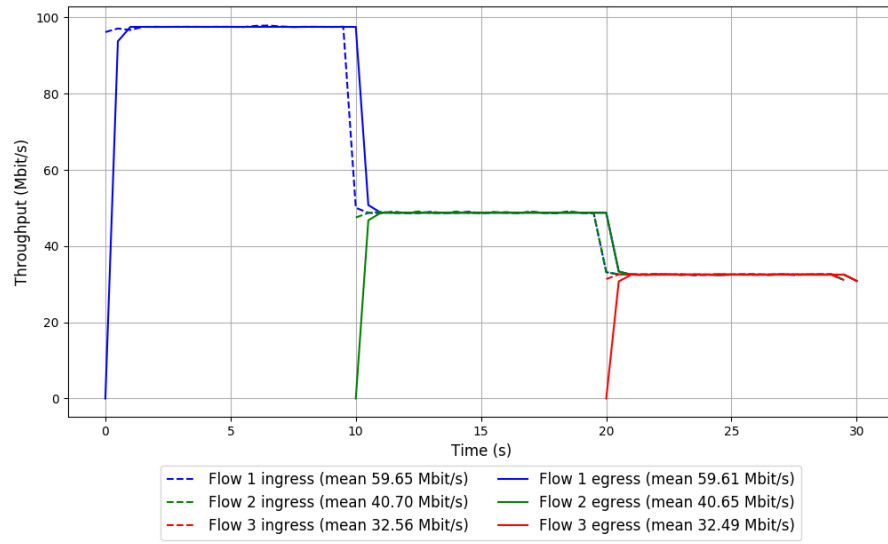
Run 5: Report of Copa — Data Link



- - - Flow 1 ingress (mean 53.82 Mbit/s) ——— Flow 1 egress (mean 53.81 Mbit/s)
- - - Flow 2 ingress (mean 39.94 Mbit/s) ——— Flow 2 egress (mean 39.92 Mbit/s)
- - - Flow 3 ingress (mean 30.57 Mbit/s) ——— Flow 3 egress (mean 30.54 Mbit/s)



- Flow 1 (95th percentile 11.85 ms)    - Flow 2 (95th percentile 12.45 ms)    - Flow 3 (95th percentile 14.95 ms)

```
Run 1: Statistics of TCP Cubic

Start at: 2019-03-09 13:14:14
End at: 2019-03-09 13:14:44
Local clock offset: -8.061 ms
Remote clock offset: 0.409 ms


# Below is generated by plot.py at 2019-03-09 15:00:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 9.424 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 59.61 Mbit/s
95th percentile per-packet one-way delay: 9.465 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 40.65 Mbit/s
95th percentile per-packet one-way delay: 9.268 ms
Loss rate: 0.16%
-- Flow 3:
Average throughput: 32.49 Mbit/s
95th percentile per-packet one-way delay: 9.557 ms
Loss rate: 0.25%
```
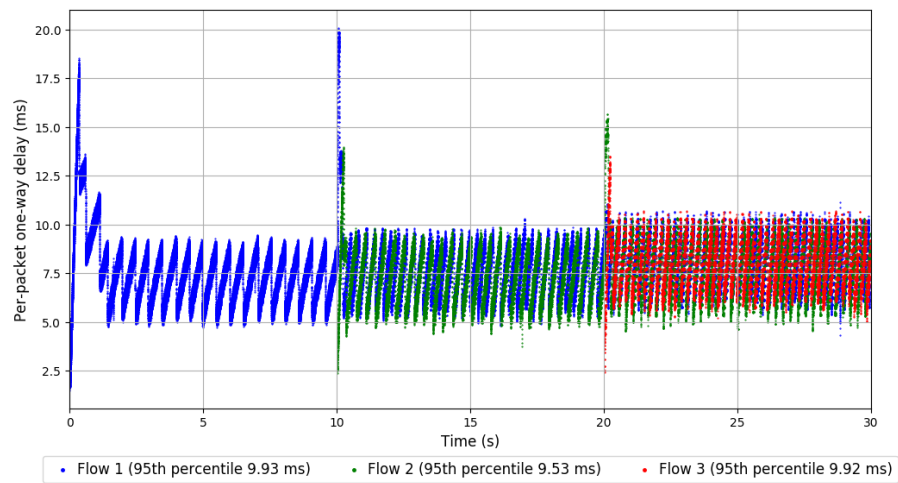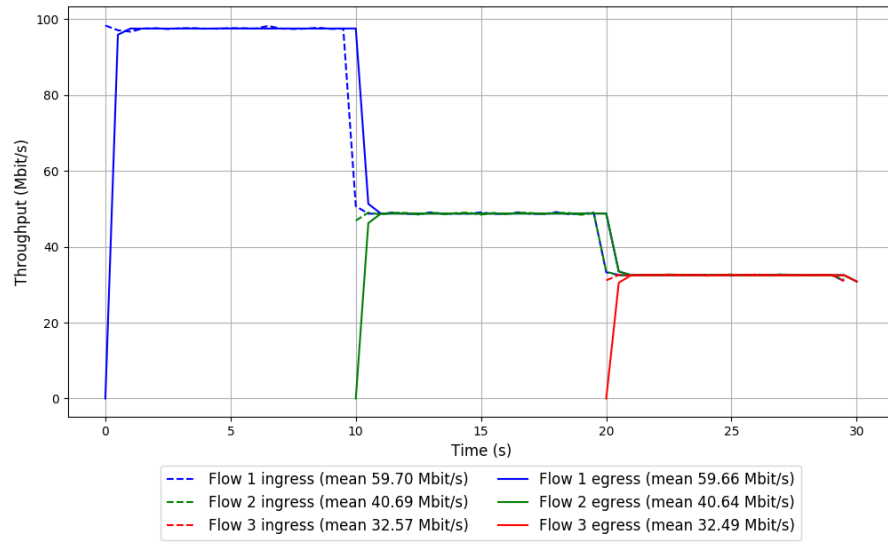
Run 1: Report of TCP Cubic — Data Link



Flow 1 ingress (mean 59.65 Mbit/s) --- Flow 1 egress (mean 59.61 Mbit/s)
Flow 2 ingress (mean 40.70 Mbit/s) --- Flow 2 egress (mean 40.65 Mbit/s)
Flow 3 ingress (mean 32.56 Mbit/s) --- Flow 3 egress (mean 32.49 Mbit/s)



Flow 1 (95th percentile 9.46 ms)  Flow 2 (95th percentile 9.27 ms)  Flow 3 (95th percentile 9.56 ms)

```
Run 2: Statistics of TCP Cubic

Start at: 2019-03-09 13:38:26
End at: 2019-03-09 13:38:56
Local clock offset: -1.597 ms
Remote clock offset: 0.797 ms


# Below is generated by plot.py at 2019-03-09 15:00:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.50 Mbit/s
95th percentile per-packet one-way delay: 9.818 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 59.66 Mbit/s
95th percentile per-packet one-way delay: 9.931 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 40.64 Mbit/s
95th percentile per-packet one-way delay: 9.530 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 32.49 Mbit/s
95th percentile per-packet one-way delay: 9.919 ms
Loss rate: 0.26%
```
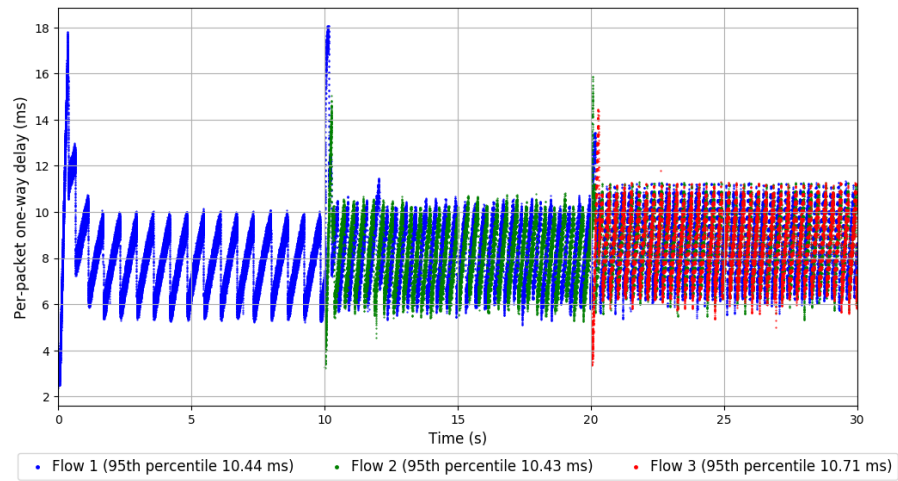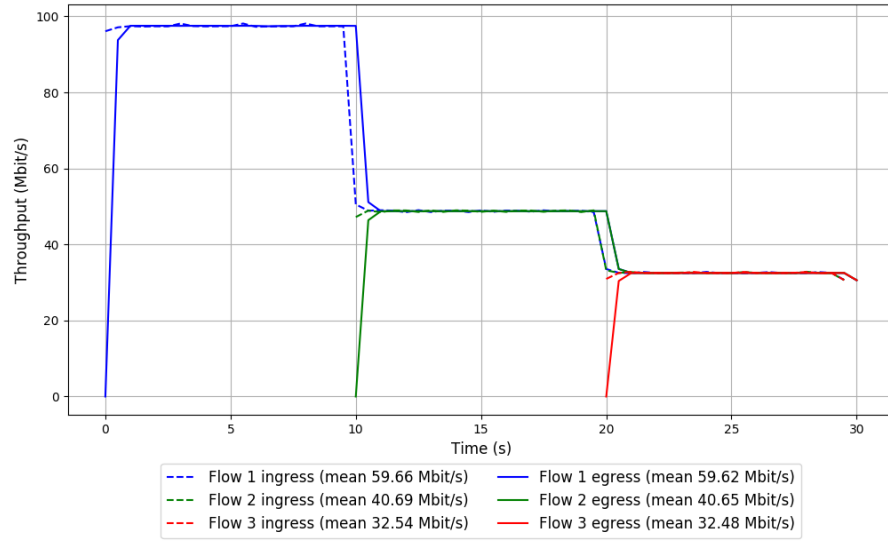
Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2019-03-09 14:02:38
End at: 2019-03-09 14:03:08
Local clock offset: -6.304 ms
Remote clock offset: 0.841 ms


# Below is generated by plot.py at 2019-03-09 15:00:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 10.468 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 59.62 Mbit/s
95th percentile per-packet one-way delay: 10.440 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 40.65 Mbit/s
95th percentile per-packet one-way delay: 10.425 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 32.48 Mbit/s
95th percentile per-packet one-way delay: 10.715 ms
Loss rate: 0.21%
```
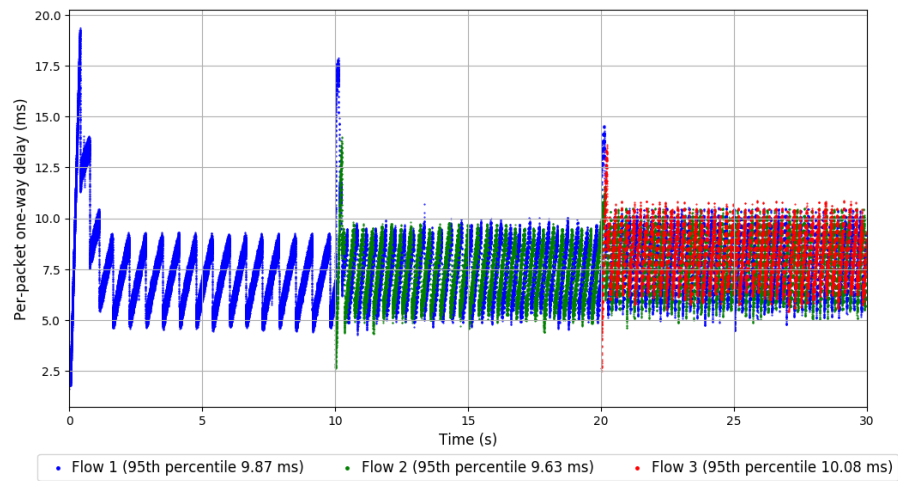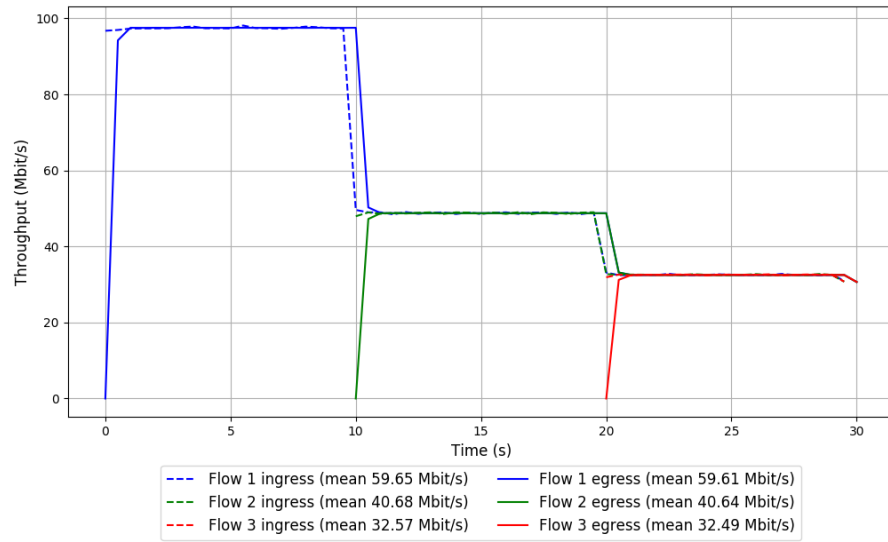
# Run 3: Report of TCP Cubic — Data Link



- - - - Flow 1 ingress (mean 59.66 Mbit/s) ——— Flow 1 egress (mean 59.62 Mbit/s)
- - - - Flow 2 ingress (mean 40.69 Mbit/s) ——— Flow 2 egress (mean 40.65 Mbit/s)
- - - - Flow 3 ingress (mean 32.54 Mbit/s) ——— Flow 3 egress (mean 32.48 Mbit/s)



- Flow 1 (95th percentile 10.44 ms)　　・ Flow 2 (95th percentile 10.43 ms)　　・ Flow 3 (95th percentile 10.71 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2019-03-09 14:26:52
End at: 2019-03-09 14:27:22
Local clock offset: -7.35 ms
Remote clock offset: 0.856 ms


# Below is generated by plot.py at 2019-03-09 15:00:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.47 Mbit/s
95th percentile per-packet one-way delay: 9.854 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 59.61 Mbit/s
95th percentile per-packet one-way delay: 9.867 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 40.64 Mbit/s
95th percentile per-packet one-way delay: 9.626 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 32.49 Mbit/s
95th percentile per-packet one-way delay: 10.078 ms
Loss rate: 0.26%
```
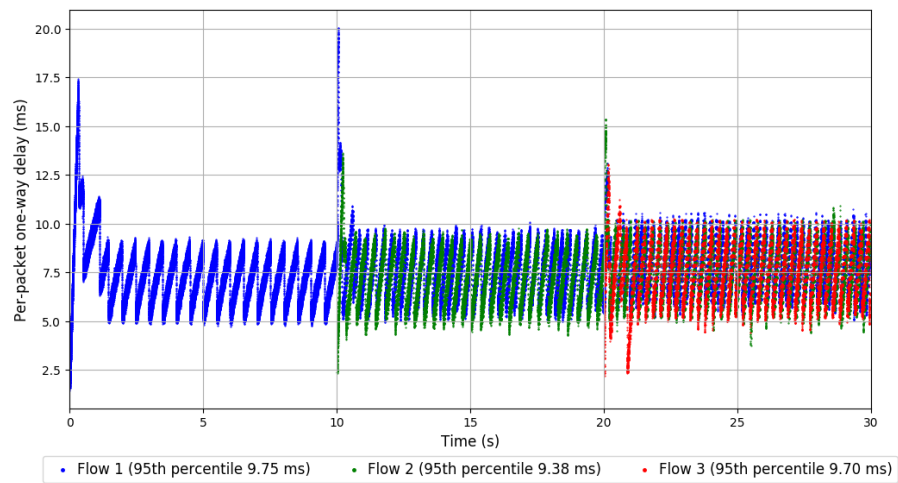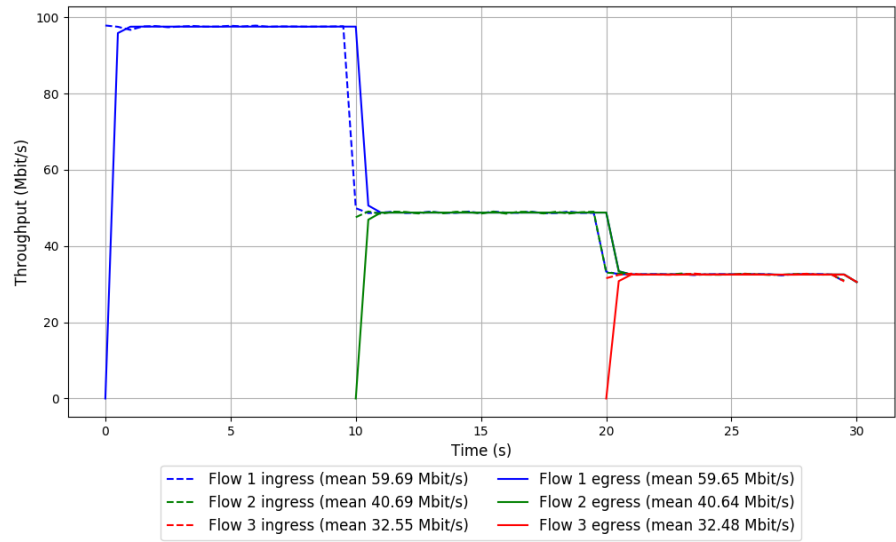
Run 4: Report of TCP Cubic — Data Link



Flow 1 ingress (mean 59.65 Mbit/s) --- Flow 1 egress (mean 59.61 Mbit/s)
Flow 2 ingress (mean 40.68 Mbit/s) --- Flow 2 egress (mean 40.64 Mbit/s)
Flow 3 ingress (mean 32.57 Mbit/s) --- Flow 3 egress (mean 32.49 Mbit/s)



Flow 1 (95th percentile 9.87 ms)    Flow 2 (95th percentile 9.63 ms)    Flow 3 (95th percentile 10.08 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2019-03-09 14:51:06
End at: 2019-03-09 14:51:36
Local clock offset: -5.068 ms
Remote clock offset: 0.967 ms


# Below is generated by plot.py at 2019-03-09 15:00:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.50 Mbit/s
95th percentile per-packet one-way delay: 9.636 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 59.65 Mbit/s
95th percentile per-packet one-way delay: 9.749 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 40.64 Mbit/s
95th percentile per-packet one-way delay: 9.380 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 32.48 Mbit/s
95th percentile per-packet one-way delay: 9.699 ms
Loss rate: 0.26%
```
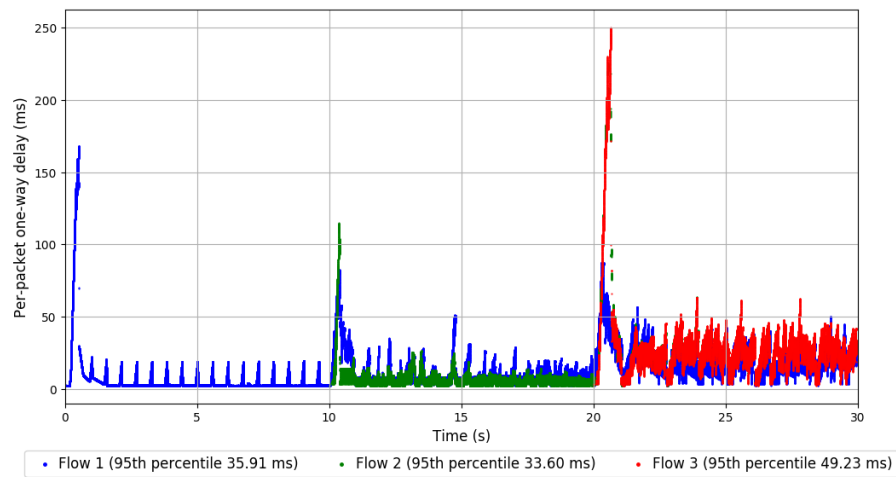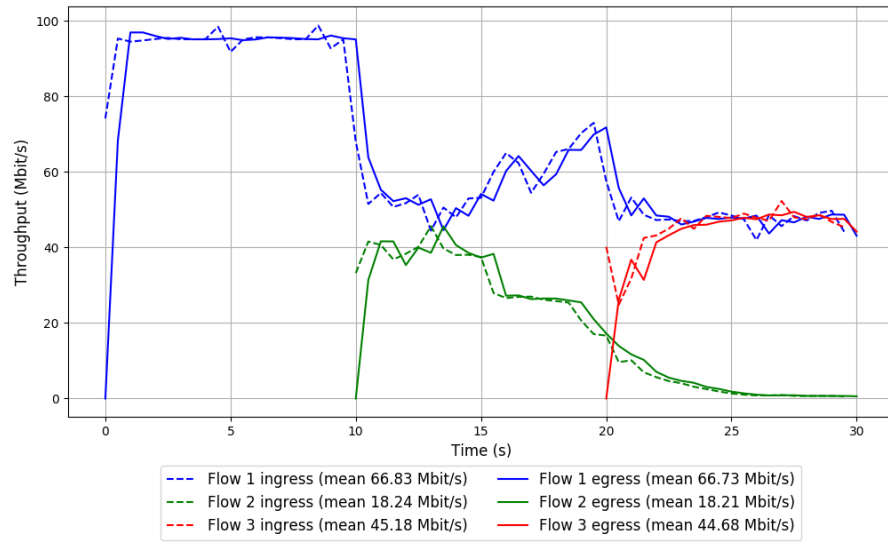
Run 5: Report of TCP Cubic — Data Link

```
Run 1: Statistics of FillP

Start at: 2019-03-09 13:00:26
End at: 2019-03-09 13:00:56
Local clock offset: -6.974 ms
Remote clock offset: 0.173 ms

# Below is generated by plot.py at 2019-03-09 15:00:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.66 Mbit/s
95th percentile per-packet one-way delay: 39.948 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 66.73 Mbit/s
95th percentile per-packet one-way delay: 35.907 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 18.21 Mbit/s
95th percentile per-packet one-way delay: 33.599 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 44.68 Mbit/s
95th percentile per-packet one-way delay: 49.234 ms
Loss rate: 1.04%
```
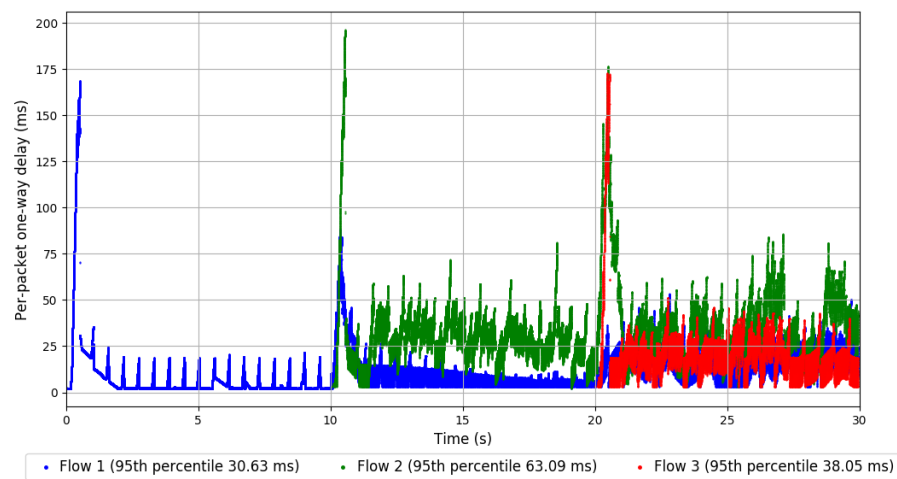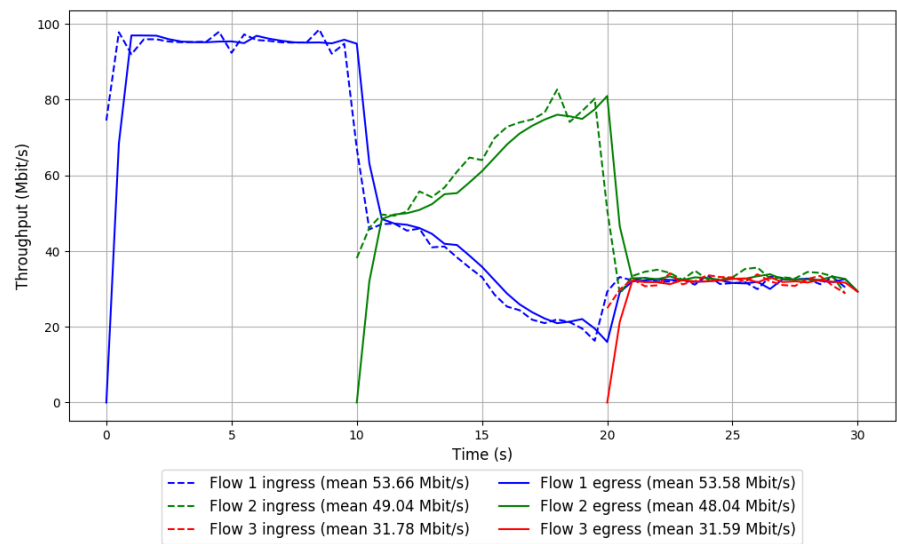
Run 1: Report of FillP — Data Link

```
Run 2: Statistics of FillP

Start at: 2019-03-09 13:24:39
End at: 2019-03-09 13:25:09
Local clock offset: -2.871 ms
Remote clock offset: 0.568 ms


# Below is generated by plot.py at 2019-03-09 15:00:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.05 Mbit/s
95th percentile per-packet one-way delay: 49.971 ms
Loss rate: 0.83%
-- Flow 1:
Average throughput: 53.58 Mbit/s
95th percentile per-packet one-way delay: 30.631 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 48.04 Mbit/s
95th percentile per-packet one-way delay: 63.093 ms
Loss rate: 1.98%
-- Flow 3:
Average throughput: 31.59 Mbit/s
95th percentile per-packet one-way delay: 38.053 ms
Loss rate: 0.60%
```
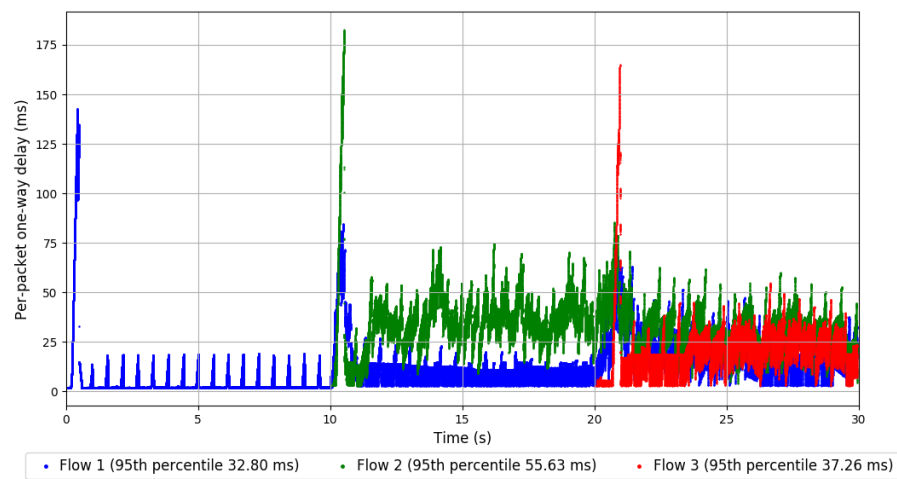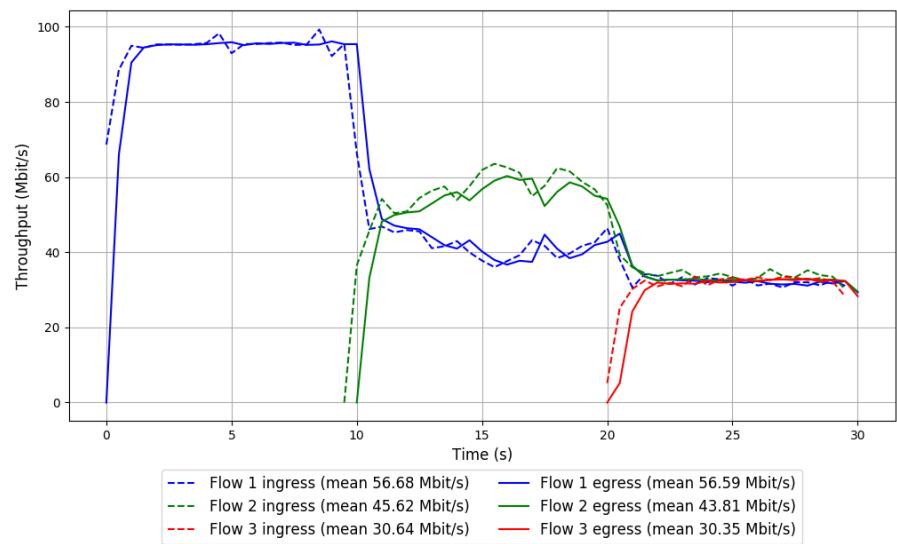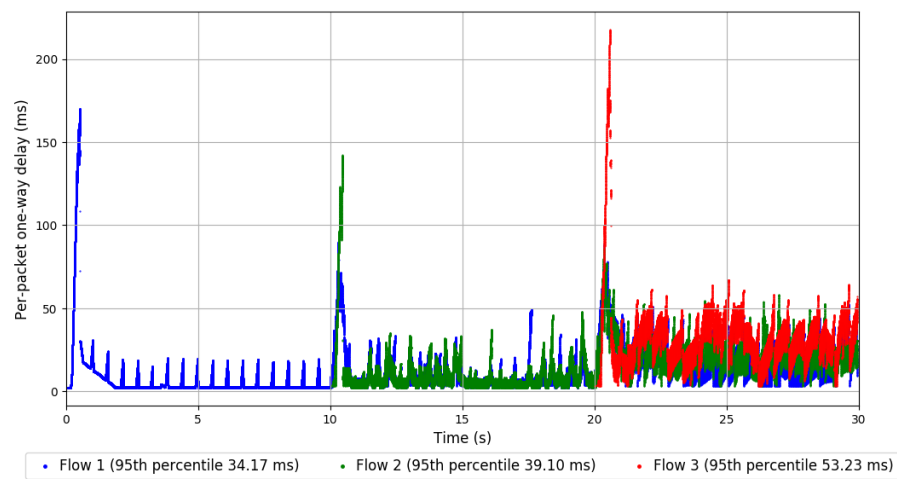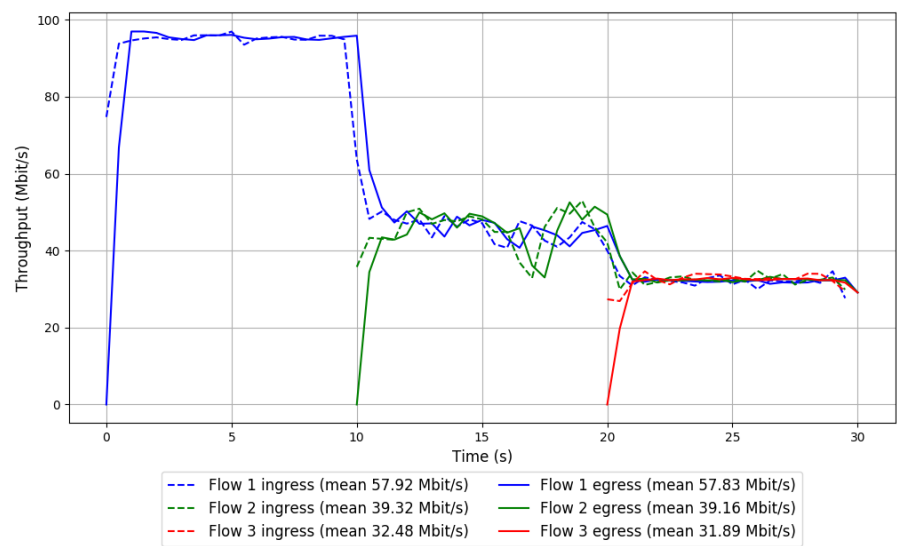
## Run 2: Report of FillP — Data Link



Throughput (Mbit/s) vs Time (s)

- - - - Flow 1 ingress (mean 53.66 Mbit/s) ——— Flow 1 egress (mean 53.58 Mbit/s)
- - - - Flow 2 ingress (mean 49.04 Mbit/s) ——— Flow 2 egress (mean 48.04 Mbit/s)
- - - - Flow 3 ingress (mean 31.78 Mbit/s) ——— Flow 3 egress (mean 31.59 Mbit/s)



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

- Flow 1 (95th percentile 30.63 ms)   - Flow 2 (95th percentile 63.09 ms)   - Flow 3 (95th percentile 38.05 ms)

```
Run 3: Statistics of FillP

Start at: 2019-03-09 13:48:51
End at: 2019-03-09 13:49:21
Local clock offset: -3.771 ms
Remote clock offset: 0.822 ms


# Below is generated by plot.py at 2019-03-09 15:00:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.85 Mbit/s
95th percentile per-packet one-way delay: 49.225 ms
Loss rate: 1.42%
-- Flow 1:
Average throughput: 56.59 Mbit/s
95th percentile per-packet one-way delay: 32.801 ms
Loss rate: 0.16%
-- Flow 2:
Average throughput: 43.81 Mbit/s
95th percentile per-packet one-way delay: 55.635 ms
Loss rate: 3.95%
-- Flow 3:
Average throughput: 30.35 Mbit/s
95th percentile per-packet one-way delay: 37.255 ms
Loss rate: 0.86%
```

Run 3: Report of FillP — Data Link

```
Run 4: Statistics of FillP

Start at: 2019-03-09 14:13:03
End at: 2019-03-09 14:13:33
Local clock offset: -7.146 ms
Remote clock offset: 0.904 ms


# Below is generated by plot.py at 2019-03-09 15:00:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.48 Mbit/s
95th percentile per-packet one-way delay: 43.896 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 57.83 Mbit/s
95th percentile per-packet one-way delay: 34.172 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 39.16 Mbit/s
95th percentile per-packet one-way delay: 39.099 ms
Loss rate: 0.42%
-- Flow 3:
Average throughput: 31.89 Mbit/s
95th percentile per-packet one-way delay: 53.230 ms
Loss rate: 1.79%
```
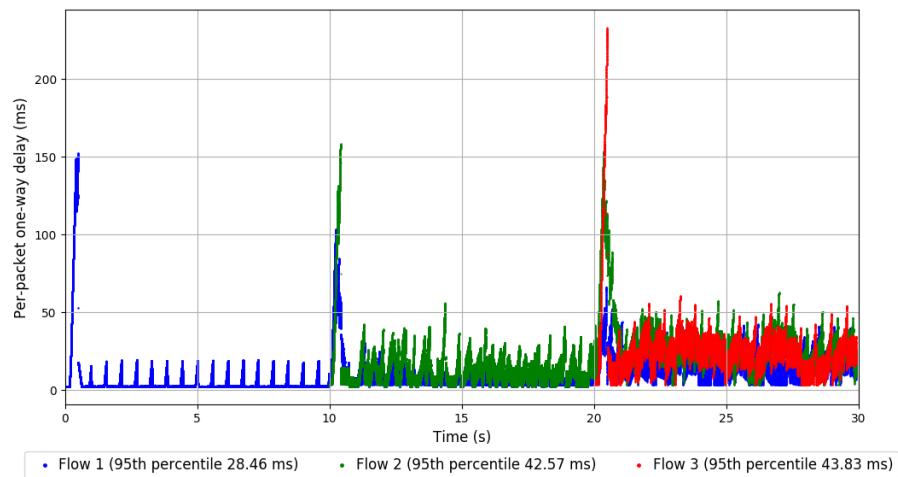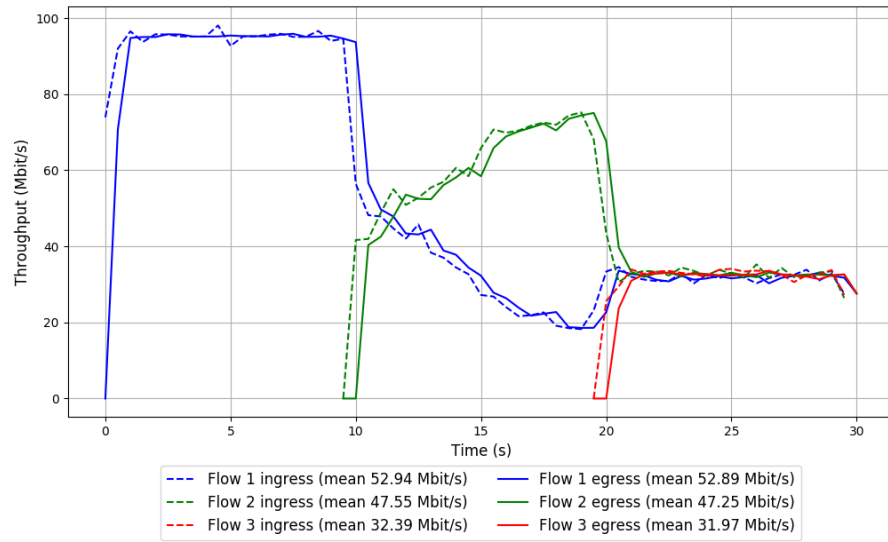
## Run 4: Report of FillP — Data Link



Flow 1 ingress (mean 57.92 Mbit/s) --- Flow 1 egress (mean 57.83 Mbit/s)
Flow 2 ingress (mean 39.32 Mbit/s) --- Flow 2 egress (mean 39.16 Mbit/s)
Flow 3 ingress (mean 32.48 Mbit/s) --- Flow 3 egress (mean 31.89 Mbit/s)



Flow 1 (95th percentile 34.17 ms) • Flow 2 (95th percentile 39.10 ms) • Flow 3 (95th percentile 53.23 ms)

```
Run 5: Statistics of FillP

Start at: 2019-03-09 14:37:17
End at: 2019-03-09 14:37:47
Local clock offset: -6.687 ms
Remote clock offset: 1.027 ms

# Below is generated by plot.py at 2019-03-09 15:01:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.02 Mbit/s
95th percentile per-packet one-way delay: 38.919 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 52.89 Mbit/s
95th percentile per-packet one-way delay: 28.456 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 47.25 Mbit/s
95th percentile per-packet one-way delay: 42.572 ms
Loss rate: 0.55%
-- Flow 3:
Average throughput: 31.97 Mbit/s
95th percentile per-packet one-way delay: 43.827 ms
Loss rate: 1.26%
```
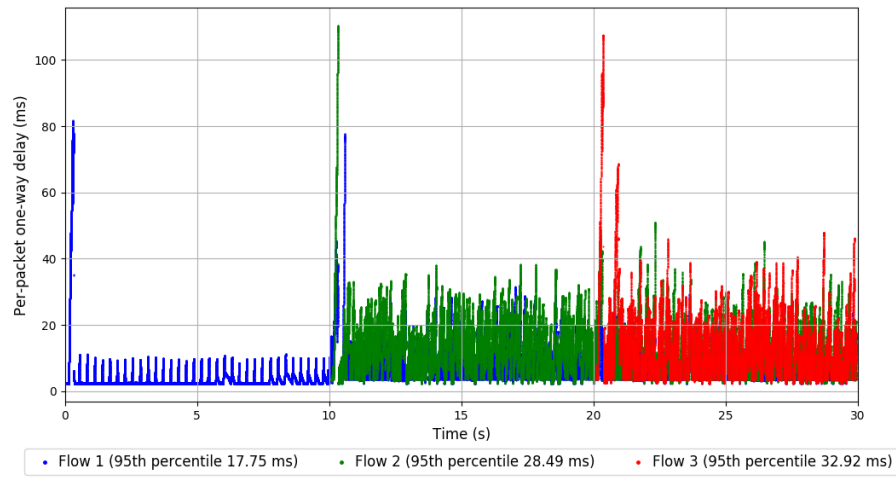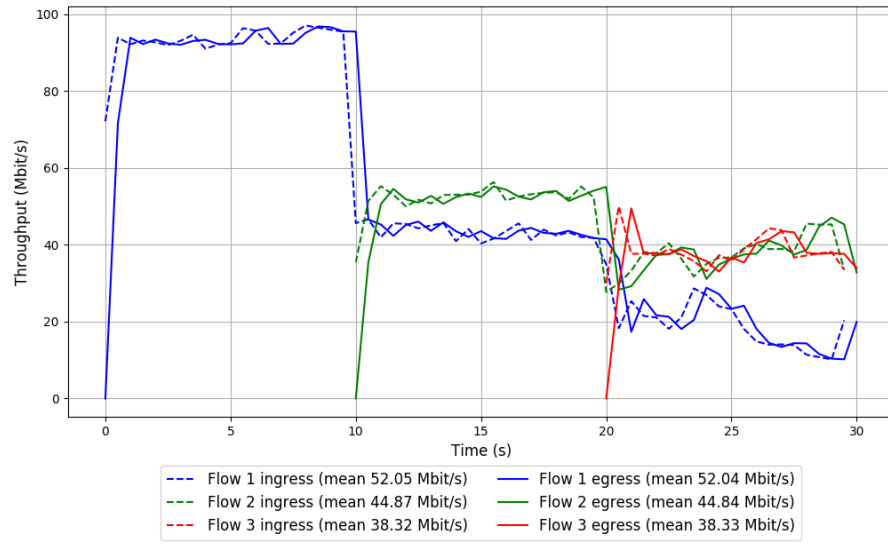
Run 5: Report of FillP — Data Link



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```
Run 1: Statistics of FillP-Sheep

Start at: 2019-03-09 13:05:02
End at: 2019-03-09 13:05:32
Local clock offset: -7.109 ms
Remote clock offset: 0.322 ms


# Below is generated by plot.py at 2019-03-09 15:01:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.62 Mbit/s
95th percentile per-packet one-way delay: 26.256 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 52.04 Mbit/s
95th percentile per-packet one-way delay: 17.745 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 44.84 Mbit/s
95th percentile per-packet one-way delay: 28.491 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 38.33 Mbit/s
95th percentile per-packet one-way delay: 32.925 ms
Loss rate: 0.06%
```
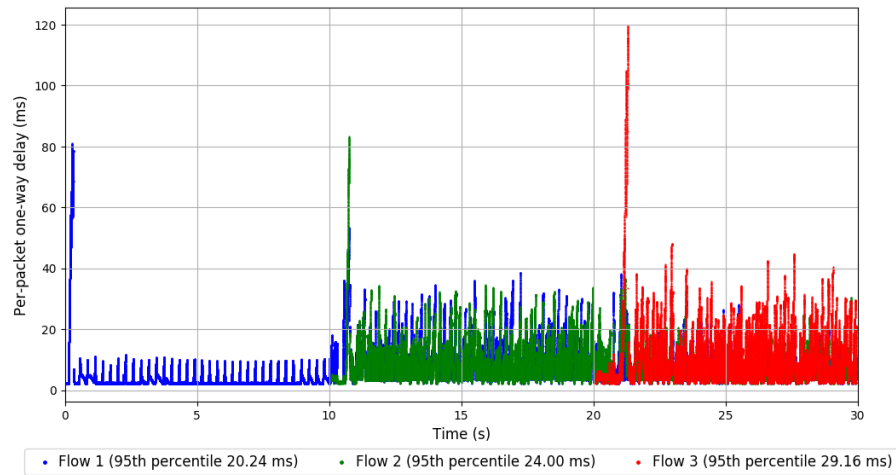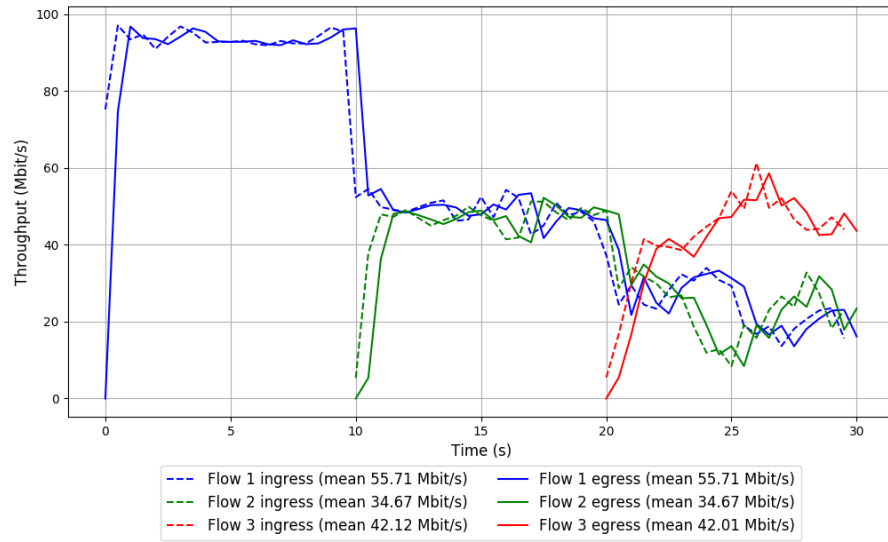
# Run 1: Report of FillP-Sheep — Data Link



Flow 1 ingress (mean 52.05 Mbit/s)          Flow 1 egress (mean 52.04 Mbit/s)
Flow 2 ingress (mean 44.87 Mbit/s)          Flow 2 egress (mean 44.84 Mbit/s)
Flow 3 ingress (mean 38.32 Mbit/s)          Flow 3 egress (mean 38.33 Mbit/s)



Flow 1 (95th percentile 17.75 ms)     Flow 2 (95th percentile 28.49 ms)     Flow 3 (95th percentile 32.92 ms)

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```
Run 2: Statistics of FillP-Sheep

Start at: 2019-03-09 13:29:14
End at: 2019-03-09 13:29:44
Local clock offset: -2.026 ms
Remote clock offset: 0.551 ms


# Below is generated by plot.py at 2019-03-09 15:01:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.71 Mbit/s
95th percentile per-packet one-way delay: 23.670 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 55.71 Mbit/s
95th percentile per-packet one-way delay: 20.237 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 34.67 Mbit/s
95th percentile per-packet one-way delay: 24.001 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 42.01 Mbit/s
95th percentile per-packet one-way delay: 29.161 ms
Loss rate: 0.28%
```
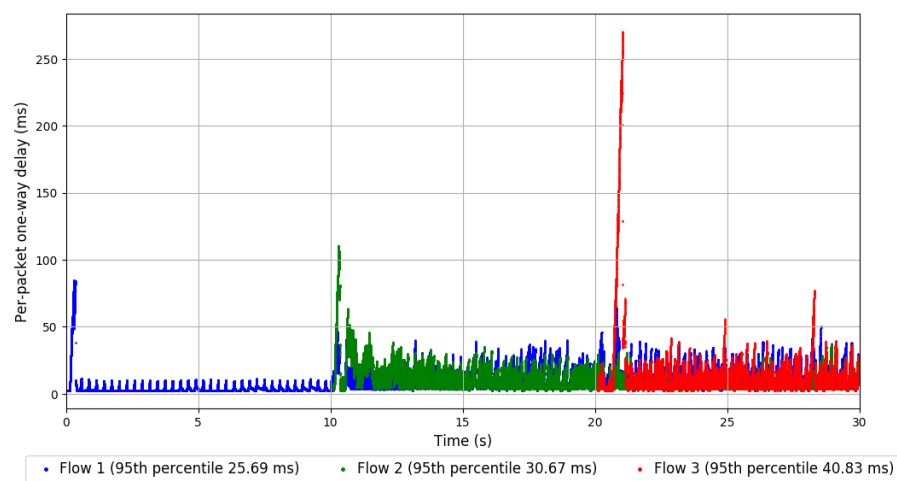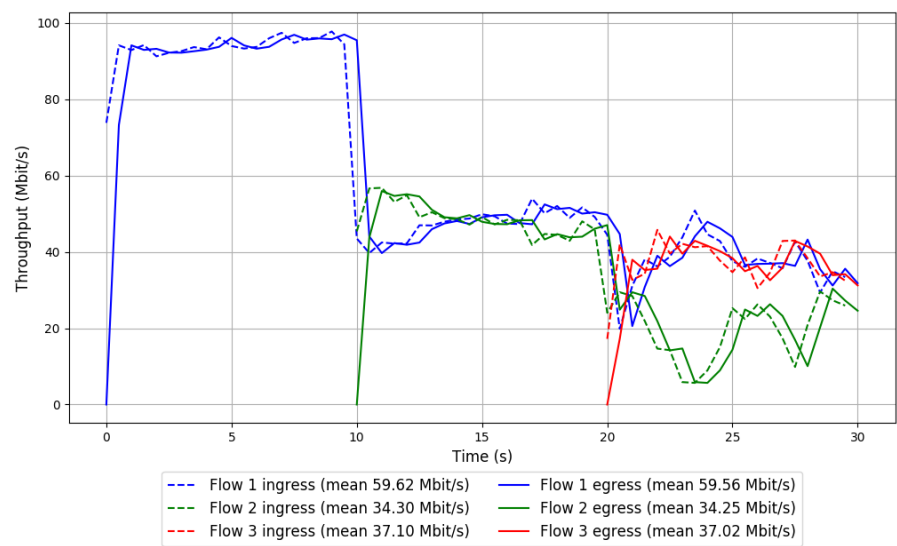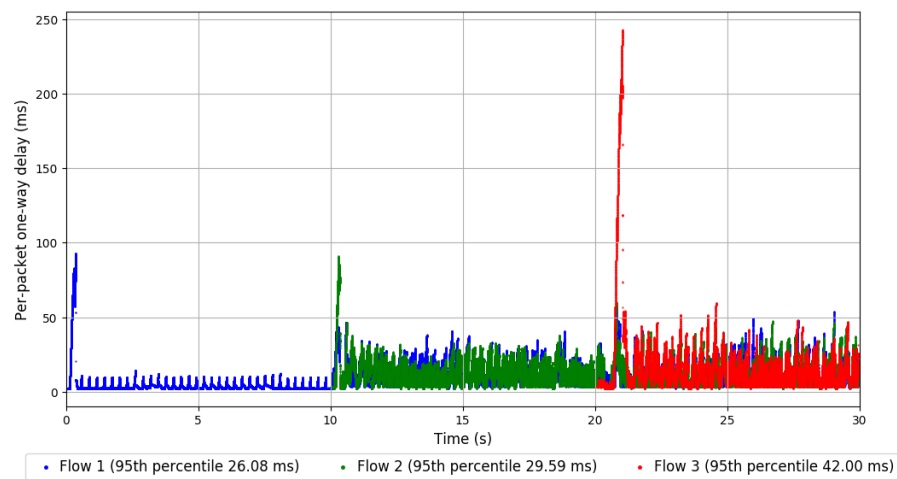
Run 2: Report of FillP-Sheep — Data Link



Flow 1 ingress (mean 55.71 Mbit/s) --- Flow 1 egress (mean 55.71 Mbit/s)
Flow 2 ingress (mean 34.67 Mbit/s) --- Flow 2 egress (mean 34.67 Mbit/s)
Flow 3 ingress (mean 42.12 Mbit/s) --- Flow 3 egress (mean 42.01 Mbit/s)



Flow 1 (95th percentile 20.24 ms)    Flow 2 (95th percentile 24.00 ms)    Flow 3 (95th percentile 29.16 ms)

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```
Run 3: Statistics of FillP-Sheep

Start at: 2019-03-09 13:53:28
End at: 2019-03-09 13:53:58
Local clock offset: -4.73 ms
Remote clock offset: 0.782 ms


# Below is generated by plot.py at 2019-03-09 15:01:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.65 Mbit/s
95th percentile per-packet one-way delay: 28.543 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 59.56 Mbit/s
95th percentile per-packet one-way delay: 25.690 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 34.25 Mbit/s
95th percentile per-packet one-way delay: 30.670 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 37.02 Mbit/s
95th percentile per-packet one-way delay: 40.832 ms
Loss rate: 0.26%
```
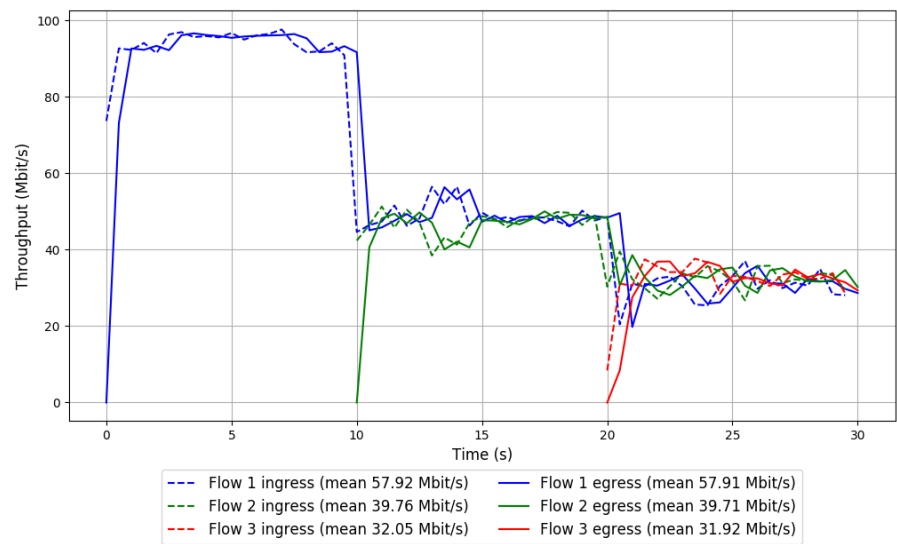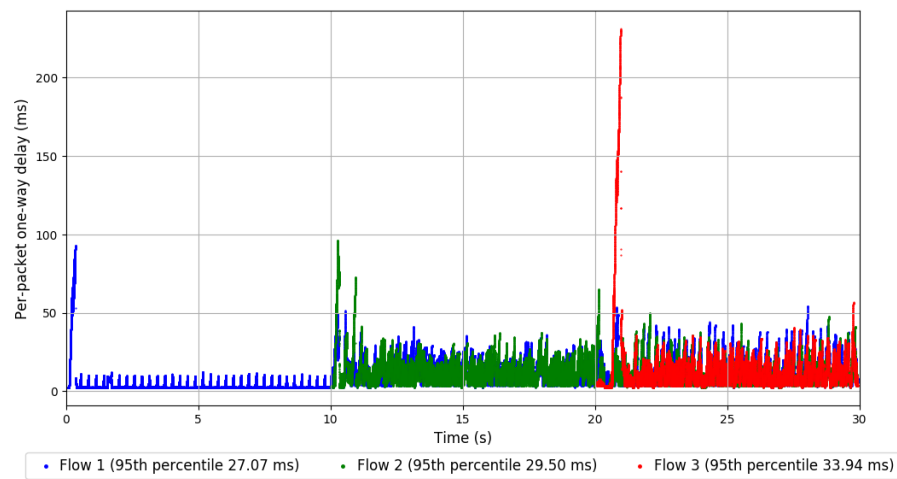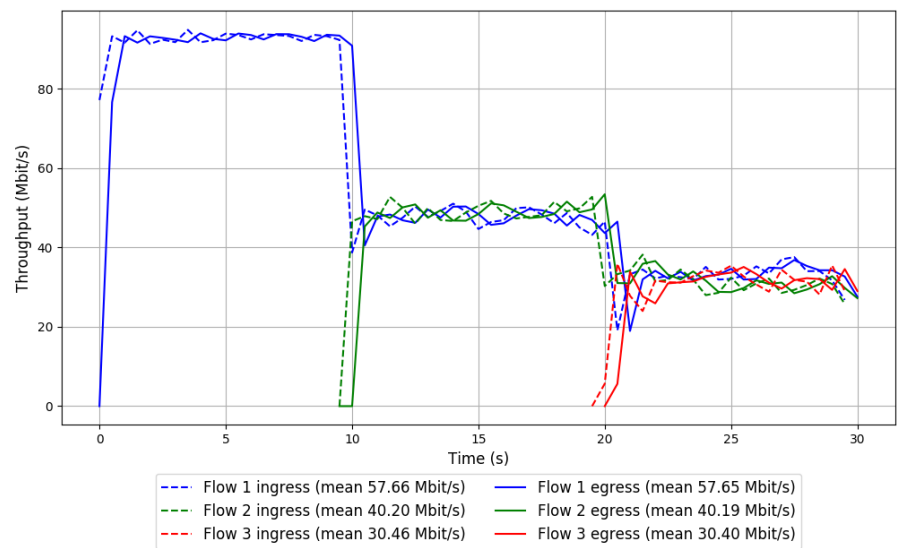
Run 3: Report of FillP-Sheep — Data Link



- - - Flow 1 ingress (mean 59.62 Mbit/s) —— Flow 1 egress (mean 59.56 Mbit/s)
- - - Flow 2 ingress (mean 34.30 Mbit/s) —— Flow 2 egress (mean 34.25 Mbit/s)
- - - Flow 3 ingress (mean 37.10 Mbit/s) —— Flow 3 egress (mean 37.02 Mbit/s)



• Flow 1 (95th percentile 25.69 ms)   • Flow 2 (95th percentile 30.67 ms)   • Flow 3 (95th percentile 40.83 ms)

```
Run 4: Statistics of FillP-Sheep

Start at: 2019-03-09 14:17:39
End at: 2019-03-09 14:18:09
Local clock offset: -6.924 ms
Remote clock offset: 0.933 ms


# Below is generated by plot.py at 2019-03-09 15:02:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.93 Mbit/s
95th percentile per-packet one-way delay: 29.093 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 57.91 Mbit/s
95th percentile per-packet one-way delay: 26.080 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 39.71 Mbit/s
95th percentile per-packet one-way delay: 29.590 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 31.92 Mbit/s
95th percentile per-packet one-way delay: 41.998 ms
Loss rate: 0.31%
```
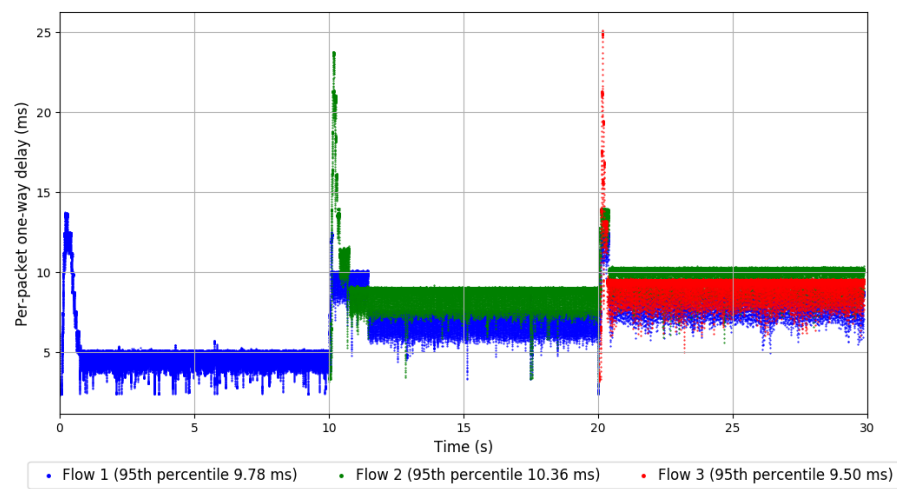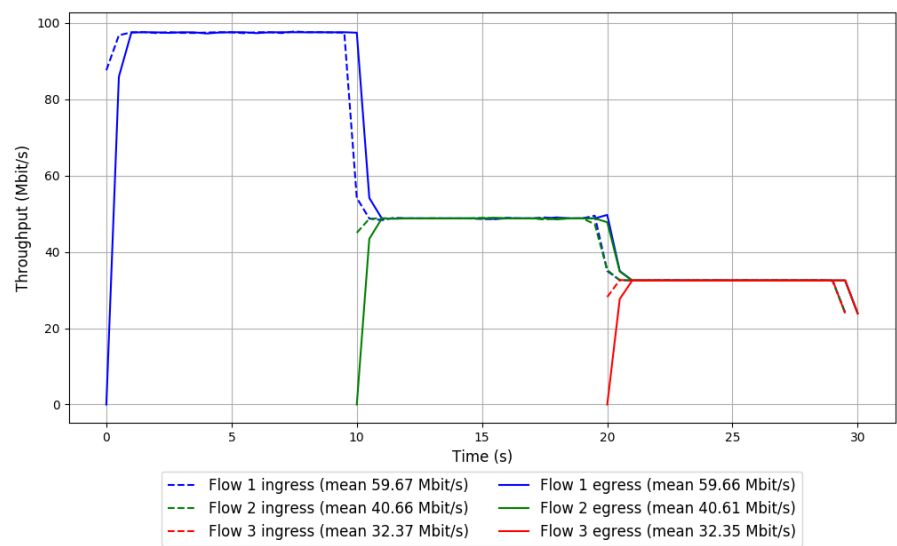
Run 4: Report of FillP-Sheep — Data Link



Flow 1 ingress (mean 57.92 Mbit/s) --- Flow 1 egress (mean 57.91 Mbit/s)
Flow 2 ingress (mean 39.76 Mbit/s) --- Flow 2 egress (mean 39.71 Mbit/s)
Flow 3 ingress (mean 32.05 Mbit/s) --- Flow 3 egress (mean 31.92 Mbit/s)



Flow 1 (95th percentile 26.08 ms)   Flow 2 (95th percentile 29.59 ms)   Flow 3 (95th percentile 42.00 ms)

```
Run 5: Statistics of FillP-Sheep

Start at: 2019-03-09 14:41:54
End at: 2019-03-09 14:42:24
Local clock offset: -6.755 ms
Remote clock offset: 0.95 ms


# Below is generated by plot.py at 2019-03-09 15:02:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.50 Mbit/s
95th percentile per-packet one-way delay: 28.627 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 57.65 Mbit/s
95th percentile per-packet one-way delay: 27.075 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 40.19 Mbit/s
95th percentile per-packet one-way delay: 29.495 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 30.40 Mbit/s
95th percentile per-packet one-way delay: 33.937 ms
Loss rate: 0.26%
```
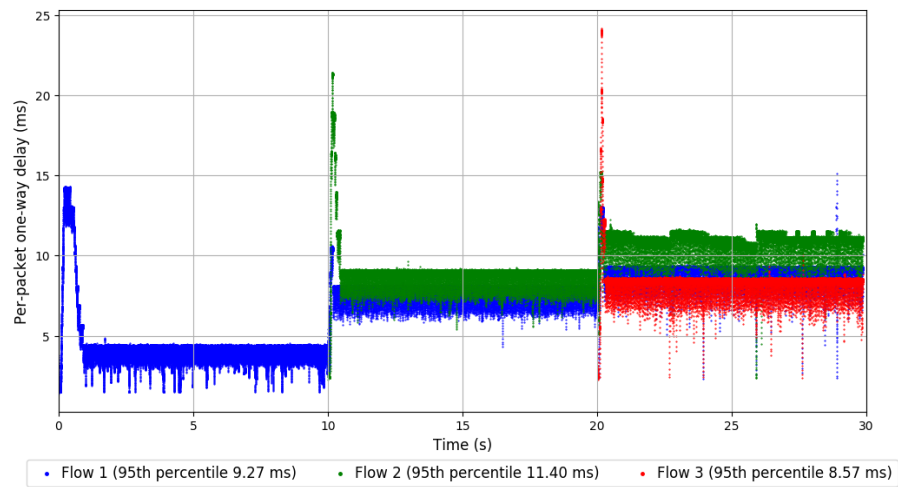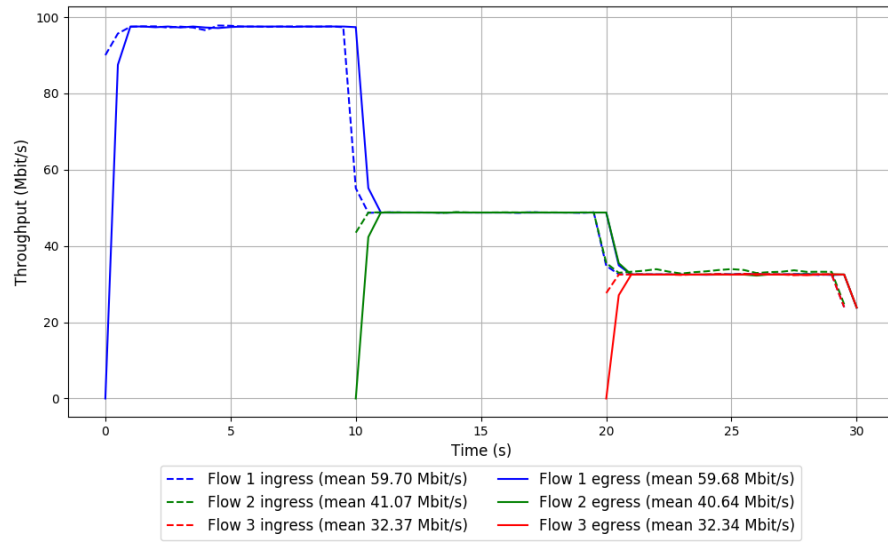
Run 5: Report of FillP-Sheep — Data Link



Flow 1 ingress (mean 57.66 Mbit/s) — — — Flow 1 egress (mean 57.65 Mbit/s)
Flow 2 ingress (mean 40.20 Mbit/s) — — — Flow 2 egress (mean 40.19 Mbit/s)
Flow 3 ingress (mean 30.46 Mbit/s) — — — Flow 3 egress (mean 30.40 Mbit/s)



Flow 1 (95th percentile 27.07 ms)    Flow 2 (95th percentile 29.50 ms)    Flow 3 (95th percentile 33.94 ms)

```
Run 1: Statistics of Indigo

Start at: 2019-03-09 13:08:26
End at: 2019-03-09 13:08:56
Local clock offset: -7.2 ms
Remote clock offset: 0.386 ms


# Below is generated by plot.py at 2019-03-09 15:02:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.32 Mbit/s
95th percentile per-packet one-way delay: 10.171 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 59.66 Mbit/s
95th percentile per-packet one-way delay: 9.779 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 40.61 Mbit/s
95th percentile per-packet one-way delay: 10.360 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 32.35 Mbit/s
95th percentile per-packet one-way delay: 9.499 ms
Loss rate: 0.11%
```
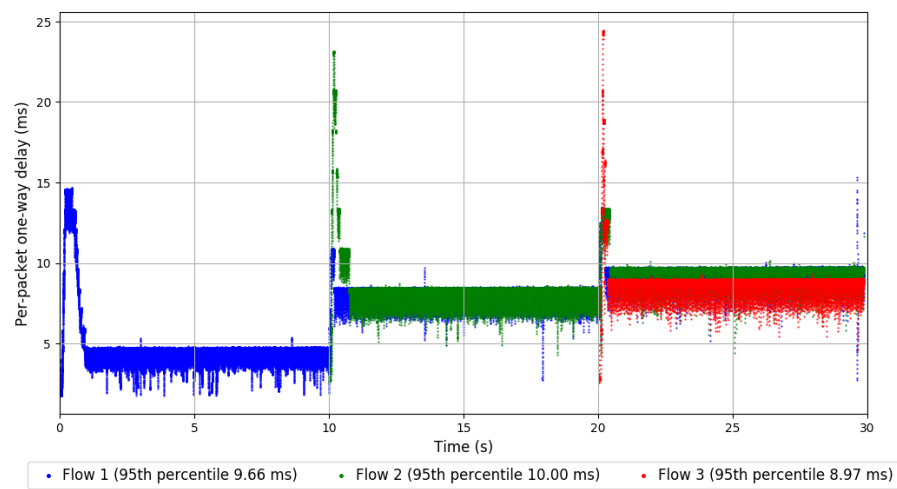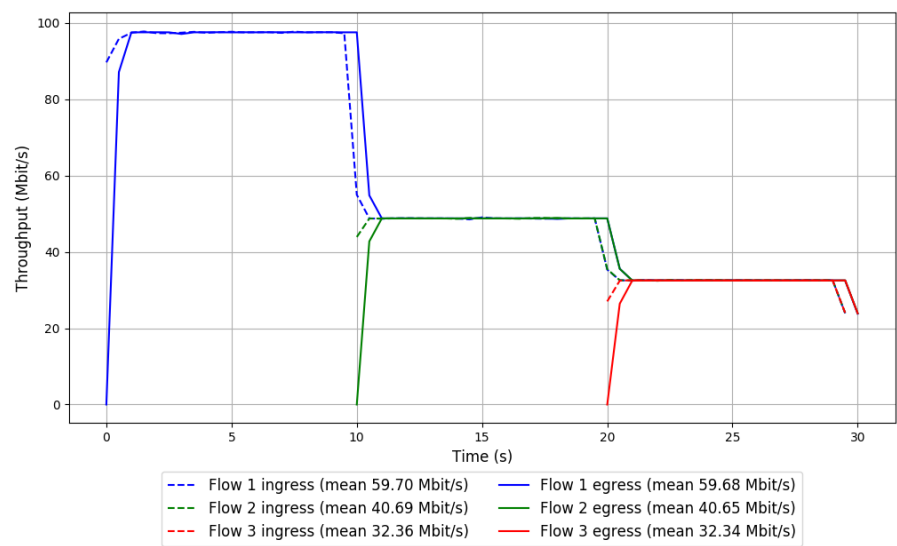
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2019-03-09 13:32:38
End at: 2019-03-09 13:33:08
Local clock offset: -2.265 ms
Remote clock offset: 0.764 ms

# Below is generated by plot.py at 2019-03-09 15:02:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.33 Mbit/s
95th percentile per-packet one-way delay: 11.117 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 59.68 Mbit/s
95th percentile per-packet one-way delay: 9.270 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 40.64 Mbit/s
95th percentile per-packet one-way delay: 11.399 ms
Loss rate: 1.07%
-- Flow 3:
Average throughput: 32.34 Mbit/s
95th percentile per-packet one-way delay: 8.575 ms
Loss rate: 0.10%
```
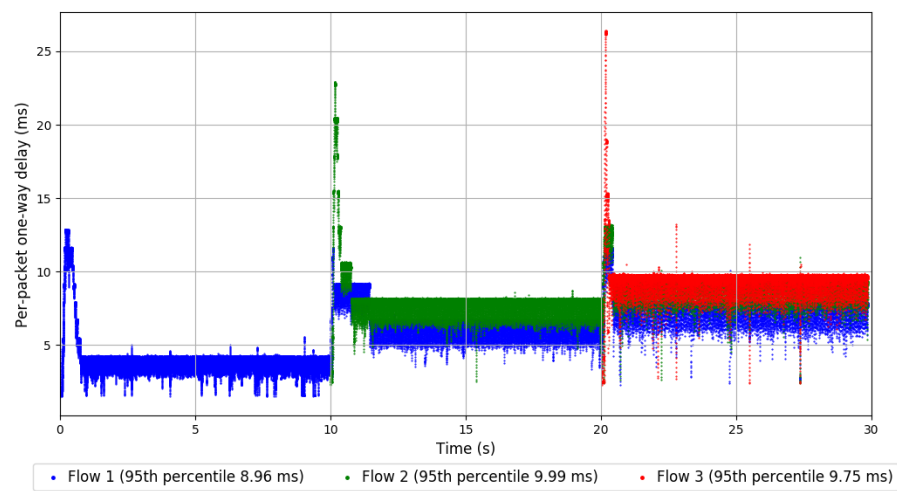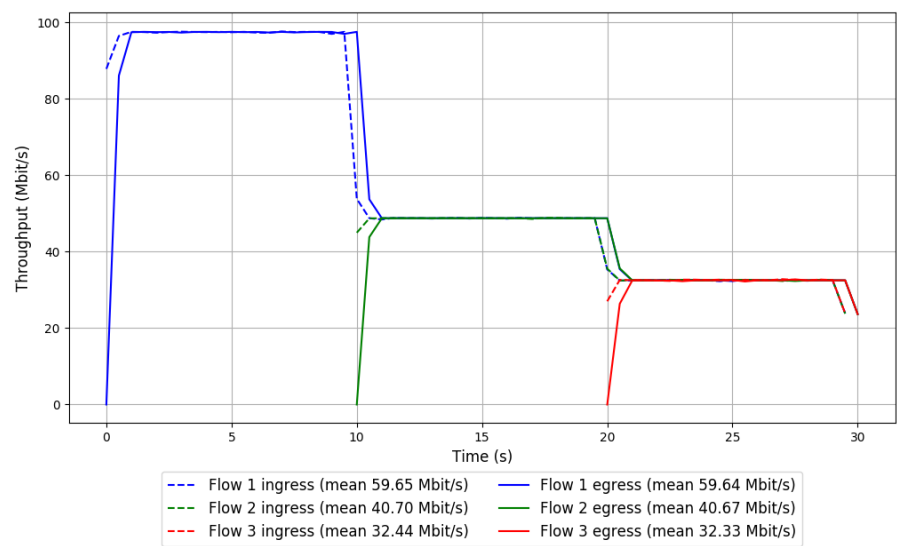
# Run 2: Report of Indigo — Data Link



- --- Flow 1 ingress (mean 59.70 Mbit/s)    — Flow 1 egress (mean 59.68 Mbit/s)
- --- Flow 2 ingress (mean 41.07 Mbit/s)    — Flow 2 egress (mean 40.64 Mbit/s)
- --- Flow 3 ingress (mean 32.37 Mbit/s)    — Flow 3 egress (mean 32.34 Mbit/s)



- • Flow 1 (95th percentile 9.27 ms)    • Flow 2 (95th percentile 11.40 ms)    • Flow 3 (95th percentile 8.57 ms)

```
Run 3: Statistics of Indigo

Start at: 2019-03-09 13:56:52
End at: 2019-03-09 13:57:22
Local clock offset: -6.112 ms
Remote clock offset: 0.872 ms


# Below is generated by plot.py at 2019-03-09 15:02:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.34 Mbit/s
95th percentile per-packet one-way delay: 9.680 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 59.68 Mbit/s
95th percentile per-packet one-way delay: 9.664 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 40.65 Mbit/s
95th percentile per-packet one-way delay: 10.001 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 32.34 Mbit/s
95th percentile per-packet one-way delay: 8.975 ms
Loss rate: 0.11%
```
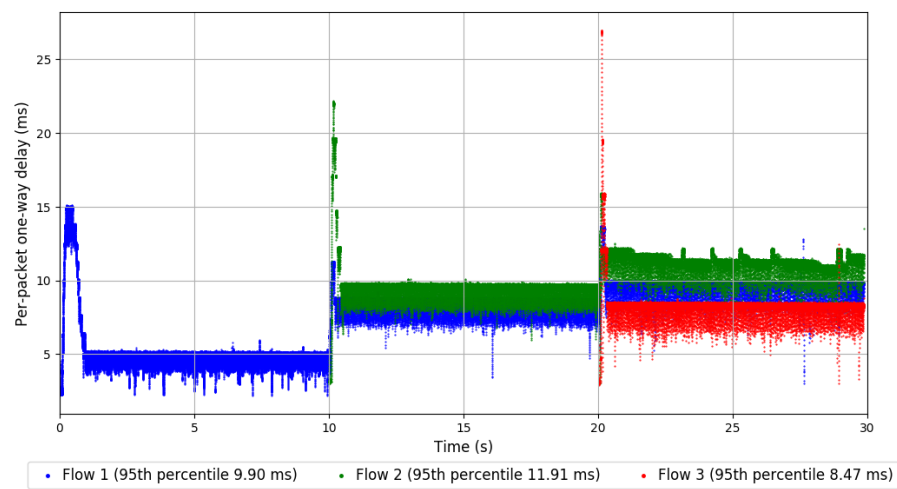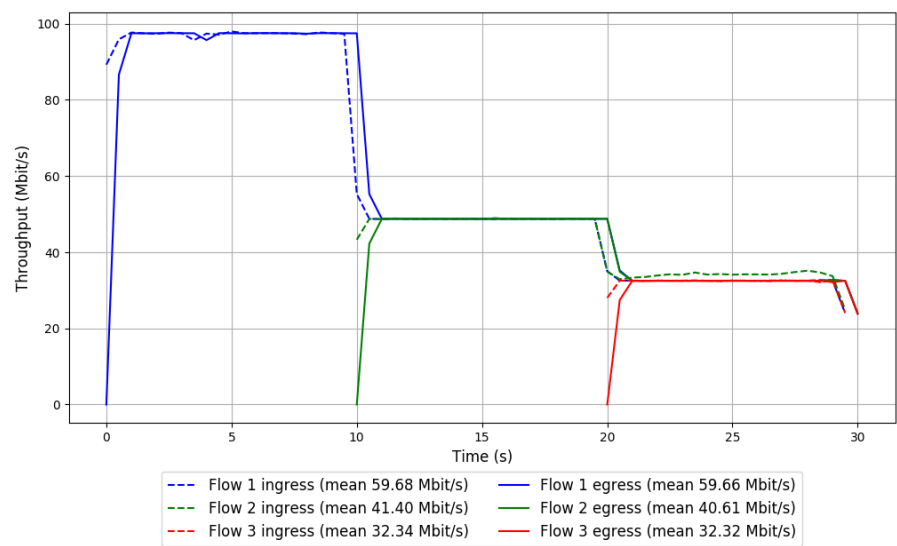
Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2019-03-09 14:21:03
End at: 2019-03-09 14:21:33
Local clock offset: -7.531 ms
Remote clock offset: 0.993 ms


# Below is generated by plot.py at 2019-03-09 15:02:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.31 Mbit/s
95th percentile per-packet one-way delay: 9.682 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 59.64 Mbit/s
95th percentile per-packet one-way delay: 8.962 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 40.67 Mbit/s
95th percentile per-packet one-way delay: 9.994 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 32.33 Mbit/s
95th percentile per-packet one-way delay: 9.752 ms
Loss rate: 0.40%
```
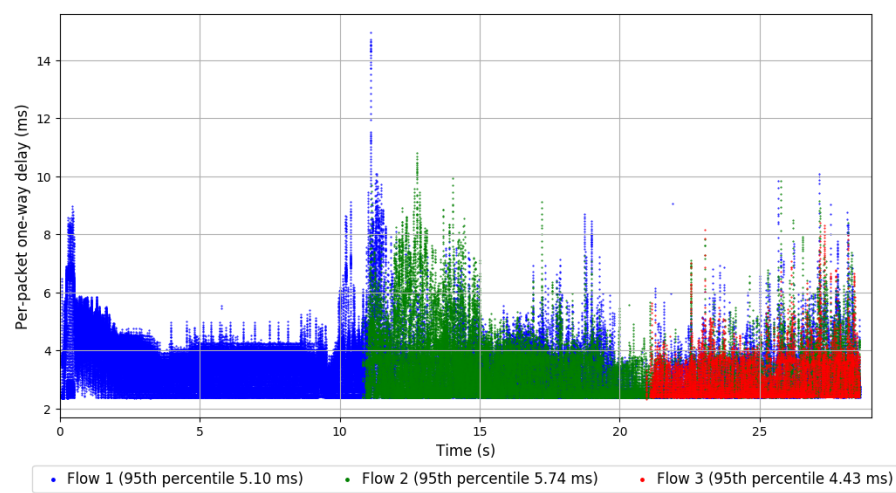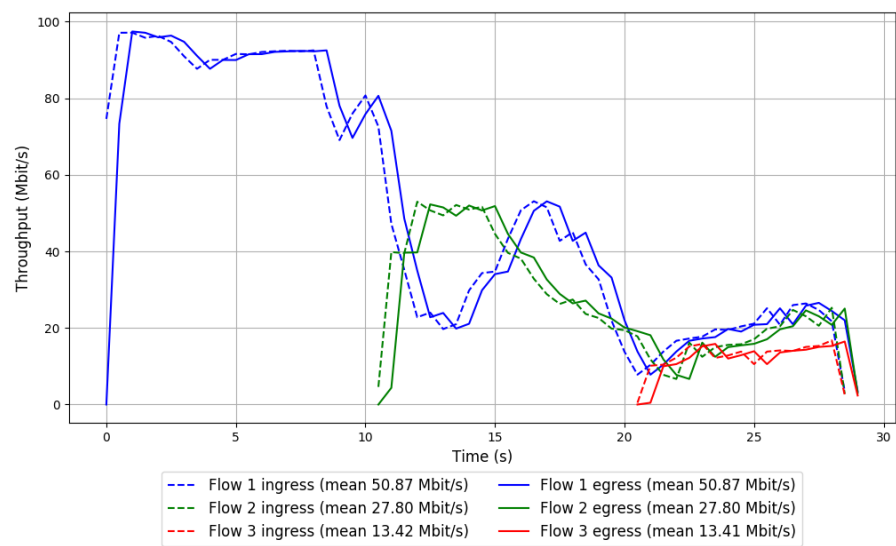
Run 4: Report of Indigo — Data Link



- - - Flow 1 ingress (mean 59.65 Mbit/s)    —— Flow 1 egress (mean 59.64 Mbit/s)
- - - Flow 2 ingress (mean 40.70 Mbit/s)    —— Flow 2 egress (mean 40.67 Mbit/s)
- - - Flow 3 ingress (mean 32.44 Mbit/s)    —— Flow 3 egress (mean 32.33 Mbit/s)



•  Flow 1 (95th percentile 8.96 ms)    •  Flow 2 (95th percentile 9.99 ms)    •  Flow 3 (95th percentile 9.75 ms)

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```
Run 5: Statistics of Indigo

Start at: 2019-03-09 14:45:18
End at: 2019-03-09 14:45:48
Local clock offset: -6.218 ms
Remote clock offset: 1.043 ms


# Below is generated by plot.py at 2019-03-09 15:02:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.31 Mbit/s
95th percentile per-packet one-way delay: 11.518 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 59.66 Mbit/s
95th percentile per-packet one-way delay: 9.897 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 40.61 Mbit/s
95th percentile per-packet one-way delay: 11.910 ms
Loss rate: 1.90%
-- Flow 3:
Average throughput: 32.32 Mbit/s
95th percentile per-packet one-way delay: 8.471 ms
Loss rate: 0.11%
```
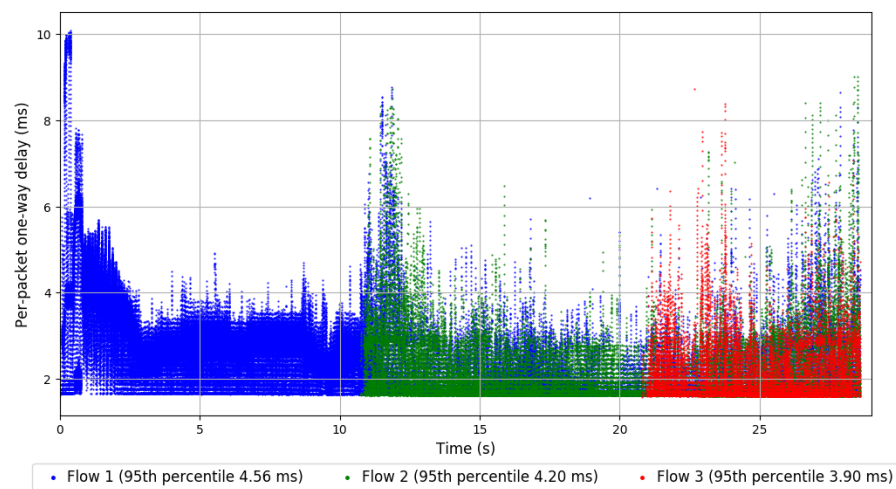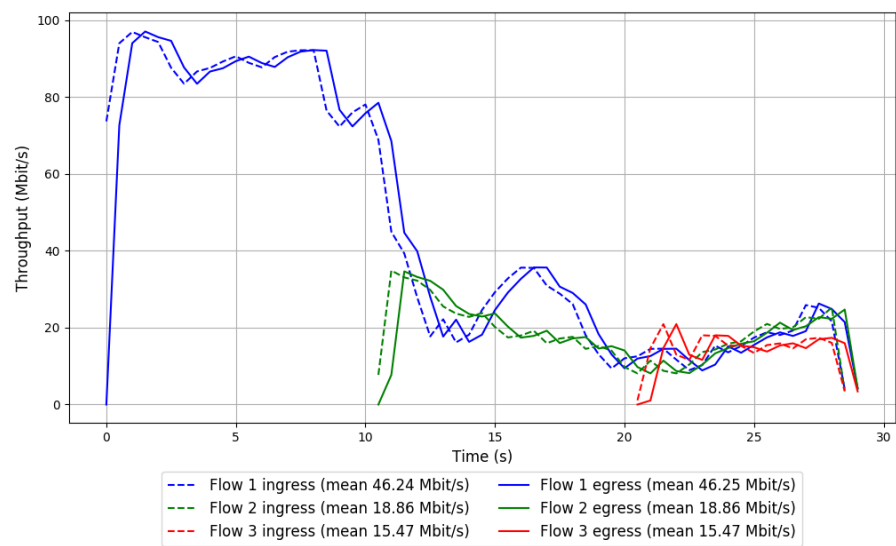
Run 5: Report of Indigo — Data Link





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```
Run 1: Statistics of Indigo-MusesC3

Start at: 2019-03-09 13:06:11
End at: 2019-03-09 13:06:41
Local clock offset: -7.204 ms
Remote clock offset: 0.251 ms


# Below is generated by plot.py at 2019-03-09 15:02:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 71.73 Mbit/s
95th percentile per-packet one-way delay: 5.200 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 50.87 Mbit/s
95th percentile per-packet one-way delay: 5.096 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 27.80 Mbit/s
95th percentile per-packet one-way delay: 5.738 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 13.41 Mbit/s
95th percentile per-packet one-way delay: 4.431 ms
Loss rate: 0.24%
```
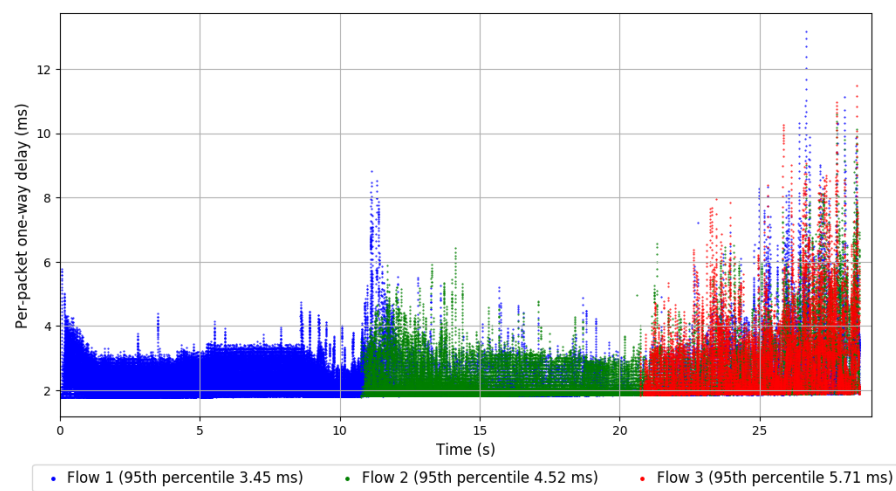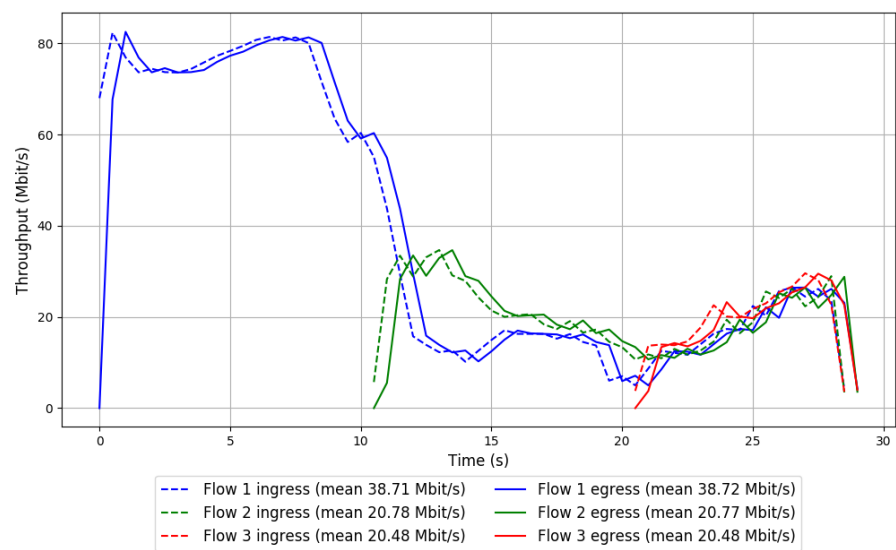
Run 1: Report of Indigo-MusesC3 — Data Link

```
Run 2: Statistics of Indigo-MusesC3

Start at: 2019-03-09 13:30:22
End at: 2019-03-09 13:30:52
Local clock offset: -2.492 ms
Remote clock offset: 0.625 ms


# Below is generated by plot.py at 2019-03-09 15:02:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 62.23 Mbit/s
95th percentile per-packet one-way delay: 4.474 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 46.25 Mbit/s
95th percentile per-packet one-way delay: 4.557 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 18.86 Mbit/s
95th percentile per-packet one-way delay: 4.197 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 15.47 Mbit/s
95th percentile per-packet one-way delay: 3.905 ms
Loss rate: 0.05%
```
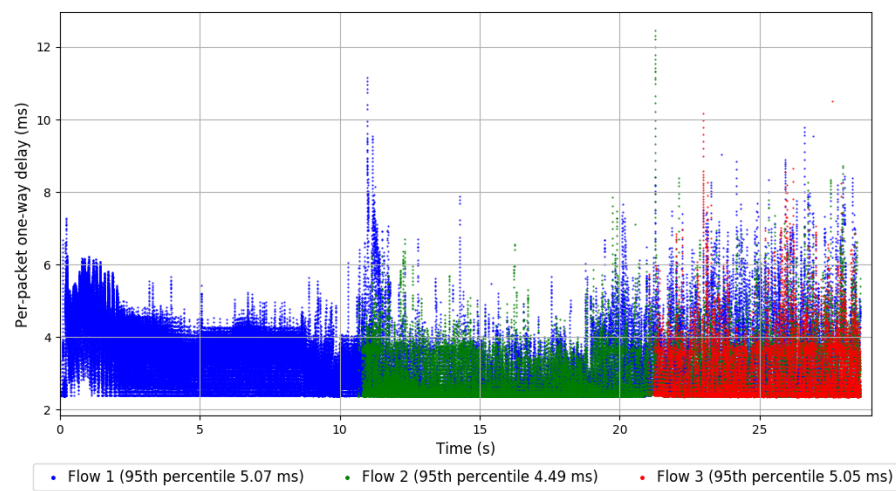
Run 2: Report of Indigo-MusesC3 — Data Link

```
Run 3: Statistics of Indigo-MusesC3

Start at: 2019-03-09 13:54:36
End at: 2019-03-09 13:55:06
Local clock offset: -5.671 ms
Remote clock offset: 0.831 ms


# Below is generated by plot.py at 2019-03-09 15:02:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 57.27 Mbit/s
95th percentile per-packet one-way delay: 4.145 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 38.72 Mbit/s
95th percentile per-packet one-way delay: 3.449 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 20.77 Mbit/s
95th percentile per-packet one-way delay: 4.519 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 20.48 Mbit/s
95th percentile per-packet one-way delay: 5.705 ms
Loss rate: 0.00%
```
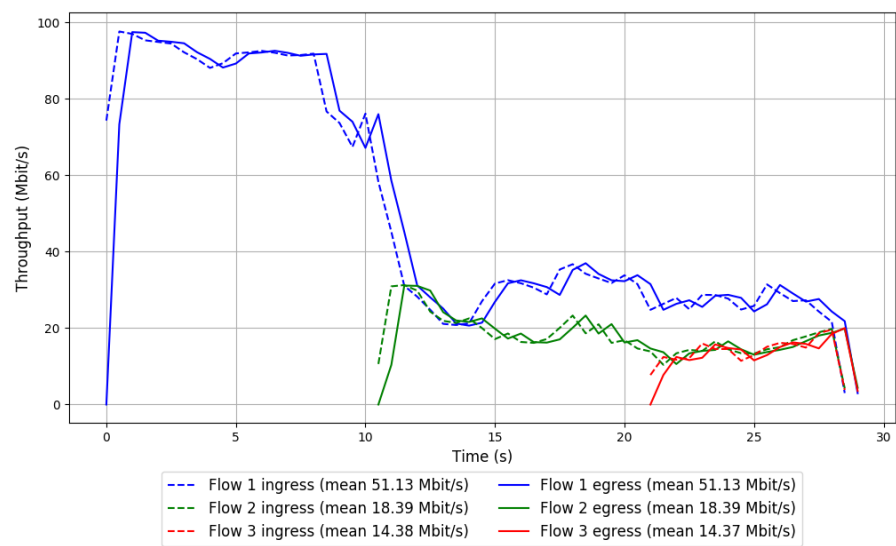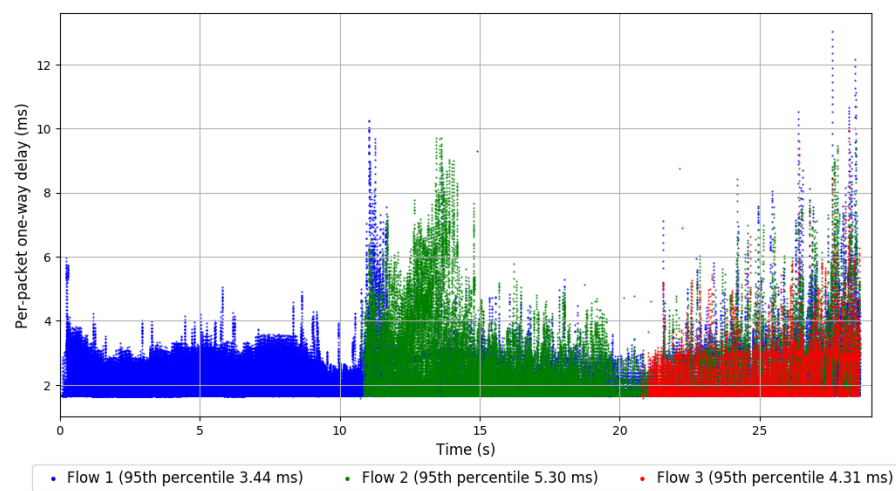
Run 3: Report of Indigo-MusesC3 — Data Link

```
Run 4: Statistics of Indigo-MusesC3

Start at: 2019-03-09 14:18:48
End at: 2019-03-09 14:19:18
Local clock offset: -6.894 ms
Remote clock offset: 0.878 ms


# Below is generated by plot.py at 2019-03-09 15:02:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 66.46 Mbit/s
95th percentile per-packet one-way delay: 5.021 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 51.13 Mbit/s
95th percentile per-packet one-way delay: 5.074 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 18.39 Mbit/s
95th percentile per-packet one-way delay: 4.489 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 14.37 Mbit/s
95th percentile per-packet one-way delay: 5.052 ms
Loss rate: 0.12%
```
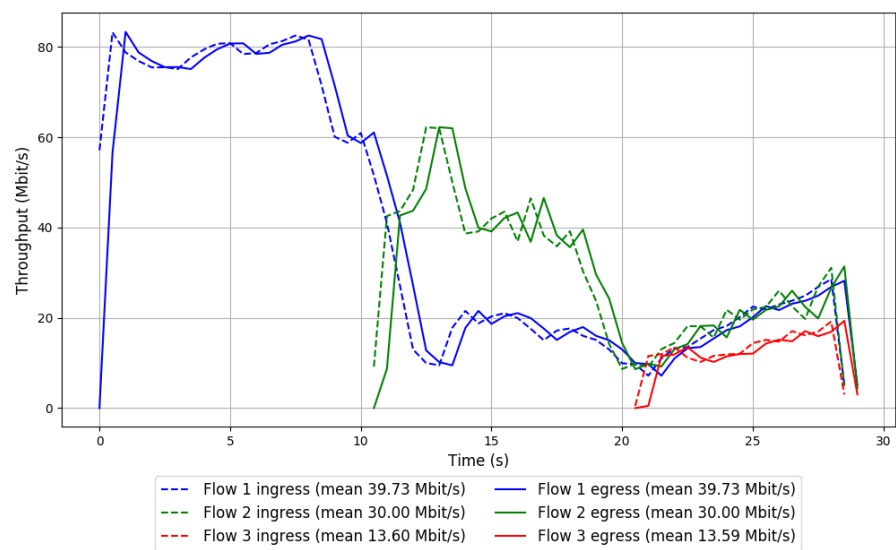
Run 4: Report of Indigo-MusesC3 — Data Link

```
Run 5: Statistics of Indigo-MusesC3

Start at: 2019-03-09 14:43:02
End at: 2019-03-09 14:43:32
Local clock offset: -7.488 ms
Remote clock offset: 1.059 ms


# Below is generated by plot.py at 2019-03-09 15:03:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 62.14 Mbit/s
95th percentile per-packet one-way delay: 4.286 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 39.73 Mbit/s
95th percentile per-packet one-way delay: 3.439 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 30.00 Mbit/s
95th percentile per-packet one-way delay: 5.300 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 13.59 Mbit/s
95th percentile per-packet one-way delay: 4.307 ms
Loss rate: 0.03%
```
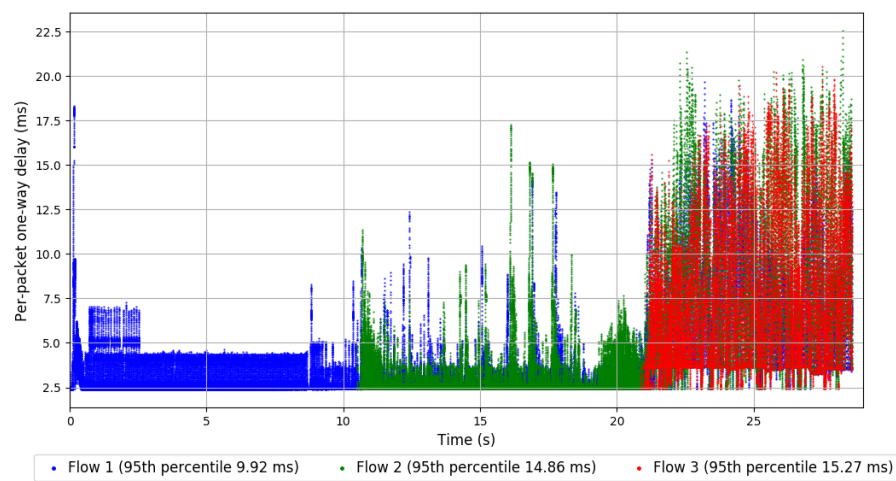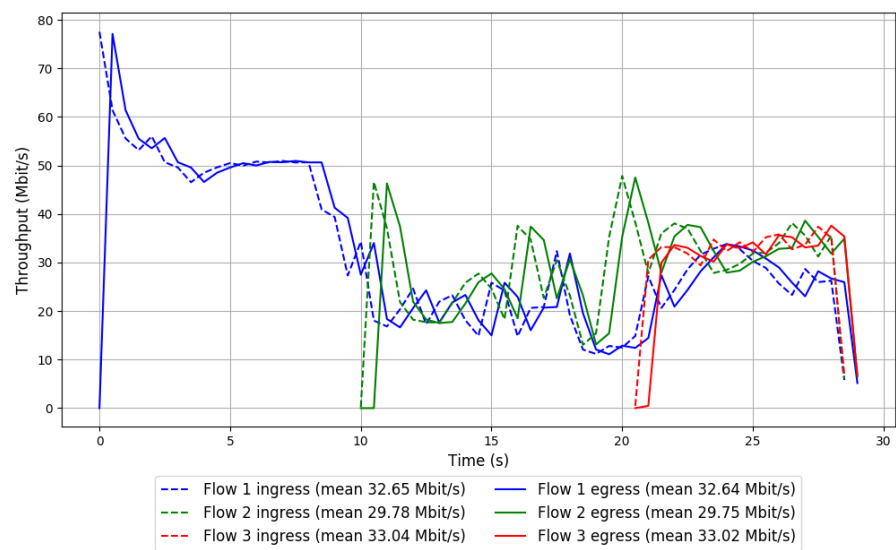
Run 5: Report of Indigo-MusesC3 — Data Link

```
Run 1: Statistics of Indigo-MusesC5

Start at: 2019-03-09 13:07:19
End at: 2019-03-09 13:07:49
Local clock offset: -7.188 ms
Remote clock offset: 0.302 ms


# Below is generated by plot.py at 2019-03-09 15:03:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 60.35 Mbit/s
95th percentile per-packet one-way delay: 13.357 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 32.64 Mbit/s
95th percentile per-packet one-way delay: 9.921 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 29.75 Mbit/s
95th percentile per-packet one-way delay: 14.857 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 33.02 Mbit/s
95th percentile per-packet one-way delay: 15.273 ms
Loss rate: 0.10%
```

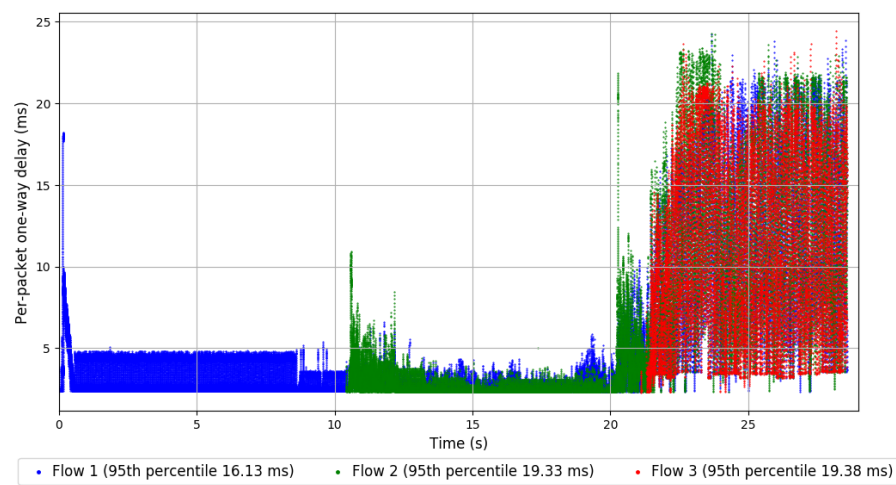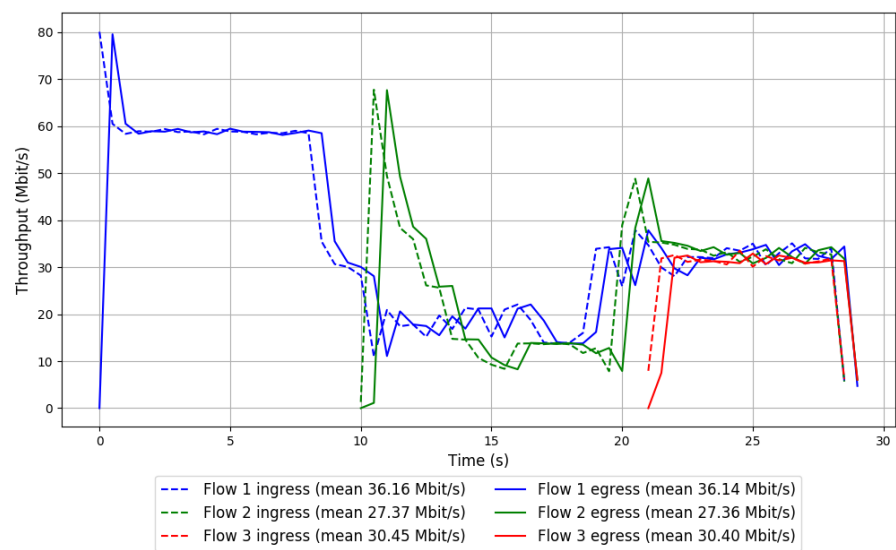Run 1: Report of Indigo-MusesC5 — Data Link

```
Run 2: Statistics of Indigo-MusesC5

Start at: 2019-03-09 13:31:30
End at: 2019-03-09 13:32:00
Local clock offset: -1.59 ms
Remote clock offset: 0.678 ms


# Below is generated by plot.py at 2019-03-09 15:03:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 61.48 Mbit/s
95th percentile per-packet one-way delay: 18.127 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 36.14 Mbit/s
95th percentile per-packet one-way delay: 16.131 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 27.36 Mbit/s
95th percentile per-packet one-way delay: 19.333 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 30.40 Mbit/s
95th percentile per-packet one-way delay: 19.377 ms
Loss rate: 0.28%
```
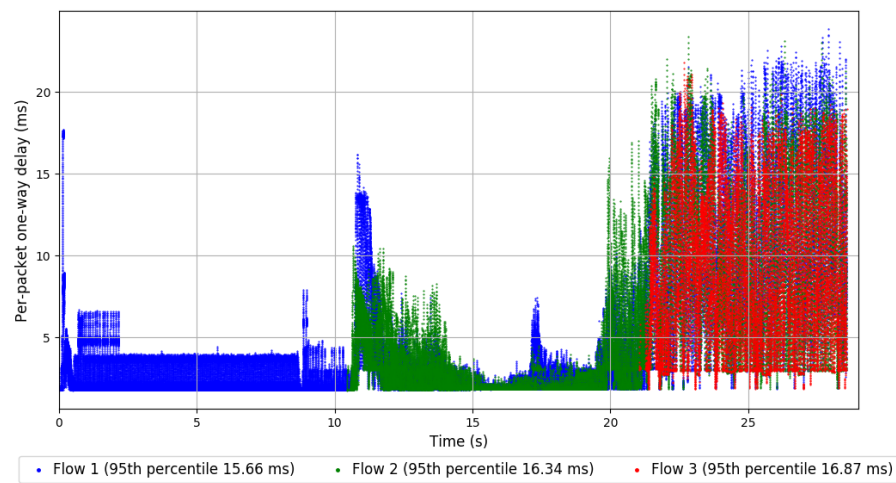
Run 2: Report of Indigo-MusesC5 — Data Link

```
Run 3: Statistics of Indigo-MusesC5

Start at: 2019-03-09 13:55:44
End at: 2019-03-09 13:56:14
Local clock offset: -5.918 ms
Remote clock offset: 0.851 ms

# Below is generated by plot.py at 2019-03-09 15:03:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 65.15 Mbit/s
95th percentile per-packet one-way delay: 16.215 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 39.52 Mbit/s
95th percentile per-packet one-way delay: 15.664 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 27.75 Mbit/s
95th percentile per-packet one-way delay: 16.336 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 30.48 Mbit/s
95th percentile per-packet one-way delay: 16.869 ms
Loss rate: 0.21%
```
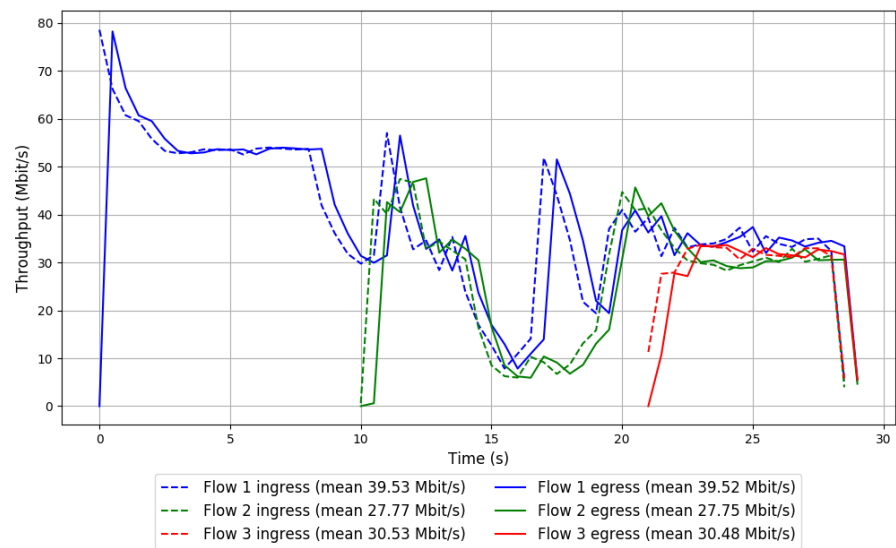
Run 3: Report of Indigo-MusesC5 — Data Link

```
Run 4: Statistics of Indigo-MusesC5

Start at: 2019-03-09 14:19:56
End at: 2019-03-09 14:20:26
Local clock offset: -7.568 ms
Remote clock offset: 0.875 ms


# Below is generated by plot.py at 2019-03-09 15:03:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 62.05 Mbit/s
95th percentile per-packet one-way delay: 15.213 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 37.49 Mbit/s
95th percentile per-packet one-way delay: 10.082 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 25.98 Mbit/s
95th percentile per-packet one-way delay: 17.046 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 30.77 Mbit/s
95th percentile per-packet one-way delay: 19.229 ms
Loss rate: 0.33%
```
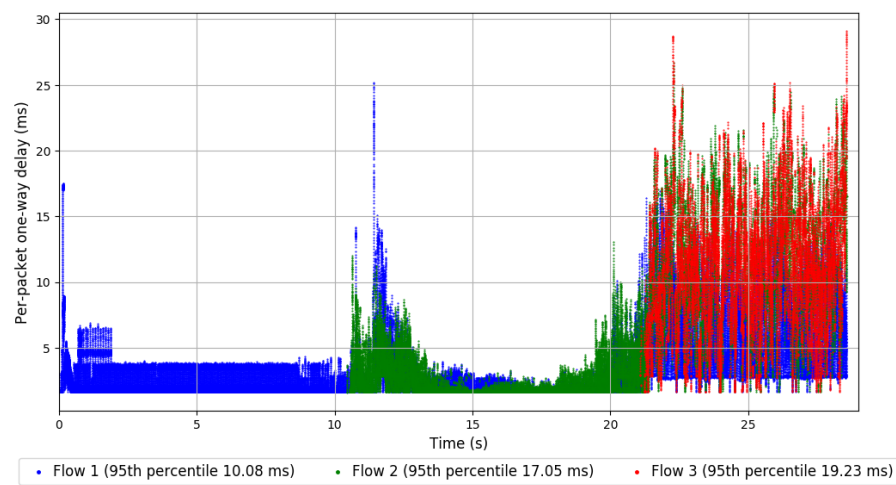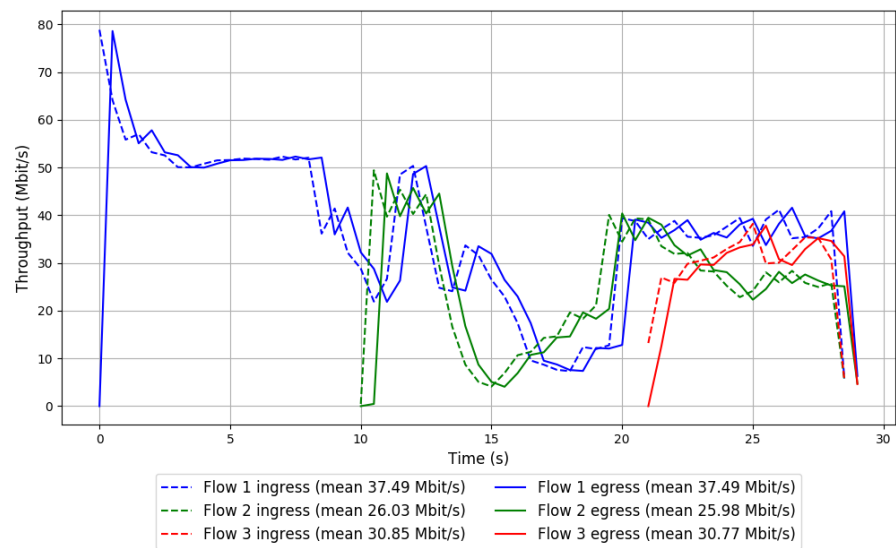
Run 4: Report of Indigo-MusesC5 — Data Link

```
Run 5: Statistics of Indigo-MusesC5

Start at: 2019-03-09 14:44:10
End at: 2019-03-09 14:44:40
Local clock offset: -6.784 ms
Remote clock offset: 0.971 ms


# Below is generated by plot.py at 2019-03-09 15:03:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 66.77 Mbit/s
95th percentile per-packet one-way delay: 17.080 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 39.75 Mbit/s
95th percentile per-packet one-way delay: 13.693 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 29.39 Mbit/s
95th percentile per-packet one-way delay: 17.768 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 31.45 Mbit/s
95th percentile per-packet one-way delay: 19.829 ms
Loss rate: 0.17%
```
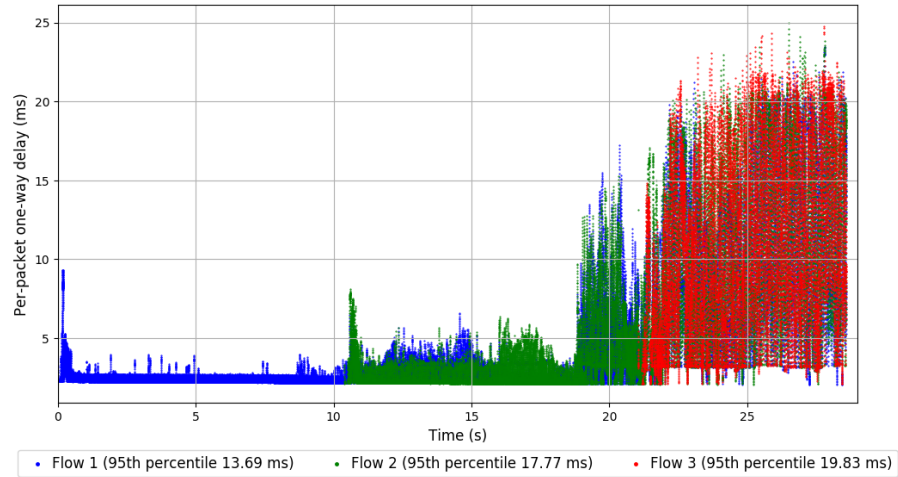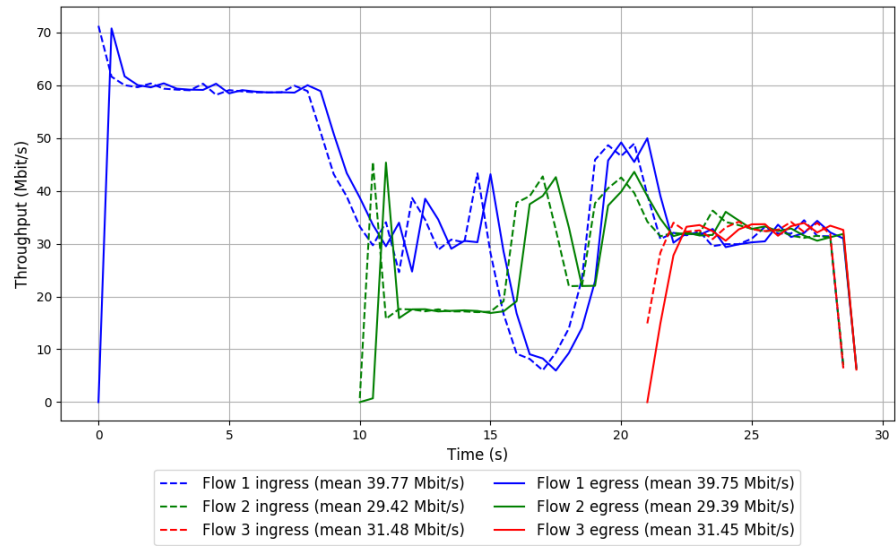
Run 5: Report of Indigo-MusesC5 — Data Link





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```
Run 1: Statistics of Indigo-MusesD

Start at: 2019-03-09 12:56:56
End at: 2019-03-09 12:57:26
Local clock offset: -6.888 ms
Remote clock offset: 0.179 ms


# Below is generated by plot.py at 2019-03-09 15:03:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 72.91 Mbit/s
95th percentile per-packet one-way delay: 44.912 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 41.38 Mbit/s
95th percentile per-packet one-way delay: 15.920 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 33.71 Mbit/s
95th percentile per-packet one-way delay: 22.948 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 38.15 Mbit/s
95th percentile per-packet one-way delay: 58.366 ms
Loss rate: 3.35%
```
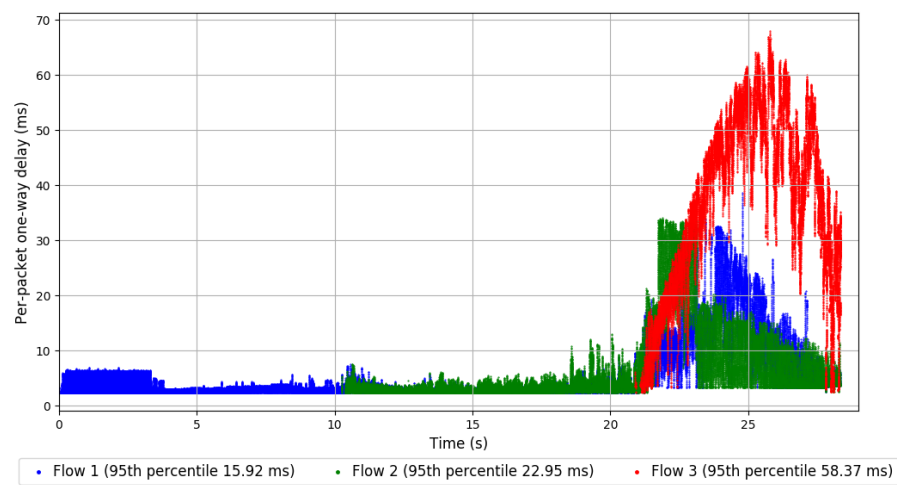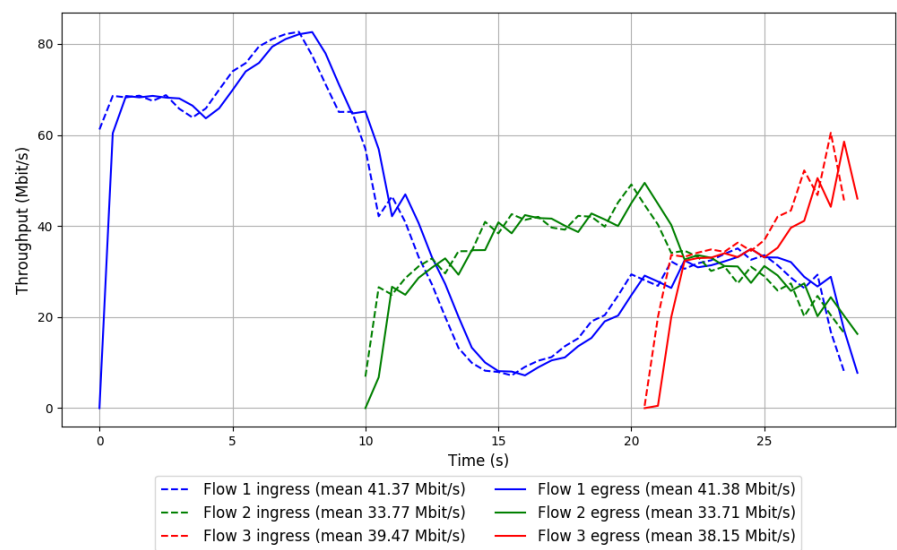
Run 1: Report of Indigo-MusesD — Data Link



- - - Flow 1 ingress (mean 41.37 Mbit/s) —— Flow 1 egress (mean 41.38 Mbit/s)
- - - Flow 2 ingress (mean 33.77 Mbit/s) —— Flow 2 egress (mean 33.71 Mbit/s)
- - - Flow 3 ingress (mean 39.47 Mbit/s) —— Flow 3 egress (mean 38.15 Mbit/s)



• Flow 1 (95th percentile 15.92 ms)   • Flow 2 (95th percentile 22.95 ms)   • Flow 3 (95th percentile 58.37 ms)

```
Run 2: Statistics of Indigo-MusesD

Start at: 2019-03-09 13:21:10
End at: 2019-03-09 13:21:40
Local clock offset: -4.621 ms
Remote clock offset: 0.539 ms


# Below is generated by plot.py at 2019-03-09 15:03:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 63.44 Mbit/s
95th percentile per-packet one-way delay: 16.341 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 31.21 Mbit/s
95th percentile per-packet one-way delay: 9.069 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 31.35 Mbit/s
95th percentile per-packet one-way delay: 8.693 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 45.94 Mbit/s
95th percentile per-packet one-way delay: 20.117 ms
Loss rate: 0.29%
```
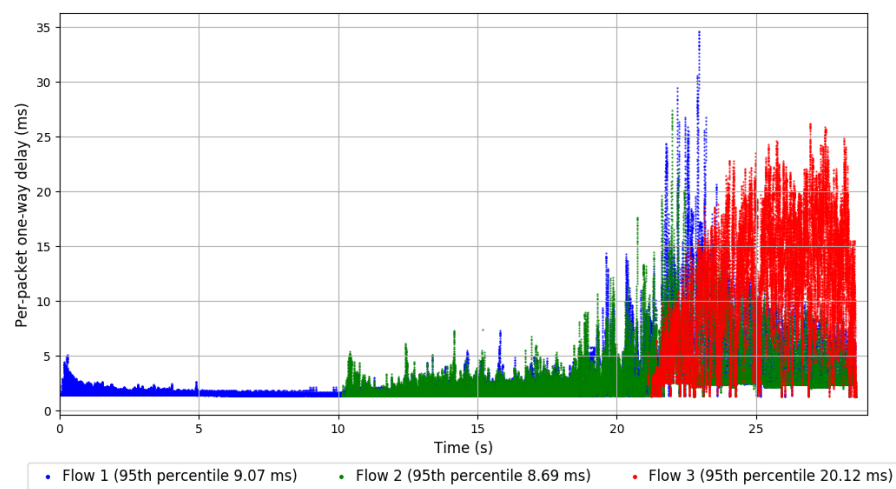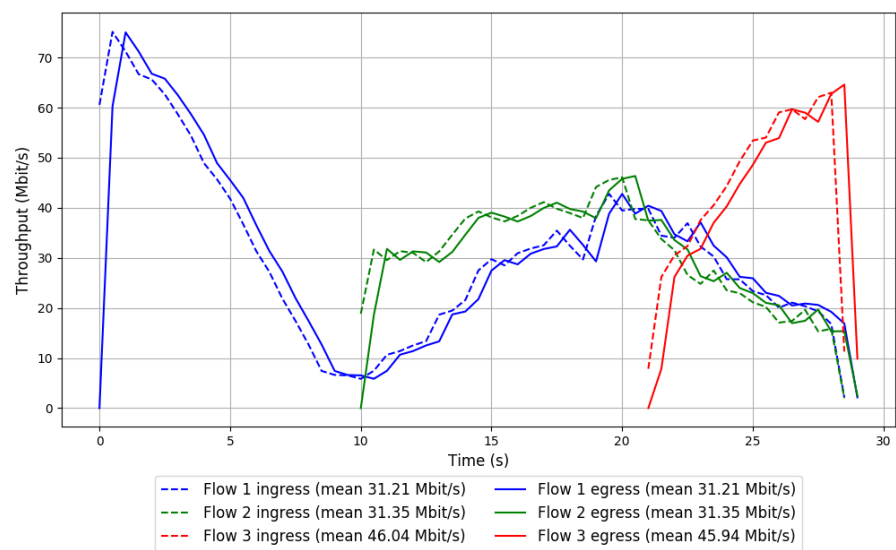
Run 2: Report of Indigo-MusesD — Data Link

```
Run 3: Statistics of Indigo-MusesD

Start at: 2019-03-09 13:45:21
End at: 2019-03-09 13:45:51
Local clock offset: -2.119 ms
Remote clock offset: 0.856 ms


# Below is generated by plot.py at 2019-03-09 15:03:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 61.03 Mbit/s
95th percentile per-packet one-way delay: 22.306 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 32.42 Mbit/s
95th percentile per-packet one-way delay: 8.764 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 24.24 Mbit/s
95th percentile per-packet one-way delay: 6.524 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 49.53 Mbit/s
95th percentile per-packet one-way delay: 27.587 ms
Loss rate: 0.58%
```
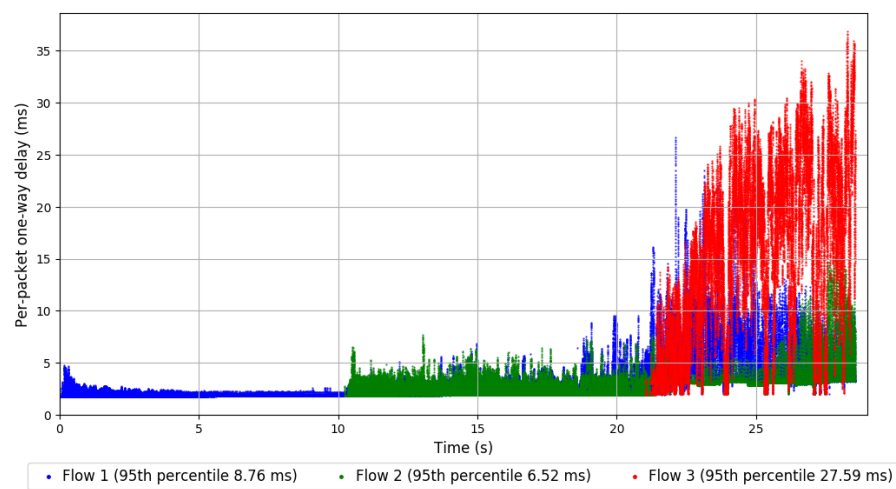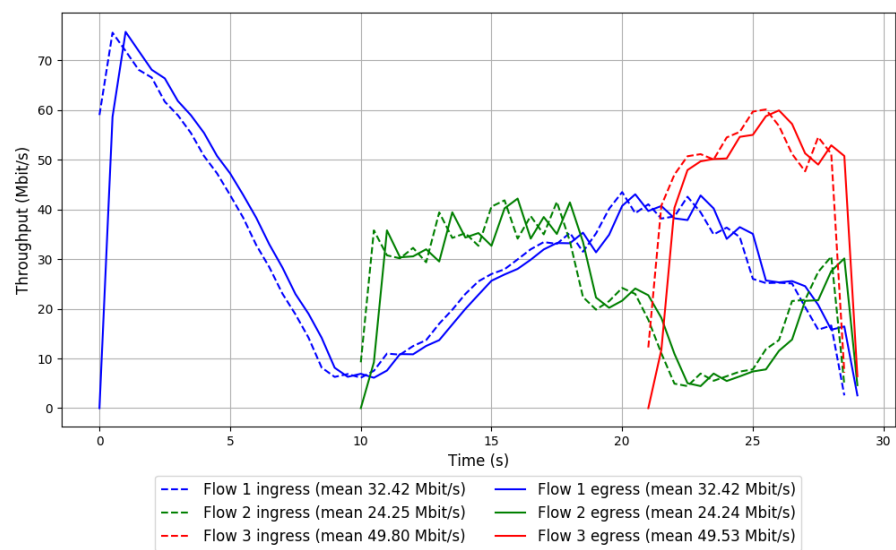
Run 3: Report of Indigo-MusesD — Data Link

```
Run 4: Statistics of Indigo-MusesD

Start at: 2019-03-09 14:09:33
End at: 2019-03-09 14:10:03
Local clock offset: -7.641 ms
Remote clock offset: 0.886 ms


# Below is generated by plot.py at 2019-03-09 15:04:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 58.27 Mbit/s
95th percentile per-packet one-way delay: 36.000 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 32.04 Mbit/s
95th percentile per-packet one-way delay: 10.562 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 23.93 Mbit/s
95th percentile per-packet one-way delay: 10.754 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 39.36 Mbit/s
95th percentile per-packet one-way delay: 51.310 ms
Loss rate: 1.78%
```
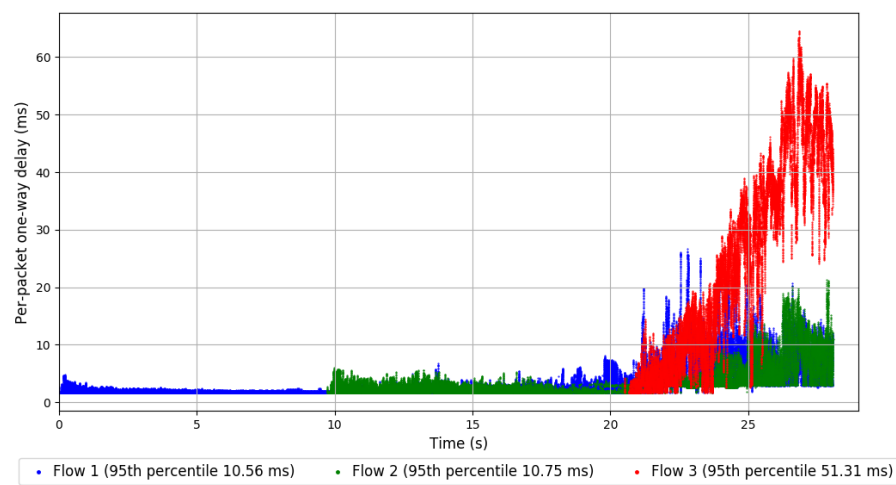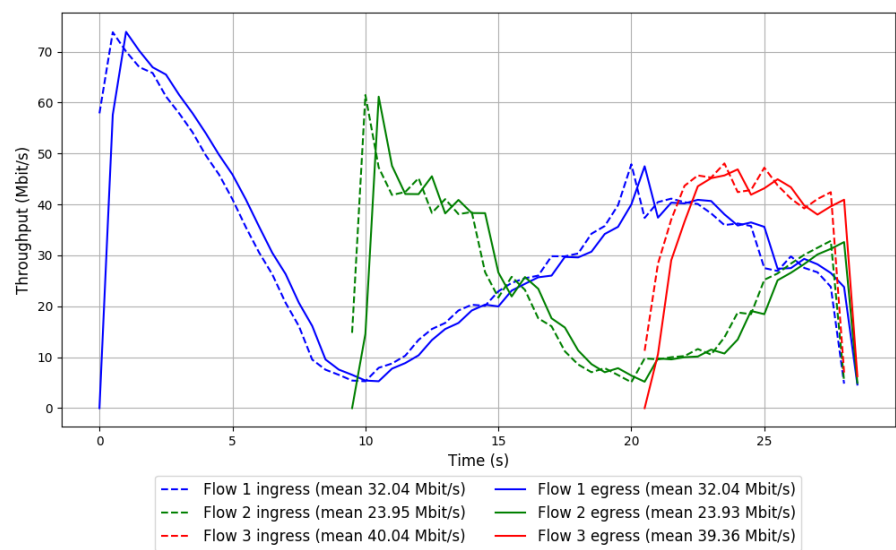
Run 4: Report of Indigo-MusesD — Data Link

```
Run 5: Statistics of Indigo-MusesD

Start at: 2019-03-09 14:33:47
End at: 2019-03-09 14:34:17
Local clock offset: -7.428 ms
Remote clock offset: 0.895 ms


# Below is generated by plot.py at 2019-03-09 15:04:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 65.62 Mbit/s
95th percentile per-packet one-way delay: 11.687 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 42.98 Mbit/s
95th percentile per-packet one-way delay: 6.423 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 21.61 Mbit/s
95th percentile per-packet one-way delay: 12.521 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 30.41 Mbit/s
95th percentile per-packet one-way delay: 20.106 ms
Loss rate: 0.20%
```
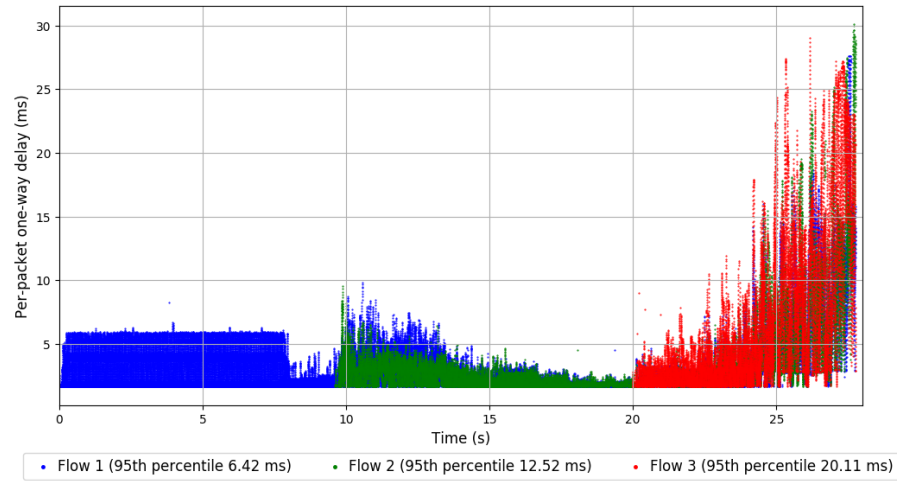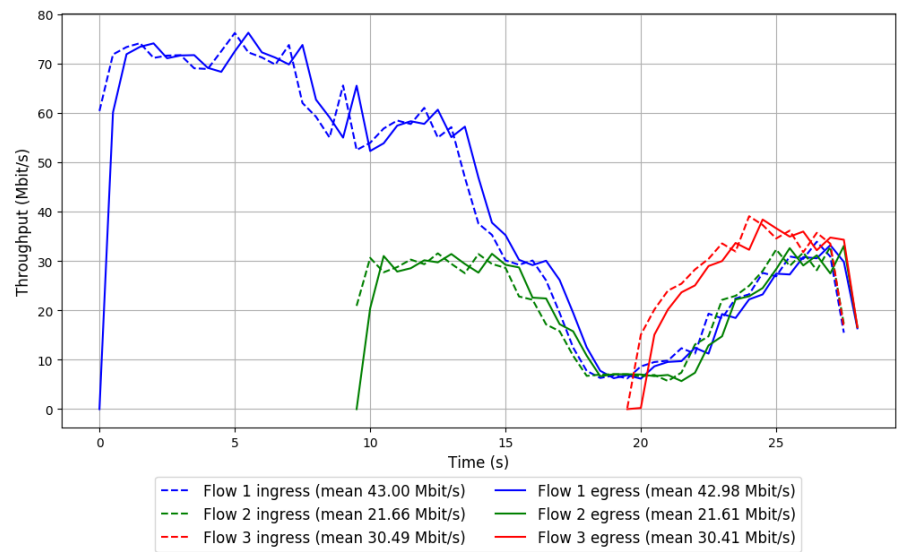
Run 5: Report of Indigo-MusesD — Data Link



Flow 1 ingress (mean 43.00 Mbit/s)    Flow 1 egress (mean 42.98 Mbit/s)
Flow 2 ingress (mean 21.66 Mbit/s)    Flow 2 egress (mean 21.61 Mbit/s)
Flow 3 ingress (mean 30.49 Mbit/s)    Flow 3 egress (mean 30.41 Mbit/s)



Flow 1 (95th percentile 6.42 ms)    Flow 2 (95th percentile 12.52 ms)    Flow 3 (95th percentile 20.11 ms)

```
Run 1: Statistics of Indigo-MusesT

Start at: 2019-03-09 13:02:48
End at: 2019-03-09 13:03:18
Local clock offset: -7.761 ms
Remote clock offset: 0.257 ms


# Below is generated by plot.py at 2019-03-09 15:04:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.65 Mbit/s
95th percentile per-packet one-way delay: 16.269 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 54.51 Mbit/s
95th percentile per-packet one-way delay: 13.280 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 37.24 Mbit/s
95th percentile per-packet one-way delay: 20.023 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 25.52 Mbit/s
95th percentile per-packet one-way delay: 15.658 ms
Loss rate: 0.18%
```
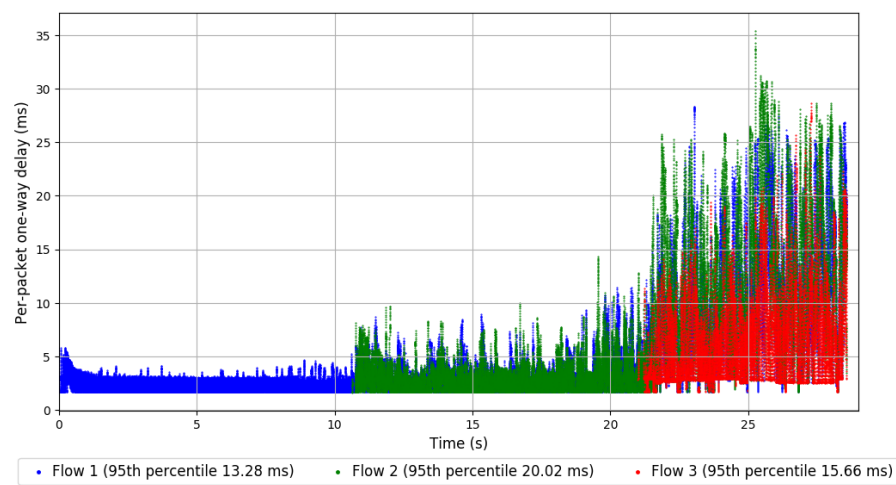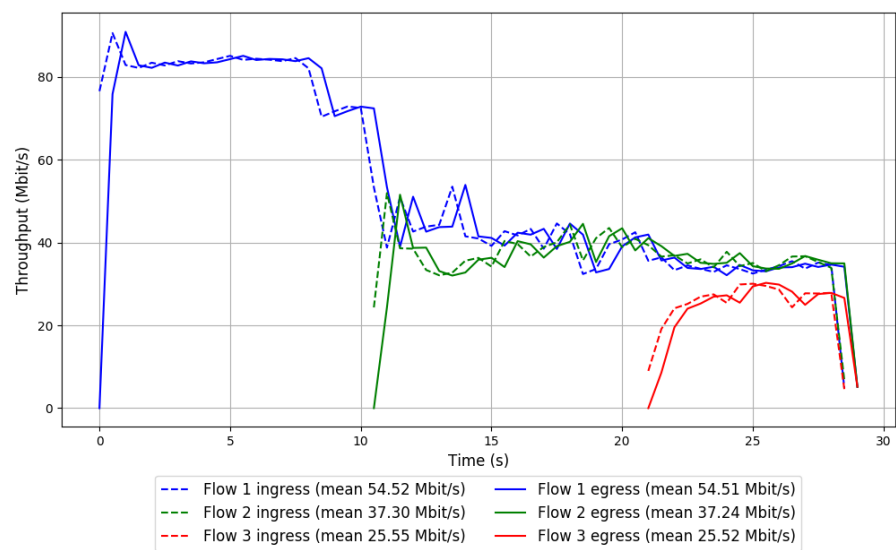
Run 1: Report of Indigo-MusesT — Data Link

```
Run 2: Statistics of Indigo-MusesT

Start at: 2019-03-09 13:27:00
End at: 2019-03-09 13:27:30
Local clock offset: -3.095 ms
Remote clock offset: 0.636 ms


# Below is generated by plot.py at 2019-03-09 15:04:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.30 Mbit/s
95th percentile per-packet one-way delay: 14.430 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 54.03 Mbit/s
95th percentile per-packet one-way delay: 13.206 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 36.06 Mbit/s
95th percentile per-packet one-way delay: 16.166 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 24.84 Mbit/s
95th percentile per-packet one-way delay: 13.812 ms
Loss rate: 0.11%
```
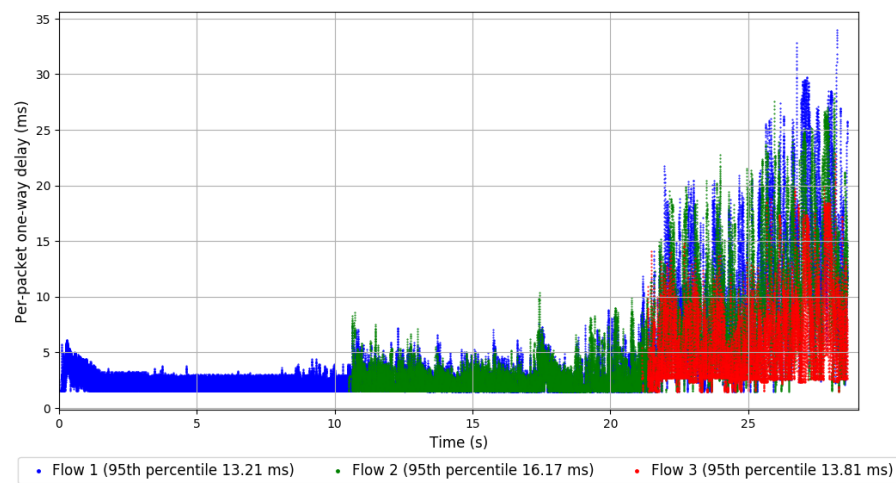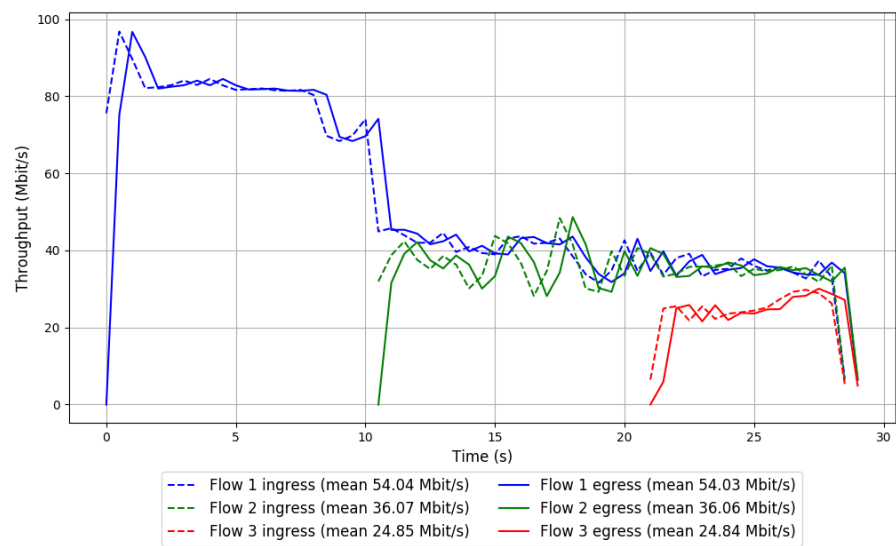
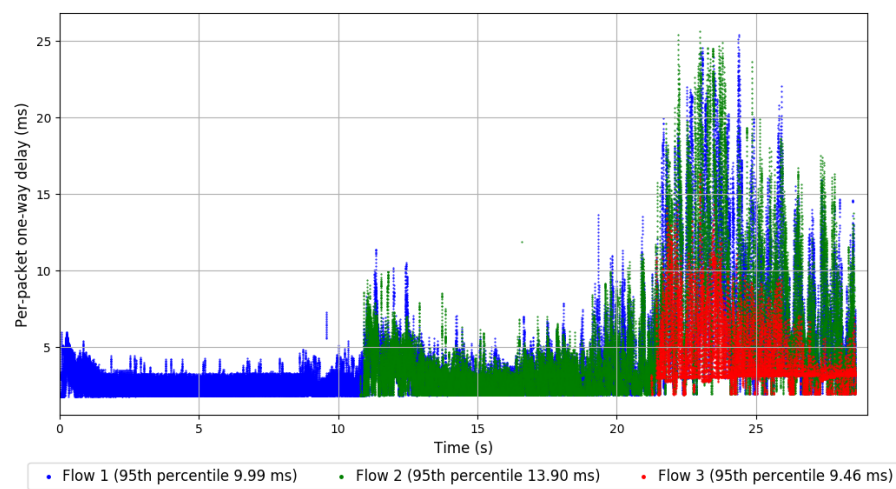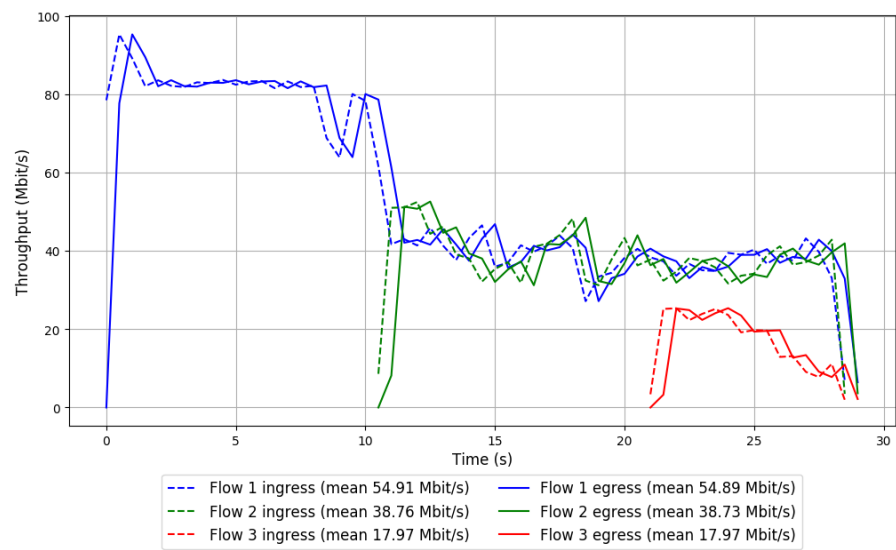Run 2: Report of Indigo-MusesT — Data Link

```
Run 3: Statistics of Indigo-MusesT

Start at: 2019-03-09 13:51:14
End at: 2019-03-09 13:51:44
Local clock offset: -4.741 ms
Remote clock offset: 0.833 ms

# Below is generated by plot.py at 2019-03-09 15:04:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.61 Mbit/s
95th percentile per-packet one-way delay: 11.380 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 54.89 Mbit/s
95th percentile per-packet one-way delay: 9.991 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 38.73 Mbit/s
95th percentile per-packet one-way delay: 13.905 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 17.97 Mbit/s
95th percentile per-packet one-way delay: 9.456 ms
Loss rate: 0.00%
```

Run 3: Report of Indigo-MusesT — Data Link



Flow 1 ingress (mean 54.91 Mbit/s) --- Flow 1 egress (mean 54.89 Mbit/s)
Flow 2 ingress (mean 38.76 Mbit/s) --- Flow 2 egress (mean 38.73 Mbit/s)
Flow 3 ingress (mean 17.97 Mbit/s) --- Flow 3 egress (mean 17.97 Mbit/s)



Flow 1 (95th percentile 9.99 ms) • Flow 2 (95th percentile 13.90 ms) • Flow 3 (95th percentile 9.46 ms)

```
Run 4: Statistics of Indigo-MusesT

Start at: 2019-03-09 14:15:25
End at: 2019-03-09 14:15:55
Local clock offset: -7.15 ms
Remote clock offset: 0.98 ms


# Below is generated by plot.py at 2019-03-09 15:04:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.66 Mbit/s
95th percentile per-packet one-way delay: 17.629 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 54.51 Mbit/s
95th percentile per-packet one-way delay: 14.274 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 35.08 Mbit/s
95th percentile per-packet one-way delay: 19.764 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 27.78 Mbit/s
95th percentile per-packet one-way delay: 22.200 ms
Loss rate: 0.49%
```
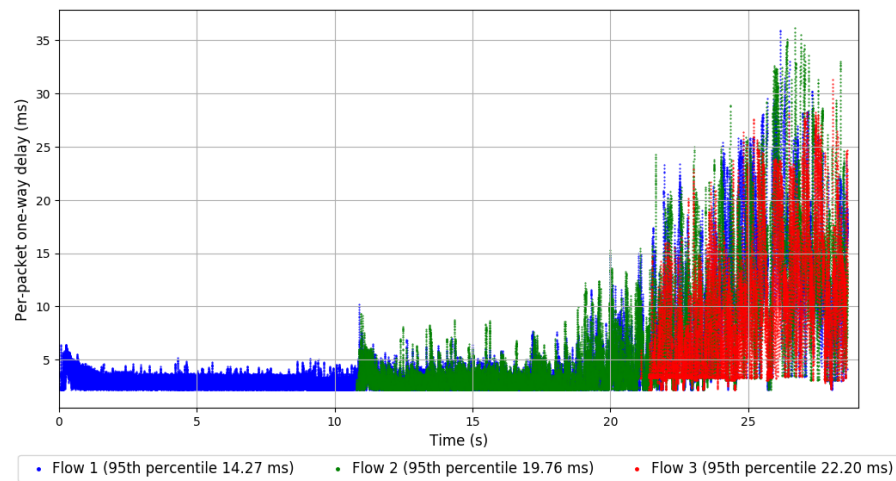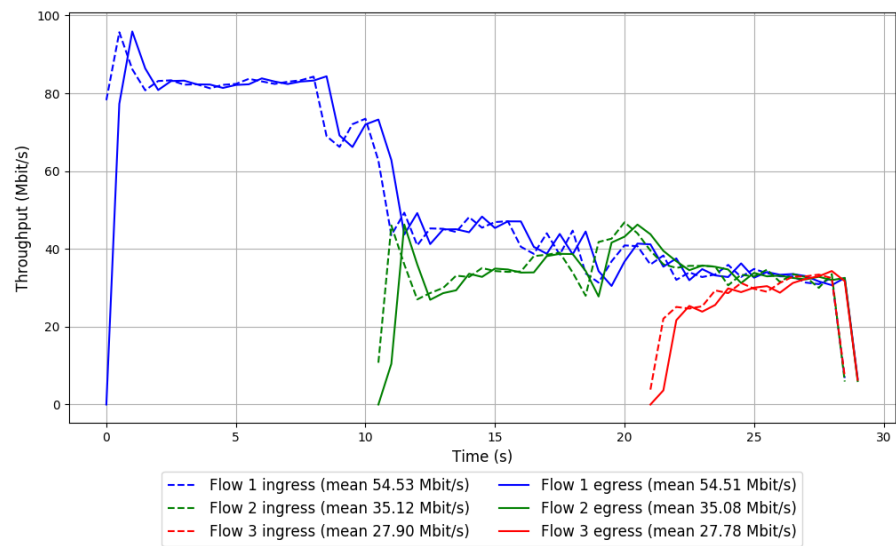
# Run 4: Report of Indigo-MusesT — Data Link



Flow 1 ingress (mean 54.53 Mbit/s) --- Flow 1 egress (mean 54.51 Mbit/s)
Flow 2 ingress (mean 35.12 Mbit/s) --- Flow 2 egress (mean 35.08 Mbit/s)
Flow 3 ingress (mean 27.90 Mbit/s) --- Flow 3 egress (mean 27.78 Mbit/s)



Flow 1 (95th percentile 14.27 ms)    Flow 2 (95th percentile 19.76 ms)    Flow 3 (95th percentile 22.20 ms)

```
Run 5: Statistics of Indigo-MusesT

Start at: 2019-03-09 14:39:39
End at: 2019-03-09 14:40:10
Local clock offset: -6.77 ms
Remote clock offset: 0.943 ms


# Below is generated by plot.py at 2019-03-09 15:04:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.07 Mbit/s
95th percentile per-packet one-way delay: 15.187 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 54.55 Mbit/s
95th percentile per-packet one-way delay: 12.369 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 37.96 Mbit/s
95th percentile per-packet one-way delay: 19.224 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 22.14 Mbit/s
95th percentile per-packet one-way delay: 13.466 ms
Loss rate: 0.09%
```
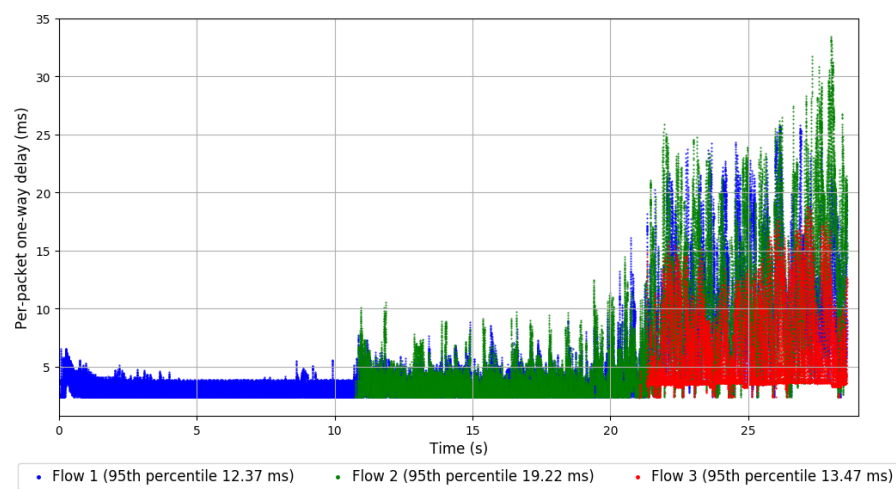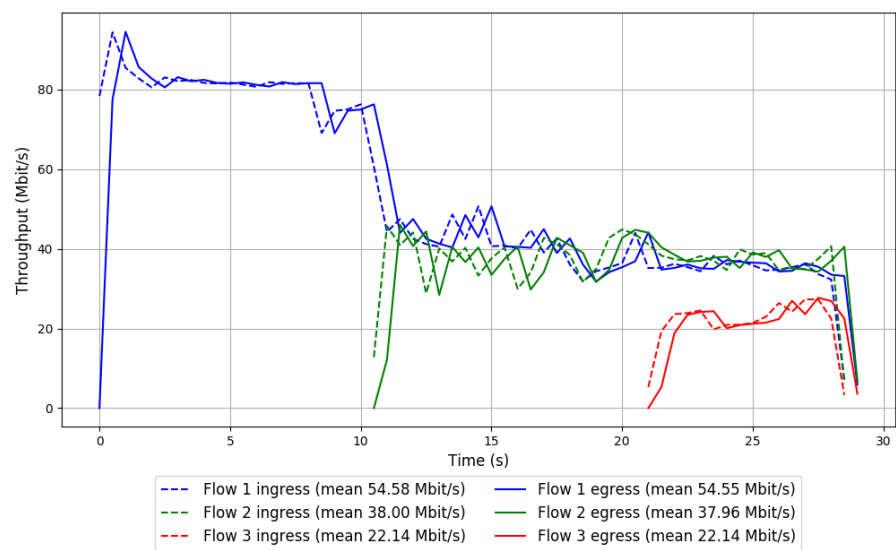
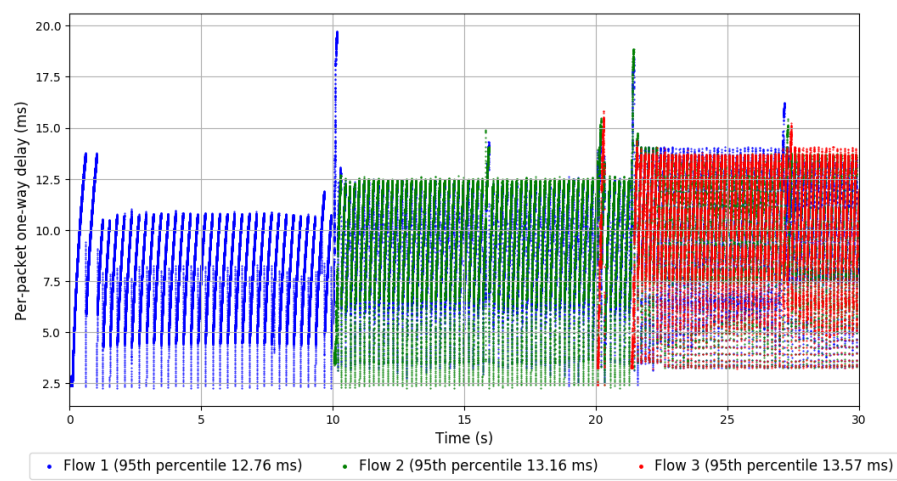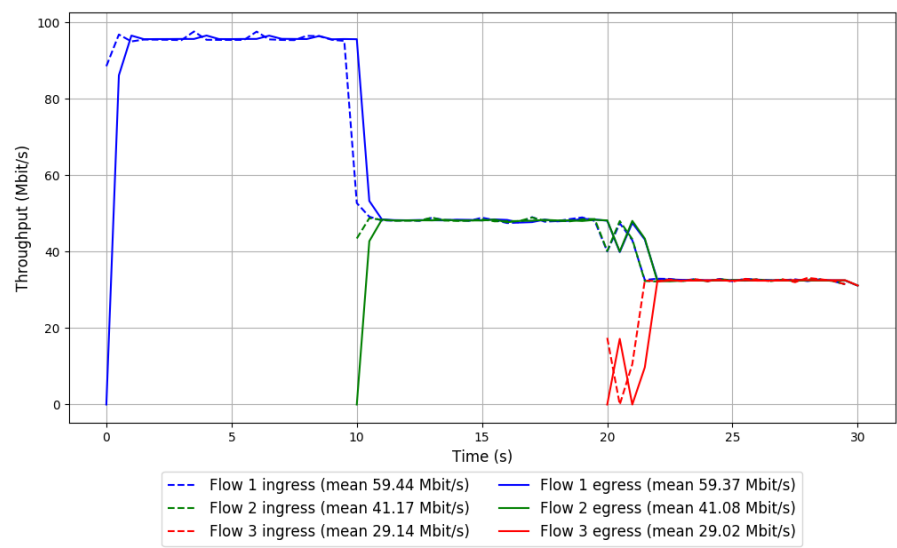Run 5: Report of Indigo-MusesT — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2019-03-09 13:10:46
End at: 2019-03-09 13:11:16
Local clock offset: -7.368 ms
Remote clock offset: 0.307 ms


# Below is generated by plot.py at 2019-03-09 15:05:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.36 Mbit/s
95th percentile per-packet one-way delay: 13.161 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 59.37 Mbit/s
95th percentile per-packet one-way delay: 12.762 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 41.08 Mbit/s
95th percentile per-packet one-way delay: 13.162 ms
Loss rate: 0.23%
-- Flow 3:
Average throughput: 29.02 Mbit/s
95th percentile per-packet one-way delay: 13.574 ms
Loss rate: 0.46%
```

## Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2019-03-09 13:34:58
End at: 2019-03-09 13:35:28
Local clock offset: -2.019 ms
Remote clock offset: 0.746 ms


# Below is generated by plot.py at 2019-03-09 15:05:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.63 Mbit/s
95th percentile per-packet one-way delay: 13.652 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 58.74 Mbit/s
95th percentile per-packet one-way delay: 13.121 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 40.62 Mbit/s
95th percentile per-packet one-way delay: 14.012 ms
Loss rate: 0.24%
-- Flow 3:
Average throughput: 32.62 Mbit/s
95th percentile per-packet one-way delay: 13.838 ms
Loss rate: 0.38%
```
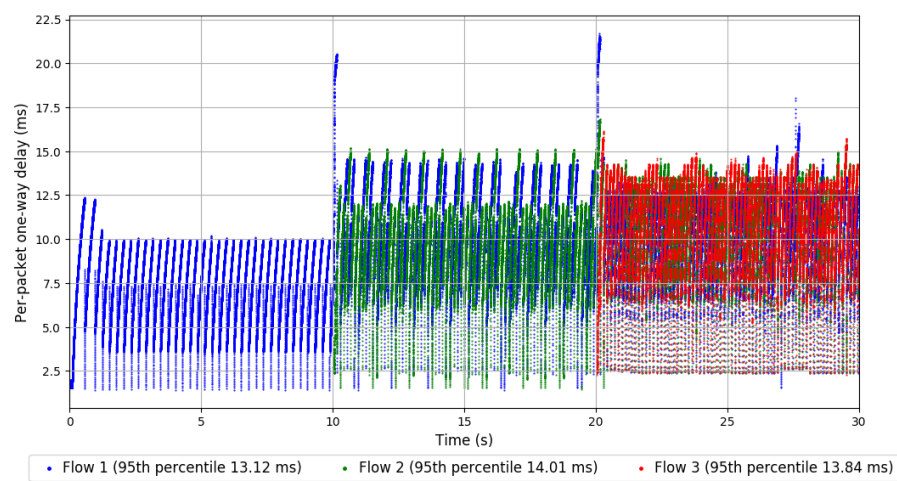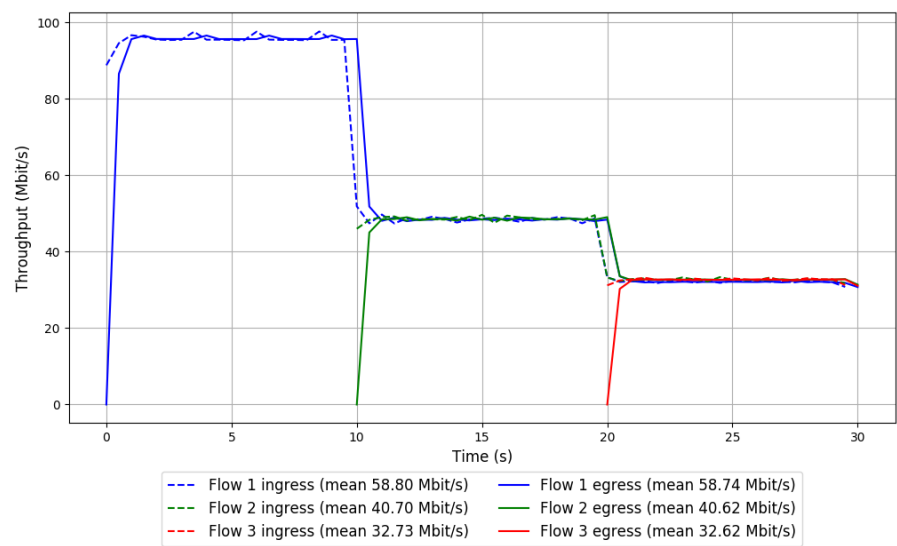
# Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2019-03-09 13:59:11
End at: 2019-03-09 13:59:41
Local clock offset: -5.811 ms
Remote clock offset: 0.9 ms


# Below is generated by plot.py at 2019-03-09 15:05:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.90 Mbit/s
95th percentile per-packet one-way delay: 14.345 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 59.20 Mbit/s
95th percentile per-packet one-way delay: 14.104 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 40.64 Mbit/s
95th percentile per-packet one-way delay: 14.828 ms
Loss rate: 0.24%
-- Flow 3:
Average throughput: 32.03 Mbit/s
95th percentile per-packet one-way delay: 13.515 ms
Loss rate: 0.33%
```

## Run 3: Report of LEDBAT — Data Link



- - - - Flow 1 ingress (mean 59.28 Mbit/s)     —— Flow 1 egress (mean 59.20 Mbit/s)
- - - - Flow 2 ingress (mean 40.73 Mbit/s)     —— Flow 2 egress (mean 40.64 Mbit/s)
- - - - Flow 3 ingress (mean 32.12 Mbit/s)     —— Flow 3 egress (mean 32.03 Mbit/s)



- Flow 1 (95th percentile 14.10 ms)     • Flow 2 (95th percentile 14.83 ms)     • Flow 3 (95th percentile 13.52 ms)

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```
Run 4: Statistics of LEDBAT

Start at: 2019-03-09 14:23:23
End at: 2019-03-09 14:23:53
Local clock offset: -7.382 ms
Remote clock offset: 0.844 ms

# Below is generated by plot.py at 2019-03-09 15:05:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.79 Mbit/s
95th percentile per-packet one-way delay: 13.736 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 59.19 Mbit/s
95th percentile per-packet one-way delay: 13.486 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 40.20 Mbit/s
95th percentile per-packet one-way delay: 13.994 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 32.63 Mbit/s
95th percentile per-packet one-way delay: 14.001 ms
Loss rate: 0.38%
```
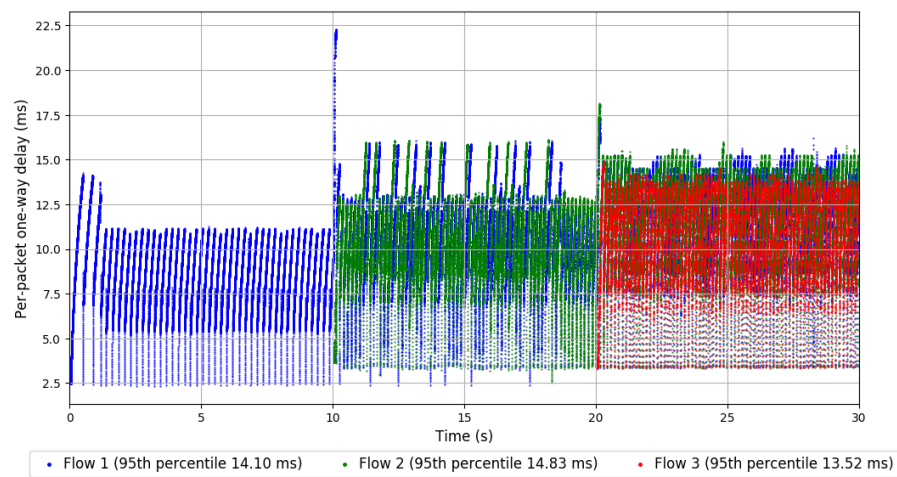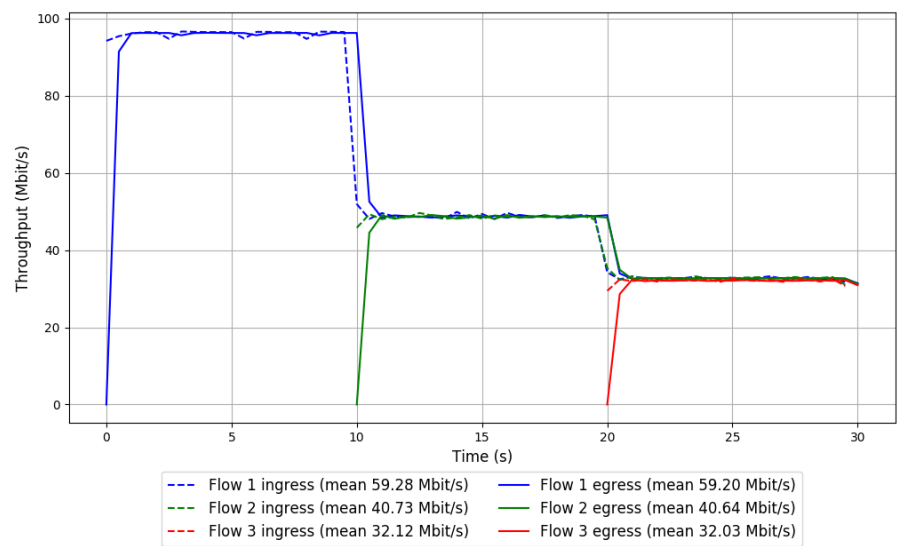
## Run 4: Report of LEDBAT — Data Link



Flow 1 ingress (mean 59.26 Mbit/s)    Flow 1 egress (mean 59.19 Mbit/s)
Flow 2 ingress (mean 40.28 Mbit/s)    Flow 2 egress (mean 40.20 Mbit/s)
Flow 3 ingress (mean 32.74 Mbit/s)    Flow 3 egress (mean 32.63 Mbit/s)



Flow 1 (95th percentile 13.49 ms)    Flow 2 (95th percentile 13.99 ms)    Flow 3 (95th percentile 14.00 ms)

```
Run 5: Statistics of LEDBAT

Start at: 2019-03-09 14:47:38
End at: 2019-03-09 14:48:08
Local clock offset: -6.06 ms
Remote clock offset: 1.028 ms


# Below is generated by plot.py at 2019-03-09 15:05:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.61 Mbit/s
95th percentile per-packet one-way delay: 13.454 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 58.87 Mbit/s
95th percentile per-packet one-way delay: 13.042 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 40.47 Mbit/s
95th percentile per-packet one-way delay: 13.904 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 32.40 Mbit/s
95th percentile per-packet one-way delay: 13.272 ms
Loss rate: 0.38%
```
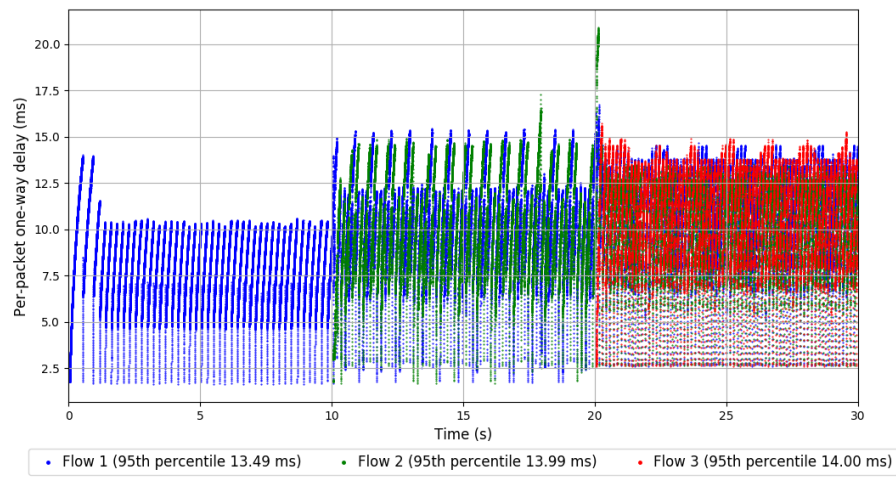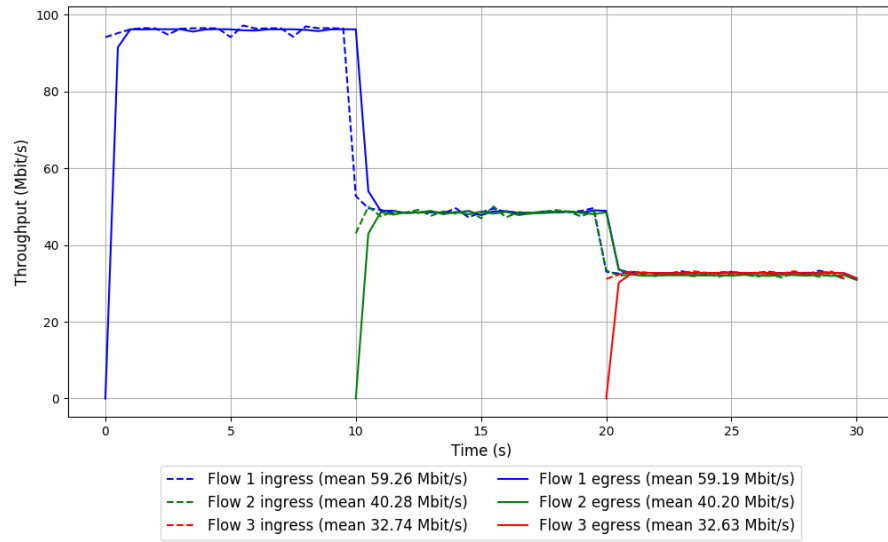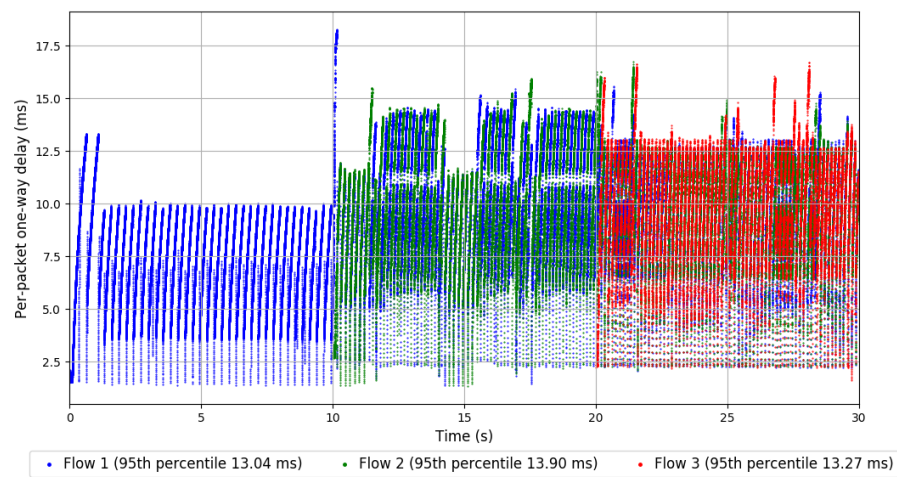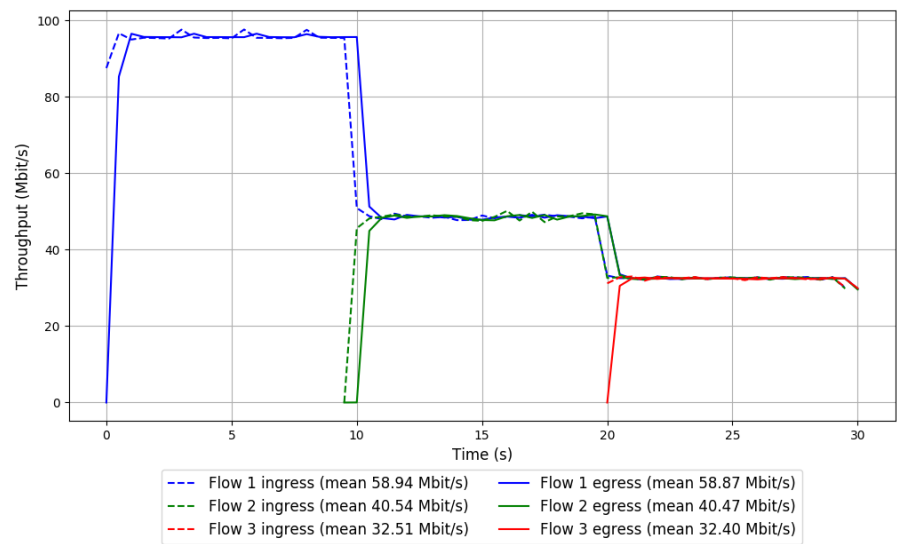
Run 5: Report of LEDBAT — Data Link



- - - - Flow 1 ingress (mean 58.94 Mbit/s) —— Flow 1 egress (mean 58.87 Mbit/s)
- - - - Flow 2 ingress (mean 40.54 Mbit/s) —— Flow 2 egress (mean 40.47 Mbit/s)
- - - - Flow 3 ingress (mean 32.51 Mbit/s) —— Flow 3 egress (mean 32.40 Mbit/s)



- Flow 1 (95th percentile 13.04 ms)   • Flow 2 (95th percentile 13.90 ms)   • Flow 3 (95th percentile 13.27 ms)
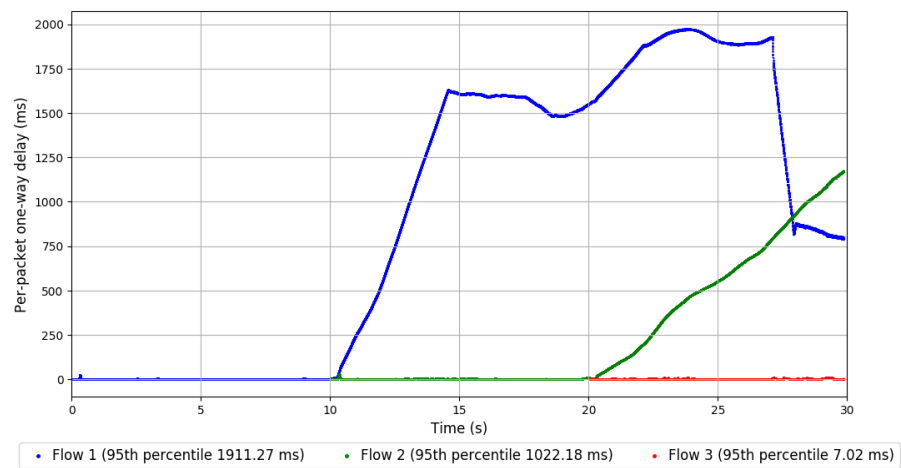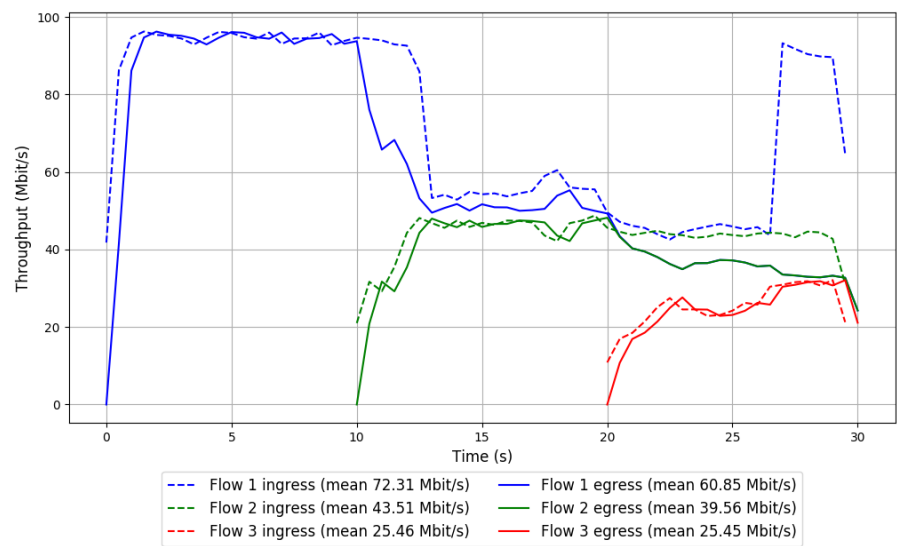
```
Run 1: Statistics of PCC-Allegro

Start at: 2019-03-09 13:17:42
End at: 2019-03-09 13:18:12
Local clock offset: -6.049 ms
Remote clock offset: 0.344 ms


# Below is generated by plot.py at 2019-03-09 15:05:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.49 Mbit/s
95th percentile per-packet one-way delay: 1892.218 ms
Loss rate: 12.86%
-- Flow 1:
Average throughput: 60.85 Mbit/s
95th percentile per-packet one-way delay: 1911.269 ms
Loss rate: 15.85%
-- Flow 2:
Average throughput: 39.56 Mbit/s
95th percentile per-packet one-way delay: 1022.179 ms
Loss rate: 9.10%
-- Flow 3:
Average throughput: 25.45 Mbit/s
95th percentile per-packet one-way delay: 7.016 ms
Loss rate: 0.07%
```

# Run 1: Report of PCC-Allegro — Data Link



Flow 1 ingress (mean 72.31 Mbit/s) --- Flow 1 egress (mean 60.85 Mbit/s)
Flow 2 ingress (mean 43.51 Mbit/s) --- Flow 2 egress (mean 39.56 Mbit/s)
Flow 3 ingress (mean 25.46 Mbit/s) --- Flow 3 egress (mean 25.45 Mbit/s)



Flow 1 (95th percentile 1911.27 ms)   Flow 2 (95th percentile 1022.18 ms)   Flow 3 (95th percentile 7.02 ms)

```
Run 2: Statistics of PCC-Allegro

Start at: 2019-03-09 13:41:53
End at: 2019-03-09 13:42:23
Local clock offset: -0.669 ms
Remote clock offset: 0.798 ms


# Below is generated by plot.py at 2019-03-09 15:05:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.60 Mbit/s
95th percentile per-packet one-way delay: 1998.553 ms
Loss rate: 7.81%
-- Flow 1:
Average throughput: 59.69 Mbit/s
95th percentile per-packet one-way delay: 2024.946 ms
Loss rate: 10.23%
-- Flow 2:
Average throughput: 37.31 Mbit/s
95th percentile per-packet one-way delay: 401.205 ms
Loss rate: 4.28%
-- Flow 3:
Average throughput: 27.68 Mbit/s
95th percentile per-packet one-way delay: 10.210 ms
Loss rate: 0.19%
```
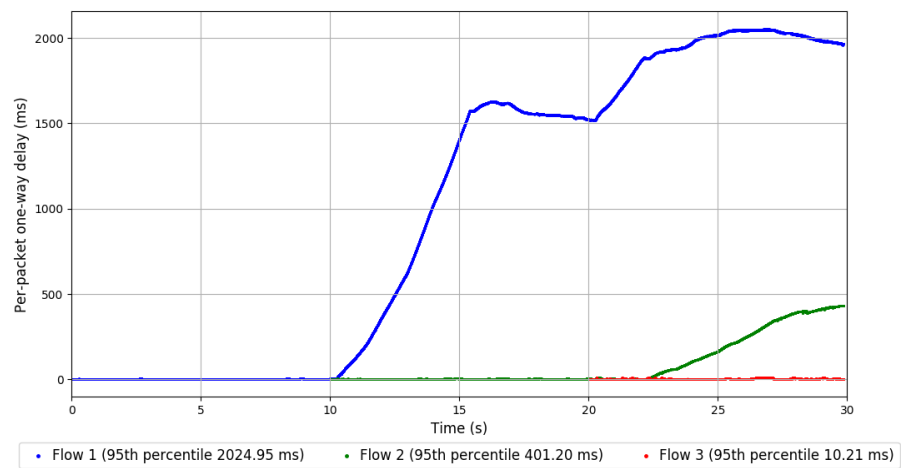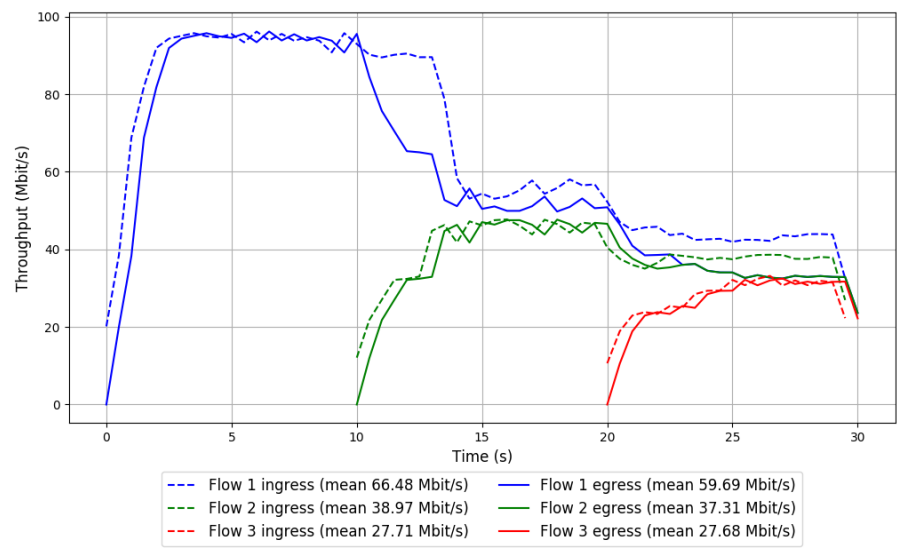
## Run 2: Report of PCC-Allegro — Data Link



Flow 1 ingress (mean 66.48 Mbit/s)    Flow 1 egress (mean 59.69 Mbit/s)
Flow 2 ingress (mean 38.97 Mbit/s)    Flow 2 egress (mean 37.31 Mbit/s)
Flow 3 ingress (mean 27.71 Mbit/s)    Flow 3 egress (mean 27.68 Mbit/s)



Flow 1 (95th percentile 2024.95 ms)    Flow 2 (95th percentile 401.20 ms)    Flow 3 (95th percentile 10.21 ms)

```
Run 3: Statistics of PCC-Allegro

Start at: 2019-03-09 14:06:06
End at: 2019-03-09 14:06:36
Local clock offset: -6.625 ms
Remote clock offset: 0.905 ms


# Below is generated by plot.py at 2019-03-09 15:05:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.97 Mbit/s
95th percentile per-packet one-way delay: 1777.232 ms
Loss rate: 15.06%
-- Flow 1:
Average throughput: 60.12 Mbit/s
95th percentile per-packet one-way delay: 1875.706 ms
Loss rate: 18.35%
-- Flow 2:
Average throughput: 39.92 Mbit/s
95th percentile per-packet one-way delay: 1311.143 ms
Loss rate: 11.12%
-- Flow 3:
Average throughput: 25.27 Mbit/s
95th percentile per-packet one-way delay: 12.279 ms
Loss rate: 0.08%
```
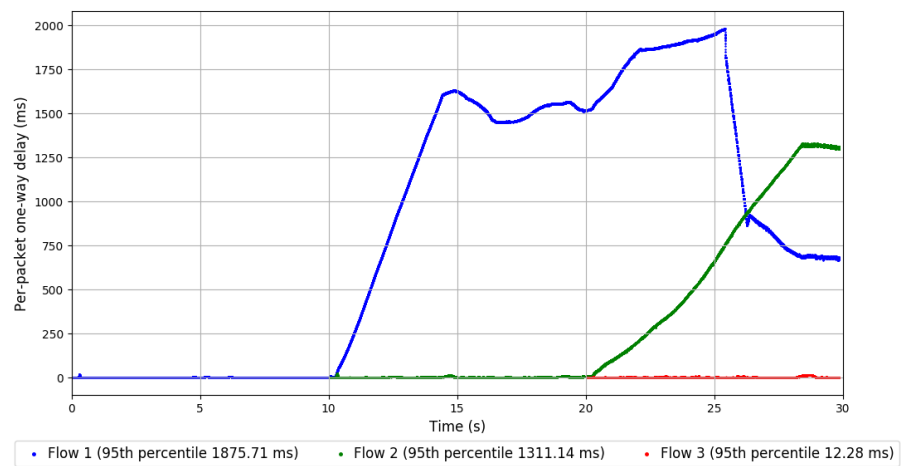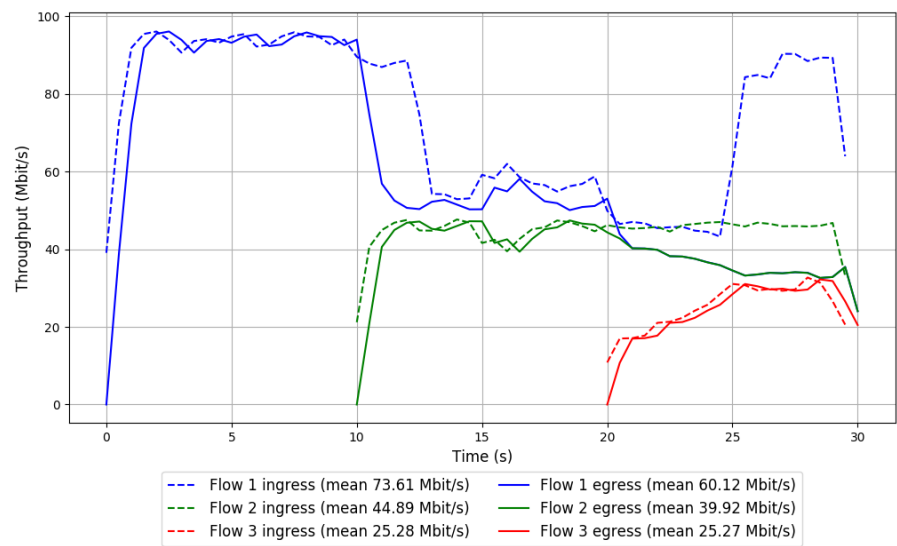
# Run 3: Report of PCC-Allegro — Data Link



Legend:
- Flow 1 ingress (mean 73.61 Mbit/s)
- Flow 1 egress (mean 60.12 Mbit/s)
- Flow 2 ingress (mean 44.89 Mbit/s)
- Flow 2 egress (mean 39.92 Mbit/s)
- Flow 3 ingress (mean 25.28 Mbit/s)
- Flow 3 egress (mean 25.27 Mbit/s)



Legend:
- Flow 1 (95th percentile 1875.71 ms)
- Flow 2 (95th percentile 1311.14 ms)
- Flow 3 (95th percentile 12.28 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2019-03-09 14:30:19
End at: 2019-03-09 14:30:49
Local clock offset: -7.341 ms
Remote clock offset: 0.996 ms


# Below is generated by plot.py at 2019-03-09 15:06:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.07 Mbit/s
95th percentile per-packet one-way delay: 1881.455 ms
Loss rate: 6.66%
-- Flow 1:
Average throughput: 63.51 Mbit/s
95th percentile per-packet one-way delay: 1906.799 ms
Loss rate: 9.63%
-- Flow 2:
Average throughput: 34.61 Mbit/s
95th percentile per-packet one-way delay: 10.968 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 26.01 Mbit/s
95th percentile per-packet one-way delay: 6.730 ms
Loss rate: 0.08%
```
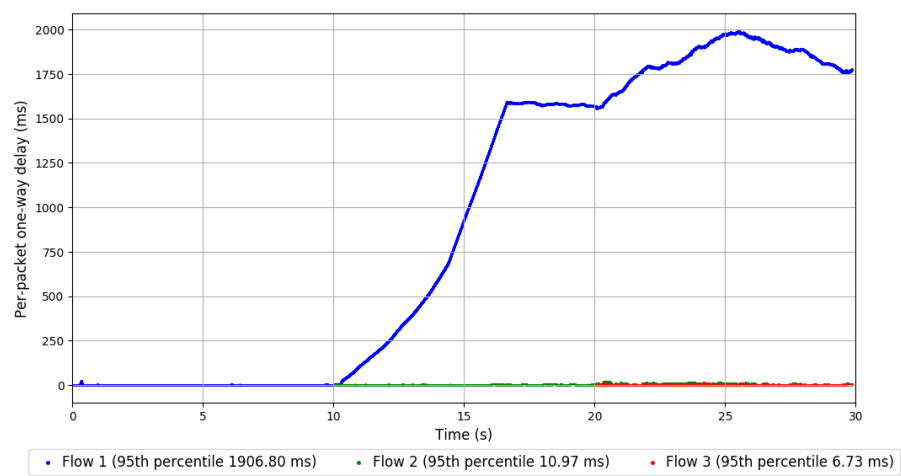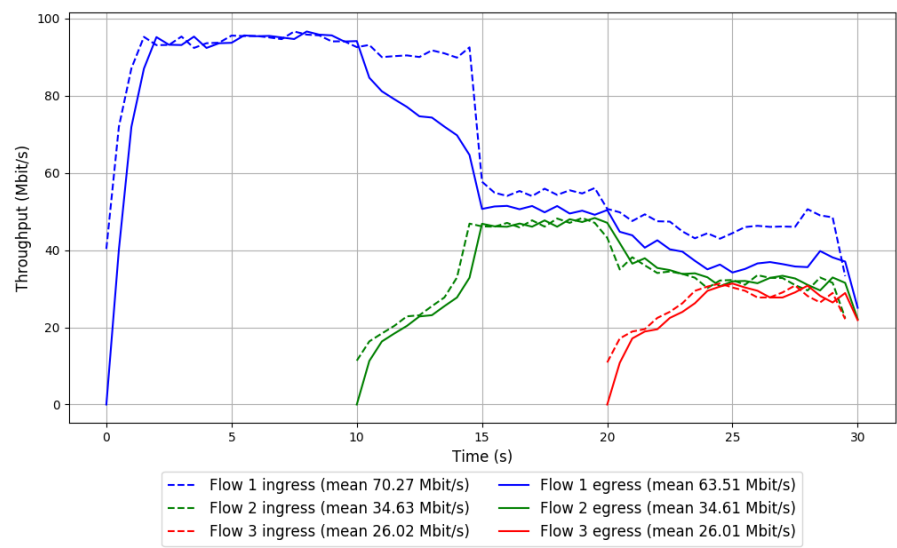
## Run 4: Report of PCC-Allegro — Data Link



- - - - Flow 1 ingress (mean 70.27 Mbit/s) ——— Flow 1 egress (mean 63.51 Mbit/s)
- - - - Flow 2 ingress (mean 34.63 Mbit/s) ——— Flow 2 egress (mean 34.61 Mbit/s)
- - - - Flow 3 ingress (mean 26.02 Mbit/s) ——— Flow 3 egress (mean 26.01 Mbit/s)



- Flow 1 (95th percentile 1906.80 ms)  • Flow 2 (95th percentile 10.97 ms)  • Flow 3 (95th percentile 6.73 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2019-03-09 14:54:33
End at: 2019-03-09 14:55:03
Local clock offset: -4.389 ms
Remote clock offset: 1.012 ms


# Below is generated by plot.py at 2019-03-09 15:06:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.88 Mbit/s
95th percentile per-packet one-way delay: 2117.574 ms
Loss rate: 6.97%
-- Flow 1:
Average throughput: 59.08 Mbit/s
95th percentile per-packet one-way delay: 2208.601 ms
Loss rate: 7.14%
-- Flow 2:
Average throughput: 31.95 Mbit/s
95th percentile per-packet one-way delay: 805.309 ms
Loss rate: 9.03%
-- Flow 3:
Average throughput: 25.95 Mbit/s
95th percentile per-packet one-way delay: 8.814 ms
Loss rate: 0.05%
```
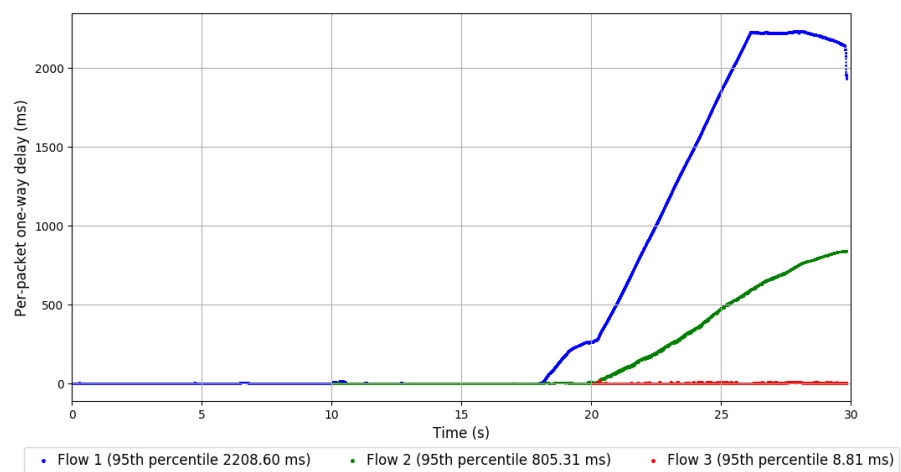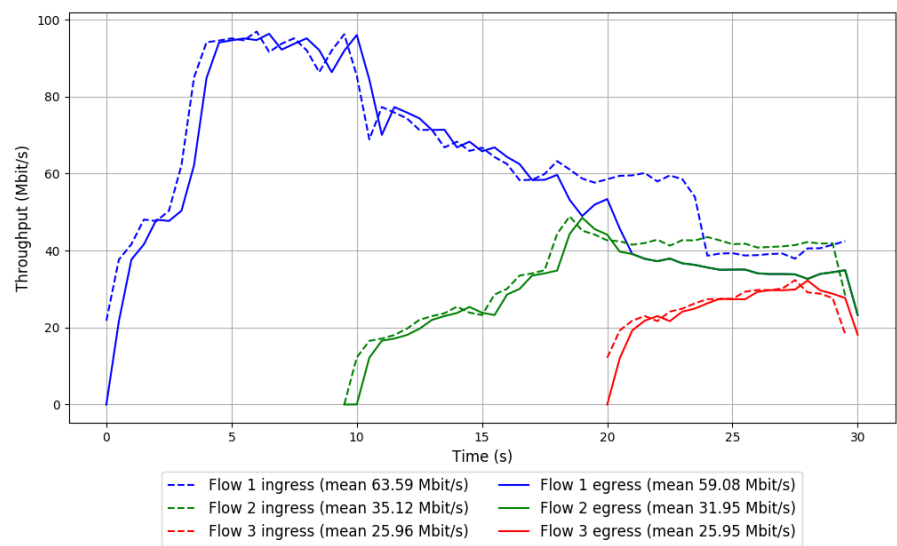
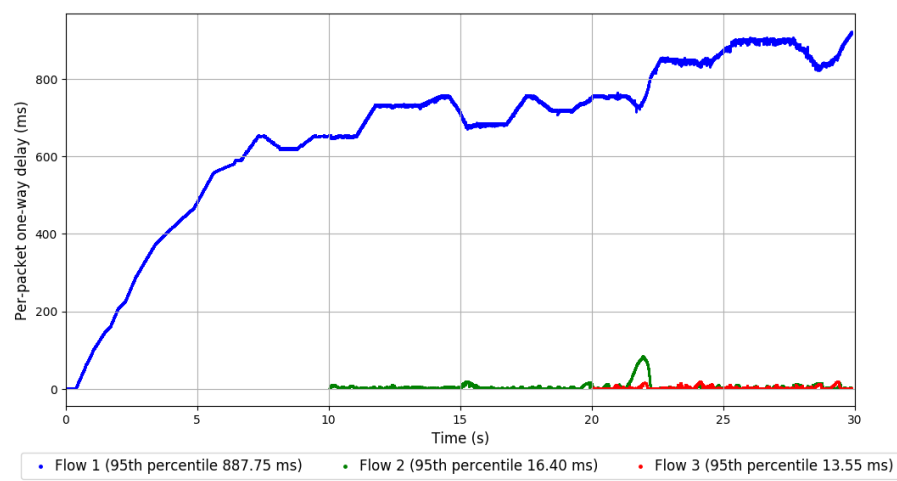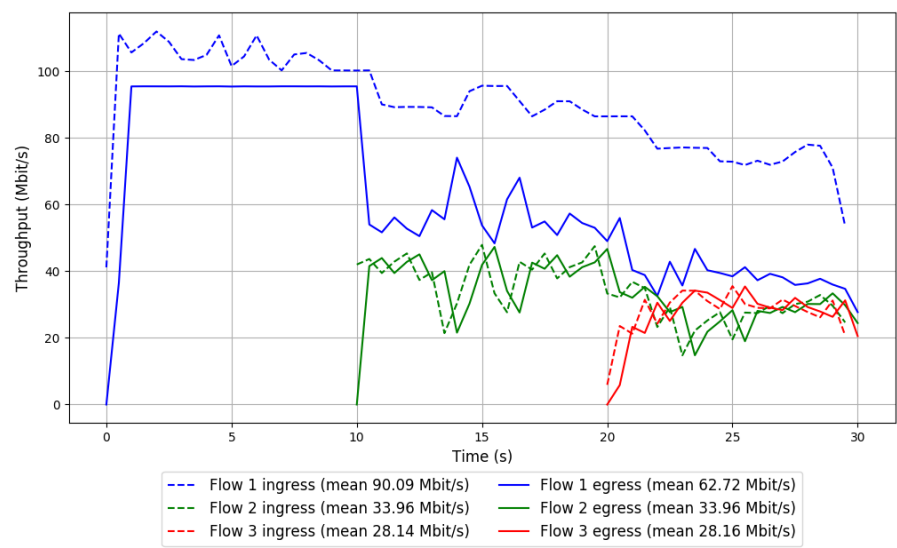## Run 5: Report of PCC-Allegro — Data Link



Flow 1 ingress (mean 63.59 Mbit/s) --- Flow 1 egress (mean 59.08 Mbit/s)
Flow 2 ingress (mean 35.12 Mbit/s) --- Flow 2 egress (mean 31.95 Mbit/s)
Flow 3 ingress (mean 25.96 Mbit/s) --- Flow 3 egress (mean 25.95 Mbit/s)



Flow 1 (95th percentile 2208.60 ms) • Flow 2 (95th percentile 805.31 ms) • Flow 3 (95th percentile 8.81 ms)

124

```
Run 1: Statistics of PCC-Expr

Start at: 2019-03-09 13:01:35
End at: 2019-03-09 13:02:05
Local clock offset: -7.744 ms
Remote clock offset: 0.26 ms


# Below is generated by plot.py at 2019-03-09 15:07:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.59 Mbit/s
95th percentile per-packet one-way delay: 854.853 ms
Loss rate: 22.48%
-- Flow 1:
Average throughput: 62.72 Mbit/s
95th percentile per-packet one-way delay: 887.745 ms
Loss rate: 30.41%
-- Flow 2:
Average throughput: 33.96 Mbit/s
95th percentile per-packet one-way delay: 16.403 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 28.16 Mbit/s
95th percentile per-packet one-way delay: 13.549 ms
Loss rate: 0.06%
```
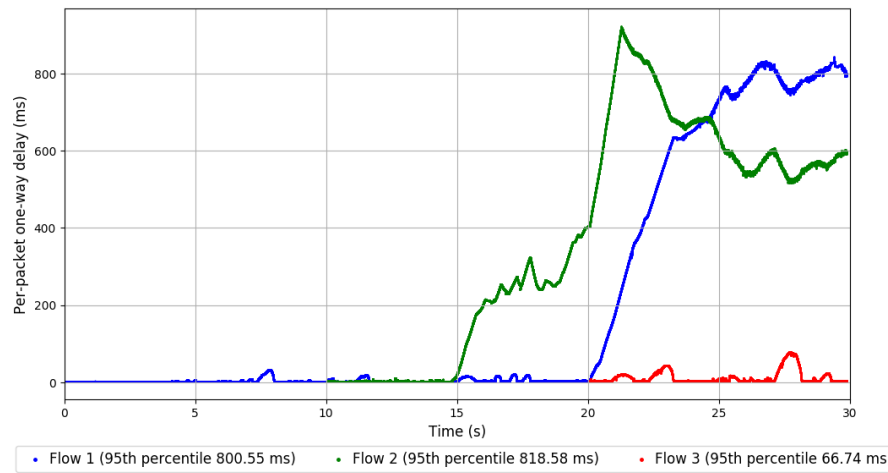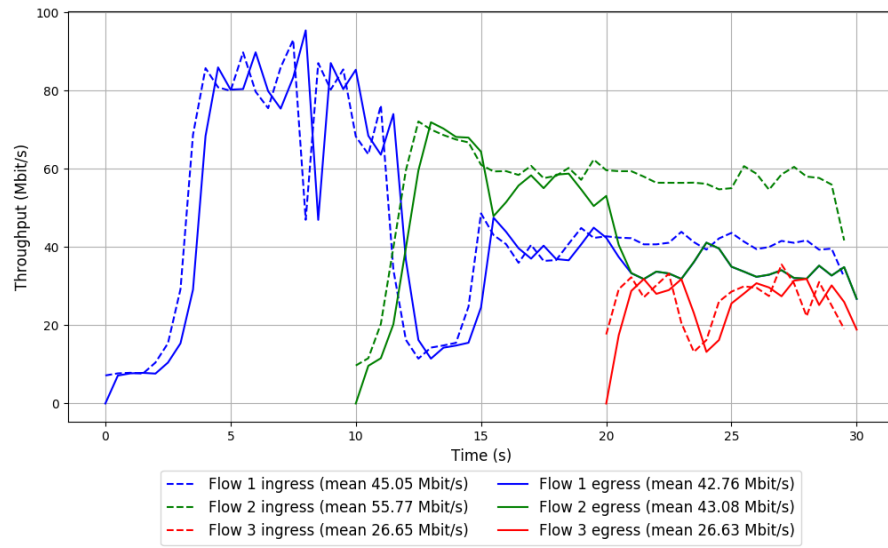
Run 1: Report of PCC-Expr — Data Link



Flow 1 ingress (mean 90.09 Mbit/s) --- Flow 1 egress (mean 62.72 Mbit/s)
Flow 2 ingress (mean 33.96 Mbit/s) --- Flow 2 egress (mean 33.96 Mbit/s)
Flow 3 ingress (mean 28.14 Mbit/s) --- Flow 3 egress (mean 28.16 Mbit/s)



Flow 1 (95th percentile 887.75 ms)   Flow 2 (95th percentile 16.40 ms)   Flow 3 (95th percentile 13.55 ms)

126

```
Run 2: Statistics of PCC-Expr

Start at: 2019-03-09 13:25:48
End at: 2019-03-09 13:26:18
Local clock offset: -2.614 ms
Remote clock offset: 0.622 ms


# Below is generated by plot.py at 2019-03-09 15:07:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 80.19 Mbit/s
95th percentile per-packet one-way delay: 795.716 ms
Loss rate: 11.83%
-- Flow 1:
Average throughput: 42.76 Mbit/s
95th percentile per-packet one-way delay: 800.548 ms
Loss rate: 5.11%
-- Flow 2:
Average throughput: 43.08 Mbit/s
95th percentile per-packet one-way delay: 818.575 ms
Loss rate: 22.78%
-- Flow 3:
Average throughput: 26.63 Mbit/s
95th percentile per-packet one-way delay: 66.743 ms
Loss rate: 0.13%
```
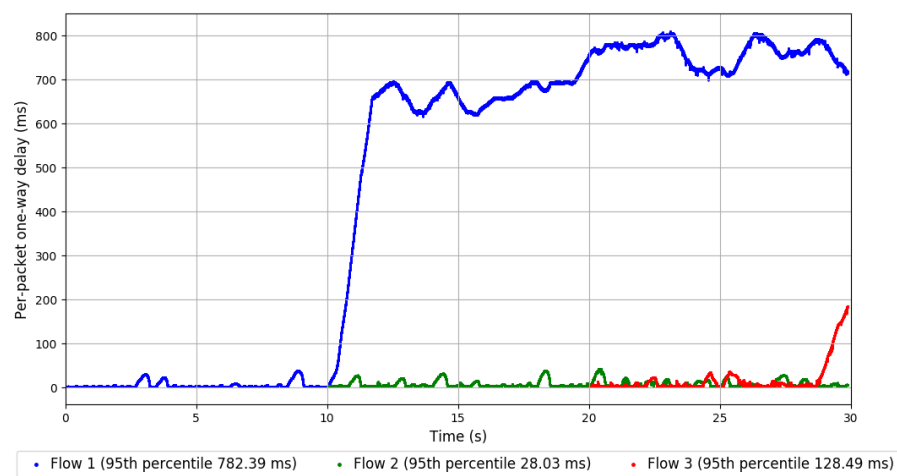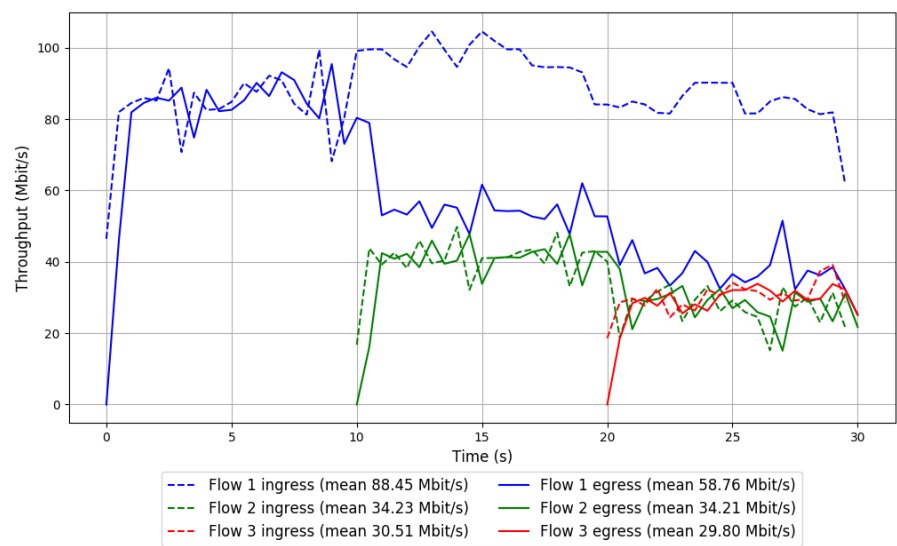
Run 2: Report of PCC-Expr — Data Link



Flow 1 ingress (mean 45.05 Mbit/s) ---- Flow 1 egress (mean 42.76 Mbit/s) ——
Flow 2 ingress (mean 55.77 Mbit/s) ---- Flow 2 egress (mean 43.08 Mbit/s) ——
Flow 3 ingress (mean 26.65 Mbit/s) ---- Flow 3 egress (mean 26.63 Mbit/s) ——



• Flow 1 (95th percentile 800.55 ms)   • Flow 2 (95th percentile 818.58 ms)   • Flow 3 (95th percentile 66.74 ms)

```
Run 3: Statistics of PCC-Expr

Start at: 2019-03-09 13:50:00
End at: 2019-03-09 13:50:30
Local clock offset: -3.505 ms
Remote clock offset: 0.876 ms


# Below is generated by plot.py at 2019-03-09 15:07:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.34 Mbit/s
95th percentile per-packet one-way delay: 777.711 ms
Loss rate: 24.70%
-- Flow 1:
Average throughput: 58.76 Mbit/s
95th percentile per-packet one-way delay: 782.386 ms
Loss rate: 33.59%
-- Flow 2:
Average throughput: 34.21 Mbit/s
95th percentile per-packet one-way delay: 28.033 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 29.80 Mbit/s
95th percentile per-packet one-way delay: 128.491 ms
Loss rate: 2.39%
```
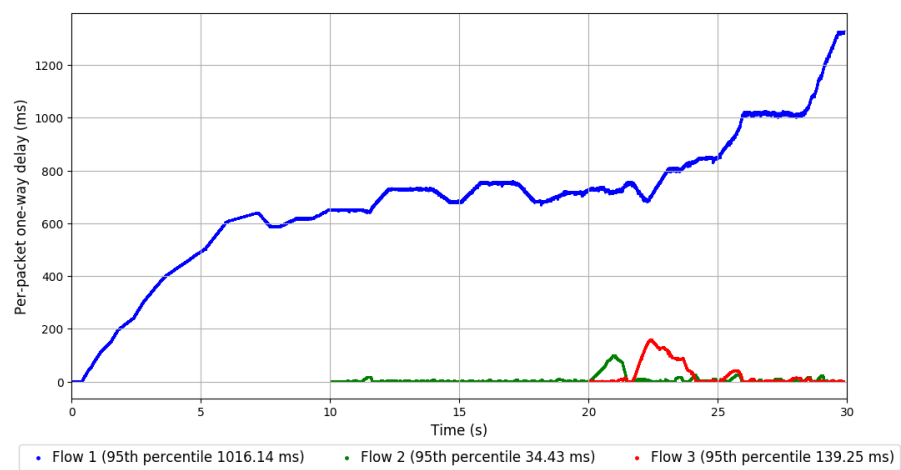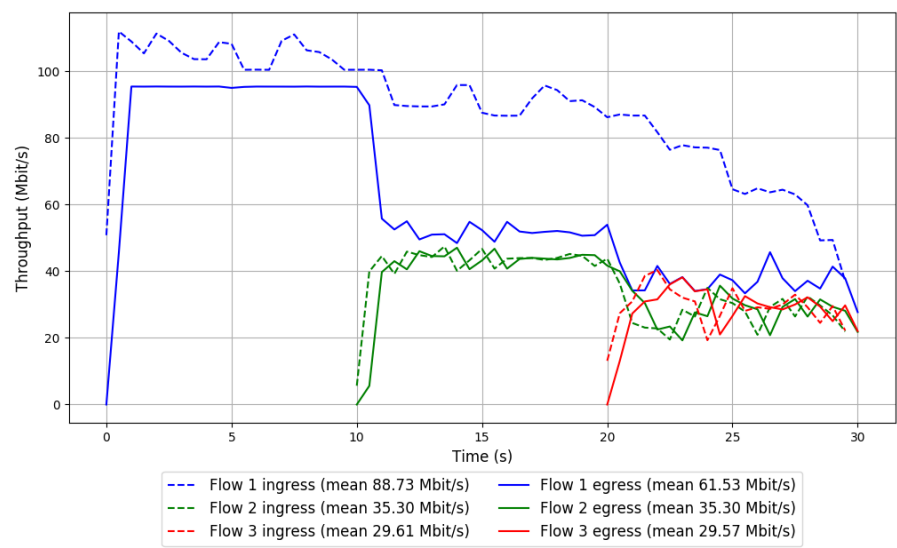
## Run 3: Report of PCC-Expr — Data Link



Flow 1 ingress (mean 88.45 Mbit/s) --- Flow 1 egress (mean 58.76 Mbit/s)
Flow 2 ingress (mean 34.23 Mbit/s) --- Flow 2 egress (mean 34.21 Mbit/s)
Flow 3 ingress (mean 30.51 Mbit/s) --- Flow 3 egress (mean 29.80 Mbit/s)



Flow 1 (95th percentile 782.39 ms) • Flow 2 (95th percentile 28.03 ms) • Flow 3 (95th percentile 128.49 ms)

```
Run 4: Statistics of PCC-Expr

Start at: 2019-03-09 14:14:11
End at: 2019-03-09 14:14:41
Local clock offset: -7.281 ms
Remote clock offset: 0.918 ms


# Below is generated by plot.py at 2019-03-09 15:07:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.75 Mbit/s
95th percentile per-packet one-way delay: 910.836 ms
Loss rate: 22.33%
-- Flow 1:
Average throughput: 61.53 Mbit/s
95th percentile per-packet one-way delay: 1016.144 ms
Loss rate: 30.66%
-- Flow 2:
Average throughput: 35.30 Mbit/s
95th percentile per-packet one-way delay: 34.433 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 29.57 Mbit/s
95th percentile per-packet one-way delay: 139.254 ms
Loss rate: 0.19%
```
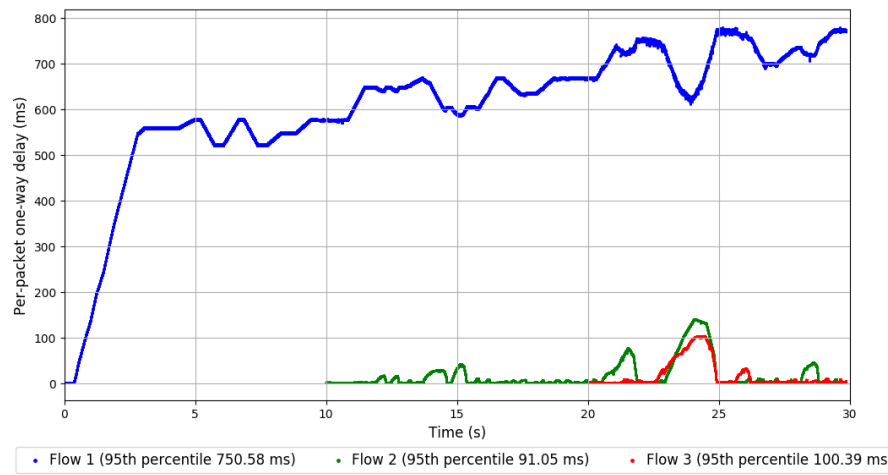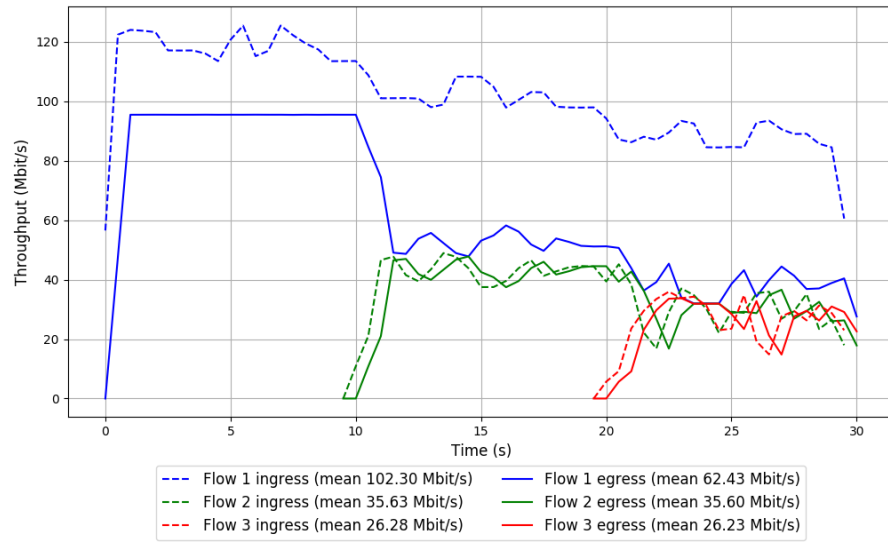
## Run 4: Report of PCC-Expr — Data Link



Flow 1 ingress (mean 88.73 Mbit/s) --- Flow 1 egress (mean 61.53 Mbit/s)
Flow 2 ingress (mean 35.30 Mbit/s) --- Flow 2 egress (mean 35.30 Mbit/s)
Flow 3 ingress (mean 29.61 Mbit/s) --- Flow 3 egress (mean 29.57 Mbit/s)



Flow 1 (95th percentile 1016.14 ms)  Flow 2 (95th percentile 34.43 ms)  Flow 3 (95th percentile 139.25 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2019-03-09 14:38:25
End at: 2019-03-09 14:38:55
Local clock offset: -7.429 ms
Remote clock offset: 1.045 ms


# Below is generated by plot.py at 2019-03-09 15:08:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.79 Mbit/s
95th percentile per-packet one-way delay: 734.721 ms
Loss rate: 29.64%
-- Flow 1:
Average throughput: 62.43 Mbit/s
95th percentile per-packet one-way delay: 750.578 ms
Loss rate: 38.99%
-- Flow 2:
Average throughput: 35.60 Mbit/s
95th percentile per-packet one-way delay: 91.053 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 26.23 Mbit/s
95th percentile per-packet one-way delay: 100.391 ms
Loss rate: 0.22%
```
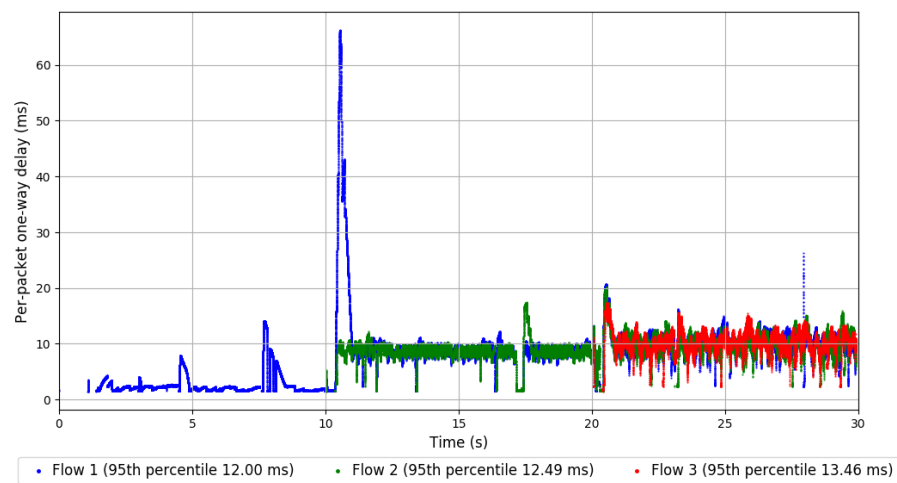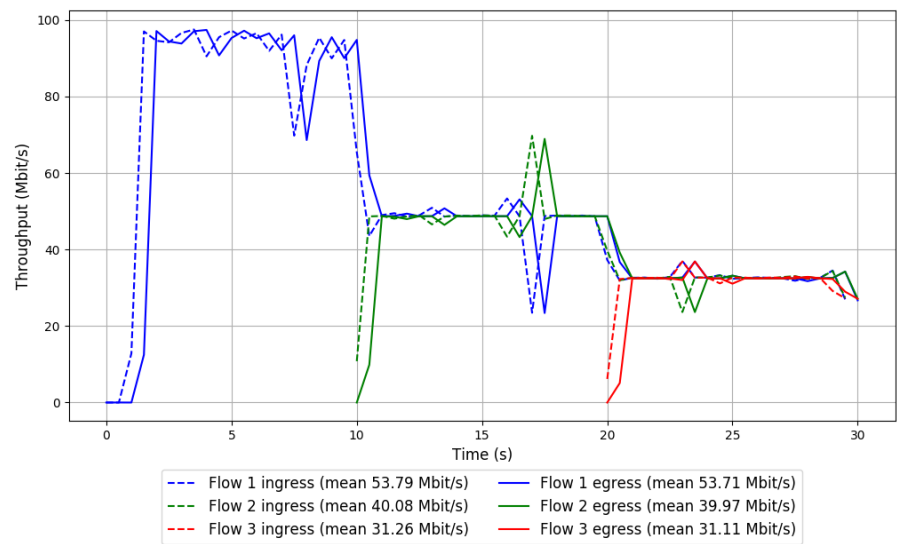
## Run 5: Report of PCC-Expr — Data Link



Flow 1 ingress (mean 102.30 Mbit/s) — Flow 1 egress (mean 62.43 Mbit/s)
Flow 2 ingress (mean 35.63 Mbit/s) — Flow 2 egress (mean 35.60 Mbit/s)
Flow 3 ingress (mean 26.28 Mbit/s) — Flow 3 egress (mean 26.23 Mbit/s)



Flow 1 (95th percentile 750.58 ms) — Flow 2 (95th percentile 91.05 ms) — Flow 3 (95th percentile 100.39 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2019-03-09 12:55:47
End at: 2019-03-09 12:56:17
Local clock offset: -7.66 ms
Remote clock offset: 0.24 ms


# Below is generated by plot.py at 2019-03-09 15:08:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.60 Mbit/s
95th percentile per-packet one-way delay: 12.490 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 53.71 Mbit/s
95th percentile per-packet one-way delay: 12.004 ms
Loss rate: 0.16%
-- Flow 2:
Average throughput: 39.97 Mbit/s
95th percentile per-packet one-way delay: 12.494 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 31.11 Mbit/s
95th percentile per-packet one-way delay: 13.462 ms
Loss rate: 0.51%
```
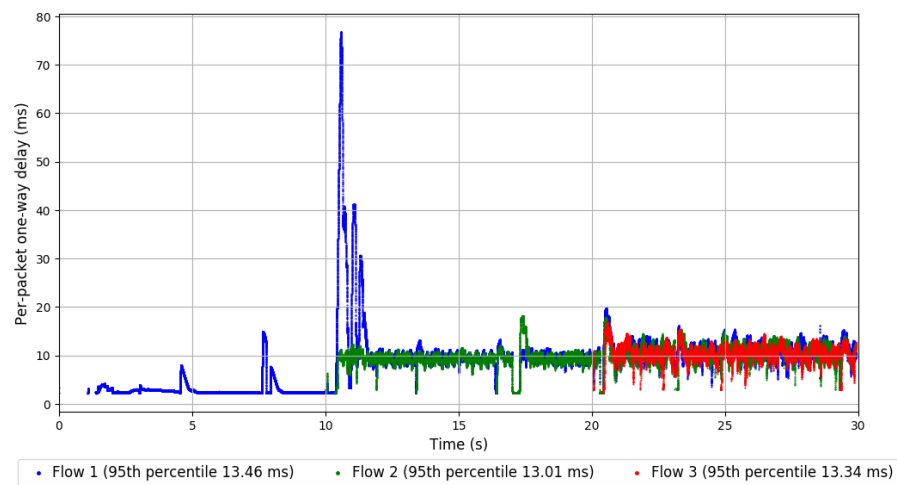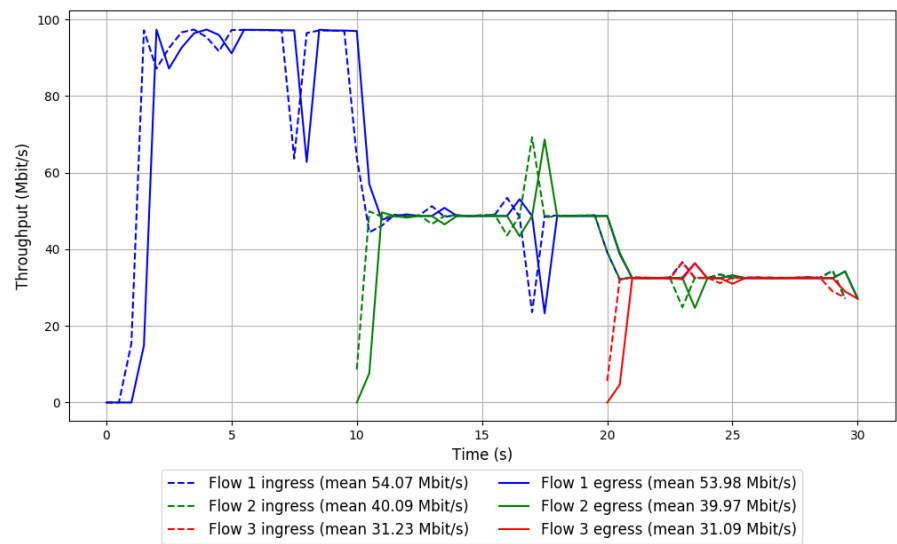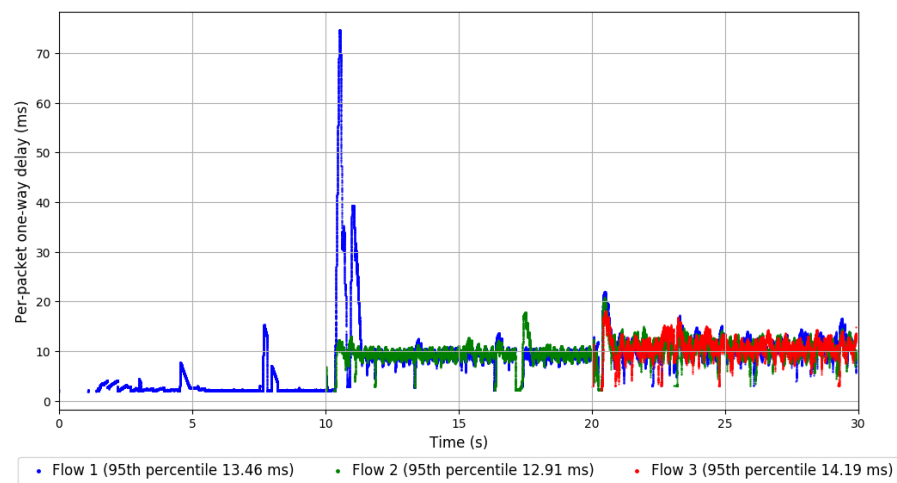
Run 1: Report of QUIC Cubic — Data Link



Flow 1 ingress (mean 53.79 Mbit/s) — Flow 1 egress (mean 53.71 Mbit/s)
Flow 2 ingress (mean 40.08 Mbit/s) — Flow 2 egress (mean 39.97 Mbit/s)
Flow 3 ingress (mean 31.26 Mbit/s) — Flow 3 egress (mean 31.11 Mbit/s)



Flow 1 (95th percentile 12.00 ms)    Flow 2 (95th percentile 12.49 ms)    Flow 3 (95th percentile 13.46 ms)

136

```
Run 2: Statistics of QUIC Cubic

Start at: 2019-03-09 13:20:01
End at: 2019-03-09 13:20:31
Local clock offset: -4.245 ms
Remote clock offset: 0.432 ms


# Below is generated by plot.py at 2019-03-09 15:08:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.85 Mbit/s
95th percentile per-packet one-way delay: 13.271 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 53.98 Mbit/s
95th percentile per-packet one-way delay: 13.456 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 39.97 Mbit/s
95th percentile per-packet one-way delay: 13.010 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 31.09 Mbit/s
95th percentile per-packet one-way delay: 13.344 ms
Loss rate: 0.49%
```
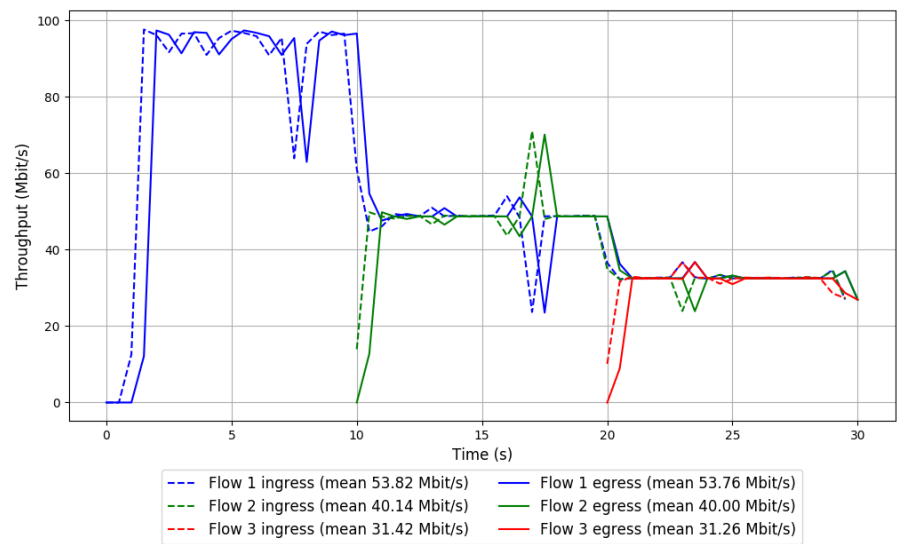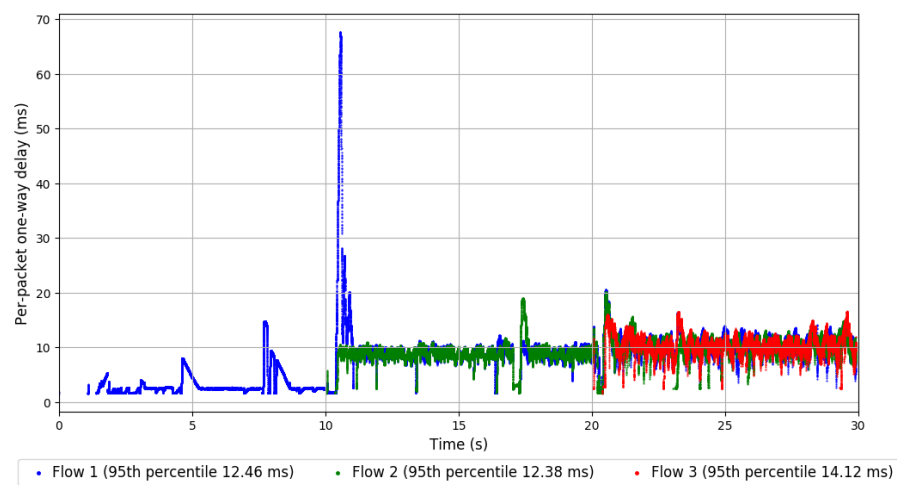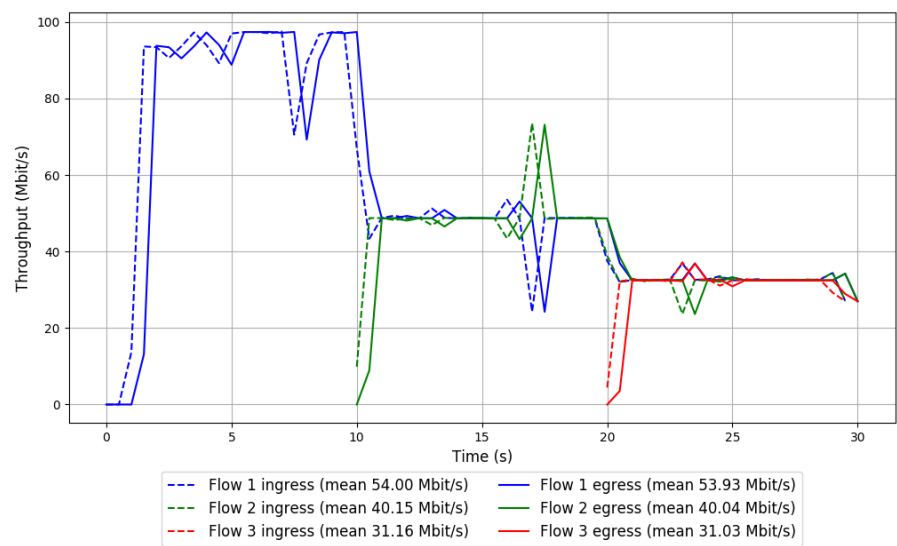
Run 2: Report of QUIC Cubic — Data Link



Flow 1 ingress (mean 54.07 Mbit/s) — Flow 1 egress (mean 53.98 Mbit/s)
Flow 2 ingress (mean 40.09 Mbit/s) — Flow 2 egress (mean 39.97 Mbit/s)
Flow 3 ingress (mean 31.23 Mbit/s) — Flow 3 egress (mean 31.09 Mbit/s)



Flow 1 (95th percentile 13.46 ms) • Flow 2 (95th percentile 13.01 ms) • Flow 3 (95th percentile 13.34 ms)

```
Run 3: Statistics of QUIC Cubic

Start at: 2019-03-09 13:44:12
End at: 2019-03-09 13:44:42
Local clock offset: -1.171 ms
Remote clock offset: 0.81 ms


# Below is generated by plot.py at 2019-03-09 15:08:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.72 Mbit/s
95th percentile per-packet one-way delay: 13.431 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 53.76 Mbit/s
95th percentile per-packet one-way delay: 13.460 ms
Loss rate: 0.16%
-- Flow 2:
Average throughput: 40.00 Mbit/s
95th percentile per-packet one-way delay: 12.907 ms
Loss rate: 0.35%
-- Flow 3:
Average throughput: 31.26 Mbit/s
95th percentile per-packet one-way delay: 14.191 ms
Loss rate: 0.52%
```
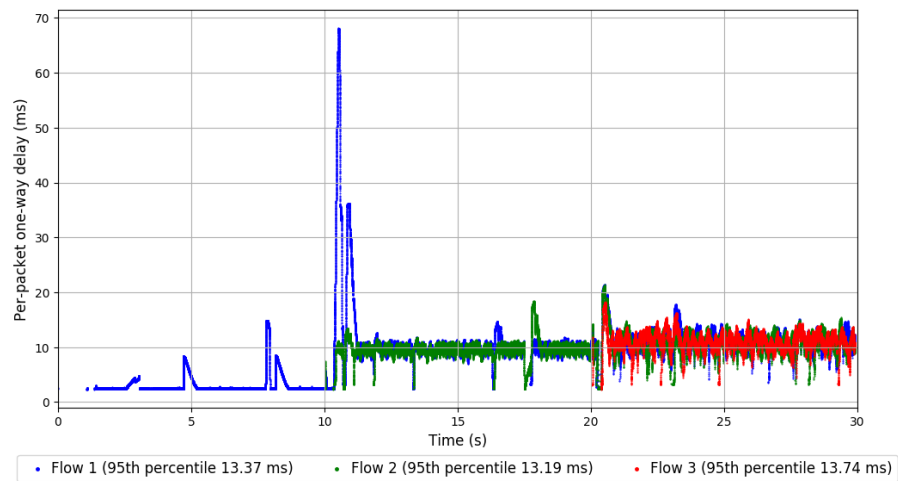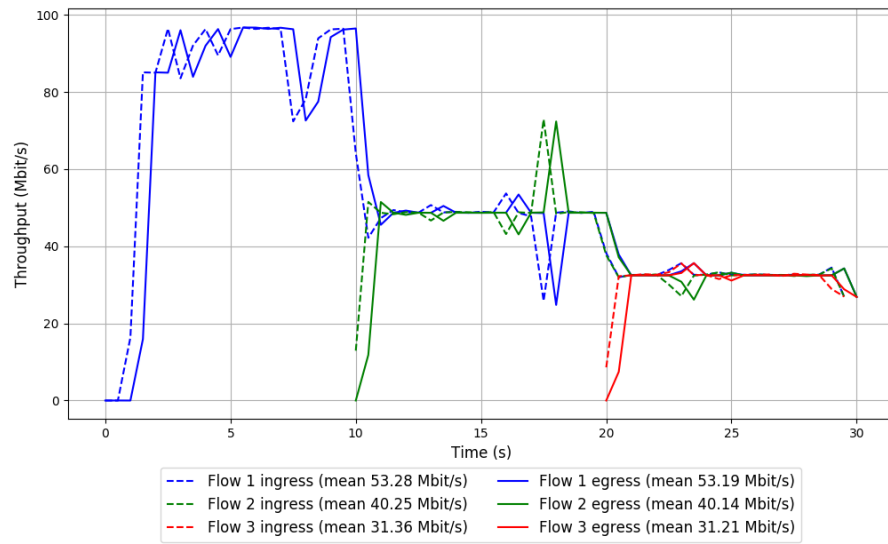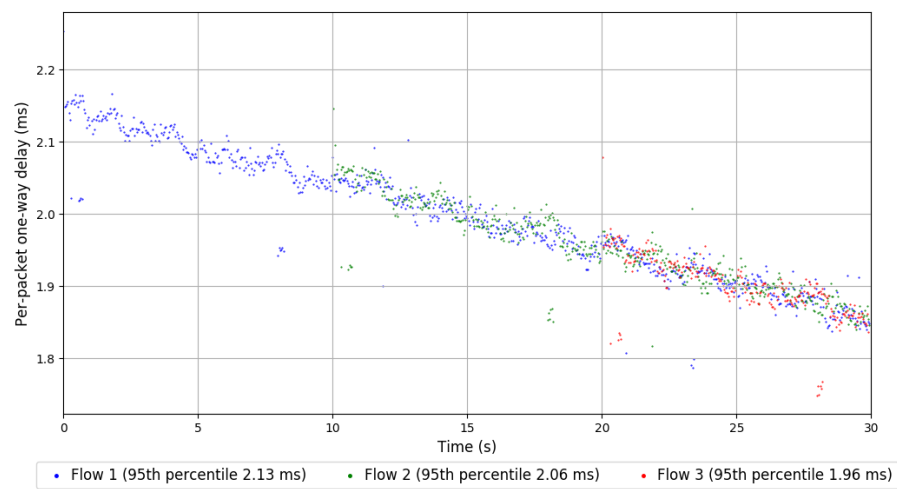
# Run 3: Report of QUIC Cubic — Data Link



Flow 1 ingress (mean 53.82 Mbit/s) — Flow 1 egress (mean 53.76 Mbit/s)
Flow 2 ingress (mean 40.14 Mbit/s) — Flow 2 egress (mean 40.00 Mbit/s)
Flow 3 ingress (mean 31.42 Mbit/s) — Flow 3 egress (mean 31.26 Mbit/s)



Flow 1 (95th percentile 13.46 ms) • Flow 2 (95th percentile 12.91 ms) • Flow 3 (95th percentile 14.19 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2019-03-09 14:08:24
End at: 2019-03-09 14:08:54
Local clock offset: -7.555 ms
Remote clock offset: 0.901 ms


# Below is generated by plot.py at 2019-03-09 15:08:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.82 Mbit/s
95th percentile per-packet one-way delay: 12.814 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 53.93 Mbit/s
95th percentile per-packet one-way delay: 12.458 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 40.04 Mbit/s
95th percentile per-packet one-way delay: 12.376 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 31.03 Mbit/s
95th percentile per-packet one-way delay: 14.121 ms
Loss rate: 0.45%
```
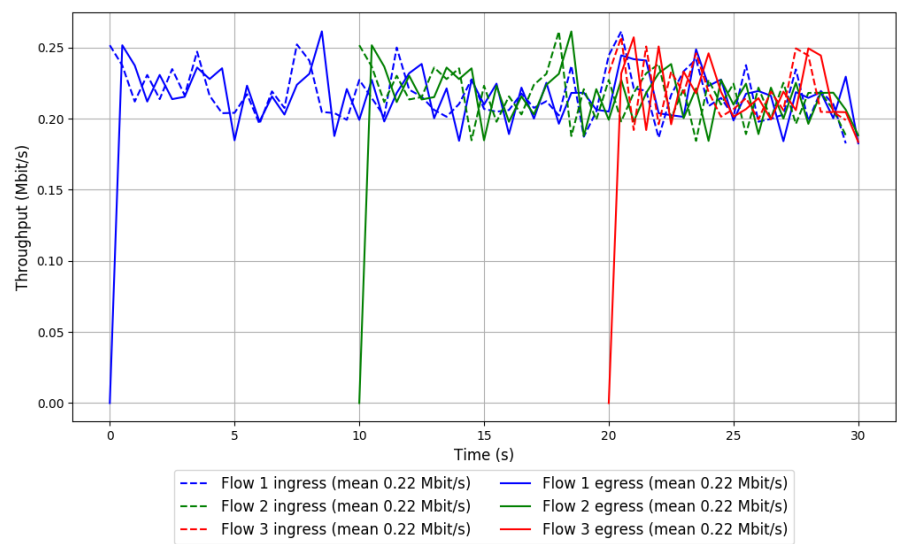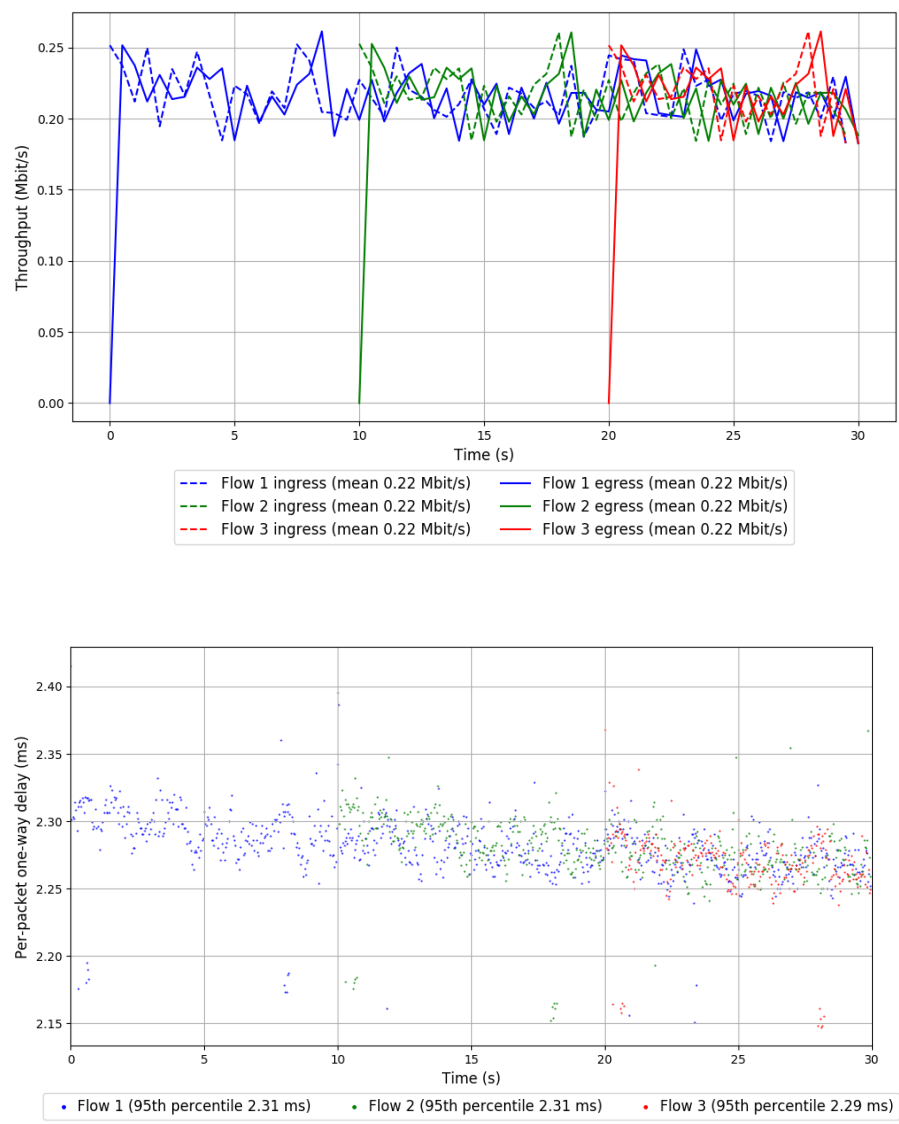
Run 4: Report of QUIC Cubic — Data Link



Flow 1 ingress (mean 54.00 Mbit/s) --- Flow 1 egress (mean 53.93 Mbit/s)
Flow 2 ingress (mean 40.15 Mbit/s) --- Flow 2 egress (mean 40.04 Mbit/s)
Flow 3 ingress (mean 31.16 Mbit/s) --- Flow 3 egress (mean 31.03 Mbit/s)



Flow 1 (95th percentile 12.46 ms)   Flow 2 (95th percentile 12.38 ms)   Flow 3 (95th percentile 14.12 ms)
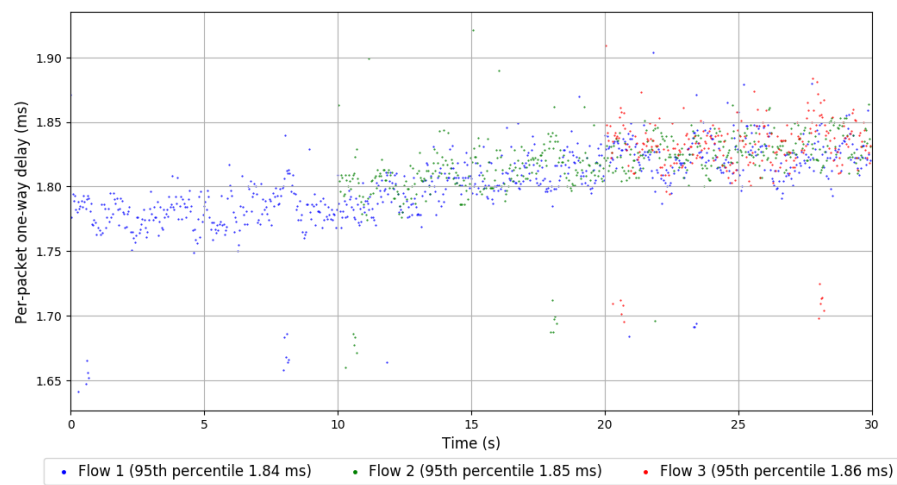
Run 5: Statistics of QUIC Cubic

Start at: 2019-03-09 14:32:38
End at: 2019-03-09 14:33:08
Local clock offset: -6.611 ms
Remote clock offset: 0.962 ms


# Below is generated by plot.py at 2019-03-09 15:08:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.22 Mbit/s
95th percentile per-packet one-way delay: 13.371 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 53.19 Mbit/s
95th percentile per-packet one-way delay: 13.372 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 40.14 Mbit/s
95th percentile per-packet one-way delay: 13.187 ms
Loss rate: 0.29%
-- Flow 3:
Average throughput: 31.21 Mbit/s
95th percentile per-packet one-way delay: 13.737 ms
Loss rate: 0.51%

# Run 5: Report of QUIC Cubic — Data Link



Flow 1 ingress (mean 53.28 Mbit/s) --- Flow 1 egress (mean 53.19 Mbit/s)
Flow 2 ingress (mean 40.25 Mbit/s) --- Flow 2 egress (mean 40.14 Mbit/s)
Flow 3 ingress (mean 31.36 Mbit/s) --- Flow 3 egress (mean 31.21 Mbit/s)



Flow 1 (95th percentile 13.37 ms)   Flow 2 (95th percentile 13.19 ms)   Flow 3 (95th percentile 13.74 ms)
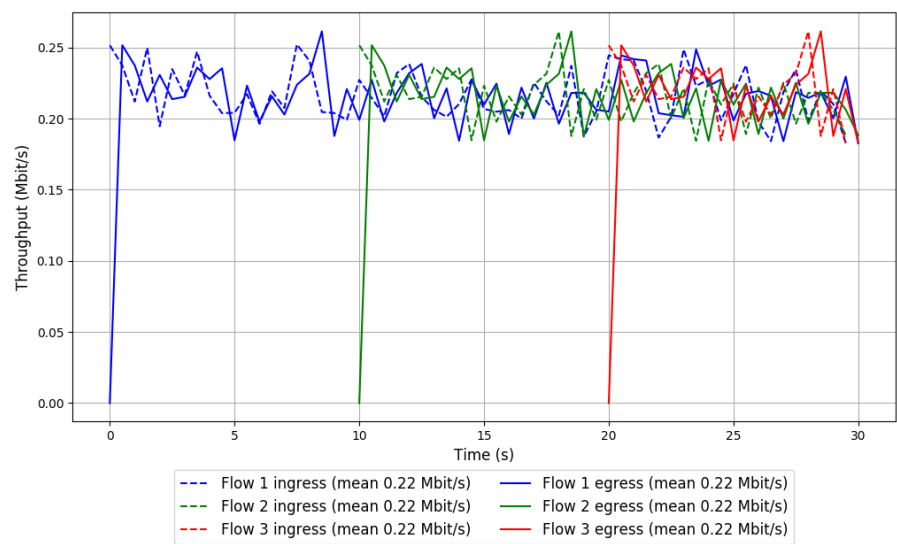
144

```
Run 1: Statistics of SCReAM

Start at: 2019-03-09 13:15:24
End at: 2019-03-09 13:15:54
Local clock offset: -6.578 ms
Remote clock offset: 0.436 ms

# Below is generated by plot.py at 2019-03-09 15:08:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 2.114 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.133 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.055 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.959 ms
Loss rate: 0.35%
```
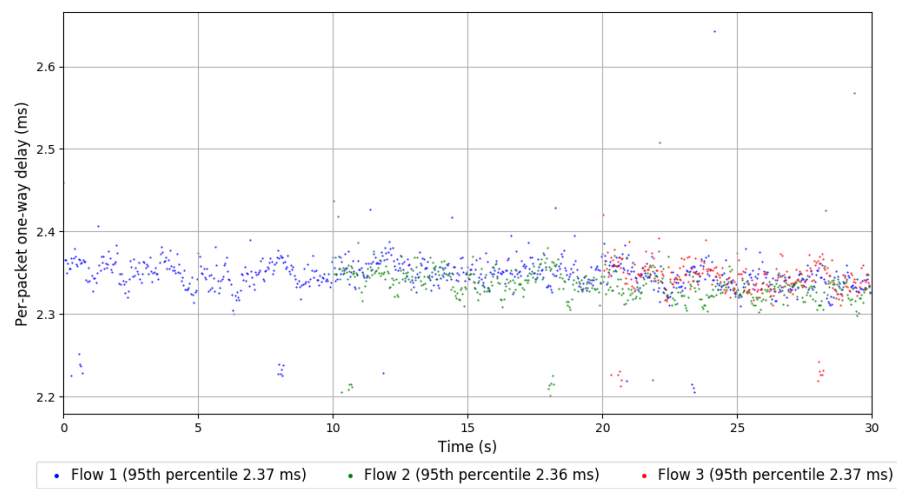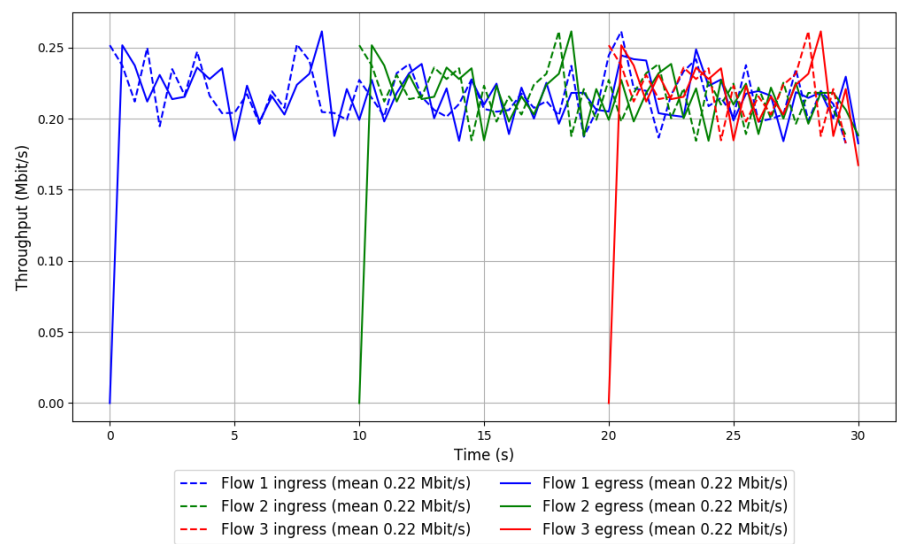
Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2019-03-09 13:39:36
End at: 2019-03-09 13:40:06
Local clock offset: -0.835 ms
Remote clock offset: 0.799 ms


# Below is generated by plot.py at 2019-03-09 15:08:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 2.311 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.314 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.310 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.292 ms
Loss rate: 0.00%
```

# Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2019-03-09 14:03:48
End at: 2019-03-09 14:04:18
Local clock offset: -7.112 ms
Remote clock offset: 0.861 ms


# Below is generated by plot.py at 2019-03-09 15:08:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.848 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.841 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.848 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.859 ms
Loss rate: 0.00%
```
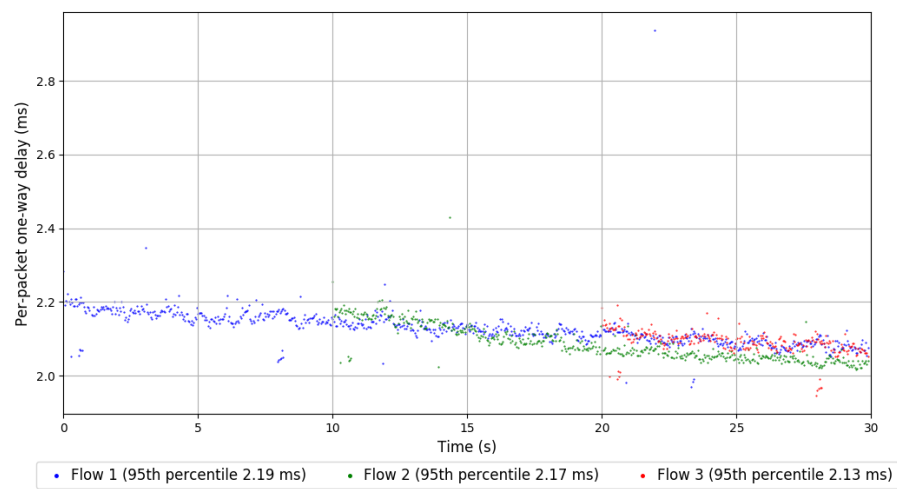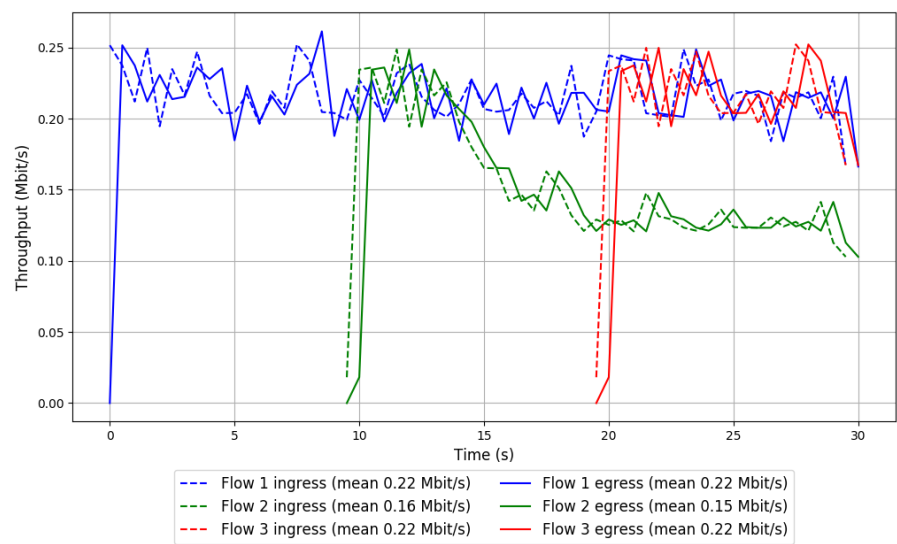
# Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2019-03-09 14:28:01
End at: 2019-03-09 14:28:31
Local clock offset: -6.66 ms
Remote clock offset: 0.969 ms


# Below is generated by plot.py at 2019-03-09 15:08:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 2.370 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.373 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.363 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.370 ms
Loss rate: 0.35%
```
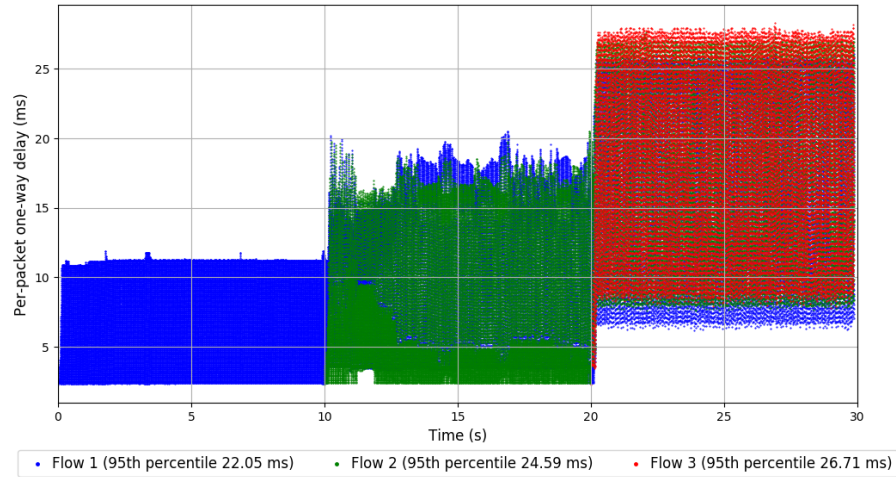
## Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2019-03-09 14:52:15
End at: 2019-03-09 14:52:45
Local clock offset: -4.101 ms
Remote clock offset: 1.055 ms


# Below is generated by plot.py at 2019-03-09 15:08:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 2.182 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.189 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 2.173 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 2.134 ms
Loss rate: 0.00%
```
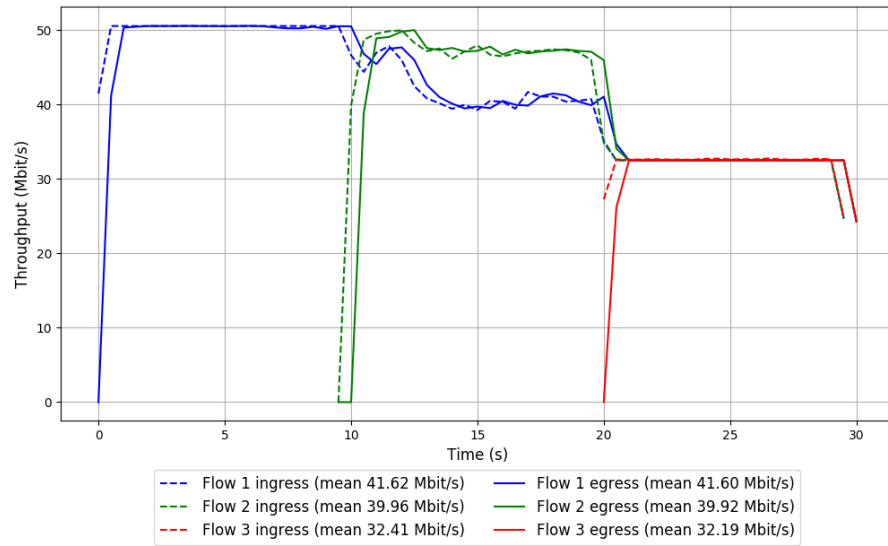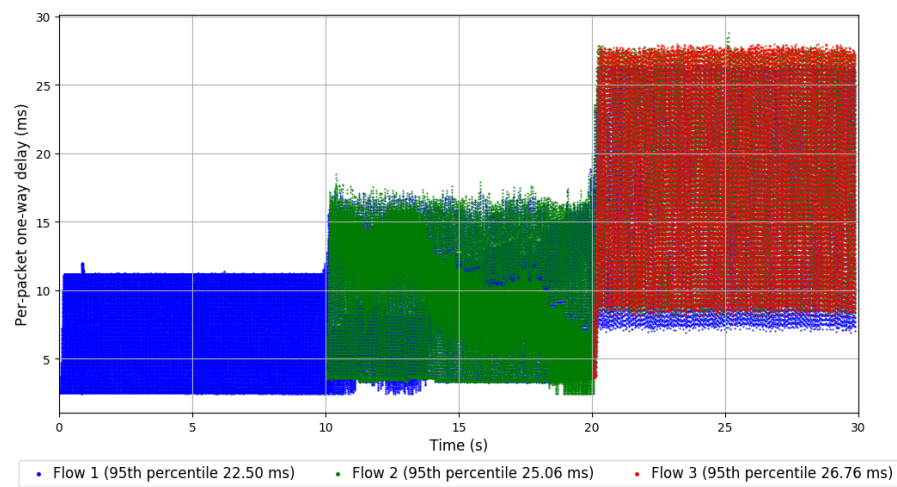
# Run 5: Report of SCReAM — Data Link
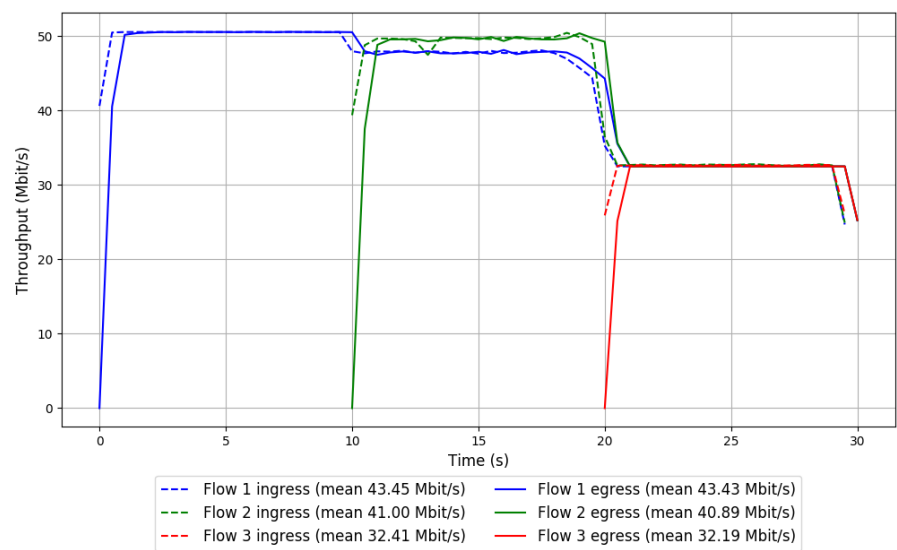




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```
Run 1: Statistics of Sprout

Start at: 2019-03-09 13:13:07
End at: 2019-03-09 13:13:37
Local clock offset: -7.375 ms
Remote clock offset: 0.454 ms


# Below is generated by plot.py at 2019-03-09 15:08:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 78.80 Mbit/s
95th percentile per-packet one-way delay: 24.439 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 41.60 Mbit/s
95th percentile per-packet one-way delay: 22.048 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 39.92 Mbit/s
95th percentile per-packet one-way delay: 24.585 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 32.19 Mbit/s
95th percentile per-packet one-way delay: 26.706 ms
Loss rate: 0.66%
```
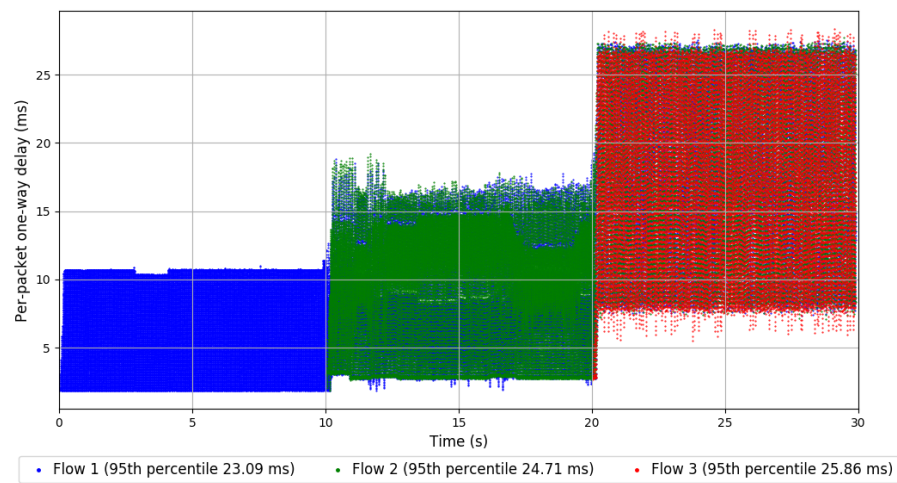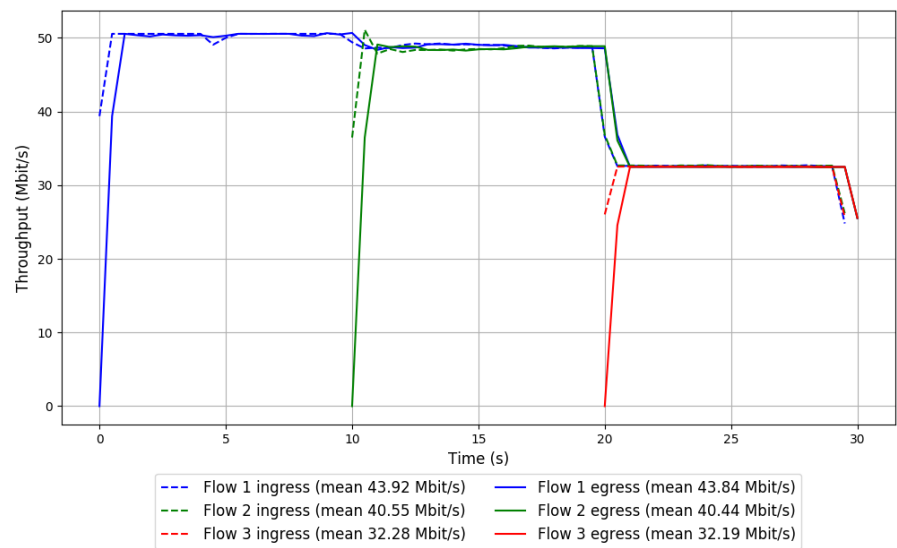
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2019-03-09 13:37:19
End at: 2019-03-09 13:37:49
Local clock offset: -0.962 ms
Remote clock offset: 0.701 ms


# Below is generated by plot.py at 2019-03-09 15:08:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.25 Mbit/s
95th percentile per-packet one-way delay: 24.756 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 43.43 Mbit/s
95th percentile per-packet one-way delay: 22.502 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 40.89 Mbit/s
95th percentile per-packet one-way delay: 25.064 ms
Loss rate: 0.27%
-- Flow 3:
Average throughput: 32.19 Mbit/s
95th percentile per-packet one-way delay: 26.759 ms
Loss rate: 0.67%
```
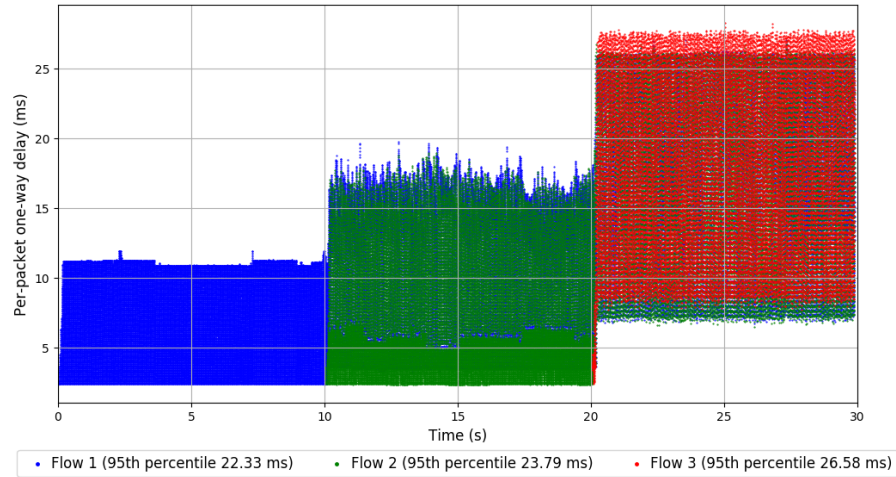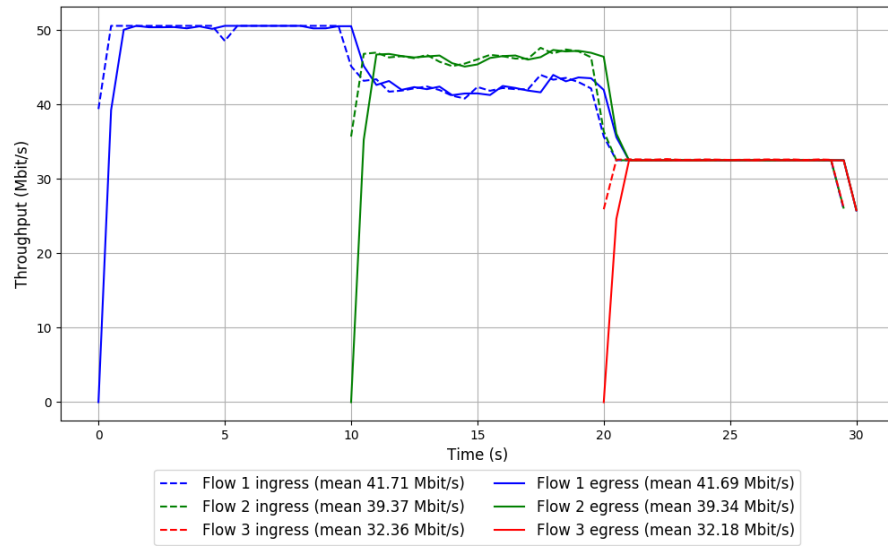
Run 2: Report of Sprout — Data Link



- - - Flow 1 ingress (mean 43.45 Mbit/s)  ——— Flow 1 egress (mean 43.43 Mbit/s)
- - - Flow 2 ingress (mean 41.00 Mbit/s)  ——— Flow 2 egress (mean 40.89 Mbit/s)
- - - Flow 3 ingress (mean 32.41 Mbit/s)  ——— Flow 3 egress (mean 32.19 Mbit/s)



•  Flow 1 (95th percentile 22.50 ms)      •  Flow 2 (95th percentile 25.06 ms)      •  Flow 3 (95th percentile 26.76 ms)

```
Run 3: Statistics of Sprout

Start at: 2019-03-09 14:01:31
End at: 2019-03-09 14:02:01
Local clock offset: -6.863 ms
Remote clock offset: 0.838 ms


# Below is generated by plot.py at 2019-03-09 15:08:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.35 Mbit/s
95th percentile per-packet one-way delay: 24.539 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 43.84 Mbit/s
95th percentile per-packet one-way delay: 23.088 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 40.44 Mbit/s
95th percentile per-packet one-way delay: 24.713 ms
Loss rate: 0.26%
-- Flow 3:
Average throughput: 32.19 Mbit/s
95th percentile per-packet one-way delay: 25.857 ms
Loss rate: 0.36%
```
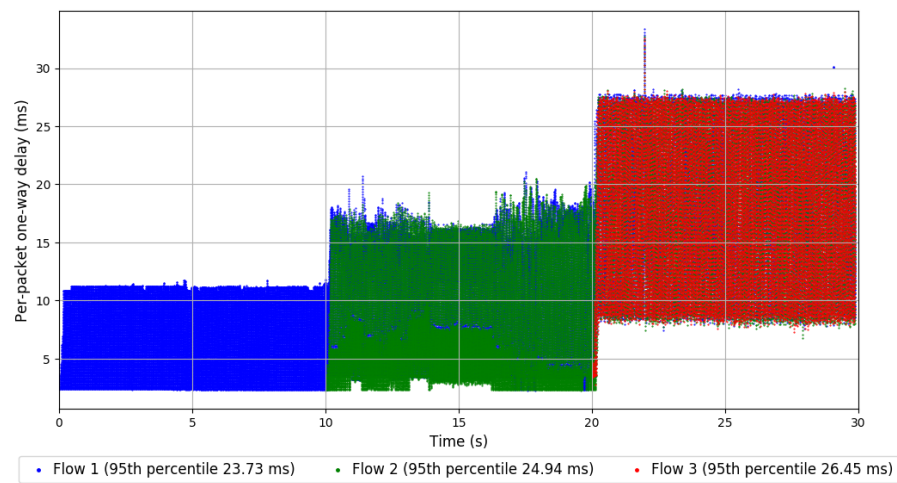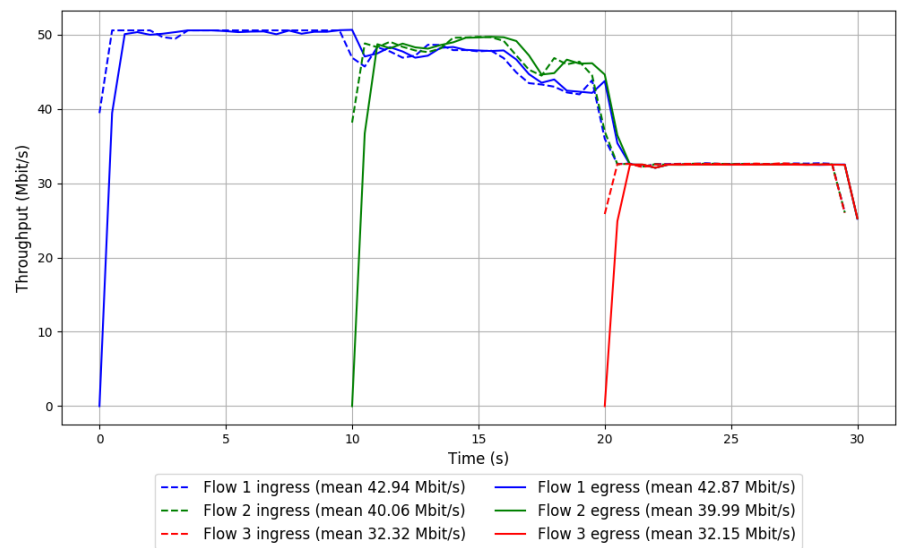
## Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2019-03-09 14:25:45
End at: 2019-03-09 14:26:15
Local clock offset: -6.685 ms
Remote clock offset: 0.926 ms


# Below is generated by plot.py at 2019-03-09 15:08:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 78.46 Mbit/s
95th percentile per-packet one-way delay: 24.249 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 41.69 Mbit/s
95th percentile per-packet one-way delay: 22.330 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 39.34 Mbit/s
95th percentile per-packet one-way delay: 23.789 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 32.18 Mbit/s
95th percentile per-packet one-way delay: 26.578 ms
Loss rate: 0.53%
```
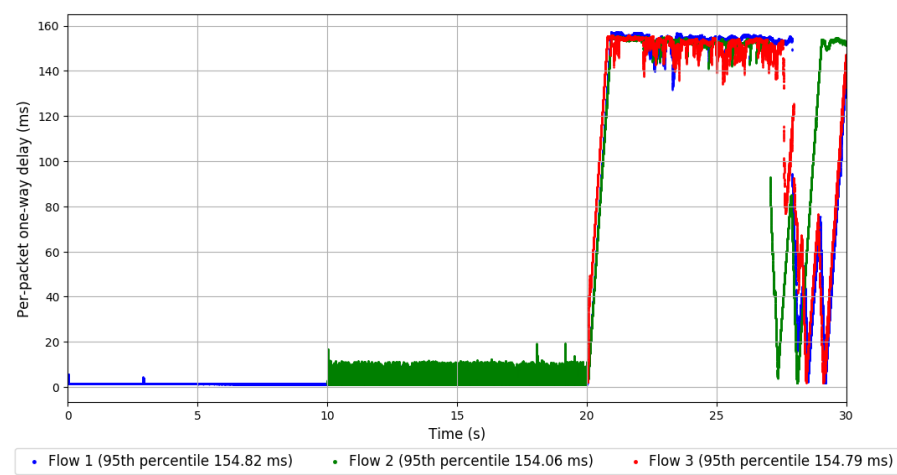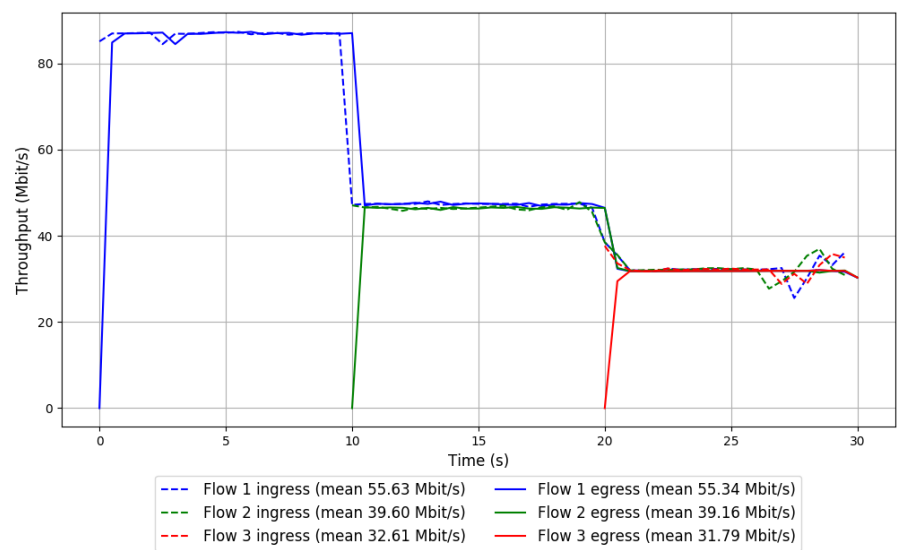
Run 4: Report of Sprout — Data Link



Flow 1 ingress (mean 41.71 Mbit/s) — Flow 1 egress (mean 41.69 Mbit/s)
Flow 2 ingress (mean 39.37 Mbit/s) — Flow 2 egress (mean 39.34 Mbit/s)
Flow 3 ingress (mean 32.36 Mbit/s) — Flow 3 egress (mean 32.18 Mbit/s)



Flow 1 (95th percentile 22.33 ms)   Flow 2 (95th percentile 23.79 ms)   Flow 3 (95th percentile 26.58 ms)

```
Run 5: Statistics of Sprout

Start at: 2019-03-09 14:49:58
End at: 2019-03-09 14:50:28
Local clock offset: -4.595 ms
Remote clock offset: 0.964 ms


# Below is generated by plot.py at 2019-03-09 15:08:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 80.08 Mbit/s
95th percentile per-packet one-way delay: 25.033 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 42.87 Mbit/s
95th percentile per-packet one-way delay: 23.729 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 39.99 Mbit/s
95th percentile per-packet one-way delay: 24.936 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 32.15 Mbit/s
95th percentile per-packet one-way delay: 26.447 ms
Loss rate: 0.50%
```
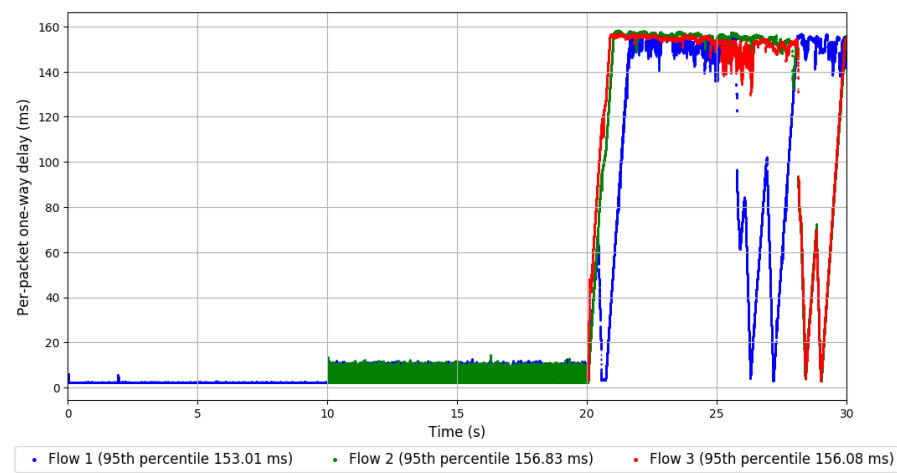
Run 5: Report of Sprout — Data Link



- - - Flow 1 ingress (mean 42.94 Mbit/s) —— Flow 1 egress (mean 42.87 Mbit/s)
- - - Flow 2 ingress (mean 40.06 Mbit/s) —— Flow 2 egress (mean 39.99 Mbit/s)
- - - Flow 3 ingress (mean 32.32 Mbit/s) —— Flow 3 egress (mean 32.15 Mbit/s)



• Flow 1 (95th percentile 23.73 ms)  • Flow 2 (95th percentile 24.94 ms)  • Flow 3 (95th percentile 26.45 ms)

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

Start at: 2019-03-09 13:16:29
End at: 2019-03-09 13:16:59
Local clock offset: -6.699 ms
Remote clock offset: 0.449 ms


# Below is generated by plot.py at 2019-03-09 15:10:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.00 Mbit/s
95th percentile per-packet one-way delay: 154.613 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 55.34 Mbit/s
95th percentile per-packet one-way delay: 154.818 ms
Loss rate: 0.52%
-- Flow 2:
Average throughput: 39.16 Mbit/s
95th percentile per-packet one-way delay: 154.061 ms
Loss rate: 1.13%
-- Flow 3:
Average throughput: 31.79 Mbit/s
95th percentile per-packet one-way delay: 154.787 ms
Loss rate: 2.57%
```
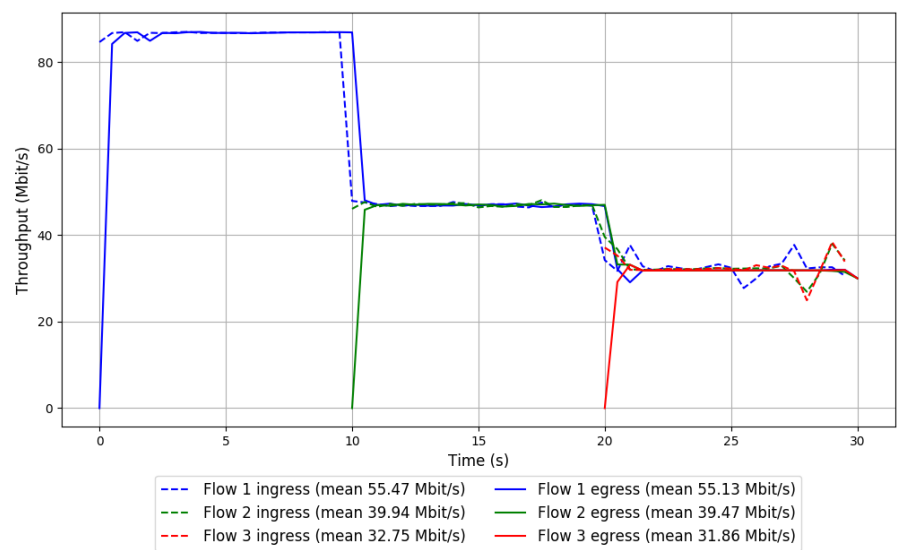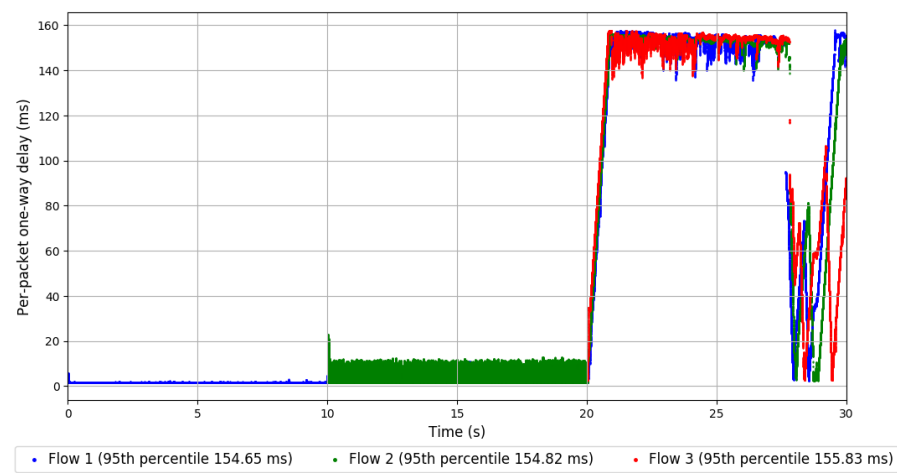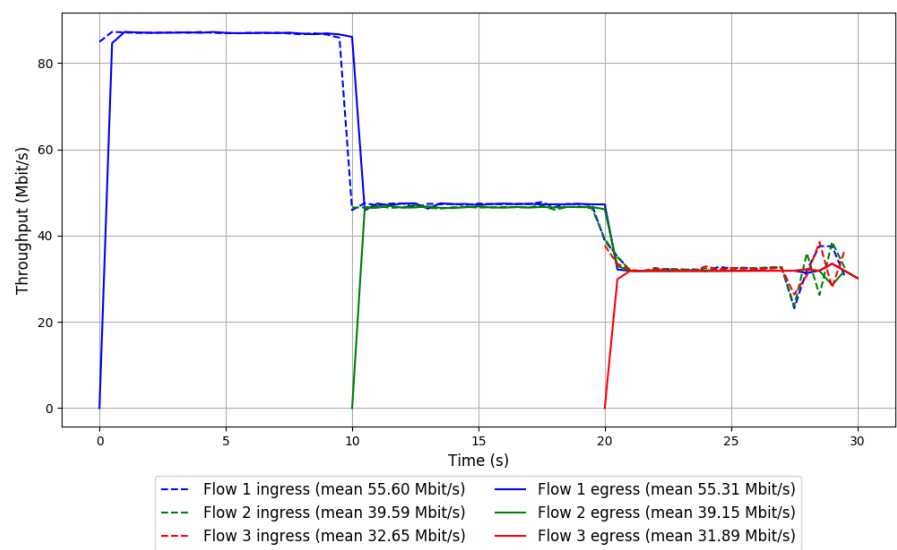
# Run 1: Report of TaoVA-100x — Data Link



Flow 1 ingress (mean 55.63 Mbit/s) --- Flow 1 egress (mean 55.34 Mbit/s) —
Flow 2 ingress (mean 39.60 Mbit/s) --- Flow 2 egress (mean 39.16 Mbit/s) —
Flow 3 ingress (mean 32.61 Mbit/s) --- Flow 3 egress (mean 31.79 Mbit/s) —



Flow 1 (95th percentile 154.82 ms)    Flow 2 (95th percentile 154.06 ms)    Flow 3 (95th percentile 154.79 ms)

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

Start at: 2019-03-09 13:40:41
End at: 2019-03-09 13:41:11
Local clock offset: -0.699 ms
Remote clock offset: 0.771 ms


# Below is generated by plot.py at 2019-03-09 15:10:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.00 Mbit/s
95th percentile per-packet one-way delay: 155.893 ms
Loss rate: 1.04%
-- Flow 1:
Average throughput: 55.13 Mbit/s
95th percentile per-packet one-way delay: 153.012 ms
Loss rate: 0.62%
-- Flow 2:
Average throughput: 39.47 Mbit/s
95th percentile per-packet one-way delay: 156.834 ms
Loss rate: 1.17%
-- Flow 3:
Average throughput: 31.86 Mbit/s
95th percentile per-packet one-way delay: 156.078 ms
Loss rate: 2.81%
```
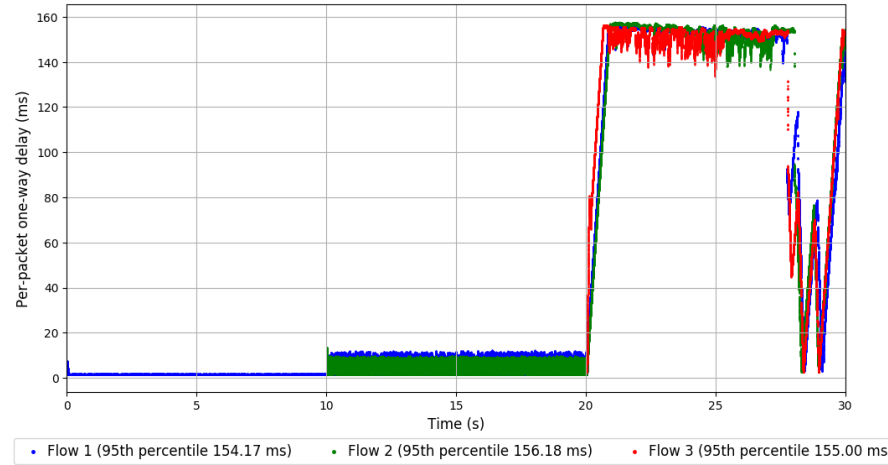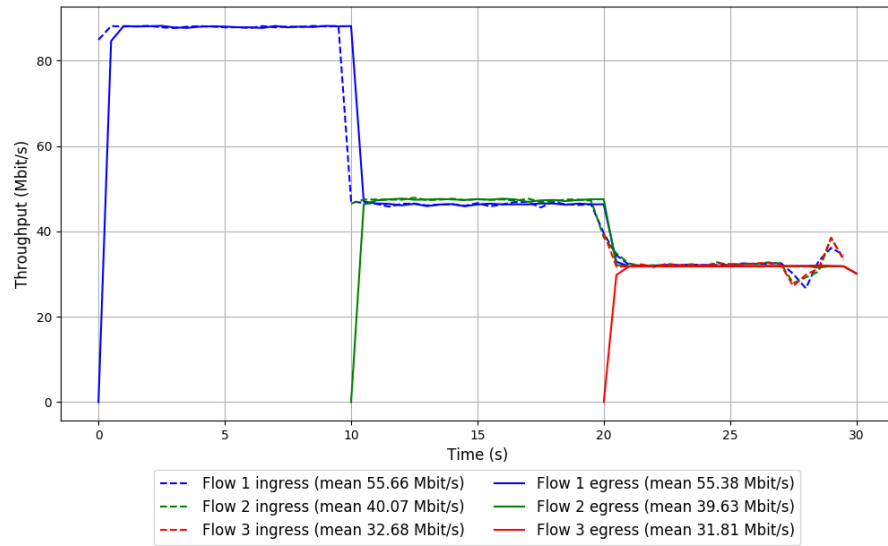
## Run 2: Report of TaoVA-100x — Data Link



Flow 1 ingress (mean 55.47 Mbit/s) — — —     Flow 1 egress (mean 55.13 Mbit/s) ———
Flow 2 ingress (mean 39.94 Mbit/s) — — —     Flow 2 egress (mean 39.47 Mbit/s) ———
Flow 3 ingress (mean 32.75 Mbit/s) — — —     Flow 3 egress (mean 31.86 Mbit/s) ———



Flow 1 (95th percentile 153.01 ms)     Flow 2 (95th percentile 156.83 ms)     Flow 3 (95th percentile 156.08 ms)

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

Start at: 2019-03-09 14:04:53
End at: 2019-03-09 14:05:23
Local clock offset: -7.299 ms
Remote clock offset: 0.893 ms


# Below is generated by plot.py at 2019-03-09 15:10:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.99 Mbit/s
95th percentile per-packet one-way delay: 155.097 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 55.31 Mbit/s
95th percentile per-packet one-way delay: 154.650 ms
Loss rate: 0.52%
-- Flow 2:
Average throughput: 39.15 Mbit/s
95th percentile per-packet one-way delay: 154.823 ms
Loss rate: 1.13%
-- Flow 3:
Average throughput: 31.89 Mbit/s
95th percentile per-packet one-way delay: 155.831 ms
Loss rate: 2.38%
```
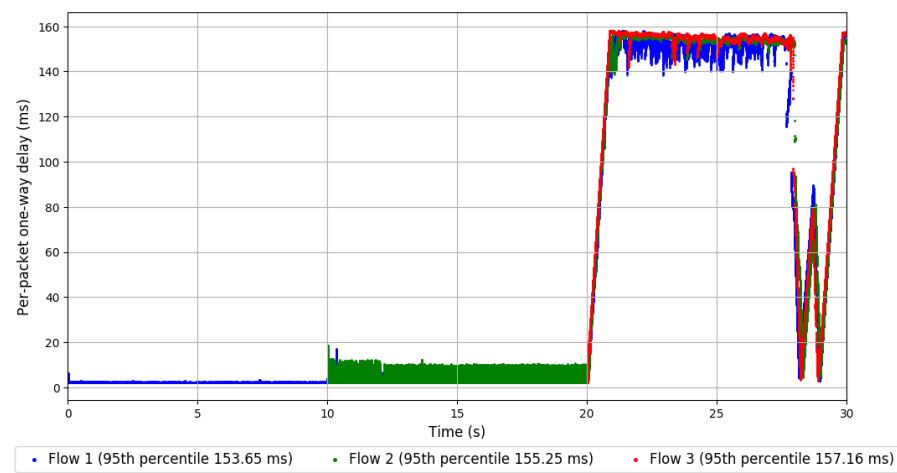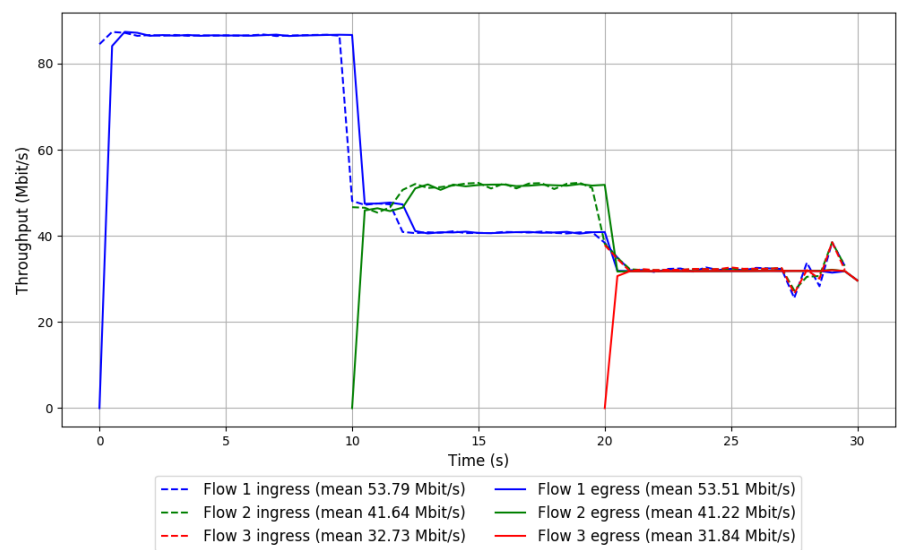
# Run 3: Report of TaoVA-100x — Data Link



Flow 1 ingress (mean 55.60 Mbit/s) — — — Flow 1 egress (mean 55.31 Mbit/s)
Flow 2 ingress (mean 39.59 Mbit/s) — — — Flow 2 egress (mean 39.15 Mbit/s)
Flow 3 ingress (mean 32.65 Mbit/s) — — — Flow 3 egress (mean 31.89 Mbit/s)



Flow 1 (95th percentile 154.65 ms)  Flow 2 (95th percentile 154.82 ms)  Flow 3 (95th percentile 155.83 ms)

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

Start at: 2019-03-09 14:29:07
End at: 2019-03-09 14:29:37
Local clock offset: -7.335 ms
Remote clock offset: 0.994 ms


# Below is generated by plot.py at 2019-03-09 15:10:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.33 Mbit/s
95th percentile per-packet one-way delay: 154.897 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 55.38 Mbit/s
95th percentile per-packet one-way delay: 154.169 ms
Loss rate: 0.53%
-- Flow 2:
Average throughput: 39.63 Mbit/s
95th percentile per-packet one-way delay: 156.177 ms
Loss rate: 1.11%
-- Flow 3:
Average throughput: 31.81 Mbit/s
95th percentile per-packet one-way delay: 154.996 ms
Loss rate: 2.72%
```
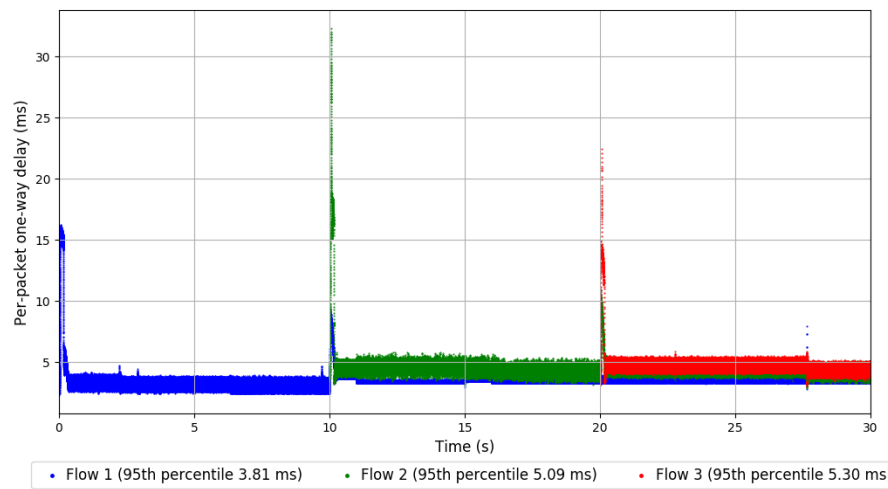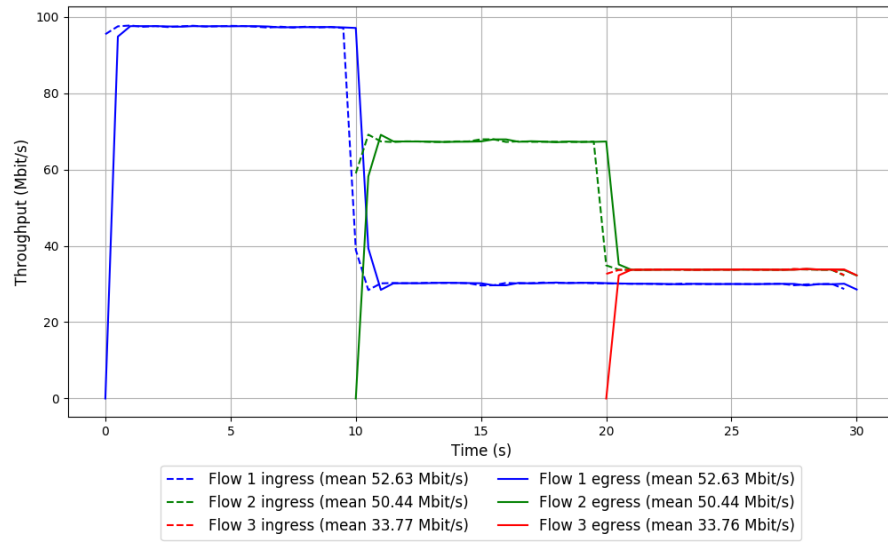
Run 4: Report of TaoVA-100x — Data Link



Flow 1 ingress (mean 55.66 Mbit/s)     Flow 1 egress (mean 55.38 Mbit/s)
Flow 2 ingress (mean 40.07 Mbit/s)     Flow 2 egress (mean 39.63 Mbit/s)
Flow 3 ingress (mean 32.68 Mbit/s)     Flow 3 egress (mean 31.81 Mbit/s)



Flow 1 (95th percentile 154.17 ms)     Flow 2 (95th percentile 156.18 ms)     Flow 3 (95th percentile 155.00 ms)

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

Start at: 2019-03-09 14:53:20
End at: 2019-03-09 14:53:50
Local clock offset: -3.799 ms
Remote clock offset: 1.004 ms


# Below is generated by plot.py at 2019-03-09 15:10:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.54 Mbit/s
95th percentile per-packet one-way delay: 155.774 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 53.51 Mbit/s
95th percentile per-packet one-way delay: 153.651 ms
Loss rate: 0.53%
-- Flow 2:
Average throughput: 41.22 Mbit/s
95th percentile per-packet one-way delay: 155.249 ms
Loss rate: 1.06%
-- Flow 3:
Average throughput: 31.84 Mbit/s
95th percentile per-packet one-way delay: 157.159 ms
Loss rate: 2.77%
```
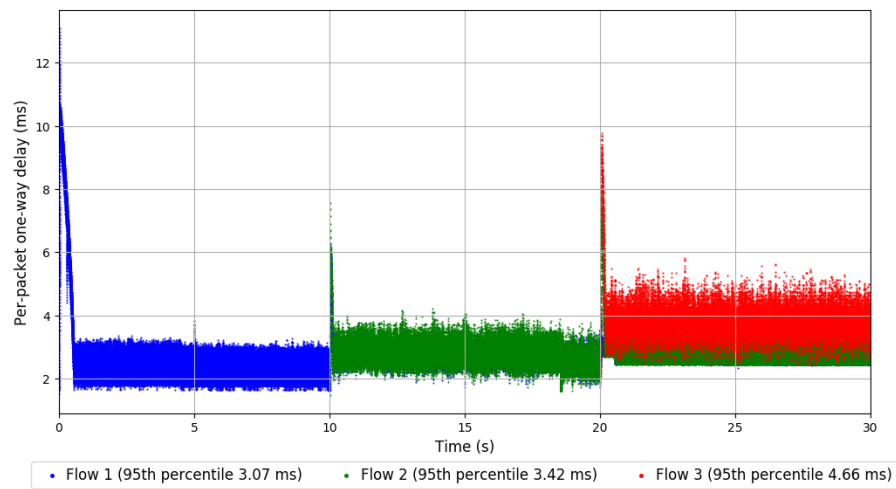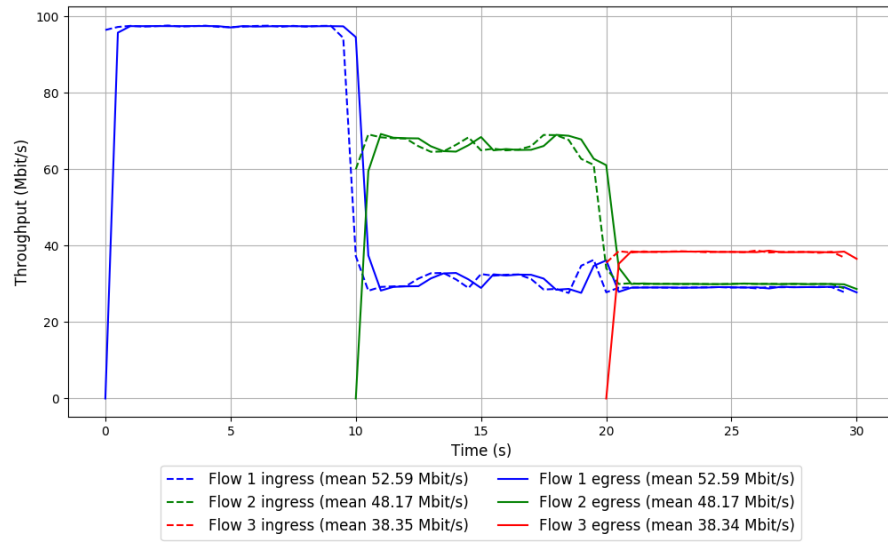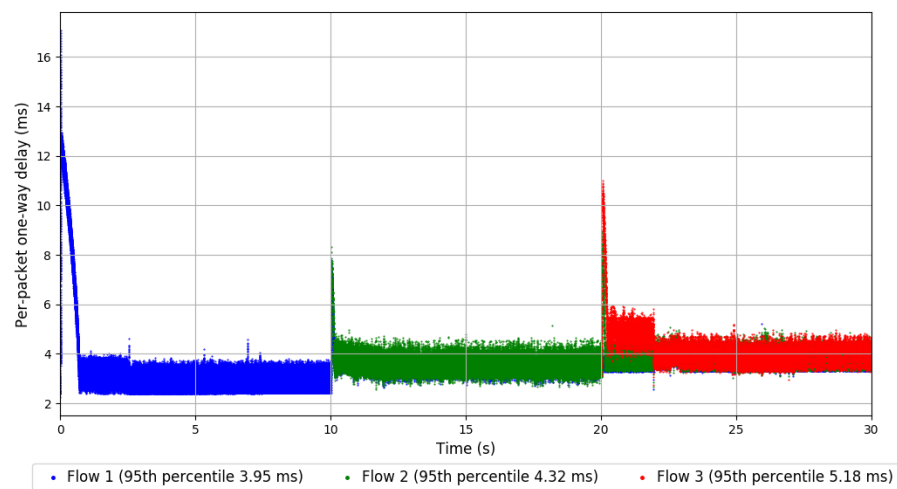
# Run 5: Report of TaoVA-100x — Data Link



Flow 1 ingress (mean 53.79 Mbit/s)  Flow 1 egress (mean 53.51 Mbit/s)
Flow 2 ingress (mean 41.64 Mbit/s)  Flow 2 egress (mean 41.22 Mbit/s)
Flow 3 ingress (mean 32.73 Mbit/s)  Flow 3 egress (mean 31.84 Mbit/s)



Flow 1 (95th percentile 153.65 ms)  Flow 2 (95th percentile 155.25 ms)  Flow 3 (95th percentile 157.16 ms)

```
Run 1: Statistics of TCP Vegas

Start at: 2019-03-09 13:09:37
End at: 2019-03-09 13:10:07
Local clock offset: -7.268 ms
Remote clock offset: 0.349 ms


# Below is generated by plot.py at 2019-03-09 15:10:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.45 Mbit/s
95th percentile per-packet one-way delay: 5.035 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 52.63 Mbit/s
95th percentile per-packet one-way delay: 3.810 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 50.44 Mbit/s
95th percentile per-packet one-way delay: 5.093 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 33.76 Mbit/s
95th percentile per-packet one-way delay: 5.296 ms
Loss rate: 0.05%
```
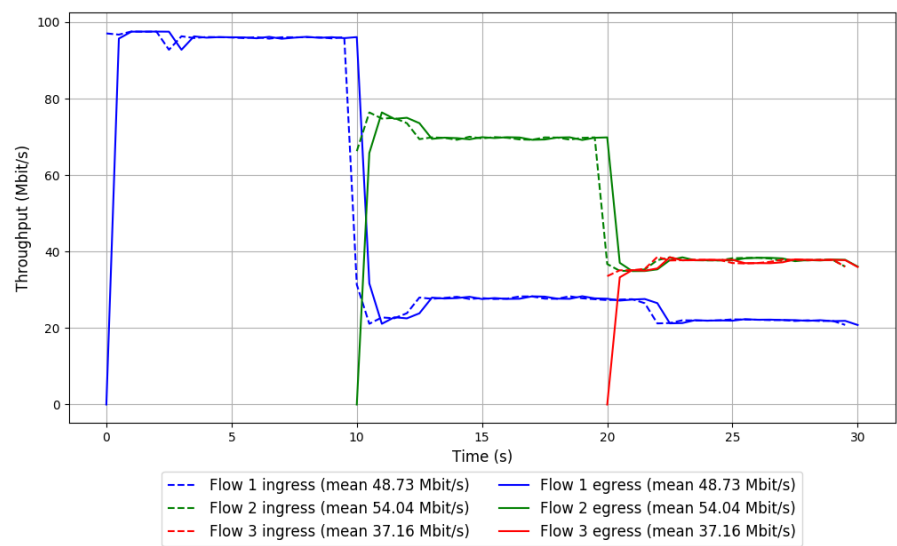
Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2019-03-09 13:33:48
End at: 2019-03-09 13:34:18
Local clock offset: -2.075 ms
Remote clock offset: 0.702 ms


# Below is generated by plot.py at 2019-03-09 15:10:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.40 Mbit/s
95th percentile per-packet one-way delay: 4.161 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 52.59 Mbit/s
95th percentile per-packet one-way delay: 3.071 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 48.17 Mbit/s
95th percentile per-packet one-way delay: 3.417 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 38.34 Mbit/s
95th percentile per-packet one-way delay: 4.663 ms
Loss rate: 0.08%
```
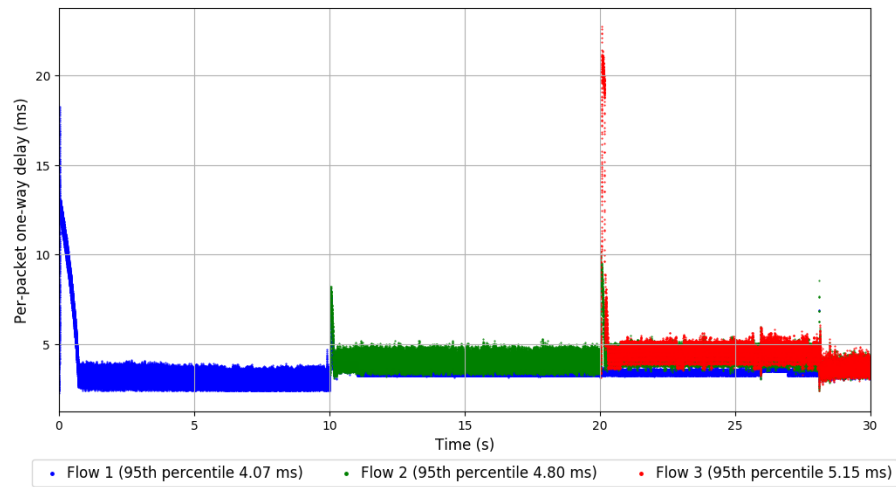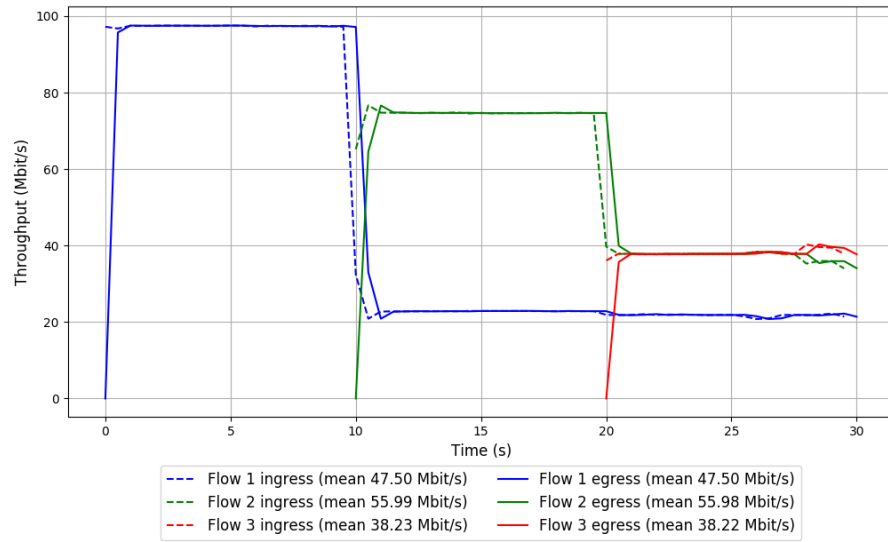
Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2019-03-09 13:58:02
End at: 2019-03-09 13:58:32
Local clock offset: -5.68 ms
Remote clock offset: 0.923 ms


# Below is generated by plot.py at 2019-03-09 15:10:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.06 Mbit/s
95th percentile per-packet one-way delay: 4.508 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 48.73 Mbit/s
95th percentile per-packet one-way delay: 3.948 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 54.04 Mbit/s
95th percentile per-packet one-way delay: 4.322 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 37.16 Mbit/s
95th percentile per-packet one-way delay: 5.179 ms
Loss rate: 0.06%
```
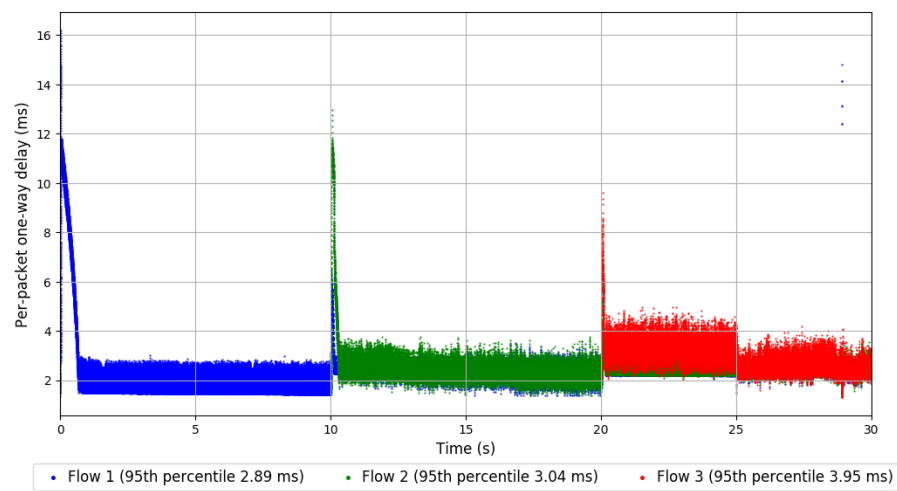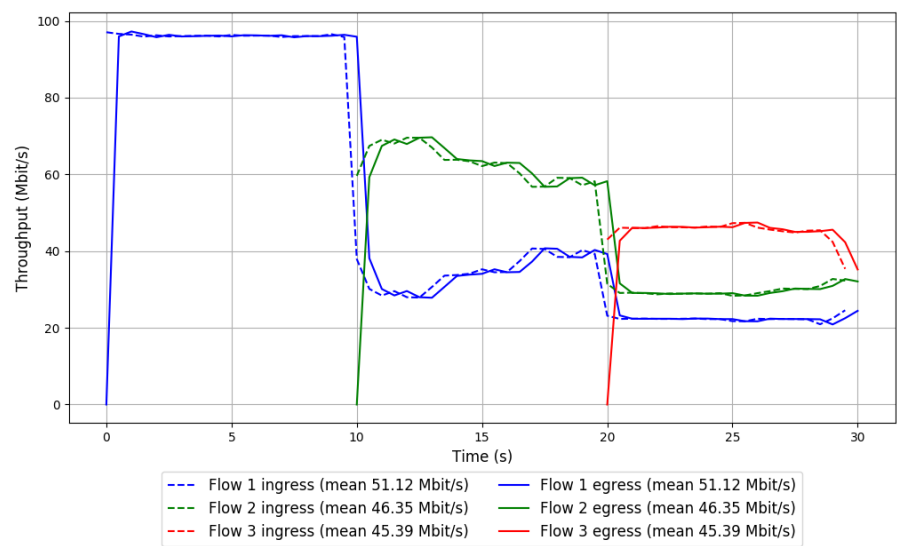
Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2019-03-09 14:22:14
End at: 2019-03-09 14:22:44
Local clock offset: -6.695 ms
Remote clock offset: 0.929 ms


# Below is generated by plot.py at 2019-03-09 15:10:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.48 Mbit/s
95th percentile per-packet one-way delay: 4.917 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 47.50 Mbit/s
95th percentile per-packet one-way delay: 4.072 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 55.98 Mbit/s
95th percentile per-packet one-way delay: 4.803 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 38.22 Mbit/s
95th percentile per-packet one-way delay: 5.150 ms
Loss rate: 0.07%
```
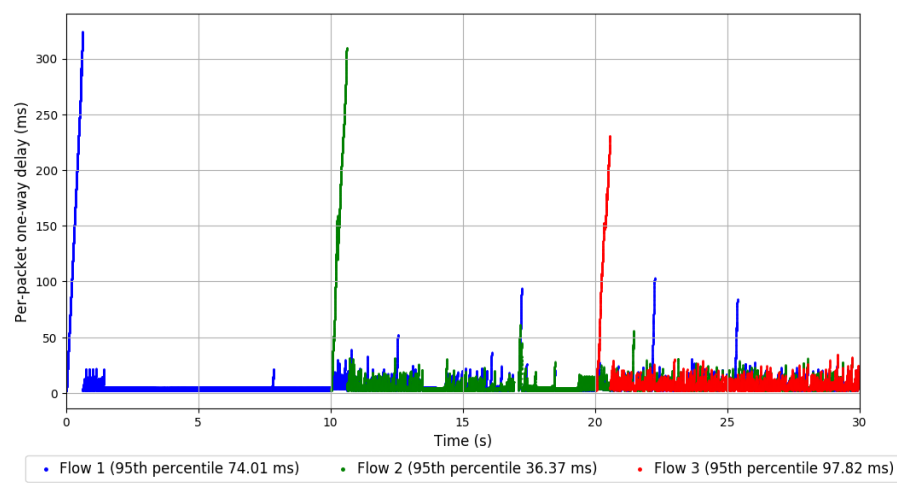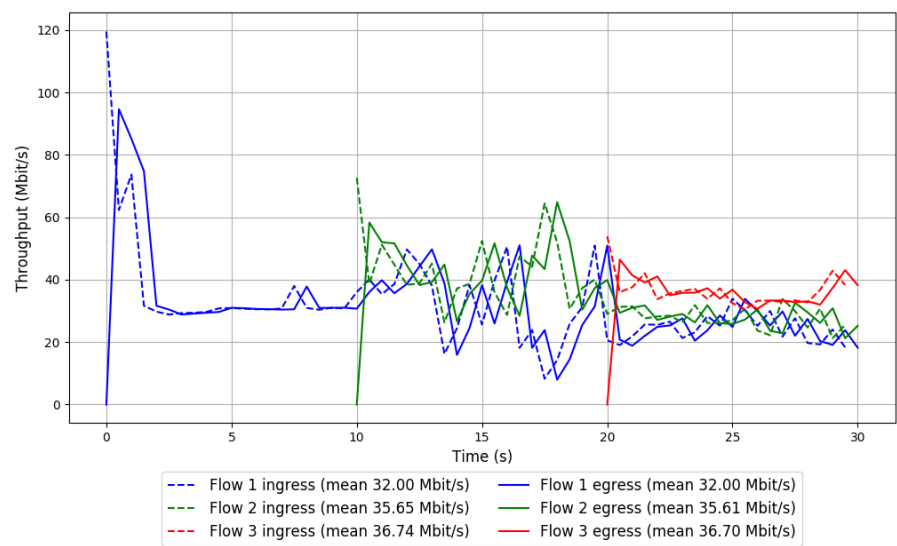
## Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2019-03-09 14:46:28
End at: 2019-03-09 14:46:58
Local clock offset: -6.499 ms
Remote clock offset: 1.063 ms


# Below is generated by plot.py at 2019-03-09 15:11:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.06 Mbit/s
95th percentile per-packet one-way delay: 3.607 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 51.12 Mbit/s
95th percentile per-packet one-way delay: 2.889 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 46.35 Mbit/s
95th percentile per-packet one-way delay: 3.036 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 45.39 Mbit/s
95th percentile per-packet one-way delay: 3.954 ms
Loss rate: 0.05%
```
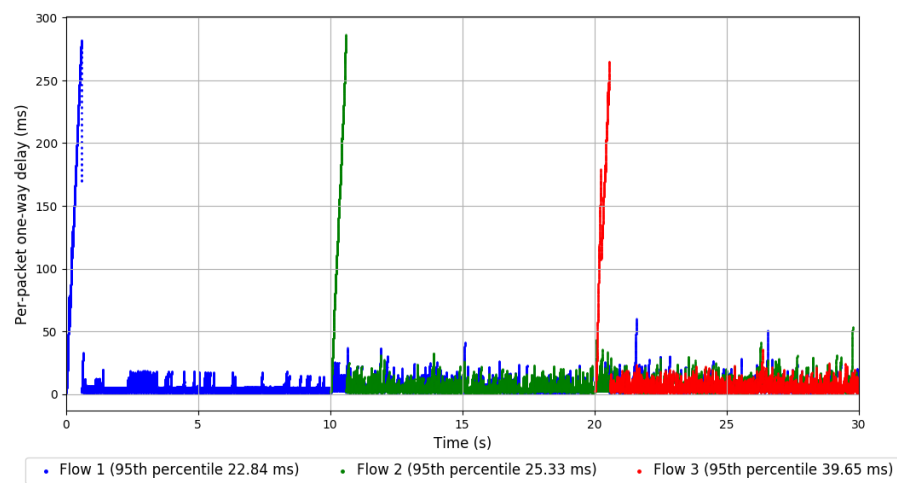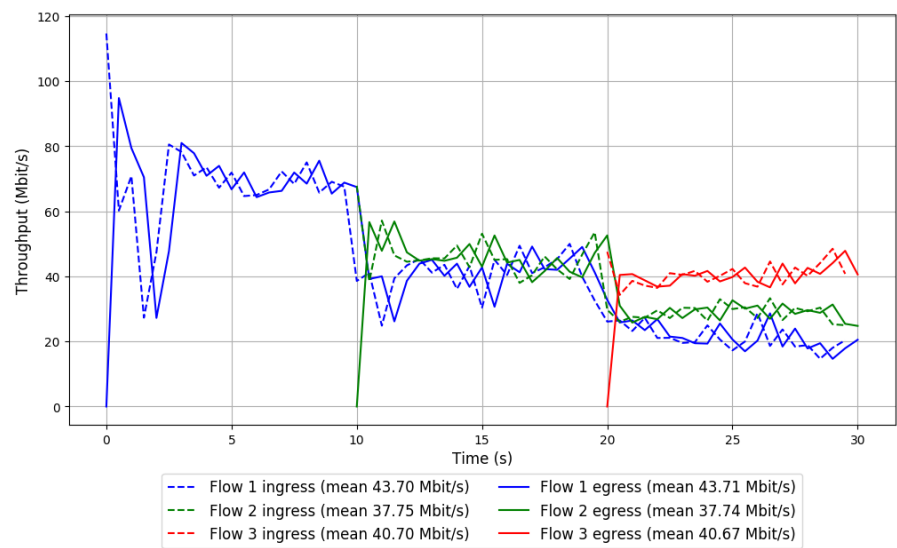
# Run 5: Report of TCP Vegas — Data Link



Flow 1 ingress (mean 51.12 Mbit/s) — Flow 1 egress (mean 51.12 Mbit/s)
Flow 2 ingress (mean 46.35 Mbit/s) — Flow 2 egress (mean 46.35 Mbit/s)
Flow 3 ingress (mean 45.39 Mbit/s) — Flow 3 egress (mean 45.39 Mbit/s)



Flow 1 (95th percentile 2.89 ms)   Flow 2 (95th percentile 3.04 ms)   Flow 3 (95th percentile 3.95 ms)

```
Run 1: Statistics of Verus

Start at: 2019-03-09 12:54:38
End at: 2019-03-09 12:55:08
Local clock offset: -6.833 ms
Remote clock offset: 0.175 ms


# Below is generated by plot.py at 2019-03-09 15:11:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 67.87 Mbit/s
95th percentile per-packet one-way delay: 59.269 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 32.00 Mbit/s
95th percentile per-packet one-way delay: 74.013 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 35.61 Mbit/s
95th percentile per-packet one-way delay: 36.365 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 36.70 Mbit/s
95th percentile per-packet one-way delay: 97.821 ms
Loss rate: 0.08%
```
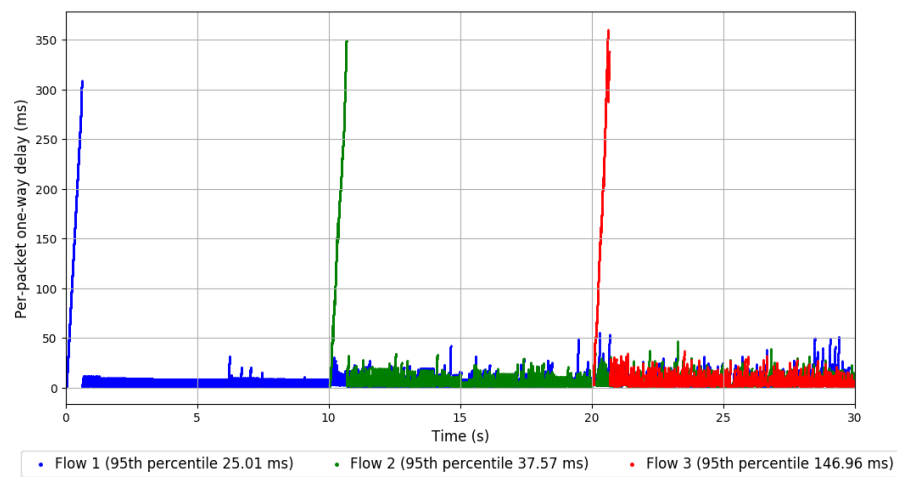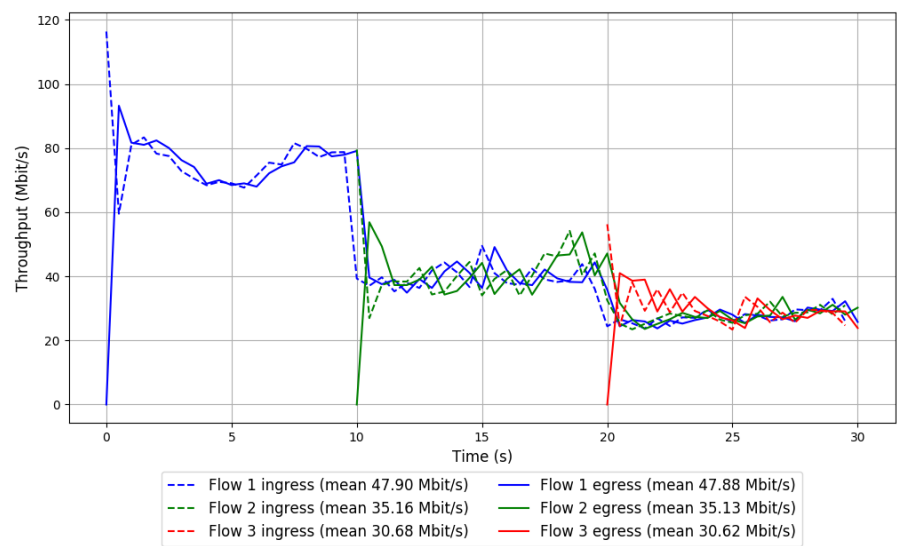
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2019-03-09 13:18:51
End at: 2019-03-09 13:19:21
Local clock offset: -5.503 ms
Remote clock offset: 0.531 ms


# Below is generated by plot.py at 2019-03-09 15:11:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 82.36 Mbit/s
95th percentile per-packet one-way delay: 24.264 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 43.71 Mbit/s
95th percentile per-packet one-way delay: 22.841 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 37.74 Mbit/s
95th percentile per-packet one-way delay: 25.332 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 40.67 Mbit/s
95th percentile per-packet one-way delay: 39.654 ms
Loss rate: 0.13%
```
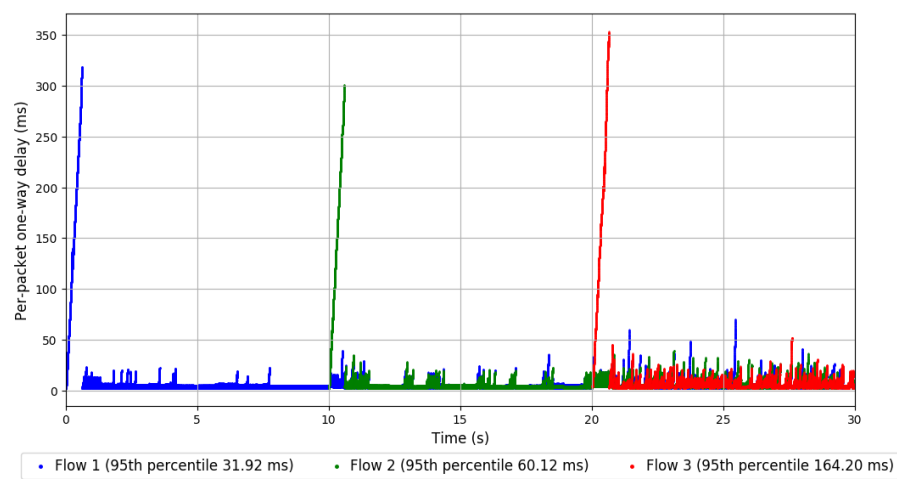
Run 2: Report of Verus — Data Link



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```
Run 3: Statistics of Verus

Start at: 2019-03-09 13:43:02
End at: 2019-03-09 13:43:32
Local clock offset: -1.279 ms
Remote clock offset: 0.734 ms


# Below is generated by plot.py at 2019-03-09 15:11:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.41 Mbit/s
95th percentile per-packet one-way delay: 31.551 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 47.88 Mbit/s
95th percentile per-packet one-way delay: 25.006 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 35.13 Mbit/s
95th percentile per-packet one-way delay: 37.570 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 30.62 Mbit/s
95th percentile per-packet one-way delay: 146.958 ms
Loss rate: 0.20%
```
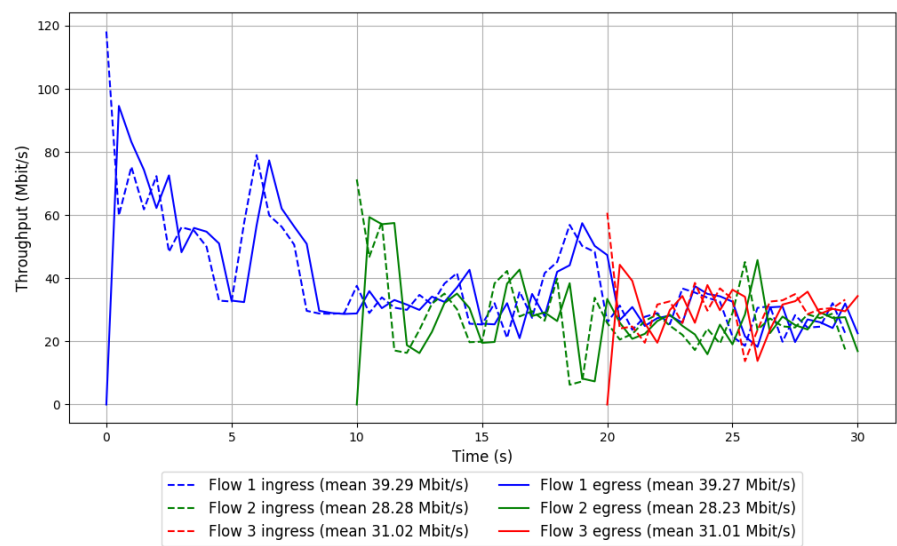
Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2019-03-09 14:07:15
End at: 2019-03-09 14:07:45
Local clock offset: -6.788 ms
Remote clock offset: 0.872 ms


# Below is generated by plot.py at 2019-03-09 15:11:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 68.39 Mbit/s
95th percentile per-packet one-way delay: 57.562 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 39.27 Mbit/s
95th percentile per-packet one-way delay: 31.918 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 28.23 Mbit/s
95th percentile per-packet one-way delay: 60.115 ms
Loss rate: 0.17%
-- Flow 3:
Average throughput: 31.01 Mbit/s
95th percentile per-packet one-way delay: 164.202 ms
Loss rate: 0.07%
```
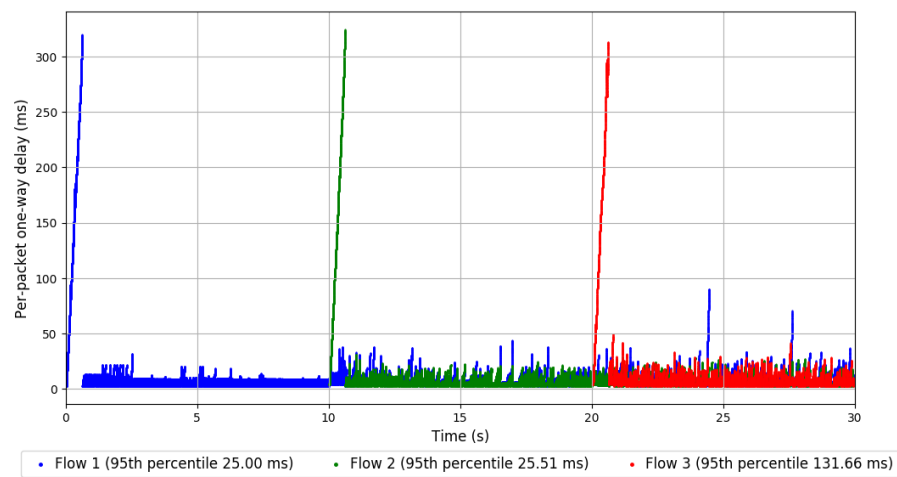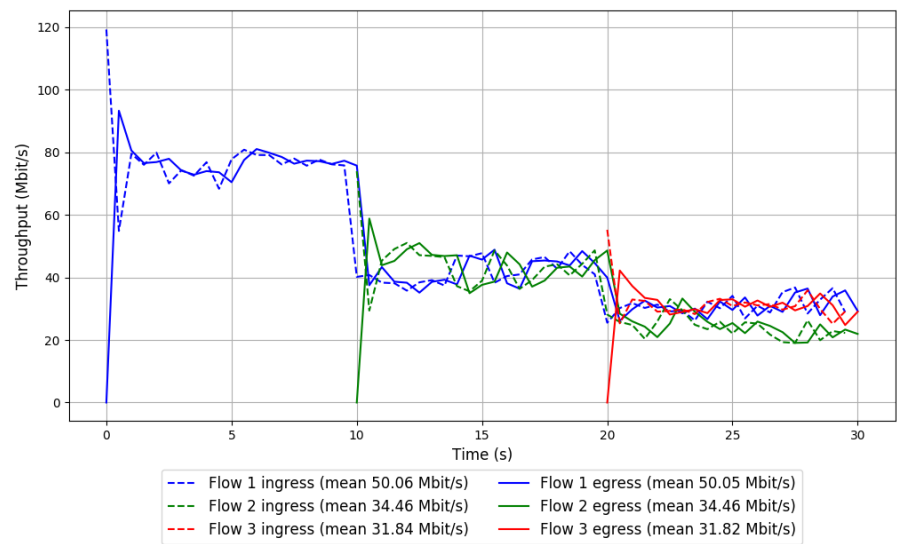
## Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2019-03-09 14:31:28
End at: 2019-03-09 14:31:58
Local clock offset: -6.624 ms
Remote clock offset: 1.009 ms


# Below is generated by plot.py at 2019-03-09 15:11:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.55 Mbit/s
95th percentile per-packet one-way delay: 29.773 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 50.05 Mbit/s
95th percentile per-packet one-way delay: 24.996 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 34.46 Mbit/s
95th percentile per-packet one-way delay: 25.510 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 31.82 Mbit/s
95th percentile per-packet one-way delay: 131.665 ms
Loss rate: 0.12%
```
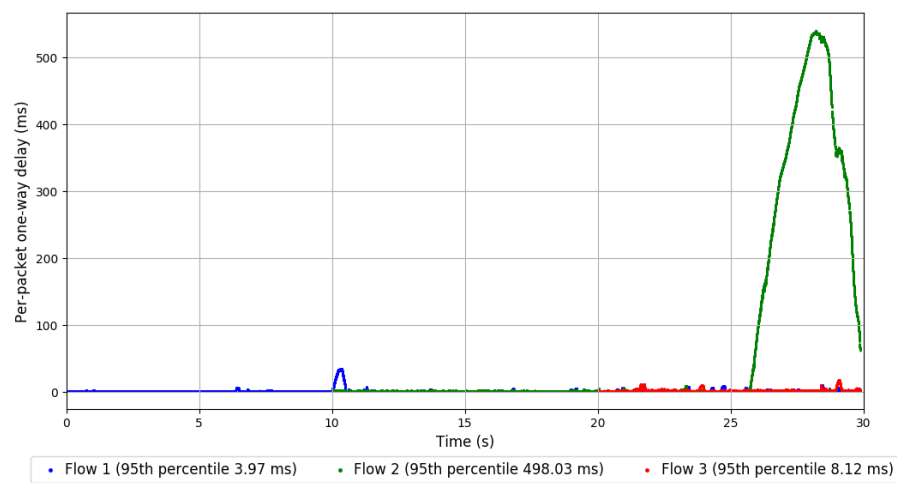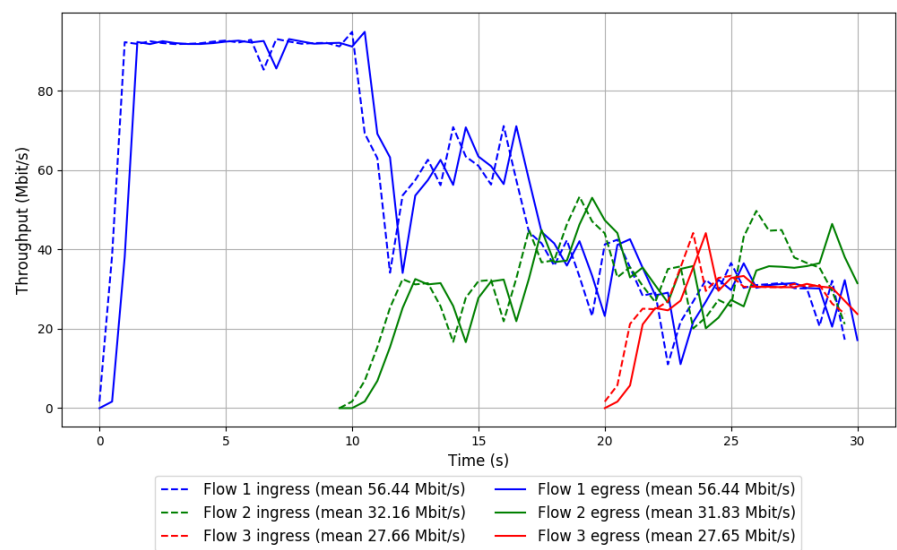
Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2019-03-09 13:11:57
End at: 2019-03-09 13:12:27
Local clock offset: -8.06 ms
Remote clock offset: 0.329 ms


# Below is generated by plot.py at 2019-03-09 15:11:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.75 Mbit/s
95th percentile per-packet one-way delay: 146.314 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 56.44 Mbit/s
95th percentile per-packet one-way delay: 3.971 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 31.83 Mbit/s
95th percentile per-packet one-way delay: 498.030 ms
Loss rate: 1.06%
-- Flow 3:
Average throughput: 27.65 Mbit/s
95th percentile per-packet one-way delay: 8.121 ms
Loss rate: 0.05%
```
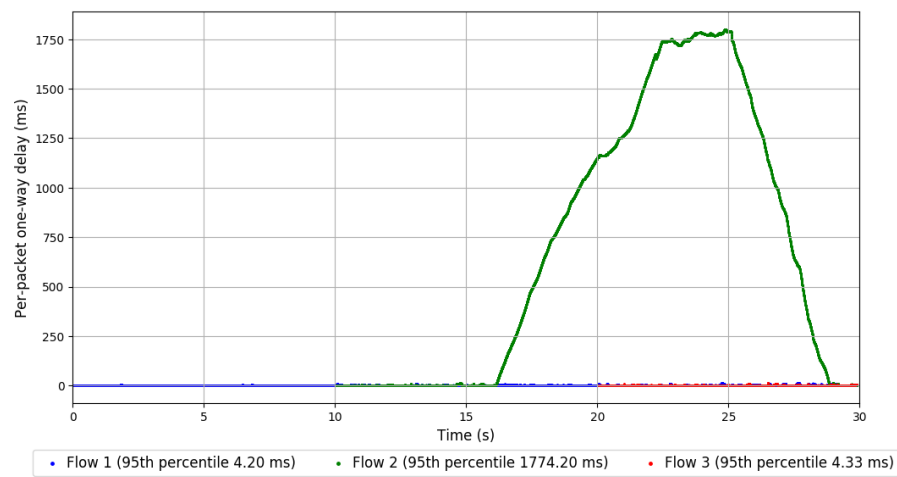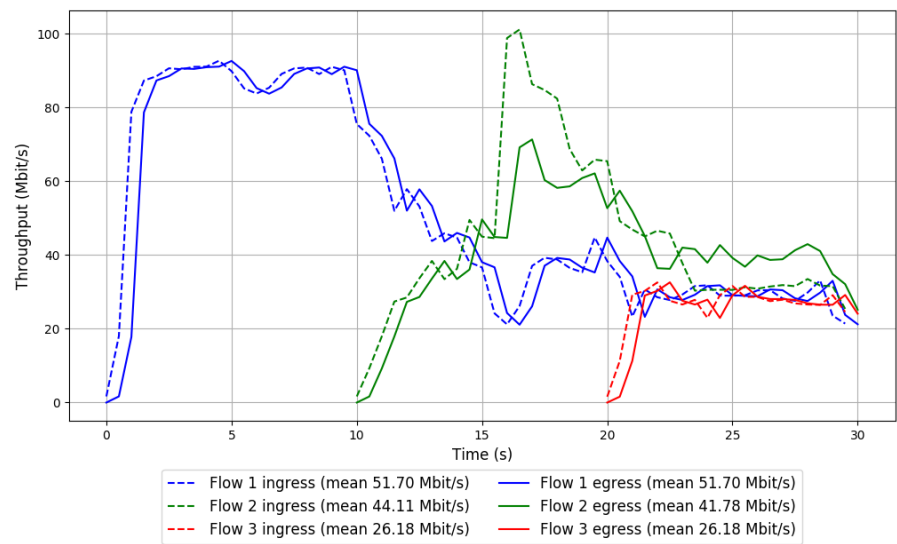
Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2019-03-09 13:36:08
End at: 2019-03-09 13:36:38
Local clock offset: -1.158 ms
Remote clock offset: 0.826 ms


# Below is generated by plot.py at 2019-03-09 15:11:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.12 Mbit/s
95th percentile per-packet one-way delay: 1614.809 ms
Loss rate: 1.76%
-- Flow 1:
Average throughput: 51.70 Mbit/s
95th percentile per-packet one-way delay: 4.203 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 41.78 Mbit/s
95th percentile per-packet one-way delay: 1774.203 ms
Loss rate: 5.33%
-- Flow 3:
Average throughput: 26.18 Mbit/s
95th percentile per-packet one-way delay: 4.327 ms
Loss rate: 0.11%
```
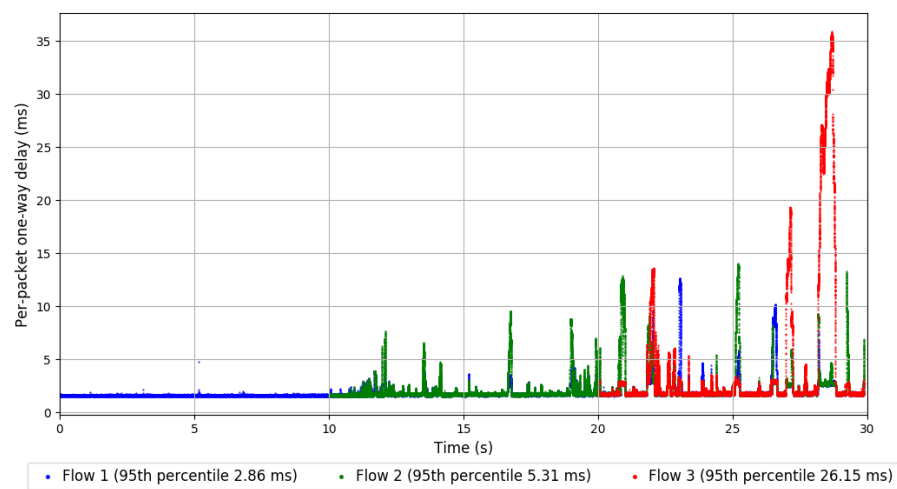
# Run 2: Report of PCC-Vivace — Data Link



- Flow 1 ingress (mean 51.70 Mbit/s)
- Flow 1 egress (mean 51.70 Mbit/s)
- Flow 2 ingress (mean 44.11 Mbit/s)
- Flow 2 egress (mean 41.78 Mbit/s)
- Flow 3 ingress (mean 26.18 Mbit/s)
- Flow 3 egress (mean 26.18 Mbit/s)



- Flow 1 (95th percentile 4.20 ms)
- Flow 2 (95th percentile 1774.20 ms)
- Flow 3 (95th percentile 4.33 ms)

```
Run 3: Statistics of PCC-Vivace

Start at: 2019-03-09 14:00:22
End at: 2019-03-09 14:00:52
Local clock offset: -6.767 ms
Remote clock offset: 0.946 ms


# Below is generated by plot.py at 2019-03-09 15:11:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 61.30 Mbit/s
95th percentile per-packet one-way delay: 5.480 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 26.09 Mbit/s
95th percentile per-packet one-way delay: 2.862 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 39.96 Mbit/s
95th percentile per-packet one-way delay: 5.313 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 26.13 Mbit/s
95th percentile per-packet one-way delay: 26.146 ms
Loss rate: 0.09%
```
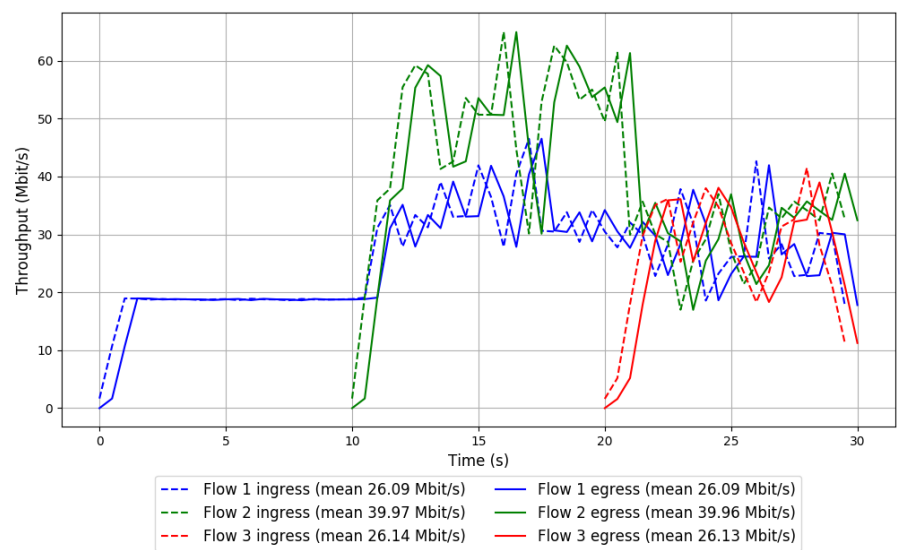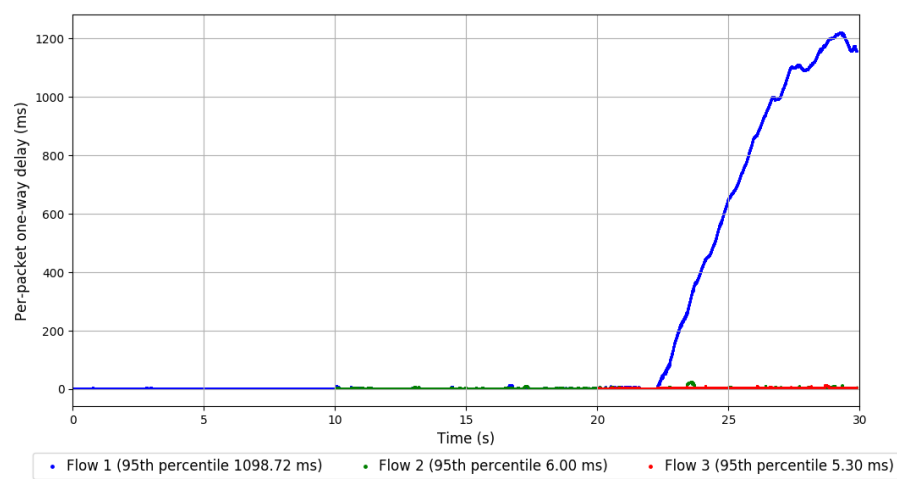
Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2019-03-09 14:24:34
End at: 2019-03-09 14:25:04
Local clock offset: -6.65 ms
Remote clock offset: 0.949 ms


# Below is generated by plot.py at 2019-03-09 15:11:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.78 Mbit/s
95th percentile per-packet one-way delay: 991.619 ms
Loss rate: 2.49%
-- Flow 1:
Average throughput: 58.08 Mbit/s
95th percentile per-packet one-way delay: 1098.722 ms
Loss rate: 3.63%
-- Flow 2:
Average throughput: 29.08 Mbit/s
95th percentile per-packet one-way delay: 5.995 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 25.33 Mbit/s
95th percentile per-packet one-way delay: 5.301 ms
Loss rate: 0.05%
```
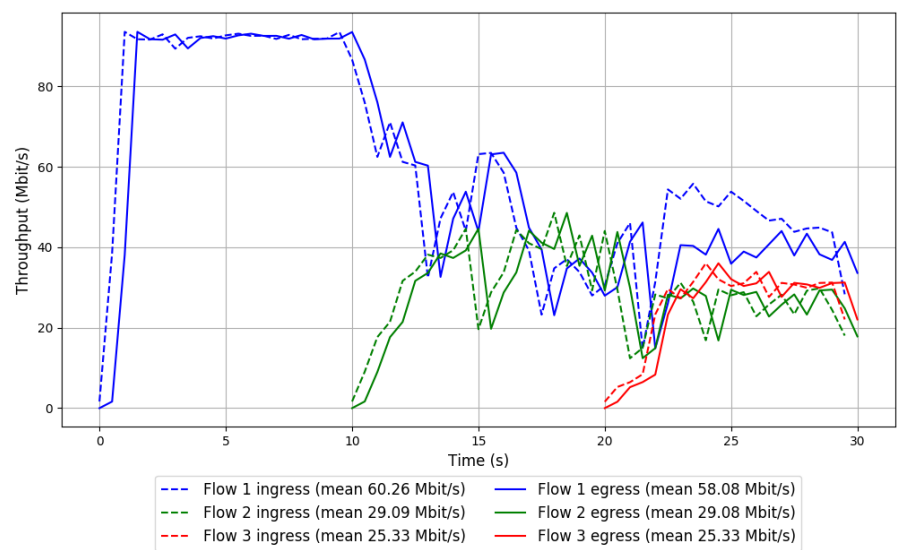
Run 4: Report of PCC-Vivace — Data Link

```
Run 5: Statistics of PCC-Vivace

Start at: 2019-03-09 14:48:48
End at: 2019-03-09 14:49:18
Local clock offset: -5.704 ms
Remote clock offset: 1.072 ms


# Below is generated by plot.py at 2019-03-09 15:11:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 78.95 Mbit/s
95th percentile per-packet one-way delay: 456.329 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 47.00 Mbit/s
95th percentile per-packet one-way delay: 3.933 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 37.04 Mbit/s
95th percentile per-packet one-way delay: 664.383 ms
Loss rate: 1.15%
-- Flow 3:
Average throughput: 22.08 Mbit/s
95th percentile per-packet one-way delay: 23.835 ms
Loss rate: 0.13%
```
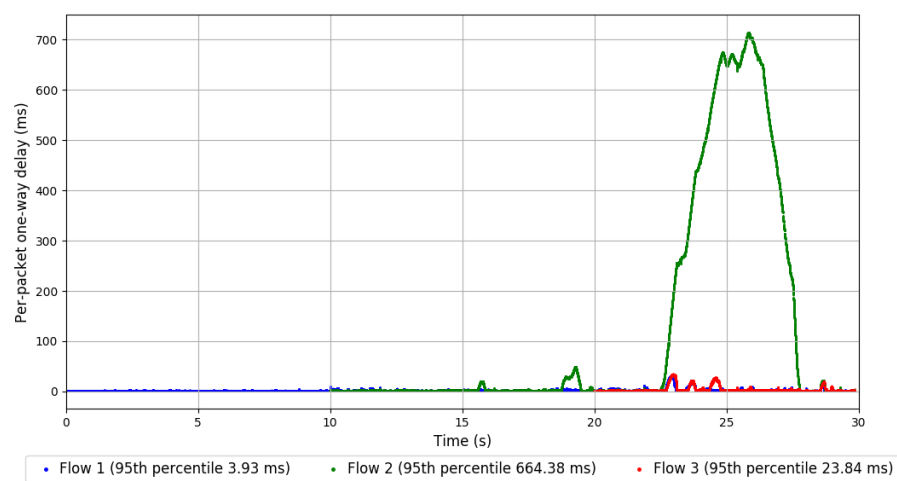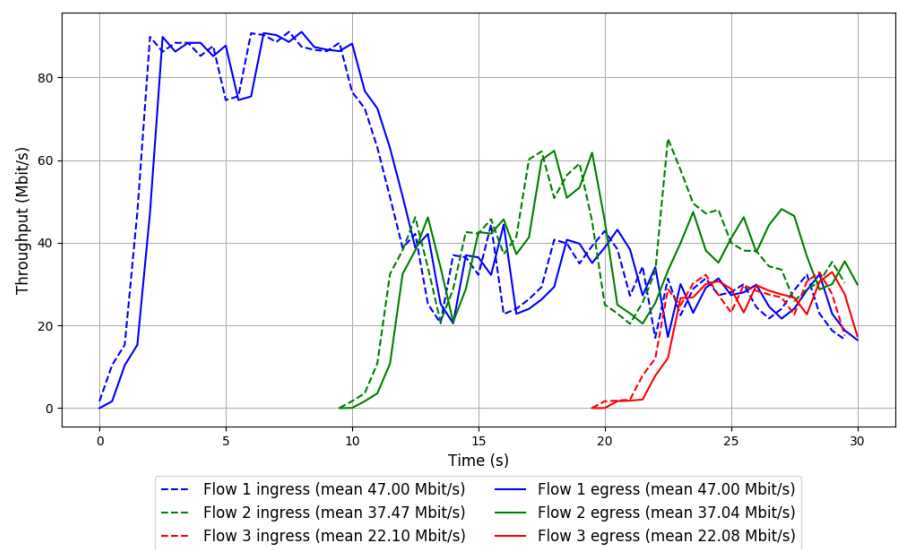
Run 5: Report of PCC-Vivace — Data Link



Flow 1 ingress (mean 47.00 Mbit/s) --- Flow 1 egress (mean 47.00 Mbit/s) ———
Flow 2 ingress (mean 37.47 Mbit/s) --- Flow 2 egress (mean 37.04 Mbit/s) ———
Flow 3 ingress (mean 22.10 Mbit/s) --- Flow 3 egress (mean 22.08 Mbit/s) ———



Flow 1 (95th percentile 3.93 ms) • Flow 2 (95th percentile 664.38 ms) • Flow 3 (95th percentile 23.84 ms) •

```
Run 1: Statistics of WebRTC media

Start at: 2019-03-09 13:03:57
End at: 2019-03-09 13:04:27
Local clock offset: -7.051 ms
Remote clock offset: 0.305 ms


# Below is generated by plot.py at 2019-03-09 15:11:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.70 Mbit/s
95th percentile per-packet one-way delay: 3.102 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.55 Mbit/s
95th percentile per-packet one-way delay: 3.077 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.75 Mbit/s
95th percentile per-packet one-way delay: 3.171 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 3.038 ms
Loss rate: 0.00%
```
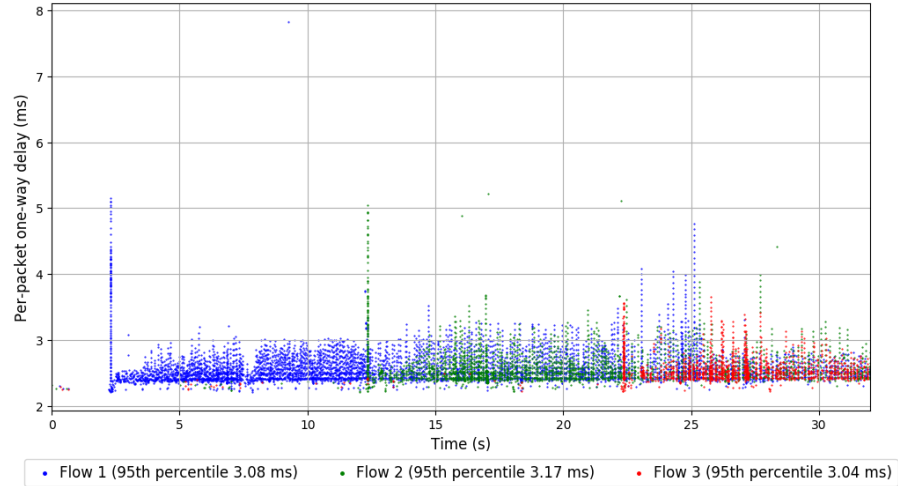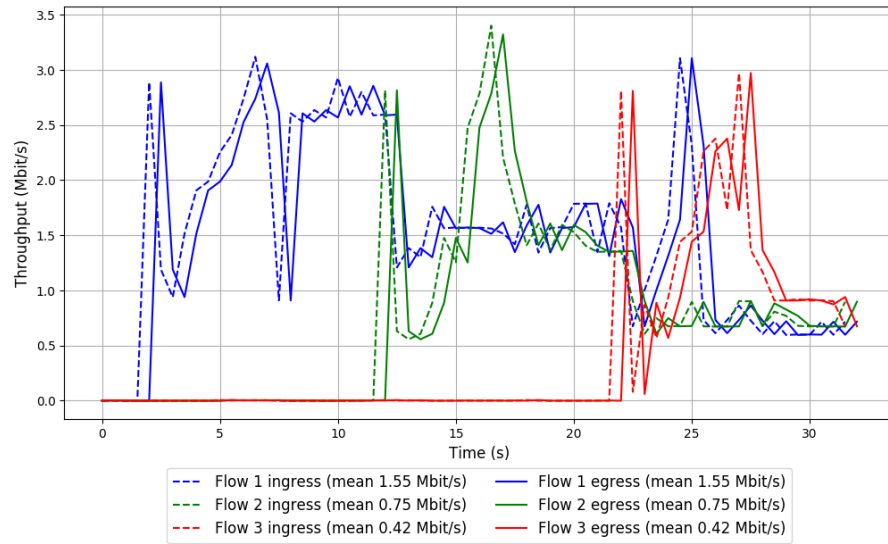
Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2019-03-09 13:28:09
End at: 2019-03-09 13:28:39
Local clock offset: -2.155 ms
Remote clock offset: 0.664 ms


# Below is generated by plot.py at 2019-03-09 15:11:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.73 Mbit/s
95th percentile per-packet one-way delay: 2.916 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 1.51 Mbit/s
95th percentile per-packet one-way delay: 2.871 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.81 Mbit/s
95th percentile per-packet one-way delay: 2.780 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 3.178 ms
Loss rate: 0.00%
```
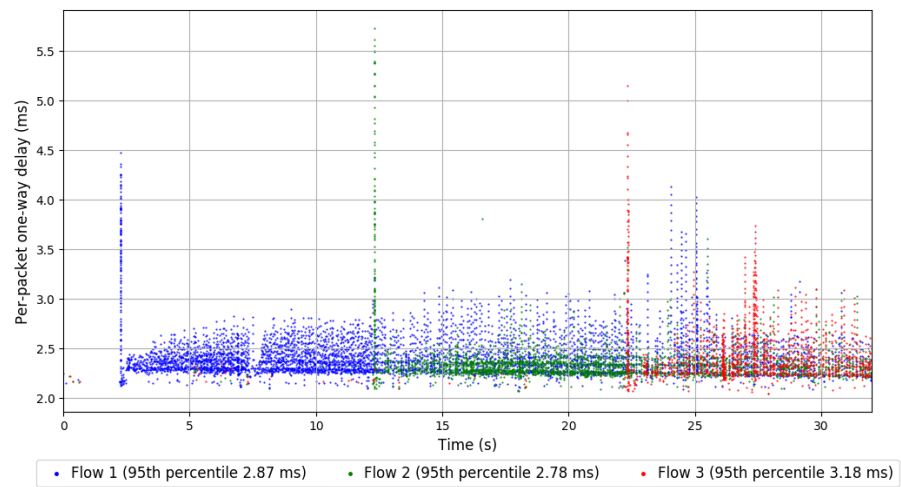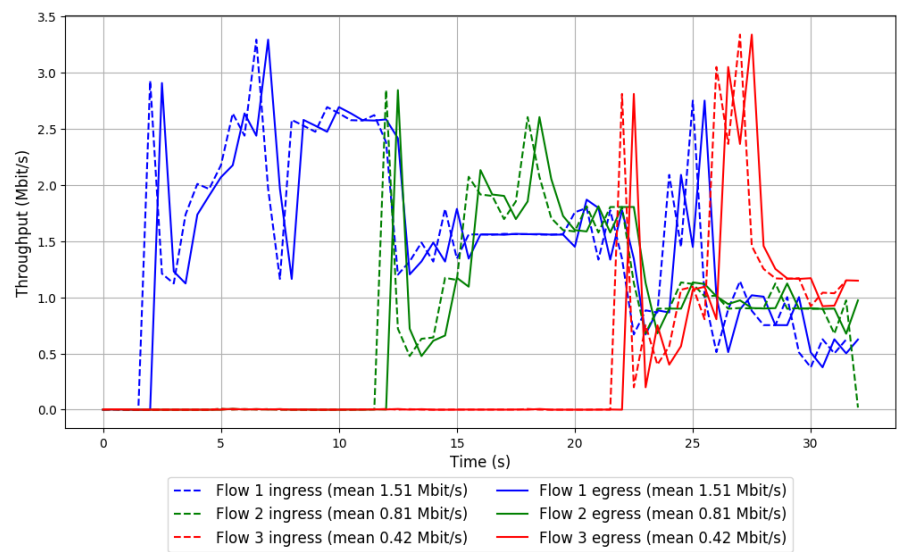
Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2019-03-09 13:52:22
End at: 2019-03-09 13:52:52
Local clock offset: -5.117 ms
Remote clock offset: 0.844 ms


# Below is generated by plot.py at 2019-03-09 15:11:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.63 Mbit/s
95th percentile per-packet one-way delay: 2.558 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.55 Mbit/s
95th percentile per-packet one-way delay: 2.427 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.68 Mbit/s
95th percentile per-packet one-way delay: 2.424 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 3.103 ms
Loss rate: 0.01%
```
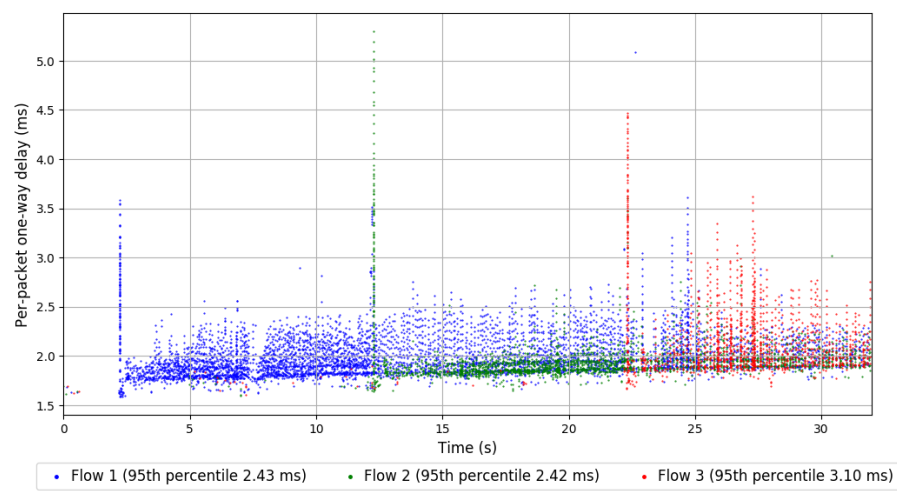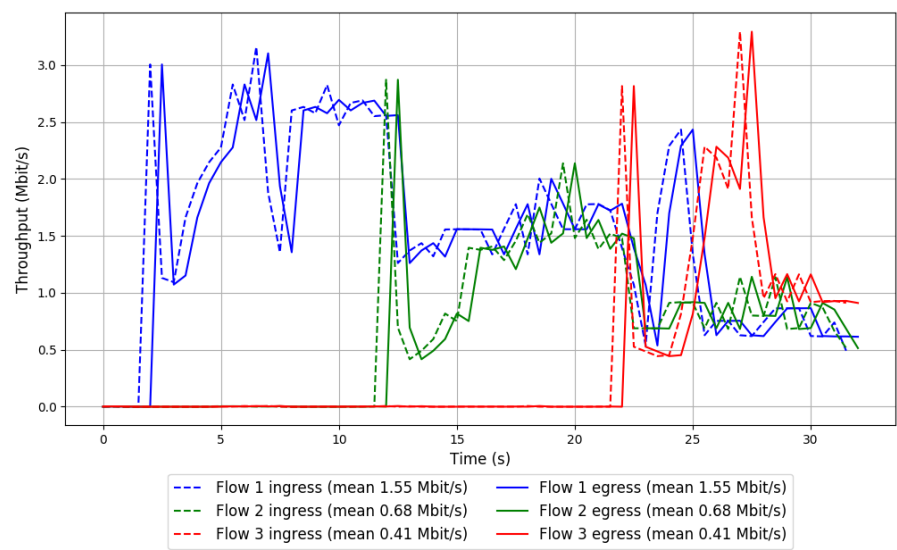
Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2019-03-09 14:16:34
End at: 2019-03-09 14:17:04
Local clock offset: -7.0 ms
Remote clock offset: 0.967 ms


# Below is generated by plot.py at 2019-03-09 15:11:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.68 Mbit/s
95th percentile per-packet one-way delay: 2.852 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.55 Mbit/s
95th percentile per-packet one-way delay: 2.884 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.80 Mbit/s
95th percentile per-packet one-way delay: 2.805 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 2.703 ms
Loss rate: 0.00%
```
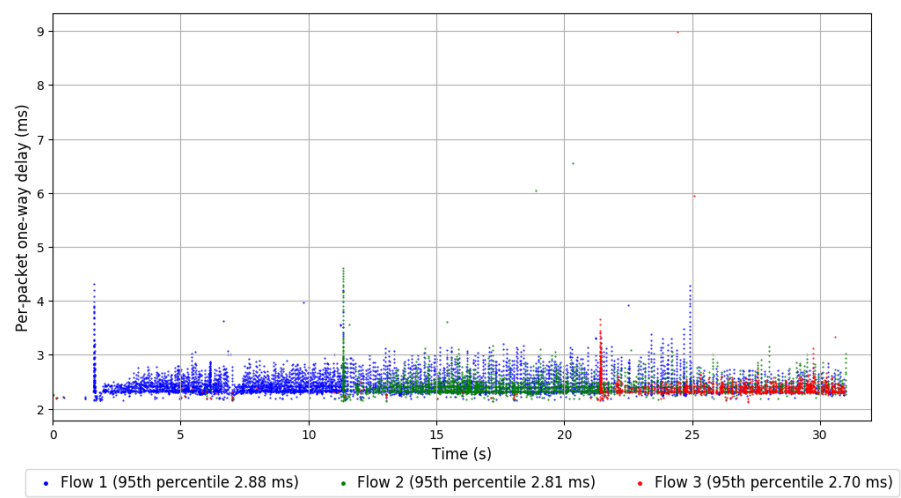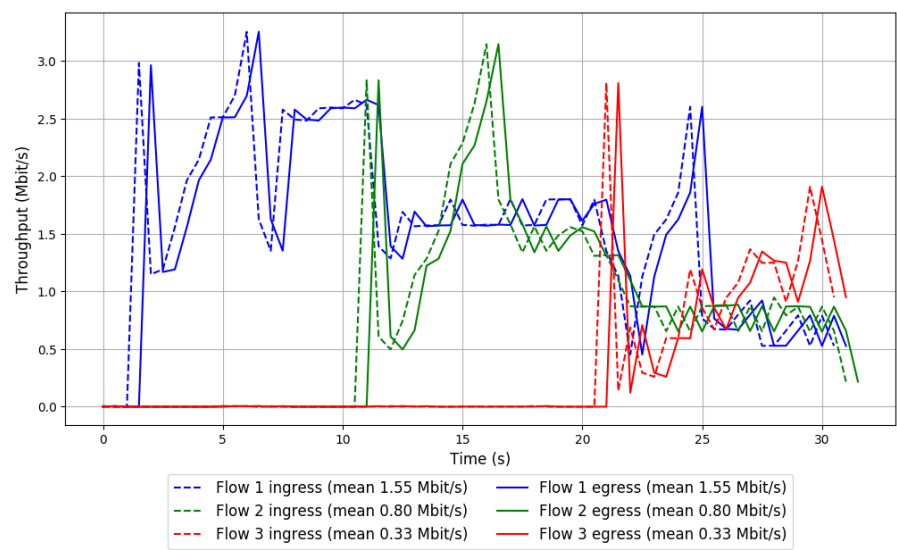
Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2019-03-09 14:40:48
End at: 2019-03-09 14:41:18
Local clock offset: -6.782 ms
Remote clock offset: 1.012 ms


# Below is generated by plot.py at 2019-03-09 15:11:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.77 Mbit/s
95th percentile per-packet one-way delay: 3.150 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.50 Mbit/s
95th percentile per-packet one-way delay: 3.004 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.87 Mbit/s
95th percentile per-packet one-way delay: 3.263 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 3.185 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link