# Pantheon Report

Generated at 2018-12-21 04:20:27 (UTC).

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

Repeated the test of 19 congestion control schemes 5 times.

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

NTP offsets were measured against `time.google.com` and have been applied to correct the timestamps in logs.
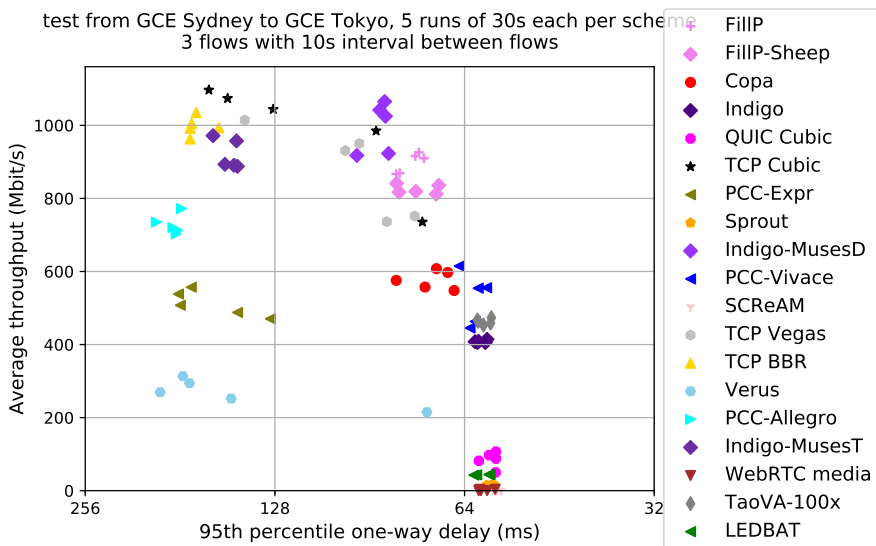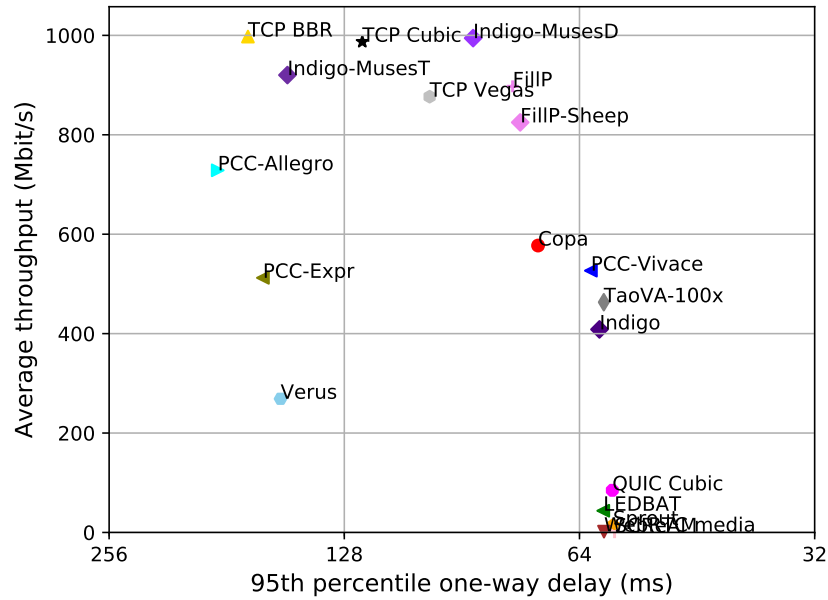
```
System info:
Linux 4.15.0-1025-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ c654af0b7d59d4ef4b914cfac404e1fc2e96dc68
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/muses-refactored @ 31f8f0ba8ef8b1da76c2bc0cd0a7850c33ff64fb
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
 M src/ScreamClient
 M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
```

```
 M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

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



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

| scheme | # runs | mean avg tput (Mbit/s) | | | mean 95th-%ile delay (ms) | | | mean loss rate (%) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | flow 1 | flow 2 | flow 3 | flow 1 | flow 2 | flow 3 | flow 1 | flow 2 | flow 3 |
| TCP BBR | 5 | 503.85 | 510.13 | 462.86 | 166.56 | 175.93 | 170.62 | 0.88 | 1.45 | 1.82 |
| Copa | 5 | 305.18 | 287.42 | 241.90 | 67.57 | 76.95 | 84.67 | 0.00 | 0.00 | 0.01 |
| TCP Cubic | 5 | 530.07 | 465.39 | 442.86 | 105.86 | 112.38 | 111.11 | 0.05 | 0.23 | 0.48 |
| FillP | 5 | 571.44 | 359.64 | 261.87 | 81.59 | 61.34 | 60.47 | 0.08 | 0.00 | 0.00 |
| FillP-Sheep | 5 | 534.73 | 320.03 | 233.41 | 83.54 | 61.44 | 61.32 | 0.09 | 0.02 | 0.00 |
| Indigo | 5 | 216.49 | 201.83 | 179.94 | 59.57 | 59.63 | 61.03 | 0.00 | 0.00 | 0.01 |
| Indigo-MusesD | 5 | 533.22 | 500.79 | 394.64 | 87.69 | 89.46 | 83.97 | 0.01 | 0.03 | 0.12 |
| Indigo-MusesT | 5 | 477.72 | 510.82 | 372.65 | 131.49 | 142.57 | 90.21 | 0.26 | 0.18 | 0.17 |
| LEDBAT | 5 | 28.11 | 18.79 | 9.38 | 59.39 | 58.81 | 58.40 | 0.00 | 0.00 | 0.00 |
| PCC-Allegro | 5 | 407.16 | 354.53 | 261.12 | 184.19 | 172.07 | 123.35 | 4.31 | 2.75 | 0.43 |
| PCC-Expr | 5 | 290.09 | 258.81 | 151.33 | 161.08 | 152.60 | 68.22 | 1.72 | 2.79 | 0.01 |
| QUIC Cubic | 5 | 45.92 | 47.44 | 22.62 | 58.04 | 56.78 | 56.76 | 0.00 | 0.00 | 0.00 |
| SCReAM | 5 | 0.22 | 0.22 | 0.22 | 57.65 | 56.78 | 57.62 | 0.00 | 0.00 | 0.00 |
| Sprout | 5 | 7.75 | 7.25 | 7.36 | 57.37 | 58.00 | 57.22 | 0.00 | 0.00 | 0.00 |
| TaoVA-100x | 5 | 238.03 | 230.62 | 215.44 | 59.33 | 59.56 | 59.76 | 0.00 | 0.00 | 0.01 |
| TCP Vegas | 5 | 417.50 | 471.10 | 437.11 | 81.70 | 82.75 | 103.00 | 0.01 | 0.01 | 0.16 |
| Verus | 5 | 150.05 | 144.79 | 69.16 | 146.99 | 128.89 | 87.84 | 0.85 | 0.69 | 0.00 |
| PCC-Vivace | 5 | 312.88 | 249.96 | 144.09 | 61.39 | 69.49 | 62.99 | 0.02 | 0.01 | 0.00 |
| WebRTC media | 5 | 0.84 | 0.56 | 0.22 | 57.71 | 58.27 | 57.55 | 0.00 | 0.00 | 0.00 |

```
Run 1: Statistics of TCP BBR

Start at: 2018-12-20 22:49:18
End at: 2018-12-20 22:49:48
Local clock offset: -0.087 ms
Remote clock offset: -0.08 ms

# Below is generated by plot.py at 2018-12-21 02:07:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 993.26 Mbit/s
95th percentile per-packet one-way delay: 157.155 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 468.69 Mbit/s
95th percentile per-packet one-way delay: 139.119 ms
Loss rate: 0.19%
-- Flow 2:
Average throughput: 534.11 Mbit/s
95th percentile per-packet one-way delay: 205.977 ms
Loss rate: 1.88%
-- Flow 3:
Average throughput: 506.33 Mbit/s
95th percentile per-packet one-way delay: 149.219 ms
Loss rate: 0.74%
```
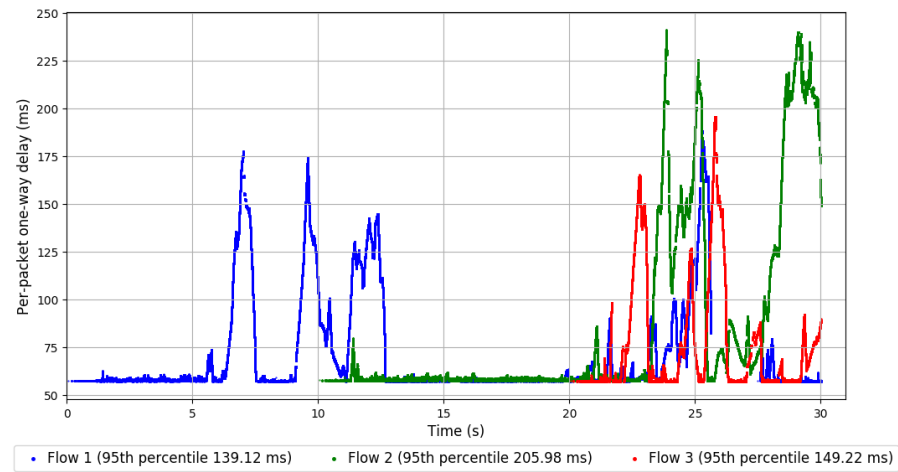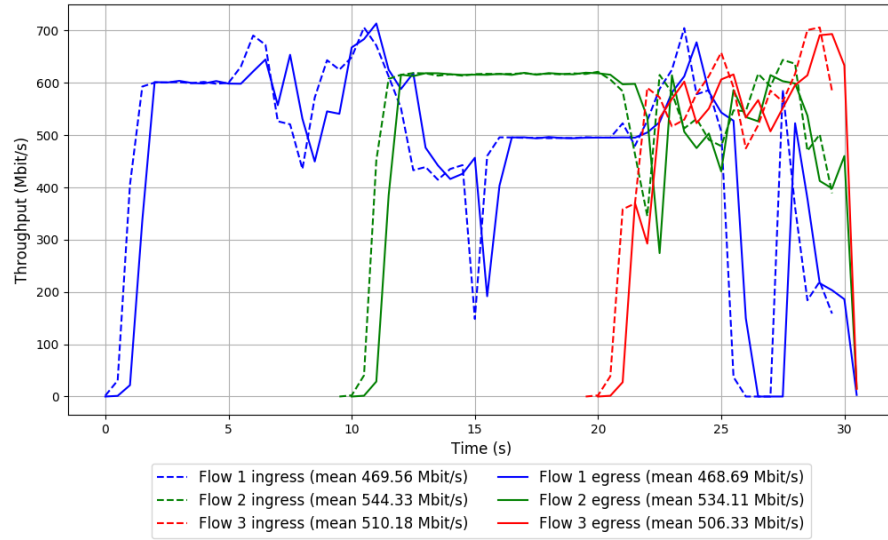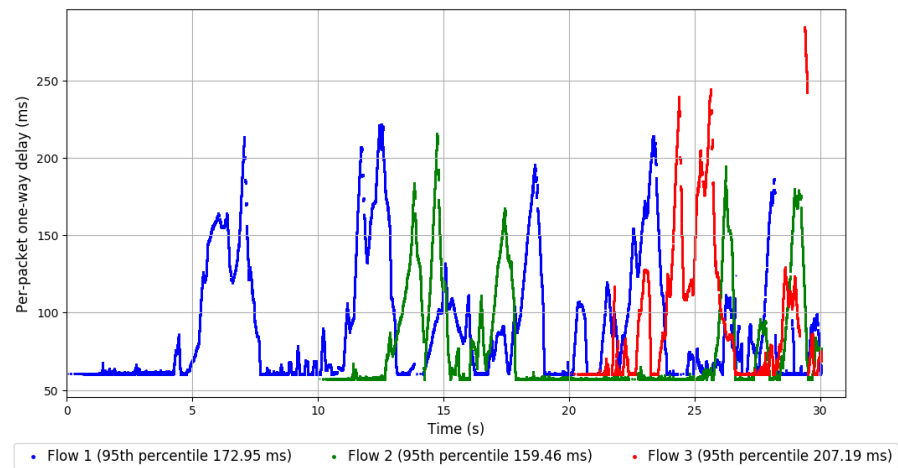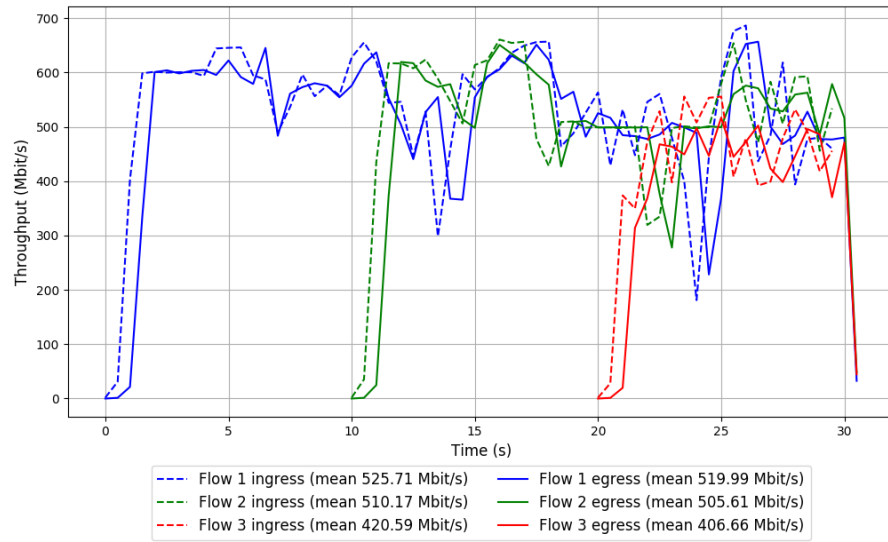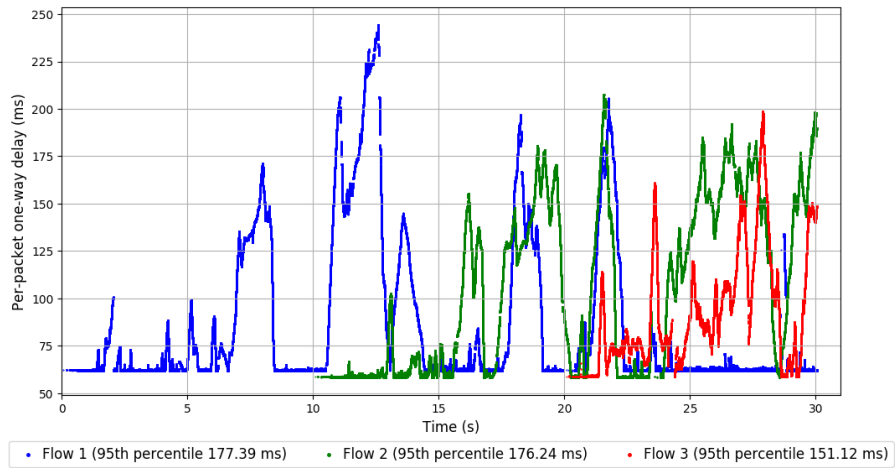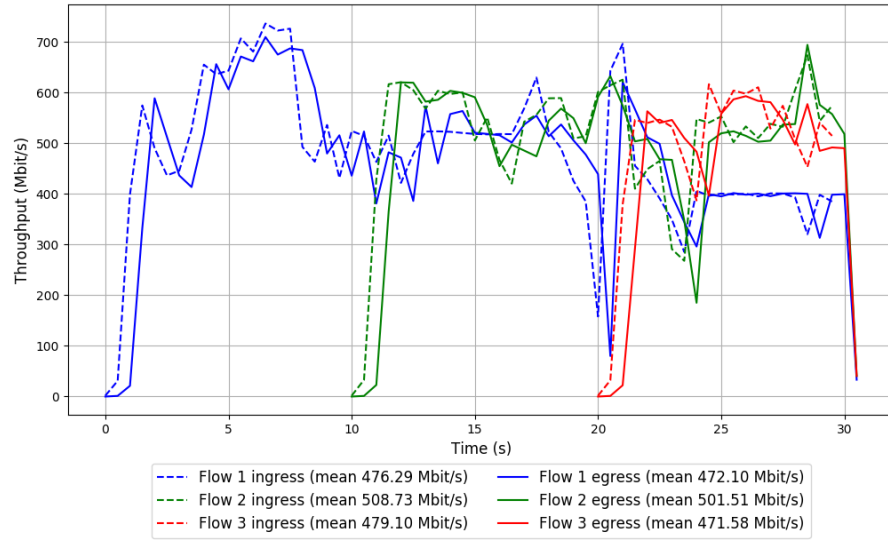
# Run 1: Report of TCP BBR — Data Link



Flow 1 ingress (mean 469.56 Mbit/s) — Flow 1 egress (mean 468.69 Mbit/s)
Flow 2 ingress (mean 544.33 Mbit/s) — Flow 2 egress (mean 534.11 Mbit/s)
Flow 3 ingress (mean 510.18 Mbit/s) — Flow 3 egress (mean 506.33 Mbit/s)



Flow 1 (95th percentile 139.12 ms)　　Flow 2 (95th percentile 205.98 ms)　　Flow 3 (95th percentile 149.22 ms)

```
Run 2: Statistics of TCP BBR

Start at: 2018-12-20 23:24:04
End at: 2018-12-20 23:24:34
Local clock offset: -0.128 ms
Remote clock offset: -0.146 ms


# Below is generated by plot.py at 2018-12-21 02:07:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 991.99 Mbit/s
95th percentile per-packet one-way delay: 174.457 ms
Loss rate: 1.34%
-- Flow 1:
Average throughput: 519.99 Mbit/s
95th percentile per-packet one-way delay: 172.949 ms
Loss rate: 1.10%
-- Flow 2:
Average throughput: 505.61 Mbit/s
95th percentile per-packet one-way delay: 159.460 ms
Loss rate: 0.89%
-- Flow 3:
Average throughput: 406.66 Mbit/s
95th percentile per-packet one-way delay: 207.190 ms
Loss rate: 3.34%
```
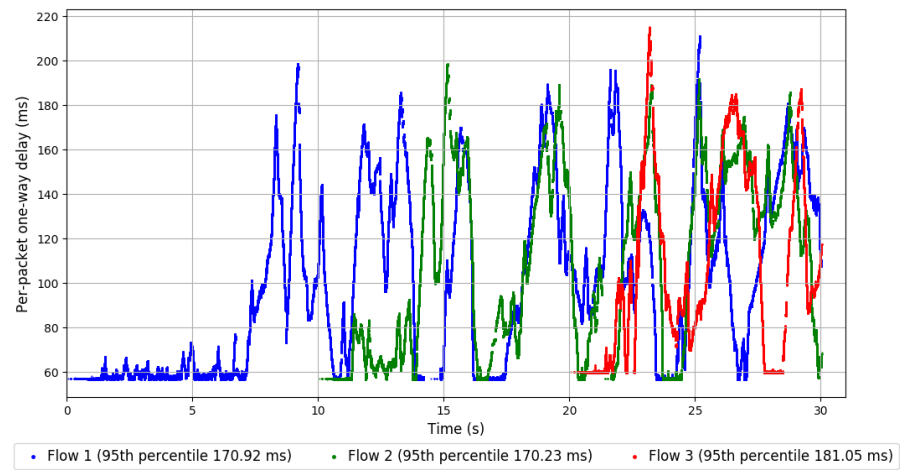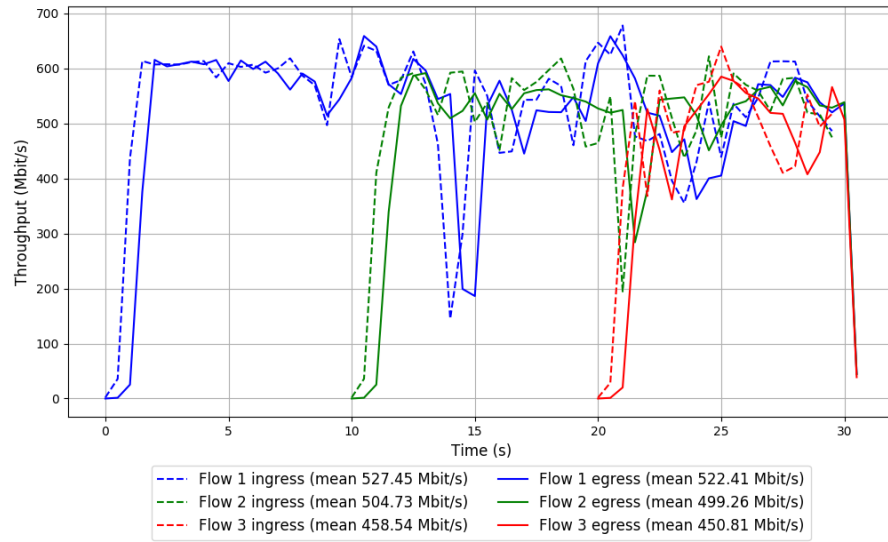
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-12-20 23:57:35
End at: 2018-12-20 23:58:05
Local clock offset: -1.746 ms
Remote clock offset: -0.159 ms


# Below is generated by plot.py at 2018-12-21 02:07:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 962.67 Mbit/s
95th percentile per-packet one-way delay: 174.462 ms
Loss rate: 1.18%
-- Flow 1:
Average throughput: 472.10 Mbit/s
95th percentile per-packet one-way delay: 177.391 ms
Loss rate: 0.89%
-- Flow 2:
Average throughput: 501.51 Mbit/s
95th percentile per-packet one-way delay: 176.243 ms
Loss rate: 1.42%
-- Flow 3:
Average throughput: 471.58 Mbit/s
95th percentile per-packet one-way delay: 151.120 ms
Loss rate: 1.57%
```
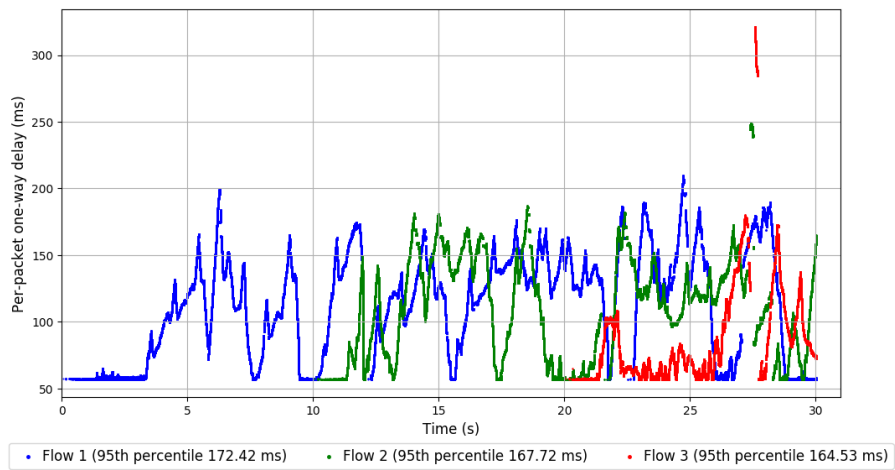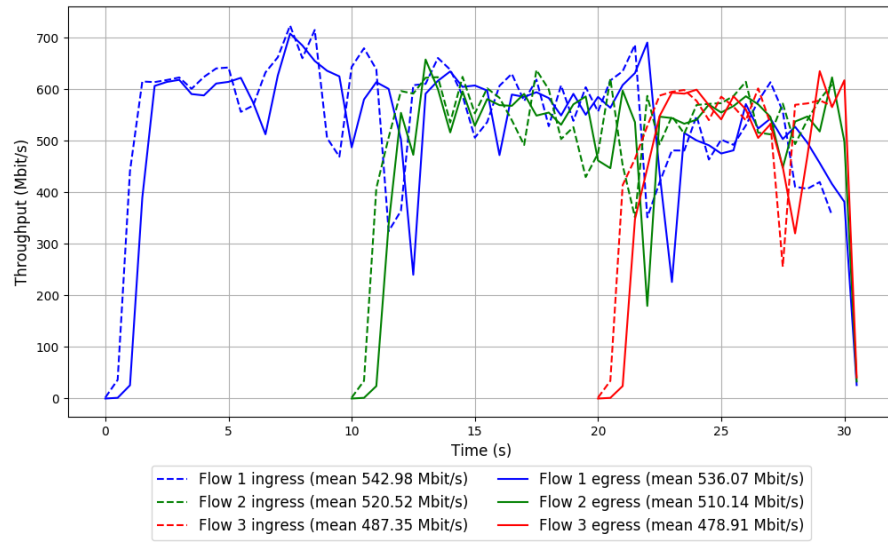
Run 3: Report of TCP BBR — Data Link



Flow 1 ingress (mean 476.29 Mbit/s) --- Flow 1 egress (mean 472.10 Mbit/s)
Flow 2 ingress (mean 508.73 Mbit/s) --- Flow 2 egress (mean 501.51 Mbit/s)
Flow 3 ingress (mean 479.10 Mbit/s) --- Flow 3 egress (mean 471.58 Mbit/s)



Flow 1 (95th percentile 177.39 ms)    Flow 2 (95th percentile 176.24 ms)    Flow 3 (95th percentile 151.12 ms)

```
Run 4: Statistics of TCP BBR

Start at: 2018-12-21 00:31:03
End at: 2018-12-21 00:31:33
Local clock offset: -0.078 ms
Remote clock offset: -0.595 ms


# Below is generated by plot.py at 2018-12-21 02:07:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1005.01 Mbit/s
95th percentile per-packet one-way delay: 173.486 ms
Loss rate: 1.11%
-- Flow 1:
Average throughput: 522.41 Mbit/s
95th percentile per-packet one-way delay: 170.918 ms
Loss rate: 0.96%
-- Flow 2:
Average throughput: 499.26 Mbit/s
95th percentile per-packet one-way delay: 170.229 ms
Loss rate: 1.08%
-- Flow 3:
Average throughput: 450.81 Mbit/s
95th percentile per-packet one-way delay: 181.048 ms
Loss rate: 1.71%
```

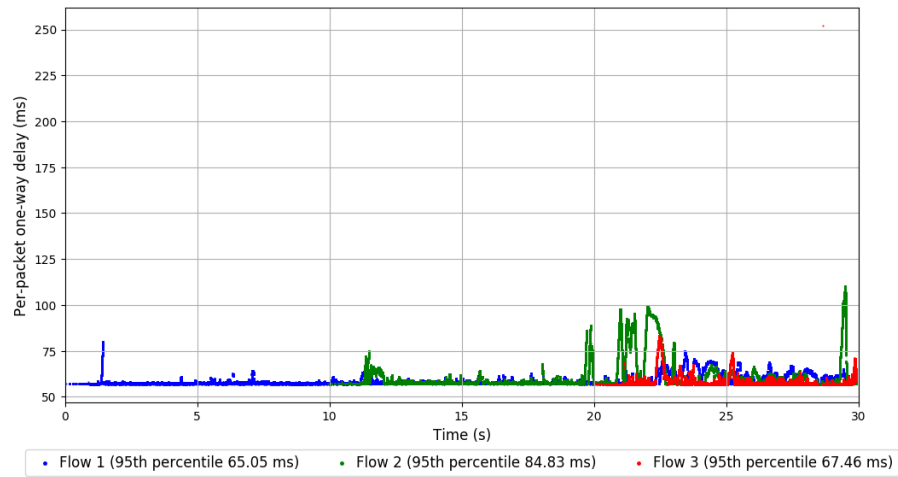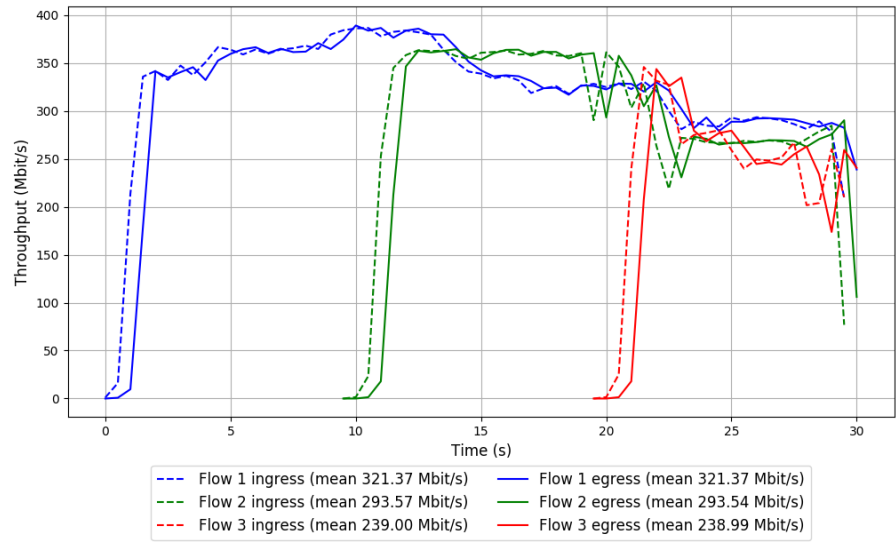Run 4: Report of TCP BBR — Data Link

```
Run 5: Statistics of TCP BBR

Start at: 2018-12-21 01:05:06
End at: 2018-12-21 01:05:36
Local clock offset: -0.107 ms
Remote clock offset: -0.269 ms


# Below is generated by plot.py at 2018-12-21 02:08:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1035.04 Mbit/s
95th percentile per-packet one-way delay: 170.634 ms
Loss rate: 1.58%
-- Flow 1:
Average throughput: 536.07 Mbit/s
95th percentile per-packet one-way delay: 172.417 ms
Loss rate: 1.27%
-- Flow 2:
Average throughput: 510.14 Mbit/s
95th percentile per-packet one-way delay: 167.725 ms
Loss rate: 1.99%
-- Flow 3:
Average throughput: 478.91 Mbit/s
95th percentile per-packet one-way delay: 164.535 ms
Loss rate: 1.72%
```
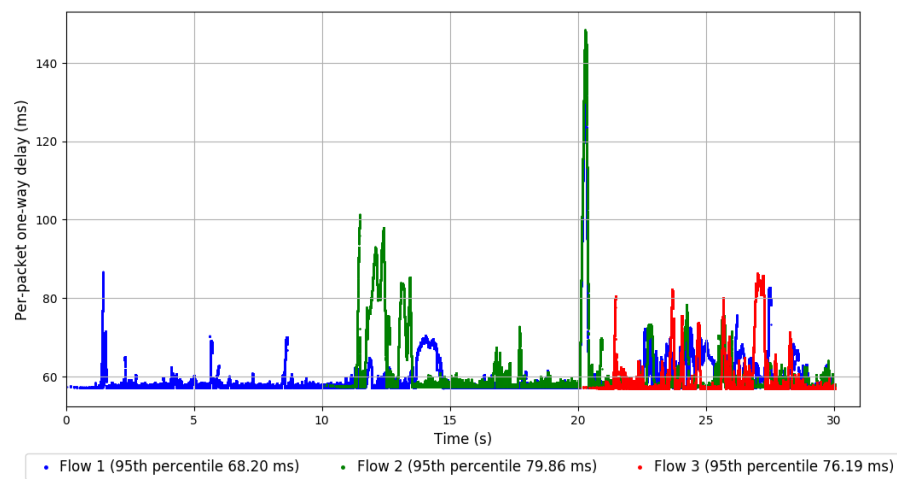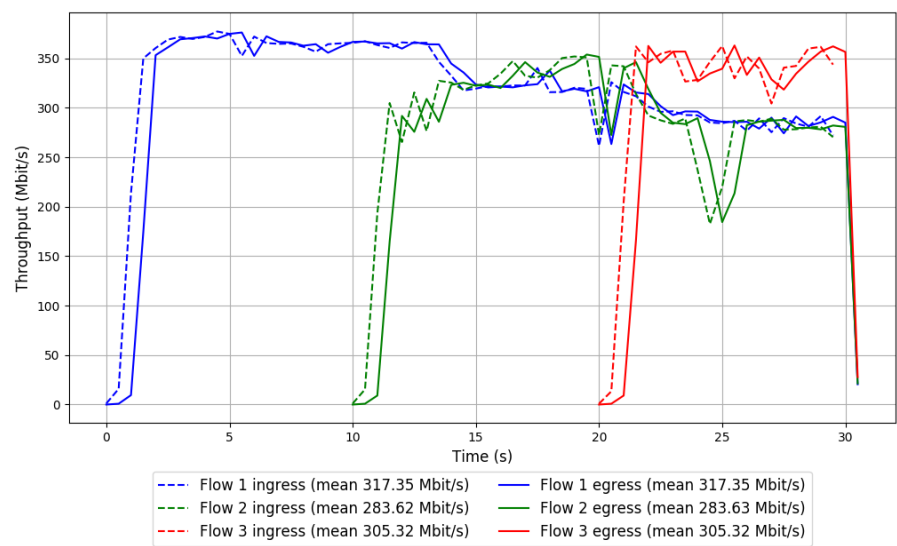
Run 5: Report of TCP BBR — Data Link

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```
Run 1: Statistics of Copa

Start at: 2018-12-20 22:47:10
End at: 2018-12-20 22:47:40
Local clock offset: -0.048 ms
Remote clock offset: -0.036 ms


# Below is generated by plot.py at 2018-12-21 02:09:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 597.28 Mbit/s
95th percentile per-packet one-way delay: 68.057 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 321.37 Mbit/s
95th percentile per-packet one-way delay: 65.045 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 293.54 Mbit/s
95th percentile per-packet one-way delay: 84.830 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 238.99 Mbit/s
95th percentile per-packet one-way delay: 67.457 ms
Loss rate: 0.01%
```
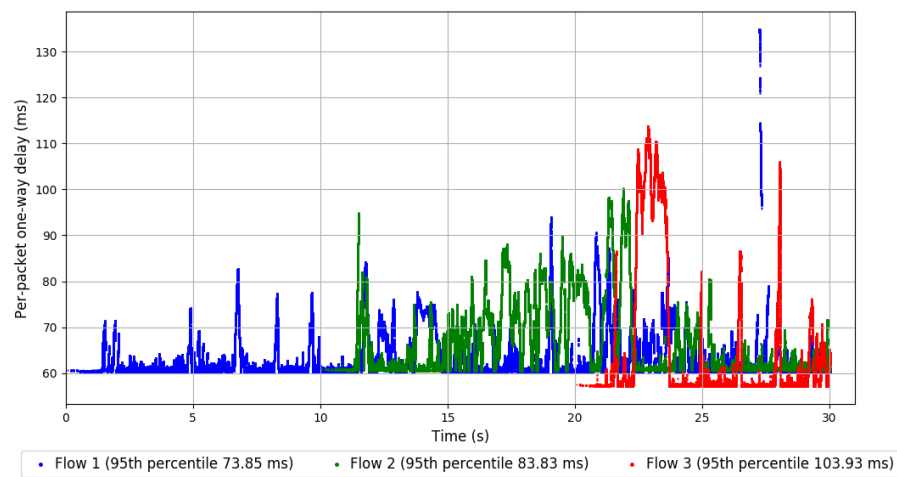
Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2018-12-20 23:21:37
End at: 2018-12-20 23:22:07
Local clock offset: -0.027 ms
Remote clock offset: 0.048 ms


# Below is generated by plot.py at 2018-12-21 02:09:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 607.66 Mbit/s
95th percentile per-packet one-way delay: 70.923 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 317.35 Mbit/s
95th percentile per-packet one-way delay: 68.205 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 283.63 Mbit/s
95th percentile per-packet one-way delay: 79.864 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 305.32 Mbit/s
95th percentile per-packet one-way delay: 76.192 ms
Loss rate: 0.00%
```
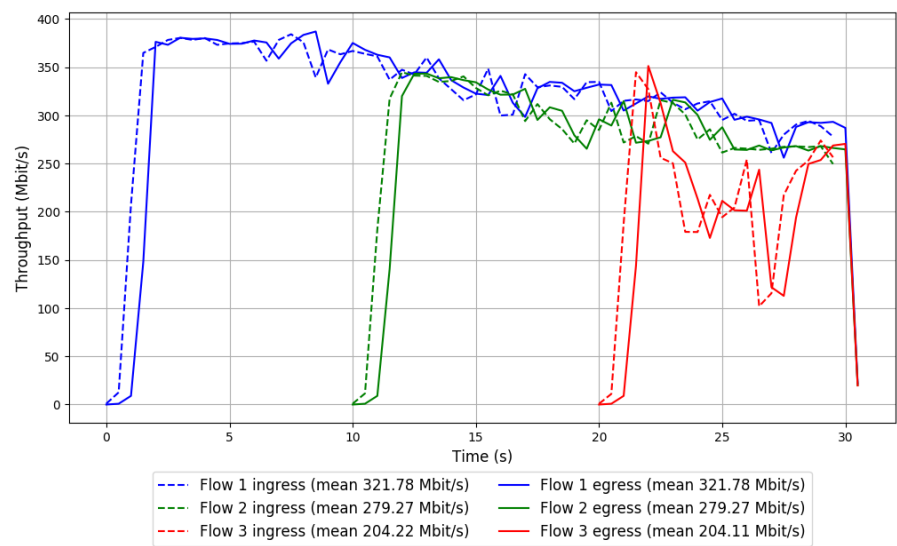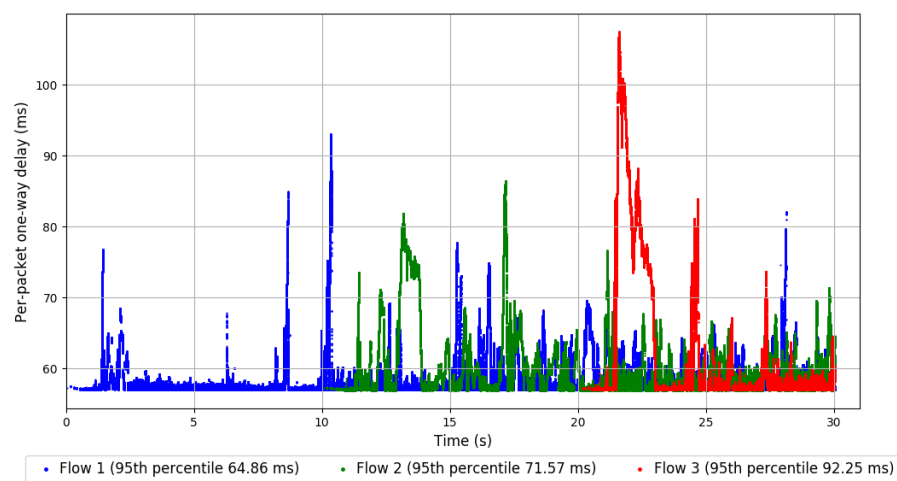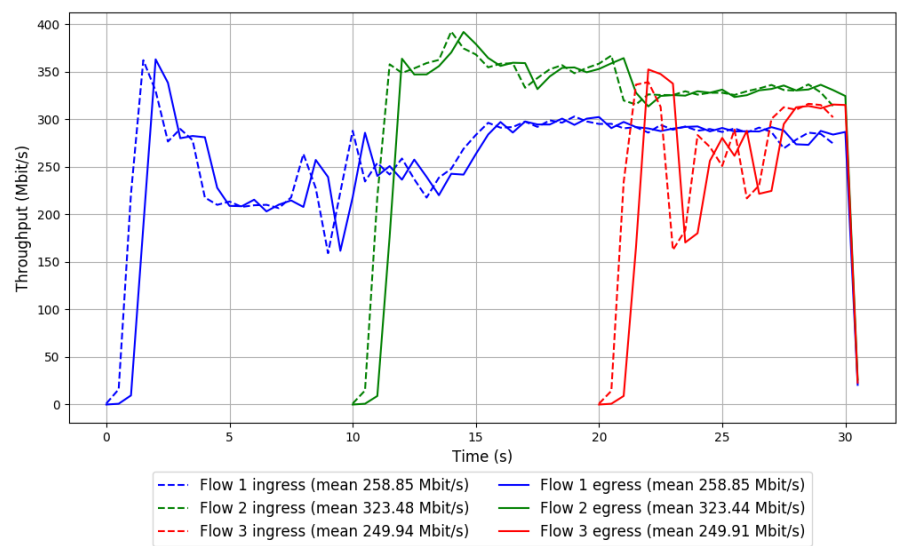
Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2018-12-20 23:55:28
End at: 2018-12-20 23:55:58
Local clock offset: 0.025 ms
Remote clock offset: 0.14 ms


# Below is generated by plot.py at 2018-12-21 02:09:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 575.62 Mbit/s
95th percentile per-packet one-way delay: 82.148 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 321.78 Mbit/s
95th percentile per-packet one-way delay: 73.852 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 279.27 Mbit/s
95th percentile per-packet one-way delay: 83.830 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 204.11 Mbit/s
95th percentile per-packet one-way delay: 103.926 ms
Loss rate: 0.04%
```
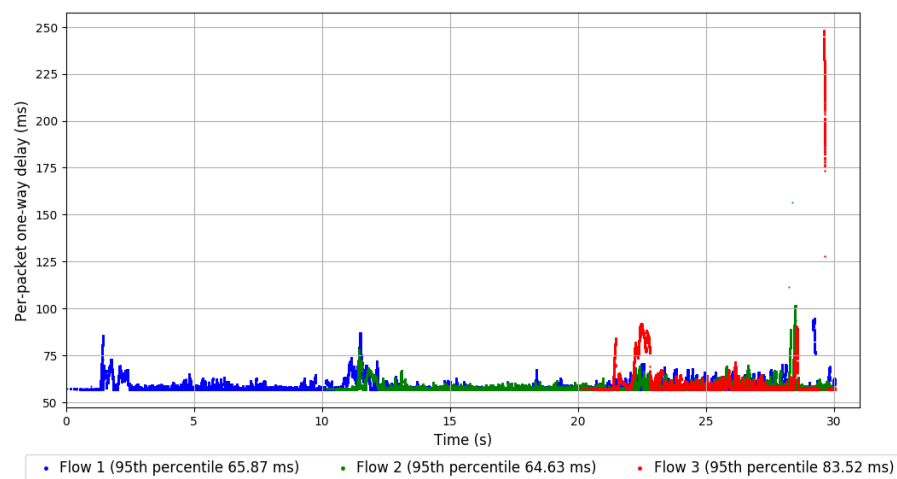
Run 3: Report of Copa — Data Link



Flow 1 ingress (mean 321.78 Mbit/s) --- Flow 1 egress (mean 321.78 Mbit/s)
Flow 2 ingress (mean 279.27 Mbit/s) --- Flow 2 egress (mean 279.27 Mbit/s)
Flow 3 ingress (mean 204.22 Mbit/s) --- Flow 3 egress (mean 204.11 Mbit/s)



Flow 1 (95th percentile 73.85 ms) • Flow 2 (95th percentile 83.83 ms) • Flow 3 (95th percentile 103.93 ms)

```
Run 4: Statistics of Copa

Start at: 2018-12-21 00:28:55
End at: 2018-12-21 00:29:25
Local clock offset: -0.057 ms
Remote clock offset: -0.173 ms


# Below is generated by plot.py at 2018-12-21 02:25:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 557.38 Mbit/s
95th percentile per-packet one-way delay: 73.949 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 258.85 Mbit/s
95th percentile per-packet one-way delay: 64.865 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 323.44 Mbit/s
95th percentile per-packet one-way delay: 71.572 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 249.91 Mbit/s
95th percentile per-packet one-way delay: 92.252 ms
Loss rate: 0.00%
```
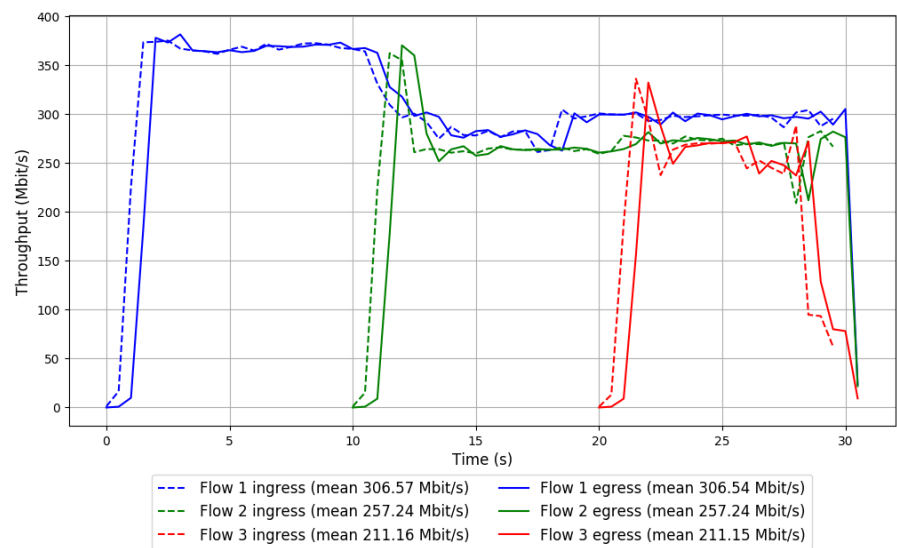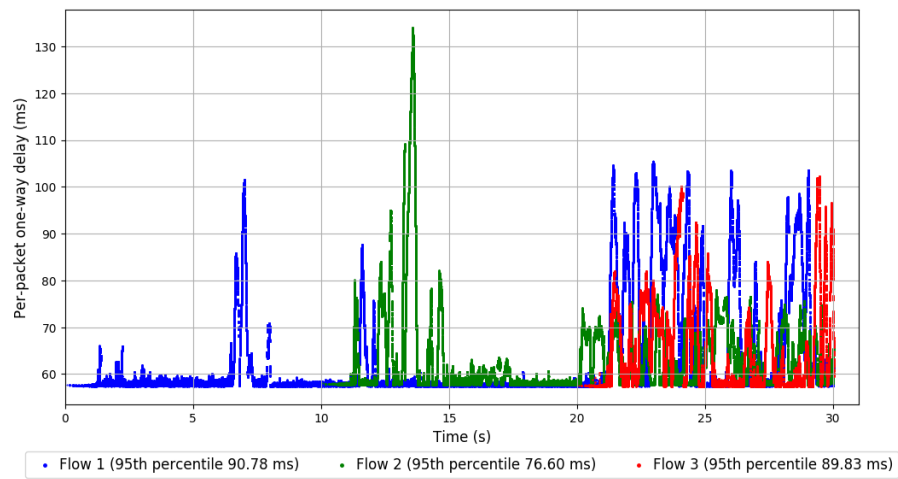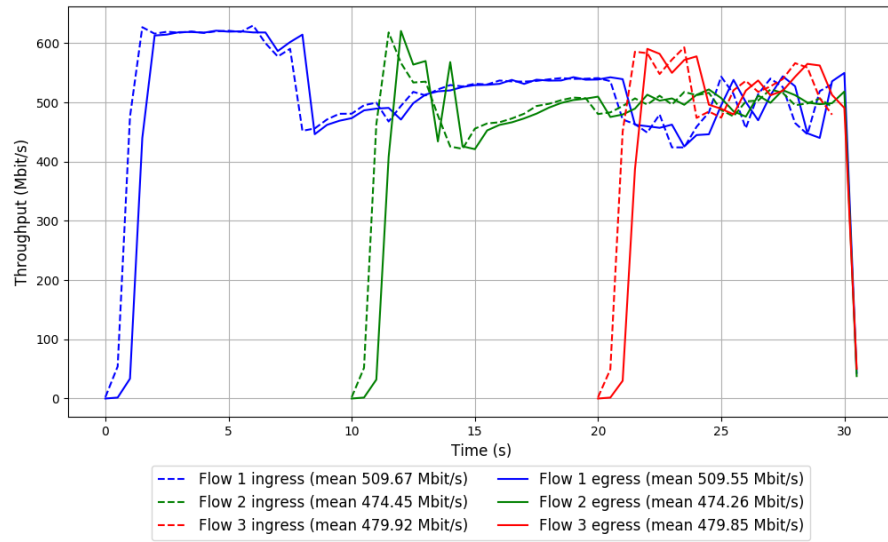
Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2018-12-21 01:03:01
End at: 2018-12-21 01:03:31
Local clock offset: 0.054 ms
Remote clock offset: 0.005 ms


# Below is generated by plot.py at 2018-12-21 02:25:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 547.96 Mbit/s
95th percentile per-packet one-way delay: 66.491 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 306.54 Mbit/s
95th percentile per-packet one-way delay: 65.869 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 257.24 Mbit/s
95th percentile per-packet one-way delay: 64.632 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 211.15 Mbit/s
95th percentile per-packet one-way delay: 83.518 ms
Loss rate: 0.00%
```
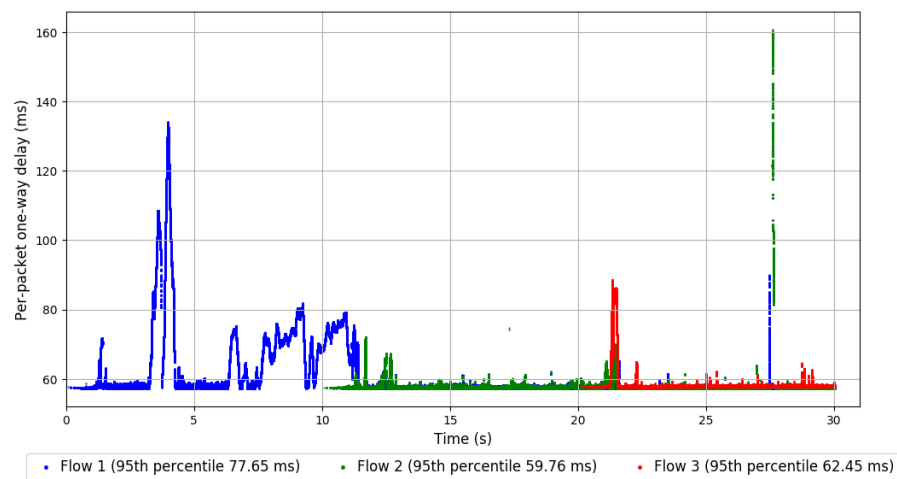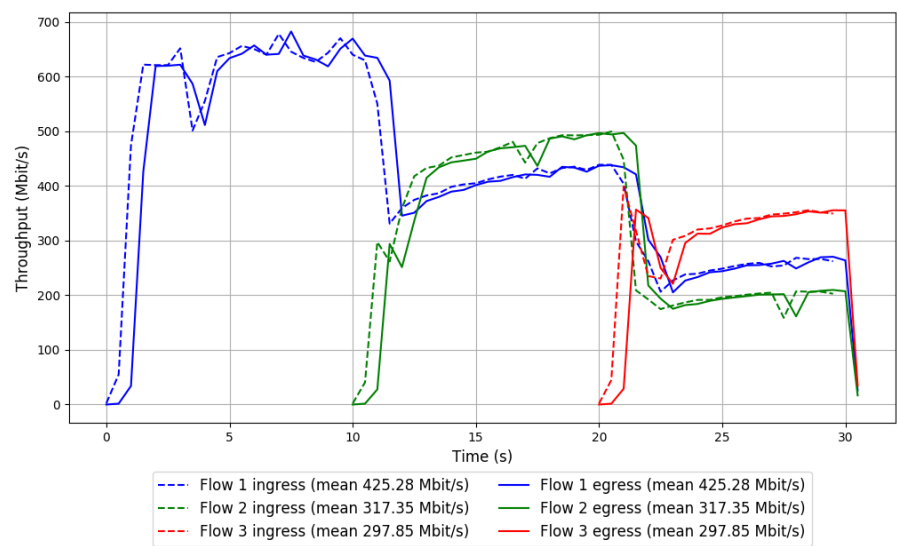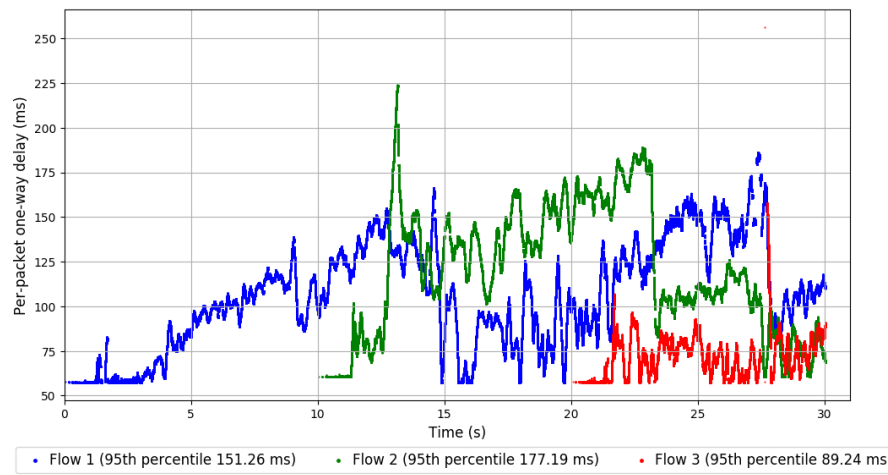
# Run 5: Report of Copa — Data Link



Flow 1 ingress (mean 306.57 Mbit/s) --- Flow 1 egress (mean 306.54 Mbit/s)
Flow 2 ingress (mean 257.24 Mbit/s) --- Flow 2 egress (mean 257.24 Mbit/s)
Flow 3 ingress (mean 211.16 Mbit/s) --- Flow 3 egress (mean 211.15 Mbit/s)



Flow 1 (95th percentile 65.87 ms) · Flow 2 (95th percentile 64.63 ms) · Flow 3 (95th percentile 83.52 ms)

```
Run 1: Statistics of TCP Cubic

Start at: 2018-12-20 23:06:06
End at: 2018-12-20 23:06:36
Local clock offset: -0.303 ms
Remote clock offset: 0.121 ms


# Below is generated by plot.py at 2018-12-21 02:25:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 985.13 Mbit/s
95th percentile per-packet one-way delay: 88.431 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 509.55 Mbit/s
95th percentile per-packet one-way delay: 90.777 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 474.26 Mbit/s
95th percentile per-packet one-way delay: 76.600 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 479.85 Mbit/s
95th percentile per-packet one-way delay: 89.828 ms
Loss rate: 0.01%
```
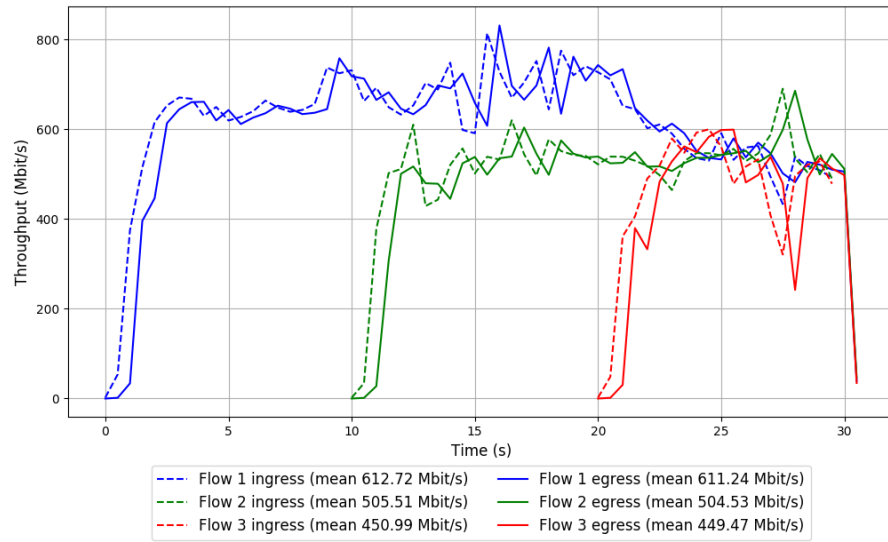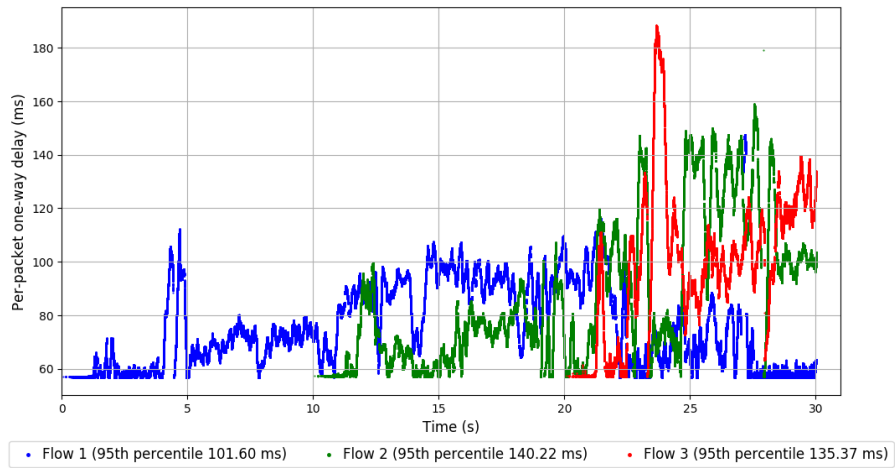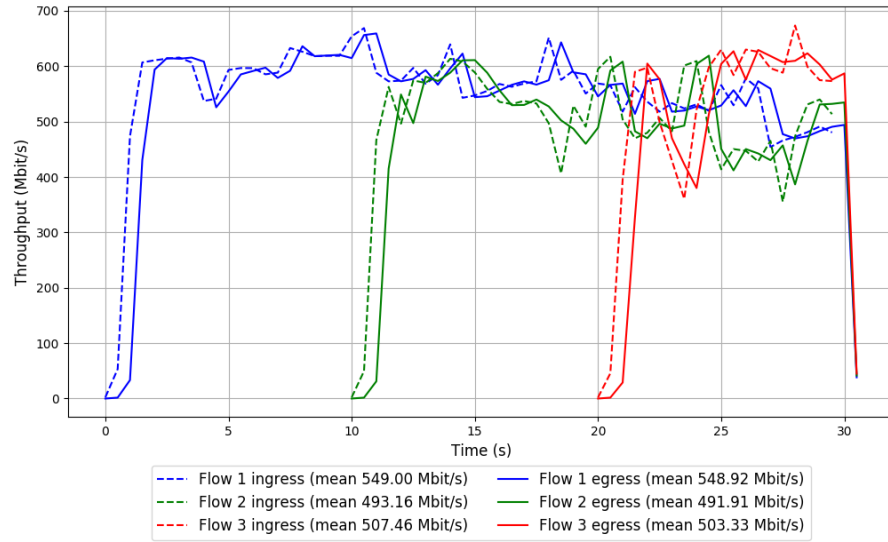
# Run 1: Report of TCP Cubic — Data Link



Flow 1 ingress (mean 509.67 Mbit/s)        Flow 1 egress (mean 509.55 Mbit/s)
Flow 2 ingress (mean 474.45 Mbit/s)        Flow 2 egress (mean 474.26 Mbit/s)
Flow 3 ingress (mean 479.92 Mbit/s)        Flow 3 egress (mean 479.85 Mbit/s)



Flow 1 (95th percentile 90.78 ms)    Flow 2 (95th percentile 76.60 ms)    Flow 3 (95th percentile 89.83 ms)

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```
Run 2: Statistics of TCP Cubic

Start at: 2018-12-20 23:40:44
End at: 2018-12-20 23:41:14
Local clock offset: -0.28 ms
Remote clock offset: 0.259 ms


# Below is generated by plot.py at 2018-12-21 02:25:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 735.64 Mbit/s
95th percentile per-packet one-way delay: 74.666 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 425.28 Mbit/s
95th percentile per-packet one-way delay: 77.647 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 317.35 Mbit/s
95th percentile per-packet one-way delay: 59.755 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 297.85 Mbit/s
95th percentile per-packet one-way delay: 62.447 ms
Loss rate: 0.00%
```
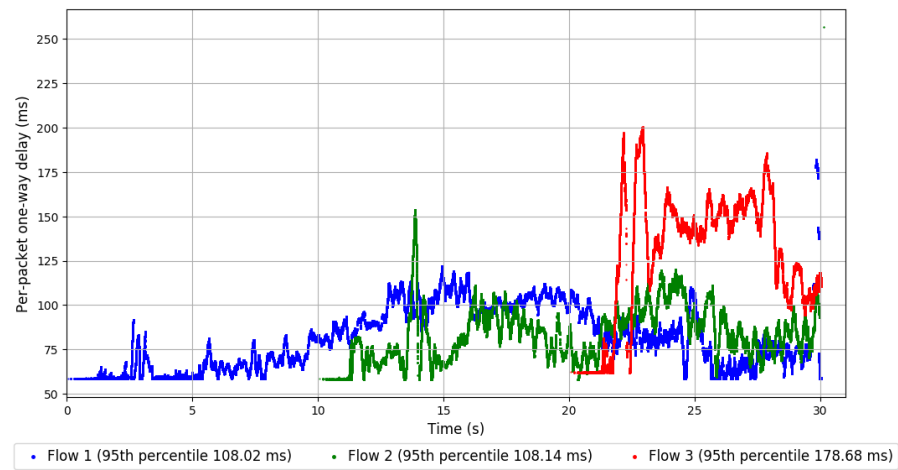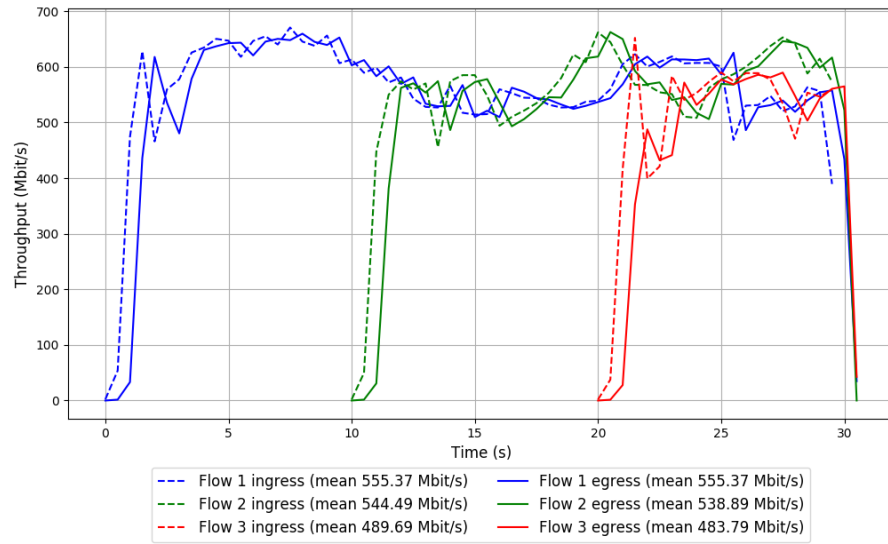
Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2018-12-21 00:13:55
End at: 2018-12-21 00:14:25
Local clock offset: -0.383 ms
Remote clock offset: -0.221 ms


# Below is generated by plot.py at 2018-12-21 02:27:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1096.89 Mbit/s
95th percentile per-packet one-way delay: 162.913 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 611.24 Mbit/s
95th percentile per-packet one-way delay: 151.256 ms
Loss rate: 0.24%
-- Flow 2:
Average throughput: 504.53 Mbit/s
95th percentile per-packet one-way delay: 177.190 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 449.47 Mbit/s
95th percentile per-packet one-way delay: 89.242 ms
Loss rate: 0.34%
```

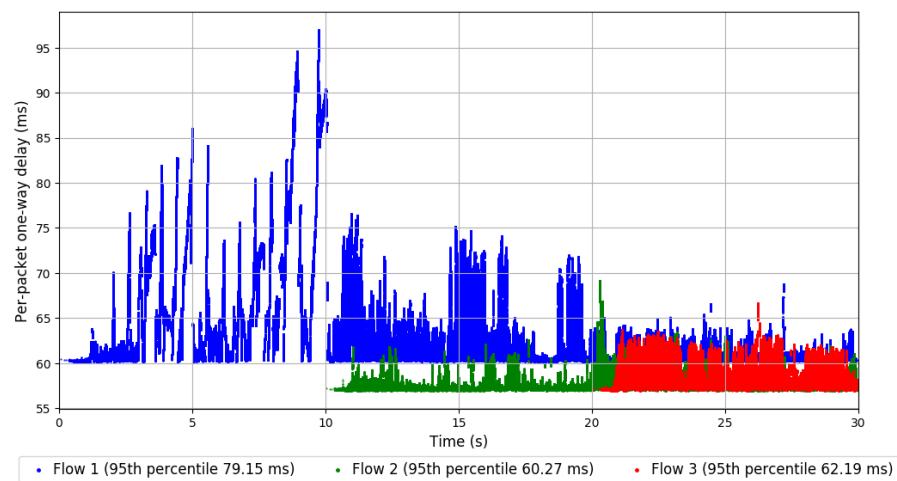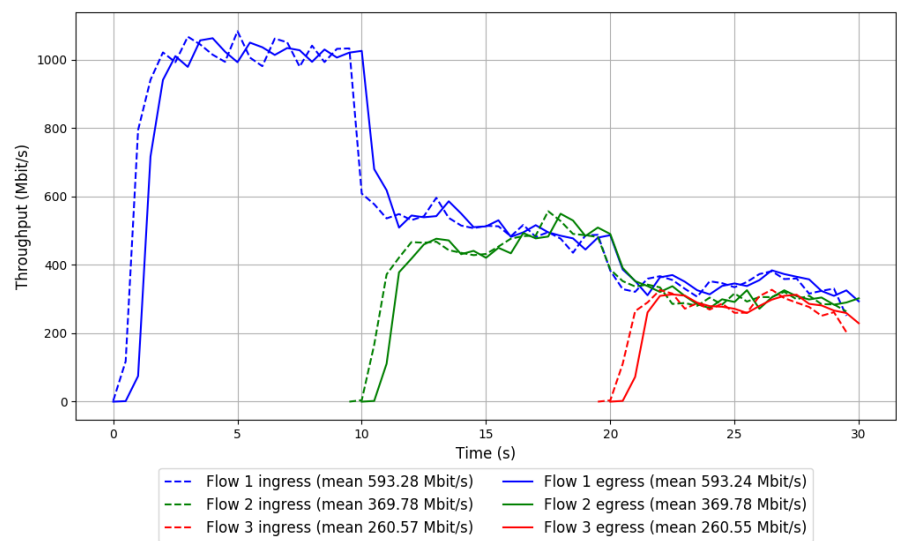Run 3: Report of TCP Cubic — Data Link

```
Run 4: Statistics of TCP Cubic

Start at: 2018-12-21 00:47:50
End at: 2018-12-21 00:48:20
Local clock offset: -0.096 ms
Remote clock offset: -0.301 ms


# Below is generated by plot.py at 2018-12-21 02:27:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1043.92 Mbit/s
95th percentile per-packet one-way delay: 128.774 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 548.92 Mbit/s
95th percentile per-packet one-way delay: 101.603 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 491.91 Mbit/s
95th percentile per-packet one-way delay: 140.217 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 503.33 Mbit/s
95th percentile per-packet one-way delay: 135.370 ms
Loss rate: 0.81%
```

Run 4: Report of TCP Cubic — Data Link
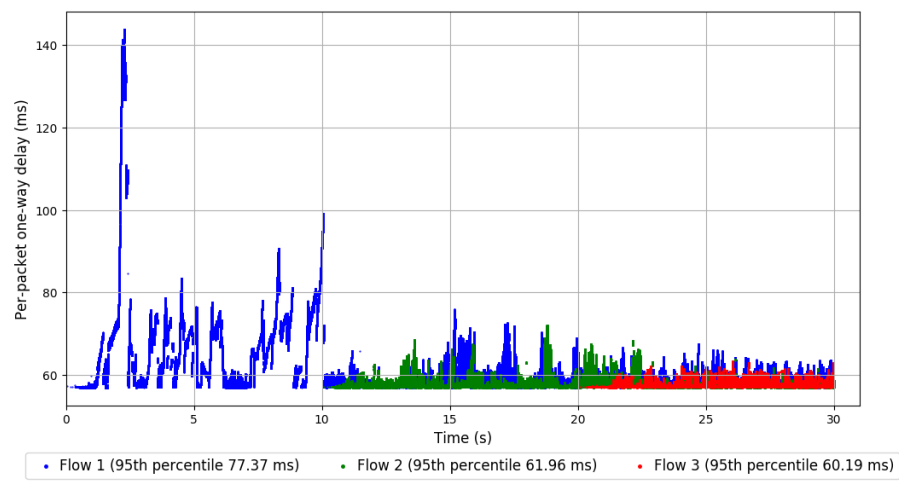
```
Run 5: Statistics of TCP Cubic

Start at: 2018-12-21 01:21:09
End at: 2018-12-21 01:21:39
Local clock offset: -1.714 ms
Remote clock offset: -0.346 ms


# Below is generated by plot.py at 2018-12-21 02:28:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1073.84 Mbit/s
95th percentile per-packet one-way delay: 152.143 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 555.37 Mbit/s
95th percentile per-packet one-way delay: 108.018 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 538.89 Mbit/s
95th percentile per-packet one-way delay: 108.145 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 483.79 Mbit/s
95th percentile per-packet one-way delay: 178.675 ms
Loss rate: 1.24%
```

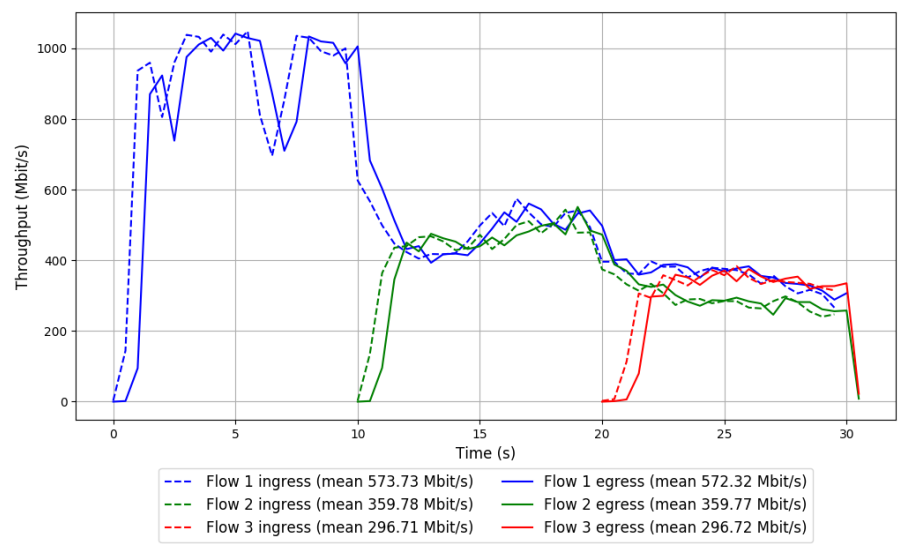Run 5: Report of TCP Cubic — Data Link

```
Run 1: Statistics of FillP

Start at: 2018-12-20 22:59:29
End at: 2018-12-20 22:59:59
Local clock offset: -0.02 ms
Remote clock offset: -0.055 ms

# Below is generated by plot.py at 2018-12-21 02:29:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 925.98 Mbit/s
95th percentile per-packet one-way delay: 75.625 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 593.24 Mbit/s
95th percentile per-packet one-way delay: 79.148 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 369.78 Mbit/s
95th percentile per-packet one-way delay: 60.266 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 260.55 Mbit/s
95th percentile per-packet one-way delay: 62.187 ms
Loss rate: 0.00%
```
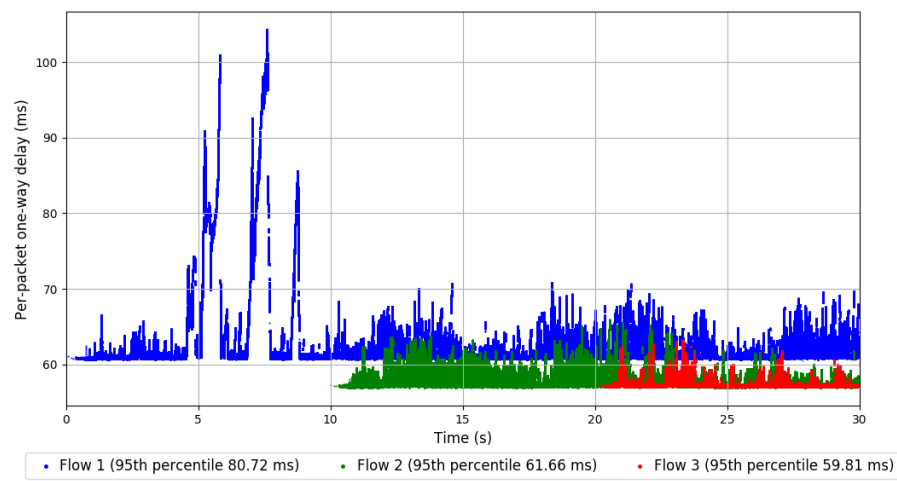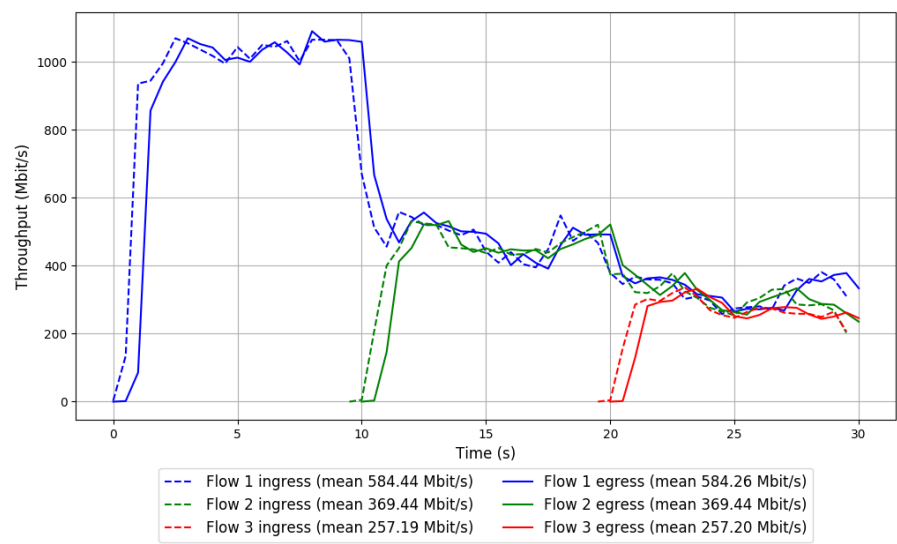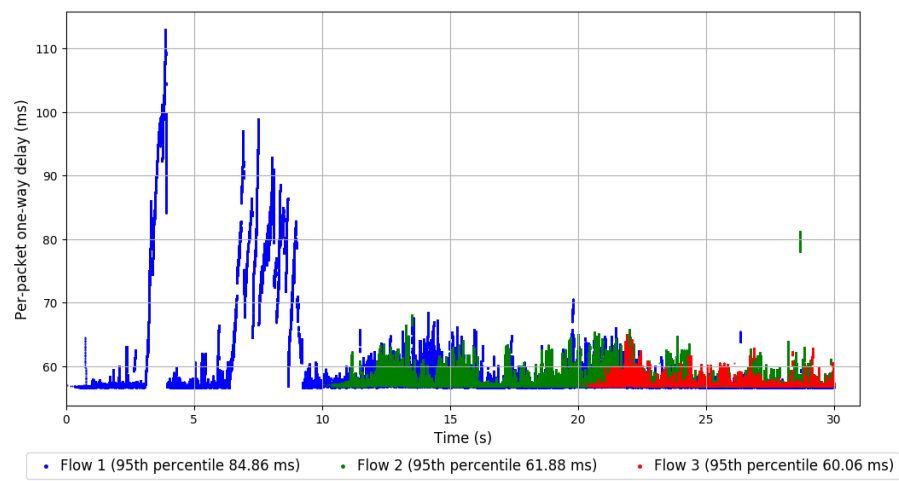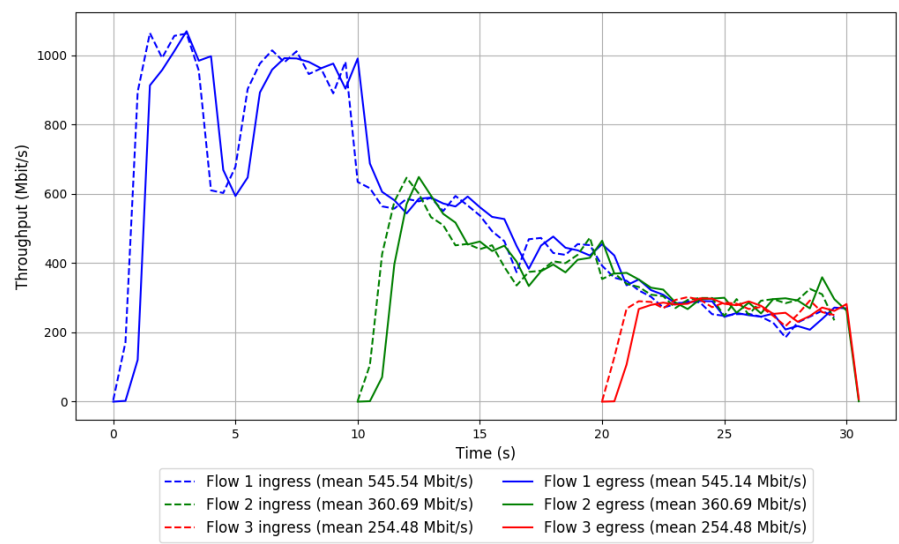
# Run 1: Report of FillP — Data Link



Flow 1 ingress (mean 593.28 Mbit/s)    Flow 1 egress (mean 593.24 Mbit/s)
Flow 2 ingress (mean 369.78 Mbit/s)    Flow 2 egress (mean 369.78 Mbit/s)
Flow 3 ingress (mean 260.57 Mbit/s)    Flow 3 egress (mean 260.55 Mbit/s)



Flow 1 (95th percentile 79.15 ms)    Flow 2 (95th percentile 60.27 ms)    Flow 3 (95th percentile 62.19 ms)

```
Run 2: Statistics of FillP

Start at: 2018-12-20 23:34:27
End at: 2018-12-20 23:34:57
Local clock offset: -0.137 ms
Remote clock offset: -0.066 ms


# Below is generated by plot.py at 2018-12-21 02:38:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 909.70 Mbit/s
95th percentile per-packet one-way delay: 74.216 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 572.32 Mbit/s
95th percentile per-packet one-way delay: 77.367 ms
Loss rate: 0.25%
-- Flow 2:
Average throughput: 359.77 Mbit/s
95th percentile per-packet one-way delay: 61.964 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 296.72 Mbit/s
95th percentile per-packet one-way delay: 60.186 ms
Loss rate: 0.00%
```
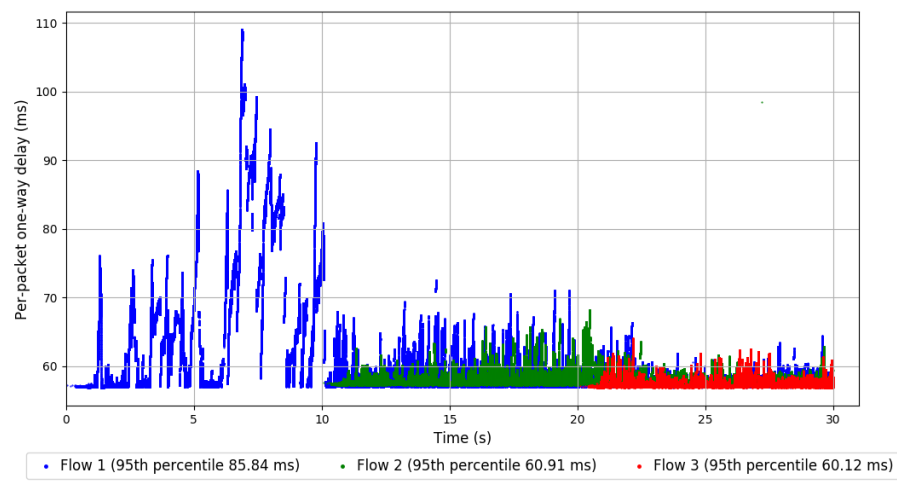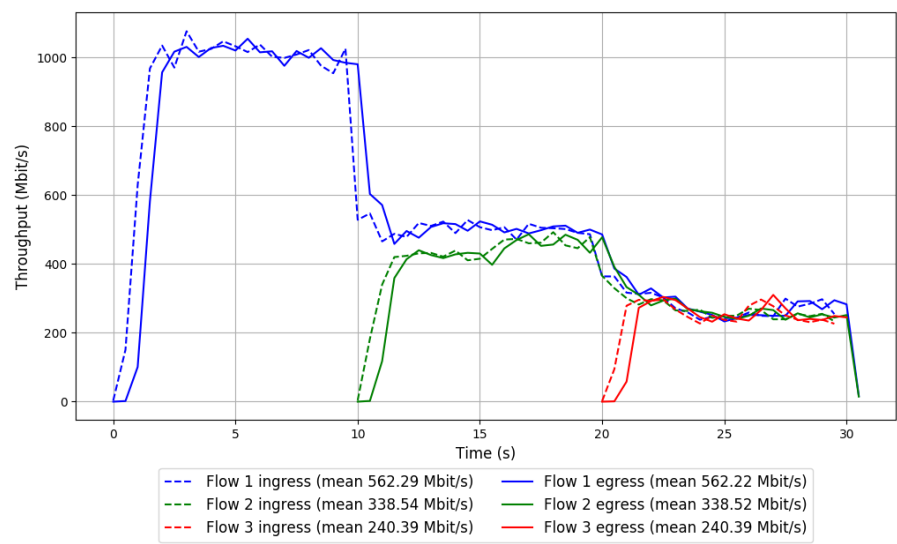
Run 2: Report of FillP — Data Link



--- Flow 1 ingress (mean 573.73 Mbit/s)     — Flow 1 egress (mean 572.32 Mbit/s)
--- Flow 2 ingress (mean 359.78 Mbit/s)     — Flow 2 egress (mean 359.77 Mbit/s)
--- Flow 3 ingress (mean 296.71 Mbit/s)     — Flow 3 egress (mean 296.72 Mbit/s)



• Flow 1 (95th percentile 77.37 ms)     • Flow 2 (95th percentile 61.96 ms)     • Flow 3 (95th percentile 60.19 ms)

```
Run 3: Statistics of FillP

Start at: 2018-12-21 00:07:48
End at: 2018-12-21 00:08:18
Local clock offset: -0.142 ms
Remote clock offset: 0.022 ms

# Below is generated by plot.py at 2018-12-21 02:45:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 915.96 Mbit/s
95th percentile per-packet one-way delay: 76.599 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 584.26 Mbit/s
95th percentile per-packet one-way delay: 80.725 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 369.44 Mbit/s
95th percentile per-packet one-way delay: 61.665 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 257.20 Mbit/s
95th percentile per-packet one-way delay: 59.807 ms
Loss rate: 0.00%
```
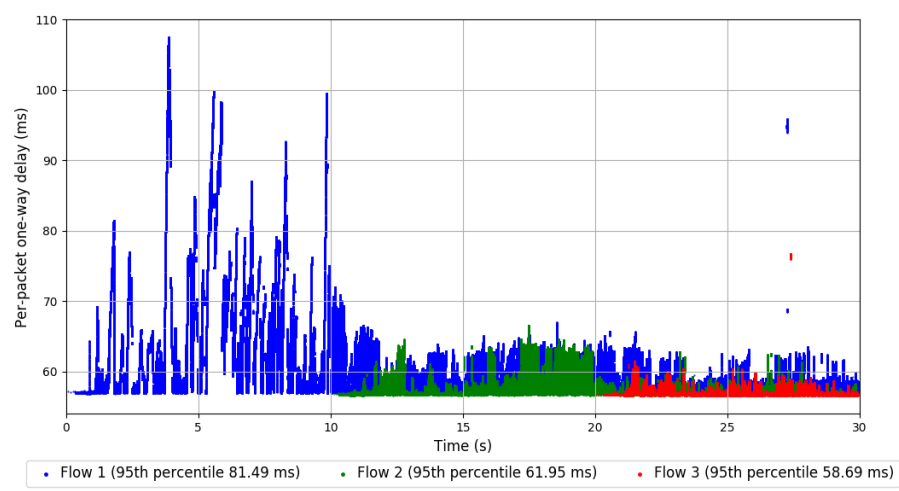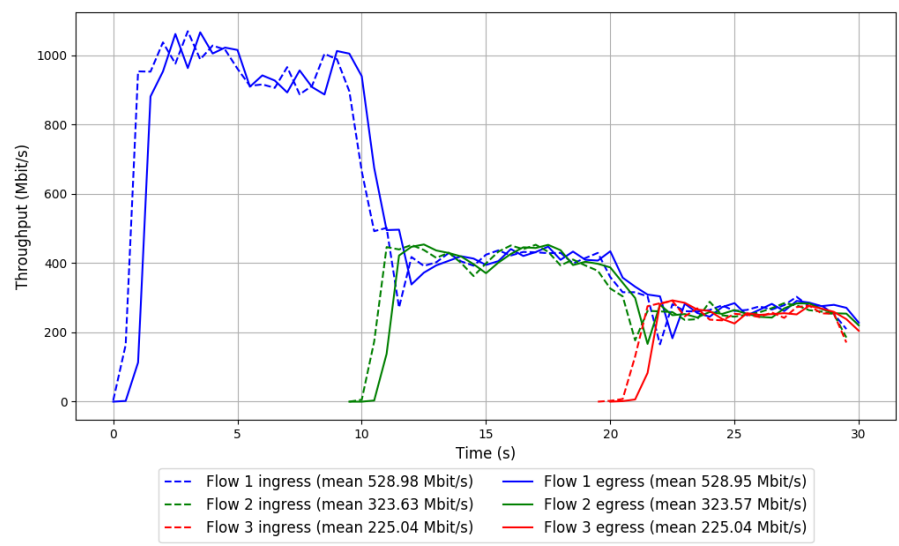
Run 3: Report of FillP — Data Link



- - - - Flow 1 ingress (mean 584.44 Mbit/s)     —— Flow 1 egress (mean 584.26 Mbit/s)
- - - - Flow 2 ingress (mean 369.44 Mbit/s)     —— Flow 2 egress (mean 369.44 Mbit/s)
- - - - Flow 3 ingress (mean 257.19 Mbit/s)     —— Flow 3 egress (mean 257.20 Mbit/s)



• Flow 1 (95th percentile 80.72 ms)     • Flow 2 (95th percentile 61.66 ms)     • Flow 3 (95th percentile 59.81 ms)

```
Run 4: Statistics of FillP

Start at: 2018-12-21 00:41:28
End at: 2018-12-21 00:41:58
Local clock offset: -0.082 ms
Remote clock offset: -0.191 ms


# Below is generated by plot.py at 2018-12-21 02:45:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 869.19 Mbit/s
95th percentile per-packet one-way delay: 81.112 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 545.14 Mbit/s
95th percentile per-packet one-way delay: 84.859 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 360.69 Mbit/s
95th percentile per-packet one-way delay: 61.877 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 254.48 Mbit/s
95th percentile per-packet one-way delay: 60.058 ms
Loss rate: 0.00%
```
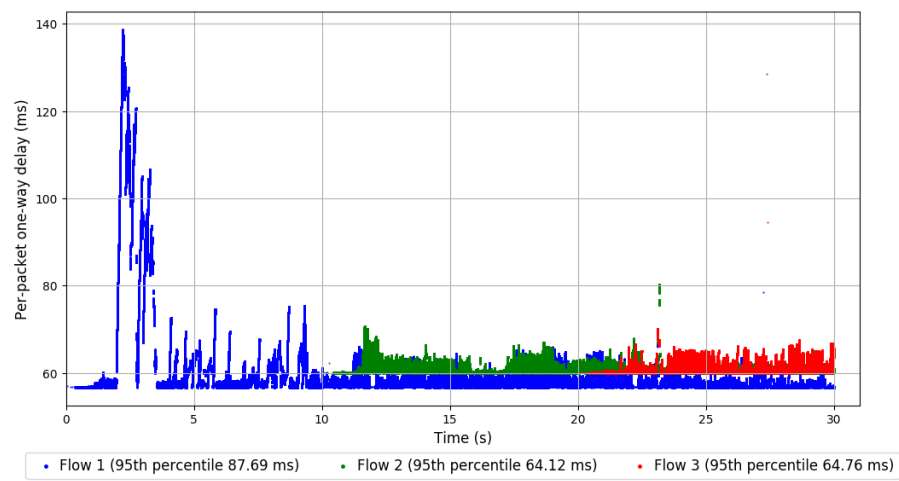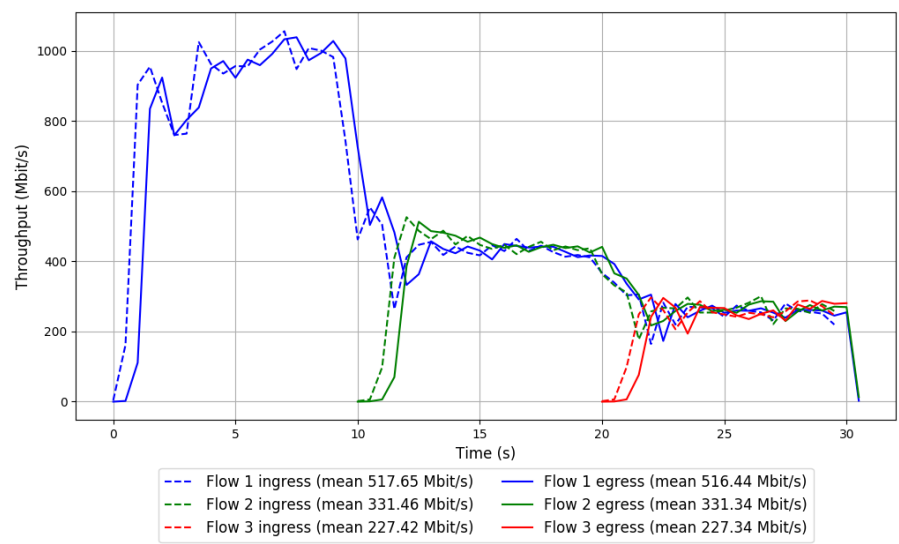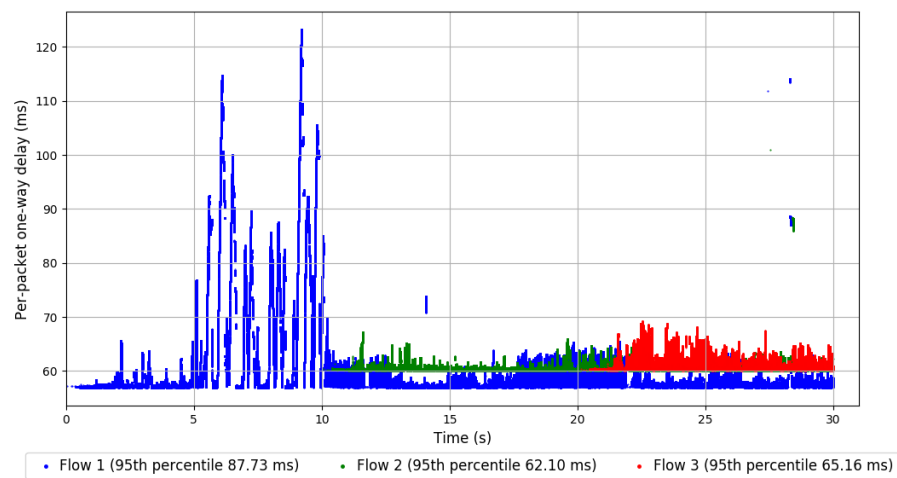
Run 4: Report of FillP — Data Link

```
Run 5: Statistics of FillP

Start at: 2018-12-21 01:15:04
End at: 2018-12-21 01:15:34
Local clock offset: -0.098 ms
Remote clock offset: -0.165 ms


# Below is generated by plot.py at 2018-12-21 02:45:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 866.83 Mbit/s
95th percentile per-packet one-way delay: 82.133 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 562.22 Mbit/s
95th percentile per-packet one-way delay: 85.837 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 338.52 Mbit/s
95th percentile per-packet one-way delay: 60.914 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 240.39 Mbit/s
95th percentile per-packet one-way delay: 60.122 ms
Loss rate: 0.00%
```
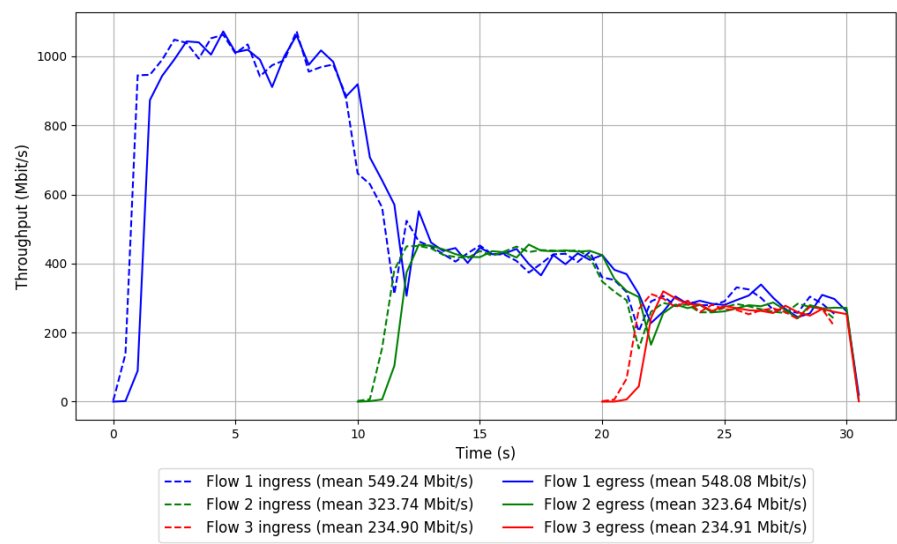
Run 5: Report of FillP — Data Link

```
Run 1: Statistics of FillP-Sheep

Start at: 2018-12-20 22:53:02
End at: 2018-12-20 22:53:32
Local clock offset: -0.029 ms
Remote clock offset: -0.1 ms


# Below is generated by plot.py at 2018-12-21 02:45:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 819.14 Mbit/s
95th percentile per-packet one-way delay: 76.473 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 528.95 Mbit/s
95th percentile per-packet one-way delay: 81.488 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 323.57 Mbit/s
95th percentile per-packet one-way delay: 61.954 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 225.04 Mbit/s
95th percentile per-packet one-way delay: 58.692 ms
Loss rate: 0.00%
```
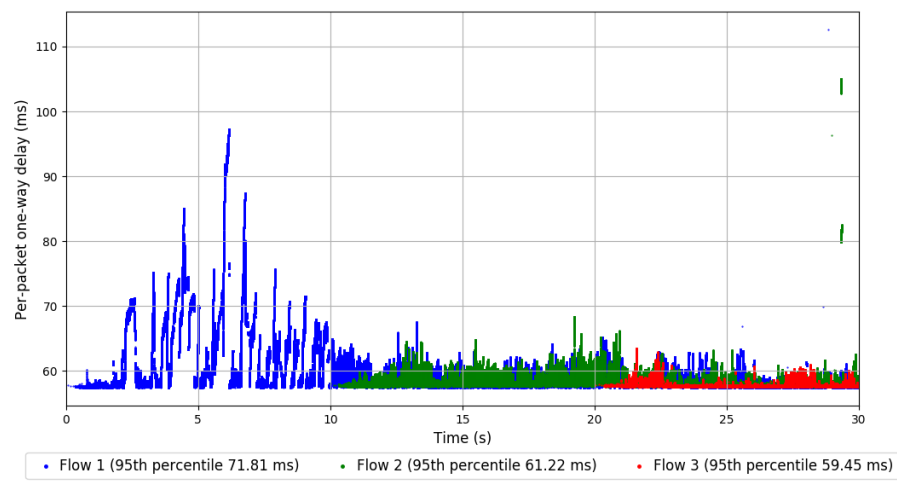
Run 1: Report of FillP-Sheep — Data Link





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```
Run 2: Statistics of FillP-Sheep

Start at: 2018-12-20 23:28:02
End at: 2018-12-20 23:28:32
Local clock offset: 0.089 ms
Remote clock offset: -0.194 ms


# Below is generated by plot.py at 2018-12-21 02:45:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 811.87 Mbit/s
95th percentile per-packet one-way delay: 70.971 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 516.44 Mbit/s
95th percentile per-packet one-way delay: 87.693 ms
Loss rate: 0.24%
-- Flow 2:
Average throughput: 331.34 Mbit/s
95th percentile per-packet one-way delay: 64.124 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 227.34 Mbit/s
95th percentile per-packet one-way delay: 64.761 ms
Loss rate: 0.00%
```
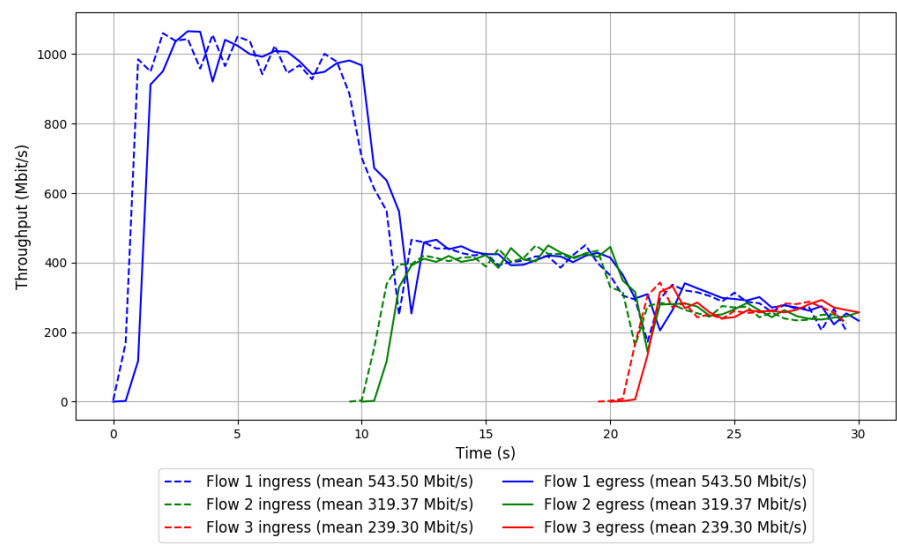
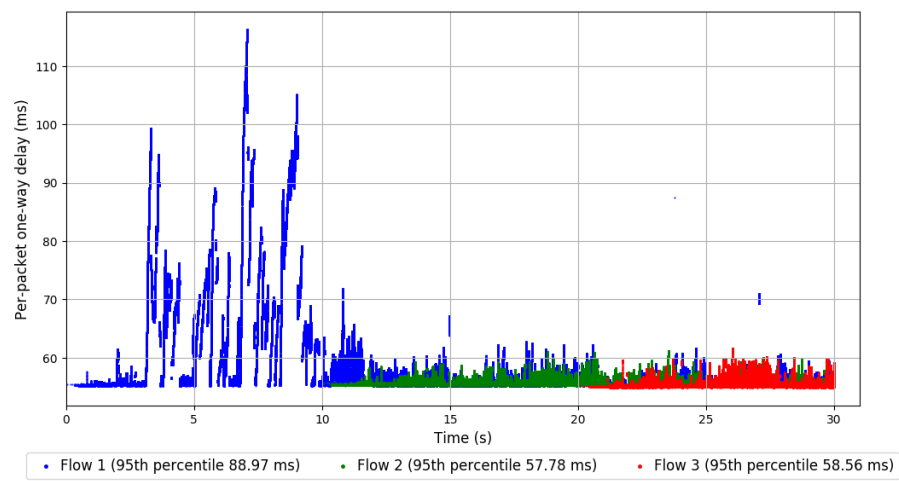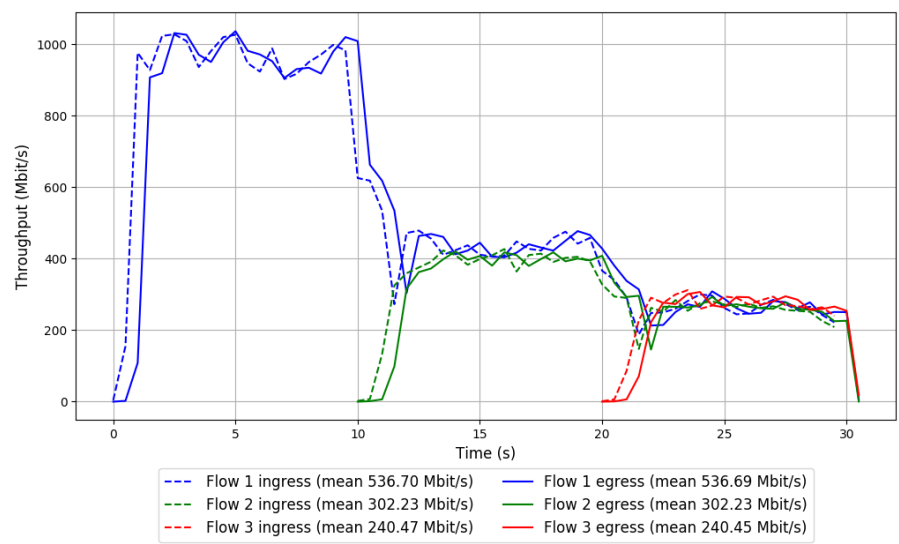Run 2: Report of FillP-Sheep — Data Link

```
Run 3: Statistics of FillP-Sheep

Start at: 2018-12-21 00:01:25
End at: 2018-12-21 00:01:55
Local clock offset: -0.102 ms
Remote clock offset: -0.224 ms


# Below is generated by plot.py at 2018-12-21 02:47:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 840.90 Mbit/s
95th percentile per-packet one-way delay: 82.034 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 548.08 Mbit/s
95th percentile per-packet one-way delay: 87.735 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 323.64 Mbit/s
95th percentile per-packet one-way delay: 62.102 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 234.91 Mbit/s
95th percentile per-packet one-way delay: 65.157 ms
Loss rate: 0.00%
```

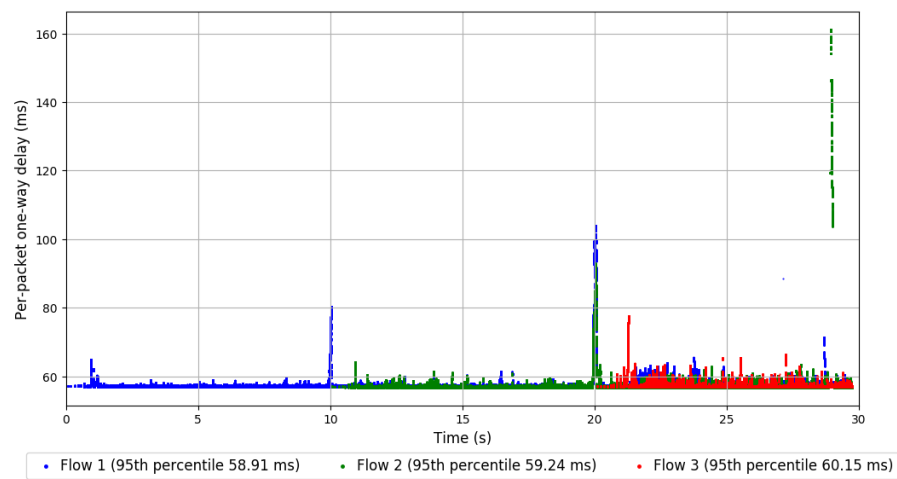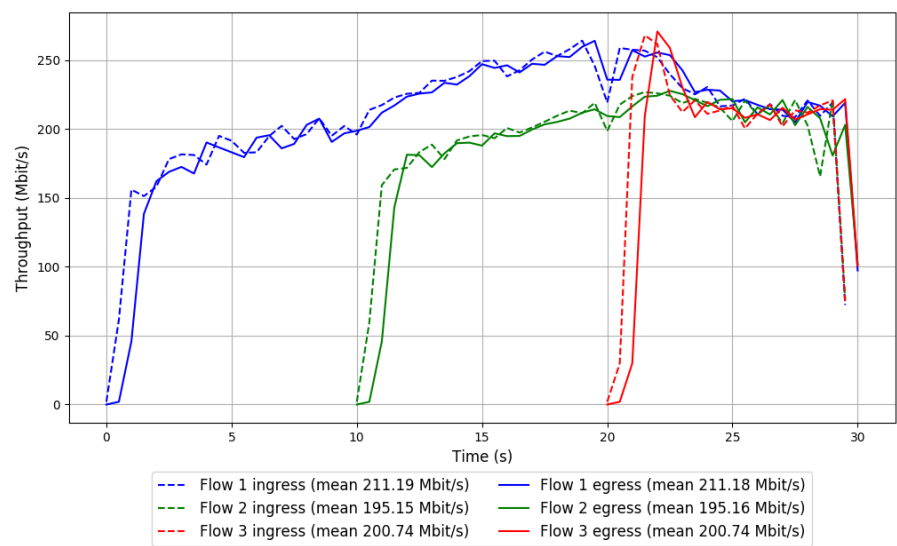Run 3: Report of FillP-Sheep — Data Link

```
Run 4: Statistics of FillP-Sheep

Start at: 2018-12-21 00:35:00
End at: 2018-12-21 00:35:30
Local clock offset: -0.288 ms
Remote clock offset: 0.159 ms


# Below is generated by plot.py at 2018-12-21 02:47:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 835.61 Mbit/s
95th percentile per-packet one-way delay: 70.313 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 543.50 Mbit/s
95th percentile per-packet one-way delay: 71.808 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 319.37 Mbit/s
95th percentile per-packet one-way delay: 61.221 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 239.30 Mbit/s
95th percentile per-packet one-way delay: 59.447 ms
Loss rate: 0.00%
```

Run 4: Report of FillP-Sheep — Data Link

```
Run 5: Statistics of FillP-Sheep

Start at: 2018-12-21 01:08:49
End at: 2018-12-21 01:09:19
Local clock offset: 1.572 ms
Remote clock offset: -0.255 ms

# Below is generated by plot.py at 2018-12-21 02:58:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 817.08 Mbit/s
95th percentile per-packet one-way delay: 81.295 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 536.69 Mbit/s
95th percentile per-packet one-way delay: 88.970 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 302.23 Mbit/s
95th percentile per-packet one-way delay: 57.776 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 240.45 Mbit/s
95th percentile per-packet one-way delay: 58.561 ms
Loss rate: 0.00%
```
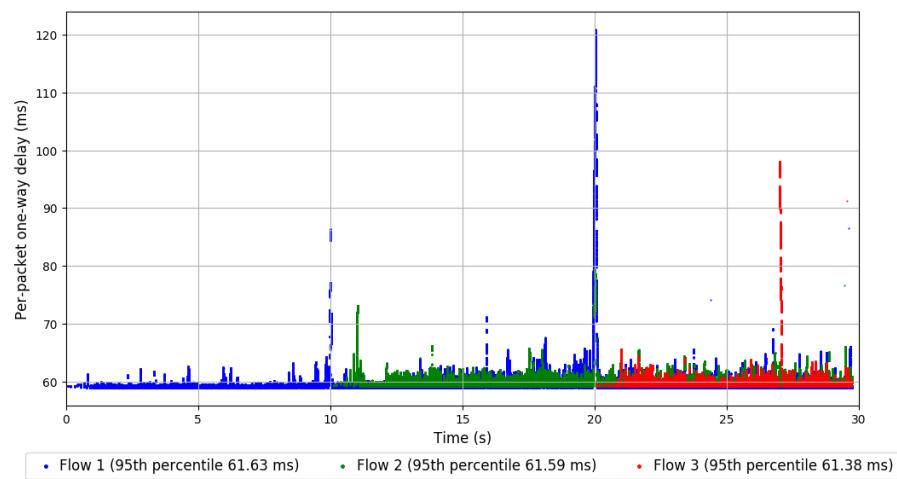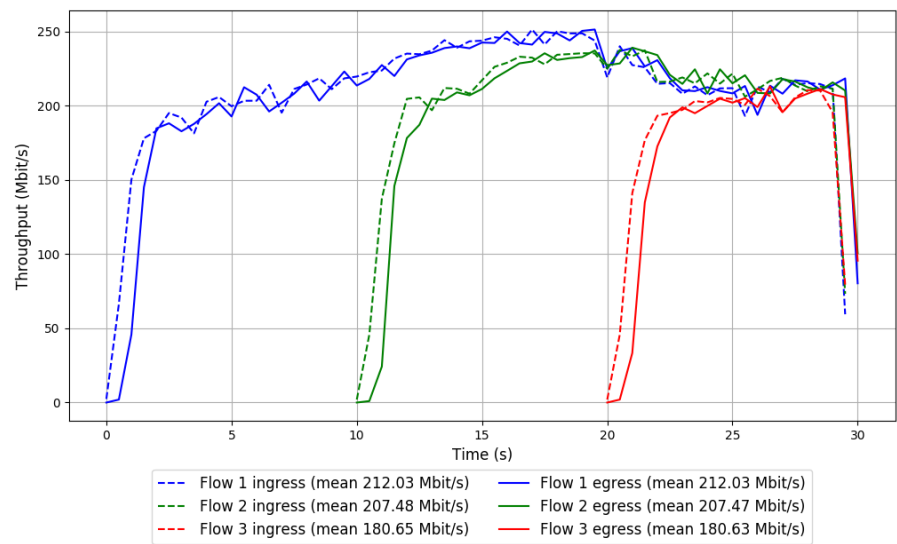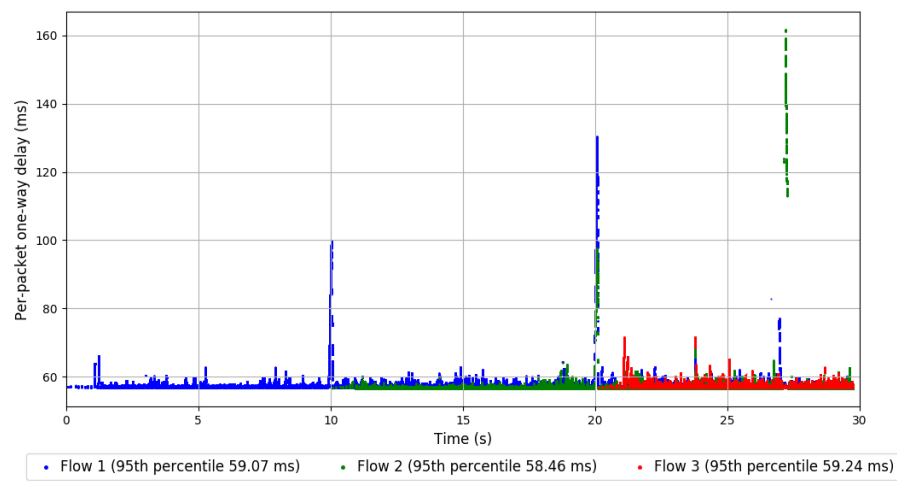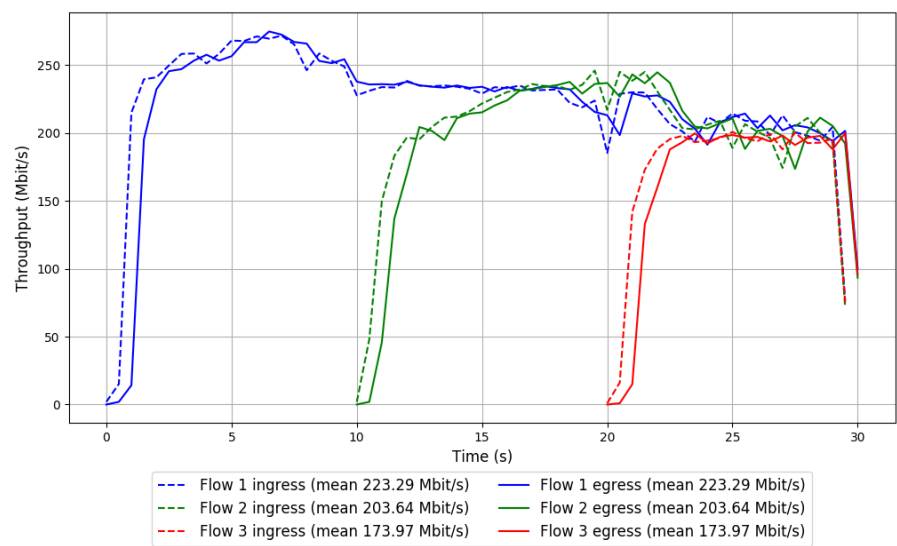
Run 5: Report of FillP-Sheep — Data Link

```
Run 1: Statistics of Indigo

Start at: 2018-12-20 23:13:43
End at: 2018-12-20 23:14:13
Local clock offset: -0.501 ms
Remote clock offset: -0.518 ms


# Below is generated by plot.py at 2018-12-21 02:58:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 405.73 Mbit/s
95th percentile per-packet one-way delay: 59.316 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 211.18 Mbit/s
95th percentile per-packet one-way delay: 58.907 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 195.16 Mbit/s
95th percentile per-packet one-way delay: 59.244 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 200.74 Mbit/s
95th percentile per-packet one-way delay: 60.154 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-12-20 23:47:54
End at: 2018-12-20 23:48:24
Local clock offset: -1.886 ms
Remote clock offset: 0.225 ms


# Below is generated by plot.py at 2018-12-21 02:58:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 407.81 Mbit/s
95th percentile per-packet one-way delay: 61.582 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 212.03 Mbit/s
95th percentile per-packet one-way delay: 61.635 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 207.47 Mbit/s
95th percentile per-packet one-way delay: 61.588 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 180.63 Mbit/s
95th percentile per-packet one-way delay: 61.385 ms
Loss rate: 0.00%
```
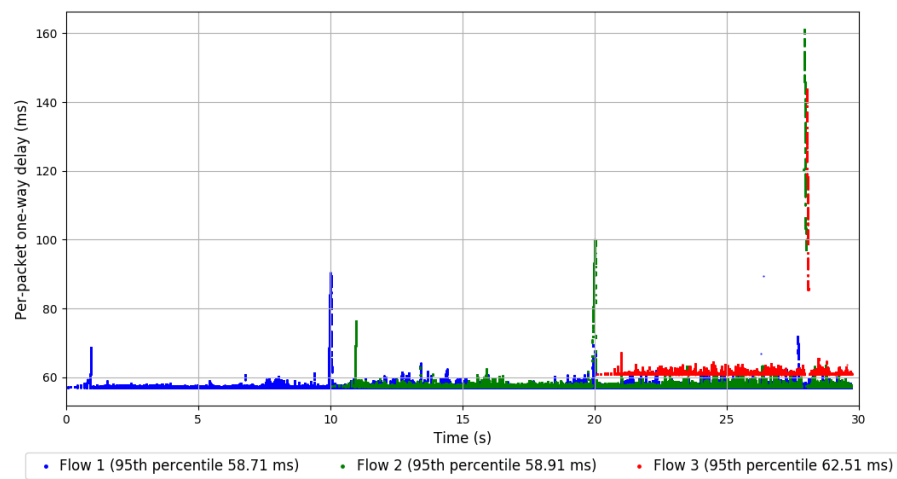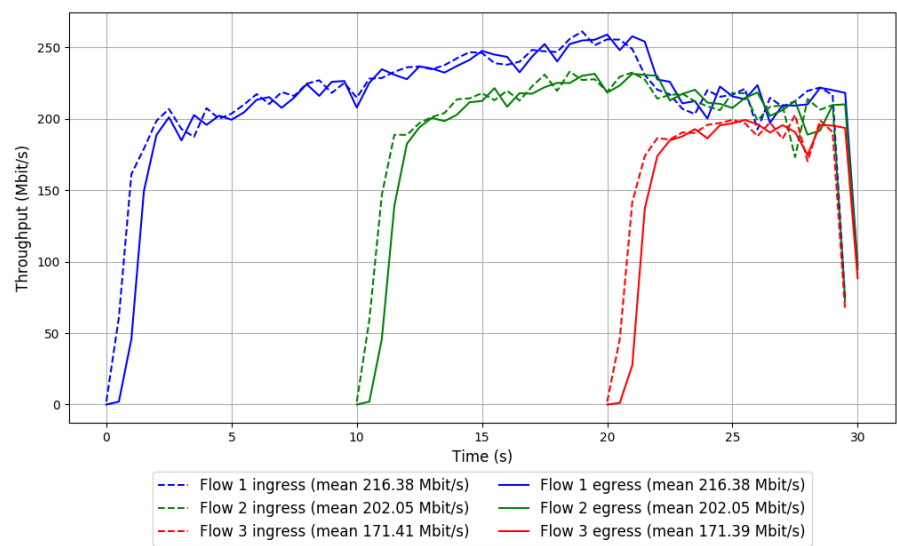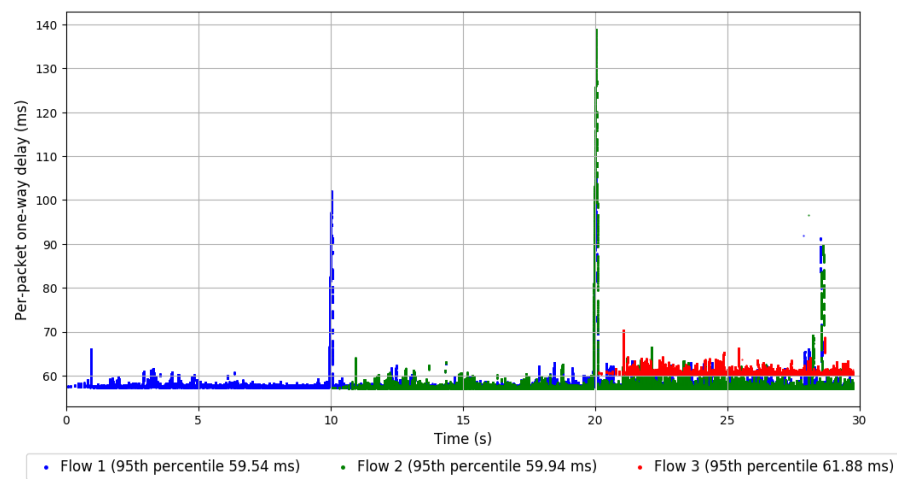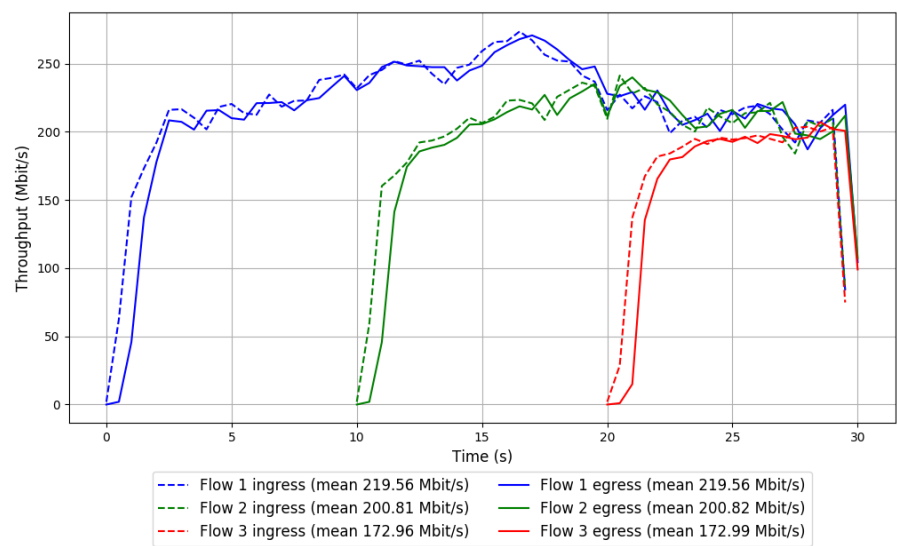
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-12-21 00:21:23
End at: 2018-12-21 00:21:53
Local clock offset: 0.068 ms
Remote clock offset: -0.152 ms

# Below is generated by plot.py at 2018-12-21 02:59:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 414.22 Mbit/s
95th percentile per-packet one-way delay: 58.954 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 223.29 Mbit/s
95th percentile per-packet one-way delay: 59.070 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 203.64 Mbit/s
95th percentile per-packet one-way delay: 58.463 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 173.97 Mbit/s
95th percentile per-packet one-way delay: 59.239 ms
Loss rate: 0.00%
```

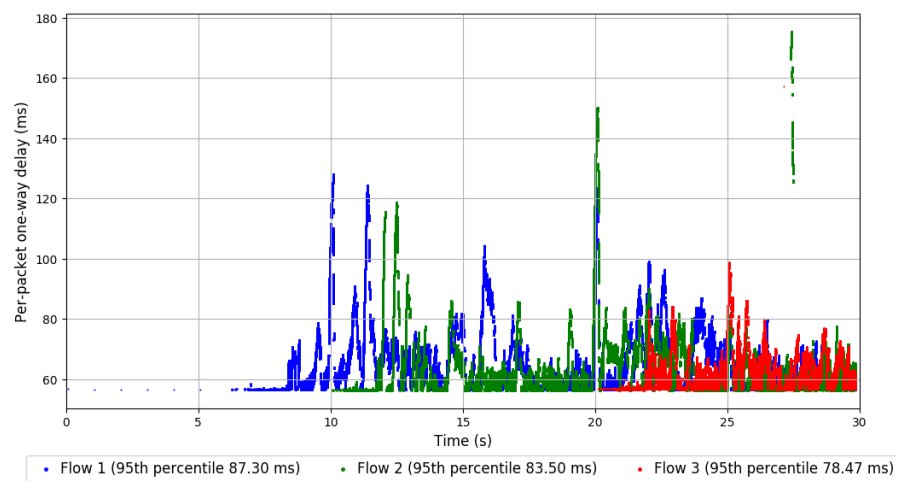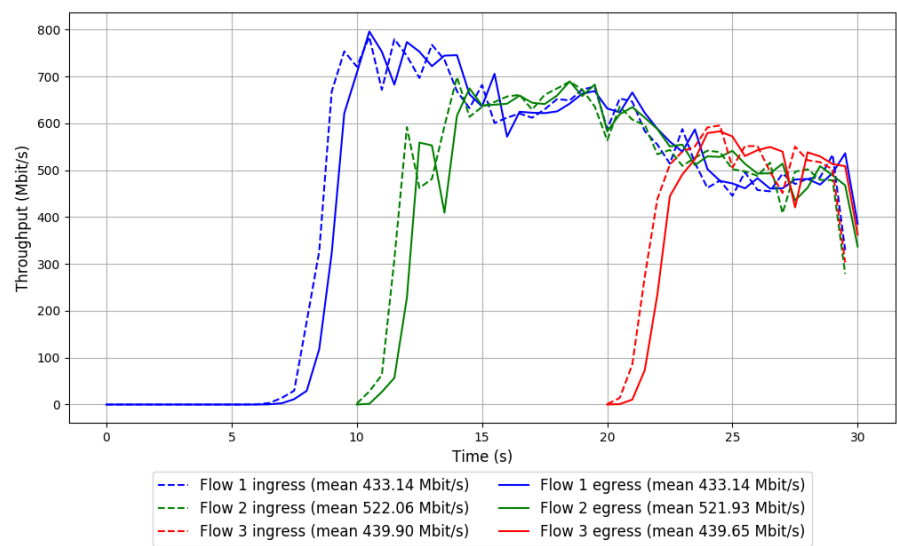# Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-12-21 00:55:24
End at: 2018-12-21 00:55:54
Local clock offset: -0.163 ms
Remote clock offset: 0.05 ms


# Below is generated by plot.py at 2018-12-21 02:59:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 405.86 Mbit/s
95th percentile per-packet one-way delay: 61.037 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 216.38 Mbit/s
95th percentile per-packet one-way delay: 58.707 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 202.05 Mbit/s
95th percentile per-packet one-way delay: 58.912 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 171.39 Mbit/s
95th percentile per-packet one-way delay: 62.514 ms
Loss rate: 0.03%
```

## Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2018-12-21 01:28:34
End at: 2018-12-21 01:29:04
Local clock offset: -0.029 ms
Remote clock offset: -0.001 ms


# Below is generated by plot.py at 2018-12-21 02:59:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 408.76 Mbit/s
95th percentile per-packet one-way delay: 60.813 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 219.56 Mbit/s
95th percentile per-packet one-way delay: 59.540 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 200.82 Mbit/s
95th percentile per-packet one-way delay: 59.940 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 172.99 Mbit/s
95th percentile per-packet one-way delay: 61.875 ms
Loss rate: 0.01%
```
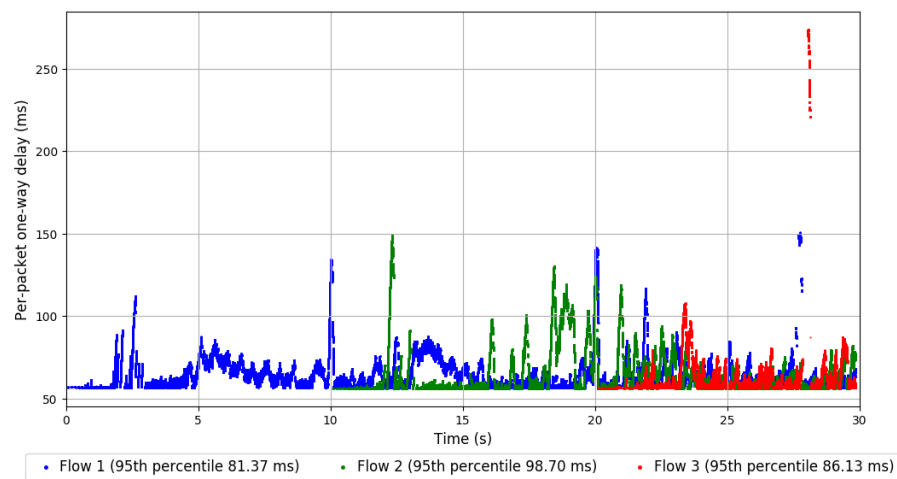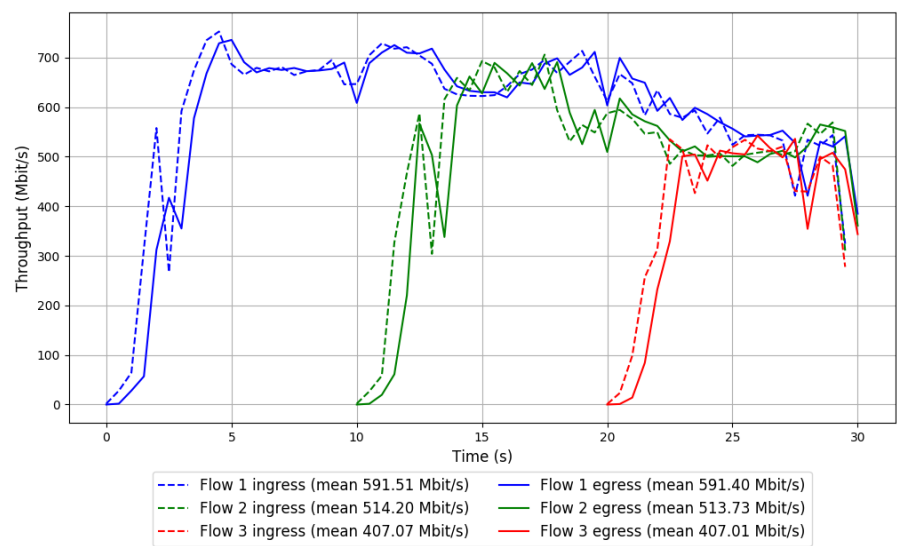
# Run 5: Report of Indigo — Data Link

```
Run 1: Statistics of Indigo-MusesD

Start at: 2018-12-20 22:56:06
End at: 2018-12-20 22:56:36
Local clock offset: 0.144 ms
Remote clock offset: -0.235 ms


# Below is generated by plot.py at 2018-12-21 03:03:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 922.97 Mbit/s
95th percentile per-packet one-way delay: 84.500 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 433.14 Mbit/s
95th percentile per-packet one-way delay: 87.300 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 521.93 Mbit/s
95th percentile per-packet one-way delay: 83.497 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 439.65 Mbit/s
95th percentile per-packet one-way delay: 78.469 ms
Loss rate: 0.06%
```

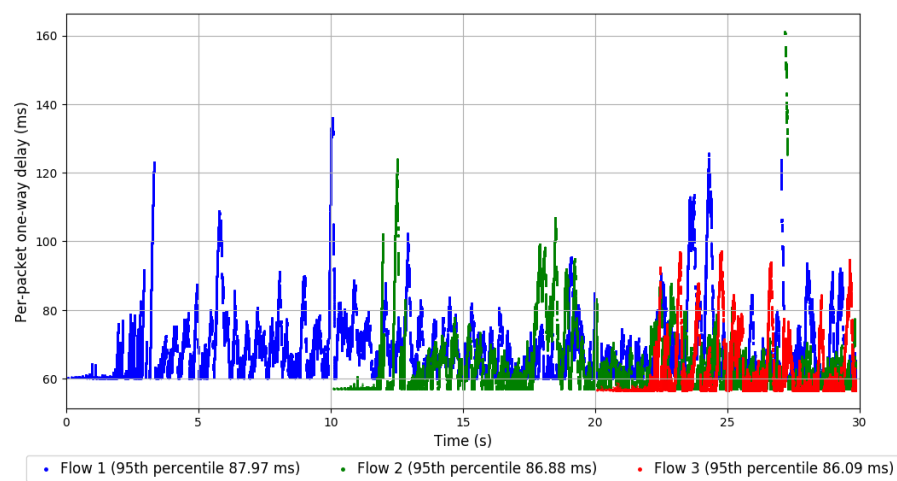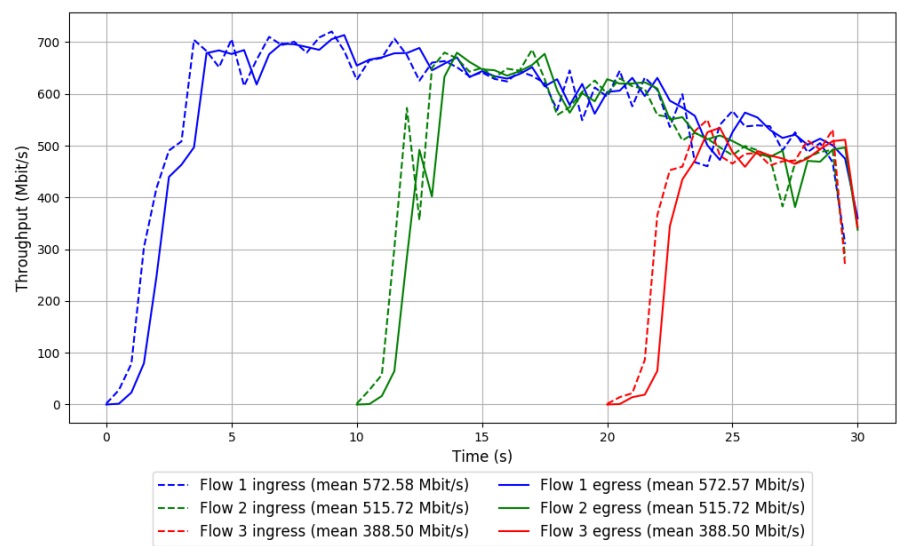Run 1: Report of Indigo-MusesD — Data Link

```
Run 2: Statistics of Indigo-MusesD

Start at: 2018-12-20 23:31:10
End at: 2018-12-20 23:31:40
Local clock offset: 0.114 ms
Remote clock offset: -0.471 ms

# Below is generated by plot.py at 2018-12-21 03:06:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1064.96 Mbit/s
95th percentile per-packet one-way delay: 85.722 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 591.40 Mbit/s
95th percentile per-packet one-way delay: 81.368 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 513.73 Mbit/s
95th percentile per-packet one-way delay: 98.704 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 407.01 Mbit/s
95th percentile per-packet one-way delay: 86.134 ms
Loss rate: 0.00%
```

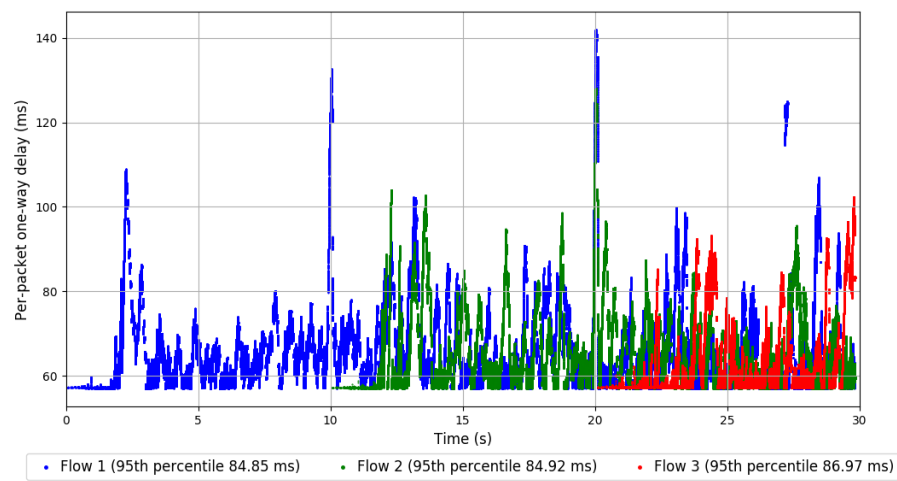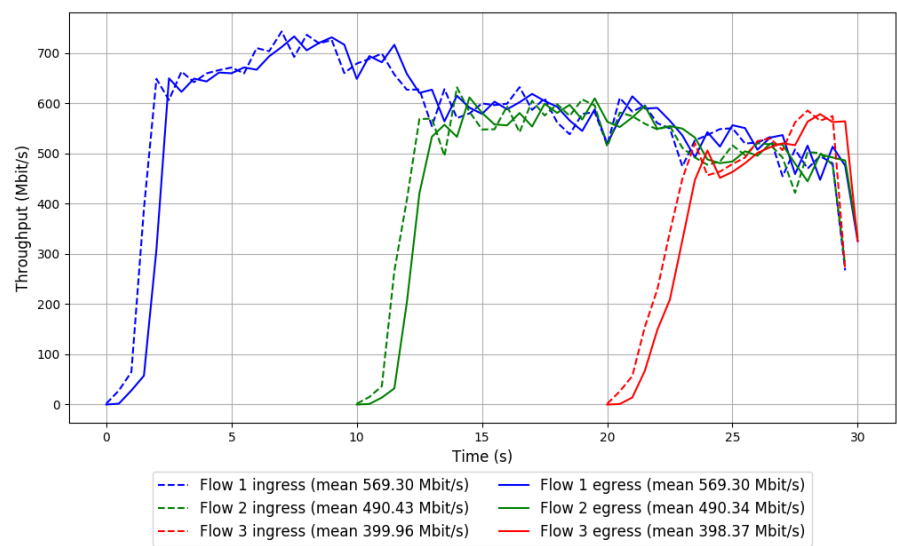Run 2: Report of Indigo-MusesD — Data Link

```
Run 3: Statistics of Indigo-MusesD

Start at: 2018-12-21 00:04:31
End at: 2018-12-21 00:05:01
Local clock offset: -0.189 ms
Remote clock offset: -0.395 ms


# Below is generated by plot.py at 2018-12-21 03:17:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1041.84 Mbit/s
95th percentile per-packet one-way delay: 87.260 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 572.57 Mbit/s
95th percentile per-packet one-way delay: 87.970 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 515.72 Mbit/s
95th percentile per-packet one-way delay: 86.883 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 388.50 Mbit/s
95th percentile per-packet one-way delay: 86.089 ms
Loss rate: 0.00%
```

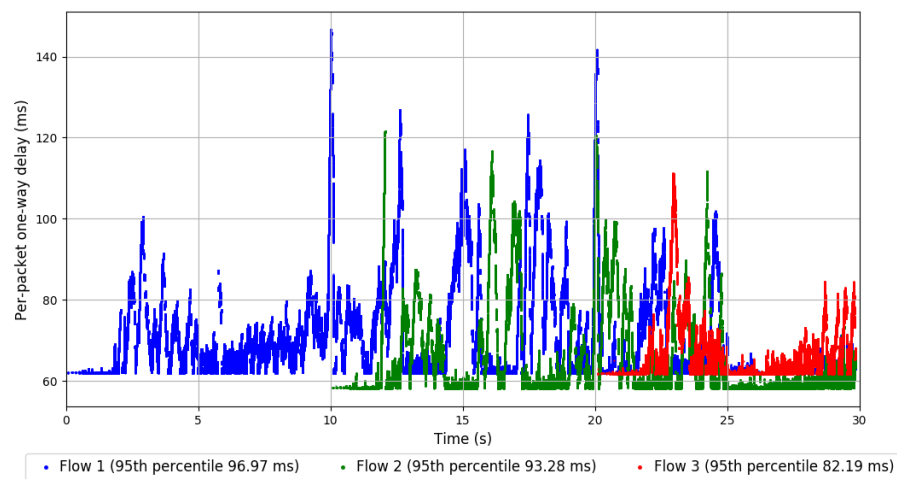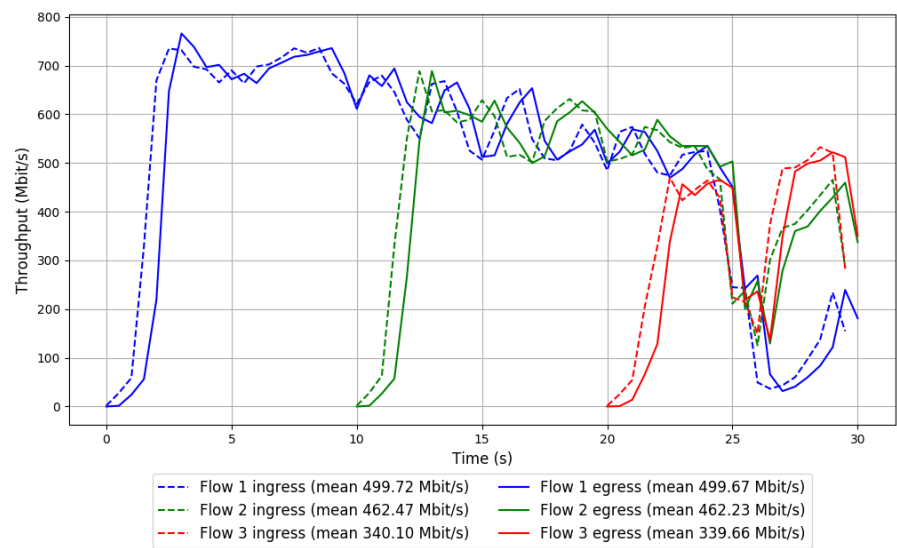Run 3: Report of Indigo-MusesD — Data Link

```
Run 4: Statistics of Indigo-MusesD

Start at: 2018-12-21 00:38:06
End at: 2018-12-21 00:38:36
Local clock offset: -0.273 ms
Remote clock offset: -0.139 ms


# Below is generated by plot.py at 2018-12-21 03:17:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1024.91 Mbit/s
95th percentile per-packet one-way delay: 85.456 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 569.30 Mbit/s
95th percentile per-packet one-way delay: 84.849 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 490.34 Mbit/s
95th percentile per-packet one-way delay: 84.925 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 398.37 Mbit/s
95th percentile per-packet one-way delay: 86.975 ms
Loss rate: 0.39%
```

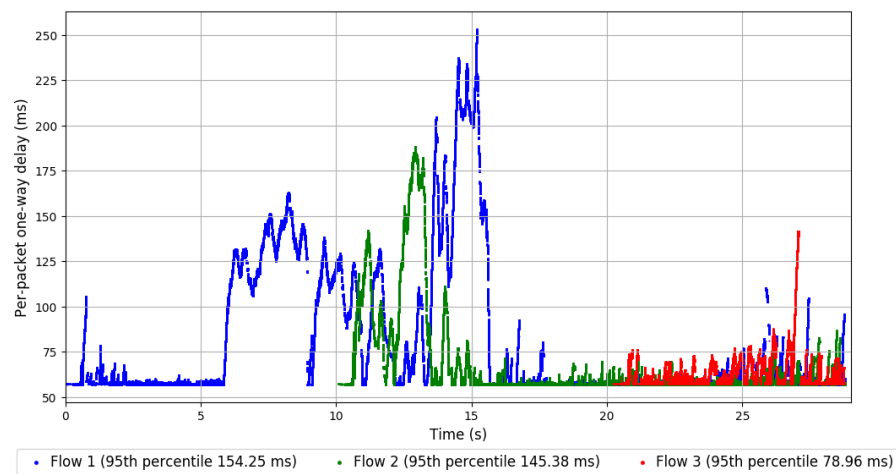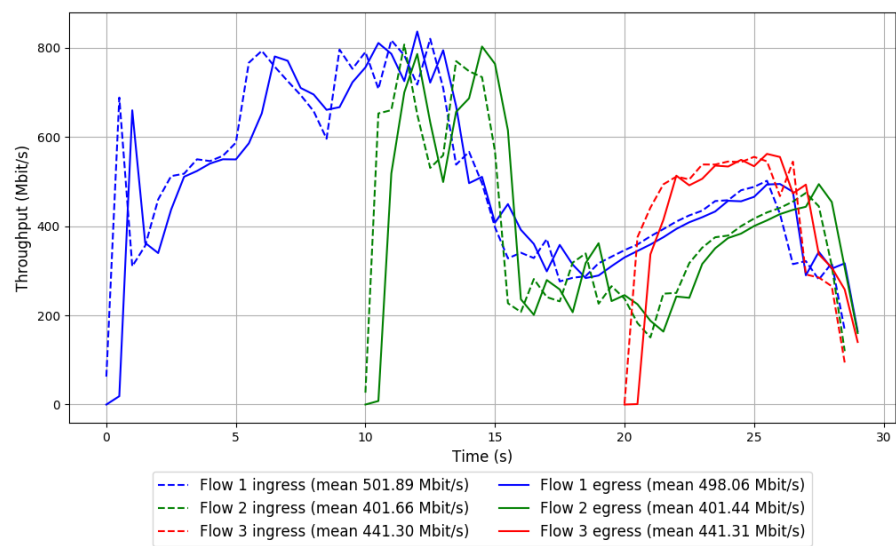Run 4: Report of Indigo-MusesD — Data Link

```
Run 5: Statistics of Indigo-MusesD

Start at: 2018-12-21 01:11:54
End at: 2018-12-21 01:12:24
Local clock offset: -1.733 ms
Remote clock offset: -0.271 ms


# Below is generated by plot.py at 2018-12-21 03:17:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 917.61 Mbit/s
95th percentile per-packet one-way delay: 94.880 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 499.67 Mbit/s
95th percentile per-packet one-way delay: 96.972 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 462.23 Mbit/s
95th percentile per-packet one-way delay: 93.276 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 339.66 Mbit/s
95th percentile per-packet one-way delay: 82.187 ms
Loss rate: 0.14%
```

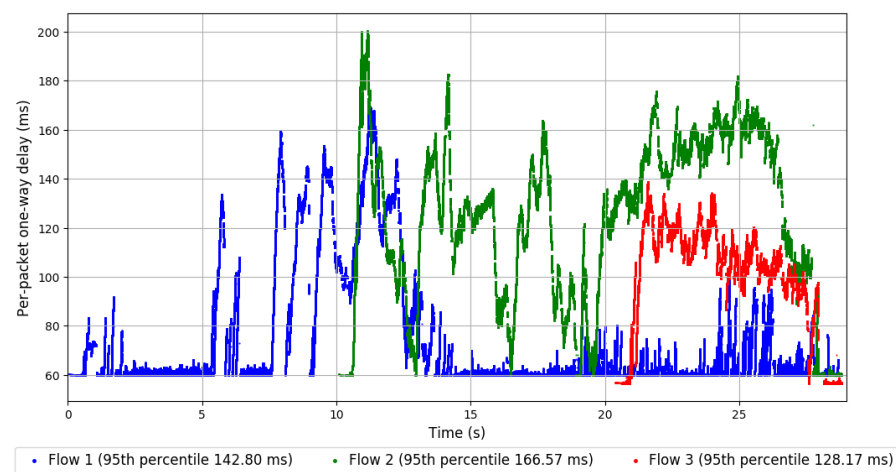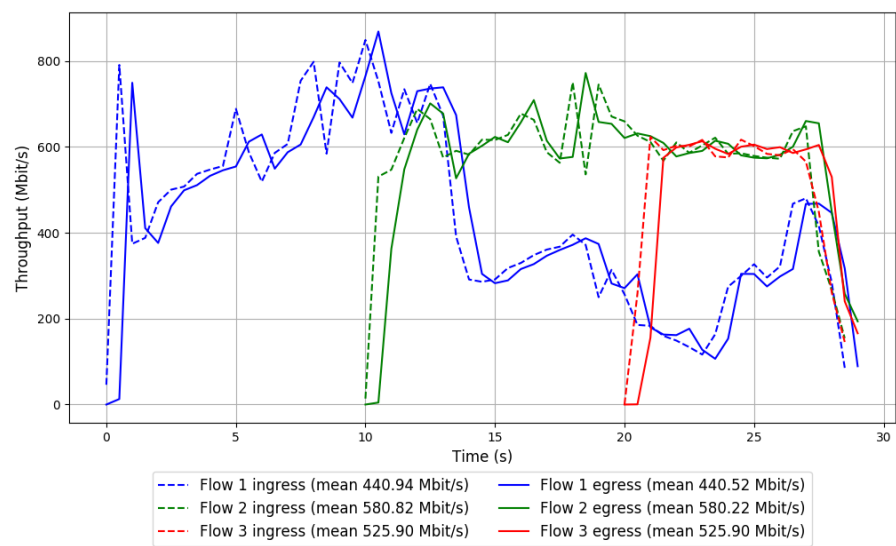Run 5: Report of Indigo-MusesD — Data Link

```
Run 1: Statistics of Indigo-MusesT

Start at: 2018-12-20 23:10:25
End at: 2018-12-20 23:10:55
Local clock offset: 0.109 ms
Remote clock offset: 0.039 ms


# Below is generated by plot.py at 2018-12-21 03:17:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 890.55 Mbit/s
95th percentile per-packet one-way delay: 148.668 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 498.06 Mbit/s
95th percentile per-packet one-way delay: 154.246 ms
Loss rate: 0.76%
-- Flow 2:
Average throughput: 401.44 Mbit/s
95th percentile per-packet one-way delay: 145.378 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 441.31 Mbit/s
95th percentile per-packet one-way delay: 78.956 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo-MusesT — Data Link

```
Run 2: Statistics of Indigo-MusesT

Start at: 2018-12-20 23:44:38
End at: 2018-12-20 23:45:08
Local clock offset: 0.153 ms
Remote clock offset: -0.256 ms


# Below is generated by plot.py at 2018-12-21 03:17:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 971.74 Mbit/s
95th percentile per-packet one-way delay: 160.464 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 440.52 Mbit/s
95th percentile per-packet one-way delay: 142.797 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 580.22 Mbit/s
95th percentile per-packet one-way delay: 166.575 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 525.90 Mbit/s
95th percentile per-packet one-way delay: 128.166 ms
Loss rate: 0.00%
```
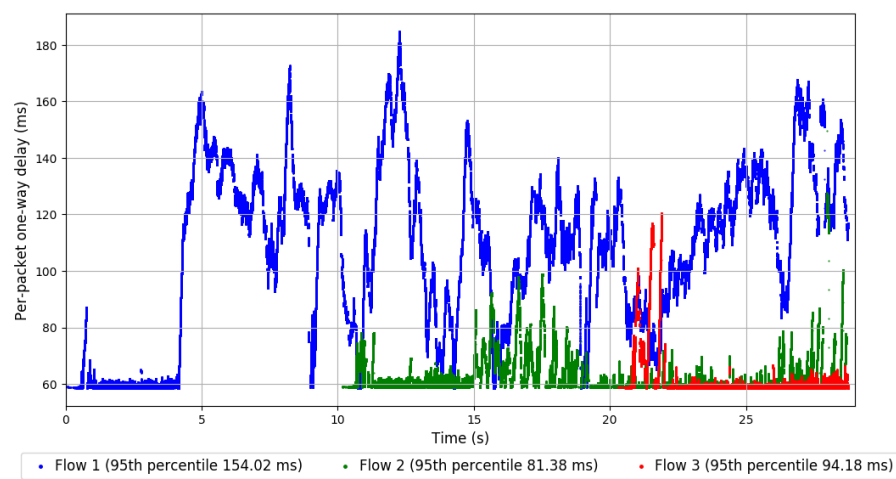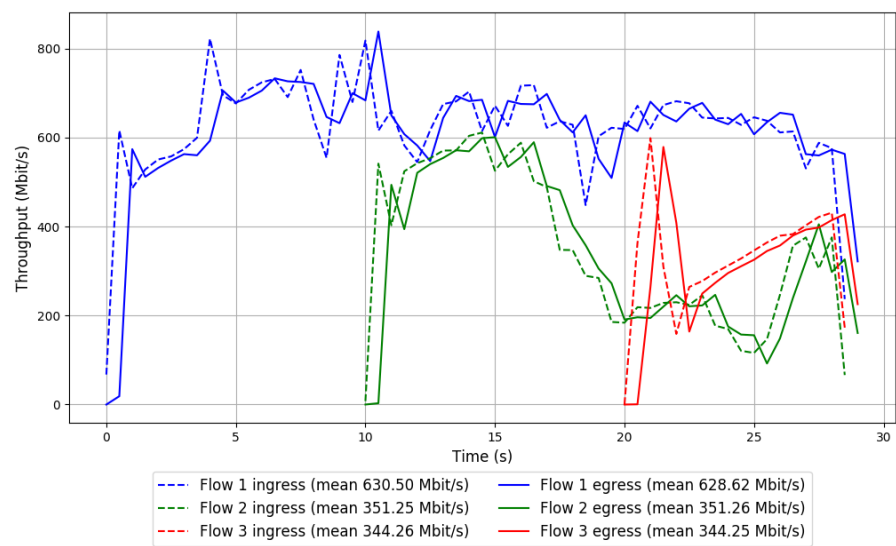
Run 2: Report of Indigo-MusesT — Data Link

```
Run 3: Statistics of Indigo-MusesT

Start at: 2018-12-21 00:18:08
End at: 2018-12-21 00:18:38
Local clock offset: -1.919 ms
Remote clock offset: -0.08 ms


# Below is generated by plot.py at 2018-12-21 03:17:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 957.29 Mbit/s
95th percentile per-packet one-way delay: 147.283 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 628.62 Mbit/s
95th percentile per-packet one-way delay: 154.023 ms
Loss rate: 0.29%
-- Flow 2:
Average throughput: 351.26 Mbit/s
95th percentile per-packet one-way delay: 81.384 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 344.25 Mbit/s
95th percentile per-packet one-way delay: 94.184 ms
Loss rate: 0.00%
```
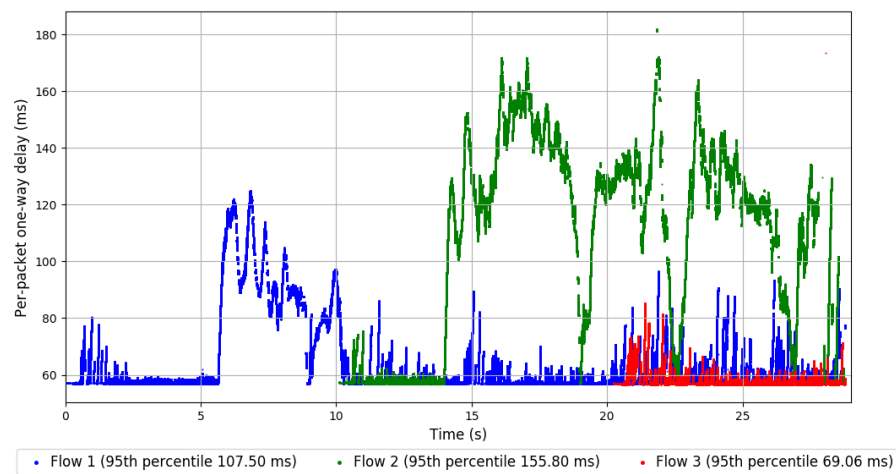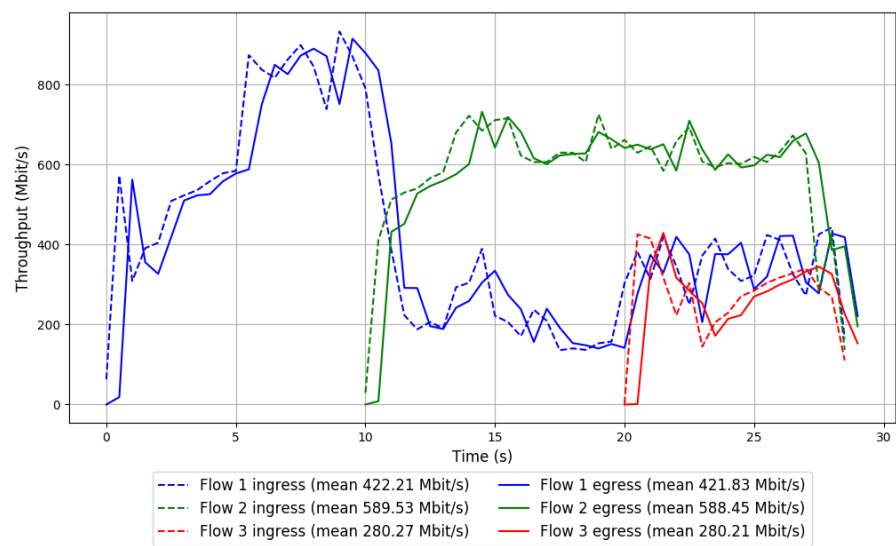
# Run 3: Report of Indigo-MusesT — Data Link

```
Run 4: Statistics of Indigo-MusesT

Start at: 2018-12-21 00:52:09
End at: 2018-12-21 00:52:39
Local clock offset: 0.099 ms
Remote clock offset: 0.026 ms


# Below is generated by plot.py at 2018-12-21 03:20:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 887.82 Mbit/s
95th percentile per-packet one-way delay: 146.773 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 421.83 Mbit/s
95th percentile per-packet one-way delay: 107.497 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 588.45 Mbit/s
95th percentile per-packet one-way delay: 155.797 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 280.21 Mbit/s
95th percentile per-packet one-way delay: 69.055 ms
Loss rate: 0.00%
```

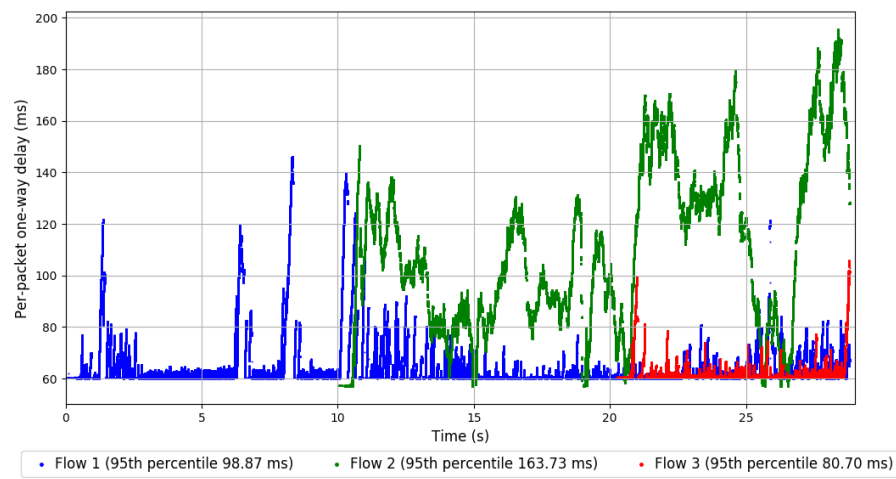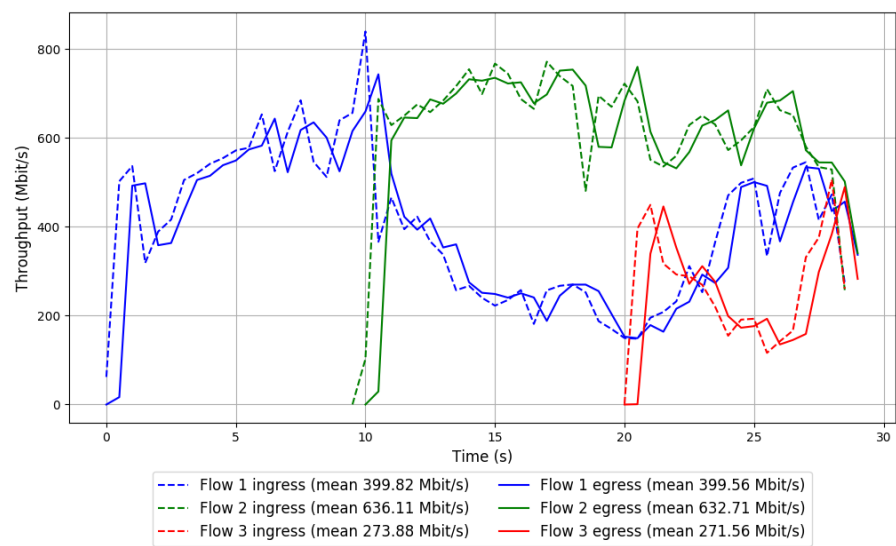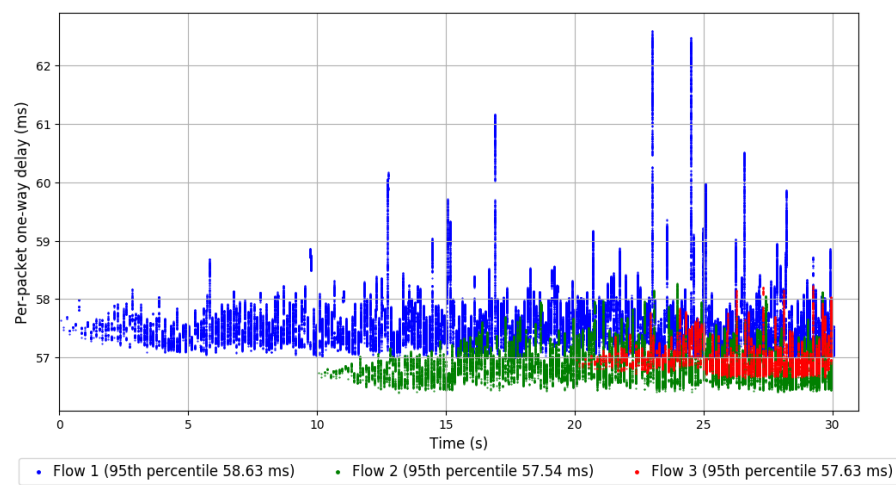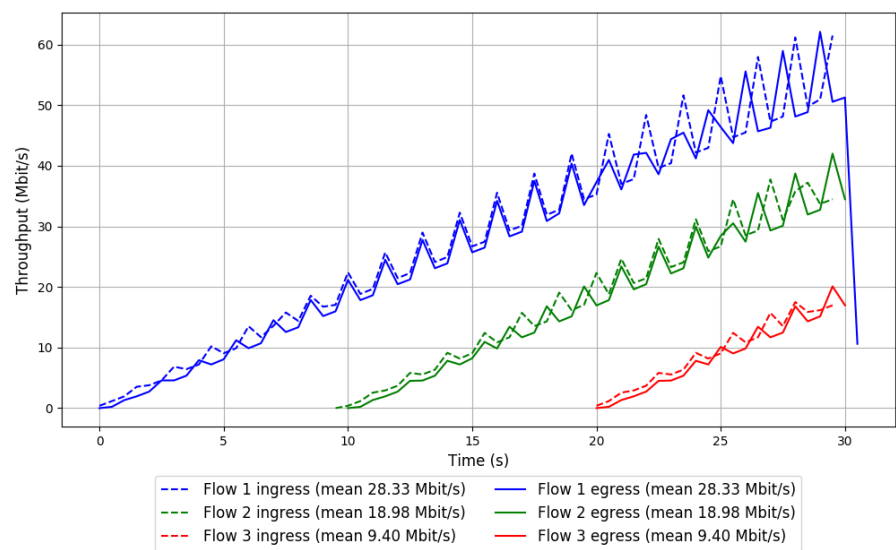Run 4: Report of Indigo-MusesT — Data Link



- - - Flow 1 ingress (mean 422.21 Mbit/s) ——— Flow 1 egress (mean 421.83 Mbit/s)
- - - Flow 2 ingress (mean 589.53 Mbit/s) ——— Flow 2 egress (mean 588.45 Mbit/s)
- - - Flow 3 ingress (mean 280.27 Mbit/s) ——— Flow 3 egress (mean 280.21 Mbit/s)



• Flow 1 (95th percentile 107.50 ms)    • Flow 2 (95th percentile 155.80 ms)    • Flow 3 (95th percentile 69.06 ms)

```
Run 5: Statistics of Indigo-MusesT

Start at: 2018-12-21 01:25:20
End at: 2018-12-21 01:25:50
Local clock offset: -0.21 ms
Remote clock offset: -0.162 ms


# Below is generated by plot.py at 2018-12-21 03:23:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 893.28 Mbit/s
95th percentile per-packet one-way delay: 153.625 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 399.56 Mbit/s
95th percentile per-packet one-way delay: 98.866 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 632.71 Mbit/s
95th percentile per-packet one-way delay: 163.734 ms
Loss rate: 0.53%
-- Flow 3:
Average throughput: 271.56 Mbit/s
95th percentile per-packet one-way delay: 80.700 ms
Loss rate: 0.87%
```

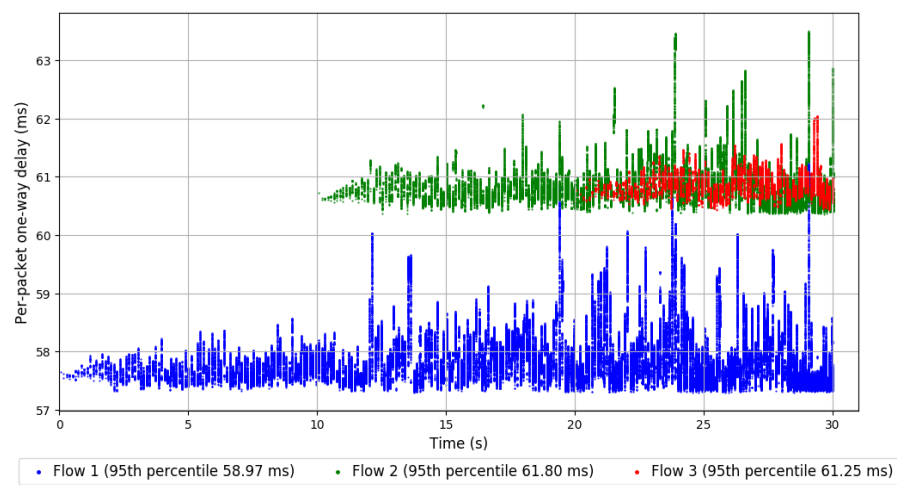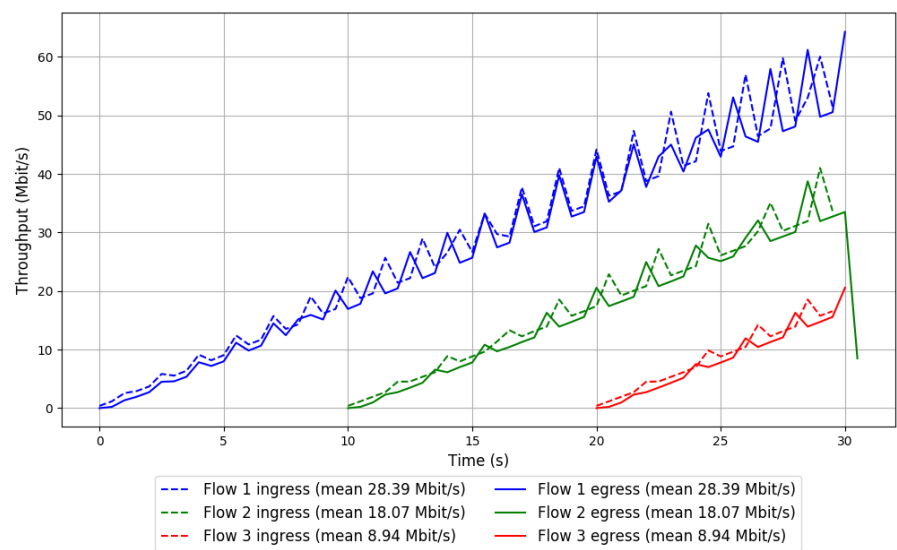Run 5: Report of Indigo-MusesT — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-12-20 23:12:26
End at: 2018-12-20 23:12:56
Local clock offset: 0.096 ms
Remote clock offset: -0.201 ms


# Below is generated by plot.py at 2018-12-21 03:23:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 44.02 Mbit/s
95th percentile per-packet one-way delay: 58.302 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 28.33 Mbit/s
95th percentile per-packet one-way delay: 58.628 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 18.98 Mbit/s
95th percentile per-packet one-way delay: 57.543 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 9.40 Mbit/s
95th percentile per-packet one-way delay: 57.632 ms
Loss rate: 0.00%
```
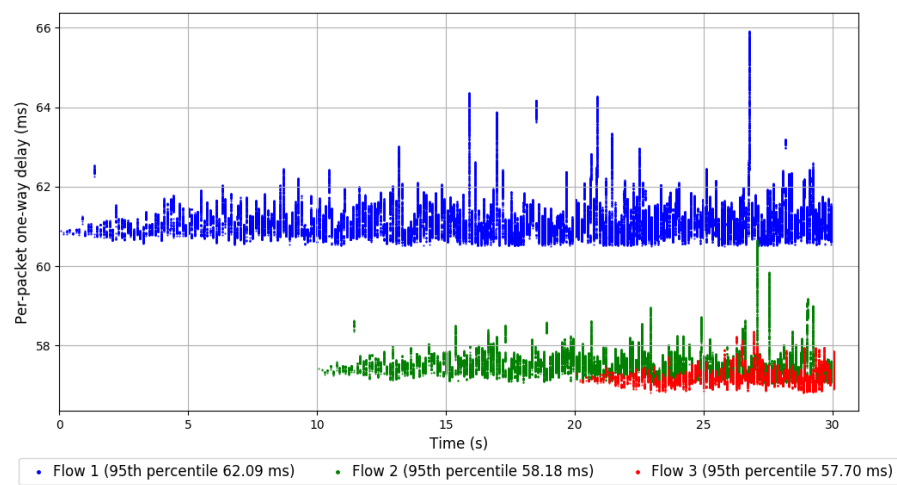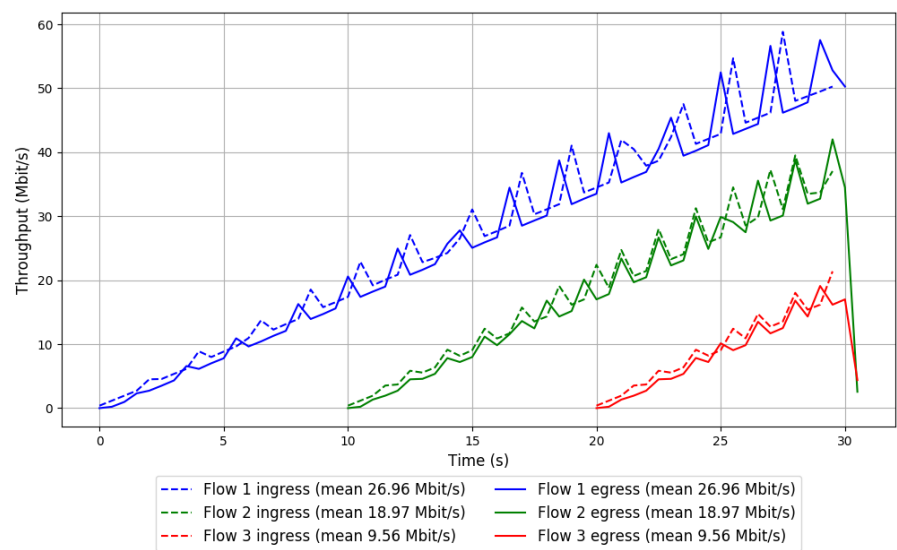
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-12-20 23:46:38
End at: 2018-12-20 23:47:08
Local clock offset: -0.077 ms
Remote clock offset: 0.169 ms


# Below is generated by plot.py at 2018-12-21 03:23:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 43.35 Mbit/s
95th percentile per-packet one-way delay: 61.215 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 28.39 Mbit/s
95th percentile per-packet one-way delay: 58.967 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 18.07 Mbit/s
95th percentile per-packet one-way delay: 61.799 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 8.94 Mbit/s
95th percentile per-packet one-way delay: 61.253 ms
Loss rate: 0.00%
```

Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-12-21 00:20:07
End at: 2018-12-21 00:20:37
Local clock offset: -0.139 ms
Remote clock offset: -0.069 ms


# Below is generated by plot.py at 2018-12-21 03:23:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 42.68 Mbit/s
95th percentile per-packet one-way delay: 61.859 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 26.96 Mbit/s
95th percentile per-packet one-way delay: 62.087 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 18.97 Mbit/s
95th percentile per-packet one-way delay: 58.181 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 9.56 Mbit/s
95th percentile per-packet one-way delay: 57.702 ms
Loss rate: 0.00%
```
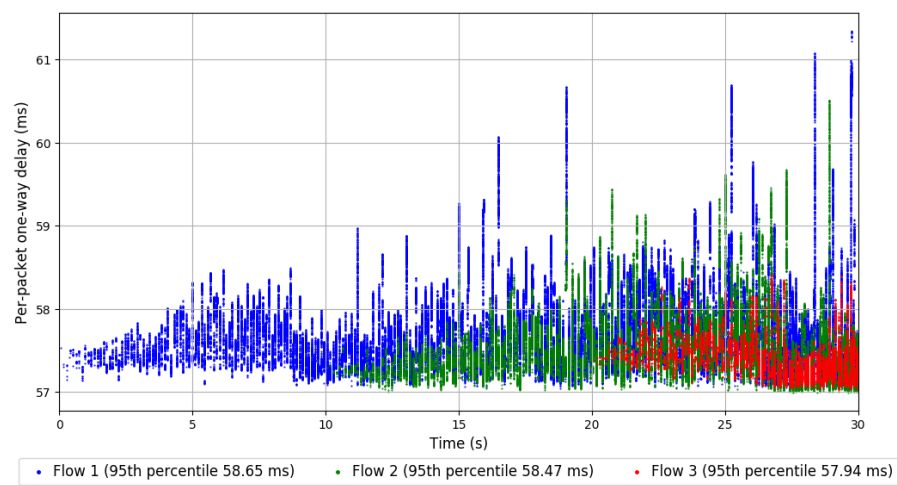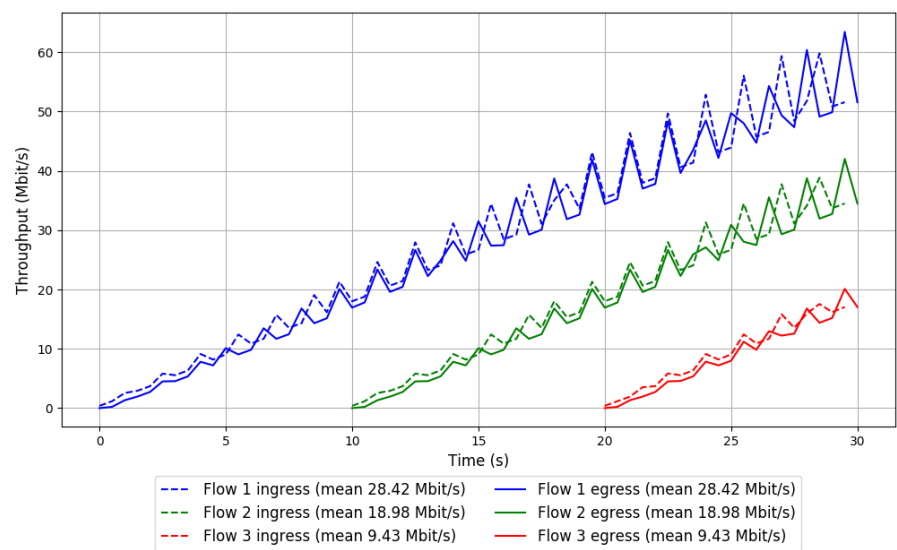
Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2018-12-21 00:54:07
End at: 2018-12-21 00:54:37
Local clock offset: -0.073 ms
Remote clock offset: 0.012 ms

# Below is generated by plot.py at 2018-12-21 03:23:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 44.16 Mbit/s
95th percentile per-packet one-way delay: 58.558 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 28.42 Mbit/s
95th percentile per-packet one-way delay: 58.648 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 18.98 Mbit/s
95th percentile per-packet one-way delay: 58.468 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 9.43 Mbit/s
95th percentile per-packet one-way delay: 57.944 ms
Loss rate: 0.00%
```
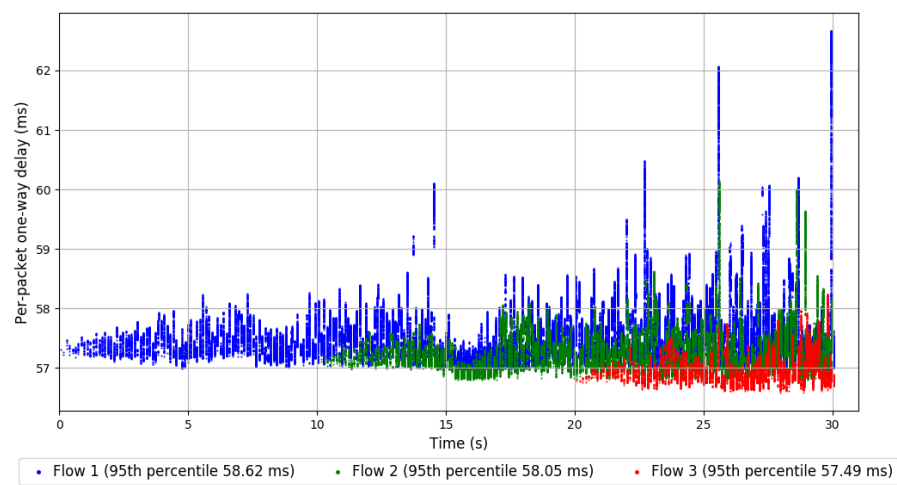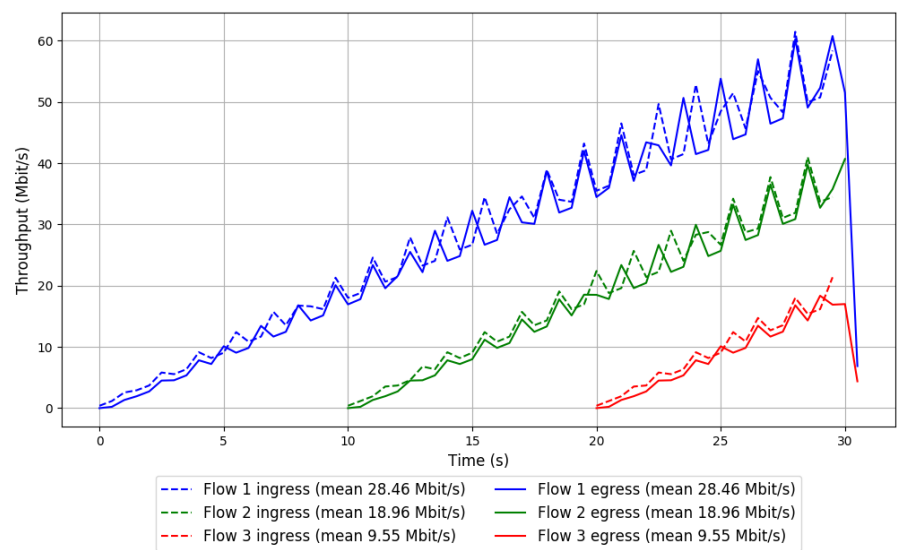
Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2018-12-21 01:27:17
End at: 2018-12-21 01:27:47
Local clock offset: 0.071 ms
Remote clock offset: -0.079 ms


# Below is generated by plot.py at 2018-12-21 03:23:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 44.22 Mbit/s
95th percentile per-packet one-way delay: 58.438 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 28.46 Mbit/s
95th percentile per-packet one-way delay: 58.616 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 18.96 Mbit/s
95th percentile per-packet one-way delay: 58.045 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 9.55 Mbit/s
95th percentile per-packet one-way delay: 57.492 ms
Loss rate: 0.00%
```
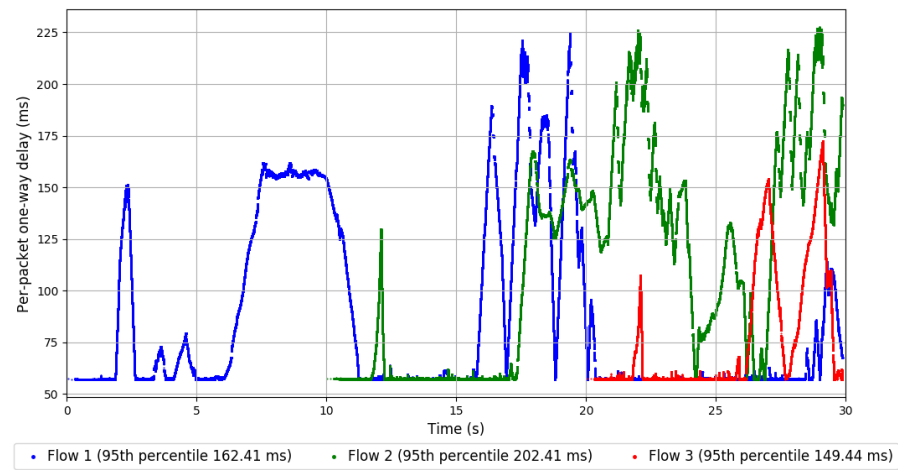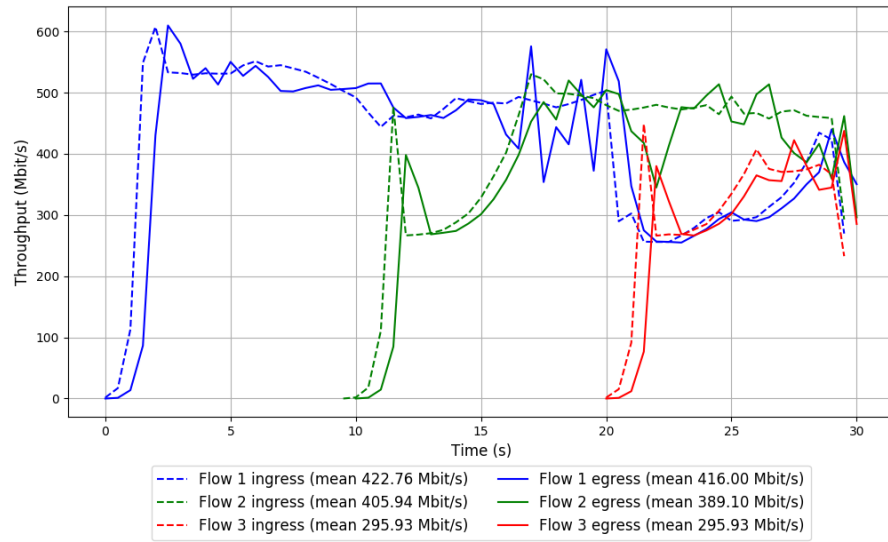
Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-12-20 22:45:06
End at: 2018-12-20 22:45:36
Local clock offset: -0.085 ms
Remote clock offset: -0.004 ms


# Below is generated by plot.py at 2018-12-21 03:44:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 772.24 Mbit/s
95th percentile per-packet one-way delay: 180.008 ms
Loss rate: 2.27%
-- Flow 1:
Average throughput: 416.00 Mbit/s
95th percentile per-packet one-way delay: 162.414 ms
Loss rate: 1.60%
-- Flow 2:
Average throughput: 389.10 Mbit/s
95th percentile per-packet one-way delay: 202.413 ms
Loss rate: 4.15%
-- Flow 3:
Average throughput: 295.93 Mbit/s
95th percentile per-packet one-way delay: 149.440 ms
Loss rate: 0.00%
```
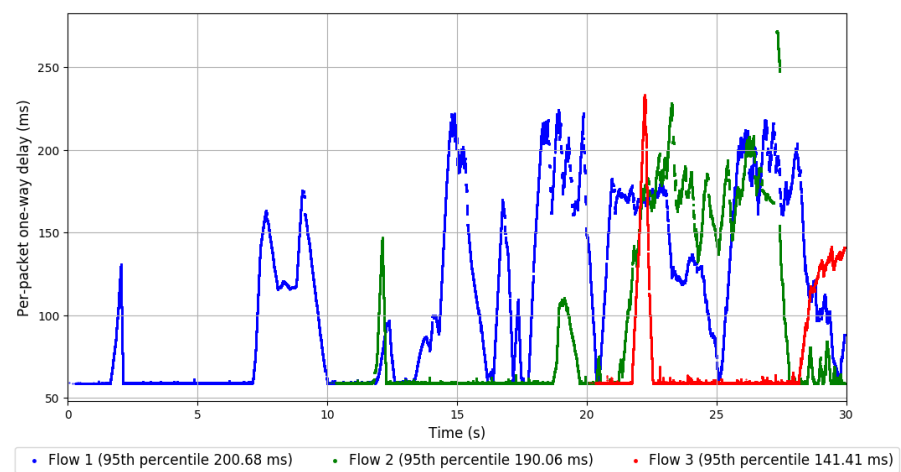
Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-12-20 23:19:28
End at: 2018-12-20 23:19:58
Local clock offset: -1.87 ms
Remote clock offset: 0.046 ms


# Below is generated by plot.py at 2018-12-21 03:44:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 735.11 Mbit/s
95th percentile per-packet one-way delay: 197.395 ms
Loss rate: 2.88%
-- Flow 1:
Average throughput: 407.89 Mbit/s
95th percentile per-packet one-way delay: 200.676 ms
Loss rate: 3.42%
-- Flow 2:
Average throughput: 357.46 Mbit/s
95th percentile per-packet one-way delay: 190.061 ms
Loss rate: 2.22%
-- Flow 3:
Average throughput: 272.63 Mbit/s
95th percentile per-packet one-way delay: 141.407 ms
Loss rate: 2.14%
```
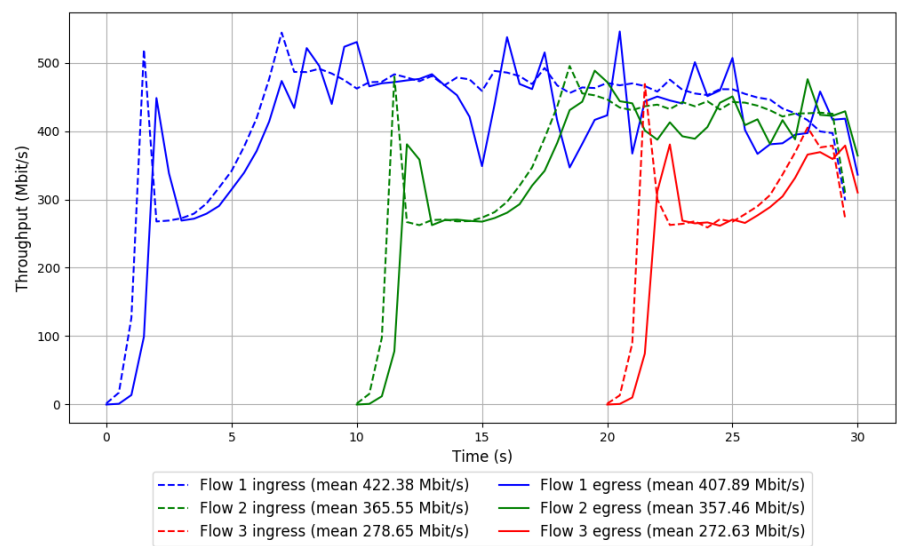
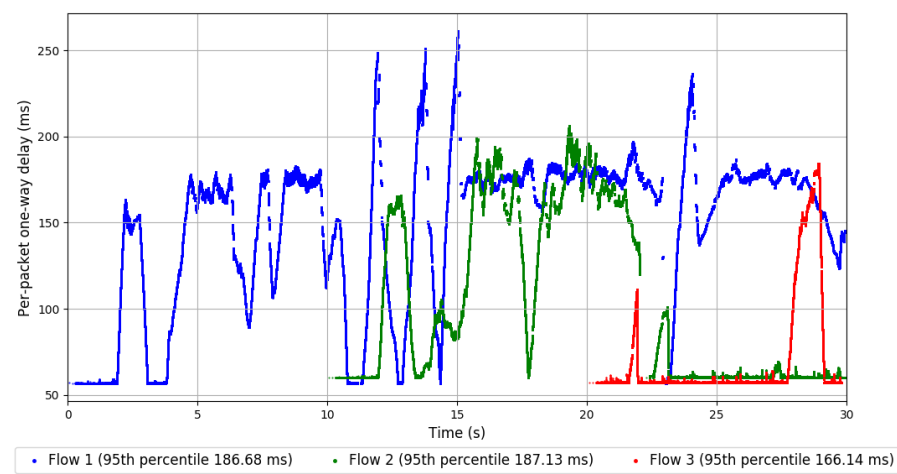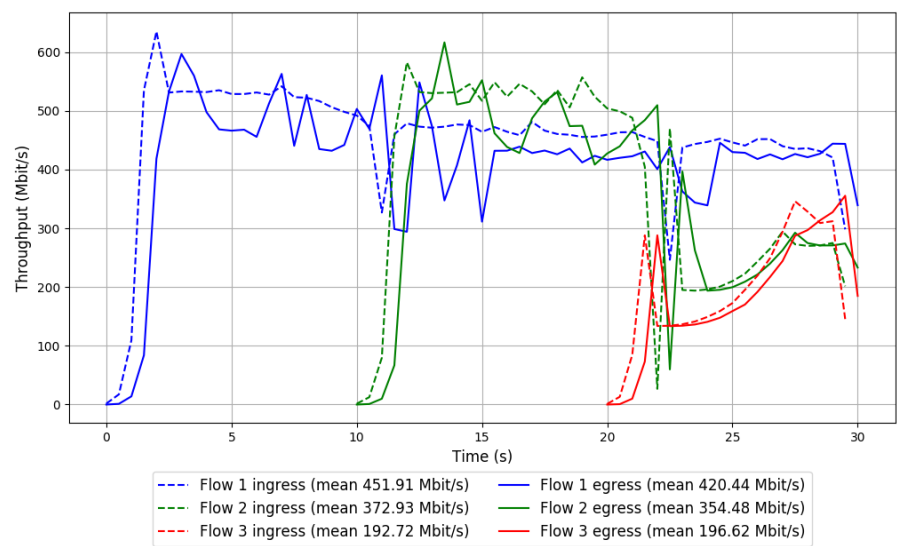# Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-12-20 23:53:27
End at: 2018-12-20 23:53:57
Local clock offset: -0.141 ms
Remote clock offset: -0.583 ms


# Below is generated by plot.py at 2018-12-21 03:44:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 719.87 Mbit/s
95th percentile per-packet one-way delay: 185.777 ms
Loss rate: 5.73%
-- Flow 1:
Average throughput: 420.44 Mbit/s
95th percentile per-packet one-way delay: 186.684 ms
Loss rate: 6.97%
-- Flow 2:
Average throughput: 354.48 Mbit/s
95th percentile per-packet one-way delay: 187.130 ms
Loss rate: 4.96%
-- Flow 3:
Average throughput: 196.62 Mbit/s
95th percentile per-packet one-way delay: 166.141 ms
Loss rate: 0.00%
```
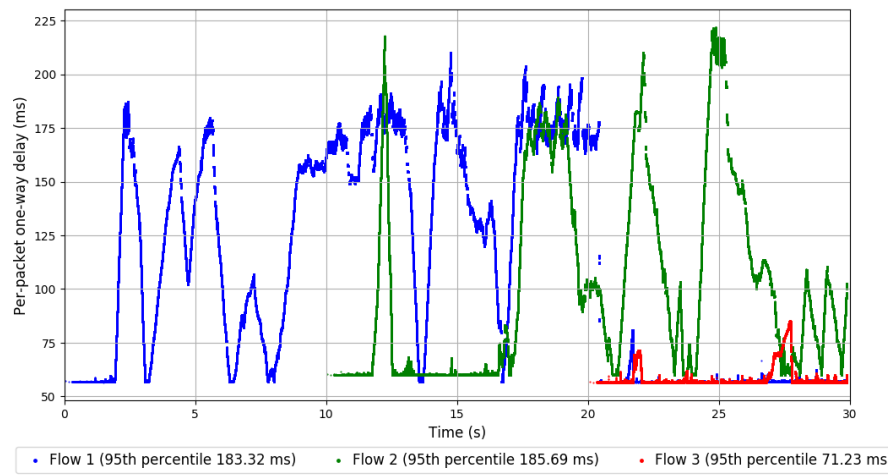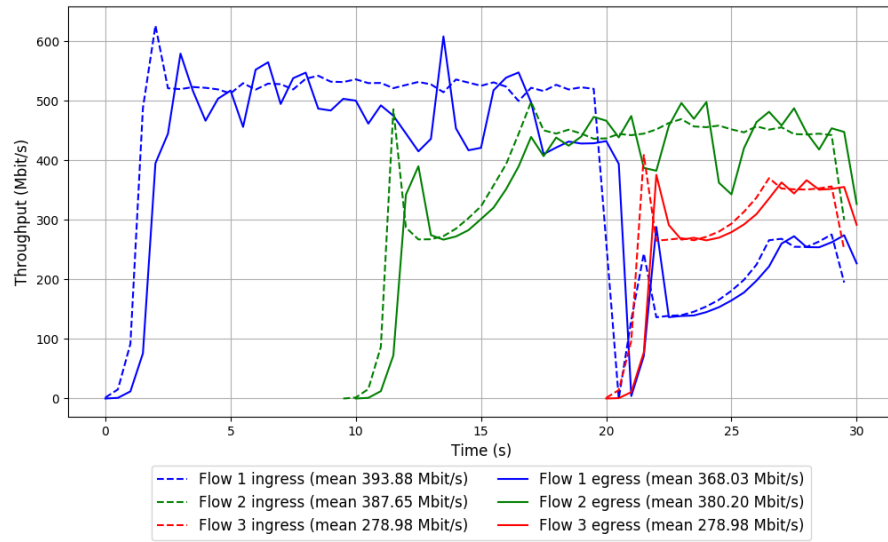
Run 3: Report of PCC-Allegro — Data Link



Flow 1 ingress (mean 451.91 Mbit/s)       Flow 1 egress (mean 420.44 Mbit/s)
Flow 2 ingress (mean 372.93 Mbit/s)       Flow 2 egress (mean 354.48 Mbit/s)
Flow 3 ingress (mean 192.72 Mbit/s)       Flow 3 egress (mean 196.62 Mbit/s)



Flow 1 (95th percentile 186.68 ms)     Flow 2 (95th percentile 187.13 ms)     Flow 3 (95th percentile 166.14 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-12-21 00:26:55
End at: 2018-12-21 00:27:25
Local clock offset: -0.108 ms
Remote clock offset: -0.5 ms


# Below is generated by plot.py at 2018-12-21 03:44:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 712.48 Mbit/s
95th percentile per-packet one-way delay: 182.591 ms
Loss rate: 4.15%
-- Flow 1:
Average throughput: 368.03 Mbit/s
95th percentile per-packet one-way delay: 183.325 ms
Loss rate: 6.57%
-- Flow 2:
Average throughput: 380.20 Mbit/s
95th percentile per-packet one-way delay: 185.692 ms
Loss rate: 1.94%
-- Flow 3:
Average throughput: 278.98 Mbit/s
95th percentile per-packet one-way delay: 71.231 ms
Loss rate: 0.00%
```

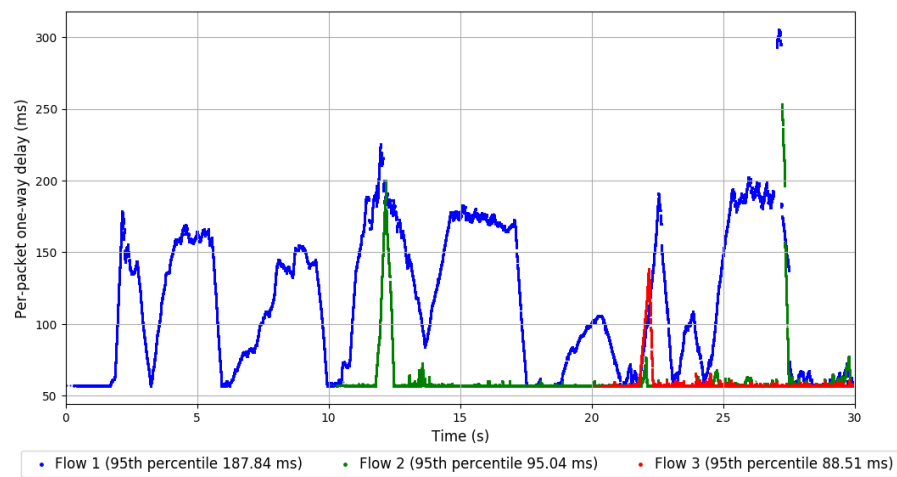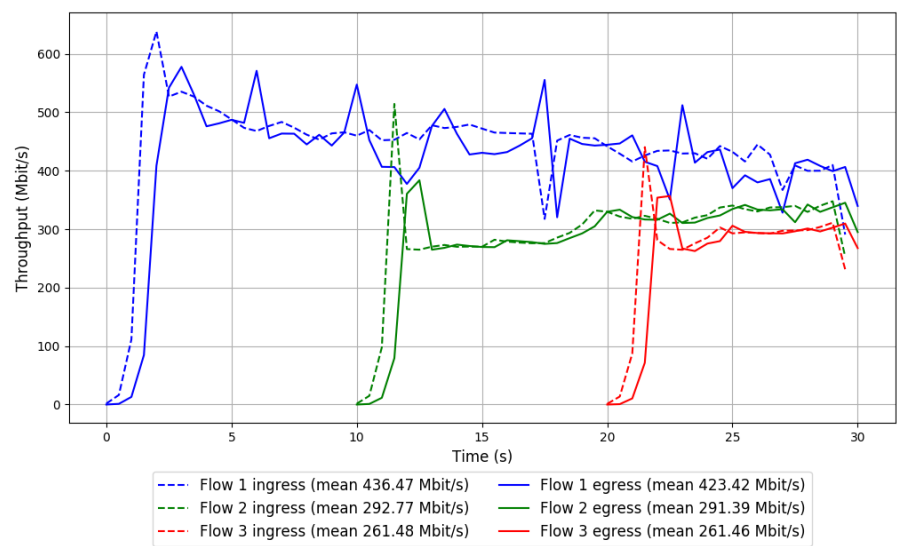# Run 4: Report of PCC-Allegro — Data Link

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-12-21 01:01:01
End at: 2018-12-21 01:01:31
Local clock offset: 0.117 ms
Remote clock offset: -0.059 ms


# Below is generated by plot.py at 2018-12-21 03:44:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 703.03 Mbit/s
95th percentile per-packet one-way delay: 183.592 ms
Loss rate: 1.95%
-- Flow 1:
Average throughput: 423.42 Mbit/s
95th percentile per-packet one-way delay: 187.843 ms
Loss rate: 2.99%
-- Flow 2:
Average throughput: 291.39 Mbit/s
95th percentile per-packet one-way delay: 95.039 ms
Loss rate: 0.48%
-- Flow 3:
Average throughput: 261.46 Mbit/s
95th percentile per-packet one-way delay: 88.513 ms
Loss rate: 0.00%
```

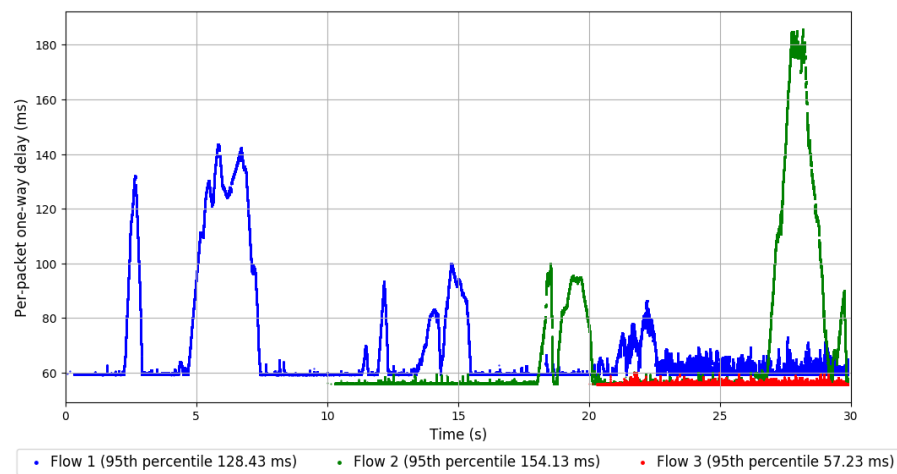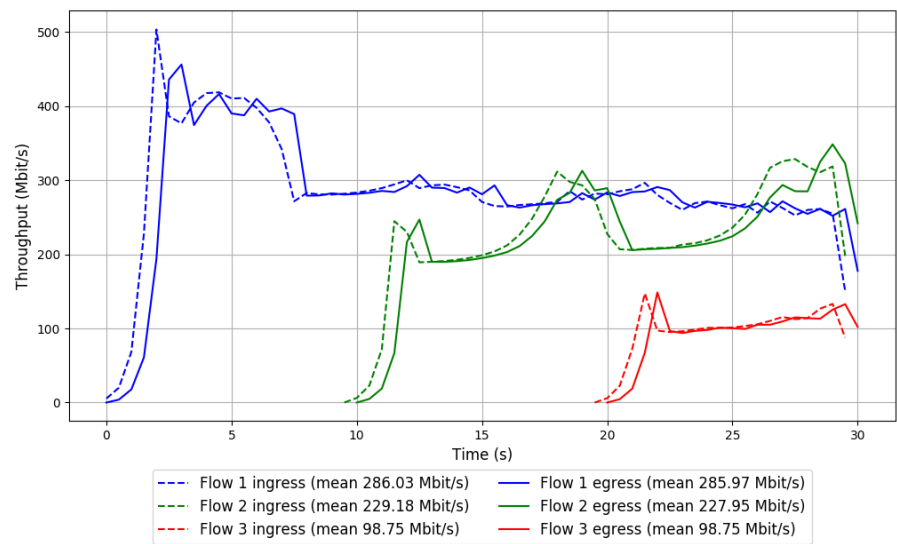Run 5: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2018-12-20 23:08:23
End at: 2018-12-20 23:08:53
Local clock offset: 1.21 ms
Remote clock offset: 0.225 ms


# Below is generated by plot.py at 2018-12-21 03:44:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 470.49 Mbit/s
95th percentile per-packet one-way delay: 130.136 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 285.97 Mbit/s
95th percentile per-packet one-way delay: 128.427 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 227.95 Mbit/s
95th percentile per-packet one-way delay: 154.135 ms
Loss rate: 0.54%
-- Flow 3:
Average throughput: 98.75 Mbit/s
95th percentile per-packet one-way delay: 57.231 ms
Loss rate: 0.00%
```
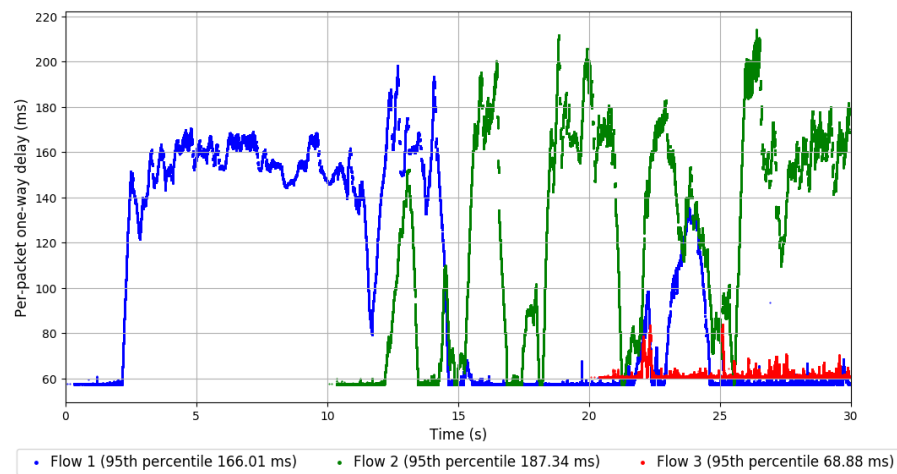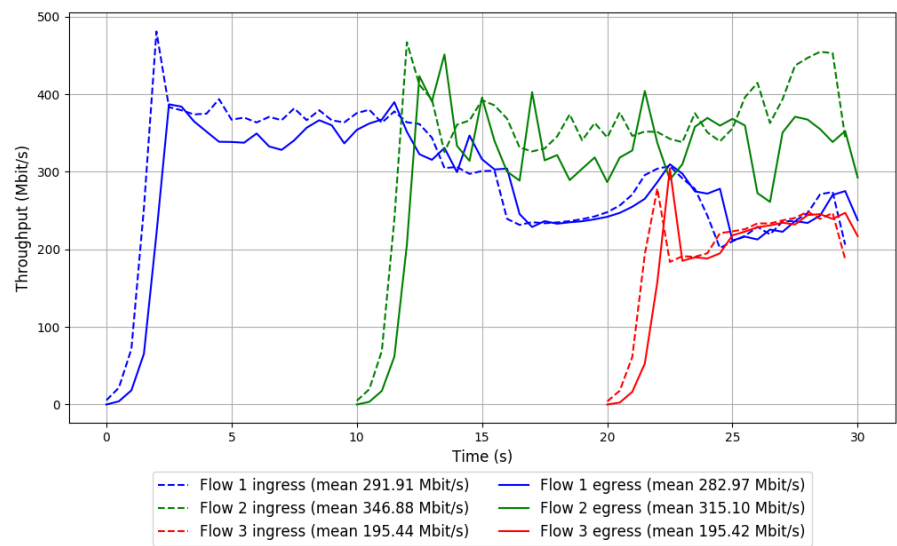
Run 1: Report of PCC-Expr — Data Link

```
Run 2: Statistics of PCC-Expr

Start at: 2018-12-20 23:42:34
End at: 2018-12-20 23:43:04
Local clock offset: -0.555 ms
Remote clock offset: -0.091 ms


# Below is generated by plot.py at 2018-12-21 03:44:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 556.97 Mbit/s
95th percentile per-packet one-way delay: 173.772 ms
Loss rate: 5.13%
-- Flow 1:
Average throughput: 282.97 Mbit/s
95th percentile per-packet one-way delay: 166.009 ms
Loss rate: 3.06%
-- Flow 2:
Average throughput: 315.10 Mbit/s
95th percentile per-packet one-way delay: 187.343 ms
Loss rate: 9.16%
-- Flow 3:
Average throughput: 195.42 Mbit/s
95th percentile per-packet one-way delay: 68.877 ms
Loss rate: 0.04%
```
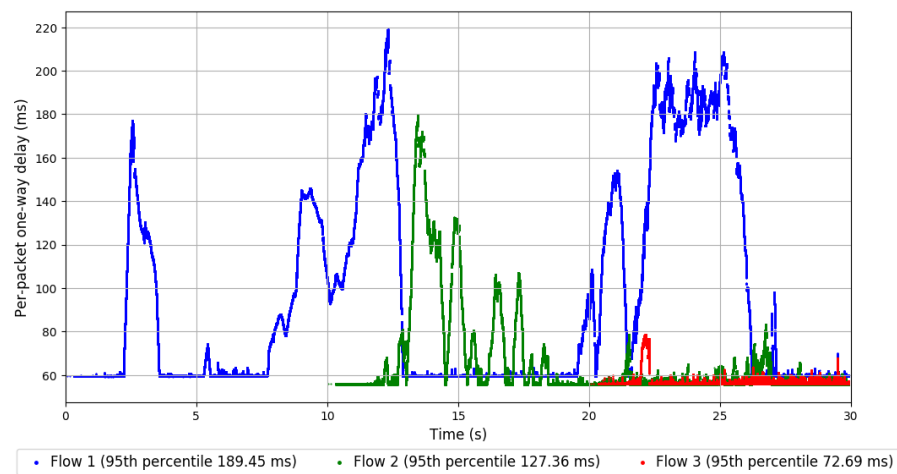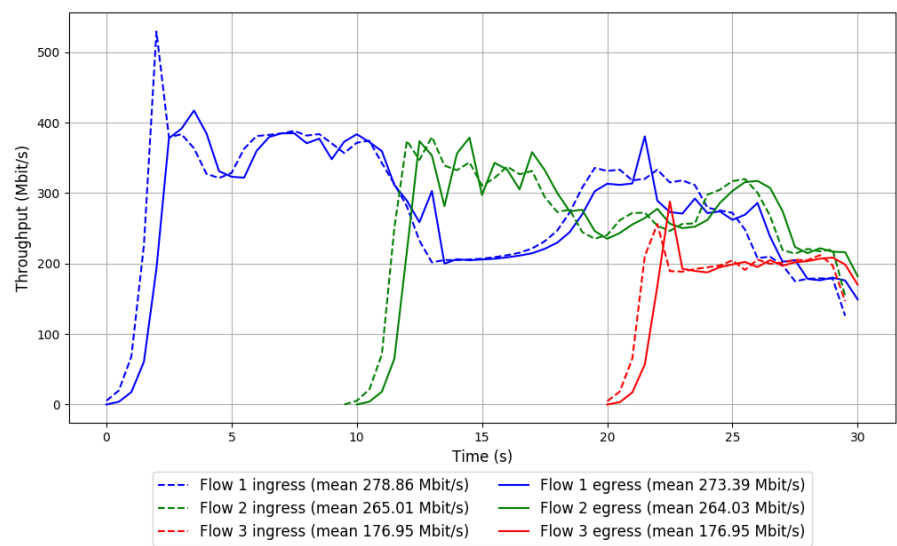
## Run 2: Report of PCC-Expr — Data Link

```
Run 3: Statistics of PCC-Expr

Start at: 2018-12-21 00:16:07
End at: 2018-12-21 00:16:37
Local clock offset: 1.088 ms
Remote clock offset: -0.112 ms

# Below is generated by plot.py at 2018-12-21 03:44:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 507.57 Mbit/s
95th percentile per-packet one-way delay: 180.872 ms
Loss rate: 1.19%
-- Flow 1:
Average throughput: 273.39 Mbit/s
95th percentile per-packet one-way delay: 189.449 ms
Loss rate: 1.97%
-- Flow 2:
Average throughput: 264.03 Mbit/s
95th percentile per-packet one-way delay: 127.363 ms
Loss rate: 0.37%
-- Flow 3:
Average throughput: 176.95 Mbit/s
95th percentile per-packet one-way delay: 72.694 ms
Loss rate: 0.00%
```
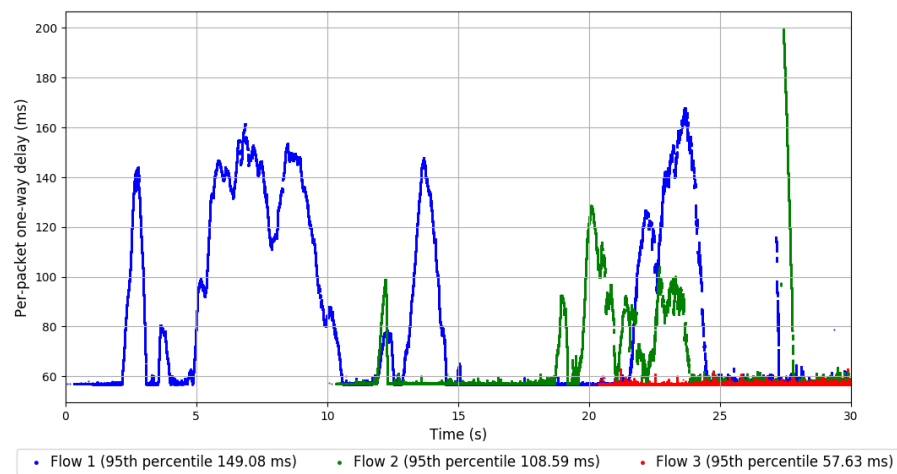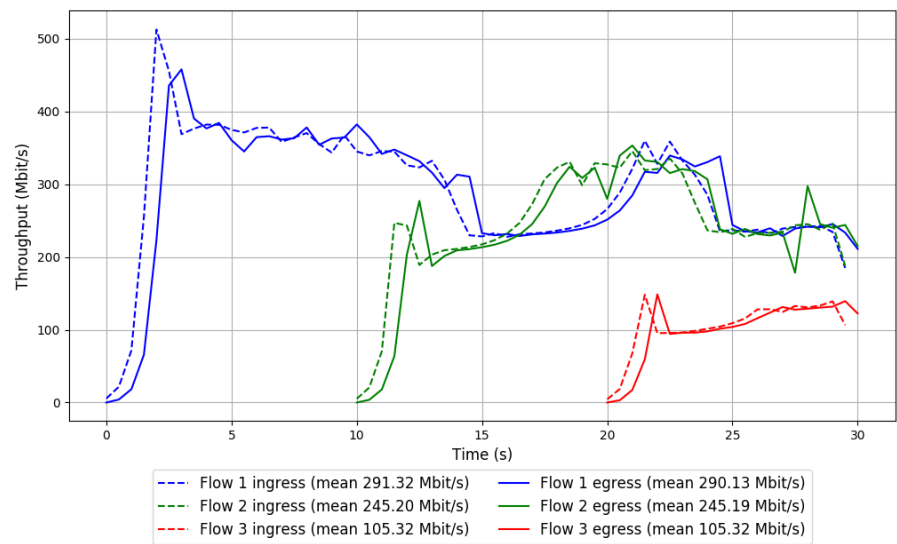
# Run 3: Report of PCC-Expr — Data Link



- - - Flow 1 ingress (mean 278.86 Mbit/s) —— Flow 1 egress (mean 273.39 Mbit/s)
- - - Flow 2 ingress (mean 265.01 Mbit/s) —— Flow 2 egress (mean 264.03 Mbit/s)
- - - Flow 3 ingress (mean 176.95 Mbit/s) —— Flow 3 egress (mean 176.95 Mbit/s)



- Flow 1 (95th percentile 189.45 ms)   - Flow 2 (95th percentile 127.36 ms)   - Flow 3 (95th percentile 72.69 ms)

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```
Run 4: Statistics of PCC-Expr

Start at: 2018-12-21 00:50:09
End at: 2018-12-21 00:50:39
Local clock offset: 0.044 ms
Remote clock offset: -0.069 ms


# Below is generated by plot.py at 2018-12-21 03:49:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 487.93 Mbit/s
95th percentile per-packet one-way delay: 146.690 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 290.13 Mbit/s
95th percentile per-packet one-way delay: 149.078 ms
Loss rate: 0.42%
-- Flow 2:
Average throughput: 245.19 Mbit/s
95th percentile per-packet one-way delay: 108.594 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 105.32 Mbit/s
95th percentile per-packet one-way delay: 57.635 ms
Loss rate: 0.01%
```
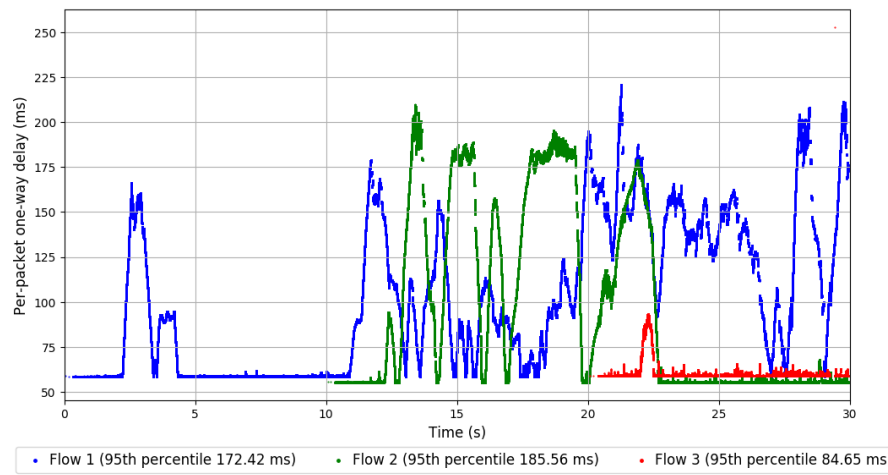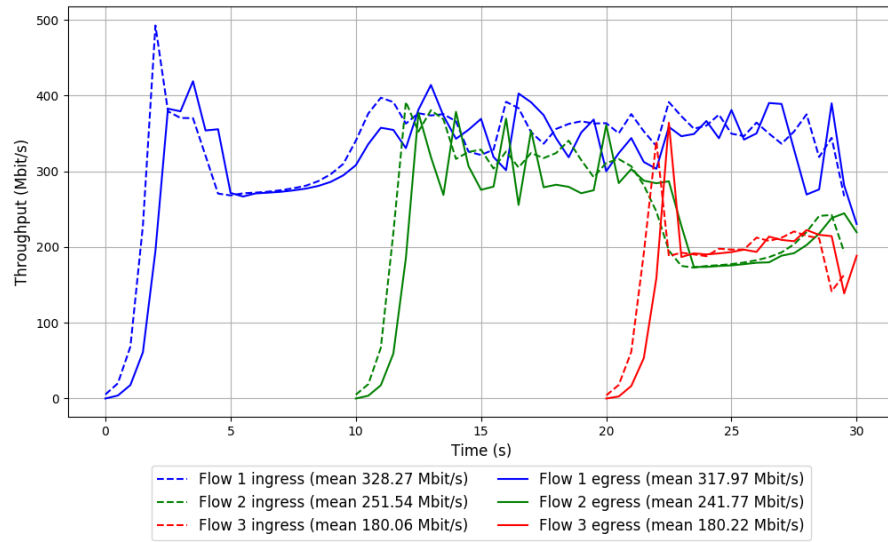
Run 4: Report of PCC-Expr — Data Link

```
Run 5: Statistics of PCC-Expr

Start at: 2018-12-21 01:23:17
End at: 2018-12-21 01:23:47
Local clock offset: 1.488 ms
Remote clock offset: -0.337 ms

# Below is generated by plot.py at 2018-12-21 03:57:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 538.19 Mbit/s
95th percentile per-packet one-way delay: 182.085 ms
Loss rate: 3.03%
-- Flow 1:
Average throughput: 317.97 Mbit/s
95th percentile per-packet one-way delay: 172.418 ms
Loss rate: 3.14%
-- Flow 2:
Average throughput: 241.77 Mbit/s
95th percentile per-packet one-way delay: 185.565 ms
Loss rate: 3.89%
-- Flow 3:
Average throughput: 180.22 Mbit/s
95th percentile per-packet one-way delay: 84.651 ms
Loss rate: 0.00%
```

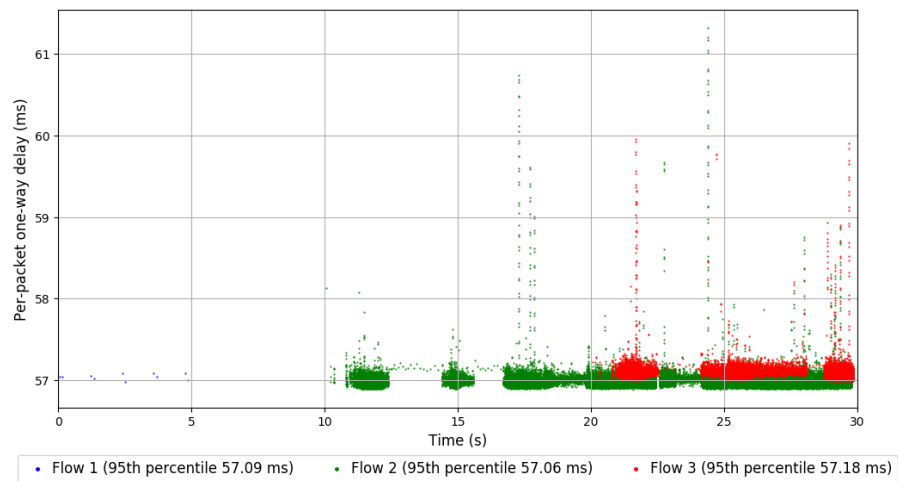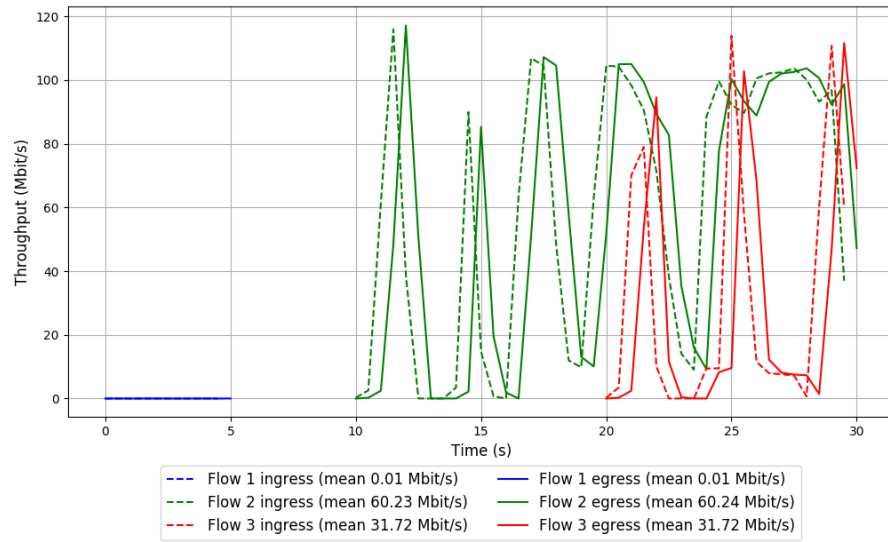Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-12-20 22:54:50
End at: 2018-12-20 22:55:20
Local clock offset: -0.077 ms
Remote clock offset: -0.127 ms


# Below is generated by plot.py at 2018-12-21 03:57:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 50.23 Mbit/s
95th percentile per-packet one-way delay: 57.120 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 57.089 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 60.24 Mbit/s
95th percentile per-packet one-way delay: 57.063 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 31.72 Mbit/s
95th percentile per-packet one-way delay: 57.179 ms
Loss rate: 0.00%
```

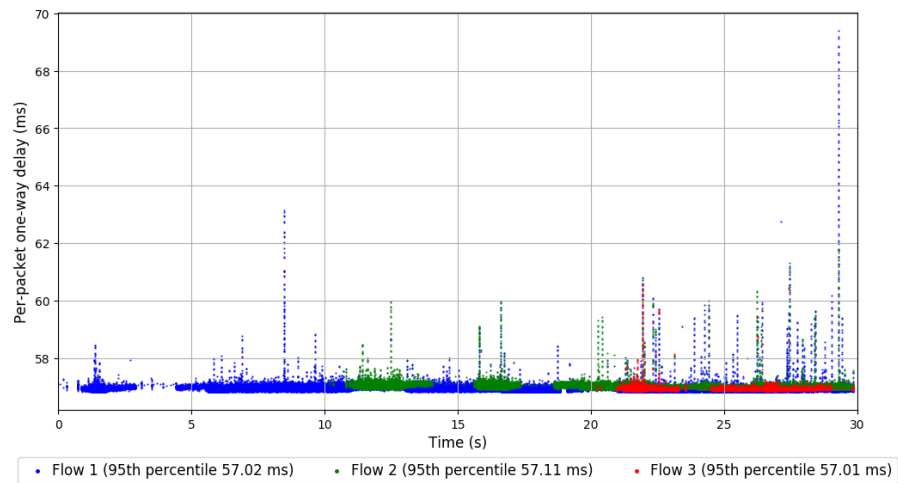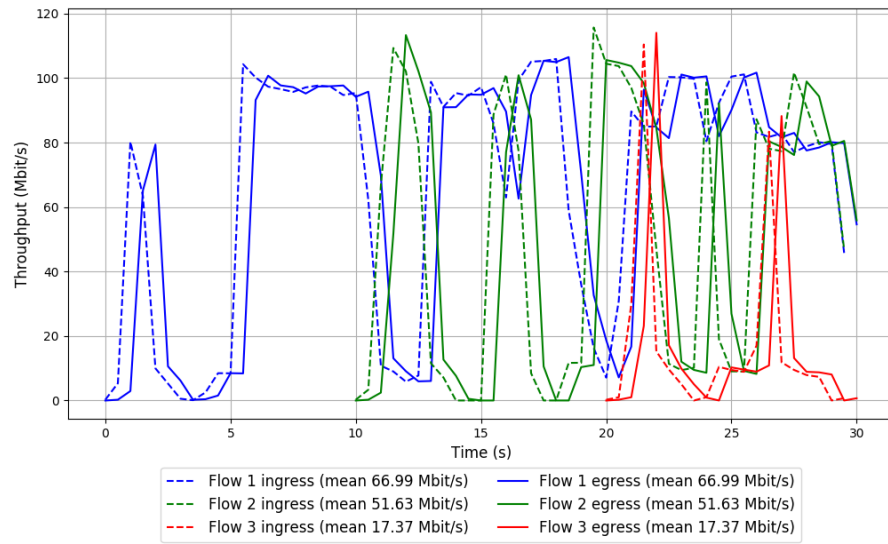Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-12-20 23:29:51
End at: 2018-12-20 23:30:21
Local clock offset: -0.105 ms
Remote clock offset: -0.168 ms


# Below is generated by plot.py at 2018-12-21 03:57:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 106.95 Mbit/s
95th percentile per-packet one-way delay: 57.068 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 66.99 Mbit/s
95th percentile per-packet one-way delay: 57.023 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 51.63 Mbit/s
95th percentile per-packet one-way delay: 57.110 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 17.37 Mbit/s
95th percentile per-packet one-way delay: 57.011 ms
Loss rate: 0.00%
```

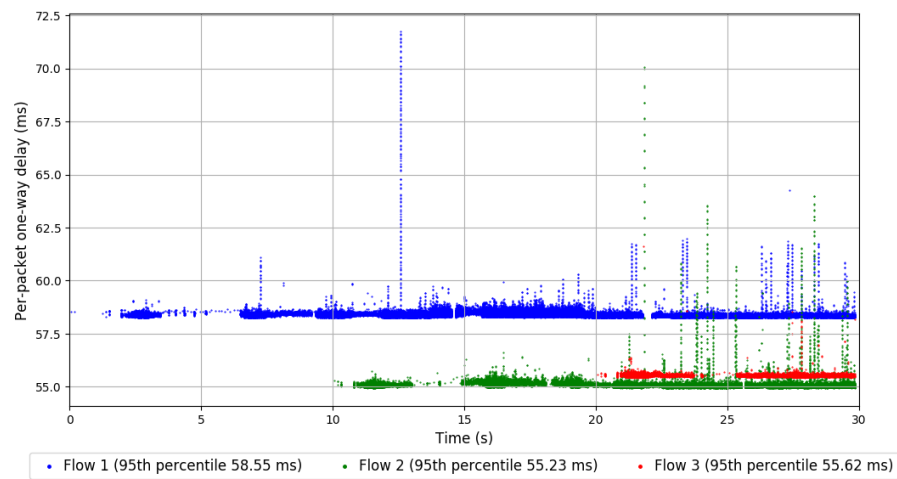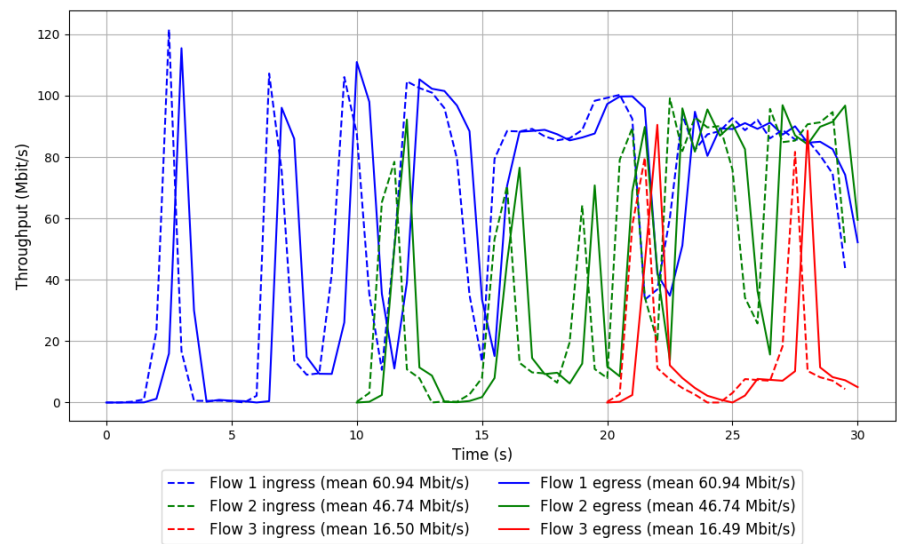Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-12-21 00:03:13
End at: 2018-12-21 00:03:43
Local clock offset: 1.504 ms
Remote clock offset: -0.396 ms


# Below is generated by plot.py at 2018-12-21 03:57:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.37 Mbit/s
95th percentile per-packet one-way delay: 58.512 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 60.94 Mbit/s
95th percentile per-packet one-way delay: 58.551 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 46.74 Mbit/s
95th percentile per-packet one-way delay: 55.229 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 16.49 Mbit/s
95th percentile per-packet one-way delay: 55.623 ms
Loss rate: 0.00%
```
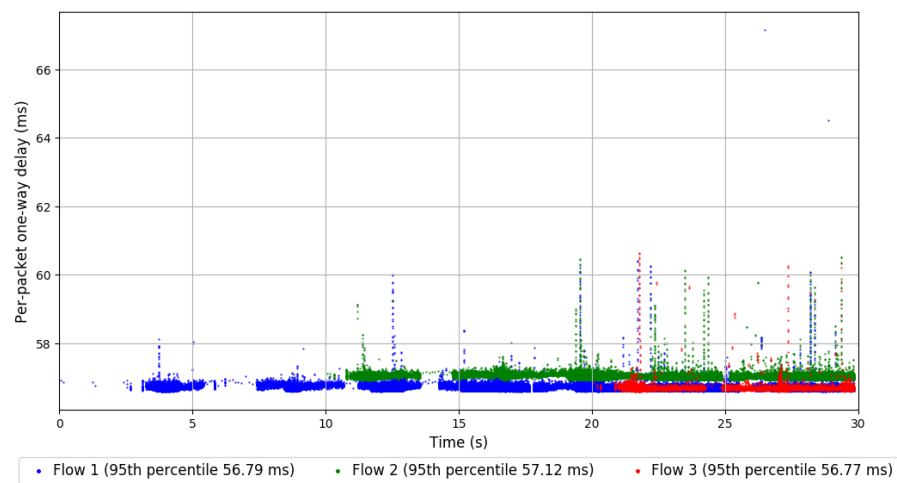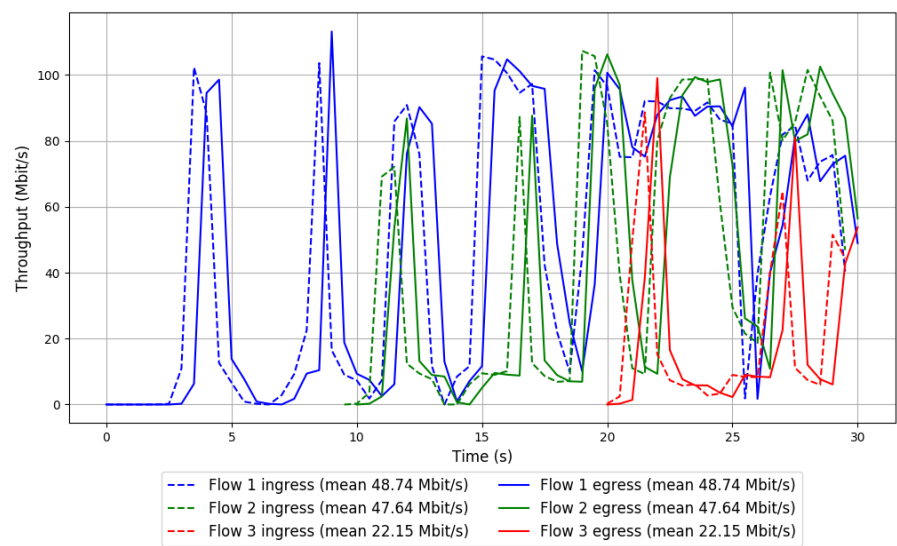
Run 3: Report of QUIC Cubic — Data Link



- - - - Flow 1 ingress (mean 60.94 Mbit/s)      ——— Flow 1 egress (mean 60.94 Mbit/s)
- - - - Flow 2 ingress (mean 46.74 Mbit/s)      ——— Flow 2 egress (mean 46.74 Mbit/s)
- - - - Flow 3 ingress (mean 16.50 Mbit/s)      ——— Flow 3 egress (mean 16.49 Mbit/s)



• Flow 1 (95th percentile 58.55 ms)      • Flow 2 (95th percentile 55.23 ms)      • Flow 3 (95th percentile 55.62 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-12-21 00:36:48
End at: 2018-12-21 00:37:18
Local clock offset: -0.004 ms
Remote clock offset: -0.366 ms


# Below is generated by plot.py at 2018-12-21 03:57:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.64 Mbit/s
95th percentile per-packet one-way delay: 57.073 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 48.74 Mbit/s
95th percentile per-packet one-way delay: 56.793 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 47.64 Mbit/s
95th percentile per-packet one-way delay: 57.124 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 22.15 Mbit/s
95th percentile per-packet one-way delay: 56.775 ms
Loss rate: 0.00%
```
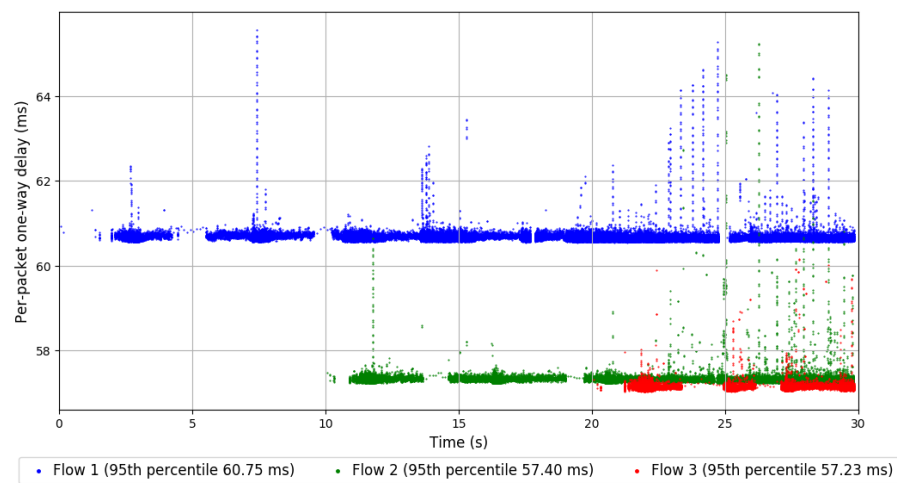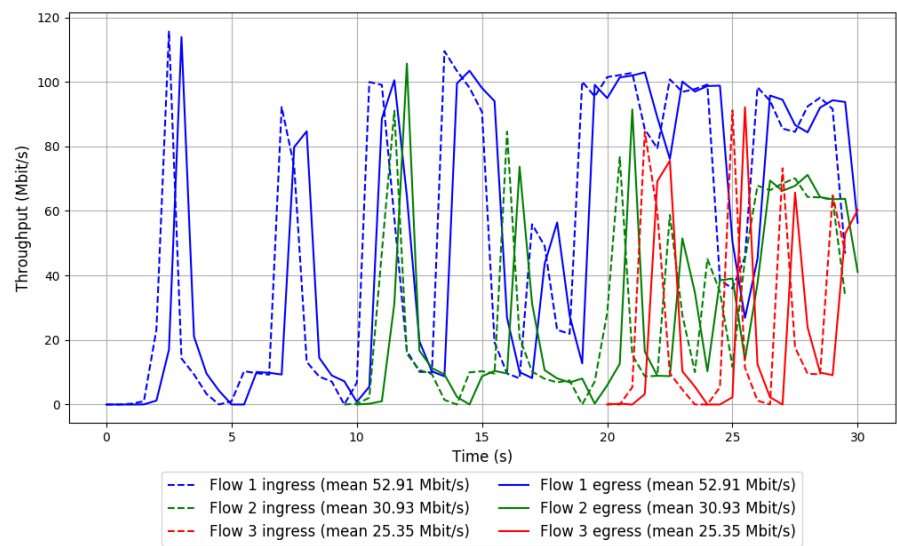
Run 4: Report of QUIC Cubic — Data Link

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-12-21 01:10:36
End at: 2018-12-21 01:11:06
Local clock offset: -0.093 ms
Remote clock offset: 0.02 ms


# Below is generated by plot.py at 2018-12-21 03:57:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.75 Mbit/s
95th percentile per-packet one-way delay: 60.727 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 52.91 Mbit/s
95th percentile per-packet one-way delay: 60.746 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 30.93 Mbit/s
95th percentile per-packet one-way delay: 57.395 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 25.35 Mbit/s
95th percentile per-packet one-way delay: 57.225 ms
Loss rate: 0.00%
```

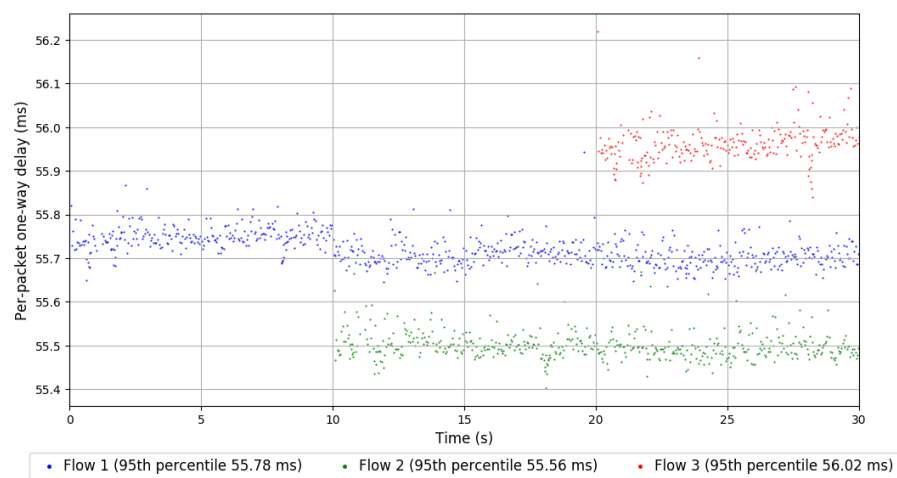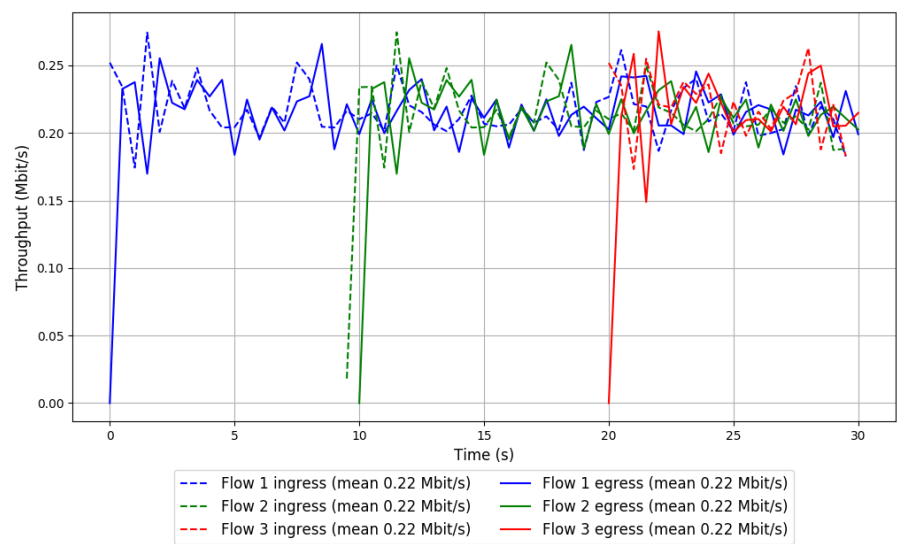Run 5: Report of QUIC Cubic — Data Link

```
Run 1: Statistics of SCReAM

Start at: 2018-12-20 23:04:54
End at: 2018-12-20 23:05:24
Local clock offset: 1.18 ms
Remote clock offset: -0.358 ms

# Below is generated by plot.py at 2018-12-21 03:57:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 55.977 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 55.779 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 55.561 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 56.025 ms
Loss rate: 0.00%
```
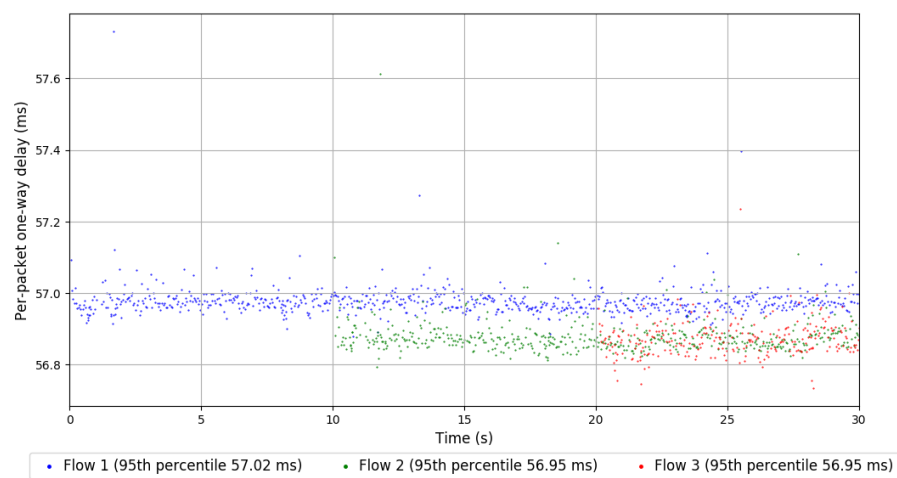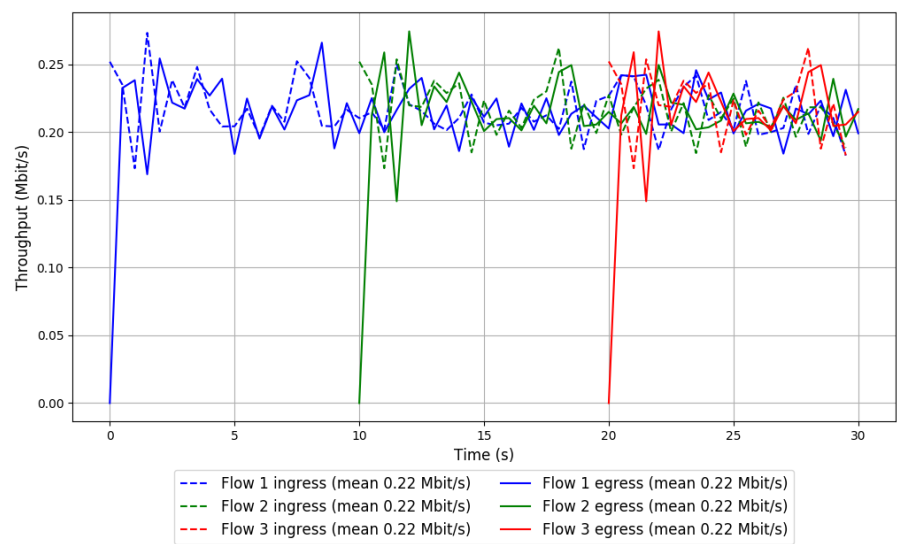
# Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2018-12-20 23:39:32
End at: 2018-12-20 23:40:02
Local clock offset: 0.113 ms
Remote clock offset: -0.182 ms


# Below is generated by plot.py at 2018-12-21 03:57:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 57.012 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.024 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 56.947 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 56.953 ms
Loss rate: 0.00%
```
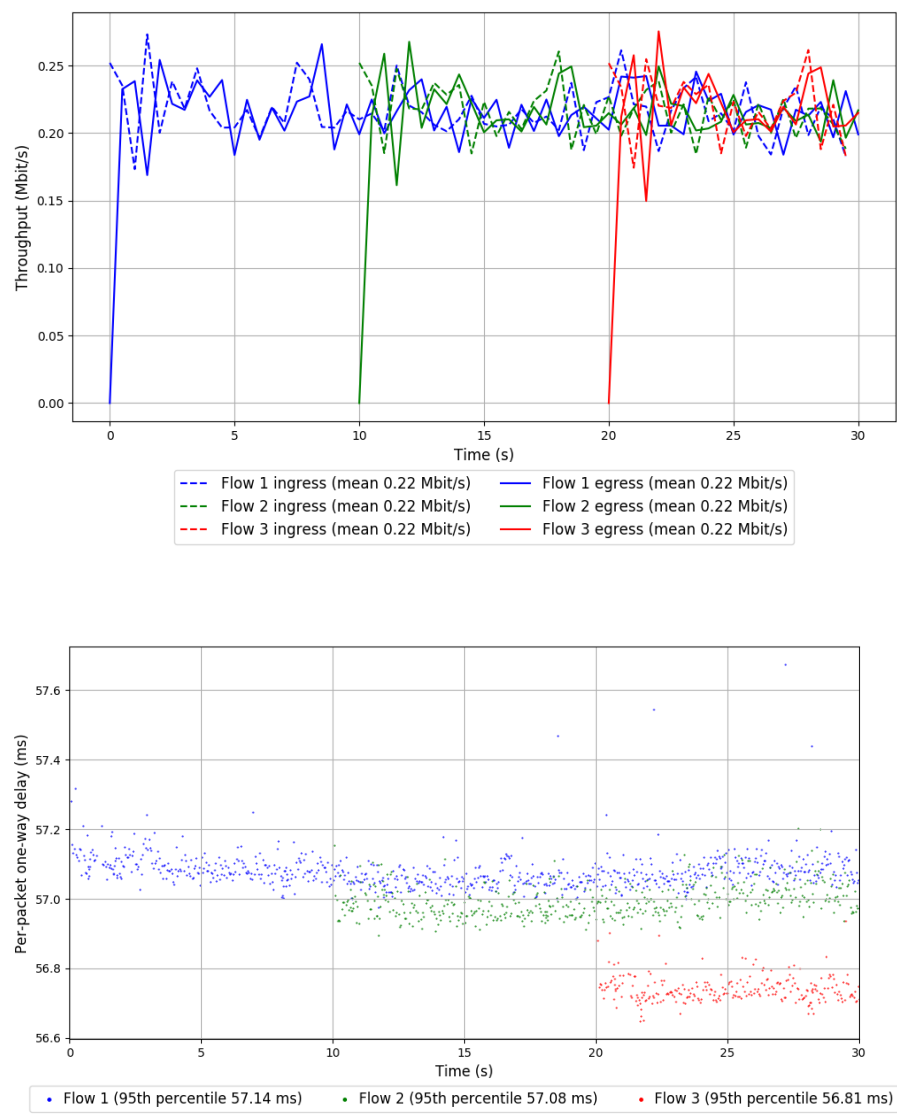
## Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-12-21 00:12:43
End at: 2018-12-21 00:13:13
Local clock offset: -0.149 ms
Remote clock offset: -0.403 ms


# Below is generated by plot.py at 2018-12-21 03:57:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 57.126 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.144 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.080 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 56.811 ms
Loss rate: 0.00%
```

## Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2018-12-21 00:46:38
End at: 2018-12-21 00:47:08
Local clock offset: -0.072 ms
Remote clock offset: 0.019 ms


# Below is generated by plot.py at 2018-12-21 03:57:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 60.914 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.734 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.325 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.969 ms
Loss rate: 0.00%
```
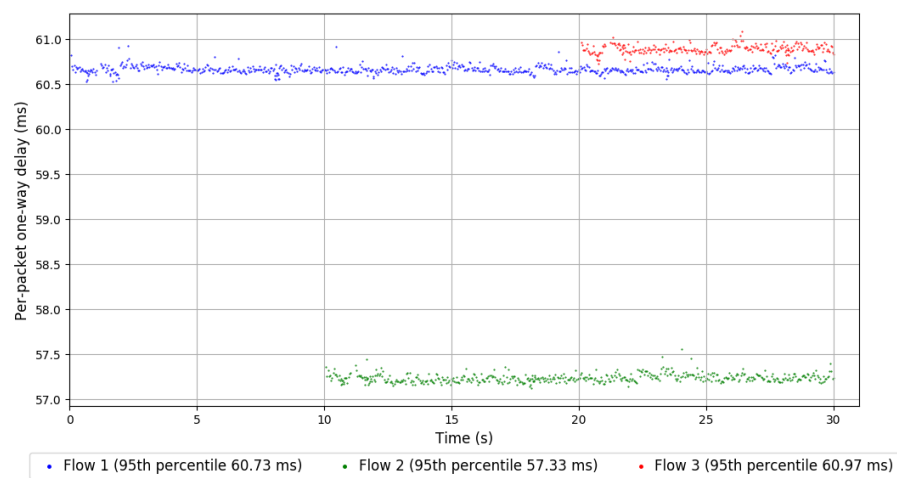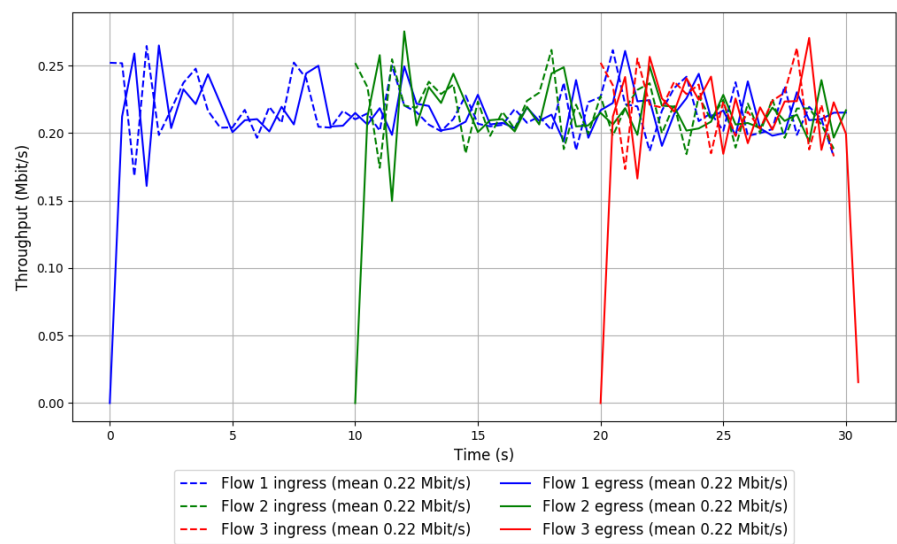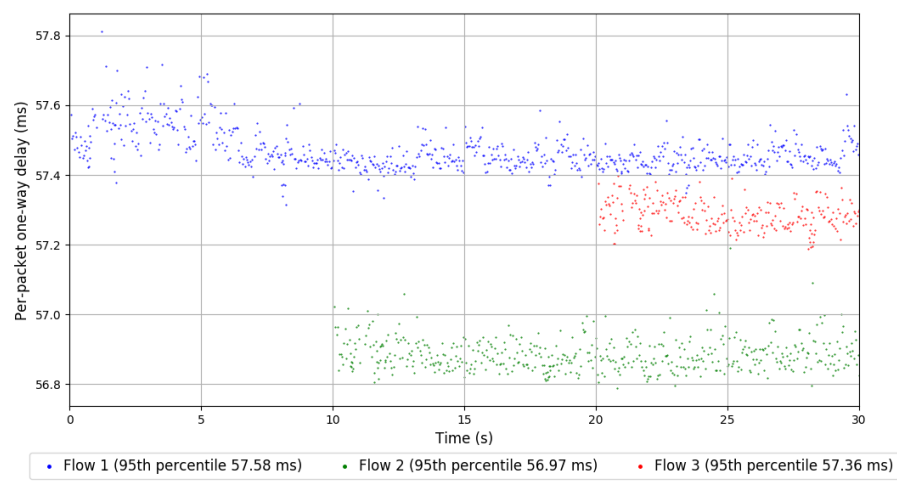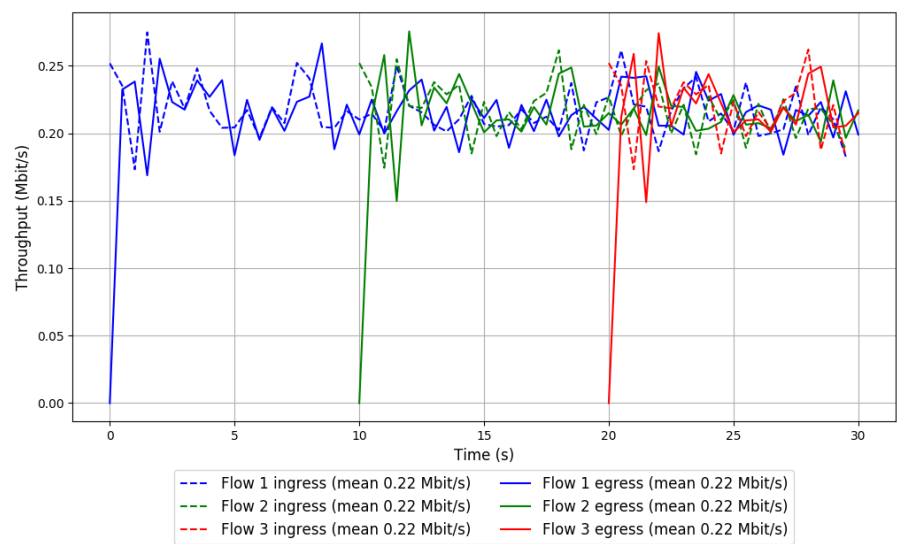
Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2018-12-21 01:19:57
End at: 2018-12-21 01:20:27
Local clock offset: -0.03 ms
Remote clock offset: -0.097 ms


# Below is generated by plot.py at 2018-12-21 03:57:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 57.547 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.584 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 56.971 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.357 ms
Loss rate: 0.00%
```
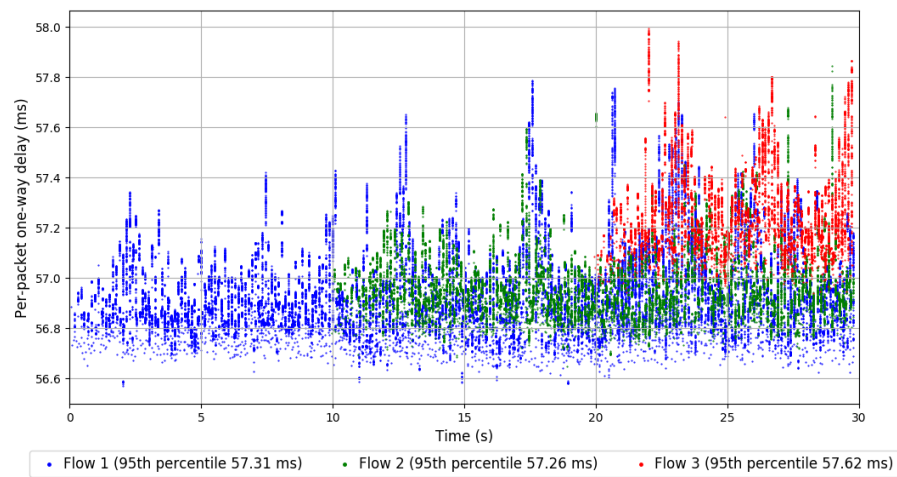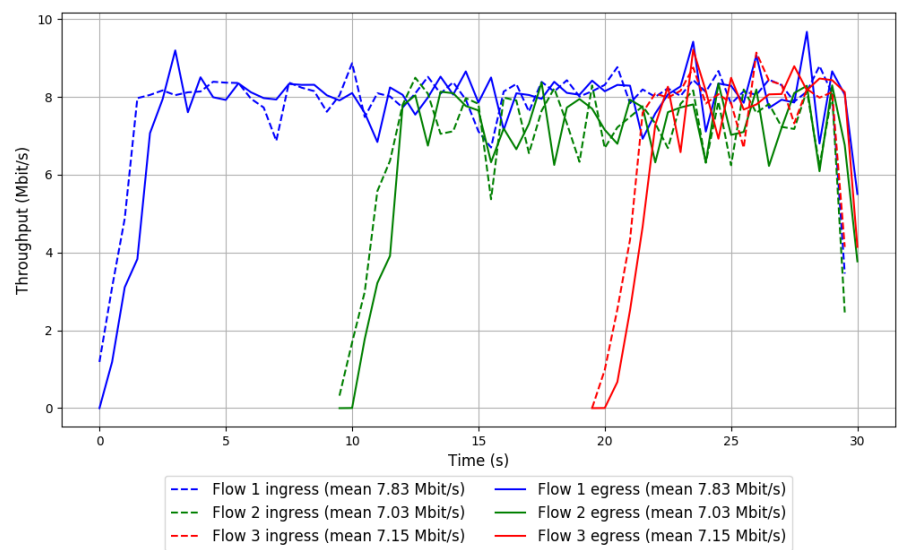
# Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2018-12-20 23:03:40
End at: 2018-12-20 23:04:10
Local clock offset: 0.192 ms
Remote clock offset: -0.053 ms


# Below is generated by plot.py at 2018-12-21 03:57:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.89 Mbit/s
95th percentile per-packet one-way delay: 57.393 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.83 Mbit/s
95th percentile per-packet one-way delay: 57.310 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 7.03 Mbit/s
95th percentile per-packet one-way delay: 57.264 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 7.15 Mbit/s
95th percentile per-packet one-way delay: 57.618 ms
Loss rate: 0.00%
```
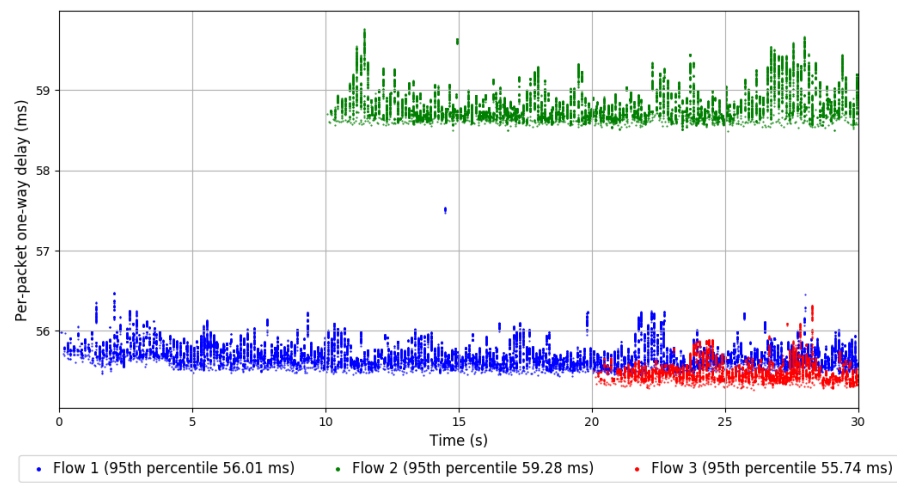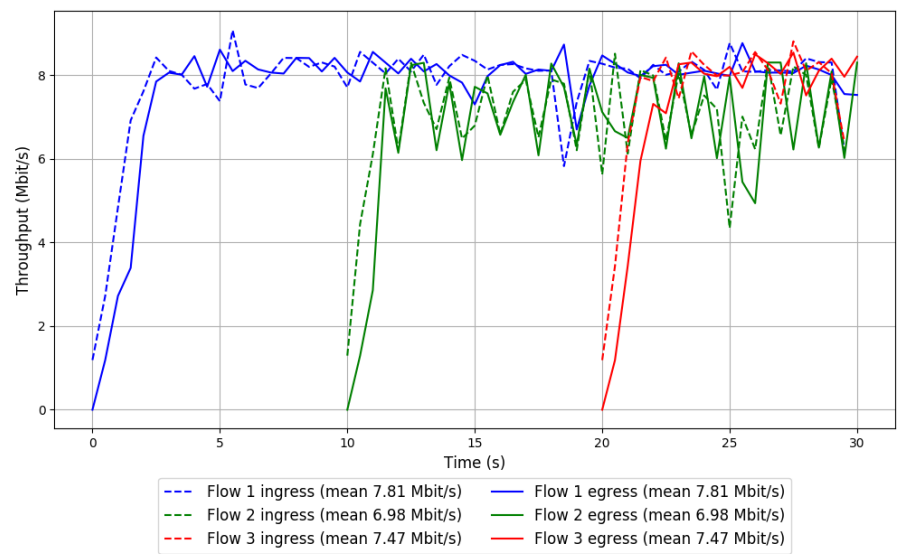
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-12-20 23:38:19
End at: 2018-12-20 23:38:49
Local clock offset: 1.568 ms
Remote clock offset: -0.152 ms


# Below is generated by plot.py at 2018-12-21 03:57:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.91 Mbit/s
95th percentile per-packet one-way delay: 59.060 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.81 Mbit/s
95th percentile per-packet one-way delay: 56.005 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 6.98 Mbit/s
95th percentile per-packet one-way delay: 59.284 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 7.47 Mbit/s
95th percentile per-packet one-way delay: 55.736 ms
Loss rate: 0.00%
```
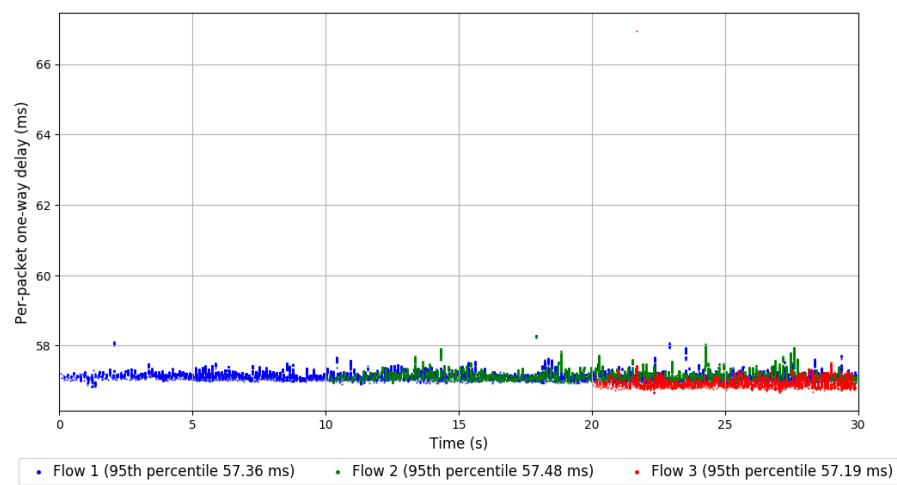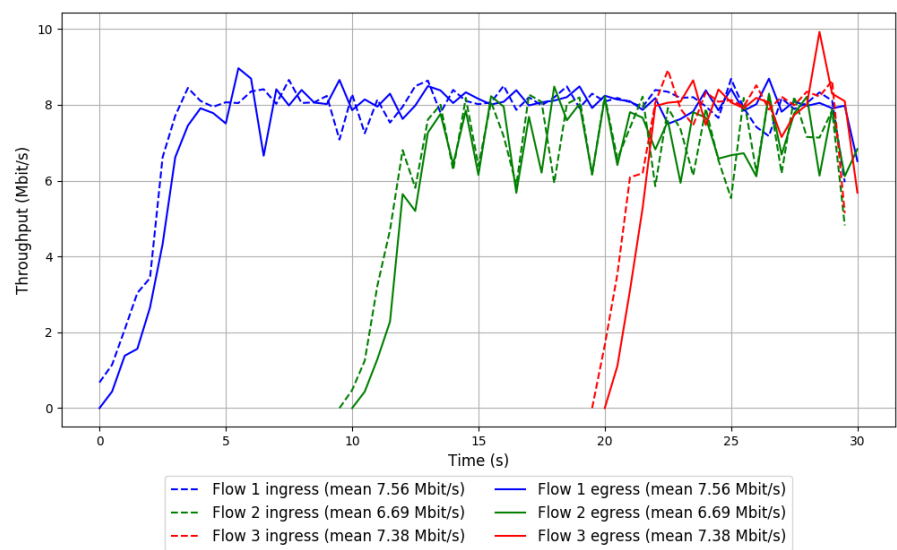
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-12-21 00:11:29
End at: 2018-12-21 00:11:59
Local clock offset: -0.067 ms
Remote clock offset: -0.389 ms


# Below is generated by plot.py at 2018-12-21 03:57:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.45 Mbit/s
95th percentile per-packet one-way delay: 57.377 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.56 Mbit/s
95th percentile per-packet one-way delay: 57.364 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 6.69 Mbit/s
95th percentile per-packet one-way delay: 57.482 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 7.38 Mbit/s
95th percentile per-packet one-way delay: 57.189 ms
Loss rate: 0.00%
```
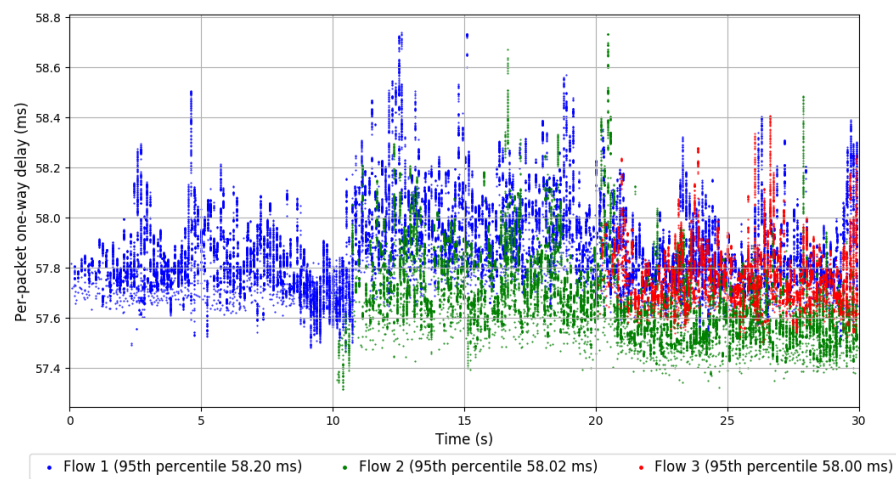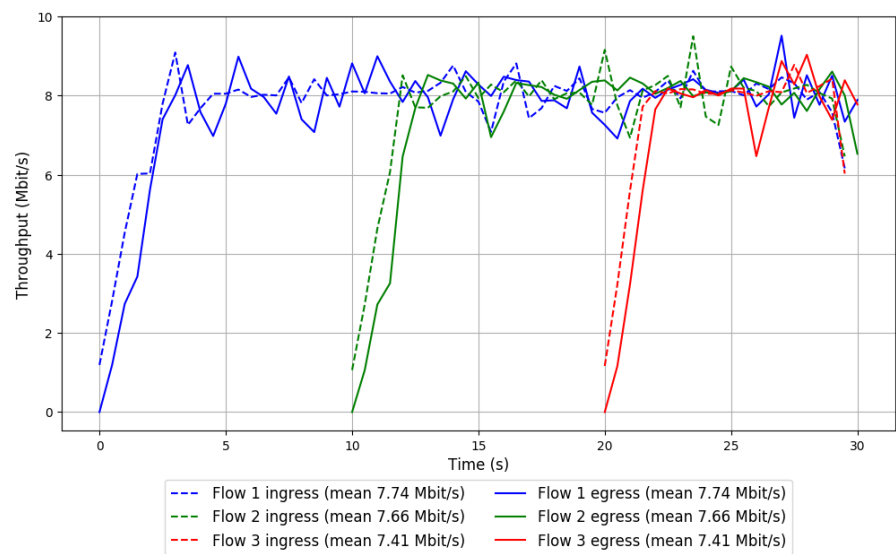
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2018-12-21 00:45:24
End at: 2018-12-21 00:45:54
Local clock offset: -0.342 ms
Remote clock offset: 0.146 ms


# Below is generated by plot.py at 2018-12-21 03:57:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 15.28 Mbit/s
95th percentile per-packet one-way delay: 58.144 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.74 Mbit/s
95th percentile per-packet one-way delay: 58.197 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 7.66 Mbit/s
95th percentile per-packet one-way delay: 58.021 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 7.41 Mbit/s
95th percentile per-packet one-way delay: 57.998 ms
Loss rate: 0.00%
```
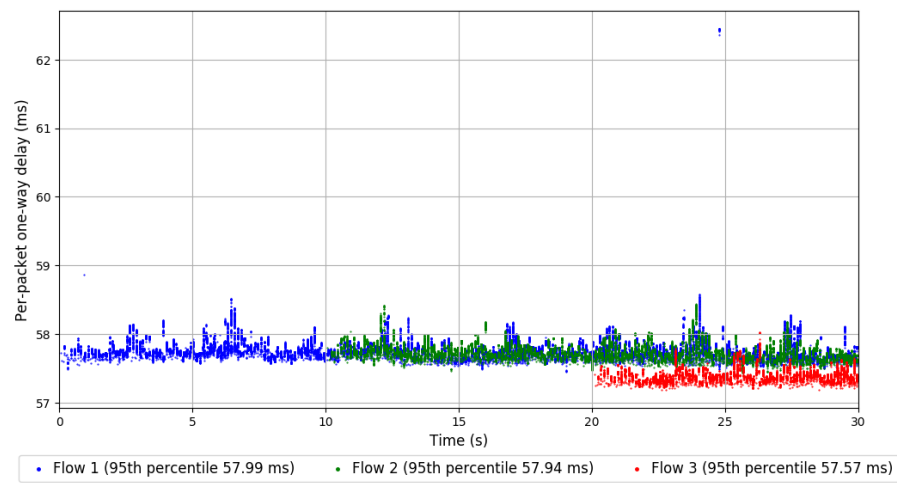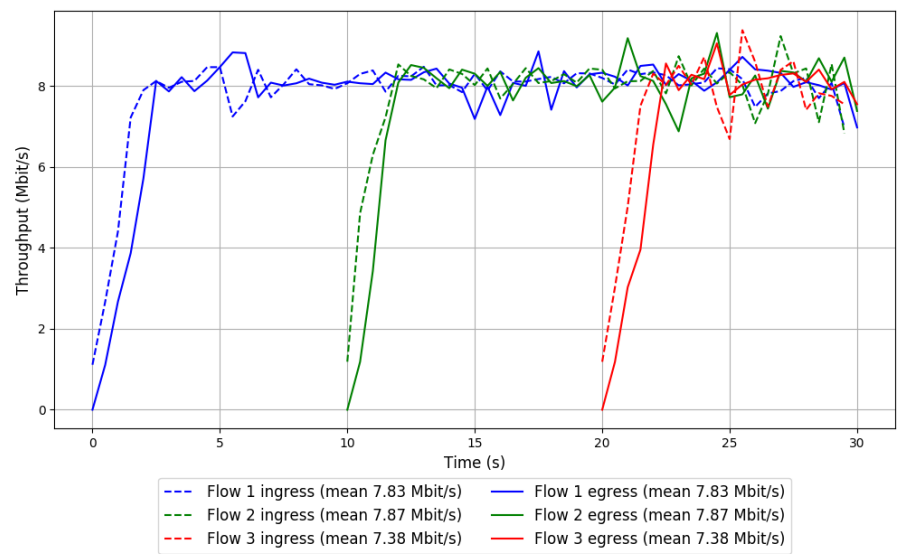
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-12-21 01:18:43
End at: 2018-12-21 01:19:13
Local clock offset: -0.048 ms
Remote clock offset: 0.042 ms


# Below is generated by plot.py at 2018-12-21 03:57:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 15.50 Mbit/s
95th percentile per-packet one-way delay: 57.952 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.83 Mbit/s
95th percentile per-packet one-way delay: 57.995 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 7.87 Mbit/s
95th percentile per-packet one-way delay: 57.941 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 7.38 Mbit/s
95th percentile per-packet one-way delay: 57.568 ms
Loss rate: 0.00%
```

## Run 5: Report of Sprout — Data Link



- - - - Flow 1 ingress (mean 7.83 Mbit/s)　——— Flow 1 egress (mean 7.83 Mbit/s)
- - - - Flow 2 ingress (mean 7.87 Mbit/s)　——— Flow 2 egress (mean 7.87 Mbit/s)
- - - - Flow 3 ingress (mean 7.38 Mbit/s)　——— Flow 3 egress (mean 7.38 Mbit/s)



- Flow 1 (95th percentile 57.99 ms)　• Flow 2 (95th percentile 57.94 ms)　• Flow 3 (95th percentile 57.57 ms)
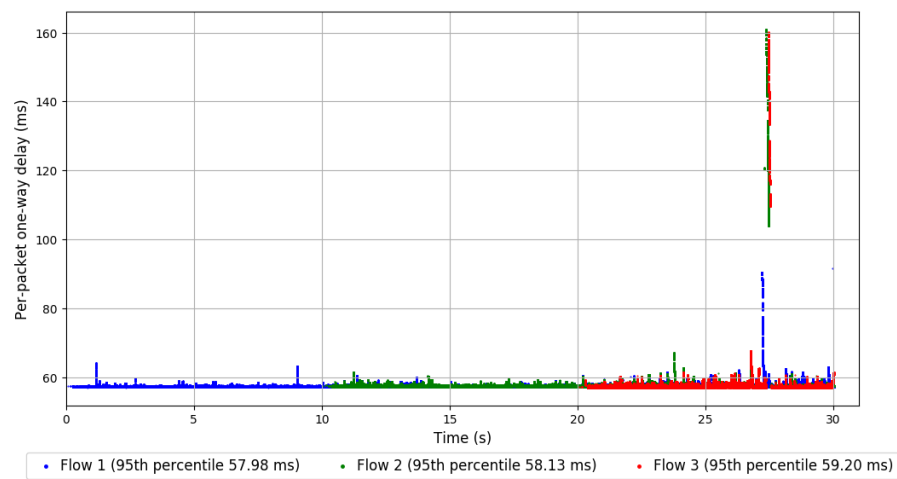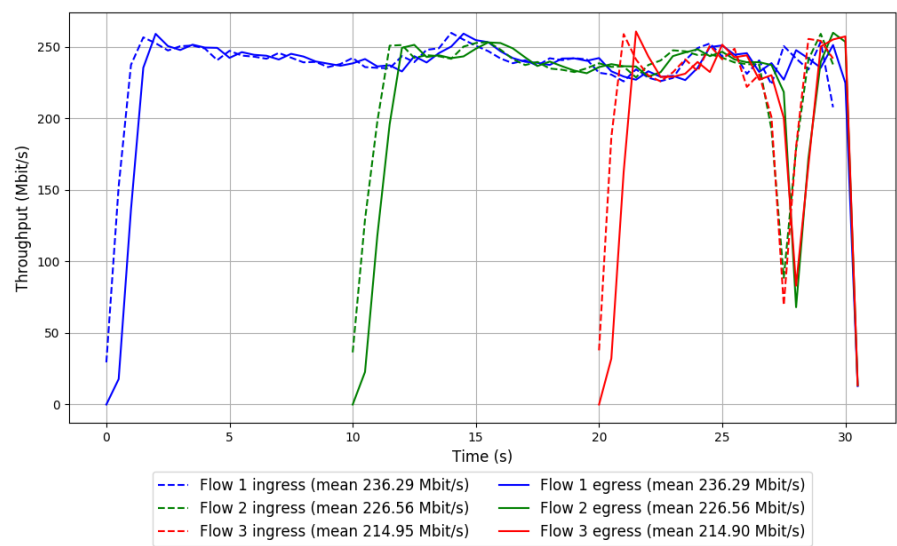
```
Run 1: Statistics of TaoVA-100x

Start at: 2018-12-20 23:15:35
End at: 2018-12-20 23:16:05
Local clock offset: -0.056 ms
Remote clock offset: -0.03 ms


# Below is generated by plot.py at 2018-12-21 04:01:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 458.64 Mbit/s
95th percentile per-packet one-way delay: 58.192 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 236.29 Mbit/s
95th percentile per-packet one-way delay: 57.980 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 226.56 Mbit/s
95th percentile per-packet one-way delay: 58.133 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 214.90 Mbit/s
95th percentile per-packet one-way delay: 59.200 ms
Loss rate: 0.03%
```

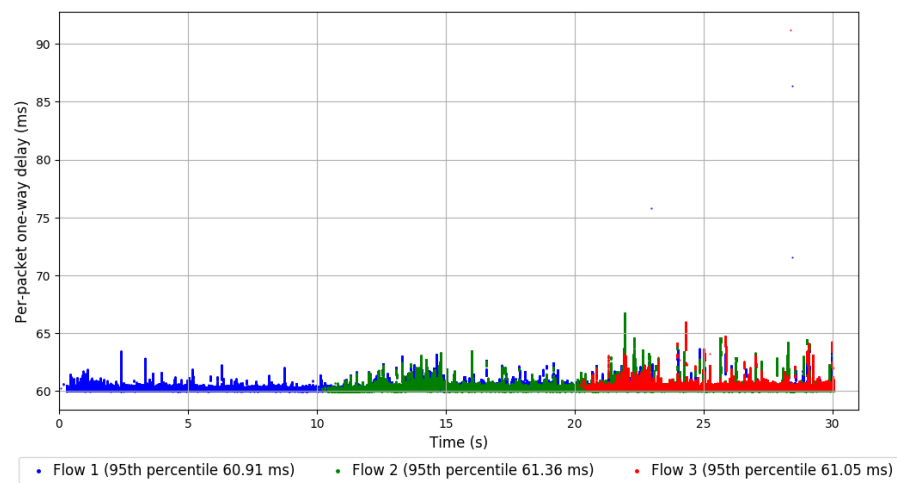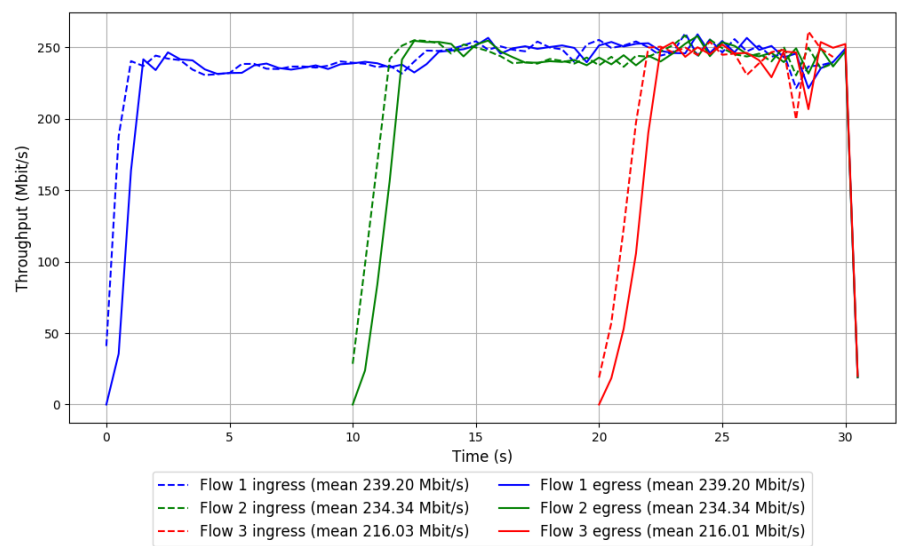Run 1: Report of TaoVA-100x — Data Link

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

Start at: 2018-12-20 23:49:45
End at: 2018-12-20 23:50:15
Local clock offset: -0.095 ms
Remote clock offset: -0.272 ms

# Below is generated by plot.py at 2018-12-21 04:01:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 466.98 Mbit/s
95th percentile per-packet one-way delay: 61.072 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 239.20 Mbit/s
95th percentile per-packet one-way delay: 60.909 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 234.34 Mbit/s
95th percentile per-packet one-way delay: 61.357 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 216.01 Mbit/s
95th percentile per-packet one-way delay: 61.045 ms
Loss rate: 0.04%
```

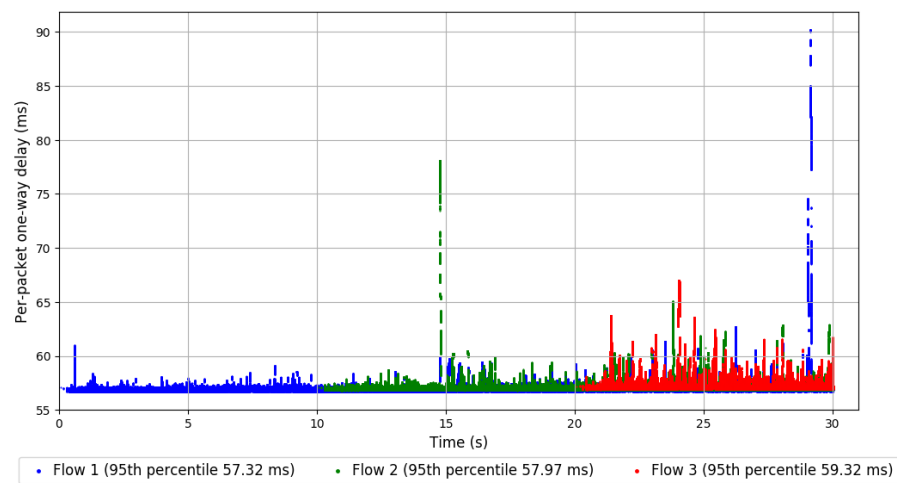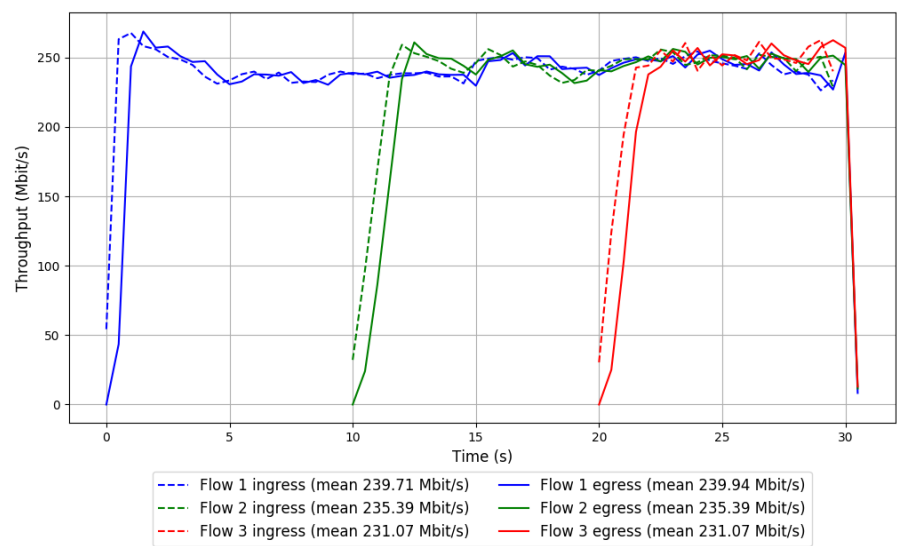## Run 2: Report of TaoVA-100x — Data Link





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

Start at: 2018-12-21 00:23:14
End at: 2018-12-21 00:23:44
Local clock offset: -0.123 ms
Remote clock offset: -0.308 ms


# Below is generated by plot.py at 2018-12-21 04:01:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 473.48 Mbit/s
95th percentile per-packet one-way delay: 58.024 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 239.94 Mbit/s
95th percentile per-packet one-way delay: 57.321 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 235.39 Mbit/s
95th percentile per-packet one-way delay: 57.965 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 231.07 Mbit/s
95th percentile per-packet one-way delay: 59.321 ms
Loss rate: 0.00%
```

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



Flow 1 ingress (mean 239.71 Mbit/s)   Flow 1 egress (mean 239.94 Mbit/s)
Flow 2 ingress (mean 235.39 Mbit/s)   Flow 2 egress (mean 235.39 Mbit/s)
Flow 3 ingress (mean 231.07 Mbit/s)   Flow 3 egress (mean 231.07 Mbit/s)



Flow 1 (95th percentile 57.32 ms)   Flow 2 (95th percentile 57.97 ms)   Flow 3 (95th percentile 59.32 ms)

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

Start at: 2018-12-21 00:57:14
End at: 2018-12-21 00:57:44
Local clock offset: -1.848 ms
Remote clock offset: 0.081 ms

# Below is generated by plot.py at 2018-12-21 04:01:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 453.28 Mbit/s
95th percentile per-packet one-way delay: 59.724 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 236.96 Mbit/s
95th percentile per-packet one-way delay: 59.538 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 229.93 Mbit/s
95th percentile per-packet one-way delay: 60.229 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 190.21 Mbit/s
95th percentile per-packet one-way delay: 59.476 ms
Loss rate: 0.00%
```
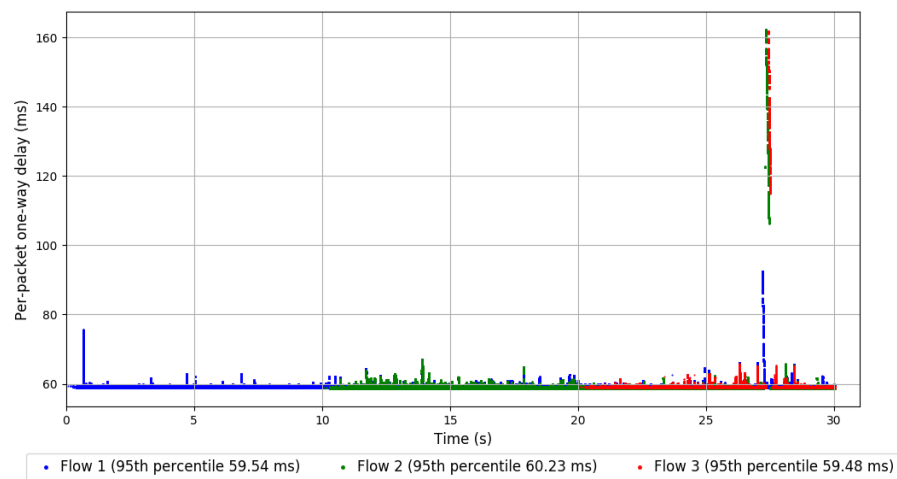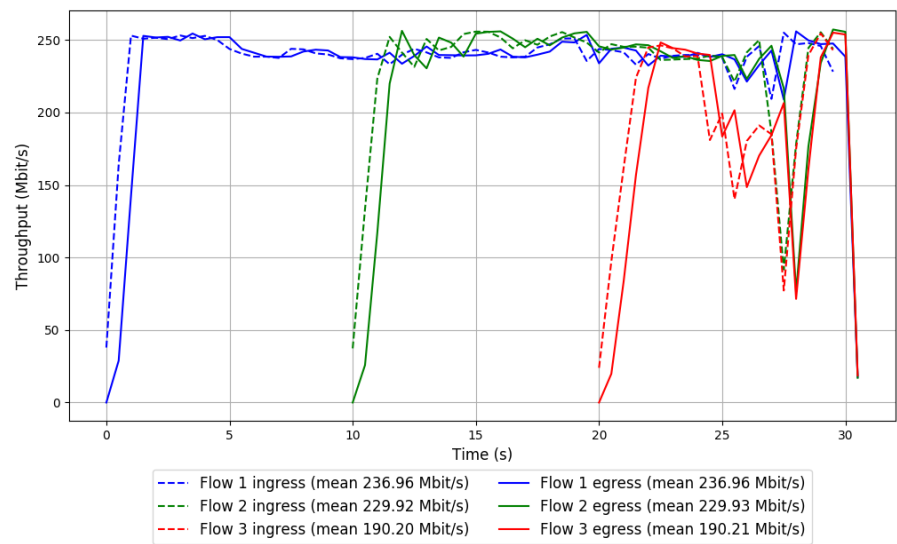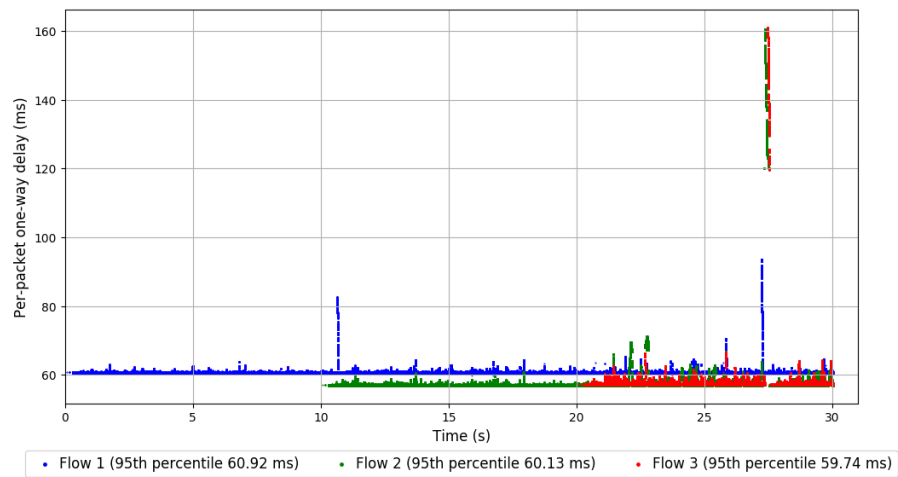
## Run 4: Report of TaoVA-100x — Data Link



- --- Flow 1 ingress (mean 236.96 Mbit/s) — Flow 1 egress (mean 236.96 Mbit/s)
- --- Flow 2 ingress (mean 229.92 Mbit/s) — Flow 2 egress (mean 229.93 Mbit/s)
- --- Flow 3 ingress (mean 190.20 Mbit/s) — Flow 3 egress (mean 190.21 Mbit/s)



- Flow 1 (95th percentile 59.54 ms)   • Flow 2 (95th percentile 60.23 ms)   • Flow 3 (95th percentile 59.48 ms)

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

Start at: 2018-12-21 01:30:26
End at: 2018-12-21 01:30:56
Local clock offset: -0.115 ms
Remote clock offset: 0.041 ms


# Below is generated by plot.py at 2018-12-21 04:01:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 463.54 Mbit/s
95th percentile per-packet one-way delay: 60.869 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 237.74 Mbit/s
95th percentile per-packet one-way delay: 60.925 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 226.89 Mbit/s
95th percentile per-packet one-way delay: 60.132 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 225.01 Mbit/s
95th percentile per-packet one-way delay: 59.745 ms
Loss rate: 0.00%
```
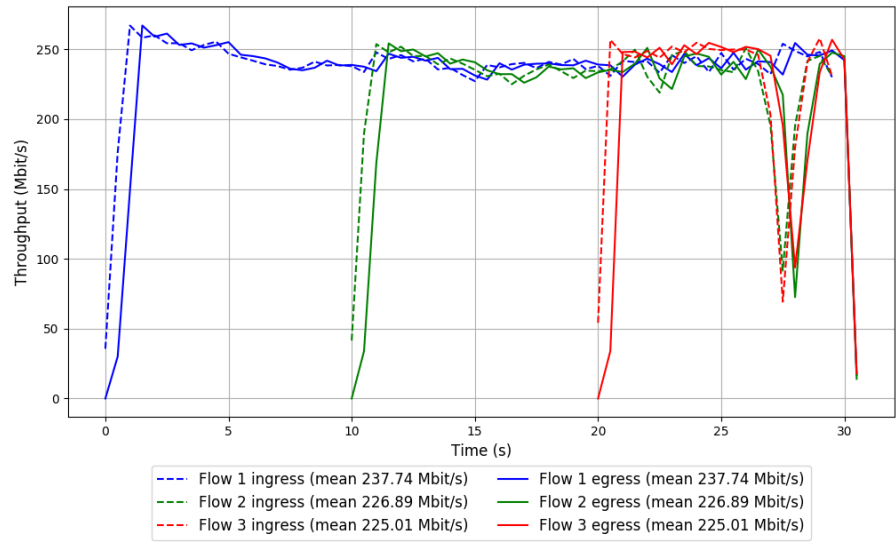
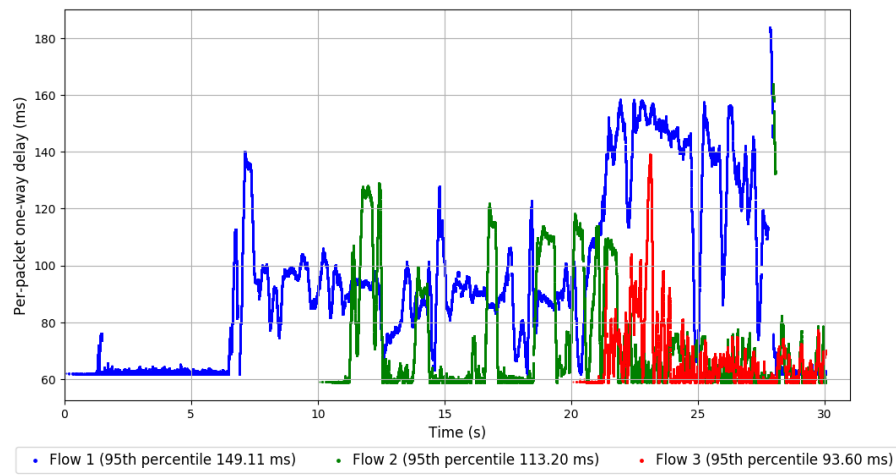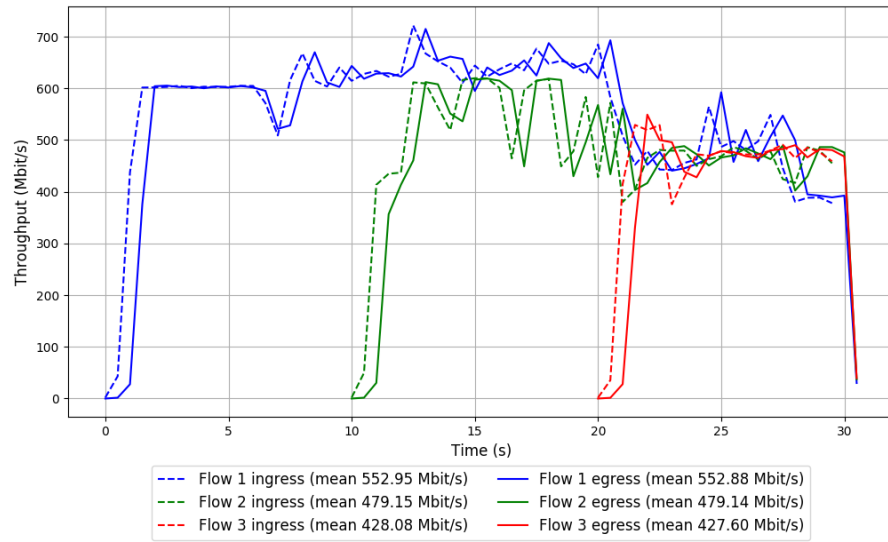# Run 5: Report of TaoVA-100x — Data Link

```
Run 1: Statistics of TCP Vegas

Start at: 2018-12-20 23:01:24
End at: 2018-12-20 23:01:54
Local clock offset: -1.597 ms
Remote clock offset: -0.055 ms


# Below is generated by plot.py at 2018-12-21 04:04:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1014.17 Mbit/s
95th percentile per-packet one-way delay: 142.882 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 552.88 Mbit/s
95th percentile per-packet one-way delay: 149.114 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 479.14 Mbit/s
95th percentile per-packet one-way delay: 113.196 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 427.60 Mbit/s
95th percentile per-packet one-way delay: 93.598 ms
Loss rate: 0.10%
```

Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-12-20 23:36:18
End at: 2018-12-20 23:36:48
Local clock offset: -0.169 ms
Remote clock offset: 0.056 ms


# Below is generated by plot.py at 2018-12-21 04:07:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 950.24 Mbit/s
95th percentile per-packet one-way delay: 94.016 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 486.30 Mbit/s
95th percentile per-packet one-way delay: 63.876 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 469.16 Mbit/s
95th percentile per-packet one-way delay: 77.189 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 455.64 Mbit/s
95th percentile per-packet one-way delay: 106.296 ms
Loss rate: 0.53%
```
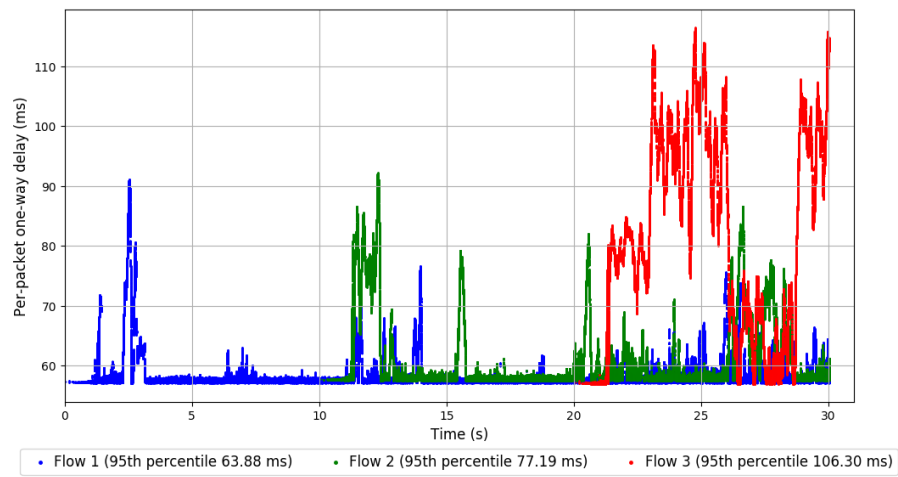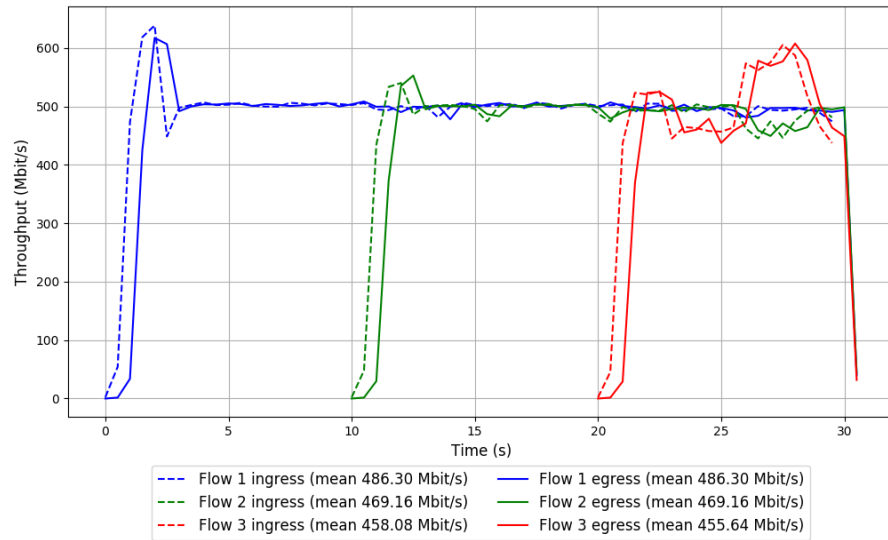
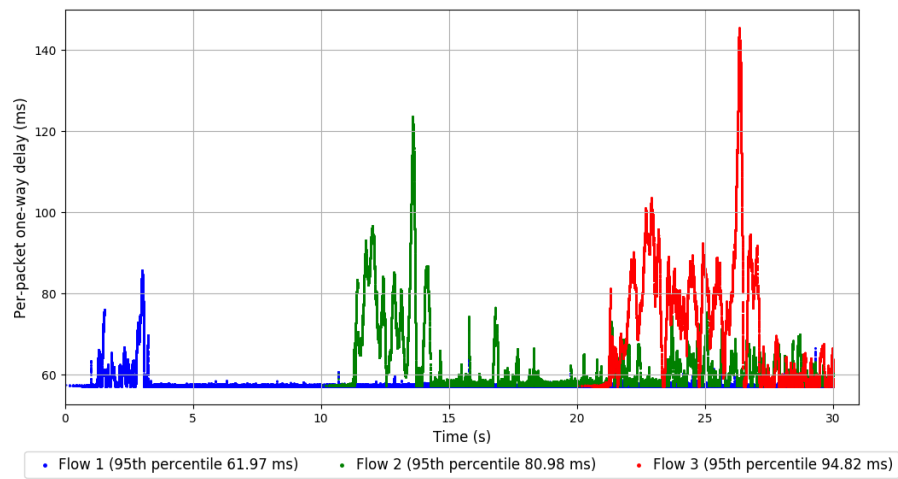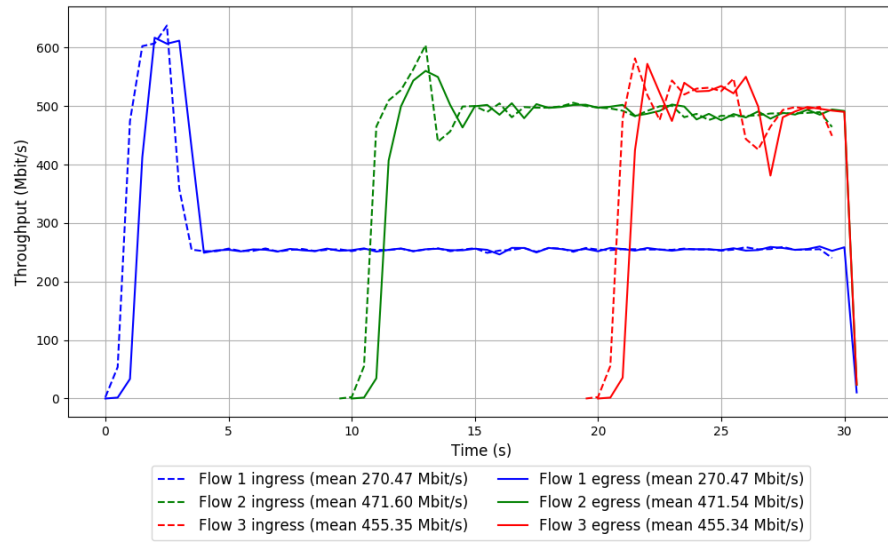# Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-12-21 00:09:38
End at: 2018-12-21 00:10:08
Local clock offset: -0.379 ms
Remote clock offset: -0.306 ms


# Below is generated by plot.py at 2018-12-21 04:12:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 736.23 Mbit/s
95th percentile per-packet one-way delay: 85.038 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 270.47 Mbit/s
95th percentile per-packet one-way delay: 61.971 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 471.54 Mbit/s
95th percentile per-packet one-way delay: 80.980 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 455.34 Mbit/s
95th percentile per-packet one-way delay: 94.823 ms
Loss rate: 0.00%
```

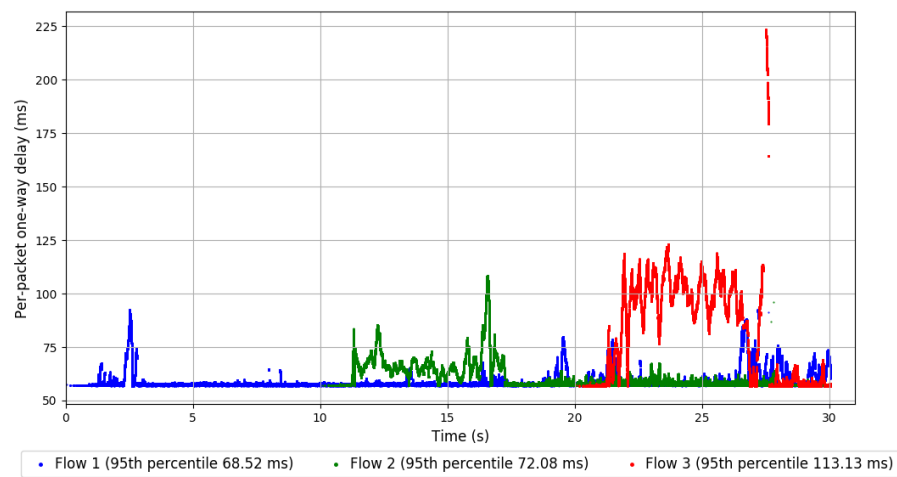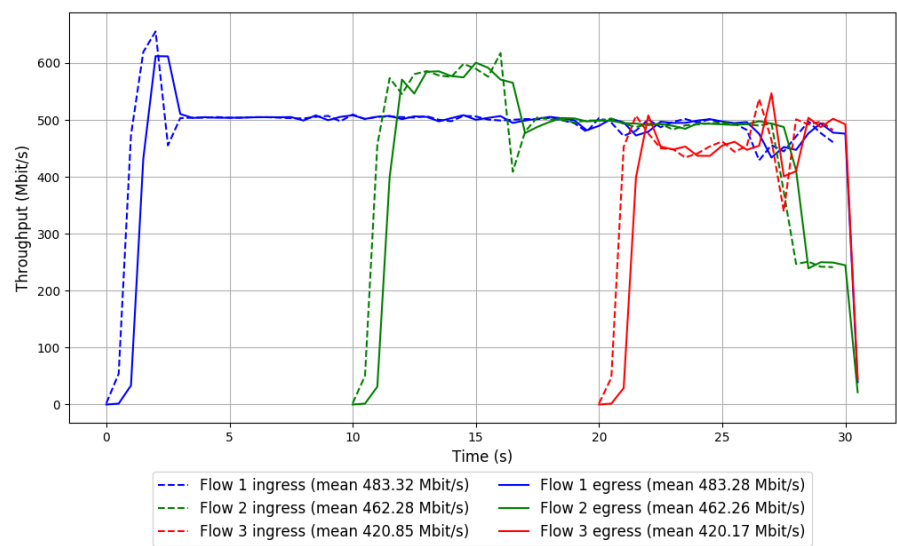# Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2018-12-21 00:43:21
End at: 2018-12-21 00:43:51
Local clock offset: -0.045 ms
Remote clock offset: -0.167 ms


# Below is generated by plot.py at 2018-12-21 04:17:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 930.84 Mbit/s
95th percentile per-packet one-way delay: 98.990 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 483.28 Mbit/s
95th percentile per-packet one-way delay: 68.519 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 462.26 Mbit/s
95th percentile per-packet one-way delay: 72.075 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 420.17 Mbit/s
95th percentile per-packet one-way delay: 113.128 ms
Loss rate: 0.16%
```

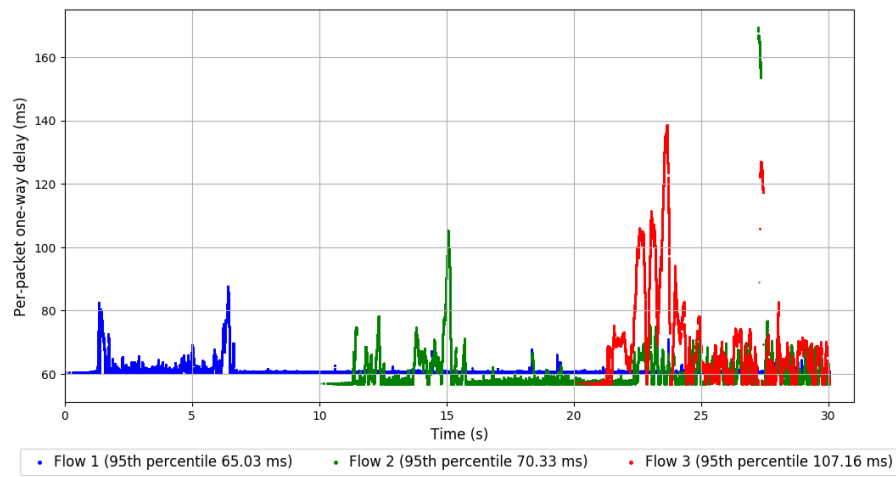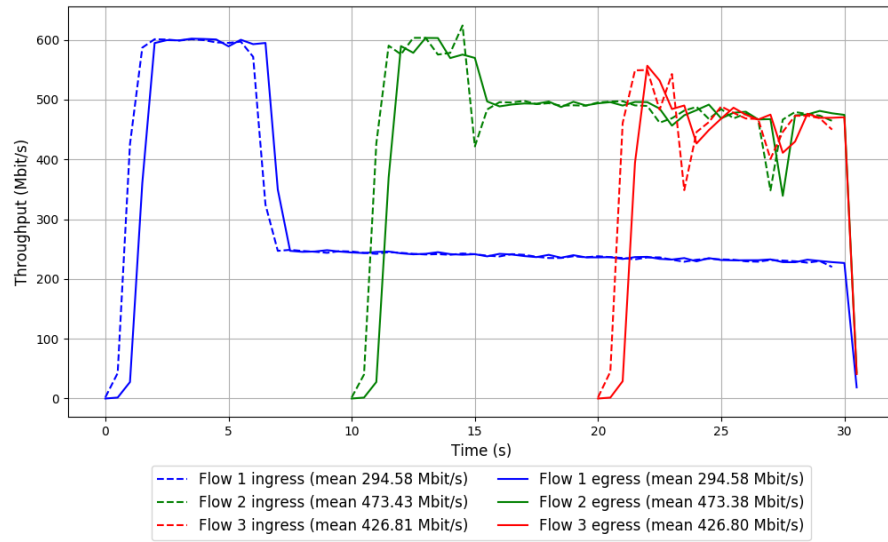Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2018-12-21 01:16:53
End at: 2018-12-21 01:17:23
Local clock offset: 0.046 ms
Remote clock offset: -0.159 ms


# Below is generated by plot.py at 2018-12-21 04:17:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 751.74 Mbit/s
95th percentile per-packet one-way delay: 76.779 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 294.58 Mbit/s
95th percentile per-packet one-way delay: 65.035 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 473.38 Mbit/s
95th percentile per-packet one-way delay: 70.332 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 426.80 Mbit/s
95th percentile per-packet one-way delay: 107.156 ms
Loss rate: 0.01%
```

Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2018-12-20 22:51:25
End at: 2018-12-20 22:51:55
Local clock offset: 1.747 ms
Remote clock offset: 0.021 ms

# Below is generated by plot.py at 2018-12-21 04:17:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 252.11 Mbit/s
95th percentile per-packet one-way delay: 150.180 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 103.47 Mbit/s
95th percentile per-packet one-way delay: 89.165 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 162.90 Mbit/s
95th percentile per-packet one-way delay: 168.428 ms
Loss rate: 0.71%
-- Flow 3:
Average throughput: 123.77 Mbit/s
95th percentile per-packet one-way delay: 152.214 ms
Loss rate: 0.00%
```
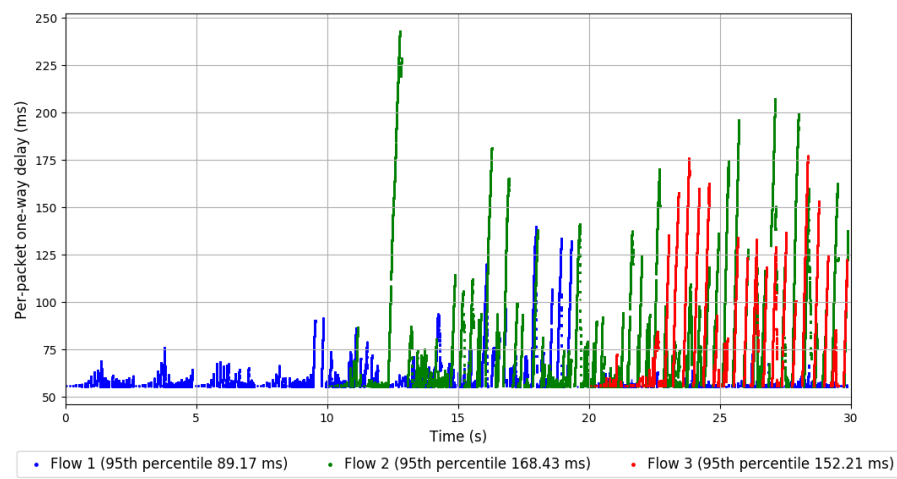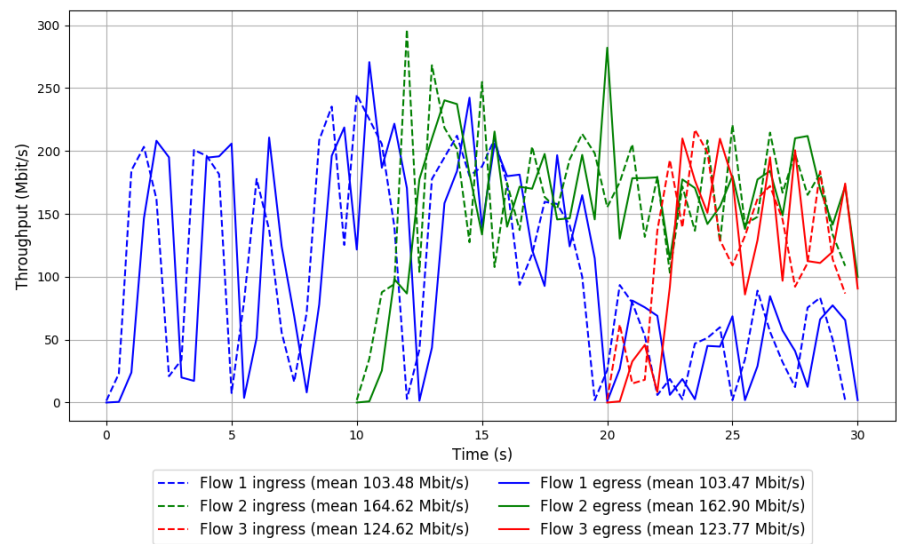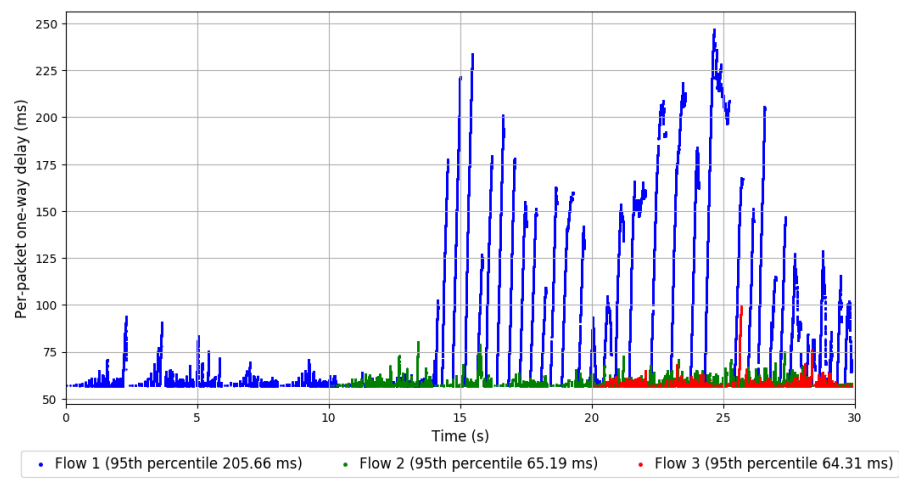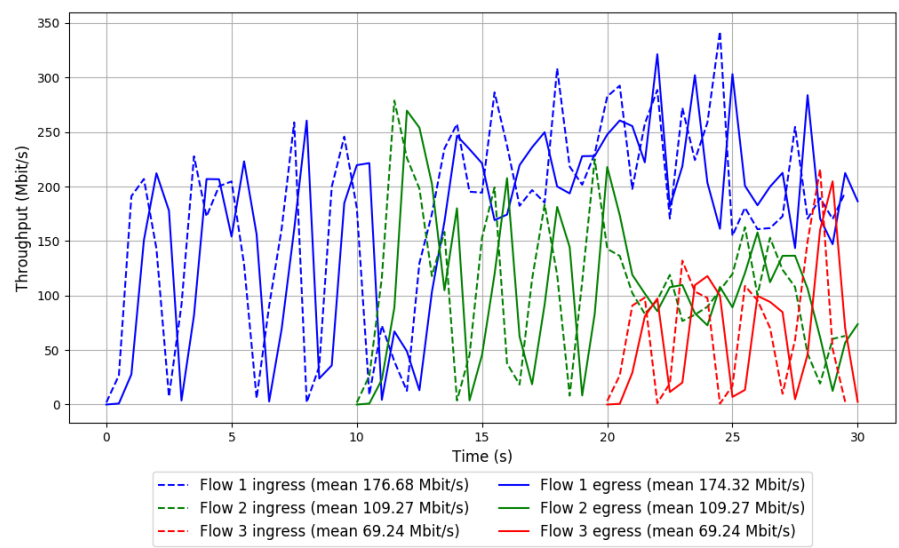
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-12-20 23:26:23
End at: 2018-12-20 23:26:53
Local clock offset: -0.316 ms
Remote clock offset: -0.447 ms


# Below is generated by plot.py at 2018-12-21 04:17:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 269.63 Mbit/s
95th percentile per-packet one-way delay: 194.675 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 174.32 Mbit/s
95th percentile per-packet one-way delay: 205.664 ms
Loss rate: 1.34%
-- Flow 2:
Average throughput: 109.27 Mbit/s
95th percentile per-packet one-way delay: 65.185 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 69.24 Mbit/s
95th percentile per-packet one-way delay: 64.306 ms
Loss rate: 0.00%
```
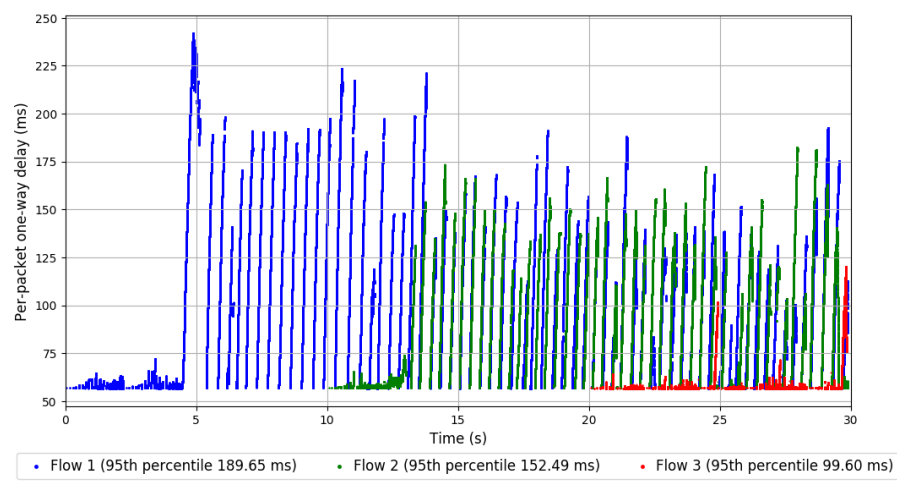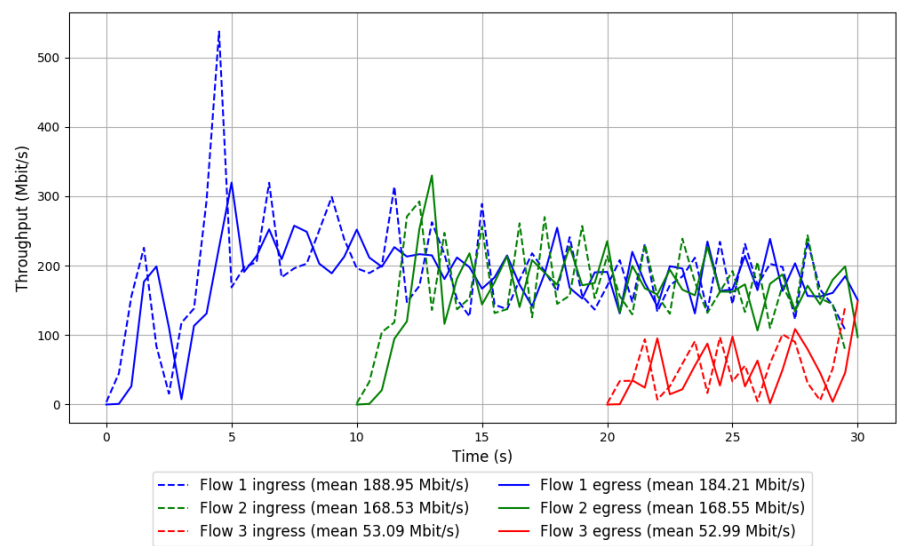
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-12-20 23:59:42
End at: 2018-12-21 00:00:12
Local clock offset: -0.096 ms
Remote clock offset: -0.307 ms


# Below is generated by plot.py at 2018-12-21 04:17:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 313.47 Mbit/s
95th percentile per-packet one-way delay: 179.160 ms
Loss rate: 1.43%
-- Flow 1:
Average throughput: 184.21 Mbit/s
95th percentile per-packet one-way delay: 189.647 ms
Loss rate: 2.41%
-- Flow 2:
Average throughput: 168.55 Mbit/s
95th percentile per-packet one-way delay: 152.485 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 52.99 Mbit/s
95th percentile per-packet one-way delay: 99.601 ms
Loss rate: 0.00%
```
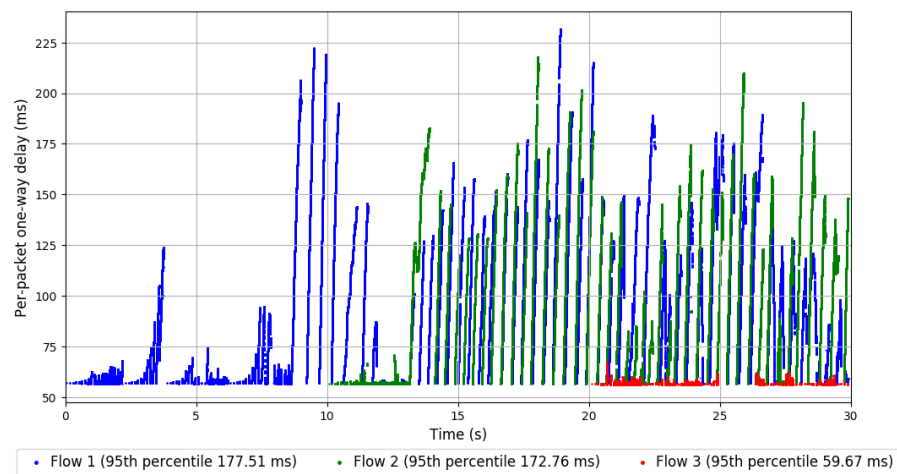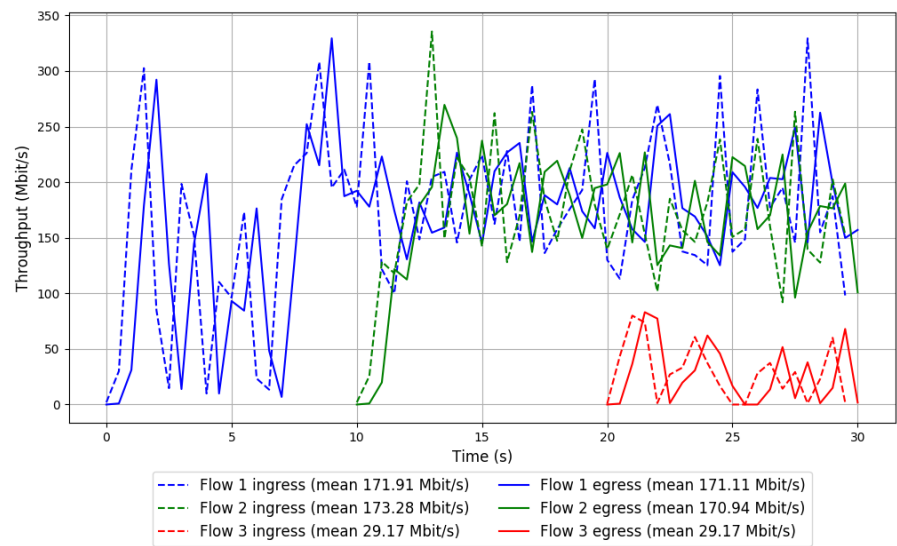
Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-12-21 00:33:18
End at: 2018-12-21 00:33:48
Local clock offset: -0.082 ms
Remote clock offset: -0.455 ms


# Below is generated by plot.py at 2018-12-21 04:17:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 294.24 Mbit/s
95th percentile per-packet one-way delay: 174.851 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 171.11 Mbit/s
95th percentile per-packet one-way delay: 177.506 ms
Loss rate: 0.47%
-- Flow 2:
Average throughput: 170.94 Mbit/s
95th percentile per-packet one-way delay: 172.764 ms
Loss rate: 1.27%
-- Flow 3:
Average throughput: 29.17 Mbit/s
95th percentile per-packet one-way delay: 59.668 ms
Loss rate: 0.00%
```
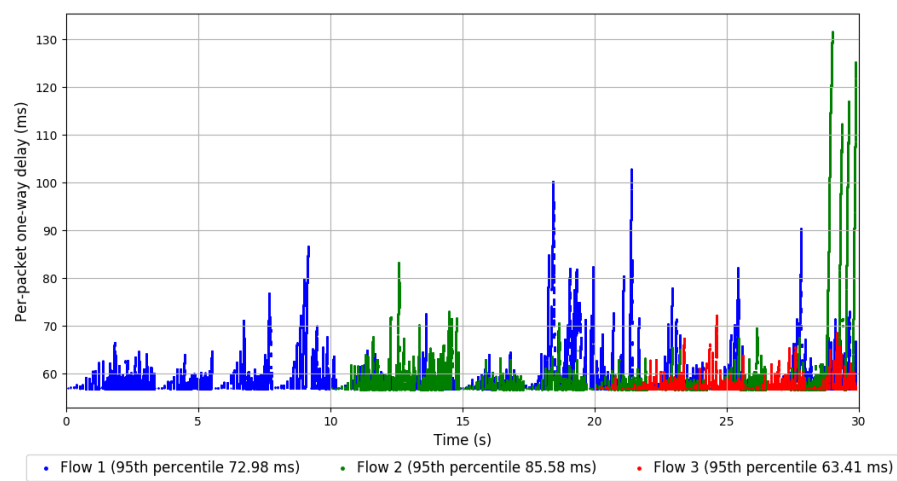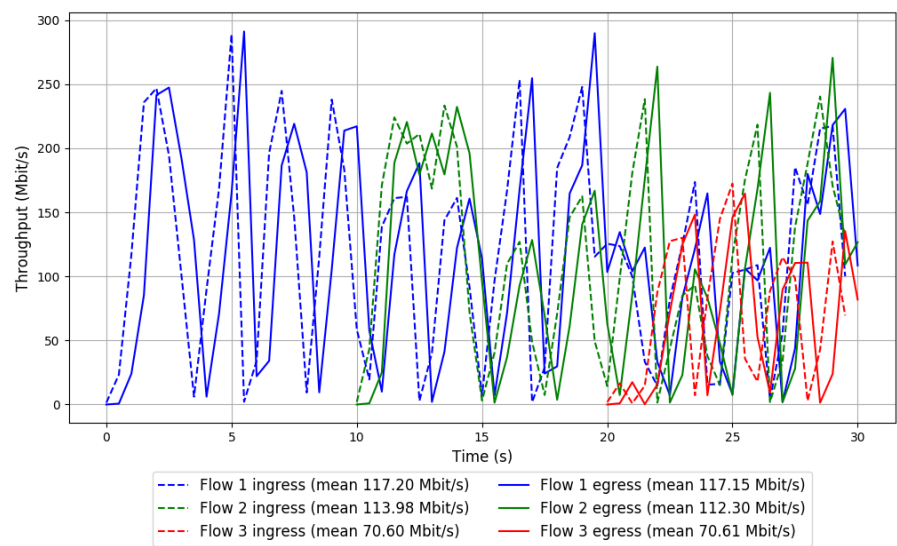
# Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-12-21 01:07:16
End at: 2018-12-21 01:07:46
Local clock offset: 0.063 ms
Remote clock offset: -0.317 ms


# Below is generated by plot.py at 2018-12-21 04:17:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 214.99 Mbit/s
95th percentile per-packet one-way delay: 73.438 ms
Loss rate: 0.53%
-- Flow 1:
Average throughput: 117.15 Mbit/s
95th percentile per-packet one-way delay: 72.980 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 112.30 Mbit/s
95th percentile per-packet one-way delay: 85.582 ms
Loss rate: 1.47%
-- Flow 3:
Average throughput: 70.61 Mbit/s
95th percentile per-packet one-way delay: 63.405 ms
Loss rate: 0.00%
```
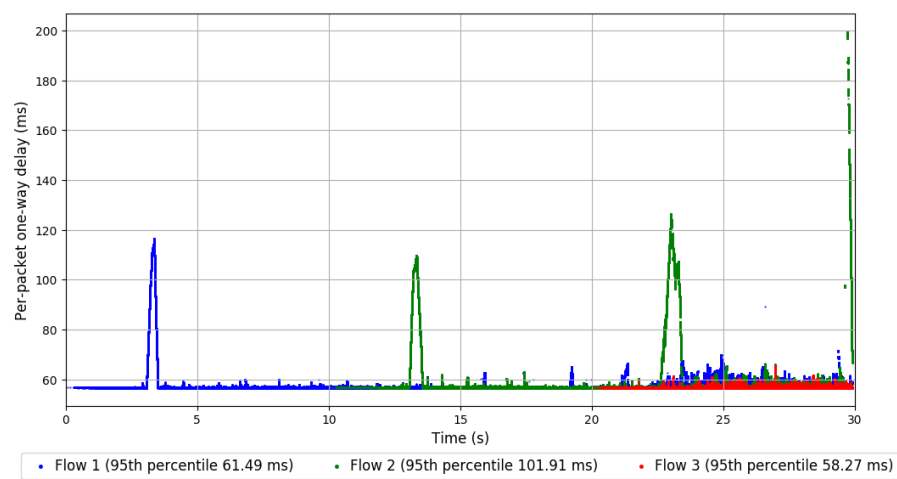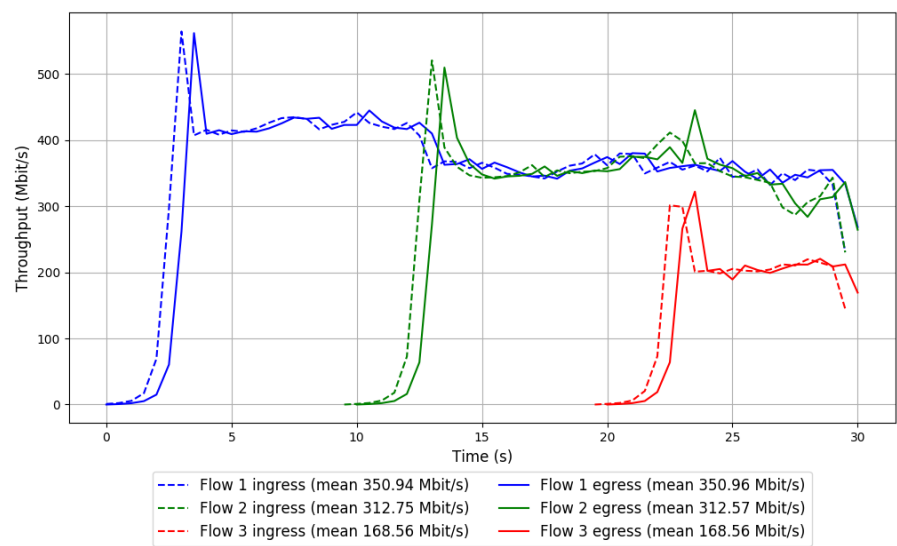
Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-12-20 22:43:11
End at: 2018-12-20 22:43:41
Local clock offset: 0.159 ms
Remote clock offset: -0.162 ms


# Below is generated by plot.py at 2018-12-21 04:20:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 614.81 Mbit/s
95th percentile per-packet one-way delay: 65.260 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 350.96 Mbit/s
95th percentile per-packet one-way delay: 61.493 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 312.57 Mbit/s
95th percentile per-packet one-way delay: 101.910 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 168.56 Mbit/s
95th percentile per-packet one-way delay: 58.271 ms
Loss rate: 0.02%
```

Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-12-20 23:17:35
End at: 2018-12-20 23:18:05
Local clock offset: -0.044 ms
Remote clock offset: 0.219 ms


# Below is generated by plot.py at 2018-12-21 04:20:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 554.35 Mbit/s
95th percentile per-packet one-way delay: 60.886 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 312.08 Mbit/s
95th percentile per-packet one-way delay: 61.931 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 280.22 Mbit/s
95th percentile per-packet one-way delay: 60.329 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 169.42 Mbit/s
95th percentile per-packet one-way delay: 64.051 ms
Loss rate: 0.00%
```
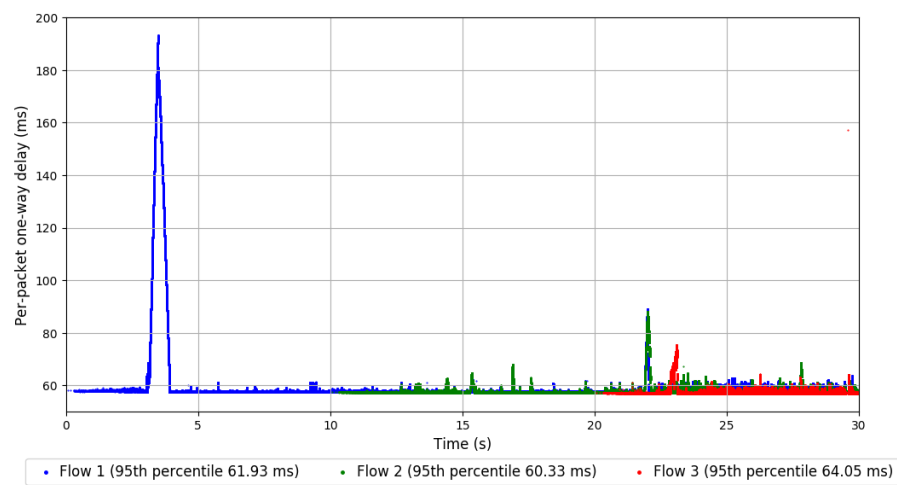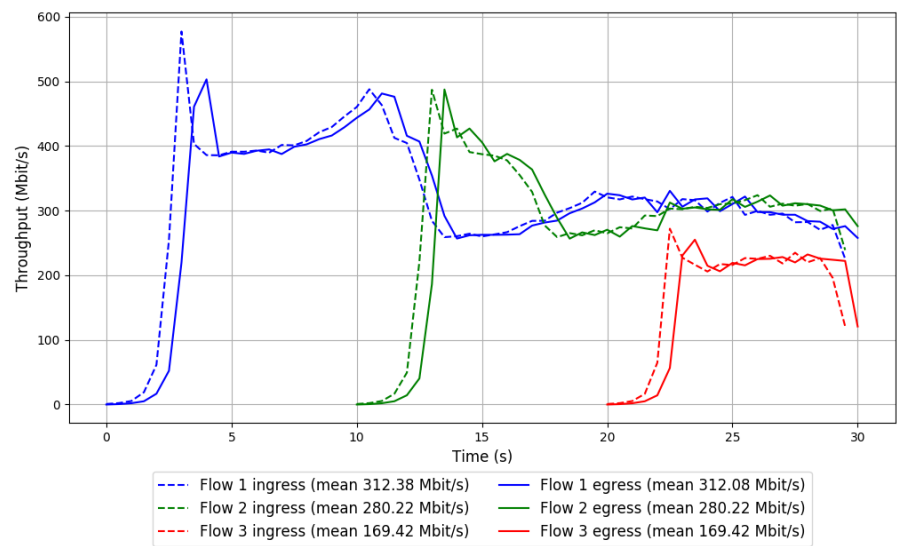
Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-12-20 23:51:42
End at: 2018-12-20 23:52:13
Local clock offset: -1.942 ms
Remote clock offset: -0.35 ms


# Below is generated by plot.py at 2018-12-21 04:20:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 463.20 Mbit/s
95th percentile per-packet one-way delay: 61.540 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 252.96 Mbit/s
95th percentile per-packet one-way delay: 60.643 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 235.78 Mbit/s
95th percentile per-packet one-way delay: 63.855 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 162.47 Mbit/s
95th percentile per-packet one-way delay: 74.854 ms
Loss rate: 0.00%
```
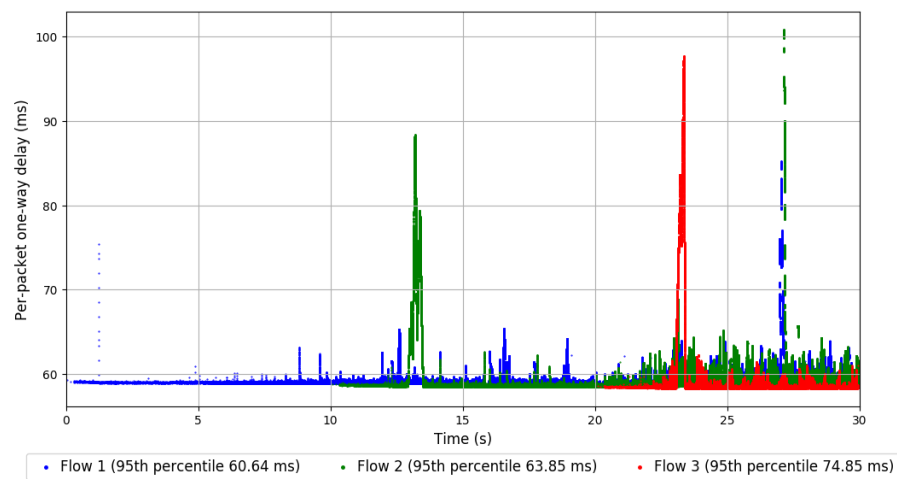
Run 3: Report of PCC-Vivace — Data Link



Flow 1 ingress (mean 252.95 Mbit/s)    Flow 1 egress (mean 252.96 Mbit/s)
Flow 2 ingress (mean 235.78 Mbit/s)    Flow 2 egress (mean 235.78 Mbit/s)
Flow 3 ingress (mean 162.43 Mbit/s)    Flow 3 egress (mean 162.47 Mbit/s)



Flow 1 (95th percentile 60.64 ms)    Flow 2 (95th percentile 63.85 ms)    Flow 3 (95th percentile 74.85 ms)

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-12-21 00:25:12
End at: 2018-12-21 00:25:42
Local clock offset: -1.738 ms
Remote clock offset: 0.194 ms


# Below is generated by plot.py at 2018-12-21 04:20:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 445.42 Mbit/s
95th percentile per-packet one-way delay: 62.725 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 309.54 Mbit/s
95th percentile per-packet one-way delay: 63.390 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 173.16 Mbit/s
95th percentile per-packet one-way delay: 62.717 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 62.89 Mbit/s
95th percentile per-packet one-way delay: 59.335 ms
Loss rate: 0.00%
```
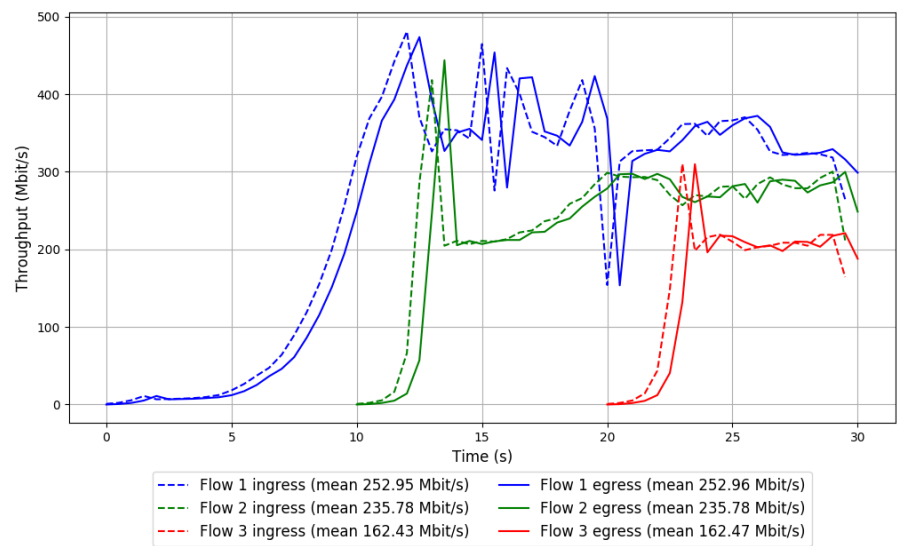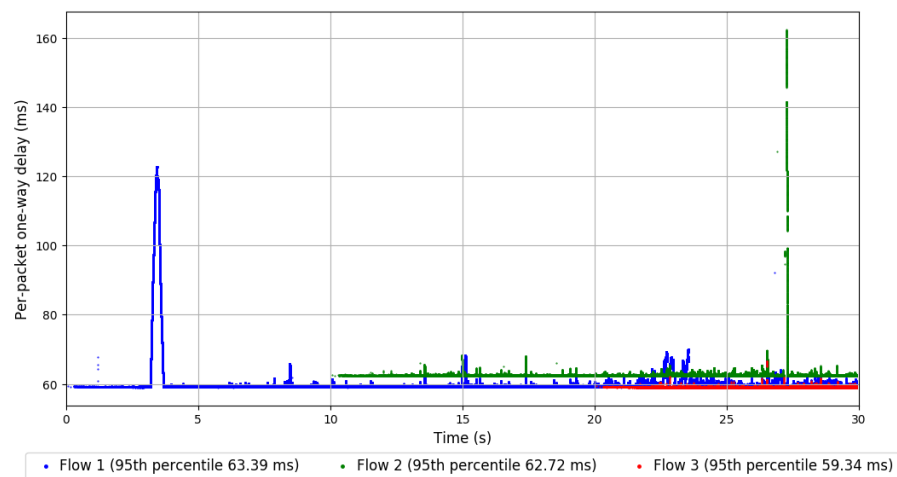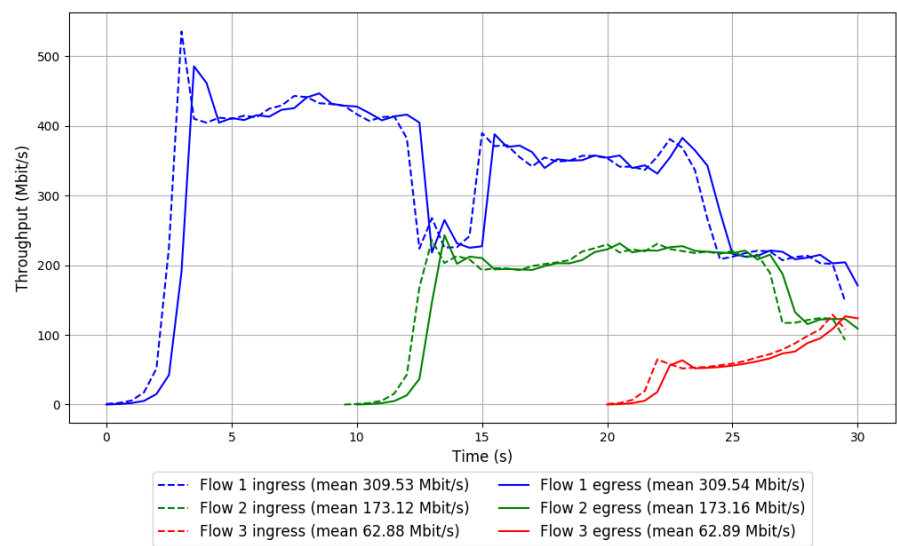
Run 4: Report of PCC-Vivace — Data Link



Flow 1 ingress (mean 309.53 Mbit/s) --- Flow 1 egress (mean 309.54 Mbit/s)
Flow 2 ingress (mean 173.12 Mbit/s) --- Flow 2 egress (mean 173.16 Mbit/s)
Flow 3 ingress (mean 62.88 Mbit/s) --- Flow 3 egress (mean 62.89 Mbit/s)



Flow 1 (95th percentile 63.39 ms) · Flow 2 (95th percentile 62.72 ms) · Flow 3 (95th percentile 59.34 ms)

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-12-21 00:59:10
End at: 2018-12-21 00:59:40
Local clock offset: 0.055 ms
Remote clock offset: -0.2 ms


# Below is generated by plot.py at 2018-12-21 04:20:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 555.59 Mbit/s
95th percentile per-packet one-way delay: 59.040 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 338.88 Mbit/s
95th percentile per-packet one-way delay: 59.485 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 248.05 Mbit/s
95th percentile per-packet one-way delay: 58.621 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 157.13 Mbit/s
95th percentile per-packet one-way delay: 58.444 ms
Loss rate: 0.00%
```
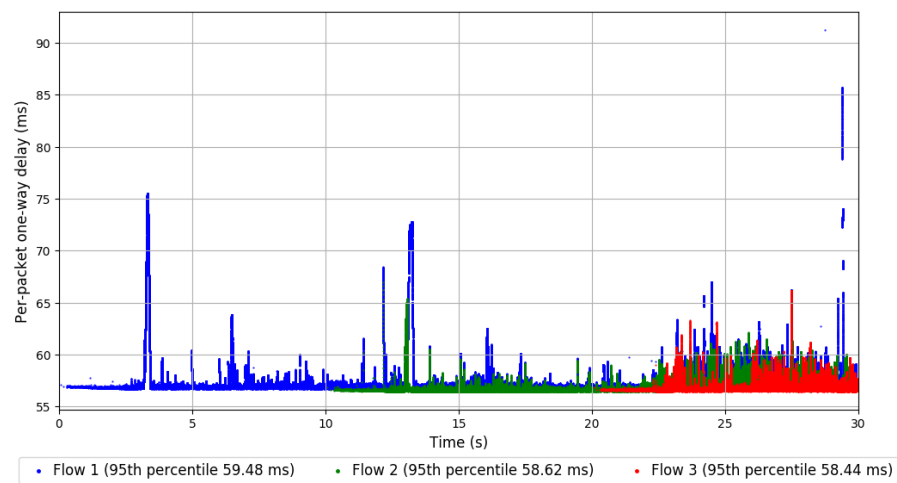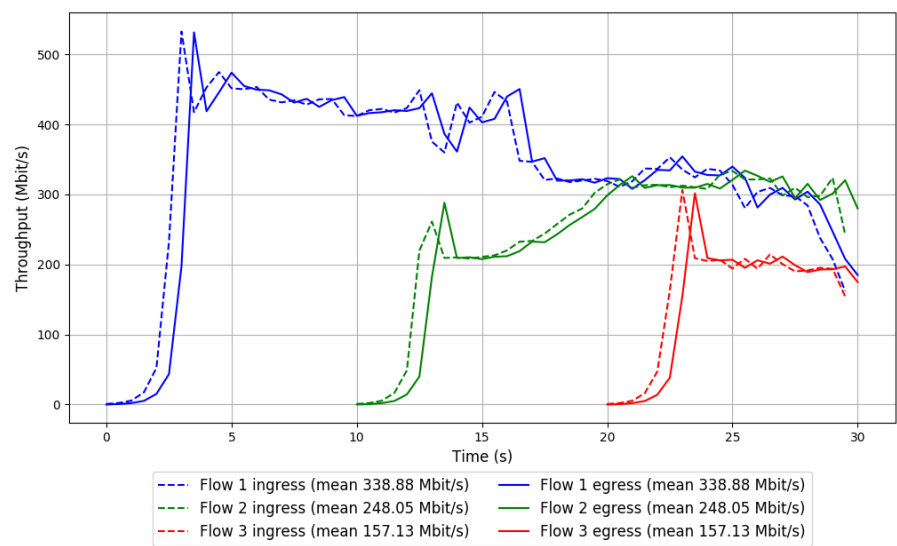
Run 5: Report of PCC-Vivace — Data Link



Flow 1 ingress (mean 338.88 Mbit/s)   Flow 1 egress (mean 338.88 Mbit/s)
Flow 2 ingress (mean 248.05 Mbit/s)   Flow 2 egress (mean 248.05 Mbit/s)
Flow 3 ingress (mean 157.13 Mbit/s)   Flow 3 egress (mean 157.13 Mbit/s)



Flow 1 (95th percentile 59.48 ms)   Flow 2 (95th percentile 58.62 ms)   Flow 3 (95th percentile 58.44 ms)
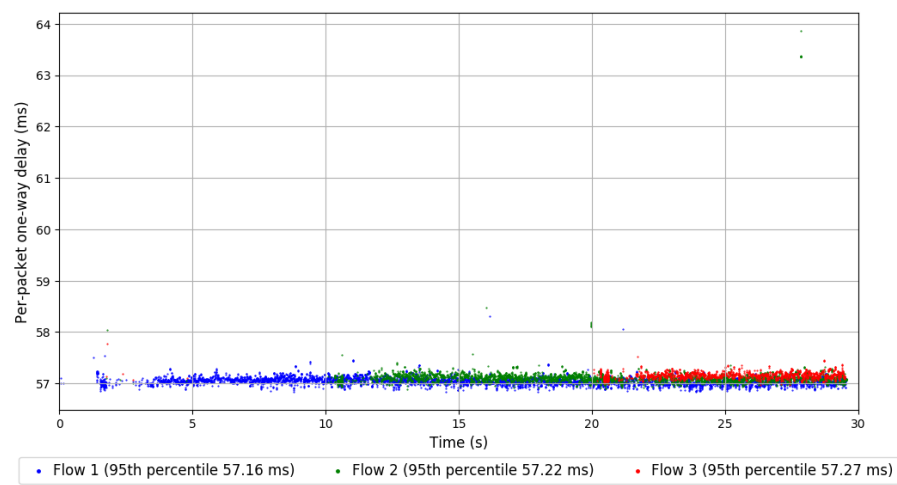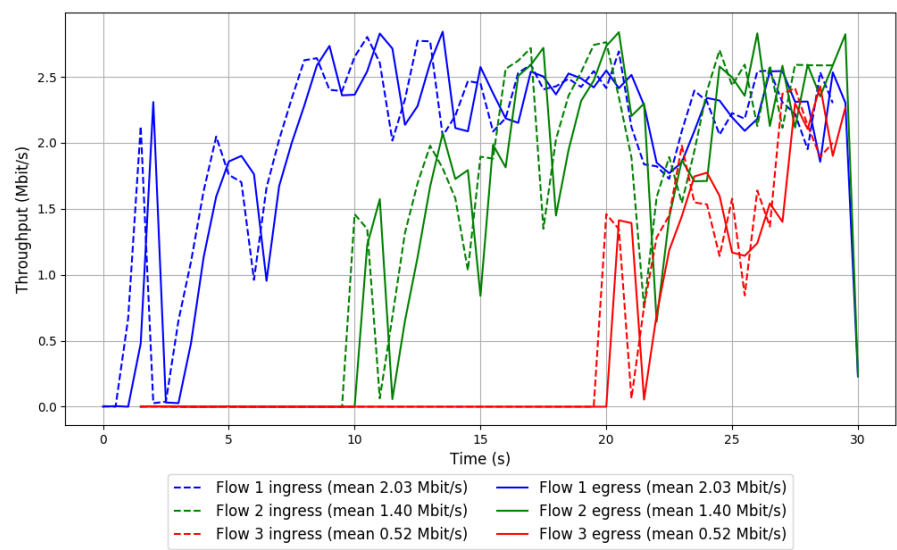
```
Run 1: Statistics of WebRTC media

Start at: 2018-12-20 22:58:16
End at: 2018-12-20 22:58:46
Local clock offset: -0.021 ms
Remote clock offset: -0.122 ms

# Below is generated by plot.py at 2018-12-21 04:20:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.84 Mbit/s
95th percentile per-packet one-way delay: 57.212 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.03 Mbit/s
95th percentile per-packet one-way delay: 57.163 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 57.219 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.52 Mbit/s
95th percentile per-packet one-way delay: 57.268 ms
Loss rate: 0.00%
```

Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-12-20 23:33:15
End at: 2018-12-20 23:33:45
Local clock offset: -0.089 ms
Remote clock offset: 0.238 ms


# Below is generated by plot.py at 2018-12-21 04:20:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 60.755 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 57.900 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 60.795 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 57.694 ms
Loss rate: 0.00%
```
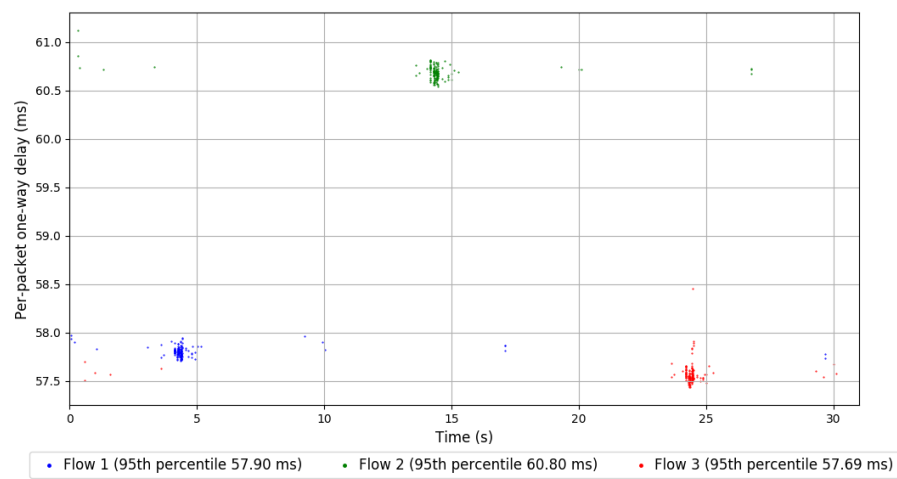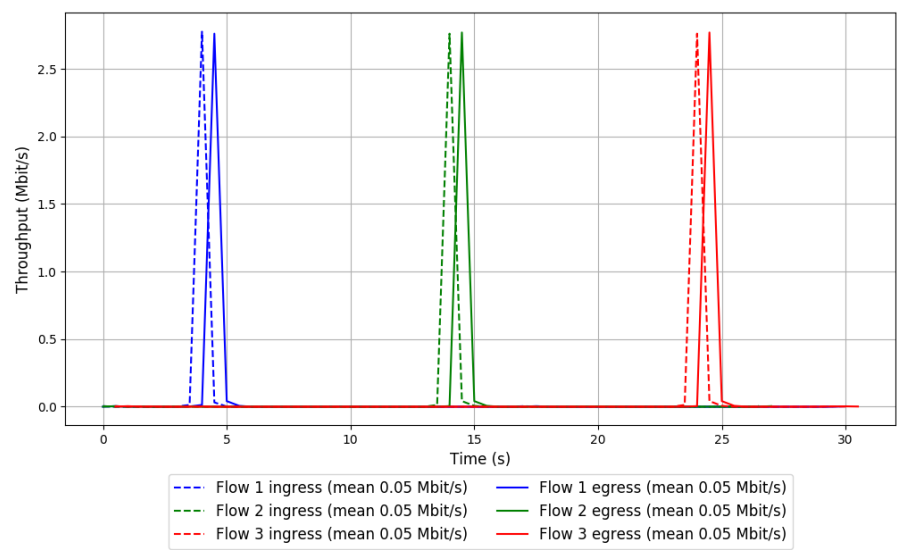
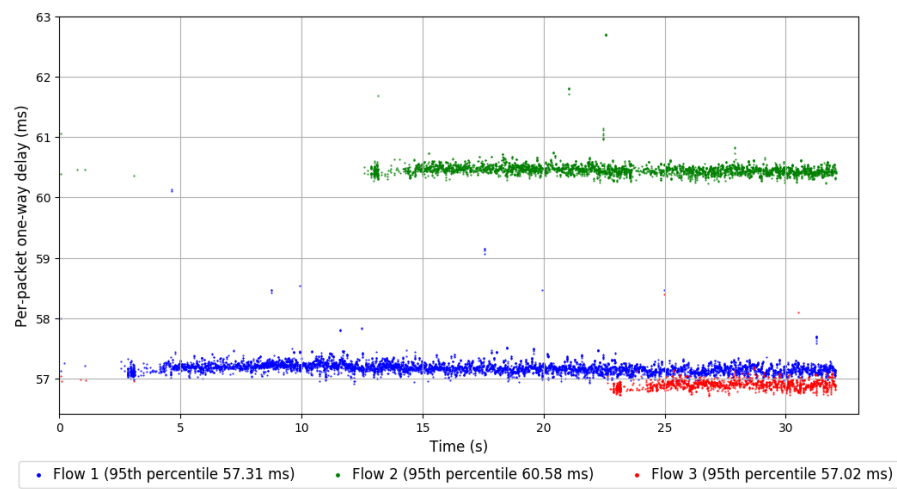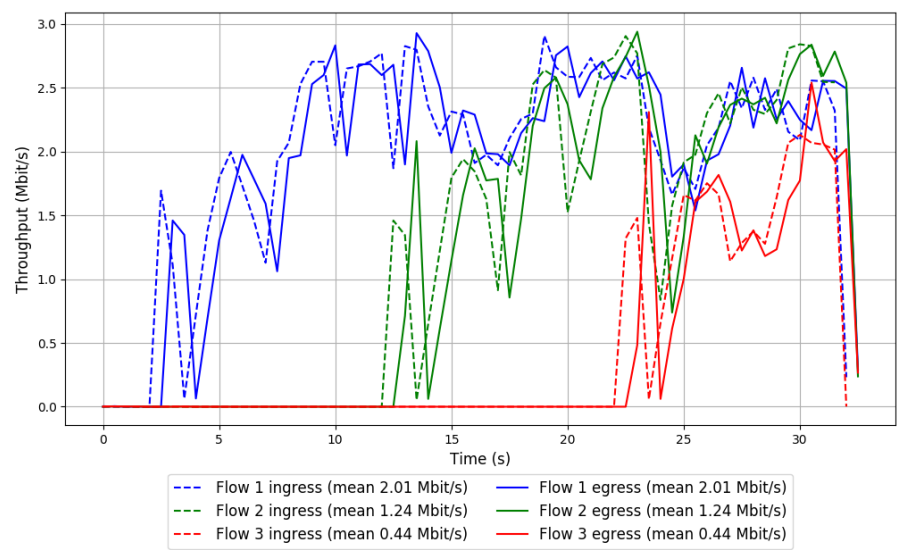Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-12-21 00:06:35
End at: 2018-12-21 00:07:05
Local clock offset: -0.159 ms
Remote clock offset: -0.263 ms

# Below is generated by plot.py at 2018-12-21 04:20:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.69 Mbit/s
95th percentile per-packet one-way delay: 60.528 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.01 Mbit/s
95th percentile per-packet one-way delay: 57.313 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.24 Mbit/s
95th percentile per-packet one-way delay: 60.581 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 57.022 ms
Loss rate: 0.00%
```

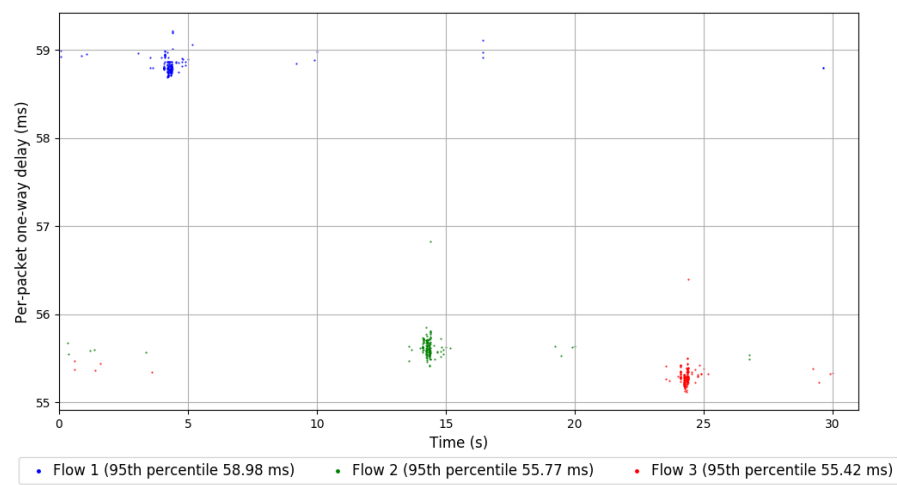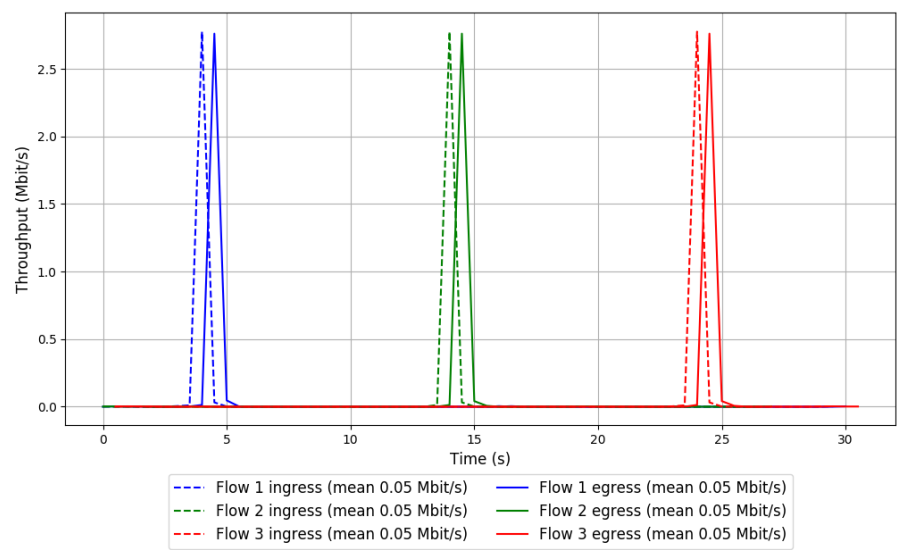Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-12-21 00:40:16
End at: 2018-12-21 00:40:46
Local clock offset: 1.607 ms
Remote clock offset: -0.014 ms

# Below is generated by plot.py at 2018-12-21 04:20:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 58.917 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 58.984 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 55.771 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 55.424 ms
Loss rate: 0.00%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-12-21 01:13:52
End at: 2018-12-21 01:14:22
Local clock offset: -0.062 ms
Remote clock offset: -0.346 ms


# Below is generated by plot.py at 2018-12-21 04:20:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 60.284 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 57.173 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 56.981 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 60.336 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link