# Pantheon Report

Generated at 2018-09-06 12:25:17 (UTC).

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

Repeated the test of 18 congestion control schemes 5 times.

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

NTP offsets were measured against `time.stanford.edu` and have been applied to correct the timestamps in logs.
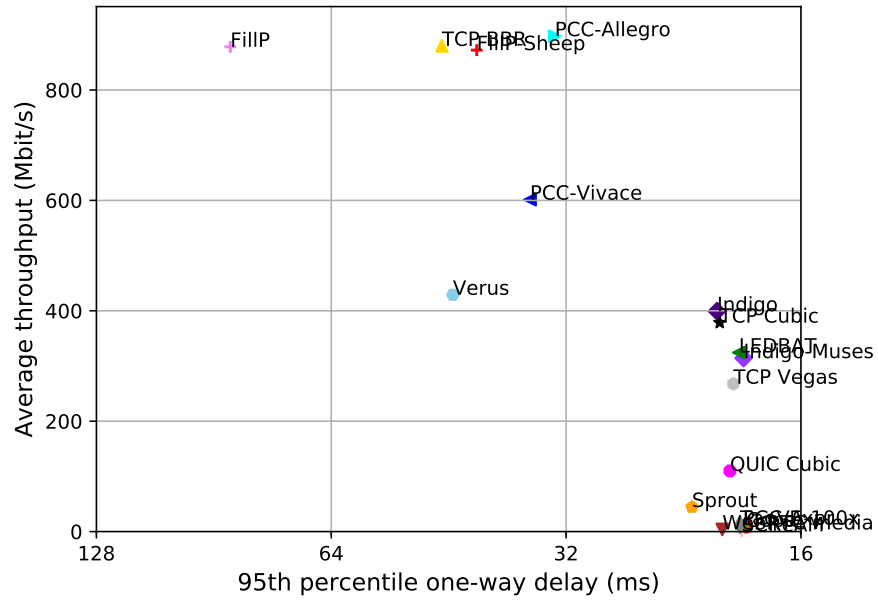
```
System info:
Linux 4.15.0-1020-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
net.ipv4.tcp_mem = 536870912 536870912 536870912
```
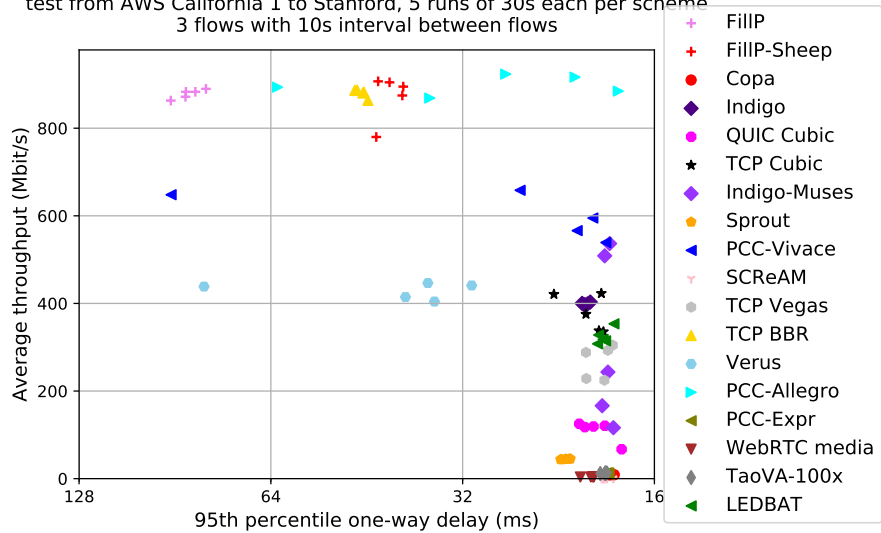
```
Git summary:
branch: muses @ f392ce15d580343f4432c3d7e068b3290f03eb4a
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ a28d20fb82a95a965a3da65fd1eb71b8994e9b84
third_party/pantheon-tunnel @ cbfce6db5ff5740dafe1771f813cd646339e1952
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
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

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



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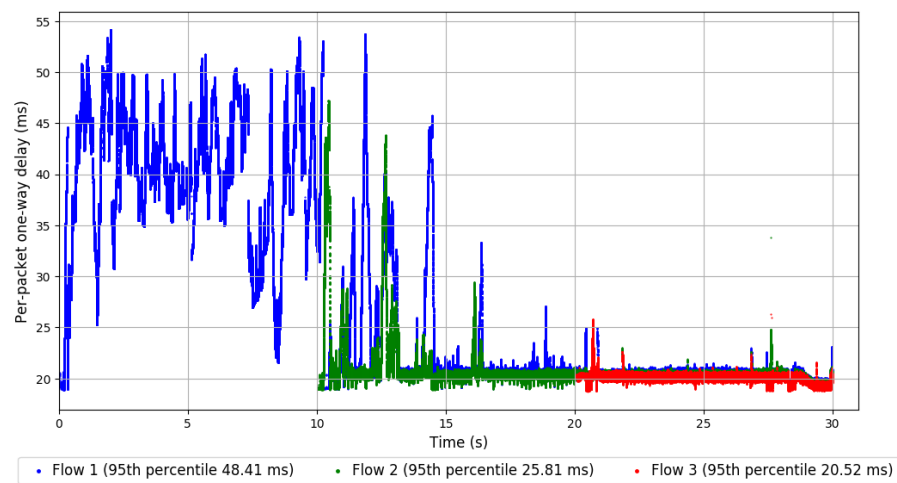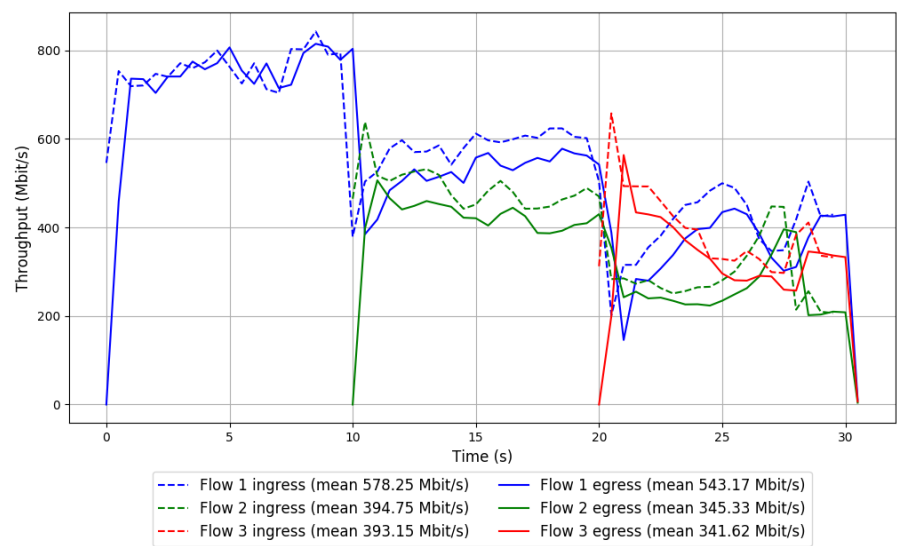3 flows with 10s interval between flows

| 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 | 510.92 | 405.84 | 296.38 | 47.61 | 35.22 | 20.43 | 5.96 | 10.67 | 13.18 |
| Copa | 5 | 0.00 | 10.49 | 5.87 | 18.82 | 18.57 | 18.45 | 98.39 | 64.50 | 72.95 |
| TCP Cubic | 5 | 179.72 | 225.44 | 146.10 | 20.21 | 19.69 | 19.03 | 0.03 | 0.04 | 0.03 |
| FillP | 5 | 541.30 | 358.13 | 296.58 | 87.69 | 33.06 | 42.30 | 10.22 | 17.44 | 18.95 |
| FillP-Sheep | 5 | 502.21 | 428.51 | 274.34 | 40.88 | 45.35 | 42.32 | 17.37 | 23.50 | 26.95 |
| Indigo | 5 | 203.11 | 201.55 | 192.50 | 20.26 | 20.07 | 21.38 | 0.01 | 0.02 | 0.02 |
| LEDBAT | 5 | 183.37 | 144.57 | 134.47 | 19.10 | 19.18 | 19.22 | 0.02 | 0.05 | 0.07 |
| Indigo-Muses | 5 | 159.67 | 157.26 | 152.48 | 18.73 | 18.87 | 19.11 | 0.06 | 0.09 | 0.68 |
| PCC-Allegro | 5 | 770.44 | 168.88 | 44.69 | 37.18 | 19.82 | 19.45 | 0.81 | 0.41 | 0.61 |
| PCC-Expr | 5 | 6.40 | 6.88 | 3.92 | 18.33 | 18.99 | 18.90 | 52.60 | 28.47 | 27.23 |
| QUIC Cubic | 5 | 51.83 | 62.27 | 51.39 | 19.34 | 19.82 | 21.75 | 0.00 | 0.00 | 0.01 |
| SCReAM | 5 | 0.22 | 0.21 | 0.22 | 18.71 | 18.66 | 18.61 | 0.00 | 0.05 | 0.00 |
| Sprout | 5 | 21.28 | 23.98 | 21.98 | 21.94 | 22.11 | 22.37 | 0.05 | 0.04 | 0.08 |
| TaoVA-100x | 5 | 5.60 | 9.54 | 7.61 | 19.20 | 18.76 | 19.54 | 82.68 | 79.99 | 70.41 |
| TCP Vegas | 5 | 125.03 | 125.92 | 177.23 | 19.41 | 19.41 | 19.03 | 0.12 | 0.14 | 0.24 |
| Verus | 5 | 225.49 | 213.39 | 185.36 | 34.07 | 51.45 | 44.11 | 21.50 | 23.59 | 26.72 |
| PCC-Vivace | 5 | 359.80 | 313.37 | 100.29 | 47.51 | 24.54 | 19.49 | 0.48 | 0.50 | 0.48 |
| WebRTC media | 5 | 2.01 | 1.37 | 0.50 | 19.78 | 20.32 | 20.59 | 0.00 | 0.01 | 0.08 |

3

```
Run 1: Statistics of TCP BBR

Start at: 2018-09-06 09:14:37
End at: 2018-09-06 09:15:07
Local clock offset: -4.305 ms
Remote clock offset: -5.838 ms


# Below is generated by plot.py at 2018-09-06 11:44:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 886.88 Mbit/s
95th percentile per-packet one-way delay: 46.864 ms
Loss rate: 8.76%
-- Flow 1:
Average throughput: 543.17 Mbit/s
95th percentile per-packet one-way delay: 48.415 ms
Loss rate: 6.07%
-- Flow 2:
Average throughput: 345.33 Mbit/s
95th percentile per-packet one-way delay: 25.810 ms
Loss rate: 12.52%
-- Flow 3:
Average throughput: 341.62 Mbit/s
95th percentile per-packet one-way delay: 20.519 ms
Loss rate: 13.11%
```
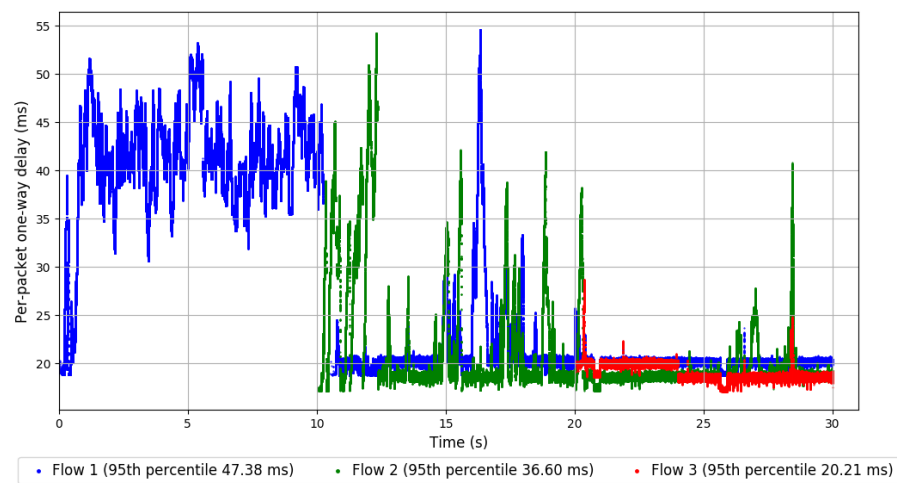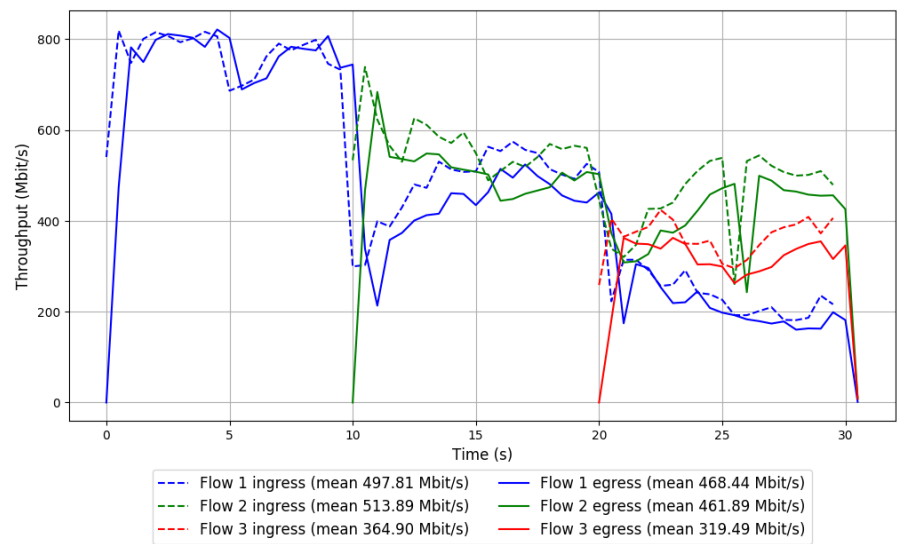
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2018-09-06 09:42:42
End at: 2018-09-06 09:43:12
Local clock offset: 0.705 ms
Remote clock offset: 4.107 ms


# Below is generated by plot.py at 2018-09-06 11:44:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 882.31 Mbit/s
95th percentile per-packet one-way delay: 45.742 ms
Loss rate: 8.25%
-- Flow 1:
Average throughput: 468.44 Mbit/s
95th percentile per-packet one-way delay: 47.376 ms
Loss rate: 5.94%
-- Flow 2:
Average throughput: 461.89 Mbit/s
95th percentile per-packet one-way delay: 36.603 ms
Loss rate: 10.12%
-- Flow 3:
Average throughput: 319.49 Mbit/s
95th percentile per-packet one-way delay: 20.210 ms
Loss rate: 12.46%
```
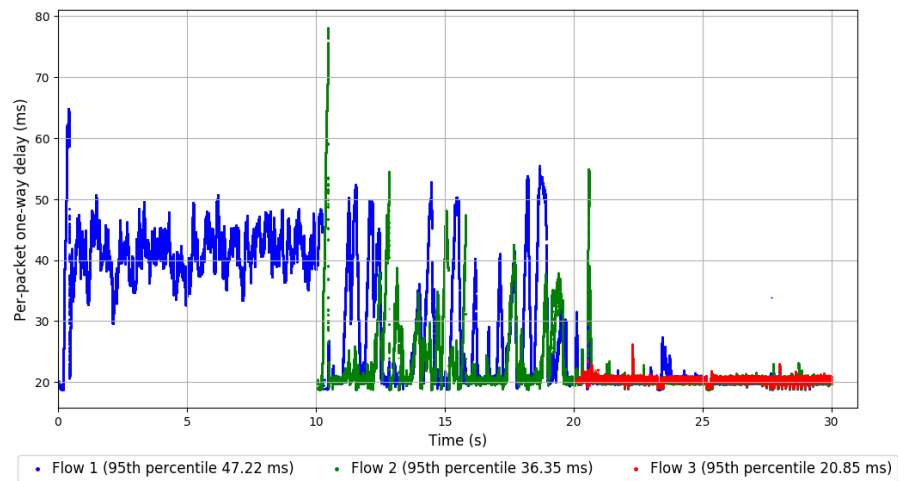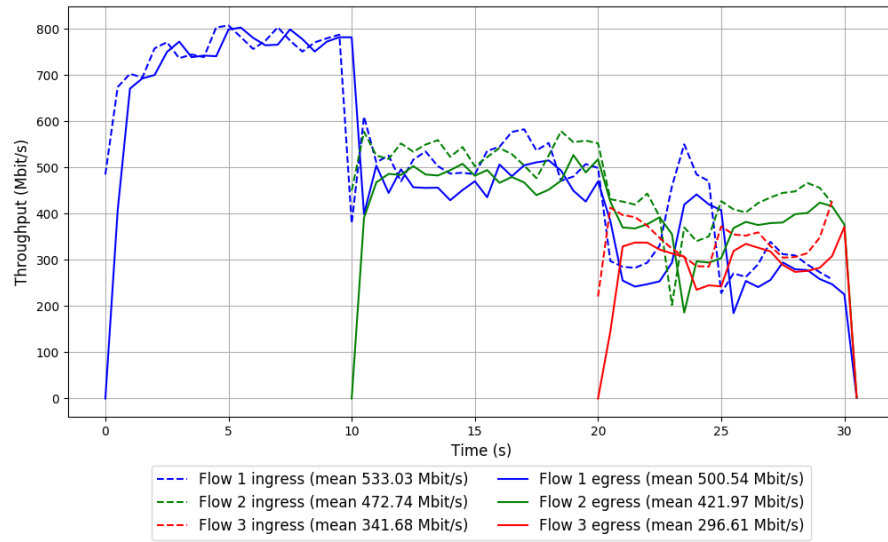
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-09-06 10:10:57
End at: 2018-09-06 10:11:27
Local clock offset: -0.787 ms
Remote clock offset: 4.576 ms


# Below is generated by plot.py at 2018-09-06 11:44:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 880.26 Mbit/s
95th percentile per-packet one-way delay: 45.896 ms
Loss rate: 8.45%
-- Flow 1:
Average throughput: 500.54 Mbit/s
95th percentile per-packet one-way delay: 47.218 ms
Loss rate: 6.09%
-- Flow 2:
Average throughput: 421.97 Mbit/s
95th percentile per-packet one-way delay: 36.346 ms
Loss rate: 10.74%
-- Flow 3:
Average throughput: 296.61 Mbit/s
95th percentile per-packet one-way delay: 20.850 ms
Loss rate: 13.19%
```
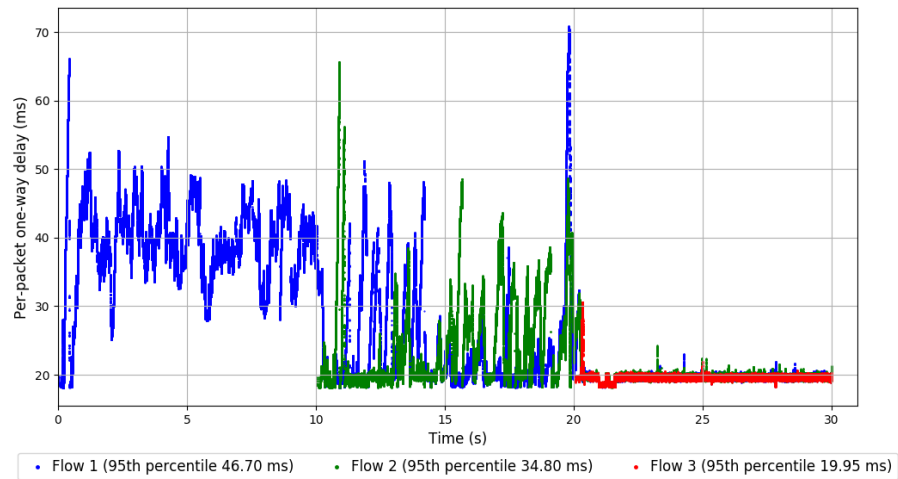
Run 3: Report of TCP BBR — Data Link

```
Run 4: Statistics of TCP BBR

Start at: 2018-09-06 10:38:58
End at: 2018-09-06 10:39:28
Local clock offset: 0.008 ms
Remote clock offset: 3.979 ms


# Below is generated by plot.py at 2018-09-06 11:44:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 863.55 Mbit/s
95th percentile per-packet one-way delay: 45.062 ms
Loss rate: 8.47%
-- Flow 1:
Average throughput: 491.67 Mbit/s
95th percentile per-packet one-way delay: 46.695 ms
Loss rate: 6.20%
-- Flow 2:
Average throughput: 414.84 Mbit/s
95th percentile per-packet one-way delay: 34.797 ms
Loss rate: 10.35%
-- Flow 3:
Average throughput: 287.23 Mbit/s
95th percentile per-packet one-way delay: 19.953 ms
Loss rate: 13.98%
```
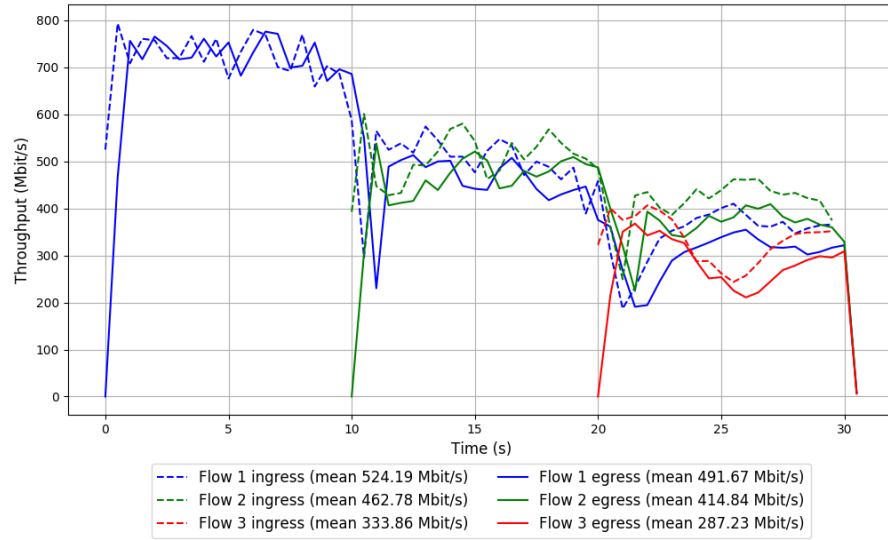
Run 4: Report of TCP BBR — Data Link

```
Run 5: Statistics of TCP BBR

Start at: 2018-09-06 11:06:47
End at: 2018-09-06 11:07:17
Local clock offset: 4.18 ms
Remote clock offset: 3.615 ms


# Below is generated by plot.py at 2018-09-06 11:44:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 886.19 Mbit/s
95th percentile per-packet one-way delay: 47.255 ms
Loss rate: 7.46%
-- Flow 1:
Average throughput: 550.78 Mbit/s
95th percentile per-packet one-way delay: 48.369 ms
Loss rate: 5.51%
-- Flow 2:
Average throughput: 385.17 Mbit/s
95th percentile per-packet one-way delay: 42.541 ms
Loss rate: 9.63%
-- Flow 3:
Average throughput: 236.94 Mbit/s
95th percentile per-packet one-way delay: 20.628 ms
Loss rate: 13.15%
```
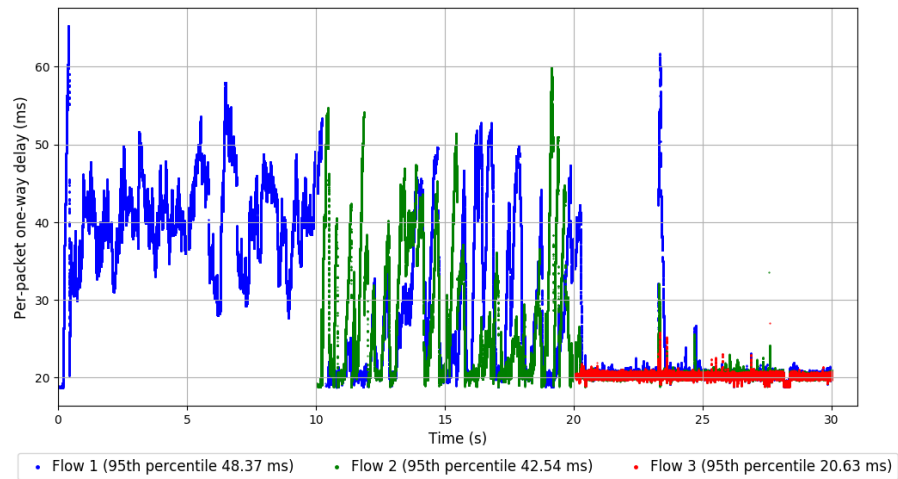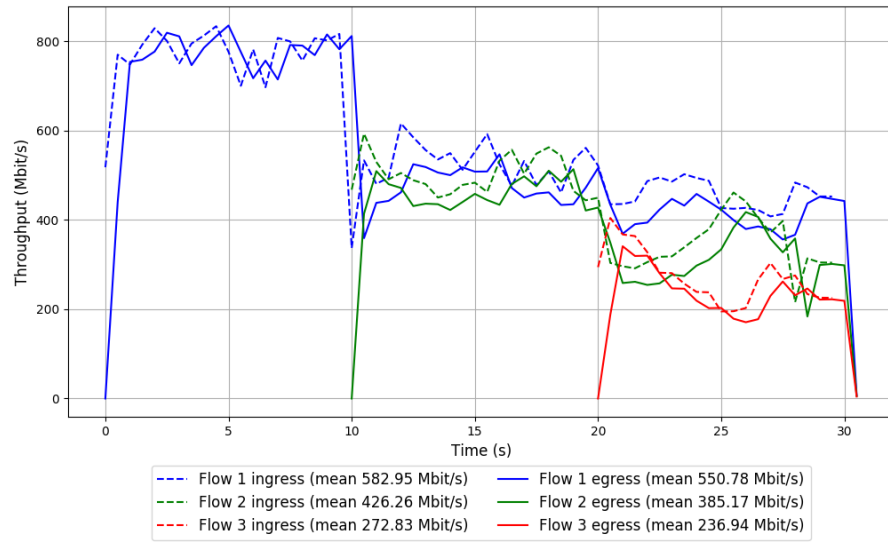
Run 5: Report of TCP BBR — Data Link

```
Run 1: Statistics of Copa

Start at: 2018-09-06 09:31:49
End at: 2018-09-06 09:32:19
Local clock offset: -0.029 ms
Remote clock offset: 0.06 ms


# Below is generated by plot.py at 2018-09-06 11:44:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.94 Mbit/s
95th percentile per-packet one-way delay: 18.650 ms
Loss rate: 67.39%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 18.624 ms
Loss rate: 97.99%
-- Flow 2:
Average throughput: 9.92 Mbit/s
95th percentile per-packet one-way delay: 18.265 ms
Loss rate: 64.98%
-- Flow 3:
Average throughput: 7.03 Mbit/s
95th percentile per-packet one-way delay: 18.717 ms
Loss rate: 72.68%
```
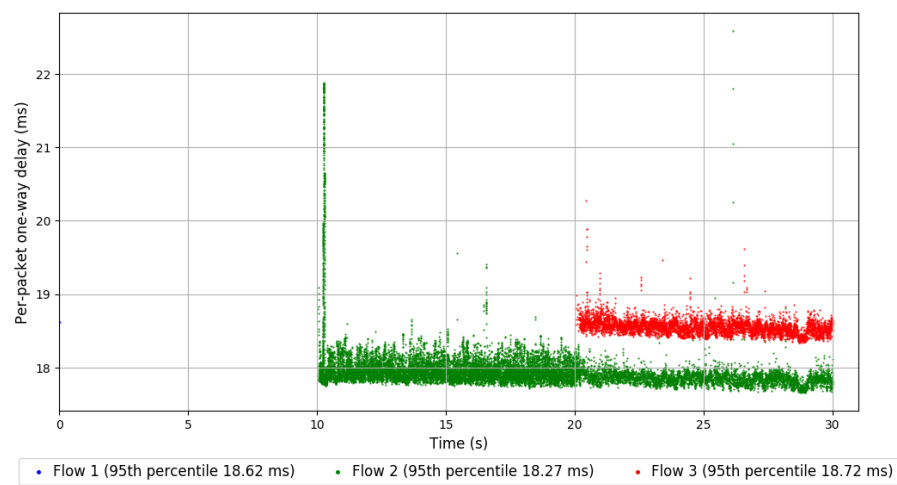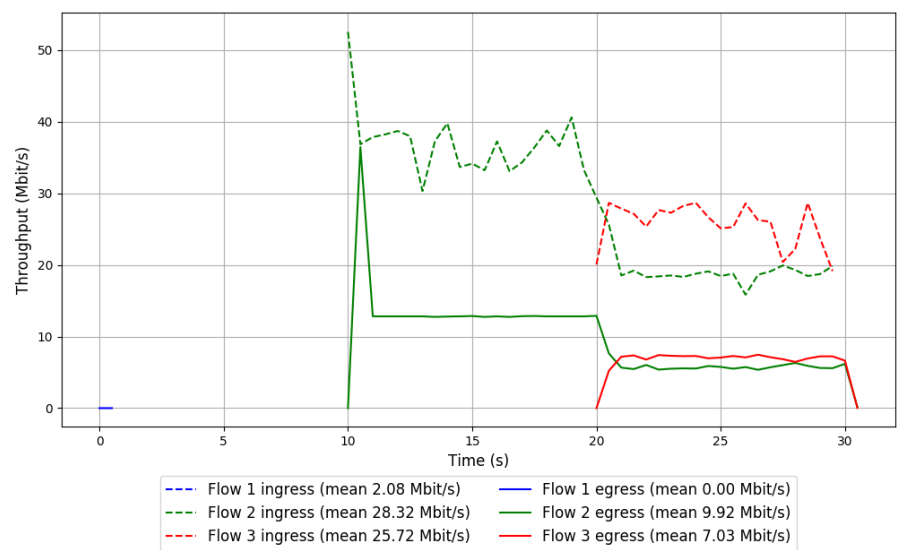
Run 1: Report of Copa — Data Link



Flow 1 ingress (mean 2.08 Mbit/s)  ·  Flow 1 egress (mean 0.00 Mbit/s)
Flow 2 ingress (mean 28.32 Mbit/s)  ·  Flow 2 egress (mean 9.92 Mbit/s)
Flow 3 ingress (mean 25.72 Mbit/s)  ·  Flow 3 egress (mean 7.03 Mbit/s)



· Flow 1 (95th percentile 18.62 ms)    · Flow 2 (95th percentile 18.27 ms)    · Flow 3 (95th percentile 18.72 ms)

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```
Run 2: Statistics of Copa

Start at: 2018-09-06 10:00:00
End at: 2018-09-06 10:00:30
Local clock offset: -0.472 ms
Remote clock offset: 6.295 ms


# Below is generated by plot.py at 2018-09-06 11:44:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.94 Mbit/s
95th percentile per-packet one-way delay: 19.198 ms
Loss rate: 65.27%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 19.241 ms
Loss rate: 98.65%
-- Flow 2:
Average throughput: 12.51 Mbit/s
95th percentile per-packet one-way delay: 19.210 ms
Loss rate: 64.29%
-- Flow 3:
Average throughput: 1.83 Mbit/s
95th percentile per-packet one-way delay: 17.633 ms
Loss rate: 74.71%
```
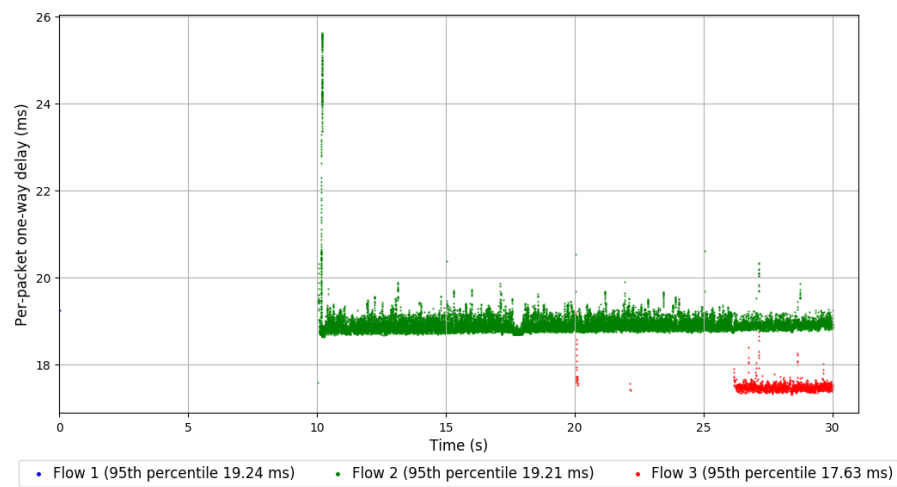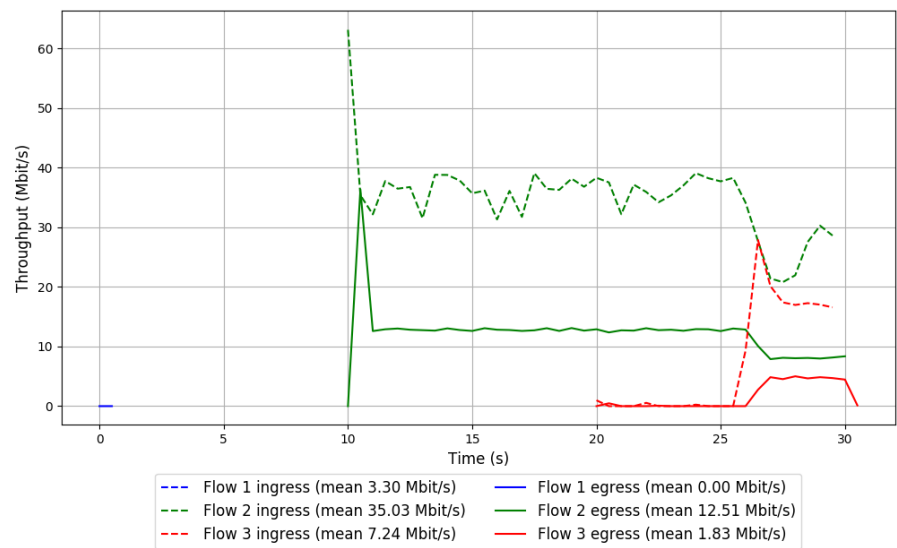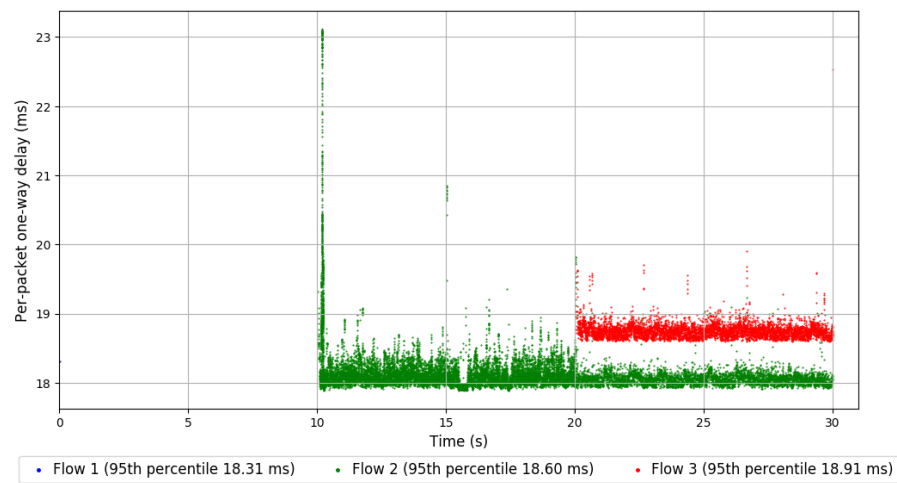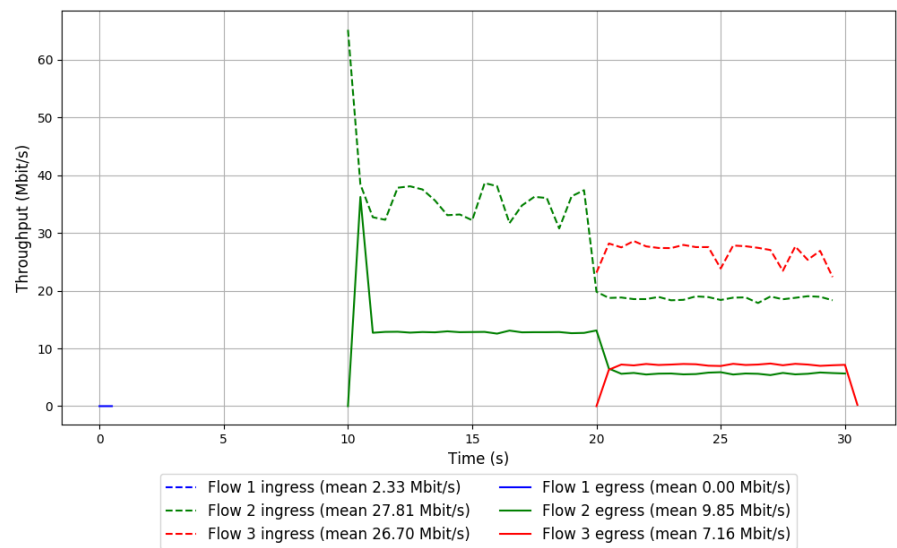
Run 2: Report of Copa — Data Link



Flow 1 ingress (mean 3.30 Mbit/s)
Flow 1 egress (mean 0.00 Mbit/s)
Flow 2 ingress (mean 35.03 Mbit/s)
Flow 2 egress (mean 12.51 Mbit/s)
Flow 3 ingress (mean 7.24 Mbit/s)
Flow 3 egress (mean 1.83 Mbit/s)



Flow 1 (95th percentile 19.24 ms)
Flow 2 (95th percentile 19.21 ms)
Flow 3 (95th percentile 17.63 ms)

```
Run 3: Statistics of Copa

Start at: 2018-09-06 10:28:02
End at: 2018-09-06 10:28:32
Local clock offset: -0.081 ms
Remote clock offset: 4.839 ms


# Below is generated by plot.py at 2018-09-06 11:44:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.94 Mbit/s
95th percentile per-packet one-way delay: 18.867 ms
Loss rate: 67.37%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 18.314 ms
Loss rate: 97.99%
-- Flow 2:
Average throughput: 9.85 Mbit/s
95th percentile per-packet one-way delay: 18.599 ms
Loss rate: 64.58%
-- Flow 3:
Average throughput: 7.16 Mbit/s
95th percentile per-packet one-way delay: 18.914 ms
Loss rate: 73.17%
```
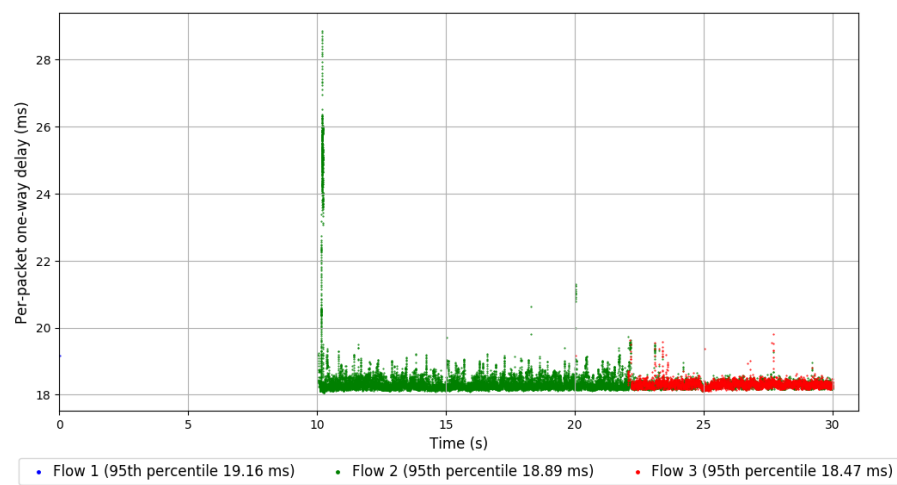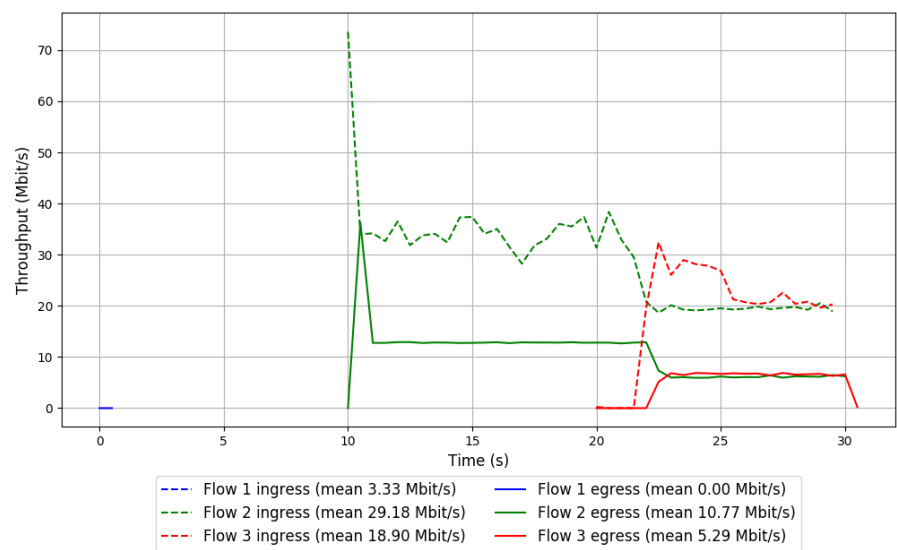
Run 3: Report of Copa — Data Link



- - - Flow 1 ingress (mean 2.33 Mbit/s)     —— Flow 1 egress (mean 0.00 Mbit/s)
- - - Flow 2 ingress (mean 27.81 Mbit/s)    —— Flow 2 egress (mean 9.85 Mbit/s)
- - - Flow 3 ingress (mean 26.70 Mbit/s)    —— Flow 3 egress (mean 7.16 Mbit/s)



• Flow 1 (95th percentile 18.31 ms)     • Flow 2 (95th percentile 18.60 ms)     • Flow 3 (95th percentile 18.91 ms)

```
Run 4: Statistics of Copa

Start at: 2018-09-06 10:55:52
End at: 2018-09-06 10:56:22
Local clock offset: 2.904 ms
Remote clock offset: 3.429 ms


# Below is generated by plot.py at 2018-09-06 11:44:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.93 Mbit/s
95th percentile per-packet one-way delay: 18.778 ms
Loss rate: 65.28%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 19.157 ms
Loss rate: 98.65%
-- Flow 2:
Average throughput: 10.77 Mbit/s
95th percentile per-packet one-way delay: 18.886 ms
Loss rate: 63.09%
-- Flow 3:
Average throughput: 5.29 Mbit/s
95th percentile per-packet one-way delay: 18.474 ms
Loss rate: 72.03%
```
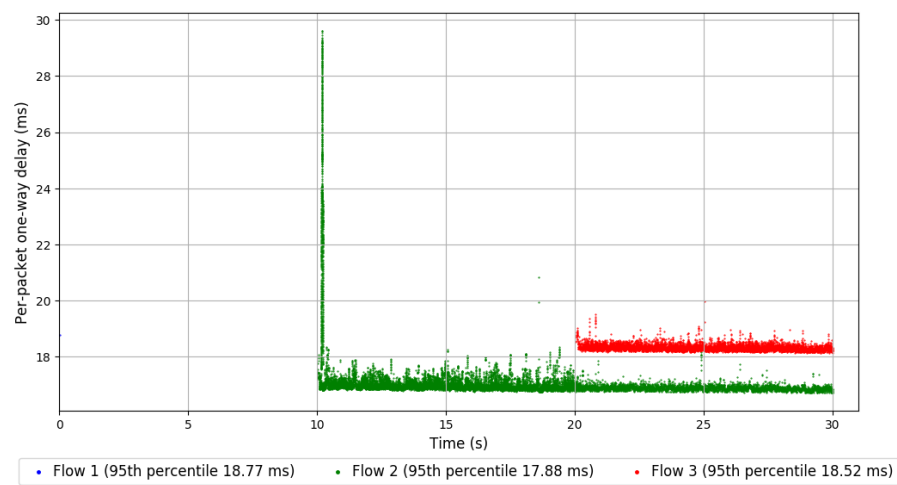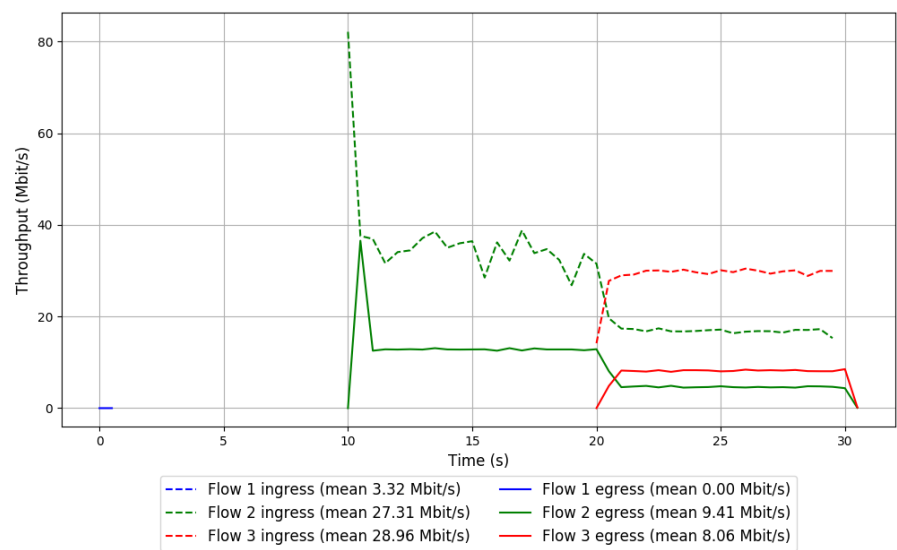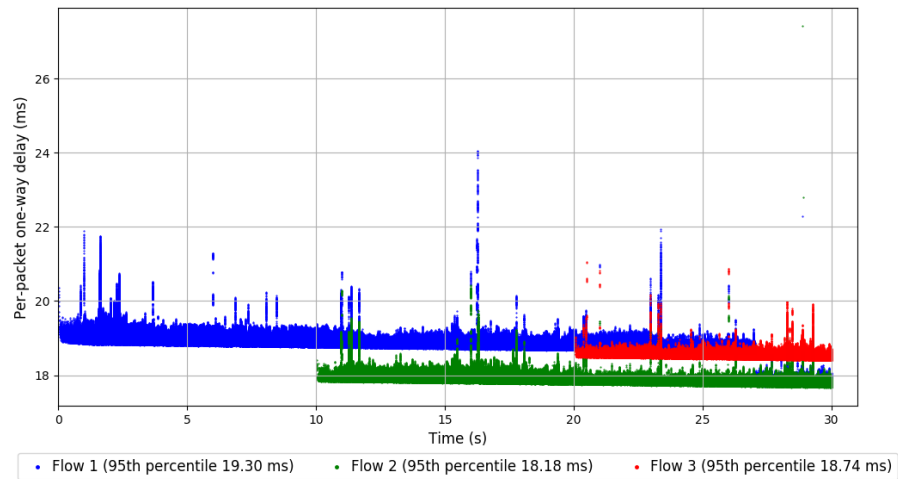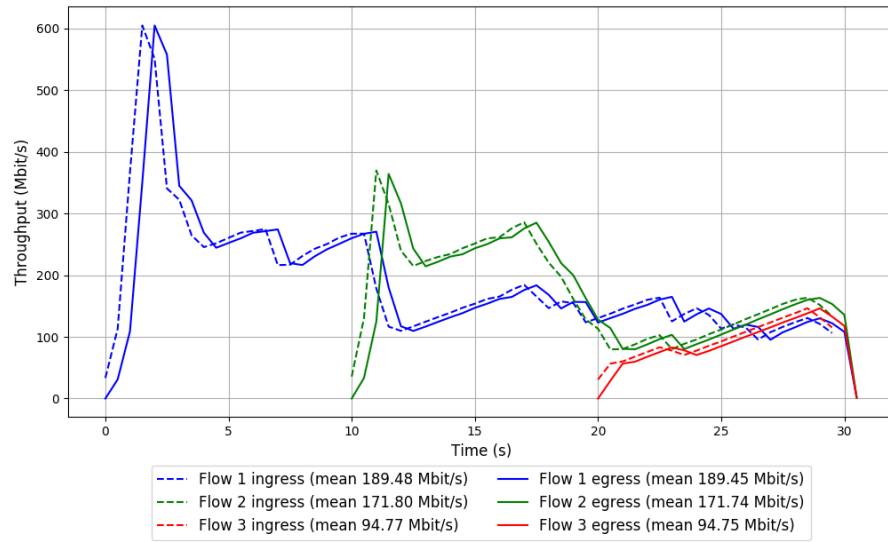
Run 4: Report of Copa — Data Link



Flow 1 ingress (mean 3.33 Mbit/s)          Flow 1 egress (mean 0.00 Mbit/s)
Flow 2 ingress (mean 29.18 Mbit/s)         Flow 2 egress (mean 10.77 Mbit/s)
Flow 3 ingress (mean 18.90 Mbit/s)         Flow 3 egress (mean 5.29 Mbit/s)



Flow 1 (95th percentile 19.16 ms)     Flow 2 (95th percentile 18.89 ms)     Flow 3 (95th percentile 18.47 ms)

```
Run 5: Statistics of Copa

Start at: 2018-09-06 11:23:41
End at: 2018-09-06 11:24:11
Local clock offset: -0.583 ms
Remote clock offset: 3.143 ms

# Below is generated by plot.py at 2018-09-06 11:44:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.94 Mbit/s
95th percentile per-packet one-way delay: 18.497 ms
Loss rate: 67.85%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 18.771 ms
Loss rate: 98.65%
-- Flow 2:
Average throughput: 9.41 Mbit/s
95th percentile per-packet one-way delay: 17.877 ms
Loss rate: 65.56%
-- Flow 3:
Average throughput: 8.06 Mbit/s
95th percentile per-packet one-way delay: 18.519 ms
Loss rate: 72.18%
```
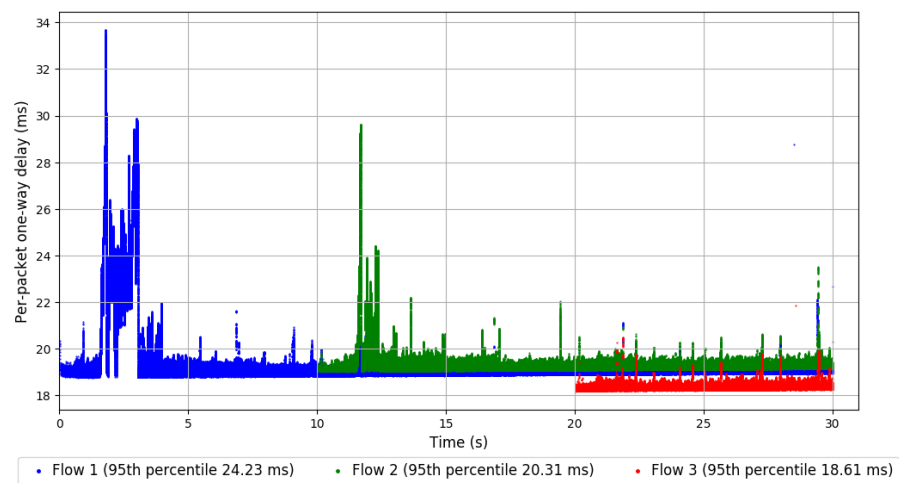
Run 5: Report of Copa — Data Link



Flow 1 ingress (mean 3.32 Mbit/s) --- Flow 1 egress (mean 0.00 Mbit/s)
Flow 2 ingress (mean 27.31 Mbit/s) --- Flow 2 egress (mean 9.41 Mbit/s)
Flow 3 ingress (mean 28.96 Mbit/s) --- Flow 3 egress (mean 8.06 Mbit/s)



Flow 1 (95th percentile 18.77 ms)　　Flow 2 (95th percentile 17.88 ms)　　Flow 3 (95th percentile 18.52 ms)

```
Run 1: Statistics of TCP Cubic

Start at: 2018-09-06 09:30:18
End at: 2018-09-06 09:30:48
Local clock offset: -0.19 ms
Remote clock offset: -0.714 ms


# Below is generated by plot.py at 2018-09-06 11:44:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 335.37 Mbit/s
95th percentile per-packet one-way delay: 19.238 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 189.45 Mbit/s
95th percentile per-packet one-way delay: 19.305 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 171.74 Mbit/s
95th percentile per-packet one-way delay: 18.175 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 94.75 Mbit/s
95th percentile per-packet one-way delay: 18.742 ms
Loss rate: 0.02%
```
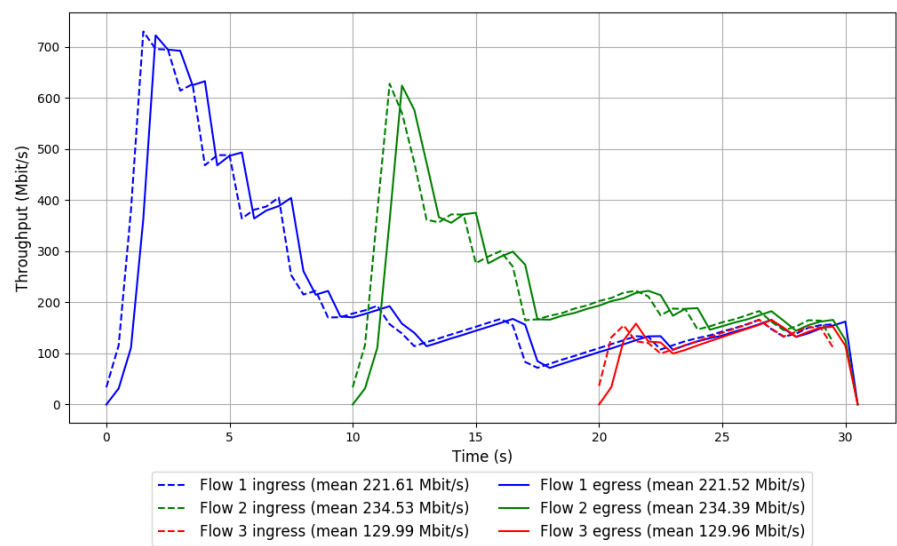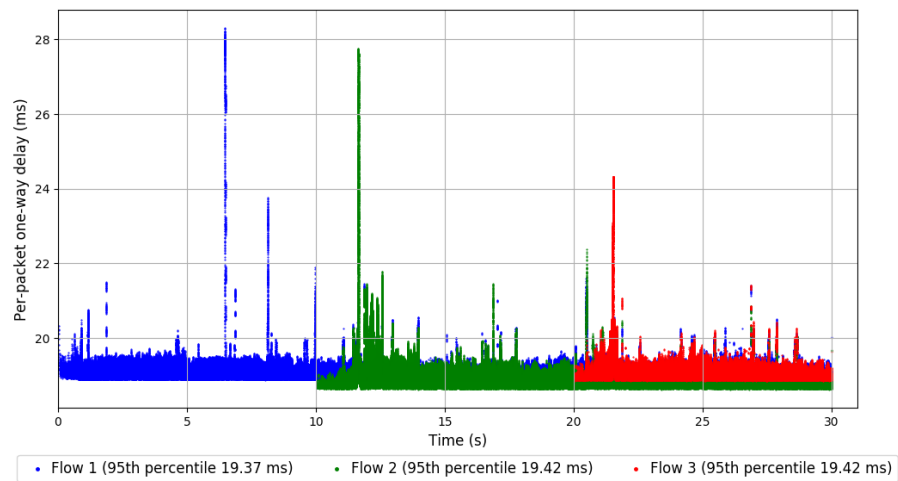
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-09-06 09:58:26
End at: 2018-09-06 09:58:56
Local clock offset: -0.478 ms
Remote clock offset: 6.989 ms


# Below is generated by plot.py at 2018-09-06 11:44:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 420.95 Mbit/s
95th percentile per-packet one-way delay: 23.009 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 221.52 Mbit/s
95th percentile per-packet one-way delay: 24.234 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 234.39 Mbit/s
95th percentile per-packet one-way delay: 20.308 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 129.96 Mbit/s
95th percentile per-packet one-way delay: 18.605 ms
Loss rate: 0.02%
```
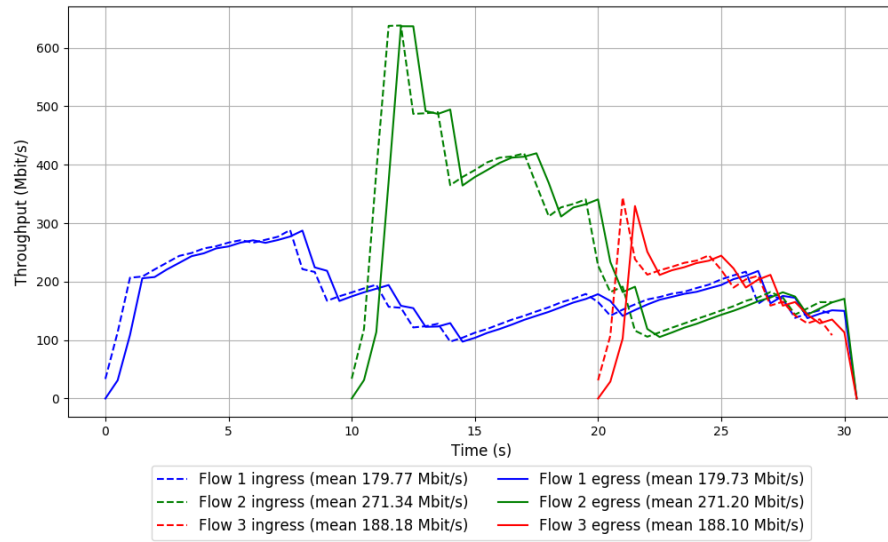
Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2018-09-06 10:26:28
End at: 2018-09-06 10:26:58
Local clock offset: -0.136 ms
Remote clock offset: 4.806 ms


# Below is generated by plot.py at 2018-09-06 11:44:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 422.95 Mbit/s
95th percentile per-packet one-way delay: 19.383 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 179.73 Mbit/s
95th percentile per-packet one-way delay: 19.366 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 271.20 Mbit/s
95th percentile per-packet one-way delay: 19.418 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 188.10 Mbit/s
95th percentile per-packet one-way delay: 19.424 ms
Loss rate: 0.04%
```
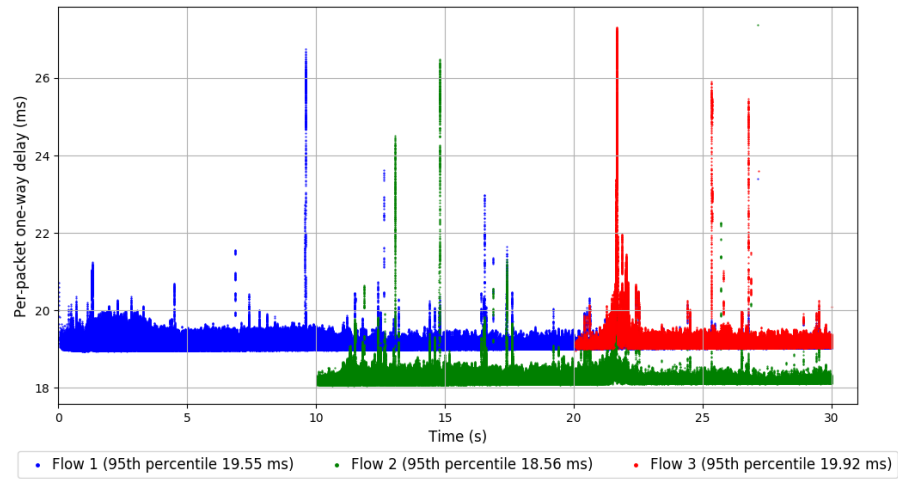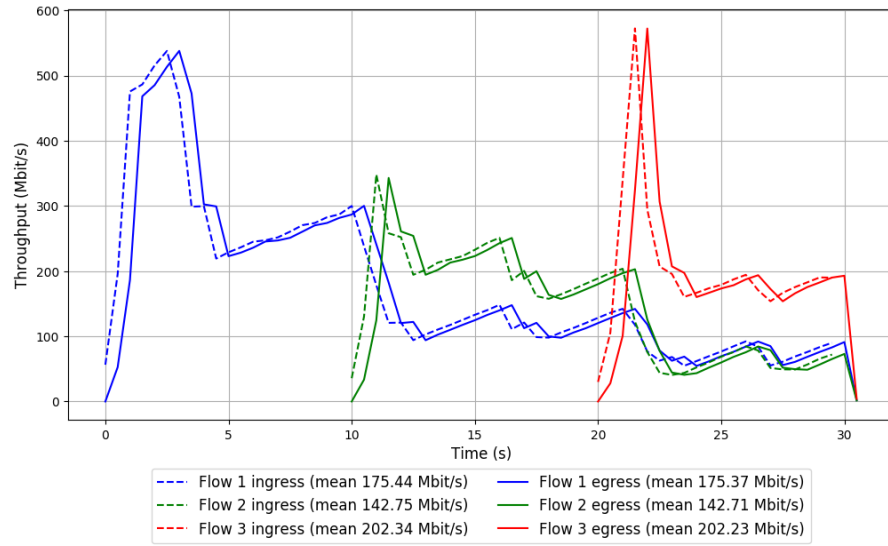
Run 3: Report of TCP Cubic — Data Link

```
Run 4: Statistics of TCP Cubic

Start at: 2018-09-06 10:54:22
End at: 2018-09-06 10:54:52
Local clock offset: 2.731 ms
Remote clock offset: 3.48 ms


# Below is generated by plot.py at 2018-09-06 11:44:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 337.68 Mbit/s
95th percentile per-packet one-way delay: 19.552 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 175.37 Mbit/s
95th percentile per-packet one-way delay: 19.549 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 142.71 Mbit/s
95th percentile per-packet one-way delay: 18.556 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 202.23 Mbit/s
95th percentile per-packet one-way delay: 19.919 ms
Loss rate: 0.05%
```
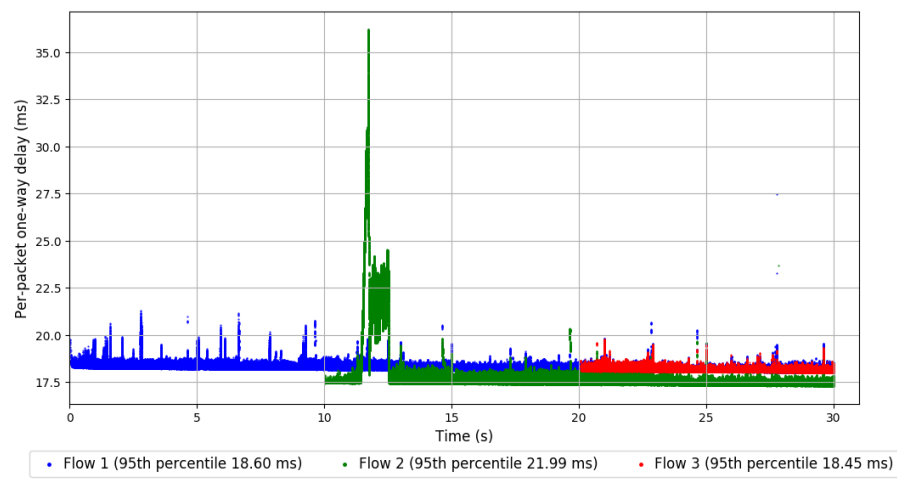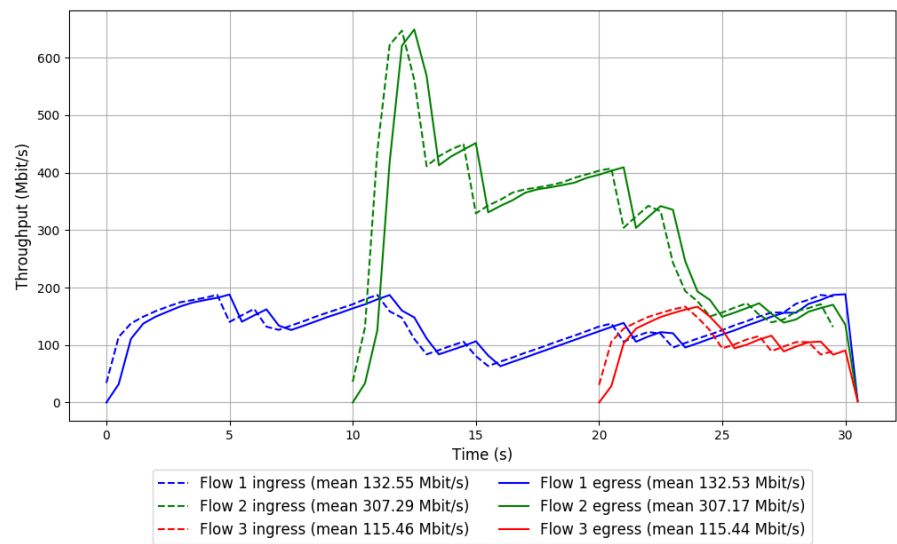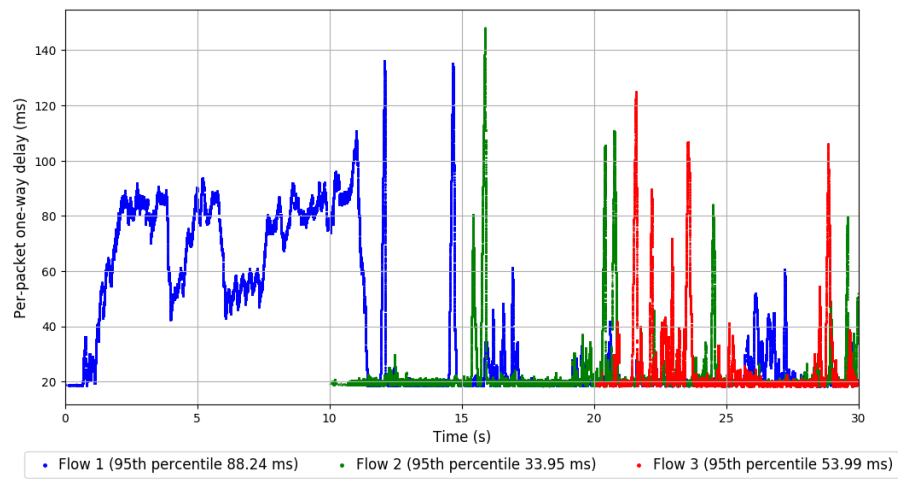
Run 4: Report of TCP Cubic — Data Link

```
Run 5: Statistics of TCP Cubic

Start at: 2018-09-06 11:22:09
End at: 2018-09-06 11:22:39
Local clock offset: 0.138 ms
Remote clock offset: 3.117 ms


# Below is generated by plot.py at 2018-09-06 11:44:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 375.55 Mbit/s
95th percentile per-packet one-way delay: 20.493 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 132.53 Mbit/s
95th percentile per-packet one-way delay: 18.598 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 307.17 Mbit/s
95th percentile per-packet one-way delay: 21.992 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 115.44 Mbit/s
95th percentile per-packet one-way delay: 18.454 ms
Loss rate: 0.02%
```
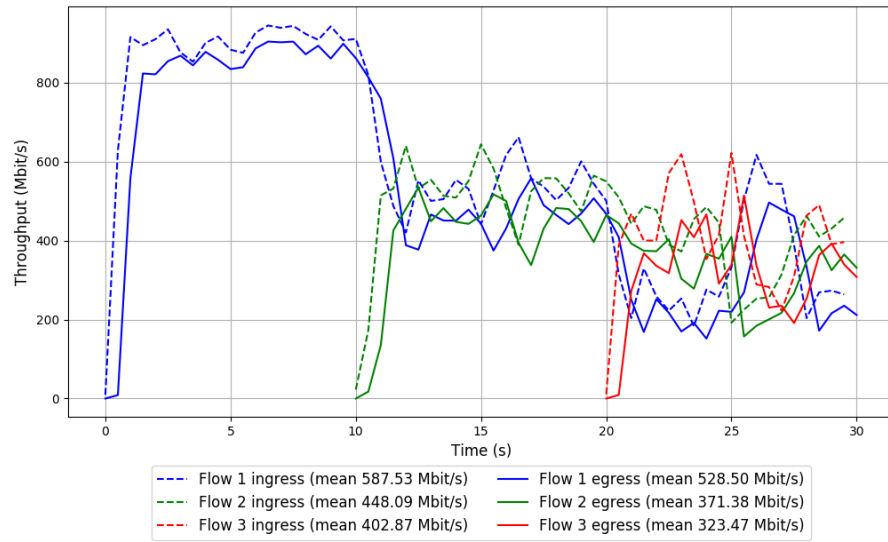
Run 5: Report of TCP Cubic — Data Link



- - - Flow 1 ingress (mean 132.55 Mbit/s) —— Flow 1 egress (mean 132.53 Mbit/s)
- - - Flow 2 ingress (mean 307.29 Mbit/s) —— Flow 2 egress (mean 307.17 Mbit/s)
- - - Flow 3 ingress (mean 115.46 Mbit/s) —— Flow 3 egress (mean 115.44 Mbit/s)



• Flow 1 (95th percentile 18.60 ms)    • Flow 2 (95th percentile 21.99 ms)    • Flow 3 (95th percentile 18.45 ms)

```
Run 1: Statistics of FillP

Start at: 2018-09-06 09:28:28
End at: 2018-09-06 09:28:58
Local clock offset: -0.423 ms
Remote clock offset: -2.051 ms


# Below is generated by plot.py at 2018-09-06 11:50:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 883.12 Mbit/s
95th percentile per-packet one-way delay: 87.005 ms
Loss rate: 13.39%
-- Flow 1:
Average throughput: 528.50 Mbit/s
95th percentile per-packet one-way delay: 88.243 ms
Loss rate: 10.05%
-- Flow 2:
Average throughput: 371.38 Mbit/s
95th percentile per-packet one-way delay: 33.946 ms
Loss rate: 17.12%
-- Flow 3:
Average throughput: 323.47 Mbit/s
95th percentile per-packet one-way delay: 53.993 ms
Loss rate: 19.73%
```
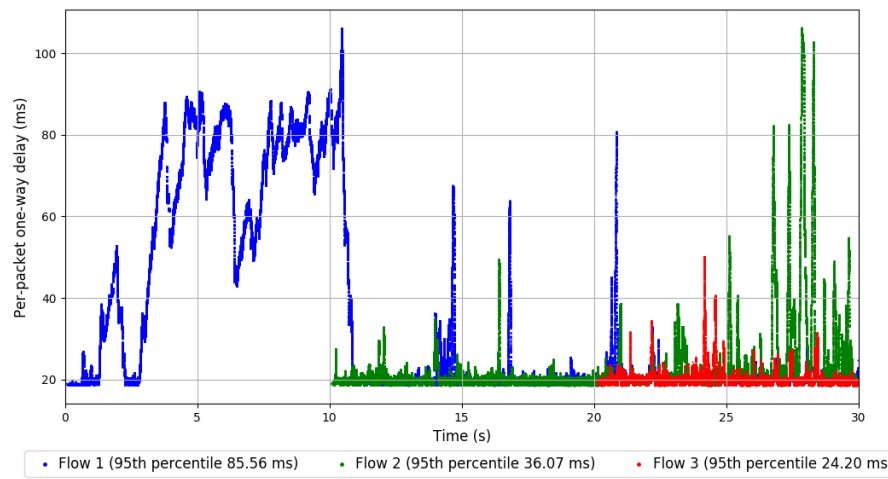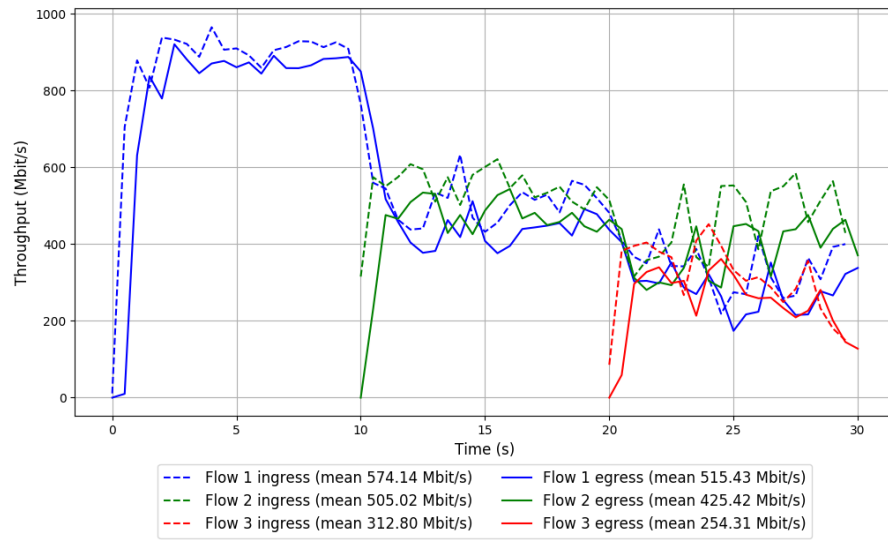
Run 1: Report of FillP — Data Link

```
Run 2: Statistics of FillP

Start at: 2018-09-06 09:56:36
End at: 2018-09-06 09:57:06
Local clock offset: -0.38 ms
Remote clock offset: 6.785 ms


# Below is generated by plot.py at 2018-09-06 11:54:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 883.10 Mbit/s
95th percentile per-packet one-way delay: 84.093 ms
Loss rate: 12.93%
-- Flow 1:
Average throughput: 515.43 Mbit/s
95th percentile per-packet one-way delay: 85.561 ms
Loss rate: 10.22%
-- Flow 2:
Average throughput: 425.42 Mbit/s
95th percentile per-packet one-way delay: 36.072 ms
Loss rate: 15.76%
-- Flow 3:
Average throughput: 254.31 Mbit/s
95th percentile per-packet one-way delay: 24.205 ms
Loss rate: 18.71%
```
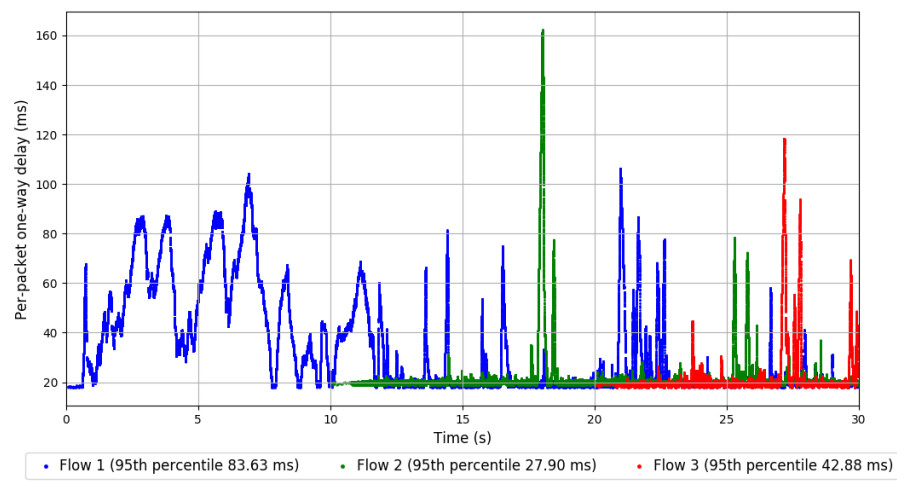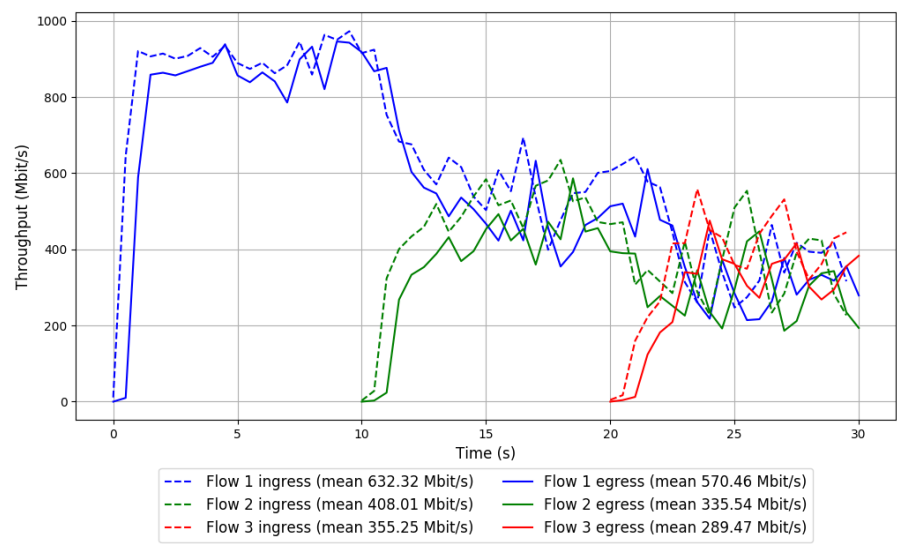
Run 2: Report of FillP — Data Link



- - - Flow 1 ingress (mean 574.14 Mbit/s) —— Flow 1 egress (mean 515.43 Mbit/s)
- - - Flow 2 ingress (mean 505.02 Mbit/s) —— Flow 2 egress (mean 425.42 Mbit/s)
- - - Flow 3 ingress (mean 312.80 Mbit/s) —— Flow 3 egress (mean 254.31 Mbit/s)



• Flow 1 (95th percentile 85.56 ms)  • Flow 2 (95th percentile 36.07 ms)  • Flow 3 (95th percentile 24.20 ms)

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```
Run 3: Statistics of FillP

Start at: 2018-09-06 10:24:38
End at: 2018-09-06 10:25:08
Local clock offset: -0.167 ms
Remote clock offset: 4.721 ms


# Below is generated by plot.py at 2018-09-06 11:56:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 889.87 Mbit/s
95th percentile per-packet one-way delay: 80.925 ms
Loss rate: 12.90%
-- Flow 1:
Average throughput: 570.46 Mbit/s
95th percentile per-packet one-way delay: 83.633 ms
Loss rate: 9.78%
-- Flow 2:
Average throughput: 335.54 Mbit/s
95th percentile per-packet one-way delay: 27.897 ms
Loss rate: 17.75%
-- Flow 3:
Average throughput: 289.47 Mbit/s
95th percentile per-packet one-way delay: 42.885 ms
Loss rate: 18.52%
```
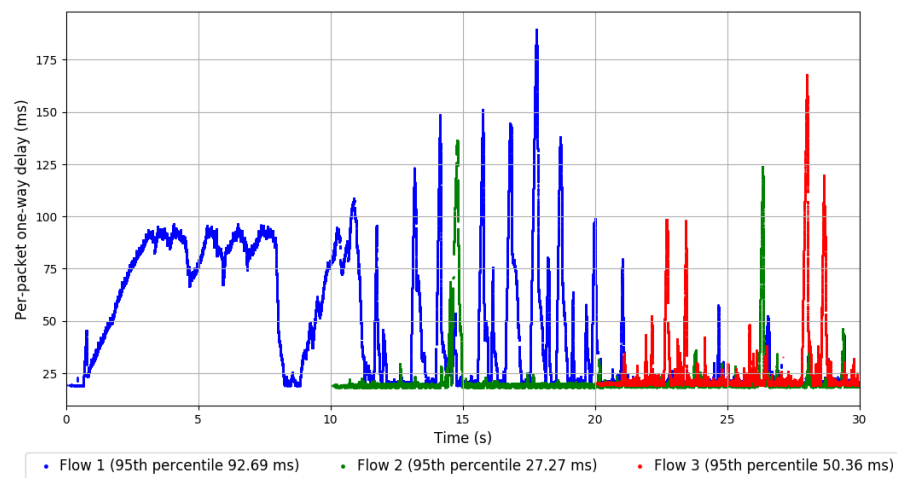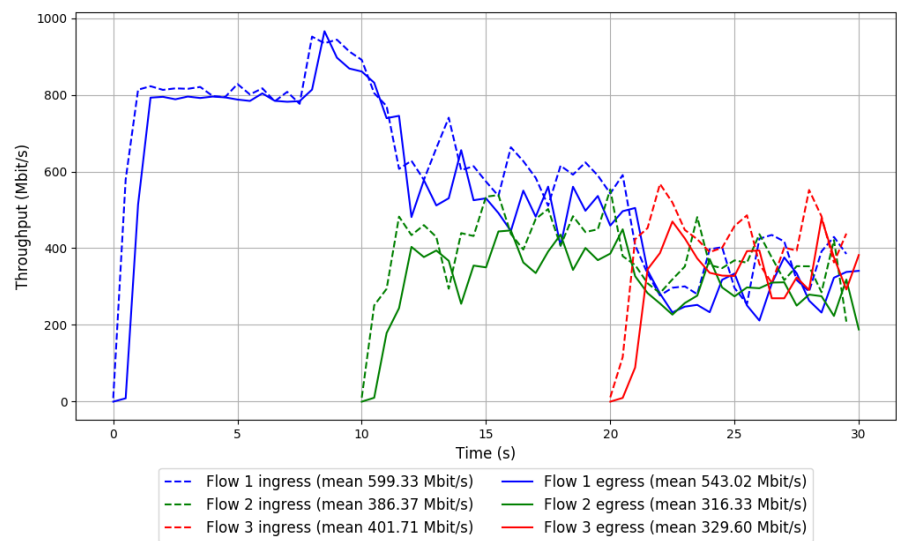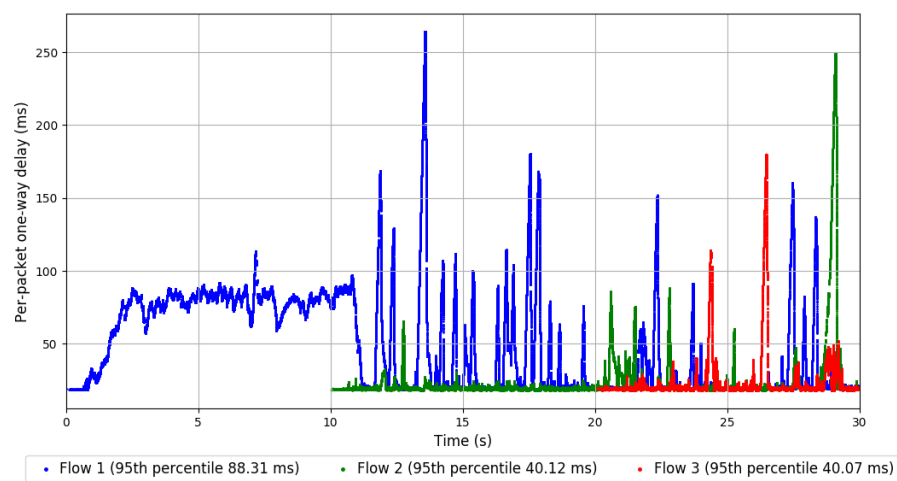
Run 3: Report of FillP — Data Link



Flow 1 ingress (mean 632.32 Mbit/s)    Flow 1 egress (mean 570.46 Mbit/s)
Flow 2 ingress (mean 408.01 Mbit/s)    Flow 2 egress (mean 335.54 Mbit/s)
Flow 3 ingress (mean 355.25 Mbit/s)    Flow 3 egress (mean 289.47 Mbit/s)



Flow 1 (95th percentile 83.63 ms)    Flow 2 (95th percentile 27.90 ms)    Flow 3 (95th percentile 42.88 ms)

39

```
Run 4: Statistics of FillP

Start at: 2018-09-06 10:52:33
End at: 2018-09-06 10:53:03
Local clock offset: 2.283 ms
Remote clock offset: 3.426 ms


# Below is generated by plot.py at 2018-09-06 11:56:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 863.03 Mbit/s
95th percentile per-packet one-way delay: 91.899 ms
Loss rate: 12.82%
-- Flow 1:
Average throughput: 543.02 Mbit/s
95th percentile per-packet one-way delay: 92.688 ms
Loss rate: 9.39%
-- Flow 2:
Average throughput: 316.33 Mbit/s
95th percentile per-packet one-way delay: 27.275 ms
Loss rate: 18.13%
-- Flow 3:
Average throughput: 329.60 Mbit/s
95th percentile per-packet one-way delay: 50.362 ms
Loss rate: 17.95%
```
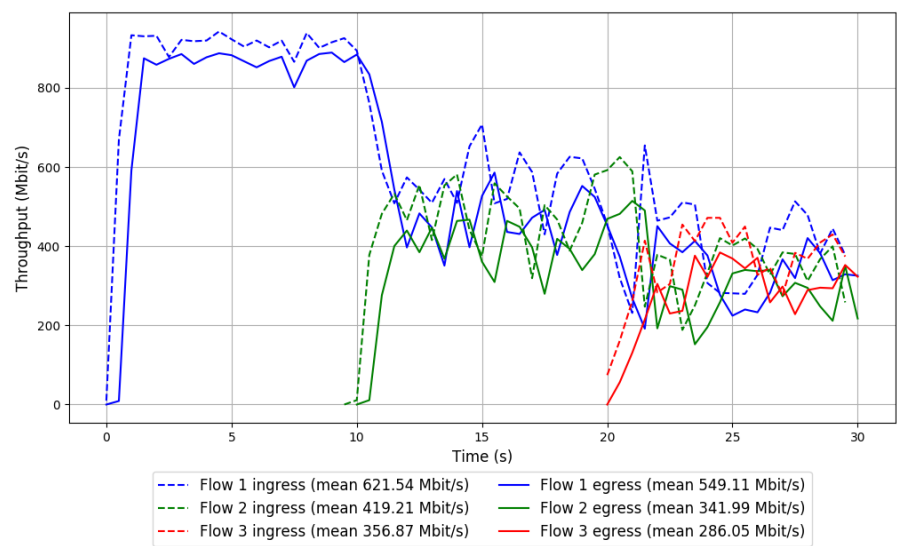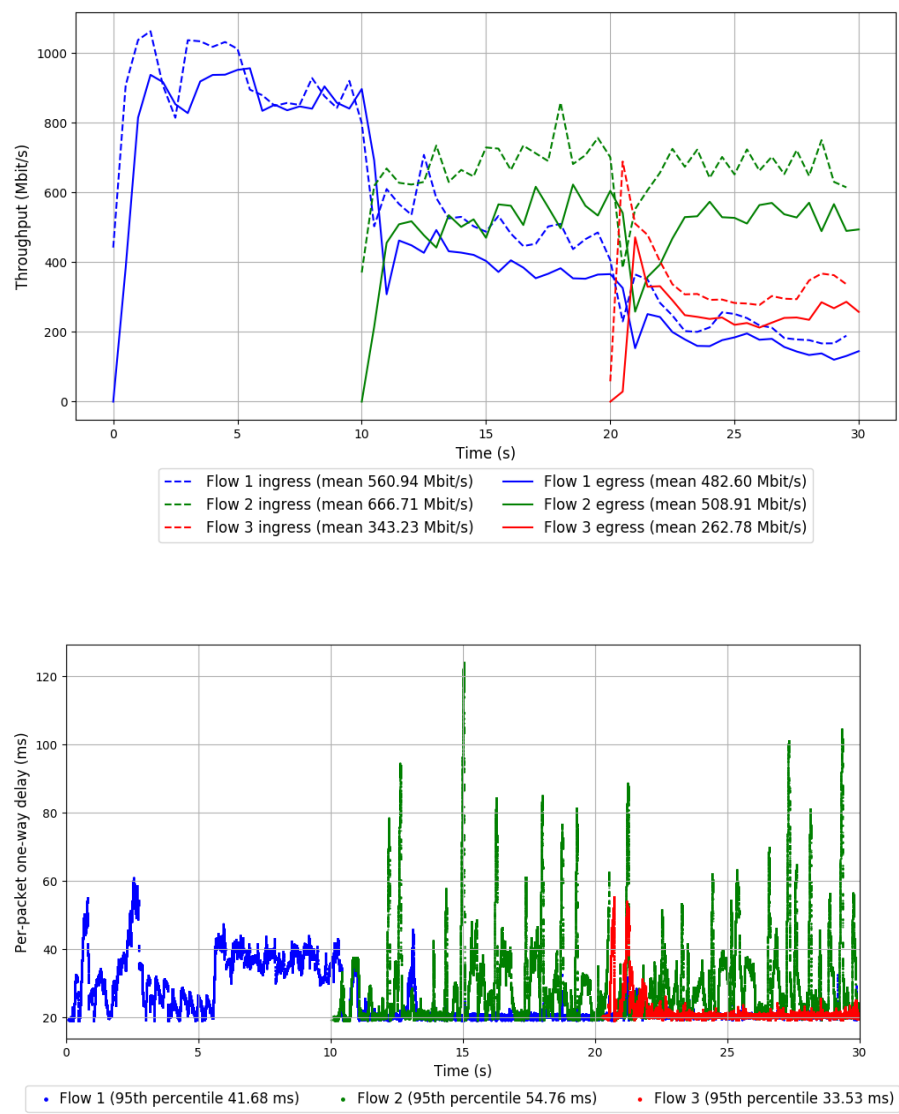
Run 4: Report of FillP — Data Link



- - - - Flow 1 ingress (mean 599.33 Mbit/s)      —— Flow 1 egress (mean 543.02 Mbit/s)
- - - - Flow 2 ingress (mean 386.37 Mbit/s)      —— Flow 2 egress (mean 316.33 Mbit/s)
- - - - Flow 3 ingress (mean 401.71 Mbit/s)      —— Flow 3 egress (mean 329.60 Mbit/s)



• Flow 1 (95th percentile 92.69 ms)      • Flow 2 (95th percentile 27.27 ms)      • Flow 3 (95th percentile 50.36 ms)

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```
Run 5: Statistics of FillP

Start at: 2018-09-06 11:20:19
End at: 2018-09-06 11:20:49
Local clock offset: 1.128 ms
Remote clock offset: 3.176 ms


# Below is generated by plot.py at 2018-09-06 11:56:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 871.75 Mbit/s
95th percentile per-packet one-way delay: 87.143 ms
Loss rate: 14.46%
-- Flow 1:
Average throughput: 549.11 Mbit/s
95th percentile per-packet one-way delay: 88.314 ms
Loss rate: 11.65%
-- Flow 2:
Average throughput: 341.99 Mbit/s
95th percentile per-packet one-way delay: 40.115 ms
Loss rate: 18.42%
-- Flow 3:
Average throughput: 286.05 Mbit/s
95th percentile per-packet one-way delay: 40.071 ms
Loss rate: 19.85%
```
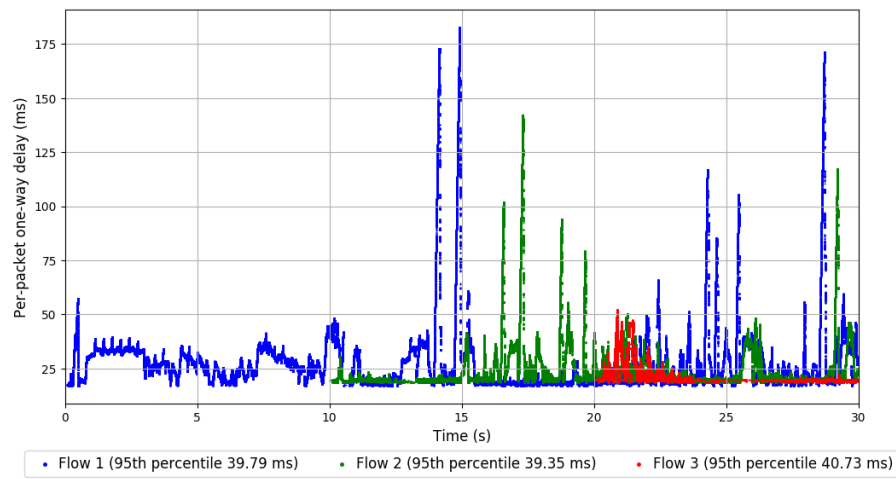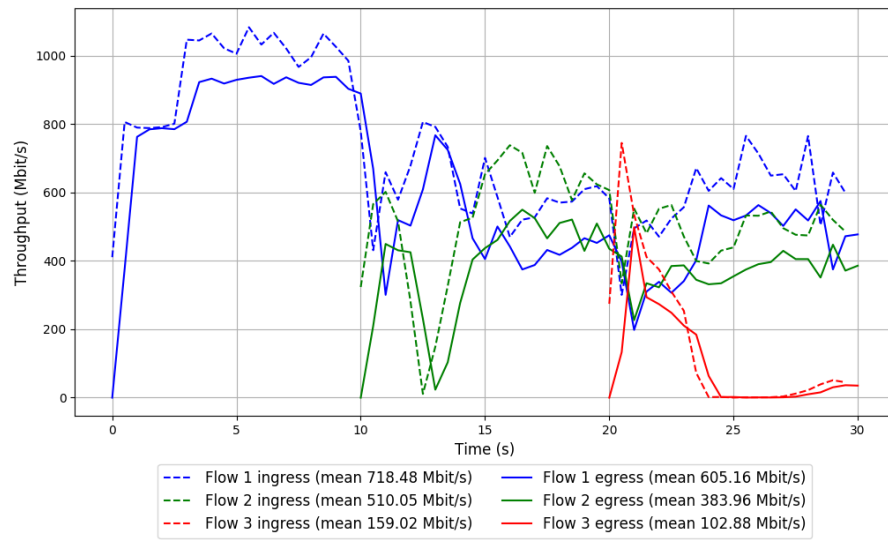
Run 5: Report of FillP — Data Link

```
Run 1: Statistics of FillP-Sheep

Start at: 2018-09-06 09:18:15
End at: 2018-09-06 09:18:45
Local clock offset: -3.026 ms
Remote clock offset: -5.874 ms


# Below is generated by plot.py at 2018-09-06 11:57:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 906.95 Mbit/s
95th percentile per-packet one-way delay: 43.432 ms
Loss rate: 18.93%
-- Flow 1:
Average throughput: 482.60 Mbit/s
95th percentile per-packet one-way delay: 41.681 ms
Loss rate: 13.96%
-- Flow 2:
Average throughput: 508.91 Mbit/s
95th percentile per-packet one-way delay: 54.756 ms
Loss rate: 23.66%
-- Flow 3:
Average throughput: 262.78 Mbit/s
95th percentile per-packet one-way delay: 33.532 ms
Loss rate: 24.99%
```
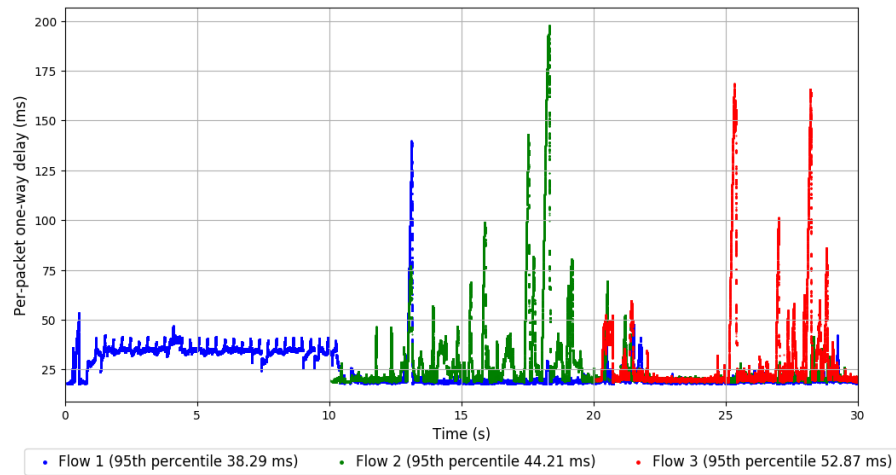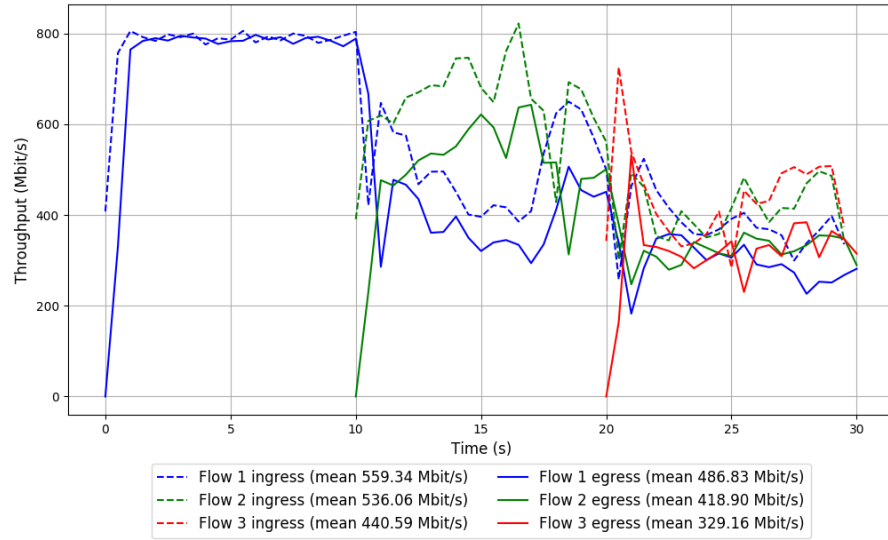
Run 1: Report of FillP-Sheep — Data Link

```
Run 2: Statistics of FillP-Sheep

Start at: 2018-09-06 09:46:21
End at: 2018-09-06 09:46:51
Local clock offset: 0.688 ms
Remote clock offset: 5.043 ms


# Below is generated by plot.py at 2018-09-06 11:57:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 894.92 Mbit/s
95th percentile per-packet one-way delay: 39.661 ms
Loss rate: 19.43%
-- Flow 1:
Average throughput: 605.16 Mbit/s
95th percentile per-packet one-way delay: 39.793 ms
Loss rate: 15.77%
-- Flow 2:
Average throughput: 383.96 Mbit/s
95th percentile per-packet one-way delay: 39.353 ms
Loss rate: 24.72%
-- Flow 3:
Average throughput: 102.88 Mbit/s
95th percentile per-packet one-way delay: 40.735 ms
Loss rate: 35.31%
```
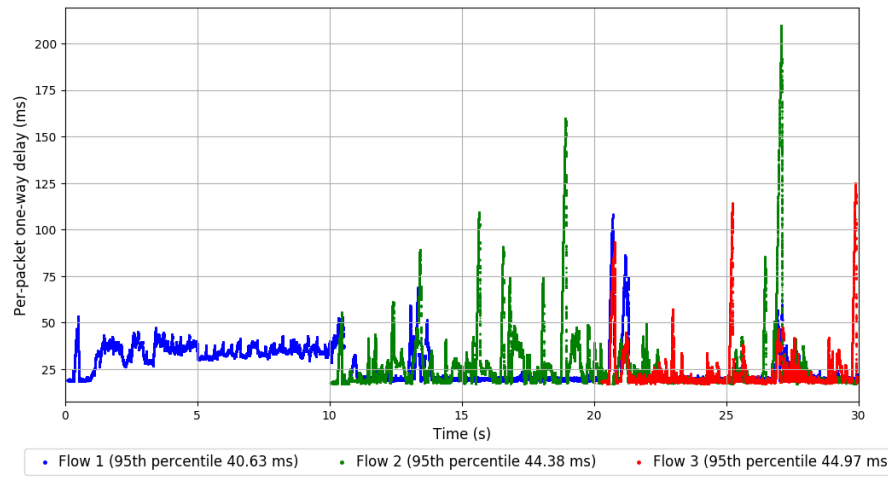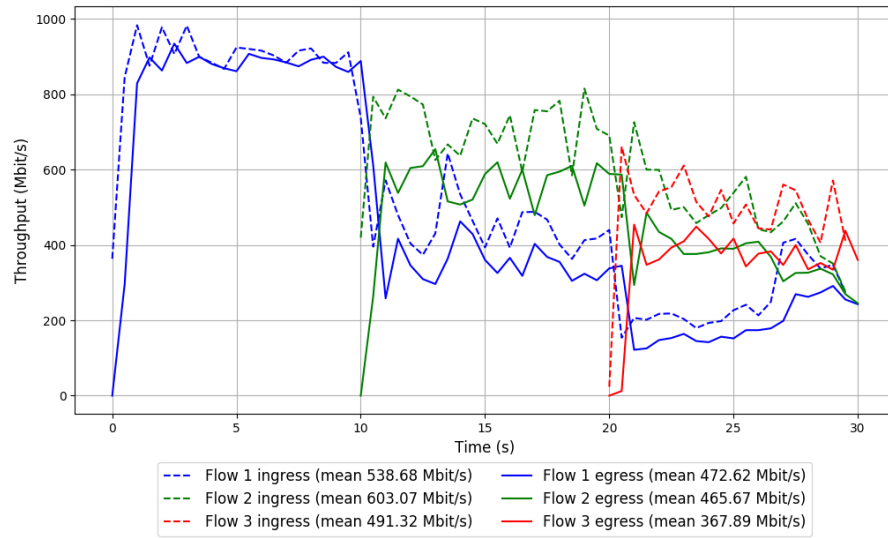
Run 2: Report of FillP-Sheep — Data Link



Flow 1 ingress (mean 718.48 Mbit/s)          Flow 1 egress (mean 605.16 Mbit/s)
Flow 2 ingress (mean 510.05 Mbit/s)          Flow 2 egress (mean 383.96 Mbit/s)
Flow 3 ingress (mean 159.02 Mbit/s)          Flow 3 egress (mean 102.88 Mbit/s)



Flow 1 (95th percentile 39.79 ms)      Flow 2 (95th percentile 39.35 ms)      Flow 3 (95th percentile 40.73 ms)

```
Run 3: Statistics of FillP-Sheep

Start at: 2018-09-06 10:14:35
End at: 2018-09-06 10:15:05
Local clock offset: -0.709 ms
Remote clock offset: 4.375 ms


# Below is generated by plot.py at 2018-09-06 11:57:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 874.67 Mbit/s
95th percentile per-packet one-way delay: 39.794 ms
Loss rate: 17.65%
-- Flow 1:
Average throughput: 486.83 Mbit/s
95th percentile per-packet one-way delay: 38.292 ms
Loss rate: 12.96%
-- Flow 2:
Average throughput: 418.90 Mbit/s
95th percentile per-packet one-way delay: 44.210 ms
Loss rate: 21.85%
-- Flow 3:
Average throughput: 329.16 Mbit/s
95th percentile per-packet one-way delay: 52.871 ms
Loss rate: 25.30%
```
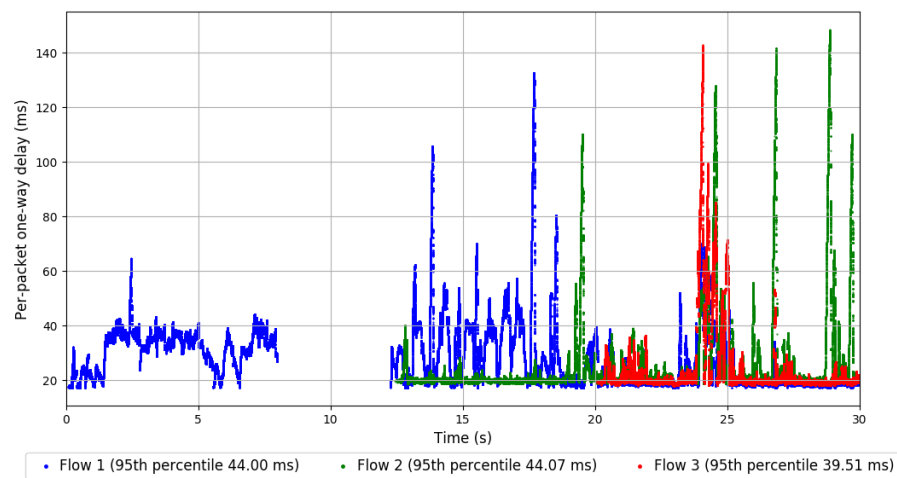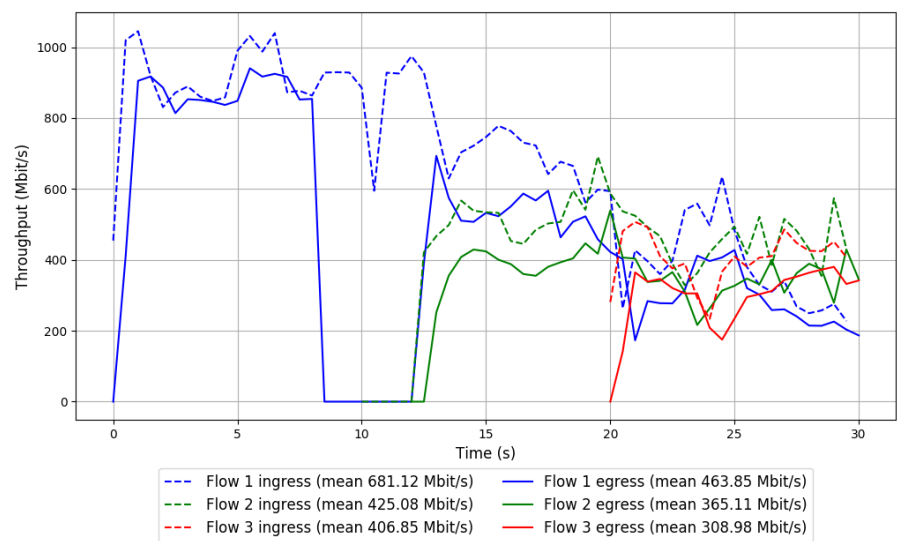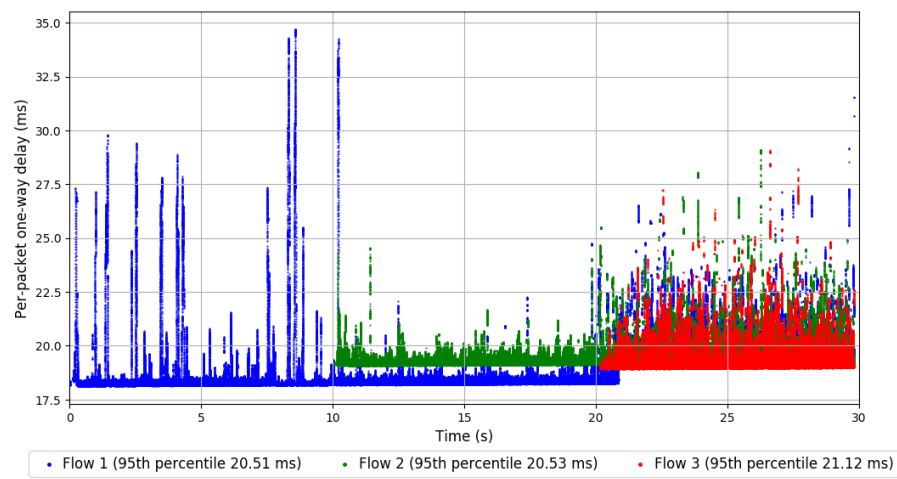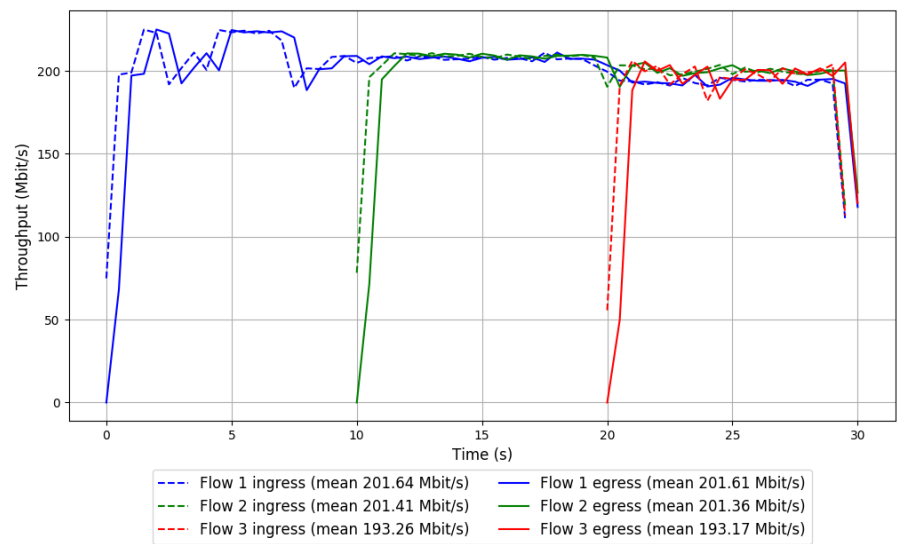
Run 3: Report of FillP-Sheep — Data Link



Flow 1 ingress (mean 559.34 Mbit/s)    Flow 1 egress (mean 486.83 Mbit/s)
Flow 2 ingress (mean 536.06 Mbit/s)    Flow 2 egress (mean 418.90 Mbit/s)
Flow 3 ingress (mean 440.59 Mbit/s)    Flow 3 egress (mean 329.16 Mbit/s)



Flow 1 (95th percentile 38.29 ms)    Flow 2 (95th percentile 44.21 ms)    Flow 3 (95th percentile 52.87 ms)

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```
Run 4: Statistics of FillP-Sheep

Start at: 2018-09-06 10:42:34
End at: 2018-09-06 10:43:04
Local clock offset: 0.045 ms
Remote clock offset: 3.644 ms


# Below is generated by plot.py at 2018-09-06 12:05:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 904.74 Mbit/s
95th percentile per-packet one-way delay: 41.675 ms
Loss rate: 17.99%
-- Flow 1:
Average throughput: 472.62 Mbit/s
95th percentile per-packet one-way delay: 40.626 ms
Loss rate: 12.26%
-- Flow 2:
Average throughput: 465.67 Mbit/s
95th percentile per-packet one-way delay: 44.379 ms
Loss rate: 22.78%
-- Flow 3:
Average throughput: 367.89 Mbit/s
95th percentile per-packet one-way delay: 44.970 ms
Loss rate: 25.10%
```
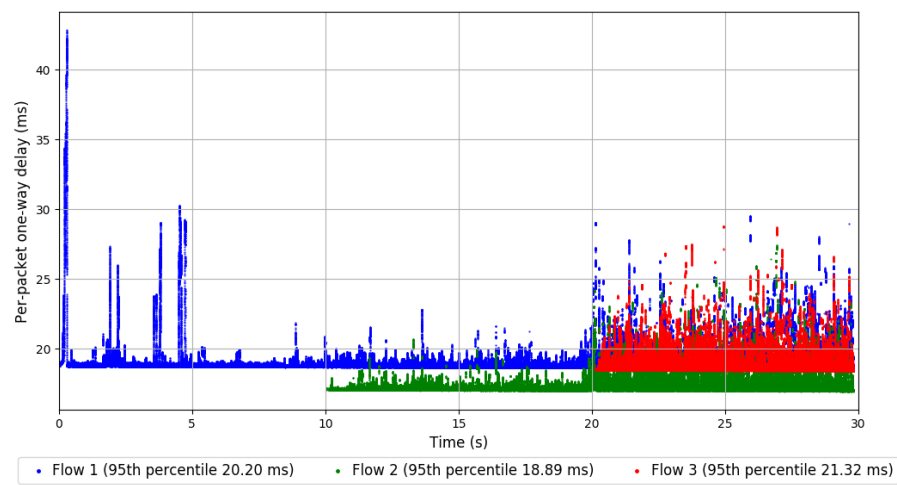
Run 4: Report of FillP-Sheep — Data Link



Flow 1 ingress (mean 538.68 Mbit/s) --- Flow 1 egress (mean 472.62 Mbit/s)
Flow 2 ingress (mean 603.07 Mbit/s) --- Flow 2 egress (mean 465.67 Mbit/s)
Flow 3 ingress (mean 491.32 Mbit/s) --- Flow 3 egress (mean 367.89 Mbit/s)



Flow 1 (95th percentile 40.63 ms)   Flow 2 (95th percentile 44.38 ms)   Flow 3 (95th percentile 44.97 ms)

```
Run 5: Statistics of FillP-Sheep

Start at: 2018-09-06 11:10:23
End at: 2018-09-06 11:10:53
Local clock offset: 4.549 ms
Remote clock offset: 3.429 ms


# Below is generated by plot.py at 2018-09-06 12:07:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 779.96 Mbit/s
95th percentile per-packet one-way delay: 43.723 ms
Loss rate: 29.03%
-- Flow 1:
Average throughput: 463.85 Mbit/s
95th percentile per-packet one-way delay: 44.000 ms
Loss rate: 31.90%
-- Flow 2:
Average throughput: 365.11 Mbit/s
95th percentile per-packet one-way delay: 44.067 ms
Loss rate: 24.50%
-- Flow 3:
Average throughput: 308.98 Mbit/s
95th percentile per-packet one-way delay: 39.512 ms
Loss rate: 24.06%
```
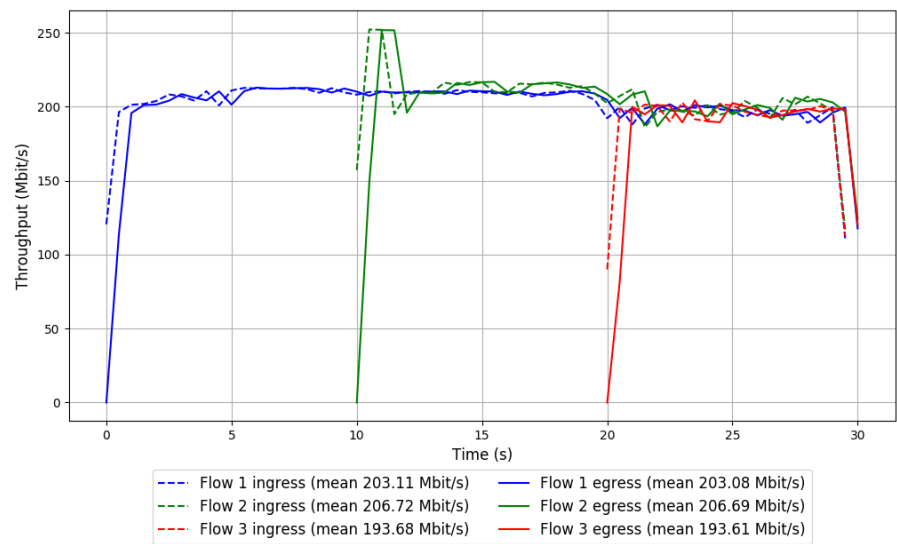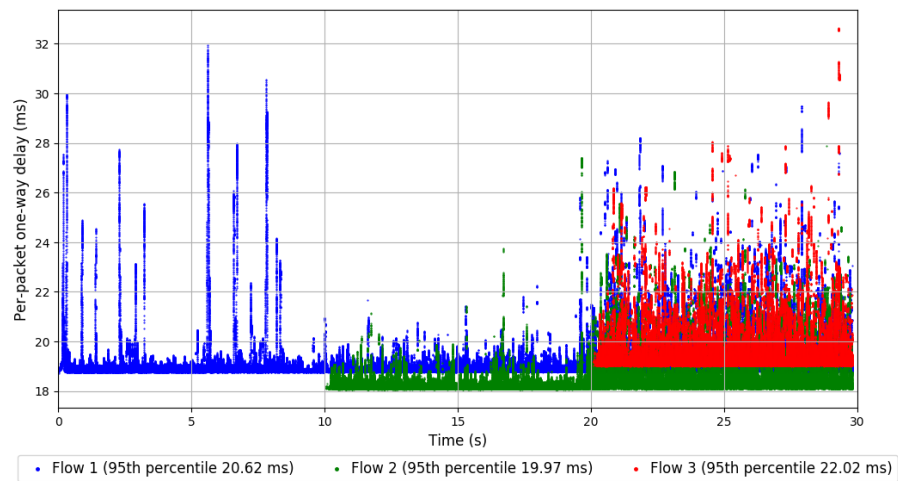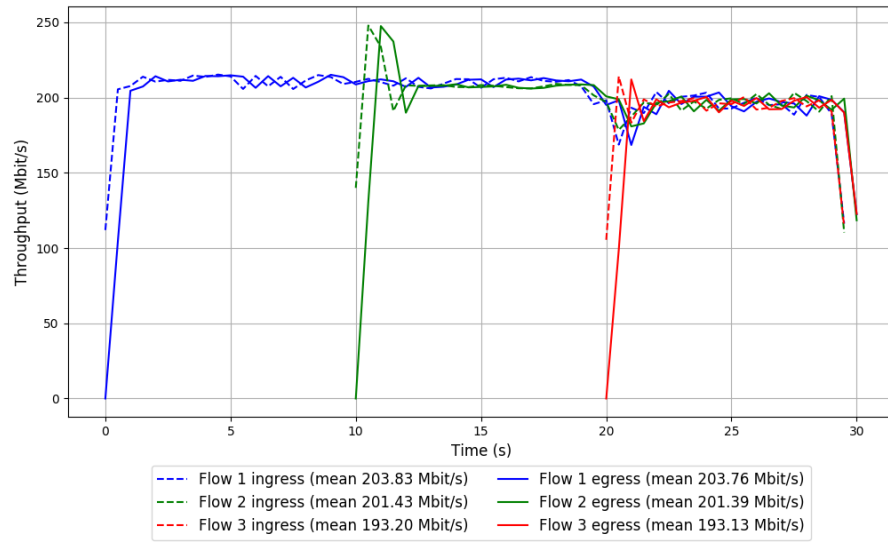
Run 5: Report of FillP-Sheep — Data Link



Flow 1 ingress (mean 681.12 Mbit/s) --- Flow 1 egress (mean 463.85 Mbit/s)
Flow 2 ingress (mean 425.08 Mbit/s) --- Flow 2 egress (mean 365.11 Mbit/s)
Flow 3 ingress (mean 406.85 Mbit/s) --- Flow 3 egress (mean 308.98 Mbit/s)



Flow 1 (95th percentile 44.00 ms)  •  Flow 2 (95th percentile 44.07 ms)  •  Flow 3 (95th percentile 39.51 ms)

```
Run 1: Statistics of Indigo

Start at: 2018-09-06 09:20:08
End at: 2018-09-06 09:20:38
Local clock offset: -2.23 ms
Remote clock offset: -5.972 ms


# Below is generated by plot.py at 2018-09-06 12:07:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 397.54 Mbit/s
95th percentile per-packet one-way delay: 20.641 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 201.61 Mbit/s
95th percentile per-packet one-way delay: 20.514 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 201.36 Mbit/s
95th percentile per-packet one-way delay: 20.532 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 193.17 Mbit/s
95th percentile per-packet one-way delay: 21.116 ms
Loss rate: 0.02%
```
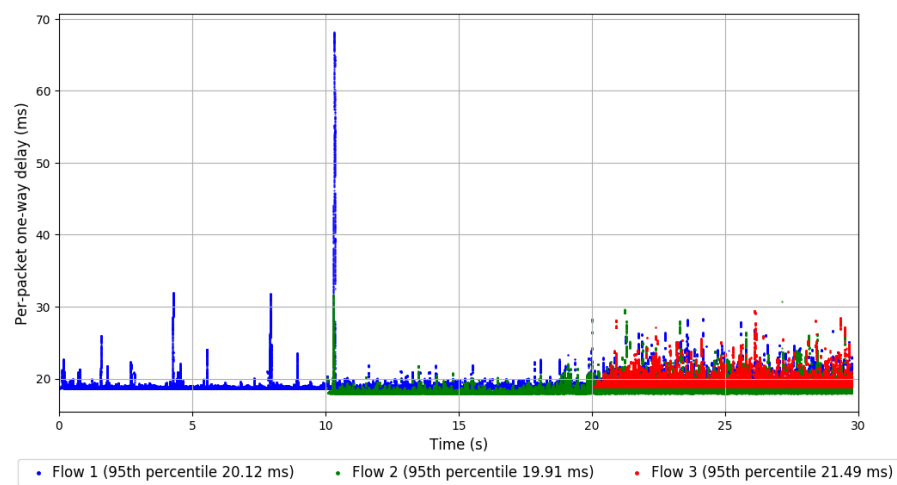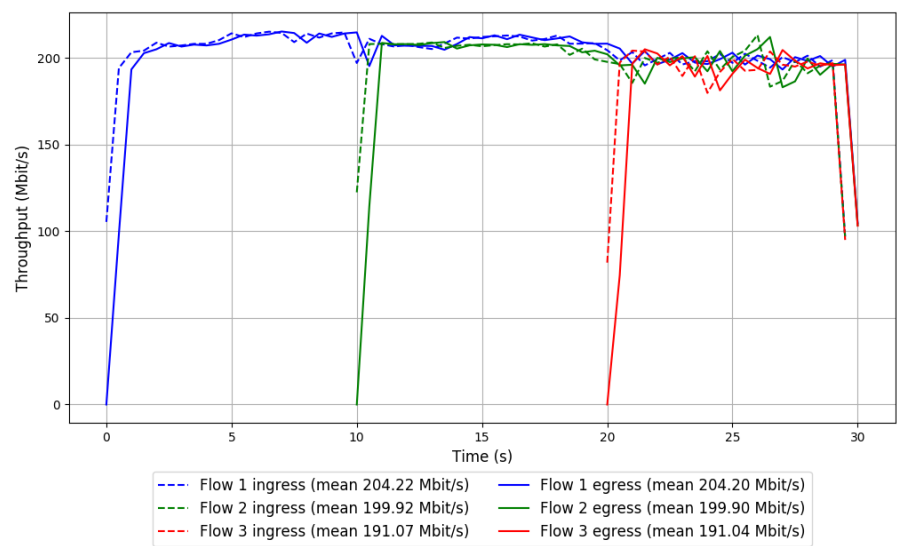
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-09-06 09:48:16
End at: 2018-09-06 09:48:46
Local clock offset: 0.413 ms
Remote clock offset: 5.339 ms


# Below is generated by plot.py at 2018-09-06 12:07:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 403.16 Mbit/s
95th percentile per-packet one-way delay: 20.173 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 203.08 Mbit/s
95th percentile per-packet one-way delay: 20.200 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 206.69 Mbit/s
95th percentile per-packet one-way delay: 18.885 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 193.61 Mbit/s
95th percentile per-packet one-way delay: 21.322 ms
Loss rate: 0.04%
```
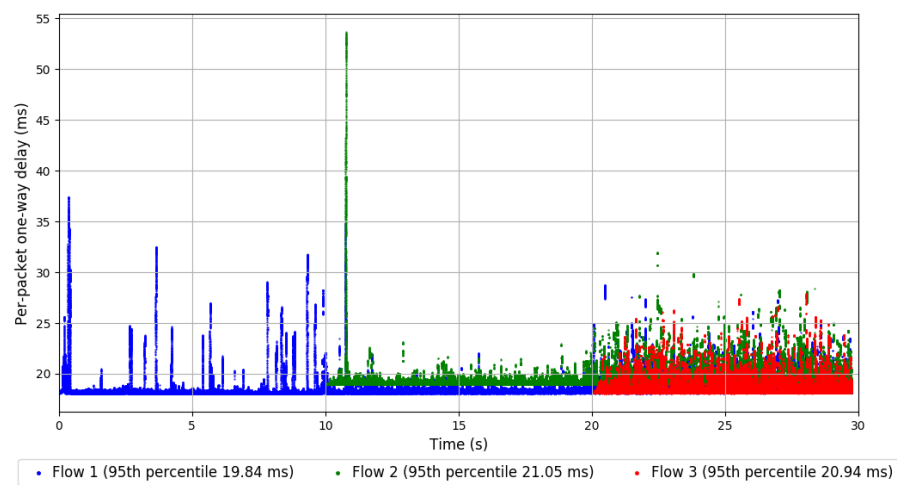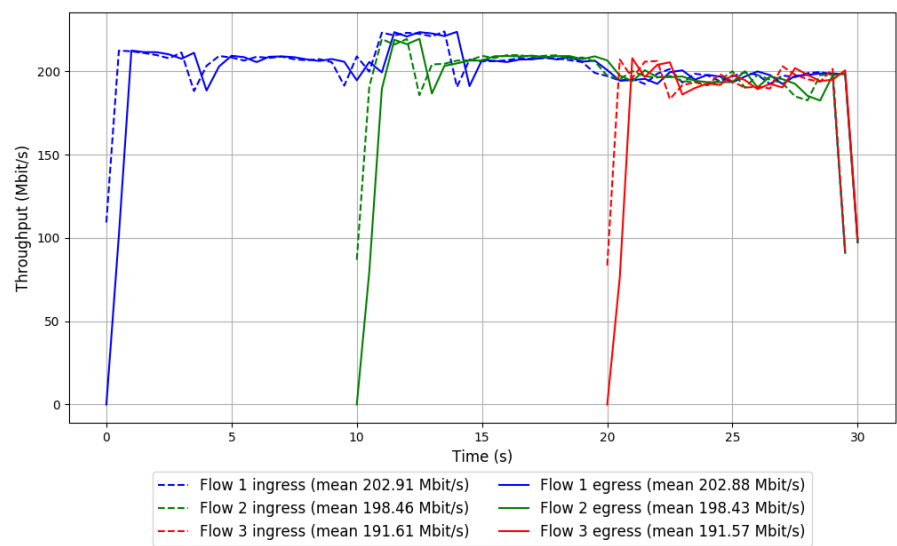
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-09-06 10:16:26
End at: 2018-09-06 10:16:57
Local clock offset: -0.728 ms
Remote clock offset: 4.436 ms


# Below is generated by plot.py at 2018-09-06 12:07:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 400.20 Mbit/s
95th percentile per-packet one-way delay: 20.779 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 203.76 Mbit/s
95th percentile per-packet one-way delay: 20.621 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 201.39 Mbit/s
95th percentile per-packet one-way delay: 19.970 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 193.13 Mbit/s
95th percentile per-packet one-way delay: 22.023 ms
Loss rate: 0.03%
```
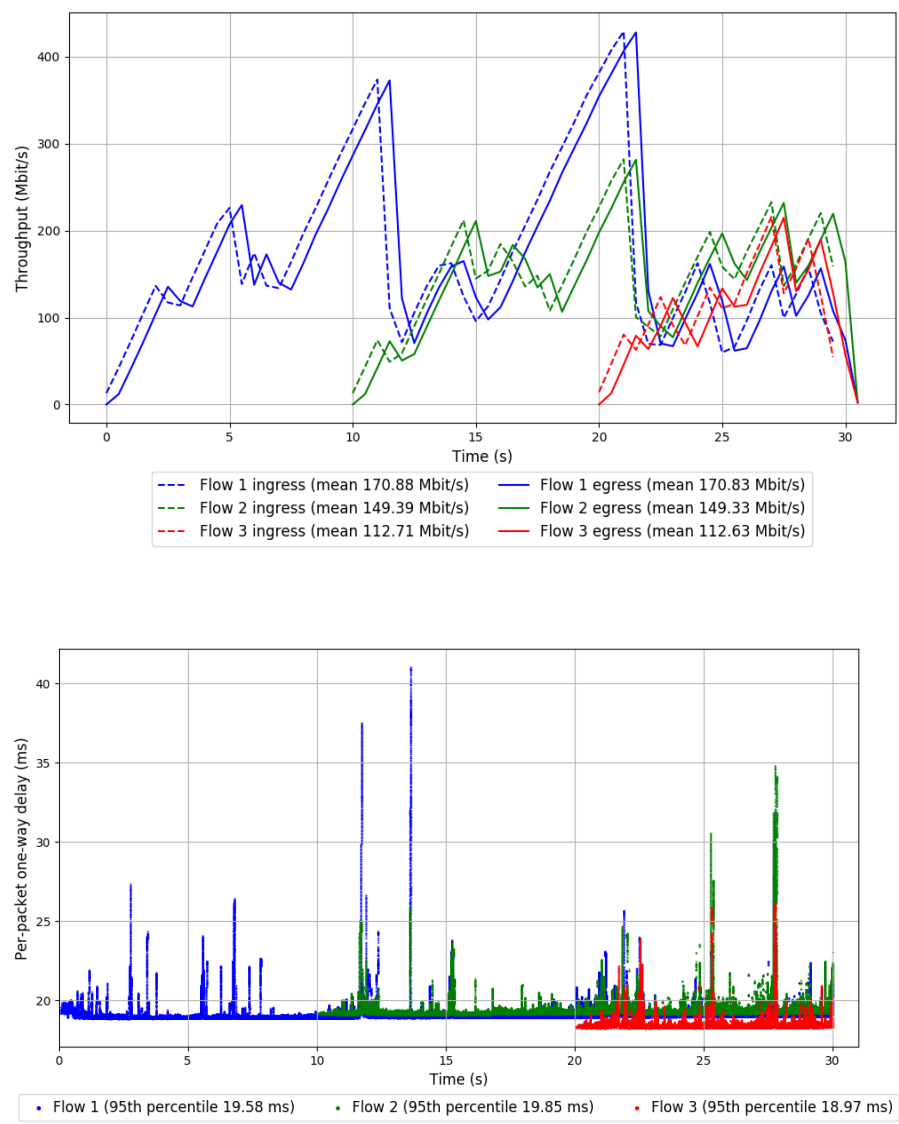
Run 3: Report of Indigo — Data Link



Flow 1 ingress (mean 203.83 Mbit/s)    Flow 1 egress (mean 203.76 Mbit/s)
Flow 2 ingress (mean 201.43 Mbit/s)    Flow 2 egress (mean 201.39 Mbit/s)
Flow 3 ingress (mean 193.20 Mbit/s)    Flow 3 egress (mean 193.13 Mbit/s)



Flow 1 (95th percentile 20.62 ms)    Flow 2 (95th percentile 19.97 ms)    Flow 3 (95th percentile 22.02 ms)

```
Run 4: Statistics of Indigo

Start at: 2018-09-06 10:44:28
End at: 2018-09-06 10:44:58
Local clock offset: 0.139 ms
Remote clock offset: 3.548 ms


# Below is generated by plot.py at 2018-09-06 12:07:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 399.02 Mbit/s
95th percentile per-packet one-way delay: 20.372 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 204.20 Mbit/s
95th percentile per-packet one-way delay: 20.122 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 199.90 Mbit/s
95th percentile per-packet one-way delay: 19.911 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 191.04 Mbit/s
95th percentile per-packet one-way delay: 21.488 ms
Loss rate: 0.01%
```
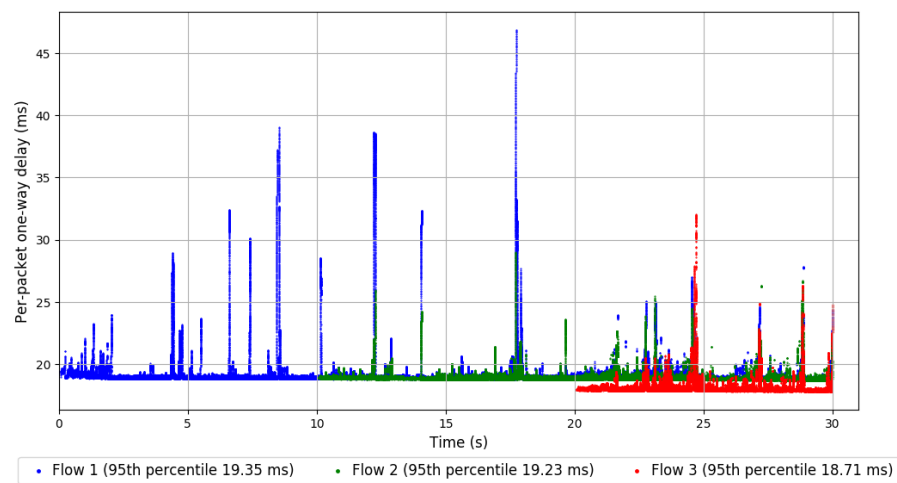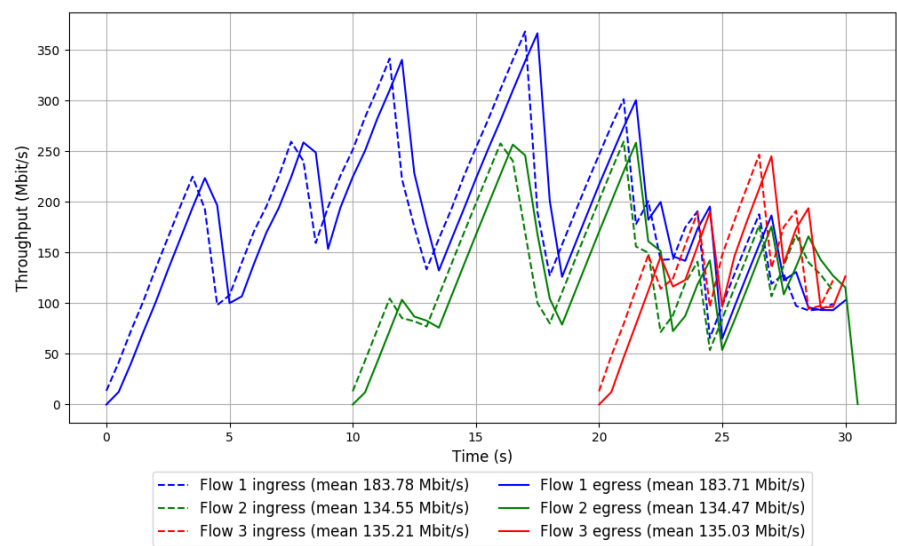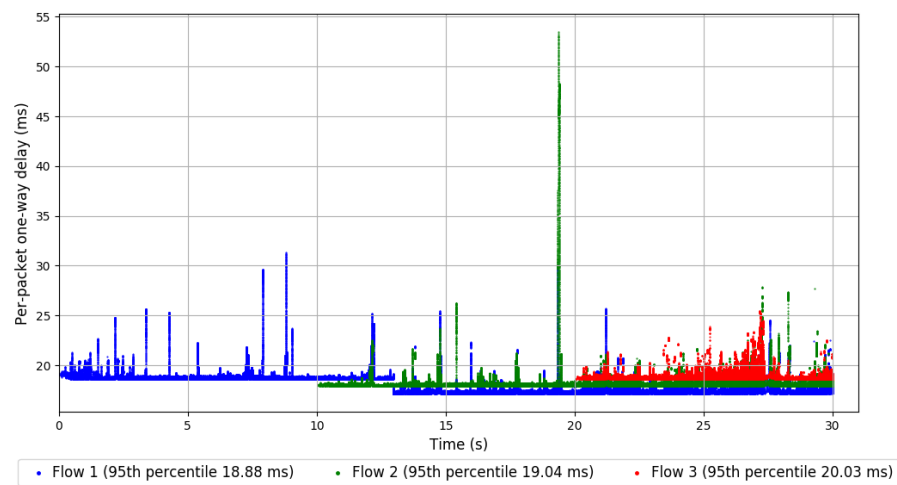
Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2018-09-06 11:12:15
End at: 2018-09-06 11:12:45
Local clock offset: 4.688 ms
Remote clock offset: 3.351 ms


# Below is generated by plot.py at 2018-09-06 12:07:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 396.54 Mbit/s
95th percentile per-packet one-way delay: 20.541 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 202.88 Mbit/s
95th percentile per-packet one-way delay: 19.838 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 198.43 Mbit/s
95th percentile per-packet one-way delay: 21.047 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 191.57 Mbit/s
95th percentile per-packet one-way delay: 20.942 ms
Loss rate: 0.02%
```
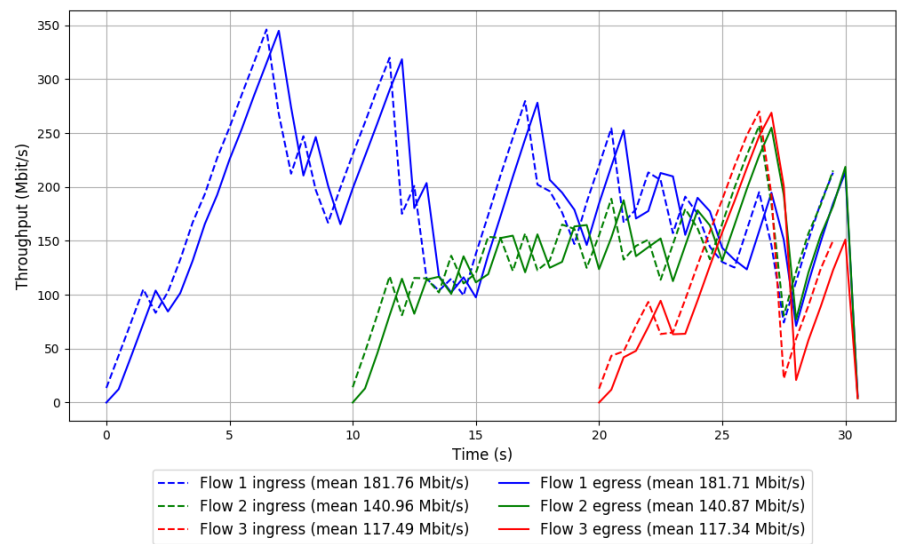
# Run 5: Report of Indigo — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-09-06 09:21:45
End at: 2018-09-06 09:22:15
Local clock offset: -1.793 ms
Remote clock offset: -6.033 ms


# Below is generated by plot.py at 2018-09-06 12:07:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 307.75 Mbit/s
95th percentile per-packet one-way delay: 19.653 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 170.83 Mbit/s
95th percentile per-packet one-way delay: 19.577 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 149.33 Mbit/s
95th percentile per-packet one-way delay: 19.847 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 112.63 Mbit/s
95th percentile per-packet one-way delay: 18.974 ms
Loss rate: 0.07%
```
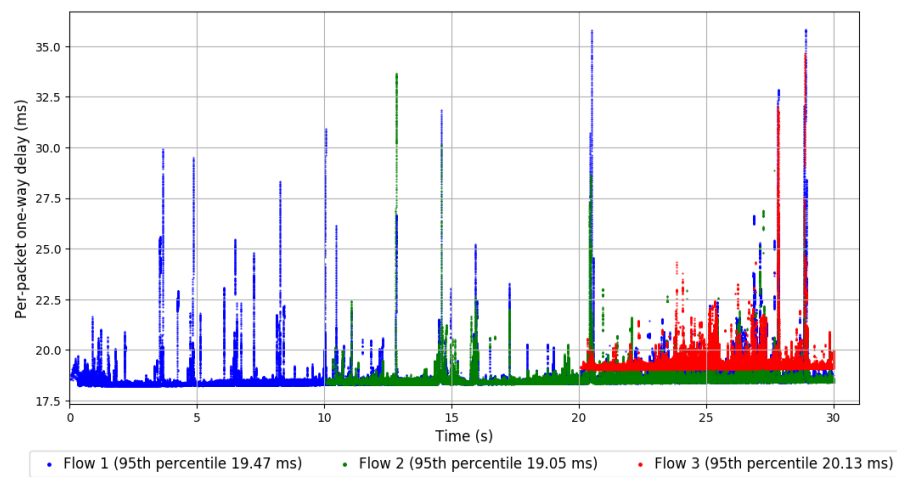
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-09-06 09:49:54
End at: 2018-09-06 09:50:24
Local clock offset: 0.114 ms
Remote clock offset: 5.647 ms

# Below is generated by plot.py at 2018-09-06 12:07:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 317.99 Mbit/s
95th percentile per-packet one-way delay: 19.264 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 183.71 Mbit/s
95th percentile per-packet one-way delay: 19.351 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 134.47 Mbit/s
95th percentile per-packet one-way delay: 19.225 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 135.03 Mbit/s
95th percentile per-packet one-way delay: 18.714 ms
Loss rate: 0.06%
```
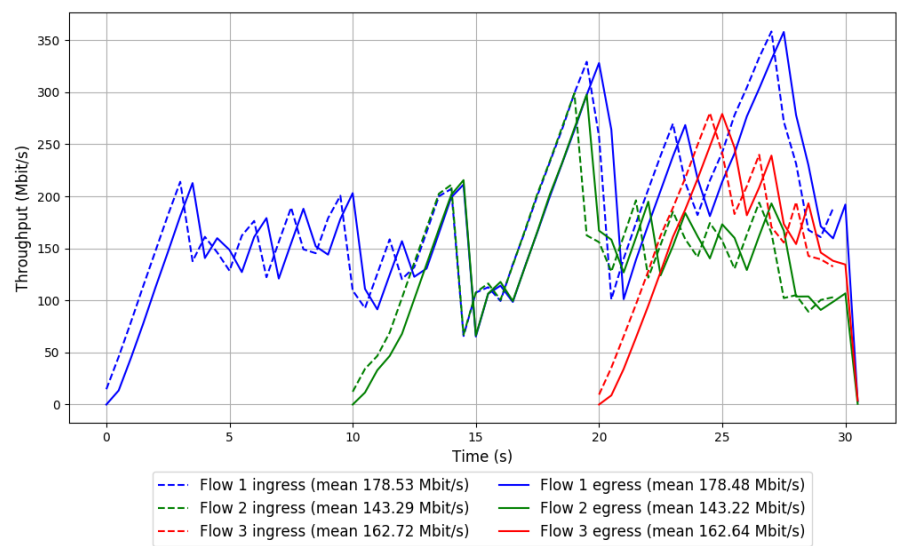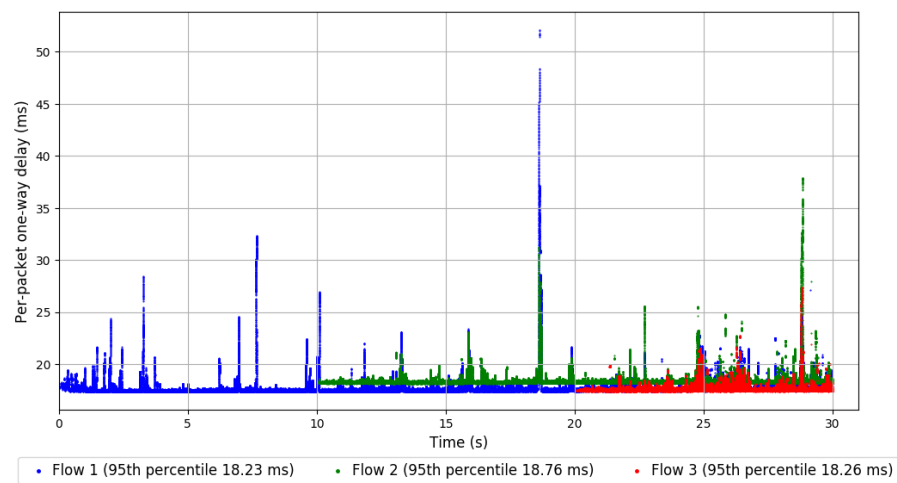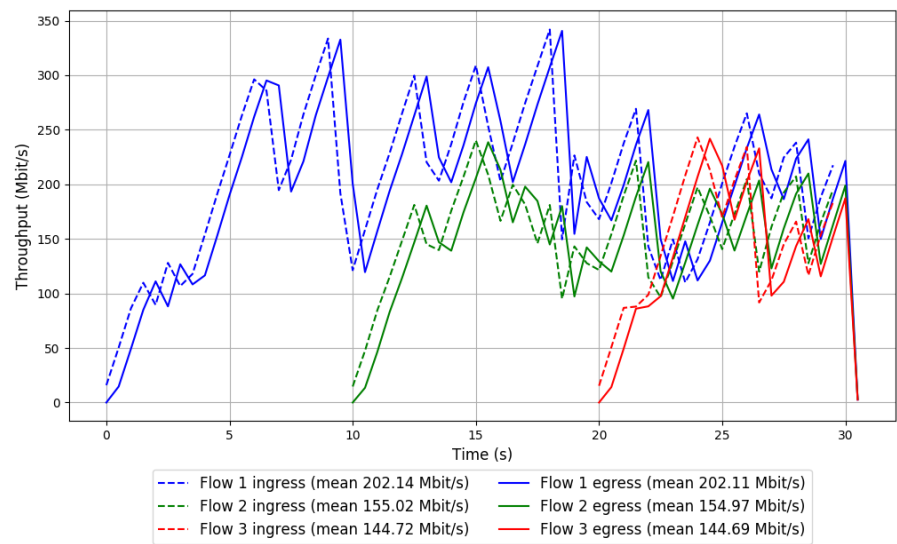
Run 2: Report of LEDBAT — Data Link



Flow 1 ingress (mean 183.78 Mbit/s) --- Flow 1 egress (mean 183.71 Mbit/s)
Flow 2 ingress (mean 134.55 Mbit/s) --- Flow 2 egress (mean 134.47 Mbit/s)
Flow 3 ingress (mean 135.21 Mbit/s) --- Flow 3 egress (mean 135.03 Mbit/s)



Flow 1 (95th percentile 19.35 ms)   Flow 2 (95th percentile 19.23 ms)   Flow 3 (95th percentile 18.71 ms)

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```
Run 3: Statistics of LEDBAT

Start at: 2018-09-06 10:18:04
End at: 2018-09-06 10:18:34
Local clock offset: -0.493 ms
Remote clock offset: 4.418 ms

# Below is generated by plot.py at 2018-09-06 12:07:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 314.56 Mbit/s
95th percentile per-packet one-way delay: 19.091 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 181.71 Mbit/s
95th percentile per-packet one-way delay: 18.882 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 140.87 Mbit/s
95th percentile per-packet one-way delay: 19.043 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 117.34 Mbit/s
95th percentile per-packet one-way delay: 20.031 ms
Loss rate: 0.13%
```
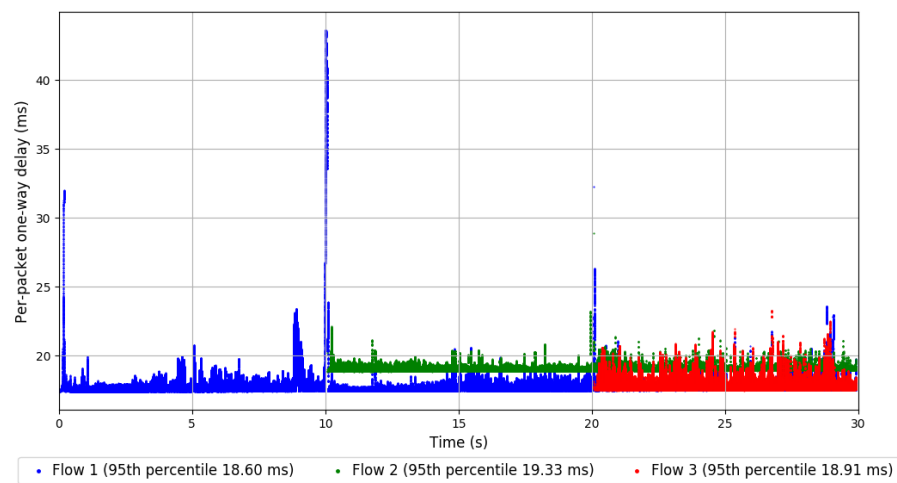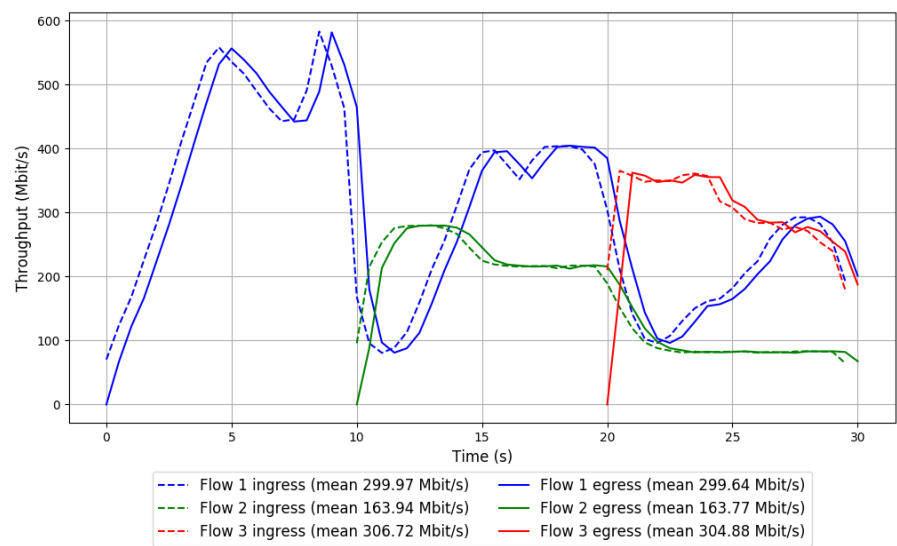
Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2018-09-06 10:46:06
End at: 2018-09-06 10:46:36
Local clock offset: 0.31 ms
Remote clock offset: 3.482 ms


# Below is generated by plot.py at 2018-09-06 12:07:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 327.90 Mbit/s
95th percentile per-packet one-way delay: 19.575 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 178.48 Mbit/s
95th percentile per-packet one-way delay: 19.469 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 143.22 Mbit/s
95th percentile per-packet one-way delay: 19.049 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 162.64 Mbit/s
95th percentile per-packet one-way delay: 20.130 ms
Loss rate: 0.05%
```
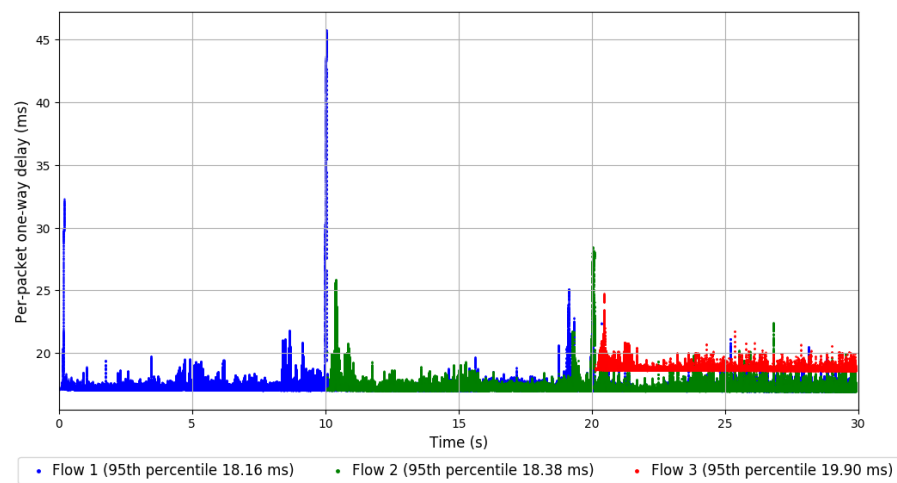
Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2018-09-06 11:13:53
End at: 2018-09-06 11:14:23
Local clock offset: 4.705 ms
Remote clock offset: 3.295 ms

# Below is generated by plot.py at 2018-09-06 12:07:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 353.46 Mbit/s
95th percentile per-packet one-way delay: 18.521 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 202.11 Mbit/s
95th percentile per-packet one-way delay: 18.226 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 154.97 Mbit/s
95th percentile per-packet one-way delay: 18.760 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 144.69 Mbit/s
95th percentile per-packet one-way delay: 18.257 ms
Loss rate: 0.02%
```
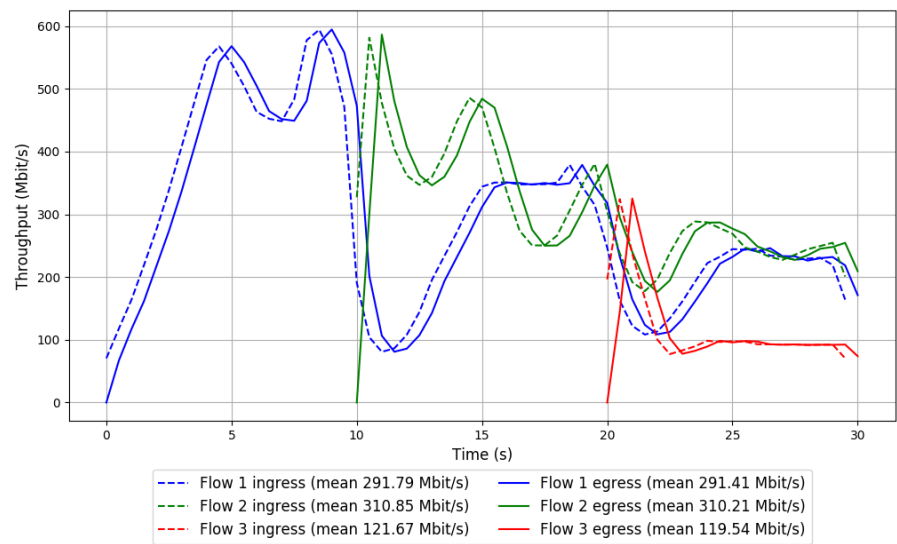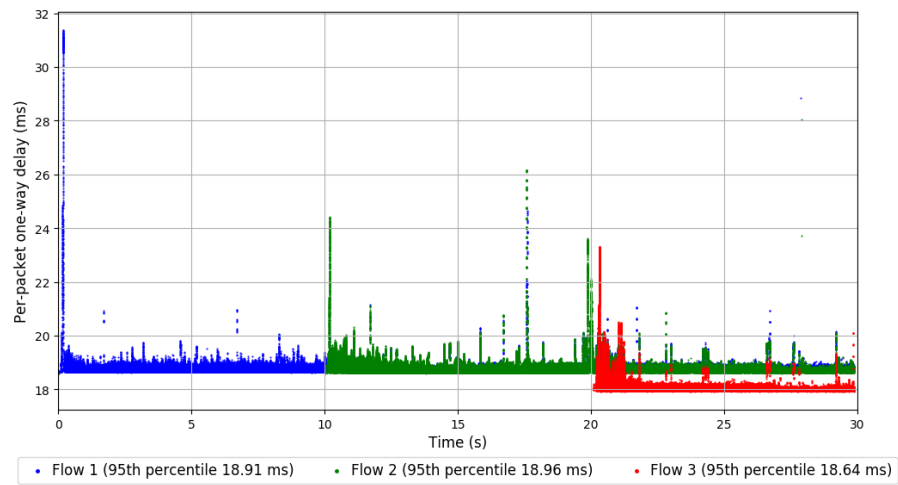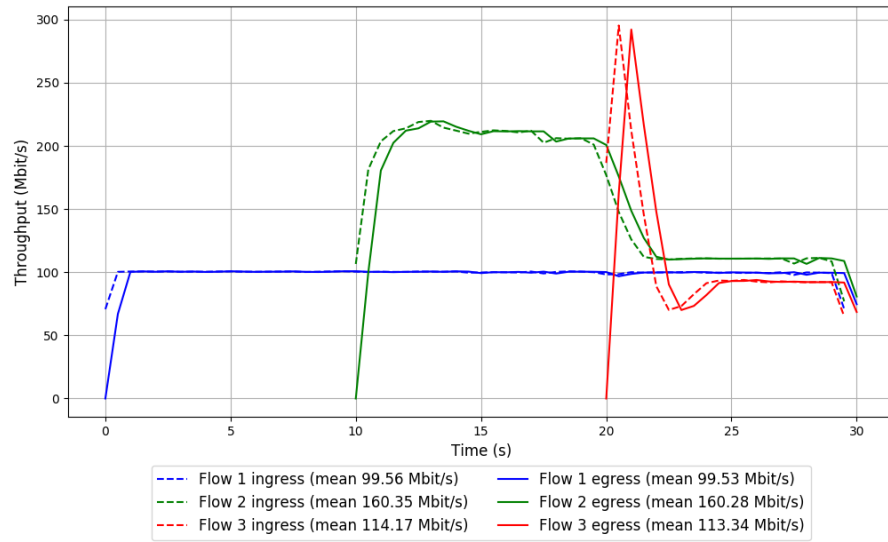
Run 5: Report of LEDBAT — Data Link



Flow 1 ingress (mean 202.14 Mbit/s) --- Flow 1 egress (mean 202.11 Mbit/s)
Flow 2 ingress (mean 155.02 Mbit/s) --- Flow 2 egress (mean 154.97 Mbit/s)
Flow 3 ingress (mean 144.72 Mbit/s) --- Flow 3 egress (mean 144.69 Mbit/s)



Flow 1 (95th percentile 18.23 ms)   Flow 2 (95th percentile 18.76 ms)   Flow 3 (95th percentile 18.26 ms)

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```
Run 1: Statistics of Indigo-Muses

Start at: 2018-09-06 09:23:19
End at: 2018-09-06 09:23:49
Local clock offset: -1.439 ms
Remote clock offset: -6.099 ms

# Below is generated by plot.py at 2018-09-06 12:07:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 508.65 Mbit/s
95th percentile per-packet one-way delay: 19.150 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 299.64 Mbit/s
95th percentile per-packet one-way delay: 18.597 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 163.77 Mbit/s
95th percentile per-packet one-way delay: 19.326 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 304.88 Mbit/s
95th percentile per-packet one-way delay: 18.911 ms
Loss rate: 0.60%
```
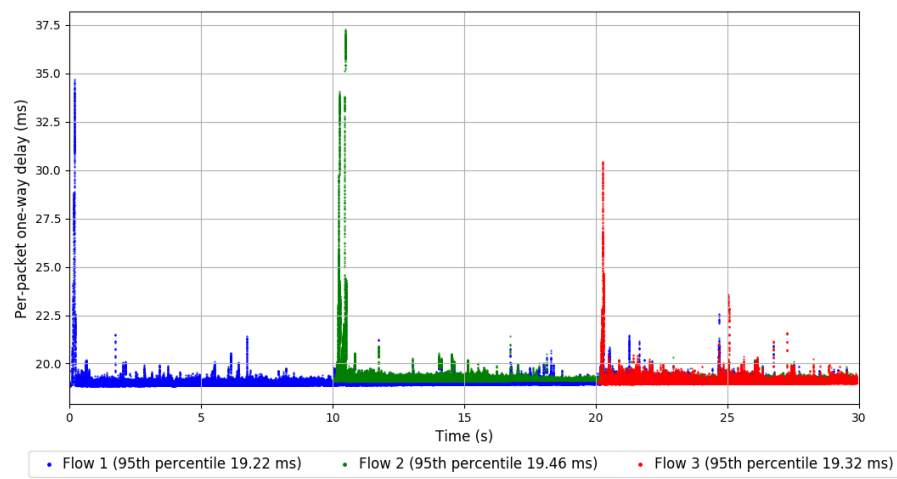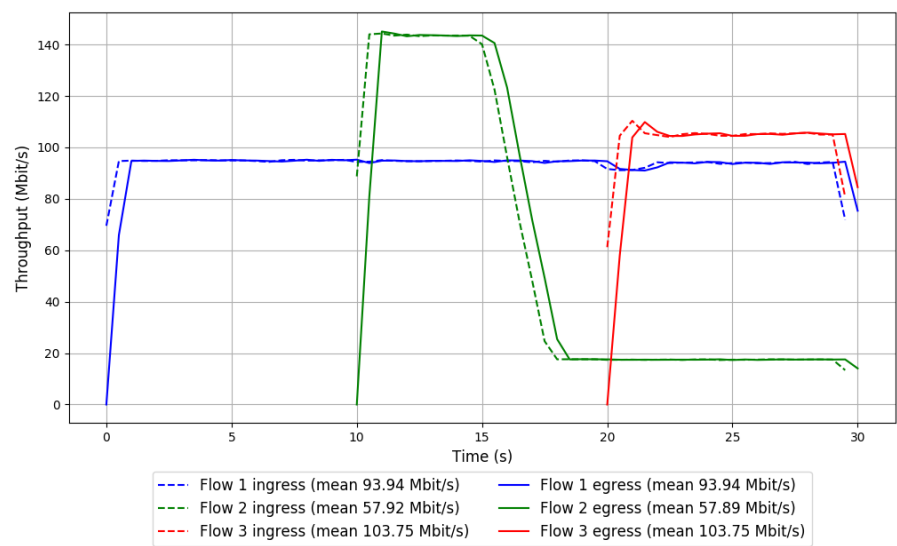
Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-09-06 09:51:28
End at: 2018-09-06 09:51:58
Local clock offset: 0.073 ms
Remote clock offset: 5.889 ms


# Below is generated by plot.py at 2018-09-06 12:08:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 536.64 Mbit/s
95th percentile per-packet one-way delay: 18.814 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 291.41 Mbit/s
95th percentile per-packet one-way delay: 18.164 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 310.21 Mbit/s
95th percentile per-packet one-way delay: 18.375 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 119.54 Mbit/s
95th percentile per-packet one-way delay: 19.897 ms
Loss rate: 1.75%
```

Run 2: Report of Indigo-Muses — Data Link

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-09-06 10:19:38
End at: 2018-09-06 10:20:08
Local clock offset: -0.399 ms
Remote clock offset: 4.469 ms


# Below is generated by plot.py at 2018-09-06 12:08:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 243.29 Mbit/s
95th percentile per-packet one-way delay: 18.929 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 99.53 Mbit/s
95th percentile per-packet one-way delay: 18.915 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 160.28 Mbit/s
95th percentile per-packet one-way delay: 18.959 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 113.34 Mbit/s
95th percentile per-packet one-way delay: 18.635 ms
Loss rate: 0.73%
```
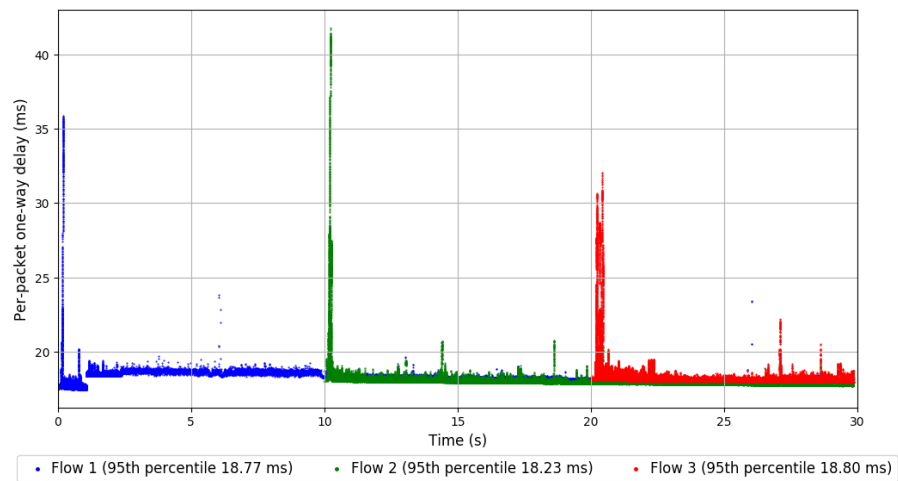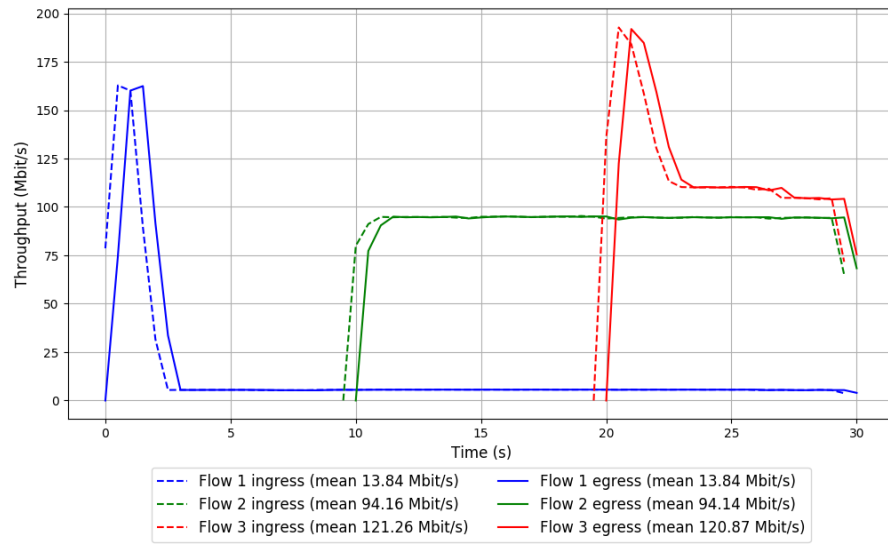
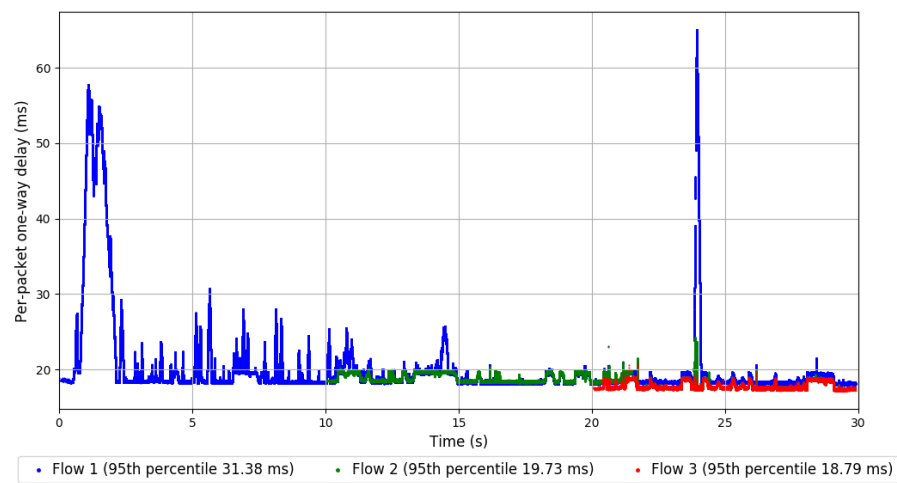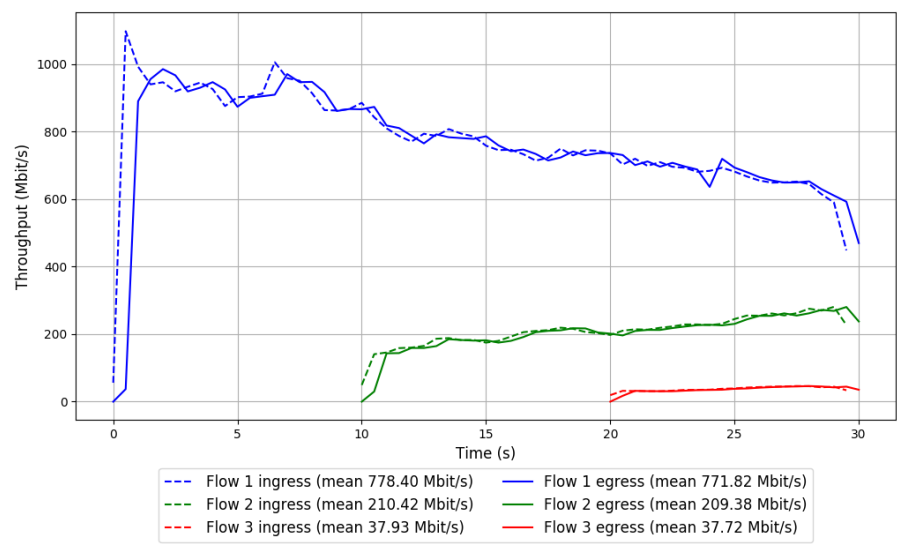Run 3: Report of Indigo-Muses — Data Link

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-09-06 10:47:40
End at: 2018-09-06 10:48:10
Local clock offset: 0.987 ms
Remote clock offset: 3.487 ms


# Below is generated by plot.py at 2018-09-06 12:08:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 166.49 Mbit/s
95th percentile per-packet one-way delay: 19.324 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 93.94 Mbit/s
95th percentile per-packet one-way delay: 19.224 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 57.89 Mbit/s
95th percentile per-packet one-way delay: 19.457 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 103.75 Mbit/s
95th percentile per-packet one-way delay: 19.324 ms
Loss rate: 0.00%
```

Run 4: Report of Indigo-Muses — Data Link

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-09-06 11:15:28
End at: 2018-09-06 11:15:58
Local clock offset: 4.915 ms
Remote clock offset: 3.24 ms


# Below is generated by plot.py at 2018-09-06 12:08:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 116.33 Mbit/s
95th percentile per-packet one-way delay: 18.557 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 13.84 Mbit/s
95th percentile per-packet one-way delay: 18.772 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 94.14 Mbit/s
95th percentile per-packet one-way delay: 18.232 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 120.87 Mbit/s
95th percentile per-packet one-way delay: 18.795 ms
Loss rate: 0.32%
```
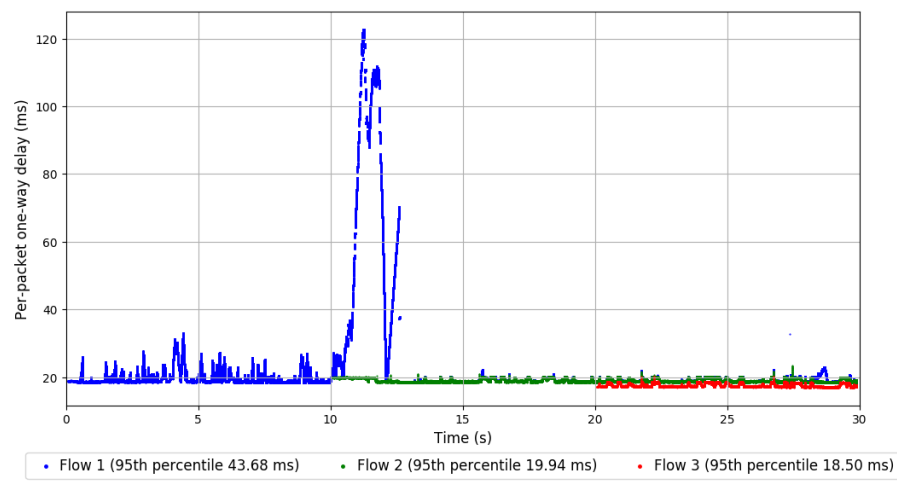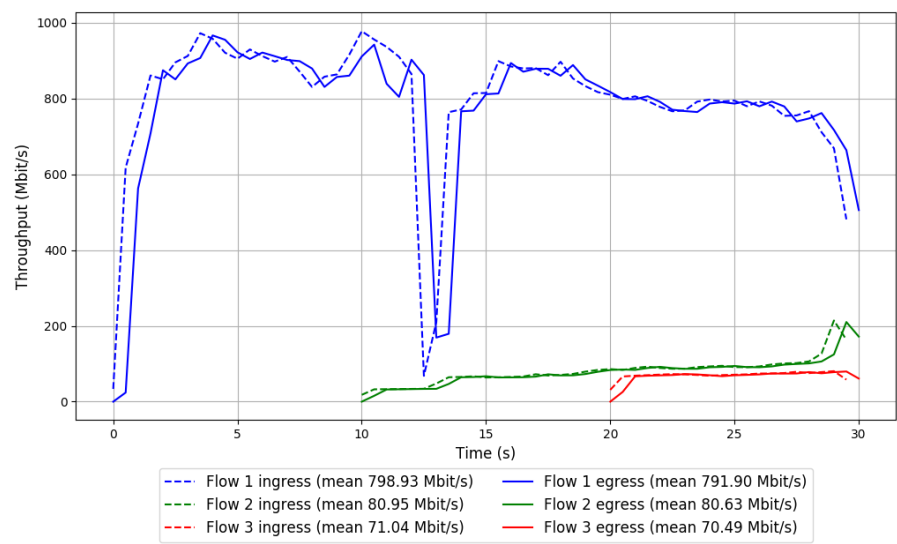
Run 5: Report of Indigo-Muses — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-06 09:24:56
End at: 2018-09-06 09:25:26
Local clock offset: -1.01 ms
Remote clock offset: -5.447 ms


# Below is generated by plot.py at 2018-09-06 12:16:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 923.51 Mbit/s
95th percentile per-packet one-way delay: 27.383 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 771.82 Mbit/s
95th percentile per-packet one-way delay: 31.375 ms
Loss rate: 0.85%
-- Flow 2:
Average throughput: 209.38 Mbit/s
95th percentile per-packet one-way delay: 19.726 ms
Loss rate: 0.50%
-- Flow 3:
Average throughput: 37.72 Mbit/s
95th percentile per-packet one-way delay: 18.791 ms
Loss rate: 0.54%
```
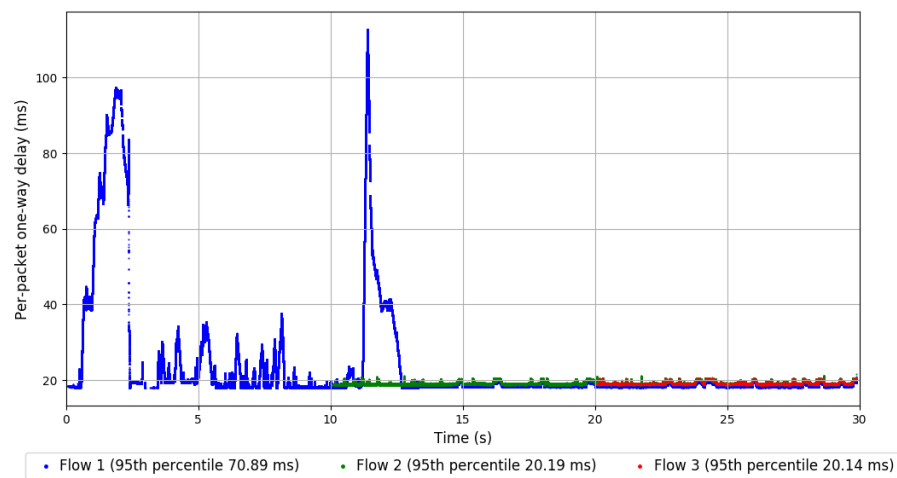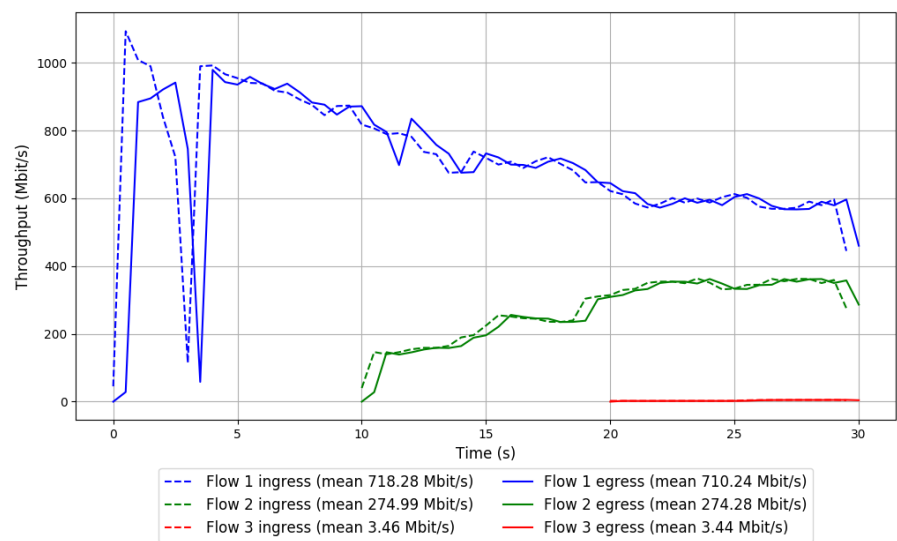
Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-09-06 09:53:07
End at: 2018-09-06 09:53:37
Local clock offset: -0.078 ms
Remote clock offset: 6.192 ms


# Below is generated by plot.py at 2018-09-06 12:16:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 868.76 Mbit/s
95th percentile per-packet one-way delay: 36.039 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 791.90 Mbit/s
95th percentile per-packet one-way delay: 43.680 ms
Loss rate: 0.88%
-- Flow 2:
Average throughput: 80.63 Mbit/s
95th percentile per-packet one-way delay: 19.943 ms
Loss rate: 0.40%
-- Flow 3:
Average throughput: 70.49 Mbit/s
95th percentile per-packet one-way delay: 18.500 ms
Loss rate: 0.78%
```
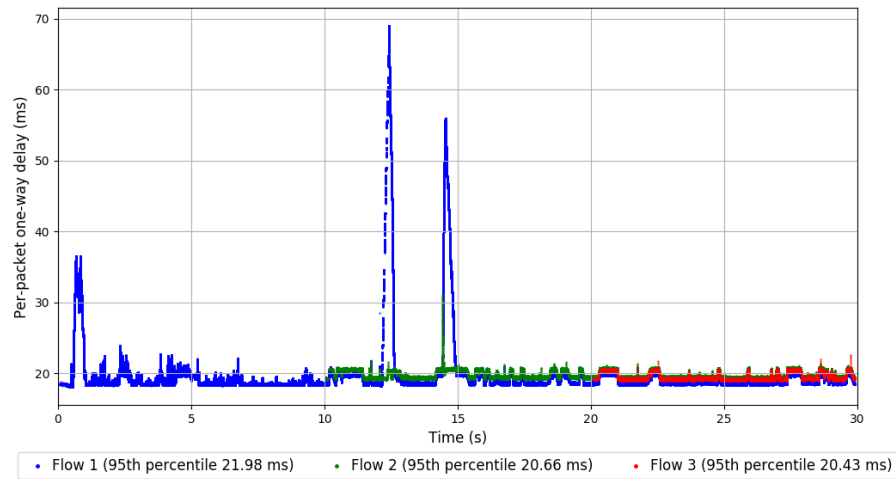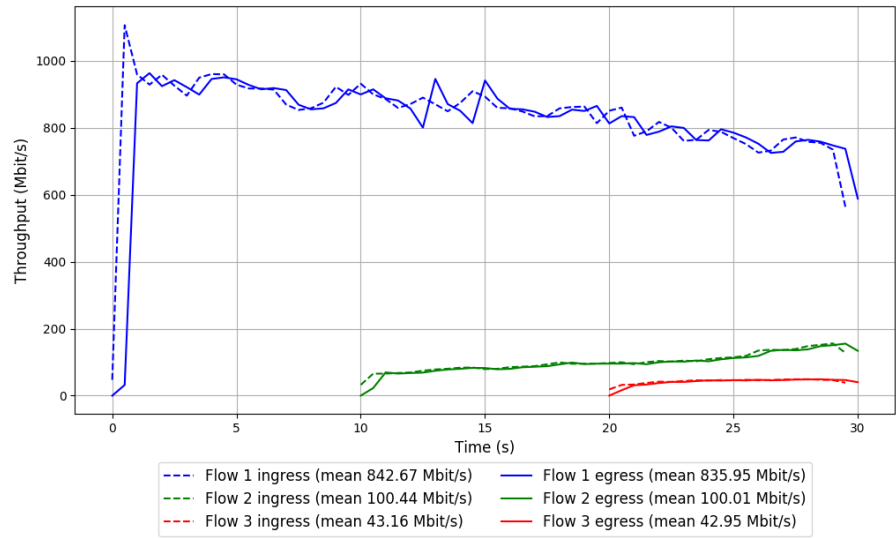
## Run 2: Report of PCC-Allegro — Data Link



Flow 1 ingress (mean 798.93 Mbit/s) --- Flow 1 egress (mean 791.90 Mbit/s)
Flow 2 ingress (mean 80.95 Mbit/s) --- Flow 2 egress (mean 80.63 Mbit/s)
Flow 3 ingress (mean 71.04 Mbit/s) --- Flow 3 egress (mean 70.49 Mbit/s)



Flow 1 (95th percentile 43.68 ms)   Flow 2 (95th percentile 19.94 ms)   Flow 3 (95th percentile 18.50 ms)

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-09-06 10:21:06
End at: 2018-09-06 10:21:36
Local clock offset: -0.342 ms
Remote clock offset: 4.552 ms


# Below is generated by plot.py at 2018-09-06 12:17:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 893.70 Mbit/s
95th percentile per-packet one-way delay: 62.476 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 710.24 Mbit/s
95th percentile per-packet one-way delay: 70.886 ms
Loss rate: 1.11%
-- Flow 2:
Average throughput: 274.28 Mbit/s
95th percentile per-packet one-way delay: 20.187 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 3.44 Mbit/s
95th percentile per-packet one-way delay: 20.142 ms
Loss rate: 0.57%
```
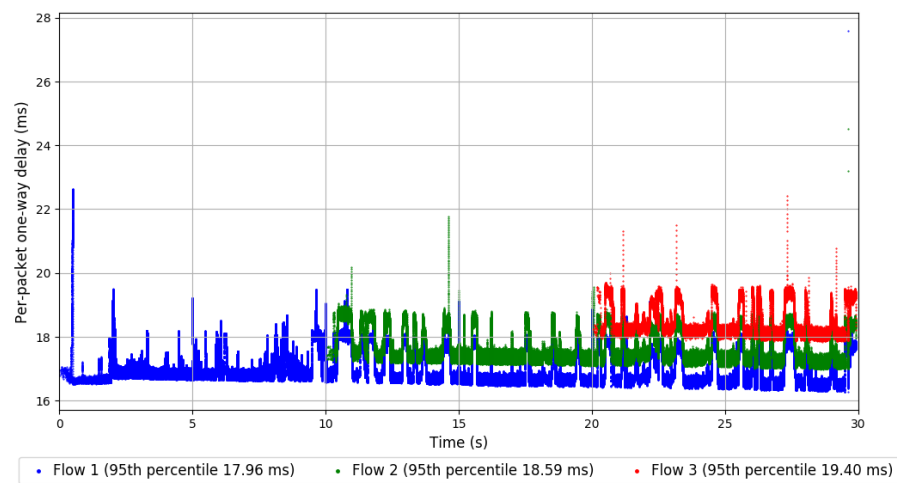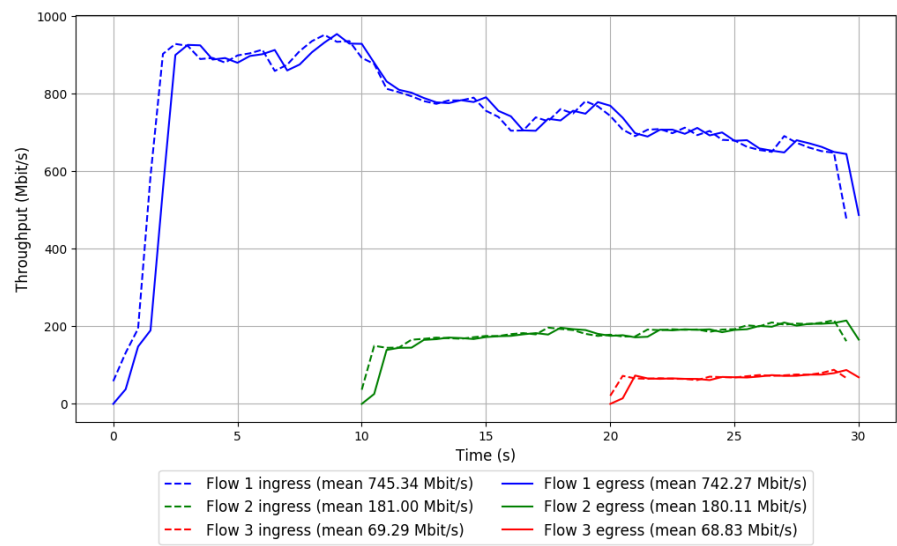
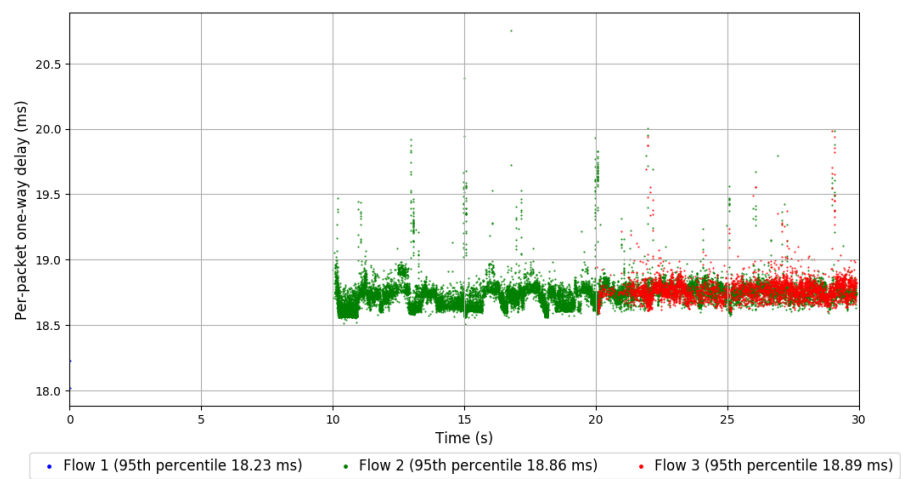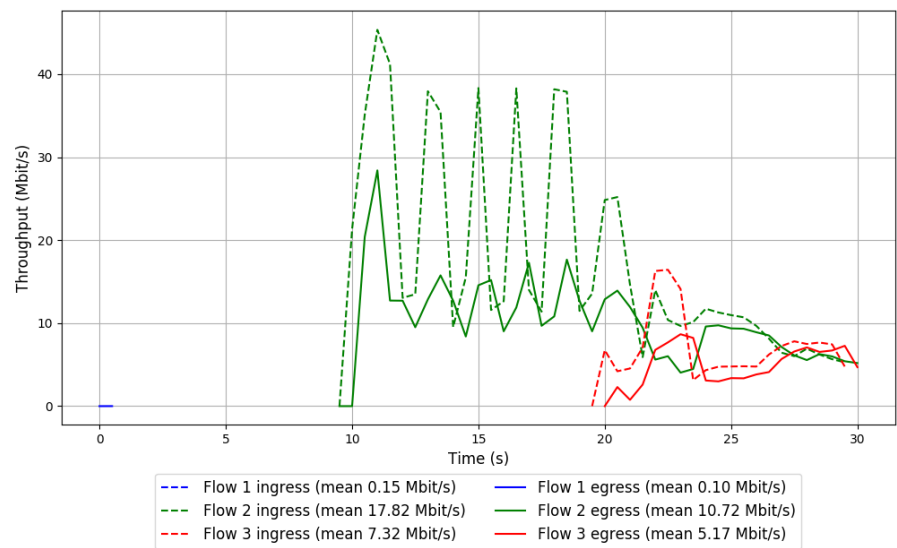Run 3: Report of PCC-Allegro — Data Link



Flow 1 ingress (mean 718.28 Mbit/s)    Flow 1 egress (mean 710.24 Mbit/s)
Flow 2 ingress (mean 274.99 Mbit/s)    Flow 2 egress (mean 274.28 Mbit/s)
Flow 3 ingress (mean 3.46 Mbit/s)    Flow 3 egress (mean 3.44 Mbit/s)



Flow 1 (95th percentile 70.89 ms)    Flow 2 (95th percentile 20.19 ms)    Flow 3 (95th percentile 20.14 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-09-06 10:49:05
End at: 2018-09-06 10:49:35
Local clock offset: 1.452 ms
Remote clock offset: 3.473 ms


# Below is generated by plot.py at 2018-09-06 12:17:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 916.58 Mbit/s
95th percentile per-packet one-way delay: 21.316 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 835.95 Mbit/s
95th percentile per-packet one-way delay: 21.981 ms
Loss rate: 0.80%
-- Flow 2:
Average throughput: 100.01 Mbit/s
95th percentile per-packet one-way delay: 20.663 ms
Loss rate: 0.42%
-- Flow 3:
Average throughput: 42.95 Mbit/s
95th percentile per-packet one-way delay: 20.434 ms
Loss rate: 0.48%
```

Run 4: Report of PCC-Allegro — Data Link

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-09-06 11:16:52
End at: 2018-09-06 11:17:22
Local clock offset: 3.798 ms
Remote clock offset: 3.209 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 884.74 Mbit/s
95th percentile per-packet one-way delay: 18.231 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 742.27 Mbit/s
95th percentile per-packet one-way delay: 17.959 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 180.11 Mbit/s
95th percentile per-packet one-way delay: 18.591 ms
Loss rate: 0.49%
-- Flow 3:
Average throughput: 68.83 Mbit/s
95th percentile per-packet one-way delay: 19.404 ms
Loss rate: 0.67%
```
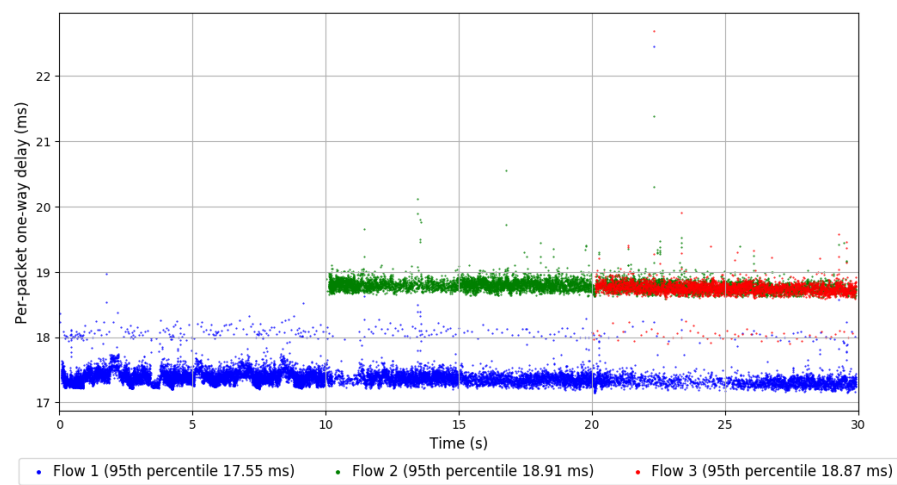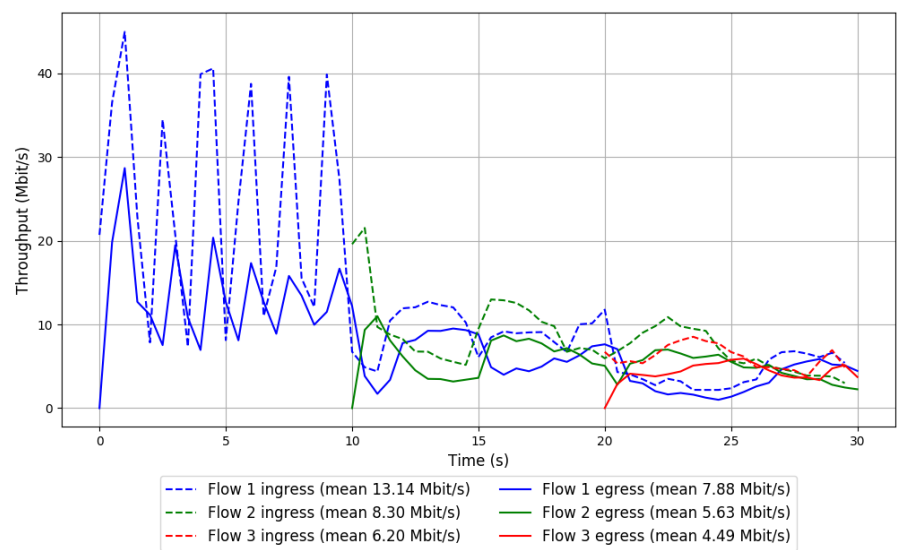
Run 5: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2018-09-06 09:09:09
End at: 2018-09-06 09:09:39
Local clock offset: -3.926 ms
Remote clock offset: -5.606 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.85 Mbit/s
95th percentile per-packet one-way delay: 18.865 ms
Loss rate: 38.04%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 18.231 ms
Loss rate: 85.71%
-- Flow 2:
Average throughput: 10.72 Mbit/s
95th percentile per-packet one-way delay: 18.859 ms
Loss rate: 39.82%
-- Flow 3:
Average throughput: 5.17 Mbit/s
95th percentile per-packet one-way delay: 18.887 ms
Loss rate: 29.28%
```
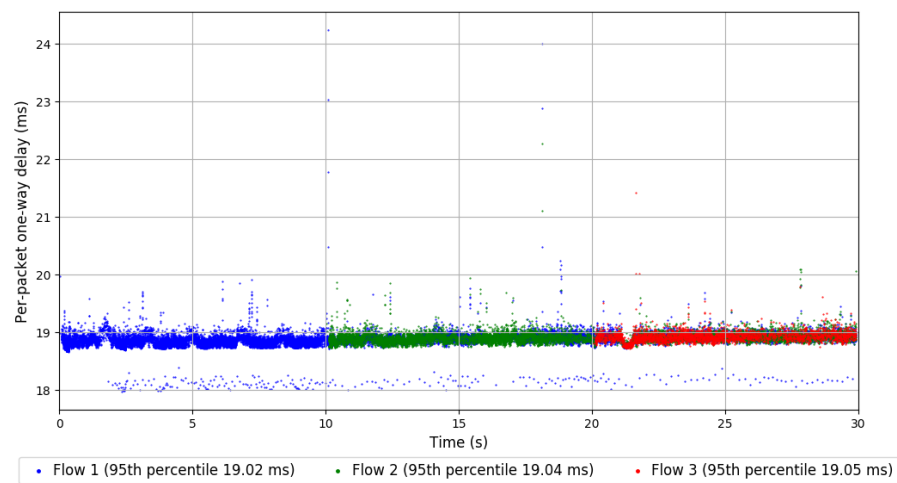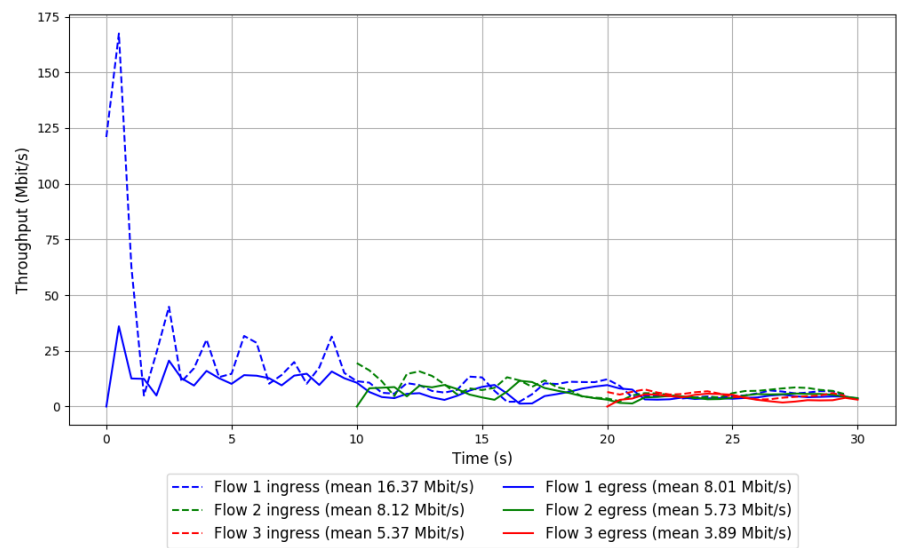
Run 1: Report of PCC-Expr — Data Link

```
Run 2: Statistics of PCC-Expr

Start at: 2018-09-06 09:37:14
End at: 2018-09-06 09:37:44
Local clock offset: 0.325 ms
Remote clock offset: 2.5 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.11 Mbit/s
95th percentile per-packet one-way delay: 18.861 ms
Loss rate: 36.71%
-- Flow 1:
Average throughput: 7.88 Mbit/s
95th percentile per-packet one-way delay: 17.546 ms
Loss rate: 40.01%
-- Flow 2:
Average throughput: 5.63 Mbit/s
95th percentile per-packet one-way delay: 18.913 ms
Loss rate: 32.24%
-- Flow 3:
Average throughput: 4.49 Mbit/s
95th percentile per-packet one-way delay: 18.866 ms
Loss rate: 27.61%
```
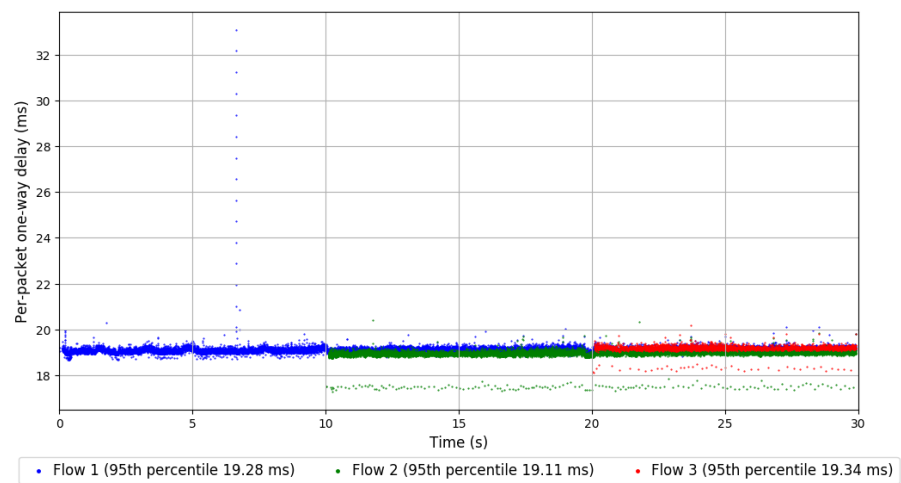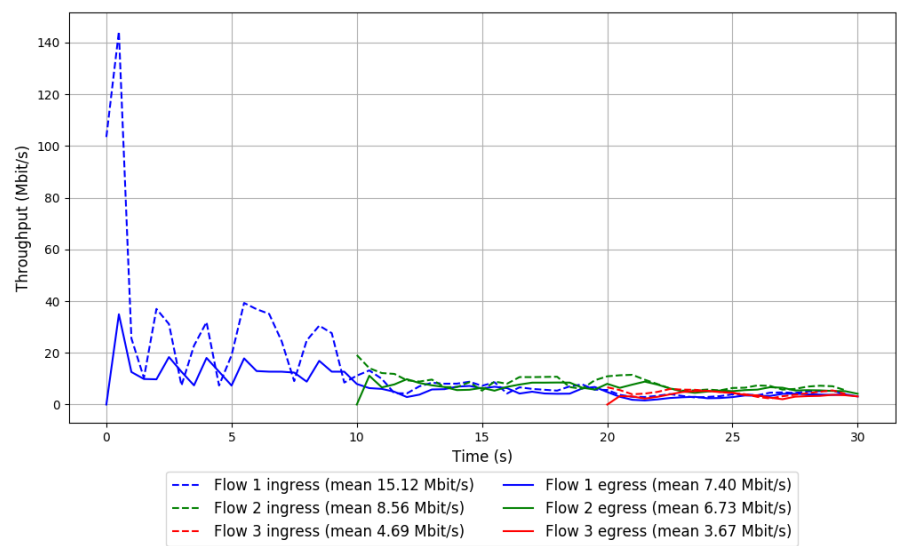
Run 2: Report of PCC-Expr — Data Link

```
Run 3: Statistics of PCC-Expr

Start at: 2018-09-06 10:05:26
End at: 2018-09-06 10:05:56
Local clock offset: -0.596 ms
Remote clock offset: 5.108 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.11 Mbit/s
95th percentile per-packet one-way delay: 19.029 ms
Loss rate: 44.35%
-- Flow 1:
Average throughput: 8.01 Mbit/s
95th percentile per-packet one-way delay: 19.019 ms
Loss rate: 51.09%
-- Flow 2:
Average throughput: 5.73 Mbit/s
95th percentile per-packet one-way delay: 19.036 ms
Loss rate: 29.42%
-- Flow 3:
Average throughput: 3.89 Mbit/s
95th percentile per-packet one-way delay: 19.055 ms
Loss rate: 27.57%
```
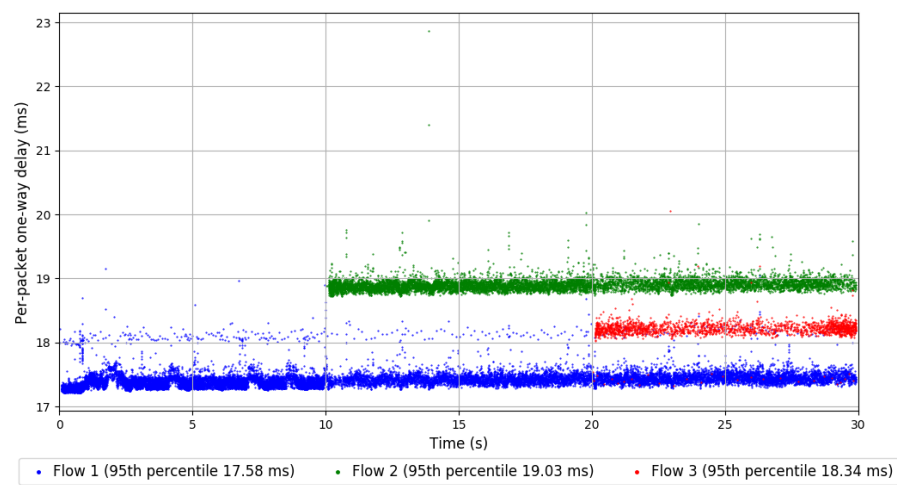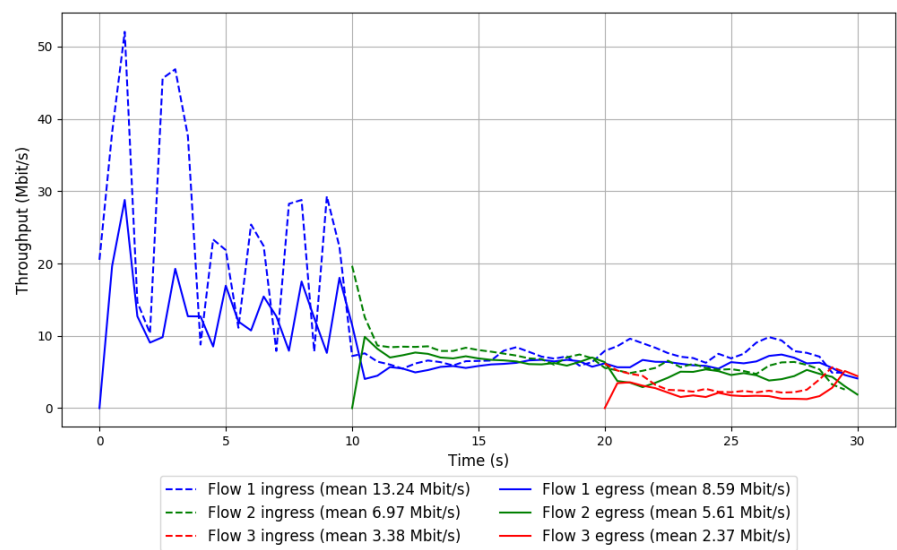
Run 3: Report of PCC-Expr — Data Link

```
Run 4: Statistics of PCC-Expr

Start at: 2018-09-06 10:33:28
End at: 2018-09-06 10:33:58
Local clock offset: 0.028 ms
Remote clock offset: 4.887 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.09 Mbit/s
95th percentile per-packet one-way delay: 19.268 ms
Loss rate: 41.48%
-- Flow 1:
Average throughput: 7.40 Mbit/s
95th percentile per-packet one-way delay: 19.276 ms
Loss rate: 51.07%
-- Flow 2:
Average throughput: 6.73 Mbit/s
95th percentile per-packet one-way delay: 19.112 ms
Loss rate: 21.35%
-- Flow 3:
Average throughput: 3.67 Mbit/s
95th percentile per-packet one-way delay: 19.336 ms
Loss rate: 21.81%
```
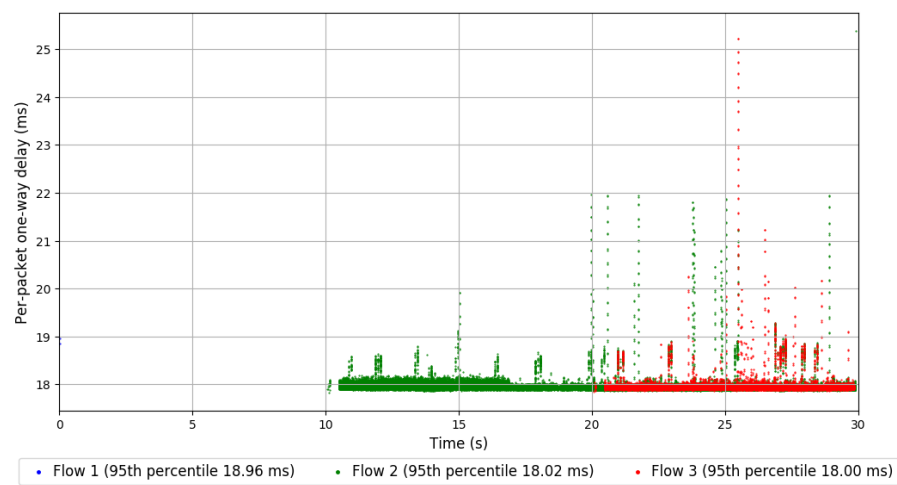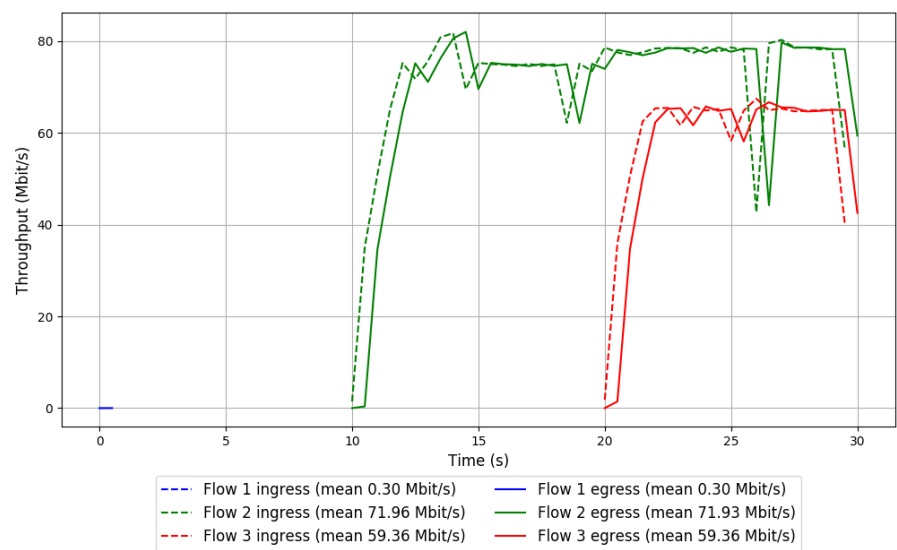
Run 4: Report of PCC-Expr — Data Link



Flow 1 ingress (mean 15.12 Mbit/s)      Flow 1 egress (mean 7.40 Mbit/s)
Flow 2 ingress (mean 8.56 Mbit/s)       Flow 2 egress (mean 6.73 Mbit/s)
Flow 3 ingress (mean 4.69 Mbit/s)       Flow 3 egress (mean 3.67 Mbit/s)



Flow 1 (95th percentile 19.28 ms)   Flow 2 (95th percentile 19.11 ms)   Flow 3 (95th percentile 19.34 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2018-09-06 11:01:17
End at: 2018-09-06 11:01:47
Local clock offset: 3.729 ms
Remote clock offset: 3.562 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.10 Mbit/s
95th percentile per-packet one-way delay: 18.964 ms
Loss rate: 31.01%
-- Flow 1:
Average throughput: 8.59 Mbit/s
95th percentile per-packet one-way delay: 17.579 ms
Loss rate: 35.13%
-- Flow 2:
Average throughput: 5.61 Mbit/s
95th percentile per-packet one-way delay: 19.029 ms
Loss rate: 19.52%
-- Flow 3:
Average throughput: 2.37 Mbit/s
95th percentile per-packet one-way delay: 18.343 ms
Loss rate: 29.90%
```
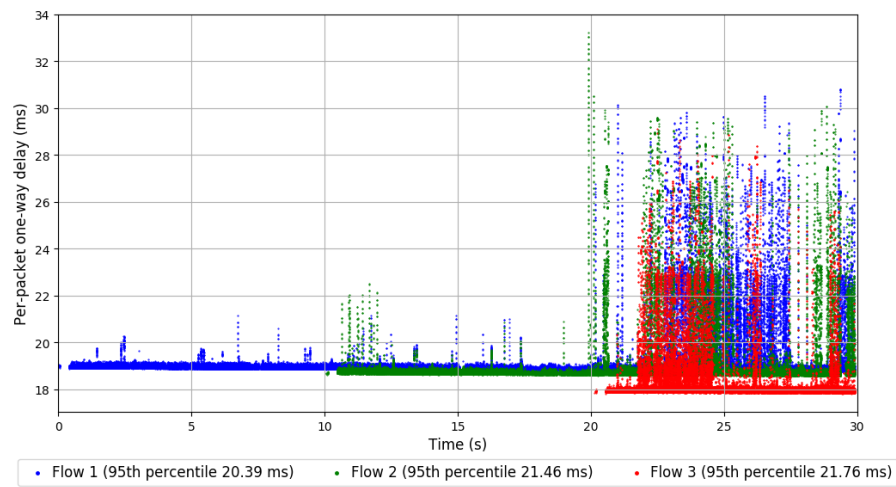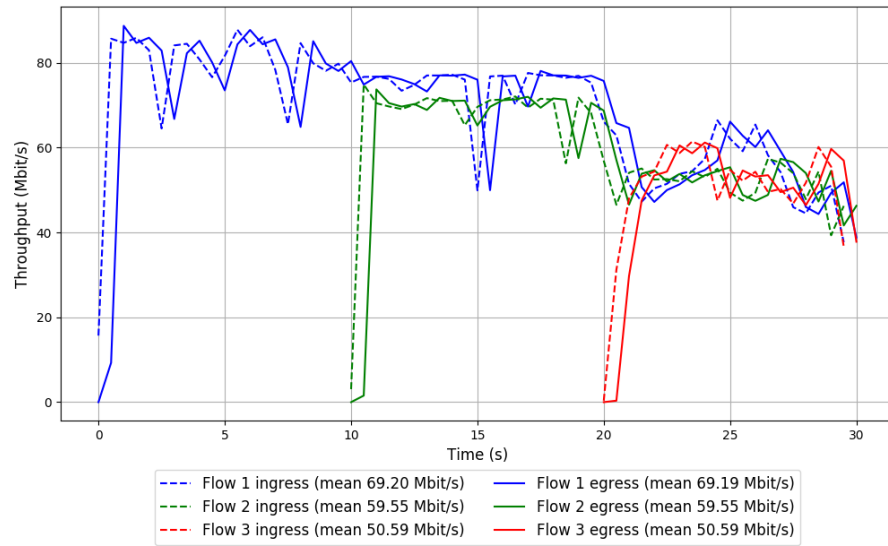
# Run 5: Report of PCC-Expr — Data Link



- Flow 1 ingress (mean 13.24 Mbit/s)
- Flow 2 ingress (mean 6.97 Mbit/s)
- Flow 3 ingress (mean 3.38 Mbit/s)
- Flow 1 egress (mean 8.59 Mbit/s)
- Flow 2 egress (mean 5.61 Mbit/s)
- Flow 3 egress (mean 2.37 Mbit/s)



- Flow 1 (95th percentile 17.58 ms)
- Flow 2 (95th percentile 19.03 ms)
- Flow 3 (95th percentile 18.34 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-09-06 09:07:47
End at: 2018-09-06 09:08:17
Local clock offset: -3.85 ms
Remote clock offset: -5.506 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 67.15 Mbit/s
95th percentile per-packet one-way delay: 18.013 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 18.960 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 71.93 Mbit/s
95th percentile per-packet one-way delay: 18.022 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 59.36 Mbit/s
95th percentile per-packet one-way delay: 17.995 ms
Loss rate: 0.00%
```
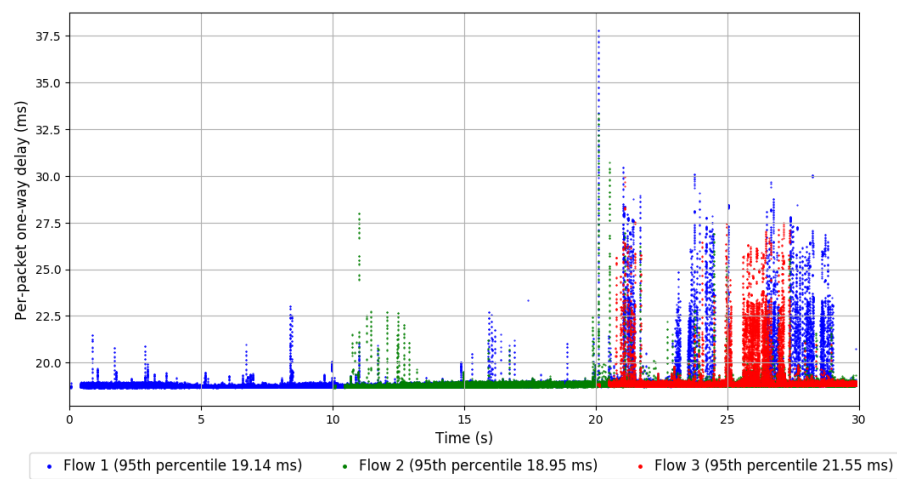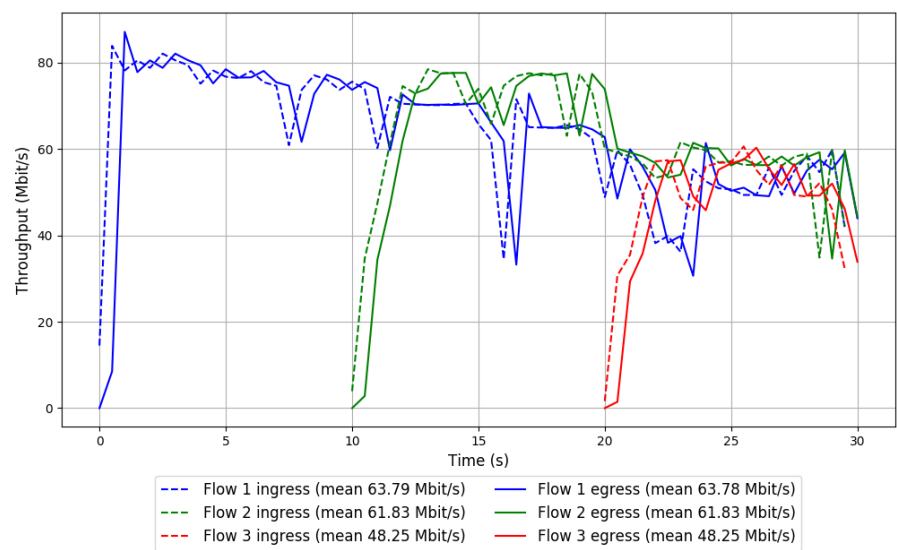
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-09-06 09:35:50
End at: 2018-09-06 09:36:20
Local clock offset: 0.217 ms
Remote clock offset: 2.005 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 125.26 Mbit/s
95th percentile per-packet one-way delay: 20.994 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 69.19 Mbit/s
95th percentile per-packet one-way delay: 20.390 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 59.55 Mbit/s
95th percentile per-packet one-way delay: 21.463 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 50.59 Mbit/s
95th percentile per-packet one-way delay: 21.757 ms
Loss rate: 0.00%
```
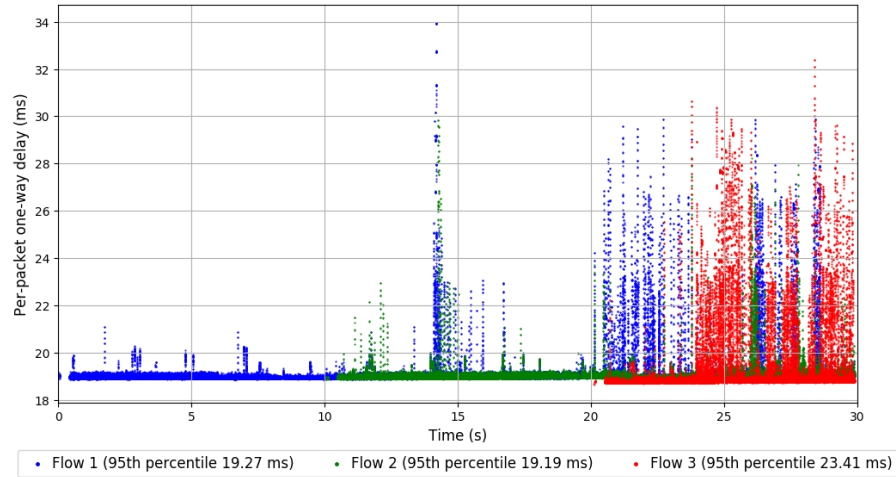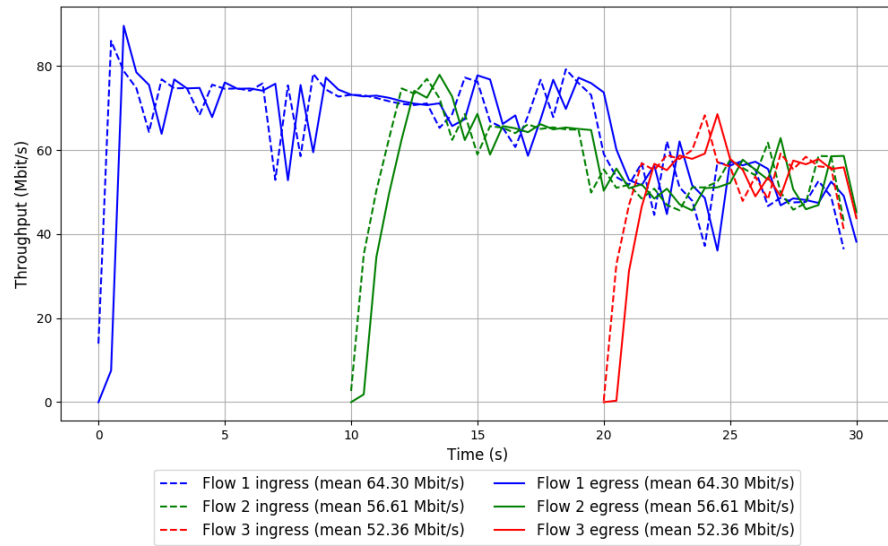
Run 2: Report of QUIC Cubic — Data Link



Flow 1 ingress (mean 69.20 Mbit/s)        Flow 1 egress (mean 69.19 Mbit/s)
Flow 2 ingress (mean 59.55 Mbit/s)        Flow 2 egress (mean 59.55 Mbit/s)
Flow 3 ingress (mean 50.59 Mbit/s)        Flow 3 egress (mean 50.59 Mbit/s)



Flow 1 (95th percentile 20.39 ms)        Flow 2 (95th percentile 21.46 ms)        Flow 3 (95th percentile 21.76 ms)

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-09-06 10:04:02
End at: 2018-09-06 10:04:32
Local clock offset: -0.565 ms
Remote clock offset: 5.342 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 120.72 Mbit/s
95th percentile per-packet one-way delay: 19.141 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 63.78 Mbit/s
95th percentile per-packet one-way delay: 19.135 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 61.83 Mbit/s
95th percentile per-packet one-way delay: 18.953 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 48.25 Mbit/s
95th percentile per-packet one-way delay: 21.545 ms
Loss rate: 0.01%
```
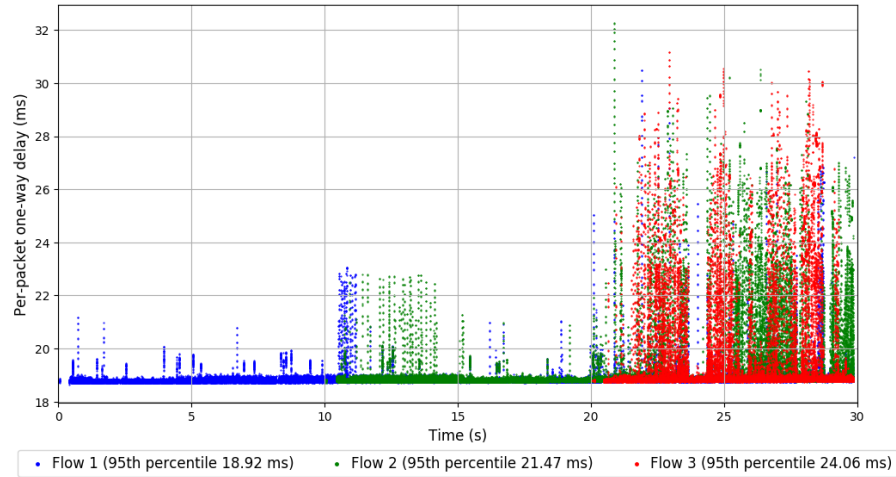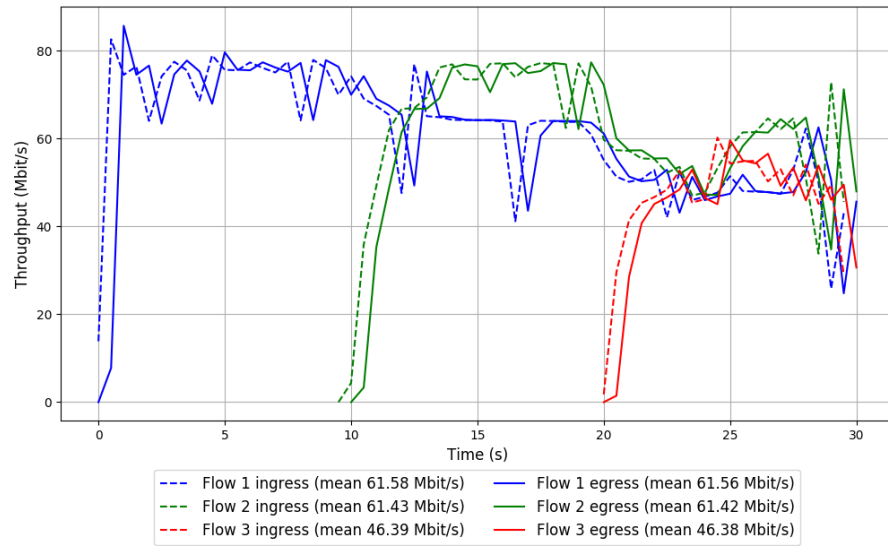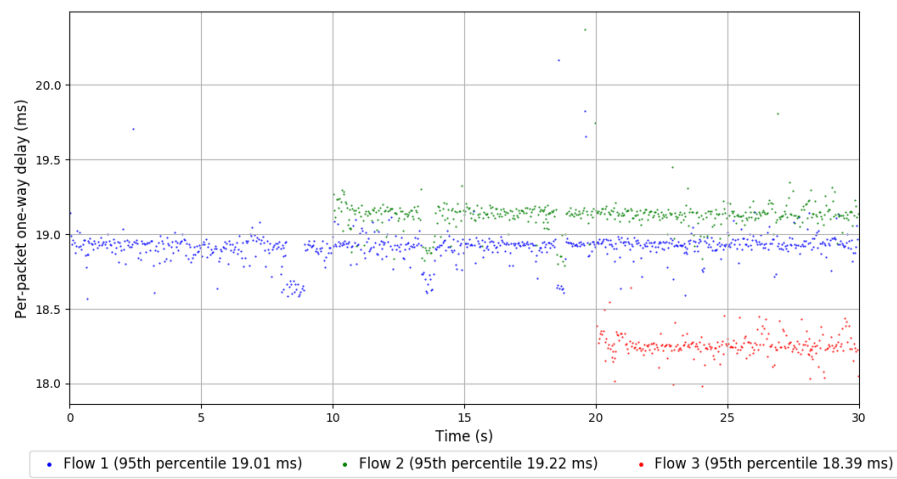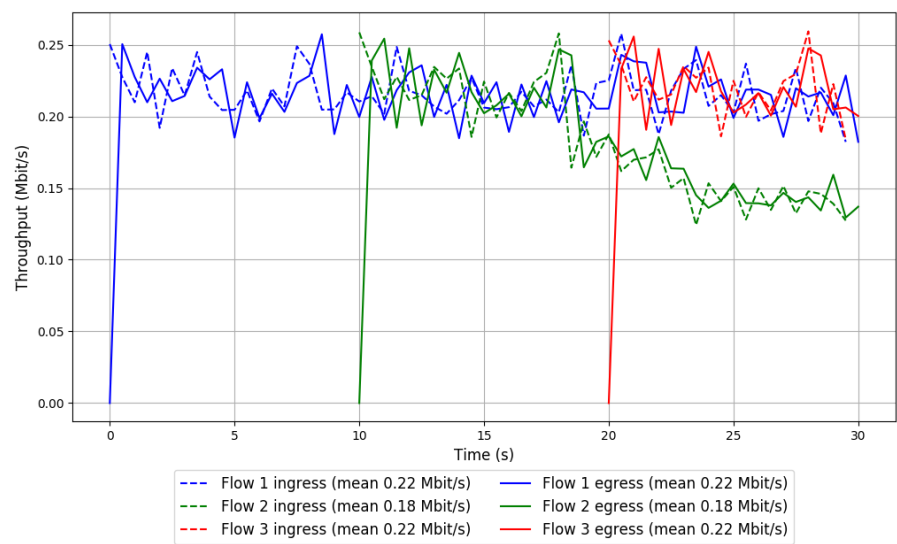
Run 3: Report of QUIC Cubic — Data Link

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-09-06 10:32:03
End at: 2018-09-06 10:32:33
Local clock offset: -0.086 ms
Remote clock offset: 5.07 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 119.07 Mbit/s
95th percentile per-packet one-way delay: 19.939 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 64.30 Mbit/s
95th percentile per-packet one-way delay: 19.270 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 56.61 Mbit/s
95th percentile per-packet one-way delay: 19.186 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 52.36 Mbit/s
95th percentile per-packet one-way delay: 23.409 ms
Loss rate: 0.00%
```

Run 4: Report of QUIC Cubic — Data Link

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-09-06 10:59:54
End at: 2018-09-06 11:00:24
Local clock offset: 3.581 ms
Remote clock offset: 3.582 ms

# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 117.64 Mbit/s
95th percentile per-packet one-way delay: 20.572 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 61.56 Mbit/s
95th percentile per-packet one-way delay: 18.924 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 61.42 Mbit/s
95th percentile per-packet one-way delay: 21.469 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 46.38 Mbit/s
95th percentile per-packet one-way delay: 24.059 ms
Loss rate: 0.02%
```
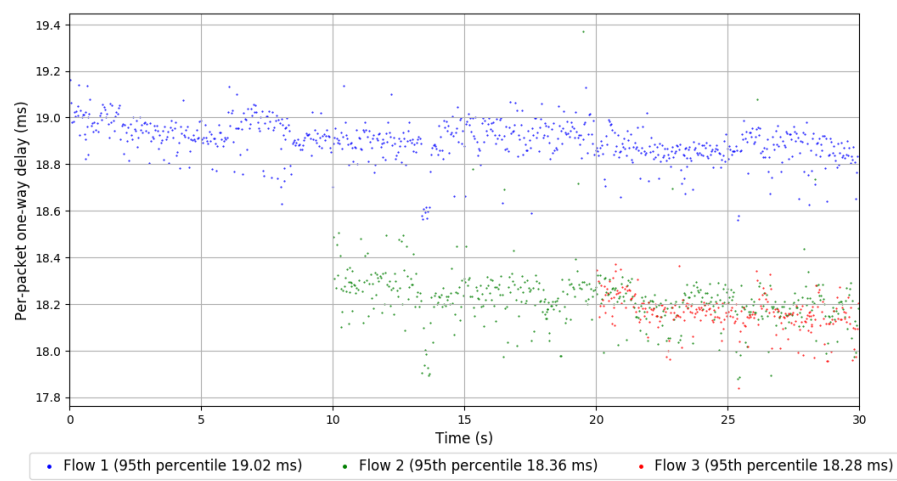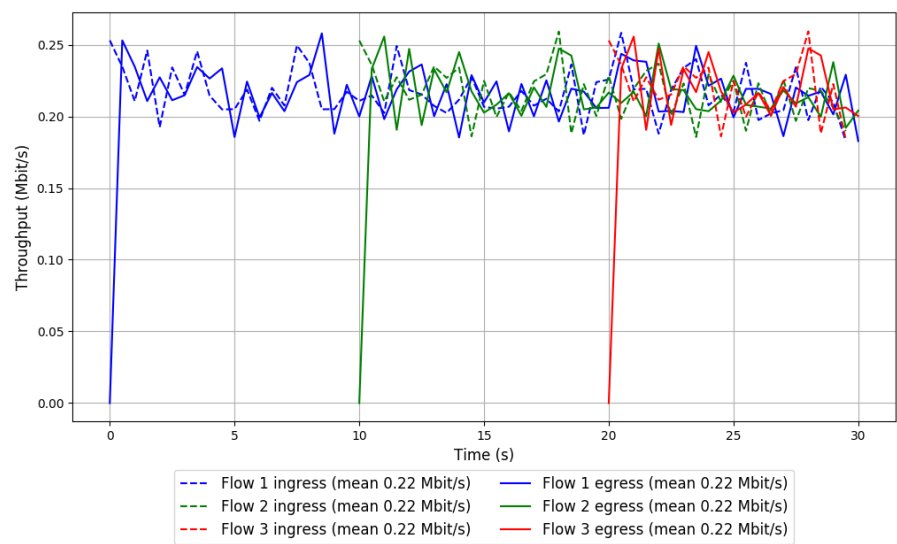
Run 5: Report of QUIC Cubic — Data Link





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```
Run 1: Statistics of SCReAM

Start at: 2018-09-06 09:10:29
End at: 2018-09-06 09:10:59
Local clock offset: -4.004 ms
Remote clock offset: -5.666 ms

# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 19.177 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 19.010 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 19.221 ms
Loss rate: 0.23%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 18.385 ms
Loss rate: 0.00%
```
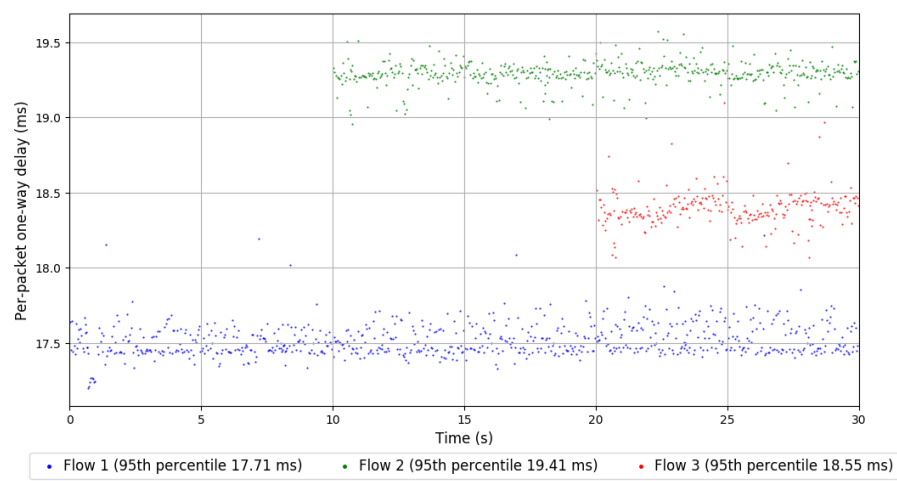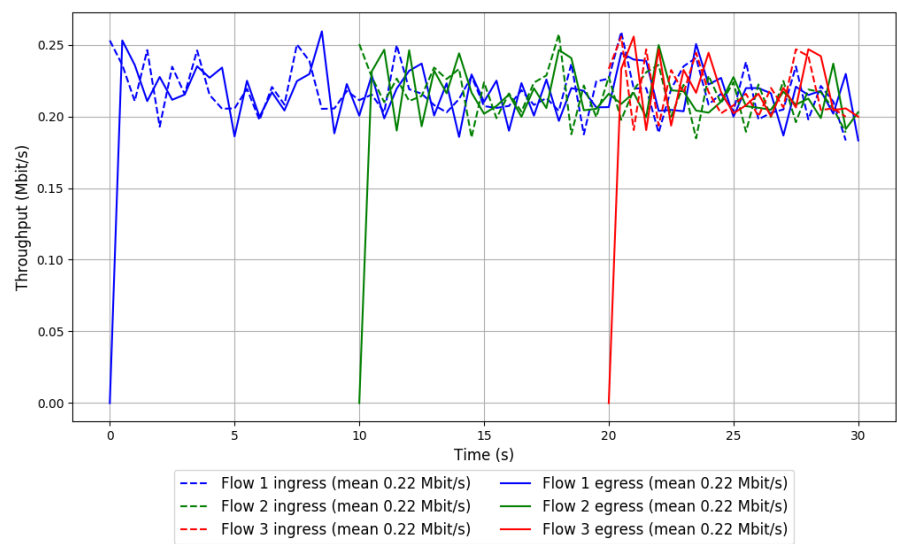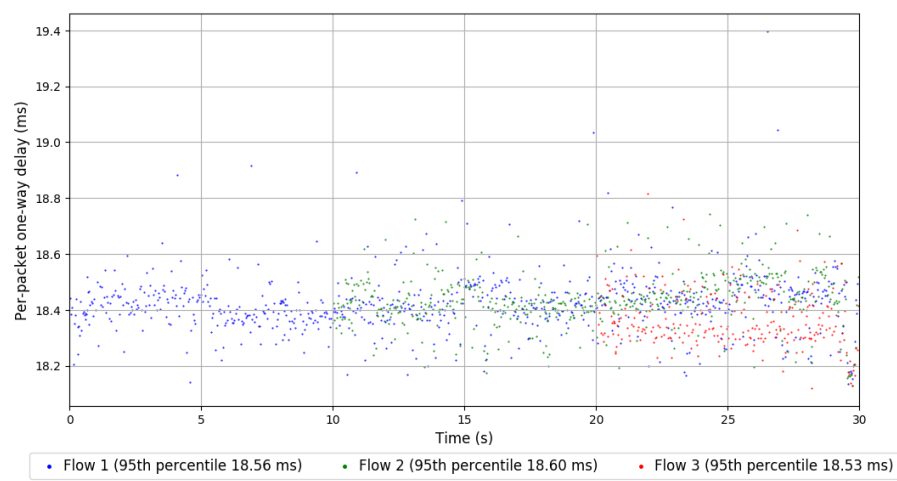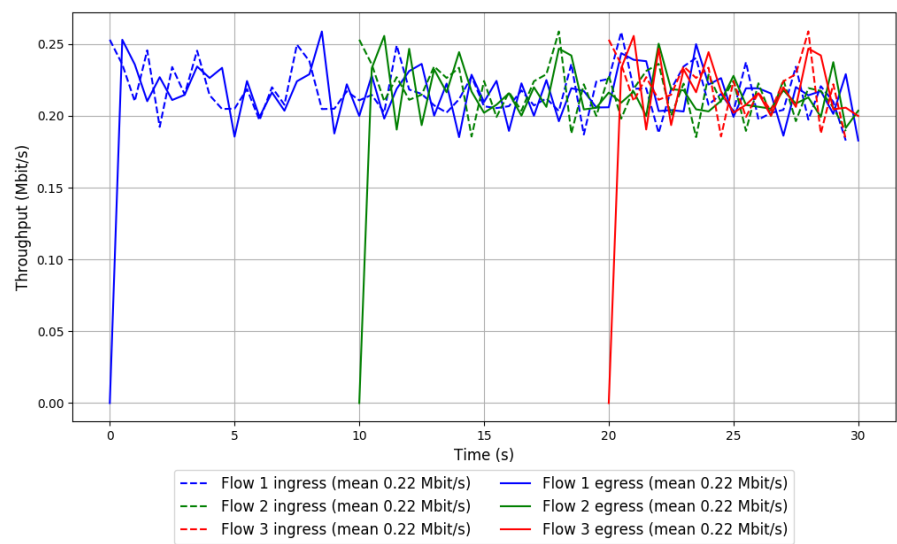
# Run 1: Report of SCReAM — Data Link



Flow 1 ingress (mean 0.22 Mbit/s)   Flow 1 egress (mean 0.22 Mbit/s)
Flow 2 ingress (mean 0.18 Mbit/s)   Flow 2 egress (mean 0.18 Mbit/s)
Flow 3 ingress (mean 0.22 Mbit/s)   Flow 3 egress (mean 0.22 Mbit/s)



Flow 1 (95th percentile 19.01 ms)   Flow 2 (95th percentile 19.22 ms)   Flow 3 (95th percentile 18.39 ms)

```
Run 2: Statistics of SCReAM

Start at: 2018-09-06 09:38:34
End at: 2018-09-06 09:39:04
Local clock offset: 0.492 ms
Remote clock offset: 2.975 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 18.999 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 19.023 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 18.355 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 18.279 ms
Loss rate: 0.00%
```

Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-09-06 10:06:47
End at: 2018-09-06 10:07:17
Local clock offset: -0.633 ms
Remote clock offset: 4.915 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 19.354 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 17.707 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 19.408 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 18.552 ms
Loss rate: 0.00%
```
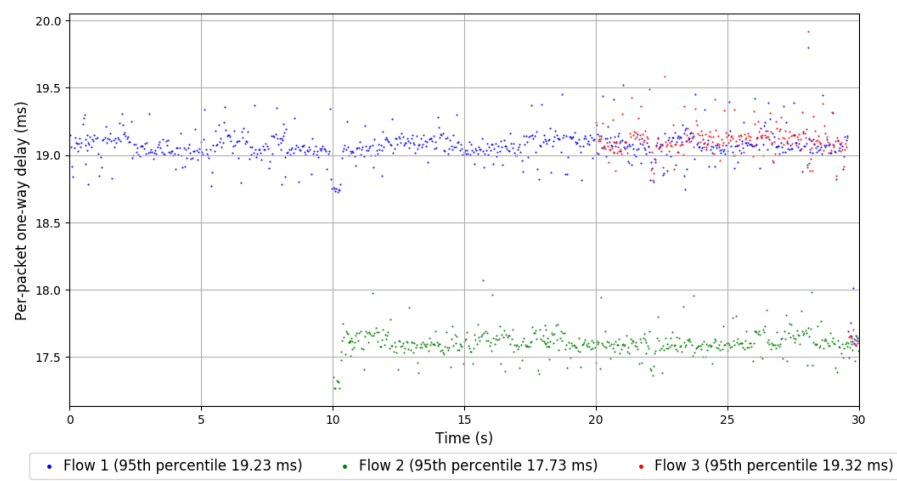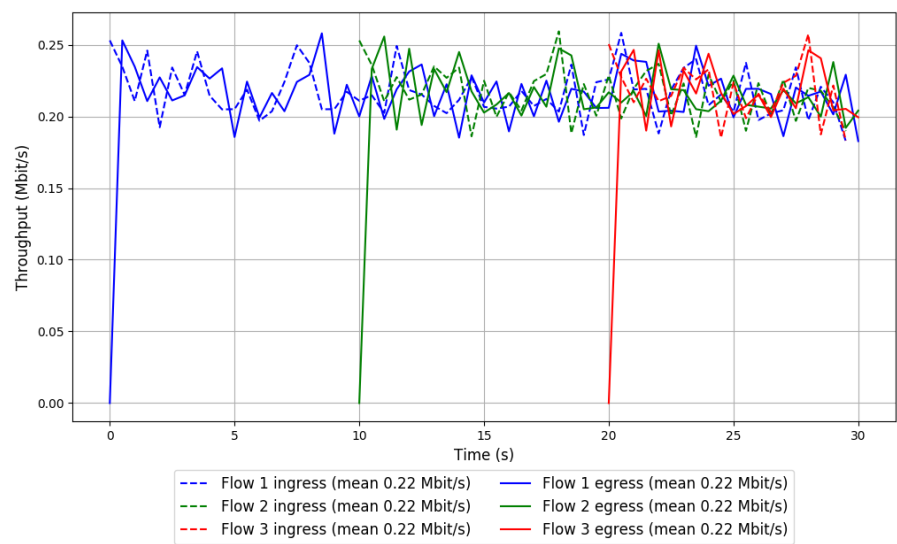
Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2018-09-06 10:34:48
End at: 2018-09-06 10:35:18
Local clock offset: -0.038 ms
Remote clock offset: 4.541 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 18.564 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 18.564 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 18.602 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 18.527 ms
Loss rate: 0.00%
```
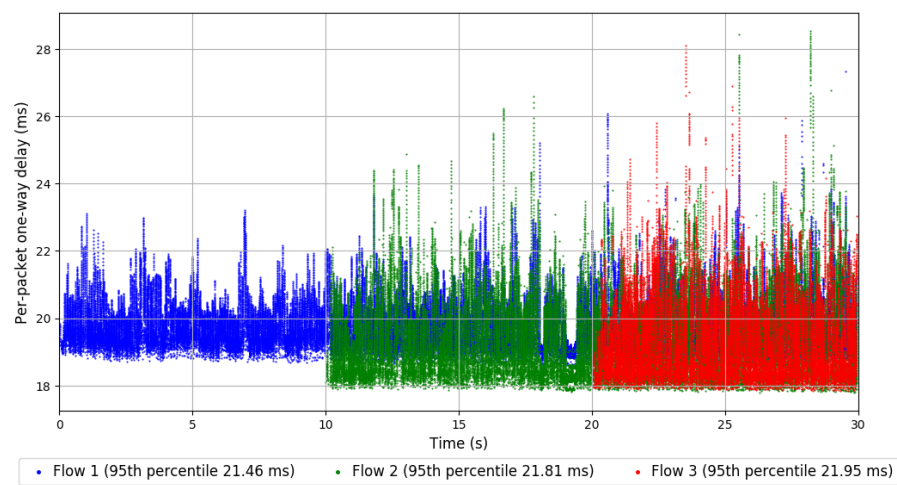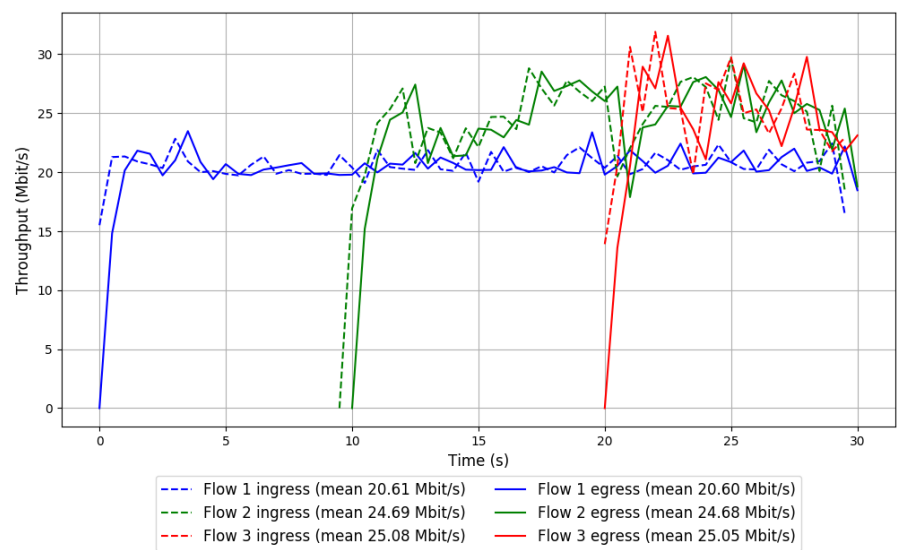
Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2018-09-06 11:02:37
End at: 2018-09-06 11:03:07
Local clock offset: 3.888 ms
Remote clock offset: 3.612 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 19.208 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 19.233 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 17.729 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 19.316 ms
Loss rate: 0.00%
```
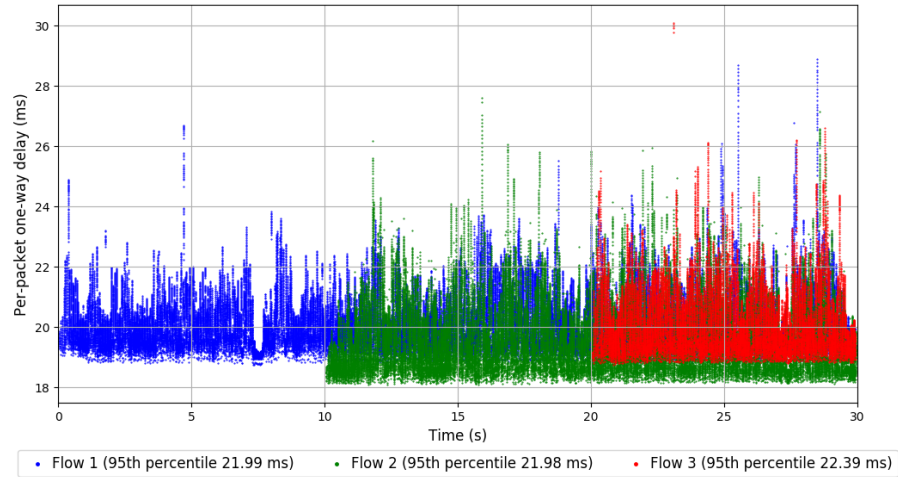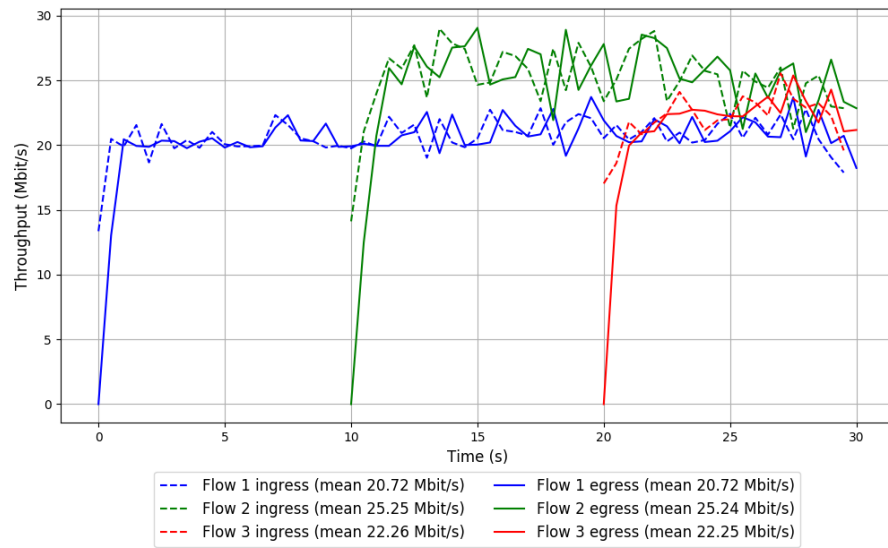
# Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2018-09-06 09:34:28
End at: 2018-09-06 09:34:58
Local clock offset: 0.124 ms
Remote clock offset: 1.381 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 45.32 Mbit/s
95th percentile per-packet one-way delay: 21.679 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 20.60 Mbit/s
95th percentile per-packet one-way delay: 21.460 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 24.68 Mbit/s
95th percentile per-packet one-way delay: 21.807 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 25.05 Mbit/s
95th percentile per-packet one-way delay: 21.949 ms
Loss rate: 0.05%
```

Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-09-06 10:02:40
End at: 2018-09-06 10:03:10
Local clock offset: -0.634 ms
Remote clock offset: 5.535 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 44.86 Mbit/s
95th percentile per-packet one-way delay: 22.058 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 20.72 Mbit/s
95th percentile per-packet one-way delay: 21.991 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 25.24 Mbit/s
95th percentile per-packet one-way delay: 21.979 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 22.25 Mbit/s
95th percentile per-packet one-way delay: 22.392 ms
Loss rate: 0.04%
```
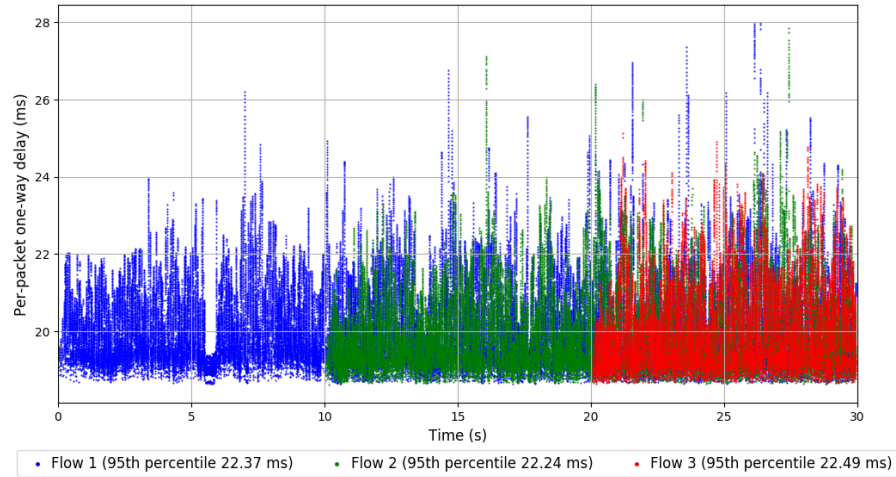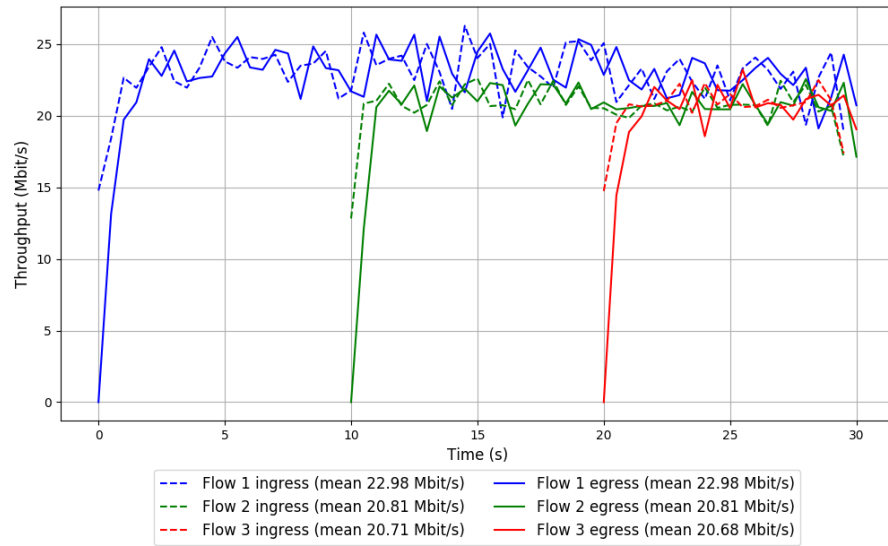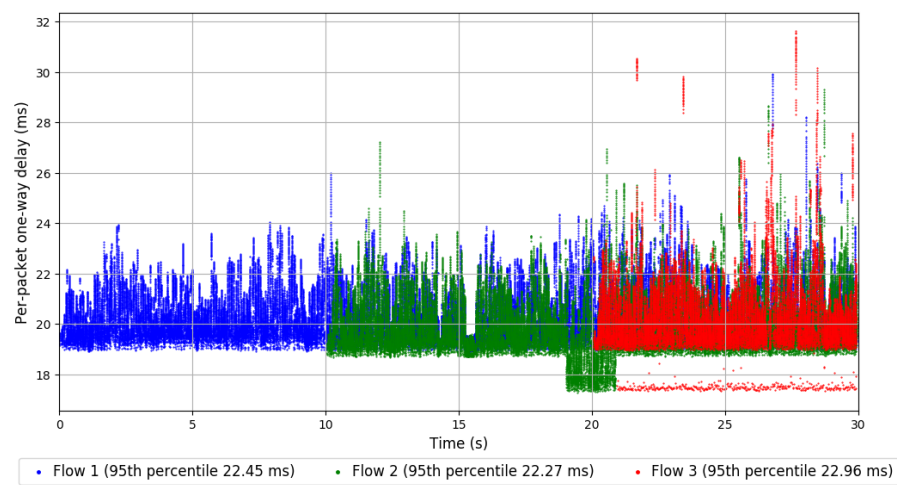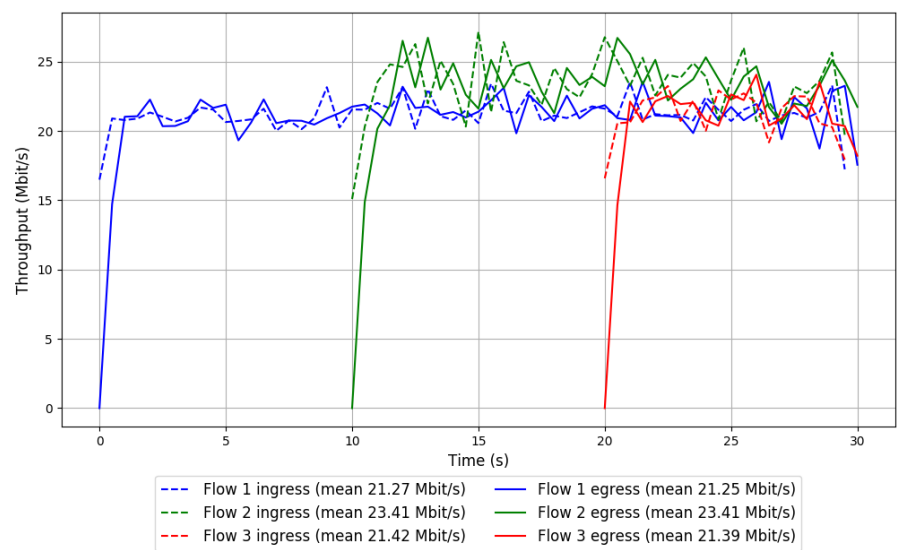
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-09-06 10:30:42
End at: 2018-09-06 10:31:12
Local clock offset: -0.029 ms
Remote clock offset: 5.042 ms

# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 43.65 Mbit/s
95th percentile per-packet one-way delay: 22.349 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 22.98 Mbit/s
95th percentile per-packet one-way delay: 22.368 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 20.81 Mbit/s
95th percentile per-packet one-way delay: 22.240 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 20.68 Mbit/s
95th percentile per-packet one-way delay: 22.492 ms
Loss rate: 0.13%
```
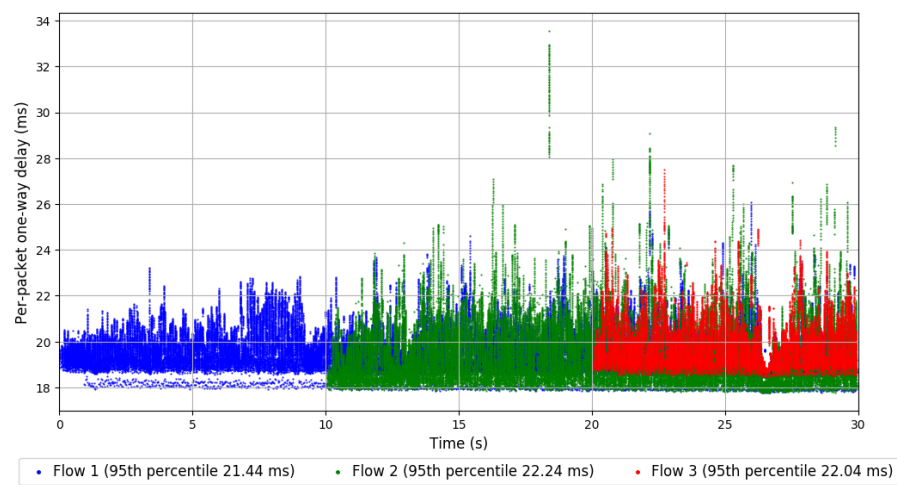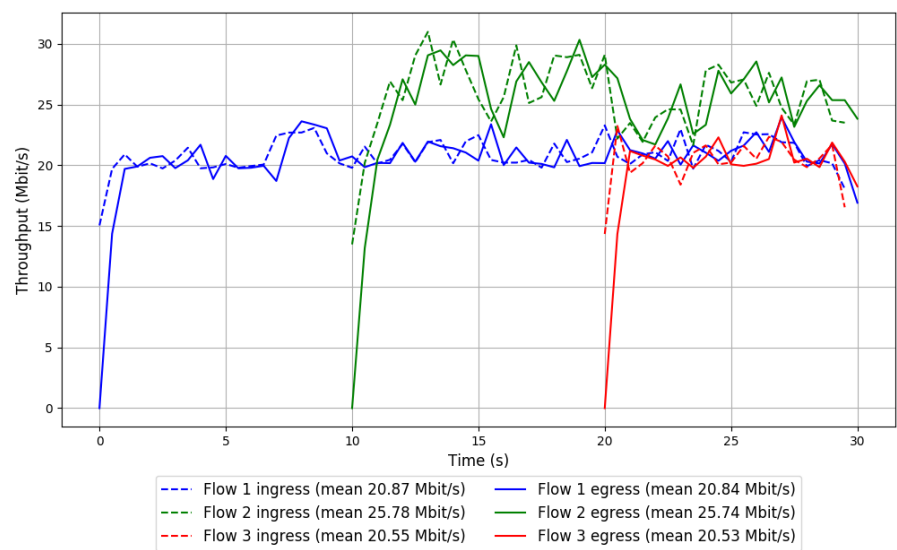
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2018-09-06 10:58:32
End at: 2018-09-06 10:59:02
Local clock offset: 3.395 ms
Remote clock offset: 3.49 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 43.89 Mbit/s
95th percentile per-packet one-way delay: 22.460 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 21.25 Mbit/s
95th percentile per-packet one-way delay: 22.455 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 23.41 Mbit/s
95th percentile per-packet one-way delay: 22.269 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 21.39 Mbit/s
95th percentile per-packet one-way delay: 22.960 ms
Loss rate: 0.08%
```

Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-09-06 11:26:21
End at: 2018-09-06 11:26:51
Local clock offset: -1.765 ms
Remote clock offset: 3.213 ms

# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 44.75 Mbit/s
95th percentile per-packet one-way delay: 21.825 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 20.84 Mbit/s
95th percentile per-packet one-way delay: 21.443 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 25.74 Mbit/s
95th percentile per-packet one-way delay: 22.240 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 20.53 Mbit/s
95th percentile per-packet one-way delay: 22.042 ms
Loss rate: 0.09%
```
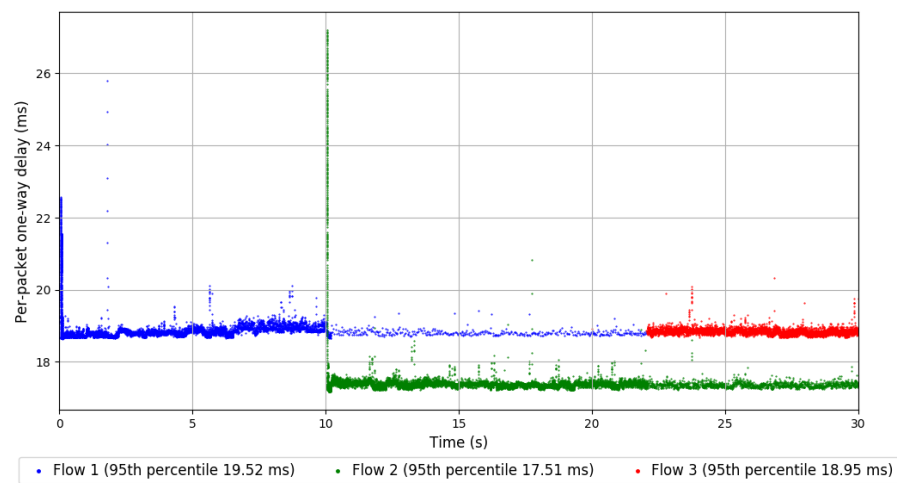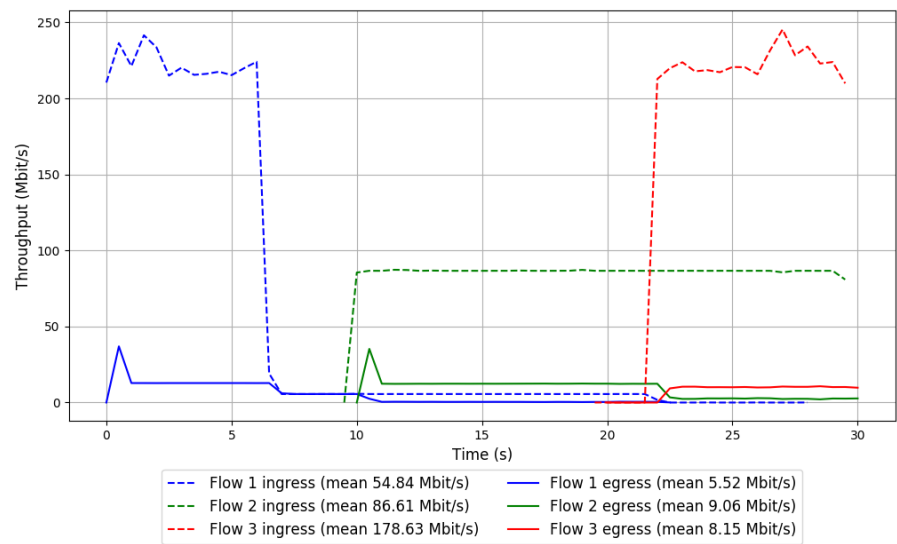
Run 5: Report of Sprout — Data Link

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

Start at: 2018-09-06 09:13:16
End at: 2018-09-06 09:13:46
Local clock offset: -4.216 ms
Remote clock offset: -5.81 ms

# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.80 Mbit/s
95th percentile per-packet one-way delay: 18.999 ms
Loss rate: 92.40%
-- Flow 1:
Average throughput: 5.52 Mbit/s
95th percentile per-packet one-way delay: 19.517 ms
Loss rate: 92.10%
-- Flow 2:
Average throughput: 9.06 Mbit/s
95th percentile per-packet one-way delay: 17.511 ms
Loss rate: 89.54%
-- Flow 3:
Average throughput: 8.15 Mbit/s
95th percentile per-packet one-way delay: 18.951 ms
Loss rate: 95.44%
```
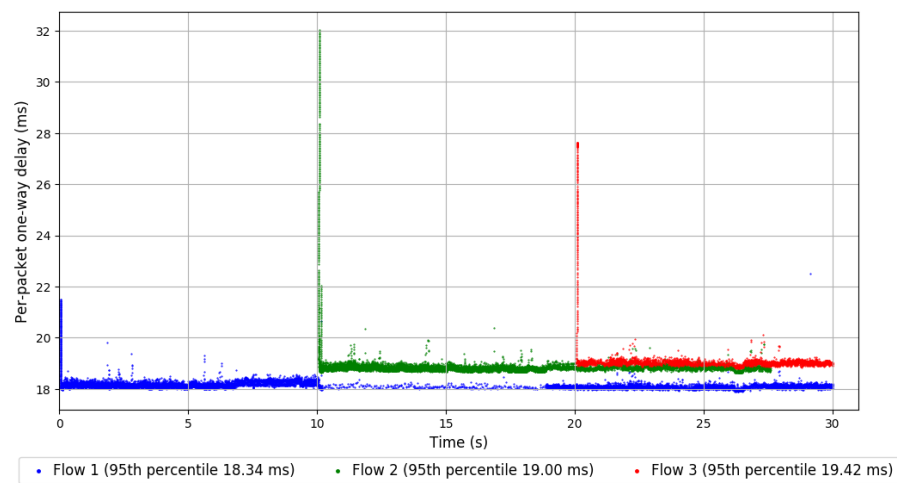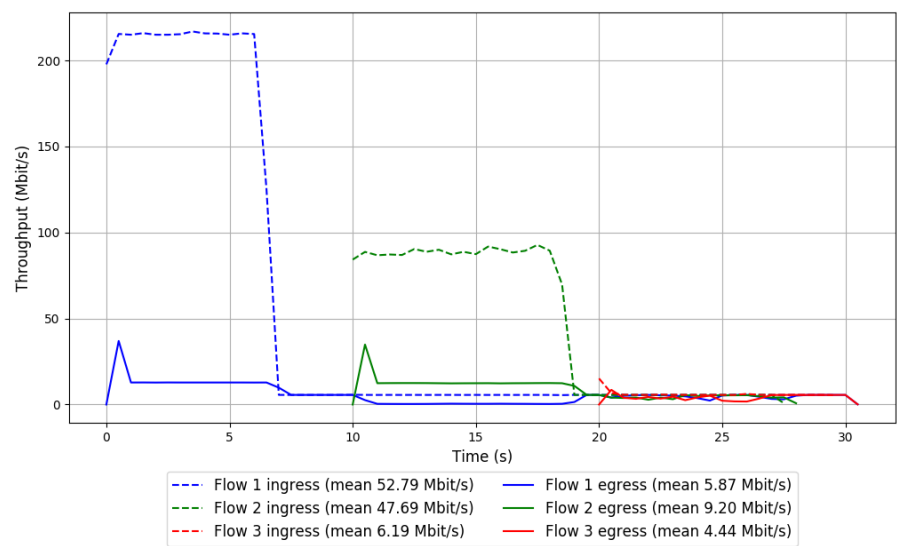
## Run 1: Report of TaoVA-100x — Data Link



Flow 1 ingress (mean 54.84 Mbit/s) --- Flow 1 egress (mean 5.52 Mbit/s)
Flow 2 ingress (mean 86.61 Mbit/s) --- Flow 2 egress (mean 9.06 Mbit/s)
Flow 3 ingress (mean 178.63 Mbit/s) --- Flow 3 egress (mean 8.15 Mbit/s)



Flow 1 (95th percentile 19.52 ms)   Flow 2 (95th percentile 17.51 ms)   Flow 3 (95th percentile 18.95 ms)

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

Start at: 2018-09-06 09:41:21
End at: 2018-09-06 09:41:51
Local clock offset: 0.615 ms
Remote clock offset: 3.829 ms

# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 19.073 ms
Loss rate: 84.62%
-- Flow 1:
Average throughput: 5.87 Mbit/s
95th percentile per-packet one-way delay: 18.335 ms
Loss rate: 88.88%
-- Flow 2:
Average throughput: 9.20 Mbit/s
95th percentile per-packet one-way delay: 18.996 ms
Loss rate: 80.71%
-- Flow 3:
Average throughput: 4.44 Mbit/s
95th percentile per-packet one-way delay: 19.419 ms
Loss rate: 28.28%
```
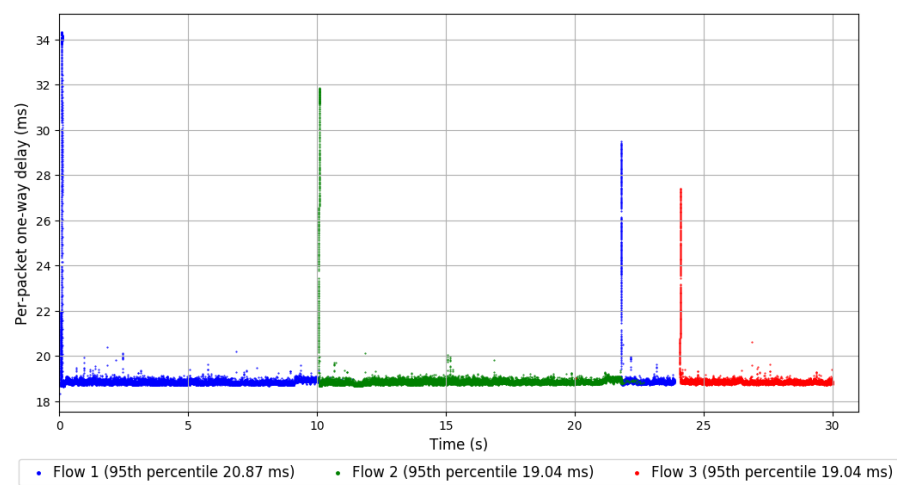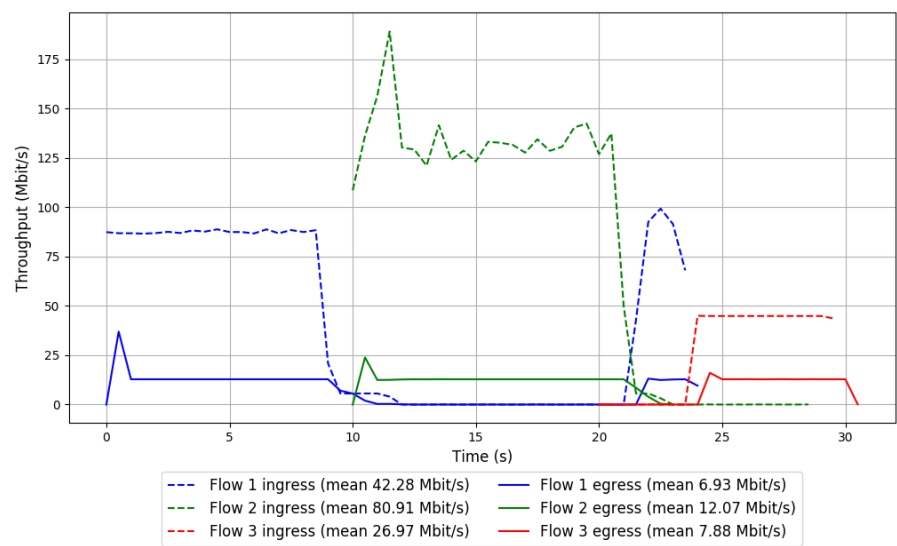
Run 2: Report of TaoVA-100x — Data Link

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

Start at: 2018-09-06 10:09:36
End at: 2018-09-06 10:10:06
Local clock offset: -0.665 ms
Remote clock offset: 4.637 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.22 Mbit/s
95th percentile per-packet one-way delay: 19.108 ms
Loss rate: 85.77%
-- Flow 1:
Average throughput: 6.93 Mbit/s
95th percentile per-packet one-way delay: 20.874 ms
Loss rate: 83.60%
-- Flow 2:
Average throughput: 12.07 Mbit/s
95th percentile per-packet one-way delay: 19.044 ms
Loss rate: 89.90%
-- Flow 3:
Average throughput: 7.88 Mbit/s
95th percentile per-packet one-way delay: 19.043 ms
Loss rate: 70.77%
```
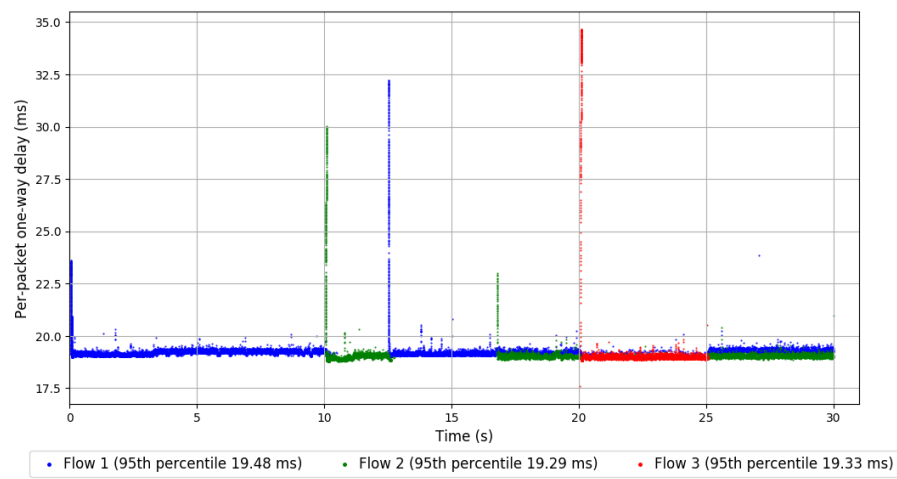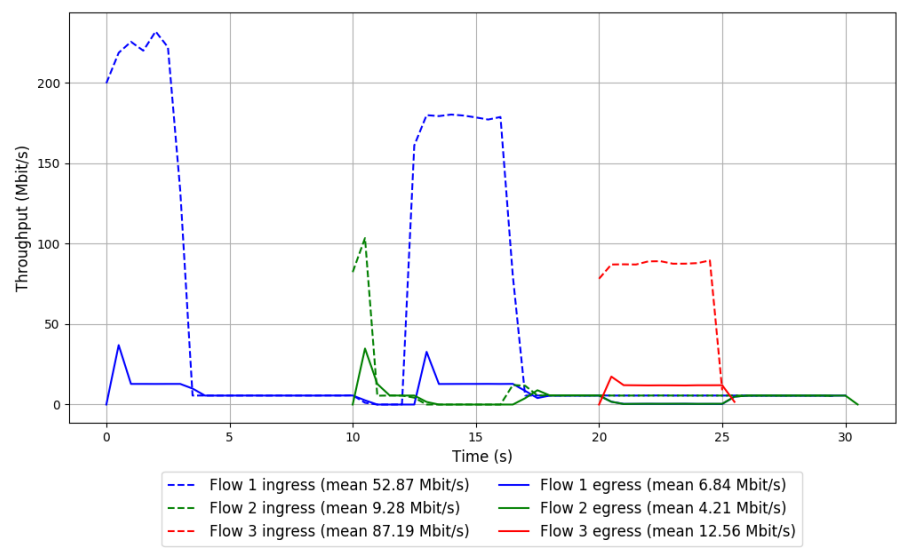
## Run 3: Report of TaoVA-100x — Data Link



- - - - Flow 1 ingress (mean 42.28 Mbit/s) ——— Flow 1 egress (mean 6.93 Mbit/s)
- - - - Flow 2 ingress (mean 80.91 Mbit/s) ——— Flow 2 egress (mean 12.07 Mbit/s)
- - - - Flow 3 ingress (mean 26.97 Mbit/s) ——— Flow 3 egress (mean 7.88 Mbit/s)



- Flow 1 (95th percentile 20.87 ms)  • Flow 2 (95th percentile 19.04 ms)  • Flow 3 (95th percentile 19.04 ms)

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

Start at: 2018-09-06 10:37:37
End at: 2018-09-06 10:38:07
Local clock offset: -0.008 ms
Remote clock offset: 4.131 ms

# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 11.75 Mbit/s
95th percentile per-packet one-way delay: 19.459 ms
Loss rate: 84.06%
-- Flow 1:
Average throughput: 6.84 Mbit/s
95th percentile per-packet one-way delay: 19.482 ms
Loss rate: 87.07%
-- Flow 2:
Average throughput: 4.21 Mbit/s
95th percentile per-packet one-way delay: 19.290 ms
Loss rate: 54.64%
-- Flow 3:
Average throughput: 12.56 Mbit/s
95th percentile per-packet one-way delay: 19.326 ms
Loss rate: 85.60%
```
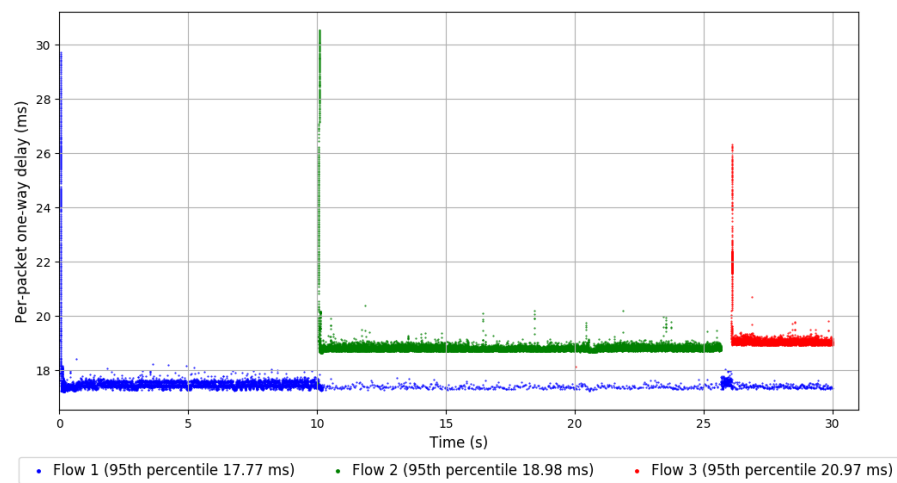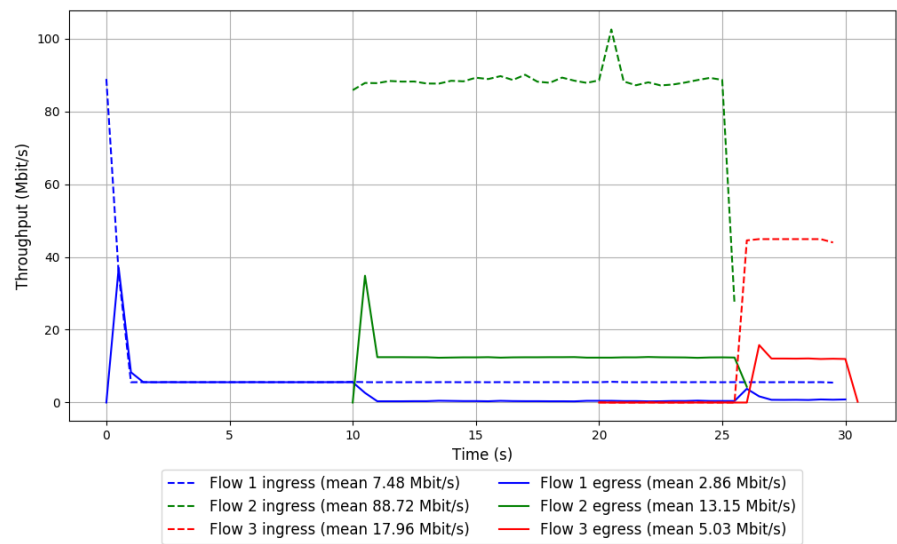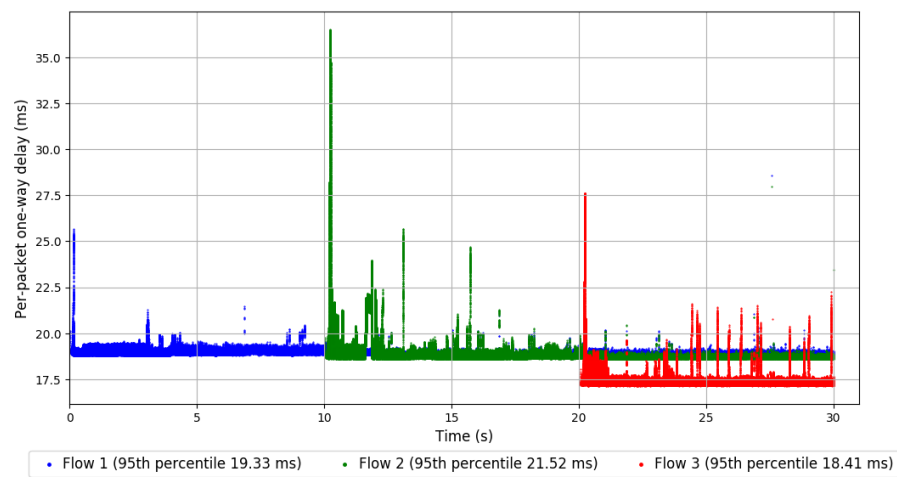
Run 4: Report of TaoVA-100x — Data Link

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

Start at: 2018-09-06 11:05:27
End at: 2018-09-06 11:05:57
Local clock offset: 4.171 ms
Remote clock offset: 3.662 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 11.39 Mbit/s
95th percentile per-packet one-way delay: 19.125 ms
Loss rate: 80.92%
-- Flow 1:
Average throughput: 2.86 Mbit/s
95th percentile per-packet one-way delay: 17.773 ms
Loss rate: 61.76%
-- Flow 2:
Average throughput: 13.15 Mbit/s
95th percentile per-packet one-way delay: 18.975 ms
Loss rate: 85.18%
-- Flow 3:
Average throughput: 5.03 Mbit/s
95th percentile per-packet one-way delay: 20.966 ms
Loss rate: 71.98%
```

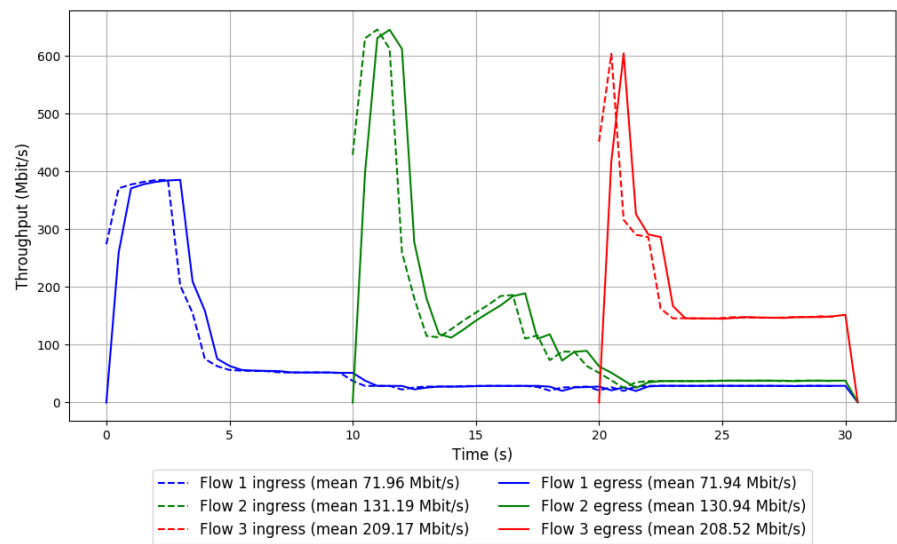Run 5: Report of TaoVA-100x — Data Link

```
Run 1: Statistics of TCP Vegas

Start at: 2018-09-06 09:11:48
End at: 2018-09-06 09:12:18
Local clock offset: -4.071 ms
Remote clock offset: -5.712 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 228.48 Mbit/s
95th percentile per-packet one-way delay: 20.465 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 71.94 Mbit/s
95th percentile per-packet one-way delay: 19.333 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 130.94 Mbit/s
95th percentile per-packet one-way delay: 21.524 ms
Loss rate: 0.17%
-- Flow 3:
Average throughput: 208.52 Mbit/s
95th percentile per-packet one-way delay: 18.415 ms
Loss rate: 0.31%
```
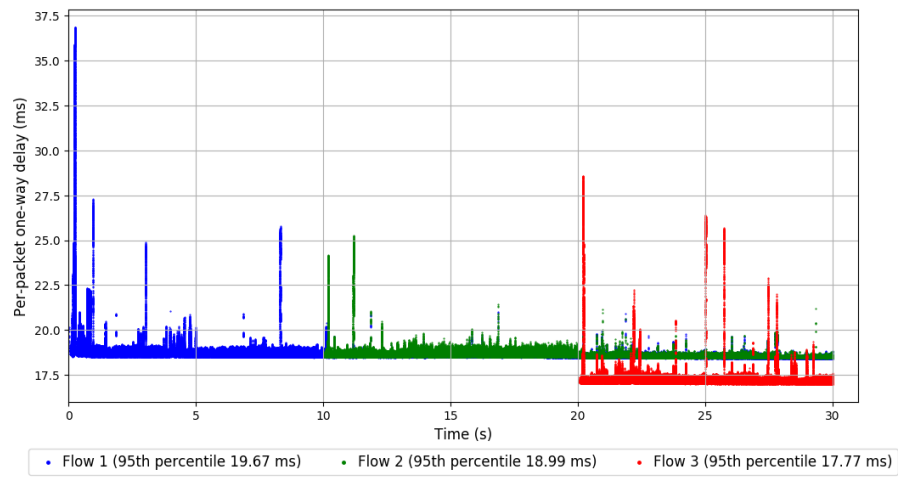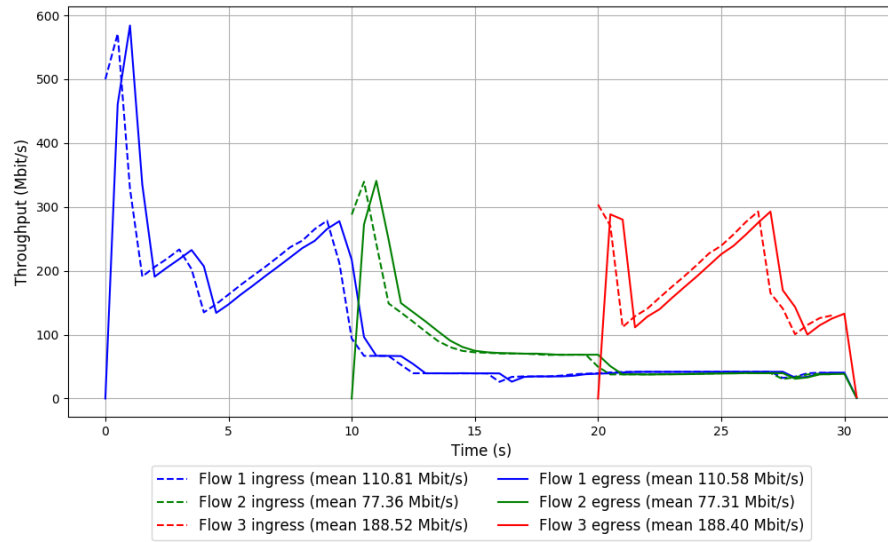
# Run 1: Report of TCP Vegas — Data Link



Flow 1 ingress (mean 71.96 Mbit/s)    Flow 1 egress (mean 71.94 Mbit/s)
Flow 2 ingress (mean 131.19 Mbit/s)    Flow 2 egress (mean 130.94 Mbit/s)
Flow 3 ingress (mean 209.17 Mbit/s)    Flow 3 egress (mean 208.52 Mbit/s)



Flow 1 (95th percentile 19.33 ms)    Flow 2 (95th percentile 21.52 ms)    Flow 3 (95th percentile 18.41 ms)

```
Run 2: Statistics of TCP Vegas

Start at: 2018-09-06 09:39:54
End at: 2018-09-06 09:40:24
Local clock offset: 0.566 ms
Remote clock offset: 3.317 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 224.72 Mbit/s
95th percentile per-packet one-way delay: 19.171 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 110.58 Mbit/s
95th percentile per-packet one-way delay: 19.672 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 77.31 Mbit/s
95th percentile per-packet one-way delay: 18.994 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 188.40 Mbit/s
95th percentile per-packet one-way delay: 17.767 ms
Loss rate: 0.06%
```
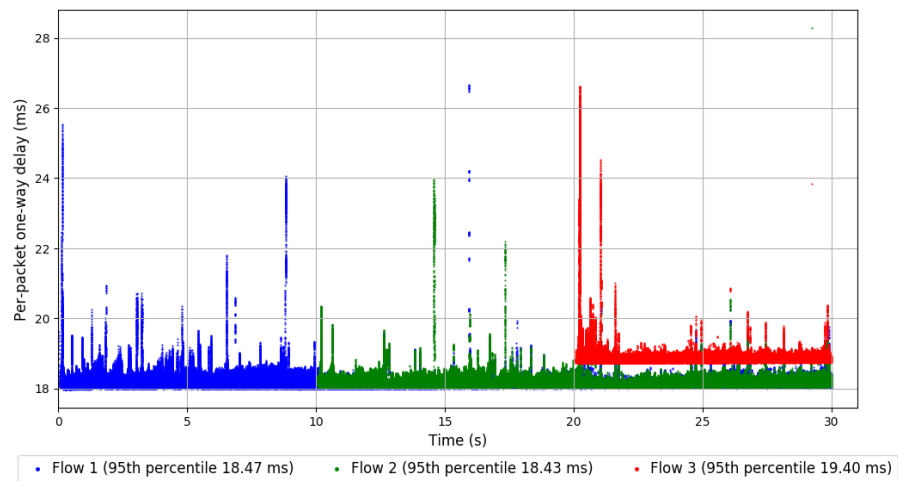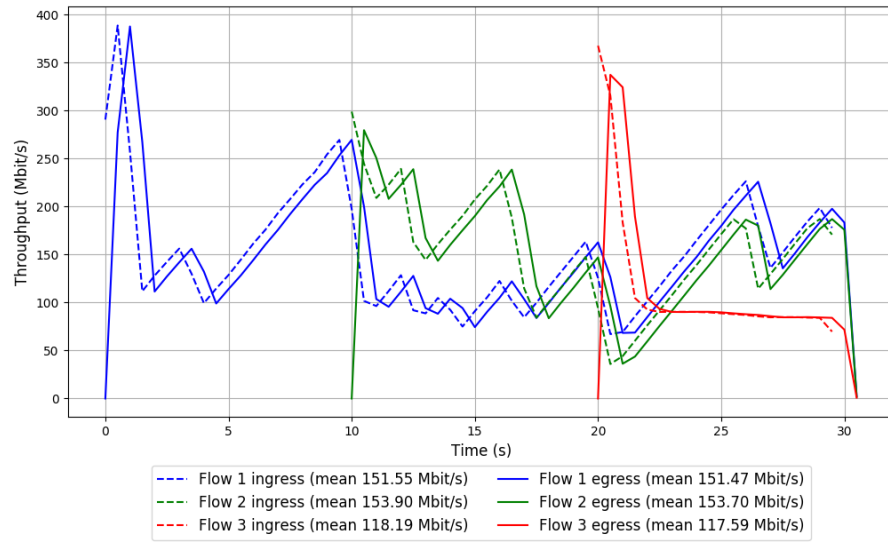
Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-09-06 10:08:06
End at: 2018-09-06 10:08:36
Local clock offset: -0.643 ms
Remote clock offset: 4.799 ms


# Below is generated by plot.py at 2018-09-06 12:17:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 292.96 Mbit/s
95th percentile per-packet one-way delay: 18.933 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 151.47 Mbit/s
95th percentile per-packet one-way delay: 18.470 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 153.70 Mbit/s
95th percentile per-packet one-way delay: 18.435 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 117.59 Mbit/s
95th percentile per-packet one-way delay: 19.396 ms
Loss rate: 0.51%
```
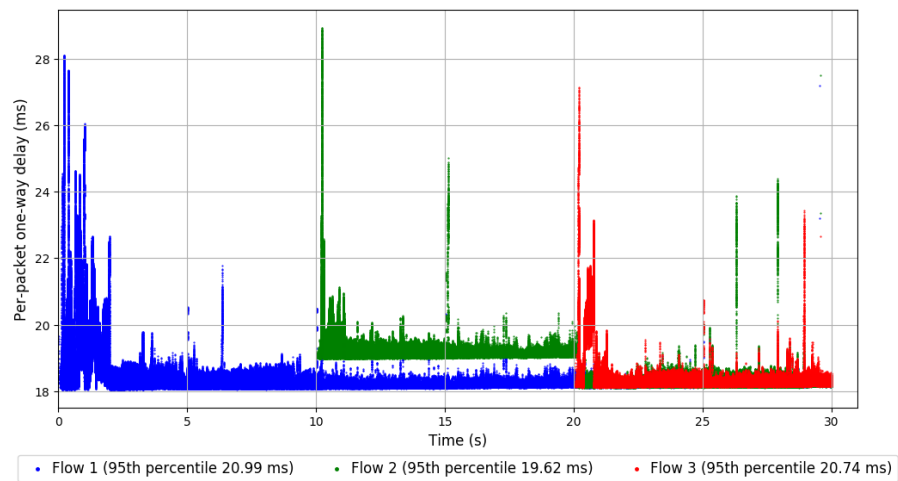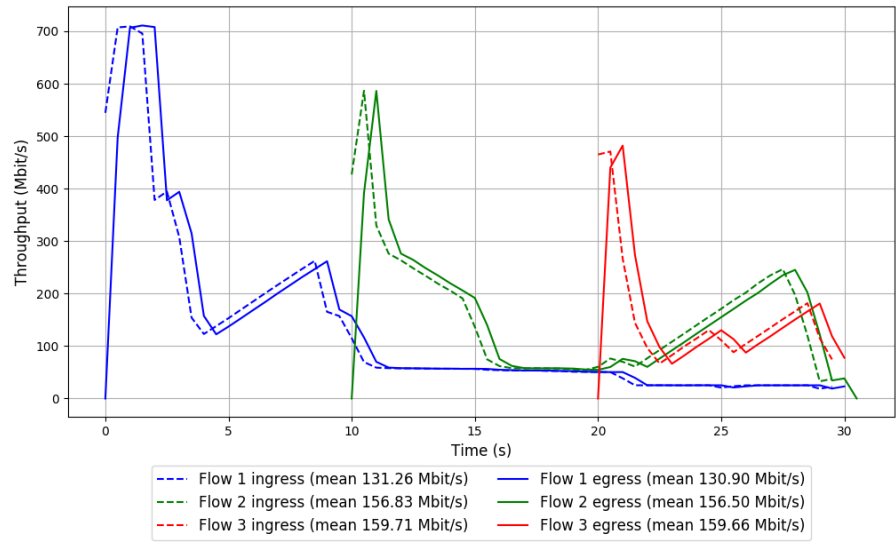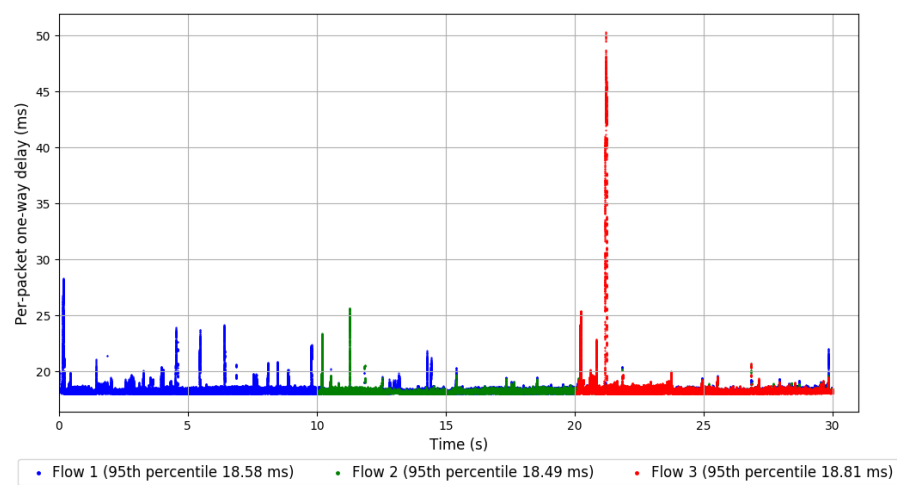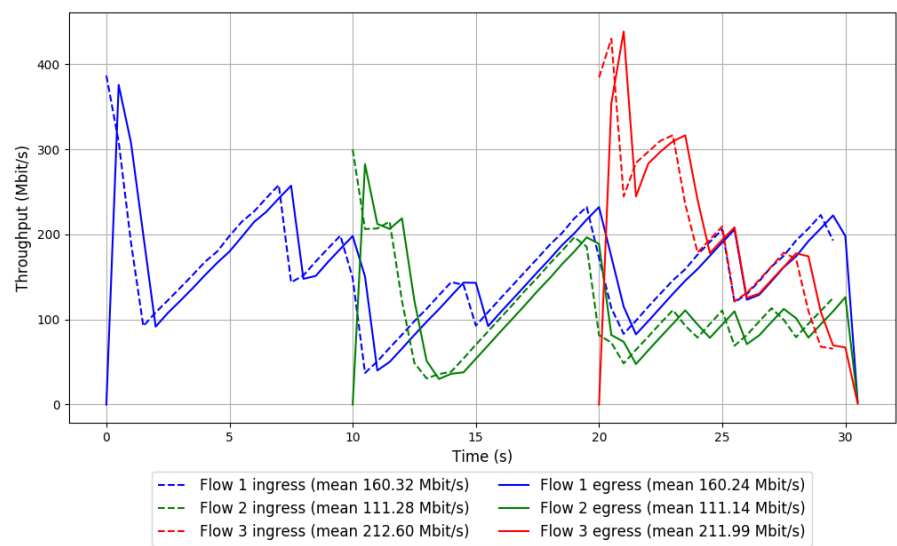
Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2018-09-06 10:36:07
End at: 2018-09-06 10:36:37
Local clock offset: -0.026 ms
Remote clock offset: 4.347 ms


# Below is generated by plot.py at 2018-09-06 12:18:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 288.22 Mbit/s
95th percentile per-packet one-way delay: 20.492 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 130.90 Mbit/s
95th percentile per-packet one-way delay: 20.986 ms
Loss rate: 0.28%
-- Flow 2:
Average throughput: 156.50 Mbit/s
95th percentile per-packet one-way delay: 19.624 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 159.66 Mbit/s
95th percentile per-packet one-way delay: 20.740 ms
Loss rate: 0.03%
```

Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2018-09-06 11:03:57
End at: 2018-09-06 11:04:27
Local clock offset: 4.008 ms
Remote clock offset: 3.697 ms


# Below is generated by plot.py at 2018-09-06 12:18:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 304.75 Mbit/s
95th percentile per-packet one-way delay: 18.599 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 160.24 Mbit/s
95th percentile per-packet one-way delay: 18.576 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 111.14 Mbit/s
95th percentile per-packet one-way delay: 18.493 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 211.99 Mbit/s
95th percentile per-packet one-way delay: 18.808 ms
Loss rate: 0.29%
```

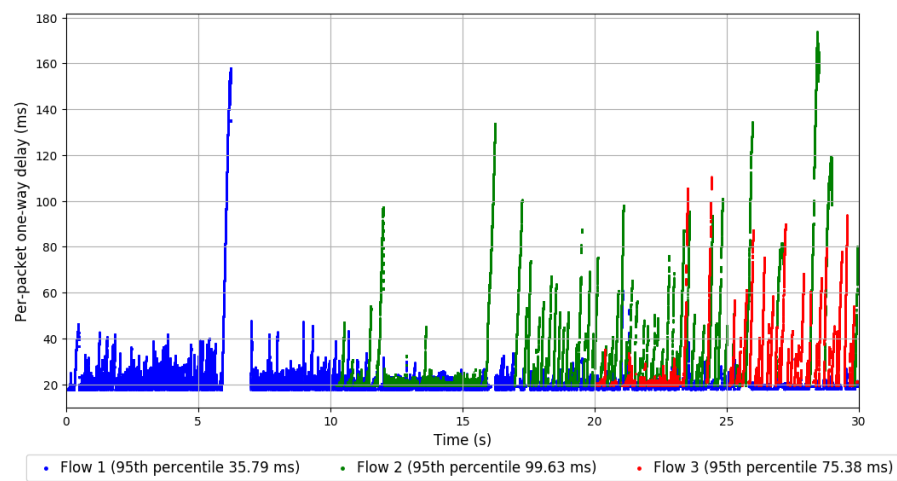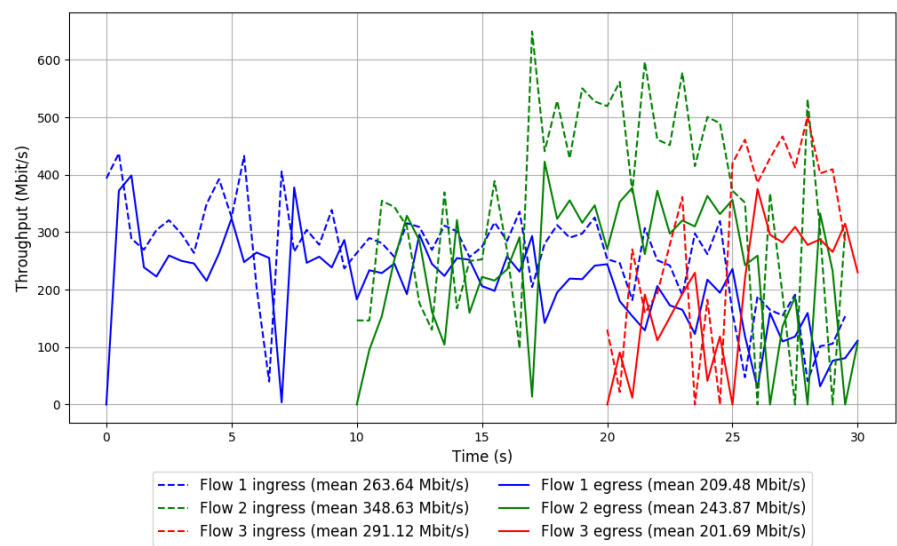Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2018-09-06 09:16:34
End at: 2018-09-06 09:17:04
Local clock offset: -3.84 ms
Remote clock offset: -5.877 ms


# Below is generated by plot.py at 2018-09-06 12:20:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 438.49 Mbit/s
95th percentile per-packet one-way delay: 81.481 ms
Loss rate: 25.92%
-- Flow 1:
Average throughput: 209.48 Mbit/s
95th percentile per-packet one-way delay: 35.786 ms
Loss rate: 20.54%
-- Flow 2:
Average throughput: 243.87 Mbit/s
95th percentile per-packet one-way delay: 99.626 ms
Loss rate: 30.04%
-- Flow 3:
Average throughput: 201.69 Mbit/s
95th percentile per-packet one-way delay: 75.382 ms
Loss rate: 30.72%
```
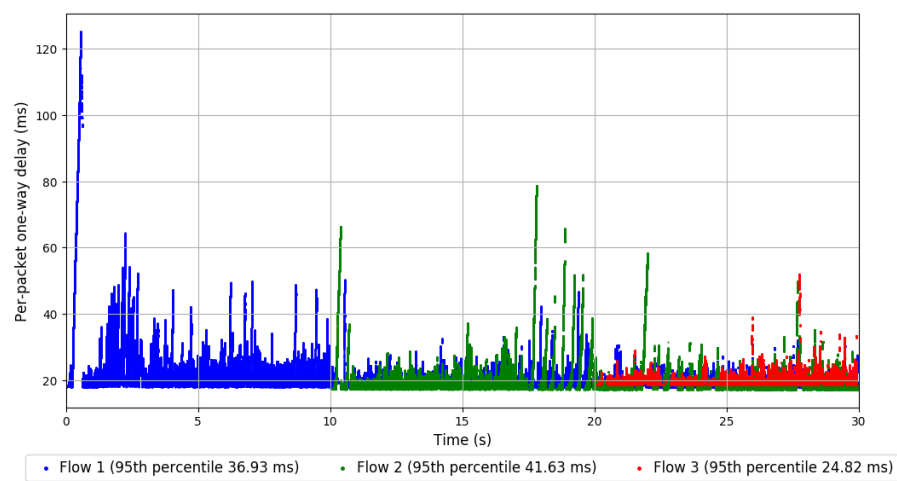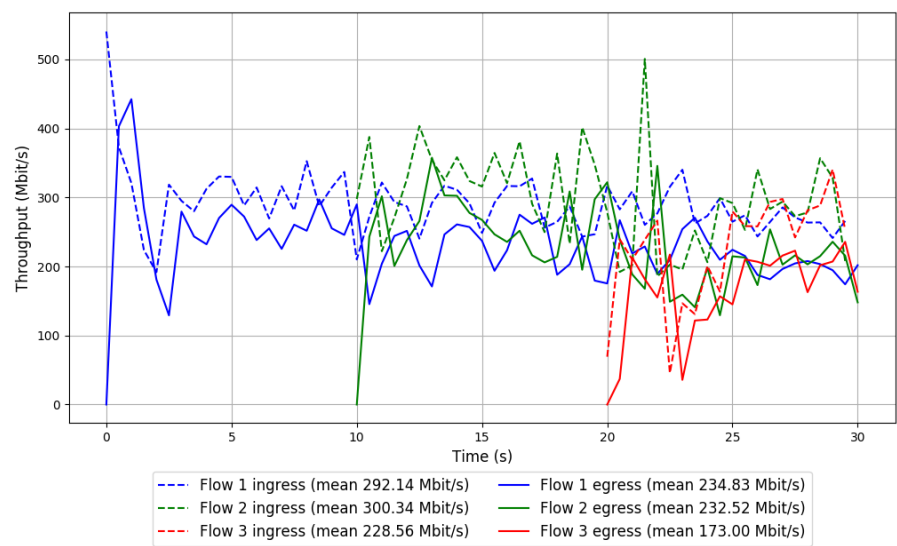
Run 1: Report of Verus — Data Link



Flow 1 ingress (mean 263.64 Mbit/s) — Flow 1 egress (mean 209.48 Mbit/s)
Flow 2 ingress (mean 348.63 Mbit/s) — Flow 2 egress (mean 243.87 Mbit/s)
Flow 3 ingress (mean 291.12 Mbit/s) — Flow 3 egress (mean 201.69 Mbit/s)



Flow 1 (95th percentile 35.79 ms)    Flow 2 (95th percentile 99.63 ms)    Flow 3 (95th percentile 75.38 ms)

```
Run 2: Statistics of Verus

Start at: 2018-09-06 09:44:40
End at: 2018-09-06 09:45:10
Local clock offset: 0.677 ms
Remote clock offset: 4.599 ms


# Below is generated by plot.py at 2018-09-06 12:21:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 446.56 Mbit/s
95th percentile per-packet one-way delay: 36.286 ms
Loss rate: 21.27%
-- Flow 1:
Average throughput: 234.83 Mbit/s
95th percentile per-packet one-way delay: 36.933 ms
Loss rate: 19.62%
-- Flow 2:
Average throughput: 232.52 Mbit/s
95th percentile per-packet one-way delay: 41.626 ms
Loss rate: 22.58%
-- Flow 3:
Average throughput: 173.00 Mbit/s
95th percentile per-packet one-way delay: 24.822 ms
Loss rate: 24.21%
```

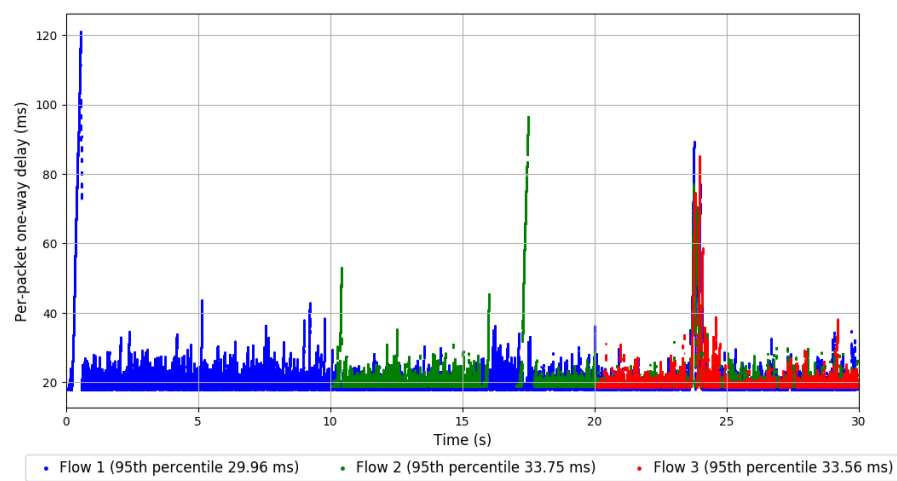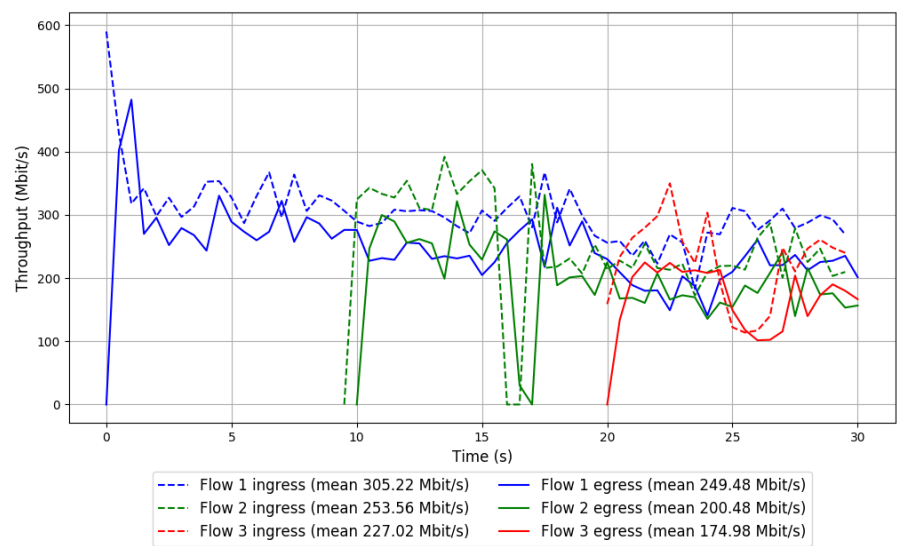Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-09-06 10:12:54
End at: 2018-09-06 10:13:24
Local clock offset: -0.687 ms
Remote clock offset: 4.384 ms


# Below is generated by plot.py at 2018-09-06 12:21:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 440.97 Mbit/s
95th percentile per-packet one-way delay: 30.968 ms
Loss rate: 19.72%
-- Flow 1:
Average throughput: 249.48 Mbit/s
95th percentile per-packet one-way delay: 29.963 ms
Loss rate: 18.26%
-- Flow 2:
Average throughput: 200.48 Mbit/s
95th percentile per-packet one-way delay: 33.746 ms
Loss rate: 20.93%
-- Flow 3:
Average throughput: 174.98 Mbit/s
95th percentile per-packet one-way delay: 33.562 ms
Loss rate: 22.91%
```
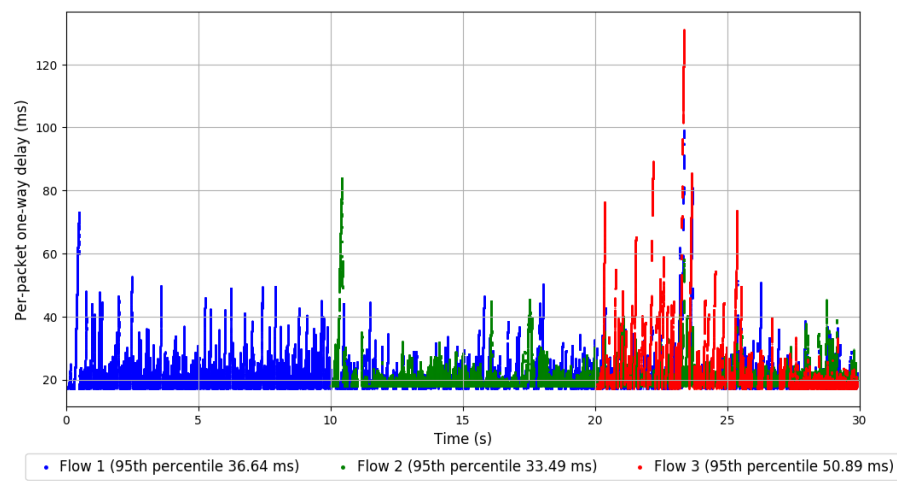
Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-09-06 10:40:54
End at: 2018-09-06 10:41:24
Local clock offset: 0.134 ms
Remote clock offset: 3.733 ms


# Below is generated by plot.py at 2018-09-06 12:22:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 414.52 Mbit/s
95th percentile per-packet one-way delay: 39.345 ms
Loss rate: 27.11%
-- Flow 1:
Average throughput: 202.50 Mbit/s
95th percentile per-packet one-way delay: 36.644 ms
Loss rate: 27.68%
-- Flow 2:
Average throughput: 210.76 Mbit/s
95th percentile per-packet one-way delay: 33.489 ms
Loss rate: 24.67%
-- Flow 3:
Average throughput: 215.68 Mbit/s
95th percentile per-packet one-way delay: 50.894 ms
Loss rate: 29.99%
```
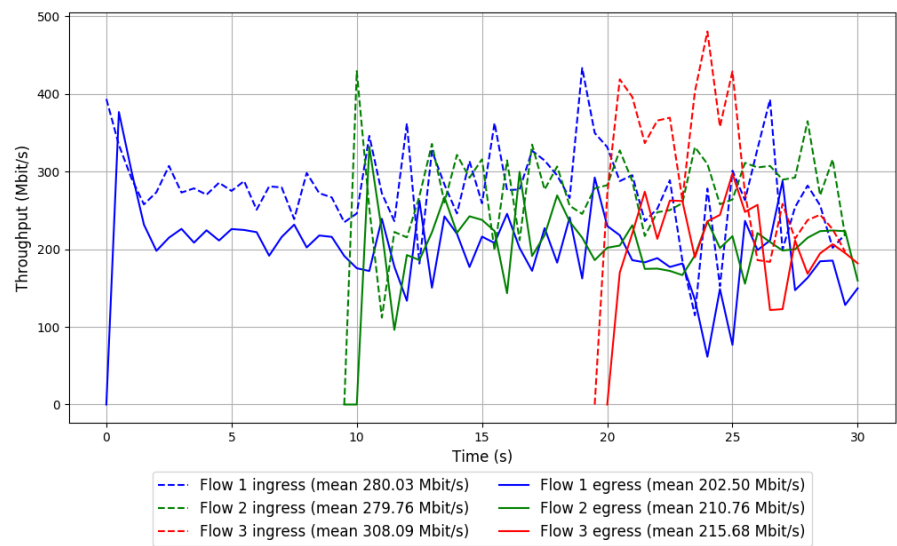
Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-09-06 11:08:44
End at: 2018-09-06 11:09:14
Local clock offset: 4.428 ms
Remote clock offset: 3.493 ms


# Below is generated by plot.py at 2018-09-06 12:22:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 404.31 Mbit/s
95th percentile per-packet one-way delay: 35.432 ms
Loss rate: 21.54%
-- Flow 1:
Average throughput: 231.14 Mbit/s
95th percentile per-packet one-way delay: 31.010 ms
Loss rate: 21.42%
-- Flow 2:
Average throughput: 179.34 Mbit/s
95th percentile per-packet one-way delay: 48.743 ms
Loss rate: 19.72%
-- Flow 3:
Average throughput: 161.45 Mbit/s
95th percentile per-packet one-way delay: 35.882 ms
Loss rate: 25.75%
```
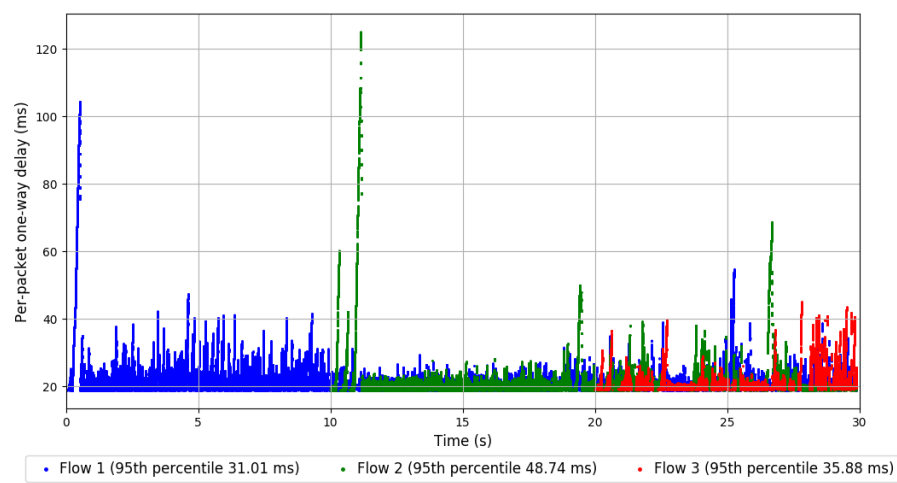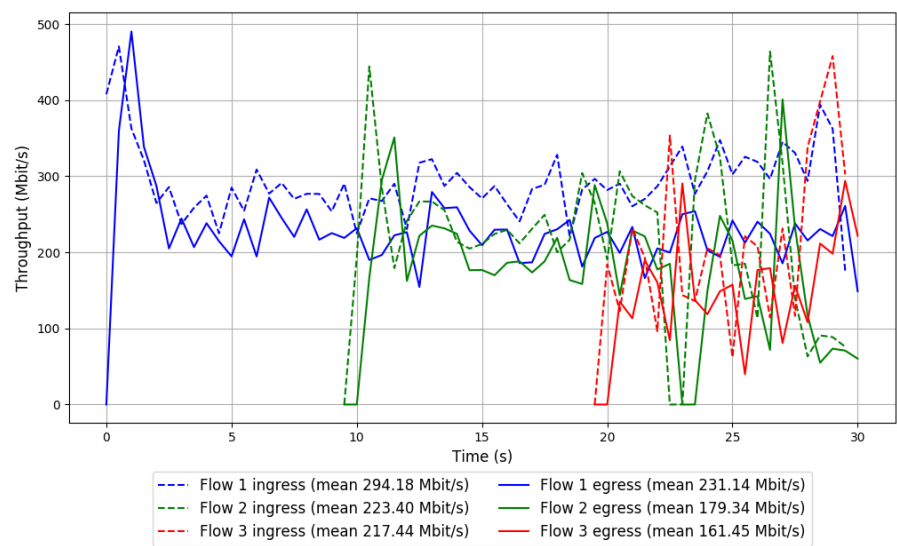
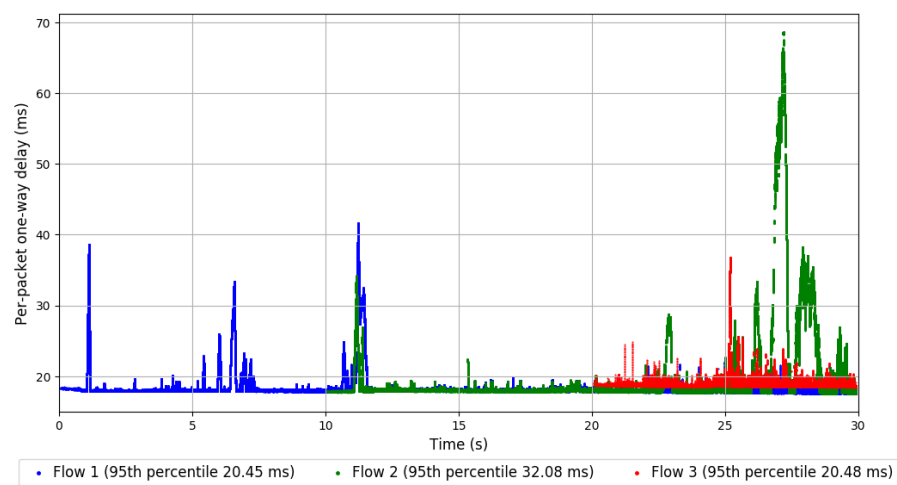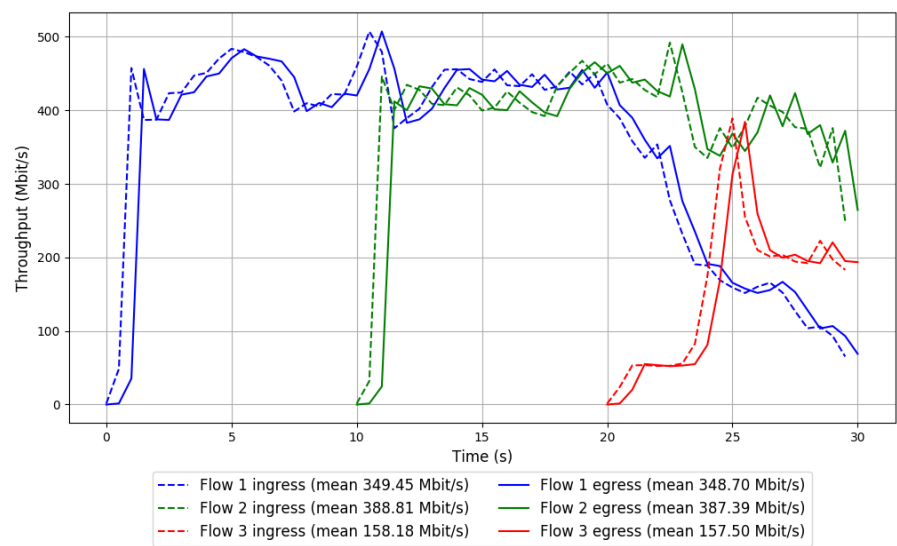Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-09-06 09:26:38
End at: 2018-09-06 09:27:08
Local clock offset: -0.718 ms
Remote clock offset: -3.523 ms


# Below is generated by plot.py at 2018-09-06 12:24:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 658.31 Mbit/s
95th percentile per-packet one-way delay: 26.000 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 348.70 Mbit/s
95th percentile per-packet one-way delay: 20.451 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 387.39 Mbit/s
95th percentile per-packet one-way delay: 32.078 ms
Loss rate: 0.36%
-- Flow 3:
Average throughput: 157.50 Mbit/s
95th percentile per-packet one-way delay: 20.481 ms
Loss rate: 0.44%
```

Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-09-06 09:54:48
End at: 2018-09-06 09:55:18
Local clock offset: -0.202 ms
Remote clock offset: 6.446 ms


# Below is generated by plot.py at 2018-09-06 12:24:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 594.94 Mbit/s
95th percentile per-packet one-way delay: 19.990 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 377.21 Mbit/s
95th percentile per-packet one-way delay: 20.898 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 260.38 Mbit/s
95th percentile per-packet one-way delay: 19.846 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 135.07 Mbit/s
95th percentile per-packet one-way delay: 19.716 ms
Loss rate: 0.64%
```
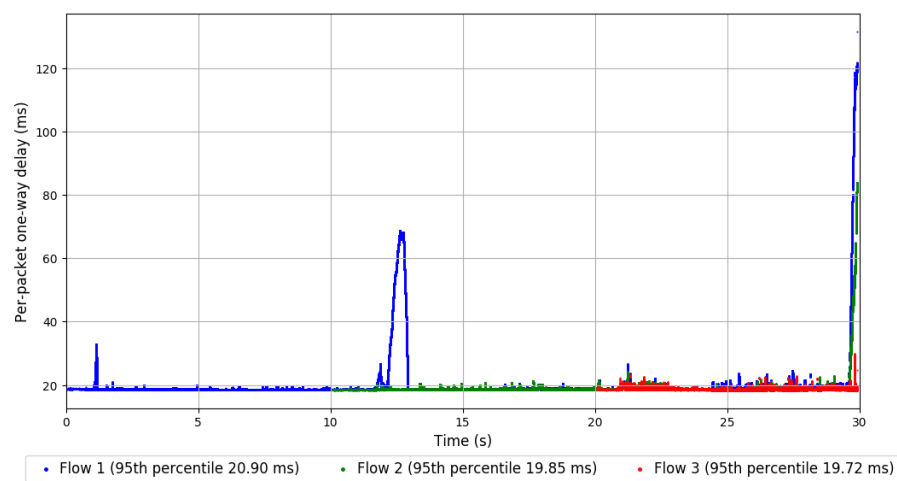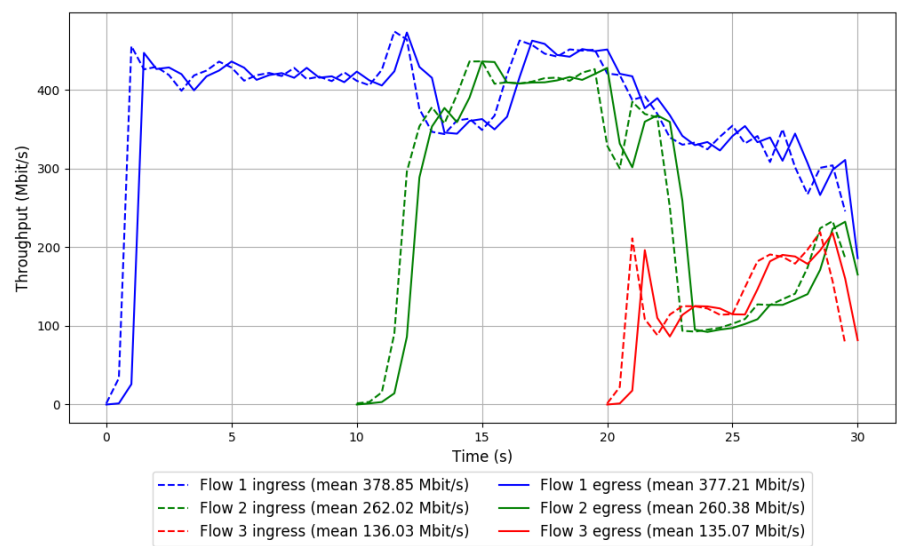
Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-09-06 10:22:48
End at: 2018-09-06 10:23:18
Local clock offset: -0.284 ms
Remote clock offset: 4.653 ms


# Below is generated by plot.py at 2018-09-06 12:24:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 648.11 Mbit/s
95th percentile per-packet one-way delay: 91.796 ms
Loss rate: 1.33%
-- Flow 1:
Average throughput: 407.21 Mbit/s
95th percentile per-packet one-way delay: 156.721 ms
Loss rate: 1.53%
-- Flow 2:
Average throughput: 342.91 Mbit/s
95th percentile per-packet one-way delay: 27.075 ms
Loss rate: 0.97%
-- Flow 3:
Average throughput: 39.13 Mbit/s
95th percentile per-packet one-way delay: 20.118 ms
Loss rate: 0.94%
```
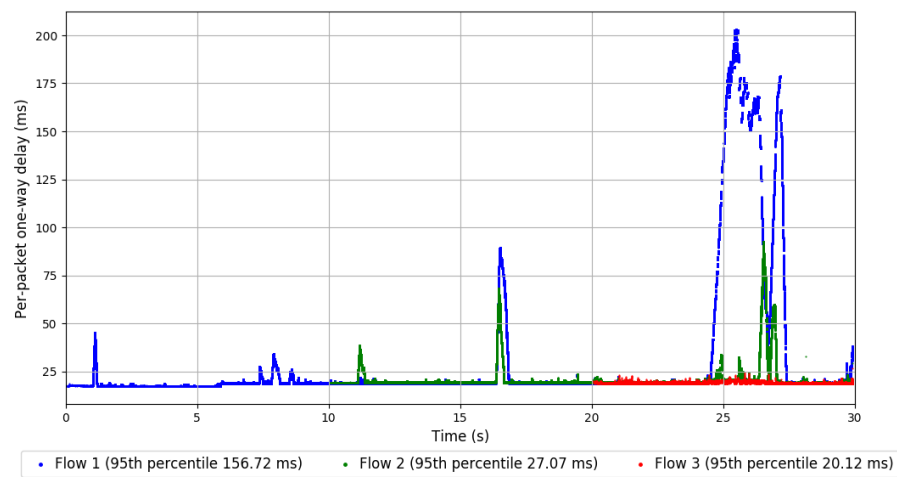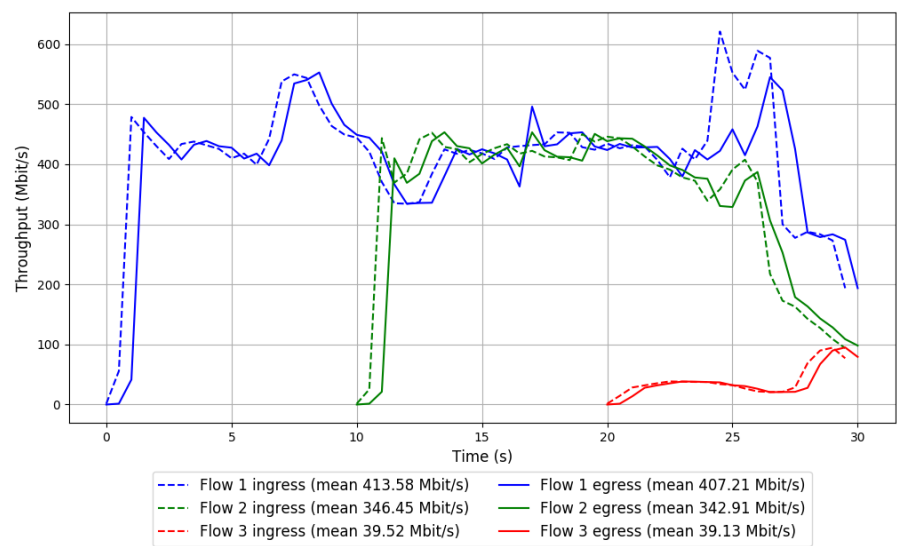
## Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-09-06 10:50:47
End at: 2018-09-06 10:51:17
Local clock offset: 1.893 ms
Remote clock offset: 3.481 ms


# Below is generated by plot.py at 2018-09-06 12:25:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 566.17 Mbit/s
95th percentile per-packet one-way delay: 21.157 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 328.40 Mbit/s
95th percentile per-packet one-way delay: 20.458 ms
Loss rate: 0.23%
-- Flow 2:
Average throughput: 322.67 Mbit/s
95th percentile per-packet one-way delay: 24.327 ms
Loss rate: 0.49%
-- Flow 3:
Average throughput: 70.04 Mbit/s
95th percentile per-packet one-way delay: 19.302 ms
Loss rate: 0.38%
```
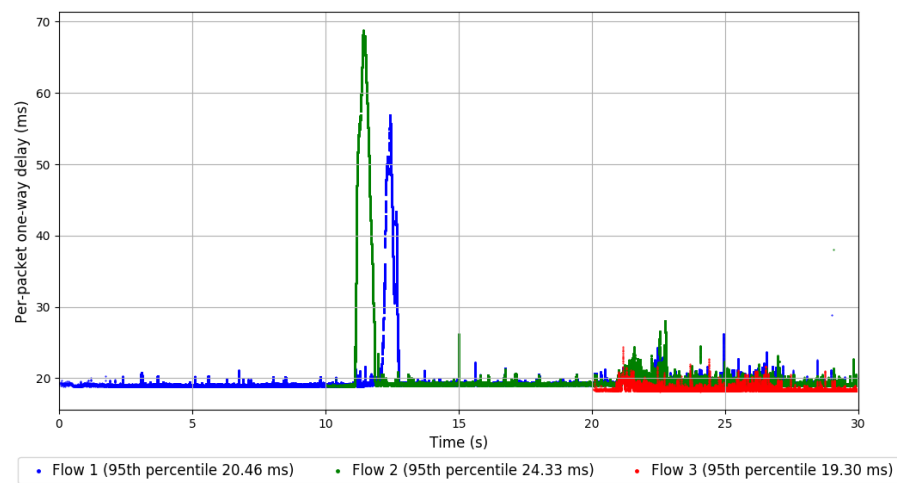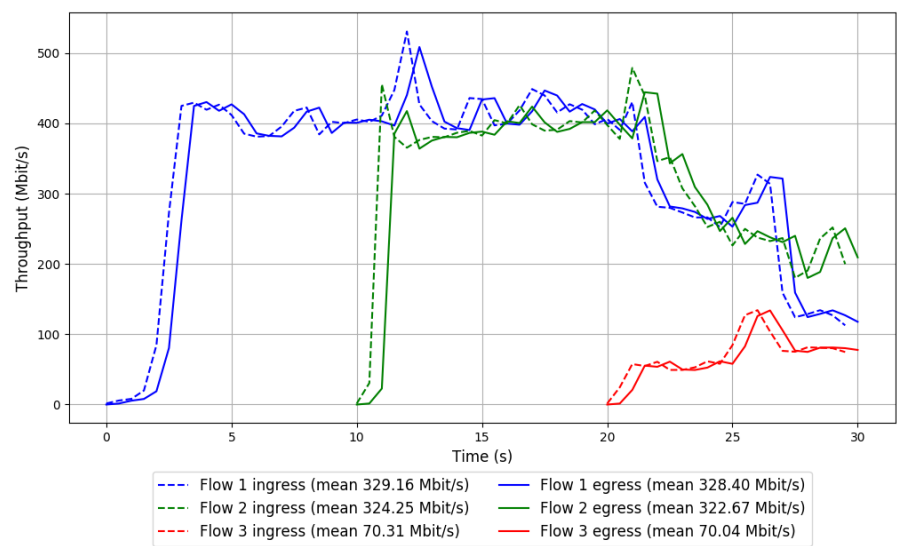
Run 4: Report of PCC-Vivace — Data Link

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-09-06 11:18:33
End at: 2018-09-06 11:19:03
Local clock offset: 2.331 ms
Remote clock offset: 3.144 ms


# Below is generated by plot.py at 2018-09-06 12:25:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 539.01 Mbit/s
95th percentile per-packet one-way delay: 19.074 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 337.49 Mbit/s
95th percentile per-packet one-way delay: 19.015 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 253.50 Mbit/s
95th percentile per-packet one-way delay: 19.367 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 99.72 Mbit/s
95th percentile per-packet one-way delay: 17.853 ms
Loss rate: 0.02%
```
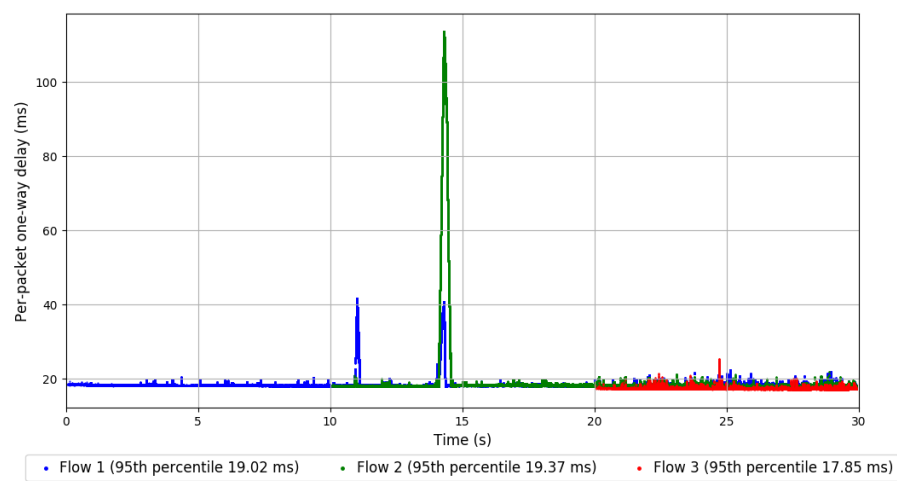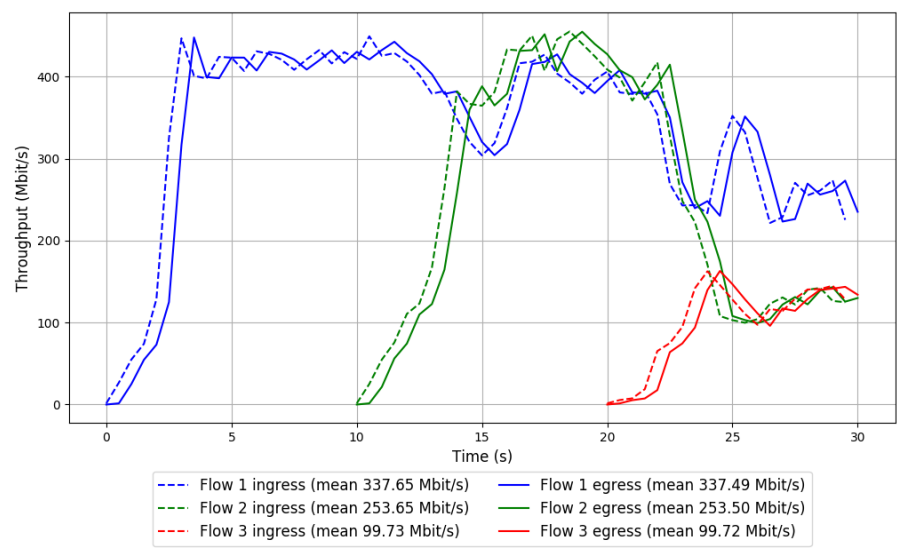
# Run 5: Report of PCC-Vivace — Data Link



- - - - Flow 1 ingress (mean 337.65 Mbit/s)      —— Flow 1 egress (mean 337.49 Mbit/s)
- - - - Flow 2 ingress (mean 253.65 Mbit/s)      —— Flow 2 egress (mean 253.50 Mbit/s)
- - - - Flow 3 ingress (mean 99.73 Mbit/s)      —— Flow 3 egress (mean 99.72 Mbit/s)



- Flow 1 (95th percentile 19.02 ms)    • Flow 2 (95th percentile 19.37 ms)    • Flow 3 (95th percentile 17.85 ms)

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```
Run 1: Statistics of WebRTC media

Start at: 2018-09-06 09:33:09
End at: 2018-09-06 09:33:39
Local clock offset: 0.017 ms
Remote clock offset: 0.755 ms


# Below is generated by plot.py at 2018-09-06 12:25:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.07 Mbit/s
95th percentile per-packet one-way delay: 20.000 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.14 Mbit/s
95th percentile per-packet one-way delay: 20.212 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 19.202 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.53 Mbit/s
95th percentile per-packet one-way delay: 21.177 ms
Loss rate: 0.00%
```
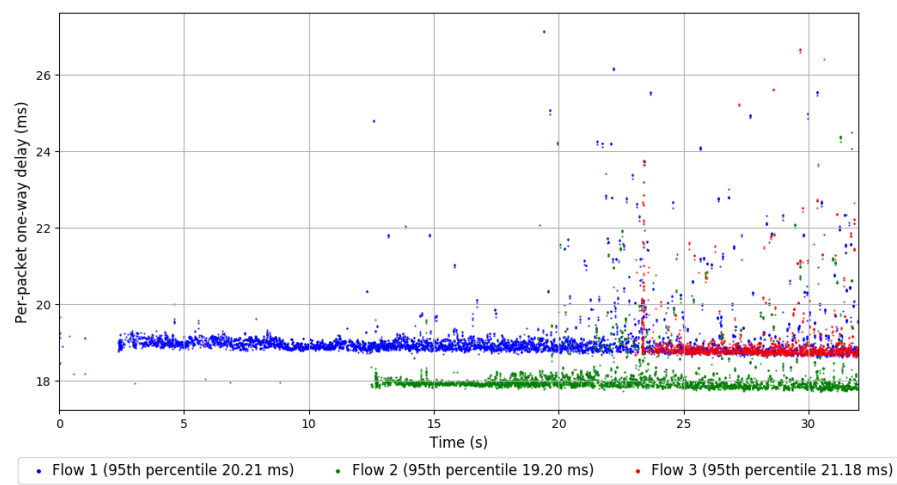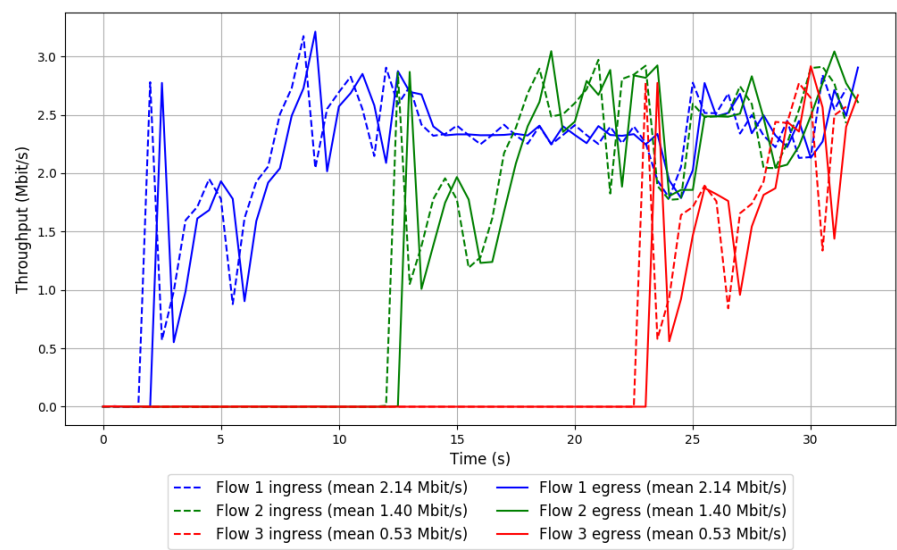
Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-09-06 10:01:20
End at: 2018-09-06 10:01:50
Local clock offset: -0.516 ms
Remote clock offset: 5.87 ms


# Below is generated by plot.py at 2018-09-06 12:25:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.77 Mbit/s
95th percentile per-packet one-way delay: 20.130 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 18.772 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.37 Mbit/s
95th percentile per-packet one-way delay: 20.824 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 21.635 ms
Loss rate: 0.00%
```
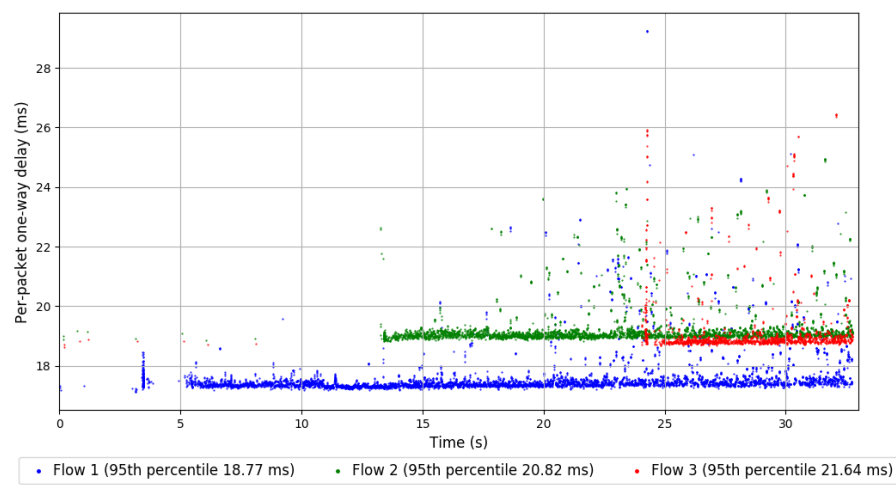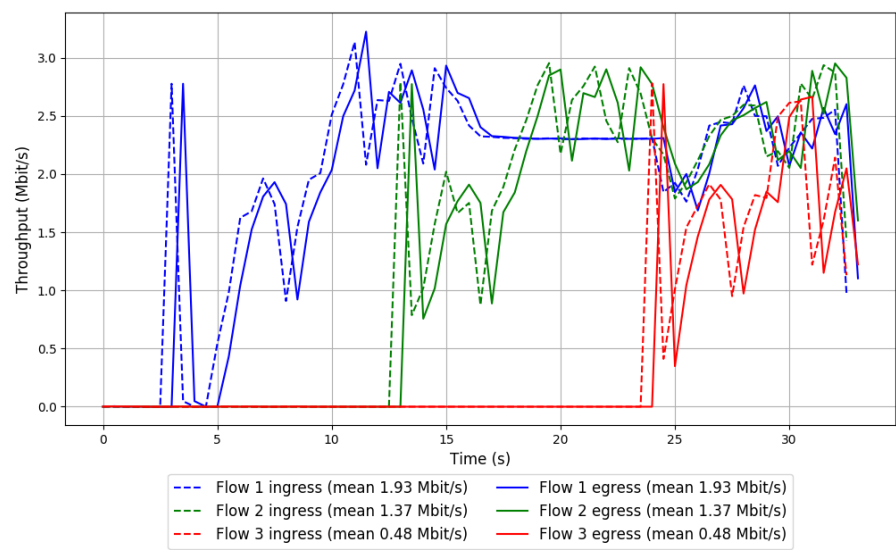
Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-09-06 10:29:22
End at: 2018-09-06 10:29:52
Local clock offset: -0.045 ms
Remote clock offset: 4.992 ms


# Below is generated by plot.py at 2018-09-06 12:25:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.81 Mbit/s
95th percentile per-packet one-way delay: 20.910 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 1.96 Mbit/s
95th percentile per-packet one-way delay: 20.570 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.37 Mbit/s
95th percentile per-packet one-way delay: 21.205 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 20.628 ms
Loss rate: 0.42%
```
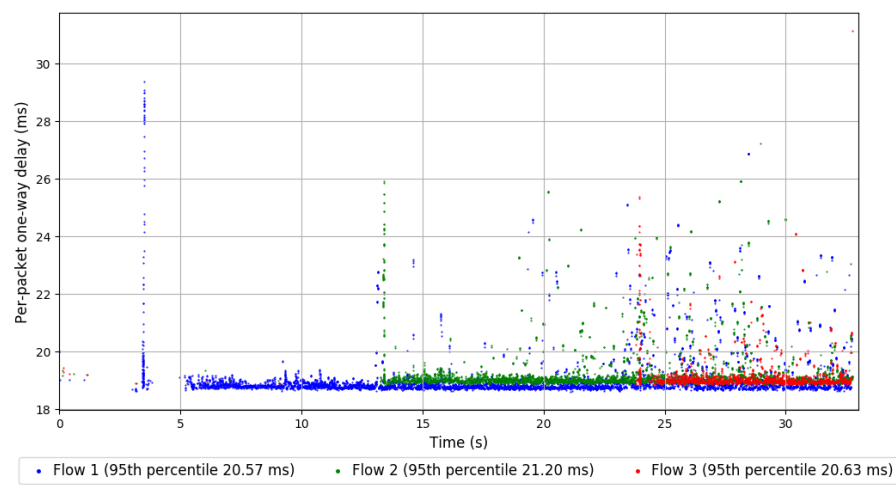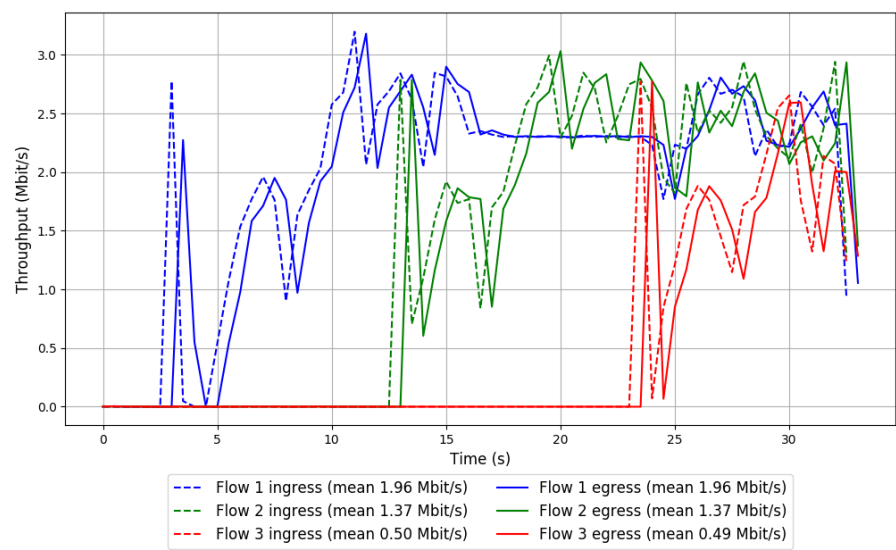
Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-09-06 10:57:13
End at: 2018-09-06 10:57:43
Local clock offset: 3.192 ms
Remote clock offset: 3.486 ms


# Below is generated by plot.py at 2018-09-06 12:25:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.80 Mbit/s
95th percentile per-packet one-way delay: 19.920 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 19.283 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.37 Mbit/s
95th percentile per-packet one-way delay: 20.538 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.51 Mbit/s
95th percentile per-packet one-way delay: 19.612 ms
Loss rate: 0.00%
```
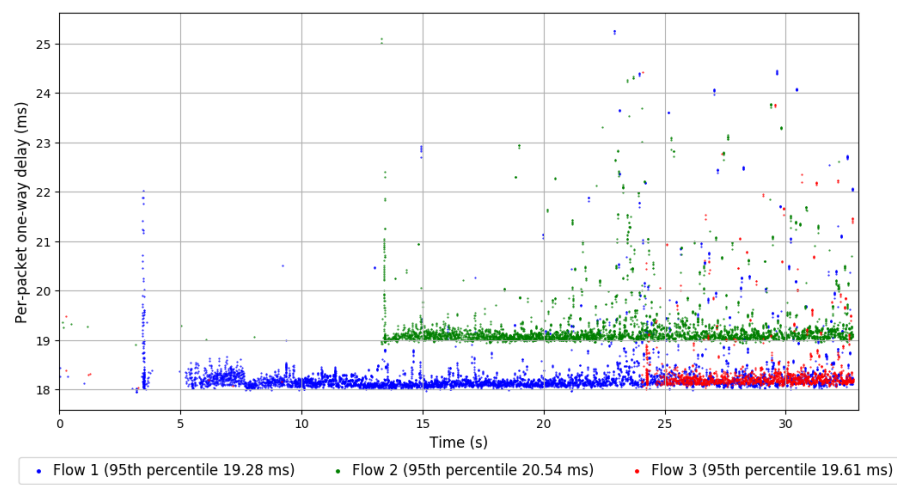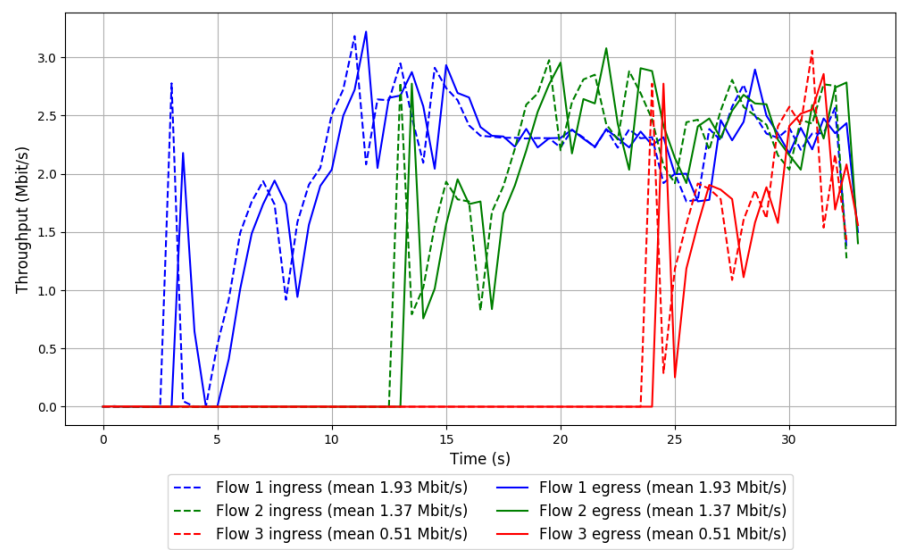
Run 4: Report of WebRTC media — Data Link



Flow 1 ingress (mean 1.93 Mbit/s)  —— Flow 1 egress (mean 1.93 Mbit/s)
Flow 2 ingress (mean 1.37 Mbit/s)  —— Flow 2 egress (mean 1.37 Mbit/s)
Flow 3 ingress (mean 0.51 Mbit/s)  —— Flow 3 egress (mean 0.51 Mbit/s)



Flow 1 (95th percentile 19.28 ms)   Flow 2 (95th percentile 20.54 ms)   Flow 3 (95th percentile 19.61 ms)

```
Run 5: Statistics of WebRTC media

Start at: 2018-09-06 11:25:01
End at: 2018-09-06 11:25:31
Local clock offset: -1.162 ms
Remote clock offset: 3.196 ms


# Below is generated by plot.py at 2018-09-06 12:25:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.95 Mbit/s
95th percentile per-packet one-way delay: 19.960 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.11 Mbit/s
95th percentile per-packet one-way delay: 20.062 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.35 Mbit/s
95th percentile per-packet one-way delay: 19.854 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 19.897 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link