Pantheon Report

Generated at 2018-02-27 10:54:26 (UTC).

Data path: Stanford ppp0 (*remote*) →AWS California 1 Ethernet (*local*).

Repeated the test of 17 congestion control schemes 3 times.

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

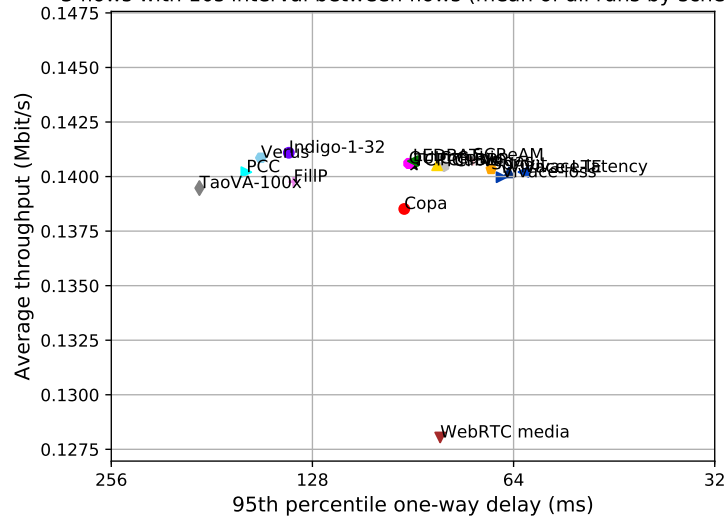Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

Tested BBR with qdisc of Fair Queuing (`fq`), and other schemes with the default Linux qdisc (`pfifo_fast`).

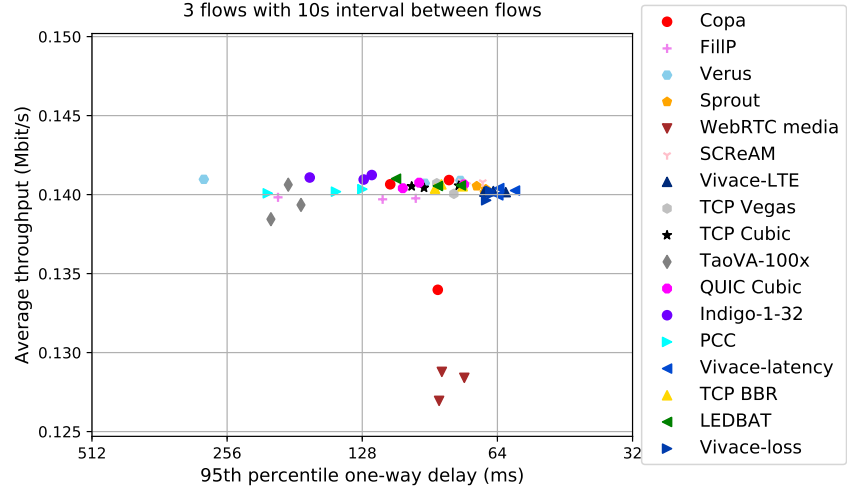NTP offsets were measured against `time.stanford.edu` and have been applied to correct the timestamps in logs.

```
Git summary:
branch: master @ f12c42a2c63fdd9a862eefa0468859bf379b6623
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
 M datagrump/sender.cc
third_party/fillp @ 828bbf95fd4941149b5cec90f281d1c69ae1a5c6
third_party/genericCC @ 9249eea3238475c4d8cca1443d28df70bff6c4a2
third_party/indigo @ a9b2060d39e4da2e8987e893e3eca2a6c7cd0ab9
third_party/indigo-1-layer-128-unit @ 3ae9e4ef4230db7484501f82ce8b377695f2f66d
third_party/indigo-1-layer-32-unit @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-1-layer-32-unit-no-calib @ 1f3a7f75b41135ed5b540c0fd3505939528e2a5f
third_party/indigo-no-calib @ 7224f2202e8a044d8306fa0b983ad84360c53d89
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
 M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ fb1053193c2861da659ba9013db26744ccfcf993
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/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885
third_party/sourdough @ f1a14bffe749737437f61b1eaeeb30b267cde681
third_party/sprout @ 6f2efe6e088d91066a9f023df375eee2665089ce
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
third_party/vivace @ 7a4ba531e75b4a6f66f5c4580192120401784ce3
third_party/webrtc @ a488197ddd041ace68a42849b2540ad834825f42
```

test from Stanford ppp0 to AWS California 1 Ethernet, 3 runs of 30s each per scheme
3 flows with 10s interval between flows (mean of all runs by scheme)

test from Stanford ppp0 to AWS California 1 Ethernet, 3 runs of 30s each per scheme
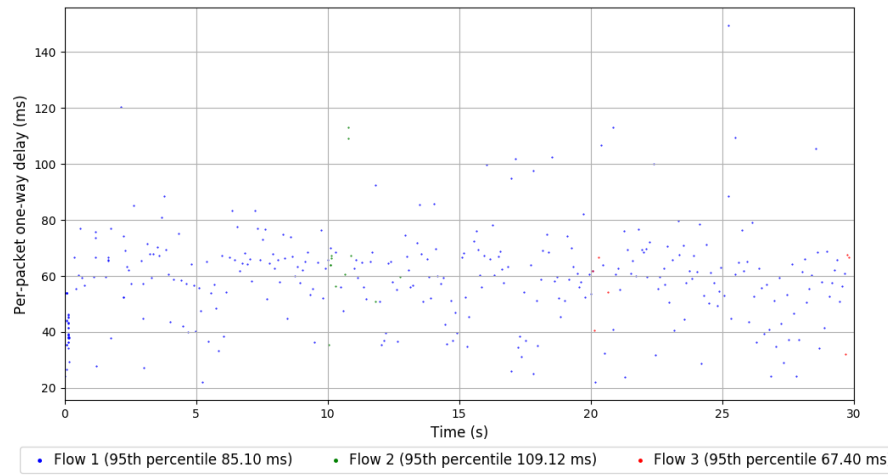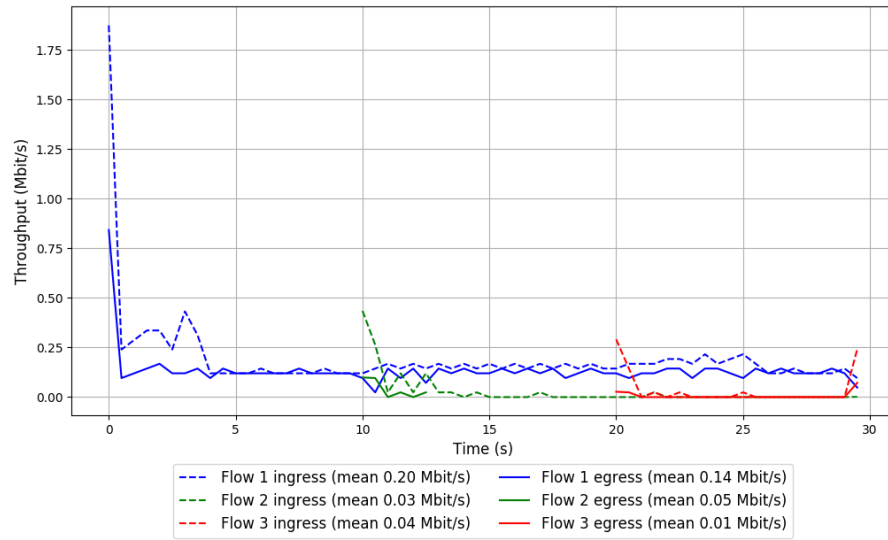3 flows with 10s interval between flows

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	3	0.13	0.04	0.05	78.90	98.13	74.29	30.77	69.31	56.32
TCP Cubic	3	0.09	0.07	0.08	89.00	100.85	75.88	39.58	46.84	54.51
LEDBAT	3	0.08	0.06	0.07	88.91	89.08	119.42	37.68	41.85	40.52
PCC	3	0.09	0.06	0.05	50.05	229.76	247.84	96.67	99.79	99.87
QUIC Cubic	3	0.10	0.05	0.04	96.70	98.35	66.31	70.65	76.14	83.13
SCReAM	3	0.09	0.05	0.04	65.56	72.16	87.71	9.79	31.03	48.01
WebRTC media	3	0.05	0.05	0.04	80.12	87.37	81.91	45.72	45.94	44.31
Sprout	3	0.09	0.06	0.04	69.41	68.79	66.71	60.79	72.63	79.30
TaoVA-100x	3	0.09	0.06	0.05	193.72	186.95	173.83	94.40	96.13	96.56
TCP Vegas	3	0.10	0.07	0.03	79.76	77.11	89.73	41.69	46.57	64.17
Verus	3	0.11	0.04	0.04	152.07	75.00	87.26	84.26	92.05	73.97
Copa	3	0.08	0.06	0.07	90.10	127.41	90.87	68.16	73.44	76.26
FillP	3	0.09	0.05	0.05	98.88	133.02	200.81	99.10	99.54	99.78
Indigo-1-32	3	0.10	0.05	0.06	122.86	138.17	151.28	92.61	92.16	97.36
Vivace-latency	3	0.09	0.06	0.04	68.51	42.88	38.29	92.61	95.50	97.01
Vivace-loss	3	0.09	0.05	0.04	74.08	49.29	40.73	92.69	95.65	96.39
Vivace-LTE	3	0.09	0.06	0.04	72.67	43.90	42.96	92.75	95.61	96.52

```
Run 1: Statistics of TCP BBR

Start at: 2018-02-27 08:34:55
End at: 2018-02-27 08:35:25
Local clock offset: -1.14 ms
Remote clock offset: -5.526 ms


# Below is generated by plot.py at 2018-02-27 10:53:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 85.293 ms
Loss rate: 38.44%
-- Flow 1:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 85.096 ms
Loss rate: 31.83%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 109.121 ms
Loss rate: 78.08%
-- Flow 3:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 67.398 ms
Loss rate: 83.57%
```
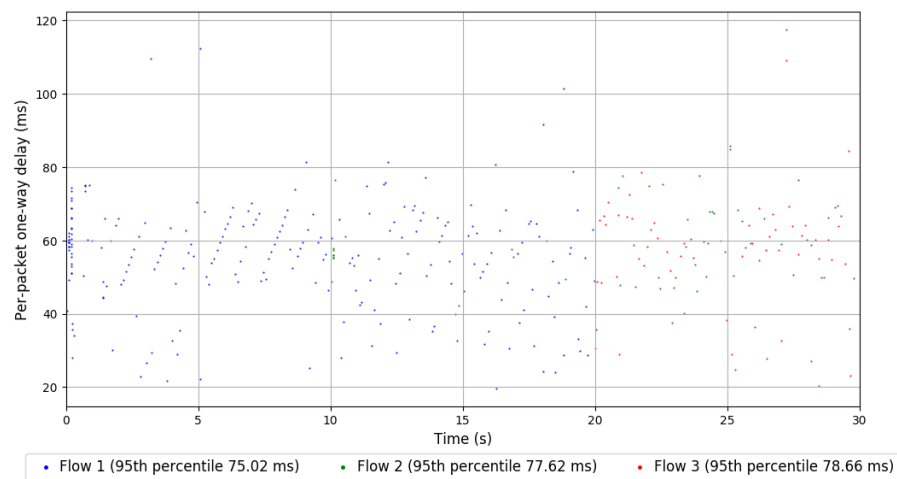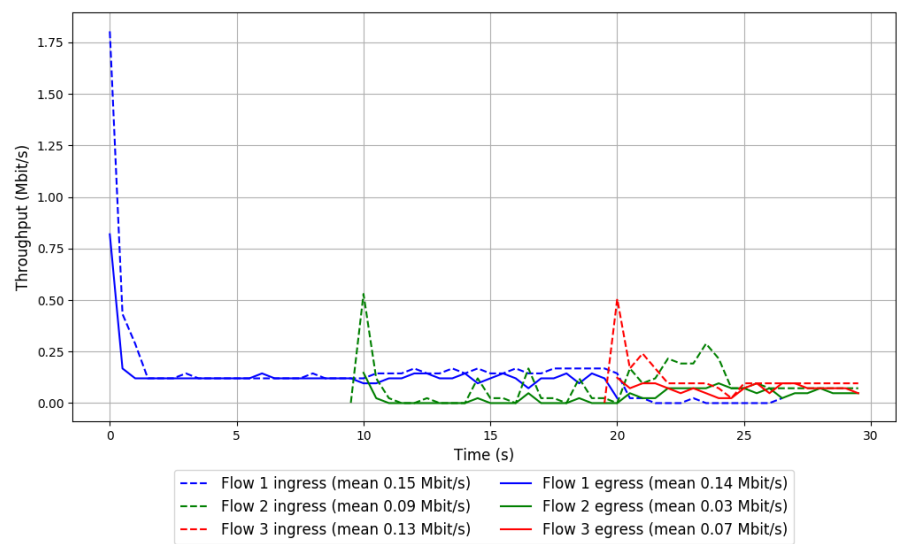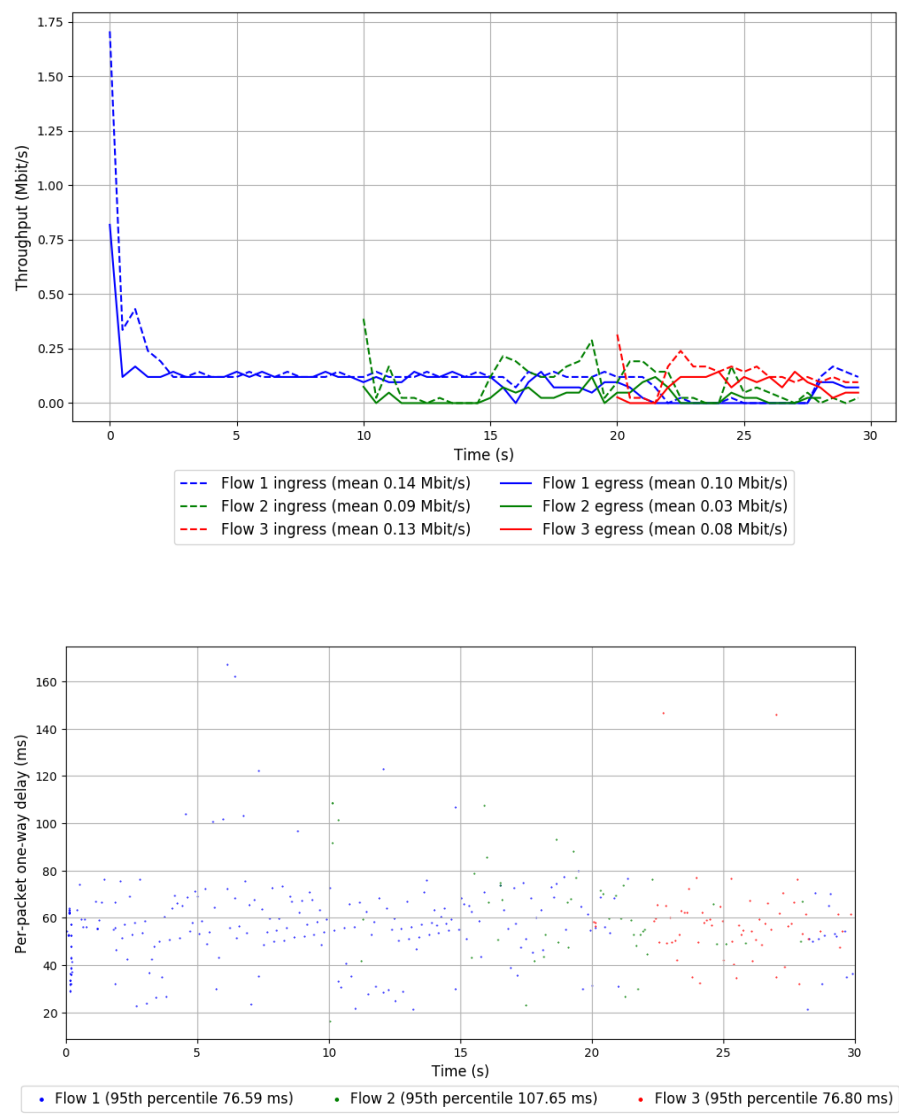
Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 0.20 Mbit/s)   Flow 1 egress (mean 0.14 Mbit/s)
Flow 2 ingress (mean 0.03 Mbit/s)   Flow 2 egress (mean 0.05 Mbit/s)
Flow 3 ingress (mean 0.04 Mbit/s)   Flow 3 egress (mean 0.01 Mbit/s)

Flow 1 (95th percentile 85.10 ms)   Flow 2 (95th percentile 109.12 ms)   Flow 3 (95th percentile 67.40 ms)

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```
Run 2: Statistics of TCP BBR

Start at: 2018-02-27 08:58:37
End at: 2018-02-27 08:59:07
Local clock offset: 0.514 ms
Remote clock offset: -5.414 ms


# Below is generated by plot.py at 2018-02-27 10:53:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 76.476 ms
Loss rate: 40.28%
-- Flow 1:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 75.016 ms
Loss rate: 29.38%
-- Flow 2:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 77.617 ms
Loss rate: 62.11%
-- Flow 3:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 78.664 ms
Loss rate: 43.76%
```
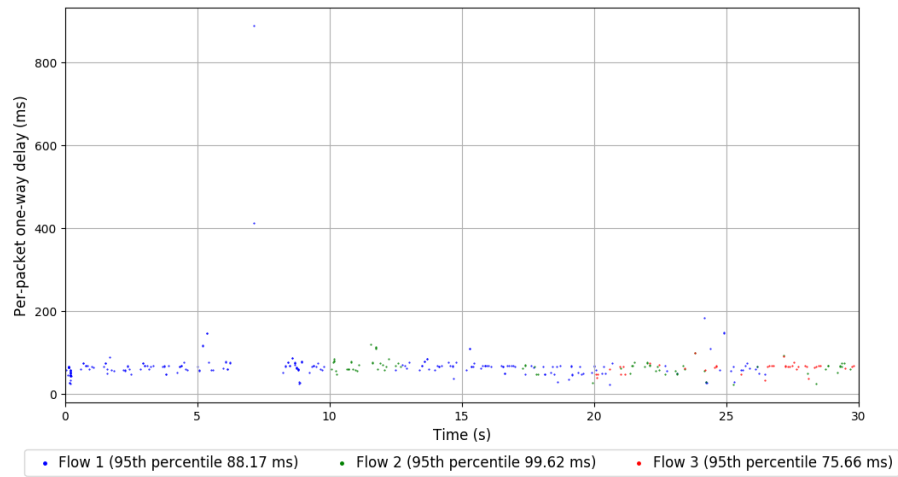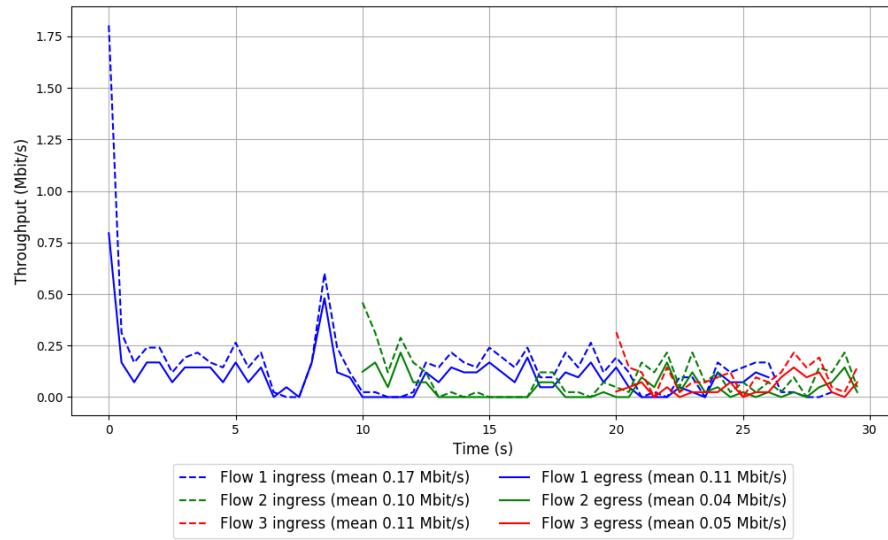
Run 2: Report of TCP BBR — Data Link

Flow 1 ingress (mean 0.15 Mbit/s)   Flow 1 egress (mean 0.14 Mbit/s)
Flow 2 ingress (mean 0.09 Mbit/s)   Flow 2 egress (mean 0.03 Mbit/s)
Flow 3 ingress (mean 0.13 Mbit/s)   Flow 3 egress (mean 0.07 Mbit/s)

Flow 1 (95th percentile 75.02 ms)   Flow 2 (95th percentile 77.62 ms)   Flow 3 (95th percentile 78.66 ms)
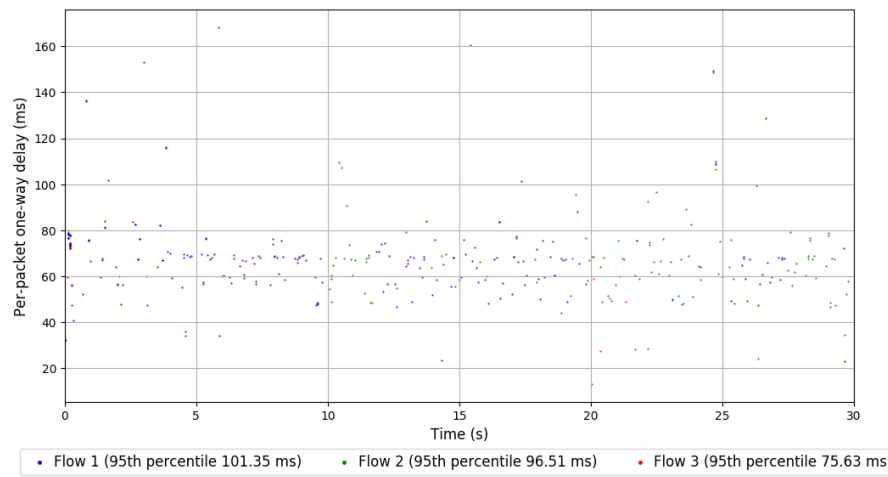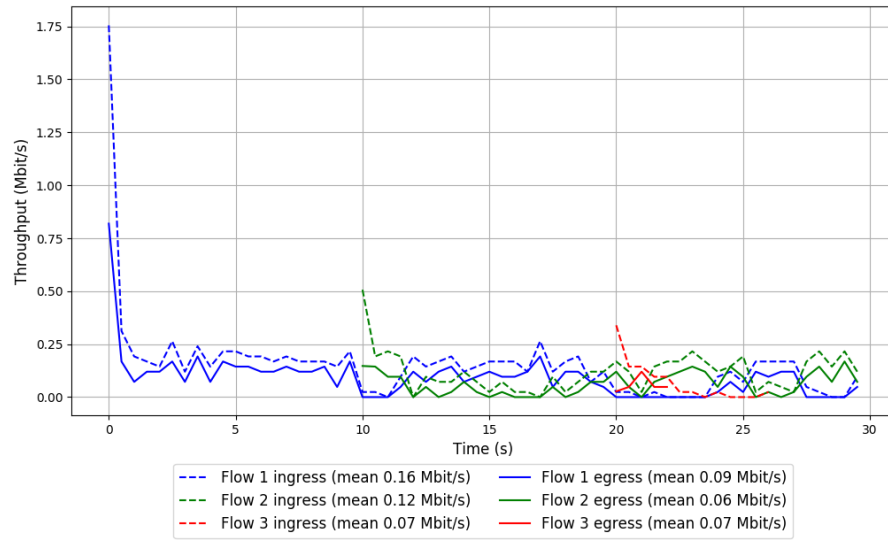
```
Run 3: Statistics of TCP BBR

Start at: 2018-02-27 09:22:17
End at: 2018-02-27 09:22:47
Local clock offset: 1.174 ms
Remote clock offset: -5.572 ms

# Below is generated by plot.py at 2018-02-27 10:53:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 88.126 ms
Loss rate: 41.90%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 76.593 ms
Loss rate: 31.11%
-- Flow 2:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 107.648 ms
Loss rate: 67.75%
-- Flow 3:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 76.799 ms
Loss rate: 41.62%
```

Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 0.14 Mbit/s) — — — Flow 1 egress (mean 0.10 Mbit/s)
Flow 2 ingress (mean 0.09 Mbit/s) — — — Flow 2 egress (mean 0.03 Mbit/s)
Flow 3 ingress (mean 0.13 Mbit/s) — — — Flow 3 egress (mean 0.08 Mbit/s)

Flow 1 (95th percentile 76.59 ms) · Flow 2 (95th percentile 107.65 ms) · Flow 3 (95th percentile 76.80 ms)

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```
Run 1: Statistics of TCP Cubic

Start at: 2018-02-27 08:50:43
End at: 2018-02-27 08:51:13
Local clock offset: -0.324 ms
Remote clock offset: -5.441 ms


# Below is generated by plot.py at 2018-02-27 10:53:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 93.244 ms
Loss rate: 45.43%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 88.175 ms
Loss rate: 39.78%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 99.625 ms
Loss rate: 53.16%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 75.660 ms
Loss rate: 56.59%
```
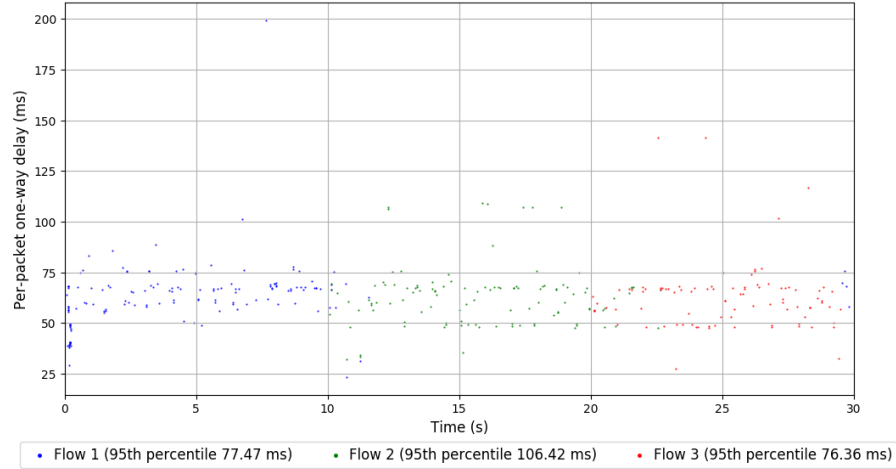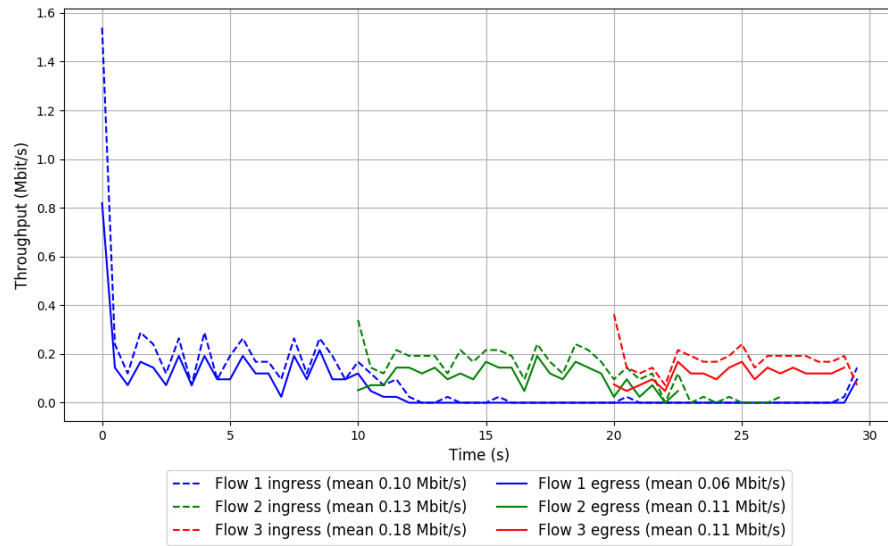
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-02-27 09:14:24
End at: 2018-02-27 09:14:54
Local clock offset: 0.918 ms
Remote clock offset: -5.464 ms


# Below is generated by plot.py at 2018-02-27 10:53:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 99.351 ms
Loss rate: 44.03%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 101.354 ms
Loss rate: 39.73%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 96.508 ms
Loss rate: 47.71%
-- Flow 3:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 75.630 ms
Loss rate: 68.20%
```
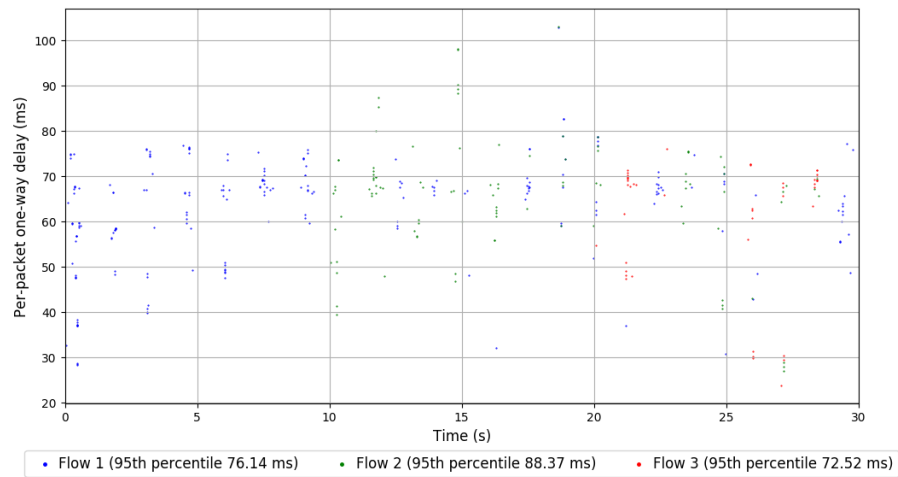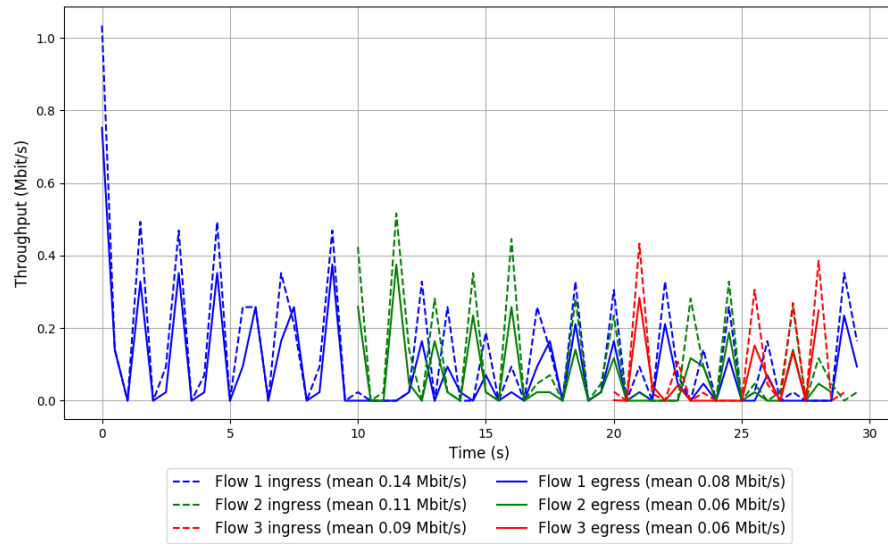
Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2018-02-27 09:38:07
End at: 2018-02-27 09:38:37
Local clock offset: 1.662 ms
Remote clock offset: -6.413 ms


# Below is generated by plot.py at 2018-02-27 10:53:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 78.014 ms
Loss rate: 39.24%
-- Flow 1:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 77.467 ms
Loss rate: 39.24%
-- Flow 2:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 106.417 ms
Loss rate: 39.65%
-- Flow 3:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 76.361 ms
Loss rate: 38.74%
```

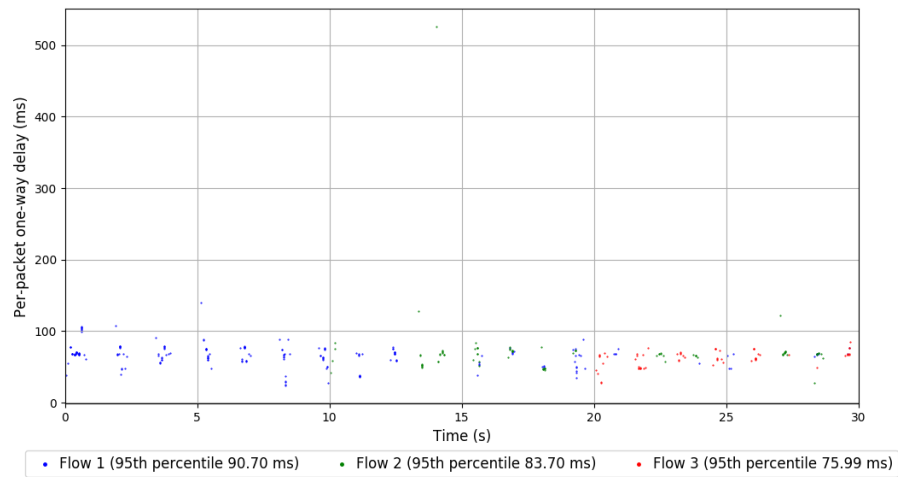Run 3: Report of TCP Cubic — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-02-27 08:38:51
End at: 2018-02-27 08:39:21
Local clock offset: -1.213 ms
Remote clock offset: -5.475 ms


# Below is generated by plot.py at 2018-02-27 10:53:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 77.185 ms
Loss rate: 39.47%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 76.144 ms
Loss rate: 37.13%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 88.370 ms
Loss rate: 43.49%
-- Flow 3:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 72.518 ms
Loss rate: 40.73%
```

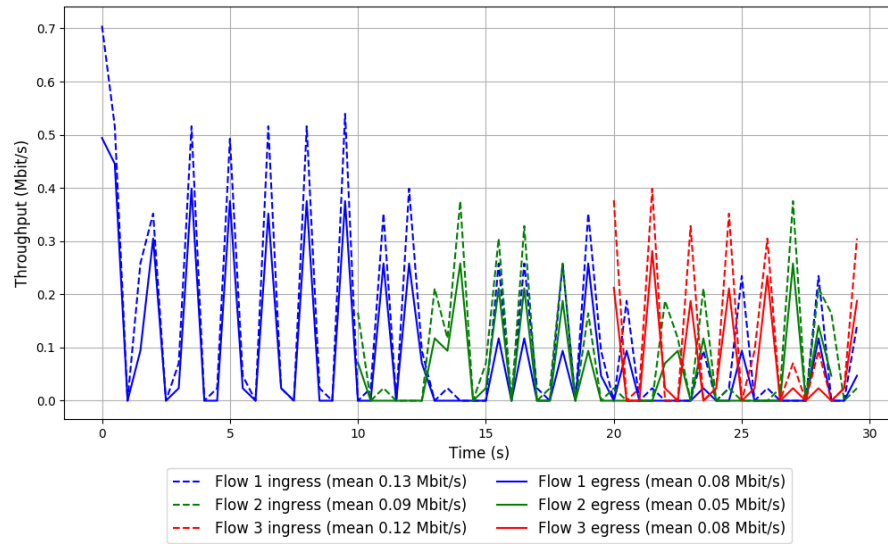Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-02-27 09:02:33
End at: 2018-02-27 09:03:03
Local clock offset: 0.702 ms
Remote clock offset: -5.495 ms


# Below is generated by plot.py at 2018-02-27 10:53:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 86.838 ms
Loss rate: 38.25%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 90.701 ms
Loss rate: 36.58%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 83.703 ms
Loss rate: 41.36%
-- Flow 3:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 75.994 ms
Loss rate: 39.19%
```

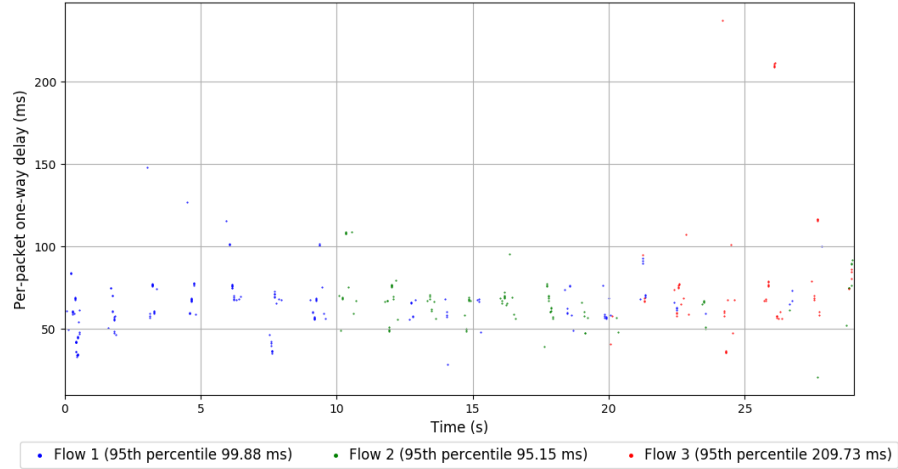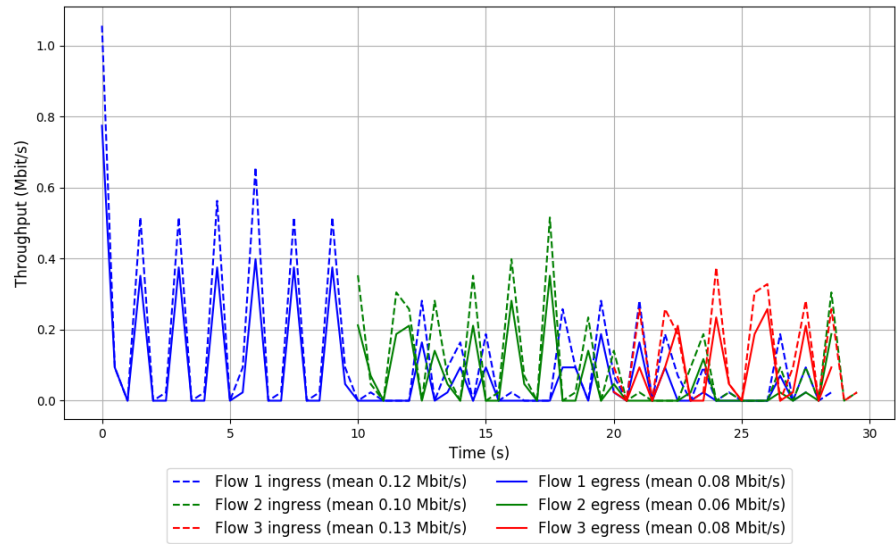Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-02-27 09:26:14
End at: 2018-02-27 09:26:44
Local clock offset: 1.393 ms
Remote clock offset: -5.973 ms


# Below is generated by plot.py at 2018-02-27 10:53:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 107.658 ms
Loss rate: 40.16%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 99.884 ms
Loss rate: 39.34%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 95.154 ms
Loss rate: 40.70%
-- Flow 3:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 209.733 ms
Loss rate: 41.64%
```
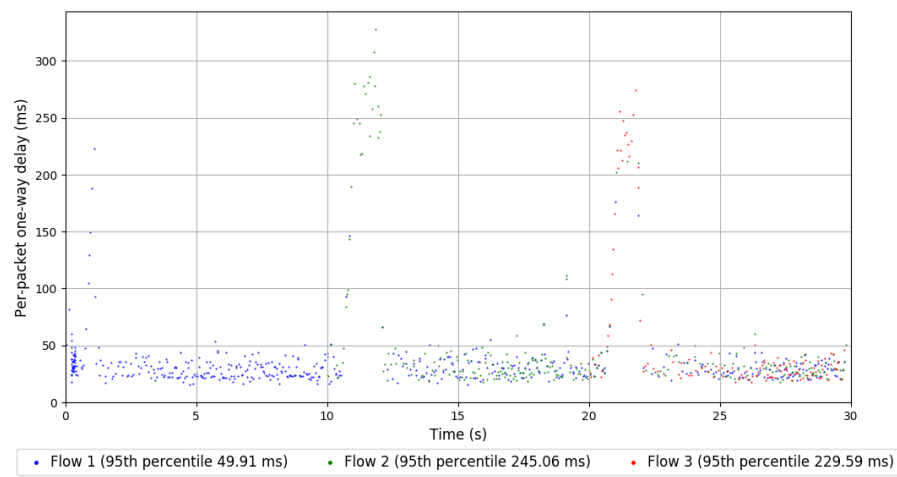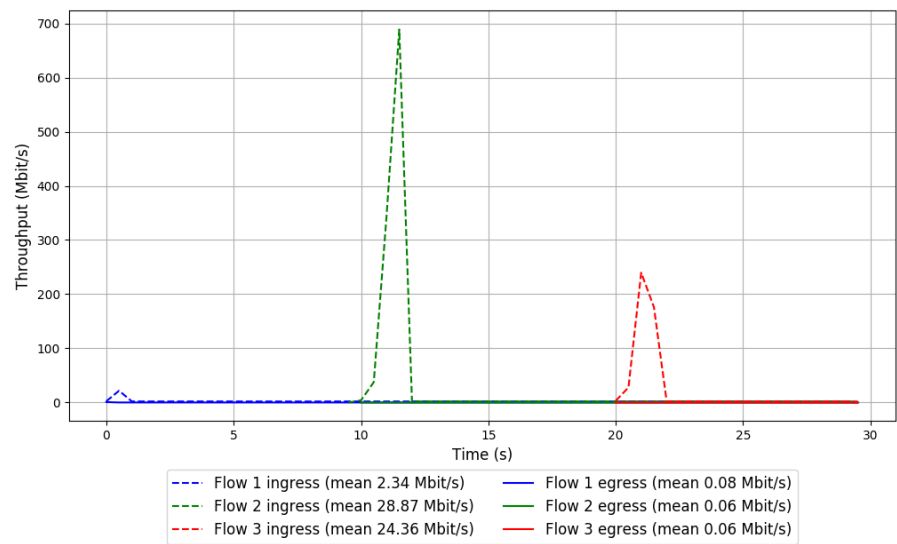
Run 3: Report of LEDBAT — Data Link

- Flow 1 ingress (mean 0.12 Mbit/s)
- Flow 1 egress (mean 0.08 Mbit/s)
- Flow 2 ingress (mean 0.10 Mbit/s)
- Flow 2 egress (mean 0.06 Mbit/s)
- Flow 3 ingress (mean 0.13 Mbit/s)
- Flow 3 egress (mean 0.08 Mbit/s)

- Flow 1 (95th percentile 99.88 ms)
- Flow 2 (95th percentile 95.15 ms)
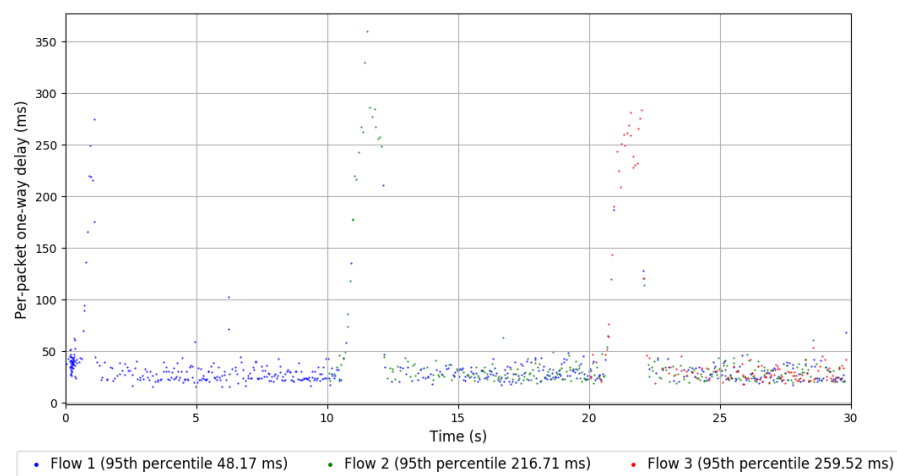- Flow 3 (95th percentile 209.73 ms)

```
Run 1: Statistics of PCC

Start at: 2018-02-27 08:49:23
End at: 2018-02-27 08:49:53
Local clock offset: -0.415 ms
Remote clock offset: -5.386 ms


# Below is generated by plot.py at 2018-02-27 10:54:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 146.466 ms
Loss rate: 99.53%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 49.906 ms
Loss rate: 96.56%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 245.056 ms
Loss rate: 99.79%
-- Flow 3:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 229.595 ms
Loss rate: 99.77%
```
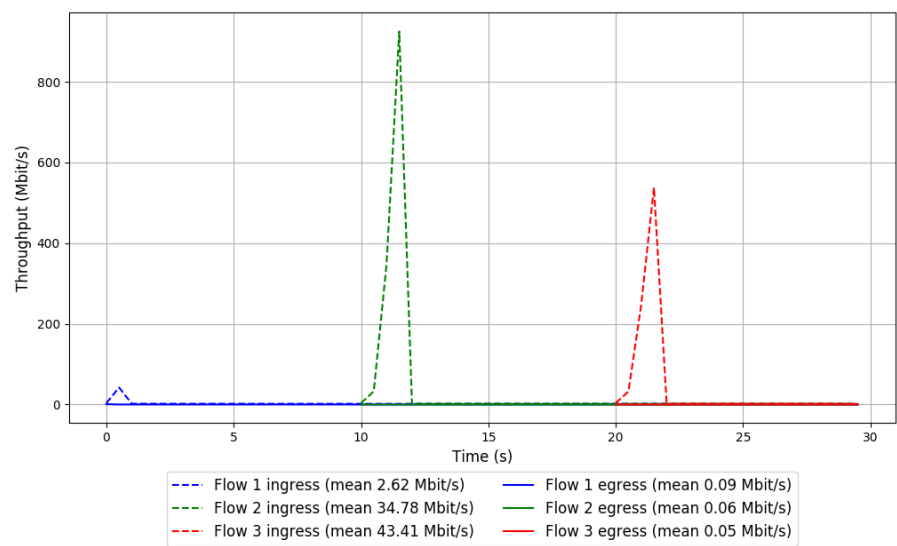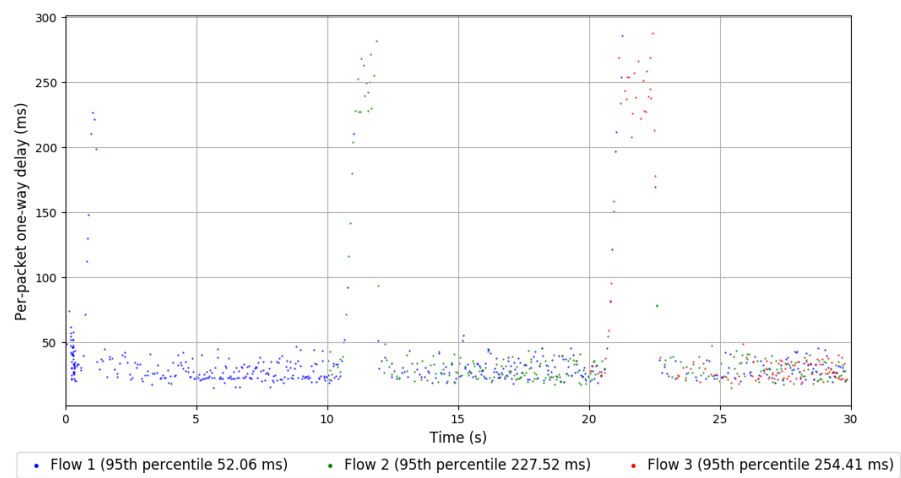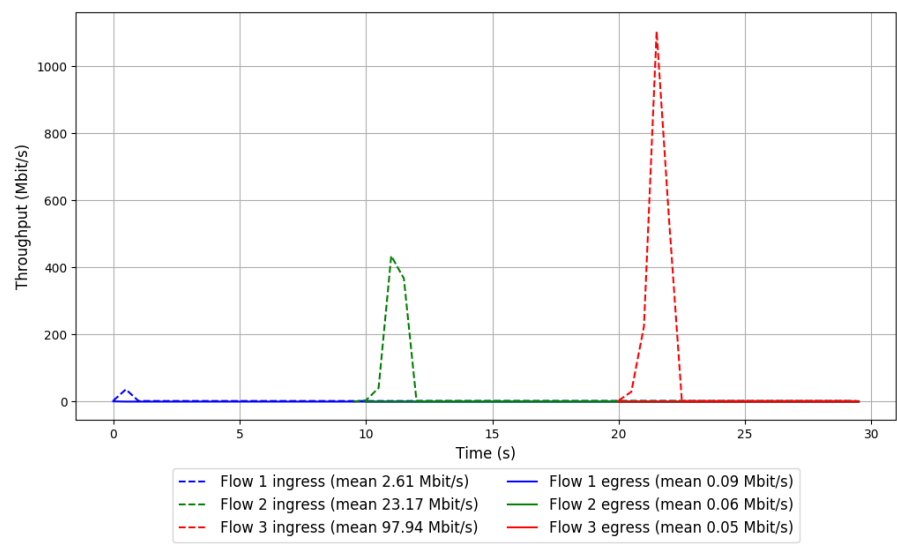
Run 1: Report of PCC — Data Link

Flow 1 ingress (mean 2.34 Mbit/s) — Flow 1 egress (mean 0.08 Mbit/s)
Flow 2 ingress (mean 28.87 Mbit/s) — Flow 2 egress (mean 0.06 Mbit/s)
Flow 3 ingress (mean 24.36 Mbit/s) — Flow 3 egress (mean 0.06 Mbit/s)

Flow 1 (95th percentile 49.91 ms)   •   Flow 2 (95th percentile 245.06 ms)   •   Flow 3 (95th percentile 229.59 ms)

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```
Run 2: Statistics of PCC

Start at: 2018-02-27 09:13:04
End at: 2018-02-27 09:13:34
Local clock offset: 0.816 ms
Remote clock offset: -5.464 ms


# Below is generated by plot.py at 2018-02-27 10:54:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 127.933 ms
Loss rate: 99.65%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 48.171 ms
Loss rate: 96.71%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 216.709 ms
Loss rate: 99.83%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 259.520 ms
Loss rate: 99.89%
```
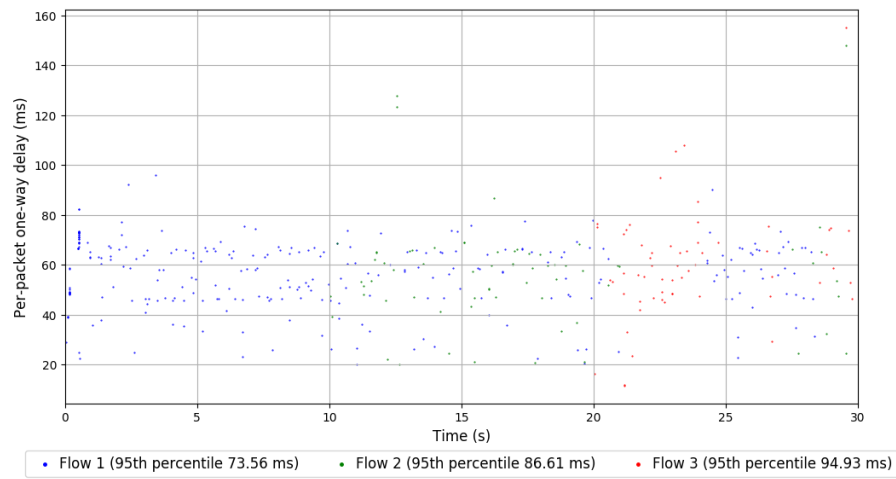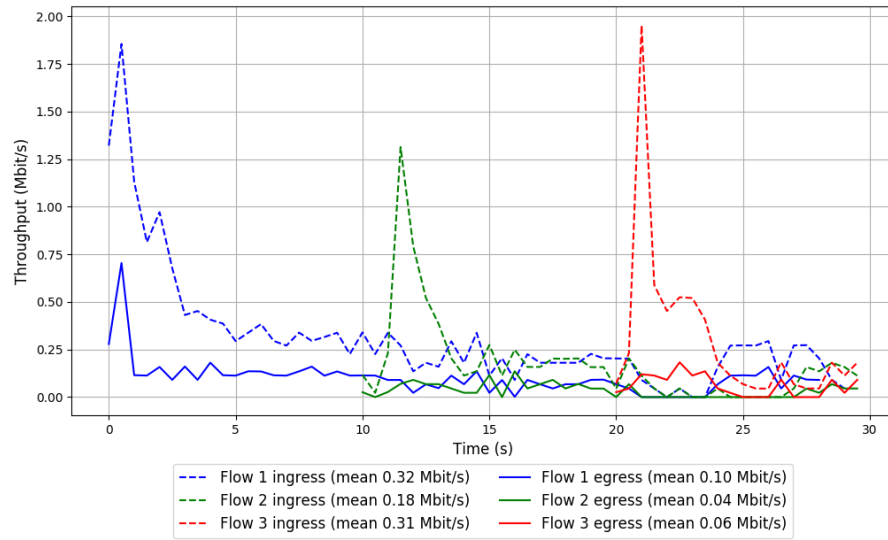
Run 2: Report of PCC — Data Link

```
Run 3: Statistics of PCC

Start at: 2018-02-27 09:36:47
End at: 2018-02-27 09:37:17
Local clock offset: 1.721 ms
Remote clock offset: -6.382 ms


# Below is generated by plot.py at 2018-02-27 10:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 207.786 ms
Loss rate: 99.72%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 52.063 ms
Loss rate: 96.74%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 227.516 ms
Loss rate: 99.75%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 254.411 ms
Loss rate: 99.95%
```

Run 3: Report of PCC — Data Link

Flow 1 ingress (mean 2.61 Mbit/s)   Flow 1 egress (mean 0.09 Mbit/s)
Flow 2 ingress (mean 23.17 Mbit/s)   Flow 2 egress (mean 0.06 Mbit/s)
Flow 3 ingress (mean 97.94 Mbit/s)   Flow 3 egress (mean 0.05 Mbit/s)

Flow 1 (95th percentile 52.06 ms)   Flow 2 (95th percentile 227.52 ms)   Flow 3 (95th percentile 254.41 ms)
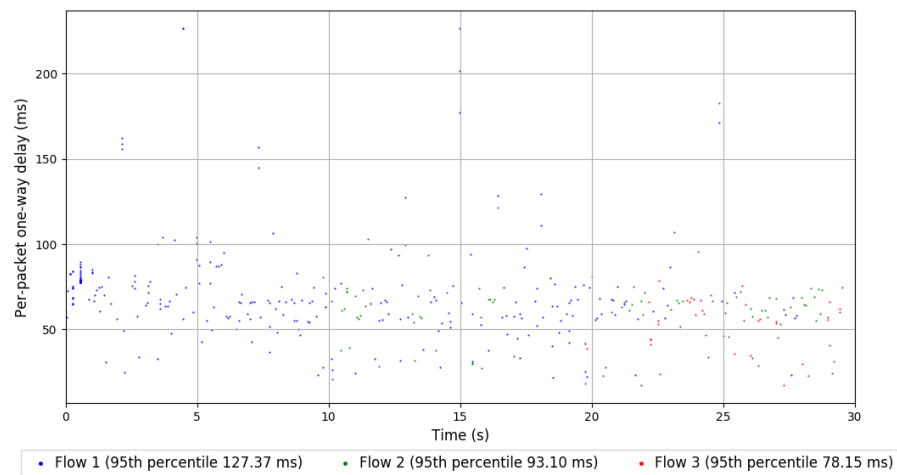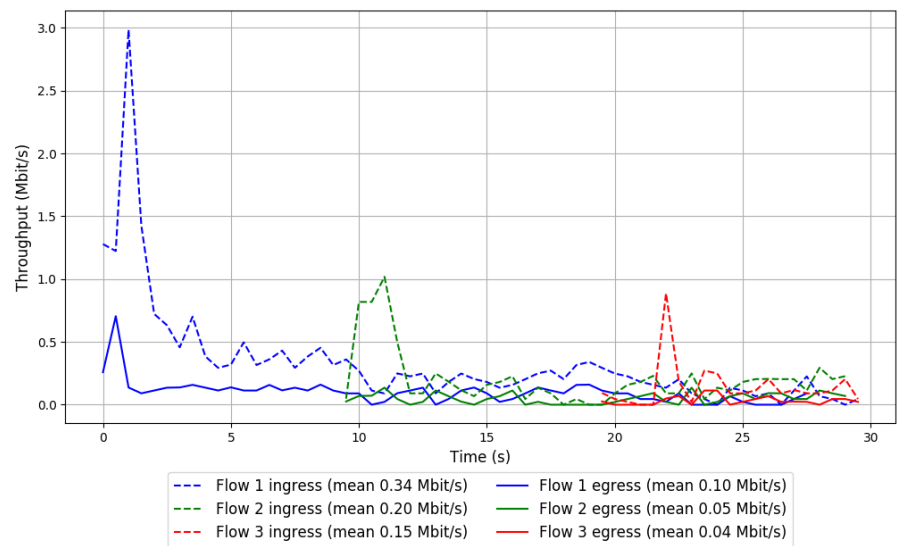
27

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-02-27 08:53:20
End at: 2018-02-27 08:53:50
Local clock offset: 0.011 ms
Remote clock offset: -5.493 ms


# Below is generated by plot.py at 2018-02-27 10:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 75.948 ms
Loss rate: 73.54%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 73.556 ms
Loss rate: 68.92%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 86.607 ms
Loss rate: 80.11%
-- Flow 3:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 94.933 ms
Loss rate: 80.22%
```

Run 1: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 0.32 Mbit/s)   Flow 1 egress (mean 0.10 Mbit/s)
Flow 2 ingress (mean 0.18 Mbit/s)   Flow 2 egress (mean 0.04 Mbit/s)
Flow 3 ingress (mean 0.31 Mbit/s)   Flow 3 egress (mean 0.06 Mbit/s)

Flow 1 (95th percentile 73.56 ms)   Flow 2 (95th percentile 86.61 ms)   Flow 3 (95th percentile 94.93 ms)

29

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-02-27 09:17:01
End at: 2018-02-27 09:17:31
Local clock offset: 0.955 ms
Remote clock offset: -5.381 ms


# Below is generated by plot.py at 2018-02-27 10:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 103.975 ms
Loss rate: 73.65%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 127.368 ms
Loss rate: 72.38%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 93.102 ms
Loss rate: 75.52%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 78.149 ms
Loss rate: 77.21%
```
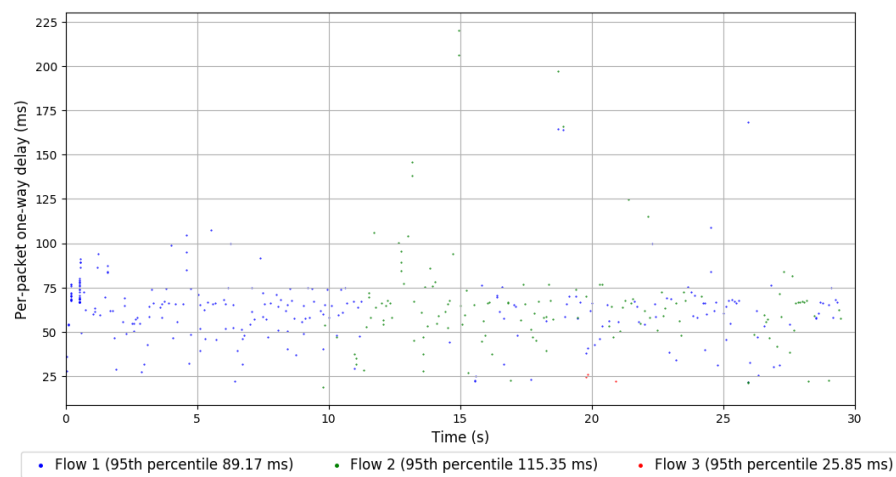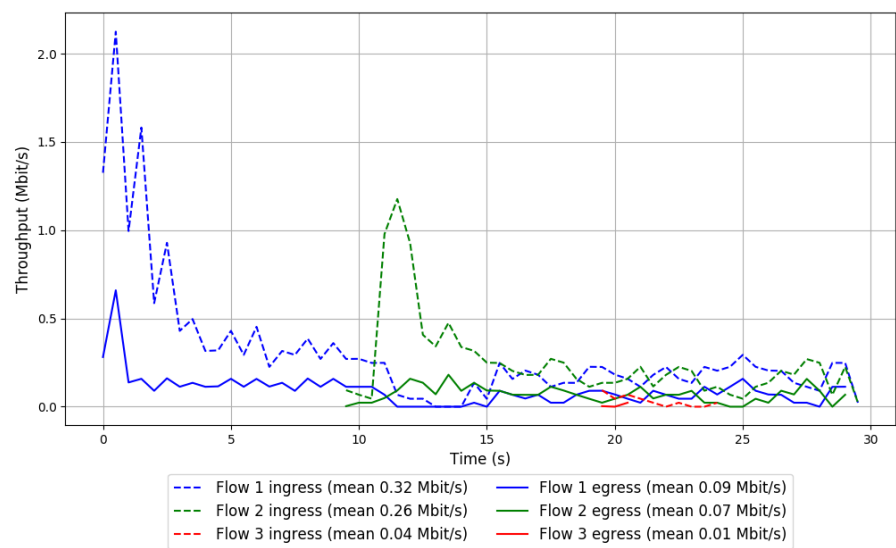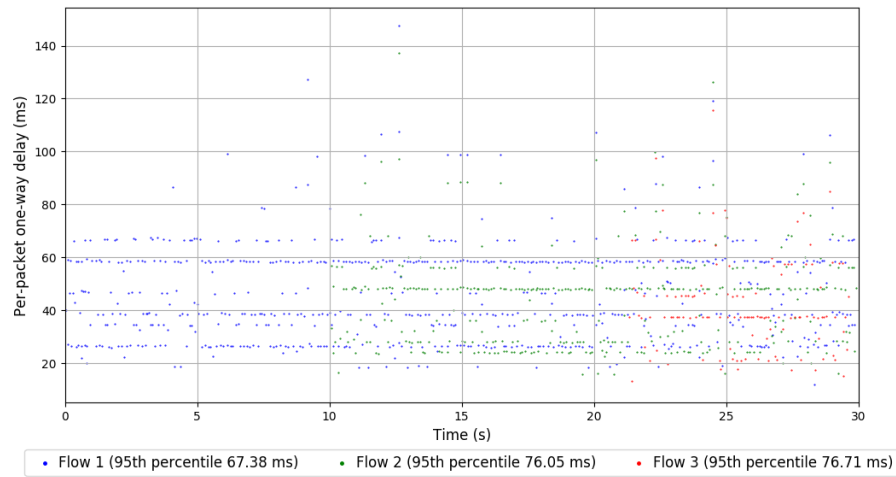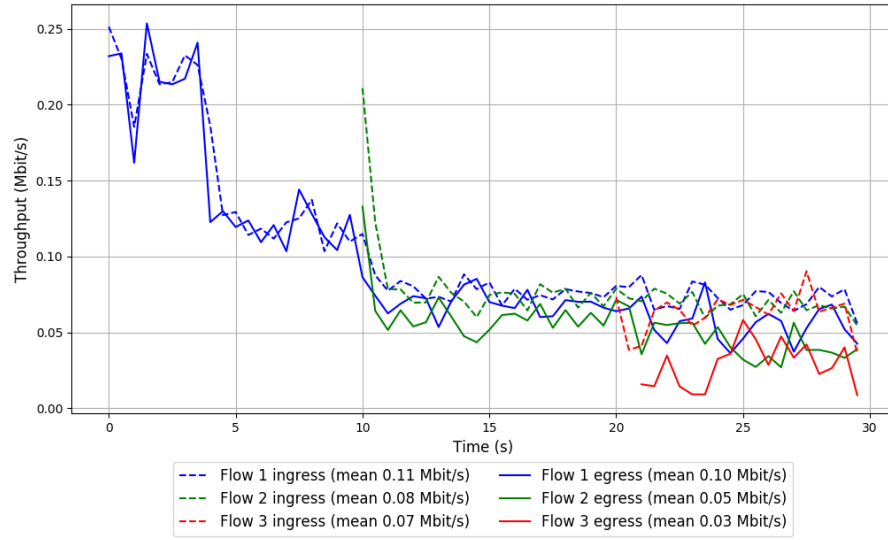
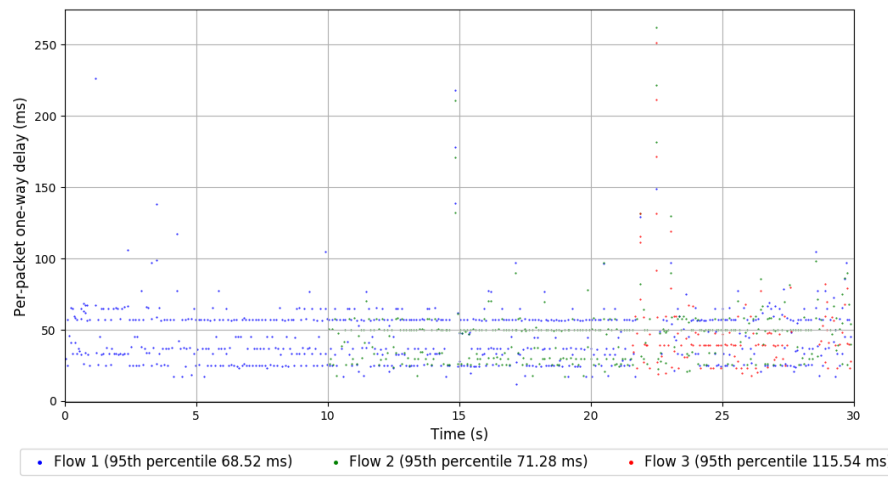Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-02-27 09:40:45
End at: 2018-02-27 09:41:15
Local clock offset: 1.794 ms
Remote clock offset: -6.52 ms

# Below is generated by plot.py at 2018-02-27 10:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 95.582 ms
Loss rate: 71.63%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 89.169 ms
Loss rate: 70.66%
-- Flow 2:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 115.347 ms
Loss rate: 72.78%
-- Flow 3:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 25.851 ms
Loss rate: 91.97%
```

Run 3: Report of QUIC Cubic — Data Link

- - - Flow 1 ingress (mean 0.32 Mbit/s) —— Flow 1 egress (mean 0.09 Mbit/s)
- - - Flow 2 ingress (mean 0.26 Mbit/s) —— Flow 2 egress (mean 0.07 Mbit/s)
- - - Flow 3 ingress (mean 0.04 Mbit/s) —— Flow 3 egress (mean 0.01 Mbit/s)

- Flow 1 (95th percentile 89.17 ms) • Flow 2 (95th percentile 115.35 ms) • Flow 3 (95th percentile 25.85 ms)
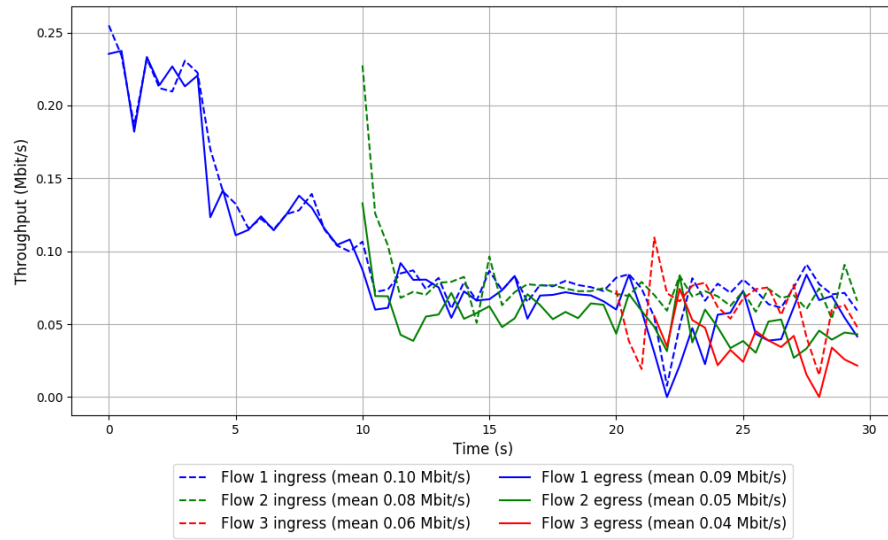
33

```
Run 1: Statistics of SCReAM

Start at: 2018-02-27 08:44:07
End at: 2018-02-27 08:44:37
Local clock offset: -1.329 ms
Remote clock offset: -5.482 ms

# Below is generated by plot.py at 2018-02-27 10:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 74.848 ms
Loss rate: 21.15%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 67.380 ms
Loss rate: 9.33%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 76.051 ms
Loss rate: 29.85%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 76.707 ms
Loss rate: 59.19%
```
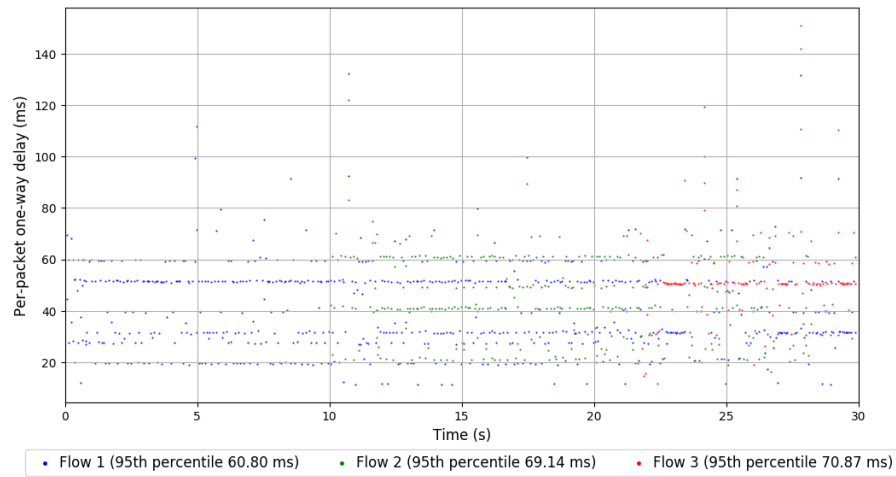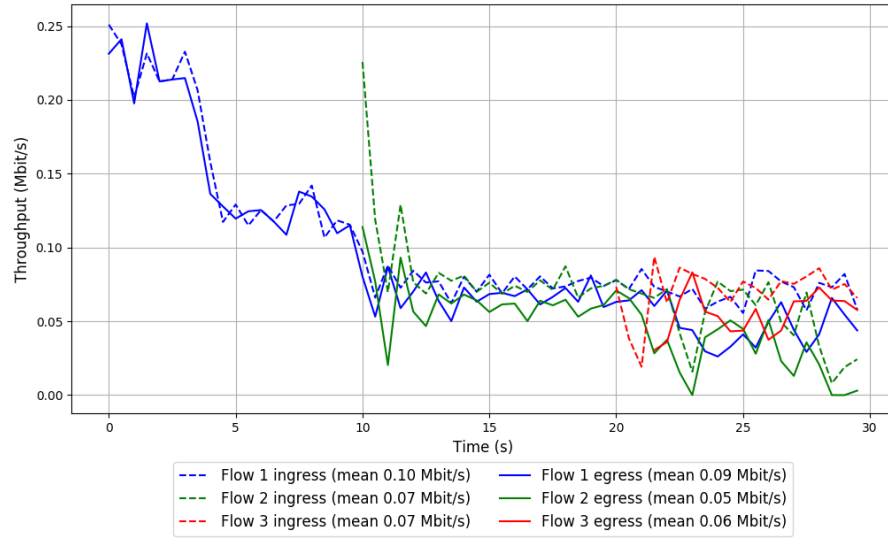
Run 1: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.11 Mbit/s)   Flow 1 egress (mean 0.10 Mbit/s)
Flow 2 ingress (mean 0.08 Mbit/s)   Flow 2 egress (mean 0.05 Mbit/s)
Flow 3 ingress (mean 0.07 Mbit/s)   Flow 3 egress (mean 0.03 Mbit/s)

Flow 1 (95th percentile 67.38 ms)   Flow 2 (95th percentile 76.05 ms)   Flow 3 (95th percentile 76.71 ms)

35

```
Run 2: Statistics of SCReAM

Start at: 2018-02-27 09:07:49
End at: 2018-02-27 09:08:19
Local clock offset: 0.762 ms
Remote clock offset: -5.402 ms


# Below is generated by plot.py at 2018-02-27 10:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 76.899 ms
Loss rate: 20.27%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 68.518 ms
Loss rate: 9.10%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 71.281 ms
Loss rate: 30.49%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 115.544 ms
Loss rate: 50.99%
```
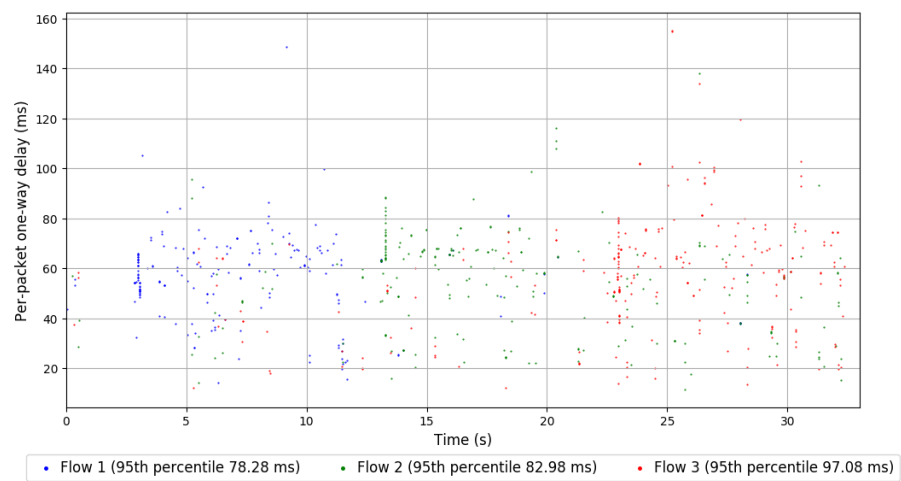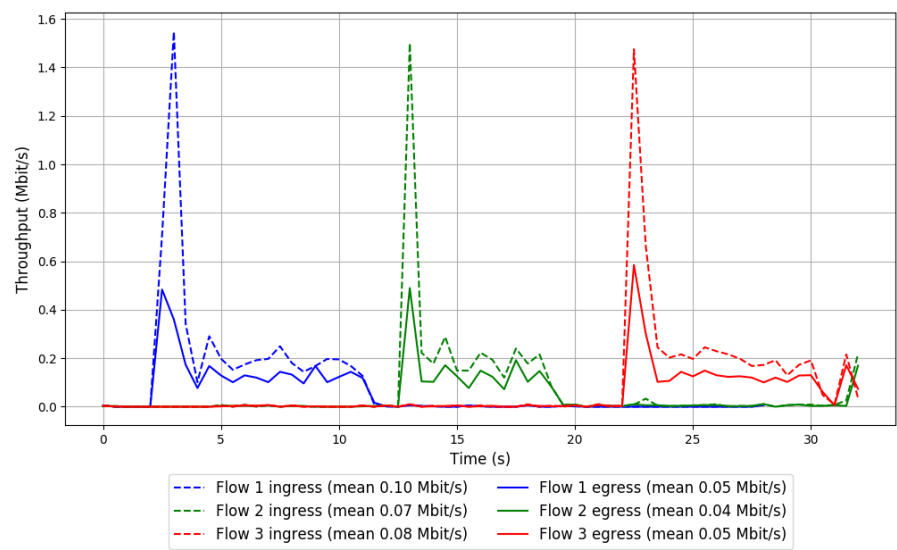
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-02-27 09:31:31
End at: 2018-02-27 09:32:01
Local clock offset: 1.6 ms
Remote clock offset: -6.279 ms


# Below is generated by plot.py at 2018-02-27 10:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 68.990 ms
Loss rate: 19.88%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 60.795 ms
Loss rate: 10.94%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 69.143 ms
Loss rate: 32.75%
-- Flow 3:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 70.870 ms
Loss rate: 33.86%
```
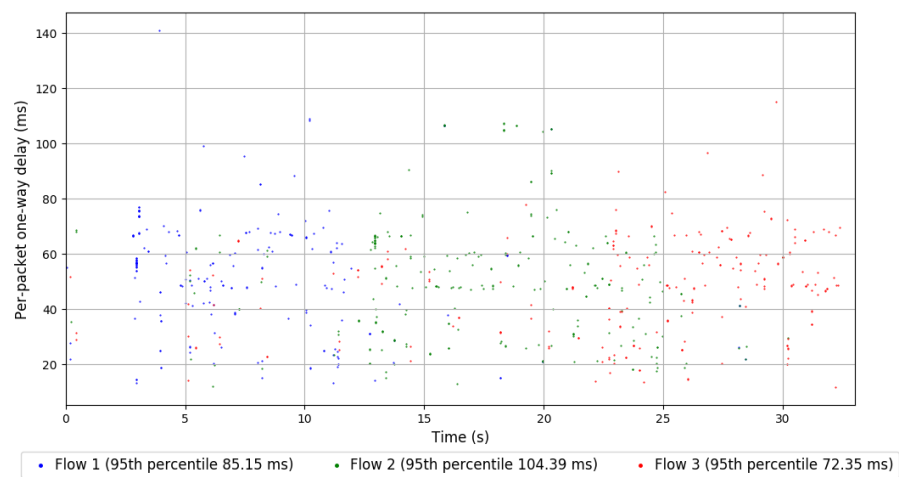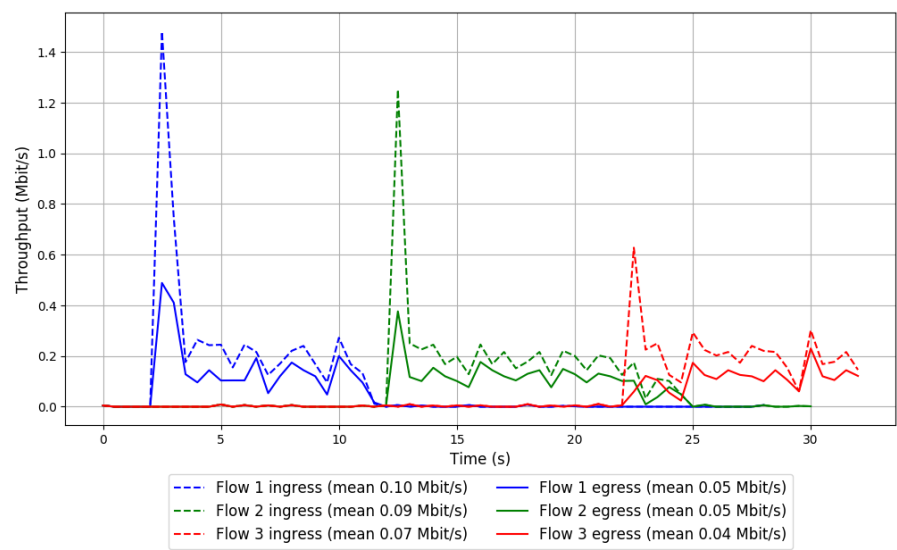
Run 3: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.10 Mbit/s)   Flow 1 egress (mean 0.09 Mbit/s)
Flow 2 ingress (mean 0.07 Mbit/s)   Flow 2 egress (mean 0.05 Mbit/s)
Flow 3 ingress (mean 0.07 Mbit/s)   Flow 3 egress (mean 0.06 Mbit/s)

Flow 1 (95th percentile 60.80 ms)   Flow 2 (95th percentile 69.14 ms)   Flow 3 (95th percentile 70.87 ms)

39

```
Run 1: Statistics of WebRTC media

Start at: 2018-02-27 08:42:48
End at: 2018-02-27 08:43:18
Local clock offset: -1.202 ms
Remote clock offset: -5.415 ms


# Below is generated by plot.py at 2018-02-27 10:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 86.309 ms
Loss rate: 44.84%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 78.285 ms
Loss rate: 45.59%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 82.977 ms
Loss rate: 45.48%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 97.079 ms
Loss rate: 43.59%
```

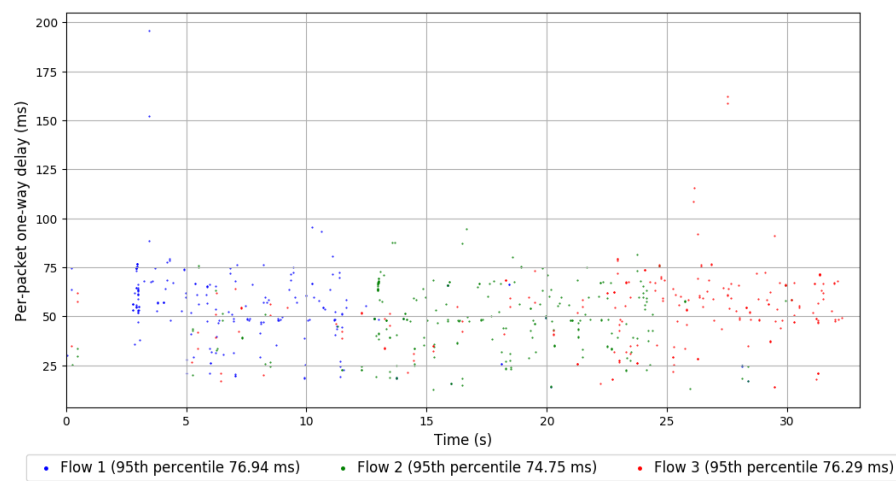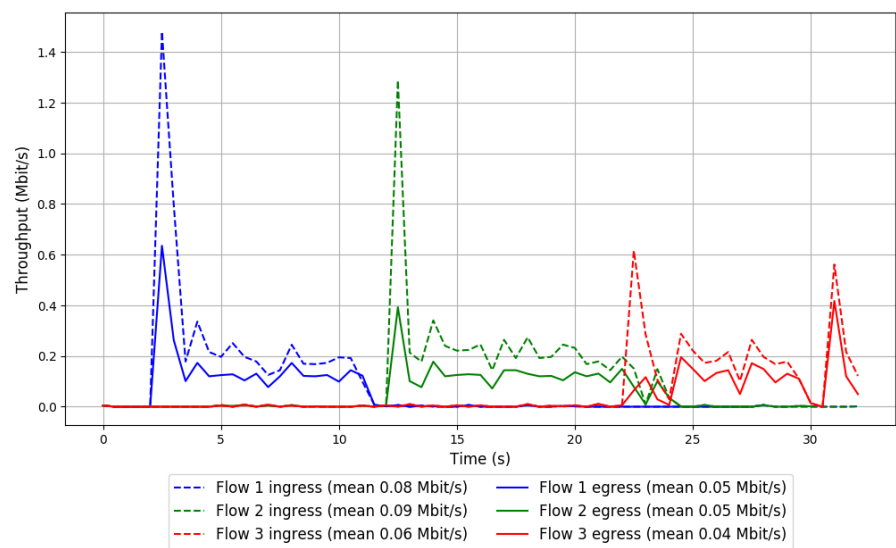Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-02-27 09:06:30
End at: 2018-02-27 09:07:00
Local clock offset: 0.823 ms
Remote clock offset: -5.508 ms


# Below is generated by plot.py at 2018-02-27 10:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 85.099 ms
Loss rate: 45.32%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 85.146 ms
Loss rate: 45.93%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 104.389 ms
Loss rate: 44.17%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 72.350 ms
Loss rate: 45.98%
```

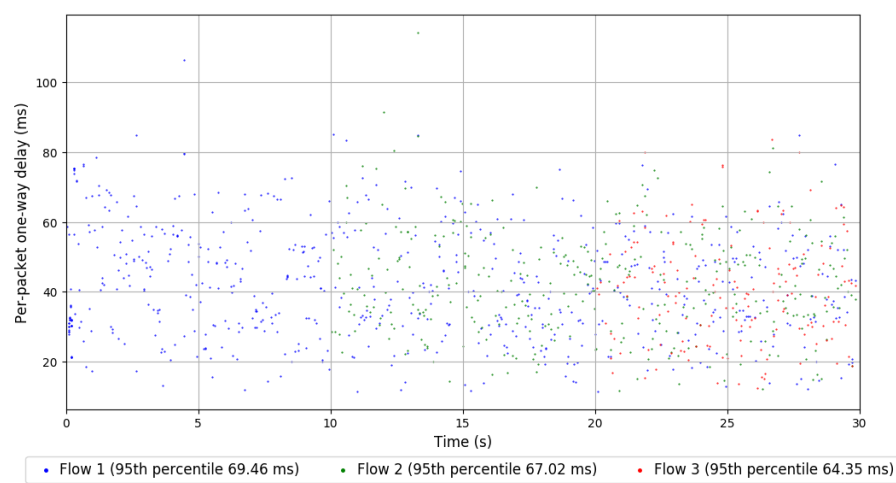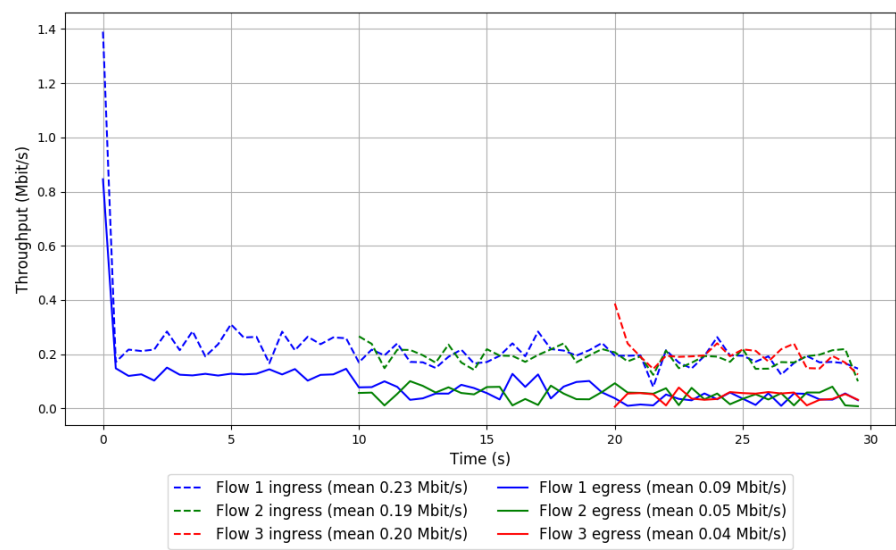Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-02-27 09:30:12
End at: 2018-02-27 09:30:42
Local clock offset: 1.472 ms
Remote clock offset: -6.218 ms


# Below is generated by plot.py at 2018-02-27 10:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 75.840 ms
Loss rate: 45.98%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 76.937 ms
Loss rate: 45.65%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 74.753 ms
Loss rate: 48.17%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 76.289 ms
Loss rate: 43.35%
```

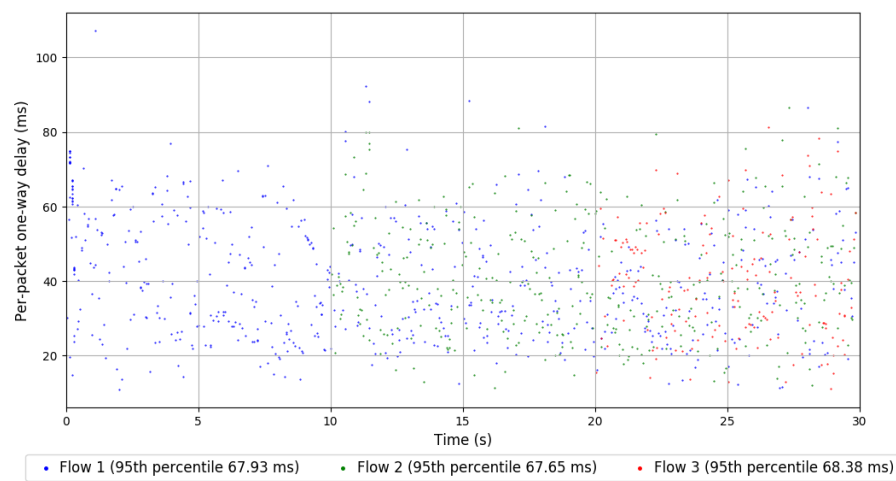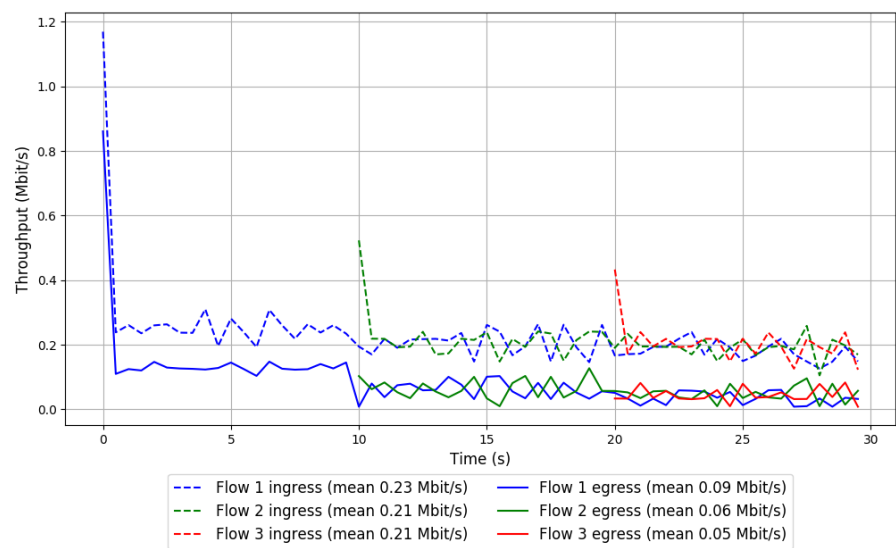Run 3: Report of WebRTC media — Data Link

```
Run 1: Statistics of Sprout

Start at: 2018-02-27 08:46:45
End at: 2018-02-27 08:47:15
Local clock offset: -0.948 ms
Remote clock offset: -5.469 ms


# Below is generated by plot.py at 2018-02-27 10:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 68.326 ms
Loss rate: 66.75%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 69.459 ms
Loss rate: 59.65%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 67.017 ms
Loss rate: 73.27%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 64.354 ms
Loss rate: 78.38%
```
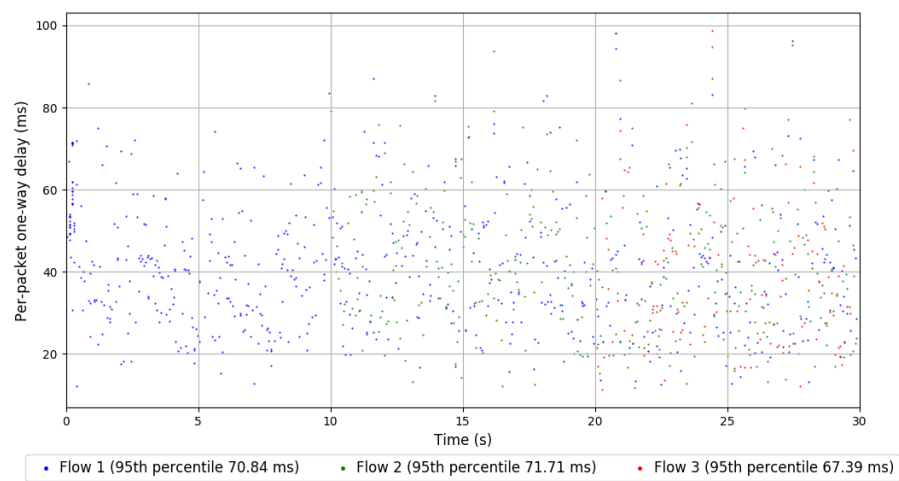
Run 1: Report of Sprout — Data Link

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```
Run 2: Statistics of Sprout

Start at: 2018-02-27 09:10:26
End at: 2018-02-27 09:10:56
Local clock offset: 0.801 ms
Remote clock offset: -5.499 ms


# Below is generated by plot.py at 2018-02-27 10:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 67.929 ms
Loss rate: 67.90%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 67.929 ms
Loss rate: 61.75%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 67.646 ms
Loss rate: 72.74%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 68.377 ms
Loss rate: 78.57%
```

Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-02-27 09:34:09
End at: 2018-02-27 09:34:39
Local clock offset: 1.592 ms
Remote clock offset: -6.375 ms


# Below is generated by plot.py at 2018-02-27 10:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 71.165 ms
Loss rate: 67.34%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 70.839 ms
Loss rate: 60.98%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 71.709 ms
Loss rate: 71.89%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 67.386 ms
Loss rate: 80.94%
```
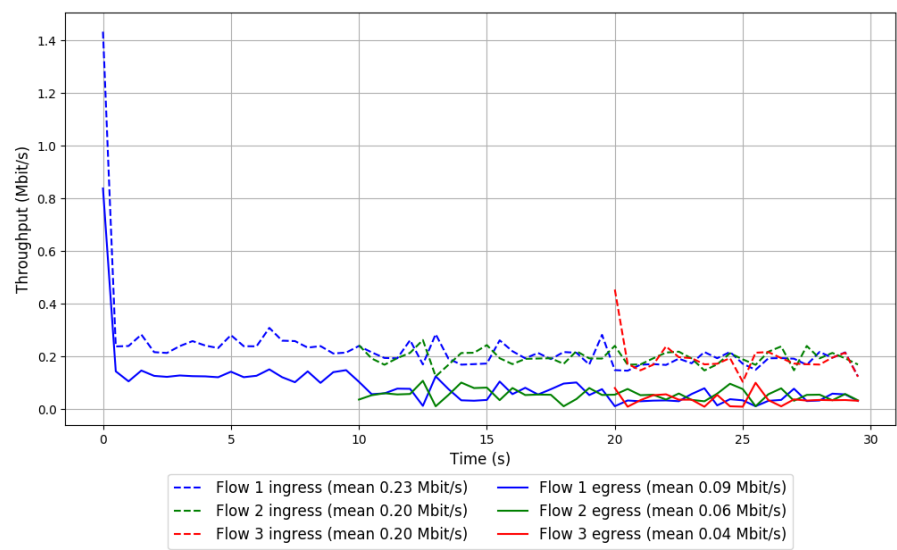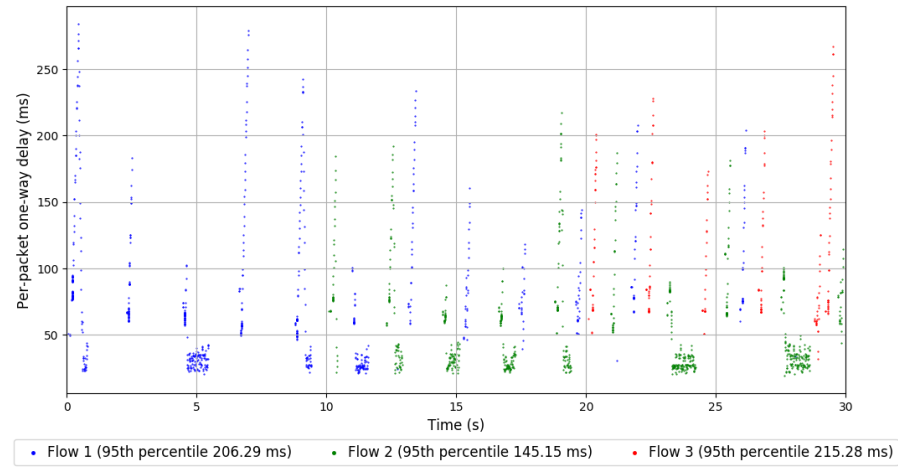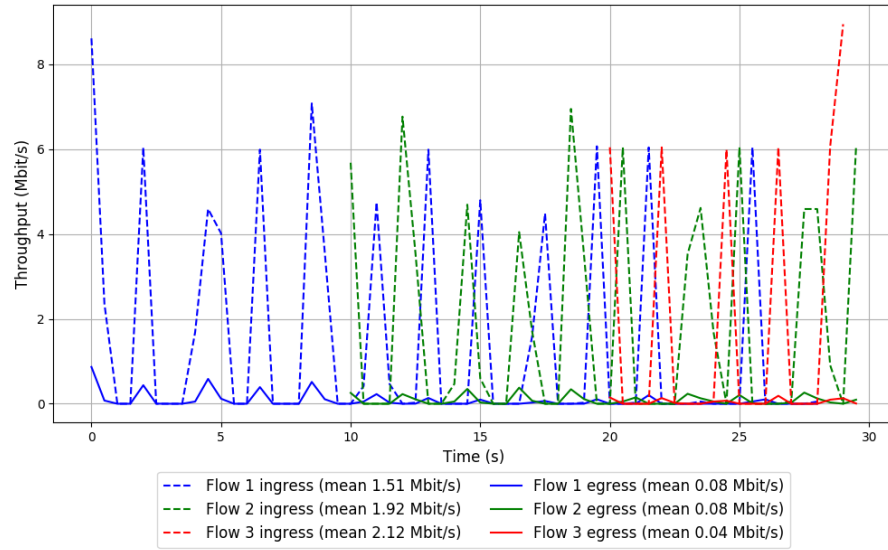
Run 3: Report of Sprout — Data Link

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

Start at: 2018-02-27 08:54:39
End at: 2018-02-27 08:55:09
Local clock offset: 0.157 ms
Remote clock offset: -5.506 ms

# Below is generated by plot.py at 2018-02-27 10:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 187.086 ms
Loss rate: 95.80%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 206.286 ms
Loss rate: 94.98%
-- Flow 2:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 145.152 ms
Loss rate: 95.67%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 215.275 ms
Loss rate: 97.85%
```
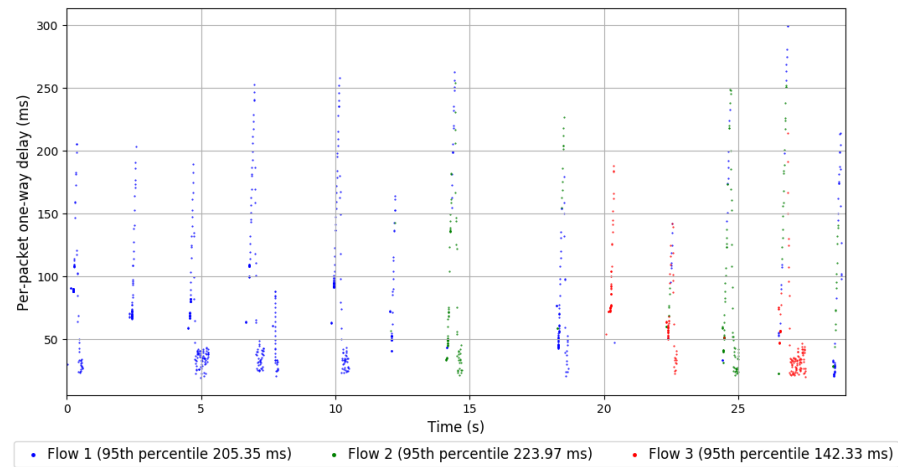
Run 1: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 1.51 Mbit/s)   Flow 1 egress (mean 0.08 Mbit/s)
Flow 2 ingress (mean 1.92 Mbit/s)   Flow 2 egress (mean 0.08 Mbit/s)
Flow 3 ingress (mean 2.12 Mbit/s)   Flow 3 egress (mean 0.04 Mbit/s)

Flow 1 (95th percentile 206.29 ms)   Flow 2 (95th percentile 145.15 ms)   Flow 3 (95th percentile 215.28 ms)

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

Start at: 2018-02-27 09:18:20
End at: 2018-02-27 09:18:50
Local clock offset: 0.865 ms
Remote clock offset: -5.43 ms


# Below is generated by plot.py at 2018-02-27 10:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 204.495 ms
Loss rate: 95.12%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 205.346 ms
Loss rate: 94.39%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 223.974 ms
Loss rate: 96.98%
-- Flow 3:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 142.326 ms
Loss rate: 94.49%
```
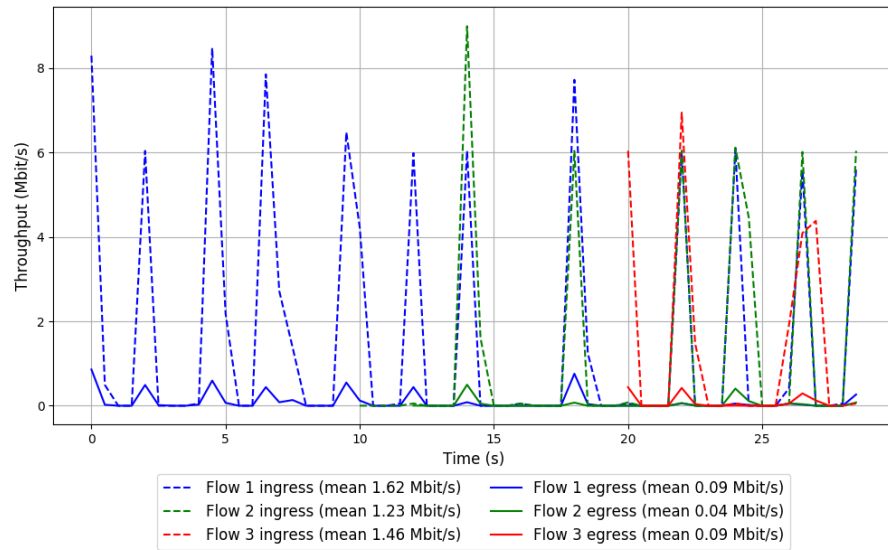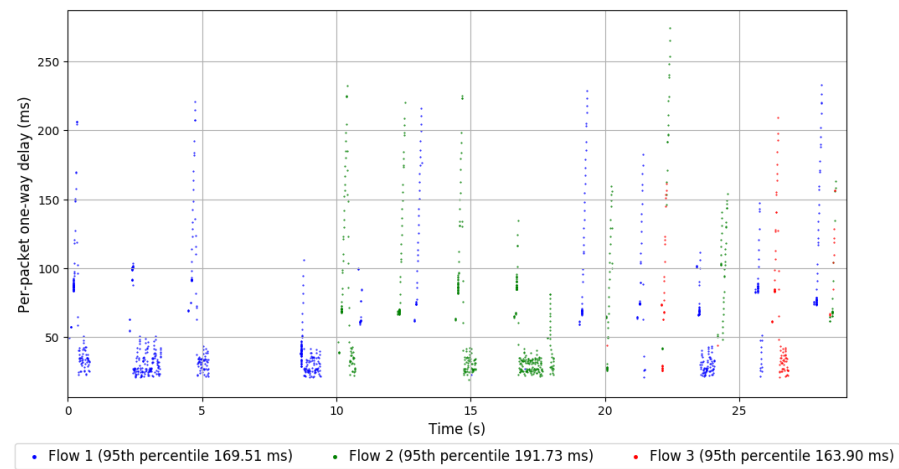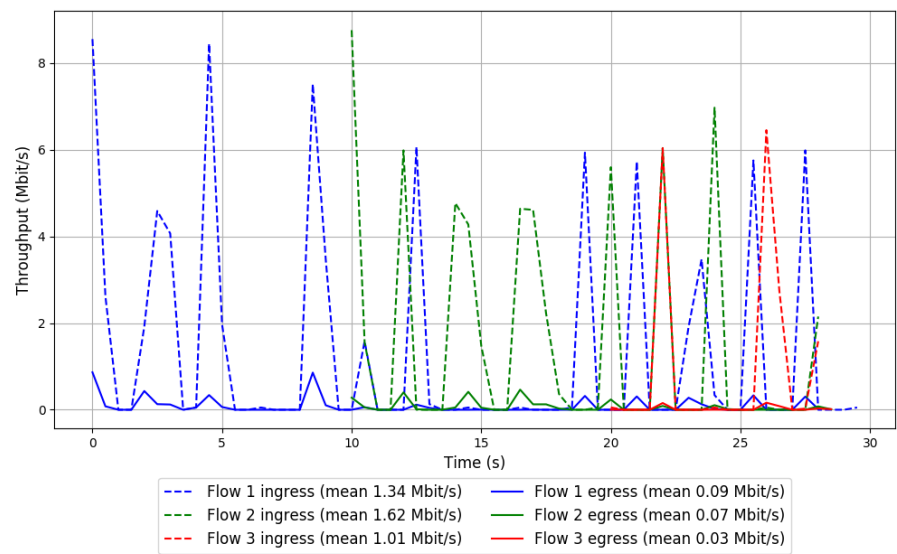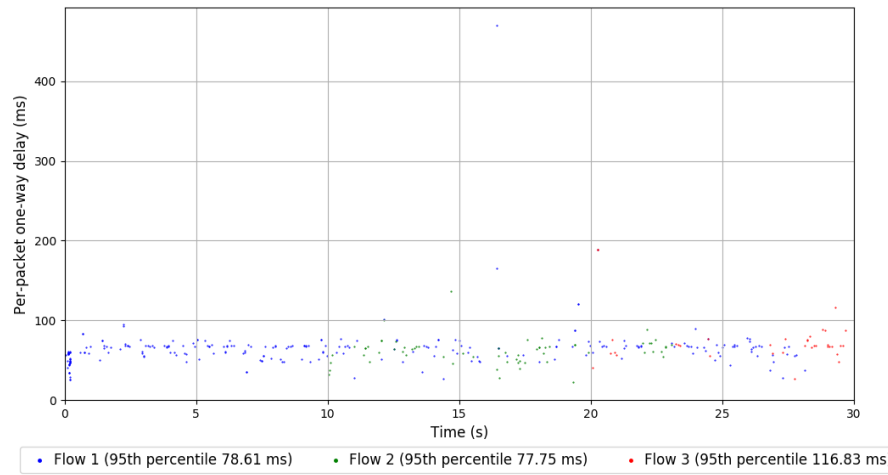
Run 2: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 1.62 Mbit/s)   Flow 1 egress (mean 0.09 Mbit/s)
Flow 2 ingress (mean 1.23 Mbit/s)   Flow 2 egress (mean 0.04 Mbit/s)
Flow 3 ingress (mean 1.46 Mbit/s)   Flow 3 egress (mean 0.09 Mbit/s)

Flow 1 (95th percentile 205.35 ms)   Flow 2 (95th percentile 223.97 ms)   Flow 3 (95th percentile 142.33 ms)

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

Start at: 2018-02-27 09:42:04
End at: 2018-02-27 09:42:34
Local clock offset: 1.829 ms
Remote clock offset: -6.557 ms

# Below is generated by plot.py at 2018-02-27 10:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 175.261 ms
Loss rate: 94.93%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 169.514 ms
Loss rate: 93.82%
-- Flow 2:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 191.734 ms
Loss rate: 95.74%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 163.895 ms
Loss rate: 97.35%
```
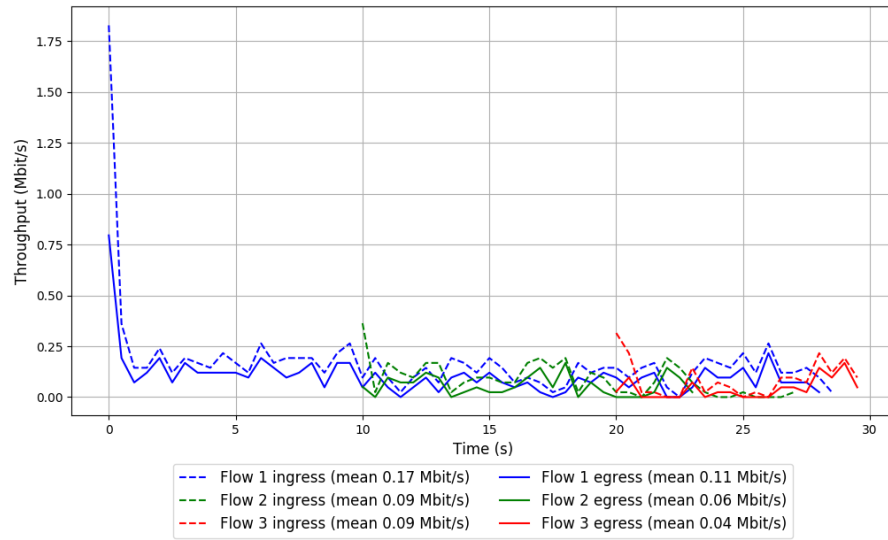
Run 3: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 1.34 Mbit/s)   Flow 1 egress (mean 0.09 Mbit/s)
Flow 2 ingress (mean 1.62 Mbit/s)   Flow 2 egress (mean 0.07 Mbit/s)
Flow 3 ingress (mean 1.01 Mbit/s)   Flow 3 egress (mean 0.03 Mbit/s)

Flow 1 (95th percentile 169.51 ms)   Flow 2 (95th percentile 191.73 ms)   Flow 3 (95th percentile 163.90 ms)
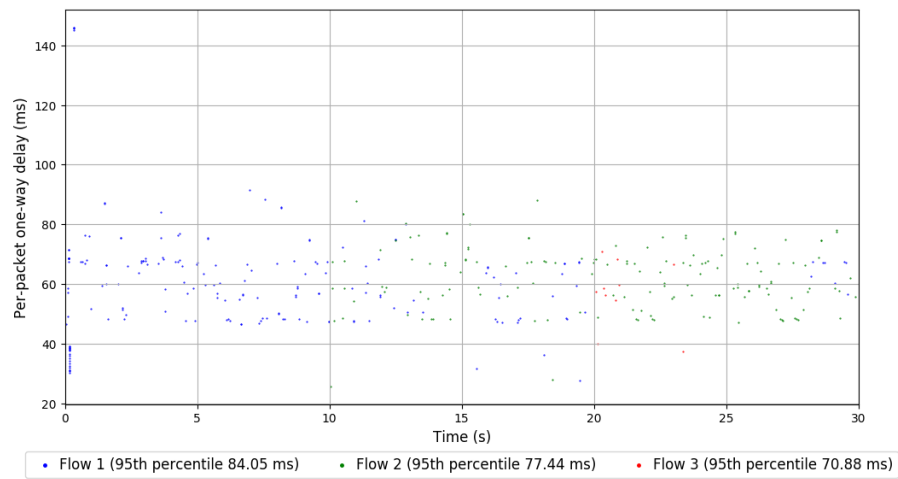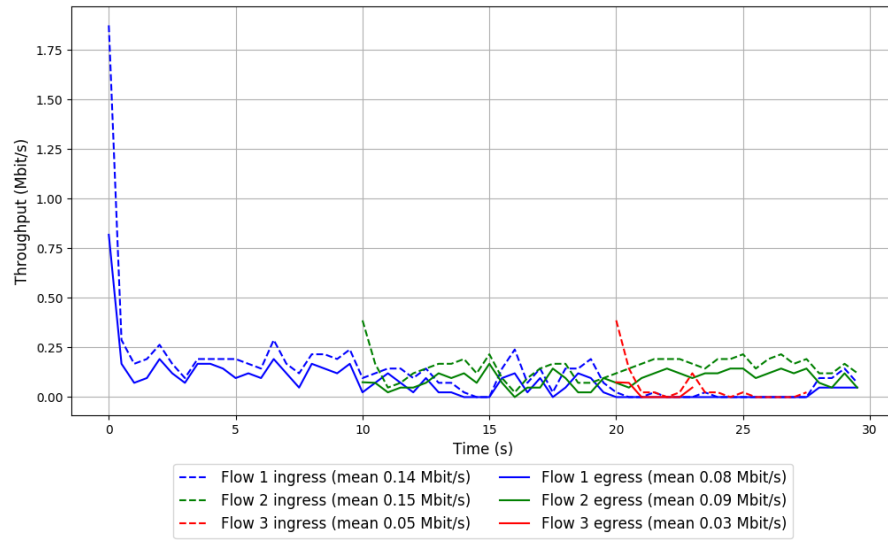
```
Run 1: Statistics of TCP Vegas

Start at: 2018-02-27 08:40:10
End at: 2018-02-27 08:40:40
Local clock offset: -1.207 ms
Remote clock offset: -5.462 ms


# Below is generated by plot.py at 2018-02-27 10:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 87.338 ms
Loss rate: 44.10%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 78.605 ms
Loss rate: 40.32%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 77.747 ms
Loss rate: 50.73%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 116.828 ms
Loss rate: 53.96%
```

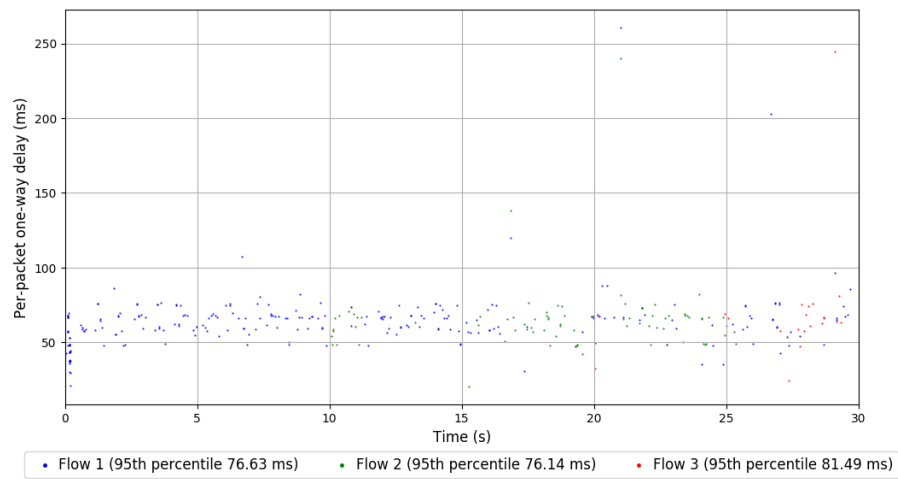Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-02-27 09:03:52
End at: 2018-02-27 09:04:22
Local clock offset: 0.673 ms
Remote clock offset: -5.502 ms


# Below is generated by plot.py at 2018-02-27 10:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 80.018 ms
Loss rate: 44.48%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 84.050 ms
Loss rate: 43.94%
-- Flow 2:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 77.442 ms
Loss rate: 40.94%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 70.877 ms
Loss rate: 76.20%
```
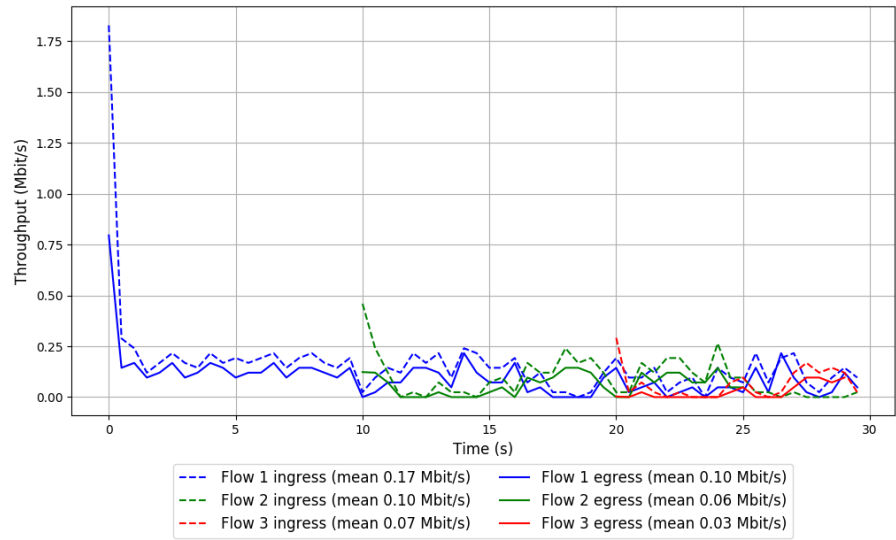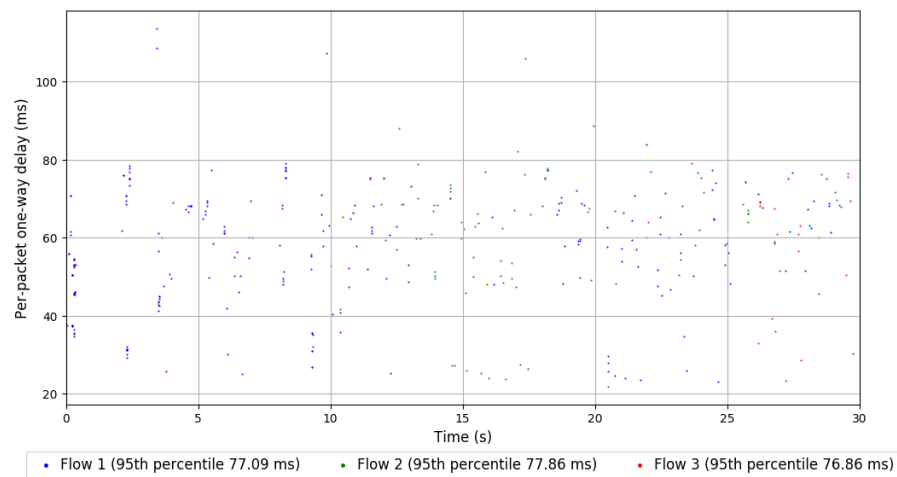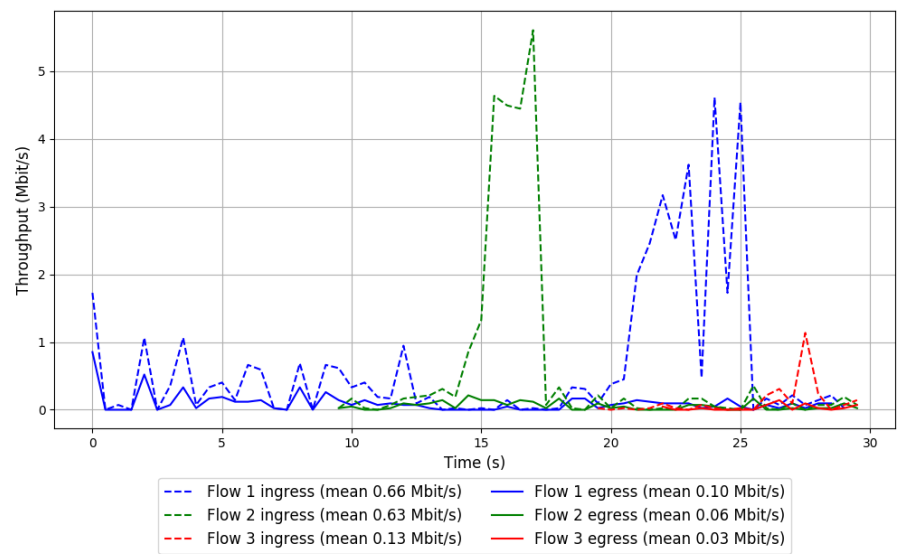
Run 2: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 0.14 Mbit/s) --- Flow 1 egress (mean 0.08 Mbit/s)
Flow 2 ingress (mean 0.15 Mbit/s) --- Flow 2 egress (mean 0.09 Mbit/s)
Flow 3 ingress (mean 0.05 Mbit/s) --- Flow 3 egress (mean 0.03 Mbit/s)

Flow 1 (95th percentile 84.05 ms)   Flow 2 (95th percentile 77.44 ms)   Flow 3 (95th percentile 70.88 ms)

```
Run 3: Statistics of TCP Vegas

Start at: 2018-02-27 09:27:33
End at: 2018-02-27 09:28:03
Local clock offset: 1.373 ms
Remote clock offset: -6.067 ms


# Below is generated by plot.py at 2018-02-27 10:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 76.629 ms
Loss rate: 44.54%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 76.629 ms
Loss rate: 40.81%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 76.139 ms
Loss rate: 48.04%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 81.487 ms
Loss rate: 62.36%
```

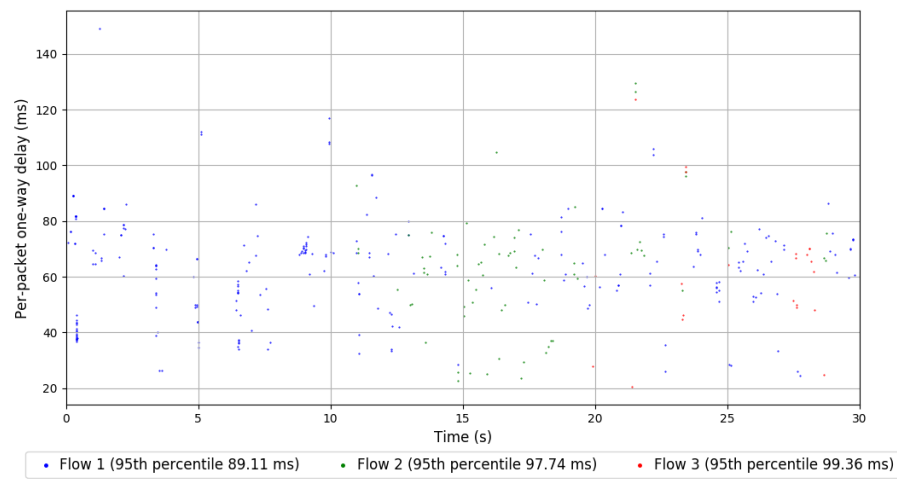Run 3: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2018-02-27 08:41:29
End at: 2018-02-27 08:41:59
Local clock offset: -1.199 ms
Remote clock offset: -5.514 ms


# Below is generated by plot.py at 2018-02-27 10:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 77.388 ms
Loss rate: 87.30%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 77.095 ms
Loss rate: 85.41%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 77.858 ms
Loss rate: 90.96%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 76.859 ms
Loss rate: 80.19%
```
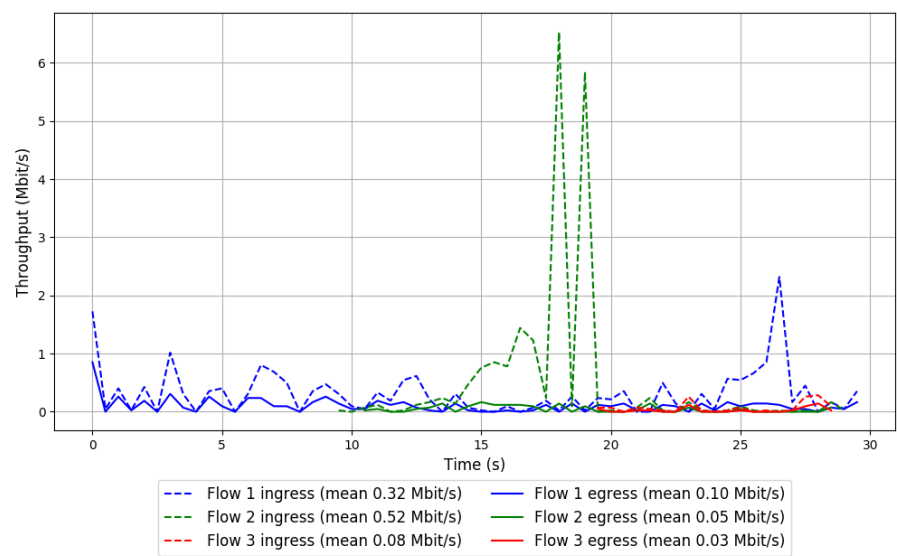
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-02-27 09:05:11
End at: 2018-02-27 09:05:41
Local clock offset: 0.784 ms
Remote clock offset: -5.455 ms


# Below is generated by plot.py at 2018-02-27 10:54:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 92.871 ms
Loss rate: 79.36%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 89.108 ms
Loss rate: 67.53%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 97.743 ms
Loss rate: 91.86%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 99.364 ms
Loss rate: 61.40%
```
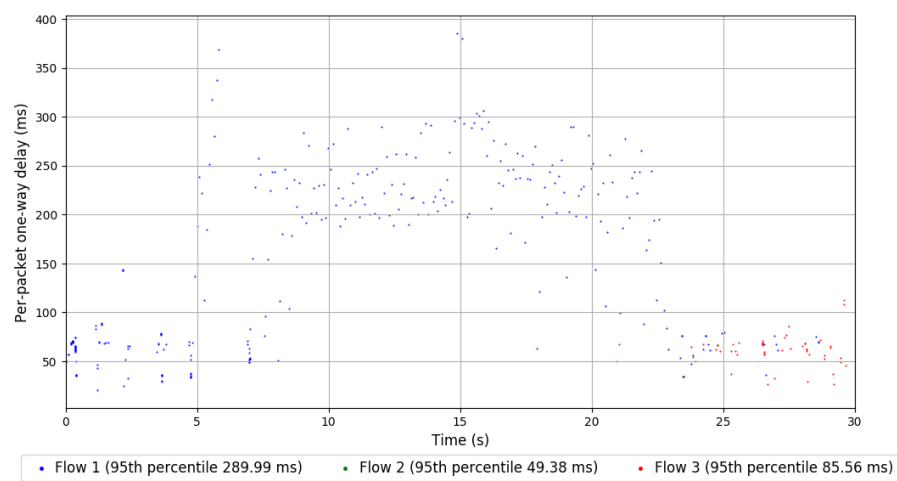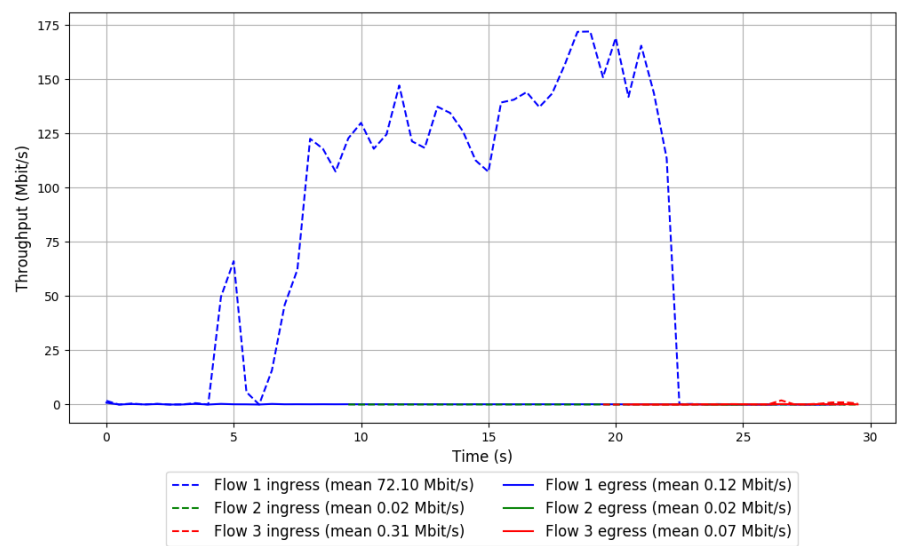
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-02-27 09:28:52
End at: 2018-02-27 09:29:22
Local clock offset: 1.533 ms
Remote clock offset: -6.139 ms

# Below is generated by plot.py at 2018-02-27 10:54:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 288.428 ms
Loss rate: 99.80%
-- Flow 1:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 289.993 ms
Loss rate: 99.83%
-- Flow 2:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 49.385 ms
Loss rate: 93.33%
-- Flow 3:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 85.559 ms
Loss rate: 80.31%
```
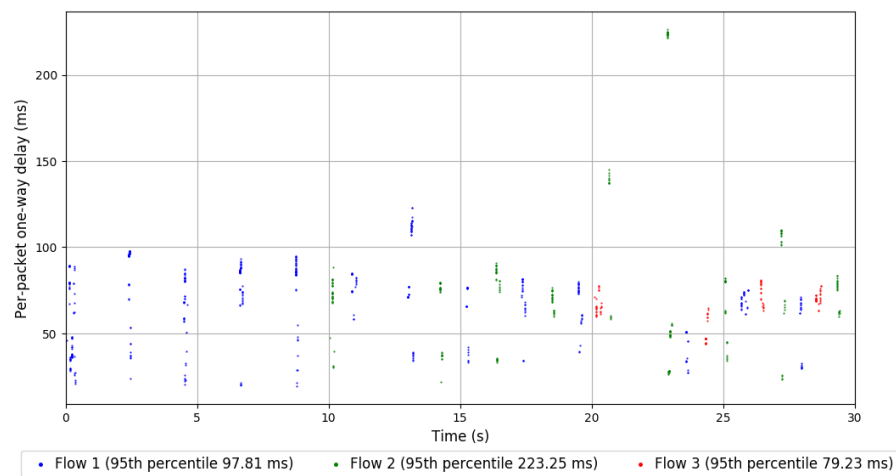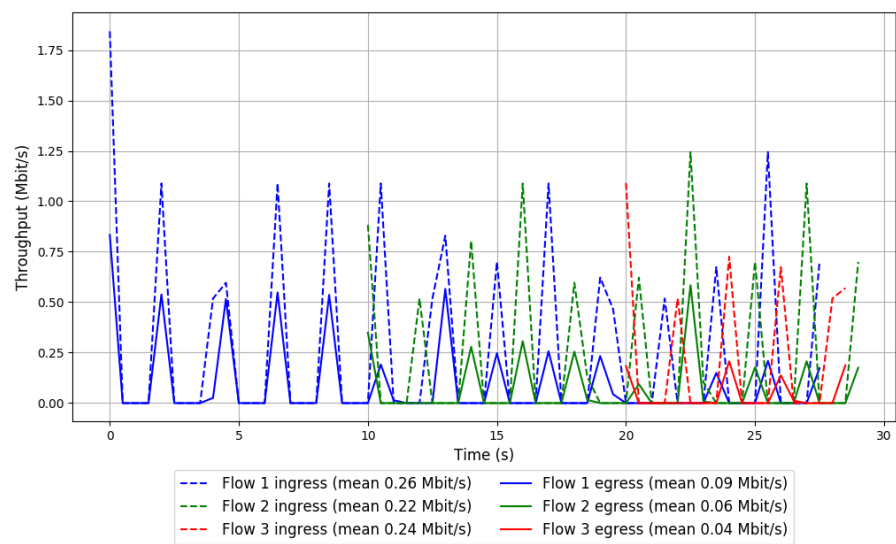
Run 3: Report of Verus — Data Link

Flow 1 ingress (mean 72.10 Mbit/s) —— Flow 1 egress (mean 0.12 Mbit/s)
Flow 2 ingress (mean 0.02 Mbit/s) —— Flow 2 egress (mean 0.02 Mbit/s)
Flow 3 ingress (mean 0.31 Mbit/s) —— Flow 3 egress (mean 0.07 Mbit/s)

Flow 1 (95th percentile 289.99 ms)   Flow 2 (95th percentile 49.38 ms)   Flow 3 (95th percentile 85.56 ms)

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```
Run 1: Statistics of Copa

Start at: 2018-02-27 08:45:26
End at: 2018-02-27 08:45:56
Local clock offset: -1.275 ms
Remote clock offset: -5.373 ms


# Below is generated by plot.py at 2018-02-27 10:54:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 110.897 ms
Loss rate: 69.68%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 97.814 ms
Loss rate: 65.36%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 223.246 ms
Loss rate: 71.08%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 79.233 ms
Loss rate: 82.25%
```
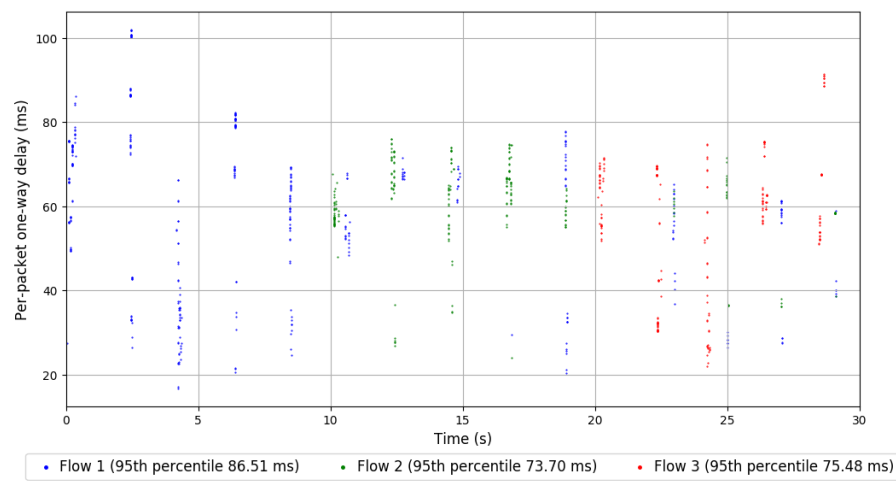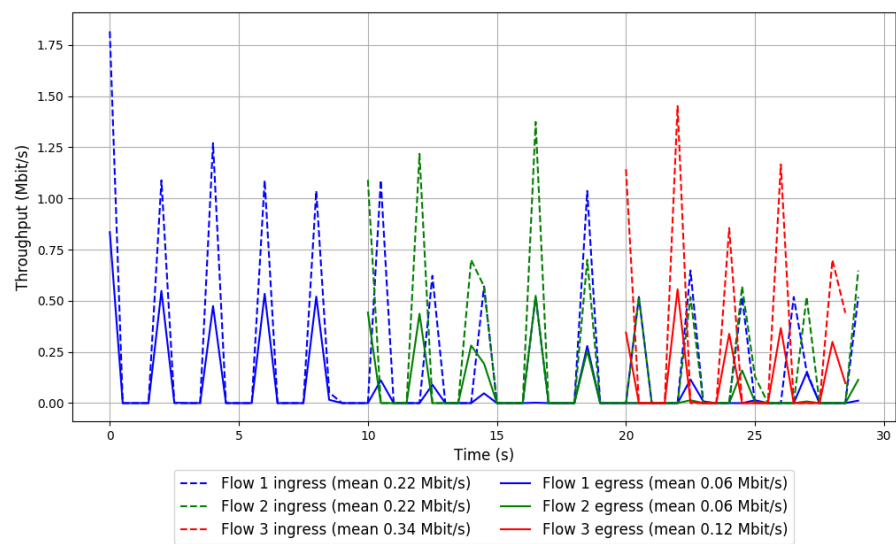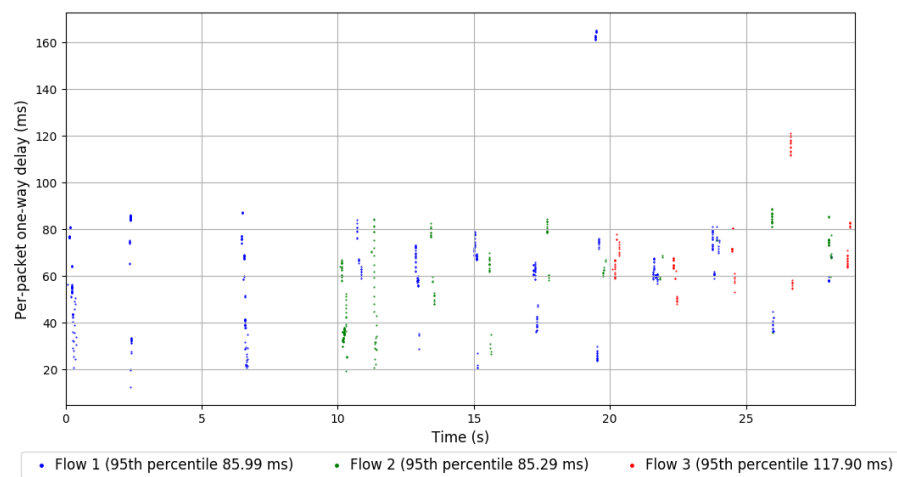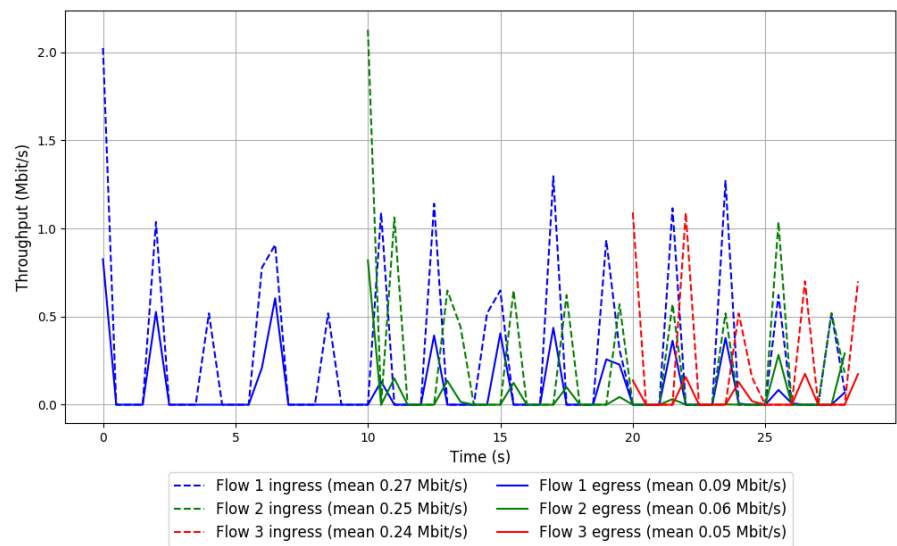
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 0.26 Mbit/s) — — — Flow 1 egress (mean 0.09 Mbit/s)
Flow 2 ingress (mean 0.22 Mbit/s) — — — Flow 2 egress (mean 0.06 Mbit/s)
Flow 3 ingress (mean 0.24 Mbit/s) — — — Flow 3 egress (mean 0.04 Mbit/s)

Flow 1 (95th percentile 97.81 ms) • Flow 2 (95th percentile 223.25 ms) • Flow 3 (95th percentile 79.23 ms)

```
Run 2: Statistics of Copa

Start at: 2018-02-27 09:09:08
End at: 2018-02-27 09:09:38
Local clock offset: 0.842 ms
Remote clock offset: -5.422 ms


# Below is generated by plot.py at 2018-02-27 10:54:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 82.039 ms
Loss rate: 70.05%
-- Flow 1:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 86.511 ms
Loss rate: 71.24%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 73.699 ms
Loss rate: 71.55%
-- Flow 3:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 75.477 ms
Loss rate: 65.13%
```

Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2018-02-27 09:32:50
End at: 2018-02-27 09:33:20
Local clock offset: 1.649 ms
Remote clock offset: -6.216 ms


# Below is generated by plot.py at 2018-02-27 10:54:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 86.897 ms
Loss rate: 72.97%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 85.989 ms
Loss rate: 67.87%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 85.287 ms
Loss rate: 77.70%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 117.904 ms
Loss rate: 81.40%
```
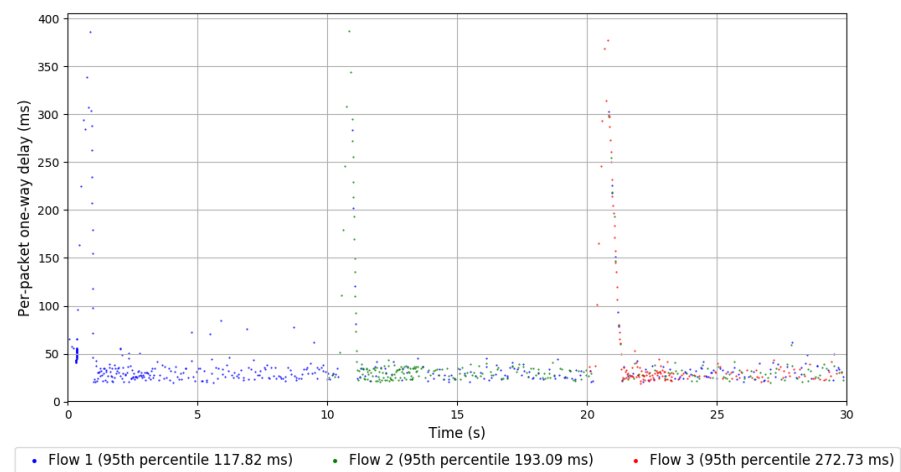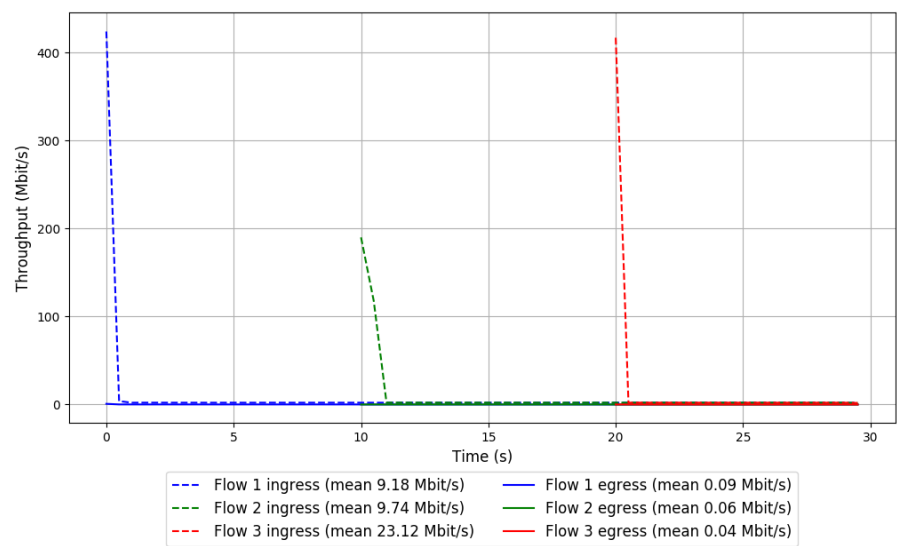
Run 3: Report of Copa — Data Link

```
Run 1: Statistics of FillP

Start at: 2018-02-27 08:33:36
End at: 2018-02-27 08:34:06
Local clock offset: -1.107 ms
Remote clock offset: -5.553 ms


# Below is generated by plot.py at 2018-02-27 10:54:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 197.177 ms
Loss rate: 99.40%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 117.824 ms
Loss rate: 99.07%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 193.093 ms
Loss rate: 99.39%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 272.729 ms
Loss rate: 99.81%
```

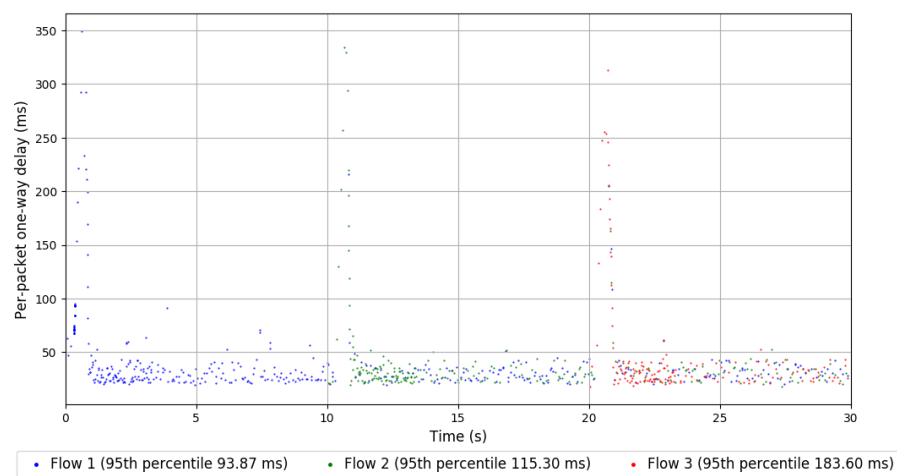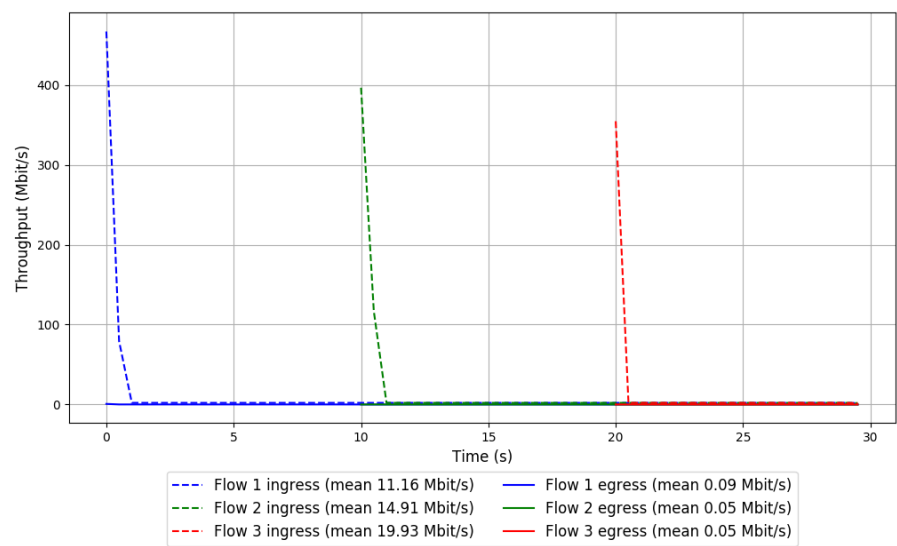Run 1: Report of FillP — Data Link

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```
Run 2: Statistics of FillP

Start at: 2018-02-27 08:57:17
End at: 2018-02-27 08:57:47
Local clock offset: 0.439 ms
Remote clock offset: -5.421 ms


# Below is generated by plot.py at 2018-02-27 10:54:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 115.299 ms
Loss rate: 99.50%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 93.871 ms
Loss rate: 99.22%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 115.299 ms
Loss rate: 99.65%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 183.601 ms
Loss rate: 99.73%
```

Run 2: Report of FillP — Data Link

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```
Run 3: Statistics of FillP

Start at: 2018-02-27 09:20:58
End at: 2018-02-27 09:21:28
Local clock offset: 1.003 ms
Remote clock offset: -5.48 ms

# Below is generated by plot.py at 2018-02-27 10:54:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 97.290 ms
Loss rate: 99.44%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 84.935 ms
Loss rate: 99.01%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 90.672 ms
Loss rate: 99.57%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 146.102 ms
Loss rate: 99.79%
```
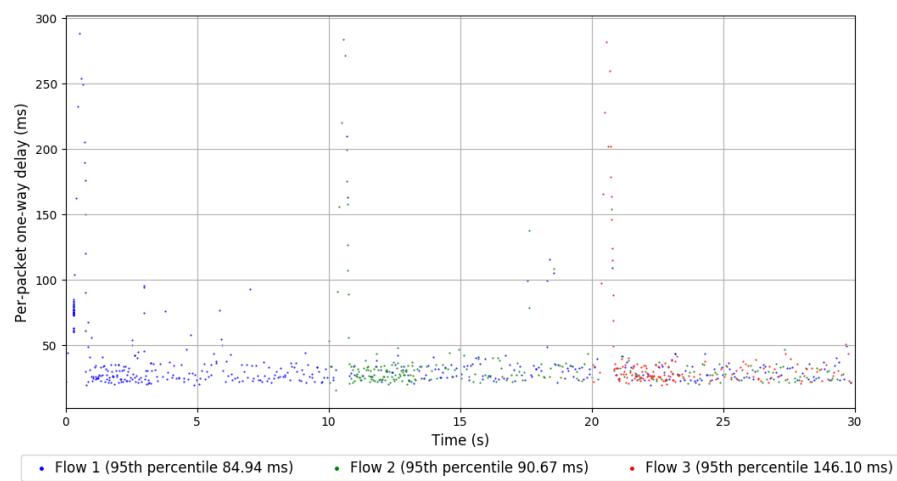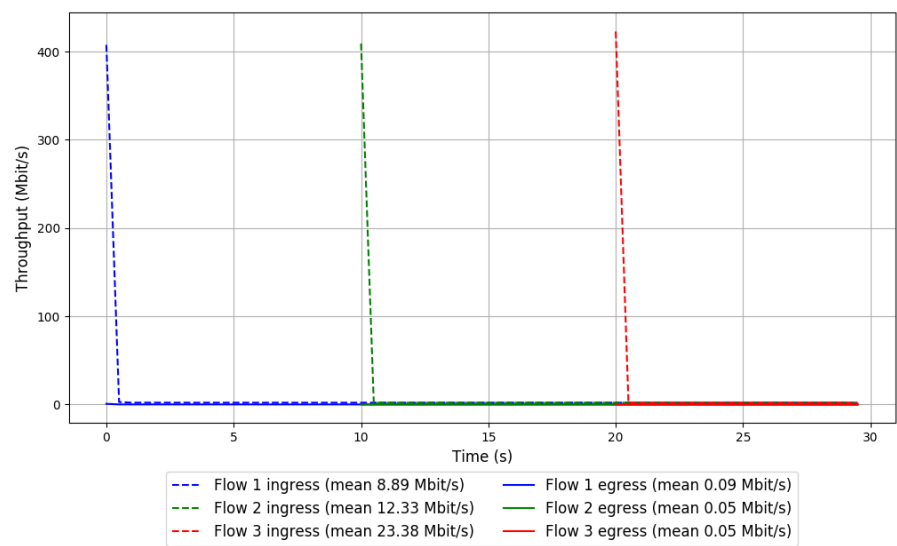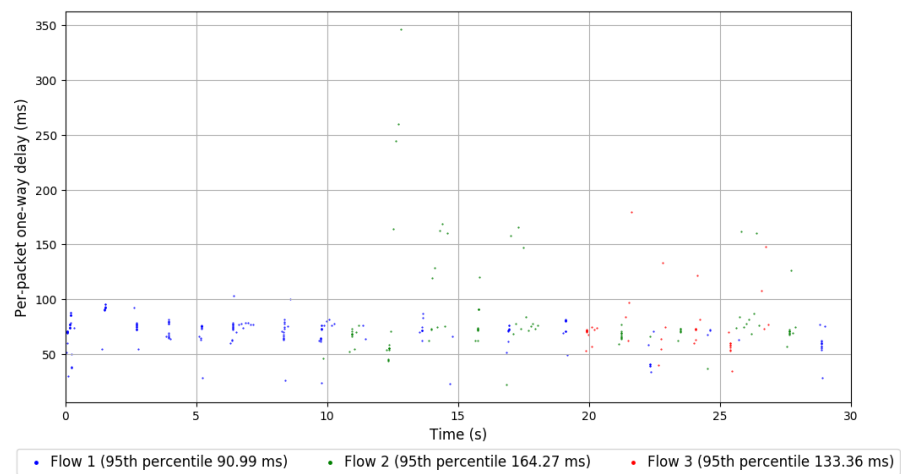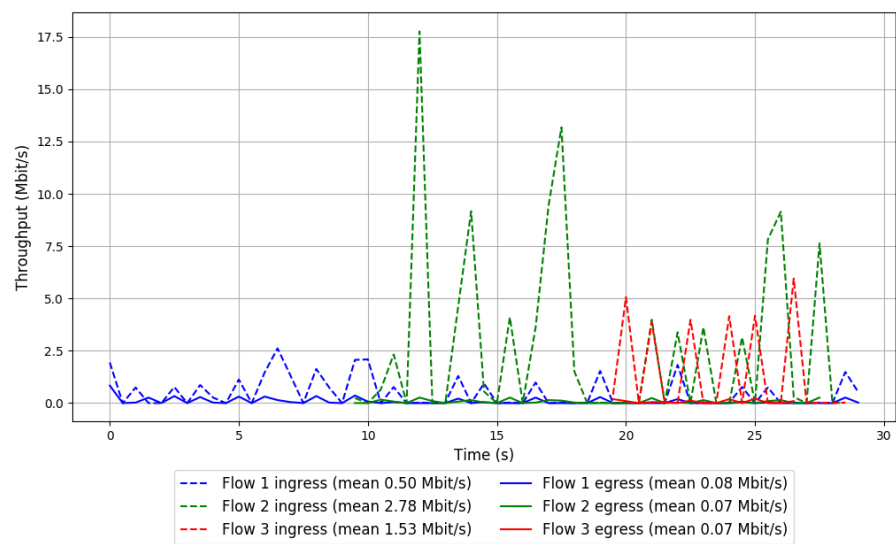
Run 3: Report of FillP — Data Link

Flow 1 ingress (mean 8.89 Mbit/s)   Flow 1 egress (mean 0.09 Mbit/s)
Flow 2 ingress (mean 12.33 Mbit/s)   Flow 2 egress (mean 0.05 Mbit/s)
Flow 3 ingress (mean 23.38 Mbit/s)   Flow 3 egress (mean 0.05 Mbit/s)

Flow 1 (95th percentile 84.94 ms)   Flow 2 (95th percentile 90.67 ms)   Flow 3 (95th percentile 146.10 ms)

```
Run 1: Statistics of Indigo-1-32

Start at: 2018-02-27 08:37:32
End at: 2018-02-27 08:38:02
Local clock offset: -1.17 ms
Remote clock offset: -5.489 ms


# Below is generated by plot.py at 2018-02-27 10:54:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 121.926 ms
Loss rate: 94.97%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 90.994 ms
Loss rate: 83.24%
-- Flow 2:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 164.274 ms
Loss rate: 97.79%
-- Flow 3:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 133.358 ms
Loss rate: 96.37%
```

Run 1: Report of Indigo-1-32 — Data Link

```
Run 2: Statistics of Indigo-1-32

Start at: 2018-02-27 09:01:14
End at: 2018-02-27 09:01:44
Local clock offset: 0.636 ms
Remote clock offset: -5.51 ms


# Below is generated by plot.py at 2018-02-27 10:54:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 127.068 ms
Loss rate: 96.90%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 109.578 ms
Loss rate: 96.43%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 129.883 ms
Loss rate: 95.53%
-- Flow 3:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 160.132 ms
Loss rate: 98.47%
```
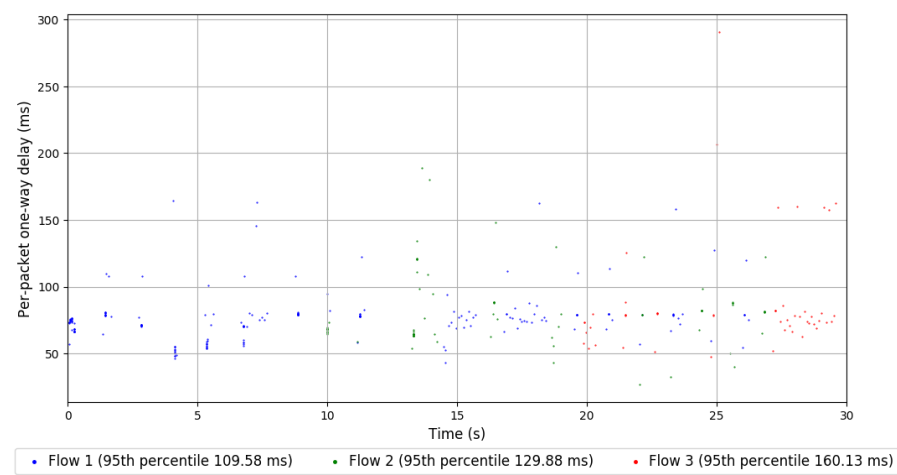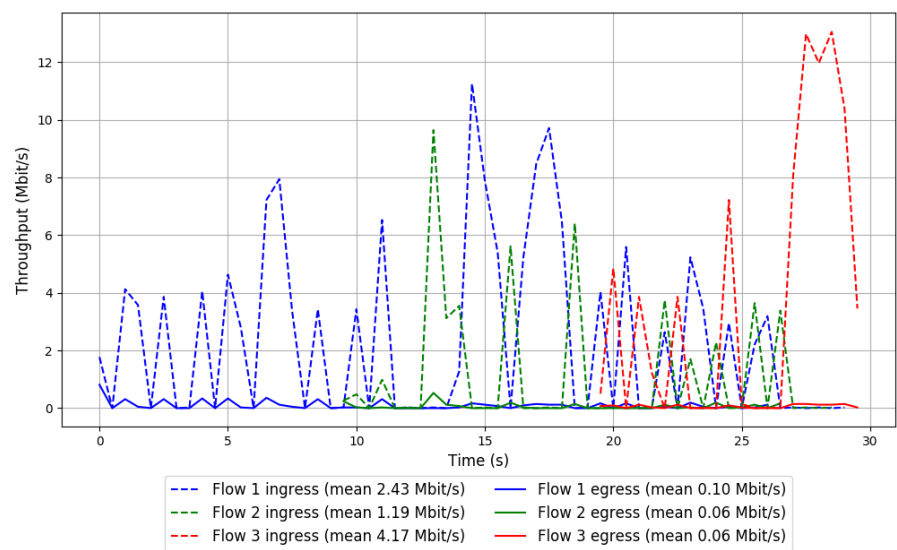
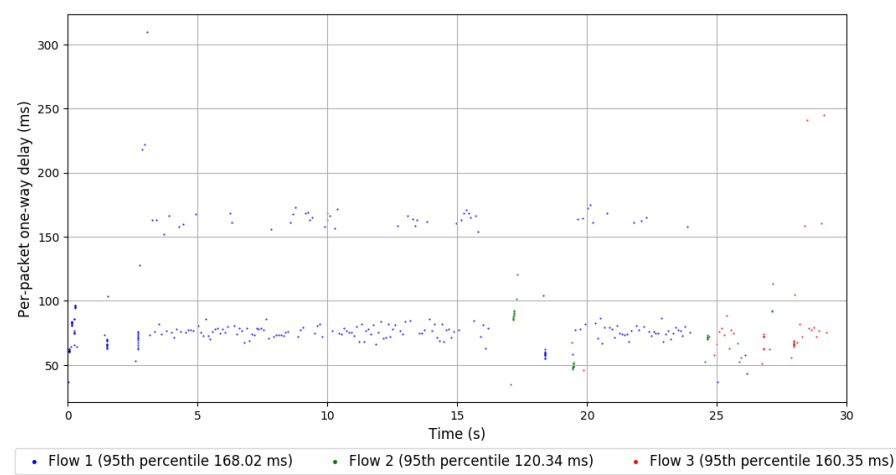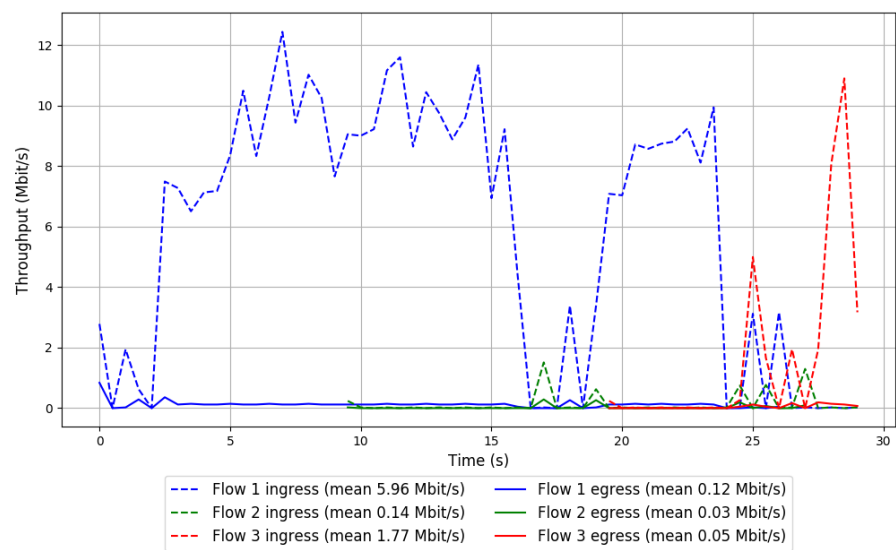Run 2: Report of Indigo-1-32 — Data Link

```
Run 3: Statistics of Indigo-1-32

Start at: 2018-02-27 09:24:55
End at: 2018-02-27 09:25:25
Local clock offset: 1.256 ms
Remote clock offset: -5.864 ms

# Below is generated by plot.py at 2018-02-27 10:54:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 167.578 ms
Loss rate: 97.87%
-- Flow 1:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 168.021 ms
Loss rate: 98.16%
-- Flow 2:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 120.342 ms
Loss rate: 83.17%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 160.354 ms
Loss rate: 97.25%
```

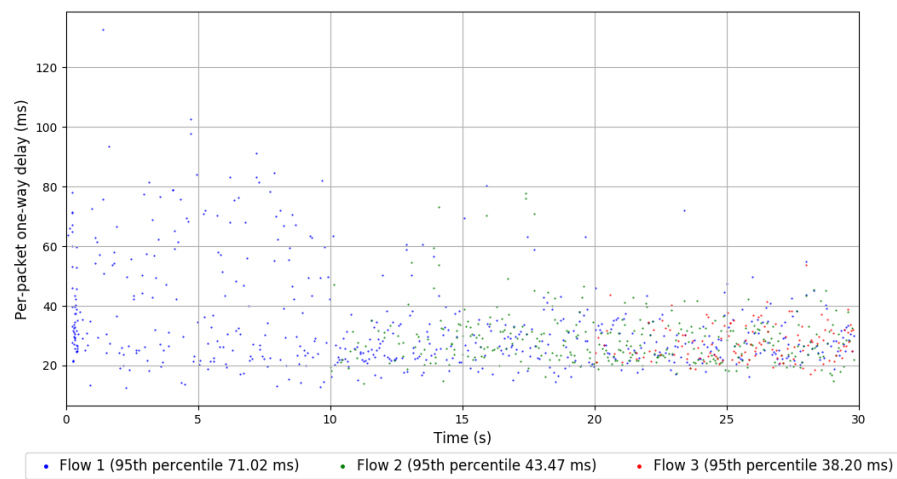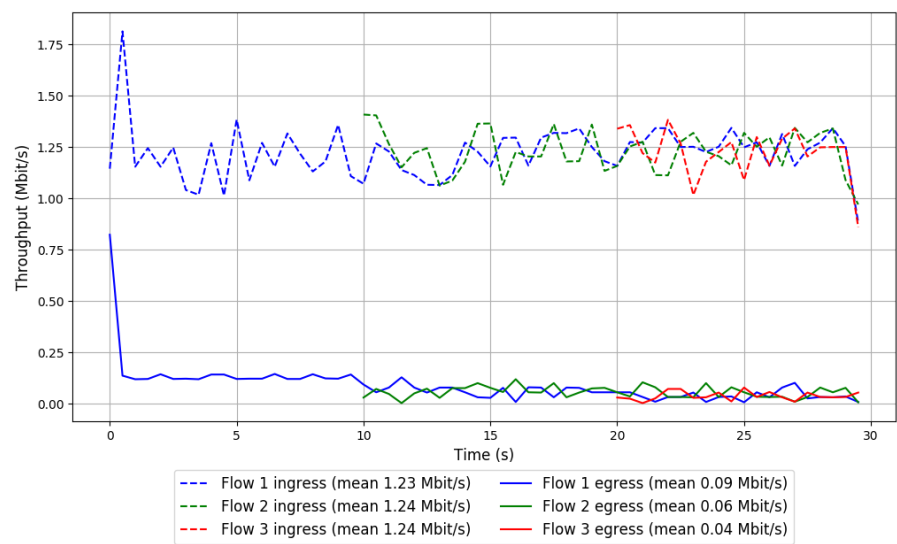Run 3: Report of Indigo-1-32 — Data Link

```
Run 1: Statistics of Vivace-latency

Start at: 2018-02-27 08:48:04
End at: 2018-02-27 08:48:34
Local clock offset: -0.795 ms
Remote clock offset: -5.474 ms


# Below is generated by plot.py at 2018-02-27 10:54:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 63.712 ms
Loss rate: 94.33%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 71.024 ms
Loss rate: 92.75%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 43.468 ms
Loss rate: 95.42%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 38.201 ms
Loss rate: 96.88%
```

Run 1: Report of Vivace-latency — Data Link

- Flow 1 ingress (mean 1.23 Mbit/s)
- Flow 1 egress (mean 0.09 Mbit/s)
- Flow 2 ingress (mean 1.24 Mbit/s)
- Flow 2 egress (mean 0.06 Mbit/s)
- Flow 3 ingress (mean 1.24 Mbit/s)
- Flow 3 egress (mean 0.04 Mbit/s)

- Flow 1 (95th percentile 71.02 ms)
- Flow 2 (95th percentile 43.47 ms)
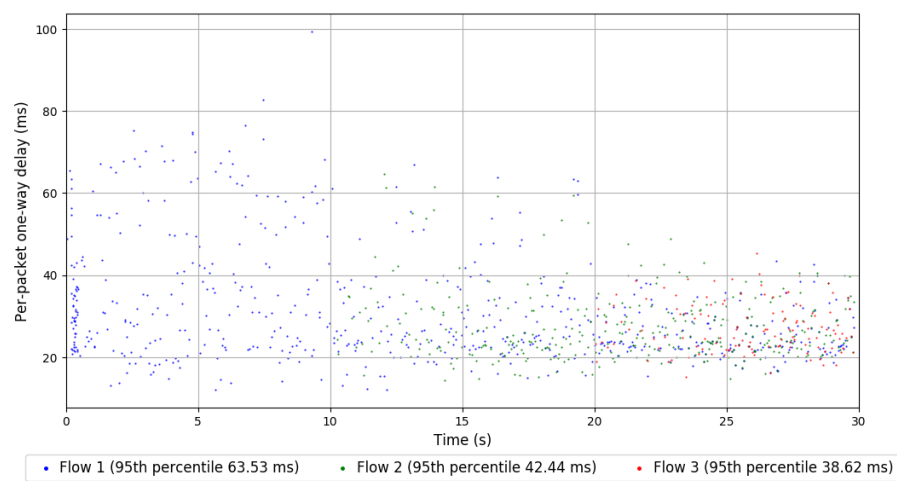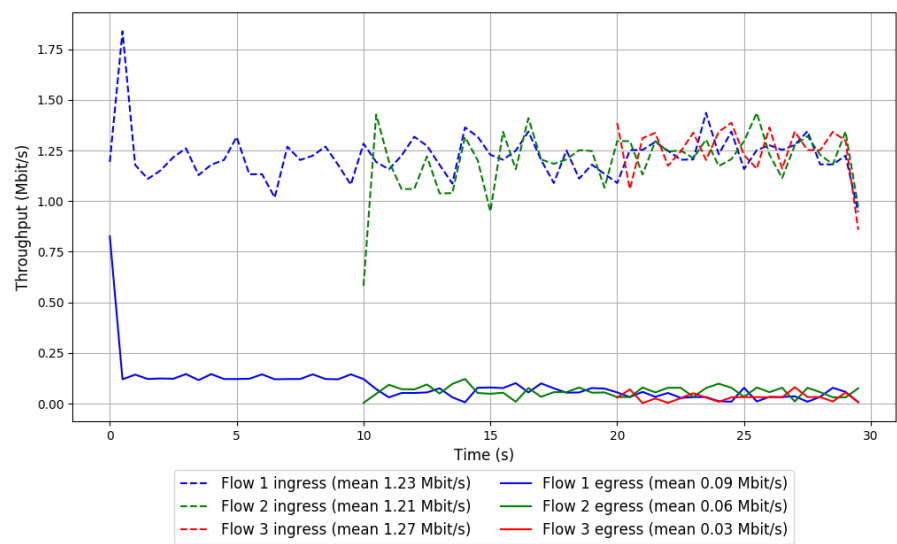- Flow 3 (95th percentile 38.20 ms)

```
Run 2: Statistics of Vivace-latency

Start at: 2018-02-27 09:11:45
End at: 2018-02-27 09:12:15
Local clock offset: 0.839 ms
Remote clock offset: -5.419 ms


# Below is generated by plot.py at 2018-02-27 10:54:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 58.475 ms
Loss rate: 94.29%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 63.526 ms
Loss rate: 92.74%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 42.438 ms
Loss rate: 94.99%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 38.615 ms
Loss rate: 97.50%
```

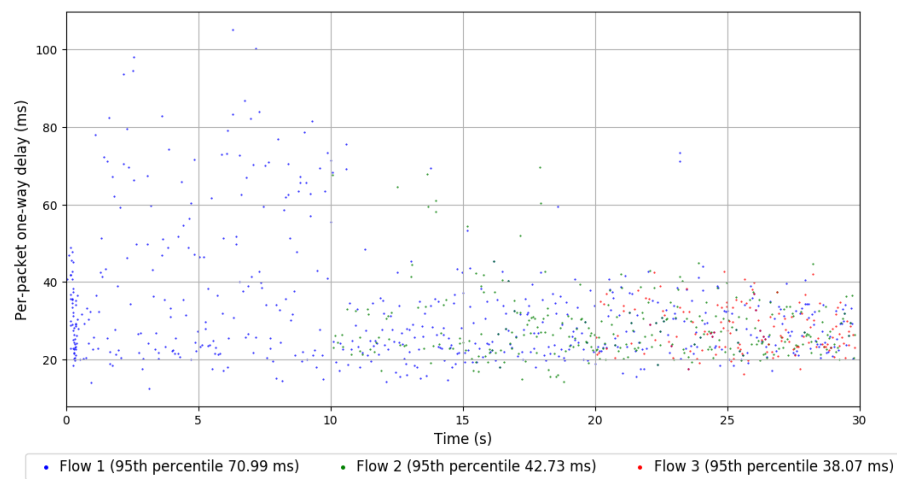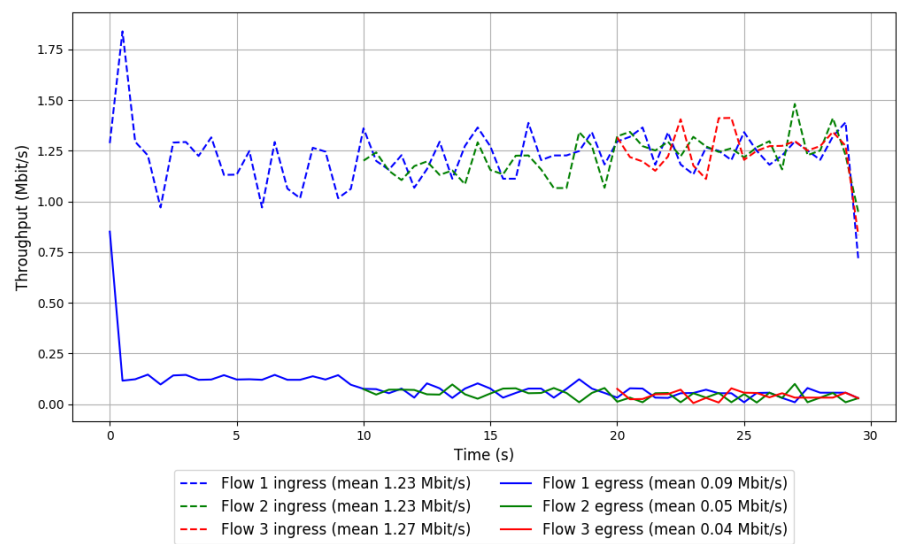Run 2: Report of Vivace-latency — Data Link

```
Run 3: Statistics of Vivace-latency

Start at: 2018-02-27 09:35:28
End at: 2018-02-27 09:35:58
Local clock offset: 1.609 ms
Remote clock offset: -6.403 ms


# Below is generated by plot.py at 2018-02-27 10:54:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 63.405 ms
Loss rate: 94.31%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 70.987 ms
Loss rate: 92.35%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 42.726 ms
Loss rate: 96.09%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 38.068 ms
Loss rate: 96.65%
```

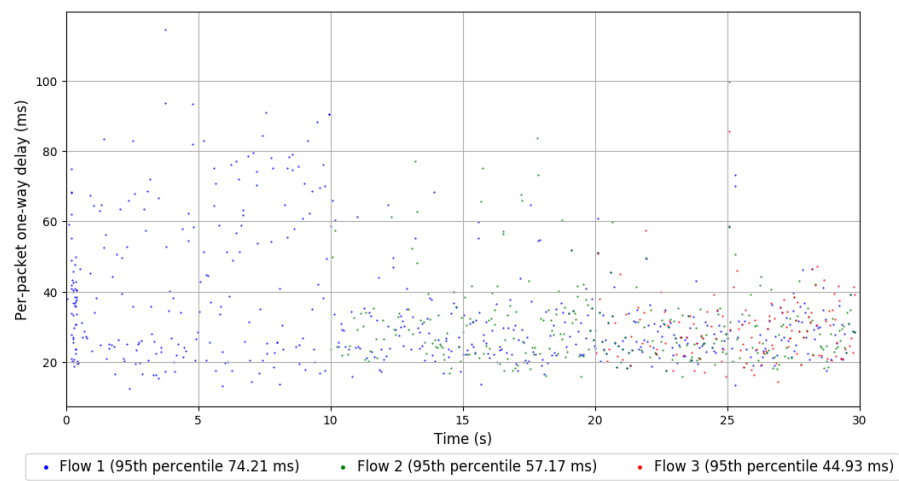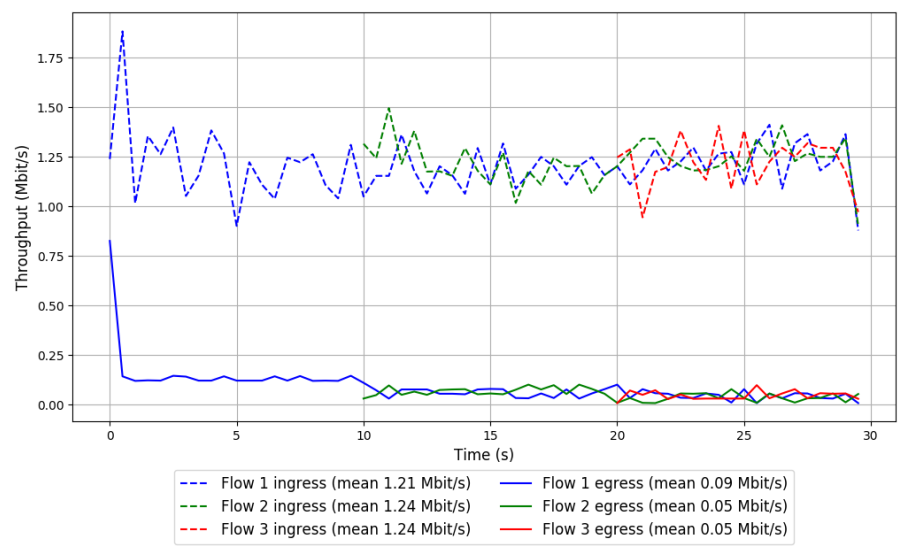Run 3: Report of Vivace-latency — Data Link

```
Run 1: Statistics of Vivace-loss

Start at: 2018-02-27 08:52:01
End at: 2018-02-27 08:52:31
Local clock offset: -0.063 ms
Remote clock offset: -5.404 ms


# Below is generated by plot.py at 2018-02-27 10:54:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 67.799 ms
Loss rate: 94.30%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 74.212 ms
Loss rate: 92.57%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 57.167 ms
Loss rate: 95.87%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 44.933 ms
Loss rate: 96.28%
```

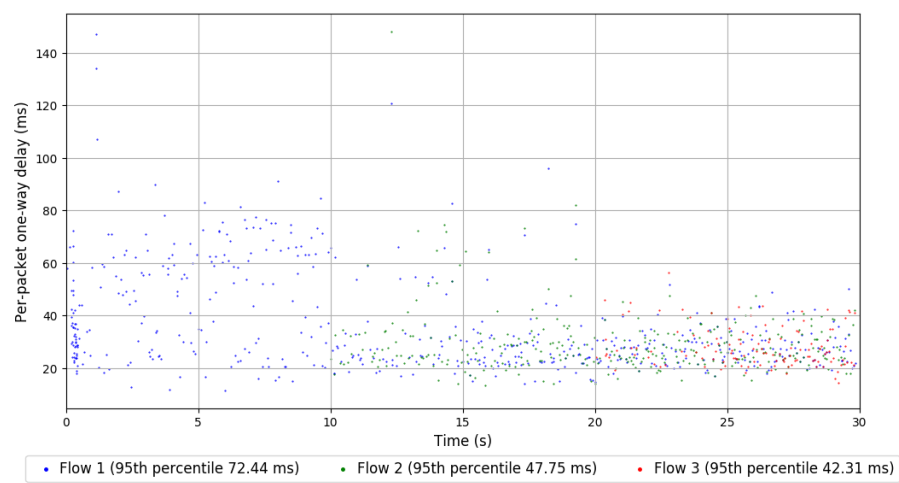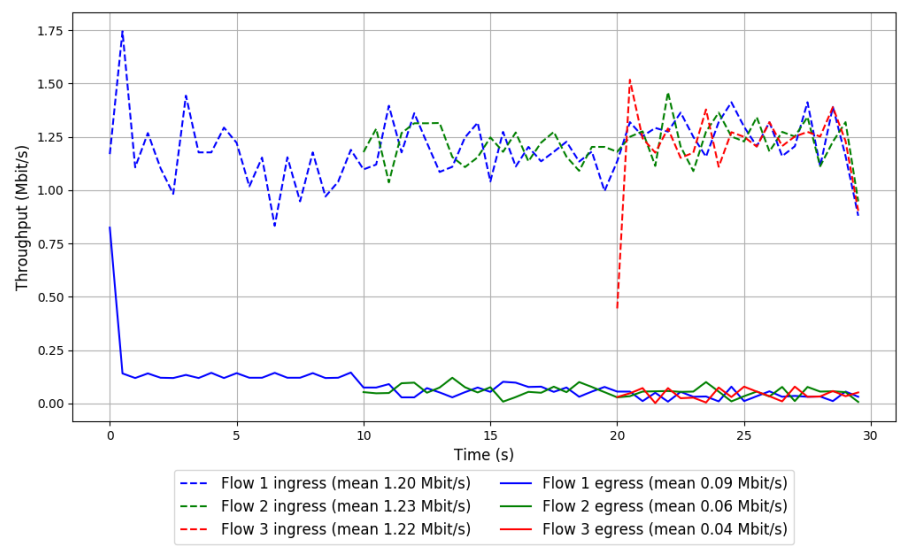Run 1: Report of Vivace-loss — Data Link

```
Run 2: Statistics of Vivace-loss

Start at: 2018-02-27 09:15:43
End at: 2018-02-27 09:16:13
Local clock offset: 0.944 ms
Remote clock offset: -5.406 ms


# Below is generated by plot.py at 2018-02-27 10:54:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 66.357 ms
Loss rate: 94.22%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 72.445 ms
Loss rate: 92.67%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 47.748 ms
Loss rate: 95.38%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 42.308 ms
Loss rate: 96.49%
```

Run 2: Report of Vivace-loss — Data Link

Flow 1 ingress (mean 1.20 Mbit/s)   Flow 1 egress (mean 0.09 Mbit/s)
Flow 2 ingress (mean 1.23 Mbit/s)   Flow 2 egress (mean 0.06 Mbit/s)
Flow 3 ingress (mean 1.22 Mbit/s)   Flow 3 egress (mean 0.04 Mbit/s)

Flow 1 (95th percentile 72.44 ms)   Flow 2 (95th percentile 47.75 ms)   Flow 3 (95th percentile 42.31 ms)
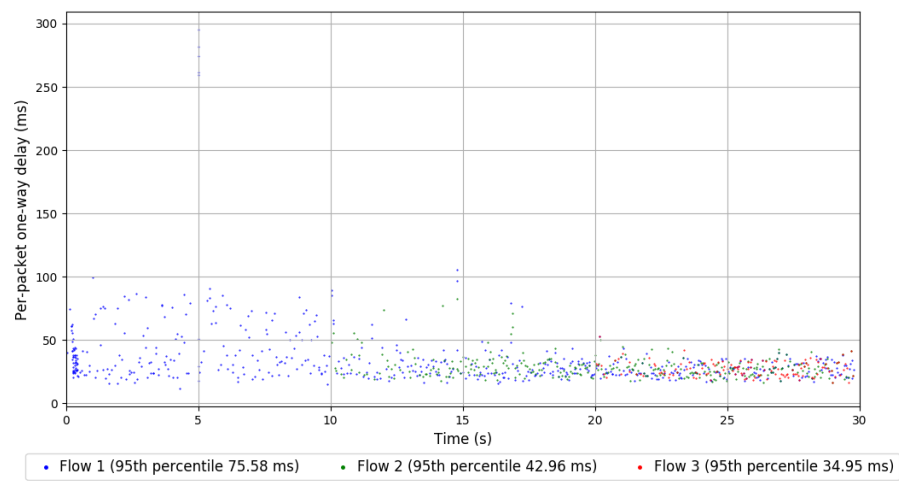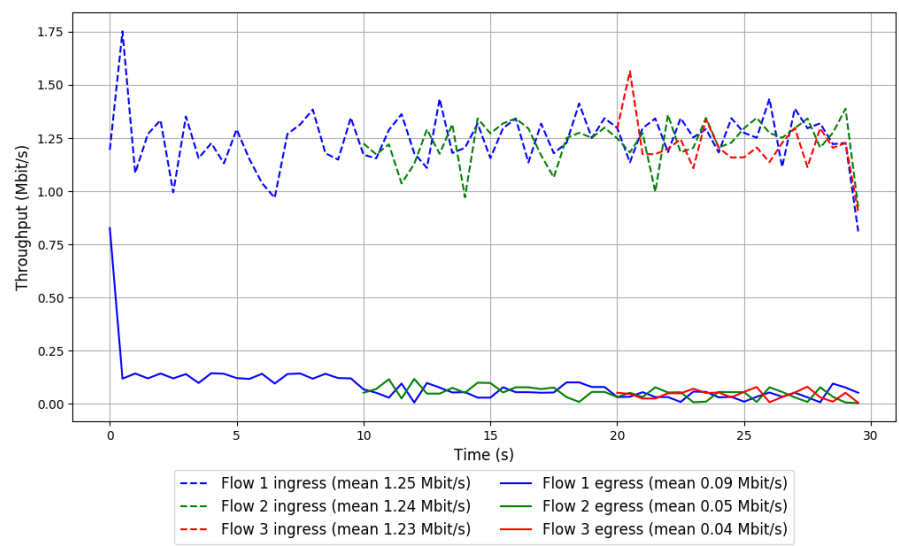
```
Run 3: Statistics of Vivace-loss

Start at: 2018-02-27 09:39:26
End at: 2018-02-27 09:39:56
Local clock offset: 1.691 ms
Remote clock offset: -6.407 ms


# Below is generated by plot.py at 2018-02-27 10:54:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 65.964 ms
Loss rate: 94.37%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 75.580 ms
Loss rate: 92.84%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 42.957 ms
Loss rate: 95.70%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 34.945 ms
Loss rate: 96.40%
```

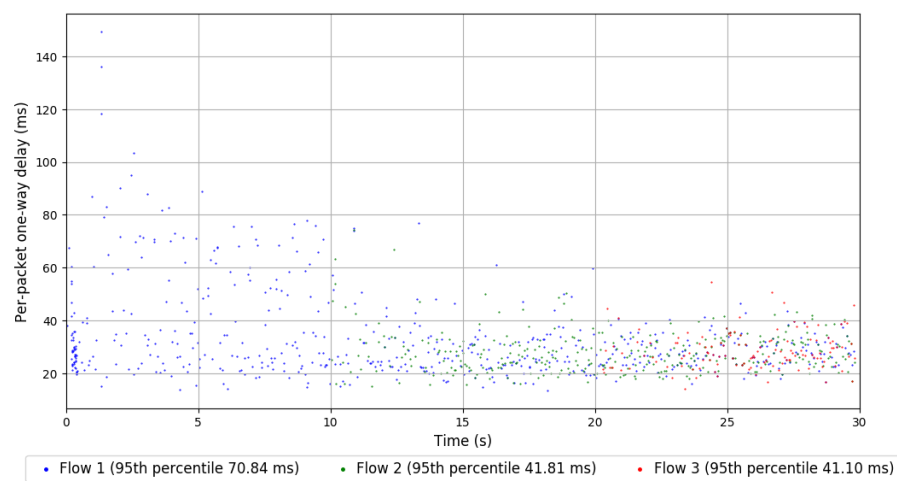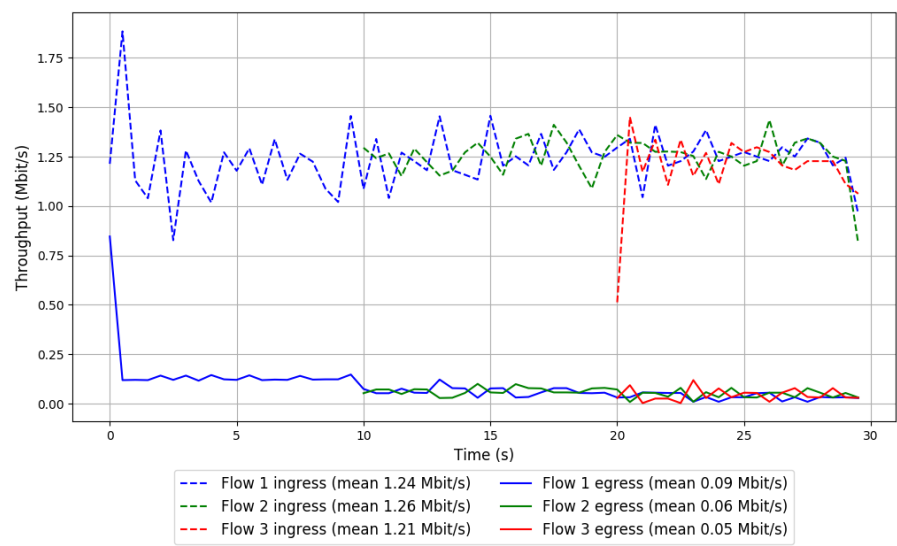Run 3: Report of Vivace-loss — Data Link

```
Run 1: Statistics of Vivace-LTE

Start at: 2018-02-27 08:32:17
End at: 2018-02-27 08:32:47
Local clock offset: -0.985 ms
Remote clock offset: -5.484 ms


# Below is generated by plot.py at 2018-02-27 10:54:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 61.325 ms
Loss rate: 94.37%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 70.840 ms
Loss rate: 92.96%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 41.807 ms
Loss rate: 95.55%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 41.096 ms
Loss rate: 96.26%
```

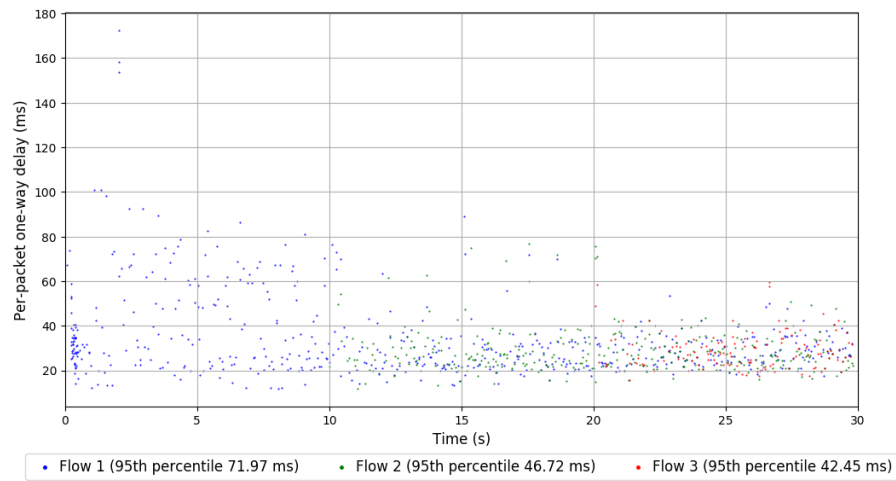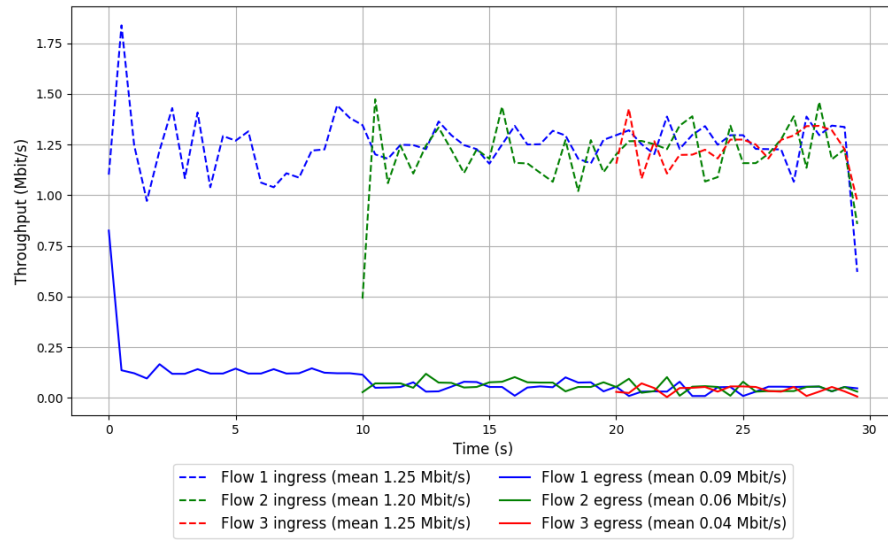# Run 1: Report of Vivace-LTE — Data Link

```
Run 2: Statistics of Vivace-LTE

Start at: 2018-02-27 08:55:58
End at: 2018-02-27 08:56:28
Local clock offset: 0.338 ms
Remote clock offset: -5.451 ms

# Below is generated by plot.py at 2018-02-27 10:54:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 65.344 ms
Loss rate: 94.33%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 71.975 ms
Loss rate: 92.97%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 46.719 ms
Loss rate: 95.16%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 42.454 ms
Loss rate: 96.82%
```

Run 2: Report of Vivace-LTE — Data Link

```
Run 3: Statistics of Vivace-LTE

Start at: 2018-02-27 09:19:39
End at: 2018-02-27 09:20:09
Local clock offset: 0.974 ms
Remote clock offset: -5.421 ms

# Below is generated by plot.py at 2018-02-27 10:54:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 68.437 ms
Loss rate: 94.32%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 75.184 ms
Loss rate: 92.31%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 43.174 ms
Loss rate: 96.13%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 45.343 ms
Loss rate: 96.48%
```

Run 3: Report of Vivace-LTE — Data Link

Flow 1 ingress (mean 1.21 Mbit/s) Flow 1 egress (mean 0.09 Mbit/s)
Flow 2 ingress (mean 1.26 Mbit/s) Flow 2 egress (mean 0.05 Mbit/s)
Flow 3 ingress (mean 1.27 Mbit/s) Flow 3 egress (mean 0.04 Mbit/s)

Flow 1 (95th percentile 75.18 ms)   Flow 2 (95th percentile 43.17 ms)   Flow 3 (95th percentile 45.34 ms)

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