Pantheon Report

Generated at 2018-02-17 05:53:12 (UTC).

Data path: Colombia ppp0 (*remote*) →AWS Brazil 2 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.

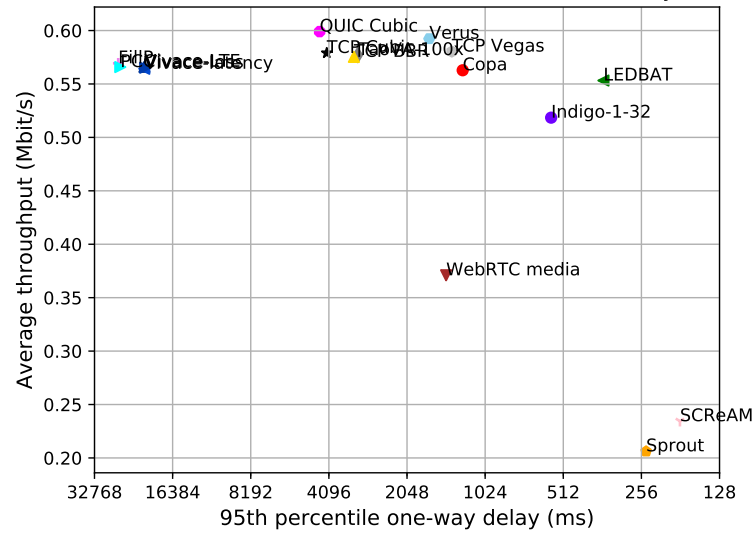Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

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

NTP offsets were measured against `gps.ntp.br` and have been applied to correct the timestamps in logs.

```
Git summary:
branch: master @ cccb2d77344969a7bac1df6edf6c0cfb6c77a6f8
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
 M datagrump/sender.cc
third_party/fillp @ 828bbf95fd4941149b5cec90f281d1c69ae1a5c6
third_party/genericCC @ 8400b8926887fc4cf8c795a1d7ce2c8ac041ec72
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
```
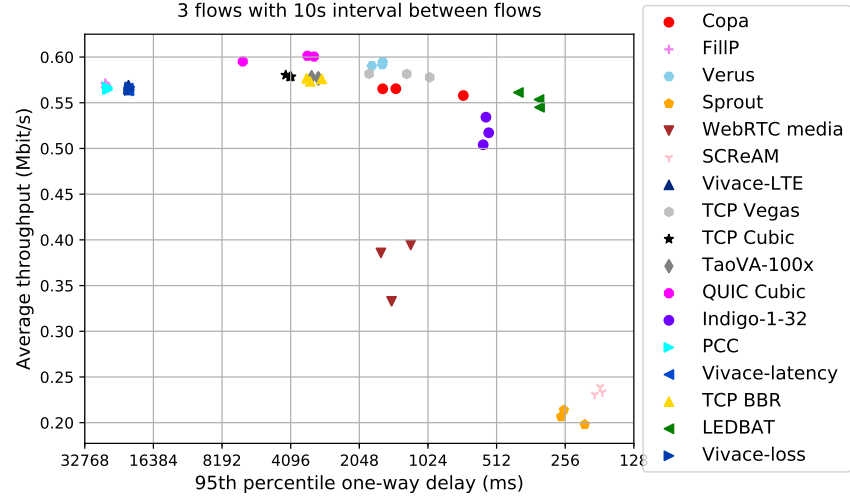
test from Colombia ppp0 to AWS Brazil 2 Ethernet, 3 runs of 30s each per scheme
3 flows with 10s interval between flows (mean of all runs by scheme)

test from Colombia ppp0 to AWS Brazil 2 Ethernet, 3 runs of 30s each per scheme
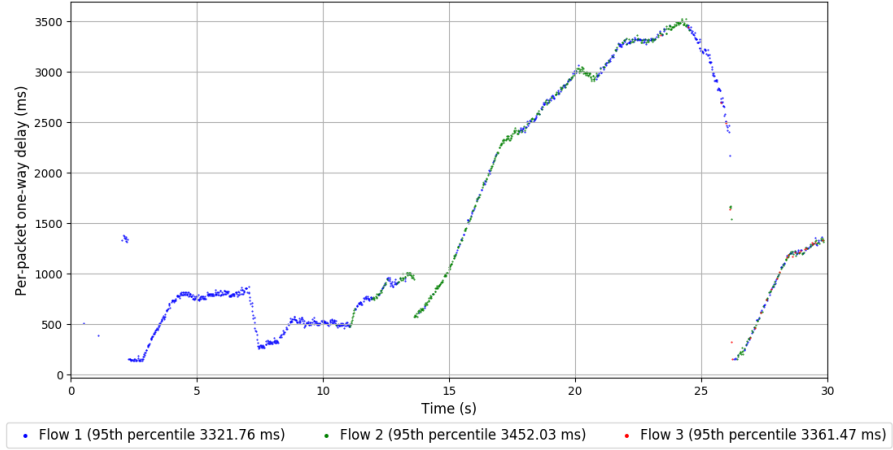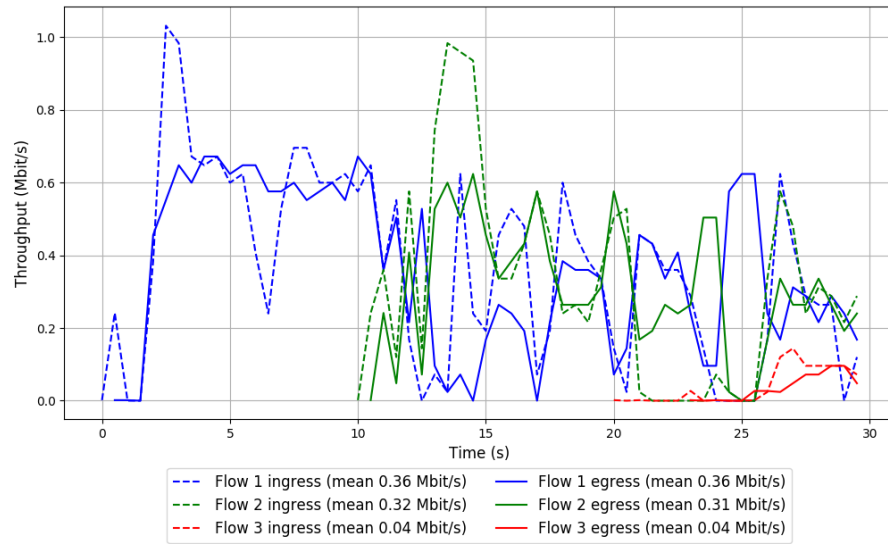3 flows with 10s interval between flows

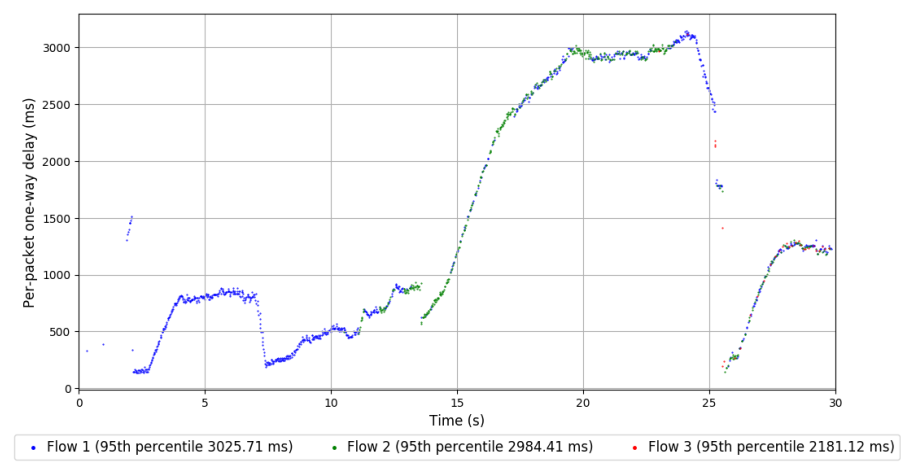| scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	3	0.37	0.30	0.04	3250.50	3314.06	2872.58	2.24	5.72	32.42
TCP Cubic	3	0.43	0.26	0.01	3980.69	4208.42	3930.38	8.52	27.70	62.46
LEDBAT	3	0.28	0.26	0.33	318.90	359.24	375.51	0.40	0.75	5.85
PCC	3	0.57	0.00	N/A	26056.74	N/A	N/A	98.55	N/A	N/A
QUIC Cubic	3	0.52	0.13	0.02	4357.70	4152.20	4537.20	12.24	14.16	44.94
SCReAM	3	0.08	0.14	0.17	163.34	181.40	195.06	0.83	0.84	2.00
WebRTC media	3	0.18	0.14	0.07	1312.02	1507.84	1315.93	1.10	4.70	8.89
Sprout	3	0.10	0.10	0.10	542.12	203.97	223.27	1.68	1.92	3.48
TaoVA-100x	3	0.35	0.26	0.23	2561.30	3447.59	3336.15	4.43	8.45	21.68
TCP Vegas	3	0.35	0.25	0.24	1313.19	1430.30	1409.30	1.69	4.32	12.09
Verus	3	0.56	0.03	0.01	1681.07	1702.55	1700.52	4.00	9.75	20.45
Copa	3	0.37	0.23	0.14	1131.64	1269.18	1334.15	4.76	10.06	24.45
FillP	3	0.57	0.00	N/A	26548.09	N/A	N/A	98.29	N/A	N/A
Indigo-1-32	3	0.27	0.25	0.25	489.53	550.32	643.46	1.36	2.34	5.93
Vivace-latency	3	0.56	0.00	N/A	21076.28	N/A	N/A	71.16	N/A	N/A
Vivace-loss	3	0.56	0.00	N/A	20884.47	N/A	N/A	89.07	N/A	N/A
Vivace-LTE	3	0.57	0.00	N/A	21043.71	N/A	N/A	71.09	N/A	N/A

```
Run 1: Statistics of TCP BBR

Start at: 2018-02-17 03:39:02
End at: 2018-02-17 03:39:32
Local clock offset: -4.928 ms
Remote clock offset: -3.577 ms


# Below is generated by plot.py at 2018-02-17 05:52:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 3362.160 ms
Loss rate: 4.04%
-- Flow 1:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 3321.758 ms
Loss rate: 1.78%
-- Flow 2:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 3452.029 ms
Loss rate: 6.05%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 3361.466 ms
Loss rate: 33.98%
```
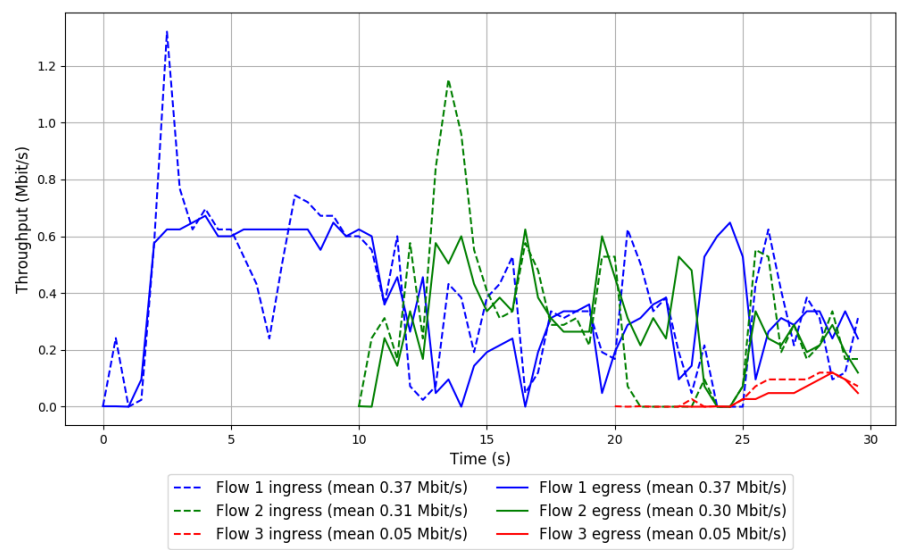
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2018-02-17 04:01:33
End at: 2018-02-17 04:02:03
Local clock offset: -6.119 ms
Remote clock offset: -3.841 ms


# Below is generated by plot.py at 2018-02-17 05:52:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 2994.393 ms
Loss rate: 4.00%
-- Flow 1:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 3025.709 ms
Loss rate: 2.26%
-- Flow 2:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 2984.406 ms
Loss rate: 5.13%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 2181.118 ms
Loss rate: 31.28%
```
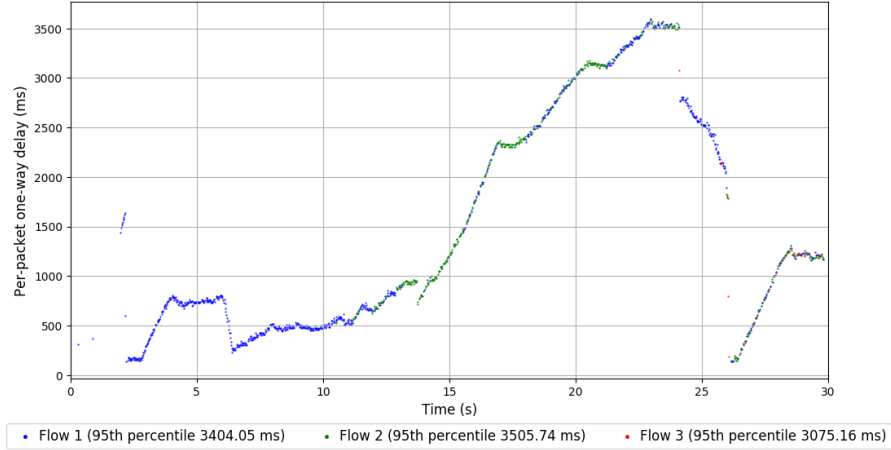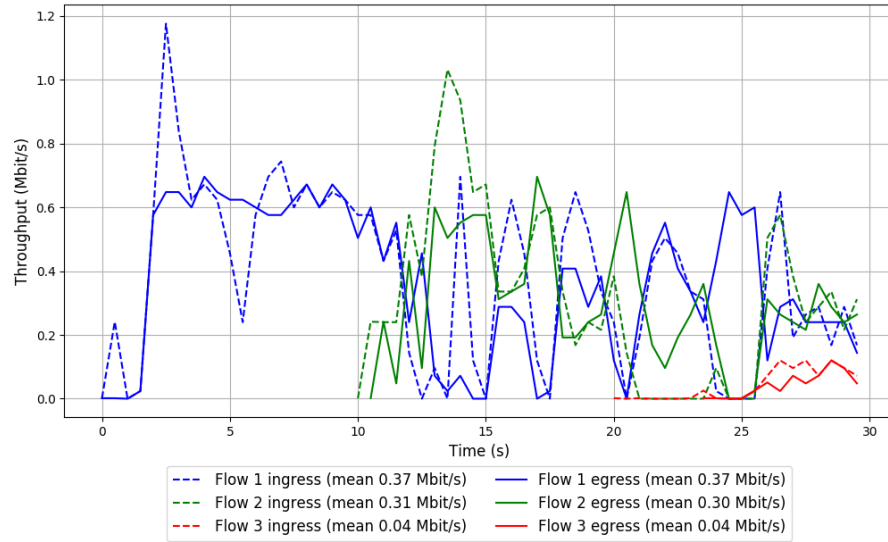
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-02-17 04:24:07
End at: 2018-02-17 04:24:37
Local clock offset: -7.038 ms
Remote clock offset: 1.806 ms


# Below is generated by plot.py at 2018-02-17 05:52:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 3485.736 ms
Loss rate: 4.51%
-- Flow 1:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 3404.045 ms
Loss rate: 2.68%
-- Flow 2:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 3505.741 ms
Loss rate: 5.97%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 3075.161 ms
Loss rate: 32.01%
```

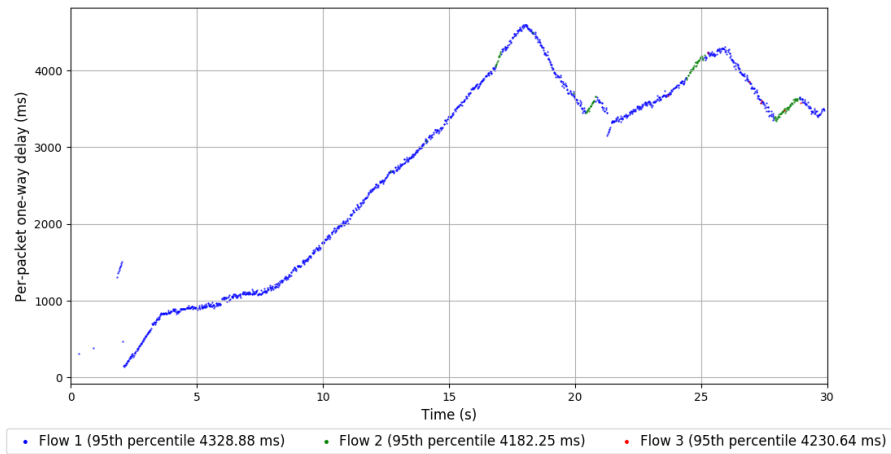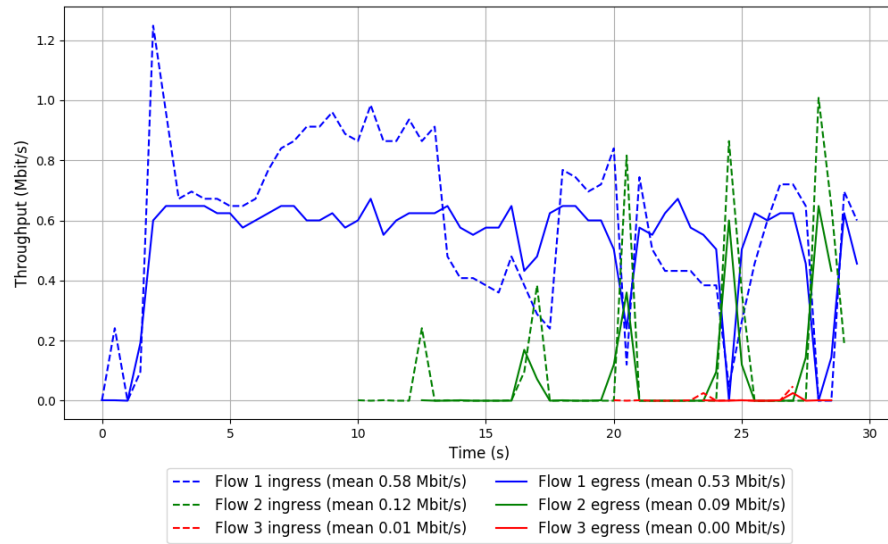Run 3: Report of TCP BBR — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2018-02-17 03:52:49
End at: 2018-02-17 03:53:19
Local clock offset: -5.394 ms
Remote clock offset: -3.986 ms


# Below is generated by plot.py at 2018-02-17 05:52:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 4308.960 ms
Loss rate: 13.71%
-- Flow 1:
Average throughput: 0.53 Mbit/s
95th percentile per-packet one-way delay: 4328.884 ms
Loss rate: 10.14%
-- Flow 2:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 4182.252 ms
Loss rate: 40.04%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 4230.644 ms
Loss rate: 60.08%
```

Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-02-17 04:15:23
End at: 2018-02-17 04:15:53
Local clock offset: -6.782 ms
Remote clock offset: 1.082 ms


# Below is generated by plot.py at 2018-02-17 05:52:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 4075.178 ms
Loss rate: 11.72%
-- Flow 1:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 3995.465 ms
Loss rate: 9.09%
-- Flow 2:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 4116.598 ms
Loss rate: 15.13%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 4154.335 ms
Loss rate: 61.12%
```
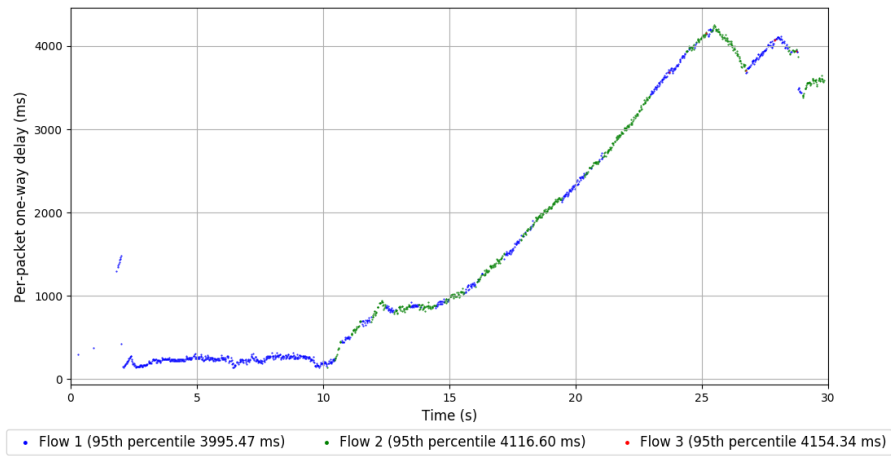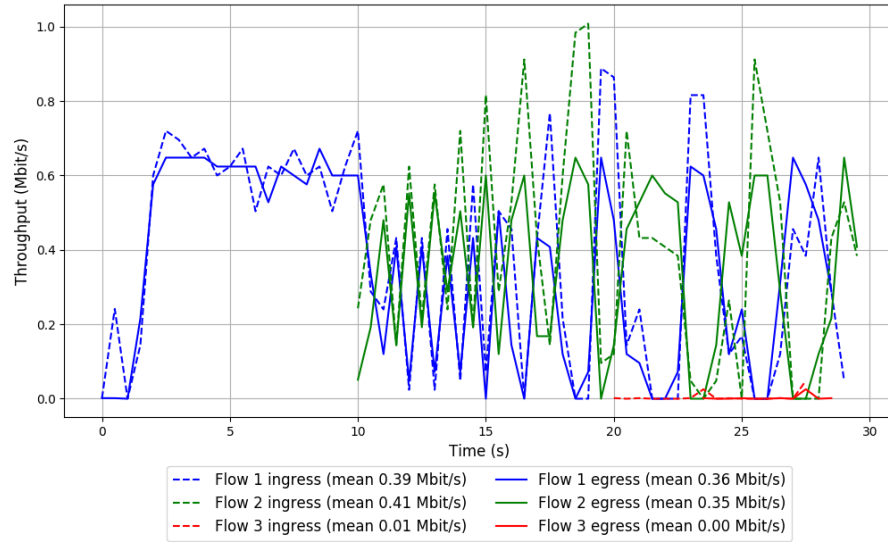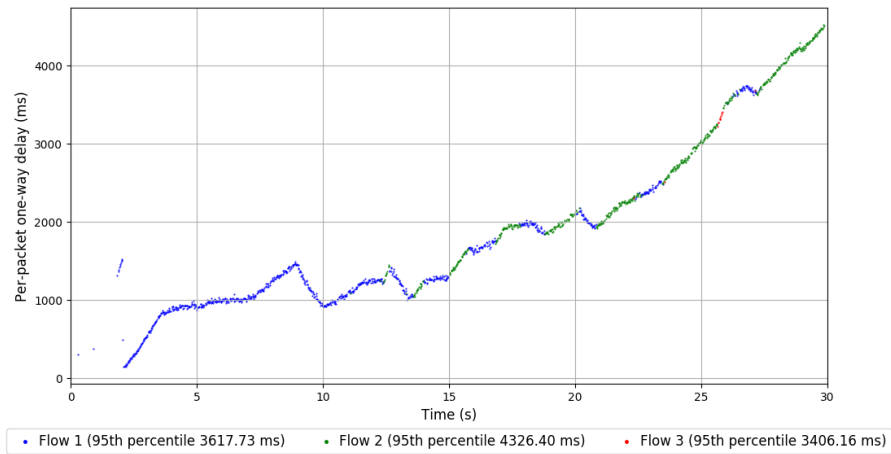
Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 0.39 Mbit/s)   Flow 1 egress (mean 0.36 Mbit/s)
Flow 2 ingress (mean 0.41 Mbit/s)   Flow 2 egress (mean 0.35 Mbit/s)
Flow 3 ingress (mean 0.01 Mbit/s)   Flow 3 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 3995.47 ms)   Flow 2 (95th percentile 4116.60 ms)   Flow 3 (95th percentile 4154.34 ms)

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```
Run 3: Statistics of TCP Cubic

Start at: 2018-02-17 04:37:52
End at: 2018-02-17 04:38:22
Local clock offset: -3.827 ms
Remote clock offset: 2.725 ms


# Below is generated by plot.py at 2018-02-17 05:52:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 4136.330 ms
Loss rate: 16.87%
-- Flow 1:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 3617.733 ms
Loss rate: 6.34%
-- Flow 2:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 4326.399 ms
Loss rate: 27.92%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 3406.163 ms
Loss rate: 66.19%
```
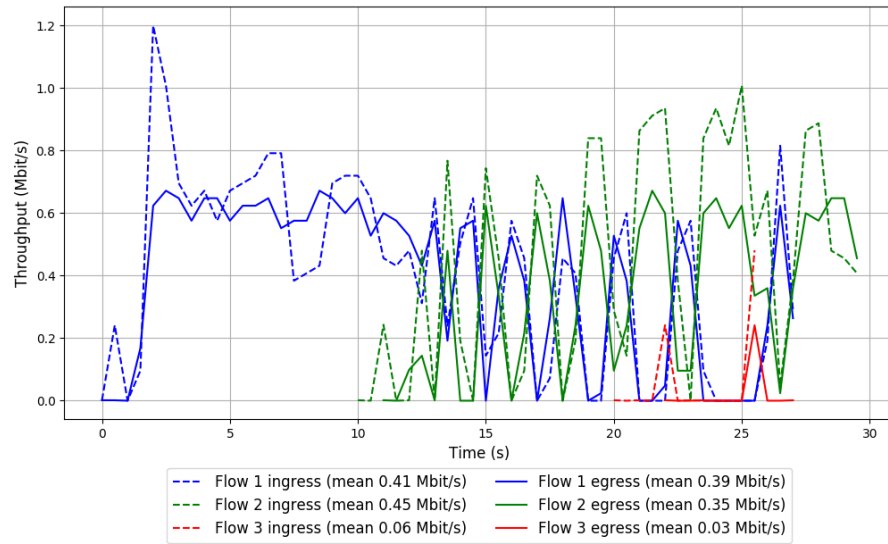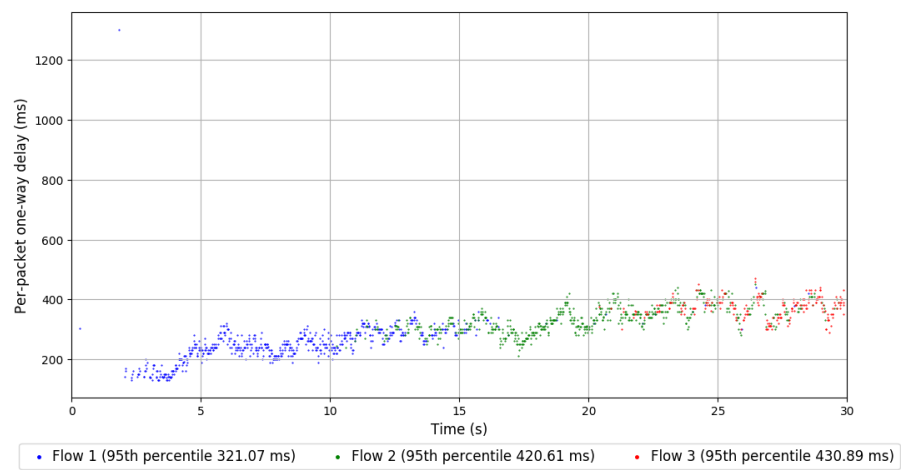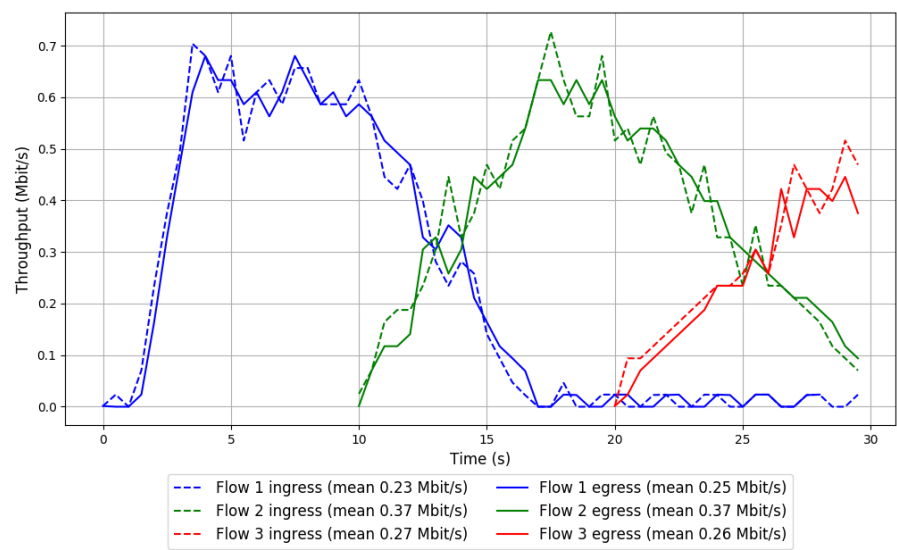
Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 0.41 Mbit/s) --- Flow 1 egress (mean 0.39 Mbit/s)
Flow 2 ingress (mean 0.45 Mbit/s) --- Flow 2 egress (mean 0.35 Mbit/s)
Flow 3 ingress (mean 0.06 Mbit/s) --- Flow 3 egress (mean 0.03 Mbit/s)

Flow 1 (95th percentile 3617.73 ms)   Flow 2 (95th percentile 4326.40 ms)   Flow 3 (95th percentile 3406.16 ms)

```
Run 1: Statistics of LEDBAT

Start at: 2018-02-17 03:51:35
End at: 2018-02-17 03:52:05
Local clock offset: -5.375 ms
Remote clock offset: 2.439 ms


# Below is generated by plot.py at 2018-02-17 05:52:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 410.827 ms
Loss rate: 1.60%
-- Flow 1:
Average throughput: 0.25 Mbit/s
95th percentile per-packet one-way delay: 321.066 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 420.614 ms
Loss rate: 0.48%
-- Flow 3:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 430.888 ms
Loss rate: 8.37%
```
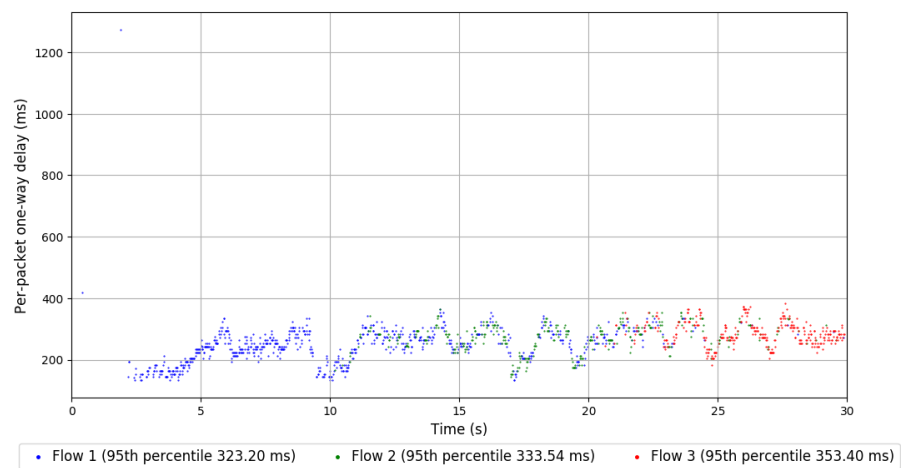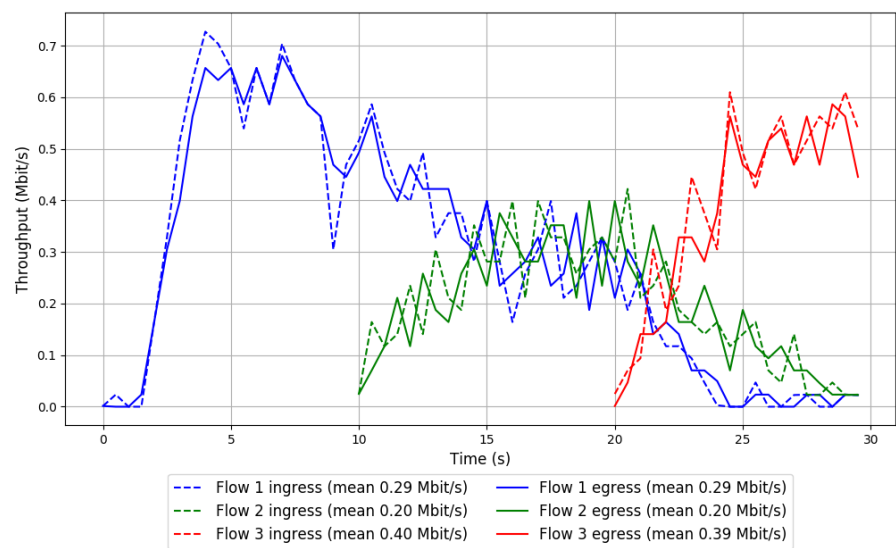
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-02-17 04:14:04
End at: 2018-02-17 04:14:34
Local clock offset: -6.731 ms
Remote clock offset: -2.902 ms

# Below is generated by plot.py at 2018-02-17 05:52:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 333.472 ms
Loss rate: 1.56%
-- Flow 1:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 323.202 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 333.542 ms
Loss rate: 0.59%
-- Flow 3:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 353.397 ms
Loss rate: 5.65%
```
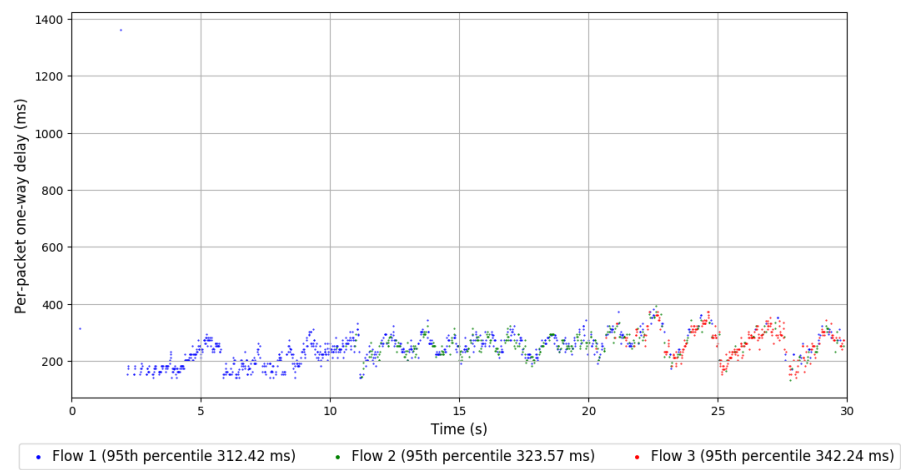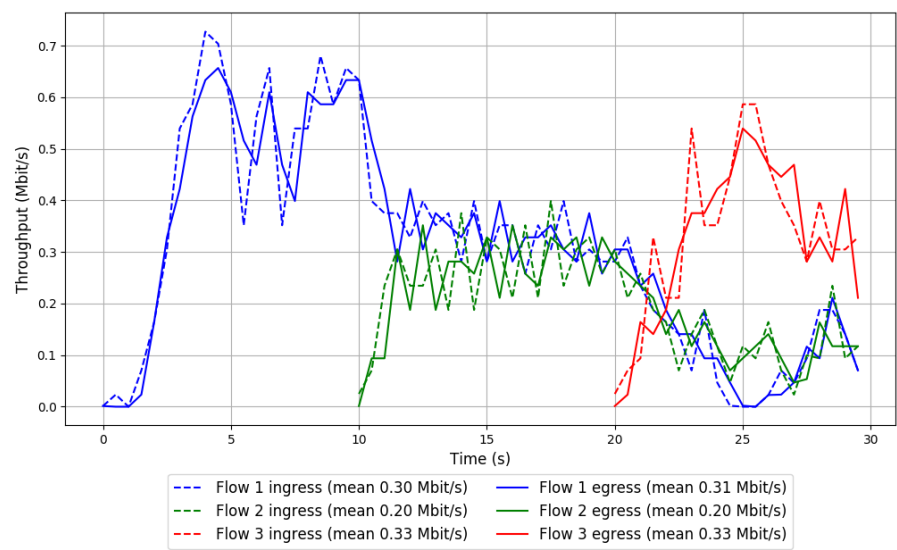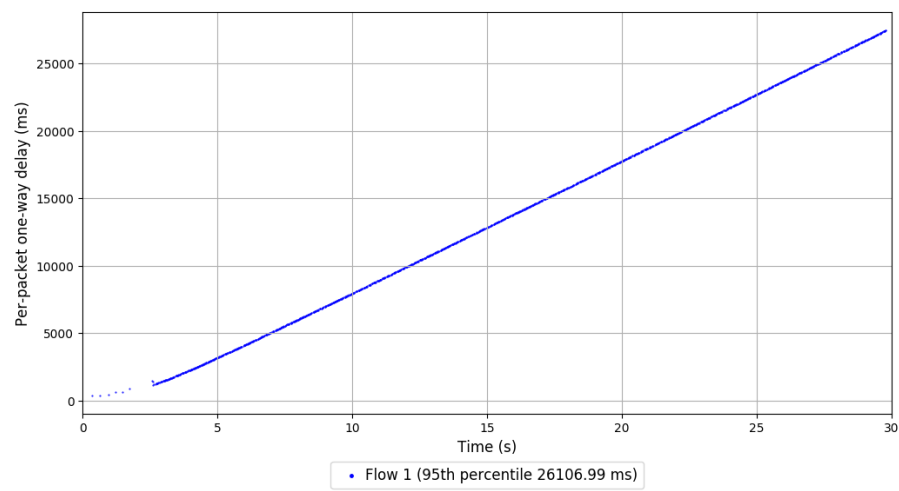
Run 2: Report of LEDBAT — Data Link

- Flow 1 ingress (mean 0.29 Mbit/s)
- Flow 1 egress (mean 0.29 Mbit/s)
- Flow 2 ingress (mean 0.20 Mbit/s)
- Flow 2 egress (mean 0.20 Mbit/s)
- Flow 3 ingress (mean 0.40 Mbit/s)
- Flow 3 egress (mean 0.39 Mbit/s)

- Flow 1 (95th percentile 323.20 ms)
- Flow 2 (95th percentile 333.54 ms)
- Flow 3 (95th percentile 353.40 ms)

```
Run 3: Statistics of LEDBAT

Start at: 2018-02-17 04:36:37
End at: 2018-02-17 04:37:07
Local clock offset: -4.148 ms
Remote clock offset: -2.837 ms

# Below is generated by plot.py at 2018-02-17 05:52:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.54 Mbit/s
95th percentile per-packet one-way delay: 331.940 ms
Loss rate: 1.51%
-- Flow 1:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 312.424 ms
Loss rate: 0.90%
-- Flow 2:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 323.575 ms
Loss rate: 1.19%
-- Flow 3:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 342.244 ms
Loss rate: 3.53%
```
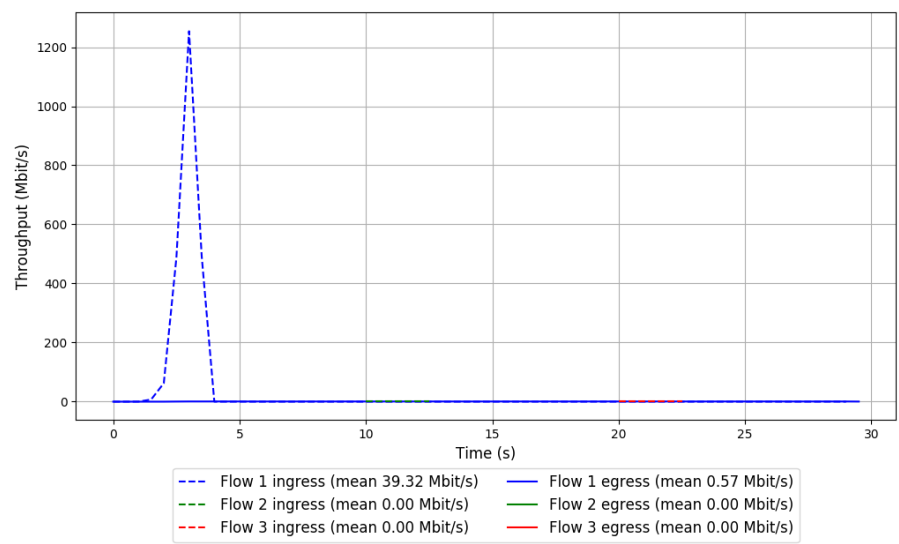
Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 0.30 Mbit/s) — Flow 1 egress (mean 0.31 Mbit/s)
Flow 2 ingress (mean 0.20 Mbit/s) — Flow 2 egress (mean 0.20 Mbit/s)
Flow 3 ingress (mean 0.33 Mbit/s) — Flow 3 egress (mean 0.33 Mbit/s)

Flow 1 (95th percentile 312.42 ms)   Flow 2 (95th percentile 323.57 ms)   Flow 3 (95th percentile 342.24 ms)
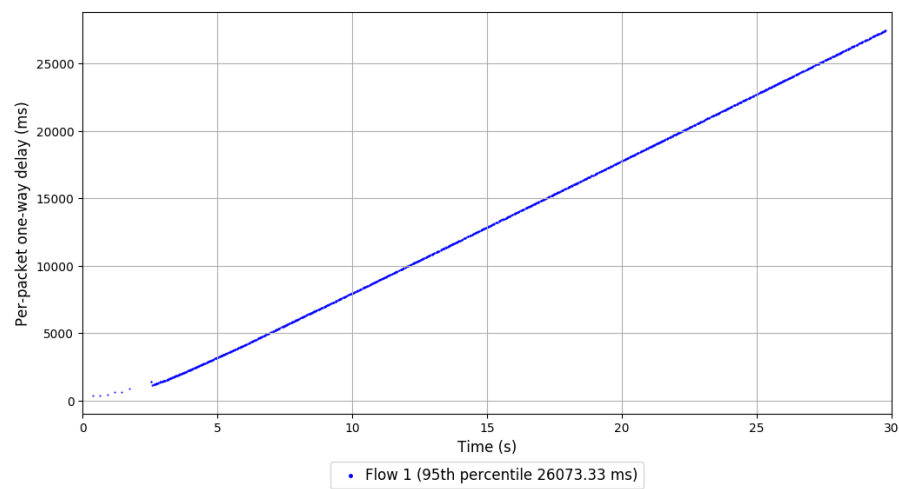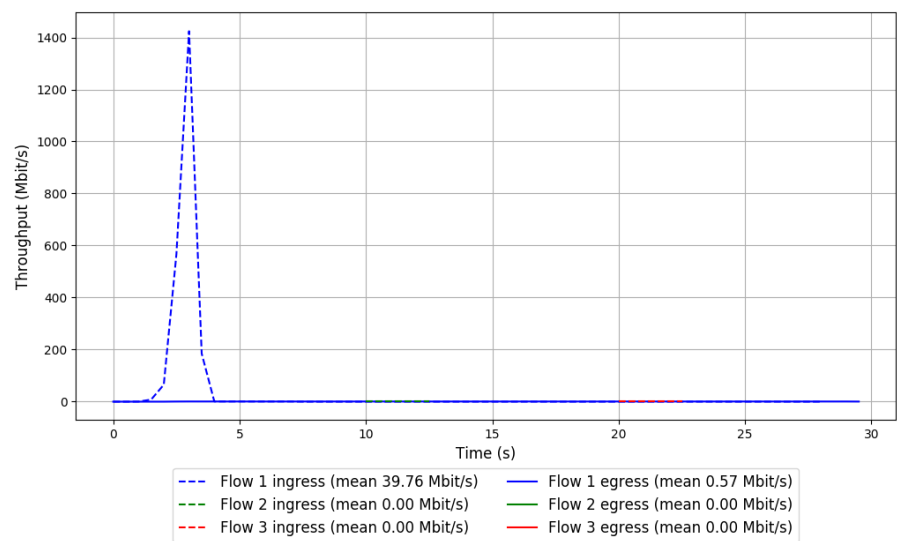
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```
Run 1: Statistics of PCC

Start at: 2018-02-17 03:45:18
End at: 2018-02-17 03:45:48
Local clock offset: -5.208 ms
Remote clock offset: -4.132 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26106.993 ms
Loss rate: 98.56%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26106.993 ms
Loss rate: 98.56%
-- Flow 2:
Average throughput: 0.00 Mbit/s
-- Flow 3:
Average throughput: 0.00 Mbit/s
```
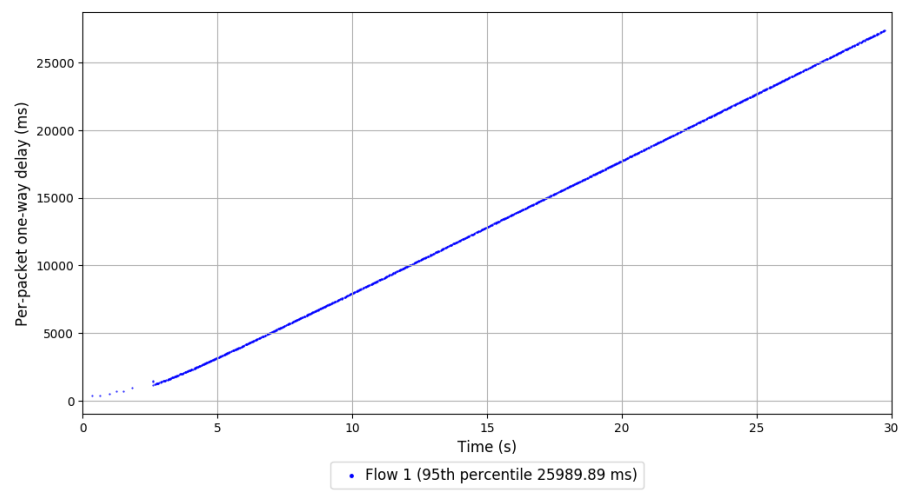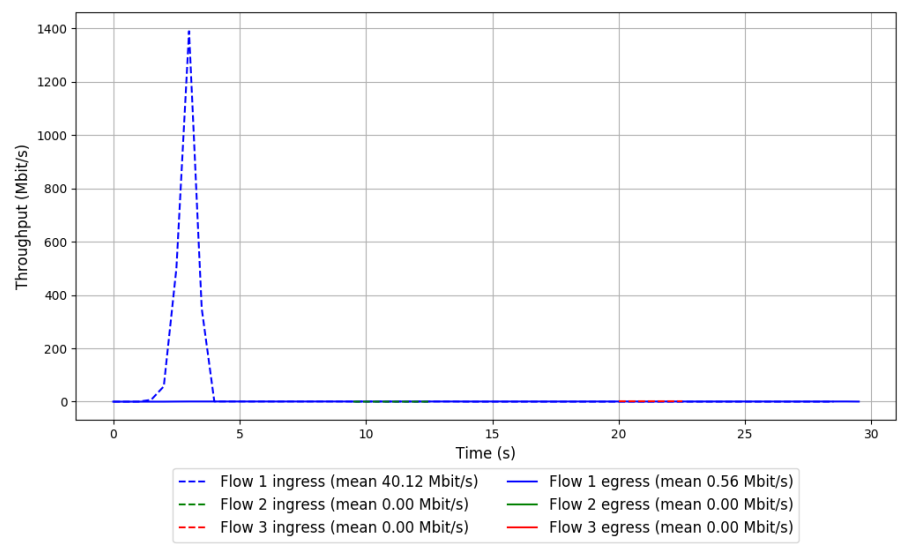
Run 1: Report of PCC — Data Link

Flow 1 ingress (mean 39.32 Mbit/s)   Flow 1 egress (mean 0.57 Mbit/s)
Flow 2 ingress (mean 0.00 Mbit/s)   Flow 2 egress (mean 0.00 Mbit/s)
Flow 3 ingress (mean 0.00 Mbit/s)   Flow 3 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 26106.99 ms)

```
Run 2: Statistics of PCC

Start at: 2018-02-17 04:07:48
End at: 2018-02-17 04:08:18
Local clock offset: -6.479 ms
Remote clock offset: -2.928 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26073.328 ms
Loss rate: 98.52%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26073.328 ms
Loss rate: 98.52%
-- Flow 2:
Average throughput: 0.00 Mbit/s
-- Flow 3:
Average throughput: 0.00 Mbit/s
```
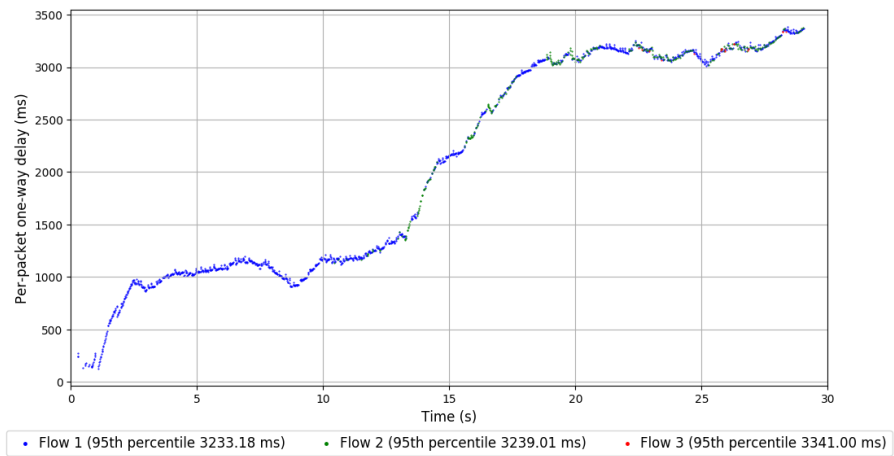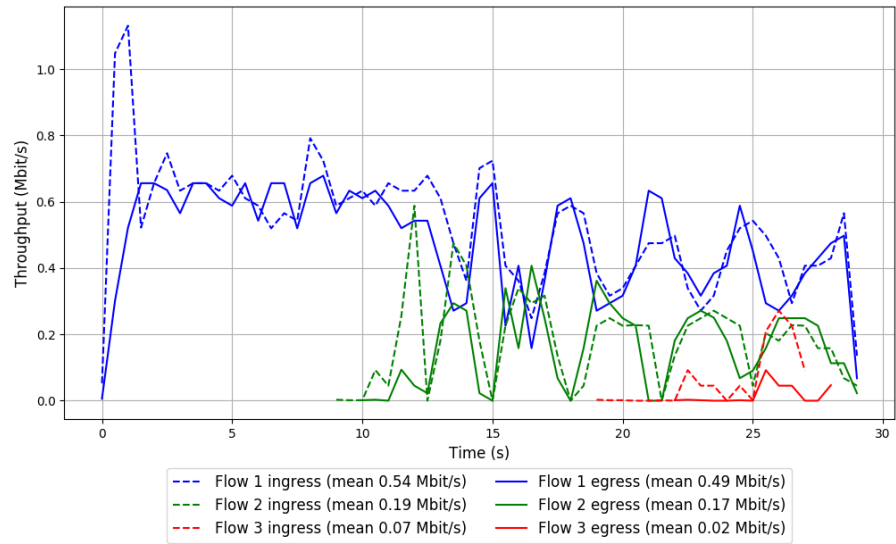
Run 2: Report of PCC — Data Link

```
Run 3: Statistics of PCC

Start at: 2018-02-17 04:30:22
End at: 2018-02-17 04:30:52
Local clock offset: -6.456 ms
Remote clock offset: -2.851 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 25989.887 ms
Loss rate: 98.57%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 25989.887 ms
Loss rate: 98.57%
-- Flow 2:
Average throughput: 0.00 Mbit/s
-- Flow 3:
Average throughput: 0.00 Mbit/s
```

Run 3: Report of PCC — Data Link

Flow 1 ingress (mean 40.12 Mbit/s) --- Flow 1 egress (mean 0.56 Mbit/s)
Flow 2 ingress (mean 0.00 Mbit/s) --- Flow 2 egress (mean 0.00 Mbit/s)
Flow 3 ingress (mean 0.00 Mbit/s) --- Flow 3 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 25989.89 ms)

27

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-02-17 03:56:34
End at: 2018-02-17 03:57:04
Local clock offset: -5.64 ms
Remote clock offset: -3.879 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 3235.990 ms
Loss rate: 13.00%
-- Flow 1:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 3233.182 ms
Loss rate: 9.98%
-- Flow 2:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 3239.011 ms
Loss rate: 16.80%
-- Flow 3:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 3341.004 ms
Loss rate: 77.10%
```
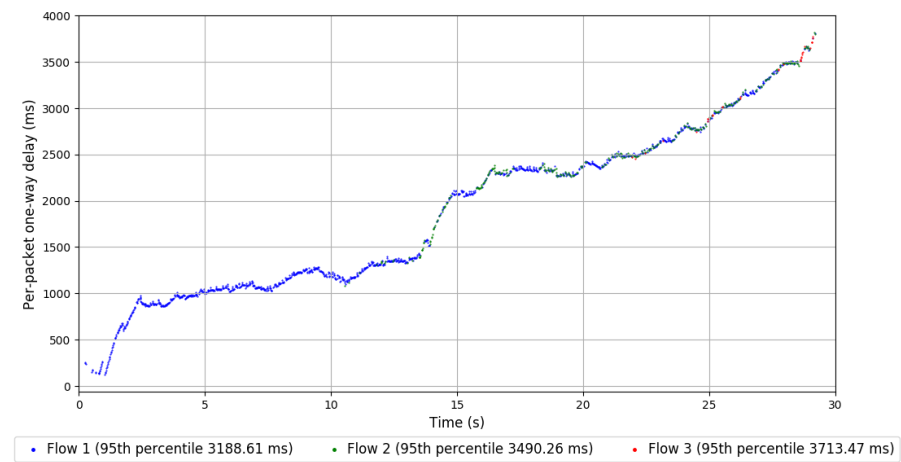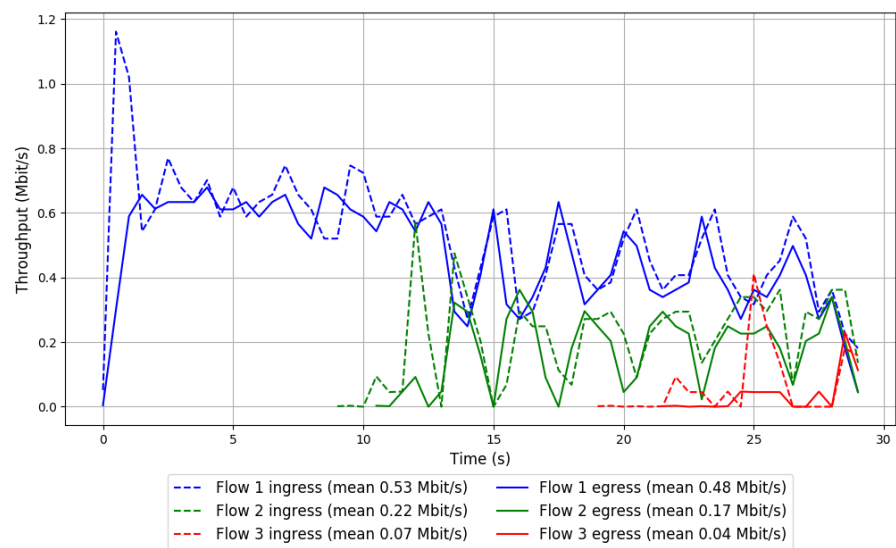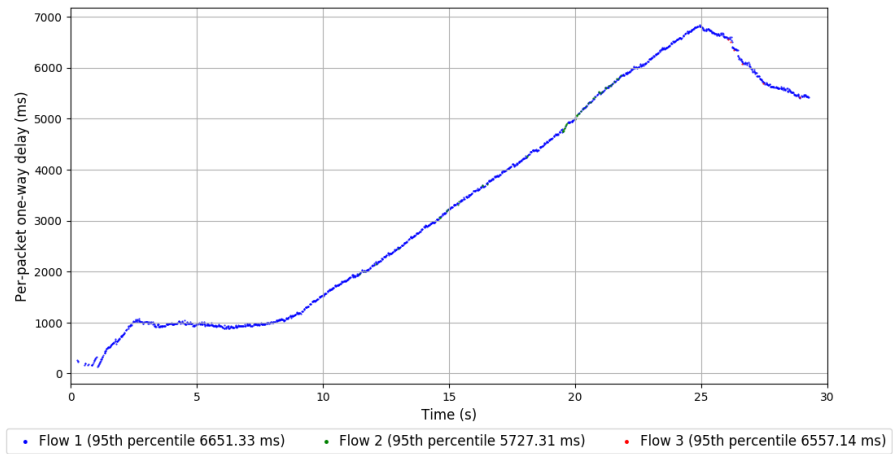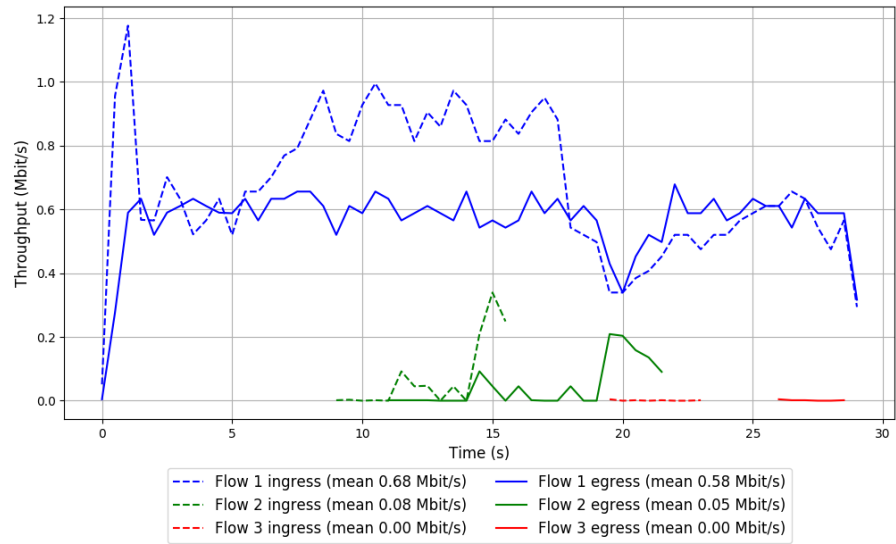
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-02-17 04:19:07
End at: 2018-02-17 04:19:37
Local clock offset: -6.965 ms
Remote clock offset: 2.735 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 3459.396 ms
Loss rate: 15.36%
-- Flow 1:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 3188.605 ms
Loss rate: 10.58%
-- Flow 2:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 3490.263 ms
Loss rate: 25.68%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 3713.468 ms
Loss rate: 57.72%
```
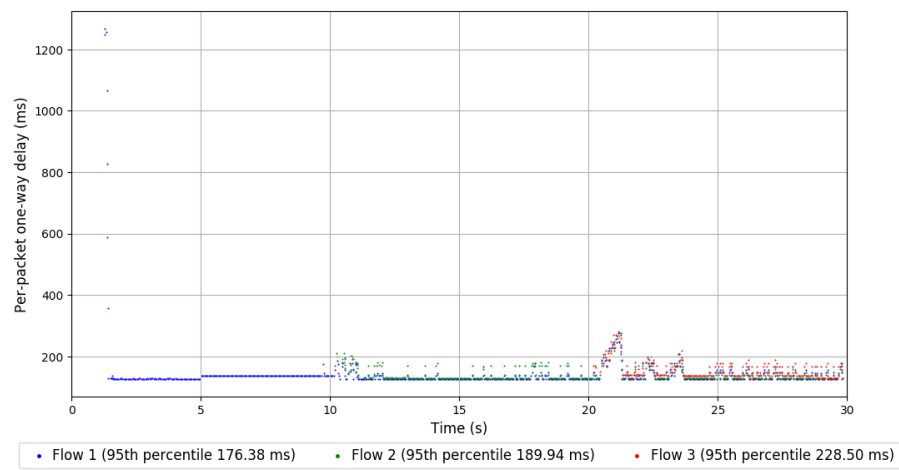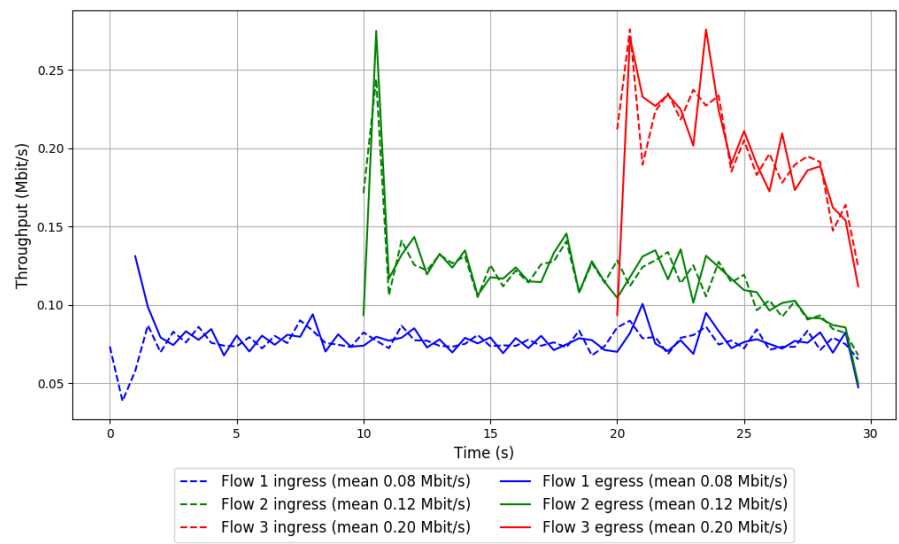
Run 2: Report of QUIC Cubic — Data Link

Legend:
- Flow 1 ingress (mean 0.53 Mbit/s)
- Flow 1 egress (mean 0.48 Mbit/s)
- Flow 2 ingress (mean 0.22 Mbit/s)
- Flow 2 egress (mean 0.17 Mbit/s)
- Flow 3 ingress (mean 0.07 Mbit/s)
- Flow 3 egress (mean 0.04 Mbit/s)

Legend:
- Flow 1 (95th percentile 3188.61 ms)
- Flow 2 (95th percentile 3490.26 ms)
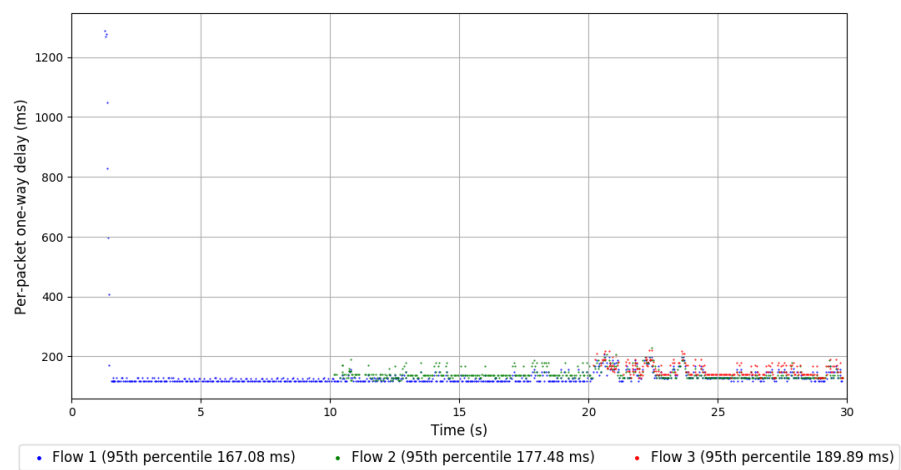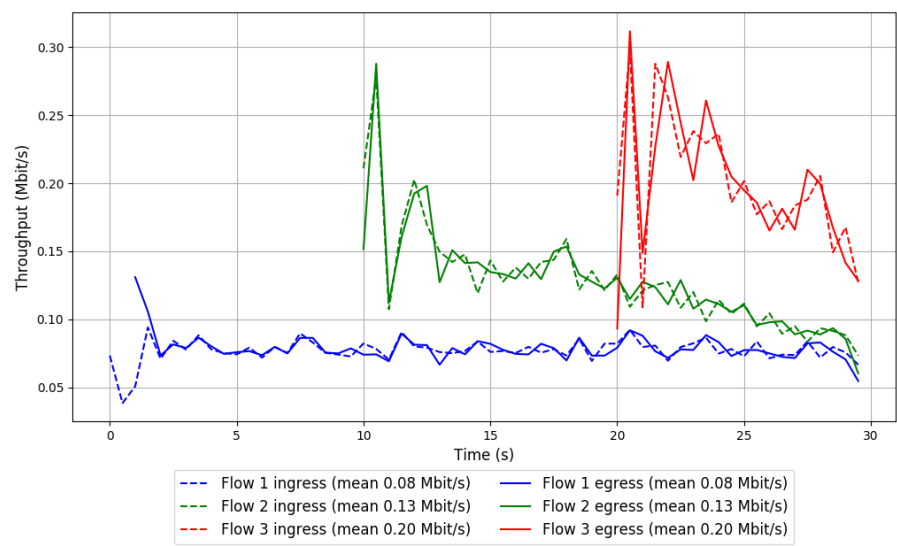- Flow 3 (95th percentile 3713.47 ms)

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-02-17 04:41:37
End at: 2018-02-17 04:42:07
Local clock offset: -3.139 ms
Remote clock offset: -2.849 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 6644.053 ms
Loss rate: 15.75%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 6651.326 ms
Loss rate: 16.16%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 5727.315 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 6557.142 ms
Loss rate: 0.00%
```

Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 0.68 Mbit/s) --- Flow 1 egress (mean 0.58 Mbit/s)
Flow 2 ingress (mean 0.08 Mbit/s) --- Flow 2 egress (mean 0.05 Mbit/s)
Flow 3 ingress (mean 0.00 Mbit/s) --- Flow 3 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 6651.33 ms) • Flow 2 (95th percentile 5727.31 ms) • Flow 3 (95th percentile 6557.14 ms)

```
Run 1: Statistics of SCReAM

Start at: 2018-02-17 03:59:03
End at: 2018-02-17 03:59:33
Local clock offset: -5.95 ms
Remote clock offset: -3.096 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 189.940 ms
Loss rate: 1.12%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 176.378 ms
Loss rate: 0.78%
-- Flow 2:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 189.940 ms
Loss rate: 0.75%
-- Flow 3:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 228.502 ms
Loss rate: 1.95%
```
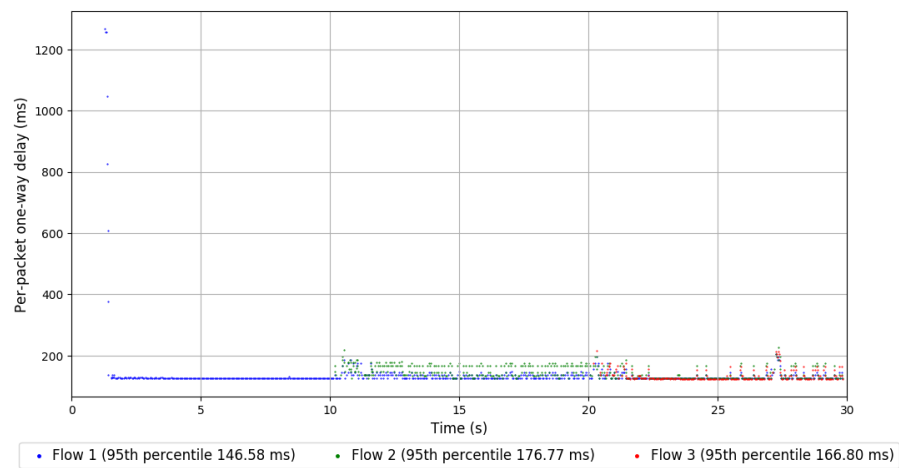
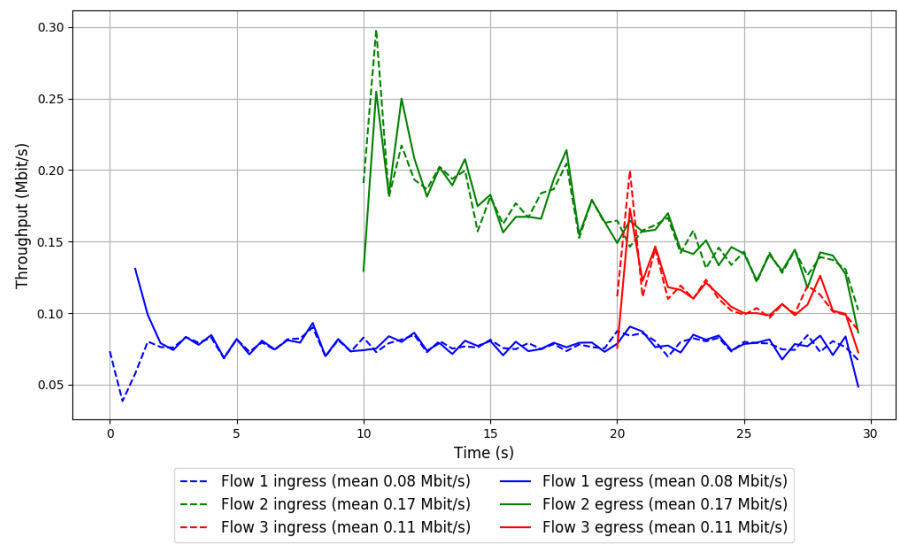## Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2018-02-17 04:21:36
End at: 2018-02-17 04:22:06
Local clock offset: -7.023 ms
Remote clock offset: 2.85 ms

# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 179.849 ms
Loss rate: 1.04%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 167.079 ms
Loss rate: 0.91%
-- Flow 2:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 177.482 ms
Loss rate: 0.75%
-- Flow 3:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 189.886 ms
Loss rate: 1.55%
```
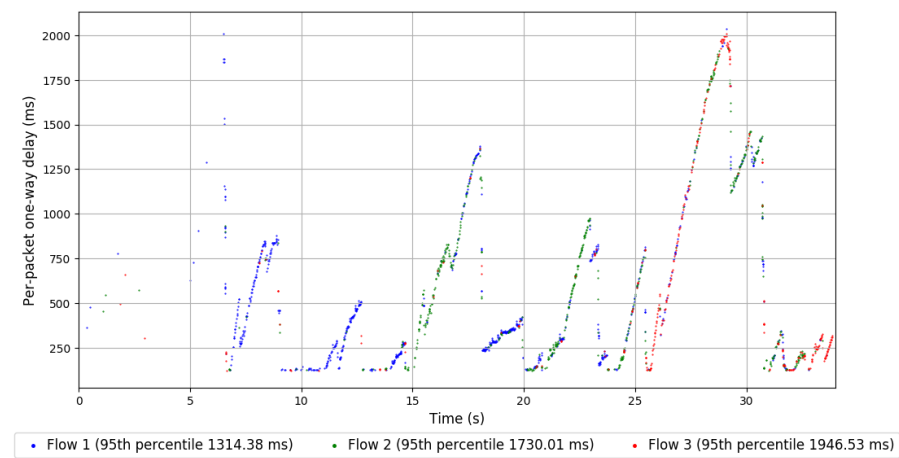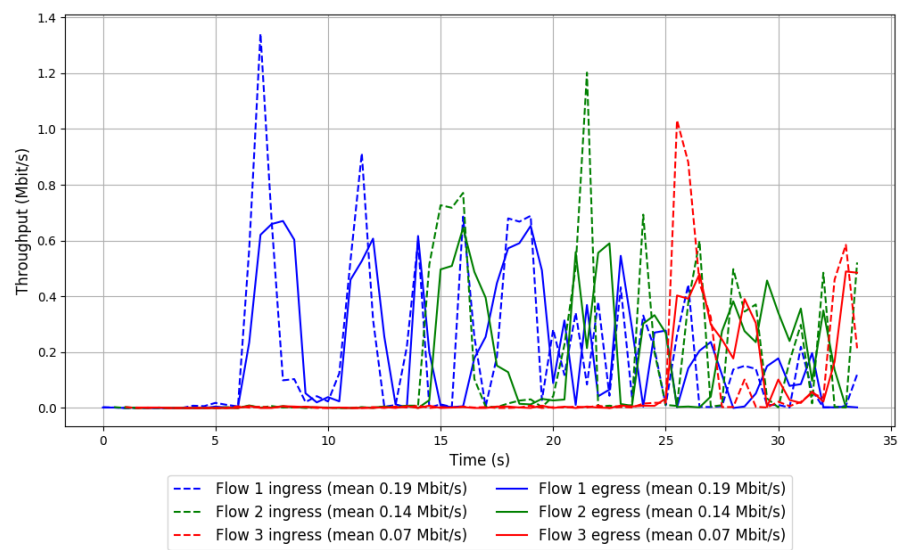
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-02-17 04:44:06
End at: 2018-02-17 04:44:36
Local clock offset: -2.768 ms
Remote clock offset: -2.861 ms

# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 175.859 ms
Loss rate: 1.19%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 146.576 ms
Loss rate: 0.79%
-- Flow 2:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 176.772 ms
Loss rate: 1.01%
-- Flow 3:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 166.799 ms
Loss rate: 2.51%
```

Run 3: Report of SCReAM — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2018-02-17 03:41:32
End at: 2018-02-17 03:42:02
Local clock offset: -5.062 ms
Remote clock offset: -4.351 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 1646.482 ms
Loss rate: 3.15%
-- Flow 1:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 1314.384 ms
Loss rate: 1.10%
-- Flow 2:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 1730.012 ms
Loss rate: 5.87%
-- Flow 3:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 1946.530 ms
Loss rate: 3.14%
```
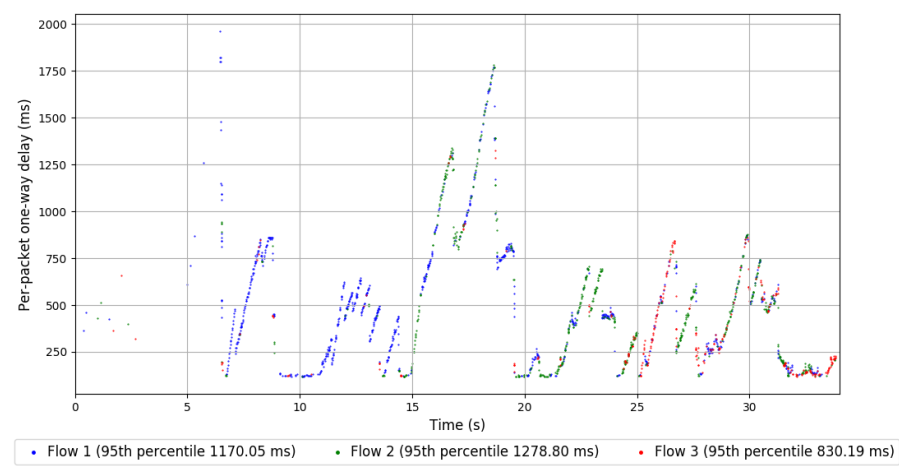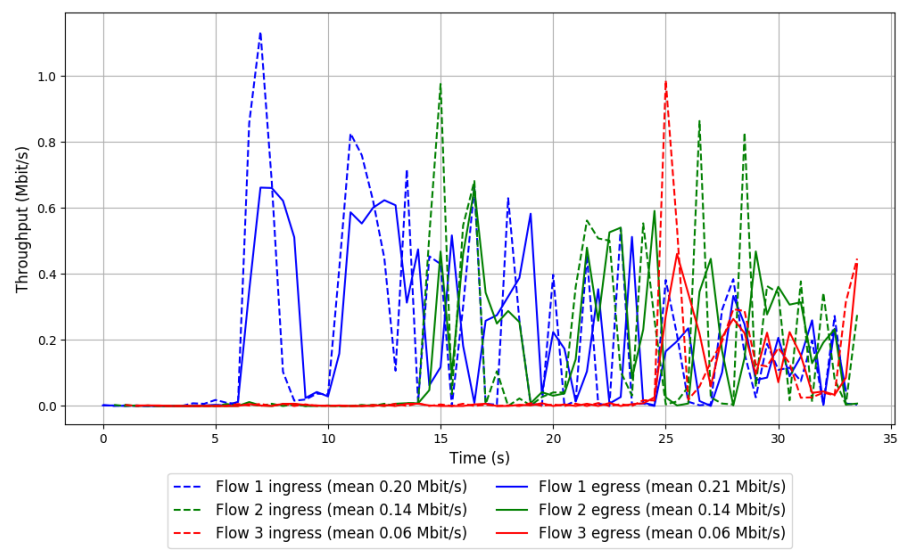
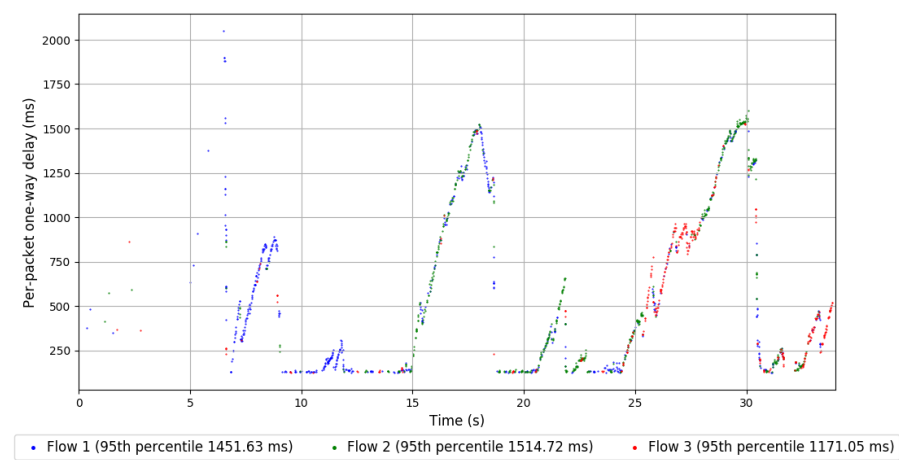# Run 1: Report of WebRTC media — Data Link

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```
Run 2: Statistics of WebRTC media

Start at: 2018-02-17 04:04:03
End at: 2018-02-17 04:04:33
Local clock offset: -6.313 ms
Remote clock offset: 2.735 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 1218.547 ms
Loss rate: 2.94%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 1170.049 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 1278.796 ms
Loss rate: 3.01%
-- Flow 3:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 830.194 ms
Loss rate: 12.35%
```

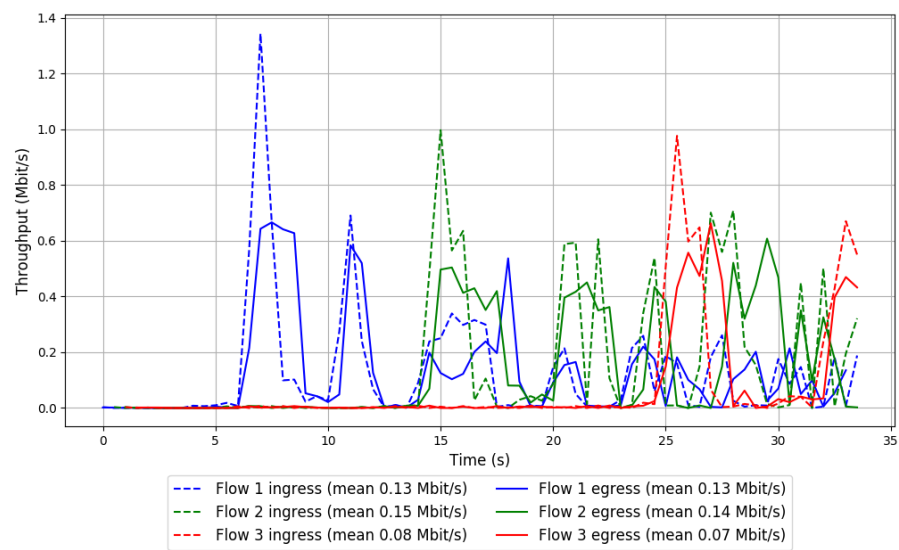Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-02-17 04:26:37
End at: 2018-02-17 04:27:07
Local clock offset: -7.11 ms
Remote clock offset: -3.743 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 1478.327 ms
Loss rate: 5.34%
-- Flow 1:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 1451.634 ms
Loss rate: 2.16%
-- Flow 2:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 1514.724 ms
Loss rate: 5.22%
-- Flow 3:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 1171.052 ms
Loss rate: 11.18%
```
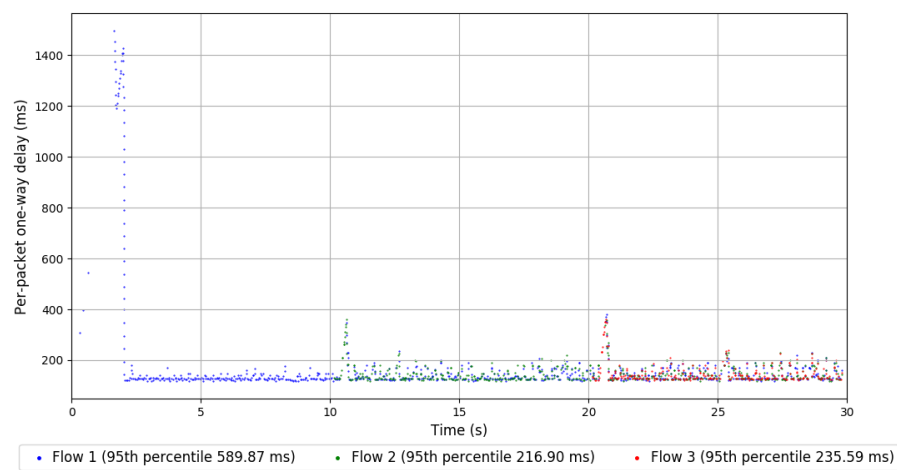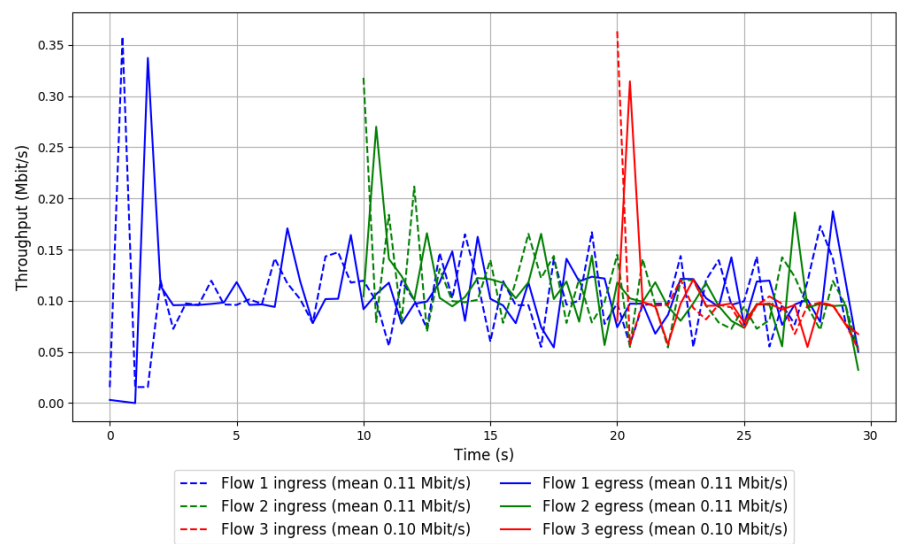
Run 3: Report of WebRTC media — Data Link

Flow 1 ingress (mean 0.13 Mbit/s)   Flow 1 egress (mean 0.13 Mbit/s)
Flow 2 ingress (mean 0.15 Mbit/s)   Flow 2 egress (mean 0.14 Mbit/s)
Flow 3 ingress (mean 0.08 Mbit/s)   Flow 3 egress (mean 0.07 Mbit/s)

Flow 1 (95th percentile 1451.63 ms)   Flow 2 (95th percentile 1514.72 ms)   Flow 3 (95th percentile 1171.05 ms)
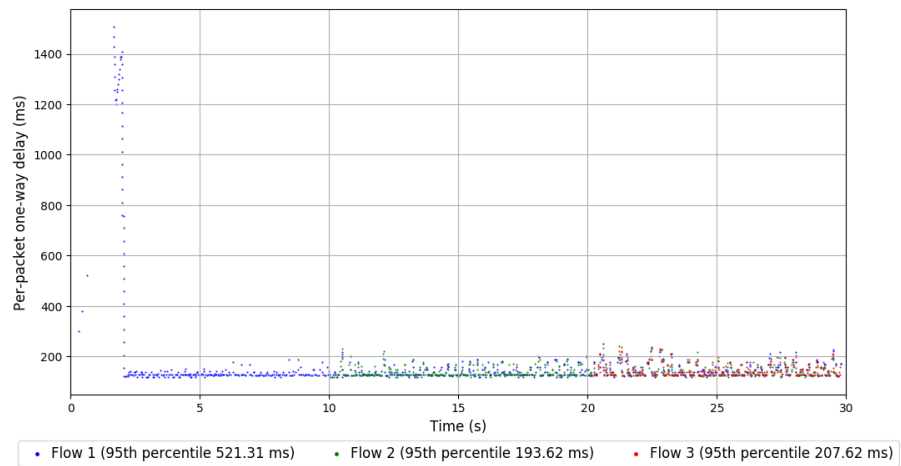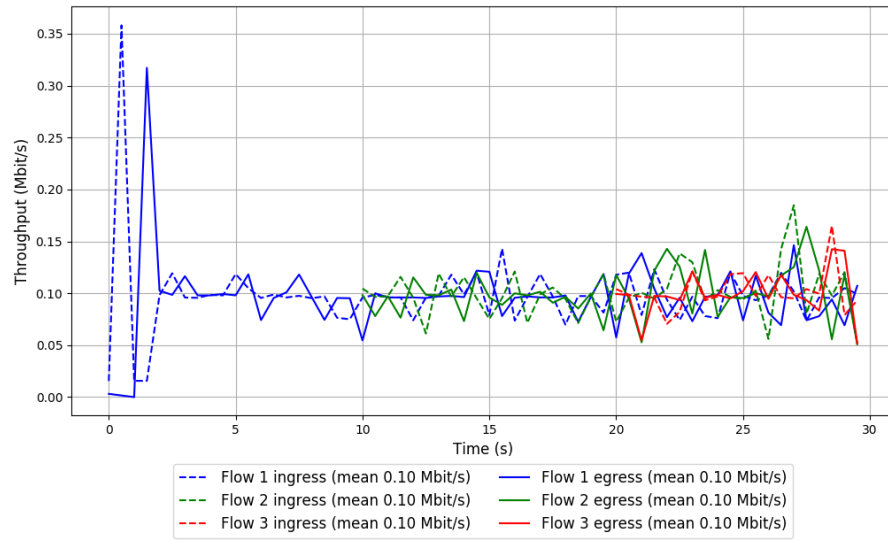
45

```
Run 1: Statistics of Sprout

Start at: 2018-02-17 03:55:19
End at: 2018-02-17 03:55:49
Local clock offset: -5.579 ms
Remote clock offset: 2.585 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 259.531 ms
Loss rate: 1.31%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 589.871 ms
Loss rate: 0.88%
-- Flow 2:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 216.904 ms
Loss rate: 1.44%
-- Flow 3:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 235.591 ms
Loss rate: 2.32%
```
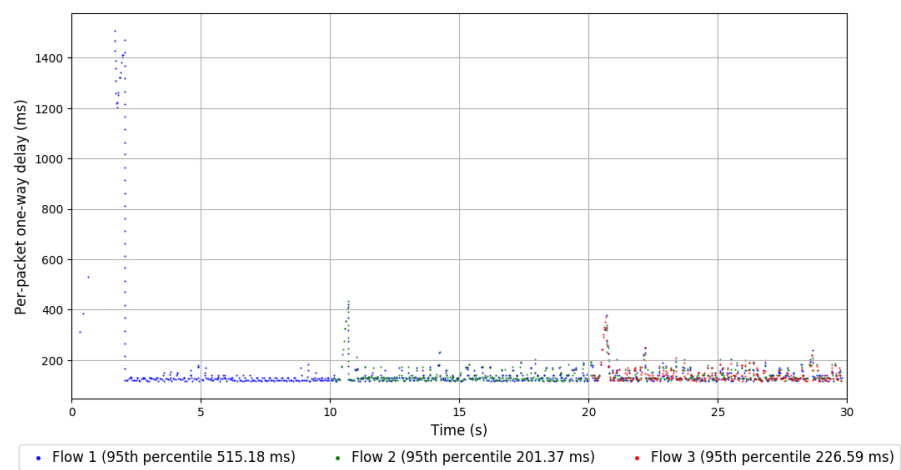
Run 1: Report of Sprout — Data Link

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```
Run 2: Statistics of Sprout

Start at: 2018-02-17 04:17:53
End at: 2018-02-17 04:18:23
Local clock offset: -6.858 ms
Remote clock offset: 1.074 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 210.119 ms
Loss rate: 2.11%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 521.311 ms
Loss rate: 2.65%
-- Flow 2:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 193.623 ms
Loss rate: 1.21%
-- Flow 3:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 207.616 ms
Loss rate: 2.35%
```

Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-02-17 04:40:22
End at: 2018-02-17 04:40:52
Local clock offset: -3.379 ms
Remote clock offset: 2.847 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 267.053 ms
Loss rate: 2.83%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 515.185 ms
Loss rate: 1.50%
-- Flow 2:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 201.369 ms
Loss rate: 3.12%
-- Flow 3:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 226.594 ms
Loss rate: 5.77%
```
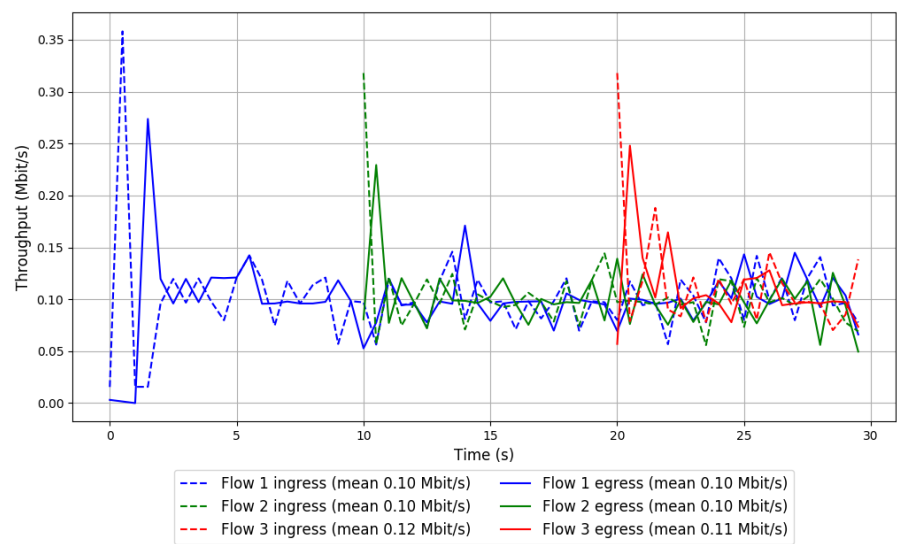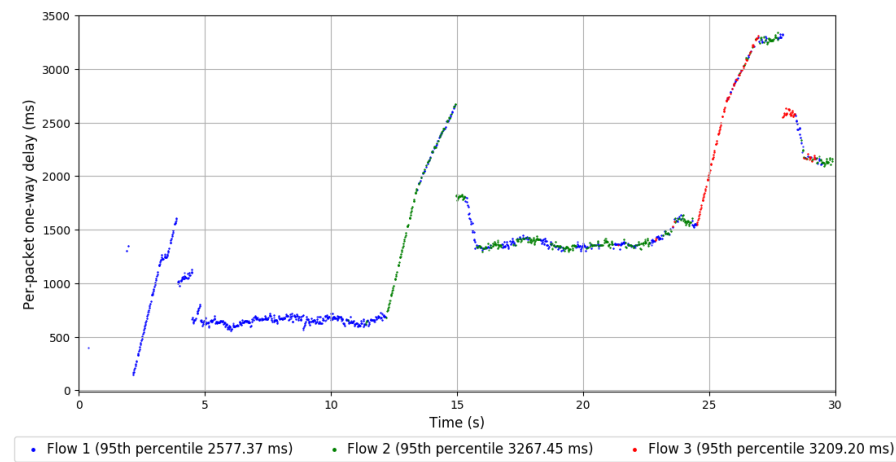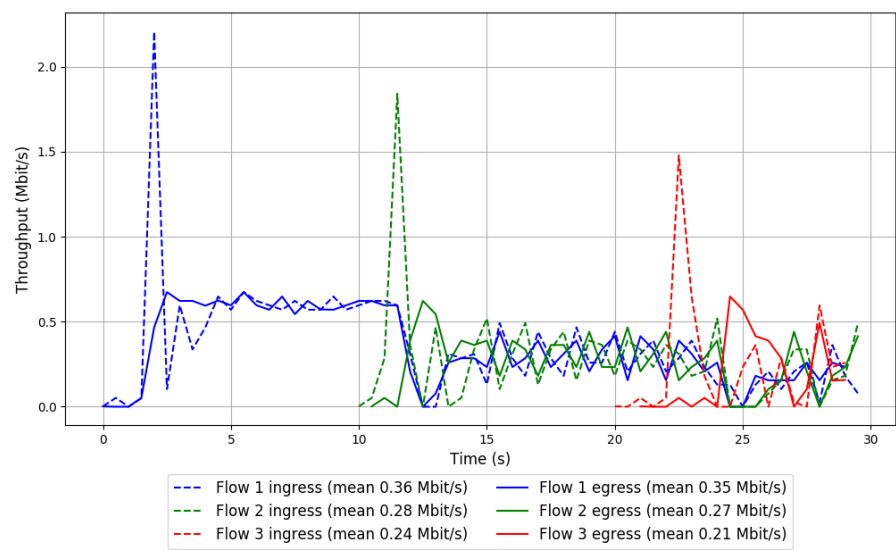
Run 3: Report of Sprout — Data Link

Flow 1 ingress (mean 0.10 Mbit/s) — Flow 1 egress (mean 0.10 Mbit/s)
Flow 2 ingress (mean 0.10 Mbit/s) — Flow 2 egress (mean 0.10 Mbit/s)
Flow 3 ingress (mean 0.12 Mbit/s) — Flow 3 egress (mean 0.11 Mbit/s)

Flow 1 (95th percentile 515.18 ms)   Flow 2 (95th percentile 201.37 ms)   Flow 3 (95th percentile 226.59 ms)

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

Start at: 2018-02-17 03:37:47
End at: 2018-02-17 03:38:17
Local clock offset: -4.835 ms
Remote clock offset: -3.645 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 3088.896 ms
Loss rate: 7.93%
-- Flow 1:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 2577.368 ms
Loss rate: 4.35%
-- Flow 2:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 3267.448 ms
Loss rate: 8.18%
-- Flow 3:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 3209.198 ms
Loss rate: 24.69%
```
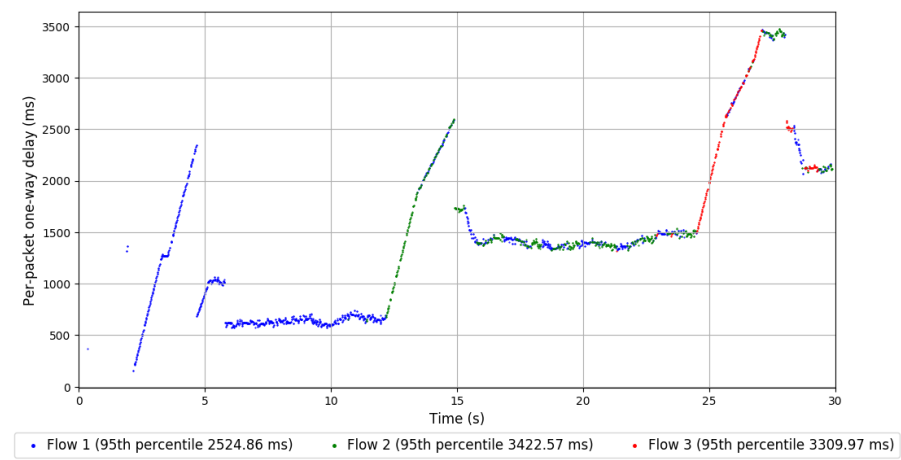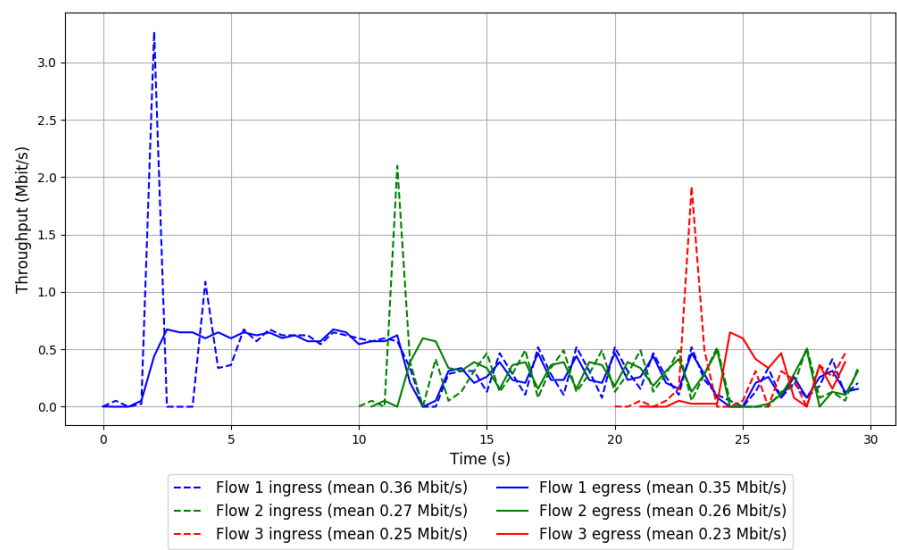
Run 1: Report of TaoVA-100x — Data Link

- Flow 1 ingress (mean 0.36 Mbit/s)
- Flow 1 egress (mean 0.35 Mbit/s)
- Flow 2 ingress (mean 0.28 Mbit/s)
- Flow 2 egress (mean 0.27 Mbit/s)
- Flow 3 ingress (mean 0.24 Mbit/s)
- Flow 3 egress (mean 0.21 Mbit/s)

- Flow 1 (95th percentile 2577.37 ms)
- Flow 2 (95th percentile 3267.45 ms)
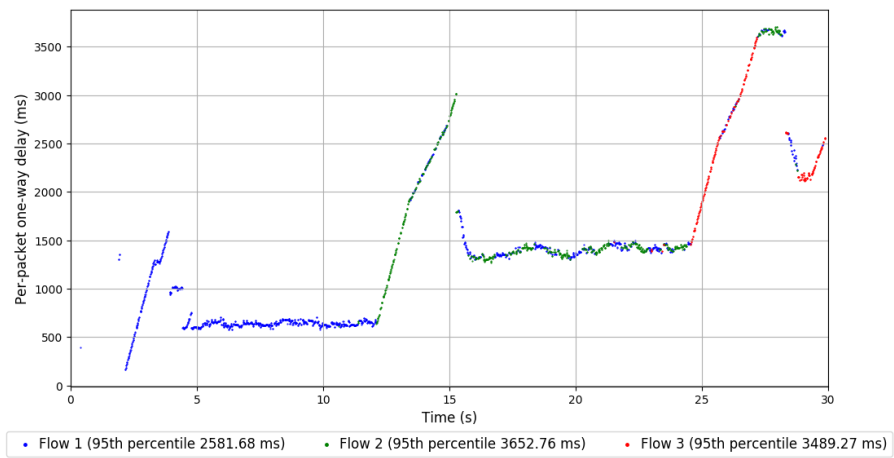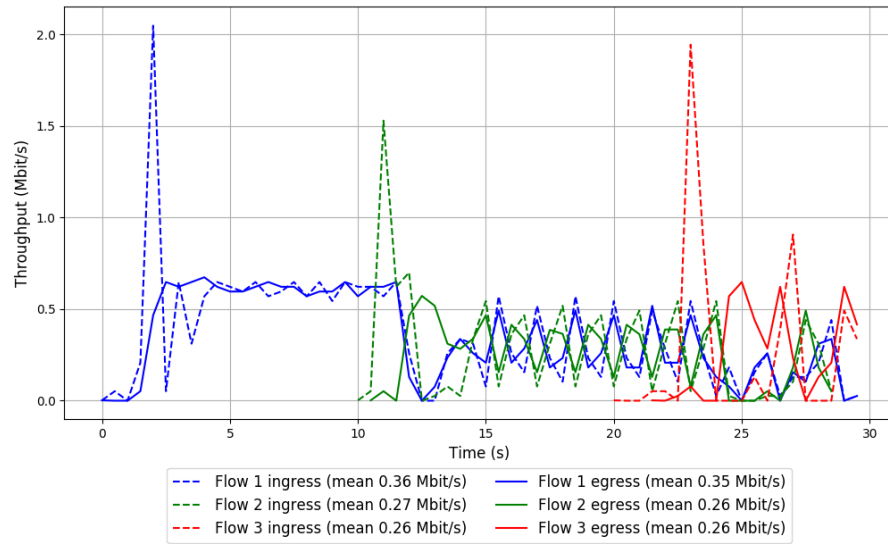- Flow 3 (95th percentile 3209.20 ms)

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

Start at: 2018-02-17 04:00:18
End at: 2018-02-17 04:00:48
Local clock offset: -6.005 ms
Remote clock offset: -3.89 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 3105.019 ms
Loss rate: 8.11%
-- Flow 1:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 2524.862 ms
Loss rate: 4.68%
-- Flow 2:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 3422.572 ms
Loss rate: 8.39%
-- Flow 3:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 3309.965 ms
Loss rate: 23.32%
```

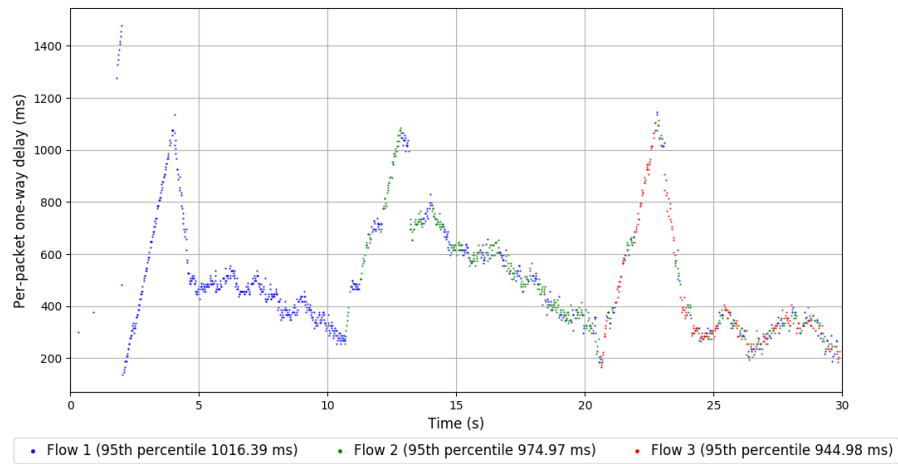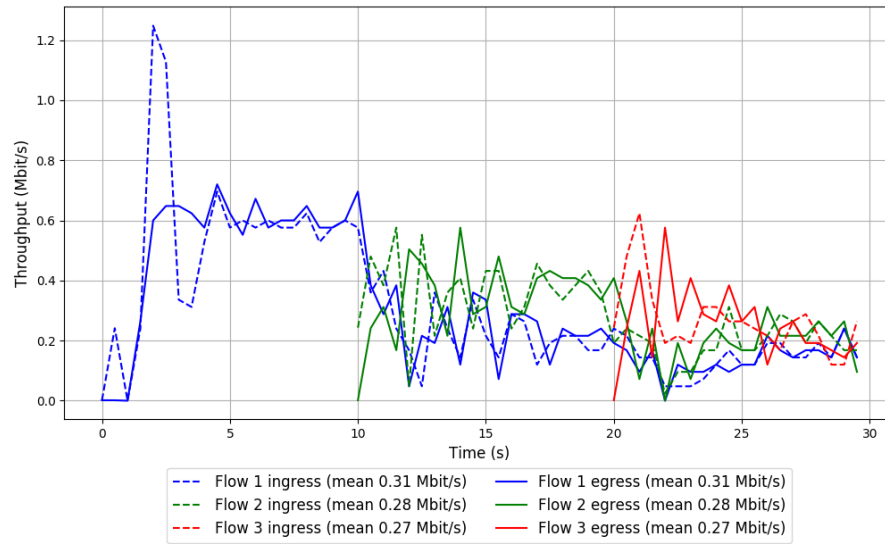## Run 2: Report of TaoVA-100x — Data Link

- - - Flow 1 ingress (mean 0.36 Mbit/s)   —— Flow 1 egress (mean 0.35 Mbit/s)
- - - Flow 2 ingress (mean 0.27 Mbit/s)   —— Flow 2 egress (mean 0.26 Mbit/s)
- - - Flow 3 ingress (mean 0.25 Mbit/s)   —— Flow 3 egress (mean 0.23 Mbit/s)

- Flow 1 (95th percentile 2524.86 ms)   • Flow 2 (95th percentile 3422.57 ms)   • Flow 3 (95th percentile 3309.97 ms)

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

Start at: 2018-02-17 04:22:51
End at: 2018-02-17 04:23:21
Local clock offset: -6.997 ms
Remote clock offset: -2.955 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 3314.271 ms
Loss rate: 7.33%
-- Flow 1:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 2581.682 ms
Loss rate: 4.26%
-- Flow 2:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 3652.765 ms
Loss rate: 8.79%
-- Flow 3:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 3489.274 ms
Loss rate: 17.04%
```
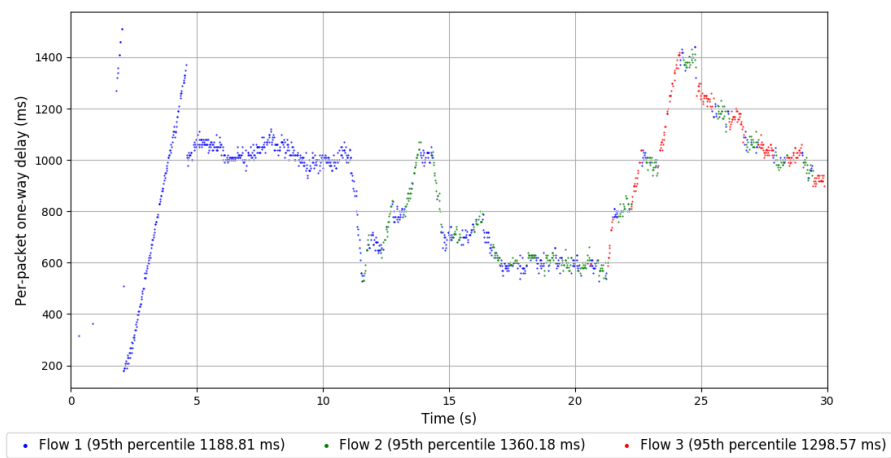
Run 3: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 0.36 Mbit/s) Flow 1 egress (mean 0.35 Mbit/s)
Flow 2 ingress (mean 0.27 Mbit/s) Flow 2 egress (mean 0.26 Mbit/s)
Flow 3 ingress (mean 0.26 Mbit/s) Flow 3 egress (mean 0.26 Mbit/s)

Flow 1 (95th percentile 2581.68 ms)   Flow 2 (95th percentile 3652.76 ms)   Flow 3 (95th percentile 3489.27 ms)

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```
Run 1: Statistics of TCP Vegas

Start at: 2018-02-17 03:44:03
End at: 2018-02-17 03:44:33
Local clock offset: -5.151 ms
Remote clock offset: -3.308 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 1006.418 ms
Loss rate: 1.66%
-- Flow 1:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 1016.395 ms
Loss rate: 0.92%
-- Flow 2:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 974.968 ms
Loss rate: 1.51%
-- Flow 3:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 944.979 ms
Loss rate: 4.50%
```
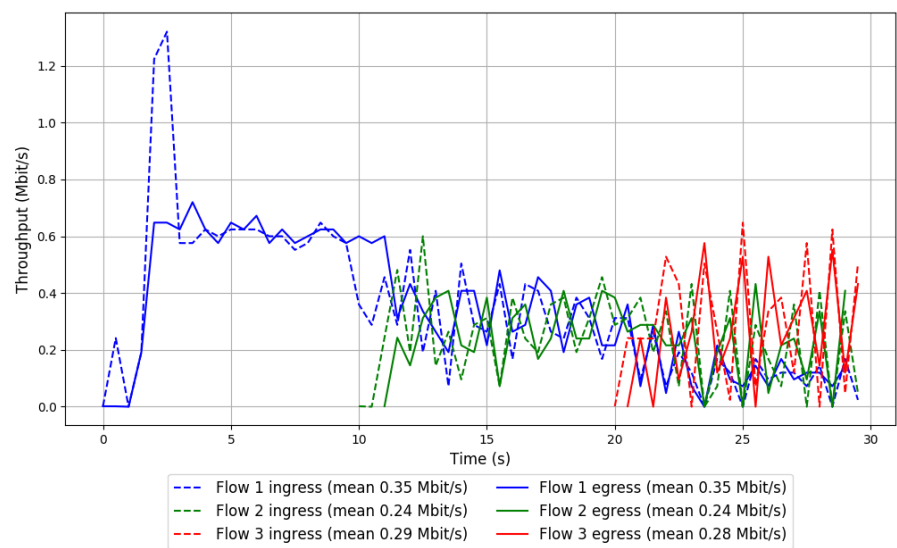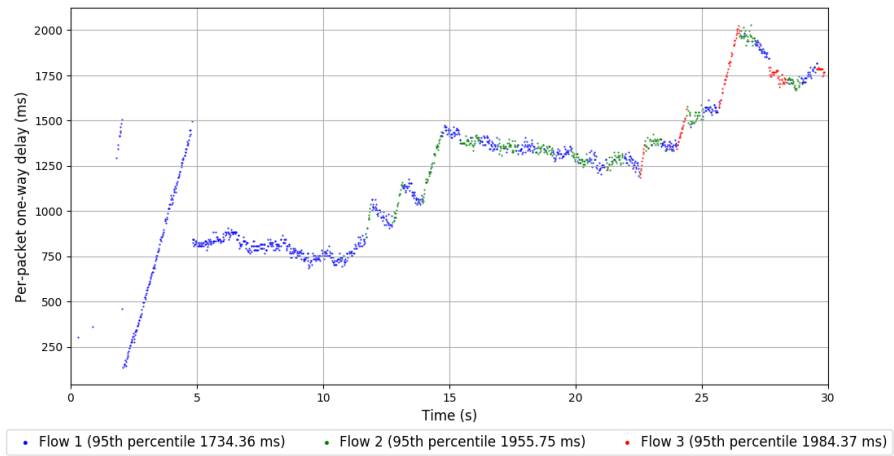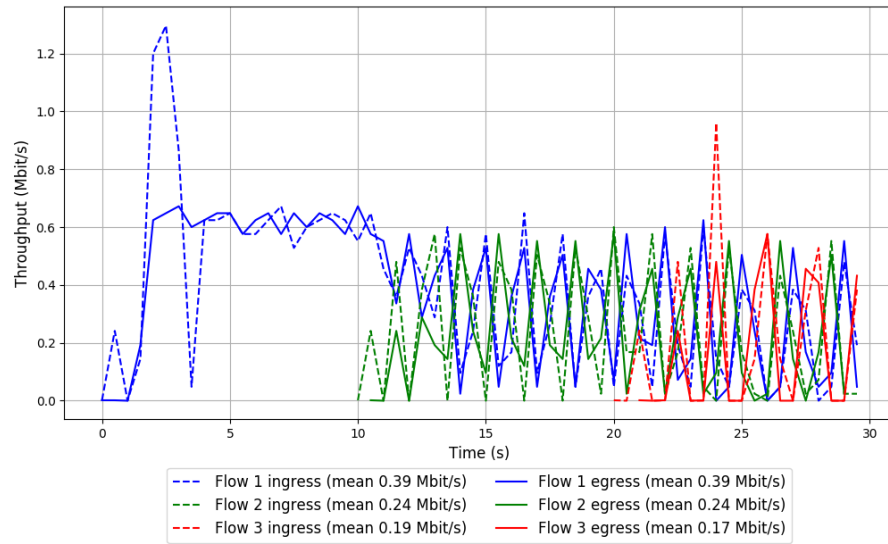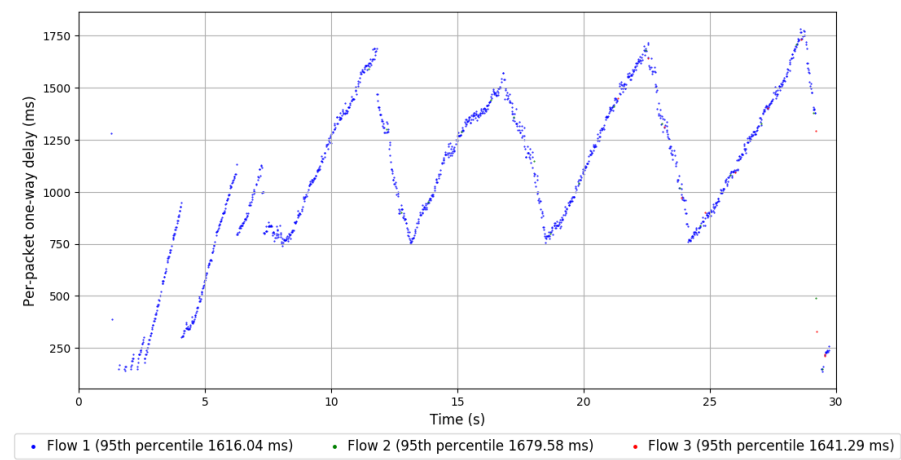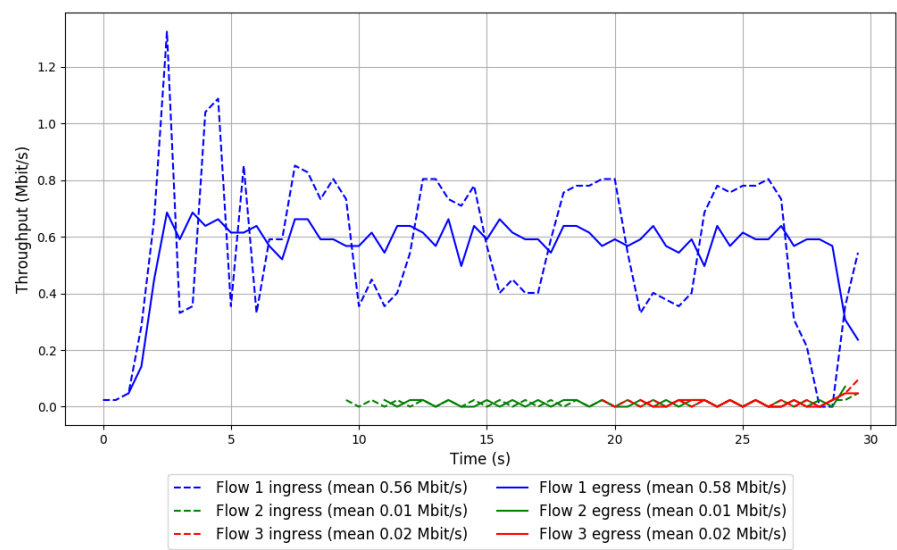
Run 1: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 0.31 Mbit/s) --- Flow 1 egress (mean 0.31 Mbit/s) ---
Flow 2 ingress (mean 0.28 Mbit/s) --- Flow 2 egress (mean 0.28 Mbit/s) ---
Flow 3 ingress (mean 0.27 Mbit/s) --- Flow 3 egress (mean 0.27 Mbit/s) ---

Flow 1 (95th percentile 1016.39 ms) • Flow 2 (95th percentile 974.97 ms) • Flow 3 (95th percentile 944.98 ms)

```
Run 2: Statistics of TCP Vegas

Start at: 2018-02-17 04:06:34
End at: 2018-02-17 04:07:04
Local clock offset: -6.432 ms
Remote clock offset: -3.68 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 1268.665 ms
Loss rate: 3.51%
-- Flow 1:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 1188.807 ms
Loss rate: 1.06%
-- Flow 2:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 1360.181 ms
Loss rate: 4.35%
-- Flow 3:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 1298.568 ms
Loss rate: 10.78%
```

Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-02-17 04:29:08
End at: 2018-02-17 04:29:38
Local clock offset: -7.041 ms
Remote clock offset: -3.002 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 1854.643 ms
Loss rate: 5.97%
-- Flow 1:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 1734.359 ms
Loss rate: 3.09%
-- Flow 2:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 1955.748 ms
Loss rate: 7.09%
-- Flow 3:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 1984.367 ms
Loss rate: 20.99%
```
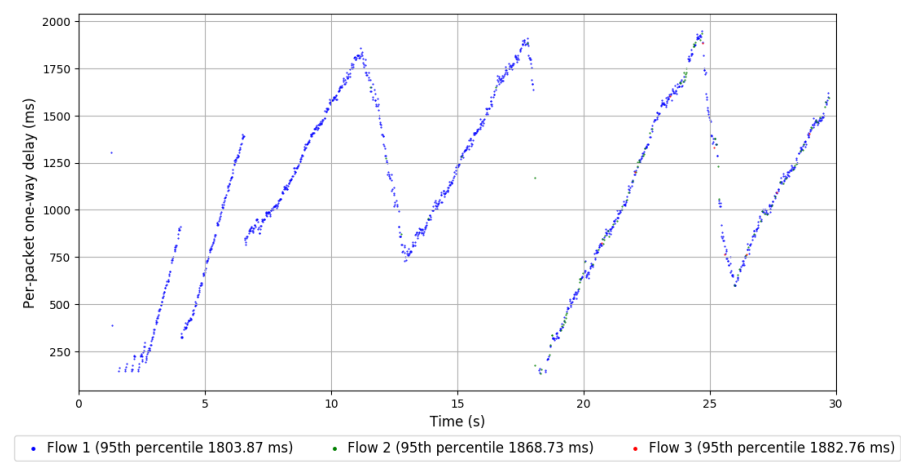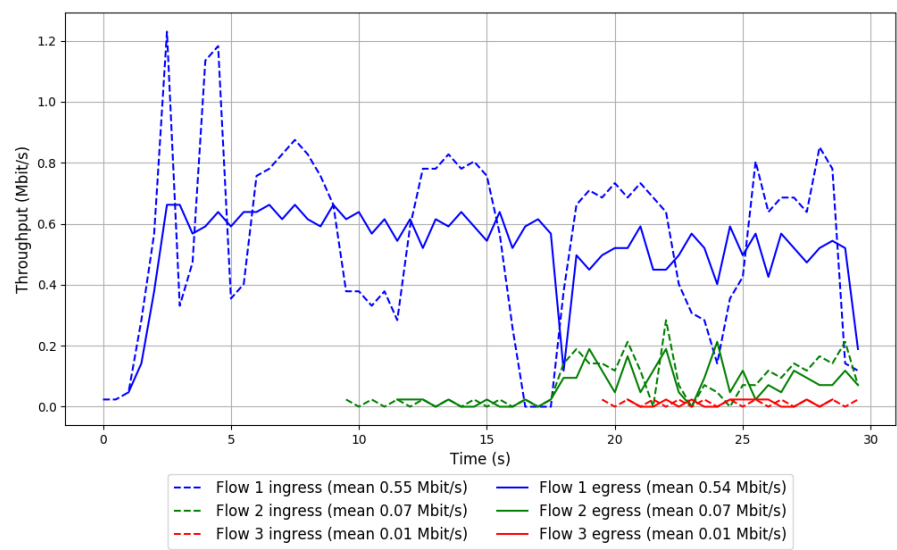
Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 0.39 Mbit/s)   Flow 1 egress (mean 0.39 Mbit/s)
Flow 2 ingress (mean 0.24 Mbit/s)   Flow 2 egress (mean 0.24 Mbit/s)
Flow 3 ingress (mean 0.19 Mbit/s)   Flow 3 egress (mean 0.17 Mbit/s)

Flow 1 (95th percentile 1734.36 ms)   Flow 2 (95th percentile 1955.75 ms)   Flow 3 (95th percentile 1984.37 ms)
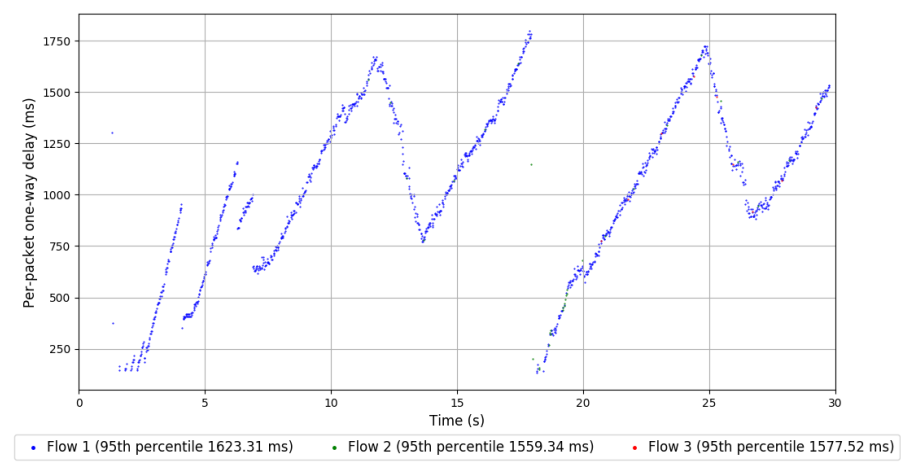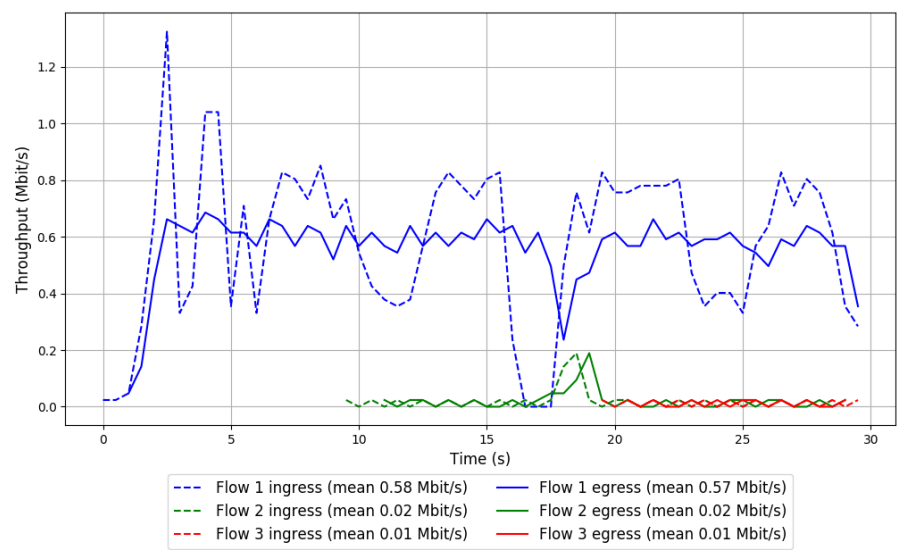
63

```
Run 1: Statistics of Verus

Start at: 2018-02-17 03:47:50
End at: 2018-02-17 03:48:20
Local clock offset: -5.362 ms
Remote clock offset: -3.191 ms

# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 1616.427 ms
Loss rate: 2.19%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 1616.040 ms
Loss rate: 1.83%
-- Flow 2:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 1679.579 ms
Loss rate: 8.70%
-- Flow 3:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 1641.288 ms
Loss rate: 25.00%
```
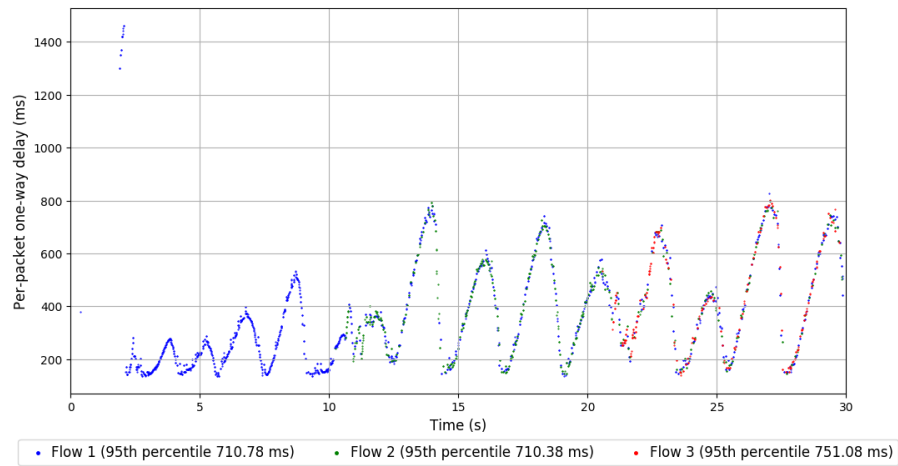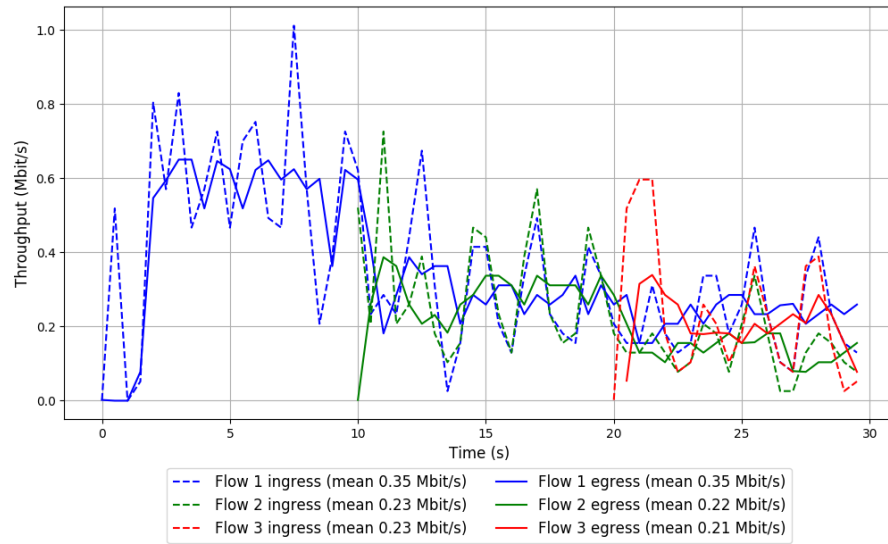
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-02-17 04:10:19
End at: 2018-02-17 04:10:49
Local clock offset: -6.691 ms
Remote clock offset: 1.971 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 1804.574 ms
Loss rate: 6.40%
-- Flow 1:
Average throughput: 0.54 Mbit/s
95th percentile per-packet one-way delay: 1803.866 ms
Loss rate: 5.29%
-- Flow 2:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 1868.729 ms
Loss rate: 17.60%
-- Flow 3:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 1882.764 ms
Loss rate: 18.18%
```

Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-02-17 04:32:53
End at: 2018-02-17 04:33:23
Local clock offset: -5.276 ms
Remote clock offset: 1.903 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 1623.310 ms
Loss rate: 4.94%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 1623.310 ms
Loss rate: 4.89%
-- Flow 2:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 1559.341 ms
Loss rate: 2.94%
-- Flow 3:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 1577.520 ms
Loss rate: 18.18%
```
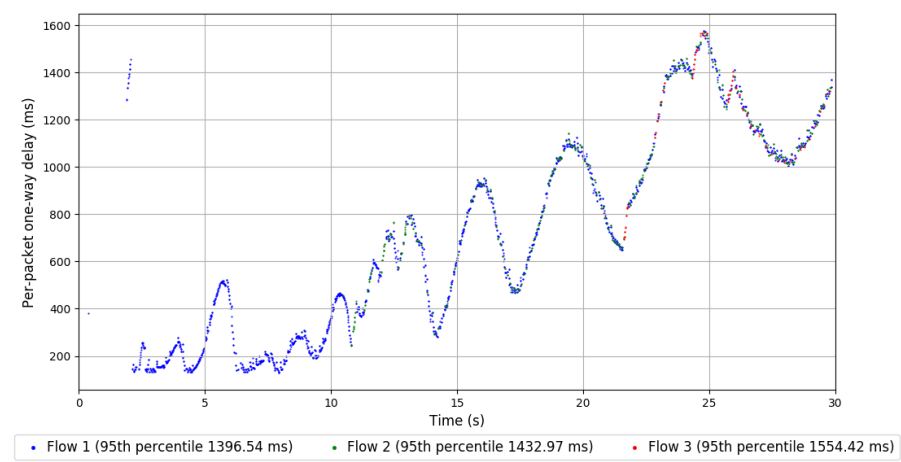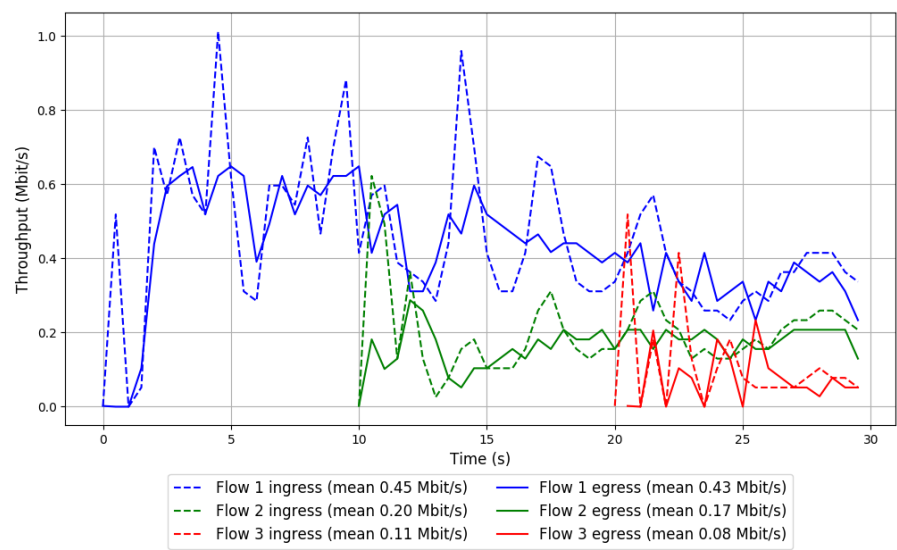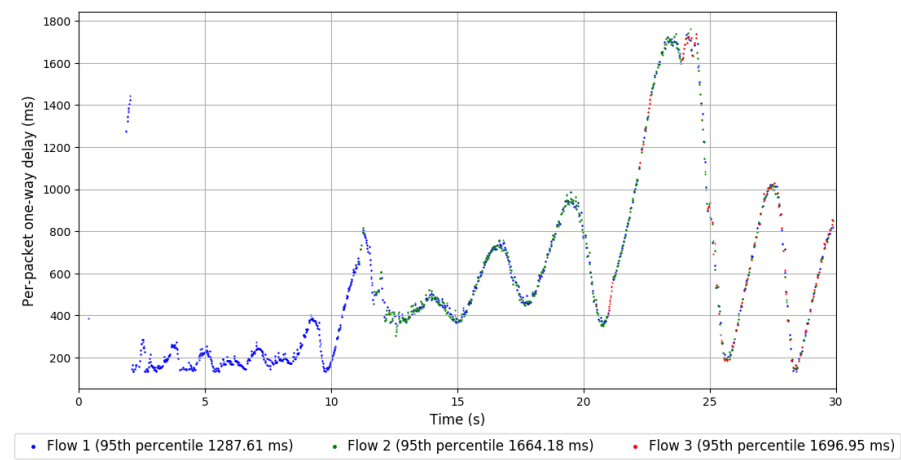
Run 3: Report of Verus — Data Link

```
Run 1: Statistics of Copa

Start at: 2018-02-17 03:57:48
End at: 2018-02-17 03:58:18
Local clock offset: -5.783 ms
Remote clock offset: -3.832 ms

# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 716.371 ms
Loss rate: 5.94%
-- Flow 1:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 710.782 ms
Loss rate: 3.50%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 710.385 ms
Loss rate: 7.30%
-- Flow 3:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 751.084 ms
Loss rate: 14.51%
```
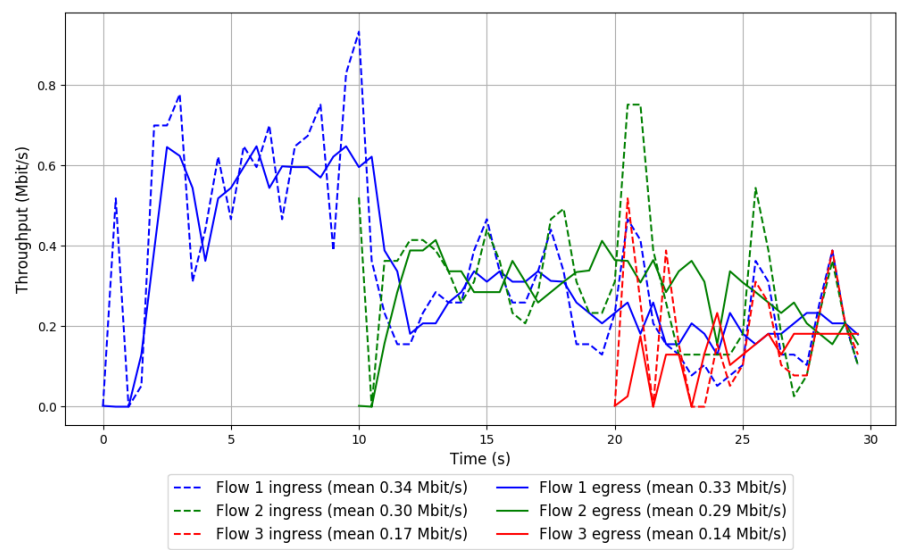
Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2018-02-17 04:20:22
End at: 2018-02-17 04:20:52
Local clock offset: -6.954 ms
Remote clock offset: 1.111 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 1416.240 ms
Loss rate: 9.95%
-- Flow 1:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1396.537 ms
Loss rate: 6.09%
-- Flow 2:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 1432.972 ms
Loss rate: 16.01%
-- Flow 3:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 1554.424 ms
Loss rate: 35.26%
```

Run 2: Report of Copa — Data Link

Flow 1 ingress (mean 0.45 Mbit/s) — Flow 1 egress (mean 0.43 Mbit/s)
Flow 2 ingress (mean 0.20 Mbit/s) — Flow 2 egress (mean 0.17 Mbit/s)
Flow 3 ingress (mean 0.11 Mbit/s) — Flow 3 egress (mean 0.08 Mbit/s)

Flow 1 (95th percentile 1396.54 ms)   Flow 2 (95th percentile 1432.97 ms)   Flow 3 (95th percentile 1554.42 ms)
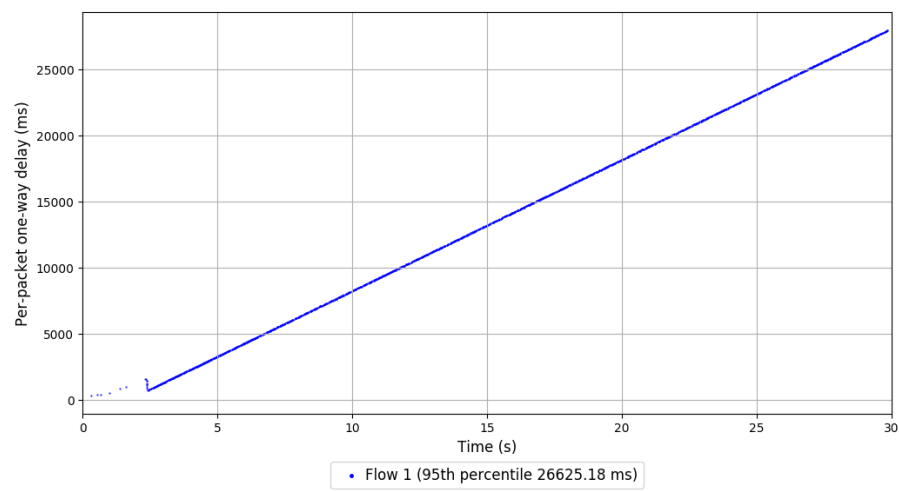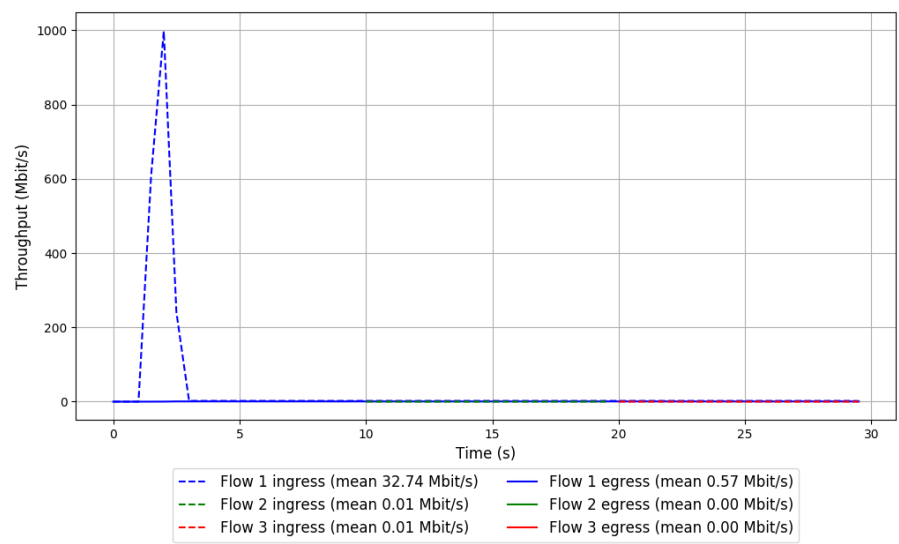
```
Run 3: Statistics of Copa

Start at: 2018-02-17 04:42:51
End at: 2018-02-17 04:43:21
Local clock offset: -3.007 ms
Remote clock offset: -2.819 ms


# Below is generated by plot.py at 2018-02-17 05:52:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 1617.040 ms
Loss rate: 7.22%
-- Flow 1:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 1287.606 ms
Loss rate: 4.68%
-- Flow 2:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 1664.181 ms
Loss rate: 6.88%
-- Flow 3:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 1696.952 ms
Loss rate: 23.59%
```

Run 3: Report of Copa — Data Link

```
Run 1: Statistics of FillP

Start at: 2018-02-17 03:42:47
End at: 2018-02-17 03:43:17
Local clock offset: -5.117 ms
Remote clock offset: 0.573 ms


# Below is generated by plot.py at 2018-02-17 05:53:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26630.188 ms
Loss rate: 98.29%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26630.188 ms
Loss rate: 98.29%
-- Flow 2:
Average throughput: 0.00 Mbit/s
-- Flow 3:
Average throughput: 0.00 Mbit/s
```
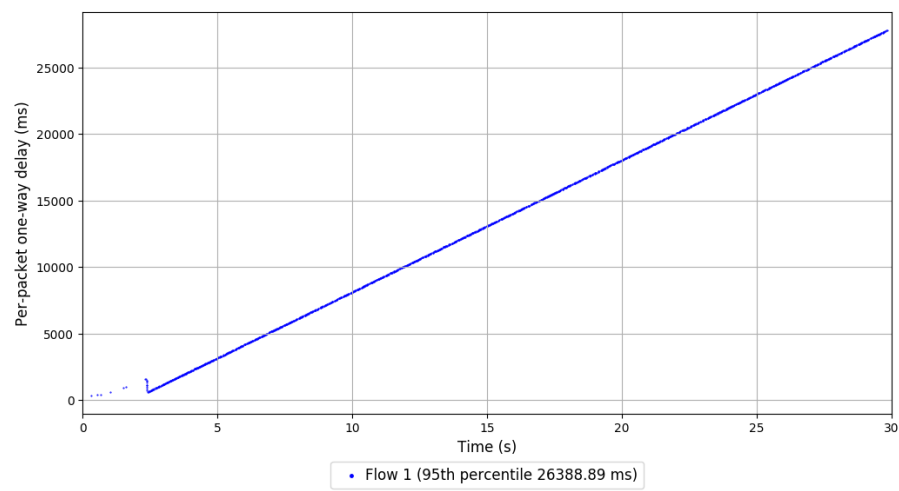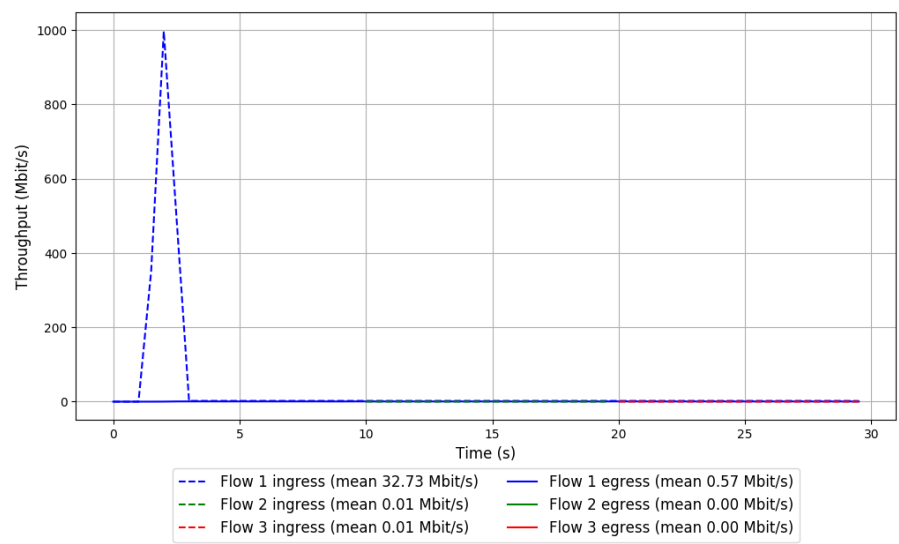
Run 1: Report of FillP — Data Link

```
Run 2: Statistics of FillP

Start at: 2018-02-17 04:05:17
End at: 2018-02-17 04:05:47
Local clock offset: -6.359 ms
Remote clock offset: -2.959 ms


# Below is generated by plot.py at 2018-02-17 05:53:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26625.177 ms
Loss rate: 98.28%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26625.177 ms
Loss rate: 98.28%
-- Flow 2:
Average throughput: 0.00 Mbit/s
-- Flow 3:
Average throughput: 0.00 Mbit/s
```
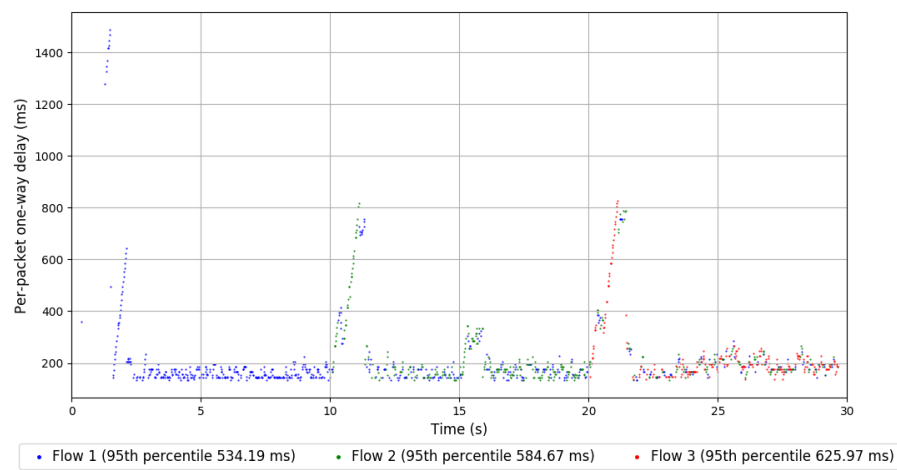
Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2018-02-17 04:27:51
End at: 2018-02-17 04:28:21
Local clock offset: -7.123 ms
Remote clock offset: 2.779 ms


# Below is generated by plot.py at 2018-02-17 05:53:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26388.892 ms
Loss rate: 98.29%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 26388.892 ms
Loss rate: 98.29%
-- Flow 2:
Average throughput: 0.00 Mbit/s
-- Flow 3:
Average throughput: 0.00 Mbit/s
```
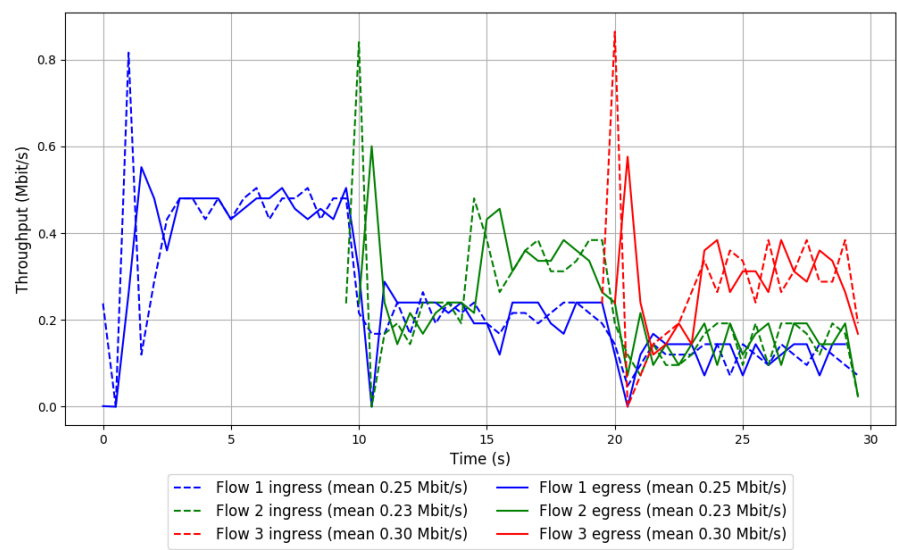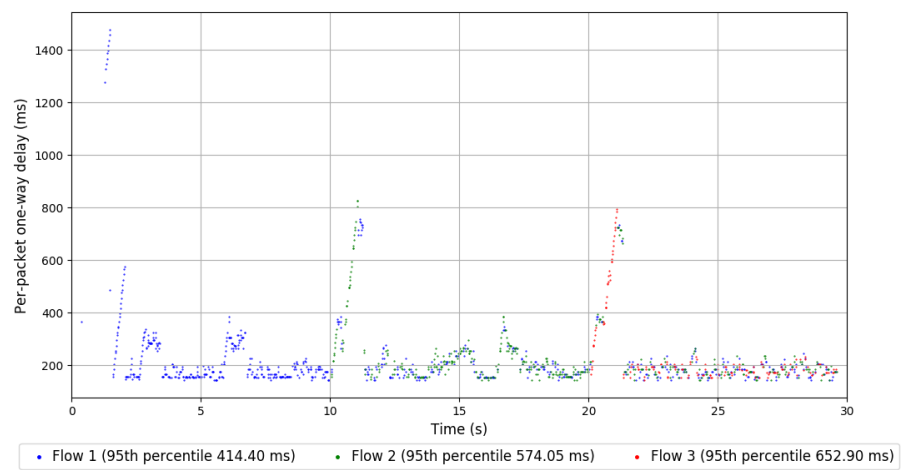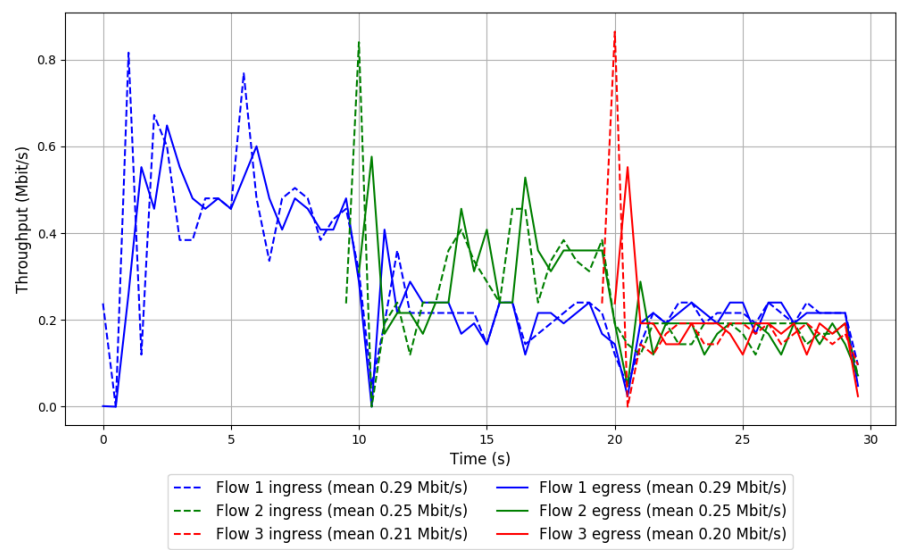
Run 3: Report of FillP — Data Link

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

Start at: 2018-02-17 03:49:05
End at: 2018-02-17 03:49:35
Local clock offset: -5.315 ms
Remote clock offset: 1.7 ms

# Below is generated by plot.py at 2018-02-17 05:53:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 586.161 ms
Loss rate: 2.23%
-- Flow 1:
Average throughput: 0.25 Mbit/s
95th percentile per-packet one-way delay: 534.186 ms
Loss rate: 1.12%
-- Flow 2:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 584.669 ms
Loss rate: 2.08%
-- Flow 3:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 625.965 ms
Loss rate: 5.22%
```
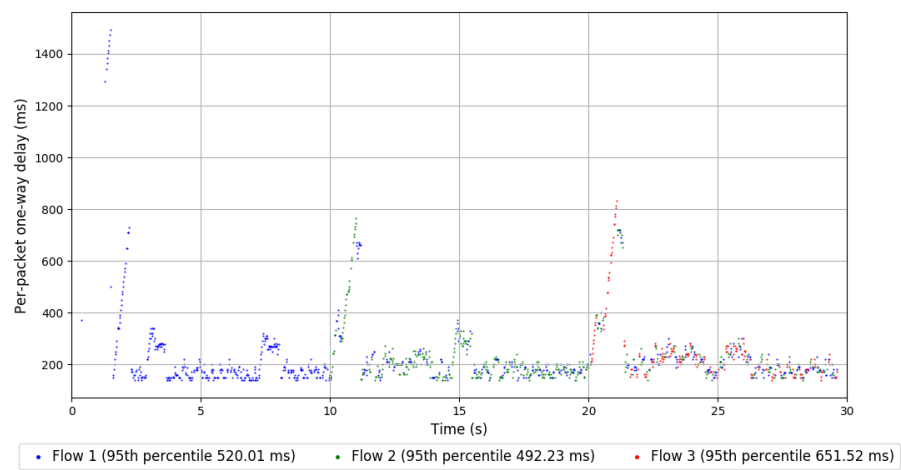
Run 1: Report of Indigo-1-32 — Data Link

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

Start at: 2018-02-17 04:11:34
End at: 2018-02-17 04:12:04
Local clock offset: -6.648 ms
Remote clock offset: -3.644 ms

# Below is generated by plot.py at 2018-02-17 05:53:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.52 Mbit/s
95th percentile per-packet one-way delay: 554.485 ms
Loss rate: 2.63%
-- Flow 1:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 414.398 ms
Loss rate: 1.97%
-- Flow 2:
Average throughput: 0.25 Mbit/s
95th percentile per-packet one-way delay: 574.054 ms
Loss rate: 2.17%
-- Flow 3:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 652.896 ms
Loss rate: 6.55%
```

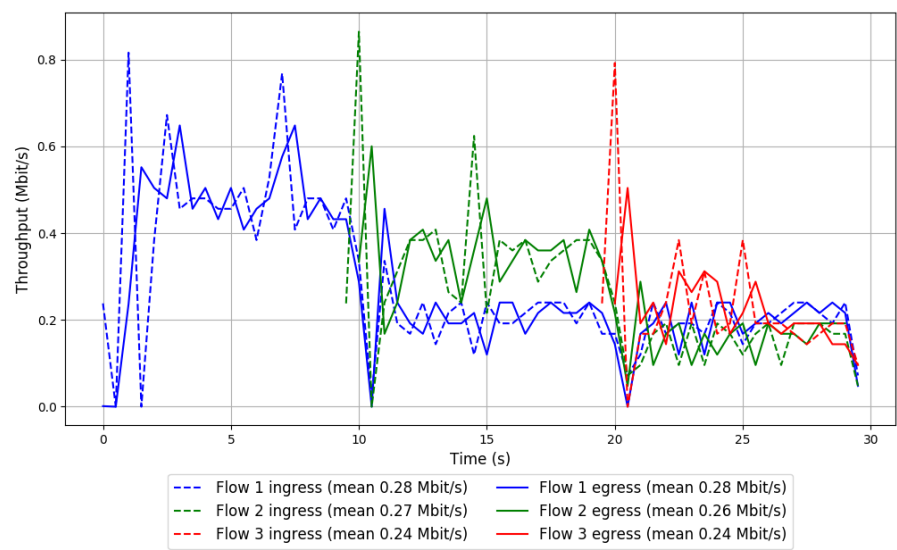Run 2: Report of Indigo-1-32 — Data Link

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

Start at: 2018-02-17 04:34:08
End at: 2018-02-17 04:34:38
Local clock offset: -4.993 ms
Remote clock offset: -2.935 ms

# Below is generated by plot.py at 2018-02-17 05:53:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.53 Mbit/s
95th percentile per-packet one-way delay: 570.133 ms
Loss rate: 2.33%
-- Flow 1:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 520.011 ms
Loss rate: 1.00%
-- Flow 2:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 492.228 ms
Loss rate: 2.76%
-- Flow 3:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 651.518 ms
Loss rate: 6.03%
```

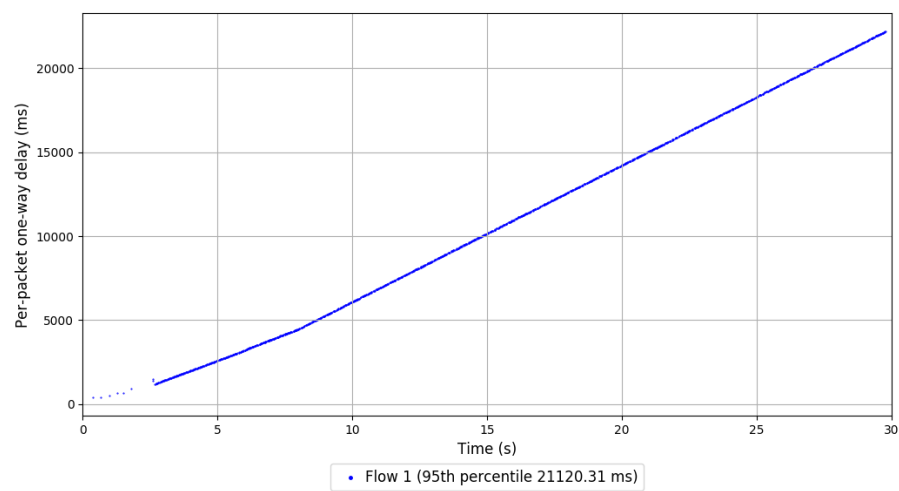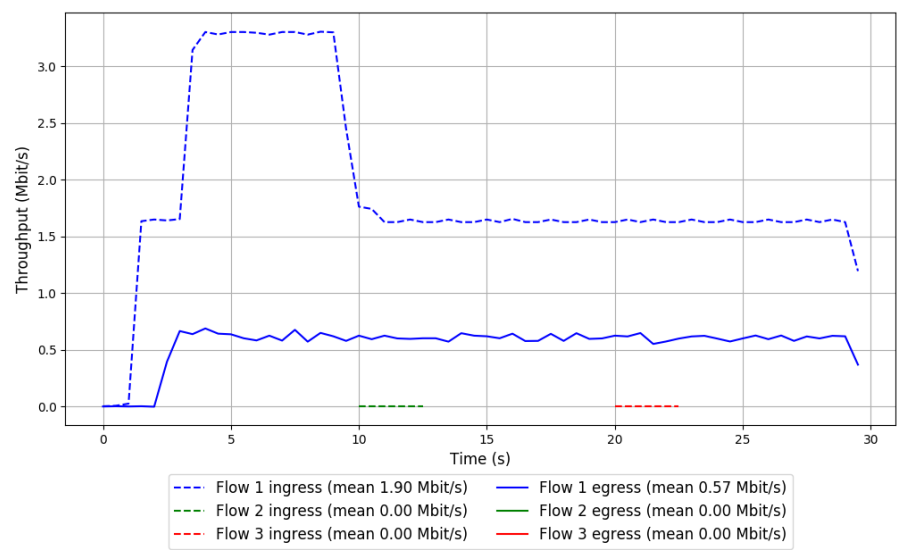# Run 3: Report of Indigo-1-32 — Data Link

- - - Flow 1 ingress (mean 0.28 Mbit/s)   —— Flow 1 egress (mean 0.28 Mbit/s)
- - - Flow 2 ingress (mean 0.27 Mbit/s)   —— Flow 2 egress (mean 0.26 Mbit/s)
- - - Flow 3 ingress (mean 0.24 Mbit/s)   —— Flow 3 egress (mean 0.24 Mbit/s)

- Flow 1 (95th percentile 520.01 ms)   • Flow 2 (95th percentile 492.23 ms)   • Flow 3 (95th percentile 651.52 ms)

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```
Run 1: Statistics of Vivace-latency

Start at: 2018-02-17 03:54:04
End at: 2018-02-17 03:54:34
Local clock offset: -5.417 ms
Remote clock offset: 1.777 ms


# Below is generated by plot.py at 2018-02-17 05:53:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 21120.312 ms
Loss rate: 70.72%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 21120.312 ms
Loss rate: 70.71%
-- Flow 2:
Average throughput: 0.00 Mbit/s
-- Flow 3:
Average throughput: 0.00 Mbit/s
```
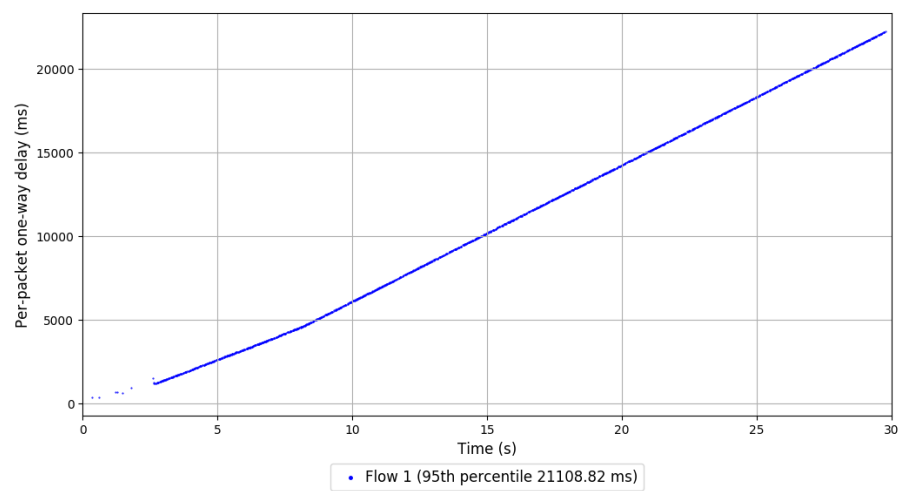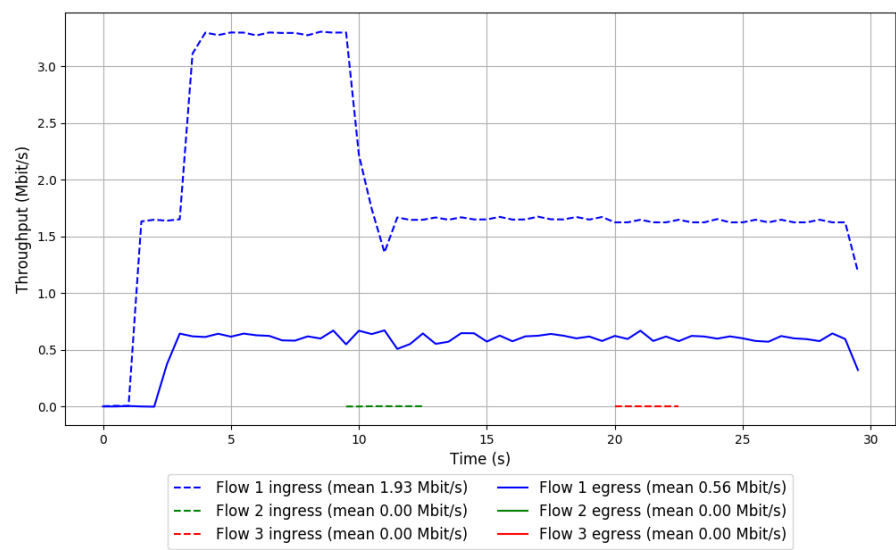
Run 1: Report of Vivace-latency — Data Link

```
Run 2: Statistics of Vivace-latency

Start at: 2018-02-17 04:16:38
End at: 2018-02-17 04:17:08
Local clock offset: -6.813 ms
Remote clock offset: -2.85 ms


# Below is generated by plot.py at 2018-02-17 05:53:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 21108.820 ms
Loss rate: 71.23%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 21108.820 ms
Loss rate: 71.21%
-- Flow 2:
Average throughput: 0.00 Mbit/s
-- Flow 3:
Average throughput: 0.00 Mbit/s
```
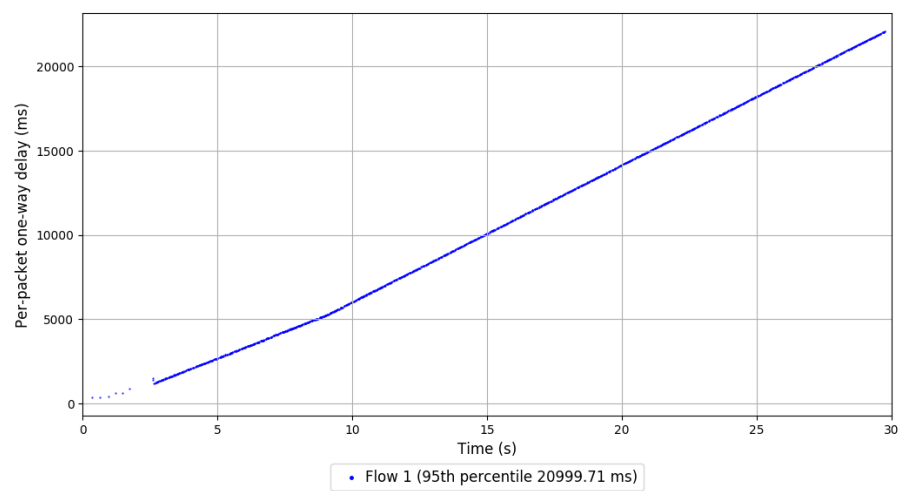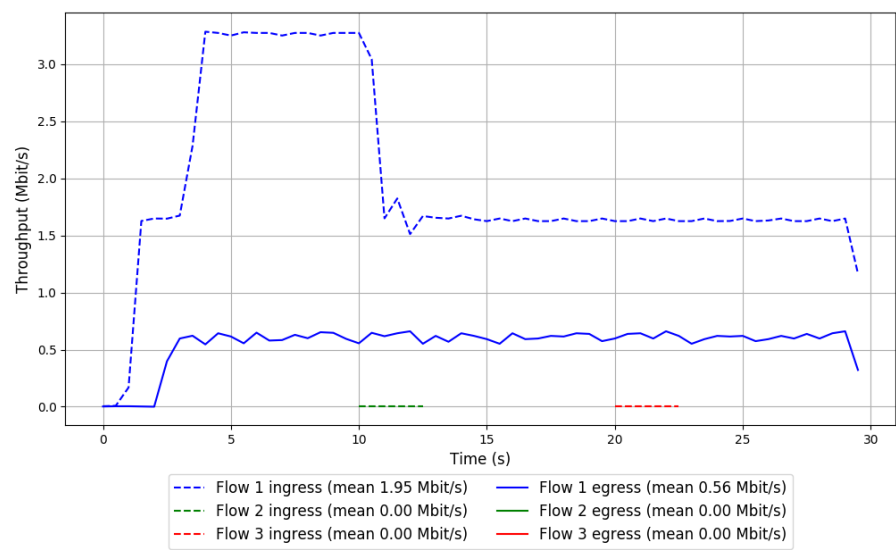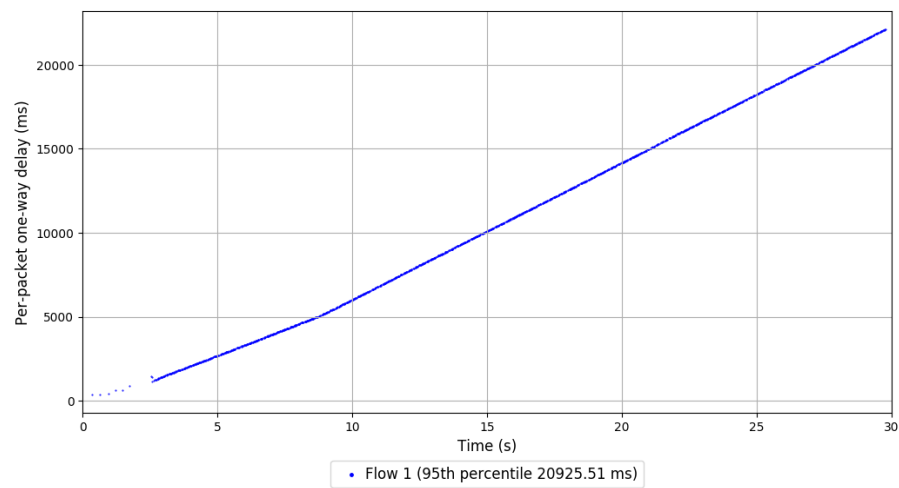
Run 2: Report of Vivace-latency — Data Link

```
Run 3: Statistics of Vivace-latency

Start at: 2018-02-17 04:39:07
End at: 2018-02-17 04:39:37
Local clock offset: -3.628 ms
Remote clock offset: 1.074 ms


# Below is generated by plot.py at 2018-02-17 05:53:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 20999.707 ms
Loss rate: 71.57%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 20999.707 ms
Loss rate: 71.56%
-- Flow 2:
Average throughput: 0.00 Mbit/s
-- Flow 3:
Average throughput: 0.00 Mbit/s
```

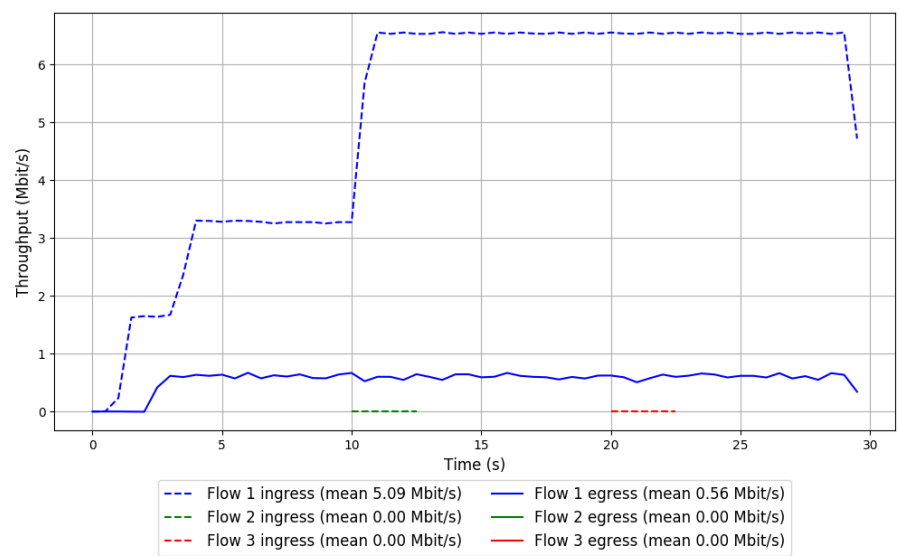Run 3: Report of Vivace-latency — Data Link

```
Run 1: Statistics of Vivace-loss

Start at: 2018-02-17 03:40:17
End at: 2018-02-17 03:40:47
Local clock offset: -5.084 ms
Remote clock offset: -3.481 ms


# Below is generated by plot.py at 2018-02-17 05:53:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 20925.512 ms
Loss rate: 89.11%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 20925.512 ms
Loss rate: 89.11%
-- Flow 2:
Average throughput: 0.00 Mbit/s
-- Flow 3:
Average throughput: 0.00 Mbit/s
```
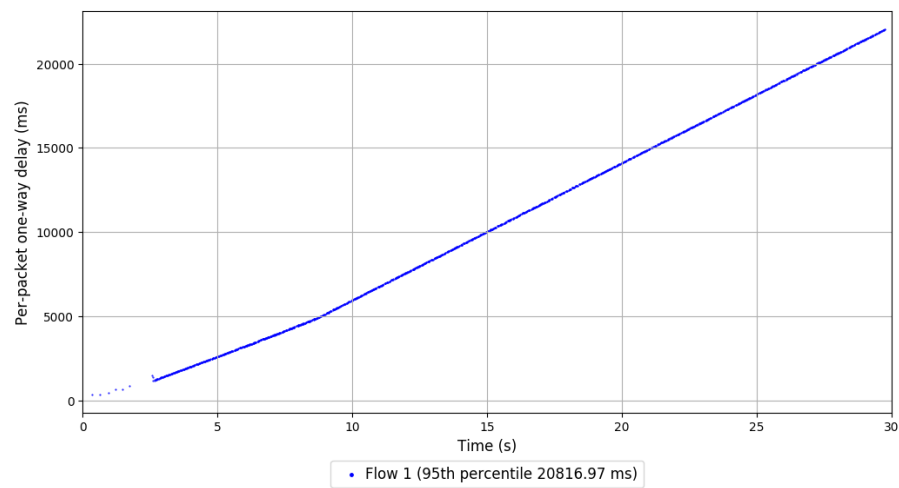
Run 1: Report of Vivace-loss — Data Link

```
Run 2: Statistics of Vivace-loss

Start at: 2018-02-17 04:02:47
End at: 2018-02-17 04:03:17
Local clock offset: -6.195 ms
Remote clock offset: 1.895 ms


# Below is generated by plot.py at 2018-02-17 05:53:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 20816.966 ms
Loss rate: 89.03%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 20816.966 ms
Loss rate: 89.03%
-- Flow 2:
Average throughput: 0.00 Mbit/s
-- Flow 3:
Average throughput: 0.00 Mbit/s
```
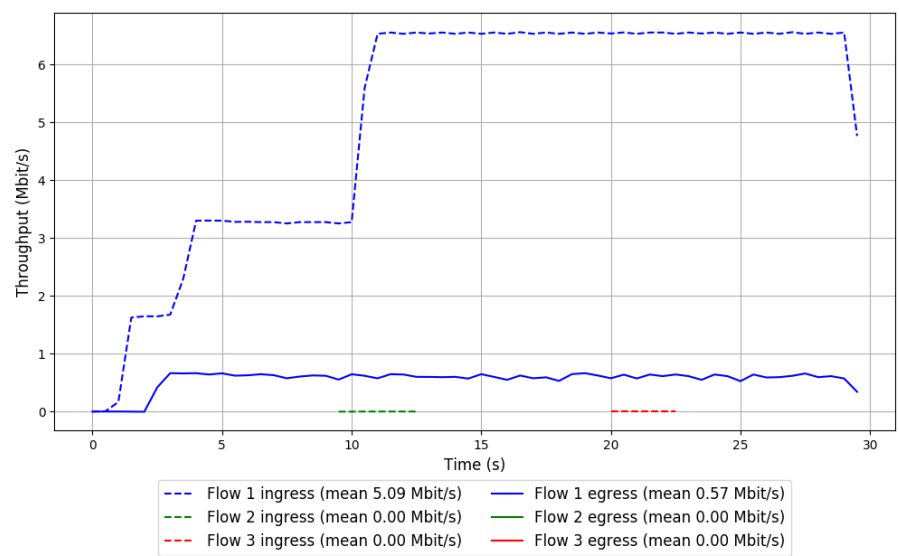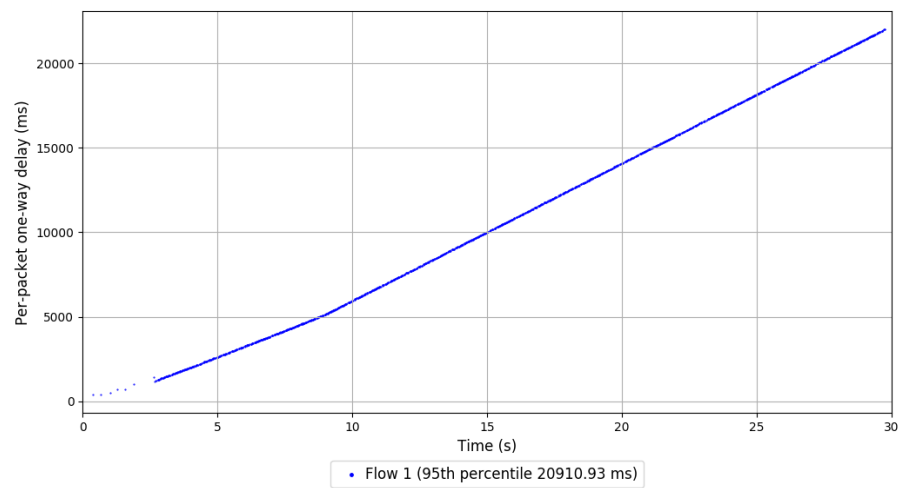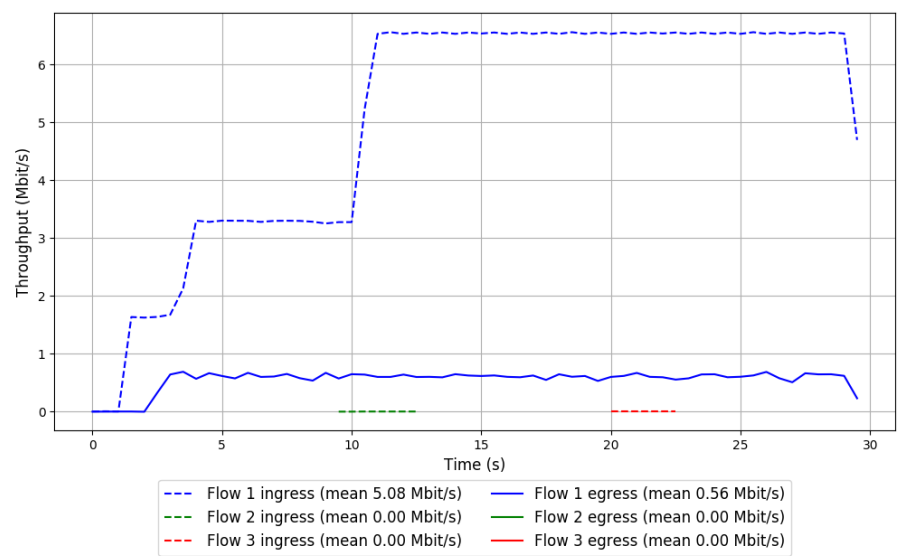
Run 2: Report of Vivace-loss — Data Link

```
Run 3: Statistics of Vivace-loss

Start at: 2018-02-17 04:25:21
End at: 2018-02-17 04:25:51
Local clock offset: -7.07 ms
Remote clock offset: -2.898 ms


# Below is generated by plot.py at 2018-02-17 05:53:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 20910.927 ms
Loss rate: 89.07%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 20910.927 ms
Loss rate: 89.07%
-- Flow 2:
Average throughput: 0.00 Mbit/s
-- Flow 3:
Average throughput: 0.00 Mbit/s
```

Run 3: Report of Vivace-loss — Data Link
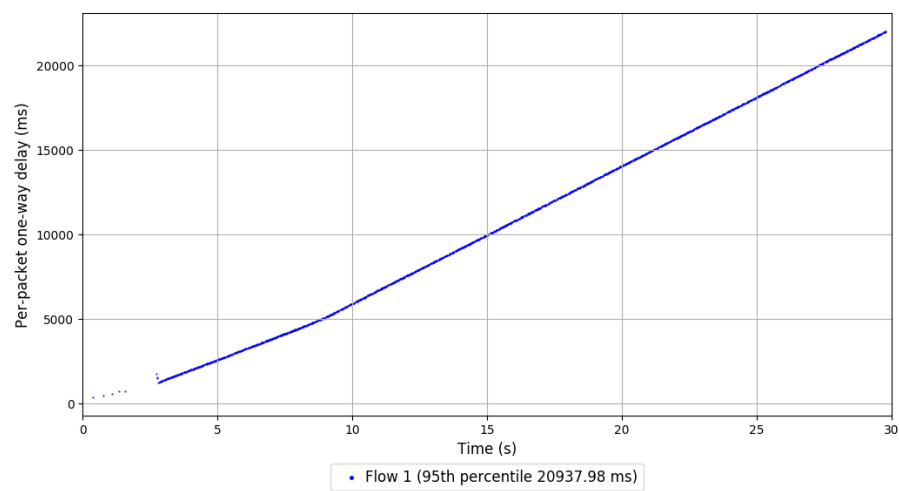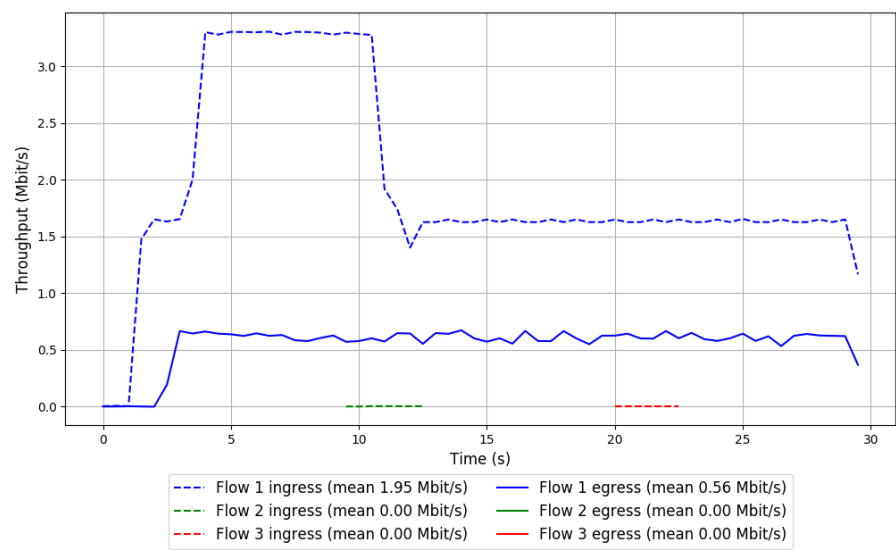

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```
Run 1: Statistics of Vivace-LTE

Start at: 2018-02-17 03:50:20
End at: 2018-02-17 03:50:50
Local clock offset: -5.422 ms
Remote clock offset: -4.001 ms


# Below is generated by plot.py at 2018-02-17 05:53:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 20937.983 ms
Loss rate: 71.50%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 20937.983 ms
Loss rate: 71.49%
-- Flow 2:
Average throughput: 0.00 Mbit/s
-- Flow 3:
Average throughput: 0.00 Mbit/s
```
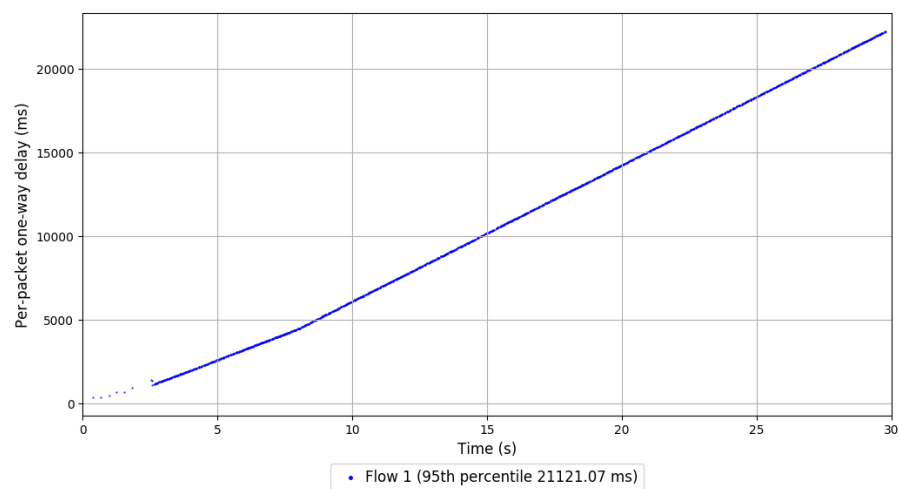
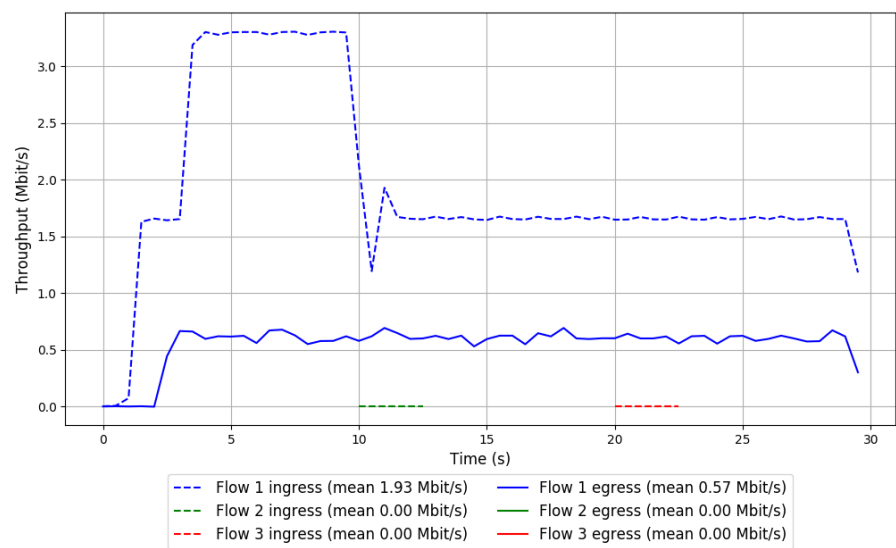Run 1: Report of Vivace-LTE — Data Link

```
Run 2: Statistics of Vivace-LTE

Start at: 2018-02-17 04:12:49
End at: 2018-02-17 04:13:19
Local clock offset: -6.685 ms
Remote clock offset: -2.873 ms


# Below is generated by plot.py at 2018-02-17 05:53:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 21121.074 ms
Loss rate: 71.27%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 21121.074 ms
Loss rate: 71.25%
-- Flow 2:
Average throughput: 0.00 Mbit/s
-- Flow 3:
Average throughput: 0.00 Mbit/s
```

Run 2: Report of Vivace-LTE — Data Link

```
Run 3: Statistics of Vivace-LTE

Start at: 2018-02-17 04:35:22
End at: 2018-02-17 04:35:52
Local clock offset: -4.461 ms
Remote clock offset: 1.904 ms


# Below is generated by plot.py at 2018-02-17 05:53:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 21072.073 ms
Loss rate: 70.55%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 21072.073 ms
Loss rate: 70.54%
-- Flow 2:
Average throughput: 0.00 Mbit/s
-- Flow 3:
Average throughput: 0.00 Mbit/s
```

Run 3: Report of Vivace-LTE — Data Link