Pantheon Report

Generated at 2018-03-27 00:32:17 (UTC).

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

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.

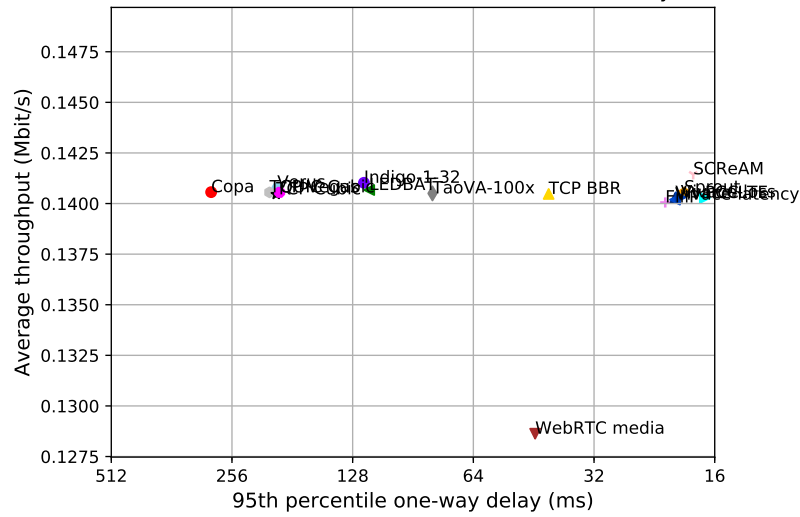Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

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.
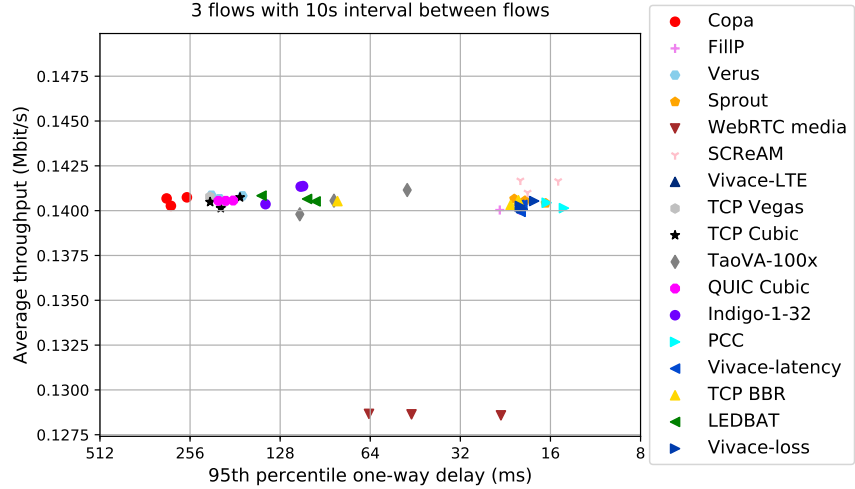
```
Git summary:
branch: master @ 503f51fe03f703a4c0a826a0792a4fead3e7d1b0
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
 M datagrump/sender.cc
third_party/fillp @ 828bbf95fd4941149b5cec90f281d1c69ae1a5c6
third_party/genericCC @ 9249eea3238475c4d8cca1443d28df70bff6c4a2
third_party/indigo @ 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 @ f271183af822eee5d0031620f4bebf38aedc5581
```

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

Copa FillP Verus Sprout Indigo-1-32 LEDBAT TaoVA-100x TCP BBR SCReAM Vivace-LTE Vivace-latency

WebRTC media

Average throughput (Mbit/s)

95th percentile one-way delay (ms)

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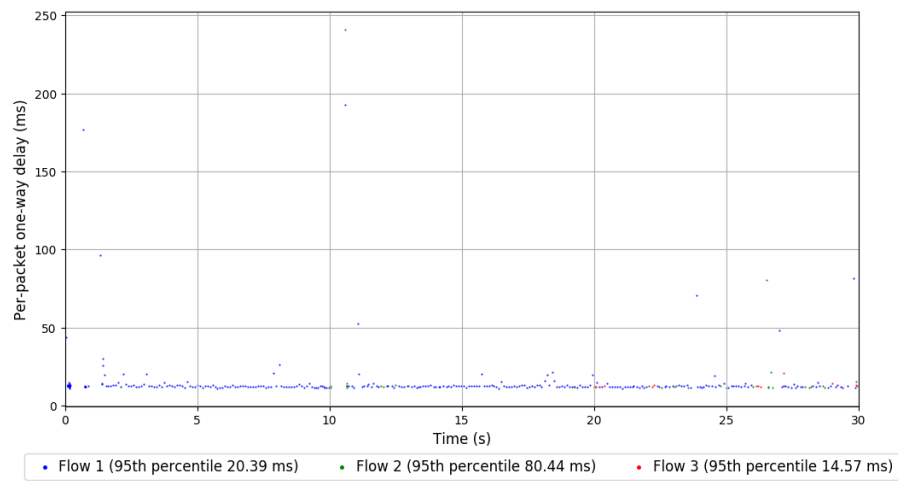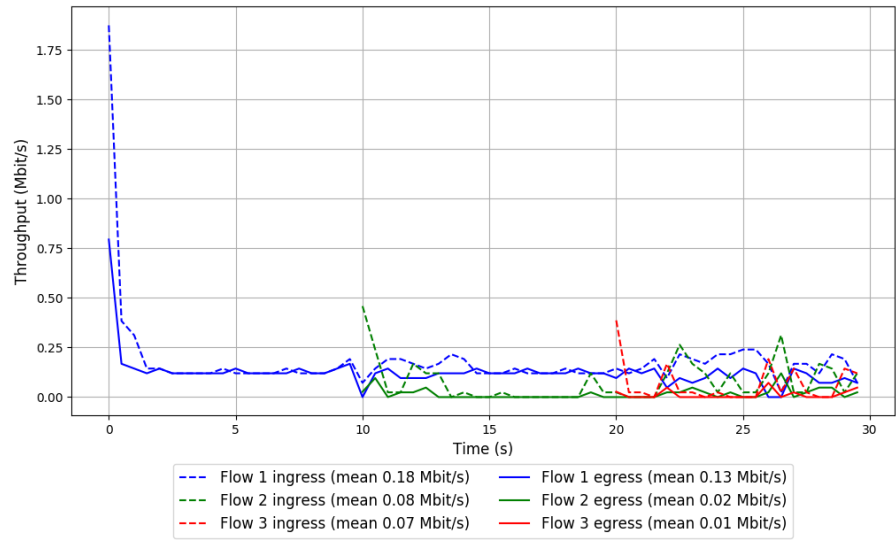### 3 flows with 10s interval between flows

Average throughput (Mbit/s)

95th percentile one-way delay (ms)

- Copa
- FillP
- Verus
- Sprout
- WebRTC media
- SCReAM
- Vivace-LTE
- TCP Vegas
- TCP Cubic
- TaoVA-100x
- QUIC Cubic
- Indigo-1-32
- PCC
- Vivace-latency
- TCP BBR
- LEDBAT
- Vivace-loss

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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	0.12	0.02	0.04	42.04	104.60	19.41	31.12	77.40	66.61
TCP Cubic	3	0.08	0.07	0.04	198.30	177.27	214.41	41.84	42.57	55.19
LEDBAT	3	0.09	0.06	0.05	102.55	105.44	132.33	39.38	49.35	53.87
PCC	3	0.09	0.06	0.05	17.19	16.10	16.14	96.50	99.23	99.64
QUIC Cubic	3	0.10	0.05	0.07	146.93	237.70	199.51	67.61	68.41	77.49
SCReAM	3	0.10	0.05	0.04	18.42	16.79	16.84	5.93	38.23	48.03
WebRTC media	3	0.06	0.05	0.02	35.42	48.54	109.15	40.43	55.94	57.63
Sprout	3	0.09	0.05	0.04	20.33	17.25	17.13	66.51	77.84	81.40
TaoVA-100x	3	0.08	0.06	0.06	62.09	103.87	110.52	94.64	95.76	96.53
TCP Vegas	3	0.10	0.05	0.05	187.06	242.57	222.72	38.36	47.25	52.40
Verus	3	0.10	0.05	0.04	184.09	196.94	249.28	62.12	55.72	55.78
Copa	3	0.09	0.06	0.03	302.52	247.53	200.64	63.91	76.24	55.04
FillP	3	0.09	0.05	0.05	21.88	19.82	16.04	99.09	99.56	99.84
Indigo-1-32	3	0.10	0.05	0.04	89.79	156.33	159.50	87.28	90.06	90.19
Vivace-latency	3	0.09	0.06	0.04	20.11	19.78	20.05	92.69	95.51	96.54
Vivace-loss	3	0.09	0.05	0.04	19.95	18.57	16.46	92.59	95.60	96.76
Vivace-LTE	3	0.09	0.06	0.04	20.04	19.97	17.19	92.74	95.48	96.54

```
Run 1: Statistics of TCP BBR

Start at: 2018-03-26 23:36:09
End at: 2018-03-26 23:36:39
Local clock offset: -1.643 ms
Remote clock offset: -6.232 ms


# Below is generated by plot.py at 2018-03-27 00:31:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 20.477 ms
Loss rate: 45.63%
-- Flow 1:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 20.391 ms
Loss rate: 31.72%
-- Flow 2:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 80.436 ms
Loss rate: 78.71%
-- Flow 3:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 14.566 ms
Loss rate: 81.64%
```
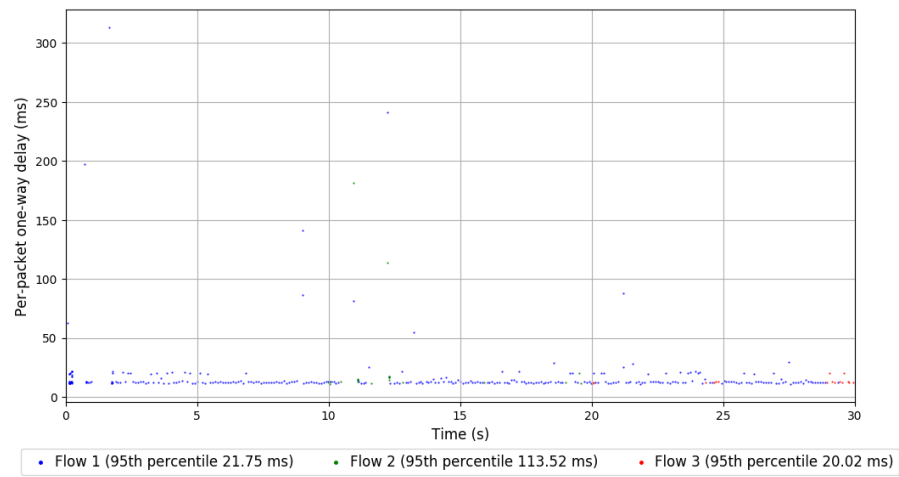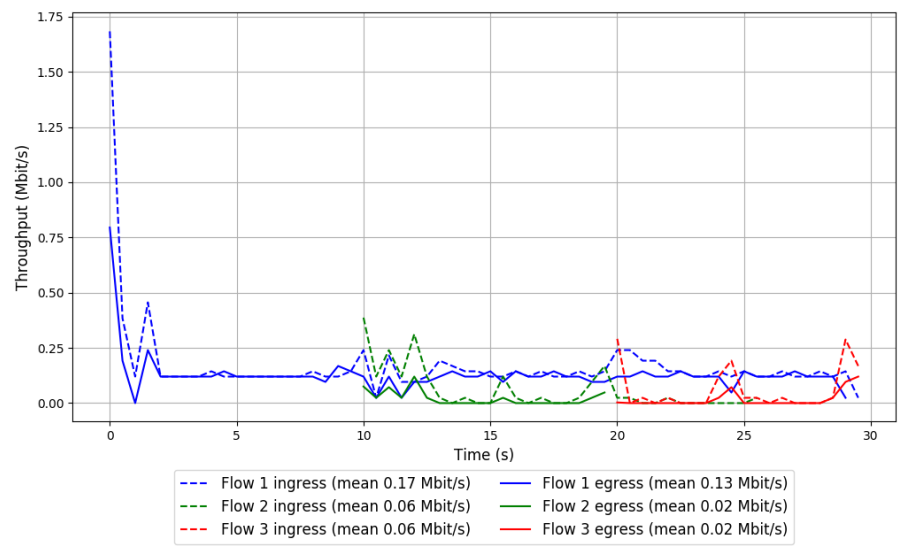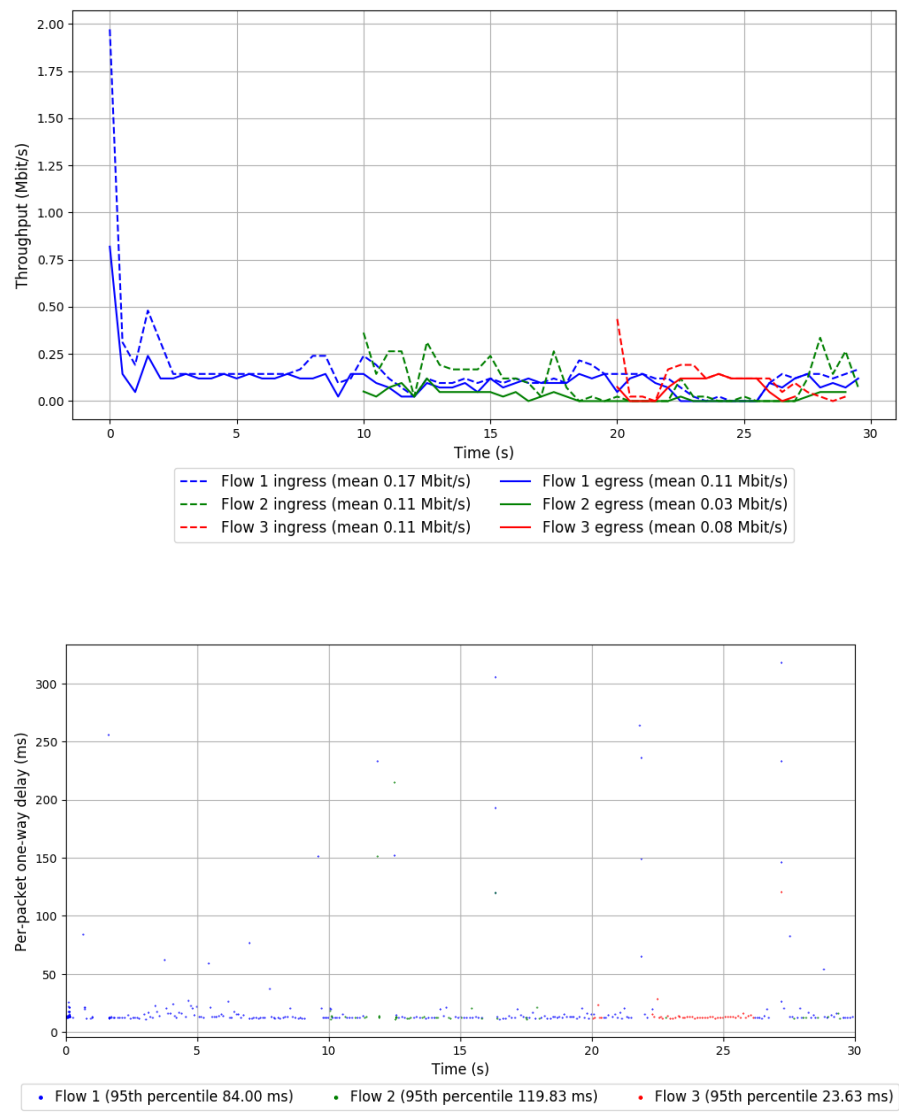
Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 0.18 Mbit/s)   Flow 1 egress (mean 0.13 Mbit/s)
Flow 2 ingress (mean 0.08 Mbit/s)   Flow 2 egress (mean 0.02 Mbit/s)
Flow 3 ingress (mean 0.07 Mbit/s)   Flow 3 egress (mean 0.01 Mbit/s)

Flow 1 (95th percentile 20.39 ms)   Flow 2 (95th percentile 80.44 ms)   Flow 3 (95th percentile 14.57 ms)

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```
Run 2: Statistics of TCP BBR

Start at: 2018-03-26 23:59:50
End at: 2018-03-27 00:00:21
Local clock offset: -1.5 ms
Remote clock offset: -5.663 ms

# Below is generated by plot.py at 2018-03-27 00:31:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 21.748 ms
Loss rate: 37.09%
-- Flow 1:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 21.748 ms
Loss rate: 25.58%
-- Flow 2:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 113.520 ms
Loss rate: 77.10%
-- Flow 3:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 20.024 ms
Loss rate: 71.82%
```
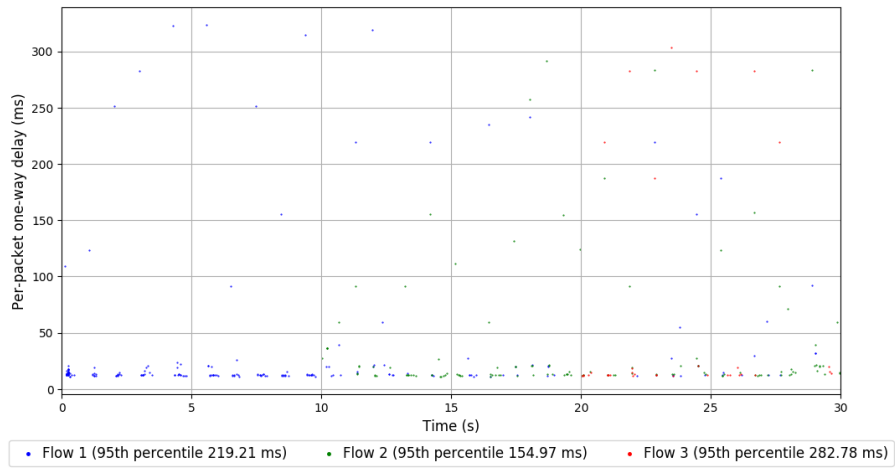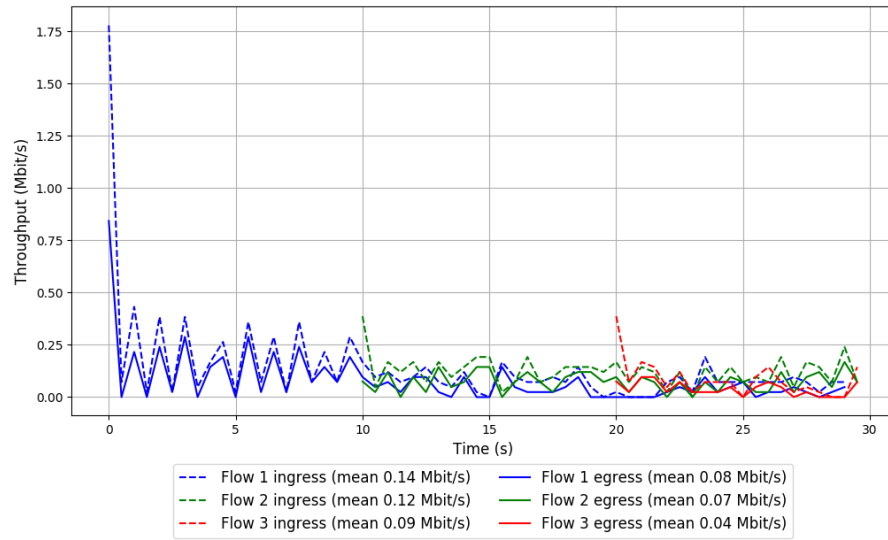
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-03-27 00:23:31
End at: 2018-03-27 00:24:01
Local clock offset: 2.181 ms
Remote clock offset: -4.941 ms


# Below is generated by plot.py at 2018-03-27 00:31:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 82.368 ms
Loss rate: 47.81%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 83.995 ms
Loss rate: 36.07%
-- Flow 2:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 119.830 ms
Loss rate: 76.38%
-- Flow 3:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 23.632 ms
Loss rate: 46.36%
```
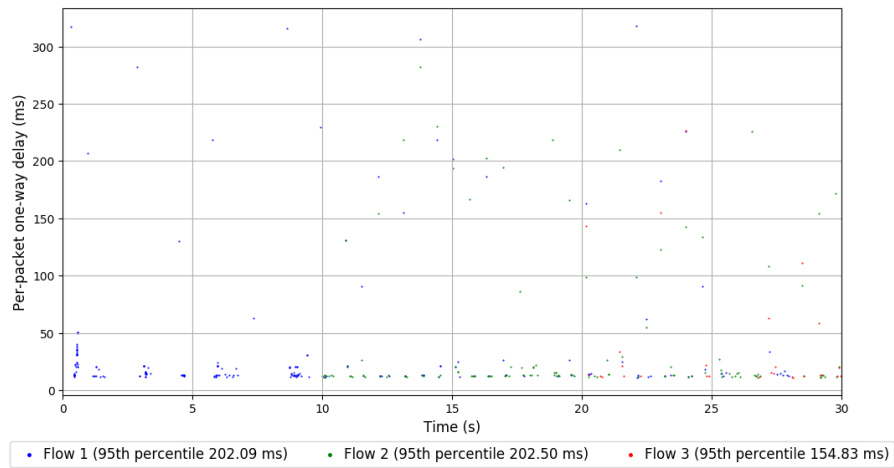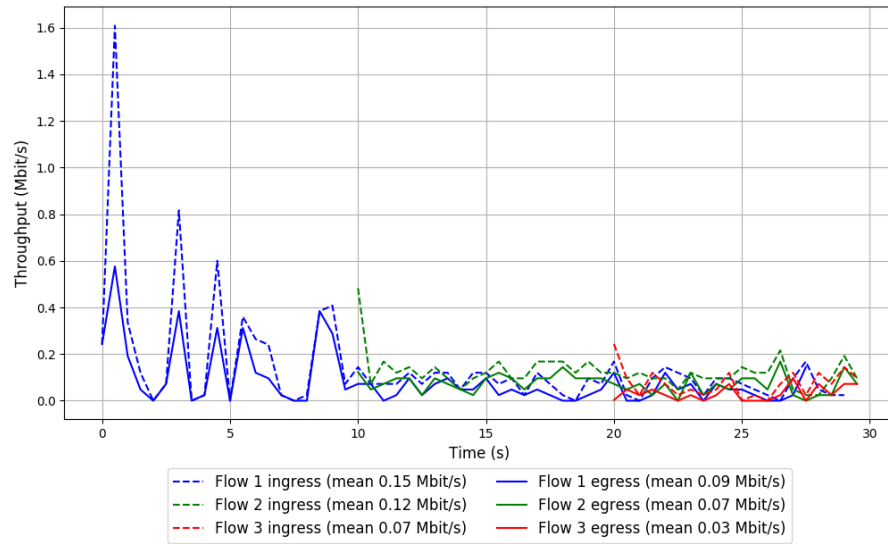
Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 0.17 Mbit/s) --- Flow 1 egress (mean 0.11 Mbit/s)
Flow 2 ingress (mean 0.11 Mbit/s) --- Flow 2 egress (mean 0.03 Mbit/s)
Flow 3 ingress (mean 0.11 Mbit/s) --- Flow 3 egress (mean 0.08 Mbit/s)

Flow 1 (95th percentile 84.00 ms) • Flow 2 (95th percentile 119.83 ms) • Flow 3 (95th percentile 23.63 ms)

```
Run 1: Statistics of TCP Cubic

Start at: 2018-03-26 23:41:25
End at: 2018-03-26 23:41:55
Local clock offset: -1.402 ms
Remote clock offset: -6.402 ms


# Below is generated by plot.py at 2018-03-27 00:31:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 219.390 ms
Loss rate: 43.86%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 219.214 ms
Loss rate: 43.01%
-- Flow 2:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 154.969 ms
Loss rate: 41.24%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 282.783 ms
Loss rate: 55.46%
```
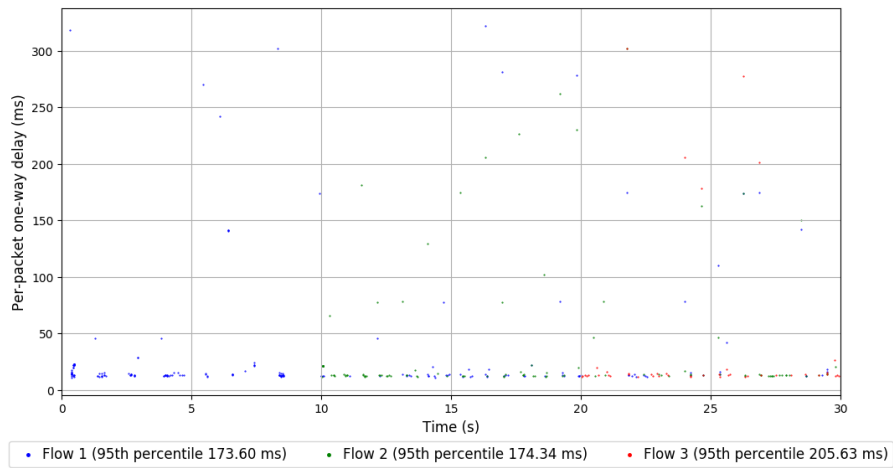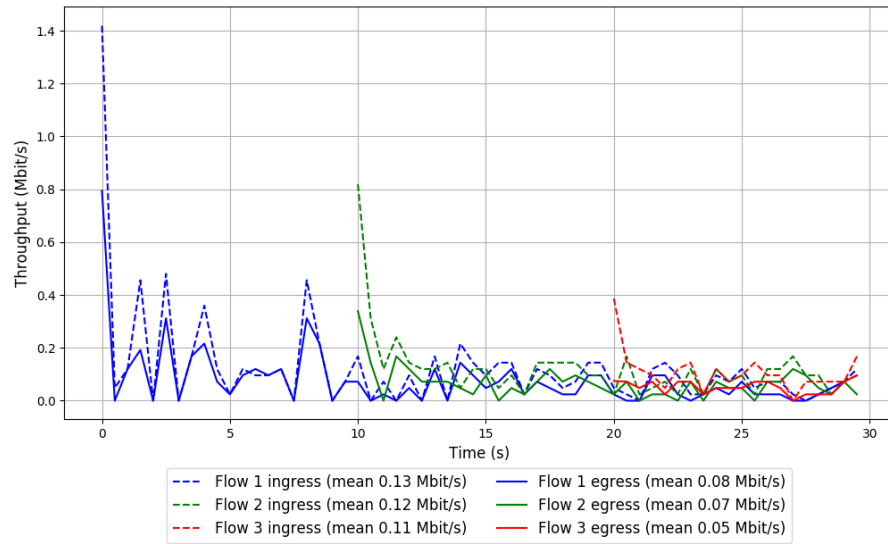
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-03-27 00:05:07
End at: 2018-03-27 00:05:37
Local clock offset: -1.602 ms
Remote clock offset: -5.276 ms


# Below is generated by plot.py at 2018-03-27 00:31:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 202.086 ms
Loss rate: 44.70%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 202.086 ms
Loss rate: 44.83%
-- Flow 2:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 202.498 ms
Loss rate: 40.46%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 154.829 ms
Loss rate: 57.95%
```
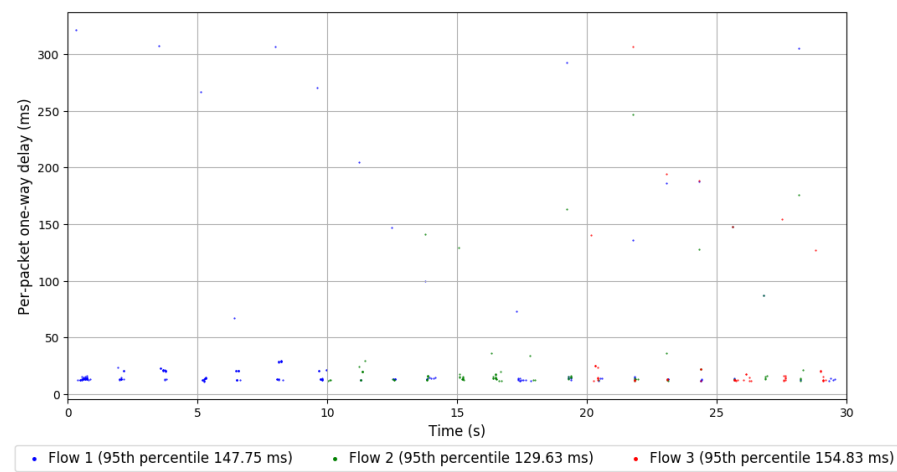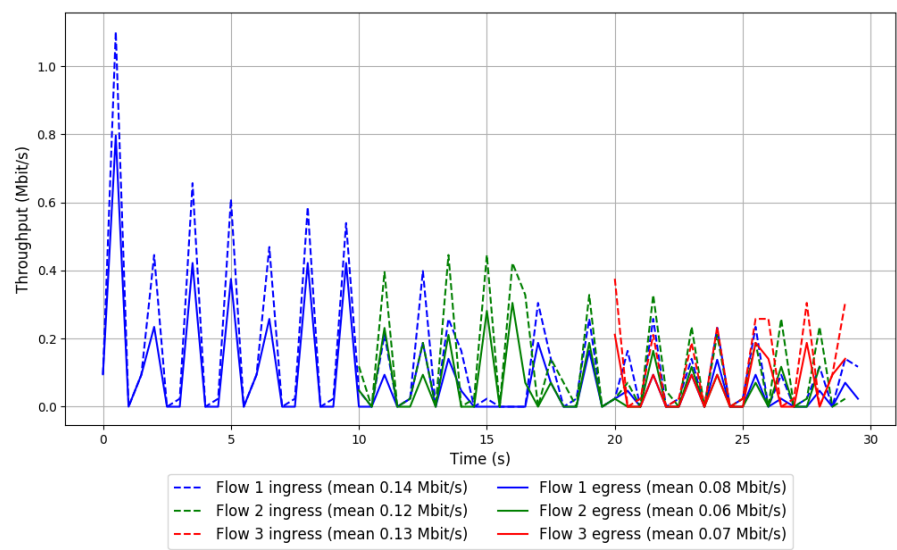
Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2018-03-27 00:28:48
End at: 2018-03-27 00:29:18
Local clock offset: 3.05 ms
Remote clock offset: -5.362 ms


# Below is generated by plot.py at 2018-03-27 00:31:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 174.340 ms
Loss rate: 42.62%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 173.600 ms
Loss rate: 37.68%
-- Flow 2:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 174.336 ms
Loss rate: 46.01%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 205.633 ms
Loss rate: 52.15%
```

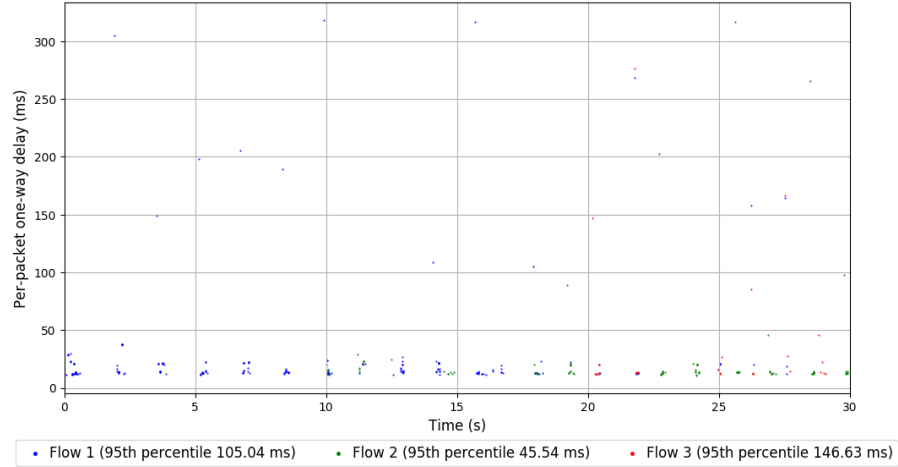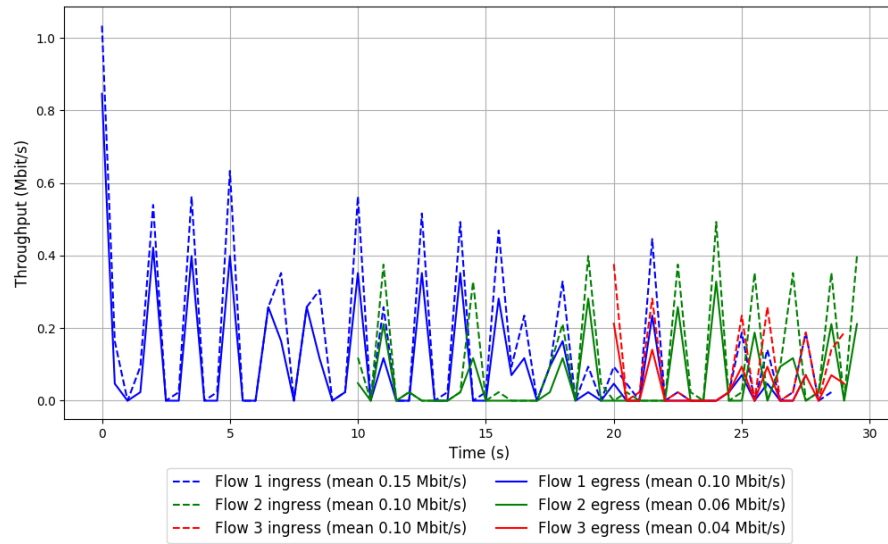Run 3: Report of TCP Cubic — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-03-26 23:22:59
End at: 2018-03-26 23:23:29
Local clock offset: -0.587 ms
Remote clock offset: -6.038 ms


# Below is generated by plot.py at 2018-03-27 00:31:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 147.723 ms
Loss rate: 45.68%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 147.746 ms
Loss rate: 41.89%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 129.635 ms
Loss rate: 52.06%
-- Flow 3:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 154.833 ms
Loss rate: 46.45%
```
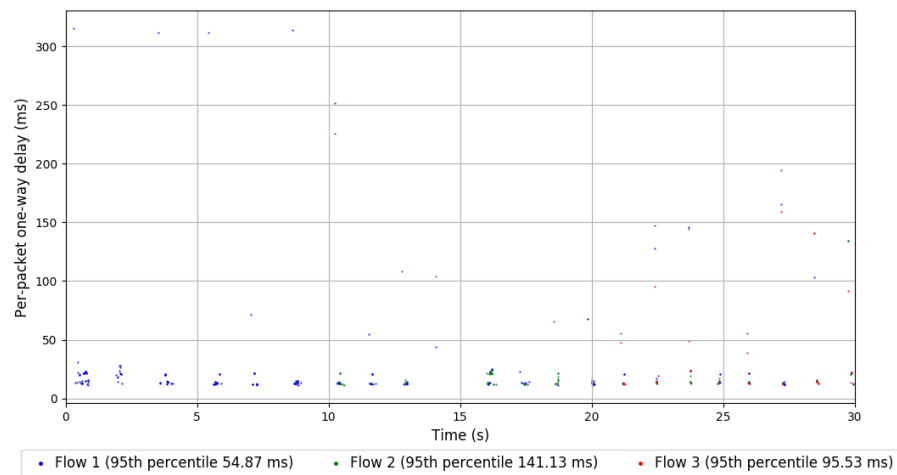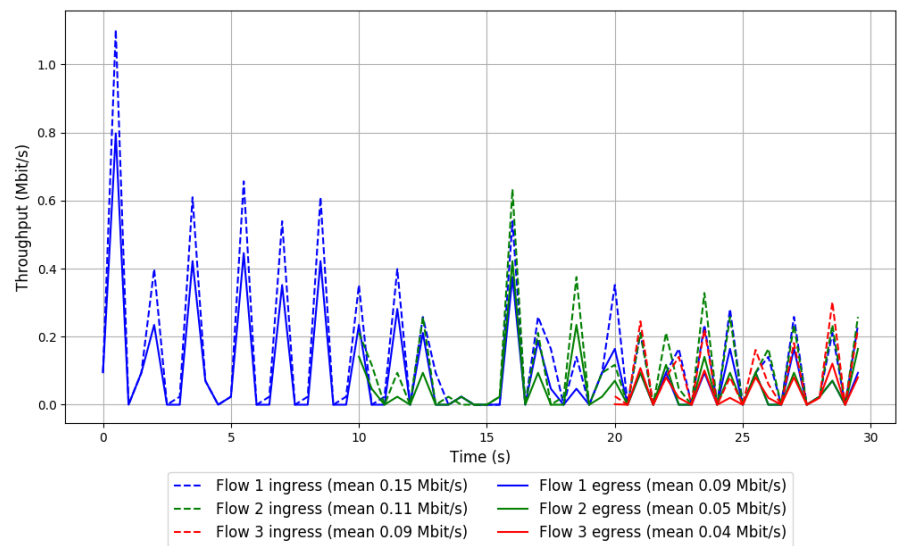
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-03-26 23:46:41
End at: 2018-03-26 23:47:11
Local clock offset: -1.328 ms
Remote clock offset: -6.477 ms


# Below is generated by plot.py at 2018-03-27 00:31:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 97.452 ms
Loss rate: 42.34%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 105.038 ms
Loss rate: 37.93%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 45.543 ms
Loss rate: 45.18%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 146.633 ms
Loss rate: 57.29%
```
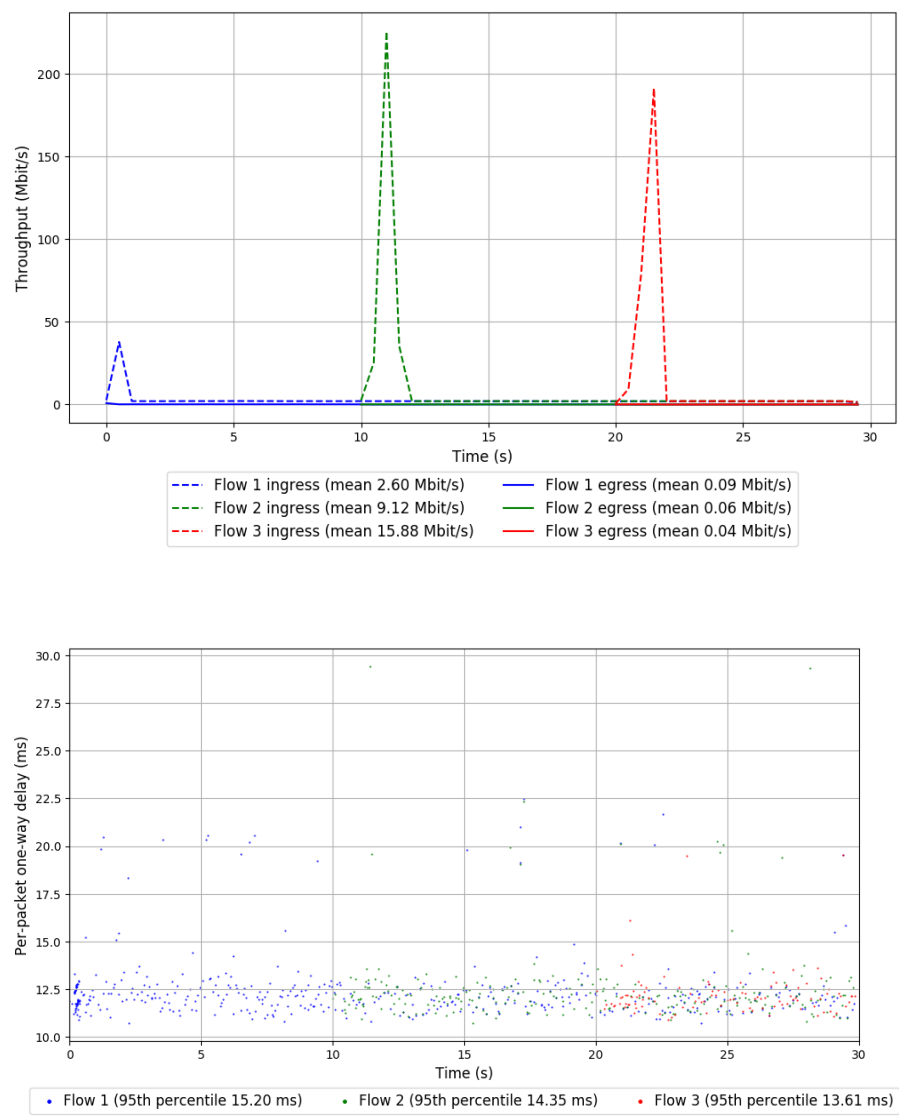
Run 2: Report of LEDBAT — Data Link

Flow 1 ingress (mean 0.15 Mbit/s)   Flow 1 egress (mean 0.10 Mbit/s)
Flow 2 ingress (mean 0.10 Mbit/s)   Flow 2 egress (mean 0.06 Mbit/s)
Flow 3 ingress (mean 0.10 Mbit/s)   Flow 3 egress (mean 0.04 Mbit/s)

Flow 1 (95th percentile 105.04 ms)   Flow 2 (95th percentile 45.54 ms)   Flow 3 (95th percentile 146.63 ms)
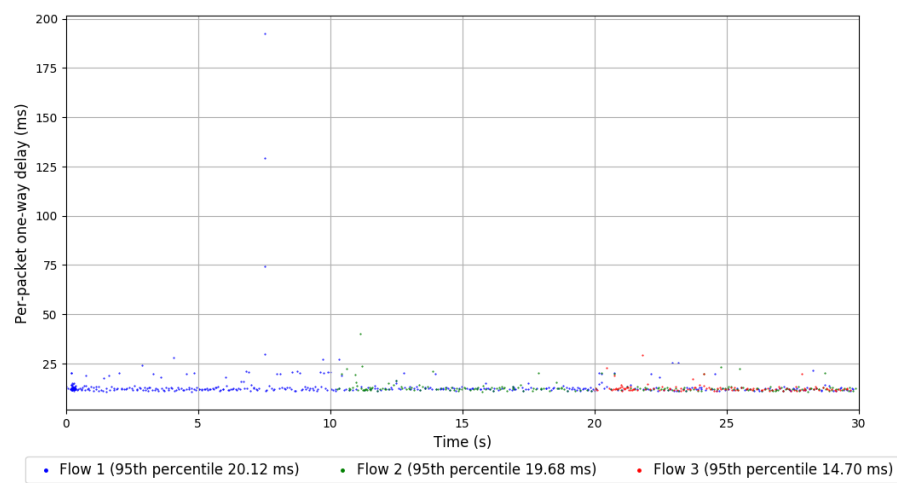
```
Run 3: Statistics of LEDBAT

Start at: 2018-03-27 00:10:22
End at: 2018-03-27 00:10:52
Local clock offset: -1.887 ms
Remote clock offset: -5.161 ms


# Below is generated by plot.py at 2018-03-27 00:31:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 104.044 ms
Loss rate: 44.15%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 54.871 ms
Loss rate: 38.31%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 141.130 ms
Loss rate: 50.82%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 95.535 ms
Loss rate: 57.86%
```

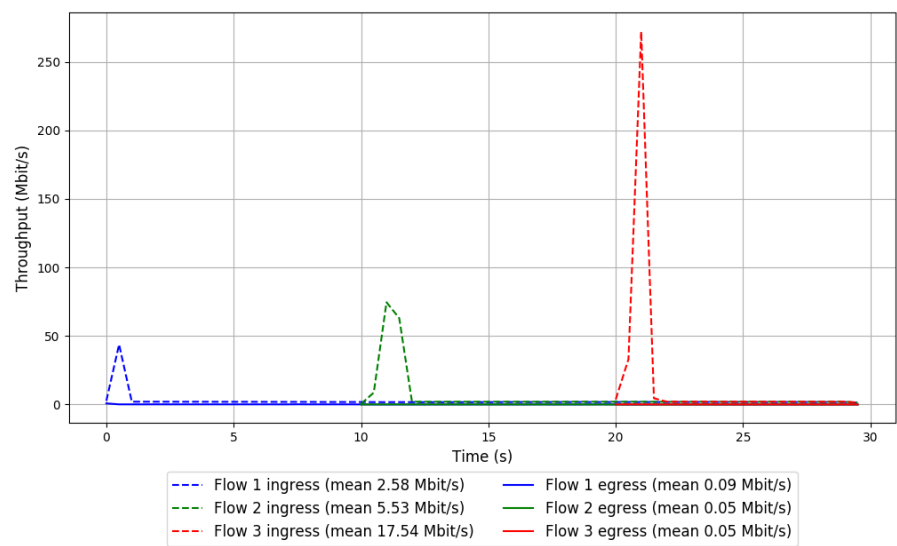Run 3: Report of LEDBAT — Data Link

```
Run 1: Statistics of PCC

Start at: 2018-03-26 23:40:06
End at: 2018-03-26 23:40:36
Local clock offset: -1.527 ms
Remote clock offset: -6.368 ms


# Below is generated by plot.py at 2018-03-27 00:31:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 14.426 ms
Loss rate: 98.99%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 15.204 ms
Loss rate: 96.70%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 14.349 ms
Loss rate: 99.32%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 13.612 ms
Loss rate: 99.75%
```
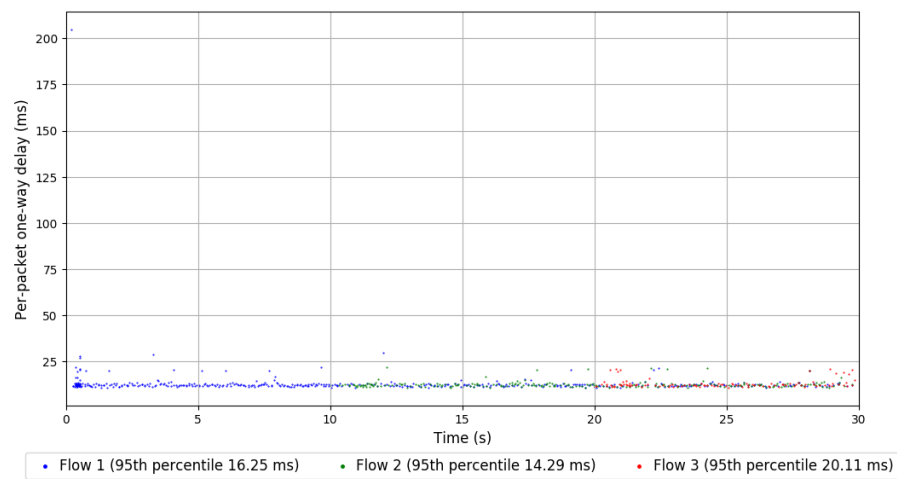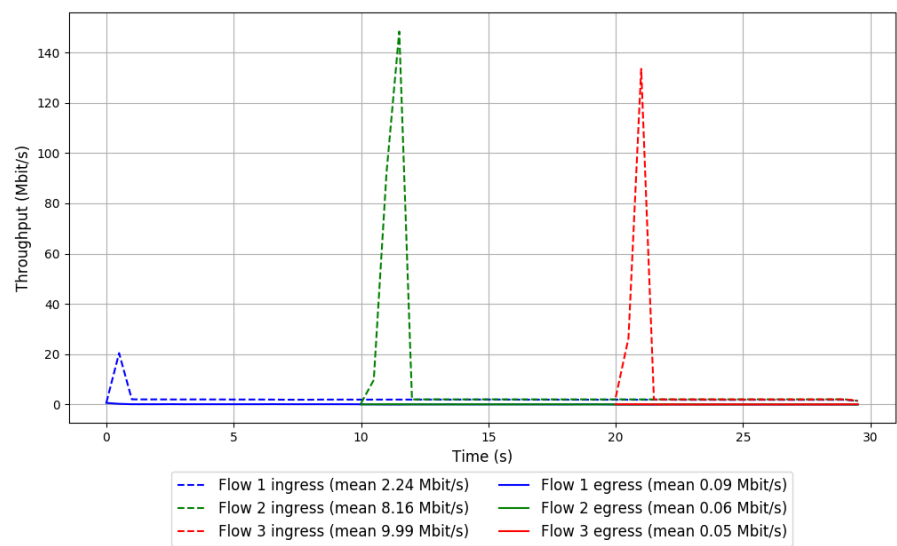
Run 1: Report of PCC — Data Link

```
Run 2: Statistics of PCC

Start at: 2018-03-27 00:03:48
End at: 2018-03-27 00:04:18
Local clock offset: -1.517 ms
Remote clock offset: -5.359 ms


# Below is generated by plot.py at 2018-03-27 00:31:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 19.899 ms
Loss rate: 98.84%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 20.119 ms
Loss rate: 96.60%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 19.678 ms
Loss rate: 99.05%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 14.701 ms
Loss rate: 99.70%
```
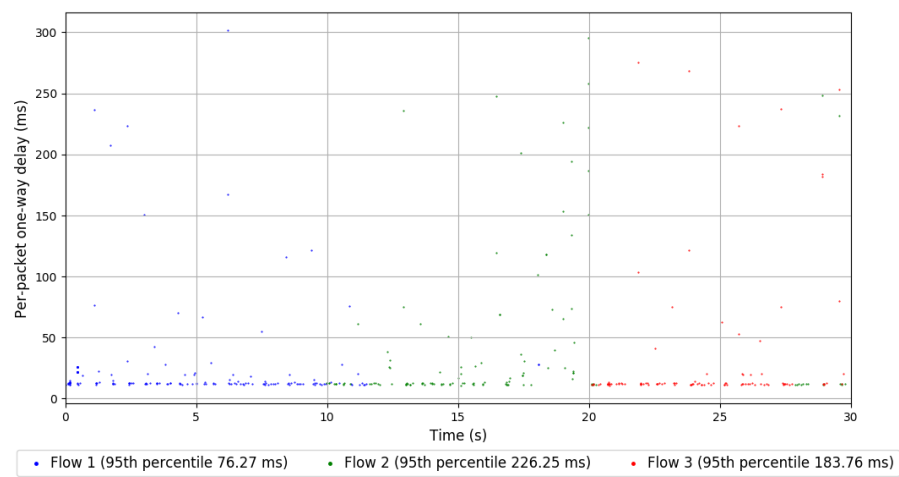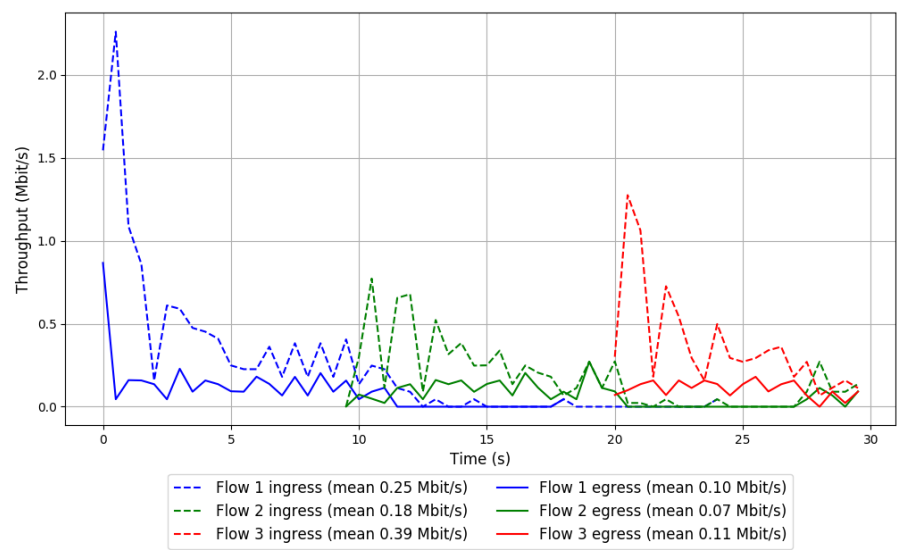
Run 2: Report of PCC — Data Link

- Flow 1 ingress (mean 2.58 Mbit/s)
- Flow 2 ingress (mean 5.53 Mbit/s)
- Flow 3 ingress (mean 17.54 Mbit/s)
- Flow 1 egress (mean 0.09 Mbit/s)
- Flow 2 egress (mean 0.05 Mbit/s)
- Flow 3 egress (mean 0.05 Mbit/s)

- Flow 1 (95th percentile 20.12 ms)
- Flow 2 (95th percentile 19.68 ms)
- Flow 3 (95th percentile 14.70 ms)

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```
Run 3: Statistics of PCC

Start at: 2018-03-27 00:27:29
End at: 2018-03-27 00:27:59
Local clock offset: 2.86 ms
Remote clock offset: -5.217 ms


# Below is generated by plot.py at 2018-03-27 00:31:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 16.472 ms
Loss rate: 98.73%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 16.252 ms
Loss rate: 96.20%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 14.287 ms
Loss rate: 99.31%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 20.114 ms
Loss rate: 99.47%
```
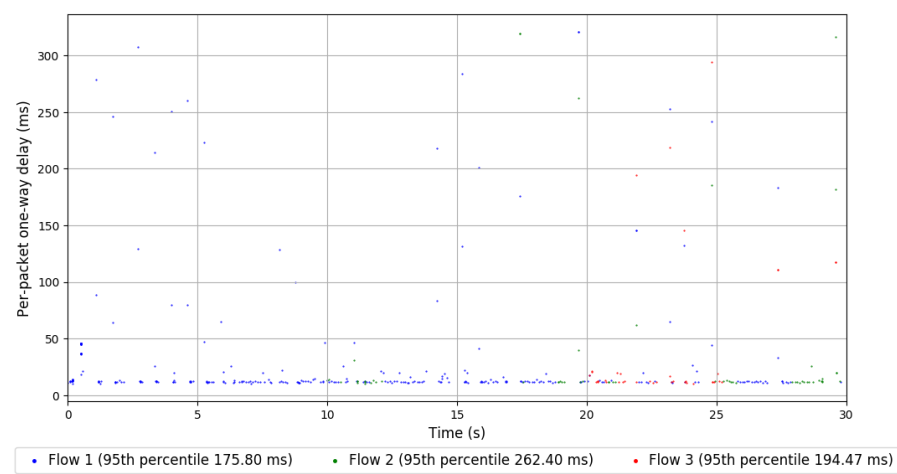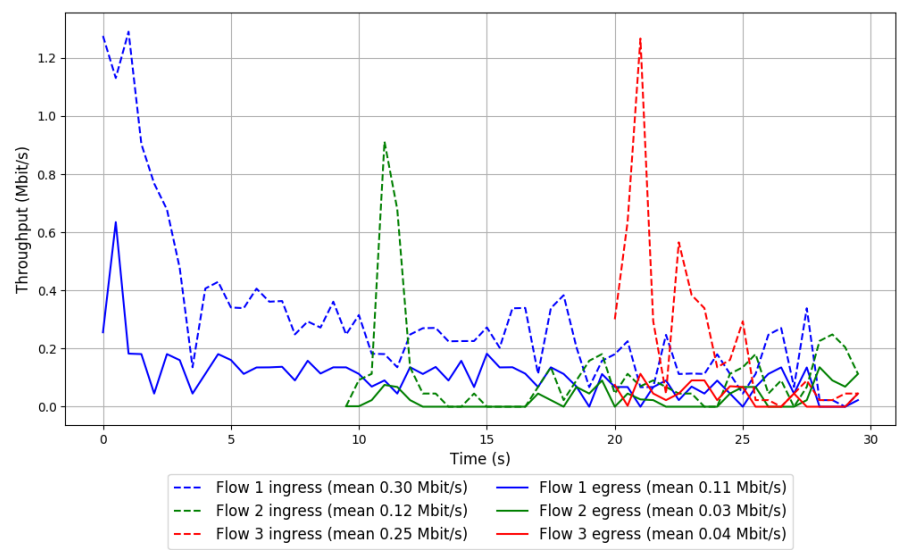
Run 3: Report of PCC — Data Link

Flow 1 ingress (mean 2.24 Mbit/s)   Flow 1 egress (mean 0.09 Mbit/s)
Flow 2 ingress (mean 8.16 Mbit/s)   Flow 2 egress (mean 0.06 Mbit/s)
Flow 3 ingress (mean 9.99 Mbit/s)   Flow 3 egress (mean 0.05 Mbit/s)

Flow 1 (95th percentile 16.25 ms)   Flow 2 (95th percentile 14.29 ms)   Flow 3 (95th percentile 20.11 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-03-26 23:29:34
End at: 2018-03-26 23:30:04
Local clock offset: -1.06 ms
Remote clock offset: -6.152 ms


# Below is generated by plot.py at 2018-03-27 00:31:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 183.765 ms
Loss rate: 68.79%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 76.268 ms
Loss rate: 70.64%
-- Flow 2:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 226.252 ms
Loss rate: 62.78%
-- Flow 3:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 183.765 ms
Loss rate: 71.46%
```
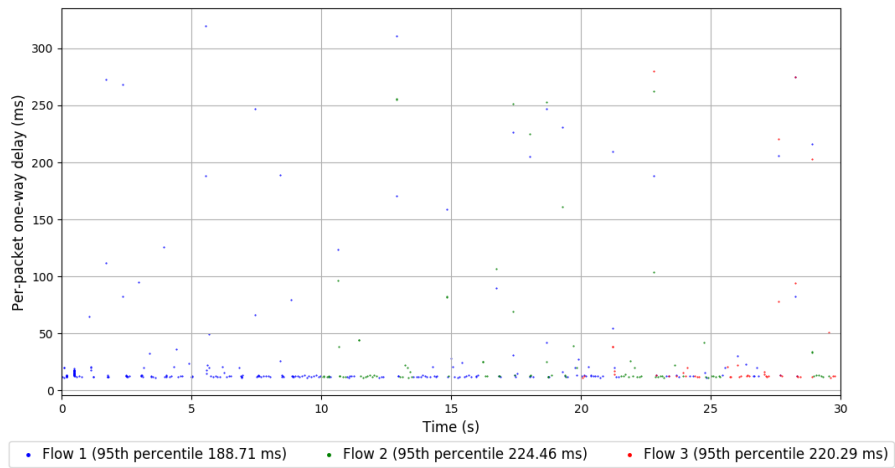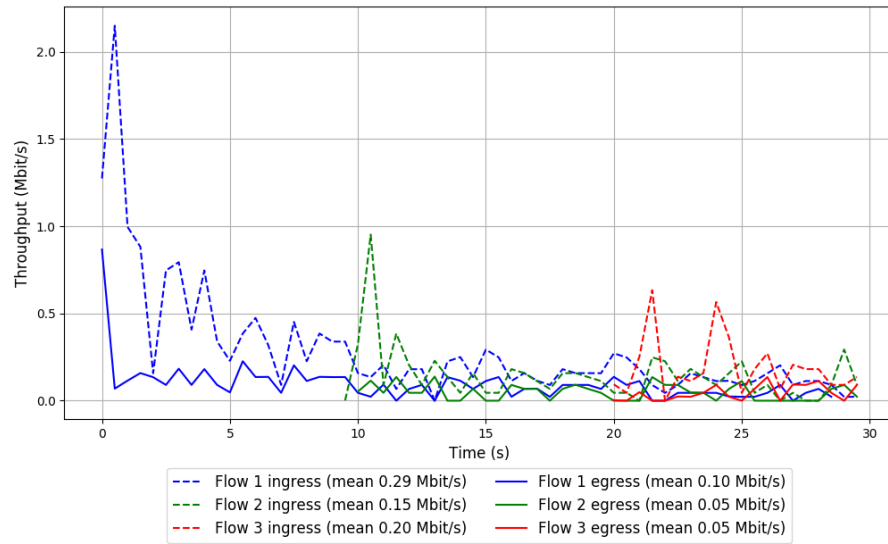
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-03-26 23:53:15
End at: 2018-03-26 23:53:45
Local clock offset: -1.232 ms
Remote clock offset: -6.358 ms


# Below is generated by plot.py at 2018-03-27 00:31:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 194.467 ms
Loss rate: 69.46%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 175.803 ms
Loss rate: 64.15%
-- Flow 2:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 262.402 ms
Loss rate: 74.78%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 194.467 ms
Loss rate: 84.46%
```

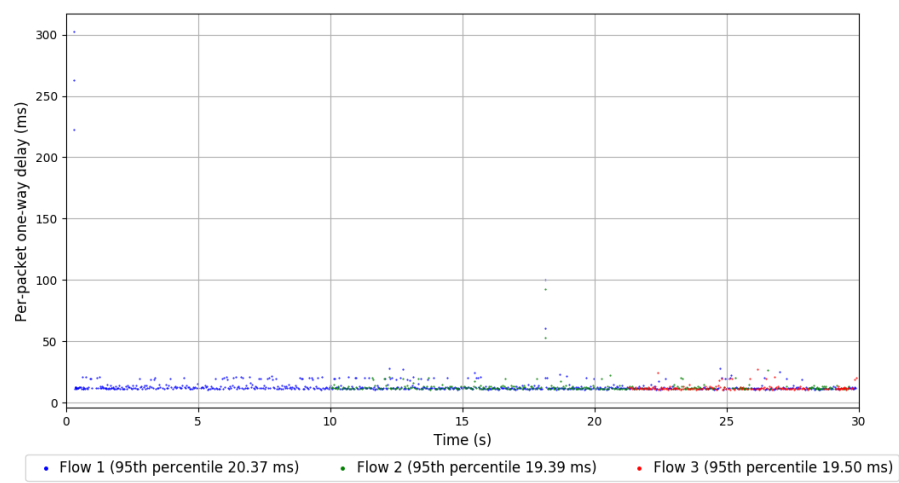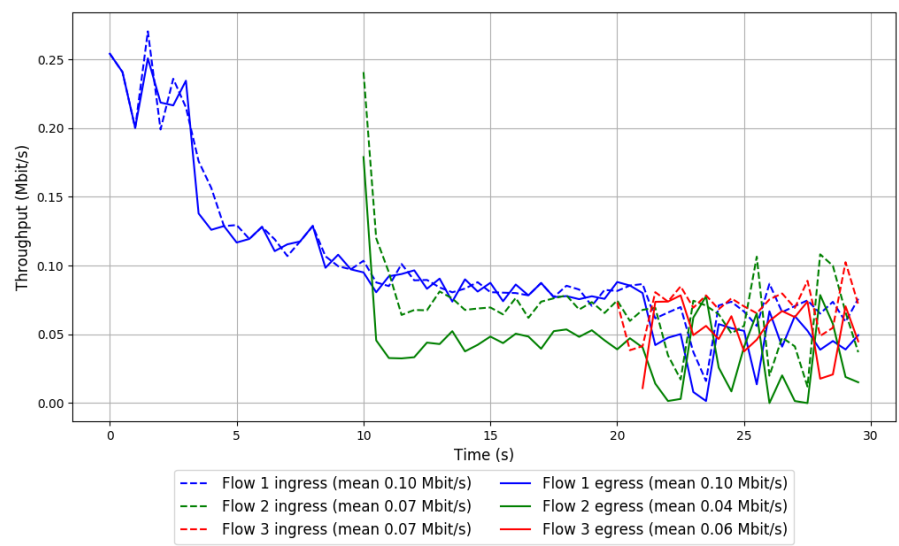Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-03-27 00:16:57
End at: 2018-03-27 00:17:27
Local clock offset: 0.475 ms
Remote clock offset: -4.992 ms


# Below is generated by plot.py at 2018-03-27 00:31:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 205.801 ms
Loss rate: 69.16%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 188.709 ms
Loss rate: 68.05%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 224.457 ms
Loss rate: 67.66%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 220.293 ms
Loss rate: 76.56%
```

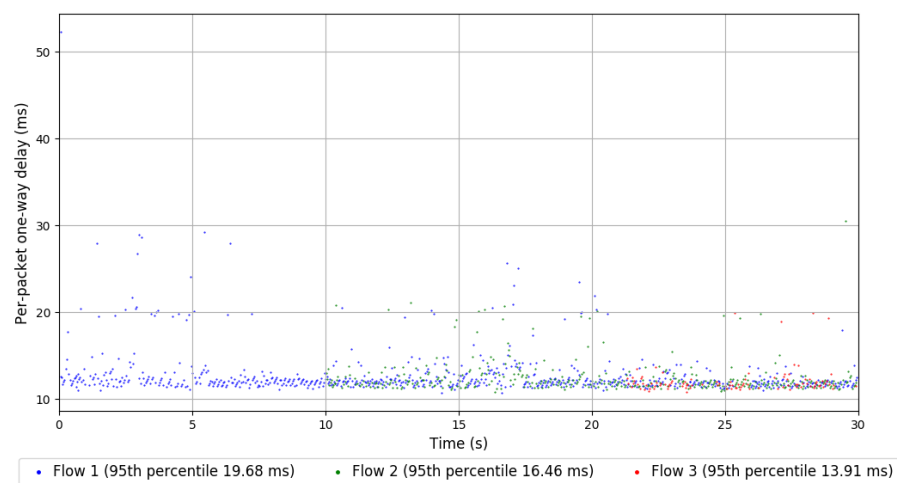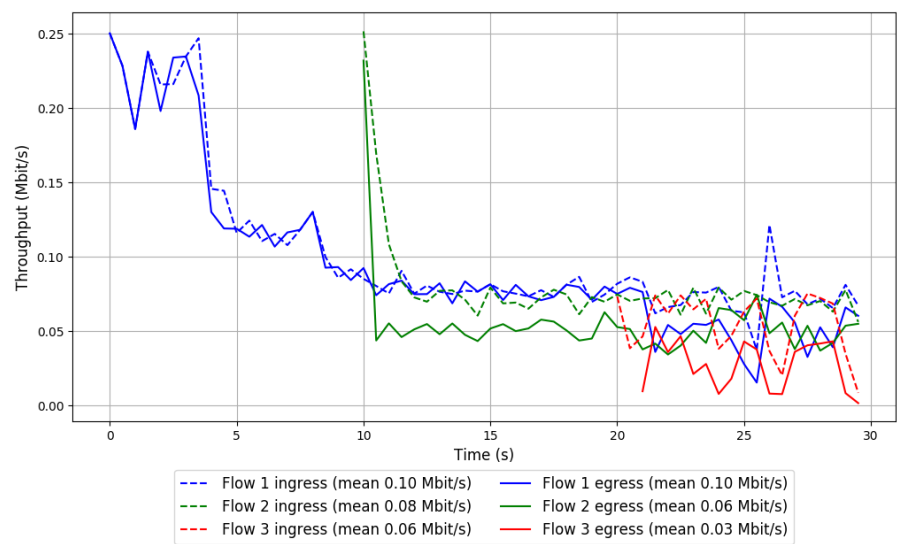Run 3: Report of QUIC Cubic — Data Link

```
Run 1: Statistics of SCReAM

Start at: 2018-03-26 23:32:12
End at: 2018-03-26 23:32:42
Local clock offset: -1.279 ms
Remote clock offset: -6.241 ms


# Below is generated by plot.py at 2018-03-27 00:31:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 20.168 ms
Loss rate: 20.17%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 20.369 ms
Loss rate: 7.50%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 19.393 ms
Loss rate: 42.04%
-- Flow 3:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 19.501 ms
Loss rate: 32.51%
```
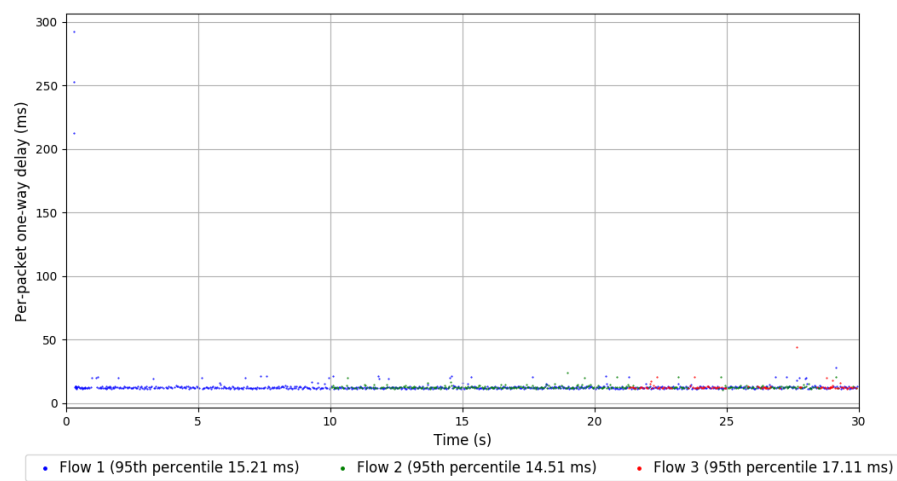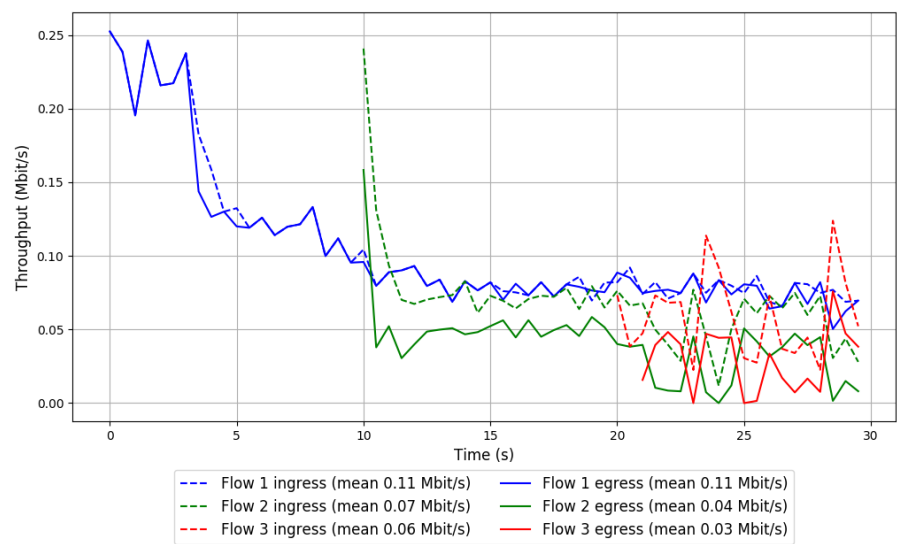
Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2018-03-26 23:55:53
End at: 2018-03-26 23:56:23
Local clock offset: -1.375 ms
Remote clock offset: -6.04 ms


# Below is generated by plot.py at 2018-03-27 00:31:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 19.076 ms
Loss rate: 19.77%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 19.679 ms
Loss rate: 7.87%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 16.458 ms
Loss rate: 30.67%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 13.915 ms
Loss rate: 55.83%
```
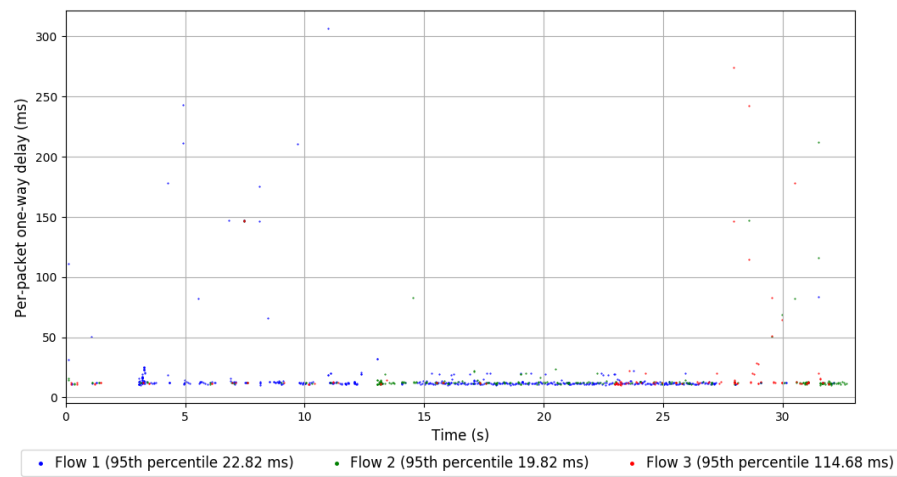
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-03-27 00:19:35
End at: 2018-03-27 00:20:05
Local clock offset: 1.326 ms
Remote clock offset: -5.062 ms

# Below is generated by plot.py at 2018-03-27 00:31:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 15.080 ms
Loss rate: 19.05%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 15.212 ms
Loss rate: 2.41%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 14.514 ms
Loss rate: 41.99%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 17.114 ms
Loss rate: 55.76%
```
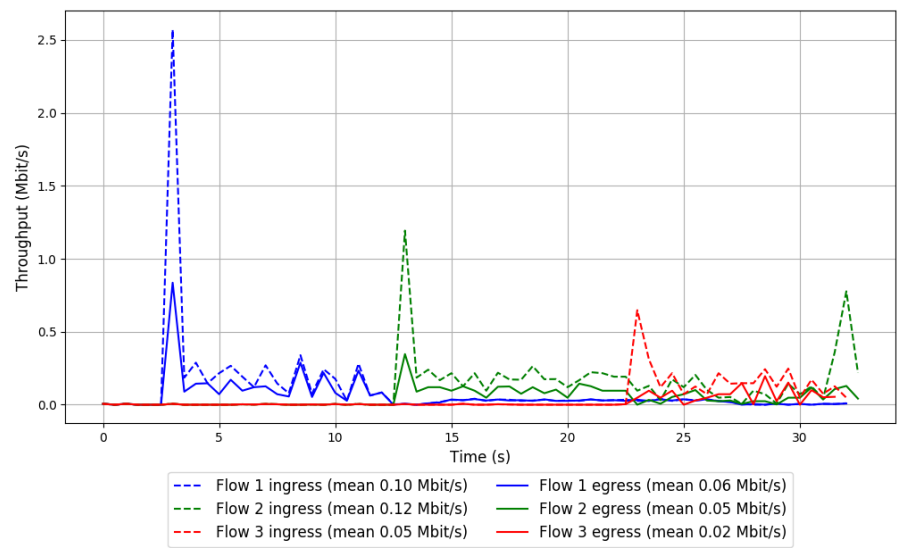
Run 3: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.11 Mbit/s)   Flow 1 egress (mean 0.11 Mbit/s)
Flow 2 ingress (mean 0.07 Mbit/s)   Flow 2 egress (mean 0.04 Mbit/s)
Flow 3 ingress (mean 0.06 Mbit/s)   Flow 3 egress (mean 0.03 Mbit/s)

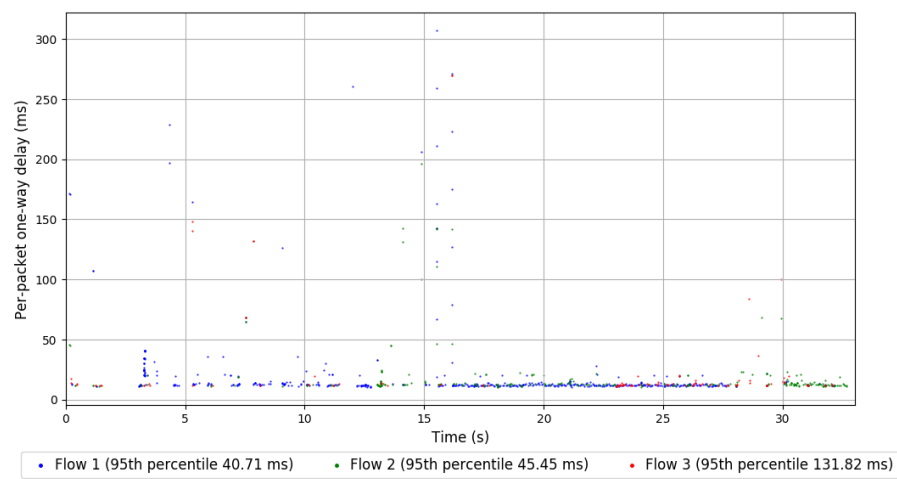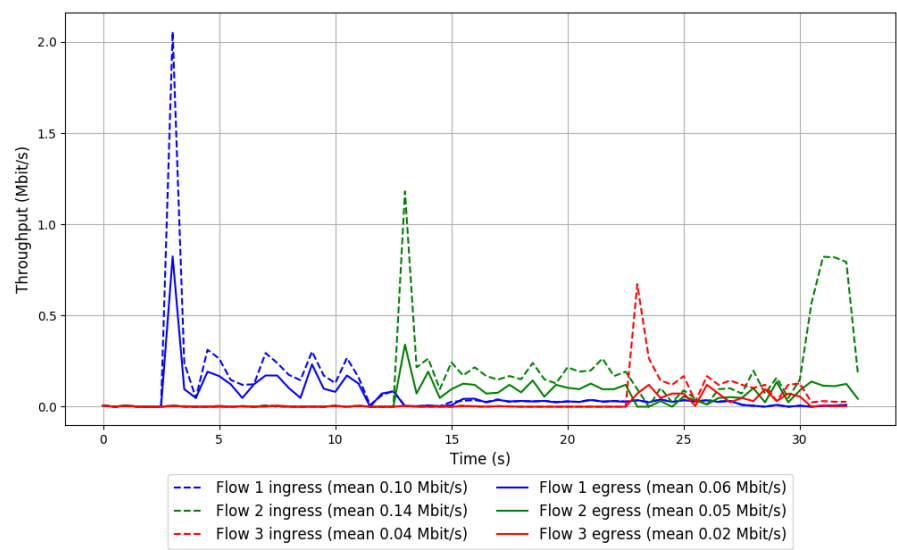Flow 1 (95th percentile 15.21 ms)   Flow 2 (95th percentile 14.51 ms)   Flow 3 (95th percentile 17.11 ms)

```
Run 1: Statistics of WebRTC media

Start at: 2018-03-26 23:24:18
End at: 2018-03-26 23:24:48
Local clock offset: -0.585 ms
Remote clock offset: -6.109 ms


# Below is generated by plot.py at 2018-03-27 00:31:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 23.417 ms
Loss rate: 52.56%
-- Flow 1:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 22.822 ms
Loss rate: 42.27%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 19.825 ms
Loss rate: 57.54%
-- Flow 3:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 114.682 ms
Loss rate: 61.48%
```

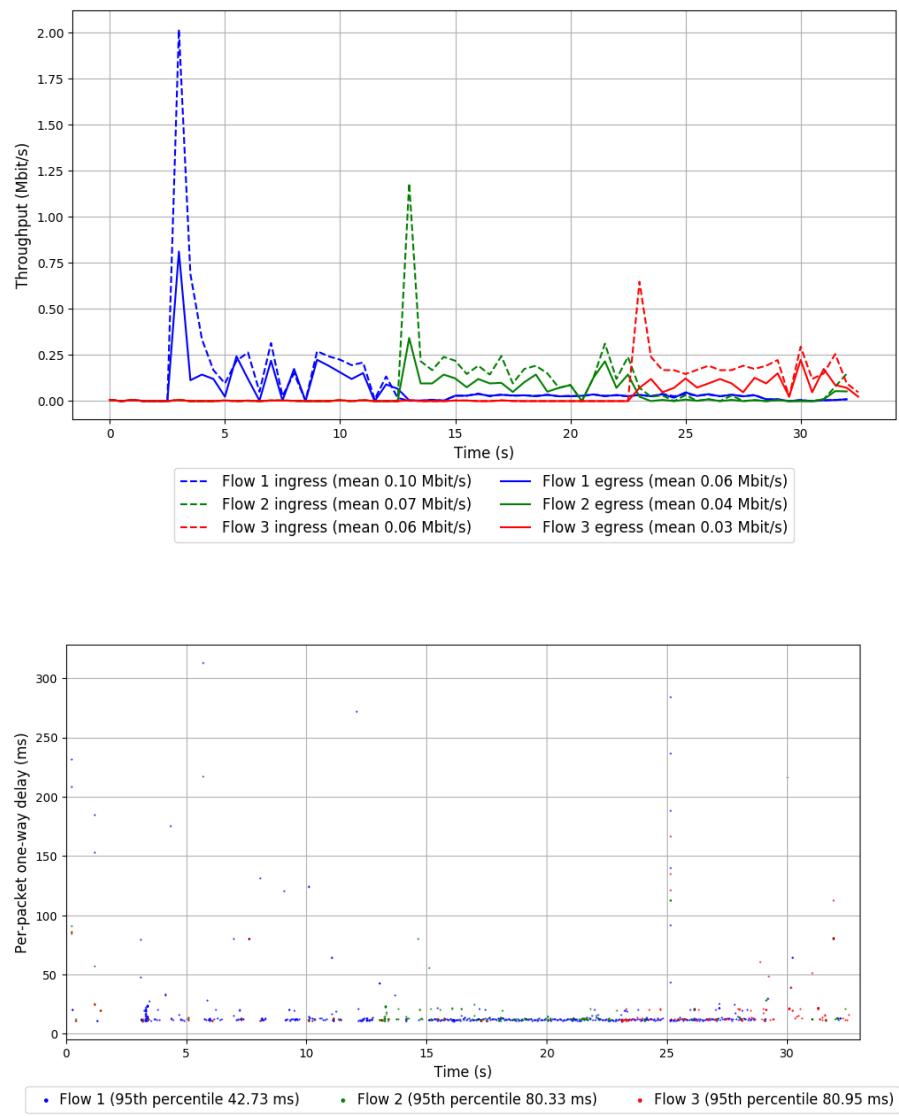Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-03-26 23:48:00
End at: 2018-03-26 23:48:30
Local clock offset: -1.294 ms
Remote clock offset: -6.482 ms


# Below is generated by plot.py at 2018-03-27 00:31:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 46.594 ms
Loss rate: 53.75%
-- Flow 1:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 40.710 ms
Loss rate: 38.37%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 45.452 ms
Loss rate: 61.86%
-- Flow 3:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 131.822 ms
Loss rate: 61.50%
```

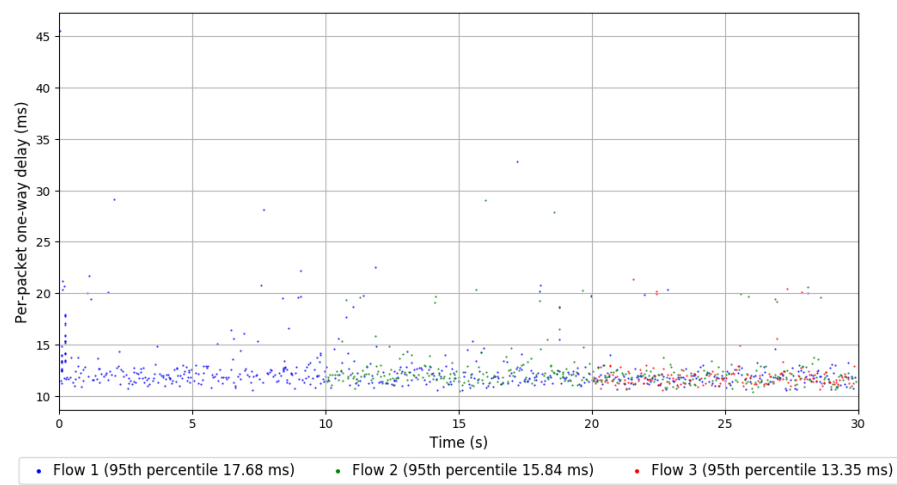Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-03-27 00:11:41
End at: 2018-03-27 00:12:11
Local clock offset: -1.837 ms
Remote clock offset: -5.187 ms

# Below is generated by plot.py at 2018-03-27 00:31:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 64.627 ms
Loss rate: 45.47%
-- Flow 1:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 42.734 ms
Loss rate: 40.65%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 80.333 ms
Loss rate: 48.43%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 80.951 ms
Loss rate: 49.90%
```

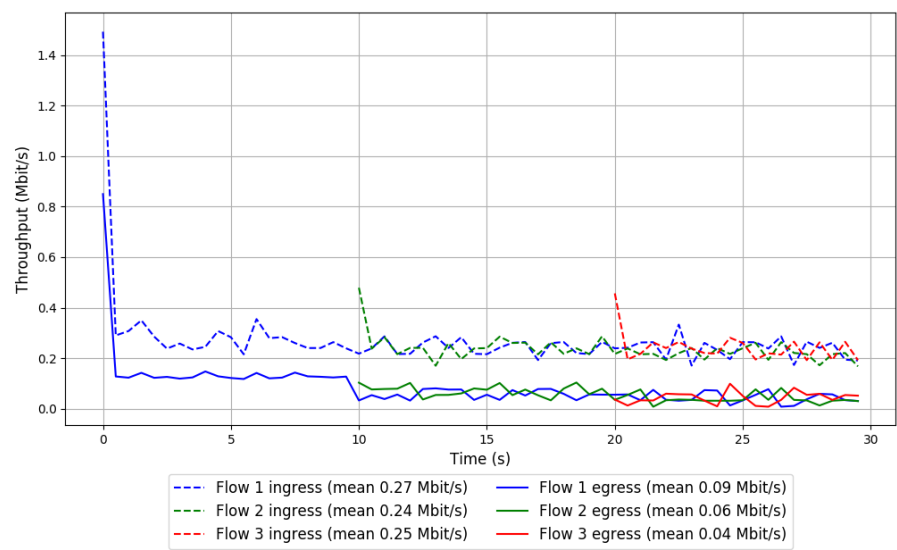Run 3: Report of WebRTC media — Data Link

```
Run 1: Statistics of Sprout

Start at: 2018-03-26 23:42:44
End at: 2018-03-26 23:43:14
Local clock offset: -1.324 ms
Remote clock offset: -6.409 ms


# Below is generated by plot.py at 2018-03-27 00:31:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 16.600 ms
Loss rate: 72.57%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 17.678 ms
Loss rate: 67.50%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 15.843 ms
Loss rate: 76.46%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 13.345 ms
Loss rate: 82.08%
```
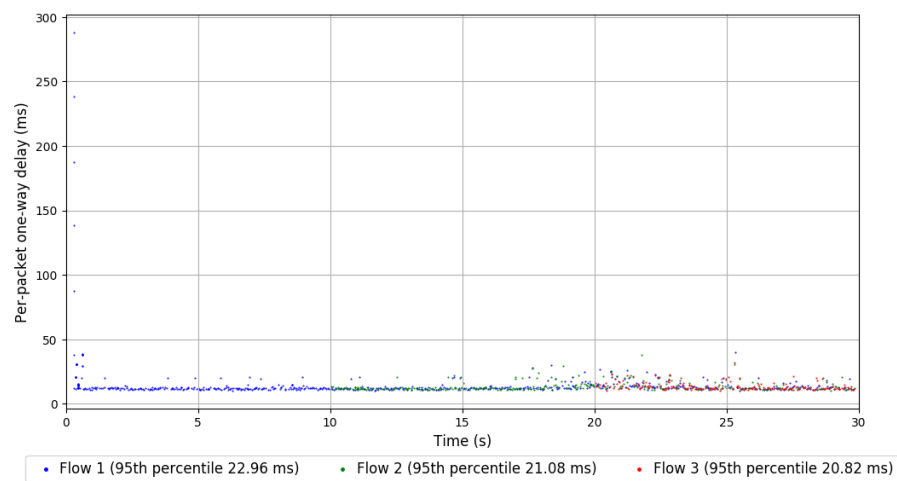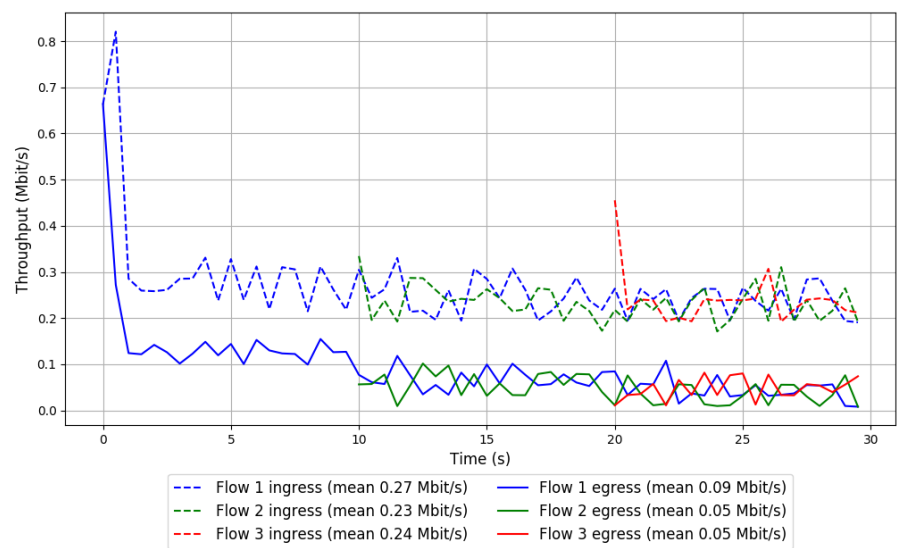
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-03-27 00:06:26
End at: 2018-03-27 00:06:56
Local clock offset: -1.688 ms
Remote clock offset: -5.349 ms


# Below is generated by plot.py at 2018-03-27 00:31:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 21.131 ms
Loss rate: 72.54%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 22.962 ms
Loss rate: 66.06%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 21.082 ms
Loss rate: 79.89%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 20.818 ms
Loss rate: 80.13%
```
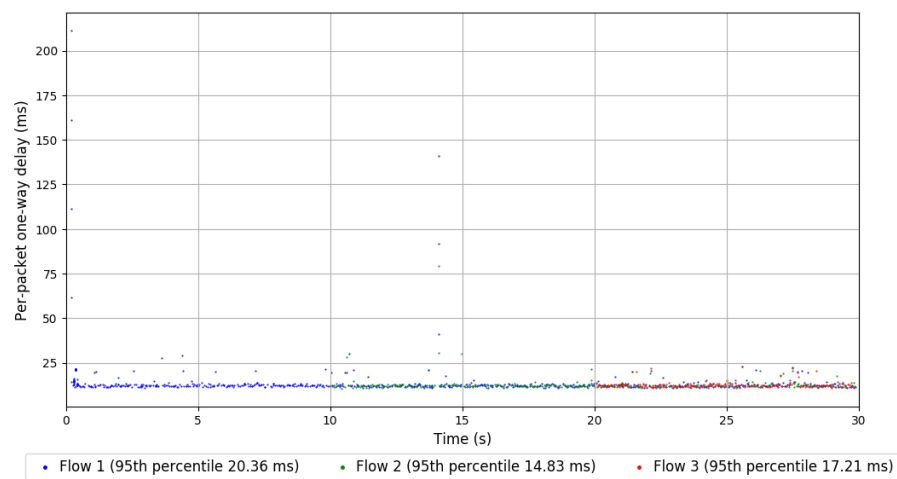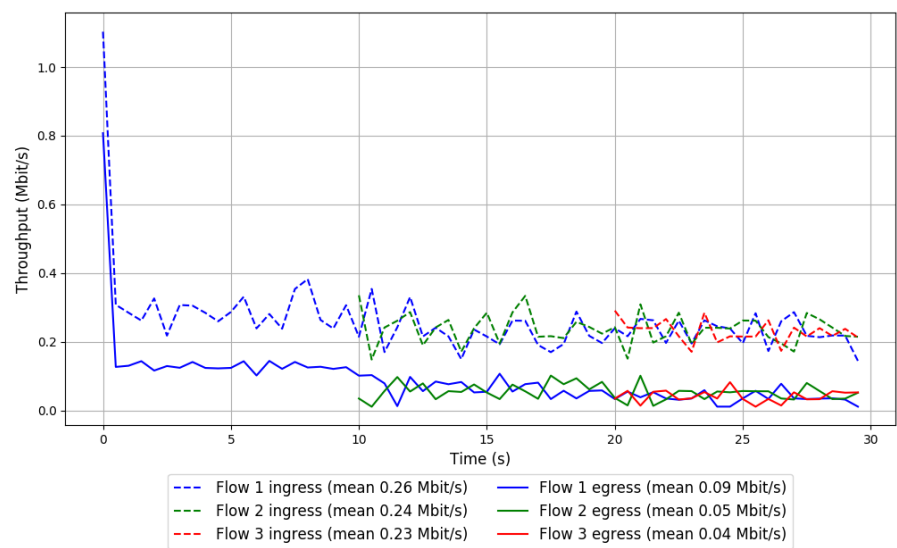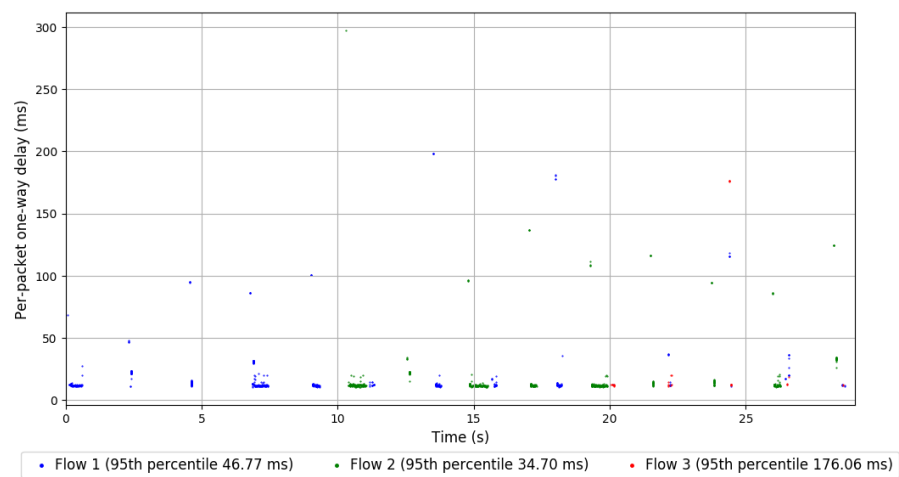
Run 2: Report of Sprout — Data Link

Legend:
- Flow 1 ingress (mean 0.27 Mbit/s)
- Flow 1 egress (mean 0.09 Mbit/s)
- Flow 2 ingress (mean 0.23 Mbit/s)
- Flow 2 egress (mean 0.05 Mbit/s)
- Flow 3 ingress (mean 0.24 Mbit/s)
- Flow 3 egress (mean 0.05 Mbit/s)

Legend:
- Flow 1 (95th percentile 22.96 ms)
- Flow 2 (95th percentile 21.08 ms)
- Flow 3 (95th percentile 20.82 ms)

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```
Run 3: Statistics of Sprout

Start at: 2018-03-27 00:30:07
End at: 2018-03-27 00:30:37
Local clock offset: 3.179 ms
Remote clock offset: -5.554 ms


# Below is generated by plot.py at 2018-03-27 00:31:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 19.470 ms
Loss rate: 72.01%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 20.360 ms
Loss rate: 65.98%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 14.830 ms
Loss rate: 77.18%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 17.213 ms
Loss rate: 81.98%
```
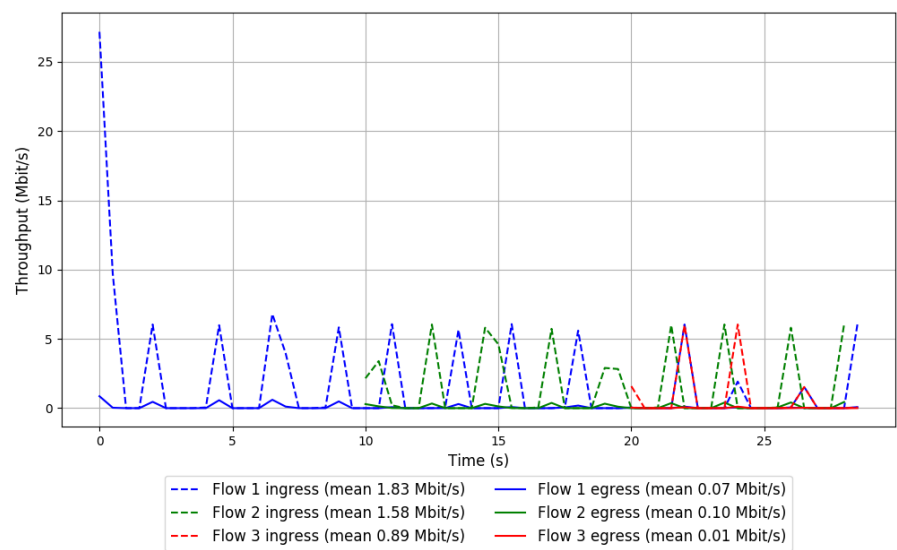
Run 3: Report of Sprout — Data Link

Flow 1 ingress (mean 0.26 Mbit/s) --- Flow 1 egress (mean 0.09 Mbit/s)
Flow 2 ingress (mean 0.24 Mbit/s) --- Flow 2 egress (mean 0.05 Mbit/s)
Flow 3 ingress (mean 0.23 Mbit/s) --- Flow 3 egress (mean 0.04 Mbit/s)

Flow 1 (95th percentile 20.36 ms)   Flow 2 (95th percentile 14.83 ms)   Flow 3 (95th percentile 17.21 ms)
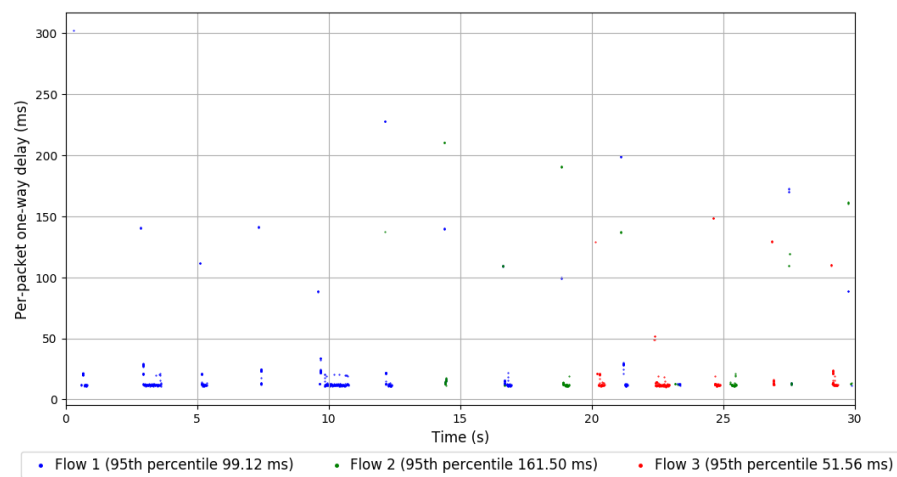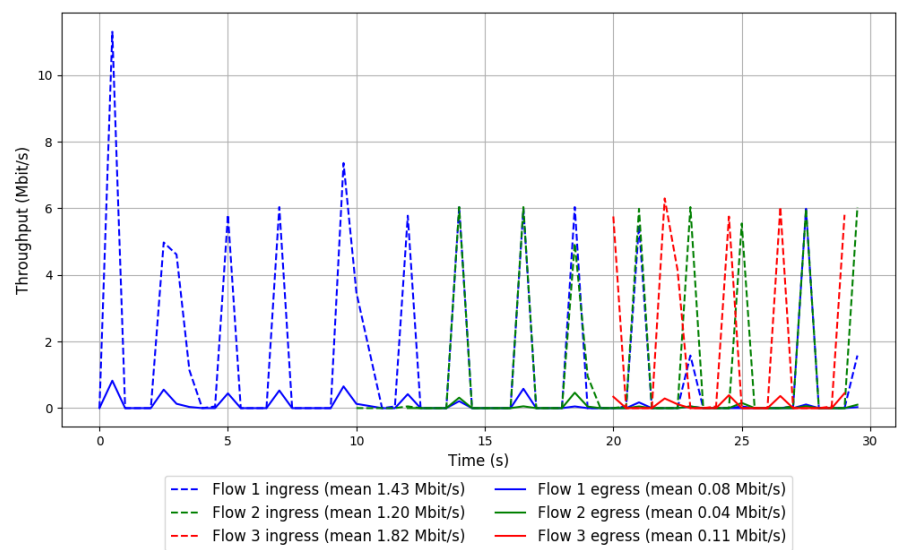
```
Run 1: Statistics of TaoVA-100x

Start at: 2018-03-26 23:34:50
End at: 2018-03-26 23:35:20
Local clock offset: -1.487 ms
Remote clock offset: -6.275 ms


# Below is generated by plot.py at 2018-03-27 00:31:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 48.157 ms
Loss rate: 95.46%
-- Flow 1:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 46.767 ms
Loss rate: 96.05%
-- Flow 2:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 34.704 ms
Loss rate: 93.61%
-- Flow 3:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 176.064 ms
Loss rate: 98.39%
```
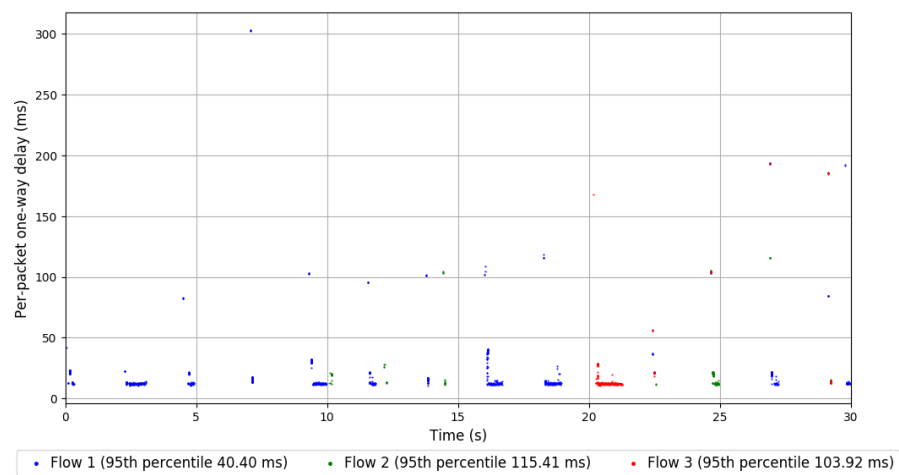
Run 1: Report of TaoVA-100x — Data Link

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

Start at: 2018-03-26 23:58:31
End at: 2018-03-26 23:59:01
Local clock offset: -1.368 ms
Remote clock offset: -5.757 ms


# Below is generated by plot.py at 2018-03-27 00:31:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 110.073 ms
Loss rate: 95.04%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 99.118 ms
Loss rate: 94.13%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 161.503 ms
Loss rate: 97.24%
-- Flow 3:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 51.565 ms
Loss rate: 94.24%
```

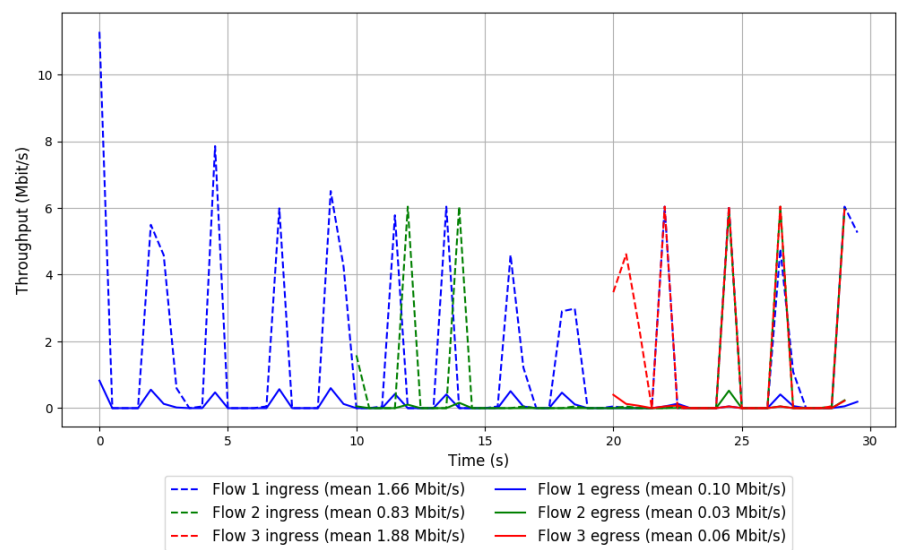Run 2: Report of TaoVA-100x — Data Link

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

Start at: 2018-03-27 00:22:12
End at: 2018-03-27 00:22:42
Local clock offset: 1.953 ms
Remote clock offset: -4.937 ms


# Below is generated by plot.py at 2018-03-27 00:31:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 84.601 ms
Loss rate: 94.93%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 40.400 ms
Loss rate: 93.75%
-- Flow 2:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 115.410 ms
Loss rate: 96.42%
-- Flow 3:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 103.920 ms
Loss rate: 96.96%
```
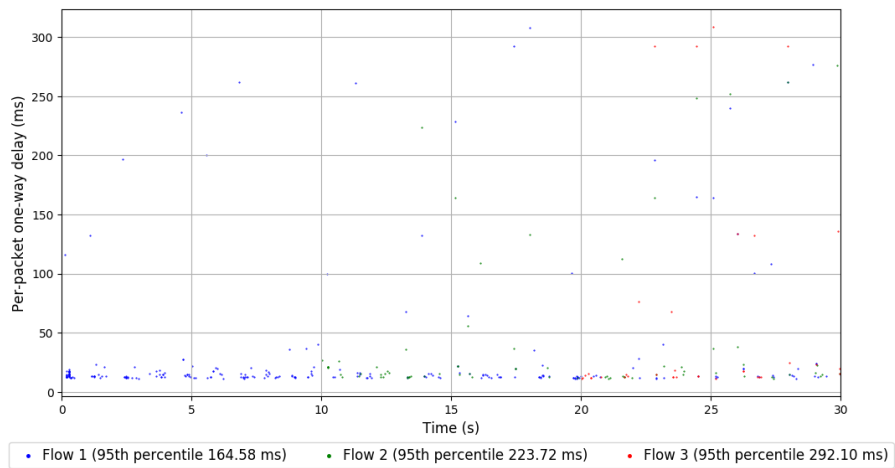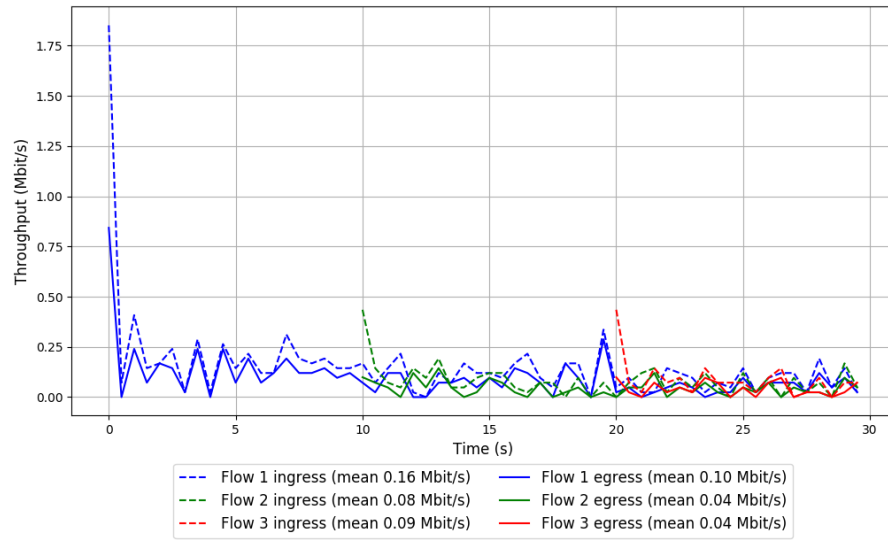
Run 3: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 1.66 Mbit/s)   Flow 1 egress (mean 0.10 Mbit/s)
Flow 2 ingress (mean 0.83 Mbit/s)   Flow 2 egress (mean 0.03 Mbit/s)
Flow 3 ingress (mean 1.88 Mbit/s)   Flow 3 egress (mean 0.06 Mbit/s)

Flow 1 (95th percentile 40.40 ms)   Flow 2 (95th percentile 115.41 ms)   Flow 3 (95th percentile 103.92 ms)
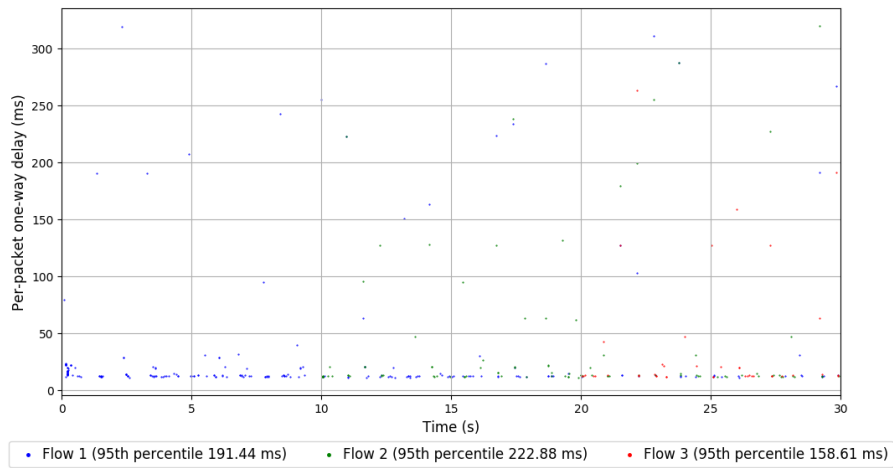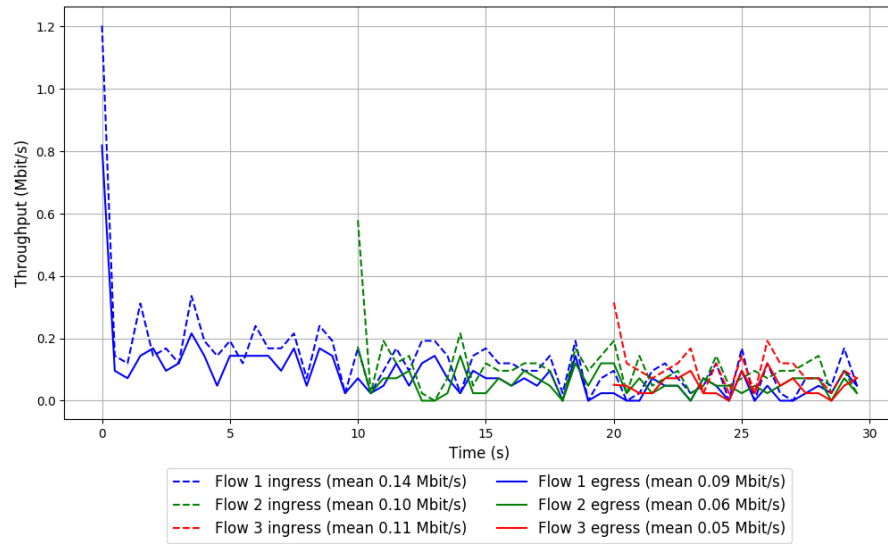
```
Run 1: Statistics of TCP Vegas

Start at: 2018-03-26 23:21:40
End at: 2018-03-26 23:22:10
Local clock offset: -0.458 ms
Remote clock offset: -6.012 ms


# Below is generated by plot.py at 2018-03-27 00:31:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 200.149 ms
Loss rate: 41.81%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 164.582 ms
Loss rate: 37.84%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 223.721 ms
Loss rate: 47.02%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 292.102 ms
Loss rate: 53.34%
```
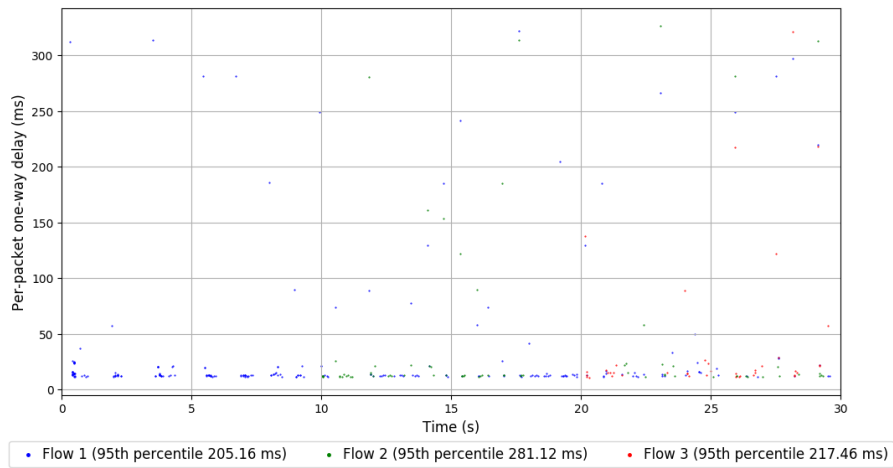
Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-03-26 23:45:22
End at: 2018-03-26 23:45:52
Local clock offset: -1.254 ms
Remote clock offset: -6.353 ms


# Below is generated by plot.py at 2018-03-27 00:31:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 199.073 ms
Loss rate: 41.61%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 191.437 ms
Loss rate: 36.08%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 222.885 ms
Loss rate: 46.21%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 158.614 ms
Loss rate: 53.95%
```

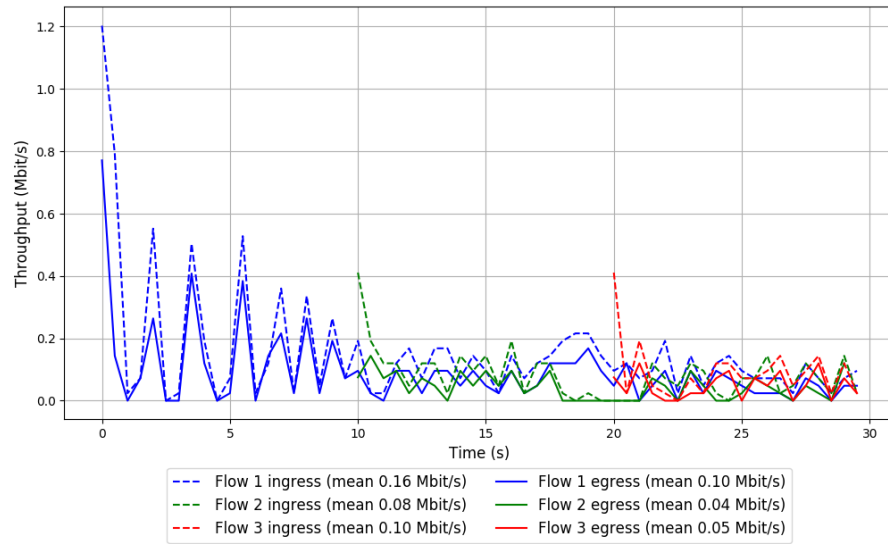Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-03-27 00:09:03
End at: 2018-03-27 00:09:33
Local clock offset: -1.691 ms
Remote clock offset: -5.262 ms


# Below is generated by plot.py at 2018-03-27 00:31:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 219.866 ms
Loss rate: 43.93%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 205.163 ms
Loss rate: 41.15%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 281.118 ms
Loss rate: 48.51%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 217.459 ms
Loss rate: 49.92%
```
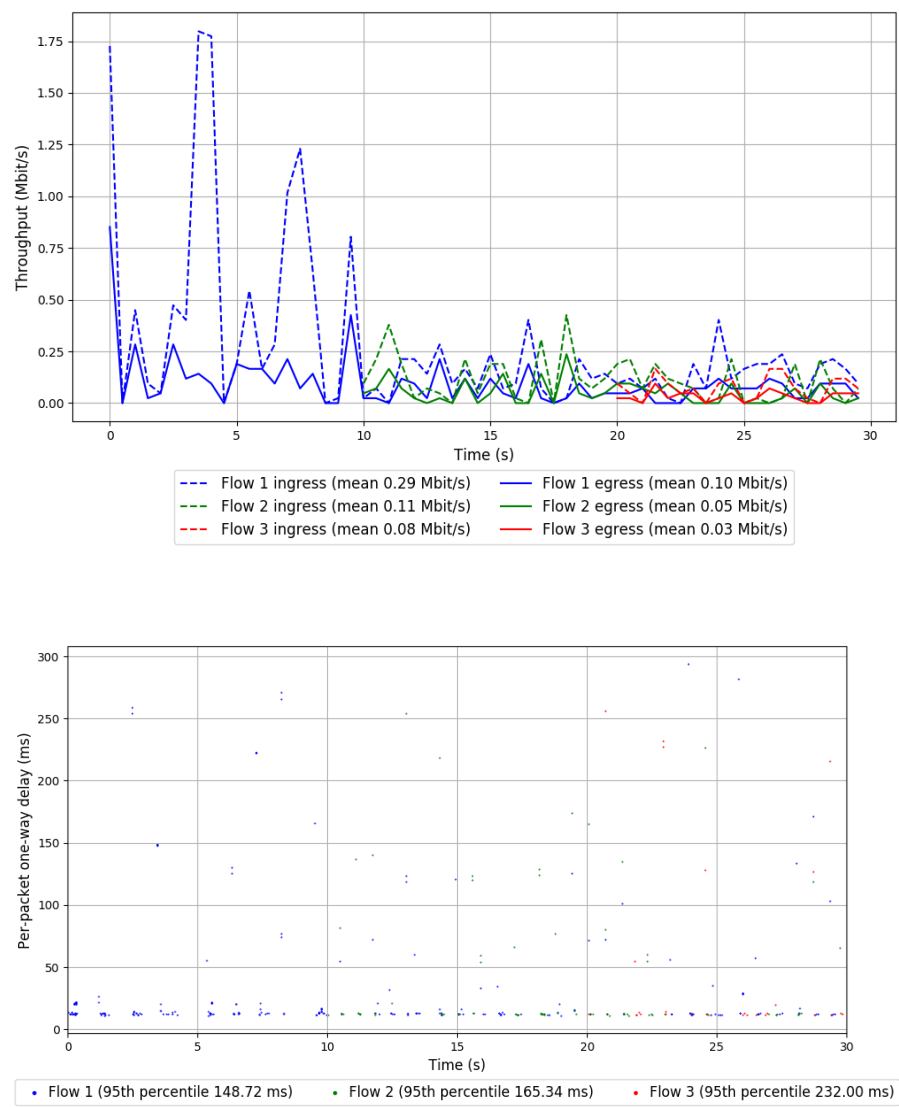
Run 3: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2018-03-26 23:28:15
End at: 2018-03-26 23:28:45
Local clock offset: -1.056 ms
Remote clock offset: -6.15 ms


# Below is generated by plot.py at 2018-03-27 00:31:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 171.146 ms
Loss rate: 63.66%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 148.715 ms
Loss rate: 66.30%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 165.337 ms
Loss rate: 55.79%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 231.997 ms
Loss rate: 57.14%
```

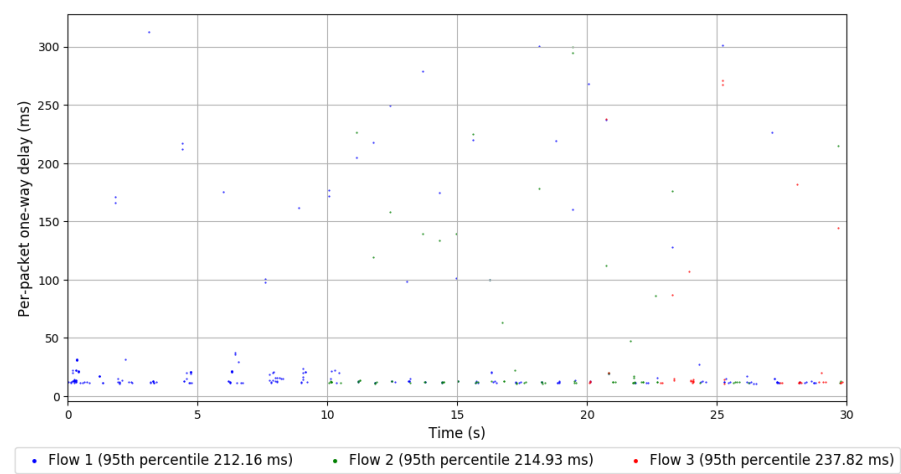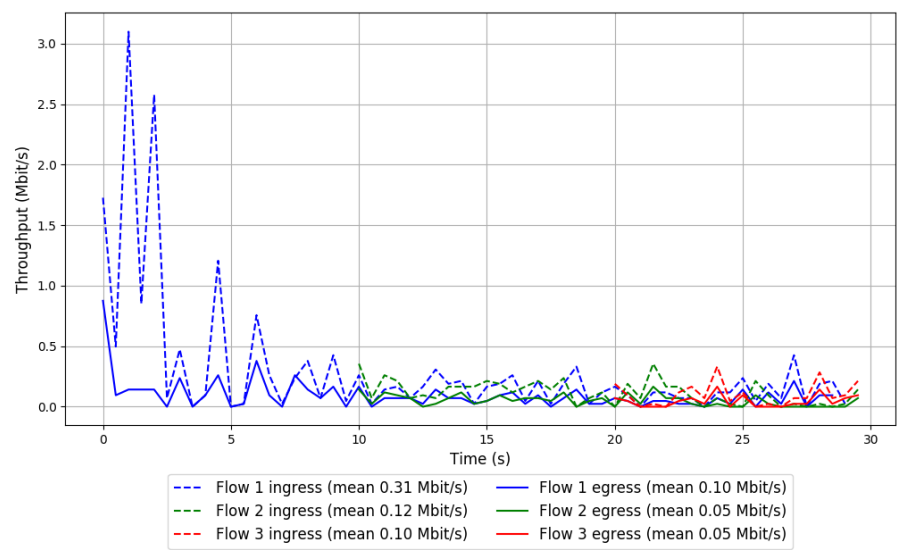Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-03-26 23:51:57
End at: 2018-03-26 23:52:27
Local clock offset: -1.205 ms
Remote clock offset: -6.555 ms


# Below is generated by plot.py at 2018-03-27 00:32:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 217.150 ms
Loss rate: 66.32%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 212.163 ms
Loss rate: 69.74%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 214.931 ms
Loss rate: 58.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 237.818 ms
Loss rate: 54.76%
```

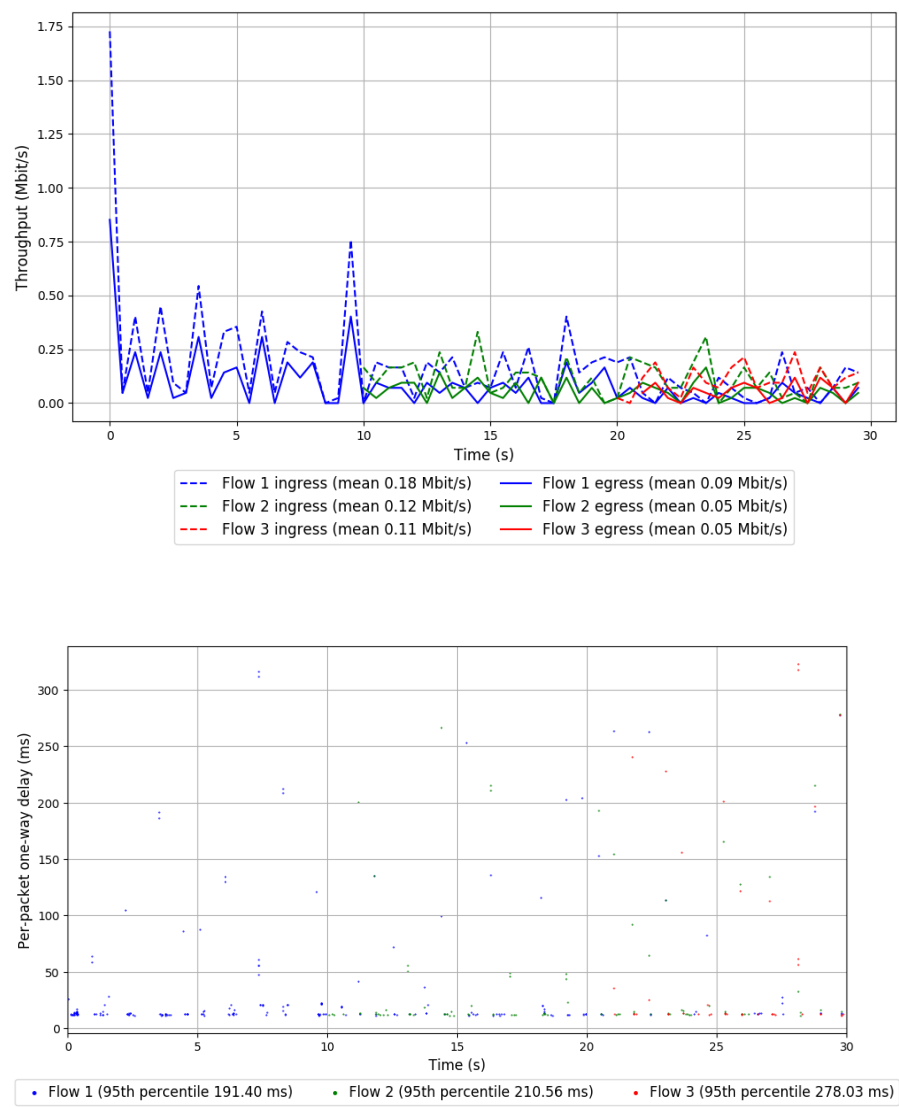Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-03-27 00:15:38
End at: 2018-03-27 00:16:08
Local clock offset: -0.077 ms
Remote clock offset: -5.13 ms


# Below is generated by plot.py at 2018-03-27 00:32:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 204.006 ms
Loss rate: 51.77%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 191.401 ms
Loss rate: 50.33%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 210.557 ms
Loss rate: 53.37%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 278.028 ms
Loss rate: 55.43%
```

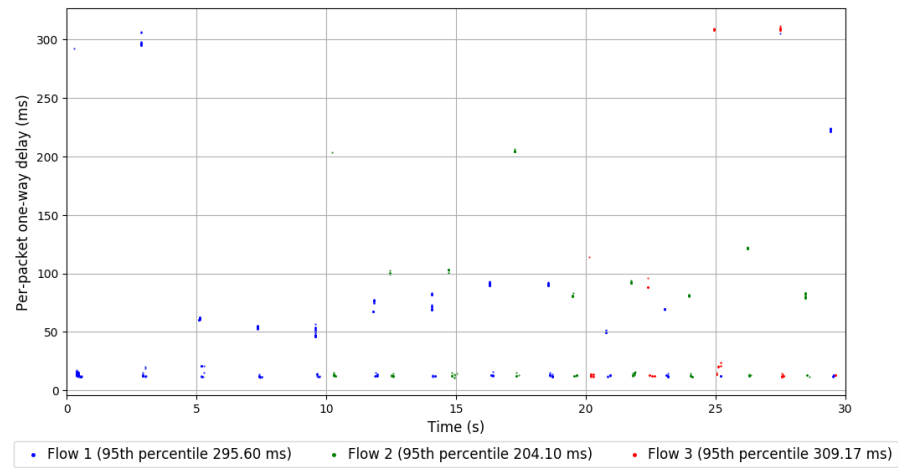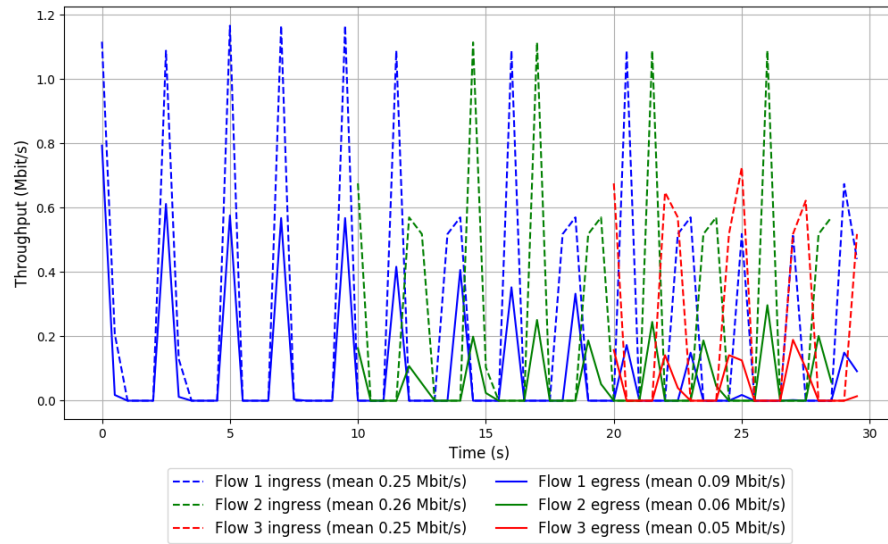Run 3: Report of Verus — Data Link

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```
Run 1: Statistics of Copa

Start at: 2018-03-26 23:38:47
End at: 2018-03-26 23:39:17
Local clock offset: -1.618 ms
Remote clock offset: -6.239 ms


# Below is generated by plot.py at 2018-03-27 00:32:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 296.679 ms
Loss rate: 71.69%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 295.598 ms
Loss rate: 64.39%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 204.103 ms
Loss rate: 78.28%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 309.174 ms
Loss rate: 81.02%
```

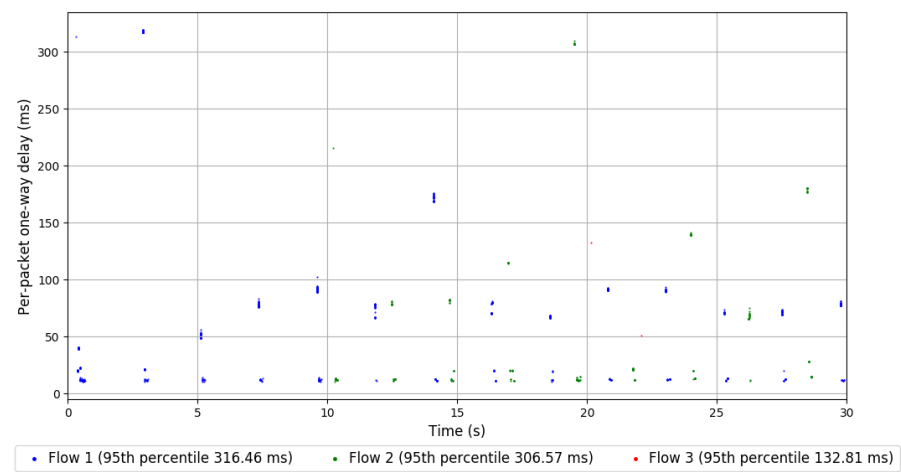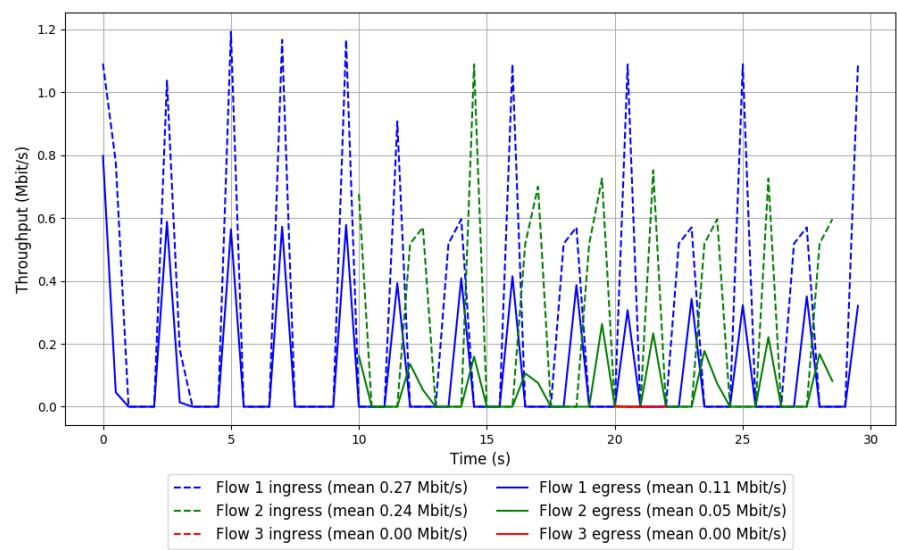Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2018-03-27 00:02:29
End at: 2018-03-27 00:02:59
Local clock offset: -1.494 ms
Remote clock offset: -5.508 ms


# Below is generated by plot.py at 2018-03-27 00:32:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 306.598 ms
Loss rate: 67.09%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 316.456 ms
Loss rate: 60.59%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 306.573 ms
Loss rate: 78.84%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 132.808 ms
Loss rate: 0.00%
```
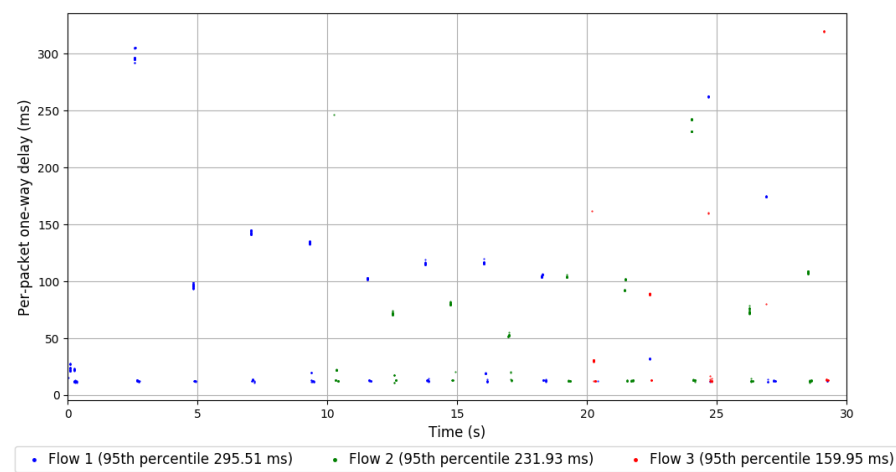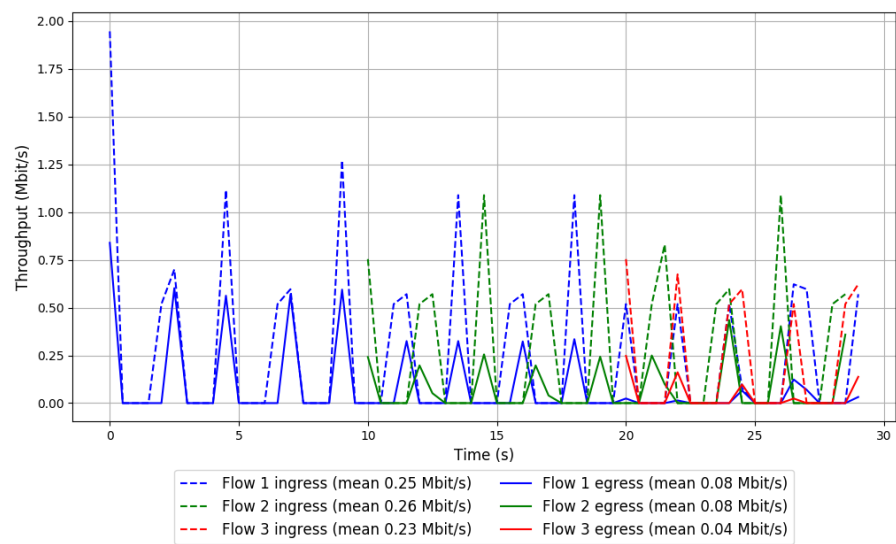
Run 2: Report of Copa — Data Link

Throughput (Mbit/s) vs Time (s)

Flow 1 ingress (mean 0.27 Mbit/s)   Flow 1 egress (mean 0.11 Mbit/s)
Flow 2 ingress (mean 0.24 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)

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

Flow 1 (95th percentile 316.46 ms)   Flow 2 (95th percentile 306.57 ms)   Flow 3 (95th percentile 132.81 ms)

```
Run 3: Statistics of Copa

Start at: 2018-03-27 00:26:10
End at: 2018-03-27 00:26:40
Local clock offset: 2.698 ms
Remote clock offset: -5.0 ms


# Below is generated by plot.py at 2018-03-27 00:32:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 262.312 ms
Loss rate: 70.98%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 295.509 ms
Loss rate: 66.75%
-- Flow 2:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 231.929 ms
Loss rate: 71.59%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 159.946 ms
Loss rate: 84.11%
```
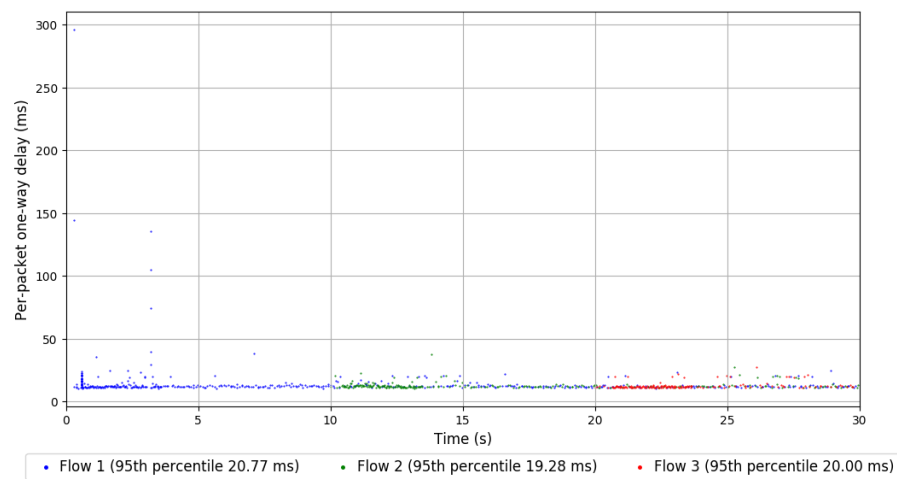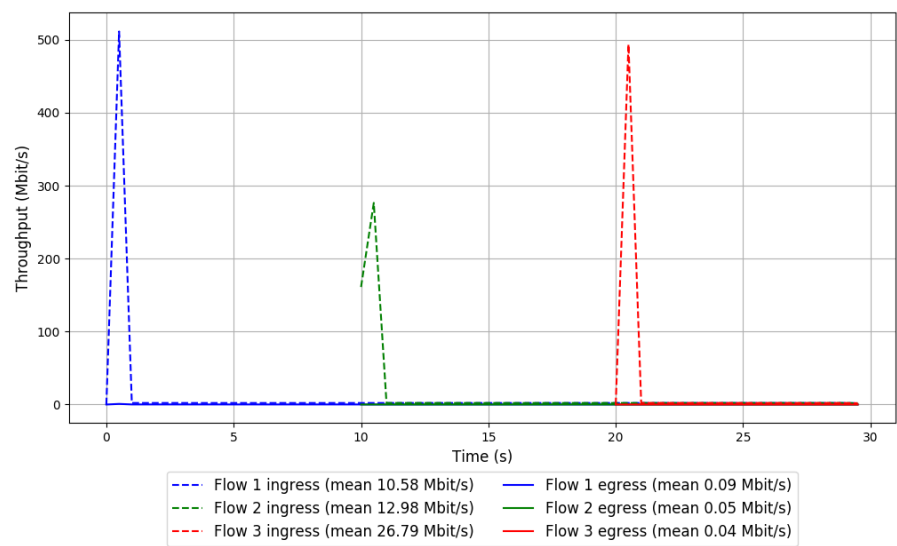
Run 3: Report of Copa — Data Link

```
Run 1: Statistics of FillP

Start at: 2018-03-26 23:37:28
End at: 2018-03-26 23:37:58
Local clock offset: -1.651 ms
Remote clock offset: -6.252 ms


# Below is generated by plot.py at 2018-03-27 00:32:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 20.268 ms
Loss rate: 99.51%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 20.773 ms
Loss rate: 99.12%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 19.276 ms
Loss rate: 99.64%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 20.002 ms
Loss rate: 99.84%
```

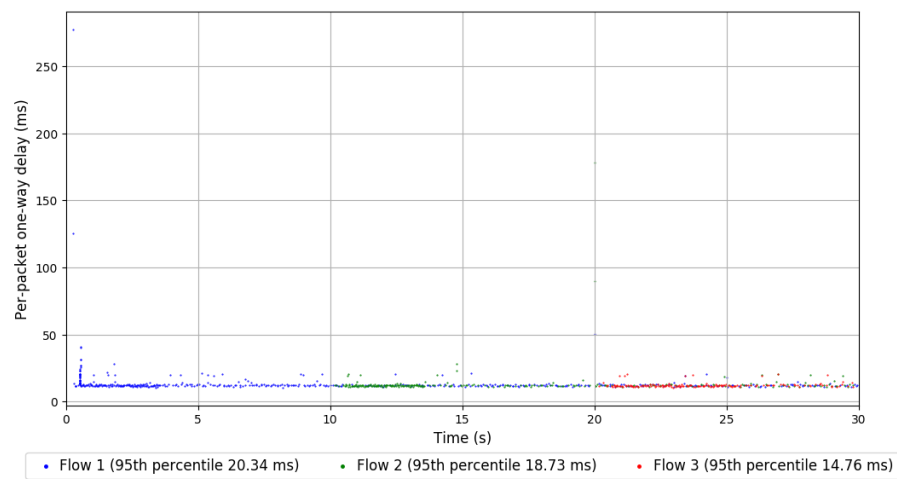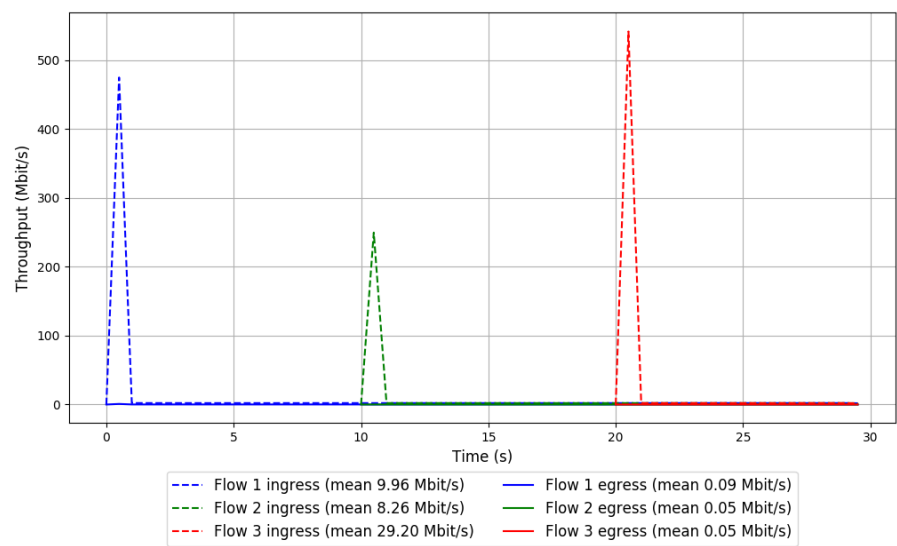## Run 1: Report of FillP — Data Link

```
Run 2: Statistics of FillP

Start at: 2018-03-27 00:01:09
End at: 2018-03-27 00:01:39
Local clock offset: -1.549 ms
Remote clock offset: -5.502 ms

# Below is generated by plot.py at 2018-03-27 00:32:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 19.885 ms
Loss rate: 99.45%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 20.341 ms
Loss rate: 99.10%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 18.725 ms
Loss rate: 99.39%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 14.762 ms
Loss rate: 99.84%
```
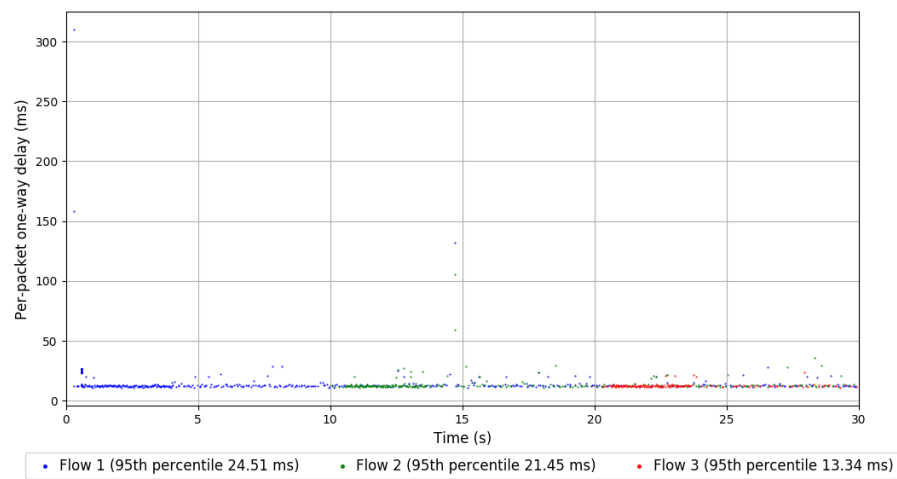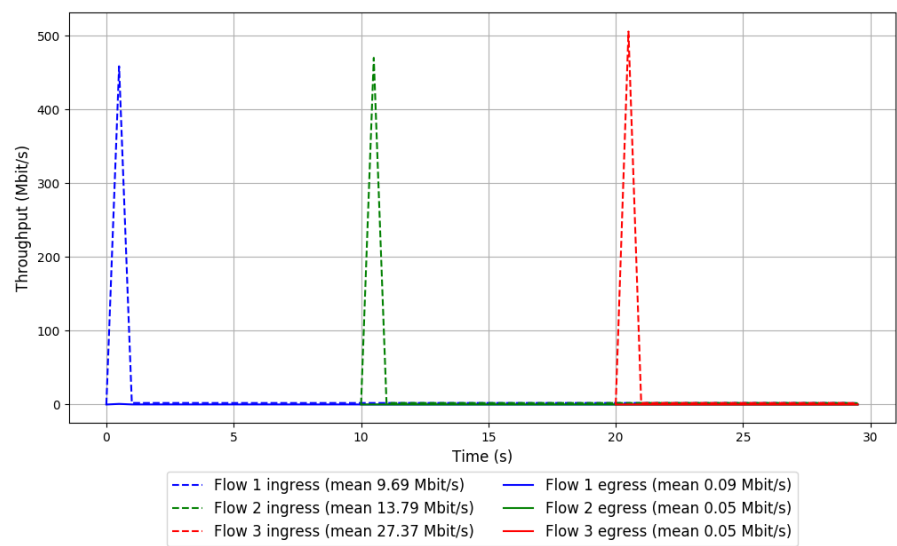
Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2018-03-27 00:24:50
End at: 2018-03-27 00:25:20
Local clock offset: 2.489 ms
Remote clock offset: -4.985 ms


# Below is generated by plot.py at 2018-03-27 00:32:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 23.626 ms
Loss rate: 99.50%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 24.511 ms
Loss rate: 99.06%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 21.452 ms
Loss rate: 99.65%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 13.343 ms
Loss rate: 99.84%
```

Run 3: Report of FillP — Data Link

Flow 1 ingress (mean 9.69 Mbit/s)   Flow 1 egress (mean 0.09 Mbit/s)
Flow 2 ingress (mean 13.79 Mbit/s)   Flow 2 egress (mean 0.05 Mbit/s)
Flow 3 ingress (mean 27.37 Mbit/s)   Flow 3 egress (mean 0.05 Mbit/s)

Flow 1 (95th percentile 24.51 ms)   Flow 2 (95th percentile 21.45 ms)   Flow 3 (95th percentile 13.34 ms)

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

Start at: 2018-03-26 23:20:21
End at: 2018-03-26 23:20:51
Local clock offset: -0.187 ms
Remote clock offset: -5.97 ms

# Below is generated by plot.py at 2018-03-27 00:32:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 143.295 ms
Loss rate: 92.58%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 102.756 ms
Loss rate: 90.75%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 160.181 ms
Loss rate: 84.28%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 124.709 ms
Loss rate: 97.91%
```
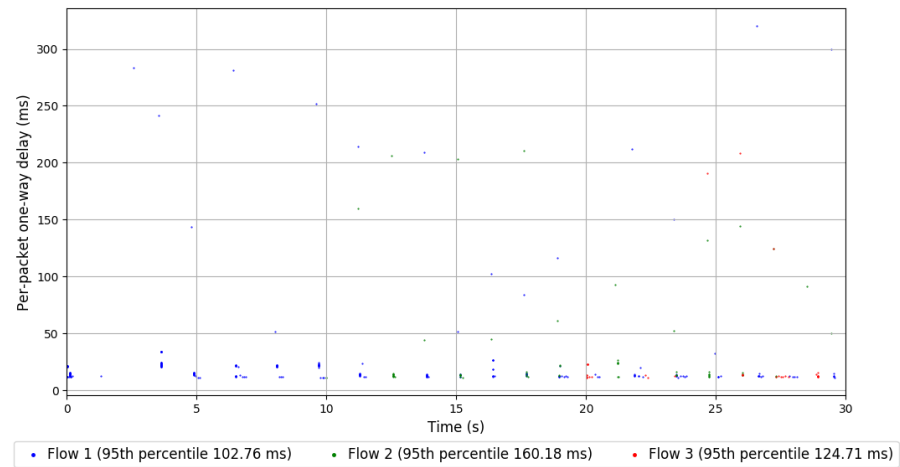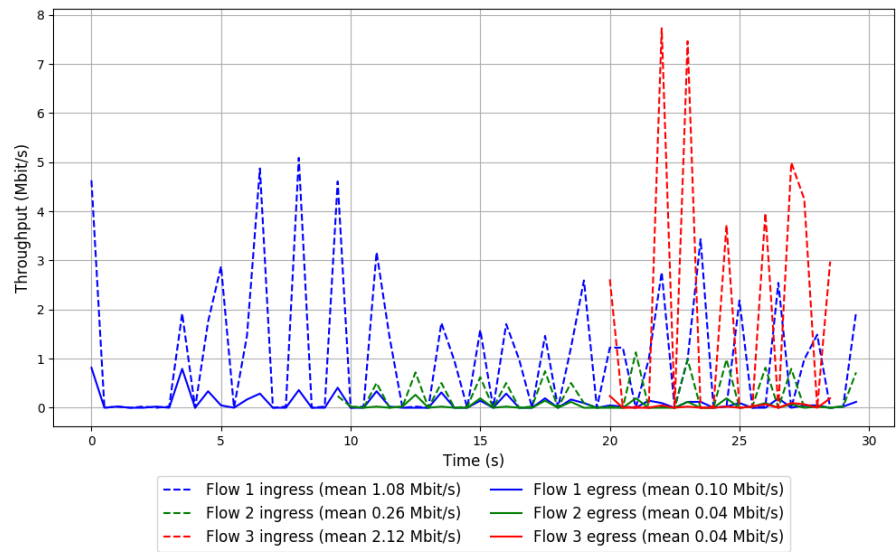
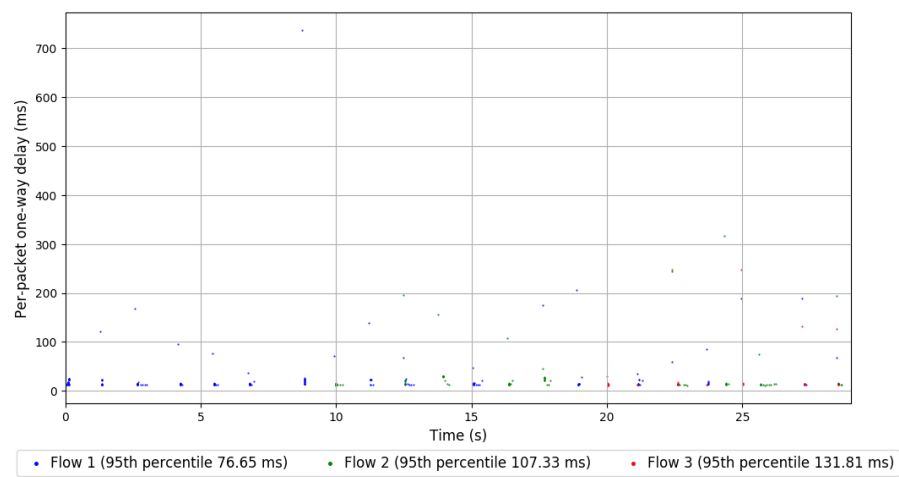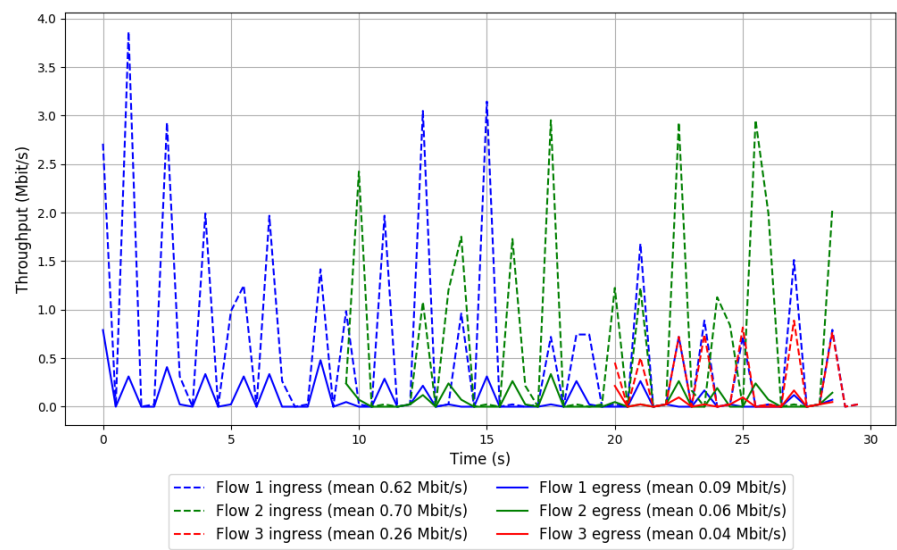Run 1: Report of Indigo-1-32 — Data Link

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

Start at: 2018-03-26 23:44:03
End at: 2018-03-26 23:44:33
Local clock offset: -1.37 ms
Remote clock offset: -6.438 ms


# Below is generated by plot.py at 2018-03-27 00:32:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 107.332 ms
Loss rate: 88.06%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 76.650 ms
Loss rate: 86.51%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 107.332 ms
Loss rate: 90.78%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 131.808 ms
Loss rate: 85.19%
```

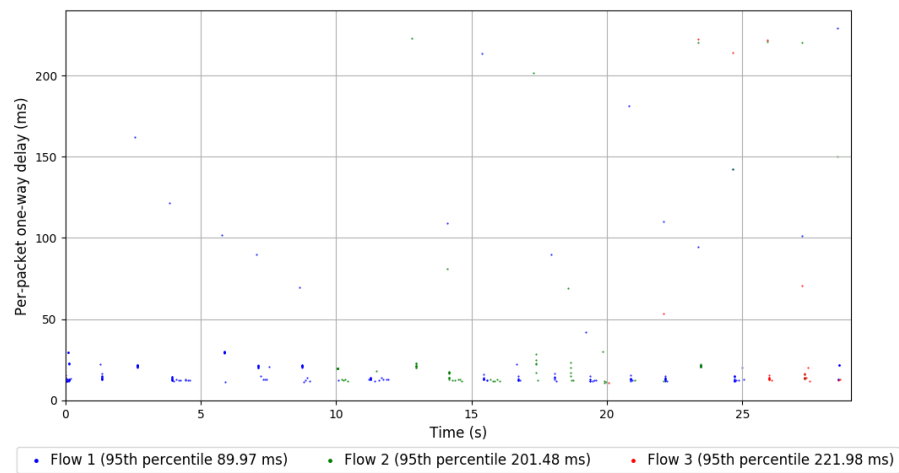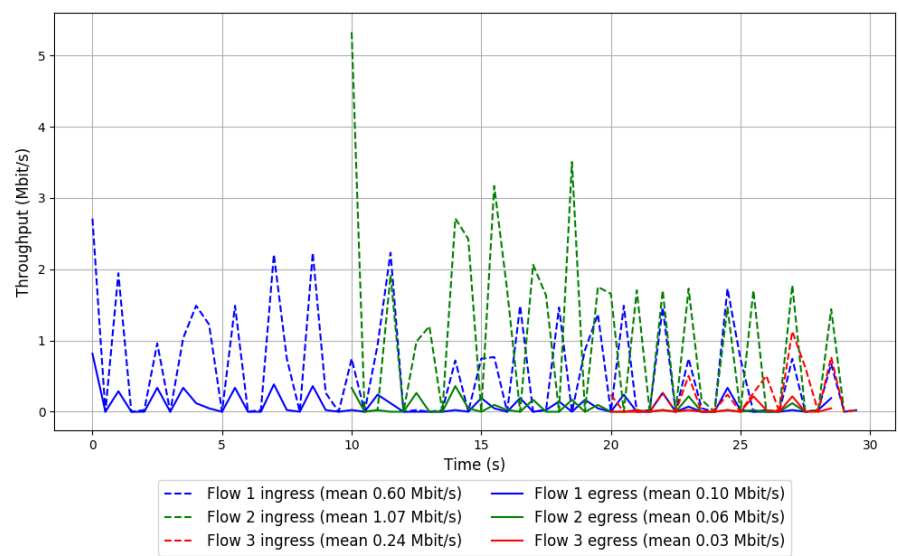Run 2: Report of Indigo-1-32 — Data Link

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

Start at: 2018-03-27 00:07:44
End at: 2018-03-27 00:08:14
Local clock offset: -1.681 ms
Remote clock offset: -5.268 ms


# Below is generated by plot.py at 2018-03-27 00:32:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 109.307 ms
Loss rate: 90.13%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 89.973 ms
Loss rate: 84.58%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 201.484 ms
Loss rate: 95.13%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 221.980 ms
Loss rate: 87.47%
```
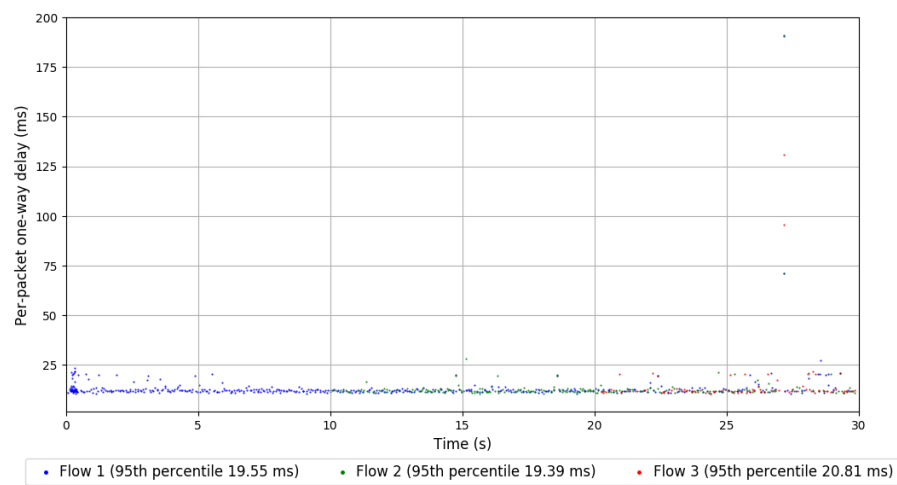
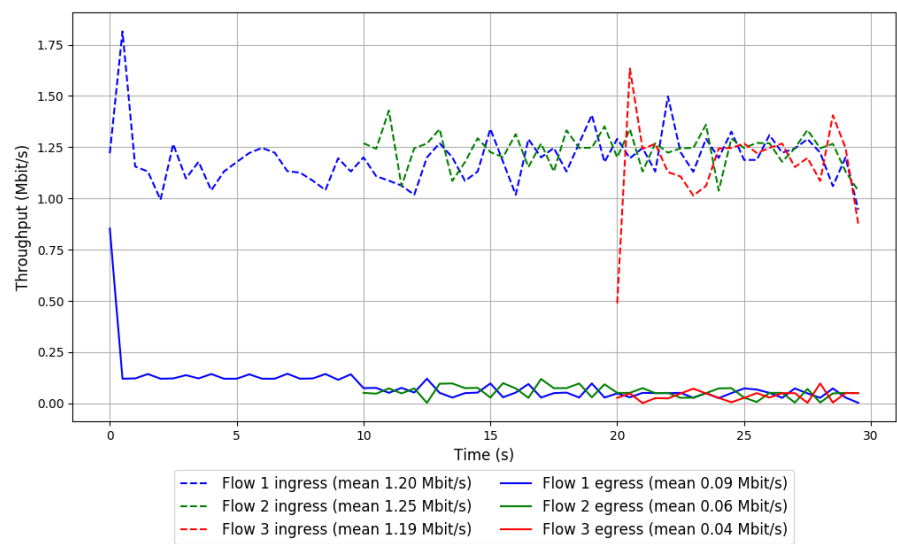Run 3: Report of Indigo-1-32 — Data Link

```
Run 1: Statistics of Vivace-latency

Start at: 2018-03-26 23:30:53
End at: 2018-03-26 23:31:23
Local clock offset: -1.177 ms
Remote clock offset: -6.191 ms


# Below is generated by plot.py at 2018-03-27 00:32:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 19.866 ms
Loss rate: 94.20%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 19.555 ms
Loss rate: 92.48%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 19.388 ms
Loss rate: 95.45%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 20.812 ms
Loss rate: 96.85%
```

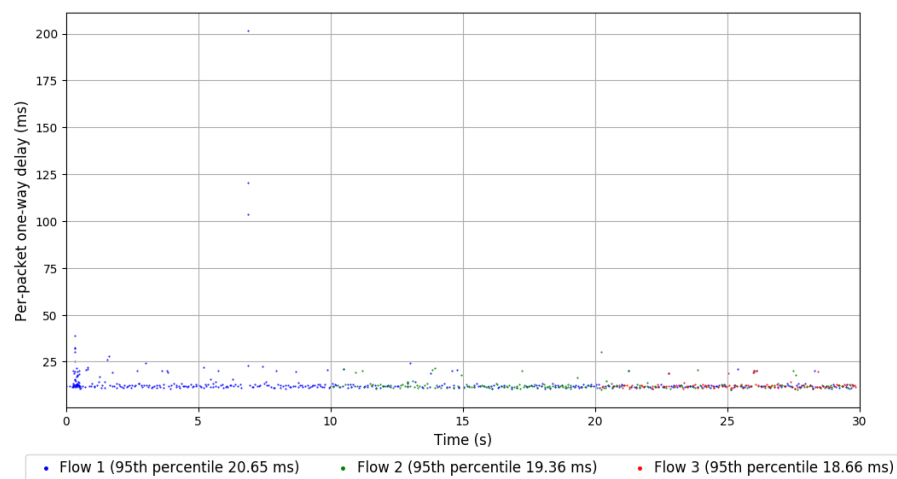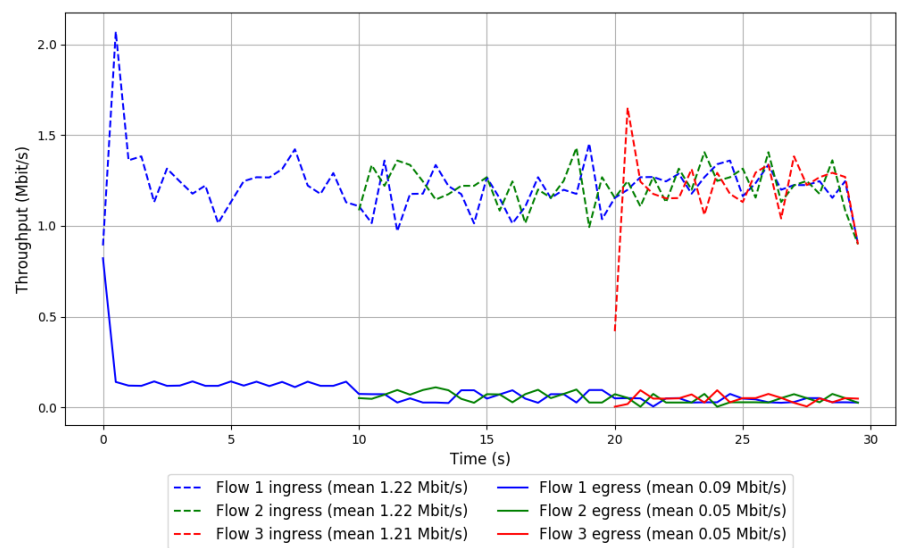Run 1: Report of Vivace-latency — Data Link

```
Run 2: Statistics of Vivace-latency

Start at: 2018-03-26 23:54:34
End at: 2018-03-26 23:55:04
Local clock offset: -1.281 ms
Remote clock offset: -6.139 ms


# Below is generated by plot.py at 2018-03-27 00:32:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 20.119 ms
Loss rate: 94.26%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 20.649 ms
Loss rate: 92.81%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 19.356 ms
Loss rate: 95.55%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 18.655 ms
Loss rate: 96.11%
```

Run 2: Report of Vivace-latency — Data Link

Flow 1 ingress (mean 1.22 Mbit/s) --- Flow 1 egress (mean 0.09 Mbit/s)
Flow 2 ingress (mean 1.22 Mbit/s) --- Flow 2 egress (mean 0.05 Mbit/s)
Flow 3 ingress (mean 1.21 Mbit/s) --- Flow 3 egress (mean 0.05 Mbit/s)

Flow 1 (95th percentile 20.65 ms)   Flow 2 (95th percentile 19.36 ms)   Flow 3 (95th percentile 18.66 ms)
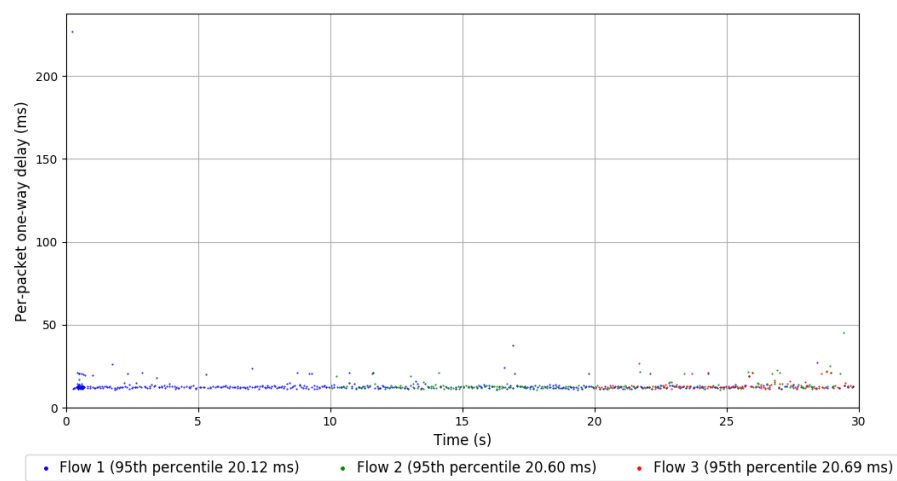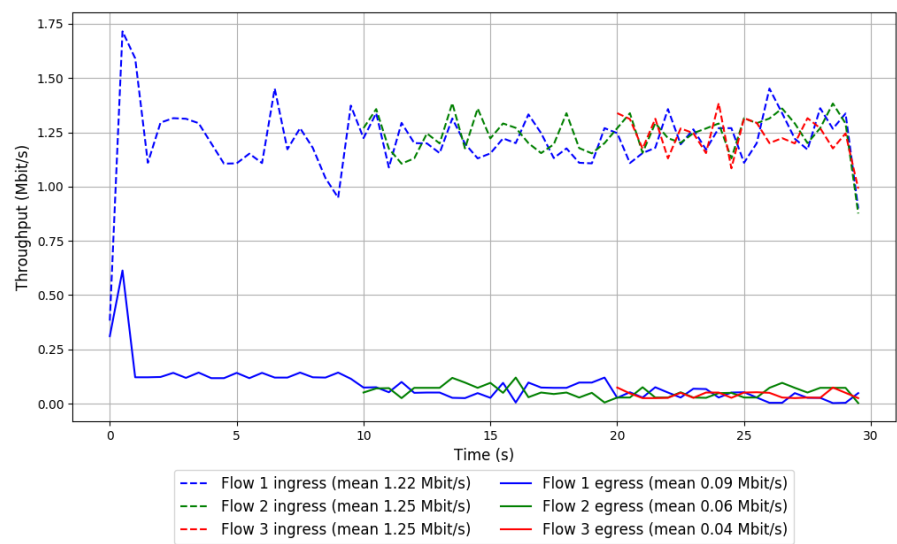
```
Run 3: Statistics of Vivace-latency

Start at: 2018-03-27 00:18:16
End at: 2018-03-27 00:18:46
Local clock offset: 0.796 ms
Remote clock offset: -5.084 ms

# Below is generated by plot.py at 2018-03-27 00:32:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 20.335 ms
Loss rate: 94.35%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 20.123 ms
Loss rate: 92.77%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 20.599 ms
Loss rate: 95.52%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 20.690 ms
Loss rate: 96.67%
```

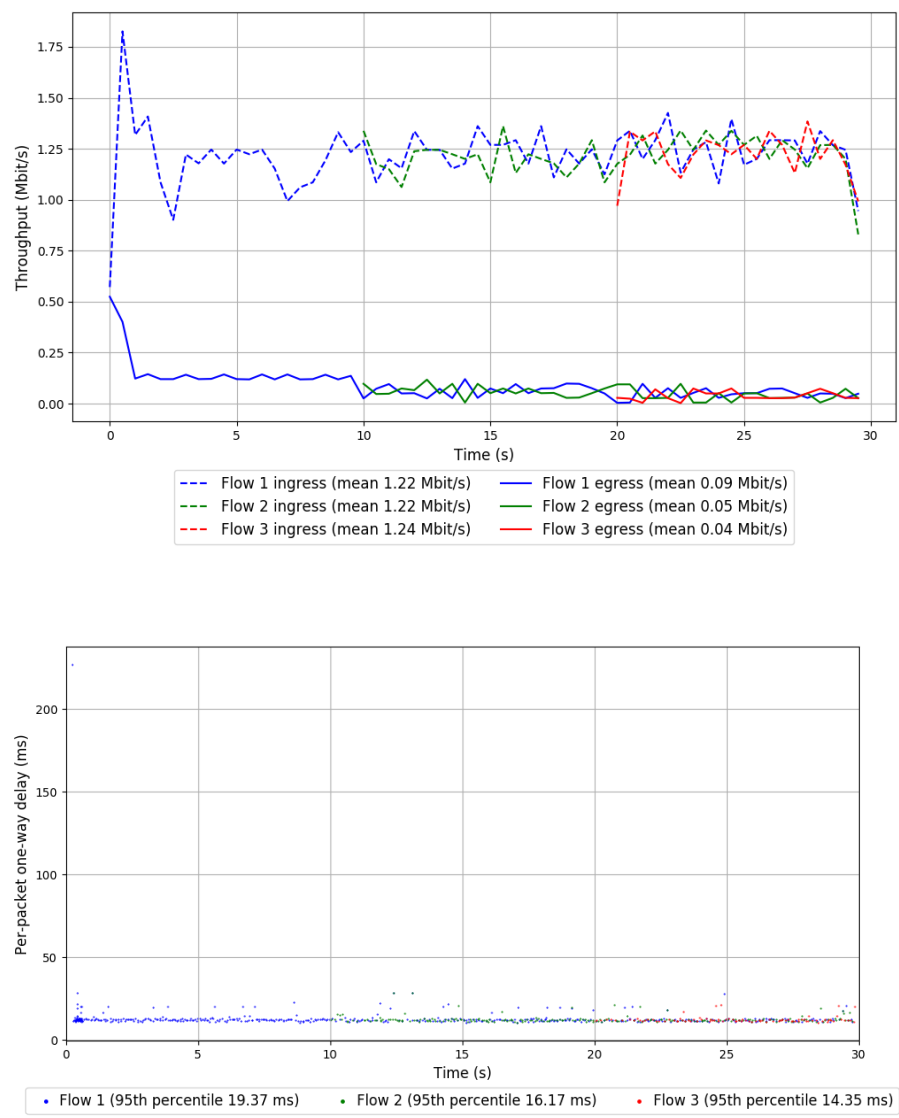Run 3: Report of Vivace-latency — Data Link

```
Run 1: Statistics of Vivace-loss

Start at: 2018-03-26 23:26:56
End at: 2018-03-26 23:27:26
Local clock offset: -0.83 ms
Remote clock offset: -6.158 ms


# Below is generated by plot.py at 2018-03-27 00:32:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 18.137 ms
Loss rate: 94.31%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 19.372 ms
Loss rate: 92.48%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 16.167 ms
Loss rate: 95.80%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 14.354 ms
Loss rate: 96.82%
```

Run 1: Report of Vivace-loss — Data Link

Flow 1 ingress (mean 1.22 Mbit/s) --- Flow 1 egress (mean 0.09 Mbit/s)
Flow 2 ingress (mean 1.22 Mbit/s) --- Flow 2 egress (mean 0.05 Mbit/s)
Flow 3 ingress (mean 1.24 Mbit/s) --- Flow 3 egress (mean 0.04 Mbit/s)

Flow 1 (95th percentile 19.37 ms)   Flow 2 (95th percentile 16.17 ms)   Flow 3 (95th percentile 14.35 ms)
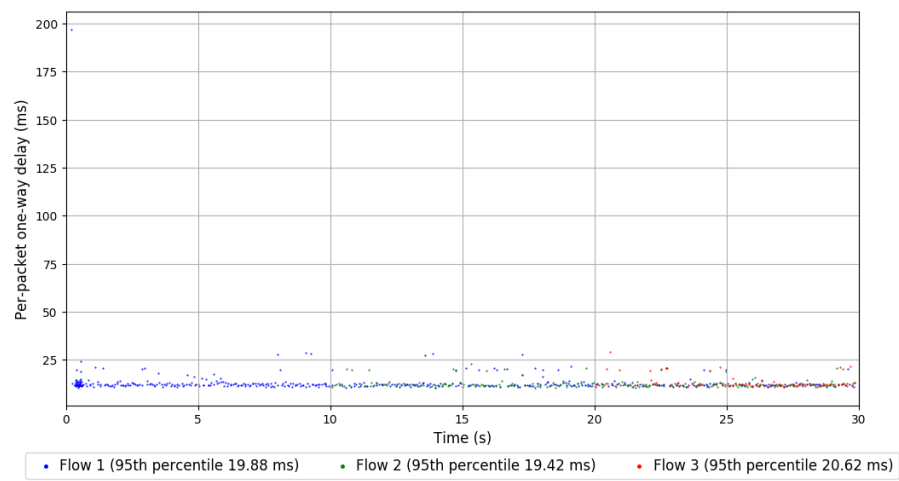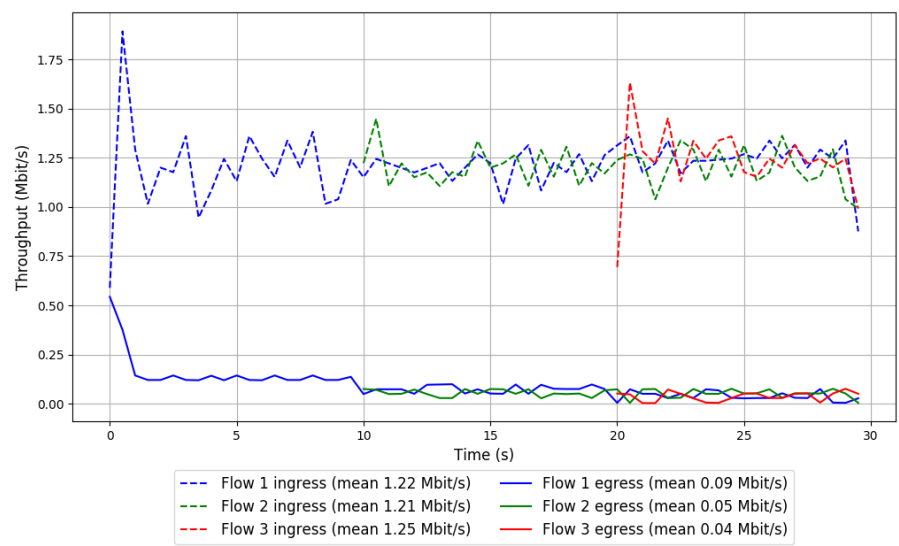
```
Run 2: Statistics of Vivace-loss

Start at: 2018-03-26 23:50:38
End at: 2018-03-26 23:51:08
Local clock offset: -1.207 ms
Remote clock offset: -6.443 ms


# Below is generated by plot.py at 2018-03-27 00:32:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 19.956 ms
Loss rate: 94.29%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 19.884 ms
Loss rate: 92.49%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 19.417 ms
Loss rate: 95.61%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 20.624 ms
Loss rate: 97.03%
```

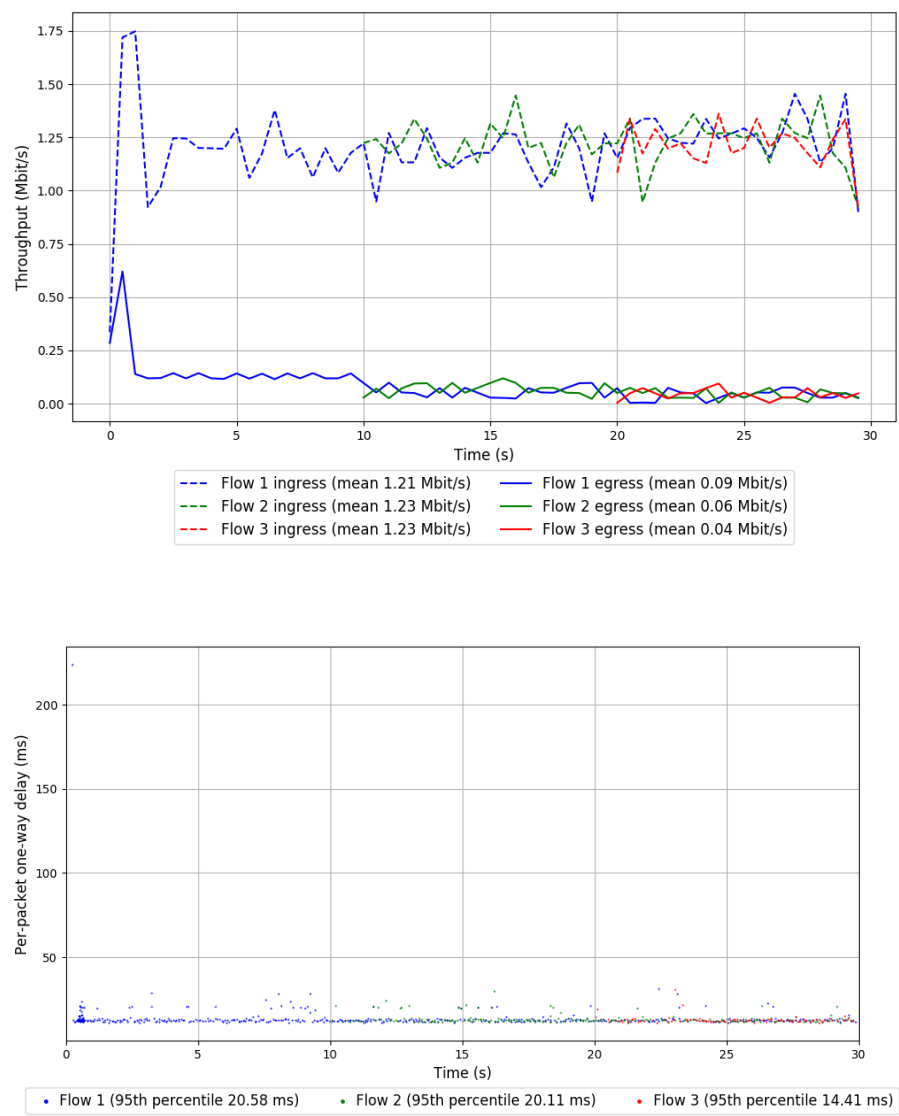Run 2: Report of Vivace-loss — Data Link

```
Run 3: Statistics of Vivace-loss

Start at: 2018-03-27 00:14:19
End at: 2018-03-27 00:14:49
Local clock offset: -0.643 ms
Remote clock offset: -5.107 ms


# Below is generated by plot.py at 2018-03-27 00:32:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 20.249 ms
Loss rate: 94.27%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 20.583 ms
Loss rate: 92.79%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 20.114 ms
Loss rate: 95.38%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 14.408 ms
Loss rate: 96.42%
```

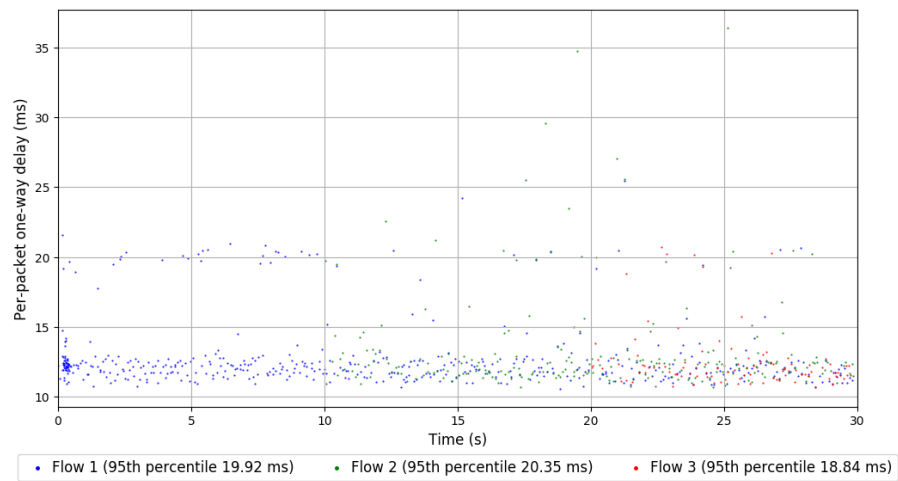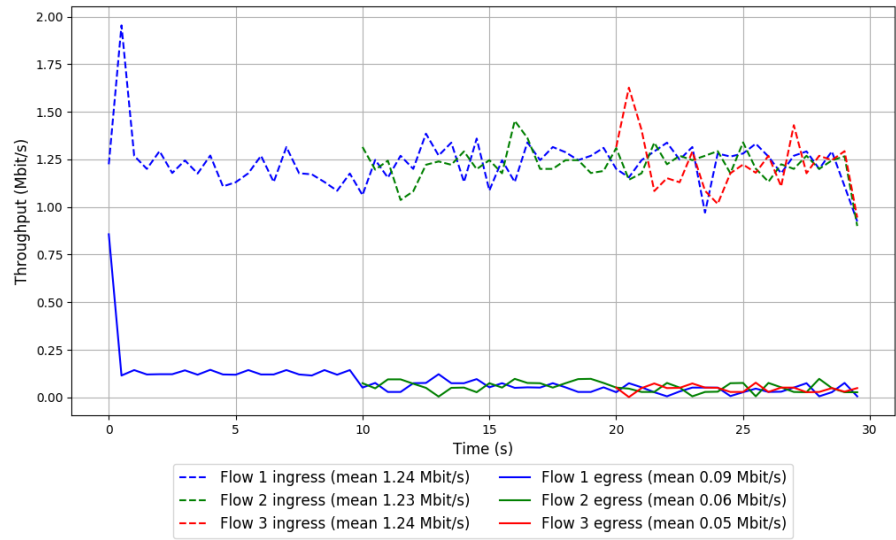Run 3: Report of Vivace-loss — Data Link

```
Run 1: Statistics of Vivace-LTE

Start at: 2018-03-26 23:33:31
End at: 2018-03-26 23:34:01
Local clock offset: -1.475 ms
Remote clock offset: -6.271 ms


# Below is generated by plot.py at 2018-03-27 00:32:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 20.040 ms
Loss rate: 94.33%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 19.917 ms
Loss rate: 92.90%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 20.347 ms
Loss rate: 95.48%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 18.839 ms
Loss rate: 96.34%
```
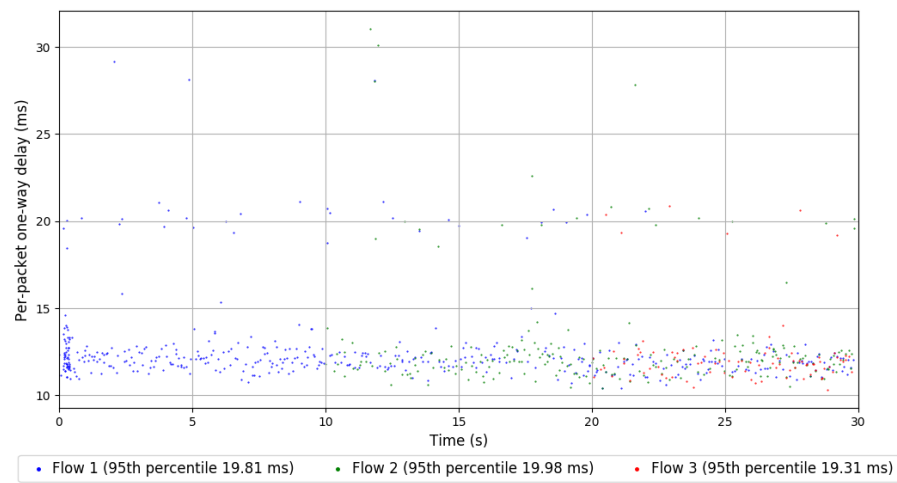
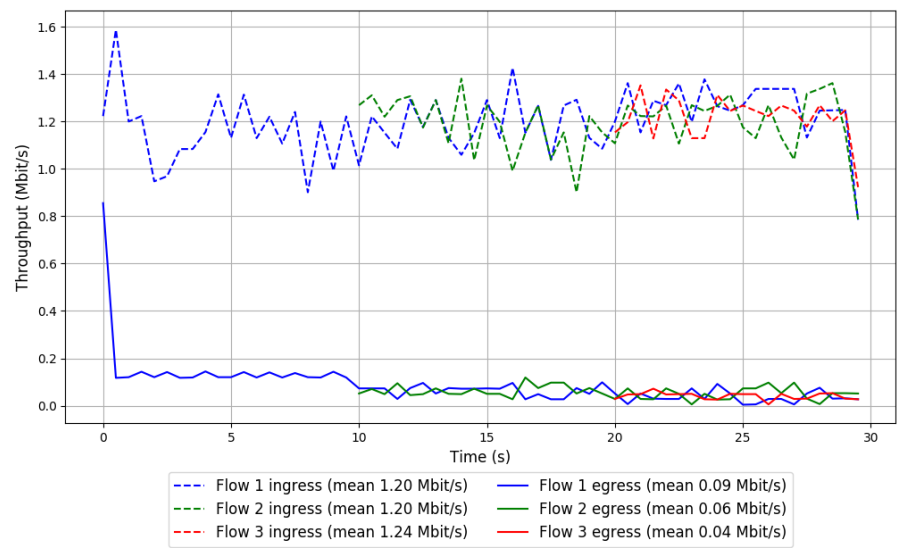Run 1: Report of Vivace-LTE — Data Link

```
Run 2: Statistics of Vivace-LTE

Start at: 2018-03-26 23:57:12
End at: 2018-03-26 23:57:42
Local clock offset: -1.341 ms
Remote clock offset: -5.792 ms


# Below is generated by plot.py at 2018-03-27 00:32:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 19.809 ms
Loss rate: 94.19%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 19.809 ms
Loss rate: 92.65%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 19.976 ms
Loss rate: 95.25%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 19.307 ms
Loss rate: 96.65%
```

Run 2: Report of Vivace-LTE — Data Link

```
Run 3: Statistics of Vivace-LTE

Start at: 2018-03-27 00:20:54
End at: 2018-03-27 00:21:24
Local clock offset: 1.598 ms
Remote clock offset: -5.05 ms


# Below is generated by plot.py at 2018-03-27 00:32:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 20.360 ms
Loss rate: 94.35%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 20.395 ms
Loss rate: 92.68%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 19.580 ms
Loss rate: 95.71%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 13.429 ms
Loss rate: 96.63%
```

Run 3: Report of Vivace-LTE — Data Link