Pantheon Report

Generated at 2017-11-30 08:43:31 (UTC).

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

Repeated the test of 14 congestion control schemes 3 times.

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

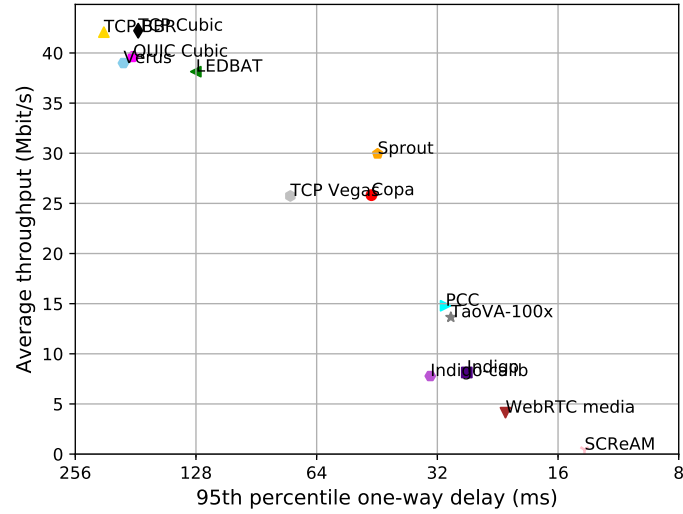Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

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

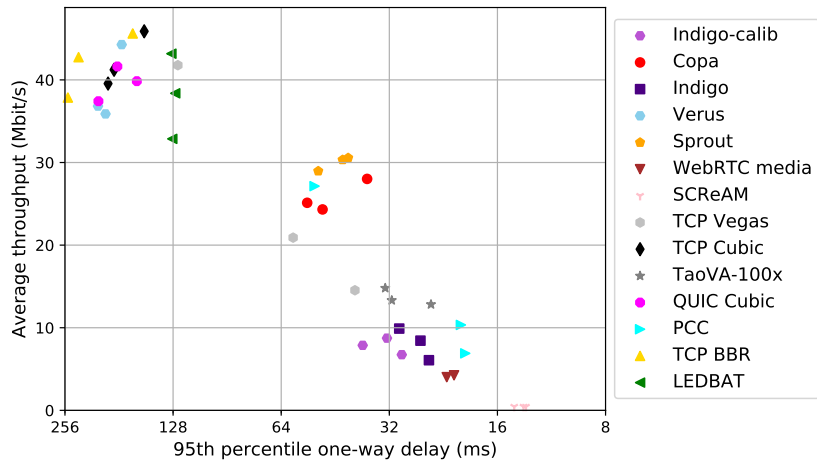NTP offsets were measured against `time.stanford.edu` and have been applied to correct the timestamps in logs.

```
Git summary:
branch: indigos @ e3a57ad5ac5cfcaca0e3f983c8dd4cc3509e0262
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
 M datagrump/sender.cc
third_party/genericCC @ b5b7c38e8391001927dc41c6cfa2627d03dde737
third_party/indigo @ b19f3730105f9aa95452552af924e3719b03cc55
third_party/indigo-cellular @ aee99e8eb842cb053f8c9a80e28cd256a930bbc2
third_party/indigo-no-calib @ 7224f2202e8a044d8306fa0b983ad84360c53d89
third_party/indigo-no-cwnd @ 3e58442c04028a11d7b02456e137604633ba2d6c
third_party/indigo-no-delivery-rate @ 57caa40858b964906edff4876d5a7e5bfff666c5
third_party/indigo-no-queuing-delay @ 03455460fd1a8ffbdad86fabb936fdca204b80db
third_party/indigo-no-send-rate @ b39dfa6b2c5f19cb7cd89626cb4f5bb81f9fecda
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
 M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ baf443516dea3eeddeccaf9b916cc313273ca4f4
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/webrtc @ a488197ddd041ace68a42849b2540ad834825f42
```

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)

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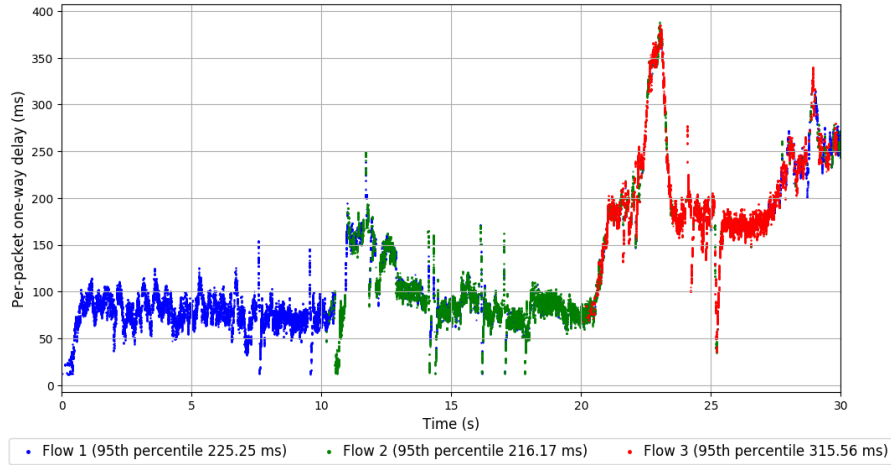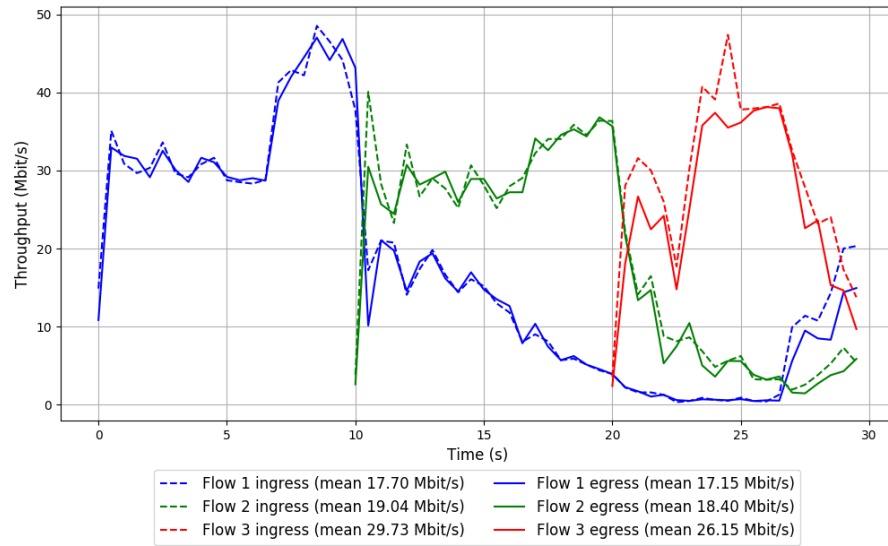3 flows with 10s interval between flows

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	20.56	20.06	24.79	193.34	200.24	257.91	2.92	6.69	18.41
TCP Cubic	3	32.92	10.86	6.29	177.10	181.55	179.51	0.32	0.97	2.01
LEDBAT	3	30.04	9.65	5.09	127.81	130.68	127.65	0.24	0.62	1.72
PCC	3	20.22	14.45	6.43	3192.33	32.83	22.74	0.01	0.01	0.03
QUIC Cubic	3	28.46	12.41	9.15	177.80	190.09	197.94	0.42	1.21	2.76
SCReAM	3	0.22	0.22	0.22	13.75	13.41	13.80	0.00	0.00	0.00
WebRTC media	2	2.27	1.43	0.44	21.47	21.49	24.43	0.00	0.00	0.00
Sprout	3	15.42	14.96	13.61	42.33	45.48	52.65	0.06	0.02	0.12
TaoVA-100x	3	5.73	7.52	10.60	25.63	30.52	35.40	0.00	0.00	0.00
TCP Vegas	3	17.56	10.53	3.54	69.58	53.42	35.41	0.18	0.00	0.00
Verus	3	24.76	16.09	11.36	193.30	195.67	199.96	12.34	18.75	26.34
Copa	3	16.35	11.32	7.46	42.27	48.80	54.75	0.07	0.18	0.40
Indigo	3	2.97	4.49	6.75	25.42	26.69	28.02	0.00	0.00	0.00
Indigo-calib	3	2.41	4.44	7.49	30.50	31.69	41.66	0.00	0.00	0.00

```
Run 1: Statistics of TCP BBR

Start at: 2017-11-30 08:05:06
End at: 2017-11-30 08:05:36
Local clock offset: -0.031 ms
Remote clock offset: -3.417 ms


# Below is generated by plot.py at 2017-11-30 08:41:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 37.86 Mbit/s
95th percentile per-packet one-way delay: 251.267 ms
Loss rate: 5.61%
-- Flow 1:
Average throughput: 17.15 Mbit/s
95th percentile per-packet one-way delay: 225.252 ms
Loss rate: 3.01%
-- Flow 2:
Average throughput: 18.40 Mbit/s
95th percentile per-packet one-way delay: 216.166 ms
Loss rate: 3.63%
-- Flow 3:
Average throughput: 26.15 Mbit/s
95th percentile per-packet one-way delay: 315.556 ms
Loss rate: 12.88%
```
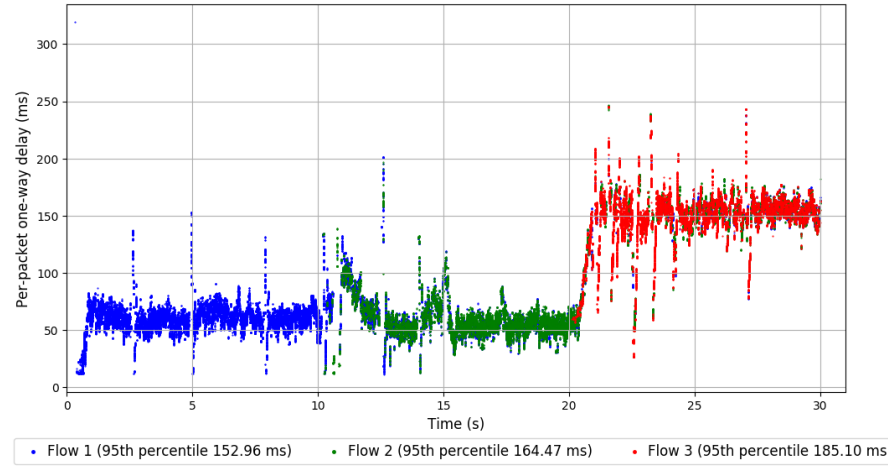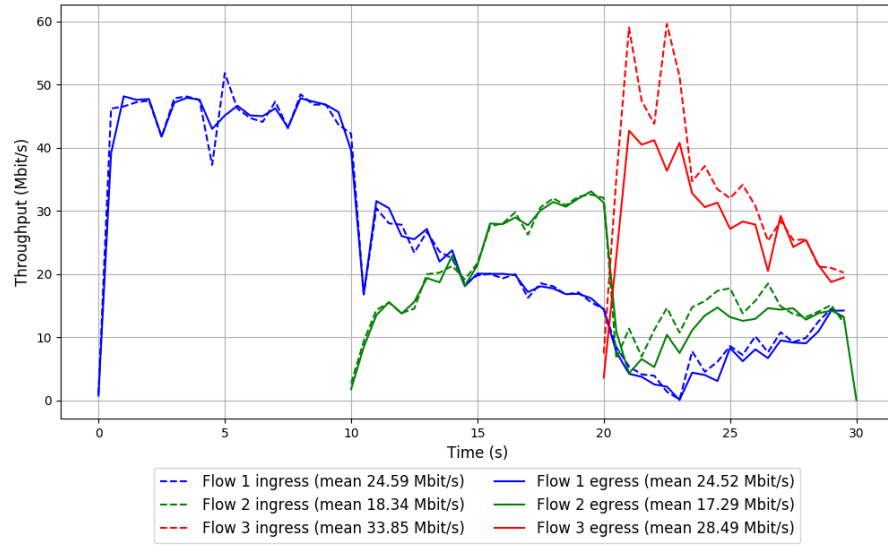
Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 17.70 Mbit/s) --- Flow 1 egress (mean 17.15 Mbit/s)
Flow 2 ingress (mean 19.04 Mbit/s) --- Flow 2 egress (mean 18.40 Mbit/s)
Flow 3 ingress (mean 29.73 Mbit/s) --- Flow 3 egress (mean 26.15 Mbit/s)

Flow 1 (95th percentile 225.25 ms)   Flow 2 (95th percentile 216.17 ms)   Flow 3 (95th percentile 315.56 ms)

```
Run 2: Statistics of TCP BBR

Start at: 2017-11-30 08:21:55
End at: 2017-11-30 08:22:25
Local clock offset: 0.103 ms
Remote clock offset: -3.382 ms


# Below is generated by plot.py at 2017-11-30 08:41:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 45.62 Mbit/s
95th percentile per-packet one-way delay: 165.806 ms
Loss rate: 5.87%
-- Flow 1:
Average throughput: 24.52 Mbit/s
95th percentile per-packet one-way delay: 152.955 ms
Loss rate: 1.28%
-- Flow 2:
Average throughput: 17.29 Mbit/s
95th percentile per-packet one-way delay: 164.472 ms
Loss rate: 5.76%
-- Flow 3:
Average throughput: 28.49 Mbit/s
95th percentile per-packet one-way delay: 185.104 ms
Loss rate: 16.05%
```

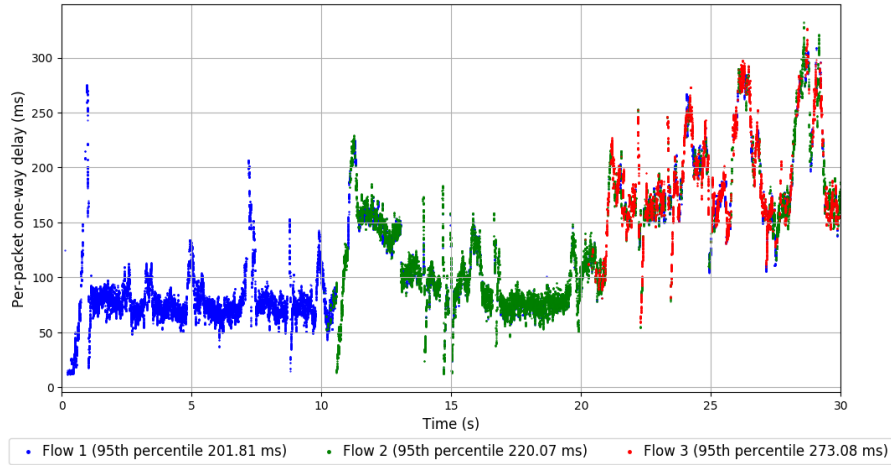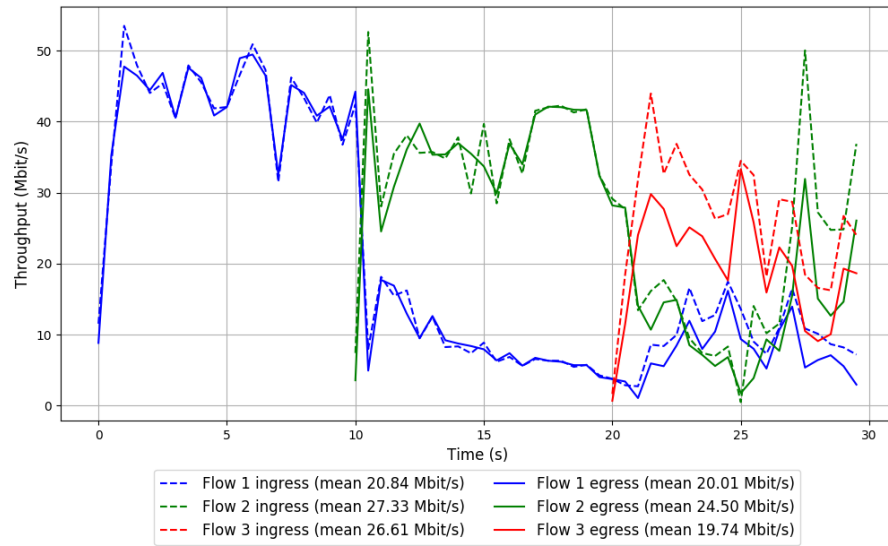Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2017-11-30 08:38:46
End at: 2017-11-30 08:39:16
Local clock offset: 0.049 ms
Remote clock offset: -3.355 ms


# Below is generated by plot.py at 2017-11-30 08:41:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 42.75 Mbit/s
95th percentile per-packet one-way delay: 234.627 ms
Loss rate: 10.85%
-- Flow 1:
Average throughput: 20.01 Mbit/s
95th percentile per-packet one-way delay: 201.808 ms
Loss rate: 4.47%
-- Flow 2:
Average throughput: 24.50 Mbit/s
95th percentile per-packet one-way delay: 220.068 ms
Loss rate: 10.68%
-- Flow 3:
Average throughput: 19.74 Mbit/s
95th percentile per-packet one-way delay: 273.080 ms
Loss rate: 26.30%
```

Run 3: Report of TCP BBR — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2017-11-30 07:51:55
End at: 2017-11-30 07:52:25
Local clock offset: -0.054 ms
Remote clock offset: -3.28 ms

# Below is generated by plot.py at 2017-11-30 08:41:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 39.55 Mbit/s
95th percentile per-packet one-way delay: 194.198 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 28.60 Mbit/s
95th percentile per-packet one-way delay: 192.545 ms
Loss rate: 0.30%
-- Flow 2:
Average throughput: 13.68 Mbit/s
95th percentile per-packet one-way delay: 197.611 ms
Loss rate: 0.93%
-- Flow 3:
Average throughput: 5.68 Mbit/s
95th percentile per-packet one-way delay: 194.502 ms
Loss rate: 2.52%
```
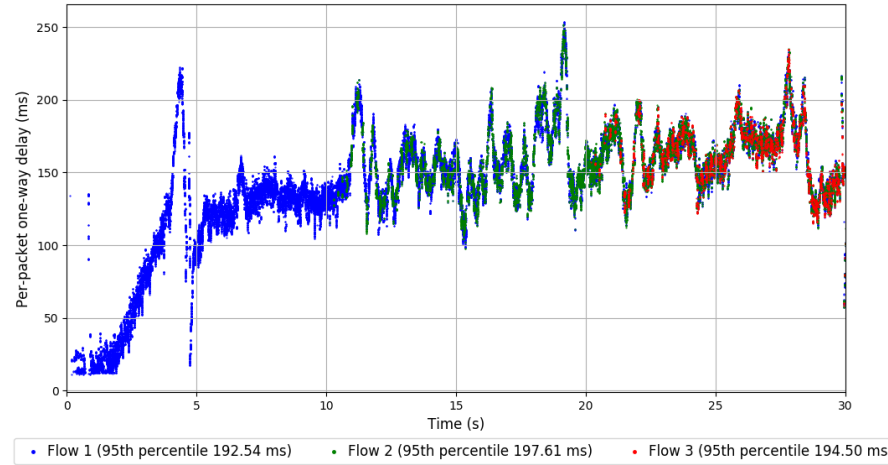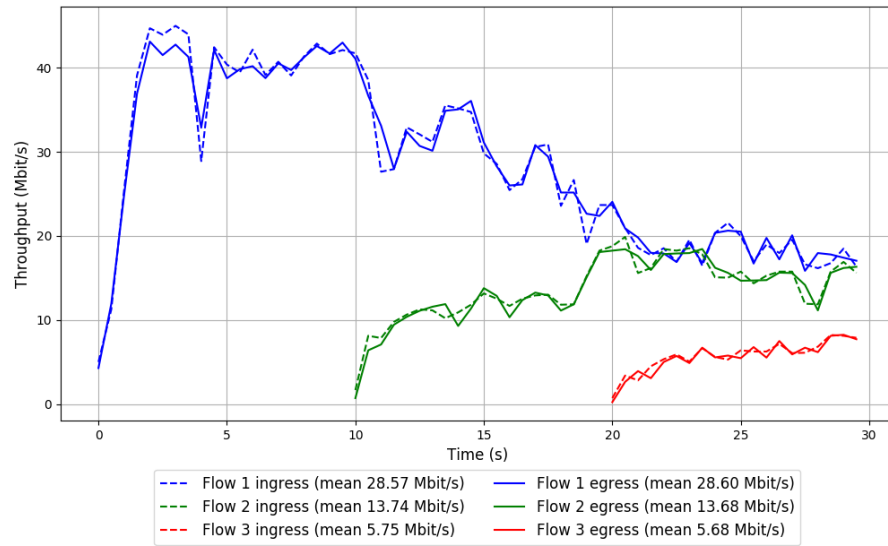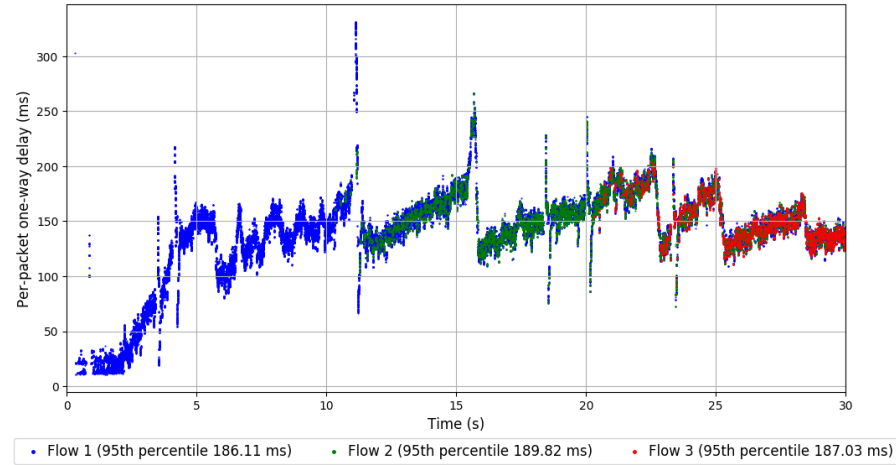
Run 1: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 28.57 Mbit/s) --- Flow 1 egress (mean 28.60 Mbit/s)
Flow 2 ingress (mean 13.74 Mbit/s) --- Flow 2 egress (mean 13.68 Mbit/s)
Flow 3 ingress (mean 5.75 Mbit/s) --- Flow 3 egress (mean 5.68 Mbit/s)

Flow 1 (95th percentile 192.54 ms)   Flow 2 (95th percentile 197.61 ms)   Flow 3 (95th percentile 194.50 ms)
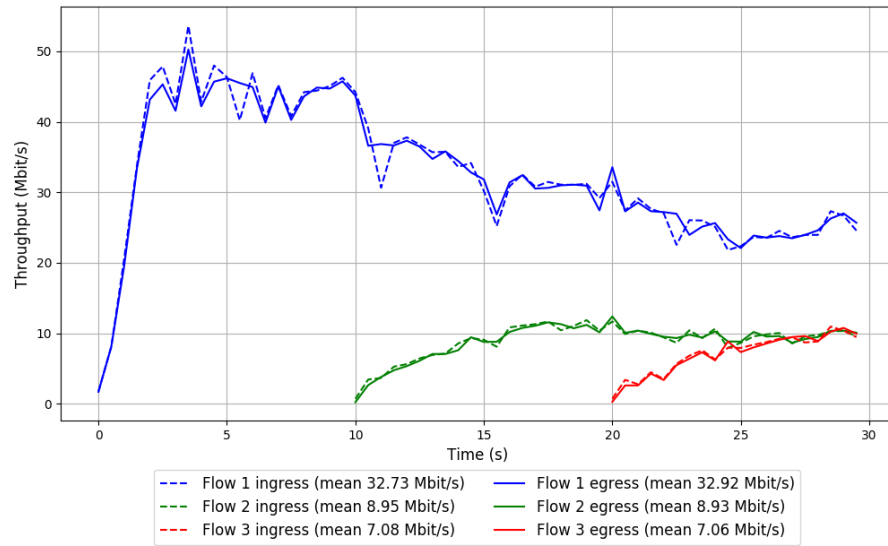
```
Run 2: Statistics of TCP Cubic

Start at: 2017-11-30 08:08:43
End at: 2017-11-30 08:09:13
Local clock offset: 0.057 ms
Remote clock offset: -3.426 ms


# Below is generated by plot.py at 2017-11-30 08:41:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 41.23 Mbit/s
95th percentile per-packet one-way delay: 186.863 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 32.92 Mbit/s
95th percentile per-packet one-way delay: 186.106 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 8.93 Mbit/s
95th percentile per-packet one-way delay: 189.817 ms
Loss rate: 0.79%
-- Flow 3:
Average throughput: 7.06 Mbit/s
95th percentile per-packet one-way delay: 187.032 ms
Loss rate: 1.46%
```
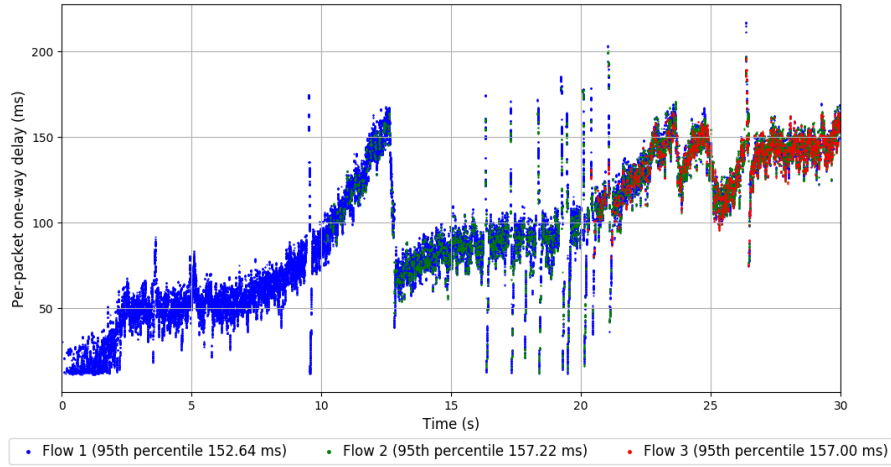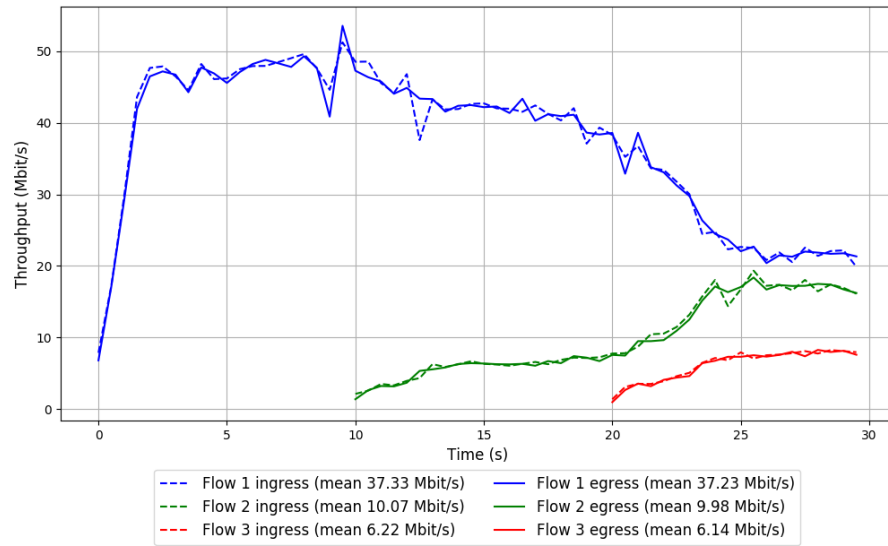
Run 2: Report of TCP Cubic — Data Link

- - - Flow 1 ingress (mean 32.73 Mbit/s)   —— Flow 1 egress (mean 32.92 Mbit/s)
- - - Flow 2 ingress (mean 8.95 Mbit/s)   —— Flow 2 egress (mean 8.93 Mbit/s)
- - - Flow 3 ingress (mean 7.08 Mbit/s)   —— Flow 3 egress (mean 7.06 Mbit/s)

• Flow 1 (95th percentile 186.11 ms)   • Flow 2 (95th percentile 189.82 ms)   • Flow 3 (95th percentile 187.03 ms)

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```
Run 3: Statistics of TCP Cubic

Start at: 2017-11-30 08:25:32
End at: 2017-11-30 08:26:02
Local clock offset: 0.04 ms
Remote clock offset: -3.328 ms


# Below is generated by plot.py at 2017-11-30 08:41:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 45.88 Mbit/s
95th percentile per-packet one-way delay: 154.025 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 37.23 Mbit/s
95th percentile per-packet one-way delay: 152.642 ms
Loss rate: 0.29%
-- Flow 2:
Average throughput: 9.98 Mbit/s
95th percentile per-packet one-way delay: 157.221 ms
Loss rate: 1.19%
-- Flow 3:
Average throughput: 6.14 Mbit/s
95th percentile per-packet one-way delay: 156.995 ms
Loss rate: 2.05%
```
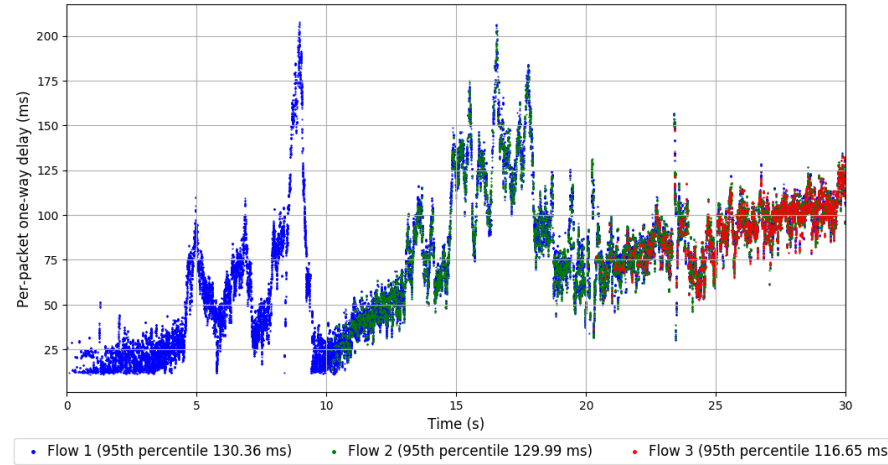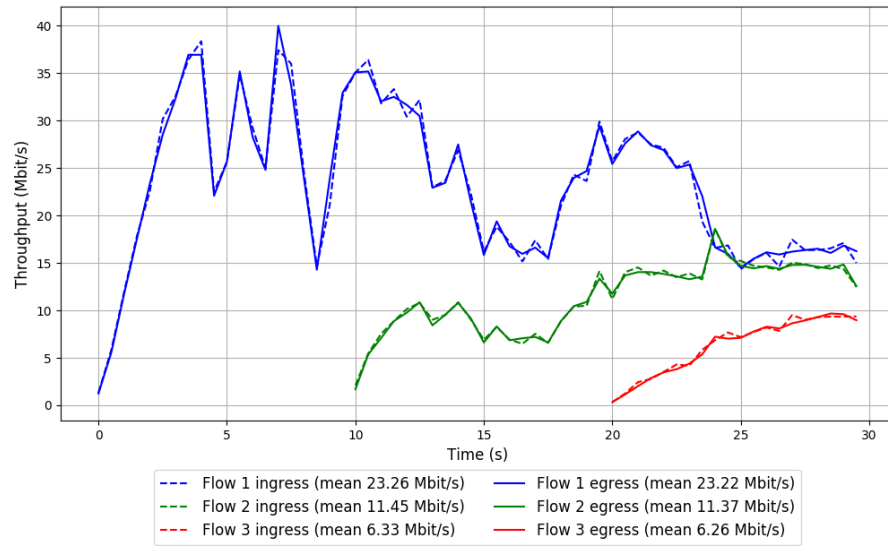
Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 37.33 Mbit/s) --- Flow 1 egress (mean 37.23 Mbit/s)
Flow 2 ingress (mean 10.07 Mbit/s) --- Flow 2 egress (mean 9.98 Mbit/s)
Flow 3 ingress (mean 6.22 Mbit/s) --- Flow 3 egress (mean 6.14 Mbit/s)

Flow 1 (95th percentile 152.64 ms) • Flow 2 (95th percentile 157.22 ms) • Flow 3 (95th percentile 157.00 ms)

```
Run 1: Statistics of LEDBAT

Start at: 2017-11-30 07:53:07
End at: 2017-11-30 07:53:37
Local clock offset: 0.027 ms
Remote clock offset: -3.212 ms

# Below is generated by plot.py at 2017-11-30 08:41:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 32.86 Mbit/s
95th percentile per-packet one-way delay: 128.677 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 23.22 Mbit/s
95th percentile per-packet one-way delay: 130.363 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 11.37 Mbit/s
95th percentile per-packet one-way delay: 129.987 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 6.26 Mbit/s
95th percentile per-packet one-way delay: 116.646 ms
Loss rate: 1.53%
```
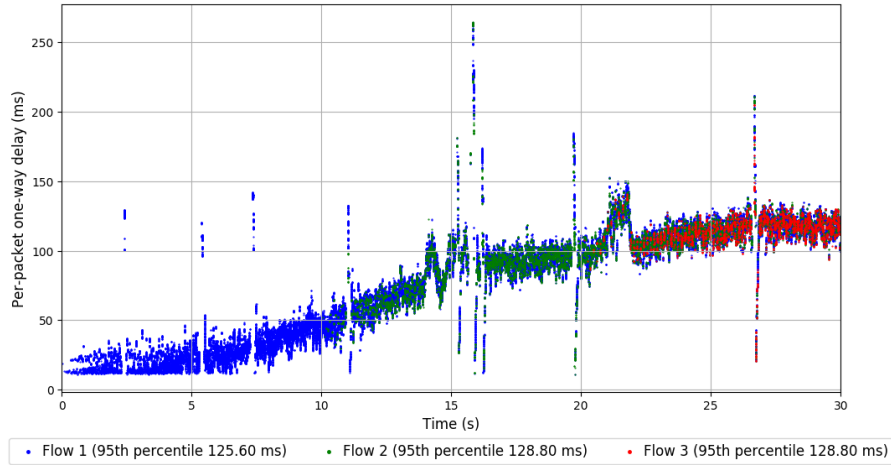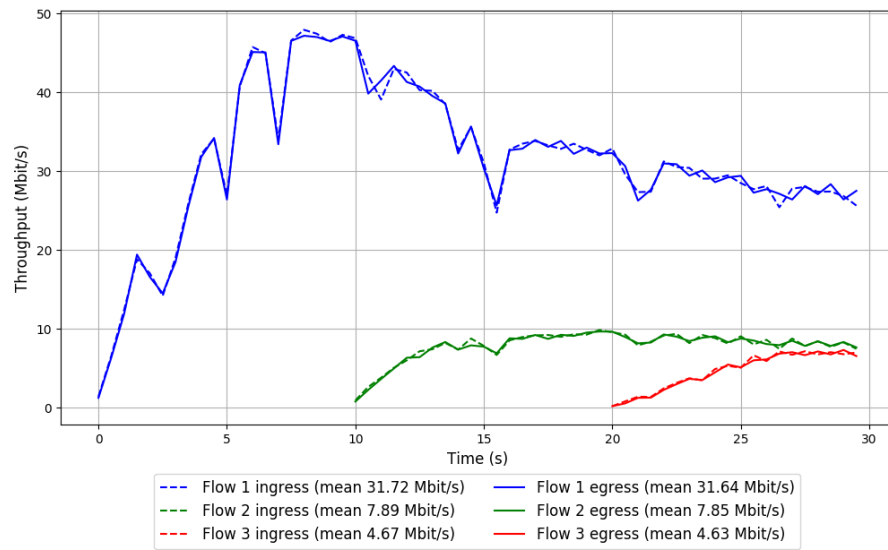
Run 1: Report of LEDBAT — Data Link

- Flow 1 ingress (mean 23.26 Mbit/s)
- Flow 2 ingress (mean 11.45 Mbit/s)
- Flow 3 ingress (mean 6.33 Mbit/s)
- Flow 1 egress (mean 23.22 Mbit/s)
- Flow 2 egress (mean 11.37 Mbit/s)
- Flow 3 egress (mean 6.26 Mbit/s)

- Flow 1 (95th percentile 130.36 ms)
- Flow 2 (95th percentile 129.99 ms)
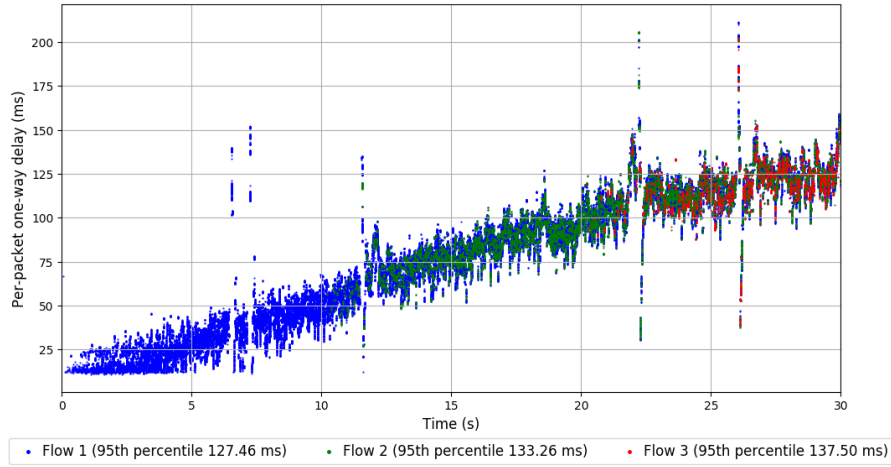- Flow 3 (95th percentile 116.65 ms)

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```
Run 2: Statistics of LEDBAT

Start at: 2017-11-30 08:09:56
End at: 2017-11-30 08:10:26
Local clock offset: -0.055 ms
Remote clock offset: -3.447 ms


# Below is generated by plot.py at 2017-11-30 08:41:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 38.38 Mbit/s
95th percentile per-packet one-way delay: 126.258 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 31.64 Mbit/s
95th percentile per-packet one-way delay: 125.600 ms
Loss rate: 0.24%
-- Flow 2:
Average throughput: 7.85 Mbit/s
95th percentile per-packet one-way delay: 128.804 ms
Loss rate: 0.54%
-- Flow 3:
Average throughput: 4.63 Mbit/s
95th percentile per-packet one-way delay: 128.804 ms
Loss rate: 1.92%
```

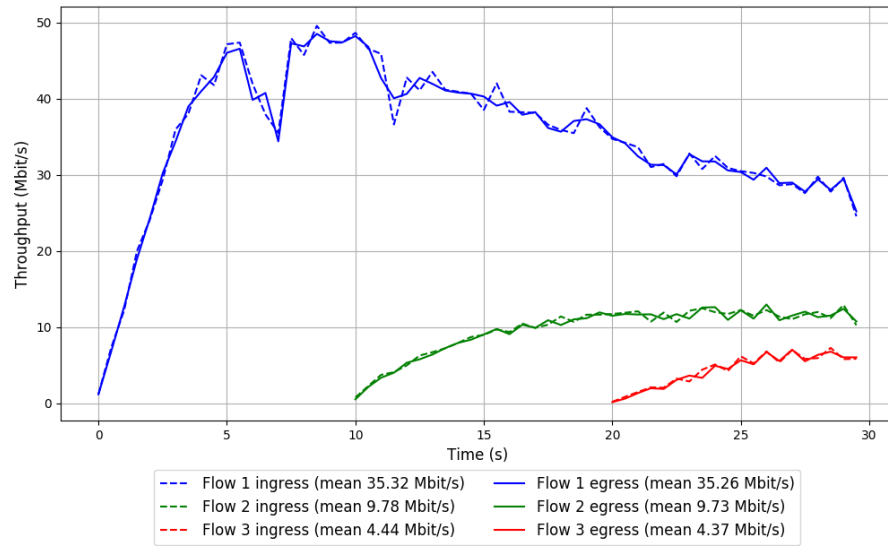Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2017-11-30 08:26:45
End at: 2017-11-30 08:27:15
Local clock offset: 0.143 ms
Remote clock offset: -3.334 ms

# Below is generated by plot.py at 2017-11-30 08:42:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 43.17 Mbit/s
95th percentile per-packet one-way delay: 129.417 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 35.26 Mbit/s
95th percentile per-packet one-way delay: 127.463 ms
Loss rate: 0.30%
-- Flow 2:
Average throughput: 9.73 Mbit/s
95th percentile per-packet one-way delay: 133.257 ms
Loss rate: 0.68%
-- Flow 3:
Average throughput: 4.37 Mbit/s
95th percentile per-packet one-way delay: 137.498 ms
Loss rate: 1.71%
```
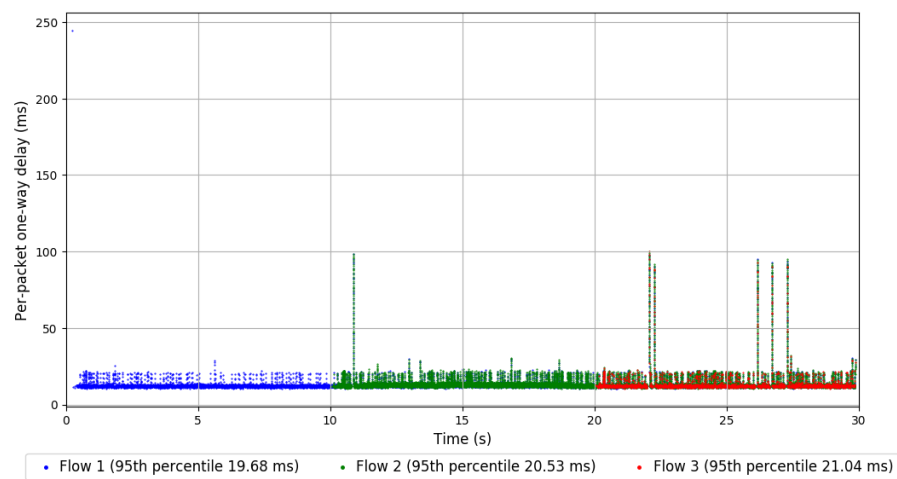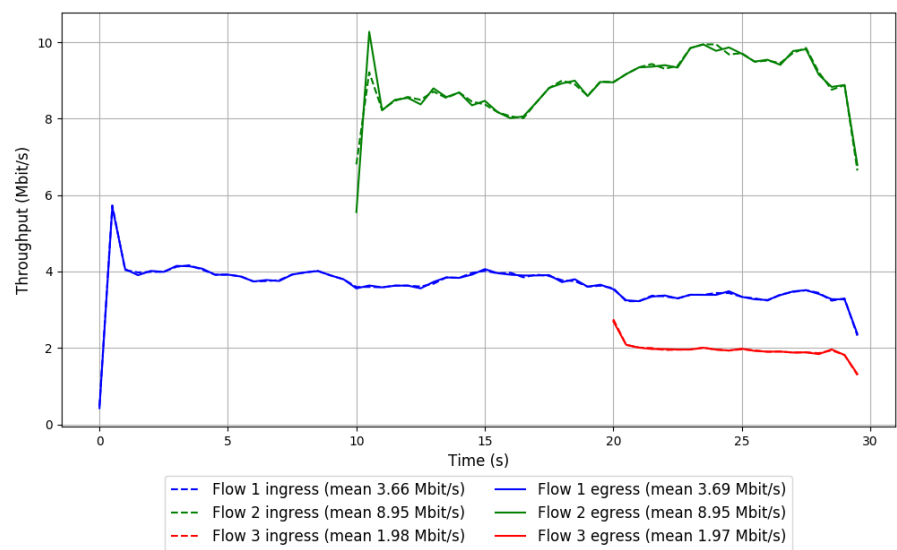
Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 35.32 Mbit/s) --- Flow 1 egress (mean 35.26 Mbit/s)
Flow 2 ingress (mean 9.78 Mbit/s) --- Flow 2 egress (mean 9.73 Mbit/s)
Flow 3 ingress (mean 4.44 Mbit/s) --- Flow 3 egress (mean 4.37 Mbit/s)

Flow 1 (95th percentile 127.46 ms)   Flow 2 (95th percentile 133.26 ms)   Flow 3 (95th percentile 137.50 ms)
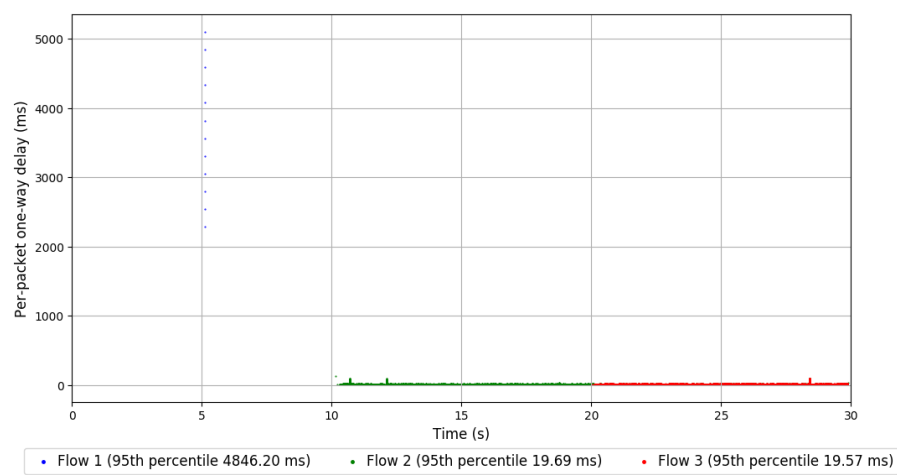
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```
Run 1: Statistics of PCC

Start at: 2017-11-30 08:01:31
End at: 2017-11-30 08:02:01
Local clock offset: 0.102 ms
Remote clock offset: -3.375 ms

# Below is generated by plot.py at 2017-11-30 08:42:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.34 Mbit/s
95th percentile per-packet one-way delay: 20.225 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 3.69 Mbit/s
95th percentile per-packet one-way delay: 19.675 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 8.95 Mbit/s
95th percentile per-packet one-way delay: 20.526 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 1.97 Mbit/s
95th percentile per-packet one-way delay: 21.042 ms
Loss rate: 0.07%
```
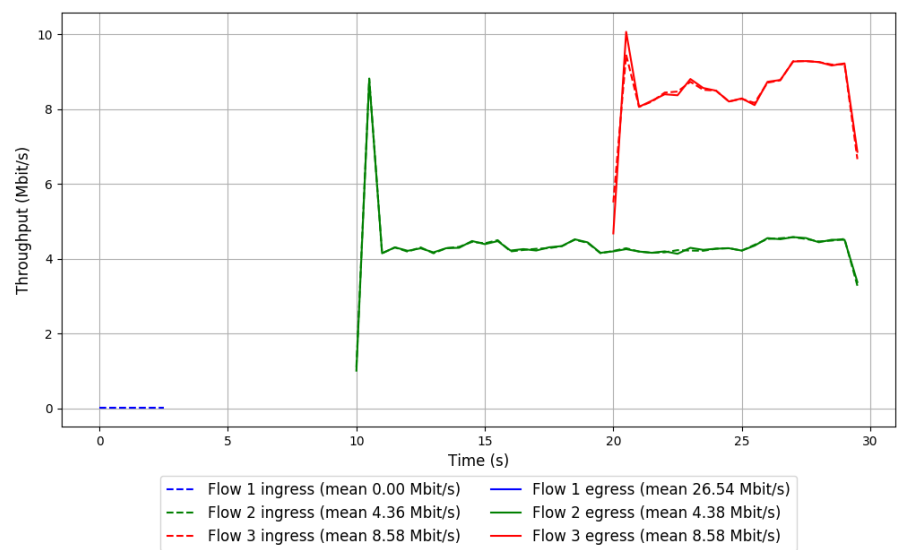
Run 1: Report of PCC — Data Link

```
Run 2: Statistics of PCC

Start at: 2017-11-30 08:18:20
End at: 2017-11-30 08:18:50
Local clock offset: 0.062 ms
Remote clock offset: -3.397 ms


# Below is generated by plot.py at 2017-11-30 08:42:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 6.90 Mbit/s
95th percentile per-packet one-way delay: 19.665 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 26.54 Mbit/s
95th percentile per-packet one-way delay: 4846.202 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 4.38 Mbit/s
95th percentile per-packet one-way delay: 19.690 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 8.58 Mbit/s
95th percentile per-packet one-way delay: 19.575 ms
Loss rate: 0.03%
```
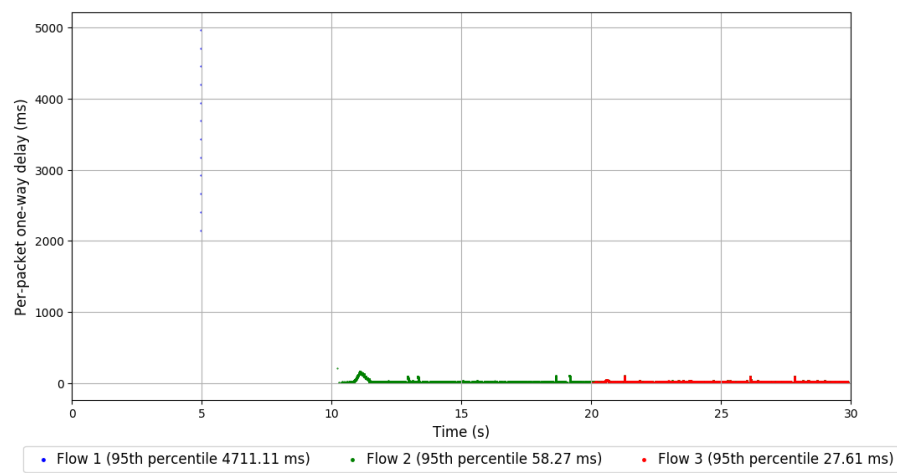
Run 2: Report of PCC — Data Link

```
Run 3: Statistics of PCC

Start at: 2017-11-30 08:35:10
End at: 2017-11-30 08:35:40
Local clock offset: 0.086 ms
Remote clock offset: -3.4 ms


# Below is generated by plot.py at 2017-11-30 08:42:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 27.14 Mbit/s
95th percentile per-packet one-way delay: 51.667 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 30.42 Mbit/s
95th percentile per-packet one-way delay: 4711.115 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 30.01 Mbit/s
95th percentile per-packet one-way delay: 58.273 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 8.74 Mbit/s
95th percentile per-packet one-way delay: 27.605 ms
Loss rate: 0.00%
```
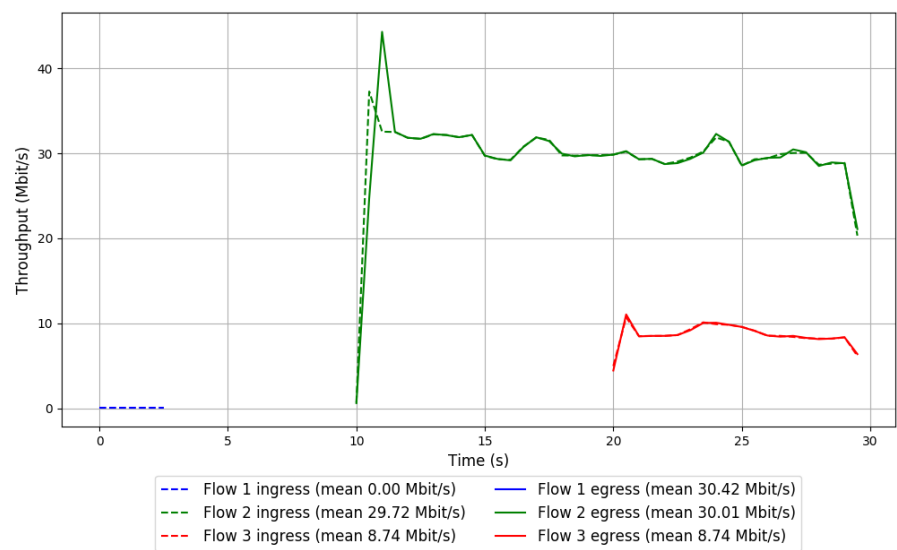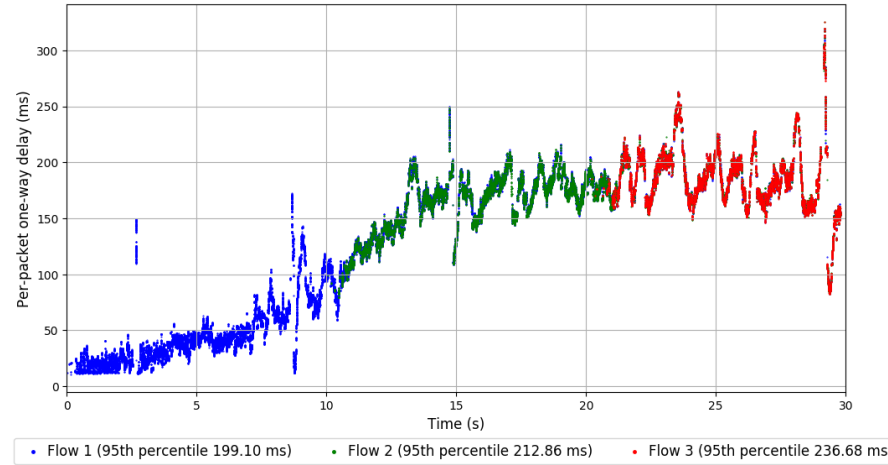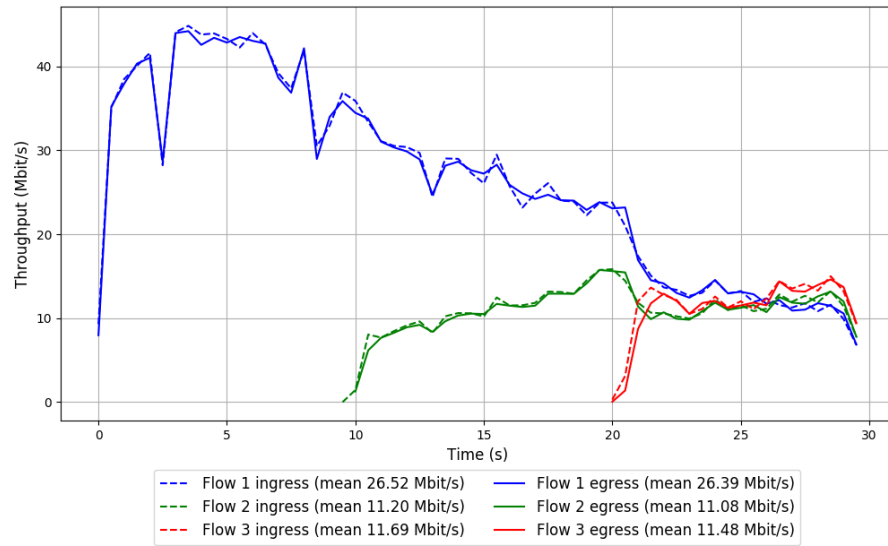
Run 3: Report of PCC — Data Link

- - - - Flow 1 ingress (mean 0.00 Mbit/s)   —— Flow 1 egress (mean 30.42 Mbit/s)
- - - - Flow 2 ingress (mean 29.72 Mbit/s)   —— Flow 2 egress (mean 30.01 Mbit/s)
- - - - Flow 3 ingress (mean 8.74 Mbit/s)   —— Flow 3 egress (mean 8.74 Mbit/s)

• Flow 1 (95th percentile 4711.11 ms)   • Flow 2 (95th percentile 58.27 ms)   • Flow 3 (95th percentile 27.61 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2017-11-30 08:03:54
End at: 2017-11-30 08:04:24
Local clock offset: 0.083 ms
Remote clock offset: -3.401 ms


# Below is generated by plot.py at 2017-11-30 08:42:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 37.42 Mbit/s
95th percentile per-packet one-way delay: 206.593 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 26.39 Mbit/s
95th percentile per-packet one-way delay: 199.104 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 11.08 Mbit/s
95th percentile per-packet one-way delay: 212.858 ms
Loss rate: 1.49%
-- Flow 3:
Average throughput: 11.48 Mbit/s
95th percentile per-packet one-way delay: 236.680 ms
Loss rate: 3.46%
```

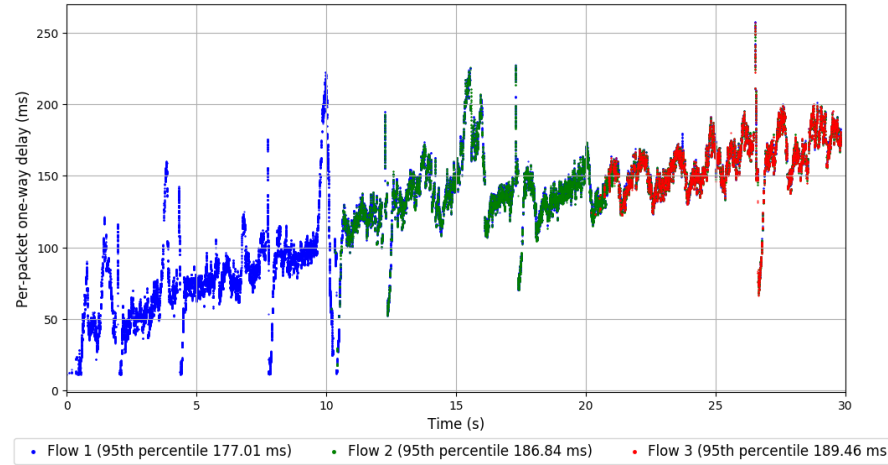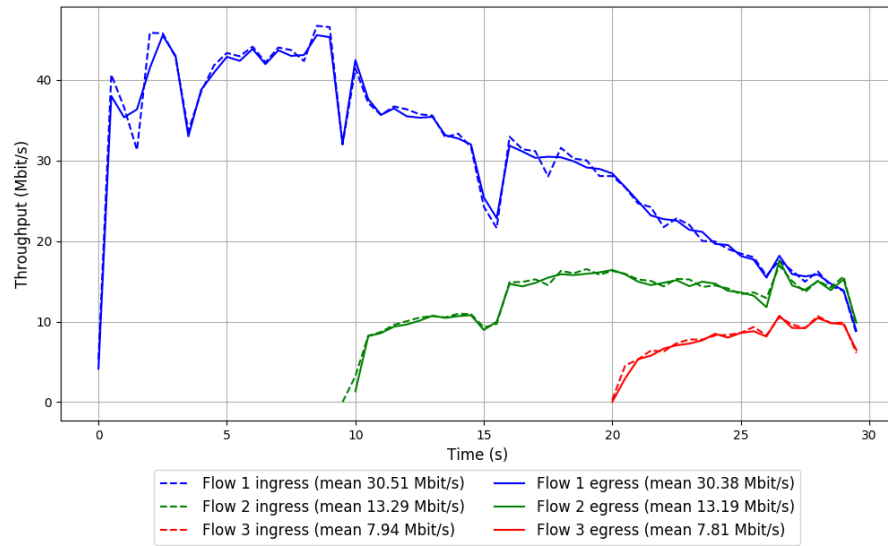Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2017-11-30 08:20:42
End at: 2017-11-30 08:21:12
Local clock offset: 0.08 ms
Remote clock offset: -3.477 ms


# Below is generated by plot.py at 2017-11-30 08:42:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 41.63 Mbit/s
95th percentile per-packet one-way delay: 182.957 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 30.38 Mbit/s
95th percentile per-packet one-way delay: 177.008 ms
Loss rate: 0.42%
-- Flow 2:
Average throughput: 13.19 Mbit/s
95th percentile per-packet one-way delay: 186.841 ms
Loss rate: 1.28%
-- Flow 3:
Average throughput: 7.81 Mbit/s
95th percentile per-packet one-way delay: 189.458 ms
Loss rate: 2.67%
```
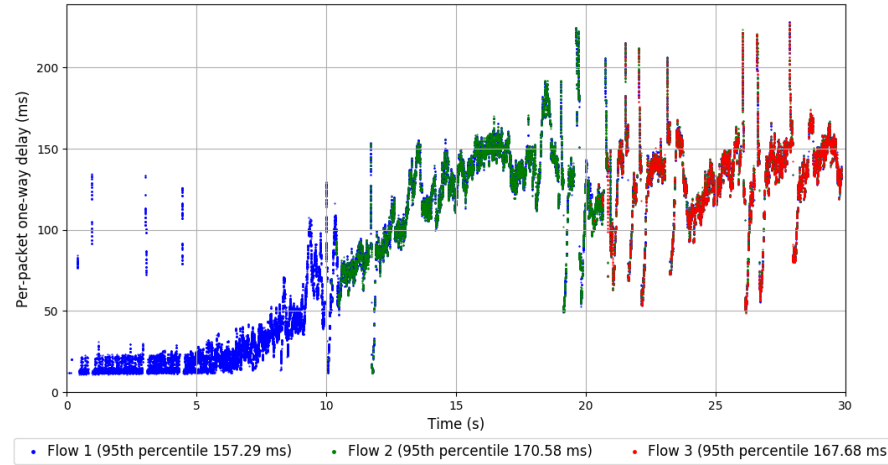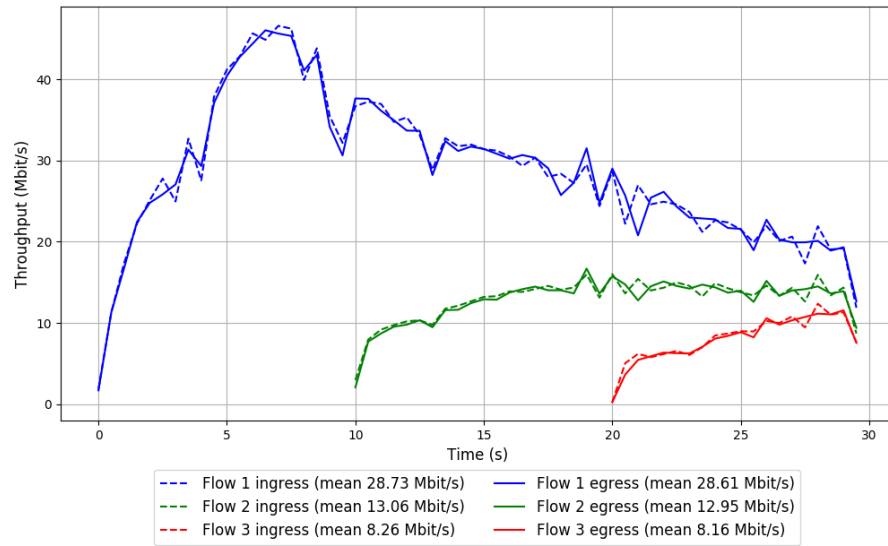
Run 2: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 30.51 Mbit/s)   Flow 1 egress (mean 30.38 Mbit/s)
Flow 2 ingress (mean 13.29 Mbit/s)   Flow 2 egress (mean 13.19 Mbit/s)
Flow 3 ingress (mean 7.94 Mbit/s)   Flow 3 egress (mean 7.81 Mbit/s)

• Flow 1 (95th percentile 177.01 ms)   • Flow 2 (95th percentile 186.84 ms)   • Flow 3 (95th percentile 189.46 ms)

```
Run 3: Statistics of QUIC Cubic

Start at: 2017-11-30 08:37:33
End at: 2017-11-30 08:38:03
Local clock offset: 0.134 ms
Remote clock offset: -3.388 ms

# Below is generated by plot.py at 2017-11-30 08:42:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 39.85 Mbit/s
95th percentile per-packet one-way delay: 161.487 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 28.61 Mbit/s
95th percentile per-packet one-way delay: 157.290 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 12.95 Mbit/s
95th percentile per-packet one-way delay: 170.576 ms
Loss rate: 0.85%
-- Flow 3:
Average throughput: 8.16 Mbit/s
95th percentile per-packet one-way delay: 167.682 ms
Loss rate: 2.15%
```
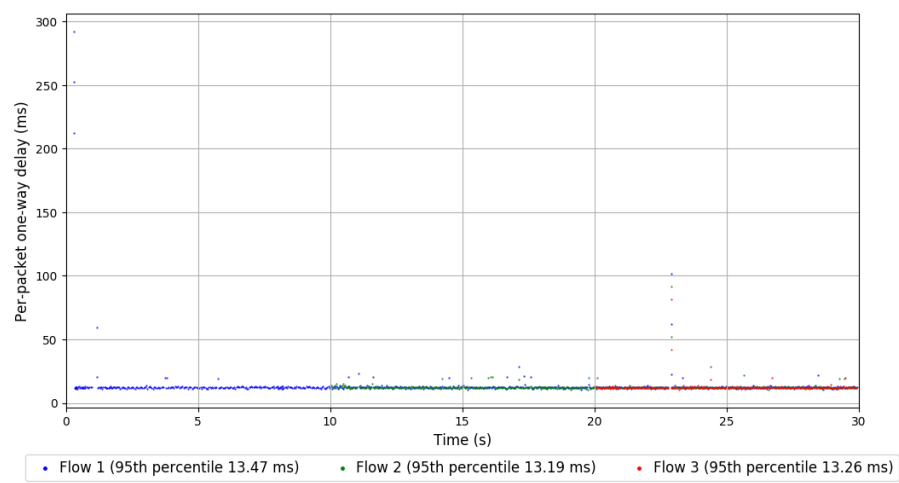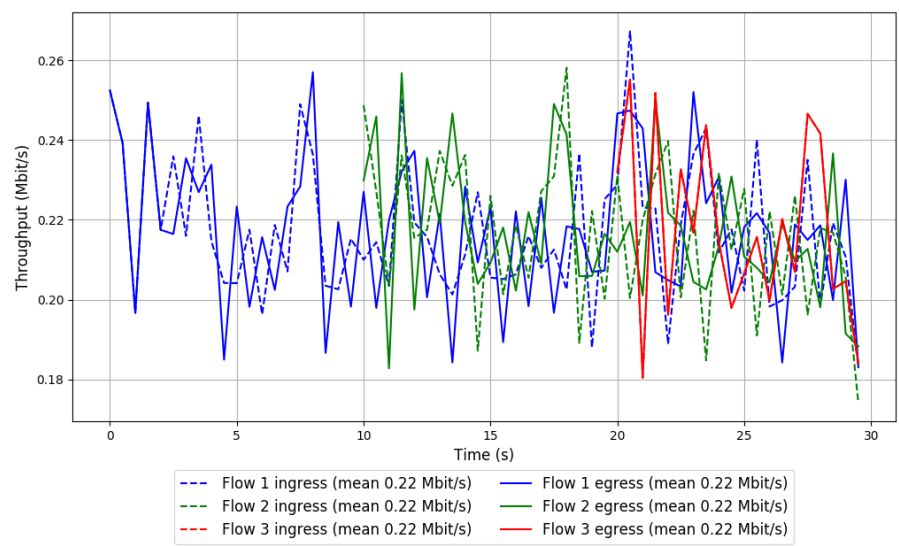
Run 3: Report of QUIC Cubic — Data Link

- - - Flow 1 ingress (mean 28.73 Mbit/s)   ——— Flow 1 egress (mean 28.61 Mbit/s)
- - - Flow 2 ingress (mean 13.06 Mbit/s)   ——— Flow 2 egress (mean 12.95 Mbit/s)
- - - Flow 3 ingress (mean 8.26 Mbit/s)   ——— Flow 3 egress (mean 8.16 Mbit/s)

- Flow 1 (95th percentile 157.29 ms)   • Flow 2 (95th percentile 170.58 ms)   • Flow 3 (95th percentile 167.68 ms)
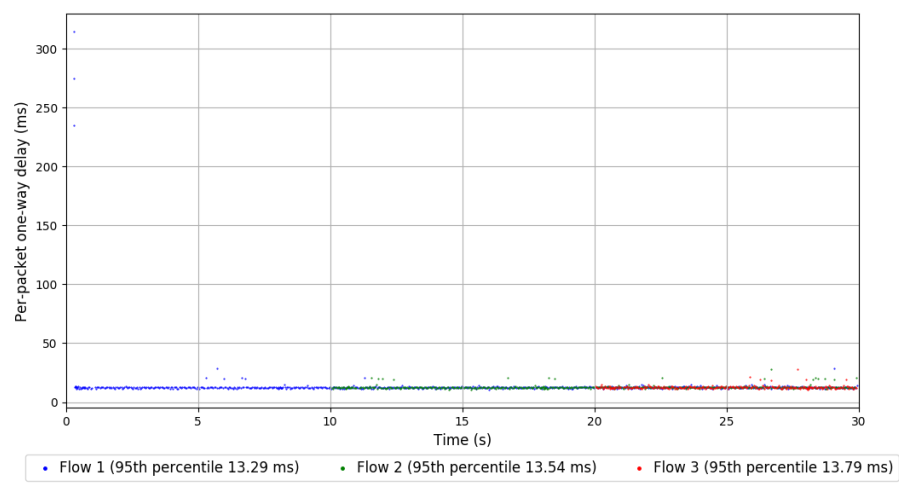
```
Run 1: Statistics of SCReAM

Start at: 2017-11-30 07:50:44
End at: 2017-11-30 07:51:14
Local clock offset: 0.016 ms
Remote clock offset: -3.276 ms

# Below is generated by plot.py at 2017-11-30 08:42:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 13.326 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 13.468 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 13.188 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 13.256 ms
Loss rate: 0.00%
```
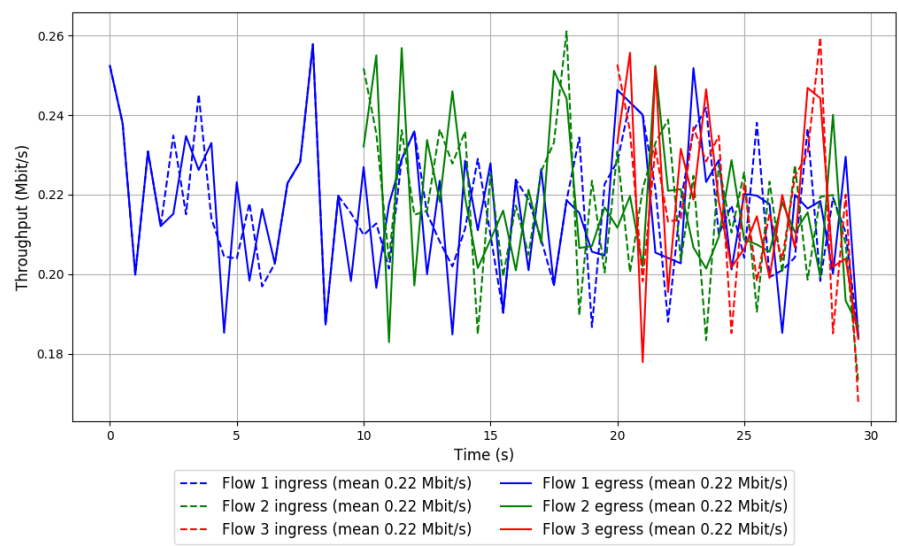
Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2017-11-30 08:07:32
End at: 2017-11-30 08:08:02
Local clock offset: -0.04 ms
Remote clock offset: -3.367 ms

# Below is generated by plot.py at 2017-11-30 08:42:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 13.538 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 13.290 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 13.538 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 13.792 ms
Loss rate: 0.00%
```
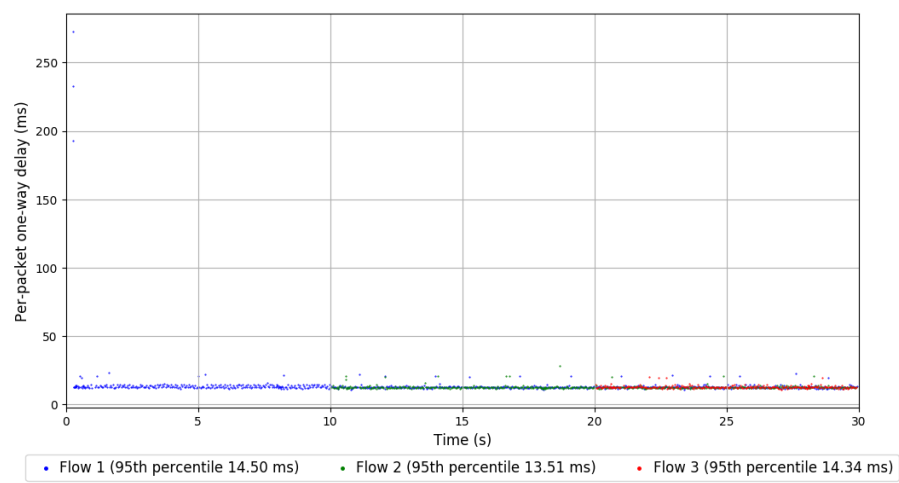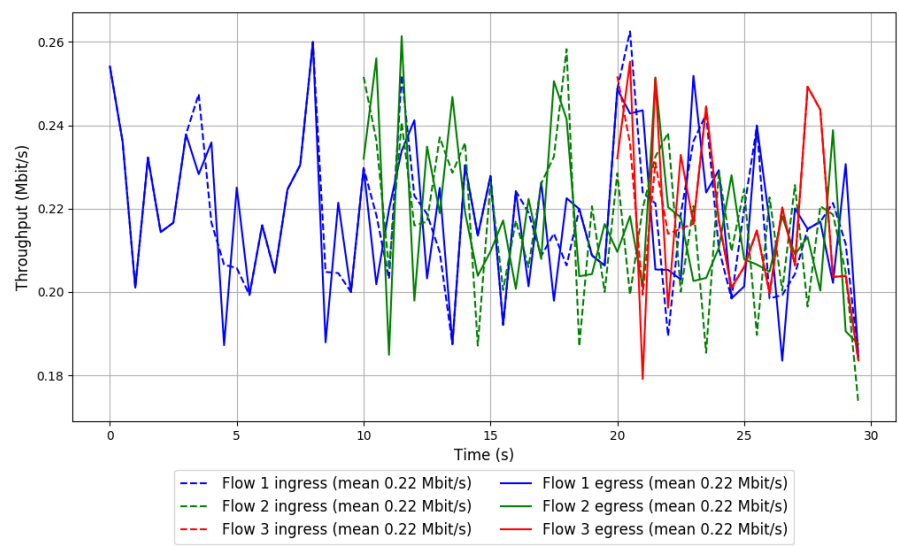
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2017-11-30 08:24:21
End at: 2017-11-30 08:24:51
Local clock offset: 0.016 ms
Remote clock offset: -3.341 ms

# Below is generated by plot.py at 2017-11-30 08:42:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 14.369 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 14.496 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 13.509 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 14.343 ms
Loss rate: 0.00%
```

Run 3: Report of SCReAM — Data Link
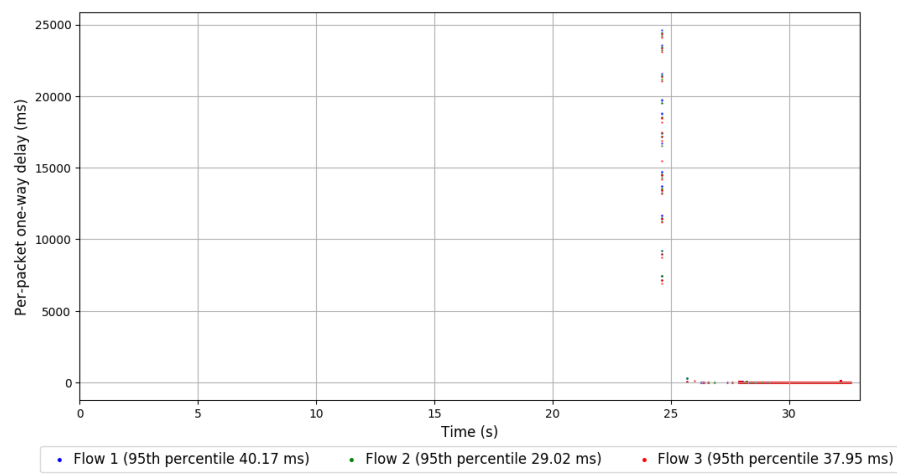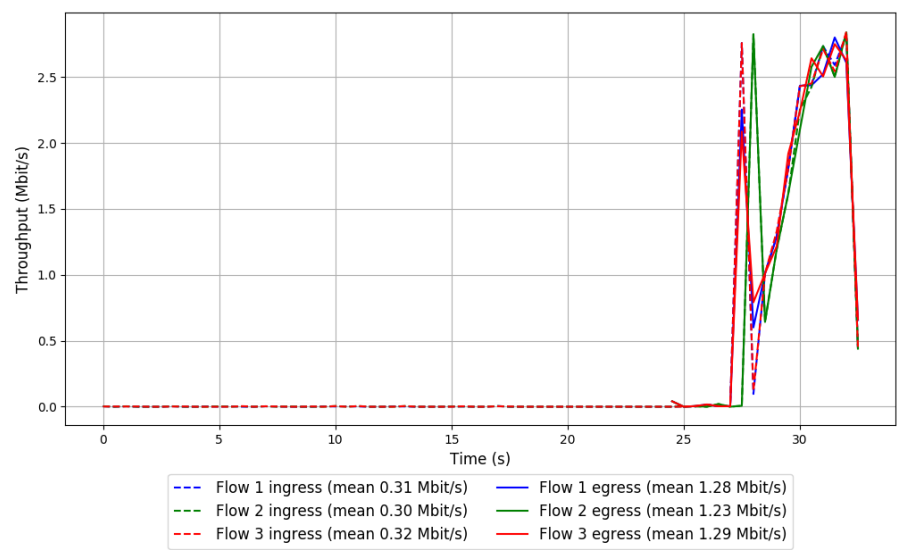
```
Run 1: Statistics of WebRTC media

Start at: 2017-11-30 07:56:45
End at: 2017-11-30 07:57:15
Local clock offset: 0.064 ms
Remote clock offset: -3.327 ms
```
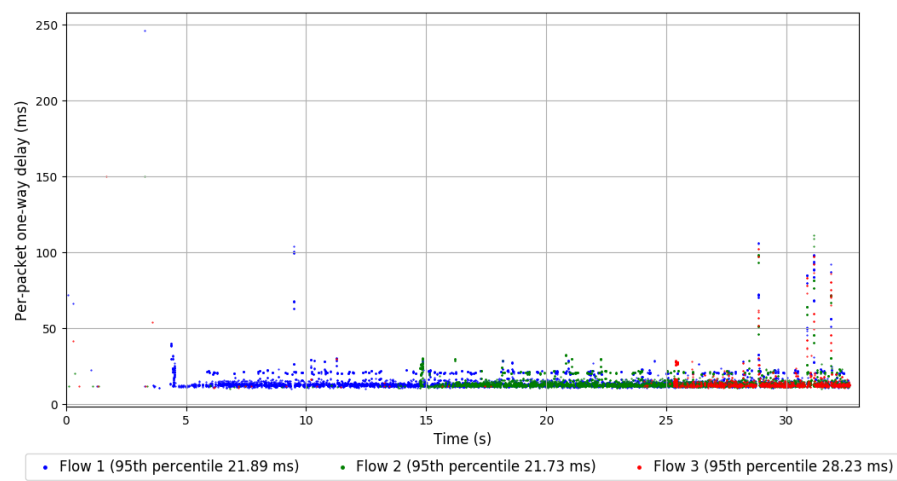
Run 1: Report of WebRTC media — Data Link

Flow 1 ingress (mean 0.31 Mbit/s)   Flow 1 egress (mean 1.28 Mbit/s)
Flow 2 ingress (mean 0.30 Mbit/s)   Flow 2 egress (mean 1.23 Mbit/s)
Flow 3 ingress (mean 0.32 Mbit/s)   Flow 3 egress (mean 1.29 Mbit/s)

Flow 1 (95th percentile 40.17 ms)   Flow 2 (95th percentile 29.02 ms)   Flow 3 (95th percentile 37.95 ms)
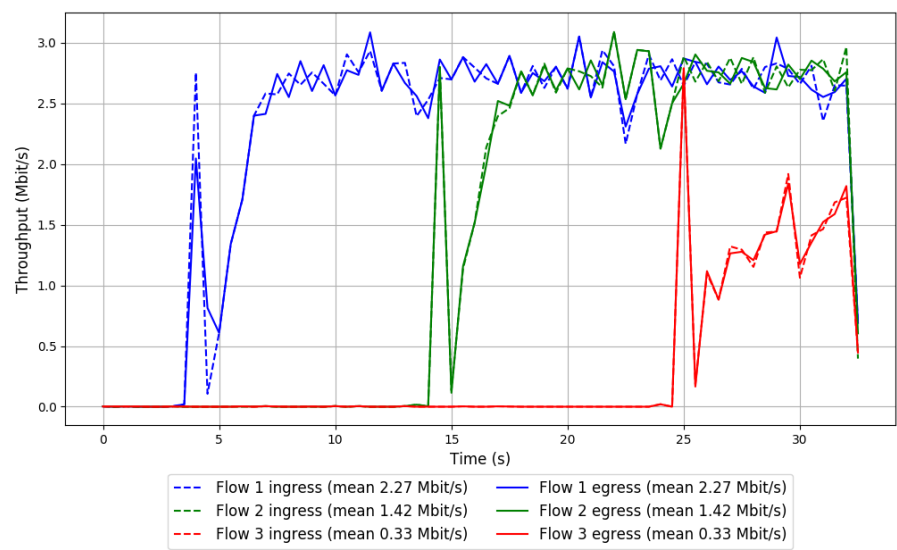
```
Run 2: Statistics of WebRTC media

Start at: 2017-11-30 08:13:33
End at: 2017-11-30 08:14:04
Local clock offset: 0.05 ms
Remote clock offset: -3.497 ms


# Below is generated by plot.py at 2017-11-30 08:42:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.02 Mbit/s
95th percentile per-packet one-way delay: 22.143 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.27 Mbit/s
95th percentile per-packet one-way delay: 21.888 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.42 Mbit/s
95th percentile per-packet one-way delay: 21.734 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 28.225 ms
Loss rate: 0.00%
```
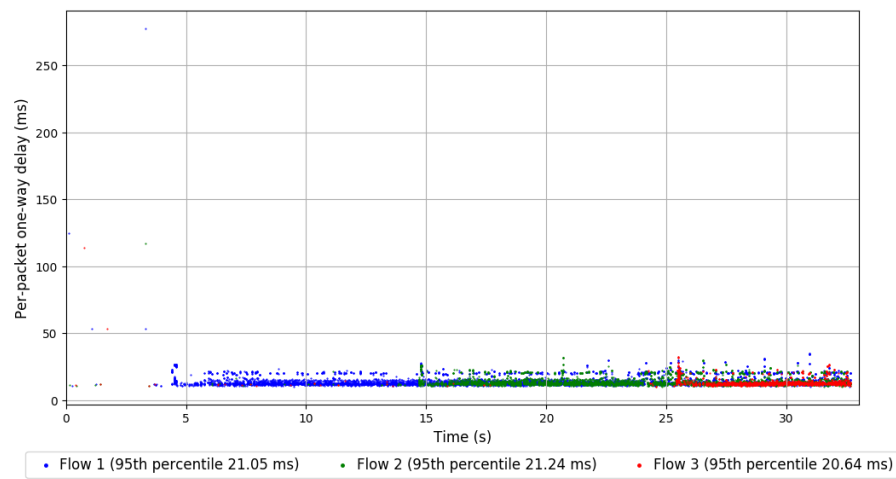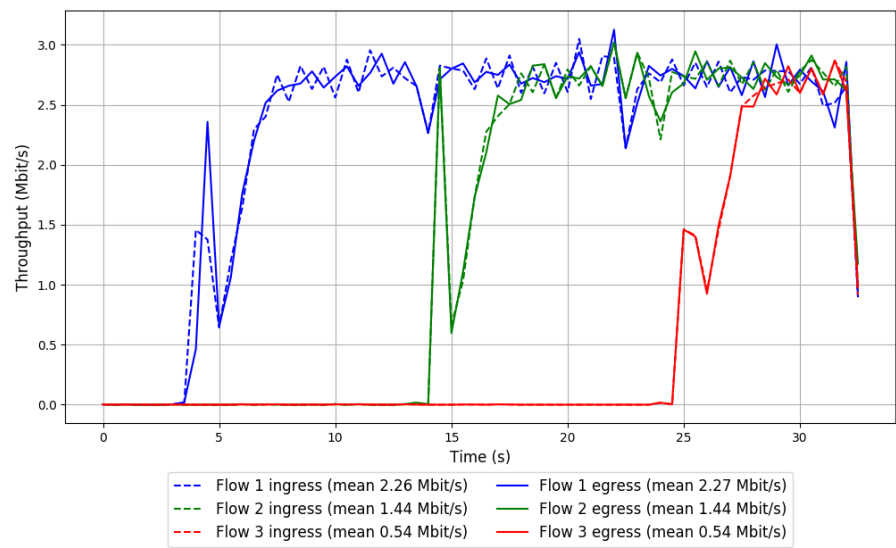
Run 2: Report of WebRTC media — Data Link

Flow 1 ingress (mean 2.27 Mbit/s) — — — Flow 1 egress (mean 2.27 Mbit/s)
Flow 2 ingress (mean 1.42 Mbit/s) — — — Flow 2 egress (mean 1.42 Mbit/s)
Flow 3 ingress (mean 0.33 Mbit/s) — — — Flow 3 egress (mean 0.33 Mbit/s)

Flow 1 (95th percentile 21.89 ms) · Flow 2 (95th percentile 21.73 ms) · Flow 3 (95th percentile 28.23 ms)

```
Run 3: Statistics of WebRTC media

Start at: 2017-11-30 08:30:24
End at: 2017-11-30 08:30:54
Local clock offset: 0.148 ms
Remote clock offset: -3.363 ms

# Below is generated by plot.py at 2017-11-30 08:42:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.24 Mbit/s
95th percentile per-packet one-way delay: 21.132 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.27 Mbit/s
95th percentile per-packet one-way delay: 21.048 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.44 Mbit/s
95th percentile per-packet one-way delay: 21.242 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.54 Mbit/s
95th percentile per-packet one-way delay: 20.642 ms
Loss rate: 0.00%
```

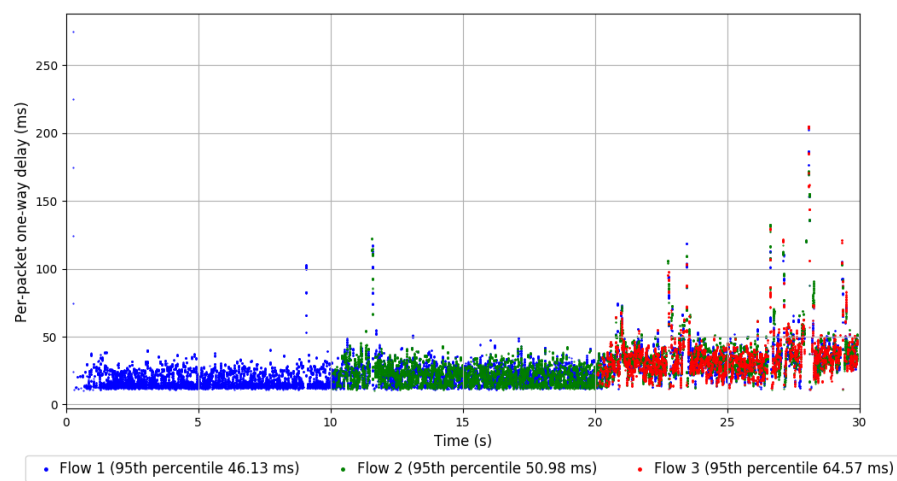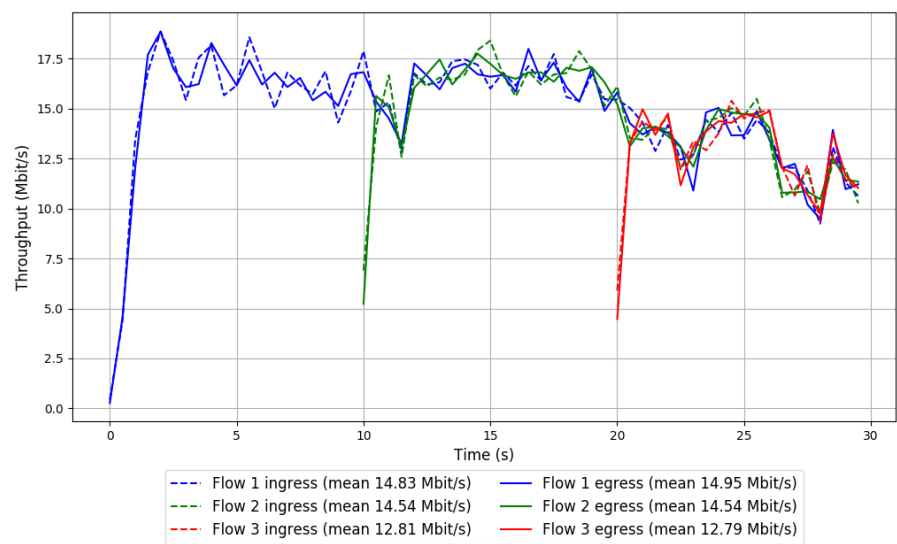Run 3: Report of WebRTC media — Data Link

```
Run 1: Statistics of Sprout

Start at: 2017-11-30 07:57:56
End at: 2017-11-30 07:58:26
Local clock offset: 0.083 ms
Remote clock offset: -3.339 ms


# Below is generated by plot.py at 2017-11-30 08:42:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 28.96 Mbit/s
95th percentile per-packet one-way delay: 50.469 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 14.95 Mbit/s
95th percentile per-packet one-way delay: 46.134 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 14.54 Mbit/s
95th percentile per-packet one-way delay: 50.982 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 12.79 Mbit/s
95th percentile per-packet one-way delay: 64.566 ms
Loss rate: 0.11%
```
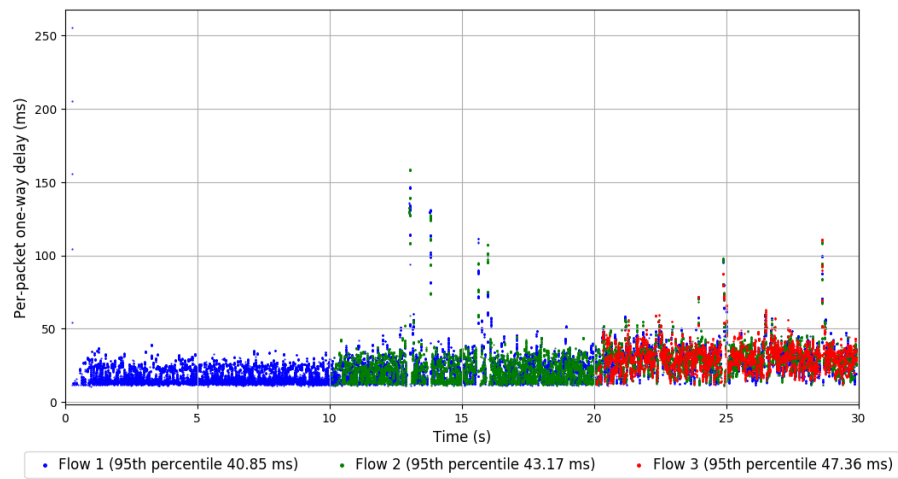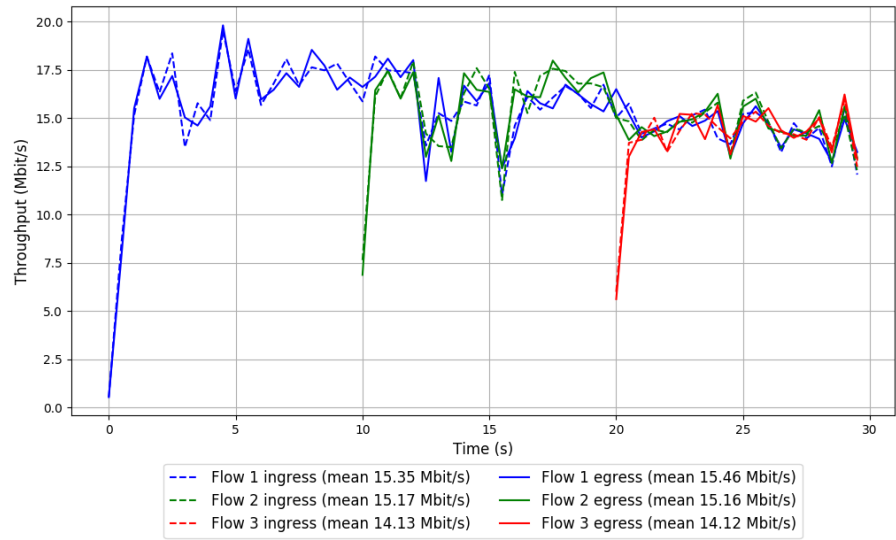
Run 1: Report of Sprout — Data Link

- - - - Flow 1 ingress (mean 14.83 Mbit/s) ——— Flow 1 egress (mean 14.95 Mbit/s)
- - - - Flow 2 ingress (mean 14.54 Mbit/s) ——— Flow 2 egress (mean 14.54 Mbit/s)
- - - - Flow 3 ingress (mean 12.81 Mbit/s) ——— Flow 3 egress (mean 12.79 Mbit/s)

• Flow 1 (95th percentile 46.13 ms)   • Flow 2 (95th percentile 50.98 ms)   • Flow 3 (95th percentile 64.57 ms)

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```
Run 2: Statistics of Sprout

Start at: 2017-11-30 08:14:45
End at: 2017-11-30 08:15:15
Local clock offset: 0.035 ms
Remote clock offset: -3.494 ms


# Below is generated by plot.py at 2017-11-30 08:42:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 30.33 Mbit/s
95th percentile per-packet one-way delay: 43.175 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 15.46 Mbit/s
95th percentile per-packet one-way delay: 40.855 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 15.16 Mbit/s
95th percentile per-packet one-way delay: 43.174 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 14.12 Mbit/s
95th percentile per-packet one-way delay: 47.356 ms
Loss rate: 0.00%
```
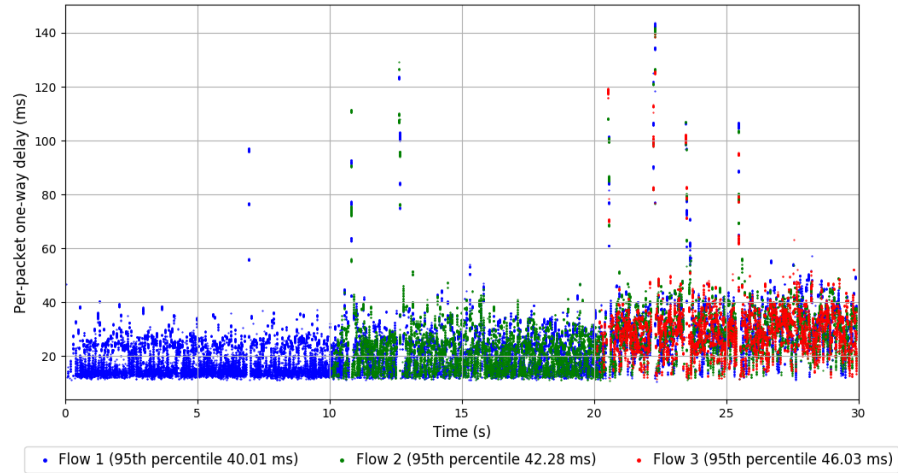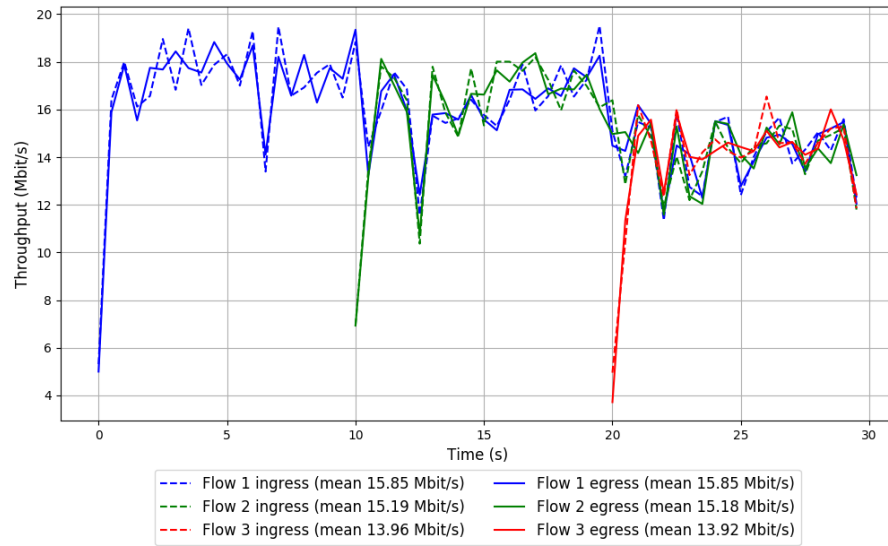
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2017-11-30 08:31:35
End at: 2017-11-30 08:32:05
Local clock offset: 0.05 ms
Remote clock offset: -3.331 ms


# Below is generated by plot.py at 2017-11-30 08:42:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 30.56 Mbit/s
95th percentile per-packet one-way delay: 41.659 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 15.85 Mbit/s
95th percentile per-packet one-way delay: 40.013 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 15.18 Mbit/s
95th percentile per-packet one-way delay: 42.281 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 13.92 Mbit/s
95th percentile per-packet one-way delay: 46.027 ms
Loss rate: 0.24%
```
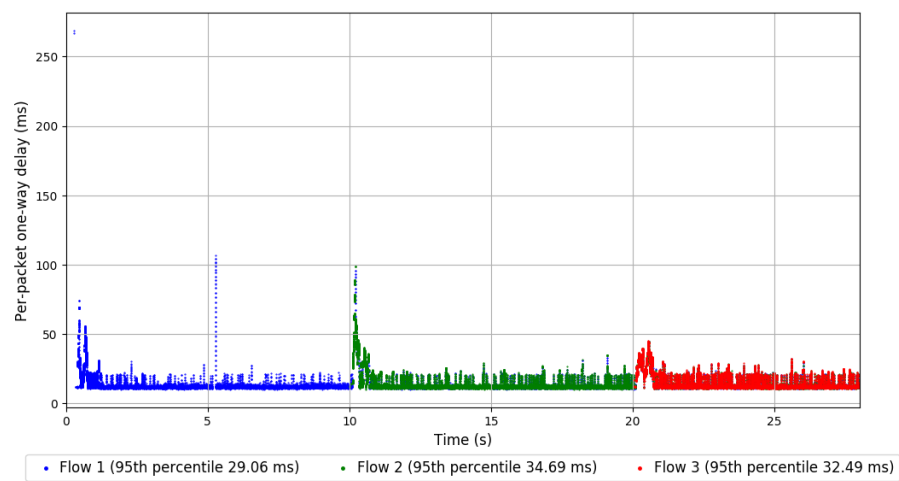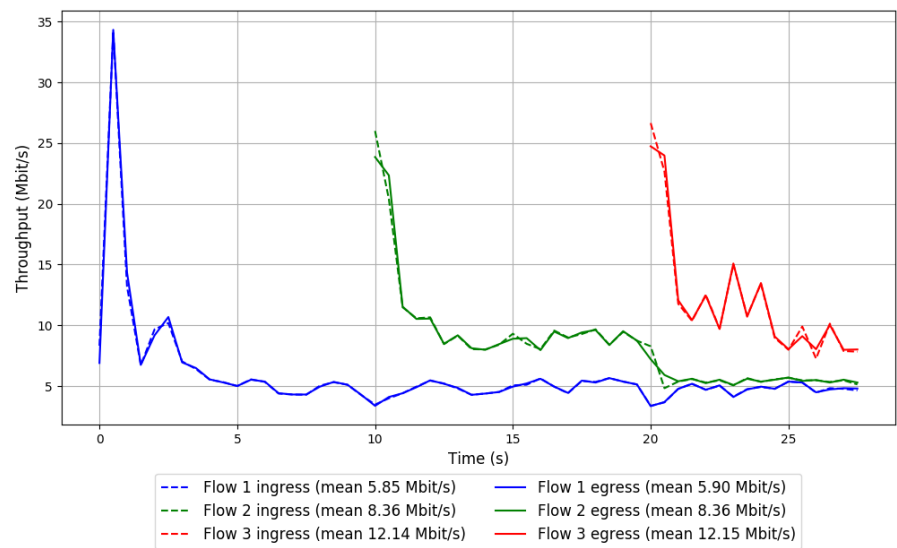
Run 3: Report of Sprout — Data Link

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

Start at: 2017-11-30 07:55:33
End at: 2017-11-30 07:56:03
Local clock offset: 0.049 ms
Remote clock offset: -3.306 ms

# Below is generated by plot.py at 2017-11-30 08:42:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.80 Mbit/s
95th percentile per-packet one-way delay: 32.847 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 5.90 Mbit/s
95th percentile per-packet one-way delay: 29.057 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 8.36 Mbit/s
95th percentile per-packet one-way delay: 34.694 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 12.15 Mbit/s
95th percentile per-packet one-way delay: 32.494 ms
Loss rate: 0.00%
```
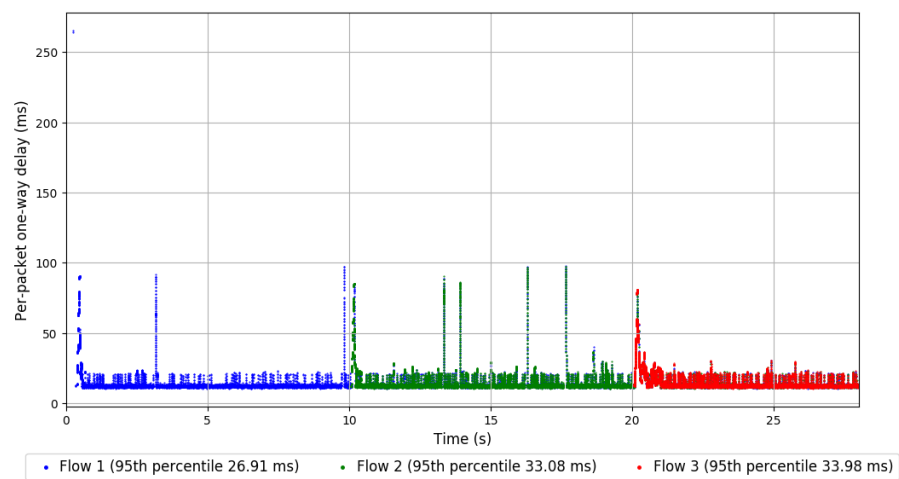
Run 1: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 5.85 Mbit/s) --- Flow 1 egress (mean 5.90 Mbit/s)
Flow 2 ingress (mean 8.36 Mbit/s) --- Flow 2 egress (mean 8.36 Mbit/s)
Flow 3 ingress (mean 12.14 Mbit/s) --- Flow 3 egress (mean 12.15 Mbit/s)

Flow 1 (95th percentile 29.06 ms) • Flow 2 (95th percentile 34.69 ms) • Flow 3 (95th percentile 32.49 ms)
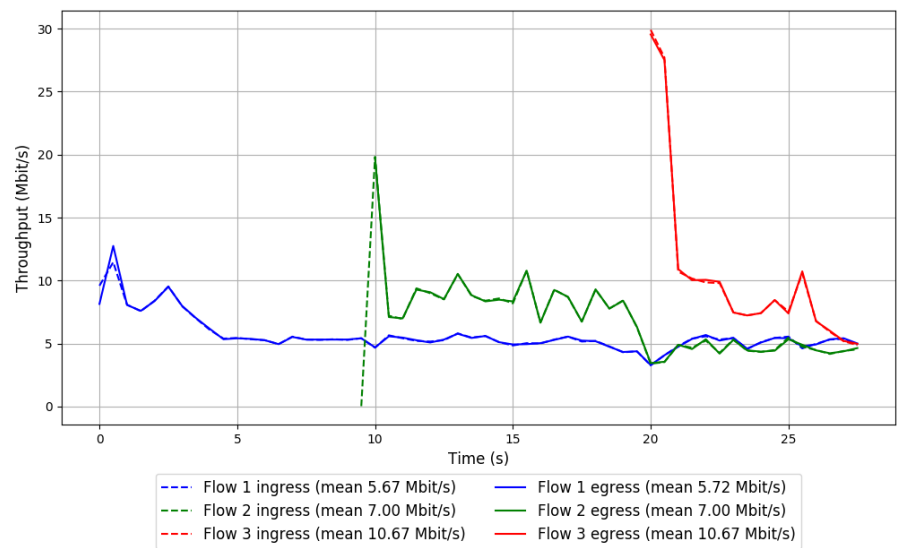
53

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

Start at: 2017-11-30 08:12:22
End at: 2017-11-30 08:12:52
Local clock offset: -0.038 ms
Remote clock offset: -3.361 ms


# Below is generated by plot.py at 2017-11-30 08:42:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.32 Mbit/s
95th percentile per-packet one-way delay: 31.506 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 5.72 Mbit/s
95th percentile per-packet one-way delay: 26.906 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 7.00 Mbit/s
95th percentile per-packet one-way delay: 33.077 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 10.67 Mbit/s
95th percentile per-packet one-way delay: 33.983 ms
Loss rate: 0.00%
```
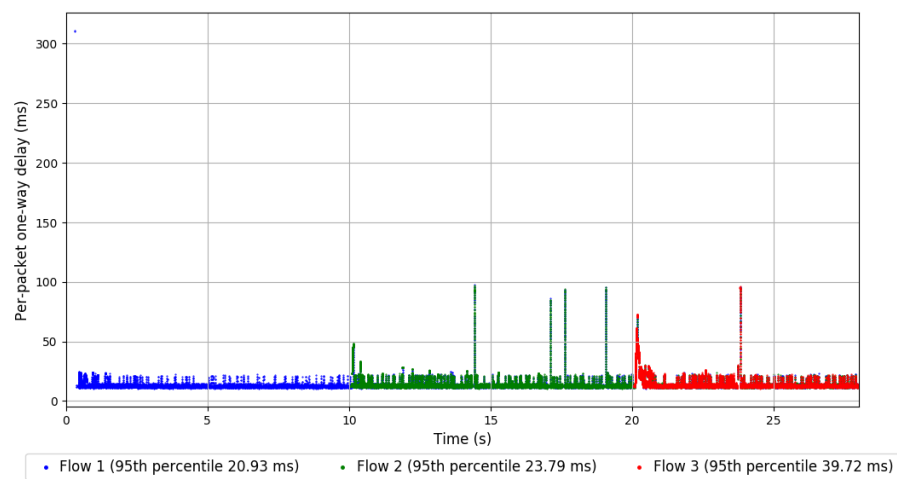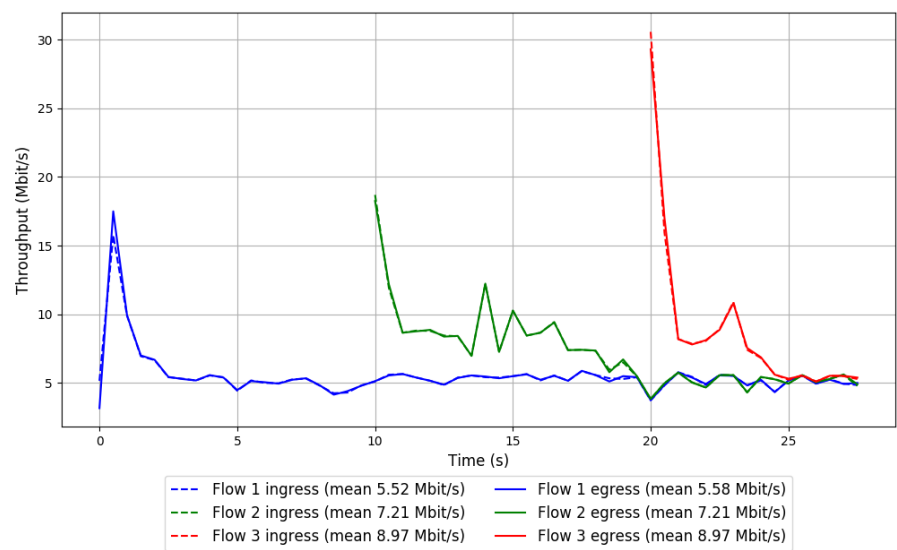
Run 2: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 5.67 Mbit/s)   Flow 1 egress (mean 5.72 Mbit/s)
Flow 2 ingress (mean 7.00 Mbit/s)   Flow 2 egress (mean 7.00 Mbit/s)
Flow 3 ingress (mean 10.67 Mbit/s)   Flow 3 egress (mean 10.67 Mbit/s)

Flow 1 (95th percentile 26.91 ms)   Flow 2 (95th percentile 33.08 ms)   Flow 3 (95th percentile 33.98 ms)

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

Start at: 2017-11-30 08:29:12
End at: 2017-11-30 08:29:42
Local clock offset: 0.167 ms
Remote clock offset: -3.272 ms

# Below is generated by plot.py at 2017-11-30 08:42:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.82 Mbit/s
95th percentile per-packet one-way delay: 24.498 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 5.58 Mbit/s
95th percentile per-packet one-way delay: 20.928 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 7.21 Mbit/s
95th percentile per-packet one-way delay: 23.788 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 8.97 Mbit/s
95th percentile per-packet one-way delay: 39.718 ms
Loss rate: 0.00%
```

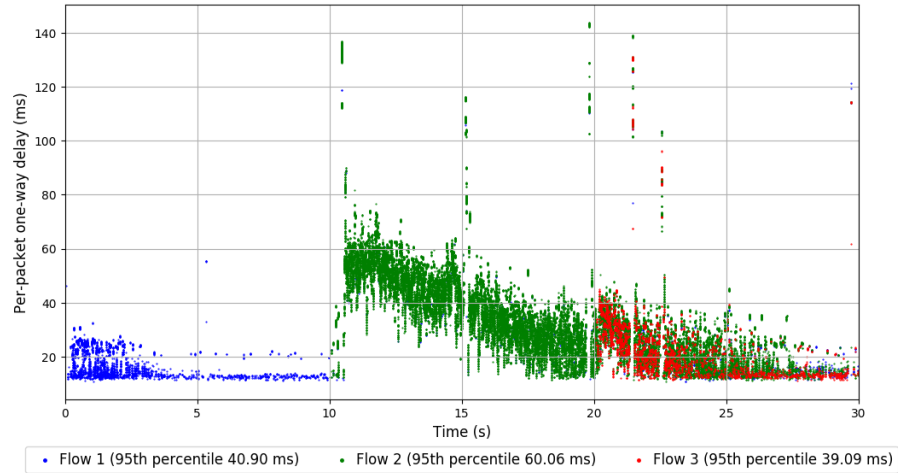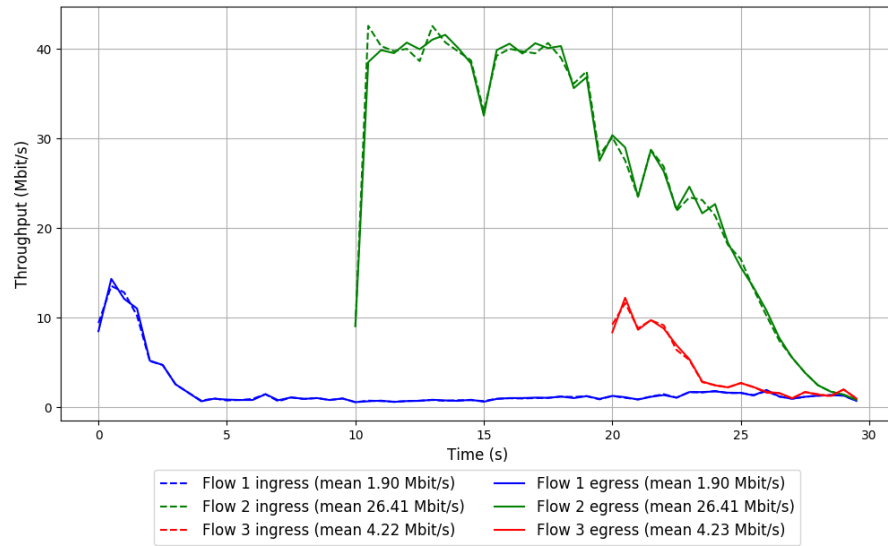Run 3: Report of TaoVA-100x — Data Link

```
Run 1: Statistics of TCP Vegas

Start at: 2017-11-30 07:59:08
End at: 2017-11-30 07:59:38
Local clock offset: 0.066 ms
Remote clock offset: -3.265 ms

# Below is generated by plot.py at 2017-11-30 08:42:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 20.91 Mbit/s
95th percentile per-packet one-way delay: 59.290 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.90 Mbit/s
95th percentile per-packet one-way delay: 40.901 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 26.41 Mbit/s
95th percentile per-packet one-way delay: 60.058 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 4.23 Mbit/s
95th percentile per-packet one-way delay: 39.093 ms
Loss rate: 0.00%
```

Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2017-11-30 08:15:56
End at: 2017-11-30 08:16:26
Local clock offset: 0.031 ms
Remote clock offset: -3.483 ms


# Below is generated by plot.py at 2017-11-30 08:43:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 41.78 Mbit/s
95th percentile per-packet one-way delay: 124.145 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 37.81 Mbit/s
95th percentile per-packet one-way delay: 127.454 ms
Loss rate: 0.54%
-- Flow 2:
Average throughput: 3.85 Mbit/s
95th percentile per-packet one-way delay: 75.472 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 4.28 Mbit/s
95th percentile per-packet one-way delay: 42.121 ms
Loss rate: 0.00%
```
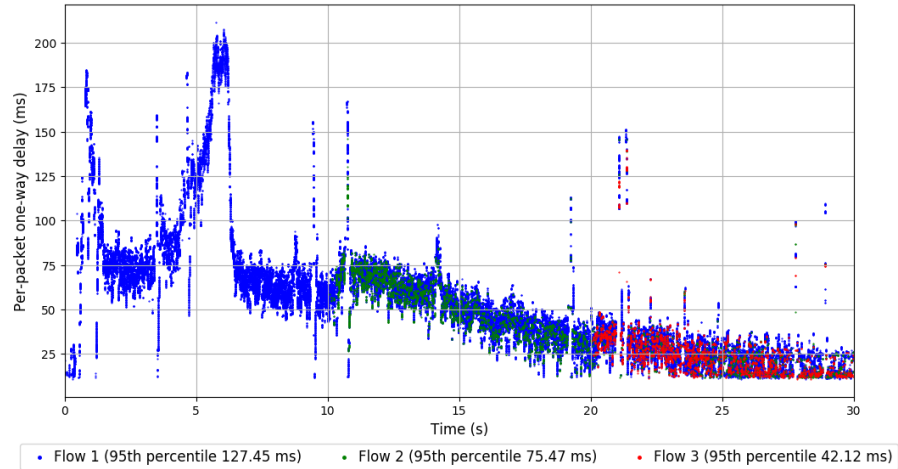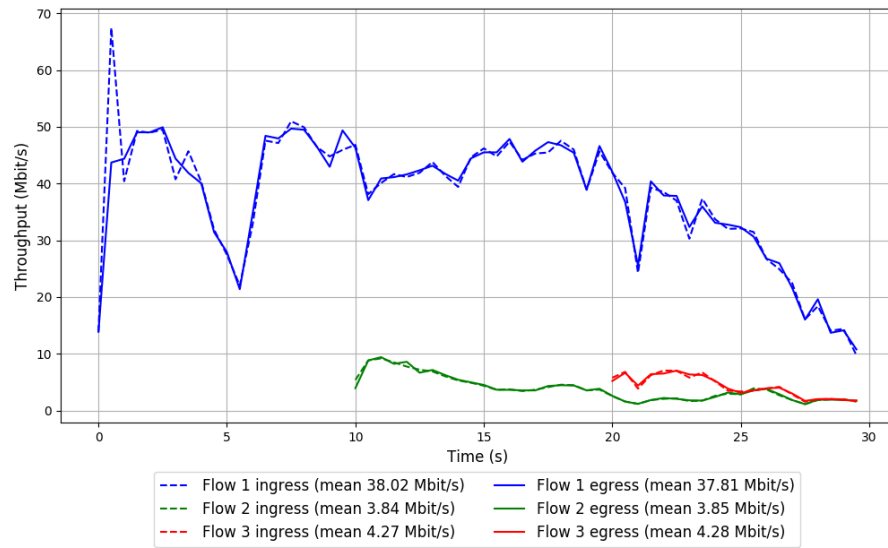
Run 2: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 38.02 Mbit/s) --- Flow 1 egress (mean 37.81 Mbit/s)
Flow 2 ingress (mean 3.84 Mbit/s) --- Flow 2 egress (mean 3.85 Mbit/s)
Flow 3 ingress (mean 4.27 Mbit/s) --- Flow 3 egress (mean 4.28 Mbit/s)

Flow 1 (95th percentile 127.45 ms)   Flow 2 (95th percentile 75.47 ms)   Flow 3 (95th percentile 42.12 ms)
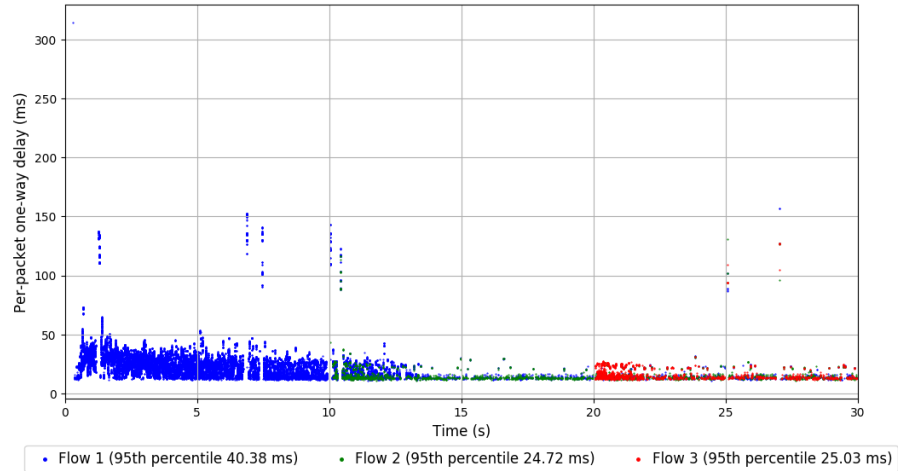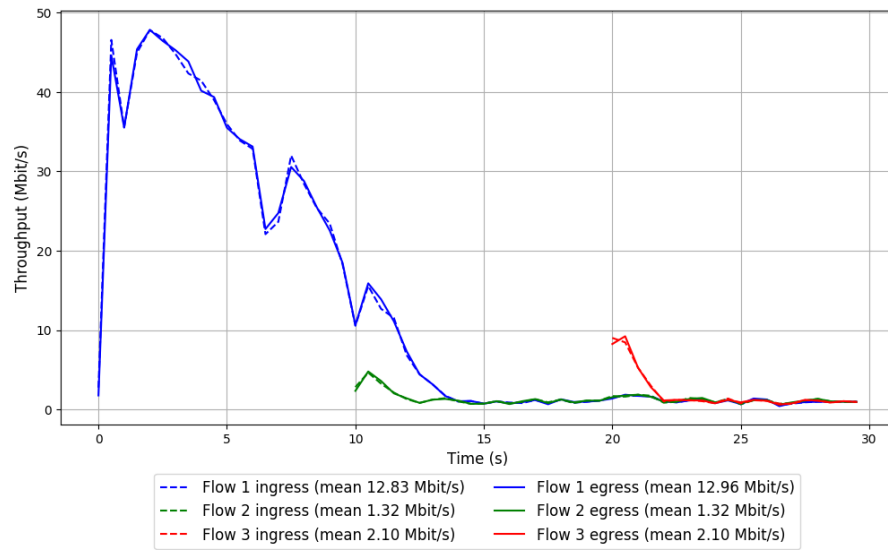
```
Run 3: Statistics of TCP Vegas

Start at: 2017-11-30 08:32:47
End at: 2017-11-30 08:33:17
Local clock offset: 0.131 ms
Remote clock offset: -3.299 ms


# Below is generated by plot.py at 2017-11-30 08:43:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.54 Mbit/s
95th percentile per-packet one-way delay: 39.892 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 12.96 Mbit/s
95th percentile per-packet one-way delay: 40.383 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 24.721 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 2.10 Mbit/s
95th percentile per-packet one-way delay: 25.026 ms
Loss rate: 0.00%
```
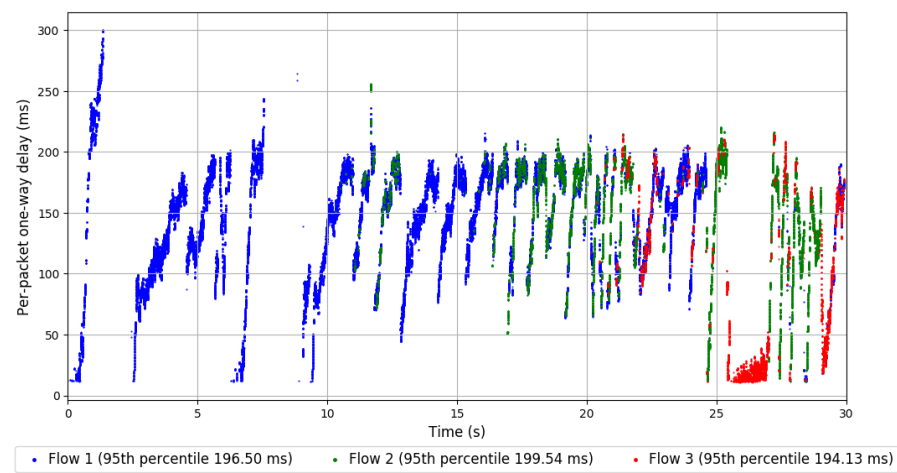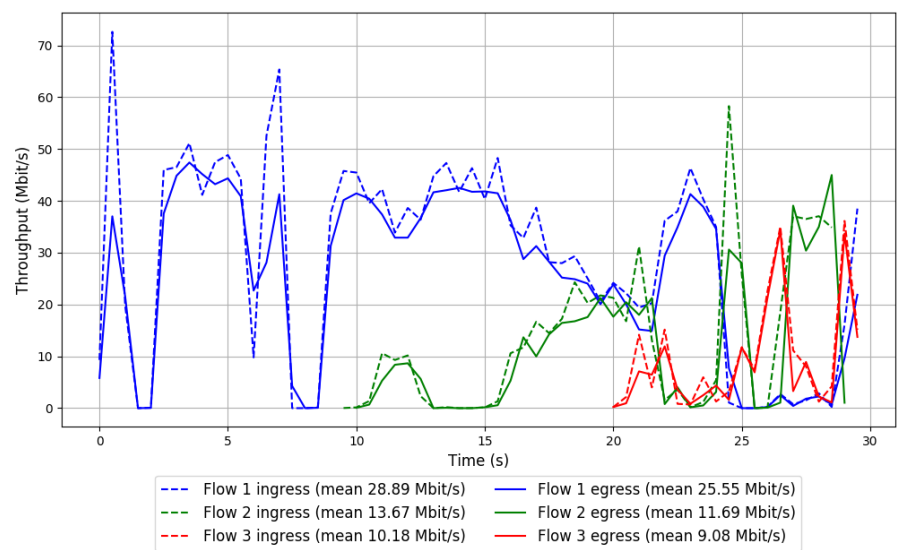
Run 3: Report of TCP Vegas — Data Link

- - - Flow 1 ingress (mean 12.83 Mbit/s) —— Flow 1 egress (mean 12.96 Mbit/s)
- - - Flow 2 ingress (mean 1.32 Mbit/s) —— Flow 2 egress (mean 1.32 Mbit/s)
- - - Flow 3 ingress (mean 2.10 Mbit/s) —— Flow 3 egress (mean 2.10 Mbit/s)

- Flow 1 (95th percentile 40.38 ms)   • Flow 2 (95th percentile 24.72 ms)   • Flow 3 (95th percentile 25.03 ms)

```
Run 1: Statistics of Verus

Start at: 2017-11-30 07:54:20
End at: 2017-11-30 07:54:50
Local clock offset: -0.027 ms
Remote clock offset: -3.261 ms

# Below is generated by plot.py at 2017-11-30 08:43:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 35.88 Mbit/s
95th percentile per-packet one-way delay: 197.353 ms
Loss rate: 12.16%
-- Flow 1:
Average throughput: 25.55 Mbit/s
95th percentile per-packet one-way delay: 196.498 ms
Loss rate: 11.54%
-- Flow 2:
Average throughput: 11.69 Mbit/s
95th percentile per-packet one-way delay: 199.539 ms
Loss rate: 14.41%
-- Flow 3:
Average throughput: 9.08 Mbit/s
95th percentile per-packet one-way delay: 194.132 ms
Loss rate: 11.73%
```

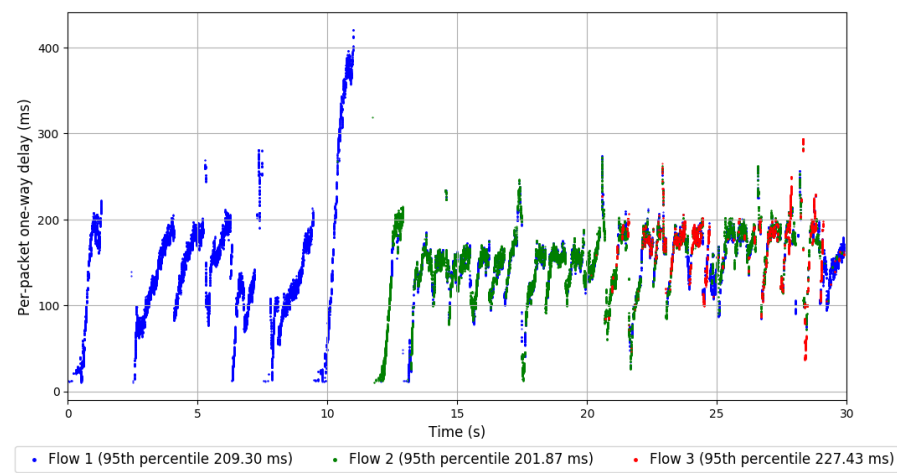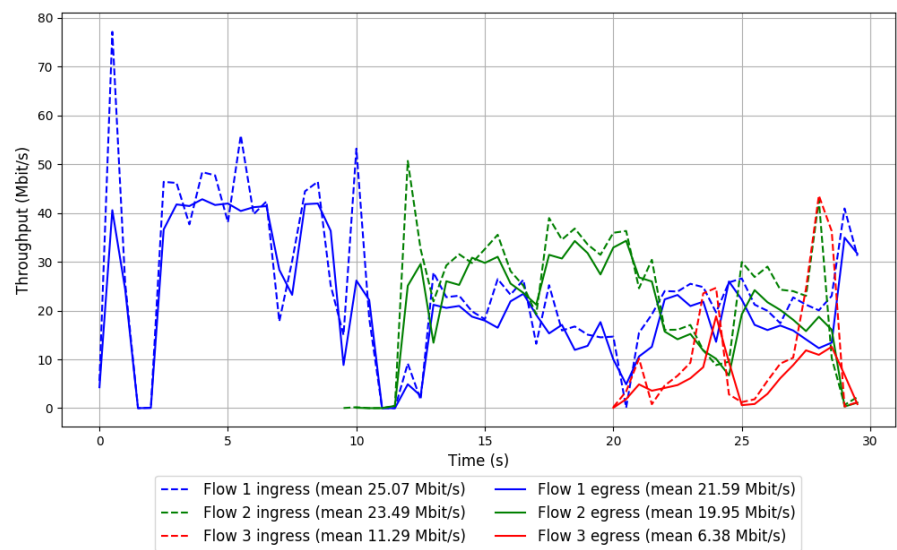Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2017-11-30 08:11:09
End at: 2017-11-30 08:11:39
Local clock offset: 0.057 ms
Remote clock offset: -3.466 ms


# Below is generated by plot.py at 2017-11-30 08:43:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 36.83 Mbit/s
95th percentile per-packet one-way delay: 207.137 ms
Loss rate: 16.94%
-- Flow 1:
Average throughput: 21.59 Mbit/s
95th percentile per-packet one-way delay: 209.302 ms
Loss rate: 13.86%
-- Flow 2:
Average throughput: 19.95 Mbit/s
95th percentile per-packet one-way delay: 201.874 ms
Loss rate: 15.60%
-- Flow 3:
Average throughput: 6.38 Mbit/s
95th percentile per-packet one-way delay: 227.427 ms
Loss rate: 43.52%
```
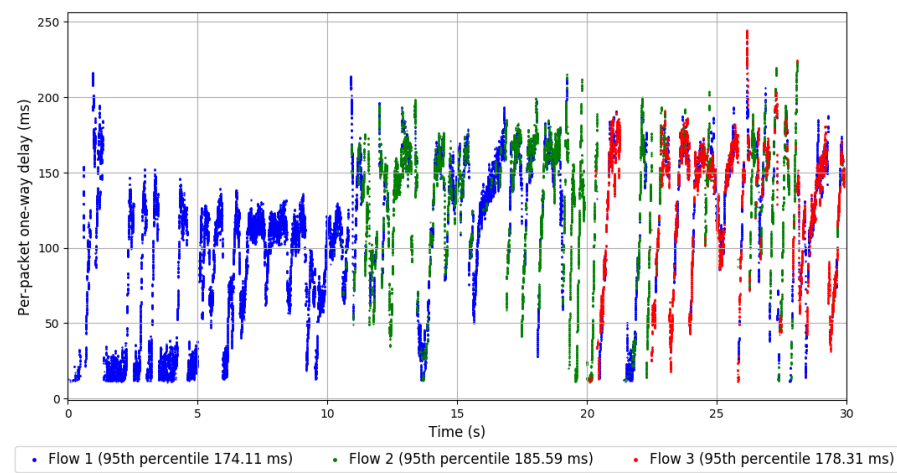
Run 2: Report of Verus — Data Link

- - - Flow 1 ingress (mean 25.07 Mbit/s) —— Flow 1 egress (mean 21.59 Mbit/s)
- - - Flow 2 ingress (mean 23.49 Mbit/s) —— Flow 2 egress (mean 19.95 Mbit/s)
- - - Flow 3 ingress (mean 11.29 Mbit/s) —— Flow 3 egress (mean 6.38 Mbit/s)

• Flow 1 (95th percentile 209.30 ms)   • Flow 2 (95th percentile 201.87 ms)   • Flow 3 (95th percentile 227.43 ms)
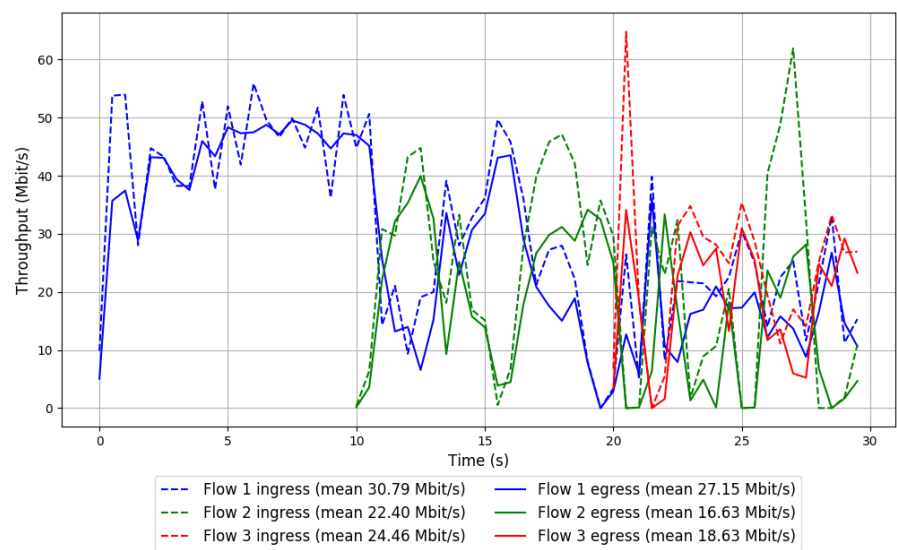
67

```
Run 3: Statistics of Verus

Start at: 2017-11-30 08:27:59
End at: 2017-11-30 08:28:29
Local clock offset: 0.14 ms
Remote clock offset: -3.279 ms


# Below is generated by plot.py at 2017-11-30 08:43:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 44.27 Mbit/s
95th percentile per-packet one-way delay: 177.916 ms
Loss rate: 17.49%
-- Flow 1:
Average throughput: 27.15 Mbit/s
95th percentile per-packet one-way delay: 174.110 ms
Loss rate: 11.61%
-- Flow 2:
Average throughput: 16.63 Mbit/s
95th percentile per-packet one-way delay: 185.590 ms
Loss rate: 26.24%
-- Flow 3:
Average throughput: 18.63 Mbit/s
95th percentile per-packet one-way delay: 178.306 ms
Loss rate: 23.77%
```

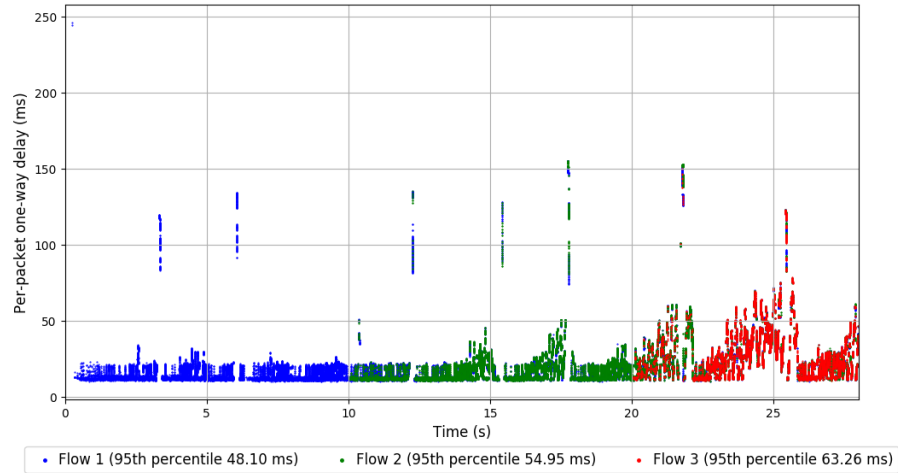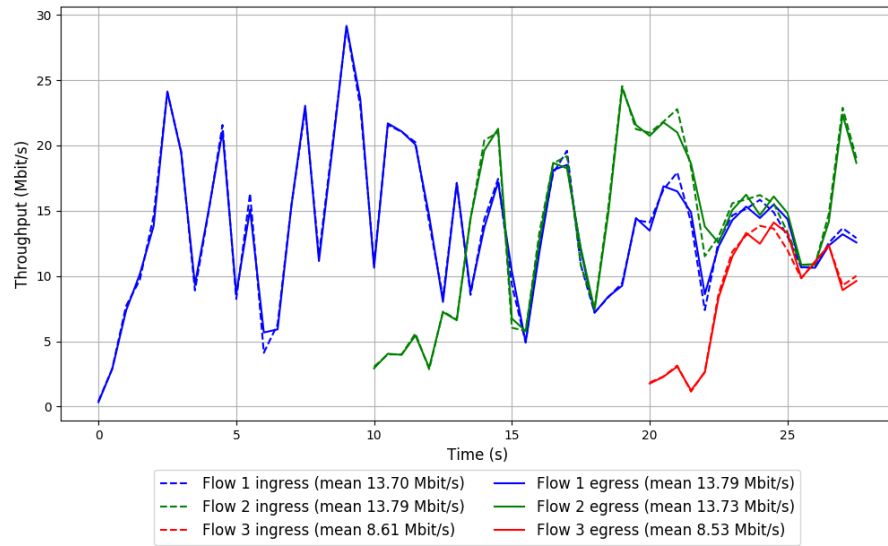Run 3: Report of Verus — Data Link

```
Run 1: Statistics of Copa

Start at: 2017-11-30 07:49:31
End at: 2017-11-30 07:50:01
Local clock offset: -0.0 ms
Remote clock offset: -3.192 ms

# Below is generated by plot.py at 2017-11-30 08:43:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 25.13 Mbit/s
95th percentile per-packet one-way delay: 54.180 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 13.79 Mbit/s
95th percentile per-packet one-way delay: 48.099 ms
Loss rate: 0.16%
-- Flow 2:
Average throughput: 13.73 Mbit/s
95th percentile per-packet one-way delay: 54.952 ms
Loss rate: 0.34%
-- Flow 3:
Average throughput: 8.53 Mbit/s
95th percentile per-packet one-way delay: 63.255 ms
Loss rate: 0.74%
```
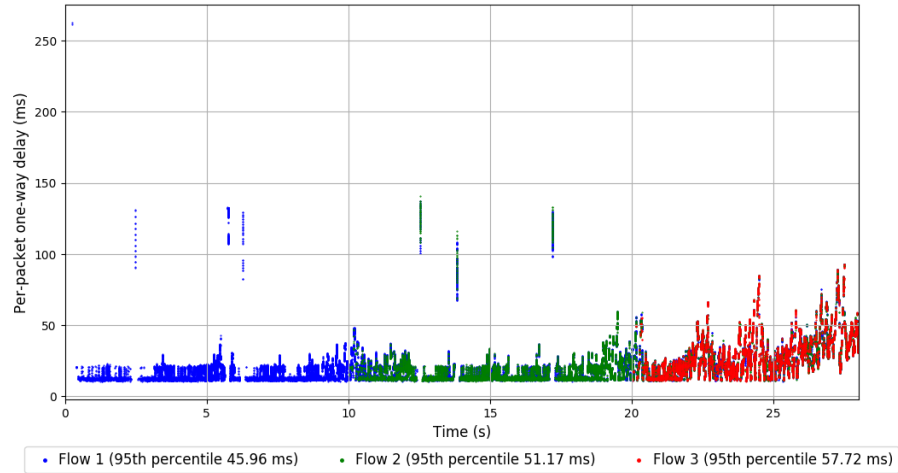
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 13.70 Mbit/s) --- Flow 1 egress (mean 13.79 Mbit/s) —
Flow 2 ingress (mean 13.79 Mbit/s) --- Flow 2 egress (mean 13.73 Mbit/s) —
Flow 3 ingress (mean 8.61 Mbit/s) --- Flow 3 egress (mean 8.53 Mbit/s) —

Flow 1 (95th percentile 48.10 ms)   Flow 2 (95th percentile 54.95 ms)   Flow 3 (95th percentile 63.26 ms)
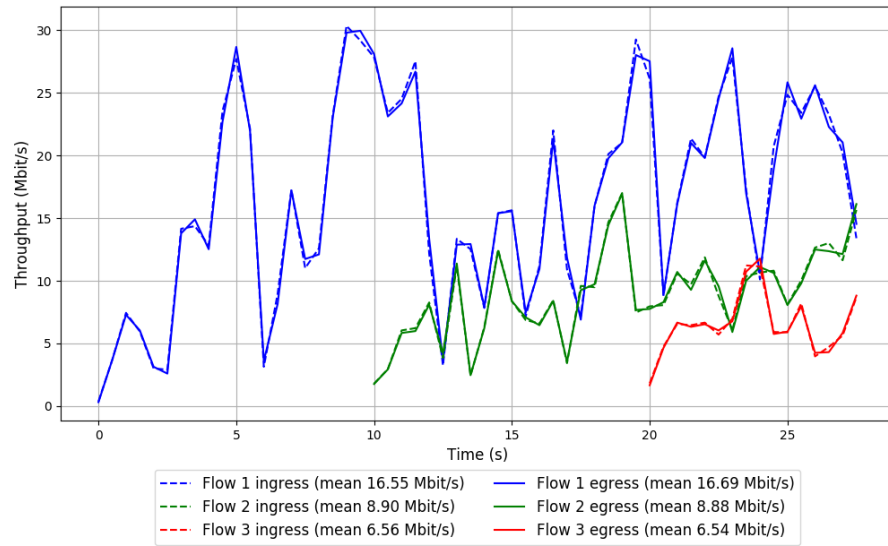
71

```
Run 2: Statistics of Copa

Start at: 2017-11-30 08:06:19
End at: 2017-11-30 08:06:49
Local clock offset: -0.025 ms
Remote clock offset: -3.431 ms


# Below is generated by plot.py at 2017-11-30 08:43:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 24.32 Mbit/s
95th percentile per-packet one-way delay: 49.097 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 16.69 Mbit/s
95th percentile per-packet one-way delay: 45.957 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 8.88 Mbit/s
95th percentile per-packet one-way delay: 51.175 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 6.54 Mbit/s
95th percentile per-packet one-way delay: 57.722 ms
Loss rate: 0.27%
```
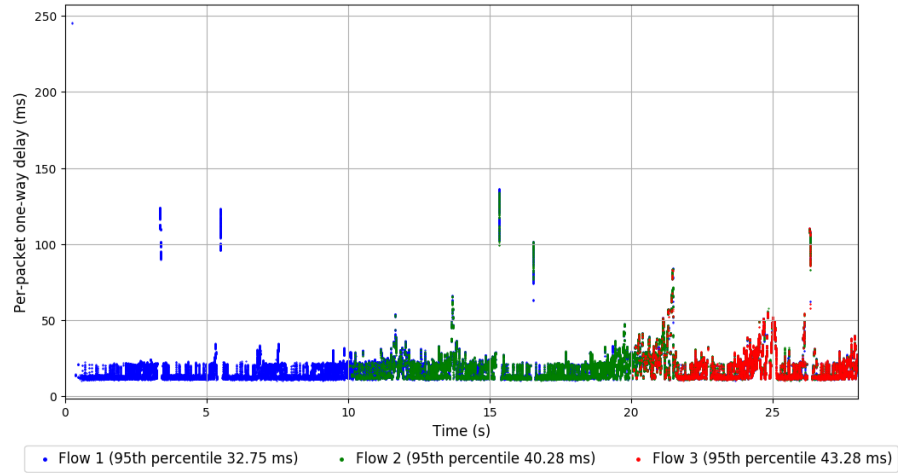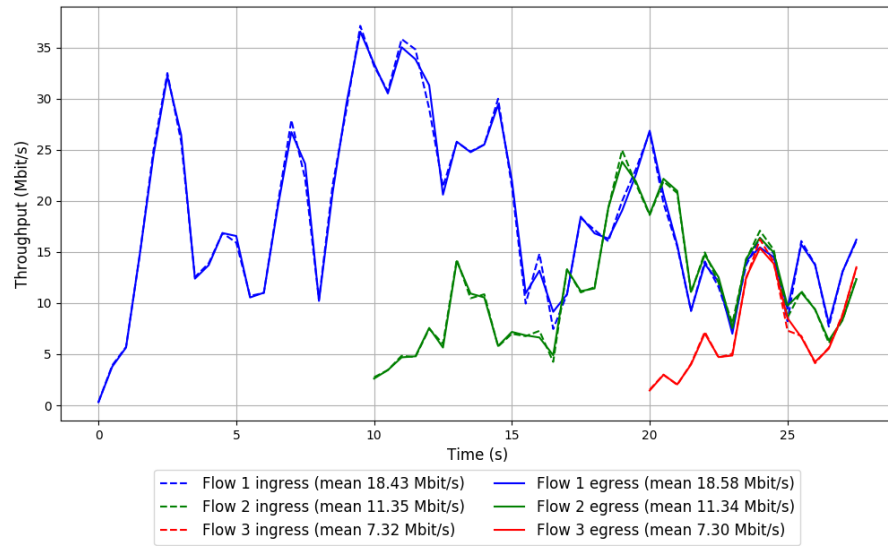
Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2017-11-30 08:23:08
End at: 2017-11-30 08:23:38
Local clock offset: 0.104 ms
Remote clock offset: -3.374 ms


# Below is generated by plot.py at 2017-11-30 08:43:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 28.02 Mbit/s
95th percentile per-packet one-way delay: 36.894 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 18.58 Mbit/s
95th percentile per-packet one-way delay: 32.751 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 11.34 Mbit/s
95th percentile per-packet one-way delay: 40.276 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 7.30 Mbit/s
95th percentile per-packet one-way delay: 43.277 ms
Loss rate: 0.20%
```
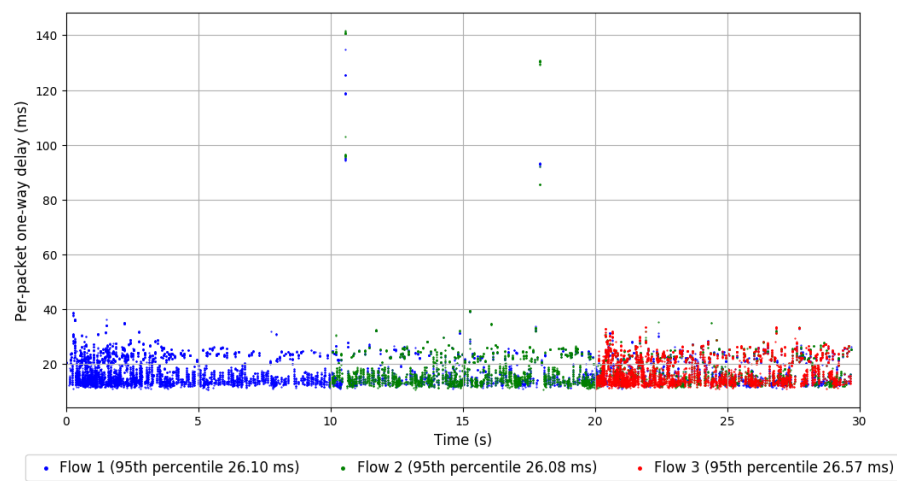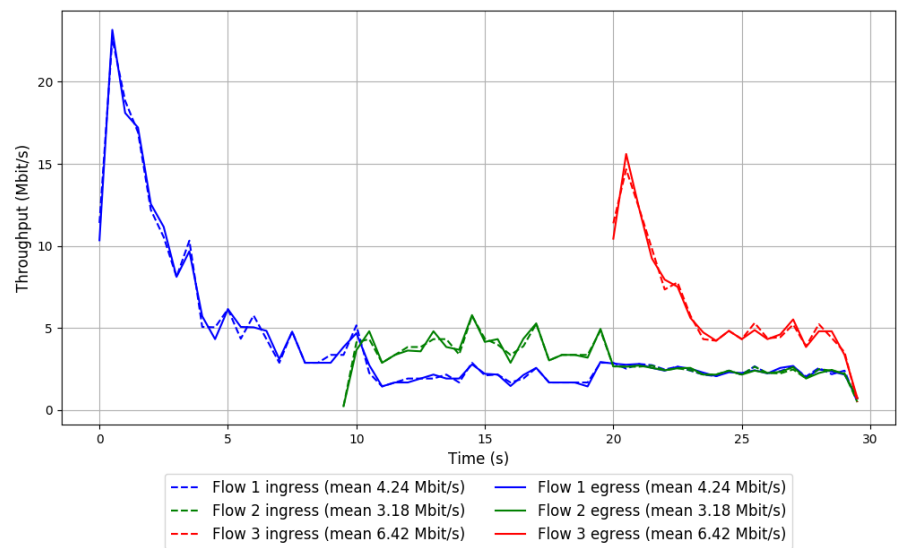
Run 3: Report of Copa — Data Link

```
Run 1: Statistics of Indigo

Start at: 2017-11-30 08:02:42
End at: 2017-11-30 08:03:12
Local clock offset: -0.027 ms
Remote clock offset: -3.364 ms

# Below is generated by plot.py at 2017-11-30 08:43:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.44 Mbit/s
95th percentile per-packet one-way delay: 26.210 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 4.24 Mbit/s
95th percentile per-packet one-way delay: 26.103 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 3.18 Mbit/s
95th percentile per-packet one-way delay: 26.083 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 6.42 Mbit/s
95th percentile per-packet one-way delay: 26.567 ms
Loss rate: 0.00%
```
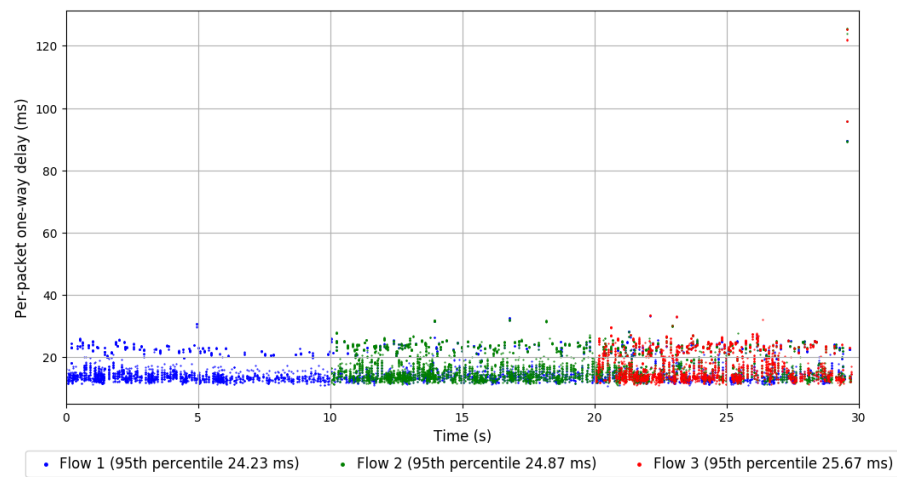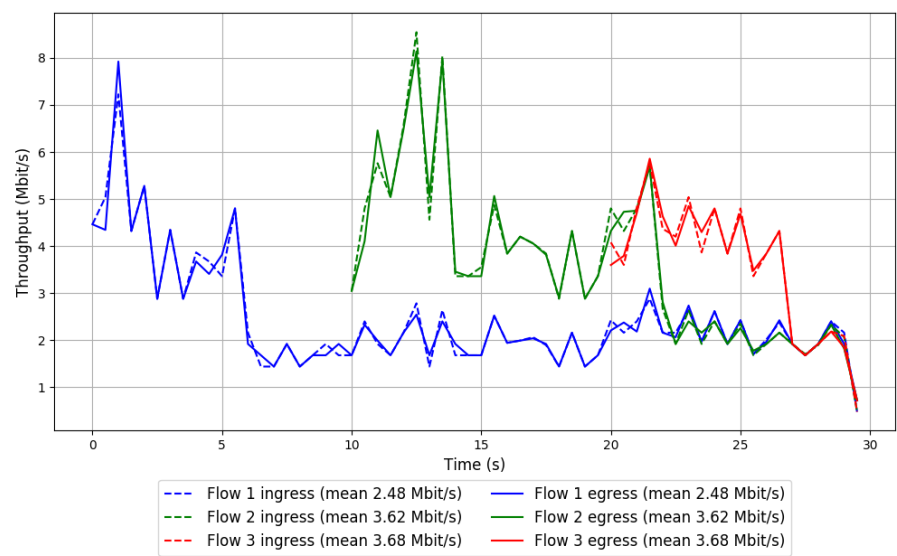
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2017-11-30 08:19:31
End at: 2017-11-30 08:20:01
Local clock offset: 0.061 ms
Remote clock offset: -3.493 ms

# Below is generated by plot.py at 2017-11-30 08:43:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 6.07 Mbit/s
95th percentile per-packet one-way delay: 24.824 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.48 Mbit/s
95th percentile per-packet one-way delay: 24.230 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 3.62 Mbit/s
95th percentile per-packet one-way delay: 24.873 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 3.68 Mbit/s
95th percentile per-packet one-way delay: 25.668 ms
Loss rate: 0.00%
```

Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2017-11-30 08:36:22
End at: 2017-11-30 08:36:52
Local clock offset: 0.165 ms
Remote clock offset: -3.29 ms


# Below is generated by plot.py at 2017-11-30 08:43:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 9.90 Mbit/s
95th percentile per-packet one-way delay: 30.027 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.18 Mbit/s
95th percentile per-packet one-way delay: 25.926 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 6.66 Mbit/s
95th percentile per-packet one-way delay: 29.125 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 10.15 Mbit/s
95th percentile per-packet one-way delay: 31.833 ms
Loss rate: 0.00%
```
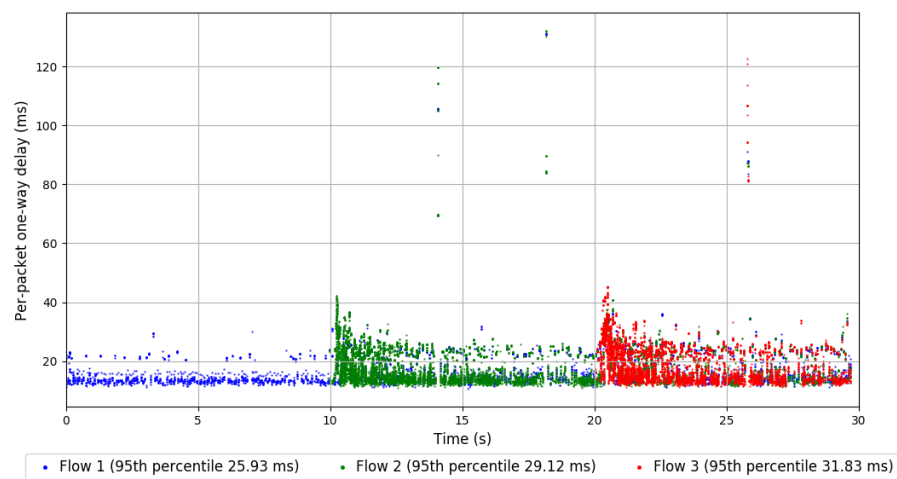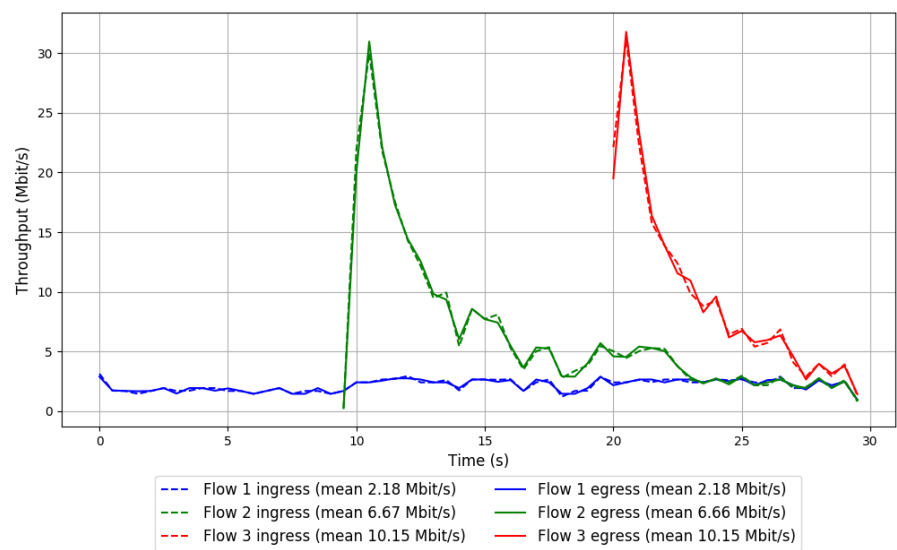
Run 3: Report of Indigo — Data Link

- - - Flow 1 ingress (mean 2.18 Mbit/s) — Flow 1 egress (mean 2.18 Mbit/s)
- - - Flow 2 ingress (mean 6.67 Mbit/s) — Flow 2 egress (mean 6.66 Mbit/s)
- - - Flow 3 ingress (mean 10.15 Mbit/s) — Flow 3 egress (mean 10.15 Mbit/s)

- Flow 1 (95th percentile 25.93 ms)   - Flow 2 (95th percentile 29.12 ms)   - Flow 3 (95th percentile 31.83 ms)
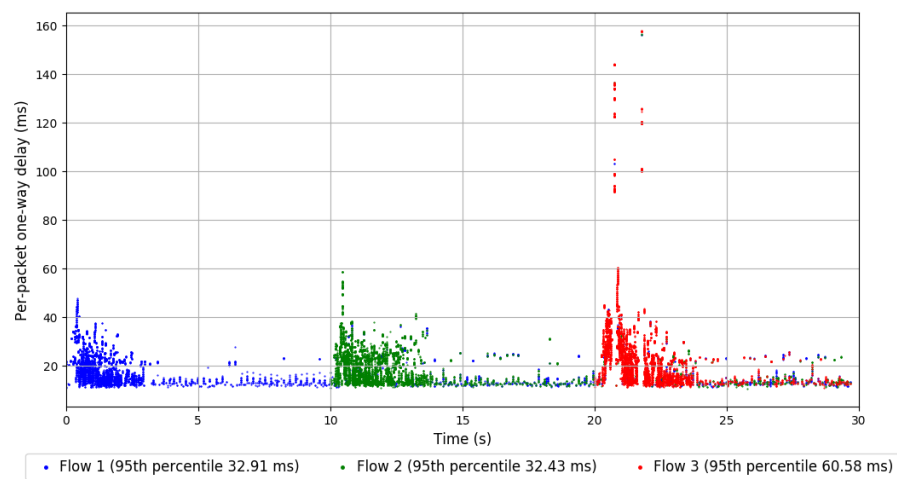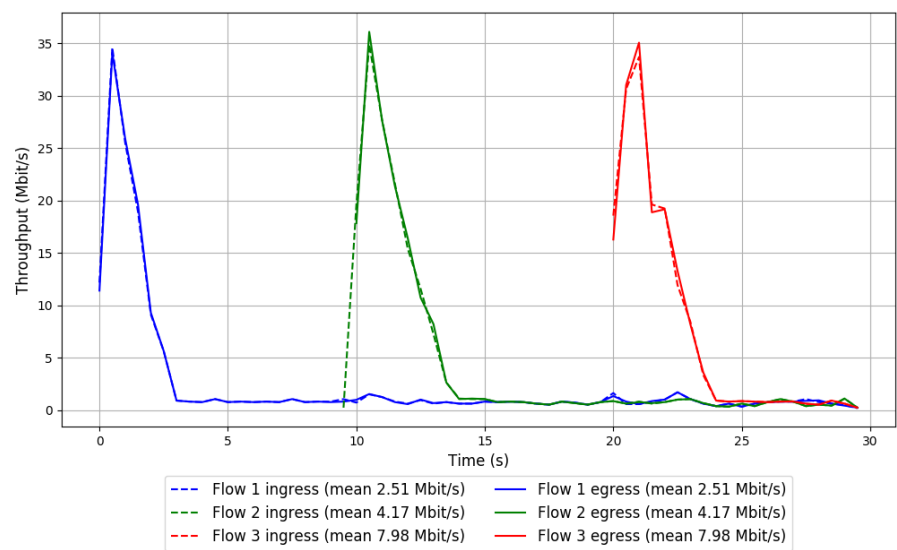
81

```
Run 1: Statistics of Indigo-calib

Start at: 2017-11-30 08:00:20
End at: 2017-11-30 08:00:50
Local clock offset: 0.07 ms
Remote clock offset: -3.303 ms


# Below is generated by plot.py at 2017-11-30 08:43:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 7.87 Mbit/s
95th percentile per-packet one-way delay: 37.952 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.51 Mbit/s
95th percentile per-packet one-way delay: 32.915 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 4.17 Mbit/s
95th percentile per-packet one-way delay: 32.432 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 7.98 Mbit/s
95th percentile per-packet one-way delay: 60.583 ms
Loss rate: 0.00%
```

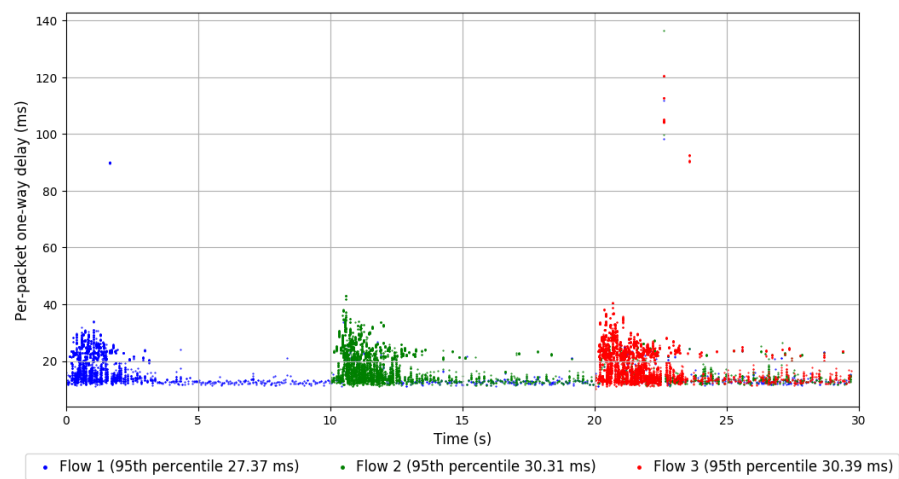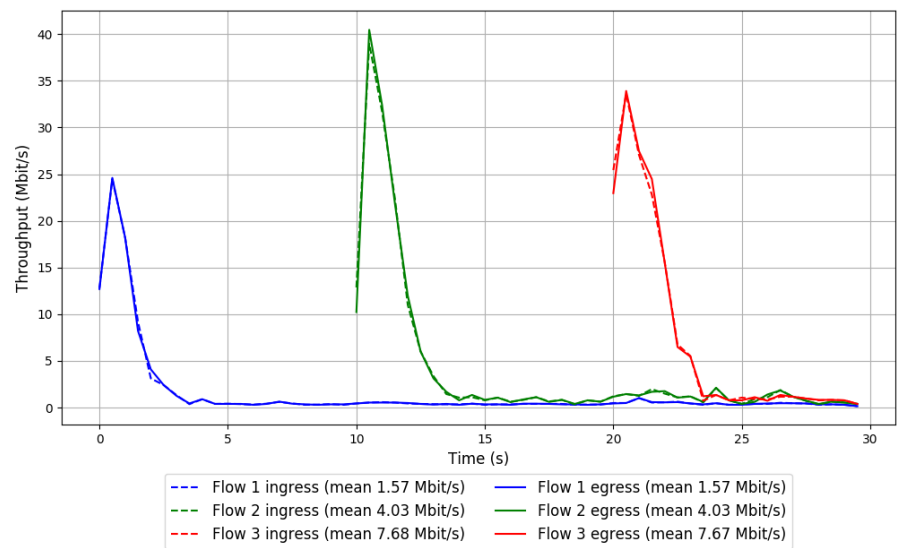Run 1: Report of Indigo-calib — Data Link

```
Run 2: Statistics of Indigo-calib

Start at: 2017-11-30 08:17:09
End at: 2017-11-30 08:17:39
Local clock offset: 0.047 ms
Remote clock offset: -3.519 ms


# Below is generated by plot.py at 2017-11-30 08:43:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 6.74 Mbit/s
95th percentile per-packet one-way delay: 29.542 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.57 Mbit/s
95th percentile per-packet one-way delay: 27.368 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 4.03 Mbit/s
95th percentile per-packet one-way delay: 30.309 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 7.67 Mbit/s
95th percentile per-packet one-way delay: 30.385 ms
Loss rate: 0.00%
```

Run 2: Report of Indigo-calib — Data Link

Flow 1 ingress (mean 1.57 Mbit/s) --- Flow 1 egress (mean 1.57 Mbit/s)
Flow 2 ingress (mean 4.03 Mbit/s) --- Flow 2 egress (mean 4.03 Mbit/s)
Flow 3 ingress (mean 7.68 Mbit/s) --- Flow 3 egress (mean 7.67 Mbit/s)

Flow 1 (95th percentile 27.37 ms) · Flow 2 (95th percentile 30.31 ms) · Flow 3 (95th percentile 30.39 ms)

```
Run 3: Statistics of Indigo-calib

Start at: 2017-11-30 08:33:58
End at: 2017-11-30 08:34:28
Local clock offset: 0.163 ms
Remote clock offset: -3.385 ms


# Below is generated by plot.py at 2017-11-30 08:43:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.74 Mbit/s
95th percentile per-packet one-way delay: 32.480 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 3.14 Mbit/s
95th percentile per-packet one-way delay: 31.230 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 5.11 Mbit/s
95th percentile per-packet one-way delay: 32.326 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 6.83 Mbit/s
95th percentile per-packet one-way delay: 34.011 ms
Loss rate: 0.00%
```

Run 3: Report of Indigo-calib — Data Link