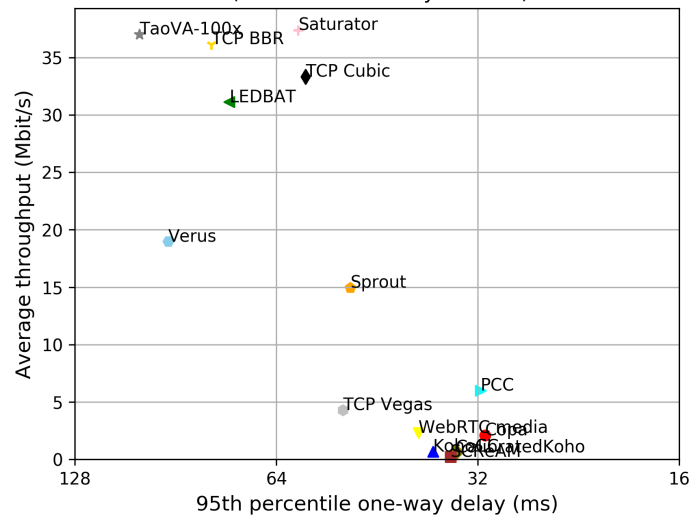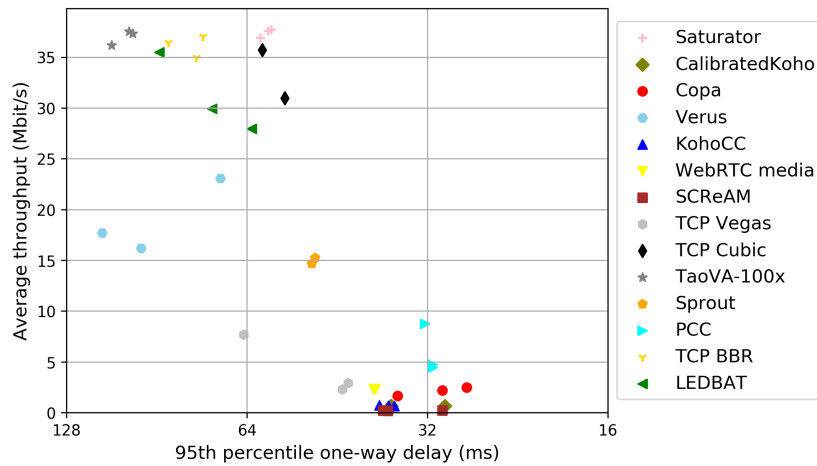**Pantheon Summary** (Generated at Tue, 25 Jul 2017 08:34:34 +0000 with pantheon version `266b116f0817a07d000b4d181ce187fd27d3e654`)

Repeated the test of 15 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

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

NTP offset measured against time.stanford.edu and has been applied to correct the timestamps in logs.

```
git branch: master @ 266b116f0817a07d000b4d181ce187fd27d3e654
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
 M datagrump/sender.cc
third_party/genericCC @ dae96123232f1bcb37725348fa2378691ce26725
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
 M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-stimuli @ fc73a85ca16c34366d1888dc8a0d0d88d4ebf2a7
third_party/pantheon-tunnel @ baf443516dea3eeddeccaf9b916cc313273ca4f4
 M scripts/merge-tunnel-logs
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 Stanford ppp0 to AWS California 1 Ethernet, 3 runs of 30s each per scheme
(mean of all runs by scheme)

Average throughput (Mbit/s)

TaoVA-100x
Saturator
TCP BBR
TCP Cubic
LEDBAT
Verus
Sprout
PCC
TCP Vegas
WebRTC media Copa
KohoCC CalibratedKoho
SCReAM

95th percentile one-way delay (ms)

test from Stanford ppp0 to AWS California 1 Ethernet, 3 runs of 30s each per scheme

Average throughput (Mbit/s)

95th percentile one-way delay (ms)

Marker	Scheme
+	Saturator
◆	CalibratedKoho
●	Copa
●	Verus
▲	KohoCC
▼	WebRTC media
■	SCReAM
●	TCP Vegas
◆	TCP Cubic
★	TaoVA-100x
●	Sprout
▶	PCC
Y	TCP BBR
◀	LEDBAT

scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	3	36.14	80.09	0.34
CalibratedKoho	3	0.64	34.52	0.44
Copa	3	2.10	31.23	0.11
TCP Cubic	3	33.34	57.86	0.28
KohoCC	3	0.69	37.34	0.37
LEDBAT	3	31.12	75.25	0.40
PCC	3	5.99	31.70	0.14
QUIC Cubic	3	nan	nan	nan
Saturator	3	37.38	59.39	0.26
SCReAM	3	0.21	35.17	0.11
Sprout	3	14.96	49.62	1.83
TaoVA-100x	3	37.00	102.55	5.41
TCP Vegas	3	4.30	50.88	0.20
Verus	3	18.99	92.90	74.56
WebRTC media	3	2.32	39.26	0.19

```
Run 1: Statistics of TCP BBR

Start at: Tue, 25 Jul 2017 07:50:11 +0000
End at: Tue, 25 Jul 2017 07:50:41 +0000
Local clock offset: 1.217 ms
Remote clock offset: -3.059 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:24 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 34.97 Mbit/s
95th percentile per-packet one-way delay: 77.790 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 34.97 Mbit/s
95th percentile per-packet one-way delay: 77.790 ms
Loss rate: 0.33%
```
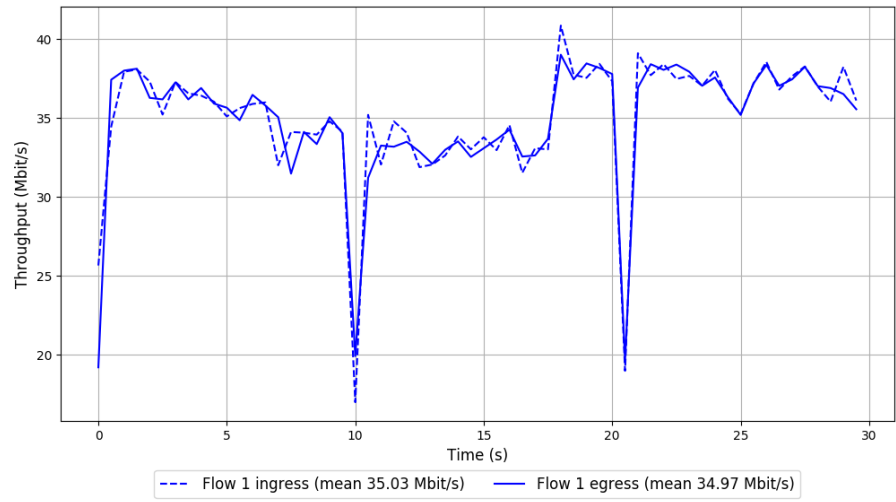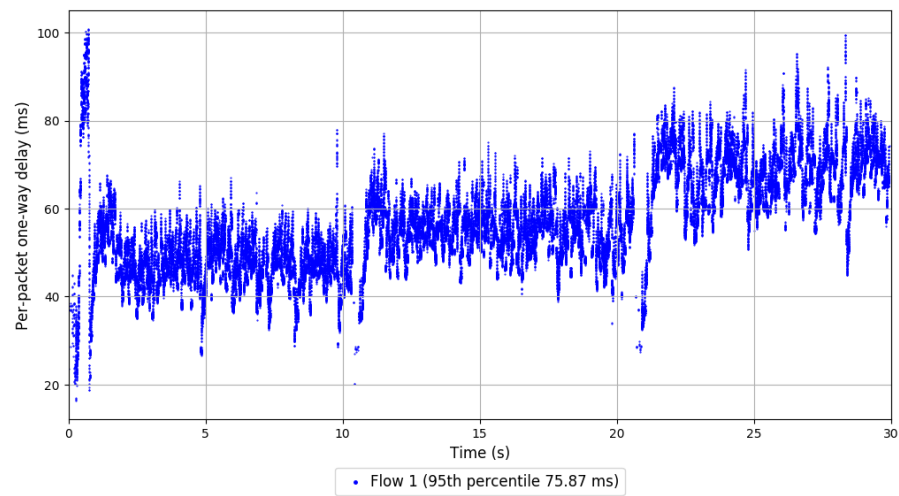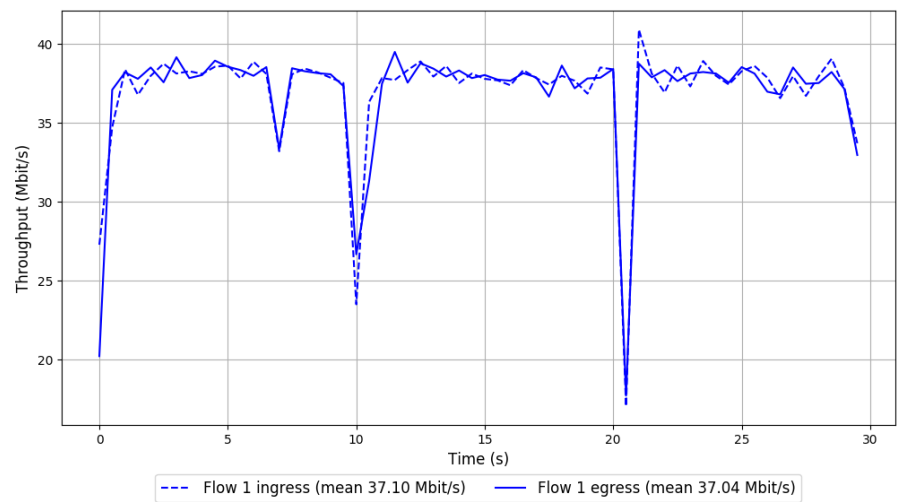
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: Tue, 25 Jul 2017 08:08:02 +0000
End at: Tue, 25 Jul 2017 08:08:32 +0000
Local clock offset: 1.145 ms
Remote clock offset: -2.878 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:24 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 37.04 Mbit/s
95th percentile per-packet one-way delay: 75.869 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 37.04 Mbit/s
95th percentile per-packet one-way delay: 75.869 ms
Loss rate: 0.30%
```
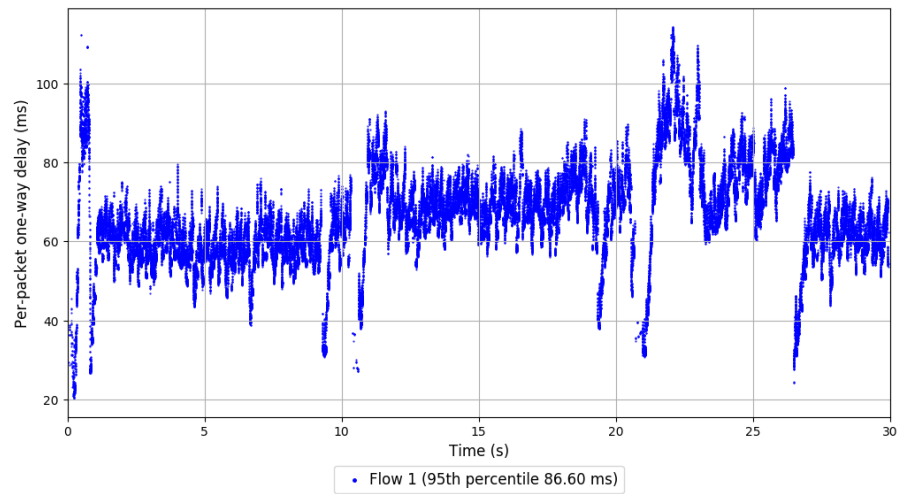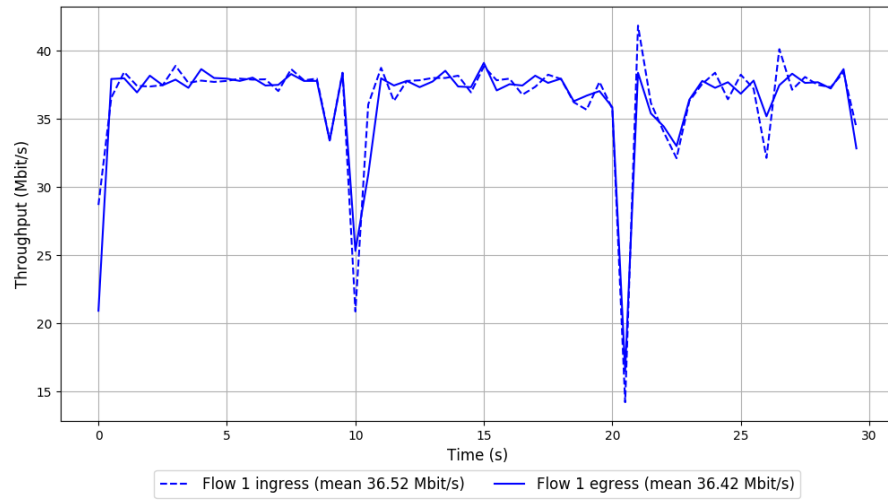
Run 2: Report of TCP BBR — Data Link

Flow 1 ingress (mean 37.10 Mbit/s)   Flow 1 egress (mean 37.04 Mbit/s)

Flow 1 (95th percentile 75.87 ms)

```
Run 3: Statistics of TCP BBR

Start at: Tue, 25 Jul 2017 08:25:49 +0000
End at: Tue, 25 Jul 2017 08:26:19 +0000
Local clock offset: 1.008 ms
Remote clock offset: -2.653 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:31 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 36.42 Mbit/s
95th percentile per-packet one-way delay: 86.600 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 36.42 Mbit/s
95th percentile per-packet one-way delay: 86.600 ms
Loss rate: 0.40%
```
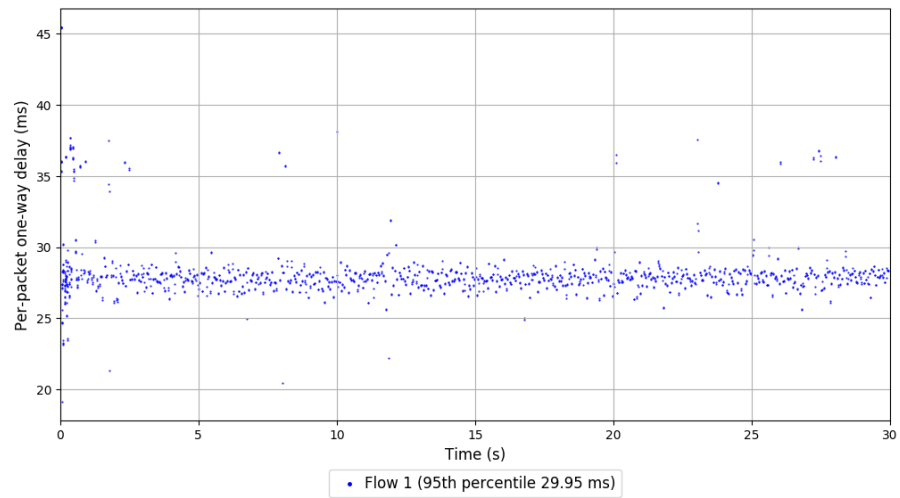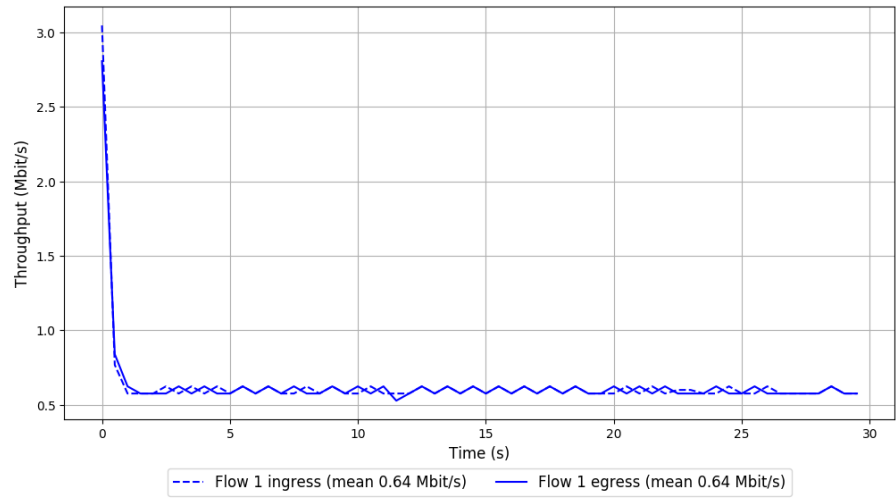
Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 36.52 Mbit/s)   Flow 1 egress (mean 36.42 Mbit/s)

Flow 1 (95th percentile 86.60 ms)

```
Run 1: Statistics of CalibratedKoho

Start at: Tue, 25 Jul 2017 07:37:00 +0000
End at: Tue, 25 Jul 2017 07:37:30 +0000
Local clock offset: 1.18 ms
Remote clock offset: -2.889 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:31 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.64 Mbit/s
95th percentile per-packet one-way delay: 29.955 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 0.64 Mbit/s
95th percentile per-packet one-way delay: 29.955 ms
Loss rate: 0.44%
```
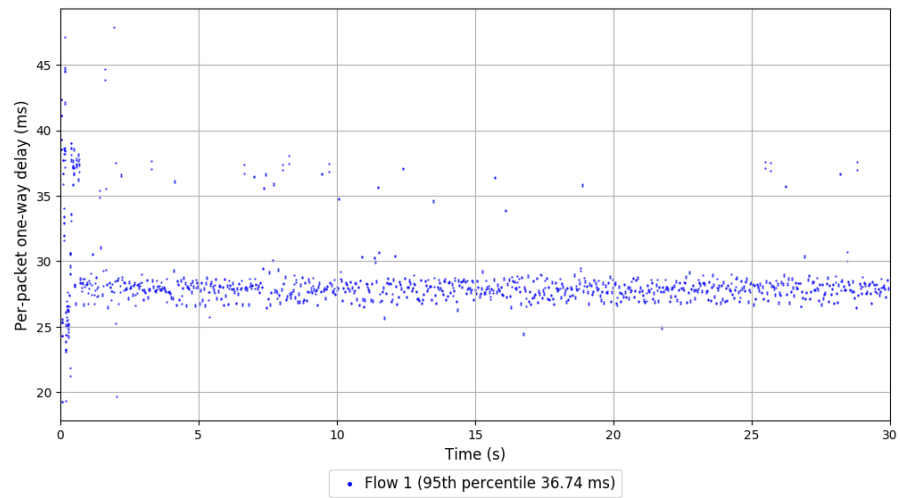
Run 1: Report of CalibratedKoho — Data Link

```
Run 2: Statistics of CalibratedKoho

Start at: Tue, 25 Jul 2017 07:54:55 +0000
End at: Tue, 25 Jul 2017 07:55:25 +0000
Local clock offset: 1.175 ms
Remote clock offset: -3.102 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:31 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.64 Mbit/s
95th percentile per-packet one-way delay: 36.741 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 0.64 Mbit/s
95th percentile per-packet one-way delay: 36.741 ms
Loss rate: 0.50%
```
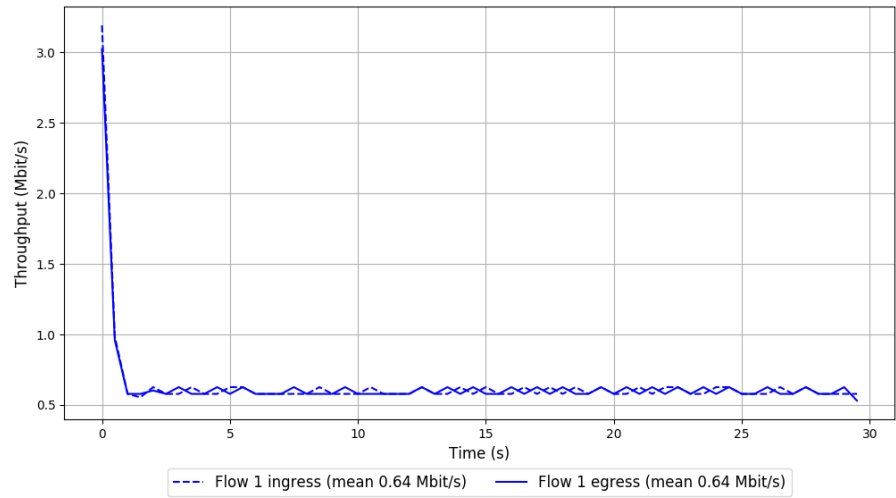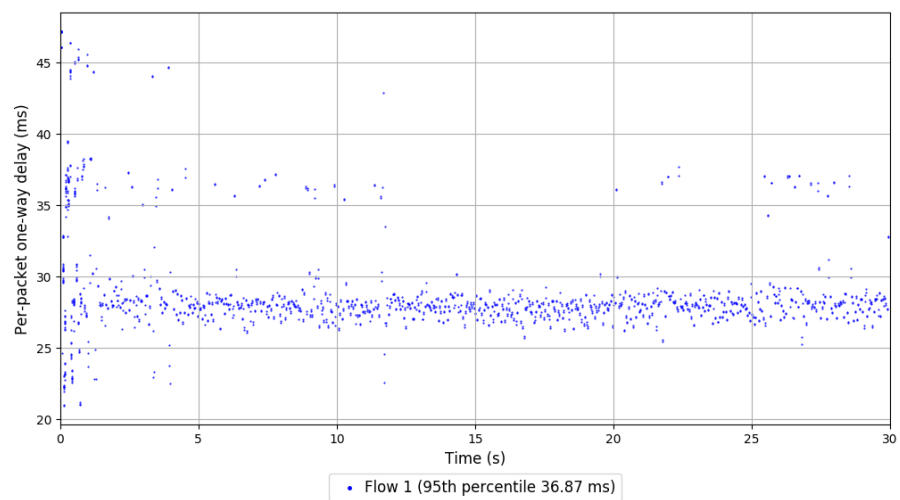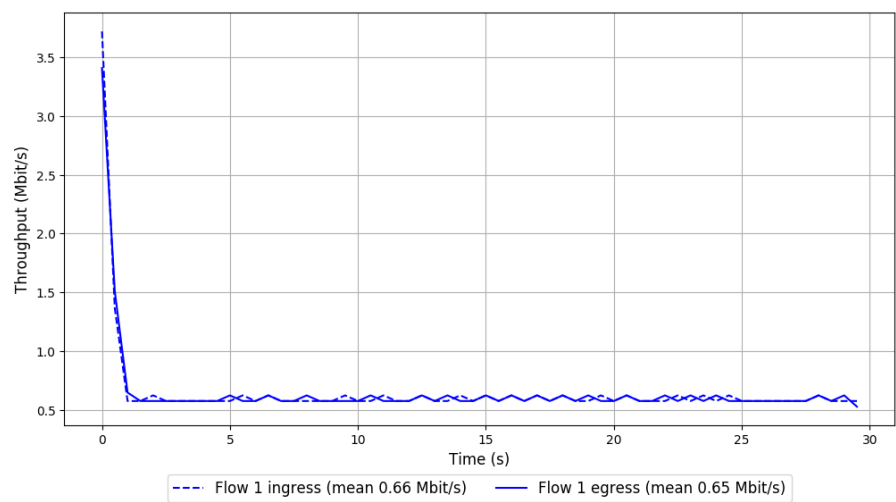
Run 2: Report of CalibratedKoho — Data Link

Flow 1 ingress (mean 0.64 Mbit/s)   Flow 1 egress (mean 0.64 Mbit/s)

Flow 1 (95th percentile 36.74 ms)

```
Run 3: Statistics of CalibratedKoho

Start at: Tue, 25 Jul 2017 08:12:45 +0000
End at: Tue, 25 Jul 2017 08:13:15 +0000
Local clock offset: 1.111 ms
Remote clock offset: -2.826 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:31 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 36.865 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 36.865 ms
Loss rate: 0.37%
```
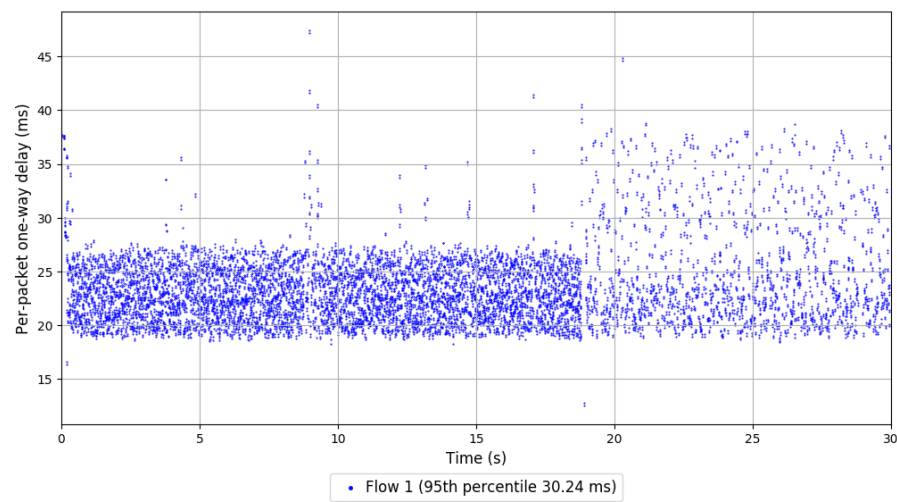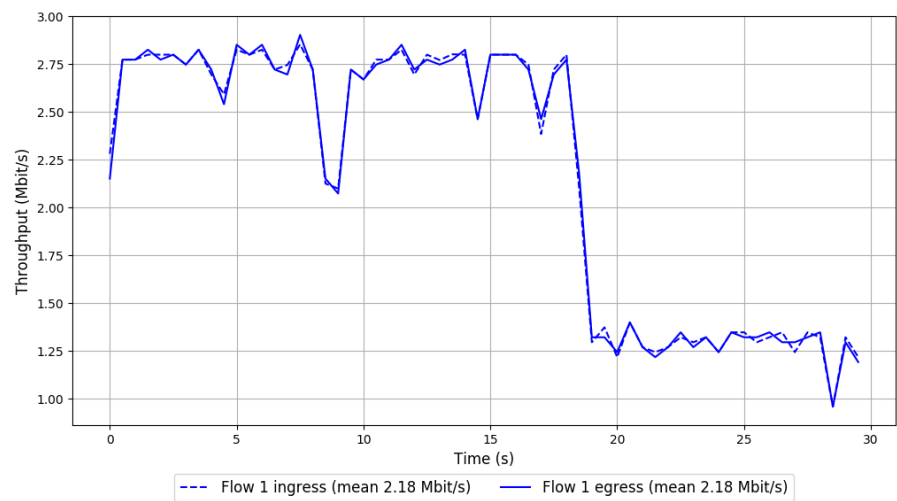
Run 3: Report of CalibratedKoho — Data Link

Flow 1 ingress (mean 0.66 Mbit/s) ---- Flow 1 egress (mean 0.65 Mbit/s)

Flow 1 (95th percentile 36.87 ms)

```
Run 1: Statistics of Copa

Start at: Tue, 25 Jul 2017 07:51:23 +0000
End at: Tue, 25 Jul 2017 07:51:53 +0000
Local clock offset: 1.174 ms
Remote clock offset: -2.995 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:31 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.18 Mbit/s
95th percentile per-packet one-way delay: 30.239 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 2.18 Mbit/s
95th percentile per-packet one-way delay: 30.239 ms
Loss rate: 0.08%
```
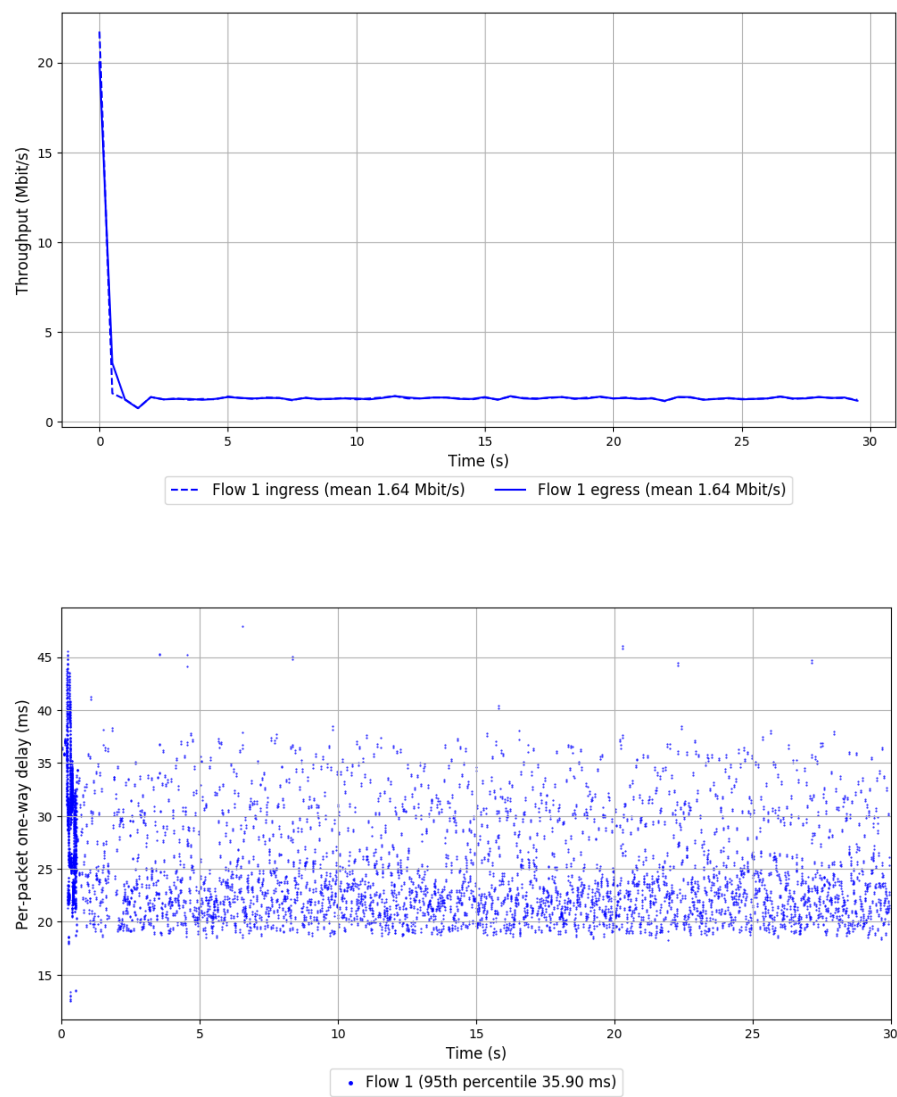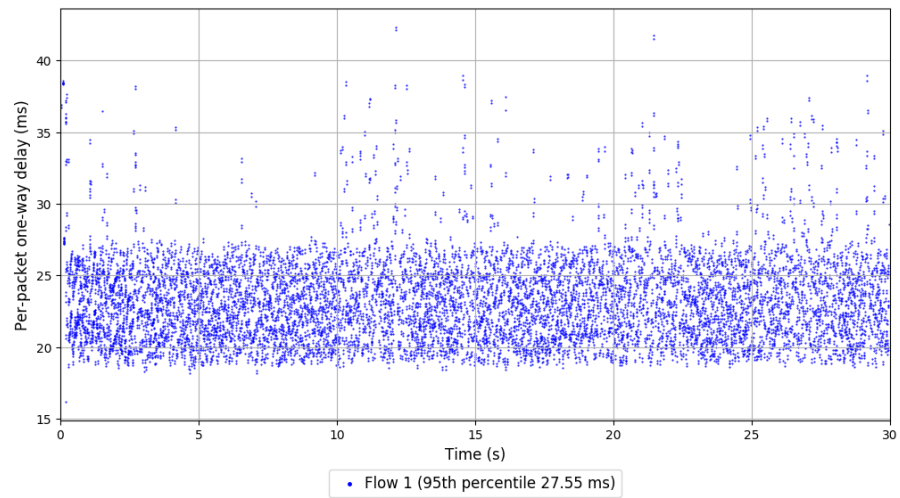
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 2.18 Mbit/s) --- Flow 1 egress (mean 2.18 Mbit/s)

Flow 1 (95th percentile 30.24 ms)

```
Run 2: Statistics of Copa

Start at: Tue, 25 Jul 2017 08:09:14 +0000
End at: Tue, 25 Jul 2017 08:09:44 +0000
Local clock offset: 1.059 ms
Remote clock offset: -2.872 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:31 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.64 Mbit/s
95th percentile per-packet one-way delay: 35.895 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 1.64 Mbit/s
95th percentile per-packet one-way delay: 35.895 ms
Loss rate: 0.11%
```
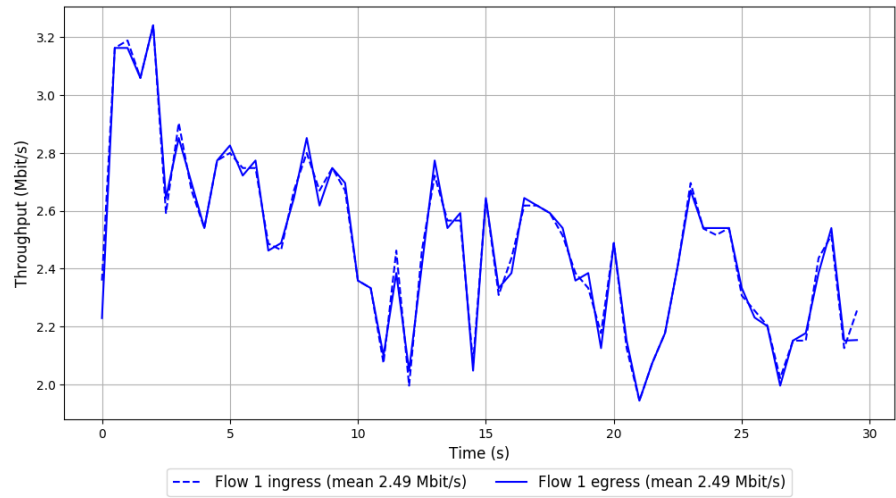
Run 2: Report of Copa — Data Link

Flow 1 ingress (mean 1.64 Mbit/s)   Flow 1 egress (mean 1.64 Mbit/s)

Flow 1 (95th percentile 35.90 ms)

```
Run 3: Statistics of Copa

Start at: Tue, 25 Jul 2017 08:27:01 +0000
End at: Tue, 25 Jul 2017 08:27:31 +0000
Local clock offset: 0.921 ms
Remote clock offset: -2.641 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:31 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.49 Mbit/s
95th percentile per-packet one-way delay: 27.547 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 2.49 Mbit/s
95th percentile per-packet one-way delay: 27.547 ms
Loss rate: 0.14%
```
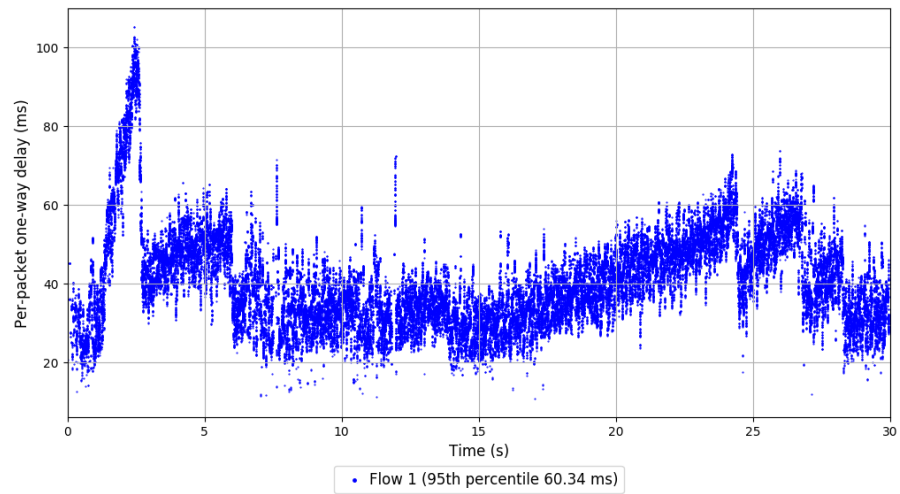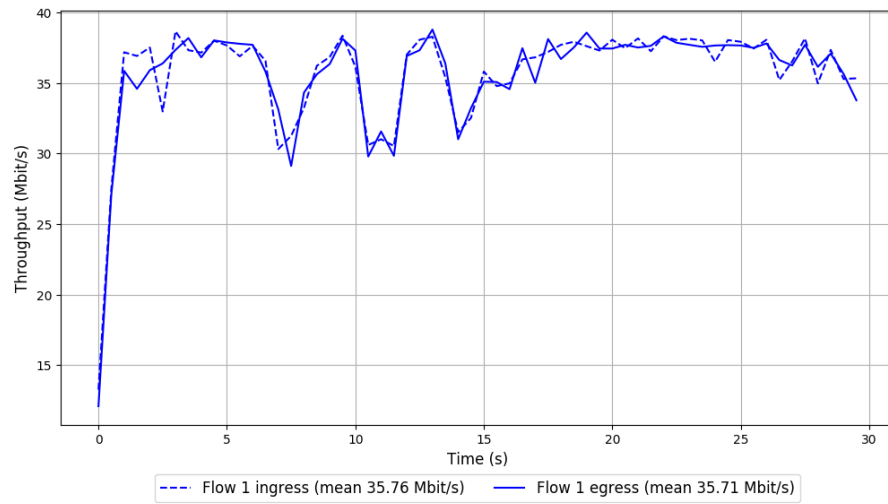
Run 3: Report of Copa — Data Link

Flow 1 ingress (mean 2.49 Mbit/s)   Flow 1 egress (mean 2.49 Mbit/s)

• Flow 1 (95th percentile 27.55 ms)

```
Run 1: Statistics of TCP Cubic

Start at: Tue, 25 Jul 2017 07:44:13 +0000
End at: Tue, 25 Jul 2017 07:44:43 +0000
Local clock offset: 1.091 ms
Remote clock offset: -2.974 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:36 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 35.71 Mbit/s
95th percentile per-packet one-way delay: 60.337 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 35.71 Mbit/s
95th percentile per-packet one-way delay: 60.337 ms
Loss rate: 0.21%
```
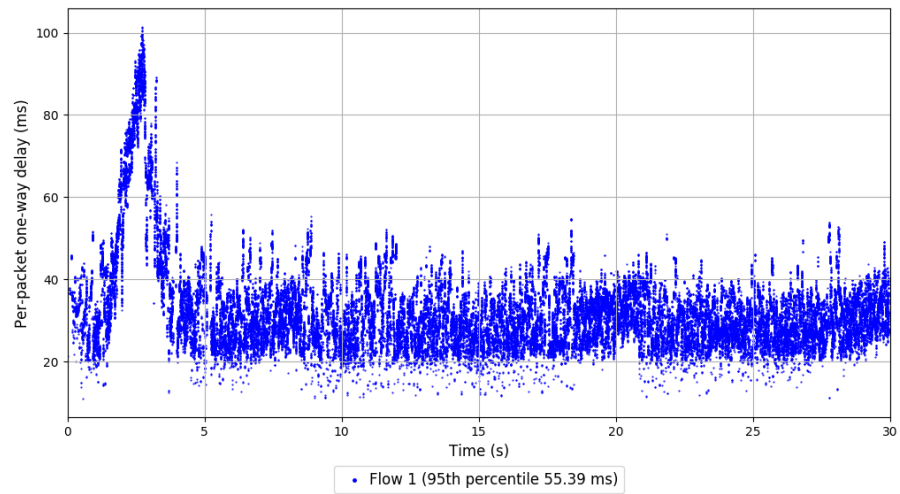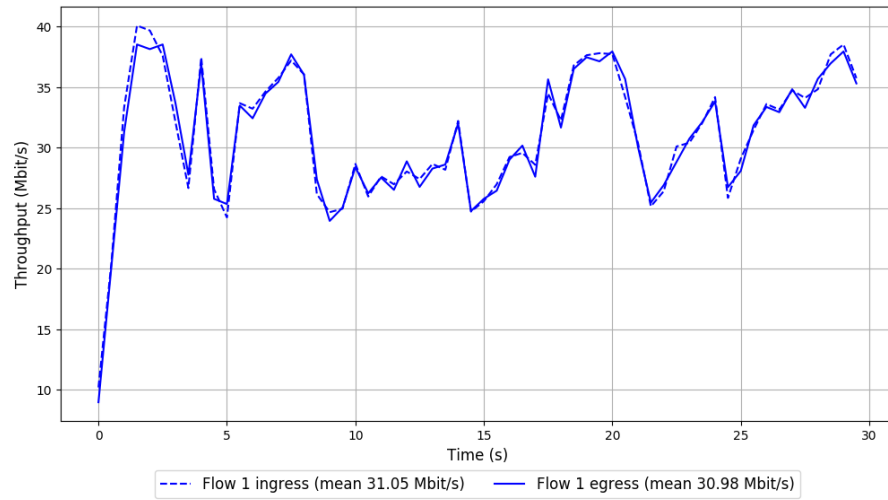
Run 1: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 35.76 Mbit/s) --- Flow 1 egress (mean 35.71 Mbit/s)

Flow 1 (95th percentile 60.34 ms)

```
Run 2: Statistics of TCP Cubic

Start at: Tue, 25 Jul 2017 08:02:02 +0000
End at: Tue, 25 Jul 2017 08:02:32 +0000
Local clock offset: 1.052 ms
Remote clock offset: -2.886 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:36 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 30.98 Mbit/s
95th percentile per-packet one-way delay: 55.390 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 30.98 Mbit/s
95th percentile per-packet one-way delay: 55.390 ms
Loss rate: 0.35%
```
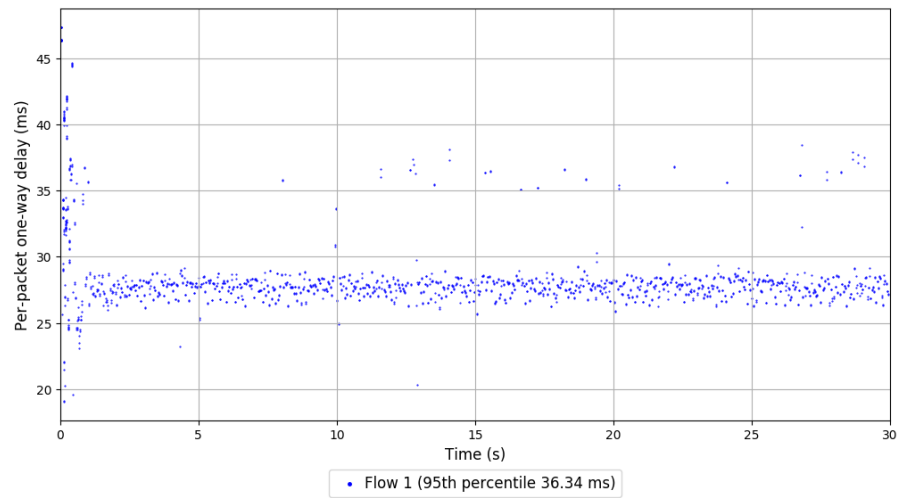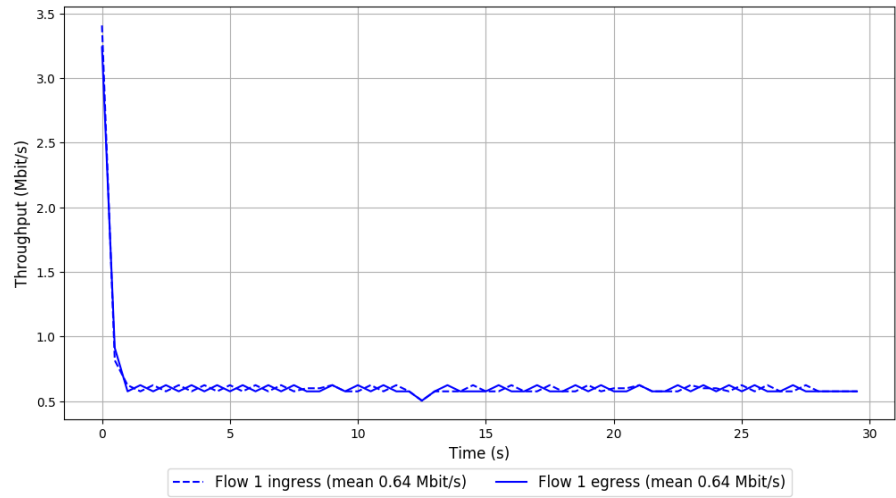
Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 31.05 Mbit/s) ---- Flow 1 egress (mean 30.98 Mbit/s) ——

Flow 1 (95th percentile 55.39 ms)

```
Run 3: Statistics of TCP Cubic

Start at: Tue, 25 Jul 2017 08:19:53 +0000
End at: Tue, 25 Jul 2017 08:20:23 +0000
Local clock offset: 0.955 ms
Remote clock offset: -2.741 ms
```

Run 3: Report of TCP Cubic — Data Link

Figure is missing

Figure is missing

```
Run 1: Statistics of KohoCC

Start at: Tue, 25 Jul 2017 07:46:38 +0000
End at: Tue, 25 Jul 2017 07:47:08 +0000
Local clock offset: 1.118 ms
Remote clock offset: -2.972 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:37 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.64 Mbit/s
95th percentile per-packet one-way delay: 36.335 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 0.64 Mbit/s
95th percentile per-packet one-way delay: 36.335 ms
Loss rate: 0.31%
```
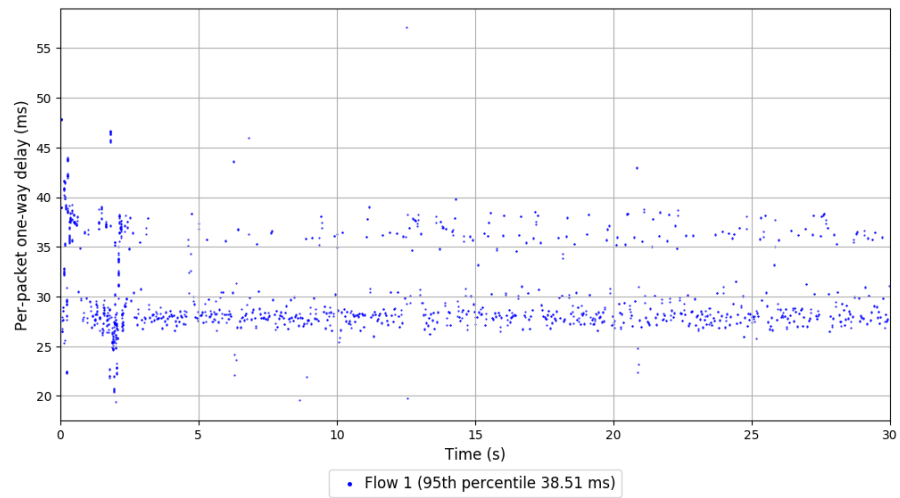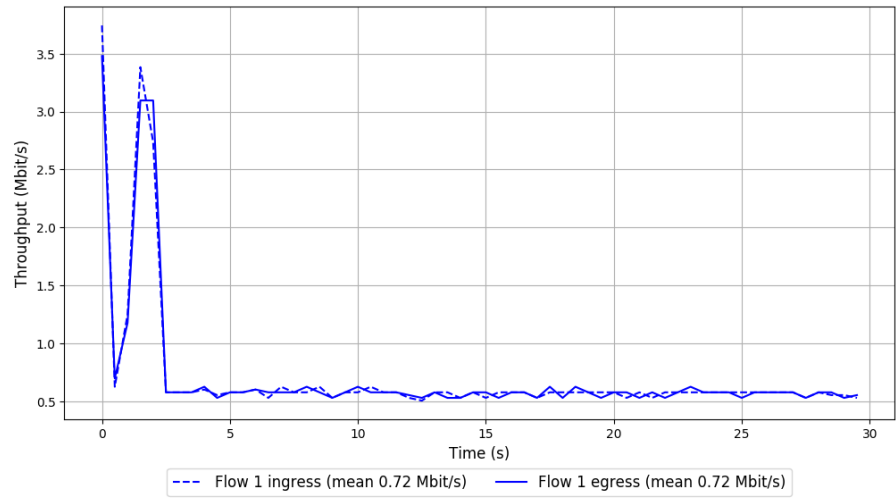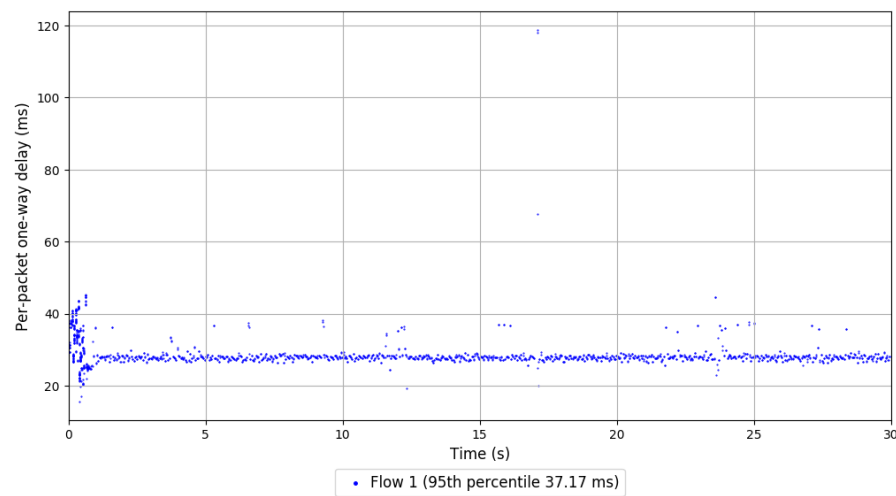
Run 1: Report of KohoCC — Data Link

```
Run 2: Statistics of KohoCC

Start at: Tue, 25 Jul 2017 08:04:28 +0000
End at: Tue, 25 Jul 2017 08:04:58 +0000
Local clock offset: 1.154 ms
Remote clock offset: -2.906 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:37 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.72 Mbit/s
95th percentile per-packet one-way delay: 38.505 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 0.72 Mbit/s
95th percentile per-packet one-way delay: 38.505 ms
Loss rate: 0.39%
```

Run 2: Report of KohoCC — Data Link

```
Run 3: Statistics of KohoCC

Start at: Tue, 25 Jul 2017 08:22:16 +0000
End at: Tue, 25 Jul 2017 08:22:46 +0000
Local clock offset: 1.033 ms
Remote clock offset: -2.683 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:38 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.70 Mbit/s
95th percentile per-packet one-way delay: 37.172 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 0.70 Mbit/s
95th percentile per-packet one-way delay: 37.172 ms
Loss rate: 0.40%
```
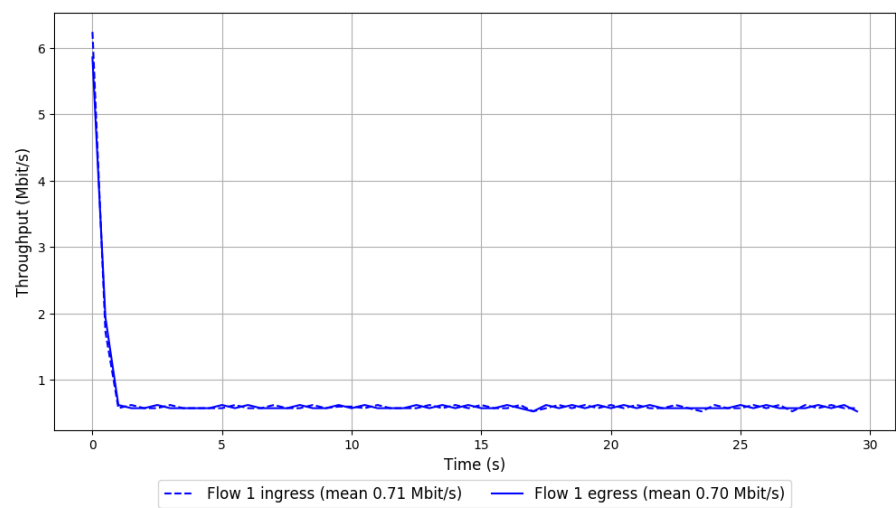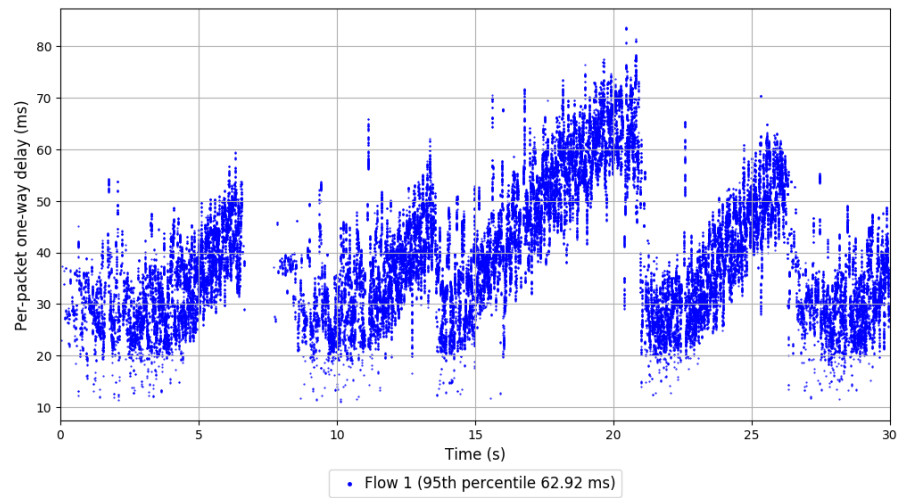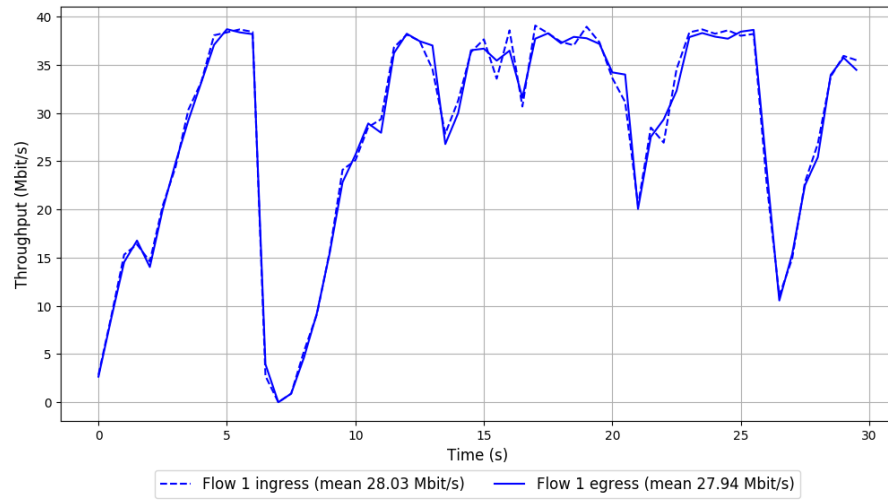
Run 3: Report of KohoCC — Data Link

Flow 1 ingress (mean 0.71 Mbit/s) —— Flow 1 egress (mean 0.70 Mbit/s)

• Flow 1 (95th percentile 37.17 ms)

```
Run 1: Statistics of LEDBAT

Start at: Tue, 25 Jul 2017 07:43:01 +0000
End at: Tue, 25 Jul 2017 07:43:31 +0000
Local clock offset: 1.116 ms
Remote clock offset: -2.99 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:41 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 27.94 Mbit/s
95th percentile per-packet one-way delay: 62.917 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 27.94 Mbit/s
95th percentile per-packet one-way delay: 62.917 ms
Loss rate: 0.45%
```
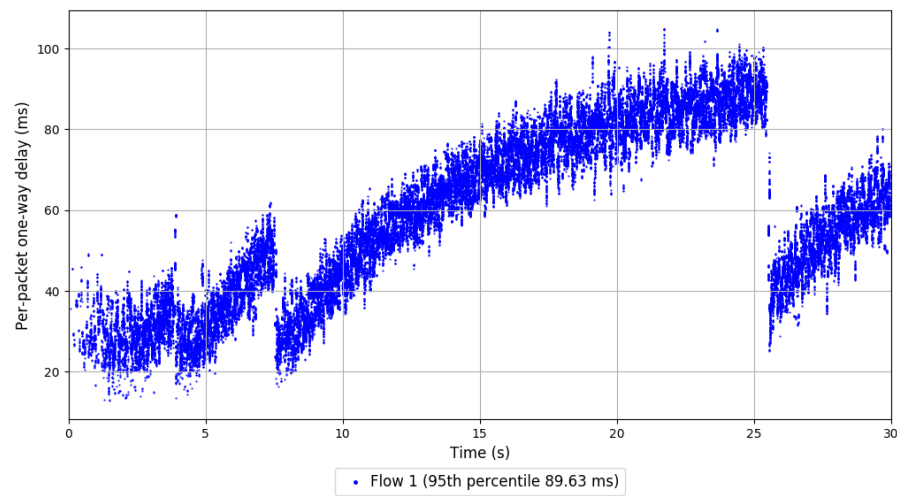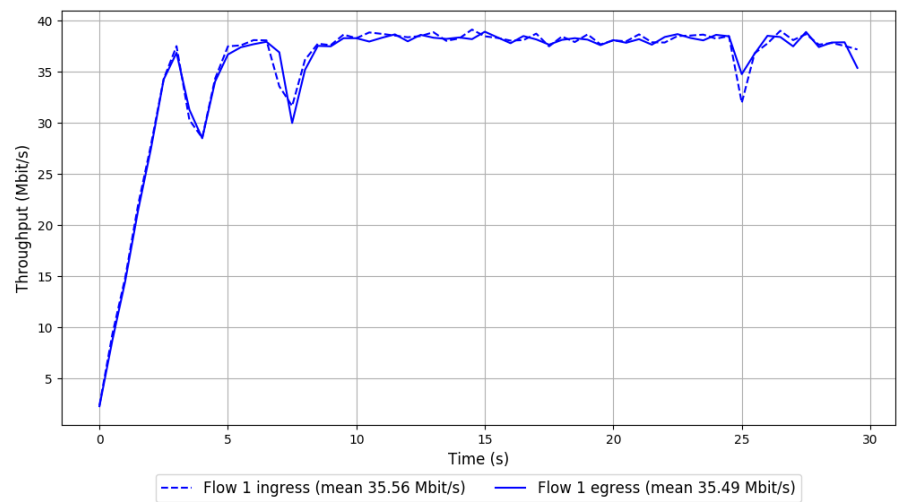
Run 1: Report of LEDBAT — Data Link

Flow 1 ingress (mean 28.03 Mbit/s) ----- Flow 1 egress (mean 27.94 Mbit/s)

Flow 1 (95th percentile 62.92 ms)

```
Run 2: Statistics of LEDBAT

Start at: Tue, 25 Jul 2017 08:00:50 +0000
End at: Tue, 25 Jul 2017 08:01:20 +0000
Local clock offset: 1.171 ms
Remote clock offset: -2.978 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:43 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 35.49 Mbit/s
95th percentile per-packet one-way delay: 89.626 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 35.49 Mbit/s
95th percentile per-packet one-way delay: 89.626 ms
Loss rate: 0.29%
```
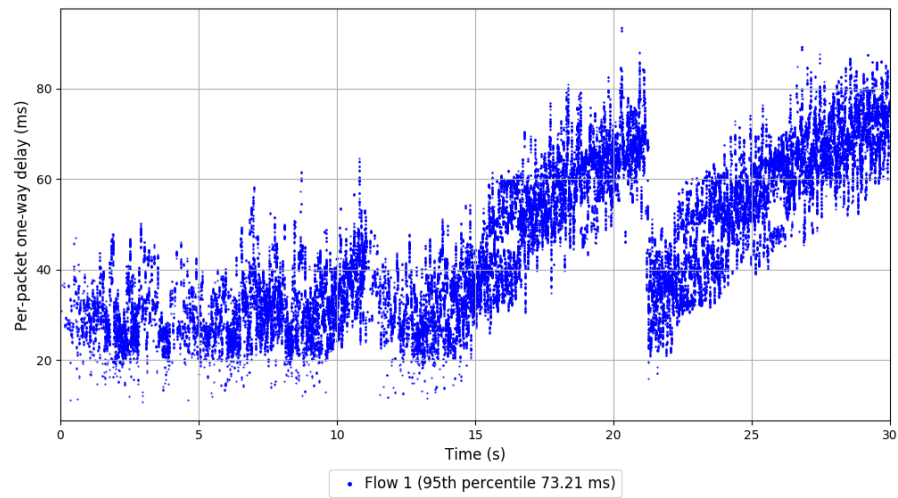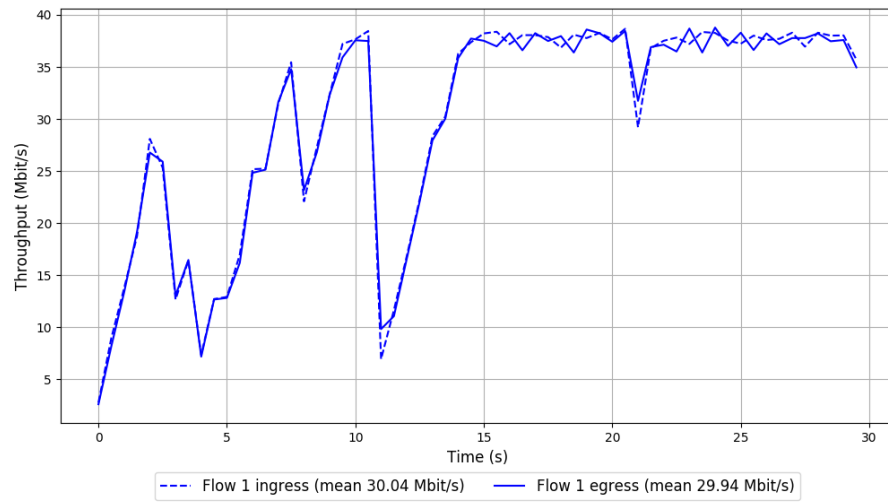
Run 2: Report of LEDBAT — Data Link

Flow 1 ingress (mean 35.56 Mbit/s)   Flow 1 egress (mean 35.49 Mbit/s)

• Flow 1 (95th percentile 89.63 ms)

```
Run 3: Statistics of LEDBAT

Start at: Tue, 25 Jul 2017 08:18:41 +0000
End at: Tue, 25 Jul 2017 08:19:11 +0000
Local clock offset: 0.951 ms
Remote clock offset: -2.753 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:47 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 29.94 Mbit/s
95th percentile per-packet one-way delay: 73.212 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 29.94 Mbit/s
95th percentile per-packet one-way delay: 73.212 ms
Loss rate: 0.45%
```
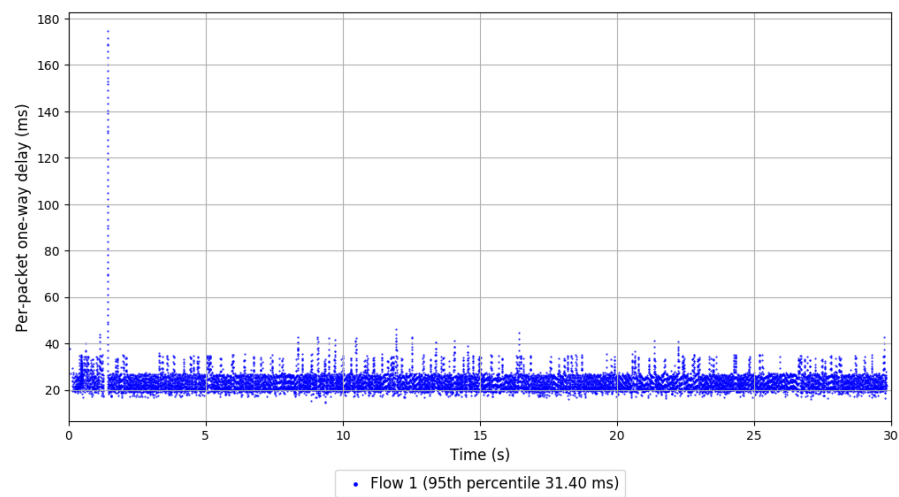
Run 3: Report of LEDBAT — Data Link

```
Run 1: Statistics of PCC

Start at: Tue, 25 Jul 2017 07:40:32 +0000
End at: Tue, 25 Jul 2017 07:41:02 +0000
Local clock offset: 1.099 ms
Remote clock offset: -2.952 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:47 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.47 Mbit/s
95th percentile per-packet one-way delay: 31.403 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 4.47 Mbit/s
95th percentile per-packet one-way delay: 31.403 ms
Loss rate: 0.14%
```
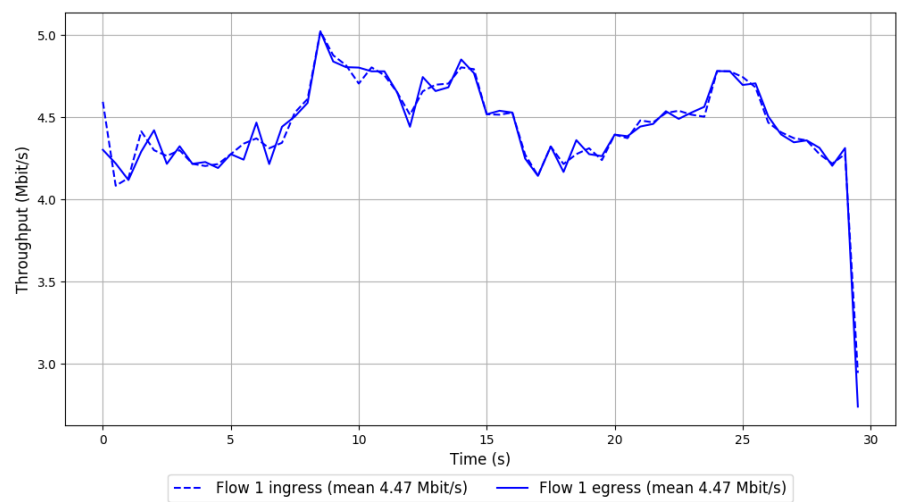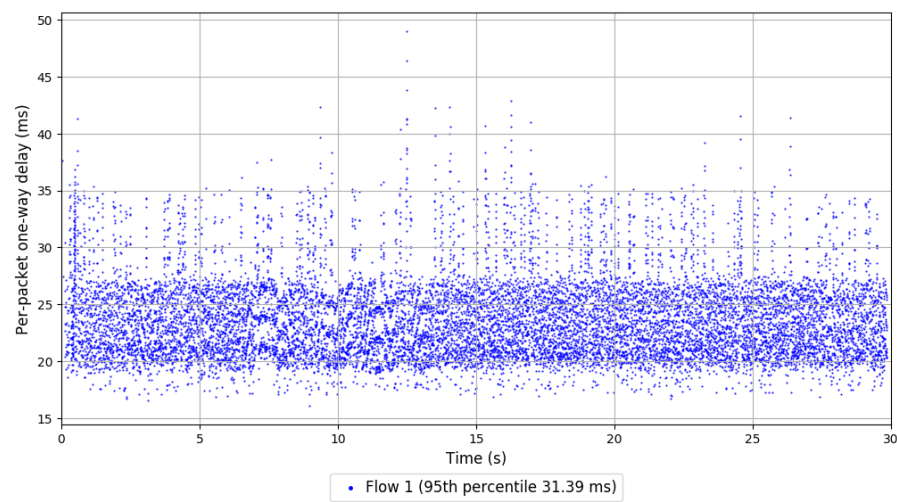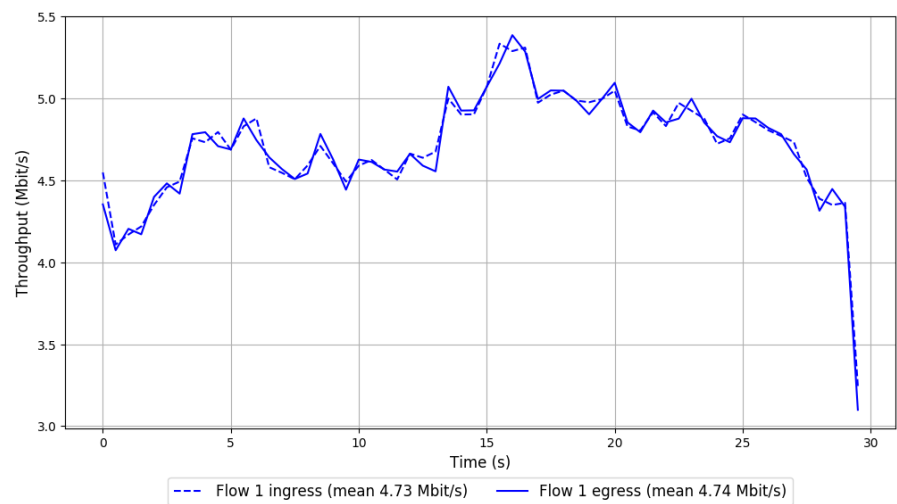
Run 1: Report of PCC — Data Link

Flow 1 ingress (mean 4.47 Mbit/s) --- Flow 1 egress (mean 4.47 Mbit/s)

Flow 1 (95th percentile 31.40 ms)

```
Run 2: Statistics of PCC

Start at: Tue, 25 Jul 2017 07:58:27 +0000
End at: Tue, 25 Jul 2017 07:58:57 +0000
Local clock offset: 1.168 ms
Remote clock offset: -3.067 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:47 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 4.74 Mbit/s
95th percentile per-packet one-way delay: 31.392 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 4.74 Mbit/s
95th percentile per-packet one-way delay: 31.392 ms
Loss rate: 0.13%
```

Run 2: Report of PCC — Data Link

```
Run 3: Statistics of PCC

Start at: Tue, 25 Jul 2017 08:16:17 +0000
End at: Tue, 25 Jul 2017 08:16:47 +0000
Local clock offset: 0.999 ms
Remote clock offset: -2.784 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:48 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 8.77 Mbit/s
95th percentile per-packet one-way delay: 32.314 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 8.77 Mbit/s
95th percentile per-packet one-way delay: 32.314 ms
Loss rate: 0.15%
```
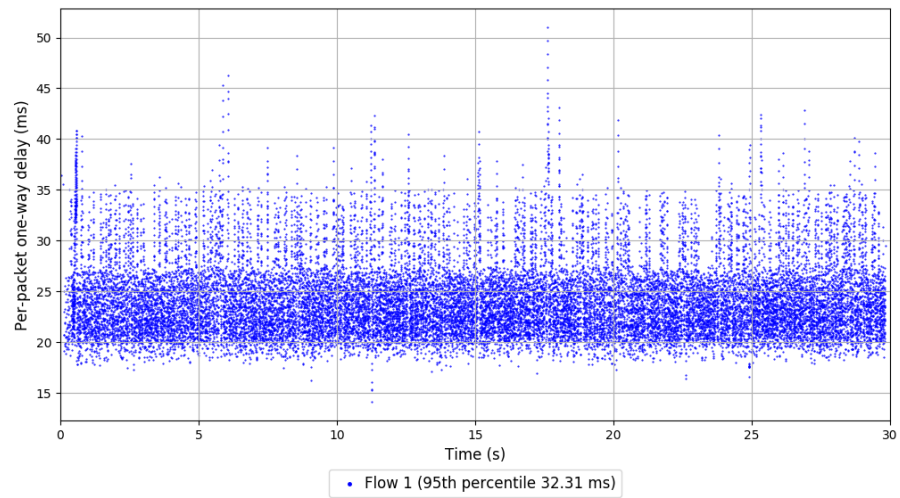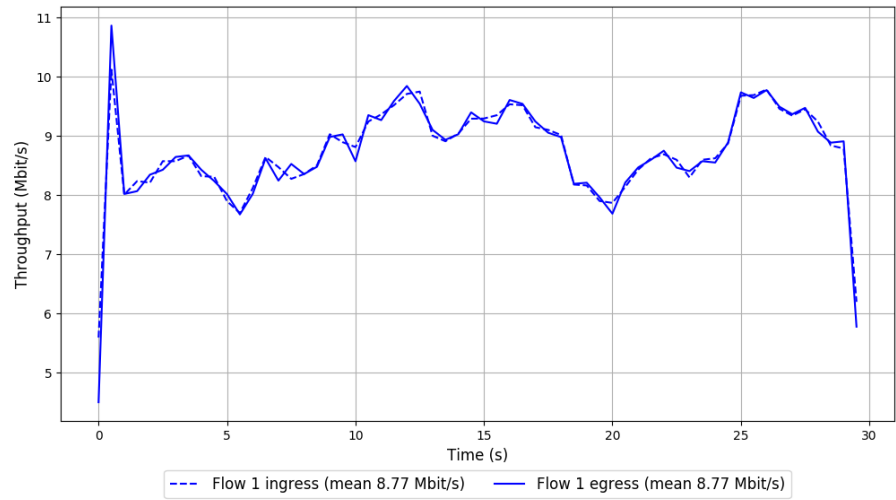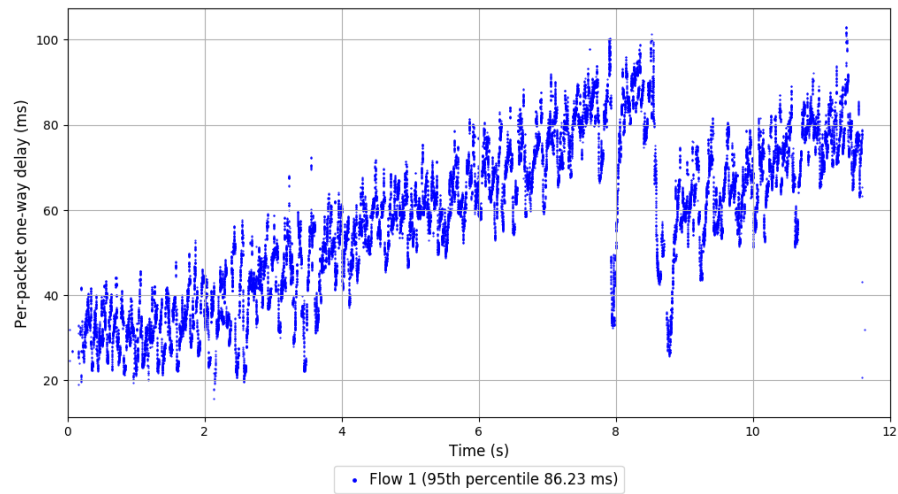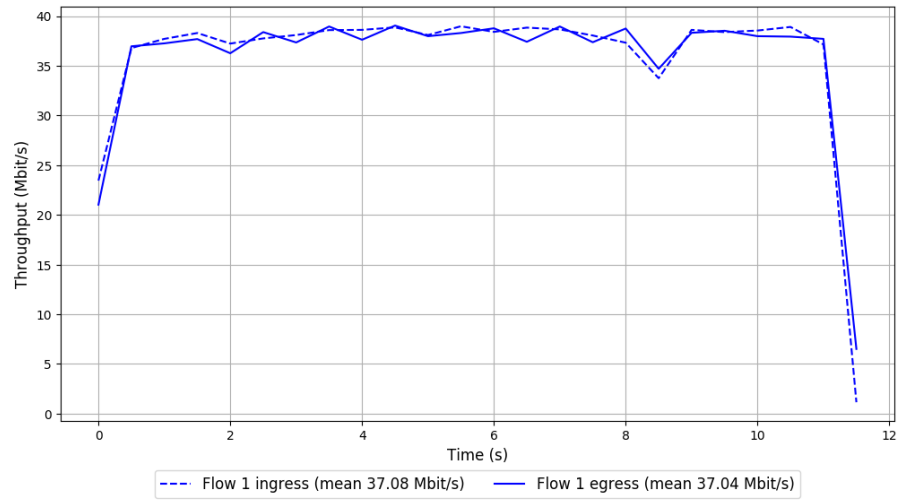
Run 3: Report of PCC — Data Link

Flow 1 ingress (mean 8.77 Mbit/s)   Flow 1 egress (mean 8.77 Mbit/s)

• Flow 1 (95th percentile 32.31 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: Tue, 25 Jul 2017 07:38:11 +0000
End at: Tue, 25 Jul 2017 07:38:41 +0000
Local clock offset: 1.087 ms
Remote clock offset: -2.884 ms
```
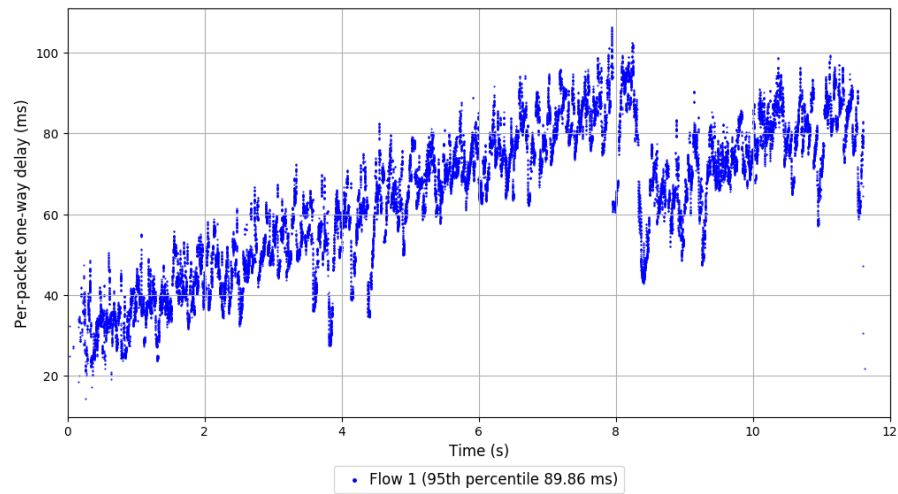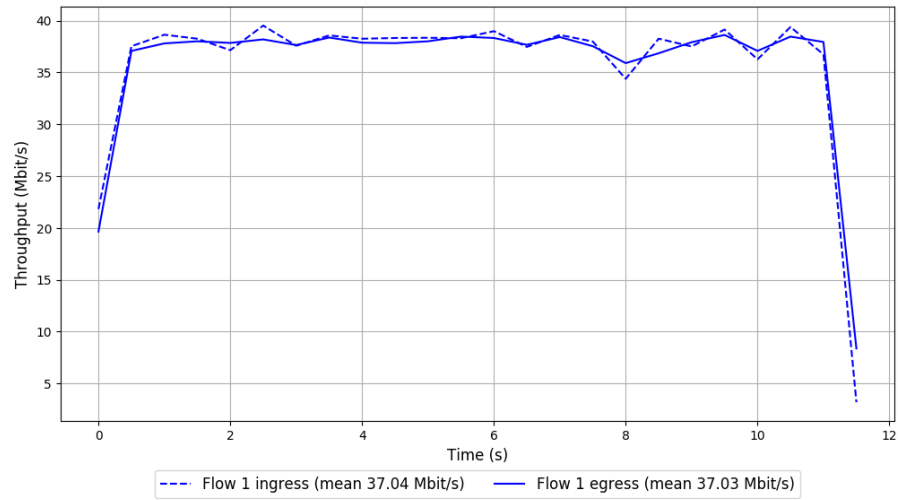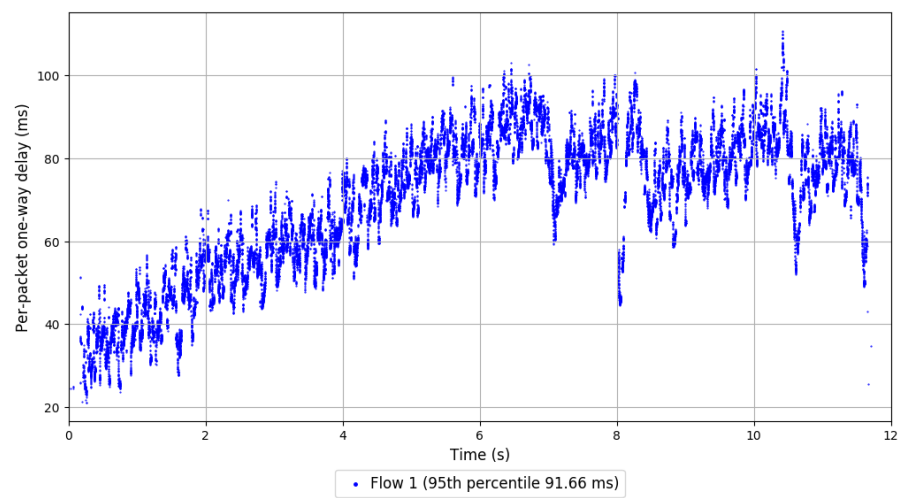
Run 1: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 37.08 Mbit/s)   Flow 1 egress (mean 37.04 Mbit/s)

Flow 1 (95th percentile 86.23 ms)

```
Run 2: Statistics of QUIC Cubic

Start at: Tue, 25 Jul 2017 07:56:05 +0000
End at: Tue, 25 Jul 2017 07:56:35 +0000
Local clock offset: 1.183 ms
Remote clock offset: -3.115 ms
```
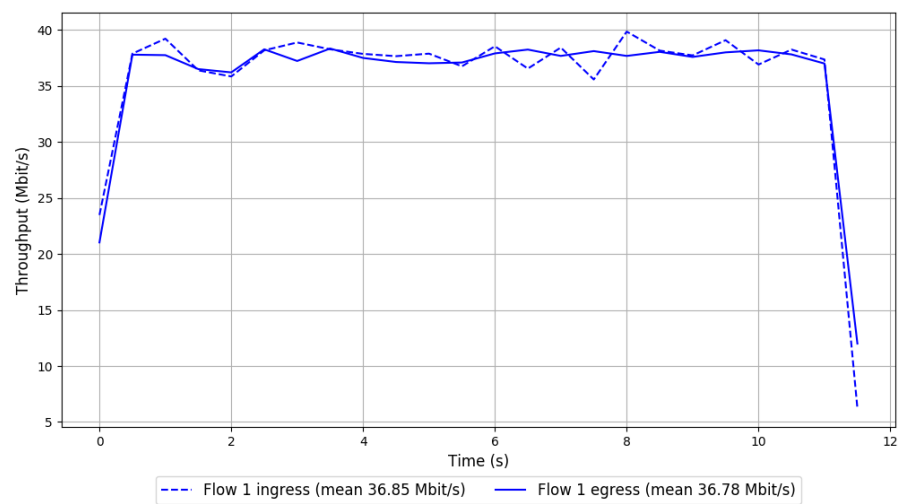
Run 2: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 37.04 Mbit/s) ----- Flow 1 egress (mean 37.03 Mbit/s)

Flow 1 (95th percentile 89.86 ms)

Run 3: Statistics of QUIC Cubic

Start at: Tue, 25 Jul 2017 08:13:55 +0000
End at: Tue, 25 Jul 2017 08:14:25 +0000
Local clock offset: 1.089 ms
Remote clock offset: -2.772 ms

Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 36.85 Mbit/s) ----   Flow 1 egress (mean 36.78 Mbit/s) ——

Flow 1 (95th percentile 91.66 ms)

```
Run 1: Statistics of Saturator

Start at: Tue, 25 Jul 2017 07:48:58 +0000
End at: Tue, 25 Jul 2017 07:49:28 +0000
Local clock offset: 1.117 ms
Remote clock offset: -3.038 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:57 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 37.55 Mbit/s
95th percentile per-packet one-way delay: 59.062 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 37.55 Mbit/s
95th percentile per-packet one-way delay: 59.062 ms
Loss rate: 0.24%
```
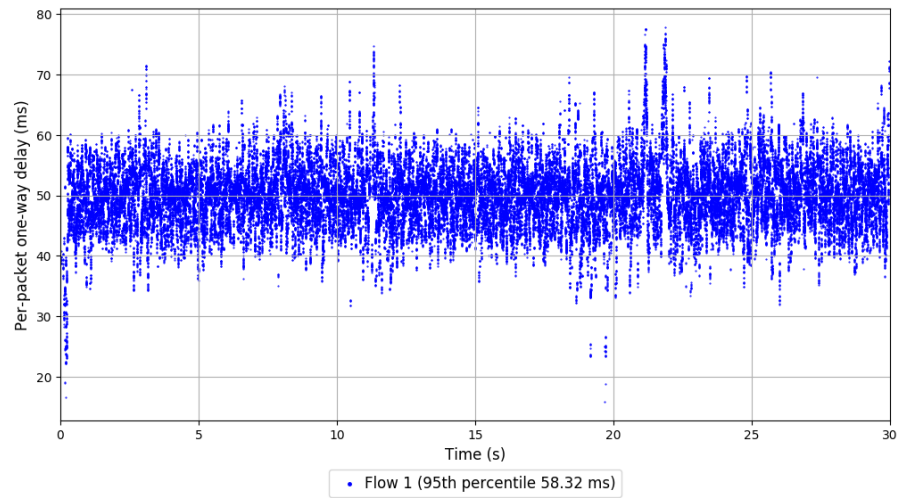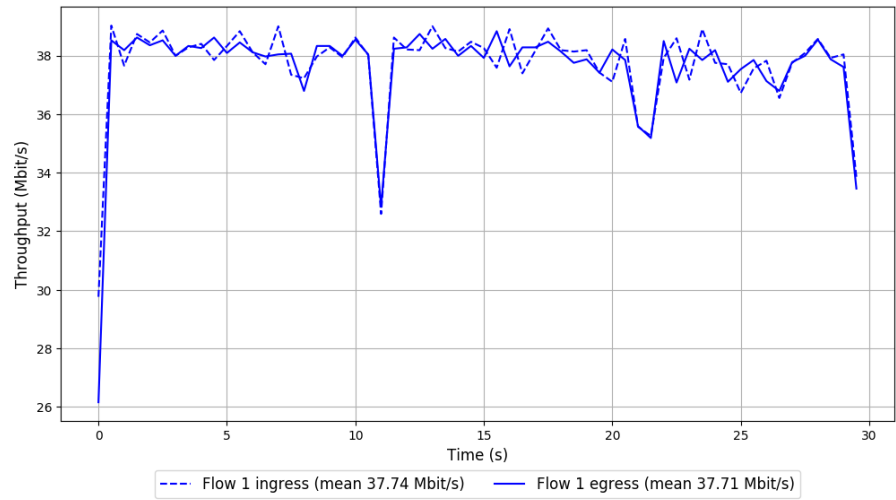
Run 1: Report of Saturator — Data Link

Flow 1 ingress (mean 37.60 Mbit/s) — — — — Flow 1 egress (mean 37.55 Mbit/s)

• Flow 1 (95th percentile 59.06 ms)

```
Run 2: Statistics of Saturator

Start at: Tue, 25 Jul 2017 08:06:49 +0000
End at: Tue, 25 Jul 2017 08:07:19 +0000
Local clock offset: 1.16 ms
Remote clock offset: -2.84 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:33:58 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 37.71 Mbit/s
95th percentile per-packet one-way delay: 58.319 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 37.71 Mbit/s
95th percentile per-packet one-way delay: 58.319 ms
Loss rate: 0.26%
```
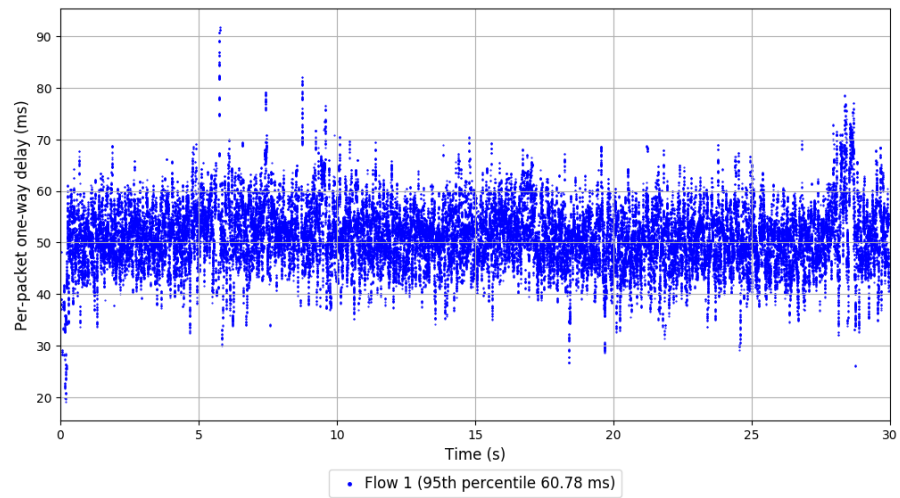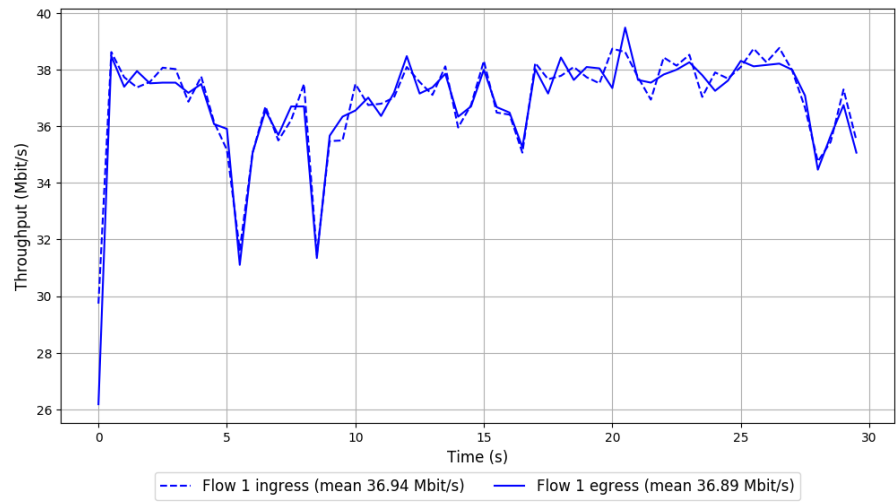
Run 2: Report of Saturator — Data Link

Flow 1 ingress (mean 37.74 Mbit/s)   Flow 1 egress (mean 37.71 Mbit/s)

Flow 1 (95th percentile 58.32 ms)

```
Run 3: Statistics of Saturator

Start at: Tue, 25 Jul 2017 08:24:36 +0000
End at: Tue, 25 Jul 2017 08:25:06 +0000
Local clock offset: 1.016 ms
Remote clock offset: -2.569 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:34:04 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 36.89 Mbit/s
95th percentile per-packet one-way delay: 60.783 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 36.89 Mbit/s
95th percentile per-packet one-way delay: 60.783 ms
Loss rate: 0.29%
```
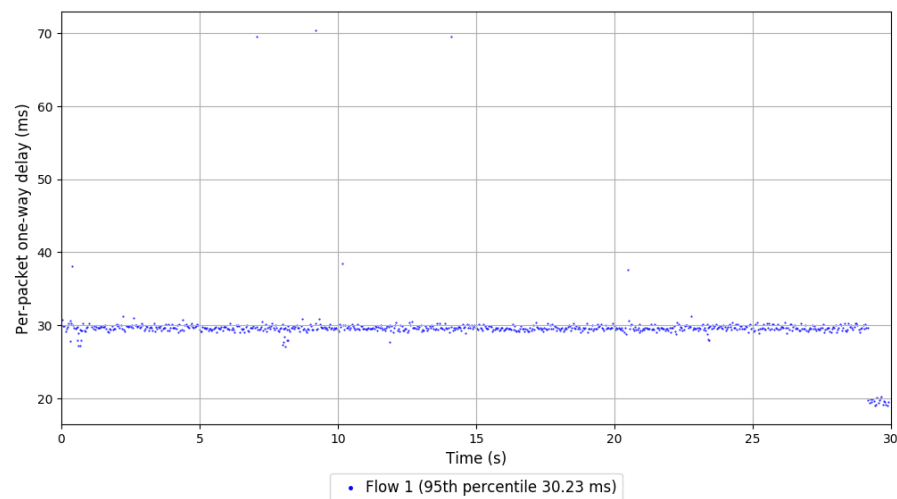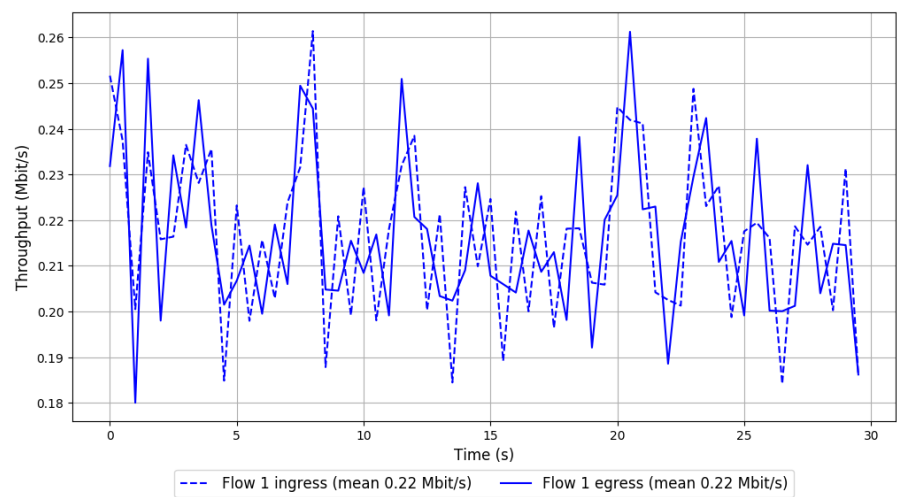
Run 3: Report of Saturator — Data Link

Flow 1 ingress (mean 36.94 Mbit/s) --- Flow 1 egress (mean 36.89 Mbit/s)

• Flow 1 (95th percentile 60.78 ms)

```
Run 1: Statistics of SCReAM

Start at: Tue, 25 Jul 2017 07:53:44 +0000
End at: Tue, 25 Jul 2017 07:54:14 +0000
Local clock offset: 1.089 ms
Remote clock offset: -3.101 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:34:04 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 30.229 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 30.229 ms
Loss rate: 0.13%
```
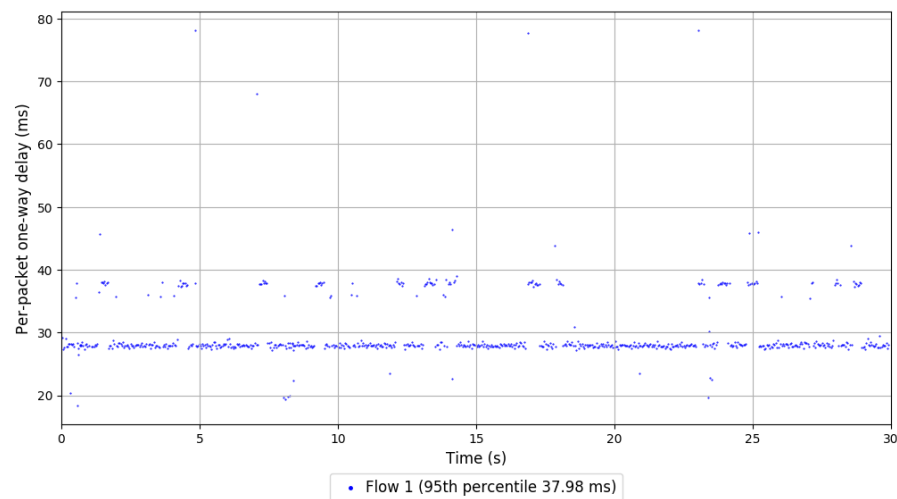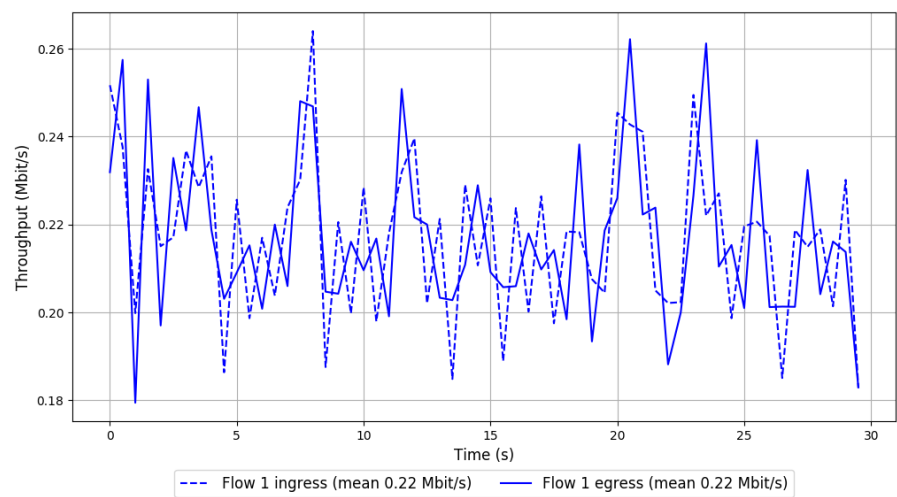
Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: Tue, 25 Jul 2017 08:11:35 +0000
End at: Tue, 25 Jul 2017 08:12:05 +0000
Local clock offset: 1.124 ms
Remote clock offset: -2.785 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:34:04 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 37.982 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 37.982 ms
Loss rate: 0.13%
```
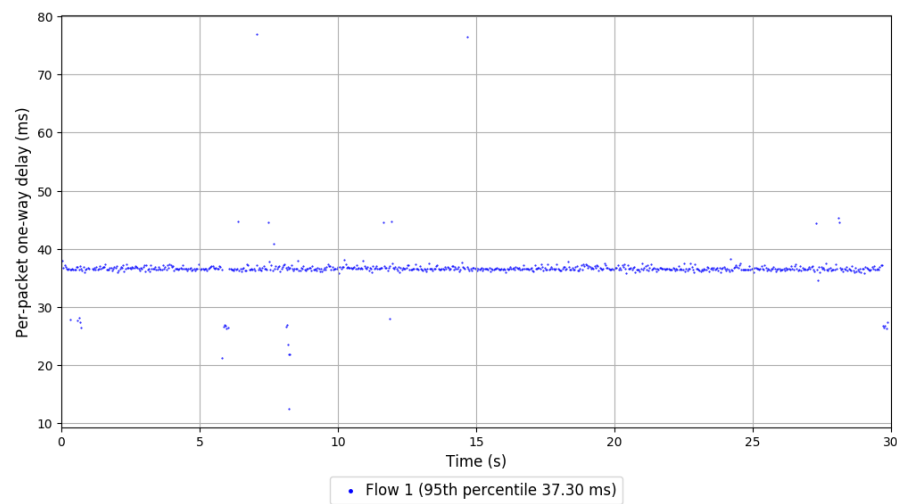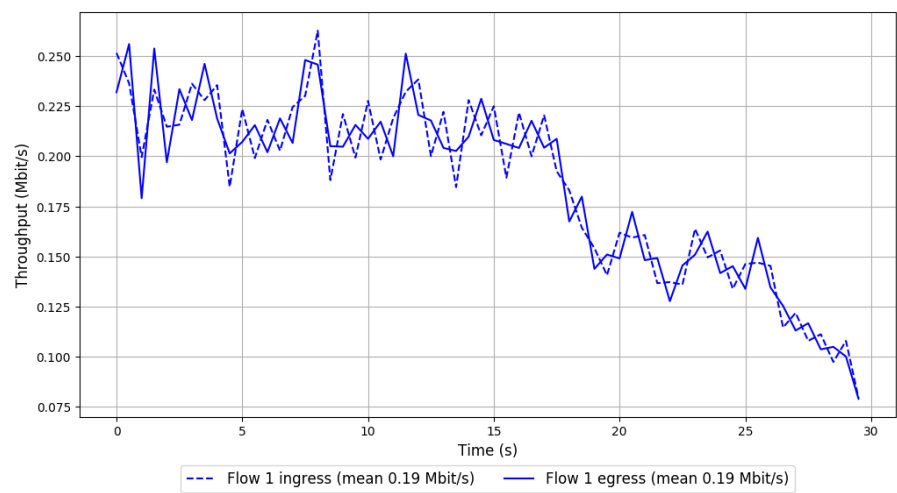
Run 2: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.22 Mbit/s)   Flow 1 egress (mean 0.22 Mbit/s)

Flow 1 (95th percentile 37.98 ms)

61

```
Run 3: Statistics of SCReAM

Start at: Tue, 25 Jul 2017 08:29:22 +0000
End at: Tue, 25 Jul 2017 08:29:52 +0000
Local clock offset: 0.934 ms
Remote clock offset: -2.55 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:34:04 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 37.302 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 37.302 ms
Loss rate: 0.07%
```
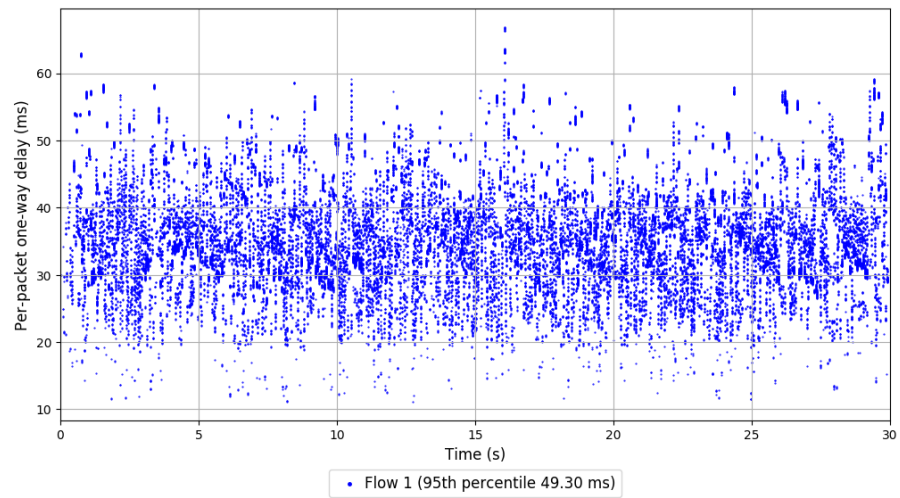
Run 3: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.19 Mbit/s) --- Flow 1 egress (mean 0.19 Mbit/s) ———

Flow 1 (95th percentile 37.30 ms)

63

```
Run 1: Statistics of Sprout

Start at: Tue, 25 Jul 2017 07:52:33 +0000
End at: Tue, 25 Jul 2017 07:53:03 +0000
Local clock offset: 1.096 ms
Remote clock offset: -3.013 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:34:04 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 15.25 Mbit/s
95th percentile per-packet one-way delay: 49.303 ms
Loss rate: 1.54%
-- Flow 1:
Average throughput: 15.25 Mbit/s
95th percentile per-packet one-way delay: 49.303 ms
Loss rate: 1.54%
```
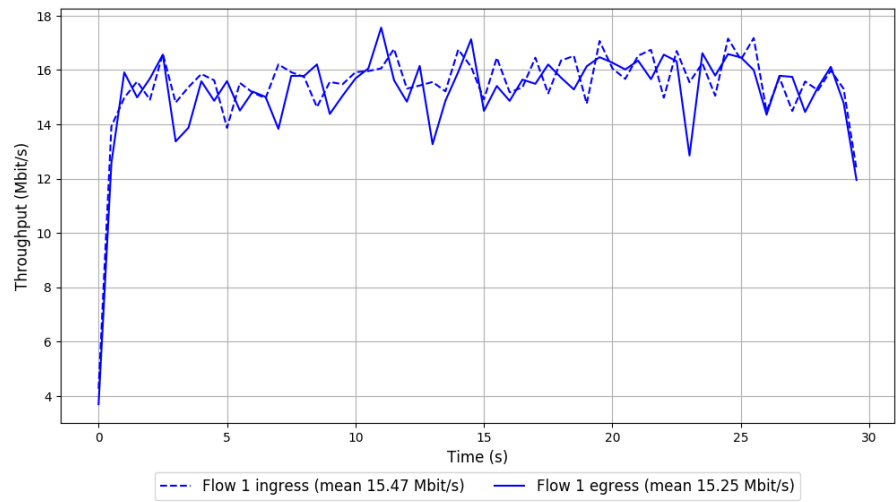
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: Tue, 25 Jul 2017 08:10:25 +0000
End at: Tue, 25 Jul 2017 08:10:55 +0000
Local clock offset: 1.135 ms
Remote clock offset: -2.763 ms
```
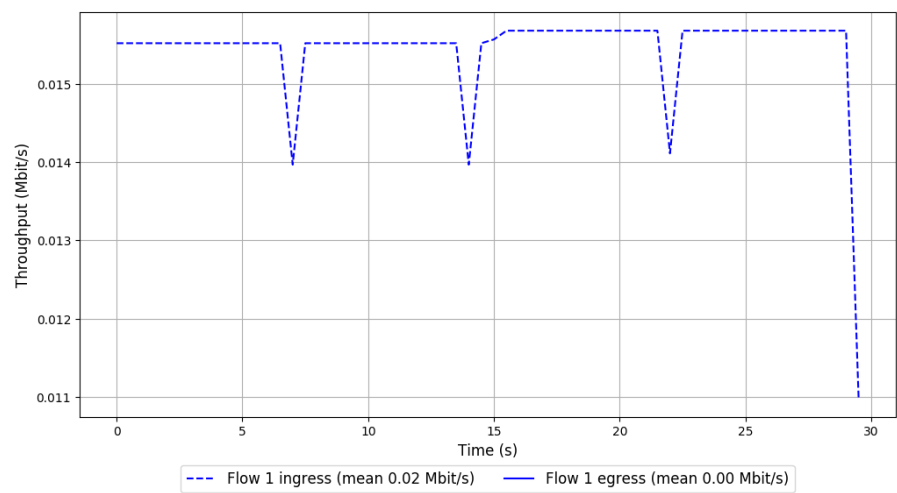
Run 2: Report of Sprout — Data Link

Figure is missing

```
Run 3: Statistics of Sprout

Start at: Tue, 25 Jul 2017 08:28:12 +0000
End at: Tue, 25 Jul 2017 08:28:42 +0000
Local clock offset: 0.913 ms
Remote clock offset: -2.569 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:34:07 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 14.66 Mbit/s
95th percentile per-packet one-way delay: 49.946 ms
Loss rate: 2.12%
-- Flow 1:
Average throughput: 14.66 Mbit/s
95th percentile per-packet one-way delay: 49.946 ms
Loss rate: 2.12%
```
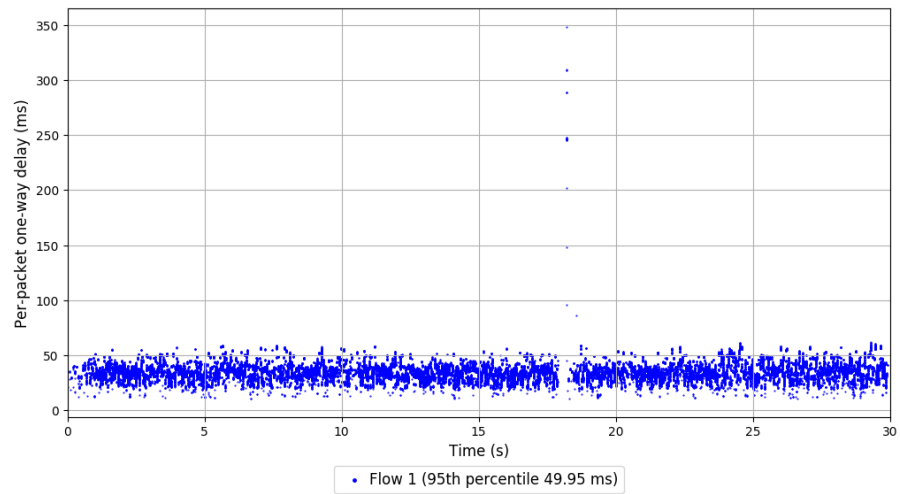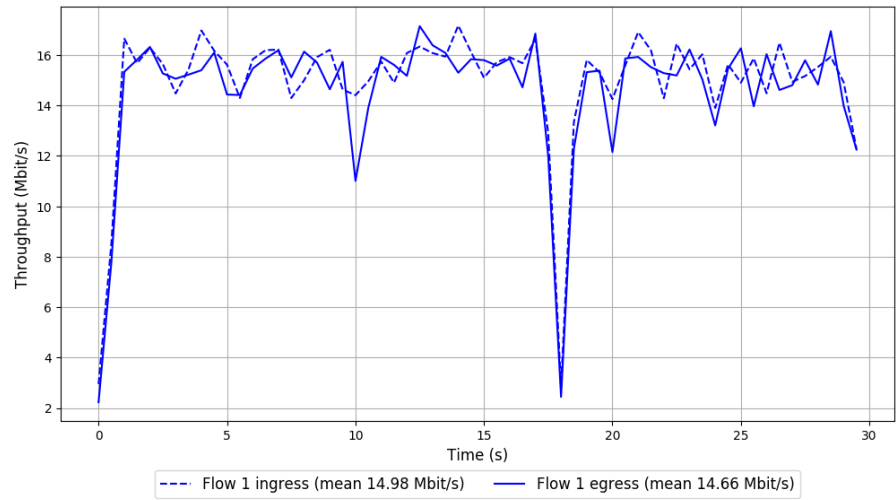
Run 3: Report of Sprout — Data Link

Flow 1 ingress (mean 14.98 Mbit/s) ----- Flow 1 egress (mean 14.66 Mbit/s) ———

Flow 1 (95th percentile 49.95 ms)

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

Start at: Tue, 25 Jul 2017 07:41:43 +0000
End at: Tue, 25 Jul 2017 07:42:13 +0000
Local clock offset: 1.099 ms
Remote clock offset: -3.007 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:34:15 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 36.16 Mbit/s
95th percentile per-packet one-way delay: 107.634 ms
Loss rate: 6.96%
-- Flow 1:
Average throughput: 36.16 Mbit/s
95th percentile per-packet one-way delay: 107.634 ms
Loss rate: 6.96%
```
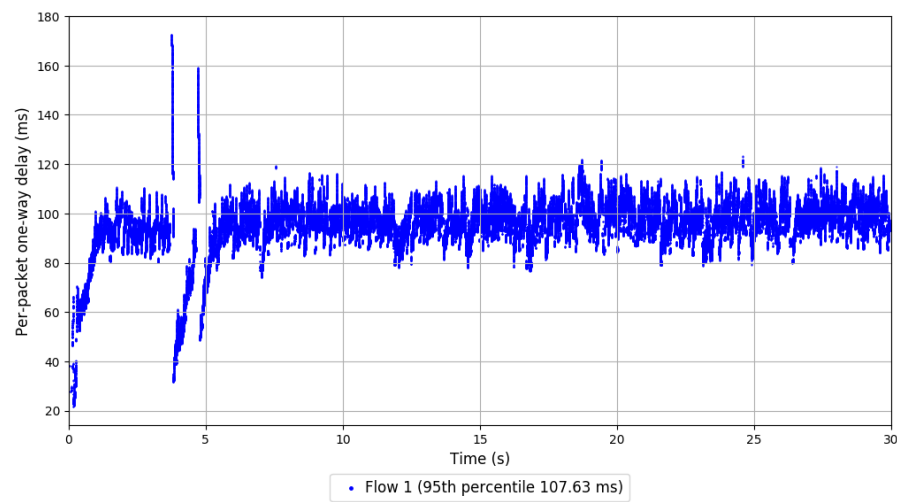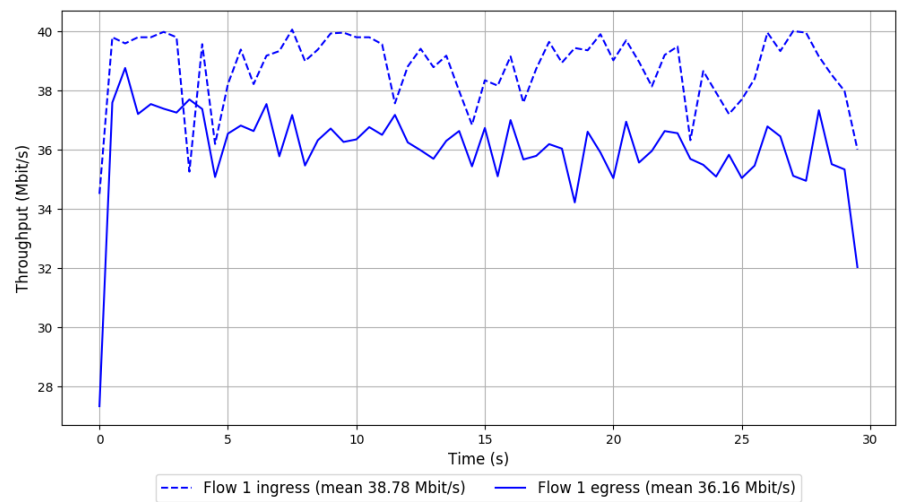
Run 1: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 38.78 Mbit/s) — — — Flow 1 egress (mean 36.16 Mbit/s)

• Flow 1 (95th percentile 107.63 ms)

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

Start at: Tue, 25 Jul 2017 07:59:37 +0000
End at: Tue, 25 Jul 2017 08:00:07 +0000
Local clock offset: 1.119 ms
Remote clock offset: -2.963 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:34:16 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 37.30 Mbit/s
95th percentile per-packet one-way delay: 99.242 ms
Loss rate: 4.58%
-- Flow 1:
Average throughput: 37.30 Mbit/s
95th percentile per-packet one-way delay: 99.242 ms
Loss rate: 4.58%
```
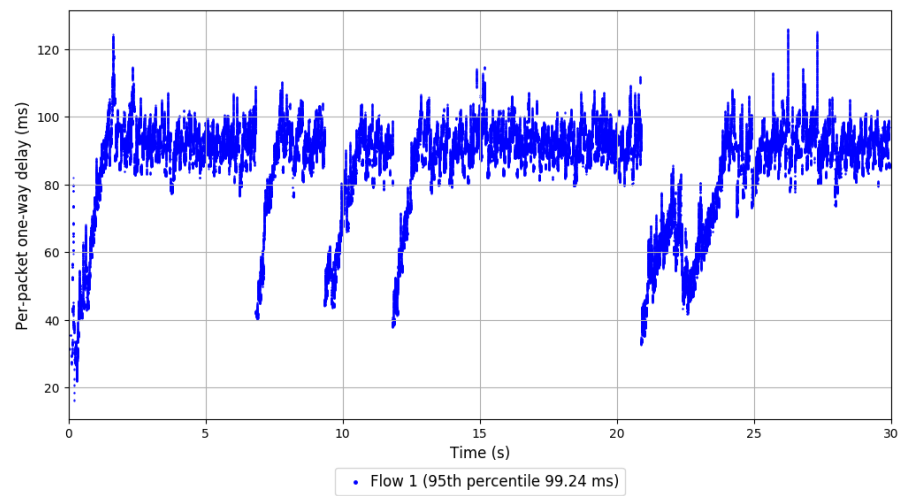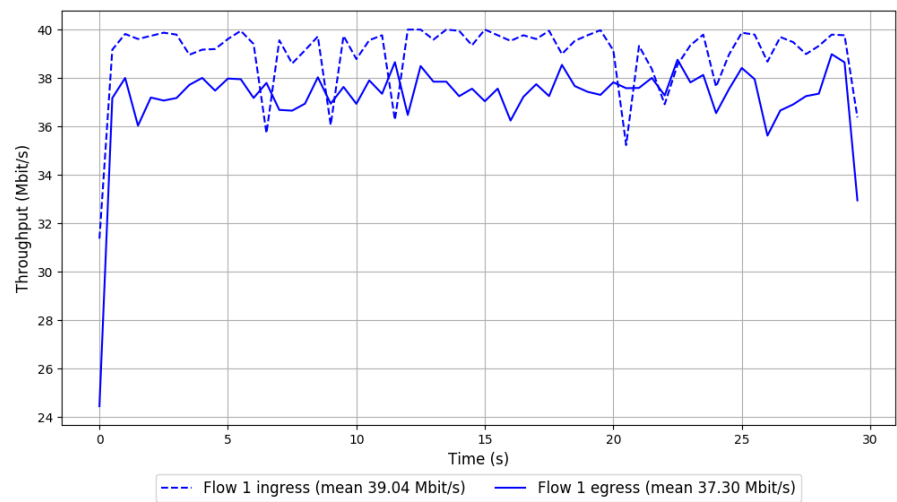
Run 2: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 39.04 Mbit/s)   Flow 1 egress (mean 37.30 Mbit/s)

Flow 1 (95th percentile 99.24 ms)

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

Start at: Tue, 25 Jul 2017 08:17:27 +0000
End at: Tue, 25 Jul 2017 08:17:57 +0000
Local clock offset: 1.043 ms
Remote clock offset: -2.767 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:34:25 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 37.54 Mbit/s
95th percentile per-packet one-way delay: 100.759 ms
Loss rate: 4.69%
-- Flow 1:
Average throughput: 37.54 Mbit/s
95th percentile per-packet one-way delay: 100.759 ms
Loss rate: 4.69%
```
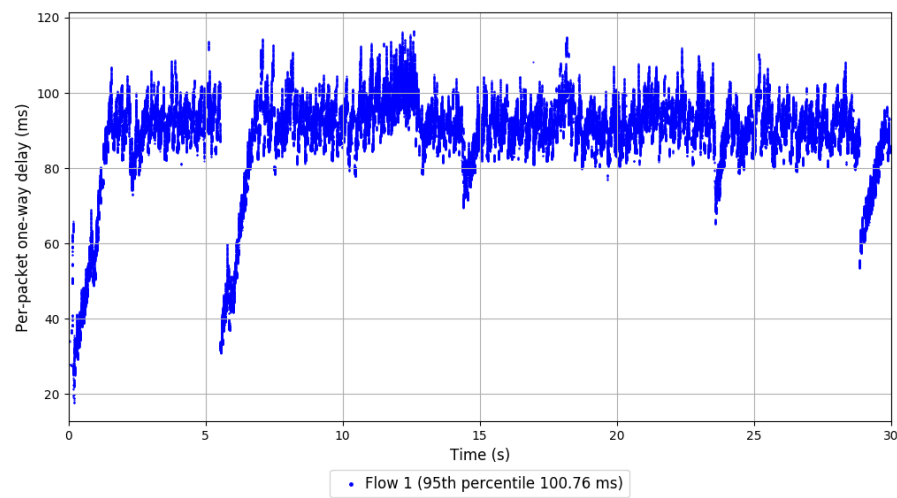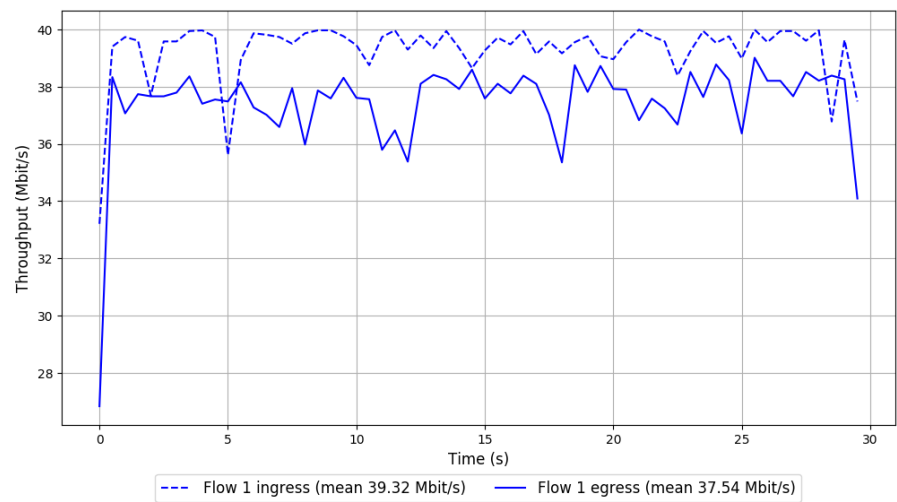
Run 3: Report of TaoVA-100x — Data Link

```
Run 1: Statistics of TCP Vegas

Start at: Tue, 25 Jul 2017 07:47:48 +0000
End at: Tue, 25 Jul 2017 07:48:18 +0000
Local clock offset: 1.188 ms
Remote clock offset: -2.998 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:34:25 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.67 Mbit/s
95th percentile per-packet one-way delay: 64.824 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 7.67 Mbit/s
95th percentile per-packet one-way delay: 64.824 ms
Loss rate: 0.09%
```
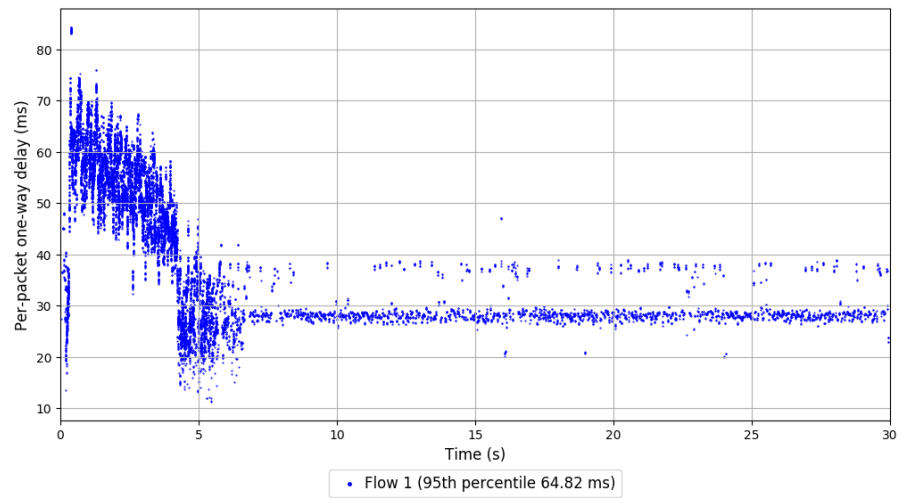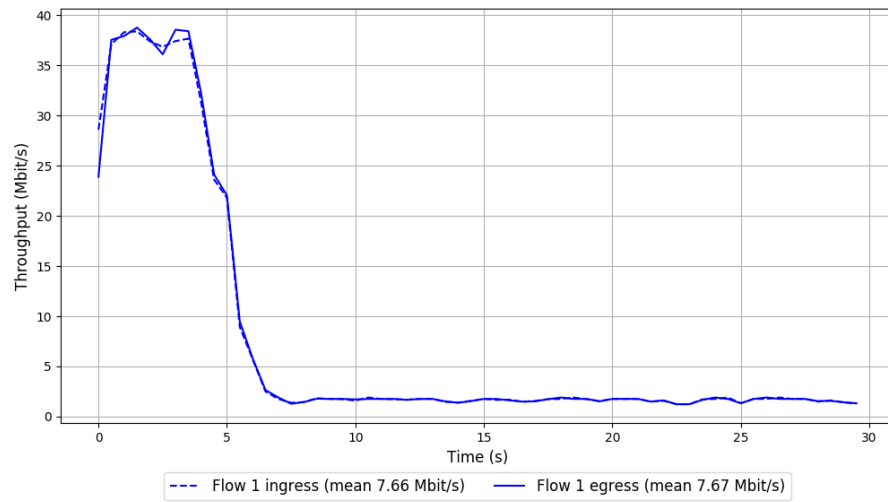
Run 1: Report of TCP Vegas — Data Link

Run 2: Statistics of TCP Vegas

Start at: Tue, 25 Jul 2017 08:05:39 +0000
End at: Tue, 25 Jul 2017 08:06:09 +0000
Local clock offset: 1.062 ms
Remote clock offset: -2.836 ms

Below is generated by plot.py at Tue, 25 Jul 2017 08:34:25 +0000
Datalink statistics
-- Total of 1 flow:
Average throughput: 2.30 Mbit/s
95th percentile per-packet one-way delay: 44.366 ms
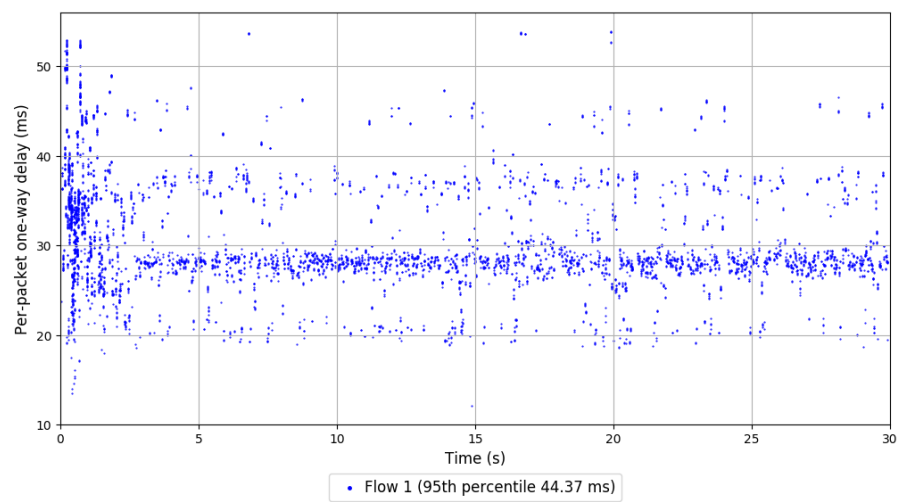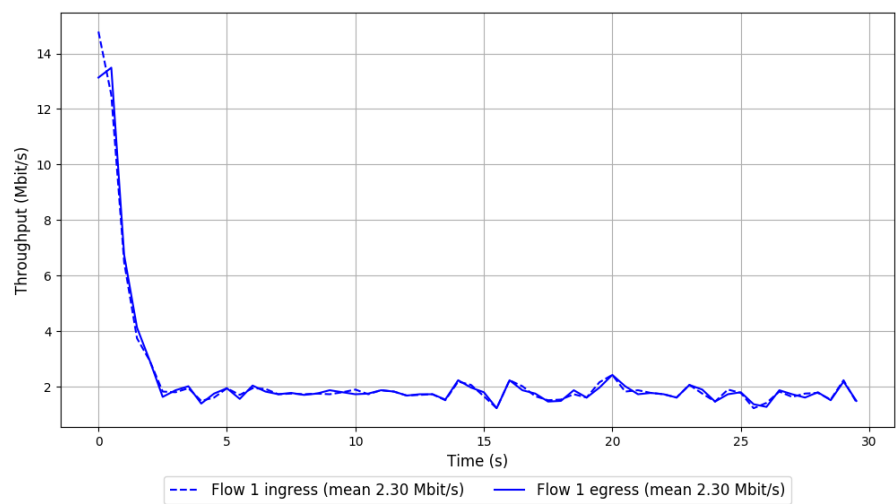Loss rate: 0.12%
-- Flow 1:
Average throughput: 2.30 Mbit/s
95th percentile per-packet one-way delay: 44.366 ms
Loss rate: 0.12%

Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: Tue, 25 Jul 2017 08:23:26 +0000
End at: Tue, 25 Jul 2017 08:23:56 +0000
Local clock offset: 1.038 ms
Remote clock offset: -2.602 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:34:25 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.92 Mbit/s
95th percentile per-packet one-way delay: 43.441 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 2.92 Mbit/s
95th percentile per-packet one-way delay: 43.441 ms
Loss rate: 0.38%
```
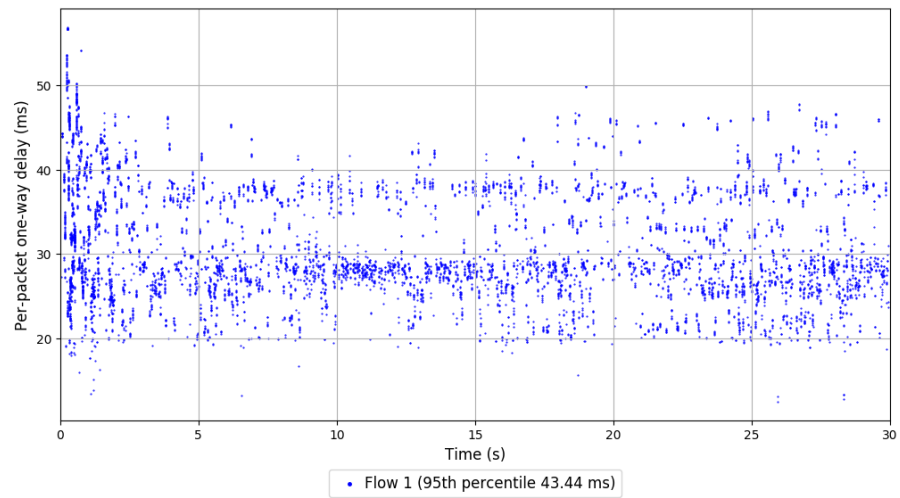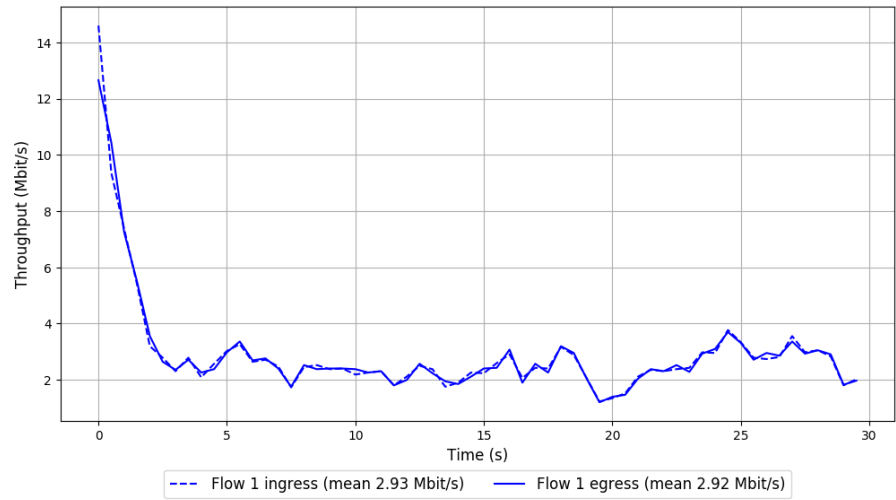
Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 2.93 Mbit/s)   Flow 1 egress (mean 2.92 Mbit/s)

• Flow 1 (95th percentile 43.44 ms)

```
Run 1: Statistics of Verus

Start at: Tue, 25 Jul 2017 07:45:25 +0000
End at: Tue, 25 Jul 2017 07:45:55 +0000
Local clock offset: 1.107 ms
Remote clock offset: -3.031 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:34:25 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 23.07 Mbit/s
95th percentile per-packet one-way delay: 70.868 ms
Loss rate: 69.24%
-- Flow 1:
Average throughput: 23.07 Mbit/s
95th percentile per-packet one-way delay: 70.868 ms
Loss rate: 69.24%
```
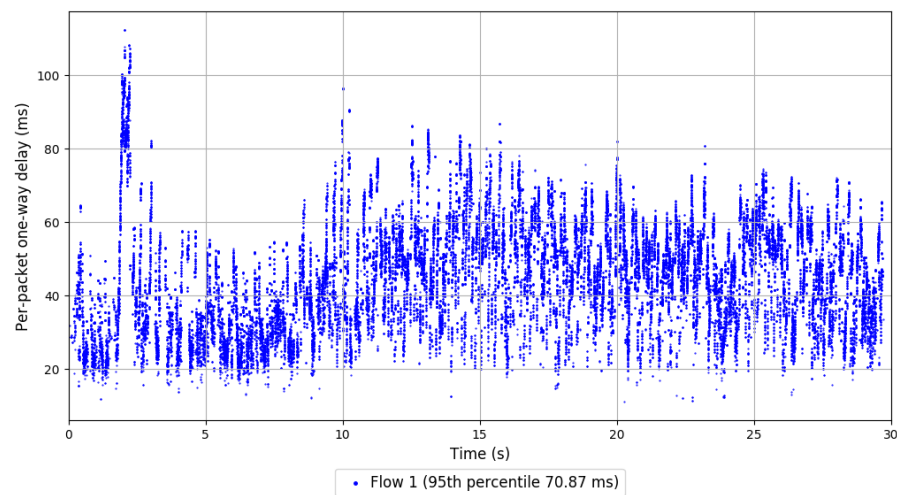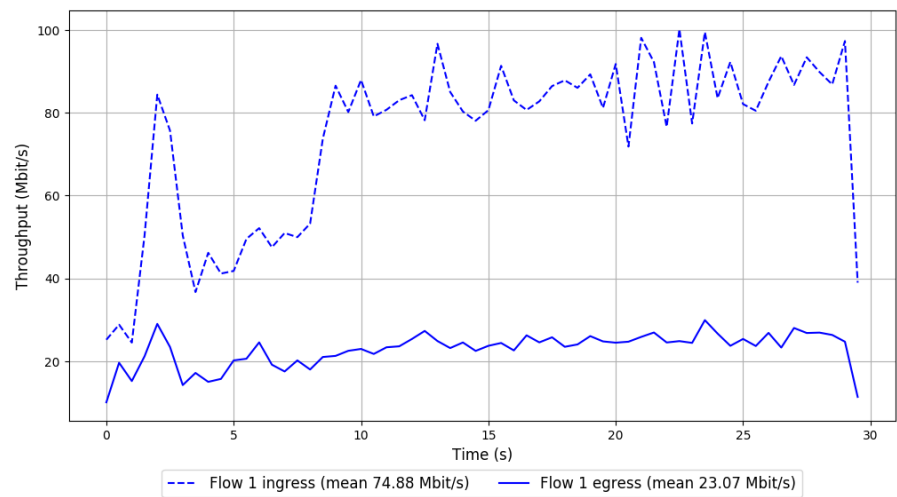
Run 1: Report of Verus — Data Link

Flow 1 ingress (mean 74.88 Mbit/s)   Flow 1 egress (mean 23.07 Mbit/s)

Flow 1 (95th percentile 70.87 ms)

```
Run 2: Statistics of Verus

Start at: Tue, 25 Jul 2017 08:03:14 +0000
End at: Tue, 25 Jul 2017 08:03:44 +0000
Local clock offset: 1.162 ms
Remote clock offset: -2.87 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:34:32 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 17.70 Mbit/s
95th percentile per-packet one-way delay: 111.656 ms
Loss rate: 89.73%
-- Flow 1:
Average throughput: 17.70 Mbit/s
95th percentile per-packet one-way delay: 111.656 ms
Loss rate: 89.73%
```
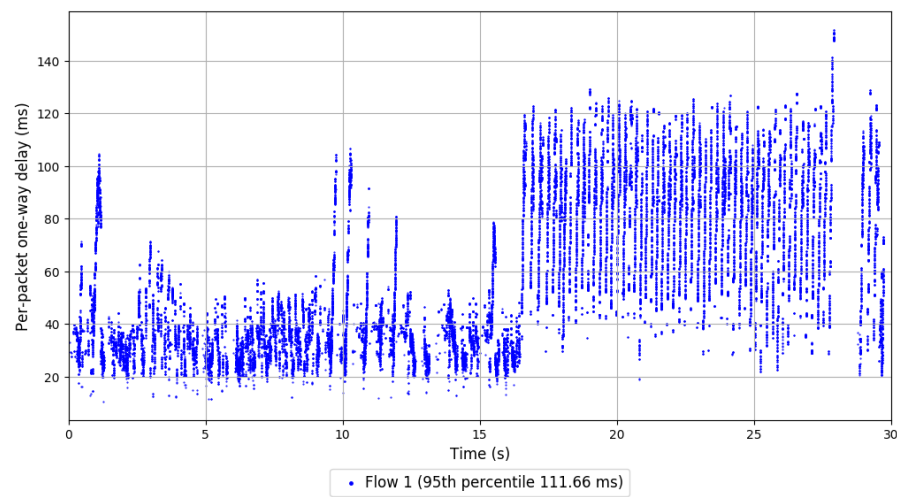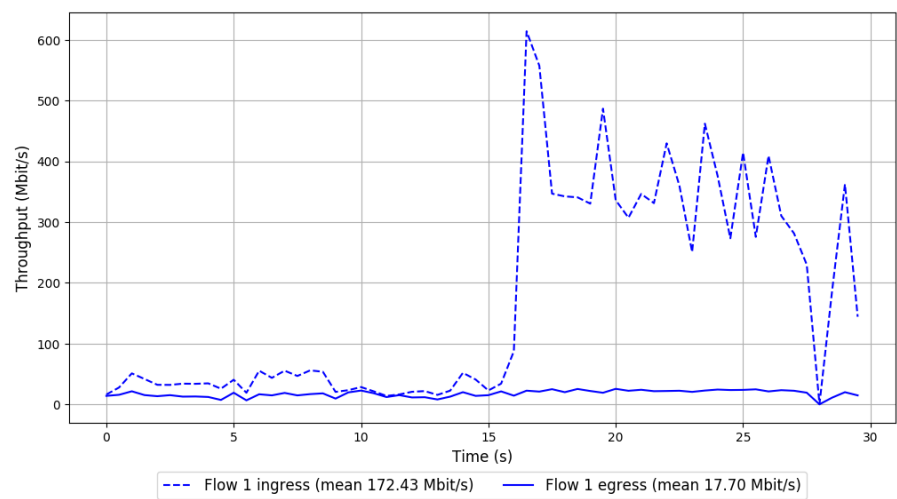
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: Tue, 25 Jul 2017 08:21:04 +0000
End at: Tue, 25 Jul 2017 08:21:34 +0000
Local clock offset: 0.956 ms
Remote clock offset: -2.652 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:34:32 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 16.20 Mbit/s
95th percentile per-packet one-way delay: 96.178 ms
Loss rate: 64.71%
-- Flow 1:
Average throughput: 16.20 Mbit/s
95th percentile per-packet one-way delay: 96.178 ms
Loss rate: 64.71%
```
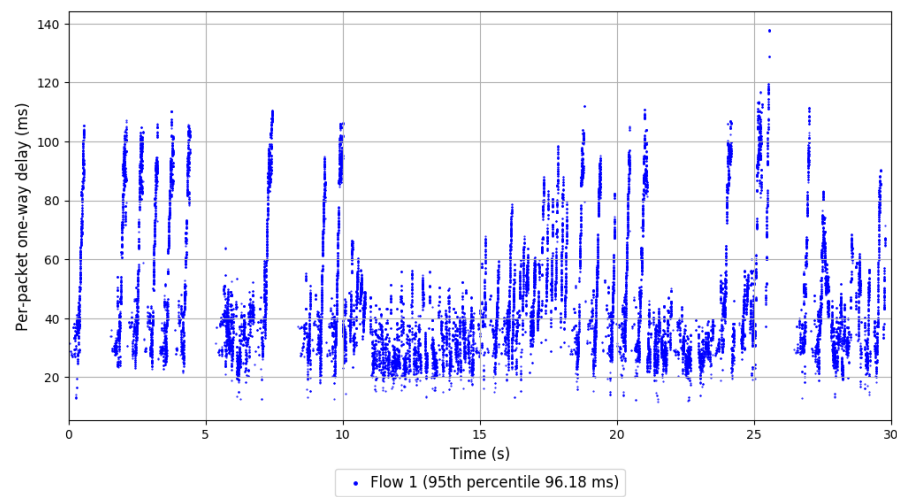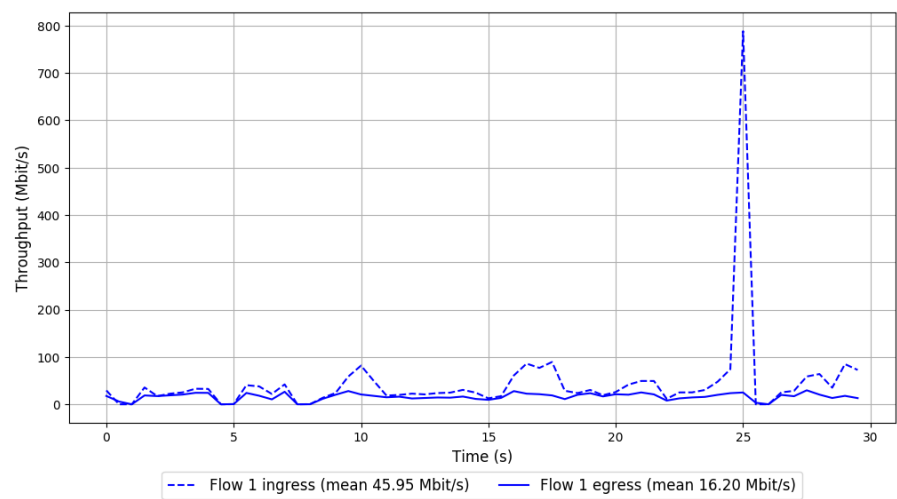
Run 3: Report of Verus — Data Link

```
Run 1: Statistics of WebRTC media

Start at: Tue, 25 Jul 2017 07:39:22 +0000
End at: Tue, 25 Jul 2017 07:39:52 +0000
Local clock offset: 1.187 ms
Remote clock offset: -2.998 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:34:32 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.32 Mbit/s
95th percentile per-packet one-way delay: 39.068 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.32 Mbit/s
95th percentile per-packet one-way delay: 39.068 ms
Loss rate: 0.00%
```
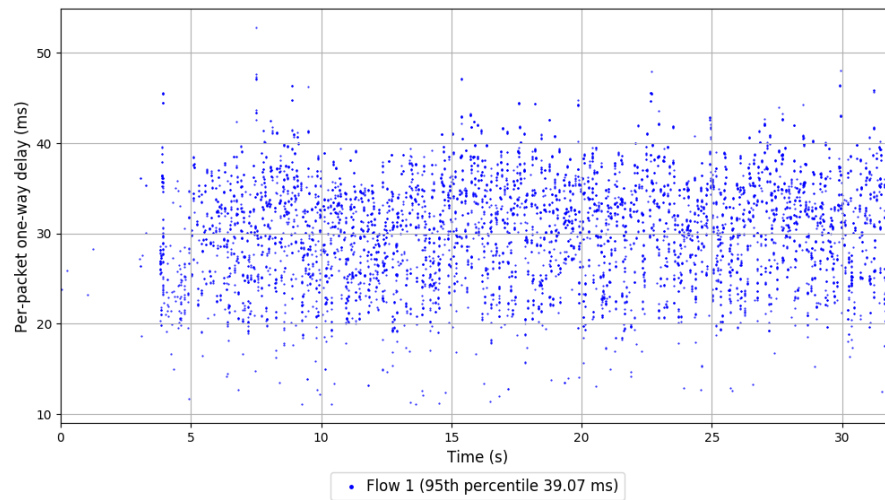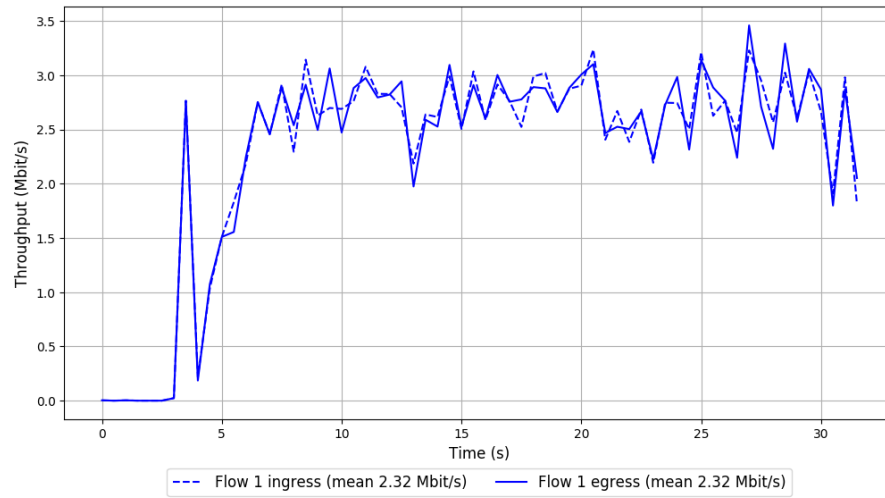
Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: Tue, 25 Jul 2017 07:57:16 +0000
End at: Tue, 25 Jul 2017 07:57:46 +0000
Local clock offset: 1.082 ms
Remote clock offset: -3.087 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:34:32 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.31 Mbit/s
95th percentile per-packet one-way delay: 39.338 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 2.31 Mbit/s
95th percentile per-packet one-way delay: 39.338 ms
Loss rate: 0.37%
```
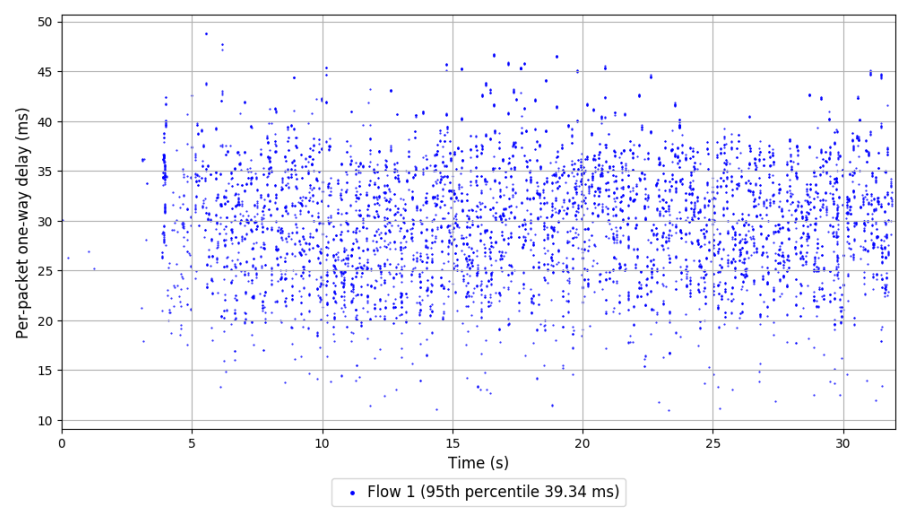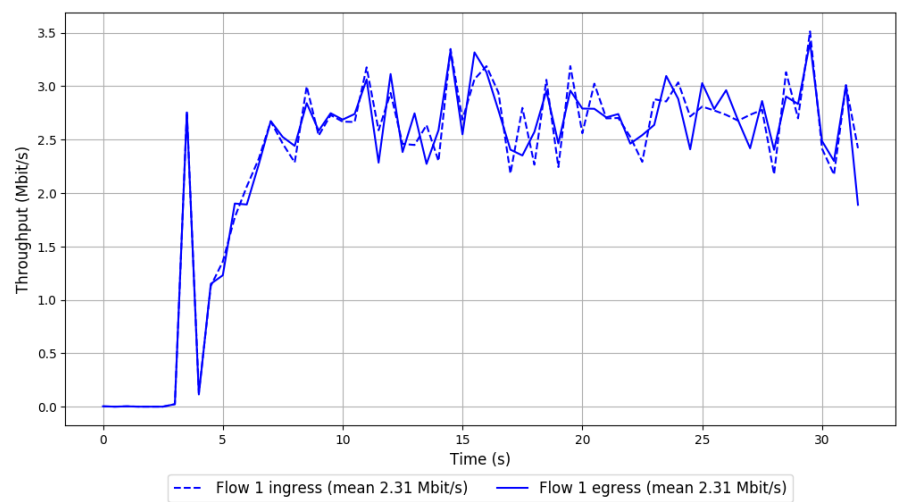
Run 2: Report of WebRTC media — Data Link

Flow 1 ingress (mean 2.31 Mbit/s) — — — Flow 1 egress (mean 2.31 Mbit/s)

• Flow 1 (95th percentile 39.34 ms)

```
Run 3: Statistics of WebRTC media

Start at: Tue, 25 Jul 2017 08:15:06 +0000
End at: Tue, 25 Jul 2017 08:15:36 +0000
Local clock offset: 0.997 ms
Remote clock offset: -2.767 ms


# Below is generated by plot.py at Tue, 25 Jul 2017 08:34:32 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.34 Mbit/s
95th percentile per-packet one-way delay: 39.365 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 2.34 Mbit/s
95th percentile per-packet one-way delay: 39.365 ms
Loss rate: 0.21%
```

Run 3: Report of WebRTC media — Data Link