Pantheon Report

Generated at 2019-01-19 02:40:18 (UTC).

Data path: AWS California 2 on `ens5` (*local*) →Mexico on `em1` (*remote*).

Repeated the test of 21 congestion control schemes 5 times.

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

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

```
System info:
Linux 4.15.0-1031-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ c80a283586bf7b0cc1fe08c69c8f60d56498f81c
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ c3eee875824760ec5b2fd207fefe166e1afe2170
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
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/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
 M src/ScreamClient
 M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
```
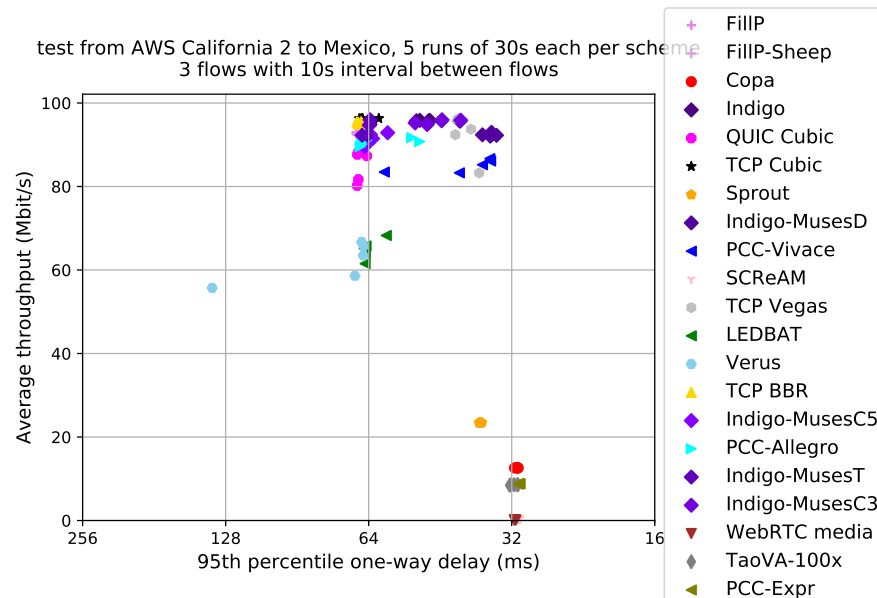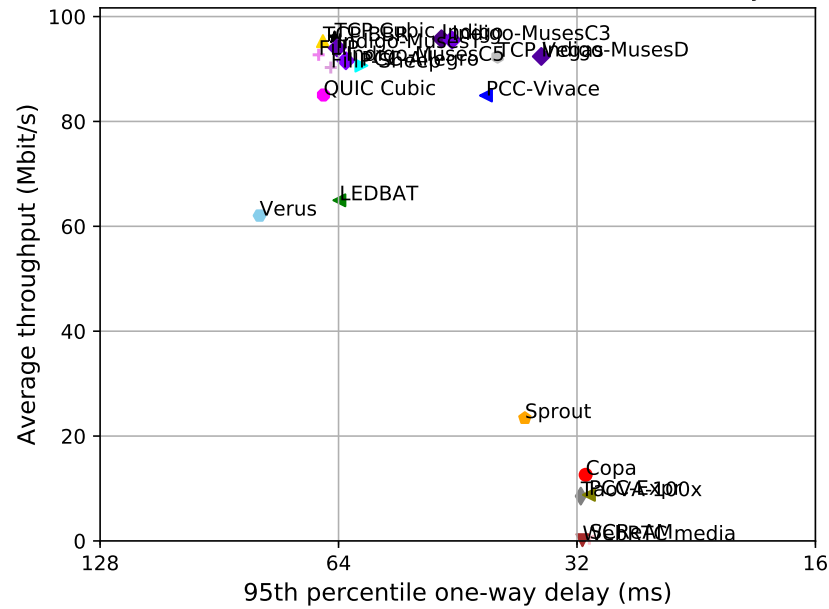
```
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from AWS California 2 to Mexico, 5 runs of 30s each per scheme
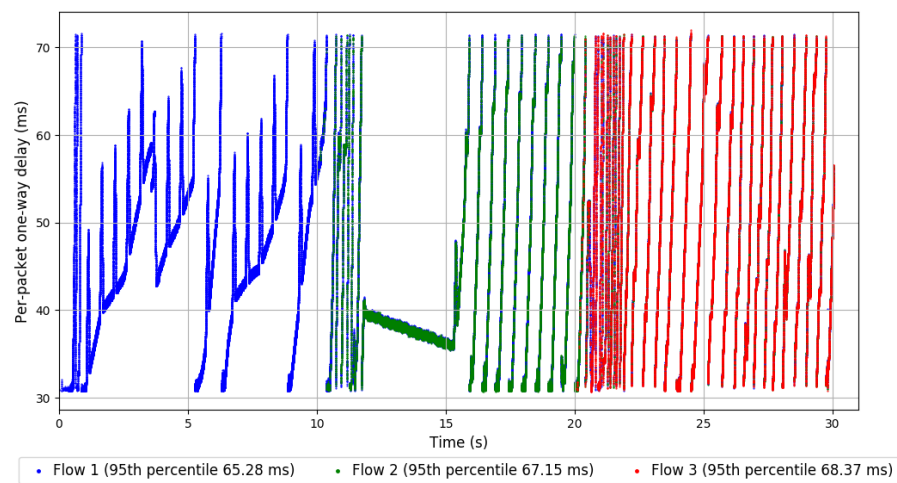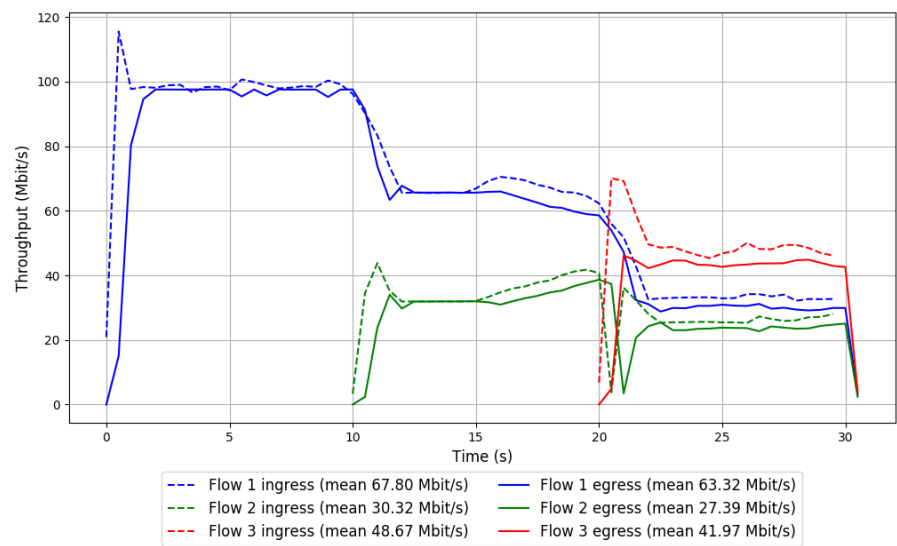3 flows with 10s interval between flows (mean of all runs by scheme)

test from AWS California 2 to Mexico, 5 runs of 30s each per scheme
3 flows with 10s interval between flows

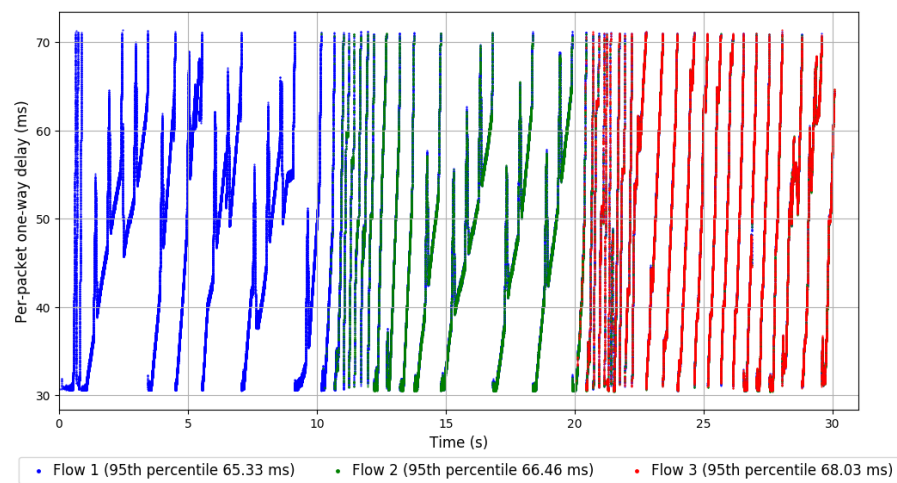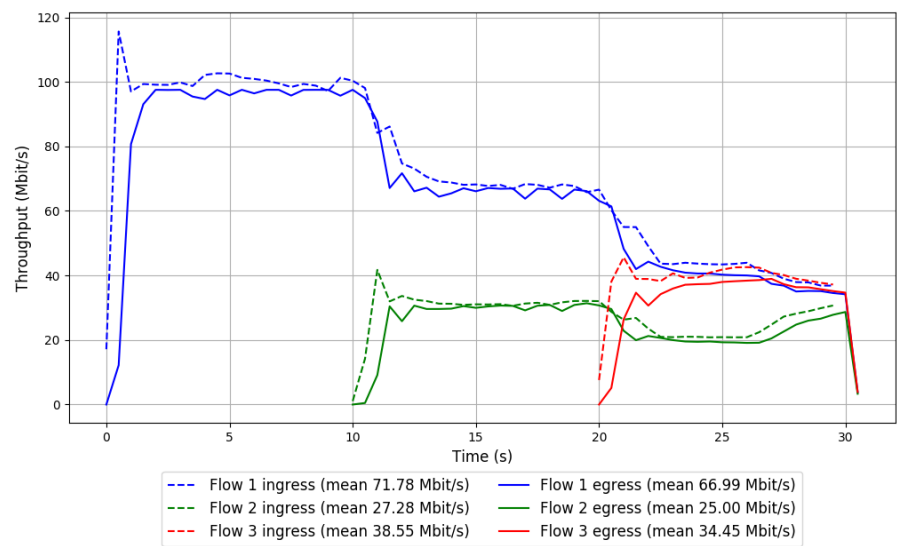| scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	64.68	30.38	31.77	66.29	67.69	68.26	7.31	10.00	11.84
Copa	5	9.27	4.68	0.70	31.30	31.03	30.98	70.51	78.40	93.63
TCP Cubic	5	74.67	21.88	20.44	64.55	65.55	61.07	0.73	0.59	0.77
FillP	5	58.49	40.61	22.09	66.39	69.10	68.69	29.59	47.57	54.84
FillP-Sheep	5	56.24	38.21	26.07	63.70	66.95	66.43	8.89	16.58	17.85
Indigo	5	68.87	24.19	33.31	43.97	49.43	54.79	0.07	0.12	0.00
Indigo-MusesC3	5	57.48	42.54	34.67	42.48	47.65	51.31	0.26	0.38	1.46
Indigo-MusesC5	5	50.23	52.81	23.16	59.89	63.92	64.38	4.87	11.83	17.77
Indigo-MusesD	5	56.16	49.60	13.02	34.32	36.03	36.43	0.00	0.01	0.02
Indigo-MusesT	5	57.43	51.87	9.51	60.09	65.98	66.48	4.98	10.66	16.64
LEDBAT	5	40.73	27.54	18.26	64.09	63.93	56.52	0.22	0.16	0.13
PCC-Allegro	5	80.69	10.73	8.56	59.70	61.24	61.38	1.75	1.57	2.44
PCC-Expr	5	0.03	10.30	5.86	30.81	30.91	30.94	85.71	48.27	43.51
QUIC Cubic	5	62.72	22.82	21.79	66.83	66.69	67.10	2.32	1.25	1.40
SCReAM	5	0.21	0.21	0.22	30.88	30.85	30.85	0.00	0.00	0.00
Sprout	5	11.82	11.72	11.53	37.03	37.47	37.33	0.02	0.12	0.01
TaoVA-100x	5	0.00	9.26	7.13	30.82	31.91	32.08	95.92	84.88	56.94
TCP Vegas	5	67.16	29.34	16.92	40.48	39.36	38.48	0.67	0.06	0.00
Verus	5	44.88	19.17	16.29	80.74	58.66	58.86	47.25	35.67	40.72
PCC-Vivace	5	65.03	24.31	11.31	41.62	41.68	41.03	0.08	0.10	0.03
WebRTC media	5	0.05	0.05	0.05	31.46	31.46	31.60	0.00	0.00	0.00

```
Run 1: Statistics of TCP BBR

Start at: 2019-01-19 00:23:53
End at: 2019-01-19 00:24:23
Local clock offset: 0.098 ms
Remote clock offset: -3.187 ms


# Below is generated by plot.py at 2019-01-19 02:30:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.55 Mbit/s
95th percentile per-packet one-way delay: 66.392 ms
Loss rate: 8.23%
-- Flow 1:
Average throughput: 63.32 Mbit/s
95th percentile per-packet one-way delay: 65.280 ms
Loss rate: 6.53%
-- Flow 2:
Average throughput: 27.39 Mbit/s
95th percentile per-packet one-way delay: 67.152 ms
Loss rate: 9.66%
-- Flow 3:
Average throughput: 41.97 Mbit/s
95th percentile per-packet one-way delay: 68.373 ms
Loss rate: 13.56%
```
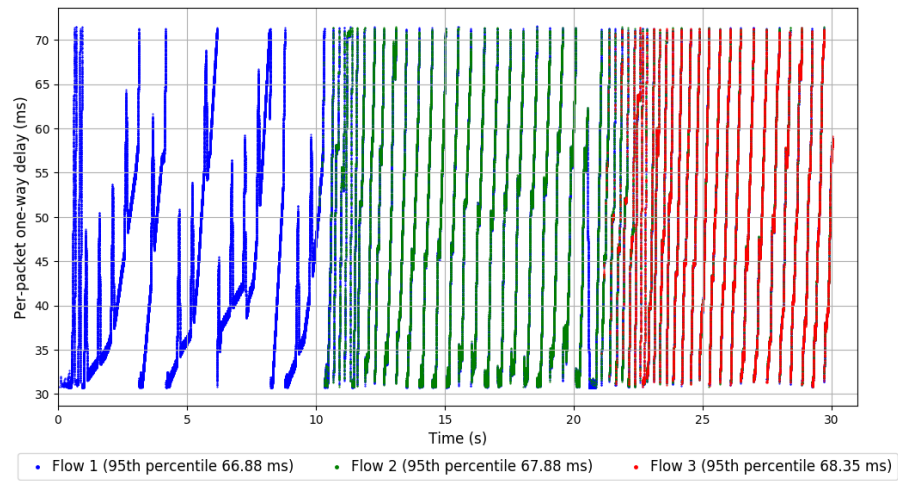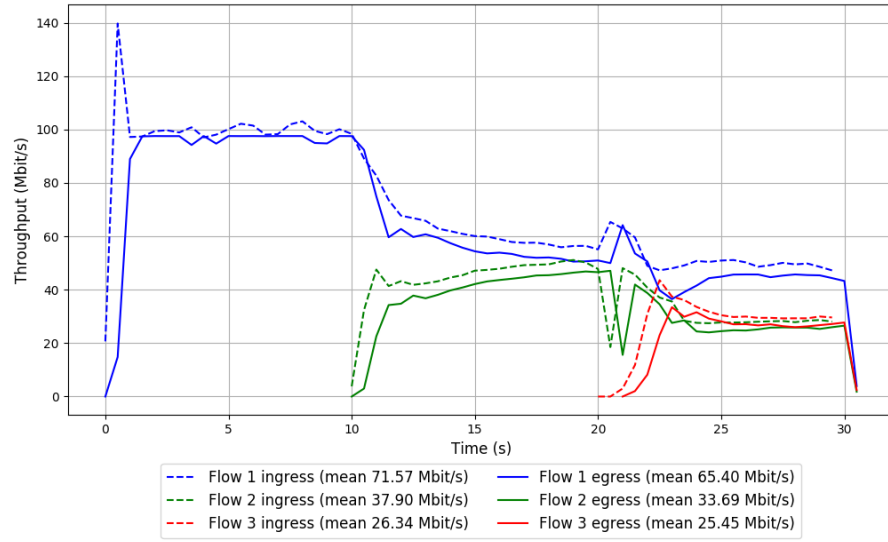
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2019-01-19 00:51:51
End at: 2019-01-19 00:52:21
Local clock offset: -1.359 ms
Remote clock offset: -2.914 ms


# Below is generated by plot.py at 2019-01-19 02:30:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.14 Mbit/s
95th percentile per-packet one-way delay: 66.058 ms
Loss rate: 7.35%
-- Flow 1:
Average throughput: 66.99 Mbit/s
95th percentile per-packet one-way delay: 65.327 ms
Loss rate: 6.57%
-- Flow 2:
Average throughput: 25.00 Mbit/s
95th percentile per-packet one-way delay: 66.460 ms
Loss rate: 8.30%
-- Flow 3:
Average throughput: 34.45 Mbit/s
95th percentile per-packet one-way delay: 68.028 ms
Loss rate: 10.35%
```
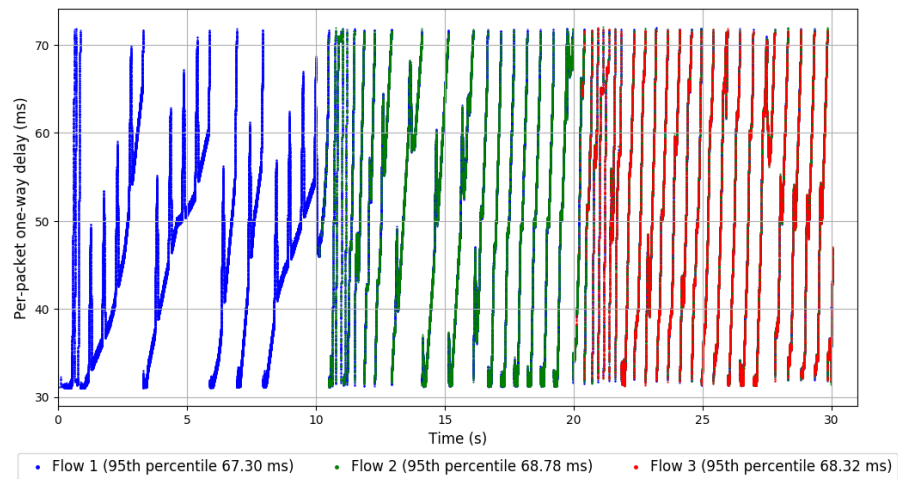
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2019-01-19 01:20:06
End at: 2019-01-19 01:20:36
Local clock offset: -4.241 ms
Remote clock offset: -2.614 ms


# Below is generated by plot.py at 2019-01-19 02:30:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.42 Mbit/s
95th percentile per-packet one-way delay: 67.345 ms
Loss rate: 9.53%
-- Flow 1:
Average throughput: 65.40 Mbit/s
95th percentile per-packet one-way delay: 66.884 ms
Loss rate: 8.54%
-- Flow 2:
Average throughput: 33.69 Mbit/s
95th percentile per-packet one-way delay: 67.879 ms
Loss rate: 11.09%
-- Flow 3:
Average throughput: 25.45 Mbit/s
95th percentile per-packet one-way delay: 68.350 ms
Loss rate: 13.11%
```
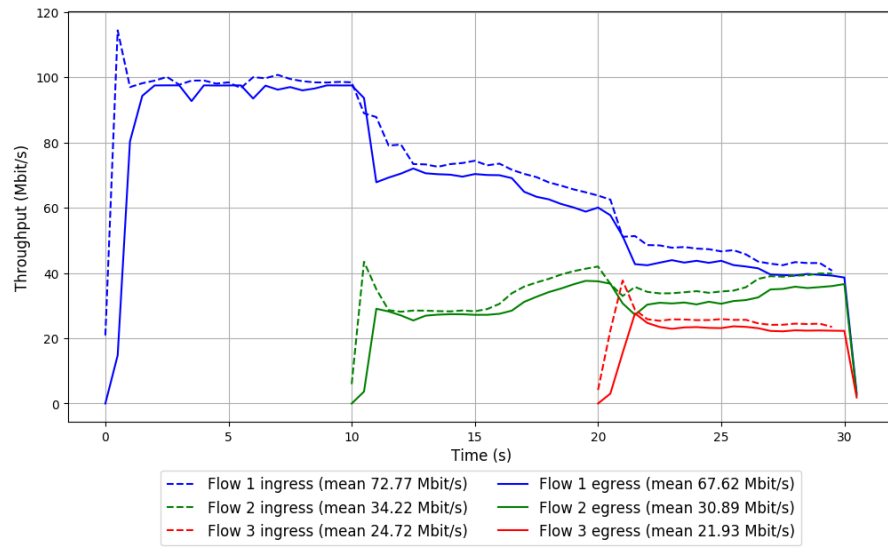
Run 3: Report of TCP BBR — Data Link

```
Run 4: Statistics of TCP BBR

Start at: 2019-01-19 01:48:56
End at: 2019-01-19 01:49:26
Local clock offset: -4.129 ms
Remote clock offset: -2.673 ms


# Below is generated by plot.py at 2019-01-19 02:30:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.50 Mbit/s
95th percentile per-packet one-way delay: 67.776 ms
Loss rate: 7.95%
-- Flow 1:
Average throughput: 67.62 Mbit/s
95th percentile per-packet one-way delay: 67.296 ms
Loss rate: 7.04%
-- Flow 2:
Average throughput: 30.89 Mbit/s
95th percentile per-packet one-way delay: 68.783 ms
Loss rate: 9.72%
-- Flow 3:
Average throughput: 21.93 Mbit/s
95th percentile per-packet one-way delay: 68.322 ms
Loss rate: 11.17%
```
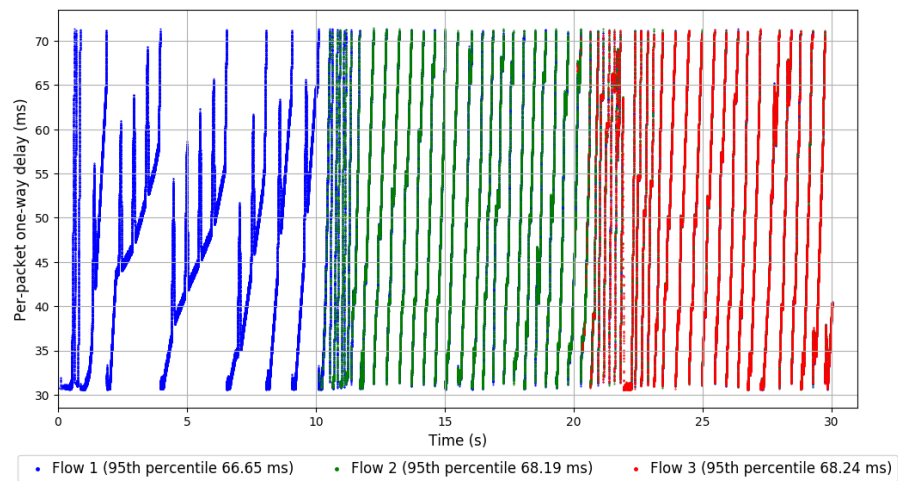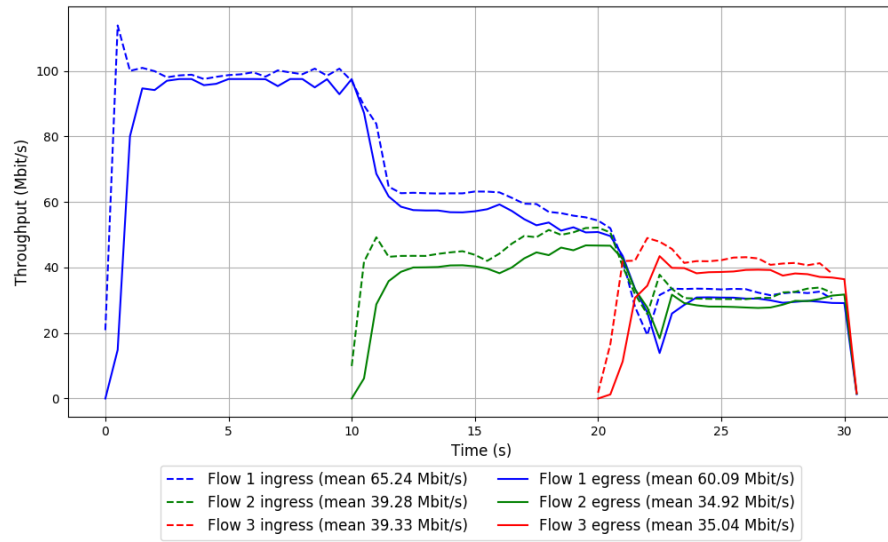
Run 4: Report of TCP BBR — Data Link

```
Run 5: Statistics of TCP BBR

Start at: 2019-01-19 02:17:21
End at: 2019-01-19 02:17:51
Local clock offset: 1.647 ms
Remote clock offset: -2.8 ms


# Below is generated by plot.py at 2019-01-19 02:30:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.98 Mbit/s
95th percentile per-packet one-way delay: 67.312 ms
Loss rate: 9.09%
-- Flow 1:
Average throughput: 60.09 Mbit/s
95th percentile per-packet one-way delay: 66.652 ms
Loss rate: 7.86%
-- Flow 2:
Average throughput: 34.92 Mbit/s
95th percentile per-packet one-way delay: 68.189 ms
Loss rate: 11.22%
-- Flow 3:
Average throughput: 35.04 Mbit/s
95th percentile per-packet one-way delay: 68.242 ms
Loss rate: 10.99%
```
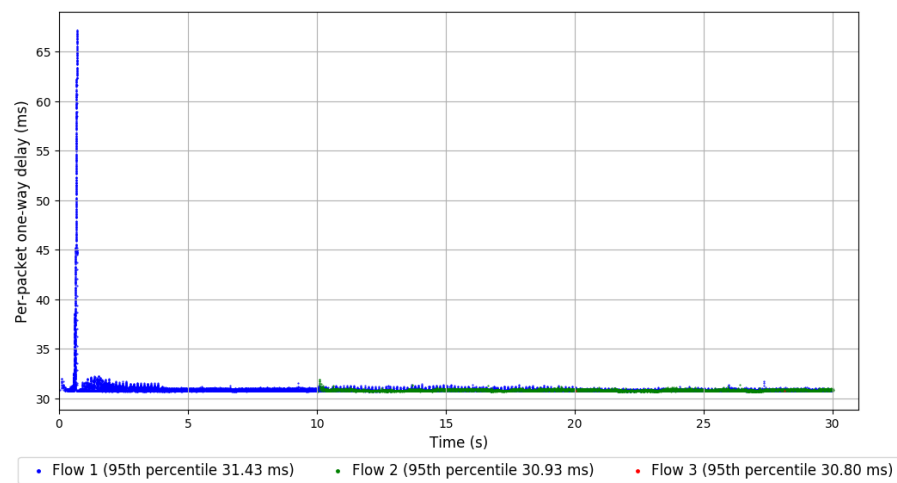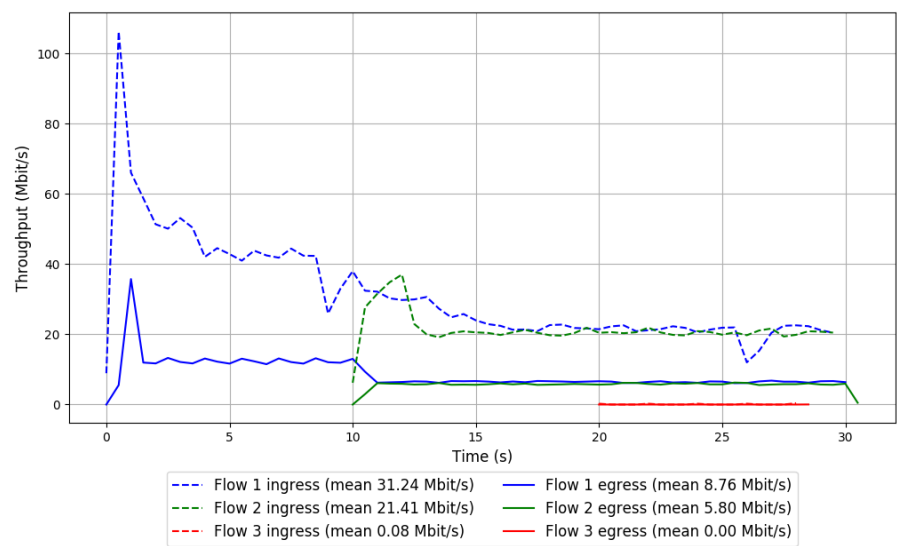
Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 65.24 Mbit/s) --- Flow 1 egress (mean 60.09 Mbit/s)
Flow 2 ingress (mean 39.28 Mbit/s) --- Flow 2 egress (mean 34.92 Mbit/s)
Flow 3 ingress (mean 39.33 Mbit/s) --- Flow 3 egress (mean 35.04 Mbit/s)

Flow 1 (95th percentile 66.65 ms)   Flow 2 (95th percentile 68.19 ms)   Flow 3 (95th percentile 68.24 ms)
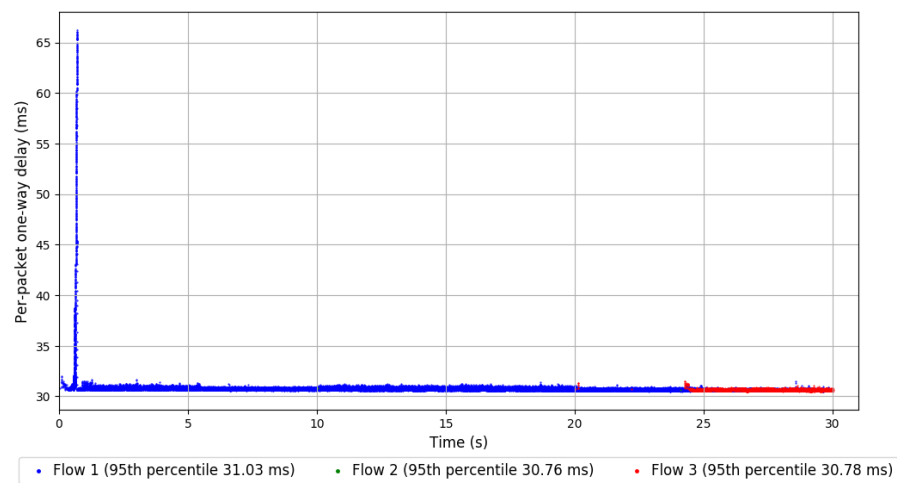
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```
Run 1: Statistics of Copa

Start at: 2019-01-19 00:22:38
End at: 2019-01-19 00:23:08
Local clock offset: 0.087 ms
Remote clock offset: -3.206 ms


# Below is generated by plot.py at 2019-01-19 02:30:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 31.198 ms
Loss rate: 72.28%
-- Flow 1:
Average throughput: 8.76 Mbit/s
95th percentile per-packet one-way delay: 31.431 ms
Loss rate: 71.97%
-- Flow 2:
Average throughput: 5.80 Mbit/s
95th percentile per-packet one-way delay: 30.925 ms
Loss rate: 72.91%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 30.797 ms
Loss rate: 98.07%
```
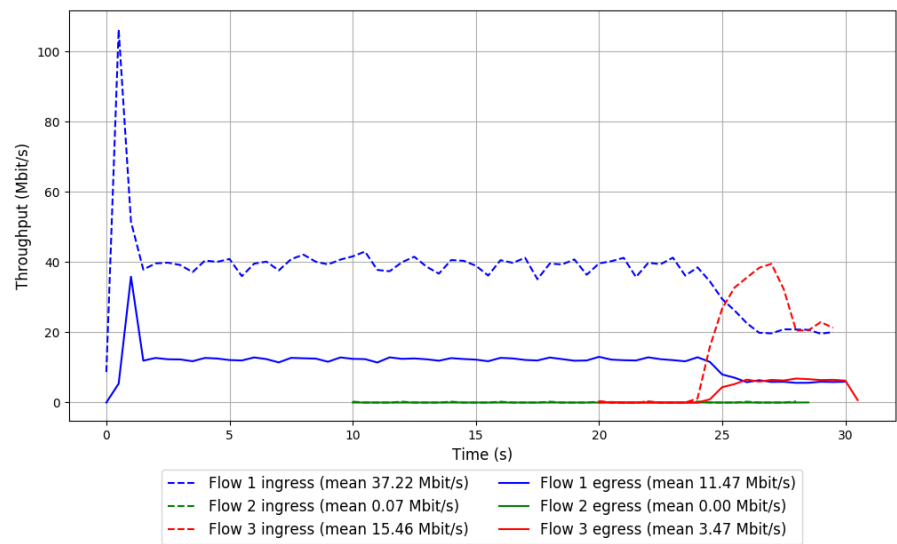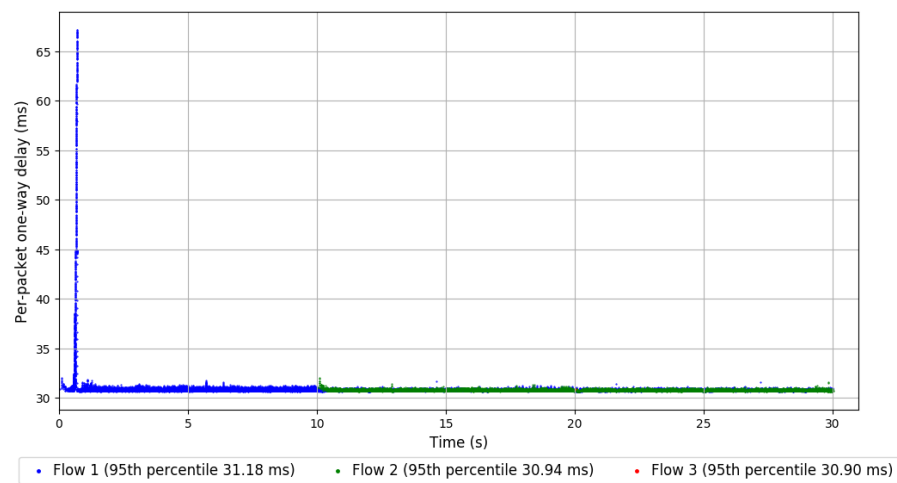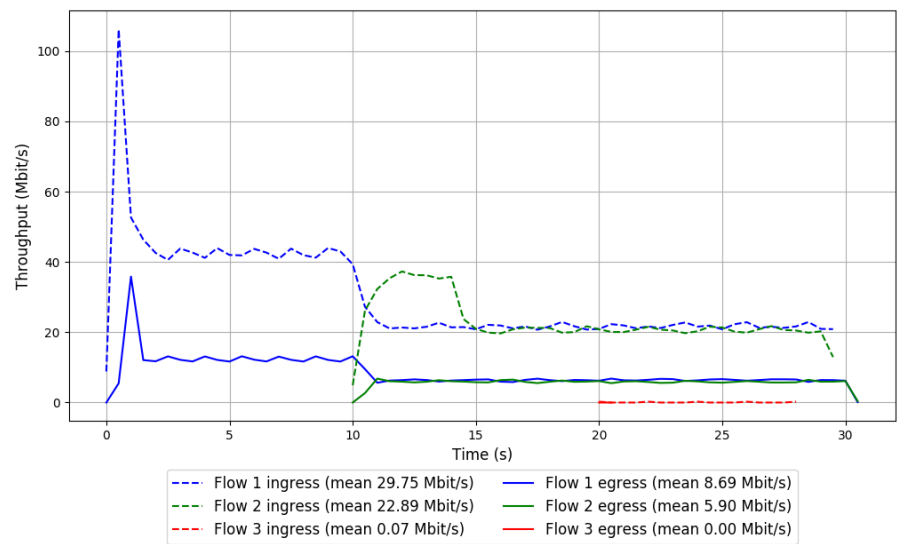
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 31.24 Mbit/s) --- Flow 1 egress (mean 8.76 Mbit/s) ---
Flow 2 ingress (mean 21.41 Mbit/s) --- Flow 2 egress (mean 5.80 Mbit/s) ---
Flow 3 ingress (mean 0.08 Mbit/s) --- Flow 3 egress (mean 0.00 Mbit/s) ---

• Flow 1 (95th percentile 31.43 ms)   • Flow 2 (95th percentile 30.93 ms)   • Flow 3 (95th percentile 30.80 ms)

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```
Run 2: Statistics of Copa

Start at: 2019-01-19 00:50:38
End at: 2019-01-19 00:51:09
Local clock offset: -1.034 ms
Remote clock offset: -2.872 ms


# Below is generated by plot.py at 2019-01-19 02:30:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 31.019 ms
Loss rate: 70.23%
-- Flow 1:
Average throughput: 11.47 Mbit/s
95th percentile per-packet one-way delay: 31.032 ms
Loss rate: 69.19%
-- Flow 2:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 30.758 ms
Loss rate: 98.00%
-- Flow 3:
Average throughput: 3.47 Mbit/s
95th percentile per-packet one-way delay: 30.779 ms
Loss rate: 77.56%
```
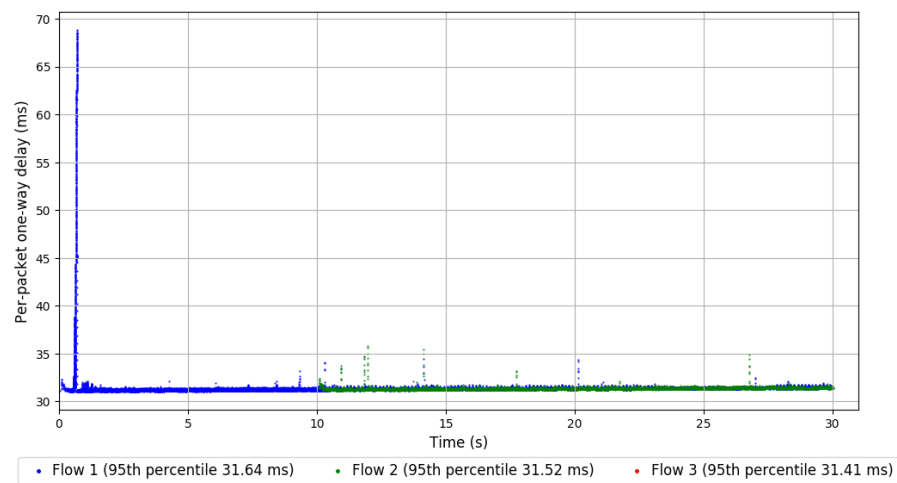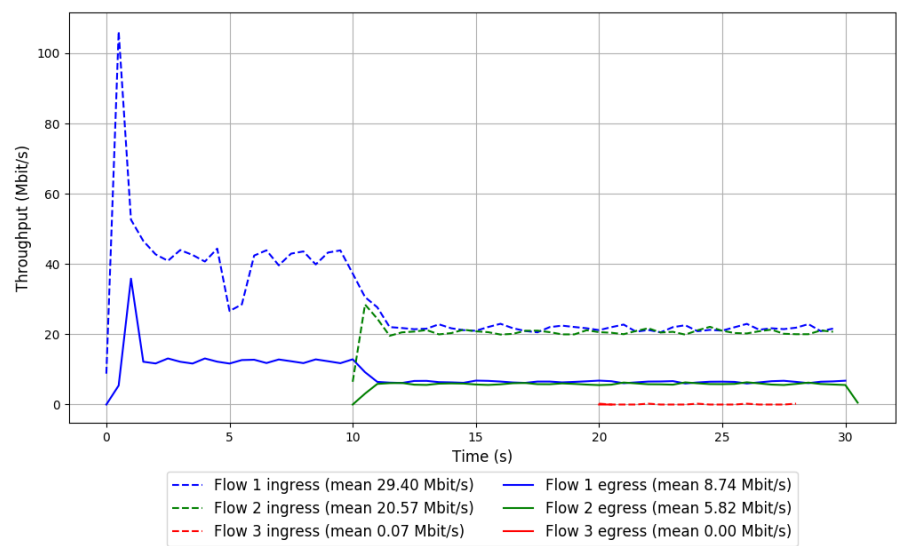
Run 2: Report of Copa — Data Link

Flow 1 ingress (mean 37.22 Mbit/s) --- Flow 1 egress (mean 11.47 Mbit/s)
Flow 2 ingress (mean 0.07 Mbit/s) --- Flow 2 egress (mean 0.00 Mbit/s)
Flow 3 ingress (mean 15.46 Mbit/s) --- Flow 3 egress (mean 3.47 Mbit/s)

Flow 1 (95th percentile 31.03 ms)   Flow 2 (95th percentile 30.76 ms)   Flow 3 (95th percentile 30.78 ms)

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```
Run 3: Statistics of Copa

Start at: 2019-01-19 01:18:54
End at: 2019-01-19 01:19:24
Local clock offset: -4.217 ms
Remote clock offset: -2.692 ms


# Below is generated by plot.py at 2019-01-19 02:30:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 31.081 ms
Loss rate: 71.97%
-- Flow 1:
Average throughput: 8.69 Mbit/s
95th percentile per-packet one-way delay: 31.184 ms
Loss rate: 70.80%
-- Flow 2:
Average throughput: 5.90 Mbit/s
95th percentile per-packet one-way delay: 30.942 ms
Loss rate: 74.23%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 30.902 ms
Loss rate: 99.83%
```
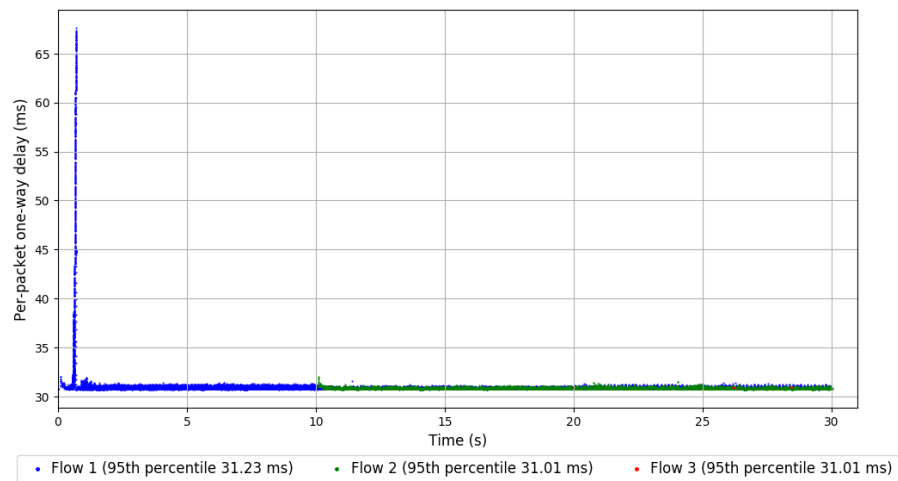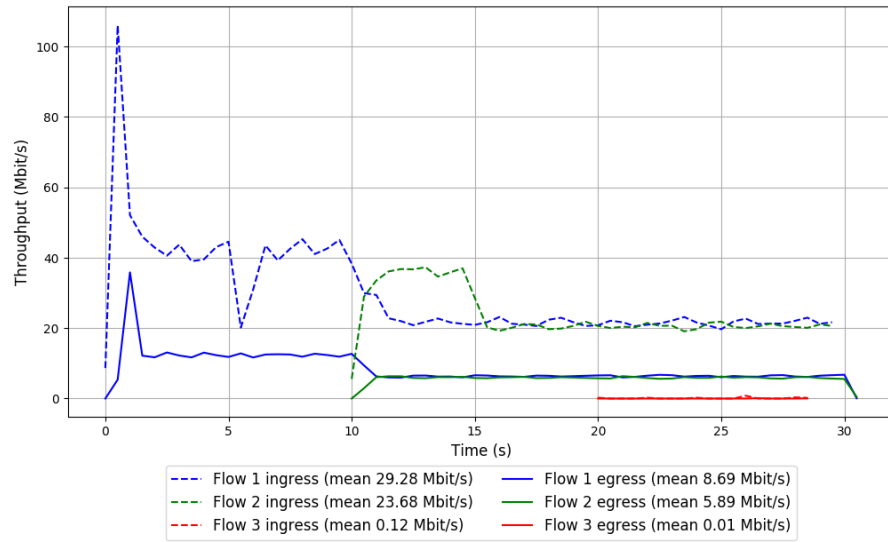
Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2019-01-19 01:47:42
End at: 2019-01-19 01:48:12
Local clock offset: -4.831 ms
Remote clock offset: -2.603 ms


# Below is generated by plot.py at 2019-01-19 02:30:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 31.565 ms
Loss rate: 70.75%
-- Flow 1:
Average throughput: 8.74 Mbit/s
95th percentile per-packet one-way delay: 31.640 ms
Loss rate: 70.28%
-- Flow 2:
Average throughput: 5.82 Mbit/s
95th percentile per-packet one-way delay: 31.520 ms
Loss rate: 71.71%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 31.410 ms
Loss rate: 99.83%
```
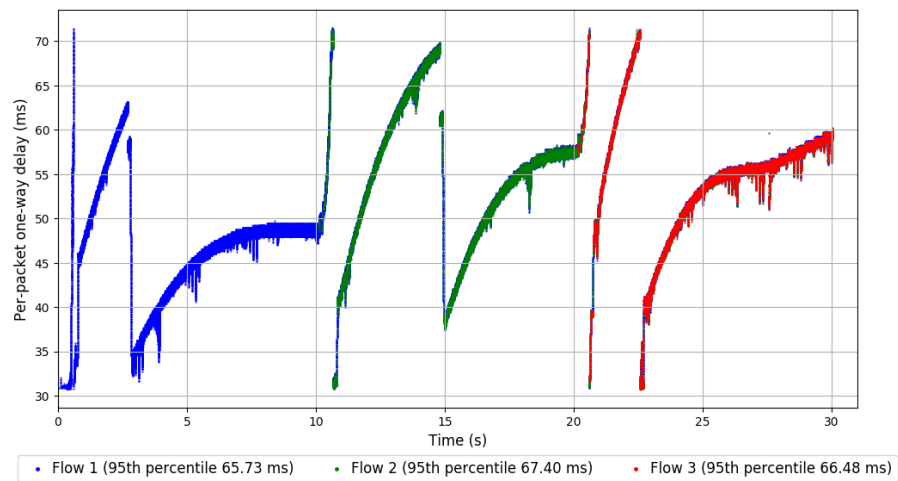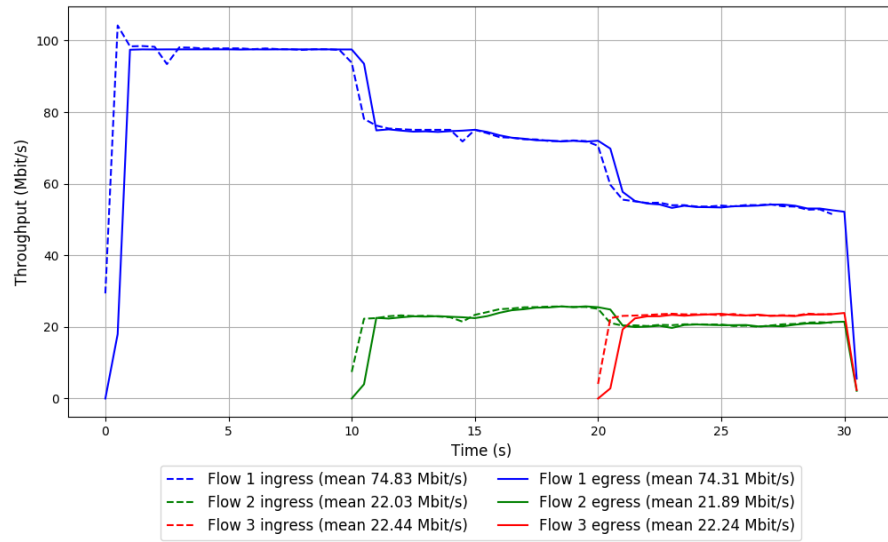
Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2019-01-19 02:16:08
End at: 2019-01-19 02:16:38
Local clock offset: 1.67 ms
Remote clock offset: -2.765 ms


# Below is generated by plot.py at 2019-01-19 02:30:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.61 Mbit/s
95th percentile per-packet one-way delay: 31.160 ms
Loss rate: 72.02%
-- Flow 1:
Average throughput: 8.69 Mbit/s
95th percentile per-packet one-way delay: 31.231 ms
Loss rate: 70.31%
-- Flow 2:
Average throughput: 5.89 Mbit/s
95th percentile per-packet one-way delay: 31.010 ms
Loss rate: 75.14%
-- Flow 3:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 31.010 ms
Loss rate: 92.85%
```

Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2019-01-19 00:07:57
End at: 2019-01-19 00:08:27
Local clock offset: 0.008 ms
Remote clock offset: -3.362 ms


# Below is generated by plot.py at 2019-01-19 02:30:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.28 Mbit/s
95th percentile per-packet one-way delay: 66.344 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 74.31 Mbit/s
95th percentile per-packet one-way delay: 65.727 ms
Loss rate: 0.59%
-- Flow 2:
Average throughput: 21.89 Mbit/s
95th percentile per-packet one-way delay: 67.396 ms
Loss rate: 0.58%
-- Flow 3:
Average throughput: 22.24 Mbit/s
95th percentile per-packet one-way delay: 66.476 ms
Loss rate: 0.90%
```
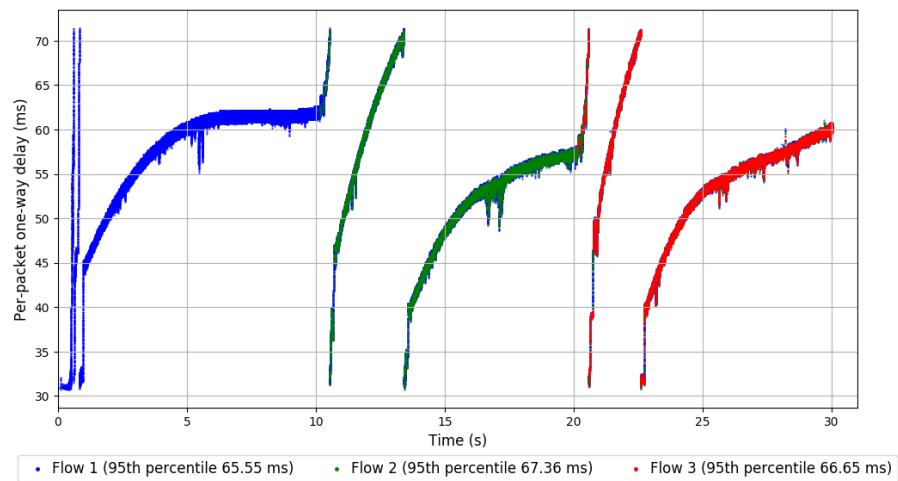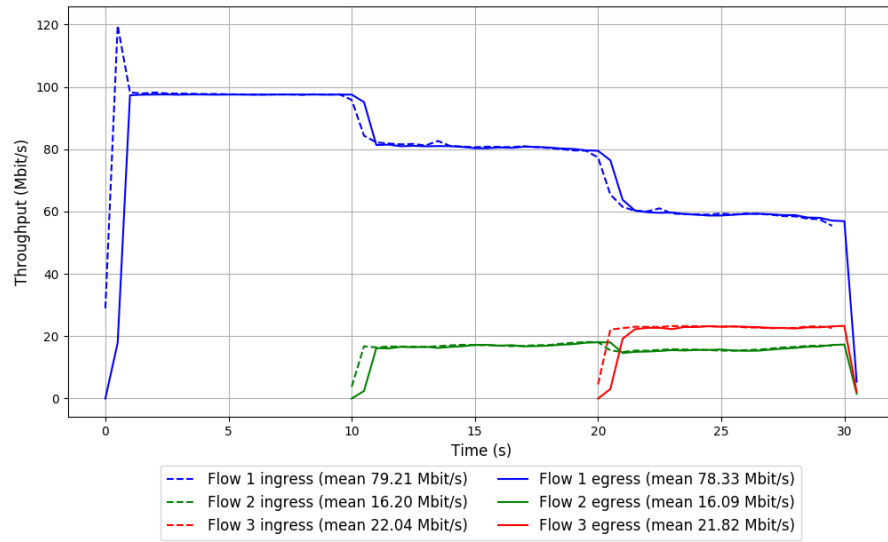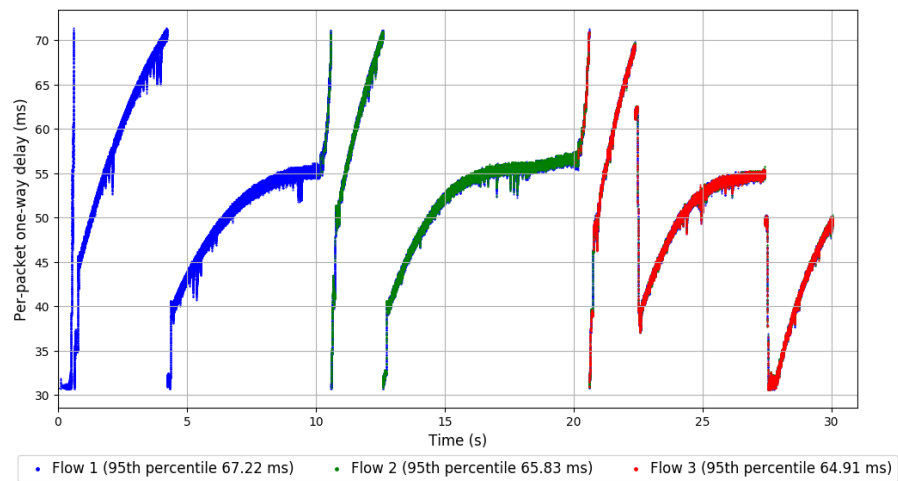
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2019-01-19 00:36:08
End at: 2019-01-19 00:36:38
Local clock offset: 0.211 ms
Remote clock offset: -3.06 ms


# Below is generated by plot.py at 2019-01-19 02:30:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.29 Mbit/s
95th percentile per-packet one-way delay: 65.928 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 78.33 Mbit/s
95th percentile per-packet one-way delay: 65.545 ms
Loss rate: 1.02%
-- Flow 2:
Average throughput: 16.09 Mbit/s
95th percentile per-packet one-way delay: 67.358 ms
Loss rate: 0.66%
-- Flow 3:
Average throughput: 21.82 Mbit/s
95th percentile per-packet one-way delay: 66.653 ms
Loss rate: 0.99%
```

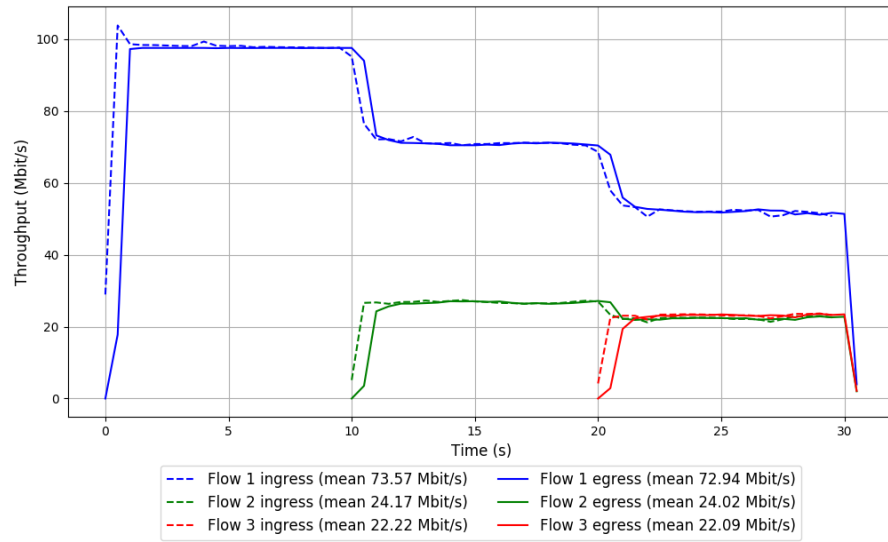Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2019-01-19 01:04:29
End at: 2019-01-19 01:04:59
Local clock offset: -3.357 ms
Remote clock offset: -2.783 ms


# Below is generated by plot.py at 2019-01-19 02:30:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.26 Mbit/s
95th percentile per-packet one-way delay: 66.941 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 72.94 Mbit/s
95th percentile per-packet one-way delay: 67.215 ms
Loss rate: 0.79%
-- Flow 2:
Average throughput: 24.02 Mbit/s
95th percentile per-packet one-way delay: 65.828 ms
Loss rate: 0.65%
-- Flow 3:
Average throughput: 22.09 Mbit/s
95th percentile per-packet one-way delay: 64.912 ms
Loss rate: 0.66%
```
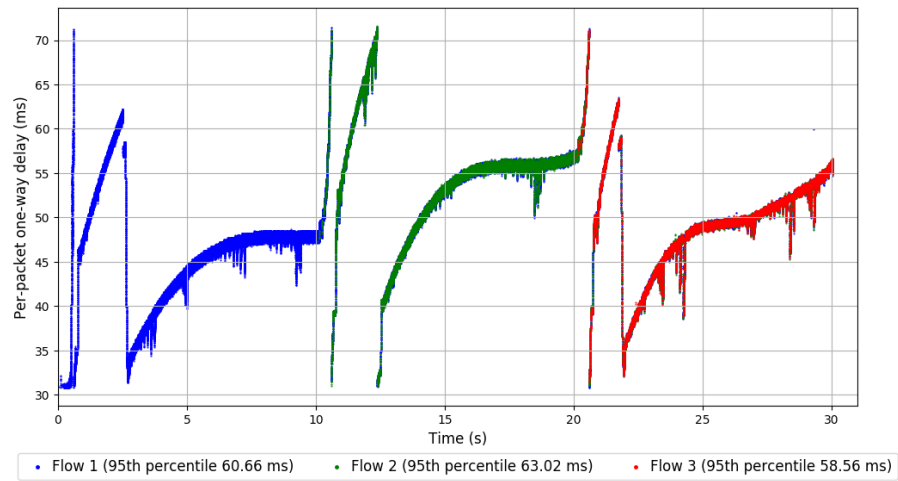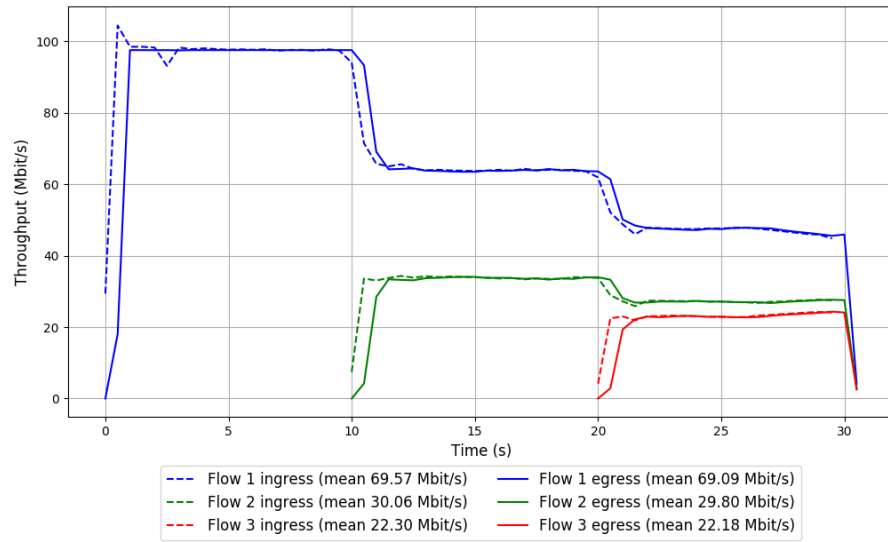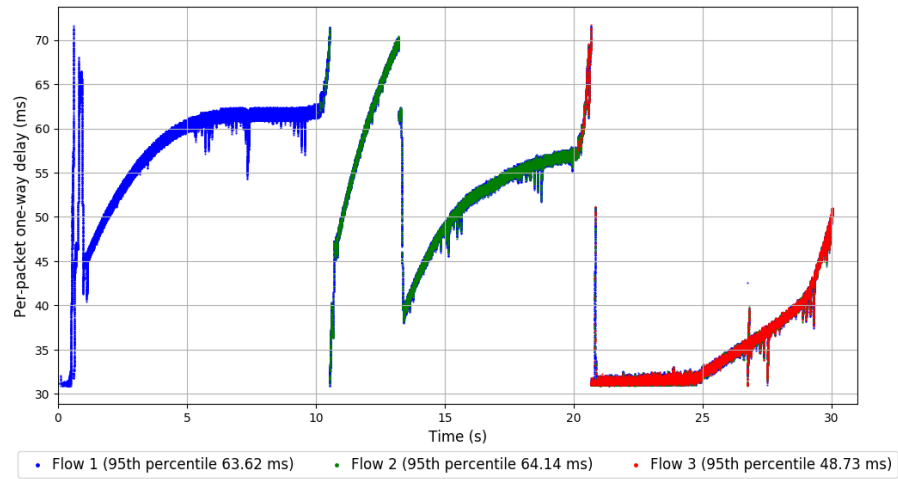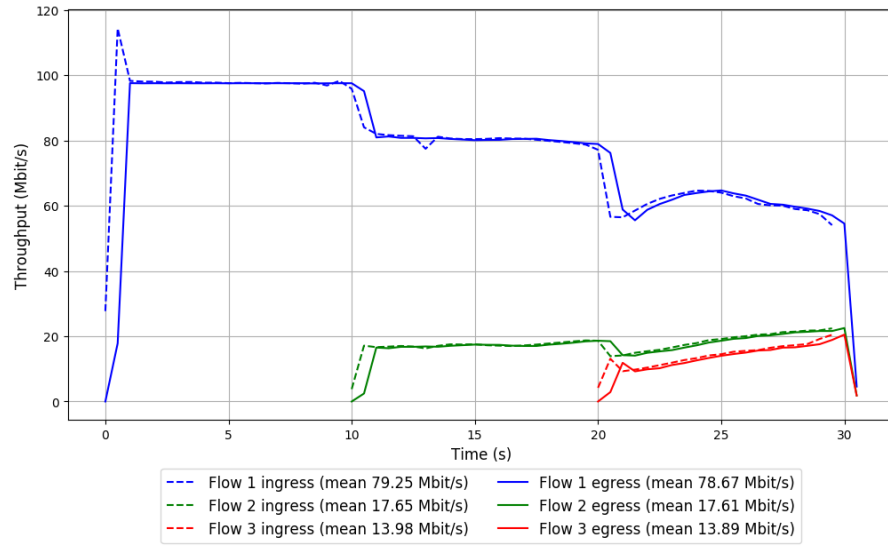
Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 73.57 Mbit/s) --- Flow 1 egress (mean 72.94 Mbit/s)
Flow 2 ingress (mean 24.17 Mbit/s) --- Flow 2 egress (mean 24.02 Mbit/s)
Flow 3 ingress (mean 22.22 Mbit/s) --- Flow 3 egress (mean 22.09 Mbit/s)

Flow 1 (95th percentile 67.22 ms)   Flow 2 (95th percentile 65.83 ms)   Flow 3 (95th percentile 64.91 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2019-01-19 01:32:58
End at: 2019-01-19 01:33:28
Local clock offset: -4.752 ms
Remote clock offset: -2.605 ms


# Below is generated by plot.py at 2019-01-19 02:31:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.30 Mbit/s
95th percentile per-packet one-way delay: 60.953 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 69.09 Mbit/s
95th percentile per-packet one-way delay: 60.665 ms
Loss rate: 0.61%
-- Flow 2:
Average throughput: 29.80 Mbit/s
95th percentile per-packet one-way delay: 63.020 ms
Loss rate: 0.79%
-- Flow 3:
Average throughput: 22.18 Mbit/s
95th percentile per-packet one-way delay: 58.563 ms
Loss rate: 0.57%
```
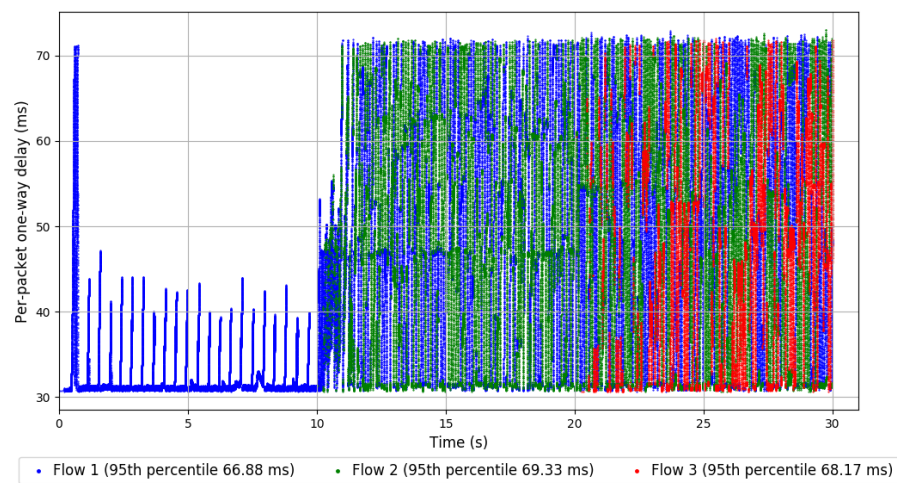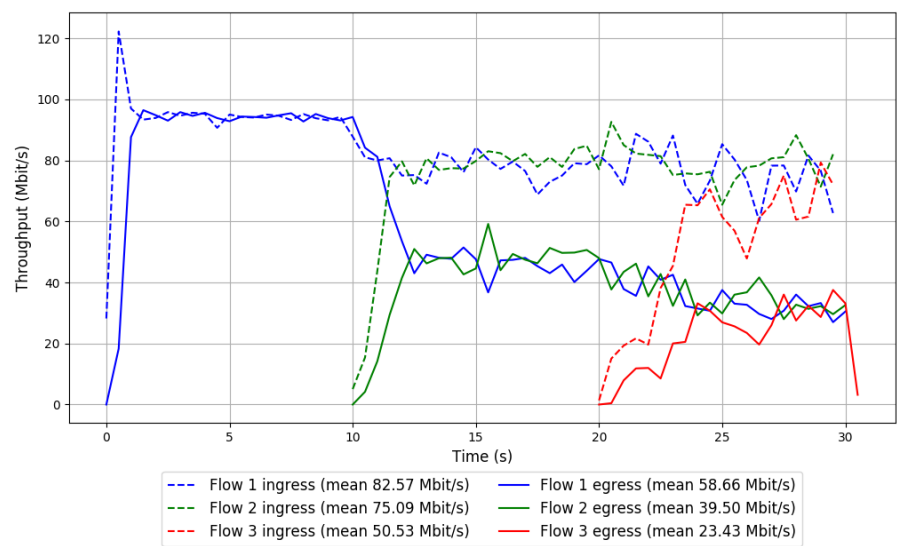
Run 4: Report of TCP Cubic — Data Link

- - - Flow 1 ingress (mean 69.57 Mbit/s) —— Flow 1 egress (mean 69.09 Mbit/s)
- - - Flow 2 ingress (mean 30.06 Mbit/s) —— Flow 2 egress (mean 29.80 Mbit/s)
- - - Flow 3 ingress (mean 22.30 Mbit/s) —— Flow 3 egress (mean 22.18 Mbit/s)

• Flow 1 (95th percentile 60.66 ms)   • Flow 2 (95th percentile 63.02 ms)   • Flow 3 (95th percentile 58.56 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2019-01-19 02:01:22
End at: 2019-01-19 02:01:52
Local clock offset: -0.012 ms
Remote clock offset: -2.558 ms


# Below is generated by plot.py at 2019-01-19 02:31:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.00 Mbit/s
95th percentile per-packet one-way delay: 63.562 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 78.67 Mbit/s
95th percentile per-packet one-way delay: 63.615 ms
Loss rate: 0.66%
-- Flow 2:
Average throughput: 17.61 Mbit/s
95th percentile per-packet one-way delay: 64.136 ms
Loss rate: 0.26%
-- Flow 3:
Average throughput: 13.89 Mbit/s
95th percentile per-packet one-way delay: 48.730 ms
Loss rate: 0.71%
```

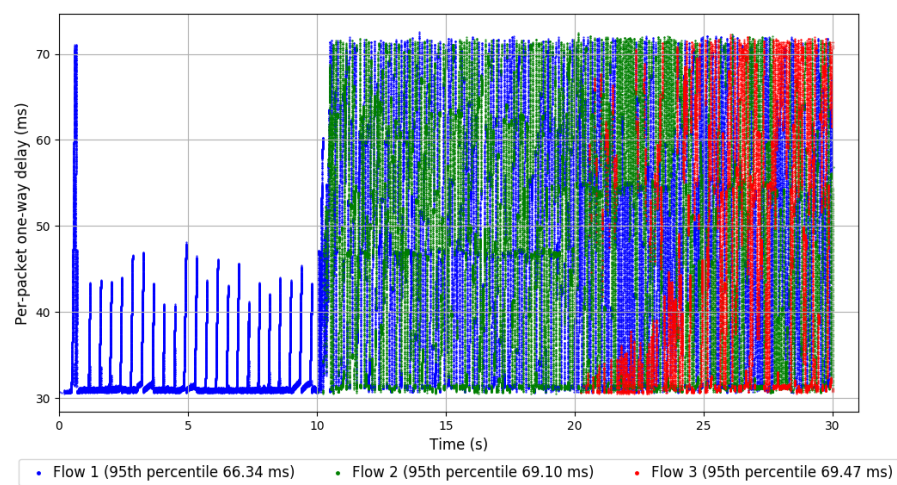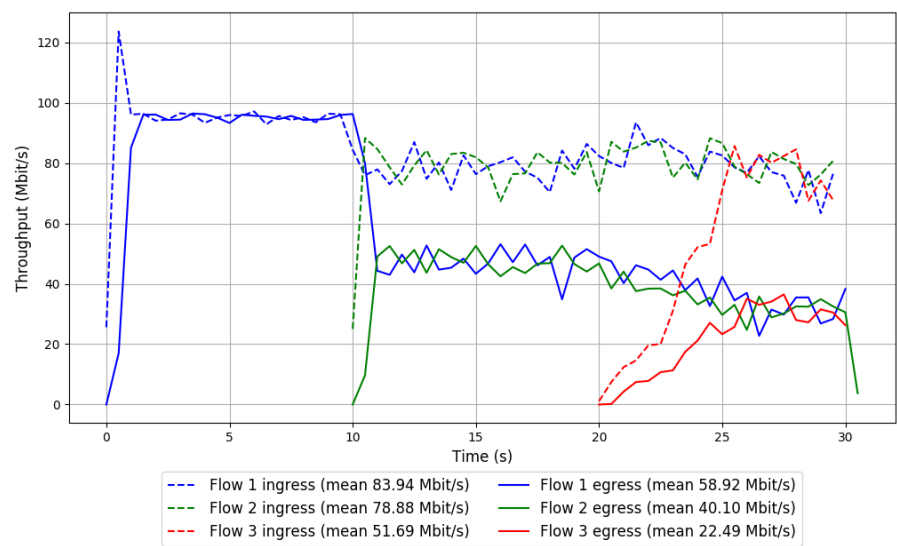Run 5: Report of TCP Cubic — Data Link

```
Run 1: Statistics of FillP

Start at: 2019-01-19 00:05:27
End at: 2019-01-19 00:05:57
Local clock offset: 0.002 ms
Remote clock offset: -3.332 ms


# Below is generated by plot.py at 2019-01-19 02:31:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.60 Mbit/s
95th percentile per-packet one-way delay: 67.873 ms
Loss rate: 37.91%
-- Flow 1:
Average throughput: 58.66 Mbit/s
95th percentile per-packet one-way delay: 66.879 ms
Loss rate: 28.92%
-- Flow 2:
Average throughput: 39.50 Mbit/s
95th percentile per-packet one-way delay: 69.325 ms
Loss rate: 47.49%
-- Flow 3:
Average throughput: 23.43 Mbit/s
95th percentile per-packet one-way delay: 68.173 ms
Loss rate: 53.63%
```
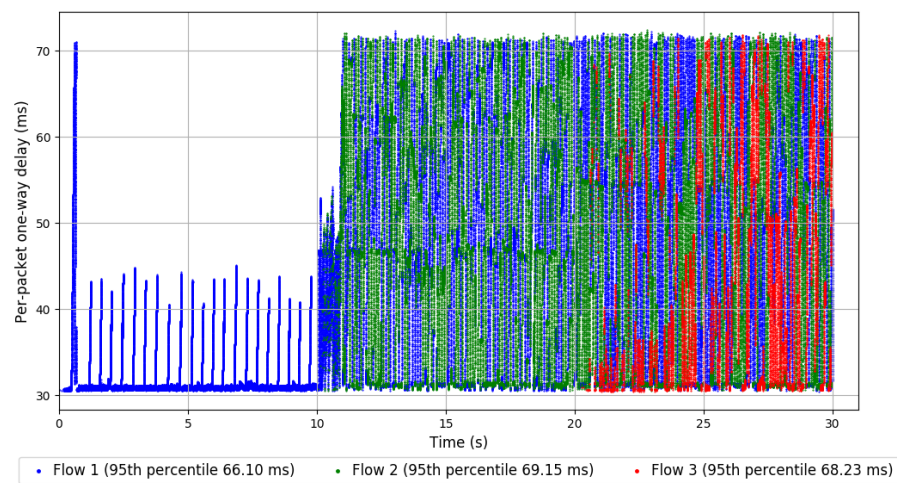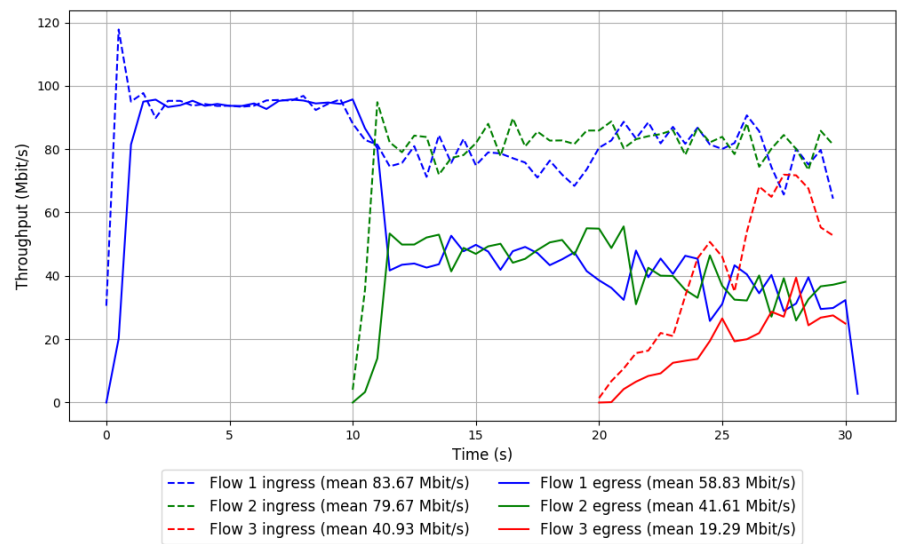
Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 82.57 Mbit/s) --- Flow 1 egress (mean 58.66 Mbit/s) ---
Flow 2 ingress (mean 75.09 Mbit/s) --- Flow 2 egress (mean 39.50 Mbit/s) ---
Flow 3 ingress (mean 50.53 Mbit/s) --- Flow 3 egress (mean 23.43 Mbit/s) ---

Flow 1 (95th percentile 66.88 ms)   Flow 2 (95th percentile 69.33 ms)   Flow 3 (95th percentile 68.17 ms)

```
Run 2: Statistics of FillP

Start at: 2019-01-19 00:33:20
End at: 2019-01-19 00:33:50
Local clock offset: 0.178 ms
Remote clock offset: -3.062 ms


# Below is generated by plot.py at 2019-01-19 02:31:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.86 Mbit/s
95th percentile per-packet one-way delay: 67.896 ms
Loss rate: 39.49%
-- Flow 1:
Average throughput: 58.92 Mbit/s
95th percentile per-packet one-way delay: 66.339 ms
Loss rate: 29.82%
-- Flow 2:
Average throughput: 40.10 Mbit/s
95th percentile per-packet one-way delay: 69.104 ms
Loss rate: 49.10%
-- Flow 3:
Average throughput: 22.49 Mbit/s
95th percentile per-packet one-way delay: 69.465 ms
Loss rate: 57.37%
```
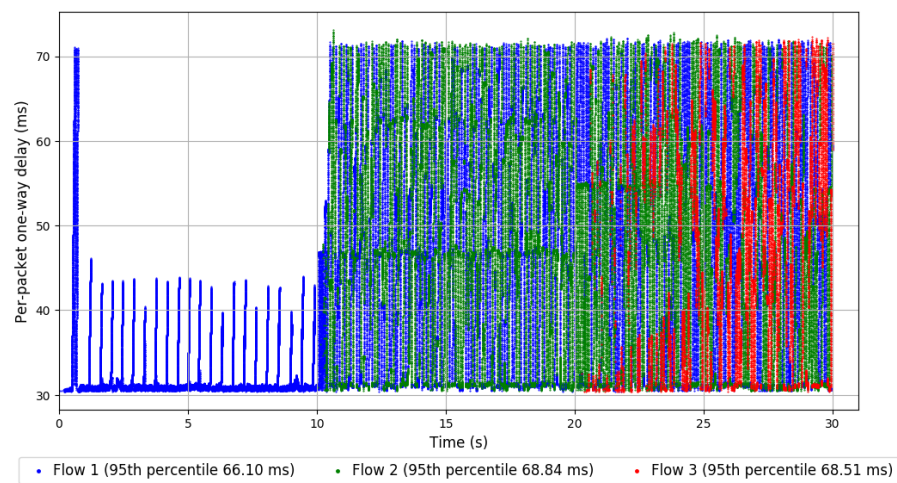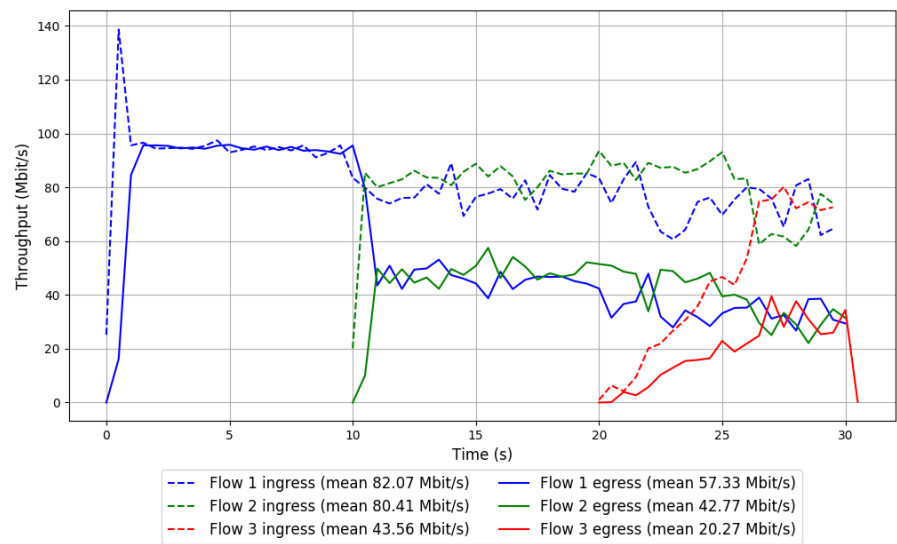
Run 2: Report of FillP — Data Link

Flow 1 ingress (mean 83.94 Mbit/s) ---- Flow 1 egress (mean 58.92 Mbit/s) ——
Flow 2 ingress (mean 78.88 Mbit/s) ---- Flow 2 egress (mean 40.10 Mbit/s) ——
Flow 3 ingress (mean 51.69 Mbit/s) ---- Flow 3 egress (mean 22.49 Mbit/s) ——

Flow 1 (95th percentile 66.34 ms)　Flow 2 (95th percentile 69.10 ms)　Flow 3 (95th percentile 69.47 ms)

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```
Run 3: Statistics of FillP

Start at: 2019-01-19 01:01:40
End at: 2019-01-19 01:02:10
Local clock offset: -3.095 ms
Remote clock offset: -2.834 ms

# Below is generated by plot.py at 2019-01-19 02:31:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.75 Mbit/s
95th percentile per-packet one-way delay: 67.758 ms
Loss rate: 38.22%
-- Flow 1:
Average throughput: 58.83 Mbit/s
95th percentile per-packet one-way delay: 66.104 ms
Loss rate: 29.64%
-- Flow 2:
Average throughput: 41.61 Mbit/s
95th percentile per-packet one-way delay: 69.148 ms
Loss rate: 47.77%
-- Flow 3:
Average throughput: 19.29 Mbit/s
95th percentile per-packet one-way delay: 68.232 ms
Loss rate: 53.88%
```
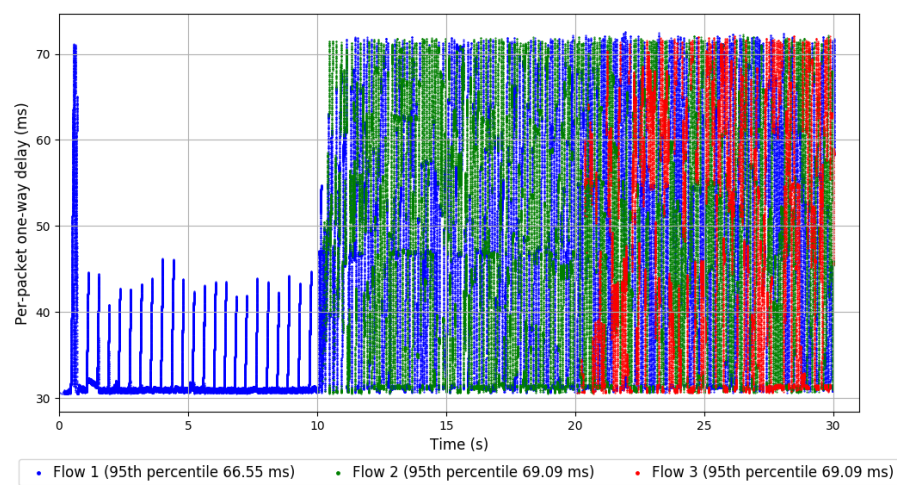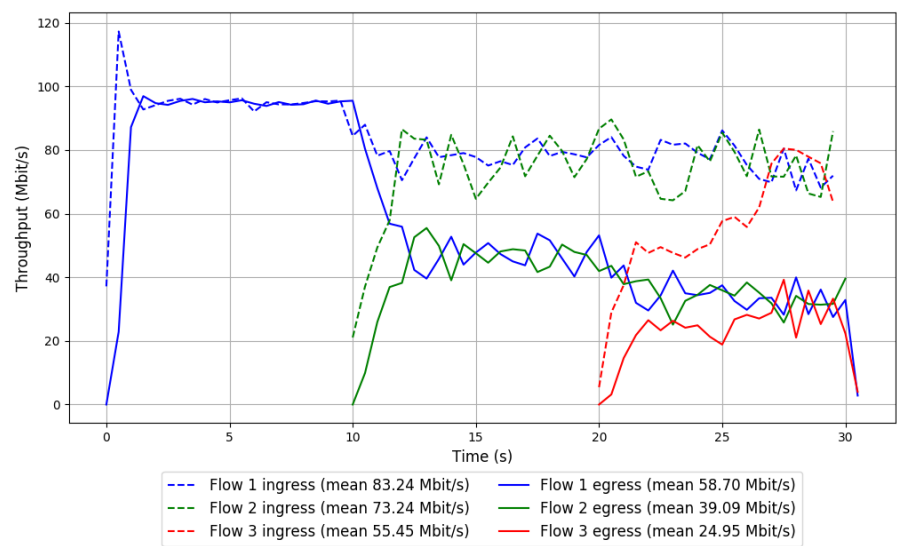
Run 3: Report of FillP — Data Link

```
Run 4: Statistics of FillP

Start at: 2019-01-19 01:30:08
End at: 2019-01-19 01:30:38
Local clock offset: -4.615 ms
Remote clock offset: -2.752 ms

# Below is generated by plot.py at 2019-01-19 02:31:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.34 Mbit/s
95th percentile per-packet one-way delay: 67.592 ms
Loss rate: 38.44%
-- Flow 1:
Average throughput: 57.33 Mbit/s
95th percentile per-packet one-way delay: 66.097 ms
Loss rate: 30.16%
-- Flow 2:
Average throughput: 42.77 Mbit/s
95th percentile per-packet one-way delay: 68.842 ms
Loss rate: 46.82%
-- Flow 3:
Average throughput: 20.27 Mbit/s
95th percentile per-packet one-way delay: 68.513 ms
Loss rate: 54.46%
```
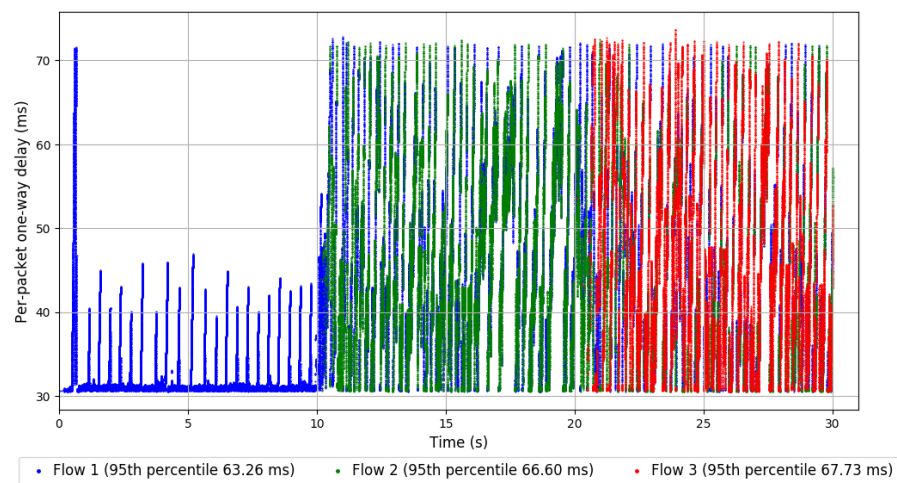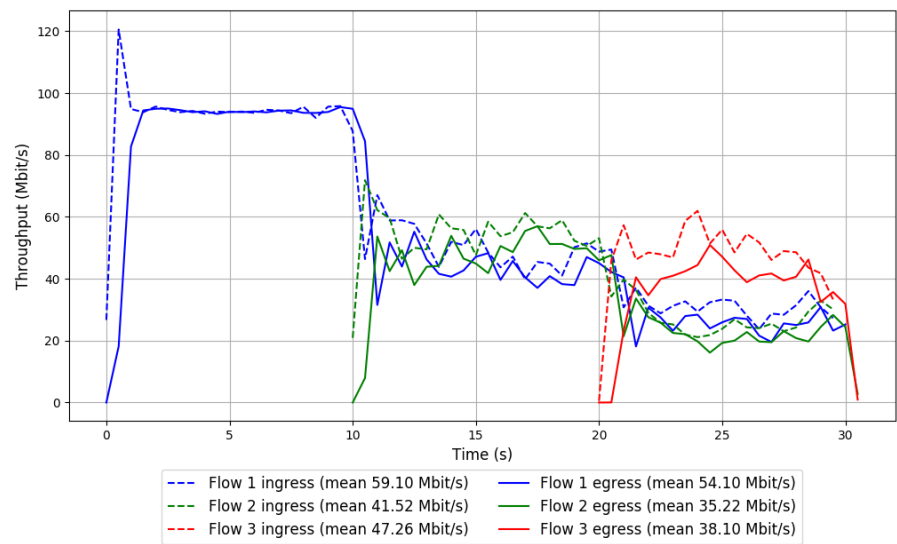
Run 4: Report of FillP — Data Link

Flow 1 ingress (mean 82.07 Mbit/s) — Flow 1 egress (mean 57.33 Mbit/s)
Flow 2 ingress (mean 80.41 Mbit/s) — Flow 2 egress (mean 42.77 Mbit/s)
Flow 3 ingress (mean 43.56 Mbit/s) — Flow 3 egress (mean 20.27 Mbit/s)

Flow 1 (95th percentile 66.10 ms)　　Flow 2 (95th percentile 68.84 ms)　　Flow 3 (95th percentile 68.51 ms)

```
Run 5: Statistics of FillP

Start at: 2019-01-19 01:58:35
End at: 2019-01-19 01:59:05
Local clock offset: -0.593 ms
Remote clock offset: -2.825 ms


# Below is generated by plot.py at 2019-01-19 02:32:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.97 Mbit/s
95th percentile per-packet one-way delay: 67.917 ms
Loss rate: 38.11%
-- Flow 1:
Average throughput: 58.70 Mbit/s
95th percentile per-packet one-way delay: 66.553 ms
Loss rate: 29.41%
-- Flow 2:
Average throughput: 39.09 Mbit/s
95th percentile per-packet one-way delay: 69.091 ms
Loss rate: 46.65%
-- Flow 3:
Average throughput: 24.95 Mbit/s
95th percentile per-packet one-way delay: 69.090 ms
Loss rate: 54.88%
```

Run 5: Report of FillP — Data Link

```
Run 1: Statistics of FillP-Sheep

Start at: 2019-01-19 00:15:39
End at: 2019-01-19 00:16:09
Local clock offset: 0.083 ms
Remote clock offset: -3.278 ms


# Below is generated by plot.py at 2019-01-19 02:32:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.10 Mbit/s
95th percentile per-packet one-way delay: 65.425 ms
Loss rate: 11.90%
-- Flow 1:
Average throughput: 54.10 Mbit/s
95th percentile per-packet one-way delay: 63.259 ms
Loss rate: 8.42%
-- Flow 2:
Average throughput: 35.22 Mbit/s
95th percentile per-packet one-way delay: 66.597 ms
Loss rate: 15.08%
-- Flow 3:
Average throughput: 38.10 Mbit/s
95th percentile per-packet one-way delay: 67.729 ms
Loss rate: 19.43%
```
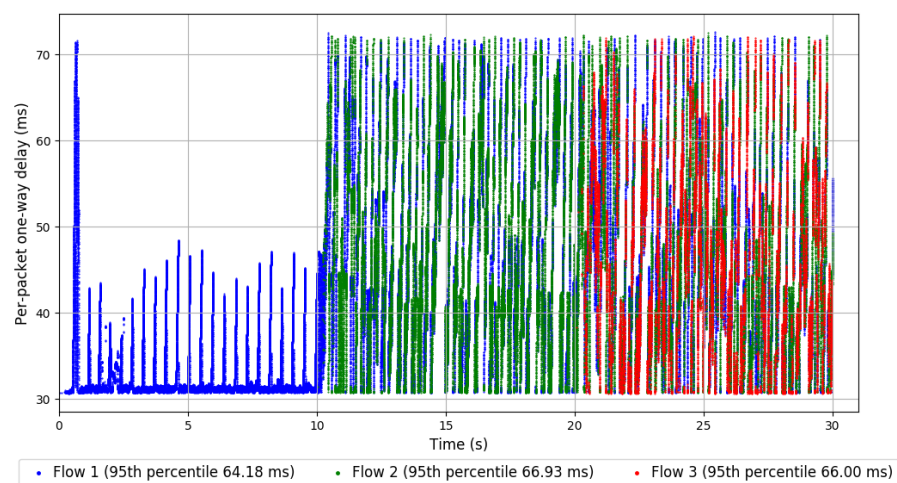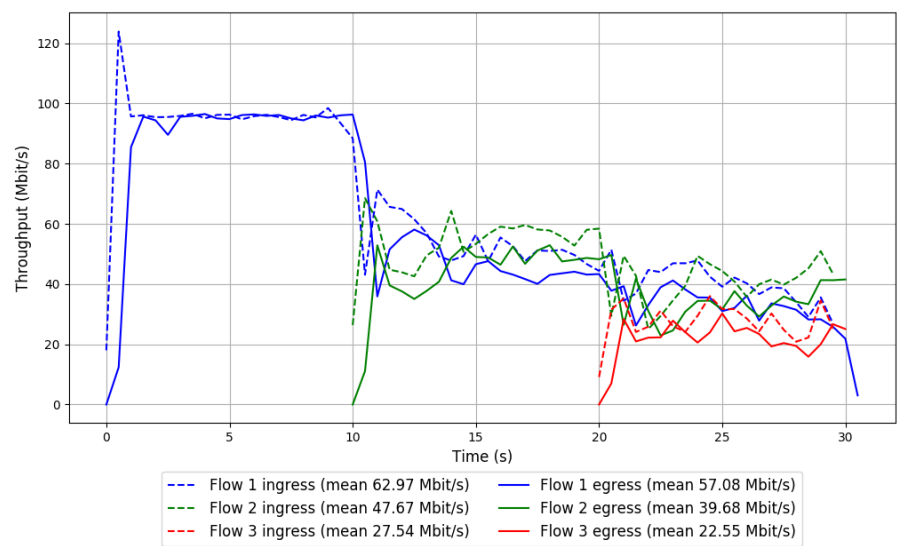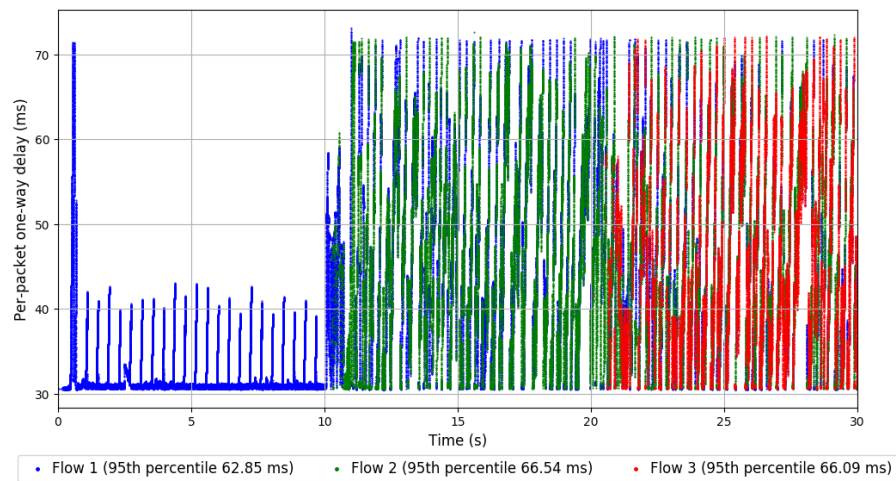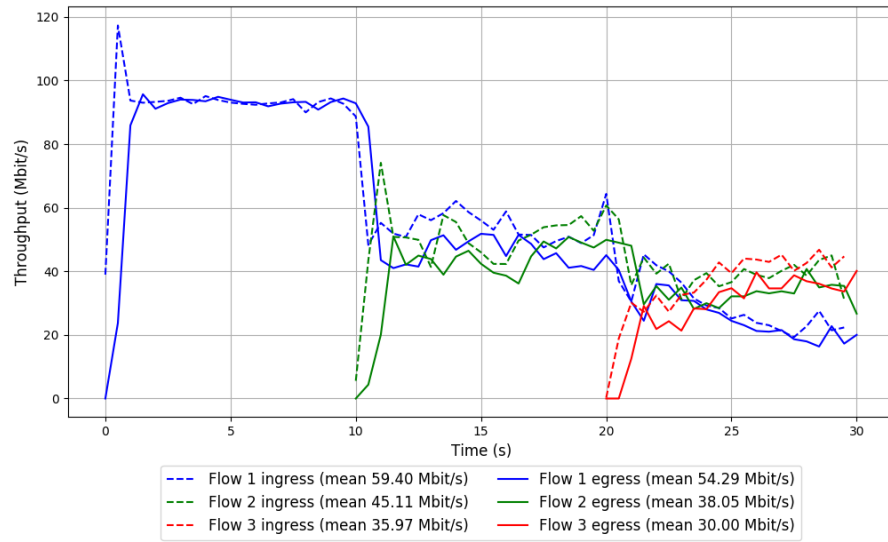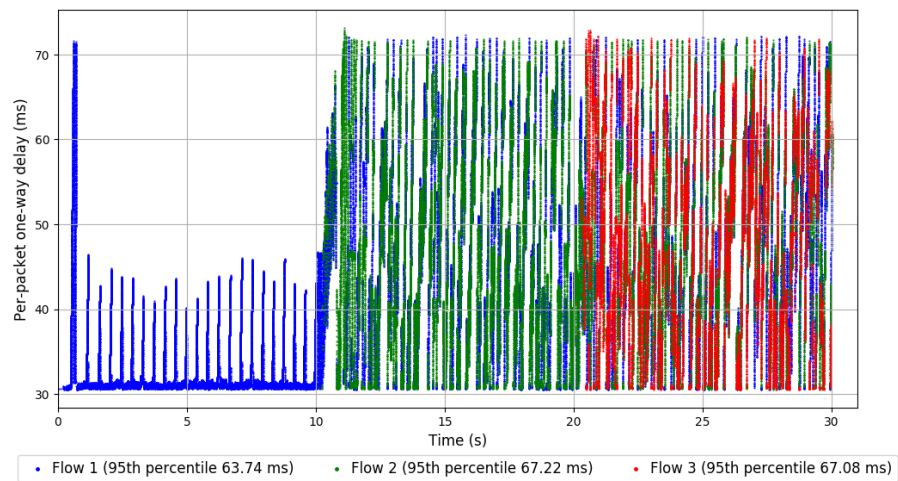
Run 1: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 59.10 Mbit/s) --- Flow 1 egress (mean 54.10 Mbit/s)
Flow 2 ingress (mean 41.52 Mbit/s) --- Flow 2 egress (mean 35.22 Mbit/s)
Flow 3 ingress (mean 47.26 Mbit/s) --- Flow 3 egress (mean 38.10 Mbit/s)

Flow 1 (95th percentile 63.26 ms)   Flow 2 (95th percentile 66.60 ms)   Flow 3 (95th percentile 67.73 ms)

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```
Run 2: Statistics of FillP-Sheep

Start at: 2019-01-19 00:43:49
End at: 2019-01-19 00:44:19
Local clock offset: 0.285 ms
Remote clock offset: -2.934 ms


# Below is generated by plot.py at 2019-01-19 02:32:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.96 Mbit/s
95th percentile per-packet one-way delay: 65.554 ms
Loss rate: 12.33%
-- Flow 1:
Average throughput: 57.08 Mbit/s
95th percentile per-packet one-way delay: 64.183 ms
Loss rate: 9.29%
-- Flow 2:
Average throughput: 39.68 Mbit/s
95th percentile per-packet one-way delay: 66.931 ms
Loss rate: 16.71%
-- Flow 3:
Average throughput: 22.55 Mbit/s
95th percentile per-packet one-way delay: 66.000 ms
Loss rate: 18.15%
```

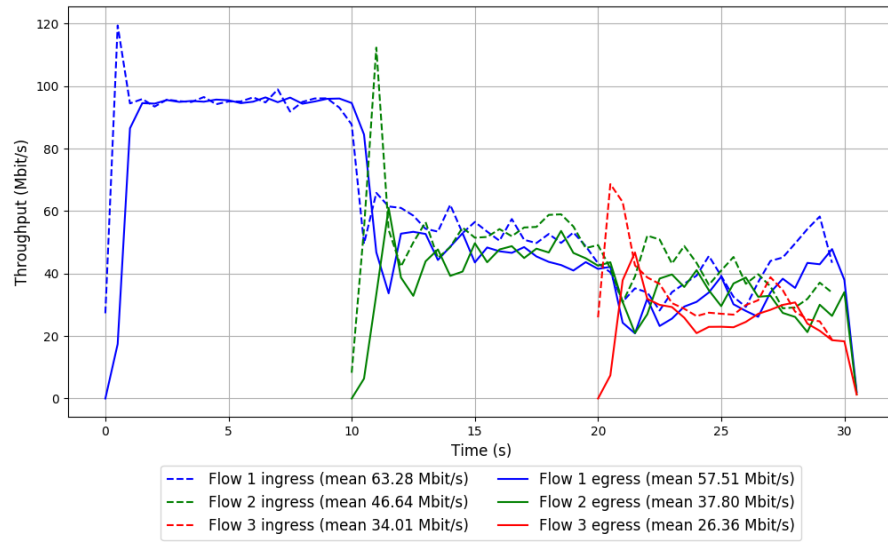Run 2: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 62.97 Mbit/s) --- Flow 1 egress (mean 57.08 Mbit/s) —
Flow 2 ingress (mean 47.67 Mbit/s) --- Flow 2 egress (mean 39.68 Mbit/s) —
Flow 3 ingress (mean 27.54 Mbit/s) --- Flow 3 egress (mean 22.55 Mbit/s) —

• Flow 1 (95th percentile 64.18 ms)   • Flow 2 (95th percentile 66.93 ms)   • Flow 3 (95th percentile 66.00 ms)
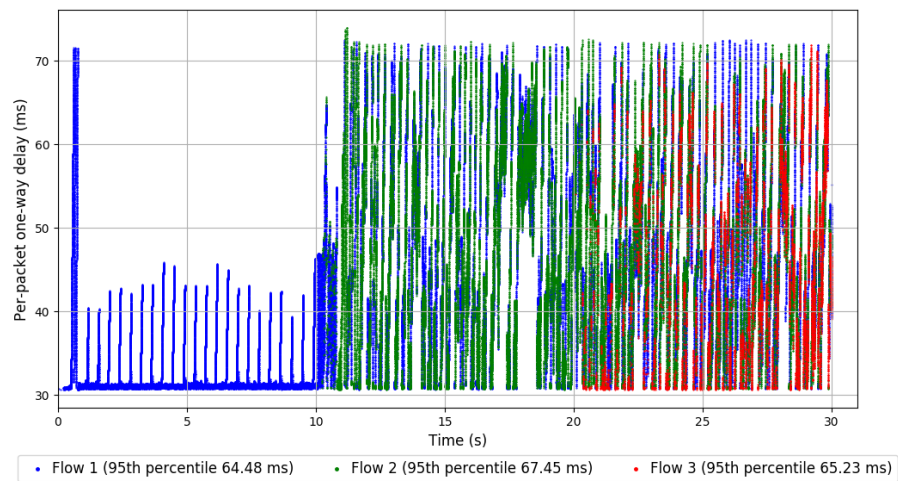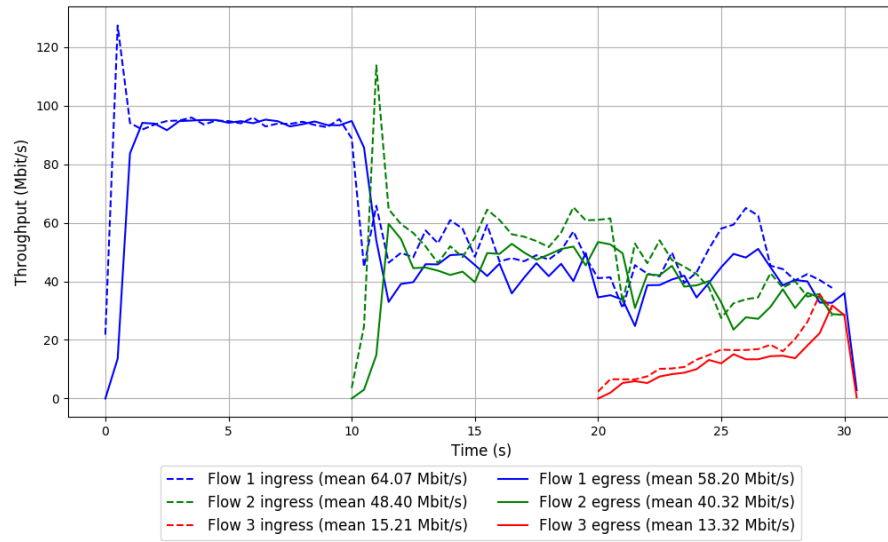
```
Run 3: Statistics of FillP-Sheep

Start at: 2019-01-19 01:12:09
End at: 2019-01-19 01:12:39
Local clock offset: -3.945 ms
Remote clock offset: -2.707 ms


# Below is generated by plot.py at 2019-01-19 02:32:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.54 Mbit/s
95th percentile per-packet one-way delay: 64.874 ms
Loss rate: 11.64%
-- Flow 1:
Average throughput: 54.29 Mbit/s
95th percentile per-packet one-way delay: 62.855 ms
Loss rate: 8.60%
-- Flow 2:
Average throughput: 38.05 Mbit/s
95th percentile per-packet one-way delay: 66.541 ms
Loss rate: 15.65%
-- Flow 3:
Average throughput: 30.00 Mbit/s
95th percentile per-packet one-way delay: 66.090 ms
Loss rate: 16.66%
```
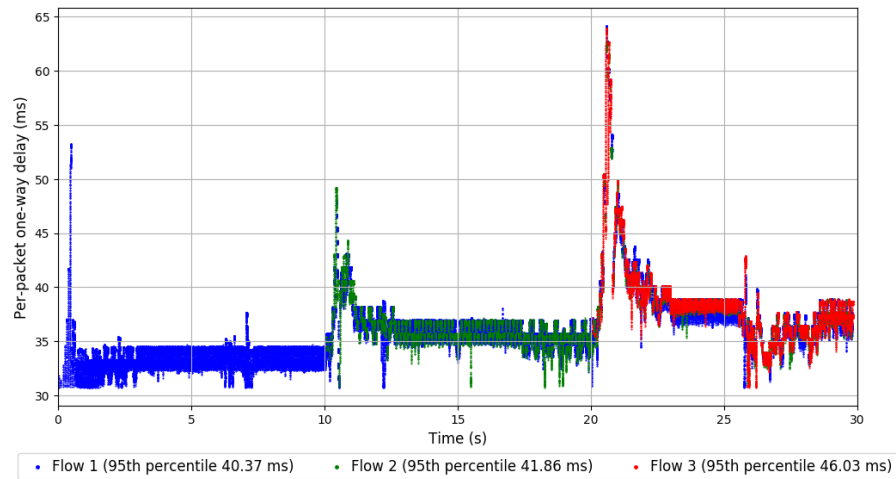
Run 3: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 59.40 Mbit/s) --- Flow 1 egress (mean 54.29 Mbit/s) ——
Flow 2 ingress (mean 45.11 Mbit/s) --- Flow 2 egress (mean 38.05 Mbit/s) ——
Flow 3 ingress (mean 35.97 Mbit/s) --- Flow 3 egress (mean 30.00 Mbit/s) ——

• Flow 1 (95th percentile 62.85 ms)   • Flow 2 (95th percentile 66.54 ms)   • Flow 3 (95th percentile 66.09 ms)

```
Run 4: Statistics of FillP-Sheep

Start at: 2019-01-19 01:40:50
End at: 2019-01-19 01:41:20
Local clock offset: -5.104 ms
Remote clock offset: -2.698 ms


# Below is generated by plot.py at 2019-01-19 02:32:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.39 Mbit/s
95th percentile per-packet one-way delay: 65.669 ms
Loss rate: 13.34%
-- Flow 1:
Average throughput: 57.51 Mbit/s
95th percentile per-packet one-way delay: 63.745 ms
Loss rate: 9.03%
-- Flow 2:
Average throughput: 37.80 Mbit/s
95th percentile per-packet one-way delay: 67.218 ms
Loss rate: 18.83%
-- Flow 3:
Average throughput: 26.36 Mbit/s
95th percentile per-packet one-way delay: 67.082 ms
Loss rate: 22.38%
```
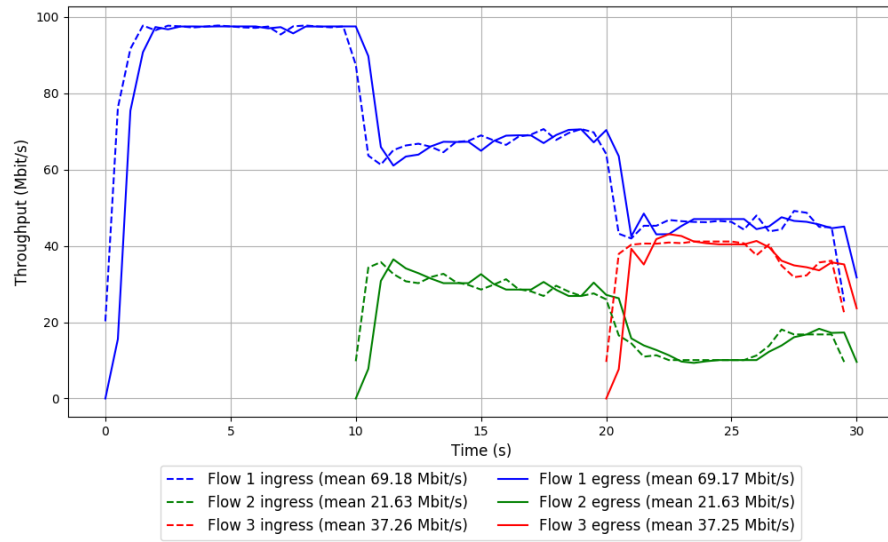
Run 4: Report of FillP-Sheep — Data Link
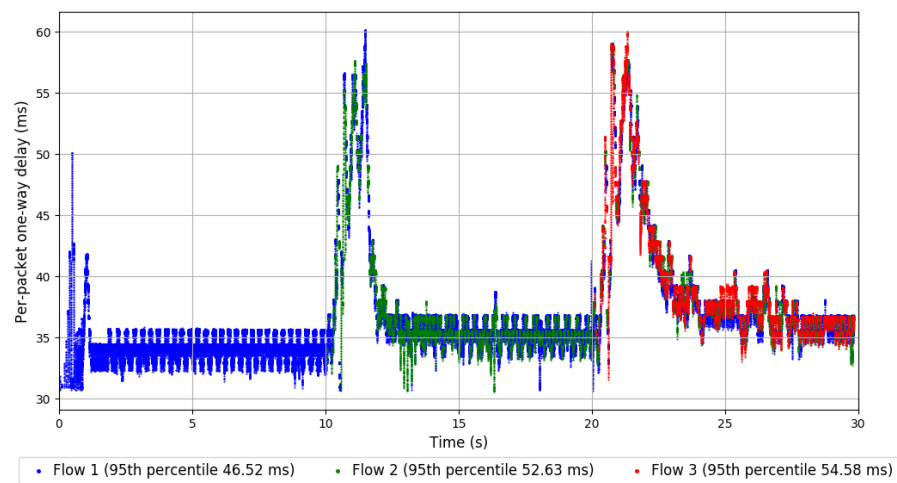

Flow 1 ingress (mean 63.28 Mbit/s)   Flow 1 egress (mean 57.51 Mbit/s)
Flow 2 ingress (mean 46.64 Mbit/s)   Flow 2 egress (mean 37.80 Mbit/s)
Flow 3 ingress (mean 34.01 Mbit/s)   Flow 3 egress (mean 26.36 Mbit/s)

Flow 1 (95th percentile 63.74 ms)   Flow 2 (95th percentile 67.22 ms)   Flow 3 (95th percentile 67.08 ms)

```
Run 5: Statistics of FillP-Sheep

Start at: 2019-01-19 02:09:08
End at: 2019-01-19 02:09:38
Local clock offset: 1.048 ms
Remote clock offset: -2.702 ms


# Below is generated by plot.py at 2019-01-19 02:32:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.42 Mbit/s
95th percentile per-packet one-way delay: 65.783 ms
Loss rate: 11.67%
-- Flow 1:
Average throughput: 58.20 Mbit/s
95th percentile per-packet one-way delay: 64.478 ms
Loss rate: 9.09%
-- Flow 2:
Average throughput: 40.32 Mbit/s
95th percentile per-packet one-way delay: 67.452 ms
Loss rate: 16.65%
-- Flow 3:
Average throughput: 13.32 Mbit/s
95th percentile per-packet one-way delay: 65.229 ms
Loss rate: 12.61%
```
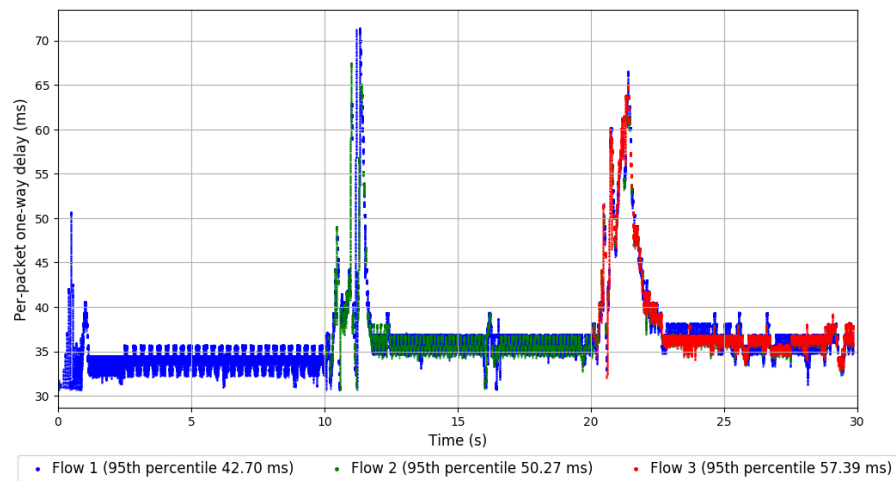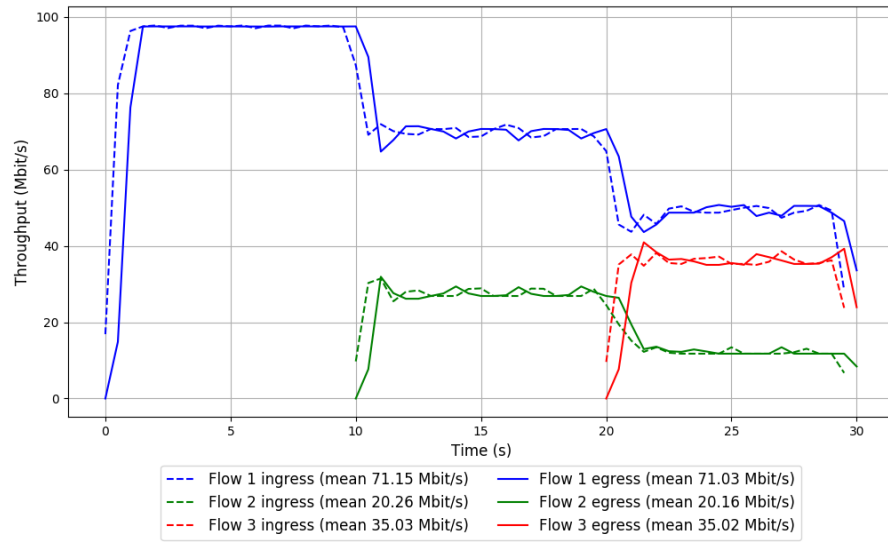
Run 5: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 64.07 Mbit/s) --- Flow 1 egress (mean 58.20 Mbit/s) ---
Flow 2 ingress (mean 48.40 Mbit/s) --- Flow 2 egress (mean 40.32 Mbit/s) ---
Flow 3 ingress (mean 15.21 Mbit/s) --- Flow 3 egress (mean 13.32 Mbit/s) ---

Flow 1 (95th percentile 64.48 ms)   Flow 2 (95th percentile 67.45 ms)   Flow 3 (95th percentile 65.23 ms)
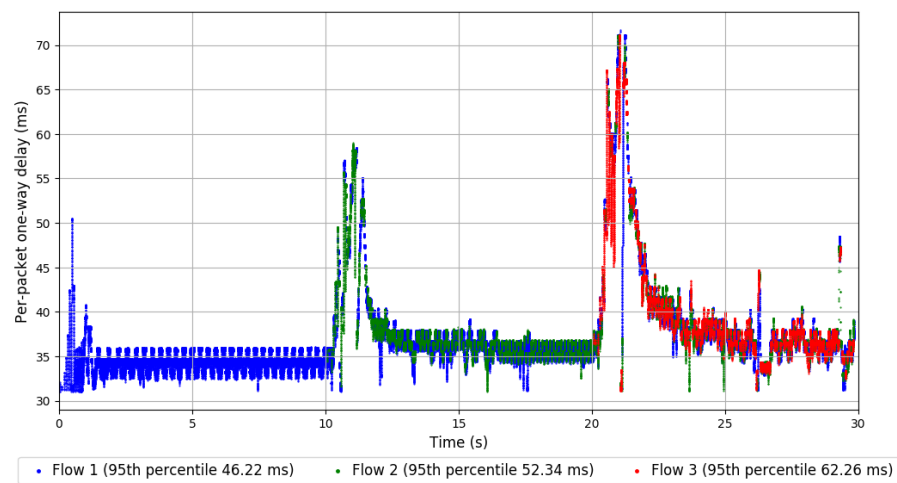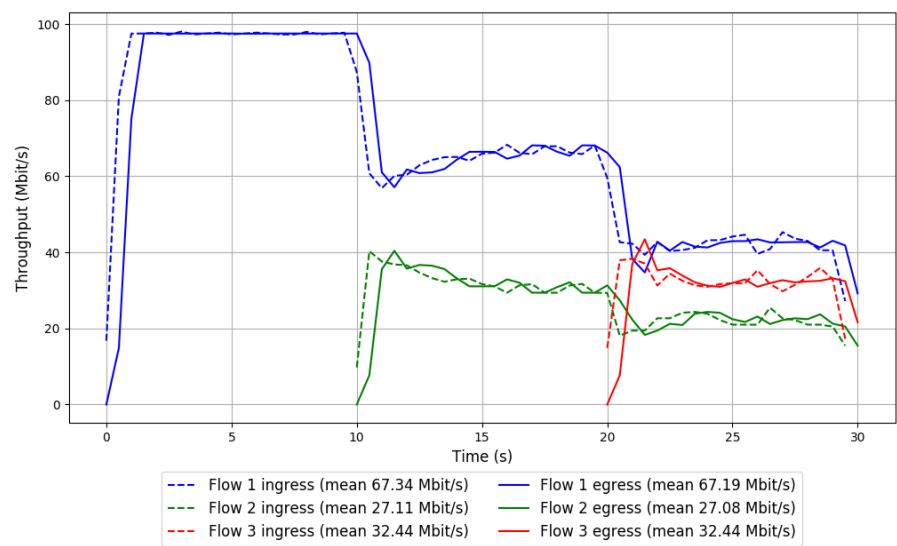
54

```
Run 1: Statistics of Indigo

Start at: 2019-01-19 00:26:41
End at: 2019-01-19 00:27:11
Local clock offset: 0.099 ms
Remote clock offset: -3.16 ms

# Below is generated by plot.py at 2019-01-19 02:32:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.64 Mbit/s
95th percentile per-packet one-way delay: 41.130 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 69.17 Mbit/s
95th percentile per-packet one-way delay: 40.371 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 21.63 Mbit/s
95th percentile per-packet one-way delay: 41.857 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 37.25 Mbit/s
95th percentile per-packet one-way delay: 46.032 ms
Loss rate: 0.00%
```
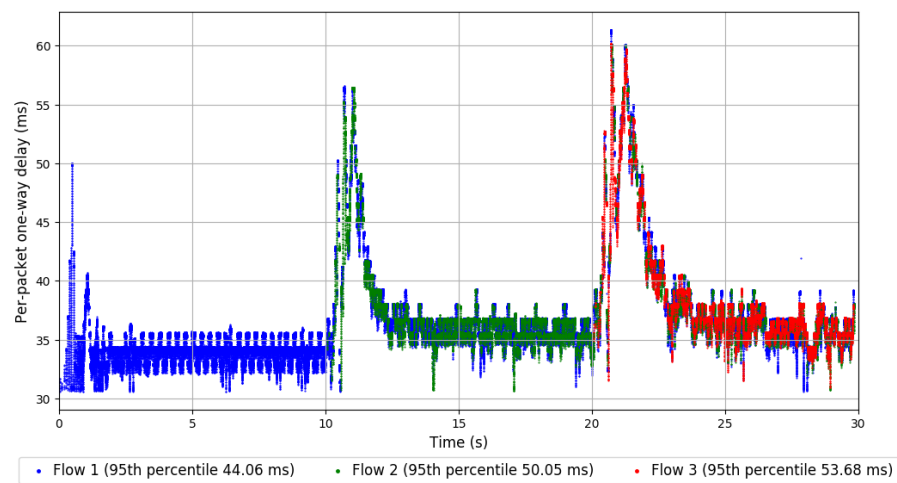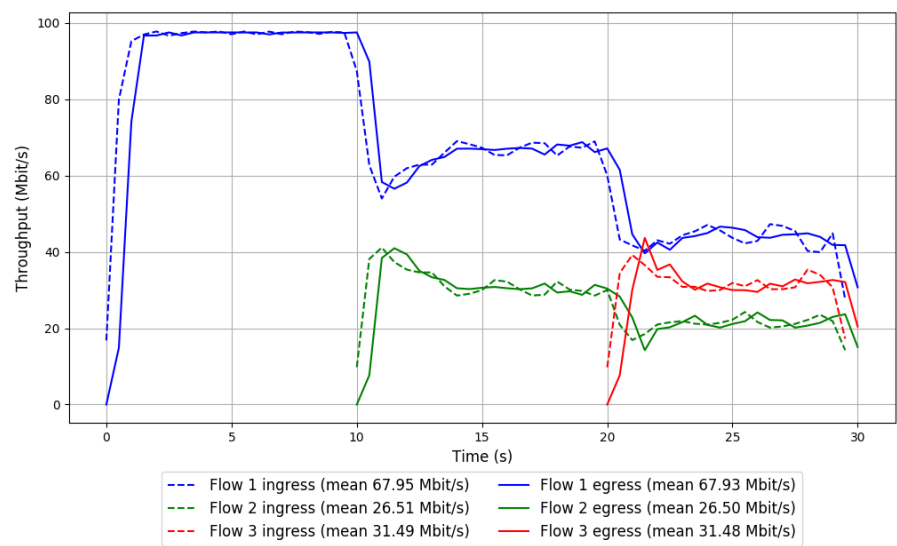
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2019-01-19 00:54:49
End at: 2019-01-19 00:55:19
Local clock offset: -2.045 ms
Remote clock offset: -2.849 ms


# Below is generated by plot.py at 2019-01-19 02:33:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.85 Mbit/s
95th percentile per-packet one-way delay: 49.958 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 69.01 Mbit/s
95th percentile per-packet one-way delay: 46.517 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 25.56 Mbit/s
95th percentile per-packet one-way delay: 52.627 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 30.38 Mbit/s
95th percentile per-packet one-way delay: 54.577 ms
Loss rate: 0.00%
```
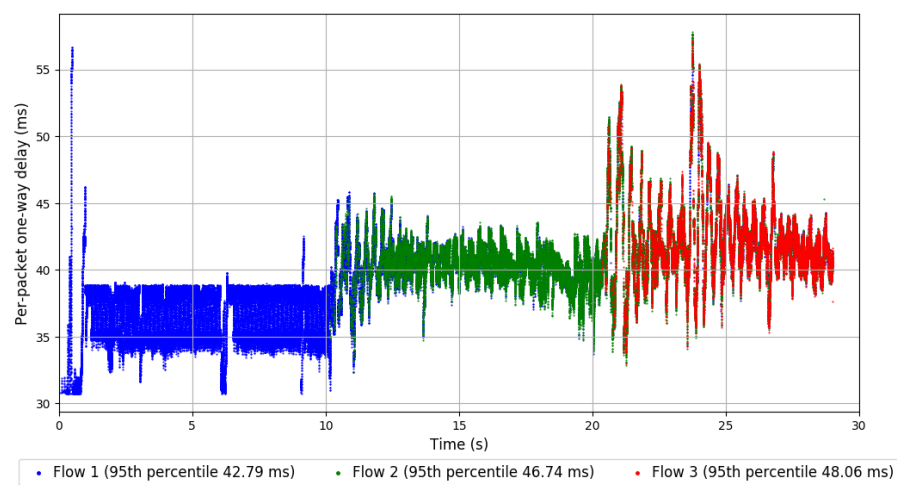
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2019-01-19 01:23:10
End at: 2019-01-19 01:23:40
Local clock offset: -4.342 ms
Remote clock offset: -2.713 ms


# Below is generated by plot.py at 2019-01-19 02:33:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.82 Mbit/s
95th percentile per-packet one-way delay: 47.566 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 71.03 Mbit/s
95th percentile per-packet one-way delay: 42.705 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 20.16 Mbit/s
95th percentile per-packet one-way delay: 50.269 ms
Loss rate: 0.48%
-- Flow 3:
Average throughput: 35.02 Mbit/s
95th percentile per-packet one-way delay: 57.387 ms
Loss rate: 0.01%
```
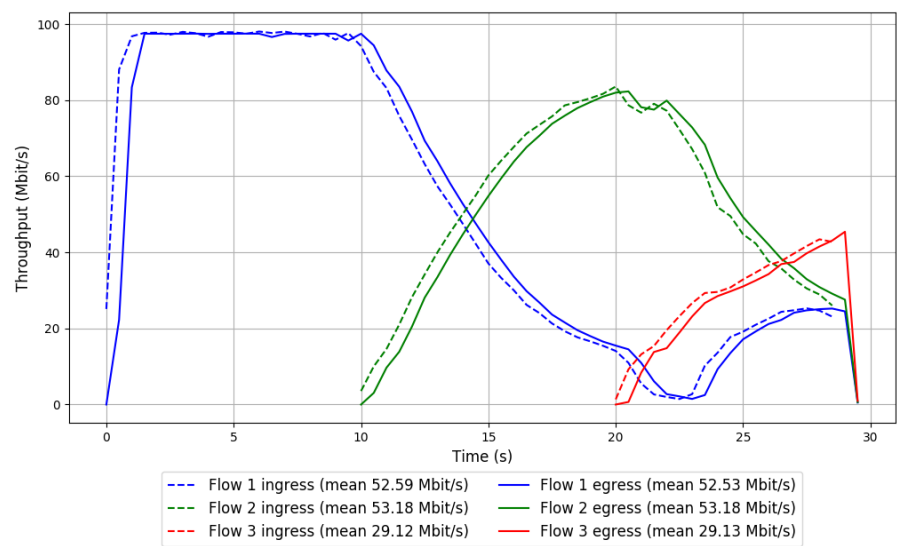
Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2019-01-19 01:51:56
End at: 2019-01-19 01:52:26
Local clock offset: -2.658 ms
Remote clock offset: -2.655 ms


# Below is generated by plot.py at 2019-01-19 02:33:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.74 Mbit/s
95th percentile per-packet one-way delay: 50.768 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 67.19 Mbit/s
95th percentile per-packet one-way delay: 46.218 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 27.08 Mbit/s
95th percentile per-packet one-way delay: 52.345 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 32.44 Mbit/s
95th percentile per-packet one-way delay: 62.264 ms
Loss rate: 0.00%
```
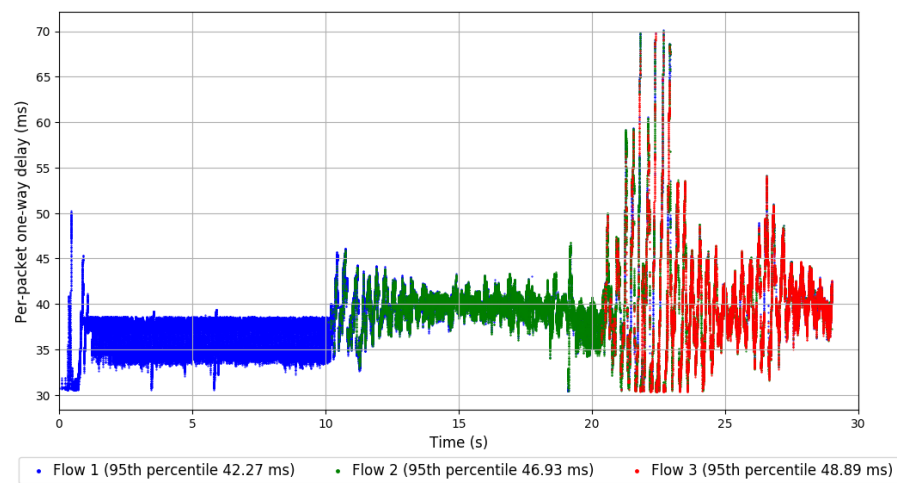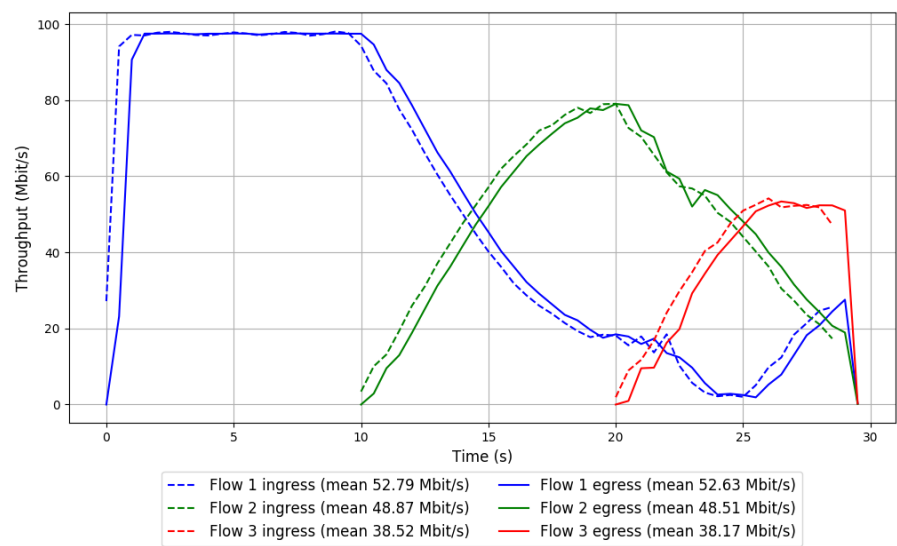
Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2019-01-19 02:20:28
End at: 2019-01-19 02:20:58
Local clock offset: 1.293 ms
Remote clock offset: -2.866 ms


# Below is generated by plot.py at 2019-01-19 02:33:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.77 Mbit/s
95th percentile per-packet one-way delay: 47.822 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 67.93 Mbit/s
95th percentile per-packet one-way delay: 44.058 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 26.50 Mbit/s
95th percentile per-packet one-way delay: 50.047 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 31.48 Mbit/s
95th percentile per-packet one-way delay: 53.681 ms
Loss rate: 0.00%
```
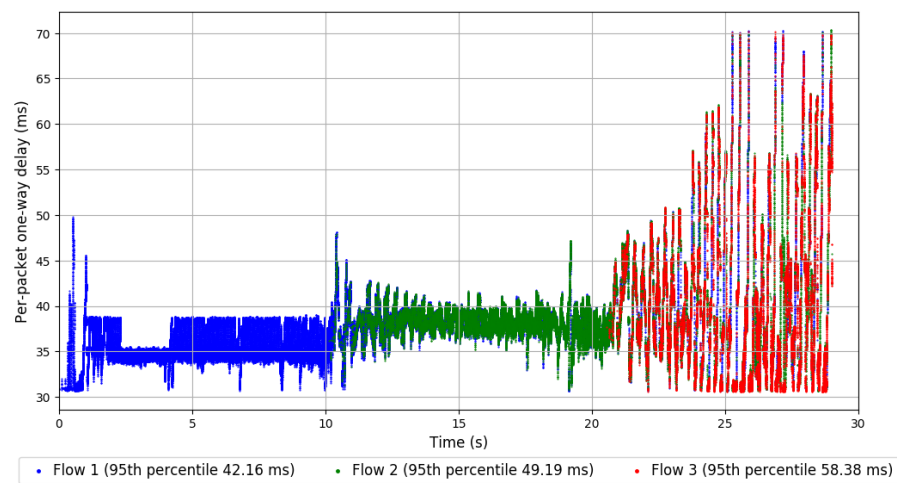
Run 5: Report of Indigo — Data Link

Flow 1 ingress (mean 67.95 Mbit/s) --- Flow 1 egress (mean 67.93 Mbit/s)
Flow 2 ingress (mean 26.51 Mbit/s) --- Flow 2 egress (mean 26.50 Mbit/s)
Flow 3 ingress (mean 31.49 Mbit/s) --- Flow 3 egress (mean 31.48 Mbit/s)

Flow 1 (95th percentile 44.06 ms)   Flow 2 (95th percentile 50.05 ms)   Flow 3 (95th percentile 53.68 ms)

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```
Run 1: Statistics of Indigo-MusesC3

Start at: 2019-01-19 00:19:58
End at: 2019-01-19 00:20:28
Local clock offset: 0.077 ms
Remote clock offset: -3.254 ms


# Below is generated by plot.py at 2019-01-19 02:33:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.98 Mbit/s
95th percentile per-packet one-way delay: 44.857 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 52.53 Mbit/s
95th percentile per-packet one-way delay: 42.790 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 53.18 Mbit/s
95th percentile per-packet one-way delay: 46.736 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 29.13 Mbit/s
95th percentile per-packet one-way delay: 48.065 ms
Loss rate: 0.00%
```
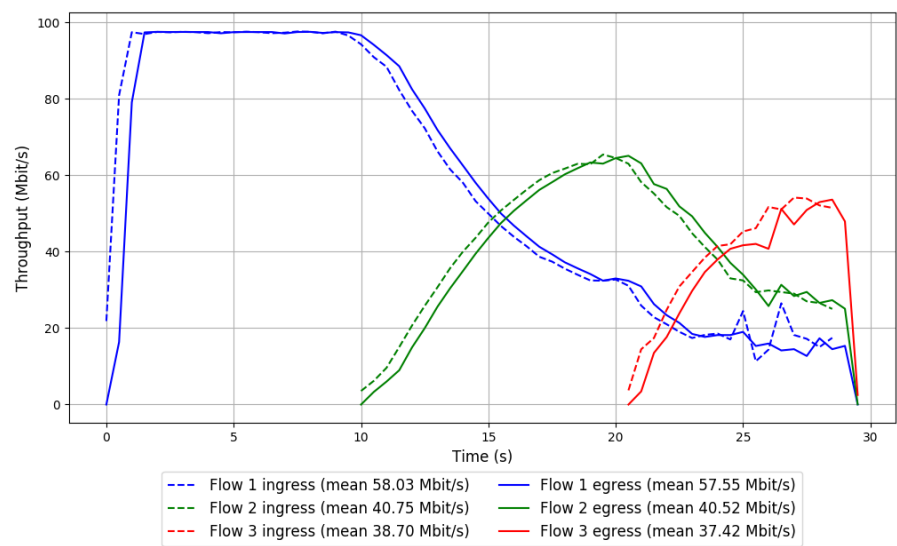
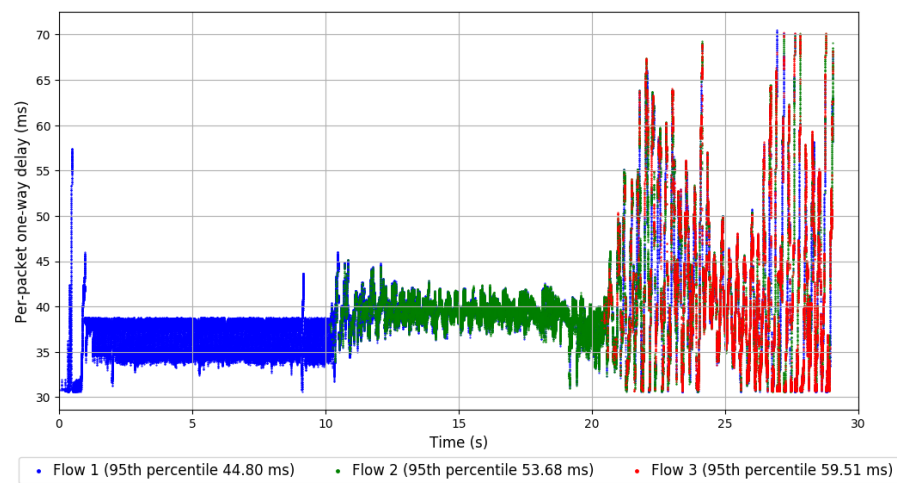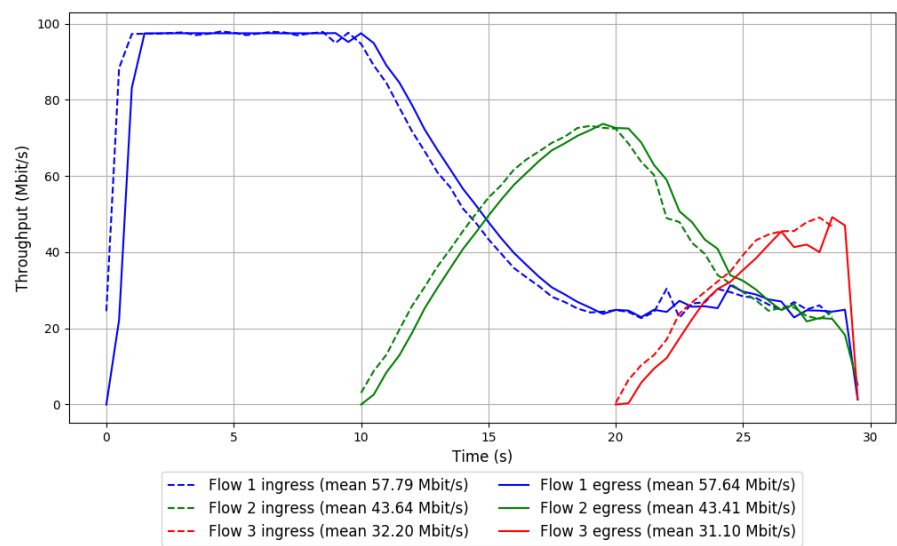Run 1: Report of Indigo-MusesC3 — Data Link

```
Run 2: Statistics of Indigo-MusesC3

Start at: 2019-01-19 00:47:58
End at: 2019-01-19 00:48:28
Local clock offset: -0.09 ms
Remote clock offset: -2.944 ms


# Below is generated by plot.py at 2019-01-19 02:33:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.75 Mbit/s
95th percentile per-packet one-way delay: 44.955 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 52.63 Mbit/s
95th percentile per-packet one-way delay: 42.265 ms
Loss rate: 0.27%
-- Flow 2:
Average throughput: 48.51 Mbit/s
95th percentile per-packet one-way delay: 46.932 ms
Loss rate: 0.74%
-- Flow 3:
Average throughput: 38.17 Mbit/s
95th percentile per-packet one-way delay: 48.889 ms
Loss rate: 0.85%
```

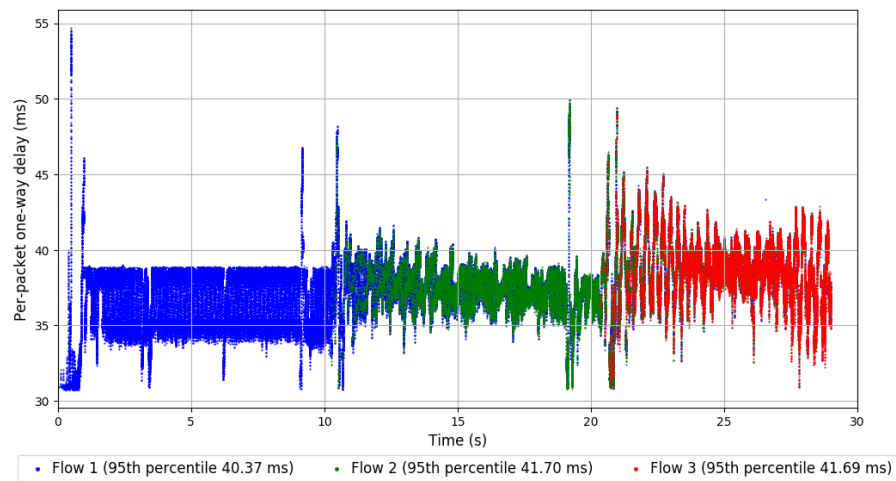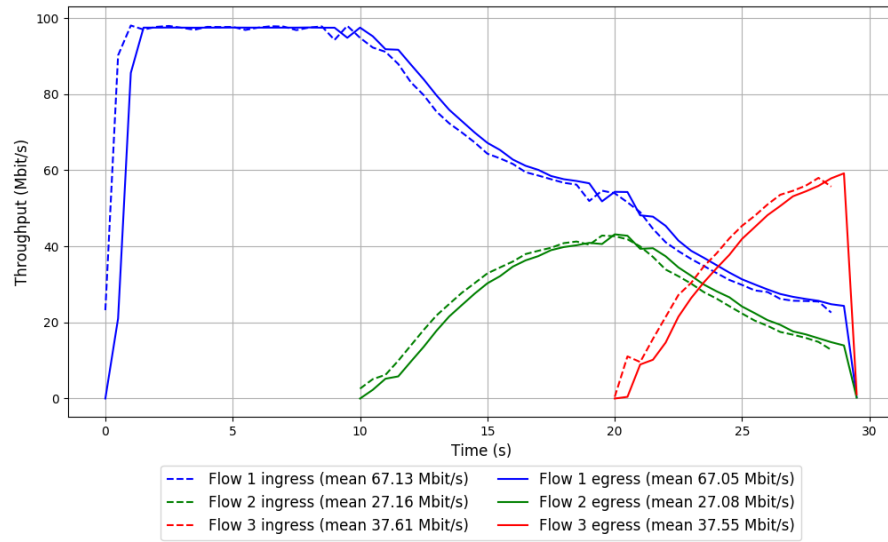Run 2: Report of Indigo-MusesC3 — Data Link

```
Run 3: Statistics of Indigo-MusesC3

Start at: 2019-01-19 01:16:24
End at: 2019-01-19 01:16:54
Local clock offset: -4.139 ms
Remote clock offset: -2.7 ms


# Below is generated by plot.py at 2019-01-19 02:34:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.84 Mbit/s
95th percentile per-packet one-way delay: 48.200 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 57.55 Mbit/s
95th percentile per-packet one-way delay: 42.161 ms
Loss rate: 0.74%
-- Flow 2:
Average throughput: 40.52 Mbit/s
95th percentile per-packet one-way delay: 49.191 ms
Loss rate: 0.54%
-- Flow 3:
Average throughput: 37.42 Mbit/s
95th percentile per-packet one-way delay: 58.376 ms
Loss rate: 3.27%
```

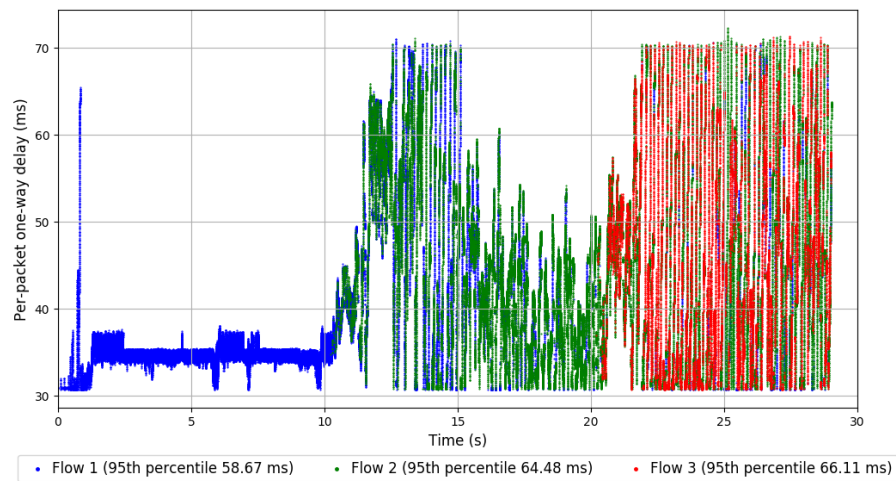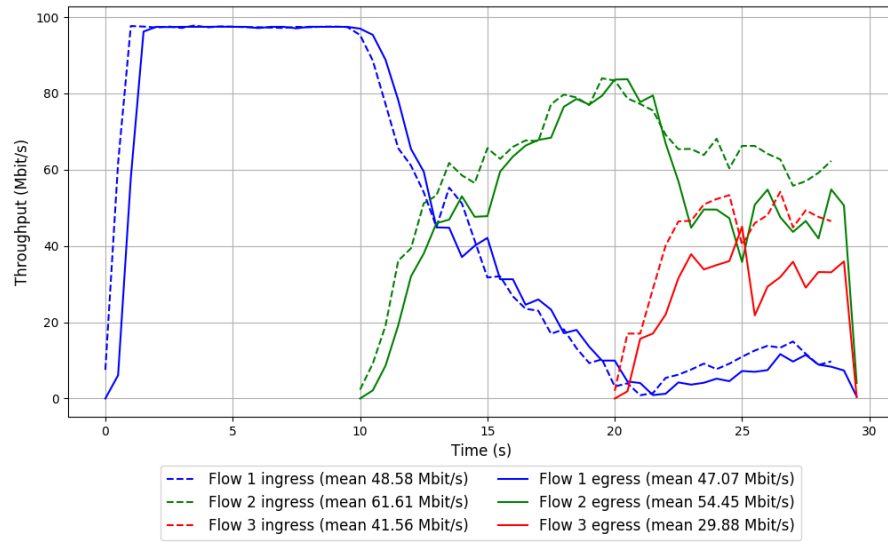Run 3: Report of Indigo-MusesC3 — Data Link

```
Run 4: Statistics of Indigo-MusesC3

Start at: 2019-01-19 01:45:13
End at: 2019-01-19 01:45:43
Local clock offset: -5.288 ms
Remote clock offset: -2.665 ms


# Below is generated by plot.py at 2019-01-19 02:34:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.23 Mbit/s
95th percentile per-packet one-way delay: 51.096 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 57.64 Mbit/s
95th percentile per-packet one-way delay: 44.802 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 43.41 Mbit/s
95th percentile per-packet one-way delay: 53.679 ms
Loss rate: 0.35%
-- Flow 3:
Average throughput: 31.10 Mbit/s
95th percentile per-packet one-way delay: 59.510 ms
Loss rate: 3.07%
```

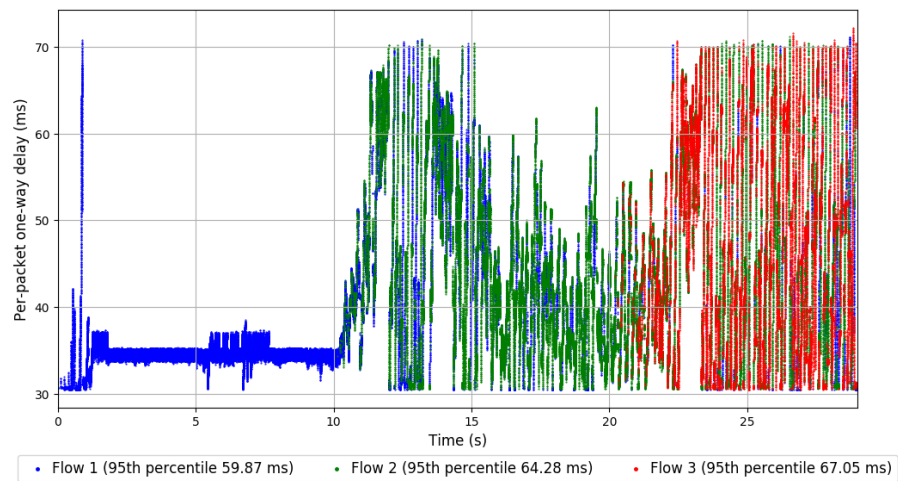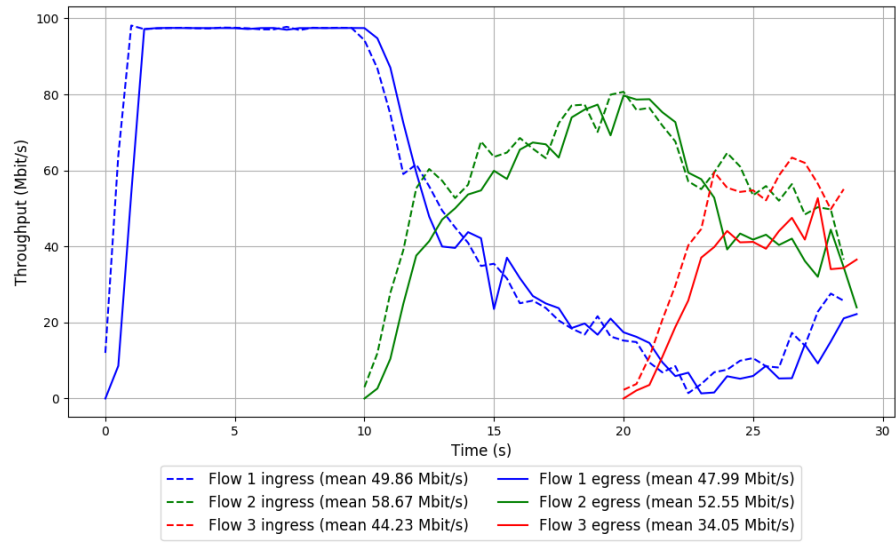Run 4: Report of Indigo-MusesC3 — Data Link

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```
Run 5: Statistics of Indigo-MusesC3

Start at: 2019-01-19 02:13:29
End at: 2019-01-19 02:13:59
Local clock offset: 1.471 ms
Remote clock offset: -2.745 ms


# Below is generated by plot.py at 2019-01-19 02:34:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.88 Mbit/s
95th percentile per-packet one-way delay: 40.980 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 67.05 Mbit/s
95th percentile per-packet one-way delay: 40.367 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 27.08 Mbit/s
95th percentile per-packet one-way delay: 41.703 ms
Loss rate: 0.28%
-- Flow 3:
Average throughput: 37.55 Mbit/s
95th percentile per-packet one-way delay: 41.686 ms
Loss rate: 0.13%
```
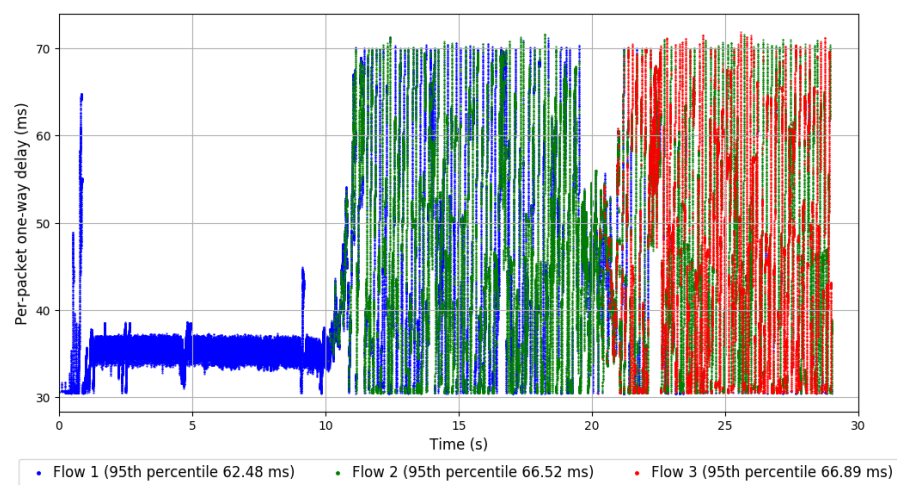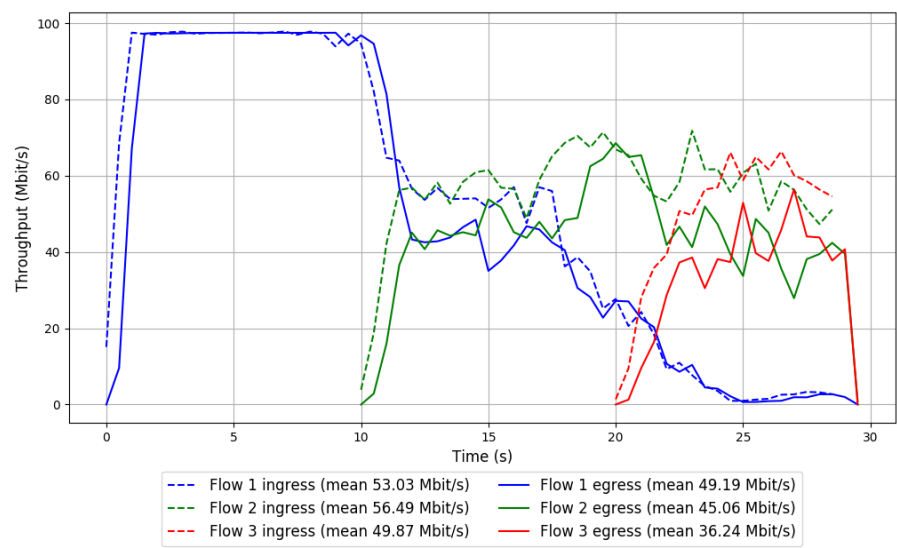
Run 5: Report of Indigo-MusesC3 — Data Link

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```
Run 1: Statistics of Indigo-MusesC5

Start at: 2019-01-19 00:17:02
End at: 2019-01-19 00:17:32
Local clock offset: 0.096 ms
Remote clock offset: -3.241 ms


# Below is generated by plot.py at 2019-01-19 02:34:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.47 Mbit/s
95th percentile per-packet one-way delay: 62.790 ms
Loss rate: 9.48%
-- Flow 1:
Average throughput: 47.07 Mbit/s
95th percentile per-packet one-way delay: 58.672 ms
Loss rate: 3.00%
-- Flow 2:
Average throughput: 54.45 Mbit/s
95th percentile per-packet one-way delay: 64.479 ms
Loss rate: 11.49%
-- Flow 3:
Average throughput: 29.88 Mbit/s
95th percentile per-packet one-way delay: 66.107 ms
Loss rate: 28.02%
```

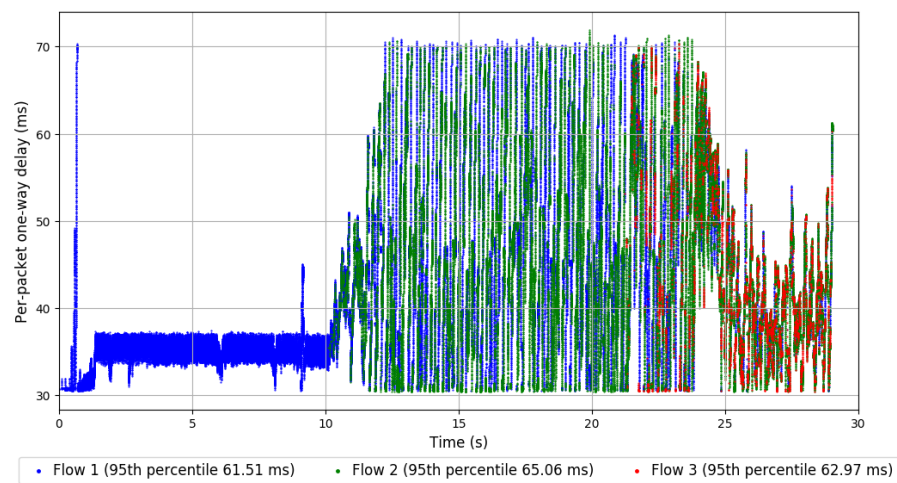Run 1: Report of Indigo-MusesC5 — Data Link

- - - - Flow 1 ingress (mean 48.58 Mbit/s) ——— Flow 1 egress (mean 47.07 Mbit/s)
- - - - Flow 2 ingress (mean 61.61 Mbit/s) ——— Flow 2 egress (mean 54.45 Mbit/s)
- - - - Flow 3 ingress (mean 41.56 Mbit/s) ——— Flow 3 egress (mean 29.88 Mbit/s)

- Flow 1 (95th percentile 58.67 ms)   - Flow 2 (95th percentile 64.48 ms)   - Flow 3 (95th percentile 66.11 ms)

```
Run 2: Statistics of Indigo-MusesC5

Start at: 2019-01-19 00:45:16
End at: 2019-01-19 00:45:46
Local clock offset: 0.312 ms
Remote clock offset: -3.165 ms


# Below is generated by plot.py at 2019-01-19 02:34:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.39 Mbit/s
95th percentile per-packet one-way delay: 63.429 ms
Loss rate: 8.83%
-- Flow 1:
Average throughput: 47.99 Mbit/s
95th percentile per-packet one-way delay: 59.865 ms
Loss rate: 3.77%
-- Flow 2:
Average throughput: 52.55 Mbit/s
95th percentile per-packet one-way delay: 64.281 ms
Loss rate: 10.45%
-- Flow 3:
Average throughput: 34.05 Mbit/s
95th percentile per-packet one-way delay: 67.054 ms
Loss rate: 23.13%
```
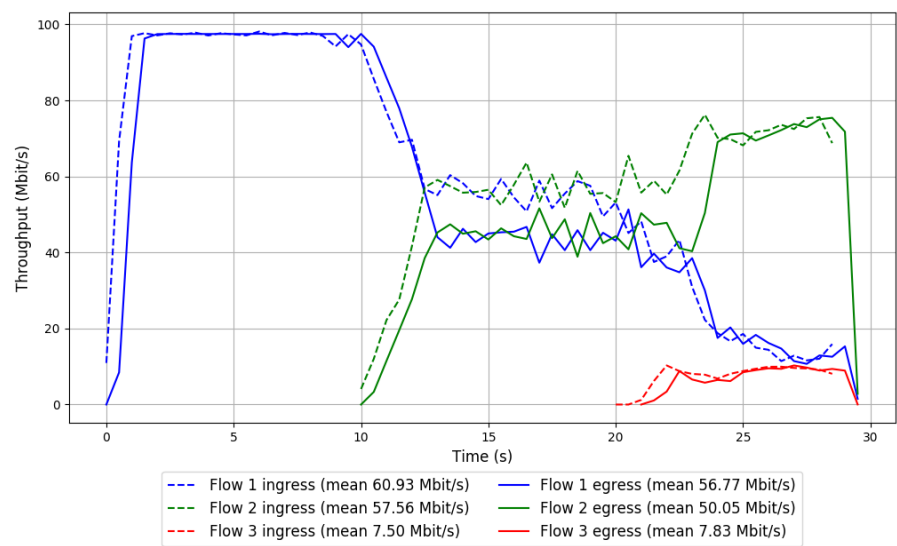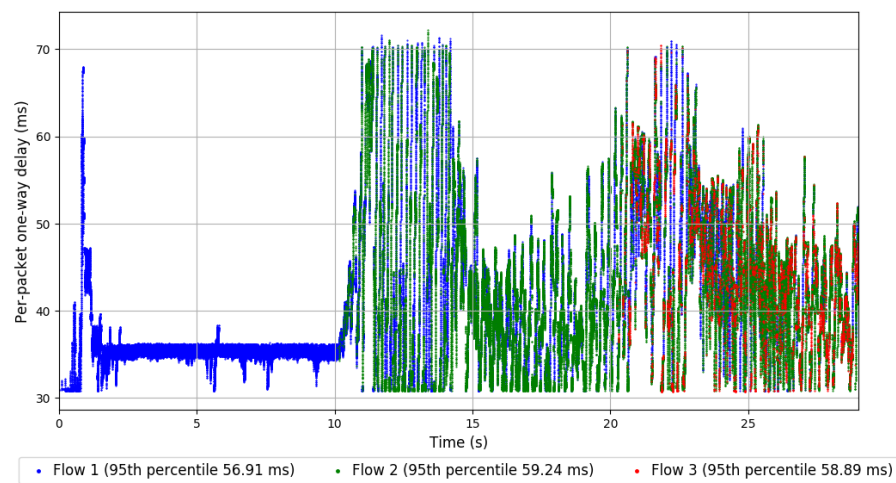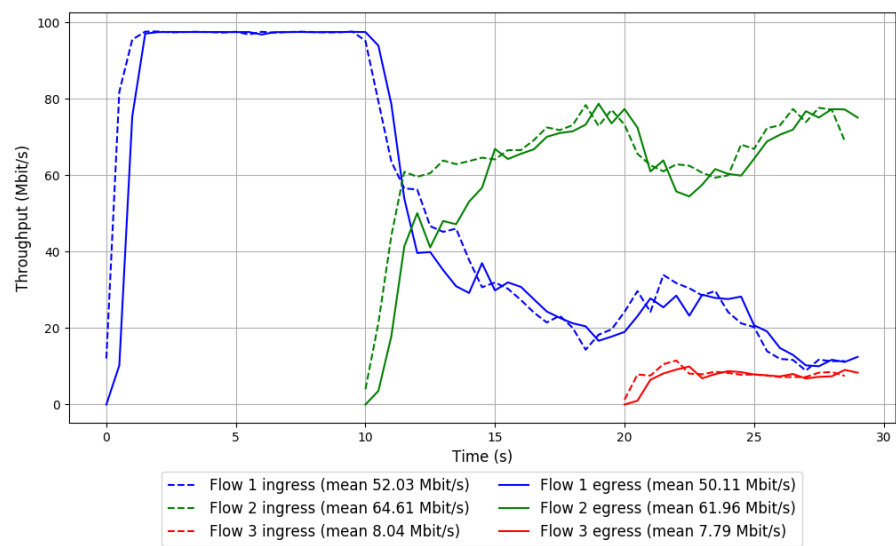
Run 2: Report of Indigo-MusesC5 — Data Link

Flow 1 ingress (mean 49.86 Mbit/s)   Flow 1 egress (mean 47.99 Mbit/s)
Flow 2 ingress (mean 58.67 Mbit/s)   Flow 2 egress (mean 52.55 Mbit/s)
Flow 3 ingress (mean 44.23 Mbit/s)   Flow 3 egress (mean 34.05 Mbit/s)

Flow 1 (95th percentile 59.87 ms)   Flow 2 (95th percentile 64.28 ms)   Flow 3 (95th percentile 67.05 ms)
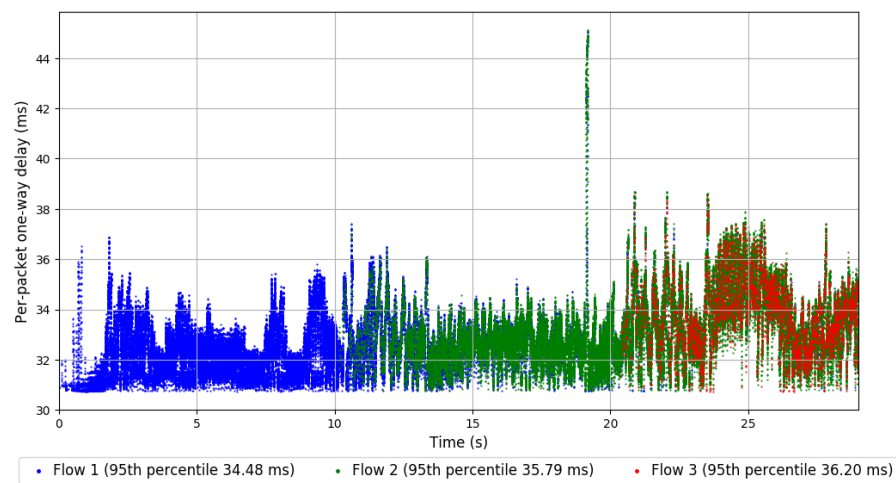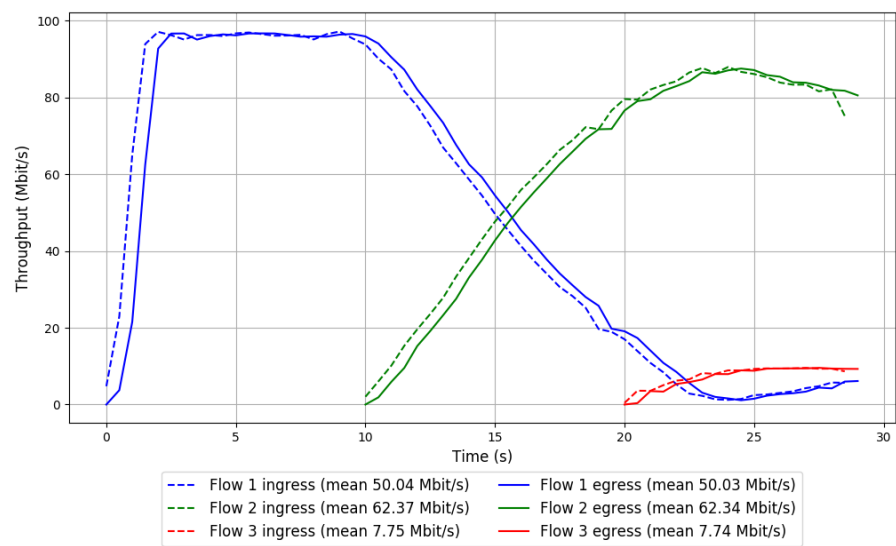
```
Run 3: Statistics of Indigo-MusesC5

Start at: 2019-01-19 01:13:31
End at: 2019-01-19 01:14:01
Local clock offset: -4.025 ms
Remote clock offset: -2.929 ms


# Below is generated by plot.py at 2019-01-19 02:34:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.57 Mbit/s
95th percentile per-packet one-way delay: 65.292 ms
Loss rate: 14.67%
-- Flow 1:
Average throughput: 49.19 Mbit/s
95th percentile per-packet one-way delay: 62.480 ms
Loss rate: 7.21%
-- Flow 2:
Average throughput: 45.06 Mbit/s
95th percentile per-packet one-way delay: 66.518 ms
Loss rate: 20.22%
-- Flow 3:
Average throughput: 36.24 Mbit/s
95th percentile per-packet one-way delay: 66.889 ms
Loss rate: 27.27%
```
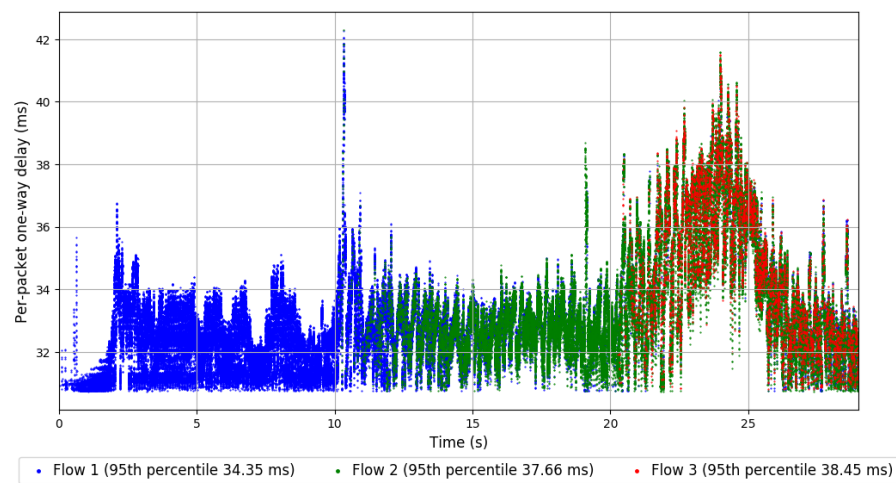
Run 3: Report of Indigo-MusesC5 — Data Link

```
Run 4: Statistics of Indigo-MusesC5

Start at: 2019-01-19 01:42:16
End at: 2019-01-19 01:42:46
Local clock offset: -5.163 ms
Remote clock offset: -2.851 ms


# Below is generated by plot.py at 2019-01-19 02:34:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.54 Mbit/s
95th percentile per-packet one-way delay: 63.354 ms
Loss rate: 9.06%
-- Flow 1:
Average throughput: 56.77 Mbit/s
95th percentile per-packet one-way delay: 61.514 ms
Loss rate: 6.73%
-- Flow 2:
Average throughput: 50.05 Mbit/s
95th percentile per-packet one-way delay: 65.062 ms
Loss rate: 12.93%
-- Flow 3:
Average throughput: 7.83 Mbit/s
95th percentile per-packet one-way delay: 62.973 ms
Loss rate: 7.40%
```

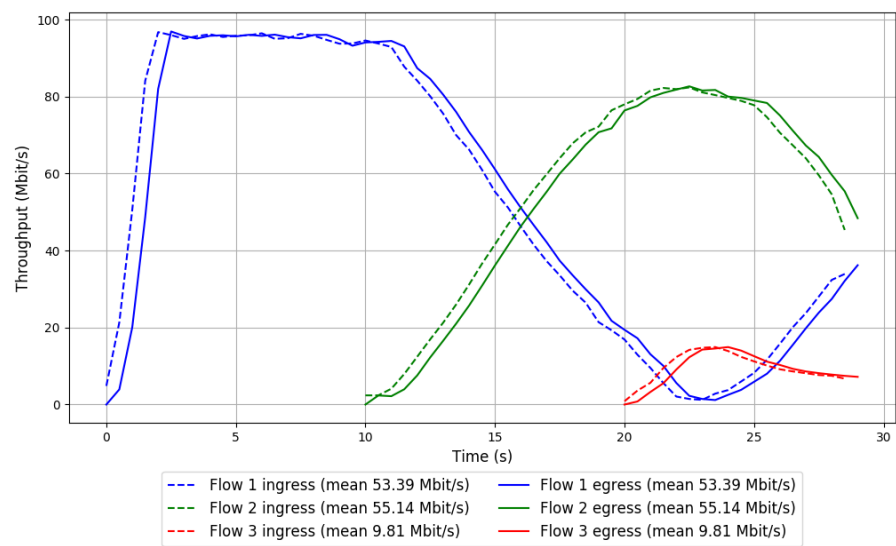Run 4: Report of Indigo-MusesC5 — Data Link

```
Run 5: Statistics of Indigo-MusesC5

Start at: 2019-01-19 02:10:26
End at: 2019-01-19 02:10:56
Local clock offset: 1.183 ms
Remote clock offset: -2.714 ms


# Below is generated by plot.py at 2019-01-19 02:34:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.88 Mbit/s
95th percentile per-packet one-way delay: 58.377 ms
Loss rate: 3.81%
-- Flow 1:
Average throughput: 50.11 Mbit/s
95th percentile per-packet one-way delay: 56.910 ms
Loss rate: 3.64%
-- Flow 2:
Average throughput: 61.96 Mbit/s
95th percentile per-packet one-way delay: 59.243 ms
Loss rate: 4.06%
-- Flow 3:
Average throughput: 7.79 Mbit/s
95th percentile per-packet one-way delay: 58.893 ms
Loss rate: 3.05%
```
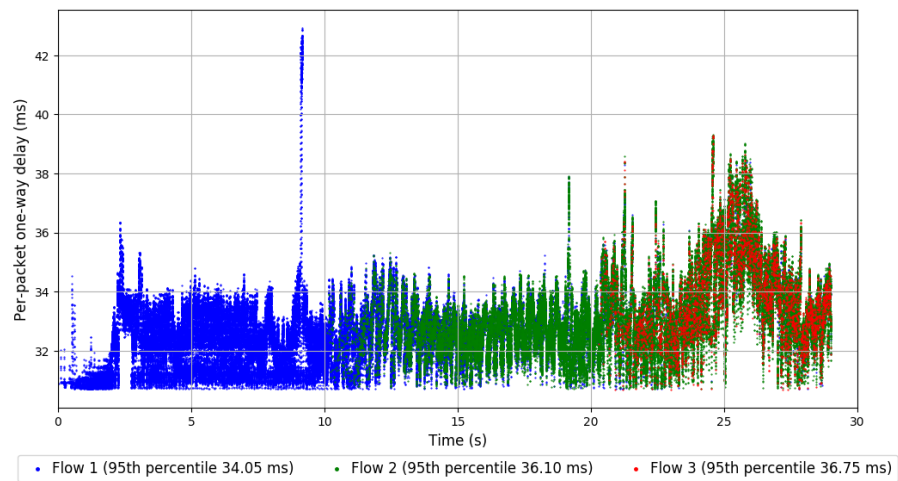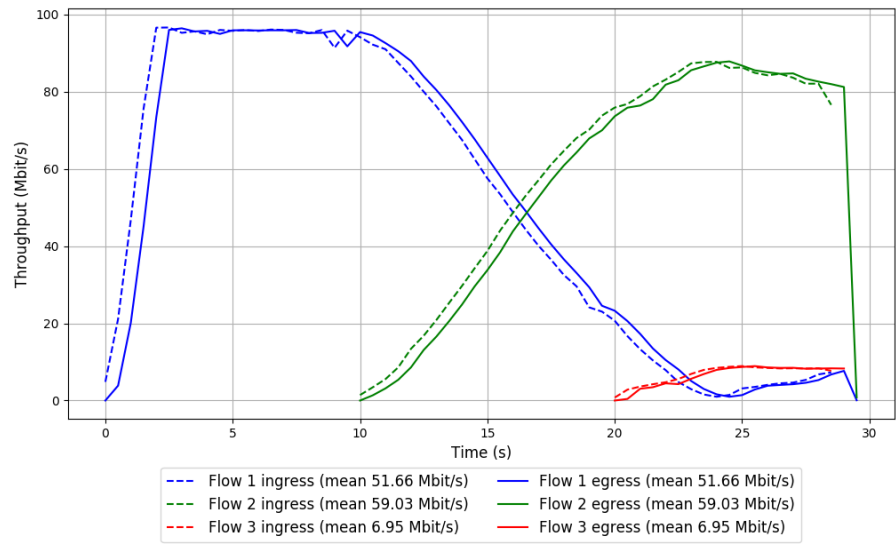
Run 5: Report of Indigo-MusesC5 — Data Link

```
Run 1: Statistics of Indigo-MusesD

Start at: 2019-01-19 00:13:06
End at: 2019-01-19 00:13:36
Local clock offset: 0.03 ms
Remote clock offset: -3.291 ms


# Below is generated by plot.py at 2019-01-19 02:35:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.98 Mbit/s
95th percentile per-packet one-way delay: 35.296 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 50.03 Mbit/s
95th percentile per-packet one-way delay: 34.483 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 62.34 Mbit/s
95th percentile per-packet one-way delay: 35.790 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 7.74 Mbit/s
95th percentile per-packet one-way delay: 36.203 ms
Loss rate: 0.09%
```

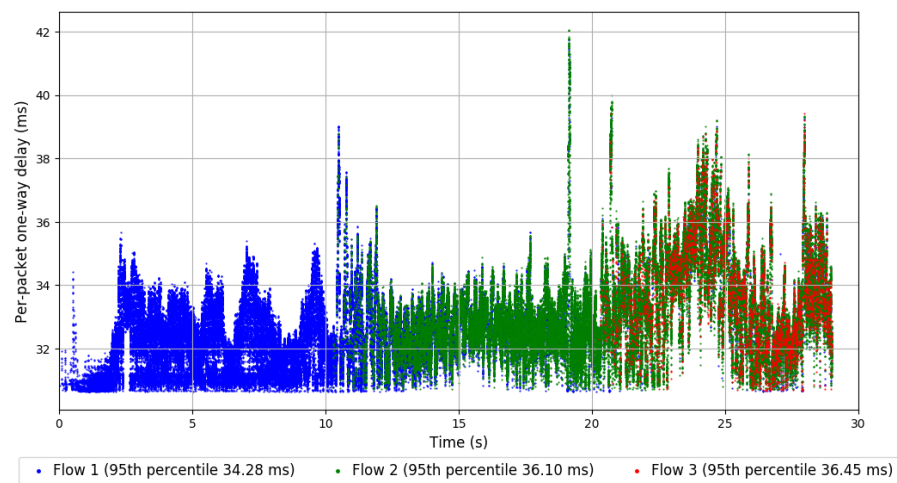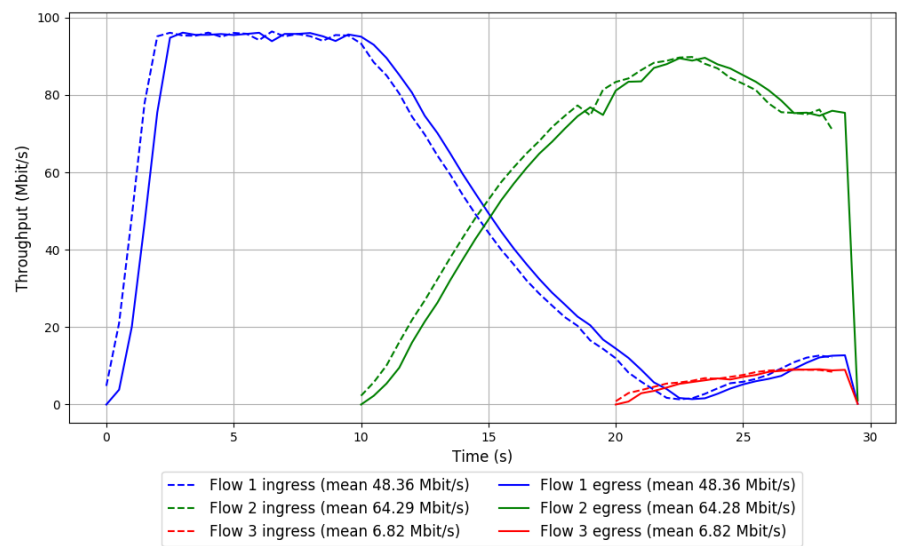Run 1: Report of Indigo-MusesD — Data Link

Flow 1 ingress (mean 50.04 Mbit/s)   Flow 1 egress (mean 50.03 Mbit/s)
Flow 2 ingress (mean 62.37 Mbit/s)   Flow 2 egress (mean 62.34 Mbit/s)
Flow 3 ingress (mean 7.75 Mbit/s)   Flow 3 egress (mean 7.74 Mbit/s)

Flow 1 (95th percentile 34.48 ms)   Flow 2 (95th percentile 35.79 ms)   Flow 3 (95th percentile 36.20 ms)

```
Run 2: Statistics of Indigo-MusesD

Start at: 2019-01-19 00:41:11
End at: 2019-01-19 00:41:41
Local clock offset: 0.256 ms
Remote clock offset: -2.941 ms


# Below is generated by plot.py at 2019-01-19 02:35:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.38 Mbit/s
95th percentile per-packet one-way delay: 36.875 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 53.39 Mbit/s
95th percentile per-packet one-way delay: 34.347 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 55.14 Mbit/s
95th percentile per-packet one-way delay: 37.661 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 9.81 Mbit/s
95th percentile per-packet one-way delay: 38.451 ms
Loss rate: 0.00%
```

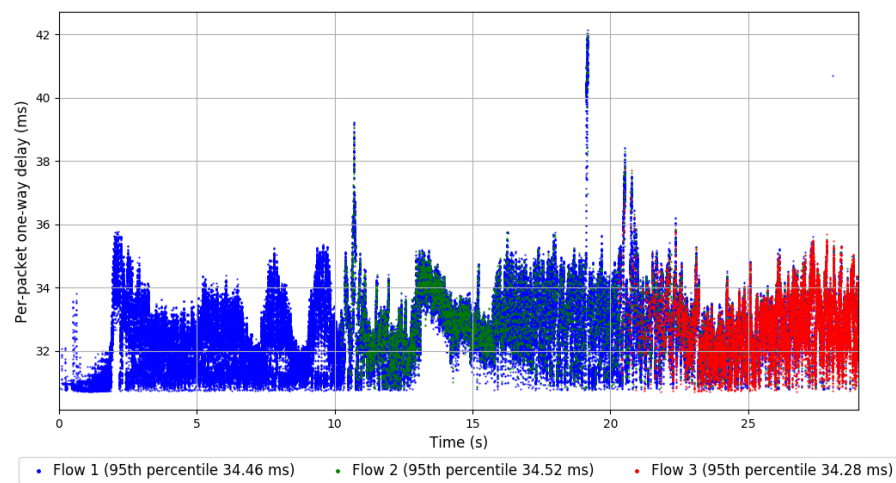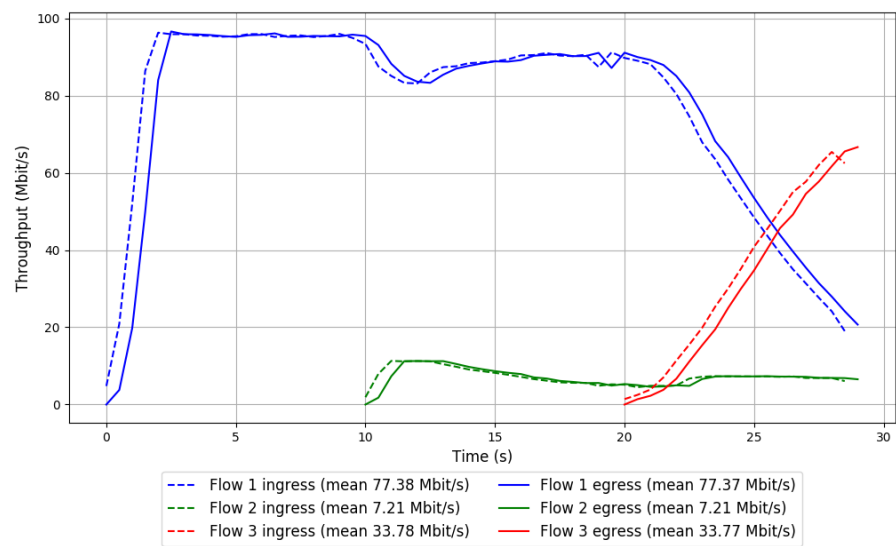Run 2: Report of Indigo-MusesD — Data Link

```
Run 3: Statistics of Indigo-MusesD

Start at: 2019-01-19 01:09:42
End at: 2019-01-19 01:10:12
Local clock offset: -3.795 ms
Remote clock offset: -2.684 ms


# Below is generated by plot.py at 2019-01-19 02:35:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.28 Mbit/s
95th percentile per-packet one-way delay: 35.367 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 51.66 Mbit/s
95th percentile per-packet one-way delay: 34.047 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 59.03 Mbit/s
95th percentile per-packet one-way delay: 36.102 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 6.95 Mbit/s
95th percentile per-packet one-way delay: 36.754 ms
Loss rate: 0.00%
```

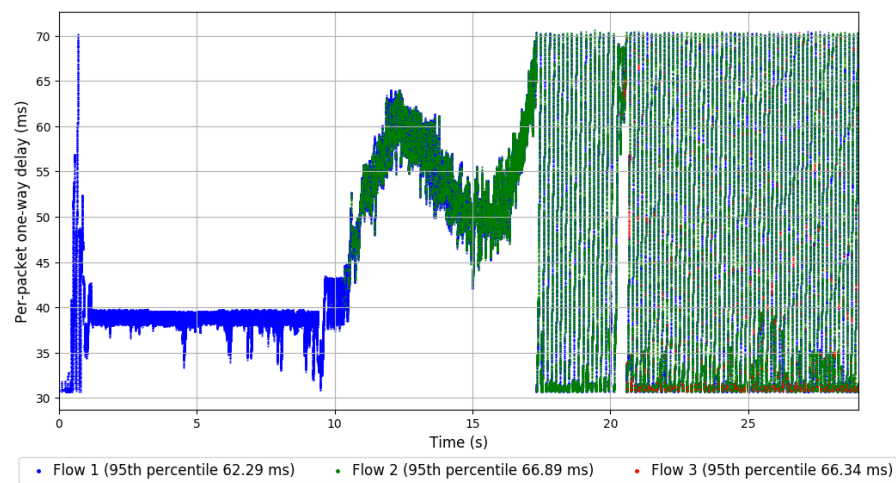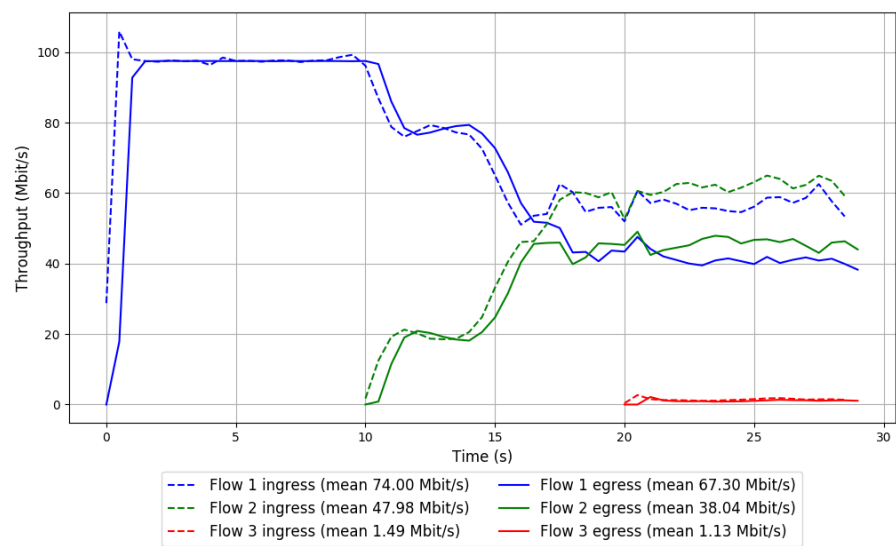Run 3: Report of Indigo-MusesD — Data Link

```
Run 4: Statistics of Indigo-MusesD

Start at: 2019-01-19 01:38:22
End at: 2019-01-19 01:38:52
Local clock offset: -4.998 ms
Remote clock offset: -2.632 ms


# Below is generated by plot.py at 2019-01-19 02:35:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.08 Mbit/s
95th percentile per-packet one-way delay: 35.507 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 48.36 Mbit/s
95th percentile per-packet one-way delay: 34.280 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 64.28 Mbit/s
95th percentile per-packet one-way delay: 36.098 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 6.82 Mbit/s
95th percentile per-packet one-way delay: 36.448 ms
Loss rate: 0.00%
```
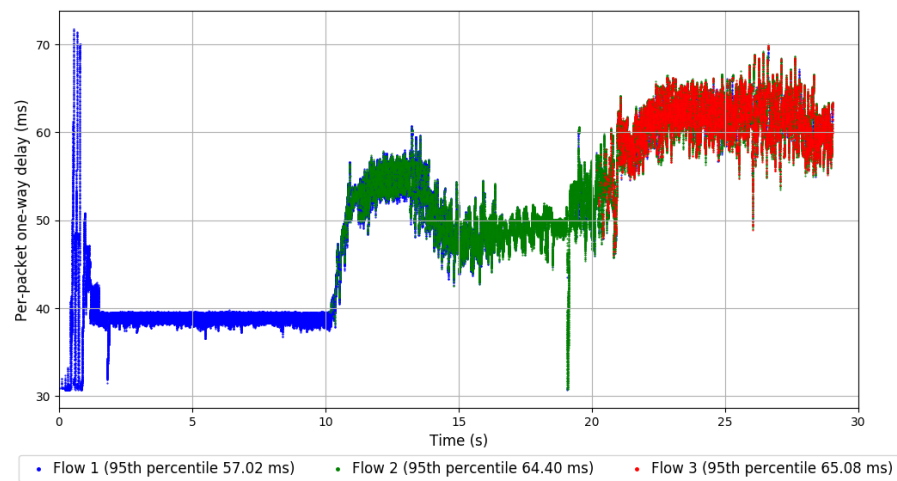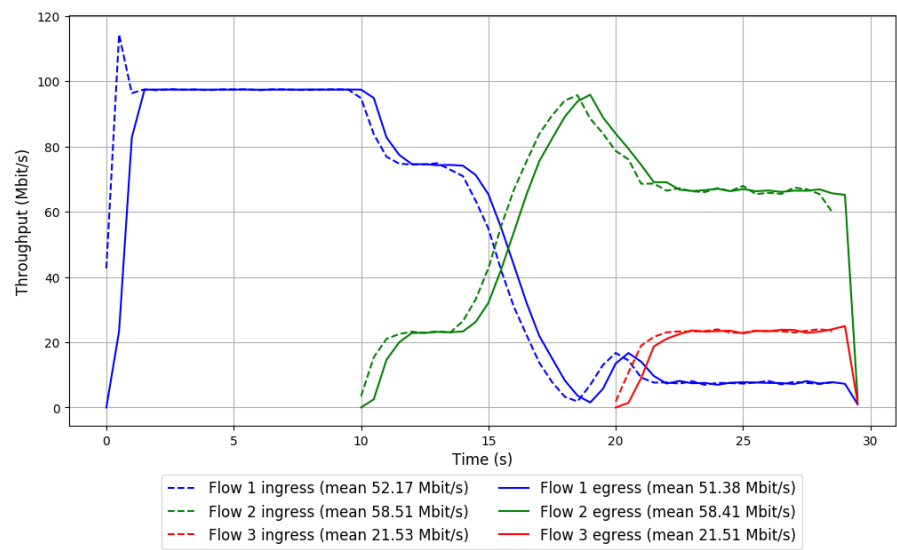
Run 4: Report of Indigo-MusesD — Data Link

```
Run 5: Statistics of Indigo-MusesD

Start at: 2019-01-19 02:06:37
End at: 2019-01-19 02:07:07
Local clock offset: 0.739 ms
Remote clock offset: -2.748 ms


# Below is generated by plot.py at 2019-01-19 02:35:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.26 Mbit/s
95th percentile per-packet one-way delay: 34.444 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 77.37 Mbit/s
95th percentile per-packet one-way delay: 34.462 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 7.21 Mbit/s
95th percentile per-packet one-way delay: 34.519 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 33.77 Mbit/s
95th percentile per-packet one-way delay: 34.278 ms
Loss rate: 0.02%
```

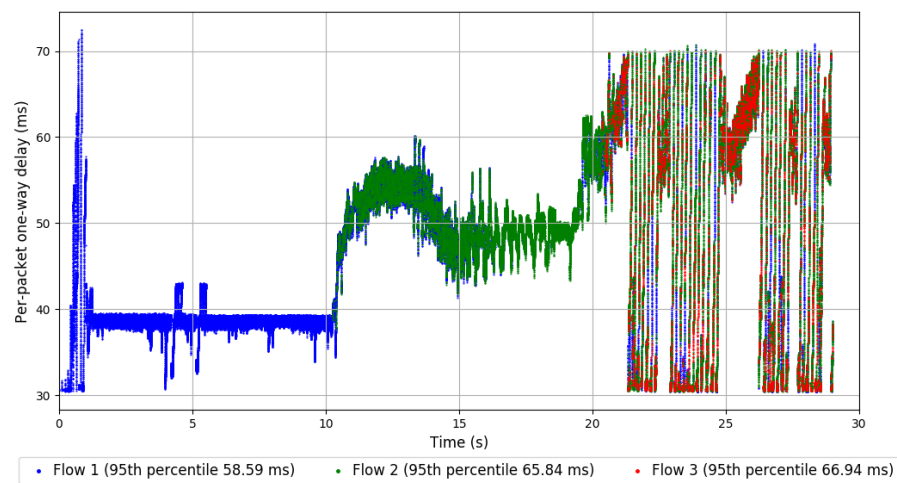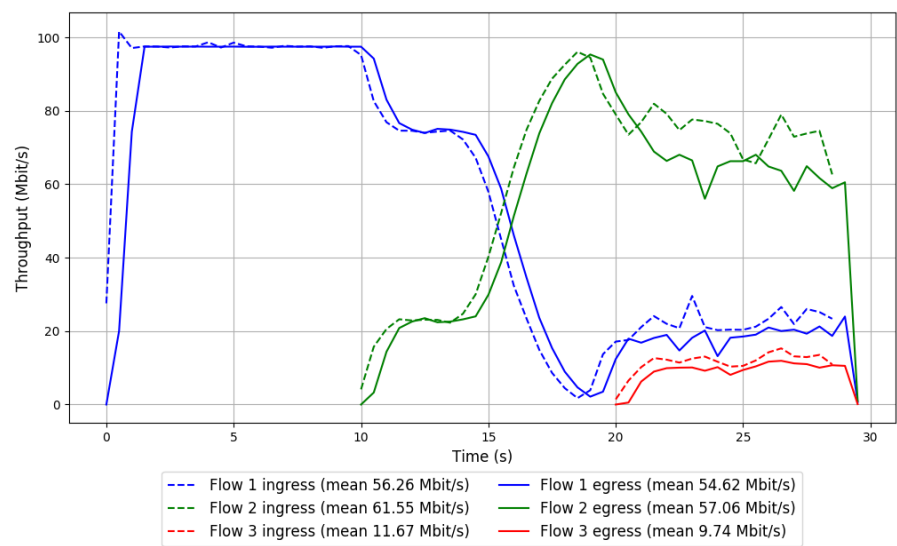Run 5: Report of Indigo-MusesD — Data Link

Flow 1 ingress (mean 77.38 Mbit/s) --- Flow 1 egress (mean 77.37 Mbit/s)
Flow 2 ingress (mean 7.21 Mbit/s) --- Flow 2 egress (mean 7.21 Mbit/s)
Flow 3 ingress (mean 33.78 Mbit/s) --- Flow 3 egress (mean 33.77 Mbit/s)

Flow 1 (95th percentile 34.46 ms) Flow 2 (95th percentile 34.52 ms) Flow 3 (95th percentile 34.28 ms)

```
Run 1: Statistics of Indigo-MusesT

Start at: 2019-01-19 00:09:17
End at: 2019-01-19 00:09:47
Local clock offset: 0.016 ms
Remote clock offset: -3.365 ms


# Below is generated by plot.py at 2019-01-19 02:35:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.24 Mbit/s
95th percentile per-packet one-way delay: 64.318 ms
Loss rate: 12.56%
-- Flow 1:
Average throughput: 67.30 Mbit/s
95th percentile per-packet one-way delay: 62.290 ms
Loss rate: 9.04%
-- Flow 2:
Average throughput: 38.04 Mbit/s
95th percentile per-packet one-way delay: 66.886 ms
Loss rate: 20.75%
-- Flow 3:
Average throughput: 1.13 Mbit/s
95th percentile per-packet one-way delay: 66.343 ms
Loss rate: 24.57%
```

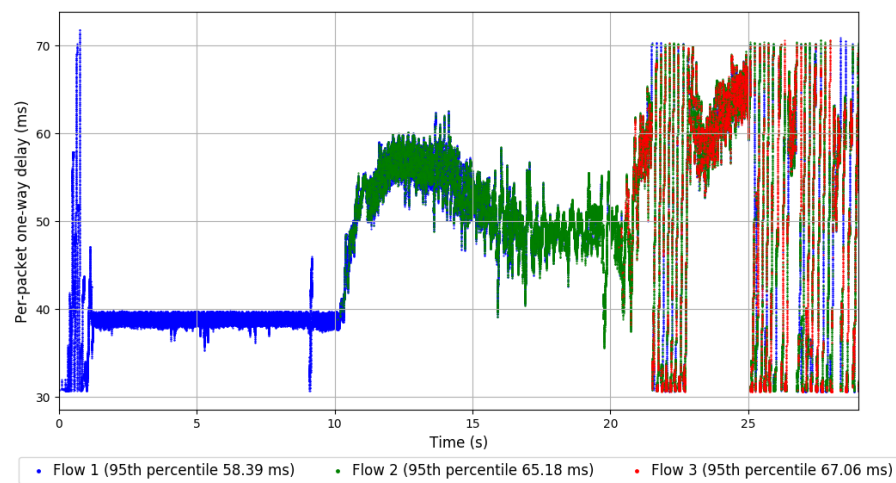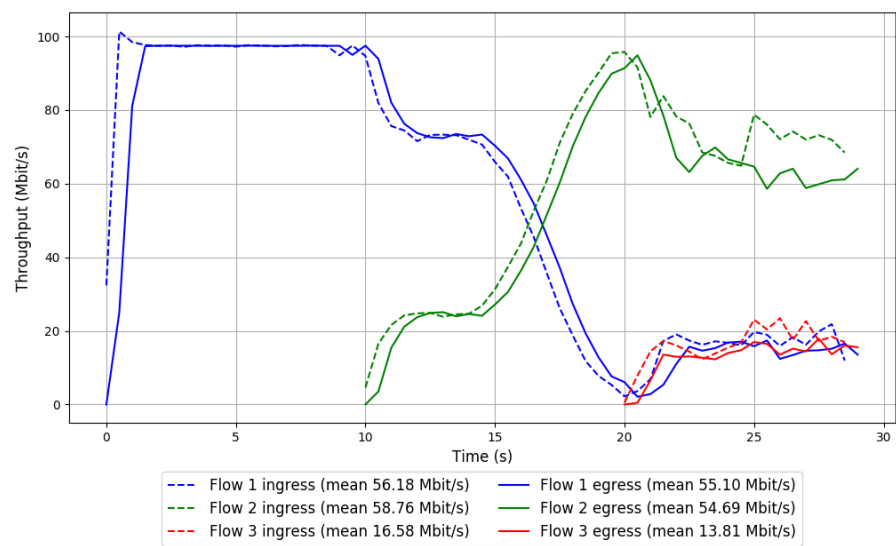Run 1: Report of Indigo-MusesT — Data Link

```
Run 2: Statistics of Indigo-MusesT

Start at: 2019-01-19 00:37:30
End at: 2019-01-19 00:38:00
Local clock offset: 0.227 ms
Remote clock offset: -3.045 ms


# Below is generated by plot.py at 2019-01-19 02:35:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.99 Mbit/s
95th percentile per-packet one-way delay: 63.573 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 51.38 Mbit/s
95th percentile per-packet one-way delay: 57.015 ms
Loss rate: 1.40%
-- Flow 2:
Average throughput: 58.41 Mbit/s
95th percentile per-packet one-way delay: 64.400 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 21.51 Mbit/s
95th percentile per-packet one-way delay: 65.078 ms
Loss rate: 0.04%
```

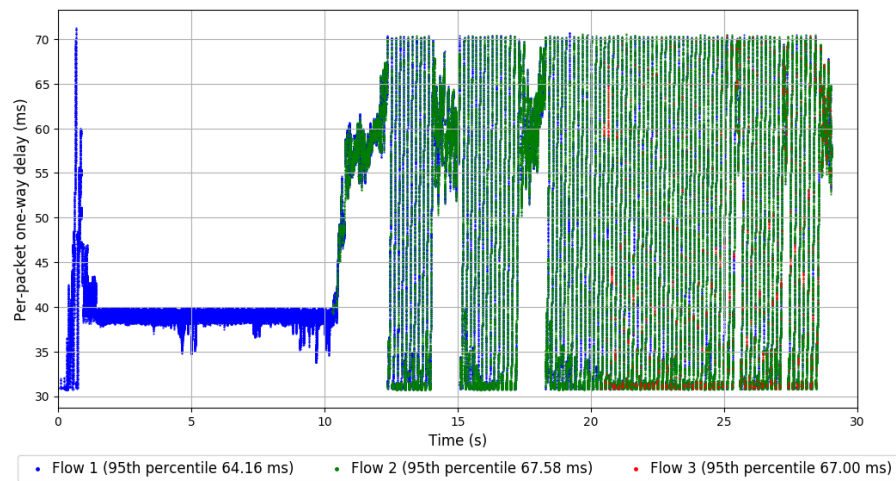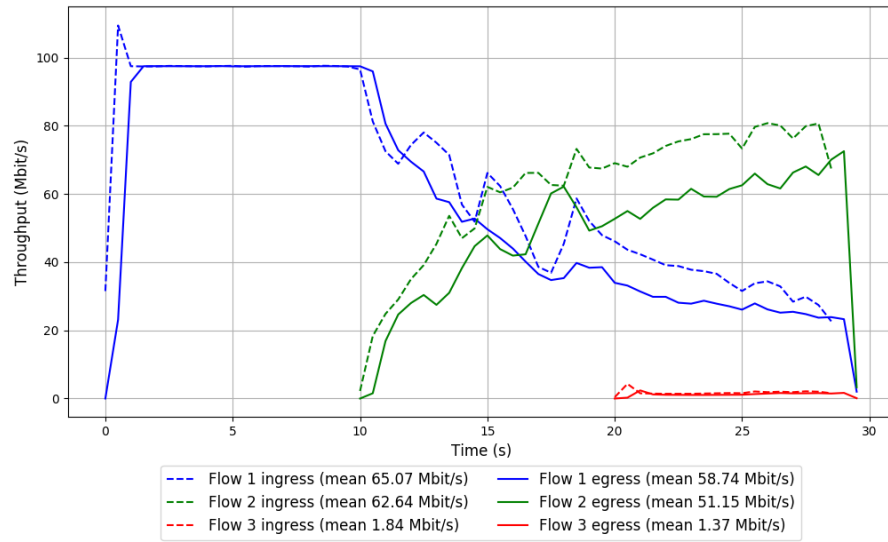Run 2: Report of Indigo-MusesT — Data Link

```
Run 3: Statistics of Indigo-MusesT

Start at: 2019-01-19 01:05:56
End at: 2019-01-19 01:06:26
Local clock offset: -3.484 ms
Remote clock offset: -2.909 ms


# Below is generated by plot.py at 2019-01-19 02:36:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.65 Mbit/s
95th percentile per-packet one-way delay: 63.773 ms
Loss rate: 5.14%
-- Flow 1:
Average throughput: 54.62 Mbit/s
95th percentile per-packet one-way delay: 58.587 ms
Loss rate: 2.88%
-- Flow 2:
Average throughput: 57.06 Mbit/s
95th percentile per-packet one-way delay: 65.837 ms
Loss rate: 7.30%
-- Flow 3:
Average throughput: 9.74 Mbit/s
95th percentile per-packet one-way delay: 66.936 ms
Loss rate: 16.74%
```

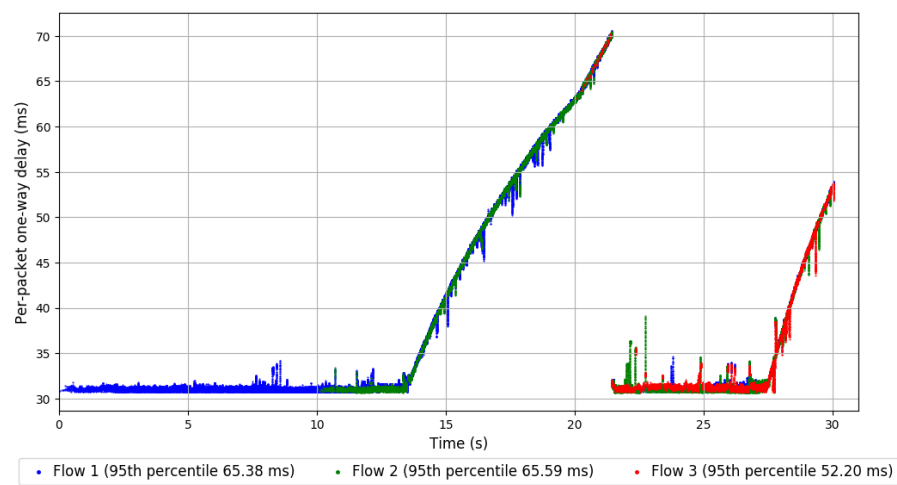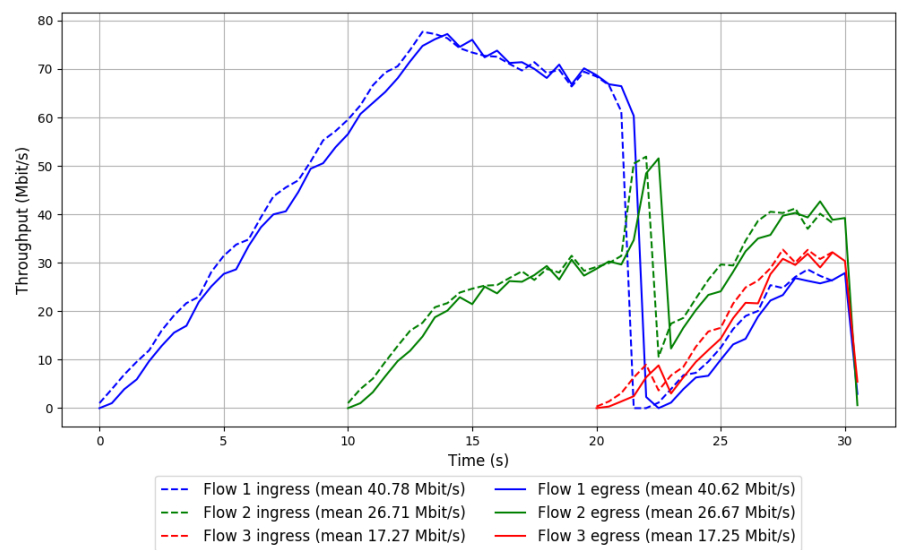Run 3: Report of Indigo-MusesT — Data Link

```
Run 4: Statistics of Indigo-MusesT

Start at: 2019-01-19 01:34:29
End at: 2019-01-19 01:34:59
Local clock offset: -4.811 ms
Remote clock offset: -2.599 ms


# Below is generated by plot.py at 2019-01-19 02:36:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.90 Mbit/s
95th percentile per-packet one-way delay: 63.609 ms
Loss rate: 4.61%
-- Flow 1:
Average throughput: 55.10 Mbit/s
95th percentile per-packet one-way delay: 58.393 ms
Loss rate: 1.92%
-- Flow 2:
Average throughput: 54.69 Mbit/s
95th percentile per-packet one-way delay: 65.184 ms
Loss rate: 6.96%
-- Flow 3:
Average throughput: 13.81 Mbit/s
95th percentile per-packet one-way delay: 67.059 ms
Loss rate: 16.82%
```
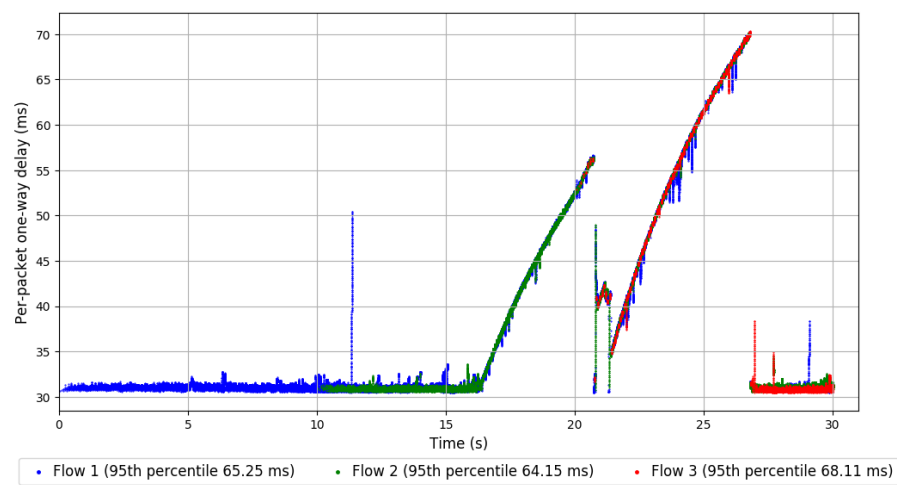
Run 4: Report of Indigo-MusesT — Data Link

```
Run 5: Statistics of Indigo-MusesT

Start at: 2019-01-19 02:02:46
End at: 2019-01-19 02:03:16
Local clock offset: 0.21 ms
Remote clock offset: -2.675 ms


# Below is generated by plot.py at 2019-01-19 02:36:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.28 Mbit/s
95th percentile per-packet one-way delay: 66.067 ms
Loss rate: 13.02%
-- Flow 1:
Average throughput: 58.74 Mbit/s
95th percentile per-packet one-way delay: 64.156 ms
Loss rate: 9.65%
-- Flow 2:
Average throughput: 51.15 Mbit/s
95th percentile per-packet one-way delay: 67.578 ms
Loss rate: 18.27%
-- Flow 3:
Average throughput: 1.37 Mbit/s
95th percentile per-packet one-way delay: 66.999 ms
Loss rate: 25.05%
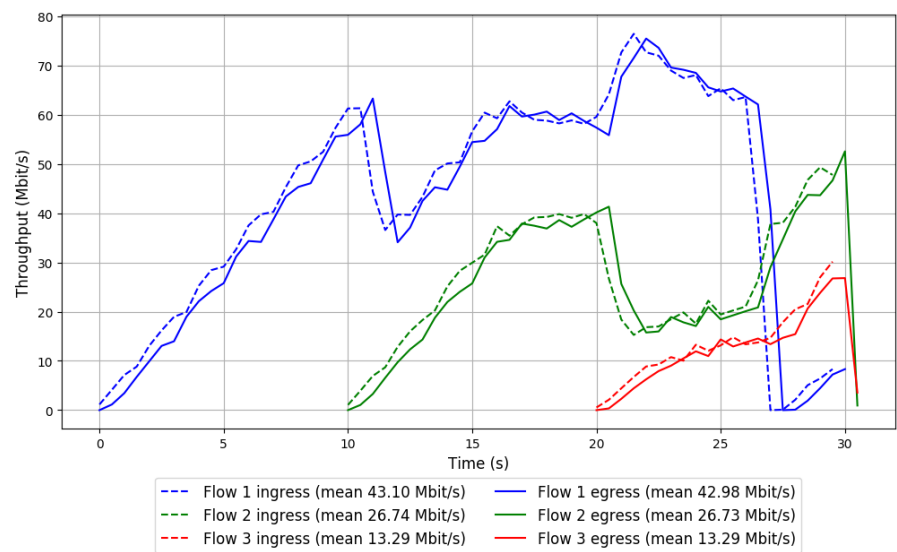```

Run 5: Report of Indigo-MusesT — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2019-01-19 00:06:42
End at: 2019-01-19 00:07:12
Local clock offset: -0.001 ms
Remote clock offset: -3.399 ms

Below is generated by plot.py at 2019-01-19 02:36:18
Datalink statistics
-- Total of 3 flows:
Average throughput: 64.09 Mbit/s
95th percentile per-packet one-way delay: 65.075 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 40.62 Mbit/s
95th percentile per-packet one-way delay: 65.380 ms
Loss rate: 0.31%
-- Flow 2:
Average throughput: 26.67 Mbit/s
95th percentile per-packet one-way delay: 65.592 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 17.25 Mbit/s
95th percentile per-packet one-way delay: 52.203 ms
Loss rate: 0.21%
```
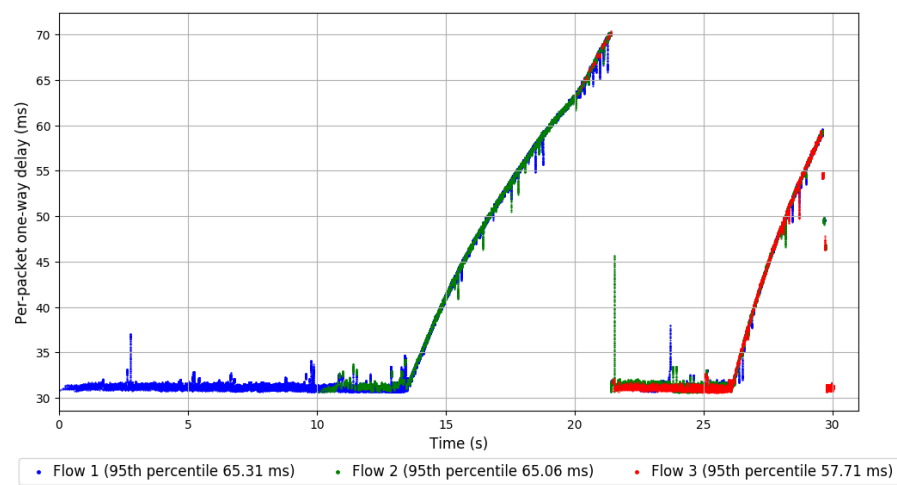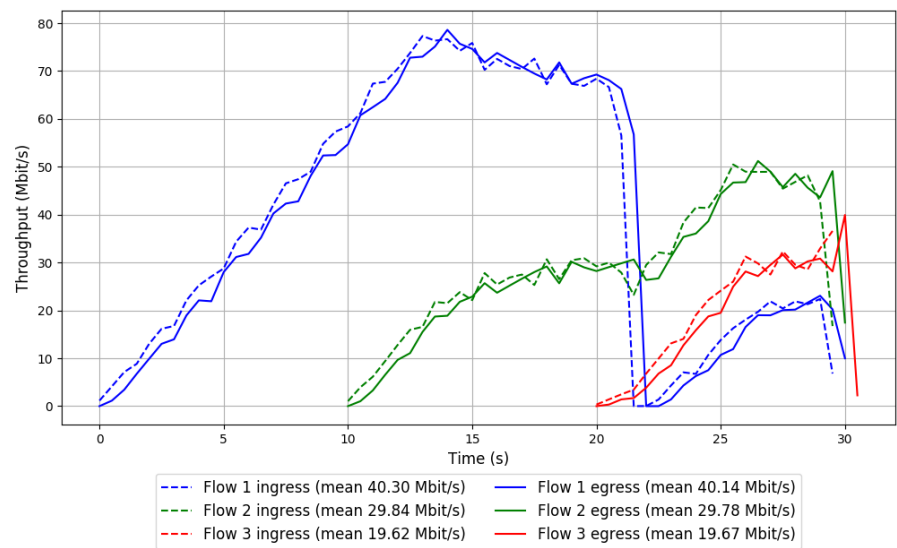
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2019-01-19 00:34:42
End at: 2019-01-19 00:35:12
Local clock offset: 0.18 ms
Remote clock offset: -3.278 ms

Below is generated by plot.py at 2019-01-19 02:36:18
Datalink statistics
-- Total of 3 flows:
Average throughput: 65.16 Mbit/s
95th percentile per-packet one-way delay: 65.430 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 42.98 Mbit/s
95th percentile per-packet one-way delay: 65.253 ms
Loss rate: 0.28%
-- Flow 2:
Average throughput: 26.73 Mbit/s
95th percentile per-packet one-way delay: 64.150 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 13.29 Mbit/s
95th percentile per-packet one-way delay: 68.110 ms
Loss rate: 0.18%
```
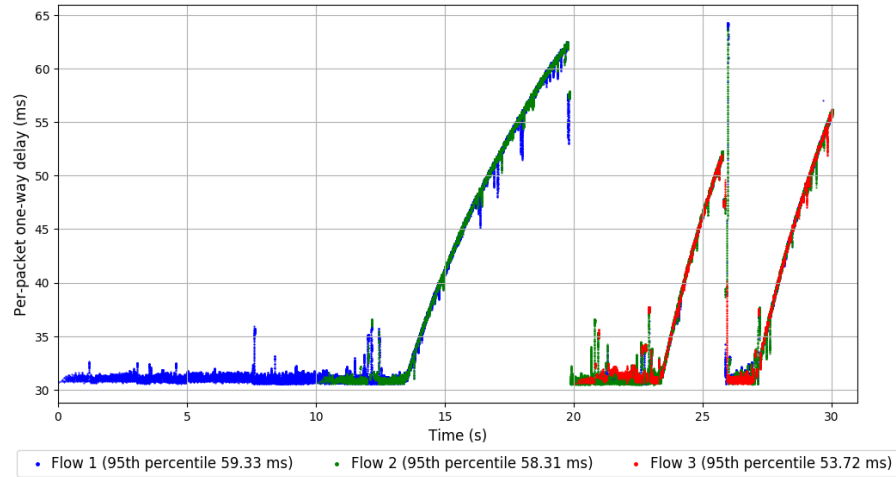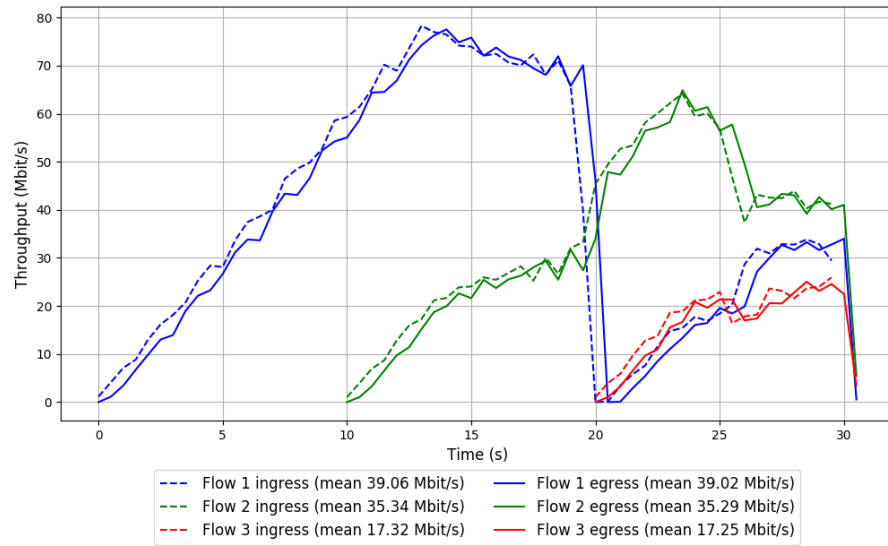
Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2019-01-19 01:03:05
End at: 2019-01-19 01:03:35
Local clock offset: -3.239 ms
Remote clock offset: -2.804 ms

Below is generated by plot.py at 2019-01-19 02:36:23
Datalink statistics
-- Total of 3 flows:
Average throughput: 65.76 Mbit/s
95th percentile per-packet one-way delay: 64.827 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 40.14 Mbit/s
95th percentile per-packet one-way delay: 65.308 ms
Loss rate: 0.34%
-- Flow 2:
Average throughput: 29.78 Mbit/s
95th percentile per-packet one-way delay: 65.056 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 19.67 Mbit/s
95th percentile per-packet one-way delay: 57.706 ms
Loss rate: 0.10%
```
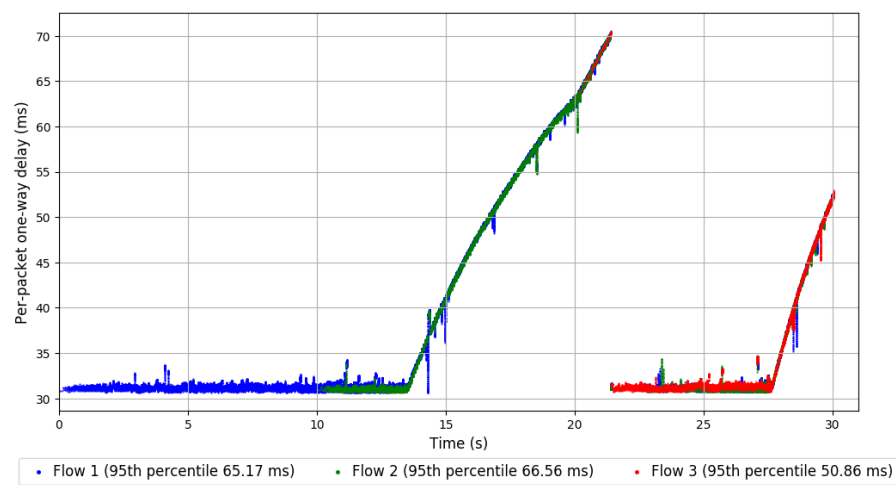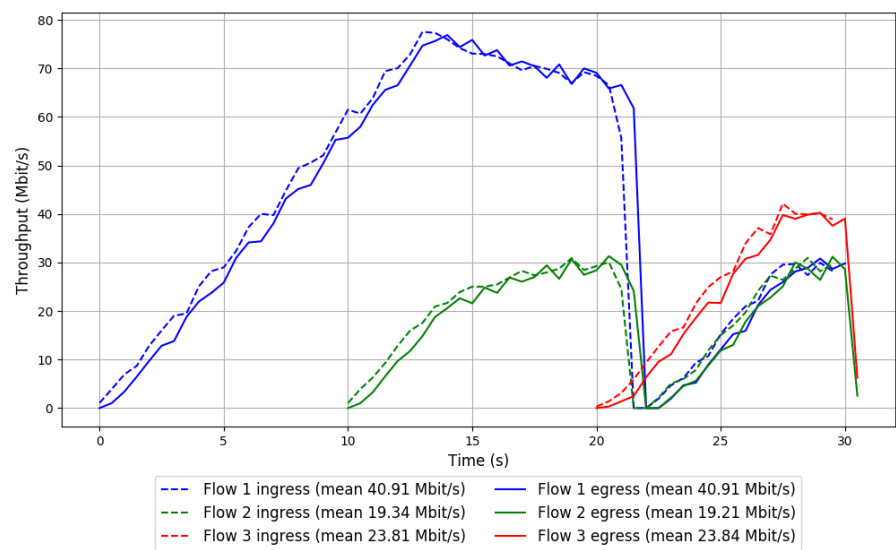
Run 3: Report of LEDBAT — Data Link



Flow 1 ingress (mean 40.30 Mbit/s) --- Flow 1 egress (mean 40.14 Mbit/s) ---
Flow 2 ingress (mean 29.84 Mbit/s) --- Flow 2 egress (mean 29.78 Mbit/s) ---
Flow 3 ingress (mean 19.62 Mbit/s) --- Flow 3 egress (mean 19.67 Mbit/s) ---



Flow 1 (95th percentile 65.31 ms)   Flow 2 (95th percentile 65.06 ms)   Flow 3 (95th percentile 57.71 ms)

```
Run 4: Statistics of LEDBAT

Start at: 2019-01-19 01:31:36
End at: 2019-01-19 01:32:06
Local clock offset: -4.684 ms
Remote clock offset: -2.782 ms

Below is generated by plot.py at 2019-01-19 02:36:39
Datalink statistics
-- Total of 3 flows:
Average throughput: 68.27 Mbit/s
95th percentile per-packet one-way delay: 58.775 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 39.02 Mbit/s
95th percentile per-packet one-way delay: 59.328 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 35.29 Mbit/s
95th percentile per-packet one-way delay: 58.312 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 17.25 Mbit/s
95th percentile per-packet one-way delay: 53.717 ms
Loss rate: 0.17%
```
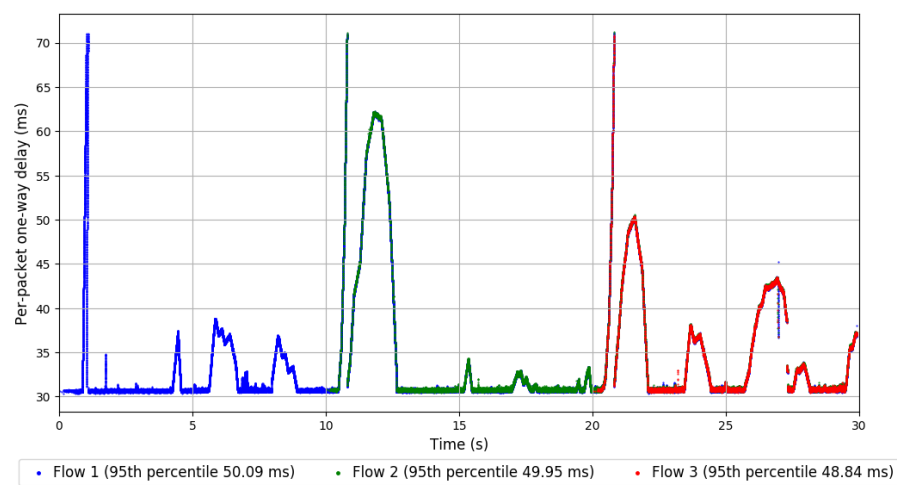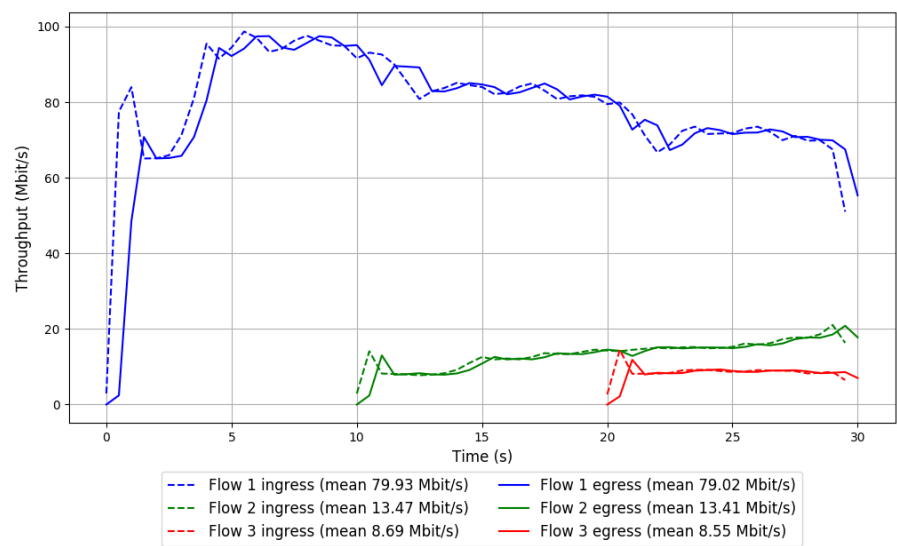
Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2019-01-19 01:59:59
End at: 2019-01-19 02:00:29
Local clock offset: -0.312 ms
Remote clock offset: -2.843 ms

Below is generated by plot.py at 2019-01-19 02:36:39
Datalink statistics
-- Total of 3 flows:
Average throughput: 61.53 Mbit/s
95th percentile per-packet one-way delay: 65.121 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 40.91 Mbit/s
95th percentile per-packet one-way delay: 65.172 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 19.21 Mbit/s
95th percentile per-packet one-way delay: 66.563 ms
Loss rate: 0.60%
-- Flow 3:
Average throughput: 23.84 Mbit/s
95th percentile per-packet one-way delay: 50.859 ms
Loss rate: 0.00%
```
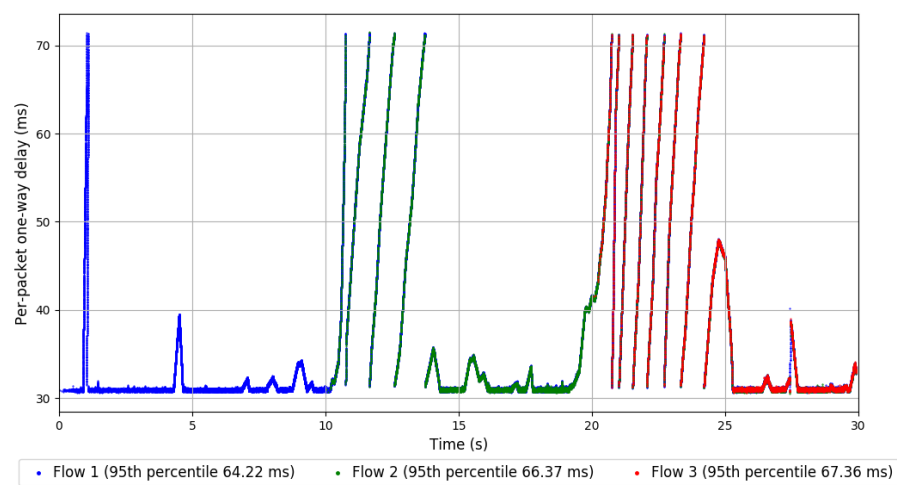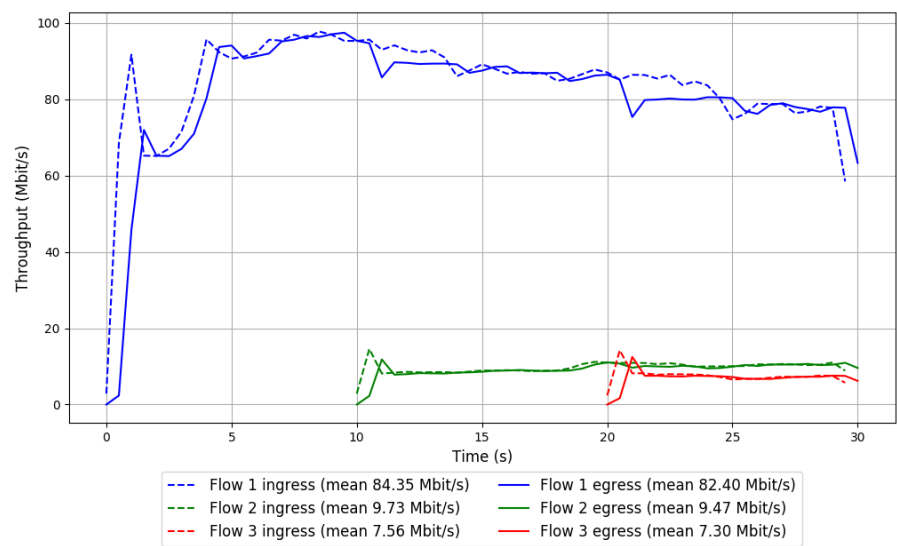
Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2019-01-19 00:30:56
End at: 2019-01-19 00:31:26
Local clock offset: 0.144 ms
Remote clock offset: -3.312 ms

Below is generated by plot.py at 2019-01-19 02:37:06
Datalink statistics
-- Total of 3 flows:
Average throughput: 90.76 Mbit/s
95th percentile per-packet one-way delay: 49.987 ms
Loss rate: 1.06%
-- Flow 1:
Average throughput: 79.02 Mbit/s
95th percentile per-packet one-way delay: 50.091 ms
Loss rate: 1.12%
-- Flow 2:
Average throughput: 13.41 Mbit/s
95th percentile per-packet one-way delay: 49.950 ms
Loss rate: 0.43%
-- Flow 3:
Average throughput: 8.55 Mbit/s
95th percentile per-packet one-way delay: 48.842 ms
Loss rate: 1.57%
```
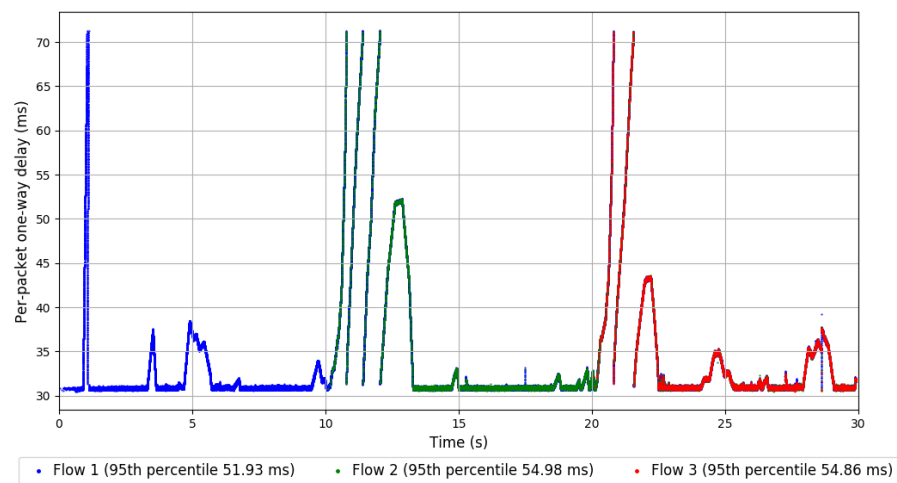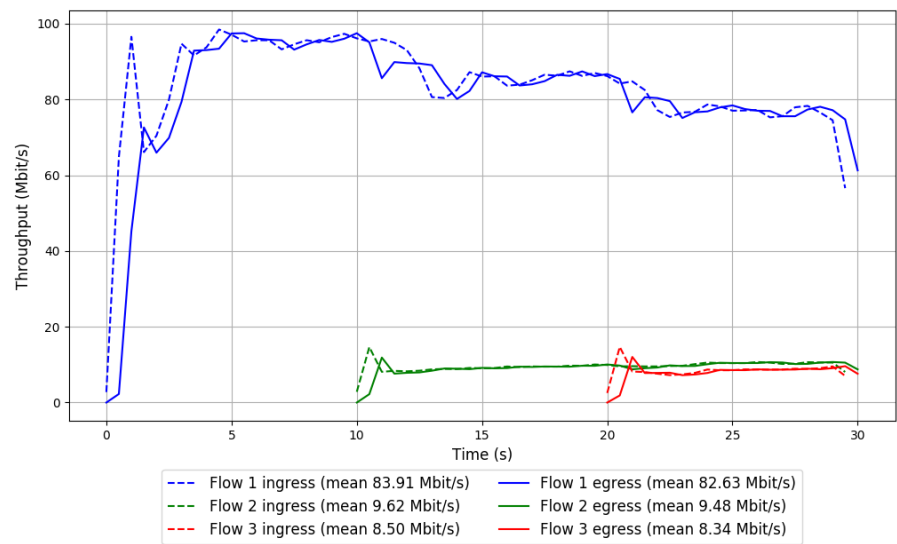
Run 1: Report of PCC-Allegro — Data Link



- - - Flow 1 ingress (mean 79.93 Mbit/s) ——— Flow 1 egress (mean 79.02 Mbit/s)
- - - Flow 2 ingress (mean 13.47 Mbit/s) ——— Flow 2 egress (mean 13.41 Mbit/s)
- - - Flow 3 ingress (mean 8.69 Mbit/s) ——— Flow 3 egress (mean 8.55 Mbit/s)



- Flow 1 (95th percentile 50.09 ms)   - Flow 2 (95th percentile 49.95 ms)   - Flow 3 (95th percentile 48.84 ms)

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```
Run 2: Statistics of PCC-Allegro

Start at: 2019-01-19 00:59:05
End at: 2019-01-19 00:59:35
Local clock offset: -2.769 ms
Remote clock offset: -2.807 ms

Below is generated by plot.py at 2019-01-19 02:37:11
Datalink statistics
-- Total of 3 flows:
Average throughput: 91.10 Mbit/s
95th percentile per-packet one-way delay: 64.584 ms
Loss rate: 2.37%
-- Flow 1:
Average throughput: 82.40 Mbit/s
95th percentile per-packet one-way delay: 64.224 ms
Loss rate: 2.31%
-- Flow 2:
Average throughput: 9.47 Mbit/s
95th percentile per-packet one-way delay: 66.367 ms
Loss rate: 2.71%
-- Flow 3:
Average throughput: 7.30 Mbit/s
95th percentile per-packet one-way delay: 67.361 ms
Loss rate: 3.46%
```
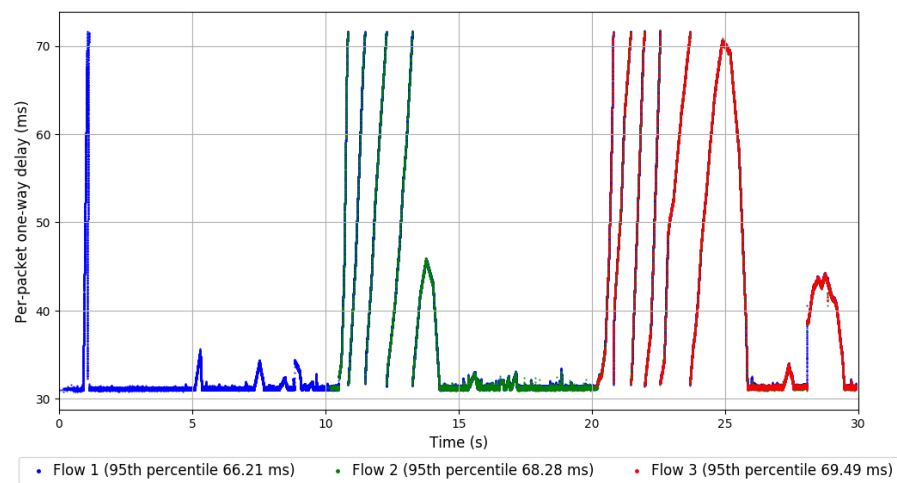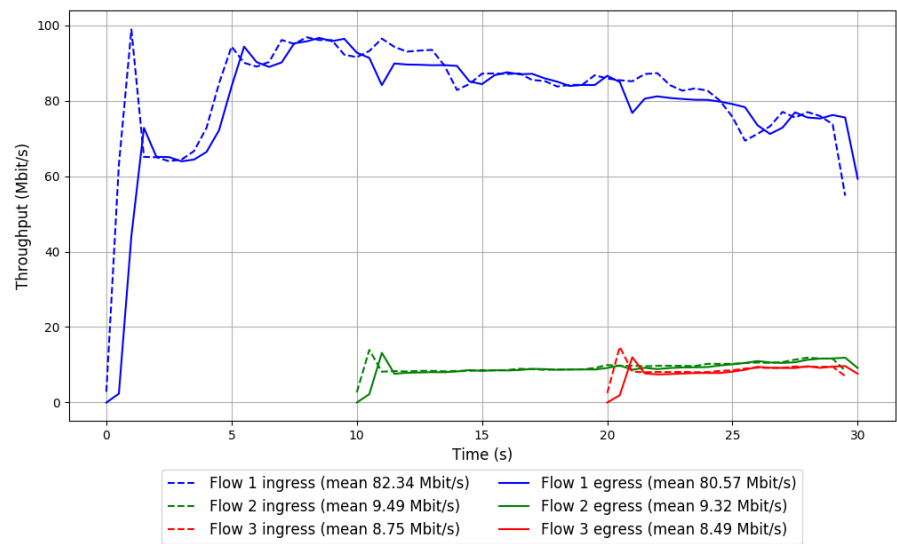
Run 2: Report of PCC-Allegro — Data Link



Flow 1 ingress (mean 84.35 Mbit/s) --- Flow 1 egress (mean 82.40 Mbit/s)
Flow 2 ingress (mean 9.73 Mbit/s) --- Flow 2 egress (mean 9.47 Mbit/s)
Flow 3 ingress (mean 7.56 Mbit/s) --- Flow 3 egress (mean 7.30 Mbit/s)



Flow 1 (95th percentile 64.22 ms)    Flow 2 (95th percentile 66.37 ms)    Flow 3 (95th percentile 67.36 ms)
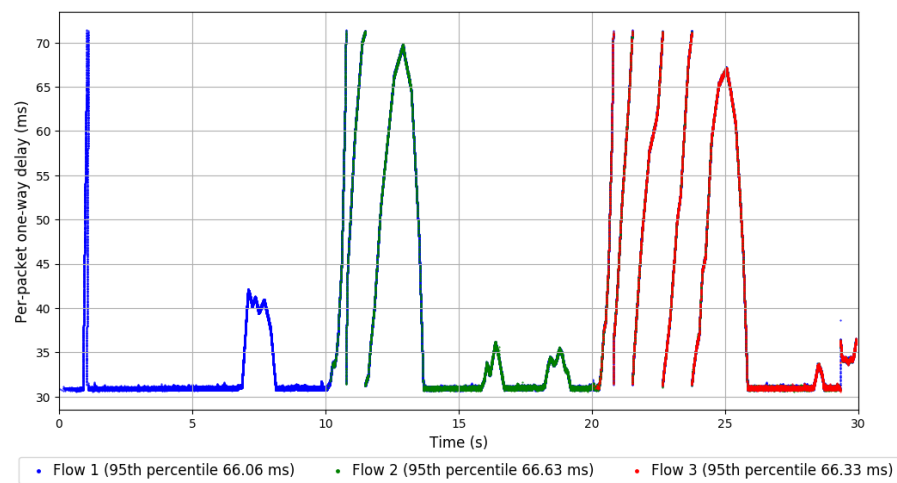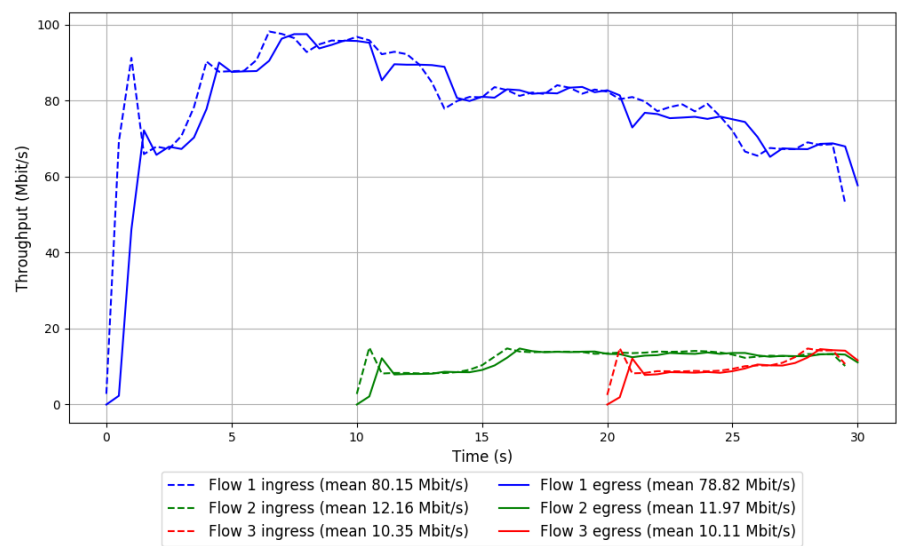
```
Run 3: Statistics of PCC-Allegro

Start at: 2019-01-19 01:27:29
End at: 2019-01-19 01:27:59
Local clock offset: -4.492 ms
Remote clock offset: -2.72 ms

Below is generated by plot.py at 2019-01-19 02:37:15
Datalink statistics
-- Total of 3 flows:
Average throughput: 91.69 Mbit/s
95th percentile per-packet one-way delay: 51.975 ms
Loss rate: 1.53%
-- Flow 1:
Average throughput: 82.63 Mbit/s
95th percentile per-packet one-way delay: 51.930 ms
Loss rate: 1.52%
-- Flow 2:
Average throughput: 9.48 Mbit/s
95th percentile per-packet one-way delay: 54.985 ms
Loss rate: 1.41%
-- Flow 3:
Average throughput: 8.34 Mbit/s
95th percentile per-packet one-way delay: 54.861 ms
Loss rate: 1.93%
```
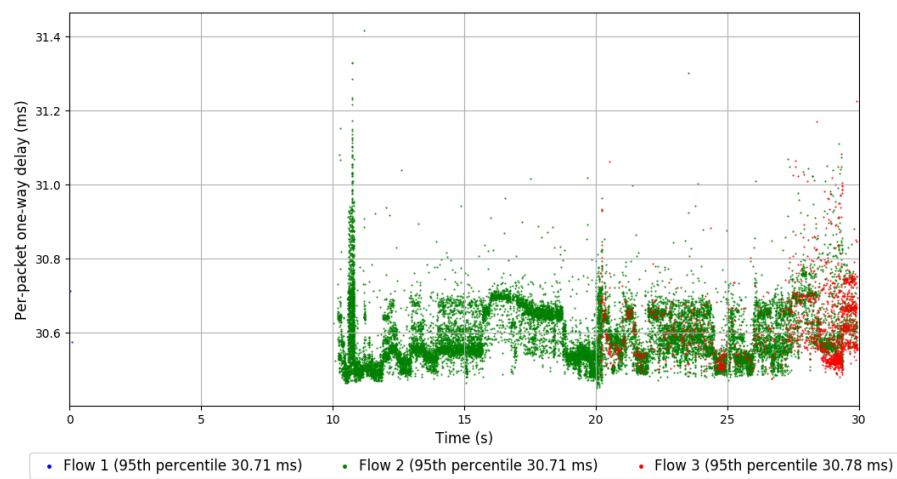
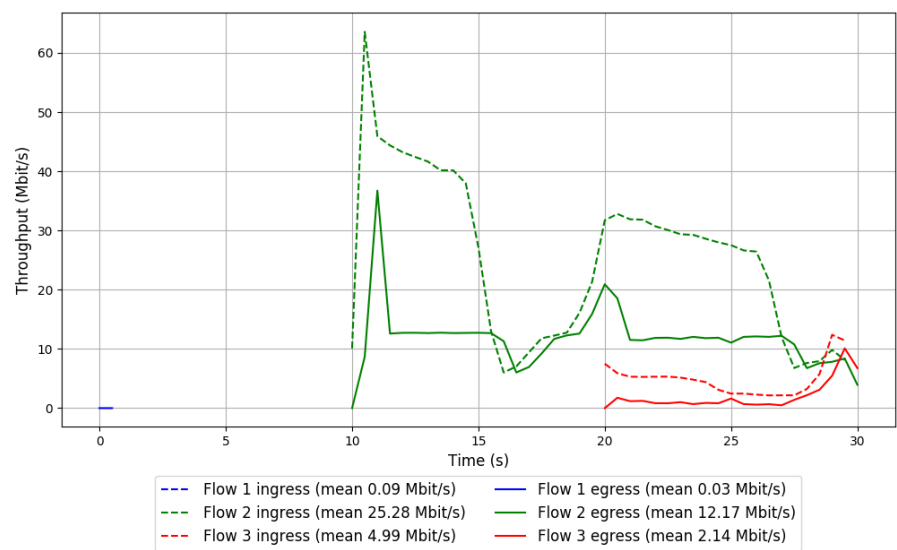Run 3: Report of PCC-Allegro — Data Link

```
Run 4: Statistics of PCC-Allegro

Start at: 2019-01-19 01:55:58
End at: 2019-01-19 01:56:28
Local clock offset: -1.222 ms
Remote clock offset: -2.608 ms


# Below is generated by plot.py at 2019-01-19 02:37:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.57 Mbit/s
95th percentile per-packet one-way delay: 66.702 ms
Loss rate: 2.14%
-- Flow 1:
Average throughput: 80.57 Mbit/s
95th percentile per-packet one-way delay: 66.207 ms
Loss rate: 2.14%
-- Flow 2:
Average throughput: 9.32 Mbit/s
95th percentile per-packet one-way delay: 68.284 ms
Loss rate: 1.72%
-- Flow 3:
Average throughput: 8.49 Mbit/s
95th percentile per-packet one-way delay: 69.487 ms
Loss rate: 2.96%
```

Run 4: Report of PCC-Allegro — Data Link

```
Run 5: Statistics of PCC-Allegro

Start at: 2019-01-19 02:25:18
End at: 2019-01-19 02:25:48
Local clock offset: 0.987 ms
Remote clock offset: -2.872 ms


# Below is generated by plot.py at 2019-01-19 02:37:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.11 Mbit/s
95th percentile per-packet one-way delay: 66.168 ms
Loss rate: 1.67%
-- Flow 1:
Average throughput: 78.82 Mbit/s
95th percentile per-packet one-way delay: 66.061 ms
Loss rate: 1.65%
-- Flow 2:
Average throughput: 11.97 Mbit/s
95th percentile per-packet one-way delay: 66.628 ms
Loss rate: 1.57%
-- Flow 3:
Average throughput: 10.11 Mbit/s
95th percentile per-packet one-way delay: 66.335 ms
Loss rate: 2.27%
```

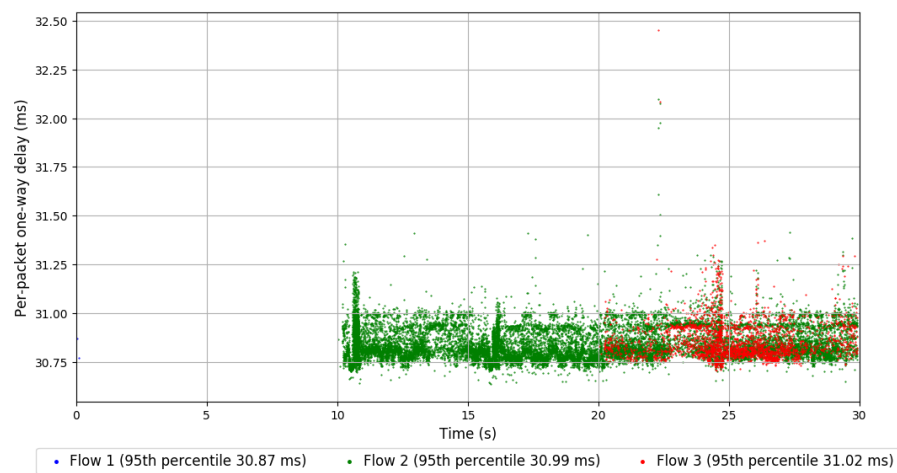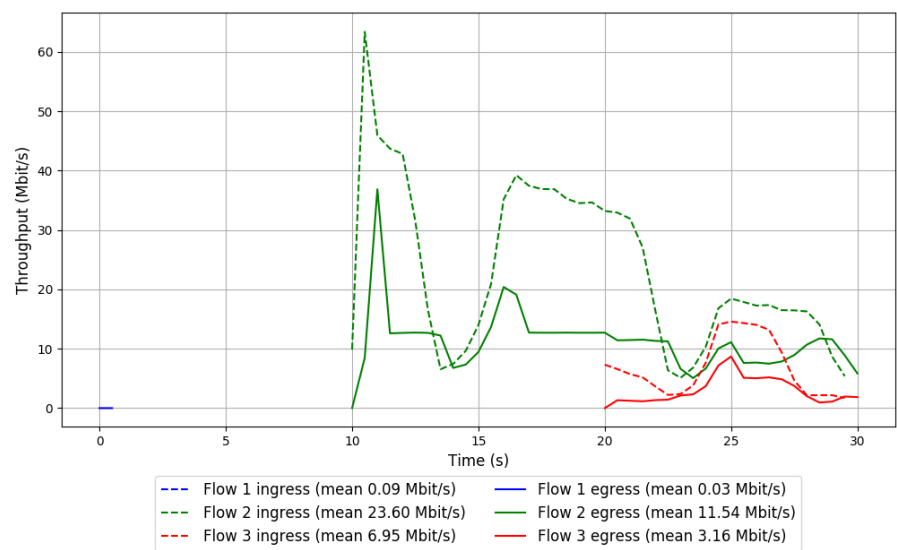Run 5: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2019-01-19 00:10:42
End at: 2019-01-19 00:11:13
Local clock offset: 0.038 ms
Remote clock offset: -3.54 ms


# Below is generated by plot.py at 2019-01-19 02:37:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.80 Mbit/s
95th percentile per-packet one-way delay: 30.721 ms
Loss rate: 52.31%
-- Flow 1:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 30.714 ms
Loss rate: 85.71%
-- Flow 2:
Average throughput: 12.17 Mbit/s
95th percentile per-packet one-way delay: 30.712 ms
Loss rate: 51.84%
-- Flow 3:
Average throughput: 2.14 Mbit/s
95th percentile per-packet one-way delay: 30.780 ms
Loss rate: 57.10%
```
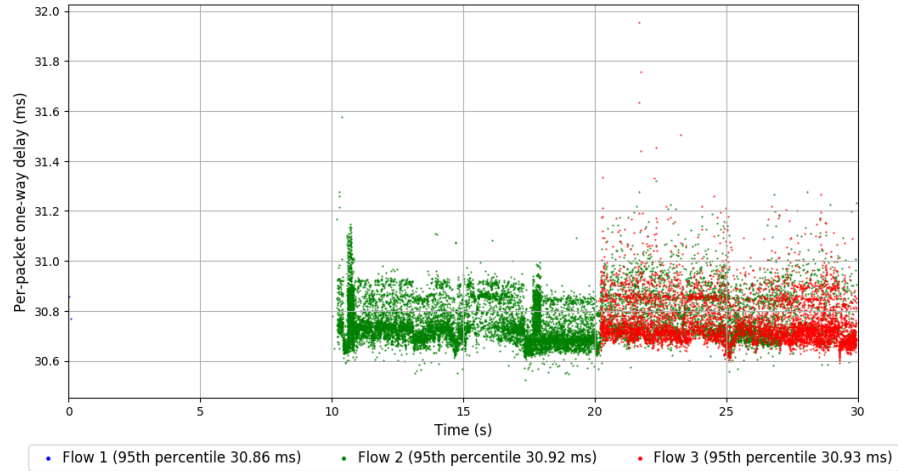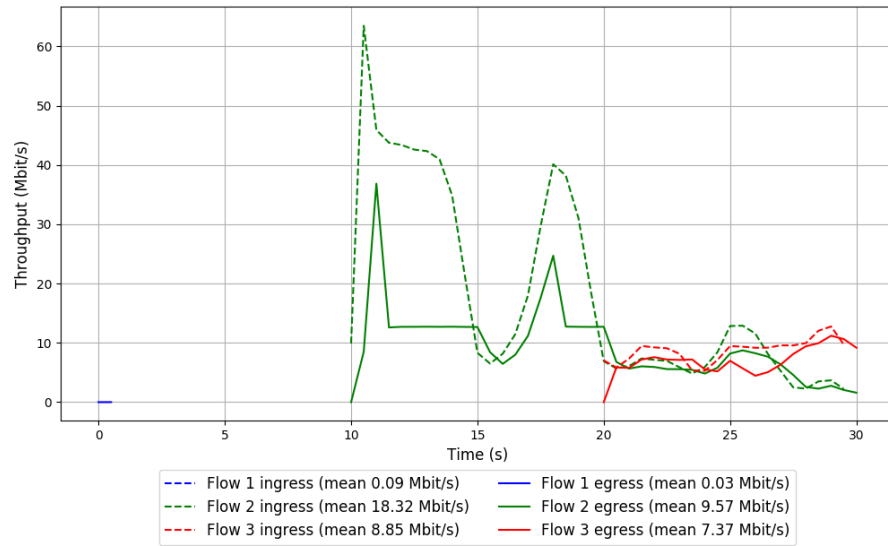
Run 1: Report of PCC-Expr — Data Link

```
Run 2: Statistics of PCC-Expr

Start at: 2019-01-19 00:38:50
End at: 2019-01-19 00:39:20
Local clock offset: 0.225 ms
Remote clock offset: -3.004 ms


# Below is generated by plot.py at 2019-01-19 02:37:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.72 Mbit/s
95th percentile per-packet one-way delay: 30.994 ms
Loss rate: 51.52%
-- Flow 1:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 30.869 ms
Loss rate: 85.71%
-- Flow 2:
Average throughput: 11.54 Mbit/s
95th percentile per-packet one-way delay: 30.992 ms
Loss rate: 51.08%
-- Flow 3:
Average throughput: 3.16 Mbit/s
95th percentile per-packet one-way delay: 31.024 ms
Loss rate: 54.49%
```

Run 2: Report of PCC-Expr — Data Link

```
Run 3: Statistics of PCC-Expr

Start at: 2019-01-19 01:07:19
End at: 2019-01-19 01:07:49
Local clock offset: -3.598 ms
Remote clock offset: -2.739 ms


# Below is generated by plot.py at 2019-01-19 02:37:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.80 Mbit/s
95th percentile per-packet one-way delay: 30.922 ms
Loss rate: 41.73%
-- Flow 1:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 30.857 ms
Loss rate: 85.71%
-- Flow 2:
Average throughput: 9.57 Mbit/s
95th percentile per-packet one-way delay: 30.920 ms
Loss rate: 47.75%
-- Flow 3:
Average throughput: 7.37 Mbit/s
95th percentile per-packet one-way delay: 30.929 ms
Loss rate: 16.63%
```
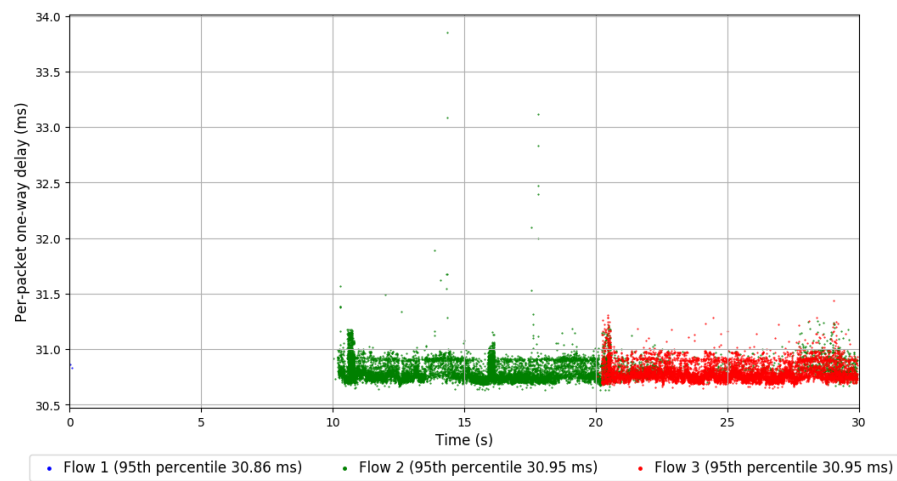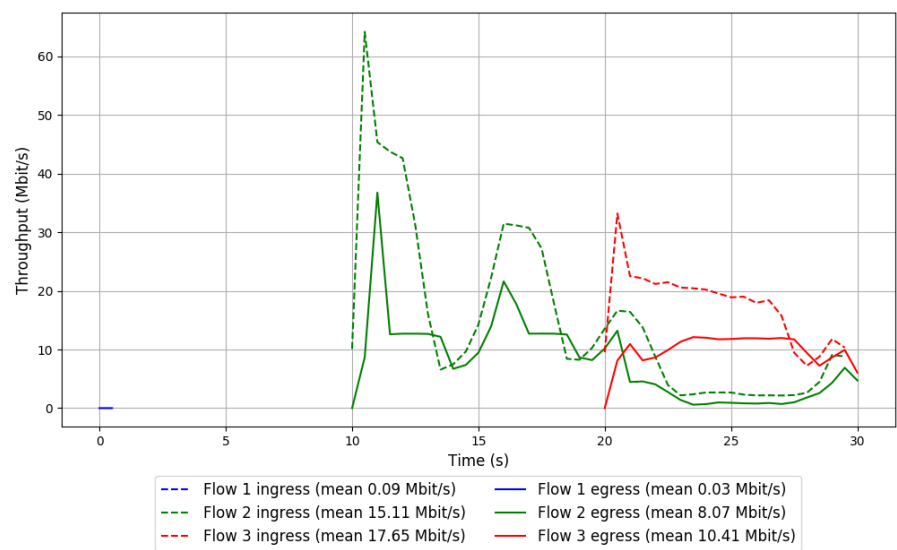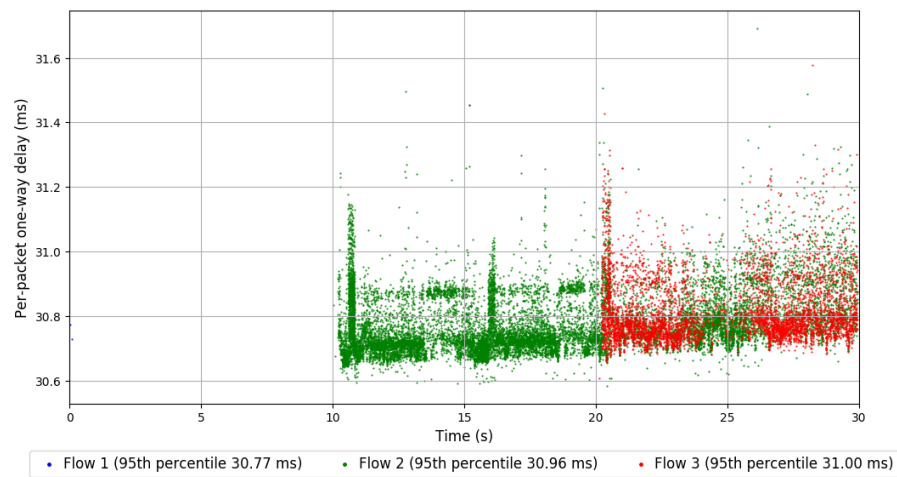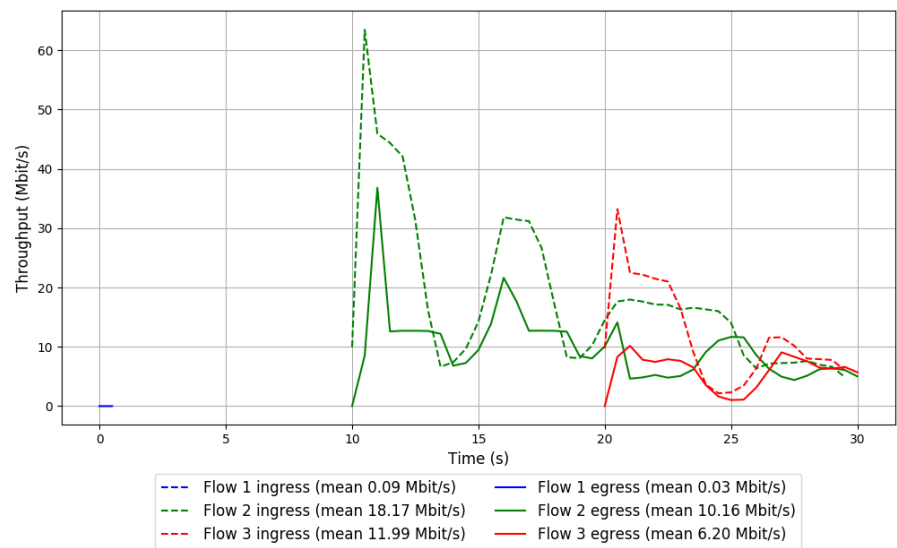
Run 3: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 0.09 Mbit/s)   Flow 1 egress (mean 0.03 Mbit/s)
Flow 2 ingress (mean 18.32 Mbit/s)   Flow 2 egress (mean 9.57 Mbit/s)
Flow 3 ingress (mean 8.85 Mbit/s)   Flow 3 egress (mean 7.37 Mbit/s)

Flow 1 (95th percentile 30.86 ms)   Flow 2 (95th percentile 30.92 ms)   Flow 3 (95th percentile 30.93 ms)

```
Run 4: Statistics of PCC-Expr

Start at: 2019-01-19 01:35:58
End at: 2019-01-19 01:36:28
Local clock offset: -4.877 ms
Remote clock offset: -2.59 ms

# Below is generated by plot.py at 2019-01-19 02:37:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.81 Mbit/s
95th percentile per-packet one-way delay: 30.951 ms
Loss rate: 44.54%
-- Flow 1:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 30.860 ms
Loss rate: 85.71%
-- Flow 2:
Average throughput: 8.07 Mbit/s
95th percentile per-packet one-way delay: 30.950 ms
Loss rate: 46.57%
-- Flow 3:
Average throughput: 10.41 Mbit/s
95th percentile per-packet one-way delay: 30.951 ms
Loss rate: 41.04%
```
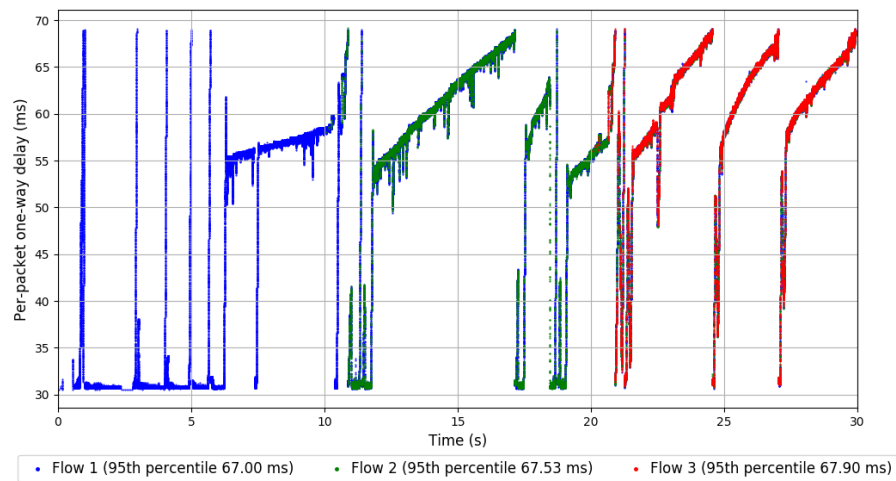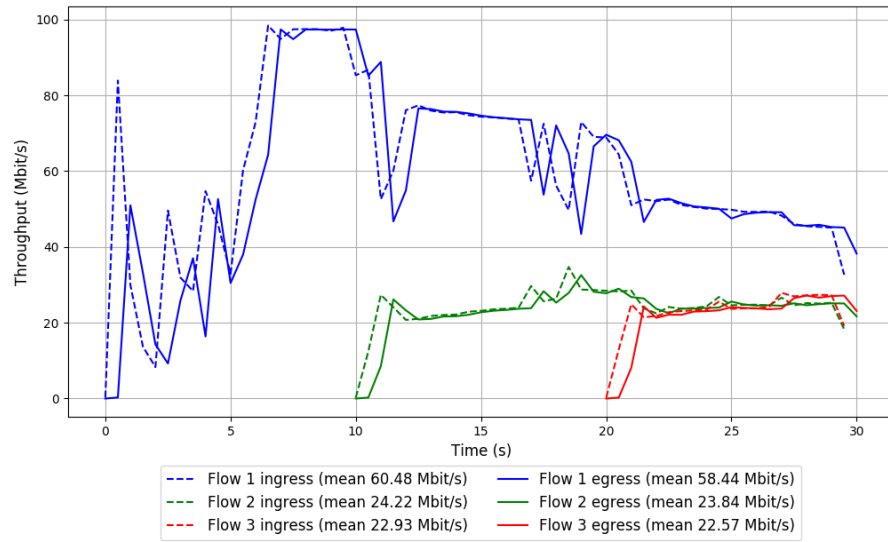
Run 4: Report of PCC-Expr — Data Link

```
Run 5: Statistics of PCC-Expr

Start at: 2019-01-19 02:04:13
End at: 2019-01-19 02:04:44
Local clock offset: 0.423 ms
Remote clock offset: -2.802 ms

# Below is generated by plot.py at 2019-01-19 02:37:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.80 Mbit/s
95th percentile per-packet one-way delay: 30.968 ms
Loss rate: 45.14%
-- Flow 1:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 30.774 ms
Loss rate: 85.71%
-- Flow 2:
Average throughput: 10.16 Mbit/s
95th percentile per-packet one-way delay: 30.957 ms
Loss rate: 44.12%
-- Flow 3:
Average throughput: 6.20 Mbit/s
95th percentile per-packet one-way delay: 30.995 ms
Loss rate: 48.27%
```
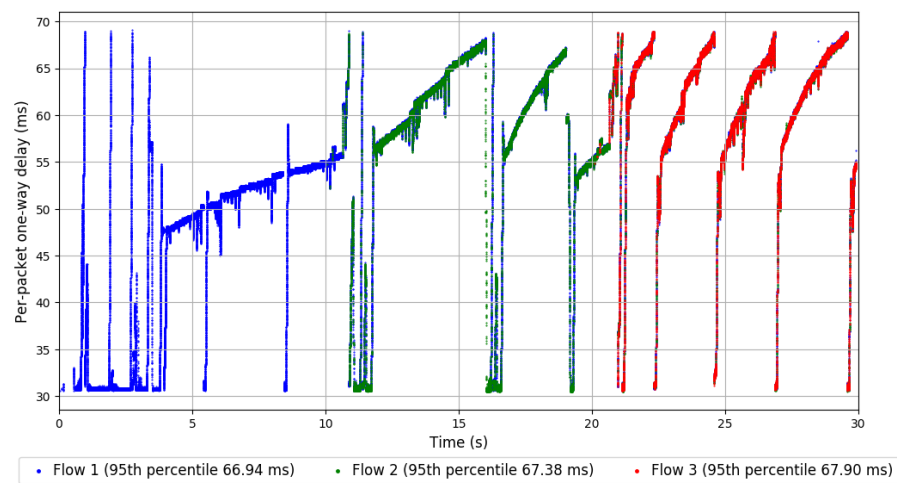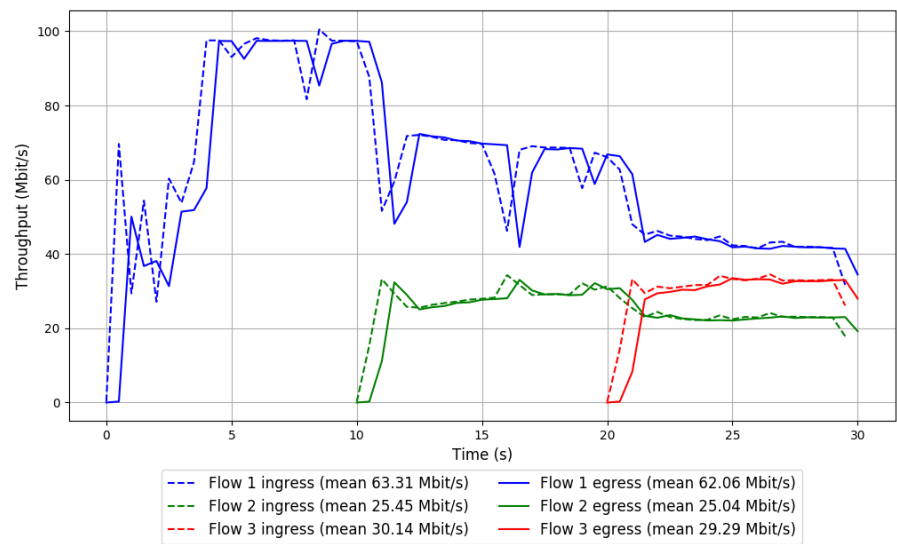
Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2019-01-19 00:25:22
End at: 2019-01-19 00:25:52
Local clock offset: 0.102 ms
Remote clock offset: -3.204 ms


# Below is generated by plot.py at 2019-01-19 02:37:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.70 Mbit/s
95th percentile per-packet one-way delay: 67.272 ms
Loss rate: 2.75%
-- Flow 1:
Average throughput: 58.44 Mbit/s
95th percentile per-packet one-way delay: 67.000 ms
Loss rate: 3.24%
-- Flow 2:
Average throughput: 23.84 Mbit/s
95th percentile per-packet one-way delay: 67.531 ms
Loss rate: 1.49%
-- Flow 3:
Average throughput: 22.57 Mbit/s
95th percentile per-packet one-way delay: 67.899 ms
Loss rate: 1.44%
```
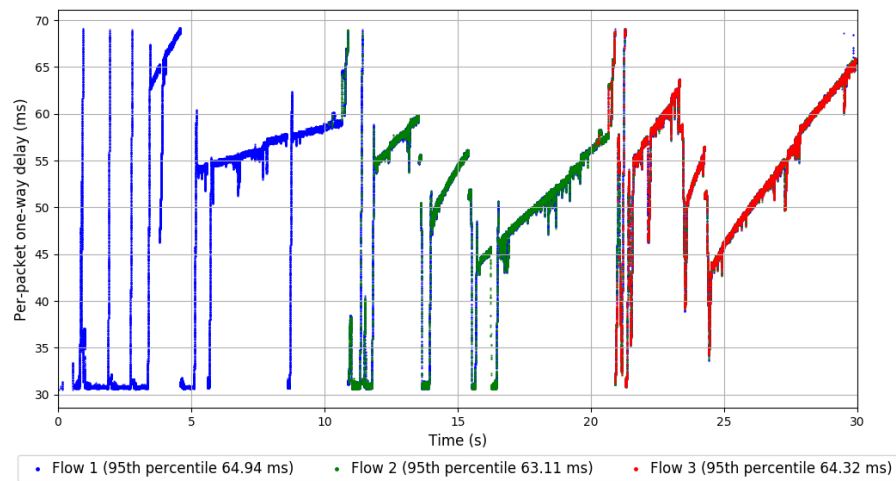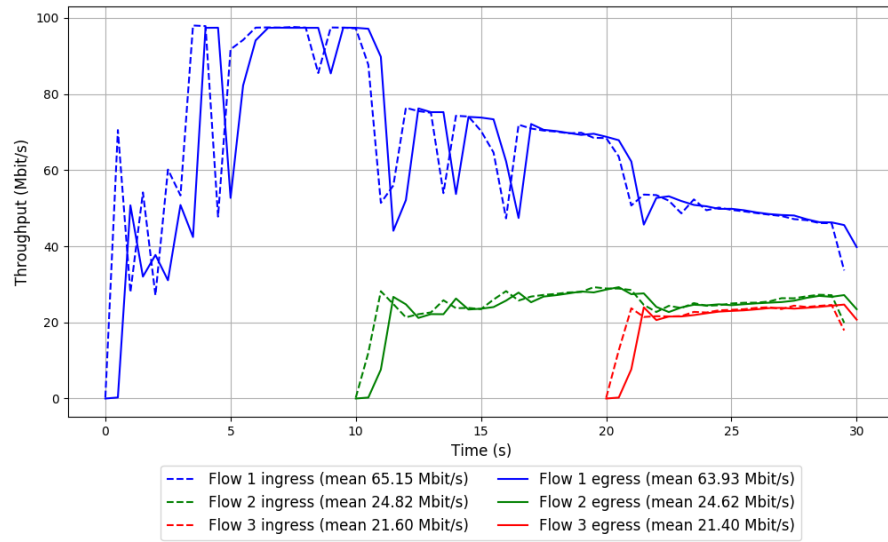
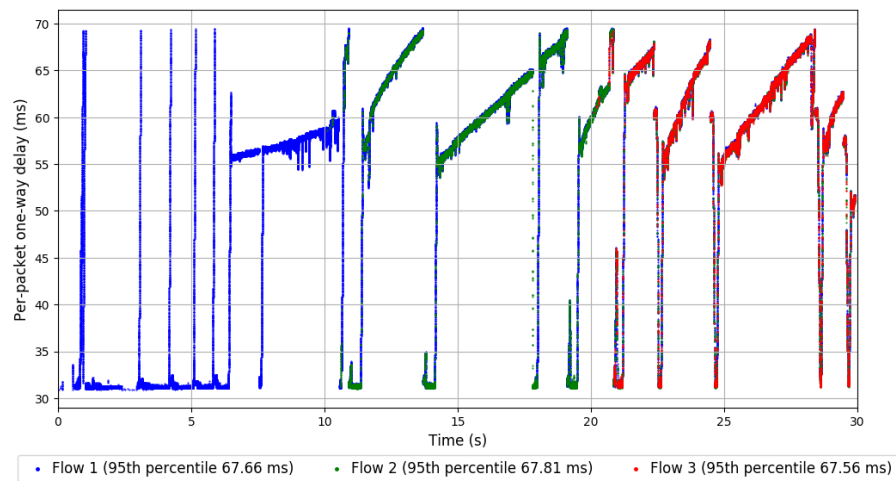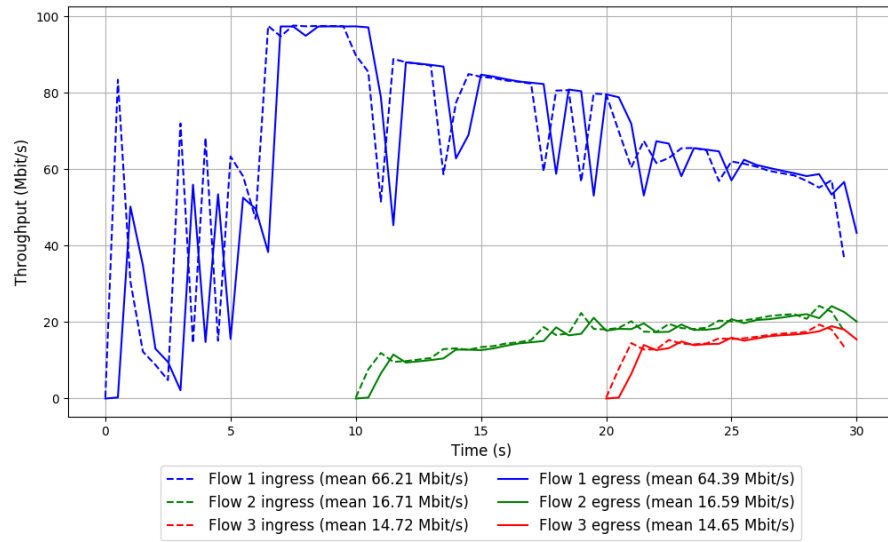Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2019-01-19 00:53:21
End at: 2019-01-19 00:53:51
Local clock offset: -1.736 ms
Remote clock offset: -2.871 ms


# Below is generated by plot.py at 2019-01-19 02:38:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.31 Mbit/s
95th percentile per-packet one-way delay: 67.220 ms
Loss rate: 1.94%
-- Flow 1:
Average throughput: 62.06 Mbit/s
95th percentile per-packet one-way delay: 66.941 ms
Loss rate: 1.89%
-- Flow 2:
Average throughput: 25.04 Mbit/s
95th percentile per-packet one-way delay: 67.380 ms
Loss rate: 1.62%
-- Flow 3:
Average throughput: 29.29 Mbit/s
95th percentile per-packet one-way delay: 67.897 ms
Loss rate: 2.83%
```

Run 2: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 63.31 Mbit/s) --- Flow 1 egress (mean 62.06 Mbit/s)
Flow 2 ingress (mean 25.45 Mbit/s) --- Flow 2 egress (mean 25.04 Mbit/s)
Flow 3 ingress (mean 30.14 Mbit/s) --- Flow 3 egress (mean 29.29 Mbit/s)

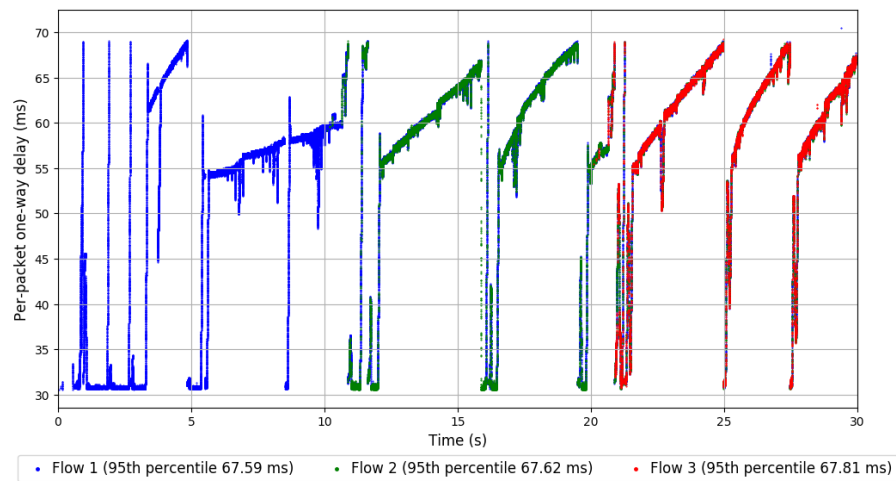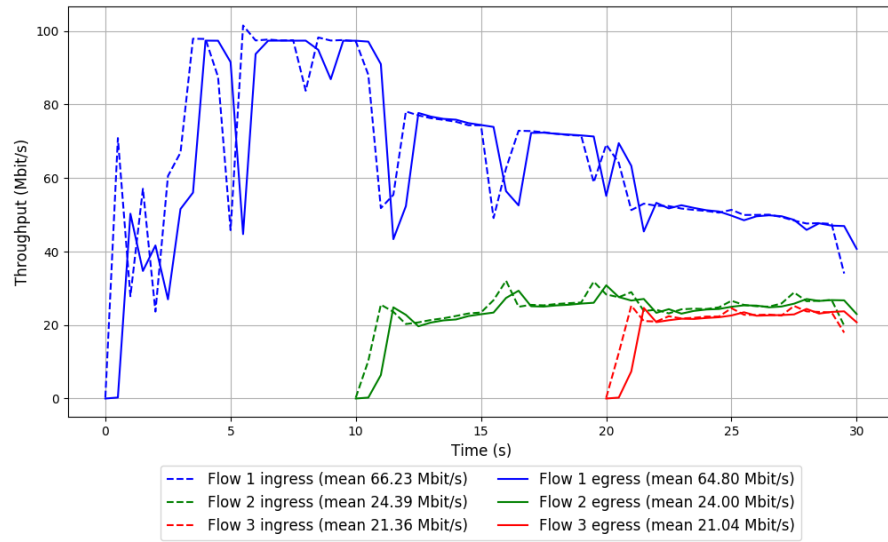Flow 1 (95th percentile 66.94 ms)   Flow 2 (95th percentile 67.38 ms)   Flow 3 (95th percentile 67.90 ms)

```
Run 3: Statistics of QUIC Cubic

Start at: 2019-01-19 01:21:41
End at: 2019-01-19 01:22:11
Local clock offset: -4.277 ms
Remote clock offset: -2.666 ms


# Below is generated by plot.py at 2019-01-19 02:38:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.32 Mbit/s
95th percentile per-packet one-way delay: 64.554 ms
Loss rate: 1.50%
-- Flow 1:
Average throughput: 63.93 Mbit/s
95th percentile per-packet one-way delay: 64.935 ms
Loss rate: 1.75%
-- Flow 2:
Average throughput: 24.62 Mbit/s
95th percentile per-packet one-way delay: 63.106 ms
Loss rate: 0.79%
-- Flow 3:
Average throughput: 21.40 Mbit/s
95th percentile per-packet one-way delay: 64.323 ms
Loss rate: 0.82%
```

Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 65.15 Mbit/s) — Flow 1 egress (mean 63.93 Mbit/s)
Flow 2 ingress (mean 24.82 Mbit/s) — Flow 2 egress (mean 24.62 Mbit/s)
Flow 3 ingress (mean 21.60 Mbit/s) — Flow 3 egress (mean 21.40 Mbit/s)

Flow 1 (95th percentile 64.94 ms) • Flow 2 (95th percentile 63.11 ms) • Flow 3 (95th percentile 64.32 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2019-01-19 01:50:29
End at: 2019-01-19 01:50:59
Local clock offset: -3.318 ms
Remote clock offset: -2.634 ms


# Below is generated by plot.py at 2019-01-19 02:38:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 80.21 Mbit/s
95th percentile per-packet one-way delay: 67.666 ms
Loss rate: 2.30%
-- Flow 1:
Average throughput: 64.39 Mbit/s
95th percentile per-packet one-way delay: 67.659 ms
Loss rate: 2.69%
-- Flow 2:
Average throughput: 16.59 Mbit/s
95th percentile per-packet one-way delay: 67.815 ms
Loss rate: 0.76%
-- Flow 3:
Average throughput: 14.65 Mbit/s
95th percentile per-packet one-way delay: 67.561 ms
Loss rate: 0.51%
```
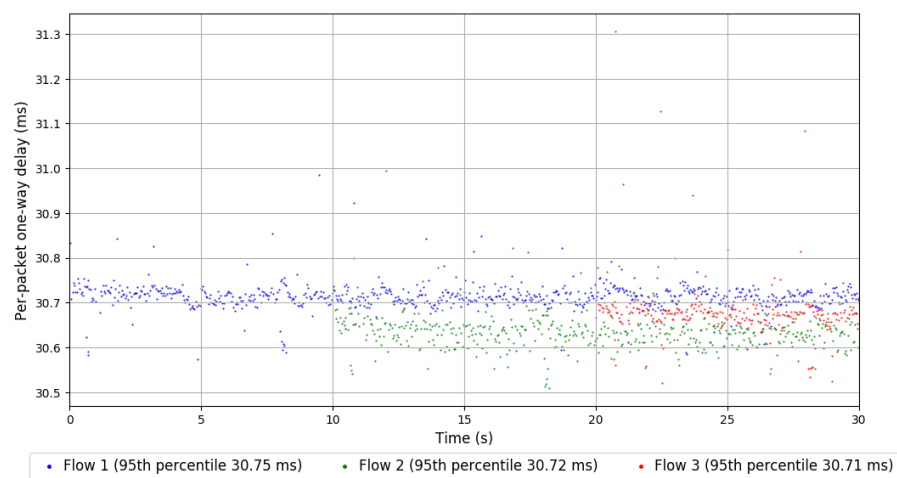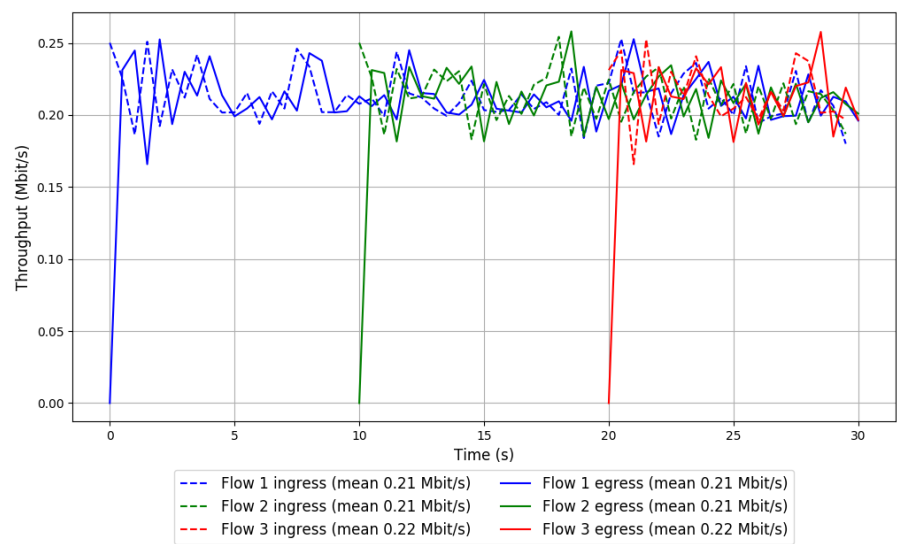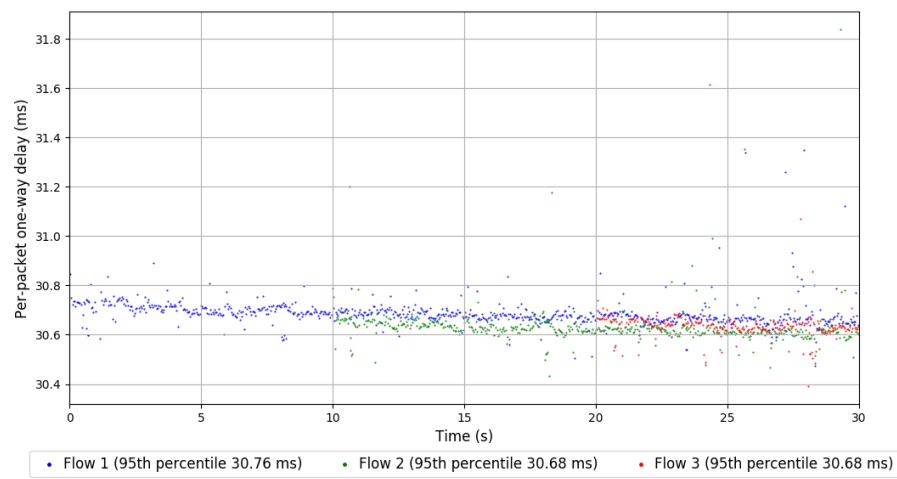
Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 66.21 Mbit/s) ---- Flow 1 egress (mean 64.39 Mbit/s)
Flow 2 ingress (mean 16.71 Mbit/s) ---- Flow 2 egress (mean 16.59 Mbit/s)
Flow 3 ingress (mean 14.72 Mbit/s) ---- Flow 3 egress (mean 14.65 Mbit/s)

Flow 1 (95th percentile 67.66 ms)   Flow 2 (95th percentile 67.81 ms)   Flow 3 (95th percentile 67.56 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2019-01-19 02:18:54
End at: 2019-01-19 02:19:24
Local clock offset: 1.453 ms
Remote clock offset: -2.822 ms


# Below is generated by plot.py at 2019-01-19 02:38:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.66 Mbit/s
95th percentile per-packet one-way delay: 67.610 ms
Loss rate: 1.89%
-- Flow 1:
Average throughput: 64.80 Mbit/s
95th percentile per-packet one-way delay: 67.592 ms
Loss rate: 2.02%
-- Flow 2:
Average throughput: 24.00 Mbit/s
95th percentile per-packet one-way delay: 67.618 ms
Loss rate: 1.57%
-- Flow 3:
Average throughput: 21.04 Mbit/s
95th percentile per-packet one-way delay: 67.805 ms
Loss rate: 1.41%
```

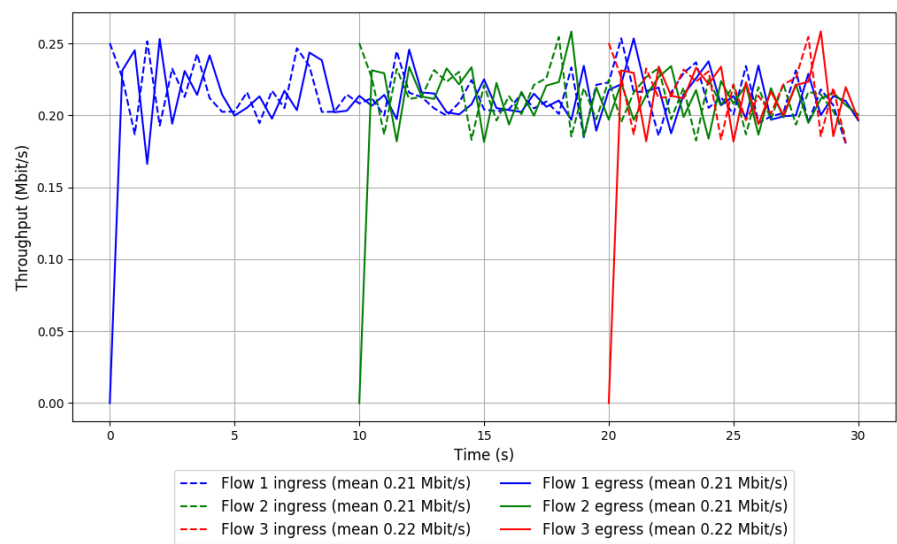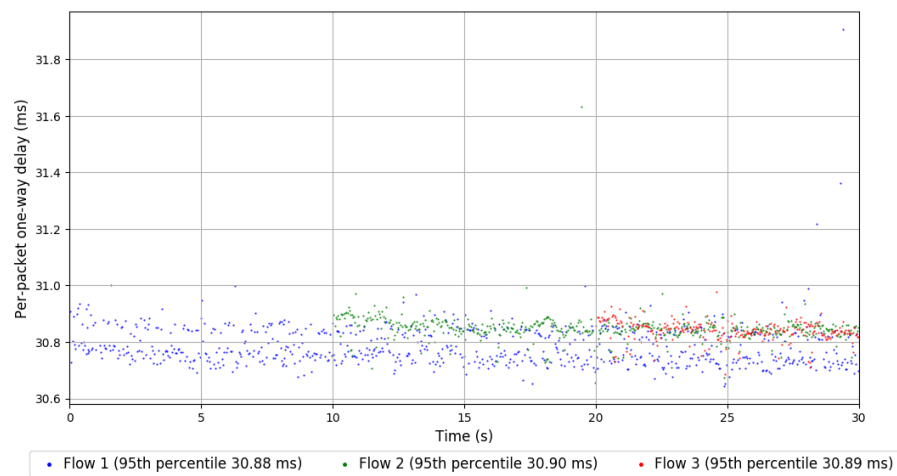Run 5: Report of QUIC Cubic — Data Link

```
Run 1: Statistics of SCReAM

Start at: 2019-01-19 00:32:11
End at: 2019-01-19 00:32:41
Local clock offset: 0.165 ms
Remote clock offset: -3.275 ms


# Below is generated by plot.py at 2019-01-19 02:38:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 30.741 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.745 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.718 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 30.708 ms
Loss rate: 0.00%
```
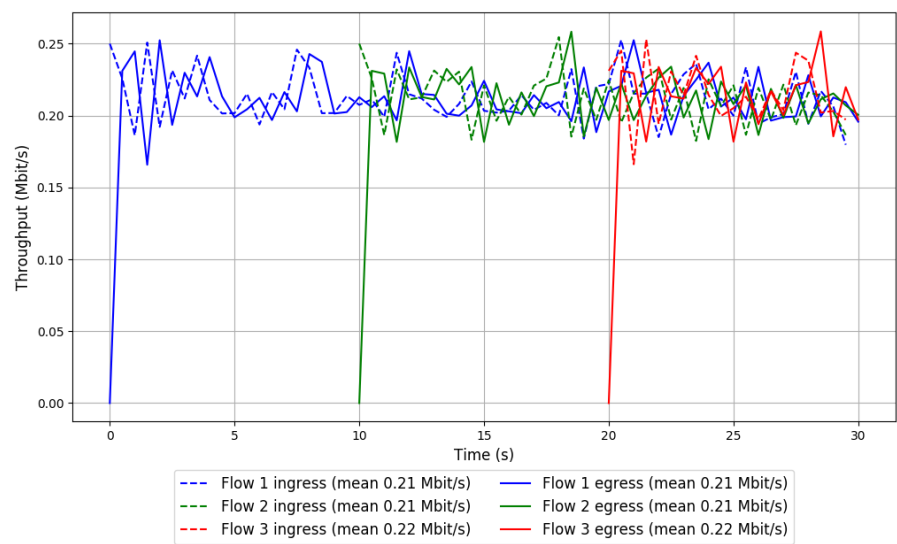
Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2019-01-19 01:00:32
End at: 2019-01-19 01:01:02
Local clock offset: -2.946 ms
Remote clock offset: -2.991 ms

# Below is generated by plot.py at 2019-01-19 02:38:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 30.737 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.758 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.684 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 30.683 ms
Loss rate: 0.00%
```
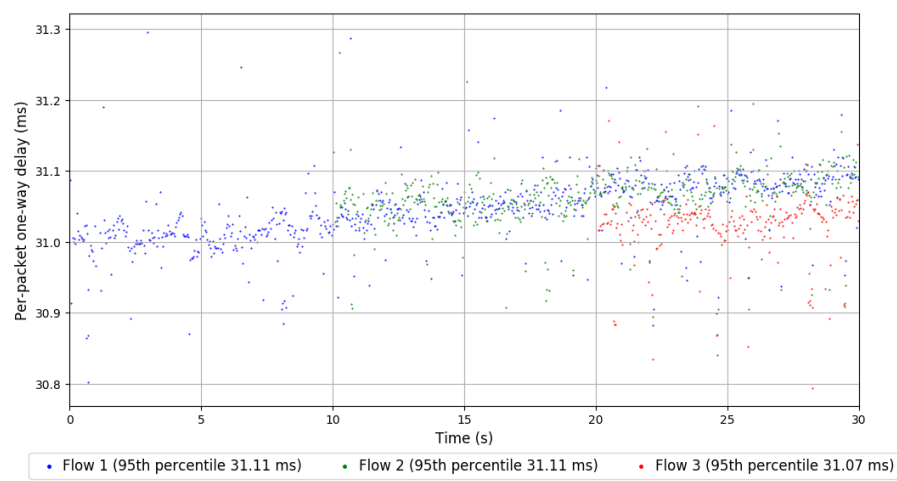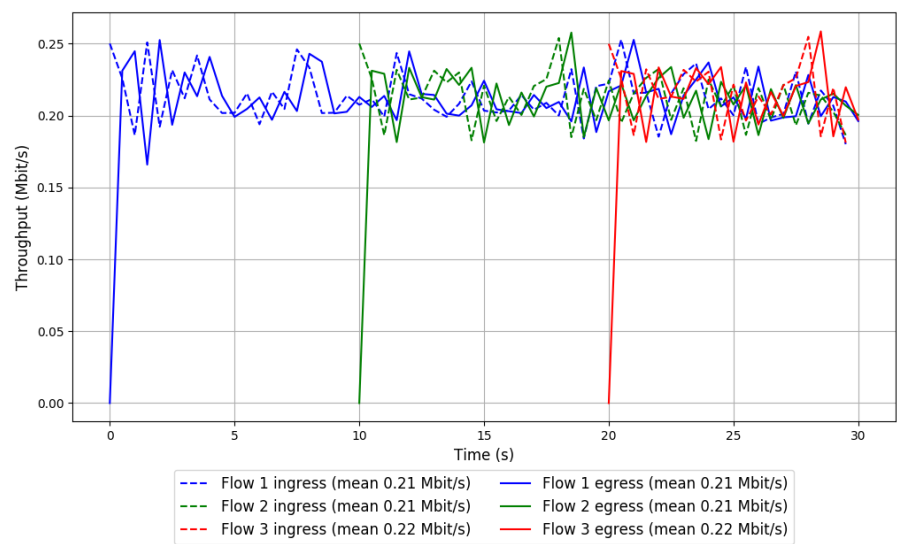
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2019-01-19 01:28:59
End at: 2019-01-19 01:29:29
Local clock offset: -4.564 ms
Remote clock offset: -2.681 ms


# Below is generated by plot.py at 2019-01-19 02:38:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 30.893 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.882 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.898 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 30.891 ms
Loss rate: 0.00%
```
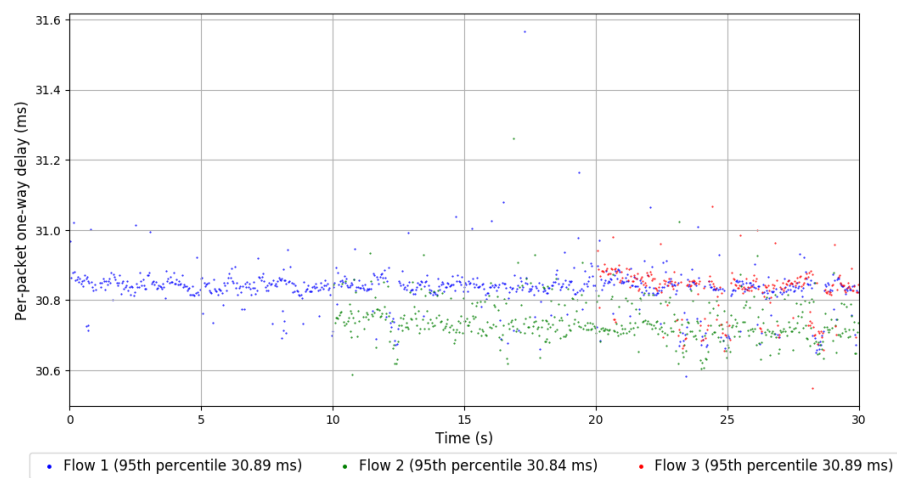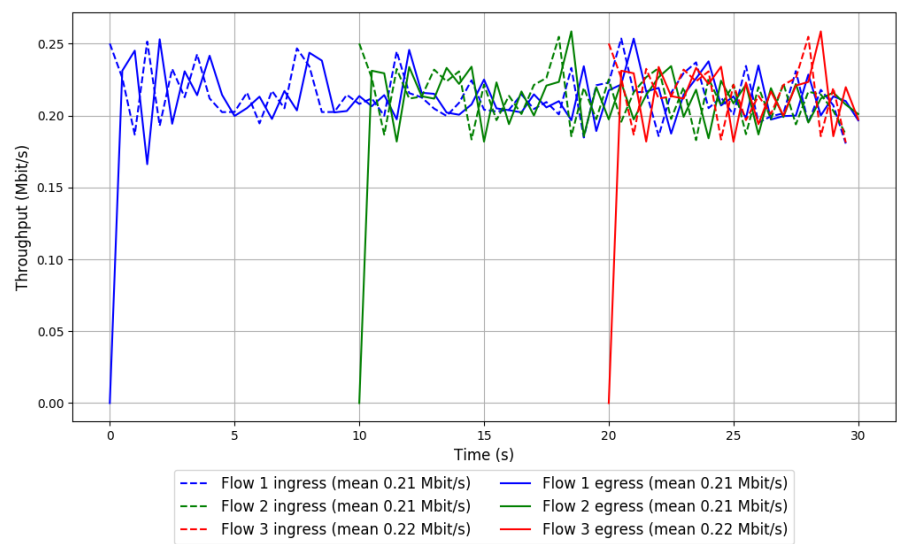
Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2019-01-19 01:57:26
End at: 2019-01-19 01:57:56
Local clock offset: -0.852 ms
Remote clock offset: -2.68 ms


# Below is generated by plot.py at 2019-01-19 02:38:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 31.106 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 31.106 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 31.112 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 31.066 ms
Loss rate: 0.00%
```
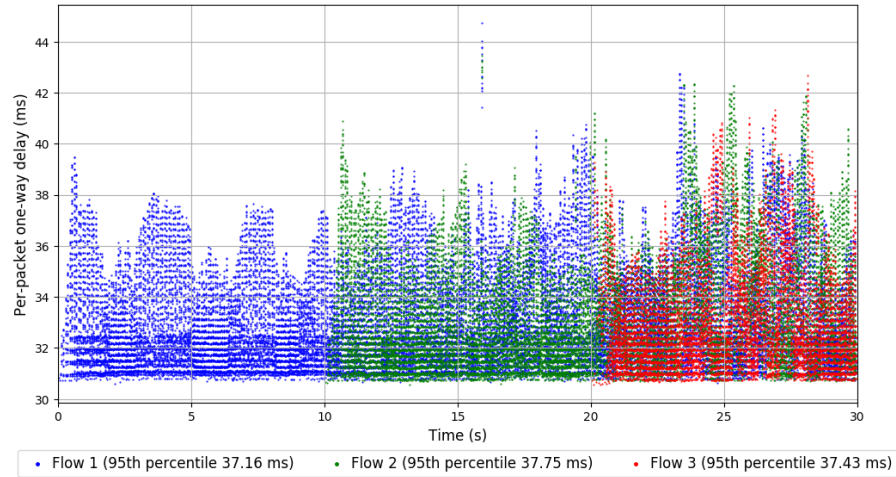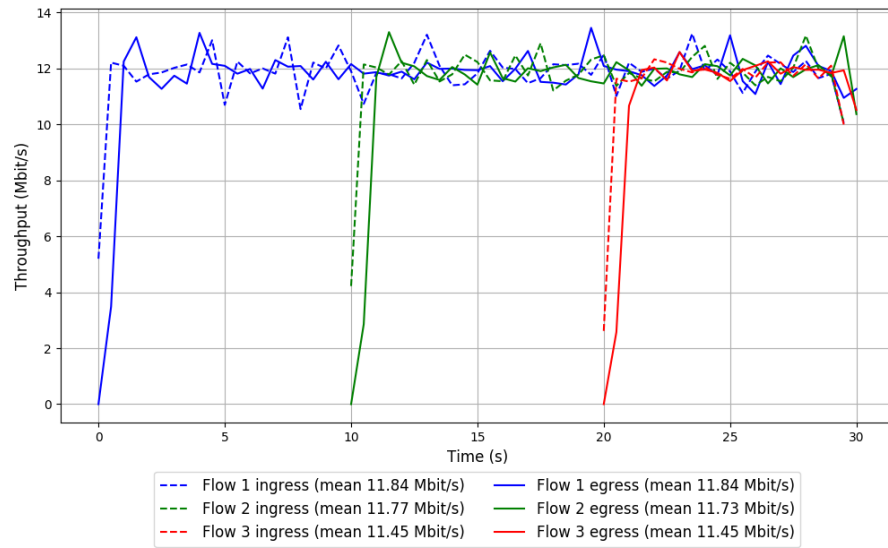
Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2019-01-19 02:26:51
End at: 2019-01-19 02:27:21
Local clock offset: 0.926 ms
Remote clock offset: -2.887 ms


# Below is generated by plot.py at 2019-01-19 02:38:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 30.883 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.890 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 30.840 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 30.890 ms
Loss rate: 0.00%
```
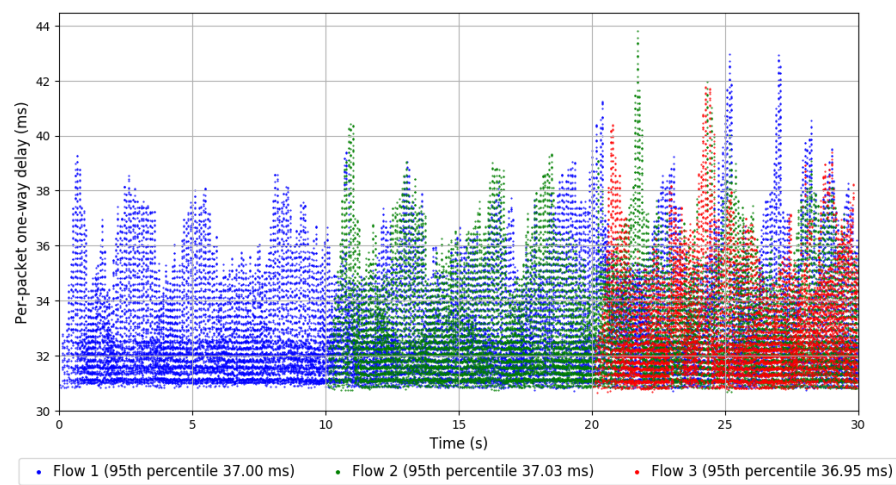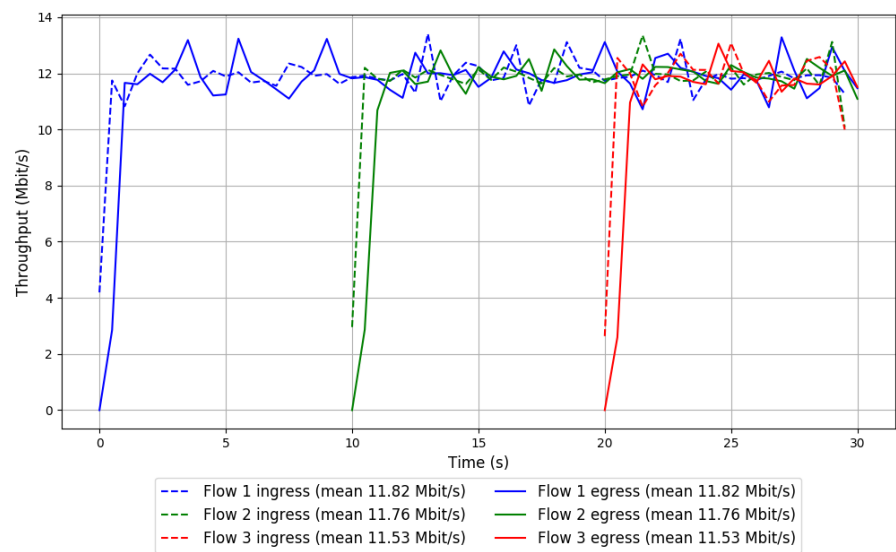
Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2019-01-19 00:11:55
End at: 2019-01-19 00:12:25
Local clock offset: 0.041 ms
Remote clock offset: -3.303 ms


# Below is generated by plot.py at 2019-01-19 02:38:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 23.44 Mbit/s
95th percentile per-packet one-way delay: 37.382 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 11.84 Mbit/s
95th percentile per-packet one-way delay: 37.157 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 11.73 Mbit/s
95th percentile per-packet one-way delay: 37.754 ms
Loss rate: 0.29%
-- Flow 3:
Average throughput: 11.45 Mbit/s
95th percentile per-packet one-way delay: 37.429 ms
Loss rate: 0.00%
```
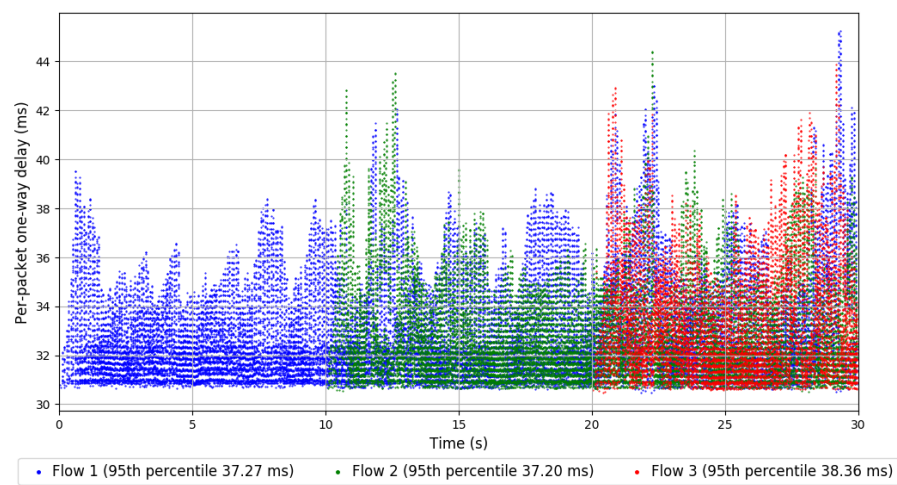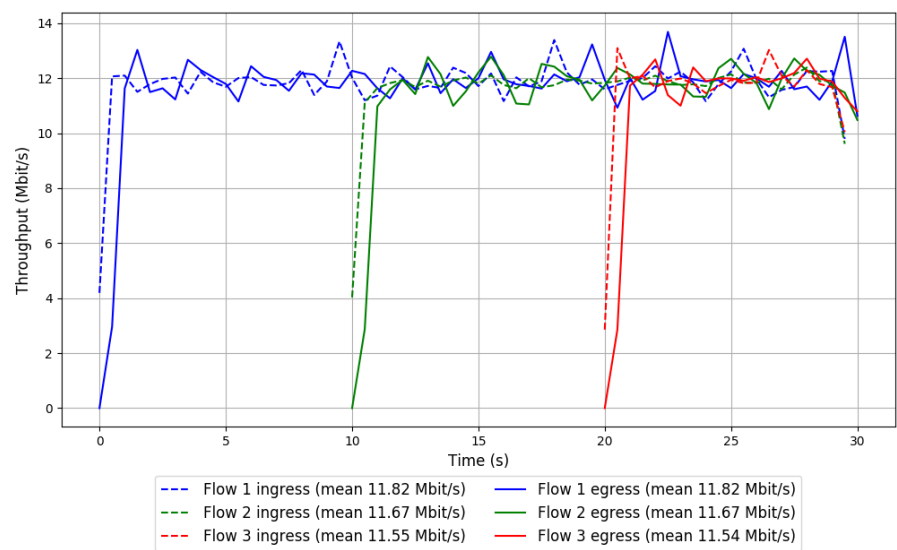
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2019-01-19 00:40:00
End at: 2019-01-19 00:40:30
Local clock offset: 0.248 ms
Remote clock offset: -2.938 ms


# Below is generated by plot.py at 2019-01-19 02:38:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 23.45 Mbit/s
95th percentile per-packet one-way delay: 36.998 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.82 Mbit/s
95th percentile per-packet one-way delay: 37.001 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 11.76 Mbit/s
95th percentile per-packet one-way delay: 37.030 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 11.53 Mbit/s
95th percentile per-packet one-way delay: 36.954 ms
Loss rate: 0.00%
```
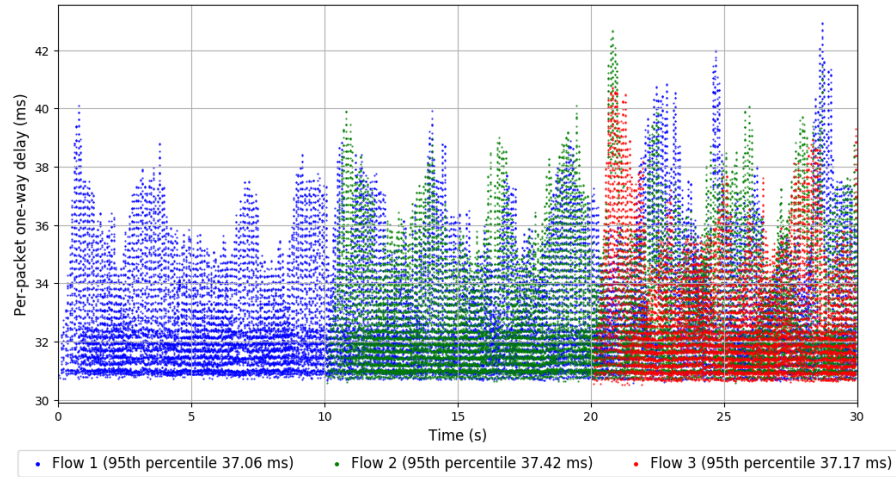
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2019-01-19 01:08:32
End at: 2019-01-19 01:09:02
Local clock offset: -3.689 ms
Remote clock offset: -2.742 ms


# Below is generated by plot.py at 2019-01-19 02:38:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 23.39 Mbit/s
95th percentile per-packet one-way delay: 37.469 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 11.82 Mbit/s
95th percentile per-packet one-way delay: 37.265 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 11.67 Mbit/s
95th percentile per-packet one-way delay: 37.205 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 11.54 Mbit/s
95th percentile per-packet one-way delay: 38.363 ms
Loss rate: 0.04%
```
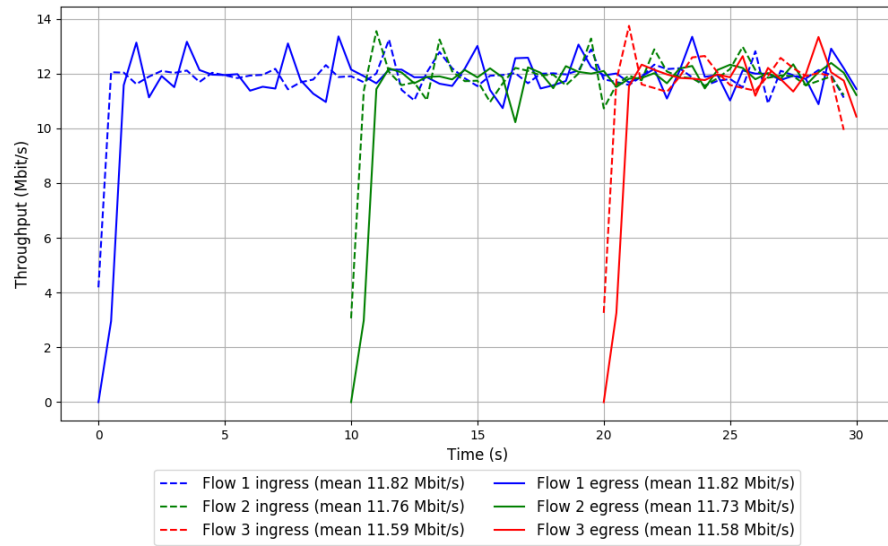
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2019-01-19 01:37:10
End at: 2019-01-19 01:37:40
Local clock offset: -4.943 ms
Remote clock offset: -2.668 ms


# Below is generated by plot.py at 2019-01-19 02:38:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 23.45 Mbit/s
95th percentile per-packet one-way delay: 37.216 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 11.82 Mbit/s
95th percentile per-packet one-way delay: 37.063 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 11.73 Mbit/s
95th percentile per-packet one-way delay: 37.421 ms
Loss rate: 0.28%
-- Flow 3:
Average throughput: 11.58 Mbit/s
95th percentile per-packet one-way delay: 37.171 ms
Loss rate: 0.00%
```
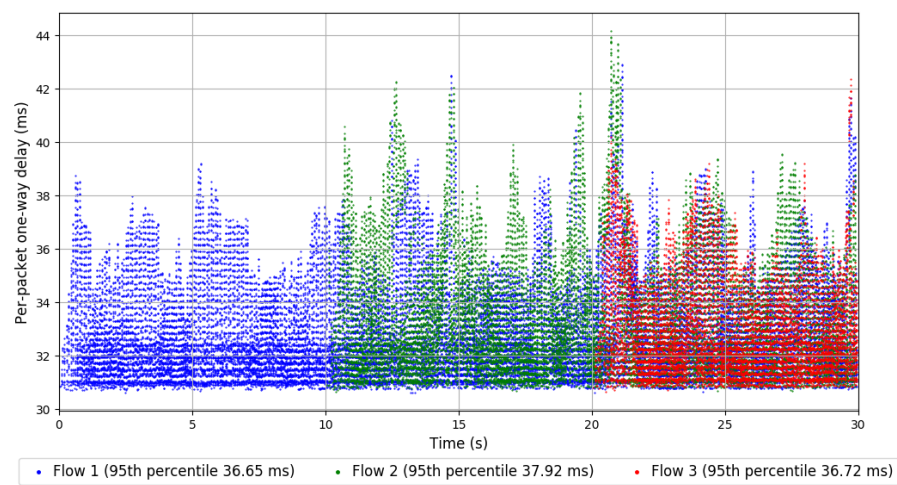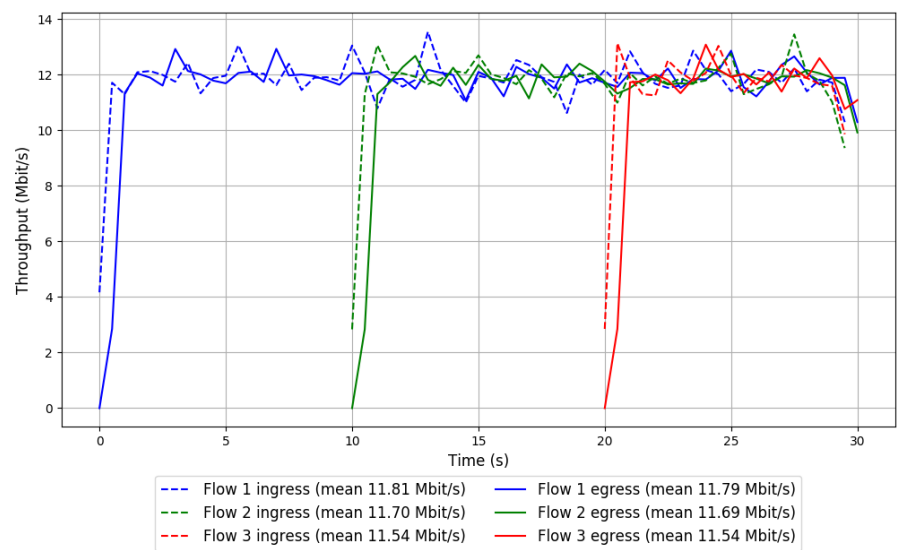
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2019-01-19 02:05:26
End at: 2019-01-19 02:05:56
Local clock offset: 0.608 ms
Remote clock offset: -2.718 ms


# Below is generated by plot.py at 2019-01-19 02:38:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 23.37 Mbit/s
95th percentile per-packet one-way delay: 37.107 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 11.79 Mbit/s
95th percentile per-packet one-way delay: 36.647 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 11.69 Mbit/s
95th percentile per-packet one-way delay: 37.917 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 11.54 Mbit/s
95th percentile per-packet one-way delay: 36.722 ms
Loss rate: 0.00%
```
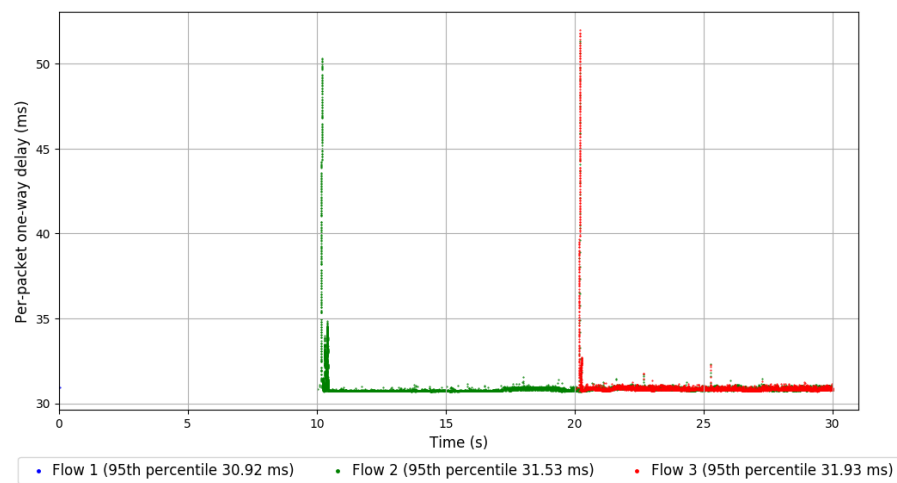
Run 5: Report of Sprout — Data Link

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

Start at: 2019-01-19 00:21:26
End at: 2019-01-19 00:21:56
Local clock offset: 0.097 ms
Remote clock offset: -3.21 ms

# Below is generated by plot.py at 2019-01-19 02:38:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.56 Mbit/s
95th percentile per-packet one-way delay: 31.628 ms
Loss rate: 72.14%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 30.924 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 9.67 Mbit/s
95th percentile per-packet one-way delay: 31.528 ms
Loss rate: 77.21%
-- Flow 3:
Average throughput: 6.37 Mbit/s
95th percentile per-packet one-way delay: 31.928 ms
Loss rate: 13.60%
```
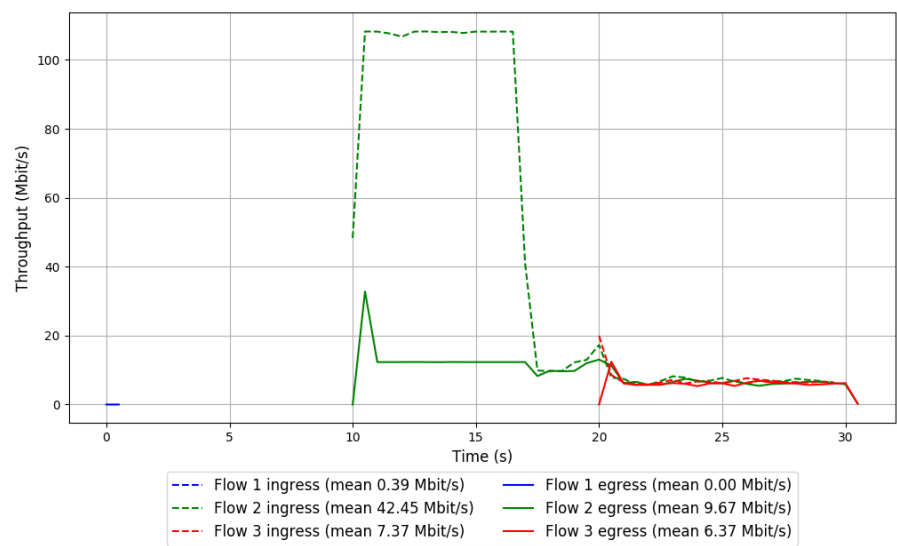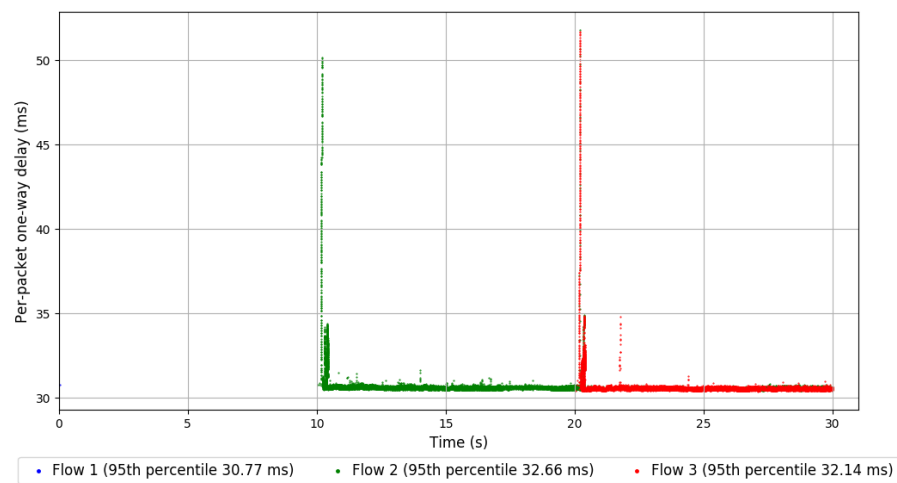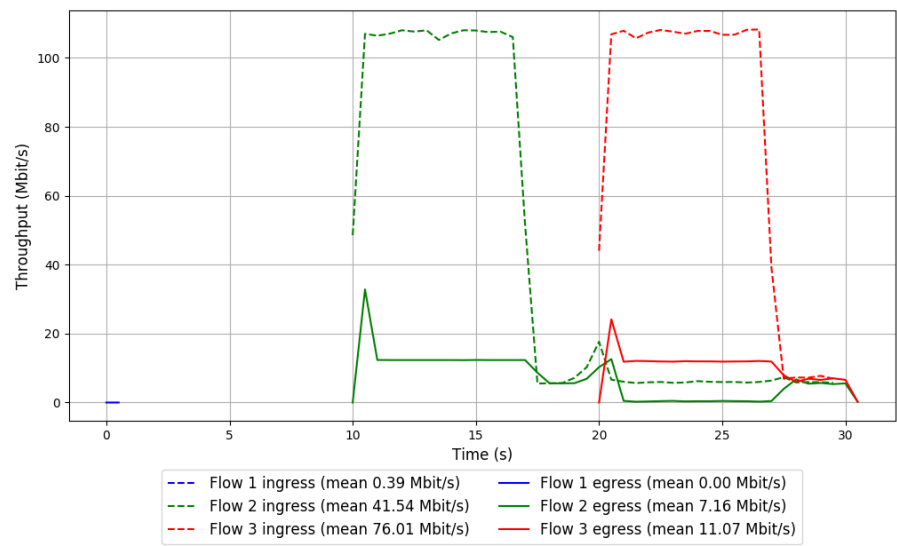
Run 1: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 0.39 Mbit/s)   Flow 1 egress (mean 0.00 Mbit/s)
Flow 2 ingress (mean 42.45 Mbit/s)   Flow 2 egress (mean 9.67 Mbit/s)
Flow 3 ingress (mean 7.37 Mbit/s)   Flow 3 egress (mean 6.37 Mbit/s)

Flow 1 (95th percentile 30.92 ms)   Flow 2 (95th percentile 31.53 ms)   Flow 3 (95th percentile 31.93 ms)

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

Start at: 2019-01-19 00:49:26
End at: 2019-01-19 00:49:56
Local clock offset: -0.608 ms
Remote clock offset: -2.905 ms


# Below is generated by plot.py at 2019-01-19 02:38:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.45 Mbit/s
95th percentile per-packet one-way delay: 32.323 ms
Loss rate: 84.04%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 30.770 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 7.16 Mbit/s
95th percentile per-packet one-way delay: 32.665 ms
Loss rate: 82.76%
-- Flow 3:
Average throughput: 11.07 Mbit/s
95th percentile per-packet one-way delay: 32.139 ms
Loss rate: 85.44%
```

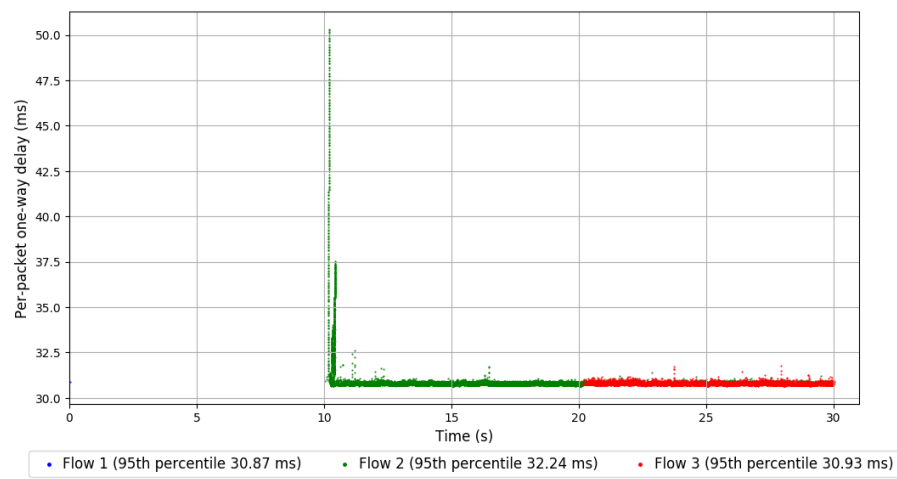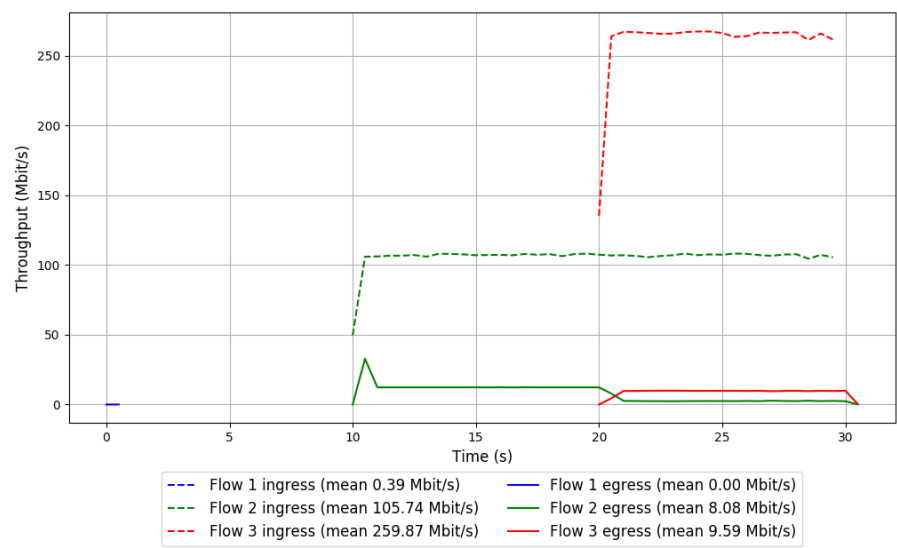Run 2: Report of TaoVA-100x — Data Link

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

Start at: 2019-01-19 01:17:41
End at: 2019-01-19 01:18:11
Local clock offset: -4.172 ms
Remote clock offset: -2.695 ms


# Below is generated by plot.py at 2019-01-19 02:38:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.57 Mbit/s
95th percentile per-packet one-way delay: 31.034 ms
Loss rate: 94.54%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 30.870 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 8.08 Mbit/s
95th percentile per-packet one-way delay: 32.244 ms
Loss rate: 92.36%
-- Flow 3:
Average throughput: 9.59 Mbit/s
95th percentile per-packet one-way delay: 30.930 ms
Loss rate: 96.31%
```
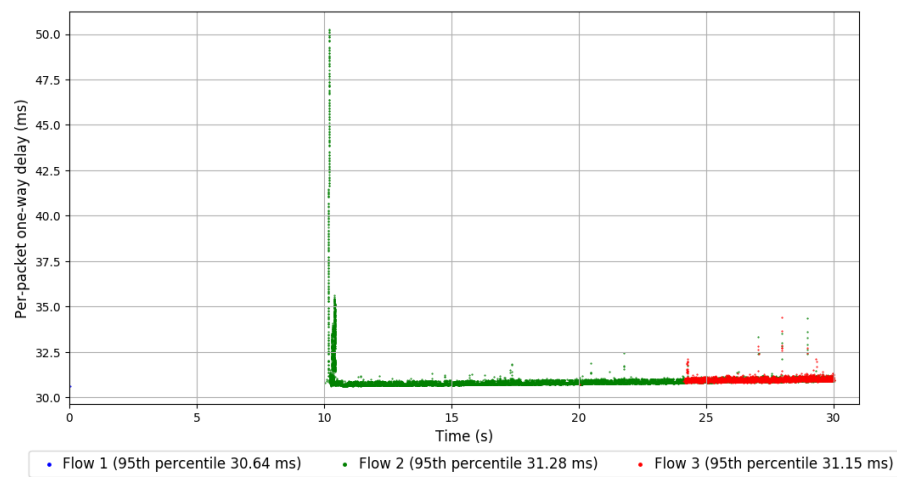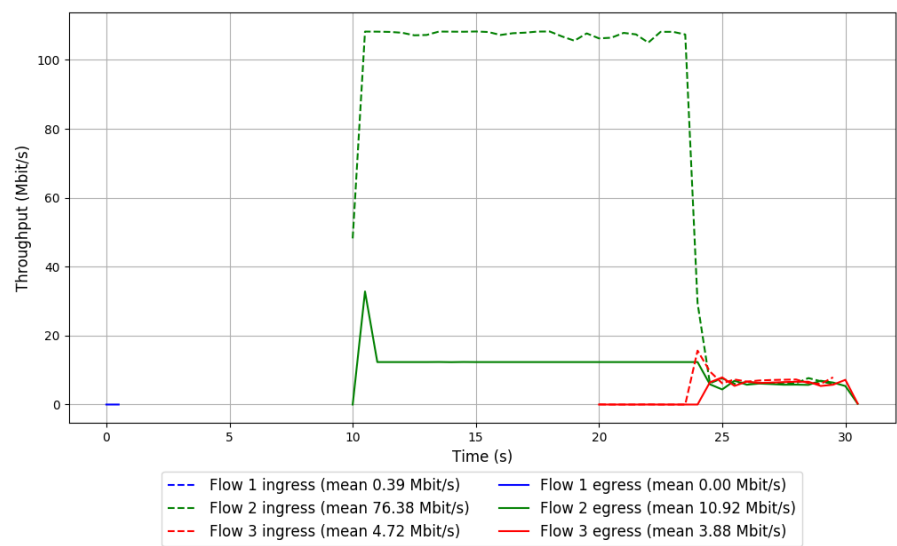
Run 3: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 0.39 Mbit/s)   Flow 1 egress (mean 0.00 Mbit/s)
Flow 2 ingress (mean 105.74 Mbit/s)   Flow 2 egress (mean 8.08 Mbit/s)
Flow 3 ingress (mean 259.87 Mbit/s)   Flow 3 egress (mean 9.59 Mbit/s)

Flow 1 (95th percentile 30.87 ms)   Flow 2 (95th percentile 32.24 ms)   Flow 3 (95th percentile 30.93 ms)
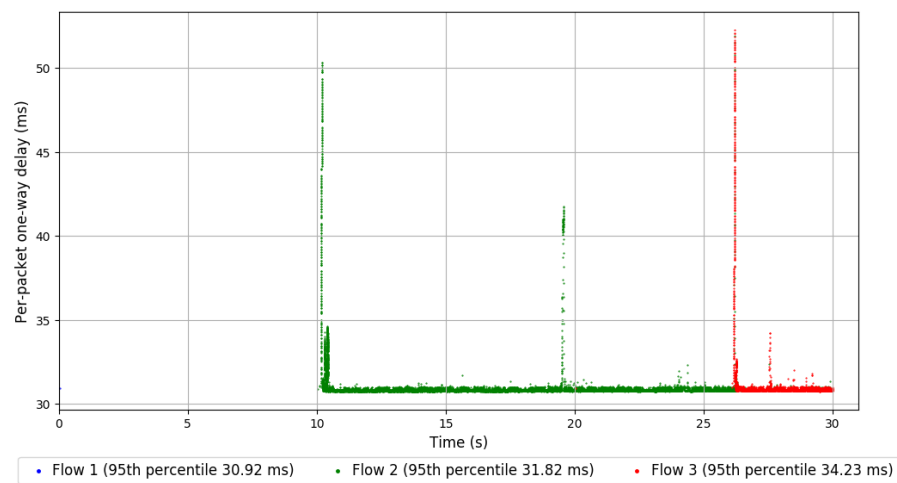
```
Run 4: Statistics of TaoVA-100x

Start at: 2019-01-19 01:46:32
End at: 2019-01-19 01:47:02
Local clock offset: -5.351 ms
Remote clock offset: -2.837 ms

# Below is generated by plot.py at 2019-01-19 02:38:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.57 Mbit/s
95th percentile per-packet one-way delay: 31.173 ms
Loss rate: 83.67%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 30.642 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 10.92 Mbit/s
95th percentile per-packet one-way delay: 31.277 ms
Loss rate: 85.70%
-- Flow 3:
Average throughput: 3.88 Mbit/s
95th percentile per-packet one-way delay: 31.152 ms
Loss rate: 17.85%
```
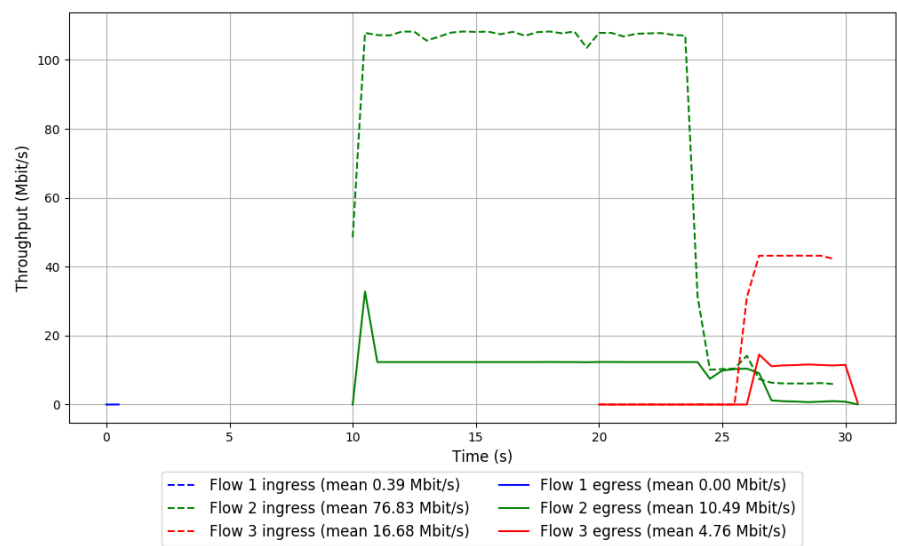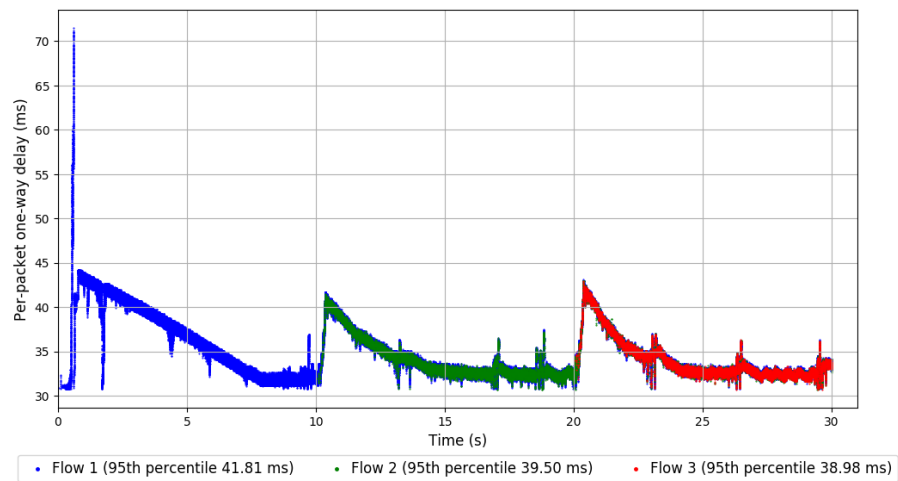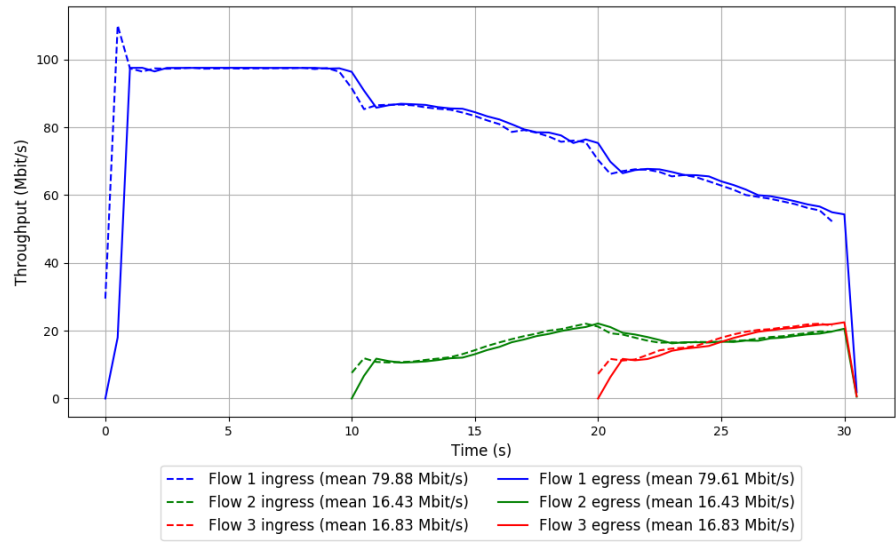
Run 4: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 0.39 Mbit/s) --- Flow 1 egress (mean 0.00 Mbit/s)
Flow 2 ingress (mean 76.38 Mbit/s) --- Flow 2 egress (mean 10.92 Mbit/s)
Flow 3 ingress (mean 4.72 Mbit/s) --- Flow 3 egress (mean 3.88 Mbit/s)

Flow 1 (95th percentile 30.64 ms) • Flow 2 (95th percentile 31.28 ms) • Flow 3 (95th percentile 31.15 ms)

```
Run 5: Statistics of TaoVA-100x

Start at: 2019-01-19 02:14:57
End at: 2019-01-19 02:15:27
Local clock offset: 1.581 ms
Remote clock offset: -2.757 ms


# Below is generated by plot.py at 2019-01-19 02:38:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.57 Mbit/s
95th percentile per-packet one-way delay: 32.087 ms
Loss rate: 84.90%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 30.916 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 10.49 Mbit/s
95th percentile per-packet one-way delay: 31.816 ms
Loss rate: 86.35%
-- Flow 3:
Average throughput: 4.76 Mbit/s
95th percentile per-packet one-way delay: 34.227 ms
Loss rate: 71.48%
```
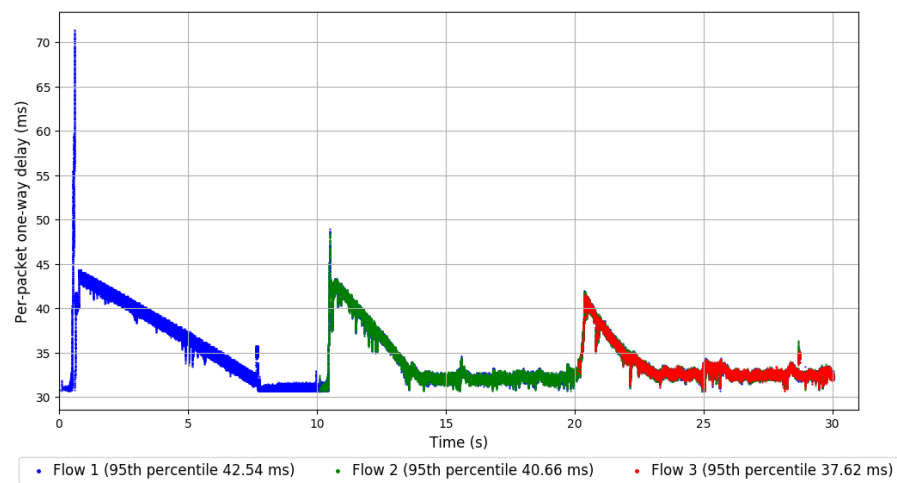
Run 5: Report of TaoVA-100x — Data Link

```
Run 1: Statistics of TCP Vegas

Start at: 2019-01-19 00:29:41
End at: 2019-01-19 00:30:11
Local clock offset: 0.137 ms
Remote clock offset: -3.087 ms


# Below is generated by plot.py at 2019-01-19 02:39:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.16 Mbit/s
95th percentile per-packet one-way delay: 41.480 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 79.61 Mbit/s
95th percentile per-packet one-way delay: 41.806 ms
Loss rate: 0.33%
-- Flow 2:
Average throughput: 16.43 Mbit/s
95th percentile per-packet one-way delay: 39.500 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 16.83 Mbit/s
95th percentile per-packet one-way delay: 38.976 ms
Loss rate: 0.00%
```

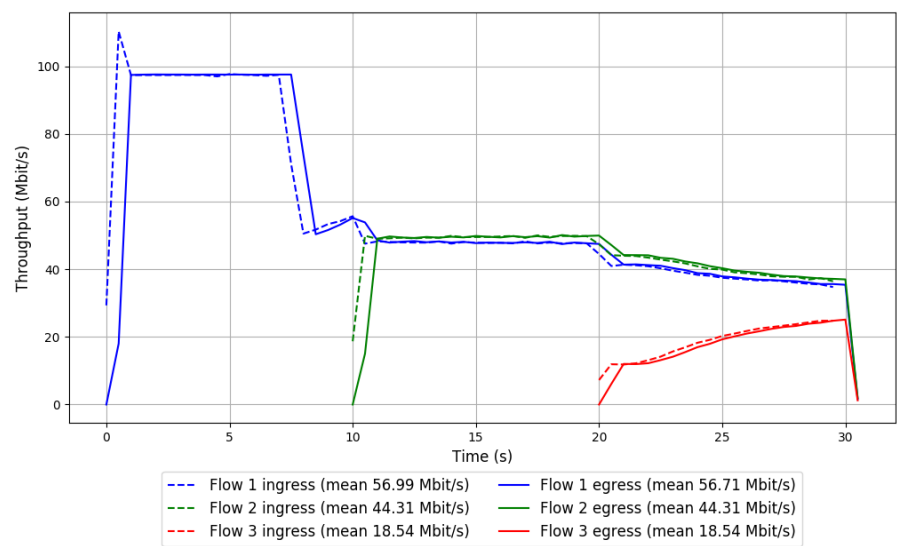Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2019-01-19 00:57:42
End at: 2019-01-19 00:58:12
Local clock offset: -2.561 ms
Remote clock offset: -2.777 ms


# Below is generated by plot.py at 2019-01-19 02:39:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.40 Mbit/s
95th percentile per-packet one-way delay: 42.056 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 56.71 Mbit/s
95th percentile per-packet one-way delay: 42.542 ms
Loss rate: 0.47%
-- Flow 2:
Average throughput: 44.31 Mbit/s
95th percentile per-packet one-way delay: 40.657 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 18.54 Mbit/s
95th percentile per-packet one-way delay: 37.621 ms
Loss rate: 0.00%
```

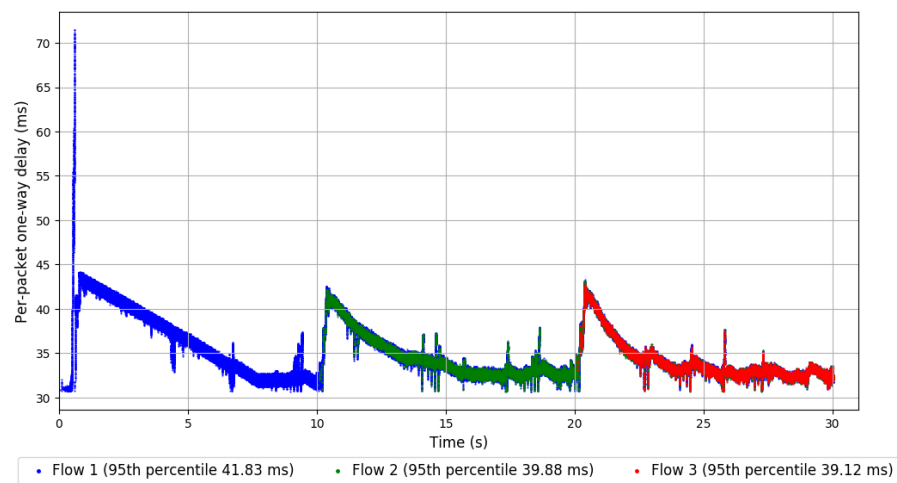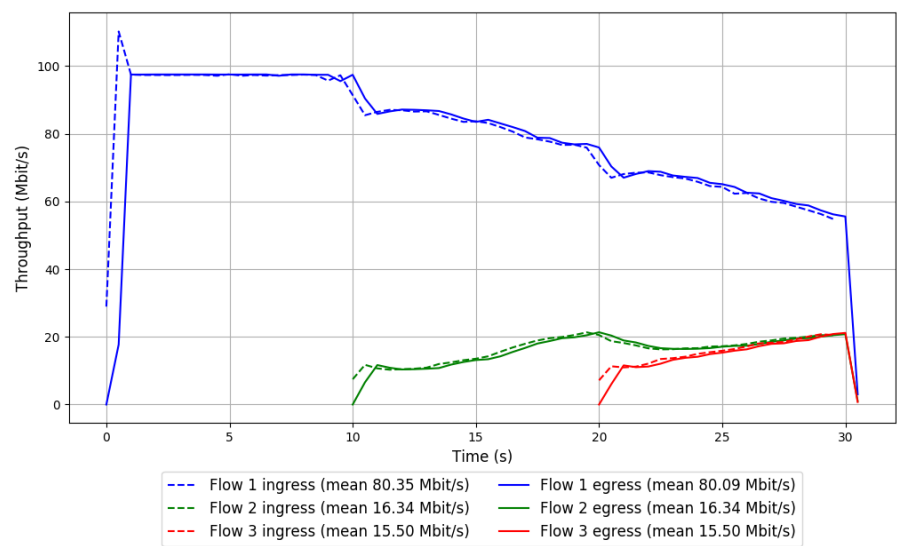# Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2019-01-19 01:26:05
End at: 2019-01-19 01:26:35
Local clock offset: -4.431 ms
Remote clock offset: -2.688 ms


# Below is generated by plot.py at 2019-01-19 02:39:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.13 Mbit/s
95th percentile per-packet one-way delay: 41.575 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 80.09 Mbit/s
95th percentile per-packet one-way delay: 41.828 ms
Loss rate: 0.32%
-- Flow 2:
Average throughput: 16.34 Mbit/s
95th percentile per-packet one-way delay: 39.884 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 15.50 Mbit/s
95th percentile per-packet one-way delay: 39.121 ms
Loss rate: 0.00%
```

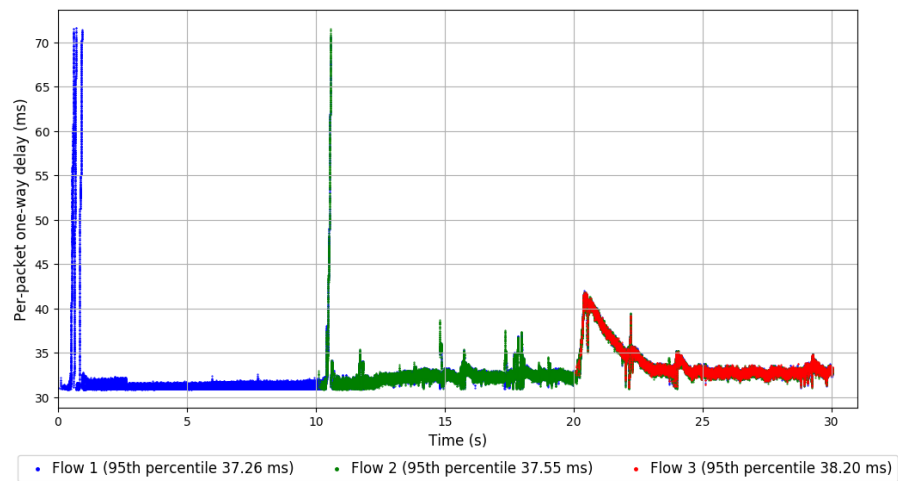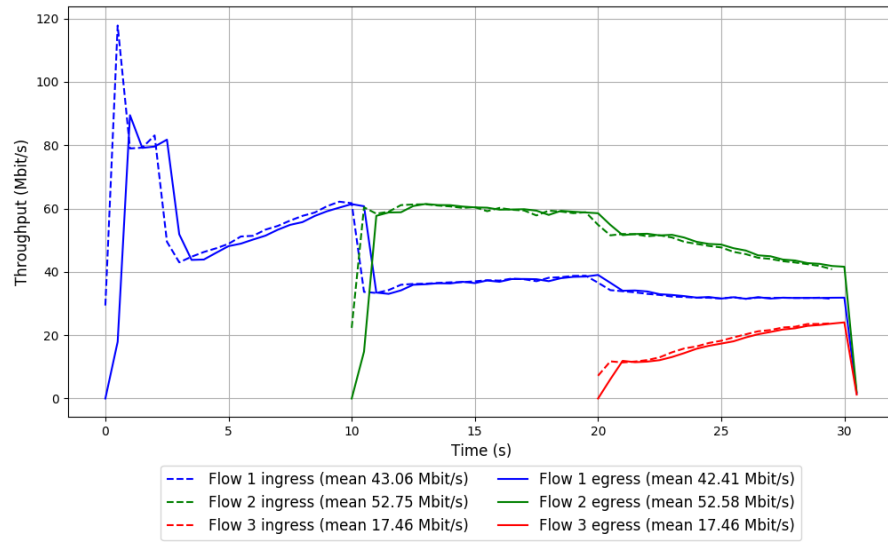Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2019-01-19 01:54:33
End at: 2019-01-19 01:55:03
Local clock offset: -1.656 ms
Remote clock offset: -2.693 ms


# Below is generated by plot.py at 2019-01-19 02:39:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.24 Mbit/s
95th percentile per-packet one-way delay: 37.464 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 42.41 Mbit/s
95th percentile per-packet one-way delay: 37.260 ms
Loss rate: 1.51%
-- Flow 2:
Average throughput: 52.58 Mbit/s
95th percentile per-packet one-way delay: 37.551 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 17.46 Mbit/s
95th percentile per-packet one-way delay: 38.204 ms
Loss rate: 0.00%
```

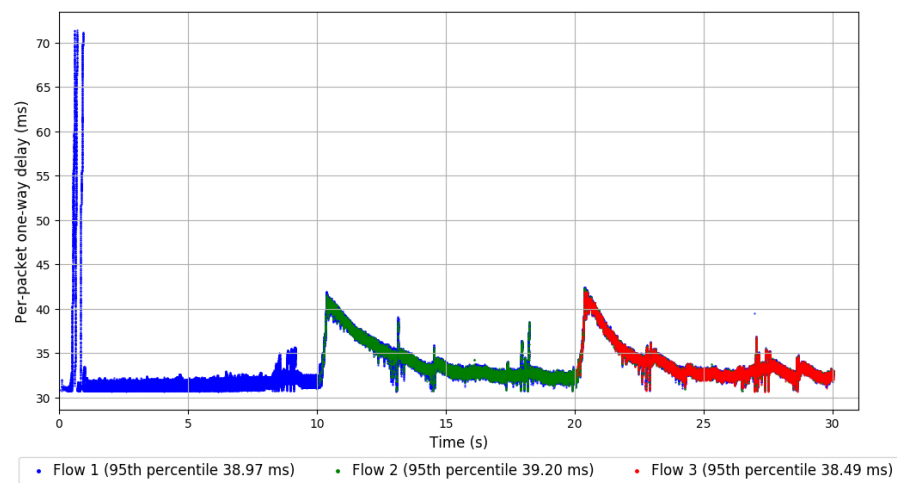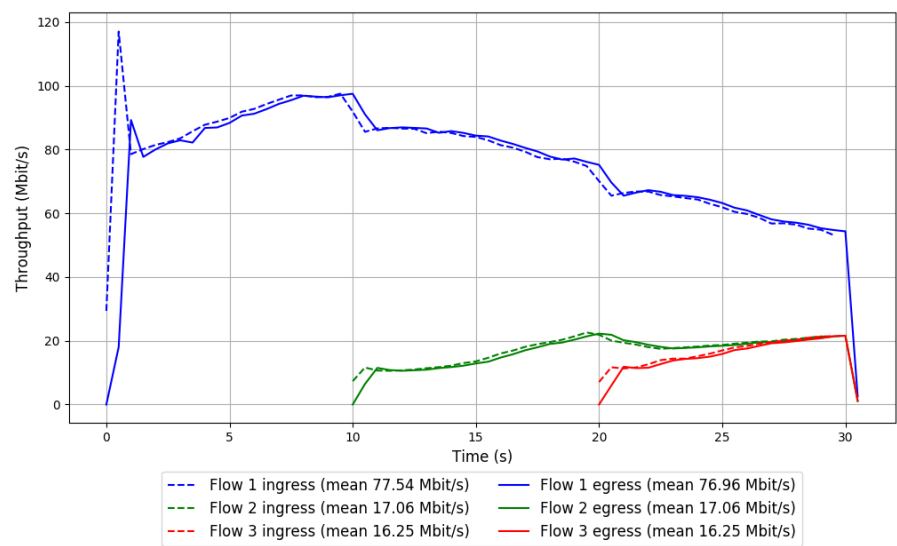Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2019-01-19 02:23:44
End at: 2019-01-19 02:24:14
Local clock offset: 1.053 ms
Remote clock offset: -2.855 ms


# Below is generated by plot.py at 2019-01-19 02:39:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.72 Mbit/s
95th percentile per-packet one-way delay: 38.971 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 76.96 Mbit/s
95th percentile per-packet one-way delay: 38.965 ms
Loss rate: 0.74%
-- Flow 2:
Average throughput: 17.06 Mbit/s
95th percentile per-packet one-way delay: 39.203 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 16.25 Mbit/s
95th percentile per-packet one-way delay: 38.488 ms
Loss rate: 0.00%
```

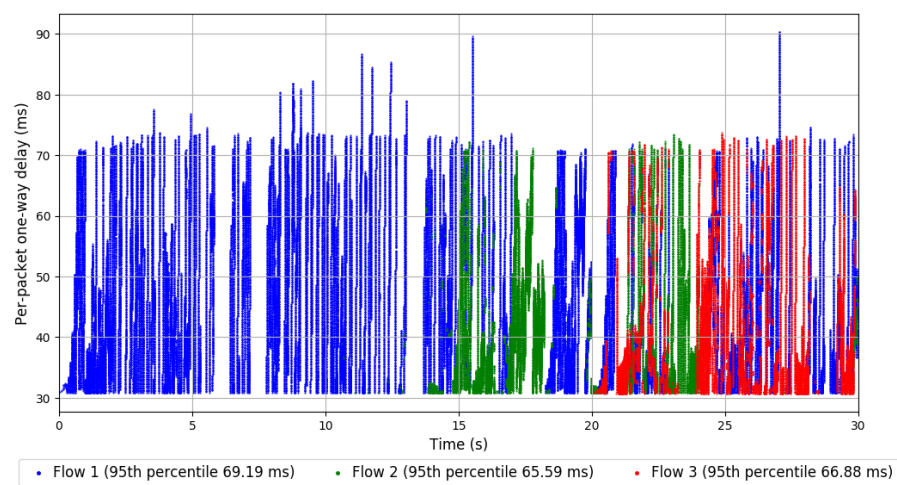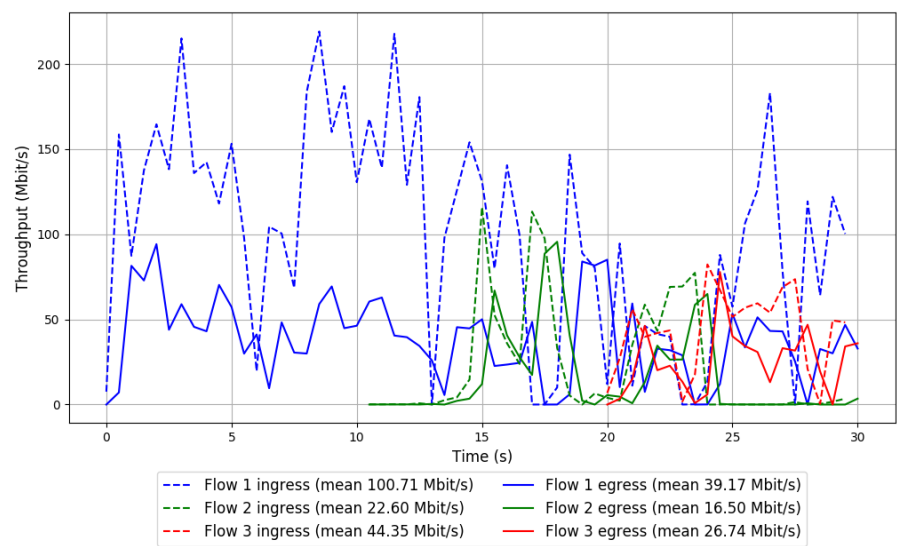Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2019-01-19 00:28:15
End at: 2019-01-19 00:28:45
Local clock offset: 0.117 ms
Remote clock offset: -3.111 ms


# Below is generated by plot.py at 2019-01-19 02:39:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 58.61 Mbit/s
95th percentile per-packet one-way delay: 68.397 ms
Loss rate: 54.83%
-- Flow 1:
Average throughput: 39.17 Mbit/s
95th percentile per-packet one-way delay: 69.192 ms
Loss rate: 61.08%
-- Flow 2:
Average throughput: 16.50 Mbit/s
95th percentile per-packet one-way delay: 65.590 ms
Loss rate: 26.97%
-- Flow 3:
Average throughput: 26.74 Mbit/s
95th percentile per-packet one-way delay: 66.880 ms
Loss rate: 39.48%
```

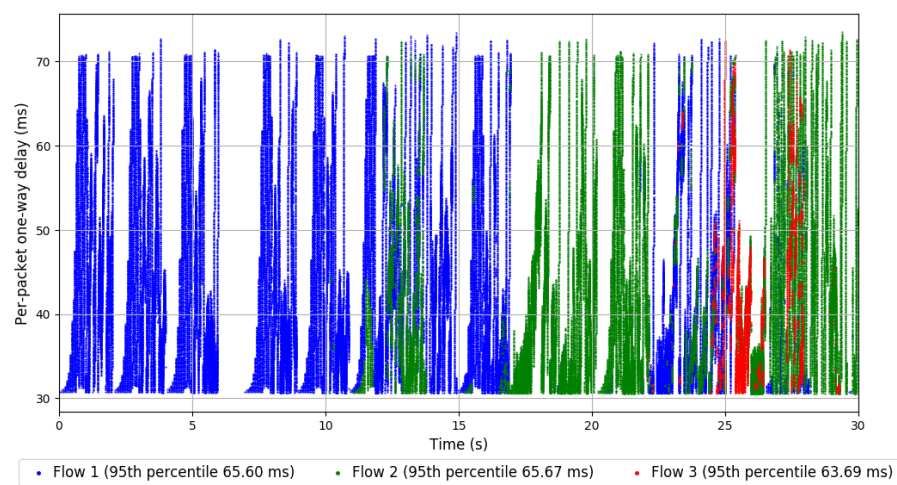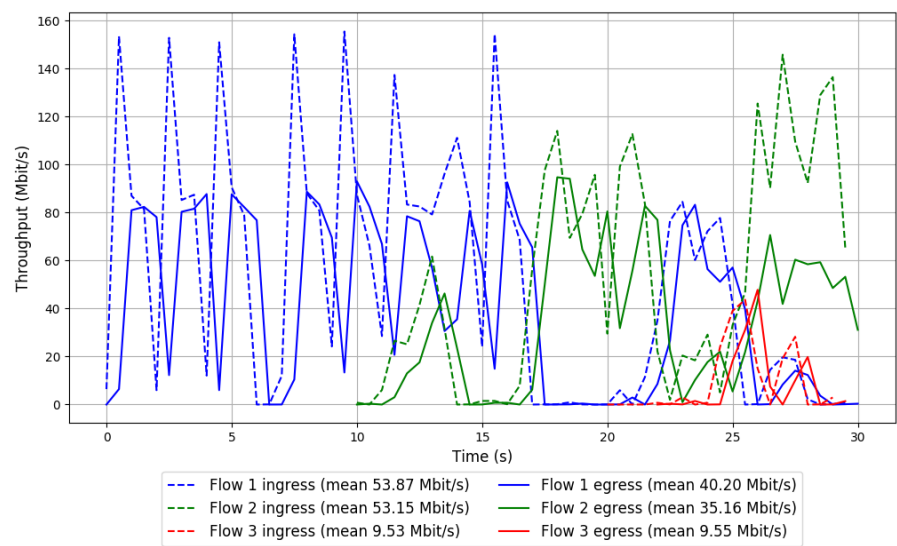Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2019-01-19 00:56:21
End at: 2019-01-19 00:56:51
Local clock offset: -2.324 ms
Remote clock offset: -2.801 ms


# Below is generated by plot.py at 2019-01-19 02:39:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 65.73 Mbit/s
95th percentile per-packet one-way delay: 65.549 ms
Loss rate: 28.61%
-- Flow 1:
Average throughput: 40.20 Mbit/s
95th percentile per-packet one-way delay: 65.596 ms
Loss rate: 25.54%
-- Flow 2:
Average throughput: 35.16 Mbit/s
95th percentile per-packet one-way delay: 65.665 ms
Loss rate: 33.85%
-- Flow 3:
Average throughput: 9.55 Mbit/s
95th percentile per-packet one-way delay: 63.686 ms
Loss rate: 22.04%
```

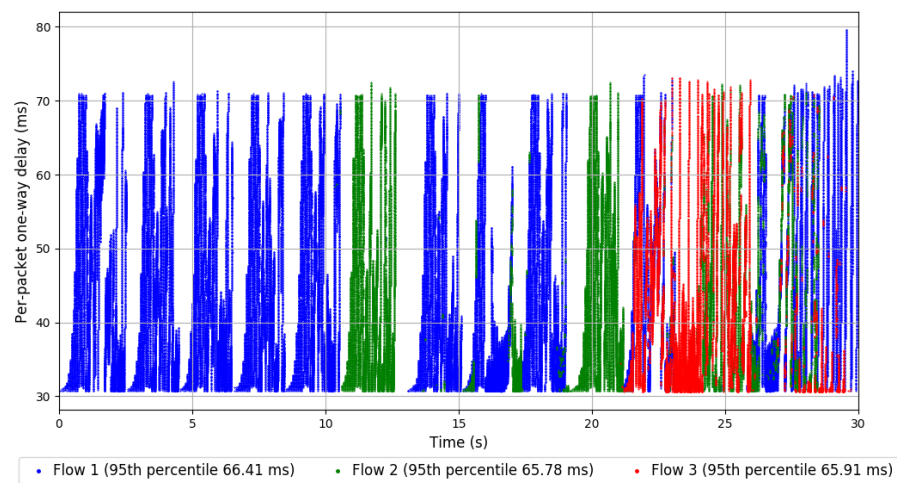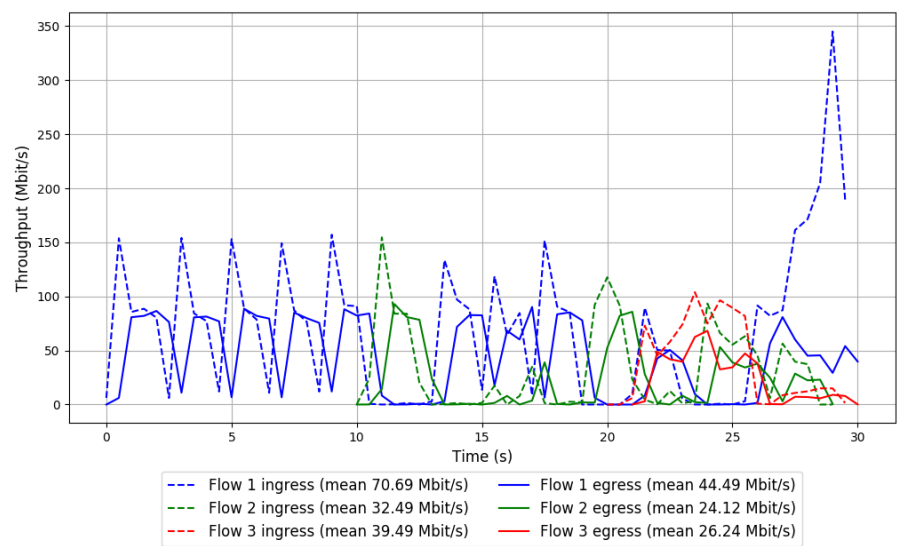Run 2: Report of Verus — Data Link

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```
Run 3: Statistics of Verus

Start at: 2019-01-19 01:24:41
End at: 2019-01-19 01:25:11
Local clock offset: -4.396 ms
Remote clock offset: -2.666 ms


# Below is generated by plot.py at 2019-01-19 02:39:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 66.71 Mbit/s
95th percentile per-packet one-way delay: 66.231 ms
Loss rate: 36.02%
-- Flow 1:
Average throughput: 44.49 Mbit/s
95th percentile per-packet one-way delay: 66.405 ms
Loss rate: 37.02%
-- Flow 2:
Average throughput: 24.12 Mbit/s
95th percentile per-packet one-way delay: 65.782 ms
Loss rate: 29.65%
-- Flow 3:
Average throughput: 26.24 Mbit/s
95th percentile per-packet one-way delay: 65.912 ms
Loss rate: 40.86%
```

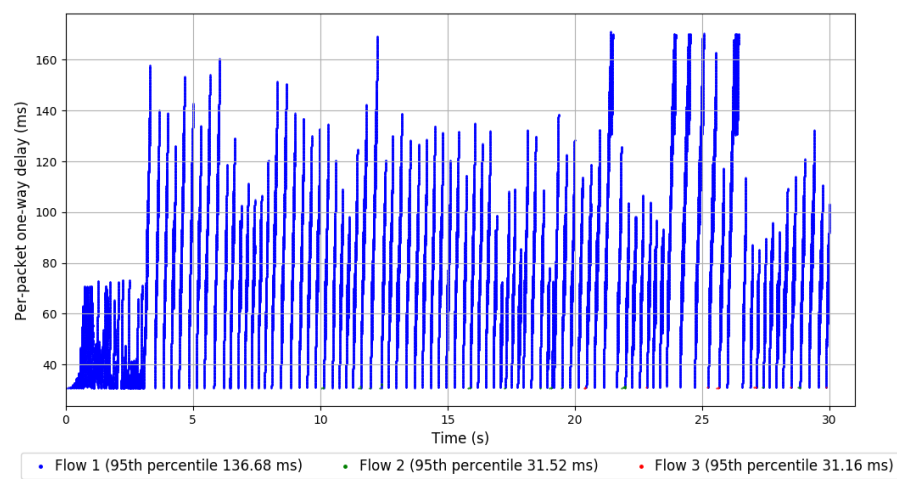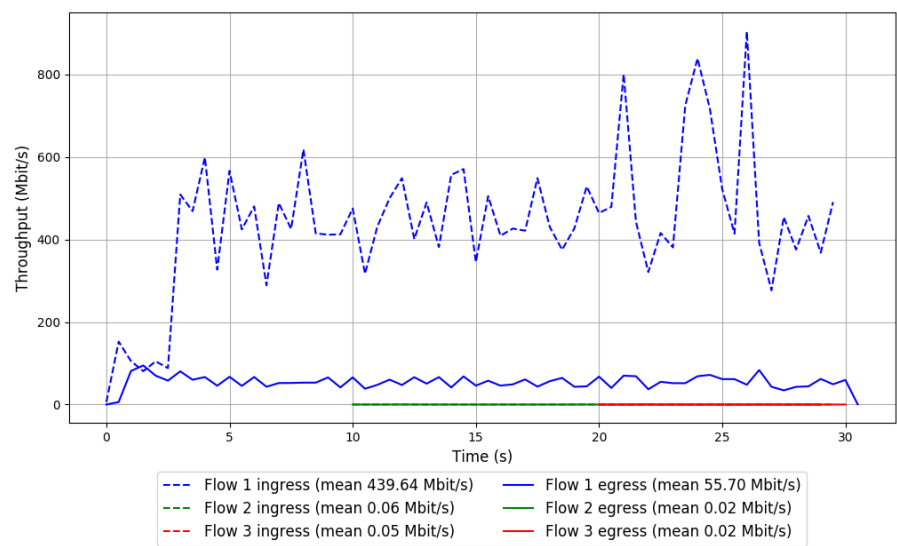Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2019-01-19 01:53:15
End at: 2019-01-19 01:53:45
Local clock offset: -2.141 ms
Remote clock offset: -2.831 ms


# Below is generated by plot.py at 2019-01-19 02:40:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 55.71 Mbit/s
95th percentile per-packet one-way delay: 136.674 ms
Loss rate: 87.30%
-- Flow 1:
Average throughput: 55.70 Mbit/s
95th percentile per-packet one-way delay: 136.678 ms
Loss rate: 87.30%
-- Flow 2:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 31.525 ms
Loss rate: 65.22%
-- Flow 3:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 31.161 ms
Loss rate: 67.50%
```

Run 4: Report of Verus — Data Link

- - - Flow 1 ingress (mean 439.64 Mbit/s)   —— Flow 1 egress (mean 55.70 Mbit/s)
- - - Flow 2 ingress (mean 0.06 Mbit/s)   —— Flow 2 egress (mean 0.02 Mbit/s)
- - - Flow 3 ingress (mean 0.05 Mbit/s)   —— Flow 3 egress (mean 0.02 Mbit/s)

- Flow 1 (95th percentile 136.68 ms)   • Flow 2 (95th percentile 31.52 ms)   • Flow 3 (95th percentile 31.16 ms)
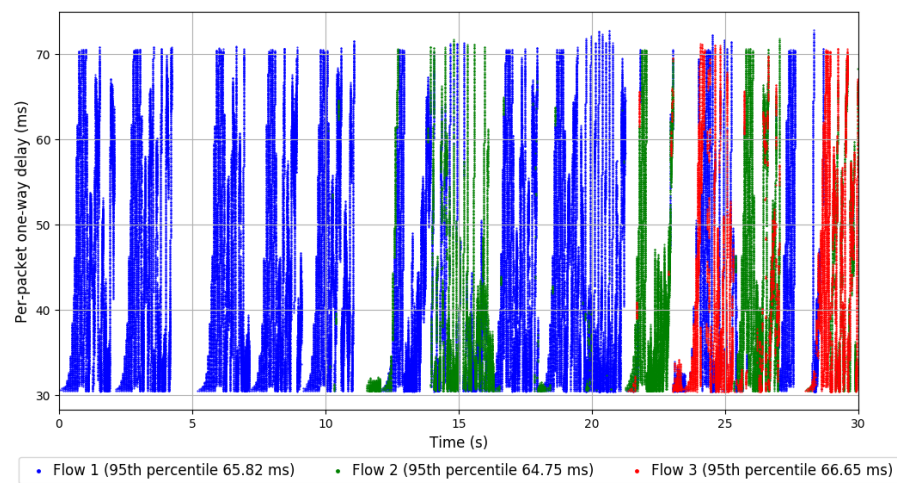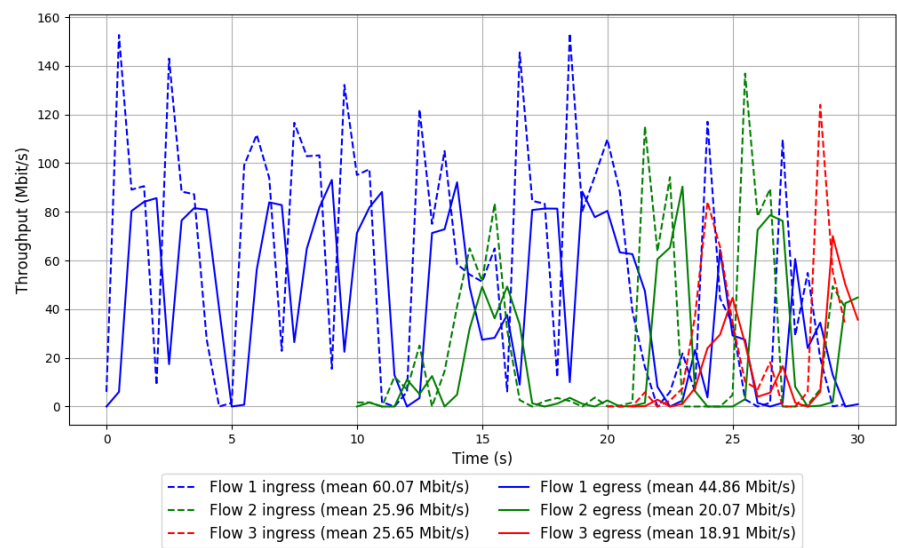
```
Run 5: Statistics of Verus

Start at: 2019-01-19 02:22:15
End at: 2019-01-19 02:22:45
Local clock offset: 1.162 ms
Remote clock offset: -3.028 ms


# Below is generated by plot.py at 2019-01-19 02:40:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 63.47 Mbit/s
95th percentile per-packet one-way delay: 65.697 ms
Loss rate: 25.59%
-- Flow 1:
Average throughput: 44.86 Mbit/s
95th percentile per-packet one-way delay: 65.817 ms
Loss rate: 25.32%
-- Flow 2:
Average throughput: 20.07 Mbit/s
95th percentile per-packet one-way delay: 64.747 ms
Loss rate: 22.66%
-- Flow 3:
Average throughput: 18.91 Mbit/s
95th percentile per-packet one-way delay: 66.654 ms
Loss rate: 33.70%
```

Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2019-01-19 00:18:28
End at: 2019-01-19 00:18:58
Local clock offset: 0.08 ms
Remote clock offset: -3.222 ms


# Below is generated by plot.py at 2019-01-19 02:40:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.46 Mbit/s
95th percentile per-packet one-way delay: 59.325 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 58.52 Mbit/s
95th percentile per-packet one-way delay: 58.642 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 30.14 Mbit/s
95th percentile per-packet one-way delay: 61.339 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 14.80 Mbit/s
95th percentile per-packet one-way delay: 57.995 ms
Loss rate: 0.00%
```
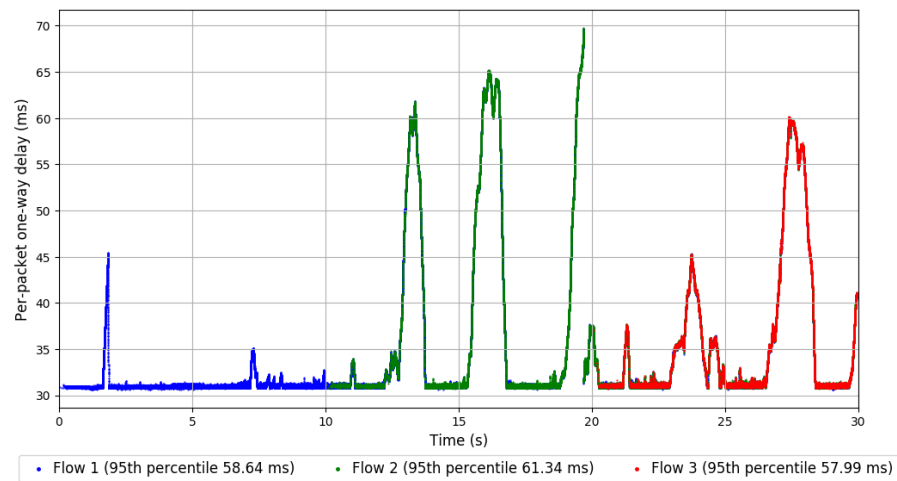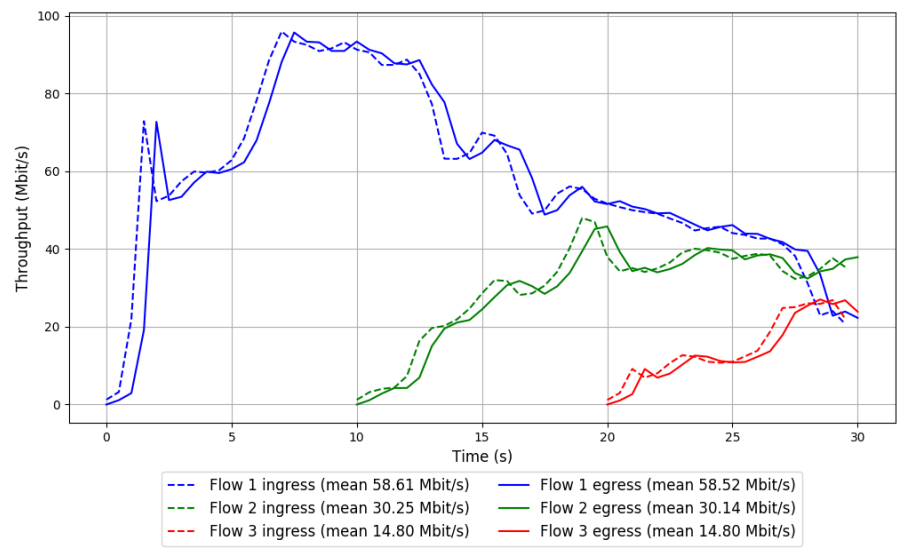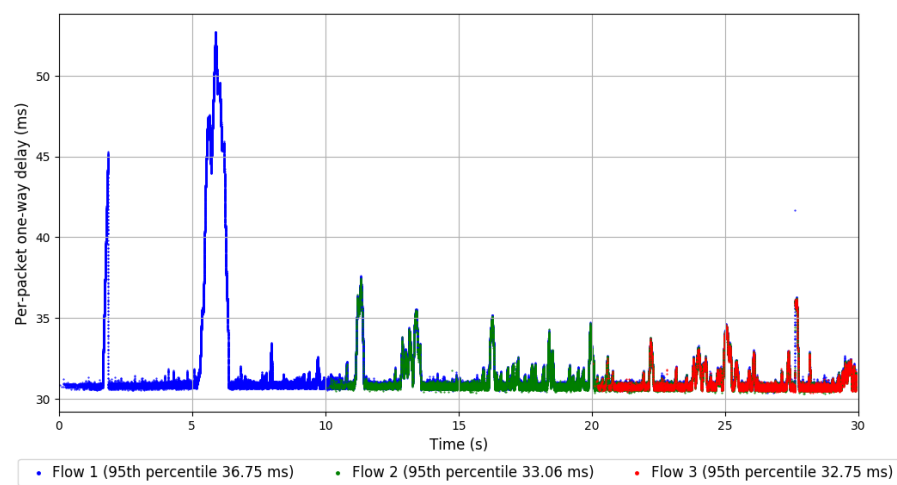
Run 1: Report of PCC-Vivace — Data Link

- - - Flow 1 ingress (mean 58.61 Mbit/s) —— Flow 1 egress (mean 58.52 Mbit/s)
- - - Flow 2 ingress (mean 30.25 Mbit/s) —— Flow 2 egress (mean 30.14 Mbit/s)
- - - Flow 3 ingress (mean 14.80 Mbit/s) —— Flow 3 egress (mean 14.80 Mbit/s)

• Flow 1 (95th percentile 58.64 ms)　　• Flow 2 (95th percentile 61.34 ms)　　• Flow 3 (95th percentile 57.99 ms)
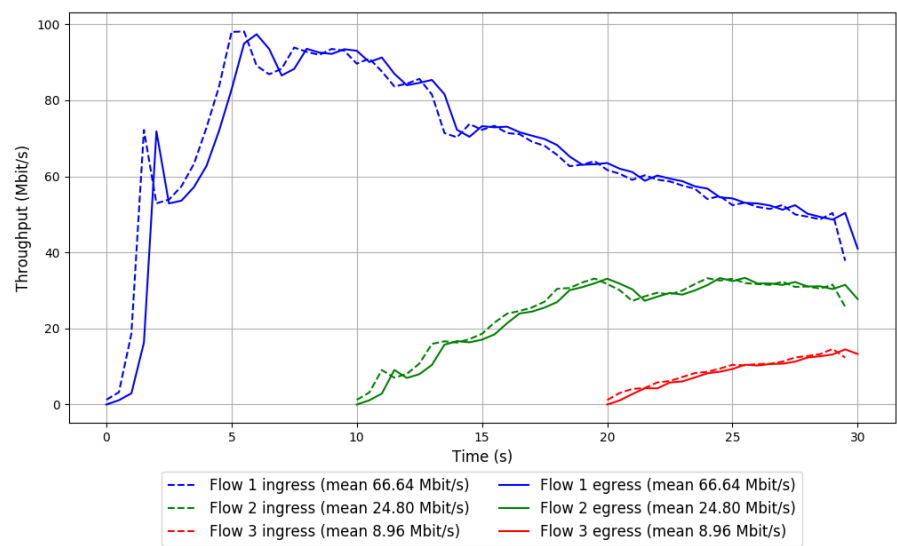
```
Run 2: Statistics of PCC-Vivace

Start at: 2019-01-19 00:46:38
End at: 2019-01-19 00:47:08
Local clock offset: 0.336 ms
Remote clock offset: -2.959 ms


# Below is generated by plot.py at 2019-01-19 02:40:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.10 Mbit/s
95th percentile per-packet one-way delay: 35.443 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 66.64 Mbit/s
95th percentile per-packet one-way delay: 36.746 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 24.80 Mbit/s
95th percentile per-packet one-way delay: 33.062 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 8.96 Mbit/s
95th percentile per-packet one-way delay: 32.754 ms
Loss rate: 0.00%
```

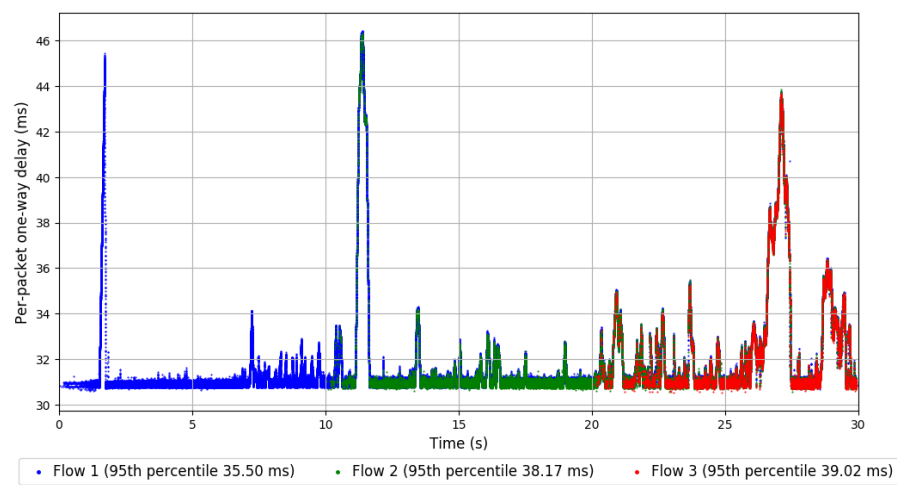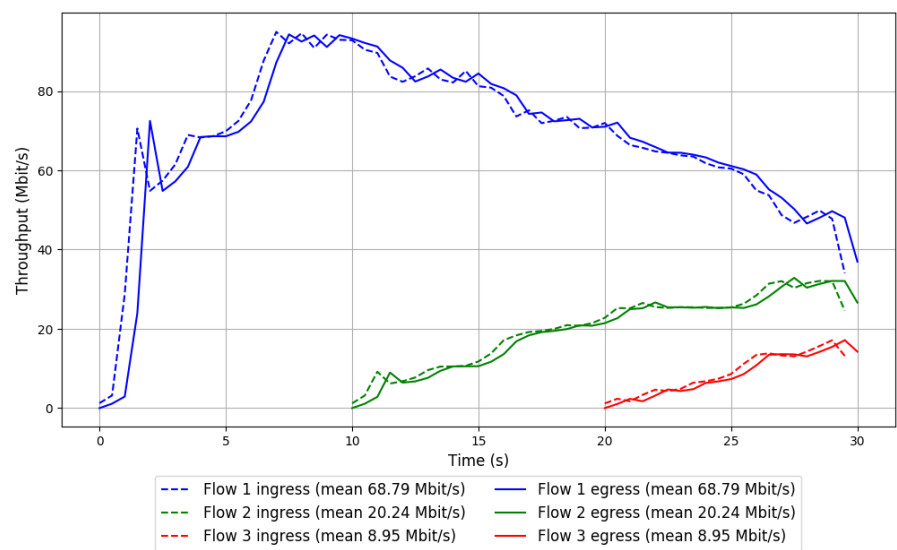Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2019-01-19 01:14:54
End at: 2019-01-19 01:15:24
Local clock offset: -4.094 ms
Remote clock offset: -2.706 ms


# Below is generated by plot.py at 2019-01-19 02:40:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.21 Mbit/s
95th percentile per-packet one-way delay: 36.879 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 68.79 Mbit/s
95th percentile per-packet one-way delay: 35.500 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 20.24 Mbit/s
95th percentile per-packet one-way delay: 38.167 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 8.95 Mbit/s
95th percentile per-packet one-way delay: 39.022 ms
Loss rate: 0.00%
```

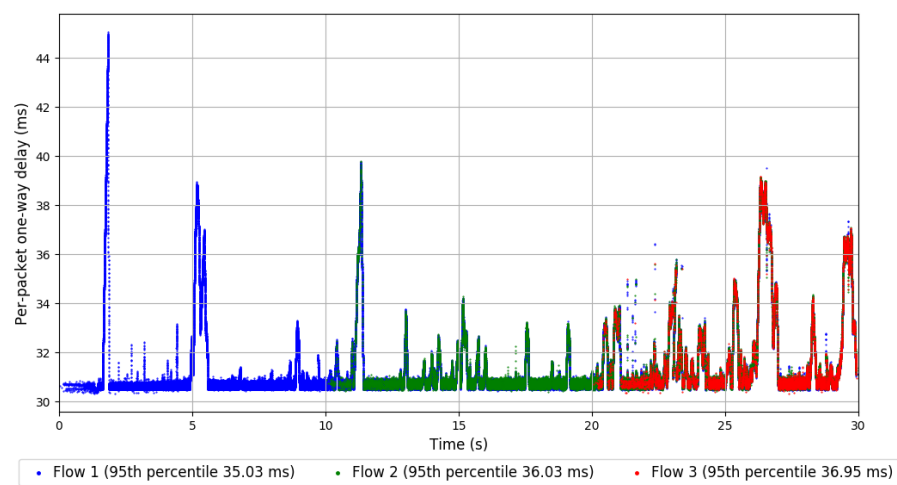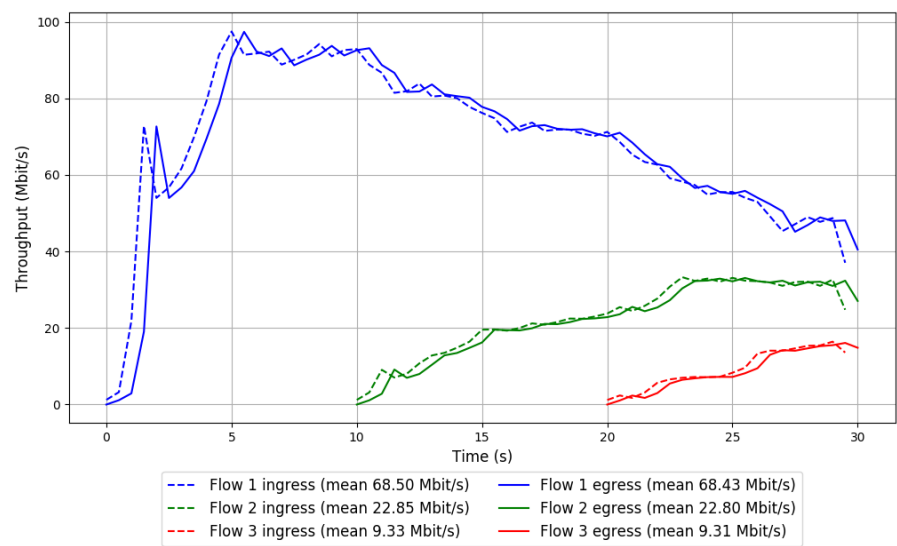Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2019-01-19 01:43:42
End at: 2019-01-19 01:44:12
Local clock offset: -5.214 ms
Remote clock offset: -2.845 ms


# Below is generated by plot.py at 2019-01-19 02:40:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.68 Mbit/s
95th percentile per-packet one-way delay: 35.589 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 68.43 Mbit/s
95th percentile per-packet one-way delay: 35.034 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 22.80 Mbit/s
95th percentile per-packet one-way delay: 36.026 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 9.31 Mbit/s
95th percentile per-packet one-way delay: 36.951 ms
Loss rate: 0.16%
```

Run 4: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 68.50 Mbit/s) --- Flow 1 egress (mean 68.43 Mbit/s)
Flow 2 ingress (mean 22.85 Mbit/s) --- Flow 2 egress (mean 22.80 Mbit/s)
Flow 3 ingress (mean 9.33 Mbit/s) --- Flow 3 egress (mean 9.31 Mbit/s)

Flow 1 (95th percentile 35.03 ms)   Flow 2 (95th percentile 36.03 ms)   Flow 3 (95th percentile 36.95 ms)

```
Run 5: Statistics of PCC-Vivace

Start at: 2019-01-19 02:11:56
End at: 2019-01-19 02:12:26
Local clock offset: 1.279 ms
Remote clock offset: -2.63 ms


# Below is generated by plot.py at 2019-01-19 02:40:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.27 Mbit/s
95th percentile per-packet one-way delay: 41.244 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 62.78 Mbit/s
95th percentile per-packet one-way delay: 42.161 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 23.59 Mbit/s
95th percentile per-packet one-way delay: 39.783 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 14.53 Mbit/s
95th percentile per-packet one-way delay: 38.431 ms
Loss rate: 0.00%
```
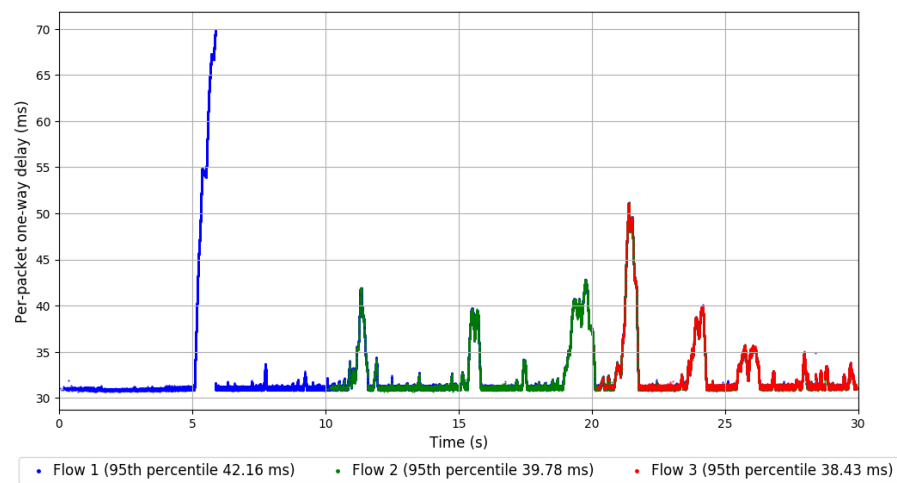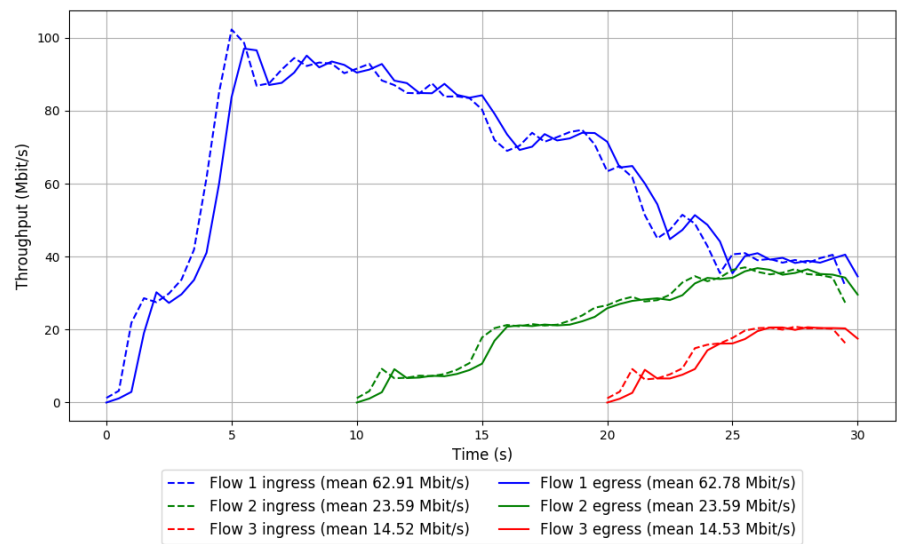
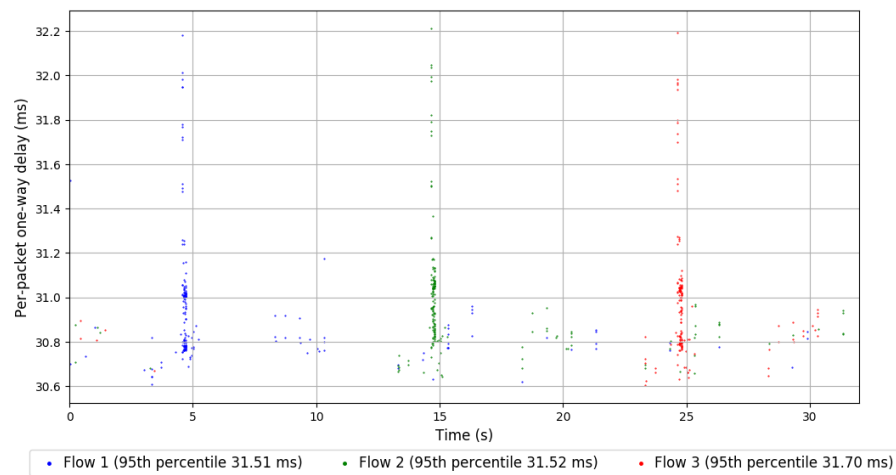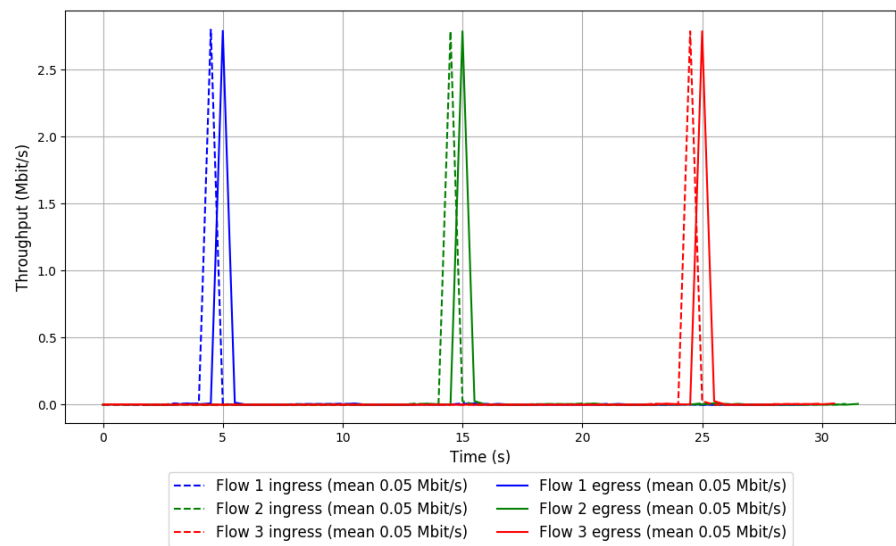## Run 5: Report of PCC-Vivace — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2019-01-19 00:14:31
End at: 2019-01-19 00:15:01
Local clock offset: 0.048 ms
Remote clock offset: -3.284 ms


# Below is generated by plot.py at 2019-01-19 02:40:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 31.534 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 31.510 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 31.522 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 31.700 ms
Loss rate: 0.00%
```

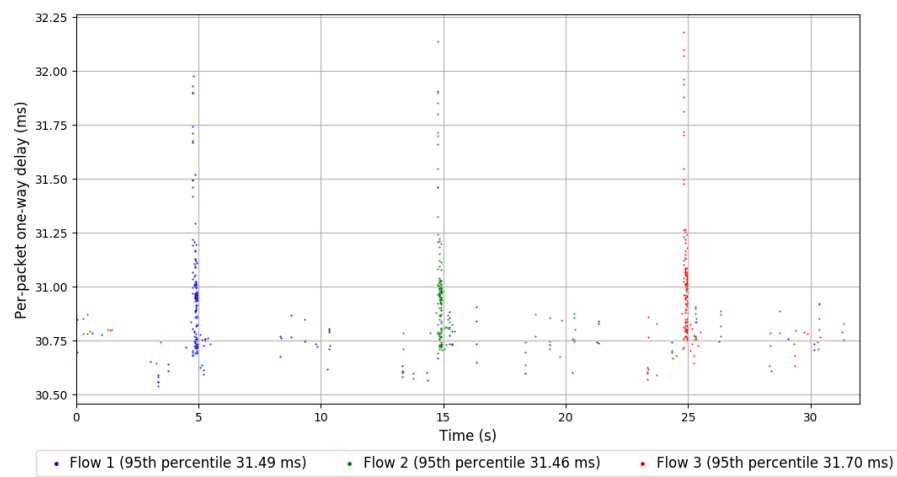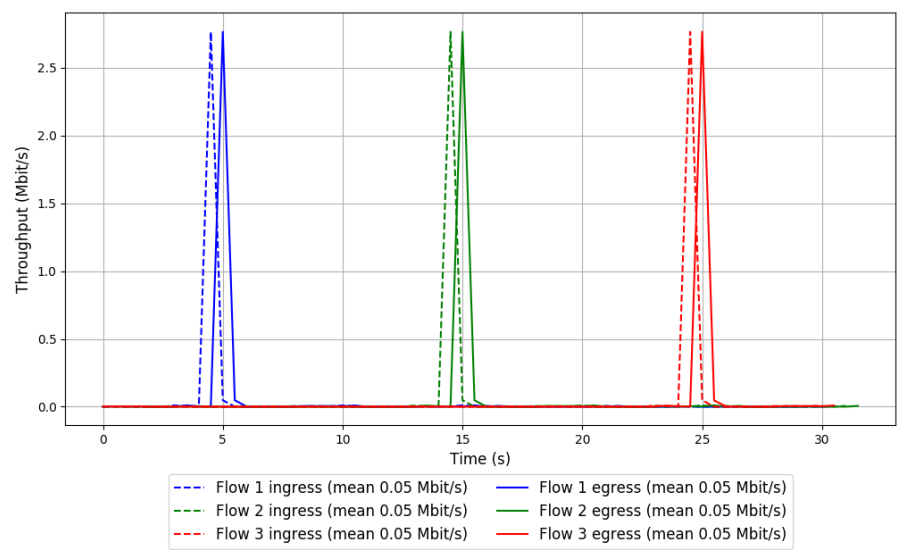Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2019-01-19 00:42:40
End at: 2019-01-19 00:43:10
Local clock offset: 0.274 ms
Remote clock offset: -2.982 ms


# Below is generated by plot.py at 2019-01-19 02:40:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 31.521 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 31.493 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 31.463 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 31.704 ms
Loss rate: 0.00%
```

Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2019-01-19 01:11:01
End at: 2019-01-19 01:11:31
Local clock offset: -3.875 ms
Remote clock offset: -2.89 ms


# Below is generated by plot.py at 2019-01-19 02:40:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 31.344 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 31.311 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 31.292 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 31.480 ms
Loss rate: 0.00%
```
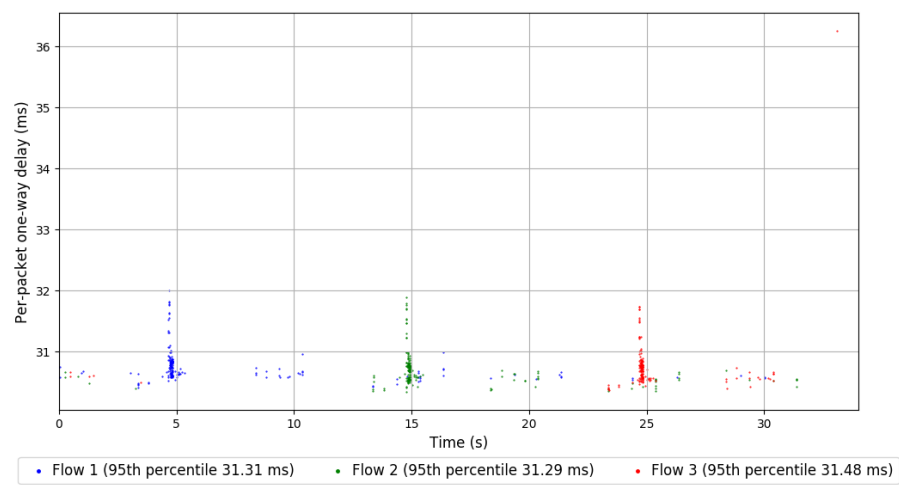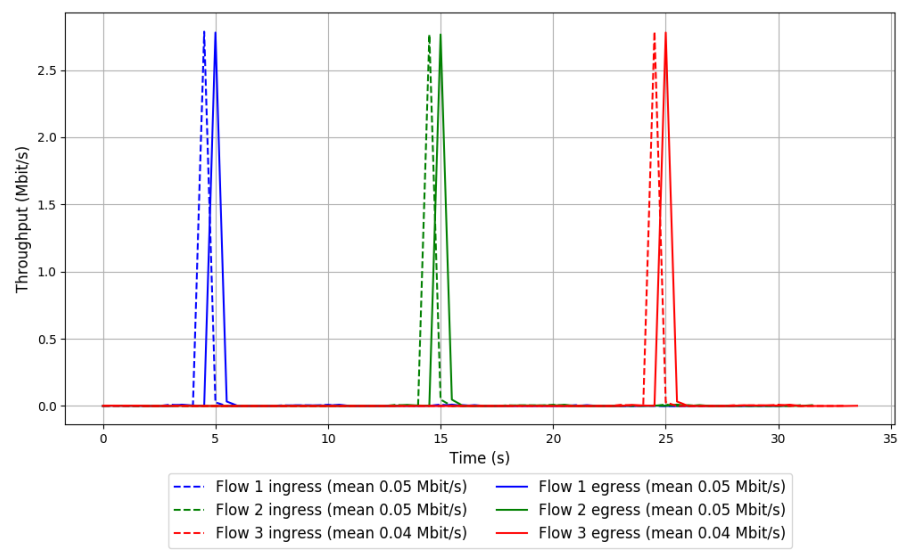
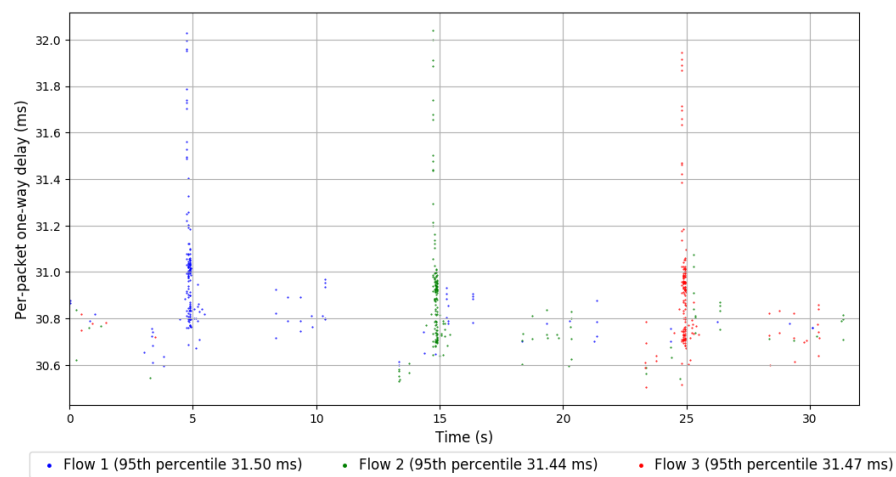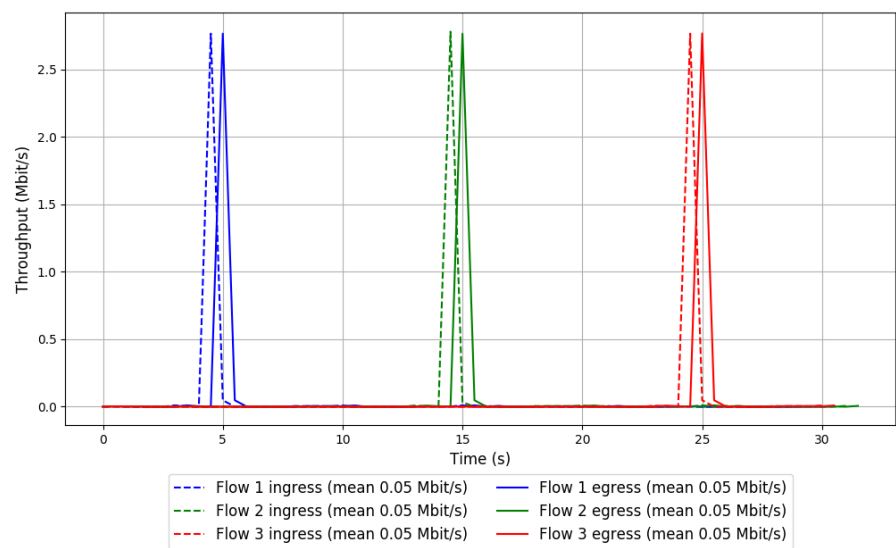Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2019-01-19 01:39:41
End at: 2019-01-19 01:40:11
Local clock offset: -5.068 ms
Remote clock offset: -2.665 ms


# Below is generated by plot.py at 2019-01-19 02:40:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 31.487 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 31.495 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 31.439 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 31.468 ms
Loss rate: 0.00%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2019-01-19 02:07:59
End at: 2019-01-19 02:08:29
Local clock offset: 0.931 ms
Remote clock offset: -2.68 ms

# Below is generated by plot.py at 2019-01-19 02:40:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 31.601 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 31.486 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 31.585 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 31.627 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link