Pantheon Report

Generated at 2018-12-11 14:27:11 (UTC).

Data path: AWS Brazil 2 on `ens5` (*local*) →Colombia on `p4p1` (*remote*).

Repeated the test of 19 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 `gps.ntp.br` and have been applied to correct the timestamps in logs.

```
System info:
Linux 4.15.0-1029-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 @ c654af0b7d59d4ef4b914cfac404e1fc2e96dc68
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/muses-refactored @ 31f8f0ba8ef8b1da76c2bc0cd0a7850c33ff64fb
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 Brazil 2 to Colombia, 5 runs of 30s each per scheme
3 flows with 10s interval between flows (mean of all runs by scheme)
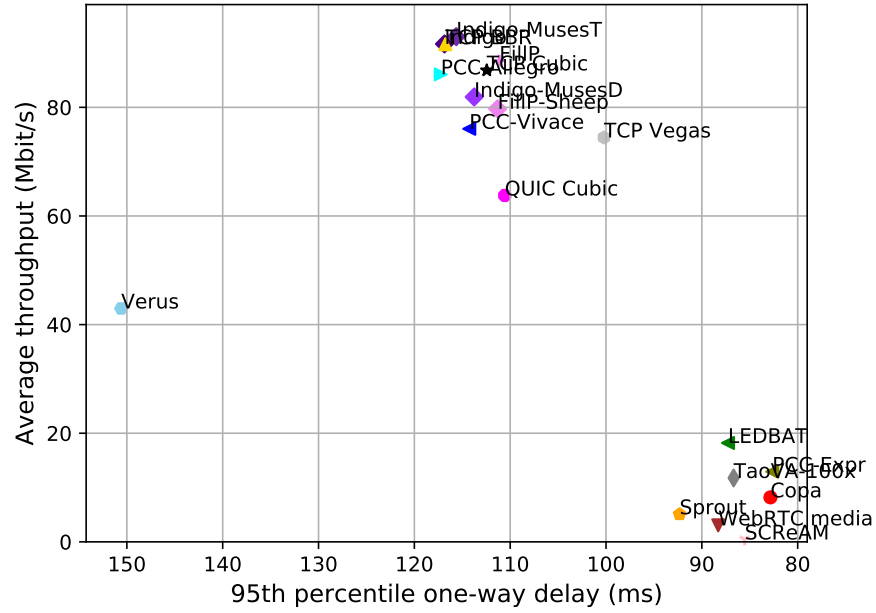
test from AWS Brazil 2 to Colombia, 5 runs of 30s each per scheme
3 flows with 10s interval between flows
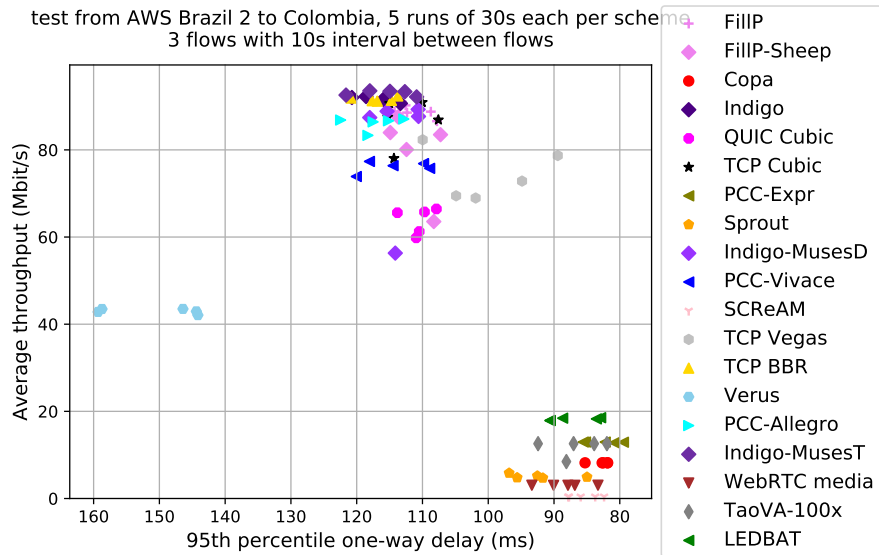
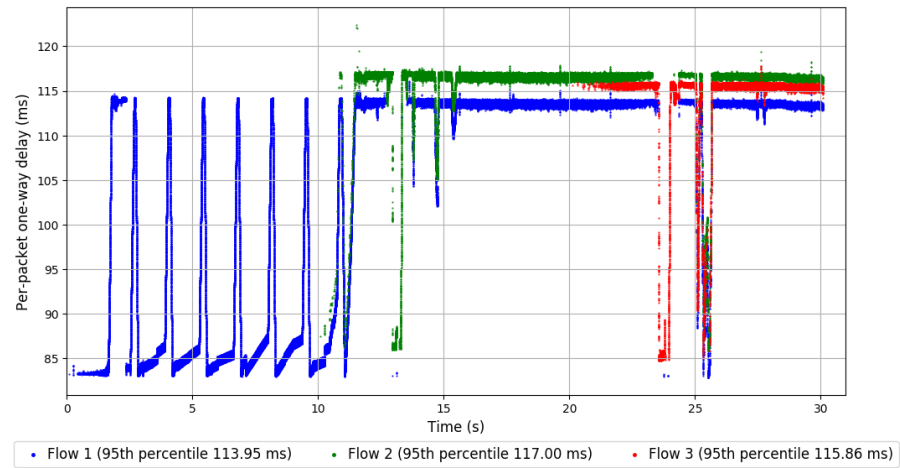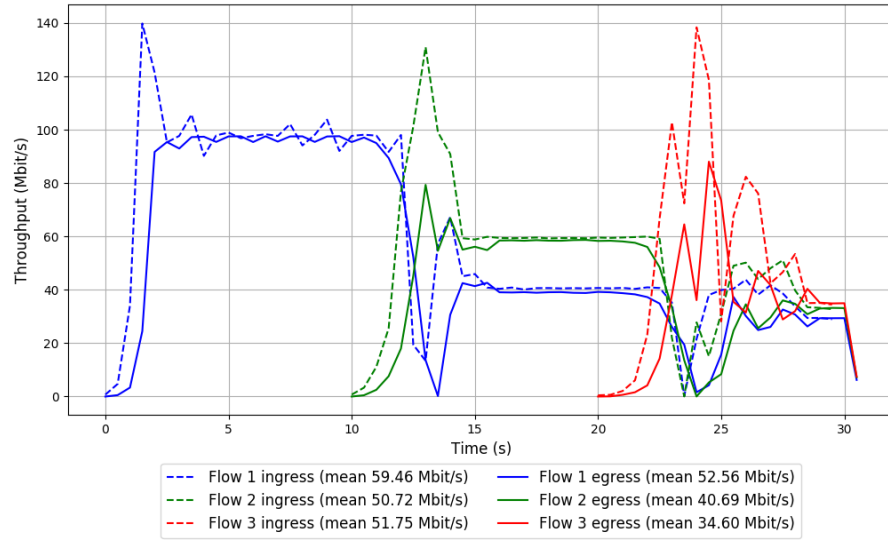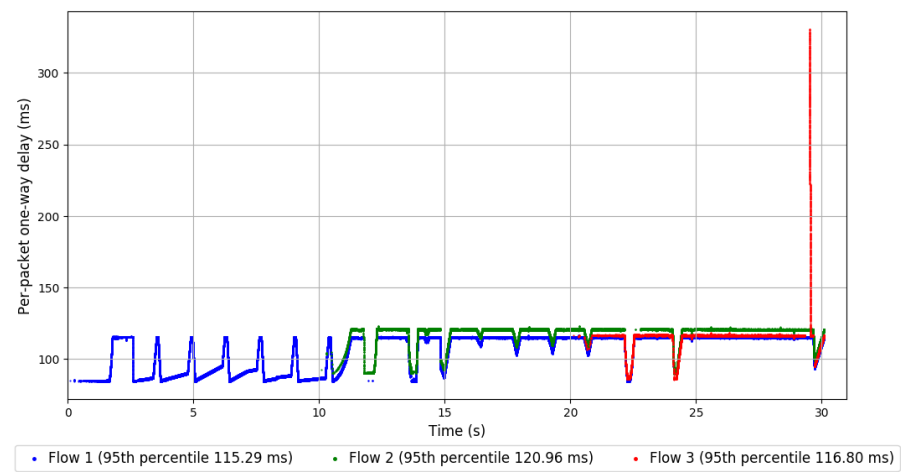| scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	53.80	41.27	31.63	113.37	115.62	113.97	12.42	20.49	28.54
Copa	5	0.00	9.96	4.72	82.47	82.81	81.77	98.35	75.51	79.49
TCP Cubic	5	64.97	20.41	24.81	111.34	113.47	112.75	0.78	0.27	0.50
FillP	5	34.70	67.12	27.82	108.22	111.10	109.17	8.75	16.39	30.40
FillP-Sheep	5	22.66	65.32	41.22	109.53	110.91	112.03	10.42	7.67	12.45
Indigo	5	65.44	24.60	31.53	114.72	114.40	116.53	10.08	35.93	69.21
Indigo-MusesD	5	58.90	28.01	13.56	114.38	110.25	111.13	8.14	2.19	3.18
Indigo-MusesT	5	66.59	29.82	22.32	114.92	113.41	113.67	7.10	12.13	18.01
LEDBAT	5	11.84	7.72	3.75	86.62	87.41	85.72	0.00	0.02	0.00
PCC-Allegro	5	75.42	13.18	5.73	116.47	116.65	113.86	2.76	3.91	5.53
PCC-Expr	5	7.84	6.69	1.90	82.00	81.54	82.27	57.11	35.51	59.58
QUIC Cubic	5	45.21	20.73	14.70	110.75	110.12	109.48	0.78	0.40	0.39
SCReAM	5	0.22	0.22	0.22	84.42	83.16	83.64	0.00	0.00	0.00
Sprout	5	2.37	2.66	2.90	90.96	90.83	92.72	0.00	0.19	0.00
TaoVA-100x	5	6.11	5.80	5.40	90.96	85.66	83.25	52.02	44.70	58.07
TCP Vegas	5	40.41	35.29	31.66	100.81	100.01	97.56	1.49	0.72	0.96
Verus	5	21.92	25.38	13.41	125.44	158.28	125.52	29.98	67.52	34.06
PCC-Vivace	5	63.32	14.93	8.48	114.11	112.54	109.50	0.33	0.76	1.21
WebRTC media	5	1.75	1.05	0.25	84.94	87.52	87.15	0.00	0.04	0.04

```
Run 1: Statistics of TCP BBR

Start at: 2018-12-11 12:38:29
End at: 2018-12-11 12:38:59
Local clock offset: -3.356 ms
Remote clock offset: 67.922 ms


# Below is generated by plot.py at 2018-12-11 14:19:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.19 Mbit/s
95th percentile per-packet one-way delay: 116.877 ms
Loss rate: 17.38%
-- Flow 1:
Average throughput: 52.56 Mbit/s
95th percentile per-packet one-way delay: 113.954 ms
Loss rate: 11.52%
-- Flow 2:
Average throughput: 40.69 Mbit/s
95th percentile per-packet one-way delay: 117.004 ms
Loss rate: 19.66%
-- Flow 3:
Average throughput: 34.60 Mbit/s
95th percentile per-packet one-way delay: 115.857 ms
Loss rate: 33.15%
```

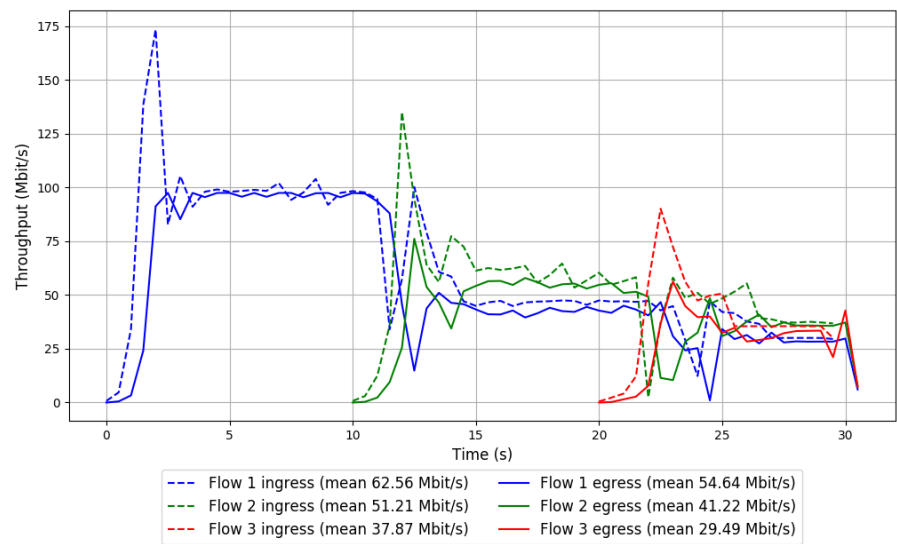# Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 59.46 Mbit/s) — — — Flow 1 egress (mean 52.56 Mbit/s)
Flow 2 ingress (mean 50.72 Mbit/s) — — — Flow 2 egress (mean 40.69 Mbit/s)
Flow 3 ingress (mean 51.75 Mbit/s) — — — Flow 3 egress (mean 34.60 Mbit/s)

Flow 1 (95th percentile 113.95 ms)   Flow 2 (95th percentile 117.00 ms)   Flow 3 (95th percentile 115.86 ms)
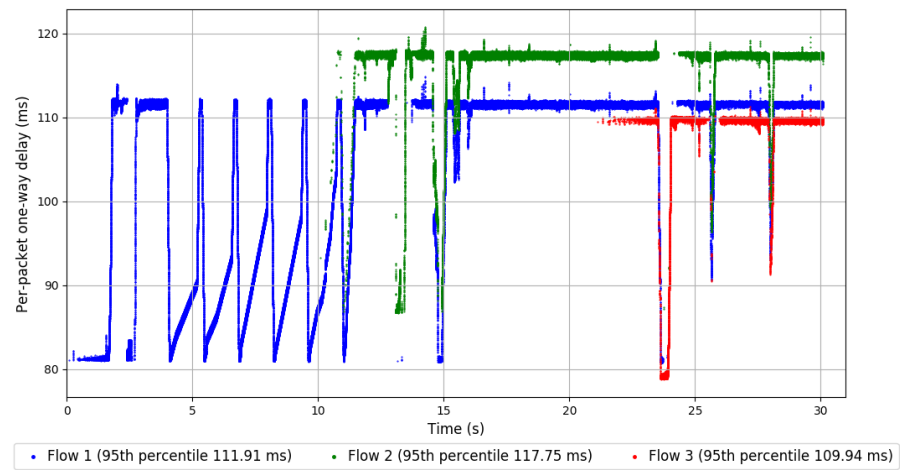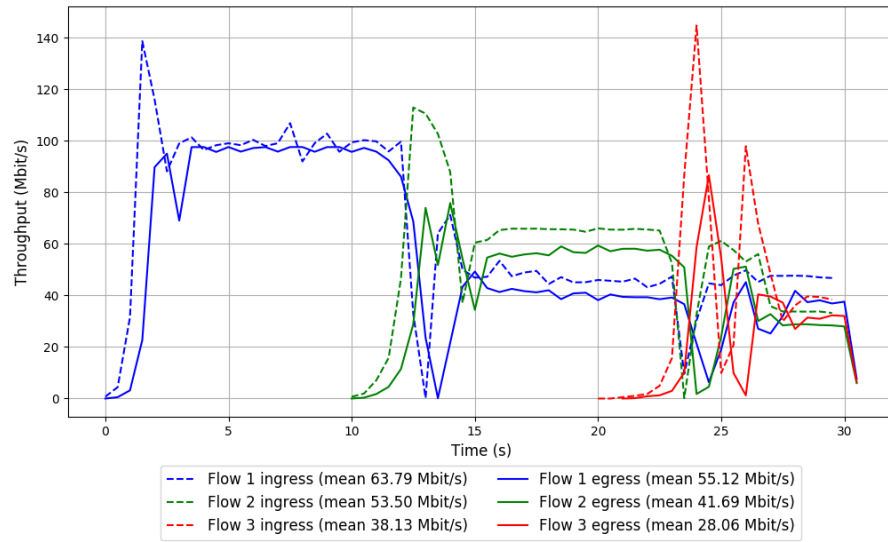
```
Run 2: Statistics of TCP BBR

Start at: 2018-12-11 13:02:50
End at: 2018-12-11 13:03:20
Local clock offset: -4.571 ms
Remote clock offset: 83.535 ms


# Below is generated by plot.py at 2018-12-11 14:19:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.90 Mbit/s
95th percentile per-packet one-way delay: 120.843 ms
Loss rate: 15.81%
-- Flow 1:
Average throughput: 54.64 Mbit/s
95th percentile per-packet one-way delay: 115.292 ms
Loss rate: 12.57%
-- Flow 2:
Average throughput: 41.22 Mbit/s
95th percentile per-packet one-way delay: 120.958 ms
Loss rate: 19.40%
-- Flow 3:
Average throughput: 29.49 Mbit/s
95th percentile per-packet one-way delay: 116.798 ms
Loss rate: 22.15%
```

## Run 2: Report of TCP BBR — Data Link

Flow 1 ingress (mean 62.56 Mbit/s) — — — Flow 1 egress (mean 54.64 Mbit/s)
Flow 2 ingress (mean 51.21 Mbit/s) — — — Flow 2 egress (mean 41.22 Mbit/s)
Flow 3 ingress (mean 37.87 Mbit/s) — — — Flow 3 egress (mean 29.49 Mbit/s)

Flow 1 (95th percentile 115.29 ms)   Flow 2 (95th percentile 120.96 ms)   Flow 3 (95th percentile 116.80 ms)

```
Run 3: Statistics of TCP BBR

Start at: 2018-12-11 13:26:57
End at: 2018-12-11 13:27:27
Local clock offset: -3.086 ms
Remote clock offset: 93.039 ms


# Below is generated by plot.py at 2018-12-11 14:19:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.29 Mbit/s
95th percentile per-packet one-way delay: 117.640 ms
Loss rate: 18.51%
-- Flow 1:
Average throughput: 55.12 Mbit/s
95th percentile per-packet one-way delay: 111.908 ms
Loss rate: 13.52%
-- Flow 2:
Average throughput: 41.69 Mbit/s
95th percentile per-packet one-way delay: 117.754 ms
Loss rate: 22.00%
-- Flow 3:
Average throughput: 28.06 Mbit/s
95th percentile per-packet one-way delay: 109.936 ms
Loss rate: 33.84%
```

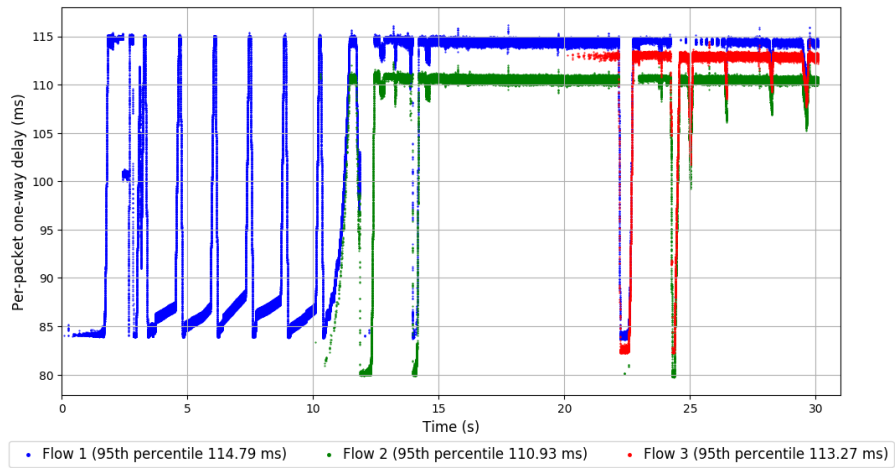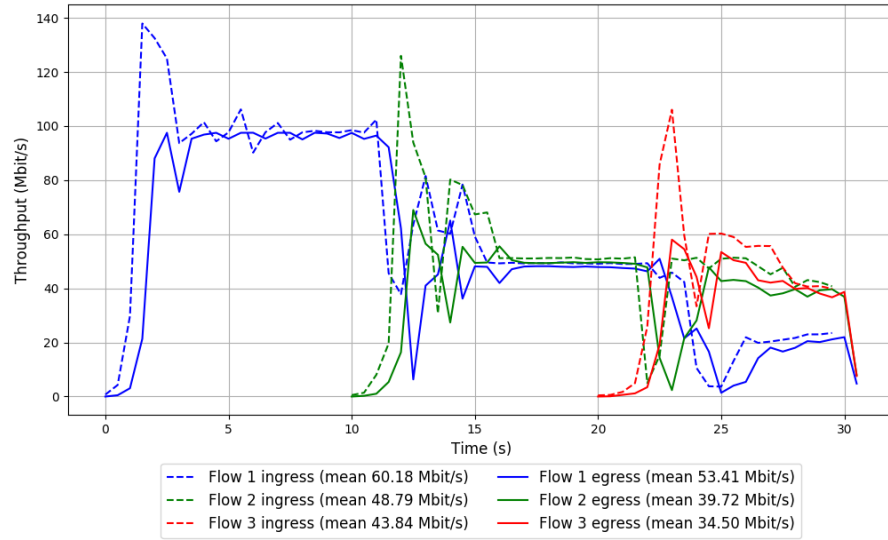Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 63.79 Mbit/s) --- Flow 1 egress (mean 55.12 Mbit/s)
Flow 2 ingress (mean 53.50 Mbit/s) --- Flow 2 egress (mean 41.69 Mbit/s)
Flow 3 ingress (mean 38.13 Mbit/s) --- Flow 3 egress (mean 28.06 Mbit/s)

Flow 1 (95th percentile 111.91 ms)   Flow 2 (95th percentile 117.75 ms)   Flow 3 (95th percentile 109.94 ms)

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```
Run 4: Statistics of TCP BBR

Start at: 2018-12-11 13:51:11
End at: 2018-12-11 13:51:41
Local clock offset: -3.109 ms
Remote clock offset: 108.718 ms


# Below is generated by plot.py at 2018-12-11 14:19:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.38 Mbit/s
95th percentile per-packet one-way delay: 113.757 ms
Loss rate: 19.01%
-- Flow 1:
Average throughput: 53.28 Mbit/s
95th percentile per-packet one-way delay: 110.929 ms
Loss rate: 13.32%
-- Flow 2:
Average throughput: 43.01 Mbit/s
95th percentile per-packet one-way delay: 111.477 ms
Loss rate: 22.92%
-- Flow 3:
Average throughput: 31.48 Mbit/s
95th percentile per-packet one-way delay: 113.977 ms
Loss rate: 32.22%
```

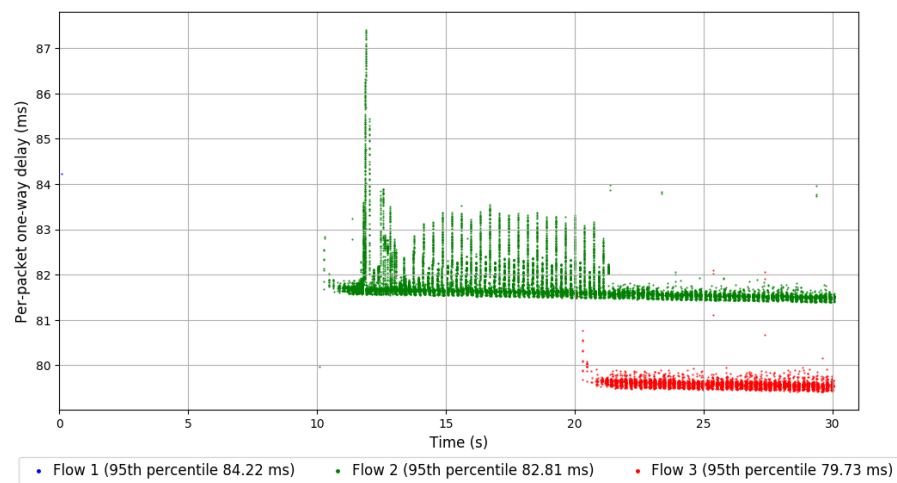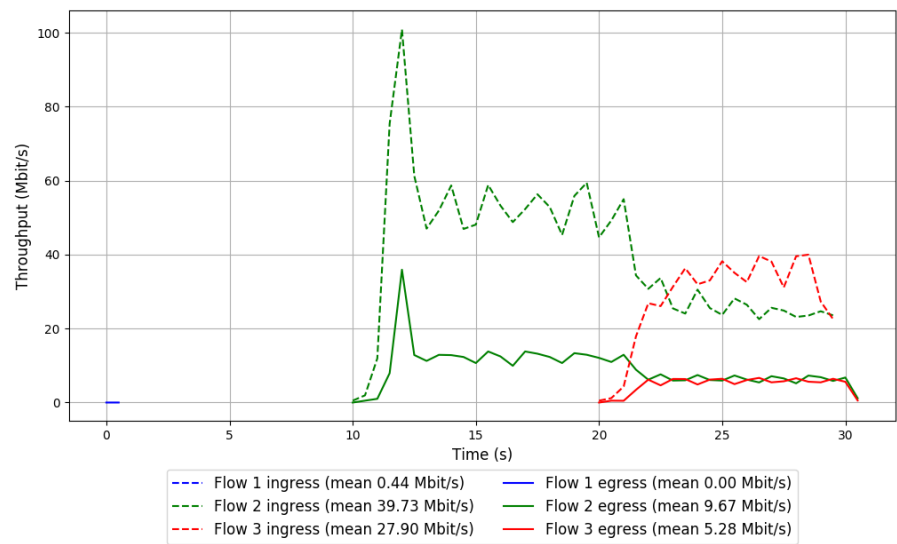Run 4: Report of TCP BBR — Data Link
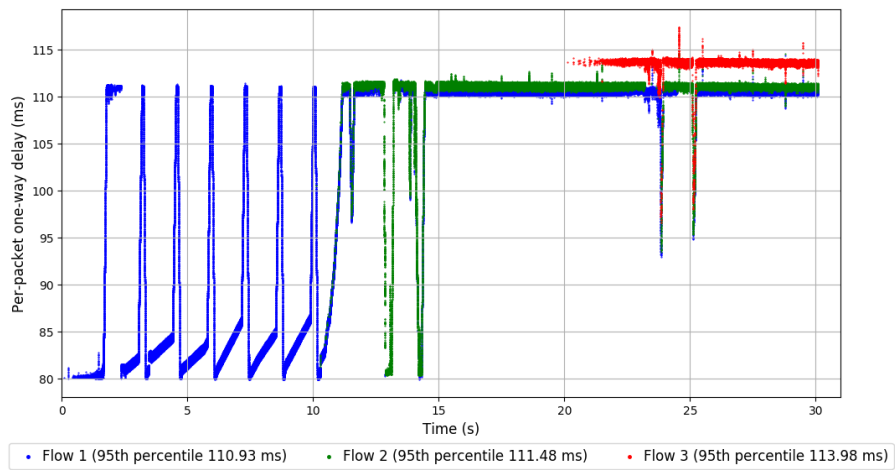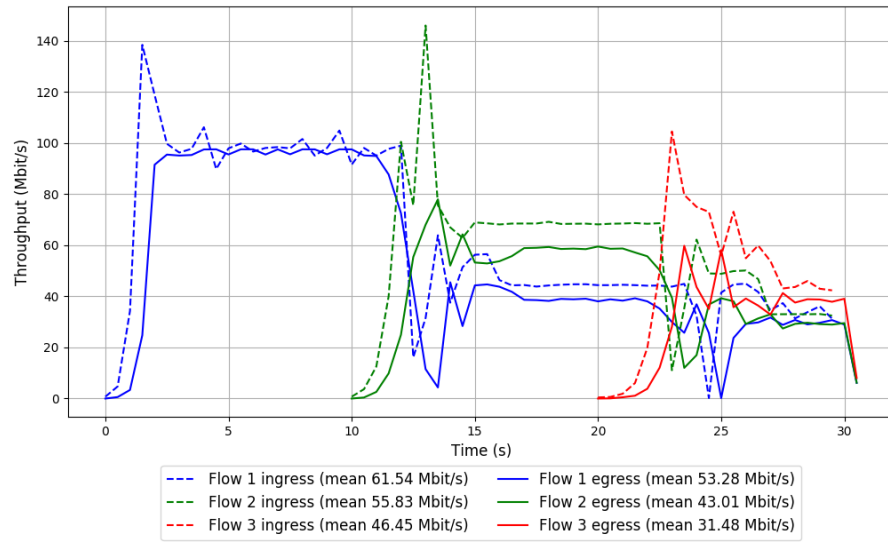
```
Run 5: Statistics of TCP BBR

Start at: 2018-12-11 14:15:20
End at: 2018-12-11 14:15:50
Local clock offset: -4.051 ms
Remote clock offset: 123.228 ms

# Below is generated by plot.py at 2018-12-11 14:19:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.36 Mbit/s
95th percentile per-packet one-way delay: 114.723 ms
Loss rate: 14.76%
-- Flow 1:
Average throughput: 53.41 Mbit/s
95th percentile per-packet one-way delay: 114.790 ms
Loss rate: 11.16%
-- Flow 2:
Average throughput: 39.72 Mbit/s
95th percentile per-packet one-way delay: 110.931 ms
Loss rate: 18.48%
-- Flow 3:
Average throughput: 34.50 Mbit/s
95th percentile per-packet one-way delay: 113.265 ms
Loss rate: 21.33%
```

Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 60.18 Mbit/s) --- Flow 1 egress (mean 53.41 Mbit/s)
Flow 2 ingress (mean 48.79 Mbit/s) --- Flow 2 egress (mean 39.72 Mbit/s)
Flow 3 ingress (mean 43.84 Mbit/s) --- Flow 3 egress (mean 34.50 Mbit/s)

Flow 1 (95th percentile 114.79 ms)   Flow 2 (95th percentile 110.93 ms)   Flow 3 (95th percentile 113.27 ms)

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```
Run 1: Statistics of Copa

Start at: 2018-12-11 12:37:15
End at: 2018-12-11 12:37:45
Local clock offset: -3.307 ms
Remote clock offset: 63.826 ms


# Below is generated by plot.py at 2018-12-11 14:19:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.19 Mbit/s
95th percentile per-packet one-way delay: 82.683 ms
Loss rate: 77.06%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 84.220 ms
Loss rate: 98.80%
-- Flow 2:
Average throughput: 9.67 Mbit/s
95th percentile per-packet one-way delay: 82.813 ms
Loss rate: 75.65%
-- Flow 3:
Average throughput: 5.28 Mbit/s
95th percentile per-packet one-way delay: 79.726 ms
Loss rate: 81.09%
```
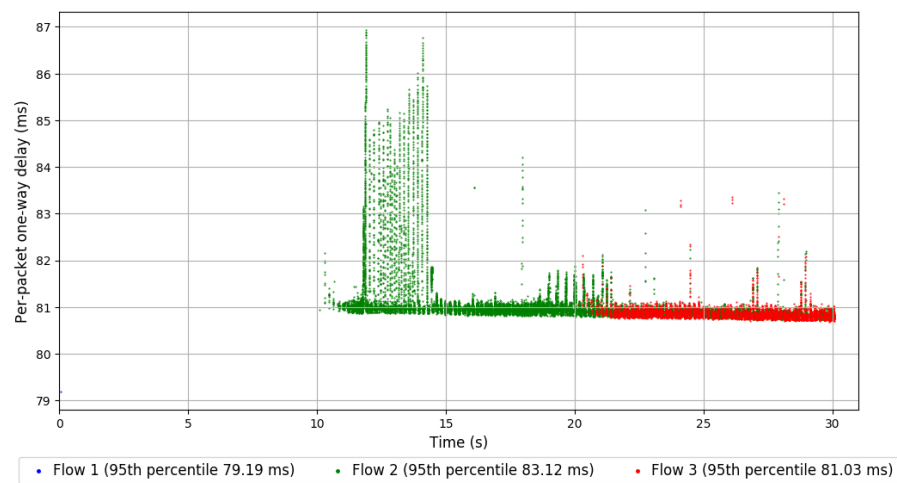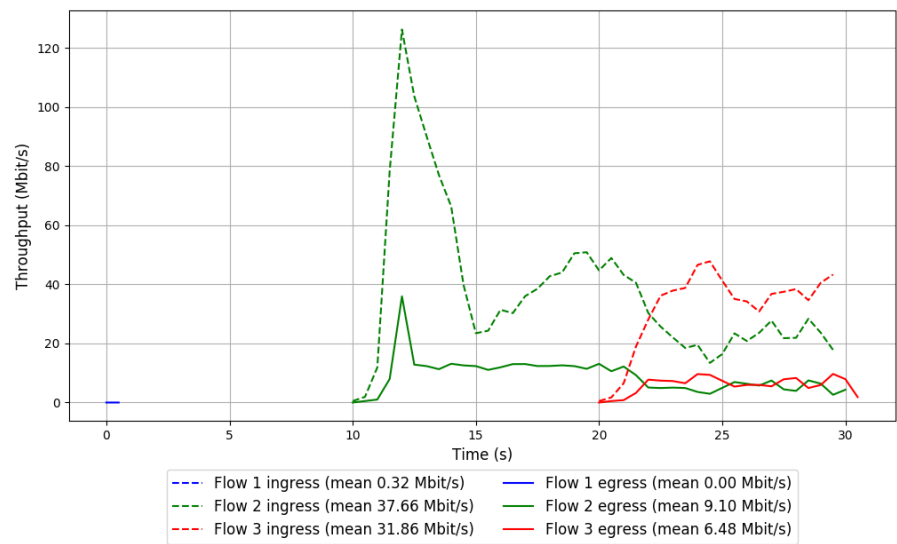
Run 1: Report of Copa — Data Link

- - - Flow 1 ingress (mean 0.44 Mbit/s) —— Flow 1 egress (mean 0.00 Mbit/s)
- - - Flow 2 ingress (mean 39.73 Mbit/s) —— Flow 2 egress (mean 9.67 Mbit/s)
- - - Flow 3 ingress (mean 27.90 Mbit/s) —— Flow 3 egress (mean 5.28 Mbit/s)

- Flow 1 (95th percentile 84.22 ms)   · Flow 2 (95th percentile 82.81 ms)   · Flow 3 (95th percentile 79.73 ms)

```
Run 2: Statistics of Copa

Start at: 2018-12-11 13:01:36
End at: 2018-12-11 13:02:06
Local clock offset: -4.56 ms
Remote clock offset: 82.984 ms


# Below is generated by plot.py at 2018-12-11 14:19:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.20 Mbit/s
95th percentile per-packet one-way delay: 85.280 ms
Loss rate: 76.23%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 84.341 ms
Loss rate: 98.80%
-- Flow 2:
Average throughput: 10.23 Mbit/s
95th percentile per-packet one-way delay: 85.397 ms
Loss rate: 75.55%
-- Flow 3:
Average throughput: 4.15 Mbit/s
95th percentile per-packet one-way delay: 84.159 ms
Loss rate: 79.09%
```

Run 2: Report of Copa — Data Link
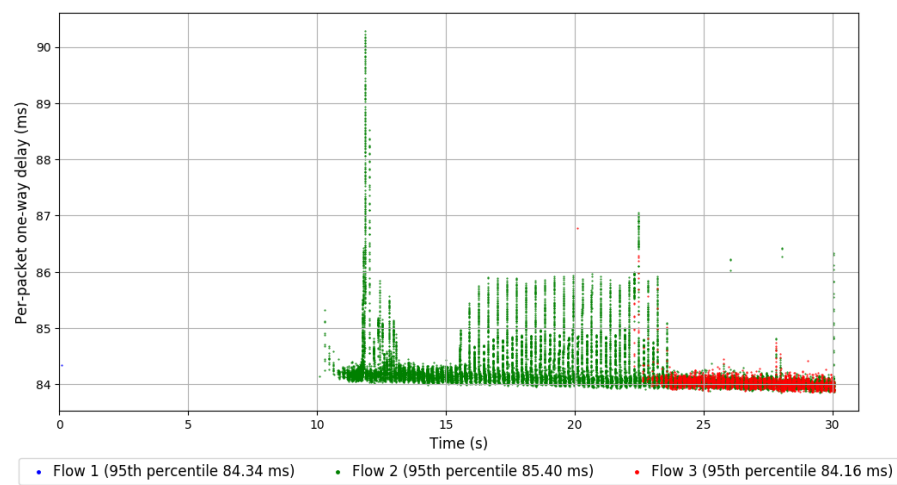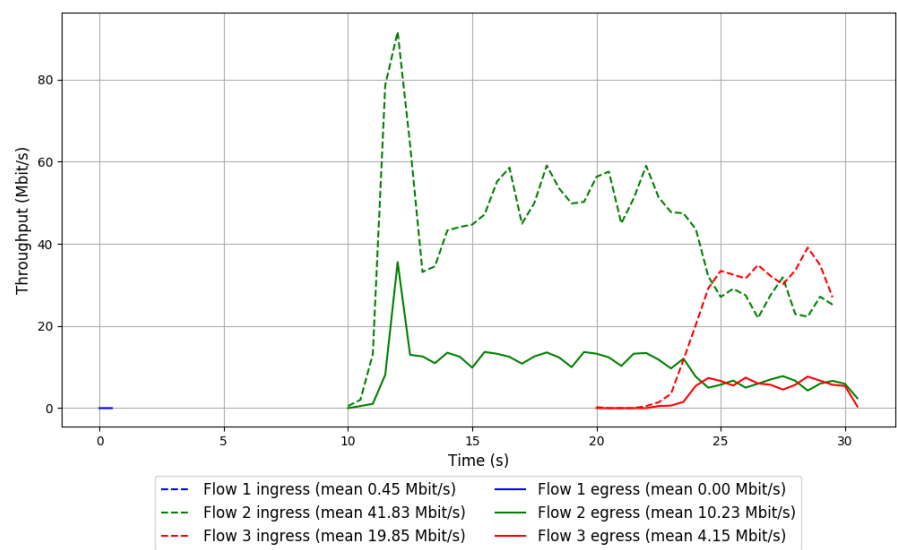
```
Run 3: Statistics of Copa

Start at: 2018-12-11 13:25:42
End at: 2018-12-11 13:26:12
Local clock offset: -3.126 ms
Remote clock offset: 92.285 ms


# Below is generated by plot.py at 2018-12-11 14:19:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.19 Mbit/s
95th percentile per-packet one-way delay: 82.527 ms
Loss rate: 76.99%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 79.188 ms
Loss rate: 98.33%
-- Flow 2:
Average throughput: 9.10 Mbit/s
95th percentile per-packet one-way delay: 83.125 ms
Loss rate: 75.85%
-- Flow 3:
Average throughput: 6.48 Mbit/s
95th percentile per-packet one-way delay: 81.030 ms
Loss rate: 79.67%
```

Run 3: Report of Copa — Data Link

- - - Flow 1 ingress (mean 0.32 Mbit/s) — Flow 1 egress (mean 0.00 Mbit/s)
- - - Flow 2 ingress (mean 37.66 Mbit/s) — Flow 2 egress (mean 9.10 Mbit/s)
- - - Flow 3 ingress (mean 31.86 Mbit/s) — Flow 3 egress (mean 6.48 Mbit/s)

- Flow 1 (95th percentile 79.19 ms)   • Flow 2 (95th percentile 83.12 ms)   • Flow 3 (95th percentile 81.03 ms)

```
Run 4: Statistics of Copa

Start at: 2018-12-11 13:49:57
End at: 2018-12-11 13:50:27
Local clock offset: -3.18 ms
Remote clock offset: 107.837 ms


# Below is generated by plot.py at 2018-12-11 14:19:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.19 Mbit/s
95th percentile per-packet one-way delay: 81.847 ms
Loss rate: 74.80%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 82.126 ms
Loss rate: 98.60%
-- Flow 2:
Average throughput: 10.76 Mbit/s
95th percentile per-packet one-way delay: 81.175 ms
Loss rate: 74.41%
-- Flow 3:
Average throughput: 3.11 Mbit/s
95th percentile per-packet one-way delay: 81.962 ms
Loss rate: 77.20%
```
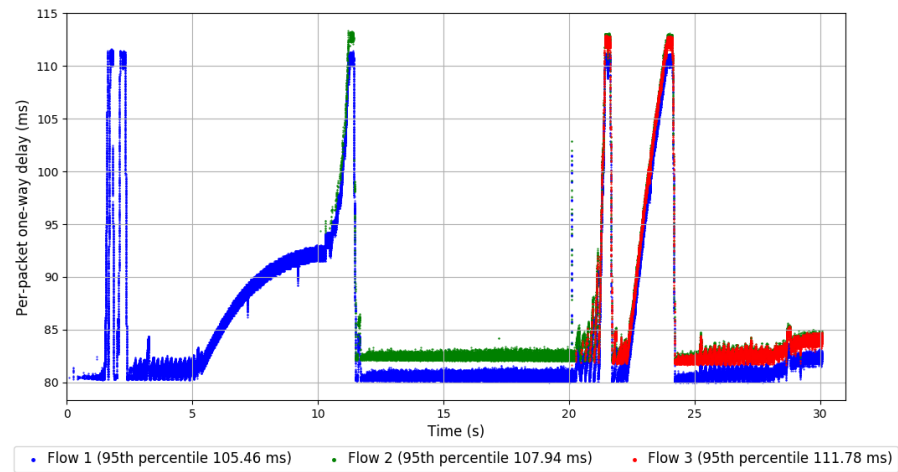
Run 4: Report of Copa — Data Link
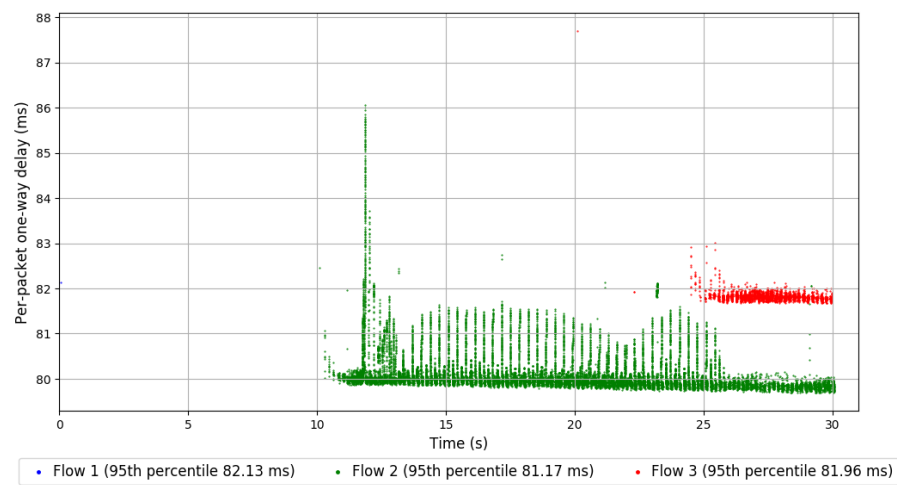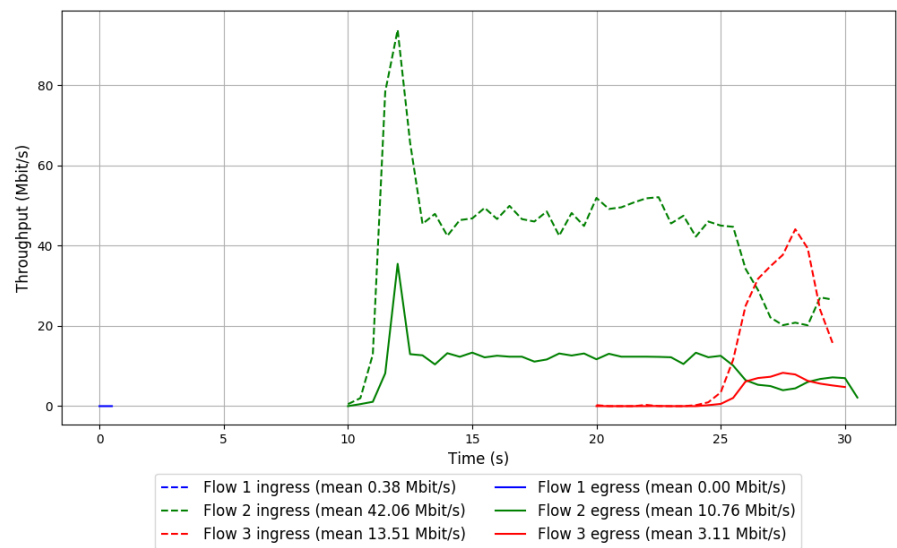
```
Run 5: Statistics of Copa

Start at: 2018-12-11 14:14:07
End at: 2018-12-11 14:14:37
Local clock offset: -3.983 ms
Remote clock offset: 122.365 ms


# Below is generated by plot.py at 2018-12-11 14:19:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.19 Mbit/s
95th percentile per-packet one-way delay: 81.882 ms
Loss rate: 77.01%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 82.492 ms
Loss rate: 97.24%
-- Flow 2:
Average throughput: 10.03 Mbit/s
95th percentile per-packet one-way delay: 81.550 ms
Loss rate: 76.07%
-- Flow 3:
Average throughput: 4.57 Mbit/s
95th percentile per-packet one-way delay: 81.969 ms
Loss rate: 80.41%
```
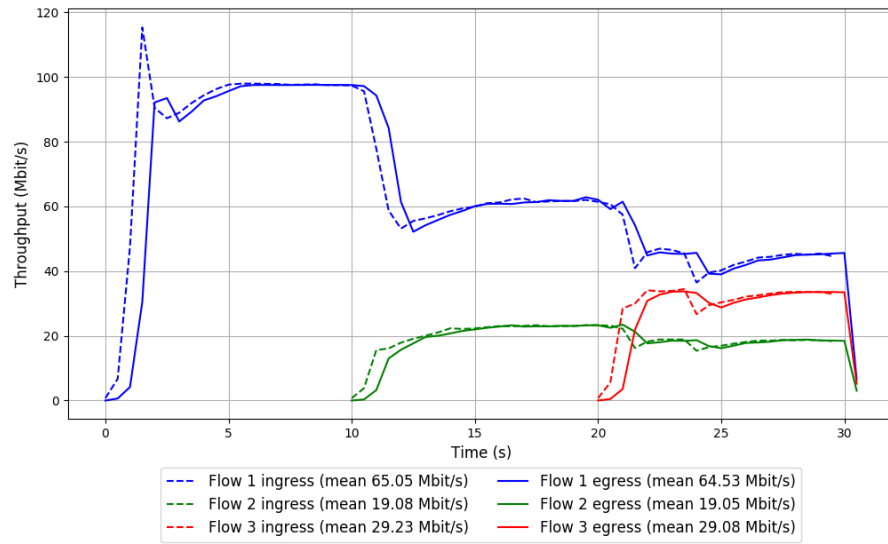
Run 5: Report of Copa — Data Link
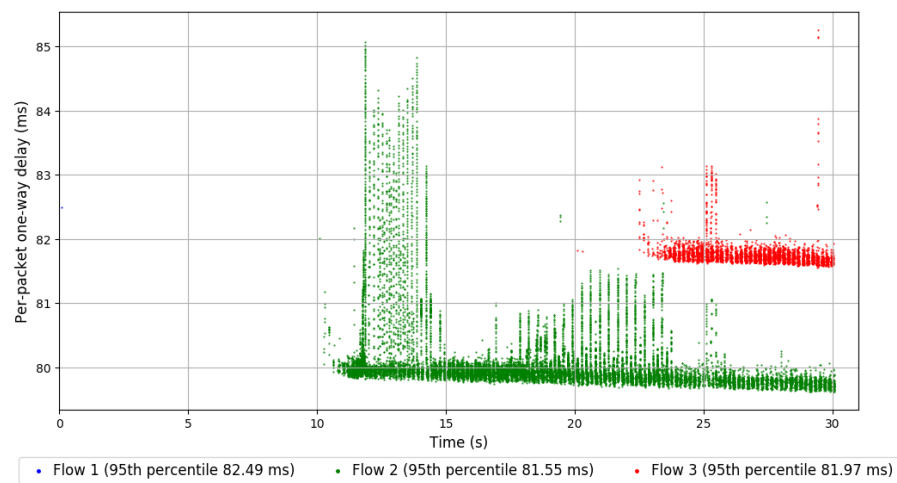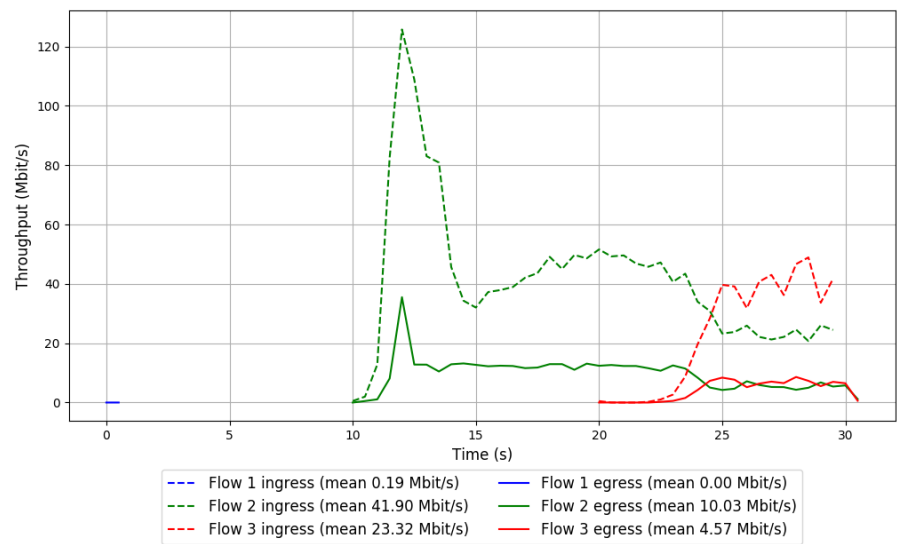
```
Run 1: Statistics of TCP Cubic

Start at: 2018-12-11 12:19:25
End at: 2018-12-11 12:19:55
Local clock offset: -3.206 ms
Remote clock offset: 57.616 ms


# Below is generated by plot.py at 2018-12-11 14:19:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 78.05 Mbit/s
95th percentile per-packet one-way delay: 114.339 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 55.36 Mbit/s
95th percentile per-packet one-way delay: 112.043 ms
Loss rate: 0.88%
-- Flow 2:
Average throughput: 12.86 Mbit/s
95th percentile per-packet one-way delay: 115.297 ms
Loss rate: 0.42%
-- Flow 3:
Average throughput: 42.48 Mbit/s
95th percentile per-packet one-way delay: 116.042 ms
Loss rate: 1.38%
```

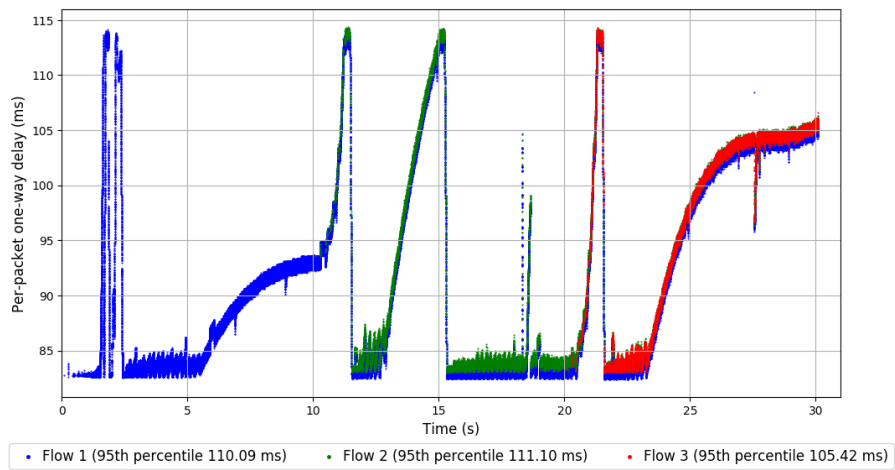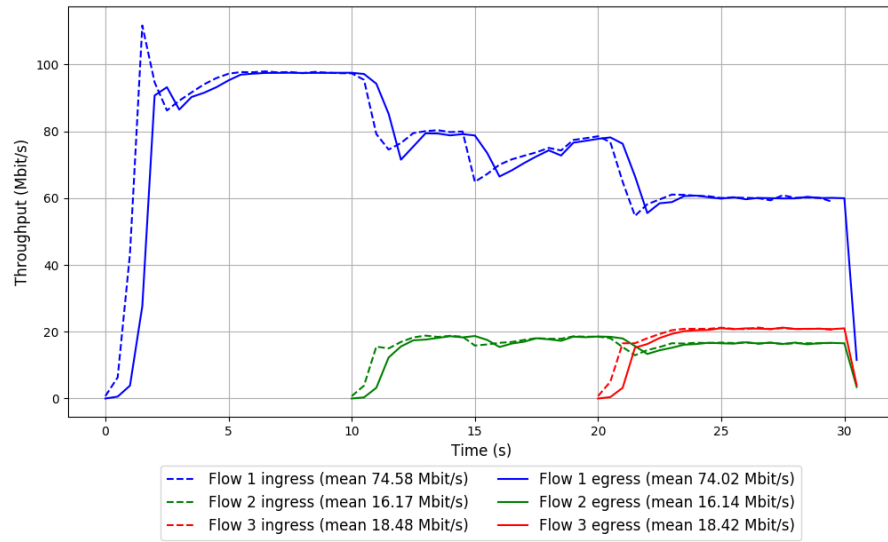Run 1: Report of TCP Cubic — Data Link
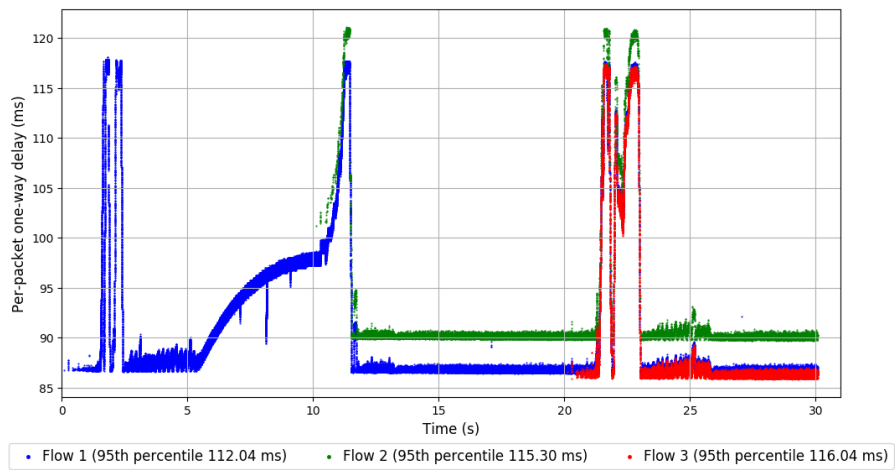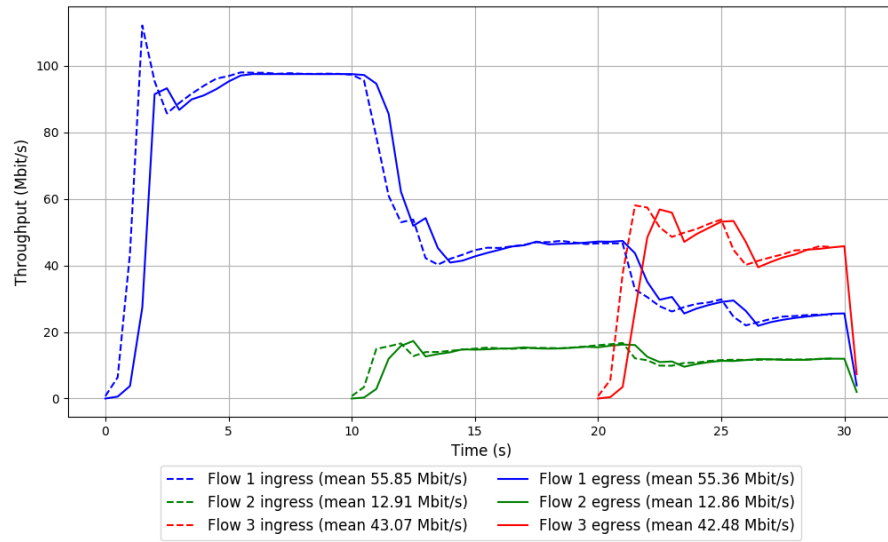
```
Run 2: Statistics of TCP Cubic

Start at: 2018-12-11 12:43:33
End at: 2018-12-11 12:44:03
Local clock offset: -3.847 ms
Remote clock offset: 67.703 ms


# Below is generated by plot.py at 2018-12-11 14:19:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.89 Mbit/s
95th percentile per-packet one-way delay: 107.579 ms
Loss rate: 0.67%
-- Flow 1:
Average throughput: 64.53 Mbit/s
95th percentile per-packet one-way delay: 105.456 ms
Loss rate: 0.79%
-- Flow 2:
Average throughput: 19.05 Mbit/s
95th percentile per-packet one-way delay: 107.942 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 29.08 Mbit/s
95th percentile per-packet one-way delay: 111.779 ms
Loss rate: 0.49%
```

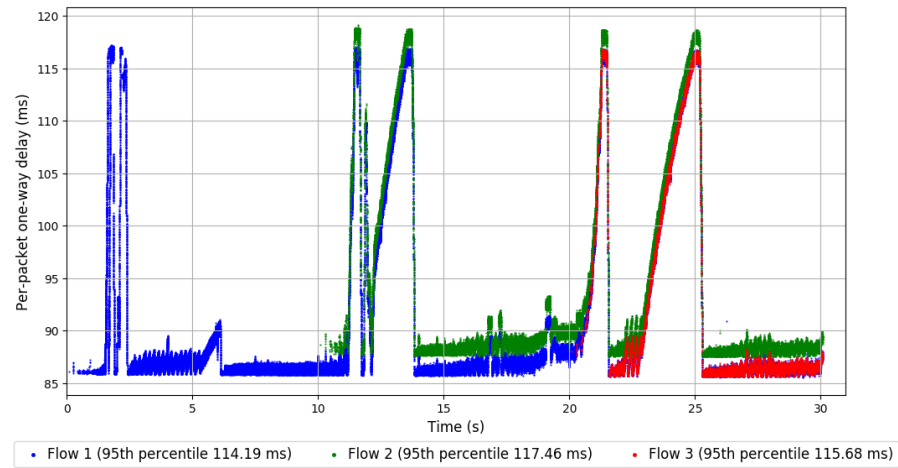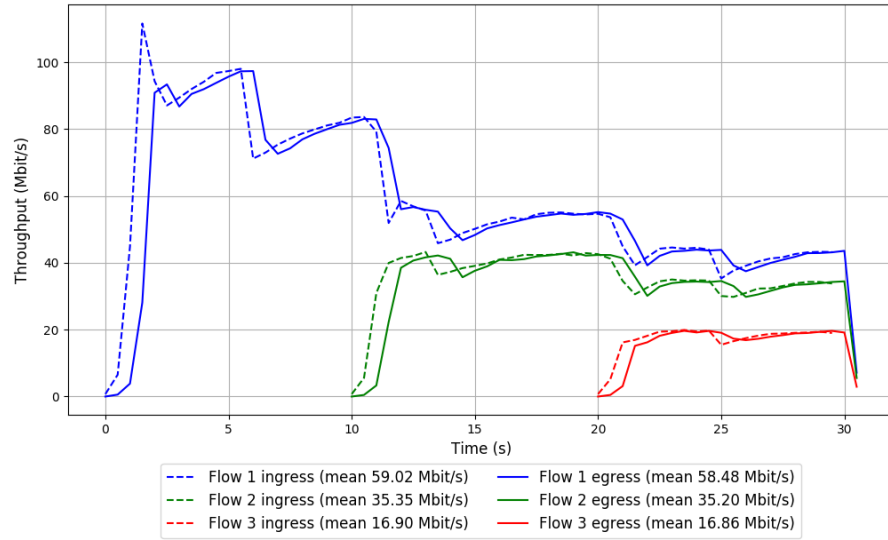## Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 65.05 Mbit/s) --- Flow 1 egress (mean 64.53 Mbit/s)
Flow 2 ingress (mean 19.08 Mbit/s) --- Flow 2 egress (mean 19.05 Mbit/s)
Flow 3 ingress (mean 29.23 Mbit/s) --- Flow 3 egress (mean 29.08 Mbit/s)

Flow 1 (95th percentile 105.46 ms)   Flow 2 (95th percentile 107.94 ms)   Flow 3 (95th percentile 111.78 ms)

```
Run 3: Statistics of TCP Cubic

Start at: 2018-12-11 13:07:53
End at: 2018-12-11 13:08:23
Local clock offset: -4.741 ms
Remote clock offset: 82.654 ms


# Below is generated by plot.py at 2018-12-11 14:20:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.90 Mbit/s
95th percentile per-packet one-way delay: 110.037 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 74.02 Mbit/s
95th percentile per-packet one-way delay: 110.093 ms
Loss rate: 0.67%
-- Flow 2:
Average throughput: 16.14 Mbit/s
95th percentile per-packet one-way delay: 111.104 ms
Loss rate: 0.17%
-- Flow 3:
Average throughput: 18.42 Mbit/s
95th percentile per-packet one-way delay: 105.417 ms
Loss rate: 0.12%
```

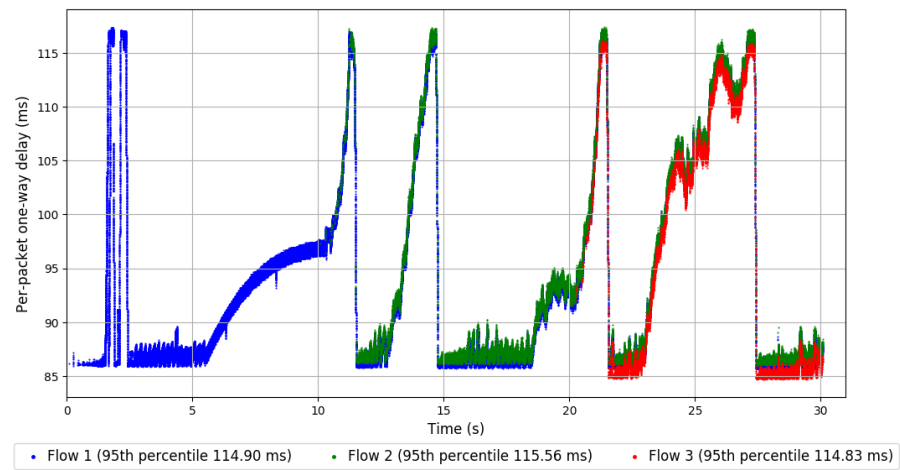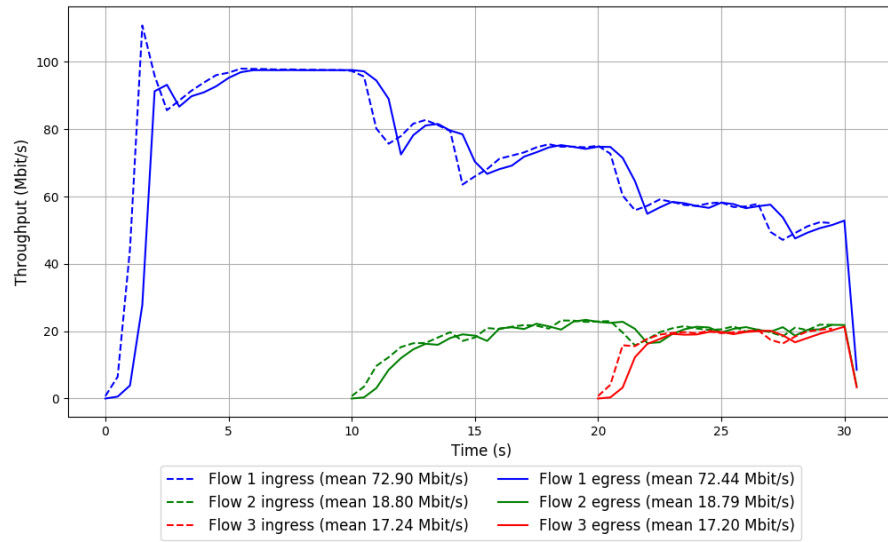Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 74.58 Mbit/s) --- Flow 1 egress (mean 74.02 Mbit/s)
Flow 2 ingress (mean 16.17 Mbit/s) --- Flow 2 egress (mean 16.14 Mbit/s)
Flow 3 ingress (mean 18.48 Mbit/s) --- Flow 3 egress (mean 18.42 Mbit/s)

Flow 1 (95th percentile 110.09 ms) • Flow 2 (95th percentile 111.10 ms) • Flow 3 (95th percentile 105.42 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2018-12-11 13:32:00
End at: 2018-12-11 13:32:30
Local clock offset: -2.925 ms
Remote clock offset: 100.941 ms


# Below is generated by plot.py at 2018-12-11 14:20:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.53 Mbit/s
95th percentile per-packet one-way delay: 115.277 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 58.48 Mbit/s
95th percentile per-packet one-way delay: 114.194 ms
Loss rate: 0.92%
-- Flow 2:
Average throughput: 35.20 Mbit/s
95th percentile per-packet one-way delay: 117.464 ms
Loss rate: 0.42%
-- Flow 3:
Average throughput: 16.86 Mbit/s
95th percentile per-packet one-way delay: 115.678 ms
Loss rate: 0.23%
```

# Run 4: Report of TCP Cubic — Data Link

- - - Flow 1 ingress (mean 59.02 Mbit/s) —— Flow 1 egress (mean 58.48 Mbit/s)
- - - Flow 2 ingress (mean 35.35 Mbit/s) —— Flow 2 egress (mean 35.20 Mbit/s)
- - - Flow 3 ingress (mean 16.90 Mbit/s) —— Flow 3 egress (mean 16.86 Mbit/s)

- Flow 1 (95th percentile 114.19 ms)   - Flow 2 (95th percentile 117.46 ms)   - Flow 3 (95th percentile 115.68 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2018-12-11 13:56:16
End at: 2018-12-11 13:56:46
Local clock offset: -3.125 ms
Remote clock offset: 115.666 ms


# Below is generated by plot.py at 2018-12-11 14:20:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.67 Mbit/s
95th percentile per-packet one-way delay: 115.003 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 72.44 Mbit/s
95th percentile per-packet one-way delay: 114.897 ms
Loss rate: 0.64%
-- Flow 2:
Average throughput: 18.79 Mbit/s
95th percentile per-packet one-way delay: 115.561 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 17.20 Mbit/s
95th percentile per-packet one-way delay: 114.832 ms
Loss rate: 0.29%
```

Run 5: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 72.90 Mbit/s)   Flow 1 egress (mean 72.44 Mbit/s)
Flow 2 ingress (mean 18.80 Mbit/s)   Flow 2 egress (mean 18.79 Mbit/s)
Flow 3 ingress (mean 17.24 Mbit/s)   Flow 3 egress (mean 17.20 Mbit/s)

Flow 1 (95th percentile 114.90 ms)   Flow 2 (95th percentile 115.56 ms)   Flow 3 (95th percentile 114.83 ms)
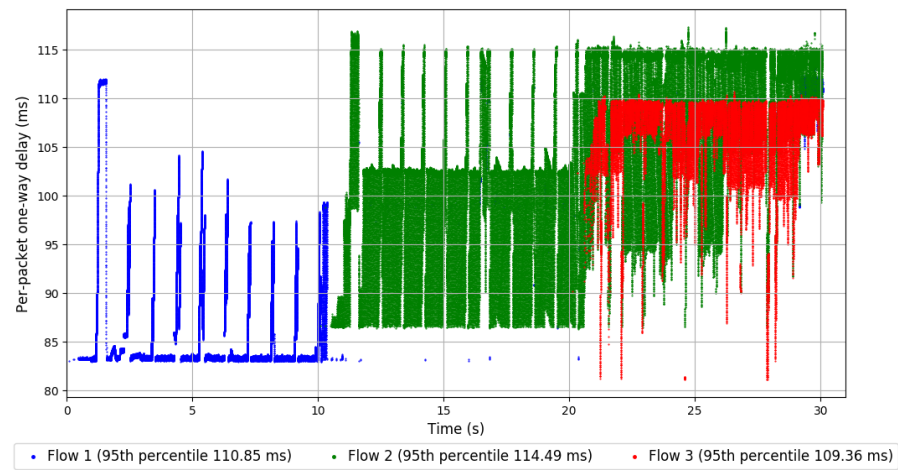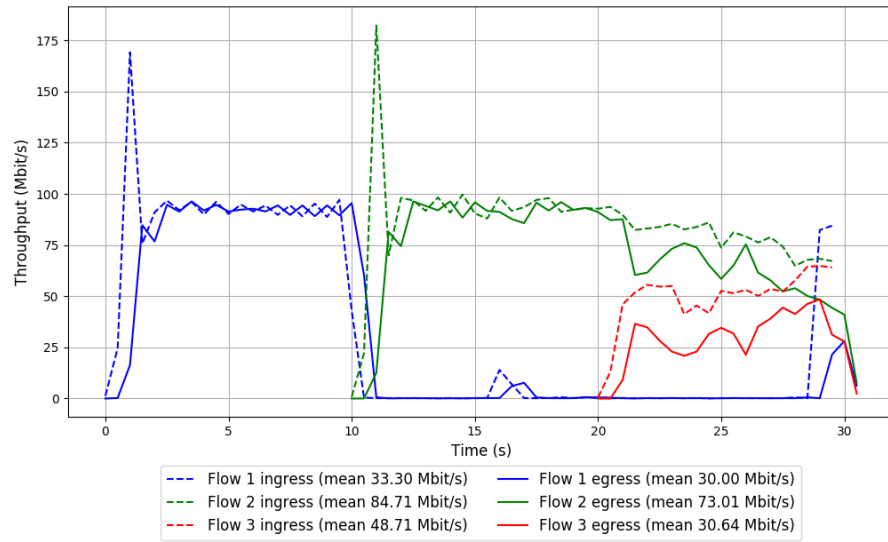
34

```
Run 1: Statistics of FillP

Start at: 2018-12-11 12:21:59
End at: 2018-12-11 12:22:29
Local clock offset: -3.251 ms
Remote clock offset: 58.853 ms


# Below is generated by plot.py at 2018-12-11 14:21:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.22 Mbit/s
95th percentile per-packet one-way delay: 112.564 ms
Loss rate: 24.01%
-- Flow 1:
Average throughput: 56.17 Mbit/s
95th percentile per-packet one-way delay: 112.511 ms
Loss rate: 18.33%
-- Flow 2:
Average throughput: 36.21 Mbit/s
95th percentile per-packet one-way delay: 112.106 ms
Loss rate: 35.03%
-- Flow 3:
Average throughput: 30.06 Mbit/s
95th percentile per-packet one-way delay: 113.706 ms
Loss rate: 22.62%
```
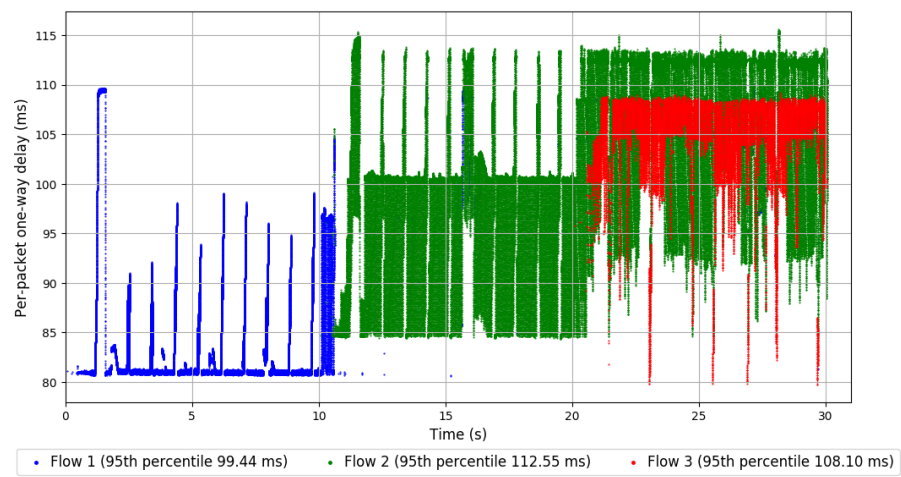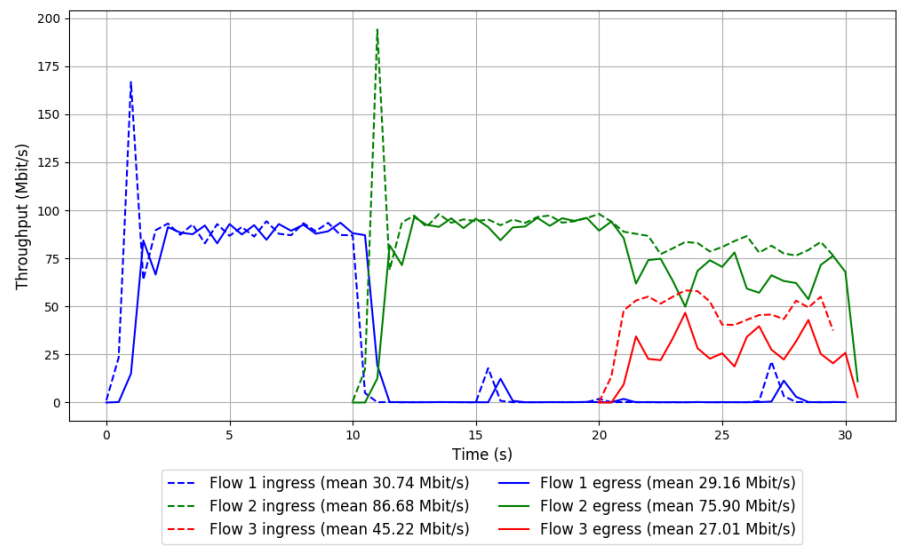
Run 1: Report of FillP — Data Link
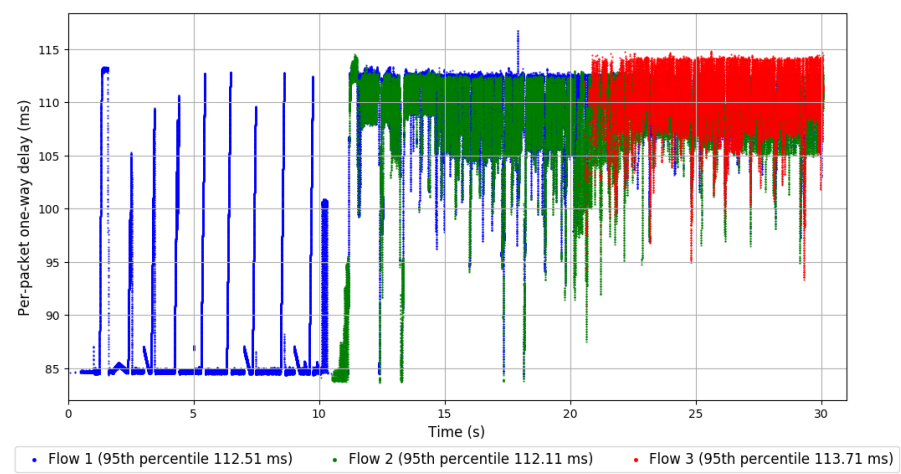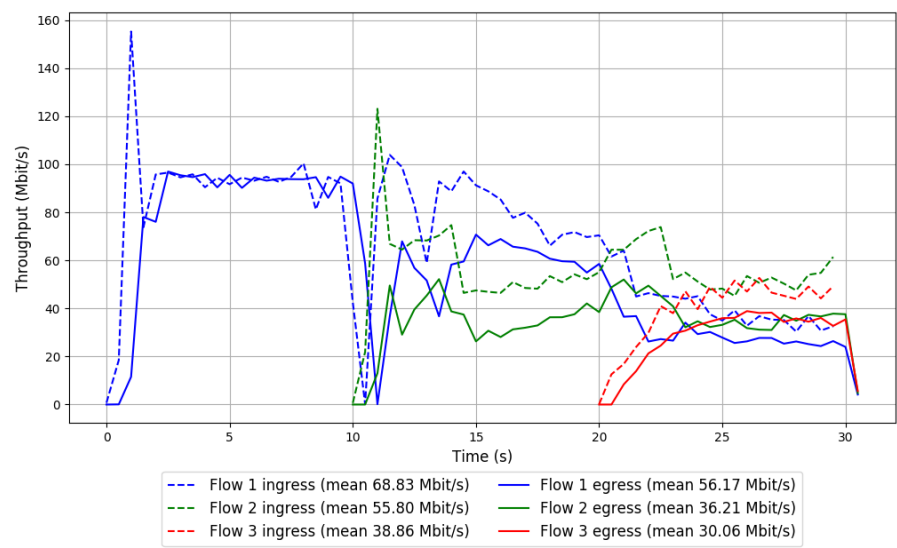
```
Run 2: Statistics of FillP

Start at: 2018-12-11 12:46:07
End at: 2018-12-11 12:46:37
Local clock offset: -3.972 ms
Remote clock offset: 69.392 ms


# Below is generated by plot.py at 2018-12-11 14:21:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.58 Mbit/s
95th percentile per-packet one-way delay: 107.798 ms
Loss rate: 11.95%
-- Flow 1:
Average throughput: 28.95 Mbit/s
95th percentile per-packet one-way delay: 115.326 ms
Loss rate: 5.62%
-- Flow 2:
Average throughput: 71.66 Mbit/s
95th percentile per-packet one-way delay: 107.559 ms
Loss rate: 10.34%
-- Flow 3:
Average throughput: 29.85 Mbit/s
95th percentile per-packet one-way delay: 107.862 ms
Loss rate: 31.33%
```

Run 2: Report of FillP — Data Link

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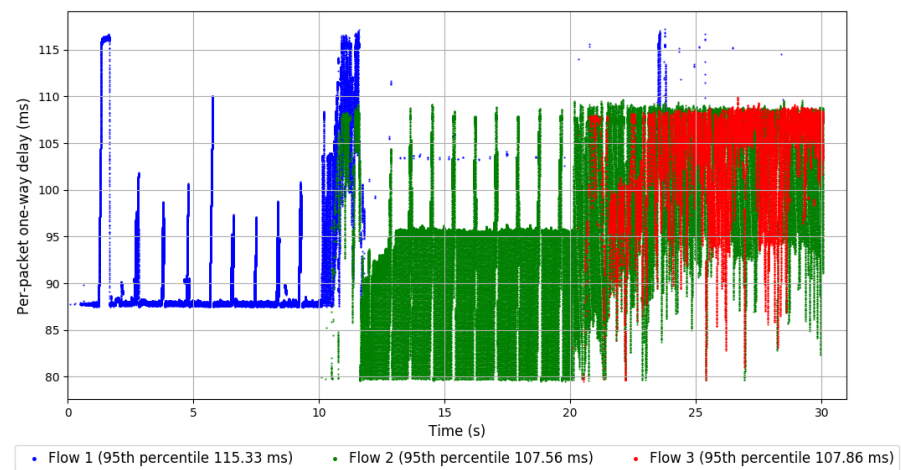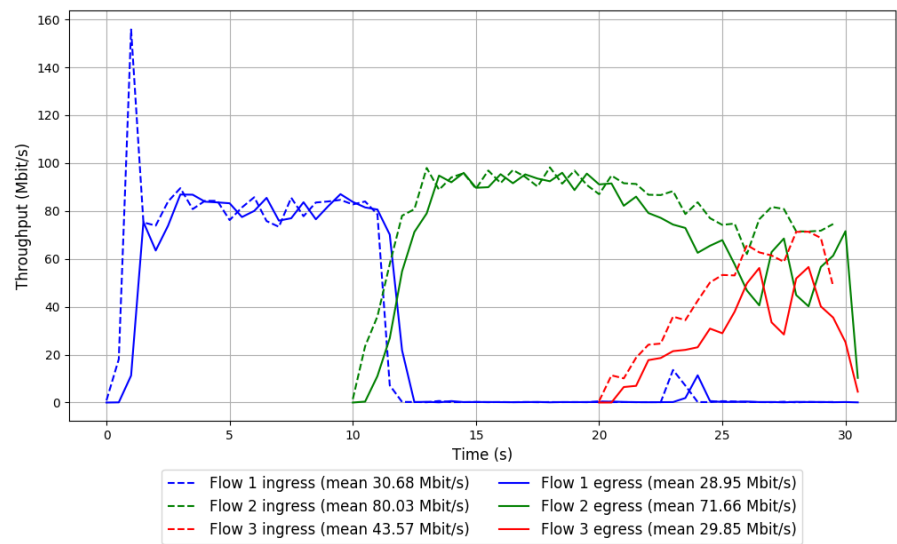
```
Run 3: Statistics of FillP

Start at: 2018-12-11 13:10:28
End at: 2018-12-11 13:10:58
Local clock offset: -4.324 ms
Remote clock offset: 82.898 ms


# Below is generated by plot.py at 2018-12-11 14:21:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.78 Mbit/s
95th percentile per-packet one-way delay: 114.242 ms
Loss rate: 16.04%
-- Flow 1:
Average throughput: 30.00 Mbit/s
95th percentile per-packet one-way delay: 110.854 ms
Loss rate: 9.85%
-- Flow 2:
Average throughput: 73.01 Mbit/s
95th percentile per-packet one-way delay: 114.487 ms
Loss rate: 13.69%
-- Flow 3:
Average throughput: 30.64 Mbit/s
95th percentile per-packet one-way delay: 109.364 ms
Loss rate: 36.97%
```

Run 3: Report of FillP — Data Link

```
Run 4: Statistics of FillP

Start at: 2018-12-11 13:34:34
End at: 2018-12-11 13:35:04
Local clock offset: -2.862 ms
Remote clock offset: 97.548 ms


# Below is generated by plot.py at 2018-12-11 14:21:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.55 Mbit/s
95th percentile per-packet one-way delay: 112.347 ms
Loss rate: 14.23%
-- Flow 1:
Average throughput: 29.16 Mbit/s
95th percentile per-packet one-way delay: 99.441 ms
Loss rate: 5.07%
-- Flow 2:
Average throughput: 75.90 Mbit/s
95th percentile per-packet one-way delay: 112.552 ms
Loss rate: 12.34%
-- Flow 3:
Average throughput: 27.01 Mbit/s
95th percentile per-packet one-way delay: 108.104 ms
Loss rate: 40.24%
```
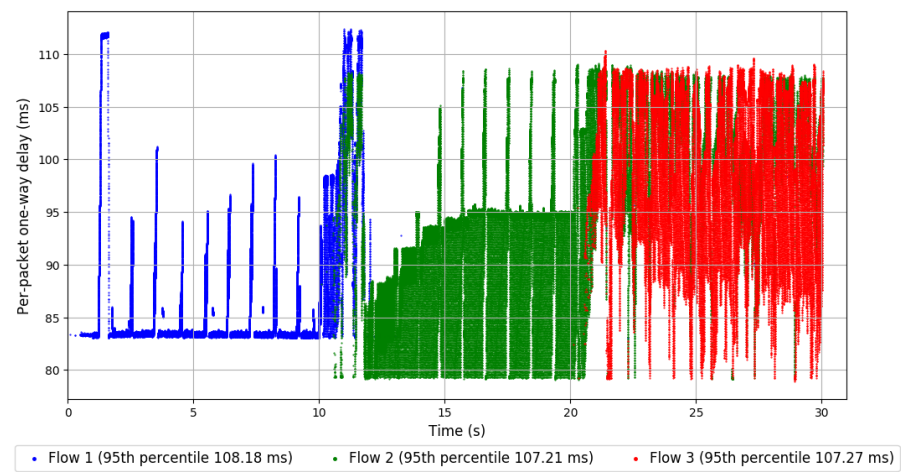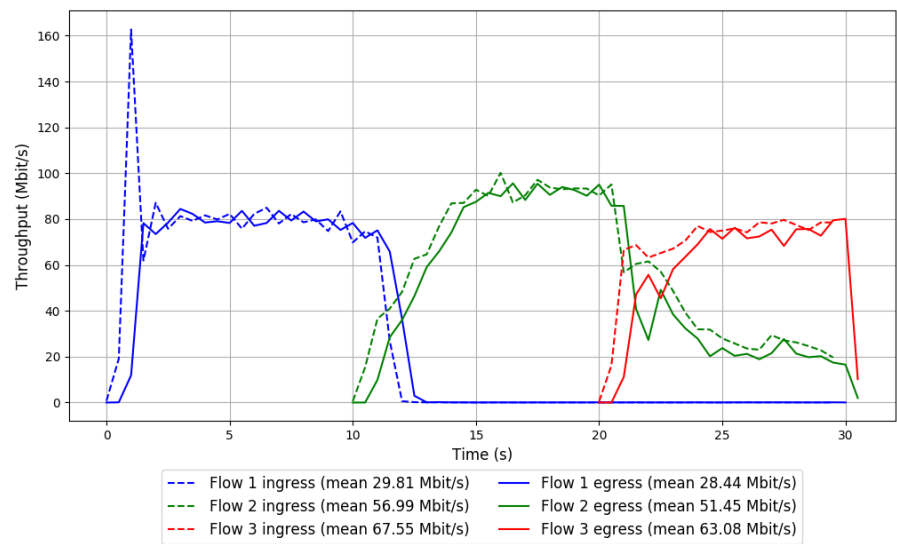
Run 4: Report of FillP — Data Link

Flow 1 ingress (mean 30.74 Mbit/s)   Flow 1 egress (mean 29.16 Mbit/s)
Flow 2 ingress (mean 86.68 Mbit/s)   Flow 2 egress (mean 75.90 Mbit/s)
Flow 3 ingress (mean 45.22 Mbit/s)   Flow 3 egress (mean 27.01 Mbit/s)

Flow 1 (95th percentile 99.44 ms)   Flow 2 (95th percentile 112.55 ms)   Flow 3 (95th percentile 108.10 ms)
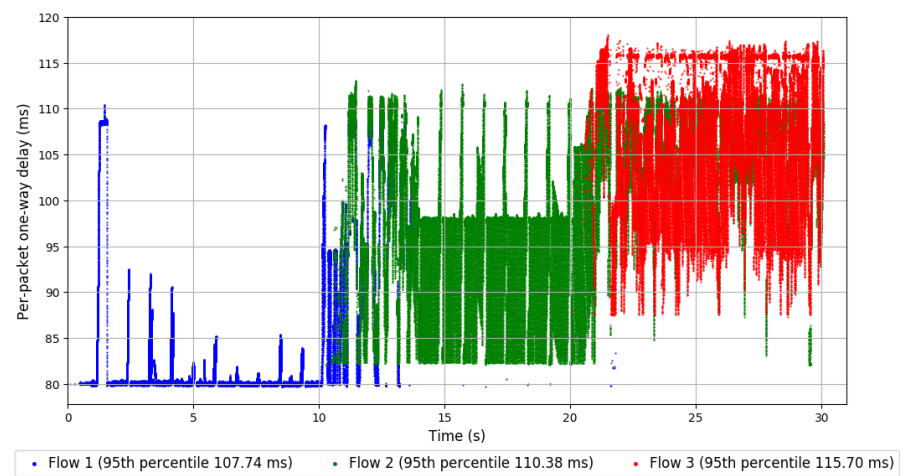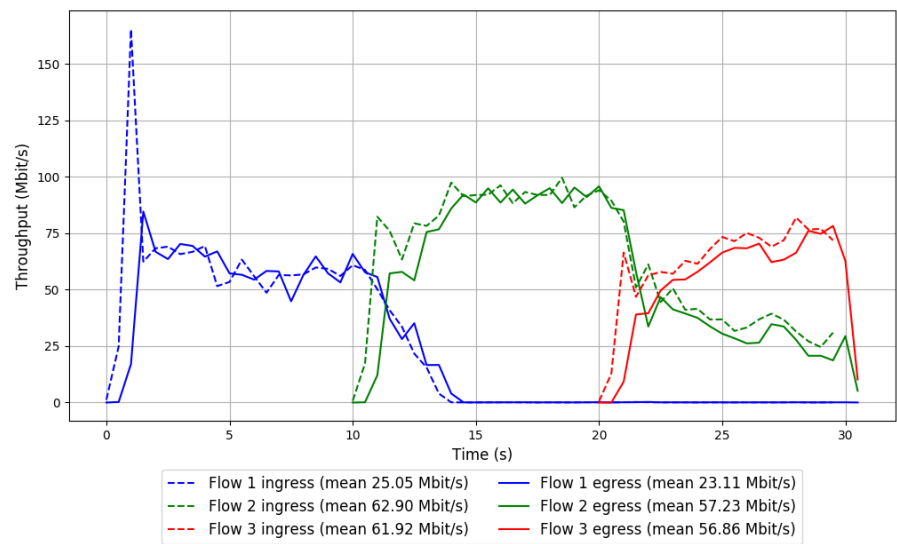
42

```
Run 5: Statistics of FillP

Start at: 2018-12-11 13:58:51
End at: 2018-12-11 13:59:21
Local clock offset: -3.147 ms
Remote clock offset: 112.28 ms


# Below is generated by plot.py at 2018-12-11 14:21:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.77 Mbit/s
95th percentile per-packet one-way delay: 108.731 ms
Loss rate: 9.73%
-- Flow 1:
Average throughput: 29.21 Mbit/s
95th percentile per-packet one-way delay: 102.961 ms
Loss rate: 4.88%
-- Flow 2:
Average throughput: 78.84 Mbit/s
95th percentile per-packet one-way delay: 108.817 ms
Loss rate: 10.55%
-- Flow 3:
Average throughput: 21.53 Mbit/s
95th percentile per-packet one-way delay: 106.795 ms
Loss rate: 20.83%
```
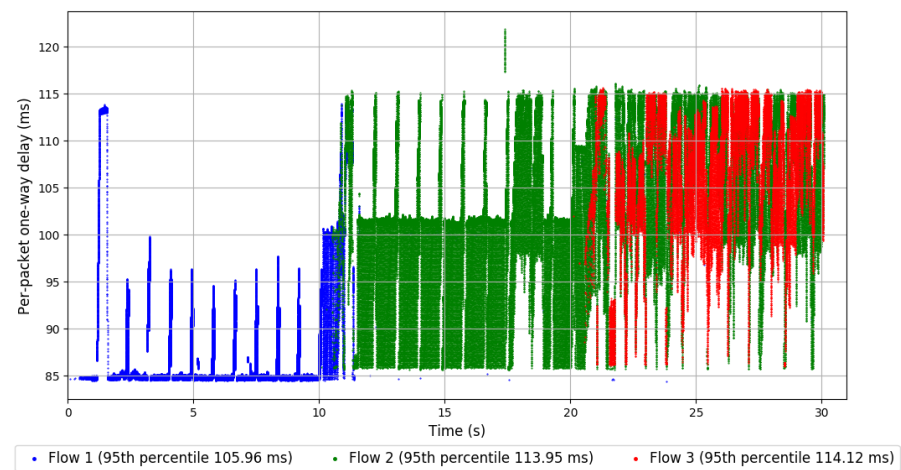
Run 5: Report of FillP — Data Link

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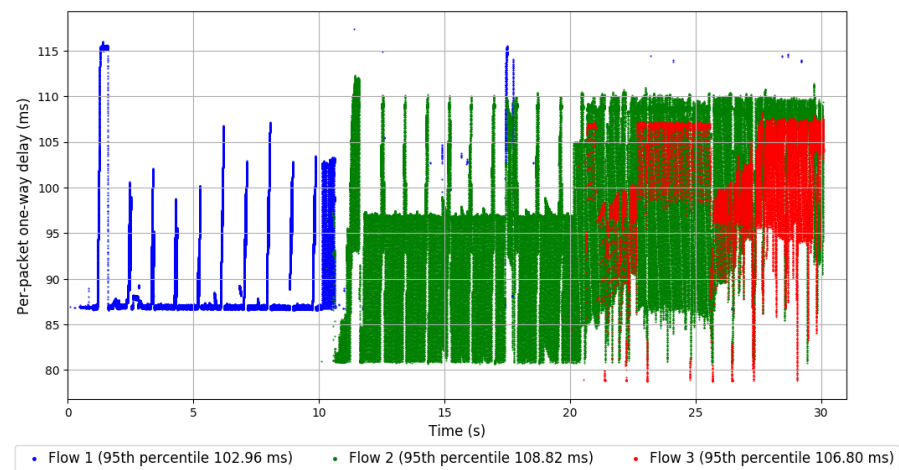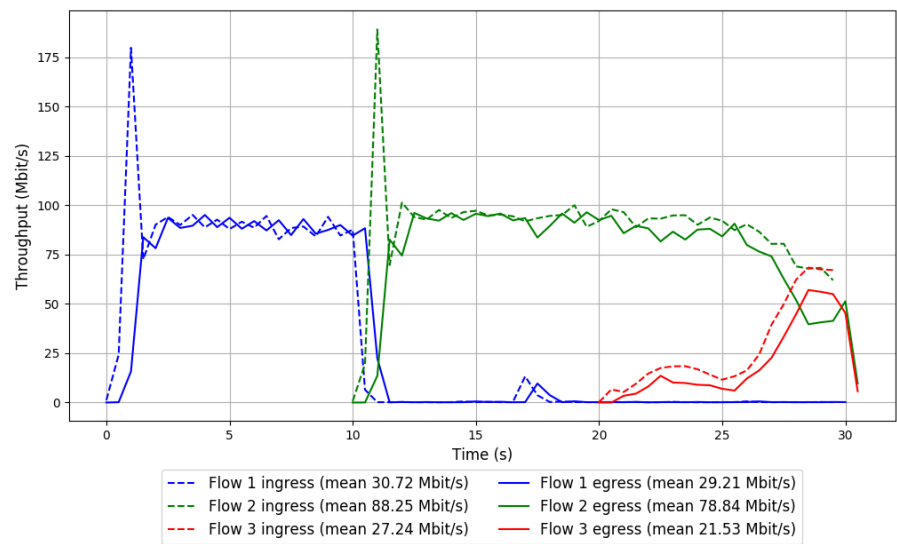
```
Run 1: Statistics of FillP-Sheep

Start at: 2018-12-11 12:20:42
End at: 2018-12-11 12:21:12
Local clock offset: -3.235 ms
Remote clock offset: 53.098 ms


# Below is generated by plot.py at 2018-12-11 14:21:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.49 Mbit/s
95th percentile per-packet one-way delay: 107.256 ms
Loss rate: 7.16%
-- Flow 1:
Average throughput: 28.44 Mbit/s
95th percentile per-packet one-way delay: 108.177 ms
Loss rate: 4.54%
-- Flow 2:
Average throughput: 51.45 Mbit/s
95th percentile per-packet one-way delay: 107.208 ms
Loss rate: 9.67%
-- Flow 3:
Average throughput: 63.08 Mbit/s
95th percentile per-packet one-way delay: 107.268 ms
Loss rate: 6.39%
```

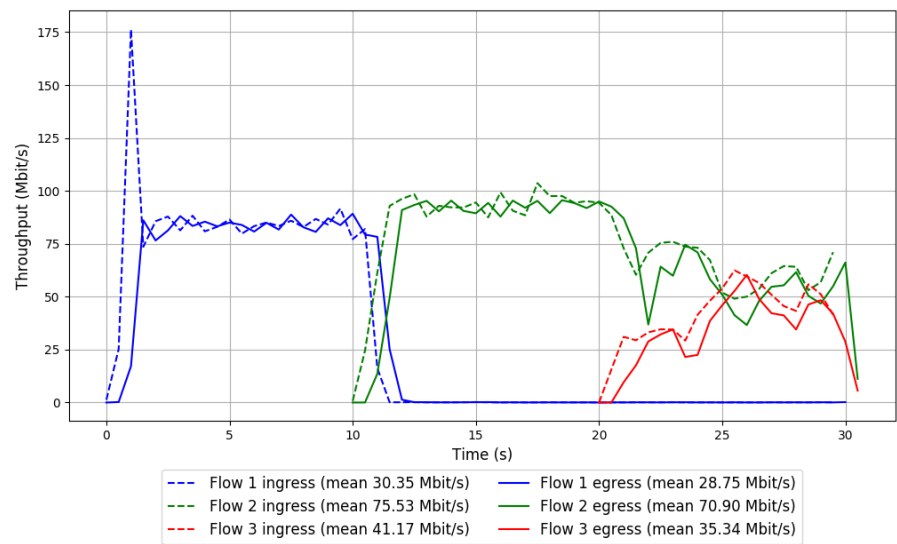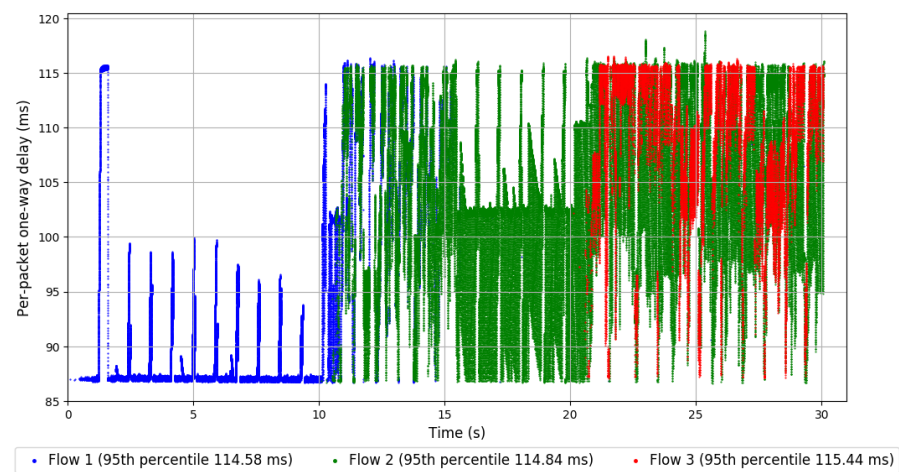Run 1: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 29.81 Mbit/s) --- Flow 1 egress (mean 28.44 Mbit/s)
Flow 2 ingress (mean 56.99 Mbit/s) --- Flow 2 egress (mean 51.45 Mbit/s)
Flow 3 ingress (mean 67.55 Mbit/s) --- Flow 3 egress (mean 63.08 Mbit/s)

Flow 1 (95th percentile 108.18 ms)   Flow 2 (95th percentile 107.21 ms)   Flow 3 (95th percentile 107.27 ms)

```
Run 2: Statistics of FillP-Sheep

Start at: 2018-12-11 12:44:51
End at: 2018-12-11 12:45:21
Local clock offset: -3.92 ms
Remote clock offset: 68.687 ms


# Below is generated by plot.py at 2018-12-11 14:21:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 80.09 Mbit/s
95th percentile per-packet one-way delay: 112.427 ms
Loss rate: 8.32%
-- Flow 1:
Average throughput: 23.11 Mbit/s
95th percentile per-packet one-way delay: 107.743 ms
Loss rate: 7.65%
-- Flow 2:
Average throughput: 57.23 Mbit/s
95th percentile per-packet one-way delay: 110.375 ms
Loss rate: 8.92%
-- Flow 3:
Average throughput: 56.86 Mbit/s
95th percentile per-packet one-way delay: 115.701 ms
Loss rate: 7.92%
```

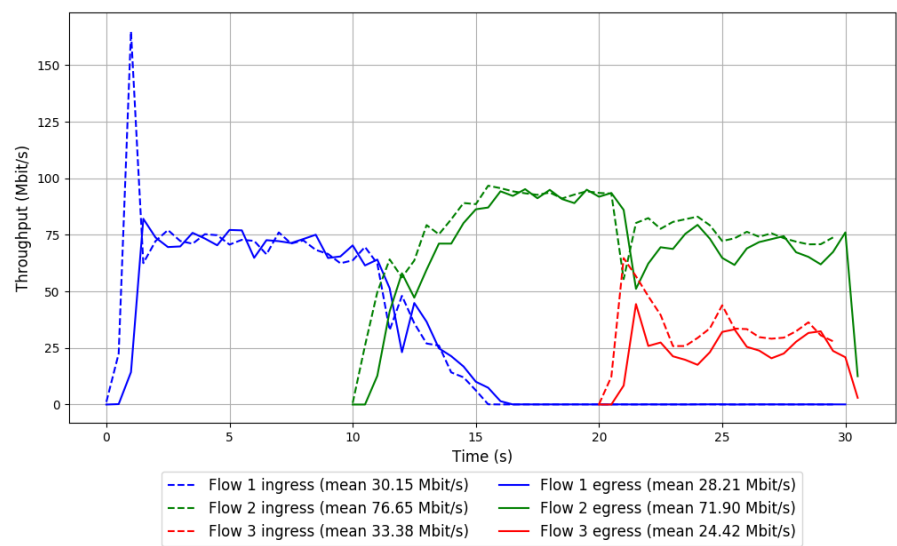Run 2: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 25.05 Mbit/s) --- Flow 1 egress (mean 23.11 Mbit/s)
Flow 2 ingress (mean 62.90 Mbit/s) --- Flow 2 egress (mean 57.23 Mbit/s)
Flow 3 ingress (mean 61.92 Mbit/s) --- Flow 3 egress (mean 56.86 Mbit/s)

Flow 1 (95th percentile 107.74 ms)   Flow 2 (95th percentile 110.38 ms)   Flow 3 (95th percentile 115.70 ms)

```
Run 3: Statistics of FillP-Sheep

Start at: 2018-12-11 13:09:11
End at: 2018-12-11 13:09:41
Local clock offset: -4.639 ms
Remote clock offset: 87.136 ms


# Below is generated by plot.py at 2018-12-11 14:21:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.57 Mbit/s
95th percentile per-packet one-way delay: 113.711 ms
Loss rate: 6.93%
-- Flow 1:
Average throughput: 28.75 Mbit/s
95th percentile per-packet one-way delay: 105.960 ms
Loss rate: 5.19%
-- Flow 2:
Average throughput: 70.90 Mbit/s
95th percentile per-packet one-way delay: 113.952 ms
Loss rate: 6.01%
-- Flow 3:
Average throughput: 35.34 Mbit/s
95th percentile per-packet one-way delay: 114.119 ms
Loss rate: 14.14%
```

## Run 3: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 30.35 Mbit/s) --- Flow 1 egress (mean 28.75 Mbit/s)
Flow 2 ingress (mean 75.53 Mbit/s) --- Flow 2 egress (mean 70.90 Mbit/s)
Flow 3 ingress (mean 41.17 Mbit/s) --- Flow 3 egress (mean 35.34 Mbit/s)

Flow 1 (95th percentile 105.96 ms) ・ Flow 2 (95th percentile 113.95 ms) ・ Flow 3 (95th percentile 114.12 ms)

```
Run 4: Statistics of FillP-Sheep

Start at: 2018-12-11 13:33:18
End at: 2018-12-11 13:33:48
Local clock offset: -2.888 ms
Remote clock offset: 102.824 ms


# Below is generated by plot.py at 2018-12-11 14:22:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.97 Mbit/s
95th percentile per-packet one-way delay: 114.889 ms
Loss rate: 8.66%
-- Flow 1:
Average throughput: 28.21 Mbit/s
95th percentile per-packet one-way delay: 114.578 ms
Loss rate: 6.37%
-- Flow 2:
Average throughput: 71.90 Mbit/s
95th percentile per-packet one-way delay: 114.845 ms
Loss rate: 6.07%
-- Flow 3:
Average throughput: 24.42 Mbit/s
95th percentile per-packet one-way delay: 115.437 ms
Loss rate: 26.82%
```

Run 4: Report of FillP-Sheep — Data Link


Flow 1 ingress (mean 30.15 Mbit/s) — Flow 1 egress (mean 28.21 Mbit/s)
Flow 2 ingress (mean 76.65 Mbit/s) — Flow 2 egress (mean 71.90 Mbit/s)
Flow 3 ingress (mean 33.38 Mbit/s) — Flow 3 egress (mean 24.42 Mbit/s)

Flow 1 (95th percentile 114.58 ms)   Flow 2 (95th percentile 114.84 ms)   Flow 3 (95th percentile 115.44 ms)

```
Run 5: Statistics of FillP-Sheep

Start at: 2018-12-11 13:57:35
End at: 2018-12-11 13:58:05
Local clock offset: -3.147 ms
Remote clock offset: 112.648 ms


# Below is generated by plot.py at 2018-12-11 14:22:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 63.56 Mbit/s
95th percentile per-packet one-way delay: 108.282 ms
Loss rate: 9.53%
-- Flow 1:
Average throughput: 4.81 Mbit/s
95th percentile per-packet one-way delay: 111.191 ms
Loss rate: 28.37%
-- Flow 2:
Average throughput: 75.13 Mbit/s
95th percentile per-packet one-way delay: 108.157 ms
Loss rate: 7.66%
-- Flow 3:
Average throughput: 26.39 Mbit/s
95th percentile per-packet one-way delay: 107.609 ms
Loss rate: 6.97%
```

Run 5: Report of FillP-Sheep — Data Link
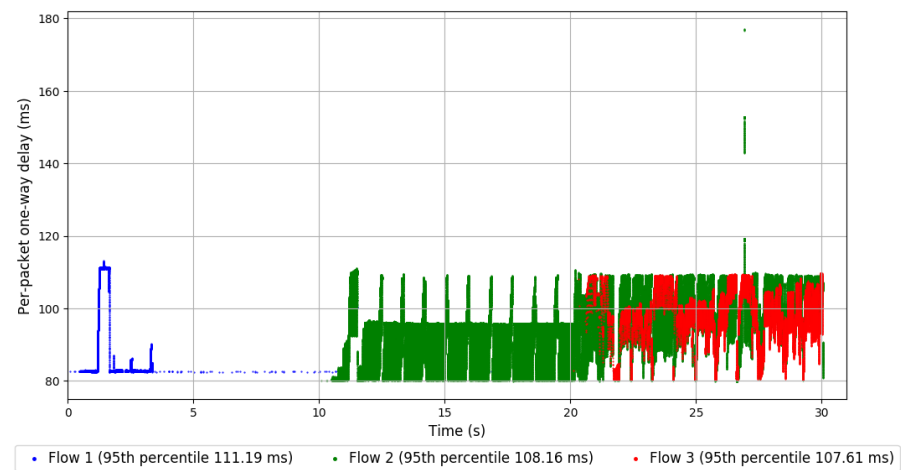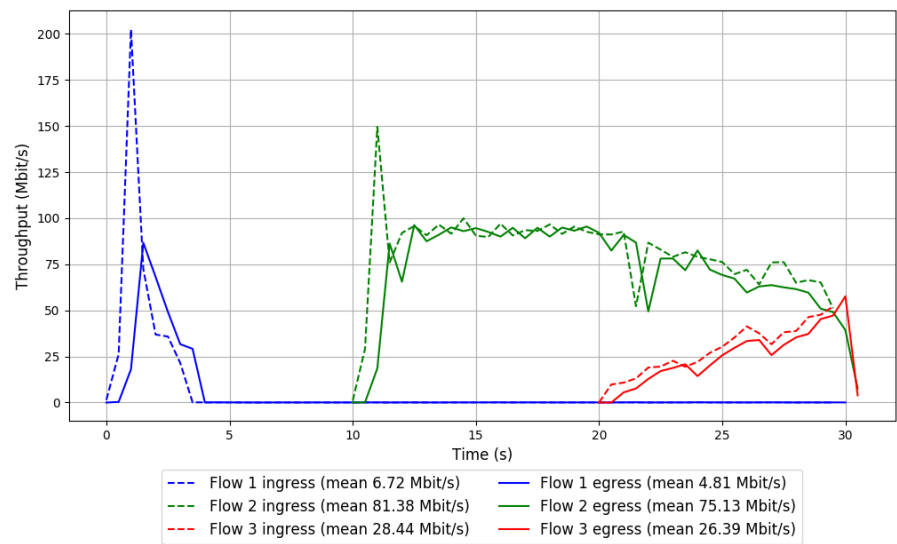
```
Run 1: Statistics of Indigo

Start at: 2018-12-11 12:34:41
End at: 2018-12-11 12:35:11
Local clock offset: -3.285 ms
Remote clock offset: 62.696 ms


# Below is generated by plot.py at 2018-12-11 14:22:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.66 Mbit/s
95th percentile per-packet one-way delay: 113.351 ms
Loss rate: 33.32%
-- Flow 1:
Average throughput: 62.42 Mbit/s
95th percentile per-packet one-way delay: 113.326 ms
Loss rate: 10.80%
-- Flow 2:
Average throughput: 27.85 Mbit/s
95th percentile per-packet one-way delay: 111.308 ms
Loss rate: 45.15%
-- Flow 3:
Average throughput: 33.04 Mbit/s
95th percentile per-packet one-way delay: 113.771 ms
Loss rate: 69.70%
```
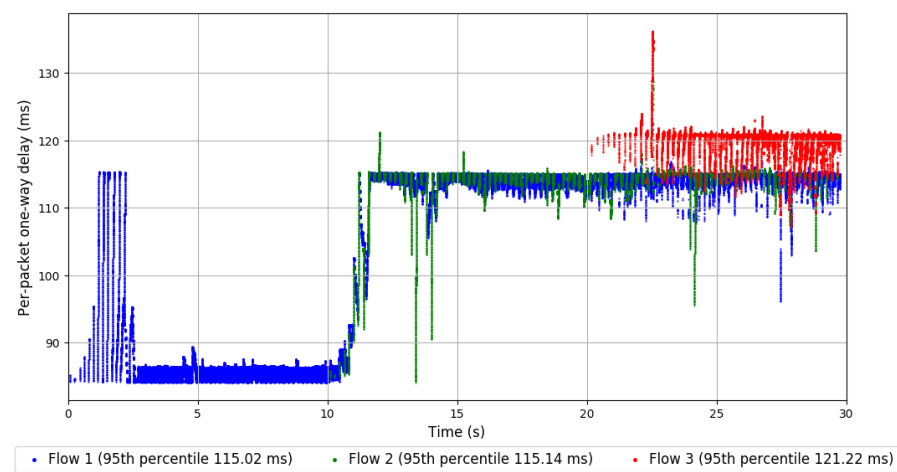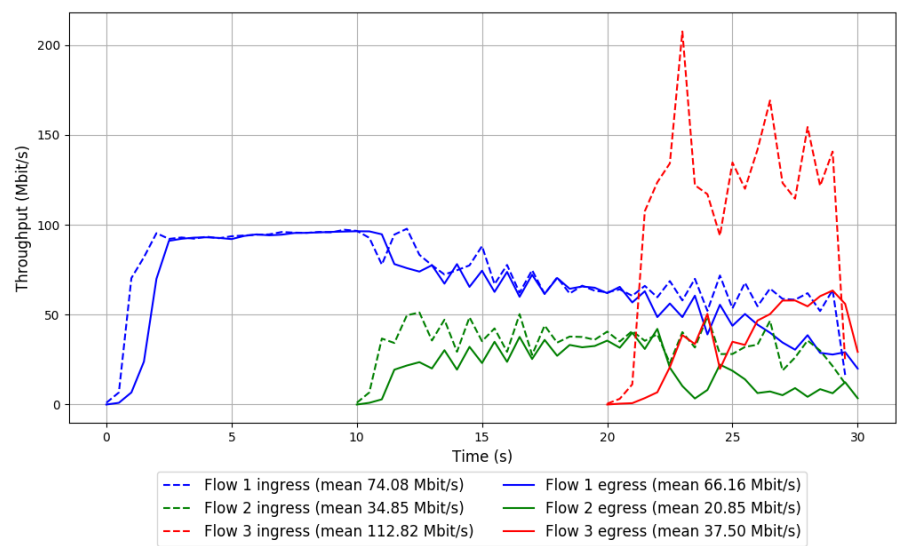
Run 1: Report of Indigo — Data Link
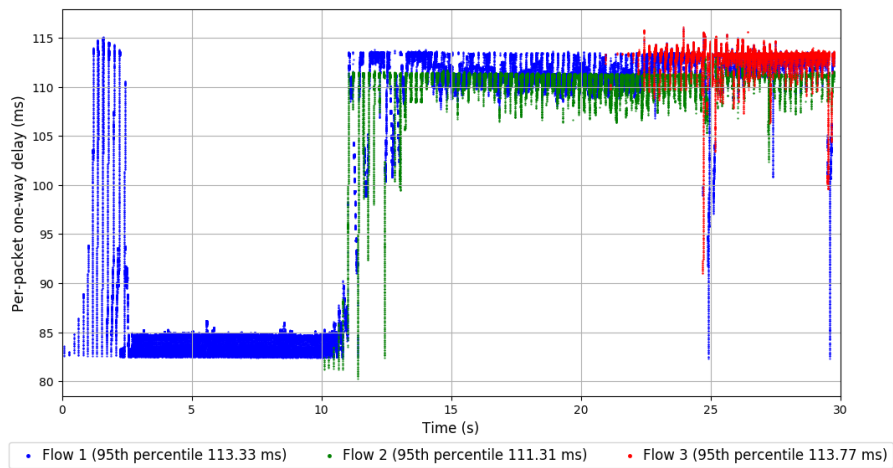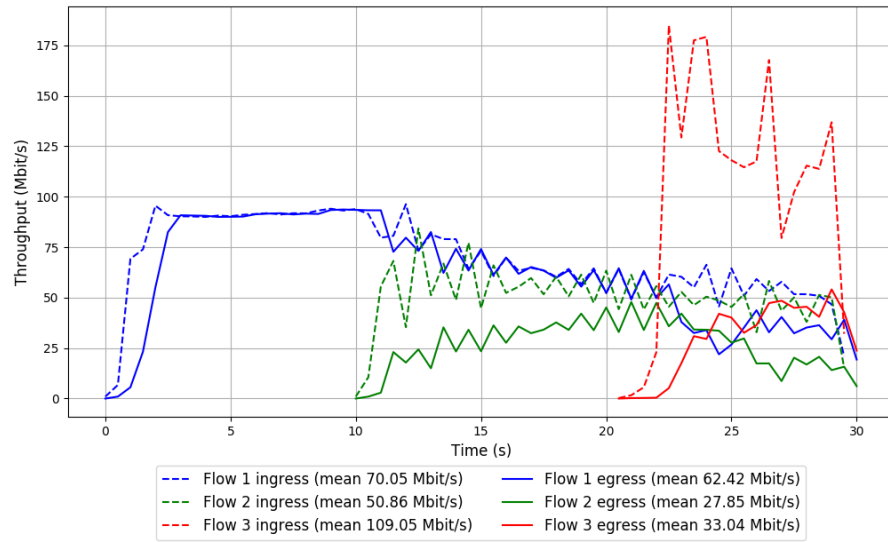
```
Run 2: Statistics of Indigo

Start at: 2018-12-11 12:59:03
End at: 2018-12-11 12:59:33
Local clock offset: -4.499 ms
Remote clock offset: 82.186 ms


# Below is generated by plot.py at 2018-12-11 14:22:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.25 Mbit/s
95th percentile per-packet one-way delay: 118.580 ms
Loss rate: 33.02%
-- Flow 1:
Average throughput: 64.37 Mbit/s
95th percentile per-packet one-way delay: 117.663 ms
Loss rate: 13.95%
-- Flow 2:
Average throughput: 28.48 Mbit/s
95th percentile per-packet one-way delay: 118.797 ms
Loss rate: 22.26%
-- Flow 3:
Average throughput: 28.24 Mbit/s
95th percentile per-packet one-way delay: 116.356 ms
Loss rate: 76.62%
```
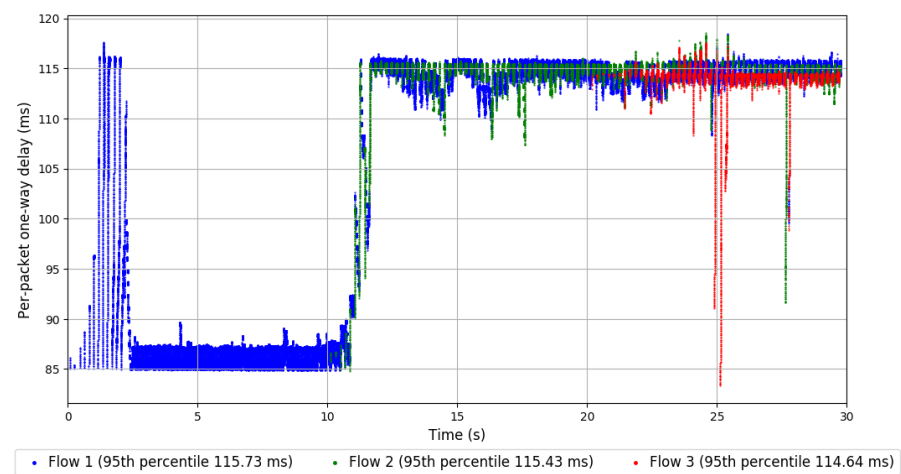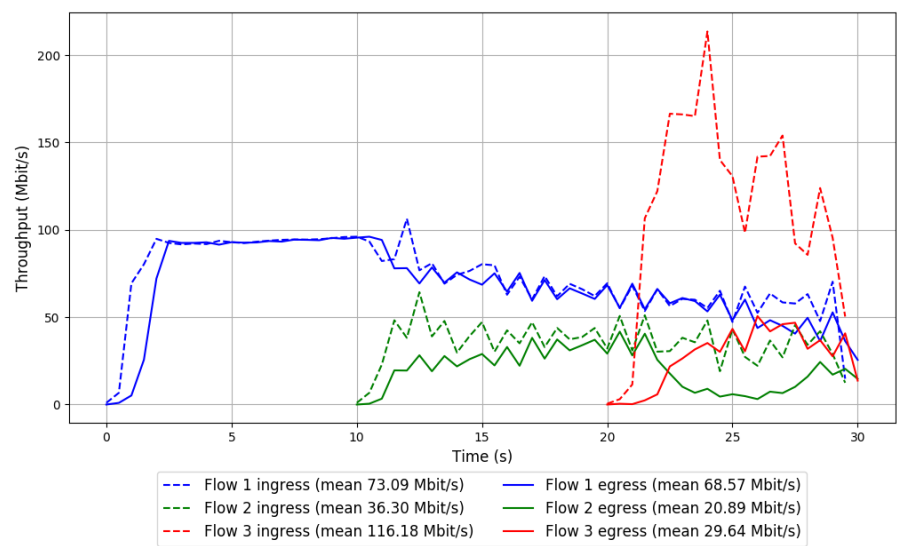
Run 2: Report of Indigo — Data Link
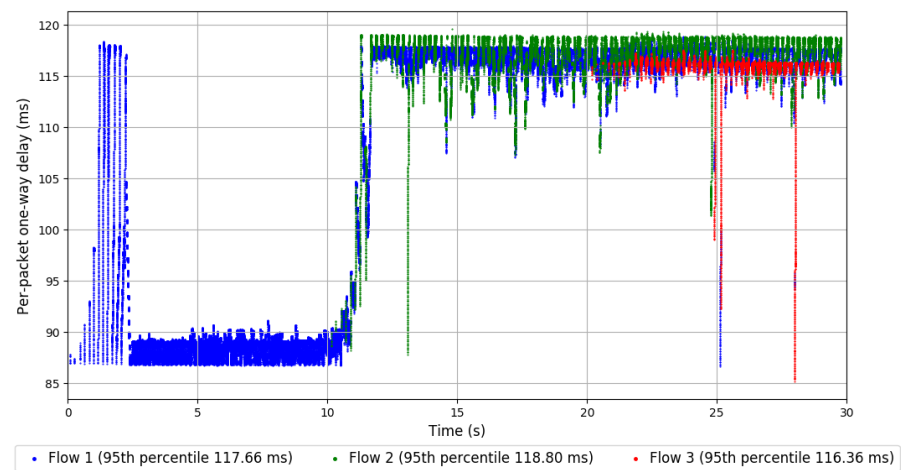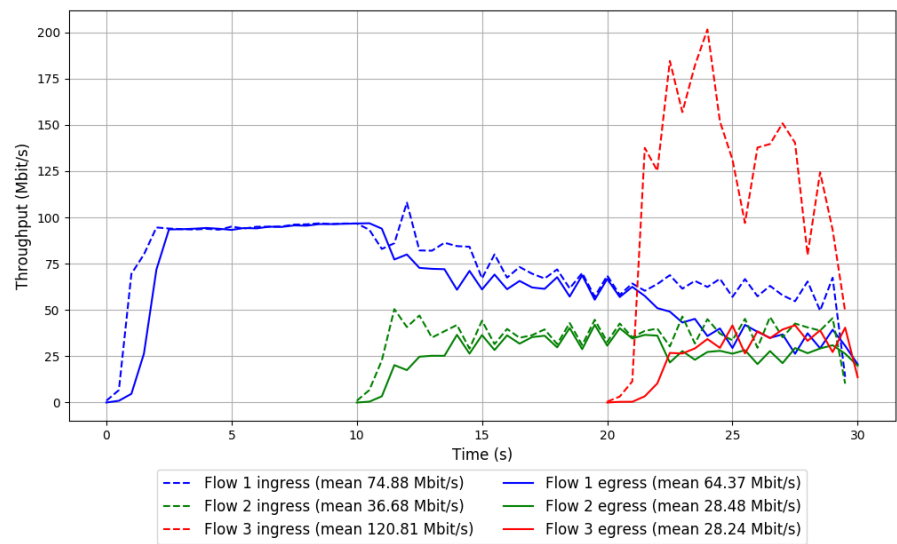
```
Run 3: Statistics of Indigo

Start at: 2018-12-11 13:23:09
End at: 2018-12-11 13:23:39
Local clock offset: -3.212 ms
Remote clock offset: 95.71 ms


# Below is generated by plot.py at 2018-12-11 14:22:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.02 Mbit/s
95th percentile per-packet one-way delay: 120.730 ms
Loss rate: 31.01%
-- Flow 1:
Average throughput: 66.16 Mbit/s
95th percentile per-packet one-way delay: 115.015 ms
Loss rate: 10.59%
-- Flow 2:
Average throughput: 20.85 Mbit/s
95th percentile per-packet one-way delay: 115.140 ms
Loss rate: 40.06%
-- Flow 3:
Average throughput: 37.50 Mbit/s
95th percentile per-packet one-way delay: 121.216 ms
Loss rate: 66.76%
```
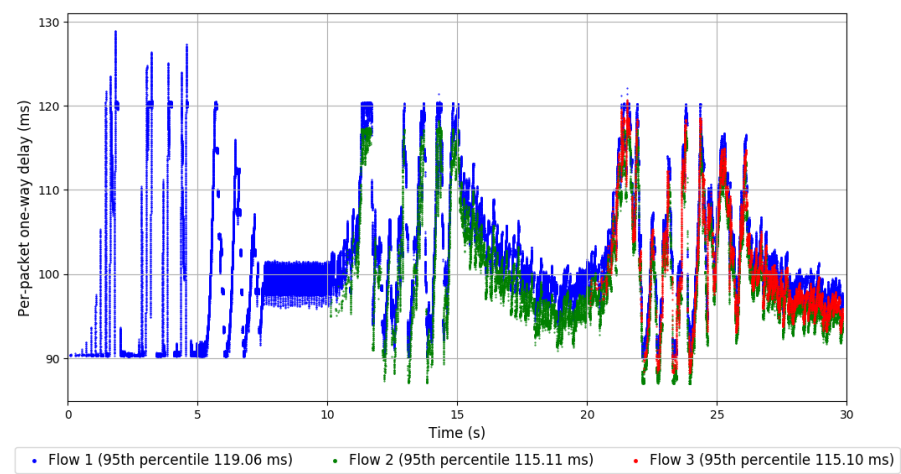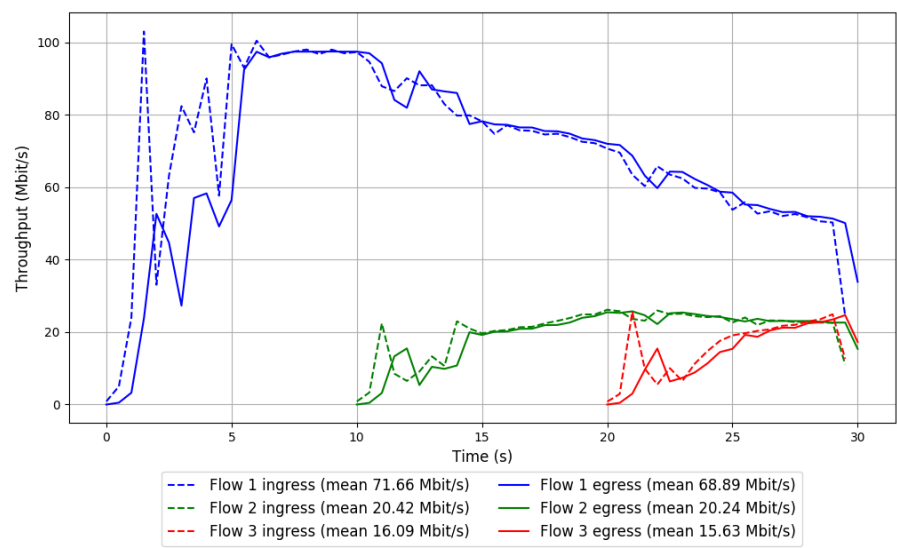
Run 3: Report of Indigo — Data Link

Flow 1 ingress (mean 74.08 Mbit/s) Flow 1 egress (mean 66.16 Mbit/s)
Flow 2 ingress (mean 34.85 Mbit/s) Flow 2 egress (mean 20.85 Mbit/s)
Flow 3 ingress (mean 112.82 Mbit/s) Flow 3 egress (mean 37.50 Mbit/s)

Flow 1 (95th percentile 115.02 ms) Flow 2 (95th percentile 115.14 ms) Flow 3 (95th percentile 121.22 ms)

```
Run 4: Statistics of Indigo

Start at: 2018-12-11 13:47:25
End at: 2018-12-11 13:47:55
Local clock offset: -3.054 ms
Remote clock offset: 106.38 ms


# Below is generated by plot.py at 2018-12-11 14:22:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.56 Mbit/s
95th percentile per-packet one-way delay: 115.917 ms
Loss rate: 22.64%
-- Flow 1:
Average throughput: 65.67 Mbit/s
95th percentile per-packet one-way delay: 111.873 ms
Loss rate: 8.98%
-- Flow 2:
Average throughput: 24.94 Mbit/s
95th percentile per-packet one-way delay: 111.304 ms
Loss rate: 29.85%
-- Flow 3:
Average throughput: 29.22 Mbit/s
95th percentile per-packet one-way delay: 116.665 ms
Loss rate: 58.50%
```

# Run 4: Report of Indigo — Data Link
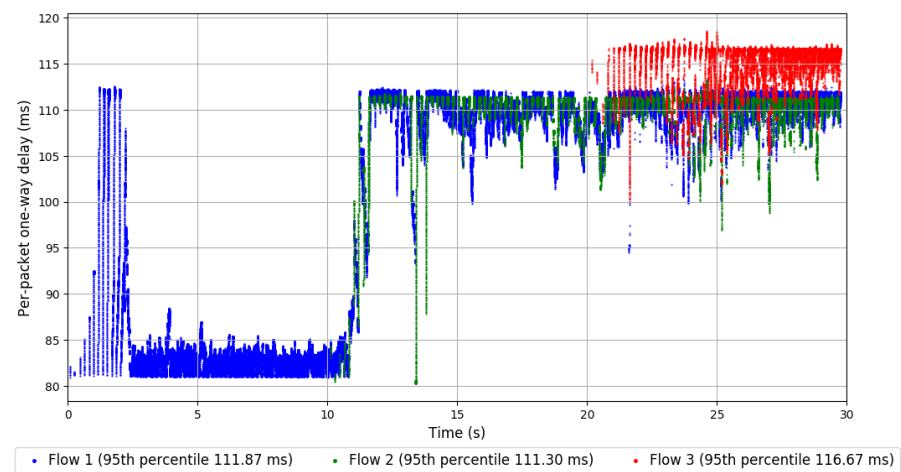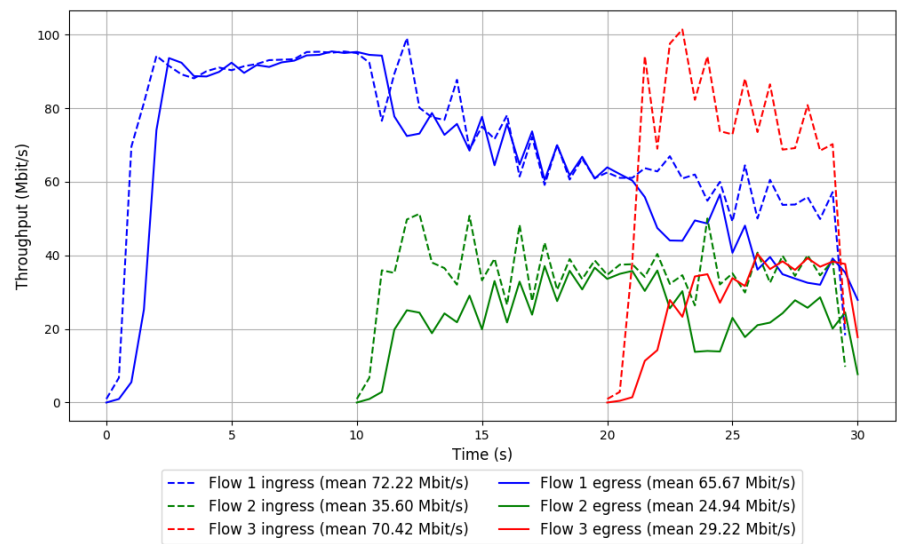
```
Run 5: Statistics of Indigo

Start at: 2018-12-11 14:11:34
End at: 2018-12-11 14:12:04
Local clock offset: -3.633 ms
Remote clock offset: 123.473 ms


# Below is generated by plot.py at 2018-12-11 14:22:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.87 Mbit/s
95th percentile per-packet one-way delay: 115.714 ms
Loss rate: 31.53%
-- Flow 1:
Average throughput: 68.57 Mbit/s
95th percentile per-packet one-way delay: 115.731 ms
Loss rate: 6.09%
-- Flow 2:
Average throughput: 20.89 Mbit/s
95th percentile per-packet one-way delay: 115.428 ms
Loss rate: 42.35%
-- Flow 3:
Average throughput: 29.64 Mbit/s
95th percentile per-packet one-way delay: 114.642 ms
Loss rate: 74.48%
```

Run 5: Report of Indigo — Data Link

Flow 1 ingress (mean 73.09 Mbit/s) --- Flow 1 egress (mean 68.57 Mbit/s) ---
Flow 2 ingress (mean 36.30 Mbit/s) --- Flow 2 egress (mean 20.89 Mbit/s) ---
Flow 3 ingress (mean 116.18 Mbit/s) --- Flow 3 egress (mean 29.64 Mbit/s) ---

Flow 1 (95th percentile 115.73 ms) · Flow 2 (95th percentile 115.43 ms) · Flow 3 (95th percentile 114.64 ms)
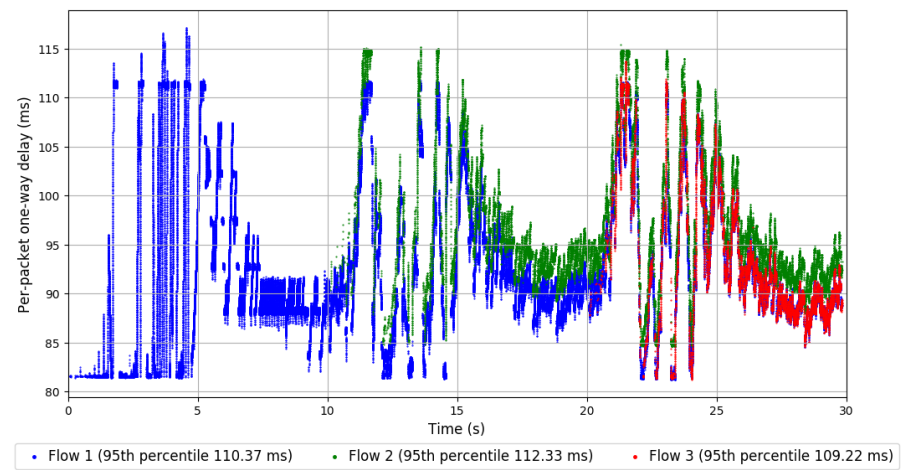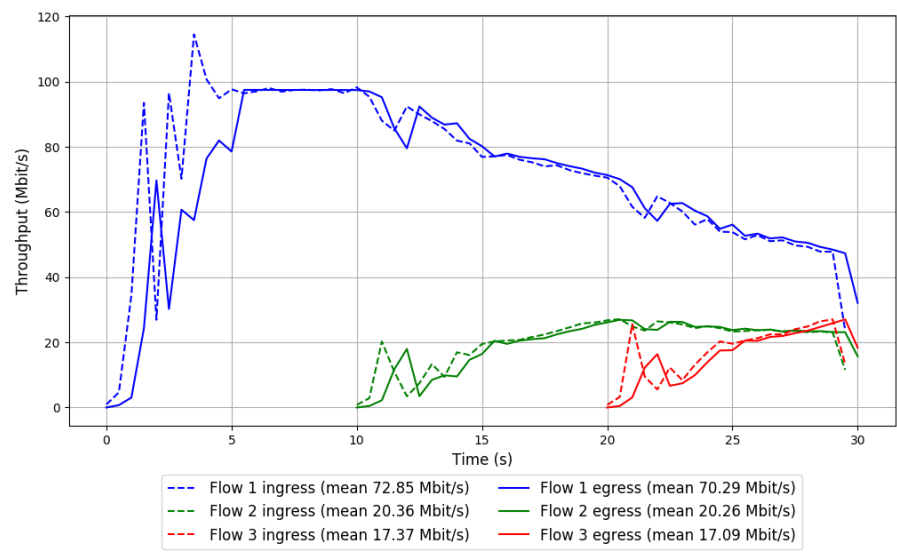
64

```
Run 1: Statistics of Indigo-MusesD

Start at: 2018-12-11 12:23:17
End at: 2018-12-11 12:23:47
Local clock offset: -3.245 ms
Remote clock offset: 59.874 ms


# Below is generated by plot.py at 2018-12-11 14:22:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.42 Mbit/s
95th percentile per-packet one-way delay: 118.018 ms
Loss rate: 3.35%
-- Flow 1:
Average throughput: 68.89 Mbit/s
95th percentile per-packet one-way delay: 119.061 ms
Loss rate: 3.85%
-- Flow 2:
Average throughput: 20.24 Mbit/s
95th percentile per-packet one-way delay: 115.106 ms
Loss rate: 0.90%
-- Flow 3:
Average throughput: 15.63 Mbit/s
95th percentile per-packet one-way delay: 115.102 ms
Loss rate: 2.85%
```

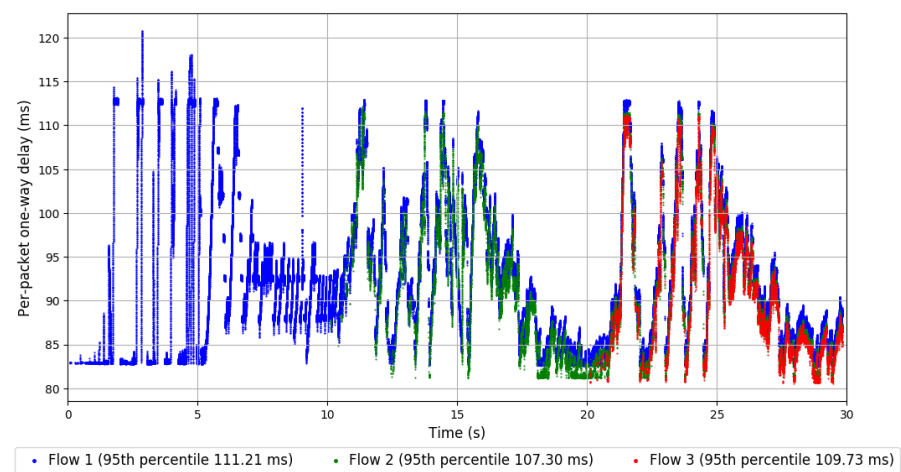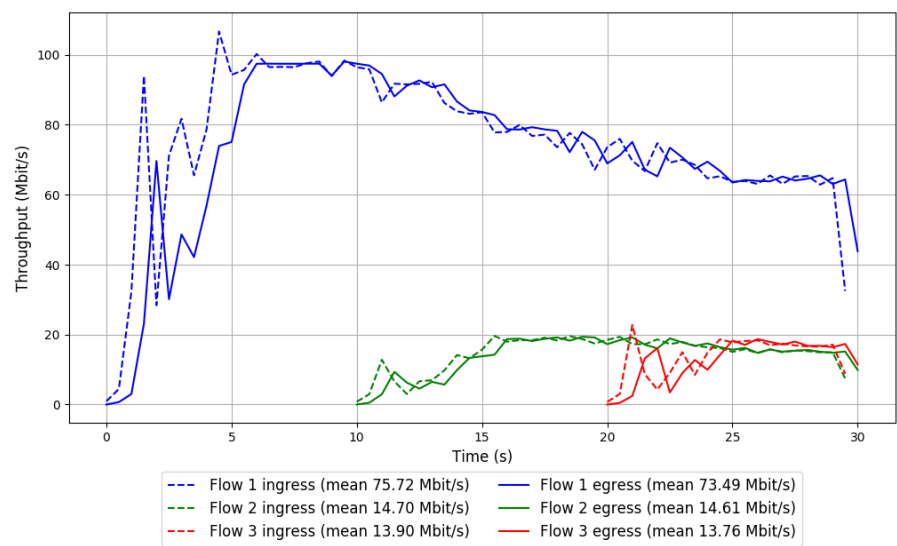Run 1: Report of Indigo-MusesD — Data Link

Flow 1 ingress (mean 71.66 Mbit/s) --- Flow 1 egress (mean 68.89 Mbit/s)
Flow 2 ingress (mean 20.42 Mbit/s) --- Flow 2 egress (mean 20.24 Mbit/s)
Flow 3 ingress (mean 16.09 Mbit/s) --- Flow 3 egress (mean 15.63 Mbit/s)

Flow 1 (95th percentile 119.06 ms) • Flow 2 (95th percentile 115.11 ms) • Flow 3 (95th percentile 115.10 ms)

```
Run 2: Statistics of Indigo-MusesD

Start at: 2018-12-11 12:47:27
End at: 2018-12-11 12:47:57
Local clock offset: -4.17 ms
Remote clock offset: 68.884 ms


# Below is generated by plot.py at 2018-12-11 14:22:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 56.31 Mbit/s
95th percentile per-packet one-way delay: 114.134 ms
Loss rate: 11.81%
-- Flow 1:
Average throughput: 10.14 Mbit/s
95th percentile per-packet one-way delay: 114.471 ms
Loss rate: 27.23%
-- Flow 2:
Average throughput: 67.00 Mbit/s
95th percentile per-packet one-way delay: 109.188 ms
Loss rate: 7.49%
-- Flow 3:
Average throughput: 5.19 Mbit/s
95th percentile per-packet one-way delay: 111.111 ms
Loss rate: 8.10%
```

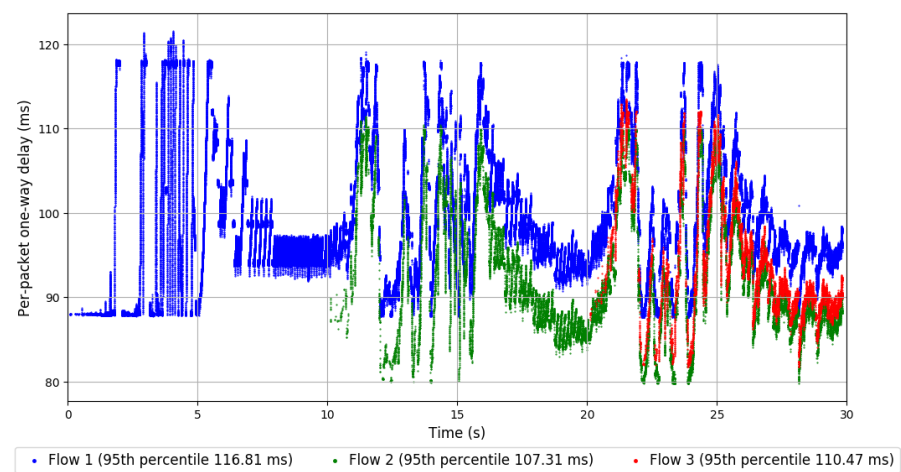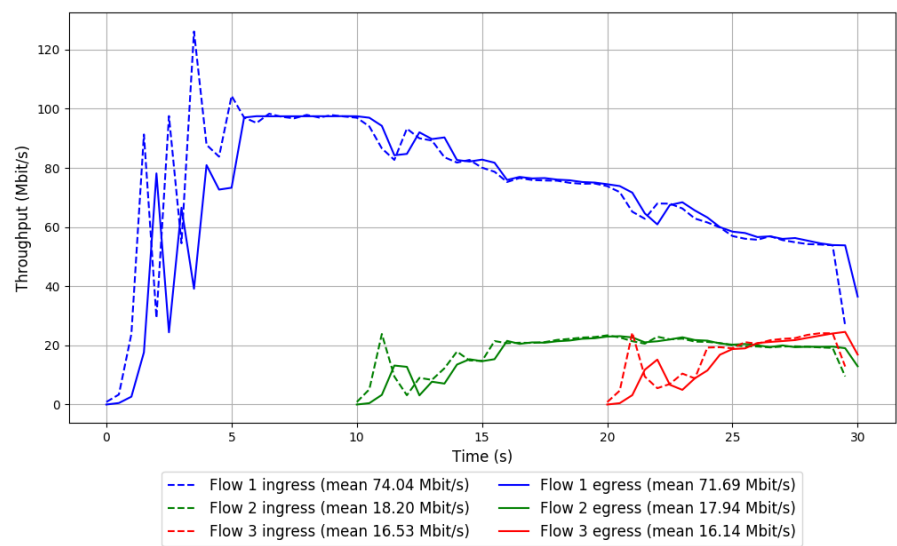Run 2: Report of Indigo-MusesD — Data Link
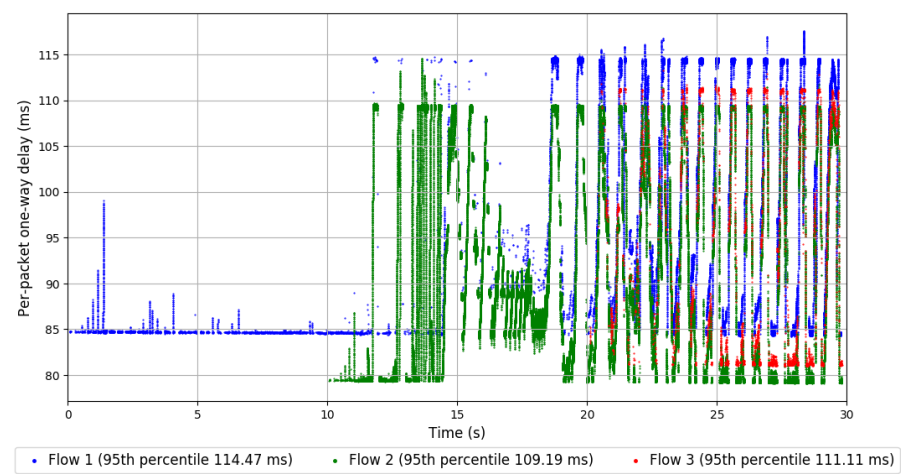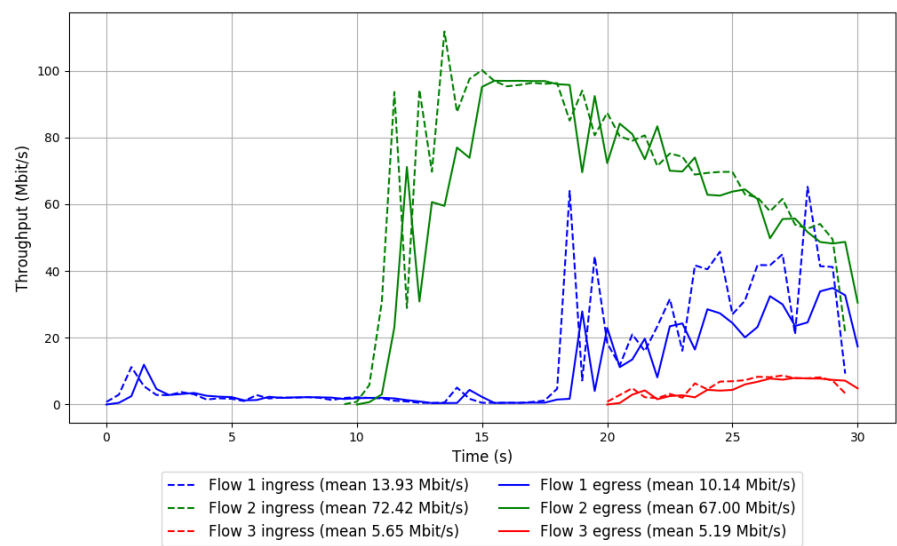
```
Run 3: Statistics of Indigo-MusesD

Start at: 2018-12-11 13:11:46
End at: 2018-12-11 13:12:16
Local clock offset: -4.146 ms
Remote clock offset: 83.835 ms


# Below is generated by plot.py at 2018-12-11 14:23:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.29 Mbit/s
95th percentile per-packet one-way delay: 110.656 ms
Loss rate: 2.94%
-- Flow 1:
Average throughput: 70.29 Mbit/s
95th percentile per-packet one-way delay: 110.366 ms
Loss rate: 3.50%
-- Flow 2:
Average throughput: 20.26 Mbit/s
95th percentile per-packet one-way delay: 112.331 ms
Loss rate: 0.50%
-- Flow 3:
Average throughput: 17.09 Mbit/s
95th percentile per-packet one-way delay: 109.217 ms
Loss rate: 1.64%
```

# Run 3: Report of Indigo-MusesD — Data Link

Flow 1 ingress (mean 72.85 Mbit/s) — Flow 1 egress (mean 70.29 Mbit/s)
Flow 2 ingress (mean 20.36 Mbit/s) — Flow 2 egress (mean 20.26 Mbit/s)
Flow 3 ingress (mean 17.37 Mbit/s) — Flow 3 egress (mean 17.09 Mbit/s)

Flow 1 (95th percentile 110.37 ms)   Flow 2 (95th percentile 112.33 ms)   Flow 3 (95th percentile 109.22 ms)

70

```
Run 4: Statistics of Indigo-MusesD

Start at: 2018-12-11 13:35:52
End at: 2018-12-11 13:36:22
Local clock offset: -2.839 ms
Remote clock offset: 98.305 ms


# Below is generated by plot.py at 2018-12-11 14:23:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.67 Mbit/s
95th percentile per-packet one-way delay: 110.603 ms
Loss rate: 2.59%
-- Flow 1:
Average throughput: 73.49 Mbit/s
95th percentile per-packet one-way delay: 111.209 ms
Loss rate: 2.94%
-- Flow 2:
Average throughput: 14.61 Mbit/s
95th percentile per-packet one-way delay: 107.301 ms
Loss rate: 0.65%
-- Flow 3:
Average throughput: 13.76 Mbit/s
95th percentile per-packet one-way delay: 109.728 ms
Loss rate: 0.97%
```

# Run 4: Report of Indigo-MusesD — Data Link

Flow 1 ingress (mean 75.72 Mbit/s) --- Flow 1 egress (mean 73.49 Mbit/s)
Flow 2 ingress (mean 14.70 Mbit/s) --- Flow 2 egress (mean 14.61 Mbit/s)
Flow 3 ingress (mean 13.90 Mbit/s) --- Flow 3 egress (mean 13.76 Mbit/s)

Flow 1 (95th percentile 111.21 ms) · Flow 2 (95th percentile 107.30 ms) · Flow 3 (95th percentile 109.73 ms)
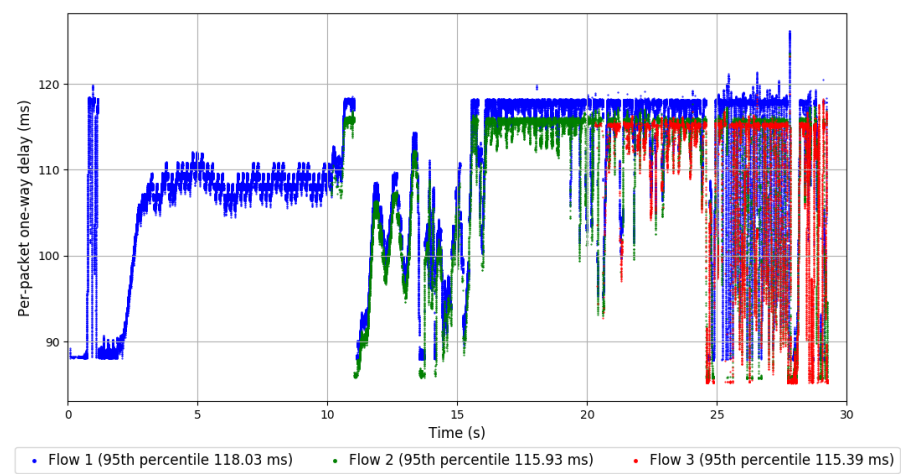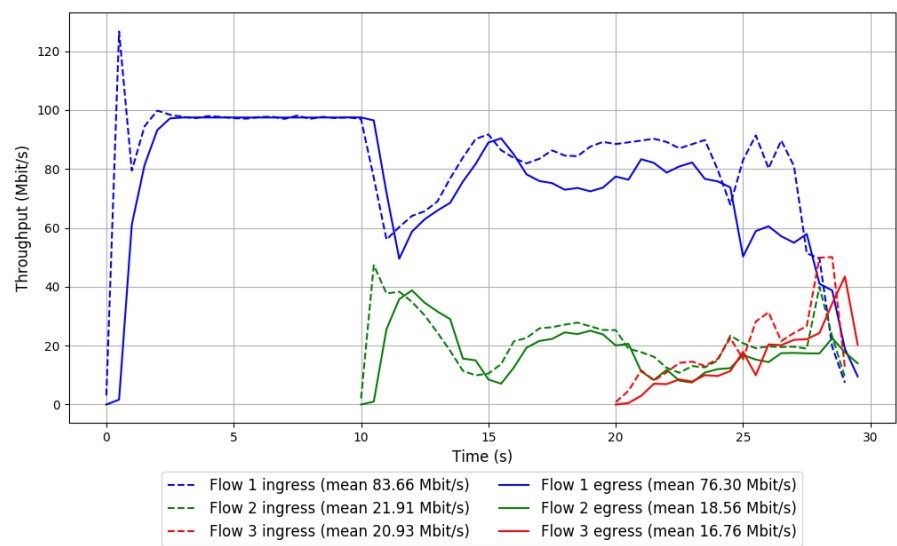
```
Run 5: Statistics of Indigo-MusesD

Start at: 2018-12-11 14:00:09
End at: 2018-12-11 14:00:39
Local clock offset: -3.181 ms
Remote clock offset: 114.039 ms


# Below is generated by plot.py at 2018-12-11 14:23:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.86 Mbit/s
95th percentile per-packet one-way delay: 115.382 ms
Loss rate: 2.88%
-- Flow 1:
Average throughput: 71.69 Mbit/s
95th percentile per-packet one-way delay: 116.807 ms
Loss rate: 3.16%
-- Flow 2:
Average throughput: 17.94 Mbit/s
95th percentile per-packet one-way delay: 107.310 ms
Loss rate: 1.40%
-- Flow 3:
Average throughput: 16.14 Mbit/s
95th percentile per-packet one-way delay: 110.469 ms
Loss rate: 2.36%
```

Run 5: Report of Indigo-MusesD — Data Link

Flow 1 ingress (mean 74.04 Mbit/s) ---- Flow 1 egress (mean 71.69 Mbit/s)
Flow 2 ingress (mean 18.20 Mbit/s) ---- Flow 2 egress (mean 17.94 Mbit/s)
Flow 3 ingress (mean 16.53 Mbit/s) ---- Flow 3 egress (mean 16.14 Mbit/s)

Flow 1 (95th percentile 116.81 ms) • Flow 2 (95th percentile 107.31 ms) • Flow 3 (95th percentile 110.47 ms)

```
Run 1: Statistics of Indigo-MusesT

Start at: 2018-12-11 12:24:35
End at: 2018-12-11 12:25:05
Local clock offset: -3.333 ms
Remote clock offset: 55.411 ms


# Below is generated by plot.py at 2018-12-11 14:23:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.16 Mbit/s
95th percentile per-packet one-way delay: 110.890 ms
Loss rate: 8.32%
-- Flow 1:
Average throughput: 64.85 Mbit/s
95th percentile per-packet one-way delay: 110.876 ms
Loss rate: 5.35%
-- Flow 2:
Average throughput: 33.50 Mbit/s
95th percentile per-packet one-way delay: 110.939 ms
Loss rate: 12.41%
-- Flow 3:
Average throughput: 17.08 Mbit/s
95th percentile per-packet one-way delay: 109.006 ms
Loss rate: 22.93%
```

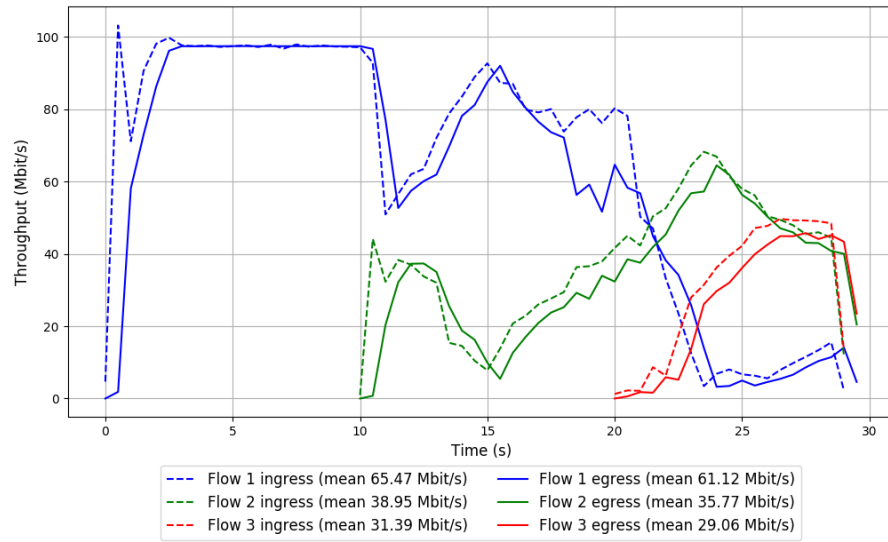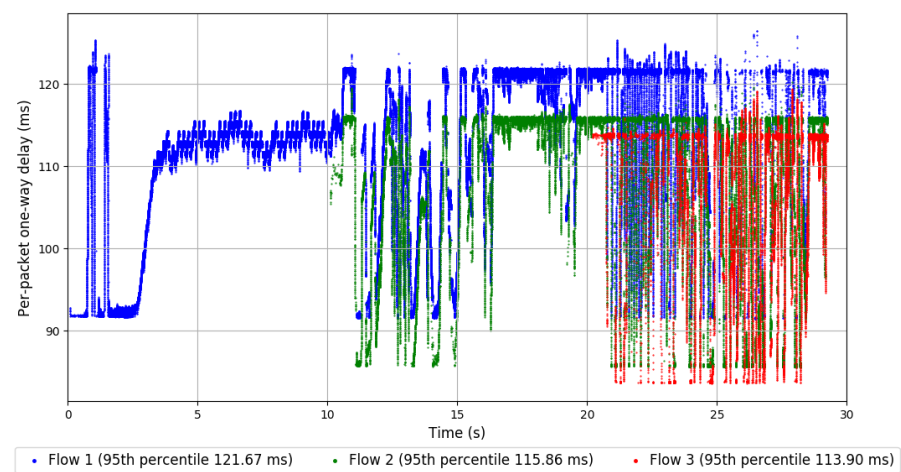Run 1: Report of Indigo-MusesT — Data Link
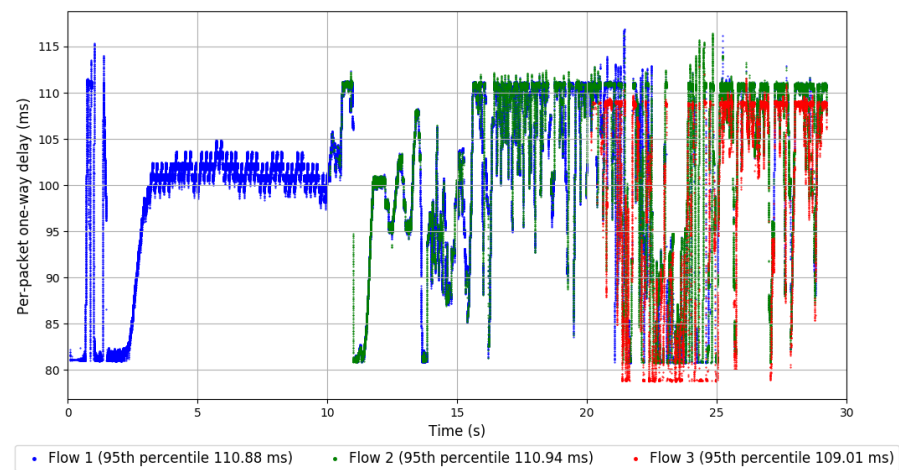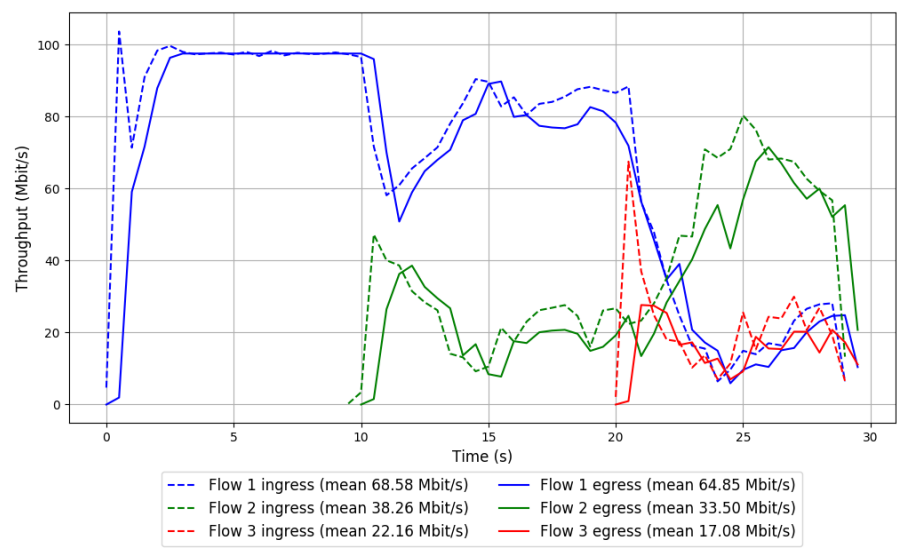
```
Run 2: Statistics of Indigo-MusesT

Start at: 2018-12-11 12:48:51
End at: 2018-12-11 12:49:21
Local clock offset: -4.172 ms
Remote clock offset: 70.155 ms


# Below is generated by plot.py at 2018-12-11 14:23:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.36 Mbit/s
95th percentile per-packet one-way delay: 112.675 ms
Loss rate: 8.31%
-- Flow 1:
Average throughput: 64.21 Mbit/s
95th percentile per-packet one-way delay: 109.249 ms
Loss rate: 6.34%
-- Flow 2:
Average throughput: 32.75 Mbit/s
95th percentile per-packet one-way delay: 111.477 ms
Loss rate: 12.40%
-- Flow 3:
Average throughput: 24.94 Mbit/s
95th percentile per-packet one-way delay: 114.805 ms
Loss rate: 12.35%
```

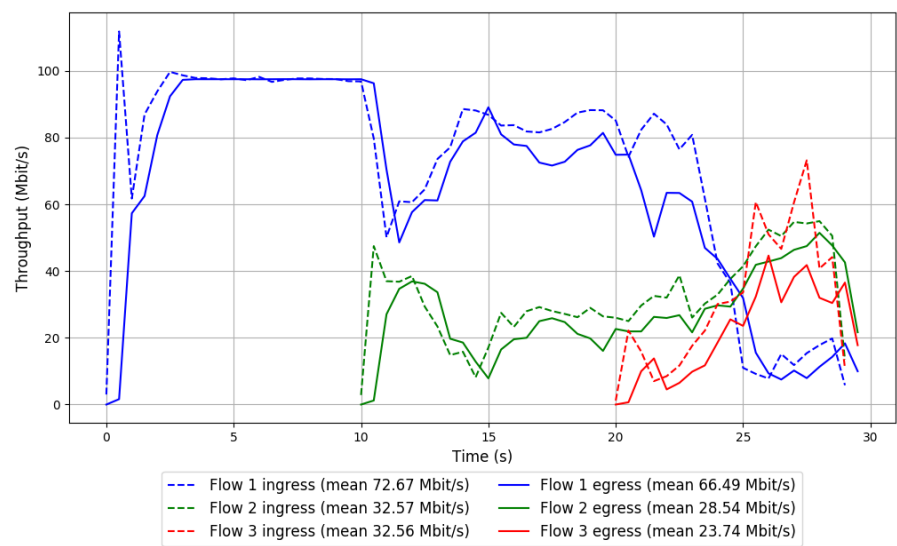Run 2: Report of Indigo-MusesT — Data Link
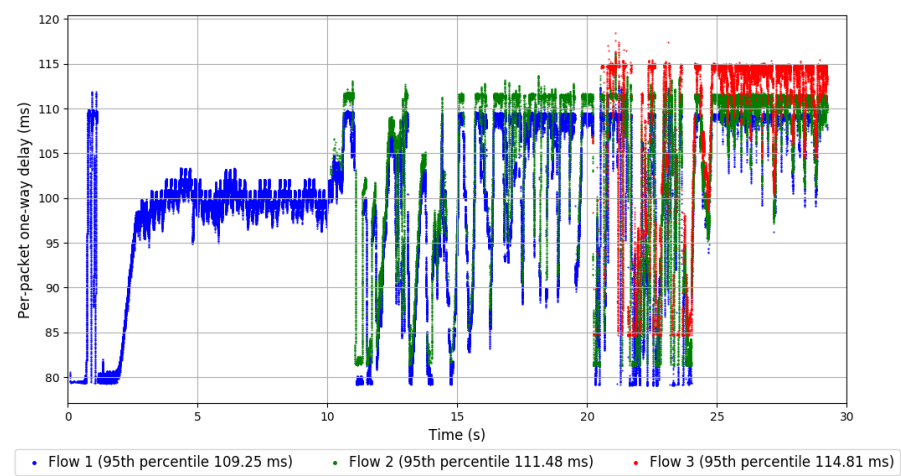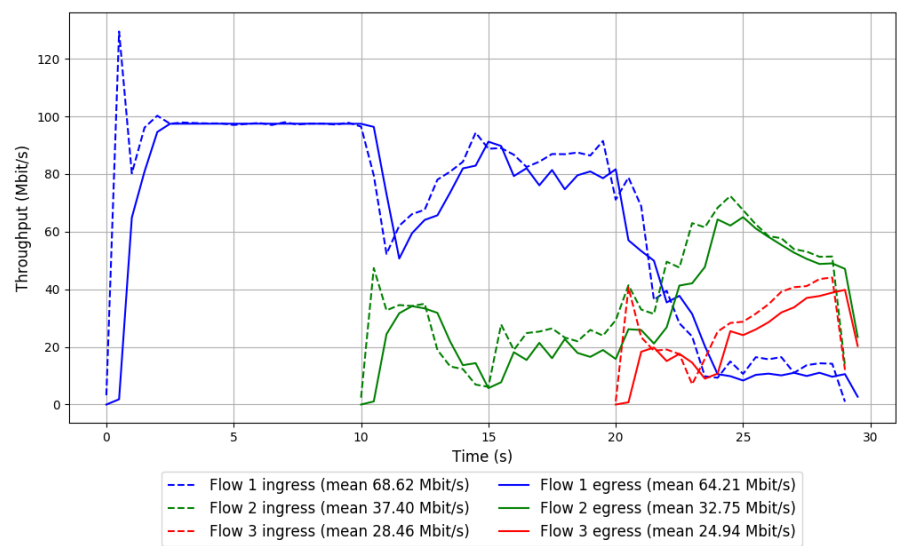
```
Run 3: Statistics of Indigo-MusesT

Start at: 2018-12-11 13:13:03
End at: 2018-12-11 13:13:33
Local clock offset: -3.966 ms
Remote clock offset: 91.031 ms


# Below is generated by plot.py at 2018-12-11 14:23:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.55 Mbit/s
95th percentile per-packet one-way delay: 118.005 ms
Loss rate: 10.41%
-- Flow 1:
Average throughput: 76.30 Mbit/s
95th percentile per-packet one-way delay: 118.031 ms
Loss rate: 8.80%
-- Flow 2:
Average throughput: 18.56 Mbit/s
95th percentile per-packet one-way delay: 115.933 ms
Loss rate: 15.37%
-- Flow 3:
Average throughput: 16.76 Mbit/s
95th percentile per-packet one-way delay: 115.386 ms
Loss rate: 20.22%
```

Run 3: Report of Indigo-MusesT — Data Link

Flow 1 ingress (mean 83.66 Mbit/s)   Flow 1 egress (mean 76.30 Mbit/s)
Flow 2 ingress (mean 21.91 Mbit/s)   Flow 2 egress (mean 18.56 Mbit/s)
Flow 3 ingress (mean 20.93 Mbit/s)   Flow 3 egress (mean 16.76 Mbit/s)

Flow 1 (95th percentile 118.03 ms)   Flow 2 (95th percentile 115.93 ms)   Flow 3 (95th percentile 115.39 ms)

```
Run 4: Statistics of Indigo-MusesT

Start at: 2018-12-11 13:37:13
End at: 2018-12-11 13:37:43
Local clock offset: -2.792 ms
Remote clock offset: 103.118 ms


# Below is generated by plot.py at 2018-12-11 14:24:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.44 Mbit/s
95th percentile per-packet one-way delay: 114.950 ms
Loss rate: 7.05%
-- Flow 1:
Average throughput: 61.12 Mbit/s
95th percentile per-packet one-way delay: 114.775 ms
Loss rate: 6.56%
-- Flow 2:
Average throughput: 35.77 Mbit/s
95th percentile per-packet one-way delay: 112.839 ms
Loss rate: 8.15%
-- Flow 3:
Average throughput: 29.06 Mbit/s
95th percentile per-packet one-way delay: 115.255 ms
Loss rate: 7.46%
```

Run 4: Report of Indigo-MusesT — Data Link
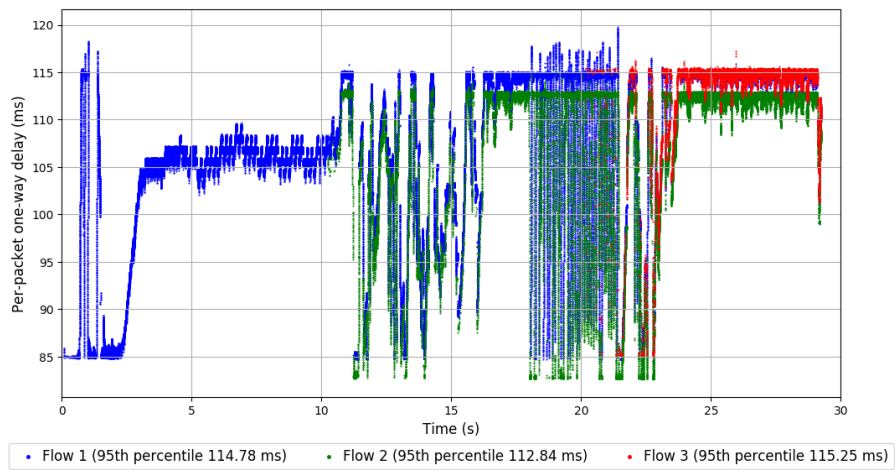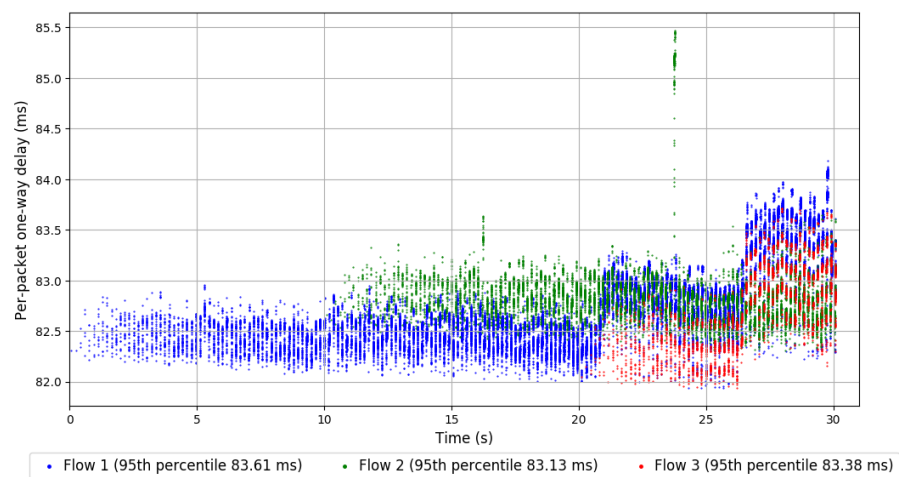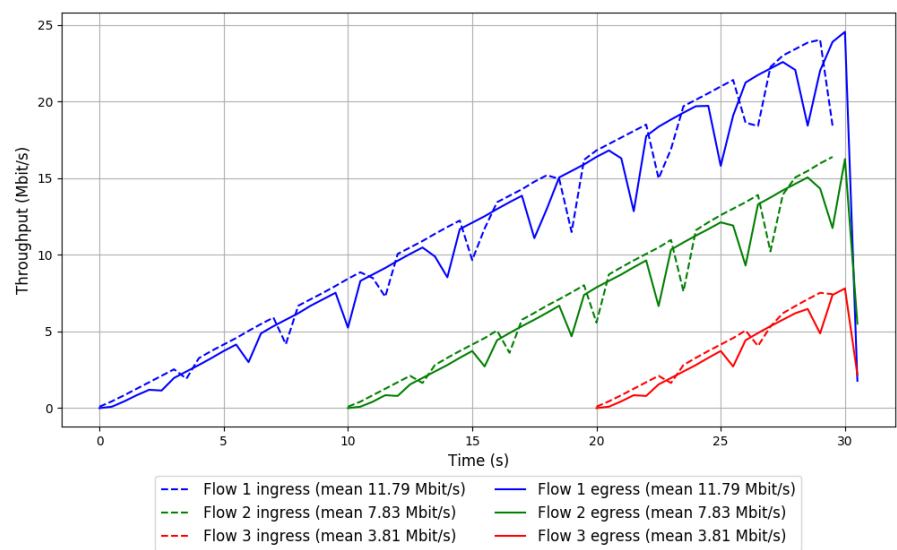
```
Run 5: Statistics of Indigo-MusesT

Start at: 2018-12-11 14:01:26
End at: 2018-12-11 14:01:56
Local clock offset: -3.149 ms
Remote clock offset: 118.707 ms


# Below is generated by plot.py at 2018-12-11 14:24:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.58 Mbit/s
95th percentile per-packet one-way delay: 121.625 ms
Loss rate: 11.04%
-- Flow 1:
Average throughput: 66.49 Mbit/s
95th percentile per-packet one-way delay: 121.673 ms
Loss rate: 8.43%
-- Flow 2:
Average throughput: 28.54 Mbit/s
95th percentile per-packet one-way delay: 115.864 ms
Loss rate: 12.33%
-- Flow 3:
Average throughput: 23.74 Mbit/s
95th percentile per-packet one-way delay: 113.901 ms
Loss rate: 27.08%
```

Run 5: Report of Indigo-MusesT — Data Link

Flow 1 ingress (mean 72.67 Mbit/s) --- Flow 1 egress (mean 66.49 Mbit/s)
Flow 2 ingress (mean 32.57 Mbit/s) --- Flow 2 egress (mean 28.54 Mbit/s)
Flow 3 ingress (mean 32.56 Mbit/s) --- Flow 3 egress (mean 23.74 Mbit/s)

Flow 1 (95th percentile 121.67 ms) · Flow 2 (95th percentile 115.86 ms) · Flow 3 (95th percentile 113.90 ms)
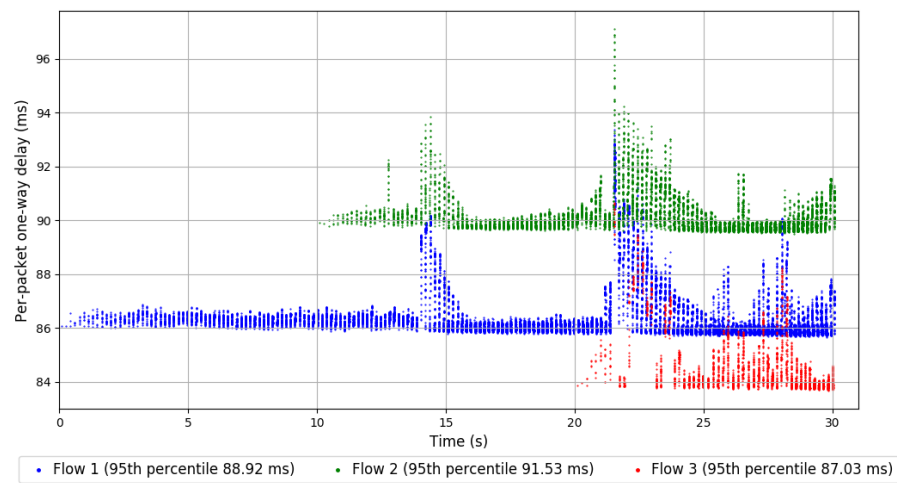
```
Run 1: Statistics of LEDBAT

Start at: 2018-12-11 12:33:27
End at: 2018-12-11 12:33:57
Local clock offset: -3.301 ms
Remote clock offset: 61.951 ms


# Below is generated by plot.py at 2018-12-11 14:24:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 18.54 Mbit/s
95th percentile per-packet one-way delay: 82.911 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 12.07 Mbit/s
95th percentile per-packet one-way delay: 82.330 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 7.82 Mbit/s
95th percentile per-packet one-way delay: 83.411 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 3.88 Mbit/s
95th percentile per-packet one-way delay: 81.496 ms
Loss rate: 0.00%
```

Run 1: Report of LEDBAT — Data Link
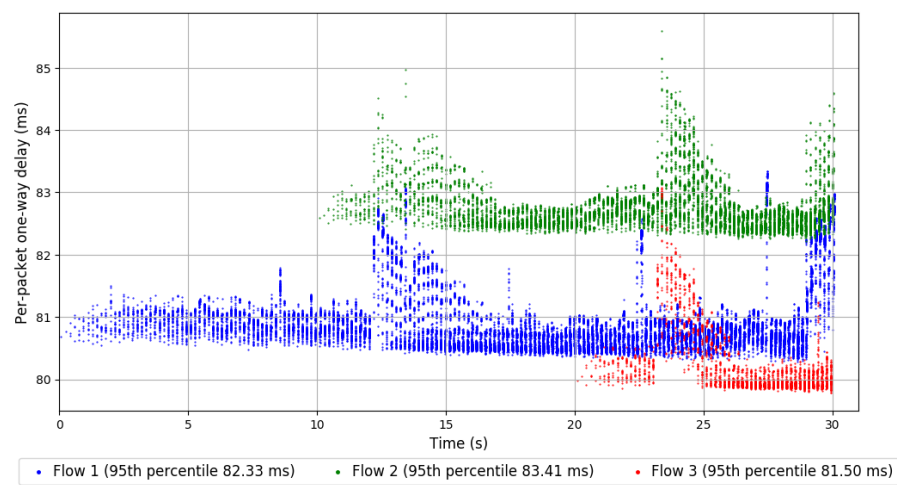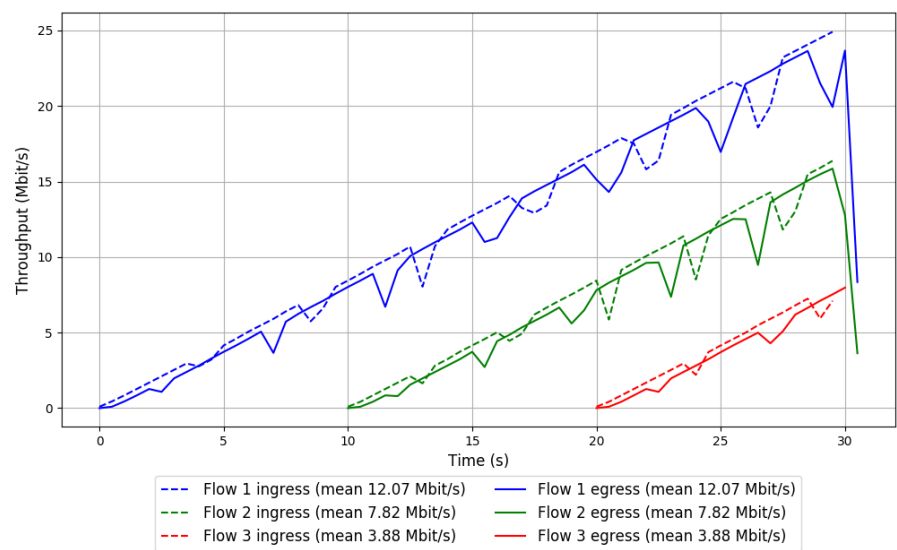
```
Run 2: Statistics of LEDBAT

Start at: 2018-12-11 12:57:48
End at: 2018-12-11 12:58:18
Local clock offset: -4.465 ms
Remote clock offset: 76.726 ms


# Below is generated by plot.py at 2018-12-11 14:24:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 18.27 Mbit/s
95th percentile per-packet one-way delay: 83.560 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.79 Mbit/s
95th percentile per-packet one-way delay: 83.612 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 7.83 Mbit/s
95th percentile per-packet one-way delay: 83.127 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 3.81 Mbit/s
95th percentile per-packet one-way delay: 83.382 ms
Loss rate: 0.00%
```

Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-12-11 13:21:55
End at: 2018-12-11 13:22:25
Local clock offset: -3.279 ms
Remote clock offset: 96.484 ms


# Below is generated by plot.py at 2018-12-11 14:24:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 17.90 Mbit/s
95th percentile per-packet one-way delay: 90.566 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.50 Mbit/s
95th percentile per-packet one-way delay: 90.780 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 7.79 Mbit/s
95th percentile per-packet one-way delay: 89.362 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 3.76 Mbit/s
95th percentile per-packet one-way delay: 88.707 ms
Loss rate: 0.00%
```

Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 11.50 Mbit/s) --- Flow 1 egress (mean 11.50 Mbit/s)
Flow 2 ingress (mean 7.79 Mbit/s) --- Flow 2 egress (mean 7.79 Mbit/s)
Flow 3 ingress (mean 3.76 Mbit/s) --- Flow 3 egress (mean 3.76 Mbit/s)

Flow 1 (95th percentile 90.78 ms)   Flow 2 (95th percentile 89.36 ms)   Flow 3 (95th percentile 88.71 ms)

90
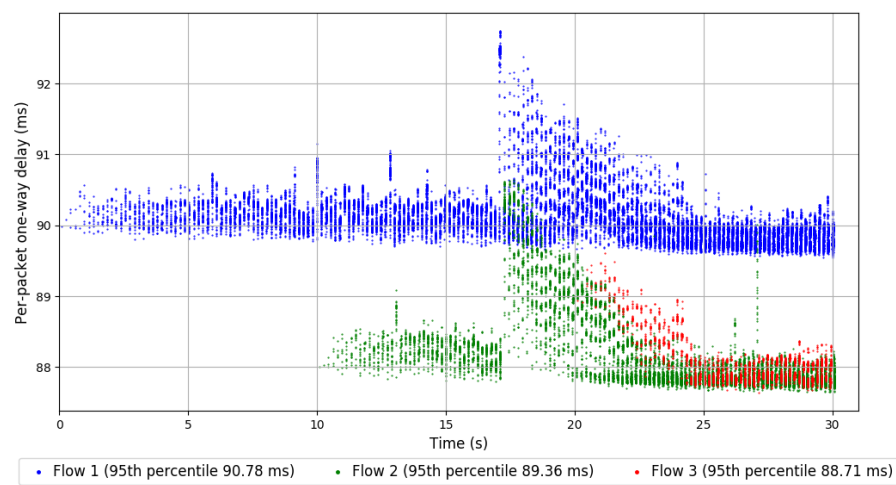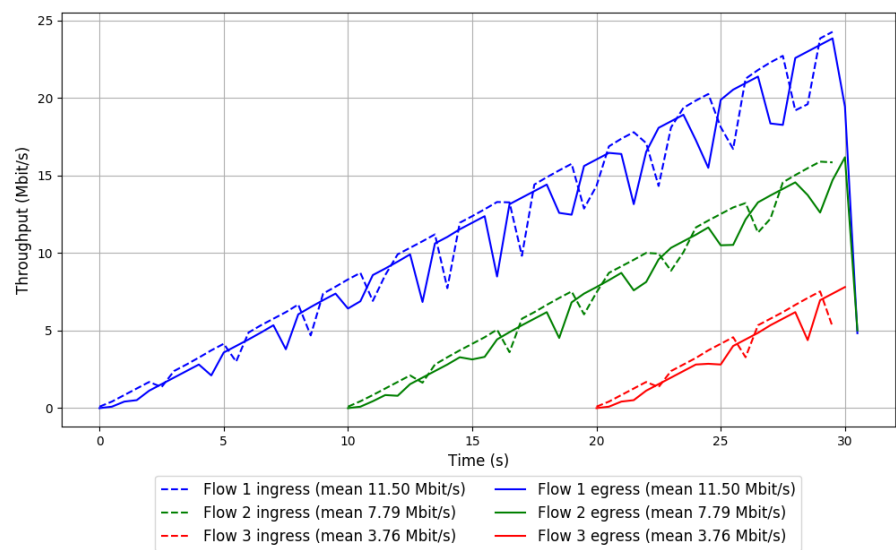
```
Run 4: Statistics of LEDBAT

Start at: 2018-12-11 13:46:09
End at: 2018-12-11 13:46:39
Local clock offset: -3.066 ms
Remote clock offset: 109.648 ms

# Below is generated by plot.py at 2018-12-11 14:24:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 17.89 Mbit/s
95th percentile per-packet one-way delay: 90.636 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 11.79 Mbit/s
95th percentile per-packet one-way delay: 88.918 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 7.46 Mbit/s
95th percentile per-packet one-way delay: 91.527 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 3.44 Mbit/s
95th percentile per-packet one-way delay: 87.029 ms
Loss rate: 0.00%
```

Run 4: Report of LEDBAT — Data Link
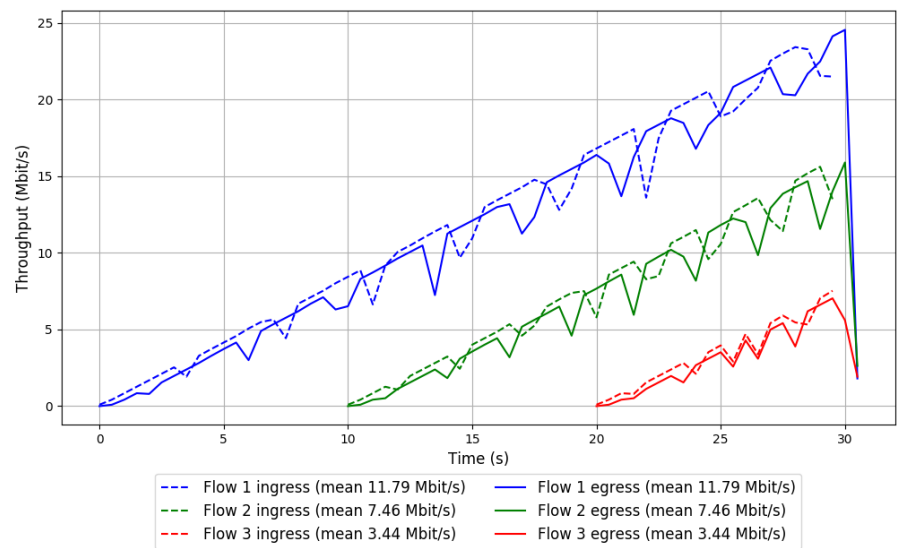
```
Run 5: Statistics of LEDBAT

Start at: 2018-12-11 14:10:19
End at: 2018-12-11 14:10:49
Local clock offset: -3.456 ms
Remote clock offset: 125.347 ms

# Below is generated by plot.py at 2018-12-11 14:24:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 18.44 Mbit/s
95th percentile per-packet one-way delay: 88.688 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 12.05 Mbit/s
95th percentile per-packet one-way delay: 87.454 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 7.71 Mbit/s
95th percentile per-packet one-way delay: 89.613 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 3.84 Mbit/s
95th percentile per-packet one-way delay: 87.986 ms
Loss rate: 0.00%
```

Run 5: Report of LEDBAT — Data Link
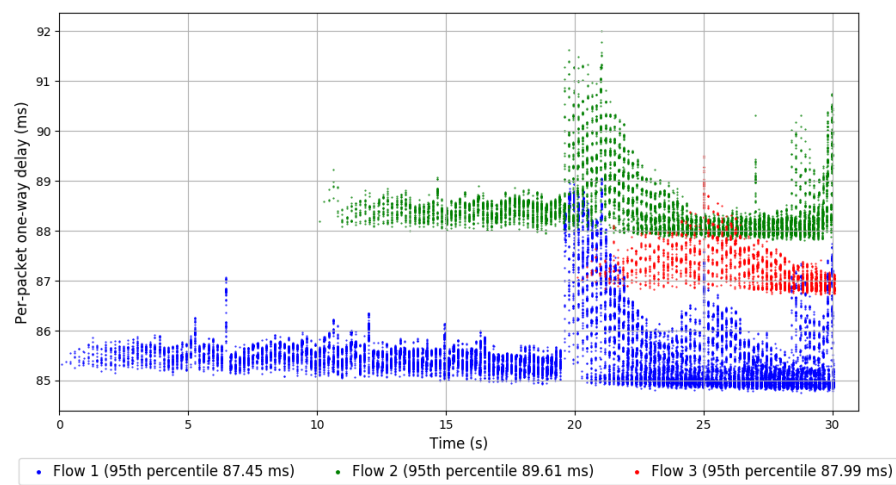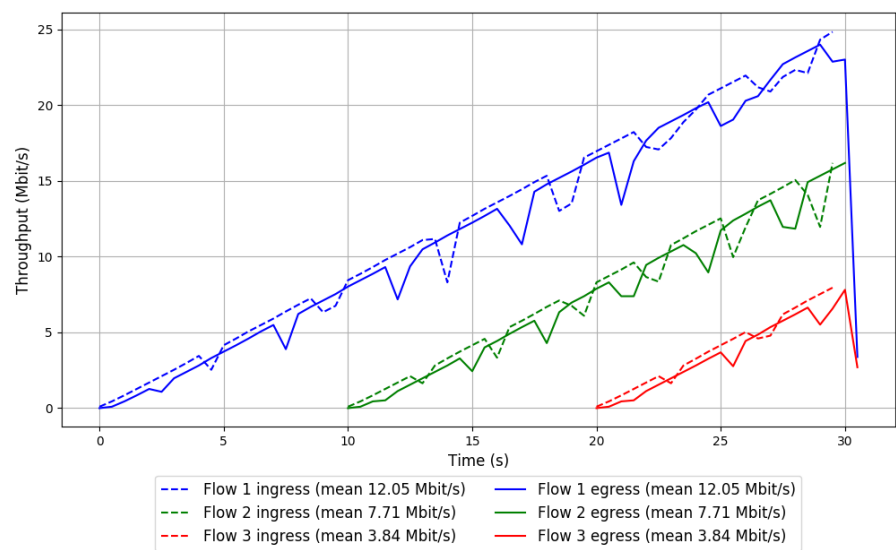
```
Run 1: Statistics of PCC-Allegro

Start at: 2018-12-11 12:32:10
End at: 2018-12-11 12:32:40
Local clock offset: -3.376 ms
Remote clock offset: 60.996 ms


# Below is generated by plot.py at 2018-12-11 14:24:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.09 Mbit/s
95th percentile per-packet one-way delay: 112.828 ms
Loss rate: 2.55%
-- Flow 1:
Average throughput: 77.68 Mbit/s
95th percentile per-packet one-way delay: 112.780 ms
Loss rate: 2.39%
-- Flow 2:
Average throughput: 10.12 Mbit/s
95th percentile per-packet one-way delay: 116.680 ms
Loss rate: 3.25%
-- Flow 3:
Average throughput: 8.12 Mbit/s
95th percentile per-packet one-way delay: 111.292 ms
Loss rate: 5.31%
```
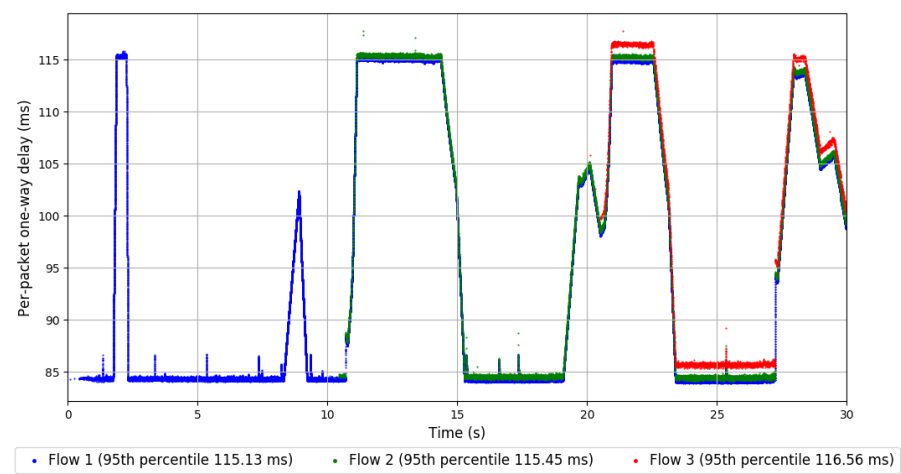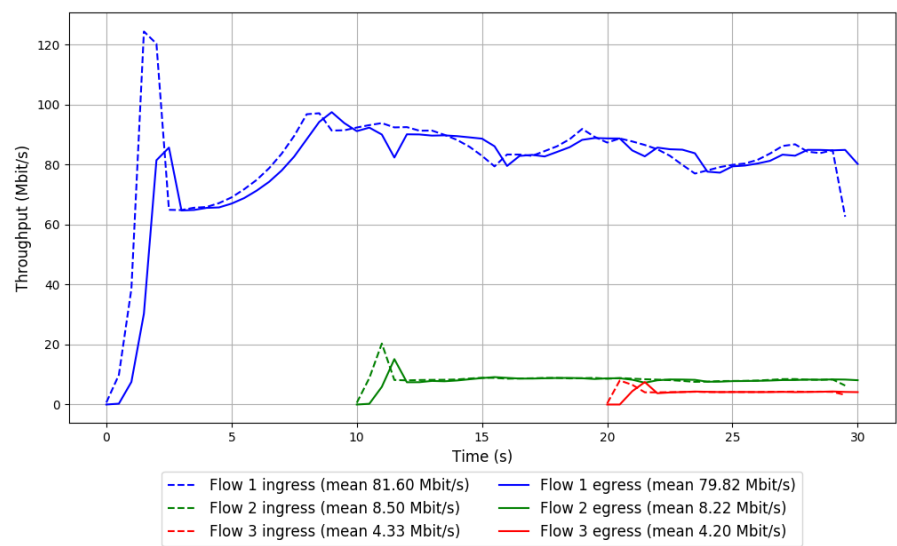
Run 1: Report of PCC-Allegro — Data Link
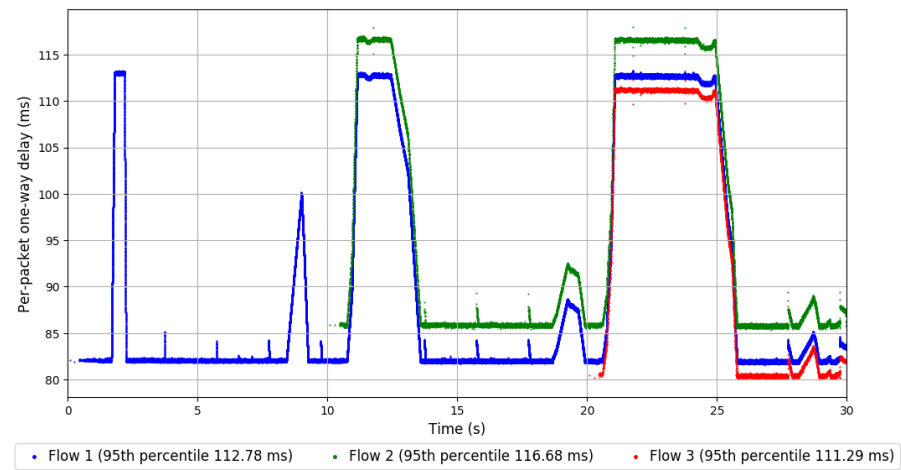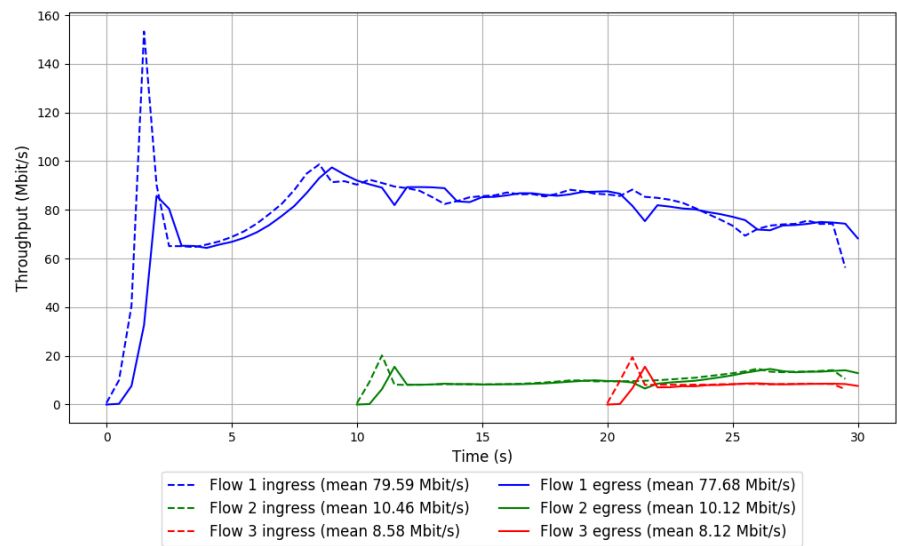
```
Run 2: Statistics of PCC-Allegro

Start at: 2018-12-11 12:56:32
End at: 2018-12-11 12:57:02
Local clock offset: -4.415 ms
Remote clock offset: 75.504 ms

# Below is generated by plot.py at 2018-12-11 14:24:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.33 Mbit/s
95th percentile per-packet one-way delay: 118.287 ms
Loss rate: 5.10%
-- Flow 1:
Average throughput: 60.21 Mbit/s
95th percentile per-packet one-way delay: 114.480 ms
Loss rate: 4.55%
-- Flow 2:
Average throughput: 30.98 Mbit/s
95th percentile per-packet one-way delay: 118.417 ms
Loss rate: 5.66%
-- Flow 3:
Average throughput: 7.66 Mbit/s
95th percentile per-packet one-way delay: 110.881 ms
Loss rate: 12.86%
```
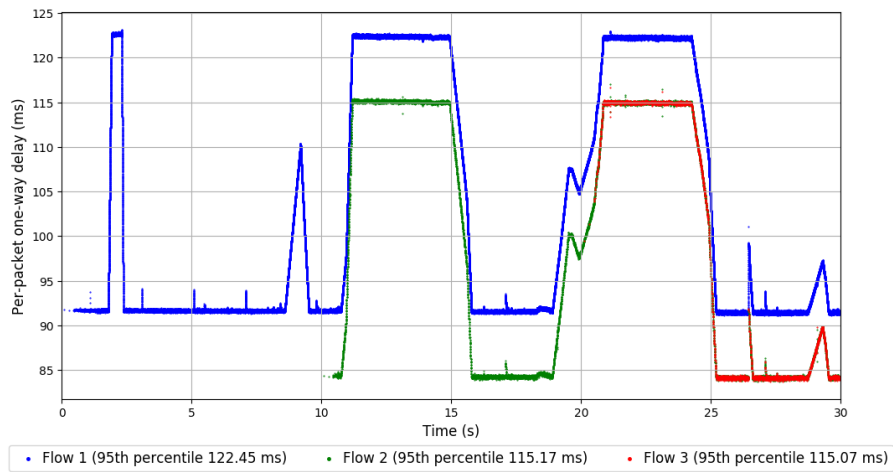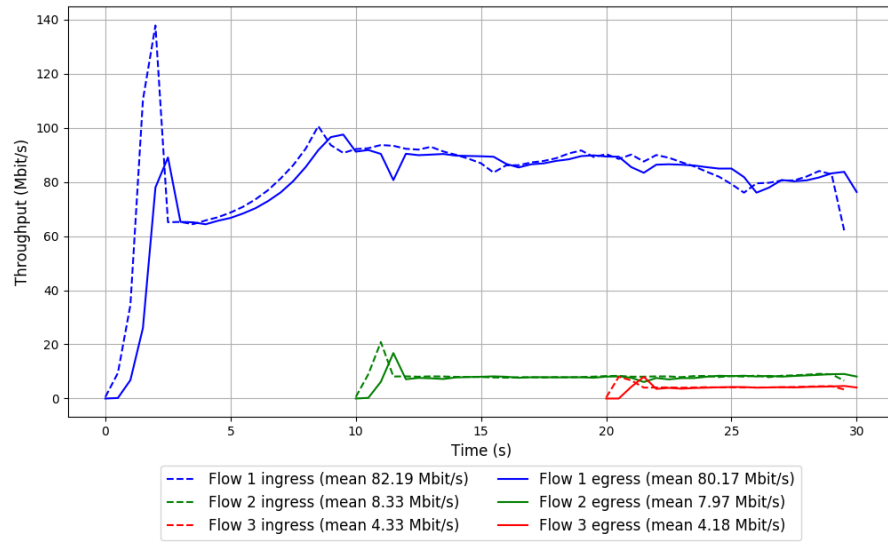
Run 2: Report of PCC-Allegro — Data Link
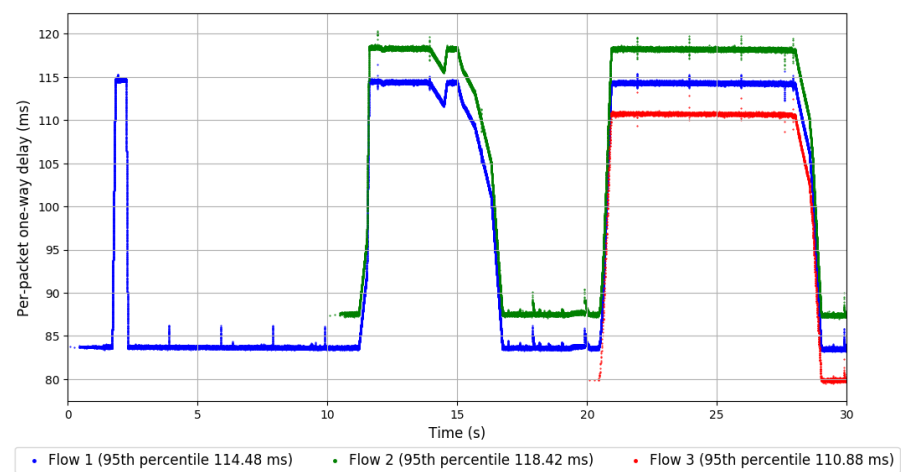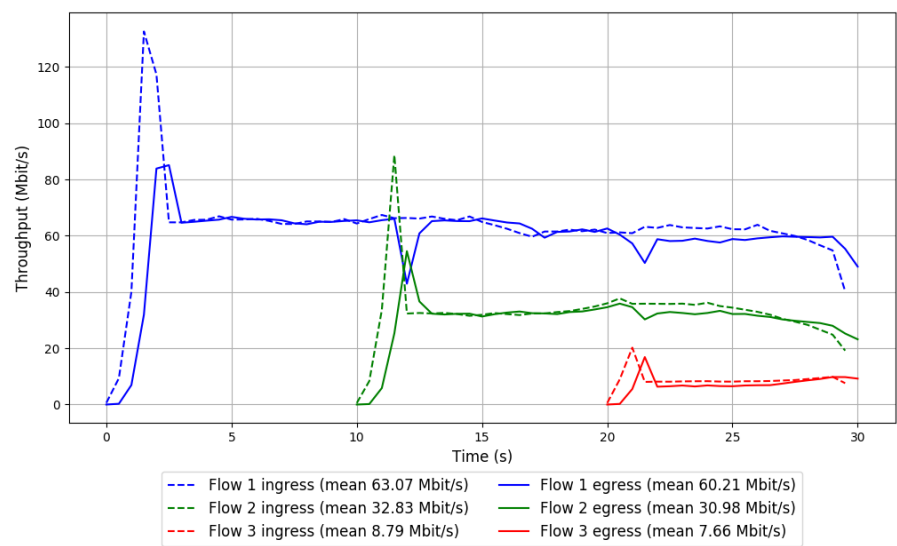
```
Run 3: Statistics of PCC-Allegro

Start at: 2018-12-11 13:20:39
End at: 2018-12-11 13:21:09
Local clock offset: -3.347 ms
Remote clock offset: 94.391 ms


# Below is generated by plot.py at 2018-12-11 14:24:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.42 Mbit/s
95th percentile per-packet one-way delay: 117.501 ms
Loss rate: 2.34%
-- Flow 1:
Average throughput: 79.22 Mbit/s
95th percentile per-packet one-way delay: 117.502 ms
Loss rate: 2.28%
-- Flow 2:
Average throughput: 8.60 Mbit/s
95th percentile per-packet one-way delay: 117.516 ms
Loss rate: 3.07%
-- Flow 3:
Average throughput: 4.49 Mbit/s
95th percentile per-packet one-way delay: 115.493 ms
Loss rate: 2.84%
```

# Run 3: Report of PCC-Allegro — Data Link
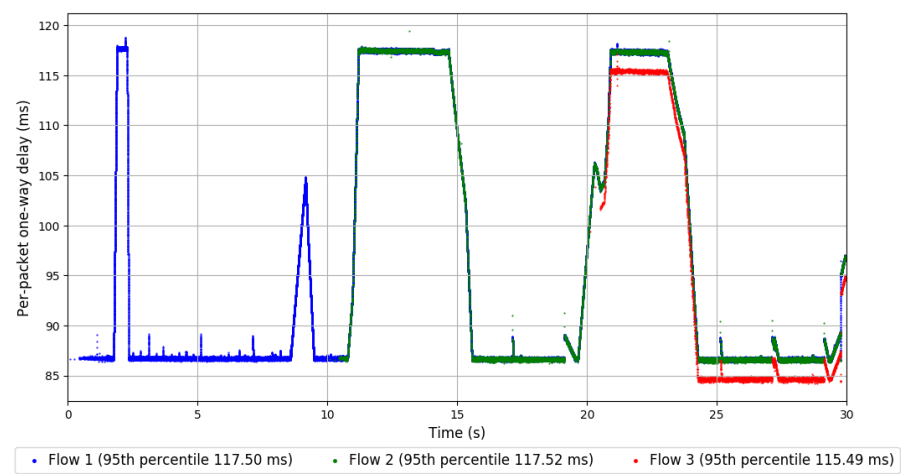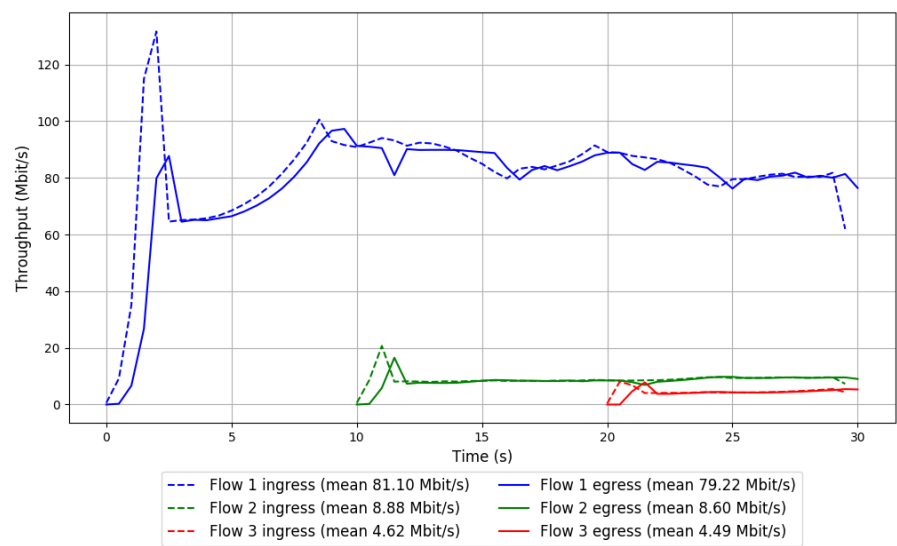
```
Run 4: Statistics of PCC-Allegro

Start at: 2018-12-11 13:44:53
End at: 2018-12-11 13:45:23
Local clock offset: -3.025 ms
Remote clock offset: 108.675 ms


# Below is generated by plot.py at 2018-12-11 14:24:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.67 Mbit/s
95th percentile per-packet one-way delay: 115.166 ms
Loss rate: 2.21%
-- Flow 1:
Average throughput: 79.82 Mbit/s
95th percentile per-packet one-way delay: 115.132 ms
Loss rate: 2.13%
-- Flow 2:
Average throughput: 8.22 Mbit/s
95th percentile per-packet one-way delay: 115.452 ms
Loss rate: 3.23%
-- Flow 3:
Average throughput: 4.20 Mbit/s
95th percentile per-packet one-way delay: 116.556 ms
Loss rate: 2.88%
```

Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 81.60 Mbit/s) — Flow 1 egress (mean 79.82 Mbit/s)
Flow 2 ingress (mean 8.50 Mbit/s) — Flow 2 egress (mean 8.22 Mbit/s)
Flow 3 ingress (mean 4.33 Mbit/s) — Flow 3 egress (mean 4.20 Mbit/s)

Flow 1 (95th percentile 115.13 ms)   Flow 2 (95th percentile 115.45 ms)   Flow 3 (95th percentile 116.56 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-12-11 14:09:03
End at: 2018-12-11 14:09:33
Local clock offset: -3.336 ms
Remote clock offset: 123.154 ms


# Below is generated by plot.py at 2018-12-11 14:24:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.85 Mbit/s
95th percentile per-packet one-way delay: 122.439 ms
Loss rate: 2.60%
-- Flow 1:
Average throughput: 80.17 Mbit/s
95th percentile per-packet one-way delay: 122.448 ms
Loss rate: 2.47%
-- Flow 2:
Average throughput: 7.97 Mbit/s
95th percentile per-packet one-way delay: 115.170 ms
Loss rate: 4.32%
-- Flow 3:
Average throughput: 4.18 Mbit/s
95th percentile per-packet one-way delay: 115.074 ms
Loss rate: 3.77%
```

Run 5: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 82.19 Mbit/s) ---- Flow 1 egress (mean 80.17 Mbit/s)
Flow 2 ingress (mean 8.33 Mbit/s) ---- Flow 2 egress (mean 7.97 Mbit/s)
Flow 3 ingress (mean 4.33 Mbit/s) ---- Flow 3 egress (mean 4.18 Mbit/s)

Flow 1 (95th percentile 122.45 ms) Flow 2 (95th percentile 115.17 ms) Flow 3 (95th percentile 115.07 ms)
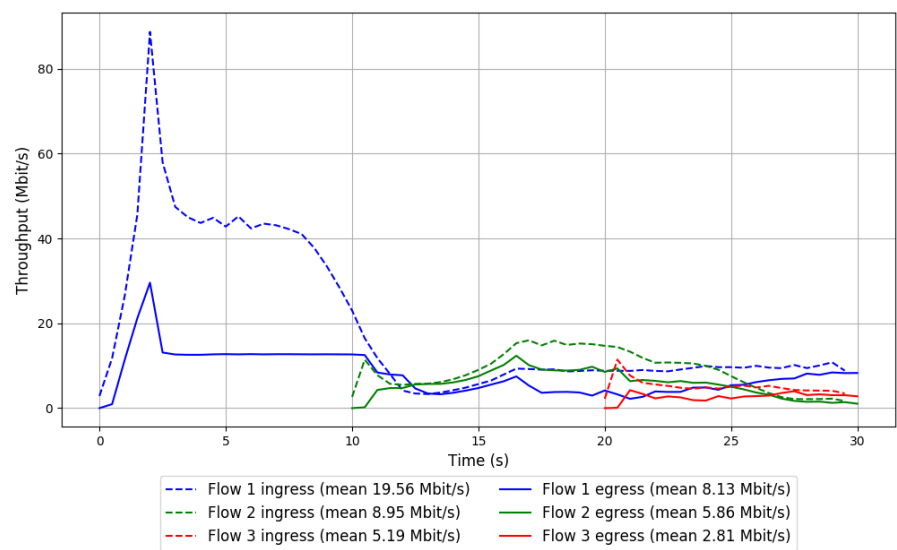
```
Run 1: Statistics of PCC-Expr

Start at: 2018-12-11 12:39:47
End at: 2018-12-11 12:40:17
Local clock offset: -3.527 ms
Remote clock offset: 65.72 ms


# Below is generated by plot.py at 2018-12-11 14:24:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.95 Mbit/s
95th percentile per-packet one-way delay: 82.222 ms
Loss rate: 51.01%
-- Flow 1:
Average throughput: 7.83 Mbit/s
95th percentile per-packet one-way delay: 82.251 ms
Loss rate: 56.06%
-- Flow 2:
Average throughput: 7.06 Mbit/s
95th percentile per-packet one-way delay: 80.222 ms
Loss rate: 36.10%
-- Flow 3:
Average throughput: 1.28 Mbit/s
95th percentile per-packet one-way delay: 82.101 ms
Loss rate: 66.61%
```

Run 1: Report of PCC-Expr — Data Link
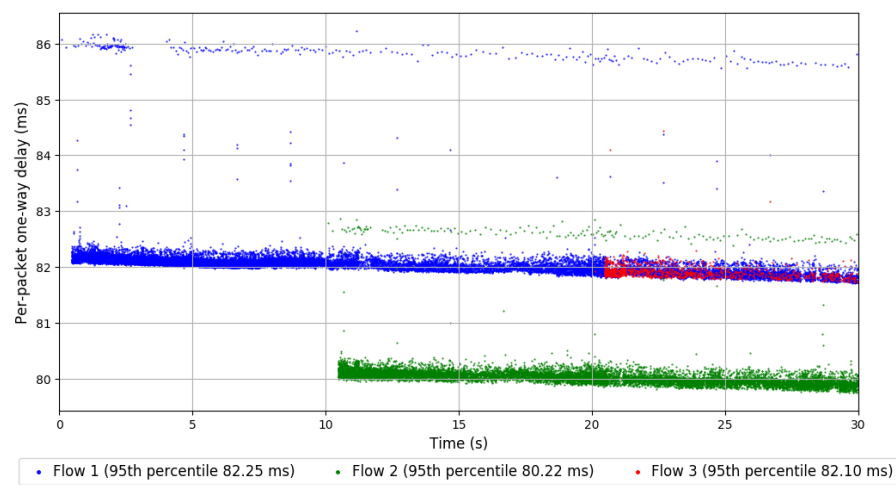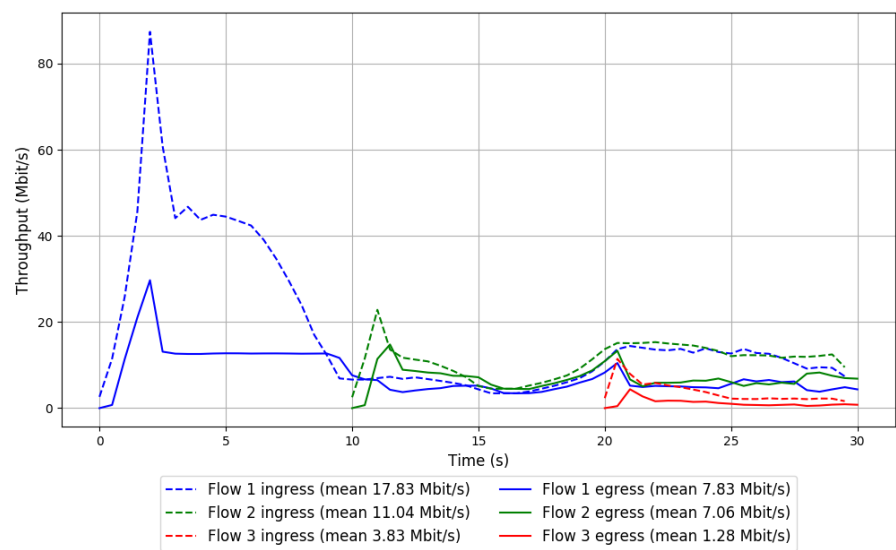
```
Run 2: Statistics of PCC-Expr

Start at: 2018-12-11 13:04:09
End at: 2018-12-11 13:04:39
Local clock offset: -4.604 ms
Remote clock offset: 79.199 ms


# Below is generated by plot.py at 2018-12-11 14:24:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.80 Mbit/s
95th percentile per-packet one-way delay: 80.850 ms
Loss rate: 49.61%
-- Flow 1:
Average throughput: 8.03 Mbit/s
95th percentile per-packet one-way delay: 79.022 ms
Loss rate: 54.17%
-- Flow 2:
Average throughput: 6.16 Mbit/s
95th percentile per-packet one-way delay: 80.928 ms
Loss rate: 34.87%
-- Flow 3:
Average throughput: 2.02 Mbit/s
95th percentile per-packet one-way delay: 78.929 ms
Loss rate: 57.75%
```

Run 2: Report of PCC-Expr — Data Link
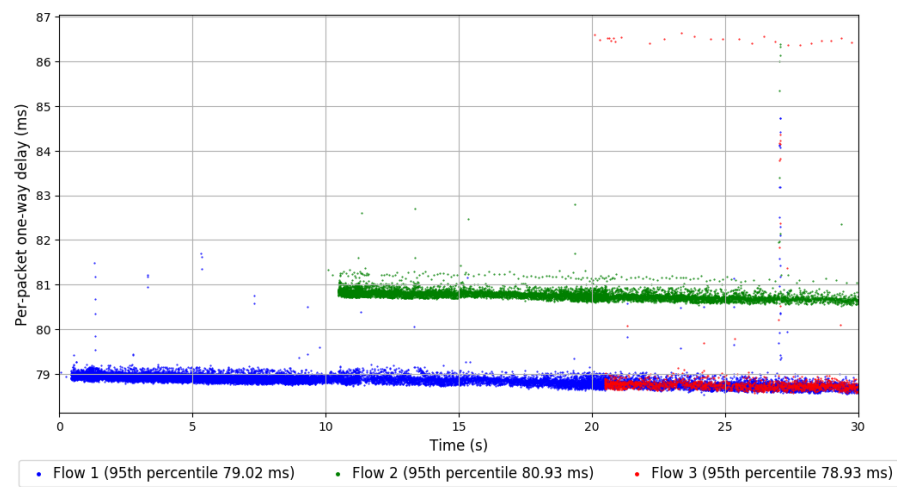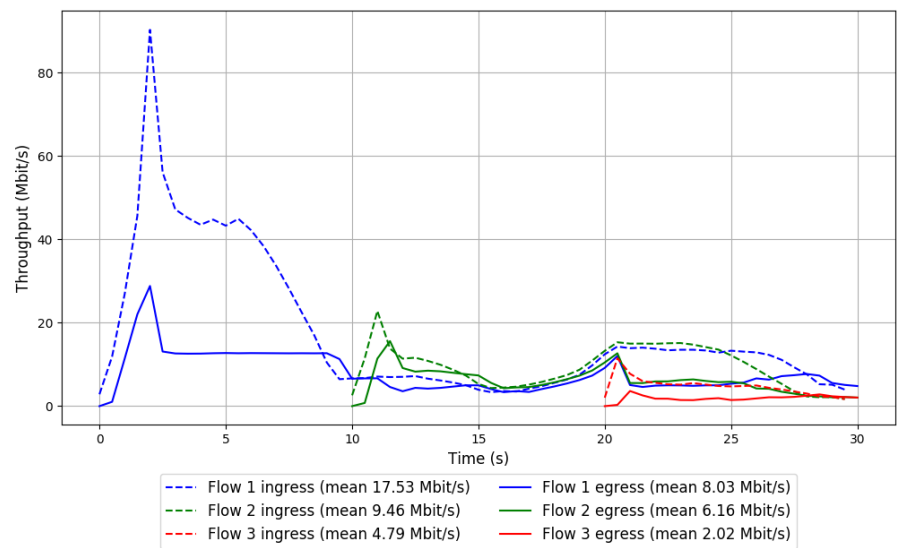
```
Run 3: Statistics of PCC-Expr

Start at: 2018-12-11 13:28:16
End at: 2018-12-11 13:28:46
Local clock offset: -3.116 ms
Remote clock offset: 97.811 ms


# Below is generated by plot.py at 2018-12-11 14:24:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.95 Mbit/s
95th percentile per-packet one-way delay: 85.216 ms
Loss rate: 52.43%
-- Flow 1:
Average throughput: 8.13 Mbit/s
95th percentile per-packet one-way delay: 85.243 ms
Loss rate: 58.43%
-- Flow 2:
Average throughput: 5.86 Mbit/s
95th percentile per-packet one-way delay: 83.257 ms
Loss rate: 34.54%
-- Flow 3:
Average throughput: 2.81 Mbit/s
95th percentile per-packet one-way delay: 83.188 ms
Loss rate: 45.95%
```

Run 3: Report of PCC-Expr — Data Link
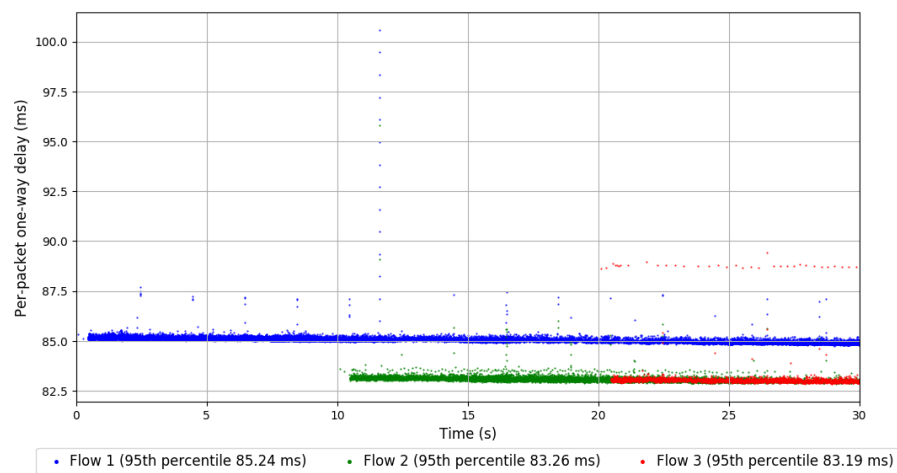
```
Run 4: Statistics of PCC-Expr

Start at: 2018-12-11 13:52:30
End at: 2018-12-11 13:53:00
Local clock offset: -3.135 ms
Remote clock offset: 108.509 ms


# Below is generated by plot.py at 2018-12-11 14:24:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.92 Mbit/s
95th percentile per-packet one-way delay: 79.449 ms
Loss rate: 54.24%
-- Flow 1:
Average throughput: 7.73 Mbit/s
95th percentile per-packet one-way delay: 79.265 ms
Loss rate: 60.63%
-- Flow 2:
Average throughput: 7.08 Mbit/s
95th percentile per-packet one-way delay: 79.161 ms
Loss rate: 35.75%
-- Flow 3:
Average throughput: 1.45 Mbit/s
95th percentile per-packet one-way delay: 81.110 ms
Loss rate: 62.13%
```

Run 4: Report of PCC-Expr — Data Link
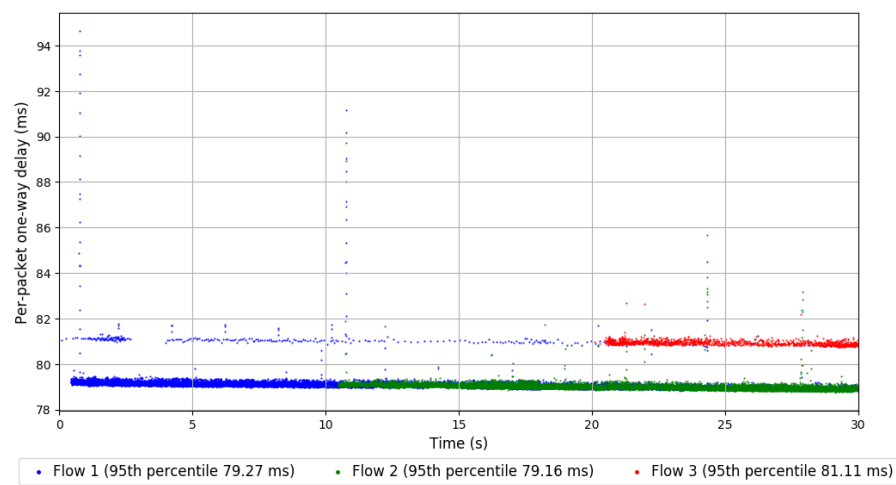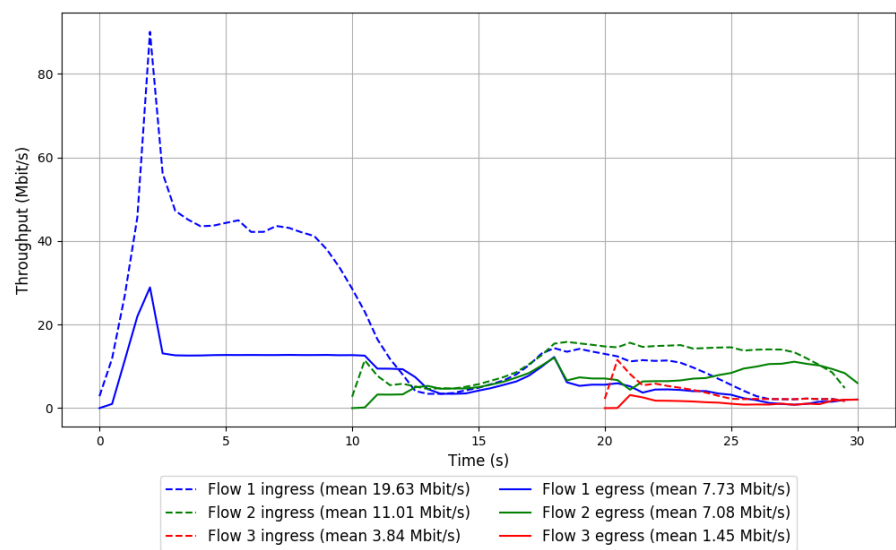
```
Run 5: Statistics of PCC-Expr

Start at: 2018-12-11 14:16:39
End at: 2018-12-11 14:17:09
Local clock offset: -4.14 ms
Remote clock offset: 128.011 ms

# Below is generated by plot.py at 2018-12-11 14:24:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.95 Mbit/s
95th percentile per-packet one-way delay: 85.543 ms
Loss rate: 51.20%
-- Flow 1:
Average throughput: 7.48 Mbit/s
95th percentile per-packet one-way delay: 84.219 ms
Loss rate: 56.27%
-- Flow 2:
Average throughput: 7.28 Mbit/s
95th percentile per-packet one-way delay: 84.127 ms
Loss rate: 36.29%
-- Flow 3:
Average throughput: 1.95 Mbit/s
95th percentile per-packet one-way delay: 86.031 ms
Loss rate: 65.44%
```
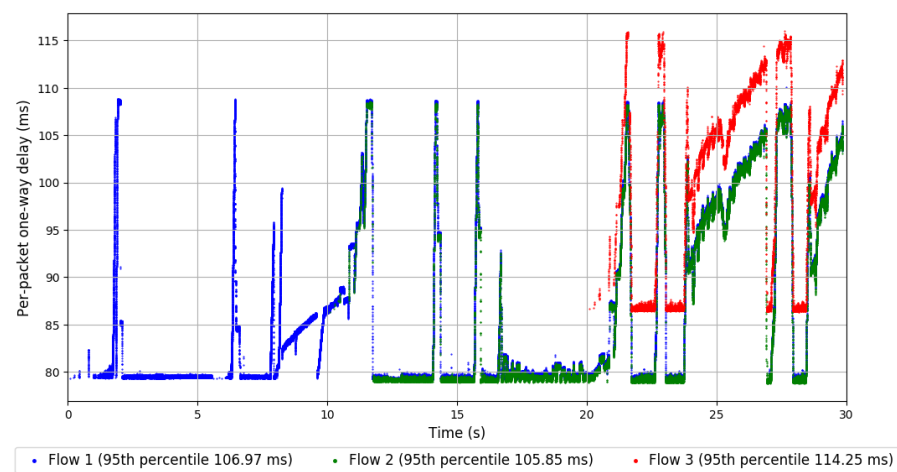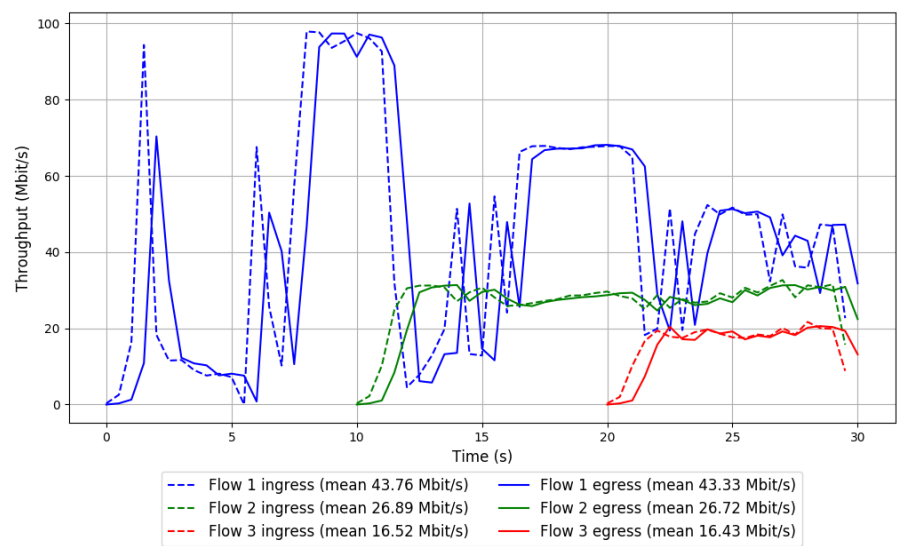
Run 5: Report of PCC-Expr — Data Link
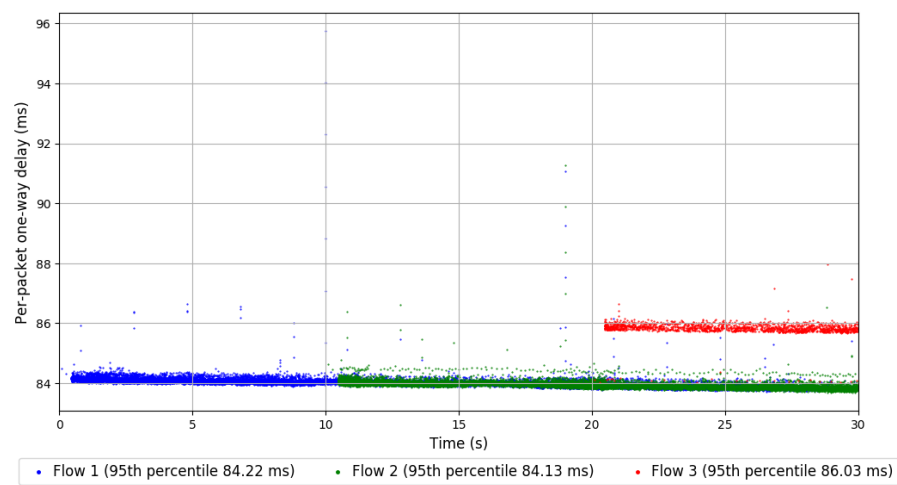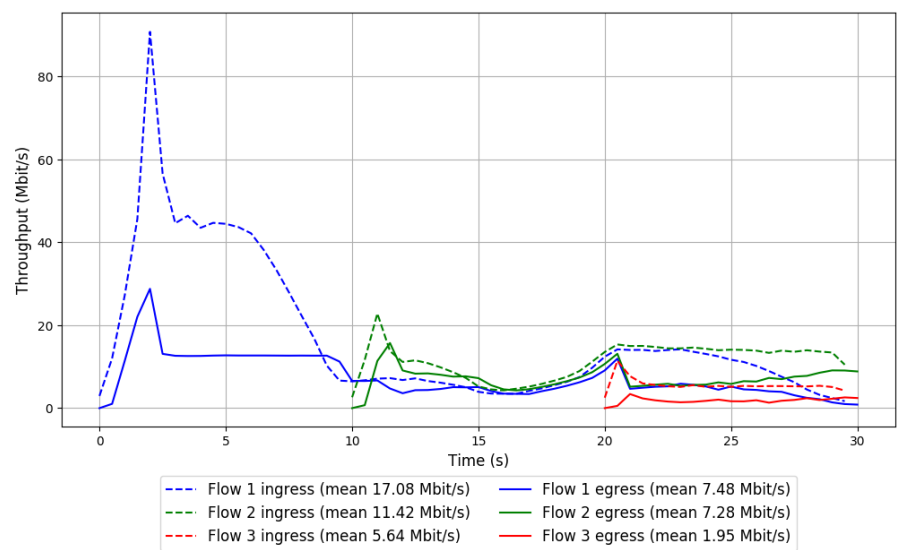
```
Run 1: Statistics of QUIC Cubic

Start at: 2018-12-11 12:30:54
End at: 2018-12-11 12:31:24
Local clock offset: -3.372 ms
Remote clock offset: 65.33 ms


# Below is generated by plot.py at 2018-12-11 14:25:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 59.82 Mbit/s
95th percentile per-packet one-way delay: 110.953 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 43.19 Mbit/s
95th percentile per-packet one-way delay: 112.132 ms
Loss rate: 0.90%
-- Flow 2:
Average throughput: 16.77 Mbit/s
95th percentile per-packet one-way delay: 109.876 ms
Loss rate: 0.45%
-- Flow 3:
Average throughput: 16.86 Mbit/s
95th percentile per-packet one-way delay: 110.525 ms
Loss rate: 0.51%
```

Run 1: Report of QUIC Cubic — Data Link
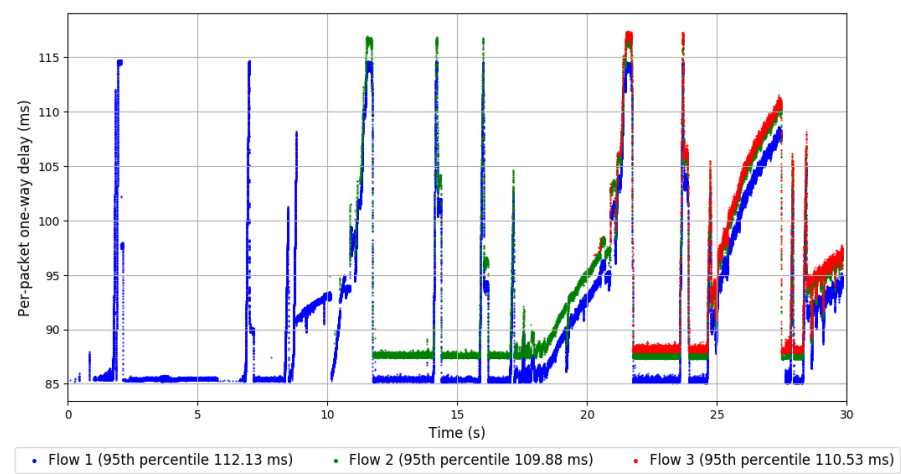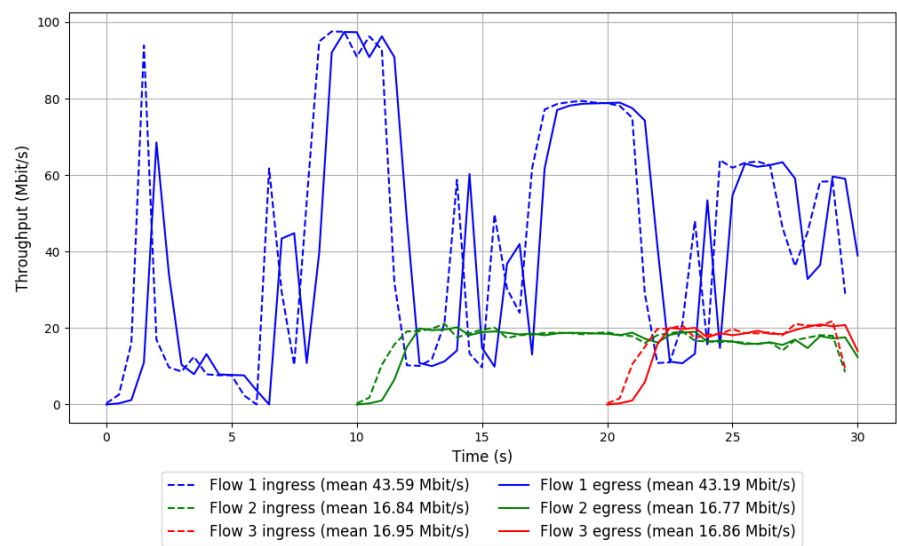
```
Run 2: Statistics of QUIC Cubic

Start at: 2018-12-11 12:55:15
End at: 2018-12-11 12:55:45
Local clock offset: -4.393 ms
Remote clock offset: 73.863 ms


# Below is generated by plot.py at 2018-12-11 14:25:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 66.45 Mbit/s
95th percentile per-packet one-way delay: 107.881 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 43.33 Mbit/s
95th percentile per-packet one-way delay: 106.973 ms
Loss rate: 0.89%
-- Flow 2:
Average throughput: 26.72 Mbit/s
95th percentile per-packet one-way delay: 105.854 ms
Loss rate: 0.55%
-- Flow 3:
Average throughput: 16.43 Mbit/s
95th percentile per-packet one-way delay: 114.246 ms
Loss rate: 0.34%
```

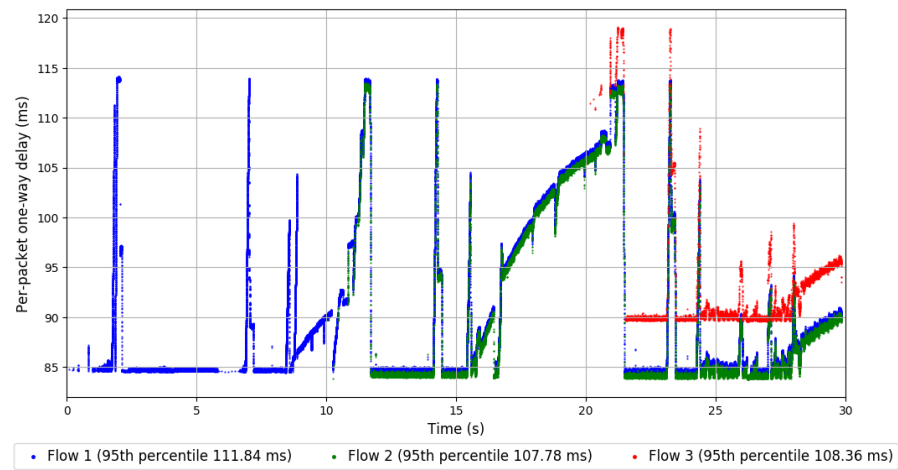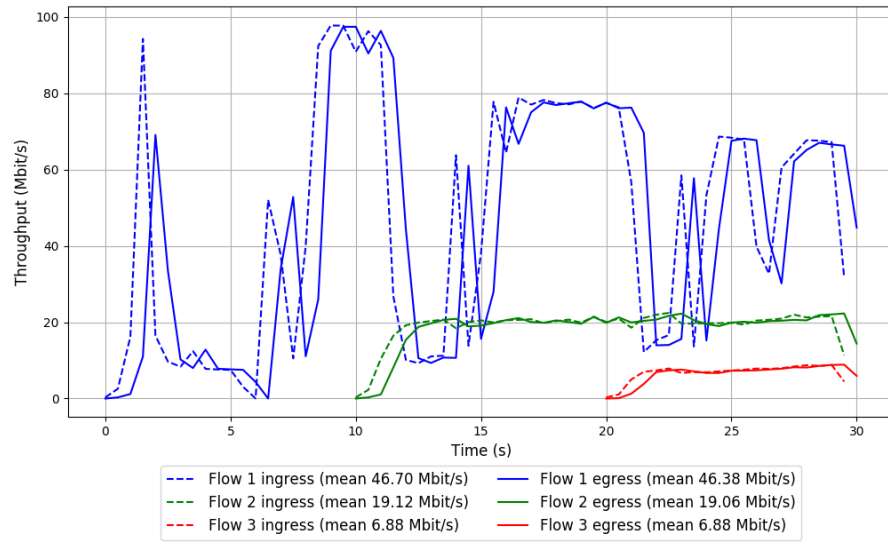Run 2: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 43.76 Mbit/s) --- Flow 1 egress (mean 43.33 Mbit/s)
Flow 2 ingress (mean 26.89 Mbit/s) --- Flow 2 egress (mean 26.72 Mbit/s)
Flow 3 ingress (mean 16.52 Mbit/s) --- Flow 3 egress (mean 16.43 Mbit/s)

Flow 1 (95th percentile 106.97 ms) Flow 2 (95th percentile 105.85 ms) Flow 3 (95th percentile 114.25 ms)

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-12-11 13:19:22
End at: 2018-12-11 13:19:52
Local clock offset: -3.436 ms
Remote clock offset: 94.603 ms


# Below is generated by plot.py at 2018-12-11 14:25:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 65.58 Mbit/s
95th percentile per-packet one-way delay: 113.815 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 45.08 Mbit/s
95th percentile per-packet one-way delay: 112.519 ms
Loss rate: 0.70%
-- Flow 2:
Average throughput: 22.70 Mbit/s
95th percentile per-packet one-way delay: 117.761 ms
Loss rate: 0.42%
-- Flow 3:
Average throughput: 16.63 Mbit/s
95th percentile per-packet one-way delay: 104.927 ms
Loss rate: 0.35%
```

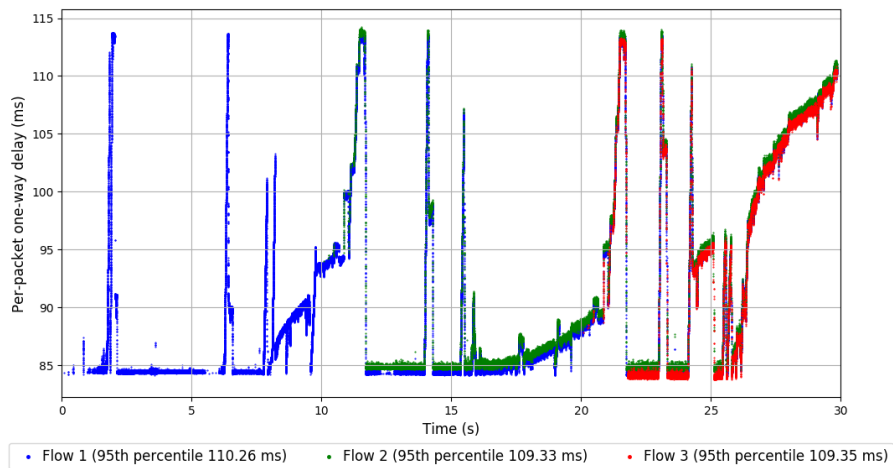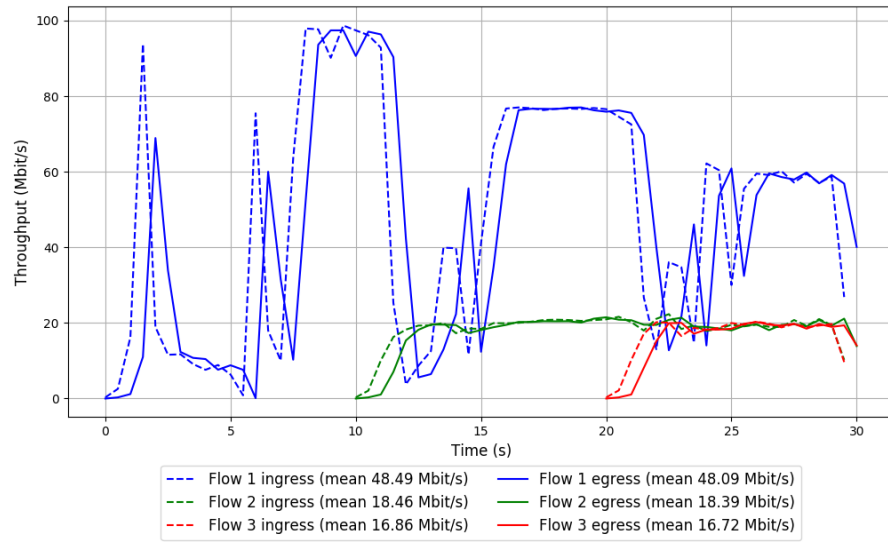## Run 3: Report of QUIC Cubic — Data Link
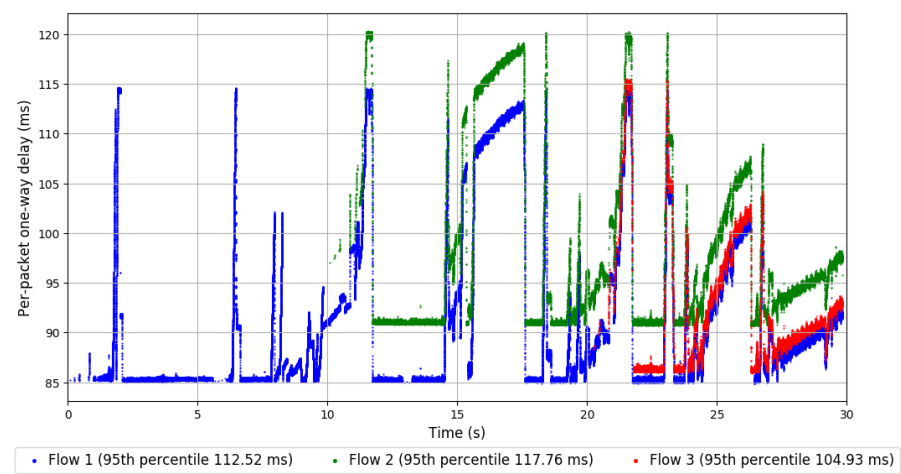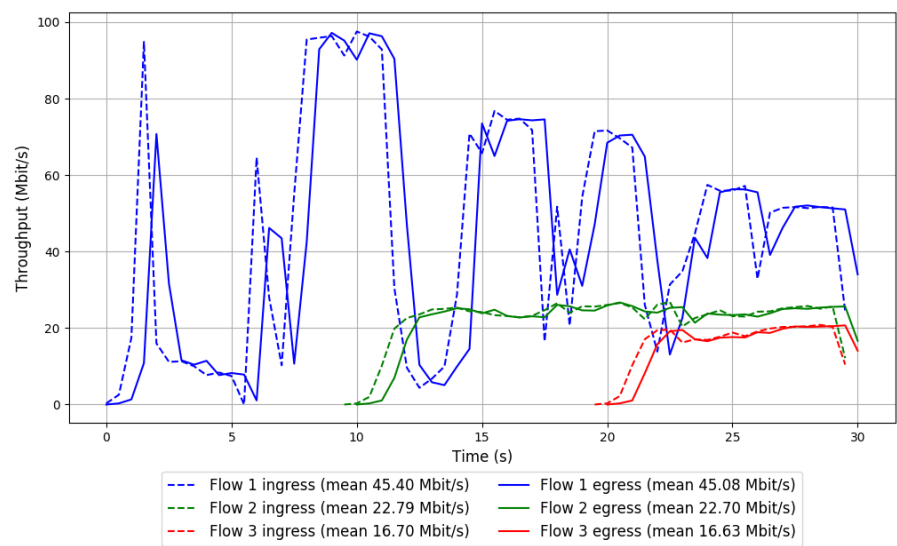
```
Run 4: Statistics of QUIC Cubic

Start at: 2018-12-11 13:43:36
End at: 2018-12-11 13:44:06
Local clock offset: -2.982 ms
Remote clock offset: 108.205 ms


# Below is generated by plot.py at 2018-12-11 14:25:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 61.27 Mbit/s
95th percentile per-packet one-way delay: 110.495 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 46.38 Mbit/s
95th percentile per-packet one-way delay: 111.843 ms
Loss rate: 0.67%
-- Flow 2:
Average throughput: 19.06 Mbit/s
95th percentile per-packet one-way delay: 107.784 ms
Loss rate: 0.28%
-- Flow 3:
Average throughput: 6.88 Mbit/s
95th percentile per-packet one-way delay: 108.355 ms
Loss rate: 0.14%
```

## Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 46.70 Mbit/s) --- Flow 1 egress (mean 46.38 Mbit/s)
Flow 2 ingress (mean 19.12 Mbit/s) --- Flow 2 egress (mean 19.06 Mbit/s)
Flow 3 ingress (mean 6.88 Mbit/s) --- Flow 3 egress (mean 6.88 Mbit/s)

Flow 1 (95th percentile 111.84 ms)   Flow 2 (95th percentile 107.78 ms)   Flow 3 (95th percentile 108.36 ms)

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```
Run 5: Statistics of QUIC Cubic

Start at: 2018-12-11 14:07:46
End at: 2018-12-11 14:08:16
Local clock offset: -3.208 ms
Remote clock offset: 122.644 ms


# Below is generated by plot.py at 2018-12-11 14:25:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 65.76 Mbit/s
95th percentile per-packet one-way delay: 109.694 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 48.09 Mbit/s
95th percentile per-packet one-way delay: 110.258 ms
Loss rate: 0.74%
-- Flow 2:
Average throughput: 18.39 Mbit/s
95th percentile per-packet one-way delay: 109.330 ms
Loss rate: 0.32%
-- Flow 3:
Average throughput: 16.72 Mbit/s
95th percentile per-packet one-way delay: 109.354 ms
Loss rate: 0.61%
```

Run 5: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 48.49 Mbit/s)   Flow 1 egress (mean 48.09 Mbit/s)
Flow 2 ingress (mean 18.46 Mbit/s)   Flow 2 egress (mean 18.39 Mbit/s)
Flow 3 ingress (mean 16.86 Mbit/s)   Flow 3 egress (mean 16.72 Mbit/s)

Flow 1 (95th percentile 110.26 ms)   Flow 2 (95th percentile 109.33 ms)   Flow 3 (95th percentile 109.35 ms)

```
Run 1: Statistics of SCReAM

Start at: 2018-12-11 12:25:52
End at: 2018-12-11 12:26:22
Local clock offset: -3.262 ms
Remote clock offset: 57.165 ms


# Below is generated by plot.py at 2018-12-11 14:25:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 83.737 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 81.964 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 83.764 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 82.238 ms
Loss rate: 0.00%
```

Run 1: Report of SCReAM — Data Link
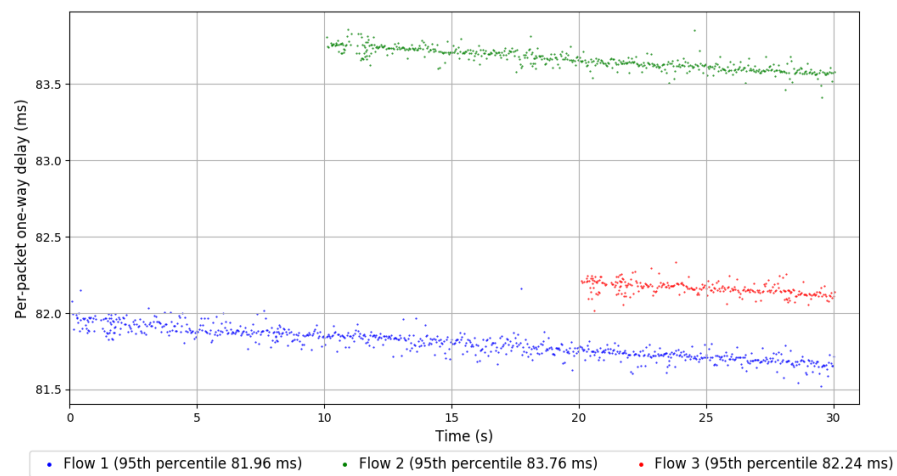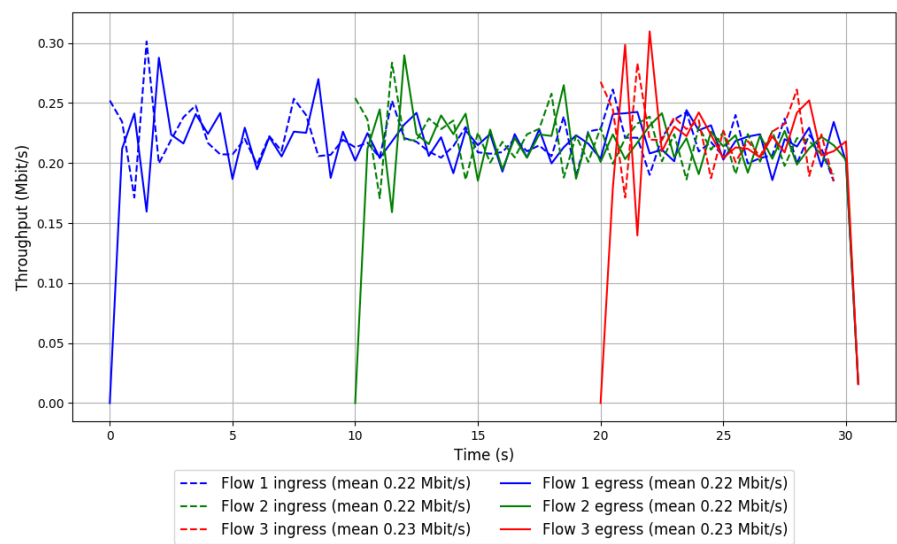
```
Run 2: Statistics of SCReAM

Start at: 2018-12-11 12:50:13
End at: 2018-12-11 12:50:43
Local clock offset: -4.215 ms
Remote clock offset: 72.01 ms


# Below is generated by plot.py at 2018-12-11 14:25:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 82.387 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 82.160 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 80.535 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 82.459 ms
Loss rate: 0.00%
```

Run 2: Report of SCReAM — Data Link
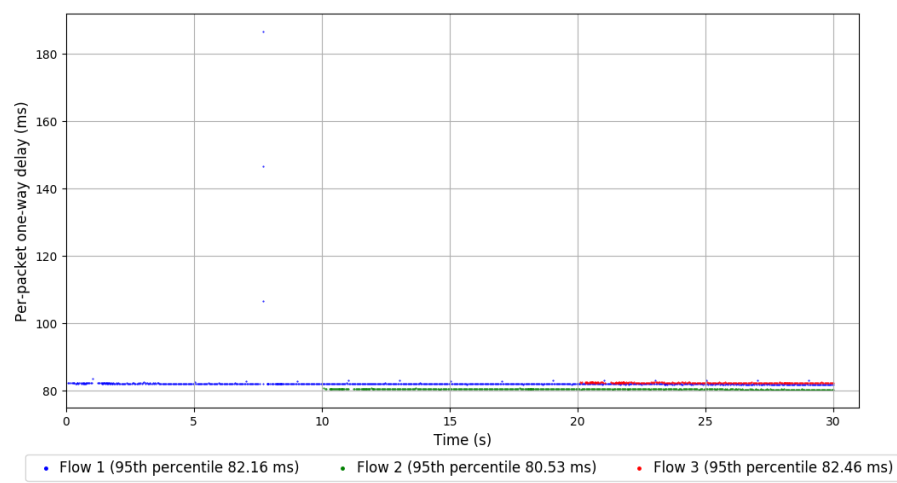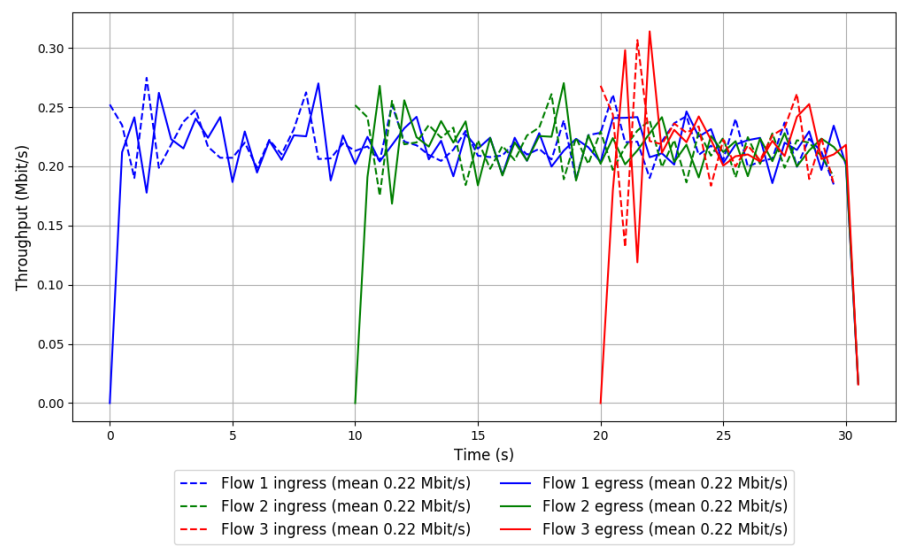
```
Run 3: Statistics of SCReAM

Start at: 2018-12-11 13:14:21
End at: 2018-12-11 13:14:51
Local clock offset: -3.818 ms
Remote clock offset: 90.317 ms


# Below is generated by plot.py at 2018-12-11 14:25:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 85.942 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 85.969 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 84.438 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 83.835 ms
Loss rate: 0.00%
```

Run 3: Report of SCReAM — Data Link

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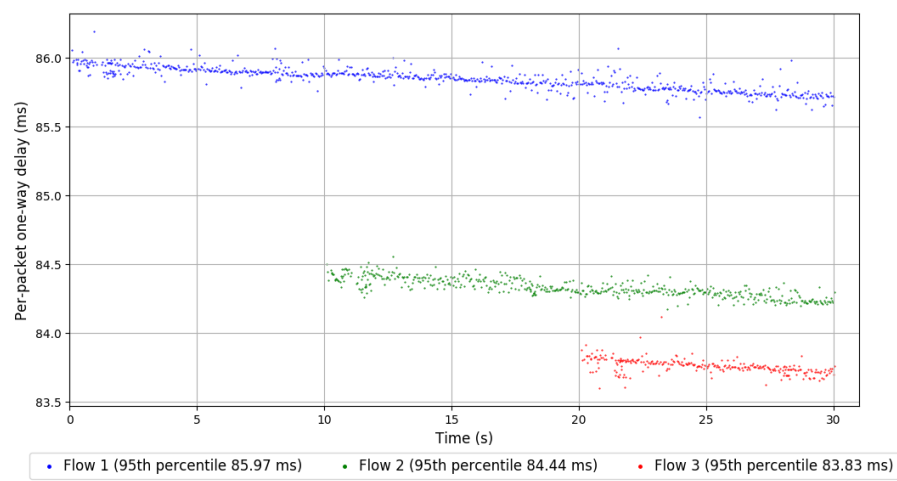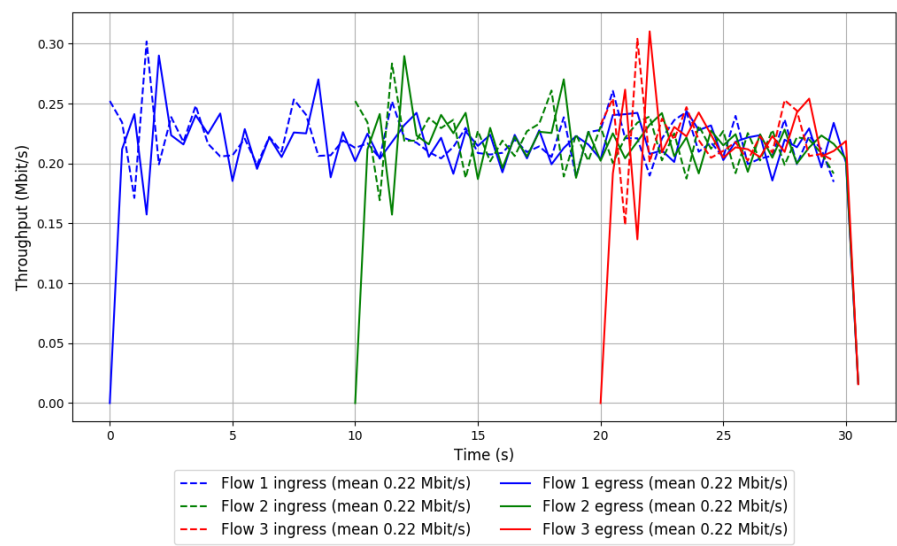
```
Run 4: Statistics of SCReAM

Start at: 2018-12-11 13:38:33
End at: 2018-12-11 13:39:03
Local clock offset: -2.789 ms
Remote clock offset: 105.046 ms


# Below is generated by plot.py at 2018-12-11 14:25:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 87.726 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 84.125 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 87.050 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 87.786 ms
Loss rate: 0.00%
```

Run 4: Report of SCReAM — Data Link
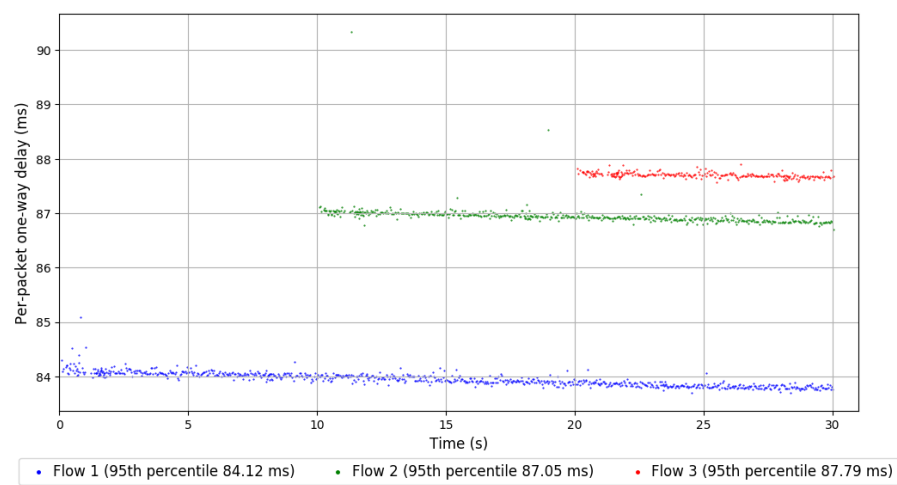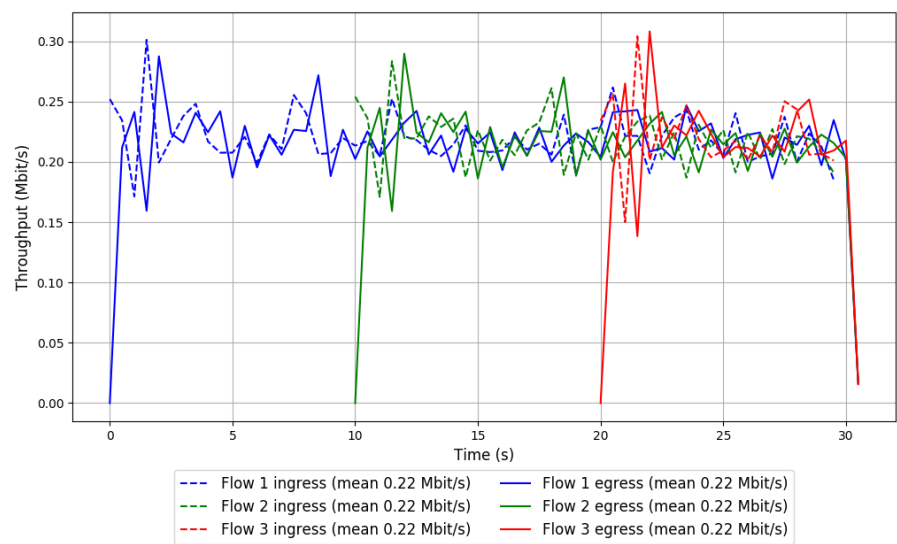
```
Run 5: Statistics of SCReAM

Start at: 2018-12-11 14:02:44
End at: 2018-12-11 14:03:14
Local clock offset: -3.153 ms
Remote clock offset: 115.541 ms


# Below is generated by plot.py at 2018-12-11 14:25:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 87.837 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 87.859 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 80.022 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 81.872 ms
Loss rate: 0.00%
```

Run 5: Report of SCReAM — Data Link
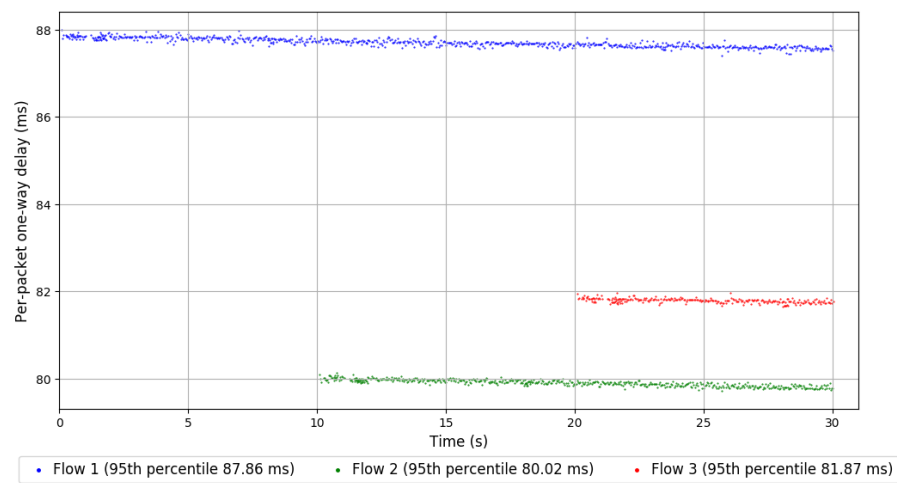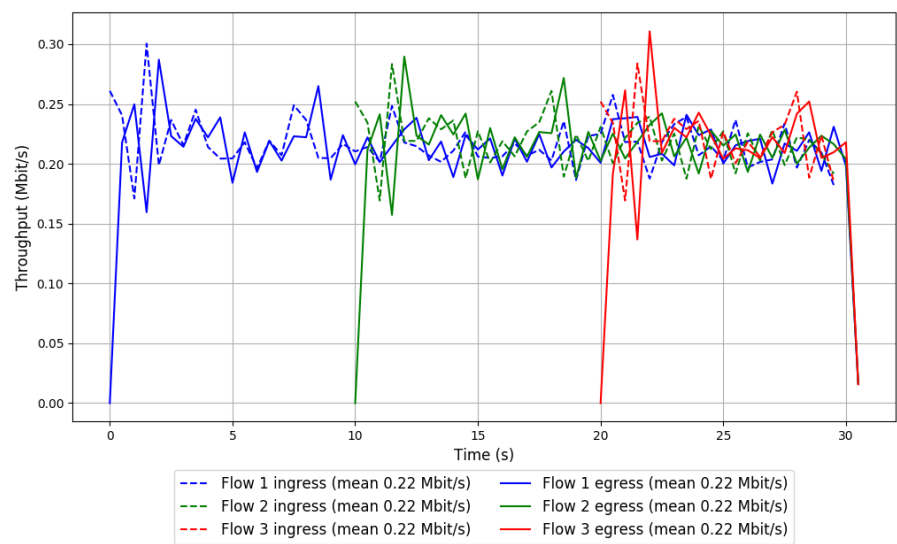
```
Run 1: Statistics of Sprout

Start at: 2018-12-11 12:36:01
End at: 2018-12-11 12:36:31
Local clock offset: -3.284 ms
Remote clock offset: 63.143 ms


# Below is generated by plot.py at 2018-12-11 14:25:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.92 Mbit/s
95th percentile per-packet one-way delay: 84.985 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 3.14 Mbit/s
95th percentile per-packet one-way delay: 85.004 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.72 Mbit/s
95th percentile per-packet one-way delay: 85.029 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 1.95 Mbit/s
95th percentile per-packet one-way delay: 84.726 ms
Loss rate: 0.00%
```

Run 1: Report of Sprout — Data Link
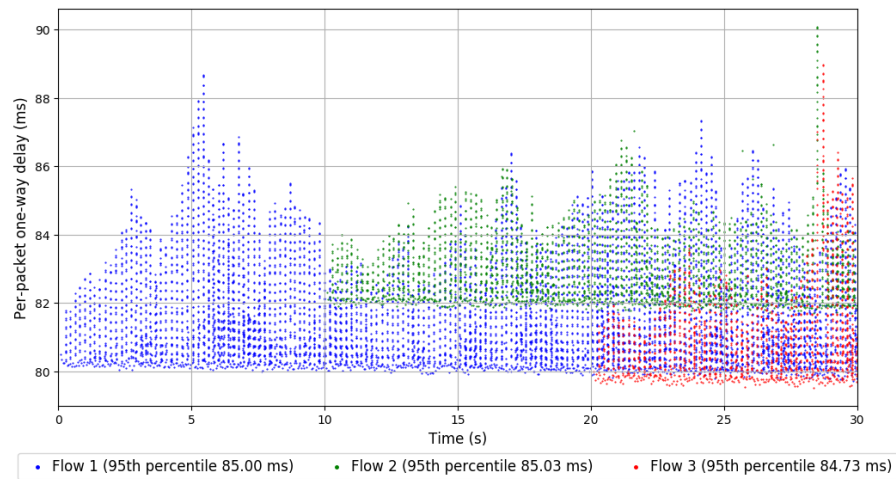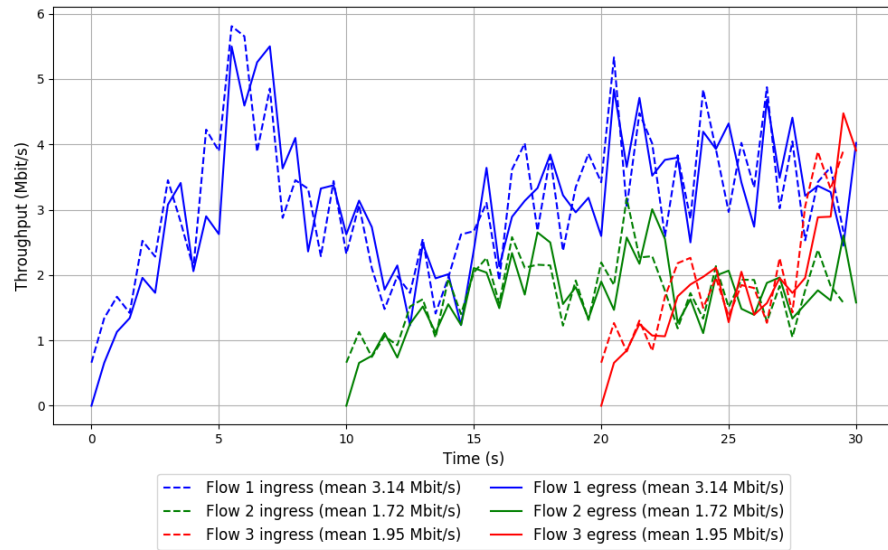
```
Run 2: Statistics of Sprout

Start at: 2018-12-11 13:00:23
End at: 2018-12-11 13:00:53
Local clock offset: -4.519 ms
Remote clock offset: 78.303 ms


# Below is generated by plot.py at 2018-12-11 14:25:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.19 Mbit/s
95th percentile per-packet one-way delay: 92.526 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.48 Mbit/s
95th percentile per-packet one-way delay: 88.780 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 2.50 Mbit/s
95th percentile per-packet one-way delay: 84.717 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 3.17 Mbit/s
95th percentile per-packet one-way delay: 95.492 ms
Loss rate: 0.00%
```

Run 2: Report of Sprout — Data Link
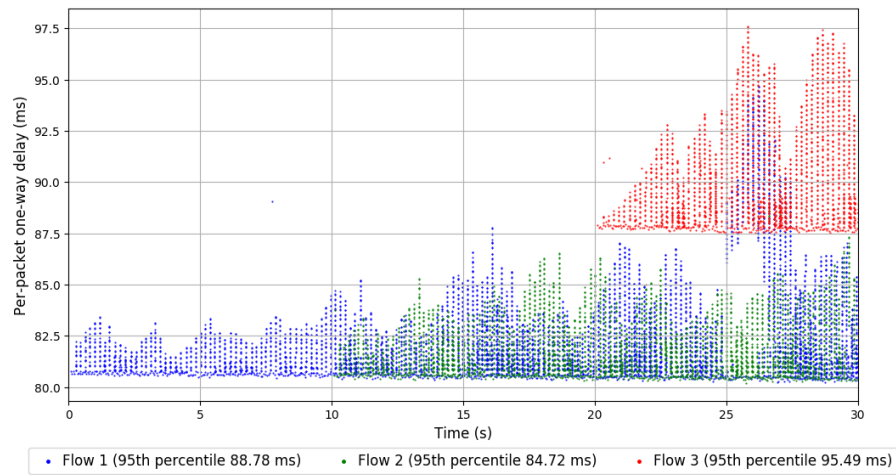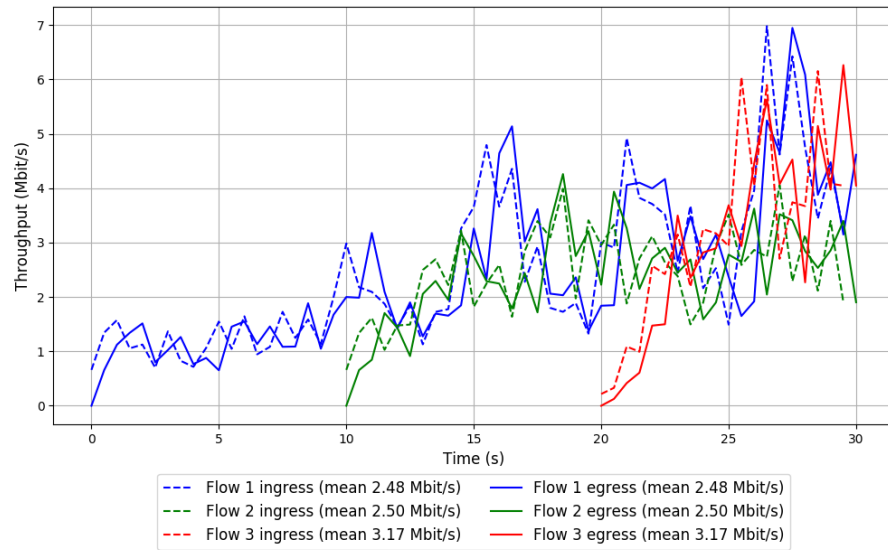
```
Run 3: Statistics of Sprout

Start at: 2018-12-11 13:24:29
End at: 2018-12-11 13:24:59
Local clock offset: -3.161 ms
Remote clock offset: 96.372 ms


# Below is generated by plot.py at 2018-12-11 14:25:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.71 Mbit/s
95th percentile per-packet one-way delay: 91.701 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.73 Mbit/s
95th percentile per-packet one-way delay: 92.061 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 2.94 Mbit/s
95th percentile per-packet one-way delay: 92.366 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 3.12 Mbit/s
95th percentile per-packet one-way delay: 88.586 ms
Loss rate: 0.00%
```

Run 3: Report of Sprout — Data Link

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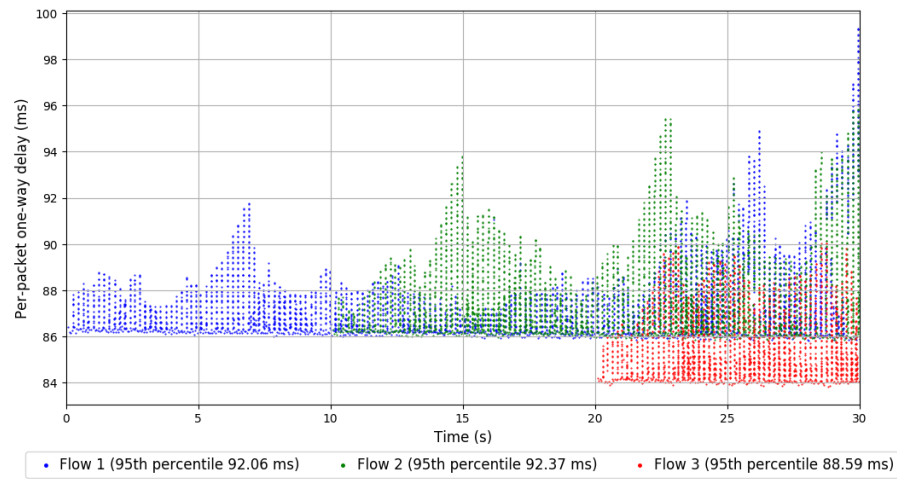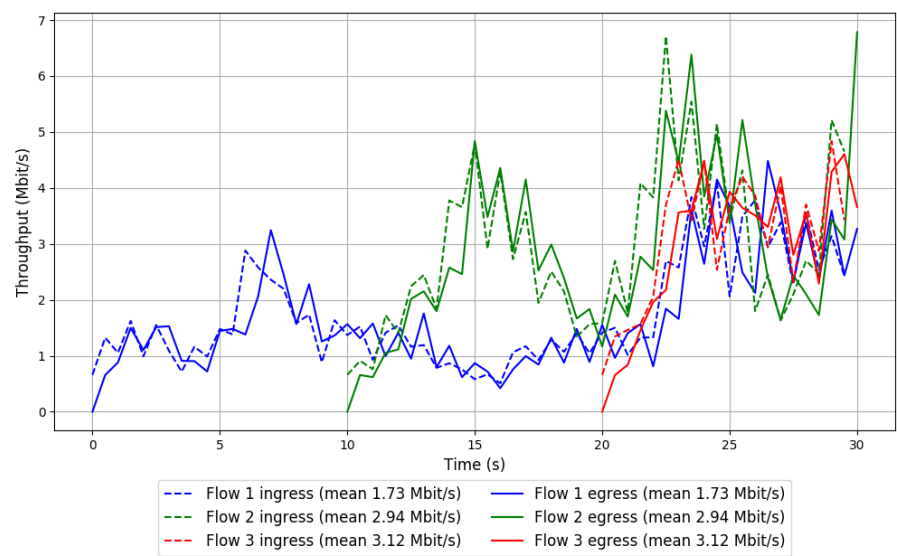
```
Run 4: Statistics of Sprout

Start at: 2018-12-11 13:48:44
End at: 2018-12-11 13:49:14
Local clock offset: -3.109 ms
Remote clock offset: 110.122 ms


# Below is generated by plot.py at 2018-12-11 14:25:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.79 Mbit/s
95th percentile per-packet one-way delay: 95.605 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.67 Mbit/s
95th percentile per-packet one-way delay: 92.988 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 3.03 Mbit/s
95th percentile per-packet one-way delay: 95.709 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 3.36 Mbit/s
95th percentile per-packet one-way delay: 96.627 ms
Loss rate: 0.00%
```

# Run 4: Report of Sprout — Data Link
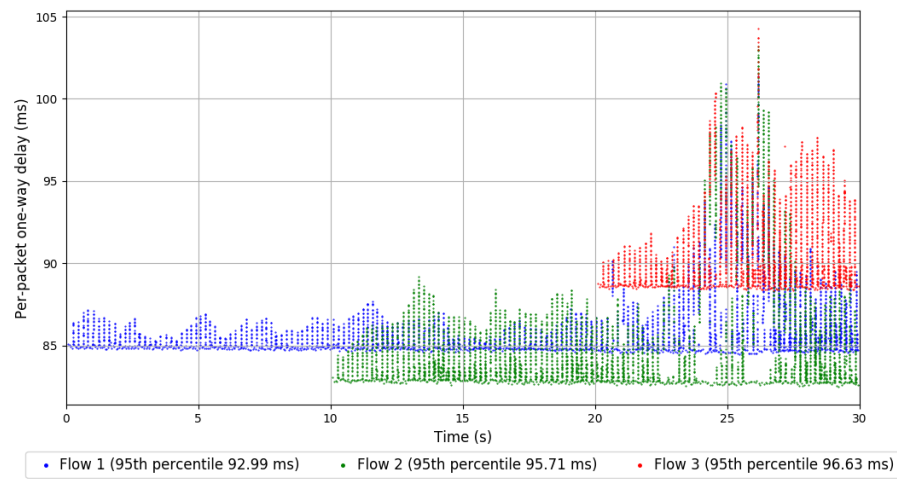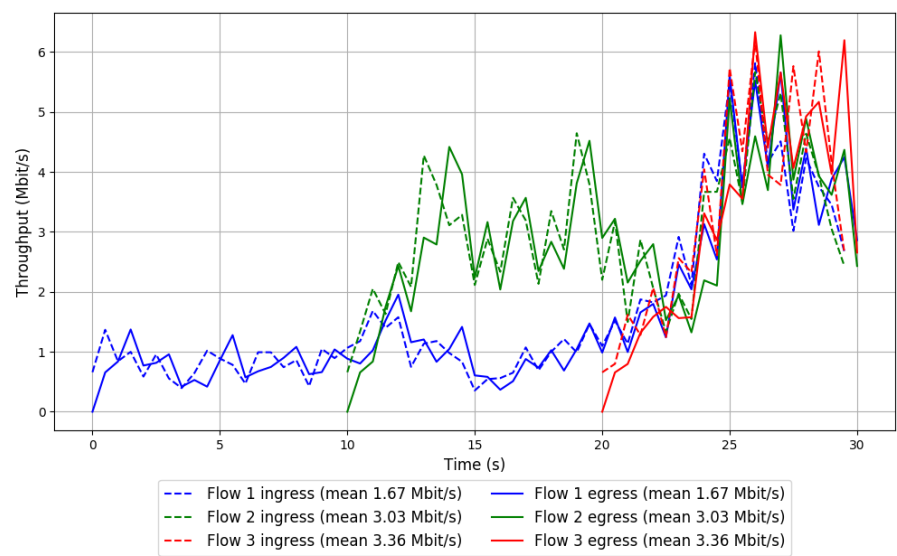
```
Run 5: Statistics of Sprout

Start at: 2018-12-11 14:12:53
End at: 2018-12-11 14:13:23
Local clock offset: -3.85 ms
Remote clock offset: 125.679 ms


# Below is generated by plot.py at 2018-12-11 14:25:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.84 Mbit/s
95th percentile per-packet one-way delay: 96.821 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 2.81 Mbit/s
95th percentile per-packet one-way delay: 95.948 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 3.12 Mbit/s
95th percentile per-packet one-way delay: 96.349 ms
Loss rate: 0.97%
-- Flow 3:
Average throughput: 2.89 Mbit/s
95th percentile per-packet one-way delay: 98.168 ms
Loss rate: 0.00%
```

Run 5: Report of Sprout — Data Link

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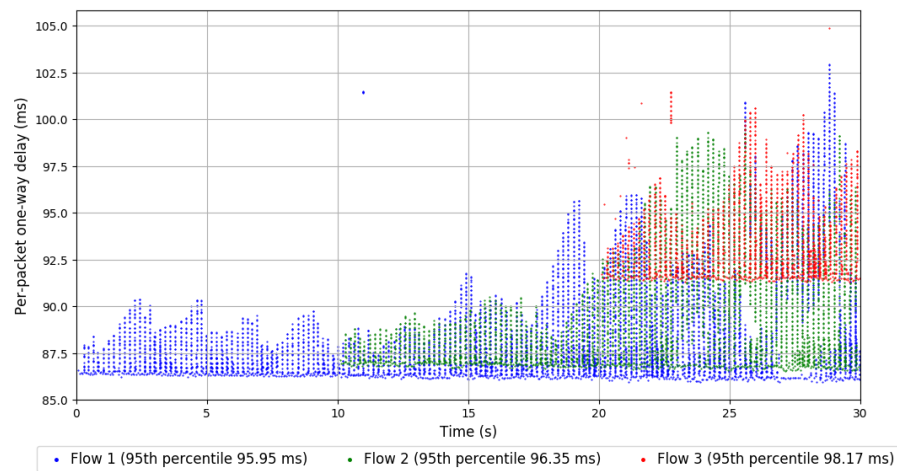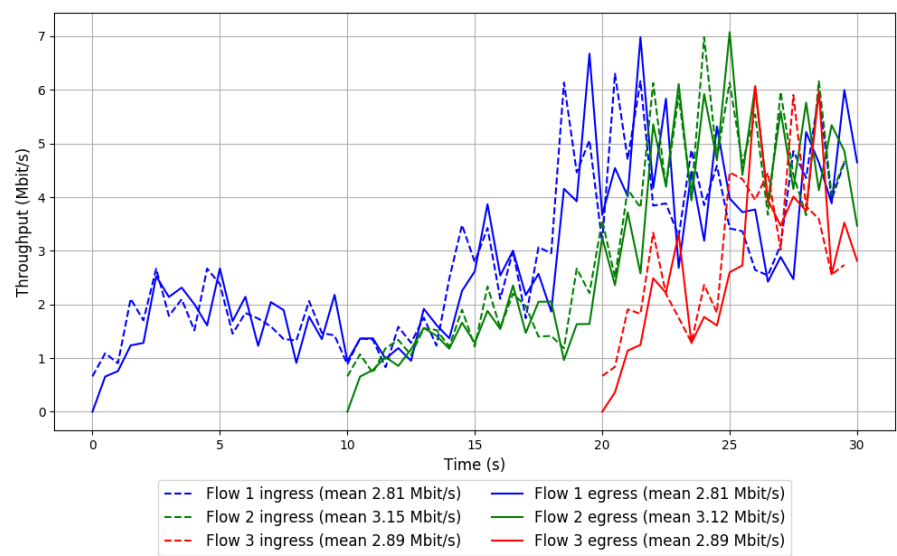
```
Run 1: Statistics of TaoVA-100x

Start at: 2018-12-11 12:18:11
End at: 2018-12-11 12:18:41
Local clock offset: -3.259 ms
Remote clock offset: 52.786 ms


# Below is generated by plot.py at 2018-12-11 14:25:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.48 Mbit/s
95th percentile per-packet one-way delay: 88.120 ms
Loss rate: 25.56%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 84.222 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 9.79 Mbit/s
95th percentile per-packet one-way delay: 91.831 ms
Loss rate: 28.67%
-- Flow 3:
Average throughput: 5.89 Mbit/s
95th percentile per-packet one-way delay: 82.127 ms
Loss rate: 12.88%
```

Run 1: Report of TaoVA-100x — Data Link
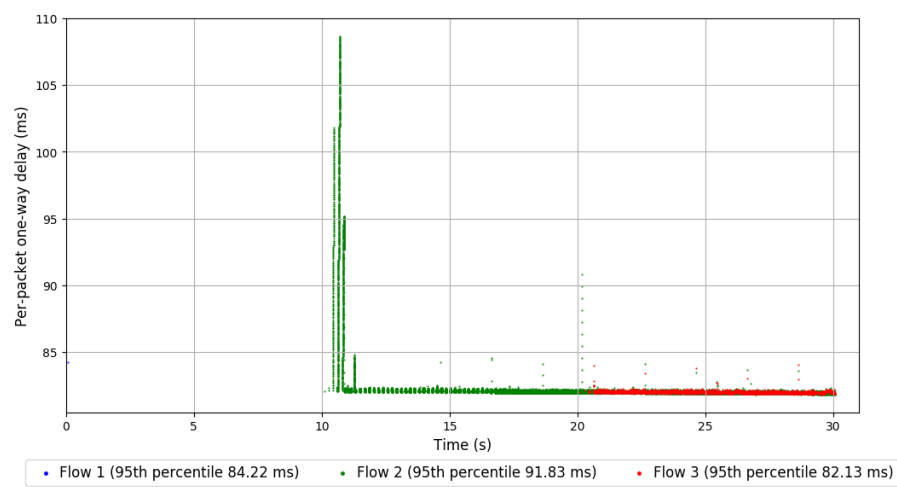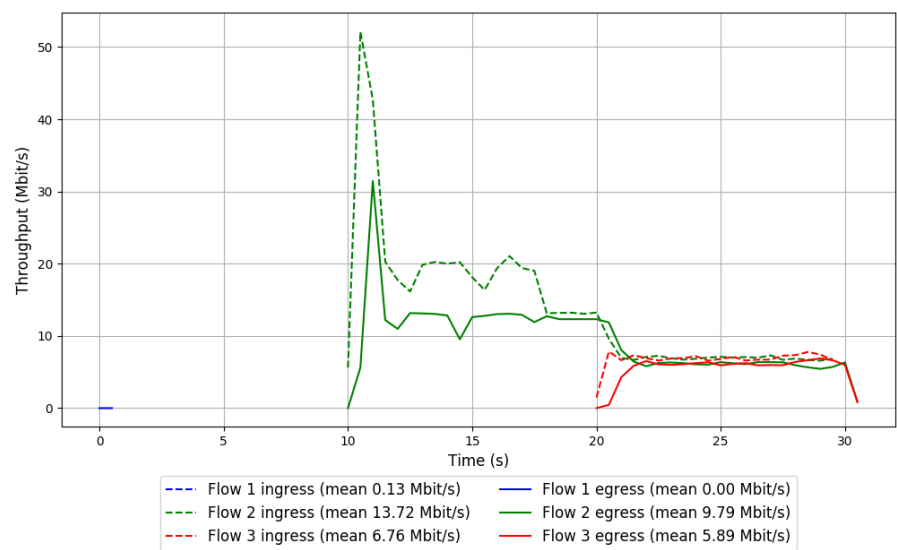
```
Run 2: Statistics of TaoVA-100x

Start at: 2018-12-11 12:42:19
End at: 2018-12-11 12:42:49
Local clock offset: -3.793 ms
Remote clock offset: 70.895 ms


# Below is generated by plot.py at 2018-12-11 14:25:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.59 Mbit/s
95th percentile per-packet one-way delay: 87.025 ms
Loss rate: 79.88%
-- Flow 1:
Average throughput: 7.27 Mbit/s
95th percentile per-packet one-way delay: 94.142 ms
Loss rate: 38.59%
-- Flow 2:
Average throughput: 4.23 Mbit/s
95th percentile per-packet one-way delay: 85.877 ms
Loss rate: 41.70%
-- Flow 3:
Average throughput: 7.52 Mbit/s
95th percentile per-packet one-way delay: 83.778 ms
Loss rate: 94.55%
```

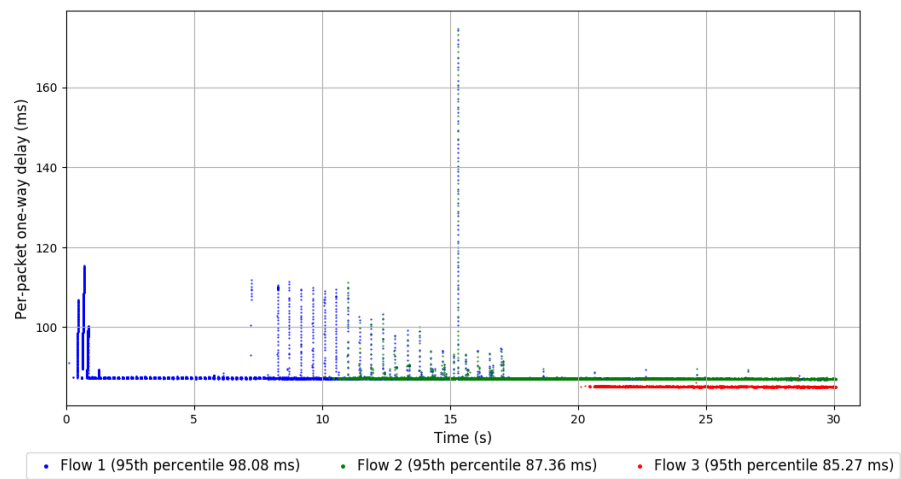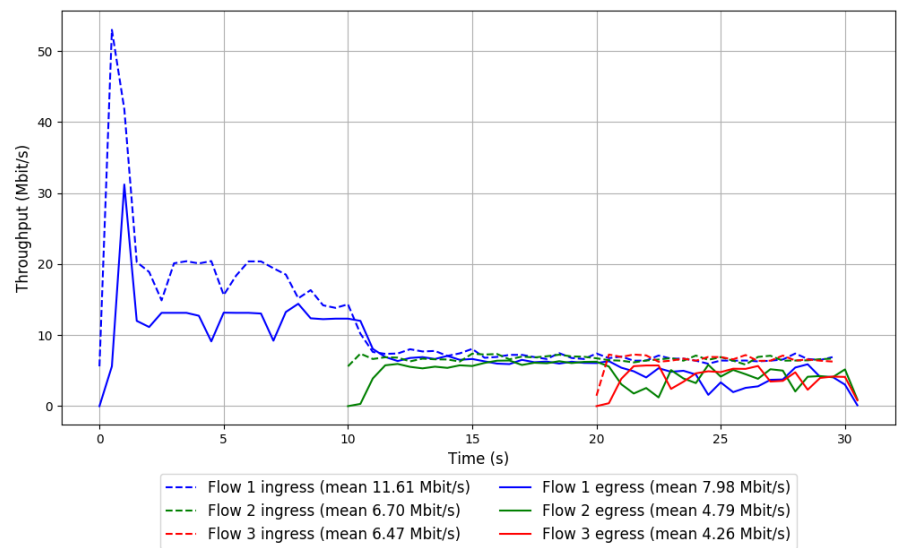Run 2: Report of TaoVA-100x — Data Link
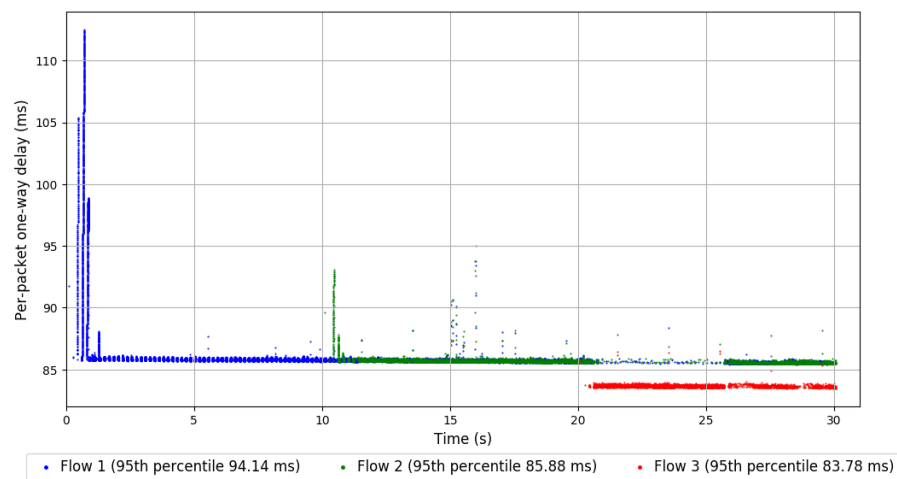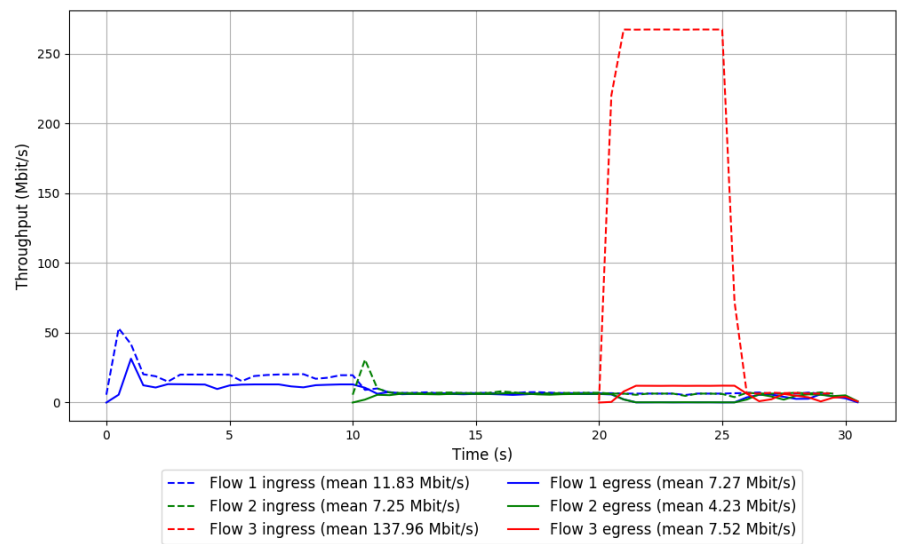
```
Run 3: Statistics of TaoVA-100x

Start at: 2018-12-11 13:06:40
End at: 2018-12-11 13:07:10
Local clock offset: -4.64 ms
Remote clock offset: 87.106 ms


# Below is generated by plot.py at 2018-12-11 14:25:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.58 Mbit/s
95th percentile per-packet one-way delay: 92.422 ms
Loss rate: 30.97%
-- Flow 1:
Average throughput: 7.98 Mbit/s
95th percentile per-packet one-way delay: 98.077 ms
Loss rate: 31.33%
-- Flow 2:
Average throughput: 4.79 Mbit/s
95th percentile per-packet one-way delay: 87.360 ms
Loss rate: 28.46%
-- Flow 3:
Average throughput: 4.26 Mbit/s
95th percentile per-packet one-way delay: 85.273 ms
Loss rate: 34.22%
```

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

Flow 1 ingress (mean 11.61 Mbit/s) --- Flow 1 egress (mean 7.98 Mbit/s) ---
Flow 2 ingress (mean 6.70 Mbit/s) --- Flow 2 egress (mean 4.79 Mbit/s) ---
Flow 3 ingress (mean 6.47 Mbit/s) --- Flow 3 egress (mean 4.26 Mbit/s) ---

Flow 1 (95th percentile 98.08 ms)   Flow 2 (95th percentile 87.36 ms)   Flow 3 (95th percentile 85.27 ms)
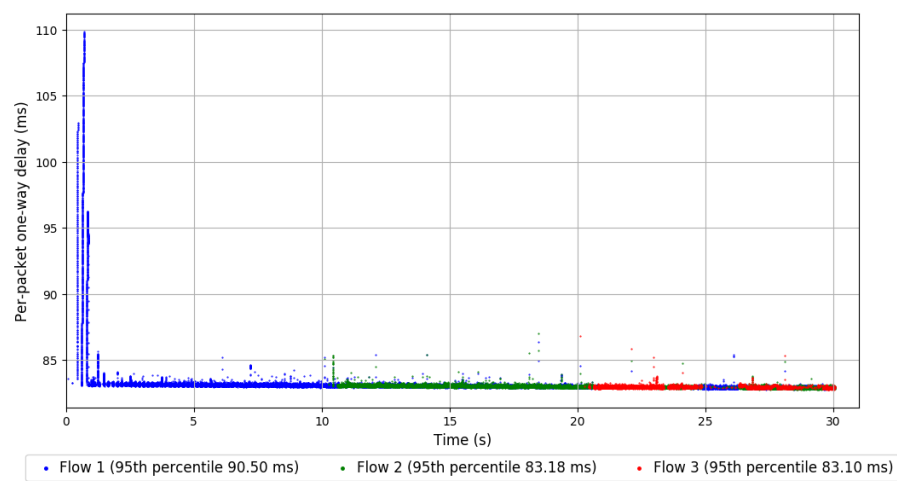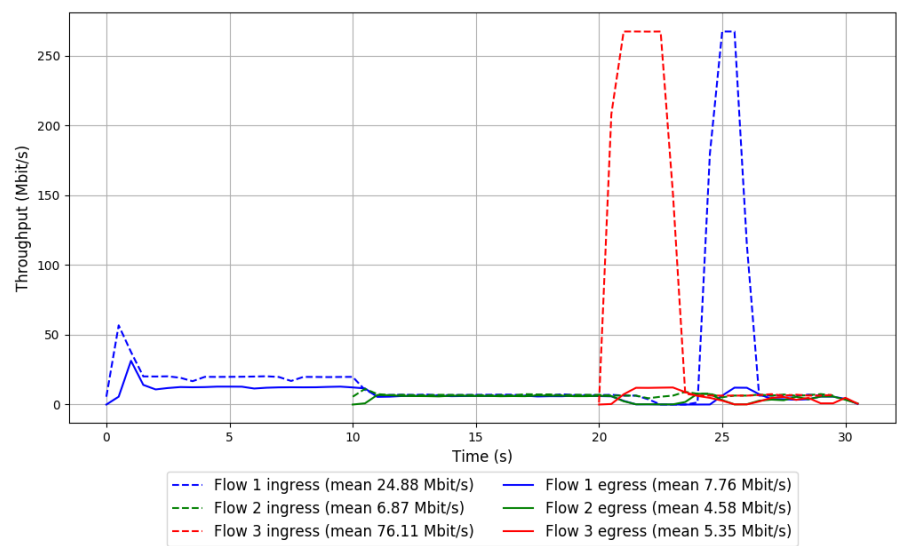
```
Run 4: Statistics of TaoVA-100x

Start at: 2018-12-11 13:30:46
End at: 2018-12-11 13:31:16
Local clock offset: -3.04 ms
Remote clock offset: 99.274 ms

# Below is generated by plot.py at 2018-12-11 14:25:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.59 Mbit/s
95th percentile per-packet one-way delay: 83.892 ms
Loss rate: 77.00%
-- Flow 1:
Average throughput: 7.76 Mbit/s
95th percentile per-packet one-way delay: 90.504 ms
Loss rate: 68.79%
-- Flow 2:
Average throughput: 4.58 Mbit/s
95th percentile per-packet one-way delay: 83.181 ms
Loss rate: 33.34%
-- Flow 3:
Average throughput: 5.35 Mbit/s
95th percentile per-packet one-way delay: 83.104 ms
Loss rate: 92.97%
```

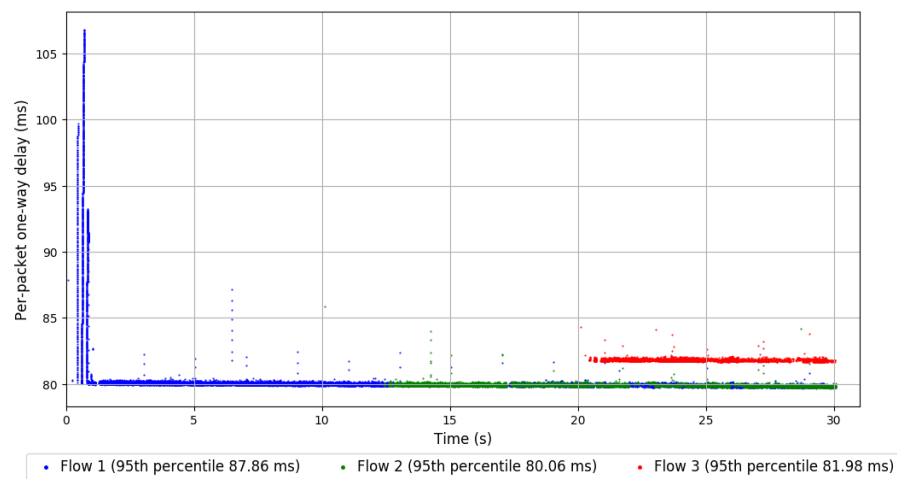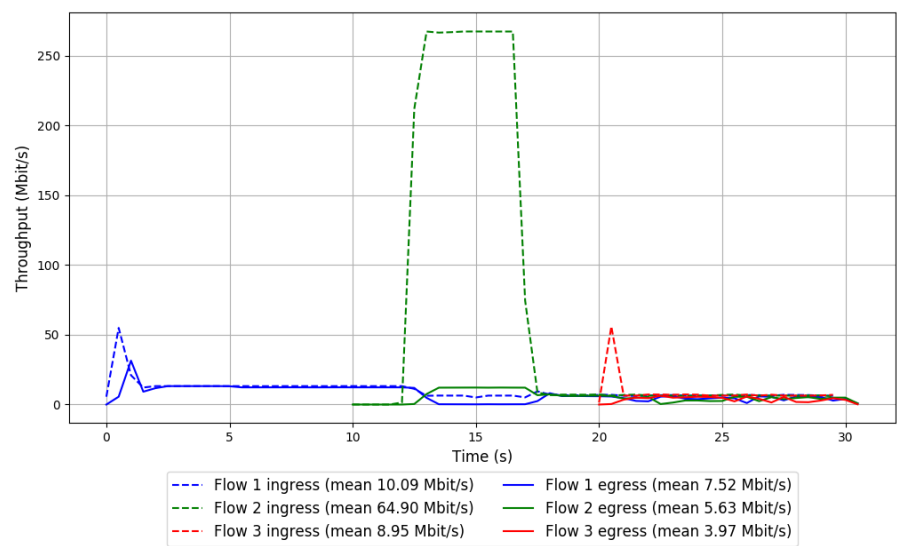Run 4: Report of TaoVA-100x — Data Link

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

Start at: 2018-12-11 13:55:01
End at: 2018-12-11 13:55:31
Local clock offset: -3.198 ms
Remote clock offset: 110.859 ms

# Below is generated by plot.py at 2018-12-11 14:25:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.59 Mbit/s
95th percentile per-packet one-way delay: 81.960 ms
Loss rate: 77.64%
-- Flow 1:
Average throughput: 7.52 Mbit/s
95th percentile per-packet one-way delay: 87.858 ms
Loss rate: 25.49%
-- Flow 2:
Average throughput: 5.63 Mbit/s
95th percentile per-packet one-way delay: 80.062 ms
Loss rate: 91.33%
-- Flow 3:
Average throughput: 3.97 Mbit/s
95th percentile per-packet one-way delay: 81.980 ms
Loss rate: 55.72%
```

Run 5: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 10.09 Mbit/s) --- Flow 1 egress (mean 7.52 Mbit/s)
Flow 2 ingress (mean 64.90 Mbit/s) --- Flow 2 egress (mean 5.63 Mbit/s)
Flow 3 ingress (mean 8.95 Mbit/s) --- Flow 3 egress (mean 3.97 Mbit/s)

Flow 1 (95th percentile 87.86 ms) Flow 2 (95th percentile 80.06 ms) Flow 3 (95th percentile 81.98 ms)
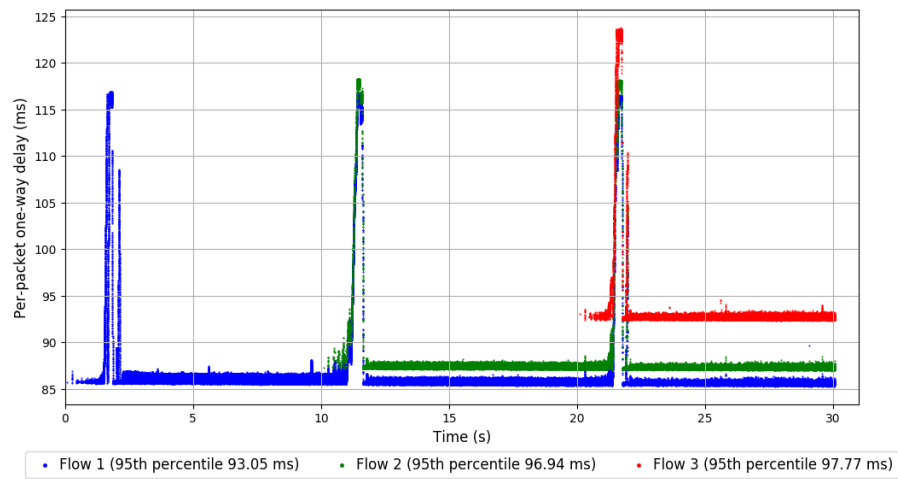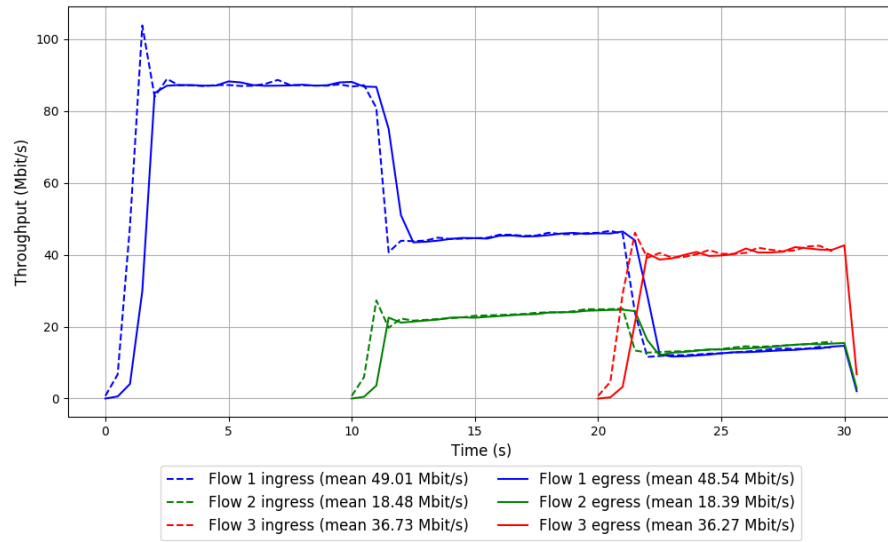
```
Run 1: Statistics of TCP Vegas

Start at: 2018-12-11 12:16:55
End at: 2018-12-11 12:17:25
Local clock offset: -3.175 ms
Remote clock offset: 56.786 ms


# Below is generated by plot.py at 2018-12-11 14:26:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 72.84 Mbit/s
95th percentile per-packet one-way delay: 94.862 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 48.54 Mbit/s
95th percentile per-packet one-way delay: 93.054 ms
Loss rate: 0.96%
-- Flow 2:
Average throughput: 18.39 Mbit/s
95th percentile per-packet one-way delay: 96.942 ms
Loss rate: 0.46%
-- Flow 3:
Average throughput: 36.27 Mbit/s
95th percentile per-packet one-way delay: 97.772 ms
Loss rate: 1.31%
```

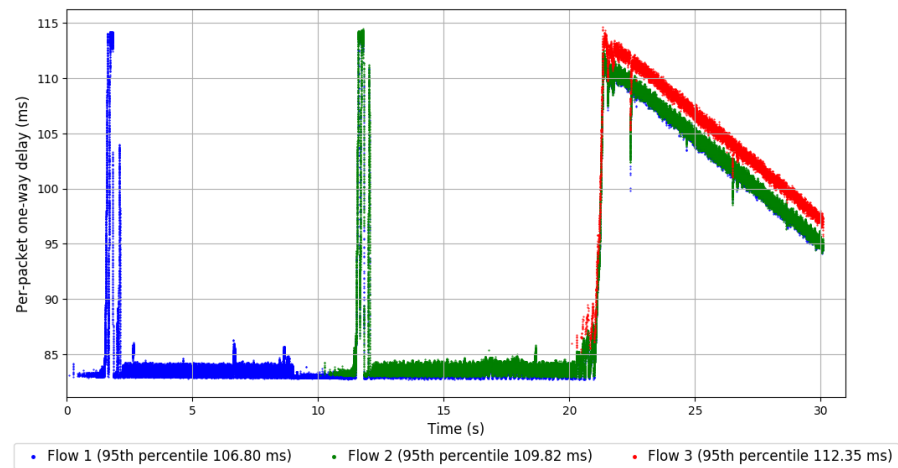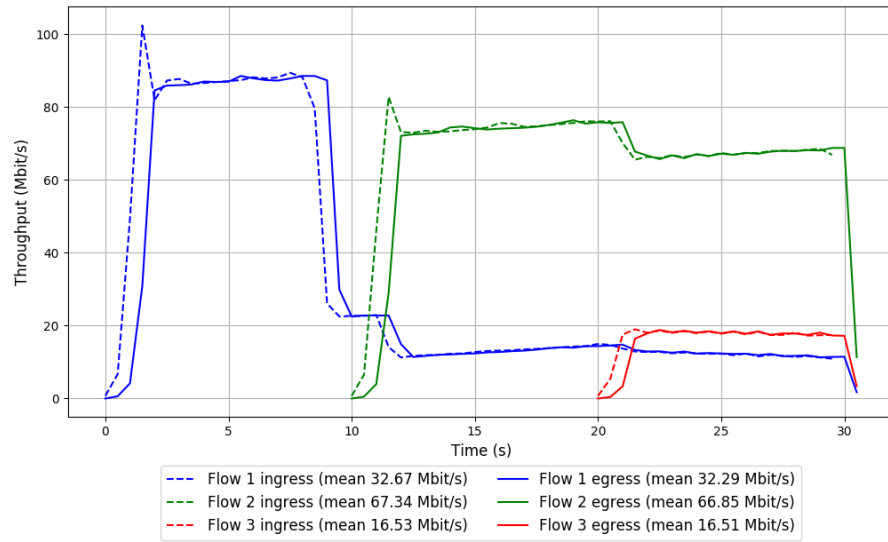Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-12-11 12:41:02
End at: 2018-12-11 12:41:32
Local clock offset: -3.669 ms
Remote clock offset: 69.263 ms


# Below is generated by plot.py at 2018-12-11 14:26:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 82.32 Mbit/s
95th percentile per-packet one-way delay: 109.968 ms
Loss rate: 0.81%
-- Flow 1:
Average throughput: 32.29 Mbit/s
95th percentile per-packet one-way delay: 106.804 ms
Loss rate: 1.15%
-- Flow 2:
Average throughput: 66.85 Mbit/s
95th percentile per-packet one-way delay: 109.823 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 16.51 Mbit/s
95th percentile per-packet one-way delay: 112.346 ms
Loss rate: 0.00%
```

Run 2: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 32.67 Mbit/s) — Flow 1 egress (mean 32.29 Mbit/s)
Flow 2 ingress (mean 67.34 Mbit/s) — Flow 2 egress (mean 66.85 Mbit/s)
Flow 3 ingress (mean 16.53 Mbit/s) — Flow 3 egress (mean 16.51 Mbit/s)

Flow 1 (95th percentile 106.80 ms) — Flow 2 (95th percentile 109.82 ms) — Flow 3 (95th percentile 112.35 ms)
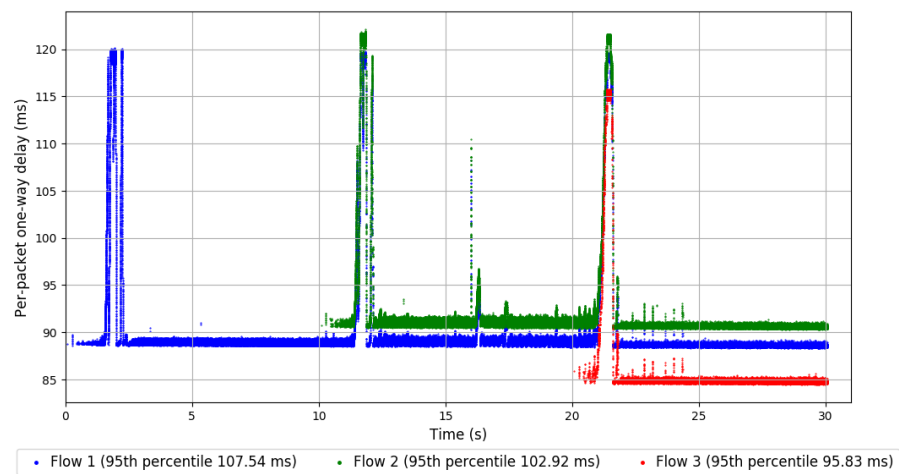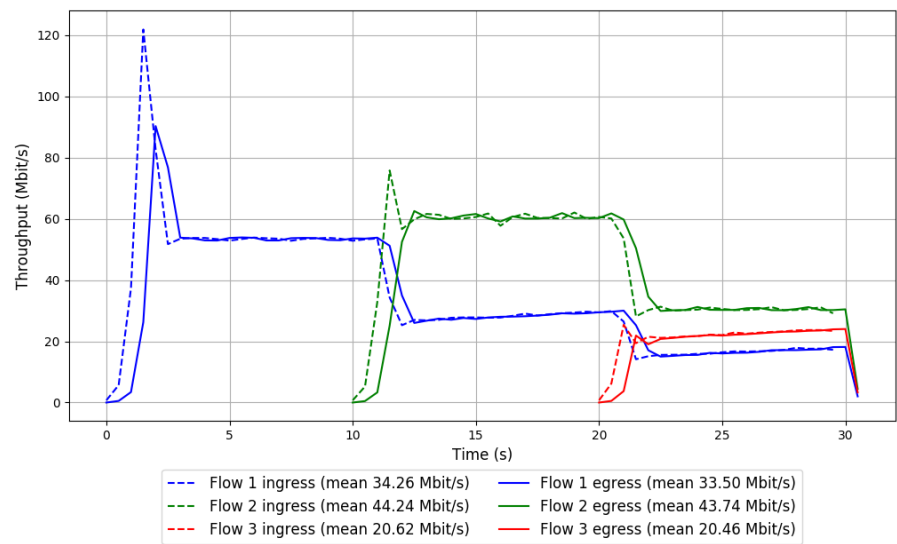
```
Run 3: Statistics of TCP Vegas

Start at: 2018-12-11 13:05:23
End at: 2018-12-11 13:05:53
Local clock offset: -4.616 ms
Remote clock offset: 83.935 ms


# Below is generated by plot.py at 2018-12-11 14:26:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 69.46 Mbit/s
95th percentile per-packet one-way delay: 104.887 ms
Loss rate: 1.64%
-- Flow 1:
Average throughput: 33.50 Mbit/s
95th percentile per-packet one-way delay: 107.542 ms
Loss rate: 2.23%
-- Flow 2:
Average throughput: 43.74 Mbit/s
95th percentile per-packet one-way delay: 102.916 ms
Loss rate: 1.15%
-- Flow 3:
Average throughput: 20.46 Mbit/s
95th percentile per-packet one-way delay: 95.832 ms
Loss rate: 0.79%
```

Run 3: Report of TCP Vegas — Data Link

- Flow 1 ingress (mean 34.26 Mbit/s)
- Flow 1 egress (mean 33.50 Mbit/s)
- Flow 2 ingress (mean 44.24 Mbit/s)
- Flow 2 egress (mean 43.74 Mbit/s)
- Flow 3 ingress (mean 20.62 Mbit/s)
- Flow 3 egress (mean 20.46 Mbit/s)

- Flow 1 (95th percentile 107.54 ms)
- Flow 2 (95th percentile 102.92 ms)
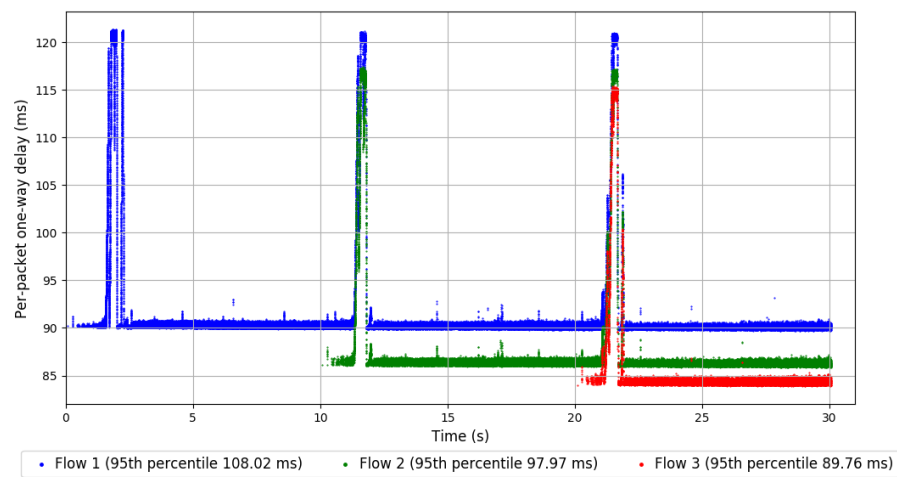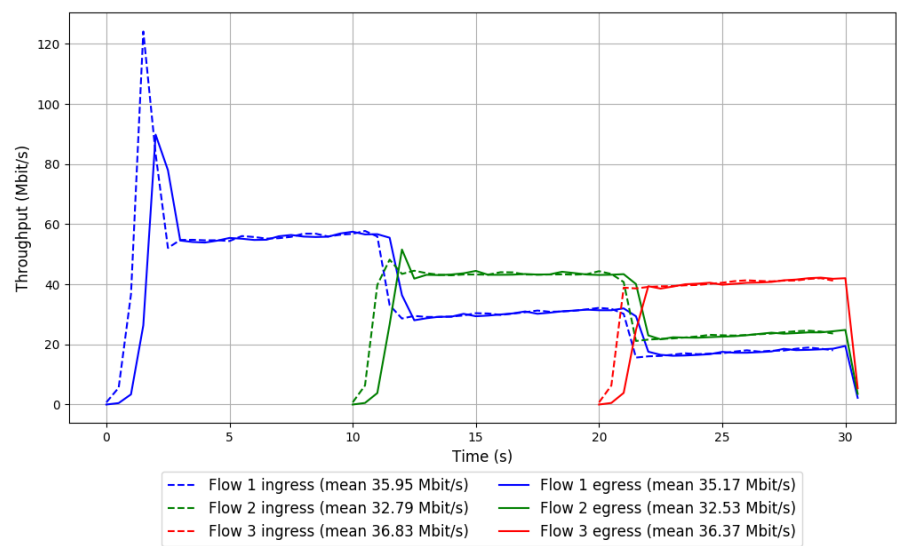- Flow 3 (95th percentile 95.83 ms)

```
Run 4: Statistics of TCP Vegas

Start at: 2018-12-11 13:29:30
End at: 2018-12-11 13:30:00
Local clock offset: -3.003 ms
Remote clock offset: 99.743 ms


# Below is generated by plot.py at 2018-12-11 14:26:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 68.95 Mbit/s
95th percentile per-packet one-way delay: 101.916 ms
Loss rate: 1.57%
-- Flow 1:
Average throughput: 35.17 Mbit/s
95th percentile per-packet one-way delay: 108.024 ms
Loss rate: 2.16%
-- Flow 2:
Average throughput: 32.53 Mbit/s
95th percentile per-packet one-way delay: 97.967 ms
Loss rate: 0.78%
-- Flow 3:
Average throughput: 36.37 Mbit/s
95th percentile per-packet one-way delay: 89.764 ms
Loss rate: 1.23%
```

Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2018-12-11 13:53:44
End at: 2018-12-11 13:54:14
Local clock offset: -3.143 ms
Remote clock offset: 110.155 ms


# Below is generated by plot.py at 2018-12-11 14:26:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 78.70 Mbit/s
95th percentile per-packet one-way delay: 89.430 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 52.56 Mbit/s
95th percentile per-packet one-way delay: 88.602 ms
Loss rate: 0.94%
-- Flow 2:
Average throughput: 14.95 Mbit/s
95th percentile per-packet one-way delay: 92.390 ms
Loss rate: 0.53%
-- Flow 3:
Average throughput: 48.70 Mbit/s
95th percentile per-packet one-way delay: 92.090 ms
Loss rate: 1.47%
```

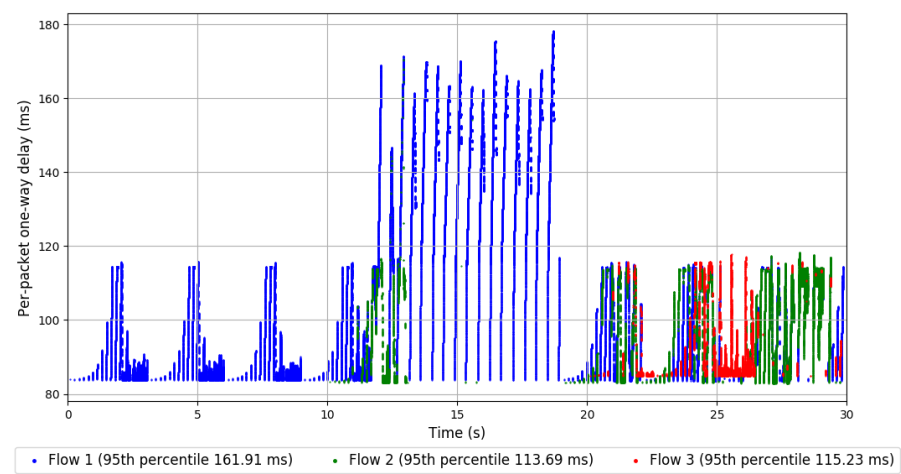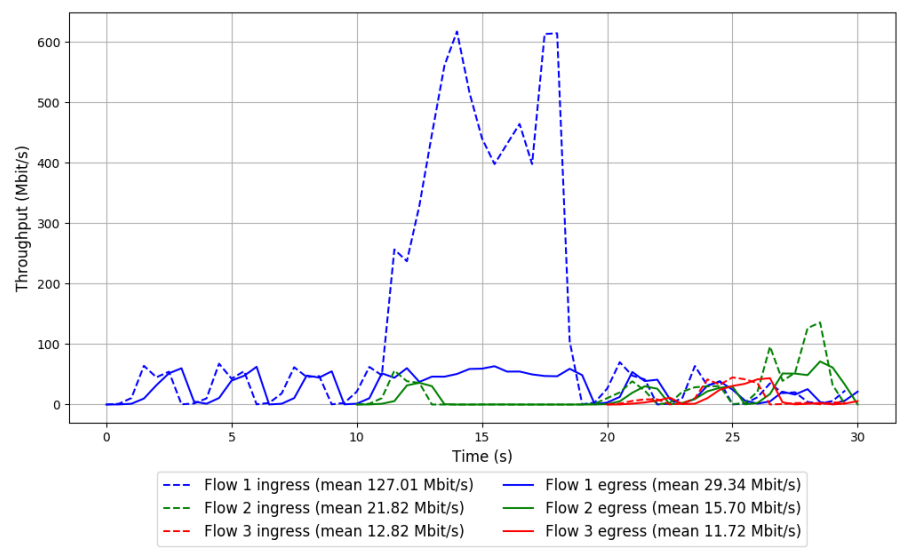Run 5: Report of TCP Vegas — Data Link
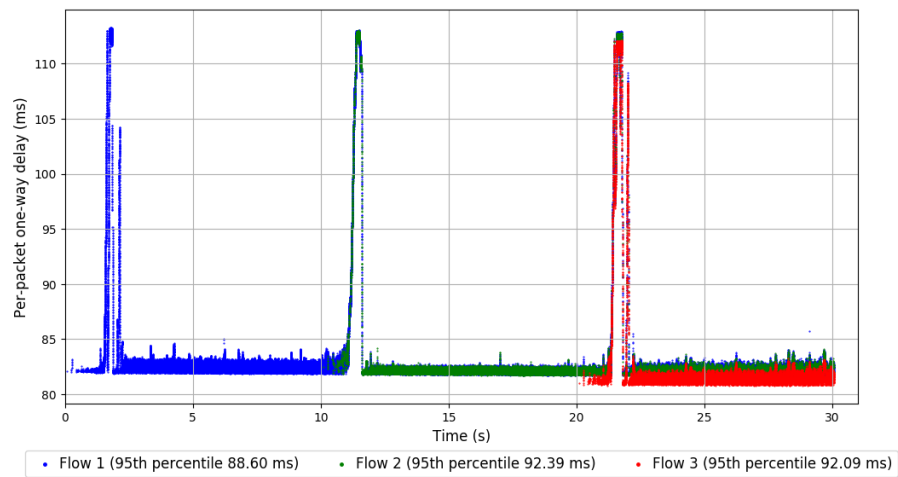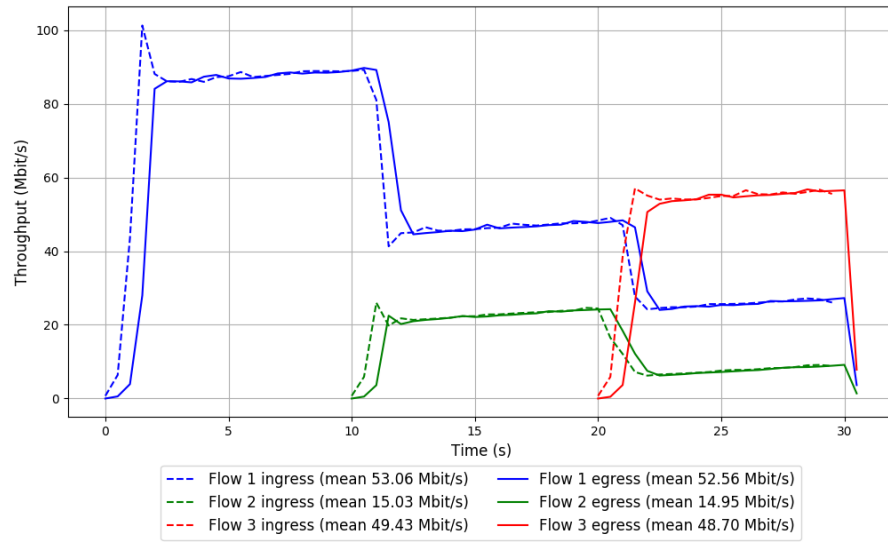
```
Run 1: Statistics of Verus

Start at: 2018-12-11 12:27:05
End at: 2018-12-11 12:27:35
Local clock offset: -3.293 ms
Remote clock offset: 60.713 ms


# Below is generated by plot.py at 2018-12-11 14:26:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 43.49 Mbit/s
95th percentile per-packet one-way delay: 158.723 ms
Loss rate: 70.09%
-- Flow 1:
Average throughput: 29.34 Mbit/s
95th percentile per-packet one-way delay: 161.907 ms
Loss rate: 76.88%
-- Flow 2:
Average throughput: 15.70 Mbit/s
95th percentile per-packet one-way delay: 113.694 ms
Loss rate: 28.04%
-- Flow 3:
Average throughput: 11.72 Mbit/s
95th percentile per-packet one-way delay: 115.232 ms
Loss rate: 8.45%
```

Run 1: Report of Verus — Data Link

Flow 1 ingress (mean 127.01 Mbit/s) — Flow 1 egress (mean 29.34 Mbit/s)
Flow 2 ingress (mean 21.82 Mbit/s) — Flow 2 egress (mean 15.70 Mbit/s)
Flow 3 ingress (mean 12.82 Mbit/s) — Flow 3 egress (mean 11.72 Mbit/s)

Flow 1 (95th percentile 161.91 ms) — Flow 2 (95th percentile 113.69 ms) — Flow 3 (95th percentile 115.23 ms)

```
Run 2: Statistics of Verus

Start at: 2018-12-11 12:51:26
End at: 2018-12-11 12:51:56
Local clock offset: -4.251 ms
Remote clock offset: 76.83 ms


# Below is generated by plot.py at 2018-12-11 14:26:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 43.51 Mbit/s
95th percentile per-packet one-way delay: 146.414 ms
Loss rate: 60.64%
-- Flow 1:
Average throughput: 19.95 Mbit/s
95th percentile per-packet one-way delay: 118.823 ms
Loss rate: 12.56%
-- Flow 2:
Average throughput: 25.12 Mbit/s
95th percentile per-packet one-way delay: 159.190 ms
Loss rate: 72.08%
-- Flow 3:
Average throughput: 22.38 Mbit/s
95th percentile per-packet one-way delay: 135.620 ms
Loss rate: 75.37%
```
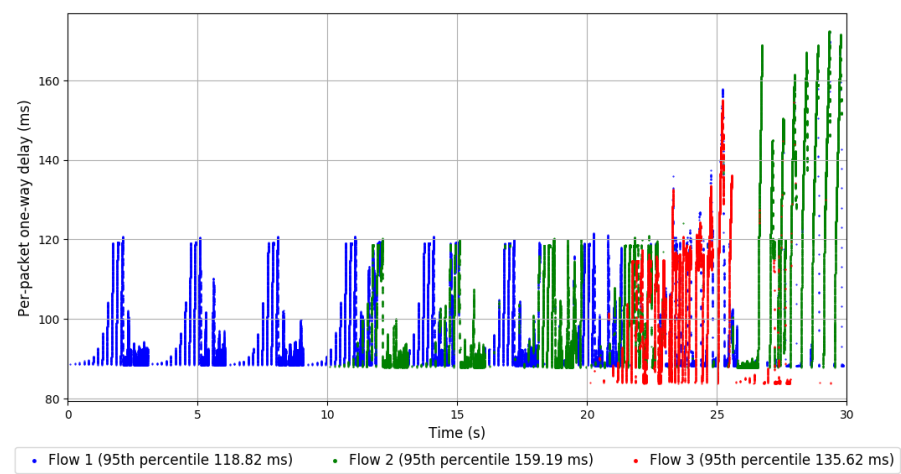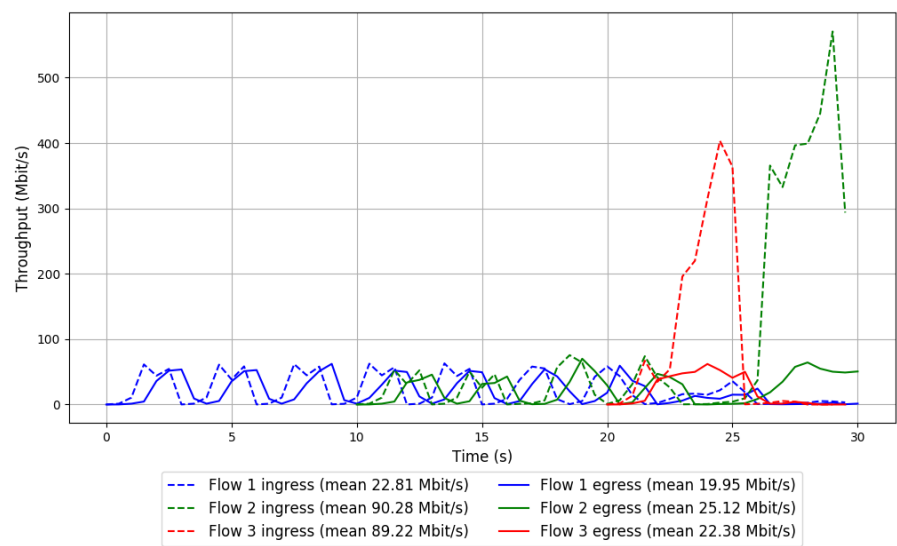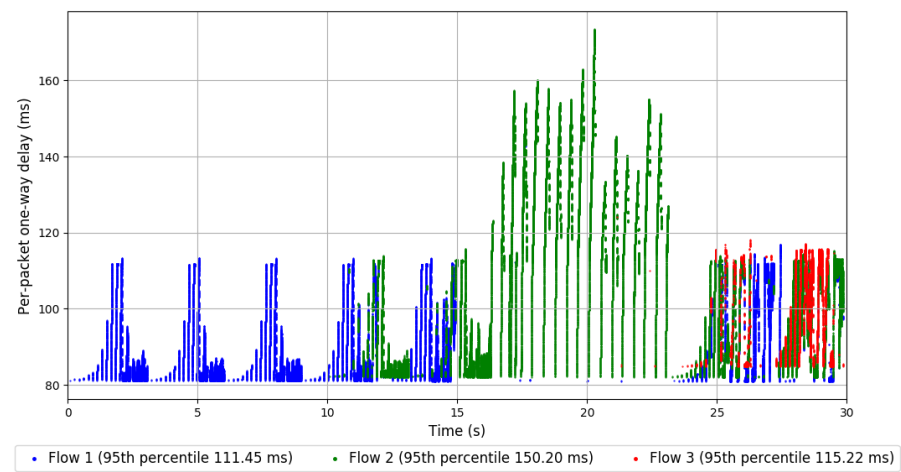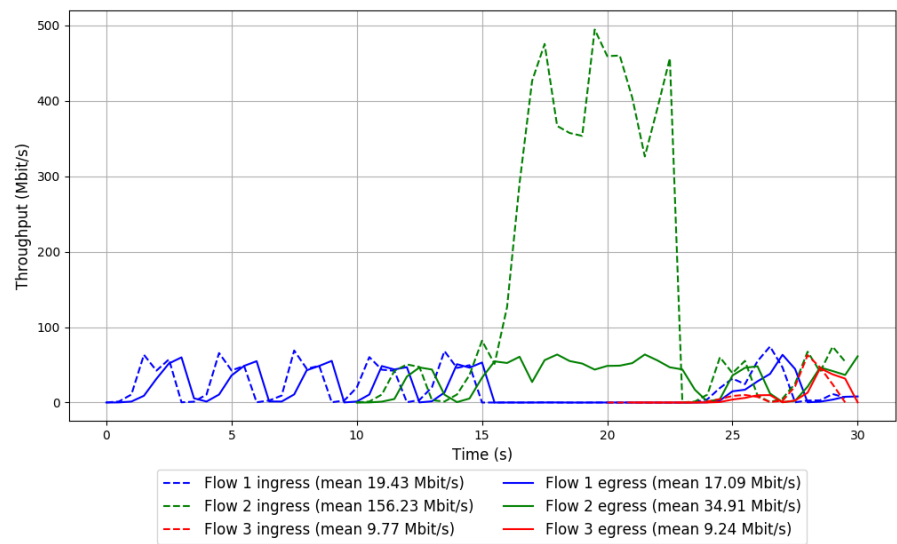
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-12-11 13:15:34
End at: 2018-12-11 13:16:04
Local clock offset: -3.803 ms
Remote clock offset: 86.157 ms


# Below is generated by plot.py at 2018-12-11 14:26:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 42.95 Mbit/s
95th percentile per-packet one-way delay: 144.381 ms
Loss rate: 65.95%
-- Flow 1:
Average throughput: 17.09 Mbit/s
95th percentile per-packet one-way delay: 111.452 ms
Loss rate: 11.97%
-- Flow 2:
Average throughput: 34.91 Mbit/s
95th percentile per-packet one-way delay: 150.200 ms
Loss rate: 77.62%
-- Flow 3:
Average throughput: 9.24 Mbit/s
95th percentile per-packet one-way delay: 115.217 ms
Loss rate: 15.46%
```

Run 3: Report of Verus — Data Link

- Flow 1 ingress (mean 19.43 Mbit/s)
- Flow 1 egress (mean 17.09 Mbit/s)
- Flow 2 ingress (mean 156.23 Mbit/s)
- Flow 2 egress (mean 34.91 Mbit/s)
- Flow 3 ingress (mean 9.77 Mbit/s)
- Flow 3 egress (mean 9.24 Mbit/s)

- Flow 1 (95th percentile 111.45 ms)
- Flow 2 (95th percentile 150.20 ms)
- Flow 3 (95th percentile 115.22 ms)

```
Run 4: Statistics of Verus

Start at: 2018-12-11 13:39:46
End at: 2018-12-11 13:40:16
Local clock offset: -2.86 ms
Remote clock offset: 104.875 ms


# Below is generated by plot.py at 2018-12-11 14:26:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 42.09 Mbit/s
95th percentile per-packet one-way delay: 144.143 ms
Loss rate: 52.07%
-- Flow 1:
Average throughput: 24.20 Mbit/s
95th percentile per-packet one-way delay: 119.651 ms
Loss rate: 25.56%
-- Flow 2:
Average throughput: 17.19 Mbit/s
95th percentile per-packet one-way delay: 201.720 ms
Loss rate: 75.80%
-- Flow 3:
Average throughput: 19.97 Mbit/s
95th percentile per-packet one-way delay: 115.845 ms
Loss rate: 22.81%
```

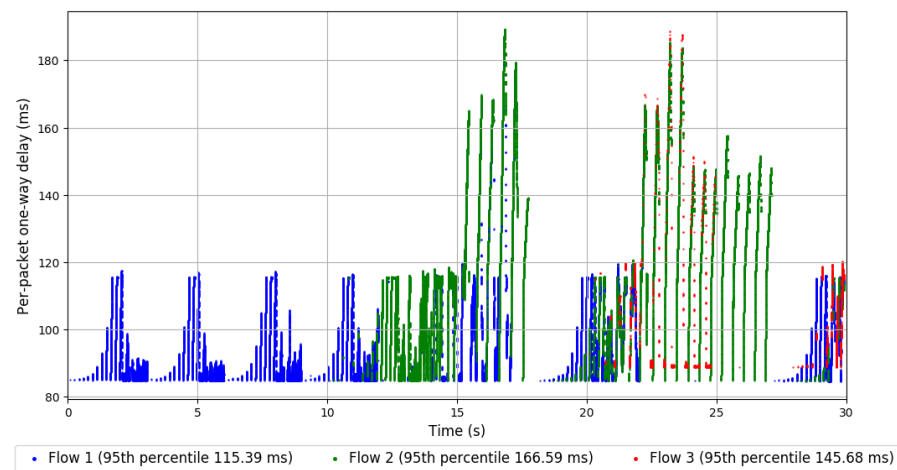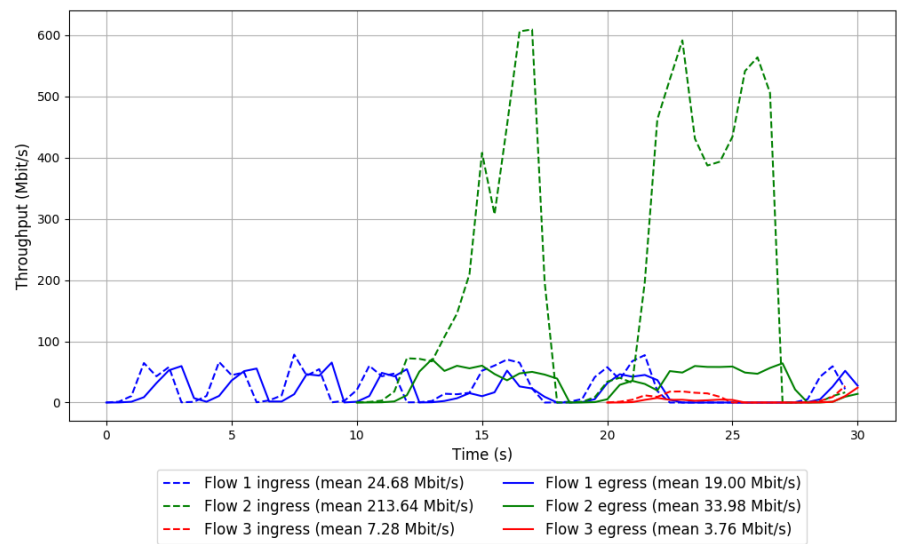Run 4: Report of Verus — Data Link
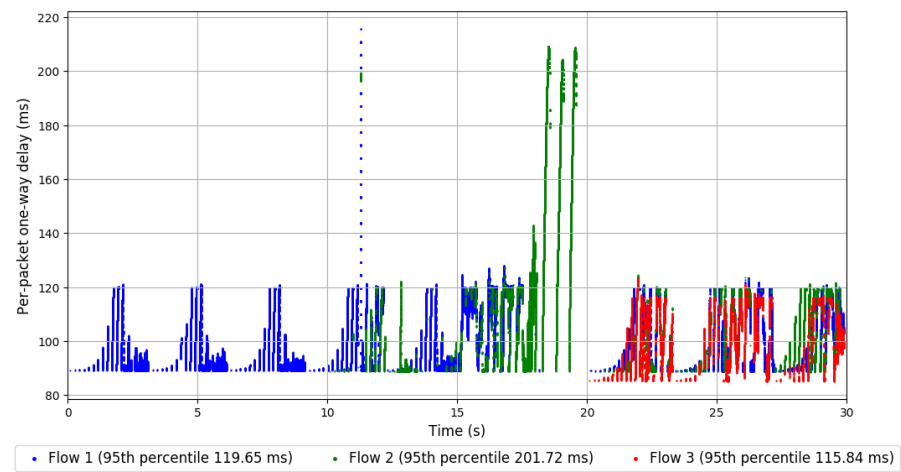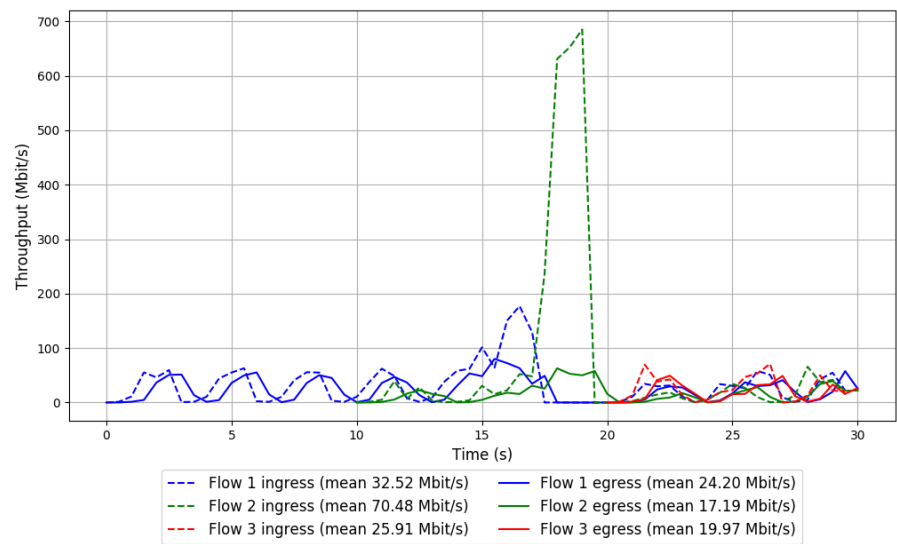
```
Run 5: Statistics of Verus

Start at: 2018-12-11 14:03:57
End at: 2018-12-11 14:04:27
Local clock offset: -3.222 ms
Remote clock offset: 119.198 ms


# Below is generated by plot.py at 2018-12-11 14:27:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 42.82 Mbit/s
95th percentile per-packet one-way delay: 159.328 ms
Loss rate: 74.63%
-- Flow 1:
Average throughput: 19.00 Mbit/s
95th percentile per-packet one-way delay: 115.388 ms
Loss rate: 22.92%
-- Flow 2:
Average throughput: 33.98 Mbit/s
95th percentile per-packet one-way delay: 166.587 ms
Loss rate: 84.07%
-- Flow 3:
Average throughput: 3.76 Mbit/s
95th percentile per-packet one-way delay: 145.682 ms
Loss rate: 48.23%
```

Run 5: Report of Verus — Data Link

Flow 1 ingress (mean 24.68 Mbit/s)   Flow 1 egress (mean 19.00 Mbit/s)
Flow 2 ingress (mean 213.64 Mbit/s)   Flow 2 egress (mean 33.98 Mbit/s)
Flow 3 ingress (mean 7.28 Mbit/s)   Flow 3 egress (mean 3.76 Mbit/s)

Flow 1 (95th percentile 115.39 ms)   Flow 2 (95th percentile 166.59 ms)   Flow 3 (95th percentile 145.68 ms)
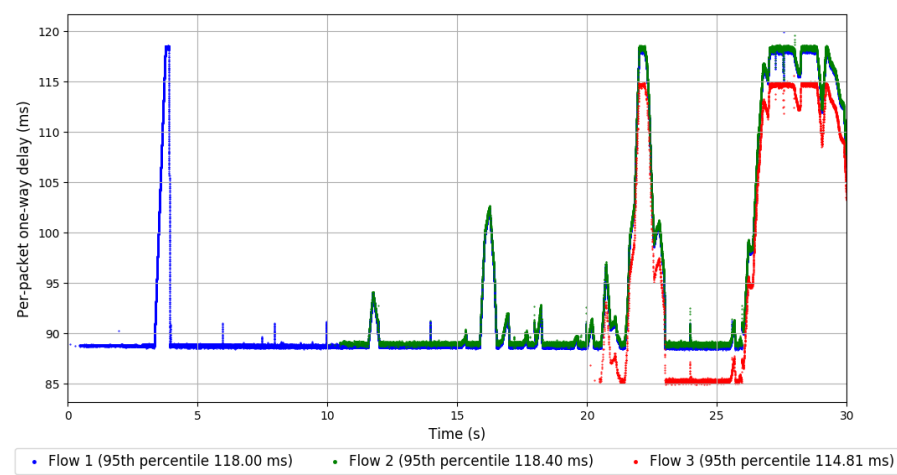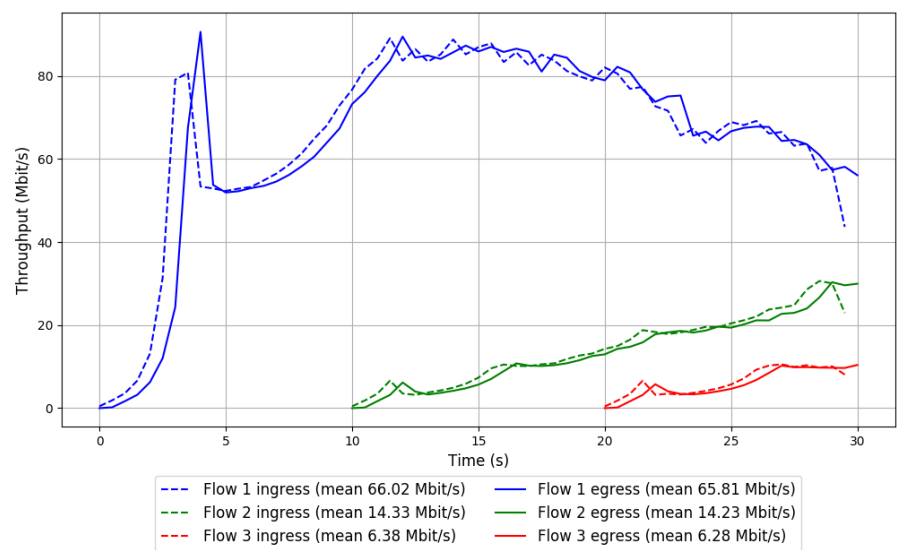
```
Run 1: Statistics of PCC-Vivace

Start at: 2018-12-11 12:28:22
End at: 2018-12-11 12:28:52
Local clock offset: -3.285 ms
Remote clock offset: 61.694 ms


# Below is generated by plot.py at 2018-12-11 14:27:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 77.35 Mbit/s
95th percentile per-packet one-way delay: 118.066 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 65.81 Mbit/s
95th percentile per-packet one-way delay: 118.002 ms
Loss rate: 0.27%
-- Flow 2:
Average throughput: 14.23 Mbit/s
95th percentile per-packet one-way delay: 118.402 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 6.28 Mbit/s
95th percentile per-packet one-way delay: 114.806 ms
Loss rate: 1.44%
```

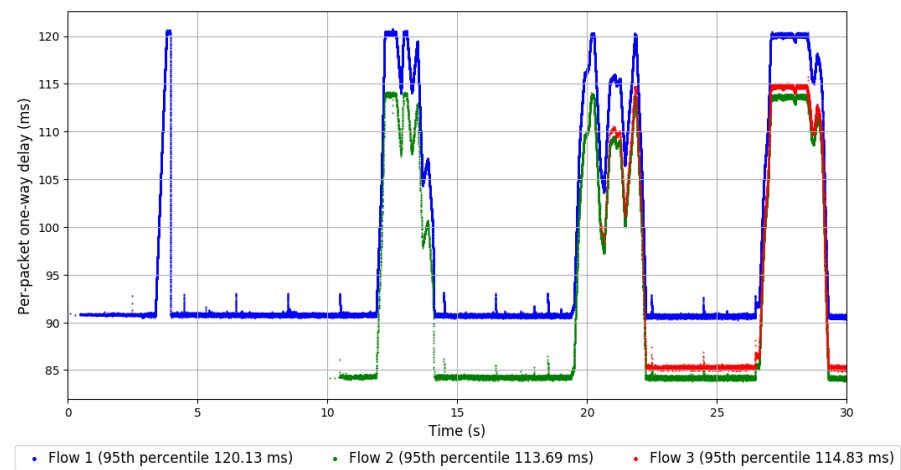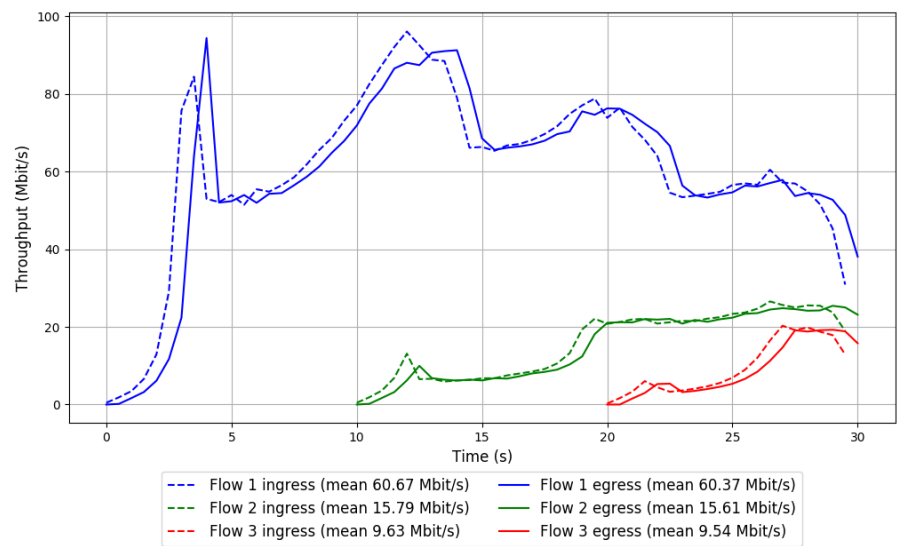Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-12-11 12:52:44
End at: 2018-12-11 12:53:14
Local clock offset: -4.314 ms
Remote clock offset: 76.392 ms


# Below is generated by plot.py at 2018-12-11 14:27:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 73.89 Mbit/s
95th percentile per-packet one-way delay: 120.061 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 60.37 Mbit/s
95th percentile per-packet one-way delay: 120.127 ms
Loss rate: 0.52%
-- Flow 2:
Average throughput: 15.61 Mbit/s
95th percentile per-packet one-way delay: 113.690 ms
Loss rate: 1.12%
-- Flow 3:
Average throughput: 9.54 Mbit/s
95th percentile per-packet one-way delay: 114.829 ms
Loss rate: 1.24%
```

Run 2: Report of PCC-Vivace — Data Link

- - - - Flow 1 ingress (mean 60.67 Mbit/s) ——— Flow 1 egress (mean 60.37 Mbit/s)
- - - - Flow 2 ingress (mean 15.79 Mbit/s) ——— Flow 2 egress (mean 15.61 Mbit/s)
- - - - Flow 3 ingress (mean 9.63 Mbit/s) ——— Flow 3 egress (mean 9.54 Mbit/s)

• Flow 1 (95th percentile 120.13 ms)   • Flow 2 (95th percentile 113.69 ms)   • Flow 3 (95th percentile 114.83 ms)
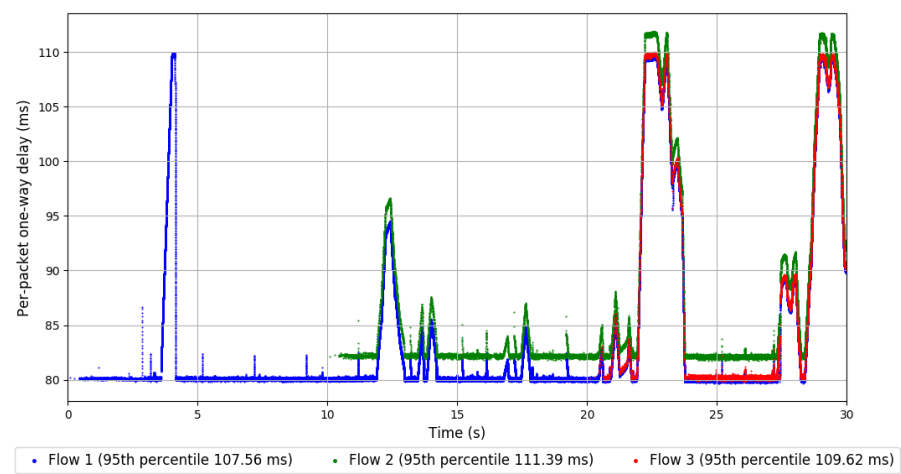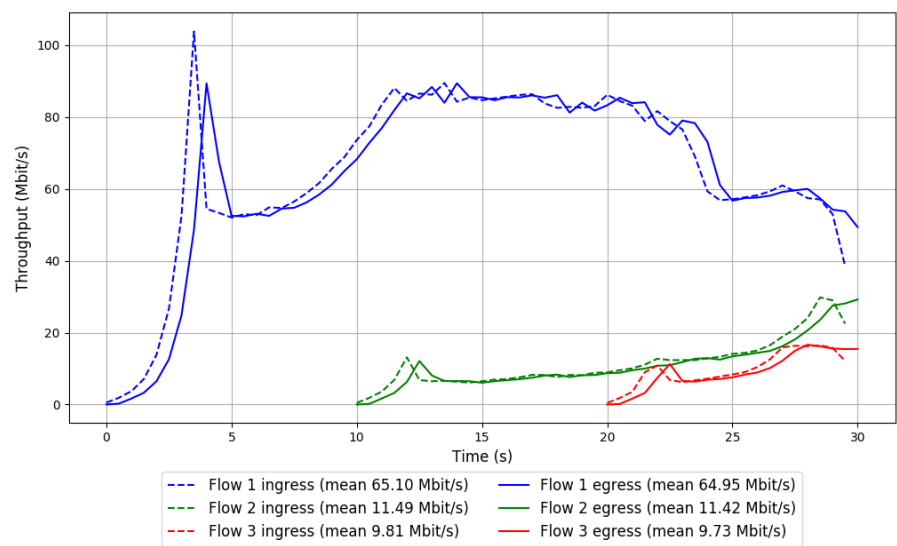
```
Run 3: Statistics of PCC-Vivace

Start at: 2018-12-11 13:16:51
End at: 2018-12-11 13:17:21
Local clock offset: -3.625 ms
Remote clock offset: 87.966 ms


# Below is generated by plot.py at 2018-12-11 14:27:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 75.76 Mbit/s
95th percentile per-packet one-way delay: 108.911 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 64.95 Mbit/s
95th percentile per-packet one-way delay: 107.563 ms
Loss rate: 0.19%
-- Flow 2:
Average throughput: 11.42 Mbit/s
95th percentile per-packet one-way delay: 111.390 ms
Loss rate: 0.52%
-- Flow 3:
Average throughput: 9.73 Mbit/s
95th percentile per-packet one-way delay: 109.616 ms
Loss rate: 0.74%
```

Run 3: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 65.10 Mbit/s)   Flow 1 egress (mean 64.95 Mbit/s)
Flow 2 ingress (mean 11.49 Mbit/s)   Flow 2 egress (mean 11.42 Mbit/s)
Flow 3 ingress (mean 9.81 Mbit/s)   Flow 3 egress (mean 9.73 Mbit/s)

Flow 1 (95th percentile 107.56 ms)   Flow 2 (95th percentile 111.39 ms)   Flow 3 (95th percentile 109.62 ms)
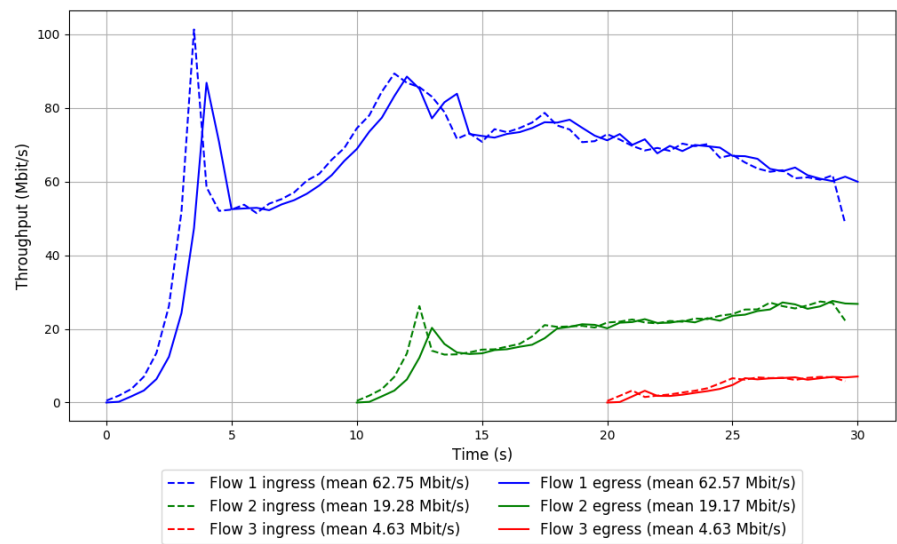
```
Run 4: Statistics of PCC-Vivace

Start at: 2018-12-11 13:41:03
End at: 2018-12-11 13:41:33
Local clock offset: -2.922 ms
Remote clock offset: 106.621 ms


# Below is generated by plot.py at 2018-12-11 14:27:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 76.86 Mbit/s
95th percentile per-packet one-way delay: 109.840 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 62.57 Mbit/s
95th percentile per-packet one-way delay: 110.372 ms
Loss rate: 0.27%
-- Flow 2:
Average throughput: 19.17 Mbit/s
95th percentile per-packet one-way delay: 103.842 ms
Loss rate: 0.51%
-- Flow 3:
Average throughput: 4.63 Mbit/s
95th percentile per-packet one-way delay: 93.812 ms
Loss rate: 0.00%
```

Run 4: Report of PCC-Vivace — Data Link
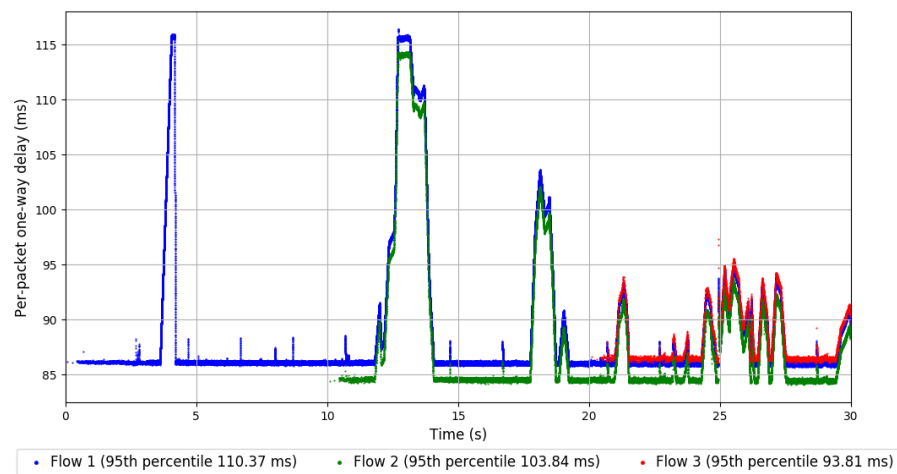
```
Run 5: Statistics of PCC-Vivace

Start at: 2018-12-11 14:05:15
End at: 2018-12-11 14:05:45
Local clock offset: -3.168 ms
Remote clock offset: 120.73 ms


# Below is generated by plot.py at 2018-12-11 14:27:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 76.37 Mbit/s
95th percentile per-packet one-way delay: 114.475 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 62.88 Mbit/s
95th percentile per-packet one-way delay: 114.474 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 14.22 Mbit/s
95th percentile per-packet one-way delay: 115.391 ms
Loss rate: 1.00%
-- Flow 3:
Average throughput: 12.23 Mbit/s
95th percentile per-packet one-way delay: 114.437 ms
Loss rate: 2.62%
```

Run 5: Report of PCC-Vivace — Data Link
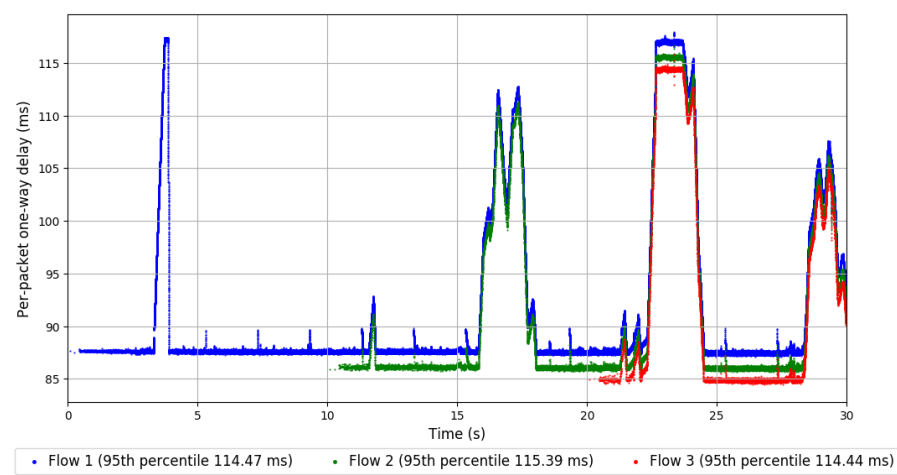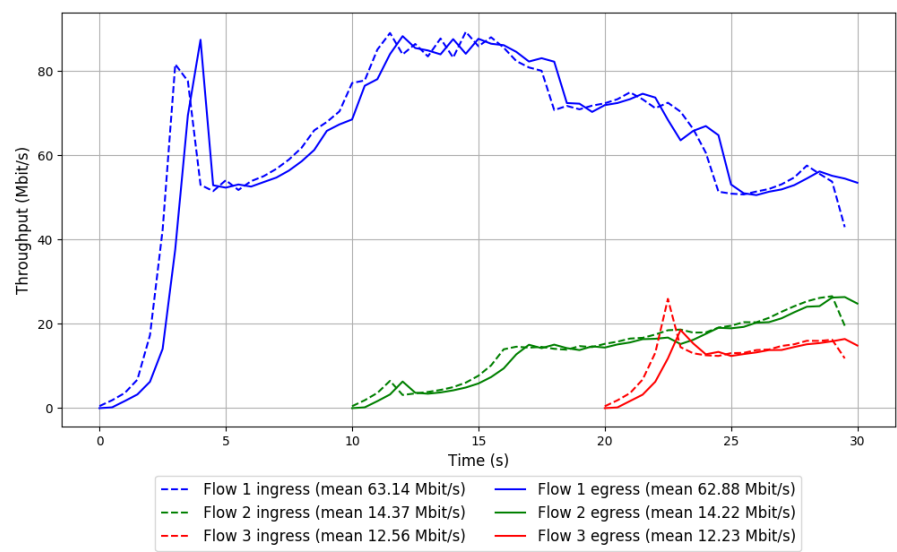
```
Run 1: Statistics of WebRTC media

Start at: 2018-12-11 12:29:41
End at: 2018-12-11 12:30:11
Local clock offset: -3.279 ms
Remote clock offset: 58.58 ms


# Below is generated by plot.py at 2018-12-11 14:27:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.03 Mbit/s
95th percentile per-packet one-way delay: 86.834 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 1.74 Mbit/s
95th percentile per-packet one-way delay: 81.574 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.08 Mbit/s
95th percentile per-packet one-way delay: 81.523 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 87.661 ms
Loss rate: 0.19%
```
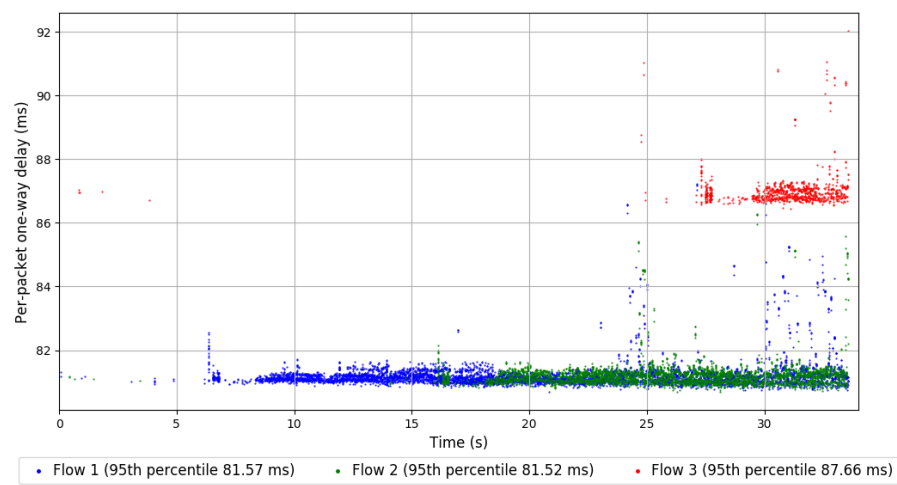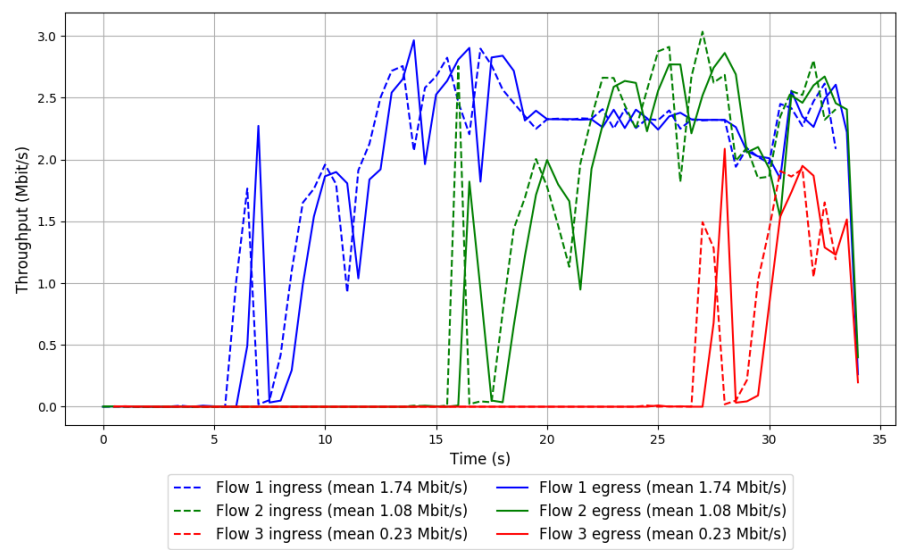
Run 1: Report of WebRTC media — Data Link

Flow 1 ingress (mean 1.74 Mbit/s) Flow 1 egress (mean 1.74 Mbit/s)
Flow 2 ingress (mean 1.08 Mbit/s) Flow 2 egress (mean 1.08 Mbit/s)
Flow 3 ingress (mean 0.23 Mbit/s) Flow 3 egress (mean 0.23 Mbit/s)

Flow 1 (95th percentile 81.57 ms)   Flow 2 (95th percentile 81.52 ms)   Flow 3 (95th percentile 87.66 ms)
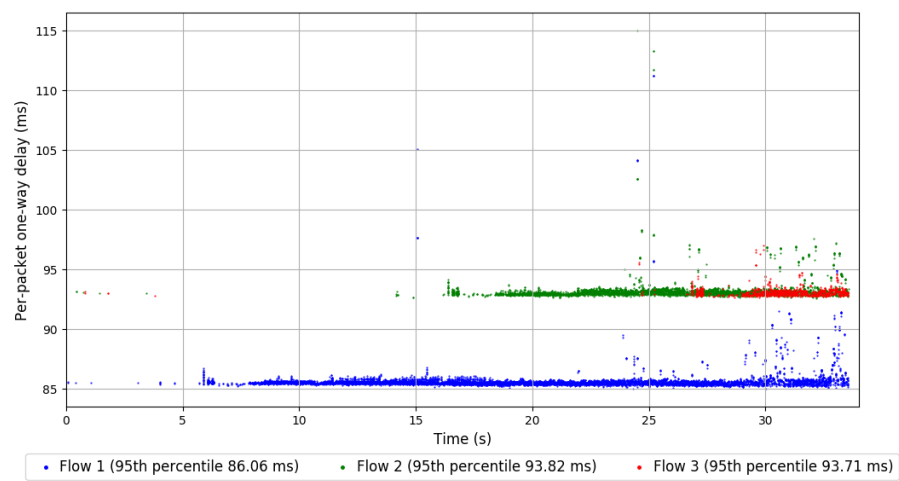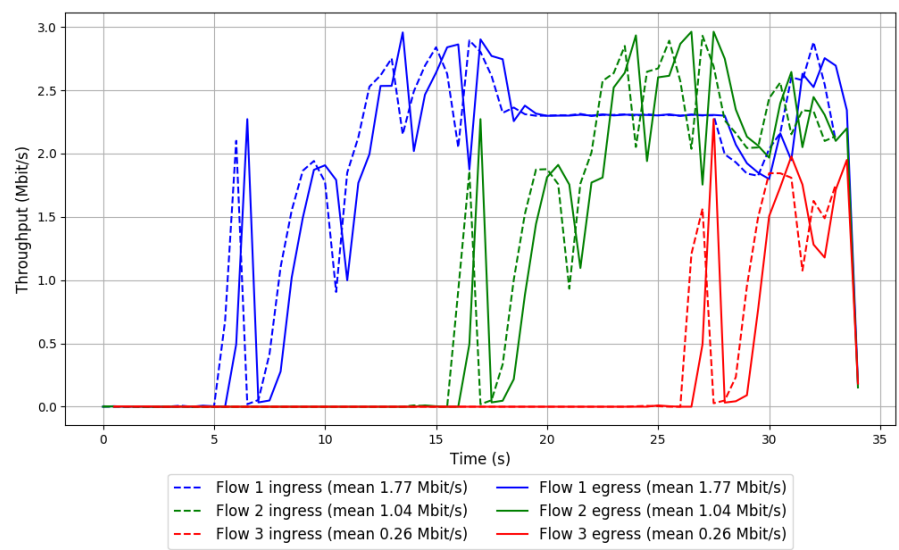
```
Run 2: Statistics of WebRTC media

Start at: 2018-12-11 12:54:02
End at: 2018-12-11 12:54:32
Local clock offset: -4.351 ms
Remote clock offset: 79.392 ms


# Below is generated by plot.py at 2018-12-11 14:27:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.05 Mbit/s
95th percentile per-packet one-way delay: 93.370 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 1.77 Mbit/s
95th percentile per-packet one-way delay: 86.056 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.04 Mbit/s
95th percentile per-packet one-way delay: 93.824 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 93.706 ms
Loss rate: 0.00%
```

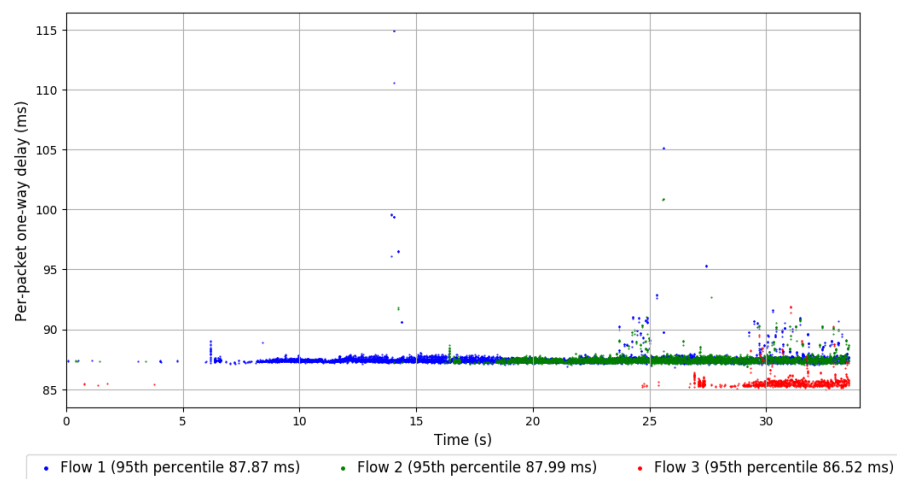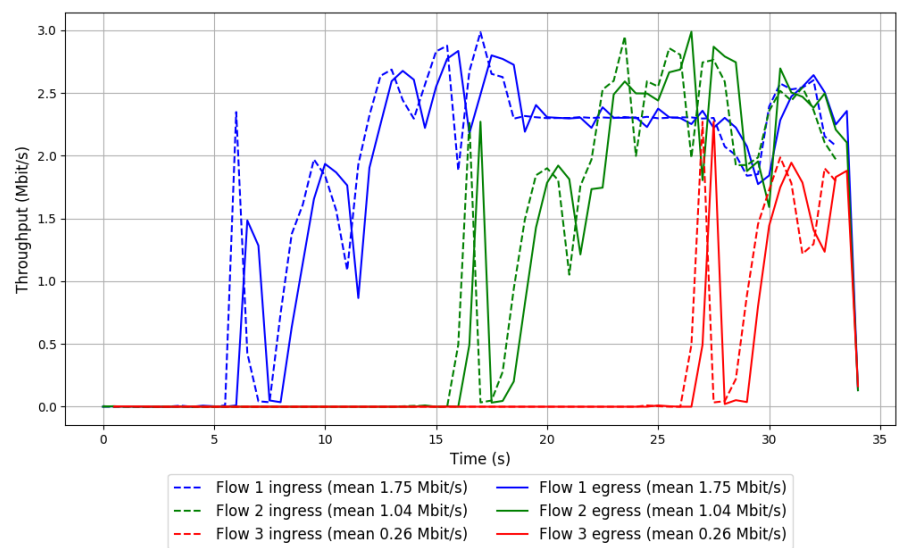Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-12-11 13:18:09
End at: 2018-12-11 13:18:39
Local clock offset: -3.515 ms
Remote clock offset: 91.608 ms


# Below is generated by plot.py at 2018-12-11 14:27:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.04 Mbit/s
95th percentile per-packet one-way delay: 87.878 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.75 Mbit/s
95th percentile per-packet one-way delay: 87.867 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.04 Mbit/s
95th percentile per-packet one-way delay: 87.990 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 86.518 ms
Loss rate: 0.00%
```
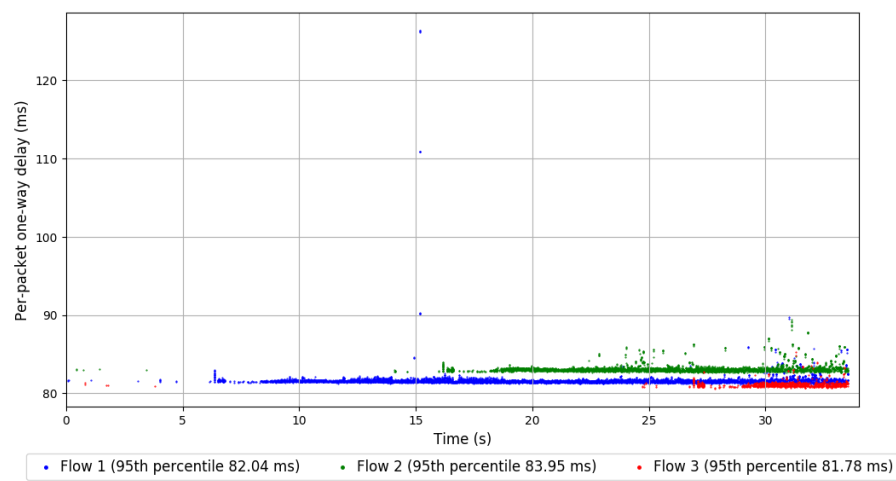
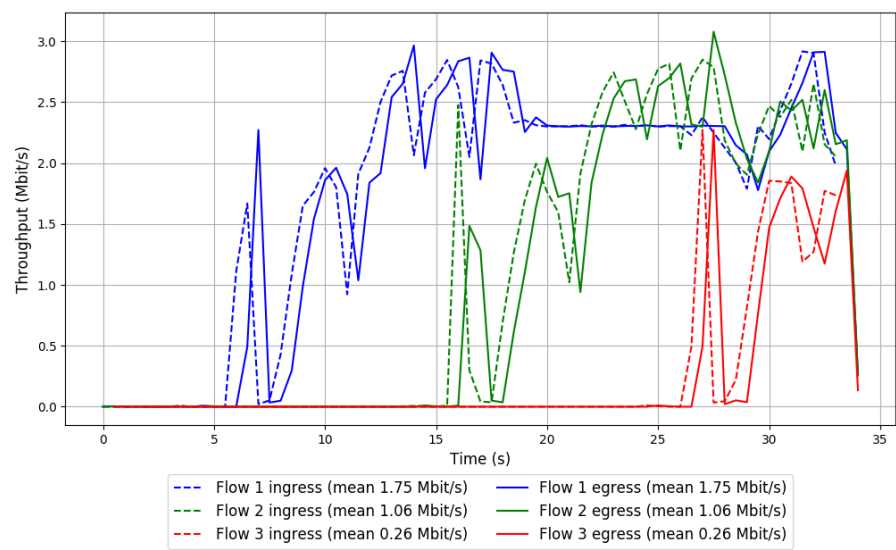Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-12-11 13:42:23
End at: 2018-12-11 13:42:53
Local clock offset: -3.009 ms
Remote clock offset: 102.289 ms

# Below is generated by plot.py at 2018-12-11 14:27:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.05 Mbit/s
95th percentile per-packet one-way delay: 83.315 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.75 Mbit/s
95th percentile per-packet one-way delay: 82.039 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.06 Mbit/s
95th percentile per-packet one-way delay: 83.955 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 81.775 ms
Loss rate: 0.00%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-12-11 14:06:33
End at: 2018-12-11 14:07:03
Local clock offset: -3.179 ms
Remote clock offset: 121.696 ms


# Below is generated by plot.py at 2018-12-11 14:27:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.03 Mbit/s
95th percentile per-packet one-way delay: 90.067 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.74 Mbit/s
95th percentile per-packet one-way delay: 87.173 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.04 Mbit/s
95th percentile per-packet one-way delay: 90.286 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 86.081 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link