Pantheon Report

Generated at 2018-12-11 14:19:18 (UTC).

Data path: AWS India 1 on `ens5` (*local*) →India on `em1` (*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 `nets.org.sg` and have been applied to correct the timestamps in logs.
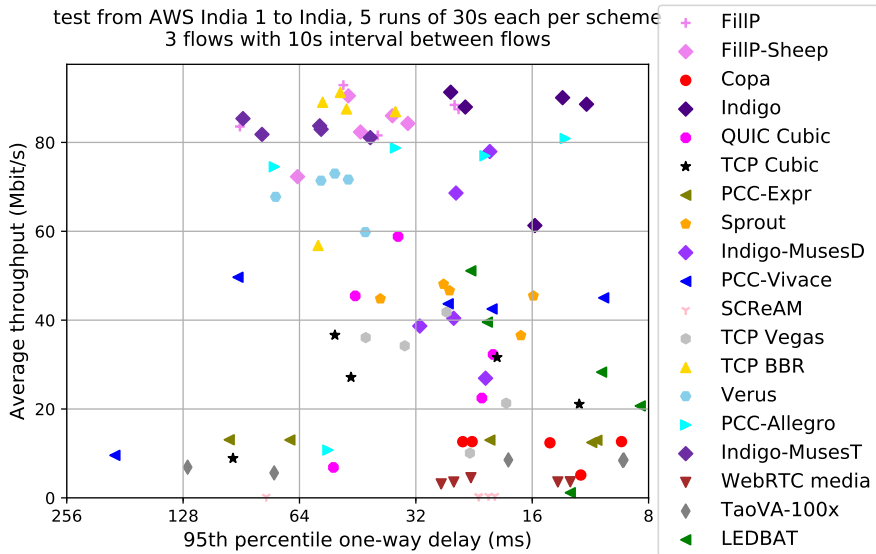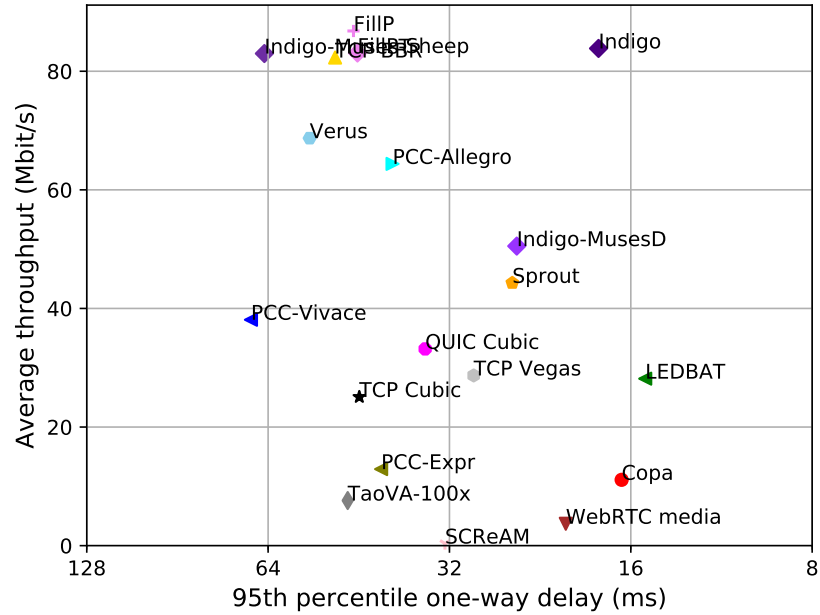
```
System info:
Linux 4.15.0-1029-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

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 India 1 to India, 5 runs of 30s each per scheme
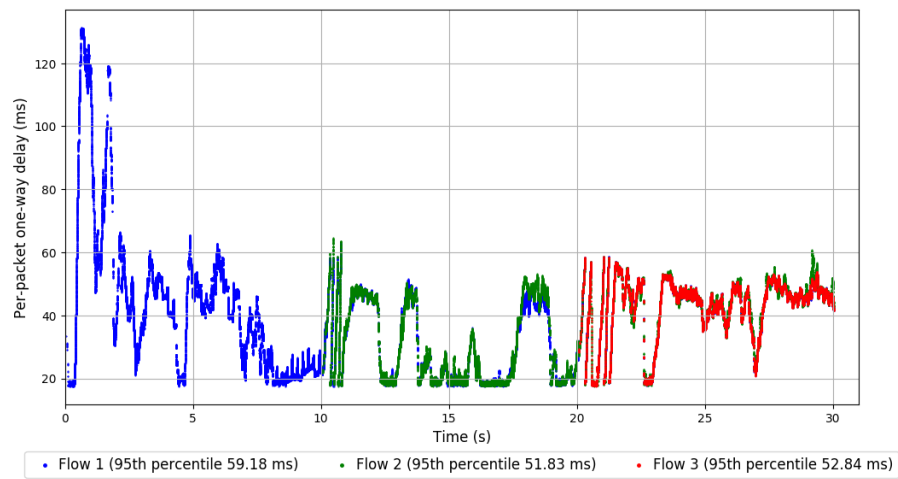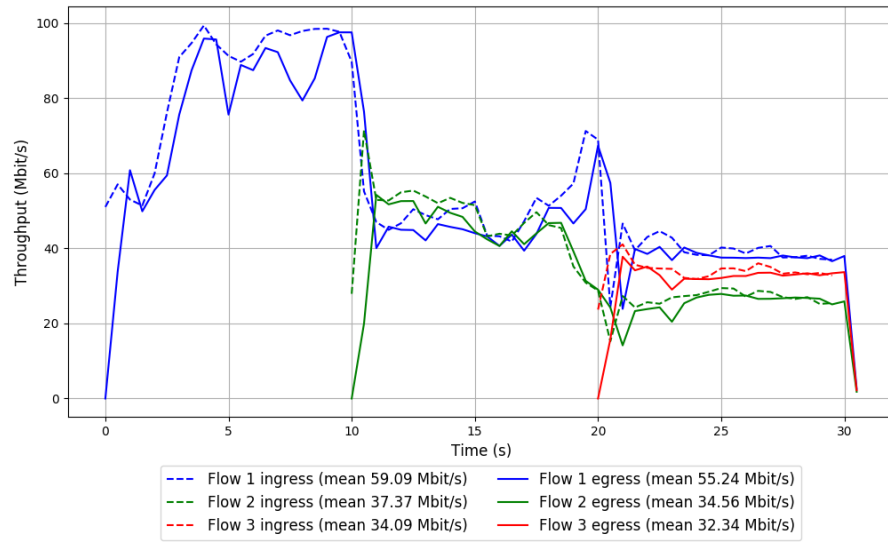## 3 flows with 10s interval between flows (mean of all runs by scheme)

test from AWS India 1 to India, 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	49.66	34.22	30.31	50.26	48.95	49.56	9.20	10.61	11.10
Copa	5	7.58	5.21	0.23	16.60	16.43	16.76	49.57	59.00	79.75
TCP Cubic	5	14.40	11.24	9.61	46.02	40.39	45.14	0.83	0.46	0.78
FillP	5	51.22	39.07	28.91	46.52	47.78	29.25	24.35	36.93	41.26
FillP-Sheep	5	50.11	36.09	27.14	43.89	46.33	47.61	10.48	11.96	17.14
Indigo	5	50.58	33.65	34.25	17.47	18.50	19.49	7.99	10.27	13.87
Indigo-MusesD	5	19.64	25.68	41.74	31.21	24.32	22.61	3.69	3.76	2.81
Indigo-MusesT	5	47.30	40.02	30.53	65.48	61.43	69.72	30.70	38.38	43.78
LEDBAT	5	15.58	13.33	11.49	15.14	15.03	14.87	0.41	0.58	0.55
PCC-Allegro	5	56.47	8.92	6.04	43.70	24.04	24.30	5.91	6.15	7.53
PCC-Expr	5	8.17	4.72	4.84	45.87	30.85	29.68	23.62	30.40	29.34
QUIC Cubic	5	18.00	15.94	13.88	36.21	34.97	26.83	2.91	2.48	2.13
SCReAM	5	0.16	0.19	0.20	29.70	33.71	34.04	0.19	0.07	0.34
Sprout	5	22.67	22.02	21.16	24.67	25.46	25.66	2.54	3.11	4.26
TaoVA-100x	5	0.00	7.51	7.84	14.64	41.00	54.53	95.92	68.57	51.76
TCP Vegas	5	14.74	15.22	11.56	20.60	37.36	17.55	0.36	0.72	0.38
Verus	5	40.88	29.01	26.75	51.91	57.04	58.75	19.07	35.81	42.21
PCC-Vivace	5	21.94	17.69	13.32	53.99	44.15	52.93	3.24	3.68	4.14
WebRTC media	5	1.90	1.39	0.42	23.68	18.54	20.10	0.94	0.69	0.96

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```
Run 1: Statistics of TCP BBR

Start at: 2018-12-11 12:18:07
End at: 2018-12-11 12:18:37
Local clock offset: -8.099 ms
Remote clock offset: 57.584 ms


# Below is generated by plot.py at 2018-12-11 14:13:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.04 Mbit/s
95th percentile per-packet one-way delay: 55.756 ms
Loss rate: 6.55%
-- Flow 1:
Average throughput: 55.24 Mbit/s
95th percentile per-packet one-way delay: 59.181 ms
Loss rate: 6.48%
-- Flow 2:
Average throughput: 34.56 Mbit/s
95th percentile per-packet one-way delay: 51.832 ms
Loss rate: 7.43%
-- Flow 3:
Average throughput: 32.34 Mbit/s
95th percentile per-packet one-way delay: 52.840 ms
Loss rate: 5.01%
```
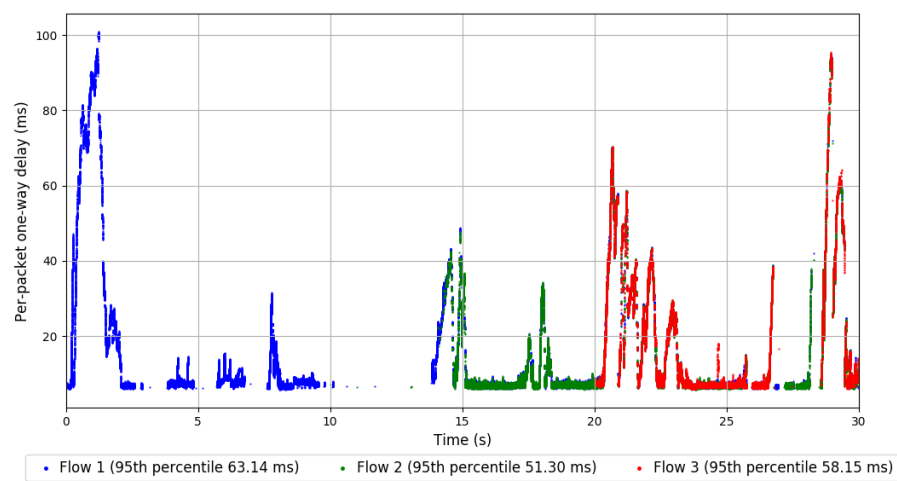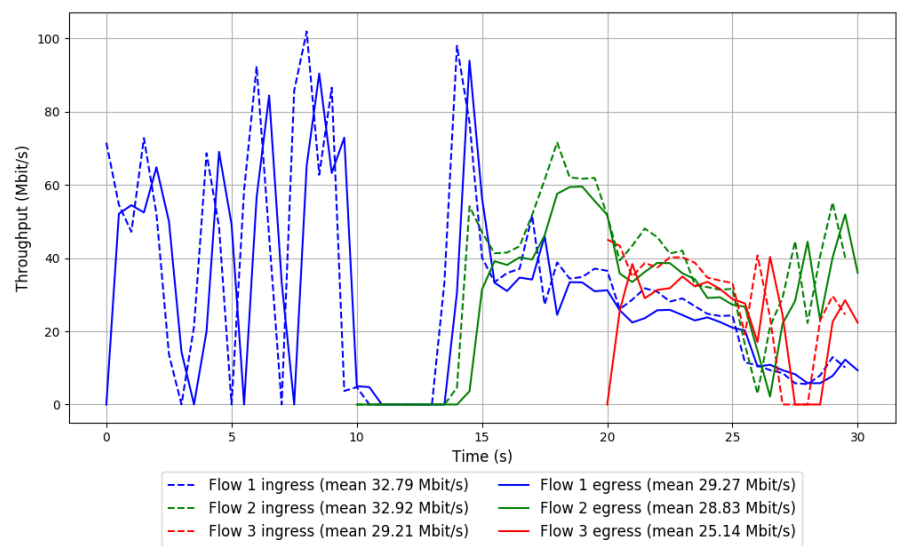
Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 59.09 Mbit/s)   Flow 1 egress (mean 55.24 Mbit/s)
Flow 2 ingress (mean 37.37 Mbit/s)   Flow 2 egress (mean 34.56 Mbit/s)
Flow 3 ingress (mean 34.09 Mbit/s)   Flow 3 egress (mean 32.34 Mbit/s)

Flow 1 (95th percentile 59.18 ms)   Flow 2 (95th percentile 51.83 ms)   Flow 3 (95th percentile 52.84 ms)

```
Run 2: Statistics of TCP BBR

Start at: 2018-12-11 12:43:28
End at: 2018-12-11 12:43:59
Local clock offset: 3.153 ms
Remote clock offset: 44.021 ms


# Below is generated by plot.py at 2018-12-11 14:13:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 56.81 Mbit/s
95th percentile per-packet one-way delay: 57.269 ms
Loss rate: 11.79%
-- Flow 1:
Average throughput: 29.27 Mbit/s
95th percentile per-packet one-way delay: 63.140 ms
Loss rate: 10.73%
-- Flow 2:
Average throughput: 28.83 Mbit/s
95th percentile per-packet one-way delay: 51.296 ms
Loss rate: 12.43%
-- Flow 3:
Average throughput: 25.14 Mbit/s
95th percentile per-packet one-way delay: 58.145 ms
Loss rate: 13.92%
```

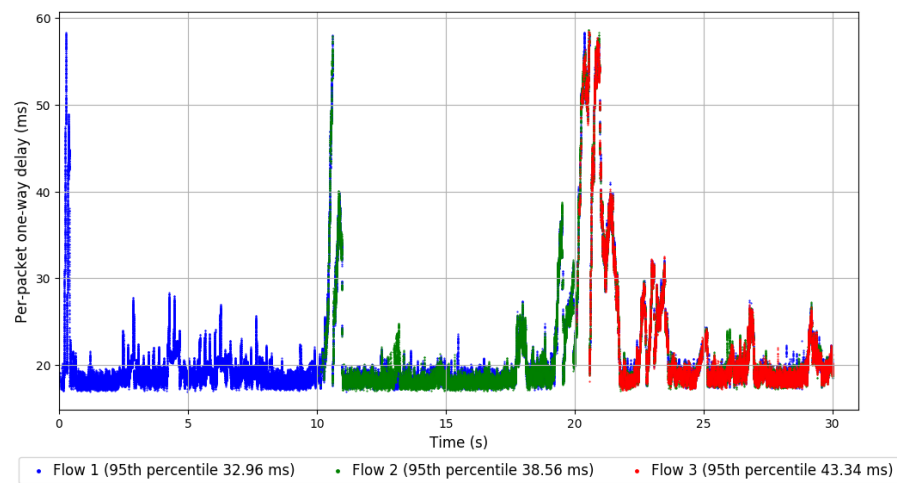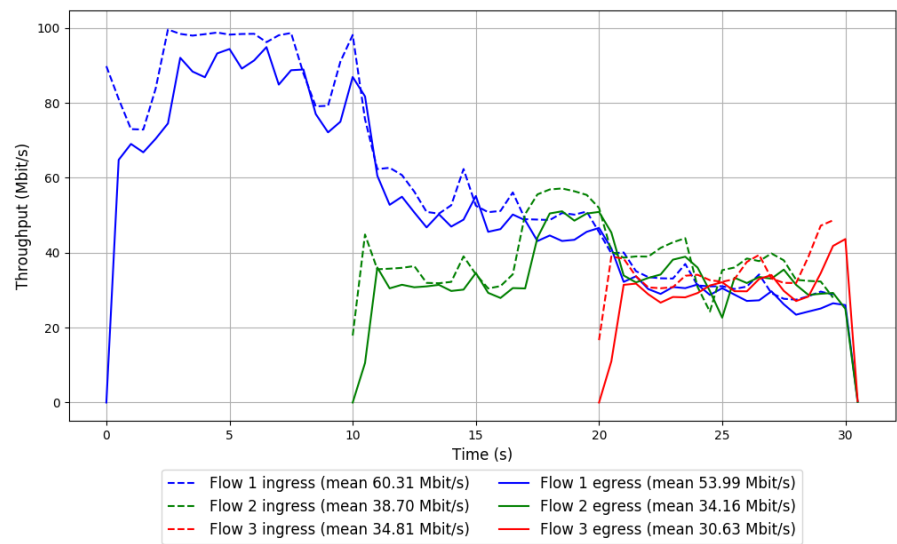Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-12-11 13:05:56
End at: 2018-12-11 13:06:26
Local clock offset: -11.997 ms
Remote clock offset: 32.074 ms


# Below is generated by plot.py at 2018-12-11 14:13:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.93 Mbit/s
95th percentile per-packet one-way delay: 36.135 ms
Loss rate: 10.98%
-- Flow 1:
Average throughput: 53.99 Mbit/s
95th percentile per-packet one-way delay: 32.957 ms
Loss rate: 10.46%
-- Flow 2:
Average throughput: 34.16 Mbit/s
95th percentile per-packet one-way delay: 38.565 ms
Loss rate: 11.70%
-- Flow 3:
Average throughput: 30.63 Mbit/s
95th percentile per-packet one-way delay: 43.336 ms
Loss rate: 12.06%
```

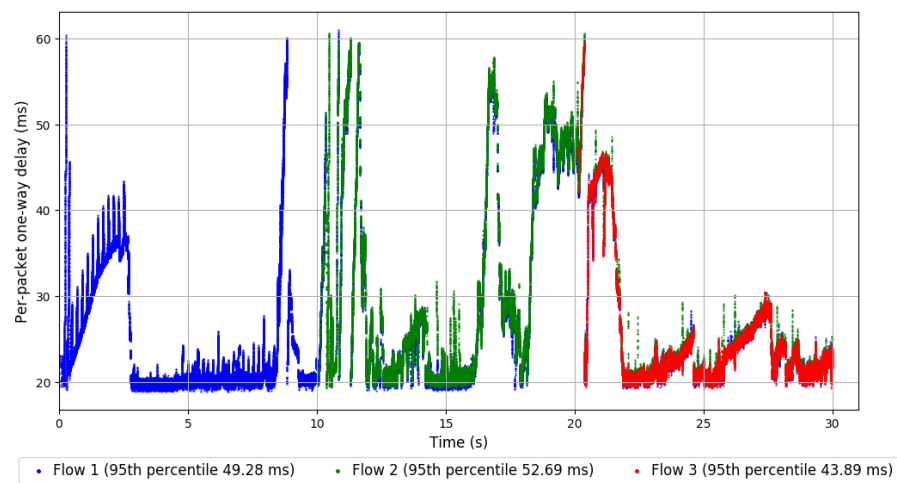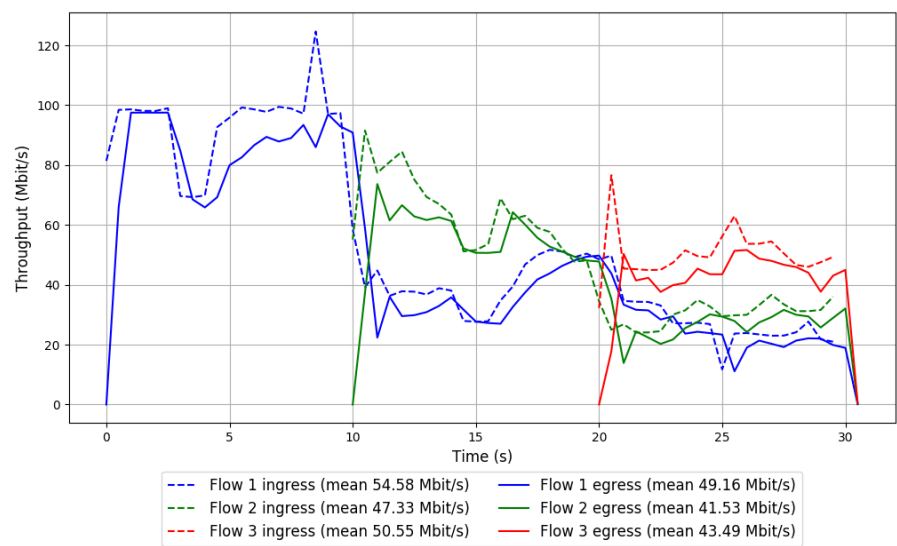Run 3: Report of TCP BBR — Data Link

```
Run 4: Statistics of TCP BBR

Start at: 2018-12-11 13:28:20
End at: 2018-12-11 13:28:50
Local clock offset: -11.798 ms
Remote clock offset: 18.228 ms


# Below is generated by plot.py at 2018-12-11 14:13:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.25 Mbit/s
95th percentile per-packet one-way delay: 50.180 ms
Loss rate: 11.33%
-- Flow 1:
Average throughput: 49.16 Mbit/s
95th percentile per-packet one-way delay: 49.284 ms
Loss rate: 9.91%
-- Flow 2:
Average throughput: 41.53 Mbit/s
95th percentile per-packet one-way delay: 52.691 ms
Loss rate: 12.25%
-- Flow 3:
Average throughput: 43.49 Mbit/s
95th percentile per-packet one-way delay: 43.889 ms
Loss rate: 14.20%
```
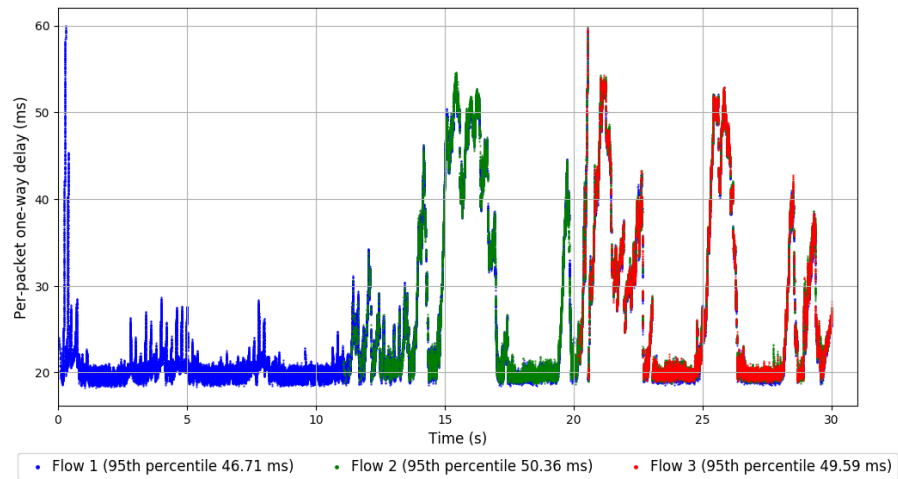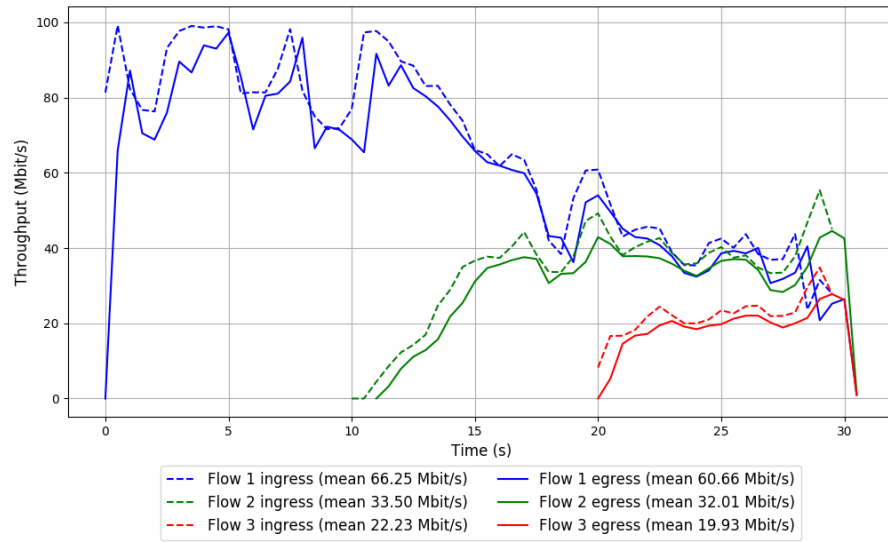
Run 4: Report of TCP BBR — Data Link

```
Run 5: Statistics of TCP BBR

Start at: 2018-12-11 13:50:30
End at: 2018-12-11 13:51:00
Local clock offset: -12.395 ms
Remote clock offset: 7.076 ms


# Below is generated by plot.py at 2018-12-11 14:13:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.53 Mbit/s
95th percentile per-packet one-way delay: 48.367 ms
Loss rate: 8.76%
-- Flow 1:
Average throughput: 60.66 Mbit/s
95th percentile per-packet one-way delay: 46.714 ms
Loss rate: 8.42%
-- Flow 2:
Average throughput: 32.01 Mbit/s
95th percentile per-packet one-way delay: 50.363 ms
Loss rate: 9.25%
-- Flow 3:
Average throughput: 19.93 Mbit/s
95th percentile per-packet one-way delay: 49.595 ms
Loss rate: 10.31%
```
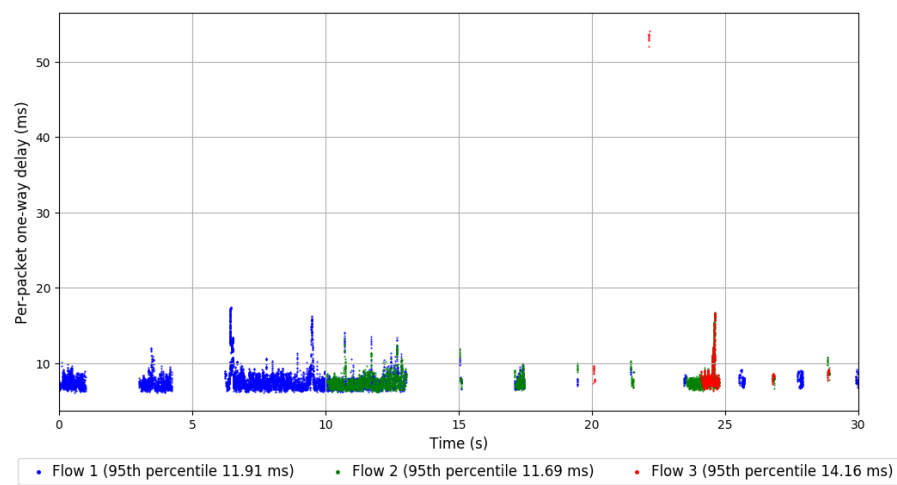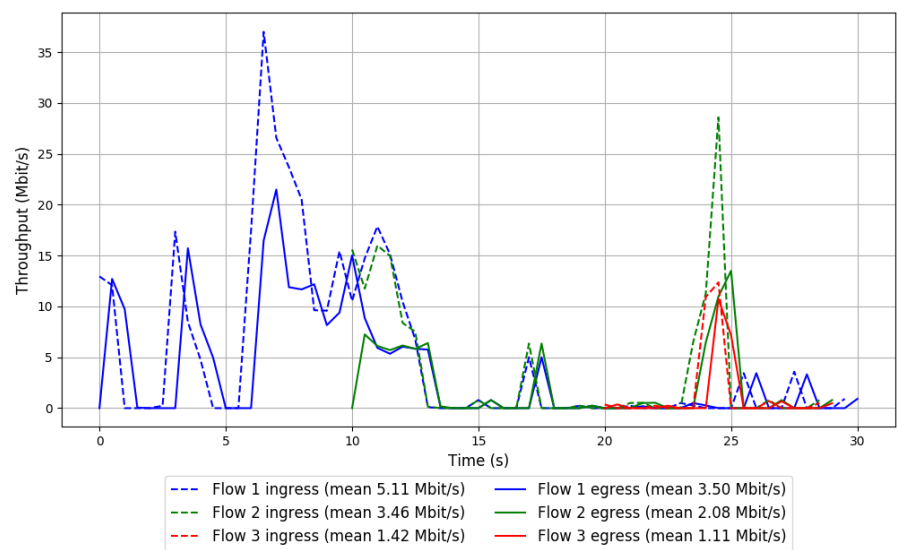
Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 66.25 Mbit/s) --- Flow 1 egress (mean 60.66 Mbit/s)
Flow 2 ingress (mean 33.50 Mbit/s) --- Flow 2 egress (mean 32.01 Mbit/s)
Flow 3 ingress (mean 22.23 Mbit/s) --- Flow 3 egress (mean 19.93 Mbit/s)

Flow 1 (95th percentile 46.71 ms)　　Flow 2 (95th percentile 50.36 ms)　　Flow 3 (95th percentile 49.59 ms)

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```
Run 1: Statistics of Copa

Start at: 2018-12-11 12:33:06
End at: 2018-12-11 12:33:36
Local clock offset: 4.64 ms
Remote clock offset: 48.669 ms


# Below is generated by plot.py at 2018-12-11 14:13:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.14 Mbit/s
95th percentile per-packet one-way delay: 11.980 ms
Loss rate: 33.25%
-- Flow 1:
Average throughput: 3.50 Mbit/s
95th percentile per-packet one-way delay: 11.912 ms
Loss rate: 31.37%
-- Flow 2:
Average throughput: 2.08 Mbit/s
95th percentile per-packet one-way delay: 11.691 ms
Loss rate: 39.88%
-- Flow 3:
Average throughput: 1.11 Mbit/s
95th percentile per-packet one-way delay: 14.163 ms
Loss rate: 21.67%
```
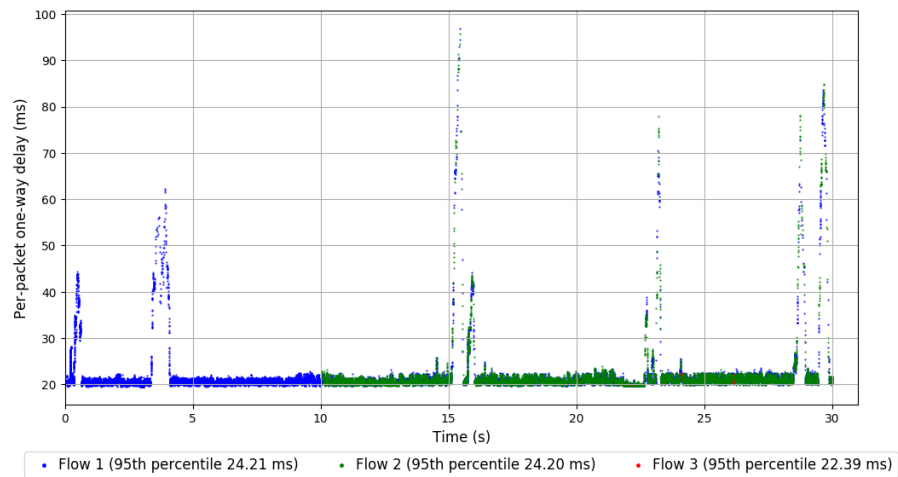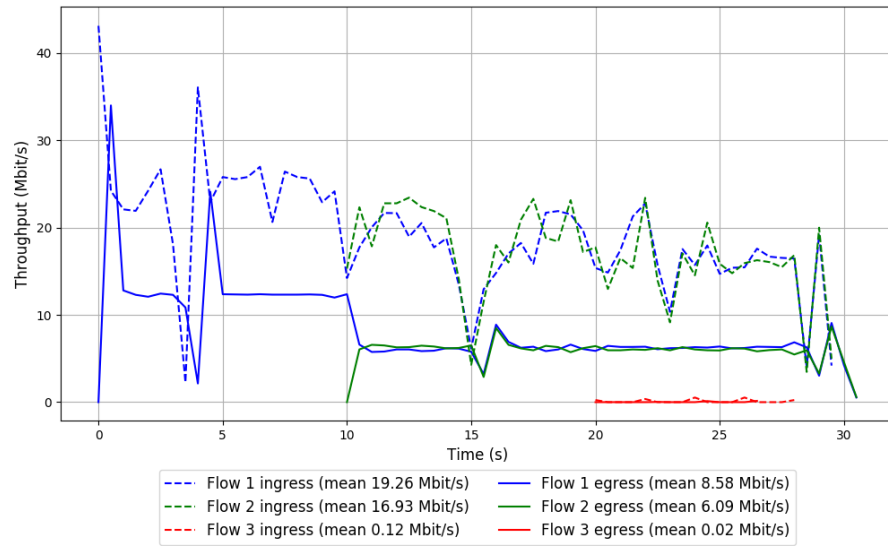
Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2018-12-11 12:57:38
End at: 2018-12-11 12:58:08
Local clock offset: -14.076 ms
Remote clock offset: 37.315 ms


# Below is generated by plot.py at 2018-12-11 14:13:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.65 Mbit/s
95th percentile per-packet one-way delay: 24.200 ms
Loss rate: 58.63%
-- Flow 1:
Average throughput: 8.58 Mbit/s
95th percentile per-packet one-way delay: 24.208 ms
Loss rate: 55.44%
-- Flow 2:
Average throughput: 6.09 Mbit/s
95th percentile per-packet one-way delay: 24.197 ms
Loss rate: 64.00%
-- Flow 3:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 22.393 ms
Loss rate: 84.72%
```
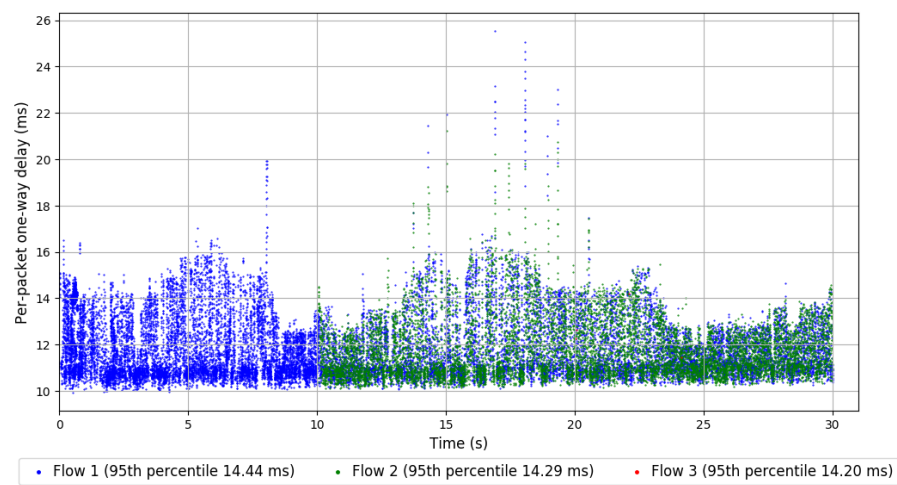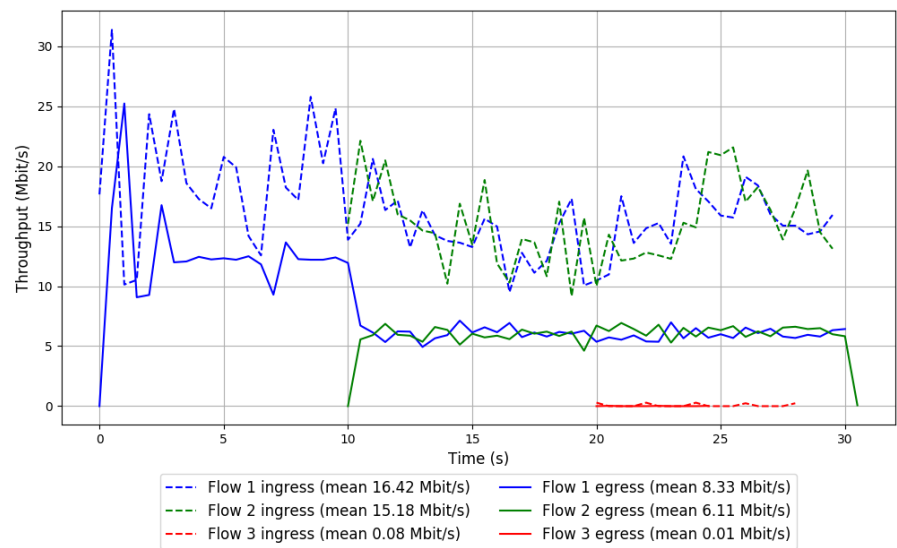
Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2018-12-11 13:20:03
End at: 2018-12-11 13:20:33
Local clock offset: -2.496 ms
Remote clock offset: 23.512 ms


# Below is generated by plot.py at 2018-12-11 14:13:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.40 Mbit/s
95th percentile per-packet one-way delay: 14.395 ms
Loss rate: 53.32%
-- Flow 1:
Average throughput: 8.33 Mbit/s
95th percentile per-packet one-way delay: 14.444 ms
Loss rate: 49.29%
-- Flow 2:
Average throughput: 6.11 Mbit/s
95th percentile per-packet one-way delay: 14.285 ms
Loss rate: 59.77%
-- Flow 3:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 14.197 ms
Loss rate: 94.50%
```
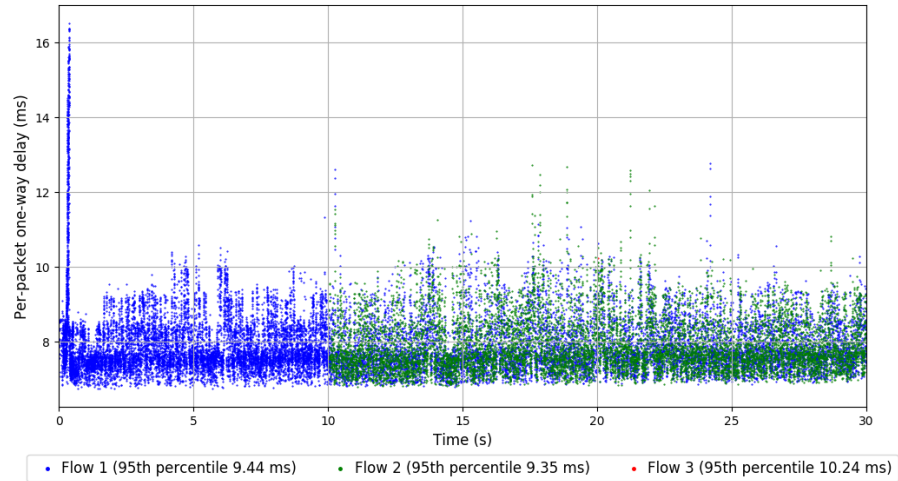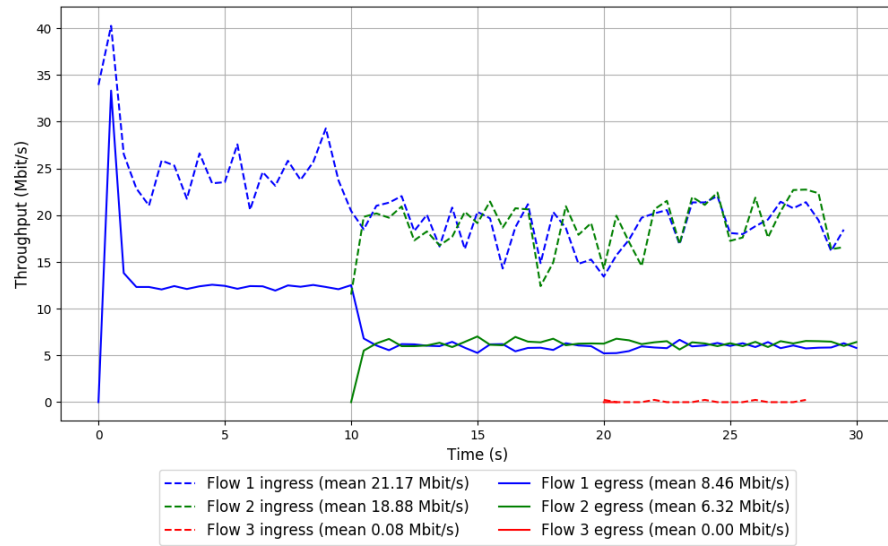
Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2018-12-11 13:42:20
End at: 2018-12-11 13:42:50
Local clock offset: 0.003 ms
Remote clock offset: 10.848 ms


# Below is generated by plot.py at 2018-12-11 14:13:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.67 Mbit/s
95th percentile per-packet one-way delay: 9.399 ms
Loss rate: 62.50%
-- Flow 1:
Average throughput: 8.46 Mbit/s
95th percentile per-packet one-way delay: 9.440 ms
Loss rate: 60.05%
-- Flow 2:
Average throughput: 6.32 Mbit/s
95th percentile per-packet one-way delay: 9.352 ms
Loss rate: 66.56%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 10.237 ms
Loss rate: 99.83%
```
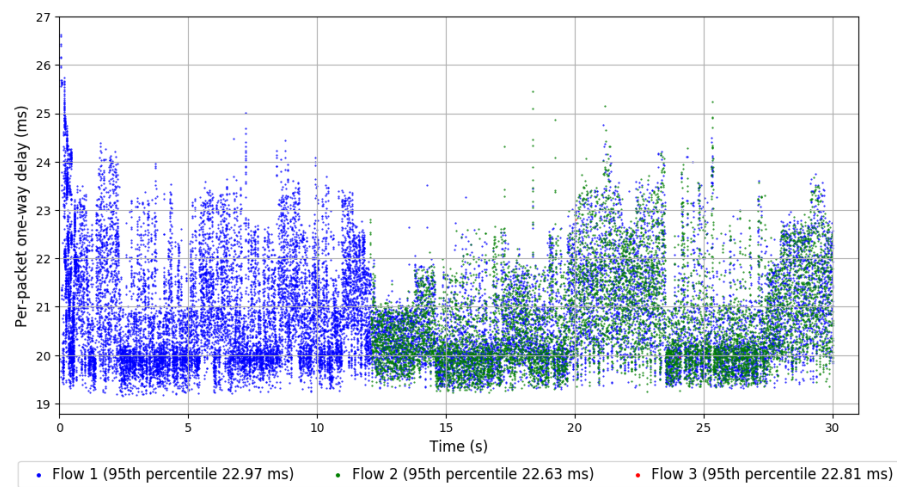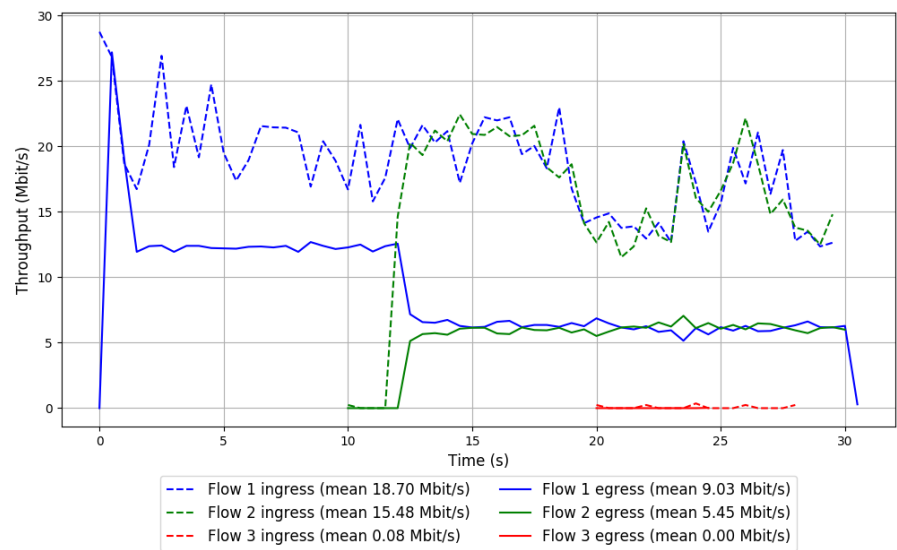
Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2018-12-11 14:04:40
End at: 2018-12-11 14:05:10
Local clock offset: -14.044 ms
Remote clock offset: -0.021 ms

# Below is generated by plot.py at 2018-12-11 14:13:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.66 Mbit/s
95th percentile per-packet one-way delay: 22.884 ms
Loss rate: 56.39%
-- Flow 1:
Average throughput: 9.03 Mbit/s
95th percentile per-packet one-way delay: 22.974 ms
Loss rate: 51.71%
-- Flow 2:
Average throughput: 5.45 Mbit/s
95th percentile per-packet one-way delay: 22.629 ms
Loss rate: 64.80%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 22.807 ms
Loss rate: 98.03%
```
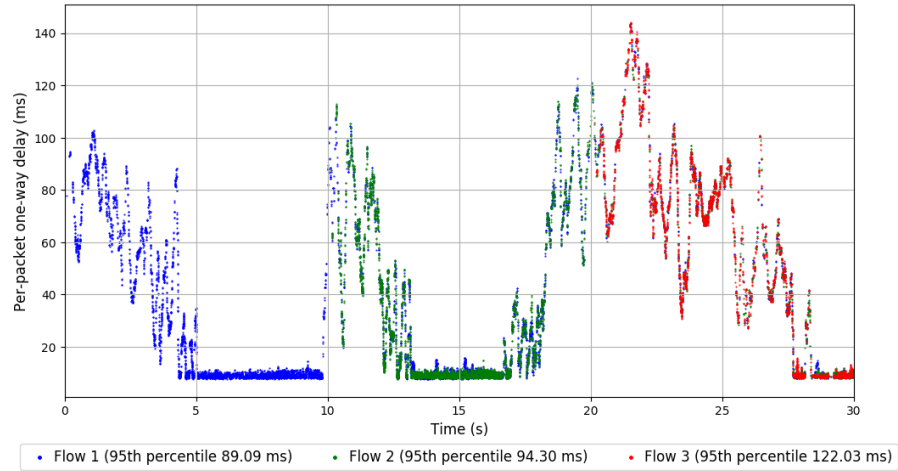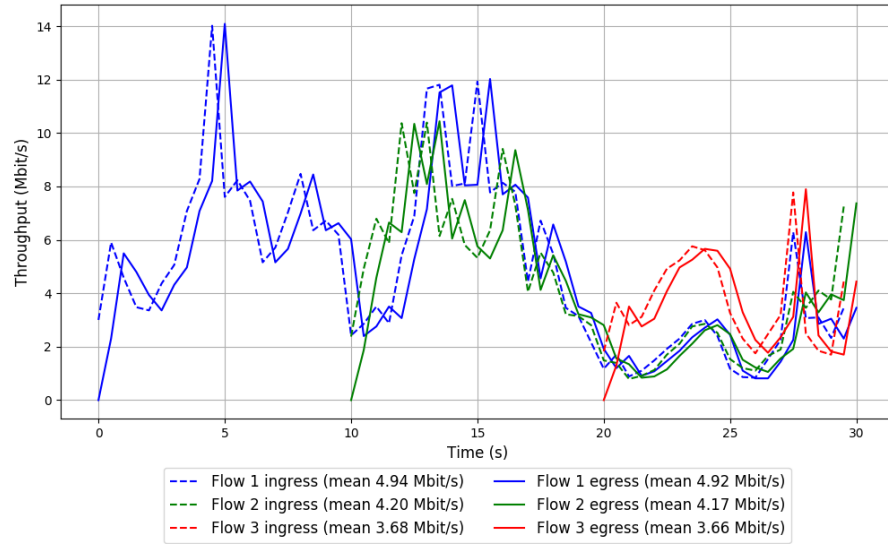
Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2018-12-11 12:29:26
End at: 2018-12-11 12:29:56
Local clock offset: 3.011 ms
Remote clock offset: 50.889 ms


# Below is generated by plot.py at 2018-12-11 14:13:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.90 Mbit/s
95th percentile per-packet one-way delay: 95.105 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 4.92 Mbit/s
95th percentile per-packet one-way delay: 89.095 ms
Loss rate: 0.71%
-- Flow 2:
Average throughput: 4.17 Mbit/s
95th percentile per-packet one-way delay: 94.296 ms
Loss rate: 0.96%
-- Flow 3:
Average throughput: 3.66 Mbit/s
95th percentile per-packet one-way delay: 122.029 ms
Loss rate: 1.47%
```
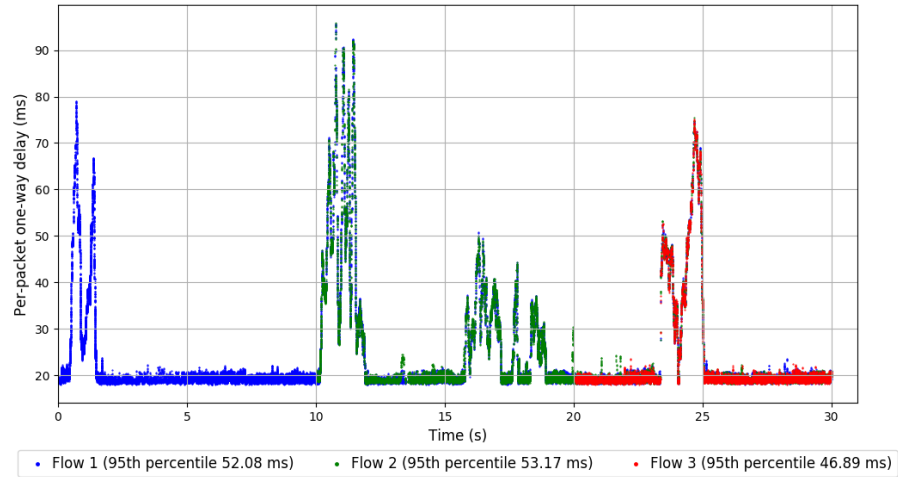
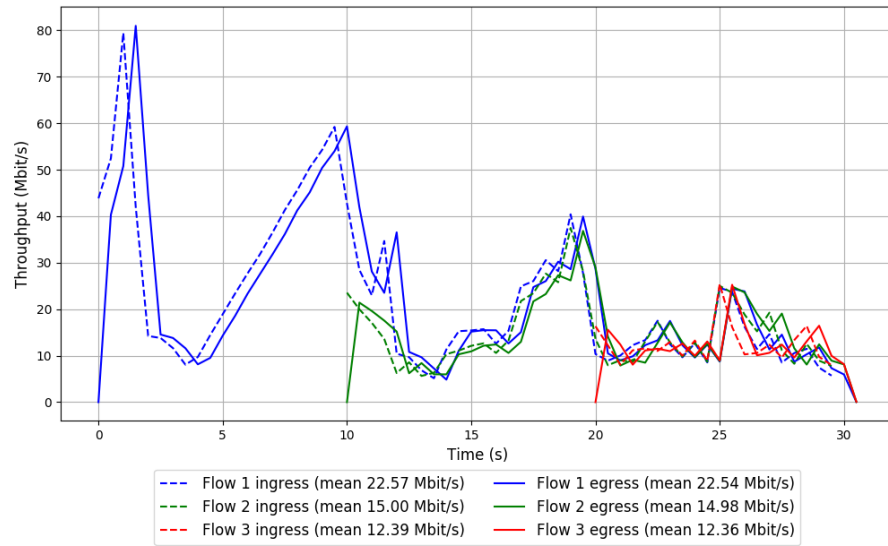Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-12-11 12:54:08
End at: 2018-12-11 12:54:38
Local clock offset: -11.597 ms
Remote clock offset: 39.516 ms


# Below is generated by plot.py at 2018-12-11 14:13:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 36.63 Mbit/s
95th percentile per-packet one-way delay: 51.830 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 22.54 Mbit/s
95th percentile per-packet one-way delay: 52.079 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 14.98 Mbit/s
95th percentile per-packet one-way delay: 53.173 ms
Loss rate: 0.16%
-- Flow 3:
Average throughput: 12.36 Mbit/s
95th percentile per-packet one-way delay: 46.890 ms
Loss rate: 0.21%
```

Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 22.57 Mbit/s)   Flow 1 egress (mean 22.54 Mbit/s)
Flow 2 ingress (mean 15.00 Mbit/s)   Flow 2 egress (mean 14.98 Mbit/s)
Flow 3 ingress (mean 12.39 Mbit/s)   Flow 3 egress (mean 12.36 Mbit/s)

Flow 1 (95th percentile 52.08 ms)   Flow 2 (95th percentile 53.17 ms)   Flow 3 (95th percentile 46.89 ms)
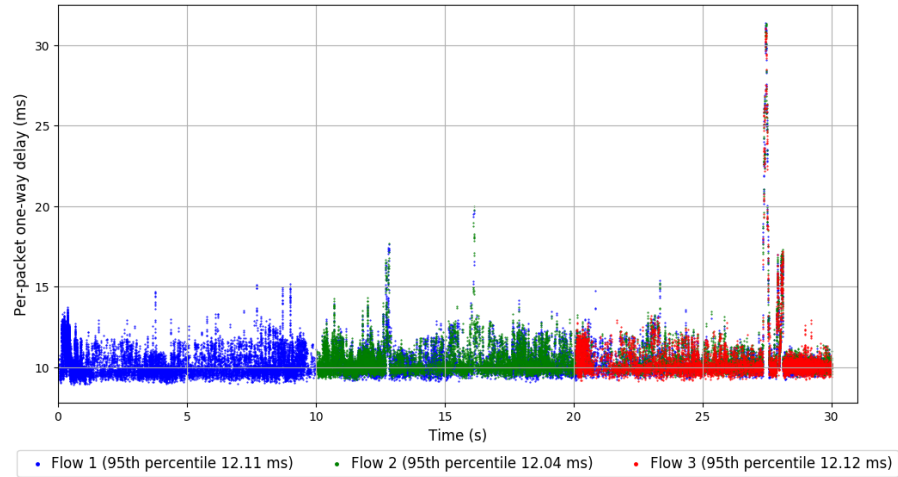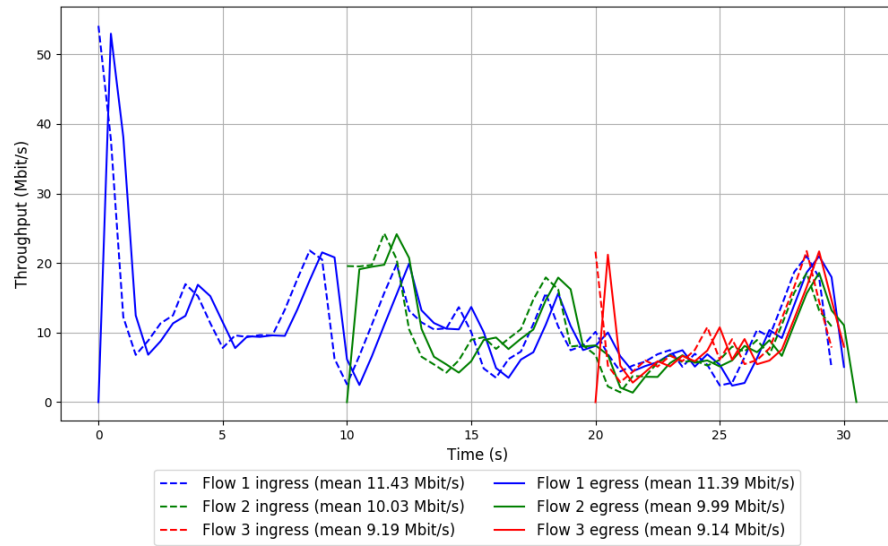
```
Run 3: Statistics of TCP Cubic

Start at: 2018-12-11 13:16:35
End at: 2018-12-11 13:17:05
Local clock offset: -2.1 ms
Remote clock offset: 25.631 ms


# Below is generated by plot.py at 2018-12-11 14:13:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 21.08 Mbit/s
95th percentile per-packet one-way delay: 12.088 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 11.39 Mbit/s
95th percentile per-packet one-way delay: 12.109 ms
Loss rate: 0.35%
-- Flow 2:
Average throughput: 9.99 Mbit/s
95th percentile per-packet one-way delay: 12.045 ms
Loss rate: 0.36%
-- Flow 3:
Average throughput: 9.14 Mbit/s
95th percentile per-packet one-way delay: 12.122 ms
Loss rate: 0.50%
```
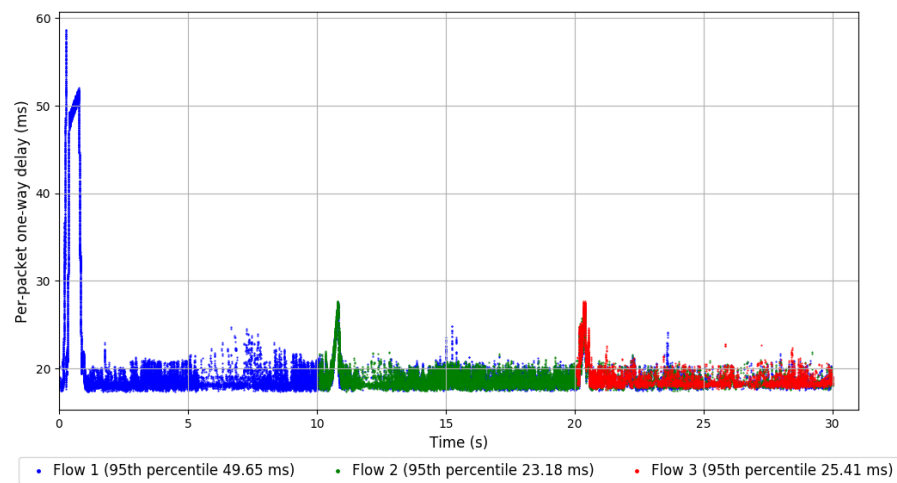
Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 11.43 Mbit/s) — Flow 1 egress (mean 11.39 Mbit/s)
Flow 2 ingress (mean 10.03 Mbit/s) — Flow 2 egress (mean 9.99 Mbit/s)
Flow 3 ingress (mean 9.19 Mbit/s) — Flow 3 egress (mean 9.14 Mbit/s)

Flow 1 (95th percentile 12.11 ms) Flow 2 (95th percentile 12.04 ms) Flow 3 (95th percentile 12.12 ms)
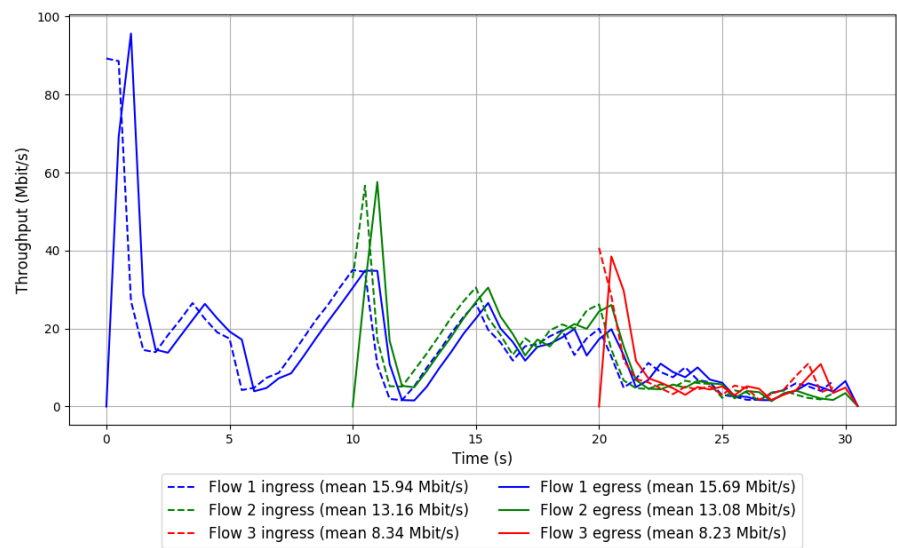
```
Run 4: Statistics of TCP Cubic

Start at: 2018-12-11 13:38:52
End at: 2018-12-11 13:39:22
Local clock offset: -10.727 ms
Remote clock offset: 12.096 ms

# Below is generated by plot.py at 2018-12-11 14:13:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 27.14 Mbit/s
95th percentile per-packet one-way delay: 47.087 ms
Loss rate: 1.24%
-- Flow 1:
Average throughput: 15.69 Mbit/s
95th percentile per-packet one-way delay: 49.648 ms
Loss rate: 1.60%
-- Flow 2:
Average throughput: 13.08 Mbit/s
95th percentile per-packet one-way delay: 23.183 ms
Loss rate: 0.56%
-- Flow 3:
Average throughput: 8.23 Mbit/s
95th percentile per-packet one-way delay: 25.409 ms
Loss rate: 1.34%
```

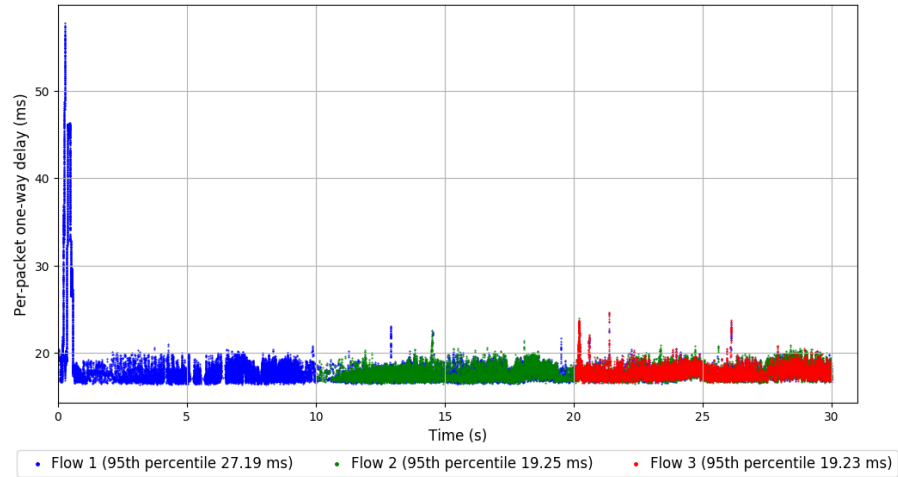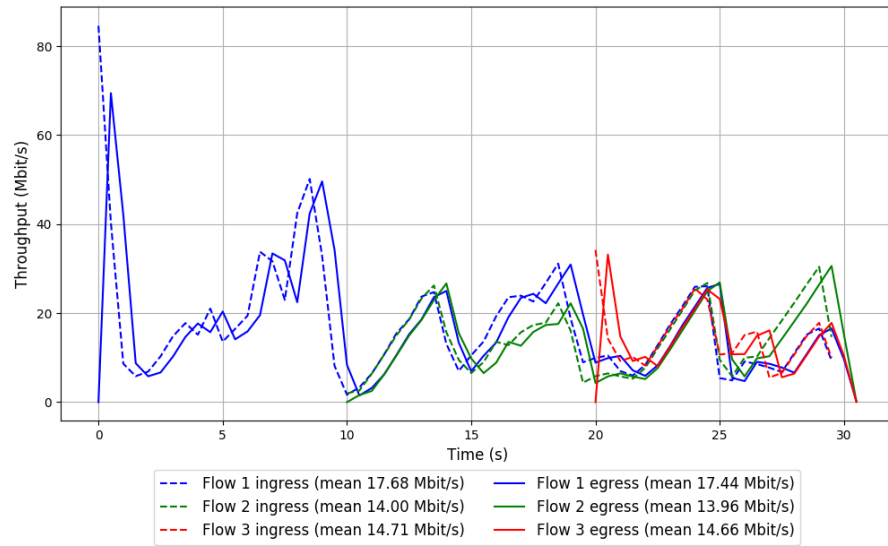Run 4: Report of TCP Cubic — Data Link

```
Run 5: Statistics of TCP Cubic

Start at: 2018-12-11 14:01:05
End at: 2018-12-11 14:01:35
Local clock offset: -10.905 ms
Remote clock offset: 1.907 ms


# Below is generated by plot.py at 2018-12-11 14:13:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 31.61 Mbit/s
95th percentile per-packet one-way delay: 19.721 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 17.44 Mbit/s
95th percentile per-packet one-way delay: 27.190 ms
Loss rate: 1.38%
-- Flow 2:
Average throughput: 13.96 Mbit/s
95th percentile per-packet one-way delay: 19.252 ms
Loss rate: 0.26%
-- Flow 3:
Average throughput: 14.66 Mbit/s
95th percentile per-packet one-way delay: 19.227 ms
Loss rate: 0.38%
```
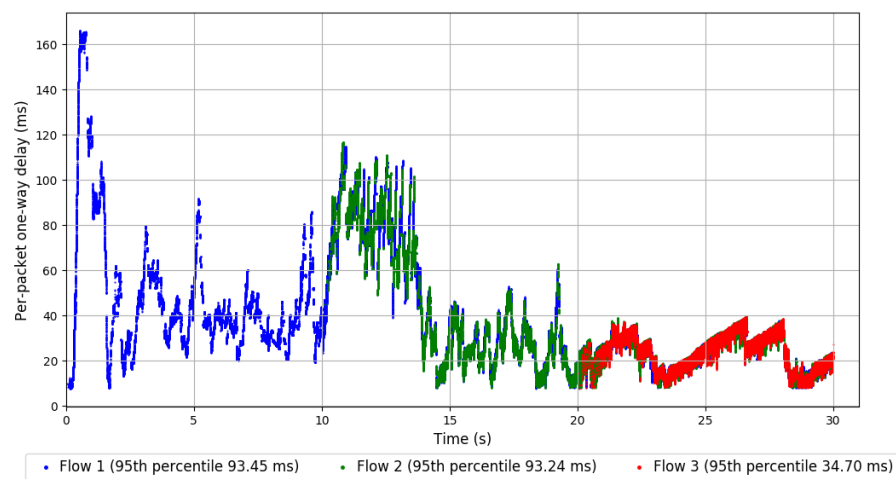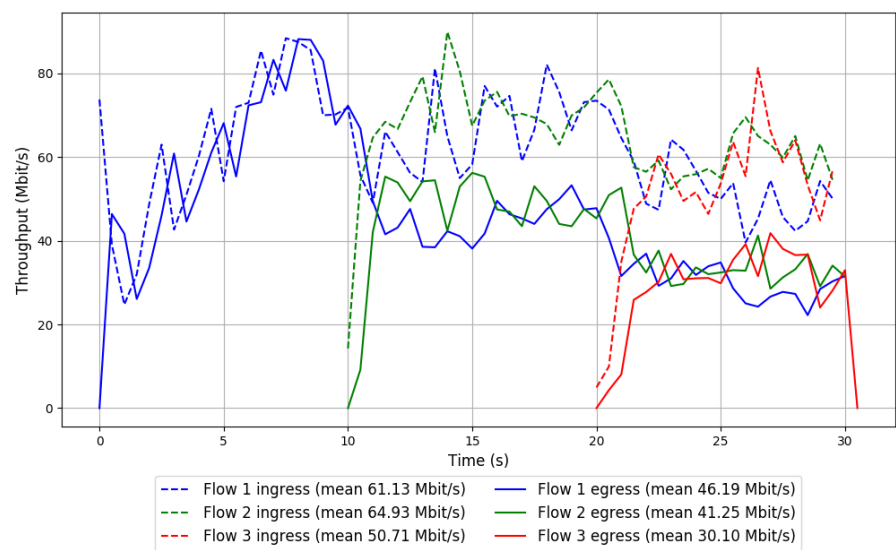
Run 5: Report of TCP Cubic — Data Link

- - - Flow 1 ingress (mean 17.68 Mbit/s)   —— Flow 1 egress (mean 17.44 Mbit/s)
- - - Flow 2 ingress (mean 14.00 Mbit/s)   —— Flow 2 egress (mean 13.96 Mbit/s)
- - - Flow 3 ingress (mean 14.71 Mbit/s)   —— Flow 3 egress (mean 14.66 Mbit/s)

• Flow 1 (95th percentile 27.19 ms)   • Flow 2 (95th percentile 19.25 ms)   • Flow 3 (95th percentile 19.23 ms)

34

```
Run 1: Statistics of FillP

Start at: 2018-12-11 12:16:53
End at: 2018-12-11 12:17:23
Local clock offset: 2.073 ms
Remote clock offset: 58.601 ms

# Below is generated by plot.py at 2018-12-11 14:14:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.58 Mbit/s
95th percentile per-packet one-way delay: 91.267 ms
Loss rate: 30.97%
-- Flow 1:
Average throughput: 46.19 Mbit/s
95th percentile per-packet one-way delay: 93.448 ms
Loss rate: 24.41%
-- Flow 2:
Average throughput: 41.25 Mbit/s
95th percentile per-packet one-way delay: 93.244 ms
Loss rate: 36.51%
-- Flow 3:
Average throughput: 30.10 Mbit/s
95th percentile per-packet one-way delay: 34.695 ms
Loss rate: 40.58%
```
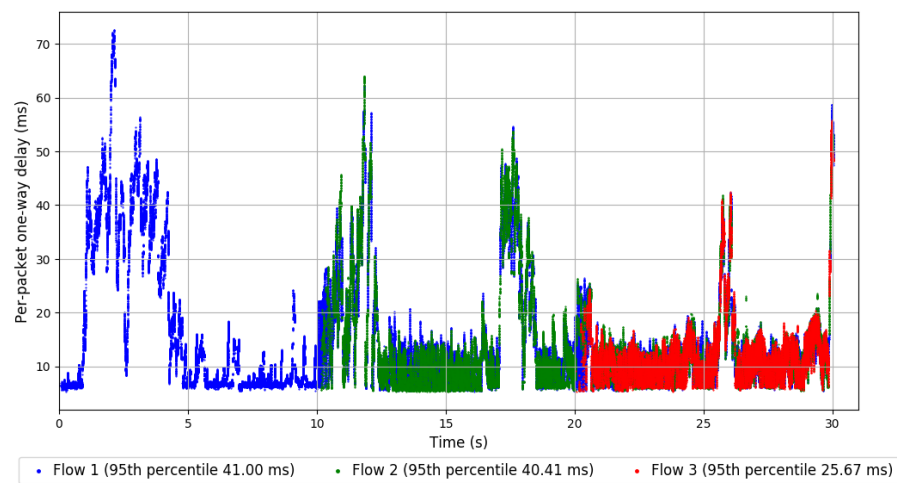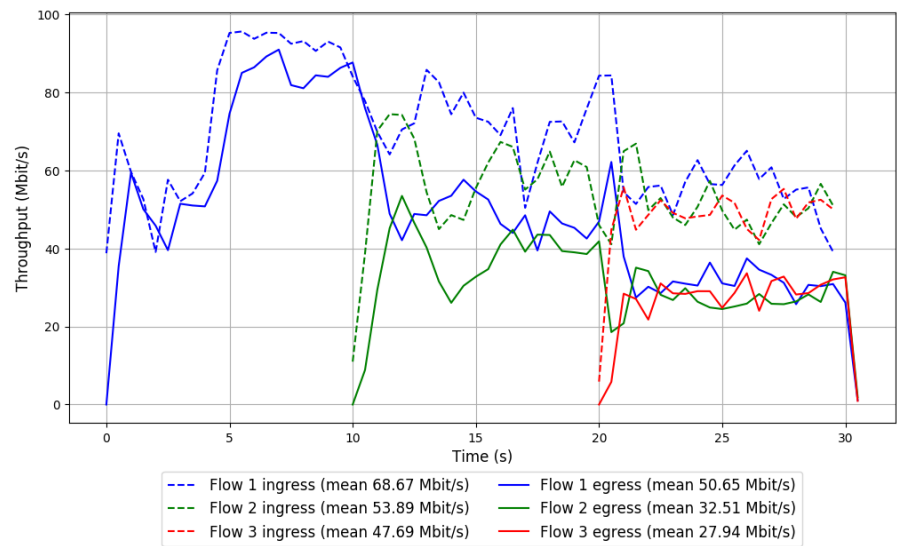
Run 1: Report of FillP — Data Link

```
Run 2: Statistics of FillP

Start at: 2018-12-11 12:41:28
End at: 2018-12-11 12:41:58
Local clock offset: 3.93 ms
Remote clock offset: 44.831 ms

# Below is generated by plot.py at 2018-12-11 14:14:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.58 Mbit/s
95th percentile per-packet one-way delay: 40.151 ms
Loss rate: 32.11%
-- Flow 1:
Average throughput: 50.65 Mbit/s
95th percentile per-packet one-way delay: 41.004 ms
Loss rate: 26.13%
-- Flow 2:
Average throughput: 32.51 Mbit/s
95th percentile per-packet one-way delay: 40.413 ms
Loss rate: 39.54%
-- Flow 3:
Average throughput: 27.94 Mbit/s
95th percentile per-packet one-way delay: 25.670 ms
Loss rate: 41.18%
```

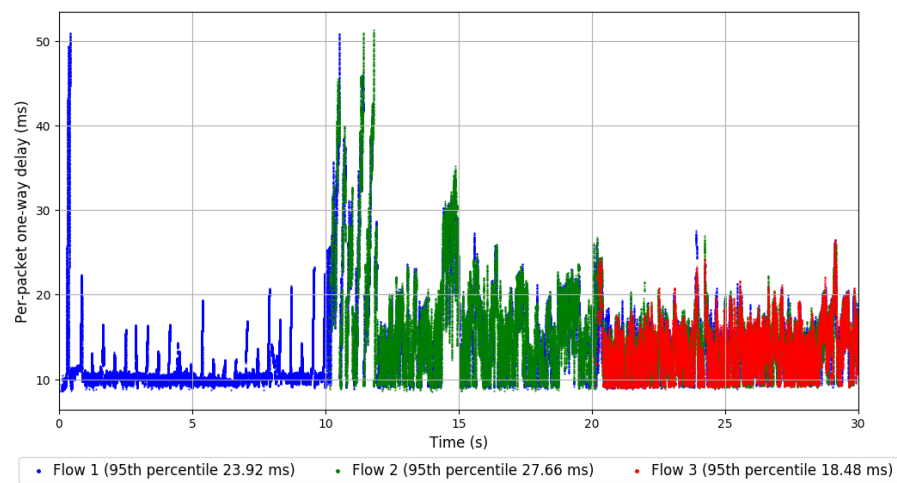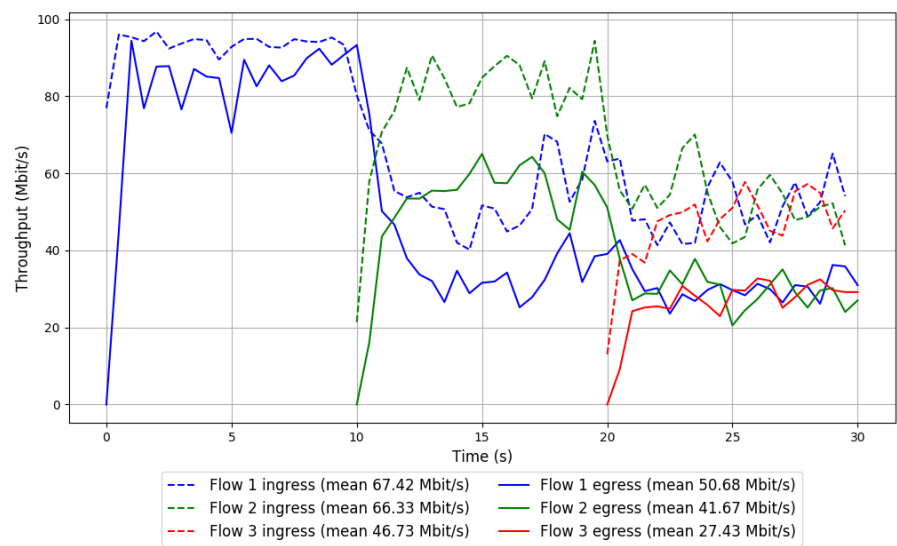Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2018-12-11 13:04:40
End at: 2018-12-11 13:05:10
Local clock offset: -3.184 ms
Remote clock offset: 33.258 ms


# Below is generated by plot.py at 2018-12-11 14:14:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.46 Mbit/s
95th percentile per-packet one-way delay: 24.810 ms
Loss rate: 31.12%
-- Flow 1:
Average throughput: 50.68 Mbit/s
95th percentile per-packet one-way delay: 23.923 ms
Loss rate: 24.82%
-- Flow 2:
Average throughput: 41.67 Mbit/s
95th percentile per-packet one-way delay: 27.660 ms
Loss rate: 37.17%
-- Flow 3:
Average throughput: 27.43 Mbit/s
95th percentile per-packet one-way delay: 18.476 ms
Loss rate: 41.26%
```
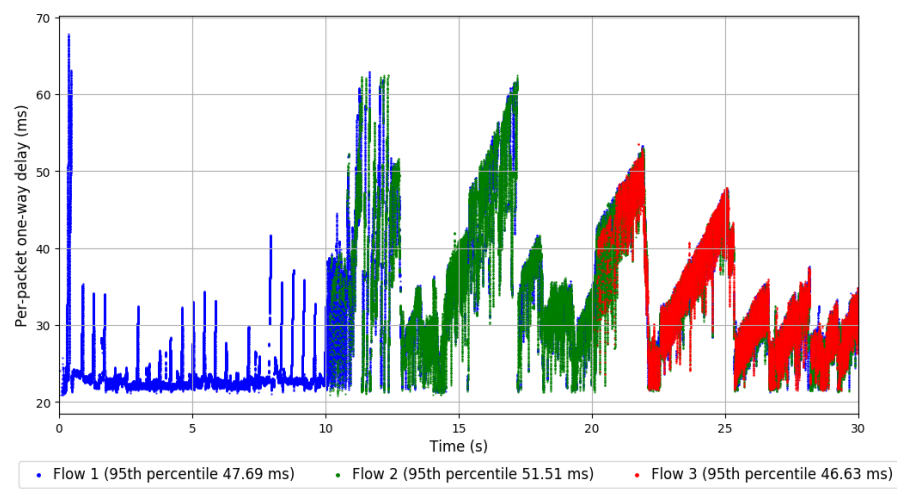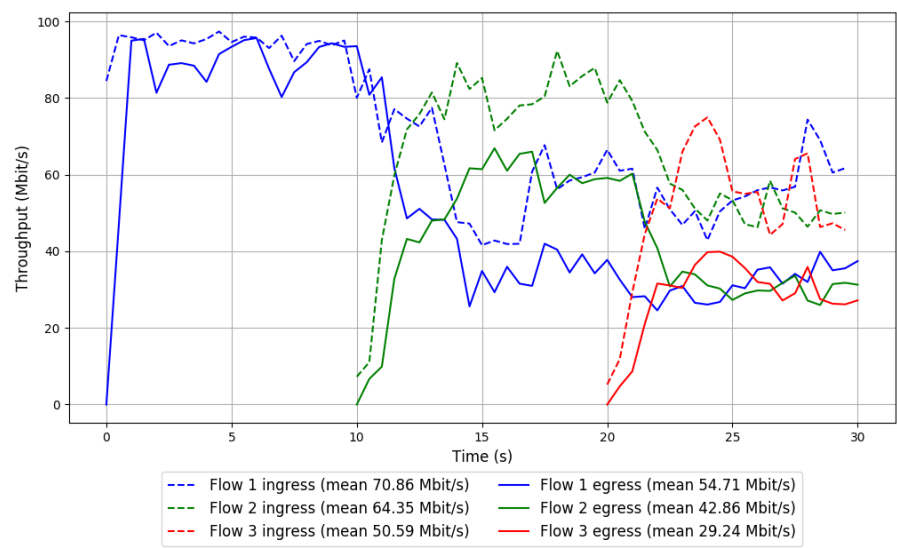
Run 3: Report of FillP — Data Link

- - - Flow 1 ingress (mean 67.42 Mbit/s)   —— Flow 1 egress (mean 50.68 Mbit/s)
- - - Flow 2 ingress (mean 66.33 Mbit/s)   —— Flow 2 egress (mean 41.67 Mbit/s)
- - - Flow 3 ingress (mean 46.73 Mbit/s)   —— Flow 3 egress (mean 27.43 Mbit/s)

- Flow 1 (95th percentile 23.92 ms)   • Flow 2 (95th percentile 27.66 ms)   • Flow 3 (95th percentile 18.48 ms)

40

```
Run 4: Statistics of FillP

Start at: 2018-12-11 13:27:07
End at: 2018-12-11 13:27:37
Local clock offset: -12.958 ms
Remote clock offset: 19.721 ms


# Below is generated by plot.py at 2018-12-11 14:14:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.90 Mbit/s
95th percentile per-packet one-way delay: 49.274 ms
Loss rate: 28.75%
-- Flow 1:
Average throughput: 54.71 Mbit/s
95th percentile per-packet one-way delay: 47.686 ms
Loss rate: 22.78%
-- Flow 2:
Average throughput: 42.86 Mbit/s
95th percentile per-packet one-way delay: 51.507 ms
Loss rate: 33.37%
-- Flow 3:
Average throughput: 29.24 Mbit/s
95th percentile per-packet one-way delay: 46.634 ms
Loss rate: 42.21%
```
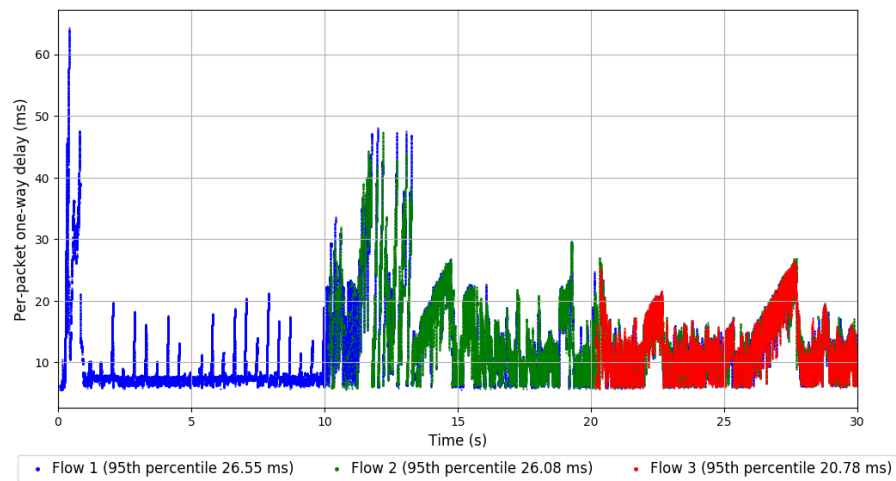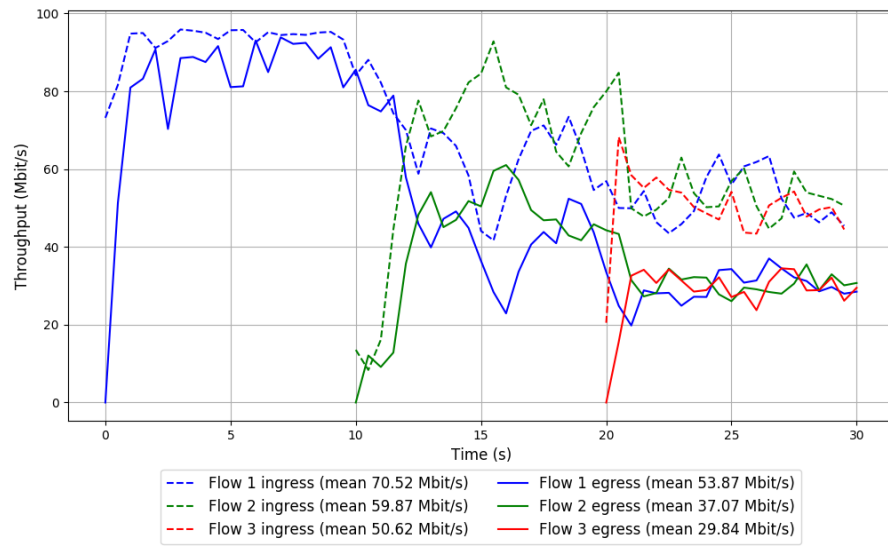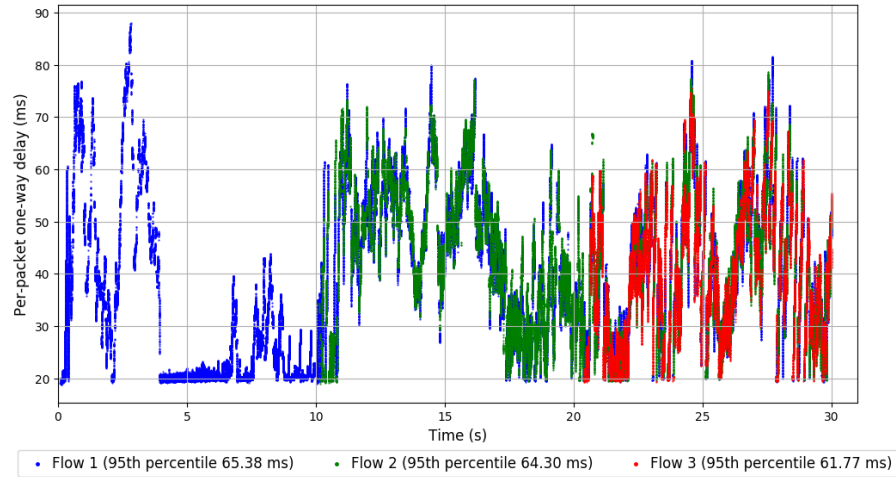
Run 4: Report of FillP — Data Link

Flow 1 ingress (mean 70.86 Mbit/s) --- Flow 1 egress (mean 54.71 Mbit/s)
Flow 2 ingress (mean 64.35 Mbit/s) --- Flow 2 egress (mean 42.86 Mbit/s)
Flow 3 ingress (mean 50.59 Mbit/s) --- Flow 3 egress (mean 29.24 Mbit/s)

Flow 1 (95th percentile 47.69 ms)   Flow 2 (95th percentile 51.51 ms)   Flow 3 (95th percentile 46.63 ms)

```
Run 5: Statistics of FillP

Start at: 2018-12-11 13:49:18
End at: 2018-12-11 13:49:48
Local clock offset: -0.081 ms
Remote clock offset: 7.066 ms


# Below is generated by plot.py at 2018-12-11 14:14:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.44 Mbit/s
95th percentile per-packet one-way delay: 25.405 ms
Loss rate: 30.44%
-- Flow 1:
Average throughput: 53.87 Mbit/s
95th percentile per-packet one-way delay: 26.554 ms
Loss rate: 23.60%
-- Flow 2:
Average throughput: 37.07 Mbit/s
95th percentile per-packet one-way delay: 26.077 ms
Loss rate: 38.06%
-- Flow 3:
Average throughput: 29.84 Mbit/s
95th percentile per-packet one-way delay: 20.781 ms
Loss rate: 41.05%
```

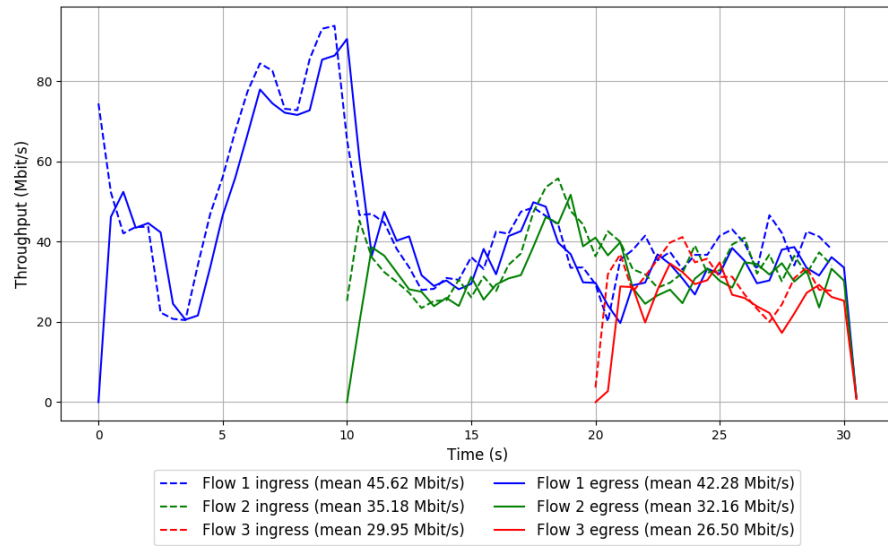Run 5: Report of FillP — Data Link

```
Run 1: Statistics of FillP-Sheep

Start at: 2018-12-11 12:21:54
End at: 2018-12-11 12:22:24
Local clock offset: -8.177 ms
Remote clock offset: 56.783 ms


# Below is generated by plot.py at 2018-12-11 14:14:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 72.30 Mbit/s
95th percentile per-packet one-way delay: 64.748 ms
Loss rate: 8.35%
-- Flow 1:
Average throughput: 42.28 Mbit/s
95th percentile per-packet one-way delay: 65.379 ms
Loss rate: 7.22%
-- Flow 2:
Average throughput: 32.16 Mbit/s
95th percentile per-packet one-way delay: 64.295 ms
Loss rate: 8.47%
-- Flow 3:
Average throughput: 26.50 Mbit/s
95th percentile per-packet one-way delay: 61.771 ms
Loss rate: 13.22%
```

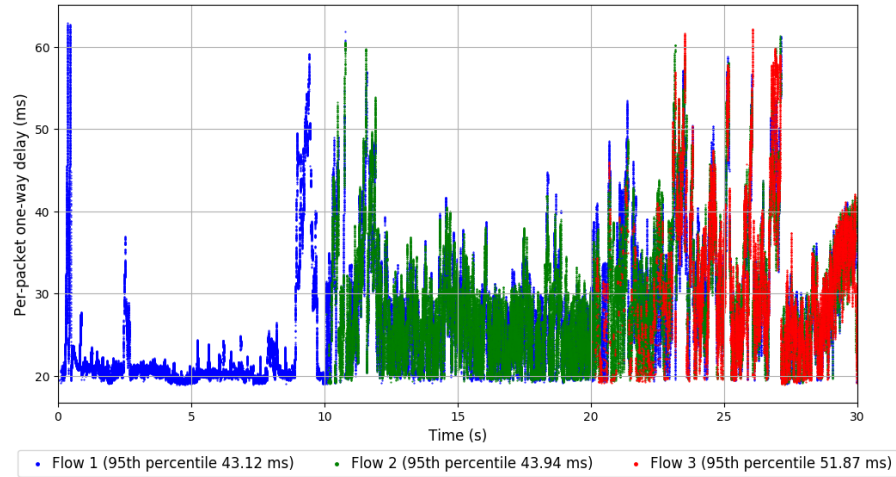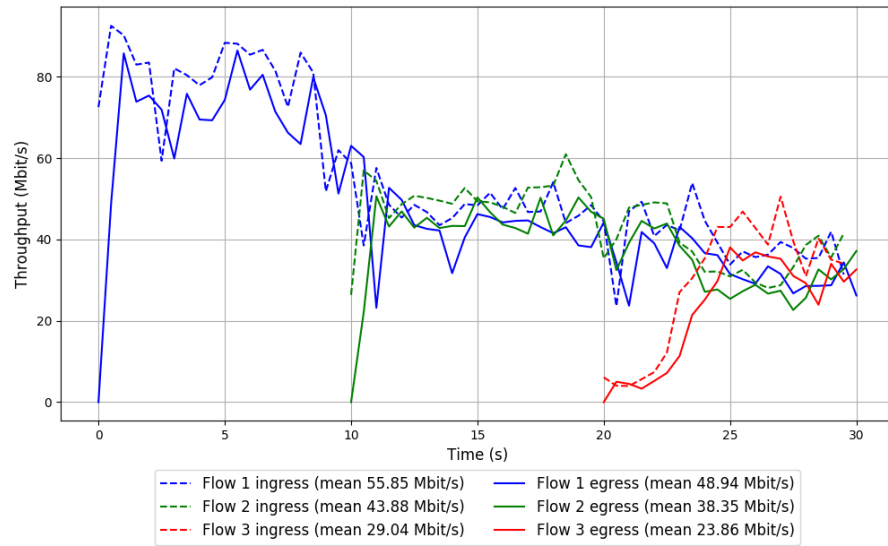Run 1: Report of FillP-Sheep — Data Link

```
Run 2: Statistics of FillP-Sheep

Start at: 2018-12-11 12:47:09
End at: 2018-12-11 12:47:39
Local clock offset: -11.51 ms
Remote clock offset: 42.294 ms


# Below is generated by plot.py at 2018-12-11 14:14:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 82.34 Mbit/s
95th percentile per-packet one-way delay: 44.496 ms
Loss rate: 12.98%
-- Flow 1:
Average throughput: 48.94 Mbit/s
95th percentile per-packet one-way delay: 43.120 ms
Loss rate: 12.37%
-- Flow 2:
Average throughput: 38.35 Mbit/s
95th percentile per-packet one-way delay: 43.937 ms
Loss rate: 12.56%
-- Flow 3:
Average throughput: 23.86 Mbit/s
95th percentile per-packet one-way delay: 51.870 ms
Loss rate: 17.84%
```

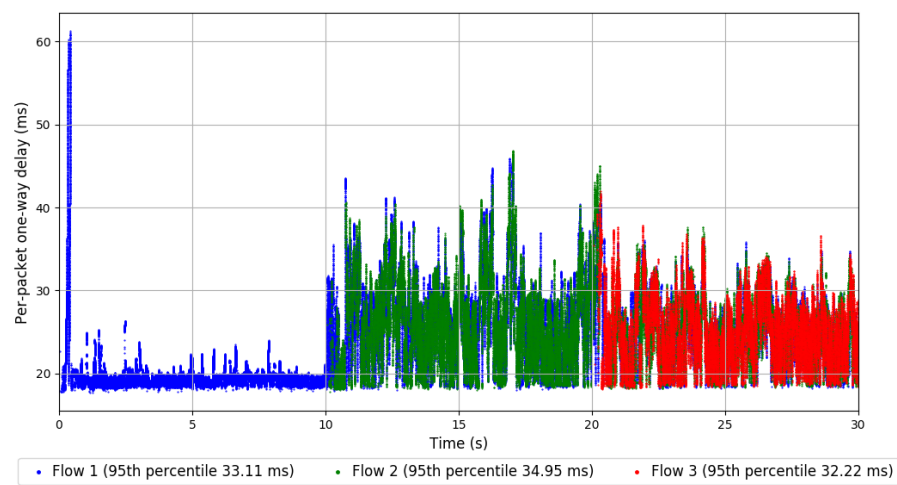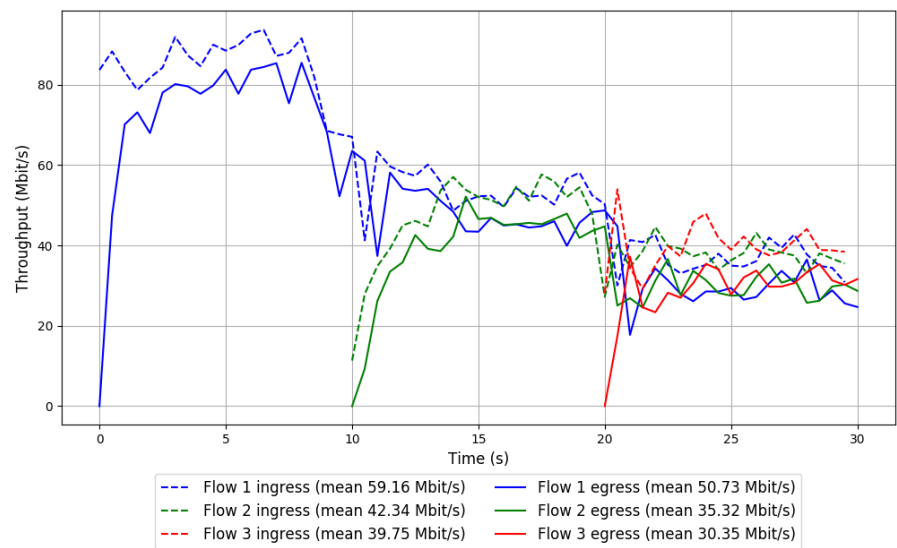Run 2: Report of FillP-Sheep — Data Link

```
Run 3: Statistics of FillP-Sheep

Start at: 2018-12-11 13:09:33
End at: 2018-12-11 13:10:03
Local clock offset: -11.9 ms
Remote clock offset: 30.464 ms

# Below is generated by plot.py at 2018-12-11 14:14:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.26 Mbit/s
95th percentile per-packet one-way delay: 33.557 ms
Loss rate: 16.16%
-- Flow 1:
Average throughput: 50.73 Mbit/s
95th percentile per-packet one-way delay: 33.114 ms
Loss rate: 14.27%
-- Flow 2:
Average throughput: 35.32 Mbit/s
95th percentile per-packet one-way delay: 34.950 ms
Loss rate: 16.57%
-- Flow 3:
Average throughput: 30.35 Mbit/s
95th percentile per-packet one-way delay: 32.222 ms
Loss rate: 23.72%
```

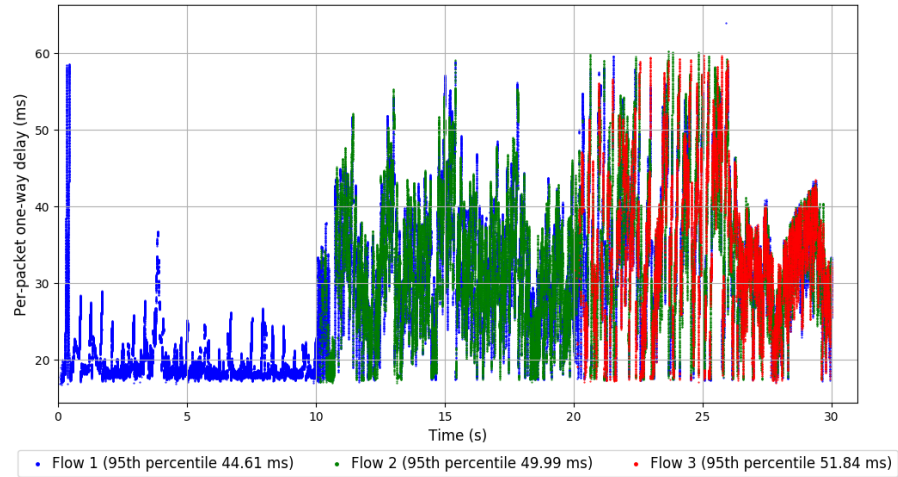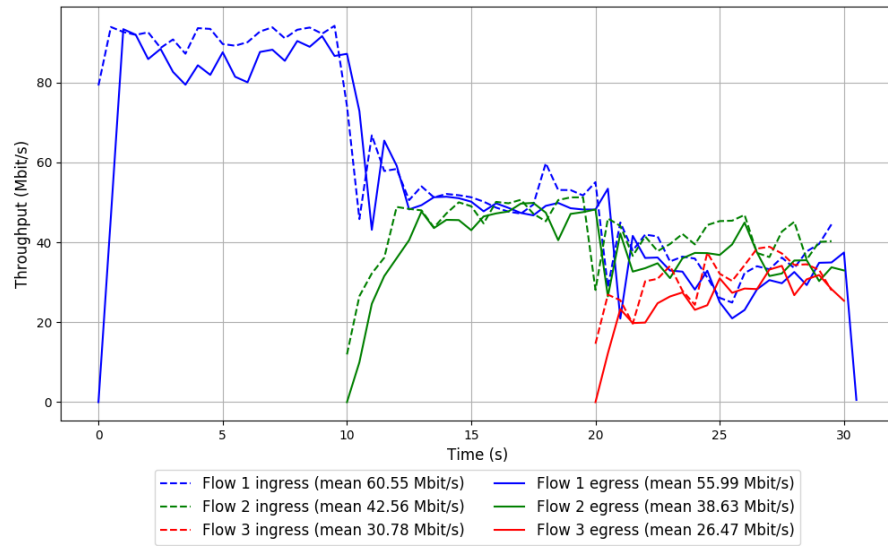Run 3: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 59.16 Mbit/s) --- Flow 1 egress (mean 50.73 Mbit/s)
Flow 2 ingress (mean 42.34 Mbit/s) --- Flow 2 egress (mean 35.32 Mbit/s)
Flow 3 ingress (mean 39.75 Mbit/s) --- Flow 3 egress (mean 30.35 Mbit/s)

Flow 1 (95th percentile 33.11 ms)   Flow 2 (95th percentile 34.95 ms)   Flow 3 (95th percentile 32.22 ms)

```
Run 4: Statistics of FillP-Sheep

Start at: 2018-12-11 13:31:57
End at: 2018-12-11 13:32:27
Local clock offset: -9.309 ms
Remote clock offset: 16.505 ms


# Below is generated by plot.py at 2018-12-11 14:15:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.49 Mbit/s
95th percentile per-packet one-way delay: 47.833 ms
Loss rate: 8.64%
-- Flow 1:
Average throughput: 55.99 Mbit/s
95th percentile per-packet one-way delay: 44.608 ms
Loss rate: 7.49%
-- Flow 2:
Average throughput: 38.63 Mbit/s
95th percentile per-packet one-way delay: 49.993 ms
Loss rate: 9.16%
-- Flow 3:
Average throughput: 26.47 Mbit/s
95th percentile per-packet one-way delay: 51.839 ms
Loss rate: 14.05%
```
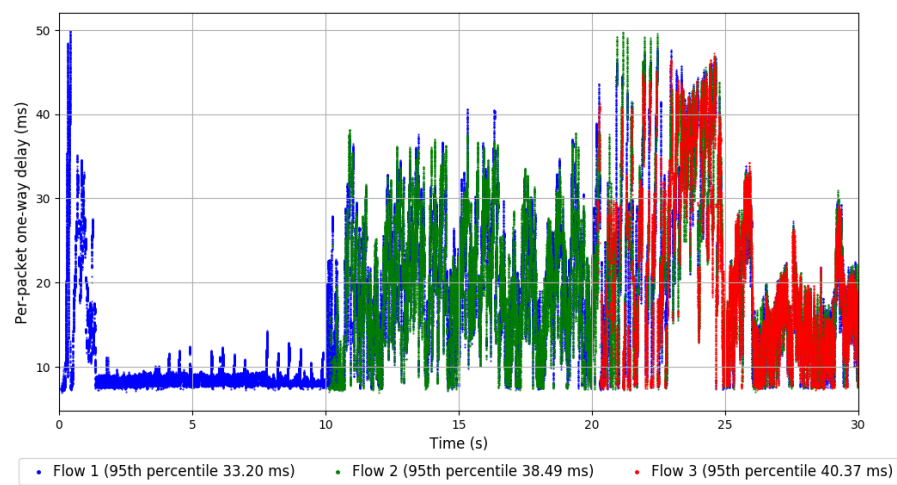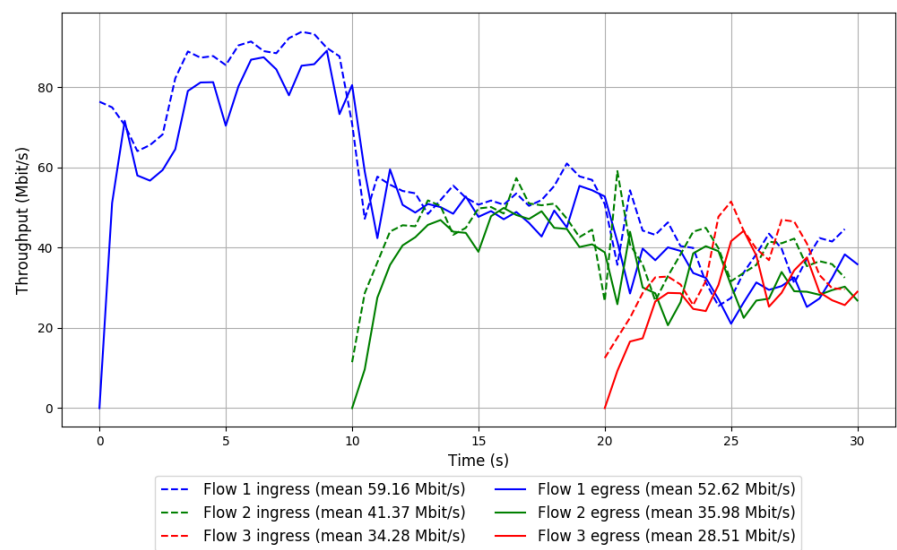
Run 4: Report of FillP-Sheep — Data Link

```
Run 5: Statistics of FillP-Sheep

Start at: 2018-12-11 13:54:05
End at: 2018-12-11 13:54:35
Local clock offset: -1.178 ms
Remote clock offset: 5.506 ms


# Below is generated by plot.py at 2018-12-11 14:15:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.00 Mbit/s
95th percentile per-packet one-way delay: 36.792 ms
Loss rate: 12.28%
-- Flow 1:
Average throughput: 52.62 Mbit/s
95th percentile per-packet one-way delay: 33.204 ms
Loss rate: 11.05%
-- Flow 2:
Average throughput: 35.98 Mbit/s
95th percentile per-packet one-way delay: 38.490 ms
Loss rate: 13.05%
-- Flow 3:
Average throughput: 28.51 Mbit/s
95th percentile per-packet one-way delay: 40.369 ms
Loss rate: 16.85%
```

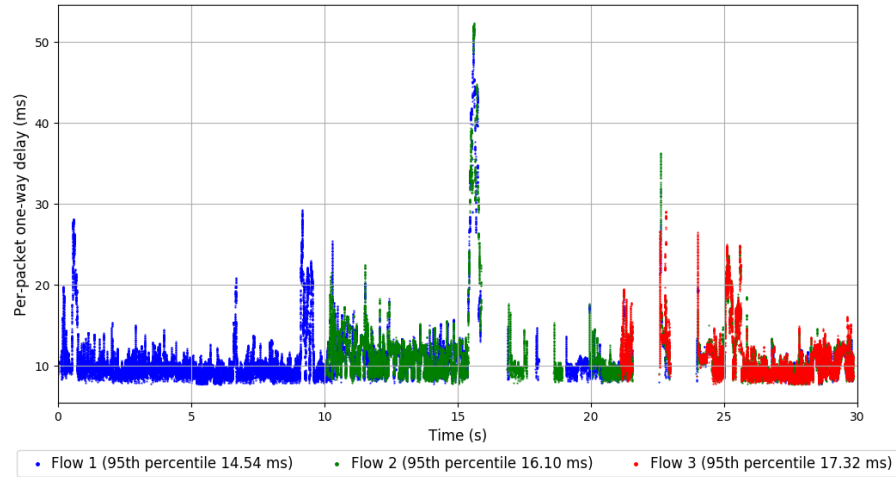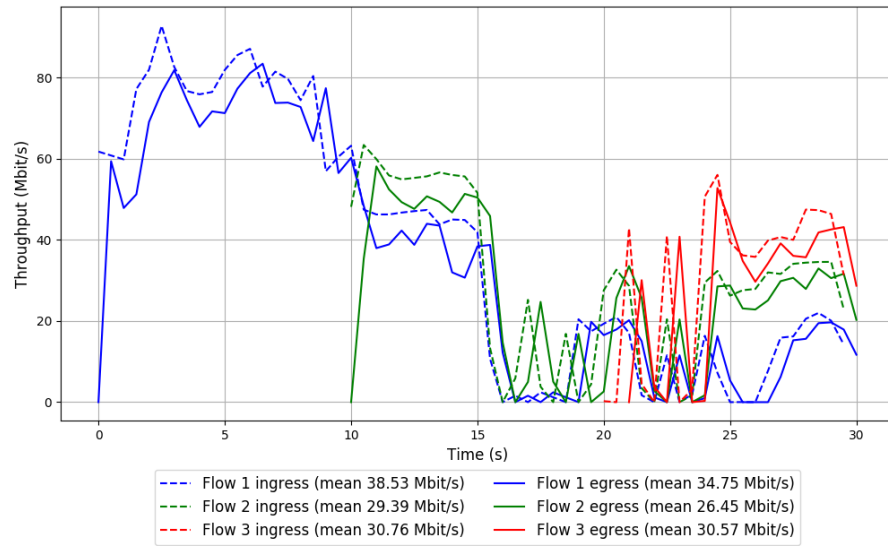Run 5: Report of FillP-Sheep — Data Link

```
Run 1: Statistics of Indigo

Start at: 2018-12-11 12:40:11
End at: 2018-12-11 12:40:41
Local clock offset: 2.763 ms
Remote clock offset: 45.777 ms


# Below is generated by plot.py at 2018-12-11 14:15:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 61.30 Mbit/s
95th percentile per-packet one-way delay: 15.747 ms
Loss rate: 10.00%
-- Flow 1:
Average throughput: 34.75 Mbit/s
95th percentile per-packet one-way delay: 14.542 ms
Loss rate: 9.80%
-- Flow 2:
Average throughput: 26.45 Mbit/s
95th percentile per-packet one-way delay: 16.104 ms
Loss rate: 10.00%
-- Flow 3:
Average throughput: 30.57 Mbit/s
95th percentile per-packet one-way delay: 17.317 ms
Loss rate: 10.79%
```

Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-12-11 13:03:27
End at: 2018-12-11 13:03:57
Local clock offset: -12.936 ms
Remote clock offset: 33.173 ms


# Below is generated by plot.py at 2018-12-11 14:15:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.30 Mbit/s
95th percentile per-packet one-way delay: 26.004 ms
Loss rate: 6.11%
-- Flow 1:
Average throughput: 50.68 Mbit/s
95th percentile per-packet one-way delay: 24.906 ms
Loss rate: 5.23%
-- Flow 2:
Average throughput: 41.81 Mbit/s
95th percentile per-packet one-way delay: 26.229 ms
Loss rate: 6.57%
-- Flow 3:
Average throughput: 39.22 Mbit/s
95th percentile per-packet one-way delay: 27.308 ms
Loss rate: 8.44%
```
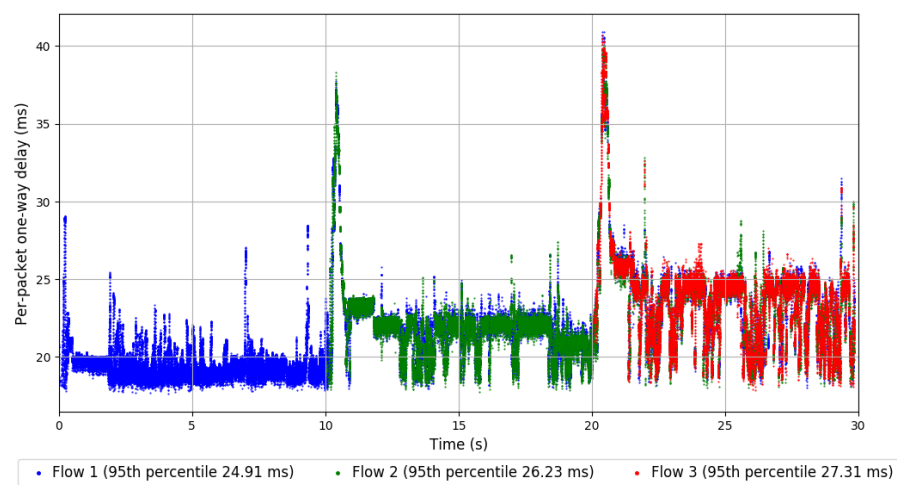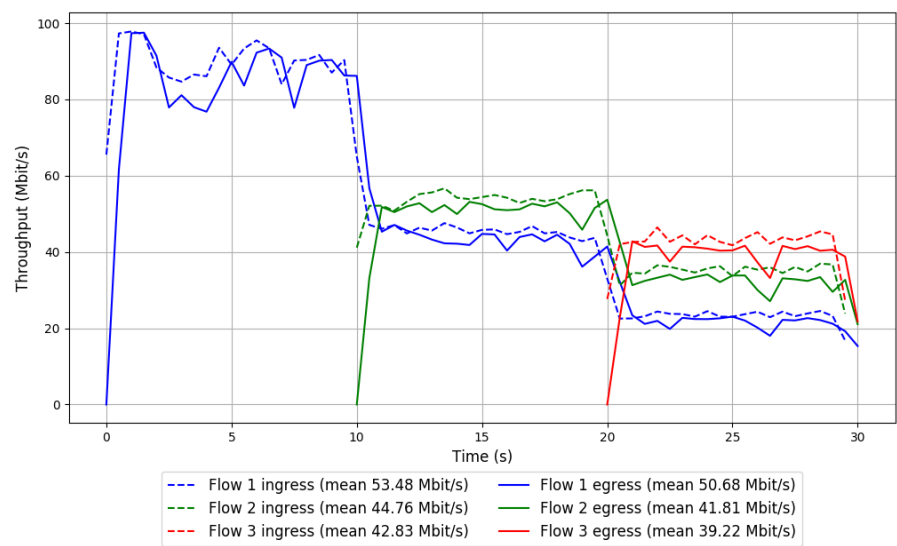
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-12-11 13:25:53
End at: 2018-12-11 13:26:23
Local clock offset: -10.674 ms
Remote clock offset: 19.579 ms

# Below is generated by plot.py at 2018-12-11 14:15:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.96 Mbit/s
95th percentile per-packet one-way delay: 23.829 ms
Loss rate: 17.53%
-- Flow 1:
Average throughput: 57.63 Mbit/s
95th percentile per-packet one-way delay: 23.527 ms
Loss rate: 12.60%
-- Flow 2:
Average throughput: 30.16 Mbit/s
95th percentile per-packet one-way delay: 24.753 ms
Loss rate: 21.36%
-- Flow 3:
Average throughput: 32.87 Mbit/s
95th percentile per-packet one-way delay: 24.580 ms
Loss rate: 32.03%
```
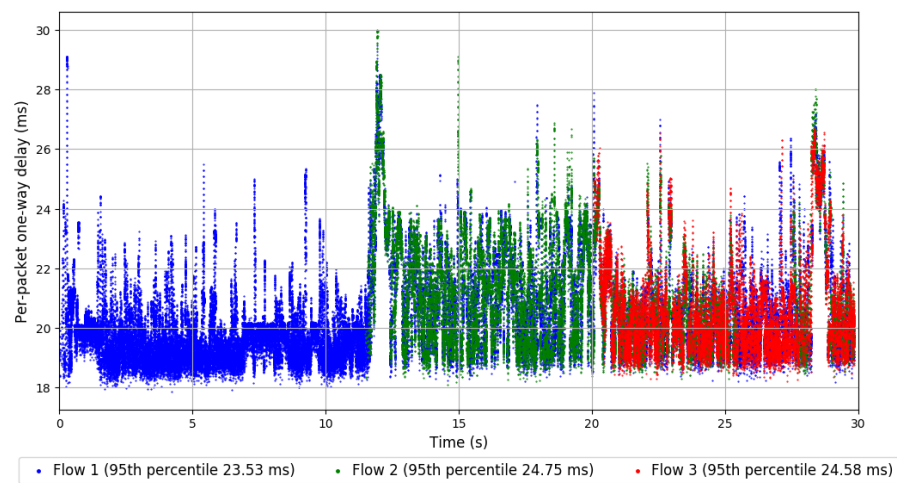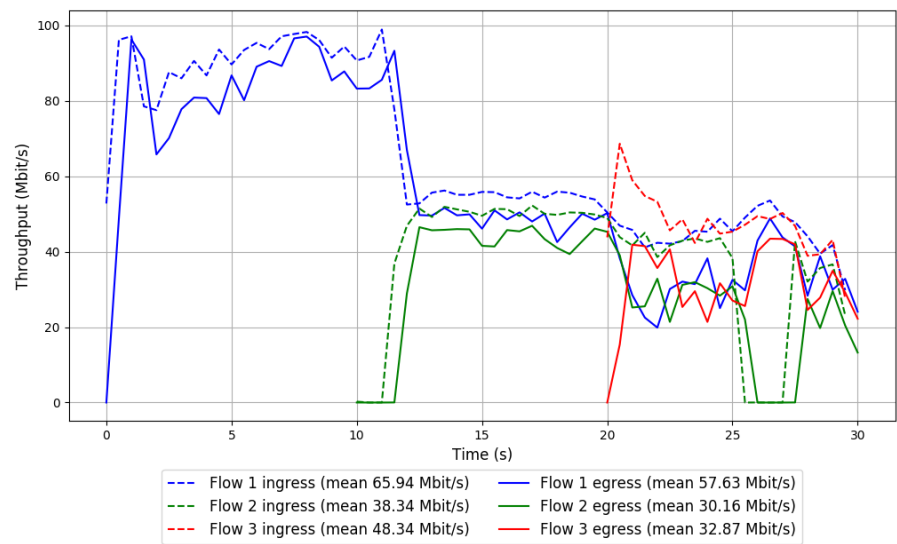
Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-12-11 13:48:05
End at: 2018-12-11 13:48:35
Local clock offset: -0.129 ms
Remote clock offset: 7.976 ms


# Below is generated by plot.py at 2018-12-11 14:15:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.07 Mbit/s
95th percentile per-packet one-way delay: 13.351 ms
Loss rate: 6.68%
-- Flow 1:
Average throughput: 55.70 Mbit/s
95th percentile per-packet one-way delay: 13.183 ms
Loss rate: 6.48%
-- Flow 2:
Average throughput: 35.79 Mbit/s
95th percentile per-packet one-way delay: 13.430 ms
Loss rate: 6.72%
-- Flow 3:
Average throughput: 32.49 Mbit/s
95th percentile per-packet one-way delay: 13.900 ms
Loss rate: 7.62%
```
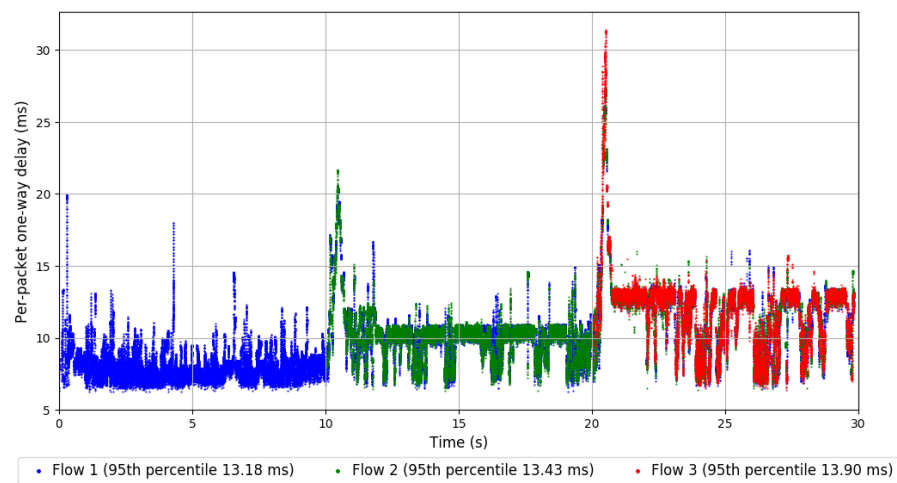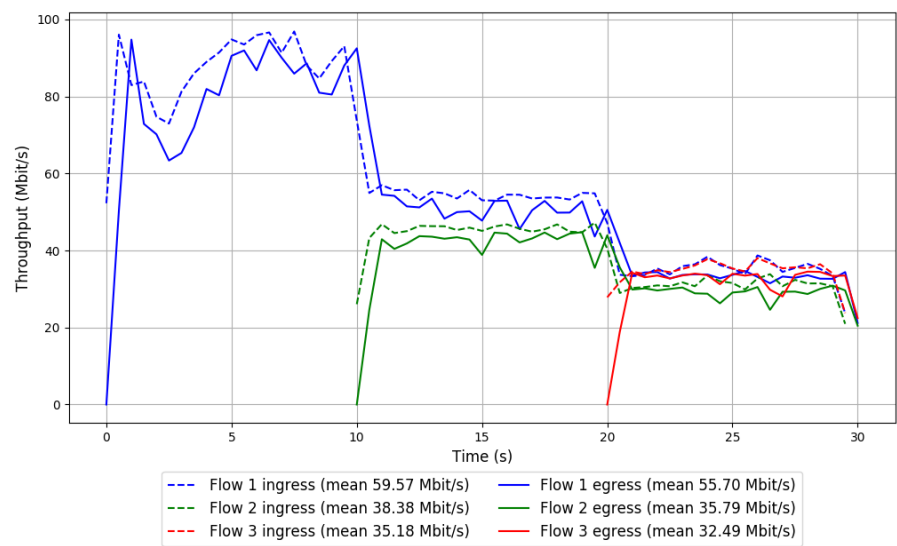
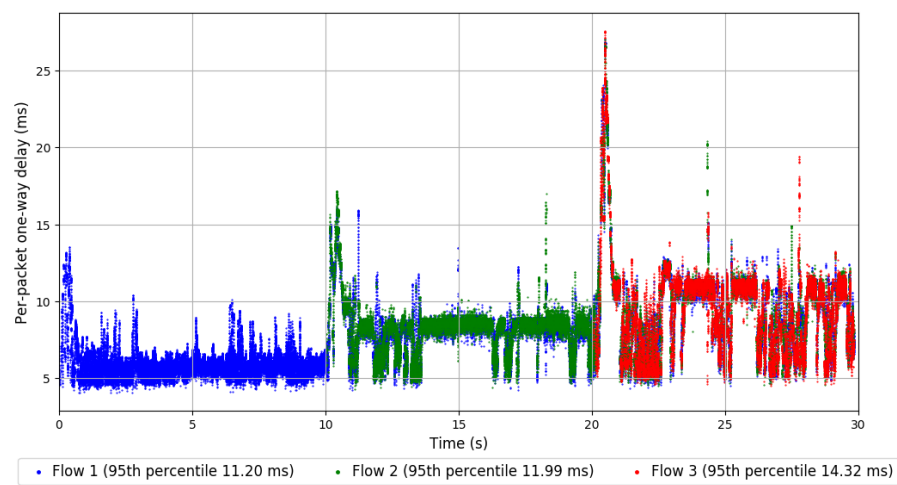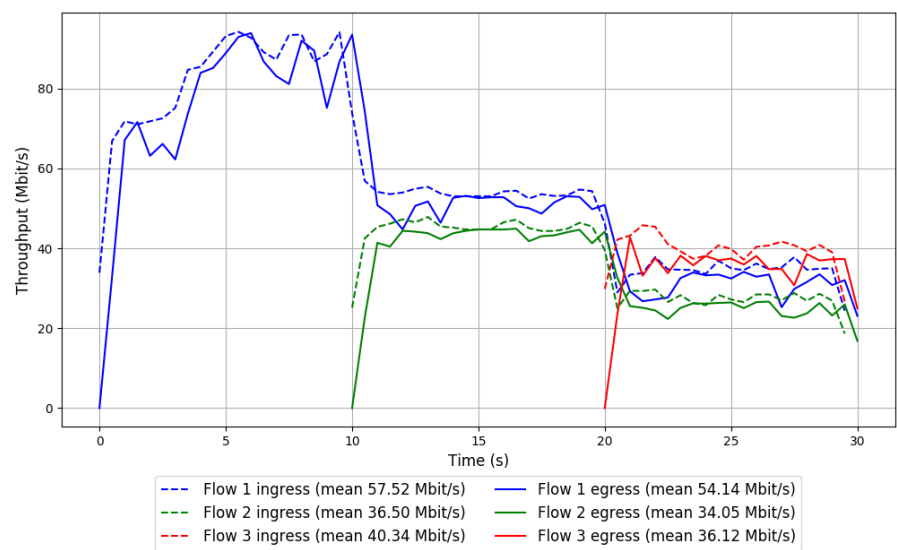Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2018-12-11 14:10:26
End at: 2018-12-11 14:10:56
Local clock offset: 0.09 ms
Remote clock offset: -3.679 ms


# Below is generated by plot.py at 2018-12-11 14:15:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.60 Mbit/s
95th percentile per-packet one-way delay: 11.576 ms
Loss rate: 6.72%
-- Flow 1:
Average throughput: 54.14 Mbit/s
95th percentile per-packet one-way delay: 11.195 ms
Loss rate: 5.86%
-- Flow 2:
Average throughput: 34.05 Mbit/s
95th percentile per-packet one-way delay: 11.989 ms
Loss rate: 6.69%
-- Flow 3:
Average throughput: 36.12 Mbit/s
95th percentile per-packet one-way delay: 14.320 ms
Loss rate: 10.46%
```
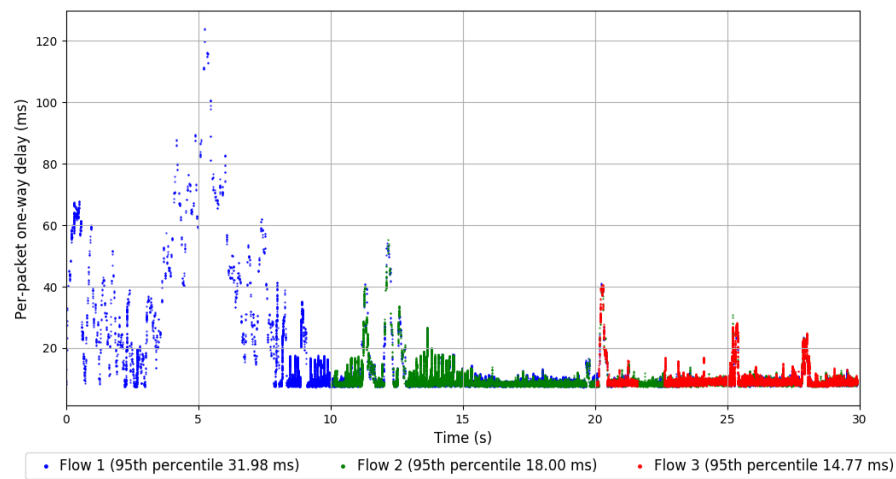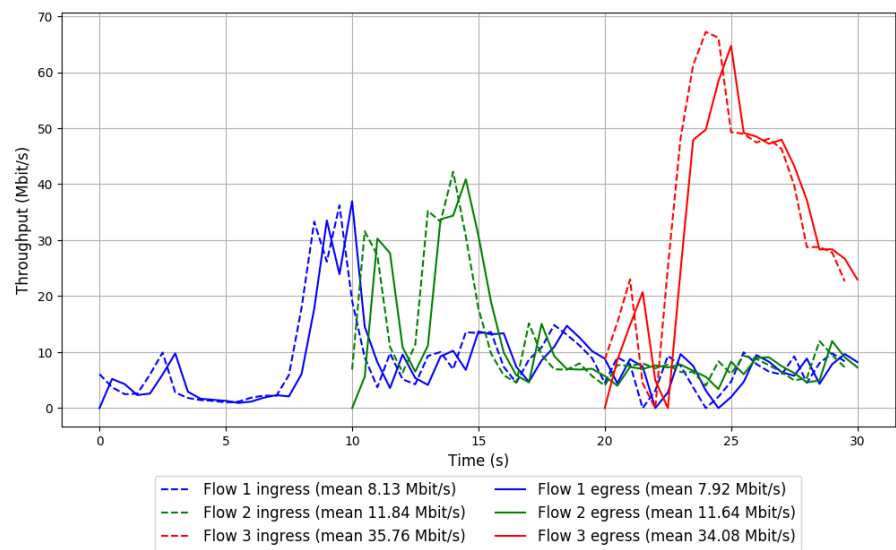
Run 5: Report of Indigo — Data Link

```
Run 1: Statistics of Indigo-MusesD

Start at: 2018-12-11 12:31:53
End at: 2018-12-11 12:32:23
Local clock offset: 5.784 ms
Remote clock offset: 51.591 ms


# Below is generated by plot.py at 2018-12-11 14:15:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 26.93 Mbit/s
95th percentile per-packet one-way delay: 21.127 ms
Loss rate: 3.24%
-- Flow 1:
Average throughput: 7.92 Mbit/s
95th percentile per-packet one-way delay: 31.976 ms
Loss rate: 2.60%
-- Flow 2:
Average throughput: 11.64 Mbit/s
95th percentile per-packet one-way delay: 18.000 ms
Loss rate: 1.70%
-- Flow 3:
Average throughput: 34.08 Mbit/s
95th percentile per-packet one-way delay: 14.774 ms
Loss rate: 4.70%
```

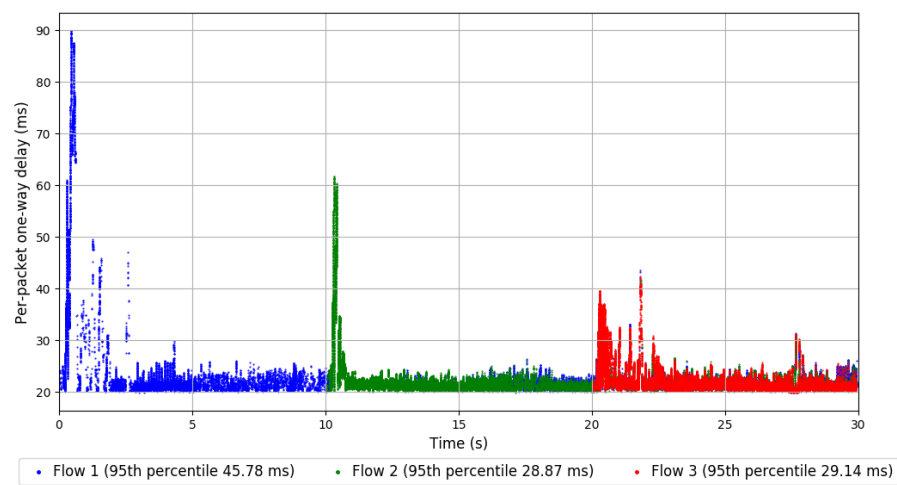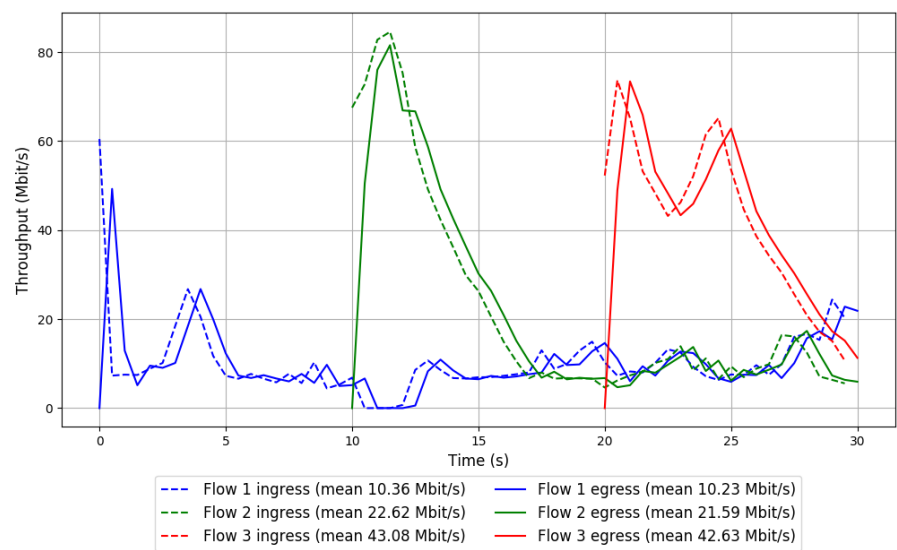Run 1: Report of Indigo-MusesD — Data Link

```
Run 2: Statistics of Indigo-MusesD

Start at: 2018-12-11 12:56:30
End at: 2018-12-11 12:57:00
Local clock offset: -13.793 ms
Remote clock offset: 38.653 ms

# Below is generated by plot.py at 2018-12-11 14:15:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 38.68 Mbit/s
95th percentile per-packet one-way delay: 31.258 ms
Loss rate: 2.42%
-- Flow 1:
Average throughput: 10.23 Mbit/s
95th percentile per-packet one-way delay: 45.778 ms
Loss rate: 1.21%
-- Flow 2:
Average throughput: 21.59 Mbit/s
95th percentile per-packet one-way delay: 28.871 ms
Loss rate: 4.55%
-- Flow 3:
Average throughput: 42.63 Mbit/s
95th percentile per-packet one-way delay: 29.139 ms
Loss rate: 1.06%
```

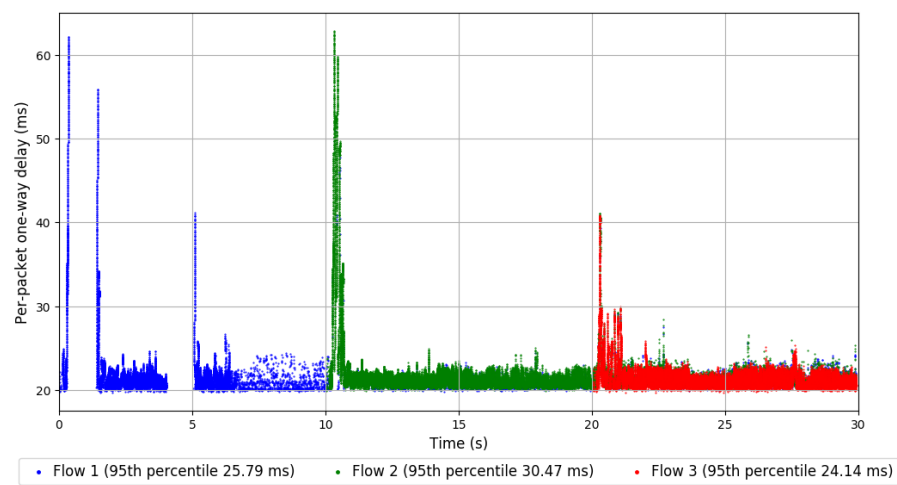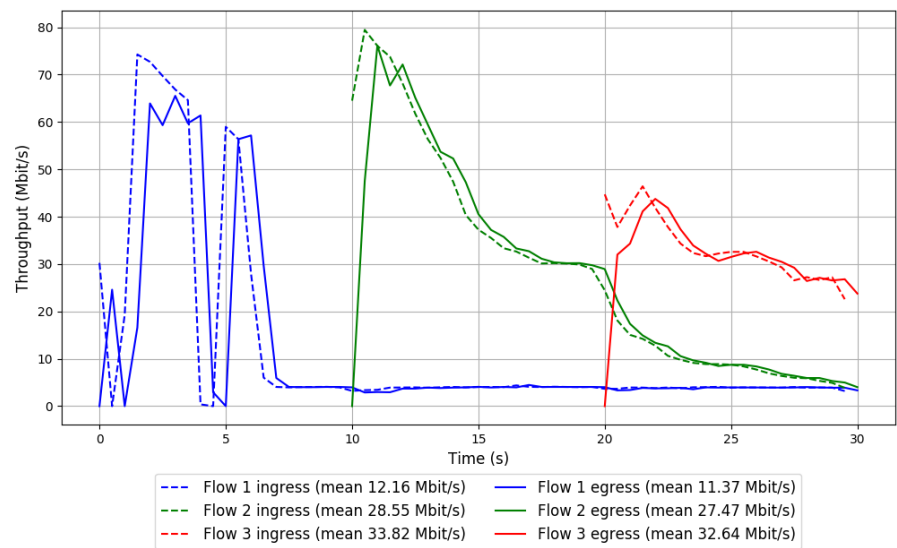Run 2: Report of Indigo-MusesD — Data Link

```
Run 3: Statistics of Indigo-MusesD

Start at: 2018-12-11 13:18:55
End at: 2018-12-11 13:19:25
Local clock offset: -13.053 ms
Remote clock offset: 23.592 ms


# Below is generated by plot.py at 2018-12-11 14:15:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 40.42 Mbit/s
95th percentile per-packet one-way delay: 25.538 ms
Loss rate: 4.48%
-- Flow 1:
Average throughput: 11.37 Mbit/s
95th percentile per-packet one-way delay: 25.788 ms
Loss rate: 6.52%
-- Flow 2:
Average throughput: 27.47 Mbit/s
95th percentile per-packet one-way delay: 30.473 ms
Loss rate: 3.76%
-- Flow 3:
Average throughput: 32.64 Mbit/s
95th percentile per-packet one-way delay: 24.142 ms
Loss rate: 3.48%
```

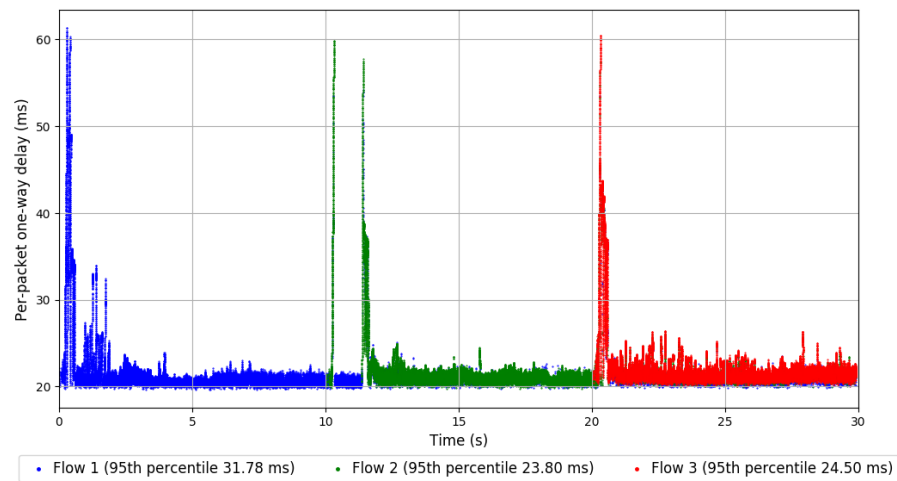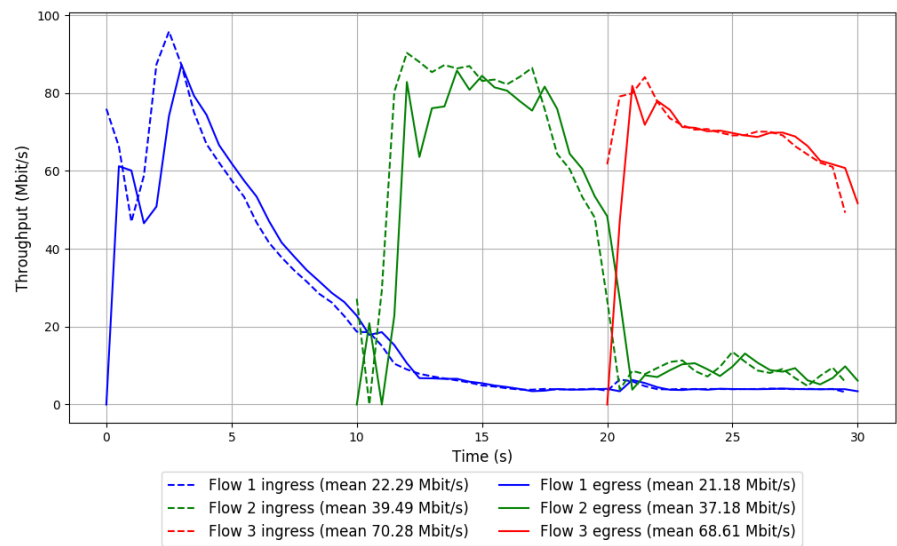Run 3: Report of Indigo-MusesD — Data Link

```
Run 4: Statistics of Indigo-MusesD

Start at: 2018-12-11 13:41:08
End at: 2018-12-11 13:41:38
Local clock offset: -12.501 ms
Remote clock offset: 12.016 ms


# Below is generated by plot.py at 2018-12-11 14:16:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 68.60 Mbit/s
95th percentile per-packet one-way delay: 25.195 ms
Loss rate: 4.46%
-- Flow 1:
Average throughput: 21.18 Mbit/s
95th percentile per-packet one-way delay: 31.784 ms
Loss rate: 4.99%
-- Flow 2:
Average throughput: 37.18 Mbit/s
95th percentile per-packet one-way delay: 23.798 ms
Loss rate: 5.84%
-- Flow 3:
Average throughput: 68.61 Mbit/s
95th percentile per-packet one-way delay: 24.500 ms
Loss rate: 2.38%
```

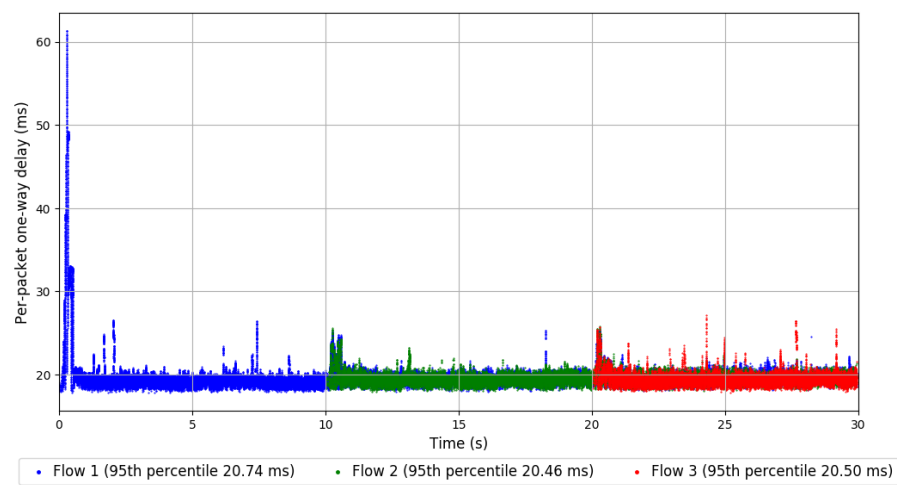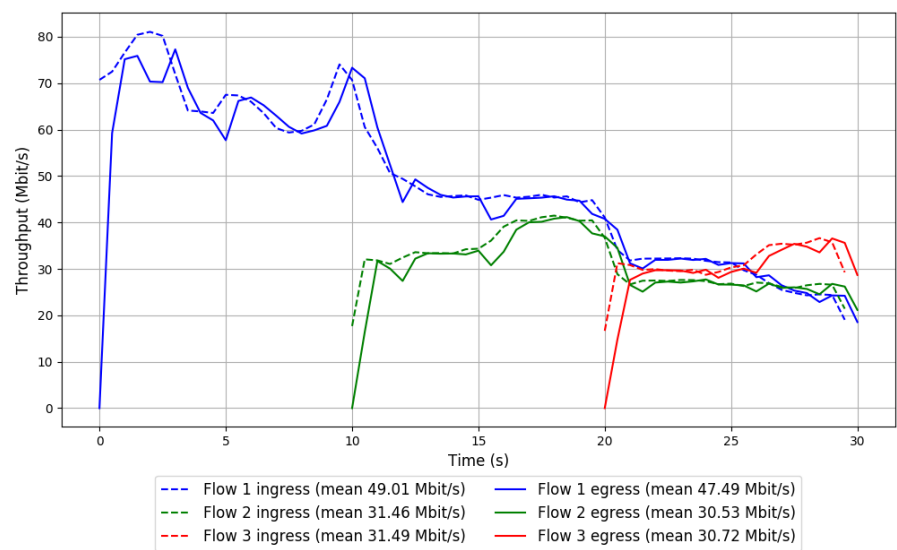Run 4: Report of Indigo-MusesD — Data Link

```
Run 5: Statistics of Indigo-MusesD

Start at: 2018-12-11 14:03:28
End at: 2018-12-11 14:03:58
Local clock offset: -12.999 ms
Remote clock offset: 0.221 ms


# Below is generated by plot.py at 2018-12-11 14:16:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 77.95 Mbit/s
95th percentile per-packet one-way delay: 20.598 ms
Loss rate: 2.98%
-- Flow 1:
Average throughput: 47.49 Mbit/s
95th percentile per-packet one-way delay: 20.740 ms
Loss rate: 3.11%
-- Flow 2:
Average throughput: 30.53 Mbit/s
95th percentile per-packet one-way delay: 20.456 ms
Loss rate: 2.93%
-- Flow 3:
Average throughput: 30.72 Mbit/s
95th percentile per-packet one-way delay: 20.496 ms
Loss rate: 2.44%
```

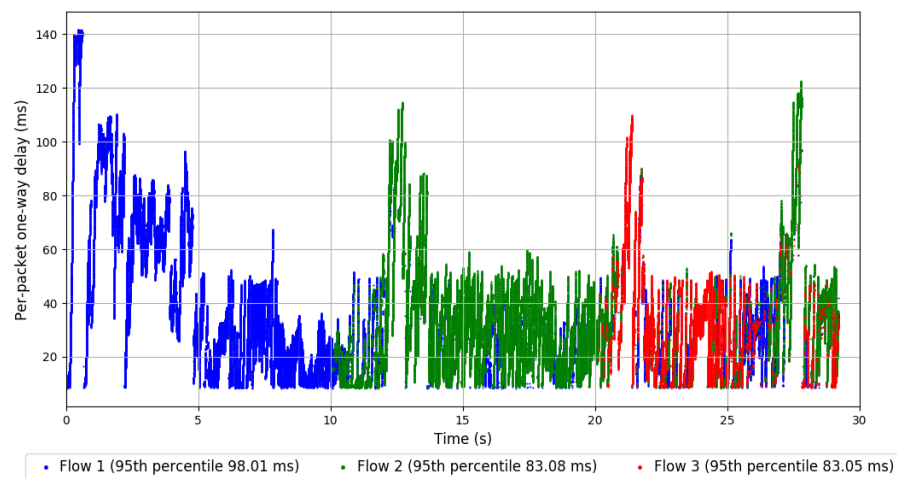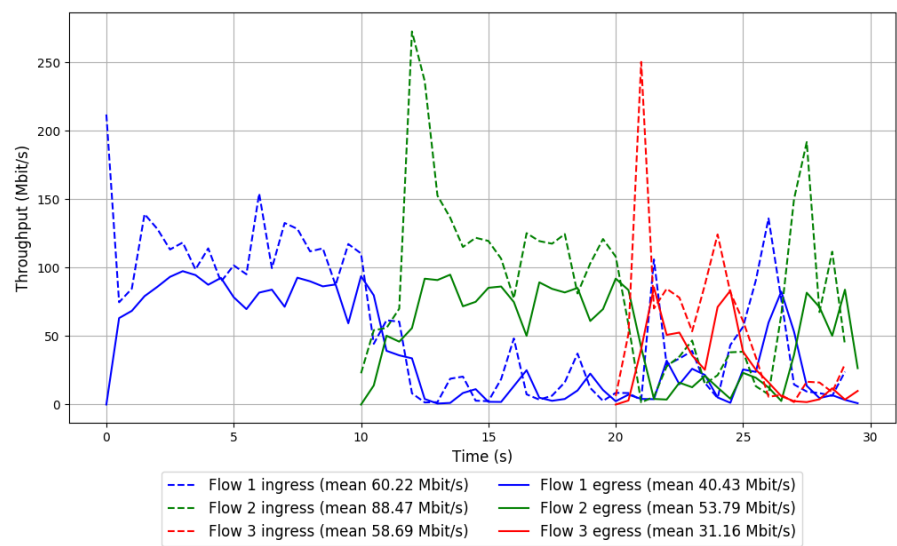Run 5: Report of Indigo-MusesD — Data Link

```
Run 1: Statistics of Indigo-MusesT

Start at: 2018-12-11 12:20:40
End at: 2018-12-11 12:21:10
Local clock offset: 2.376 ms
Remote clock offset: 57.168 ms


# Below is generated by plot.py at 2018-12-11 14:16:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.36 Mbit/s
95th percentile per-packet one-way delay: 89.619 ms
Loss rate: 37.38%
-- Flow 1:
Average throughput: 40.43 Mbit/s
95th percentile per-packet one-way delay: 98.007 ms
Loss rate: 32.79%
-- Flow 2:
Average throughput: 53.79 Mbit/s
95th percentile per-packet one-way delay: 83.080 ms
Loss rate: 39.14%
-- Flow 3:
Average throughput: 31.16 Mbit/s
95th percentile per-packet one-way delay: 83.048 ms
Loss rate: 46.87%
```

Run 1: Report of Indigo-MusesT — Data Link

- - - Flow 1 ingress (mean 60.22 Mbit/s) ——— Flow 1 egress (mean 40.43 Mbit/s)
- - - Flow 2 ingress (mean 88.47 Mbit/s) ——— Flow 2 egress (mean 53.79 Mbit/s)
- - - Flow 3 ingress (mean 58.69 Mbit/s) ——— Flow 3 egress (mean 31.16 Mbit/s)

• Flow 1 (95th percentile 98.01 ms) • Flow 2 (95th percentile 83.08 ms) • Flow 3 (95th percentile 83.05 ms)
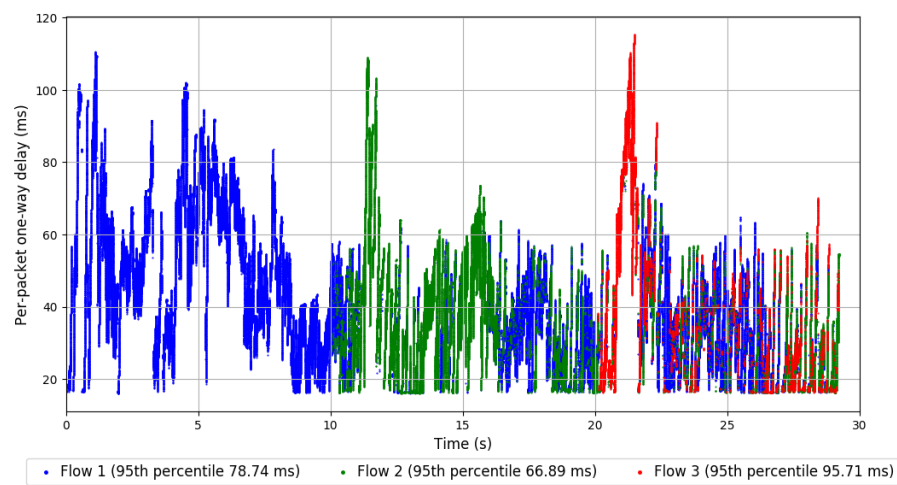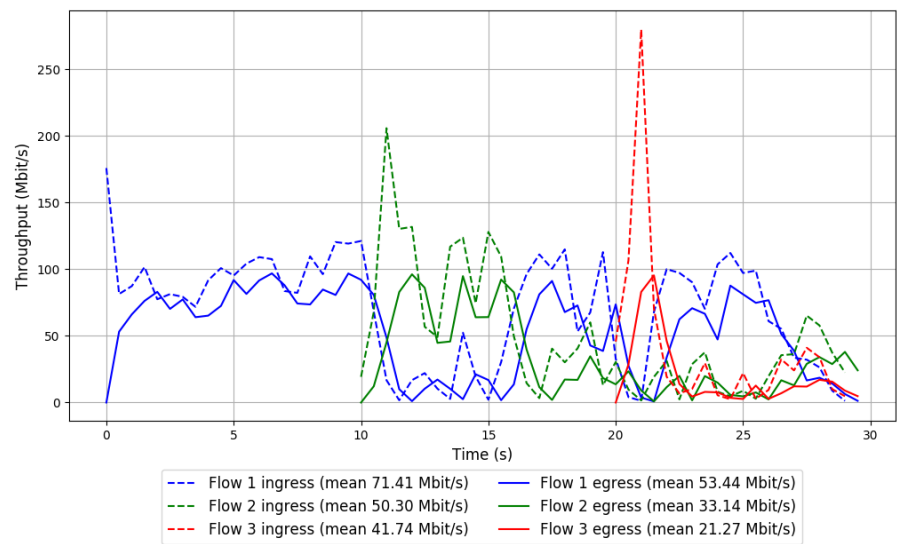
```
Run 2: Statistics of Indigo-MusesT

Start at: 2018-12-11 12:45:56
End at: 2018-12-11 12:46:26
Local clock offset: -8.422 ms
Remote clock offset: 42.554 ms


# Below is generated by plot.py at 2018-12-11 14:16:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.80 Mbit/s
95th percentile per-packet one-way delay: 80.007 ms
Loss rate: 30.24%
-- Flow 1:
Average throughput: 53.44 Mbit/s
95th percentile per-packet one-way delay: 78.743 ms
Loss rate: 25.08%
-- Flow 2:
Average throughput: 33.14 Mbit/s
95th percentile per-packet one-way delay: 66.891 ms
Loss rate: 34.02%
-- Flow 3:
Average throughput: 21.27 Mbit/s
95th percentile per-packet one-way delay: 95.712 ms
Loss rate: 48.97%
```

Run 2: Report of Indigo-MusesT — Data Link

Flow 1 ingress (mean 71.41 Mbit/s)   Flow 1 egress (mean 53.44 Mbit/s)
Flow 2 ingress (mean 50.30 Mbit/s)   Flow 2 egress (mean 33.14 Mbit/s)
Flow 3 ingress (mean 41.74 Mbit/s)   Flow 3 egress (mean 21.27 Mbit/s)

Flow 1 (95th percentile 78.74 ms)   Flow 2 (95th percentile 66.89 ms)   Flow 3 (95th percentile 95.71 ms)
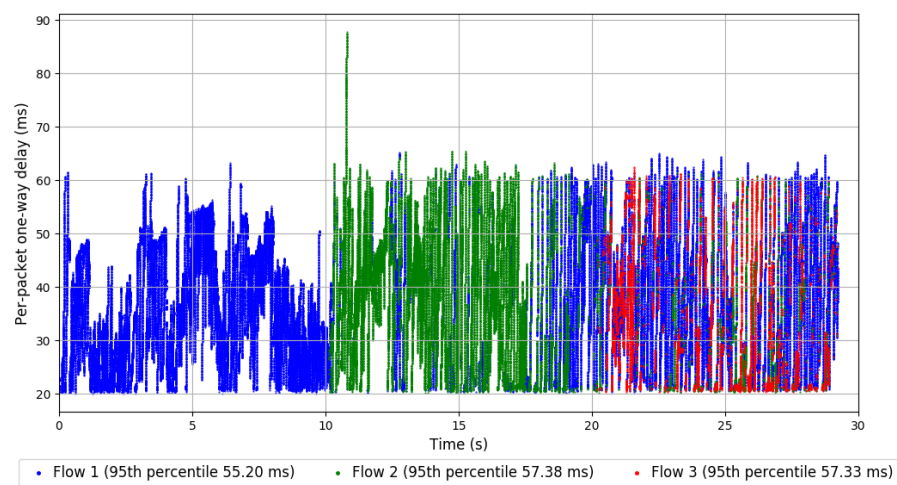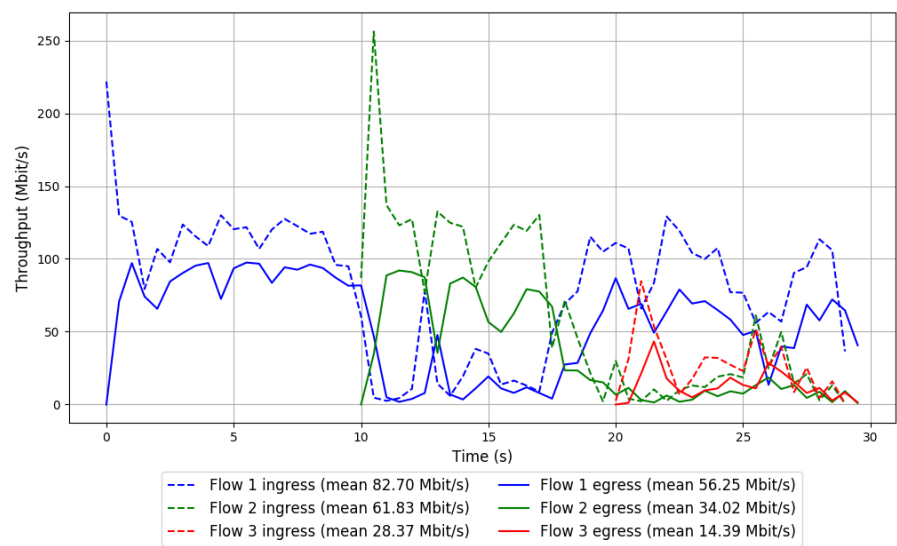
```
Run 3: Statistics of Indigo-MusesT

Start at: 2018-12-11 13:08:21
End at: 2018-12-11 13:08:51
Local clock offset: -14.958 ms
Remote clock offset: 30.691 ms


# Below is generated by plot.py at 2018-12-11 14:16:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 82.96 Mbit/s
95th percentile per-packet one-way delay: 56.253 ms
Loss rate: 37.09%
-- Flow 1:
Average throughput: 56.25 Mbit/s
95th percentile per-packet one-way delay: 55.202 ms
Loss rate: 31.93%
-- Flow 2:
Average throughput: 34.02 Mbit/s
95th percentile per-packet one-way delay: 57.384 ms
Loss rate: 44.95%
-- Flow 3:
Average throughput: 14.39 Mbit/s
95th percentile per-packet one-way delay: 57.327 ms
Loss rate: 49.36%
```

Run 3: Report of Indigo-MusesT — Data Link

- - - Flow 1 ingress (mean 82.70 Mbit/s) —— Flow 1 egress (mean 56.25 Mbit/s)
- - - Flow 2 ingress (mean 61.83 Mbit/s) —— Flow 2 egress (mean 34.02 Mbit/s)
- - - Flow 3 ingress (mean 28.37 Mbit/s) —— Flow 3 egress (mean 14.39 Mbit/s)

• Flow 1 (95th percentile 55.20 ms)   • Flow 2 (95th percentile 57.38 ms)   • Flow 3 (95th percentile 57.33 ms)
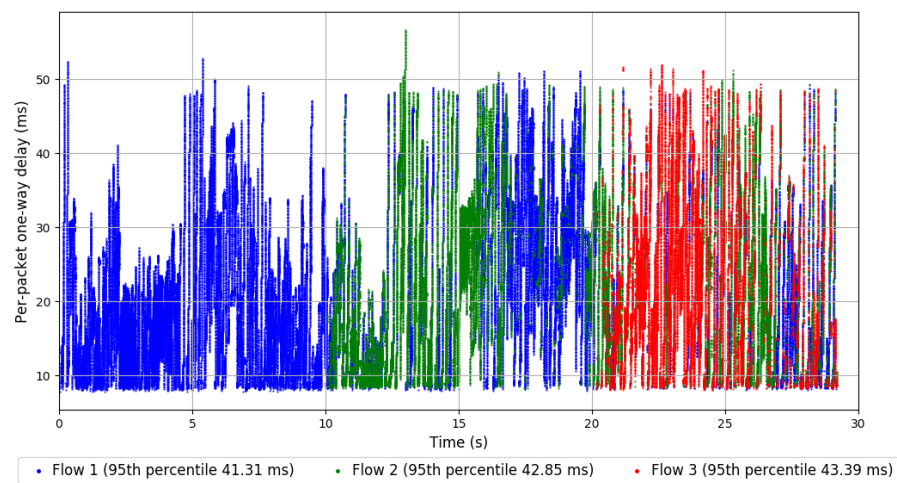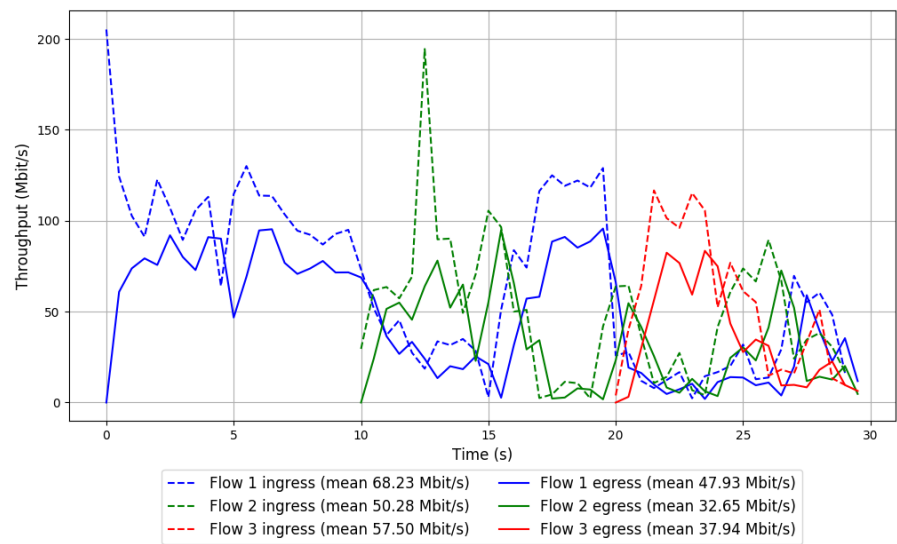
```
Run 4: Statistics of Indigo-MusesT

Start at: 2018-12-11 13:30:43
End at: 2018-12-11 13:31:13
Local clock offset: -1.088 ms
Remote clock offset: 16.461 ms


# Below is generated by plot.py at 2018-12-11 14:16:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.08 Mbit/s
95th percentile per-packet one-way delay: 41.976 ms
Loss rate: 31.92%
-- Flow 1:
Average throughput: 47.93 Mbit/s
95th percentile per-packet one-way delay: 41.310 ms
Loss rate: 29.77%
-- Flow 2:
Average throughput: 32.65 Mbit/s
95th percentile per-packet one-way delay: 42.853 ms
Loss rate: 35.10%
-- Flow 3:
Average throughput: 37.94 Mbit/s
95th percentile per-packet one-way delay: 43.392 ms
Loss rate: 34.25%
```

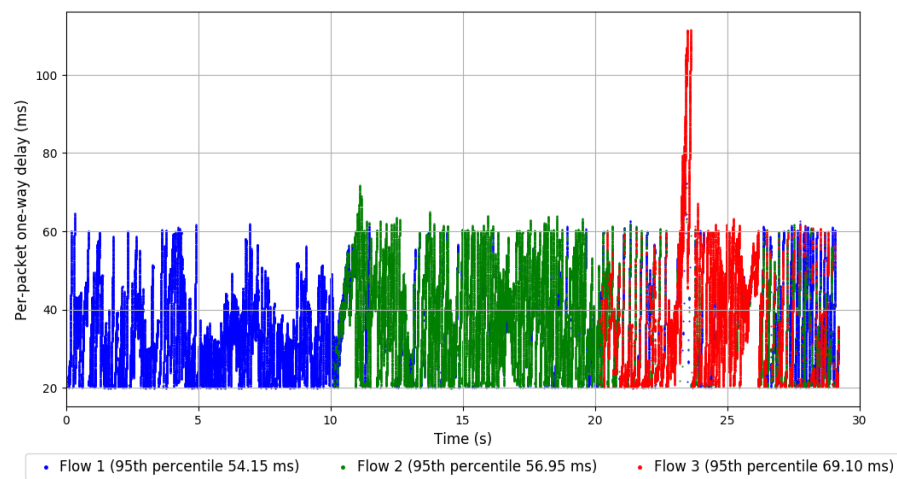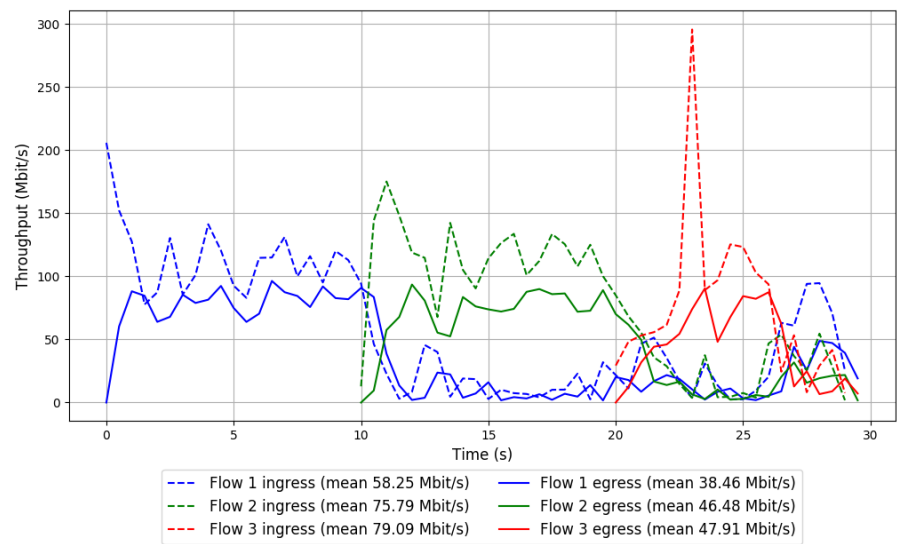Run 4: Report of Indigo-MusesT — Data Link

```
Run 5: Statistics of Indigo-MusesT

Start at: 2018-12-11 13:52:53
End at: 2018-12-11 13:53:23
Local clock offset: -14.026 ms
Remote clock offset: 5.643 ms


# Below is generated by plot.py at 2018-12-11 14:16:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.73 Mbit/s
95th percentile per-packet one-way delay: 56.744 ms
Loss rate: 36.74%
-- Flow 1:
Average throughput: 38.46 Mbit/s
95th percentile per-packet one-way delay: 54.149 ms
Loss rate: 33.94%
-- Flow 2:
Average throughput: 46.48 Mbit/s
95th percentile per-packet one-way delay: 56.952 ms
Loss rate: 38.68%
-- Flow 3:
Average throughput: 47.91 Mbit/s
95th percentile per-packet one-way delay: 69.099 ms
Loss rate: 39.46%
```

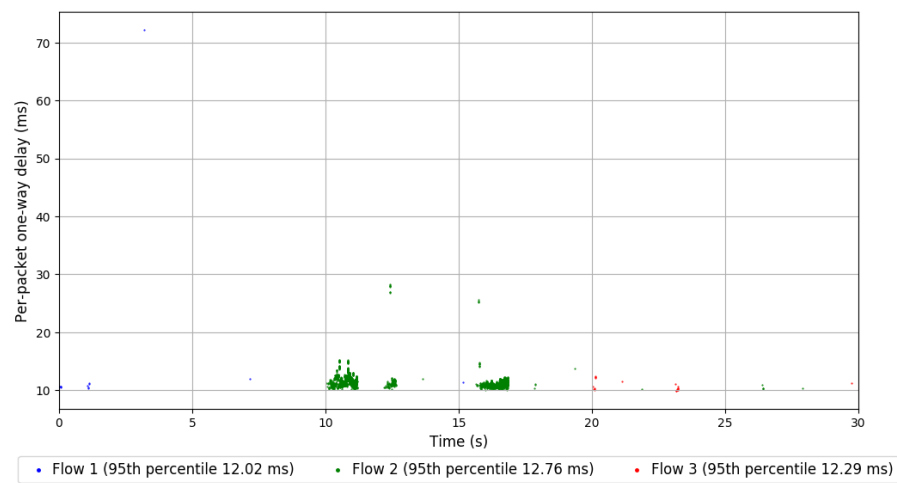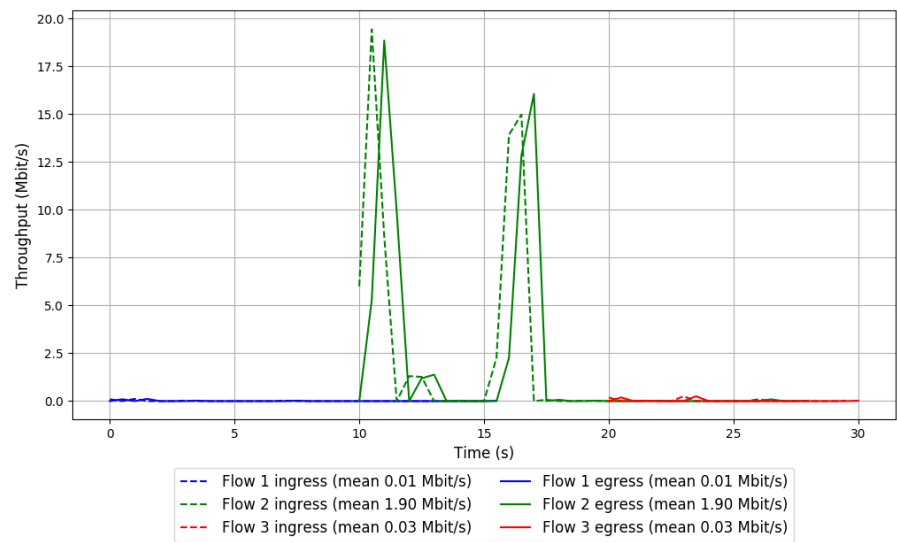Run 5: Report of Indigo-MusesT — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-12-11 12:39:02
End at: 2018-12-11 12:39:32
Local clock offset: 1.581 ms
Remote clock offset: 46.732 ms


# Below is generated by plot.py at 2018-12-11 14:16:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.16 Mbit/s
95th percentile per-packet one-way delay: 12.756 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 12.018 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.90 Mbit/s
95th percentile per-packet one-way delay: 12.759 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 12.287 ms
Loss rate: 0.00%
```
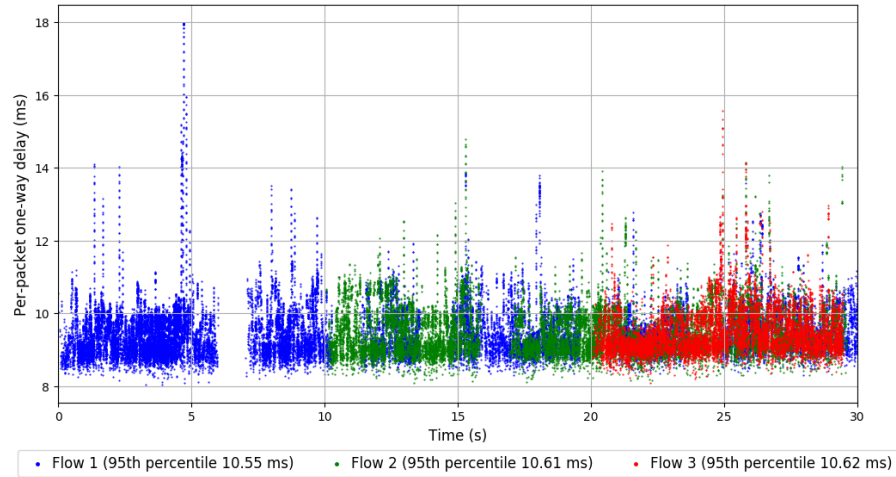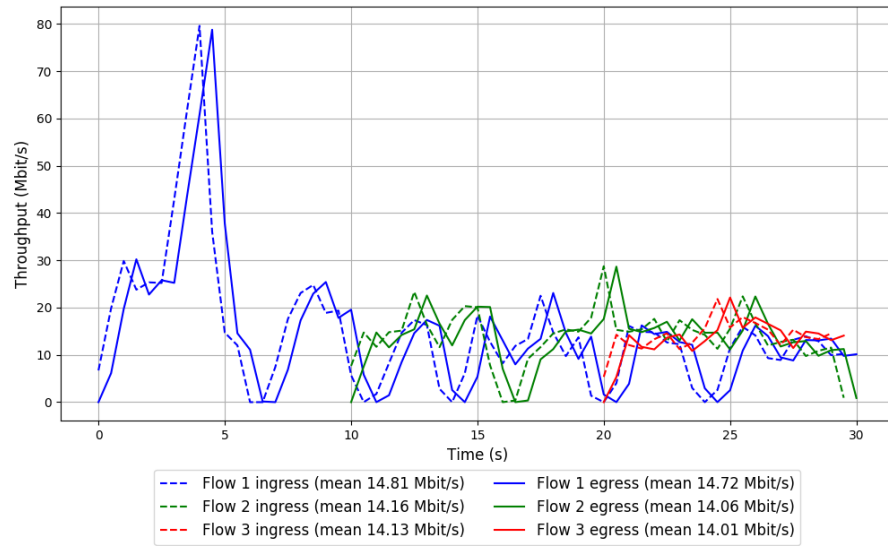
Run 1: Report of LEDBAT — Data Link

Flow 1 ingress (mean 0.01 Mbit/s)   Flow 1 egress (mean 0.01 Mbit/s)
Flow 2 ingress (mean 1.90 Mbit/s)   Flow 2 egress (mean 1.90 Mbit/s)
Flow 3 ingress (mean 0.03 Mbit/s)   Flow 3 egress (mean 0.03 Mbit/s)

Flow 1 (95th percentile 12.02 ms)   Flow 2 (95th percentile 12.76 ms)   Flow 3 (95th percentile 12.29 ms)

```
Run 2: Statistics of LEDBAT

Start at: 2018-12-11 13:02:18
End at: 2018-12-11 13:02:48
Local clock offset: -3.213 ms
Remote clock offset: 33.973 ms


# Below is generated by plot.py at 2018-12-11 14:16:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 28.30 Mbit/s
95th percentile per-packet one-way delay: 10.584 ms
Loss rate: 0.67%
-- Flow 1:
Average throughput: 14.72 Mbit/s
95th percentile per-packet one-way delay: 10.551 ms
Loss rate: 0.63%
-- Flow 2:
Average throughput: 14.06 Mbit/s
95th percentile per-packet one-way delay: 10.607 ms
Loss rate: 0.68%
-- Flow 3:
Average throughput: 14.01 Mbit/s
95th percentile per-packet one-way delay: 10.618 ms
Loss rate: 0.80%
```

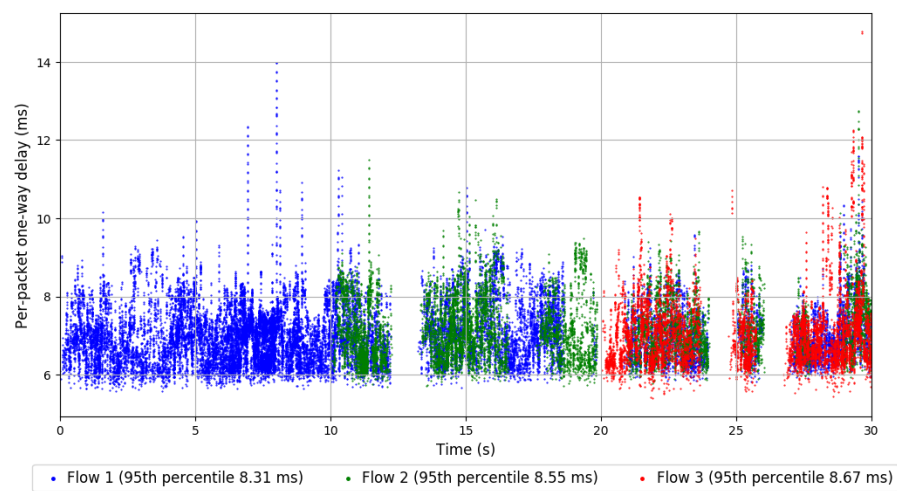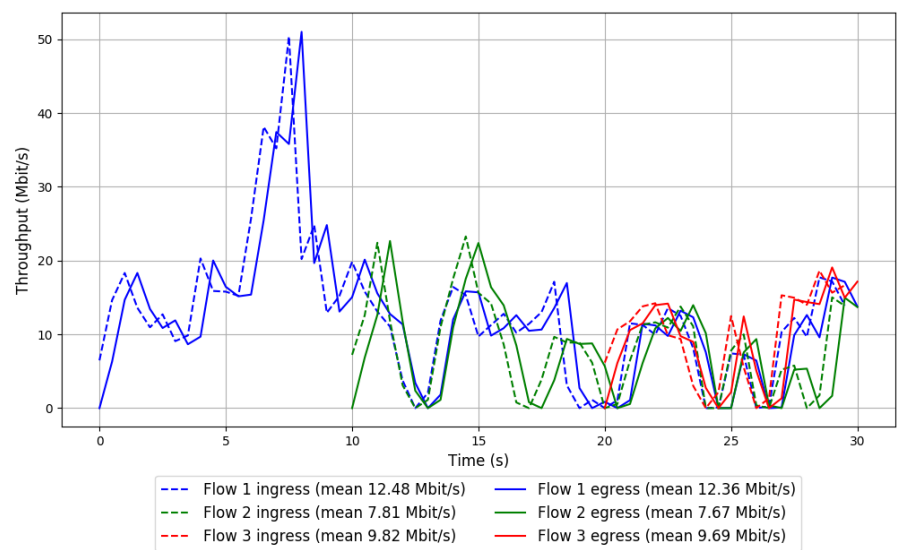Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-12-11 13:24:45
End at: 2018-12-11 13:25:15
Local clock offset: 1.676 ms
Remote clock offset: 20.266 ms


# Below is generated by plot.py at 2018-12-11 14:16:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 20.69 Mbit/s
95th percentile per-packet one-way delay: 8.409 ms
Loss rate: 1.19%
-- Flow 1:
Average throughput: 12.36 Mbit/s
95th percentile per-packet one-way delay: 8.308 ms
Loss rate: 0.93%
-- Flow 2:
Average throughput: 7.67 Mbit/s
95th percentile per-packet one-way delay: 8.548 ms
Loss rate: 1.80%
-- Flow 3:
Average throughput: 9.69 Mbit/s
95th percentile per-packet one-way delay: 8.670 ms
Loss rate: 1.25%
```
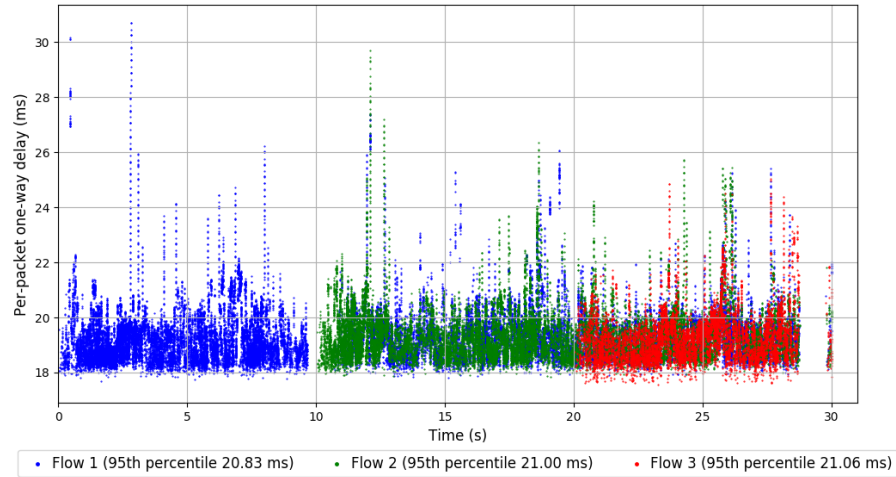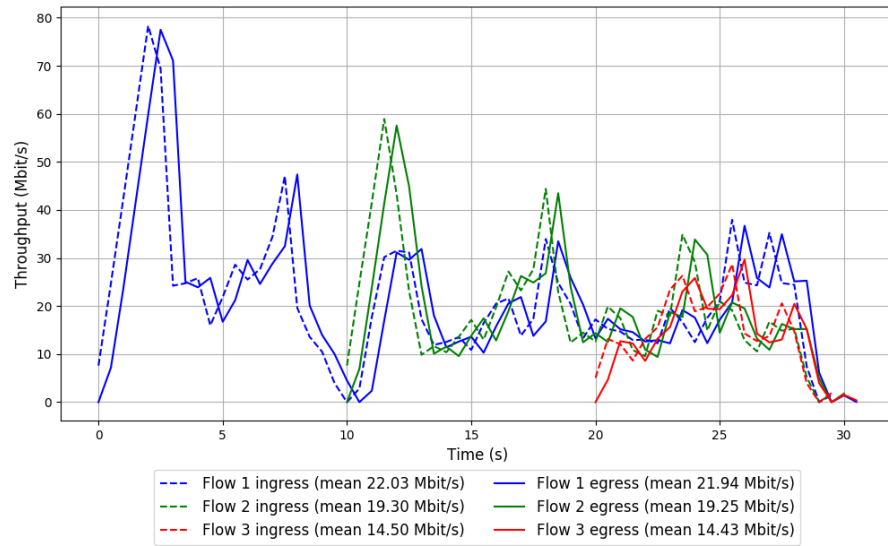
Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2018-12-11 13:46:56
End at: 2018-12-11 13:47:26
Local clock offset: -11.886 ms
Remote clock offset: 8.272 ms


# Below is generated by plot.py at 2018-12-11 14:16:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 39.55 Mbit/s
95th percentile per-packet one-way delay: 20.906 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 21.94 Mbit/s
95th percentile per-packet one-way delay: 20.828 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 19.25 Mbit/s
95th percentile per-packet one-way delay: 20.996 ms
Loss rate: 0.27%
-- Flow 3:
Average throughput: 14.43 Mbit/s
95th percentile per-packet one-way delay: 21.059 ms
Loss rate: 0.49%
```
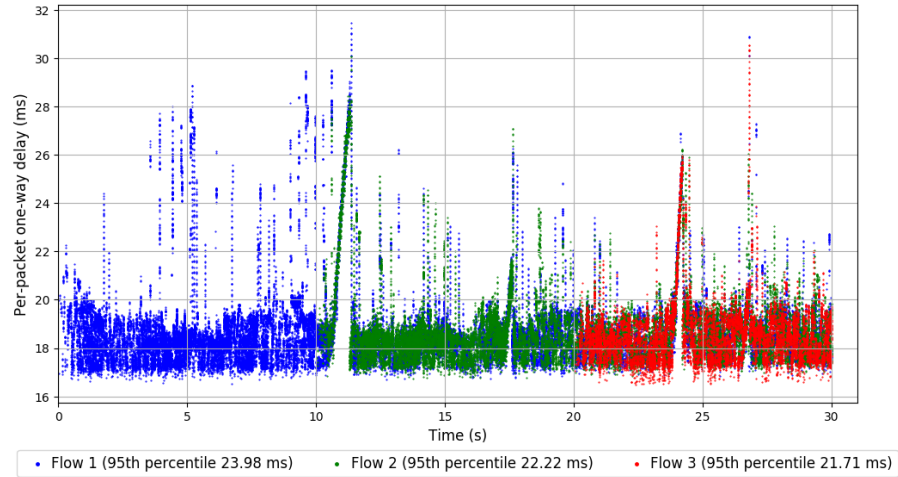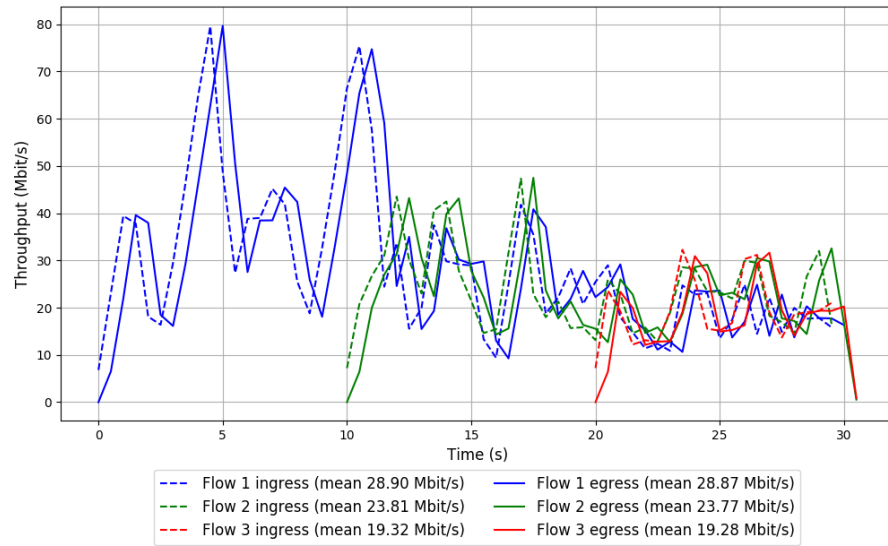
Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2018-12-11 14:09:15
End at: 2018-12-11 14:09:45
Local clock offset: -11.53 ms
Remote clock offset: -2.068 ms


# Below is generated by plot.py at 2018-12-11 14:16:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 51.10 Mbit/s
95th percentile per-packet one-way delay: 23.064 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 28.87 Mbit/s
95th percentile per-packet one-way delay: 23.984 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 23.77 Mbit/s
95th percentile per-packet one-way delay: 22.224 ms
Loss rate: 0.16%
-- Flow 3:
Average throughput: 19.28 Mbit/s
95th percentile per-packet one-way delay: 21.715 ms
Loss rate: 0.19%
```
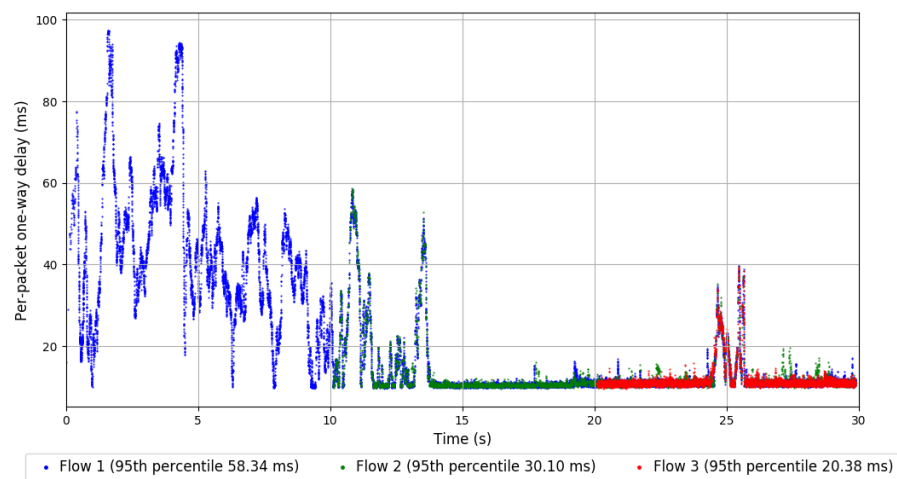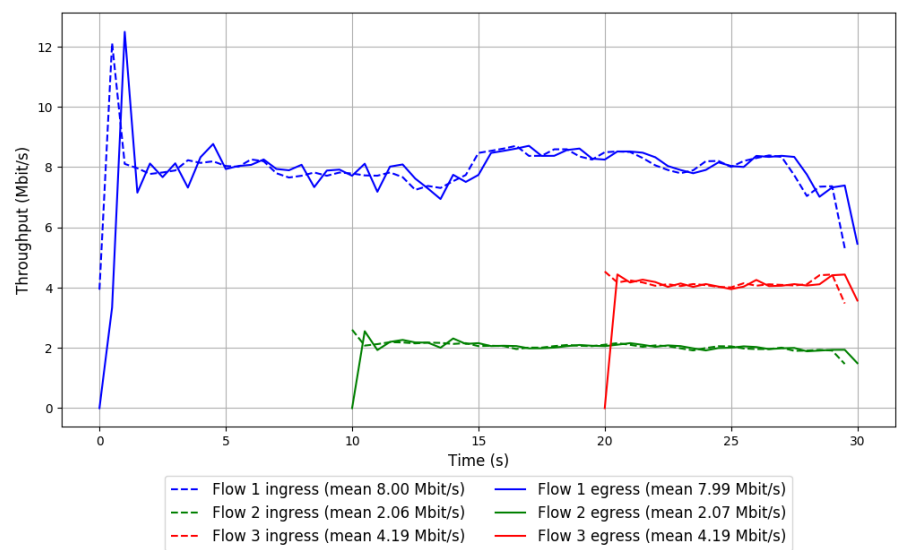
Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-12-11 12:23:06
End at: 2018-12-11 12:23:36
Local clock offset: 1.137 ms
Remote clock offset: 55.683 ms

# Below is generated by plot.py at 2018-12-11 14:16:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.75 Mbit/s
95th percentile per-packet one-way delay: 54.040 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 7.99 Mbit/s
95th percentile per-packet one-way delay: 58.336 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 2.07 Mbit/s
95th percentile per-packet one-way delay: 30.097 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 4.19 Mbit/s
95th percentile per-packet one-way delay: 20.377 ms
Loss rate: 0.03%
```

Run 1: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 8.00 Mbit/s) --- Flow 1 egress (mean 7.99 Mbit/s)
Flow 2 ingress (mean 2.06 Mbit/s) --- Flow 2 egress (mean 2.07 Mbit/s)
Flow 3 ingress (mean 4.19 Mbit/s) --- Flow 3 egress (mean 4.19 Mbit/s)

Flow 1 (95th percentile 58.34 ms) · Flow 2 (95th percentile 30.10 ms) · Flow 3 (95th percentile 20.38 ms)
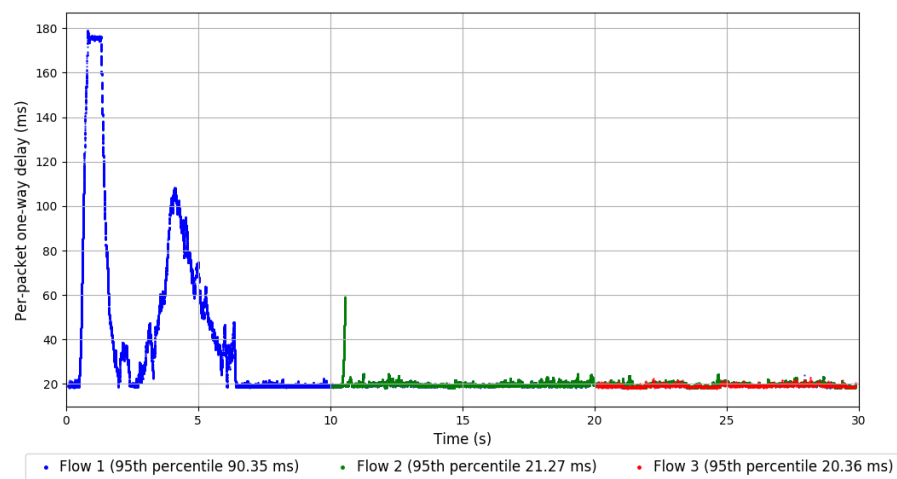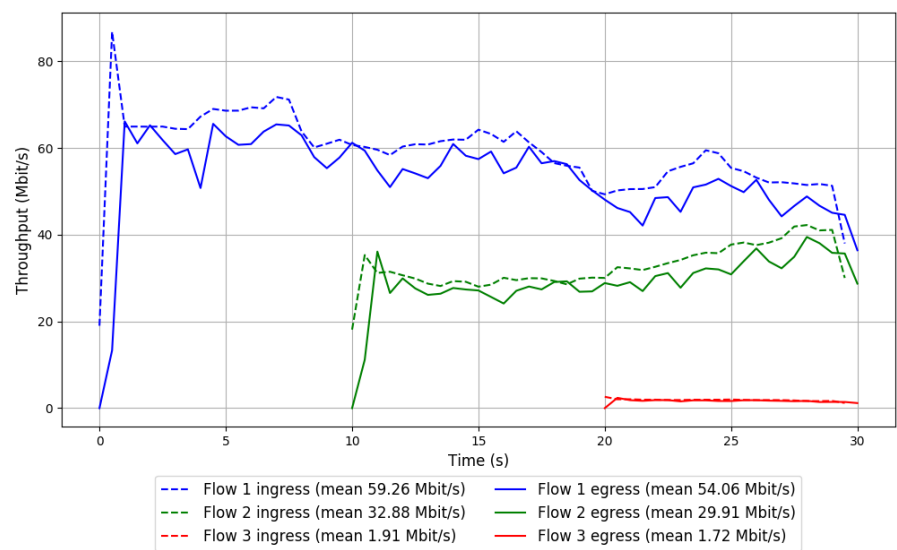
```
Run 2: Statistics of PCC-Allegro

Start at: 2018-12-11 12:48:22
End at: 2018-12-11 12:48:52
Local clock offset: -10.48 ms
Remote clock offset: 41.735 ms


# Below is generated by plot.py at 2018-12-11 14:17:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 74.52 Mbit/s
95th percentile per-packet one-way delay: 74.357 ms
Loss rate: 8.84%
-- Flow 1:
Average throughput: 54.06 Mbit/s
95th percentile per-packet one-way delay: 90.353 ms
Loss rate: 8.76%
-- Flow 2:
Average throughput: 29.91 Mbit/s
95th percentile per-packet one-way delay: 21.268 ms
Loss rate: 9.03%
-- Flow 3:
Average throughput: 1.72 Mbit/s
95th percentile per-packet one-way delay: 20.363 ms
Loss rate: 9.98%
```

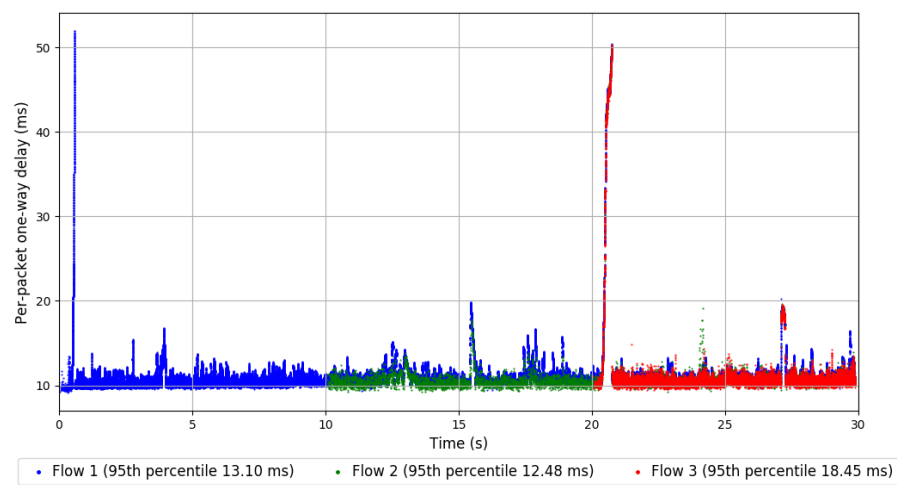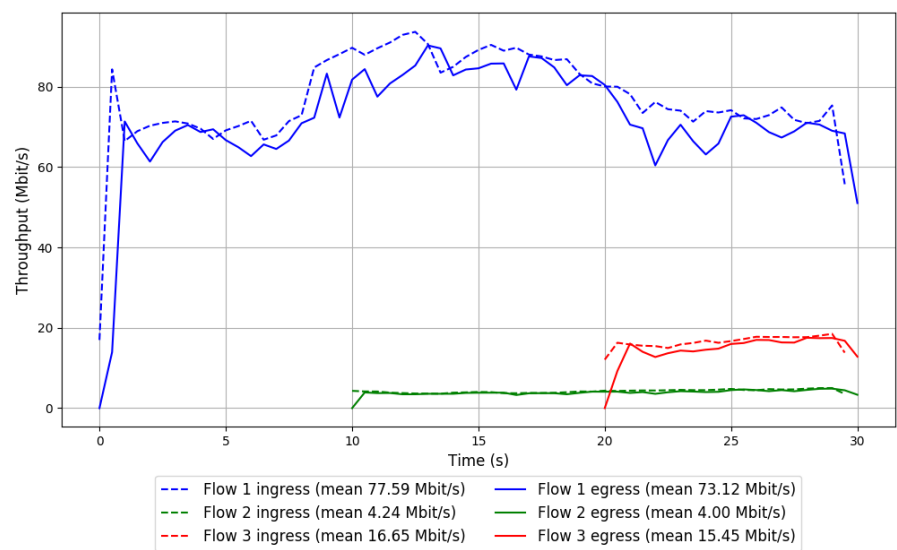Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-12-11 13:10:45
End at: 2018-12-11 13:11:15
Local clock offset: -3.111 ms
Remote clock offset: 29.525 ms


# Below is generated by plot.py at 2018-12-11 14:17:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 80.87 Mbit/s
95th percentile per-packet one-way delay: 13.143 ms
Loss rate: 5.86%
-- Flow 1:
Average throughput: 73.12 Mbit/s
95th percentile per-packet one-way delay: 13.102 ms
Loss rate: 5.76%
-- Flow 2:
Average throughput: 4.00 Mbit/s
95th percentile per-packet one-way delay: 12.479 ms
Loss rate: 5.82%
-- Flow 3:
Average throughput: 15.45 Mbit/s
95th percentile per-packet one-way delay: 18.452 ms
Loss rate: 7.24%
```

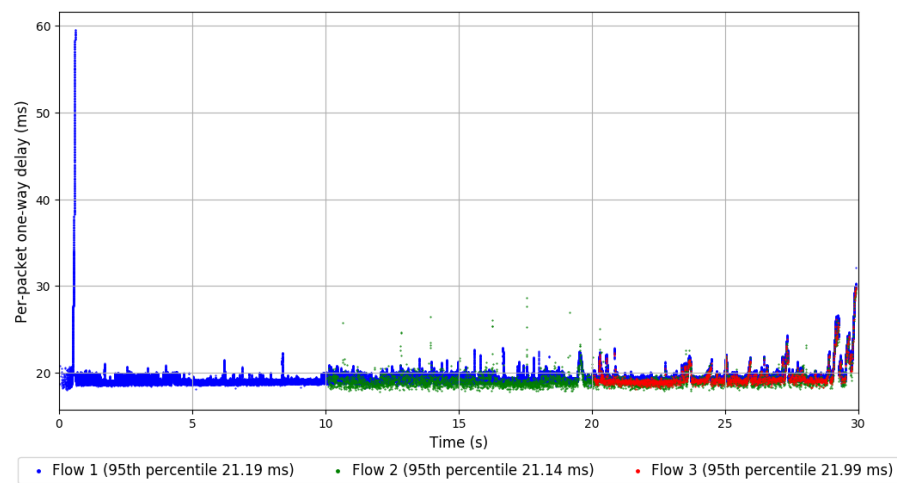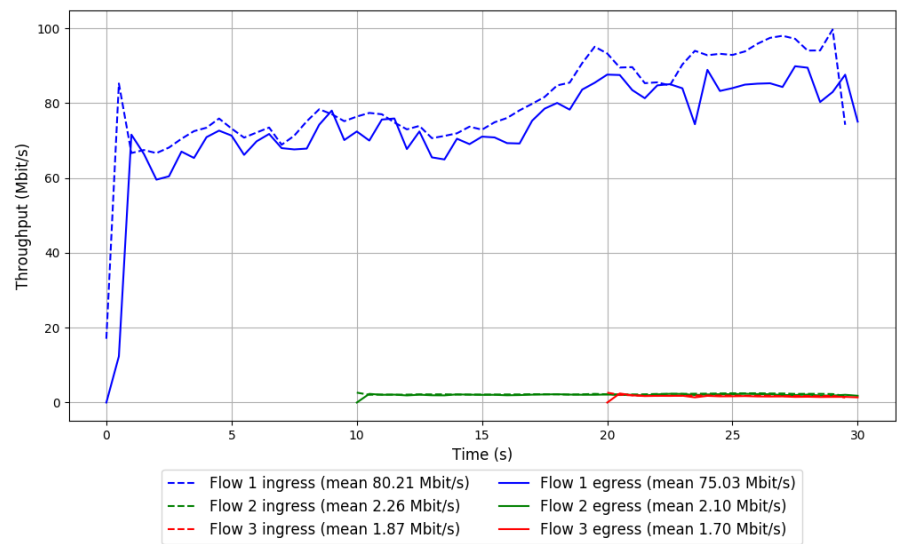# Run 3: Report of PCC-Allegro — Data Link

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-12-11 13:33:09
End at: 2018-12-11 13:33:39
Local clock offset: -10.488 ms
Remote clock offset: 15.761 ms


# Below is generated by plot.py at 2018-12-11 14:17:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 76.99 Mbit/s
95th percentile per-packet one-way delay: 21.202 ms
Loss rate: 6.45%
-- Flow 1:
Average throughput: 75.03 Mbit/s
95th percentile per-packet one-way delay: 21.191 ms
Loss rate: 6.42%
-- Flow 2:
Average throughput: 2.10 Mbit/s
95th percentile per-packet one-way delay: 21.142 ms
Loss rate: 7.06%
-- Flow 3:
Average throughput: 1.70 Mbit/s
95th percentile per-packet one-way delay: 21.994 ms
Loss rate: 8.99%
```

Run 4: Report of PCC-Allegro — Data Link

- - - - Flow 1 ingress (mean 80.21 Mbit/s) ——— Flow 1 egress (mean 75.03 Mbit/s)
- - - - Flow 2 ingress (mean 2.26 Mbit/s) ——— Flow 2 egress (mean 2.10 Mbit/s)
- - - - Flow 3 ingress (mean 1.87 Mbit/s) ——— Flow 3 egress (mean 1.70 Mbit/s)

- Flow 1 (95th percentile 21.19 ms) • Flow 2 (95th percentile 21.14 ms) • Flow 3 (95th percentile 21.99 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-12-11 13:55:16
End at: 2018-12-11 13:55:46
Local clock offset: -1.95 ms
Remote clock offset: 4.824 ms


# Below is generated by plot.py at 2018-12-11 14:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 78.76 Mbit/s
95th percentile per-packet one-way delay: 36.132 ms
Loss rate: 8.62%
-- Flow 1:
Average throughput: 72.13 Mbit/s
95th percentile per-packet one-way delay: 35.507 ms
Loss rate: 8.52%
-- Flow 2:
Average throughput: 6.52 Mbit/s
95th percentile per-packet one-way delay: 35.218 ms
Loss rate: 8.86%
-- Flow 3:
Average throughput: 7.12 Mbit/s
95th percentile per-packet one-way delay: 40.315 ms
Loss rate: 11.39%
```
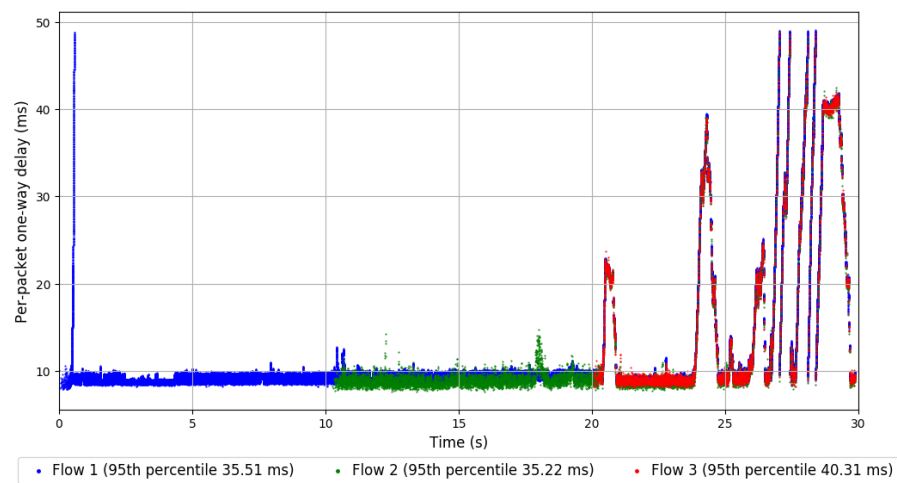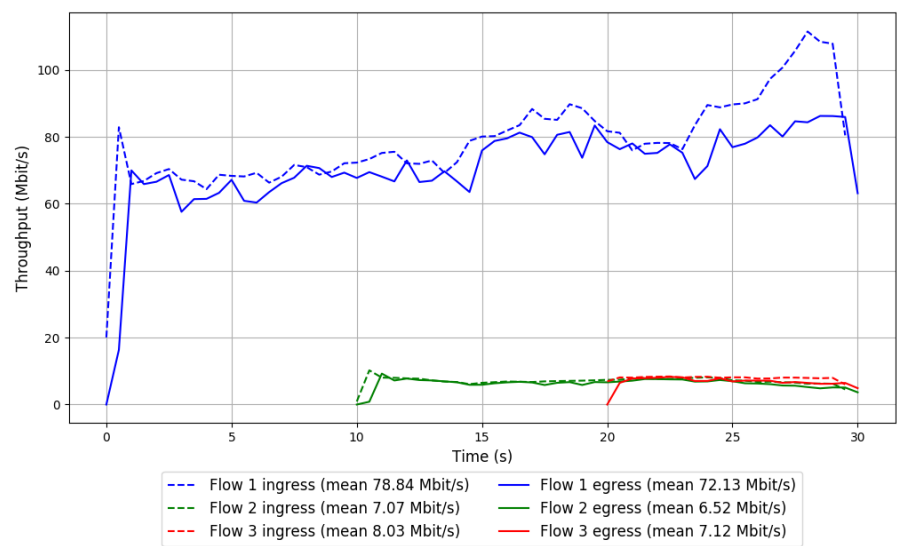
Run 5: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 78.84 Mbit/s) --- Flow 1 egress (mean 72.13 Mbit/s)
Flow 2 ingress (mean 7.07 Mbit/s) --- Flow 2 egress (mean 6.52 Mbit/s)
Flow 3 ingress (mean 8.03 Mbit/s) --- Flow 3 egress (mean 7.12 Mbit/s)

Flow 1 (95th percentile 35.51 ms) Flow 2 (95th percentile 35.22 ms) Flow 3 (95th percentile 40.31 ms)
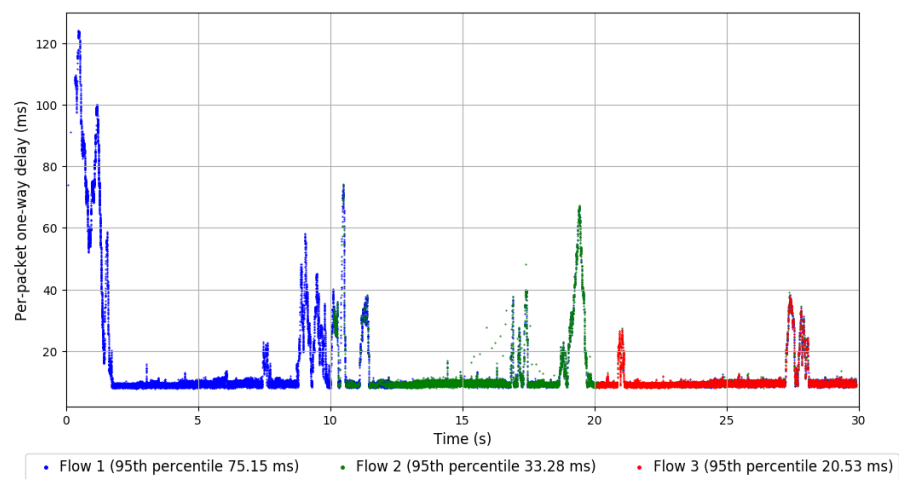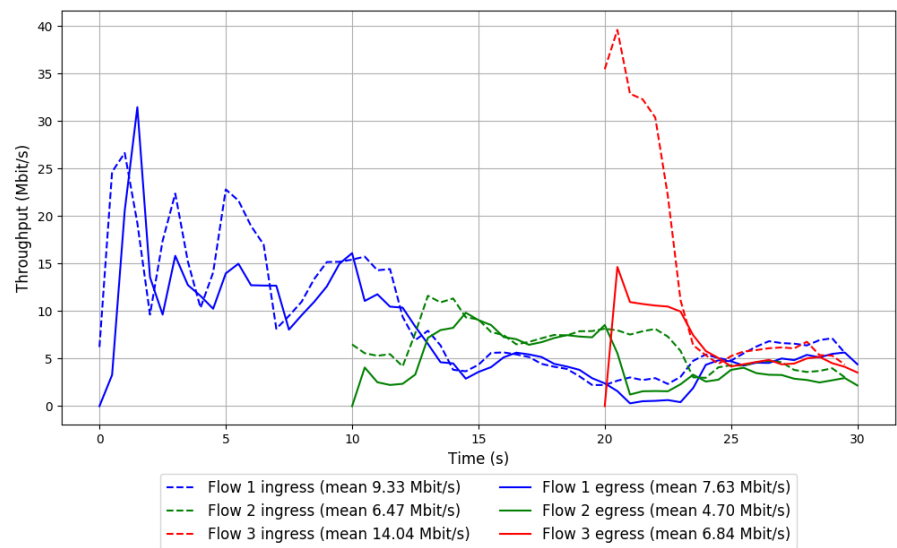
104

```
Run 1: Statistics of PCC-Expr

Start at: 2018-12-11 12:27:49
End at: 2018-12-11 12:28:19
Local clock offset: 2.451 ms
Remote clock offset: 51.673 ms


# Below is generated by plot.py at 2018-12-11 14:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.03 Mbit/s
95th percentile per-packet one-way delay: 67.787 ms
Loss rate: 28.85%
-- Flow 1:
Average throughput: 7.63 Mbit/s
95th percentile per-packet one-way delay: 75.147 ms
Loss rate: 18.44%
-- Flow 2:
Average throughput: 4.70 Mbit/s
95th percentile per-packet one-way delay: 33.283 ms
Loss rate: 27.26%
-- Flow 3:
Average throughput: 6.84 Mbit/s
95th percentile per-packet one-way delay: 20.529 ms
Loss rate: 51.26%
```
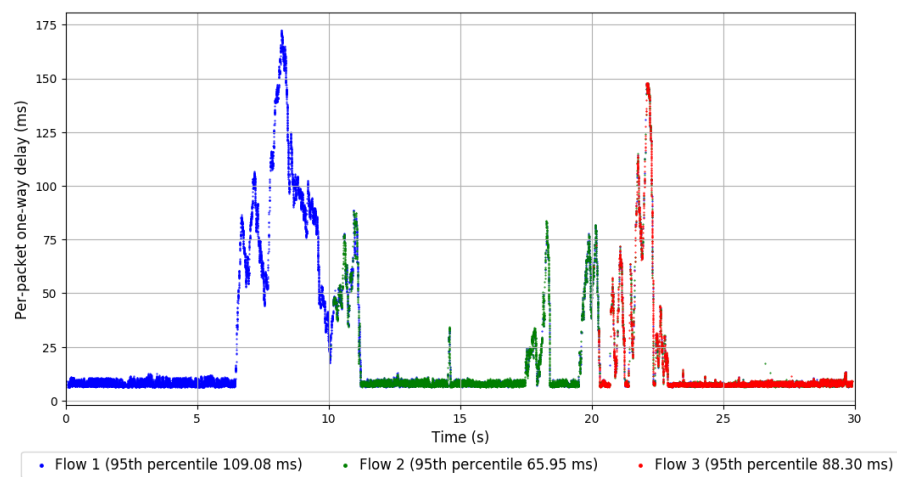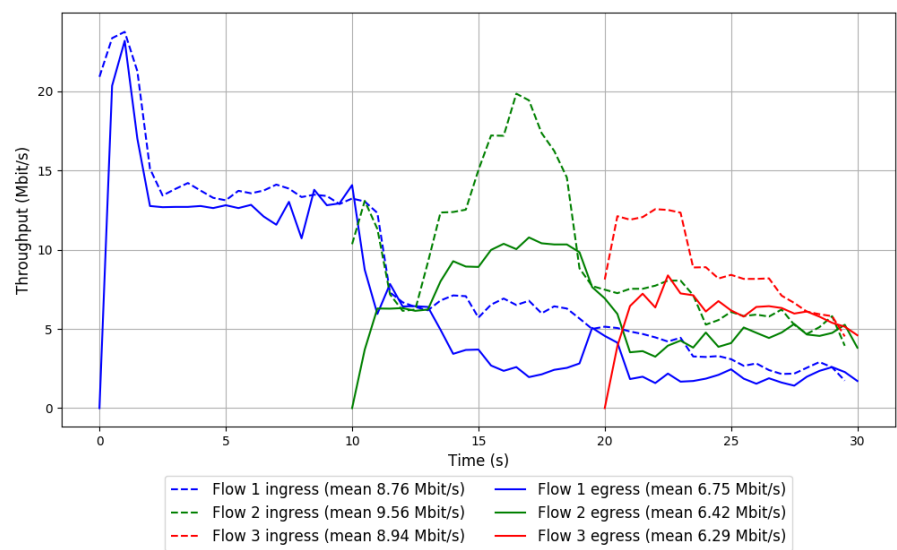
Run 1: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 9.33 Mbit/s)   Flow 1 egress (mean 7.63 Mbit/s)
Flow 2 ingress (mean 6.47 Mbit/s)   Flow 2 egress (mean 4.70 Mbit/s)
Flow 3 ingress (mean 14.04 Mbit/s)   Flow 3 egress (mean 6.84 Mbit/s)

Flow 1 (95th percentile 75.15 ms)   Flow 2 (95th percentile 33.28 ms)   Flow 3 (95th percentile 20.53 ms)

```
Run 2: Statistics of PCC-Expr

Start at: 2018-12-11 12:53:00
End at: 2018-12-11 12:53:30
Local clock offset: 0.184 ms
Remote clock offset: 39.771 ms


# Below is generated by plot.py at 2018-12-11 14:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.08 Mbit/s
95th percentile per-packet one-way delay: 97.285 ms
Loss rate: 27.61%
-- Flow 1:
Average throughput: 6.75 Mbit/s
95th percentile per-packet one-way delay: 109.080 ms
Loss rate: 22.96%
-- Flow 2:
Average throughput: 6.42 Mbit/s
95th percentile per-packet one-way delay: 65.955 ms
Loss rate: 32.90%
-- Flow 3:
Average throughput: 6.29 Mbit/s
95th percentile per-packet one-way delay: 88.299 ms
Loss rate: 30.00%
```
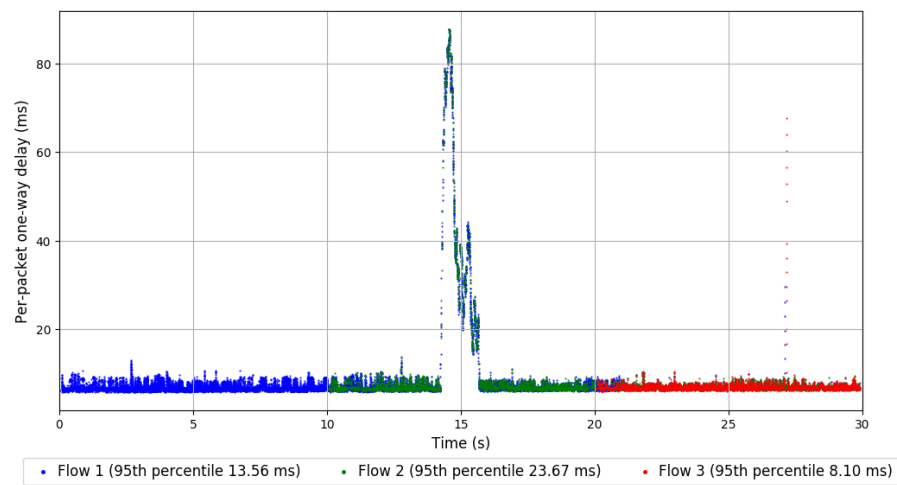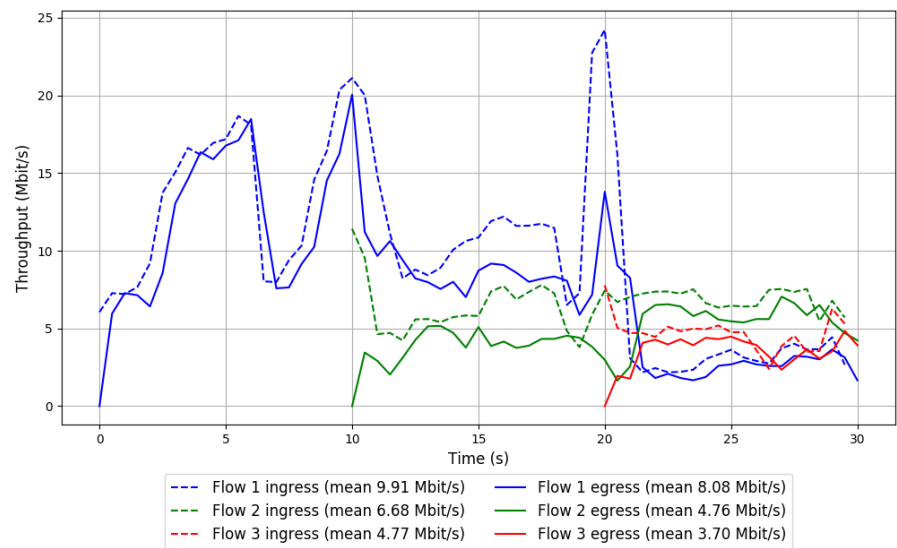
Run 2: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 8.76 Mbit/s) — — —   Flow 1 egress (mean 6.75 Mbit/s)
Flow 2 ingress (mean 9.56 Mbit/s) — — —   Flow 2 egress (mean 6.42 Mbit/s)
Flow 3 ingress (mean 8.94 Mbit/s) — — —   Flow 3 egress (mean 6.29 Mbit/s)

Flow 1 (95th percentile 109.08 ms)   •   Flow 2 (95th percentile 65.95 ms)   •   Flow 3 (95th percentile 88.30 ms)

```
Run 3: Statistics of PCC-Expr

Start at: 2018-12-11 13:15:27
End at: 2018-12-11 13:15:57
Local clock offset: 0.68 ms
Remote clock offset: 26.12 ms

# Below is generated by plot.py at 2018-12-11 14:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.47 Mbit/s
95th percentile per-packet one-way delay: 11.223 ms
Loss rate: 21.74%
-- Flow 1:
Average throughput: 8.08 Mbit/s
95th percentile per-packet one-way delay: 13.556 ms
Loss rate: 18.49%
-- Flow 2:
Average throughput: 4.76 Mbit/s
95th percentile per-packet one-way delay: 23.667 ms
Loss rate: 28.74%
-- Flow 3:
Average throughput: 3.70 Mbit/s
95th percentile per-packet one-way delay: 8.100 ms
Loss rate: 22.49%
```
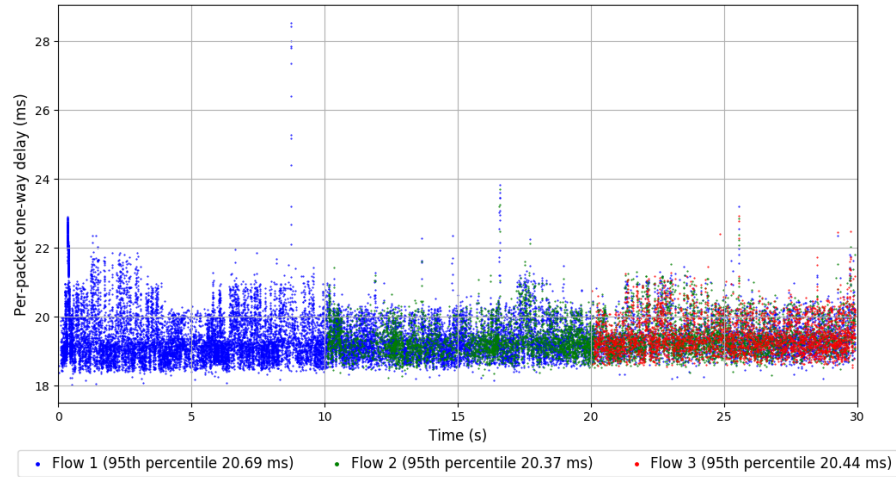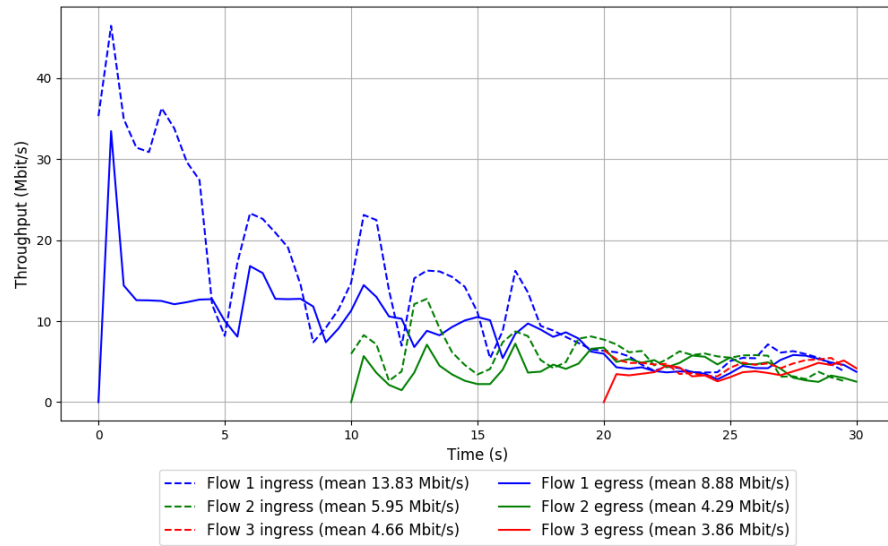
Run 3: Report of PCC-Expr — Data Link

```
Run 4: Statistics of PCC-Expr

Start at: 2018-12-11 13:37:45
End at: 2018-12-11 13:38:15
Local clock offset: -11.348 ms
Remote clock offset: 12.723 ms


# Below is generated by plot.py at 2018-12-11 14:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.01 Mbit/s
95th percentile per-packet one-way delay: 20.591 ms
Loss rate: 32.71%
-- Flow 1:
Average throughput: 8.88 Mbit/s
95th percentile per-packet one-way delay: 20.694 ms
Loss rate: 35.79%
-- Flow 2:
Average throughput: 4.29 Mbit/s
95th percentile per-packet one-way delay: 20.373 ms
Loss rate: 27.98%
-- Flow 3:
Average throughput: 3.86 Mbit/s
95th percentile per-packet one-way delay: 20.443 ms
Loss rate: 17.20%
```
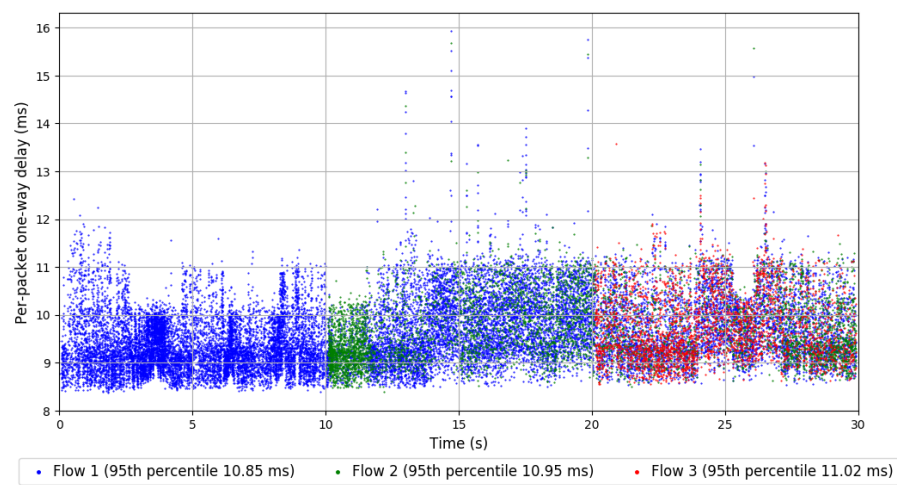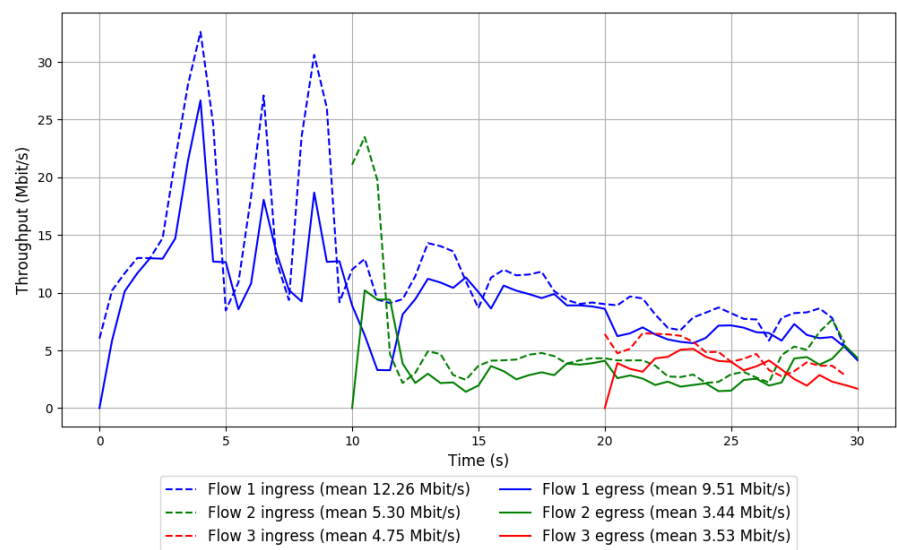
Run 4: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 13.83 Mbit/s)   Flow 1 egress (mean 8.88 Mbit/s)
Flow 2 ingress (mean 5.95 Mbit/s)   Flow 2 egress (mean 4.29 Mbit/s)
Flow 3 ingress (mean 4.66 Mbit/s)   Flow 3 egress (mean 3.86 Mbit/s)

Flow 1 (95th percentile 20.69 ms)   Flow 2 (95th percentile 20.37 ms)   Flow 3 (95th percentile 20.44 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2018-12-11 13:59:57
End at: 2018-12-11 14:00:27
Local clock offset: -2.98 ms
Remote clock offset: 2.257 ms


# Below is generated by plot.py at 2018-12-11 14:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.96 Mbit/s
95th percentile per-packet one-way delay: 10.886 ms
Loss rate: 25.30%
-- Flow 1:
Average throughput: 9.51 Mbit/s
95th percentile per-packet one-way delay: 10.851 ms
Loss rate: 22.42%
-- Flow 2:
Average throughput: 3.44 Mbit/s
95th percentile per-packet one-way delay: 10.954 ms
Loss rate: 35.10%
-- Flow 3:
Average throughput: 3.53 Mbit/s
95th percentile per-packet one-way delay: 11.016 ms
Loss rate: 25.76%
```
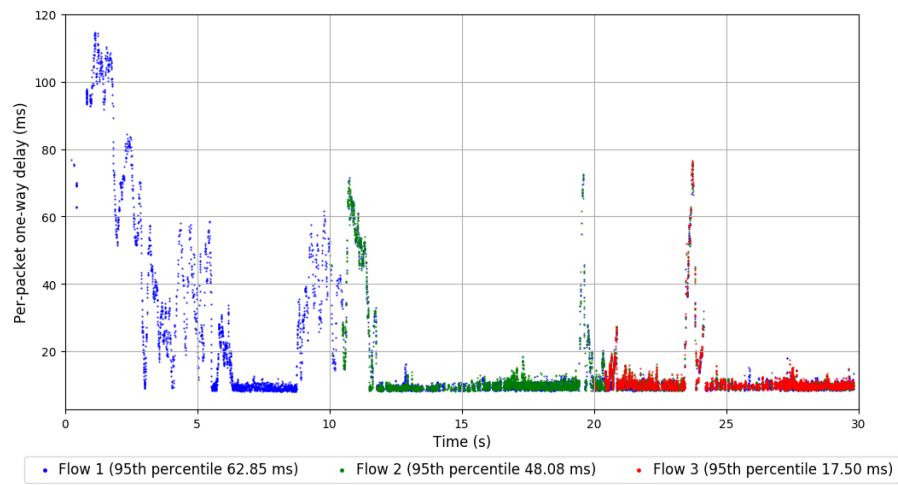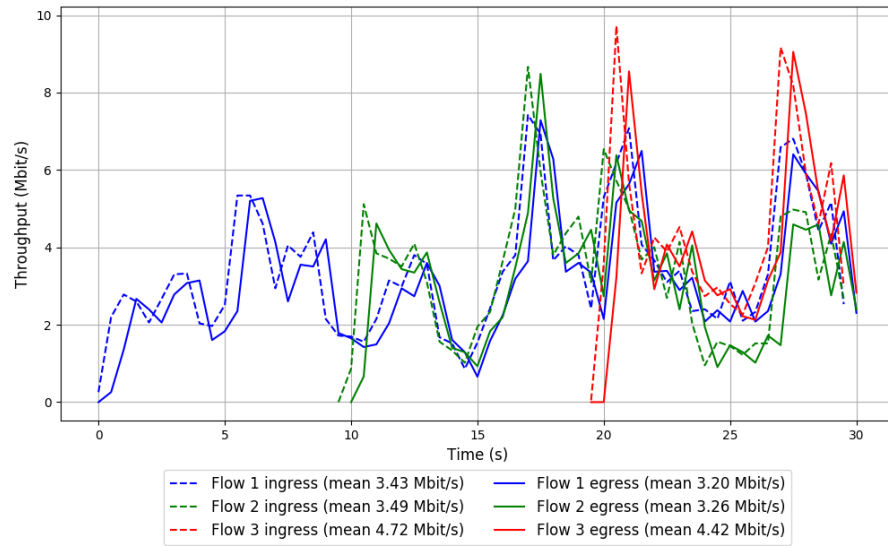
Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-12-11 12:30:43
End at: 2018-12-11 12:31:13
Local clock offset: 2.429 ms
Remote clock offset: 50.07 ms


# Below is generated by plot.py at 2018-12-11 14:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 6.85 Mbit/s
95th percentile per-packet one-way delay: 52.284 ms
Loss rate: 7.00%
-- Flow 1:
Average throughput: 3.20 Mbit/s
95th percentile per-packet one-way delay: 62.854 ms
Loss rate: 7.33%
-- Flow 2:
Average throughput: 3.26 Mbit/s
95th percentile per-packet one-way delay: 48.078 ms
Loss rate: 6.90%
-- Flow 3:
Average throughput: 4.42 Mbit/s
95th percentile per-packet one-way delay: 17.505 ms
Loss rate: 6.42%
```
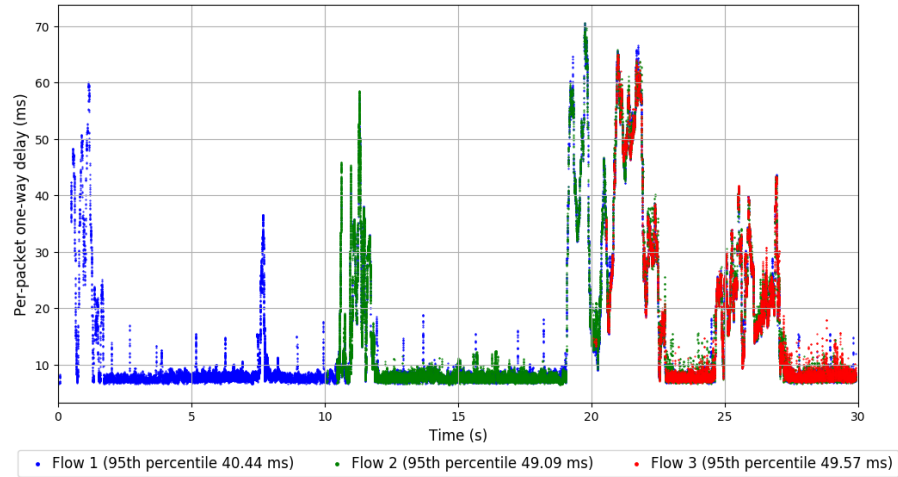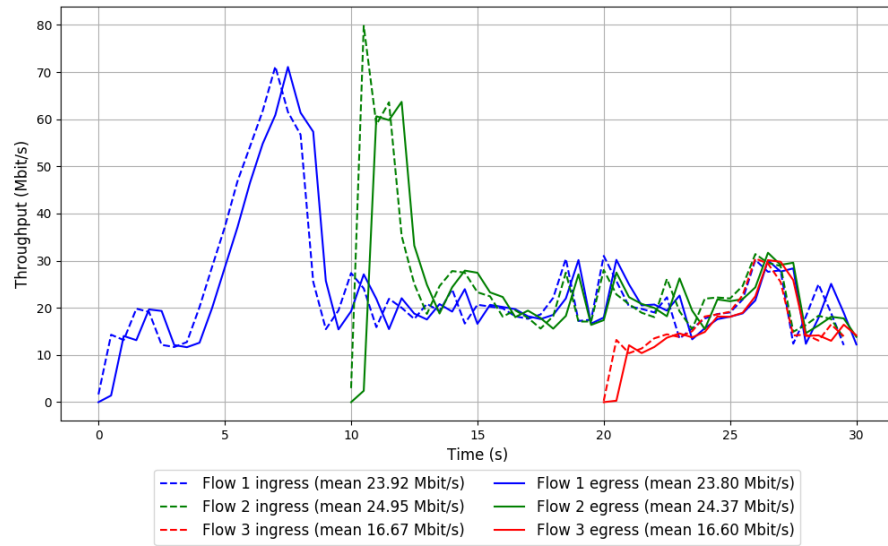
Run 1: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 3.43 Mbit/s)   Flow 1 egress (mean 3.20 Mbit/s)
Flow 2 ingress (mean 3.49 Mbit/s)   Flow 2 egress (mean 3.26 Mbit/s)
Flow 3 ingress (mean 4.72 Mbit/s)   Flow 3 egress (mean 4.42 Mbit/s)

Flow 1 (95th percentile 62.85 ms)   Flow 2 (95th percentile 48.08 ms)   Flow 3 (95th percentile 17.50 ms)

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-12-11 12:55:20
End at: 2018-12-11 12:55:50
Local clock offset: -0.131 ms
Remote clock offset: 39.288 ms


# Below is generated by plot.py at 2018-12-11 14:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 45.46 Mbit/s
95th percentile per-packet one-way delay: 45.915 ms
Loss rate: 1.14%
-- Flow 1:
Average throughput: 23.80 Mbit/s
95th percentile per-packet one-way delay: 40.443 ms
Loss rate: 0.50%
-- Flow 2:
Average throughput: 24.37 Mbit/s
95th percentile per-packet one-way delay: 49.092 ms
Loss rate: 2.31%
-- Flow 3:
Average throughput: 16.60 Mbit/s
95th percentile per-packet one-way delay: 49.574 ms
Loss rate: 0.44%
```
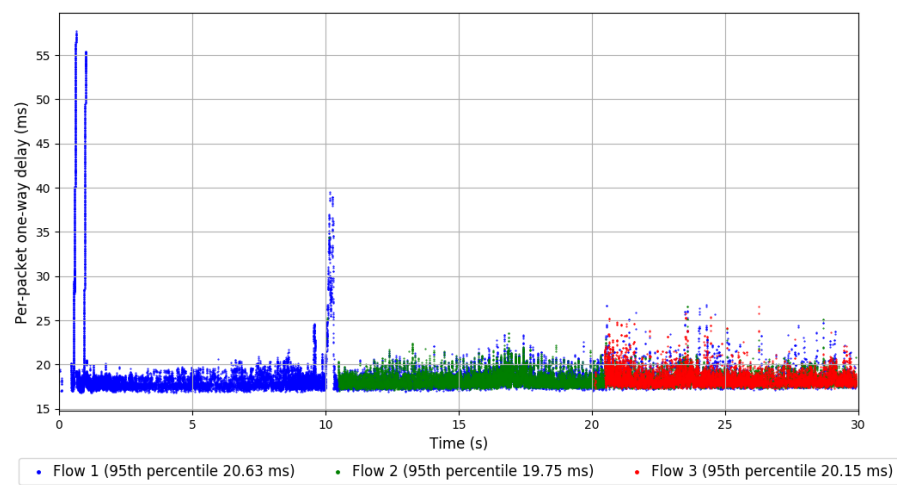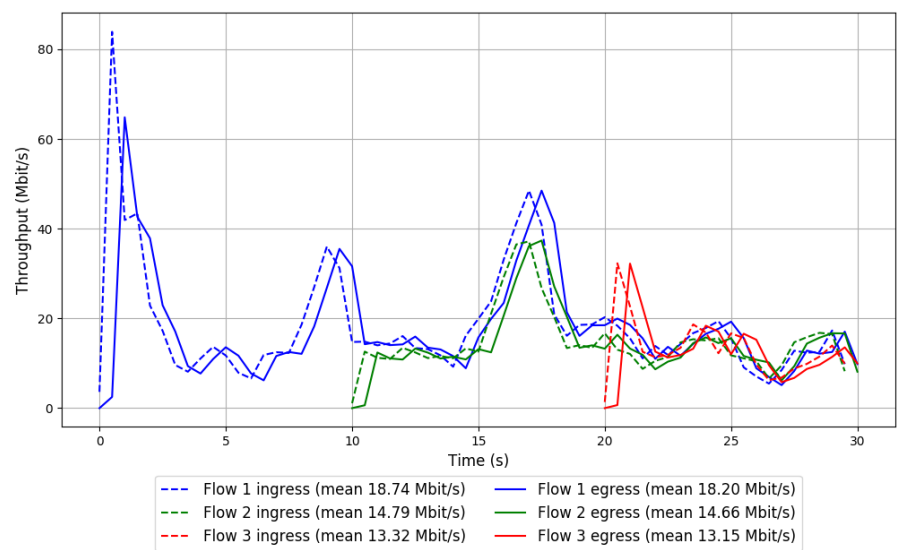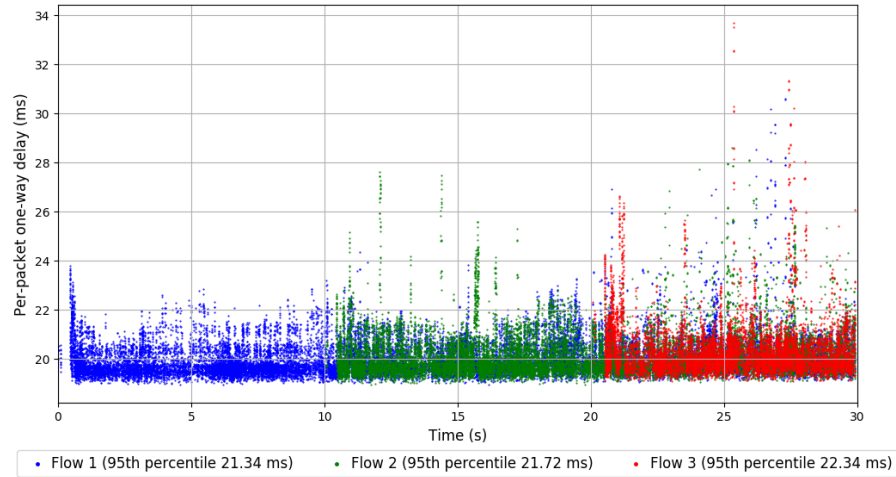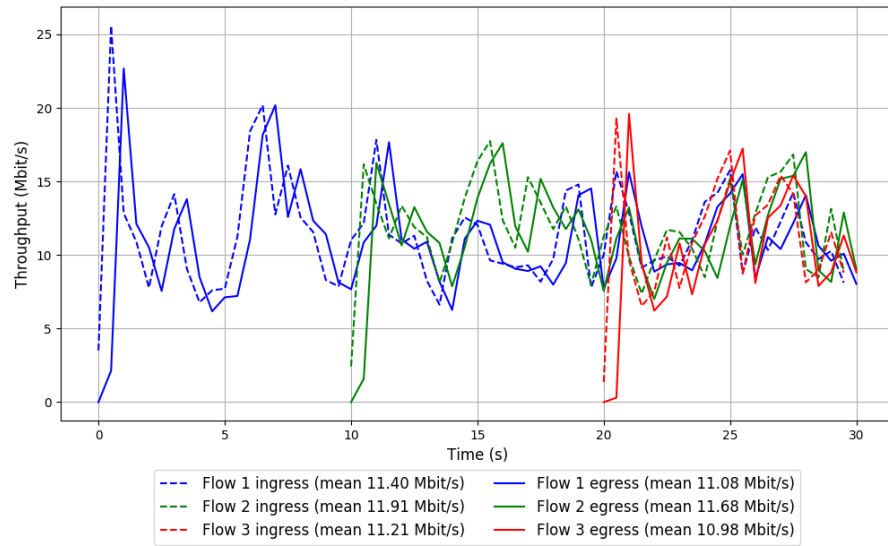
Run 2: Report of QUIC Cubic — Data Link

- - - Flow 1 ingress (mean 23.92 Mbit/s) ——— Flow 1 egress (mean 23.80 Mbit/s)
- - - Flow 2 ingress (mean 24.95 Mbit/s) ——— Flow 2 egress (mean 24.37 Mbit/s)
- - - Flow 3 ingress (mean 16.67 Mbit/s) ——— Flow 3 egress (mean 16.60 Mbit/s)

• Flow 1 (95th percentile 40.44 ms)   • Flow 2 (95th percentile 49.09 ms)   • Flow 3 (95th percentile 49.57 ms)

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-12-11 13:17:45
End at: 2018-12-11 13:18:15
Local clock offset: -10.343 ms
Remote clock offset: 24.485 ms


# Below is generated by plot.py at 2018-12-11 14:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 32.28 Mbit/s
95th percentile per-packet one-way delay: 20.199 ms
Loss rate: 2.07%
-- Flow 1:
Average throughput: 18.20 Mbit/s
95th percentile per-packet one-way delay: 20.632 ms
Loss rate: 2.87%
-- Flow 2:
Average throughput: 14.66 Mbit/s
95th percentile per-packet one-way delay: 19.754 ms
Loss rate: 0.91%
-- Flow 3:
Average throughput: 13.15 Mbit/s
95th percentile per-packet one-way delay: 20.150 ms
Loss rate: 1.28%
```

Run 3: Report of QUIC Cubic — Data Link

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-12-11 13:40:00
End at: 2018-12-11 13:40:30
Local clock offset: -12.305 ms
Remote clock offset: 11.668 ms

# Below is generated by plot.py at 2018-12-11 14:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 22.47 Mbit/s
95th percentile per-packet one-way delay: 21.597 ms
Loss rate: 2.41%
-- Flow 1:
Average throughput: 11.08 Mbit/s
95th percentile per-packet one-way delay: 21.344 ms
Loss rate: 2.83%
-- Flow 2:
Average throughput: 11.68 Mbit/s
95th percentile per-packet one-way delay: 21.716 ms
Loss rate: 1.96%
-- Flow 3:
Average throughput: 10.98 Mbit/s
95th percentile per-packet one-way delay: 22.339 ms
Loss rate: 2.07%
```
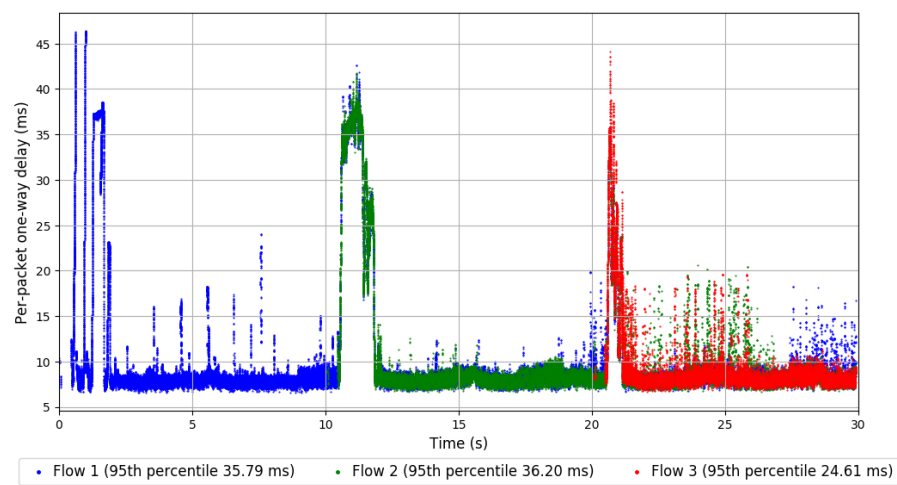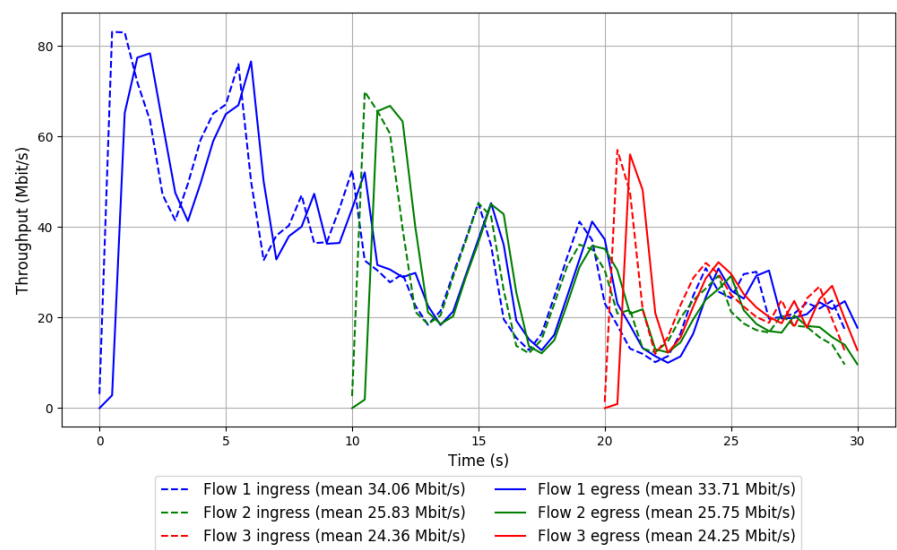
Run 4: Report of QUIC Cubic — Data Link

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-12-11 14:02:15
End at: 2018-12-11 14:02:45
Local clock offset: -1.682 ms
Remote clock offset: 1.115 ms


# Below is generated by plot.py at 2018-12-11 14:17:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 58.83 Mbit/s
95th percentile per-packet one-way delay: 35.572 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 33.71 Mbit/s
95th percentile per-packet one-way delay: 35.792 ms
Loss rate: 1.00%
-- Flow 2:
Average throughput: 25.75 Mbit/s
95th percentile per-packet one-way delay: 36.205 ms
Loss rate: 0.31%
-- Flow 3:
Average throughput: 24.25 Mbit/s
95th percentile per-packet one-way delay: 24.606 ms
Loss rate: 0.44%
```
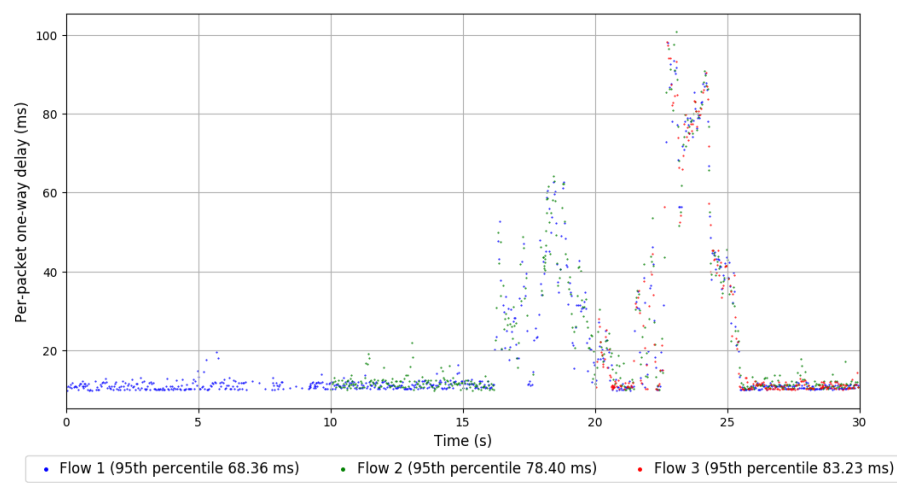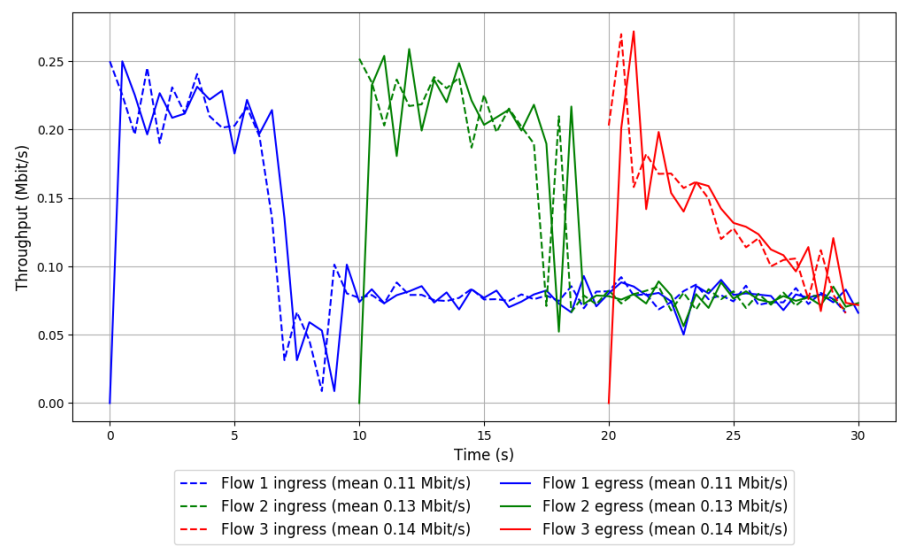
Run 5: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 34.06 Mbit/s) Flow 1 egress (mean 33.71 Mbit/s)
Flow 2 ingress (mean 25.83 Mbit/s) Flow 2 egress (mean 25.75 Mbit/s)
Flow 3 ingress (mean 24.36 Mbit/s) Flow 3 egress (mean 24.25 Mbit/s)

Flow 1 (95th percentile 35.79 ms)   Flow 2 (95th percentile 36.20 ms)   Flow 3 (95th percentile 24.61 ms)
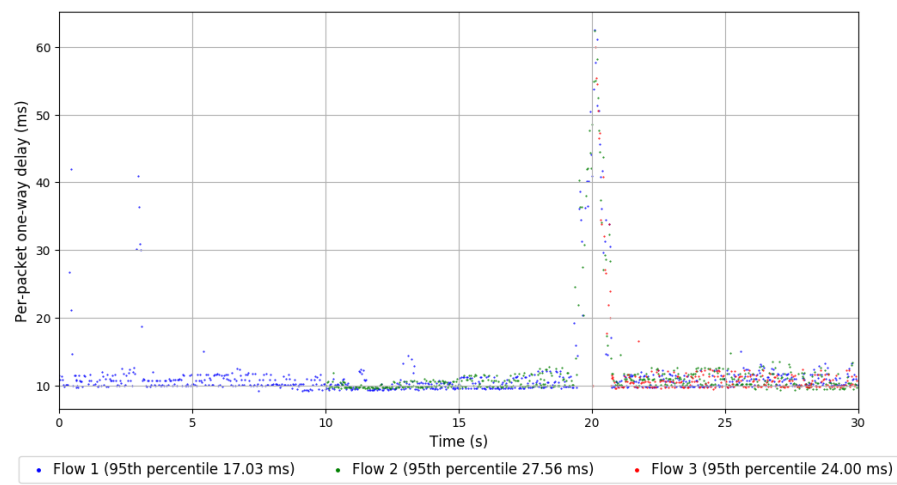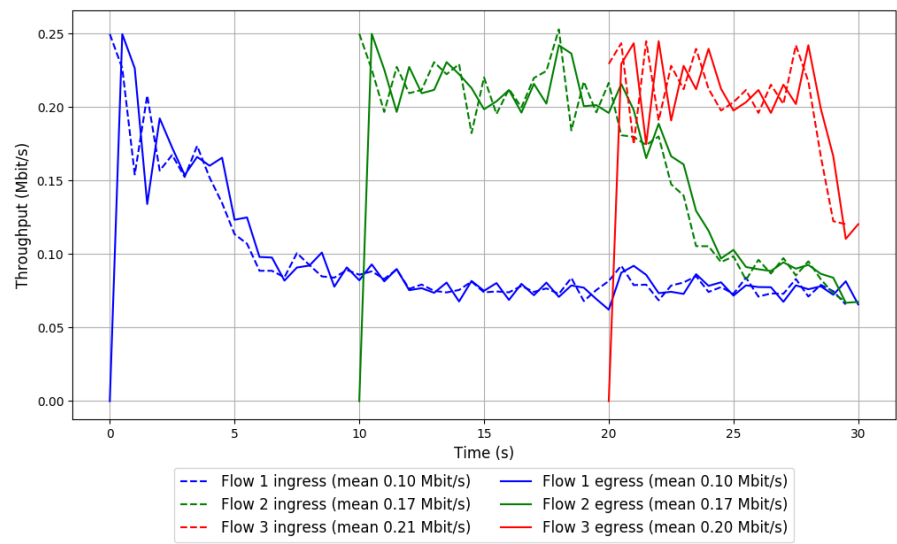
```
Run 1: Statistics of SCReAM

Start at: 2018-12-11 12:24:13
End at: 2018-12-11 12:24:43
Local clock offset: 1.308 ms
Remote clock offset: 55.012 ms


# Below is generated by plot.py at 2018-12-11 14:17:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 78.023 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 68.359 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 78.402 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 83.232 ms
Loss rate: 0.93%
```
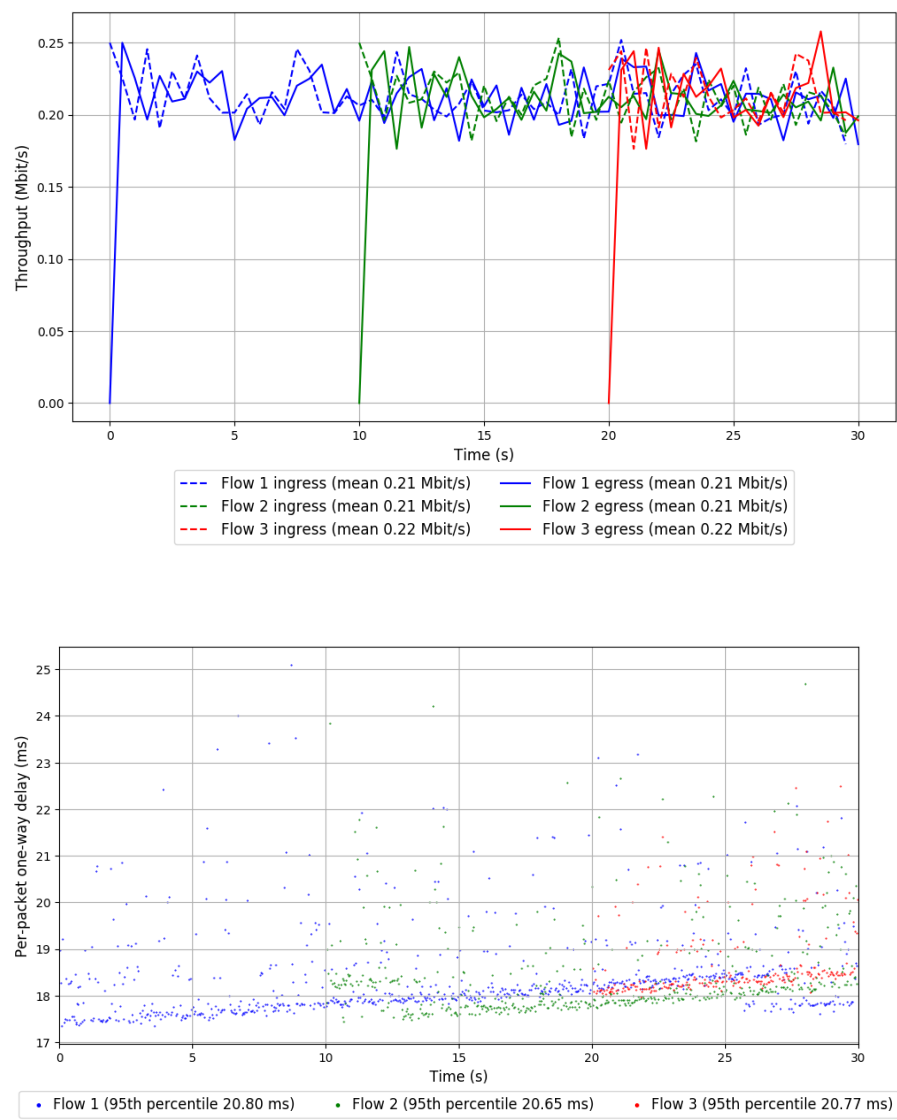
Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2018-12-11 12:49:34
End at: 2018-12-11 12:50:04
Local clock offset: -2.275 ms
Remote clock offset: 41.107 ms

# Below is generated by plot.py at 2018-12-11 14:17:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 21.975 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 17.032 ms
Loss rate: 0.68%
-- Flow 2:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 27.557 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 24.001 ms
Loss rate: 0.75%
```

Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-12-11 13:11:57
End at: 2018-12-11 13:12:27
Local clock offset: -11.988 ms
Remote clock offset: 27.864 ms


# Below is generated by plot.py at 2018-12-11 14:17:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 20.761 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 20.798 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 20.654 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 20.767 ms
Loss rate: 0.00%
```
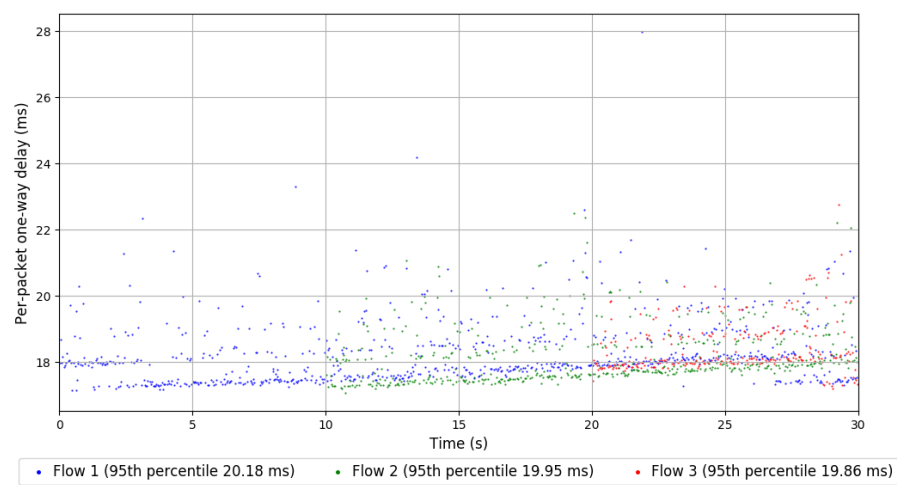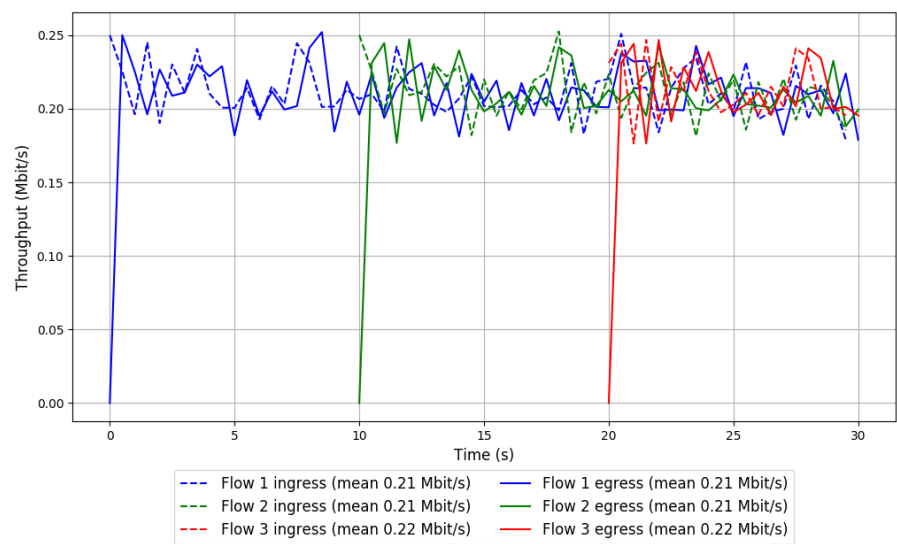
Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2018-12-11 13:34:20
End at: 2018-12-11 13:34:50
Local clock offset: -9.322 ms
Remote clock offset: 15.25 ms


# Below is generated by plot.py at 2018-12-11 14:17:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 19.983 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 20.180 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 19.950 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 19.855 ms
Loss rate: 0.00%
```
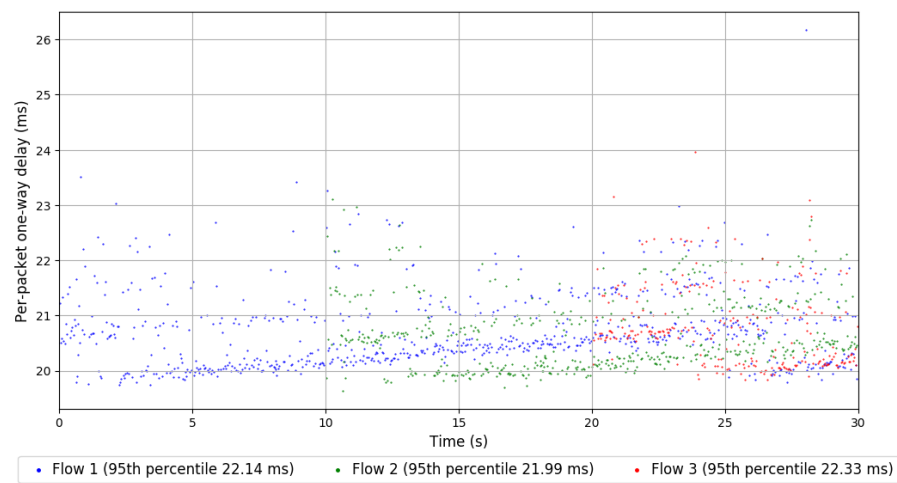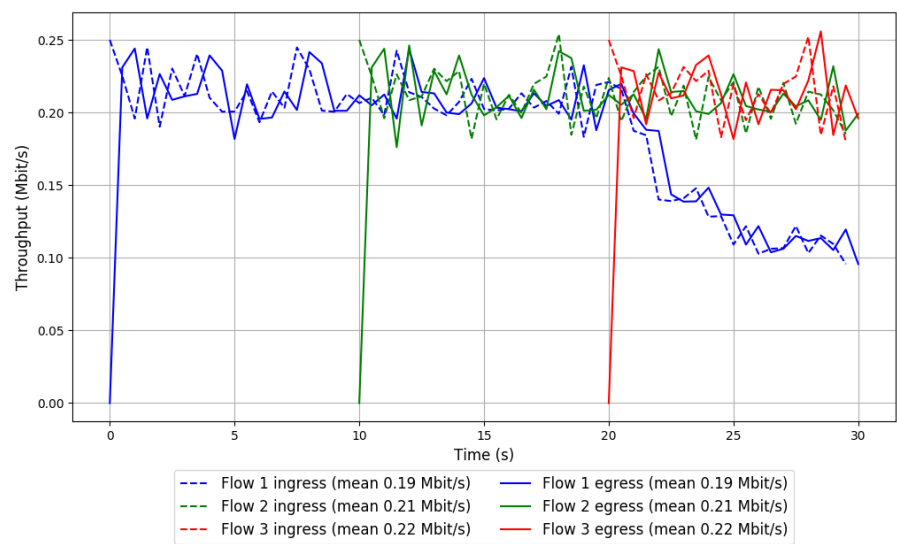
Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2018-12-11 13:56:27
End at: 2018-12-11 13:56:57
Local clock offset: -14.613 ms
Remote clock offset: 3.391 ms


# Below is generated by plot.py at 2018-12-11 14:17:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 22.034 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 22.136 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 21.993 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 22.331 ms
Loss rate: 0.00%
```
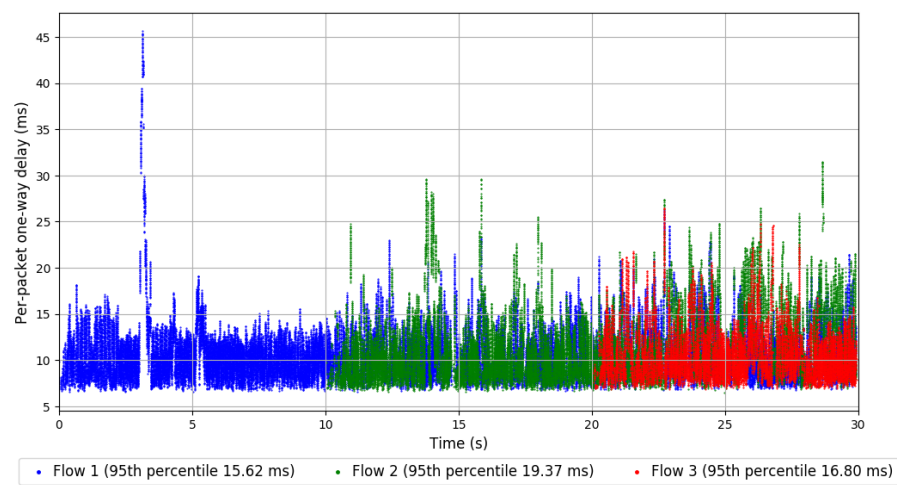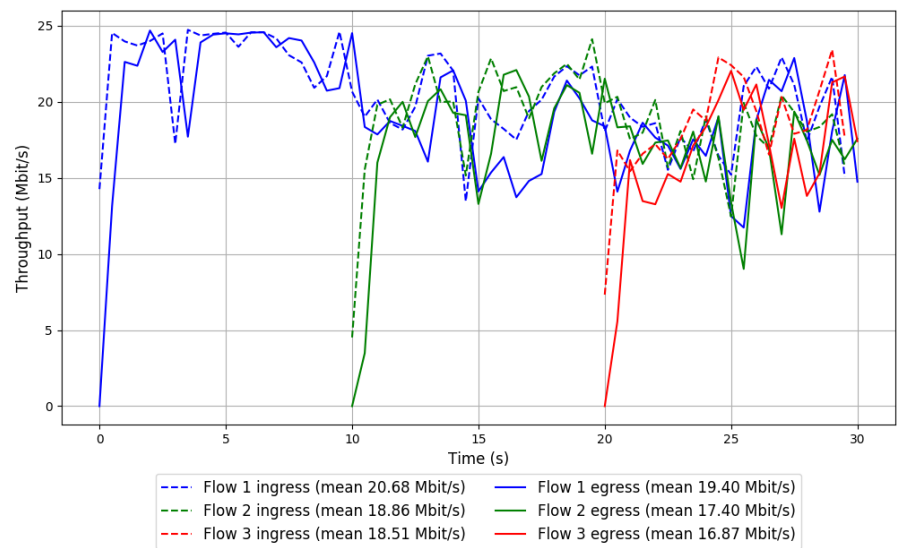
Run 5: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.19 Mbit/s)   Flow 1 egress (mean 0.19 Mbit/s)
Flow 2 ingress (mean 0.21 Mbit/s)   Flow 2 egress (mean 0.21 Mbit/s)
Flow 3 ingress (mean 0.22 Mbit/s)   Flow 3 egress (mean 0.22 Mbit/s)

Flow 1 (95th percentile 22.14 ms)   Flow 2 (95th percentile 21.99 ms)   Flow 3 (95th percentile 22.33 ms)
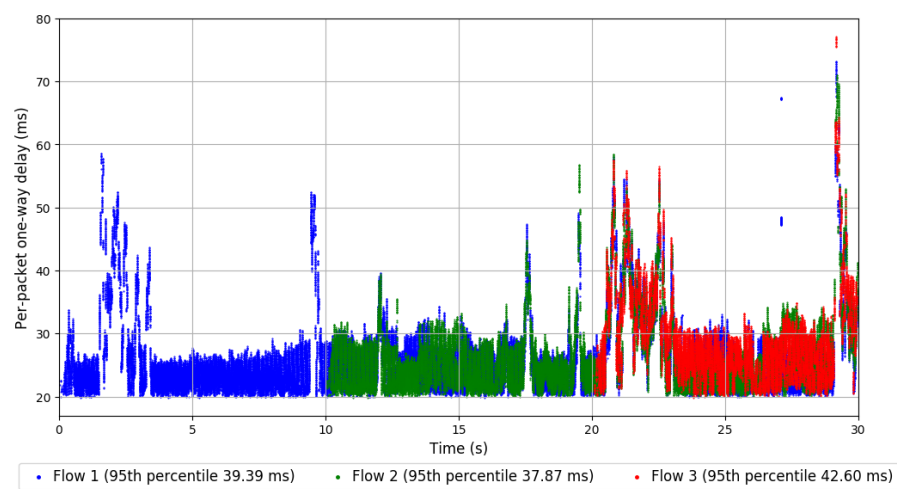
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```
Run 1: Statistics of Sprout

Start at: 2018-12-11 12:34:47
End at: 2018-12-11 12:35:17
Local clock offset: 4.653 ms
Remote clock offset: 48.175 ms

# Below is generated by plot.py at 2018-12-11 14:17:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 36.55 Mbit/s
95th percentile per-packet one-way delay: 17.117 ms
Loss rate: 7.09%
-- Flow 1:
Average throughput: 19.40 Mbit/s
95th percentile per-packet one-way delay: 15.615 ms
Loss rate: 6.17%
-- Flow 2:
Average throughput: 17.40 Mbit/s
95th percentile per-packet one-way delay: 19.371 ms
Loss rate: 7.74%
-- Flow 3:
Average throughput: 16.87 Mbit/s
95th percentile per-packet one-way delay: 16.798 ms
Loss rate: 8.86%
```
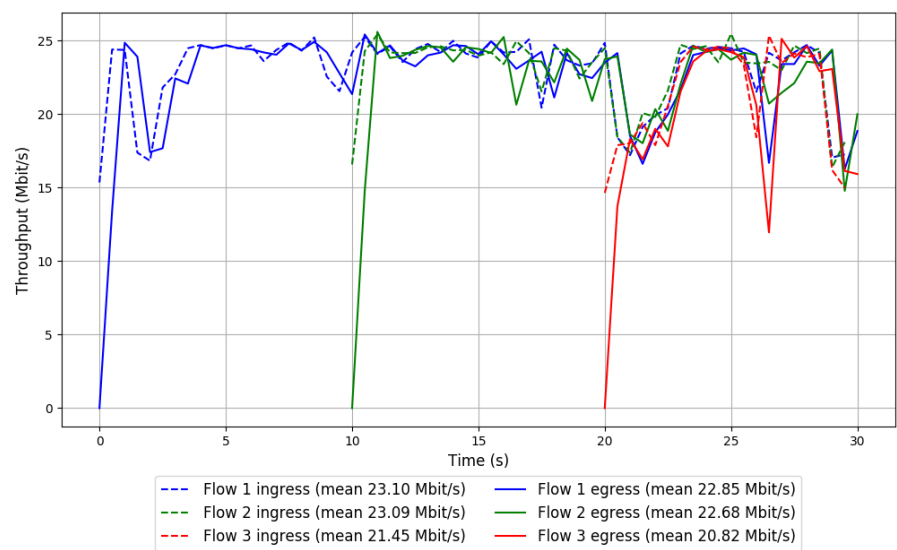
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-12-11 12:58:47
End at: 2018-12-11 12:59:17
Local clock offset: -14.01 ms
Remote clock offset: 36.887 ms


# Below is generated by plot.py at 2018-12-11 14:18:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 44.82 Mbit/s
95th percentile per-packet one-way delay: 39.527 ms
Loss rate: 1.52%
-- Flow 1:
Average throughput: 22.85 Mbit/s
95th percentile per-packet one-way delay: 39.390 ms
Loss rate: 1.02%
-- Flow 2:
Average throughput: 22.68 Mbit/s
95th percentile per-packet one-way delay: 37.873 ms
Loss rate: 1.68%
-- Flow 3:
Average throughput: 20.82 Mbit/s
95th percentile per-packet one-way delay: 42.600 ms
Loss rate: 2.83%
```

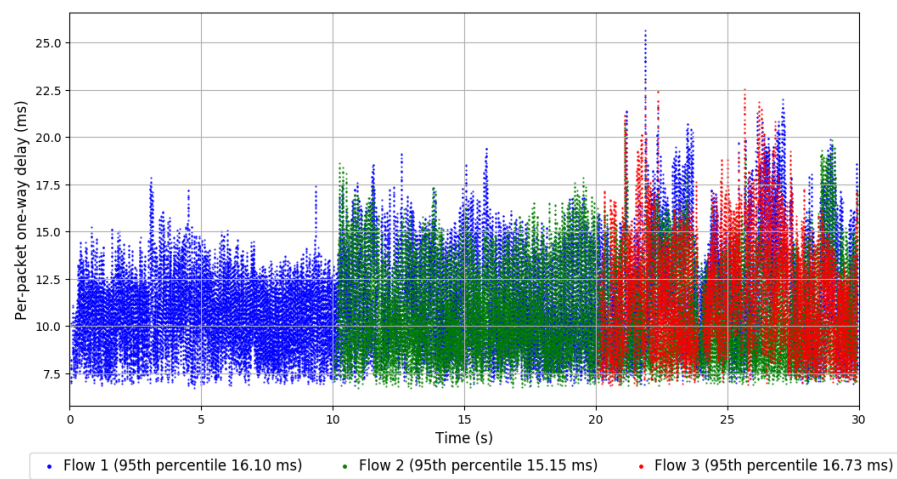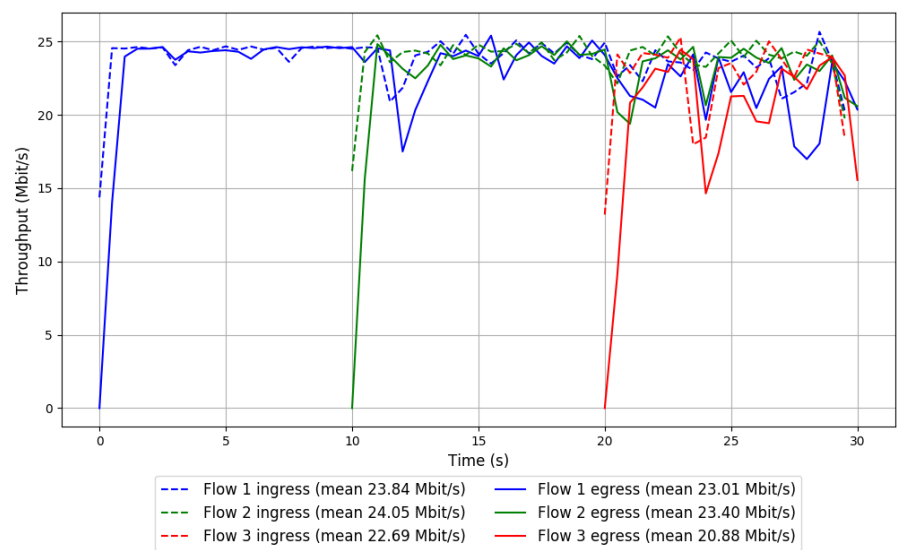Run 2: Report of Sprout — Data Link

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```
Run 3: Statistics of Sprout

Start at: 2018-12-11 13:21:12
End at: 2018-12-11 13:21:43
Local clock offset: 0.145 ms
Remote clock offset: 22.119 ms


# Below is generated by plot.py at 2018-12-11 14:18:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 45.47 Mbit/s
95th percentile per-packet one-way delay: 15.889 ms
Loss rate: 3.88%
-- Flow 1:
Average throughput: 23.01 Mbit/s
95th percentile per-packet one-way delay: 16.100 ms
Loss rate: 3.43%
-- Flow 2:
Average throughput: 23.40 Mbit/s
95th percentile per-packet one-way delay: 15.149 ms
Loss rate: 2.66%
-- Flow 3:
Average throughput: 20.88 Mbit/s
95th percentile per-packet one-way delay: 16.732 ms
Loss rate: 7.92%
```
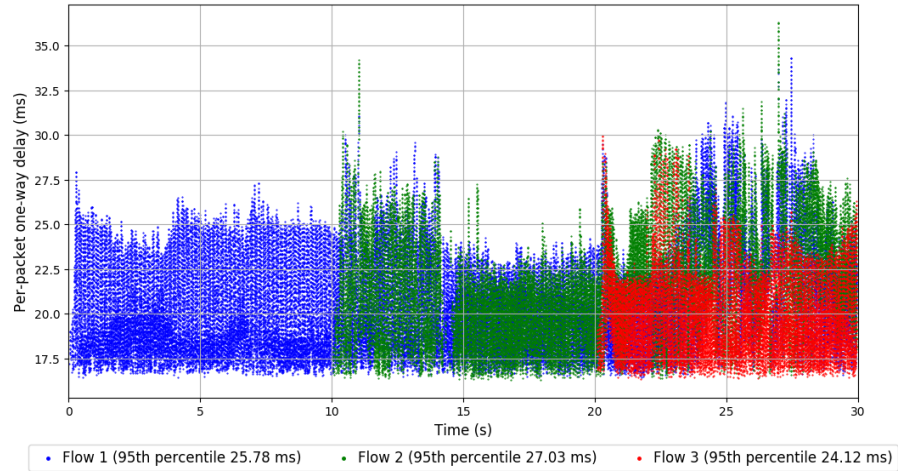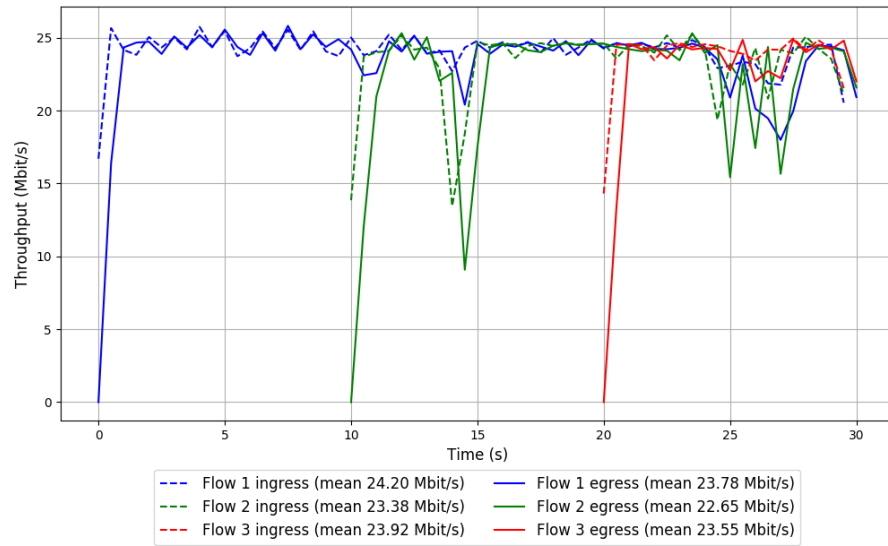
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2018-12-11 13:43:28
End at: 2018-12-11 13:43:58
Local clock offset: -10.006 ms
Remote clock offset: 10.159 ms


# Below is generated by plot.py at 2018-12-11 14:18:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 46.64 Mbit/s
95th percentile per-packet one-way delay: 26.185 ms
Loss rate: 2.12%
-- Flow 1:
Average throughput: 23.78 Mbit/s
95th percentile per-packet one-way delay: 25.777 ms
Loss rate: 1.69%
-- Flow 2:
Average throughput: 22.65 Mbit/s
95th percentile per-packet one-way delay: 27.033 ms
Loss rate: 3.11%
-- Flow 3:
Average throughput: 23.55 Mbit/s
95th percentile per-packet one-way delay: 24.116 ms
Loss rate: 1.48%
```
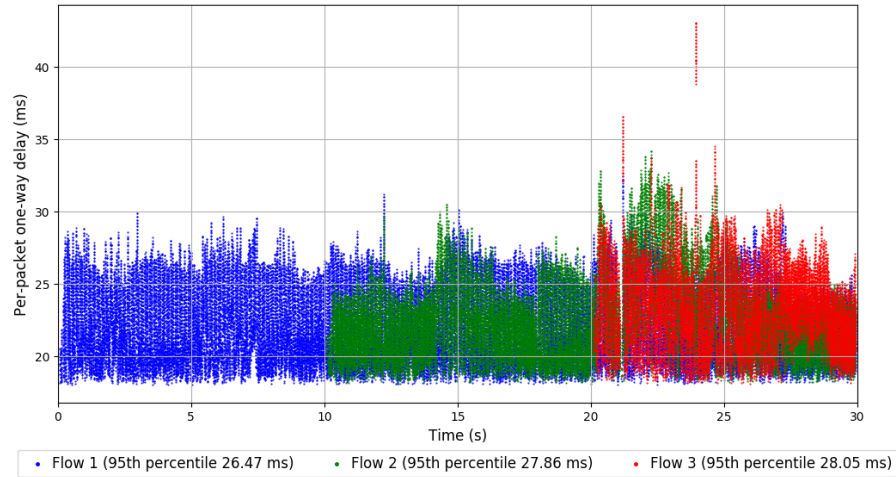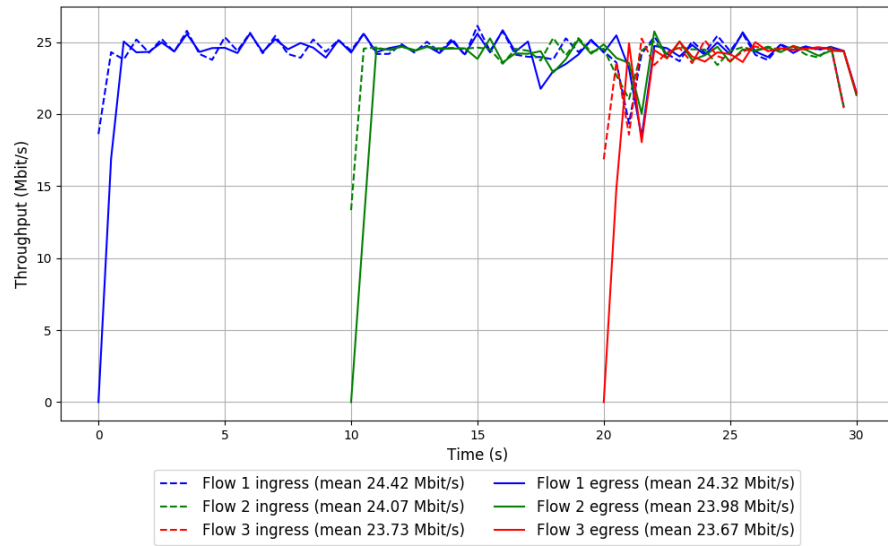
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-12-11 14:05:48
End at: 2018-12-11 14:06:18
Local clock offset: -13.29 ms
Remote clock offset: -0.837 ms


# Below is generated by plot.py at 2018-12-11 14:18:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 48.10 Mbit/s
95th percentile per-packet one-way delay: 27.127 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 24.32 Mbit/s
95th percentile per-packet one-way delay: 26.468 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 23.98 Mbit/s
95th percentile per-packet one-way delay: 27.855 ms
Loss rate: 0.37%
-- Flow 3:
Average throughput: 23.67 Mbit/s
95th percentile per-packet one-way delay: 28.054 ms
Loss rate: 0.22%
```
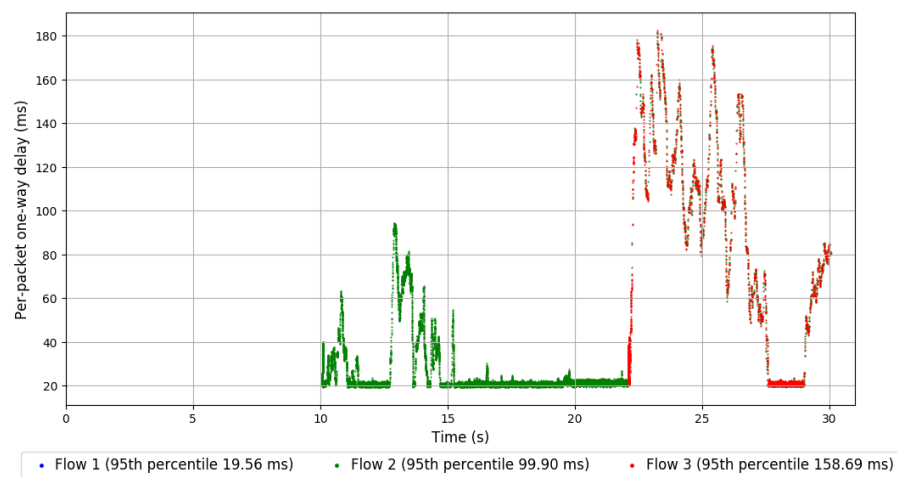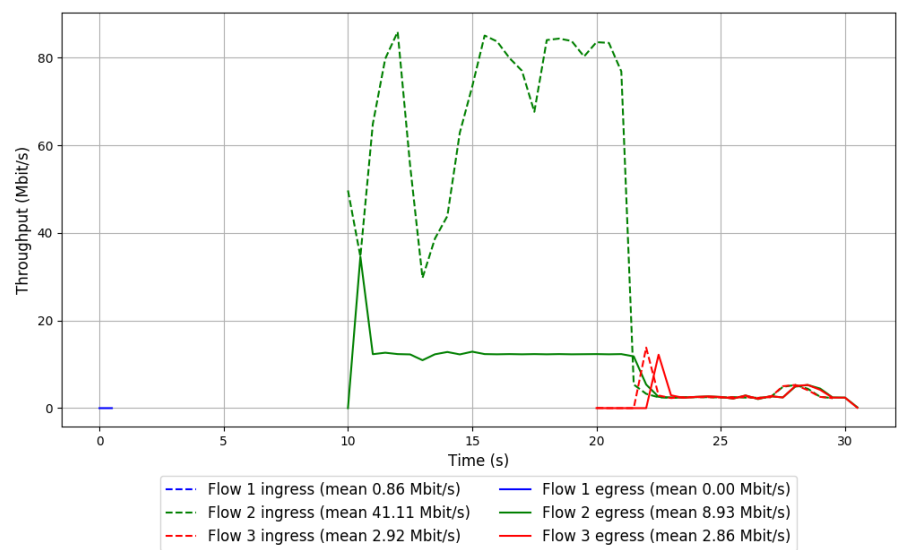
Run 5: Report of Sprout — Data Link

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

Start at: 2018-12-11 12:26:40
End at: 2018-12-11 12:27:10
Local clock offset: -7.926 ms
Remote clock offset: 53.472 ms


# Below is generated by plot.py at 2018-12-11 14:18:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 6.91 Mbit/s
95th percentile per-packet one-way delay: 124.614 ms
Loss rate: 75.59%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 19.558 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 8.93 Mbit/s
95th percentile per-packet one-way delay: 99.903 ms
Loss rate: 78.20%
-- Flow 3:
Average throughput: 2.86 Mbit/s
95th percentile per-packet one-way delay: 158.695 ms
Loss rate: 1.82%
```

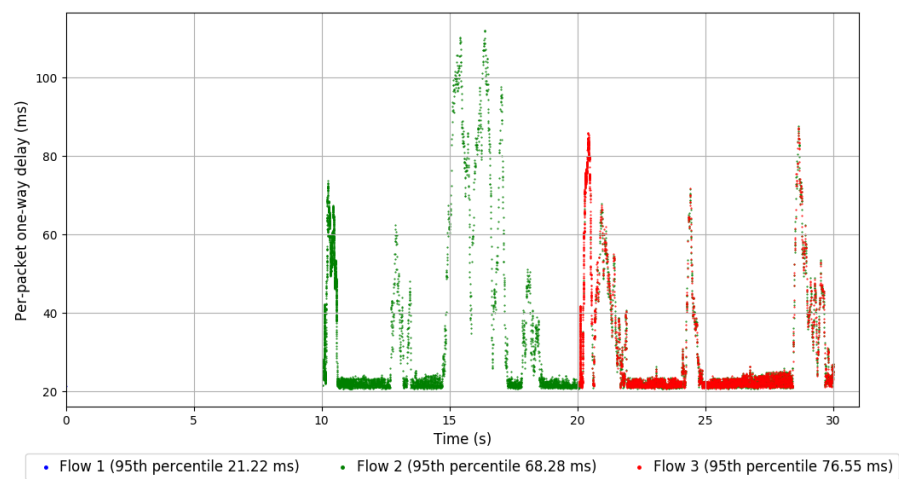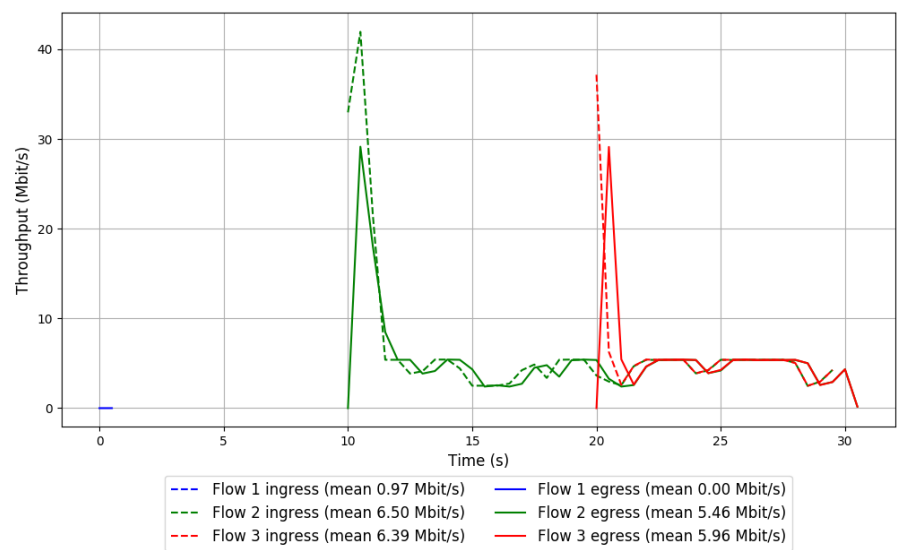Run 1: Report of TaoVA-100x — Data Link

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

Start at: 2018-12-11 12:51:53
End at: 2018-12-11 12:52:23
Local clock offset: -13.523 ms
Remote clock offset: 40.574 ms


# Below is generated by plot.py at 2018-12-11 14:18:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.62 Mbit/s
95th percentile per-packet one-way delay: 74.410 ms
Loss rate: 12.96%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 21.219 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 5.46 Mbit/s
95th percentile per-packet one-way delay: 68.276 ms
Loss rate: 15.97%
-- Flow 3:
Average throughput: 5.96 Mbit/s
95th percentile per-packet one-way delay: 76.553 ms
Loss rate: 6.80%
```

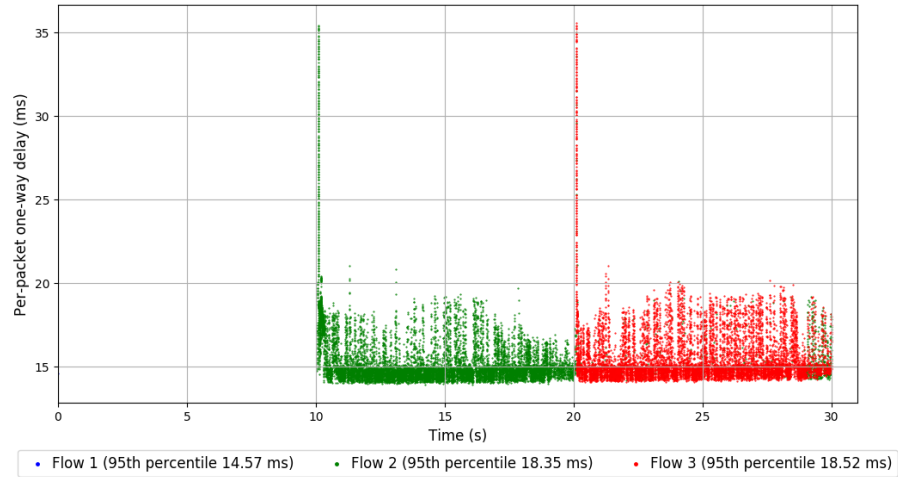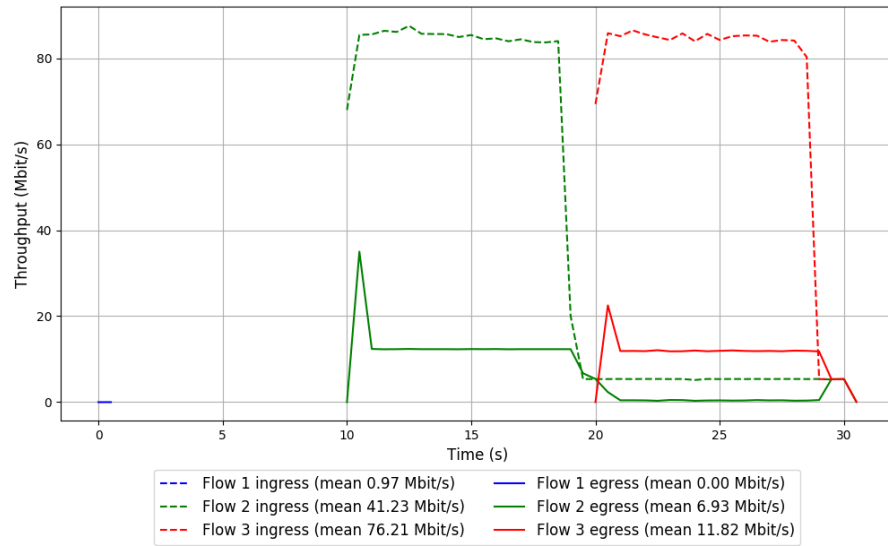Run 2: Report of TaoVA-100x — Data Link

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

Start at: 2018-12-11 13:14:19
End at: 2018-12-11 13:14:49
Local clock offset: -7.687 ms
Remote clock offset: 26.686 ms


# Below is generated by plot.py at 2018-12-11 14:18:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.54 Mbit/s
95th percentile per-packet one-way delay: 18.441 ms
Loss rate: 83.82%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 14.574 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 6.93 Mbit/s
95th percentile per-packet one-way delay: 18.352 ms
Loss rate: 83.21%
-- Flow 3:
Average throughput: 11.82 Mbit/s
95th percentile per-packet one-way delay: 18.518 ms
Loss rate: 84.49%
```

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

- - - Flow 1 ingress (mean 0.97 Mbit/s)   —— Flow 1 egress (mean 0.00 Mbit/s)
- - - Flow 2 ingress (mean 41.23 Mbit/s)   —— Flow 2 egress (mean 6.93 Mbit/s)
- - - Flow 3 ingress (mean 76.21 Mbit/s)   —— Flow 3 egress (mean 11.82 Mbit/s)

• Flow 1 (95th percentile 14.57 ms)   • Flow 2 (95th percentile 18.35 ms)   • Flow 3 (95th percentile 18.52 ms)
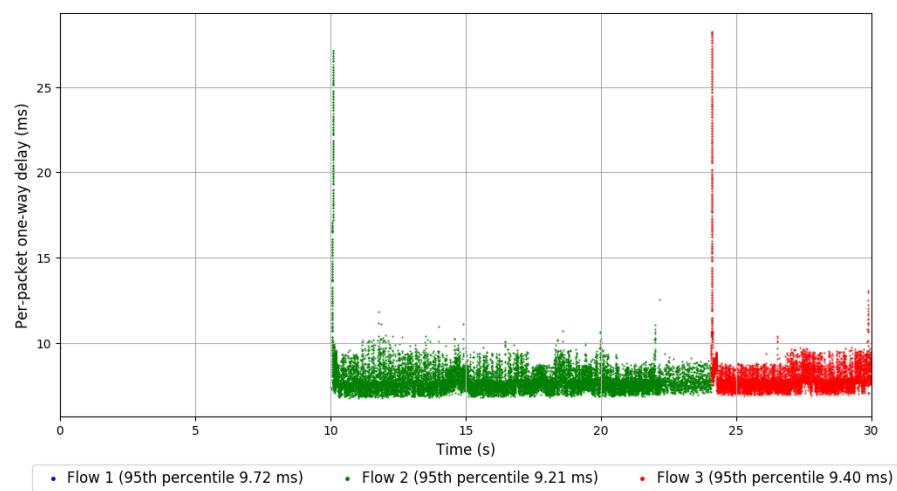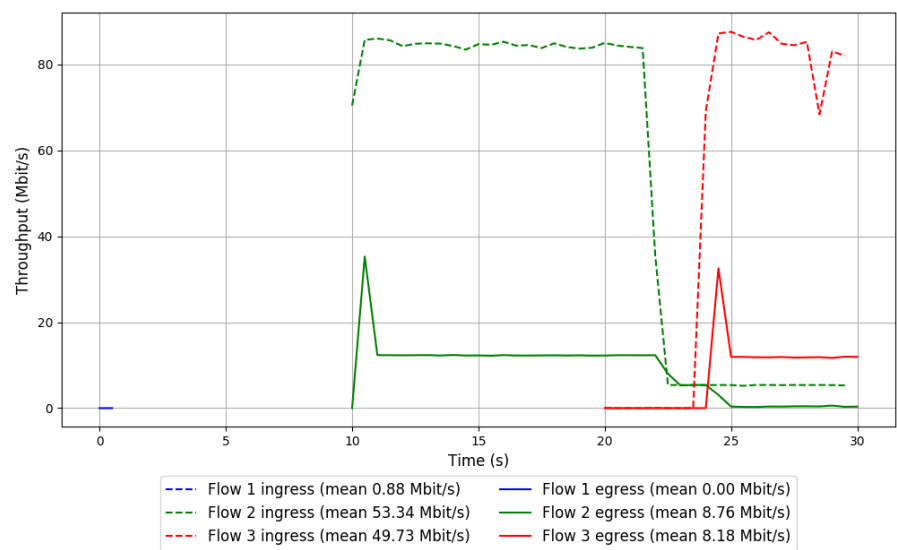
```
Run 4: Statistics of TaoVA-100x

Start at: 2018-12-11 13:36:37
End at: 2018-12-11 13:37:07
Local clock offset: 0.418 ms
Remote clock offset: 13.433 ms


# Below is generated by plot.py at 2018-12-11 14:18:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.54 Mbit/s
95th percentile per-packet one-way delay: 9.273 ms
Loss rate: 83.60%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 9.717 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 8.76 Mbit/s
95th percentile per-packet one-way delay: 9.208 ms
Loss rate: 83.61%
-- Flow 3:
Average throughput: 8.18 Mbit/s
95th percentile per-packet one-way delay: 9.398 ms
Loss rate: 83.56%
```
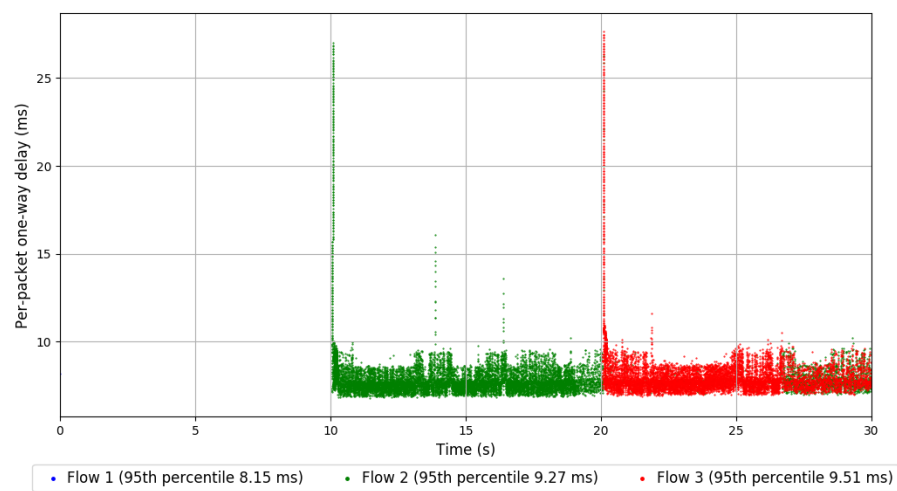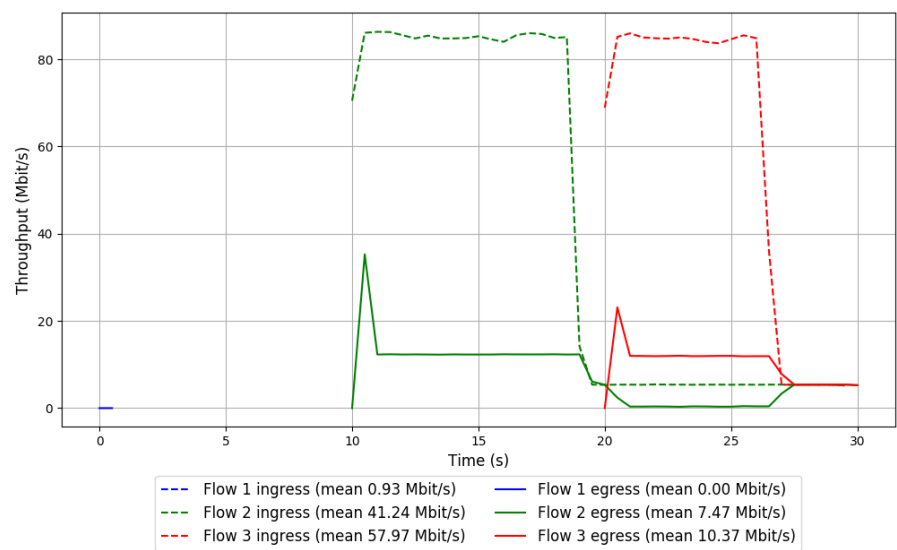
Run 4: Report of TaoVA-100x — Data Link

- - - Flow 1 ingress (mean 0.88 Mbit/s)   —— Flow 1 egress (mean 0.00 Mbit/s)
- - - Flow 2 ingress (mean 53.34 Mbit/s)   —— Flow 2 egress (mean 8.76 Mbit/s)
- - - Flow 3 ingress (mean 49.73 Mbit/s)   —— Flow 3 egress (mean 8.18 Mbit/s)

- Flow 1 (95th percentile 9.72 ms)   • Flow 2 (95th percentile 9.21 ms)   • Flow 3 (95th percentile 9.40 ms)

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

Start at: 2018-12-11 13:58:49
End at: 2018-12-11 13:59:19
Local clock offset: -1.405 ms
Remote clock offset: 2.699 ms


# Below is generated by plot.py at 2018-12-11 14:18:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.42 Mbit/s
95th percentile per-packet one-way delay: 9.324 ms
Loss rate: 81.98%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 8.152 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 7.47 Mbit/s
95th percentile per-packet one-way delay: 9.267 ms
Loss rate: 81.88%
-- Flow 3:
Average throughput: 10.37 Mbit/s
95th percentile per-packet one-way delay: 9.508 ms
Loss rate: 82.12%
```
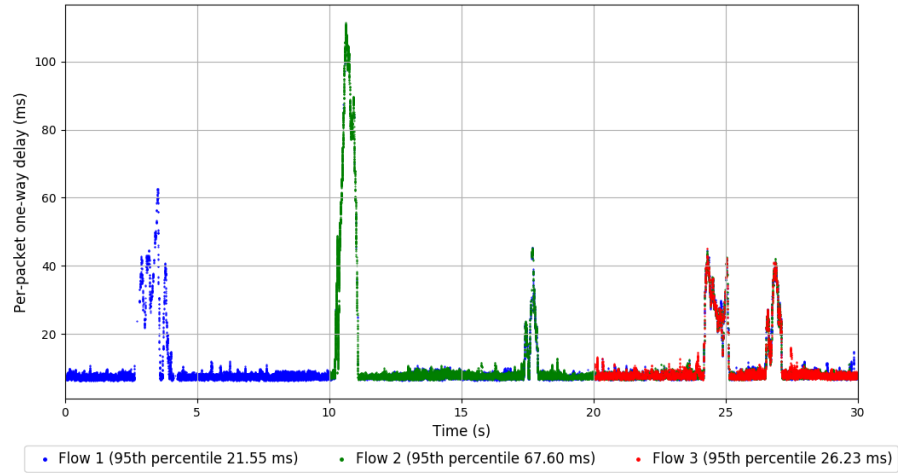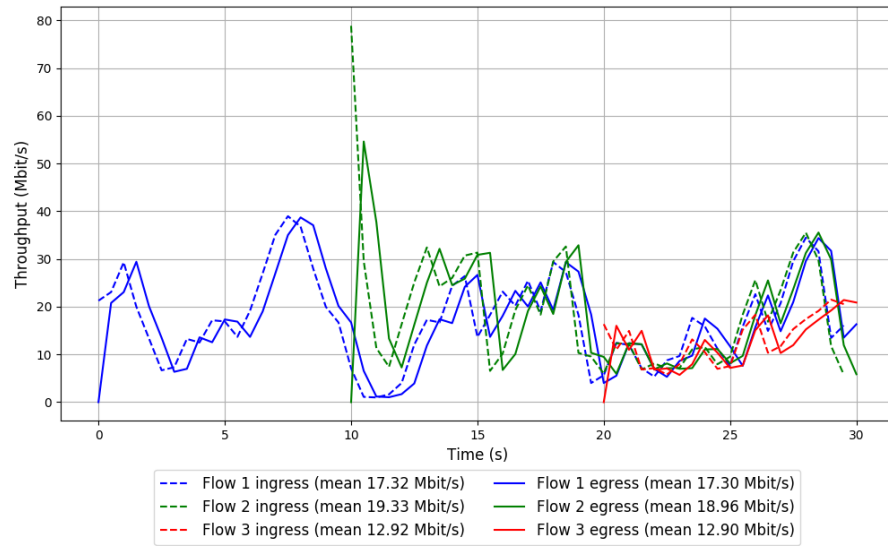
Run 5: Report of TaoVA-100x — Data Link

- - - Flow 1 ingress (mean 0.93 Mbit/s) —— Flow 1 egress (mean 0.00 Mbit/s)
- - - Flow 2 ingress (mean 41.24 Mbit/s) —— Flow 2 egress (mean 7.47 Mbit/s)
- - - Flow 3 ingress (mean 57.97 Mbit/s) —— Flow 3 egress (mean 10.37 Mbit/s)

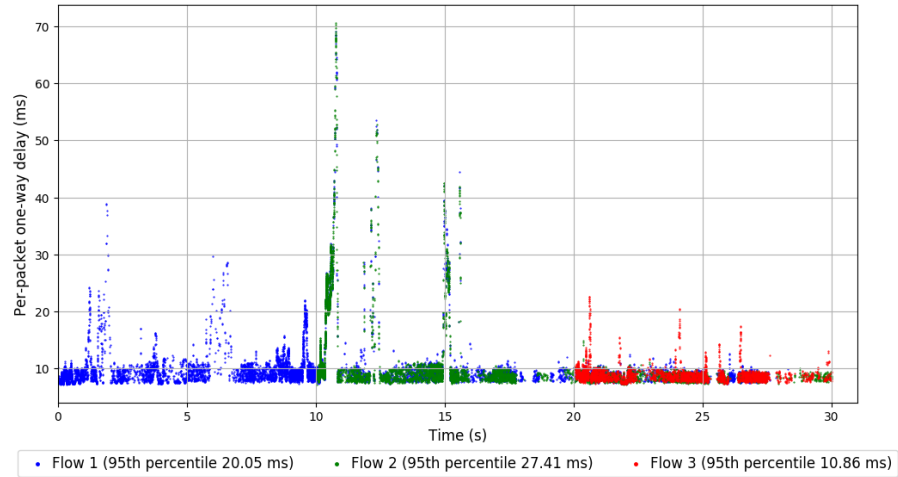• Flow 1 (95th percentile 8.15 ms)   • Flow 2 (95th percentile 9.27 ms)   • Flow 3 (95th percentile 9.51 ms)

```
Run 1: Statistics of TCP Vegas

Start at: 2018-12-11 12:19:30
End at: 2018-12-11 12:20:00
Local clock offset: 3.659 ms
Remote clock offset: 57.618 ms

# Below is generated by plot.py at 2018-12-11 14:18:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 34.22 Mbit/s
95th percentile per-packet one-way delay: 34.192 ms
Loss rate: 0.78%
-- Flow 1:
Average throughput: 17.30 Mbit/s
95th percentile per-packet one-way delay: 21.545 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 18.96 Mbit/s
95th percentile per-packet one-way delay: 67.603 ms
Loss rate: 1.90%
-- Flow 3:
Average throughput: 12.90 Mbit/s
95th percentile per-packet one-way delay: 26.226 ms
Loss rate: 0.14%
```

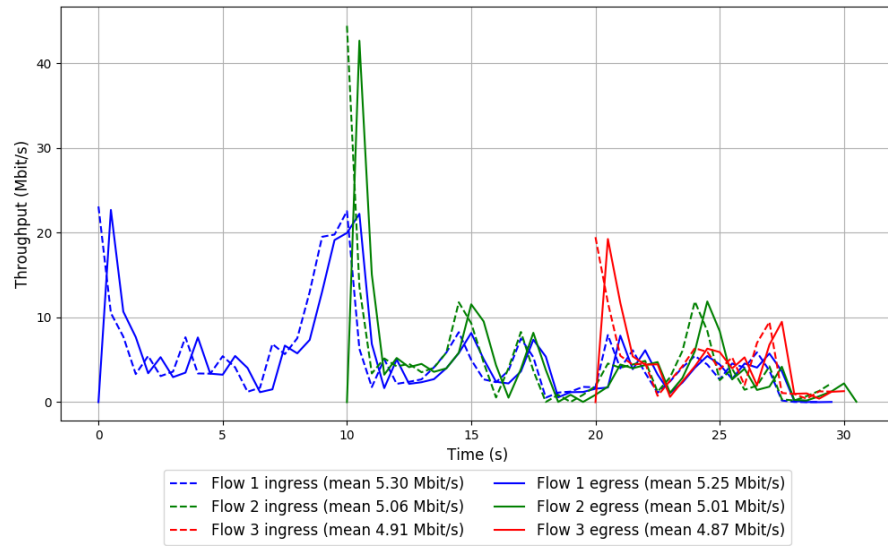Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-12-11 12:44:43
End at: 2018-12-11 12:45:14
Local clock offset: 1.198 ms
Remote clock offset: 43.495 ms


# Below is generated by plot.py at 2018-12-11 14:18:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.08 Mbit/s
95th percentile per-packet one-way delay: 23.188 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 5.25 Mbit/s
95th percentile per-packet one-way delay: 20.053 ms
Loss rate: 1.01%
-- Flow 2:
Average throughput: 5.01 Mbit/s
95th percentile per-packet one-way delay: 27.410 ms
Loss rate: 0.96%
-- Flow 3:
Average throughput: 4.87 Mbit/s
95th percentile per-packet one-way delay: 10.861 ms
Loss rate: 0.83%
```

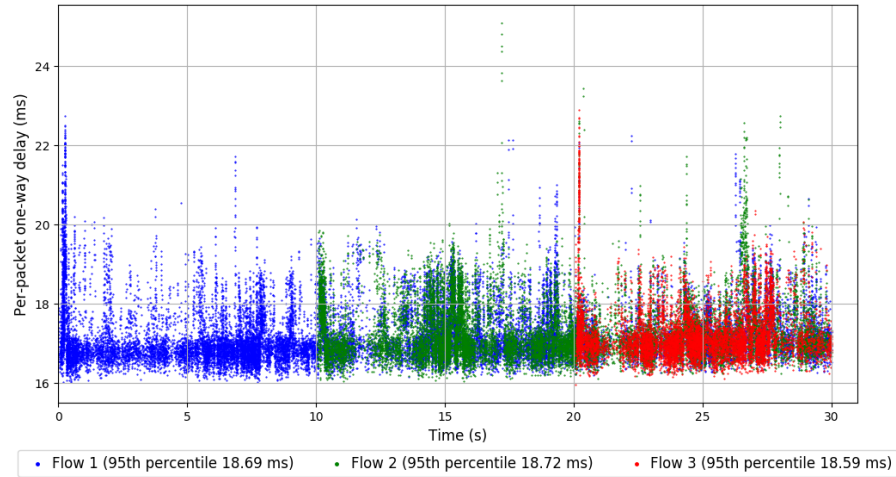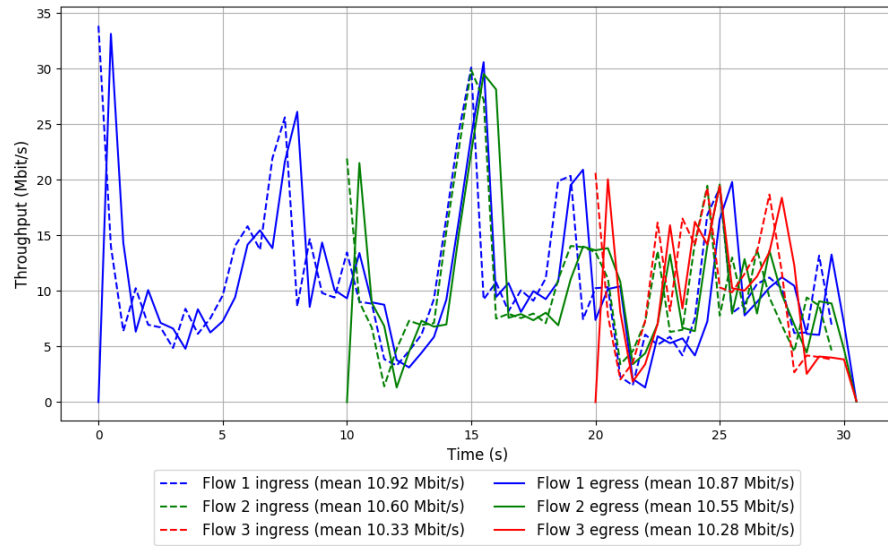Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-12-11 13:07:13
End at: 2018-12-11 13:07:43
Local clock offset: -11.846 ms
Remote clock offset: 30.529 ms


# Below is generated by plot.py at 2018-12-11 14:18:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 21.32 Mbit/s
95th percentile per-packet one-way delay: 18.683 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 10.87 Mbit/s
95th percentile per-packet one-way delay: 18.690 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 10.55 Mbit/s
95th percentile per-packet one-way delay: 18.724 ms
Loss rate: 0.47%
-- Flow 3:
Average throughput: 10.28 Mbit/s
95th percentile per-packet one-way delay: 18.589 ms
Loss rate: 0.50%
```
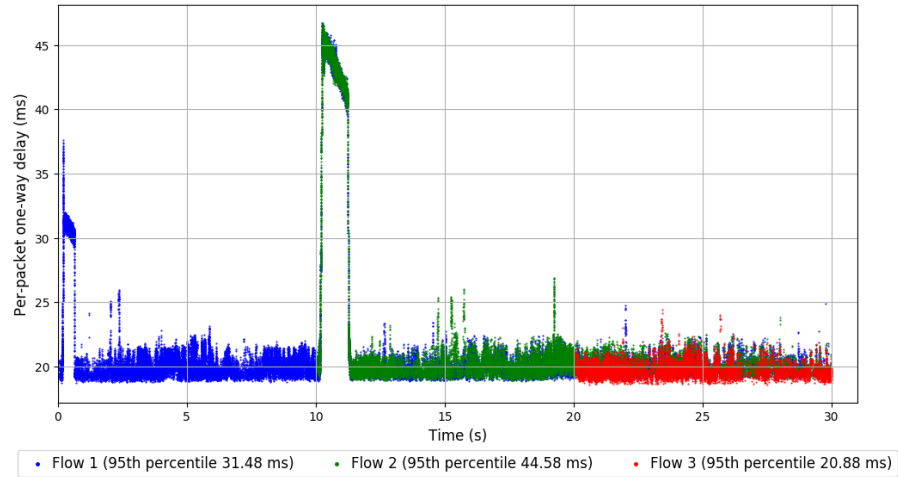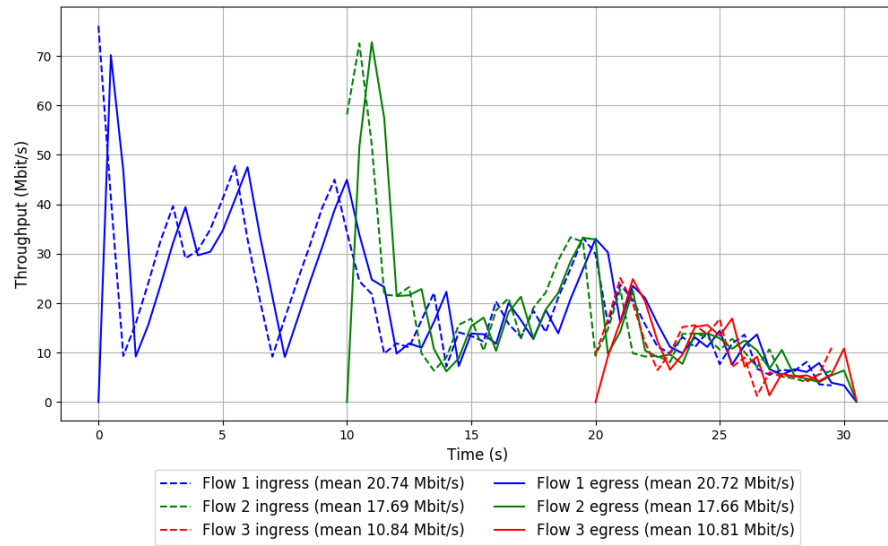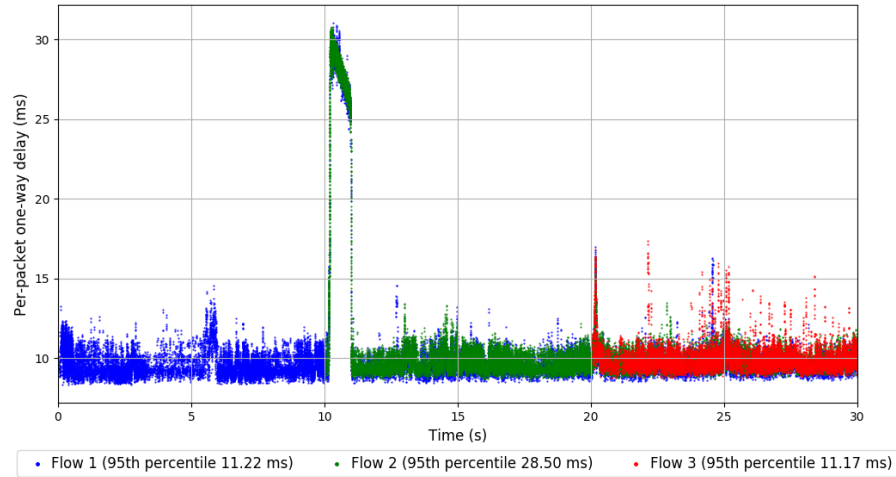
Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 10.92 Mbit/s)   Flow 1 egress (mean 10.87 Mbit/s)
Flow 2 ingress (mean 10.60 Mbit/s)   Flow 2 egress (mean 10.55 Mbit/s)
Flow 3 ingress (mean 10.33 Mbit/s)   Flow 3 egress (mean 10.28 Mbit/s)

Flow 1 (95th percentile 18.69 ms)   Flow 2 (95th percentile 18.72 ms)   Flow 3 (95th percentile 18.59 ms)

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```
Run 4: Statistics of TCP Vegas

Start at: 2018-12-11 13:29:34
End at: 2018-12-11 13:30:04
Local clock offset: -11.248 ms
Remote clock offset: 17.666 ms


# Below is generated by plot.py at 2018-12-11 14:18:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 36.07 Mbit/s
95th percentile per-packet one-way delay: 43.134 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 20.72 Mbit/s
95th percentile per-packet one-way delay: 31.482 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 17.66 Mbit/s
95th percentile per-packet one-way delay: 44.584 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 10.81 Mbit/s
95th percentile per-packet one-way delay: 20.876 ms
Loss rate: 0.32%
```

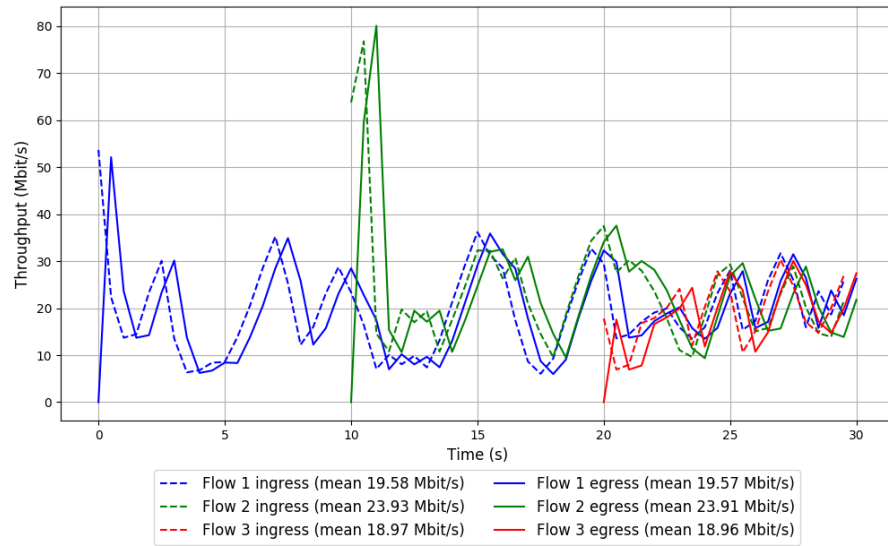# Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2018-12-11 13:51:44
End at: 2018-12-11 13:52:14
Local clock offset: -3.279 ms
Remote clock offset: 5.711 ms


# Below is generated by plot.py at 2018-12-11 14:18:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 41.81 Mbit/s
95th percentile per-packet one-way delay: 26.656 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 19.57 Mbit/s
95th percentile per-packet one-way delay: 11.223 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 23.91 Mbit/s
95th percentile per-packet one-way delay: 28.501 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 18.96 Mbit/s
95th percentile per-packet one-way delay: 11.173 ms
Loss rate: 0.09%
```

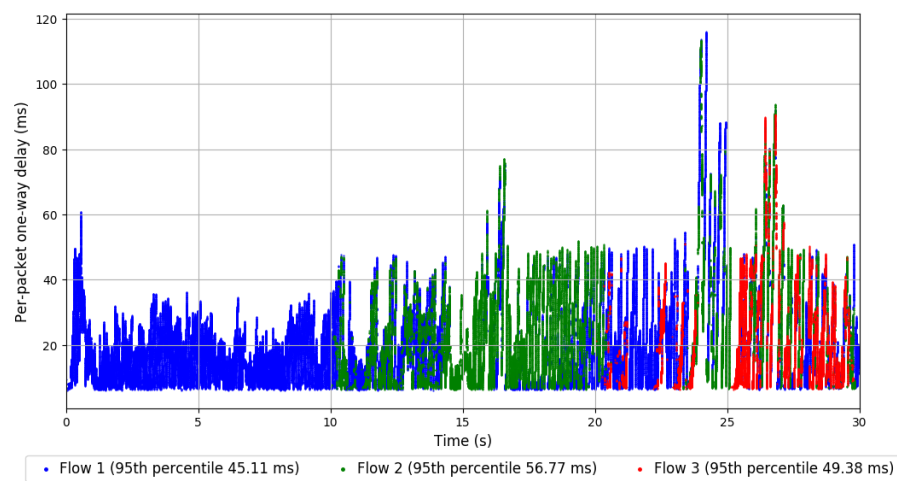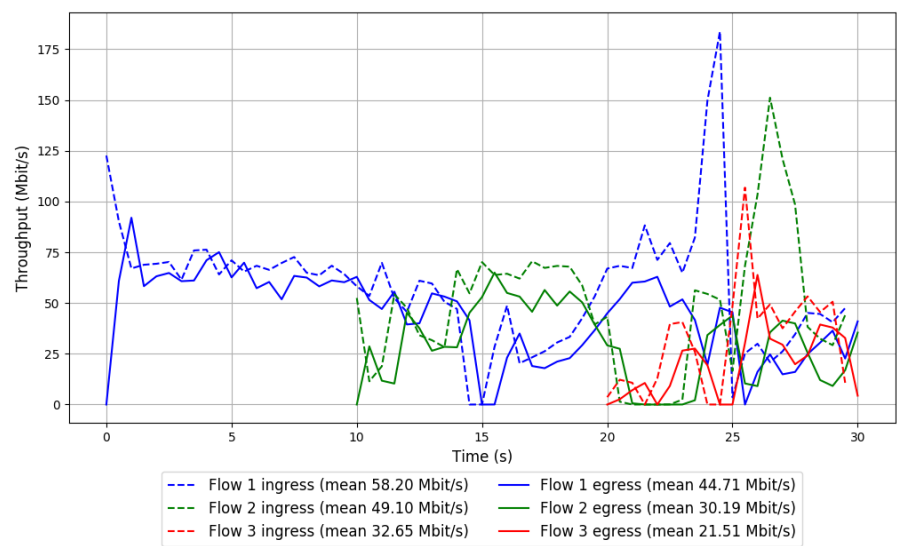## Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2018-12-11 12:25:20
End at: 2018-12-11 12:25:50
Local clock offset: 4.086 ms
Remote clock offset: 53.417 ms


# Below is generated by plot.py at 2018-12-11 14:19:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 71.64 Mbit/s
95th percentile per-packet one-way delay: 47.855 ms
Loss rate: 29.26%
-- Flow 1:
Average throughput: 44.71 Mbit/s
95th percentile per-packet one-way delay: 45.106 ms
Loss rate: 23.16%
-- Flow 2:
Average throughput: 30.19 Mbit/s
95th percentile per-packet one-way delay: 56.765 ms
Loss rate: 38.51%
-- Flow 3:
Average throughput: 21.51 Mbit/s
95th percentile per-packet one-way delay: 49.376 ms
Loss rate: 34.37%
```

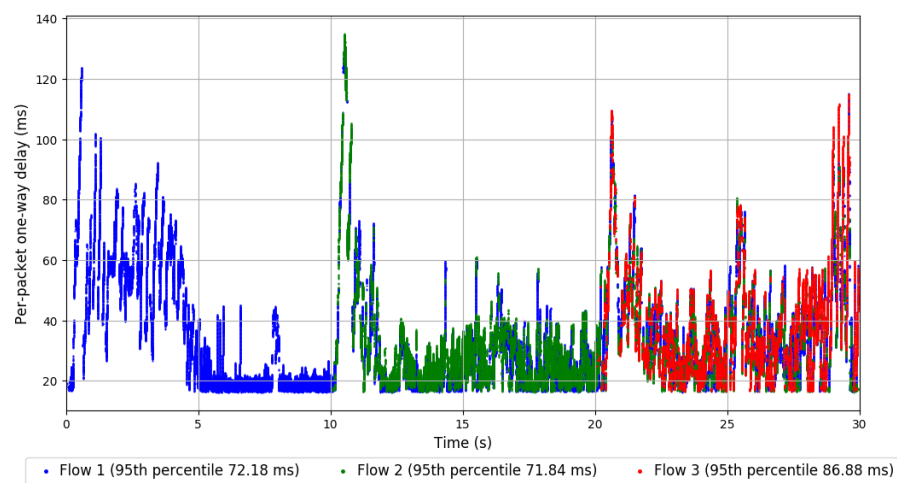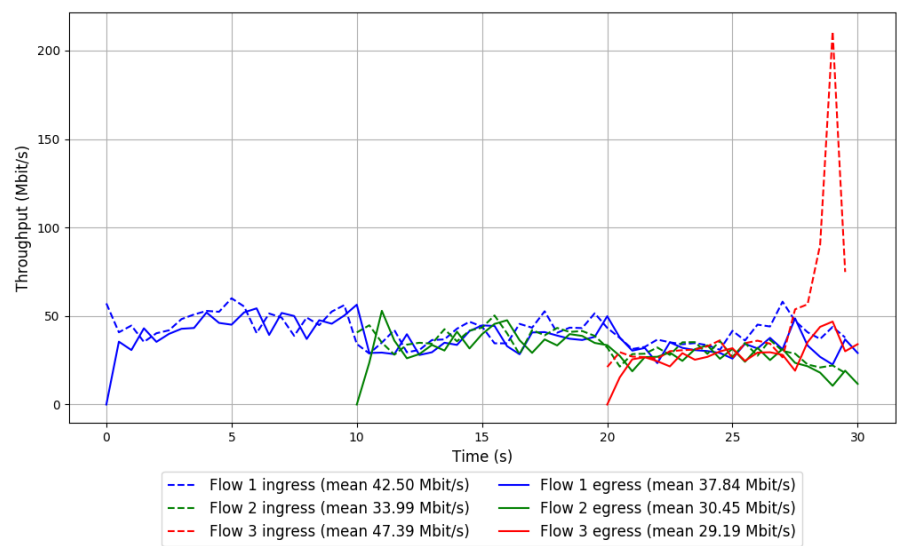Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-12-11 12:50:41
End at: 2018-12-11 12:51:11
Local clock offset: -9.667 ms
Remote clock offset: 40.374 ms


# Below is generated by plot.py at 2018-12-11 14:19:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 67.75 Mbit/s
95th percentile per-packet one-way delay: 73.761 ms
Loss rate: 16.06%
-- Flow 1:
Average throughput: 37.84 Mbit/s
95th percentile per-packet one-way delay: 72.180 ms
Loss rate: 10.89%
-- Flow 2:
Average throughput: 30.45 Mbit/s
95th percentile per-packet one-way delay: 71.838 ms
Loss rate: 10.42%
-- Flow 3:
Average throughput: 29.19 Mbit/s
95th percentile per-packet one-way delay: 86.878 ms
Loss rate: 38.27%
```

Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-12-11 13:13:04
End at: 2018-12-11 13:13:34
Local clock offset: -11.512 ms
Remote clock offset: 27.276 ms


# Below is generated by plot.py at 2018-12-11 14:19:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 72.98 Mbit/s
95th percentile per-packet one-way delay: 51.849 ms
Loss rate: 19.19%
-- Flow 1:
Average throughput: 44.79 Mbit/s
95th percentile per-packet one-way delay: 49.696 ms
Loss rate: 9.55%
-- Flow 2:
Average throughput: 24.09 Mbit/s
95th percentile per-packet one-way delay: 53.240 ms
Loss rate: 27.11%
-- Flow 3:
Average throughput: 38.59 Mbit/s
95th percentile per-packet one-way delay: 54.950 ms
Loss rate: 34.36%
```
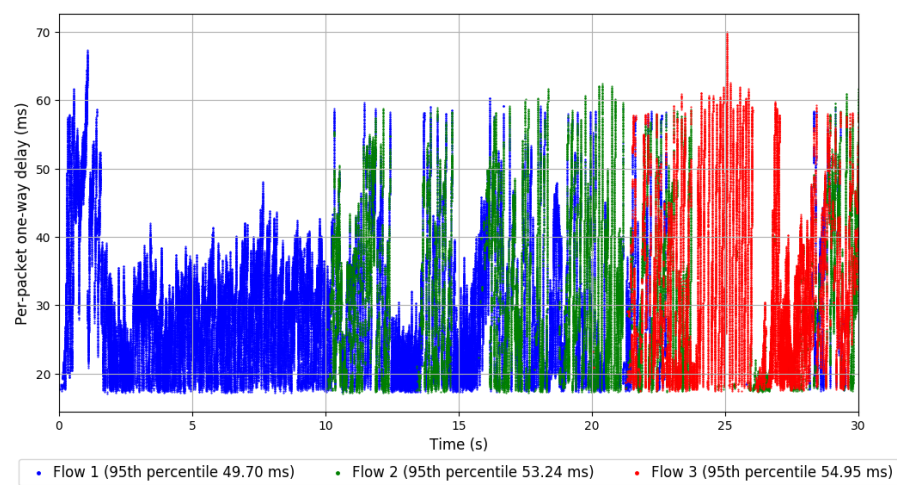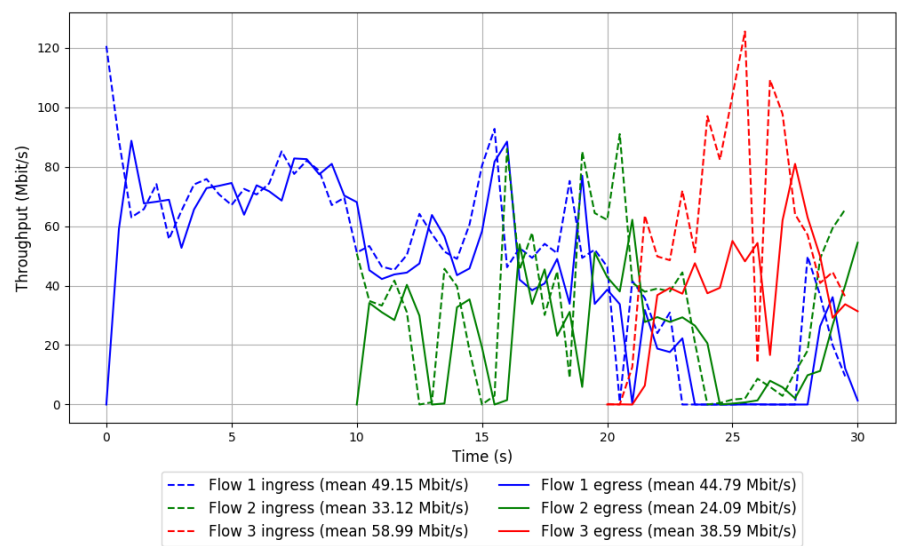
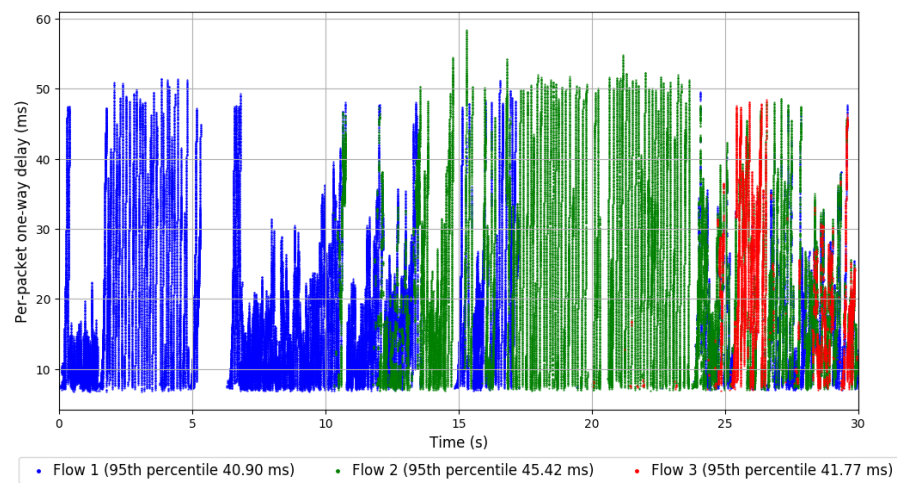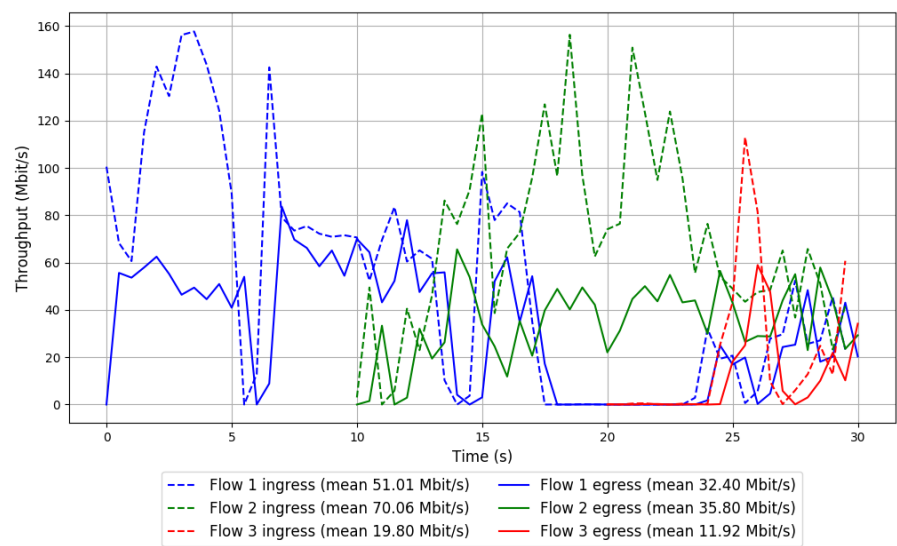Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-12-11 13:35:26
End at: 2018-12-11 13:35:56
Local clock offset: 0.355 ms
Remote clock offset: 14.093 ms


# Below is generated by plot.py at 2018-12-11 14:19:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 59.81 Mbit/s
95th percentile per-packet one-way delay: 43.238 ms
Loss rate: 42.23%
-- Flow 1:
Average throughput: 32.40 Mbit/s
95th percentile per-packet one-way delay: 40.895 ms
Loss rate: 36.48%
-- Flow 2:
Average throughput: 35.80 Mbit/s
95th percentile per-packet one-way delay: 45.417 ms
Loss rate: 48.96%
-- Flow 3:
Average throughput: 11.92 Mbit/s
95th percentile per-packet one-way delay: 41.774 ms
Loss rate: 39.79%
```

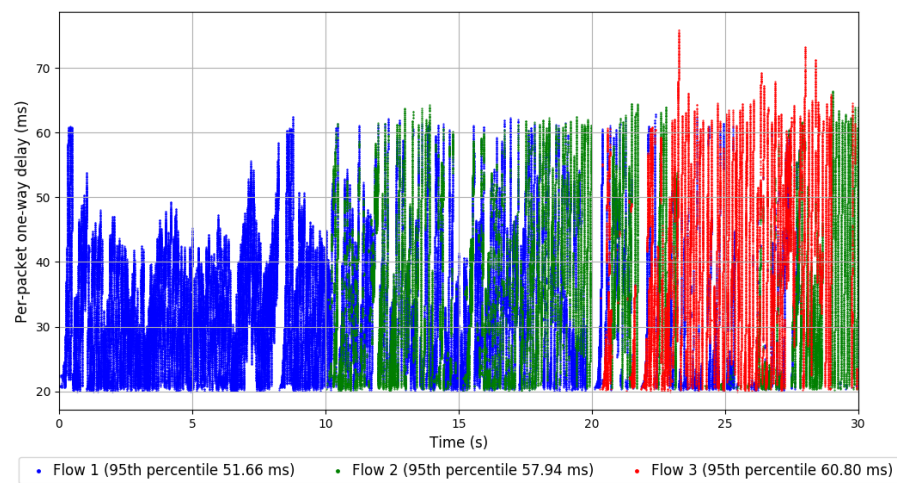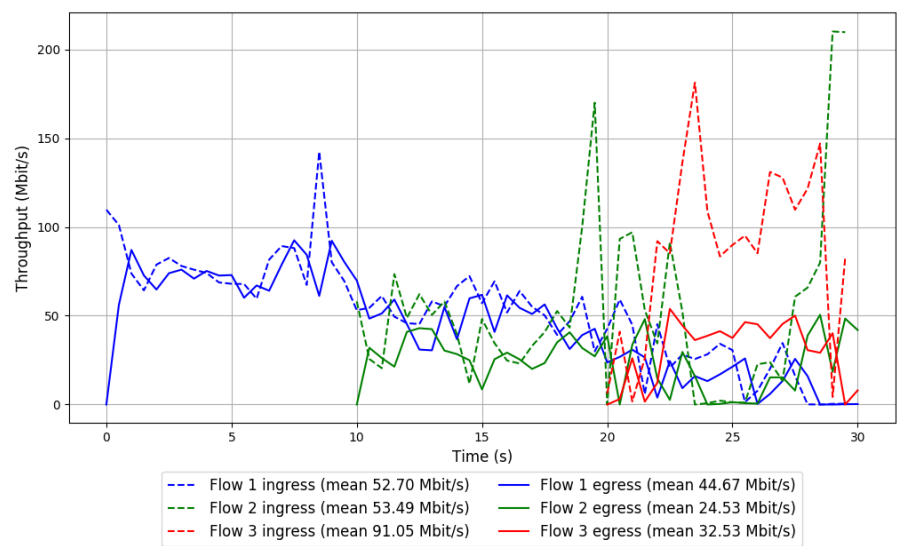Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-12-11 13:57:33
End at: 2018-12-11 13:58:03
Local clock offset: -15.007 ms
Remote clock offset: 2.906 ms


# Below is generated by plot.py at 2018-12-11 14:19:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 71.39 Mbit/s
95th percentile per-packet one-way delay: 56.314 ms
Loss rate: 39.22%
-- Flow 1:
Average throughput: 44.67 Mbit/s
95th percentile per-packet one-way delay: 51.655 ms
Loss rate: 15.25%
-- Flow 2:
Average throughput: 24.53 Mbit/s
95th percentile per-packet one-way delay: 57.937 ms
Loss rate: 54.06%
-- Flow 3:
Average throughput: 32.53 Mbit/s
95th percentile per-packet one-way delay: 60.797 ms
Loss rate: 64.25%
```
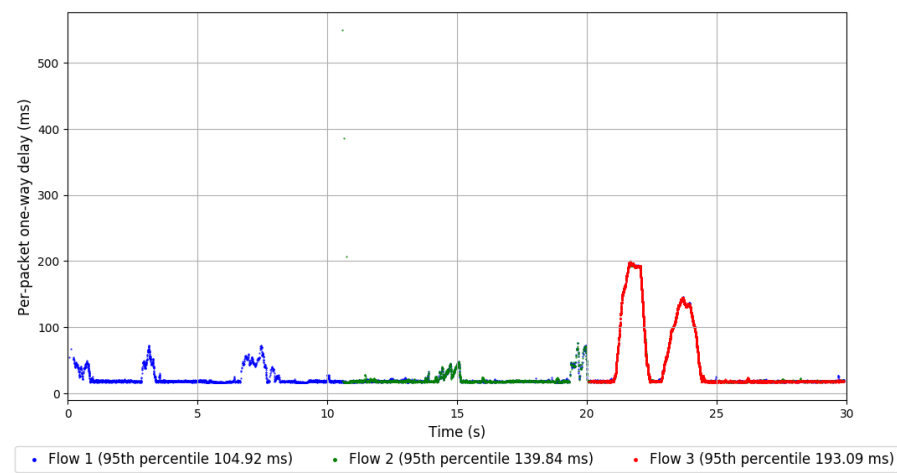
Run 5: Report of Verus — Data Link

Flow 1 ingress (mean 52.70 Mbit/s)   Flow 1 egress (mean 44.67 Mbit/s)
Flow 2 ingress (mean 53.49 Mbit/s)   Flow 2 egress (mean 24.53 Mbit/s)
Flow 3 ingress (mean 91.05 Mbit/s)   Flow 3 egress (mean 32.53 Mbit/s)

Flow 1 (95th percentile 51.66 ms)   Flow 2 (95th percentile 57.94 ms)   Flow 3 (95th percentile 60.80 ms)
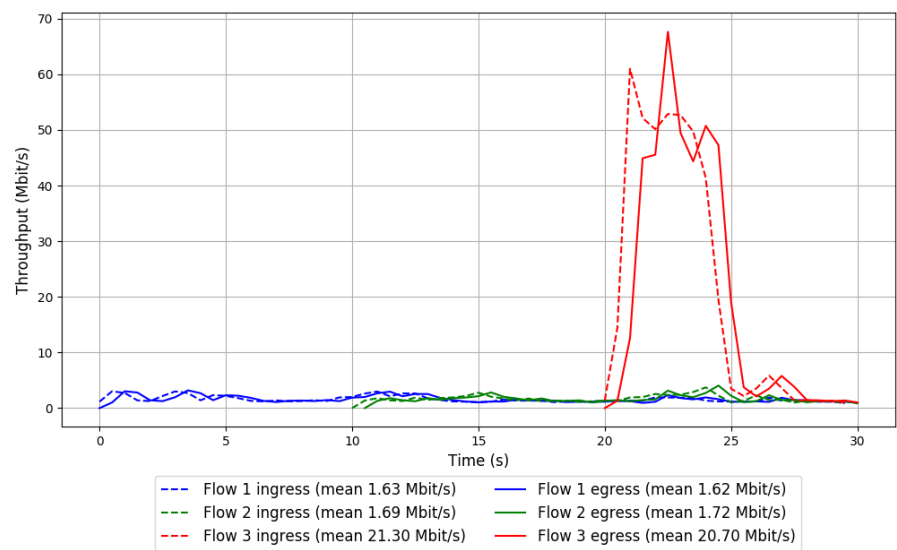
```
Run 1: Statistics of PCC-Vivace

Start at: 2018-12-11 12:37:50
End at: 2018-12-11 12:38:20
Local clock offset: -5.899 ms
Remote clock offset: 46.046 ms


# Below is generated by plot.py at 2018-12-11 14:19:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 9.57 Mbit/s
95th percentile per-packet one-way delay: 192.207 ms
Loss rate: 2.27%
-- Flow 1:
Average throughput: 1.62 Mbit/s
95th percentile per-packet one-way delay: 104.924 ms
Loss rate: 0.54%
-- Flow 2:
Average throughput: 1.72 Mbit/s
95th percentile per-packet one-way delay: 139.837 ms
Loss rate: 1.17%
-- Flow 3:
Average throughput: 20.70 Mbit/s
95th percentile per-packet one-way delay: 193.089 ms
Loss rate: 2.85%
```

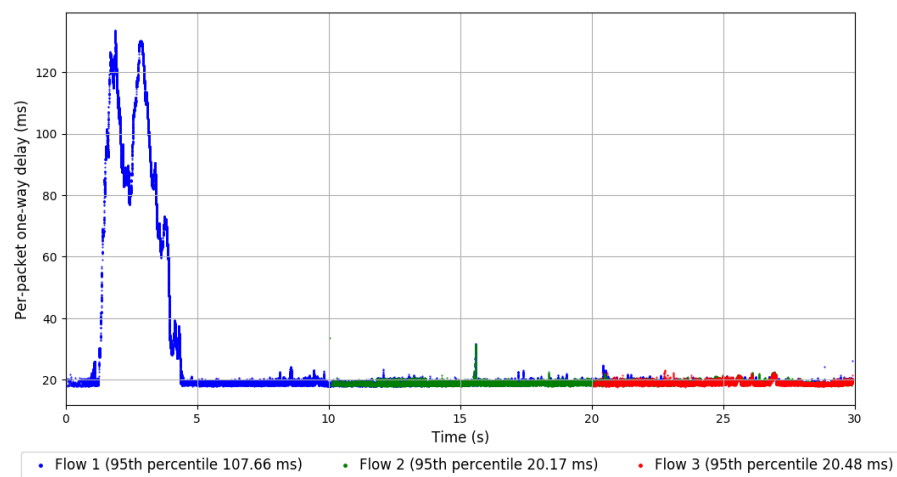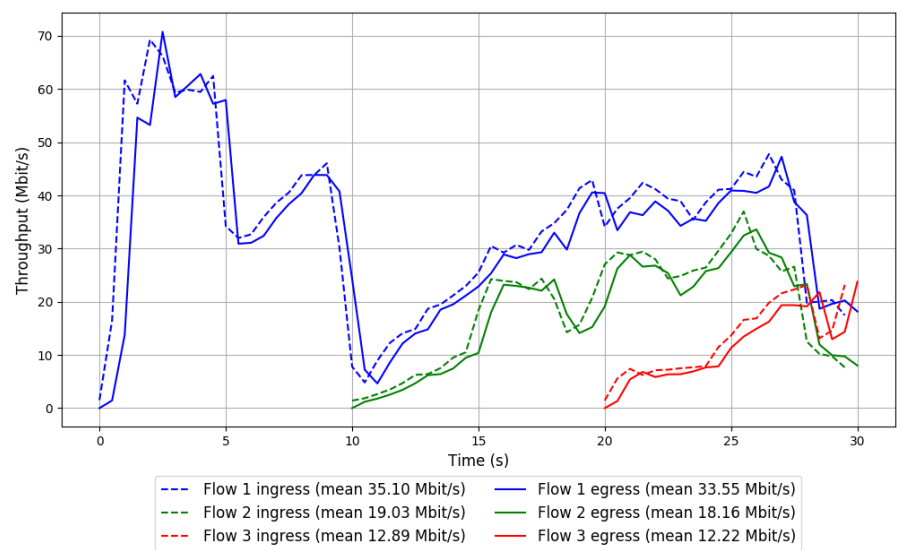Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-12-11 13:01:04
End at: 2018-12-11 13:01:34
Local clock offset: -12.947 ms
Remote clock offset: 34.659 ms


# Below is generated by plot.py at 2018-12-11 14:19:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 49.65 Mbit/s
95th percentile per-packet one-way delay: 92.323 ms
Loss rate: 4.51%
-- Flow 1:
Average throughput: 33.55 Mbit/s
95th percentile per-packet one-way delay: 107.659 ms
Loss rate: 4.37%
-- Flow 2:
Average throughput: 18.16 Mbit/s
95th percentile per-packet one-way delay: 20.172 ms
Loss rate: 4.67%
-- Flow 3:
Average throughput: 12.22 Mbit/s
95th percentile per-packet one-way delay: 20.483 ms
Loss rate: 5.20%
```

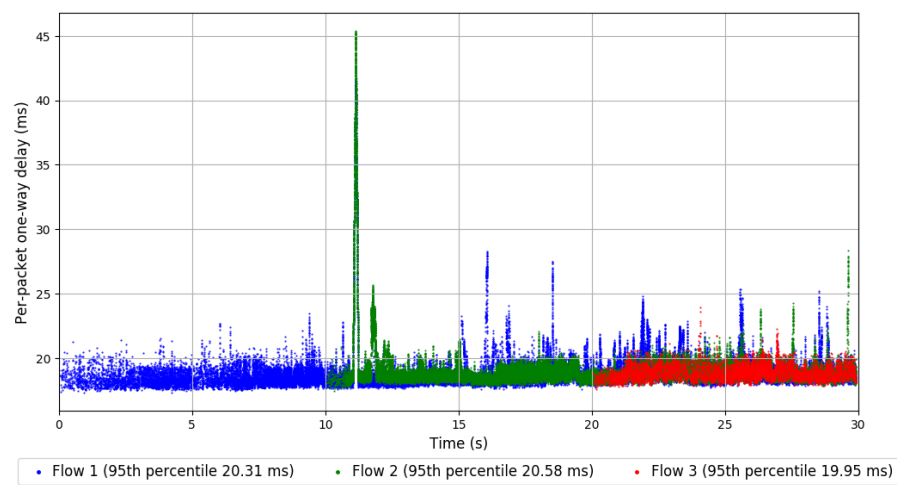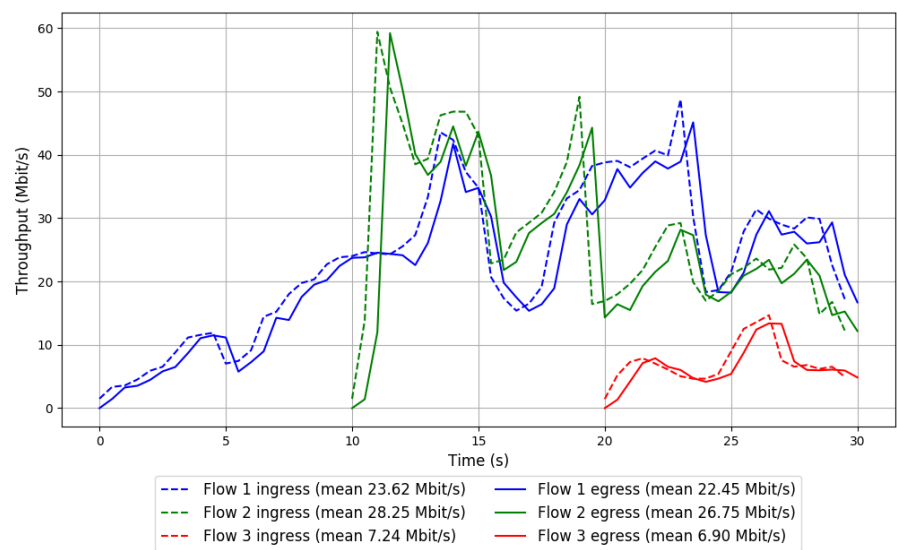Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-12-11 13:23:34
End at: 2018-12-11 13:24:04
Local clock offset: -10.49 ms
Remote clock offset: 20.931 ms


# Below is generated by plot.py at 2018-12-11 14:19:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 42.52 Mbit/s
95th percentile per-packet one-way delay: 20.327 ms
Loss rate: 5.09%
-- Flow 1:
Average throughput: 22.45 Mbit/s
95th percentile per-packet one-way delay: 20.314 ms
Loss rate: 4.93%
-- Flow 2:
Average throughput: 26.75 Mbit/s
95th percentile per-packet one-way delay: 20.581 ms
Loss rate: 5.33%
-- Flow 3:
Average throughput: 6.90 Mbit/s
95th percentile per-packet one-way delay: 19.955 ms
Loss rate: 4.80%
```

Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-12-11 13:45:44
End at: 2018-12-11 13:46:14
Local clock offset: -2.69 ms
Remote clock offset: 8.462 ms


# Below is generated by plot.py at 2018-12-11 14:19:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 45.02 Mbit/s
95th percentile per-packet one-way delay: 10.453 ms
Loss rate: 2.16%
-- Flow 1:
Average throughput: 26.70 Mbit/s
95th percentile per-packet one-way delay: 10.449 ms
Loss rate: 1.97%
-- Flow 2:
Average throughput: 20.57 Mbit/s
95th percentile per-packet one-way delay: 10.353 ms
Loss rate: 2.37%
-- Flow 3:
Average throughput: 14.07 Mbit/s
95th percentile per-packet one-way delay: 10.754 ms
Loss rate: 2.62%
```
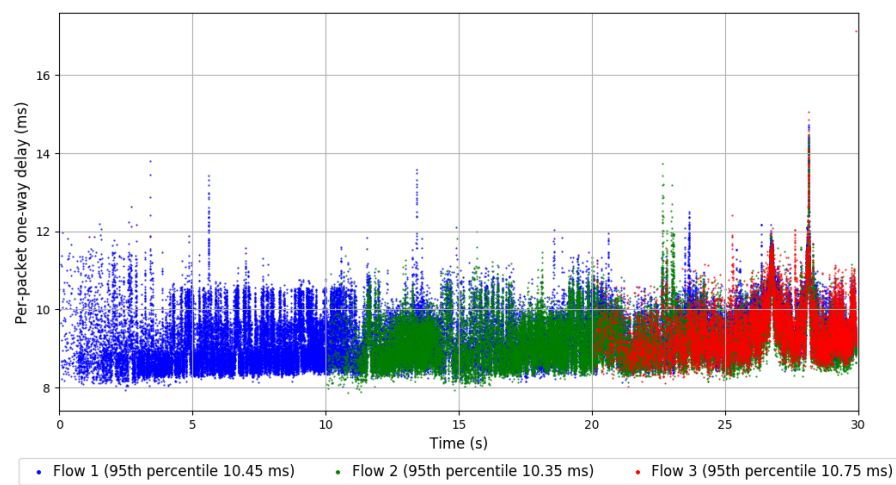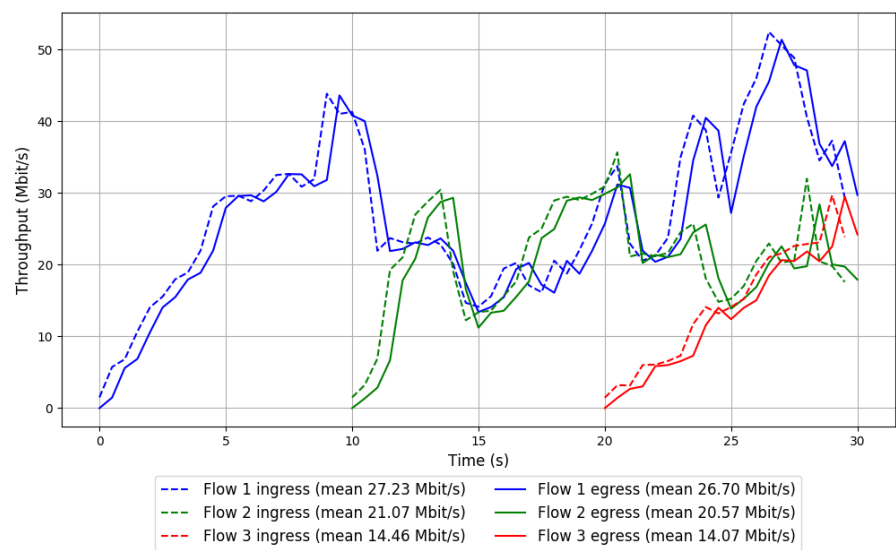
Run 4: Report of PCC-Vivace — Data Link

- - - - Flow 1 ingress (mean 27.23 Mbit/s) — Flow 1 egress (mean 26.70 Mbit/s)
- - - - Flow 2 ingress (mean 21.07 Mbit/s) — Flow 2 egress (mean 20.57 Mbit/s)
- - - - Flow 3 ingress (mean 14.46 Mbit/s) — Flow 3 egress (mean 14.07 Mbit/s)

- Flow 1 (95th percentile 10.45 ms)   - Flow 2 (95th percentile 10.35 ms)   - Flow 3 (95th percentile 10.75 ms)
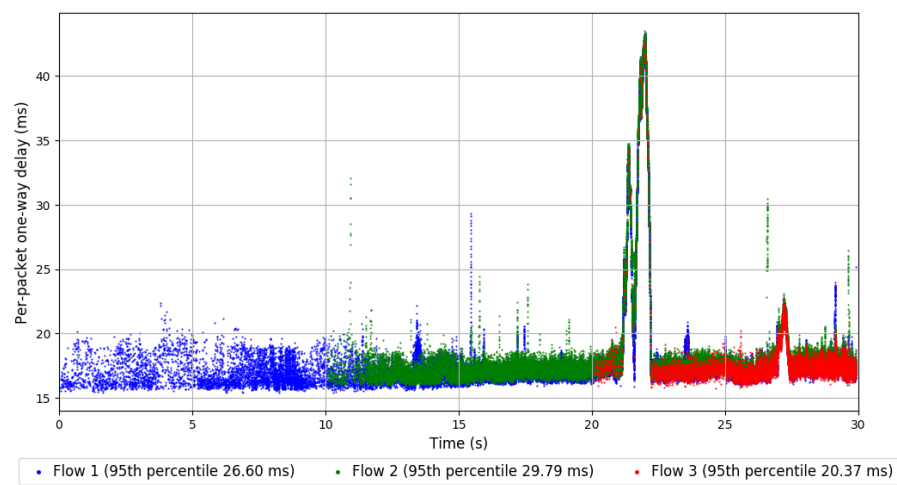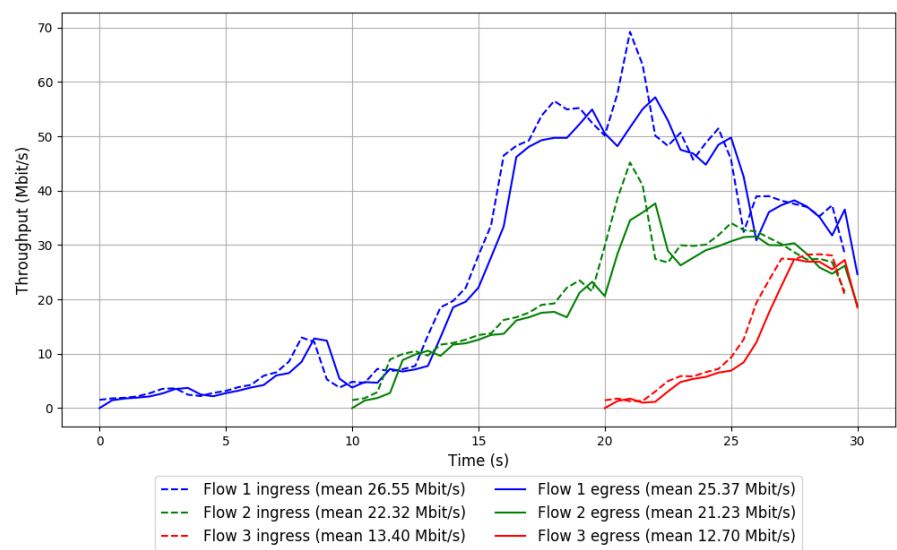
```
Run 5: Statistics of PCC-Vivace

Start at: 2018-12-11 14:08:04
End at: 2018-12-11 14:08:34
Local clock offset: -11.462 ms
Remote clock offset: -2.062 ms


# Below is generated by plot.py at 2018-12-11 14:19:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 43.68 Mbit/s
95th percentile per-packet one-way delay: 26.399 ms
Loss rate: 4.63%
-- Flow 1:
Average throughput: 25.37 Mbit/s
95th percentile per-packet one-way delay: 26.601 ms
Loss rate: 4.41%
-- Flow 2:
Average throughput: 21.23 Mbit/s
95th percentile per-packet one-way delay: 29.789 ms
Loss rate: 4.87%
-- Flow 3:
Average throughput: 12.70 Mbit/s
95th percentile per-packet one-way delay: 20.370 ms
Loss rate: 5.21%
```

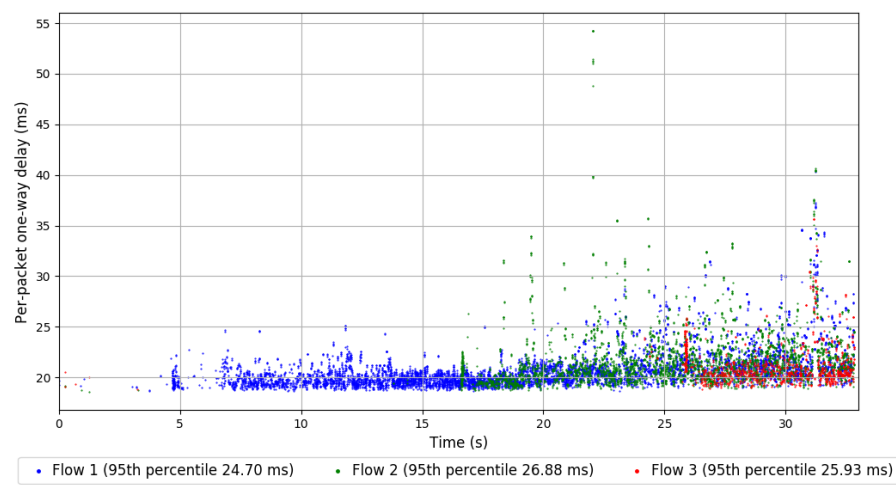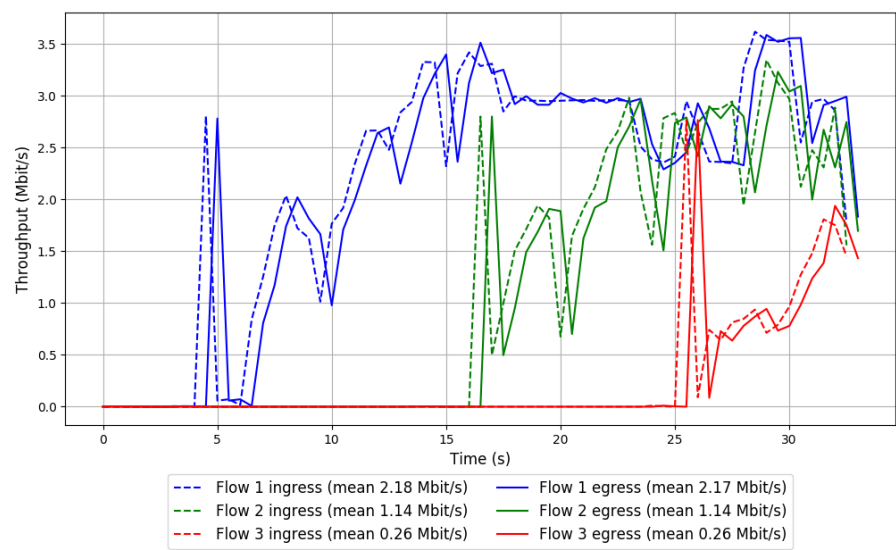Run 5: Report of PCC-Vivace — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2018-12-11 12:36:38
End at: 2018-12-11 12:37:08
Local clock offset: -7.46 ms
Remote clock offset: 47.106 ms


# Below is generated by plot.py at 2018-12-11 14:19:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.57 Mbit/s
95th percentile per-packet one-way delay: 25.526 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 2.17 Mbit/s
95th percentile per-packet one-way delay: 24.705 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 1.14 Mbit/s
95th percentile per-packet one-way delay: 26.880 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 25.933 ms
Loss rate: 0.10%
```

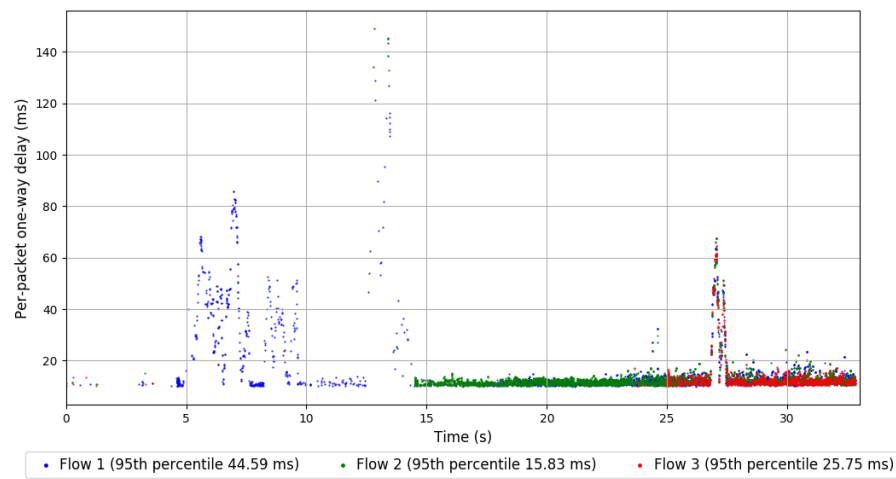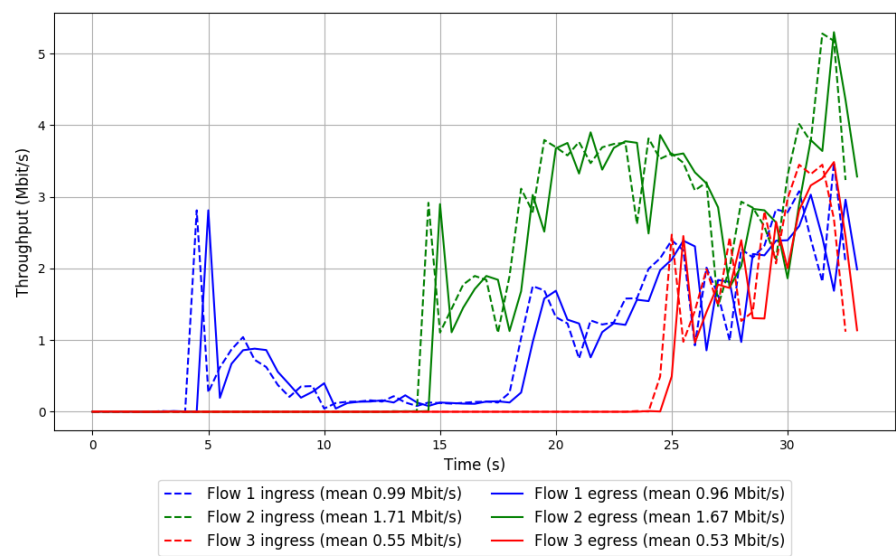Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-12-11 12:59:57
End at: 2018-12-11 13:00:27
Local clock offset: -3.936 ms
Remote clock offset: 36.475 ms


# Below is generated by plot.py at 2018-12-11 14:19:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.14 Mbit/s
95th percentile per-packet one-way delay: 27.514 ms
Loss rate: 2.80%
-- Flow 1:
Average throughput: 0.96 Mbit/s
95th percentile per-packet one-way delay: 44.594 ms
Loss rate: 3.22%
-- Flow 2:
Average throughput: 1.67 Mbit/s
95th percentile per-packet one-way delay: 15.828 ms
Loss rate: 2.55%
-- Flow 3:
Average throughput: 0.53 Mbit/s
95th percentile per-packet one-way delay: 25.755 ms
Loss rate: 2.85%
```

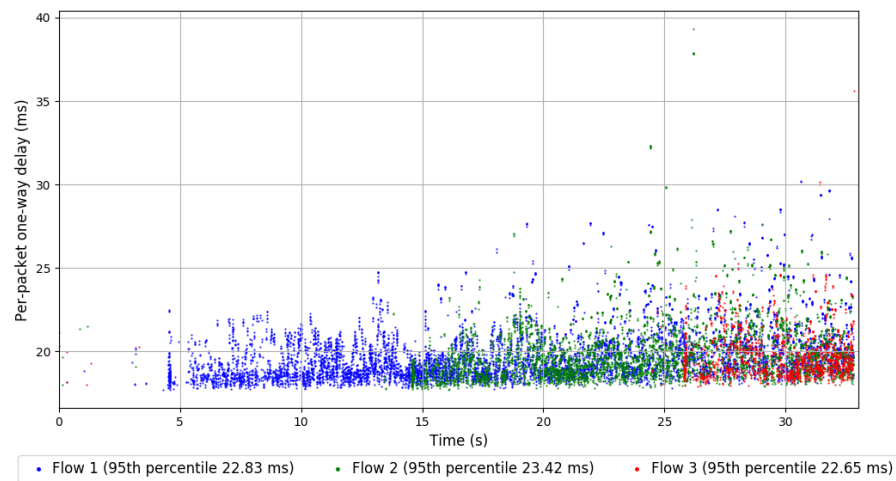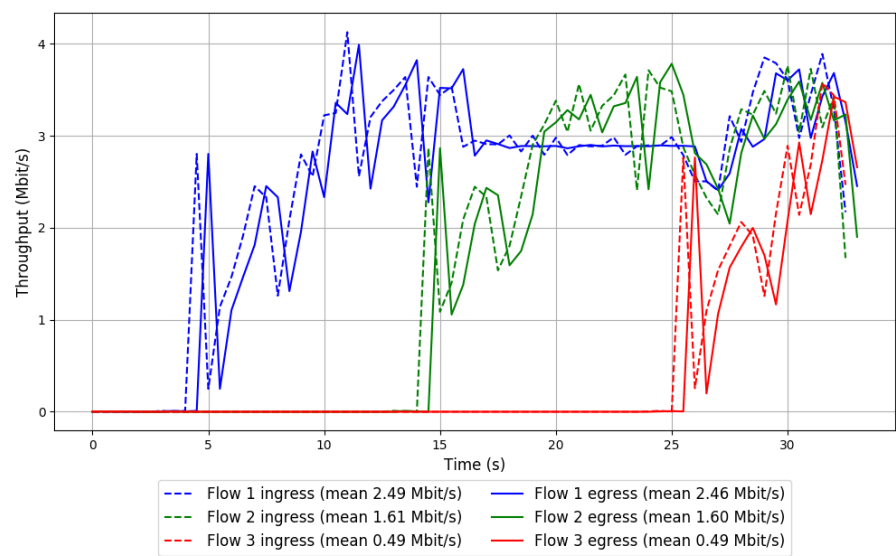Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-12-11 13:22:27
End at: 2018-12-11 13:22:57
Local clock offset: -11.028 ms
Remote clock offset: 21.192 ms


# Below is generated by plot.py at 2018-12-11 14:19:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.53 Mbit/s
95th percentile per-packet one-way delay: 23.051 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 2.46 Mbit/s
95th percentile per-packet one-way delay: 22.830 ms
Loss rate: 0.98%
-- Flow 2:
Average throughput: 1.60 Mbit/s
95th percentile per-packet one-way delay: 23.417 ms
Loss rate: 0.81%
-- Flow 3:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 22.646 ms
Loss rate: 1.44%
```

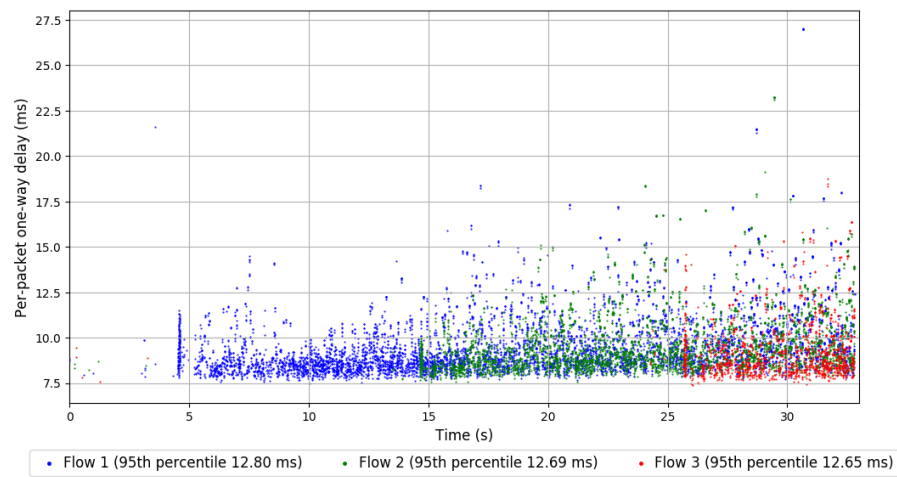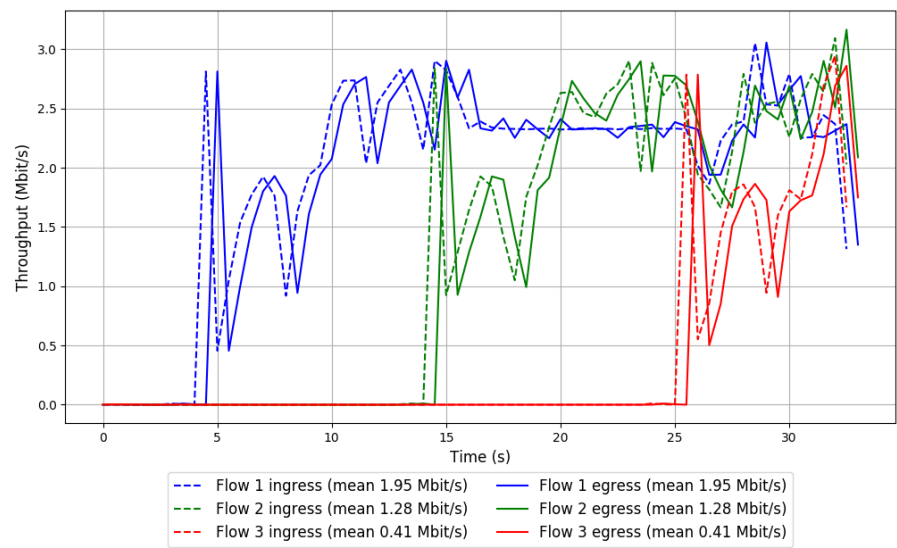Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-12-11 13:44:38
End at: 2018-12-11 13:45:08
Local clock offset: -0.863 ms
Remote clock offset: 10.024 ms


# Below is generated by plot.py at 2018-12-11 14:19:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.62 Mbit/s
95th percentile per-packet one-way delay: 12.752 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 1.95 Mbit/s
95th percentile per-packet one-way delay: 12.804 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 1.28 Mbit/s
95th percentile per-packet one-way delay: 12.686 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 12.649 ms
Loss rate: 0.20%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-12-11 14:06:57
End at: 2018-12-11 14:07:27
Local clock offset: -3.785 ms
Remote clock offset: -1.622 ms


# Below is generated by plot.py at 2018-12-11 14:19:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.58 Mbit/s
95th percentile per-packet one-way delay: 13.735 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 1.95 Mbit/s
95th percentile per-packet one-way delay: 13.477 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.26 Mbit/s
95th percentile per-packet one-way delay: 13.899 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 13.508 ms
Loss rate: 0.23%
```

Run 5: Report of WebRTC media — Data Link