Pantheon Report

Generated at 2019-02-20 02:33:05 (UTC).

Data path: AWS Brazil 1 on ens5 (*local*) →Brazil on p4p1 (*remote*).

Repeated the test of 21 congestion control schemes 5 times.

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

NTP offsets were measured against gps.ntp.br and have been applied to correct the timestamps in logs.
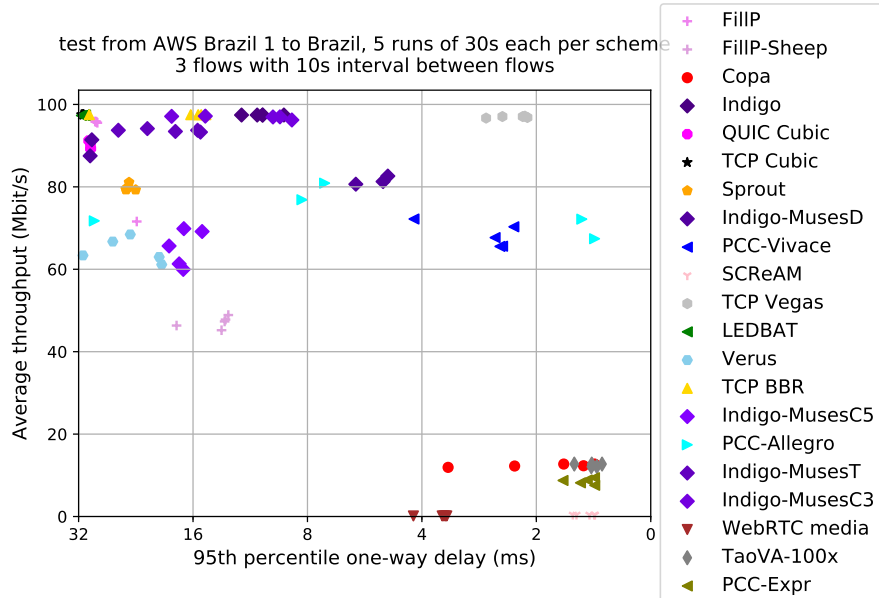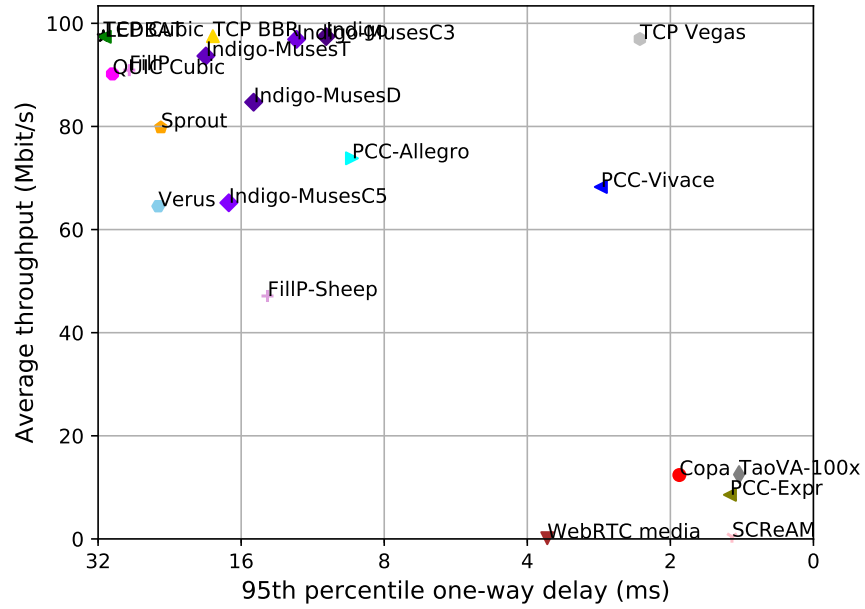
```
System info:
Linux 4.15.0-1031-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ 7a686f7c2ed0a333082c0bab1fa5c921ab47e6ee
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 5ce721187ad823da20955337730c746486ca4966
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
 M src/ScreamClient
 M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
```

```
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from AWS Brazil 1 to Brazil, 5 runs of 30s each per scheme
3 flows with 10s interval between flows (mean of all runs by scheme)

LEDBAT · TCP Cubic · TCP BBR · Indigo · Indigo-MusesC3 · TCP Vegas
Indigo-MusesT
QUIC Cubic · FillP
Indigo-MusesD
Sprout
PCC-Allegro
Verus · Indigo-MusesC5 · PCC-Vivace
FillP-Sheep
Copa · TaoVA-100x
PCC-Expr
WebRTC media · SCReAM

Average throughput (Mbit/s)
95th percentile one-way delay (ms)

test from AWS Brazil 1 to Brazil, 5 runs of 30s each per scheme
3 flows with 10s interval between flows

Average throughput (Mbit/s)
95th percentile one-way delay (ms)

FillP
FillP-Sheep
Copa
Indigo
QUIC Cubic
TCP Cubic
Sprout
Indigo-MusesD
PCC-Vivace
SCReAM
TCP Vegas
LEDBAT
Verus
TCP BBR
Indigo-MusesC5
PCC-Allegro
Indigo-MusesT
Indigo-MusesC3
WebRTC media
TaoVA-100x
PCC-Expr

3

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	72.70	27.81	18.87	18.33	17.84	20.35	0.00	0.00	0.00
Copa	5	8.87	6.56	3.02	1.74	1.80	3.23	68.88	71.91	69.26
TCP Cubic	5	64.93	33.92	30.10	31.14	31.24	31.35	0.03	0.04	0.05
FillP	5	48.75	49.47	27.85	26.64	28.06	27.93	10.49	15.78	29.89
FillP-Sheep	5	36.59	10.51	10.69	11.61	20.92	19.35	0.99	2.40	3.67
Indigo	5	44.04	45.41	71.37	9.98	10.57	10.63	0.00	0.00	0.00
Indigo-MusesC3	5	65.46	29.70	39.95	11.72	12.16	9.50	0.00	0.00	0.00
Indigo-MusesC5	5	33.75	31.32	36.21	16.62	16.81	17.99	0.01	0.00	0.00
Indigo-MusesD	5	50.16	33.94	40.78	11.77	15.81	15.29	0.03	0.15	0.94
Indigo-MusesT	5	56.97	44.58	25.40	17.34	19.58	21.67	0.02	0.03	0.13
LEDBAT	5	61.60	38.00	31.66	30.88	31.03	31.07	0.03	0.07	0.10
PCC-Allegro	5	54.34	23.73	11.20	9.67	9.96	10.95	0.03	0.02	0.09
PCC-Expr	5	0.98	9.34	7.37	1.11	1.16	1.19	85.71	32.66	38.89
QUIC Cubic	5	57.16	36.05	27.56	29.79	29.88	30.18	0.18	0.20	0.27
SCReAM	5	0.22	0.22	0.22	1.14	1.13	1.13	0.00	0.00	0.00
Sprout	5	42.72	39.91	31.88	22.28	23.44	25.37	0.00	0.00	0.00
TaoVA-100x	5	5.74	8.25	3.96	1.04	1.05	1.01	69.33	86.96	89.10
TCP Vegas	5	57.00	40.03	39.97	2.25	2.32	2.68	0.00	0.00	0.00
Verus	5	35.37	29.88	27.98	17.83	27.05	31.34	4.43	6.64	10.34
PCC-Vivace	5	39.12	30.95	25.94	2.47	3.62	3.11	0.00	0.00	0.00
WebRTC media	5	0.05	0.05	0.05	3.34	3.69	3.62	0.00	0.01	0.00

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```
Run 1: Statistics of TCP BBR

Start at: 2019-02-20 00:42:44
End at: 2019-02-20 00:43:14
Local clock offset: -9.302 ms
Remote clock offset: 1.389 ms


# Below is generated by plot.py at 2019-02-20 02:22:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.51 Mbit/s
95th percentile per-packet one-way delay: 16.224 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 70.51 Mbit/s
95th percentile per-packet one-way delay: 16.309 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 35.14 Mbit/s
95th percentile per-packet one-way delay: 15.487 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 10.78 Mbit/s
95th percentile per-packet one-way delay: 16.658 ms
Loss rate: 0.00%
```
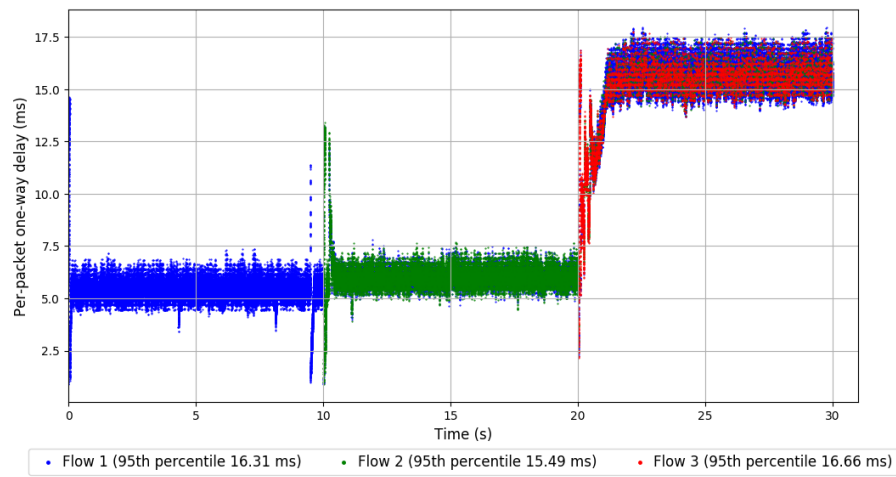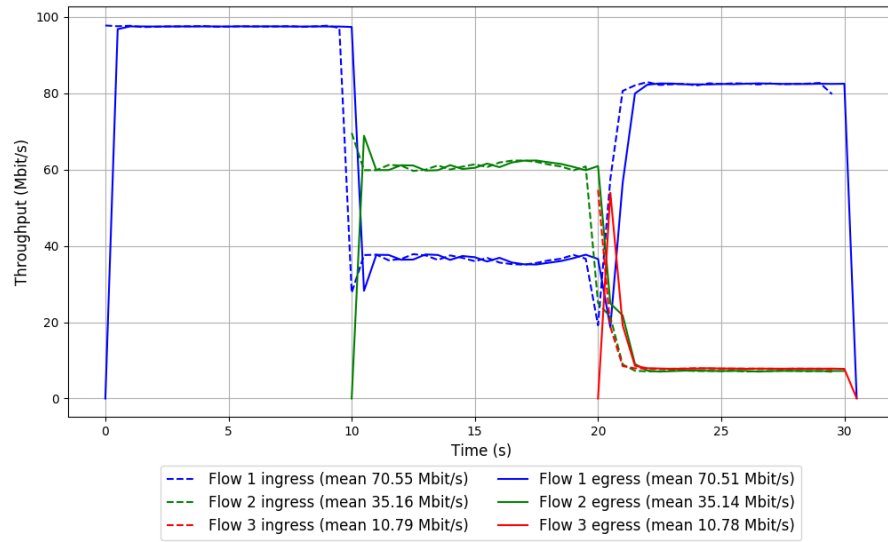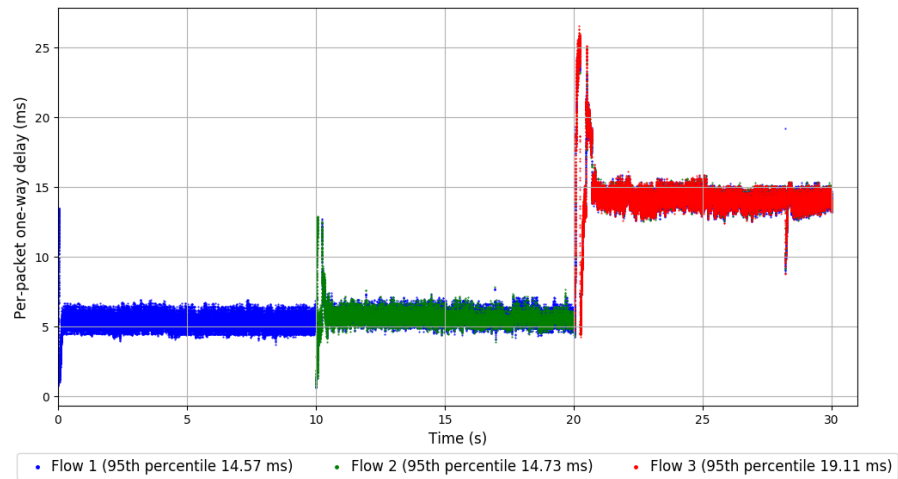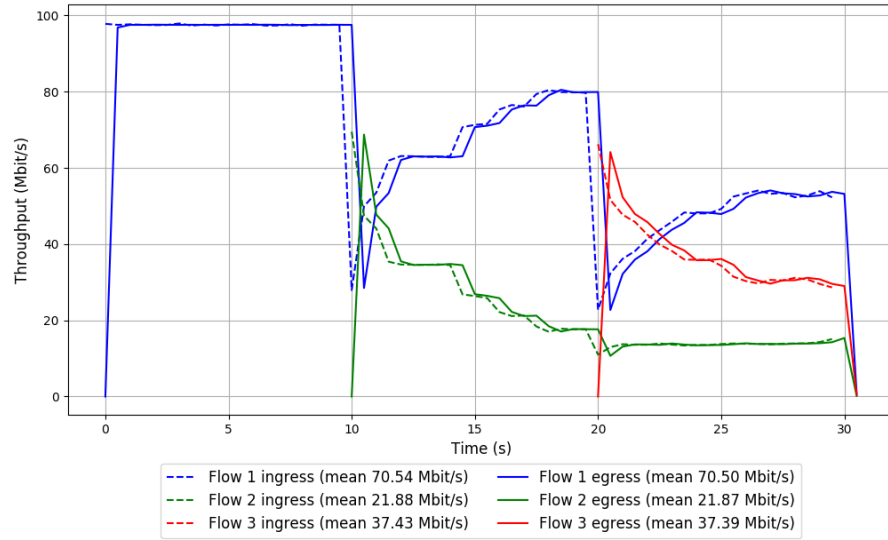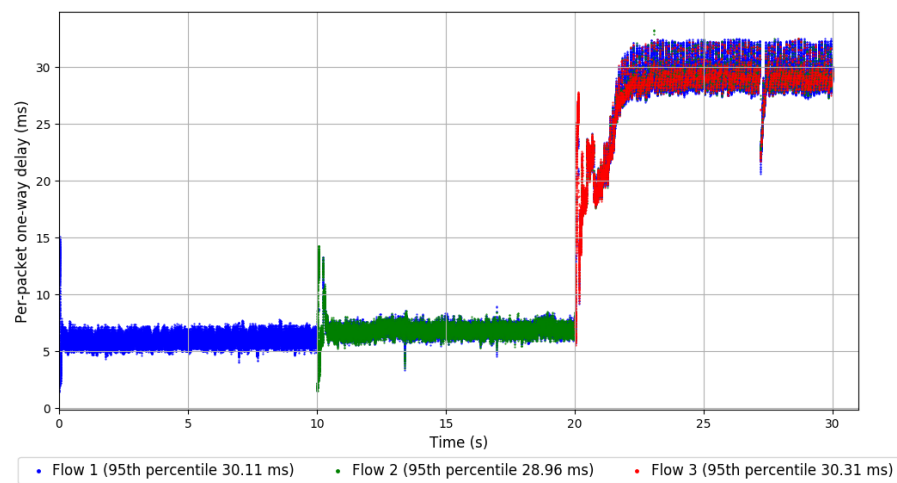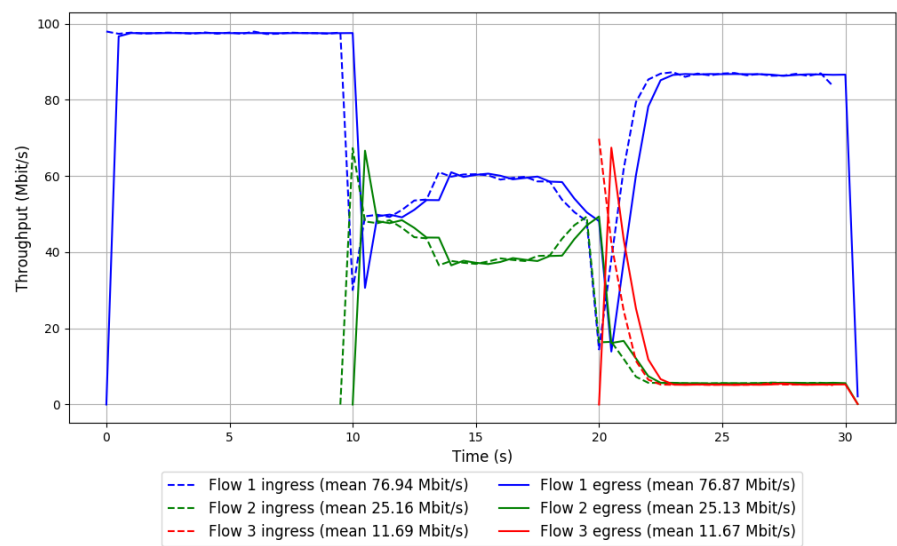
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2019-02-20 01:06:31
End at: 2019-02-20 01:07:01
Local clock offset: -10.694 ms
Remote clock offset: 2.234 ms


# Below is generated by plot.py at 2019-02-20 02:22:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.51 Mbit/s
95th percentile per-packet one-way delay: 14.798 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 70.50 Mbit/s
95th percentile per-packet one-way delay: 14.567 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 21.87 Mbit/s
95th percentile per-packet one-way delay: 14.733 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 37.39 Mbit/s
95th percentile per-packet one-way delay: 19.106 ms
Loss rate: 0.00%
```
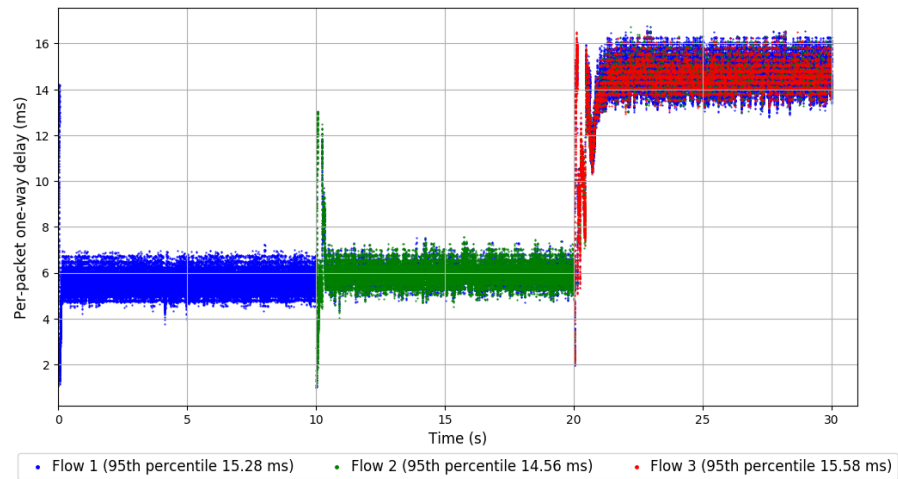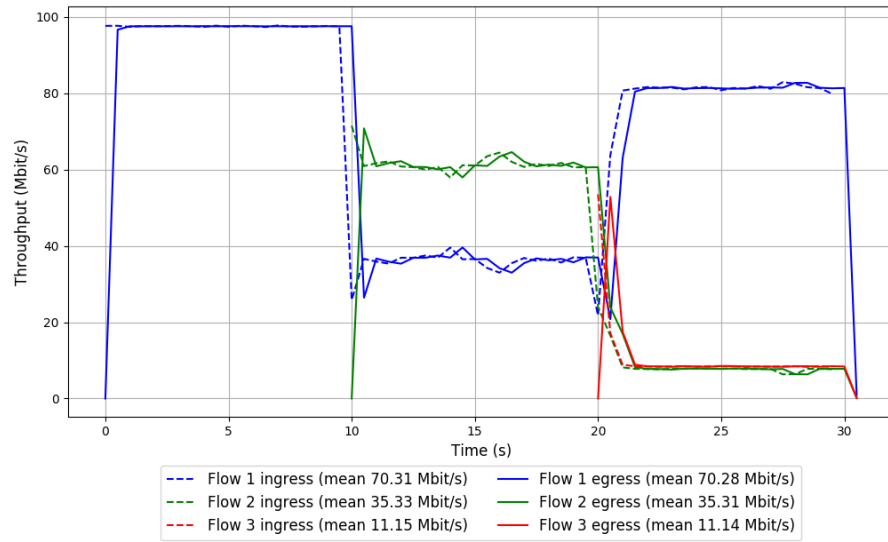
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2019-02-20 01:30:26
End at: 2019-02-20 01:30:56
Local clock offset: -13.77 ms
Remote clock offset: 2.674 ms


# Below is generated by plot.py at 2019-02-20 02:22:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.51 Mbit/s
95th percentile per-packet one-way delay: 29.990 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 76.87 Mbit/s
95th percentile per-packet one-way delay: 30.114 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 25.13 Mbit/s
95th percentile per-packet one-way delay: 28.965 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 11.67 Mbit/s
95th percentile per-packet one-way delay: 30.310 ms
Loss rate: 0.00%
```
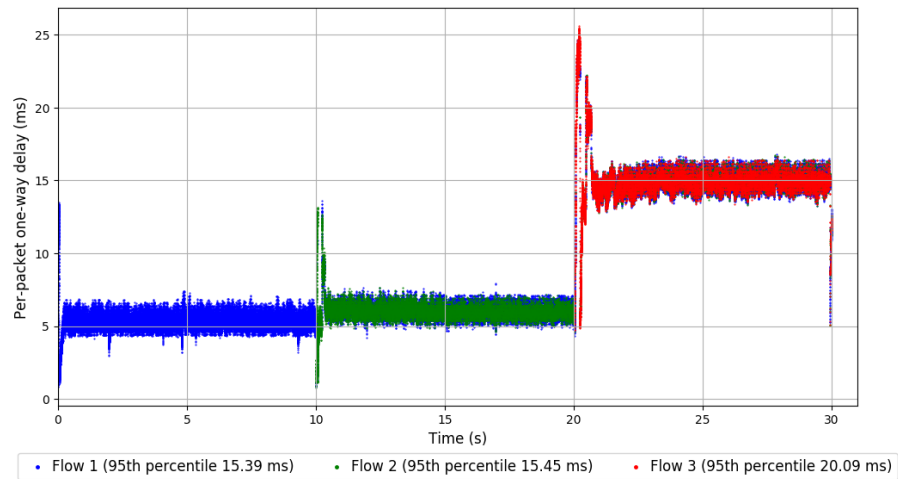
Run 3: Report of TCP BBR — Data Link

```
Run 4: Statistics of TCP BBR

Start at: 2019-02-20 01:54:18
End at: 2019-02-20 01:54:48
Local clock offset: -4.826 ms
Remote clock offset: 2.837 ms


# Below is generated by plot.py at 2019-02-20 02:22:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.51 Mbit/s
95th percentile per-packet one-way delay: 15.228 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 70.28 Mbit/s
95th percentile per-packet one-way delay: 15.284 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 35.31 Mbit/s
95th percentile per-packet one-way delay: 14.562 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 11.14 Mbit/s
95th percentile per-packet one-way delay: 15.581 ms
Loss rate: 0.00%
```
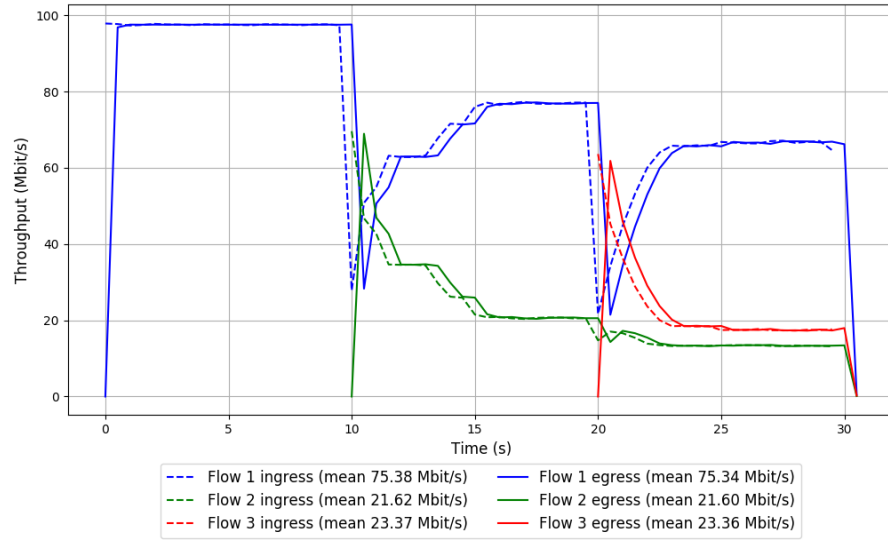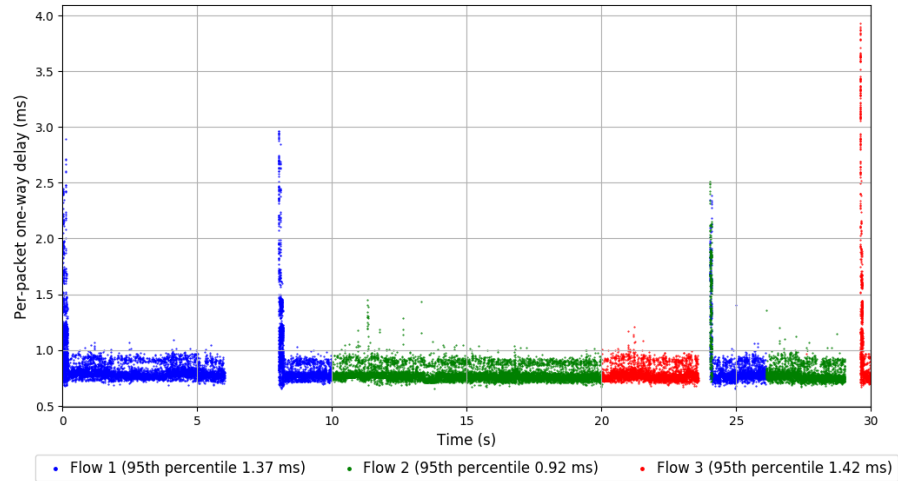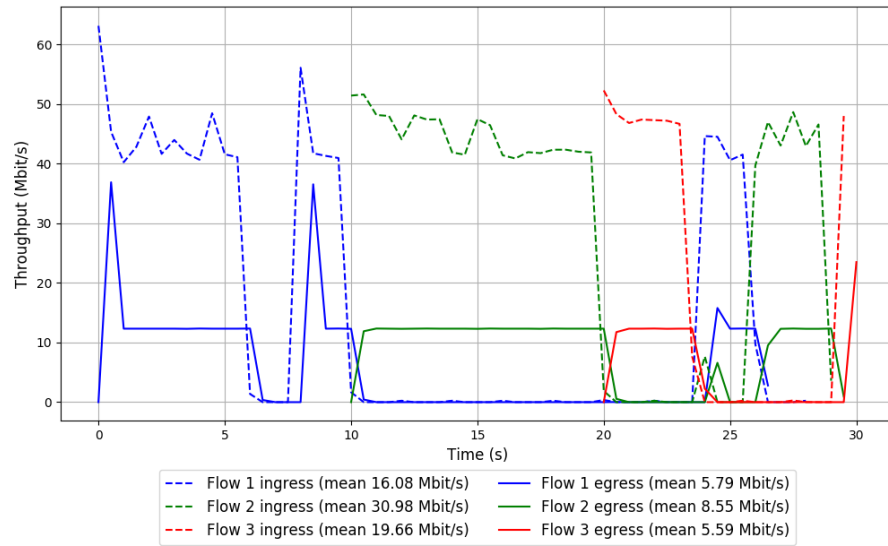
Run 4: Report of TCP BBR — Data Link

```
Run 5: Statistics of TCP BBR

Start at: 2019-02-20 02:18:07
End at: 2019-02-20 02:18:37
Local clock offset: -5.323 ms
Remote clock offset: 2.468 ms


# Below is generated by plot.py at 2019-02-20 02:22:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.51 Mbit/s
95th percentile per-packet one-way delay: 15.508 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 75.34 Mbit/s
95th percentile per-packet one-way delay: 15.392 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 21.60 Mbit/s
95th percentile per-packet one-way delay: 15.448 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 23.36 Mbit/s
95th percentile per-packet one-way delay: 20.087 ms
Loss rate: 0.00%
```

Run 5: Report of TCP BBR — Data Link

```
Run 1: Statistics of Copa

Start at: 2019-02-20 00:24:33
End at: 2019-02-20 00:25:03
Local clock offset: -13.861 ms
Remote clock offset: 0.667 ms


# Below is generated by plot.py at 2019-02-20 02:22:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.32 Mbit/s
95th percentile per-packet one-way delay: 1.175 ms
Loss rate: 70.15%
-- Flow 1:
Average throughput: 5.79 Mbit/s
95th percentile per-packet one-way delay: 1.368 ms
Loss rate: 66.57%
-- Flow 2:
Average throughput: 8.55 Mbit/s
95th percentile per-packet one-way delay: 0.920 ms
Loss rate: 72.42%
-- Flow 3:
Average throughput: 5.59 Mbit/s
95th percentile per-packet one-way delay: 1.424 ms
Loss rate: 71.57%
```
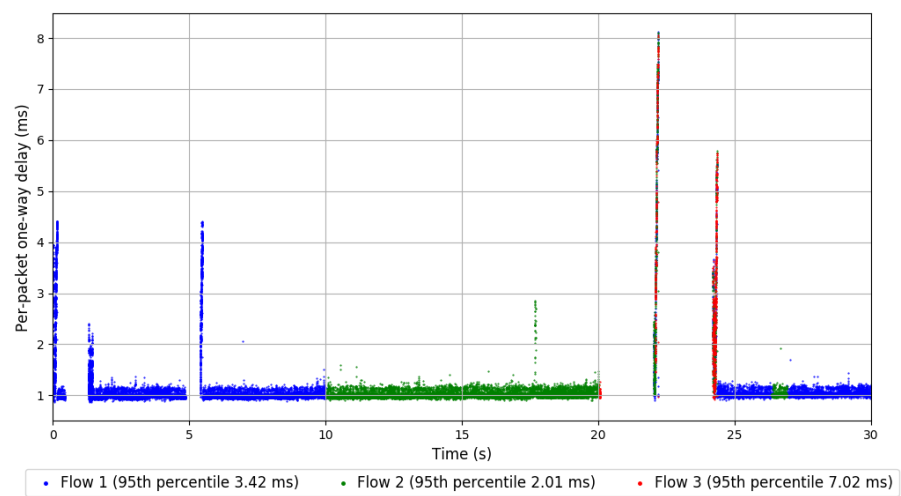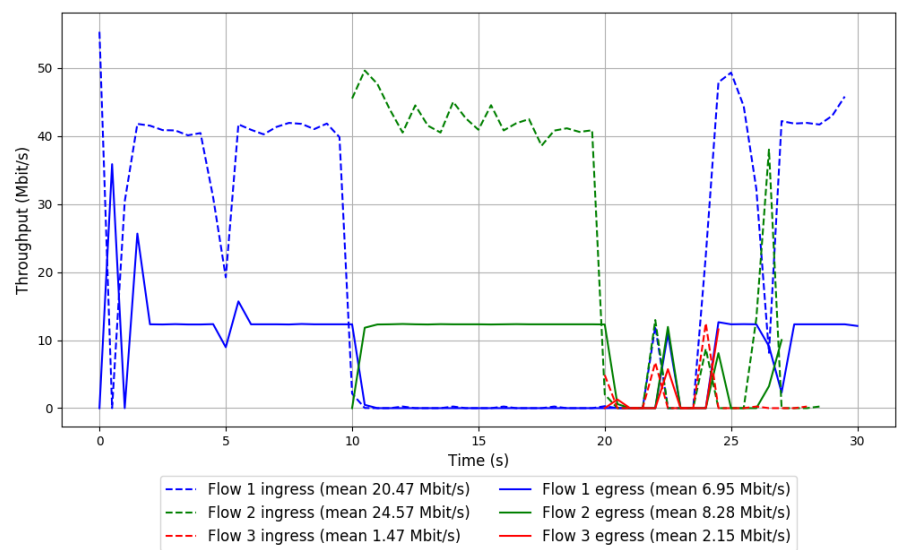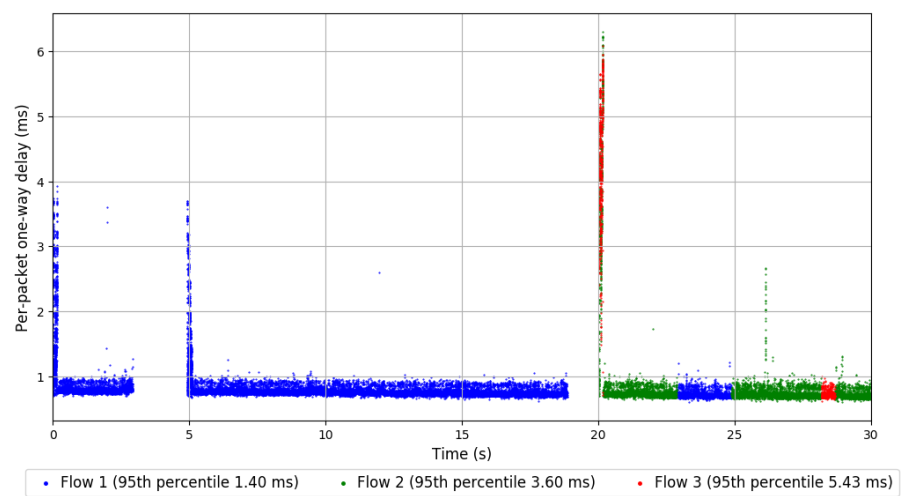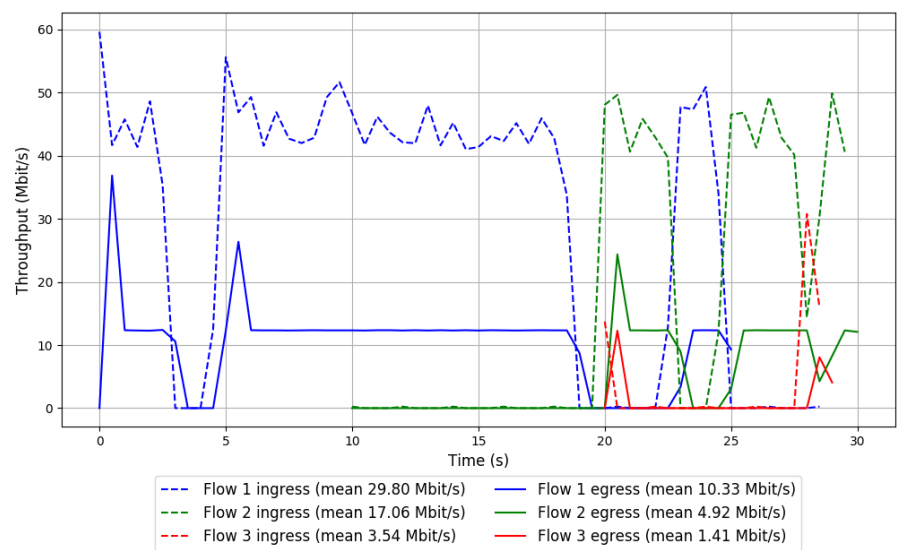
Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2019-02-20 00:48:22
End at: 2019-02-20 00:48:52
Local clock offset: -8.359 ms
Remote clock offset: 1.729 ms


# Below is generated by plot.py at 2019-02-20 02:22:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 11.93 Mbit/s
95th percentile per-packet one-way delay: 3.413 ms
Loss rate: 67.20%
-- Flow 1:
Average throughput: 6.95 Mbit/s
95th percentile per-packet one-way delay: 3.424 ms
Loss rate: 66.04%
-- Flow 2:
Average throughput: 8.28 Mbit/s
95th percentile per-packet one-way delay: 2.010 ms
Loss rate: 69.88%
-- Flow 3:
Average throughput: 2.15 Mbit/s
95th percentile per-packet one-way delay: 7.018 ms
Loss rate: 24.16%
```
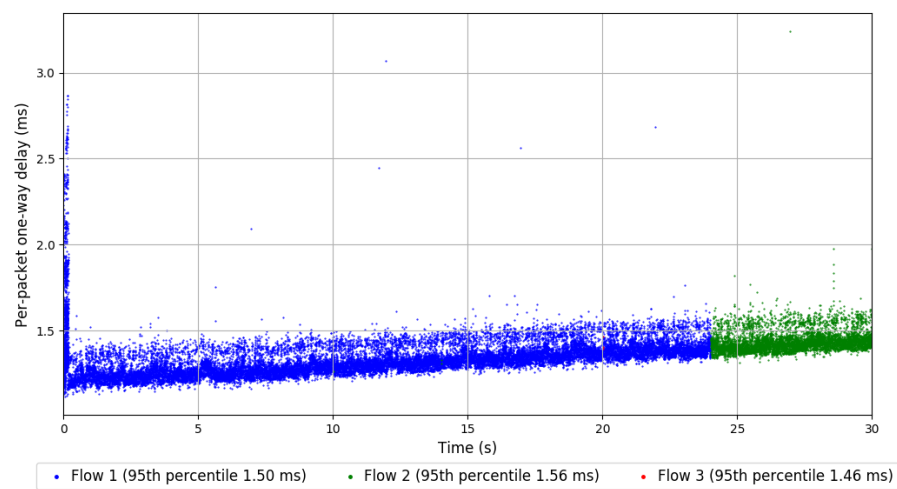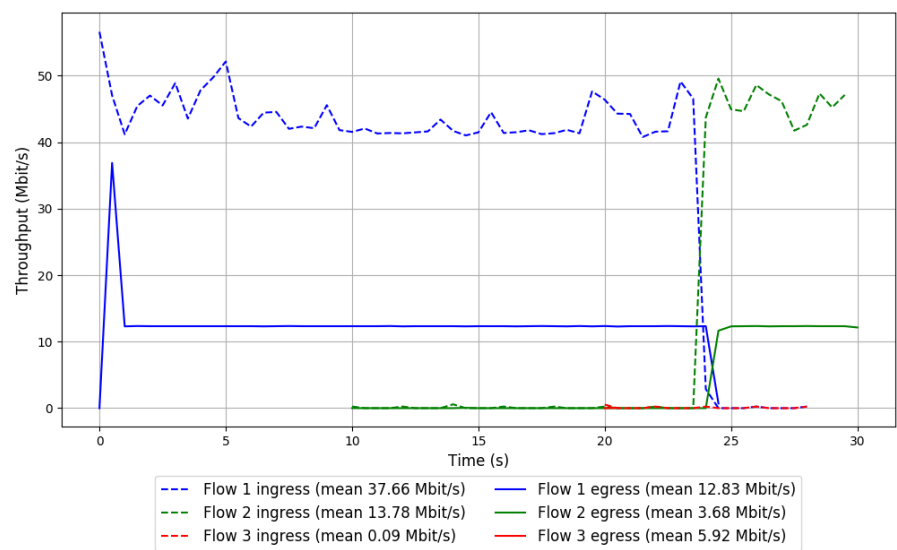
Run 2: Report of Copa — Data Link

Flow 1 ingress (mean 20.47 Mbit/s) — Flow 1 egress (mean 6.95 Mbit/s)
Flow 2 ingress (mean 24.57 Mbit/s) — Flow 2 egress (mean 8.28 Mbit/s)
Flow 3 ingress (mean 1.47 Mbit/s) — Flow 3 egress (mean 2.15 Mbit/s)

Flow 1 (95th percentile 3.42 ms) · Flow 2 (95th percentile 2.01 ms) · Flow 3 (95th percentile 7.02 ms)

```
Run 3: Statistics of Copa

Start at: 2019-02-20 01:12:15
End at: 2019-02-20 01:12:45
Local clock offset: -12.258 ms
Remote clock offset: 2.277 ms


# Below is generated by plot.py at 2019-02-20 02:22:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.25 Mbit/s
95th percentile per-packet one-way delay: 2.281 ms
Loss rate: 70.17%
-- Flow 1:
Average throughput: 10.33 Mbit/s
95th percentile per-packet one-way delay: 1.395 ms
Loss rate: 70.13%
-- Flow 2:
Average throughput: 4.92 Mbit/s
95th percentile per-packet one-way delay: 3.595 ms
Loss rate: 71.18%
-- Flow 3:
Average throughput: 1.41 Mbit/s
95th percentile per-packet one-way delay: 5.433 ms
Loss rate: 60.09%
```

Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2019-02-20 01:36:04
End at: 2019-02-20 01:36:34
Local clock offset: -9.674 ms
Remote clock offset: 2.879 ms


# Below is generated by plot.py at 2019-02-20 02:22:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 1.521 ms
Loss rate: 71.33%
-- Flow 1:
Average throughput: 12.83 Mbit/s
95th percentile per-packet one-way delay: 1.500 ms
Loss rate: 70.80%
-- Flow 2:
Average throughput: 3.68 Mbit/s
95th percentile per-packet one-way delay: 1.559 ms
Loss rate: 73.30%
-- Flow 3:
Average throughput: 5.92 Mbit/s
95th percentile per-packet one-way delay: 1.463 ms
Loss rate: 96.64%
```
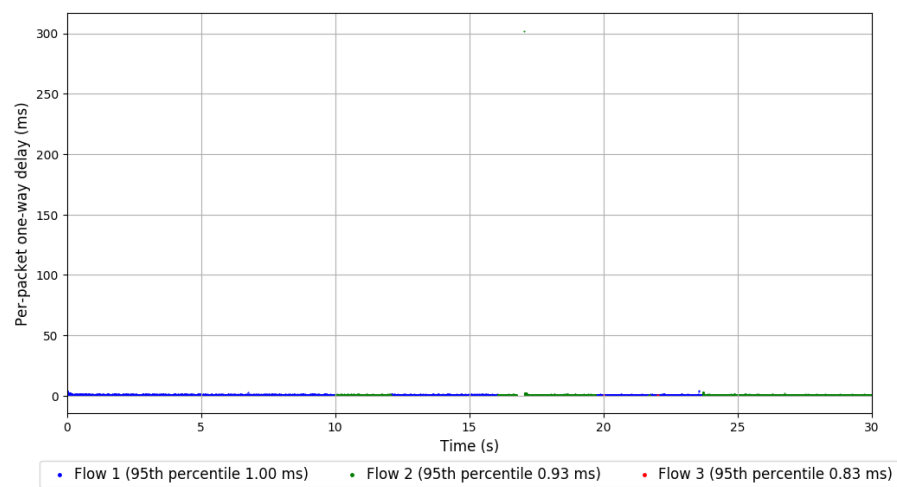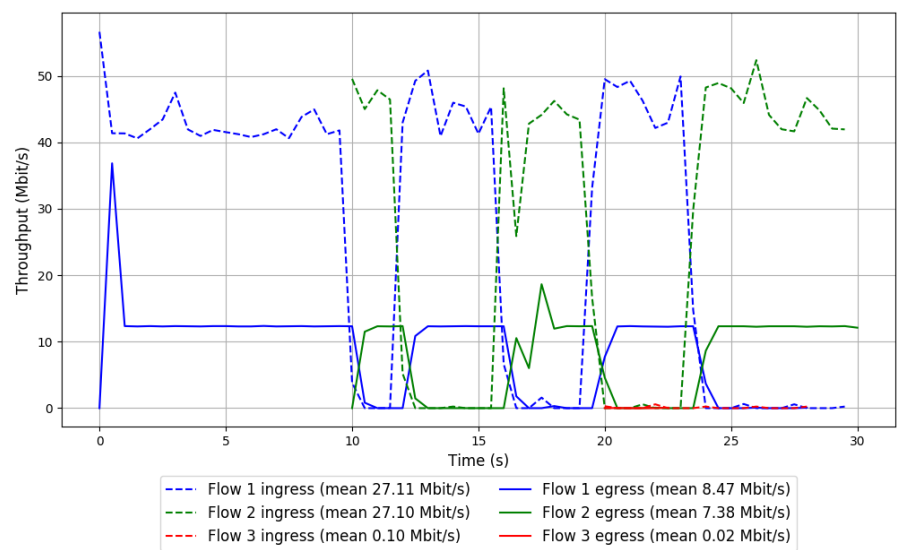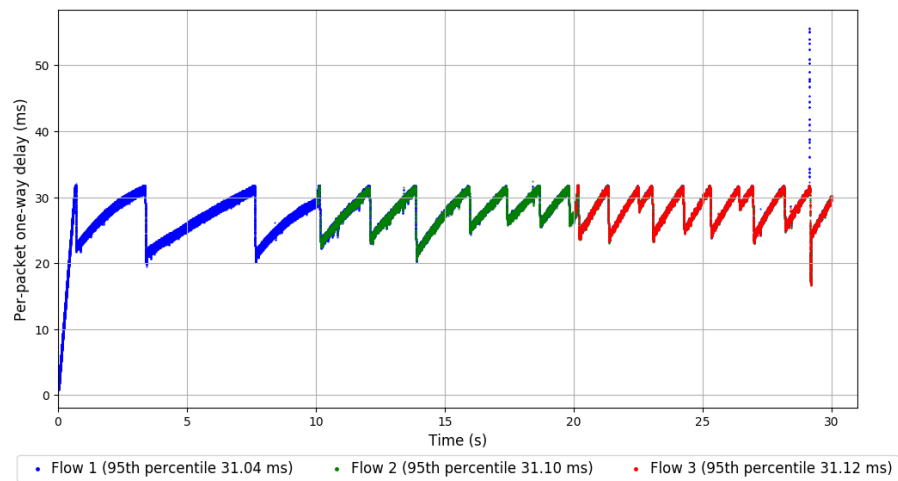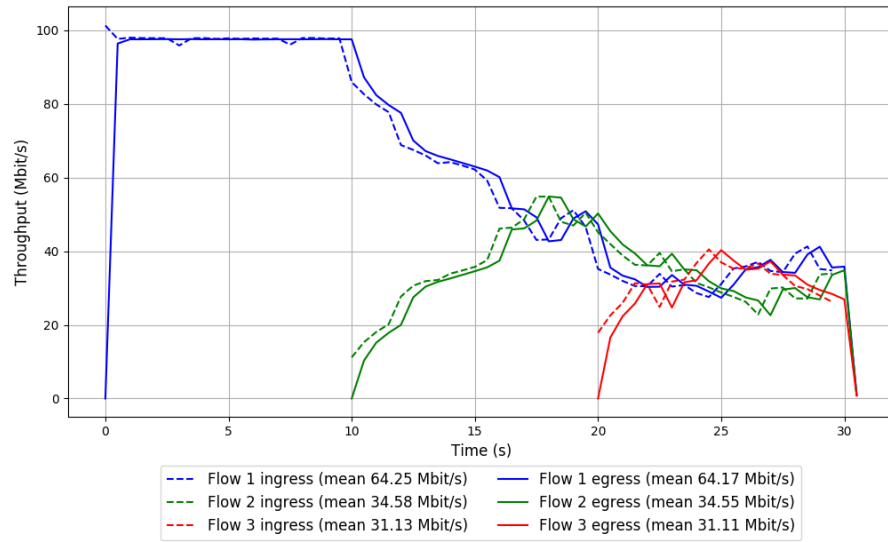
Run 4: Report of Copa — Data Link

Flow 1 ingress (mean 37.66 Mbit/s) — — — Flow 1 egress (mean 12.83 Mbit/s) —
Flow 2 ingress (mean 13.78 Mbit/s) — — — Flow 2 egress (mean 3.68 Mbit/s) —
Flow 3 ingress (mean 0.09 Mbit/s) — — — Flow 3 egress (mean 5.92 Mbit/s) —

Flow 1 (95th percentile 1.50 ms) • Flow 2 (95th percentile 1.56 ms) • Flow 3 (95th percentile 1.46 ms)

```
Run 5: Statistics of Copa

Start at: 2019-02-20 01:59:56
End at: 2019-02-20 02:00:26
Local clock offset: -4.242 ms
Remote clock offset: 2.649 ms


# Below is generated by plot.py at 2019-02-20 02:22:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 0.982 ms
Loss rate: 71.64%
-- Flow 1:
Average throughput: 8.47 Mbit/s
95th percentile per-packet one-way delay: 0.998 ms
Loss rate: 70.86%
-- Flow 2:
Average throughput: 7.38 Mbit/s
95th percentile per-packet one-way delay: 0.933 ms
Loss rate: 72.77%
-- Flow 3:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 0.831 ms
Loss rate: 93.82%
```

Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2019-02-20 00:25:39
End at: 2019-02-20 00:26:09
Local clock offset: -13.897 ms
Remote clock offset: 0.779 ms


# Below is generated by plot.py at 2019-02-20 02:23:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.51 Mbit/s
95th percentile per-packet one-way delay: 31.064 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 64.17 Mbit/s
95th percentile per-packet one-way delay: 31.041 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 34.55 Mbit/s
95th percentile per-packet one-way delay: 31.100 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 31.11 Mbit/s
95th percentile per-packet one-way delay: 31.122 ms
Loss rate: 0.05%
```
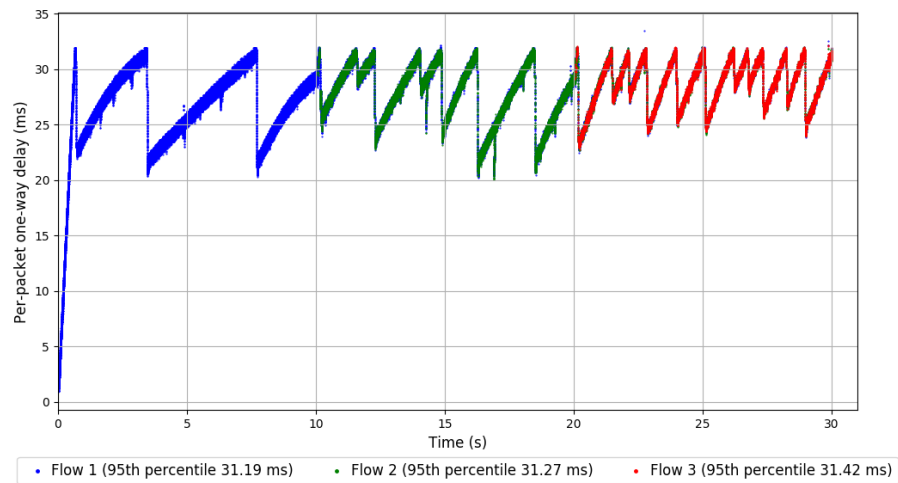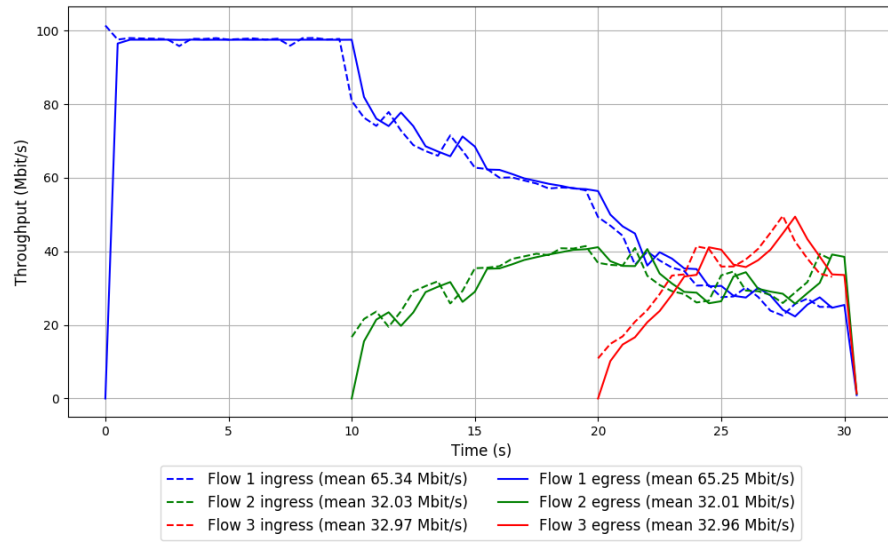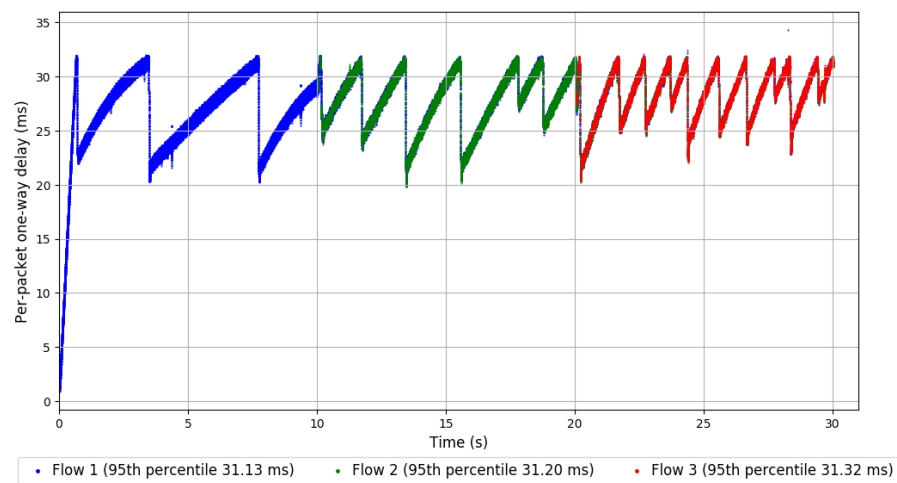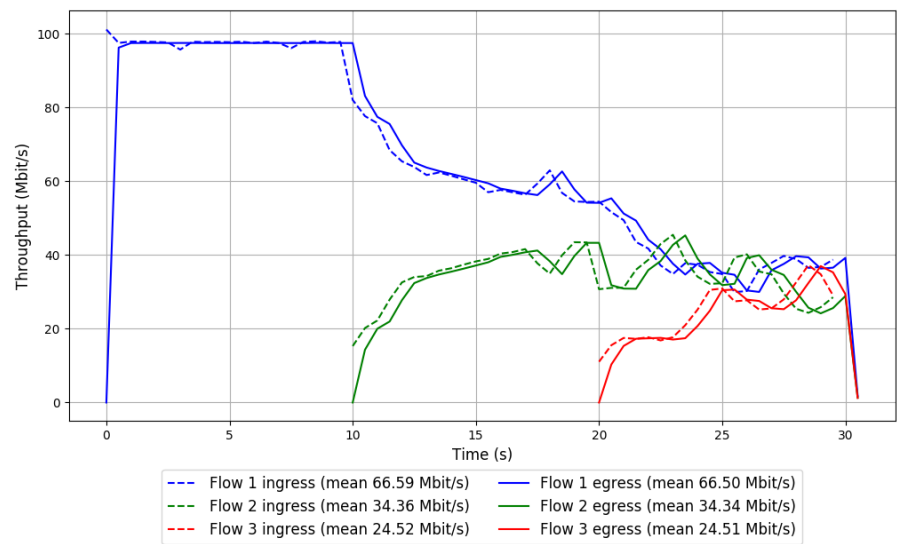
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2019-02-20 00:49:28
End at: 2019-02-20 00:49:58
Local clock offset: -8.218 ms
Remote clock offset: 1.757 ms


# Below is generated by plot.py at 2019-02-20 02:23:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.51 Mbit/s
95th percentile per-packet one-way delay: 31.222 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 65.25 Mbit/s
95th percentile per-packet one-way delay: 31.191 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 32.01 Mbit/s
95th percentile per-packet one-way delay: 31.267 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 32.96 Mbit/s
95th percentile per-packet one-way delay: 31.420 ms
Loss rate: 0.03%
```

Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2019-02-20 01:13:21
End at: 2019-02-20 01:13:51
Local clock offset: -12.505 ms
Remote clock offset: 2.387 ms


# Below is generated by plot.py at 2019-02-20 02:23:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.50 Mbit/s
95th percentile per-packet one-way delay: 31.149 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 66.50 Mbit/s
95th percentile per-packet one-way delay: 31.127 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 34.34 Mbit/s
95th percentile per-packet one-way delay: 31.198 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 24.51 Mbit/s
95th percentile per-packet one-way delay: 31.315 ms
Loss rate: 0.05%
```
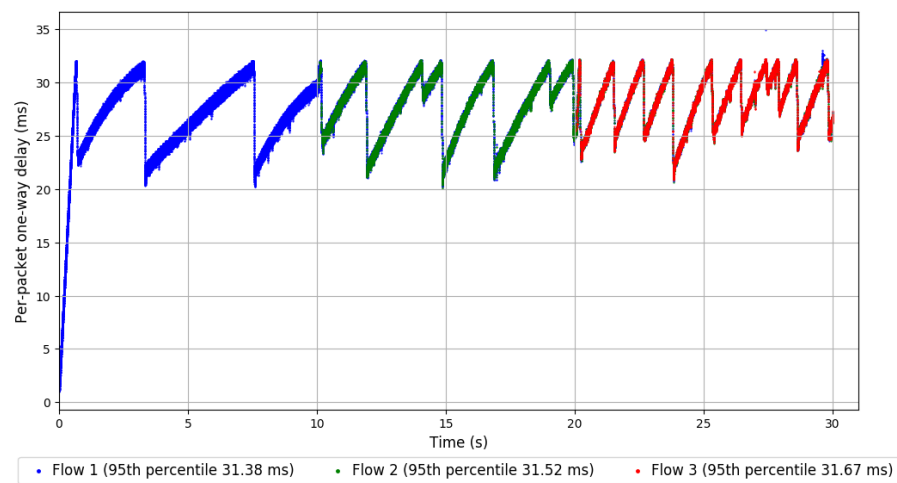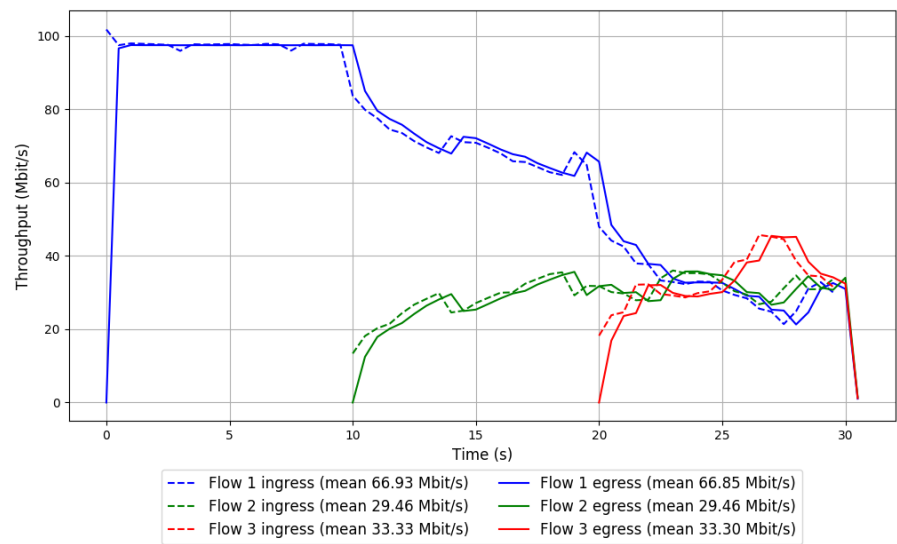
Run 3: Report of TCP Cubic — Data Link

```
Run 4: Statistics of TCP Cubic

Start at: 2019-02-20 01:37:10
End at: 2019-02-20 01:37:40
Local clock offset: -9.061 ms
Remote clock offset: 2.847 ms


# Below is generated by plot.py at 2019-02-20 02:23:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.52 Mbit/s
95th percentile per-packet one-way delay: 31.447 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 66.85 Mbit/s
95th percentile per-packet one-way delay: 31.376 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 29.46 Mbit/s
95th percentile per-packet one-way delay: 31.525 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 33.30 Mbit/s
95th percentile per-packet one-way delay: 31.671 ms
Loss rate: 0.06%
```
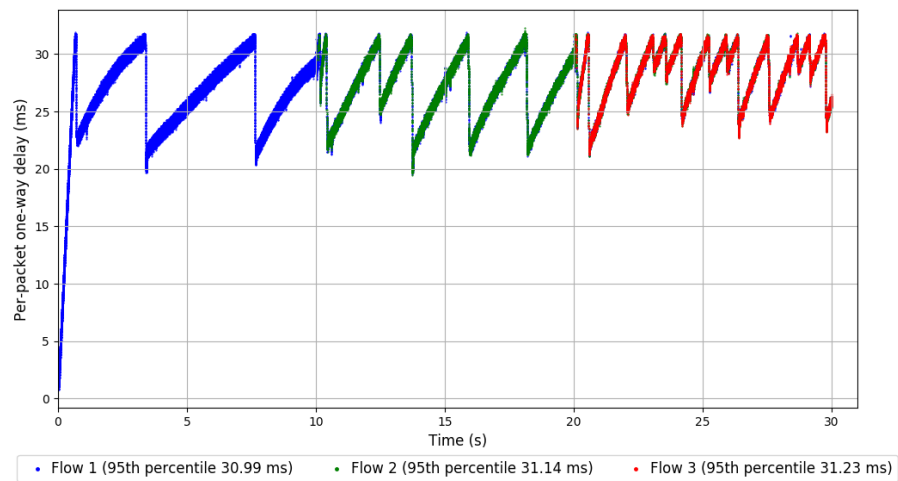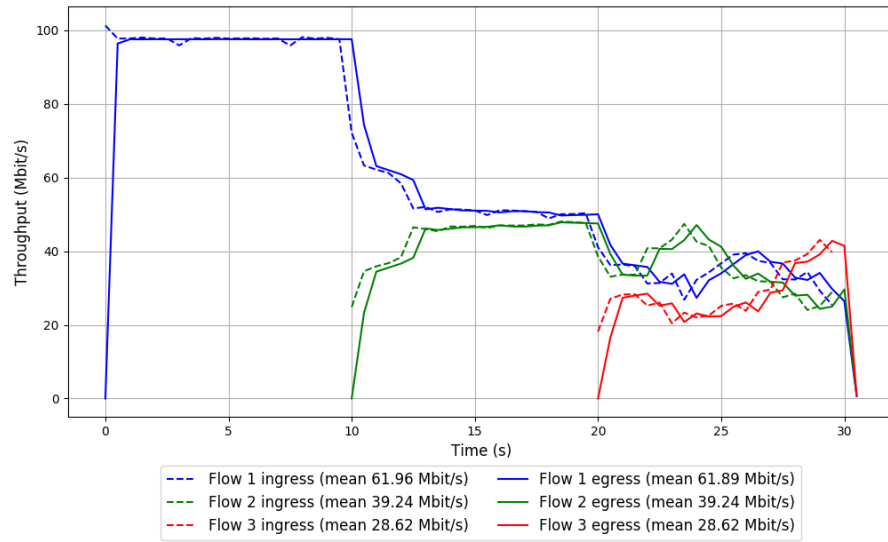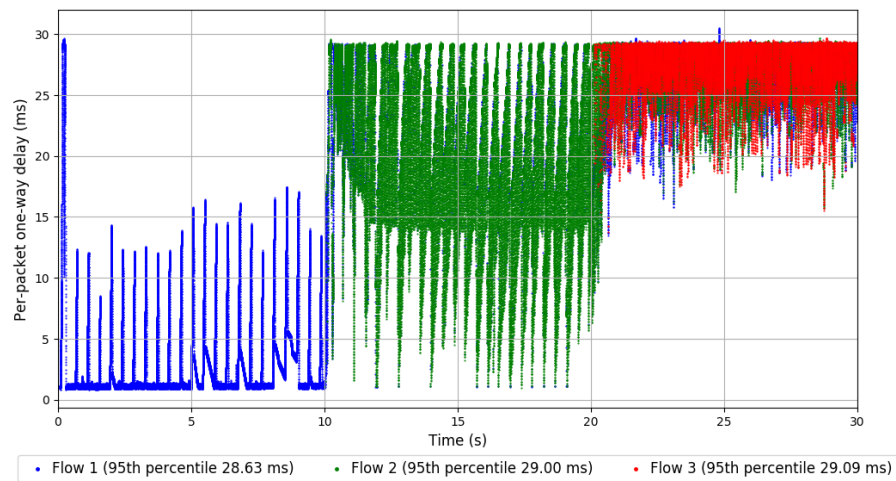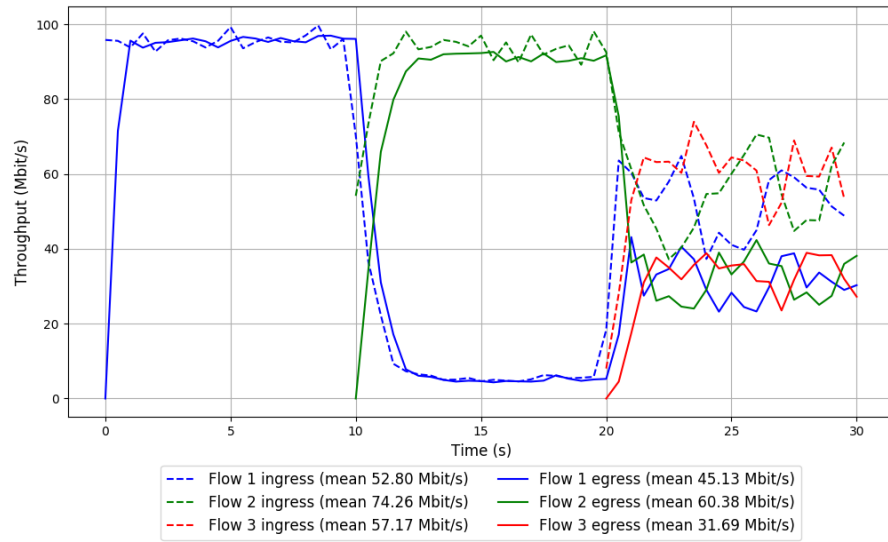
Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 66.93 Mbit/s) --- Flow 1 egress (mean 66.85 Mbit/s)
Flow 2 ingress (mean 29.46 Mbit/s) --- Flow 2 egress (mean 29.46 Mbit/s)
Flow 3 ingress (mean 33.33 Mbit/s) --- Flow 3 egress (mean 33.30 Mbit/s)

Flow 1 (95th percentile 31.38 ms)   Flow 2 (95th percentile 31.52 ms)   Flow 3 (95th percentile 31.67 ms)

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```
Run 5: Statistics of TCP Cubic

Start at: 2019-02-20 02:01:02
End at: 2019-02-20 02:01:32
Local clock offset: -4.37 ms
Remote clock offset: 2.692 ms


# Below is generated by plot.py at 2019-02-20 02:23:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.51 Mbit/s
95th percentile per-packet one-way delay: 31.035 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 61.89 Mbit/s
95th percentile per-packet one-way delay: 30.990 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 39.24 Mbit/s
95th percentile per-packet one-way delay: 31.135 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 28.62 Mbit/s
95th percentile per-packet one-way delay: 31.226 ms
Loss rate: 0.04%
```

Run 5: Report of TCP Cubic — Data Link

```
Run 1: Statistics of FillP

Start at: 2019-02-20 00:37:02
End at: 2019-02-20 00:37:32
Local clock offset: -10.677 ms
Remote clock offset: 1.247 ms


# Below is generated by plot.py at 2019-02-20 02:24:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.86 Mbit/s
95th percentile per-packet one-way delay: 28.947 ms
Loss rate: 20.85%
-- Flow 1:
Average throughput: 45.13 Mbit/s
95th percentile per-packet one-way delay: 28.629 ms
Loss rate: 14.44%
-- Flow 2:
Average throughput: 60.38 Mbit/s
95th percentile per-packet one-way delay: 28.997 ms
Loss rate: 18.58%
-- Flow 3:
Average throughput: 31.69 Mbit/s
95th percentile per-packet one-way delay: 29.088 ms
Loss rate: 44.57%
```
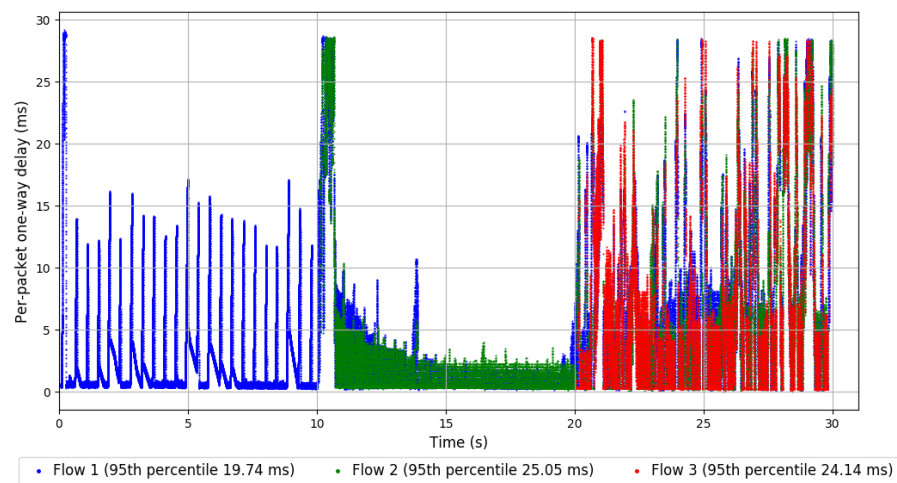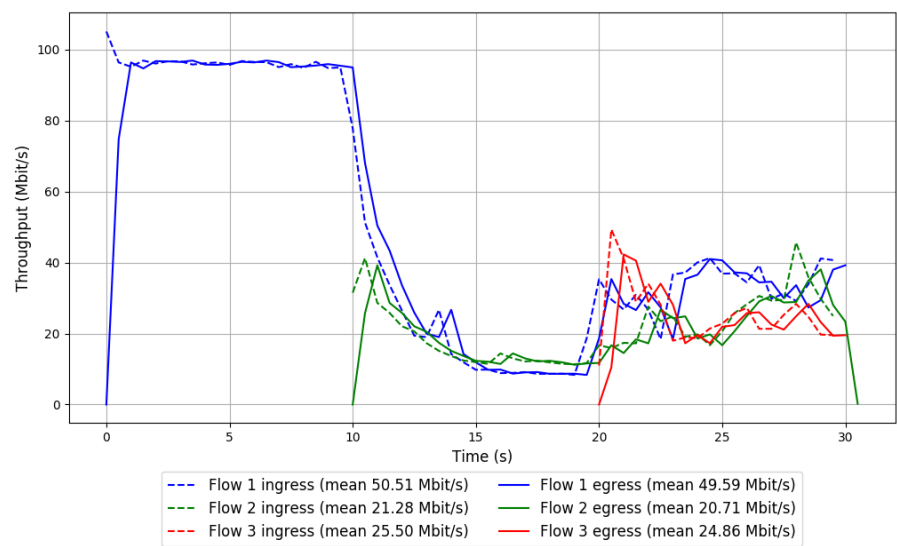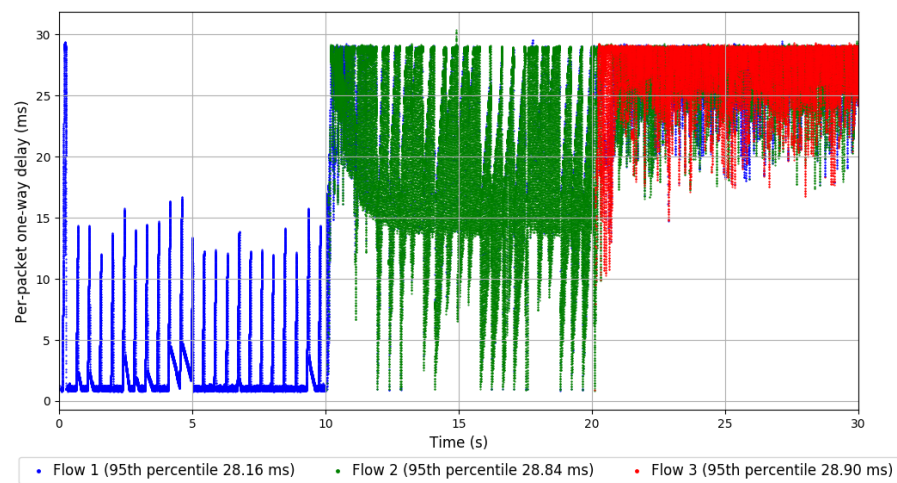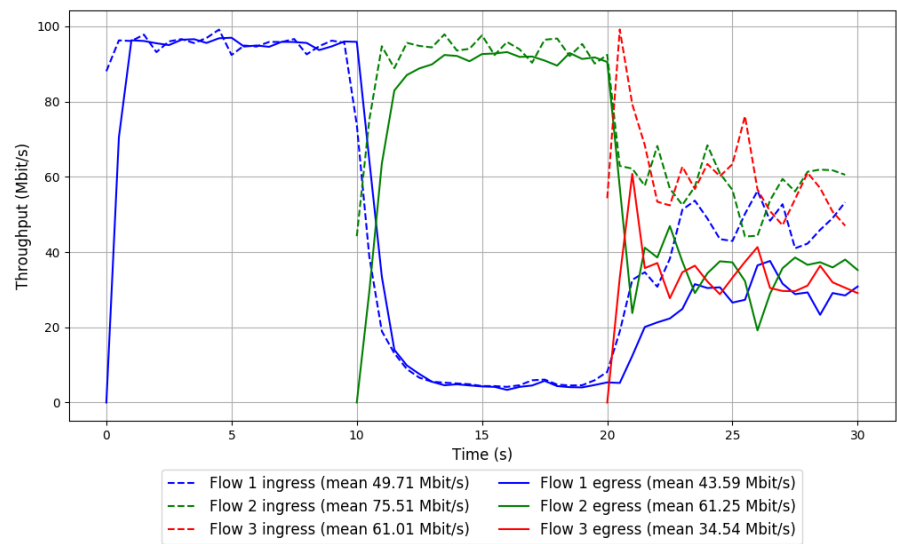
Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 52.80 Mbit/s) Flow 1 egress (mean 45.13 Mbit/s)
Flow 2 ingress (mean 74.26 Mbit/s) Flow 2 egress (mean 60.38 Mbit/s)
Flow 3 ingress (mean 57.17 Mbit/s) Flow 3 egress (mean 31.69 Mbit/s)

Flow 1 (95th percentile 28.63 ms)   Flow 2 (95th percentile 29.00 ms)   Flow 3 (95th percentile 29.09 ms)

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```
Run 2: Statistics of FillP

Start at: 2019-02-20 01:00:51
End at: 2019-02-20 01:01:21
Local clock offset: -7.945 ms
Remote clock offset: 1.981 ms


# Below is generated by plot.py at 2019-02-20 02:24:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 71.59 Mbit/s
95th percentile per-packet one-way delay: 22.498 ms
Loss rate: 1.98%
-- Flow 1:
Average throughput: 49.59 Mbit/s
95th percentile per-packet one-way delay: 19.736 ms
Loss rate: 1.76%
-- Flow 2:
Average throughput: 20.71 Mbit/s
95th percentile per-packet one-way delay: 25.051 ms
Loss rate: 2.54%
-- Flow 3:
Average throughput: 24.86 Mbit/s
95th percentile per-packet one-way delay: 24.144 ms
Loss rate: 2.37%
```

Run 2: Report of FillP — Data Link

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```
Run 3: Statistics of FillP

Start at: 2019-02-20 01:24:45
End at: 2019-02-20 01:25:15
Local clock offset: -13.809 ms
Remote clock offset: 2.6 ms

# Below is generated by plot.py at 2019-02-20 02:24:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.82 Mbit/s
95th percentile per-packet one-way delay: 28.790 ms
Loss rate: 20.23%
-- Flow 1:
Average throughput: 43.59 Mbit/s
95th percentile per-packet one-way delay: 28.163 ms
Loss rate: 12.24%
-- Flow 2:
Average throughput: 61.25 Mbit/s
95th percentile per-packet one-way delay: 28.837 ms
Loss rate: 18.78%
-- Flow 3:
Average throughput: 34.54 Mbit/s
95th percentile per-packet one-way delay: 28.903 ms
Loss rate: 43.40%
```
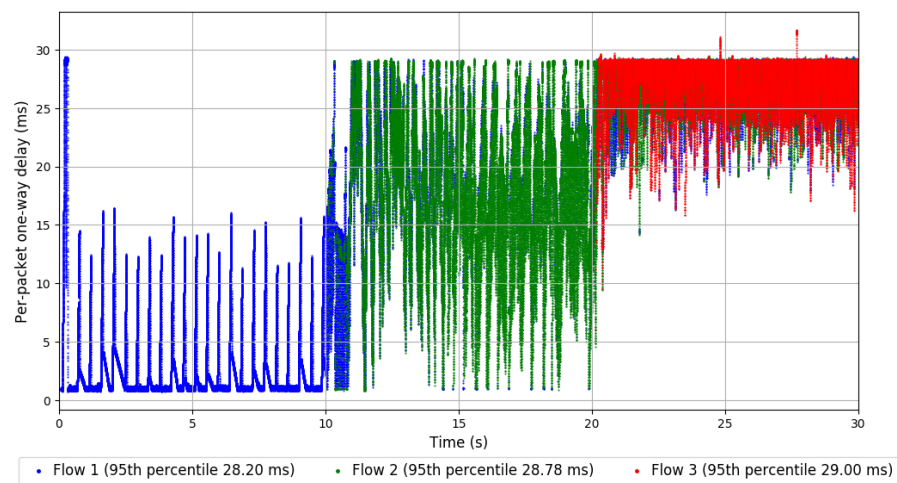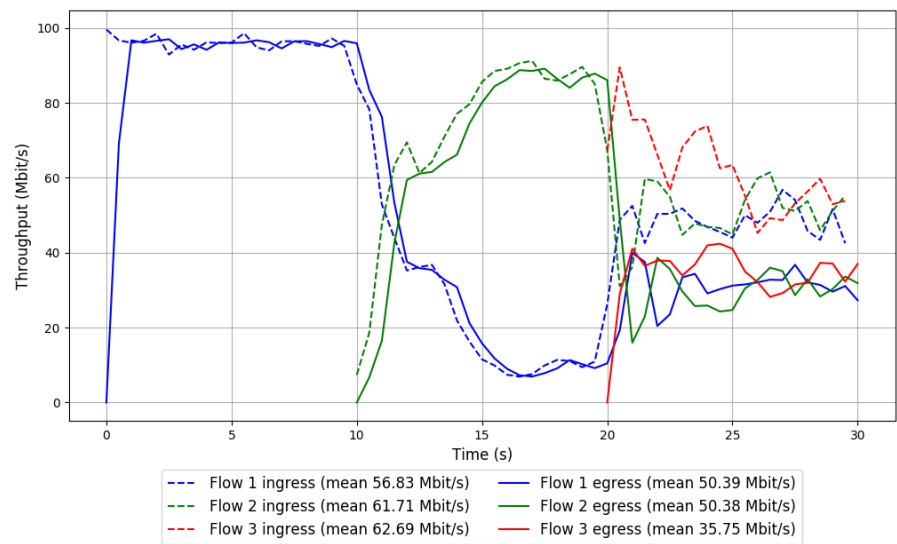
Run 3: Report of FillP — Data Link

```
Run 4: Statistics of FillP

Start at: 2019-02-20 01:48:36
End at: 2019-02-20 01:49:06
Local clock offset: -5.725 ms
Remote clock offset: 2.808 ms


# Below is generated by plot.py at 2019-02-20 02:24:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.78 Mbit/s
95th percentile per-packet one-way delay: 28.743 ms
Loss rate: 19.24%
-- Flow 1:
Average throughput: 50.39 Mbit/s
95th percentile per-packet one-way delay: 28.205 ms
Loss rate: 11.26%
-- Flow 2:
Average throughput: 50.38 Mbit/s
95th percentile per-packet one-way delay: 28.783 ms
Loss rate: 18.27%
-- Flow 3:
Average throughput: 35.75 Mbit/s
95th percentile per-packet one-way delay: 29.000 ms
Loss rate: 42.98%
```
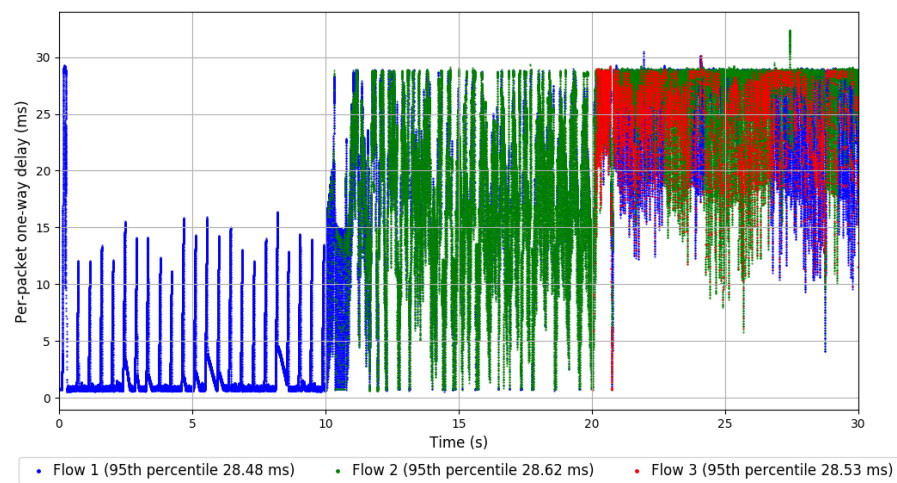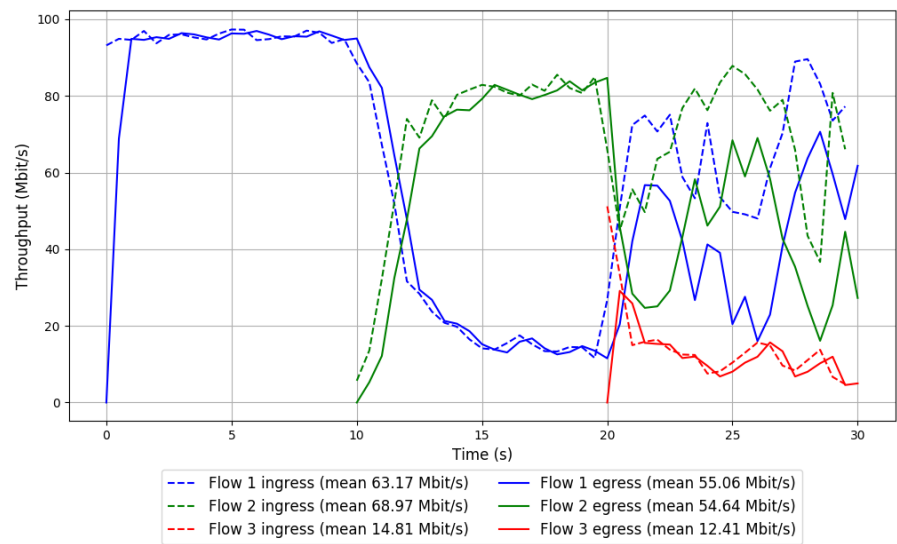
Run 4: Report of FillP — Data Link

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```
Run 5: Statistics of FillP

Start at: 2019-02-20 02:12:26
End at: 2019-02-20 02:12:56
Local clock offset: -5.295 ms
Remote clock offset: 2.46 ms


# Below is generated by plot.py at 2019-02-20 02:24:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.55 Mbit/s
95th percentile per-packet one-way delay: 28.564 ms
Loss rate: 16.11%
-- Flow 1:
Average throughput: 55.06 Mbit/s
95th percentile per-packet one-way delay: 28.480 ms
Loss rate: 12.76%
-- Flow 2:
Average throughput: 54.64 Mbit/s
95th percentile per-packet one-way delay: 28.619 ms
Loss rate: 20.71%
-- Flow 3:
Average throughput: 12.41 Mbit/s
95th percentile per-packet one-way delay: 28.533 ms
Loss rate: 16.12%
```
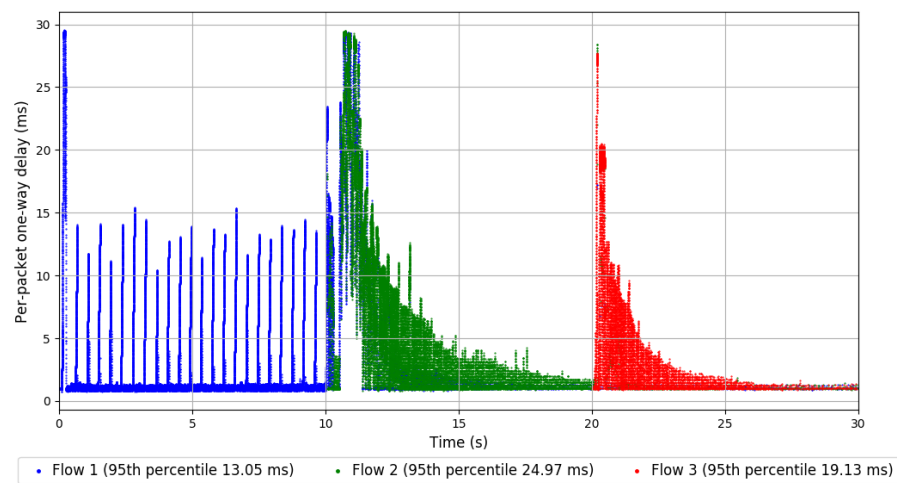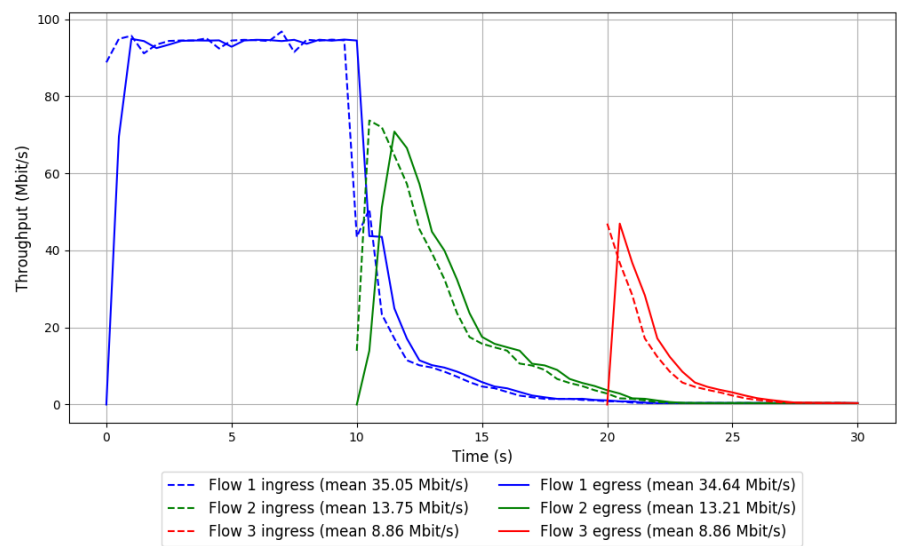
Run 5: Report of FillP — Data Link

```
Run 1: Statistics of FillP-Sheep

Start at: 2019-02-20 00:40:28
End at: 2019-02-20 00:40:58
Local clock offset: -9.691 ms
Remote clock offset: 1.392 ms


# Below is generated by plot.py at 2019-02-20 02:24:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 46.35 Mbit/s
95th percentile per-packet one-way delay: 17.678 ms
Loss rate: 1.65%
-- Flow 1:
Average throughput: 34.64 Mbit/s
95th percentile per-packet one-way delay: 13.052 ms
Loss rate: 1.18%
-- Flow 2:
Average throughput: 13.21 Mbit/s
95th percentile per-packet one-way delay: 24.966 ms
Loss rate: 3.96%
-- Flow 3:
Average throughput: 8.86 Mbit/s
95th percentile per-packet one-way delay: 19.128 ms
Loss rate: 0.00%
```
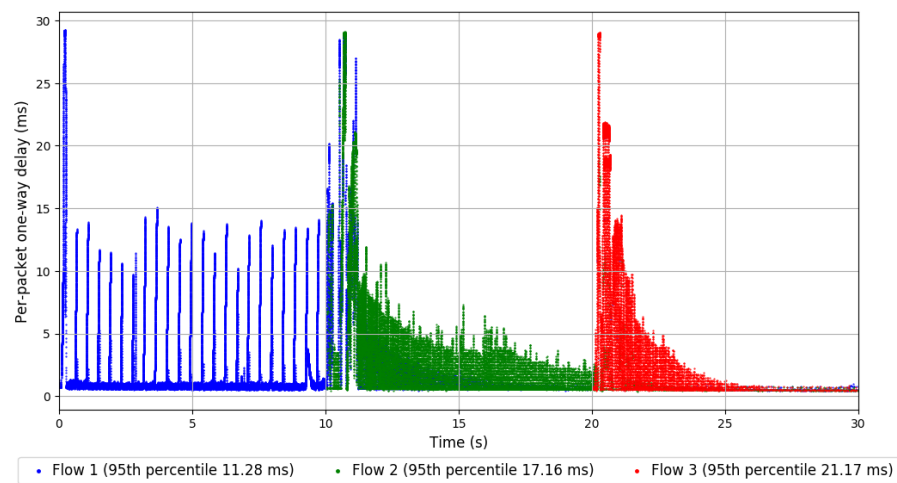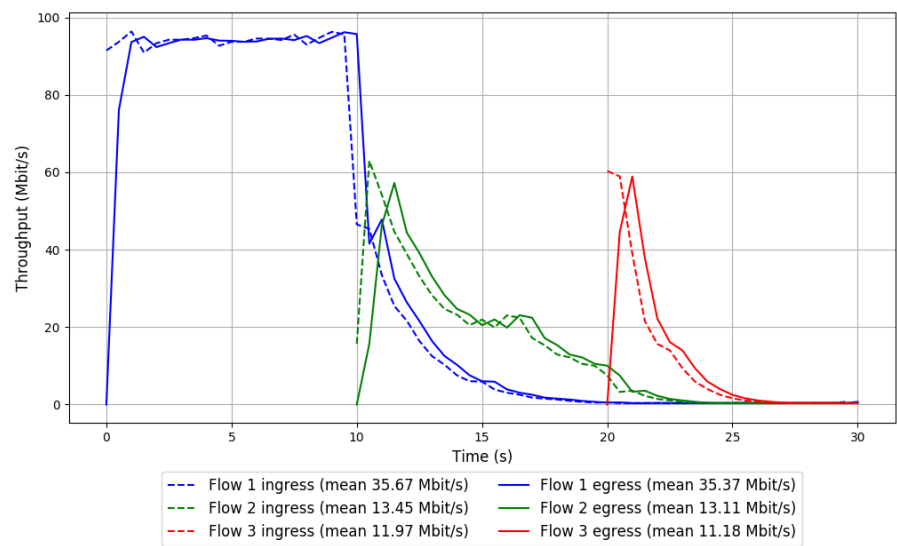
Run 1: Report of FillP-Sheep — Data Link

- - - Flow 1 ingress (mean 35.05 Mbit/s) —— Flow 1 egress (mean 34.64 Mbit/s)
- - - Flow 2 ingress (mean 13.75 Mbit/s) —— Flow 2 egress (mean 13.21 Mbit/s)
- - - Flow 3 ingress (mean 8.86 Mbit/s) —— Flow 3 egress (mean 8.86 Mbit/s)

- Flow 1 (95th percentile 13.05 ms)   • Flow 2 (95th percentile 24.97 ms)   • Flow 3 (95th percentile 19.13 ms)
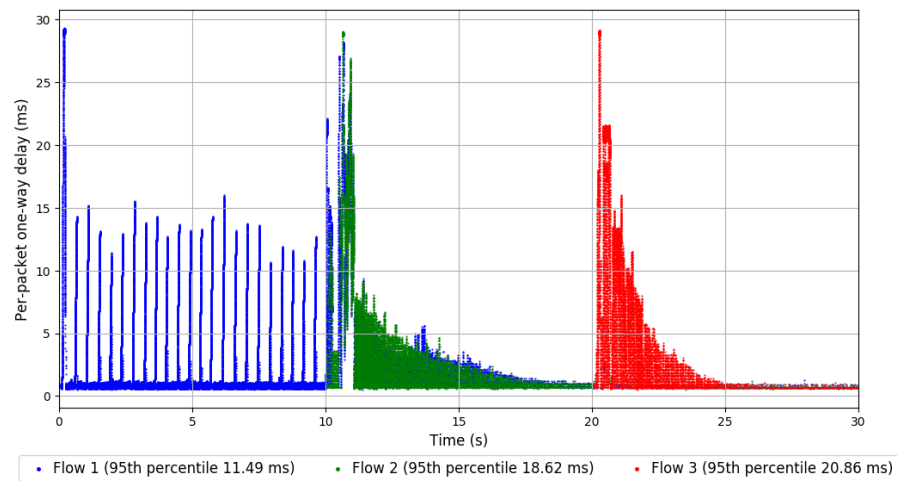
```
Run 2: Statistics of FillP-Sheep

Start at: 2019-02-20 01:04:16
End at: 2019-02-20 01:04:46
Local clock offset: -9.775 ms
Remote clock offset: 2.241 ms


# Below is generated by plot.py at 2019-02-20 02:24:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 47.79 Mbit/s
95th percentile per-packet one-way delay: 13.141 ms
Loss rate: 1.62%
-- Flow 1:
Average throughput: 35.37 Mbit/s
95th percentile per-packet one-way delay: 11.278 ms
Loss rate: 0.84%
-- Flow 2:
Average throughput: 13.11 Mbit/s
95th percentile per-packet one-way delay: 17.161 ms
Loss rate: 2.53%
-- Flow 3:
Average throughput: 11.18 Mbit/s
95th percentile per-packet one-way delay: 21.174 ms
Loss rate: 6.64%
```
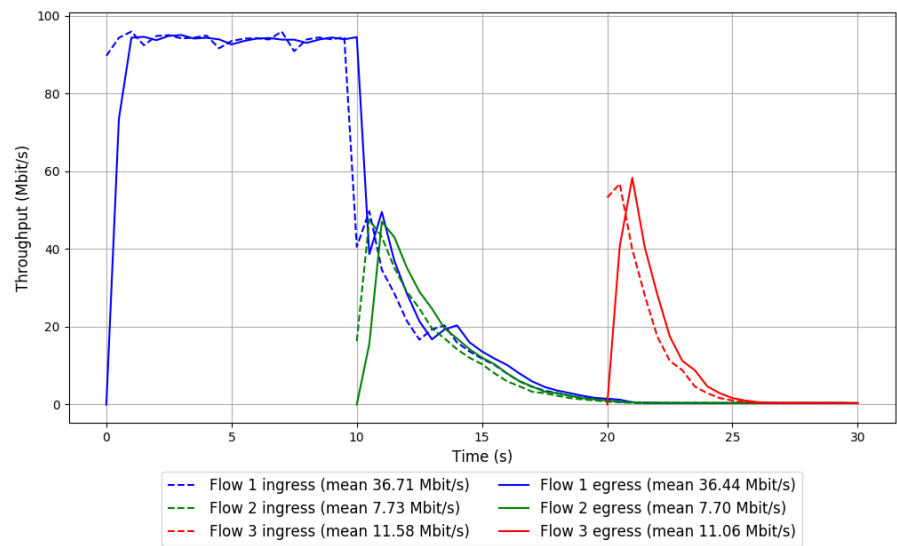
Run 2: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 35.67 Mbit/s)   Flow 1 egress (mean 35.37 Mbit/s)
Flow 2 ingress (mean 13.45 Mbit/s)   Flow 2 egress (mean 13.11 Mbit/s)
Flow 3 ingress (mean 11.97 Mbit/s)   Flow 3 egress (mean 11.18 Mbit/s)

Flow 1 (95th percentile 11.28 ms)   Flow 2 (95th percentile 17.16 ms)   Flow 3 (95th percentile 21.17 ms)

```
Run 3: Statistics of FillP-Sheep

Start at: 2019-02-20 01:28:10
End at: 2019-02-20 01:28:40
Local clock offset: -13.978 ms
Remote clock offset: 2.515 ms


# Below is generated by plot.py at 2019-02-20 02:24:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 45.21 Mbit/s
95th percentile per-packet one-way delay: 13.462 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 36.44 Mbit/s
95th percentile per-packet one-way delay: 11.492 ms
Loss rate: 0.73%
-- Flow 2:
Average throughput: 7.70 Mbit/s
95th percentile per-packet one-way delay: 18.625 ms
Loss rate: 0.45%
-- Flow 3:
Average throughput: 11.06 Mbit/s
95th percentile per-packet one-way delay: 20.856 ms
Loss rate: 4.43%
```
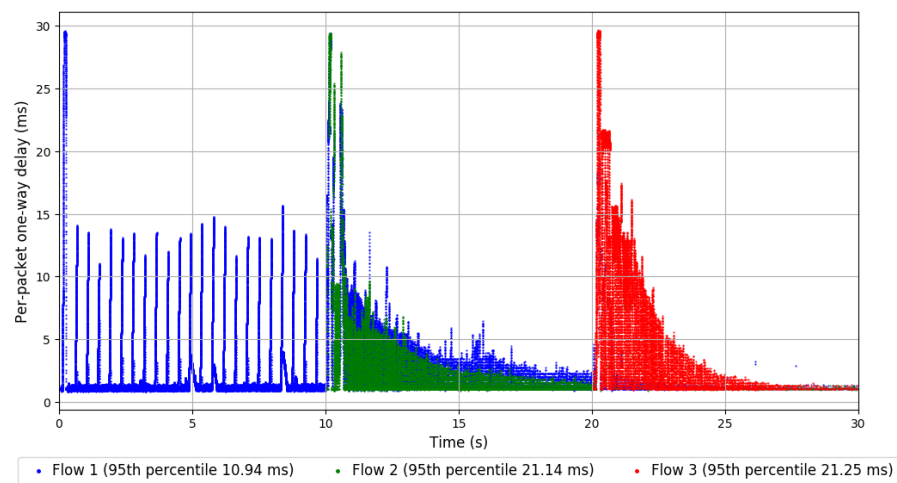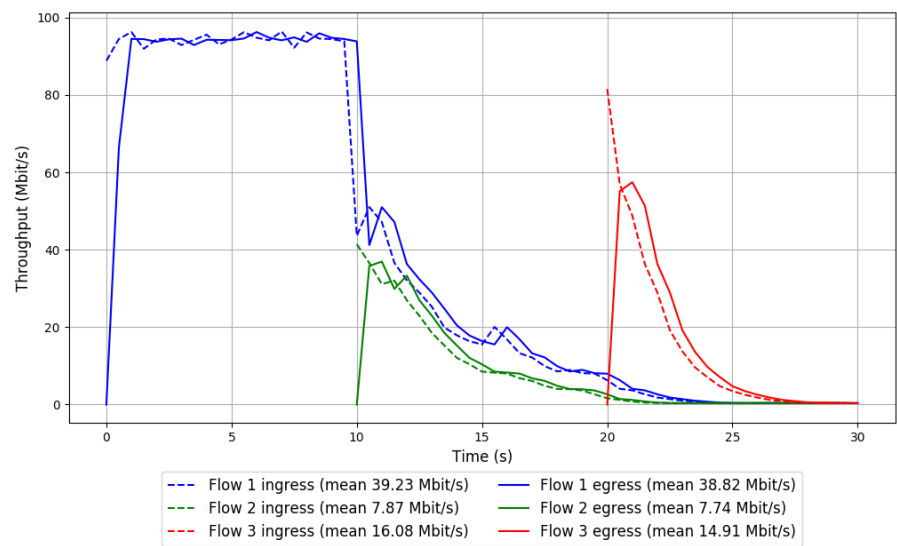
Run 3: Report of FillP-Sheep — Data Link

```
Run 4: Statistics of FillP-Sheep

Start at: 2019-02-20 01:52:02
End at: 2019-02-20 01:52:32
Local clock offset: -5.202 ms
Remote clock offset: 2.812 ms


# Below is generated by plot.py at 2019-02-20 02:24:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 48.89 Mbit/s
95th percentile per-packet one-way delay: 12.921 ms
Loss rate: 1.79%
-- Flow 1:
Average throughput: 38.82 Mbit/s
95th percentile per-packet one-way delay: 10.935 ms
Loss rate: 1.05%
-- Flow 2:
Average throughput: 7.74 Mbit/s
95th percentile per-packet one-way delay: 21.137 ms
Loss rate: 1.70%
-- Flow 3:
Average throughput: 14.91 Mbit/s
95th percentile per-packet one-way delay: 21.249 ms
Loss rate: 7.28%
```
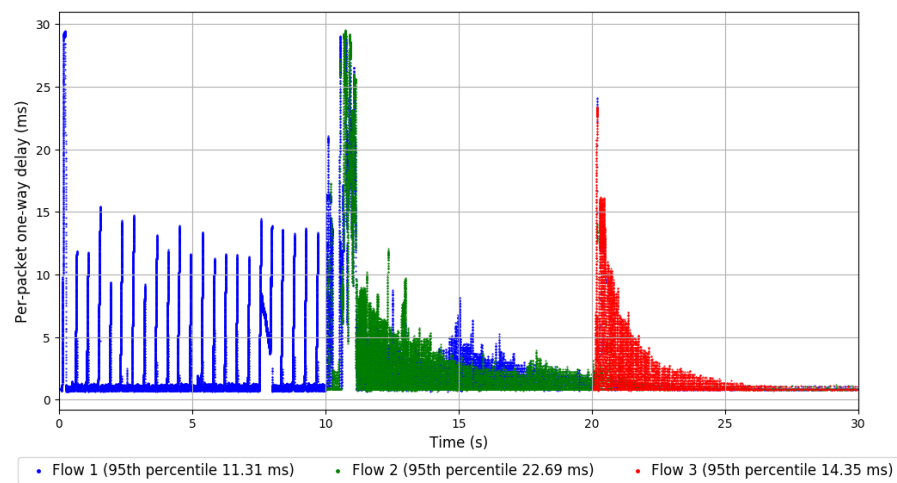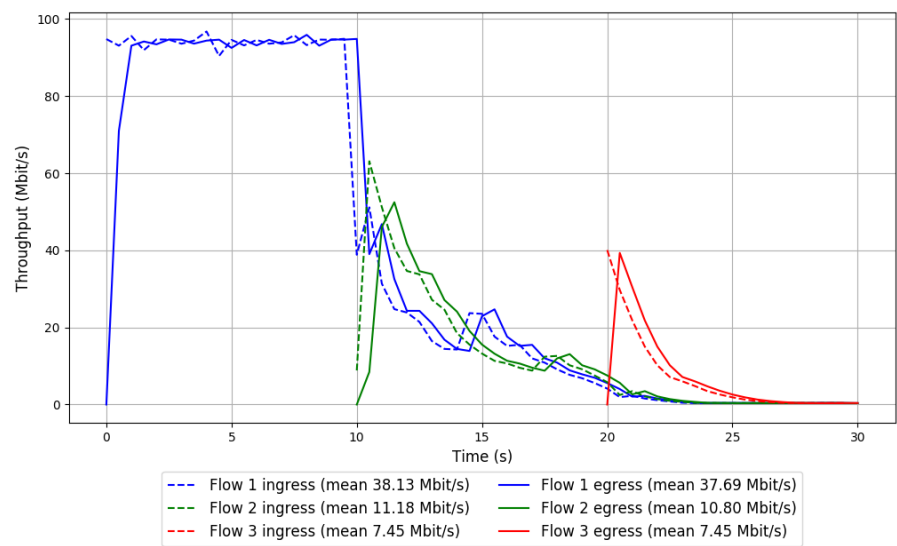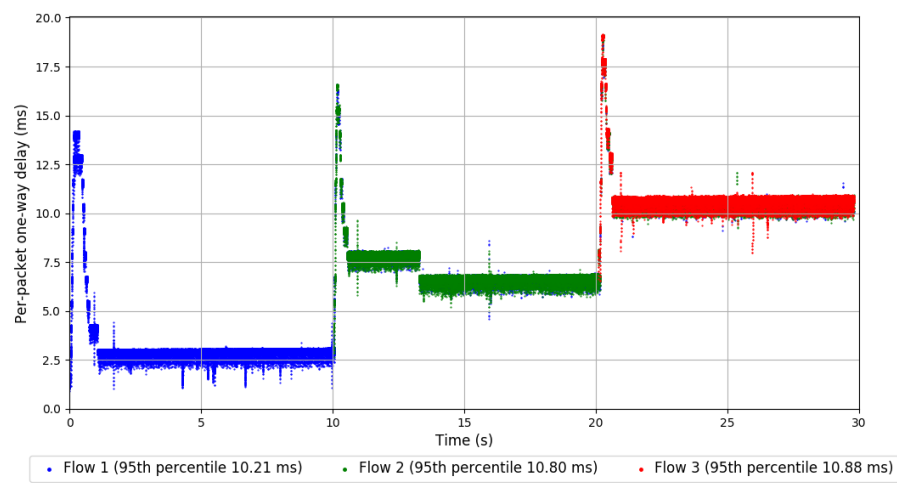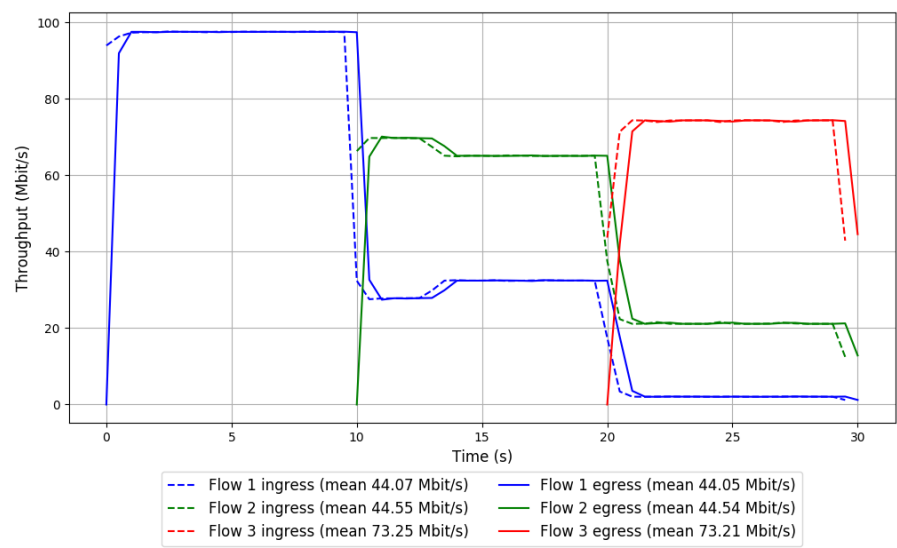
Run 4: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 39.23 Mbit/s) — — — Flow 1 egress (mean 38.82 Mbit/s)
Flow 2 ingress (mean 7.87 Mbit/s) — — — Flow 2 egress (mean 7.74 Mbit/s)
Flow 3 ingress (mean 16.08 Mbit/s) — — — Flow 3 egress (mean 14.91 Mbit/s)

Flow 1 (95th percentile 10.94 ms) • Flow 2 (95th percentile 21.14 ms) • Flow 3 (95th percentile 21.25 ms)

```
Run 5: Statistics of FillP-Sheep

Start at: 2019-02-20 02:15:51
End at: 2019-02-20 02:16:21
Local clock offset: -5.331 ms
Remote clock offset: 2.502 ms


# Below is generated by plot.py at 2019-02-20 02:24:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 47.34 Mbit/s
95th percentile per-packet one-way delay: 13.214 ms
Loss rate: 1.45%
-- Flow 1:
Average throughput: 37.69 Mbit/s
95th percentile per-packet one-way delay: 11.313 ms
Loss rate: 1.17%
-- Flow 2:
Average throughput: 10.80 Mbit/s
95th percentile per-packet one-way delay: 22.694 ms
Loss rate: 3.37%
-- Flow 3:
Average throughput: 7.45 Mbit/s
95th percentile per-packet one-way delay: 14.349 ms
Loss rate: 0.00%
```

Run 5: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 38.13 Mbit/s)   Flow 1 egress (mean 37.69 Mbit/s)
Flow 2 ingress (mean 11.18 Mbit/s)   Flow 2 egress (mean 10.80 Mbit/s)
Flow 3 ingress (mean 7.45 Mbit/s)   Flow 3 egress (mean 7.45 Mbit/s)

Flow 1 (95th percentile 11.31 ms)   Flow 2 (95th percentile 22.69 ms)   Flow 3 (95th percentile 14.35 ms)

```
Run 1: Statistics of Indigo

Start at: 2019-02-20 00:34:44
End at: 2019-02-20 00:35:14
Local clock offset: -11.475 ms
Remote clock offset: 1.206 ms

# Below is generated by plot.py at 2019-02-20 02:25:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.43 Mbit/s
95th percentile per-packet one-way delay: 10.847 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 44.05 Mbit/s
95th percentile per-packet one-way delay: 10.209 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 44.54 Mbit/s
95th percentile per-packet one-way delay: 10.796 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 73.21 Mbit/s
95th percentile per-packet one-way delay: 10.883 ms
Loss rate: 0.01%
```
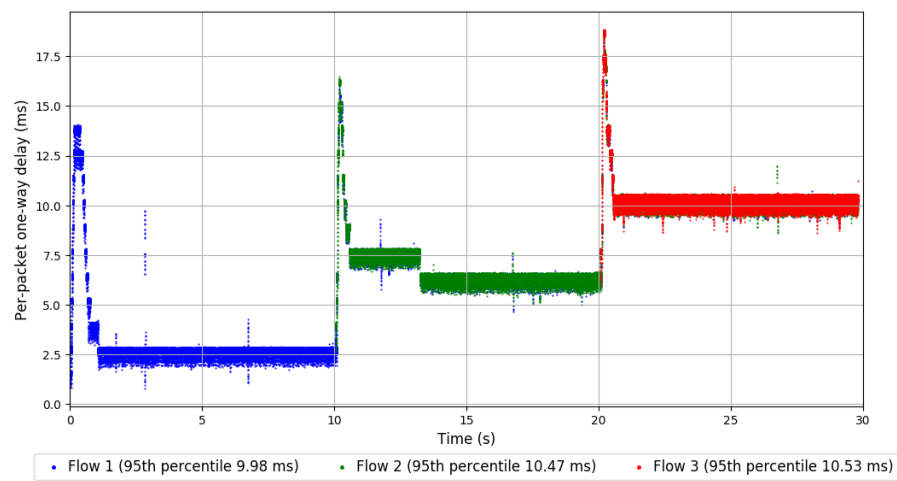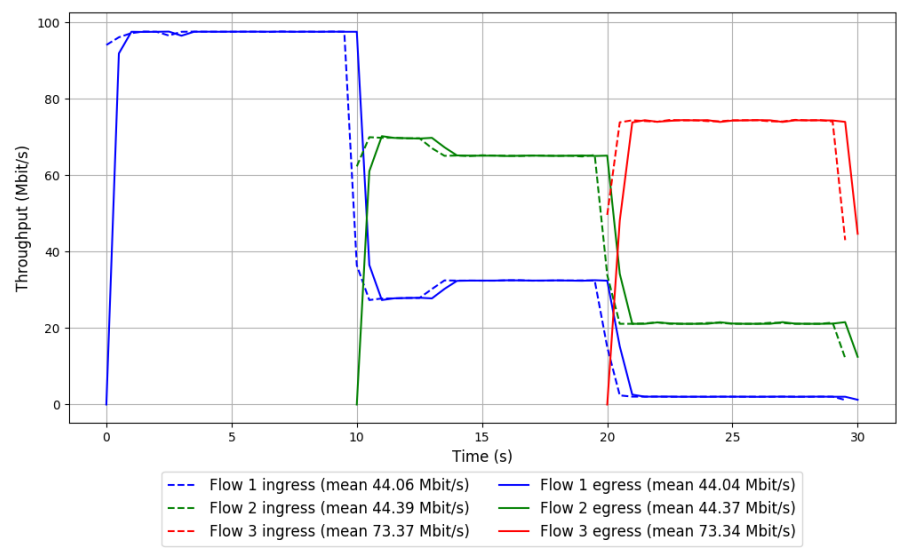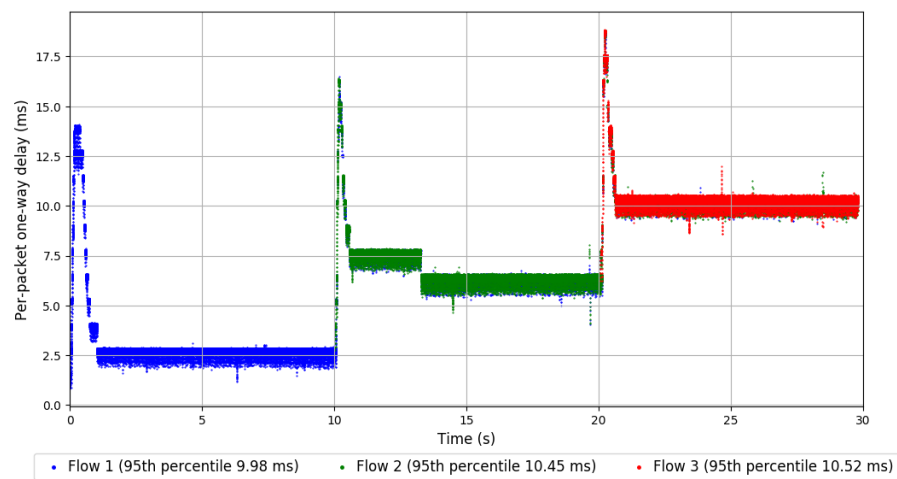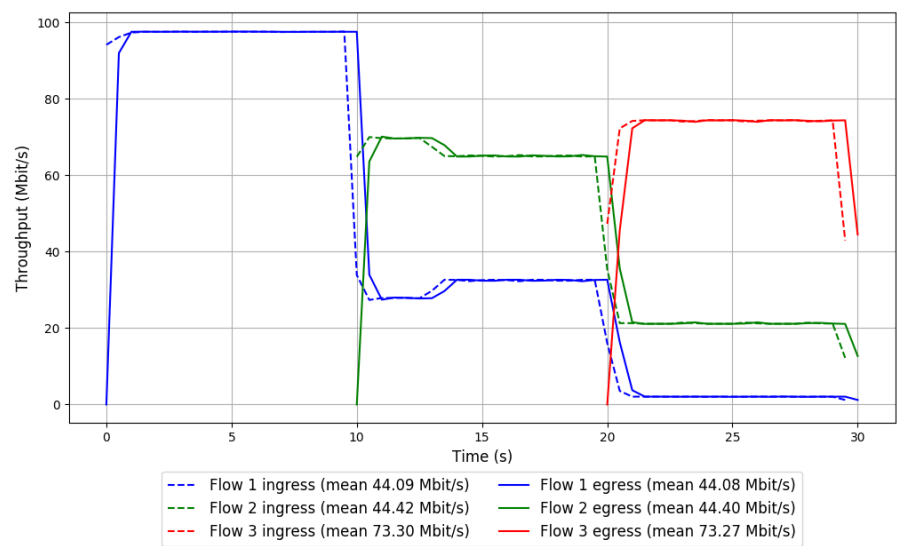
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2019-02-20 00:58:34
End at: 2019-02-20 00:59:04
Local clock offset: -7.406 ms
Remote clock offset: 1.987 ms


# Below is generated by plot.py at 2019-02-20 02:25:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.41 Mbit/s
95th percentile per-packet one-way delay: 10.509 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 44.04 Mbit/s
95th percentile per-packet one-way delay: 9.980 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 44.37 Mbit/s
95th percentile per-packet one-way delay: 10.475 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 73.34 Mbit/s
95th percentile per-packet one-way delay: 10.529 ms
Loss rate: 0.00%
```

Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2019-02-20 01:22:27
End at: 2019-02-20 01:22:57
Local clock offset: -13.569 ms
Remote clock offset: 2.556 ms


# Below is generated by plot.py at 2019-02-20 02:25:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.43 Mbit/s
95th percentile per-packet one-way delay: 10.488 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 44.08 Mbit/s
95th percentile per-packet one-way delay: 9.981 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 44.40 Mbit/s
95th percentile per-packet one-way delay: 10.447 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 73.27 Mbit/s
95th percentile per-packet one-way delay: 10.516 ms
Loss rate: 0.00%
```
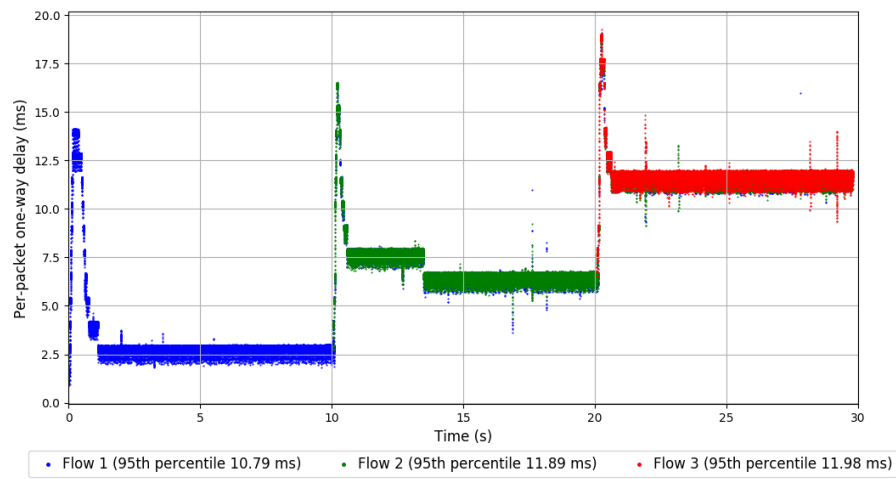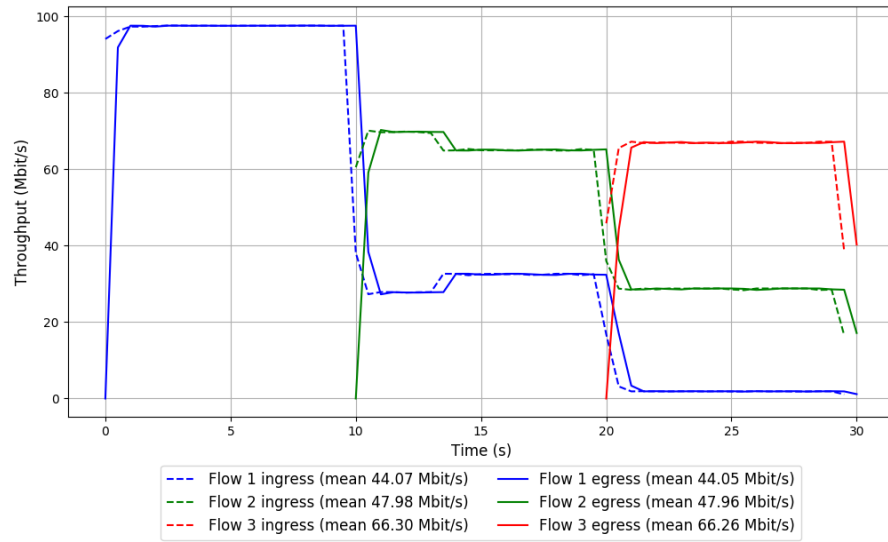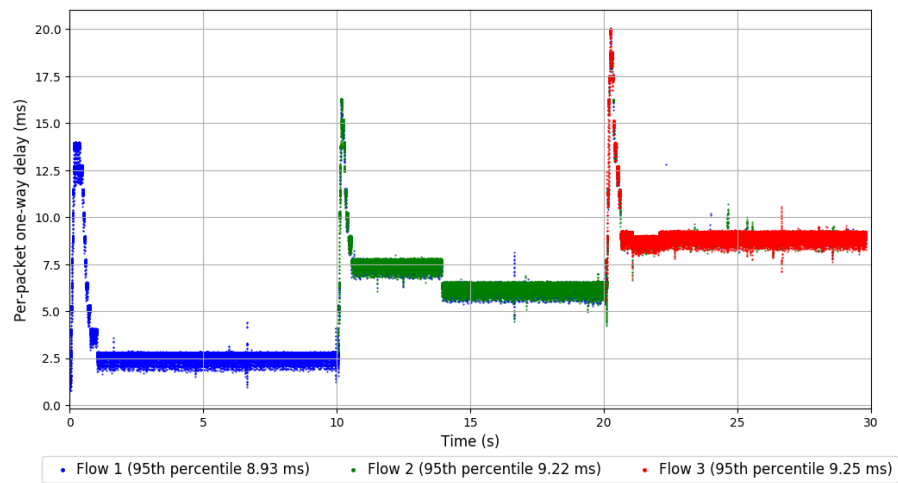
Run 3: Report of Indigo — Data Link

Flow 1 ingress (mean 44.09 Mbit/s)   Flow 1 egress (mean 44.08 Mbit/s)
Flow 2 ingress (mean 44.42 Mbit/s)   Flow 2 egress (mean 44.40 Mbit/s)
Flow 3 ingress (mean 73.30 Mbit/s)   Flow 3 egress (mean 73.27 Mbit/s)

Flow 1 (95th percentile 9.98 ms)   Flow 2 (95th percentile 10.45 ms)   Flow 3 (95th percentile 10.52 ms)

```
Run 4: Statistics of Indigo

Start at: 2019-02-20 01:46:18
End at: 2019-02-20 01:46:48
Local clock offset: -6.143 ms
Remote clock offset: 2.878 ms


# Below is generated by plot.py at 2019-02-20 02:25:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.43 Mbit/s
95th percentile per-packet one-way delay: 11.926 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 44.05 Mbit/s
95th percentile per-packet one-way delay: 10.795 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 47.96 Mbit/s
95th percentile per-packet one-way delay: 11.892 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 66.26 Mbit/s
95th percentile per-packet one-way delay: 11.976 ms
Loss rate: 0.00%
```
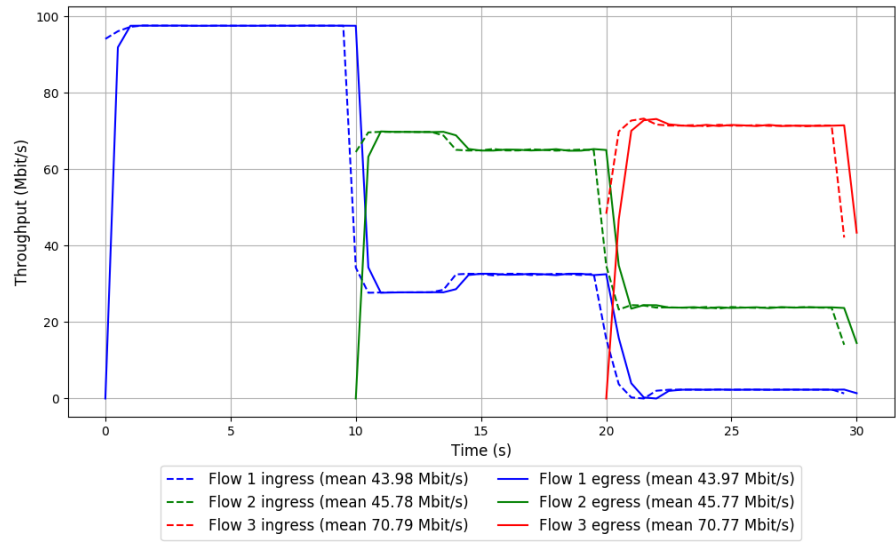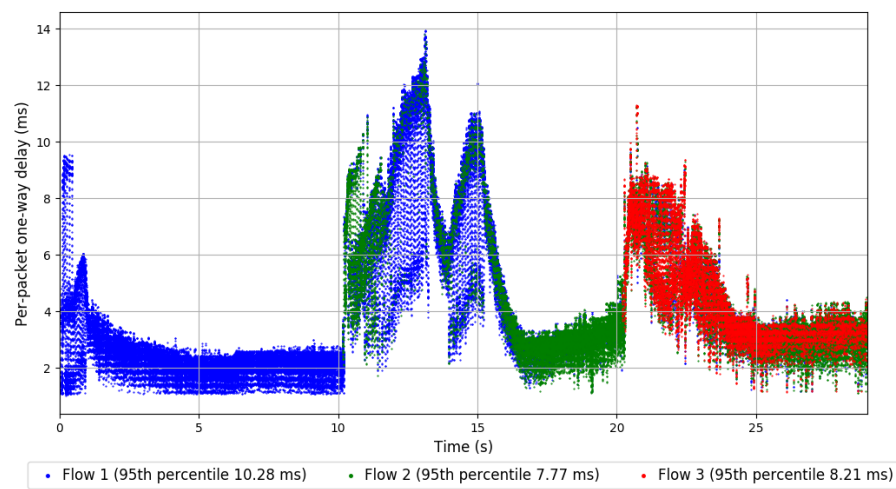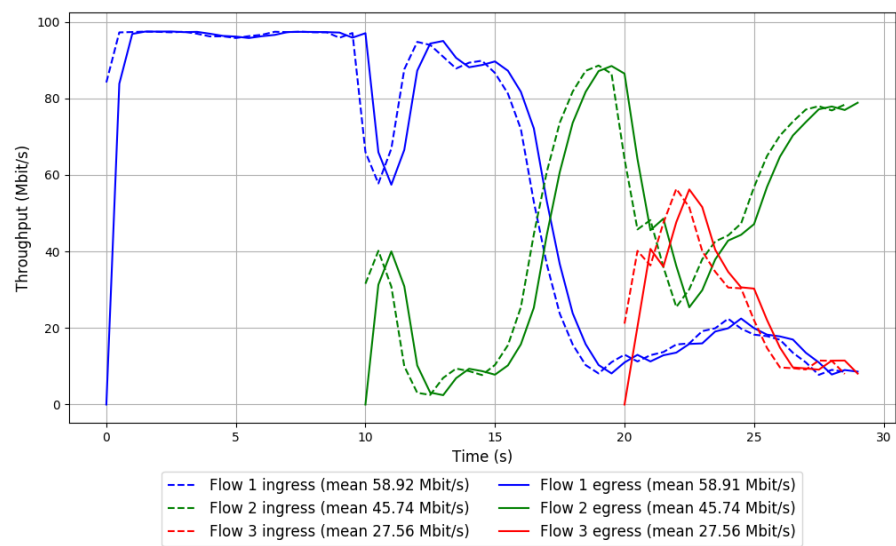
Run 4: Report of Indigo — Data Link

- - - - Flow 1 ingress (mean 44.07 Mbit/s) ——— Flow 1 egress (mean 44.05 Mbit/s)
- - - - Flow 2 ingress (mean 47.98 Mbit/s) ——— Flow 2 egress (mean 47.96 Mbit/s)
- - - - Flow 3 ingress (mean 66.30 Mbit/s) ——— Flow 3 egress (mean 66.26 Mbit/s)

- Flow 1 (95th percentile 10.79 ms)   - Flow 2 (95th percentile 11.89 ms)   - Flow 3 (95th percentile 11.98 ms)

```
Run 5: Statistics of Indigo

Start at: 2019-02-20 02:10:08
End at: 2019-02-20 02:10:38
Local clock offset: -5.241 ms
Remote clock offset: 2.569 ms


# Below is generated by plot.py at 2019-02-20 02:25:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.43 Mbit/s
95th percentile per-packet one-way delay: 9.228 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 43.97 Mbit/s
95th percentile per-packet one-way delay: 8.932 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 45.77 Mbit/s
95th percentile per-packet one-way delay: 9.221 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 70.77 Mbit/s
95th percentile per-packet one-way delay: 9.254 ms
Loss rate: 0.00%
```
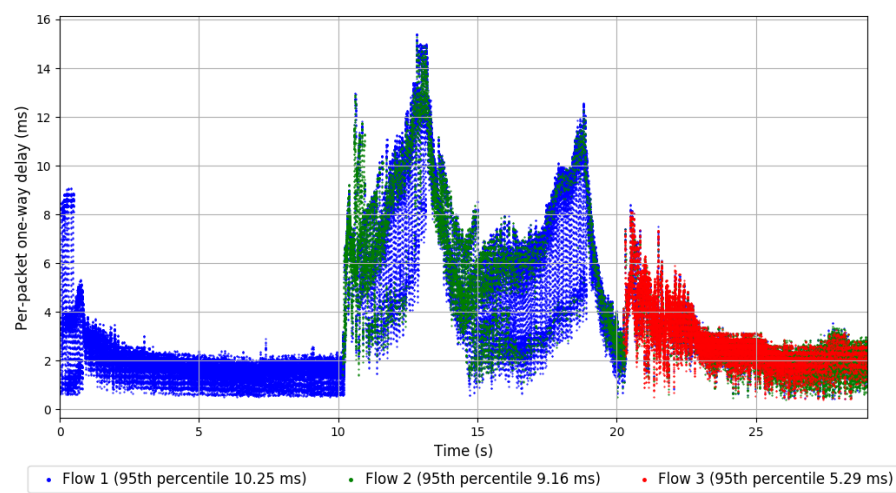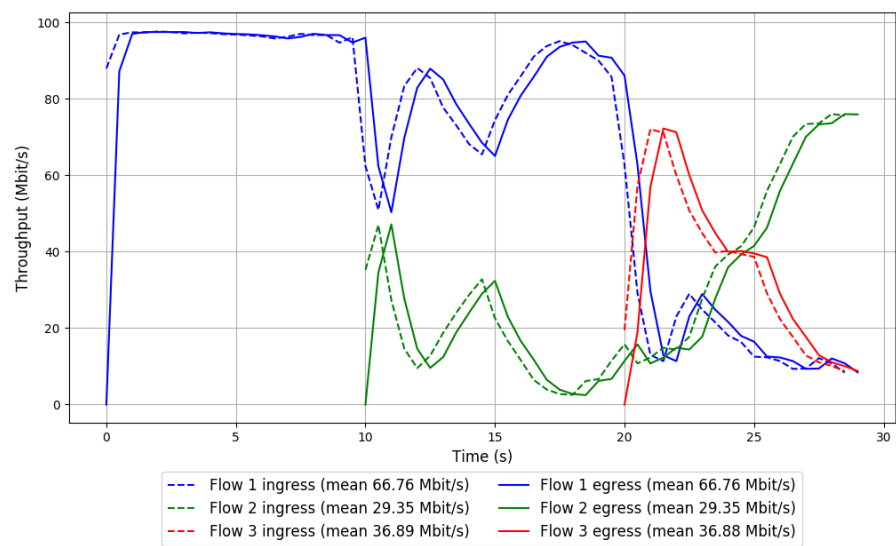
Run 5: Report of Indigo — Data Link

```
Run 1: Statistics of Indigo-MusesC3

Start at: 2019-02-20 00:41:34
End at: 2019-02-20 00:42:04
Local clock offset: -9.545 ms
Remote clock offset: 1.507 ms


# Below is generated by plot.py at 2019-02-20 02:25:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.98 Mbit/s
95th percentile per-packet one-way delay: 9.453 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 58.91 Mbit/s
95th percentile per-packet one-way delay: 10.280 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 45.74 Mbit/s
95th percentile per-packet one-way delay: 7.771 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 27.56 Mbit/s
95th percentile per-packet one-way delay: 8.212 ms
Loss rate: 0.00%
```

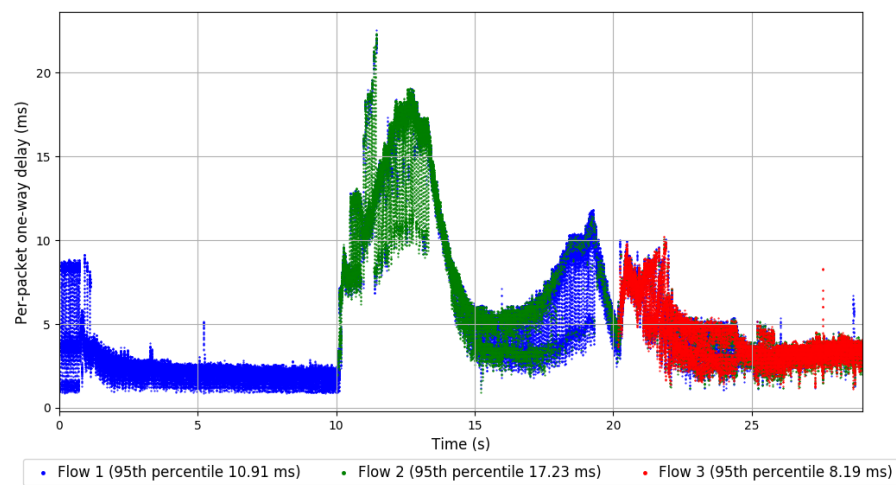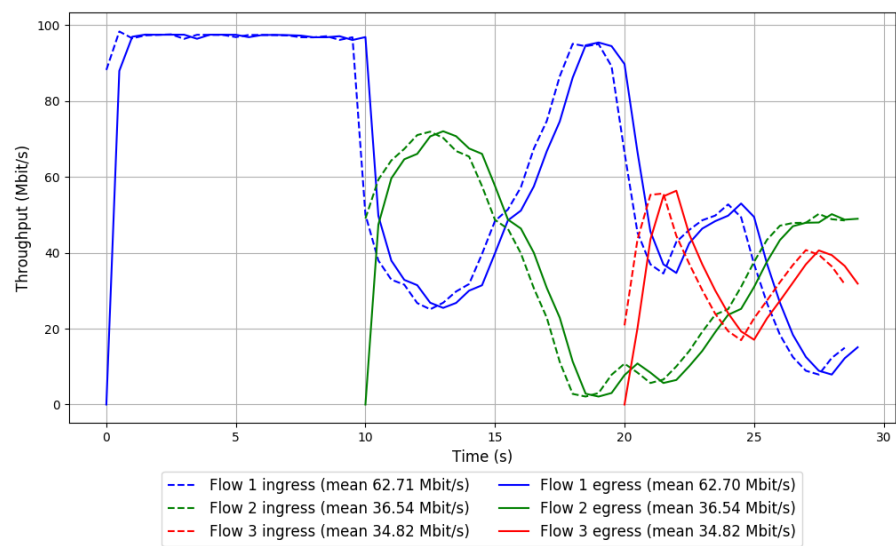Run 1: Report of Indigo-MusesC3 — Data Link

66

```
Run 2: Statistics of Indigo-MusesC3

Start at: 2019-02-20 01:05:22
End at: 2019-02-20 01:05:52
Local clock offset: -10.299 ms
Remote clock offset: 2.108 ms


# Below is generated by plot.py at 2019-02-20 02:25:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.96 Mbit/s
95th percentile per-packet one-way delay: 9.859 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 66.76 Mbit/s
95th percentile per-packet one-way delay: 10.249 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 29.35 Mbit/s
95th percentile per-packet one-way delay: 9.164 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 36.88 Mbit/s
95th percentile per-packet one-way delay: 5.285 ms
Loss rate: 0.00%
```

Run 2: Report of Indigo-MusesC3 — Data Link

```
Run 3: Statistics of Indigo-MusesC3

Start at: 2019-02-20 01:29:17
End at: 2019-02-20 01:29:47
Local clock offset: -14.041 ms
Remote clock offset: 2.724 ms


# Below is generated by plot.py at 2019-02-20 02:25:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.16 Mbit/s
95th percentile per-packet one-way delay: 14.853 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 62.70 Mbit/s
95th percentile per-packet one-way delay: 10.909 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 36.54 Mbit/s
95th percentile per-packet one-way delay: 17.233 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 34.82 Mbit/s
95th percentile per-packet one-way delay: 8.189 ms
Loss rate: 0.00%
```
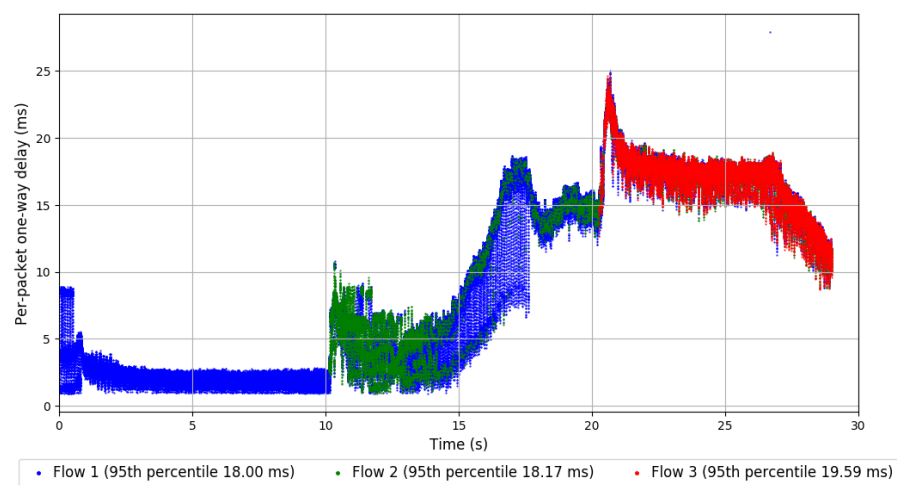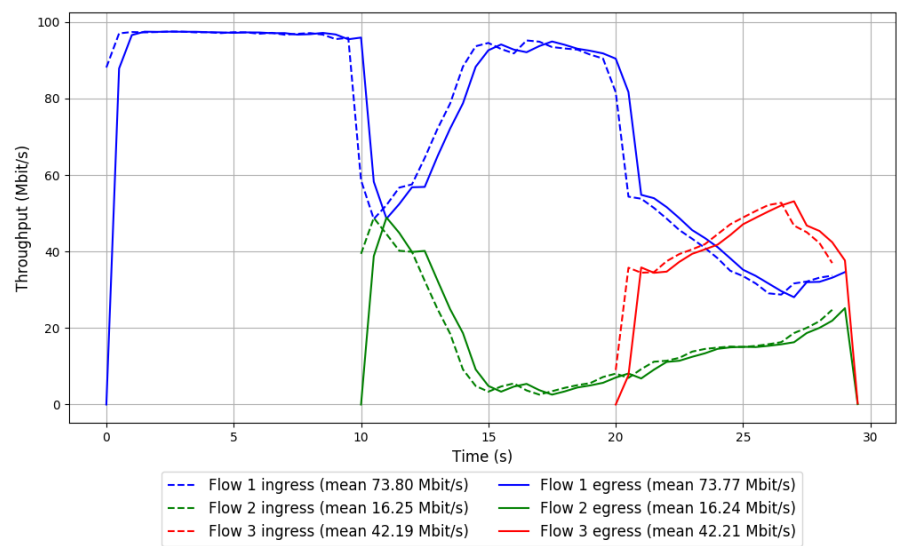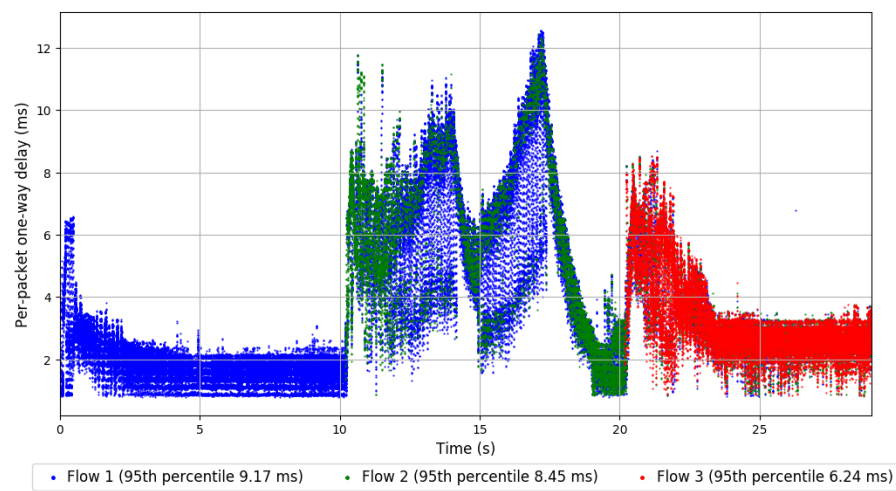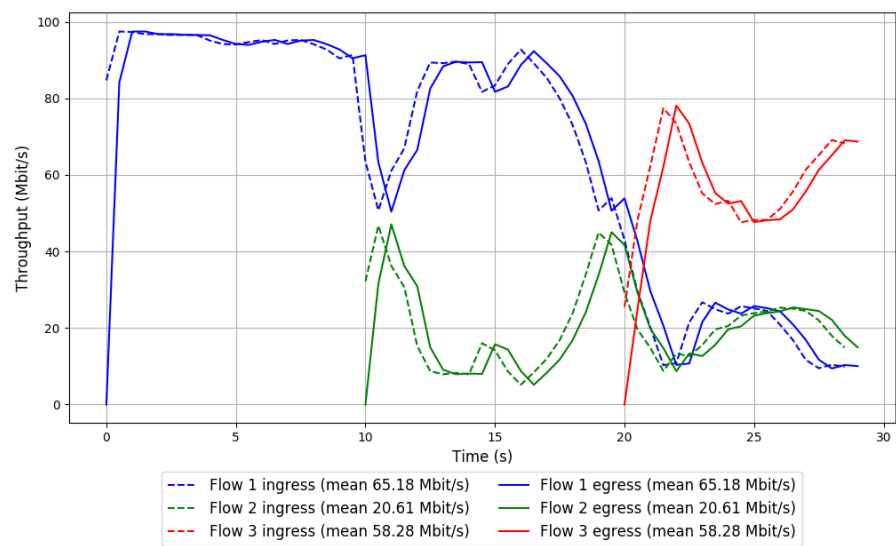
Run 3: Report of Indigo-MusesC3 — Data Link

- - - - Flow 1 ingress (mean 62.71 Mbit/s) ——— Flow 1 egress (mean 62.70 Mbit/s)
- - - - Flow 2 ingress (mean 36.54 Mbit/s) ——— Flow 2 egress (mean 36.54 Mbit/s)
- - - - Flow 3 ingress (mean 34.82 Mbit/s) ——— Flow 3 egress (mean 34.82 Mbit/s)

• Flow 1 (95th percentile 10.91 ms)   • Flow 2 (95th percentile 17.23 ms)   • Flow 3 (95th percentile 8.19 ms)

70

```
Run 4: Statistics of Indigo-MusesC3

Start at: 2019-02-20 01:53:09
End at: 2019-02-20 01:53:39
Local clock offset: -4.97 ms
Remote clock offset: 2.849 ms


# Below is generated by plot.py at 2019-02-20 02:26:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.10 Mbit/s
95th percentile per-packet one-way delay: 18.213 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 73.77 Mbit/s
95th percentile per-packet one-way delay: 17.996 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 16.24 Mbit/s
95th percentile per-packet one-way delay: 18.170 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 42.21 Mbit/s
95th percentile per-packet one-way delay: 19.591 ms
Loss rate: 0.00%
```

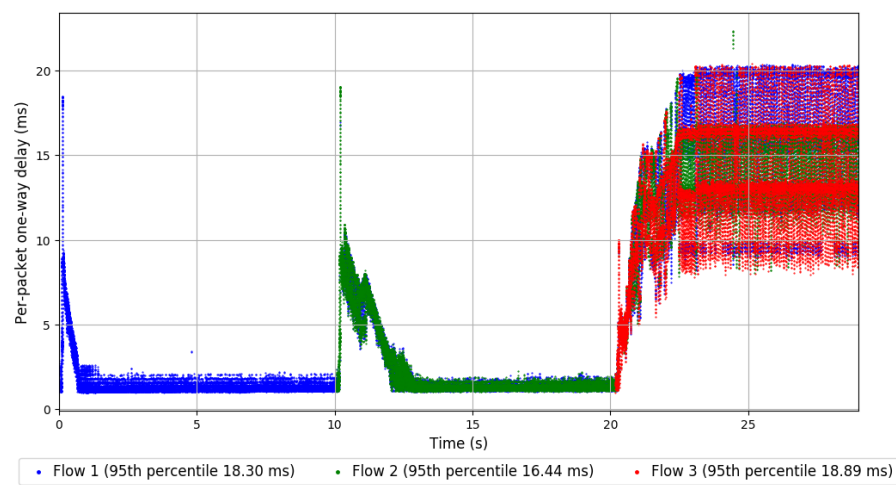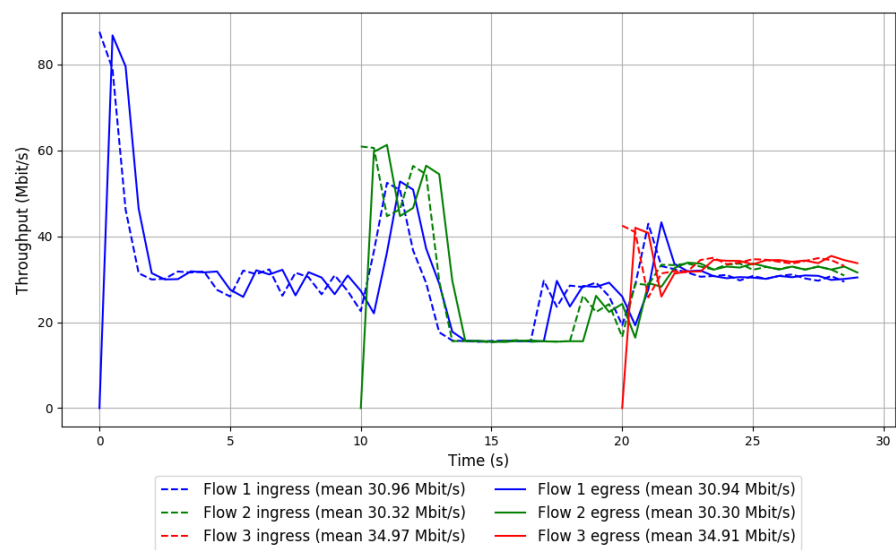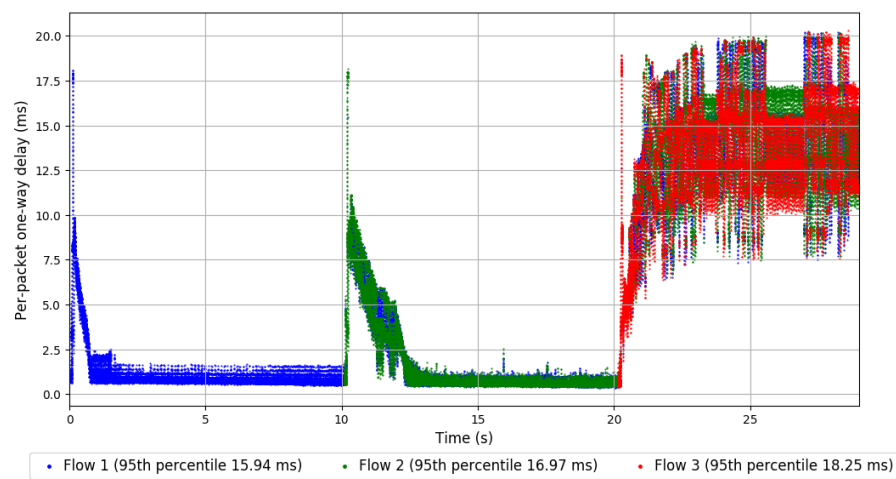Run 4: Report of Indigo-MusesC3 — Data Link

- - - Flow 1 ingress (mean 73.80 Mbit/s) —— Flow 1 egress (mean 73.77 Mbit/s)
- - - Flow 2 ingress (mean 16.25 Mbit/s) —— Flow 2 egress (mean 16.24 Mbit/s)
- - - Flow 3 ingress (mean 42.19 Mbit/s) —— Flow 3 egress (mean 42.21 Mbit/s)

• Flow 1 (95th percentile 18.00 ms)   • Flow 2 (95th percentile 18.17 ms)   • Flow 3 (95th percentile 19.59 ms)

72

```
Run 5: Statistics of Indigo-MusesC3

Start at: 2019-02-20 02:16:58
End at: 2019-02-20 02:17:28
Local clock offset: -5.32 ms
Remote clock offset: 2.497 ms


# Below is generated by plot.py at 2019-02-20 02:26:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.23 Mbit/s
95th percentile per-packet one-way delay: 8.792 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 65.18 Mbit/s
95th percentile per-packet one-way delay: 9.167 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 20.61 Mbit/s
95th percentile per-packet one-way delay: 8.448 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 58.28 Mbit/s
95th percentile per-packet one-way delay: 6.239 ms
Loss rate: 0.00%
```
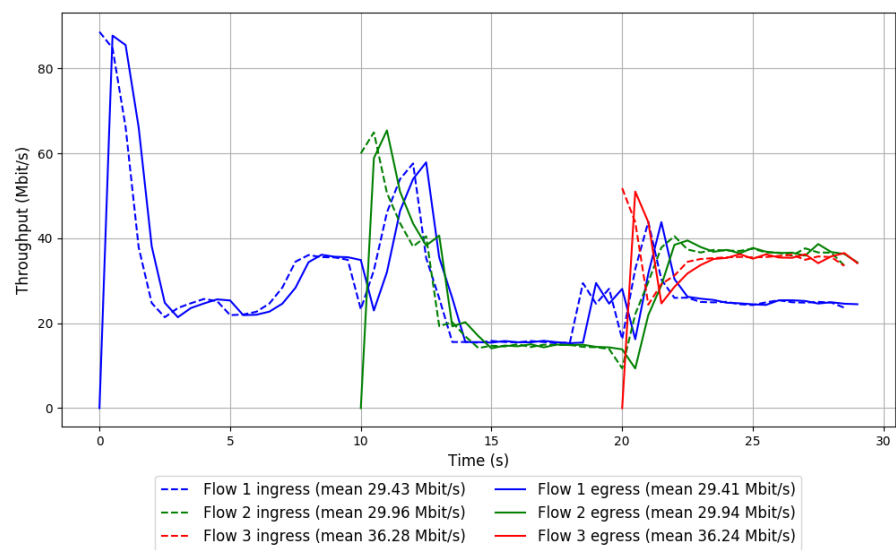
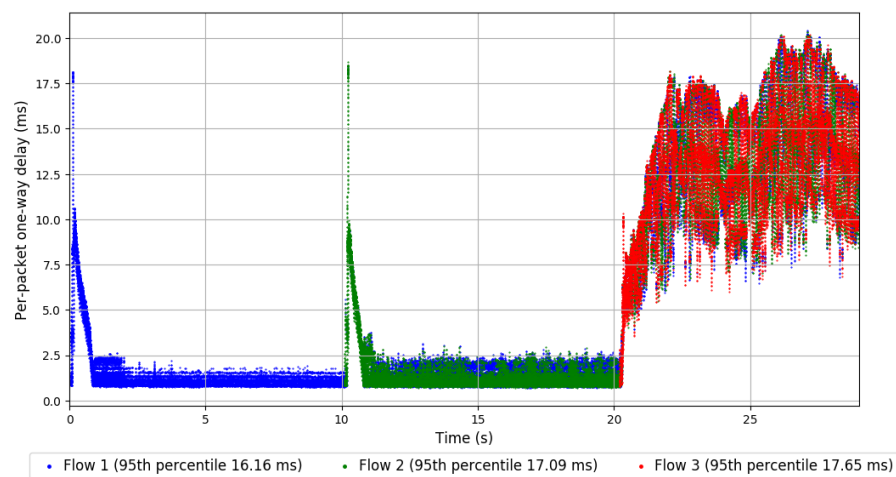Run 5: Report of Indigo-MusesC3 — Data Link

```
Run 1: Statistics of Indigo-MusesC5

Start at: 2019-02-20 00:35:55
End at: 2019-02-20 00:36:25
Local clock offset: -11.067 ms
Remote clock offset: 1.195 ms


# Below is generated by plot.py at 2019-02-20 02:26:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 61.31 Mbit/s
95th percentile per-packet one-way delay: 17.400 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 30.94 Mbit/s
95th percentile per-packet one-way delay: 18.298 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 30.30 Mbit/s
95th percentile per-packet one-way delay: 16.441 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 34.91 Mbit/s
95th percentile per-packet one-way delay: 18.895 ms
Loss rate: 0.00%
```

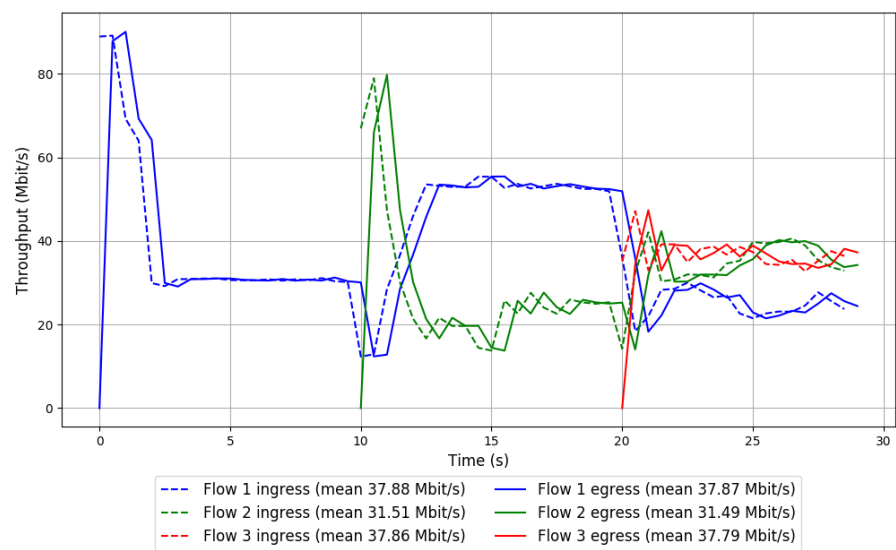Run 1: Report of Indigo-MusesC5 — Data Link

```
Run 2: Statistics of Indigo-MusesC5

Start at: 2019-02-20 00:59:44
End at: 2019-02-20 01:00:14
Local clock offset: -7.399 ms
Remote clock offset: 1.901 ms


# Below is generated by plot.py at 2019-02-20 02:26:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 59.97 Mbit/s
95th percentile per-packet one-way delay: 16.975 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 29.41 Mbit/s
95th percentile per-packet one-way delay: 15.939 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 29.94 Mbit/s
95th percentile per-packet one-way delay: 16.971 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 36.24 Mbit/s
95th percentile per-packet one-way delay: 18.246 ms
Loss rate: 0.00%
```
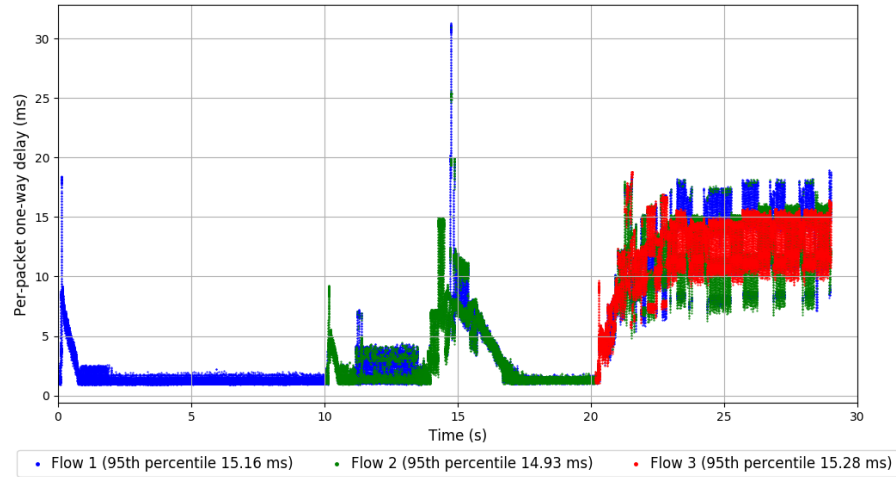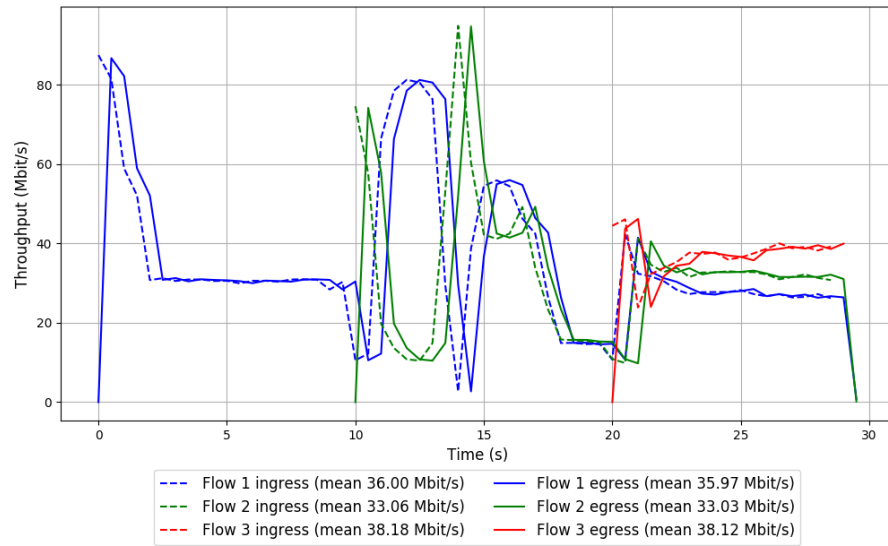
Run 2: Report of Indigo-MusesC5 — Data Link

Flow 1 ingress (mean 29.43 Mbit/s)   Flow 1 egress (mean 29.41 Mbit/s)
Flow 2 ingress (mean 29.96 Mbit/s)   Flow 2 egress (mean 29.94 Mbit/s)
Flow 3 ingress (mean 36.28 Mbit/s)   Flow 3 egress (mean 36.24 Mbit/s)

Flow 1 (95th percentile 15.94 ms)   Flow 2 (95th percentile 16.97 ms)   Flow 3 (95th percentile 18.25 ms)

```
Run 3: Statistics of Indigo-MusesC5

Start at: 2019-02-20 01:23:37
End at: 2019-02-20 01:24:07
Local clock offset: -13.659 ms
Remote clock offset: 2.527 ms


# Below is generated by plot.py at 2019-02-20 02:26:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 69.86 Mbit/s
95th percentile per-packet one-way delay: 16.917 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 37.87 Mbit/s
95th percentile per-packet one-way delay: 16.163 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 31.49 Mbit/s
95th percentile per-packet one-way delay: 17.089 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 37.79 Mbit/s
95th percentile per-packet one-way delay: 17.654 ms
Loss rate: 0.00%
```
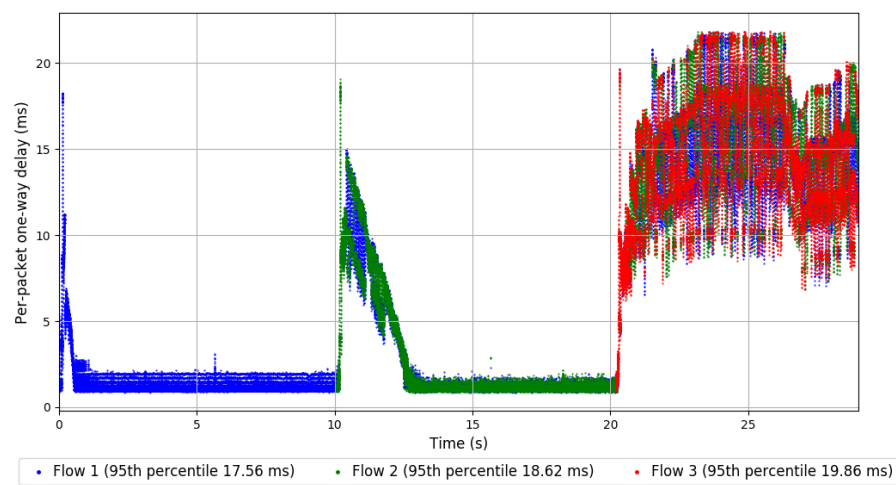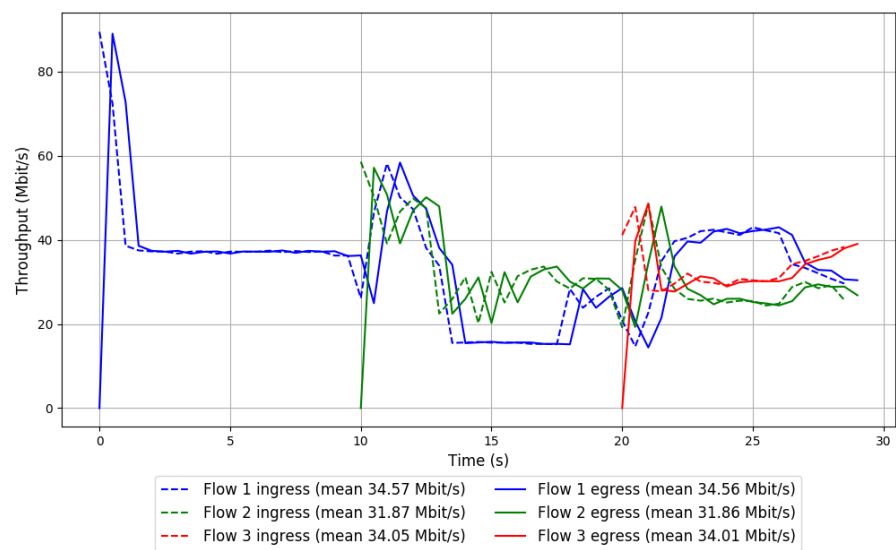
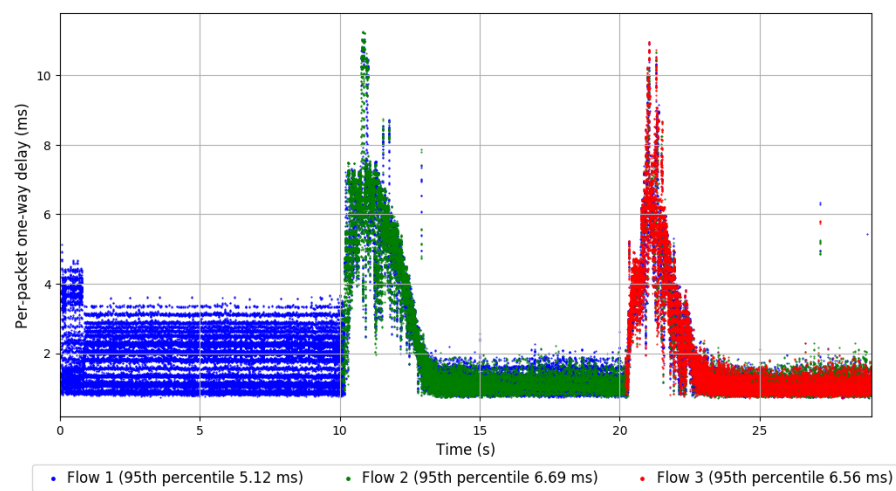Run 3: Report of Indigo-MusesC5 — Data Link

```
Run 4: Statistics of Indigo-MusesC5

Start at: 2019-02-20 01:47:28
End at: 2019-02-20 01:47:58
Local clock offset: -5.899 ms
Remote clock offset: 2.895 ms

# Below is generated by plot.py at 2019-02-20 02:26:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 69.16 Mbit/s
95th percentile per-packet one-way delay: 15.143 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 35.97 Mbit/s
95th percentile per-packet one-way delay: 15.157 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 33.03 Mbit/s
95th percentile per-packet one-way delay: 14.928 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 38.12 Mbit/s
95th percentile per-packet one-way delay: 15.277 ms
Loss rate: 0.00%
```

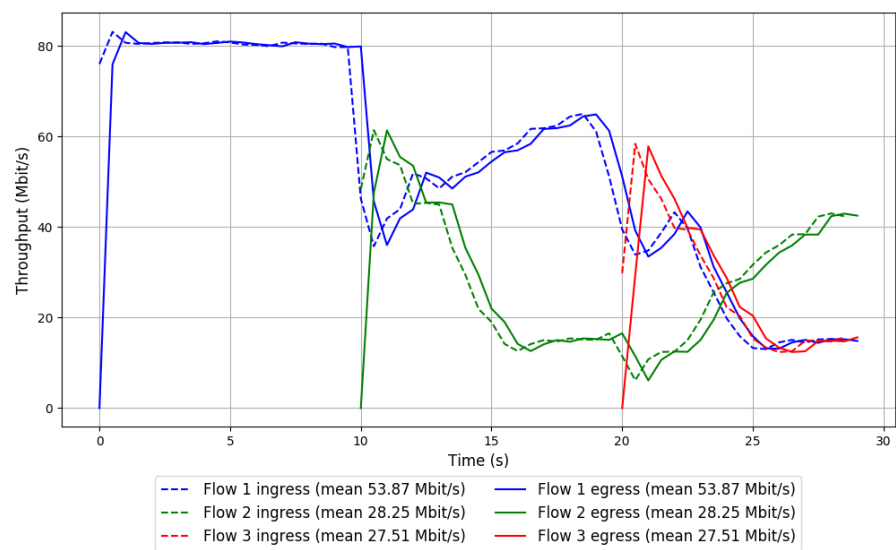# Run 4: Report of Indigo-MusesC5 — Data Link

Flow 1 ingress (mean 36.00 Mbit/s) --- Flow 1 egress (mean 35.97 Mbit/s)
Flow 2 ingress (mean 33.06 Mbit/s) --- Flow 2 egress (mean 33.03 Mbit/s)
Flow 3 ingress (mean 38.18 Mbit/s) --- Flow 3 egress (mean 38.12 Mbit/s)

Flow 1 (95th percentile 15.16 ms)   Flow 2 (95th percentile 14.93 ms)   Flow 3 (95th percentile 15.28 ms)
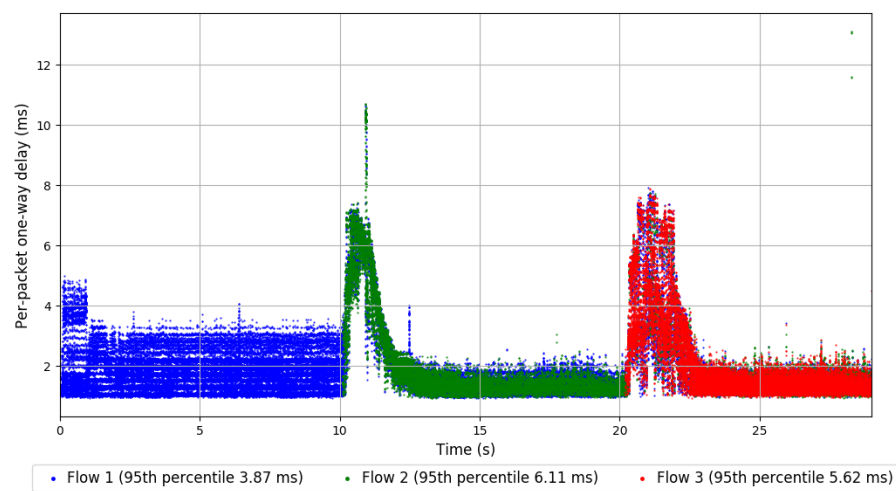
```
Run 5: Statistics of Indigo-MusesC5

Start at: 2019-02-20 02:11:18
End at: 2019-02-20 02:11:48
Local clock offset: -5.289 ms
Remote clock offset: 2.636 ms


# Below is generated by plot.py at 2019-02-20 02:26:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 65.65 Mbit/s
95th percentile per-packet one-way delay: 18.497 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 34.56 Mbit/s
95th percentile per-packet one-way delay: 17.559 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 31.86 Mbit/s
95th percentile per-packet one-way delay: 18.620 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 34.01 Mbit/s
95th percentile per-packet one-way delay: 19.859 ms
Loss rate: 0.00%
```

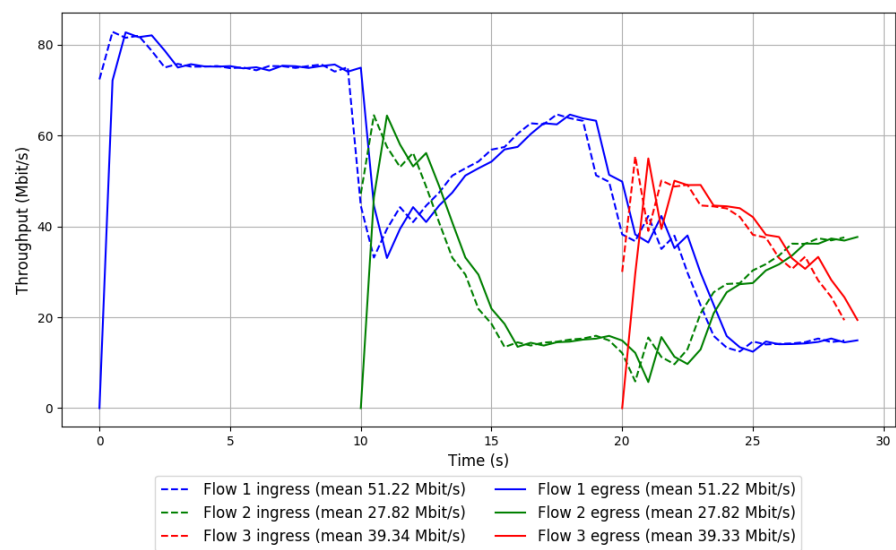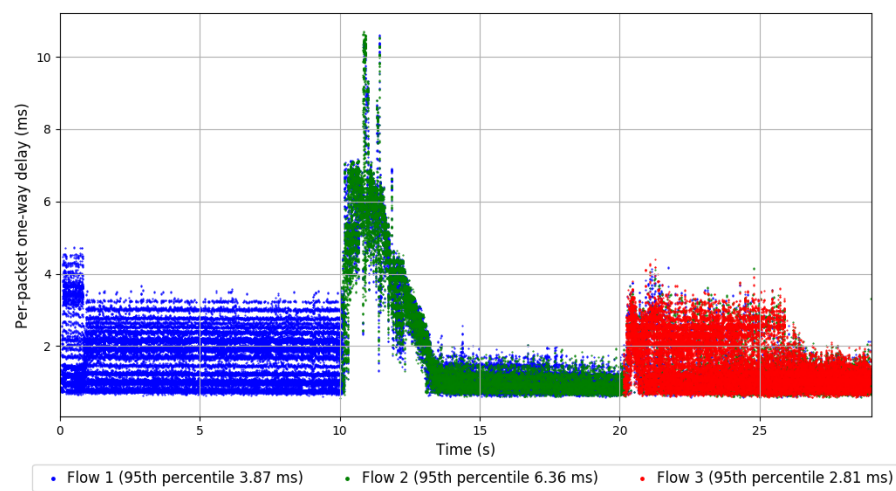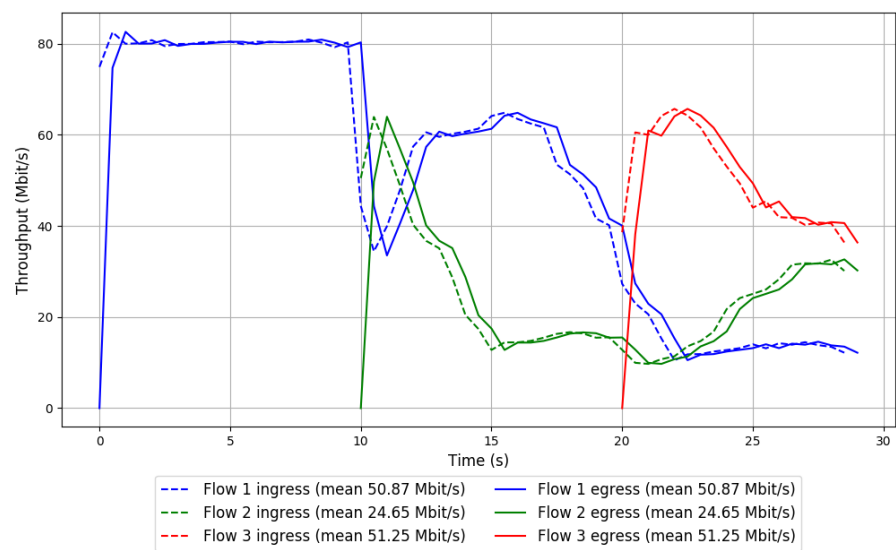Run 5: Report of Indigo-MusesC5 — Data Link

```
Run 1: Statistics of Indigo-MusesD

Start at: 2019-02-20 00:27:55
End at: 2019-02-20 00:28:25
Local clock offset: -13.958 ms
Remote clock offset: 0.881 ms


# Below is generated by plot.py at 2019-02-20 02:26:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 80.65 Mbit/s
95th percentile per-packet one-way delay: 5.969 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 53.87 Mbit/s
95th percentile per-packet one-way delay: 5.116 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 28.25 Mbit/s
95th percentile per-packet one-way delay: 6.689 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 27.51 Mbit/s
95th percentile per-packet one-way delay: 6.557 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo-MusesD — Data Link

```
Run 2: Statistics of Indigo-MusesD

Start at: 2019-02-20 00:51:44
End at: 2019-02-20 00:52:14
Local clock offset: -8.058 ms
Remote clock offset: 1.839 ms


# Below is generated by plot.py at 2019-02-20 02:27:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.29 Mbit/s
95th percentile per-packet one-way delay: 5.061 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 51.22 Mbit/s
95th percentile per-packet one-way delay: 3.870 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 27.82 Mbit/s
95th percentile per-packet one-way delay: 6.113 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 39.33 Mbit/s
95th percentile per-packet one-way delay: 5.624 ms
Loss rate: 0.00%
```
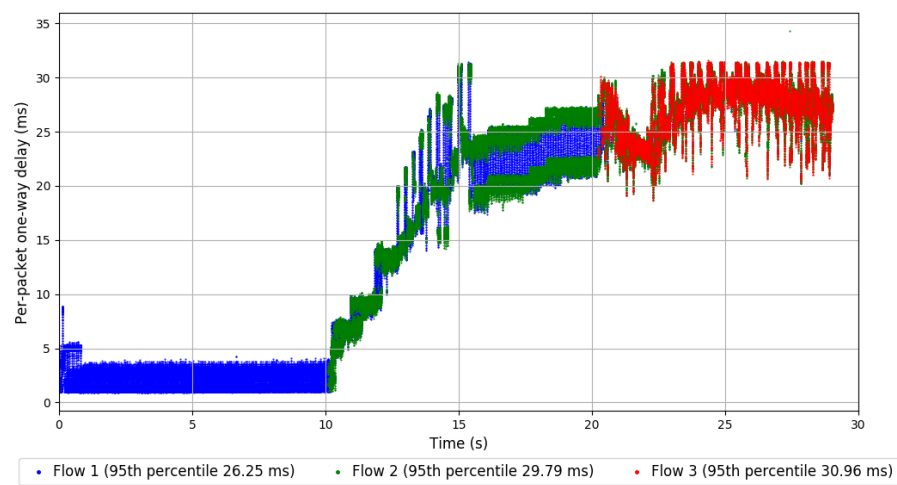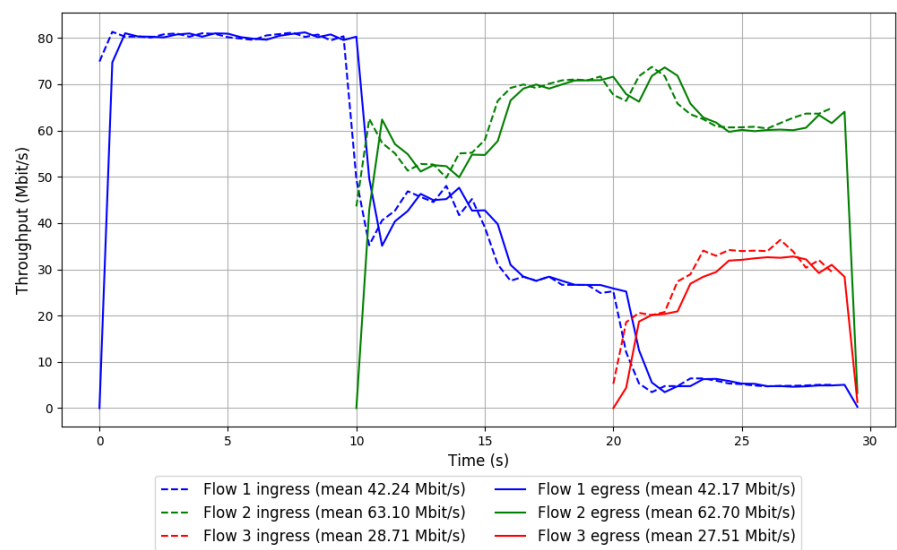
Run 2: Report of Indigo-MusesD — Data Link

```
Run 3: Statistics of Indigo-MusesD

Start at: 2019-02-20 01:15:37
End at: 2019-02-20 01:16:07
Local clock offset: -12.798 ms
Remote clock offset: 2.328 ms


# Below is generated by plot.py at 2019-02-20 02:27:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 82.62 Mbit/s
95th percentile per-packet one-way delay: 4.917 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.87 Mbit/s
95th percentile per-packet one-way delay: 3.865 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 24.65 Mbit/s
95th percentile per-packet one-way delay: 6.359 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 51.25 Mbit/s
95th percentile per-packet one-way delay: 2.805 ms
Loss rate: 0.00%
```
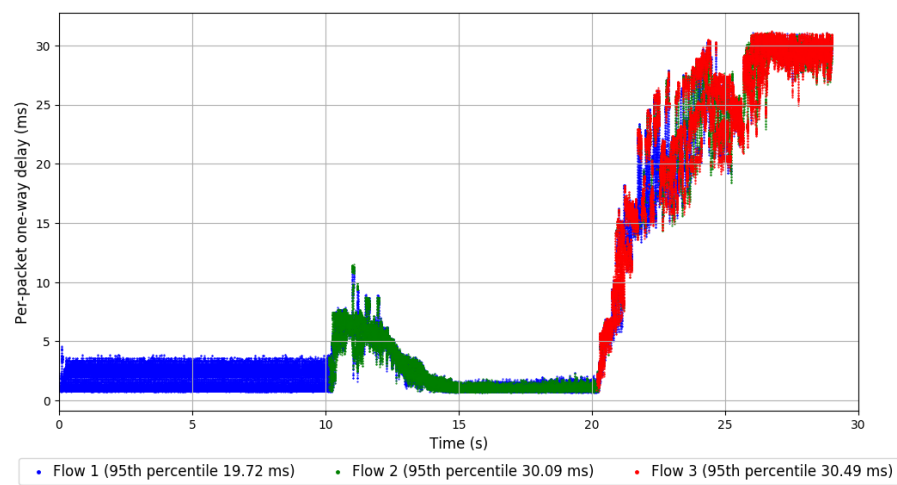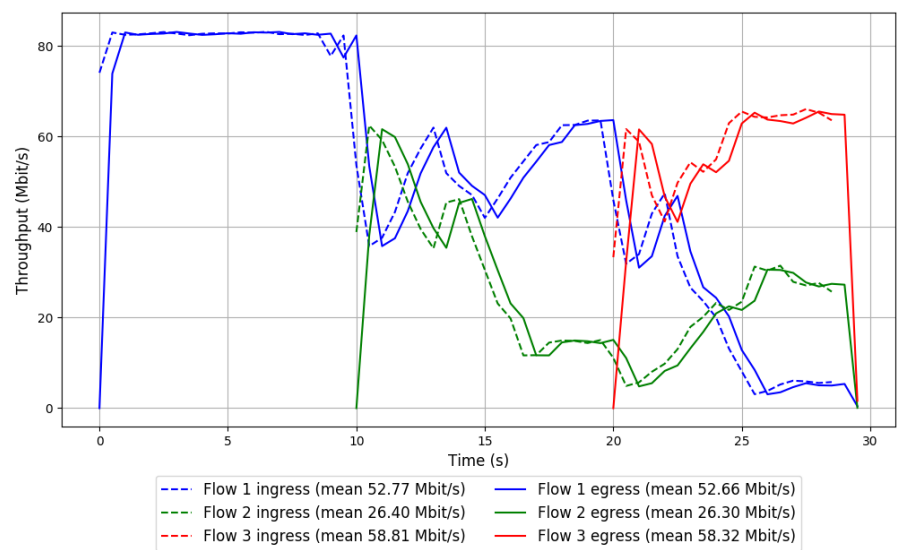
Run 3: Report of Indigo-MusesD — Data Link

- - - Flow 1 ingress (mean 50.87 Mbit/s) —— Flow 1 egress (mean 50.87 Mbit/s)
- - - Flow 2 ingress (mean 24.65 Mbit/s) —— Flow 2 egress (mean 24.65 Mbit/s)
- - - Flow 3 ingress (mean 51.25 Mbit/s) —— Flow 3 egress (mean 51.25 Mbit/s)

• Flow 1 (95th percentile 3.87 ms)   • Flow 2 (95th percentile 6.36 ms)   • Flow 3 (95th percentile 2.81 ms)

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```
Run 4: Statistics of Indigo-MusesD

Start at: 2019-02-20 01:39:28
End at: 2019-02-20 01:39:58
Local clock offset: -8.089 ms
Remote clock offset: 2.908 ms


# Below is generated by plot.py at 2019-02-20 02:27:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.42 Mbit/s
95th percentile per-packet one-way delay: 29.537 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 42.17 Mbit/s
95th percentile per-packet one-way delay: 26.254 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 62.70 Mbit/s
95th percentile per-packet one-way delay: 29.792 ms
Loss rate: 0.51%
-- Flow 3:
Average throughput: 27.51 Mbit/s
95th percentile per-packet one-way delay: 30.961 ms
Loss rate: 4.20%
```
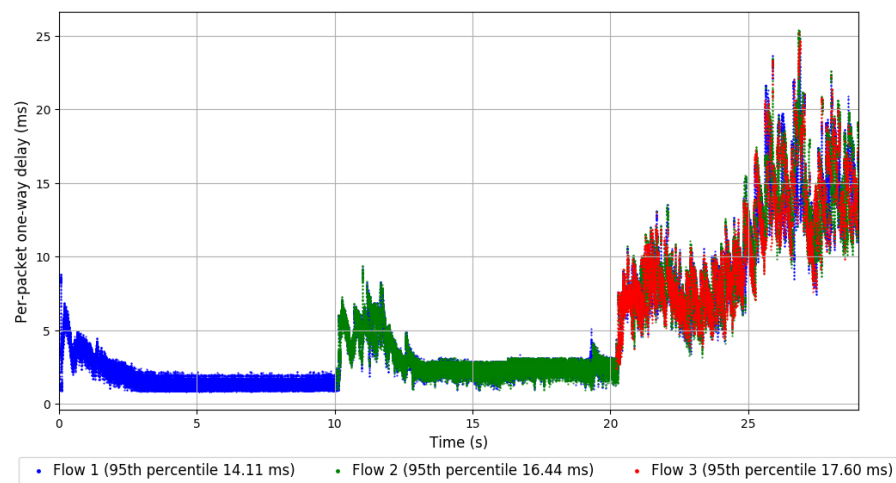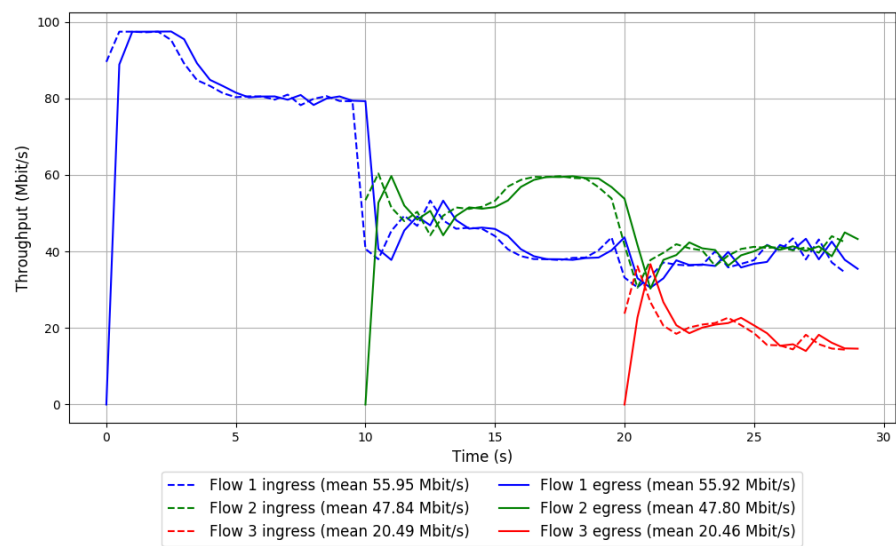
Run 4: Report of Indigo-MusesD — Data Link

```
Run 5: Statistics of Indigo-MusesD

Start at: 2019-02-20 02:03:18
End at: 2019-02-20 02:03:48
Local clock offset: -4.716 ms
Remote clock offset: 2.689 ms


# Below is generated by plot.py at 2019-02-20 02:27:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.52 Mbit/s
95th percentile per-packet one-way delay: 29.837 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 52.66 Mbit/s
95th percentile per-packet one-way delay: 19.721 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 26.30 Mbit/s
95th percentile per-packet one-way delay: 30.095 ms
Loss rate: 0.24%
-- Flow 3:
Average throughput: 58.32 Mbit/s
95th percentile per-packet one-way delay: 30.486 ms
Loss rate: 0.50%
```
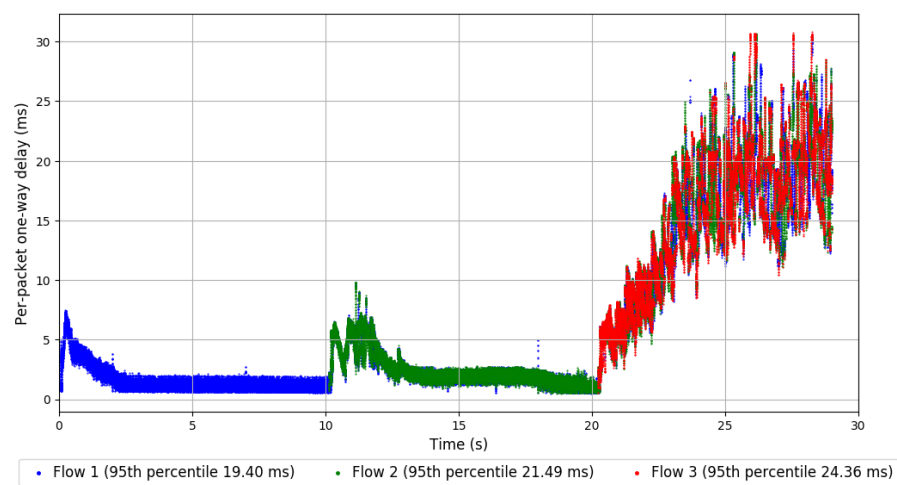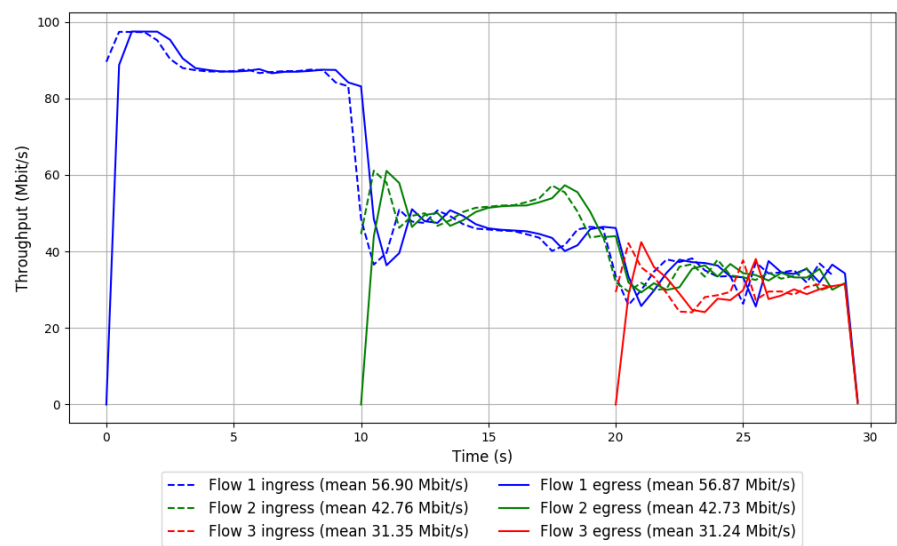
Run 5: Report of Indigo-MusesD — Data Link

```
Run 1: Statistics of Indigo-MusesT

Start at: 2019-02-20 00:39:19
End at: 2019-02-20 00:39:49
Local clock offset: -9.993 ms
Remote clock offset: 1.278 ms


# Below is generated by plot.py at 2019-02-20 02:27:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.28 Mbit/s
95th percentile per-packet one-way delay: 15.296 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 55.92 Mbit/s
95th percentile per-packet one-way delay: 14.114 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 47.80 Mbit/s
95th percentile per-packet one-way delay: 16.436 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 20.46 Mbit/s
95th percentile per-packet one-way delay: 17.596 ms
Loss rate: 0.00%
```

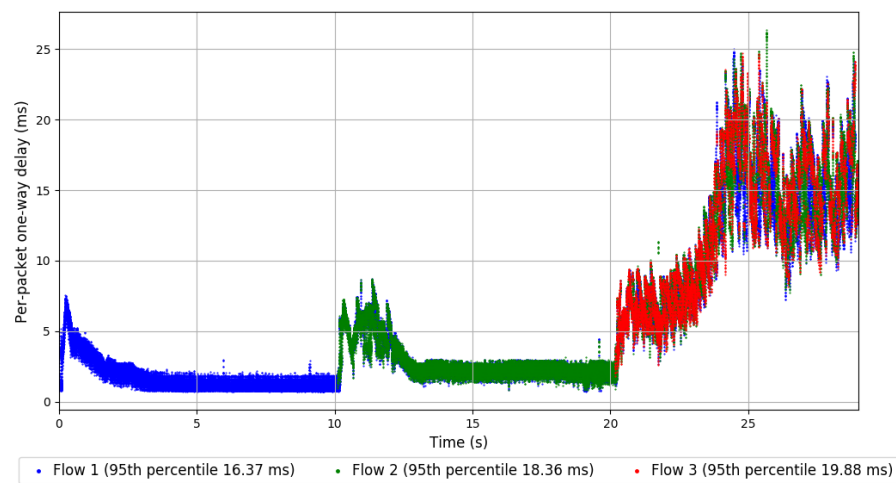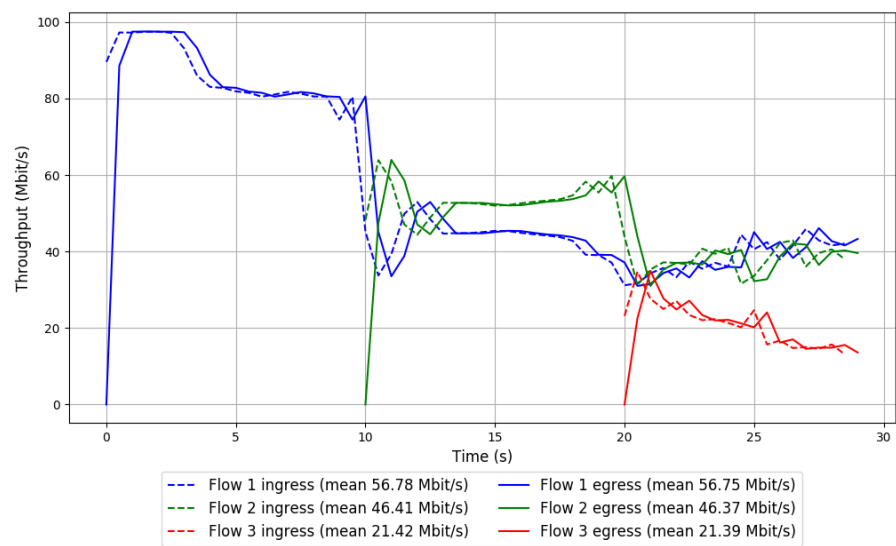Run 1: Report of Indigo-MusesT — Data Link

```
Run 2: Statistics of Indigo-MusesT

Start at: 2019-02-20 01:03:07
End at: 2019-02-20 01:03:37
Local clock offset: -9.266 ms
Remote clock offset: 2.169 ms


# Below is generated by plot.py at 2019-02-20 02:27:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.13 Mbit/s
95th percentile per-packet one-way delay: 21.098 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 56.87 Mbit/s
95th percentile per-packet one-way delay: 19.397 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 42.73 Mbit/s
95th percentile per-packet one-way delay: 21.488 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 31.24 Mbit/s
95th percentile per-packet one-way delay: 24.362 ms
Loss rate: 0.20%
```
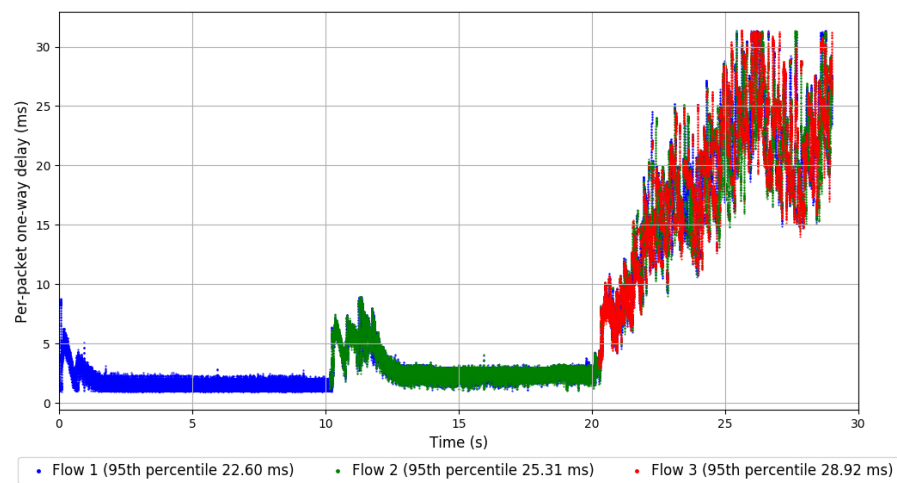
Run 2: Report of Indigo-MusesT — Data Link

```
Run 3: Statistics of Indigo-MusesT

Start at: 2019-02-20 01:27:01
End at: 2019-02-20 01:27:31
Local clock offset: -13.901 ms
Remote clock offset: 2.555 ms


# Below is generated by plot.py at 2019-02-20 02:27:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.44 Mbit/s
95th percentile per-packet one-way delay: 17.804 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 56.75 Mbit/s
95th percentile per-packet one-way delay: 16.371 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 46.37 Mbit/s
95th percentile per-packet one-way delay: 18.360 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 21.39 Mbit/s
95th percentile per-packet one-way delay: 19.884 ms
Loss rate: 0.00%
```
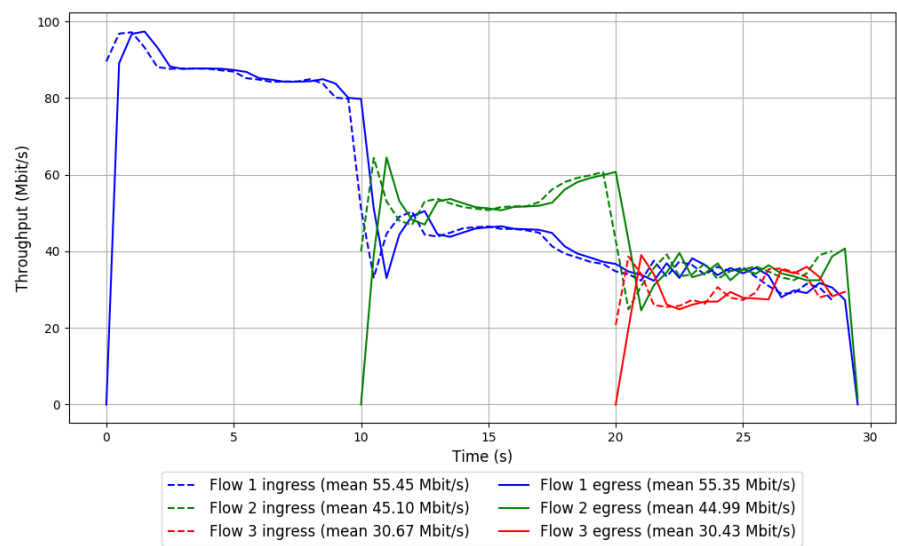
Run 3: Report of Indigo-MusesT — Data Link

```
Run 4: Statistics of Indigo-MusesT

Start at: 2019-02-20 01:50:53
End at: 2019-02-20 01:51:23
Local clock offset: -5.313 ms
Remote clock offset: 2.868 ms


# Below is generated by plot.py at 2019-02-20 02:28:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.74 Mbit/s
95th percentile per-packet one-way delay: 25.154 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 55.35 Mbit/s
95th percentile per-packet one-way delay: 22.602 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 44.99 Mbit/s
95th percentile per-packet one-way delay: 25.310 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 30.43 Mbit/s
95th percentile per-packet one-way delay: 28.919 ms
Loss rate: 0.45%
```
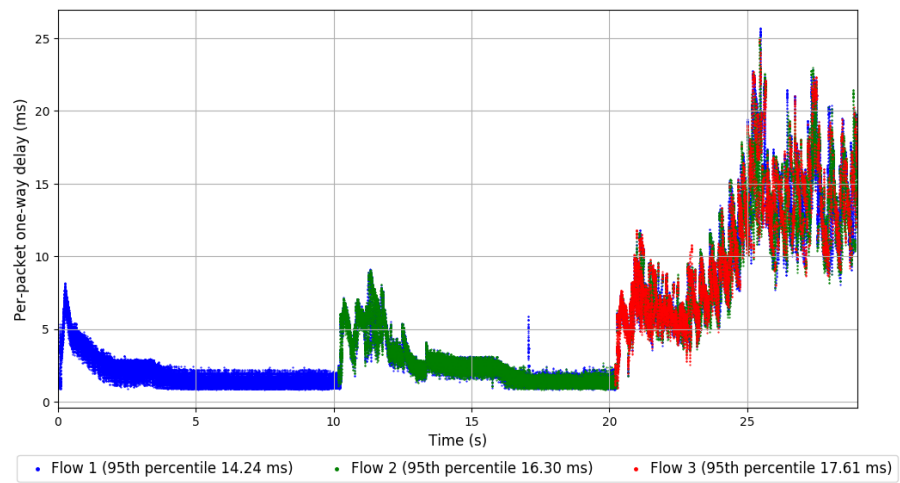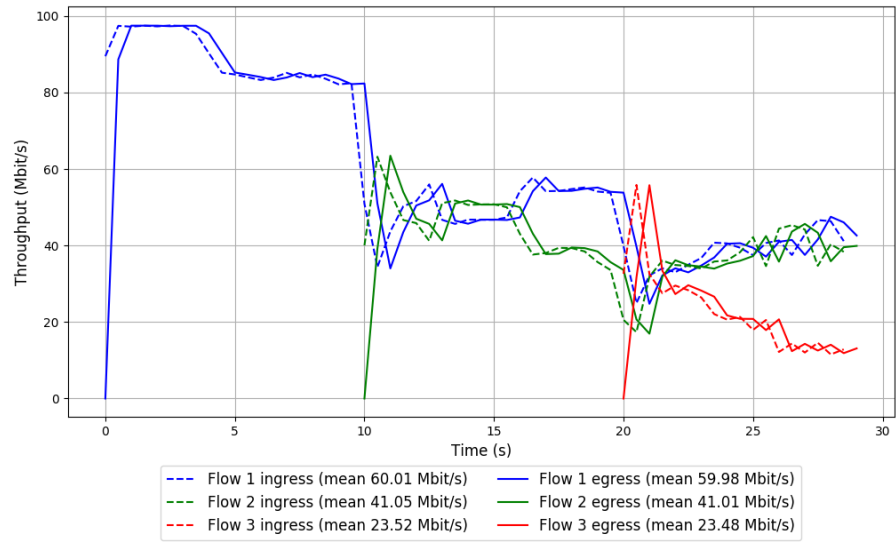
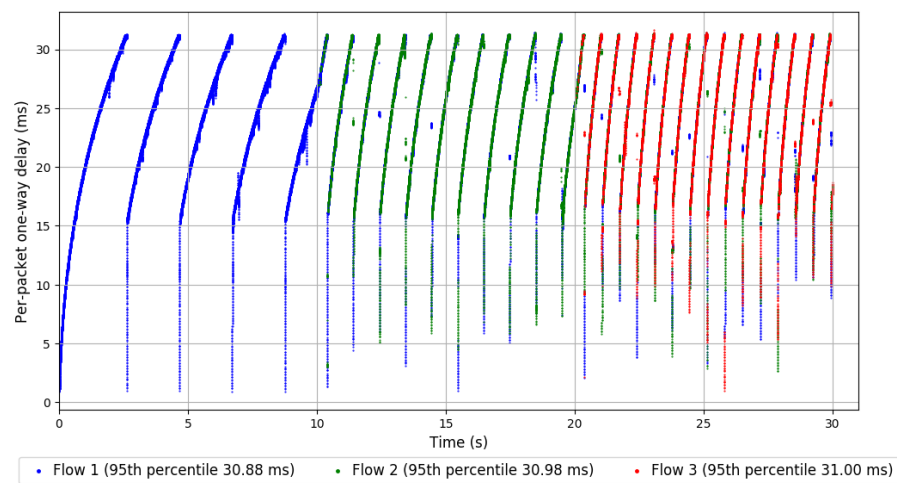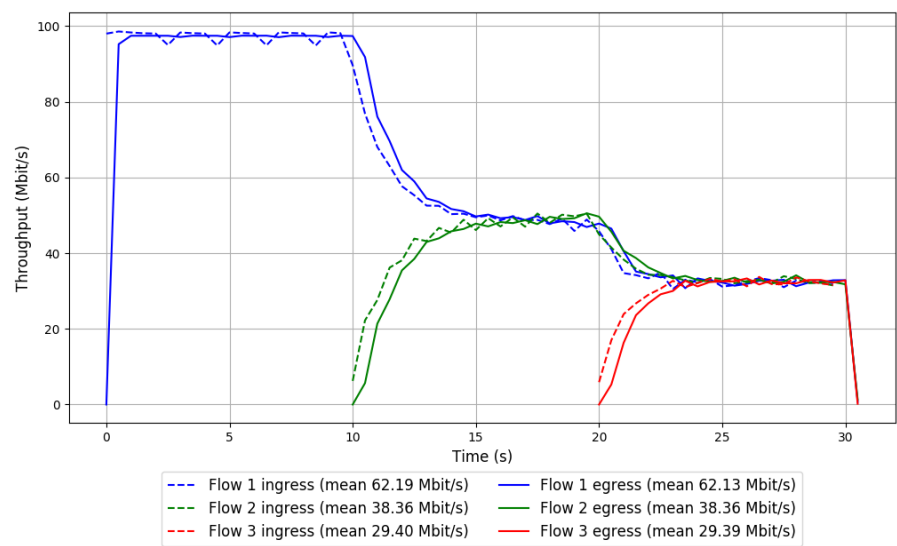Run 4: Report of Indigo-MusesT — Data Link

Flow 1 ingress (mean 55.45 Mbit/s)
Flow 1 egress (mean 55.35 Mbit/s)
Flow 2 ingress (mean 45.10 Mbit/s)
Flow 2 egress (mean 44.99 Mbit/s)
Flow 3 ingress (mean 30.67 Mbit/s)
Flow 3 egress (mean 30.43 Mbit/s)

Flow 1 (95th percentile 22.60 ms)
Flow 2 (95th percentile 25.31 ms)
Flow 3 (95th percentile 28.92 ms)

```
Run 5: Statistics of Indigo-MusesT

Start at: 2019-02-20 02:14:42
End at: 2019-02-20 02:15:12
Local clock offset: -5.318 ms
Remote clock offset: 2.603 ms


# Below is generated by plot.py at 2019-02-20 02:28:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.74 Mbit/s
95th percentile per-packet one-way delay: 15.563 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 59.98 Mbit/s
95th percentile per-packet one-way delay: 14.239 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 41.01 Mbit/s
95th percentile per-packet one-way delay: 16.300 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 23.48 Mbit/s
95th percentile per-packet one-way delay: 17.613 ms
Loss rate: 0.00%
```

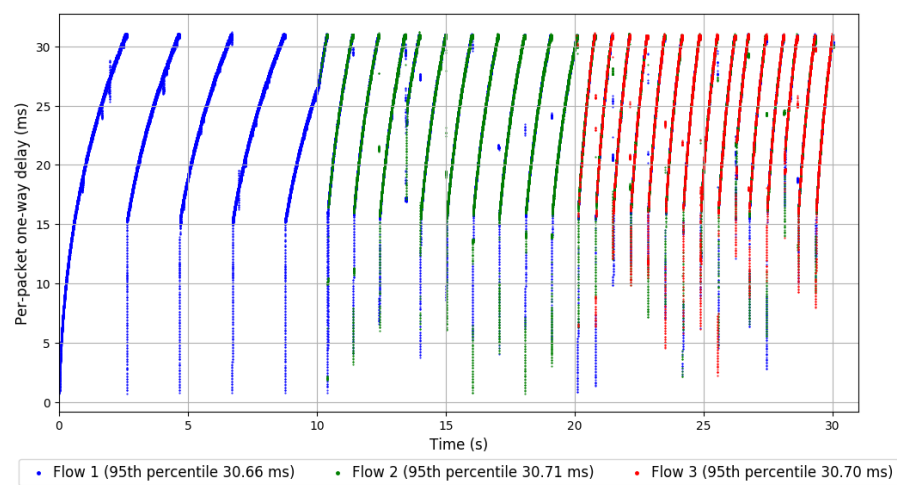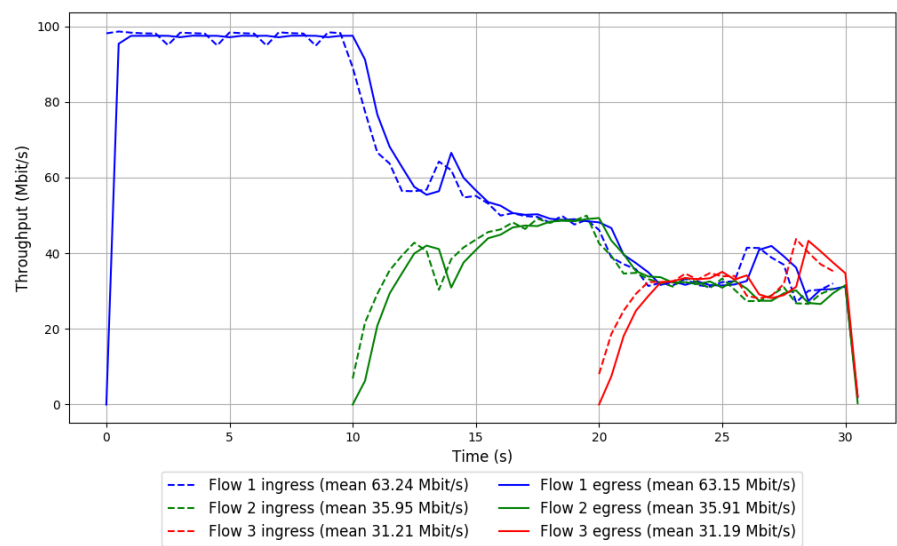Run 5: Report of Indigo-MusesT — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2019-02-20 00:43:53
End at: 2019-02-20 00:44:23
Local clock offset: -9.088 ms
Remote clock offset: 1.491 ms


# Below is generated by plot.py at 2019-02-20 02:28:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.41 Mbit/s
95th percentile per-packet one-way delay: 30.937 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 62.13 Mbit/s
95th percentile per-packet one-way delay: 30.881 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 38.36 Mbit/s
95th percentile per-packet one-way delay: 30.982 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 29.39 Mbit/s
95th percentile per-packet one-way delay: 30.997 ms
Loss rate: 0.10%
```
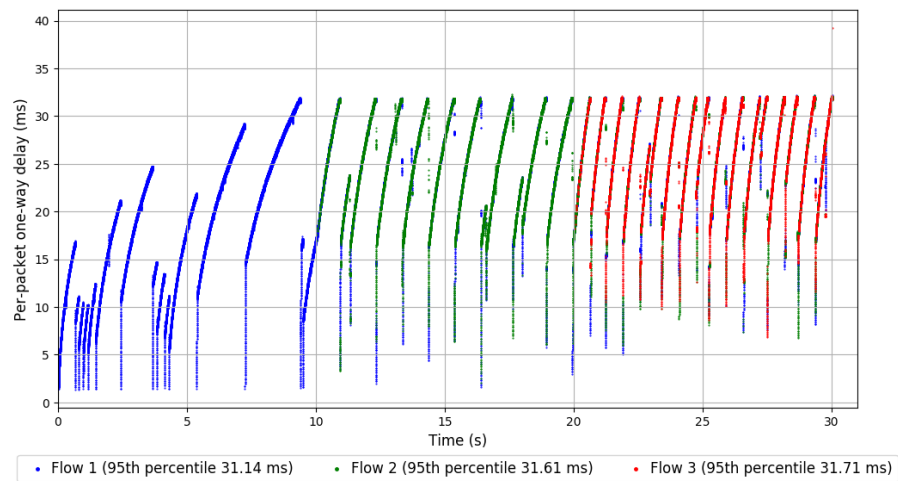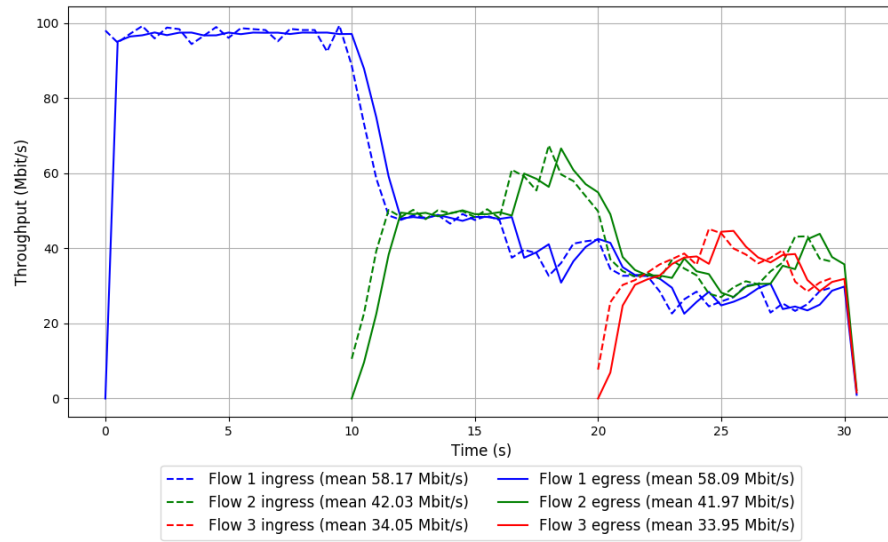
Run 1: Report of LEDBAT — Data Link

Flow 1 ingress (mean 62.19 Mbit/s)   Flow 1 egress (mean 62.13 Mbit/s)
Flow 2 ingress (mean 38.36 Mbit/s)   Flow 2 egress (mean 38.36 Mbit/s)
Flow 3 ingress (mean 29.40 Mbit/s)   Flow 3 egress (mean 29.39 Mbit/s)

Flow 1 (95th percentile 30.88 ms)   Flow 2 (95th percentile 30.98 ms)   Flow 3 (95th percentile 31.00 ms)

```
Run 2: Statistics of LEDBAT

Start at: 2019-02-20 01:07:41
End at: 2019-02-20 01:08:11
Local clock offset: -11.105 ms
Remote clock offset: 2.292 ms


# Below is generated by plot.py at 2019-02-20 02:28:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.41 Mbit/s
95th percentile per-packet one-way delay: 30.683 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 63.15 Mbit/s
95th percentile per-packet one-way delay: 30.656 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 35.91 Mbit/s
95th percentile per-packet one-way delay: 30.708 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 31.19 Mbit/s
95th percentile per-packet one-way delay: 30.702 ms
Loss rate: 0.08%
```
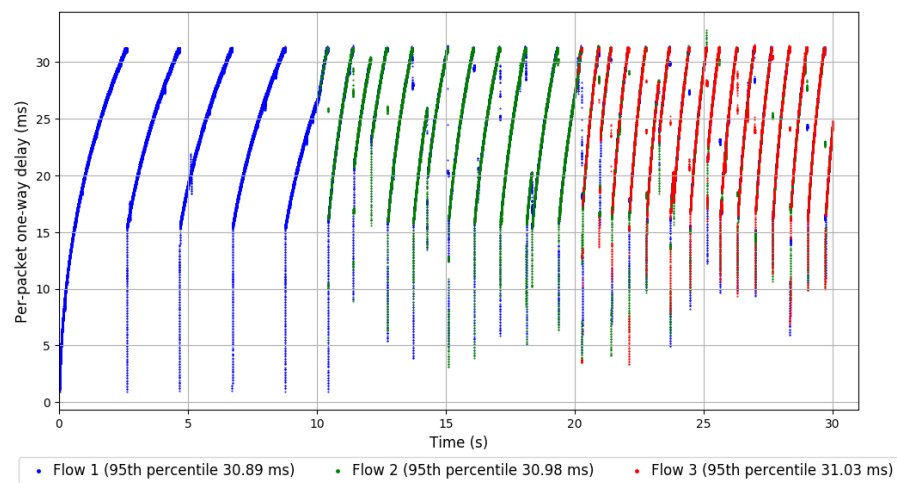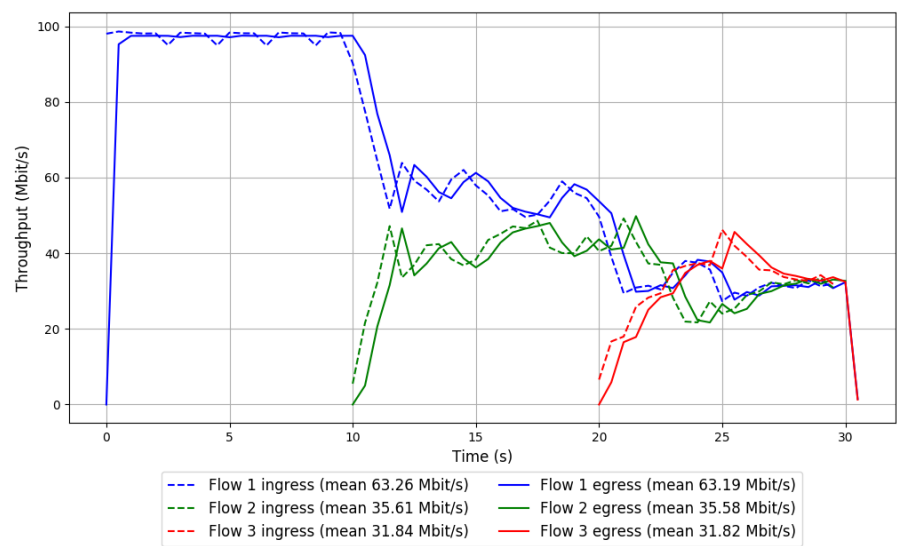
Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2019-02-20 01:31:35
End at: 2019-02-20 01:32:05
Local clock offset: -12.731 ms
Remote clock offset: 2.782 ms


# Below is generated by plot.py at 2019-02-20 02:28:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.32 Mbit/s
95th percentile per-packet one-way delay: 31.473 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 58.09 Mbit/s
95th percentile per-packet one-way delay: 31.145 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 41.97 Mbit/s
95th percentile per-packet one-way delay: 31.609 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 33.95 Mbit/s
95th percentile per-packet one-way delay: 31.714 ms
Loss rate: 0.10%
```

Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2019-02-20 01:55:27
End at: 2019-02-20 01:55:57
Local clock offset: -4.659 ms
Remote clock offset: 2.833 ms


# Below is generated by plot.py at 2019-02-20 02:28:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.41 Mbit/s
95th percentile per-packet one-way delay: 30.946 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 63.19 Mbit/s
95th percentile per-packet one-way delay: 30.895 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 35.58 Mbit/s
95th percentile per-packet one-way delay: 30.982 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 31.82 Mbit/s
95th percentile per-packet one-way delay: 31.034 ms
Loss rate: 0.10%
```
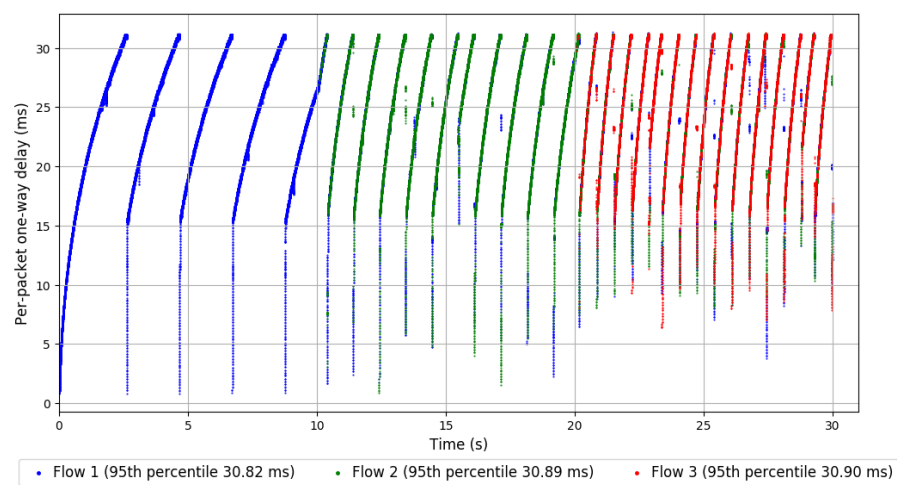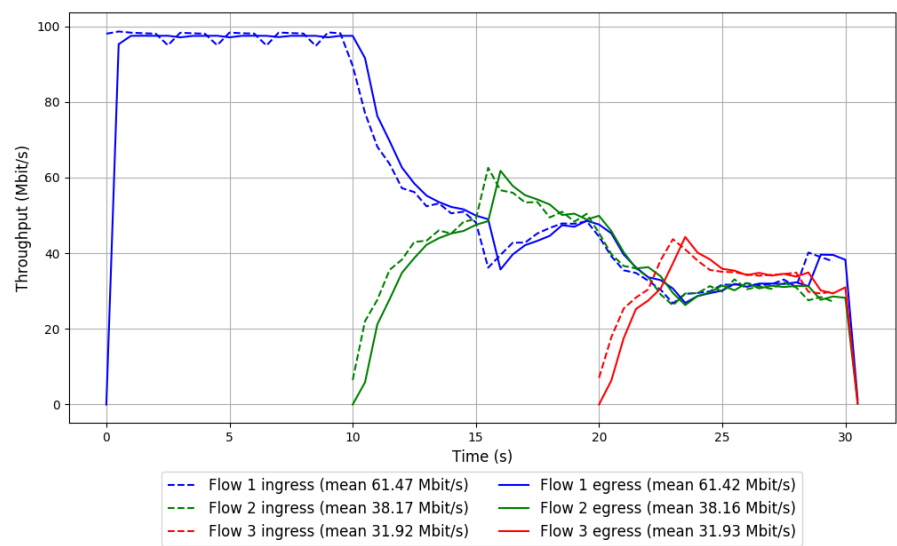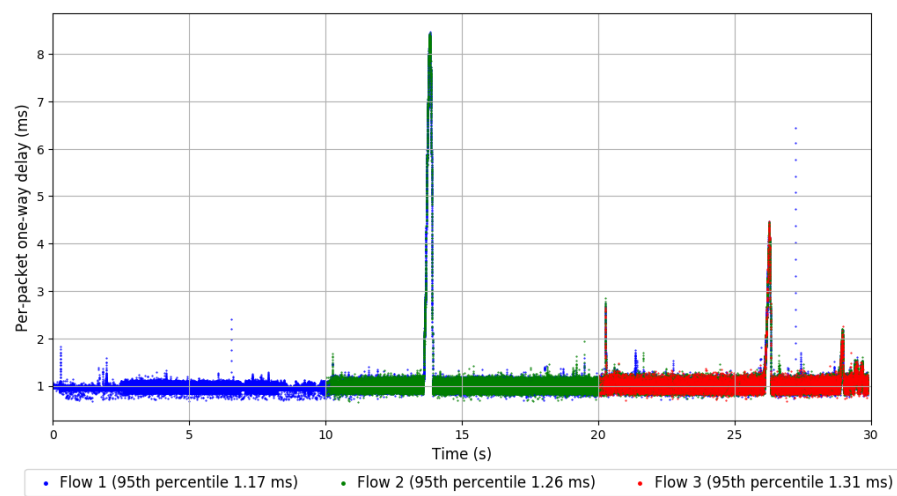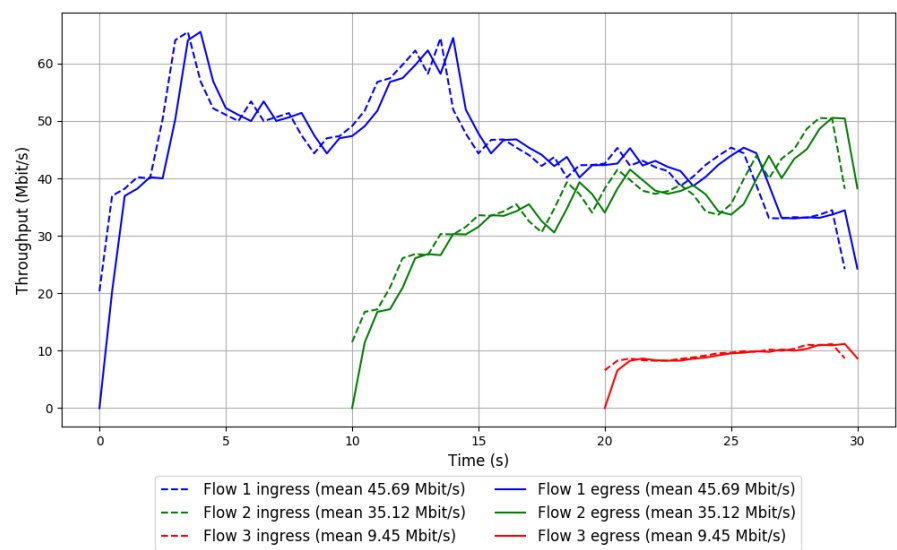
Run 4: Report of LEDBAT — Data Link

Flow 1 ingress (mean 63.26 Mbit/s) — — — Flow 1 egress (mean 63.19 Mbit/s)
Flow 2 ingress (mean 35.61 Mbit/s) — — — Flow 2 egress (mean 35.58 Mbit/s)
Flow 3 ingress (mean 31.84 Mbit/s) — — — Flow 3 egress (mean 31.82 Mbit/s)

Flow 1 (95th percentile 30.89 ms)   Flow 2 (95th percentile 30.98 ms)   Flow 3 (95th percentile 31.03 ms)

```
Run 5: Statistics of LEDBAT

Start at: 2019-02-20 02:19:16
End at: 2019-02-20 02:19:46
Local clock offset: -5.279 ms
Remote clock offset: 2.475 ms


# Below is generated by plot.py at 2019-02-20 02:29:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.40 Mbit/s
95th percentile per-packet one-way delay: 30.855 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 61.42 Mbit/s
95th percentile per-packet one-way delay: 30.820 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 38.16 Mbit/s
95th percentile per-packet one-way delay: 30.886 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 31.93 Mbit/s
95th percentile per-packet one-way delay: 30.896 ms
Loss rate: 0.11%
```

Run 5: Report of LEDBAT — Data Link

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```
Run 1: Statistics of PCC-Allegro

Start at: 2019-02-20 00:21:15
End at: 2019-02-20 00:21:45
Local clock offset: -13.886 ms
Remote clock offset: 0.653 ms


# Below is generated by plot.py at 2019-02-20 02:29:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 72.16 Mbit/s
95th percentile per-packet one-way delay: 1.205 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 45.69 Mbit/s
95th percentile per-packet one-way delay: 1.172 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 35.12 Mbit/s
95th percentile per-packet one-way delay: 1.257 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 9.45 Mbit/s
95th percentile per-packet one-way delay: 1.306 ms
Loss rate: 0.00%
```
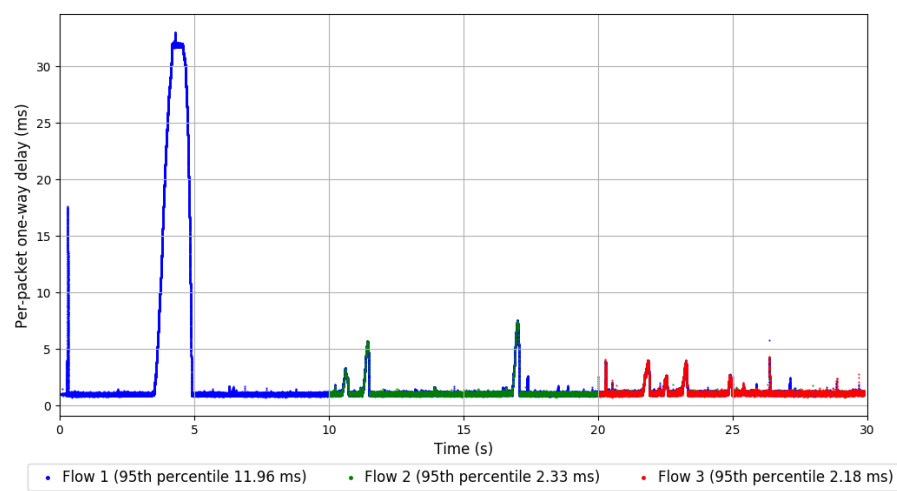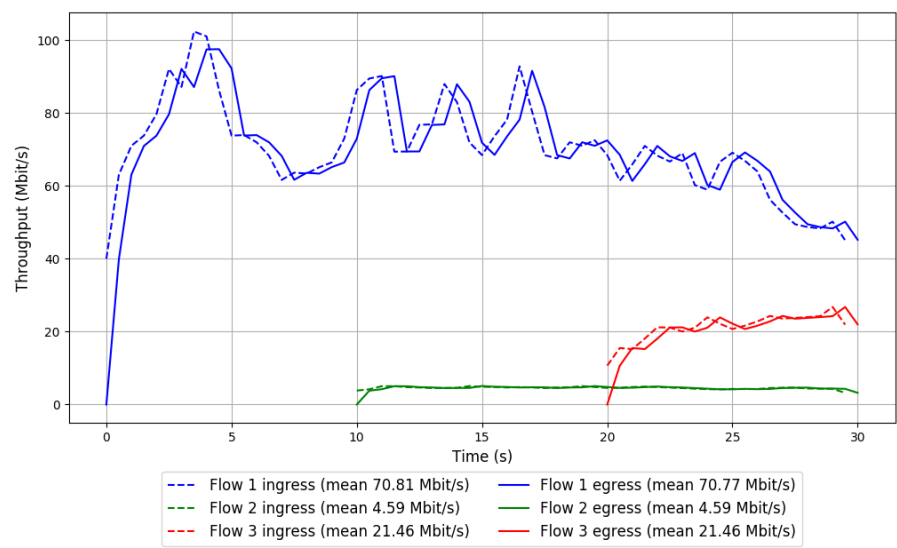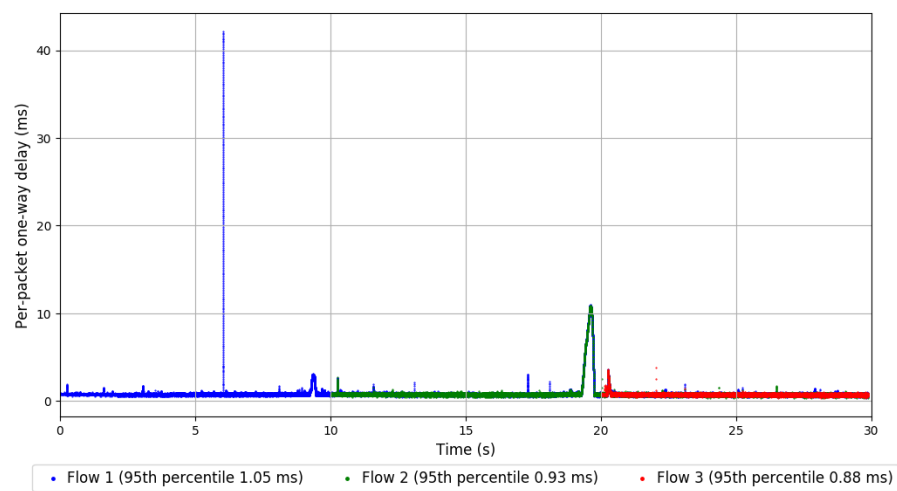
Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2019-02-20 00:45:03
End at: 2019-02-20 00:45:33
Local clock offset: -8.842 ms
Remote clock offset: 1.556 ms


# Below is generated by plot.py at 2019-02-20 02:29:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 80.90 Mbit/s
95th percentile per-packet one-way delay: 7.210 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 70.77 Mbit/s
95th percentile per-packet one-way delay: 11.958 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 4.59 Mbit/s
95th percentile per-packet one-way delay: 2.331 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 21.46 Mbit/s
95th percentile per-packet one-way delay: 2.182 ms
Loss rate: 0.00%
```
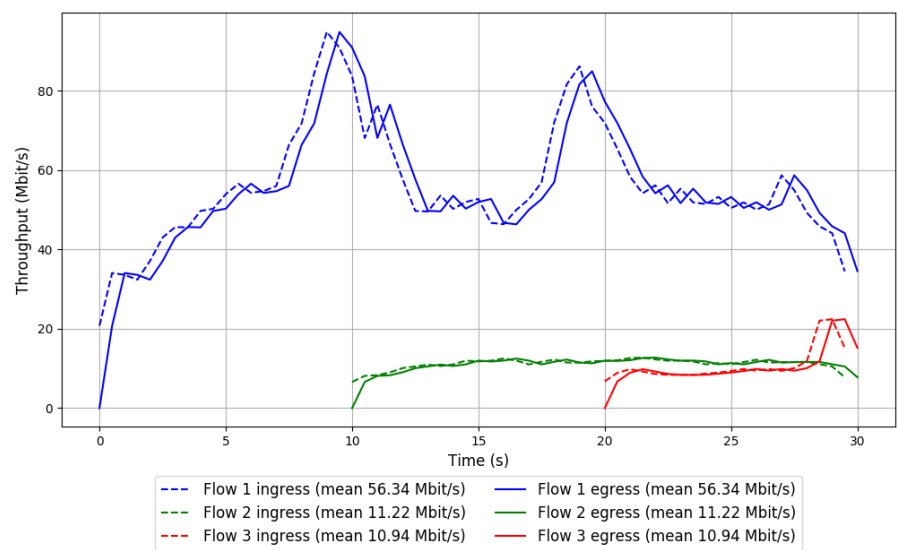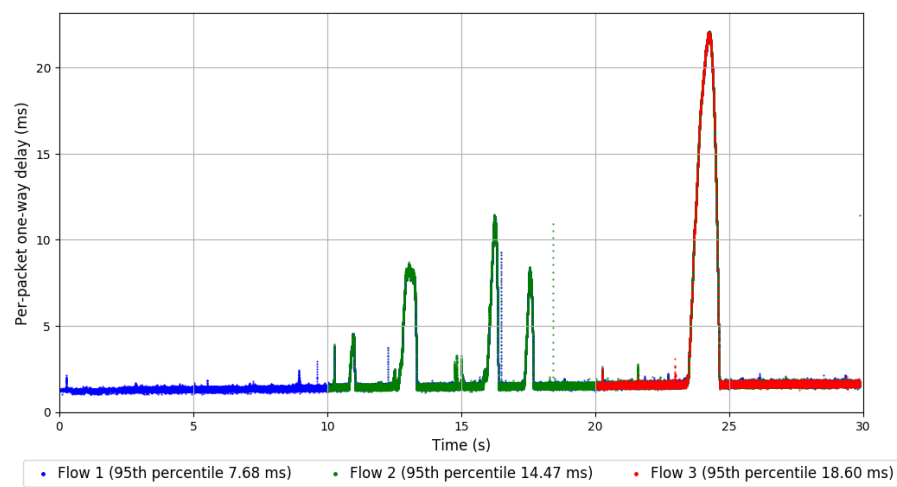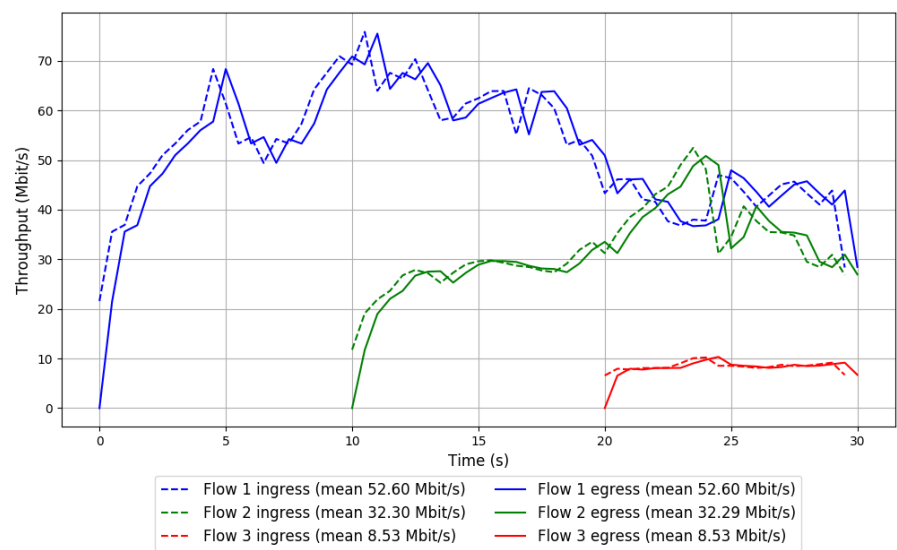
Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2019-02-20 01:08:51
End at: 2019-02-20 01:09:21
Local clock offset: -11.43 ms
Remote clock offset: 2.231 ms


# Below is generated by plot.py at 2019-02-20 02:29:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 67.41 Mbit/s
95th percentile per-packet one-way delay: 0.982 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 56.34 Mbit/s
95th percentile per-packet one-way delay: 1.047 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 11.22 Mbit/s
95th percentile per-packet one-way delay: 0.925 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 10.94 Mbit/s
95th percentile per-packet one-way delay: 0.880 ms
Loss rate: 0.01%
```

Run 3: Report of PCC-Allegro — Data Link

```
Run 4: Statistics of PCC-Allegro

Start at: 2019-02-20 01:32:46
End at: 2019-02-20 01:33:16
Local clock offset: -11.724 ms
Remote clock offset: 2.753 ms


# Below is generated by plot.py at 2019-02-20 02:29:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 76.87 Mbit/s
95th percentile per-packet one-way delay: 8.272 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 52.60 Mbit/s
95th percentile per-packet one-way delay: 7.683 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 32.29 Mbit/s
95th percentile per-packet one-way delay: 14.466 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 8.53 Mbit/s
95th percentile per-packet one-way delay: 18.602 ms
Loss rate: 0.00%
```
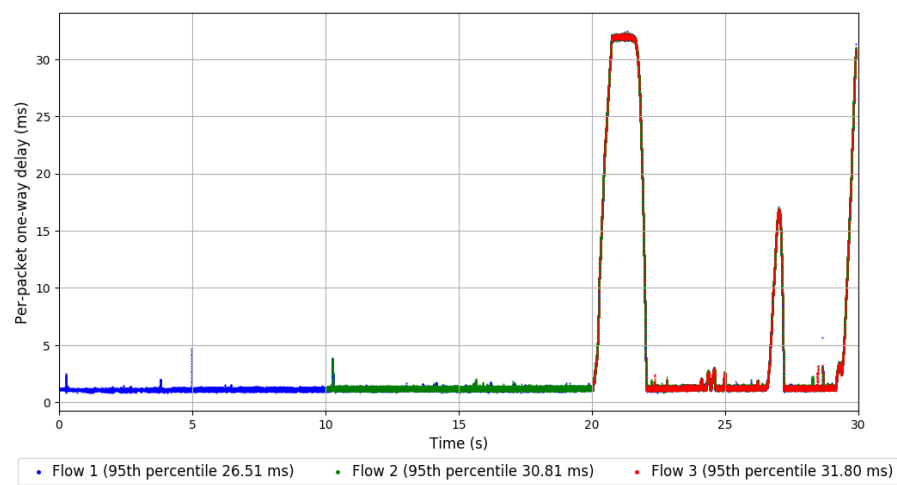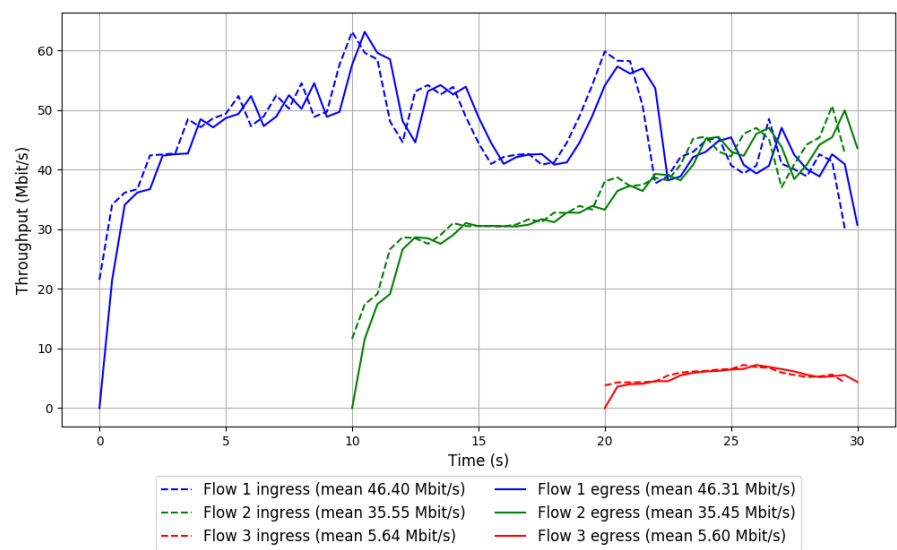
Run 4: Report of PCC-Allegro — Data Link

```
Run 5: Statistics of PCC-Allegro

Start at: 2019-02-20 01:56:37
End at: 2019-02-20 01:57:07
Local clock offset: -4.596 ms
Remote clock offset: 2.843 ms


# Below is generated by plot.py at 2019-02-20 02:29:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 71.75 Mbit/s
95th percentile per-packet one-way delay: 29.100 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 46.31 Mbit/s
95th percentile per-packet one-way delay: 26.514 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 35.45 Mbit/s
95th percentile per-packet one-way delay: 30.811 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 5.60 Mbit/s
95th percentile per-packet one-way delay: 31.795 ms
Loss rate: 0.42%
```

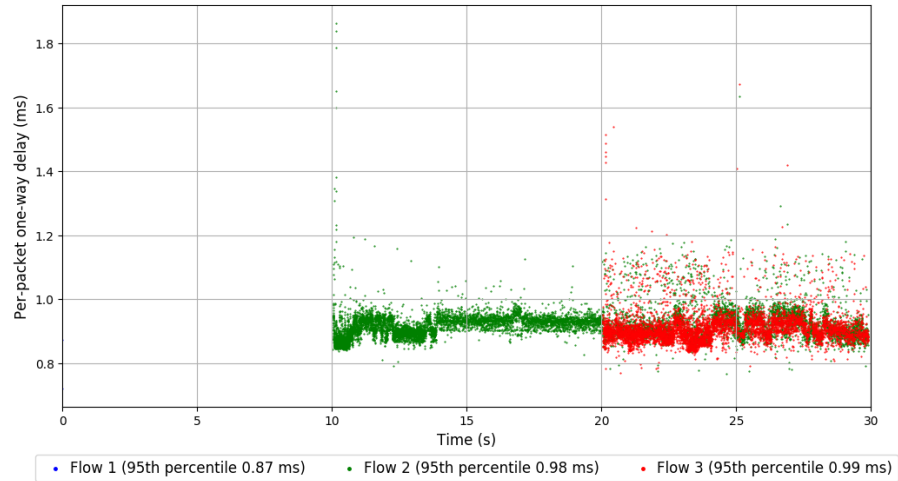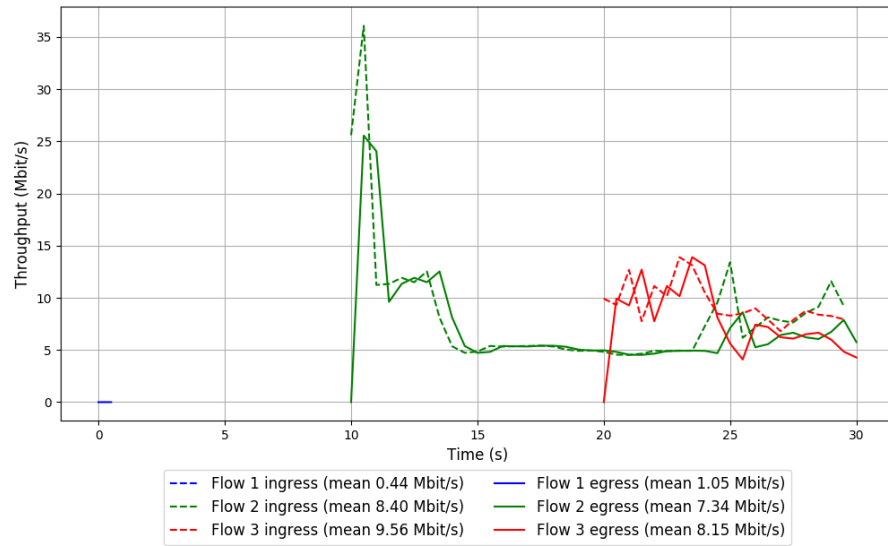# Run 5: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2019-02-20 00:23:27
End at: 2019-02-20 00:23:57
Local clock offset: -13.914 ms
Remote clock offset: 0.691 ms


# Below is generated by plot.py at 2019-02-20 02:29:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 7.57 Mbit/s
95th percentile per-packet one-way delay: 0.980 ms
Loss rate: 13.41%
-- Flow 1:
Average throughput: 1.05 Mbit/s
95th percentile per-packet one-way delay: 0.872 ms
Loss rate: 85.71%
-- Flow 2:
Average throughput: 7.34 Mbit/s
95th percentile per-packet one-way delay: 0.977 ms
Loss rate: 12.68%
-- Flow 3:
Average throughput: 8.15 Mbit/s
95th percentile per-packet one-way delay: 0.995 ms
Loss rate: 14.69%
```
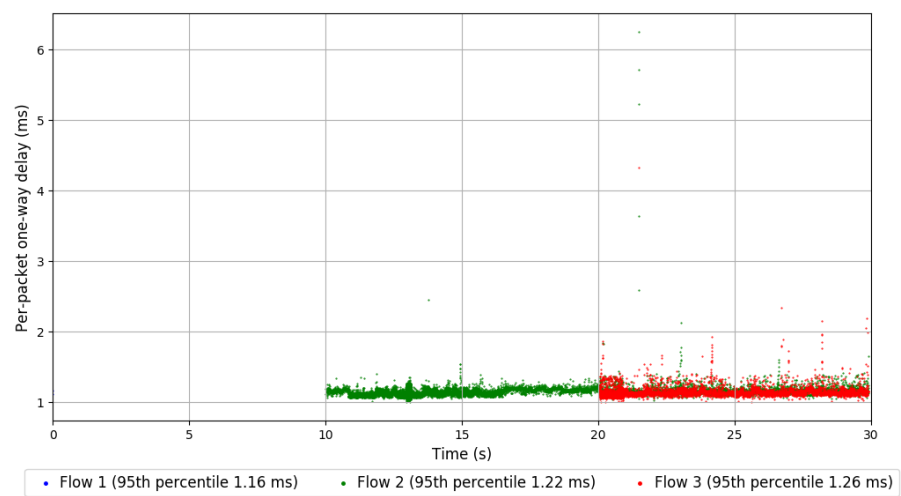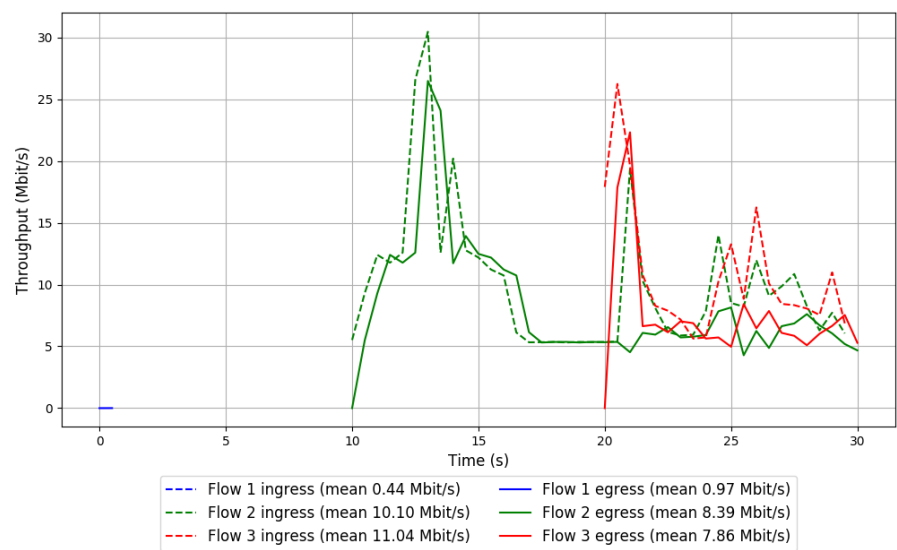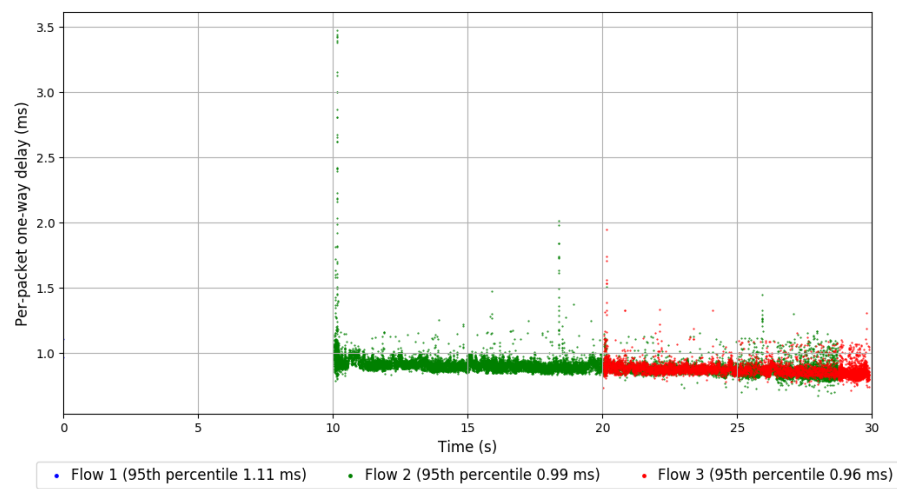
Run 1: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 0.44 Mbit/s) --- Flow 1 egress (mean 1.05 Mbit/s)
Flow 2 ingress (mean 8.40 Mbit/s) --- Flow 2 egress (mean 7.34 Mbit/s)
Flow 3 ingress (mean 9.56 Mbit/s) --- Flow 3 egress (mean 8.15 Mbit/s)

Flow 1 (95th percentile 0.87 ms) • Flow 2 (95th percentile 0.98 ms) • Flow 3 (95th percentile 0.99 ms)

```
Run 2: Statistics of PCC-Expr

Start at: 2019-02-20 00:47:16
End at: 2019-02-20 00:47:46
Local clock offset: -8.557 ms
Remote clock offset: 1.746 ms


# Below is generated by plot.py at 2019-02-20 02:29:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.17 Mbit/s
95th percentile per-packet one-way delay: 1.229 ms
Loss rate: 21.14%
-- Flow 1:
Average throughput: 0.97 Mbit/s
95th percentile per-packet one-way delay: 1.155 ms
Loss rate: 85.71%
-- Flow 2:
Average throughput: 8.39 Mbit/s
95th percentile per-packet one-way delay: 1.221 ms
Loss rate: 16.94%
-- Flow 3:
Average throughput: 7.86 Mbit/s
95th percentile per-packet one-way delay: 1.258 ms
Loss rate: 28.86%
```

Run 2: Report of PCC-Expr — Data Link

```
Run 3: Statistics of PCC-Expr

Start at: 2019-02-20 01:11:04
End at: 2019-02-20 01:11:34
Local clock offset: -12.104 ms
Remote clock offset: 2.336 ms


# Below is generated by plot.py at 2019-02-20 02:30:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 9.42 Mbit/s
95th percentile per-packet one-way delay: 0.984 ms
Loss rate: 98.11%
-- Flow 1:
Average throughput: 0.97 Mbit/s
95th percentile per-packet one-way delay: 1.109 ms
Loss rate: 85.71%
-- Flow 2:
Average throughput: 11.23 Mbit/s
95th percentile per-packet one-way delay: 0.988 ms
Loss rate: 97.06%
-- Flow 3:
Average throughput: 7.23 Mbit/s
95th percentile per-packet one-way delay: 0.962 ms
Loss rate: 99.08%
```
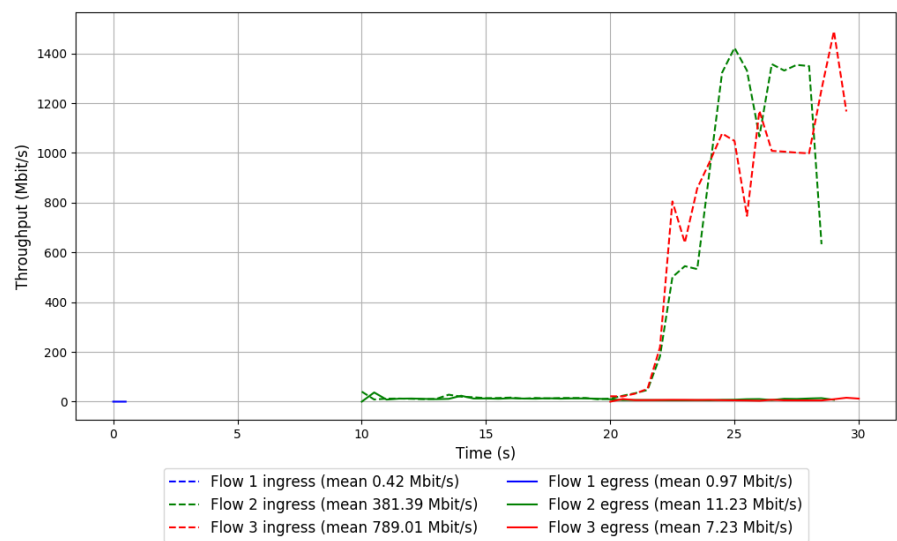
Run 3: Report of PCC-Expr — Data Link

```
Run 4: Statistics of PCC-Expr

Start at: 2019-02-20 01:34:58
End at: 2019-02-20 01:35:28
Local clock offset: -10.332 ms
Remote clock offset: 2.806 ms


# Below is generated by plot.py at 2019-02-20 02:30:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.75 Mbit/s
95th percentile per-packet one-way delay: 1.534 ms
Loss rate: 20.93%
-- Flow 1:
Average throughput: 0.95 Mbit/s
95th percentile per-packet one-way delay: 1.295 ms
Loss rate: 85.71%
-- Flow 2:
Average throughput: 9.43 Mbit/s
95th percentile per-packet one-way delay: 1.517 ms
Loss rate: 19.93%
-- Flow 3:
Average throughput: 7.50 Mbit/s
95th percentile per-packet one-way delay: 1.560 ms
Loss rate: 23.34%
```
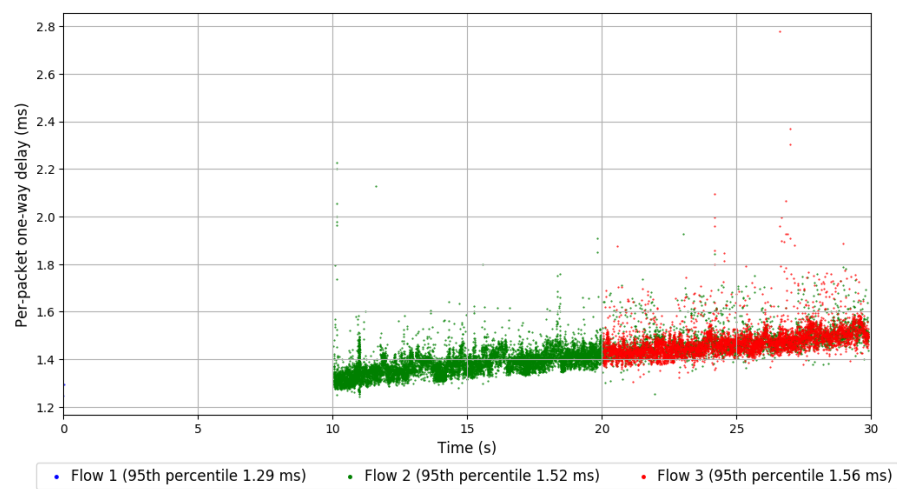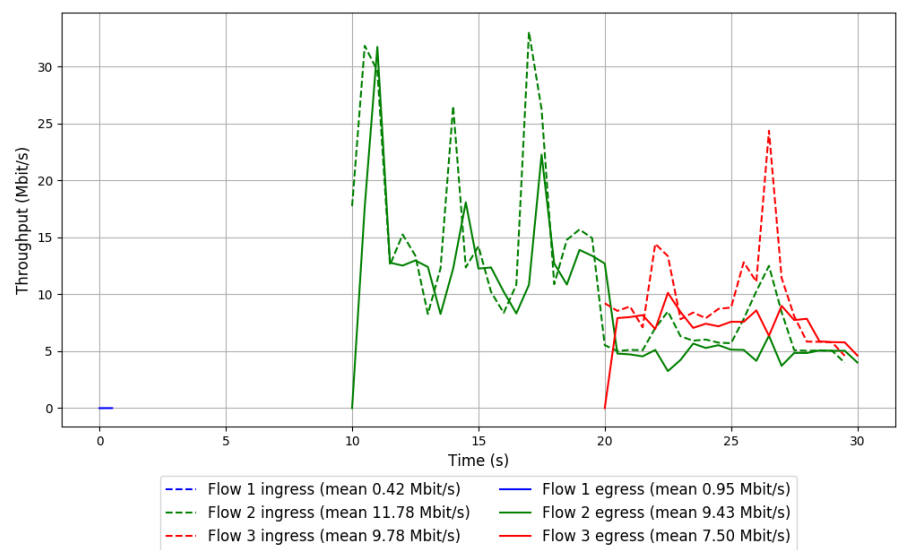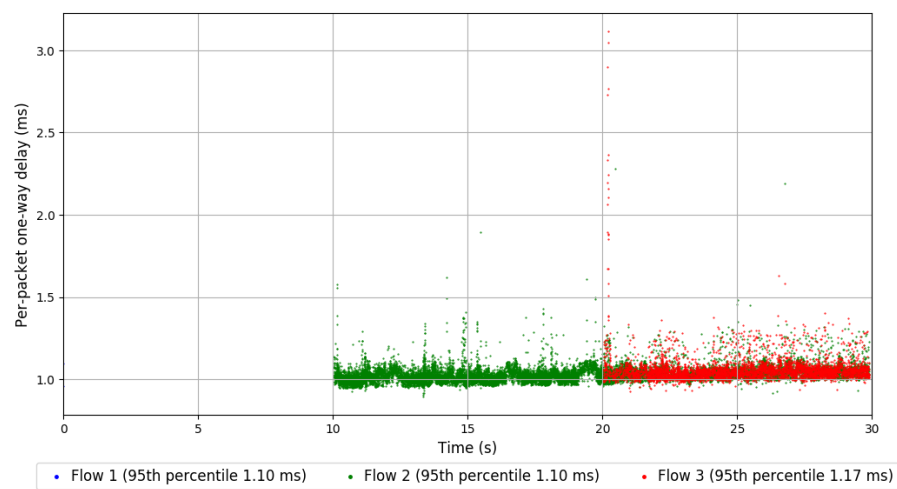
Run 4: Report of PCC-Expr — Data Link

```
Run 5: Statistics of PCC-Expr

Start at: 2019-02-20 01:58:50
End at: 2019-02-20 01:59:20
Local clock offset: -4.338 ms
Remote clock offset: 2.718 ms


# Below is generated by plot.py at 2019-02-20 02:30:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.87 Mbit/s
95th percentile per-packet one-way delay: 1.110 ms
Loss rate: 19.69%
-- Flow 1:
Average throughput: 0.95 Mbit/s
95th percentile per-packet one-way delay: 1.098 ms
Loss rate: 85.71%
-- Flow 2:
Average throughput: 10.30 Mbit/s
95th percentile per-packet one-way delay: 1.099 ms
Loss rate: 16.68%
-- Flow 3:
Average throughput: 6.10 Mbit/s
95th percentile per-packet one-way delay: 1.171 ms
Loss rate: 28.46%
```
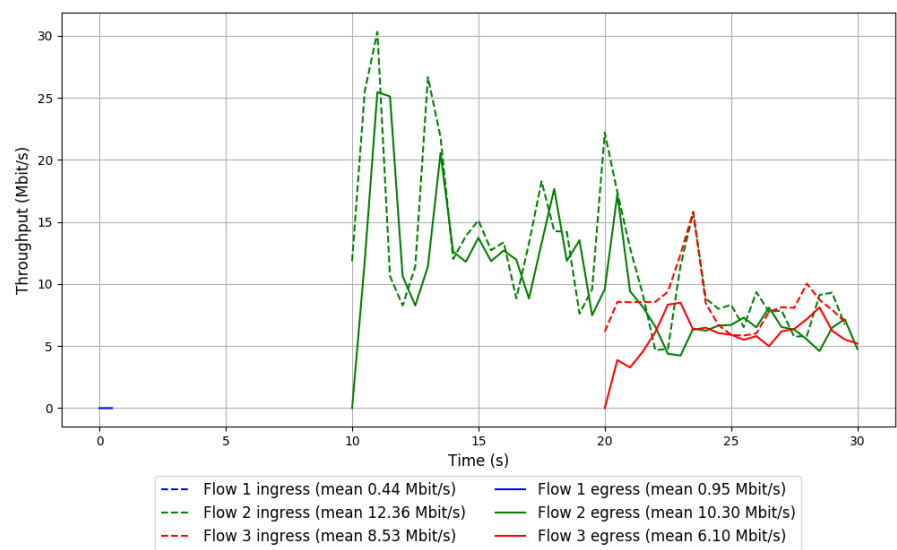
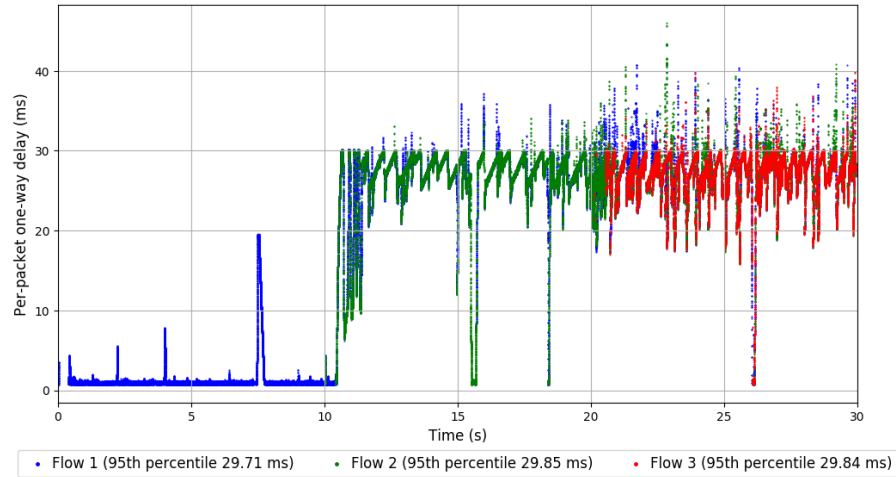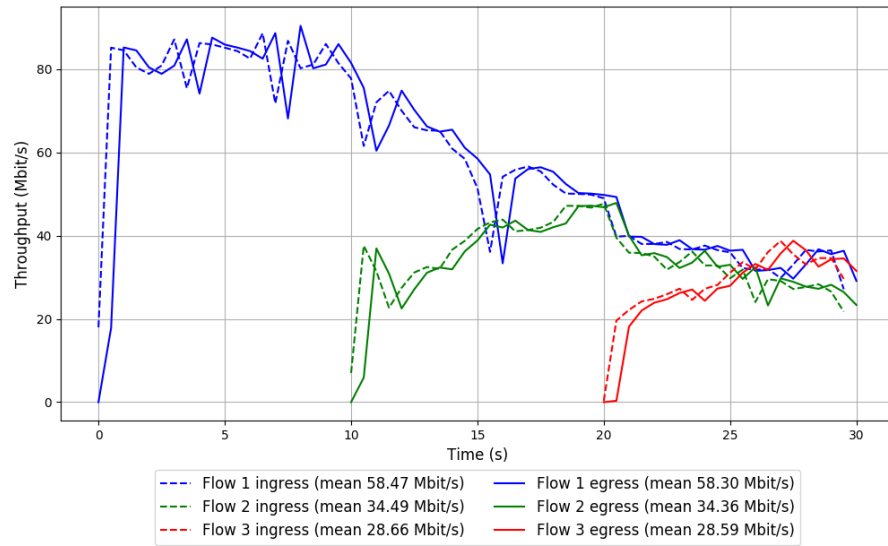# Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2019-02-20 00:29:03
End at: 2019-02-20 00:29:33
Local clock offset: -13.974 ms
Remote clock offset: 0.915 ms


# Below is generated by plot.py at 2019-02-20 02:30:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.55 Mbit/s
95th percentile per-packet one-way delay: 29.775 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 58.30 Mbit/s
95th percentile per-packet one-way delay: 29.710 ms
Loss rate: 0.19%
-- Flow 2:
Average throughput: 34.36 Mbit/s
95th percentile per-packet one-way delay: 29.847 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 28.59 Mbit/s
95th percentile per-packet one-way delay: 29.836 ms
Loss rate: 0.20%
```
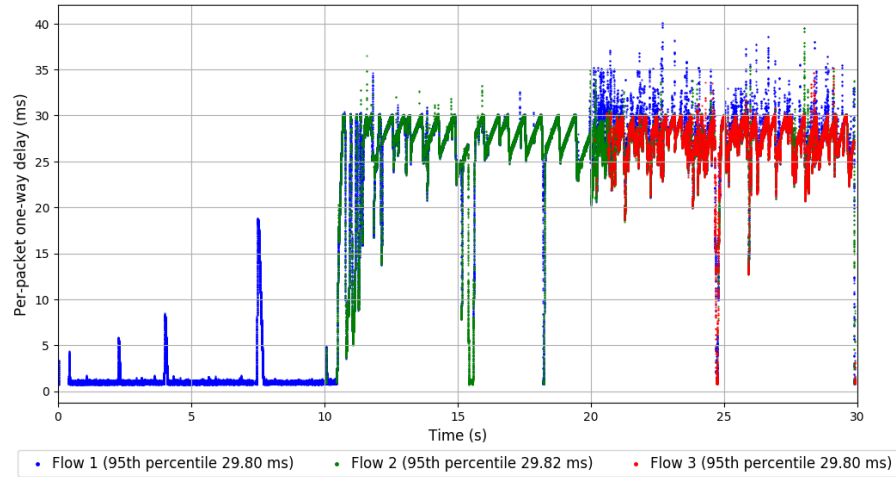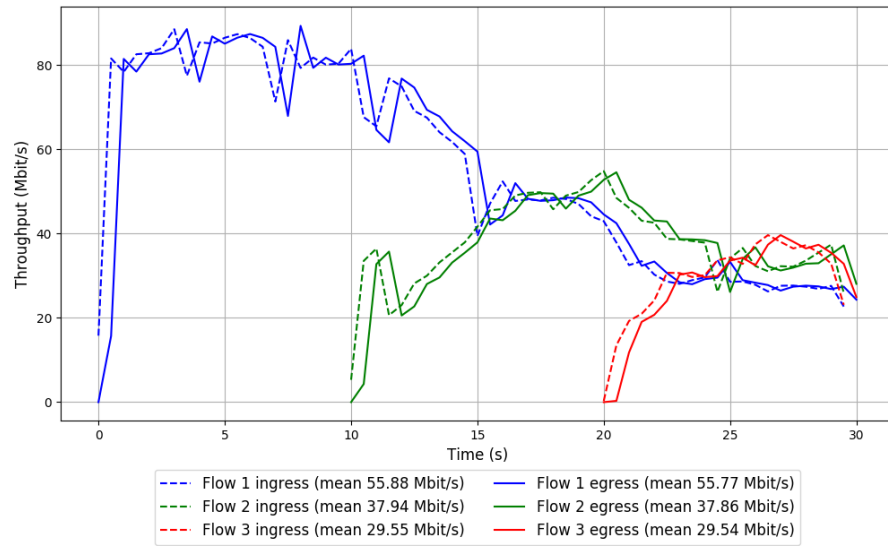
Run 1: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 58.47 Mbit/s)   Flow 1 egress (mean 58.30 Mbit/s)
Flow 2 ingress (mean 34.49 Mbit/s)   Flow 2 egress (mean 34.36 Mbit/s)
Flow 3 ingress (mean 28.66 Mbit/s)   Flow 3 egress (mean 28.59 Mbit/s)

Flow 1 (95th percentile 29.71 ms)   Flow 2 (95th percentile 29.85 ms)   Flow 3 (95th percentile 29.84 ms)

```
Run 2: Statistics of QUIC Cubic

Start at: 2019-02-20 00:52:52
End at: 2019-02-20 00:53:22
Local clock offset: -7.89 ms
Remote clock offset: 1.74 ms


# Below is generated by plot.py at 2019-02-20 02:30:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.60 Mbit/s
95th percentile per-packet one-way delay: 29.806 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 55.77 Mbit/s
95th percentile per-packet one-way delay: 29.800 ms
Loss rate: 0.19%
-- Flow 2:
Average throughput: 37.86 Mbit/s
95th percentile per-packet one-way delay: 29.817 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 29.54 Mbit/s
95th percentile per-packet one-way delay: 29.797 ms
Loss rate: 0.27%
```
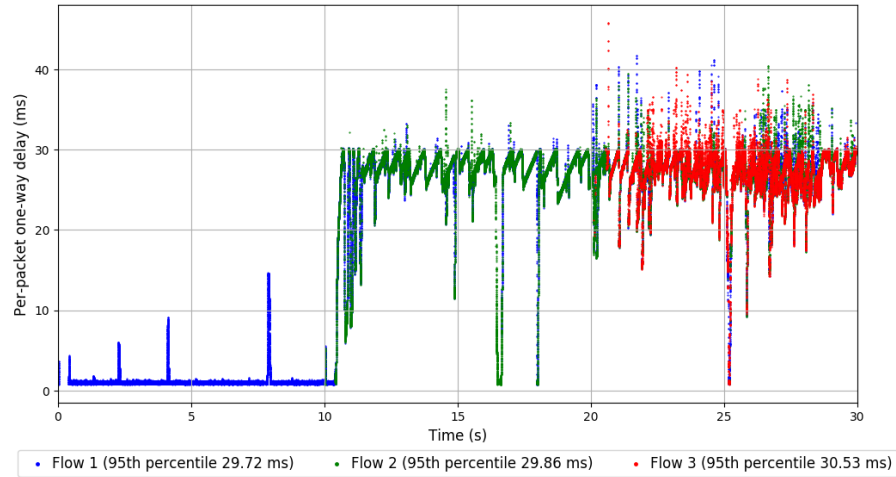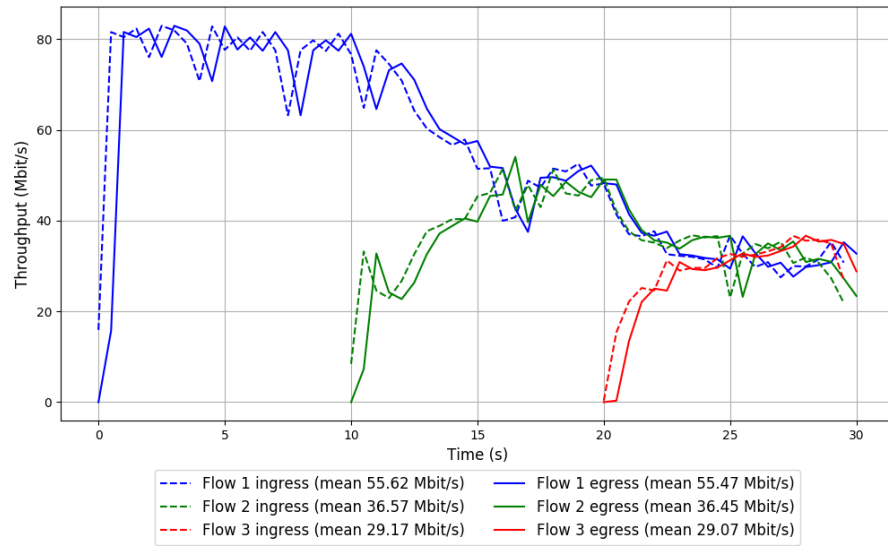
Run 2: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 55.88 Mbit/s) — Flow 1 egress (mean 55.77 Mbit/s)
Flow 2 ingress (mean 37.94 Mbit/s) — Flow 2 egress (mean 37.86 Mbit/s)
Flow 3 ingress (mean 29.55 Mbit/s) — Flow 3 egress (mean 29.54 Mbit/s)

Flow 1 (95th percentile 29.80 ms)   Flow 2 (95th percentile 29.82 ms)   Flow 3 (95th percentile 29.80 ms)

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```
Run 3: Statistics of QUIC Cubic

Start at: 2019-02-20 01:16:45
End at: 2019-02-20 01:17:15
Local clock offset: -12.978 ms
Remote clock offset: 2.436 ms


# Below is generated by plot.py at 2019-02-20 02:30:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.29 Mbit/s
95th percentile per-packet one-way delay: 29.811 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 55.47 Mbit/s
95th percentile per-packet one-way delay: 29.716 ms
Loss rate: 0.16%
-- Flow 2:
Average throughput: 36.45 Mbit/s
95th percentile per-packet one-way delay: 29.863 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 29.07 Mbit/s
95th percentile per-packet one-way delay: 30.530 ms
Loss rate: 0.26%
```
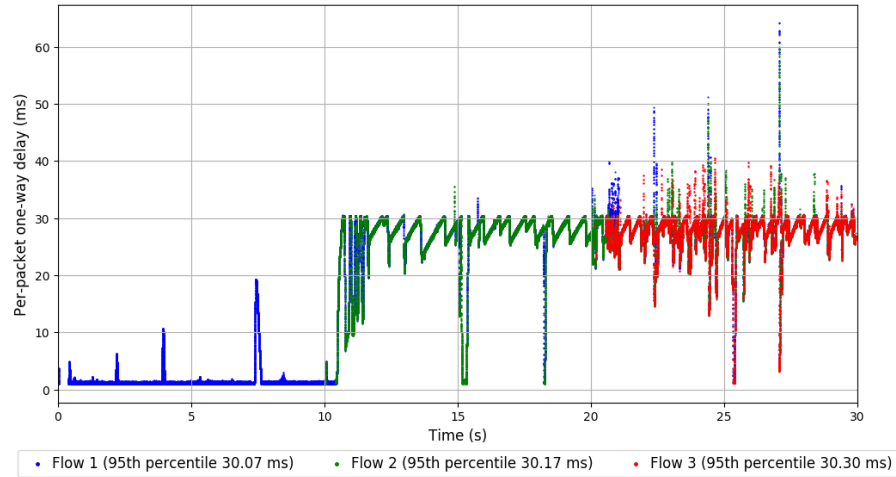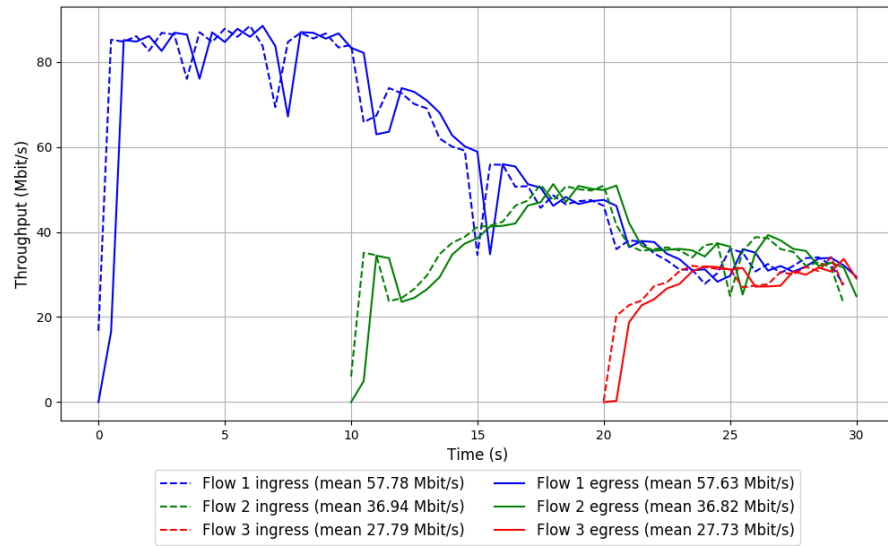
Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 55.62 Mbit/s) --- Flow 1 egress (mean 55.47 Mbit/s)
Flow 2 ingress (mean 36.57 Mbit/s) --- Flow 2 egress (mean 36.45 Mbit/s)
Flow 3 ingress (mean 29.17 Mbit/s) --- Flow 3 egress (mean 29.07 Mbit/s)

Flow 1 (95th percentile 29.72 ms) · Flow 2 (95th percentile 29.86 ms) · Flow 3 (95th percentile 30.53 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2019-02-20 01:40:36
End at: 2019-02-20 01:41:06
Local clock offset: -7.745 ms
Remote clock offset: 2.951 ms


# Below is generated by plot.py at 2019-02-20 02:30:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.23 Mbit/s
95th percentile per-packet one-way delay: 30.129 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 57.63 Mbit/s
95th percentile per-packet one-way delay: 30.066 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 36.82 Mbit/s
95th percentile per-packet one-way delay: 30.167 ms
Loss rate: 0.17%
-- Flow 3:
Average throughput: 27.73 Mbit/s
95th percentile per-packet one-way delay: 30.302 ms
Loss rate: 0.20%
```
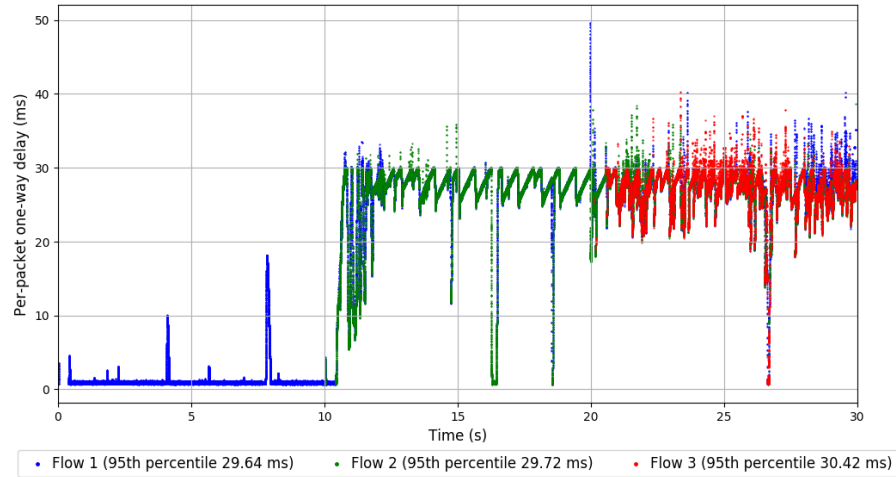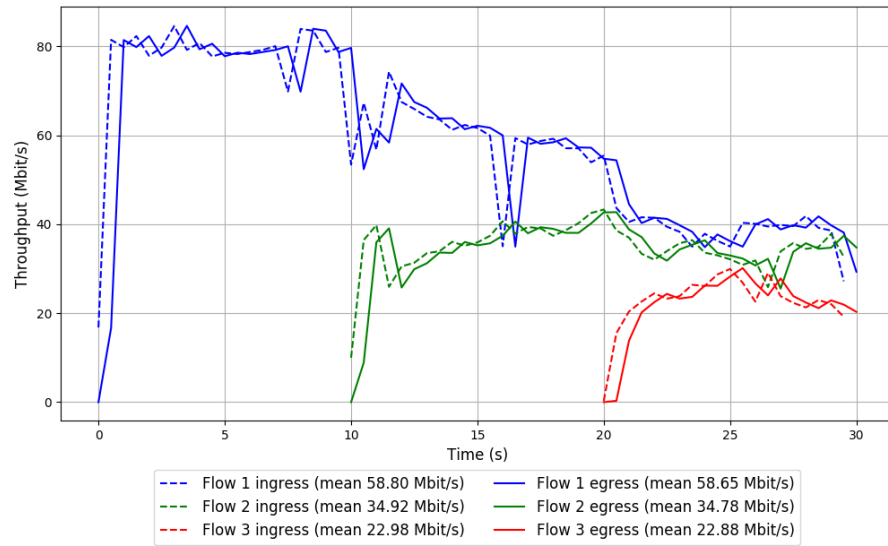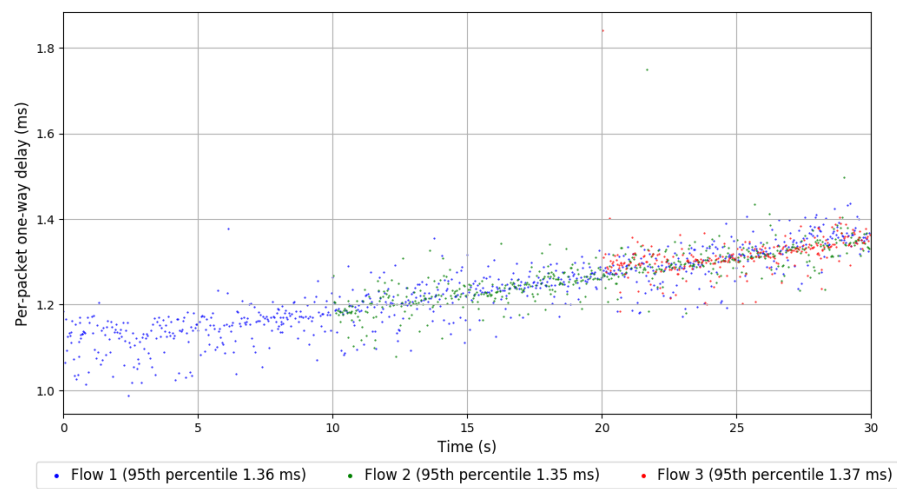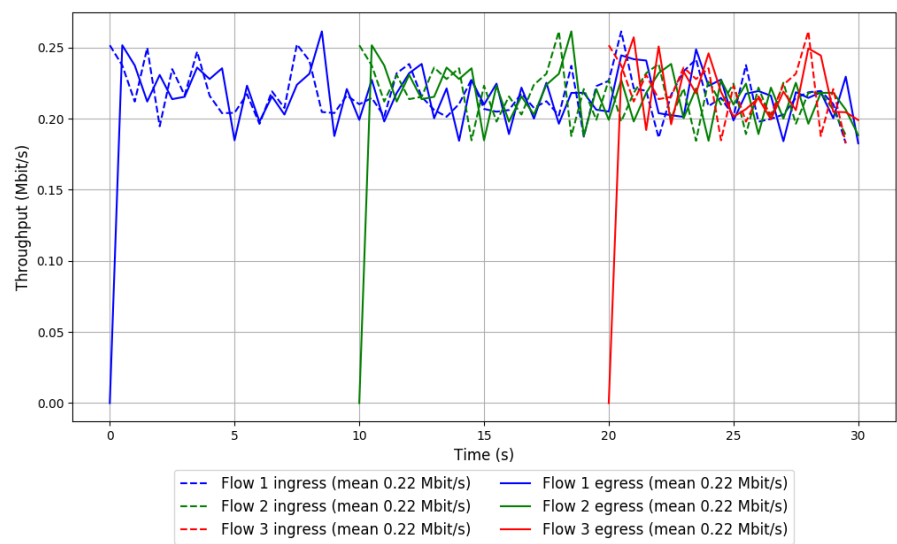
Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 57.78 Mbit/s)   Flow 1 egress (mean 57.63 Mbit/s)
Flow 2 ingress (mean 36.94 Mbit/s)   Flow 2 egress (mean 36.82 Mbit/s)
Flow 3 ingress (mean 27.79 Mbit/s)   Flow 3 egress (mean 27.73 Mbit/s)

Flow 1 (95th percentile 30.07 ms)   Flow 2 (95th percentile 30.17 ms)   Flow 3 (95th percentile 30.30 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2019-02-20 02:04:27
End at: 2019-02-20 02:04:57
Local clock offset: -4.879 ms
Remote clock offset: 2.578 ms


# Below is generated by plot.py at 2019-02-20 02:30:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.29 Mbit/s
95th percentile per-packet one-way delay: 29.698 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 58.65 Mbit/s
95th percentile per-packet one-way delay: 29.637 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 34.78 Mbit/s
95th percentile per-packet one-way delay: 29.719 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 22.88 Mbit/s
95th percentile per-packet one-way delay: 30.421 ms
Loss rate: 0.41%
```
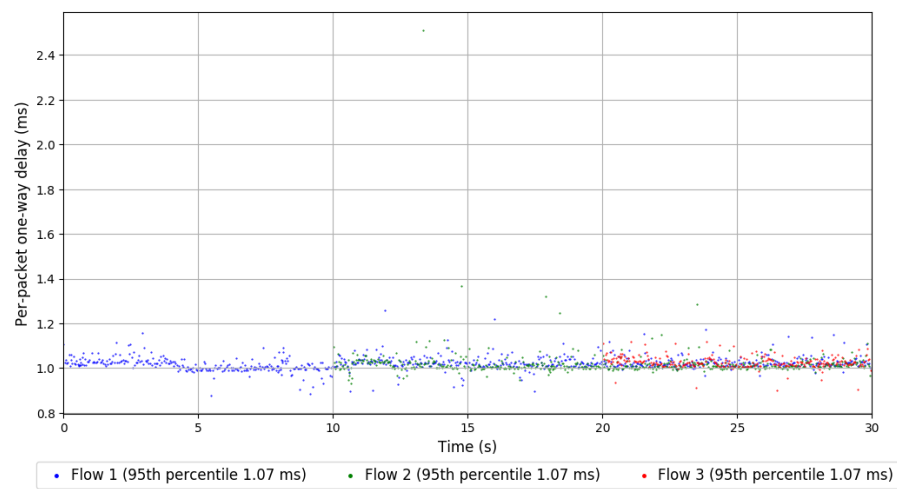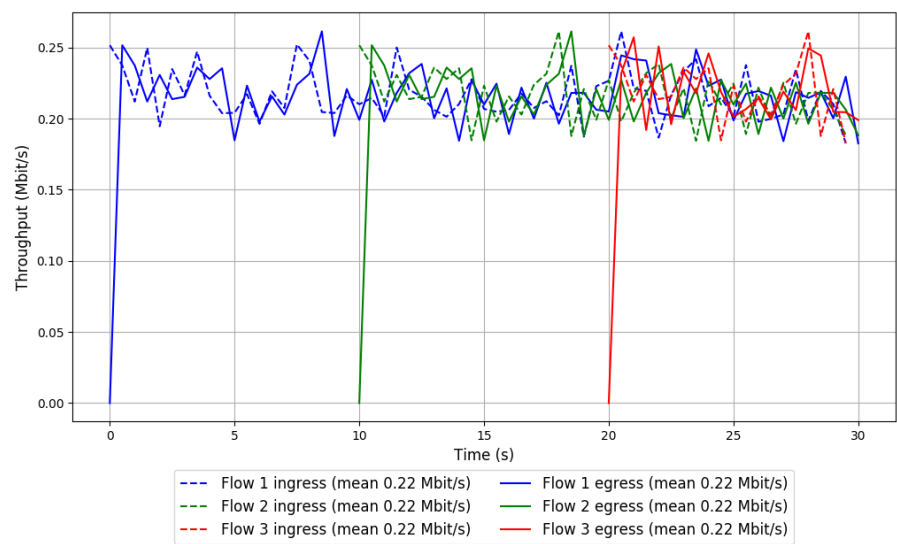
Run 5: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 58.80 Mbit/s) --- Flow 1 egress (mean 58.65 Mbit/s)
Flow 2 ingress (mean 34.92 Mbit/s) --- Flow 2 egress (mean 34.78 Mbit/s)
Flow 3 ingress (mean 22.98 Mbit/s) --- Flow 3 egress (mean 22.88 Mbit/s)

Flow 1 (95th percentile 29.64 ms) ·   Flow 2 (95th percentile 29.72 ms)   ·   Flow 3 (95th percentile 30.42 ms)

```
Run 1: Statistics of SCReAM

Start at: 2019-02-20 00:31:21
End at: 2019-02-20 00:31:51
Local clock offset: -13.103 ms
Remote clock offset: 1.0 ms


# Below is generated by plot.py at 2019-02-20 02:30:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.362 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.363 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.352 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.371 ms
Loss rate: 0.00%
```
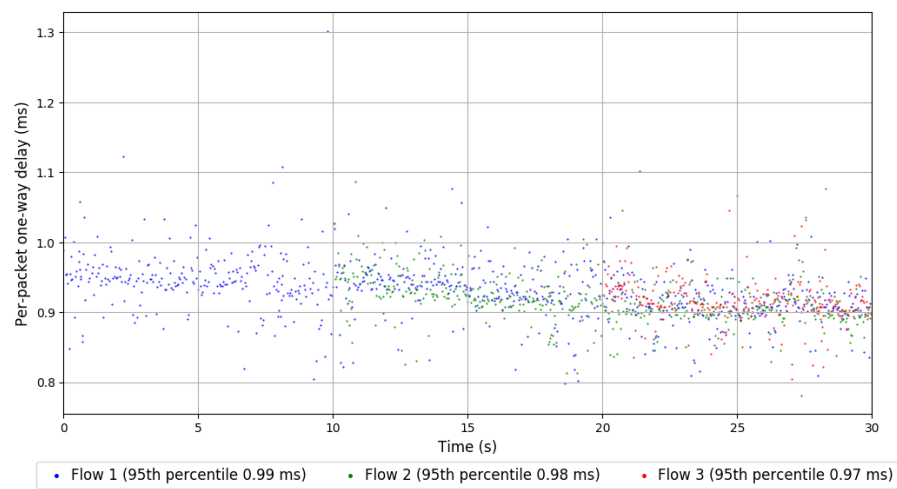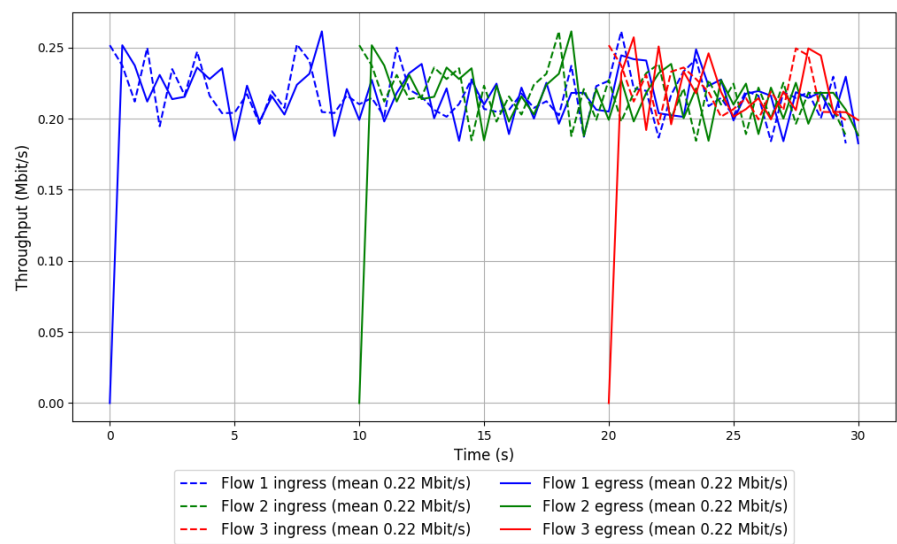
Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2019-02-20 00:55:10
End at: 2019-02-20 00:55:40
Local clock offset: -7.749 ms
Remote clock offset: 1.861 ms


# Below is generated by plot.py at 2019-02-20 02:30:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.071 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.070 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.072 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.072 ms
Loss rate: 0.00%
```
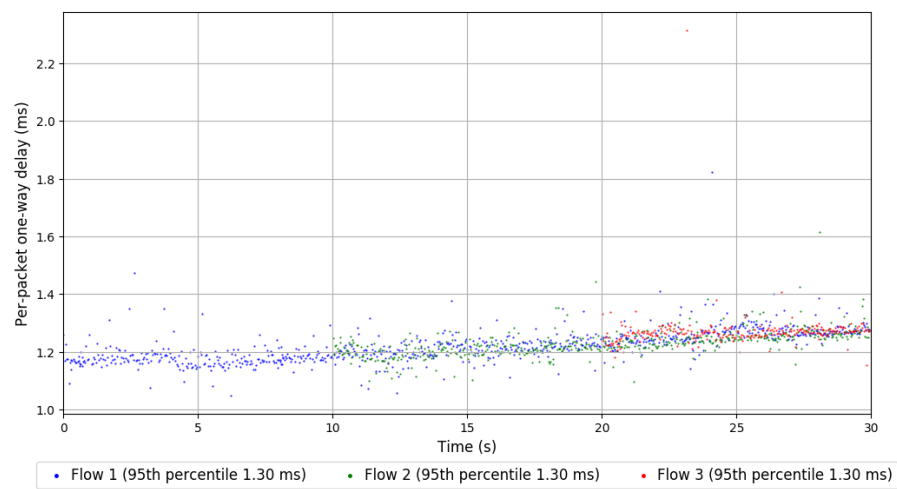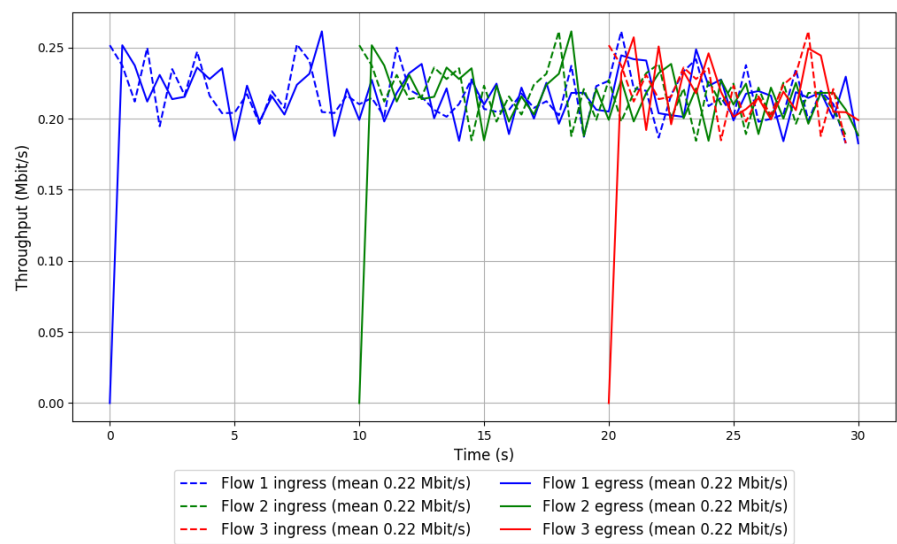
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2019-02-20 01:19:03
End at: 2019-02-20 01:19:33
Local clock offset: -13.253 ms
Remote clock offset: 2.482 ms


# Below is generated by plot.py at 2019-02-20 02:30:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 0.988 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 0.995 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 0.979 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 0.966 ms
Loss rate: 0.00%
```

Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2019-02-20 01:42:55
End at: 2019-02-20 01:43:25
Local clock offset: -7.086 ms
Remote clock offset: 2.902 ms


# Below is generated by plot.py at 2019-02-20 02:30:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.298 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.299 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.297 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.298 ms
Loss rate: 0.00%
```
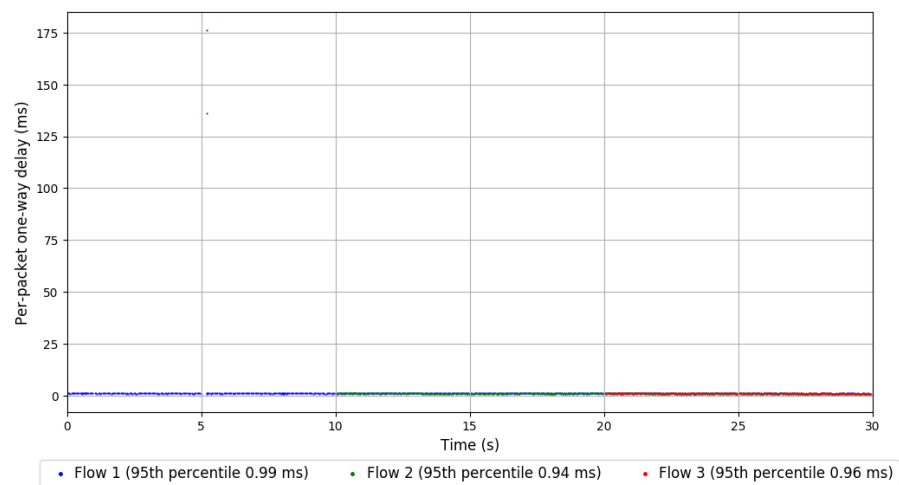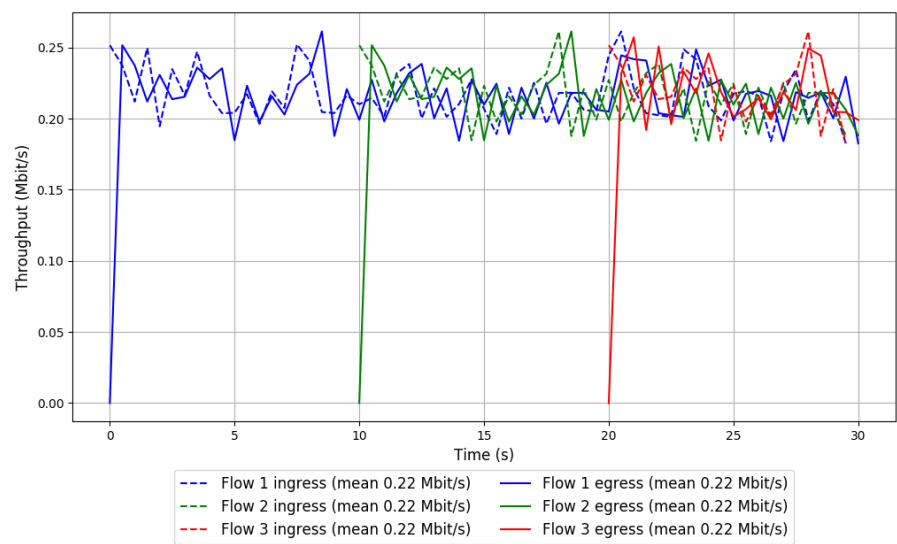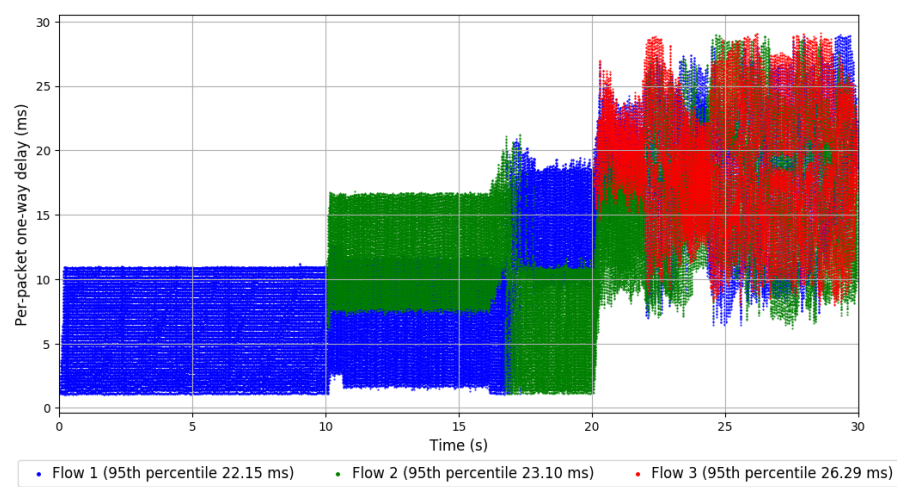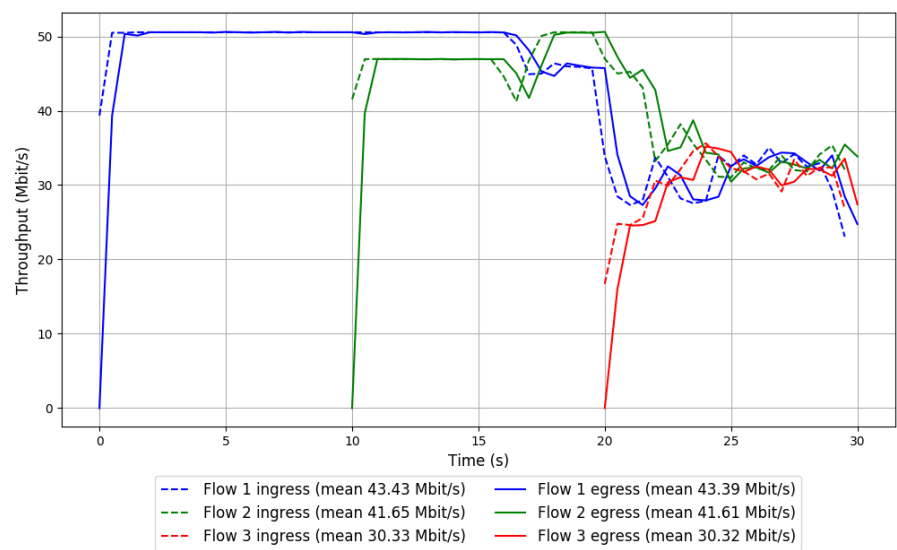
Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2019-02-20 02:06:45
End at: 2019-02-20 02:07:15
Local clock offset: -5.126 ms
Remote clock offset: 2.583 ms


# Below is generated by plot.py at 2019-02-20 02:30:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 0.976 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 0.992 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 0.942 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 0.964 ms
Loss rate: 0.00%
```
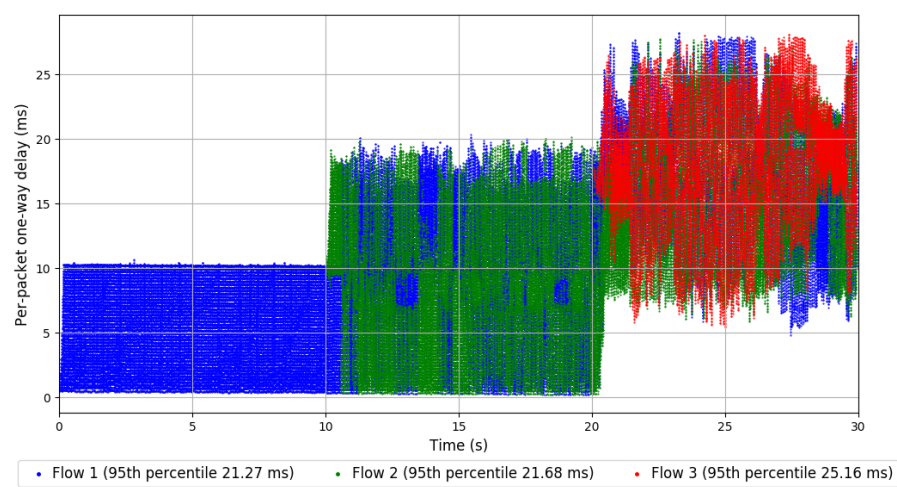
Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2019-02-20 00:38:11
End at: 2019-02-20 00:38:41
Local clock offset: -10.351 ms
Remote clock offset: 1.331 ms


# Below is generated by plot.py at 2019-02-20 02:30:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.10 Mbit/s
95th percentile per-packet one-way delay: 23.574 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 43.39 Mbit/s
95th percentile per-packet one-way delay: 22.152 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 41.61 Mbit/s
95th percentile per-packet one-way delay: 23.099 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 30.32 Mbit/s
95th percentile per-packet one-way delay: 26.293 ms
Loss rate: 0.00%
```

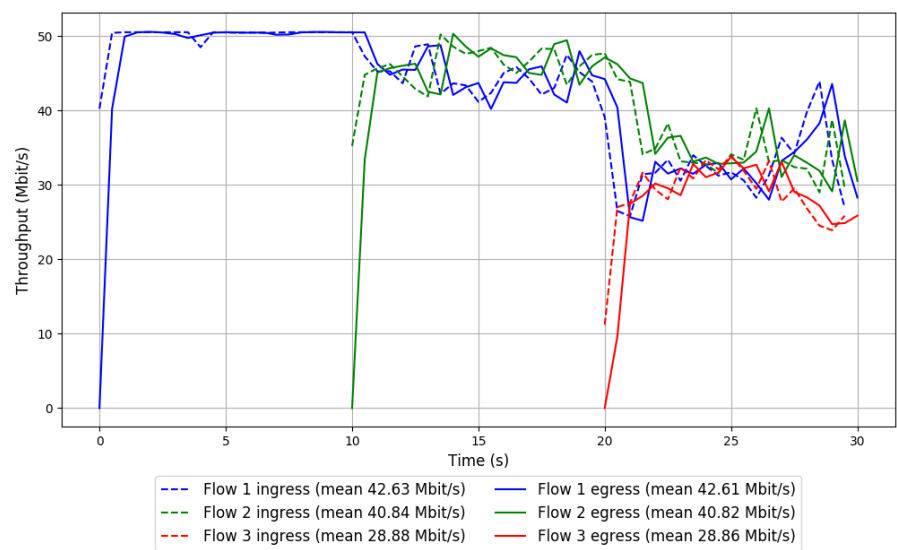Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2019-02-20 01:01:59
End at: 2019-02-20 01:02:29
Local clock offset: -8.553 ms
Remote clock offset: 2.007 ms


# Below is generated by plot.py at 2019-02-20 02:30:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 79.30 Mbit/s
95th percentile per-packet one-way delay: 22.649 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 42.61 Mbit/s
95th percentile per-packet one-way delay: 21.271 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 40.82 Mbit/s
95th percentile per-packet one-way delay: 21.681 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 28.86 Mbit/s
95th percentile per-packet one-way delay: 25.155 ms
Loss rate: 0.00%
```
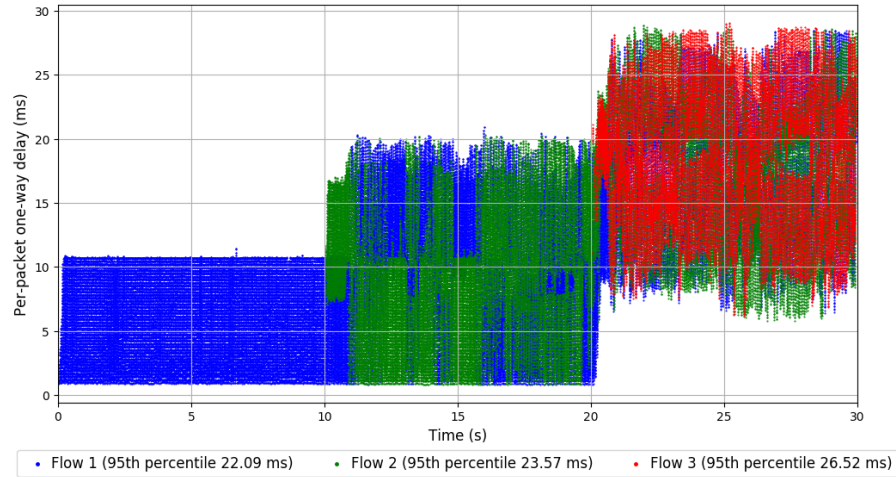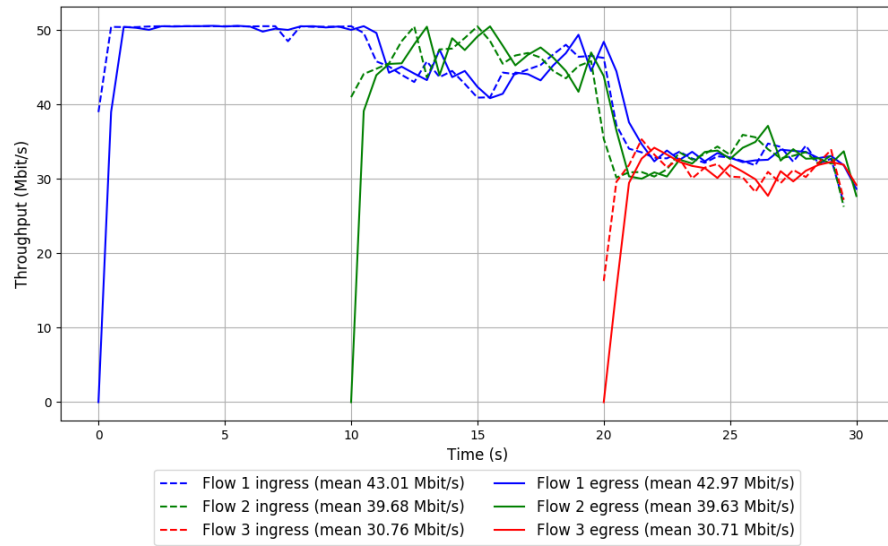
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2019-02-20 01:25:54
End at: 2019-02-20 01:26:24
Local clock offset: -13.828 ms
Remote clock offset: 2.625 ms


# Below is generated by plot.py at 2019-02-20 02:31:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 79.50 Mbit/s
95th percentile per-packet one-way delay: 24.040 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 42.97 Mbit/s
95th percentile per-packet one-way delay: 22.086 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 39.63 Mbit/s
95th percentile per-packet one-way delay: 23.575 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 30.71 Mbit/s
95th percentile per-packet one-way delay: 26.523 ms
Loss rate: 0.00%
```
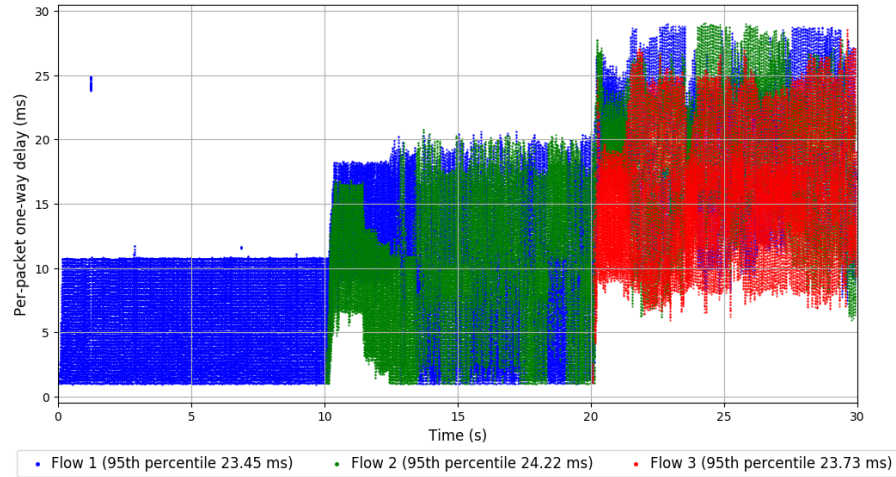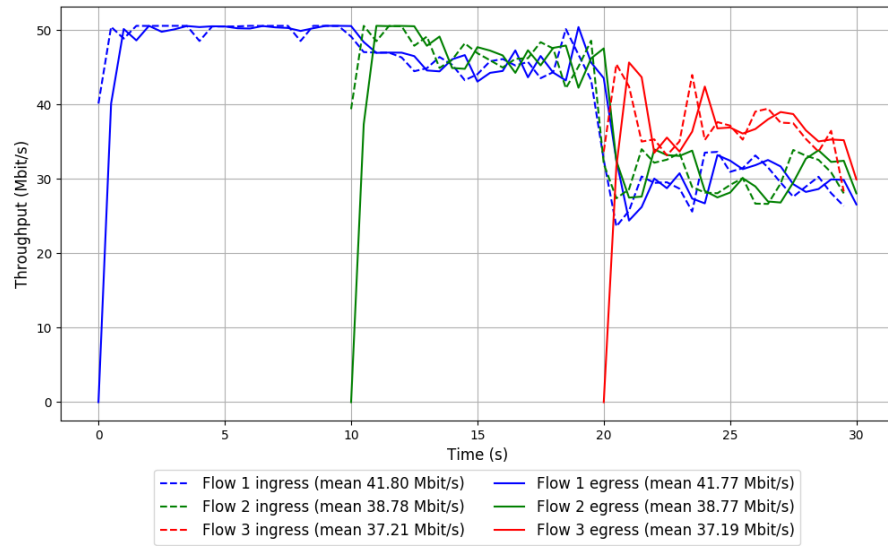
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2019-02-20 01:49:45
End at: 2019-02-20 01:50:15
Local clock offset: -5.492 ms
Remote clock offset: 2.877 ms


# Below is generated by plot.py at 2019-02-20 02:31:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 79.83 Mbit/s
95th percentile per-packet one-way delay: 23.776 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 41.77 Mbit/s
95th percentile per-packet one-way delay: 23.447 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 38.77 Mbit/s
95th percentile per-packet one-way delay: 24.218 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 37.19 Mbit/s
95th percentile per-packet one-way delay: 23.728 ms
Loss rate: 0.00%
```
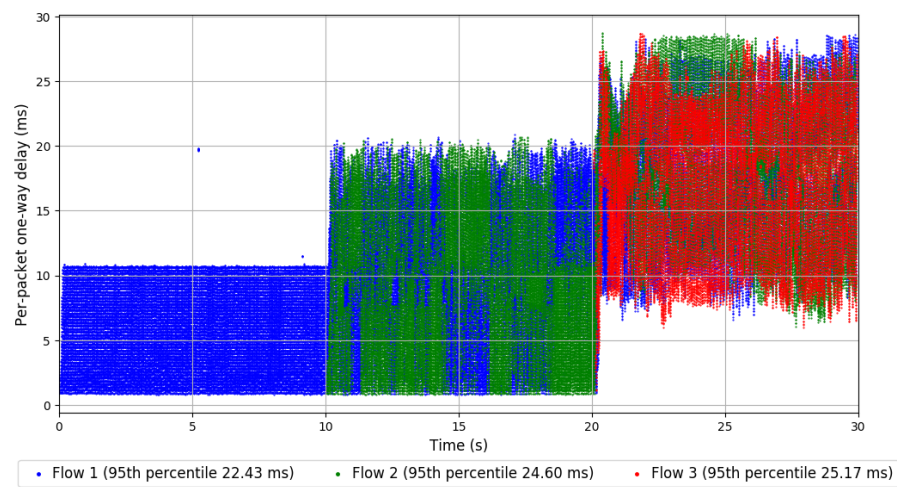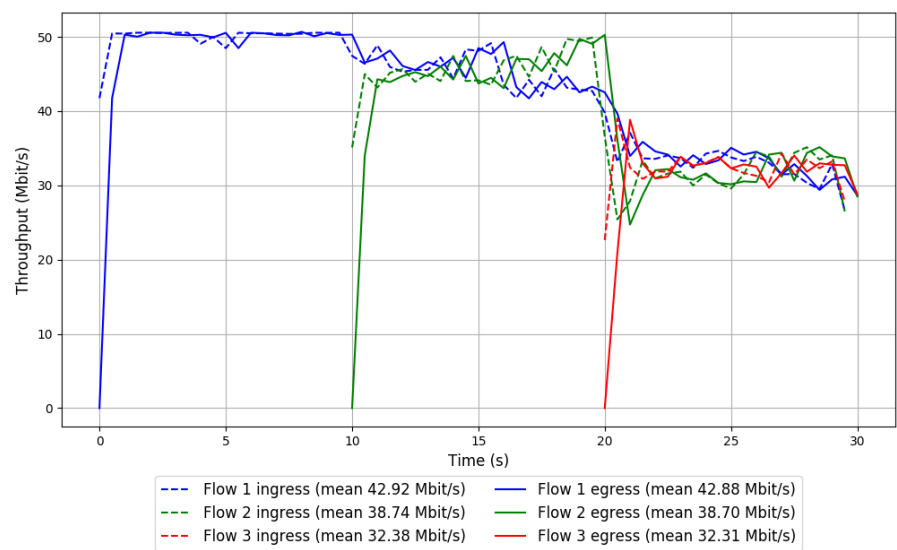
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2019-02-20 02:13:35
End at: 2019-02-20 02:14:05
Local clock offset: -5.309 ms
Remote clock offset: 2.543 ms


# Below is generated by plot.py at 2019-02-20 02:31:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 79.31 Mbit/s
95th percentile per-packet one-way delay: 24.004 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 42.88 Mbit/s
95th percentile per-packet one-way delay: 22.426 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 38.70 Mbit/s
95th percentile per-packet one-way delay: 24.604 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 32.31 Mbit/s
95th percentile per-packet one-way delay: 25.168 ms
Loss rate: 0.00%
```
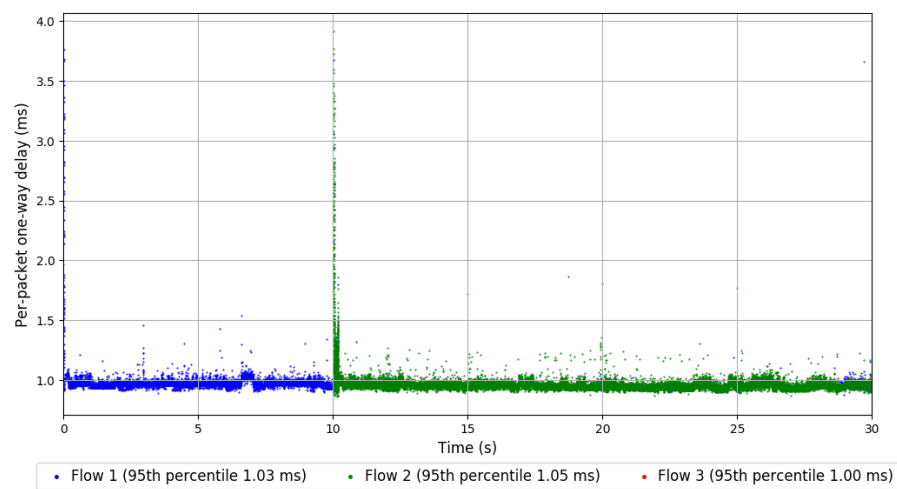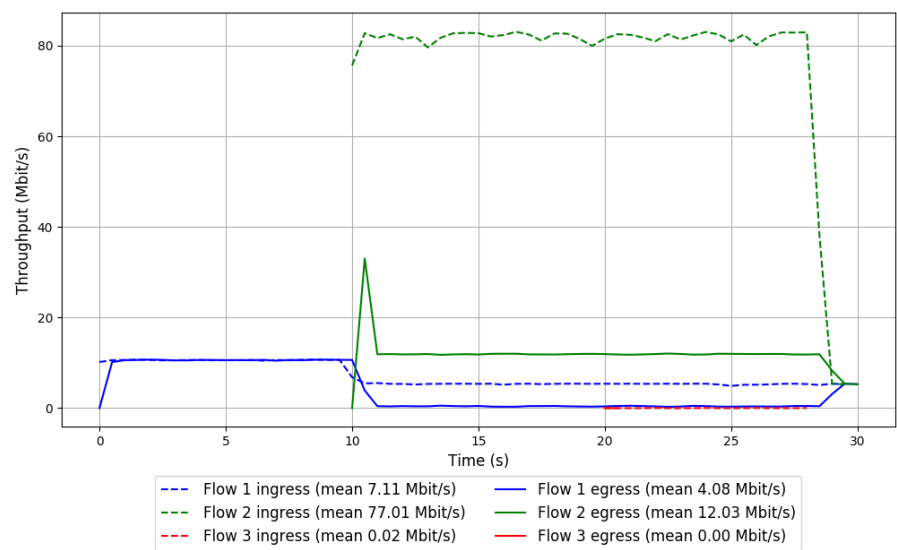
Run 5: Report of Sprout — Data Link

Flow 1 ingress (mean 42.92 Mbit/s) ---- Flow 1 egress (mean 42.88 Mbit/s)
Flow 2 ingress (mean 38.74 Mbit/s) ---- Flow 2 egress (mean 38.70 Mbit/s)
Flow 3 ingress (mean 32.38 Mbit/s) ---- Flow 3 egress (mean 32.31 Mbit/s)

• Flow 1 (95th percentile 22.43 ms) • Flow 2 (95th percentile 24.60 ms) • Flow 3 (95th percentile 25.17 ms)

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

Start at: 2019-02-20 00:26:48
End at: 2019-02-20 00:27:18
Local clock offset: -13.944 ms
Remote clock offset: 0.911 ms


# Below is generated by plot.py at 2019-02-20 02:31:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.09 Mbit/s
95th percentile per-packet one-way delay: 1.039 ms
Loss rate: 79.31%
-- Flow 1:
Average throughput: 4.08 Mbit/s
95th percentile per-packet one-way delay: 1.033 ms
Loss rate: 42.70%
-- Flow 2:
Average throughput: 12.03 Mbit/s
95th percentile per-packet one-way delay: 1.047 ms
Loss rate: 84.38%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 1.000 ms
Loss rate: 99.16%
```
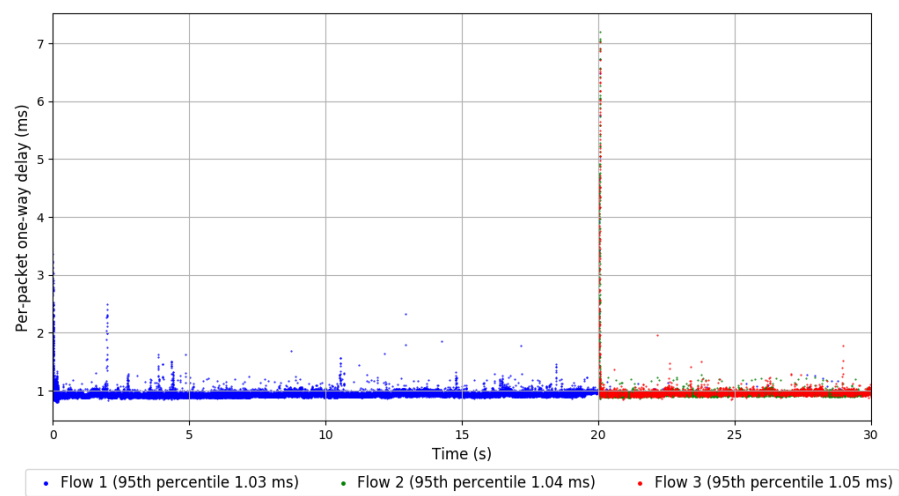
Run 1: Report of TaoVA-100x — Data Link

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

Start at: 2019-02-20 00:50:37
End at: 2019-02-20 00:51:07
Local clock offset: -8.113 ms
Remote clock offset: 1.729 ms


# Below is generated by plot.py at 2019-02-20 02:31:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 1.032 ms
Loss rate: 84.50%
-- Flow 1:
Average throughput: 8.69 Mbit/s
95th percentile per-packet one-way delay: 1.027 ms
Loss rate: 83.78%
-- Flow 2:
Average throughput: 3.03 Mbit/s
95th percentile per-packet one-way delay: 1.045 ms
Loss rate: 85.90%
-- Flow 3:
Average throughput: 6.12 Mbit/s
95th percentile per-packet one-way delay: 1.052 ms
Loss rate: 85.76%
```
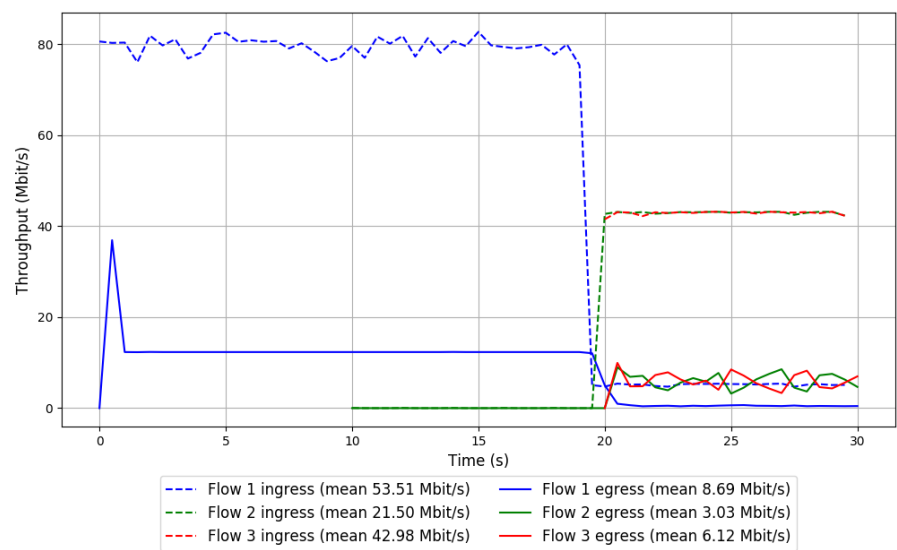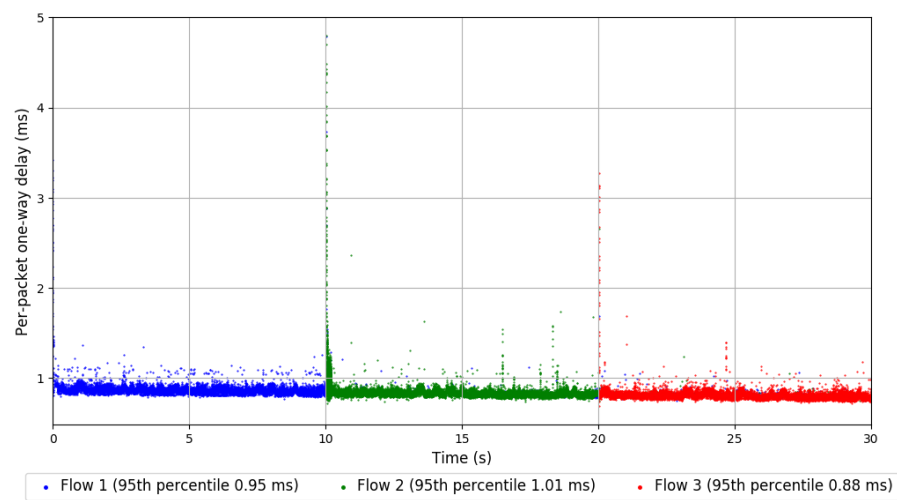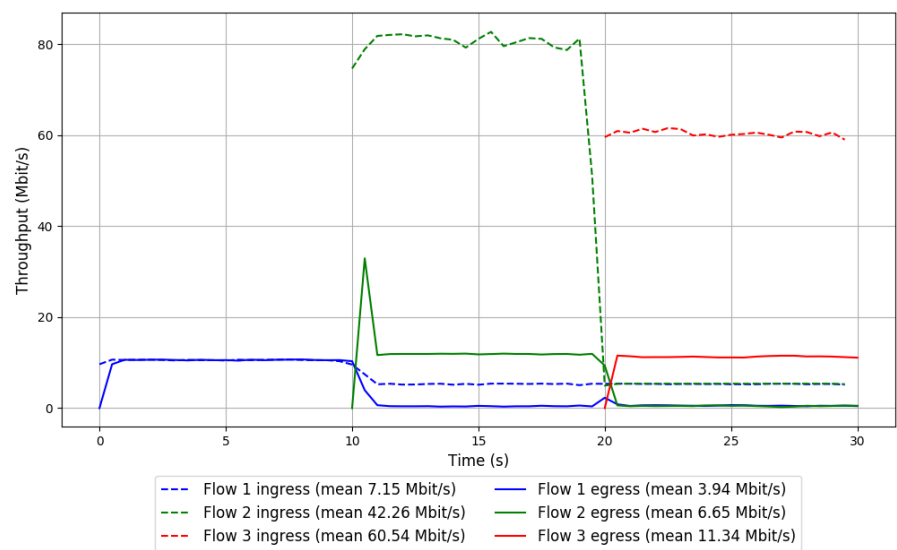
Run 2: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 53.51 Mbit/s) — Flow 1 egress (mean 8.69 Mbit/s)
Flow 2 ingress (mean 21.50 Mbit/s) — Flow 2 egress (mean 3.03 Mbit/s)
Flow 3 ingress (mean 42.98 Mbit/s) — Flow 3 egress (mean 6.12 Mbit/s)

Flow 1 (95th percentile 1.03 ms) · Flow 2 (95th percentile 1.04 ms) · Flow 3 (95th percentile 1.05 ms)

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

Start at: 2019-02-20 01:14:30
End at: 2019-02-20 01:15:00
Local clock offset: -12.623 ms
Remote clock offset: 2.41 ms


# Below is generated by plot.py at 2019-02-20 02:31:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.14 Mbit/s
95th percentile per-packet one-way delay: 0.942 ms
Loss rate: 78.11%
-- Flow 1:
Average throughput: 3.94 Mbit/s
95th percentile per-packet one-way delay: 0.947 ms
Loss rate: 45.01%
-- Flow 2:
Average throughput: 6.65 Mbit/s
95th percentile per-packet one-way delay: 1.014 ms
Loss rate: 84.25%
-- Flow 3:
Average throughput: 11.34 Mbit/s
95th percentile per-packet one-way delay: 0.880 ms
Loss rate: 81.27%
```
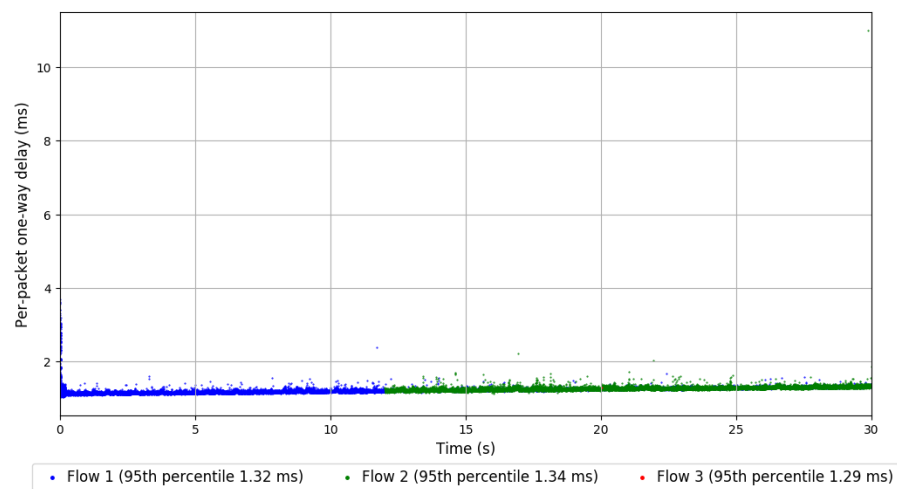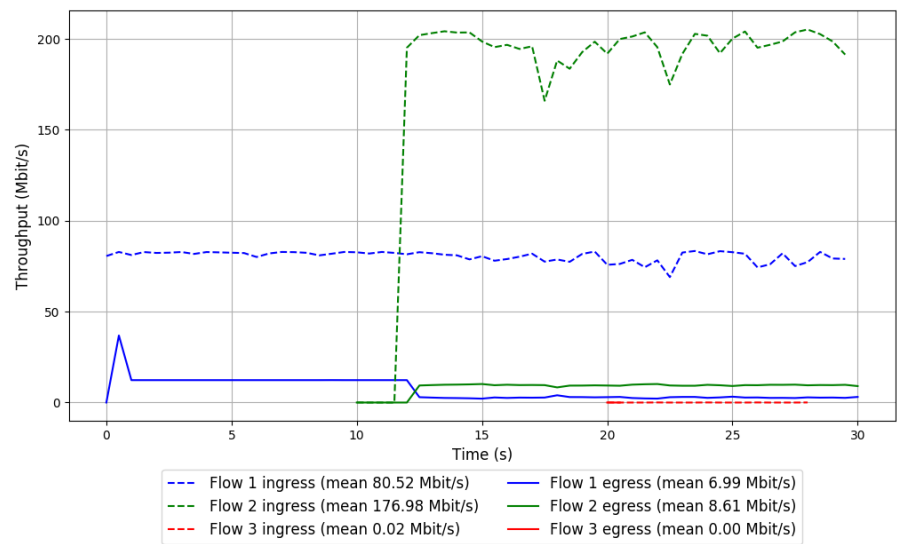
Run 3: Report of TaoVA-100x — Data Link

- - - Flow 1 ingress (mean 7.15 Mbit/s) — Flow 1 egress (mean 3.94 Mbit/s)
- - - Flow 2 ingress (mean 42.26 Mbit/s) — Flow 2 egress (mean 6.65 Mbit/s)
- - - Flow 3 ingress (mean 60.54 Mbit/s) — Flow 3 egress (mean 11.34 Mbit/s)

• Flow 1 (95th percentile 0.95 ms)   • Flow 2 (95th percentile 1.01 ms)   • Flow 3 (95th percentile 0.88 ms)

```
Run 4: Statistics of TaoVA-100x

Start at: 2019-02-20 01:38:20
End at: 2019-02-20 01:38:50
Local clock offset: -8.56 ms
Remote clock offset: 2.969 ms


# Below is generated by plot.py at 2019-02-20 02:31:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 1.336 ms
Loss rate: 93.58%
-- Flow 1:
Average throughput: 6.99 Mbit/s
95th percentile per-packet one-way delay: 1.320 ms
Loss rate: 91.32%
-- Flow 2:
Average throughput: 8.61 Mbit/s
95th percentile per-packet one-way delay: 1.345 ms
Loss rate: 95.13%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 1.295 ms
Loss rate: 99.16%
```
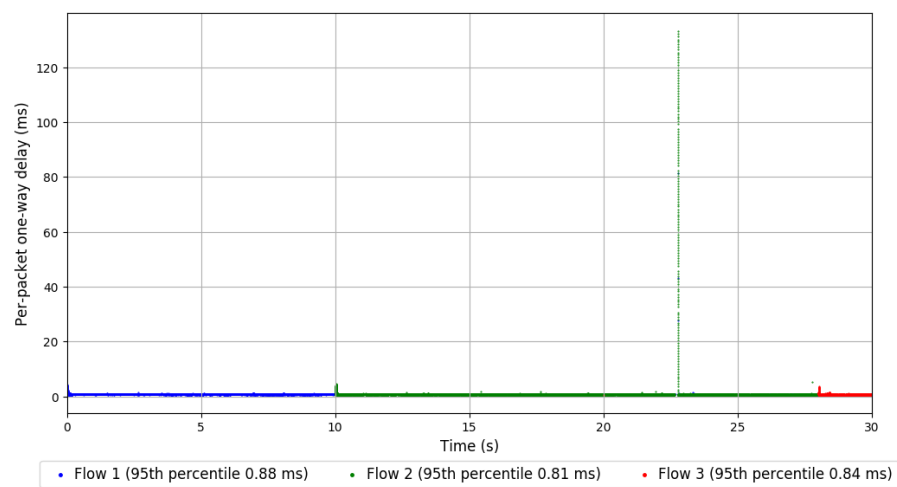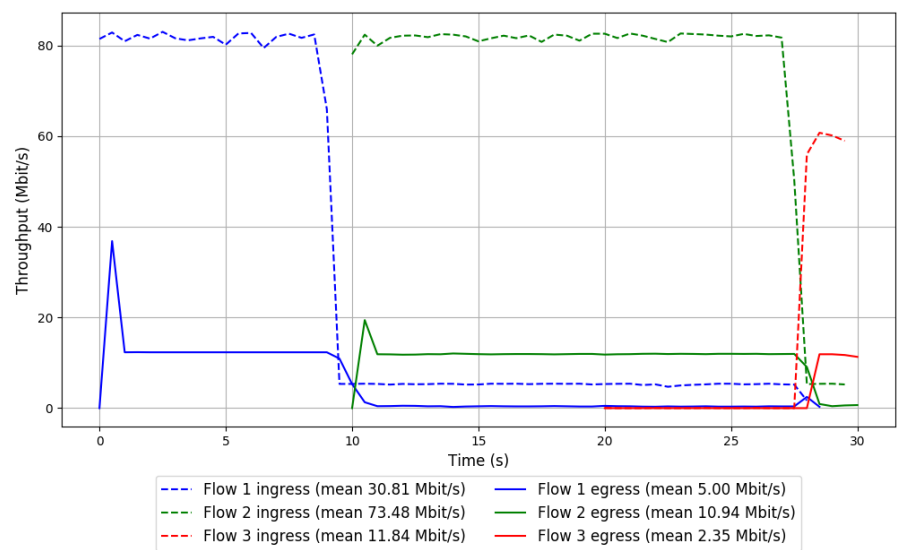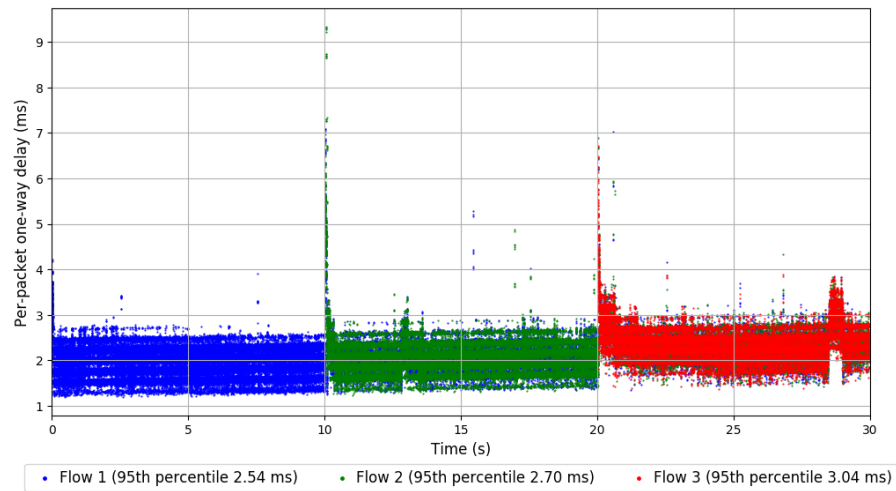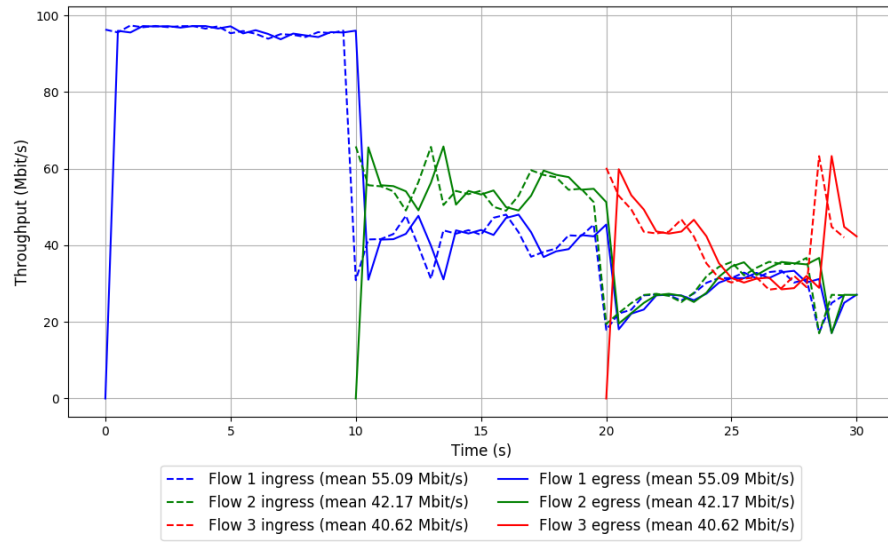
Run 4: Report of TaoVA-100x — Data Link

- - - Flow 1 ingress (mean 80.52 Mbit/s) —— Flow 1 egress (mean 6.99 Mbit/s)
- - - Flow 2 ingress (mean 176.98 Mbit/s) —— Flow 2 egress (mean 8.61 Mbit/s)
- - - Flow 3 ingress (mean 0.02 Mbit/s) —— Flow 3 egress (mean 0.00 Mbit/s)

• Flow 1 (95th percentile 1.32 ms)   • Flow 2 (95th percentile 1.34 ms)   • Flow 3 (95th percentile 1.29 ms)

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

Start at: 2019-02-20 02:02:11
End at: 2019-02-20 02:02:41
Local clock offset: -4.584 ms
Remote clock offset: 2.593 ms


# Below is generated by plot.py at 2019-02-20 02:31:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.73 Mbit/s
95th percentile per-packet one-way delay: 0.851 ms
Loss rate: 84.44%
-- Flow 1:
Average throughput: 5.00 Mbit/s
95th percentile per-packet one-way delay: 0.877 ms
Loss rate: 83.85%
-- Flow 2:
Average throughput: 10.94 Mbit/s
95th percentile per-packet one-way delay: 0.812 ms
Loss rate: 85.13%
-- Flow 3:
Average throughput: 2.35 Mbit/s
95th percentile per-packet one-way delay: 0.845 ms
Loss rate: 80.17%
```

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

```
Run 1: Statistics of TCP Vegas

Start at: 2019-02-20 00:30:12
End at: 2019-02-20 00:30:42
Local clock offset: -13.926 ms
Remote clock offset: 1.02 ms


# Below is generated by plot.py at 2019-02-20 02:32:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.69 Mbit/s
95th percentile per-packet one-way delay: 2.711 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 55.09 Mbit/s
95th percentile per-packet one-way delay: 2.537 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 42.17 Mbit/s
95th percentile per-packet one-way delay: 2.702 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 40.62 Mbit/s
95th percentile per-packet one-way delay: 3.041 ms
Loss rate: 0.00%
```
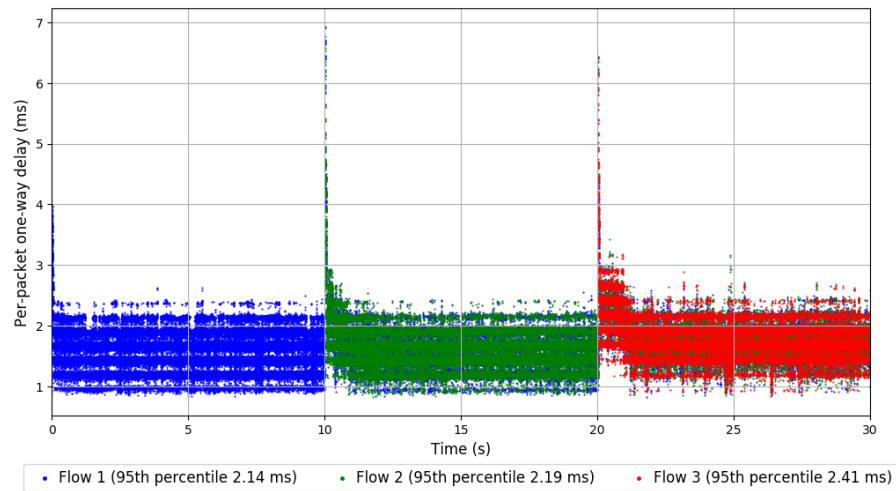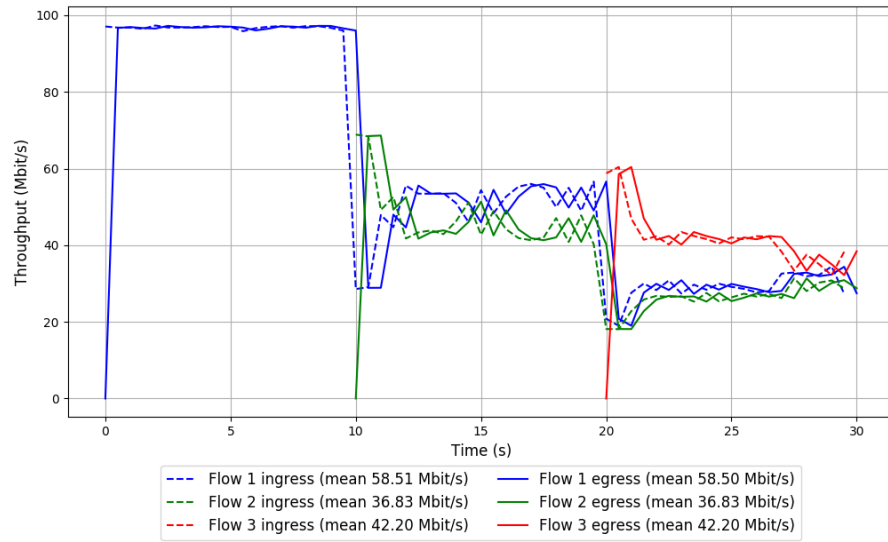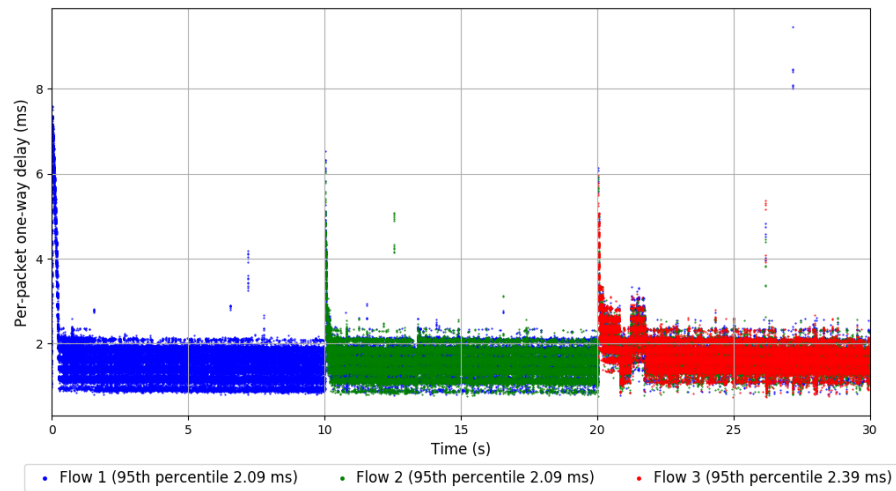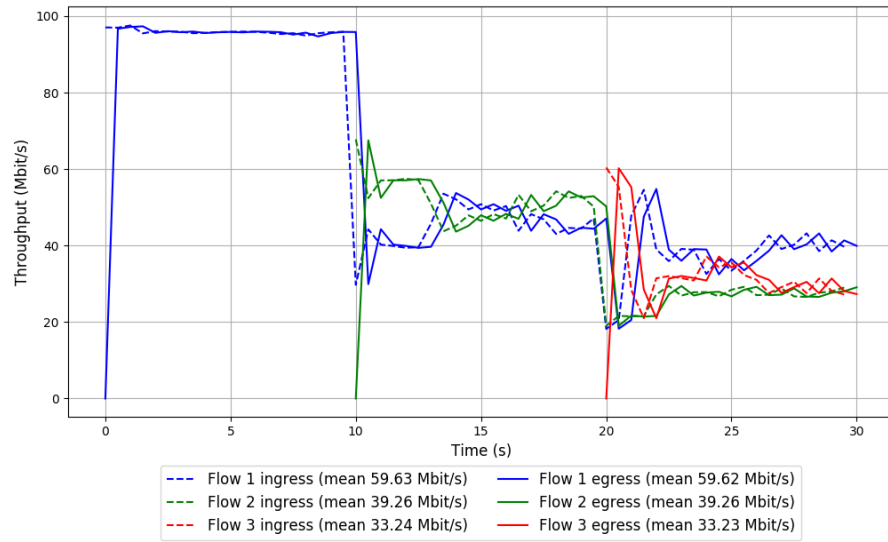
Run 1: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 55.09 Mbit/s) --- Flow 1 egress (mean 55.09 Mbit/s)
Flow 2 ingress (mean 42.17 Mbit/s) --- Flow 2 egress (mean 42.17 Mbit/s)
Flow 3 ingress (mean 40.62 Mbit/s) --- Flow 3 egress (mean 40.62 Mbit/s)

Flow 1 (95th percentile 2.54 ms)   Flow 2 (95th percentile 2.70 ms)   Flow 3 (95th percentile 3.04 ms)

```
Run 2: Statistics of TCP Vegas

Start at: 2019-02-20 00:54:01
End at: 2019-02-20 00:54:31
Local clock offset: -7.785 ms
Remote clock offset: 1.852 ms


# Below is generated by plot.py at 2019-02-20 02:32:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.06 Mbit/s
95th percentile per-packet one-way delay: 2.171 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 58.50 Mbit/s
95th percentile per-packet one-way delay: 2.138 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 36.83 Mbit/s
95th percentile per-packet one-way delay: 2.185 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 42.20 Mbit/s
95th percentile per-packet one-way delay: 2.407 ms
Loss rate: 0.00%
```

Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2019-02-20 01:17:54
End at: 2019-02-20 01:18:24
Local clock offset: -13.103 ms
Remote clock offset: 2.459 ms


# Below is generated by plot.py at 2019-02-20 02:32:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.83 Mbit/s
95th percentile per-packet one-way delay: 2.111 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 59.62 Mbit/s
95th percentile per-packet one-way delay: 2.091 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 39.26 Mbit/s
95th percentile per-packet one-way delay: 2.086 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 33.23 Mbit/s
95th percentile per-packet one-way delay: 2.390 ms
Loss rate: 0.02%
```
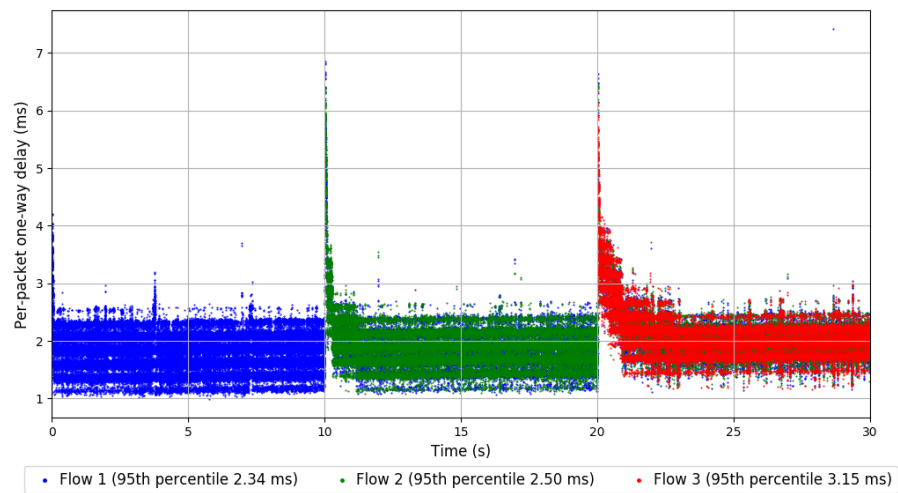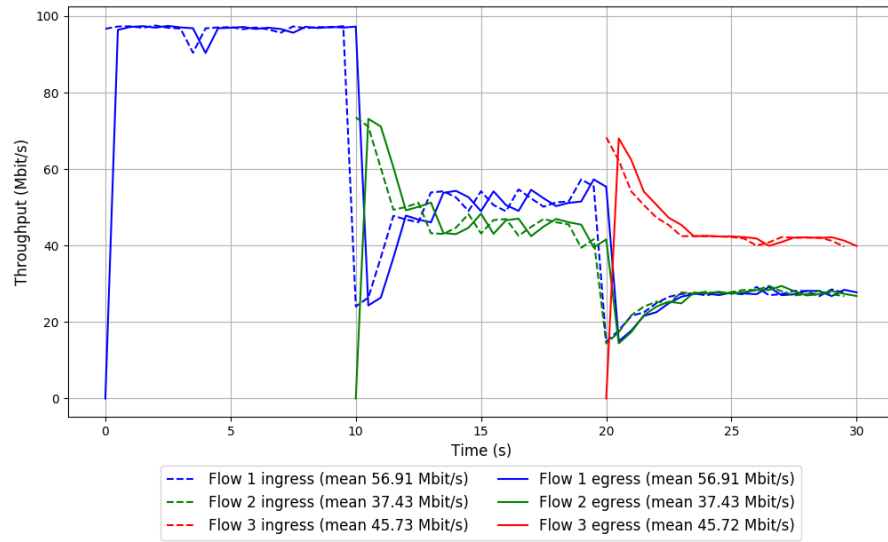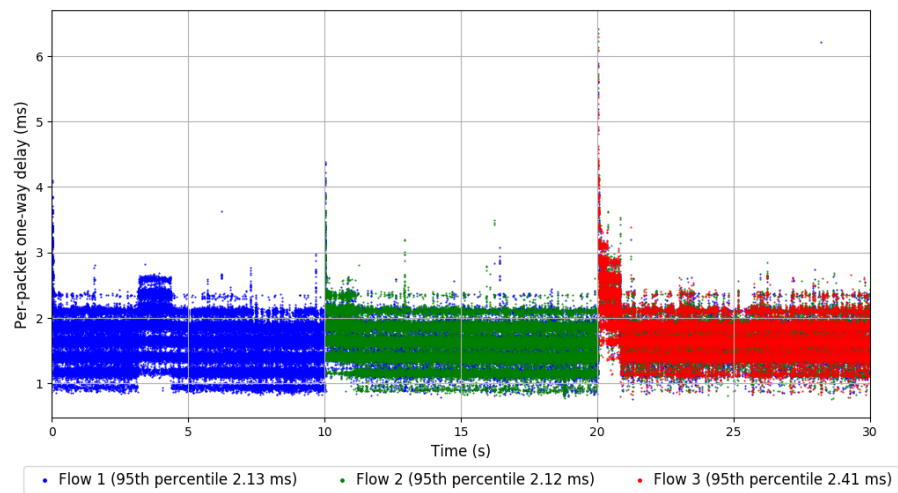
Run 3: Report of TCP Vegas — Data Link

- - - Flow 1 ingress (mean 59.63 Mbit/s) —— Flow 1 egress (mean 59.62 Mbit/s)
- - - Flow 2 ingress (mean 39.26 Mbit/s) —— Flow 2 egress (mean 39.26 Mbit/s)
- - - Flow 3 ingress (mean 33.24 Mbit/s) —— Flow 3 egress (mean 33.23 Mbit/s)

- Flow 1 (95th percentile 2.09 ms)   • Flow 2 (95th percentile 2.09 ms)   • Flow 3 (95th percentile 2.39 ms)

```
Run 4: Statistics of TCP Vegas

Start at: 2019-02-20 01:41:46
End at: 2019-02-20 01:42:16
Local clock offset: -7.329 ms
Remote clock offset: 3.0 ms


# Below is generated by plot.py at 2019-02-20 02:32:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.06 Mbit/s
95th percentile per-packet one-way delay: 2.456 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 56.91 Mbit/s
95th percentile per-packet one-way delay: 2.339 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 37.43 Mbit/s
95th percentile per-packet one-way delay: 2.503 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 45.72 Mbit/s
95th percentile per-packet one-way delay: 3.147 ms
Loss rate: 0.00%
```
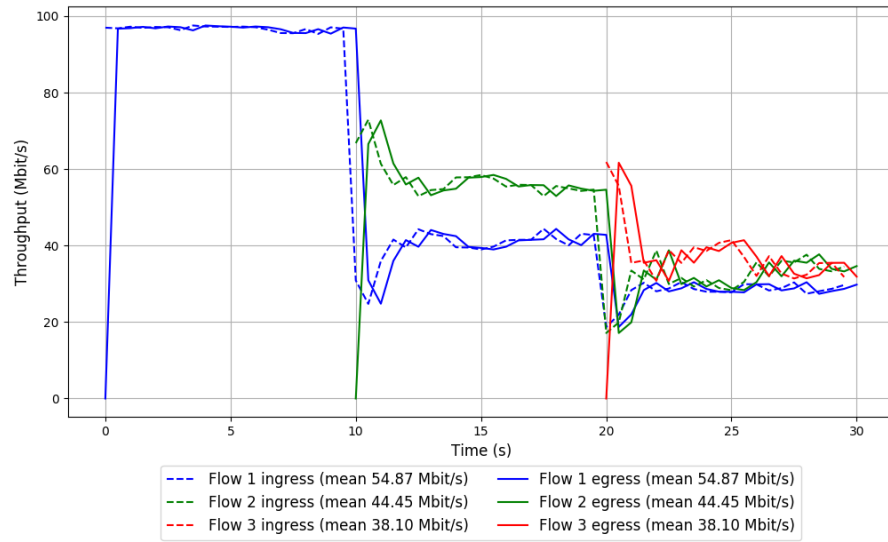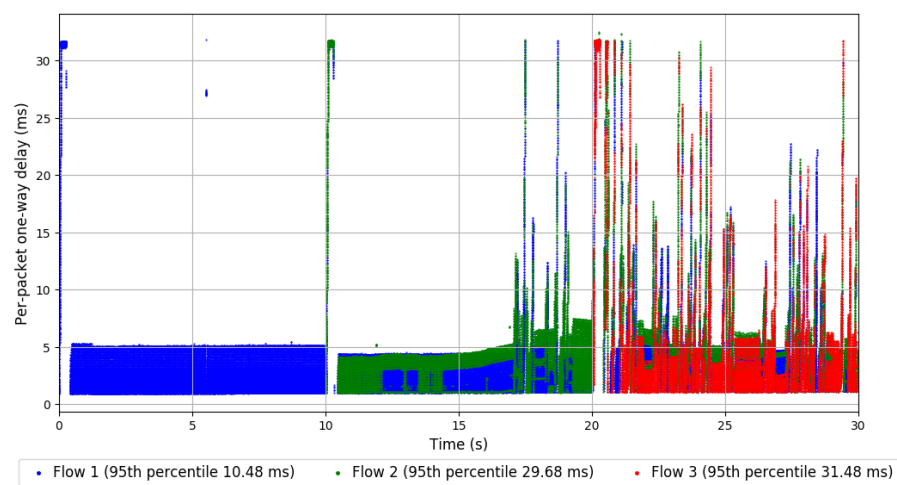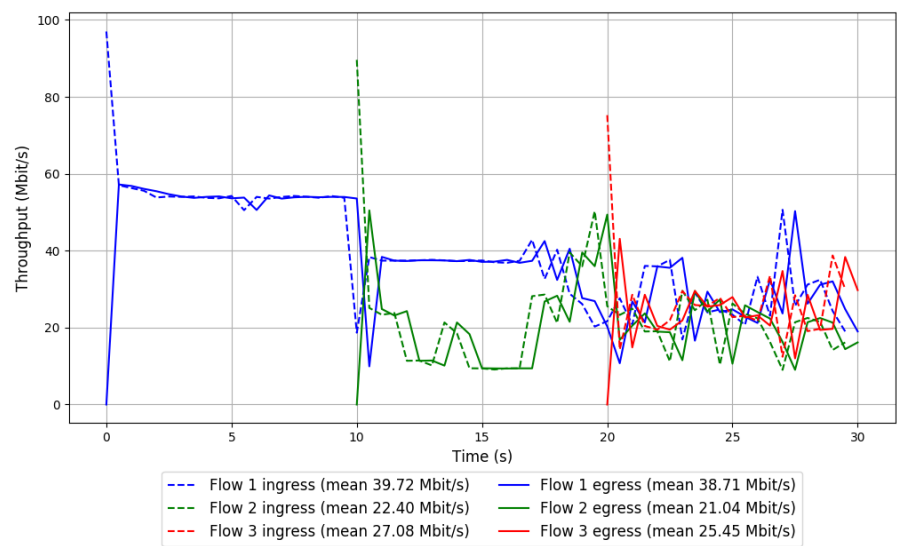
Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2019-02-20 02:05:35
End at: 2019-02-20 02:06:06
Local clock offset: -5.038 ms
Remote clock offset: 2.625 ms


# Below is generated by plot.py at 2019-02-20 02:32:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.15 Mbit/s
95th percentile per-packet one-way delay: 2.143 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 54.87 Mbit/s
95th percentile per-packet one-way delay: 2.132 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 44.45 Mbit/s
95th percentile per-packet one-way delay: 2.121 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 38.10 Mbit/s
95th percentile per-packet one-way delay: 2.409 ms
Loss rate: 0.00%
```

Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2019-02-20 00:33:36
End at: 2019-02-20 00:34:06
Local clock offset: -11.939 ms
Remote clock offset: 1.097 ms


# Below is generated by plot.py at 2019-02-20 02:32:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 61.14 Mbit/s
95th percentile per-packet one-way delay: 19.341 ms
Loss rate: 3.86%
-- Flow 1:
Average throughput: 38.71 Mbit/s
95th percentile per-packet one-way delay: 10.478 ms
Loss rate: 2.55%
-- Flow 2:
Average throughput: 21.04 Mbit/s
95th percentile per-packet one-way delay: 29.678 ms
Loss rate: 6.07%
-- Flow 3:
Average throughput: 25.45 Mbit/s
95th percentile per-packet one-way delay: 31.476 ms
Loss rate: 6.00%
```
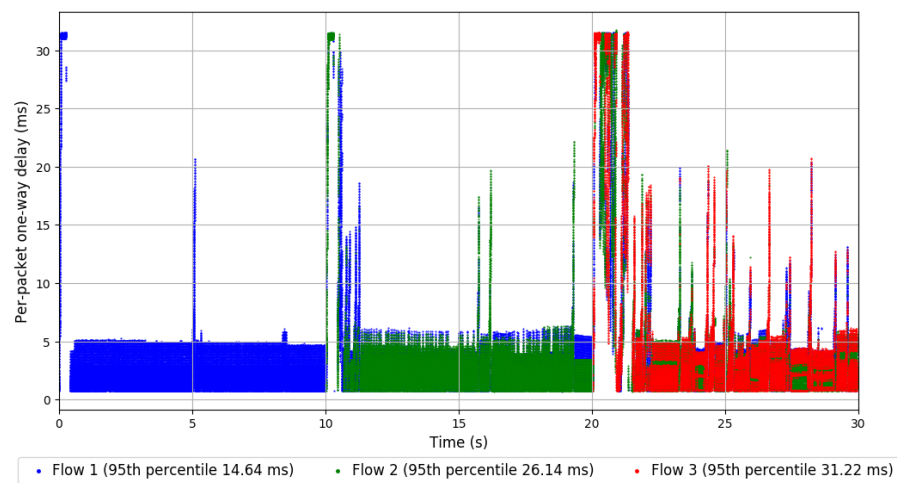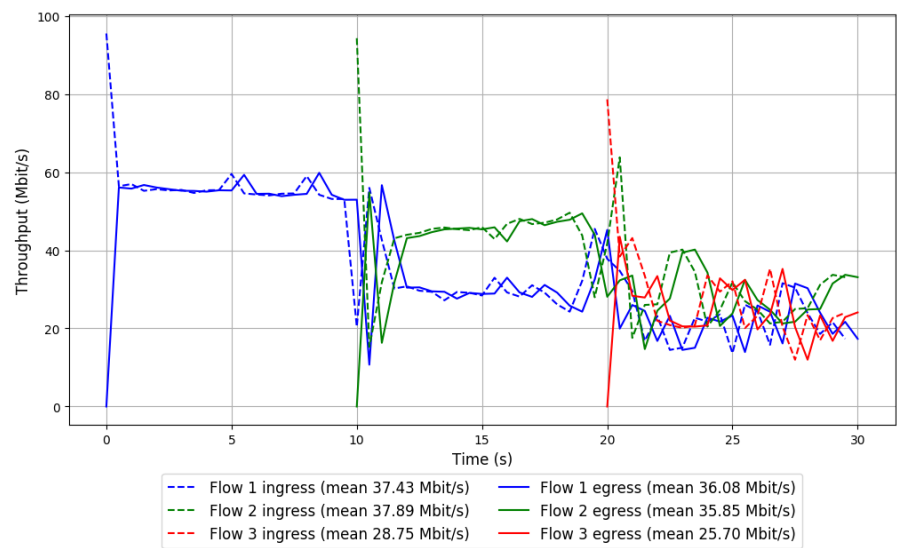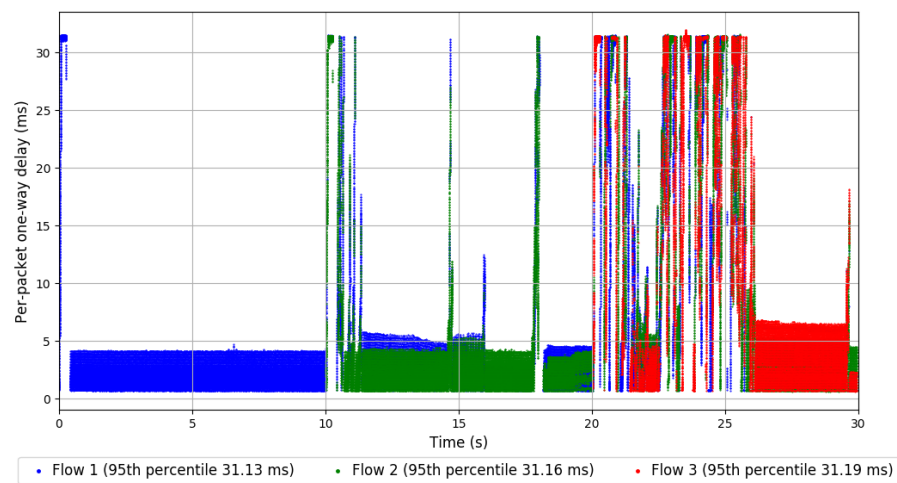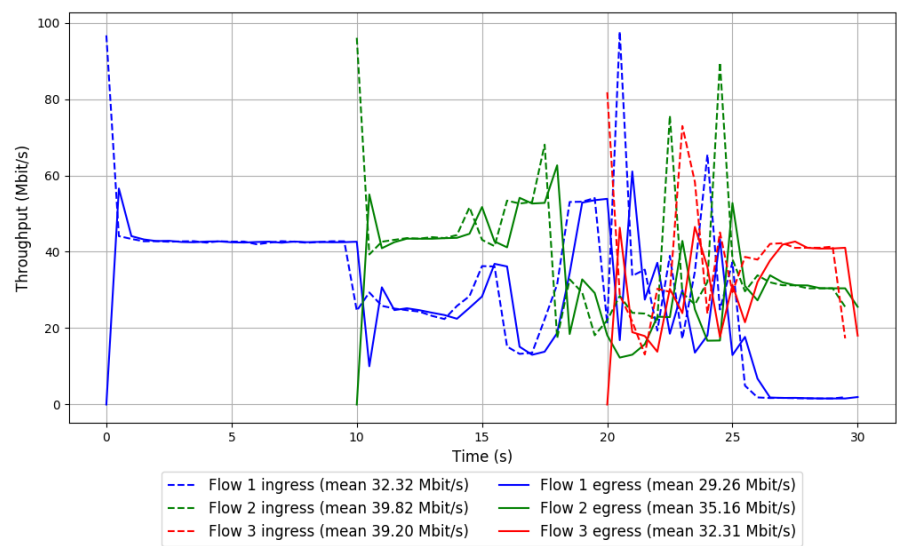
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2019-02-20 00:57:25
End at: 2019-02-20 00:57:55
Local clock offset: -7.502 ms
Remote clock offset: 1.865 ms


# Below is generated by plot.py at 2019-02-20 02:32:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 68.45 Mbit/s
95th percentile per-packet one-way delay: 23.400 ms
Loss rate: 5.14%
-- Flow 1:
Average throughput: 36.08 Mbit/s
95th percentile per-packet one-way delay: 14.636 ms
Loss rate: 3.60%
-- Flow 2:
Average throughput: 35.85 Mbit/s
95th percentile per-packet one-way delay: 26.138 ms
Loss rate: 5.36%
-- Flow 3:
Average throughput: 25.70 Mbit/s
95th percentile per-packet one-way delay: 31.218 ms
Loss rate: 10.60%
```

Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2019-02-20 01:21:18
End at: 2019-02-20 01:21:48
Local clock offset: -13.454 ms
Remote clock offset: 2.424 ms


# Below is generated by plot.py at 2019-02-20 02:32:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 63.36 Mbit/s
95th percentile per-packet one-way delay: 31.163 ms
Loss rate: 11.75%
-- Flow 1:
Average throughput: 29.26 Mbit/s
95th percentile per-packet one-way delay: 31.132 ms
Loss rate: 9.45%
-- Flow 2:
Average throughput: 35.16 Mbit/s
95th percentile per-packet one-way delay: 31.160 ms
Loss rate: 11.69%
-- Flow 3:
Average throughput: 32.31 Mbit/s
95th percentile per-packet one-way delay: 31.186 ms
Loss rate: 17.61%
```
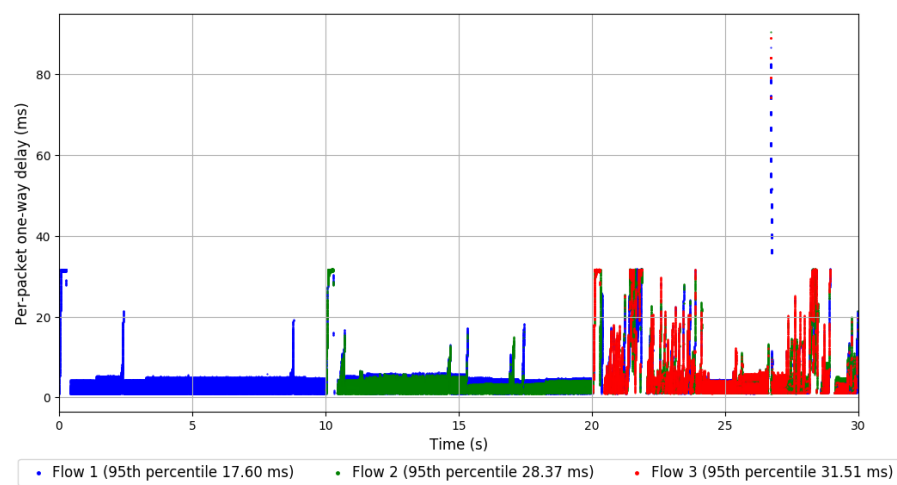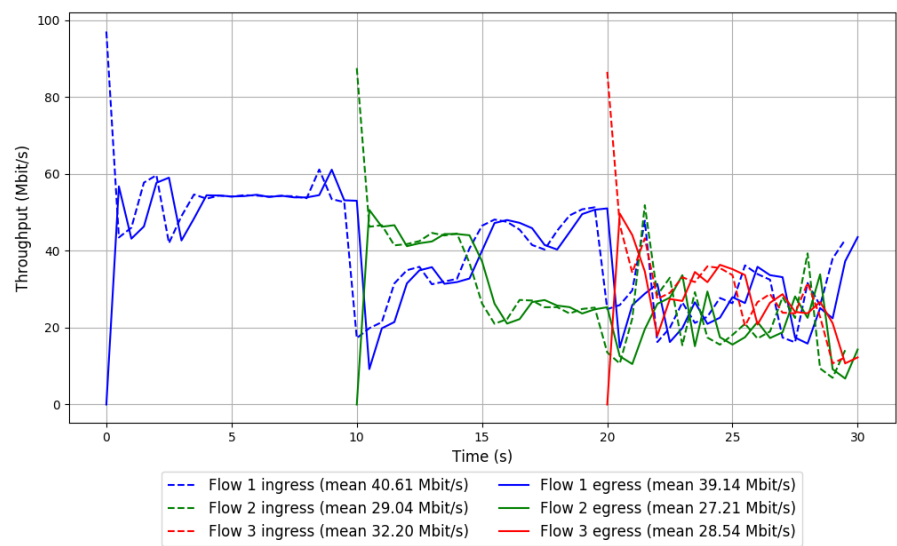
Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2019-02-20 01:45:09
End at: 2019-02-20 01:45:39
Local clock offset: -6.52 ms
Remote clock offset: 2.819 ms


# Below is generated by plot.py at 2019-02-20 02:32:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 66.72 Mbit/s
95th percentile per-packet one-way delay: 26.016 ms
Loss rate: 5.44%
-- Flow 1:
Average throughput: 39.14 Mbit/s
95th percentile per-packet one-way delay: 17.601 ms
Loss rate: 3.56%
-- Flow 2:
Average throughput: 27.21 Mbit/s
95th percentile per-packet one-way delay: 28.370 ms
Loss rate: 6.23%
-- Flow 3:
Average throughput: 28.54 Mbit/s
95th percentile per-packet one-way delay: 31.512 ms
Loss rate: 11.20%
```
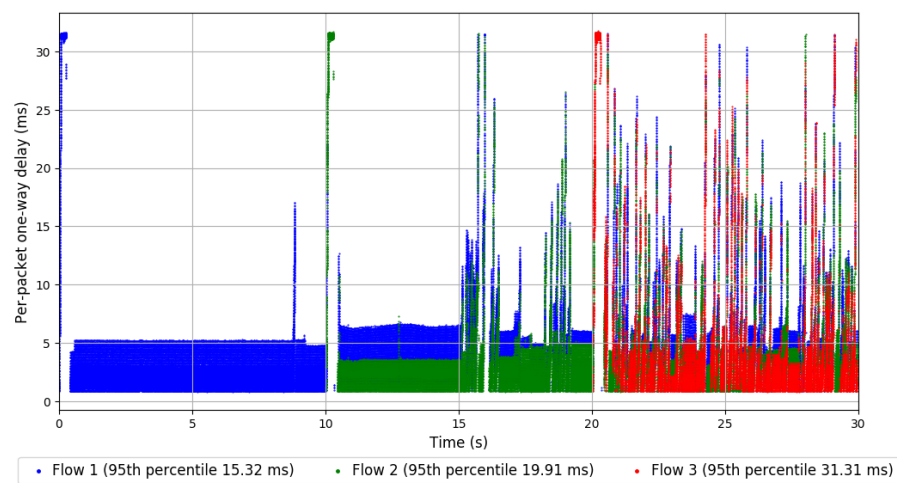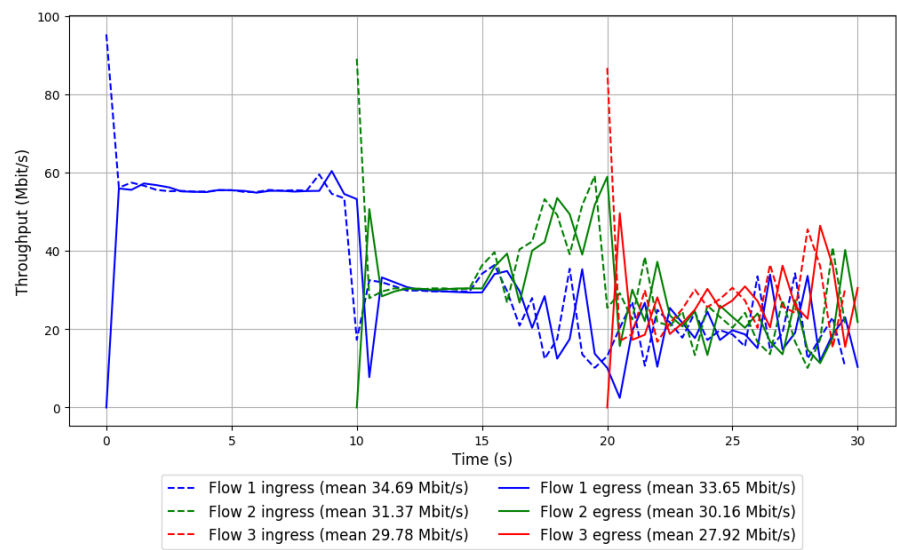
Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2019-02-20 02:08:59
End at: 2019-02-20 02:09:29
Local clock offset: -5.283 ms
Remote clock offset: 2.57 ms


# Below is generated by plot.py at 2019-02-20 02:32:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 62.98 Mbit/s
95th percentile per-packet one-way delay: 19.640 ms
Loss rate: 3.77%
-- Flow 1:
Average throughput: 33.65 Mbit/s
95th percentile per-packet one-way delay: 15.322 ms
Loss rate: 3.00%
-- Flow 2:
Average throughput: 30.16 Mbit/s
95th percentile per-packet one-way delay: 19.912 ms
Loss rate: 3.85%
-- Flow 3:
Average throughput: 27.92 Mbit/s
95th percentile per-packet one-way delay: 31.311 ms
Loss rate: 6.29%
```
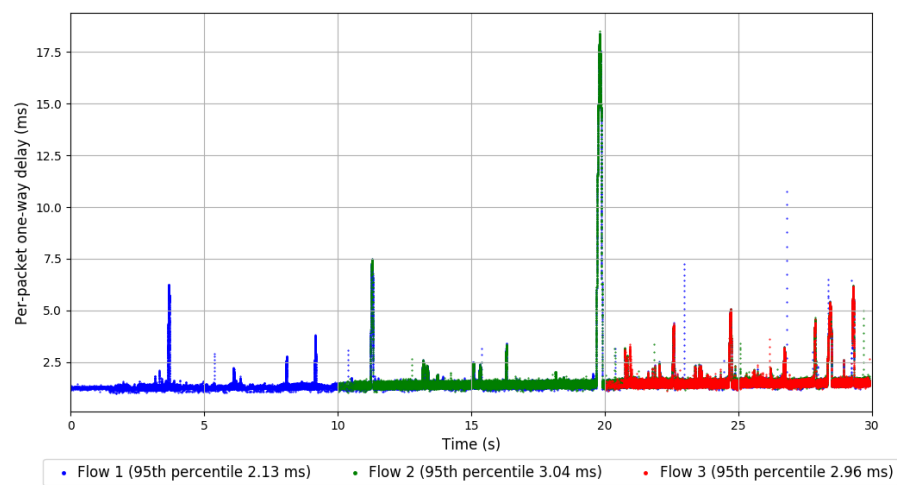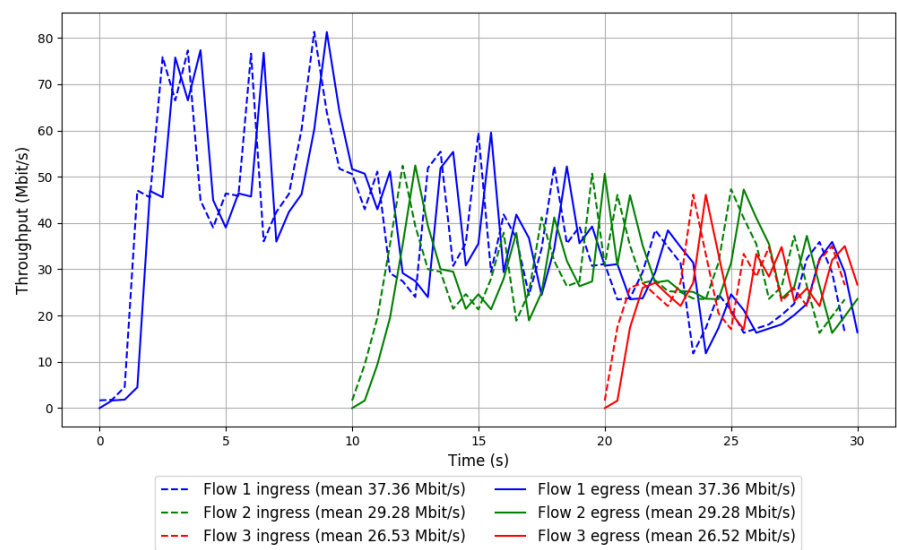
Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2019-02-20 00:32:27
End at: 2019-02-20 00:32:57
Local clock offset: -12.631 ms
Remote clock offset: 1.093 ms


# Below is generated by plot.py at 2019-02-20 02:32:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 65.59 Mbit/s
95th percentile per-packet one-way delay: 2.454 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 37.36 Mbit/s
95th percentile per-packet one-way delay: 2.127 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 29.28 Mbit/s
95th percentile per-packet one-way delay: 3.036 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 26.52 Mbit/s
95th percentile per-packet one-way delay: 2.958 ms
Loss rate: 0.00%
```
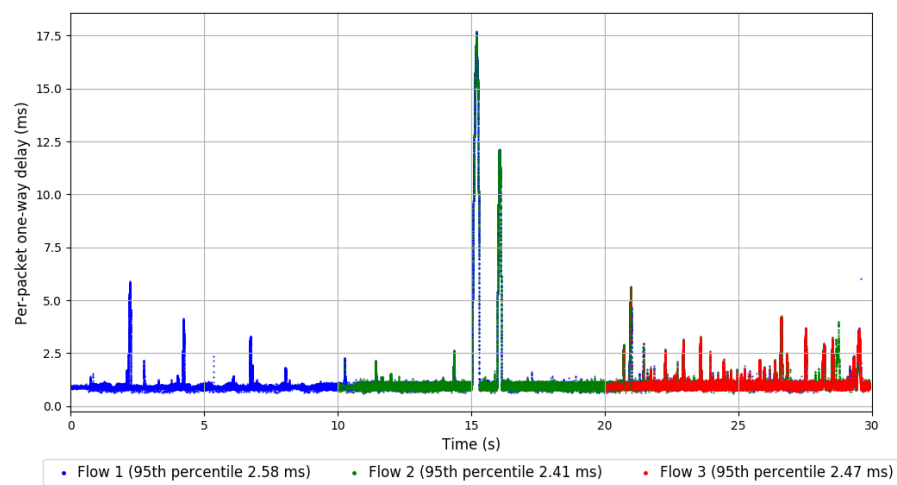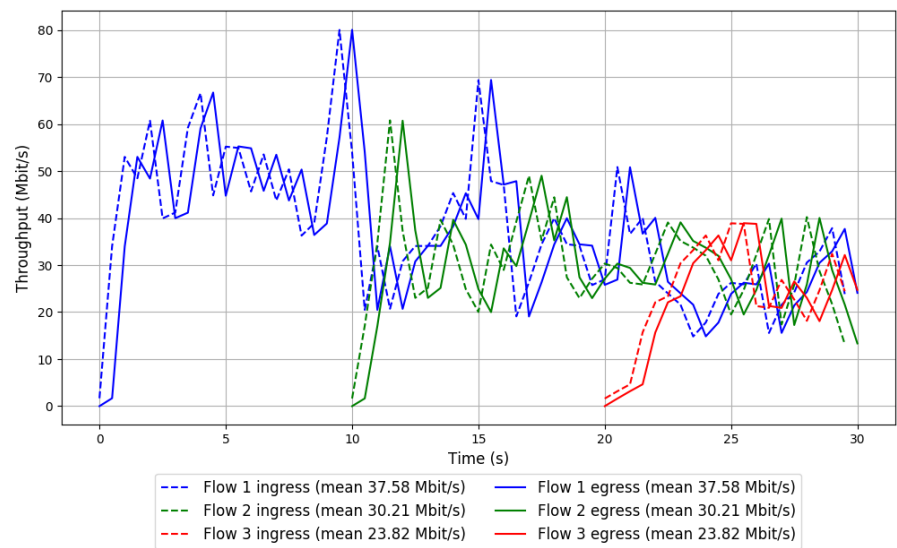
Run 1: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 37.36 Mbit/s)   Flow 1 egress (mean 37.36 Mbit/s)
Flow 2 ingress (mean 29.28 Mbit/s)   Flow 2 egress (mean 29.28 Mbit/s)
Flow 3 ingress (mean 26.53 Mbit/s)   Flow 3 egress (mean 26.52 Mbit/s)

Flow 1 (95th percentile 2.13 ms)   Flow 2 (95th percentile 3.04 ms)   Flow 3 (95th percentile 2.96 ms)

```
Run 2: Statistics of PCC-Vivace

Start at: 2019-02-20 00:56:16
End at: 2019-02-20 00:56:46
Local clock offset: -7.62 ms
Remote clock offset: 1.846 ms


# Below is generated by plot.py at 2019-02-20 02:32:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 65.54 Mbit/s
95th percentile per-packet one-way delay: 2.494 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 37.58 Mbit/s
95th percentile per-packet one-way delay: 2.585 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 30.21 Mbit/s
95th percentile per-packet one-way delay: 2.411 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 23.82 Mbit/s
95th percentile per-packet one-way delay: 2.469 ms
Loss rate: 0.00%
```

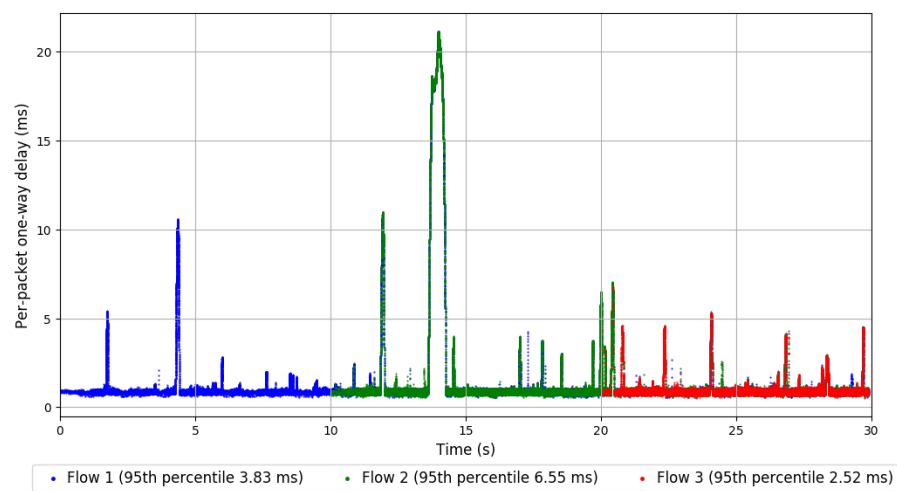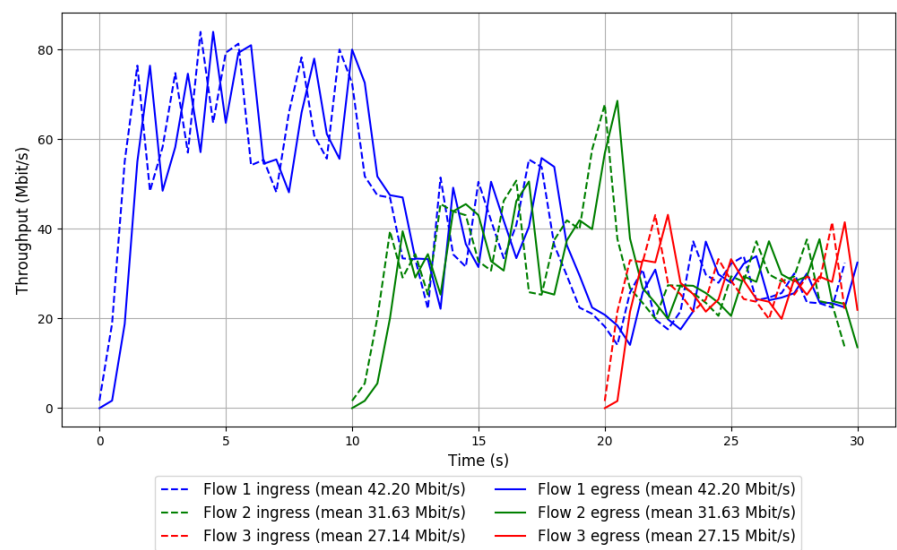Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2019-02-20 01:20:08
End at: 2019-02-20 01:20:38
Local clock offset: -13.367 ms
Remote clock offset: 2.422 ms

# Below is generated by plot.py at 2019-02-20 02:33:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 72.20 Mbit/s
95th percentile per-packet one-way delay: 4.197 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 42.20 Mbit/s
95th percentile per-packet one-way delay: 3.834 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 31.63 Mbit/s
95th percentile per-packet one-way delay: 6.554 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 27.15 Mbit/s
95th percentile per-packet one-way delay: 2.517 ms
Loss rate: 0.00%
```
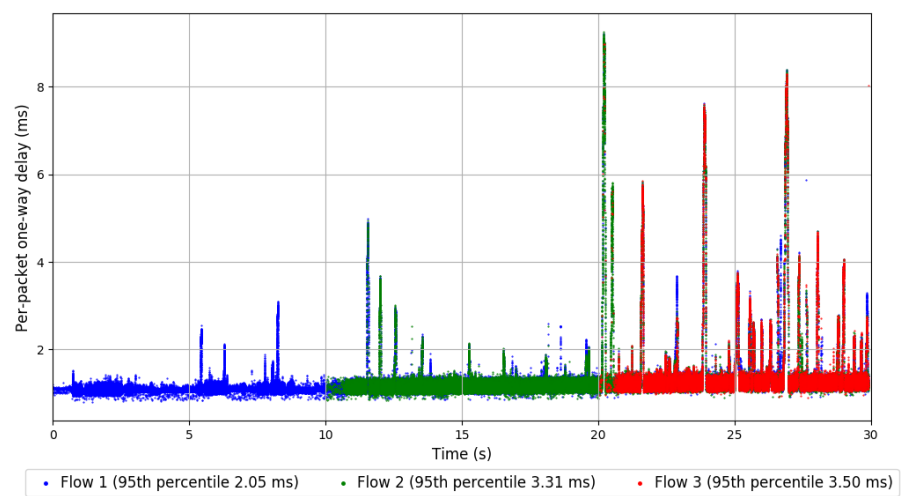
Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2019-02-20 01:44:00
End at: 2019-02-20 01:44:30
Local clock offset: -6.77 ms
Remote clock offset: 2.871 ms


# Below is generated by plot.py at 2019-02-20 02:33:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 67.69 Mbit/s
95th percentile per-packet one-way delay: 2.568 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 38.33 Mbit/s
95th percentile per-packet one-way delay: 2.048 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 30.63 Mbit/s
95th percentile per-packet one-way delay: 3.306 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 27.23 Mbit/s
95th percentile per-packet one-way delay: 3.497 ms
Loss rate: 0.00%
```
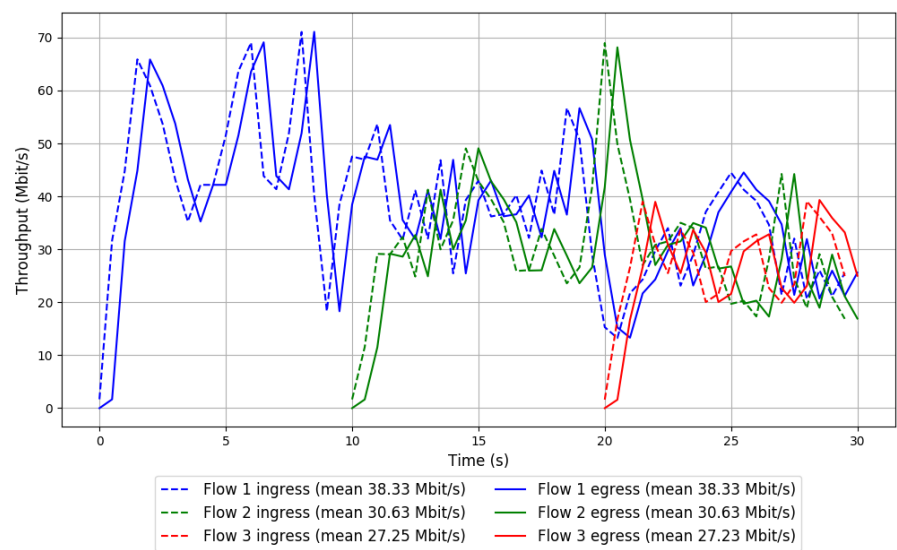
Run 4: Report of PCC-Vivace — Data Link

```
Run 5: Statistics of PCC-Vivace

Start at: 2019-02-20 02:07:50
End at: 2019-02-20 02:08:20
Local clock offset: -5.236 ms
Remote clock offset: 2.631 ms


# Below is generated by plot.py at 2019-02-20 02:33:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 70.31 Mbit/s
95th percentile per-packet one-way delay: 2.292 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 40.12 Mbit/s
95th percentile per-packet one-way delay: 1.753 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 32.98 Mbit/s
95th percentile per-packet one-way delay: 2.817 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 25.00 Mbit/s
95th percentile per-packet one-way delay: 4.095 ms
Loss rate: 0.00%
```
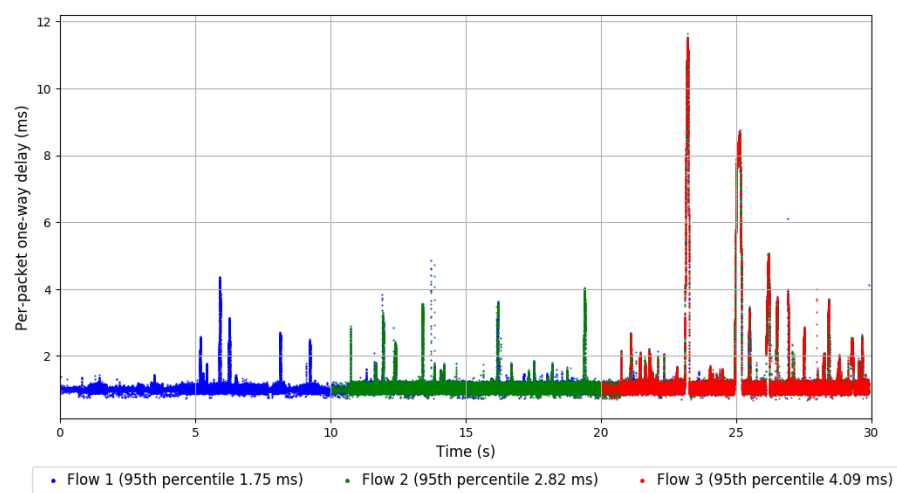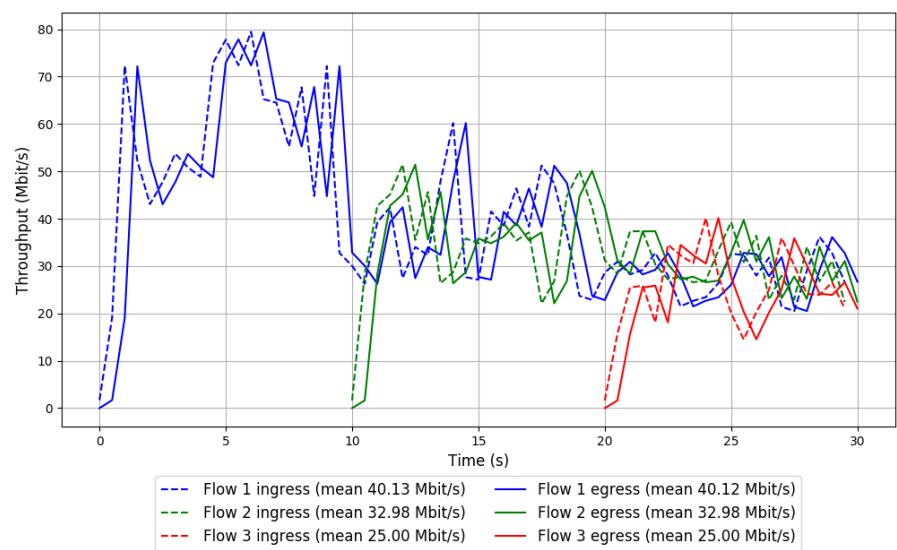
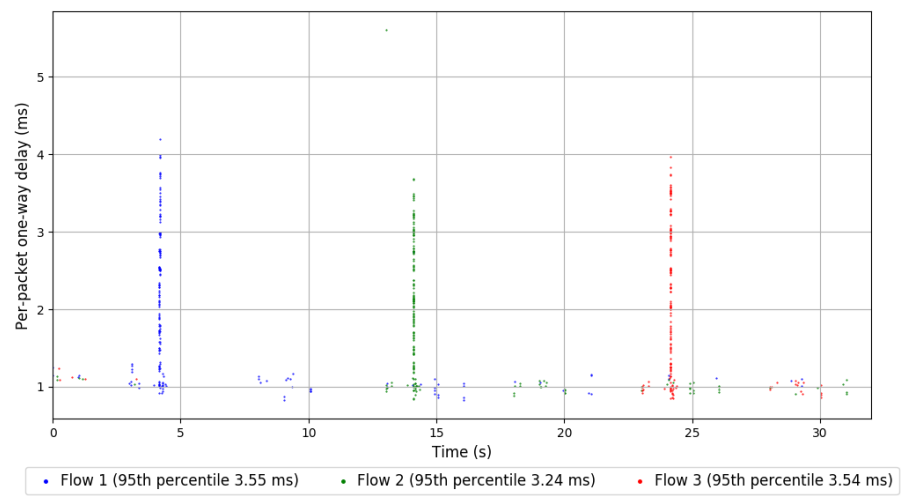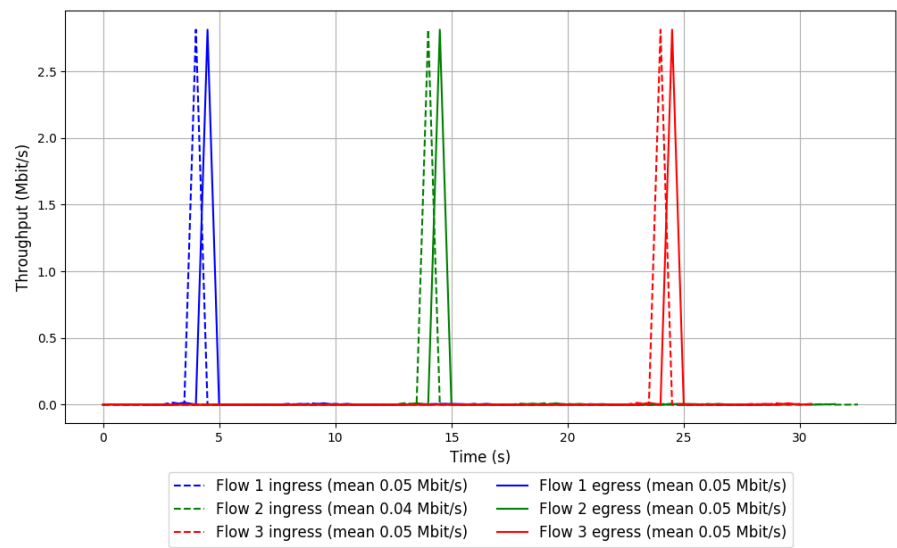Run 5: Report of PCC-Vivace — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2019-02-20 00:22:22
End at: 2019-02-20 00:22:52
Local clock offset: -13.921 ms
Remote clock offset: 0.751 ms


# Below is generated by plot.py at 2019-02-20 02:33:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 3.500 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 3.546 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 3.238 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 3.537 ms
Loss rate: 0.00%
```

Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2019-02-20 00:46:11
End at: 2019-02-20 00:46:41
Local clock offset: -8.648 ms
Remote clock offset: 1.597 ms


# Below is generated by plot.py at 2019-02-20 02:33:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 3.440 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 3.181 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 3.431 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 3.709 ms
Loss rate: 0.00%
```
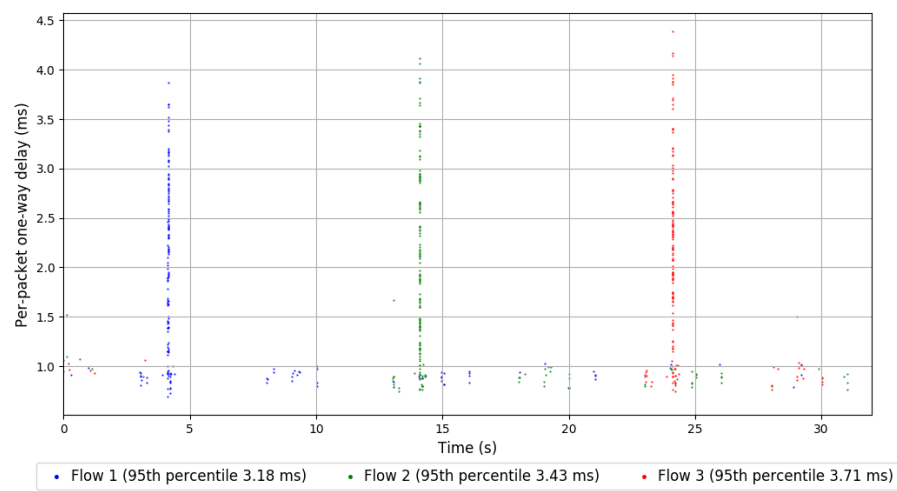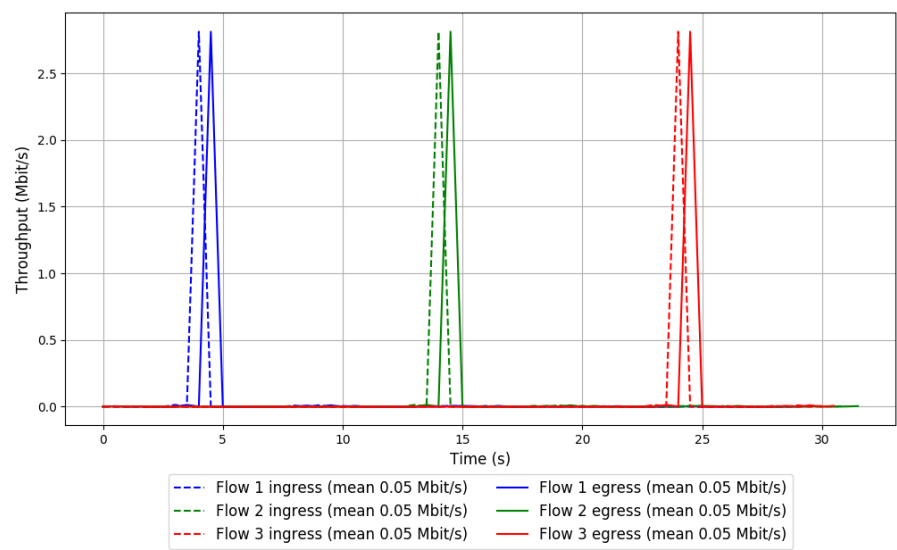
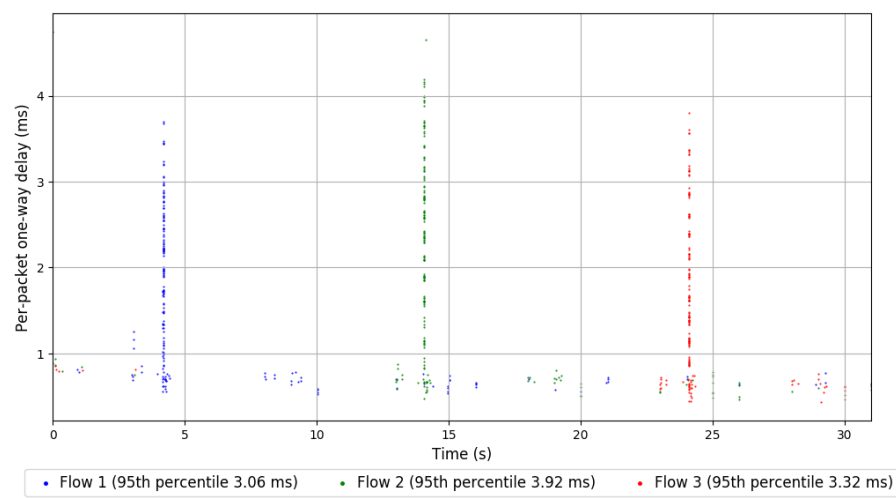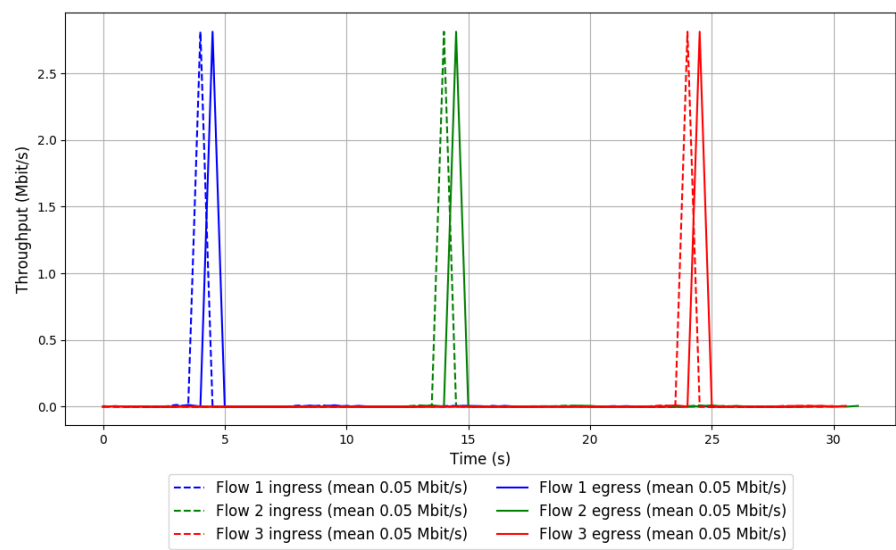Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2019-02-20 01:09:58
End at: 2019-02-20 01:10:28
Local clock offset: -11.733 ms
Remote clock offset: 2.214 ms


# Below is generated by plot.py at 2019-02-20 02:33:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 3.537 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 3.064 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 3.923 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 3.317 ms
Loss rate: 0.00%
```

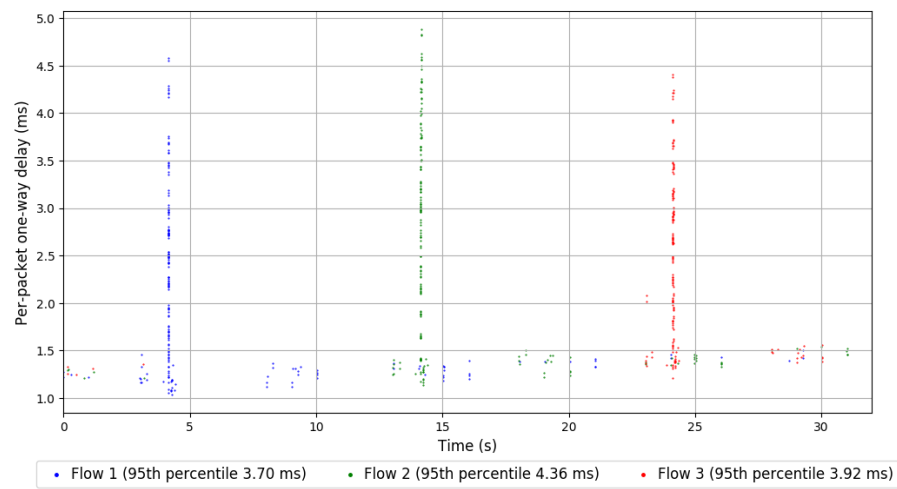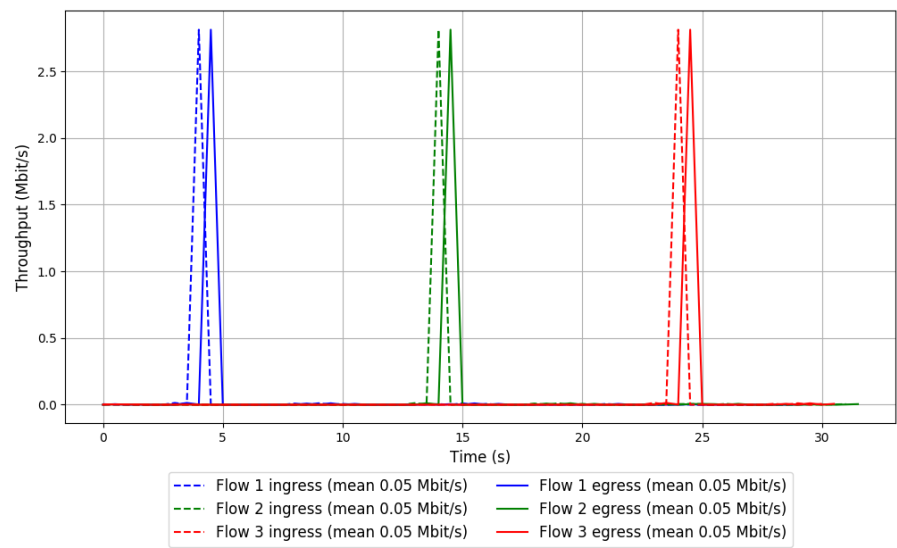Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2019-02-20 01:33:53
End at: 2019-02-20 01:34:23
Local clock offset: -10.905 ms
Remote clock offset: 2.823 ms


# Below is generated by plot.py at 2019-02-20 02:33:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 4.211 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 3.696 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 4.364 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 3.920 ms
Loss rate: 0.00%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2019-02-20 01:57:45
End at: 2019-02-20 01:58:15
Local clock offset: -4.404 ms
Remote clock offset: 2.742 ms


# Below is generated by plot.py at 2019-02-20 02:33:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 3.469 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 3.203 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 3.490 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 3.607 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link