Pantheon Report

Generated at 2018-09-08 12:42:11 (UTC).

Data path: GCE Tokyo on `ens4` (*remote*) →GCE Sydney on `ens4` (*local*).

Repeated the test of 18 congestion control schemes 5 times.

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

NTP offsets were measured against `time.google.com` and have been applied to correct the timestamps in logs.
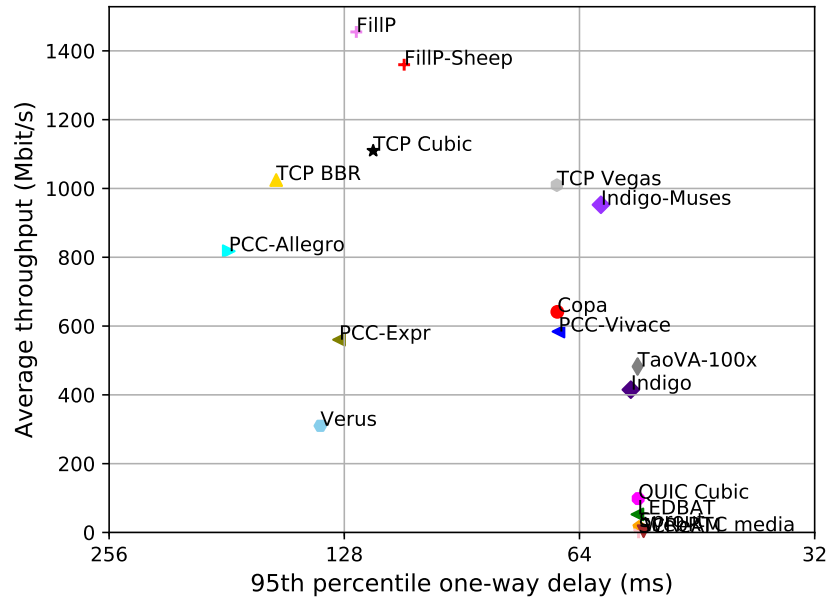
```
System info:
Linux 4.15.0-1018-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
net.ipv4.tcp_mem = 190986 254651 381972

Git summary:
branch: muses @ e0a9b05ad97d268013b7cc9a9c95637b593a1b4c
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 7631aea3923a3598767c87765ae5103aca0678d3
third_party/pantheon-tunnel @ cbfce6db5ff5740dafe1771f813cd646339e1952
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
```
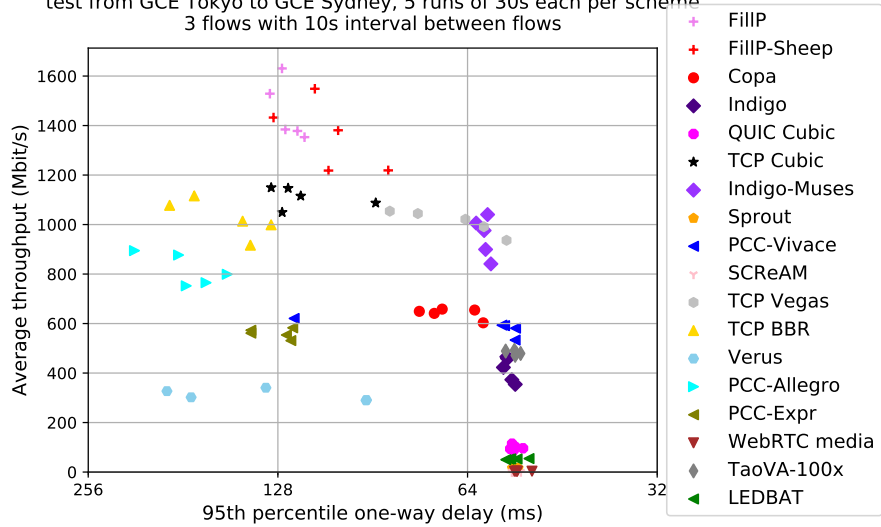
```
 M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from GCE Tokyo to GCE Sydney, 5 runs of 30s each per scheme
3 flows with 10s interval between flows (mean of all runs by scheme)

test from GCE Tokyo to GCE Sydney, 5 runs of 30s each per scheme
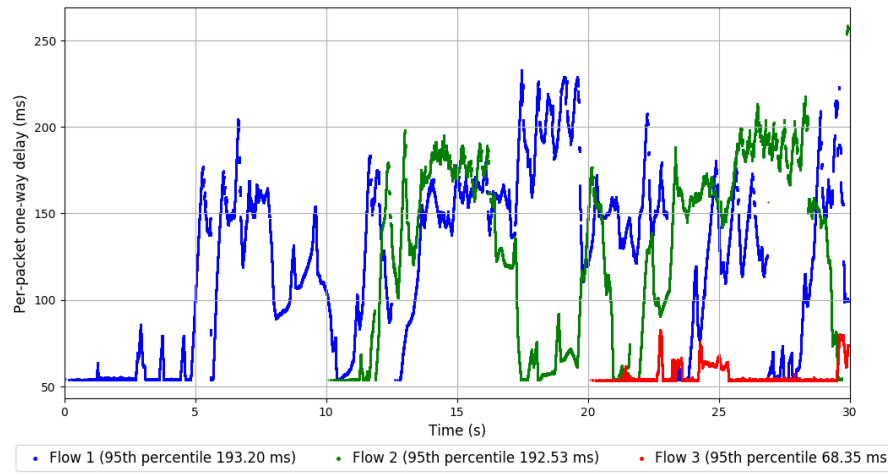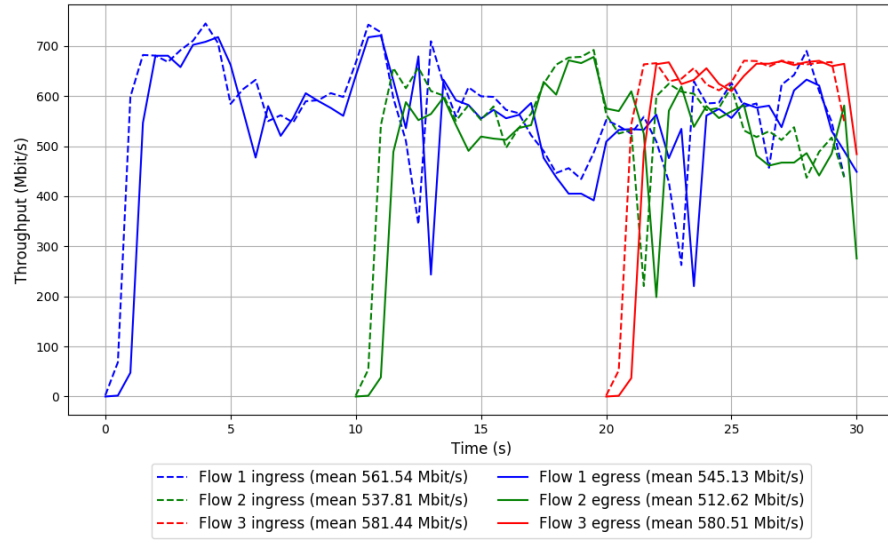3 flows with 10s interval between flows

scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	534.26	502.98	472.05	160.93	142.13	122.31	1.62	1.75	2.77
Copa	5	340.73	310.24	285.45	64.02	70.10	79.64	0.34	0.56	1.27
TCP Cubic	5	589.37	543.39	481.29	102.27	131.48	78.30	0.41	0.67	1.32
FillP	5	757.65	732.64	639.70	124.95	116.88	94.29	3.51	2.16	2.66
FillP-Sheep	5	729.48	672.09	558.27	109.21	103.05	90.36	0.71	0.94	1.36
Indigo	5	208.28	215.29	192.98	53.77	54.13	54.86	0.38	0.55	1.22
LEDBAT	5	33.34	23.18	11.64	53.42	53.21	51.98	0.70	1.03	2.07
Indigo-Muses	5	519.38	468.75	373.46	59.79	60.97	56.94	0.31	0.54	1.31
PCC-Allegro	5	447.77	400.17	319.02	172.87	161.54	157.88	3.23	4.48	5.09
PCC-Expr	5	310.67	292.31	170.01	132.14	116.02	89.40	0.99	1.41	2.12
QUIC Cubic	5	57.12	47.79	27.42	51.10	53.83	52.51	0.50	1.04	1.14
SCReAM	5	0.21	0.21	0.22	51.69	52.51	52.20	0.36	0.61	1.02
Sprout	5	8.15	8.16	7.63	52.49	52.00	53.32	0.37	0.47	1.25
TaoVA-100x	5	245.79	242.48	228.20	53.47	52.65	52.56	0.37	0.45	1.19
TCP Vegas	5	523.70	490.06	484.13	60.15	62.97	72.27	0.37	0.46	1.32
Verus	5	172.43	148.76	117.78	121.06	116.84	93.54	0.66	1.77	0.87
PCC-Vivace	5	357.22	297.97	88.62	70.59	62.74	52.99	0.34	0.58	1.74
WebRTC media	5	1.85	1.20	0.49	52.90	52.28	50.28	0.47	0.61	1.61

```
Run 1: Statistics of TCP BBR

Start at: 2018-09-08 07:30:04
End at: 2018-09-08 07:30:34
Local clock offset: 0.033 ms
Remote clock offset: -0.582 ms


# Below is generated by plot.py at 2018-09-08 10:38:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1077.67 Mbit/s
95th percentile per-packet one-way delay: 190.133 ms
Loss rate: 3.53%
-- Flow 1:
Average throughput: 545.13 Mbit/s
95th percentile per-packet one-way delay: 193.202 ms
Loss rate: 3.27%
-- Flow 2:
Average throughput: 512.62 Mbit/s
95th percentile per-packet one-way delay: 192.525 ms
Loss rate: 5.19%
-- Flow 3:
Average throughput: 580.51 Mbit/s
95th percentile per-packet one-way delay: 68.354 ms
Loss rate: 1.23%
```
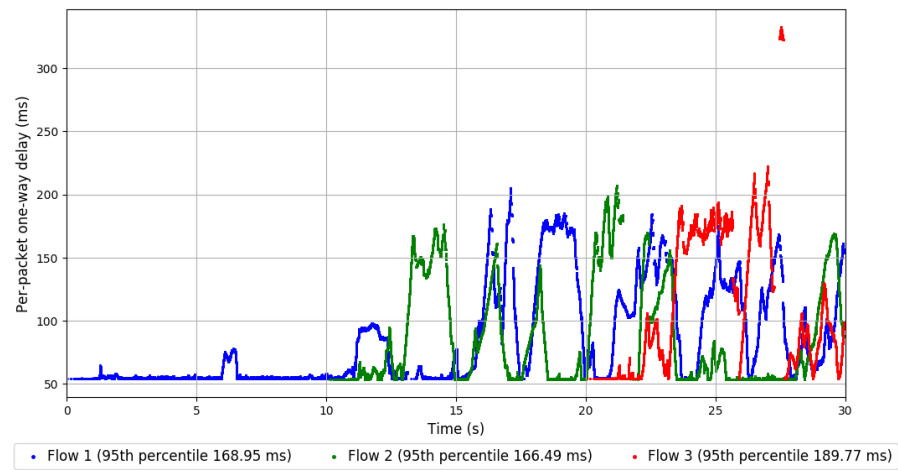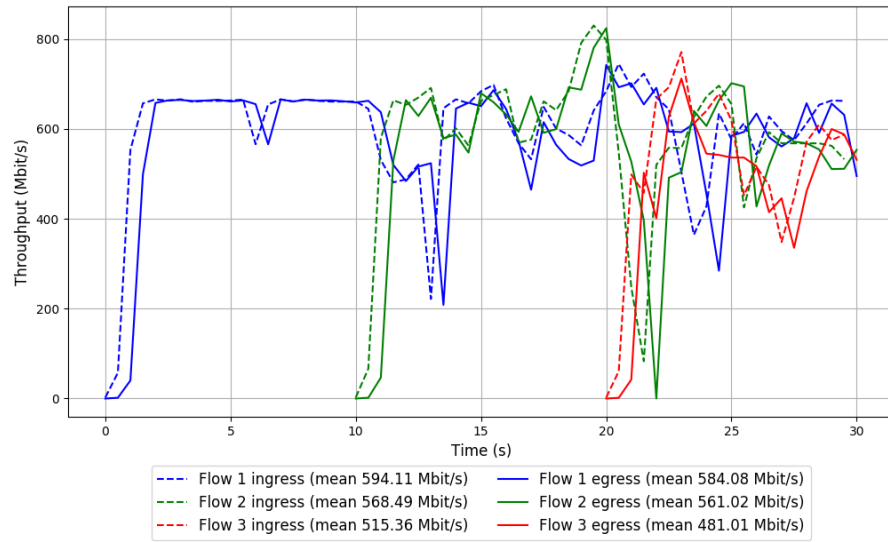
Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 561.54 Mbit/s)   Flow 1 egress (mean 545.13 Mbit/s)
Flow 2 ingress (mean 537.81 Mbit/s)   Flow 2 egress (mean 512.62 Mbit/s)
Flow 3 ingress (mean 581.44 Mbit/s)   Flow 3 egress (mean 580.51 Mbit/s)

Flow 1 (95th percentile 193.20 ms)   Flow 2 (95th percentile 192.53 ms)   Flow 3 (95th percentile 68.35 ms)

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```
Run 2: Statistics of TCP BBR

Start at: 2018-09-08 08:02:15
End at: 2018-09-08 08:02:45
Local clock offset: -0.075 ms
Remote clock offset: -0.864 ms


# Below is generated by plot.py at 2018-09-08 10:39:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1115.94 Mbit/s
95th percentile per-packet one-way delay: 173.754 ms
Loss rate: 2.82%
-- Flow 1:
Average throughput: 584.08 Mbit/s
95th percentile per-packet one-way delay: 168.953 ms
Loss rate: 2.04%
-- Flow 2:
Average throughput: 561.02 Mbit/s
95th percentile per-packet one-way delay: 166.493 ms
Loss rate: 1.84%
-- Flow 3:
Average throughput: 481.01 Mbit/s
95th percentile per-packet one-way delay: 189.766 ms
Loss rate: 7.67%
```
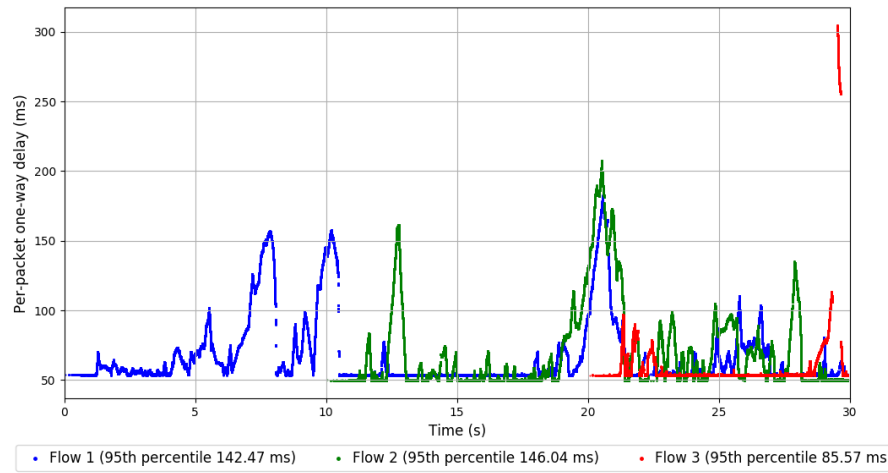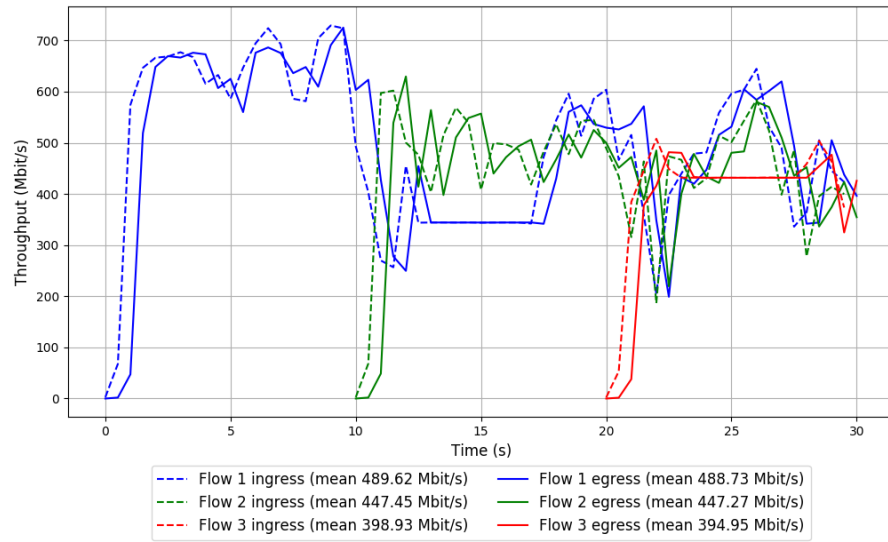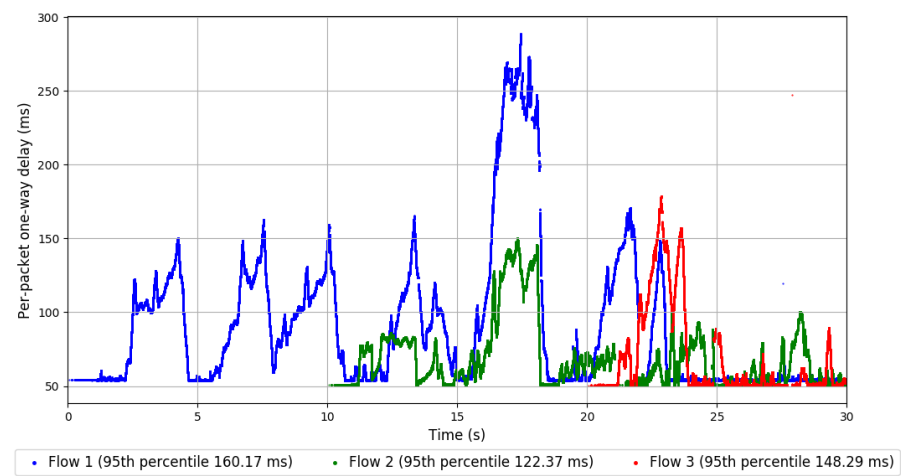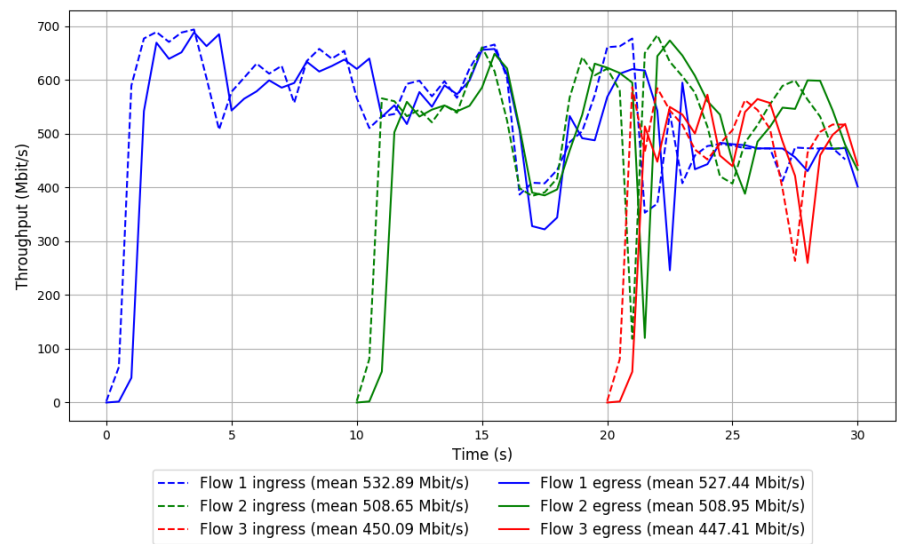
Run 2: Report of TCP BBR — Data Link

Flow 1 ingress (mean 594.11 Mbit/s)   Flow 1 egress (mean 584.08 Mbit/s)
Flow 2 ingress (mean 568.49 Mbit/s)   Flow 2 egress (mean 561.02 Mbit/s)
Flow 3 ingress (mean 515.36 Mbit/s)   Flow 3 egress (mean 481.01 Mbit/s)

Flow 1 (95th percentile 168.95 ms)   Flow 2 (95th percentile 166.49 ms)   Flow 3 (95th percentile 189.77 ms)

```
Run 3: Statistics of TCP BBR

Start at: 2018-09-08 08:34:33
End at: 2018-09-08 08:35:03
Local clock offset: 0.026 ms
Remote clock offset: 0.042 ms


# Below is generated by plot.py at 2018-09-08 10:39:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 916.66 Mbit/s
95th percentile per-packet one-way delay: 141.531 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 488.73 Mbit/s
95th percentile per-packet one-way delay: 142.470 ms
Loss rate: 0.54%
-- Flow 2:
Average throughput: 447.27 Mbit/s
95th percentile per-packet one-way delay: 146.045 ms
Loss rate: 0.56%
-- Flow 3:
Average throughput: 394.95 Mbit/s
95th percentile per-packet one-way delay: 85.572 ms
Loss rate: 2.06%
```

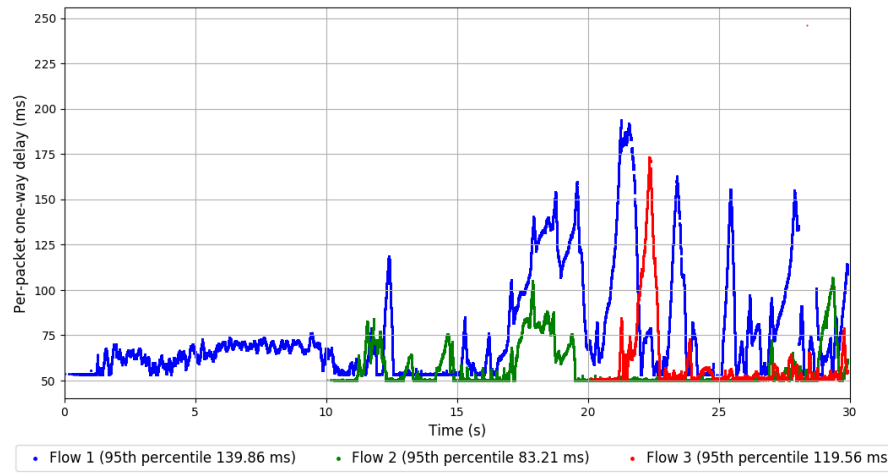Run 3: Report of TCP BBR — Data Link

```
Run 4: Statistics of TCP BBR

Start at: 2018-09-08 09:05:52
End at: 2018-09-08 09:06:22
Local clock offset: 0.049 ms
Remote clock offset: -0.576 ms


# Below is generated by plot.py at 2018-09-08 10:39:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1013.70 Mbit/s
95th percentile per-packet one-way delay: 145.609 ms
Loss rate: 1.11%
-- Flow 1:
Average throughput: 527.44 Mbit/s
95th percentile per-packet one-way delay: 160.168 ms
Loss rate: 1.38%
-- Flow 2:
Average throughput: 508.95 Mbit/s
95th percentile per-packet one-way delay: 122.368 ms
Loss rate: 0.45%
-- Flow 3:
Average throughput: 447.41 Mbit/s
95th percentile per-packet one-way delay: 148.295 ms
Loss rate: 1.63%
```
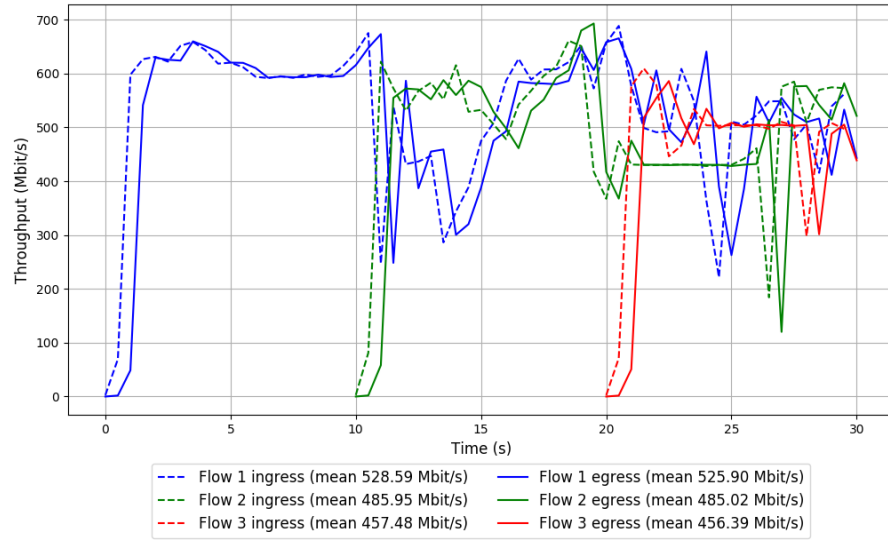
Run 4: Report of TCP BBR — Data Link

```
Run 5: Statistics of TCP BBR

Start at: 2018-09-08 09:37:10
End at: 2018-09-08 09:37:40
Local clock offset: -0.299 ms
Remote clock offset: -0.456 ms


# Below is generated by plot.py at 2018-09-08 10:39:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 998.96 Mbit/s
95th percentile per-packet one-way delay: 131.207 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 525.90 Mbit/s
95th percentile per-packet one-way delay: 139.859 ms
Loss rate: 0.87%
-- Flow 2:
Average throughput: 485.02 Mbit/s
95th percentile per-packet one-way delay: 83.208 ms
Loss rate: 0.71%
-- Flow 3:
Average throughput: 456.39 Mbit/s
95th percentile per-packet one-way delay: 119.556 ms
Loss rate: 1.28%
```
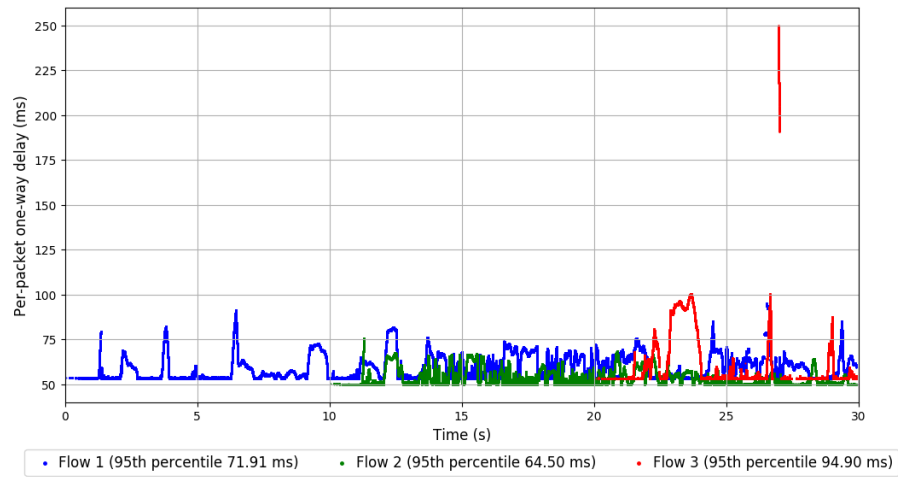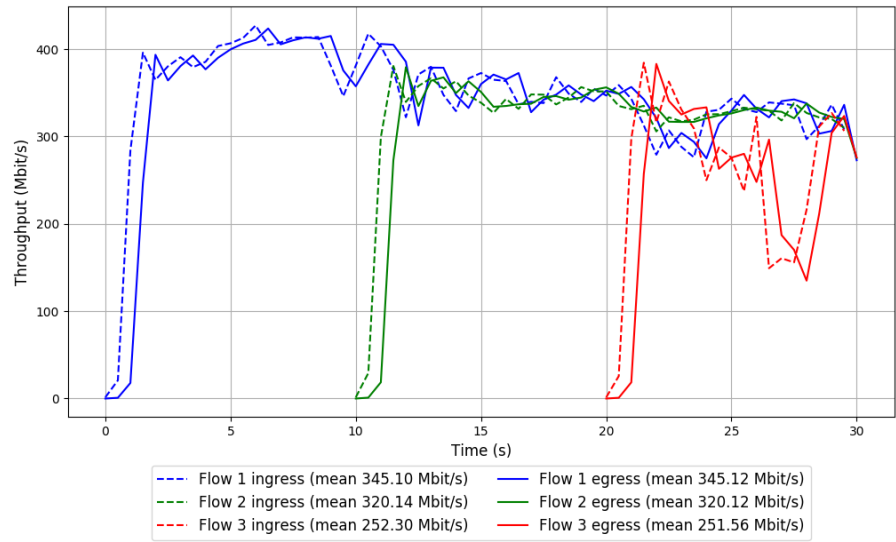
Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 528.59 Mbit/s) --- Flow 1 egress (mean 525.90 Mbit/s)
Flow 2 ingress (mean 485.95 Mbit/s) --- Flow 2 egress (mean 485.02 Mbit/s)
Flow 3 ingress (mean 457.48 Mbit/s) --- Flow 3 egress (mean 456.39 Mbit/s)

Flow 1 (95th percentile 139.86 ms)   Flow 2 (95th percentile 83.21 ms)   Flow 3 (95th percentile 119.56 ms)
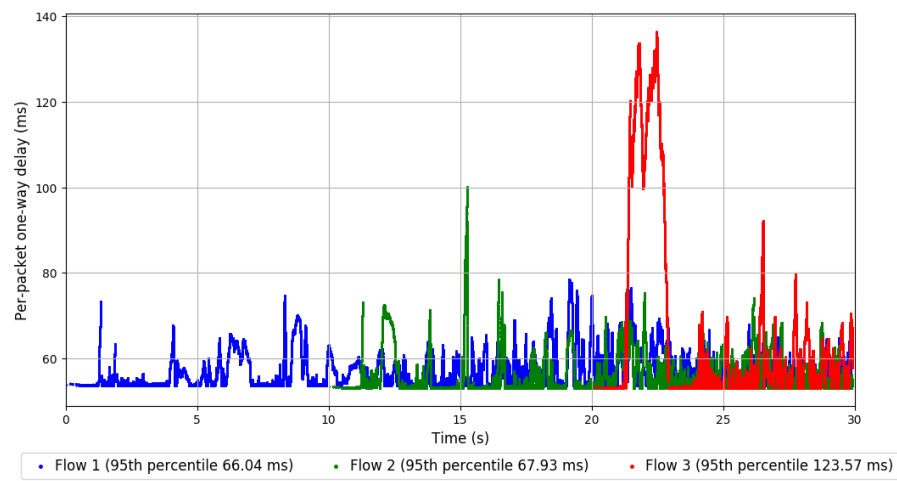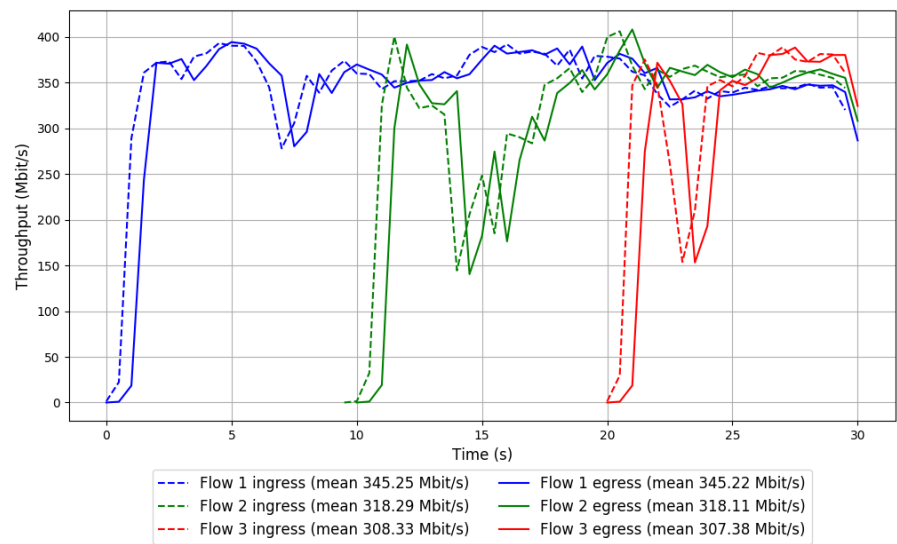
```
Run 1: Statistics of Copa

Start at: 2018-09-08 07:32:13
End at: 2018-09-08 07:32:43
Local clock offset: -0.046 ms
Remote clock offset: -0.044 ms


# Below is generated by plot.py at 2018-09-08 10:40:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 641.09 Mbit/s
95th percentile per-packet one-way delay: 72.272 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 345.12 Mbit/s
95th percentile per-packet one-way delay: 71.914 ms
Loss rate: 0.35%
-- Flow 2:
Average throughput: 320.12 Mbit/s
95th percentile per-packet one-way delay: 64.505 ms
Loss rate: 0.53%
-- Flow 3:
Average throughput: 251.56 Mbit/s
95th percentile per-packet one-way delay: 94.899 ms
Loss rate: 1.33%
```

Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 345.10 Mbit/s) — Flow 1 egress (mean 345.12 Mbit/s)
Flow 2 ingress (mean 320.14 Mbit/s) — Flow 2 egress (mean 320.12 Mbit/s)
Flow 3 ingress (mean 252.30 Mbit/s) — Flow 3 egress (mean 251.56 Mbit/s)

Flow 1 (95th percentile 71.91 ms)　Flow 2 (95th percentile 64.50 ms)　Flow 3 (95th percentile 94.90 ms)
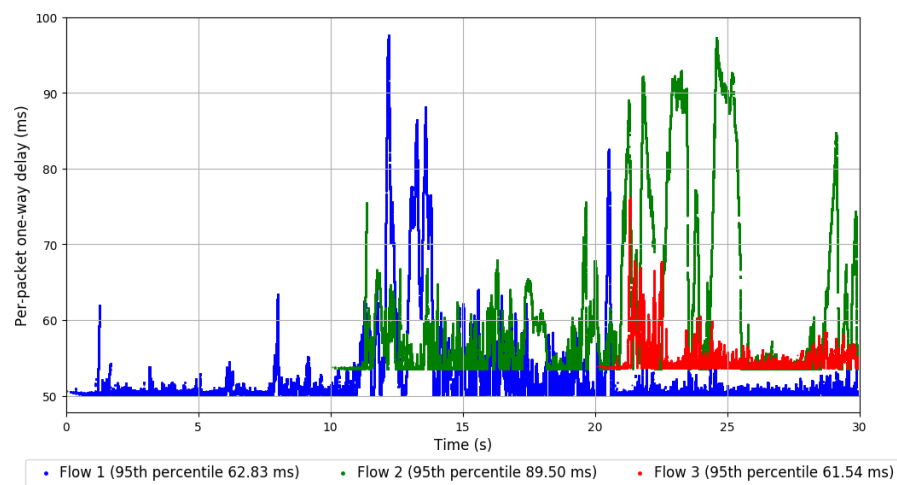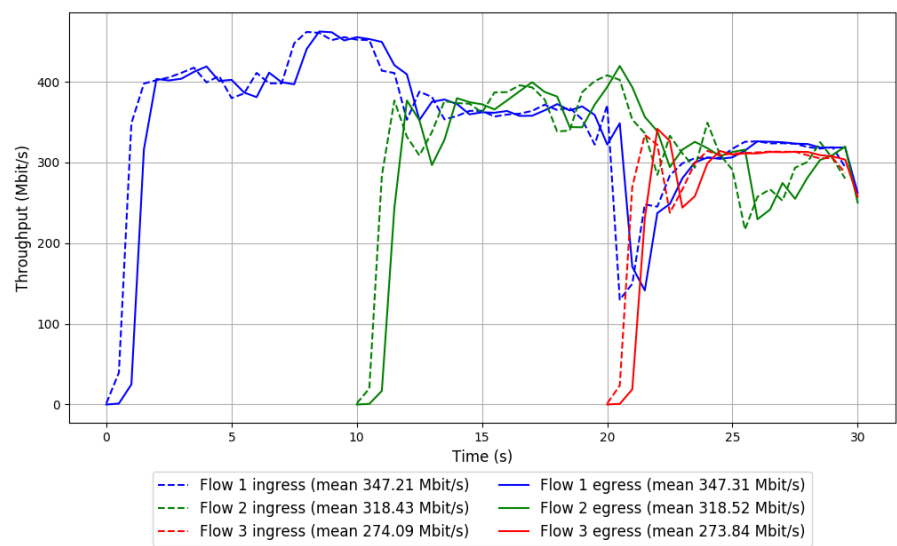
```
Run 2: Statistics of Copa

Start at: 2018-09-08 08:04:24
End at: 2018-09-08 08:04:54
Local clock offset: 0.056 ms
Remote clock offset: -0.253 ms


# Below is generated by plot.py at 2018-09-08 10:40:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 658.34 Mbit/s
95th percentile per-packet one-way delay: 70.209 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 345.22 Mbit/s
95th percentile per-packet one-way delay: 66.041 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 318.11 Mbit/s
95th percentile per-packet one-way delay: 67.927 ms
Loss rate: 0.59%
-- Flow 3:
Average throughput: 307.38 Mbit/s
95th percentile per-packet one-way delay: 123.574 ms
Loss rate: 1.33%
```
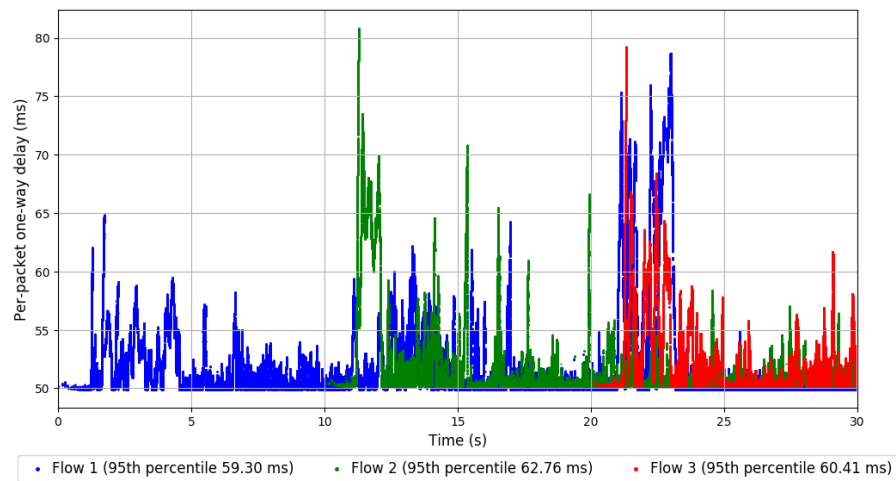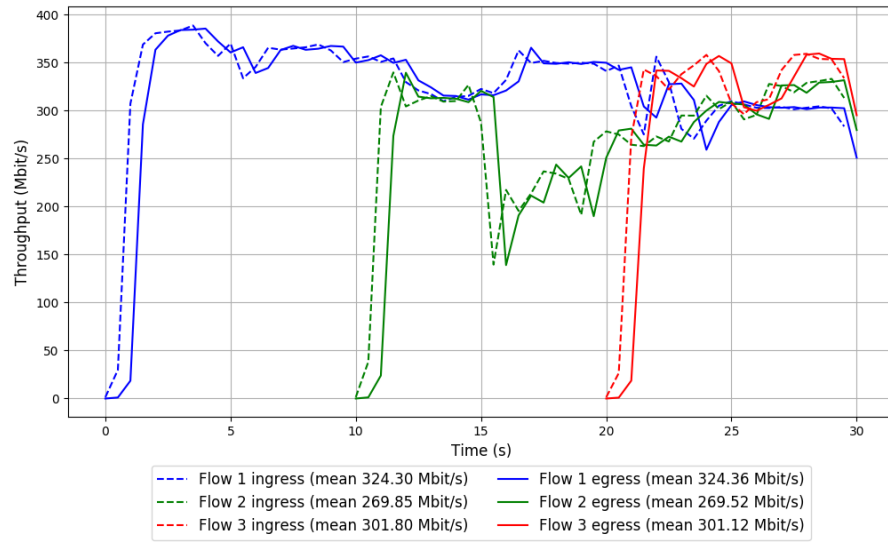
Run 2: Report of Copa — Data Link

Flow 1 ingress (mean 345.25 Mbit/s) --- Flow 1 egress (mean 345.22 Mbit/s)
Flow 2 ingress (mean 318.29 Mbit/s) --- Flow 2 egress (mean 318.11 Mbit/s)
Flow 3 ingress (mean 308.33 Mbit/s) --- Flow 3 egress (mean 307.38 Mbit/s)

Flow 1 (95th percentile 66.04 ms)   Flow 2 (95th percentile 67.93 ms)   Flow 3 (95th percentile 123.57 ms)

```
Run 3: Statistics of Copa

Start at: 2018-09-08 08:36:33
End at: 2018-09-08 08:37:03
Local clock offset: 0.01 ms
Remote clock offset: -0.258 ms


# Below is generated by plot.py at 2018-09-08 10:40:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 649.35 Mbit/s
95th percentile per-packet one-way delay: 76.335 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 347.31 Mbit/s
95th percentile per-packet one-way delay: 62.829 ms
Loss rate: 0.31%
-- Flow 2:
Average throughput: 318.52 Mbit/s
95th percentile per-packet one-way delay: 89.495 ms
Loss rate: 0.51%
-- Flow 3:
Average throughput: 273.84 Mbit/s
95th percentile per-packet one-way delay: 61.540 ms
Loss rate: 1.16%
```
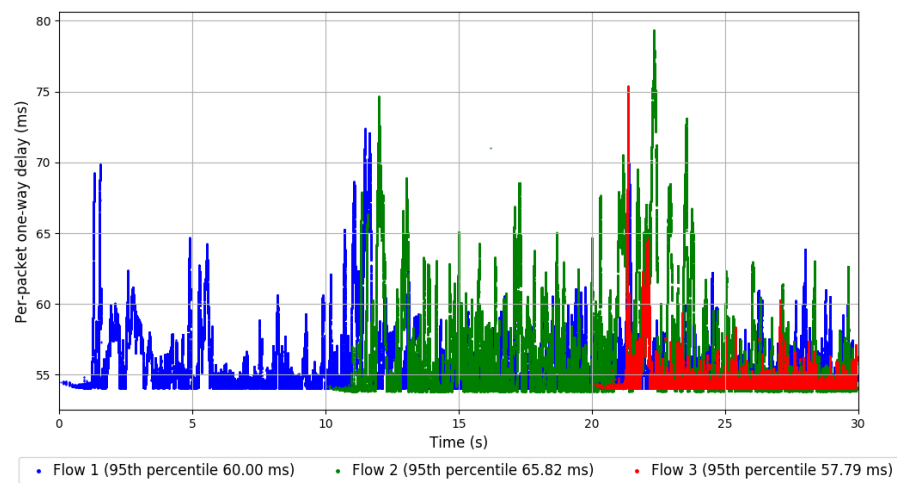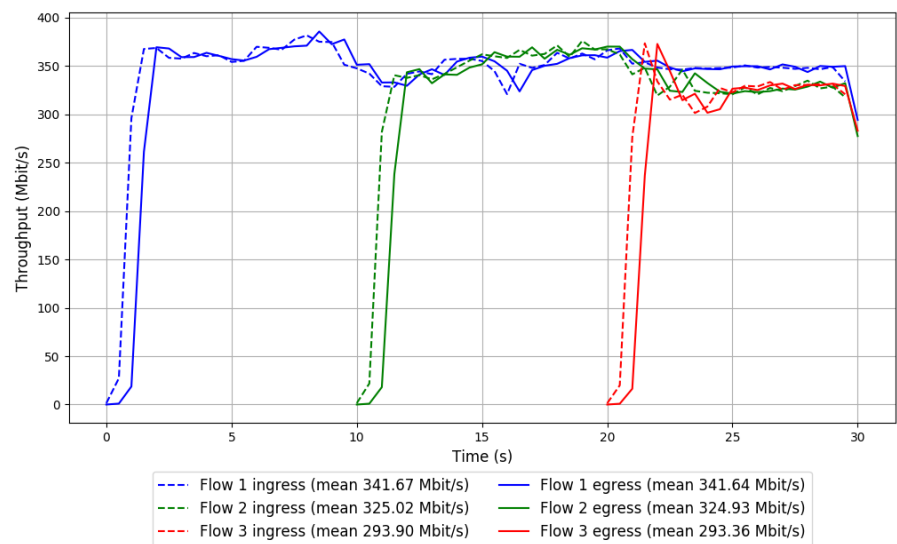
Run 3: Report of Copa — Data Link

- - - Flow 1 ingress (mean 347.21 Mbit/s) —— Flow 1 egress (mean 347.31 Mbit/s)
- - - Flow 2 ingress (mean 318.43 Mbit/s) —— Flow 2 egress (mean 318.52 Mbit/s)
- - - Flow 3 ingress (mean 274.09 Mbit/s) —— Flow 3 egress (mean 273.84 Mbit/s)

• Flow 1 (95th percentile 62.83 ms)   • Flow 2 (95th percentile 89.50 ms)   • Flow 3 (95th percentile 61.54 ms)

```
Run 4: Statistics of Copa

Start at: 2018-09-08 09:07:56
End at: 2018-09-08 09:08:26
Local clock offset: 0.026 ms
Remote clock offset: -0.124 ms


# Below is generated by plot.py at 2018-09-08 10:53:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 602.93 Mbit/s
95th percentile per-packet one-way delay: 60.438 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 324.36 Mbit/s
95th percentile per-packet one-way delay: 59.300 ms
Loss rate: 0.33%
-- Flow 2:
Average throughput: 269.52 Mbit/s
95th percentile per-packet one-way delay: 62.761 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 301.12 Mbit/s
95th percentile per-packet one-way delay: 60.415 ms
Loss rate: 1.26%
```
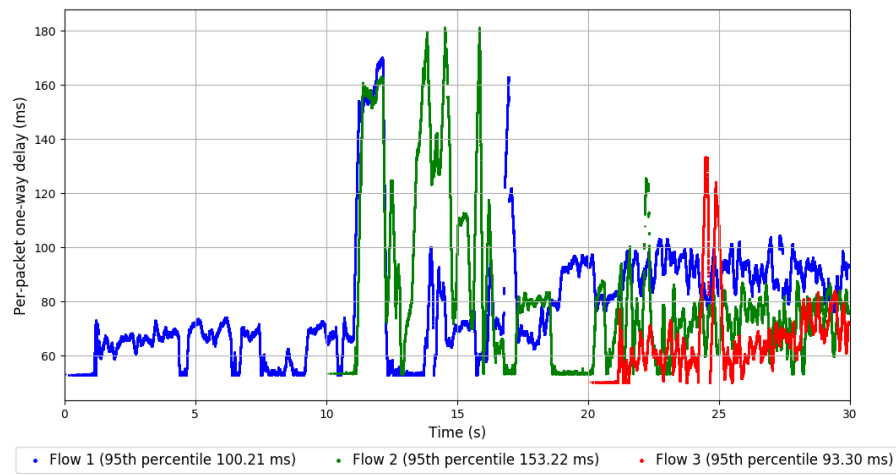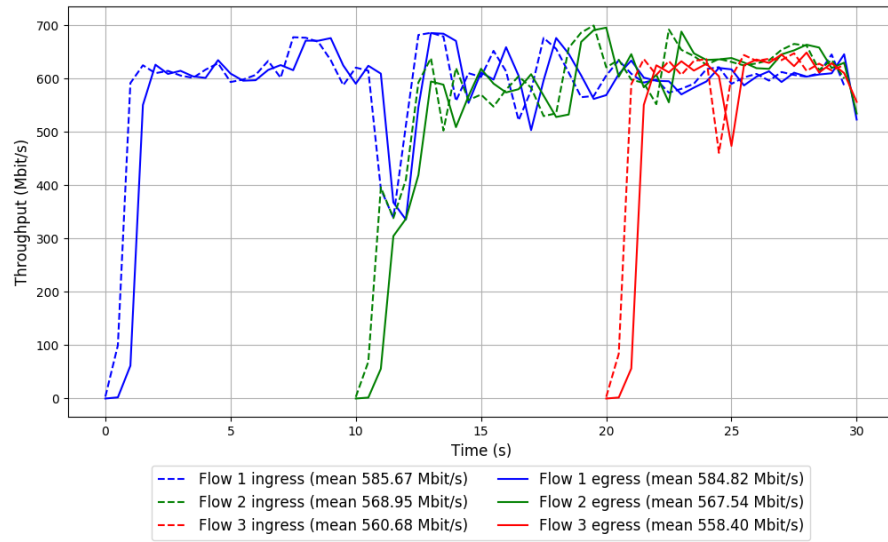
Run 4: Report of Copa — Data Link

Flow 1 ingress (mean 324.30 Mbit/s) --- Flow 1 egress (mean 324.36 Mbit/s)
Flow 2 ingress (mean 269.85 Mbit/s) --- Flow 2 egress (mean 269.52 Mbit/s)
Flow 3 ingress (mean 301.80 Mbit/s) --- Flow 3 egress (mean 301.12 Mbit/s)

Flow 1 (95th percentile 59.30 ms)   Flow 2 (95th percentile 62.76 ms)   Flow 3 (95th percentile 60.41 ms)

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```
Run 5: Statistics of Copa

Start at: 2018-09-08 09:39:14
End at: 2018-09-08 09:39:44
Local clock offset: -0.106 ms
Remote clock offset: -0.702 ms


# Below is generated by plot.py at 2018-09-08 10:55:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 654.58 Mbit/s
95th percentile per-packet one-way delay: 62.354 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 341.64 Mbit/s
95th percentile per-packet one-way delay: 60.001 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 324.93 Mbit/s
95th percentile per-packet one-way delay: 65.817 ms
Loss rate: 0.55%
-- Flow 3:
Average throughput: 293.36 Mbit/s
95th percentile per-packet one-way delay: 57.788 ms
Loss rate: 1.27%
```
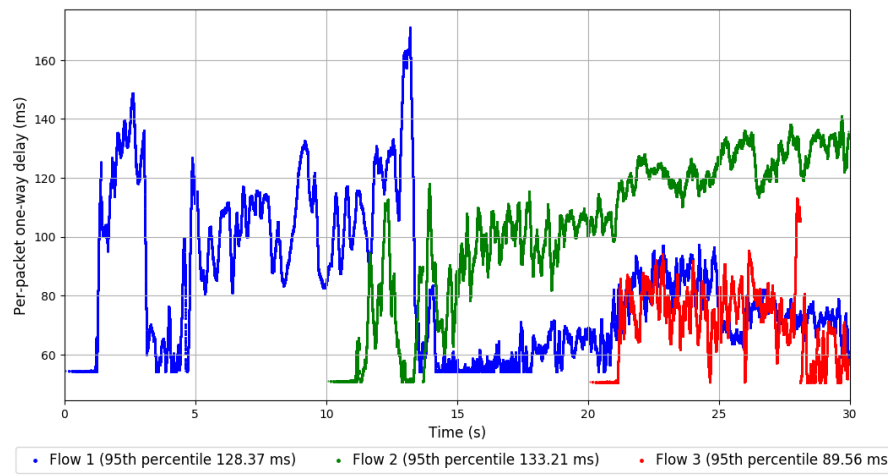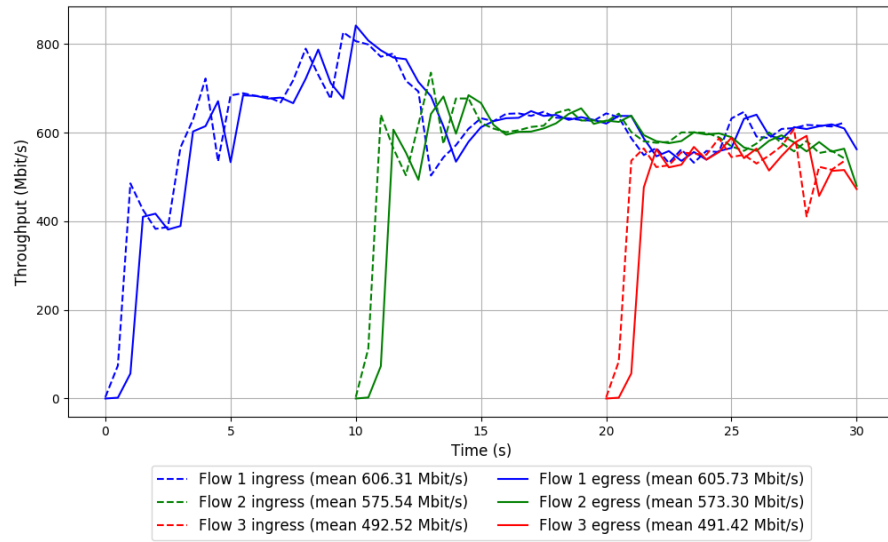
Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2018-09-08 07:53:31
End at: 2018-09-08 07:54:01
Local clock offset: -0.07 ms
Remote clock offset: 0.033 ms


# Below is generated by plot.py at 2018-09-08 10:55:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1146.67 Mbit/s
95th percentile per-packet one-way delay: 123.290 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 584.82 Mbit/s
95th percentile per-packet one-way delay: 100.207 ms
Loss rate: 0.49%
-- Flow 2:
Average throughput: 567.54 Mbit/s
95th percentile per-packet one-way delay: 153.222 ms
Loss rate: 0.78%
-- Flow 3:
Average throughput: 558.40 Mbit/s
95th percentile per-packet one-way delay: 93.295 ms
Loss rate: 1.44%
```
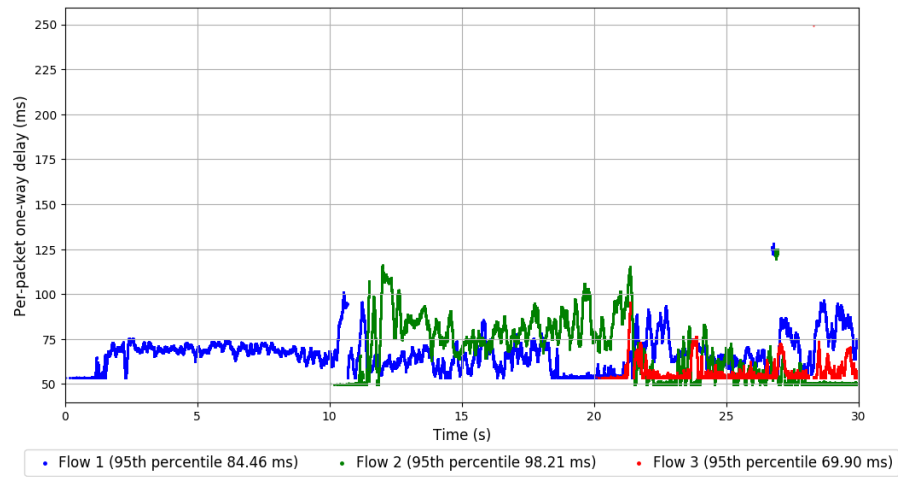
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-09-08 08:25:52
End at: 2018-09-08 08:26:22
Local clock offset: 0.372 ms
Remote clock offset: -0.481 ms


# Below is generated by plot.py at 2018-09-08 10:55:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1149.25 Mbit/s
95th percentile per-packet one-way delay: 131.173 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 605.73 Mbit/s
95th percentile per-packet one-way delay: 128.373 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 573.30 Mbit/s
95th percentile per-packet one-way delay: 133.207 ms
Loss rate: 0.89%
-- Flow 3:
Average throughput: 491.42 Mbit/s
95th percentile per-packet one-way delay: 89.560 ms
Loss rate: 1.26%
```
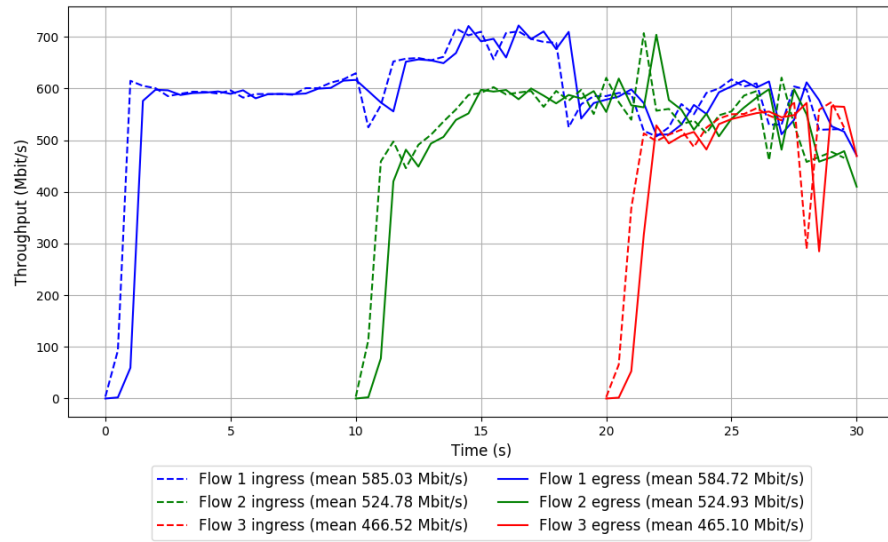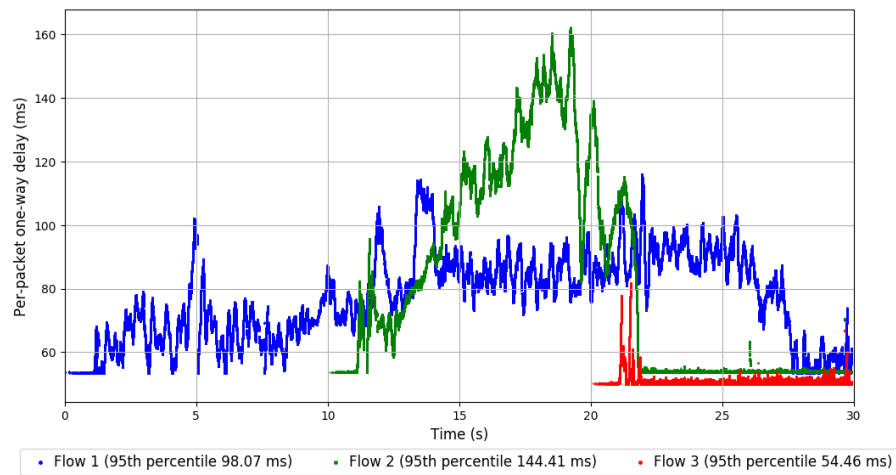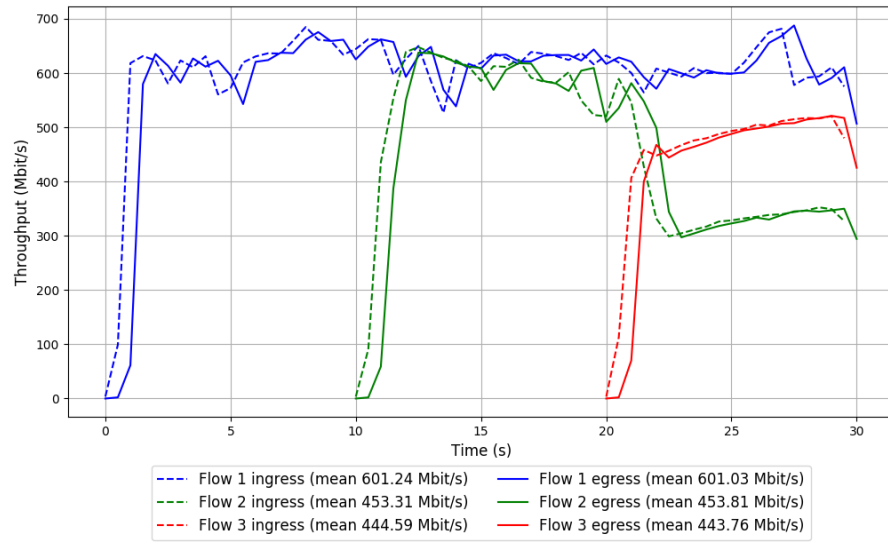
Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 606.31 Mbit/s) --- Flow 1 egress (mean 605.73 Mbit/s)
Flow 2 ingress (mean 575.54 Mbit/s) --- Flow 2 egress (mean 573.30 Mbit/s)
Flow 3 ingress (mean 492.52 Mbit/s) --- Flow 3 egress (mean 491.42 Mbit/s)

Flow 1 (95th percentile 128.37 ms)   Flow 2 (95th percentile 133.21 ms)   Flow 3 (95th percentile 89.56 ms)
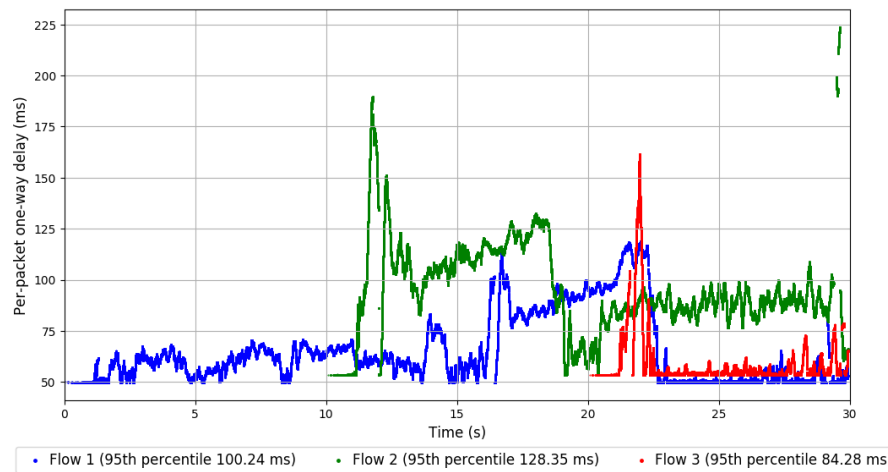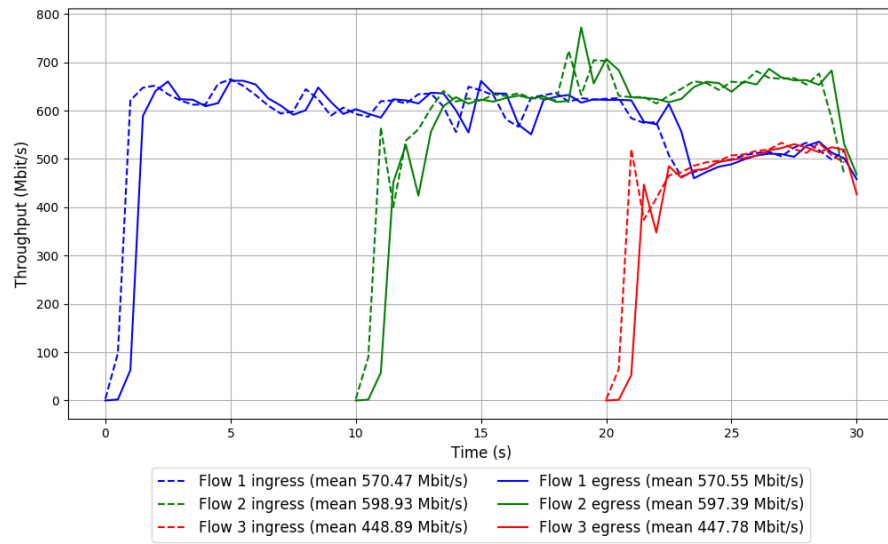
28

```
Run 3: Statistics of TCP Cubic

Start at: 2018-09-08 08:57:14
End at: 2018-09-08 08:57:44
Local clock offset: -0.032 ms
Remote clock offset: -0.08 ms

# Below is generated by plot.py at 2018-09-08 10:55:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1087.39 Mbit/s
95th percentile per-packet one-way delay: 89.528 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 584.72 Mbit/s
95th percentile per-packet one-way delay: 84.464 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 524.93 Mbit/s
95th percentile per-packet one-way delay: 98.207 ms
Loss rate: 0.47%
-- Flow 3:
Average throughput: 465.10 Mbit/s
95th percentile per-packet one-way delay: 69.904 ms
Loss rate: 1.37%
```

Run 3: Report of TCP Cubic — Data Link

```
Run 4: Statistics of TCP Cubic

Start at: 2018-09-08 09:28:36
End at: 2018-09-08 09:29:06
Local clock offset: -0.118 ms
Remote clock offset: -0.18 ms


# Below is generated by plot.py at 2018-09-08 10:56:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1049.26 Mbit/s
95th percentile per-packet one-way delay: 126.028 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 601.03 Mbit/s
95th percentile per-packet one-way delay: 98.071 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 453.81 Mbit/s
95th percentile per-packet one-way delay: 144.406 ms
Loss rate: 0.41%
-- Flow 3:
Average throughput: 443.76 Mbit/s
95th percentile per-packet one-way delay: 54.460 ms
Loss rate: 1.20%
```

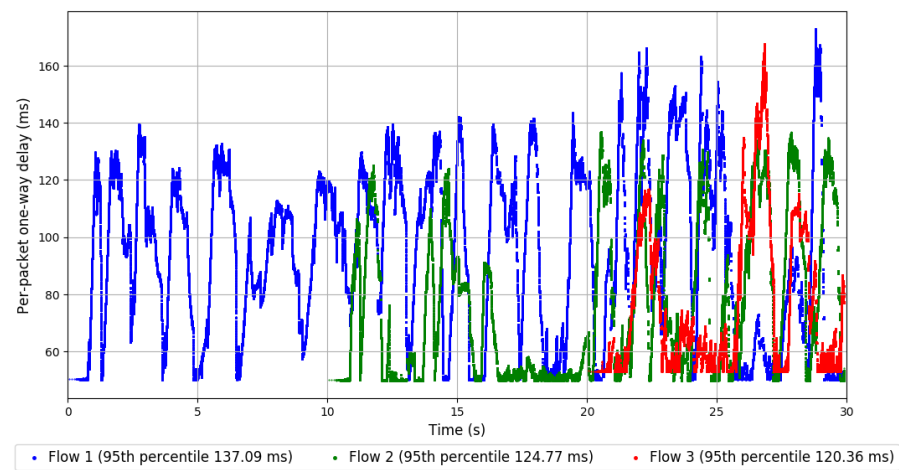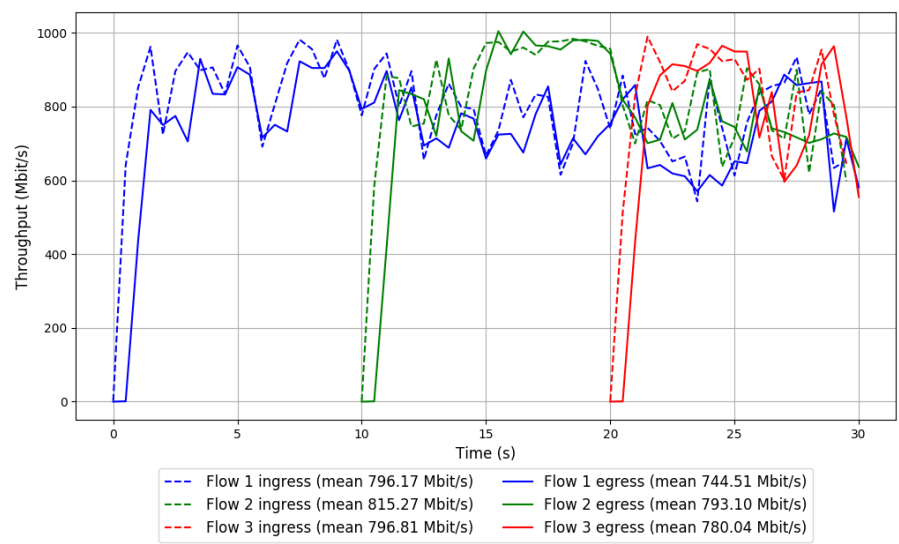Run 4: Report of TCP Cubic — Data Link

```
Run 5: Statistics of TCP Cubic

Start at: 2018-09-08 10:00:18
End at: 2018-09-08 10:00:48
Local clock offset: -0.24 ms
Remote clock offset: -0.237 ms


# Below is generated by plot.py at 2018-09-08 10:57:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1115.54 Mbit/s
95th percentile per-packet one-way delay: 117.748 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 570.55 Mbit/s
95th percentile per-packet one-way delay: 100.243 ms
Loss rate: 0.33%
-- Flow 2:
Average throughput: 597.39 Mbit/s
95th percentile per-packet one-way delay: 128.355 ms
Loss rate: 0.78%
-- Flow 3:
Average throughput: 447.78 Mbit/s
95th percentile per-packet one-way delay: 84.277 ms
Loss rate: 1.31%
```

Run 5: Report of TCP Cubic — Data Link

```
Run 1: Statistics of FillP

Start at: 2018-09-08 07:40:55
End at: 2018-09-08 07:41:25
Local clock offset: -0.109 ms
Remote clock offset: -0.233 ms


# Below is generated by plot.py at 2018-09-08 11:07:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1528.76 Mbit/s
95th percentile per-packet one-way delay: 131.798 ms
Loss rate: 4.98%
-- Flow 1:
Average throughput: 744.51 Mbit/s
95th percentile per-packet one-way delay: 137.093 ms
Loss rate: 6.80%
-- Flow 2:
Average throughput: 793.10 Mbit/s
95th percentile per-packet one-way delay: 124.770 ms
Loss rate: 3.20%
-- Flow 3:
Average throughput: 780.04 Mbit/s
95th percentile per-packet one-way delay: 120.355 ms
Loss rate: 3.16%
```
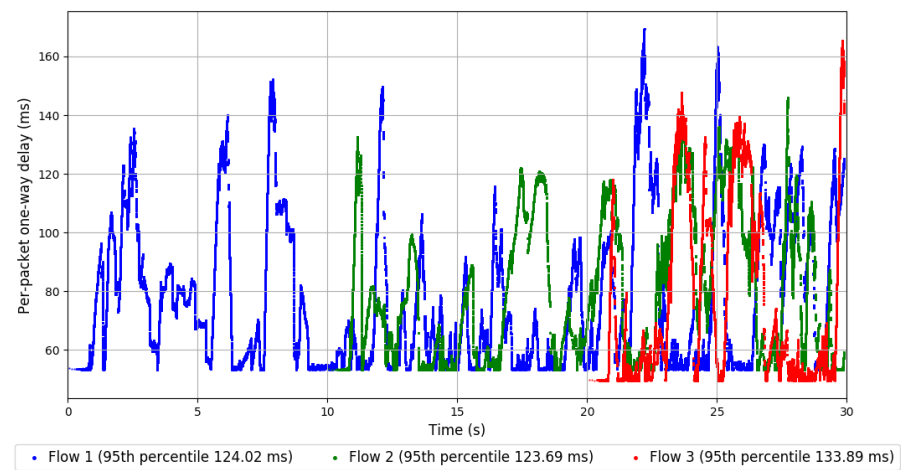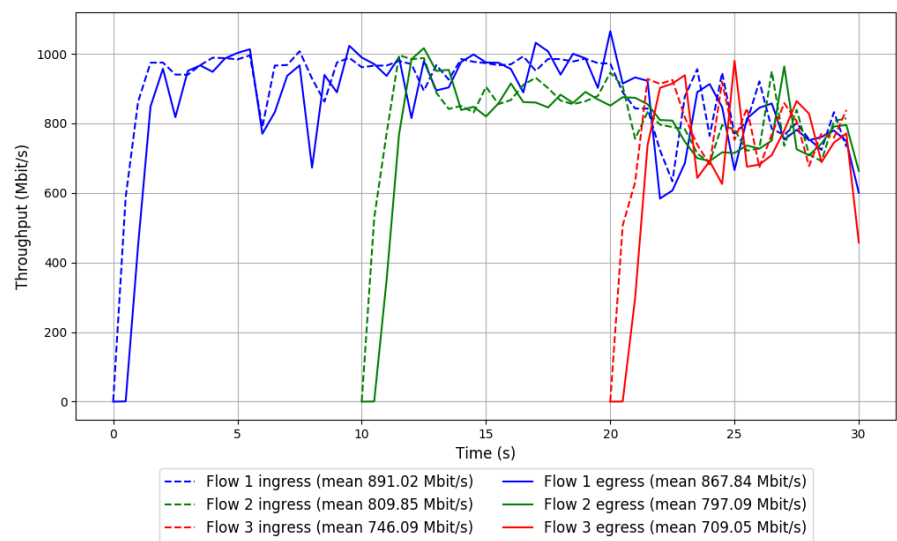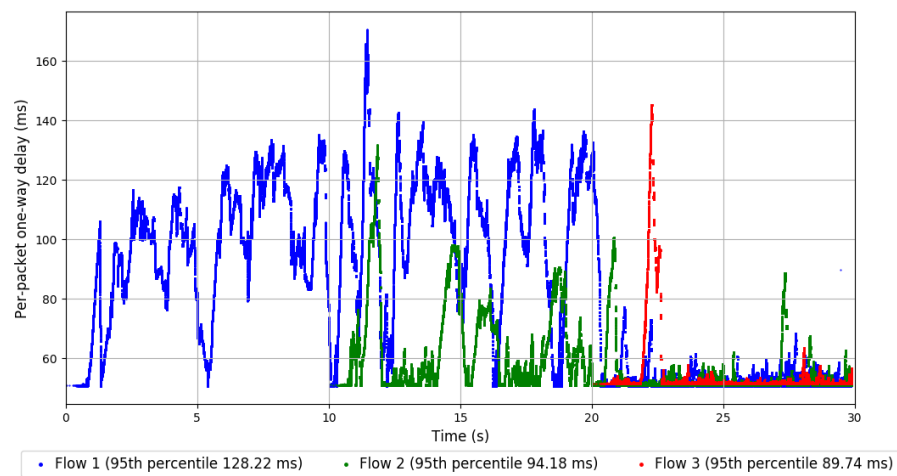
Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 796.17 Mbit/s) --- Flow 1 egress (mean 744.51 Mbit/s)
Flow 2 ingress (mean 815.27 Mbit/s) --- Flow 2 egress (mean 793.10 Mbit/s)
Flow 3 ingress (mean 796.81 Mbit/s) --- Flow 3 egress (mean 780.04 Mbit/s)

Flow 1 (95th percentile 137.09 ms) Flow 2 (95th percentile 124.77 ms) Flow 3 (95th percentile 120.36 ms)
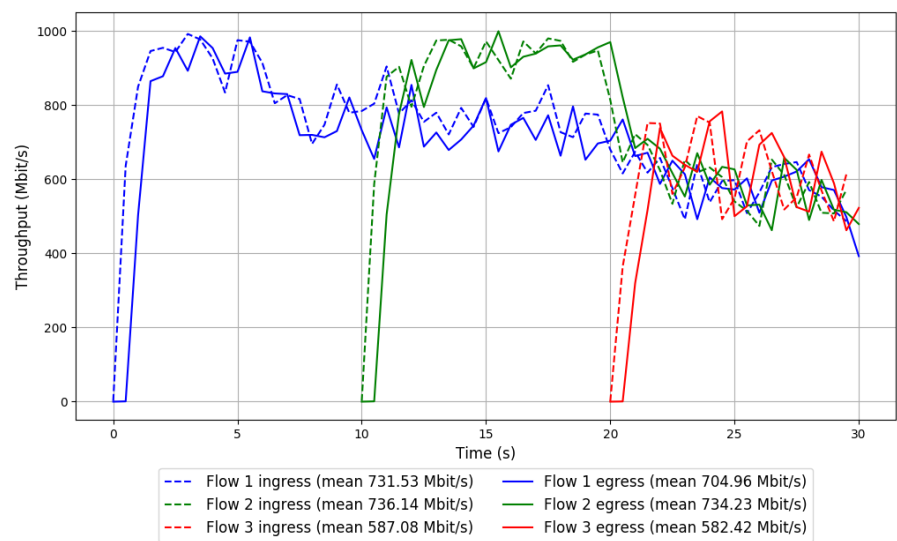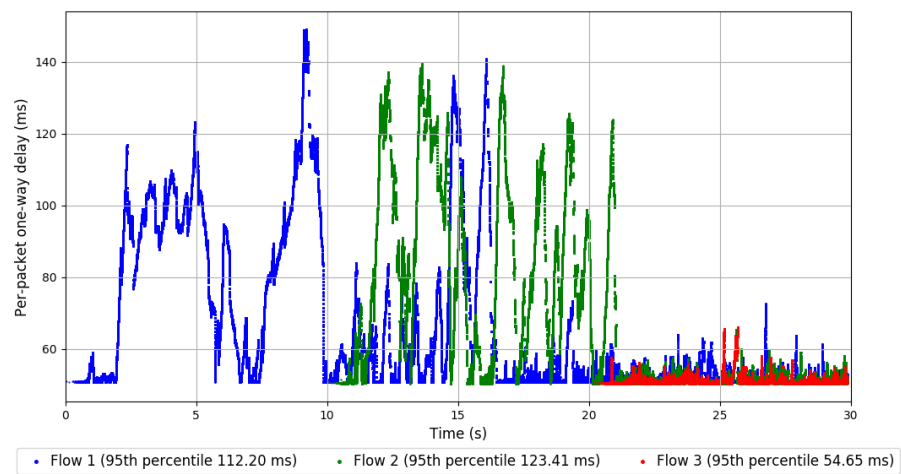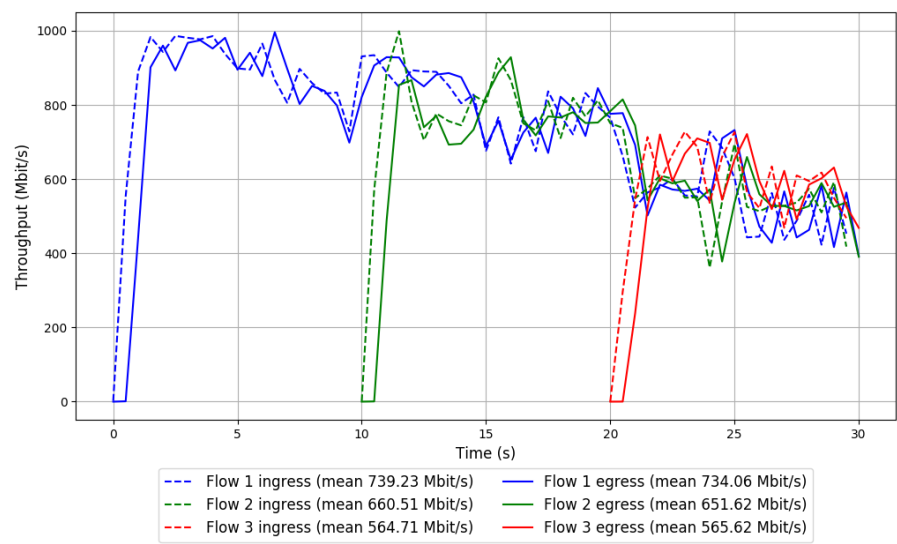
```
Run 2: Statistics of FillP

Start at: 2018-09-08 08:13:03
End at: 2018-09-08 08:13:33
Local clock offset: 0.039 ms
Remote clock offset: 0.144 ms


# Below is generated by plot.py at 2018-09-08 11:23:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1630.79 Mbit/s
95th percentile per-packet one-way delay: 126.096 ms
Loss rate: 3.12%
-- Flow 1:
Average throughput: 867.84 Mbit/s
95th percentile per-packet one-way delay: 124.017 ms
Loss rate: 2.95%
-- Flow 2:
Average throughput: 797.09 Mbit/s
95th percentile per-packet one-way delay: 123.685 ms
Loss rate: 2.11%
-- Flow 3:
Average throughput: 709.05 Mbit/s
95th percentile per-packet one-way delay: 133.892 ms
Loss rate: 5.96%
```

Run 2: Report of FillP — Data Link

- - - - Flow 1 ingress (mean 891.02 Mbit/s) —— Flow 1 egress (mean 867.84 Mbit/s)
- - - - Flow 2 ingress (mean 809.85 Mbit/s) —— Flow 2 egress (mean 797.09 Mbit/s)
- - - - Flow 3 ingress (mean 746.09 Mbit/s) —— Flow 3 egress (mean 709.05 Mbit/s)

• Flow 1 (95th percentile 124.02 ms)   • Flow 2 (95th percentile 123.69 ms)   • Flow 3 (95th percentile 133.89 ms)
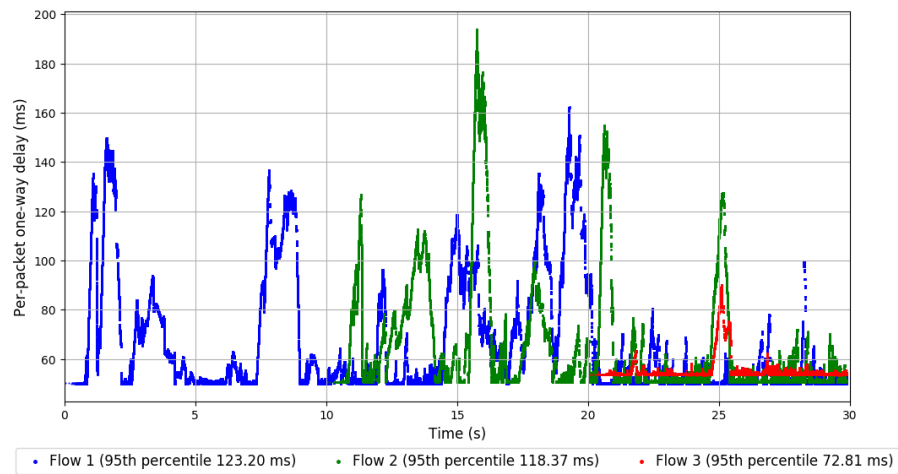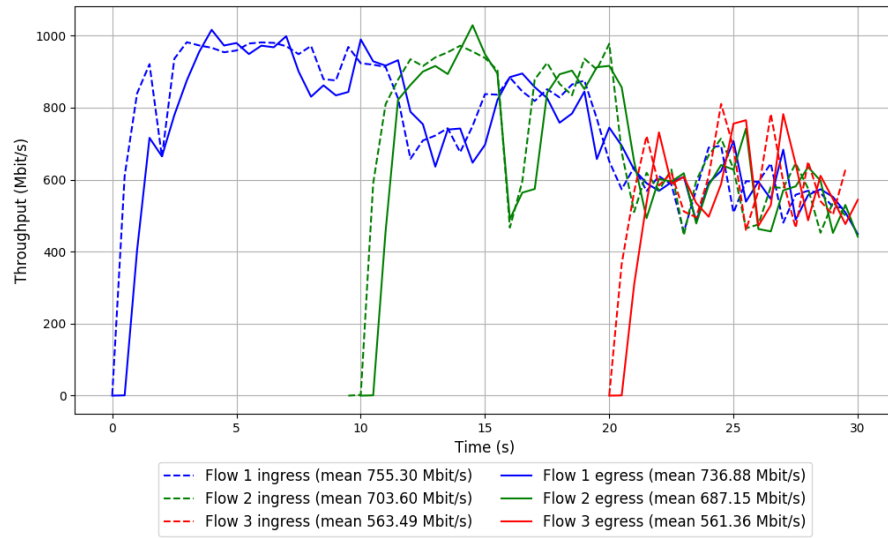
```
Run 3: Statistics of FillP

Start at: 2018-09-08 08:45:12
End at: 2018-09-08 08:45:42
Local clock offset: -0.025 ms
Remote clock offset: -0.815 ms


# Below is generated by plot.py at 2018-09-08 11:23:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1384.19 Mbit/s
95th percentile per-packet one-way delay: 124.558 ms
Loss rate: 2.57%
-- Flow 1:
Average throughput: 704.96 Mbit/s
95th percentile per-packet one-way delay: 128.222 ms
Loss rate: 3.97%
-- Flow 2:
Average throughput: 734.23 Mbit/s
95th percentile per-packet one-way delay: 94.181 ms
Loss rate: 0.77%
-- Flow 3:
Average throughput: 582.42 Mbit/s
95th percentile per-packet one-way delay: 89.744 ms
Loss rate: 1.85%
```

Run 3: Report of FillP — Data Link

- - - - Flow 1 ingress (mean 731.53 Mbit/s)   —— Flow 1 egress (mean 704.96 Mbit/s)
- - - - Flow 2 ingress (mean 736.14 Mbit/s)   —— Flow 2 egress (mean 734.23 Mbit/s)
- - - - Flow 3 ingress (mean 587.08 Mbit/s)   —— Flow 3 egress (mean 582.42 Mbit/s)

- Flow 1 (95th percentile 128.22 ms)   • Flow 2 (95th percentile 94.18 ms)   • Flow 3 (95th percentile 89.74 ms)

```
Run 4: Statistics of FillP

Start at: 2018-09-08 09:16:30
End at: 2018-09-08 09:17:00
Local clock offset: 0.082 ms
Remote clock offset: -0.211 ms


# Below is generated by plot.py at 2018-09-08 11:23:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1353.08 Mbit/s
95th percentile per-packet one-way delay: 116.124 ms
Loss rate: 1.28%
-- Flow 1:
Average throughput: 734.06 Mbit/s
95th percentile per-packet one-way delay: 112.202 ms
Loss rate: 1.05%
-- Flow 2:
Average throughput: 651.62 Mbit/s
95th percentile per-packet one-way delay: 123.412 ms
Loss rate: 1.85%
-- Flow 3:
Average throughput: 565.62 Mbit/s
95th percentile per-packet one-way delay: 54.645 ms
Loss rate: 0.88%
```
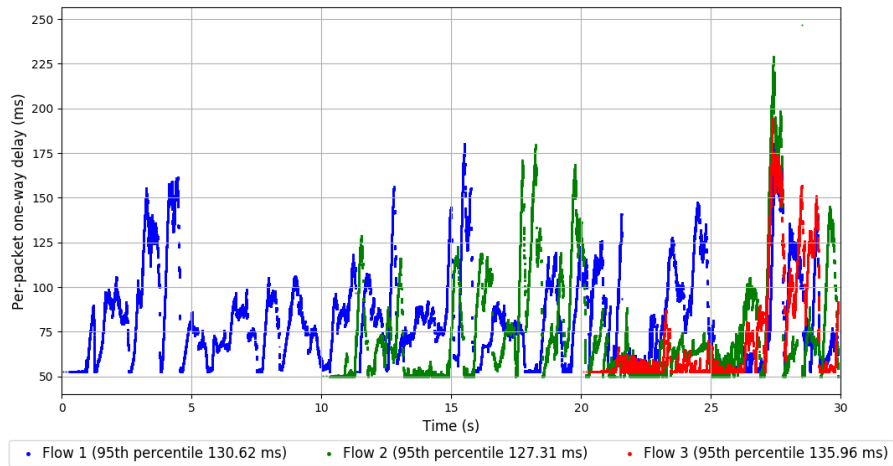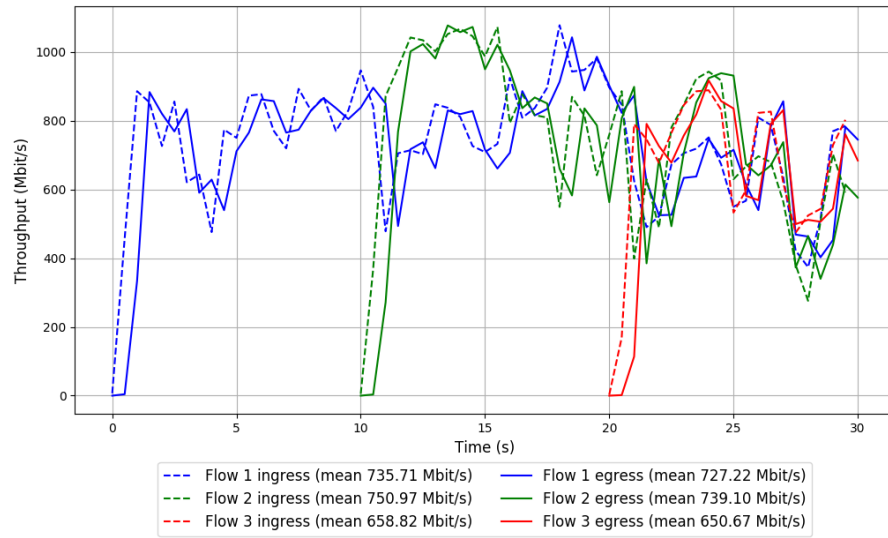
Run 4: Report of FillP — Data Link

- - - Flow 1 ingress (mean 739.23 Mbit/s) —— Flow 1 egress (mean 734.06 Mbit/s)
- - - Flow 2 ingress (mean 660.51 Mbit/s) —— Flow 2 egress (mean 651.62 Mbit/s)
- - - Flow 3 ingress (mean 564.71 Mbit/s) —— Flow 3 egress (mean 565.62 Mbit/s)

• Flow 1 (95th percentile 112.20 ms)   • Flow 2 (95th percentile 123.41 ms)   • Flow 3 (95th percentile 54.65 ms)

42

```
Run 5: Statistics of FillP

Start at: 2018-09-08 09:47:57
End at: 2018-09-08 09:48:27
Local clock offset: -0.23 ms
Remote clock offset: -0.483 ms

# Below is generated by plot.py at 2018-09-08 11:23:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1378.13 Mbit/s
95th percentile per-packet one-way delay: 119.169 ms
Loss rate: 2.63%
-- Flow 1:
Average throughput: 736.88 Mbit/s
95th percentile per-packet one-way delay: 123.203 ms
Loss rate: 2.78%
-- Flow 2:
Average throughput: 687.15 Mbit/s
95th percentile per-packet one-way delay: 118.367 ms
Loss rate: 2.85%
-- Flow 3:
Average throughput: 561.36 Mbit/s
95th percentile per-packet one-way delay: 72.815 ms
Loss rate: 1.45%
```
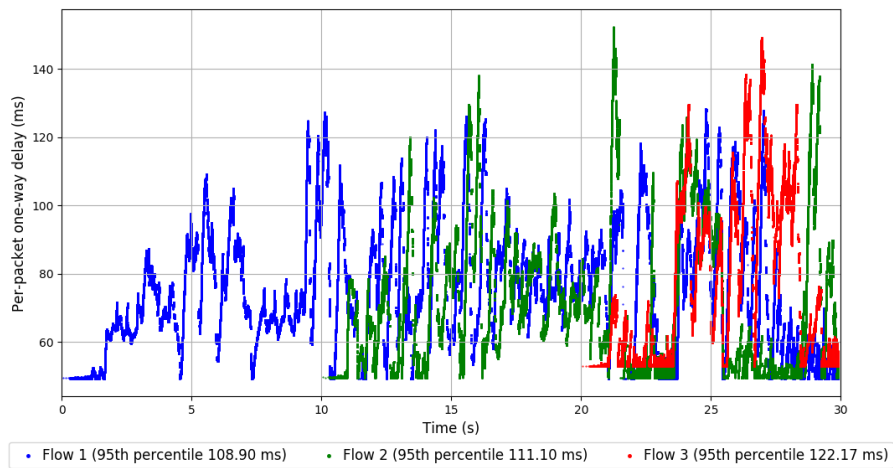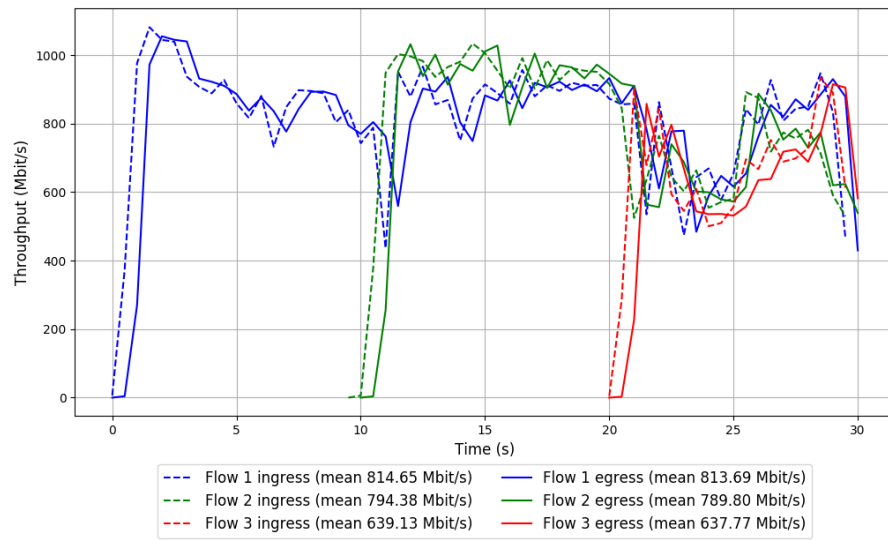
Run 5: Report of FillP — Data Link

```
Run 1: Statistics of FillP-Sheep

Start at: 2018-09-08 07:45:13
End at: 2018-09-08 07:45:43
Local clock offset: 0.056 ms
Remote clock offset: 0.525 ms

# Below is generated by plot.py at 2018-09-08 11:23:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1432.30 Mbit/s
95th percentile per-packet one-way delay: 130.056 ms
Loss rate: 1.83%
-- Flow 1:
Average throughput: 727.22 Mbit/s
95th percentile per-packet one-way delay: 130.622 ms
Loss rate: 1.51%
-- Flow 2:
Average throughput: 739.10 Mbit/s
95th percentile per-packet one-way delay: 127.313 ms
Loss rate: 2.11%
-- Flow 3:
Average throughput: 650.67 Mbit/s
95th percentile per-packet one-way delay: 135.961 ms
Loss rate: 2.31%
```
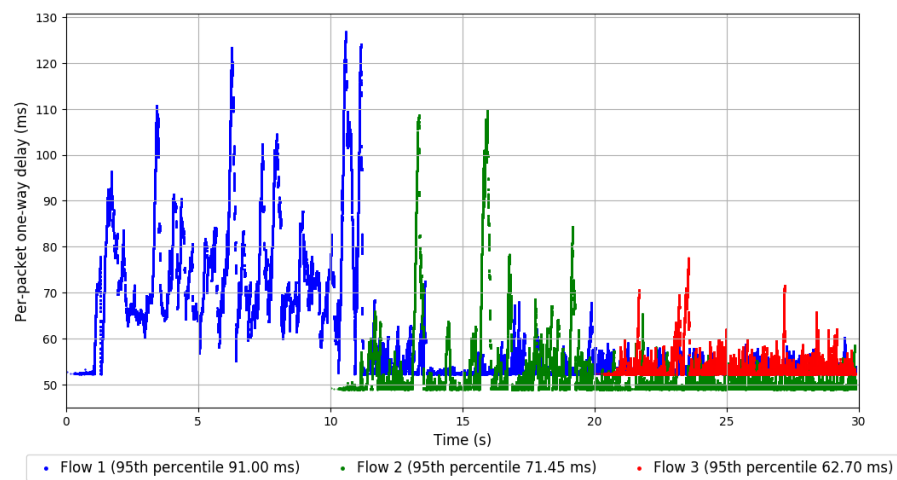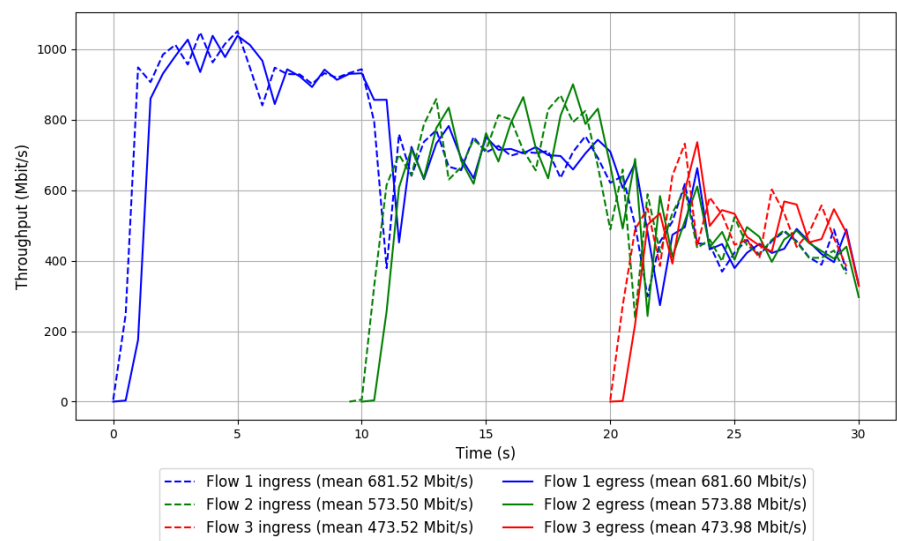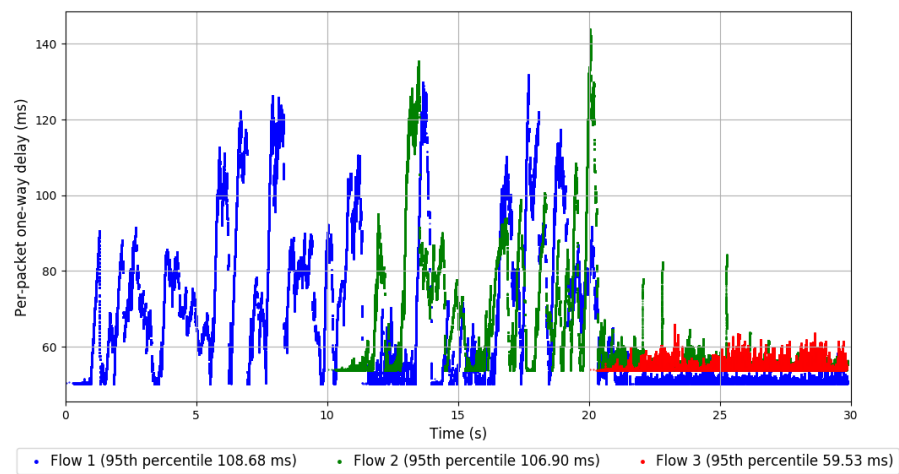
Run 1: Report of FillP-Sheep — Data Link

```
Run 2: Statistics of FillP-Sheep

Start at: 2018-09-08 08:17:27
End at: 2018-09-08 08:17:57
Local clock offset: 0.01 ms
Remote clock offset: 0.467 ms

# Below is generated by plot.py at 2018-09-08 11:24:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1548.61 Mbit/s
95th percentile per-packet one-way delay: 111.825 ms
Loss rate: 0.81%
-- Flow 1:
Average throughput: 813.69 Mbit/s
95th percentile per-packet one-way delay: 108.904 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 789.80 Mbit/s
95th percentile per-packet one-way delay: 111.100 ms
Loss rate: 1.10%
-- Flow 3:
Average throughput: 637.77 Mbit/s
95th percentile per-packet one-way delay: 122.175 ms
Loss rate: 1.25%
```

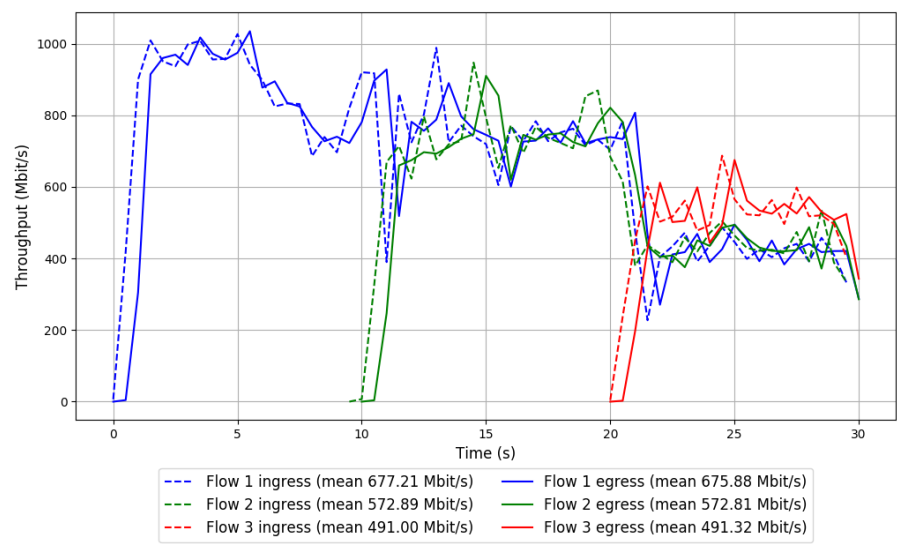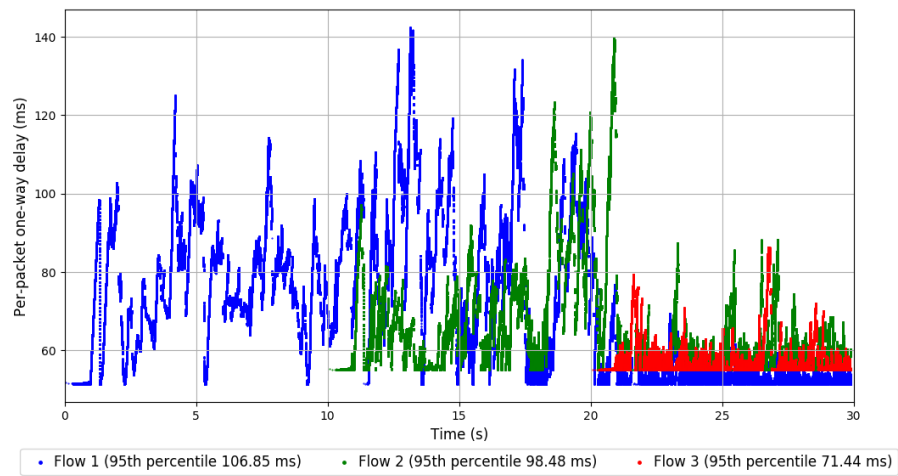Run 2: Report of FillP-Sheep — Data Link

- - - Flow 1 ingress (mean 814.65 Mbit/s) —— Flow 1 egress (mean 813.69 Mbit/s)
- - - Flow 2 ingress (mean 794.38 Mbit/s) —— Flow 2 egress (mean 789.80 Mbit/s)
- - - Flow 3 ingress (mean 639.13 Mbit/s) —— Flow 3 egress (mean 637.77 Mbit/s)

• Flow 1 (95th percentile 108.90 ms)   • Flow 2 (95th percentile 111.10 ms)   • Flow 3 (95th percentile 122.17 ms)

```
Run 3: Statistics of FillP-Sheep

Start at: 2018-09-08 08:49:16
End at: 2018-09-08 08:49:46
Local clock offset: -0.089 ms
Remote clock offset: 0.996 ms


# Below is generated by plot.py at 2018-09-08 11:24:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1218.84 Mbit/s
95th percentile per-packet one-way delay: 85.519 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 681.60 Mbit/s
95th percentile per-packet one-way delay: 91.000 ms
Loss rate: 0.34%
-- Flow 2:
Average throughput: 573.88 Mbit/s
95th percentile per-packet one-way delay: 71.446 ms
Loss rate: 0.46%
-- Flow 3:
Average throughput: 473.98 Mbit/s
95th percentile per-packet one-way delay: 62.702 ms
Loss rate: 1.15%
```

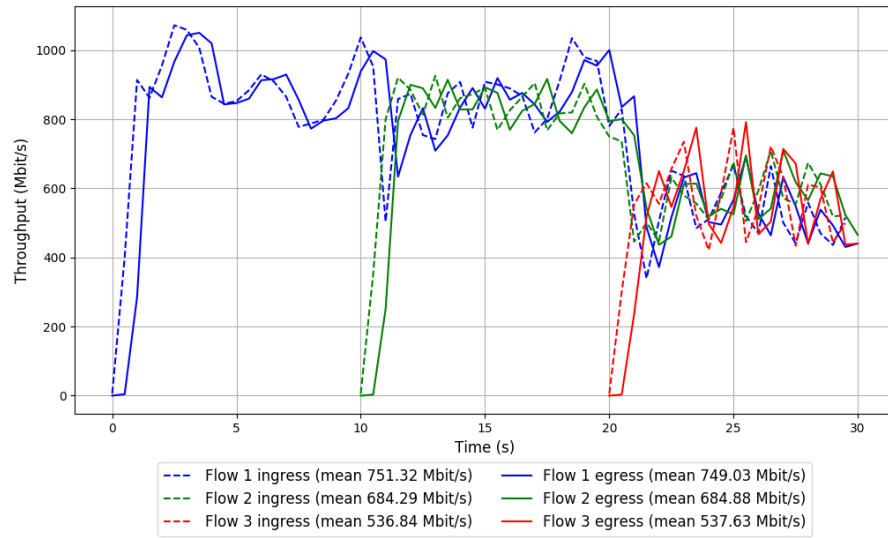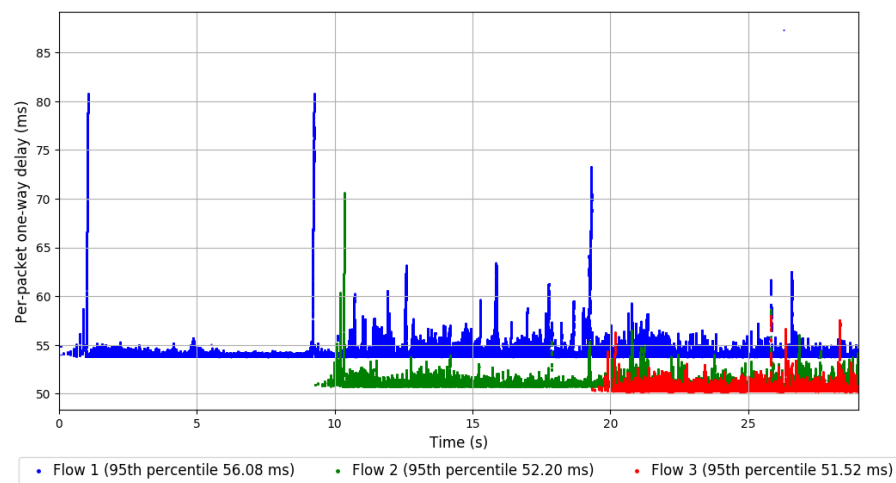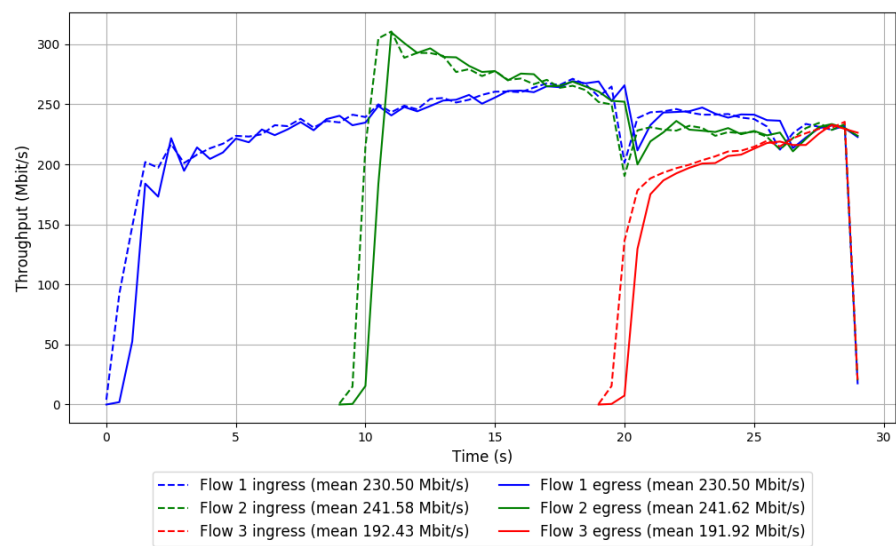Run 3: Report of FillP-Sheep — Data Link

- - - - Flow 1 ingress (mean 681.52 Mbit/s) ——— Flow 1 egress (mean 681.60 Mbit/s)
- - - - Flow 2 ingress (mean 573.50 Mbit/s) ——— Flow 2 egress (mean 573.88 Mbit/s)
- - - - Flow 3 ingress (mean 473.52 Mbit/s) ——— Flow 3 egress (mean 473.98 Mbit/s)

• Flow 1 (95th percentile 91.00 ms)   • Flow 2 (95th percentile 71.45 ms)   • Flow 3 (95th percentile 62.70 ms)

```
Run 4: Statistics of FillP-Sheep

Start at: 2018-09-08 09:20:36
End at: 2018-09-08 09:21:06
Local clock offset: -0.366 ms
Remote clock offset: -0.788 ms


# Below is generated by plot.py at 2018-09-08 11:34:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1218.10 Mbit/s
95th percentile per-packet one-way delay: 106.389 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 675.88 Mbit/s
95th percentile per-packet one-way delay: 108.676 ms
Loss rate: 0.54%
-- Flow 2:
Average throughput: 572.81 Mbit/s
95th percentile per-packet one-way delay: 106.897 ms
Loss rate: 0.56%
-- Flow 3:
Average throughput: 491.32 Mbit/s
95th percentile per-packet one-way delay: 59.531 ms
Loss rate: 1.08%
```
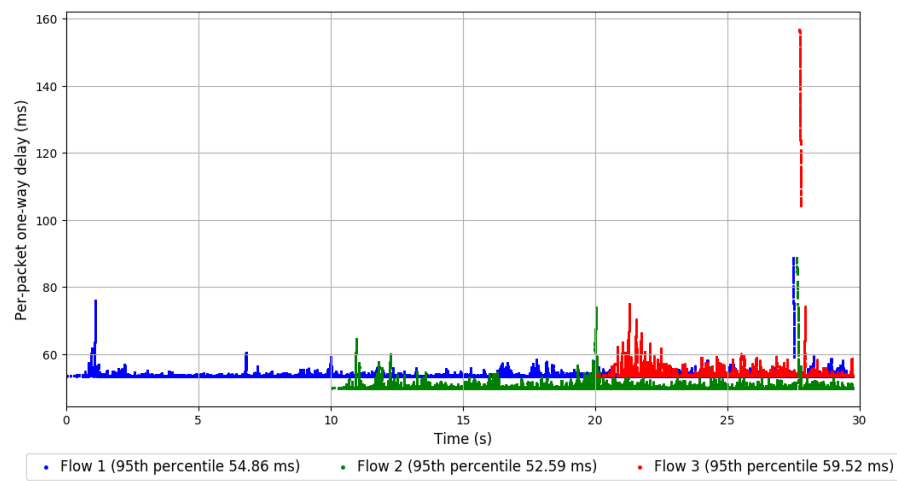
Run 4: Report of FillP-Sheep — Data Link

--- Flow 1 ingress (mean 677.21 Mbit/s)   — Flow 1 egress (mean 675.88 Mbit/s)
--- Flow 2 ingress (mean 572.89 Mbit/s)   — Flow 2 egress (mean 572.81 Mbit/s)
--- Flow 3 ingress (mean 491.00 Mbit/s)   — Flow 3 egress (mean 491.32 Mbit/s)

• Flow 1 (95th percentile 108.68 ms)   • Flow 2 (95th percentile 106.90 ms)   • Flow 3 (95th percentile 59.53 ms)

```
Run 5: Statistics of FillP-Sheep

Start at: 2018-09-08 09:52:02
End at: 2018-09-08 09:52:32
Local clock offset: 0.195 ms
Remote clock offset: -1.433 ms


# Below is generated by plot.py at 2018-09-08 11:46:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1380.92 Mbit/s
95th percentile per-packet one-way delay: 102.707 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 749.03 Mbit/s
95th percentile per-packet one-way delay: 106.850 ms
Loss rate: 0.65%
-- Flow 2:
Average throughput: 684.88 Mbit/s
95th percentile per-packet one-way delay: 98.485 ms
Loss rate: 0.46%
-- Flow 3:
Average throughput: 537.63 Mbit/s
95th percentile per-packet one-way delay: 71.435 ms
Loss rate: 1.01%
```
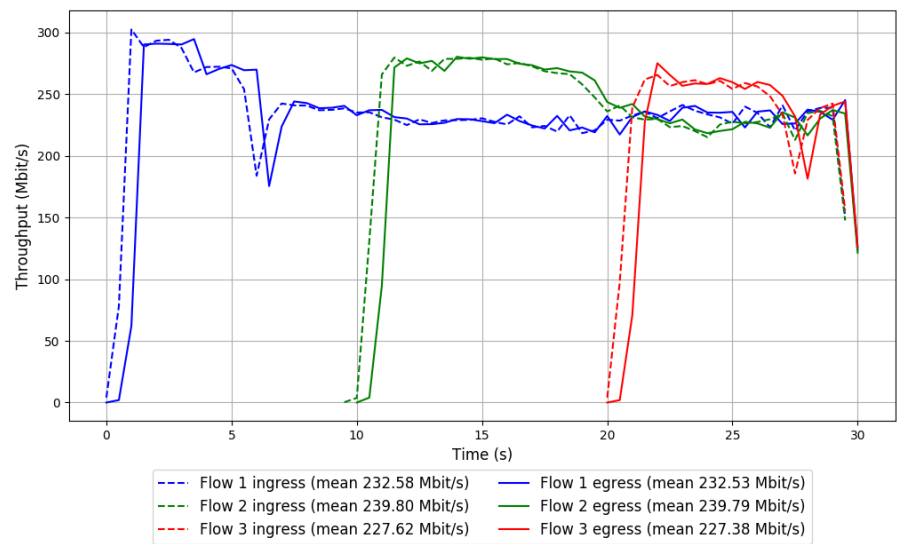
Run 5: Report of FillP-Sheep — Data Link
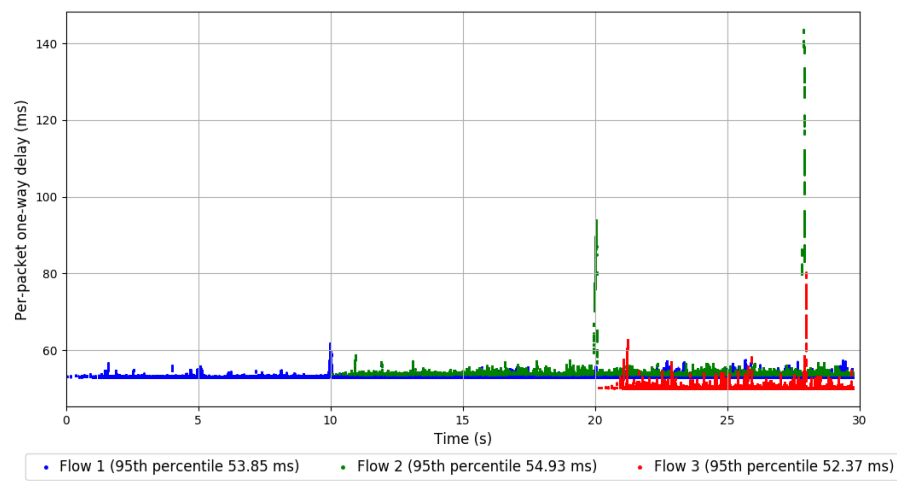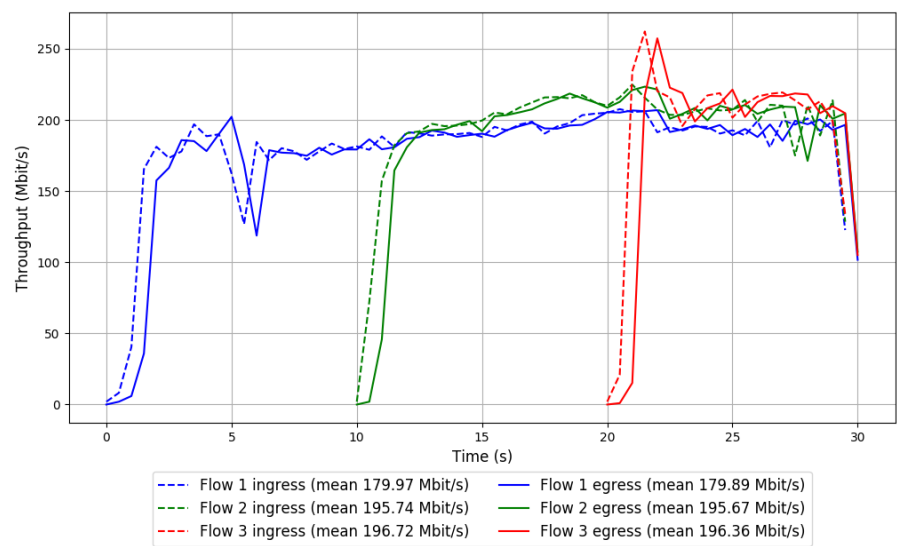

Flow 1 ingress (mean 751.32 Mbit/s) --- Flow 1 egress (mean 749.03 Mbit/s)
Flow 2 ingress (mean 684.29 Mbit/s) --- Flow 2 egress (mean 684.88 Mbit/s)
Flow 3 ingress (mean 536.84 Mbit/s) --- Flow 3 egress (mean 537.63 Mbit/s)

Flow 1 (95th percentile 106.85 ms) · Flow 2 (95th percentile 98.48 ms) · Flow 3 (95th percentile 71.44 ms)

```
Run 1: Statistics of Indigo

Start at: 2018-09-08 07:47:20
End at: 2018-09-08 07:47:50
Local clock offset: -0.029 ms
Remote clock offset: -0.254 ms


# Below is generated by plot.py at 2018-09-08 11:46:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 458.94 Mbit/s
95th percentile per-packet one-way delay: 55.300 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 230.50 Mbit/s
95th percentile per-packet one-way delay: 56.078 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 241.62 Mbit/s
95th percentile per-packet one-way delay: 52.198 ms
Loss rate: 0.51%
-- Flow 3:
Average throughput: 191.92 Mbit/s
95th percentile per-packet one-way delay: 51.517 ms
Loss rate: 1.33%
```
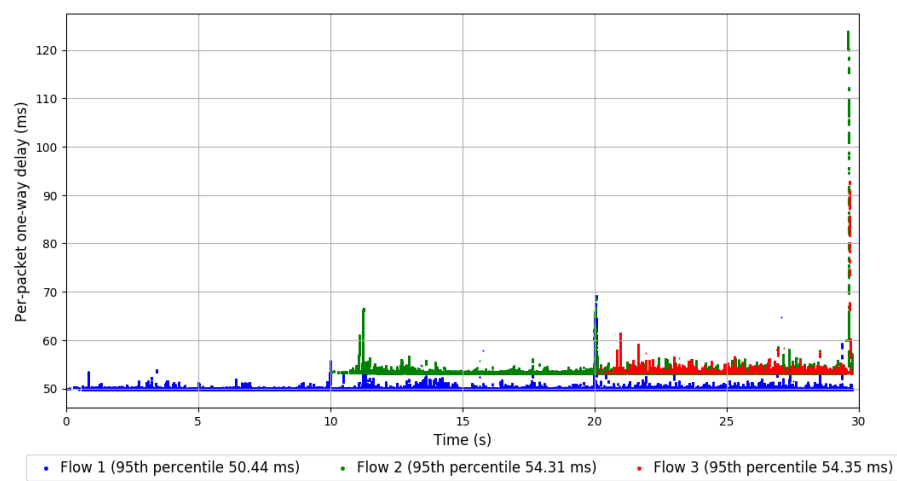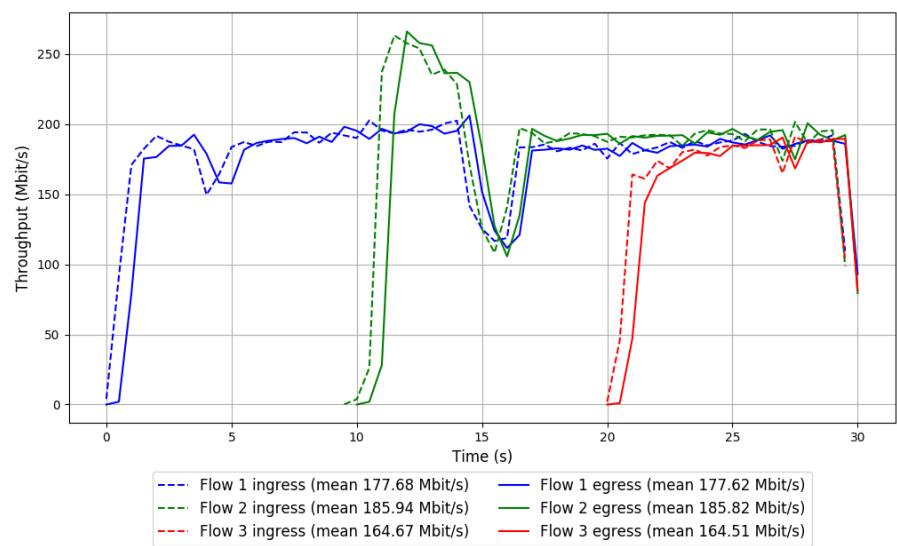
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-09-08 08:19:37
End at: 2018-09-08 08:20:07
Local clock offset: 0.408 ms
Remote clock offset: 0.343 ms


# Below is generated by plot.py at 2018-09-08 11:46:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 465.90 Mbit/s
95th percentile per-packet one-way delay: 55.439 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 232.53 Mbit/s
95th percentile per-packet one-way delay: 54.856 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 239.79 Mbit/s
95th percentile per-packet one-way delay: 52.592 ms
Loss rate: 0.51%
-- Flow 3:
Average throughput: 227.38 Mbit/s
95th percentile per-packet one-way delay: 59.515 ms
Loss rate: 1.18%
```

Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-09-08 08:51:15
End at: 2018-09-08 08:51:45
Local clock offset: 0.055 ms
Remote clock offset: -0.216 ms

# Below is generated by plot.py at 2018-09-08 11:46:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 373.15 Mbit/s
95th percentile per-packet one-way delay: 54.435 ms
Loss rate: 0.61%
-- Flow 1:
Average throughput: 179.89 Mbit/s
95th percentile per-packet one-way delay: 53.850 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 195.67 Mbit/s
95th percentile per-packet one-way delay: 54.927 ms
Loss rate: 0.58%
-- Flow 3:
Average throughput: 196.36 Mbit/s
95th percentile per-packet one-way delay: 52.372 ms
Loss rate: 1.24%
```
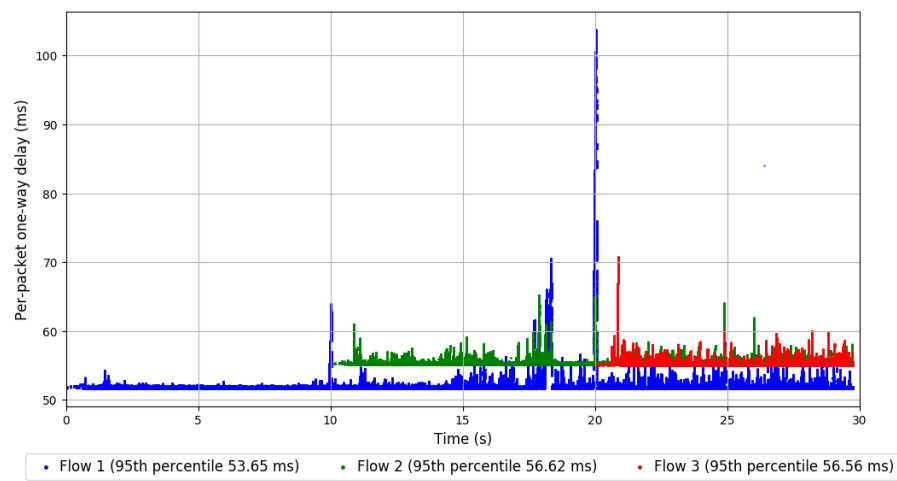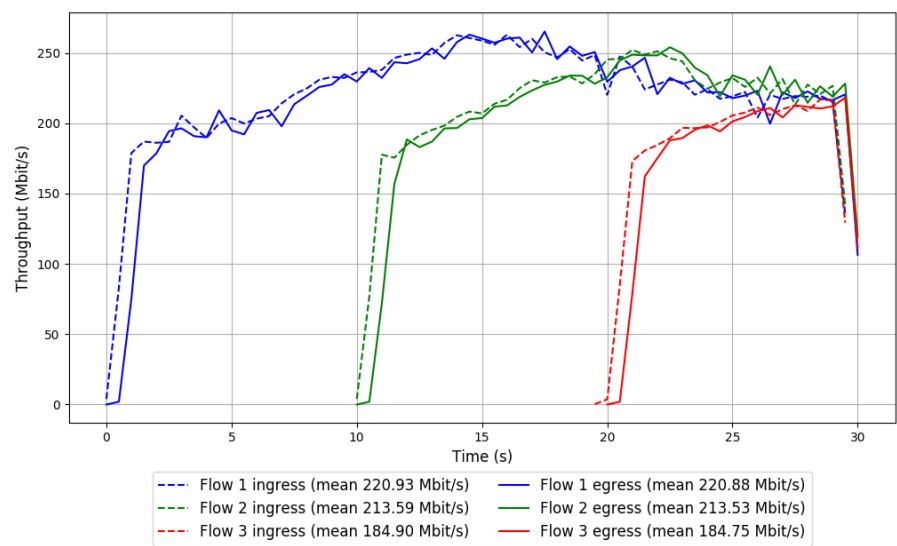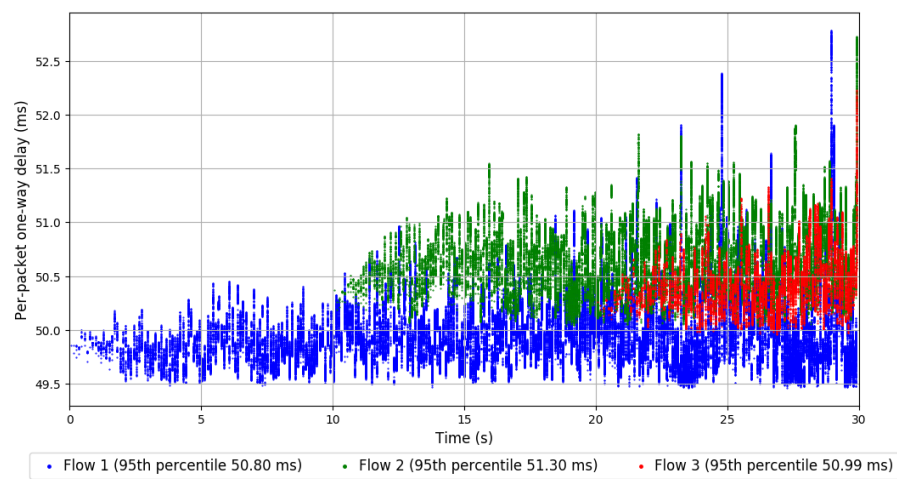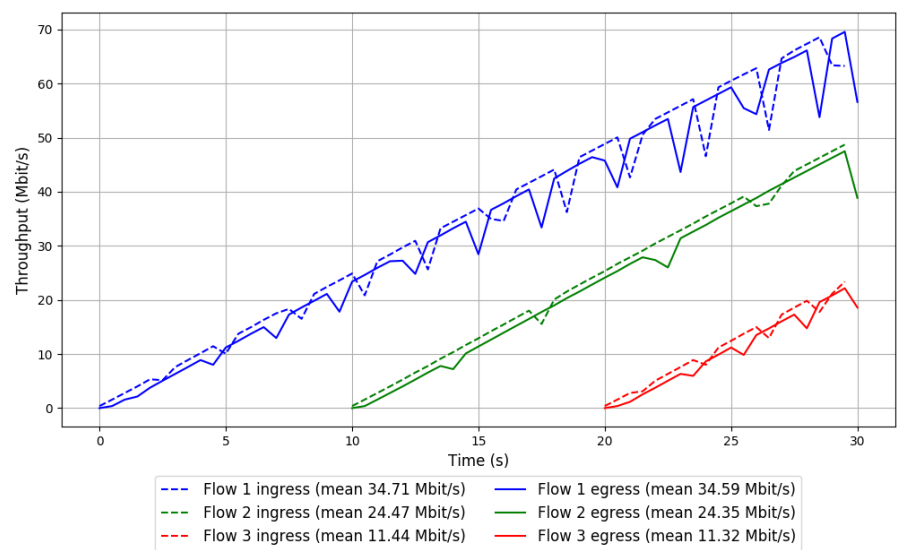
Run 3: Report of Indigo — Data Link

Flow 1 ingress (mean 179.97 Mbit/s)   Flow 1 egress (mean 179.89 Mbit/s)
Flow 2 ingress (mean 195.74 Mbit/s)   Flow 2 egress (mean 195.67 Mbit/s)
Flow 3 ingress (mean 196.72 Mbit/s)   Flow 3 egress (mean 196.36 Mbit/s)

Flow 1 (95th percentile 53.85 ms)   Flow 2 (95th percentile 54.93 ms)   Flow 3 (95th percentile 52.37 ms)

```
Run 4: Statistics of Indigo

Start at: 2018-09-08 09:22:35
End at: 2018-09-08 09:23:05
Local clock offset: -0.124 ms
Remote clock offset: 0.093 ms


# Below is generated by plot.py at 2018-09-08 11:46:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 354.23 Mbit/s
95th percentile per-packet one-way delay: 53.759 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 177.62 Mbit/s
95th percentile per-packet one-way delay: 50.442 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 185.82 Mbit/s
95th percentile per-packet one-way delay: 54.311 ms
Loss rate: 0.60%
-- Flow 3:
Average throughput: 164.51 Mbit/s
95th percentile per-packet one-way delay: 54.355 ms
Loss rate: 1.20%
```

Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2018-09-08 09:54:07
End at: 2018-09-08 09:54:37
Local clock offset: 0.057 ms
Remote clock offset: -1.59 ms


# Below is generated by plot.py at 2018-09-08 11:46:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 422.77 Mbit/s
95th percentile per-packet one-way delay: 56.138 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 220.88 Mbit/s
95th percentile per-packet one-way delay: 53.646 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 213.53 Mbit/s
95th percentile per-packet one-way delay: 56.616 ms
Loss rate: 0.56%
-- Flow 3:
Average throughput: 184.75 Mbit/s
95th percentile per-packet one-way delay: 56.564 ms
Loss rate: 1.17%
```
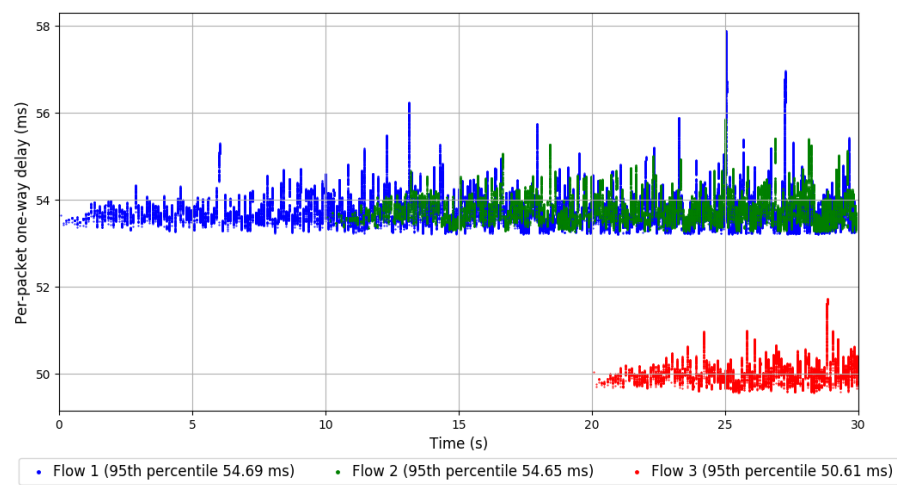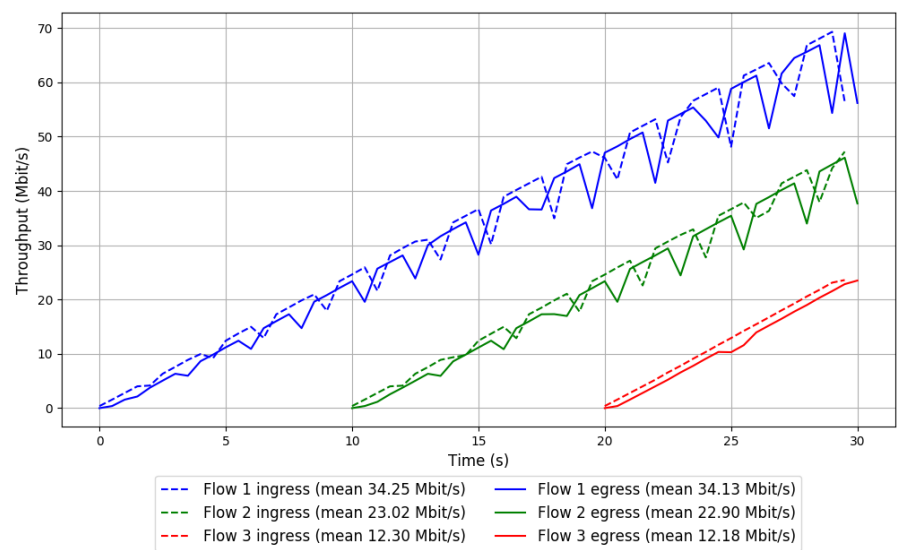
Run 5: Report of Indigo — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-09-08 07:34:21
End at: 2018-09-08 07:34:51
Local clock offset: 0.067 ms
Remote clock offset: 0.348 ms

# Below is generated by plot.py at 2018-09-08 11:46:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 54.47 Mbit/s
95th percentile per-packet one-way delay: 51.128 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 34.59 Mbit/s
95th percentile per-packet one-way delay: 50.805 ms
Loss rate: 0.69%
-- Flow 2:
Average throughput: 24.35 Mbit/s
95th percentile per-packet one-way delay: 51.300 ms
Loss rate: 1.01%
-- Flow 3:
Average throughput: 11.32 Mbit/s
95th percentile per-packet one-way delay: 50.993 ms
Loss rate: 2.10%
```
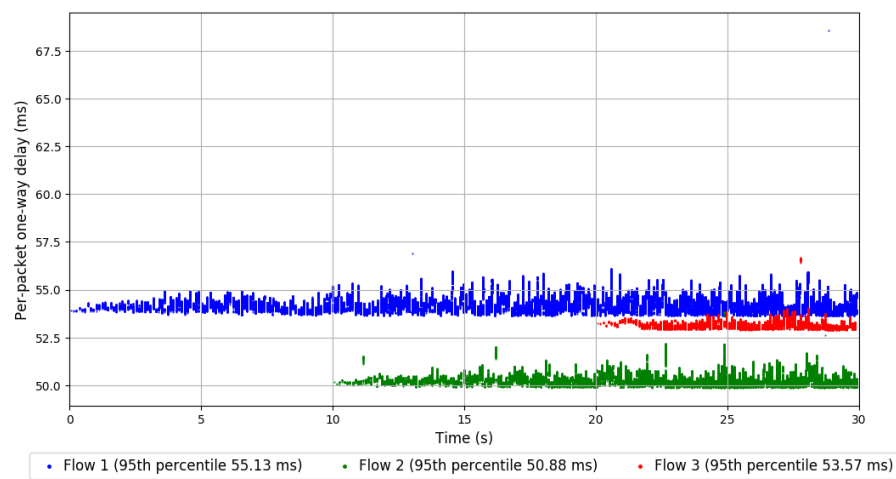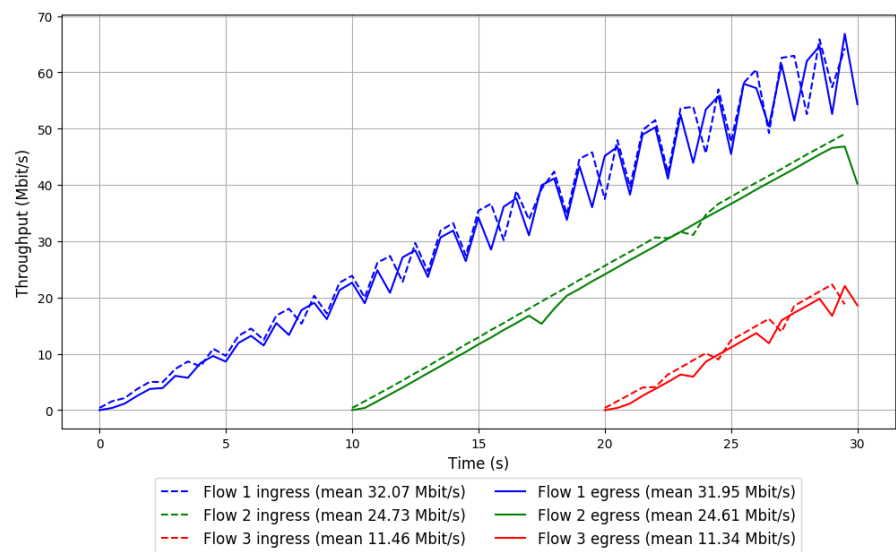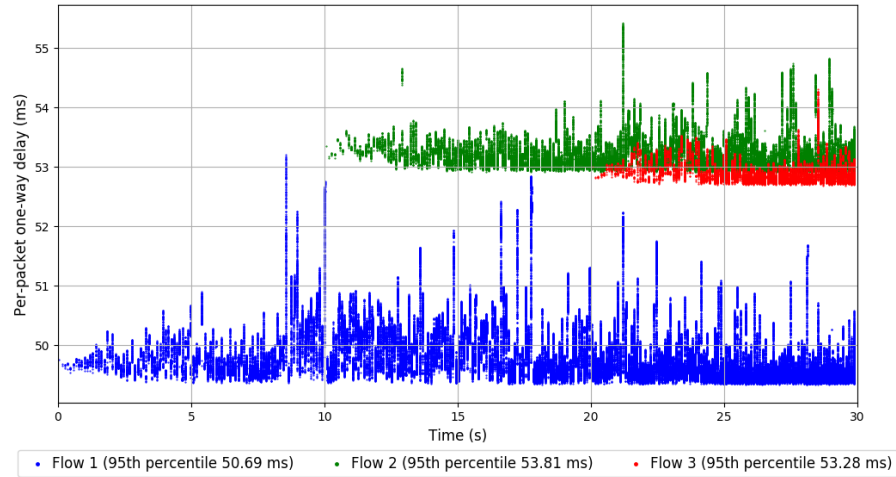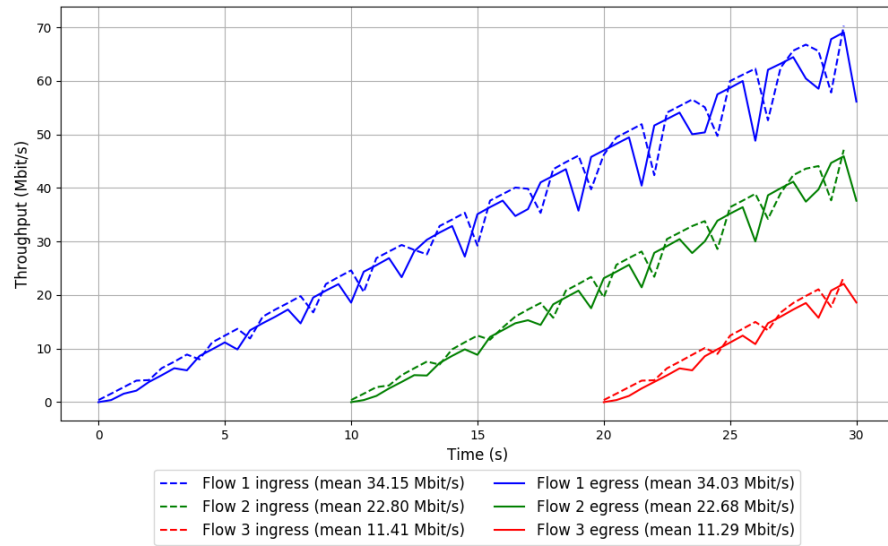
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-09-08 08:06:33
End at: 2018-09-08 08:07:03
Local clock offset: 0.057 ms
Remote clock offset: 0.093 ms


# Below is generated by plot.py at 2018-09-08 11:46:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 53.27 Mbit/s
95th percentile per-packet one-way delay: 54.642 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 34.13 Mbit/s
95th percentile per-packet one-way delay: 54.689 ms
Loss rate: 0.69%
-- Flow 2:
Average throughput: 22.90 Mbit/s
95th percentile per-packet one-way delay: 54.652 ms
Loss rate: 1.04%
-- Flow 3:
Average throughput: 12.18 Mbit/s
95th percentile per-packet one-way delay: 50.609 ms
Loss rate: 1.97%
```
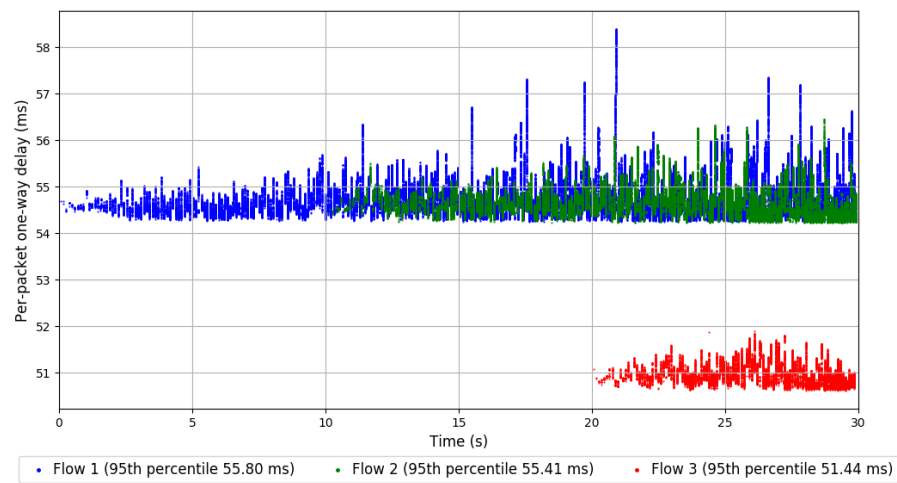
Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-09-08 08:38:43
End at: 2018-09-08 08:39:13
Local clock offset: 0.082 ms
Remote clock offset: -0.1 ms


# Below is generated by plot.py at 2018-09-08 11:46:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 52.03 Mbit/s
95th percentile per-packet one-way delay: 54.979 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 31.95 Mbit/s
95th percentile per-packet one-way delay: 55.128 ms
Loss rate: 0.71%
-- Flow 2:
Average throughput: 24.61 Mbit/s
95th percentile per-packet one-way delay: 50.877 ms
Loss rate: 1.00%
-- Flow 3:
Average throughput: 11.34 Mbit/s
95th percentile per-packet one-way delay: 53.572 ms
Loss rate: 2.11%
```
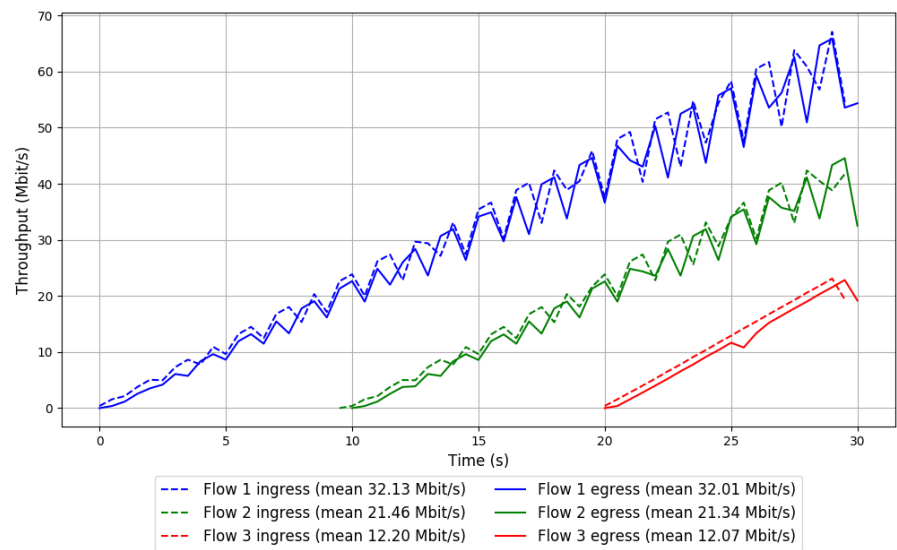
Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2018-09-08 09:10:01
End at: 2018-09-08 09:10:31
Local clock offset: -0.067 ms
Remote clock offset: 0.579 ms

# Below is generated by plot.py at 2018-09-08 11:46:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 52.81 Mbit/s
95th percentile per-packet one-way delay: 53.408 ms
Loss rate: 0.89%
-- Flow 1:
Average throughput: 34.03 Mbit/s
95th percentile per-packet one-way delay: 50.686 ms
Loss rate: 0.69%
-- Flow 2:
Average throughput: 22.68 Mbit/s
95th percentile per-packet one-way delay: 53.812 ms
Loss rate: 1.05%
-- Flow 3:
Average throughput: 11.29 Mbit/s
95th percentile per-packet one-way delay: 53.283 ms
Loss rate: 2.11%
```
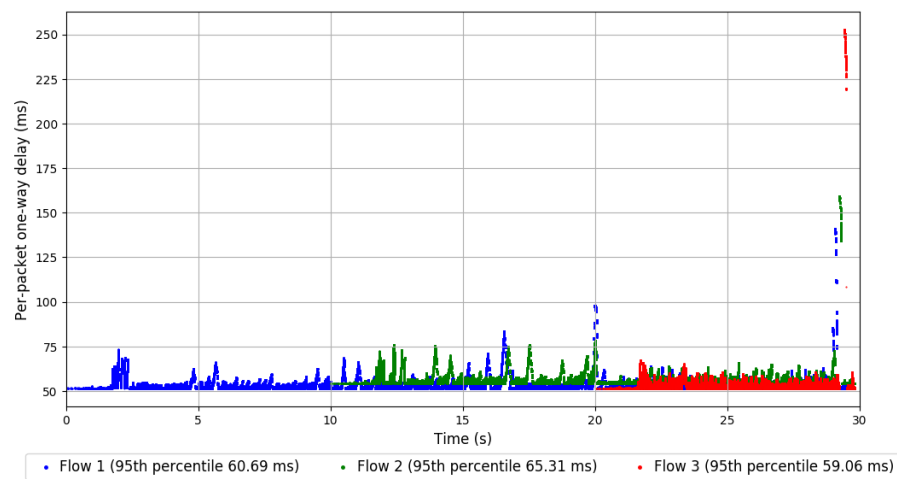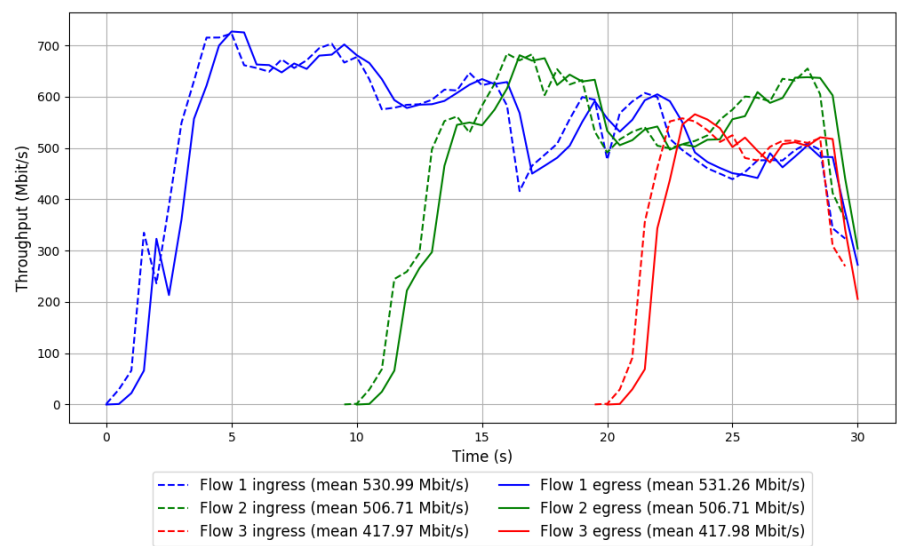
Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2018-09-08 09:41:23
End at: 2018-09-08 09:41:53
Local clock offset: -0.074 ms
Remote clock offset: -0.931 ms


# Below is generated by plot.py at 2018-09-08 11:46:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 50.10 Mbit/s
95th percentile per-packet one-way delay: 55.656 ms
Loss rate: 0.92%
-- Flow 1:
Average throughput: 32.01 Mbit/s
95th percentile per-packet one-way delay: 55.795 ms
Loss rate: 0.71%
-- Flow 2:
Average throughput: 21.34 Mbit/s
95th percentile per-packet one-way delay: 55.408 ms
Loss rate: 1.07%
-- Flow 3:
Average throughput: 12.07 Mbit/s
95th percentile per-packet one-way delay: 51.439 ms
Loss rate: 2.04%
```
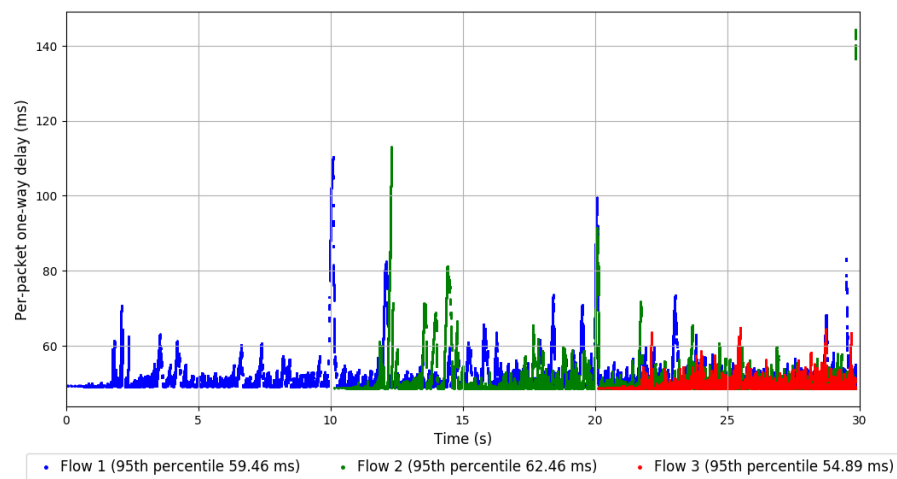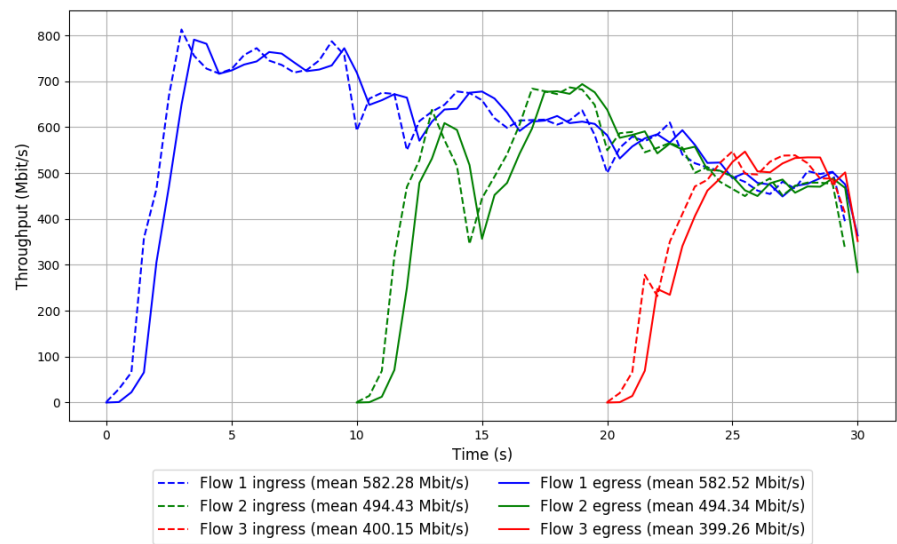
Run 5: Report of LEDBAT — Data Link

Flow 1 ingress (mean 32.13 Mbit/s) ---- Flow 1 egress (mean 32.01 Mbit/s) ——
Flow 2 ingress (mean 21.46 Mbit/s) ---- Flow 2 egress (mean 21.34 Mbit/s) ——
Flow 3 ingress (mean 12.20 Mbit/s) ---- Flow 3 egress (mean 12.07 Mbit/s) ——

• Flow 1 (95th percentile 55.80 ms) • Flow 2 (95th percentile 55.41 ms) • Flow 3 (95th percentile 51.44 ms)
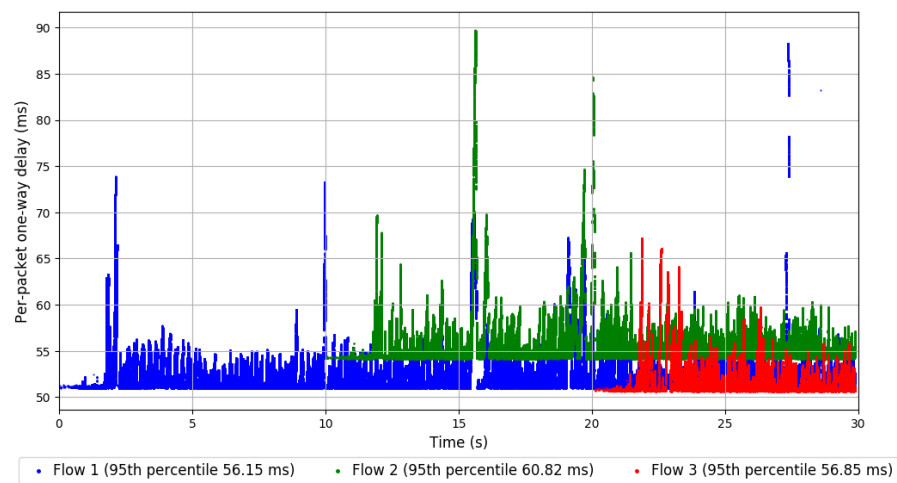
```
Run 1: Statistics of Indigo-Muses

Start at: 2018-09-08 07:50:22
End at: 2018-09-08 07:50:52
Local clock offset: -0.309 ms
Remote clock offset: -1.513 ms

# Below is generated by plot.py at 2018-09-08 11:46:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1005.93 Mbit/s
95th percentile per-packet one-way delay: 62.008 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 531.26 Mbit/s
95th percentile per-packet one-way delay: 60.687 ms
Loss rate: 0.30%
-- Flow 2:
Average throughput: 506.71 Mbit/s
95th percentile per-packet one-way delay: 65.307 ms
Loss rate: 0.54%
-- Flow 3:
Average throughput: 417.98 Mbit/s
95th percentile per-packet one-way delay: 59.058 ms
Loss rate: 1.02%
```

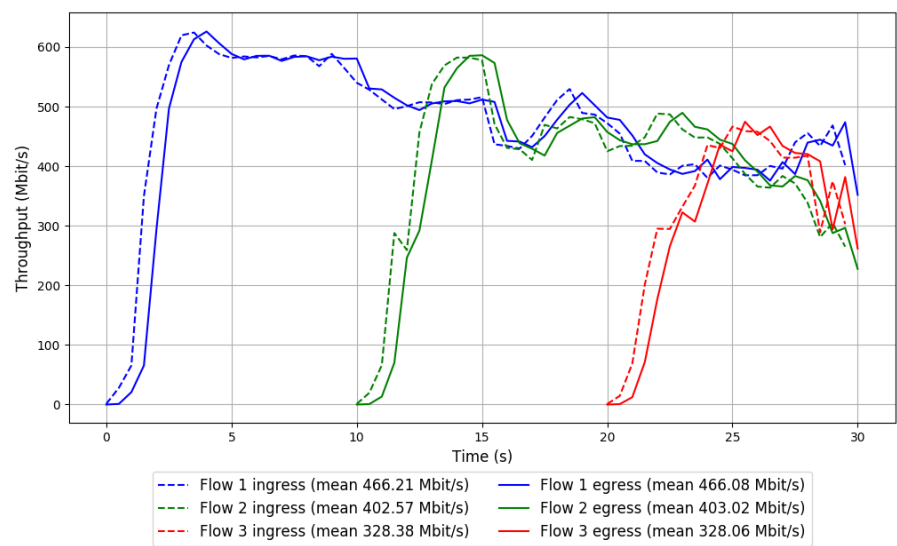Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-09-08 08:22:41
End at: 2018-09-08 08:23:11
Local clock offset: 0.184 ms
Remote clock offset: 1.363 ms


# Below is generated by plot.py at 2018-09-08 11:48:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1040.39 Mbit/s
95th percentile per-packet one-way delay: 59.478 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 582.52 Mbit/s
95th percentile per-packet one-way delay: 59.458 ms
Loss rate: 0.31%
-- Flow 2:
Average throughput: 494.34 Mbit/s
95th percentile per-packet one-way delay: 62.463 ms
Loss rate: 0.53%
-- Flow 3:
Average throughput: 399.26 Mbit/s
95th percentile per-packet one-way delay: 54.891 ms
Loss rate: 1.29%
```
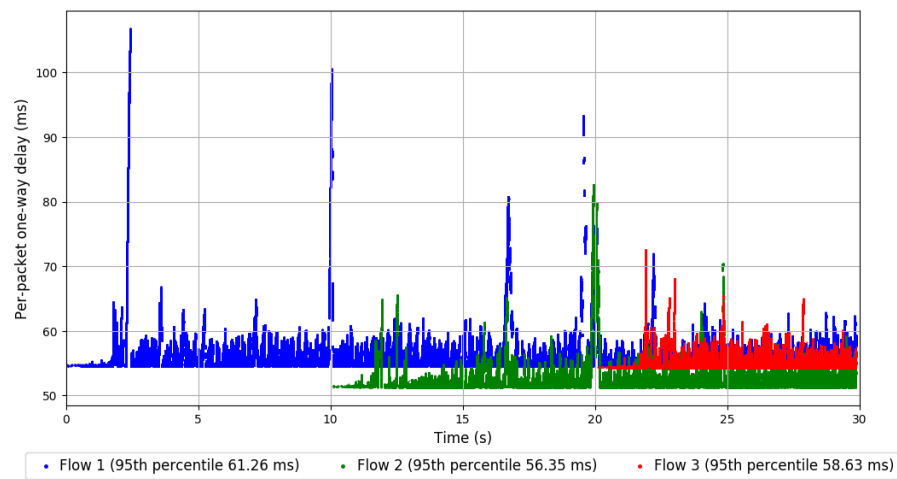
Run 2: Report of Indigo-Muses — Data Link

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-09-08 08:54:12
End at: 2018-09-08 08:54:42
Local clock offset: 0.007 ms
Remote clock offset: -0.839 ms

# Below is generated by plot.py at 2018-09-08 11:48:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 841.07 Mbit/s
95th percentile per-packet one-way delay: 58.769 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 466.08 Mbit/s
95th percentile per-packet one-way delay: 56.154 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 403.02 Mbit/s
95th percentile per-packet one-way delay: 60.817 ms
Loss rate: 0.44%
-- Flow 3:
Average throughput: 328.06 Mbit/s
95th percentile per-packet one-way delay: 56.849 ms
Loss rate: 1.17%
```
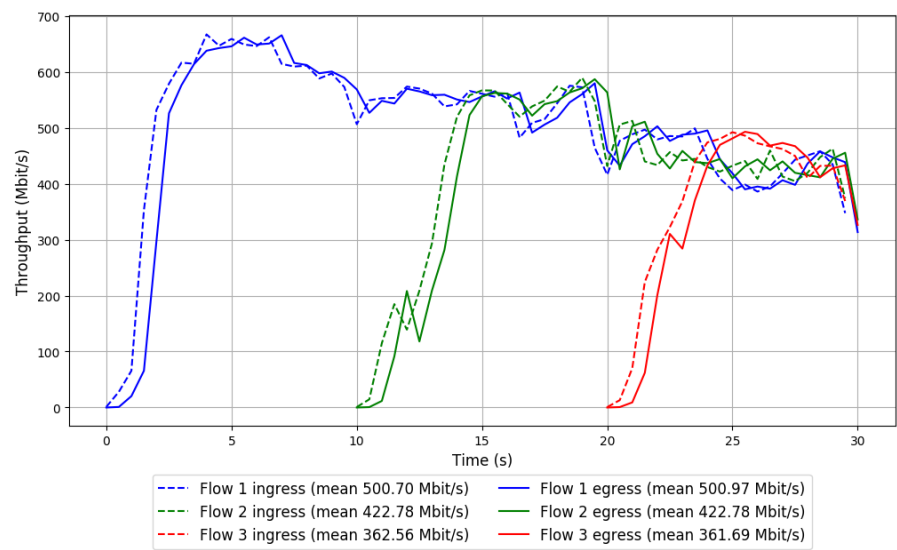
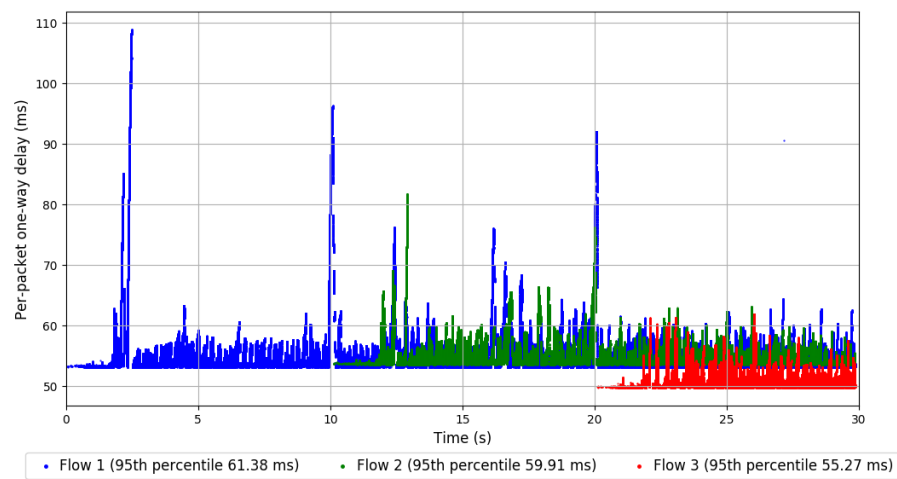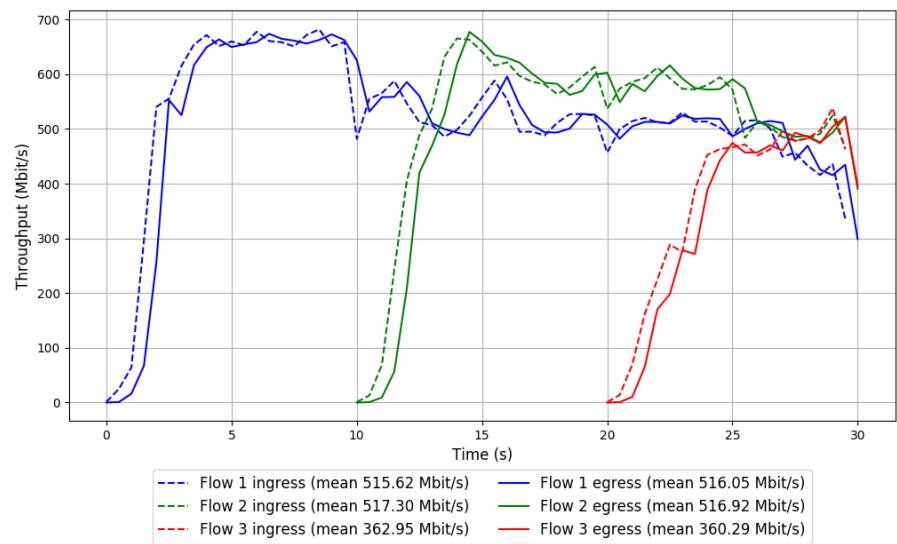Run 3: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 466.21 Mbit/s)   Flow 1 egress (mean 466.08 Mbit/s)
Flow 2 ingress (mean 402.57 Mbit/s)   Flow 2 egress (mean 403.02 Mbit/s)
Flow 3 ingress (mean 328.38 Mbit/s)   Flow 3 egress (mean 328.06 Mbit/s)

Flow 1 (95th percentile 56.15 ms)   Flow 2 (95th percentile 60.82 ms)   Flow 3 (95th percentile 56.85 ms)

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-09-08 09:25:30
End at: 2018-09-08 09:26:00
Local clock offset: -0.15 ms
Remote clock offset: -1.06 ms


# Below is generated by plot.py at 2018-09-08 11:48:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 899.50 Mbit/s
95th percentile per-packet one-way delay: 59.917 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 500.97 Mbit/s
95th percentile per-packet one-way delay: 61.261 ms
Loss rate: 0.31%
-- Flow 2:
Average throughput: 422.78 Mbit/s
95th percentile per-packet one-way delay: 56.355 ms
Loss rate: 0.56%
-- Flow 3:
Average throughput: 361.69 Mbit/s
95th percentile per-packet one-way delay: 58.635 ms
Loss rate: 1.29%
```

Run 4: Report of Indigo-Muses — Data Link

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-09-08 09:57:09
End at: 2018-09-08 09:57:39
Local clock offset: -0.169 ms
Remote clock offset: -0.207 ms


# Below is generated by plot.py at 2018-09-08 11:48:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 975.91 Mbit/s
95th percentile per-packet one-way delay: 60.235 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 516.05 Mbit/s
95th percentile per-packet one-way delay: 61.377 ms
Loss rate: 0.28%
-- Flow 2:
Average throughput: 516.92 Mbit/s
95th percentile per-packet one-way delay: 59.915 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 360.29 Mbit/s
95th percentile per-packet one-way delay: 55.271 ms
Loss rate: 1.78%
```
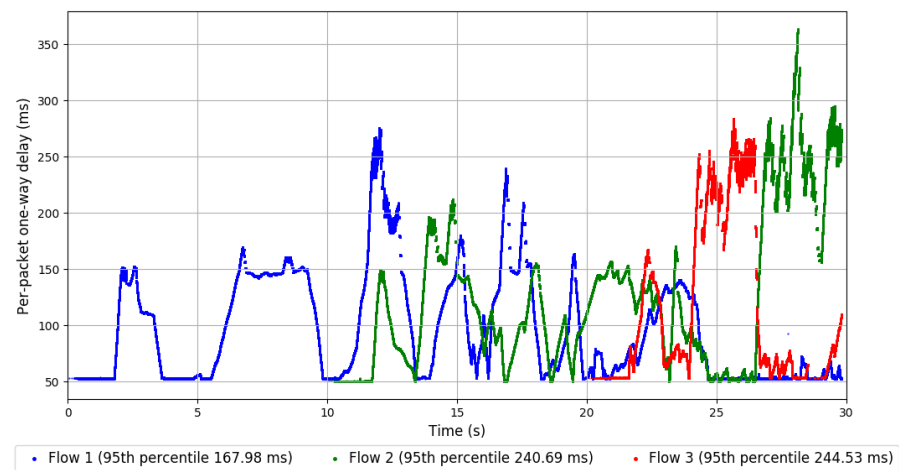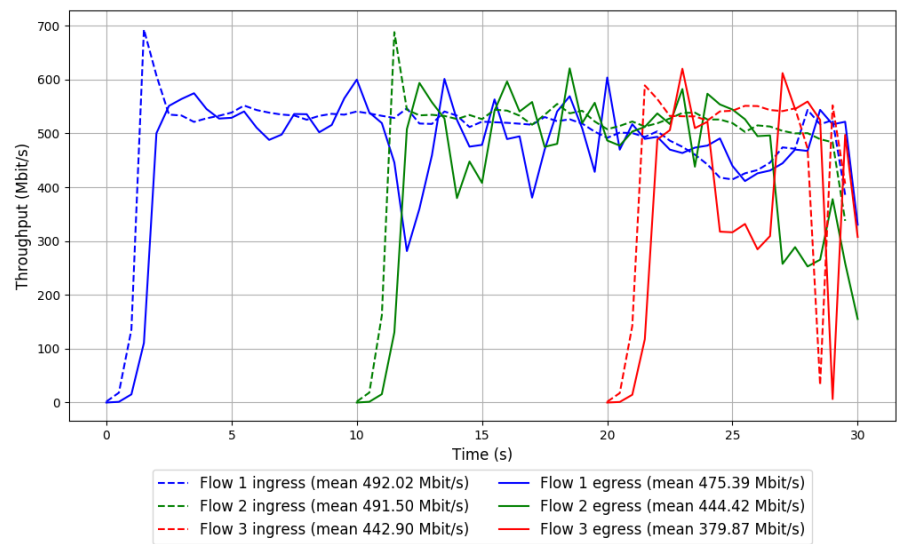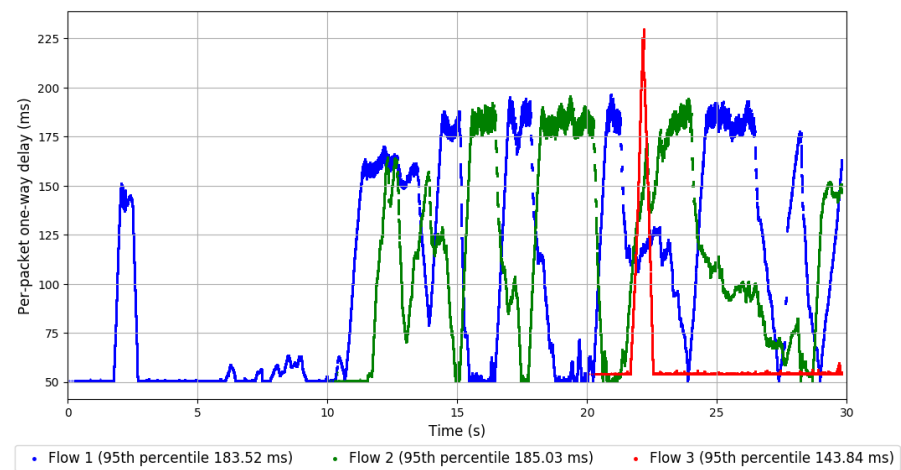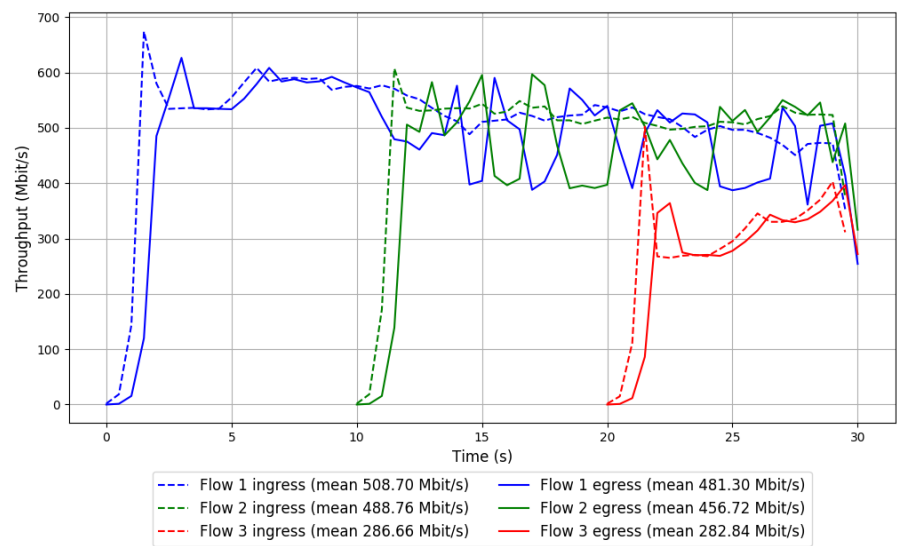
Run 5: Report of Indigo-Muses — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-08 07:43:05
End at: 2018-09-08 07:43:35
Local clock offset: -0.07 ms
Remote clock offset: 0.318 ms


# Below is generated by plot.py at 2018-09-08 12:01:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 894.64 Mbit/s
95th percentile per-packet one-way delay: 216.185 ms
Loss rate: 7.60%
-- Flow 1:
Average throughput: 475.39 Mbit/s
95th percentile per-packet one-way delay: 167.984 ms
Loss rate: 3.73%
-- Flow 2:
Average throughput: 444.42 Mbit/s
95th percentile per-packet one-way delay: 240.693 ms
Loss rate: 10.06%
-- Flow 3:
Average throughput: 379.87 Mbit/s
95th percentile per-packet one-way delay: 244.526 ms
Loss rate: 15.17%
```

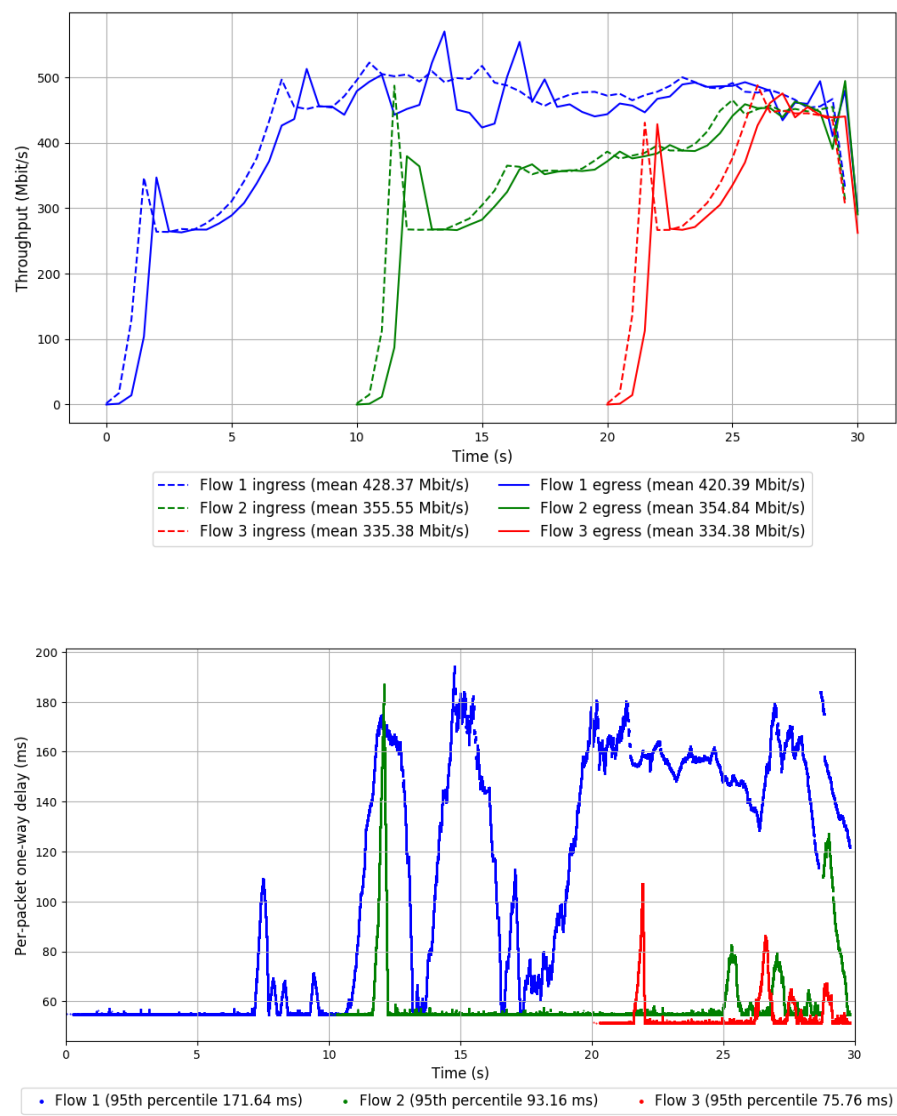Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-09-08 08:15:19
End at: 2018-09-08 08:15:49
Local clock offset: 0.195 ms
Remote clock offset: -0.444 ms


# Below is generated by plot.py at 2018-09-08 12:03:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 876.82 Mbit/s
95th percentile per-packet one-way delay: 184.010 ms
Loss rate: 5.85%
-- Flow 1:
Average throughput: 481.30 Mbit/s
95th percentile per-packet one-way delay: 183.522 ms
Loss rate: 5.72%
-- Flow 2:
Average throughput: 456.72 Mbit/s
95th percentile per-packet one-way delay: 185.028 ms
Loss rate: 7.04%
-- Flow 3:
Average throughput: 282.84 Mbit/s
95th percentile per-packet one-way delay: 143.839 ms
Loss rate: 2.42%
```

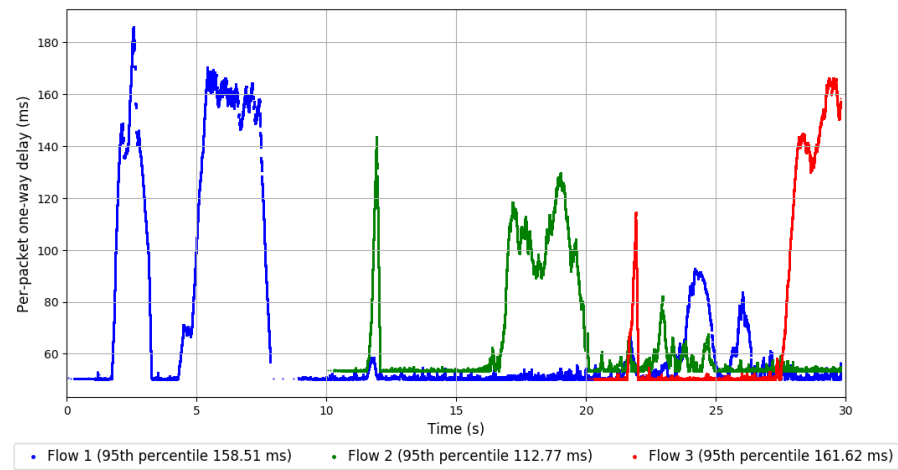Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-09-08 08:47:18
End at: 2018-09-08 08:47:48
Local clock offset: 0.021 ms
Remote clock offset: -1.386 ms


# Below is generated by plot.py at 2018-09-08 12:08:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 765.15 Mbit/s
95th percentile per-packet one-way delay: 166.417 ms
Loss rate: 1.64%
-- Flow 1:
Average throughput: 420.39 Mbit/s
95th percentile per-packet one-way delay: 171.640 ms
Loss rate: 2.21%
-- Flow 2:
Average throughput: 354.84 Mbit/s
95th percentile per-packet one-way delay: 93.156 ms
Loss rate: 0.73%
-- Flow 3:
Average throughput: 334.38 Mbit/s
95th percentile per-packet one-way delay: 75.763 ms
Loss rate: 1.34%
```

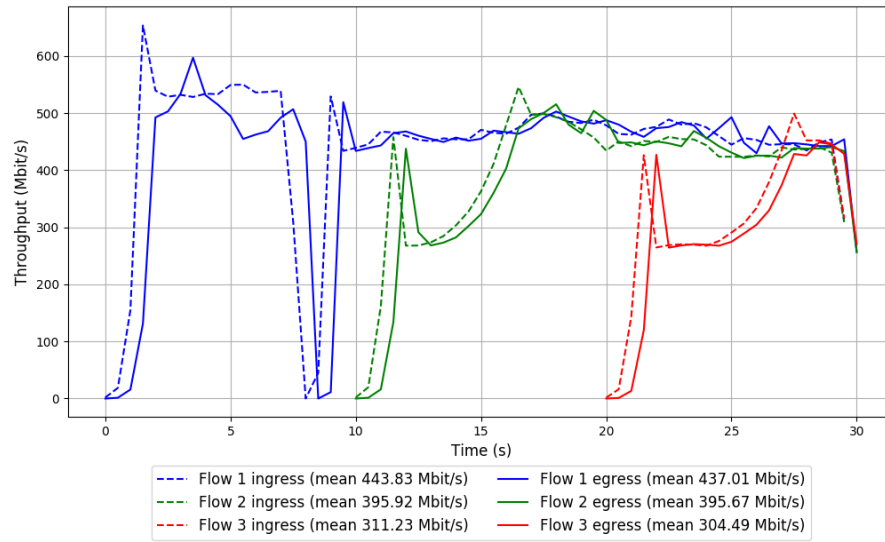Run 3: Report of PCC-Allegro — Data Link

- - - Flow 1 ingress (mean 428.37 Mbit/s) —— Flow 1 egress (mean 420.39 Mbit/s)
- - - Flow 2 ingress (mean 355.55 Mbit/s) —— Flow 2 egress (mean 354.84 Mbit/s)
- - - Flow 3 ingress (mean 335.38 Mbit/s) —— Flow 3 egress (mean 334.38 Mbit/s)

• Flow 1 (95th percentile 171.64 ms)   • Flow 2 (95th percentile 93.16 ms)   • Flow 3 (95th percentile 75.76 ms)
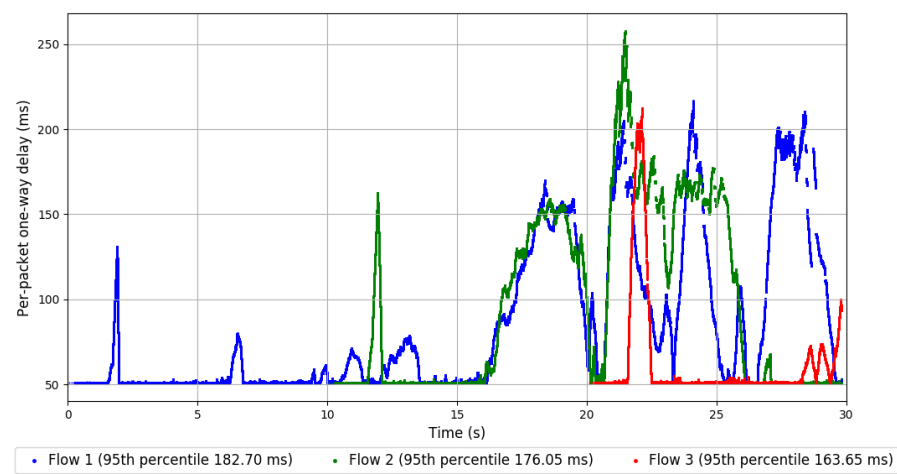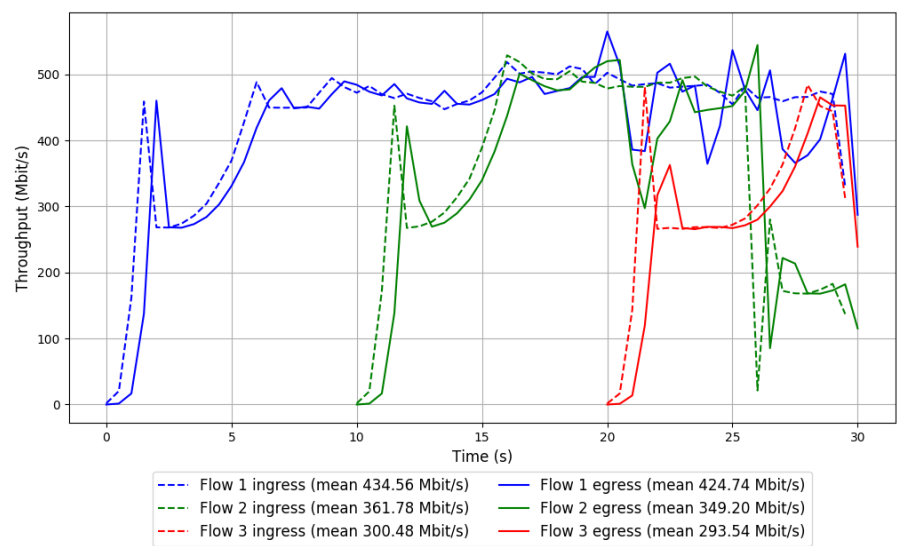
90

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-09-08 09:18:35
End at: 2018-09-08 09:19:05
Local clock offset: 0.071 ms
Remote clock offset: -0.343 ms


# Below is generated by plot.py at 2018-09-08 12:10:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 799.08 Mbit/s
95th percentile per-packet one-way delay: 154.018 ms
Loss rate: 1.63%
-- Flow 1:
Average throughput: 437.01 Mbit/s
95th percentile per-packet one-way delay: 158.507 ms
Loss rate: 1.88%
-- Flow 2:
Average throughput: 395.67 Mbit/s
95th percentile per-packet one-way delay: 112.772 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 304.49 Mbit/s
95th percentile per-packet one-way delay: 161.622 ms
Loss rate: 3.19%
```

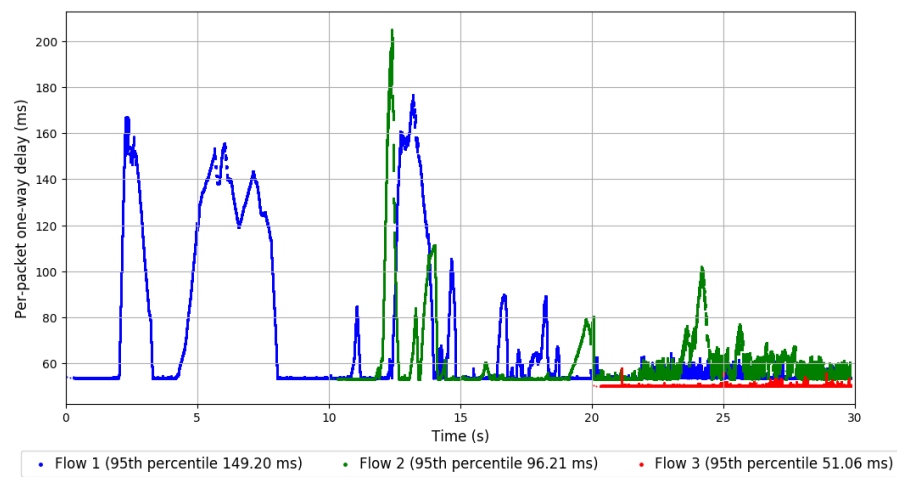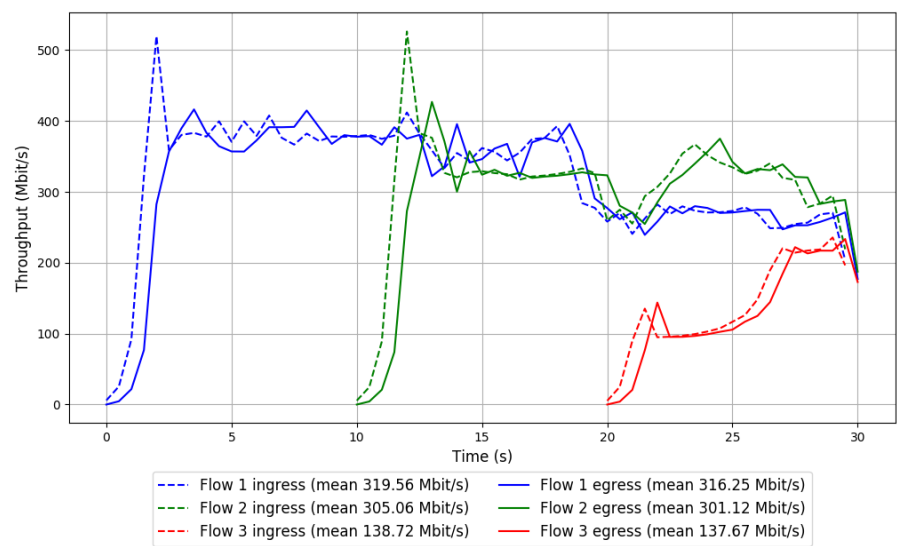# Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 443.83 Mbit/s) --- Flow 1 egress (mean 437.01 Mbit/s)
Flow 2 ingress (mean 395.92 Mbit/s) --- Flow 2 egress (mean 395.67 Mbit/s)
Flow 3 ingress (mean 311.23 Mbit/s) --- Flow 3 egress (mean 304.49 Mbit/s)

Flow 1 (95th percentile 158.51 ms)   Flow 2 (95th percentile 112.77 ms)   Flow 3 (95th percentile 161.62 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-09-08 09:50:03
End at: 2018-09-08 09:50:33
Local clock offset: -0.005 ms
Remote clock offset: -0.848 ms


# Below is generated by plot.py at 2018-09-08 12:10:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 752.38 Mbit/s
95th percentile per-packet one-way delay: 178.925 ms
Loss rate: 3.12%
-- Flow 1:
Average throughput: 424.74 Mbit/s
95th percentile per-packet one-way delay: 182.703 ms
Loss rate: 2.60%
-- Flow 2:
Average throughput: 349.20 Mbit/s
95th percentile per-packet one-way delay: 176.046 ms
Loss rate: 3.97%
-- Flow 3:
Average throughput: 293.54 Mbit/s
95th percentile per-packet one-way delay: 163.650 ms
Loss rate: 3.33%
```

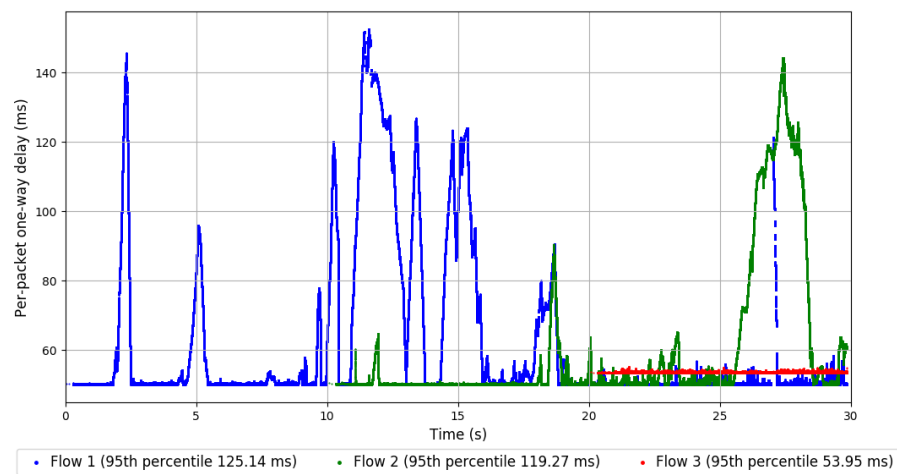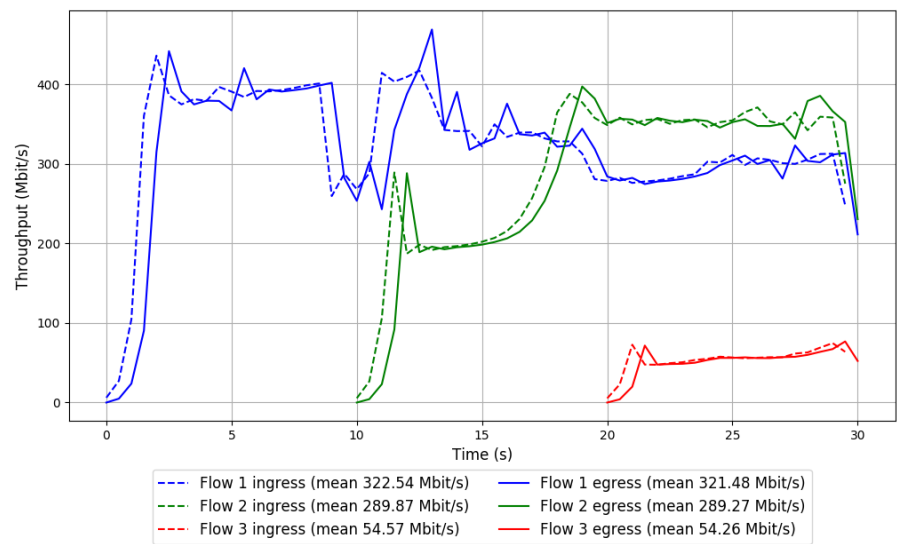Run 5: Report of PCC-Allegro — Data Link

- - - Flow 1 ingress (mean 434.56 Mbit/s) —— Flow 1 egress (mean 424.74 Mbit/s)
- - - Flow 2 ingress (mean 361.78 Mbit/s) —— Flow 2 egress (mean 349.20 Mbit/s)
- - - Flow 3 ingress (mean 300.48 Mbit/s) —— Flow 3 egress (mean 293.54 Mbit/s)

• Flow 1 (95th percentile 182.70 ms)   • Flow 2 (95th percentile 176.05 ms)   • Flow 3 (95th percentile 163.65 ms)
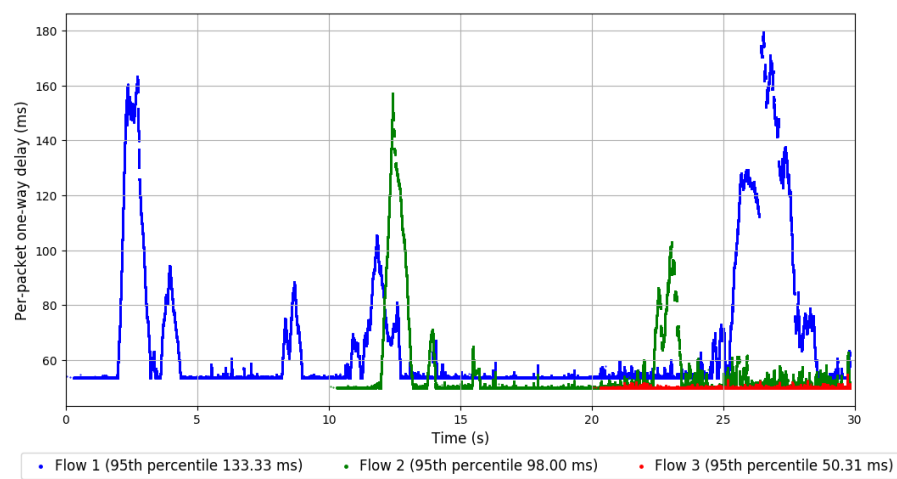
```
Run 1: Statistics of PCC-Expr

Start at: 2018-09-08 07:38:54
End at: 2018-09-08 07:39:24
Local clock offset: 0.064 ms
Remote clock offset: -0.106 ms


# Below is generated by plot.py at 2018-09-08 12:10:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 561.21 Mbit/s
95th percentile per-packet one-way delay: 141.294 ms
Loss rate: 1.59%
-- Flow 1:
Average throughput: 316.25 Mbit/s
95th percentile per-packet one-way delay: 149.201 ms
Loss rate: 1.39%
-- Flow 2:
Average throughput: 301.12 Mbit/s
95th percentile per-packet one-way delay: 96.208 ms
Loss rate: 1.85%
-- Flow 3:
Average throughput: 137.67 Mbit/s
95th percentile per-packet one-way delay: 51.063 ms
Loss rate: 1.80%
```
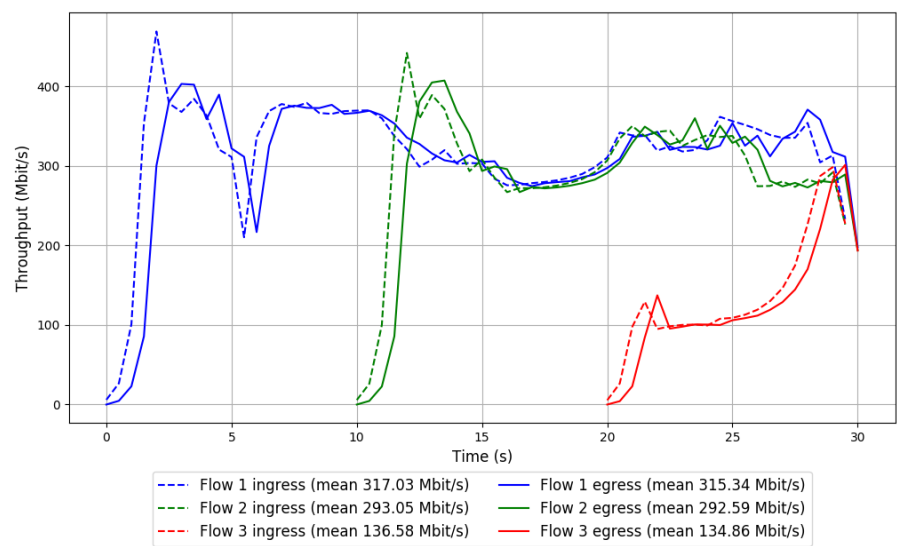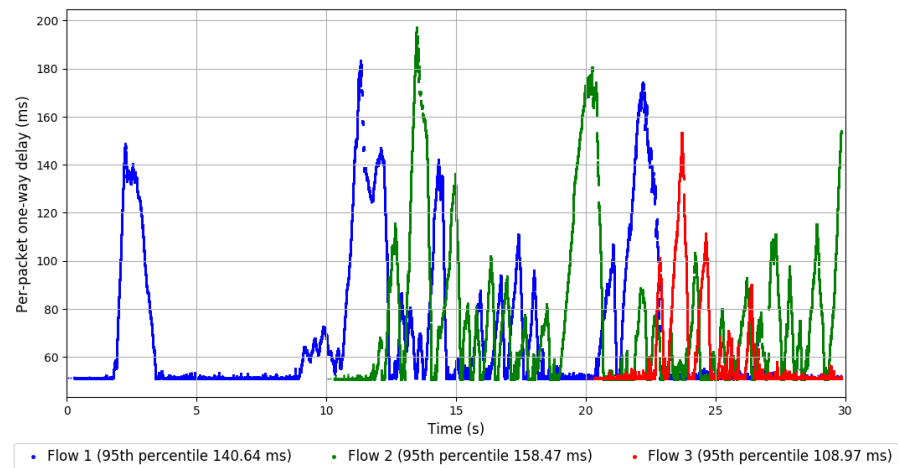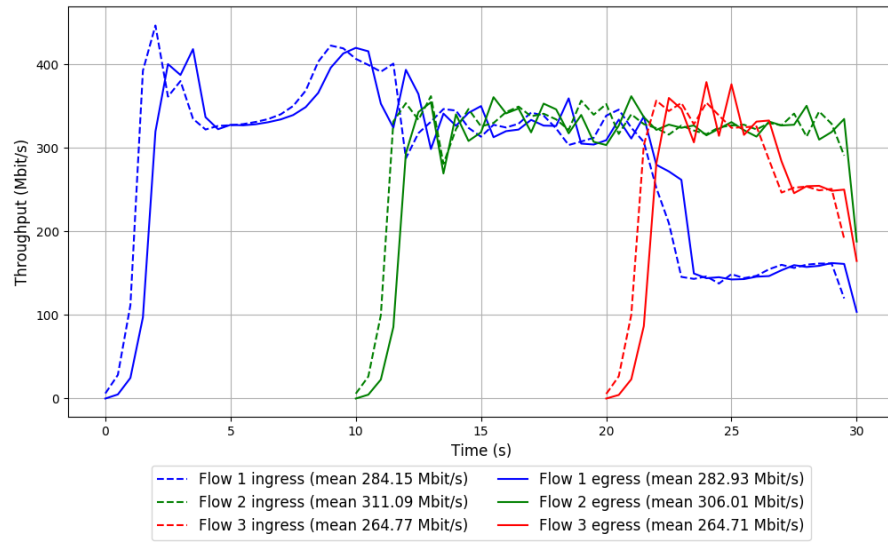
Run 1: Report of PCC-Expr — Data Link

```
Run 2: Statistics of PCC-Expr

Start at: 2018-09-08 08:11:07
End at: 2018-09-08 08:11:37
Local clock offset: 0.028 ms
Remote clock offset: -0.154 ms


# Below is generated by plot.py at 2018-09-08 12:10:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 531.16 Mbit/s
95th percentile per-packet one-way delay: 122.093 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 321.48 Mbit/s
95th percentile per-packet one-way delay: 125.142 ms
Loss rate: 0.68%
-- Flow 2:
Average throughput: 289.27 Mbit/s
95th percentile per-packet one-way delay: 119.269 ms
Loss rate: 0.73%
-- Flow 3:
Average throughput: 54.26 Mbit/s
95th percentile per-packet one-way delay: 53.952 ms
Loss rate: 1.66%
```

Run 2: Report of PCC-Expr — Data Link

Throughput (Mbit/s) vs Time (s)

- - - Flow 1 ingress (mean 322.54 Mbit/s) ——— Flow 1 egress (mean 321.48 Mbit/s)
- - - Flow 2 ingress (mean 289.87 Mbit/s) ——— Flow 2 egress (mean 289.27 Mbit/s)
- - - Flow 3 ingress (mean 54.57 Mbit/s) ——— Flow 3 egress (mean 54.26 Mbit/s)

Per-packet one-way delay (ms) vs Time (s)

- Flow 1 (95th percentile 125.14 ms)   • Flow 2 (95th percentile 119.27 ms)   • Flow 3 (95th percentile 53.95 ms)
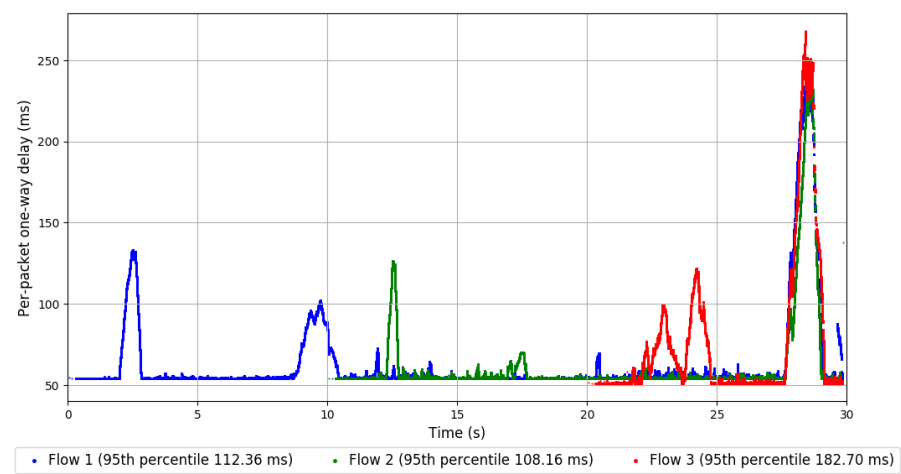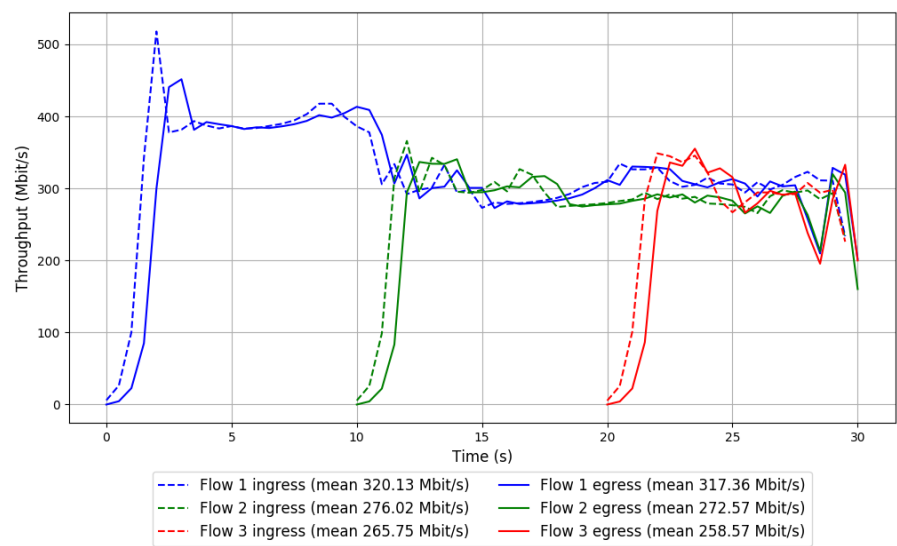
```
Run 3: Statistics of PCC-Expr

Start at: 2018-09-08 08:43:13
End at: 2018-09-08 08:43:43
Local clock offset: 0.091 ms
Remote clock offset: -0.104 ms


# Below is generated by plot.py at 2018-09-08 12:10:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 553.77 Mbit/s
95th percentile per-packet one-way delay: 124.099 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 315.34 Mbit/s
95th percentile per-packet one-way delay: 133.331 ms
Loss rate: 0.89%
-- Flow 2:
Average throughput: 292.59 Mbit/s
95th percentile per-packet one-way delay: 97.997 ms
Loss rate: 0.68%
-- Flow 3:
Average throughput: 134.86 Mbit/s
95th percentile per-packet one-way delay: 50.308 ms
Loss rate: 2.30%
```

Run 3: Report of PCC-Expr — Data Link

```
Run 4: Statistics of PCC-Expr

Start at: 2018-09-08 09:14:29
End at: 2018-09-08 09:14:59
Local clock offset: -0.08 ms
Remote clock offset: -0.765 ms


# Below is generated by plot.py at 2018-09-08 12:18:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 572.80 Mbit/s
95th percentile per-packet one-way delay: 141.293 ms
Loss rate: 1.31%
-- Flow 1:
Average throughput: 282.93 Mbit/s
95th percentile per-packet one-way delay: 140.642 ms
Loss rate: 0.78%
-- Flow 2:
Average throughput: 306.01 Mbit/s
95th percentile per-packet one-way delay: 158.469 ms
Loss rate: 2.15%
-- Flow 3:
Average throughput: 264.71 Mbit/s
95th percentile per-packet one-way delay: 108.974 ms
Loss rate: 1.09%
```

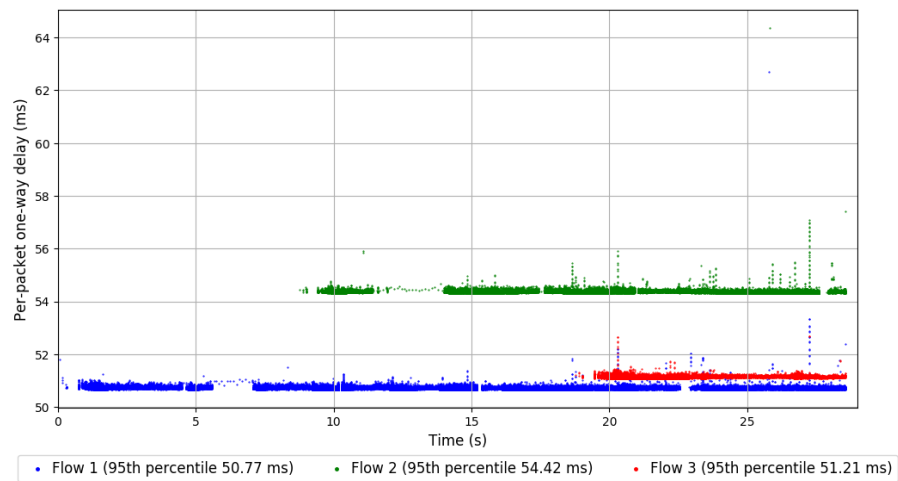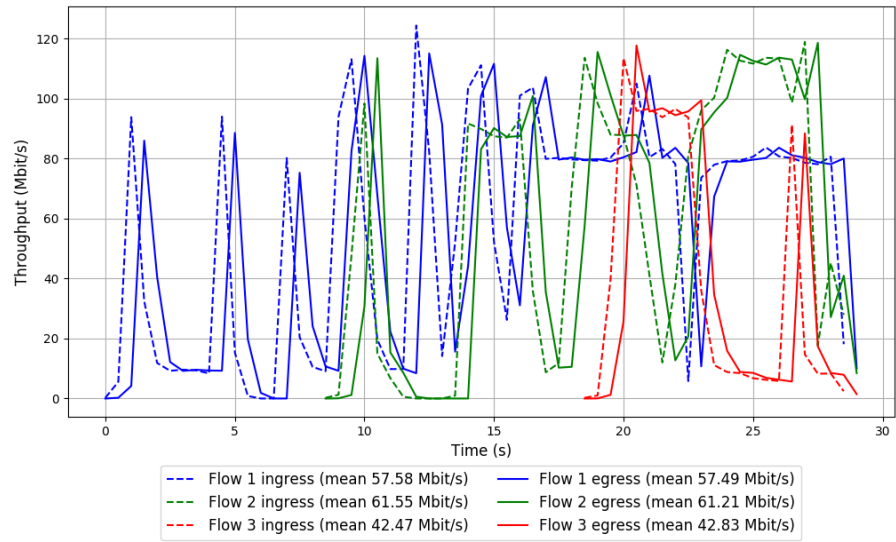Run 4: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 284.15 Mbit/s) — — — Flow 1 egress (mean 282.93 Mbit/s)
Flow 2 ingress (mean 311.09 Mbit/s) — — — Flow 2 egress (mean 306.01 Mbit/s)
Flow 3 ingress (mean 264.77 Mbit/s) — — — Flow 3 egress (mean 264.71 Mbit/s)

Flow 1 (95th percentile 140.64 ms)   Flow 2 (95th percentile 158.47 ms)   Flow 3 (95th percentile 108.97 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2018-09-08 09:45:55
End at: 2018-09-08 09:46:25
Local clock offset: 0.045 ms
Remote clock offset: -0.609 ms


# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 582.80 Mbit/s
95th percentile per-packet one-way delay: 121.268 ms
Loss rate: 1.73%
-- Flow 1:
Average throughput: 317.36 Mbit/s
95th percentile per-packet one-way delay: 112.363 ms
Loss rate: 1.22%
-- Flow 2:
Average throughput: 272.57 Mbit/s
95th percentile per-packet one-way delay: 108.163 ms
Loss rate: 1.66%
-- Flow 3:
Average throughput: 258.57 Mbit/s
95th percentile per-packet one-way delay: 182.702 ms
Loss rate: 3.74%
```
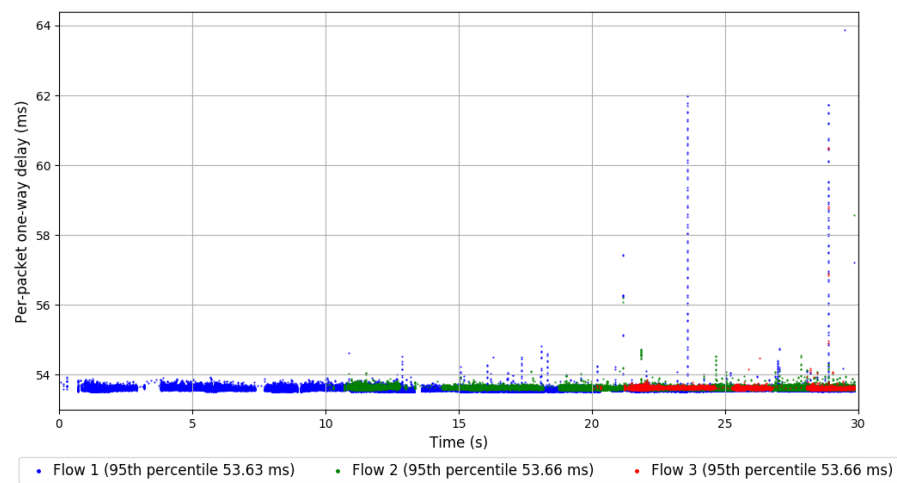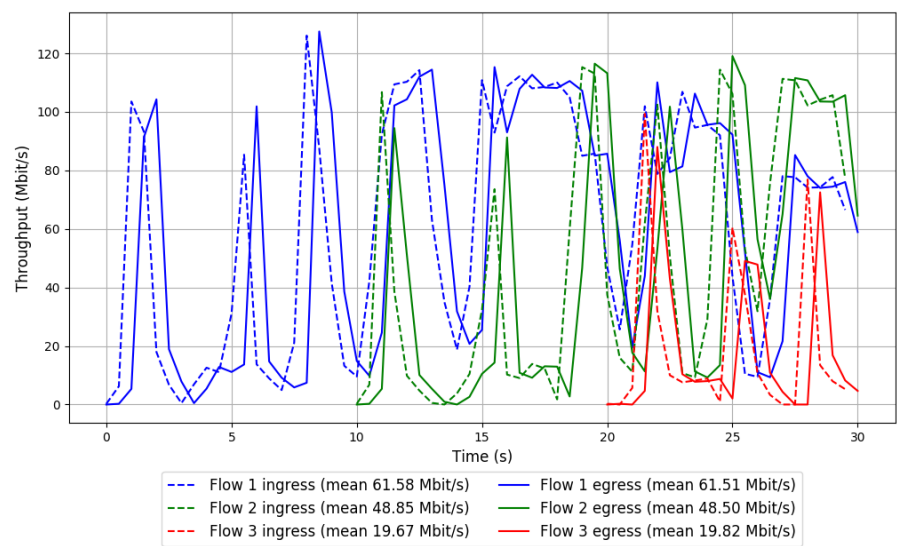
Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-09-08 07:37:37
End at: 2018-09-08 07:38:07
Local clock offset: -0.215 ms
Remote clock offset: -0.992 ms


# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 114.67 Mbit/s
95th percentile per-packet one-way delay: 54.390 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 57.49 Mbit/s
95th percentile per-packet one-way delay: 50.774 ms
Loss rate: 0.50%
-- Flow 2:
Average throughput: 61.21 Mbit/s
95th percentile per-packet one-way delay: 54.417 ms
Loss rate: 1.08%
-- Flow 3:
Average throughput: 42.83 Mbit/s
95th percentile per-packet one-way delay: 51.213 ms
Loss rate: 0.25%
```
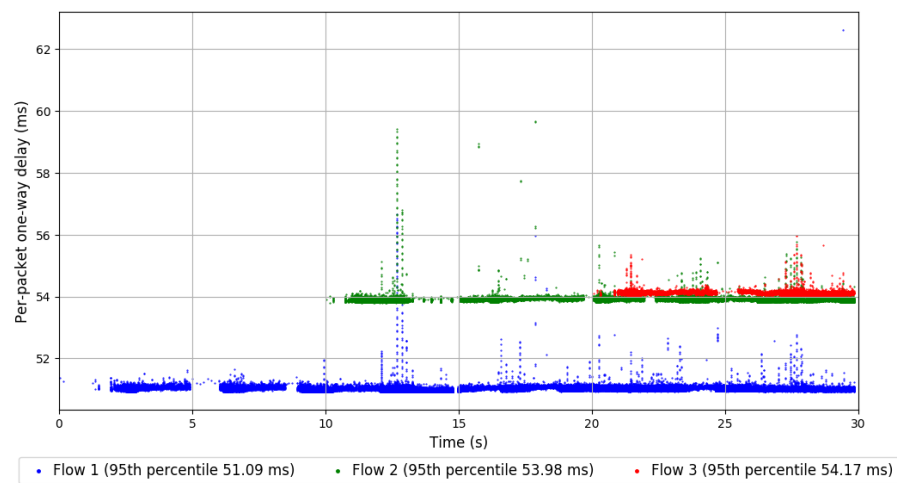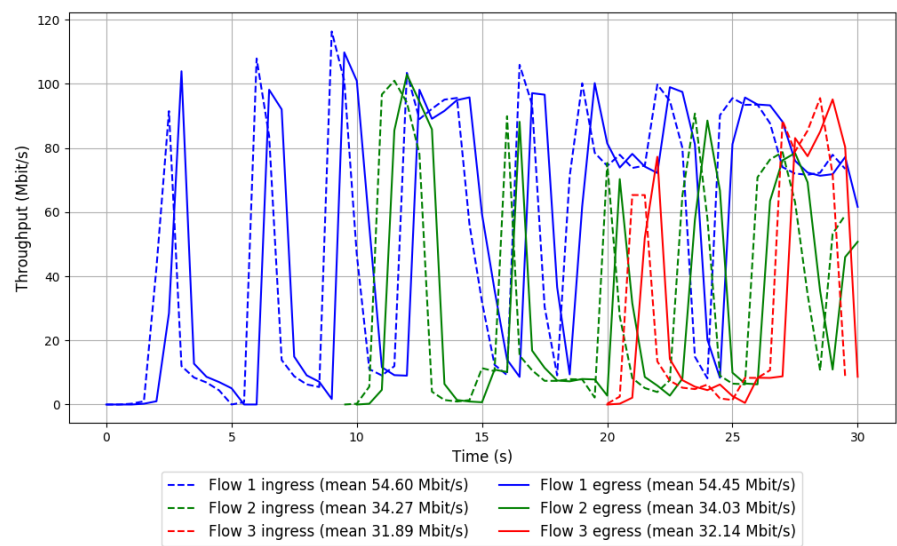
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-09-08 08:09:51
End at: 2018-09-08 08:10:21
Local clock offset: 0.071 ms
Remote clock offset: -0.188 ms


# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 100.23 Mbit/s
95th percentile per-packet one-way delay: 53.649 ms
Loss rate: 0.70%
-- Flow 1:
Average throughput: 61.51 Mbit/s
95th percentile per-packet one-way delay: 53.632 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 48.50 Mbit/s
95th percentile per-packet one-way delay: 53.661 ms
Loss rate: 1.24%
-- Flow 3:
Average throughput: 19.82 Mbit/s
95th percentile per-packet one-way delay: 53.655 ms
Loss rate: 0.34%
```

Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-09-08 08:41:58
End at: 2018-09-08 08:42:28
Local clock offset: 0.131 ms
Remote clock offset: -0.369 ms


# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.61 Mbit/s
95th percentile per-packet one-way delay: 54.104 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 54.45 Mbit/s
95th percentile per-packet one-way delay: 51.093 ms
Loss rate: 0.62%
-- Flow 2:
Average throughput: 34.03 Mbit/s
95th percentile per-packet one-way delay: 53.975 ms
Loss rate: 1.21%
-- Flow 3:
Average throughput: 32.14 Mbit/s
95th percentile per-packet one-way delay: 54.172 ms
Loss rate: 0.31%
```
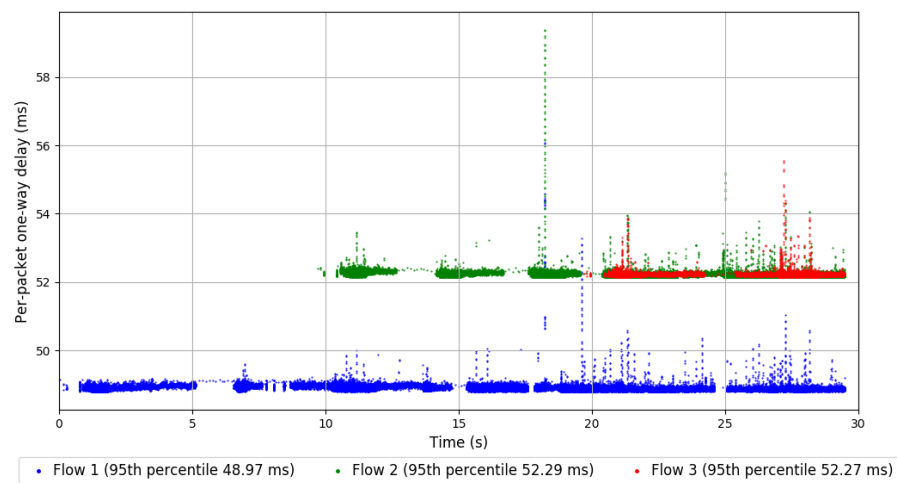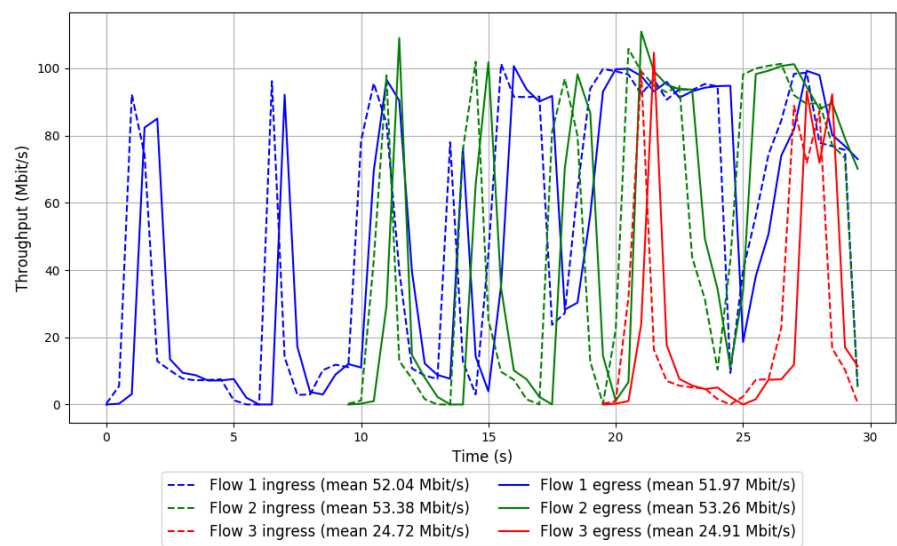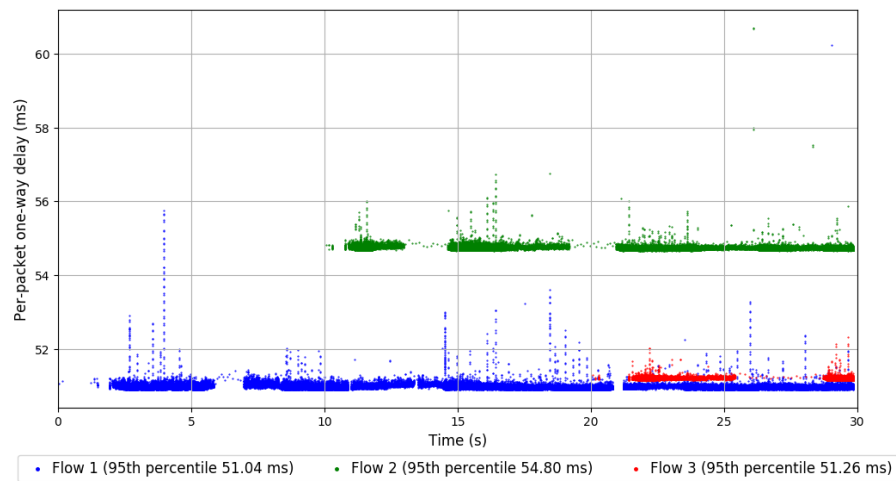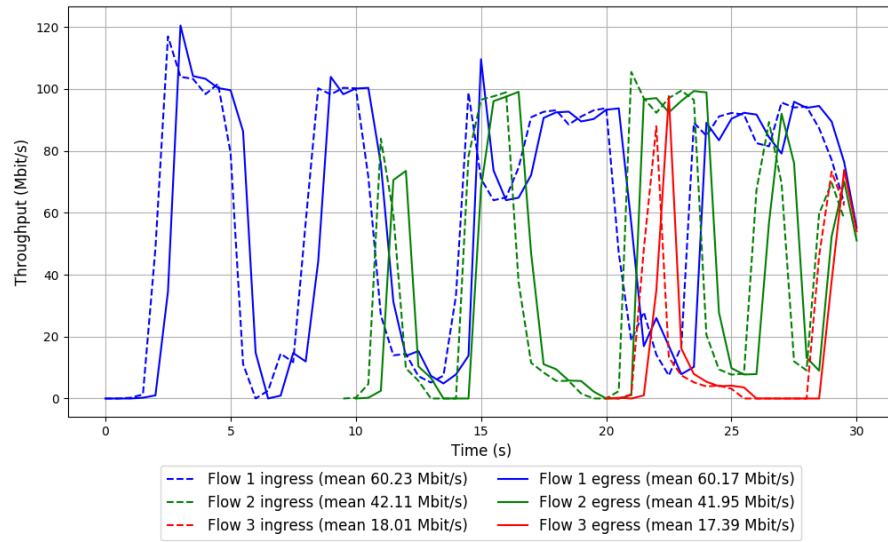
Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 54.60 Mbit/s) — Flow 1 egress (mean 54.45 Mbit/s)
Flow 2 ingress (mean 34.27 Mbit/s) — Flow 2 egress (mean 34.03 Mbit/s)
Flow 3 ingress (mean 31.89 Mbit/s) — Flow 3 egress (mean 32.14 Mbit/s)

Flow 1 (95th percentile 51.09 ms)   Flow 2 (95th percentile 53.98 ms)   Flow 3 (95th percentile 54.17 ms)

110

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-09-08 09:13:14
End at: 2018-09-08 09:13:44
Local clock offset: 0.078 ms
Remote clock offset: 1.298 ms


# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.02 Mbit/s
95th percentile per-packet one-way delay: 52.252 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 51.97 Mbit/s
95th percentile per-packet one-way delay: 48.968 ms
Loss rate: 0.49%
-- Flow 2:
Average throughput: 53.26 Mbit/s
95th percentile per-packet one-way delay: 52.289 ms
Loss rate: 0.75%
-- Flow 3:
Average throughput: 24.91 Mbit/s
95th percentile per-packet one-way delay: 52.271 ms
Loss rate: 0.32%
```
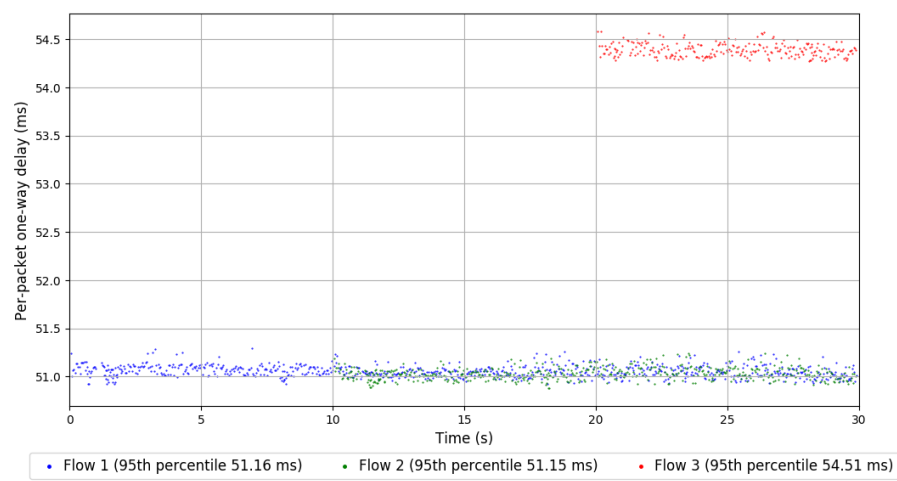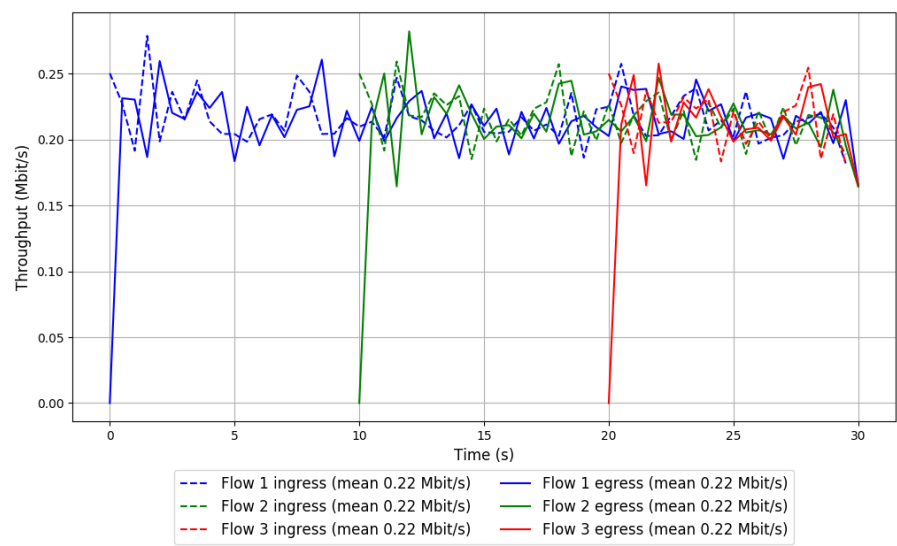
Run 4: Report of QUIC Cubic — Data Link

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-09-08 09:44:39
End at: 2018-09-08 09:45:09
Local clock offset: -0.027 ms
Remote clock offset: -1.199 ms


# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.76 Mbit/s
95th percentile per-packet one-way delay: 54.758 ms
Loss rate: 0.83%
-- Flow 1:
Average throughput: 60.17 Mbit/s
95th percentile per-packet one-way delay: 51.042 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 41.95 Mbit/s
95th percentile per-packet one-way delay: 54.800 ms
Loss rate: 0.90%
-- Flow 3:
Average throughput: 17.39 Mbit/s
95th percentile per-packet one-way delay: 51.263 ms
Loss rate: 4.46%
```

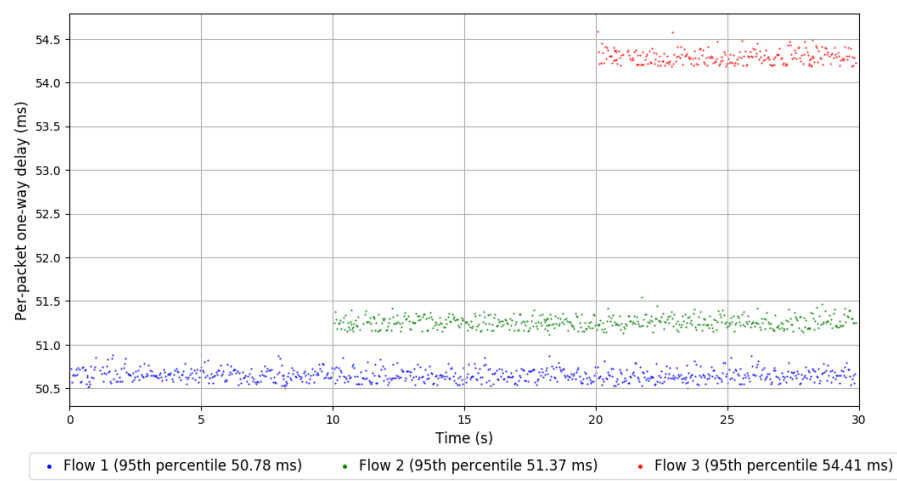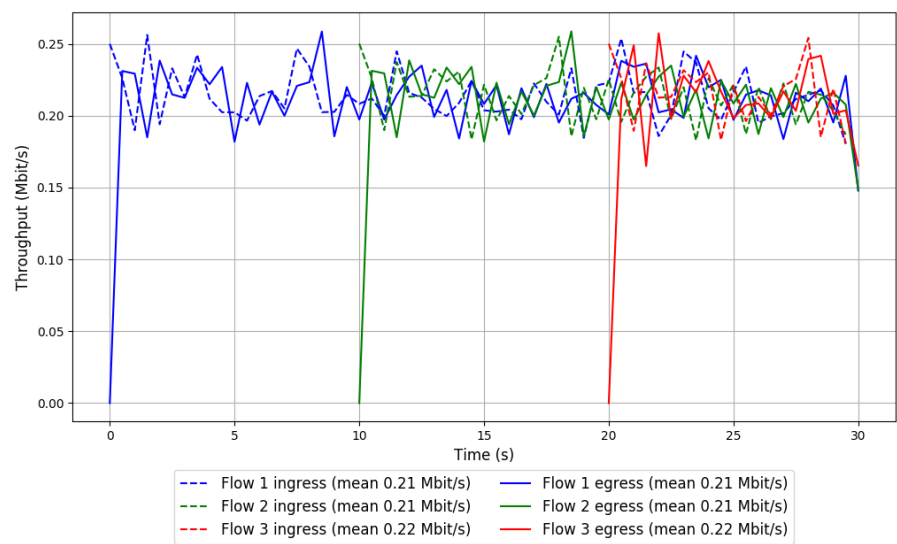Run 5: Report of QUIC Cubic — Data Link

```
Run 1: Statistics of SCReAM

Start at: 2018-09-08 07:55:37
End at: 2018-09-08 07:56:07
Local clock offset: 0.068 ms
Remote clock offset: -0.836 ms

# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 54.420 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 51.156 ms
Loss rate: 0.26%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 51.147 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 54.514 ms
Loss rate: 1.09%
```
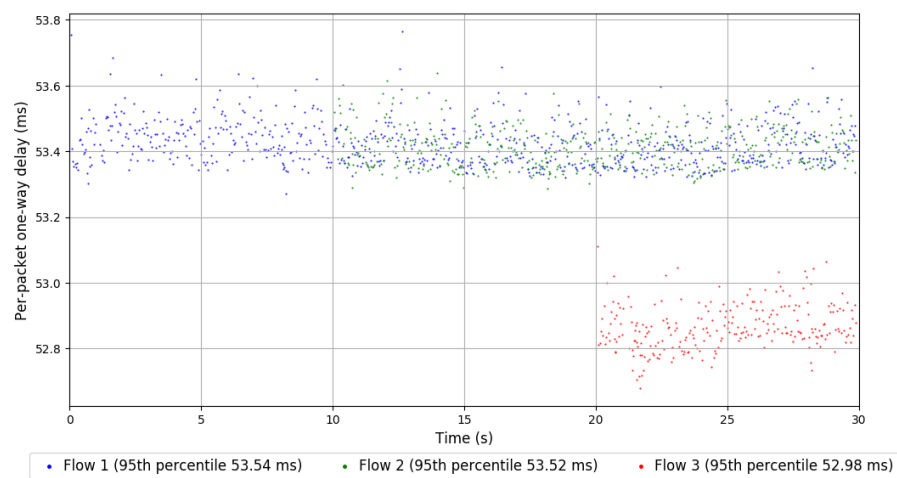
Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2018-09-08 08:27:59
End at: 2018-09-08 08:28:29
Local clock offset: -0.048 ms
Remote clock offset: -0.904 ms


# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 54.324 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 50.777 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 51.369 ms
Loss rate: 0.62%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 54.413 ms
Loss rate: 1.09%
```
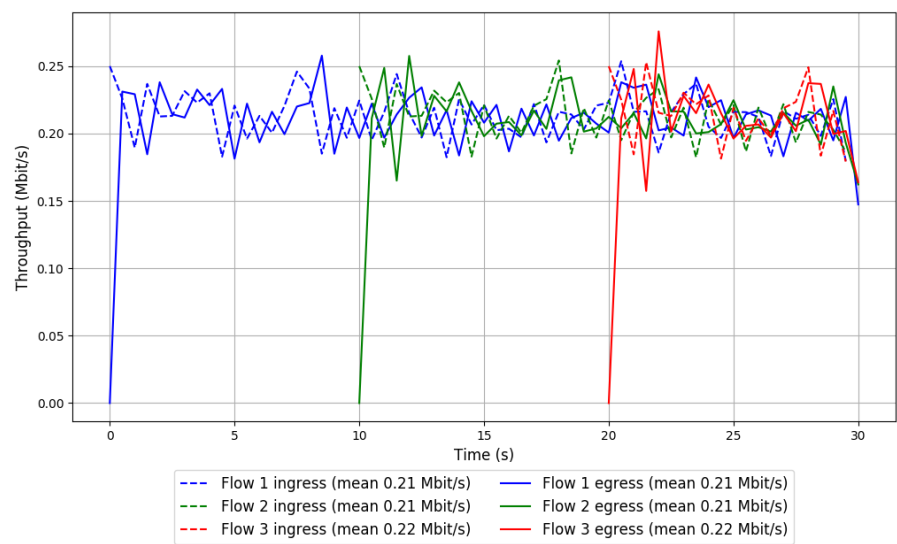
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-09-08 08:59:18
End at: 2018-09-08 08:59:48
Local clock offset: -0.019 ms
Remote clock offset: 0.145 ms


# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 53.529 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 53.542 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 53.523 ms
Loss rate: 0.62%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 52.983 ms
Loss rate: 1.09%
```
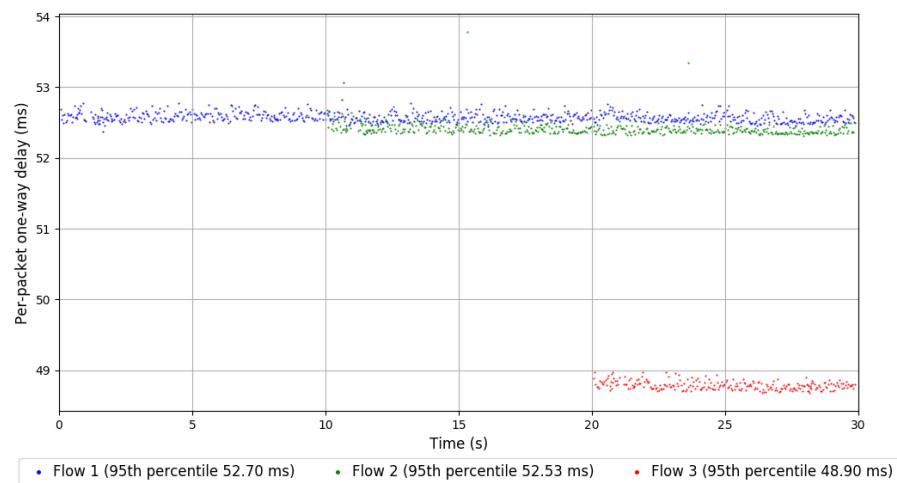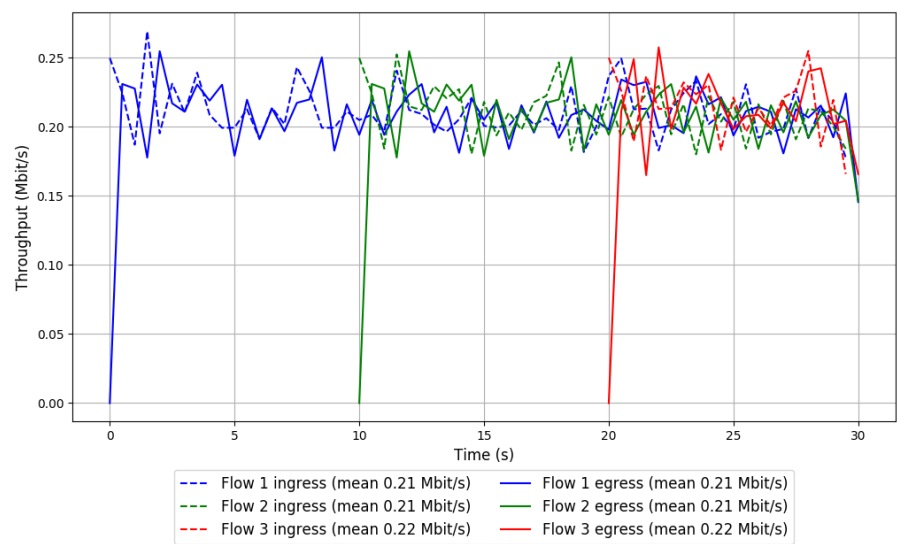
Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2018-09-08 09:30:38
End at: 2018-09-08 09:31:08
Local clock offset: -0.172 ms
Remote clock offset: 1.099 ms

# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 52.666 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 52.699 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 52.530 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 48.901 ms
Loss rate: 0.74%
```
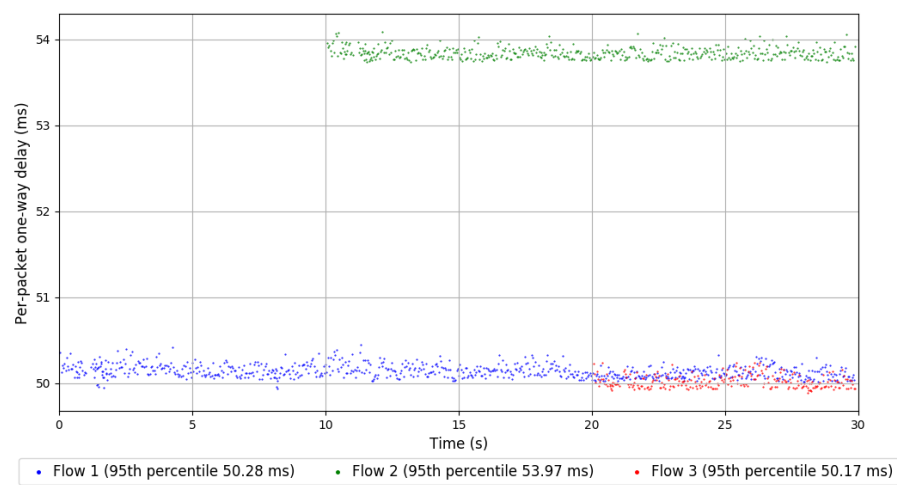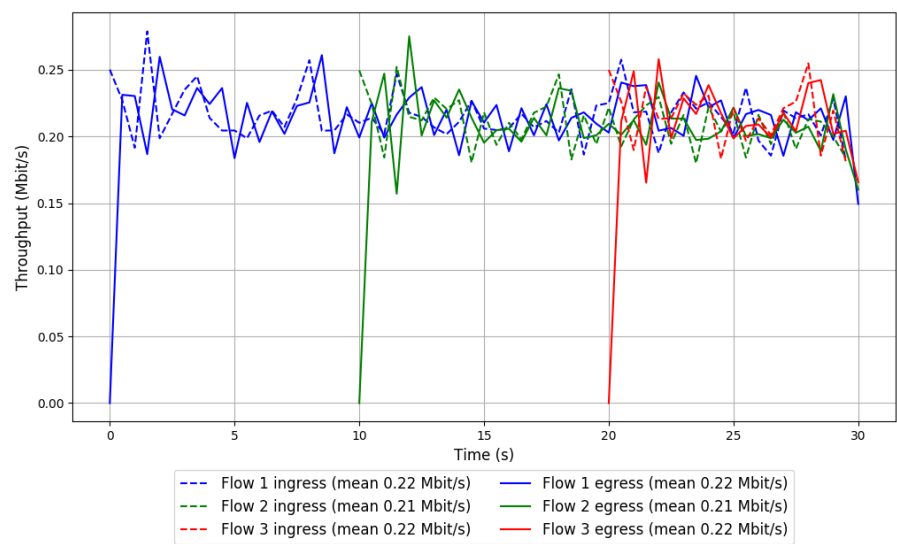
Run 4: Report of SCReAM — Data Link

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

Flow 1 (95th percentile 52.70 ms)   Flow 2 (95th percentile 52.53 ms)   Flow 3 (95th percentile 48.90 ms)

```
Run 5: Statistics of SCReAM

Start at: 2018-09-08 10:02:24
End at: 2018-09-08 10:02:54
Local clock offset: -0.113 ms
Remote clock offset: -0.287 ms


# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 53.901 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 50.281 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 53.965 ms
Loss rate: 0.61%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 50.166 ms
Loss rate: 1.09%
```
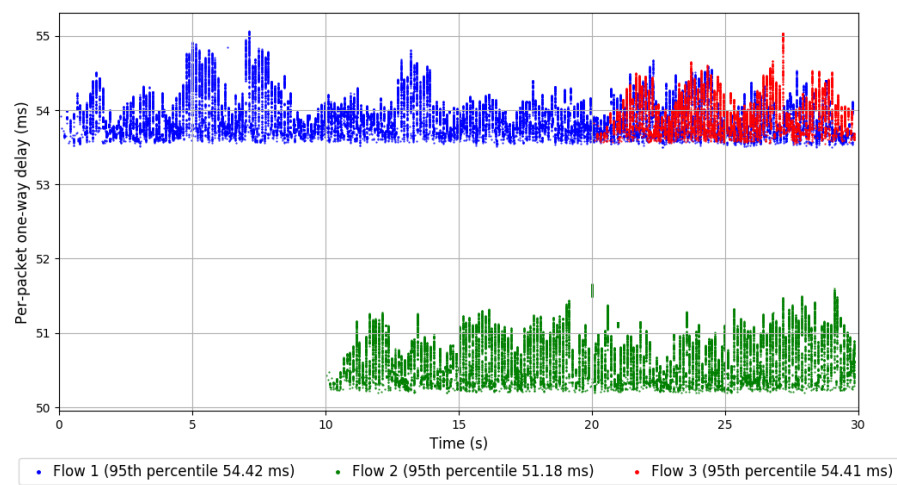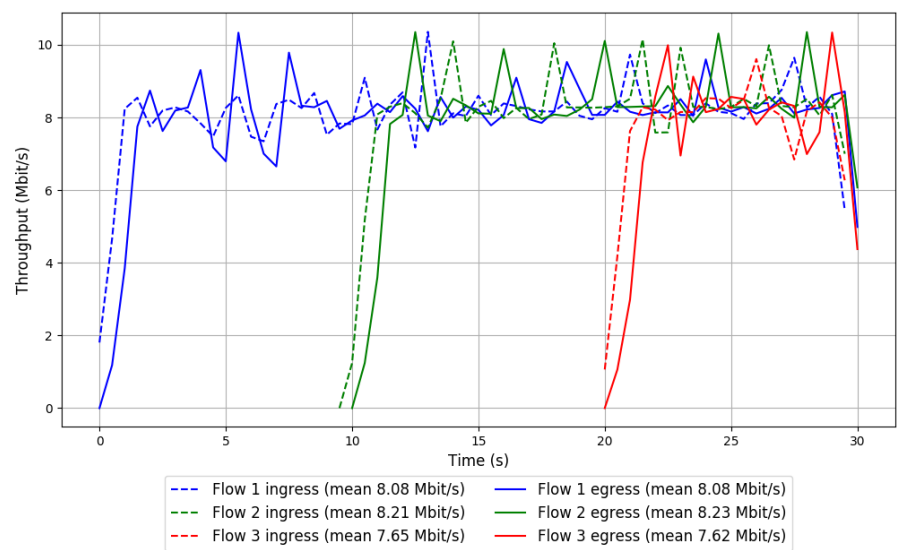
Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2018-09-08 07:49:10
End at: 2018-09-08 07:49:41
Local clock offset: -0.178 ms
Remote clock offset: -0.335 ms


# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.04 Mbit/s
95th percentile per-packet one-way delay: 54.349 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 8.08 Mbit/s
95th percentile per-packet one-way delay: 54.421 ms
Loss rate: 0.39%
-- Flow 2:
Average throughput: 8.23 Mbit/s
95th percentile per-packet one-way delay: 51.181 ms
Loss rate: 0.28%
-- Flow 3:
Average throughput: 7.62 Mbit/s
95th percentile per-packet one-way delay: 54.406 ms
Loss rate: 1.26%
```
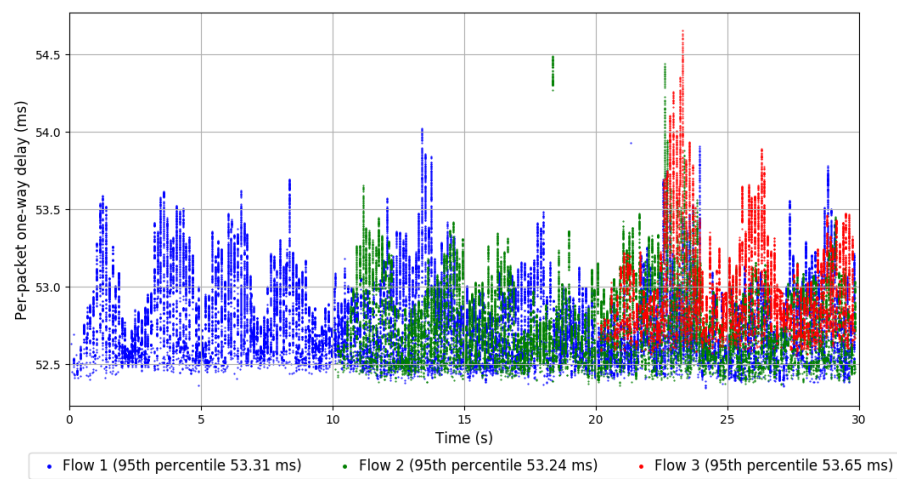
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-09-08 08:21:29
End at: 2018-09-08 08:21:59
Local clock offset: 0.275 ms
Remote clock offset: 1.199 ms


# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.07 Mbit/s
95th percentile per-packet one-way delay: 53.347 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 8.17 Mbit/s
95th percentile per-packet one-way delay: 53.306 ms
Loss rate: 0.42%
-- Flow 2:
Average throughput: 8.12 Mbit/s
95th percentile per-packet one-way delay: 53.243 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 7.68 Mbit/s
95th percentile per-packet one-way delay: 53.648 ms
Loss rate: 1.28%
```
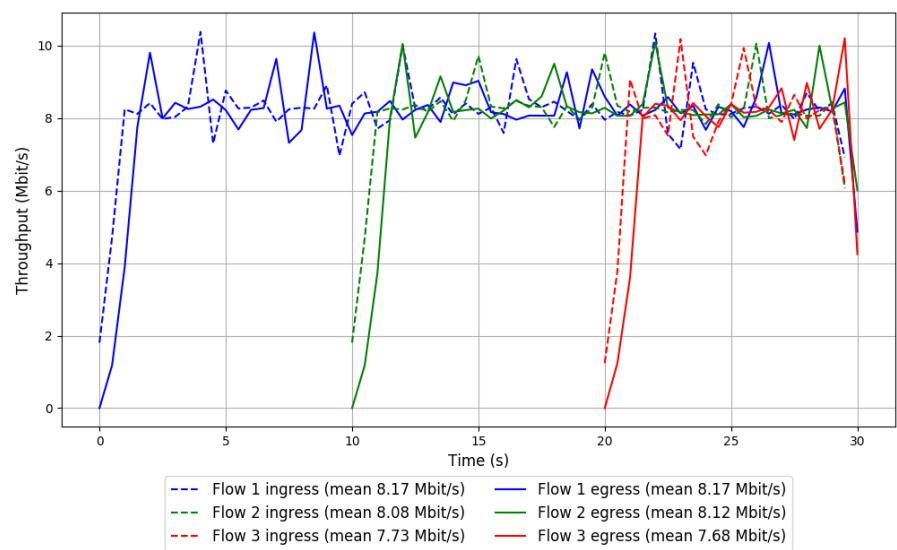
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-09-08 08:53:00
End at: 2018-09-08 08:53:30
Local clock offset: 0.059 ms
Remote clock offset: 0.182 ms


# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.18 Mbit/s
95th percentile per-packet one-way delay: 53.722 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 8.26 Mbit/s
95th percentile per-packet one-way delay: 50.898 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 8.10 Mbit/s
95th percentile per-packet one-way delay: 53.870 ms
Loss rate: 0.63%
-- Flow 3:
Average throughput: 7.77 Mbit/s
95th percentile per-packet one-way delay: 50.980 ms
Loss rate: 1.30%
```
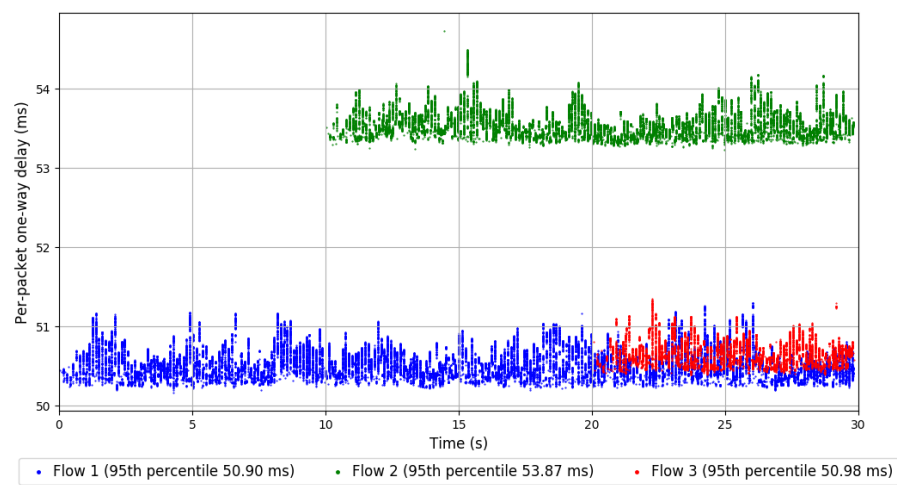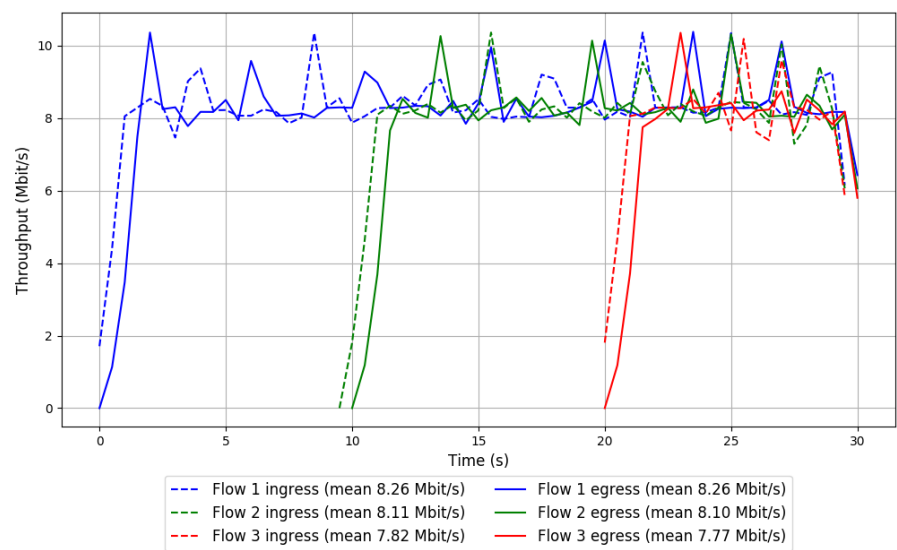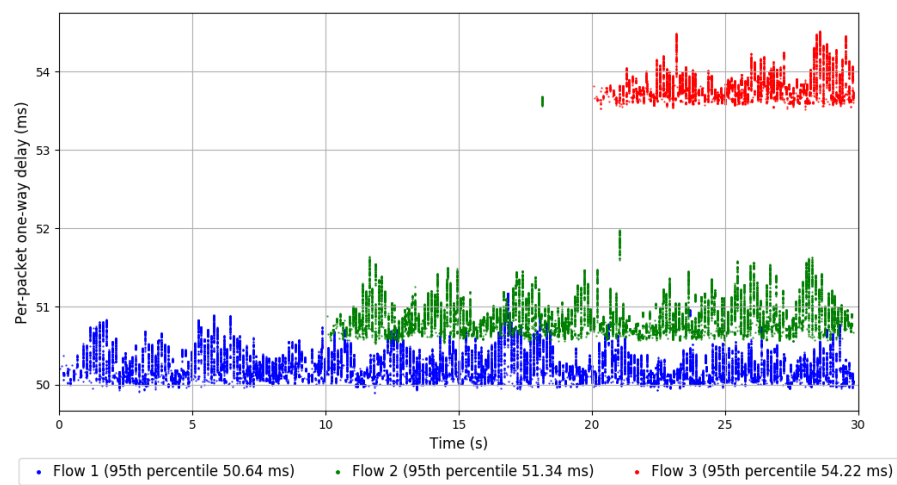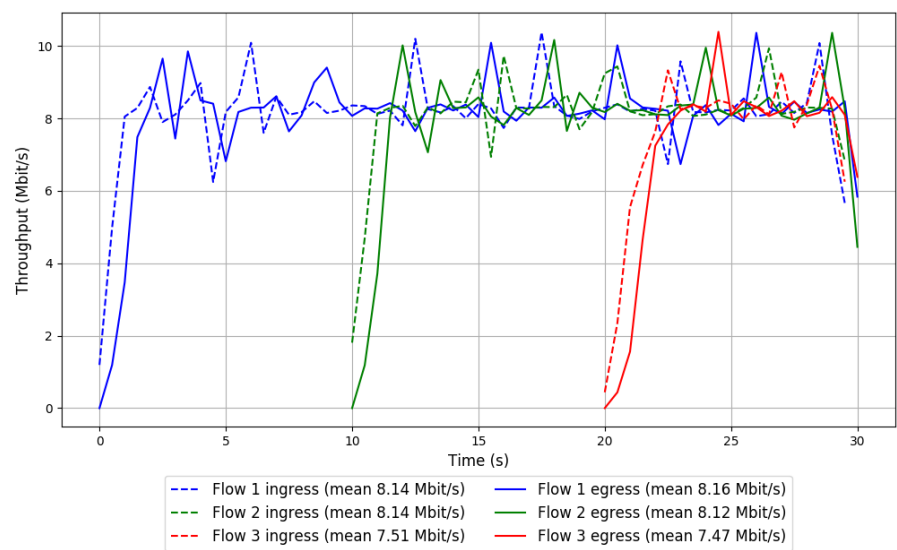
Run 3: Report of Sprout — Data Link

Flow 1 ingress (mean 8.26 Mbit/s) --- Flow 1 egress (mean 8.26 Mbit/s)
Flow 2 ingress (mean 8.11 Mbit/s) --- Flow 2 egress (mean 8.10 Mbit/s)
Flow 3 ingress (mean 7.82 Mbit/s) --- Flow 3 egress (mean 7.77 Mbit/s)

Flow 1 (95th percentile 50.90 ms) • Flow 2 (95th percentile 53.87 ms) • Flow 3 (95th percentile 50.98 ms)

```
Run 4: Statistics of Sprout

Start at: 2018-09-08 09:24:18
End at: 2018-09-08 09:24:48
Local clock offset: -0.154 ms
Remote clock offset: -0.272 ms


# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 15.99 Mbit/s
95th percentile per-packet one-way delay: 53.874 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 8.16 Mbit/s
95th percentile per-packet one-way delay: 50.641 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 8.12 Mbit/s
95th percentile per-packet one-way delay: 51.342 ms
Loss rate: 0.74%
-- Flow 3:
Average throughput: 7.47 Mbit/s
95th percentile per-packet one-way delay: 54.215 ms
Loss rate: 1.22%
```
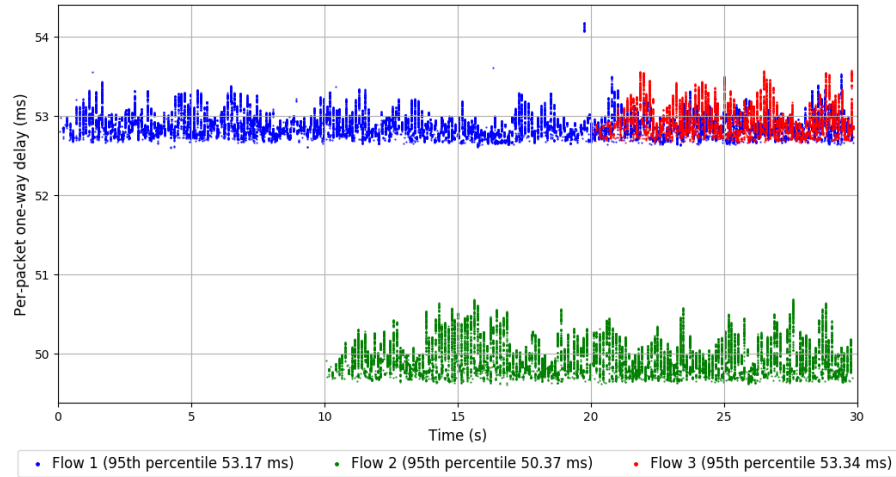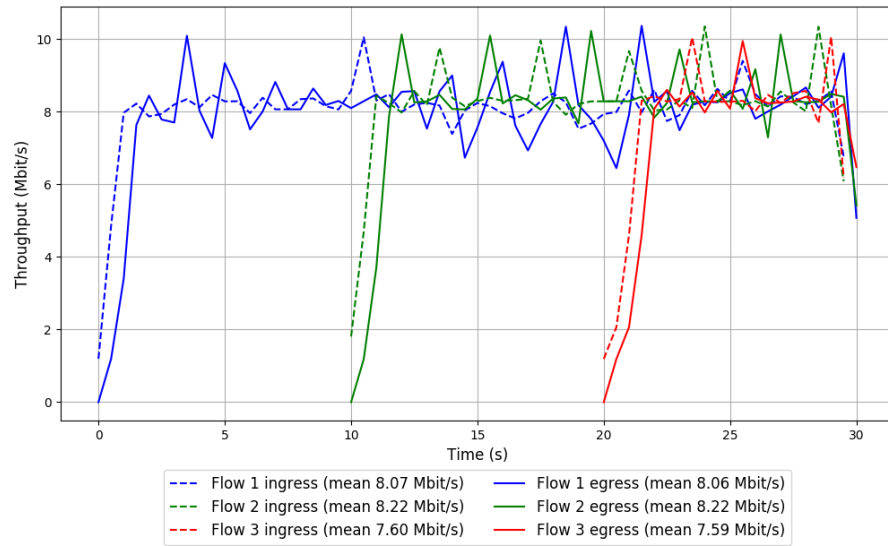
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-09-08 09:55:57
End at: 2018-09-08 09:56:27
Local clock offset: 0.005 ms
Remote clock offset: 0.478 ms


# Below is generated by plot.py at 2018-09-08 12:19:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.00 Mbit/s
95th percentile per-packet one-way delay: 53.171 ms
Loss rate: 0.67%
-- Flow 1:
Average throughput: 8.06 Mbit/s
95th percentile per-packet one-way delay: 53.170 ms
Loss rate: 0.50%
-- Flow 2:
Average throughput: 8.22 Mbit/s
95th percentile per-packet one-way delay: 50.373 ms
Loss rate: 0.69%
-- Flow 3:
Average throughput: 7.59 Mbit/s
95th percentile per-packet one-way delay: 53.337 ms
Loss rate: 1.19%
```
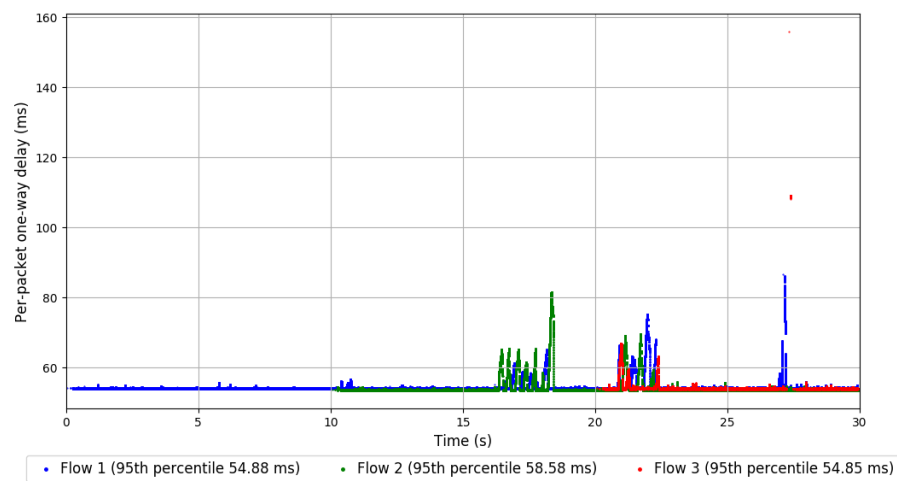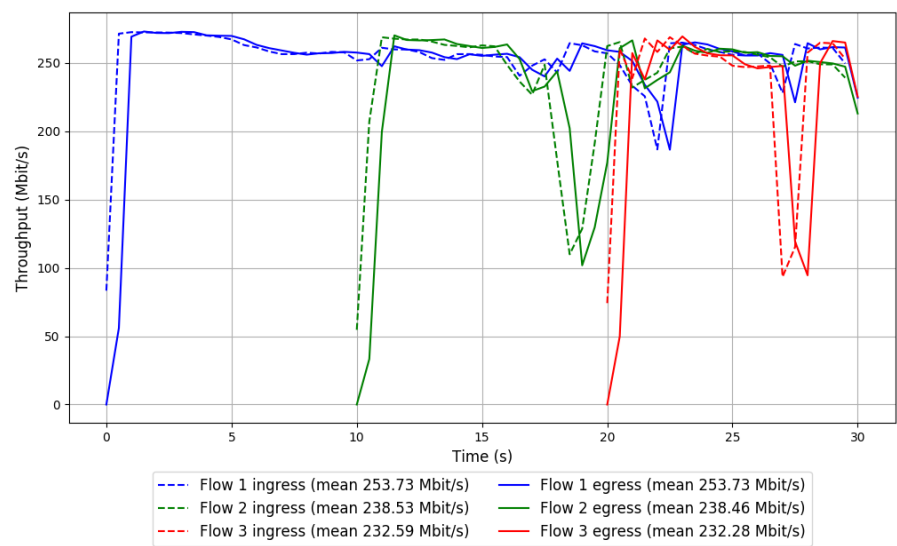
Run 5: Report of Sprout — Data Link

Flow 1 ingress (mean 8.07 Mbit/s)   Flow 1 egress (mean 8.06 Mbit/s)
Flow 2 ingress (mean 8.22 Mbit/s)   Flow 2 egress (mean 8.22 Mbit/s)
Flow 3 ingress (mean 7.60 Mbit/s)   Flow 3 egress (mean 7.59 Mbit/s)

Flow 1 (95th percentile 53.17 ms)   Flow 2 (95th percentile 50.37 ms)   Flow 3 (95th percentile 53.34 ms)

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

Start at: 2018-09-08 07:24:43
End at: 2018-09-08 07:25:13
Local clock offset: -0.084 ms
Remote clock offset: -0.533 ms

# Below is generated by plot.py at 2018-09-08 12:21:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 488.87 Mbit/s
95th percentile per-packet one-way delay: 55.683 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 253.73 Mbit/s
95th percentile per-packet one-way delay: 54.883 ms
Loss rate: 0.35%
-- Flow 2:
Average throughput: 238.46 Mbit/s
95th percentile per-packet one-way delay: 58.581 ms
Loss rate: 0.57%
-- Flow 3:
Average throughput: 232.28 Mbit/s
95th percentile per-packet one-way delay: 54.846 ms
Loss rate: 1.21%
```
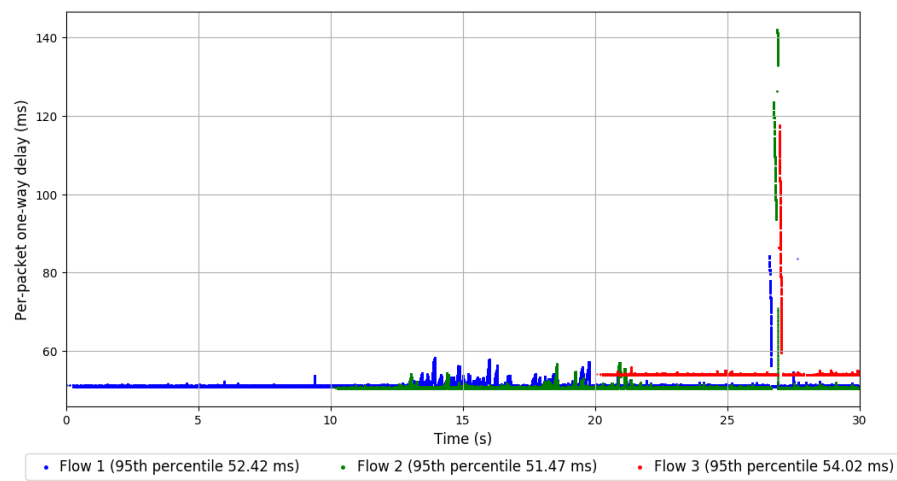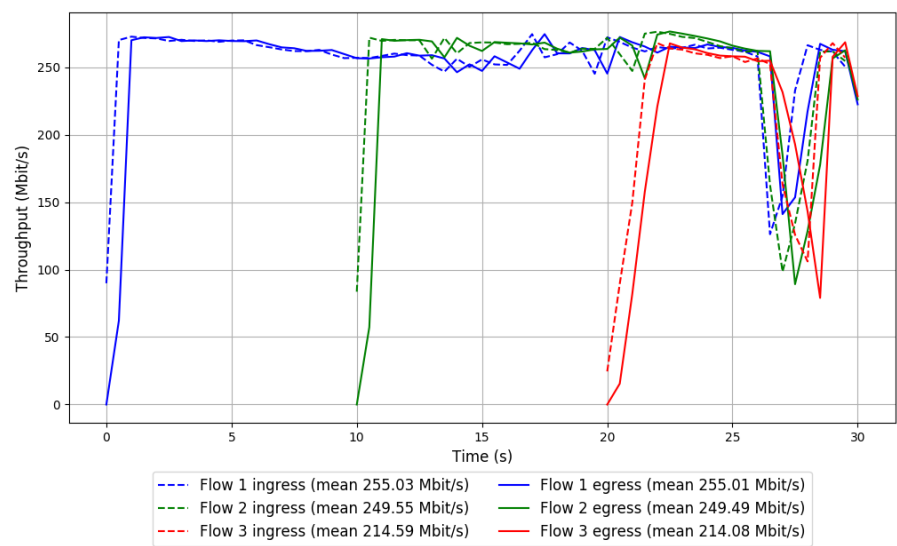
Run 1: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 253.73 Mbit/s)   Flow 1 egress (mean 253.73 Mbit/s)
Flow 2 ingress (mean 238.53 Mbit/s)   Flow 2 egress (mean 238.46 Mbit/s)
Flow 3 ingress (mean 232.59 Mbit/s)   Flow 3 egress (mean 232.28 Mbit/s)

Flow 1 (95th percentile 54.88 ms)   Flow 2 (95th percentile 58.58 ms)   Flow 3 (95th percentile 54.85 ms)

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

Start at: 2018-09-08 07:56:47
End at: 2018-09-08 07:57:17
Local clock offset: 0.219 ms
Remote clock offset: -0.272 ms


# Below is generated by plot.py at 2018-09-08 12:21:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 491.45 Mbit/s
95th percentile per-packet one-way delay: 53.930 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 255.01 Mbit/s
95th percentile per-packet one-way delay: 52.418 ms
Loss rate: 0.35%
-- Flow 2:
Average throughput: 249.49 Mbit/s
95th percentile per-packet one-way delay: 51.471 ms
Loss rate: 0.55%
-- Flow 3:
Average throughput: 214.08 Mbit/s
95th percentile per-packet one-way delay: 54.025 ms
Loss rate: 1.32%
```
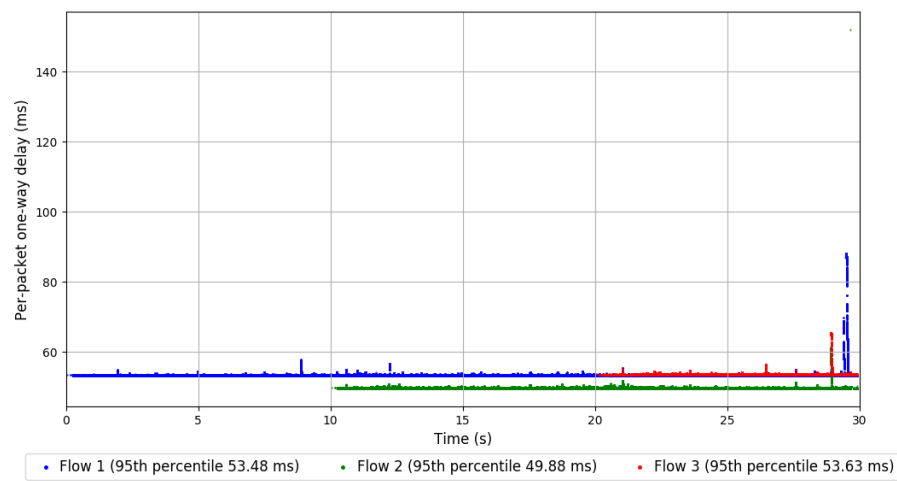
Run 2: Report of TaoVA-100x — Data Link

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

Start at: 2018-09-08 08:29:10
End at: 2018-09-08 08:29:40
Local clock offset: 0.054 ms
Remote clock offset: 0.007 ms

# Below is generated by plot.py at 2018-09-08 12:21:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 480.62 Mbit/s
95th percentile per-packet one-way delay: 53.562 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 243.41 Mbit/s
95th percentile per-packet one-way delay: 53.482 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 243.58 Mbit/s
95th percentile per-packet one-way delay: 49.881 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 227.96 Mbit/s
95th percentile per-packet one-way delay: 53.627 ms
Loss rate: 1.21%
```
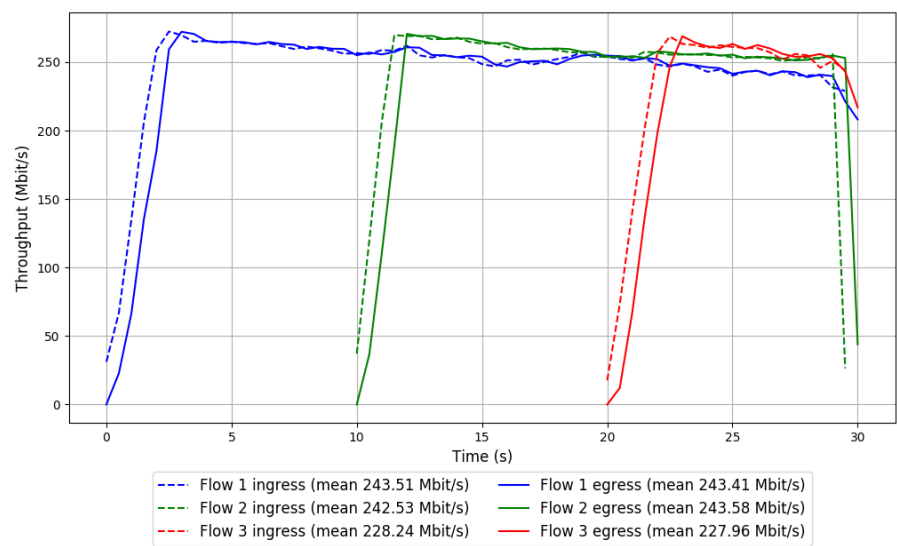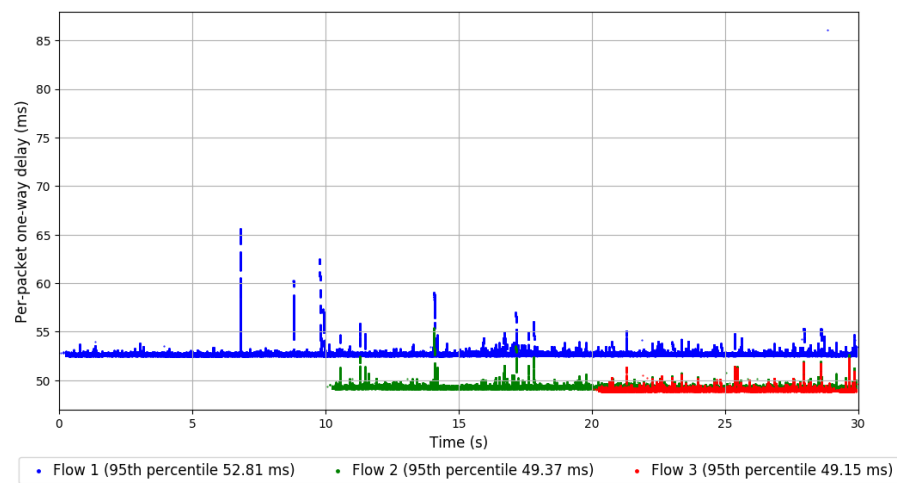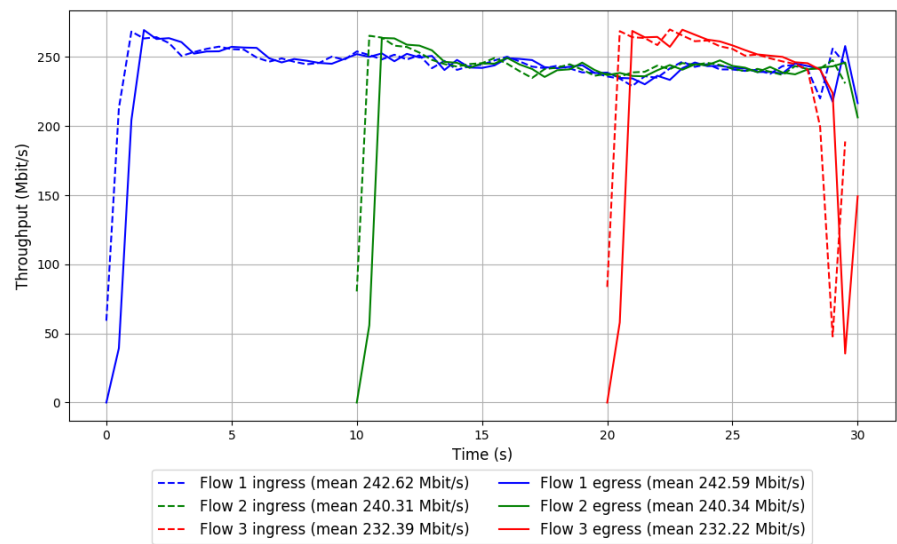
Run 3: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 243.51 Mbit/s) --- Flow 1 egress (mean 243.41 Mbit/s)
Flow 2 ingress (mean 242.53 Mbit/s) --- Flow 2 egress (mean 243.58 Mbit/s)
Flow 3 ingress (mean 228.24 Mbit/s) --- Flow 3 egress (mean 227.96 Mbit/s)

Flow 1 (95th percentile 53.48 ms) · Flow 2 (95th percentile 49.88 ms) · Flow 3 (95th percentile 53.63 ms)

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

Start at: 2018-09-08 09:00:28
End at: 2018-09-08 09:00:58
Local clock offset: -0.199 ms
Remote clock offset: 0.593 ms

# Below is generated by plot.py at 2018-09-08 12:22:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 479.08 Mbit/s
95th percentile per-packet one-way delay: 52.715 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 242.59 Mbit/s
95th percentile per-packet one-way delay: 52.809 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 240.34 Mbit/s
95th percentile per-packet one-way delay: 49.372 ms
Loss rate: 0.51%
-- Flow 3:
Average throughput: 232.22 Mbit/s
95th percentile per-packet one-way delay: 49.148 ms
Loss rate: 1.12%
```
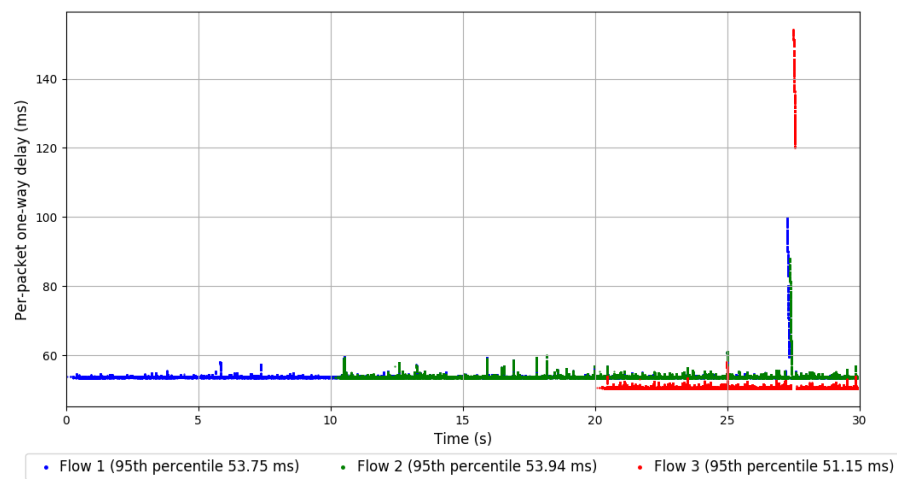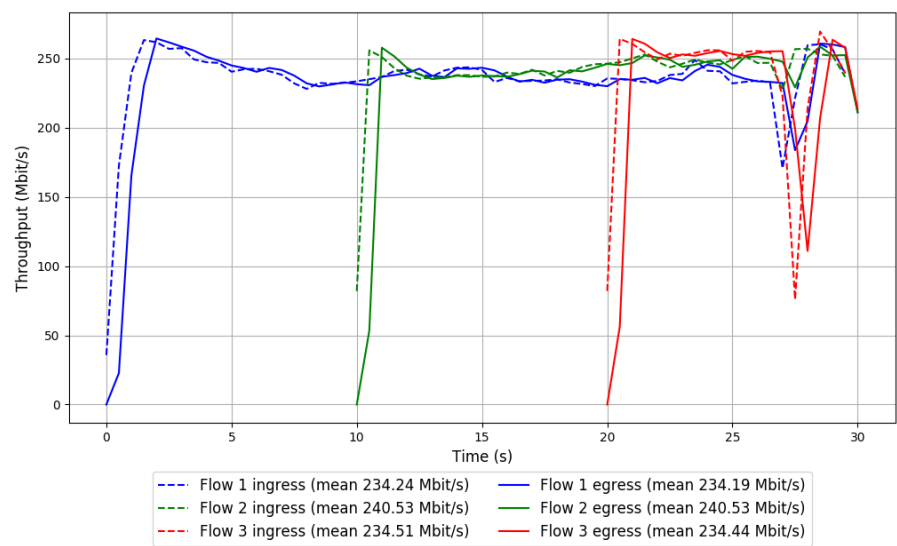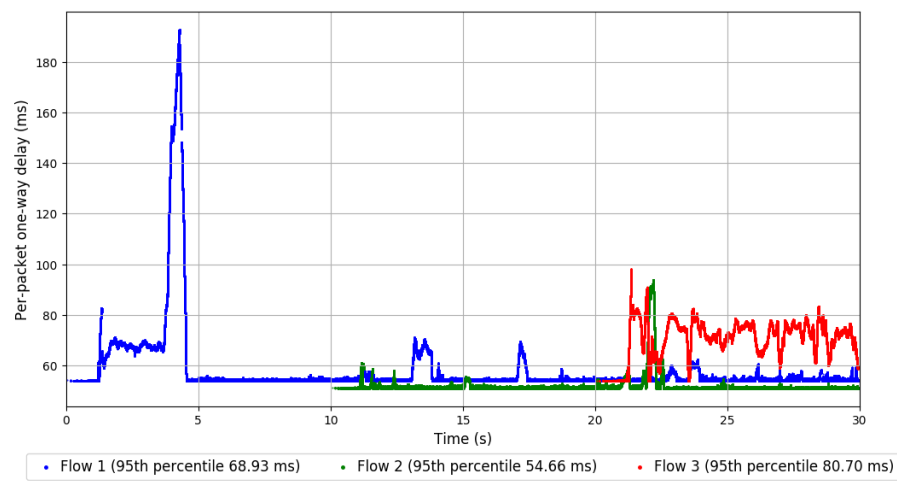
Run 4: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 242.62 Mbit/s) Flow 1 egress (mean 242.59 Mbit/s)
Flow 2 ingress (mean 240.31 Mbit/s) Flow 2 egress (mean 240.34 Mbit/s)
Flow 3 ingress (mean 232.39 Mbit/s) Flow 3 egress (mean 232.22 Mbit/s)

Flow 1 (95th percentile 52.81 ms) Flow 2 (95th percentile 49.37 ms) Flow 3 (95th percentile 49.15 ms)

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

Start at: 2018-09-08 09:31:48
End at: 2018-09-08 09:32:18
Local clock offset: -0.28 ms
Remote clock offset: -0.321 ms


# Below is generated by plot.py at 2018-09-08 12:23:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 471.53 Mbit/s
95th percentile per-packet one-way delay: 53.773 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 234.19 Mbit/s
95th percentile per-packet one-way delay: 53.752 ms
Loss rate: 0.39%
-- Flow 2:
Average throughput: 240.53 Mbit/s
95th percentile per-packet one-way delay: 53.943 ms
Loss rate: 0.55%
-- Flow 3:
Average throughput: 234.44 Mbit/s
95th percentile per-packet one-way delay: 51.151 ms
Loss rate: 1.10%
```

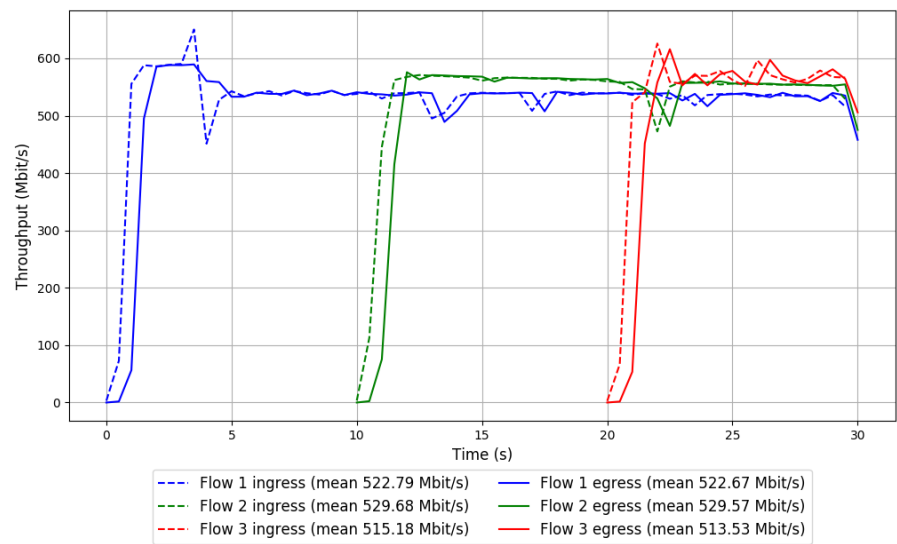Run 5: Report of TaoVA-100x — Data Link

- - - Flow 1 ingress (mean 234.24 Mbit/s) —— Flow 1 egress (mean 234.19 Mbit/s)
- - - Flow 2 ingress (mean 240.53 Mbit/s) —— Flow 2 egress (mean 240.53 Mbit/s)
- - - Flow 3 ingress (mean 234.51 Mbit/s) —— Flow 3 egress (mean 234.44 Mbit/s)

- Flow 1 (95th percentile 53.75 ms)   • Flow 2 (95th percentile 53.94 ms)   • Flow 3 (95th percentile 51.15 ms)

```
Run 1: Statistics of TCP Vegas

Start at: 2018-09-08 07:35:37
End at: 2018-09-08 07:36:07
Local clock offset: -0.093 ms
Remote clock offset: -0.696 ms


# Below is generated by plot.py at 2018-09-08 12:27:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1044.44 Mbit/s
95th percentile per-packet one-way delay: 76.746 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 522.67 Mbit/s
95th percentile per-packet one-way delay: 68.927 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 529.57 Mbit/s
95th percentile per-packet one-way delay: 54.665 ms
Loss rate: 0.52%
-- Flow 3:
Average throughput: 513.53 Mbit/s
95th percentile per-packet one-way delay: 80.696 ms
Loss rate: 1.39%
```
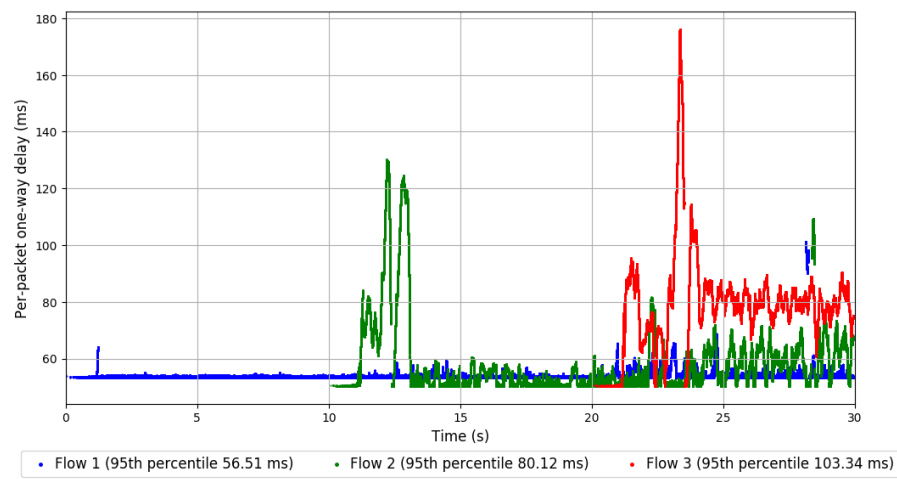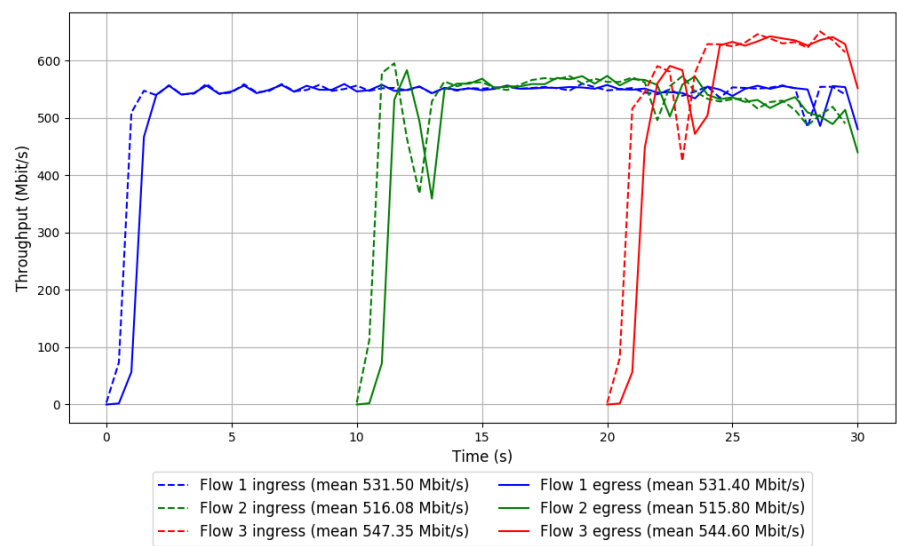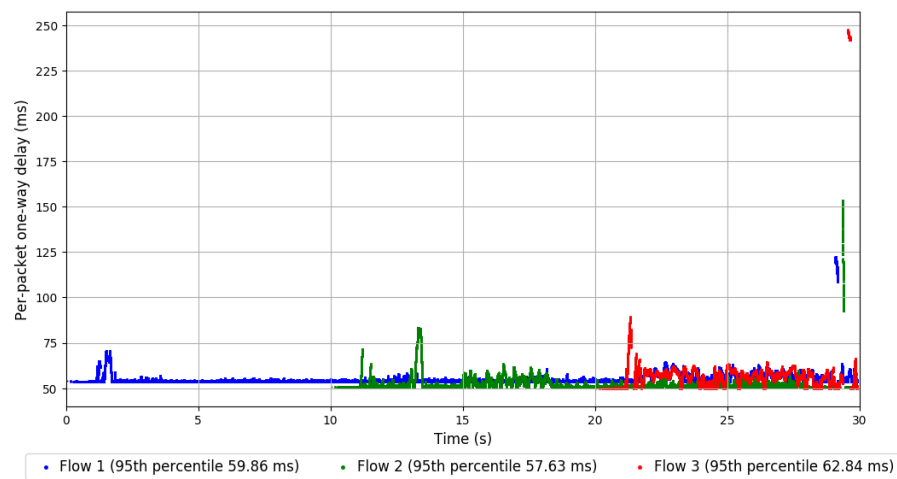
Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-09-08 08:07:49
End at: 2018-09-08 08:08:19
Local clock offset: 0.153 ms
Remote clock offset: 0.078 ms


# Below is generated by plot.py at 2018-09-08 12:35:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1054.13 Mbit/s
95th percentile per-packet one-way delay: 85.034 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 531.40 Mbit/s
95th percentile per-packet one-way delay: 56.507 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 515.80 Mbit/s
95th percentile per-packet one-way delay: 80.121 ms
Loss rate: 0.56%
-- Flow 3:
Average throughput: 544.60 Mbit/s
95th percentile per-packet one-way delay: 103.343 ms
Loss rate: 1.54%
```
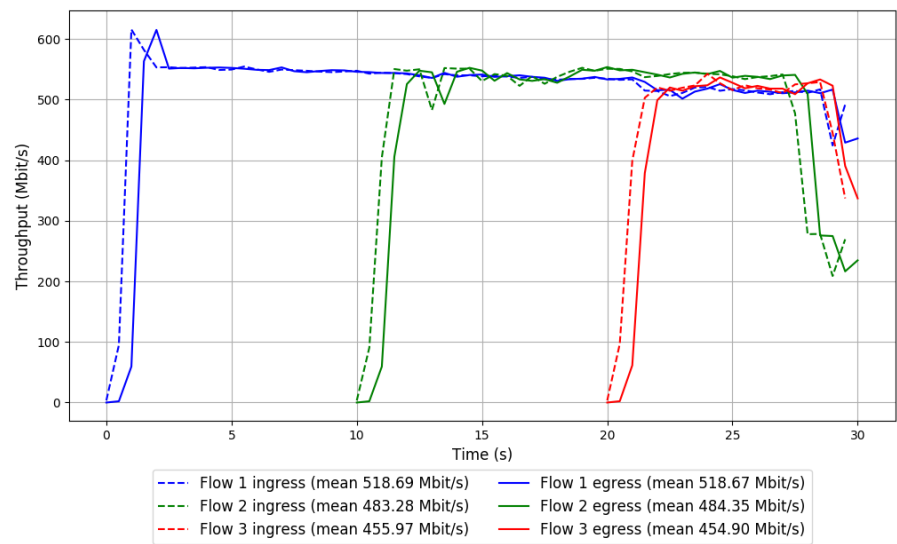
Run 2: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 531.50 Mbit/s) --- Flow 1 egress (mean 531.40 Mbit/s)
Flow 2 ingress (mean 516.08 Mbit/s) --- Flow 2 egress (mean 515.80 Mbit/s)
Flow 3 ingress (mean 547.35 Mbit/s) --- Flow 3 egress (mean 544.60 Mbit/s)

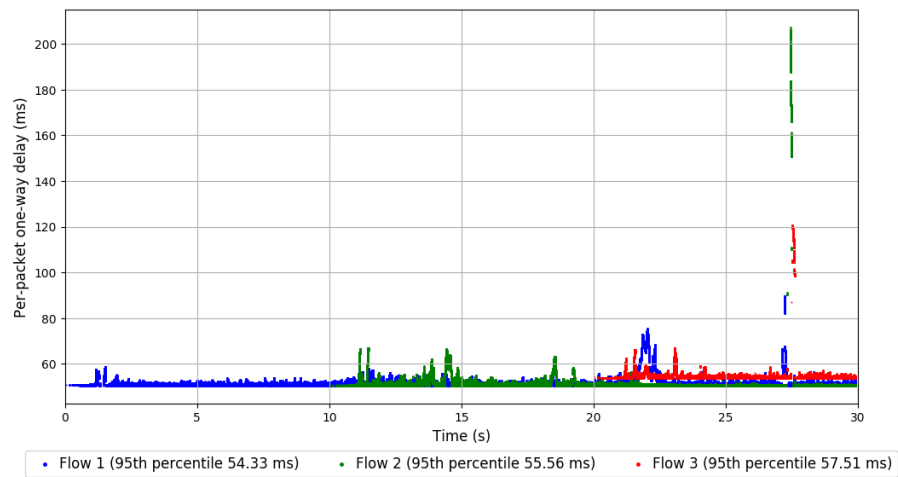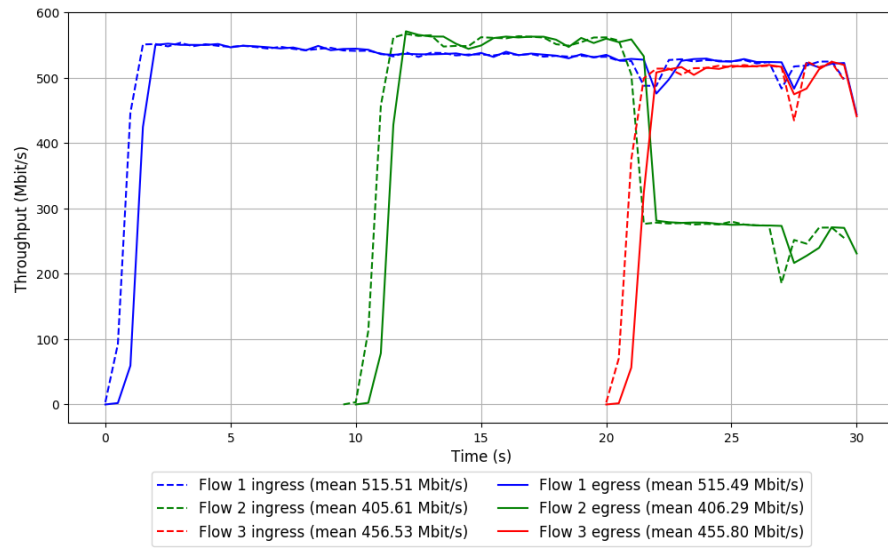Flow 1 (95th percentile 56.51 ms) • Flow 2 (95th percentile 80.12 ms) • Flow 3 (95th percentile 103.34 ms)
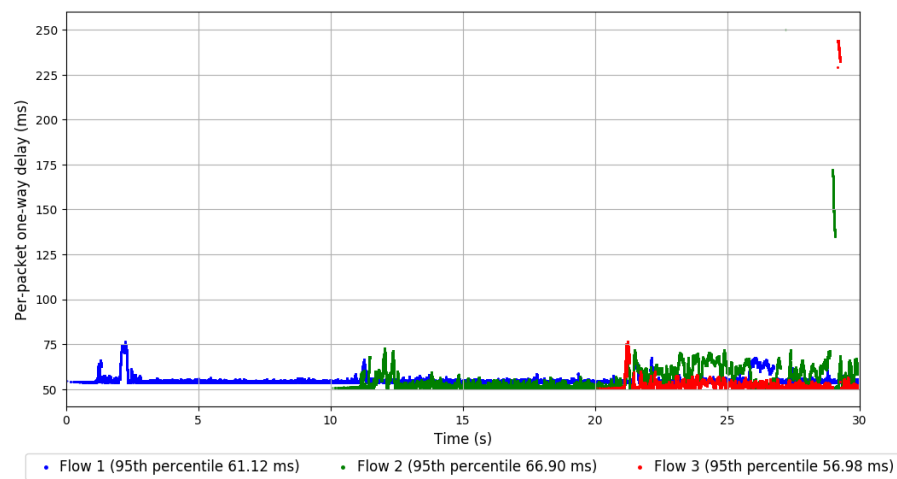
```
Run 3: Statistics of TCP Vegas

Start at: 2018-09-08 08:39:59
End at: 2018-09-08 08:40:29
Local clock offset: 0.022 ms
Remote clock offset: -0.192 ms


# Below is generated by plot.py at 2018-09-08 12:35:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 991.23 Mbit/s
95th percentile per-packet one-way delay: 60.297 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 518.67 Mbit/s
95th percentile per-packet one-way delay: 59.859 ms
Loss rate: 0.35%
-- Flow 2:
Average throughput: 484.35 Mbit/s
95th percentile per-packet one-way delay: 57.627 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 454.90 Mbit/s
95th percentile per-packet one-way delay: 62.837 ms
Loss rate: 1.26%
```

Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 518.69 Mbit/s) --- Flow 1 egress (mean 518.67 Mbit/s)
Flow 2 ingress (mean 483.28 Mbit/s) --- Flow 2 egress (mean 484.35 Mbit/s)
Flow 3 ingress (mean 455.97 Mbit/s) --- Flow 3 egress (mean 454.90 Mbit/s)

Flow 1 (95th percentile 59.86 ms) • Flow 2 (95th percentile 57.63 ms) • Flow 3 (95th percentile 62.84 ms)
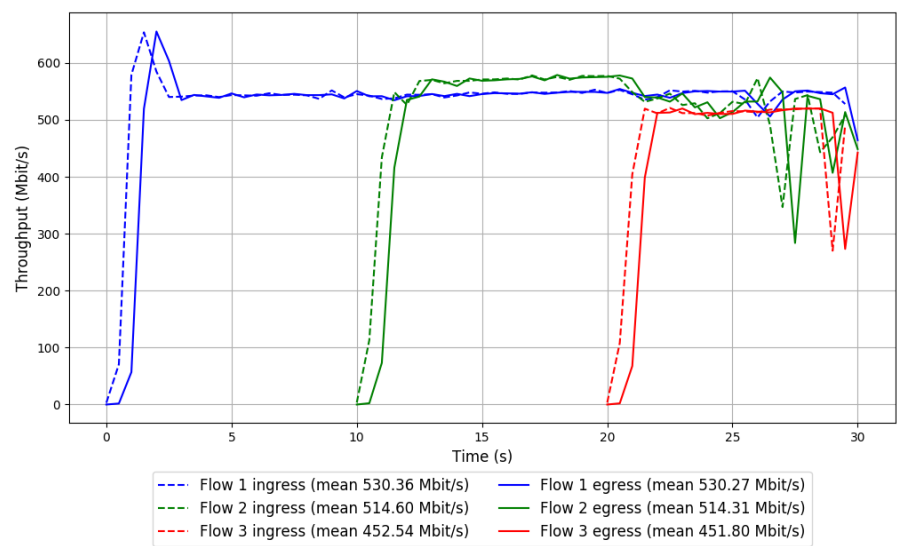
```
Run 4: Statistics of TCP Vegas

Start at: 2018-09-08 09:11:17
End at: 2018-09-08 09:11:47
Local clock offset: -0.046 ms
Remote clock offset: -0.275 ms


# Below is generated by plot.py at 2018-09-08 12:36:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 936.33 Mbit/s
95th percentile per-packet one-way delay: 55.499 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 515.49 Mbit/s
95th percentile per-packet one-way delay: 54.329 ms
Loss rate: 0.35%
-- Flow 2:
Average throughput: 406.29 Mbit/s
95th percentile per-packet one-way delay: 55.560 ms
Loss rate: 0.34%
-- Flow 3:
Average throughput: 455.80 Mbit/s
95th percentile per-packet one-way delay: 57.509 ms
Loss rate: 1.23%
```

Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2018-09-08 09:42:38
End at: 2018-09-08 09:43:08
Local clock offset: 0.092 ms
Remote clock offset: -0.349 ms


# Below is generated by plot.py at 2018-09-08 12:37:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1021.35 Mbit/s
95th percentile per-packet one-way delay: 64.511 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 530.27 Mbit/s
95th percentile per-packet one-way delay: 61.122 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 514.31 Mbit/s
95th percentile per-packet one-way delay: 66.900 ms
Loss rate: 0.57%
-- Flow 3:
Average throughput: 451.80 Mbit/s
95th percentile per-packet one-way delay: 56.985 ms
Loss rate: 1.17%
```
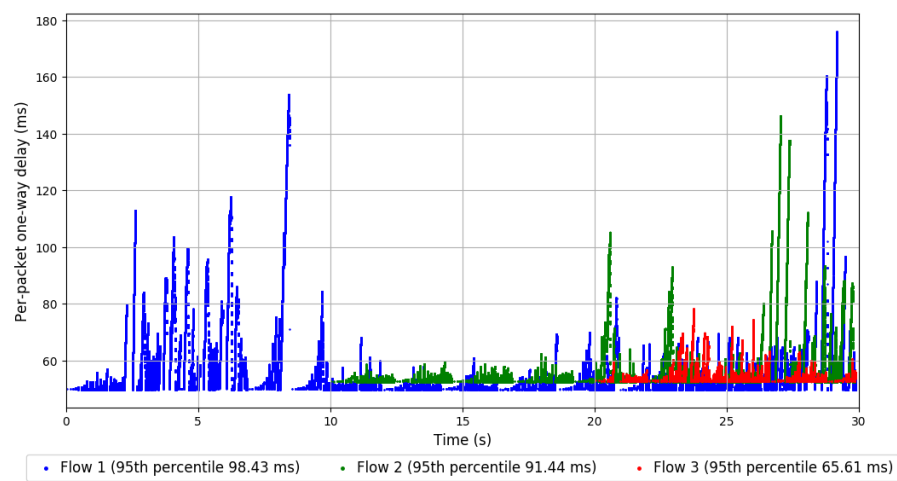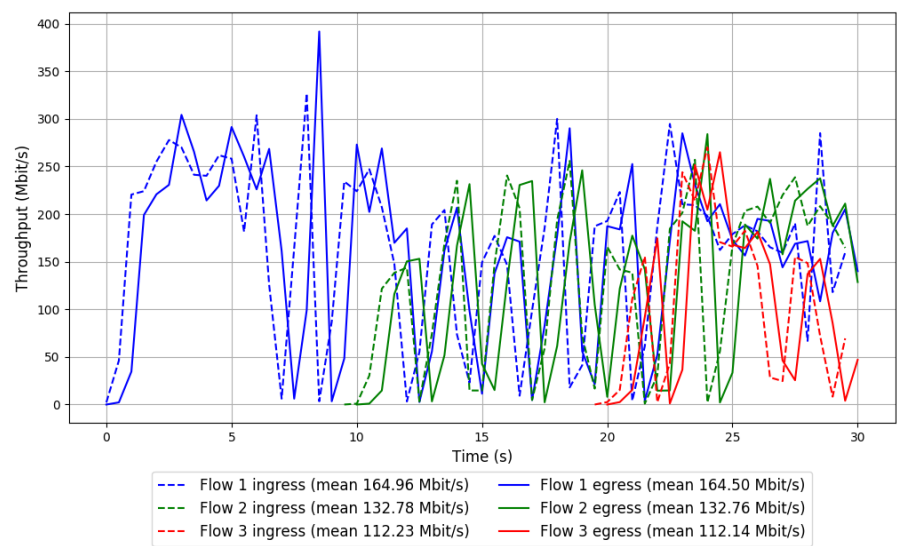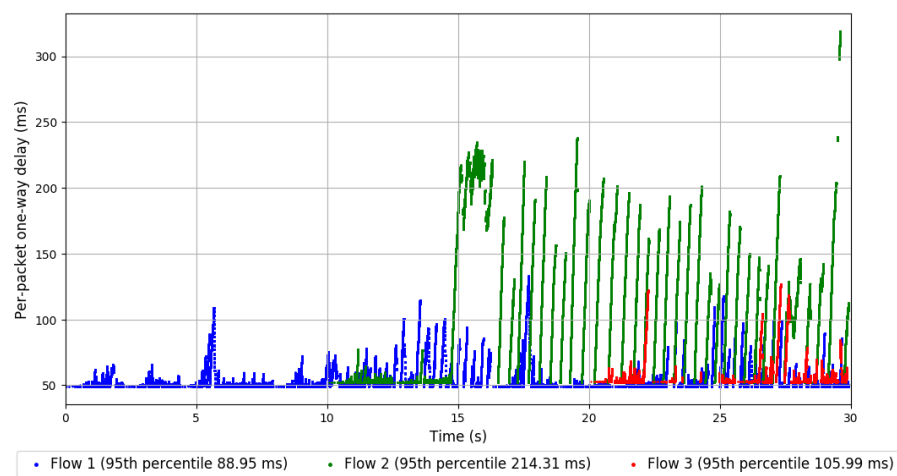
Run 5: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 530.36 Mbit/s)   Flow 1 egress (mean 530.27 Mbit/s)
Flow 2 ingress (mean 514.60 Mbit/s)   Flow 2 egress (mean 514.31 Mbit/s)
Flow 3 ingress (mean 452.54 Mbit/s)   Flow 3 egress (mean 451.80 Mbit/s)

Flow 1 (95th percentile 61.12 ms)   Flow 2 (95th percentile 66.90 ms)   Flow 3 (95th percentile 56.98 ms)
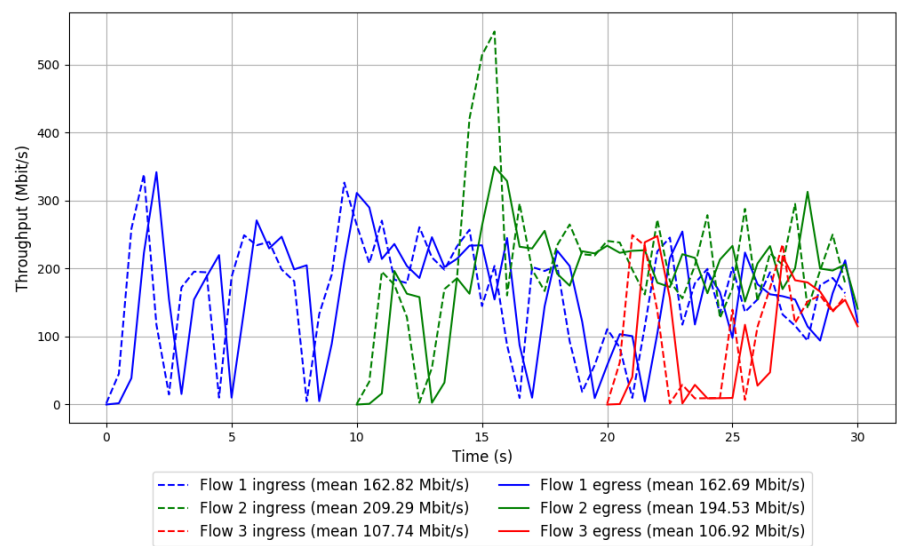
```
Run 1: Statistics of Verus

Start at: 2018-09-08 07:28:27
End at: 2018-09-08 07:28:57
Local clock offset: -0.137 ms
Remote clock offset: 0.207 ms


# Below is generated by plot.py at 2018-09-08 12:37:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 289.58 Mbit/s
95th percentile per-packet one-way delay: 92.753 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 164.50 Mbit/s
95th percentile per-packet one-way delay: 98.430 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 132.76 Mbit/s
95th percentile per-packet one-way delay: 91.436 ms
Loss rate: 0.68%
-- Flow 3:
Average throughput: 112.14 Mbit/s
95th percentile per-packet one-way delay: 65.609 ms
Loss rate: 1.20%
```

Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-09-08 08:00:34
End at: 2018-09-08 08:01:04
Local clock offset: -0.016 ms
Remote clock offset: 0.822 ms


# Below is generated by plot.py at 2018-09-08 12:37:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 326.95 Mbit/s
95th percentile per-packet one-way delay: 191.997 ms
Loss rate: 3.57%
-- Flow 1:
Average throughput: 162.69 Mbit/s
95th percentile per-packet one-way delay: 88.947 ms
Loss rate: 0.44%
-- Flow 2:
Average throughput: 194.53 Mbit/s
95th percentile per-packet one-way delay: 214.307 ms
Loss rate: 7.55%
-- Flow 3:
Average throughput: 106.92 Mbit/s
95th percentile per-packet one-way delay: 105.991 ms
Loss rate: 2.30%
```
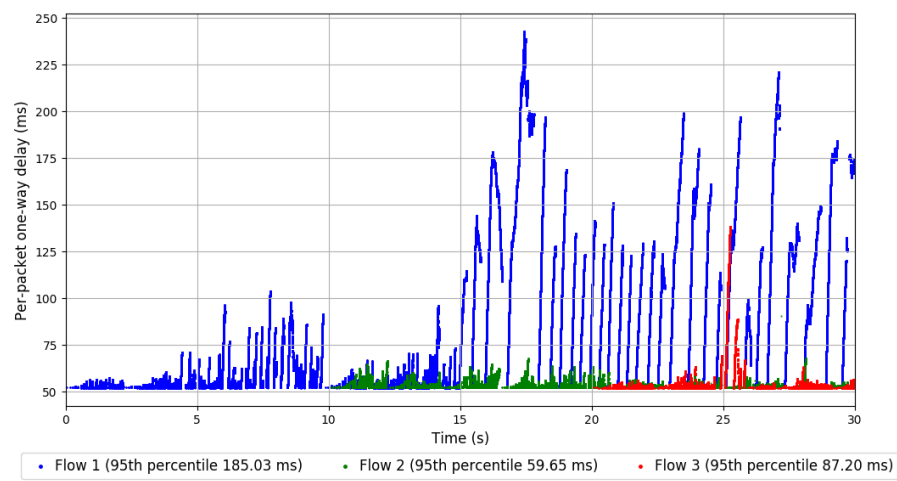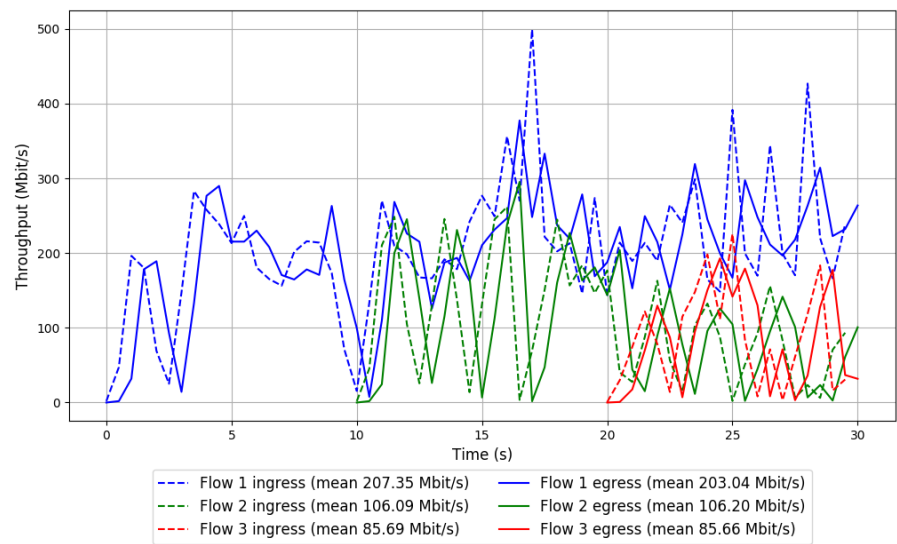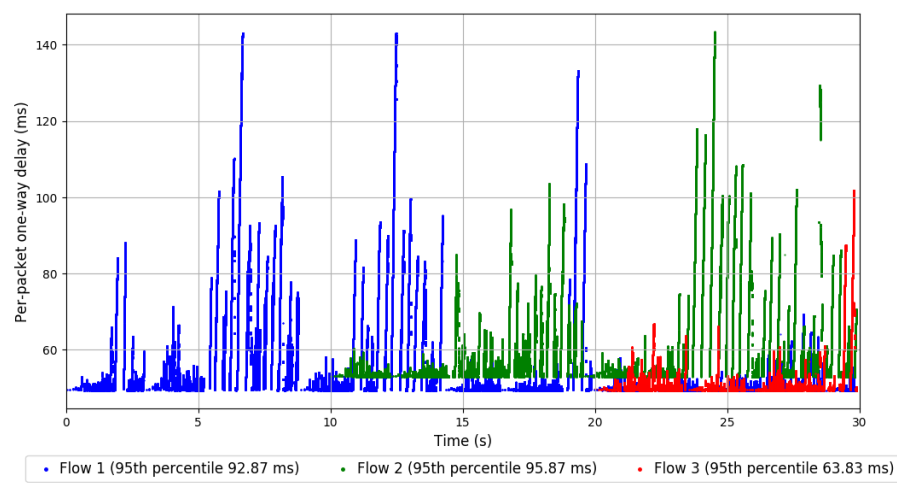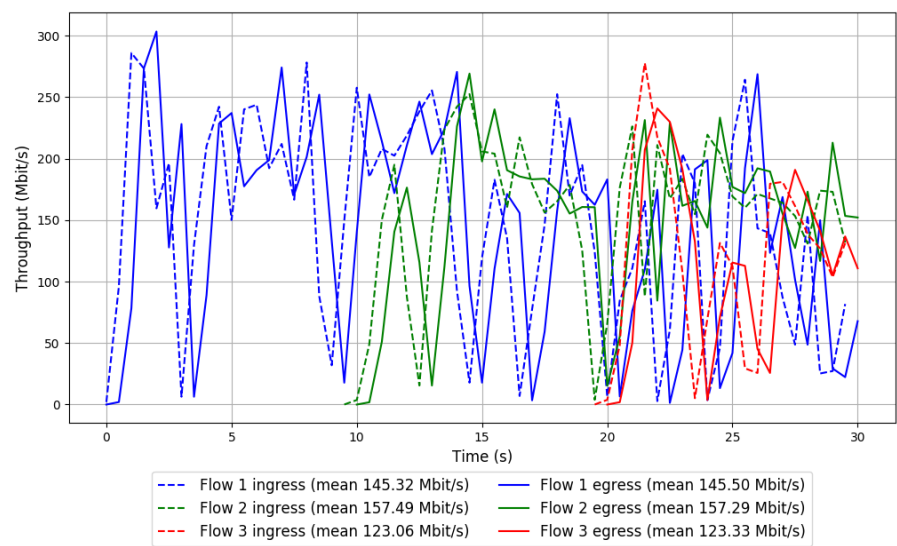
Run 2: Report of Verus — Data Link

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```
Run 3: Statistics of Verus

Start at: 2018-09-08 08:32:54
End at: 2018-09-08 08:33:24
Local clock offset: 0.055 ms
Remote clock offset: 1.288 ms


# Below is generated by plot.py at 2018-09-08 12:37:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 302.01 Mbit/s
95th percentile per-packet one-way delay: 175.763 ms
Loss rate: 1.19%
-- Flow 1:
Average throughput: 203.04 Mbit/s
95th percentile per-packet one-way delay: 185.027 ms
Loss rate: 1.72%
-- Flow 2:
Average throughput: 106.20 Mbit/s
95th percentile per-packet one-way delay: 59.653 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 85.66 Mbit/s
95th percentile per-packet one-way delay: 87.199 ms
Loss rate: 0.00%
```

Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-09-08 09:04:14
End at: 2018-09-08 09:04:44
Local clock offset: -0.034 ms
Remote clock offset: 0.613 ms


# Below is generated by plot.py at 2018-09-08 12:37:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 290.93 Mbit/s
95th percentile per-packet one-way delay: 92.585 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 145.50 Mbit/s
95th percentile per-packet one-way delay: 92.873 ms
Loss rate: 0.22%
-- Flow 2:
Average throughput: 157.29 Mbit/s
95th percentile per-packet one-way delay: 95.866 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 123.33 Mbit/s
95th percentile per-packet one-way delay: 63.834 ms
Loss rate: 0.84%
```
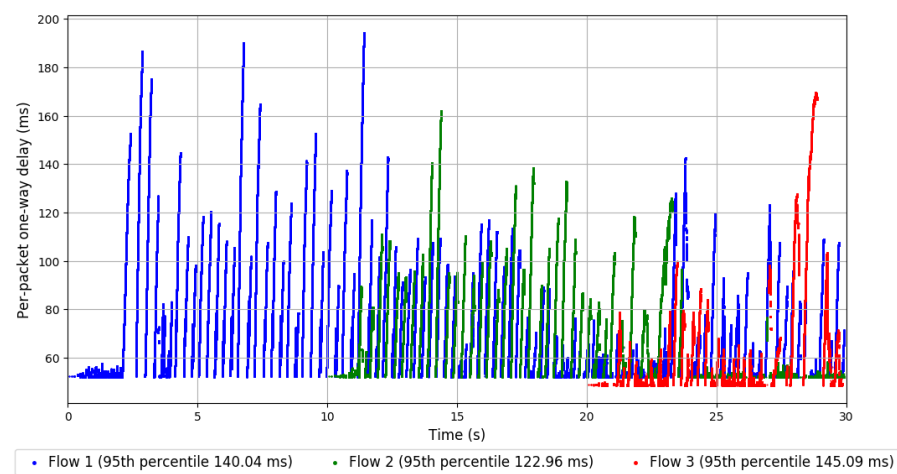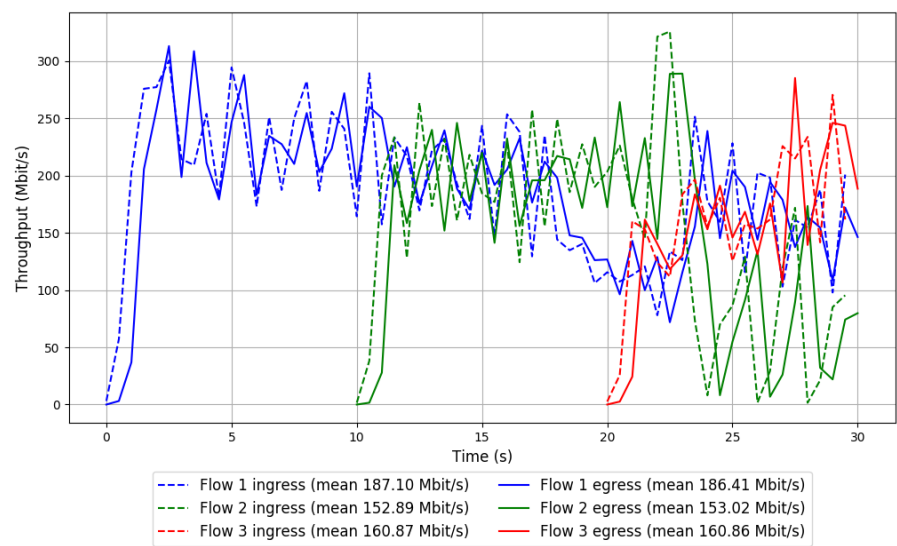
Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-09-08 09:35:28
End at: 2018-09-08 09:35:58
Local clock offset: -0.198 ms
Remote clock offset: 1.136 ms


# Below is generated by plot.py at 2018-09-08 12:39:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 340.71 Mbit/s
95th percentile per-packet one-way delay: 133.740 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 186.41 Mbit/s
95th percentile per-packet one-way delay: 140.043 ms
Loss rate: 0.53%
-- Flow 2:
Average throughput: 153.02 Mbit/s
95th percentile per-packet one-way delay: 122.956 ms
Loss rate: 0.44%
-- Flow 3:
Average throughput: 160.86 Mbit/s
95th percentile per-packet one-way delay: 145.088 ms
Loss rate: 0.00%
```

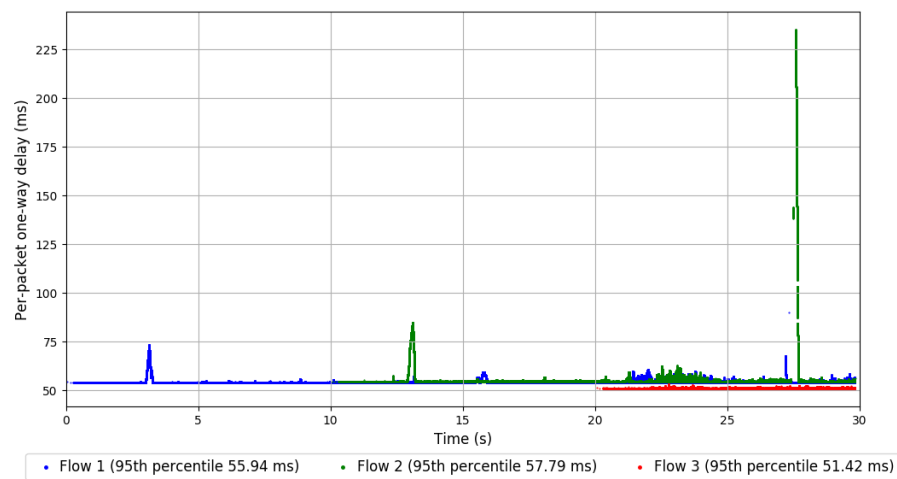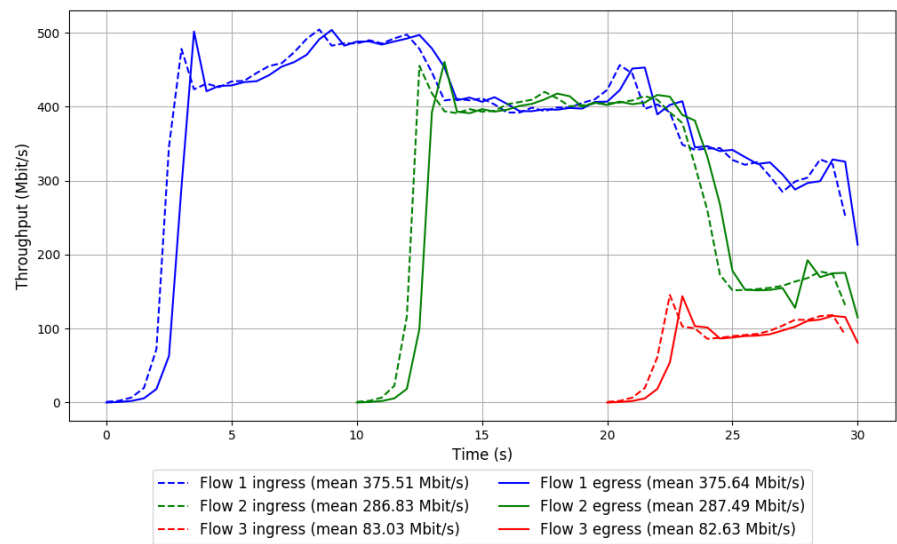## Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-09-08 07:26:38
End at: 2018-09-08 07:27:08
Local clock offset: 0.022 ms
Remote clock offset: -1.025 ms


# Below is generated by plot.py at 2018-09-08 12:40:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 593.50 Mbit/s
95th percentile per-packet one-way delay: 56.440 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 375.64 Mbit/s
95th percentile per-packet one-way delay: 55.942 ms
Loss rate: 0.32%
-- Flow 2:
Average throughput: 287.49 Mbit/s
95th percentile per-packet one-way delay: 57.788 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 82.63 Mbit/s
95th percentile per-packet one-way delay: 51.419 ms
Loss rate: 1.54%
```
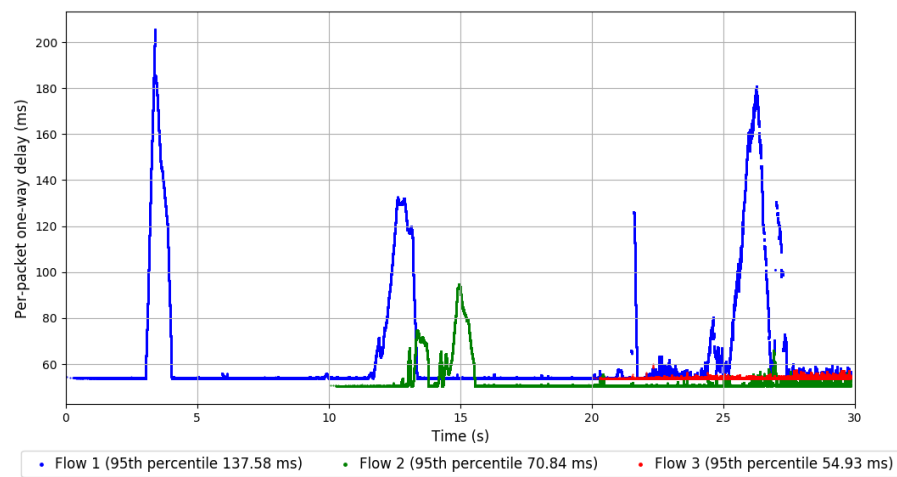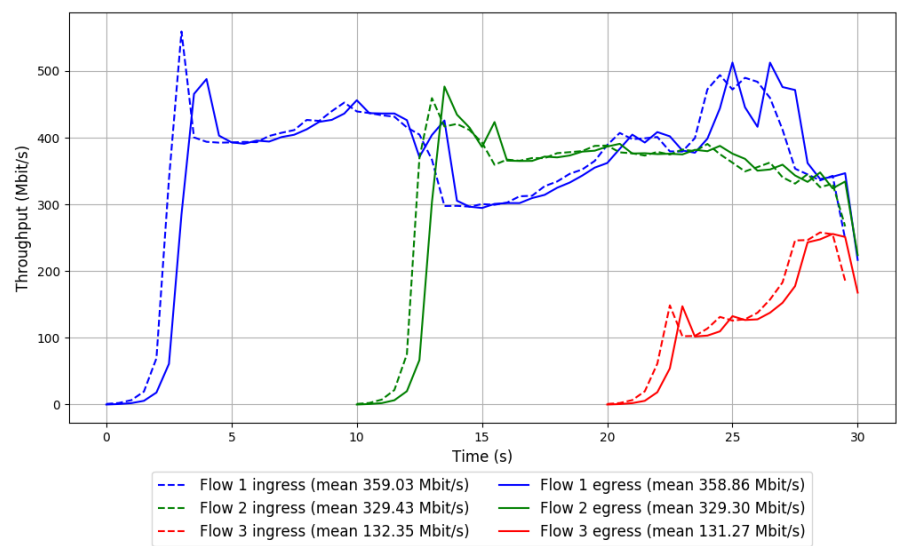
Run 1: Report of PCC-Vivace — Data Link

- - - - Flow 1 ingress (mean 375.51 Mbit/s)   —— Flow 1 egress (mean 375.64 Mbit/s)
- - - - Flow 2 ingress (mean 286.83 Mbit/s)   —— Flow 2 egress (mean 287.49 Mbit/s)
- - - - Flow 3 ingress (mean 83.03 Mbit/s)   —— Flow 3 egress (mean 82.63 Mbit/s)

• Flow 1 (95th percentile 55.94 ms)   • Flow 2 (95th percentile 57.79 ms)   • Flow 3 (95th percentile 51.42 ms)

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-09-08 07:58:42
End at: 2018-09-08 07:59:12
Local clock offset: 0.118 ms
Remote clock offset: -0.279 ms


# Below is generated by plot.py at 2018-09-08 12:41:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 620.59 Mbit/s
95th percentile per-packet one-way delay: 120.635 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 358.86 Mbit/s
95th percentile per-packet one-way delay: 137.583 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 329.30 Mbit/s
95th percentile per-packet one-way delay: 70.842 ms
Loss rate: 0.57%
-- Flow 3:
Average throughput: 131.27 Mbit/s
95th percentile per-packet one-way delay: 54.929 ms
Loss rate: 1.90%
```
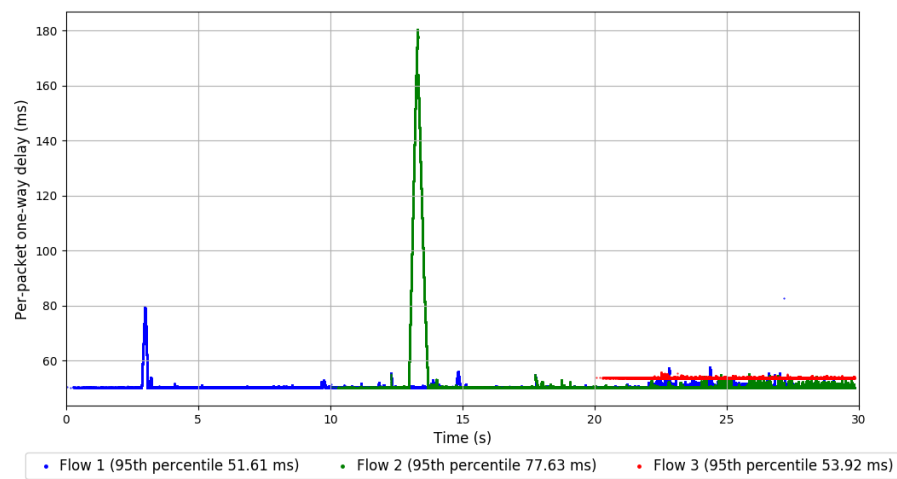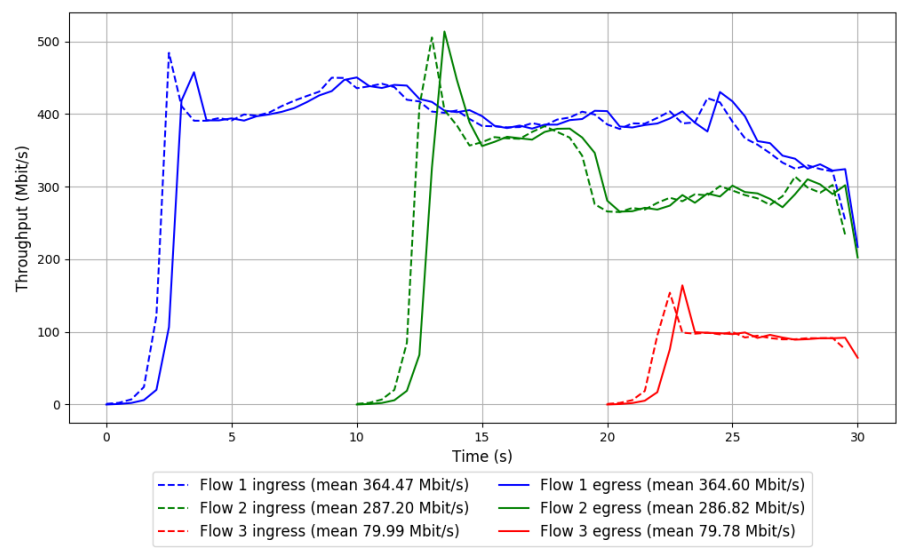
Run 2: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 359.03 Mbit/s)   Flow 1 egress (mean 358.86 Mbit/s)
Flow 2 ingress (mean 329.43 Mbit/s)   Flow 2 egress (mean 329.30 Mbit/s)
Flow 3 ingress (mean 132.35 Mbit/s)   Flow 3 egress (mean 131.27 Mbit/s)

Flow 1 (95th percentile 137.58 ms)   Flow 2 (95th percentile 70.84 ms)   Flow 3 (95th percentile 54.93 ms)

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```
Run 3: Statistics of PCC-Vivace

Start at: 2018-09-08 08:31:04
End at: 2018-09-08 08:31:34
Local clock offset: 0.22 ms
Remote clock offset: 0.016 ms


# Below is generated by plot.py at 2018-09-08 12:42:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 581.16 Mbit/s
95th percentile per-packet one-way delay: 53.709 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 364.60 Mbit/s
95th percentile per-packet one-way delay: 51.611 ms
Loss rate: 0.31%
-- Flow 2:
Average throughput: 286.82 Mbit/s
95th percentile per-packet one-way delay: 77.629 ms
Loss rate: 0.66%
-- Flow 3:
Average throughput: 79.78 Mbit/s
95th percentile per-packet one-way delay: 53.925 ms
Loss rate: 1.34%
```
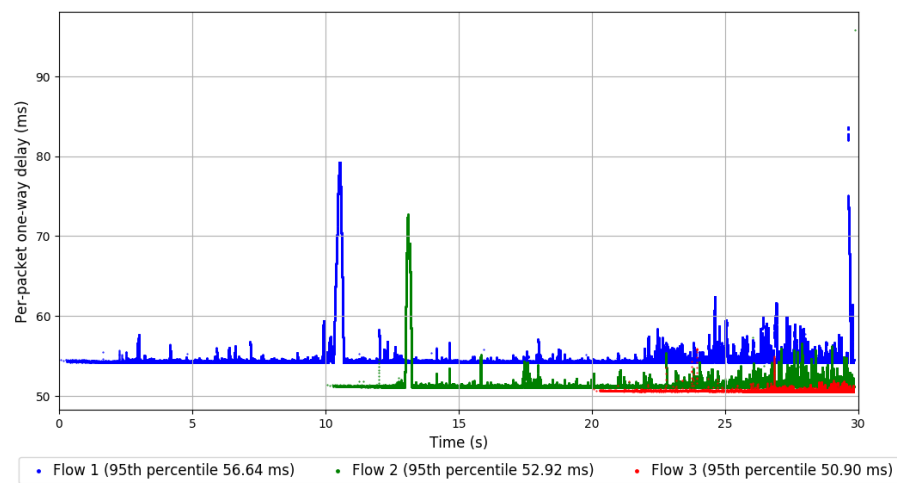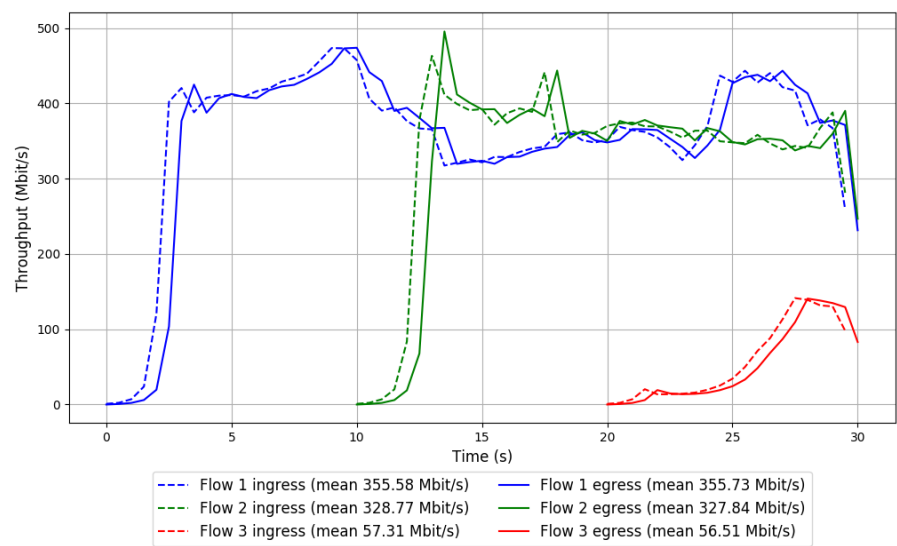
Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-09-08 09:02:23
End at: 2018-09-08 09:02:53
Local clock offset: 0.128 ms
Remote clock offset: -0.71 ms


# Below is generated by plot.py at 2018-09-08 12:42:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 591.59 Mbit/s
95th percentile per-packet one-way delay: 55.899 ms
Loss rate: 0.48%
-- Flow 1:
Average throughput: 355.73 Mbit/s
95th percentile per-packet one-way delay: 56.643 ms
Loss rate: 0.32%
-- Flow 2:
Average throughput: 327.84 Mbit/s
95th percentile per-packet one-way delay: 52.922 ms
Loss rate: 0.58%
-- Flow 3:
Average throughput: 56.51 Mbit/s
95th percentile per-packet one-way delay: 50.901 ms
Loss rate: 2.46%
```

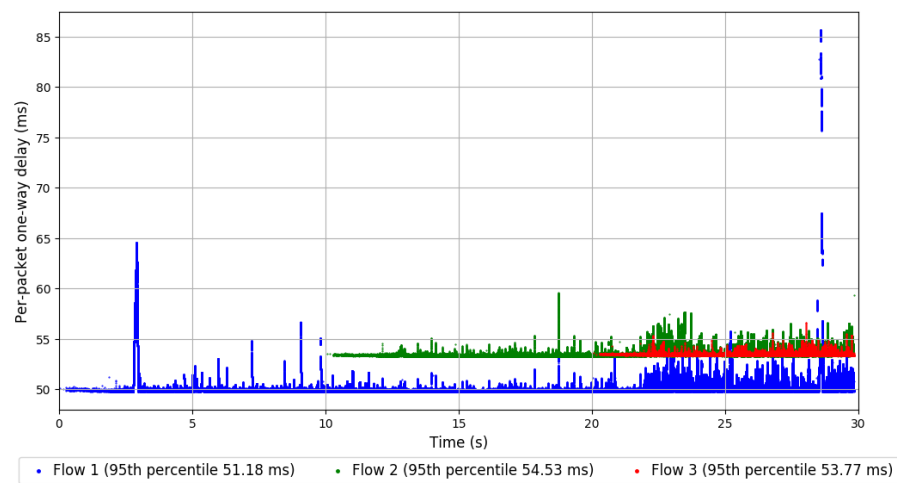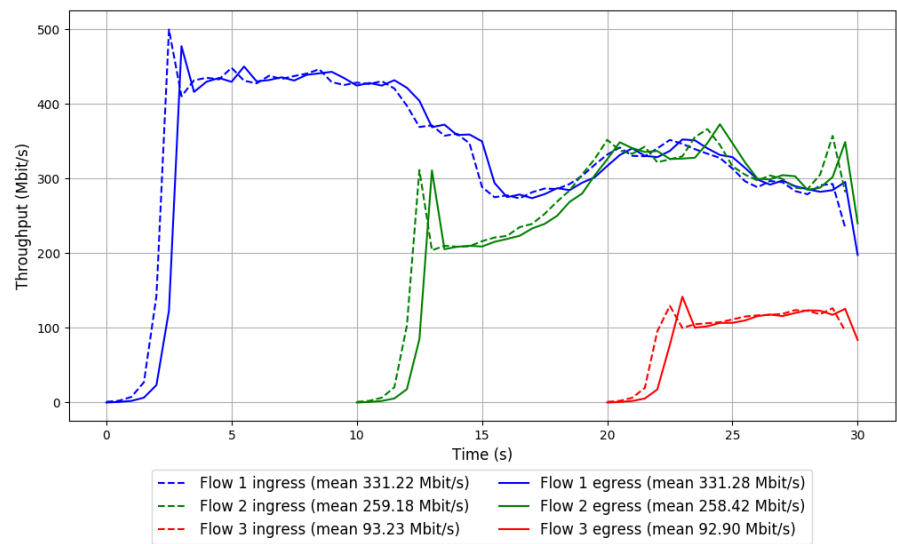Run 4: Report of PCC-Vivace — Data Link

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-09-08 09:33:41
End at: 2018-09-08 09:34:11
Local clock offset: -0.332 ms
Remote clock offset: -0.256 ms


# Below is generated by plot.py at 2018-09-08 12:42:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 533.28 Mbit/s
95th percentile per-packet one-way delay: 53.788 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 331.28 Mbit/s
95th percentile per-packet one-way delay: 51.181 ms
Loss rate: 0.33%
-- Flow 2:
Average throughput: 258.42 Mbit/s
95th percentile per-packet one-way delay: 54.528 ms
Loss rate: 0.81%
-- Flow 3:
Average throughput: 92.90 Mbit/s
95th percentile per-packet one-way delay: 53.775 ms
Loss rate: 1.44%
```
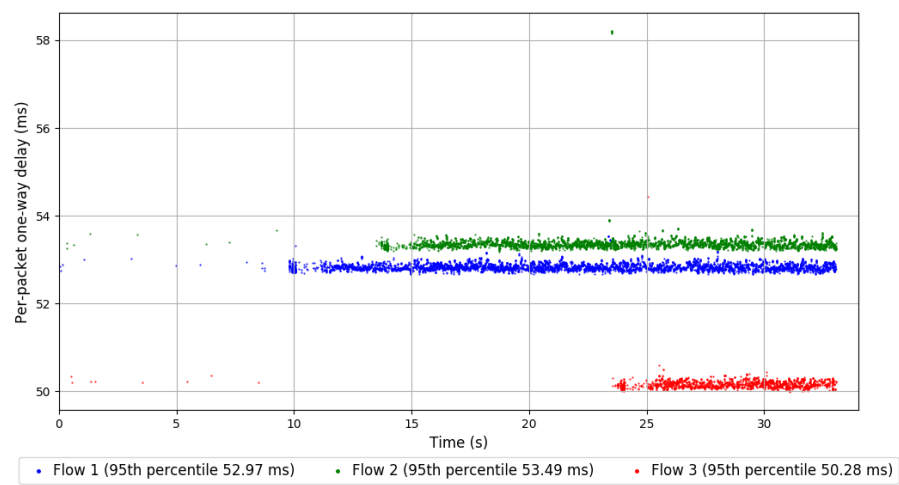
Run 5: Report of PCC-Vivace — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2018-09-08 07:52:21
End at: 2018-09-08 07:52:51
Local clock offset: 0.037 ms
Remote clock offset: 0.349 ms

# Below is generated by plot.py at 2018-09-08 12:42:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.28 Mbit/s
95th percentile per-packet one-way delay: 53.431 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 1.55 Mbit/s
95th percentile per-packet one-way delay: 52.966 ms
Loss rate: 0.57%
-- Flow 2:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 53.486 ms
Loss rate: 0.51%
-- Flow 3:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 50.285 ms
Loss rate: 0.68%
```
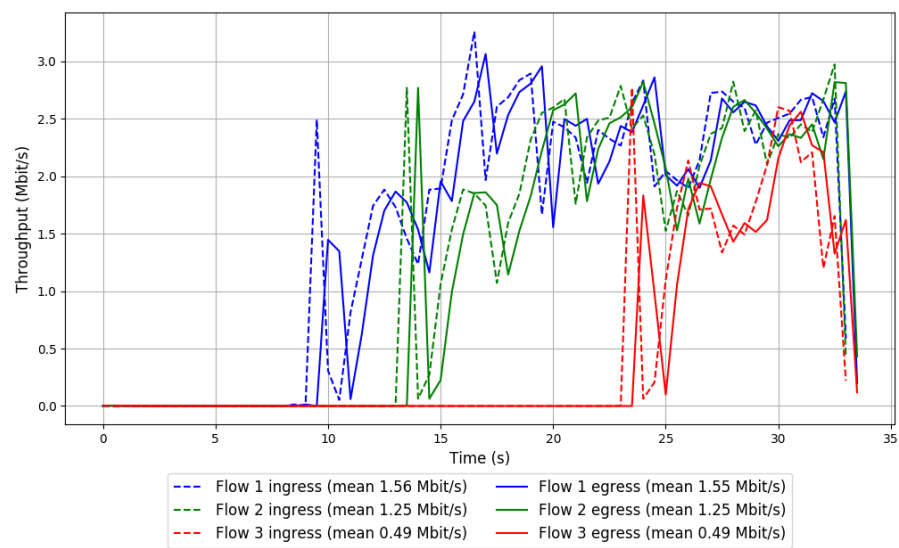
Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-09-08 08:24:42
End at: 2018-09-08 08:25:12
Local clock offset: -0.072 ms
Remote clock offset: 0.151 ms

# Below is generated by plot.py at 2018-09-08 12:42:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.60 Mbit/s
95th percentile per-packet one-way delay: 53.365 ms
Loss rate: 0.82%
-- Flow 1:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 53.399 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 1.22 Mbit/s
95th percentile per-packet one-way delay: 50.381 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 49.933 ms
Loss rate: 2.45%
```
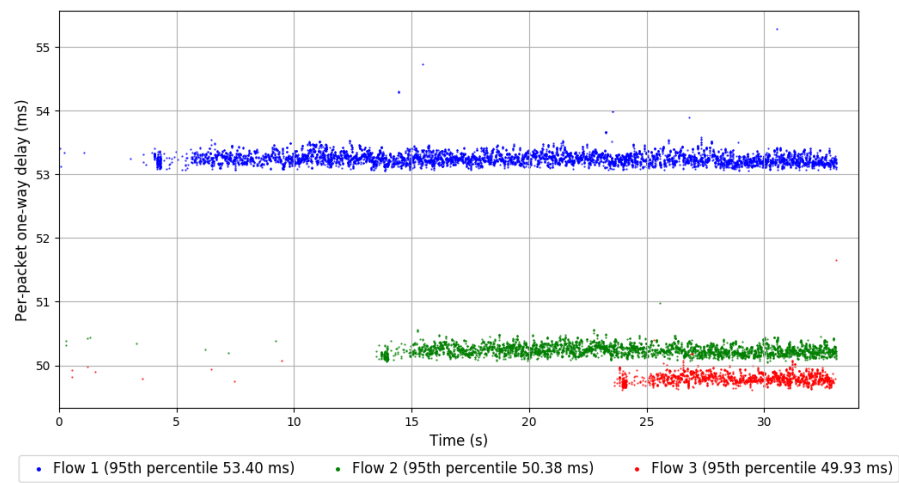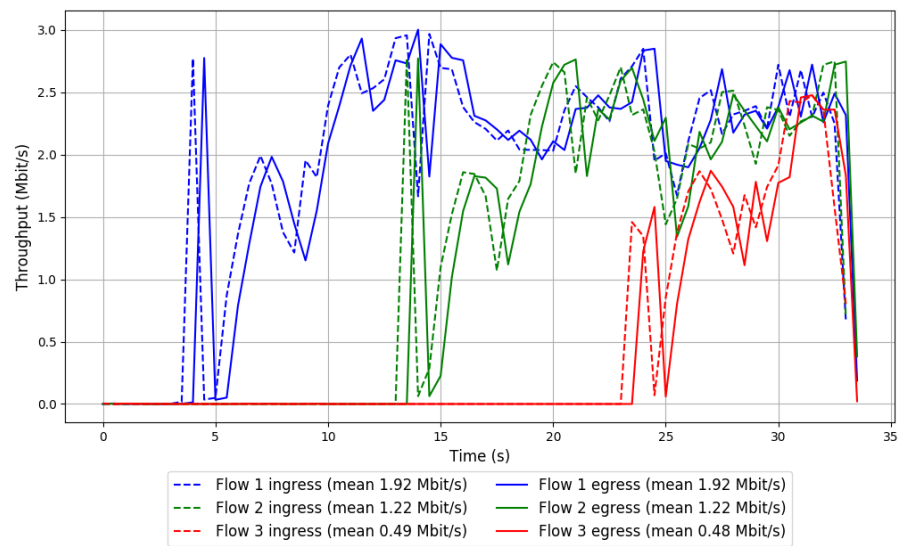
Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-09-08 08:56:03
End at: 2018-09-08 08:56:33
Local clock offset: 0.162 ms
Remote clock offset: 0.157 ms


# Below is generated by plot.py at 2018-09-08 12:42:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.51 Mbit/s
95th percentile per-packet one-way delay: 53.644 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 1.94 Mbit/s
95th percentile per-packet one-way delay: 53.649 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 1.10 Mbit/s
95th percentile per-packet one-way delay: 53.659 ms
Loss rate: 0.73%
-- Flow 3:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 50.012 ms
Loss rate: 1.78%
```
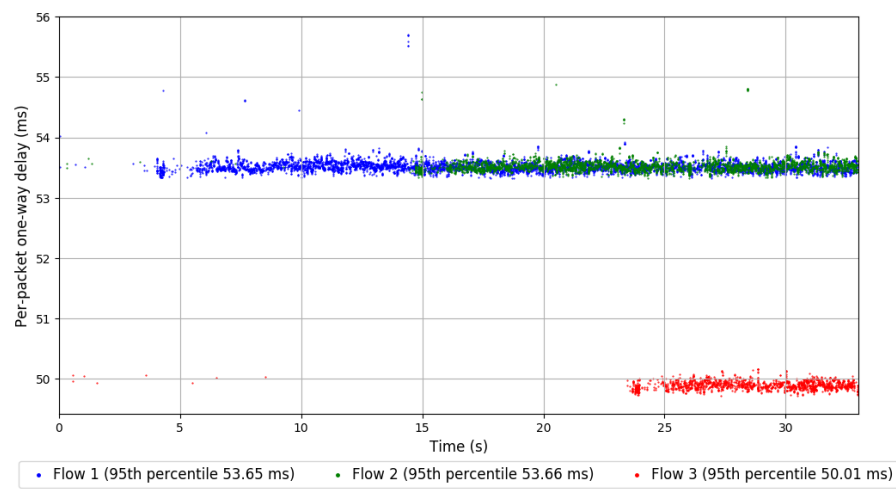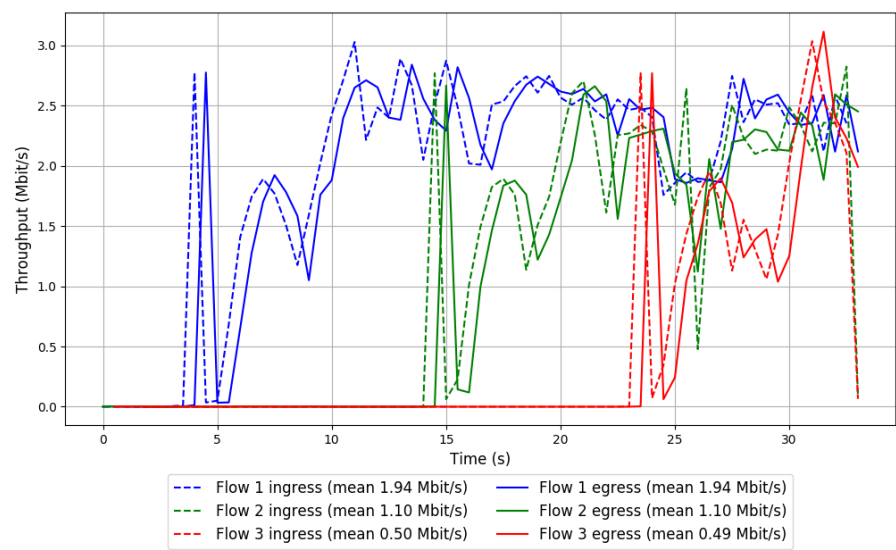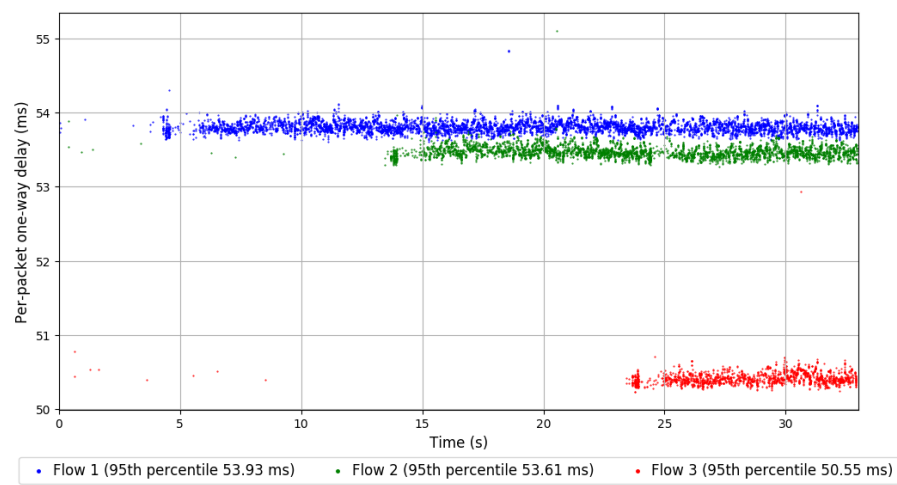
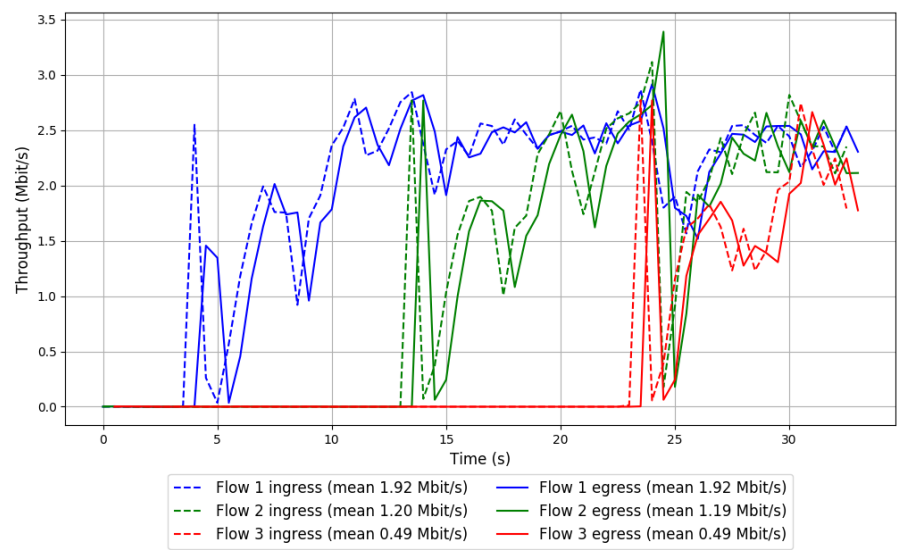Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-09-08 09:27:25
End at: 2018-09-08 09:27:55
Local clock offset: 0.002 ms
Remote clock offset: -0.177 ms


# Below is generated by plot.py at 2018-09-08 12:42:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.58 Mbit/s
95th percentile per-packet one-way delay: 53.905 ms
Loss rate: 0.51%
-- Flow 1:
Average throughput: 1.92 Mbit/s
95th percentile per-packet one-way delay: 53.932 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 1.19 Mbit/s
95th percentile per-packet one-way delay: 53.608 ms
Loss rate: 0.60%
-- Flow 3:
Average throughput: 0.49 Mbit/s
95th percentile per-packet one-way delay: 50.554 ms
Loss rate: 0.88%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-09-08 09:59:07
End at: 2018-09-08 09:59:37
Local clock offset: -0.058 ms
Remote clock offset: -0.301 ms


# Below is generated by plot.py at 2018-09-08 12:42:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.64 Mbit/s
95th percentile per-packet one-way delay: 50.567 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 1.94 Mbit/s
95th percentile per-packet one-way delay: 50.570 ms
Loss rate: 0.53%
-- Flow 2:
Average throughput: 1.24 Mbit/s
95th percentile per-packet one-way delay: 50.251 ms
Loss rate: 0.54%
-- Flow 3:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 50.632 ms
Loss rate: 2.26%
```

Run 5: Report of WebRTC media — Data Link