Pantheon Report

Generated at 2019-03-19 05:51:38 (UTC).

Data path: AWS California 1 on **ens5** (*local*) →Stanford on **eno1** (*remote*).

Repeated the test of 21 congestion control schemes 5 times.

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

NTP offsets were measured against `time.stanford.edu` and have been applied to correct the timestamps in logs.
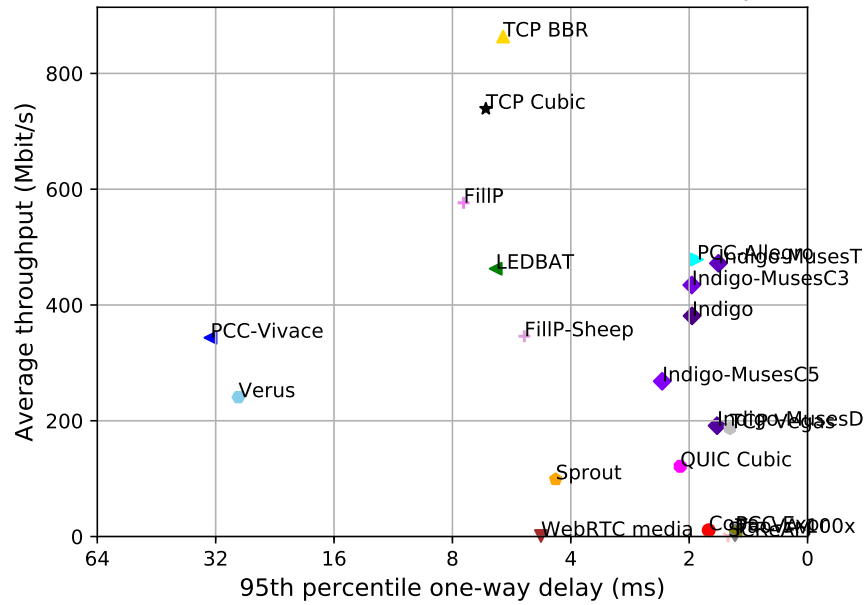
```
System info:
Linux 4.15.0-1033-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ 7a686f7c2ed0a333082c0bab1fa5c921ab47e6ee
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 5ce721187ad823da20955337730c746486ca4966
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
 M src/ScreamClient
 M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
```
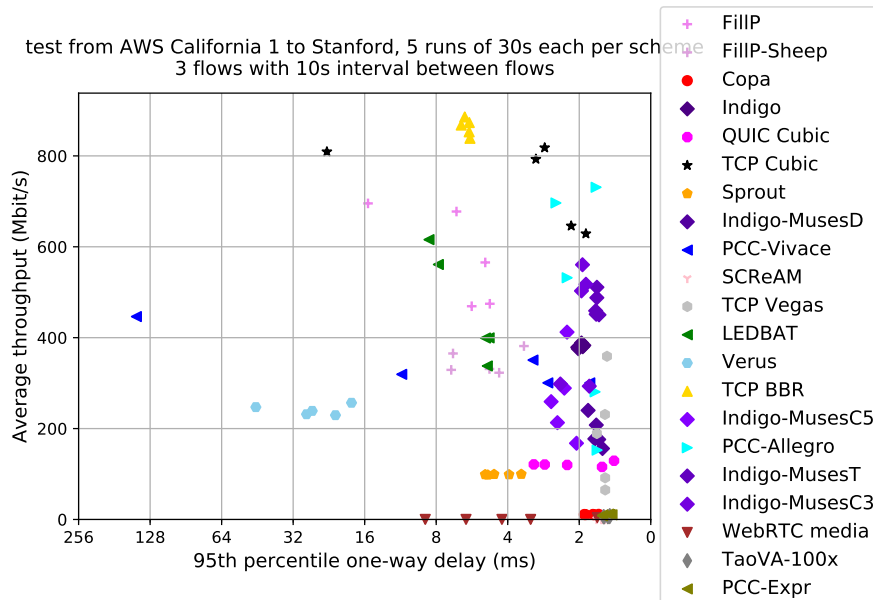
```
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

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

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

3

scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	517.14	380.69	282.61	6.03	5.72	3.14	4.90	10.71	13.05
Copa	5	6.33	5.75	4.46	1.72	1.60	1.79	47.20	54.28	56.01
TCP Cubic	5	414.17	341.30	292.90	7.66	2.25	2.26	0.29	0.32	0.34
FillP	5	333.07	274.36	183.51	8.25	4.49	4.10	8.00	14.82	13.70
FillP-Sheep	5	298.14	60.37	23.62	5.51	2.06	2.50	3.83	2.55	6.93
Indigo	5	198.71	185.31	183.89	1.76	1.98	2.30	0.08	0.11	0.19
Indigo-MusesC3	5	234.06	211.26	211.71	2.06	1.99	1.80	0.23	0.26	0.21
Indigo-MusesC5	5	111.93	120.92	257.35	1.80	2.92	1.86	0.23	0.53	0.42
Indigo-MusesD	5	101.63	87.15	105.54	1.58	1.32	1.61	0.10	0.10	0.10
Indigo-MusesT	5	264.45	234.83	184.65	1.42	1.53	1.78	0.23	0.24	0.39
LEDBAT	5	295.58	171.22	183.68	6.60	4.98	5.55	0.36	0.61	0.57
PCC-Allegro	5	300.27	211.66	113.68	1.77	1.83	1.82	0.24	0.30	0.32
PCC-Expr	5	8.81	7.36	6.34	1.21	1.21	1.18	36.24	34.51	38.97
QUIC Cubic	5	64.76	60.84	49.37	1.71	1.89	3.74	0.03	0.04	0.05
SCReAM	5	0.22	0.22	0.22	1.35	1.34	1.34	0.00	0.00	0.00
Sprout	5	49.67	49.55	49.26	4.41	4.30	4.37	0.39	0.41	0.45
TaoVA-100x	5	0.00	7.20	5.14	1.07	1.23	1.22	95.92	20.91	0.55
TCP Vegas	5	57.68	100.51	187.86	1.28	1.26	1.37	0.07	0.06	0.08
Verus	5	121.09	123.39	113.58	18.30	47.57	33.89	3.40	4.92	4.94
PCC-Vivace	5	195.67	173.82	97.76	18.11	41.77	25.02	0.26	0.92	1.11
WebRTC media	5	0.47	0.32	0.16	2.95	5.87	4.83	0.02	0.01	0.01

```
Run 1: Statistics of TCP BBR

Start at: 2019-03-19 02:52:39
End at: 2019-03-19 02:53:09
Local clock offset: -0.165 ms
Remote clock offset: 0.338 ms


# Below is generated by plot.py at 2019-03-19 05:14:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 852.91 Mbit/s
95th percentile per-packet one-way delay: 5.812 ms
Loss rate: 6.94%
-- Flow 1:
Average throughput: 569.07 Mbit/s
95th percentile per-packet one-way delay: 5.982 ms
Loss rate: 4.21%
-- Flow 2:
Average throughput: 359.35 Mbit/s
95th percentile per-packet one-way delay: 4.362 ms
Loss rate: 11.32%
-- Flow 3:
Average throughput: 148.68 Mbit/s
95th percentile per-packet one-way delay: 2.432 ms
Loss rate: 15.28%
```
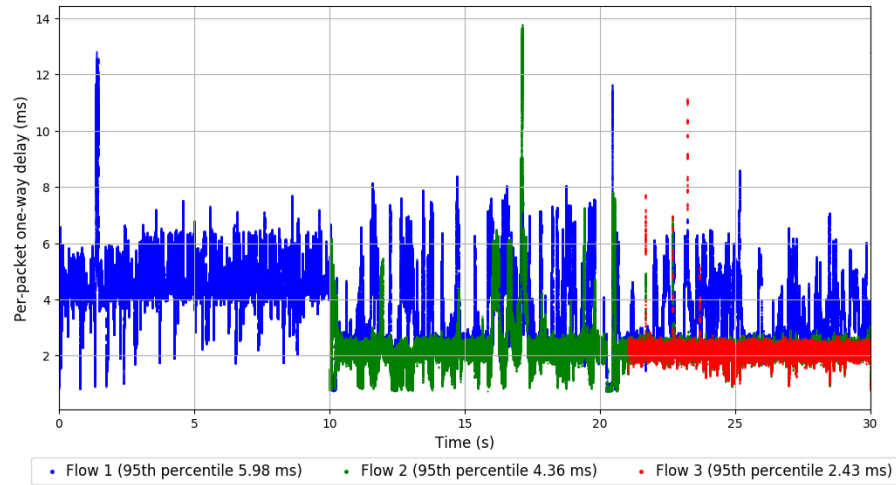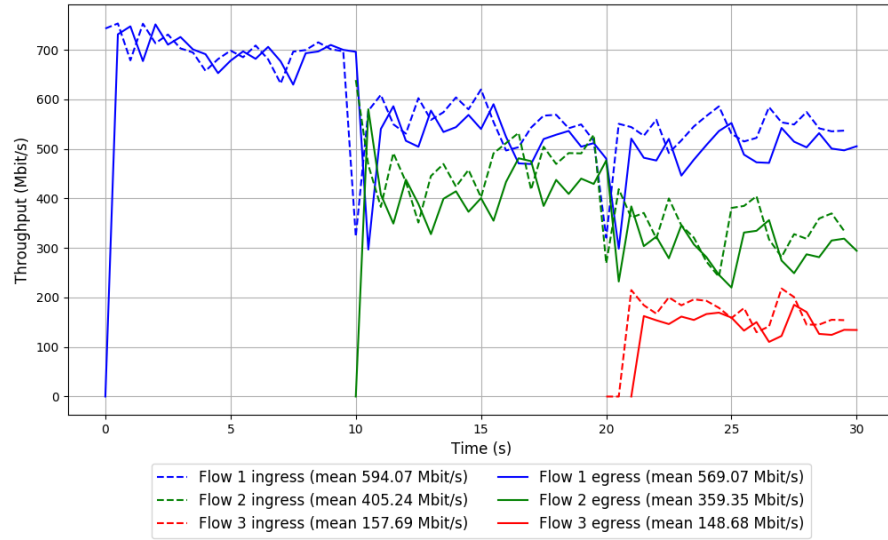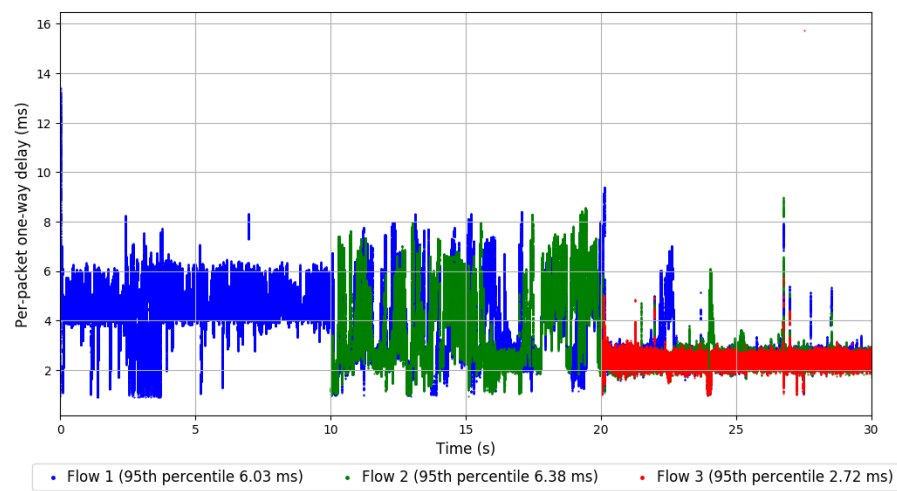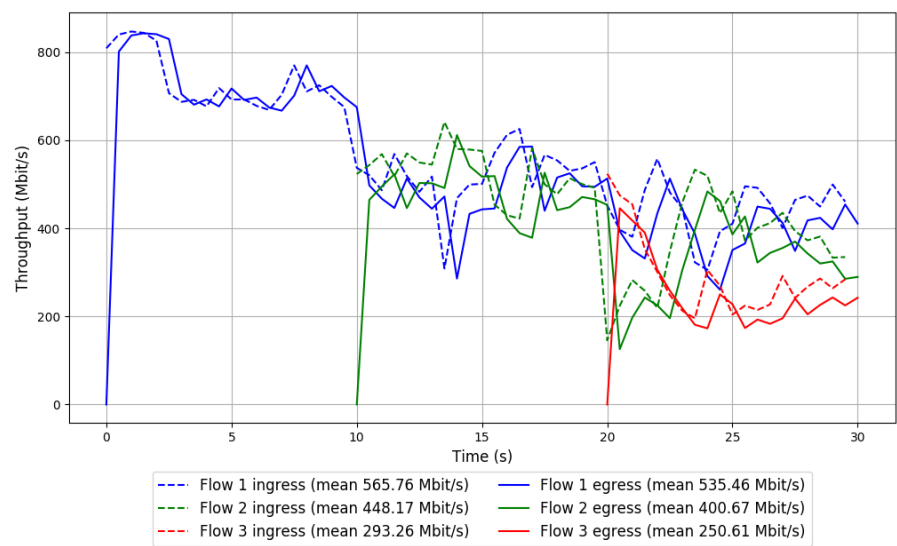
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2019-03-19 03:22:23
End at: 2019-03-19 03:22:53
Local clock offset: -0.205 ms
Remote clock offset: 1.144 ms


# Below is generated by plot.py at 2019-03-19 05:14:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 885.66 Mbit/s
95th percentile per-packet one-way delay: 6.067 ms
Loss rate: 7.91%
-- Flow 1:
Average throughput: 535.46 Mbit/s
95th percentile per-packet one-way delay: 6.025 ms
Loss rate: 5.35%
-- Flow 2:
Average throughput: 400.67 Mbit/s
95th percentile per-packet one-way delay: 6.375 ms
Loss rate: 10.60%
-- Flow 3:
Average throughput: 250.61 Mbit/s
95th percentile per-packet one-way delay: 2.717 ms
Loss rate: 14.54%
```
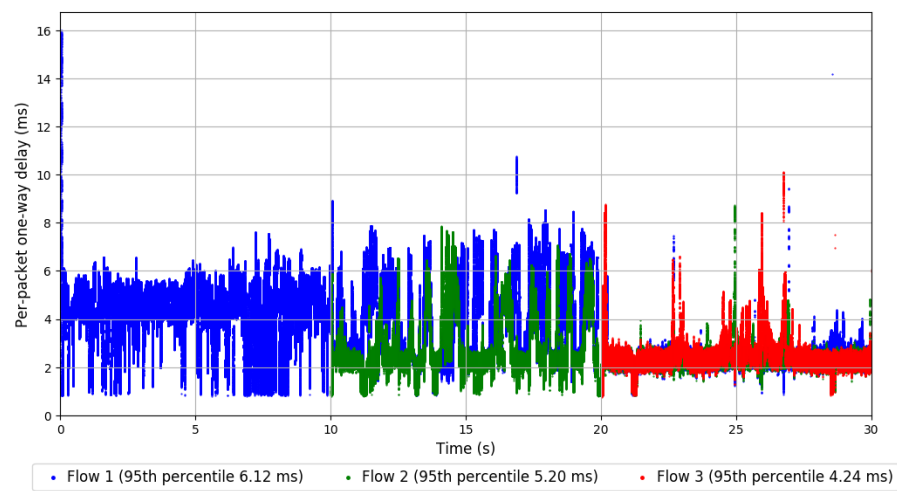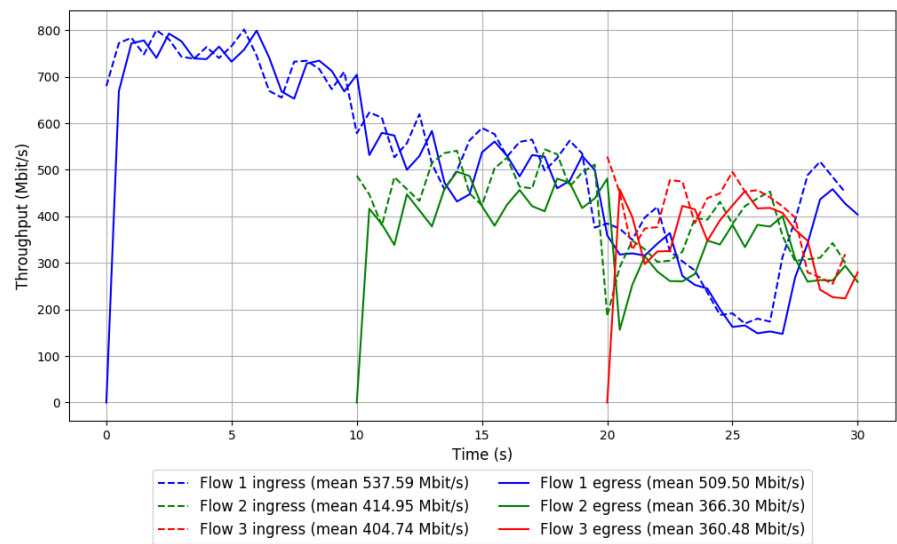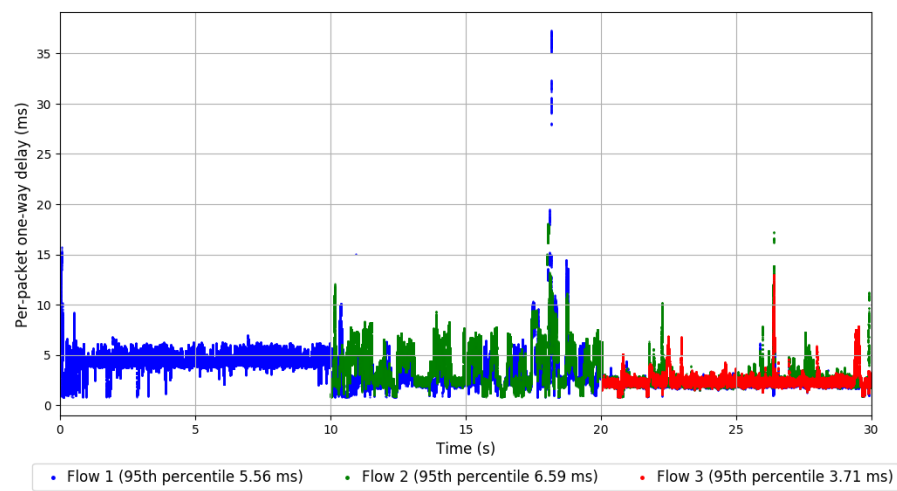
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2019-03-19 03:52:18
End at: 2019-03-19 03:52:48
Local clock offset: 0.662 ms
Remote clock offset: 0.501 ms


# Below is generated by plot.py at 2019-03-19 05:14:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 873.34 Mbit/s
95th percentile per-packet one-way delay: 5.806 ms
Loss rate: 7.92%
-- Flow 1:
Average throughput: 509.50 Mbit/s
95th percentile per-packet one-way delay: 6.125 ms
Loss rate: 5.22%
-- Flow 2:
Average throughput: 366.30 Mbit/s
95th percentile per-packet one-way delay: 5.195 ms
Loss rate: 11.72%
-- Flow 3:
Average throughput: 360.48 Mbit/s
95th percentile per-packet one-way delay: 4.243 ms
Loss rate: 10.89%
```

Run 3: Report of TCP BBR — Data Link

```
Run 4: Statistics of TCP BBR

Start at: 2019-03-19 04:21:38
End at: 2019-03-19 04:22:08
Local clock offset: 0.578 ms
Remote clock offset: -0.245 ms


# Below is generated by plot.py at 2019-03-19 05:14:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 838.73 Mbit/s
95th percentile per-packet one-way delay: 5.767 ms
Loss rate: 7.72%
-- Flow 1:
Average throughput: 427.34 Mbit/s
95th percentile per-packet one-way delay: 5.561 ms
Loss rate: 5.40%
-- Flow 2:
Average throughput: 427.07 Mbit/s
95th percentile per-packet one-way delay: 6.595 ms
Loss rate: 9.11%
-- Flow 3:
Average throughput: 381.75 Mbit/s
95th percentile per-packet one-way delay: 3.713 ms
Loss rate: 11.96%
```
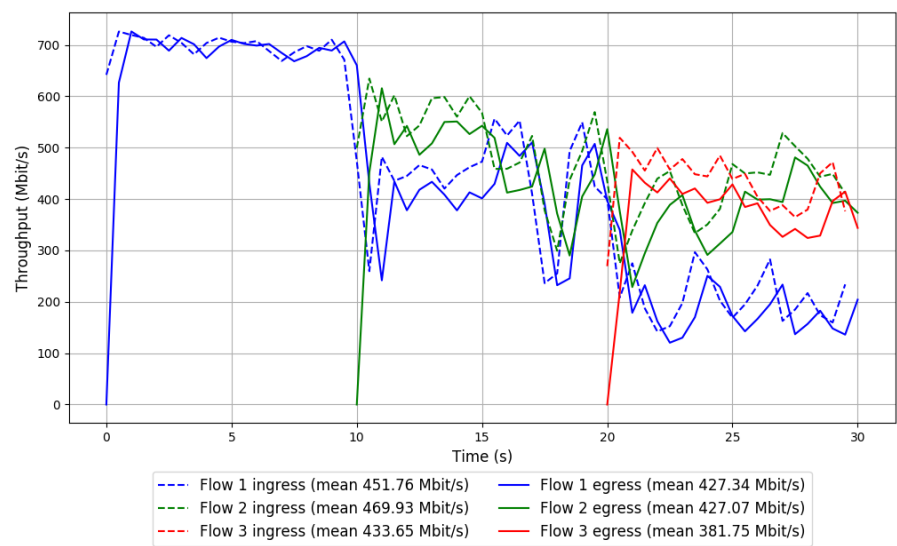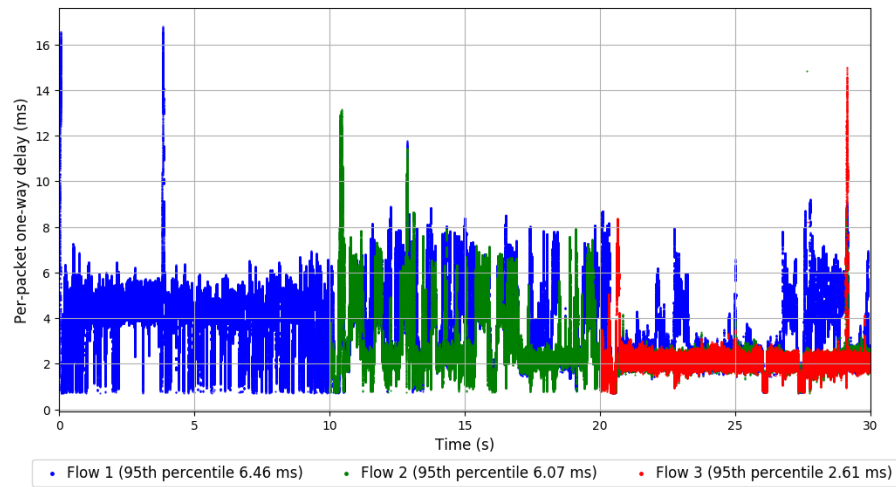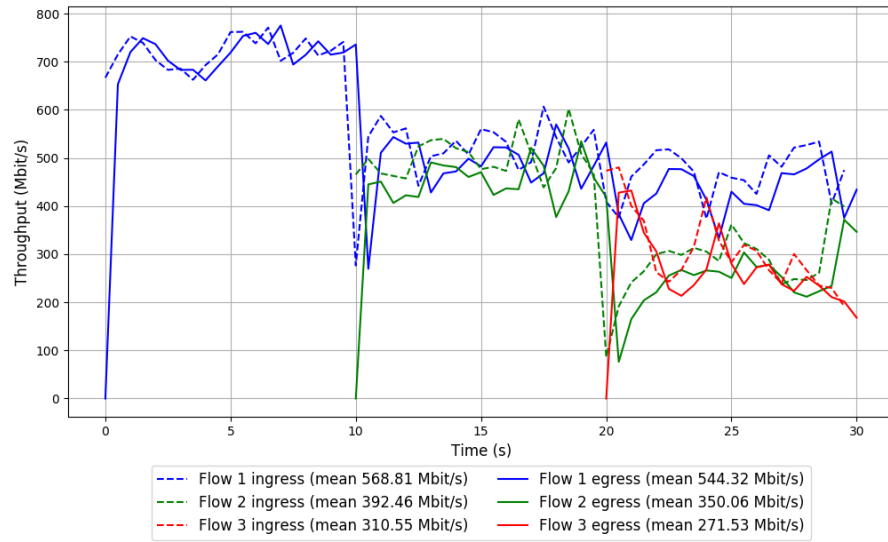
Run 4: Report of TCP BBR — Data Link

- Flow 1 ingress (mean 451.76 Mbit/s)   — Flow 1 egress (mean 427.34 Mbit/s)
- Flow 2 ingress (mean 469.93 Mbit/s)   — Flow 2 egress (mean 427.07 Mbit/s)
- Flow 3 ingress (mean 433.65 Mbit/s)   — Flow 3 egress (mean 381.75 Mbit/s)

- Flow 1 (95th percentile 5.56 ms)   • Flow 2 (95th percentile 6.59 ms)   • Flow 3 (95th percentile 3.71 ms)

```
Run 5: Statistics of TCP BBR

Start at: 2019-03-19 04:51:16
End at: 2019-03-19 04:51:46
Local clock offset: 0.681 ms
Remote clock offset: -0.313 ms


# Below is generated by plot.py at 2019-03-19 05:14:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 867.87 Mbit/s
95th percentile per-packet one-way delay: 6.276 ms
Loss rate: 7.04%
-- Flow 1:
Average throughput: 544.32 Mbit/s
95th percentile per-packet one-way delay: 6.455 ms
Loss rate: 4.30%
-- Flow 2:
Average throughput: 350.06 Mbit/s
95th percentile per-packet one-way delay: 6.069 ms
Loss rate: 10.80%
-- Flow 3:
Average throughput: 271.53 Mbit/s
95th percentile per-packet one-way delay: 2.611 ms
Loss rate: 12.56%
```
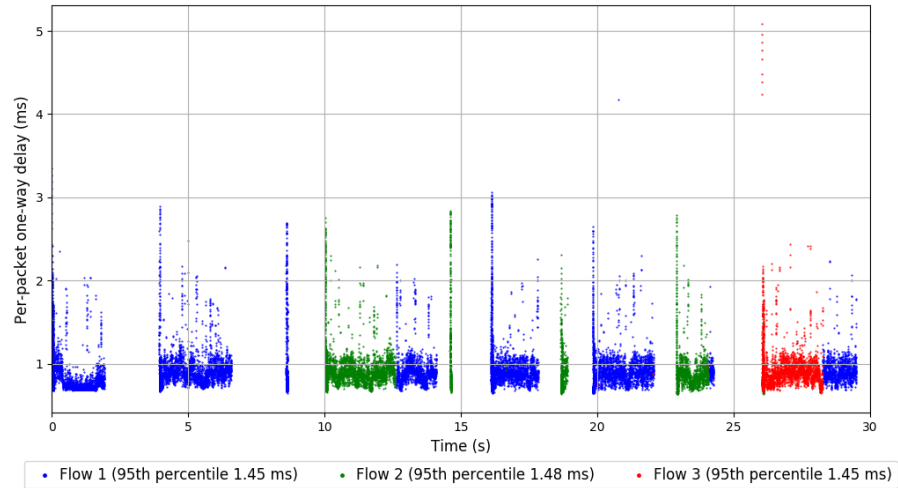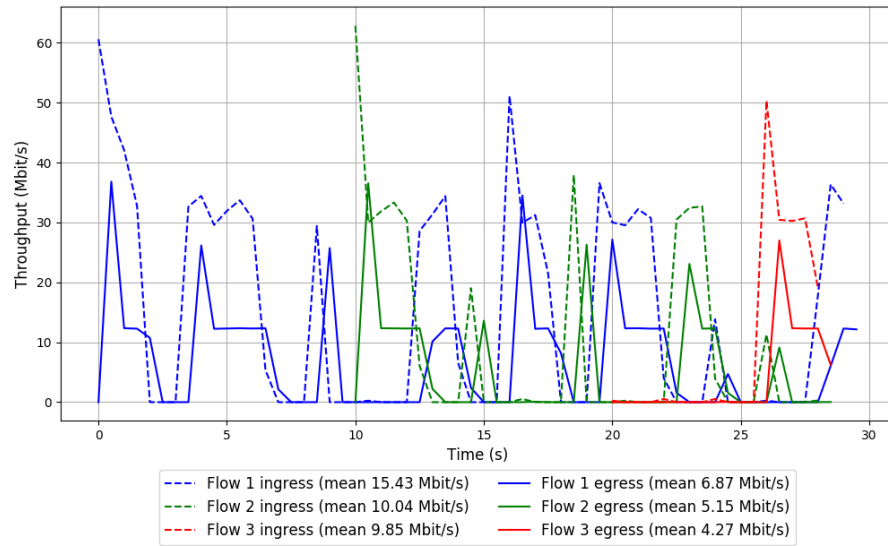
Run 5: Report of TCP BBR — Data Link

```
Run 1: Statistics of Copa

Start at: 2019-03-19 02:51:25
End at: 2019-03-19 02:51:55
Local clock offset: -0.077 ms
Remote clock offset: 0.194 ms


# Below is generated by plot.py at 2019-03-19 05:14:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 11.22 Mbit/s
95th percentile per-packet one-way delay: 1.457 ms
Loss rate: 53.90%
-- Flow 1:
Average throughput: 6.87 Mbit/s
95th percentile per-packet one-way delay: 1.454 ms
Loss rate: 55.48%
-- Flow 2:
Average throughput: 5.15 Mbit/s
95th percentile per-packet one-way delay: 1.475 ms
Loss rate: 48.70%
-- Flow 3:
Average throughput: 4.27 Mbit/s
95th percentile per-packet one-way delay: 1.452 ms
Loss rate: 56.68%
```
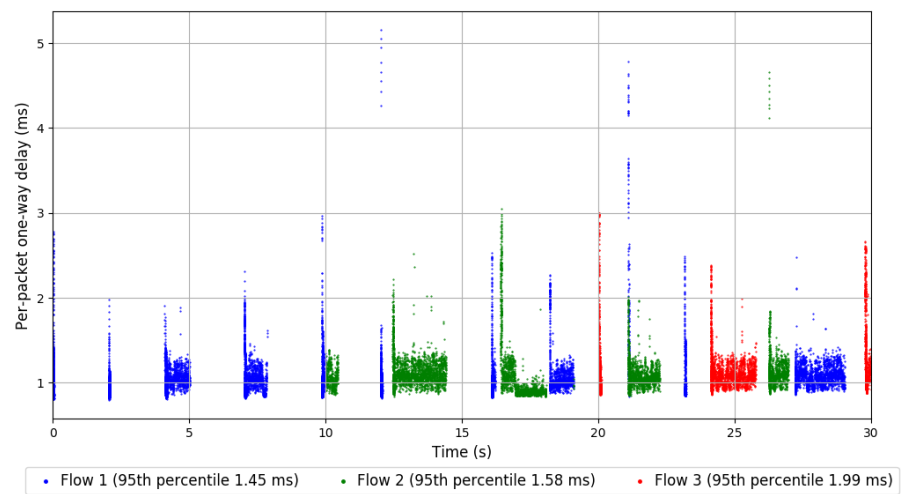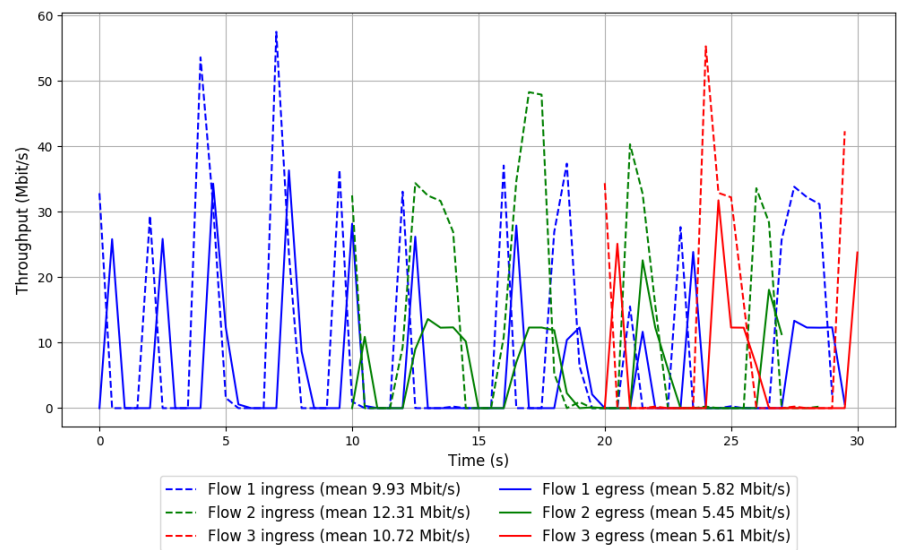
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 15.43 Mbit/s)   Flow 1 egress (mean 6.87 Mbit/s)
Flow 2 ingress (mean 10.04 Mbit/s)   Flow 2 egress (mean 5.15 Mbit/s)
Flow 3 ingress (mean 9.85 Mbit/s)   Flow 3 egress (mean 4.27 Mbit/s)

• Flow 1 (95th percentile 1.45 ms)   • Flow 2 (95th percentile 1.48 ms)   • Flow 3 (95th percentile 1.45 ms)

```
Run 2: Statistics of Copa

Start at: 2019-03-19 03:21:08
End at: 2019-03-19 03:21:38
Local clock offset: -0.365 ms
Remote clock offset: 1.013 ms

# Below is generated by plot.py at 2019-03-19 05:14:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.58 Mbit/s
95th percentile per-packet one-way delay: 1.592 ms
Loss rate: 49.51%
-- Flow 1:
Average throughput: 5.82 Mbit/s
95th percentile per-packet one-way delay: 1.447 ms
Loss rate: 41.36%
-- Flow 2:
Average throughput: 5.45 Mbit/s
95th percentile per-packet one-way delay: 1.577 ms
Loss rate: 60.43%
-- Flow 3:
Average throughput: 5.61 Mbit/s
95th percentile per-packet one-way delay: 1.988 ms
Loss rate: 47.67%
```
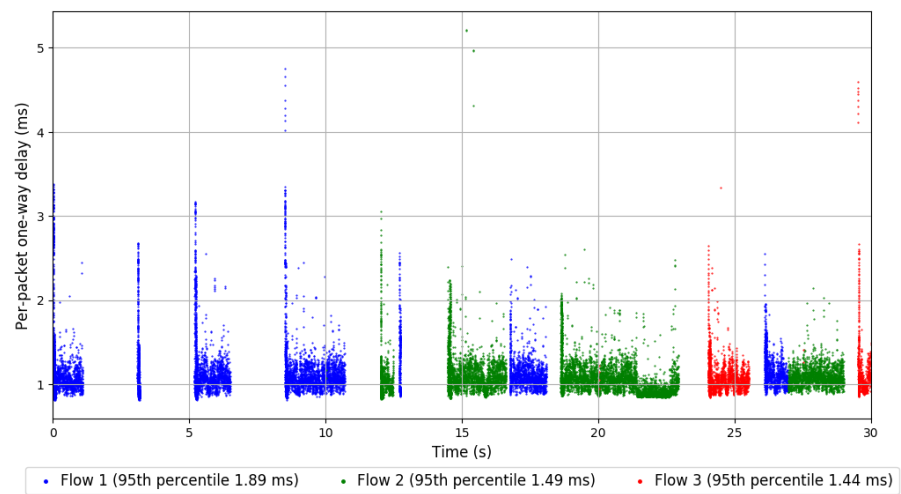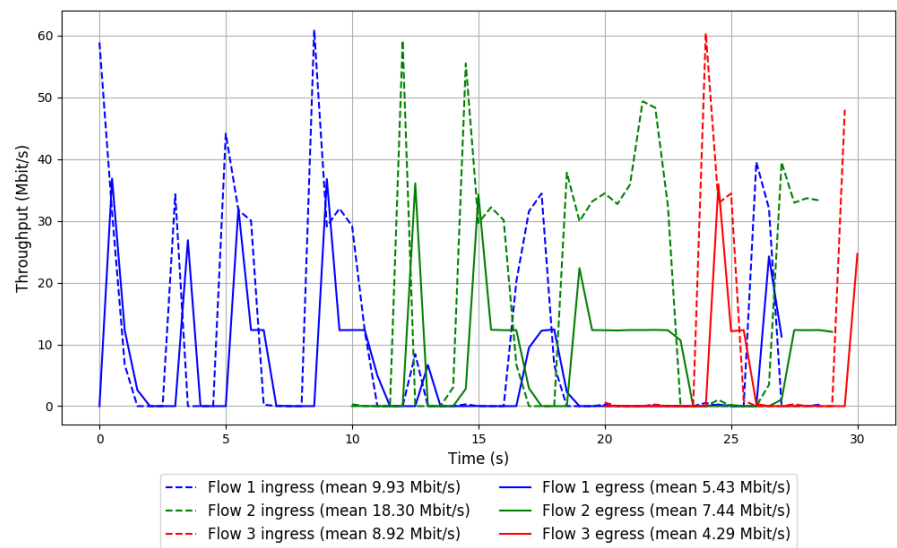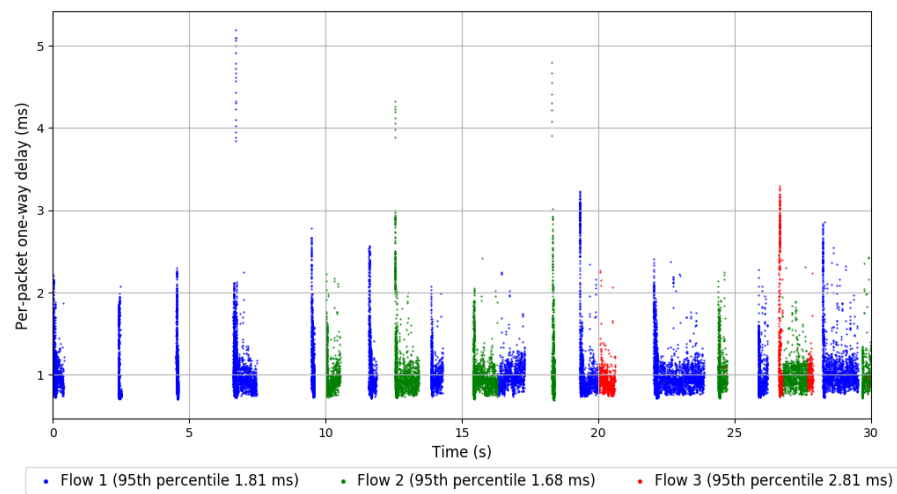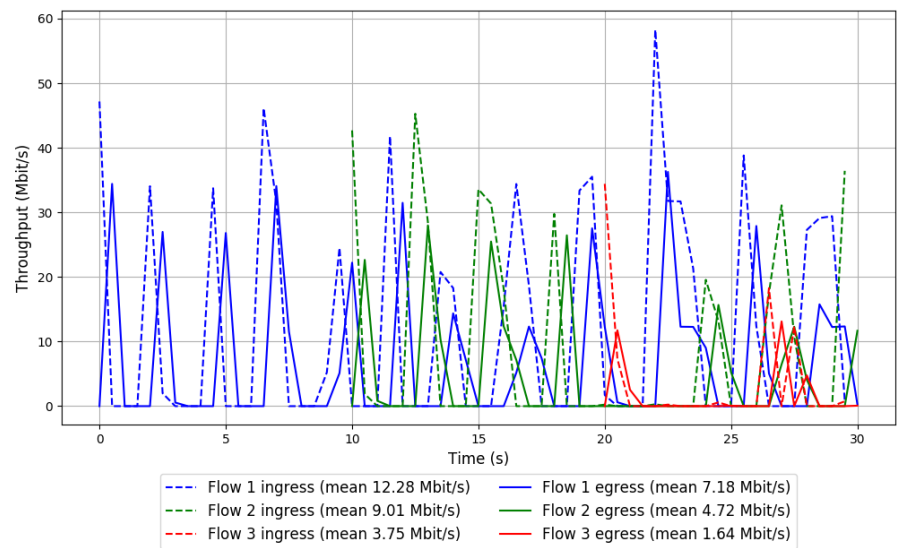
Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2019-03-19 03:51:04
End at: 2019-03-19 03:51:34
Local clock offset: 0.706 ms
Remote clock offset: 0.64 ms

# Below is generated by plot.py at 2019-03-19 05:14:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 11.02 Mbit/s
95th percentile per-packet one-way delay: 1.617 ms
Loss rate: 54.35%
-- Flow 1:
Average throughput: 5.43 Mbit/s
95th percentile per-packet one-way delay: 1.885 ms
Loss rate: 49.07%
-- Flow 2:
Average throughput: 7.44 Mbit/s
95th percentile per-packet one-way delay: 1.485 ms
Loss rate: 59.35%
-- Flow 3:
Average throughput: 4.29 Mbit/s
95th percentile per-packet one-way delay: 1.435 ms
Loss rate: 51.89%
```

Run 3: Report of Copa — Data Link

Flow 1 ingress (mean 9.93 Mbit/s)   Flow 1 egress (mean 5.43 Mbit/s)
Flow 2 ingress (mean 18.30 Mbit/s)   Flow 2 egress (mean 7.44 Mbit/s)
Flow 3 ingress (mean 8.92 Mbit/s)   Flow 3 egress (mean 4.29 Mbit/s)

Flow 1 (95th percentile 1.89 ms)   Flow 2 (95th percentile 1.49 ms)   Flow 3 (95th percentile 1.44 ms)

```
Run 4: Statistics of Copa

Start at: 2019-03-19 04:20:23
End at: 2019-03-19 04:20:53
Local clock offset: 0.549 ms
Remote clock offset: -0.345 ms


# Below is generated by plot.py at 2019-03-19 05:14:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.74 Mbit/s
95th percentile per-packet one-way delay: 1.827 ms
Loss rate: 44.40%
-- Flow 1:
Average throughput: 7.18 Mbit/s
95th percentile per-packet one-way delay: 1.808 ms
Loss rate: 41.58%
-- Flow 2:
Average throughput: 4.72 Mbit/s
95th percentile per-packet one-way delay: 1.683 ms
Loss rate: 47.62%
-- Flow 3:
Average throughput: 1.64 Mbit/s
95th percentile per-packet one-way delay: 2.811 ms
Loss rate: 56.29%
```
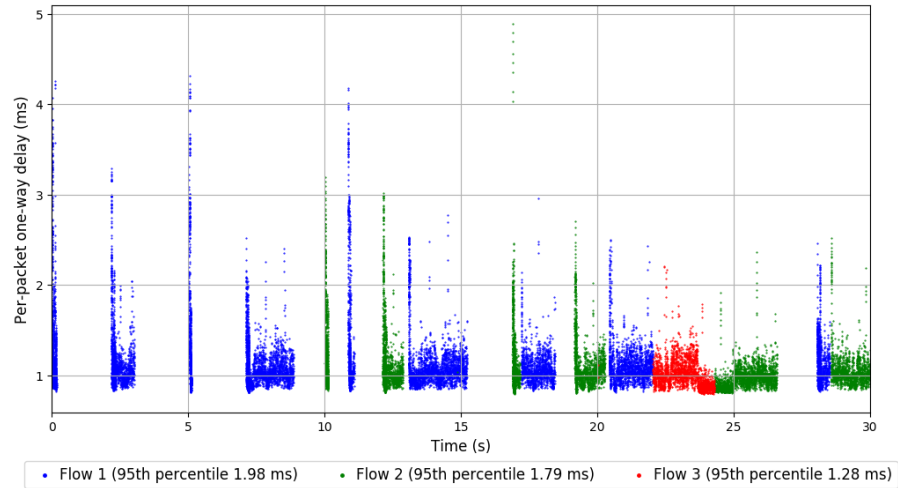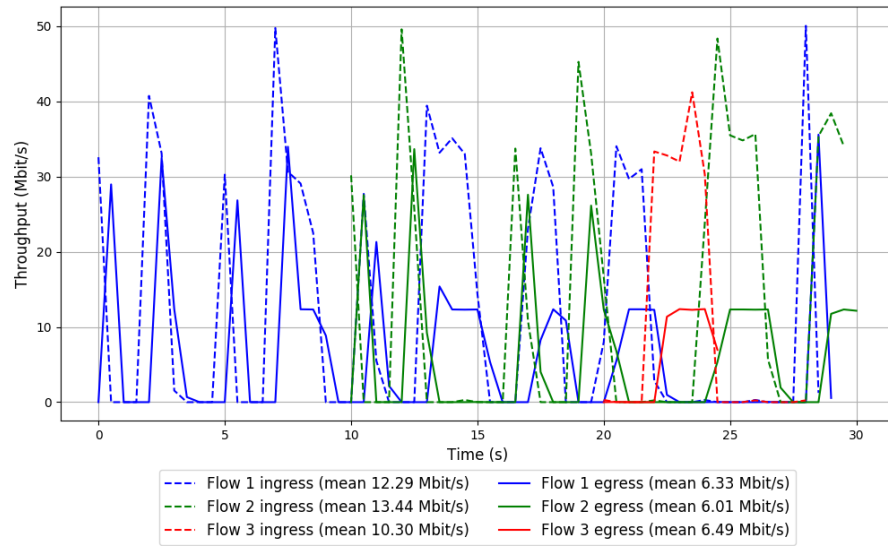
Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2019-03-19 04:50:01
End at: 2019-03-19 04:50:31
Local clock offset: 0.694 ms
Remote clock offset: -0.24 ms


# Below is generated by plot.py at 2019-03-19 05:14:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.94 Mbit/s
95th percentile per-packet one-way delay: 1.858 ms
Loss rate: 53.41%
-- Flow 1:
Average throughput: 6.33 Mbit/s
95th percentile per-packet one-way delay: 1.983 ms
Loss rate: 48.52%
-- Flow 2:
Average throughput: 6.01 Mbit/s
95th percentile per-packet one-way delay: 1.789 ms
Loss rate: 55.31%
-- Flow 3:
Average throughput: 6.49 Mbit/s
95th percentile per-packet one-way delay: 1.283 ms
Loss rate: 67.51%
```
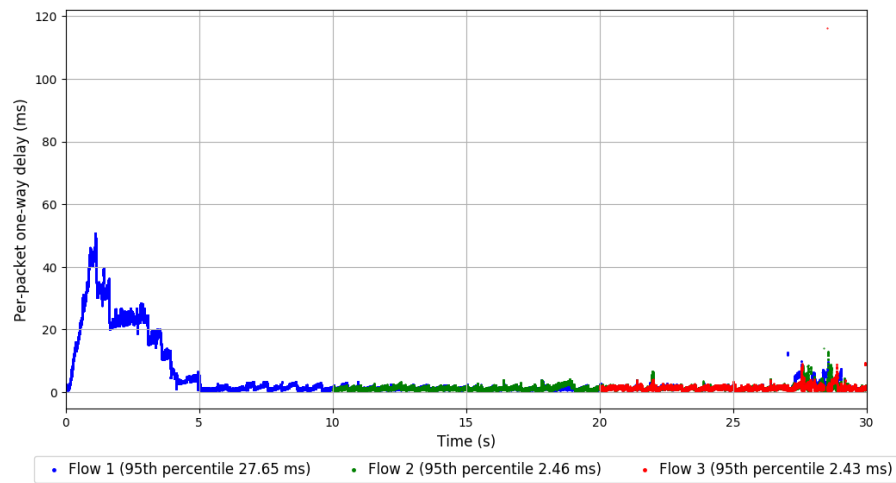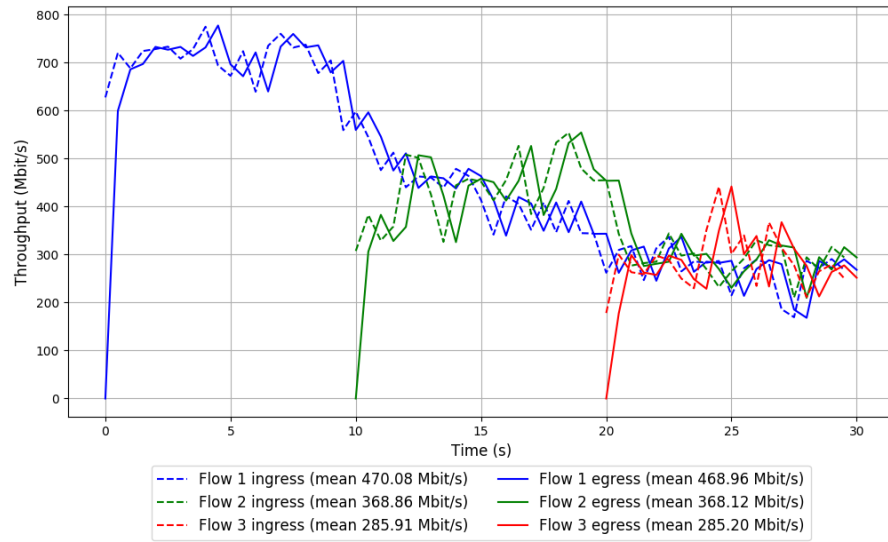
Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2019-03-19 02:46:58
End at: 2019-03-19 02:47:28
Local clock offset: 0.437 ms
Remote clock offset: 0.08 ms


# Below is generated by plot.py at 2019-03-19 05:14:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 809.10 Mbit/s
95th percentile per-packet one-way delay: 23.076 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 468.96 Mbit/s
95th percentile per-packet one-way delay: 27.650 ms
Loss rate: 0.24%
-- Flow 2:
Average throughput: 368.12 Mbit/s
95th percentile per-packet one-way delay: 2.455 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 285.20 Mbit/s
95th percentile per-packet one-way delay: 2.426 ms
Loss rate: 0.24%
```
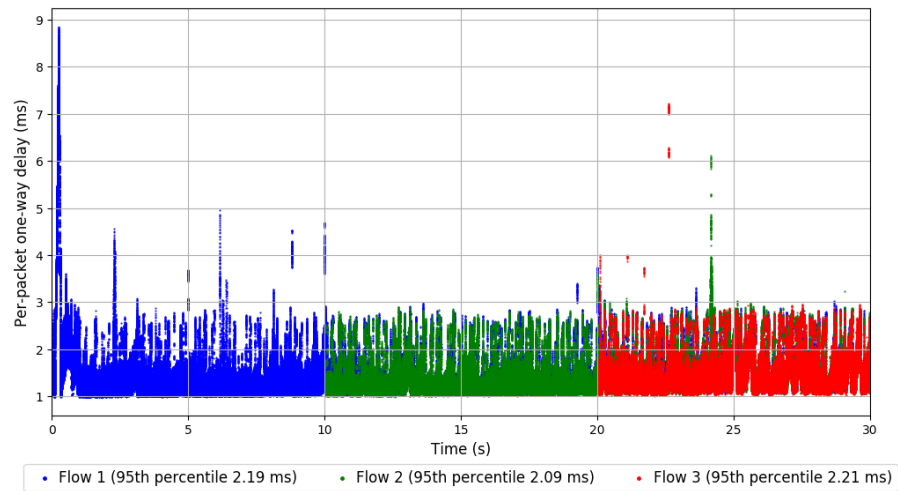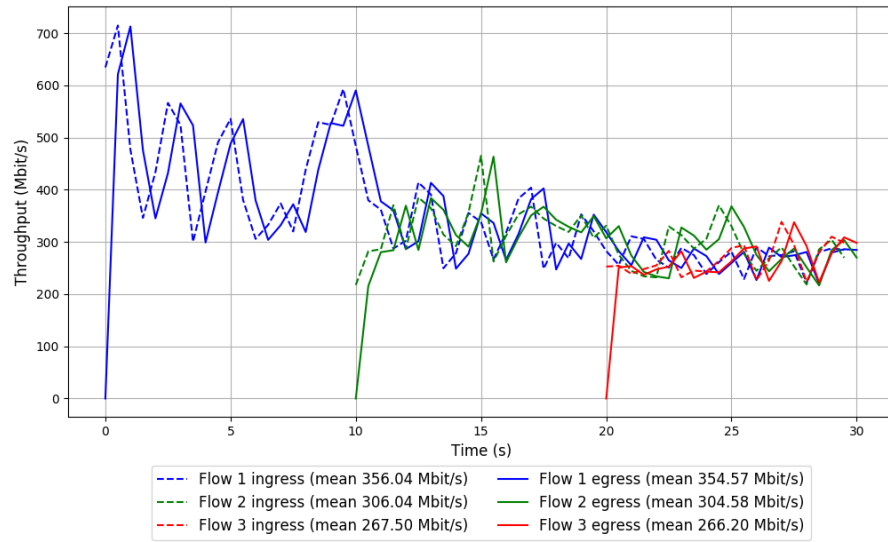
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2019-03-19 03:16:47
End at: 2019-03-19 03:17:17
Local clock offset: -1.127 ms
Remote clock offset: 1.003 ms


# Below is generated by plot.py at 2019-03-19 05:14:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 645.97 Mbit/s
95th percentile per-packet one-way delay: 2.162 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 354.57 Mbit/s
95th percentile per-packet one-way delay: 2.190 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 304.58 Mbit/s
95th percentile per-packet one-way delay: 2.091 ms
Loss rate: 0.48%
-- Flow 3:
Average throughput: 266.20 Mbit/s
95th percentile per-packet one-way delay: 2.208 ms
Loss rate: 0.50%
```
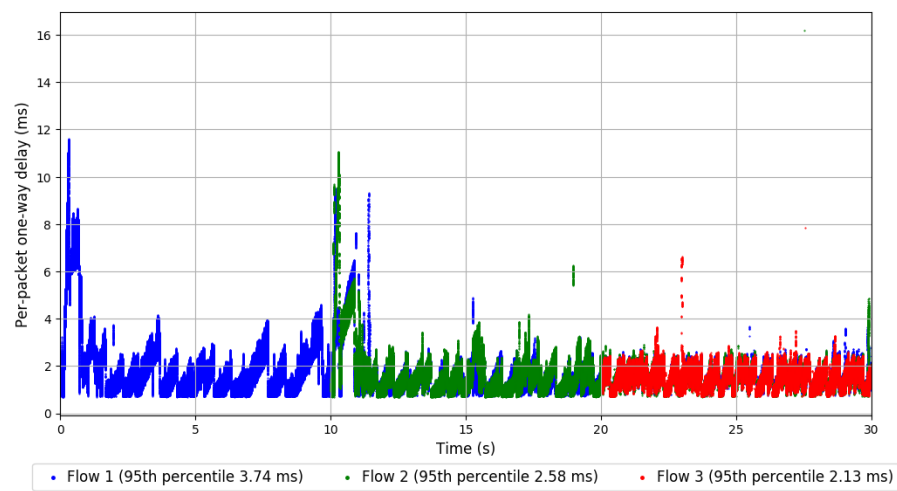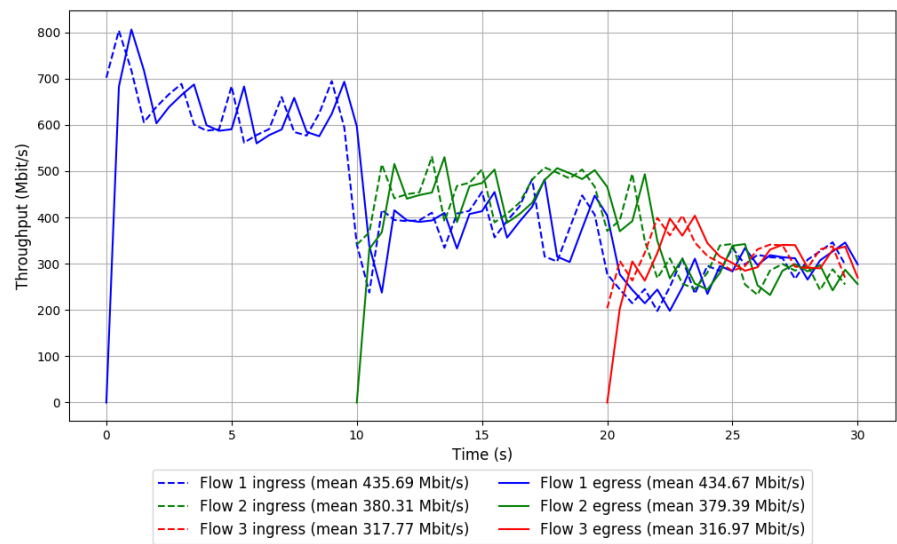
Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2019-03-19 03:46:45
End at: 2019-03-19 03:47:15
Local clock offset: 0.886 ms
Remote clock offset: 1.082 ms


# Below is generated by plot.py at 2019-03-19 05:14:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 792.89 Mbit/s
95th percentile per-packet one-way delay: 3.045 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 434.67 Mbit/s
95th percentile per-packet one-way delay: 3.742 ms
Loss rate: 0.23%
-- Flow 2:
Average throughput: 379.39 Mbit/s
95th percentile per-packet one-way delay: 2.575 ms
Loss rate: 0.24%
-- Flow 3:
Average throughput: 316.97 Mbit/s
95th percentile per-packet one-way delay: 2.131 ms
Loss rate: 0.25%
```
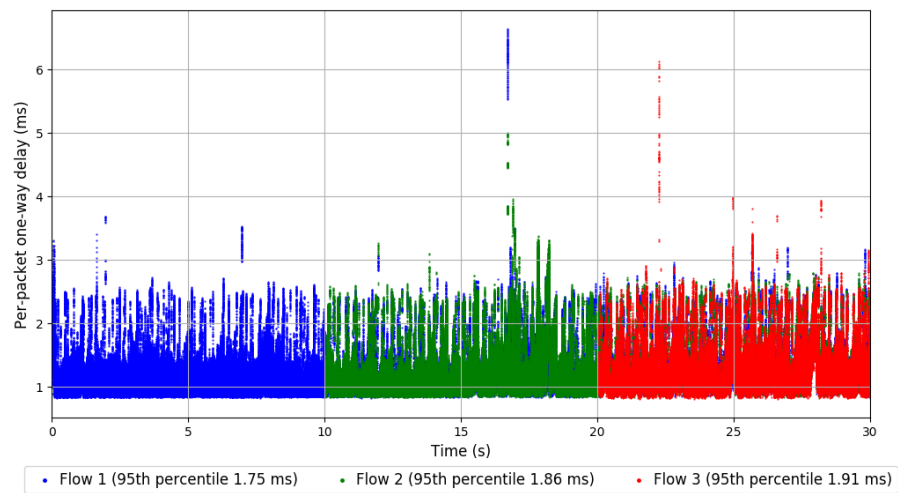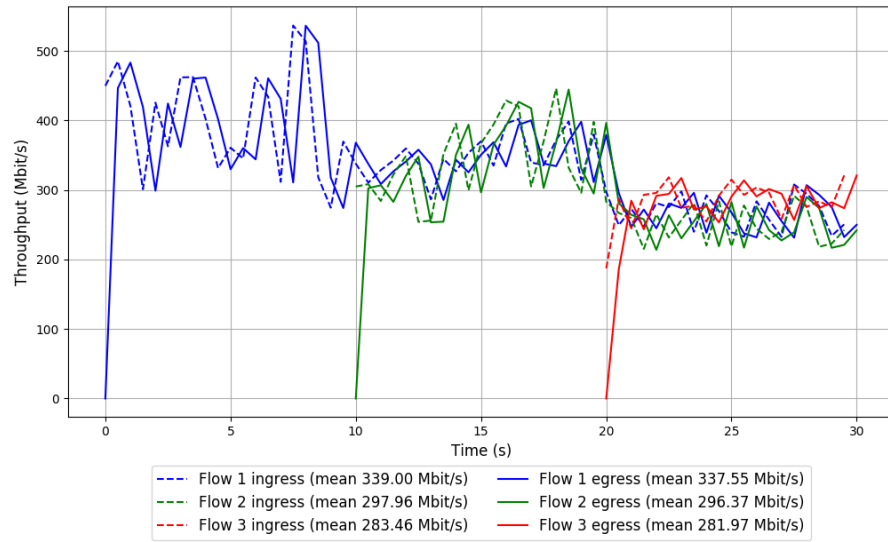
Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 435.69 Mbit/s)   Flow 1 egress (mean 434.67 Mbit/s)
Flow 2 ingress (mean 380.31 Mbit/s)   Flow 2 egress (mean 379.39 Mbit/s)
Flow 3 ingress (mean 317.77 Mbit/s)   Flow 3 egress (mean 316.97 Mbit/s)

Flow 1 (95th percentile 3.74 ms)   Flow 2 (95th percentile 2.58 ms)   Flow 3 (95th percentile 2.13 ms)
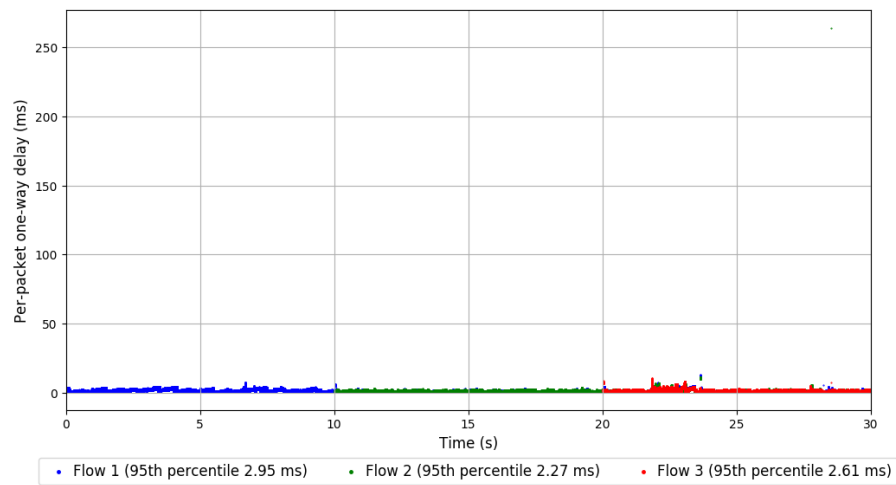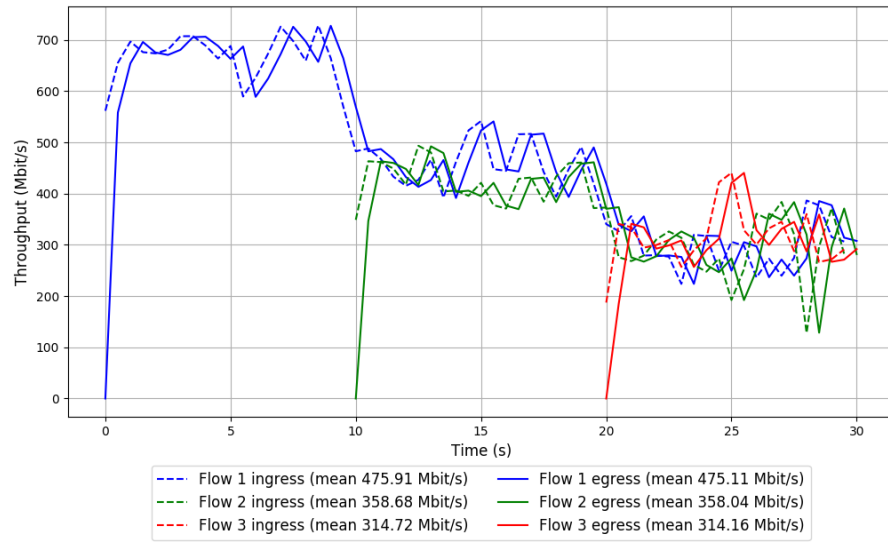
```
Run 4: Statistics of TCP Cubic

Start at: 2019-03-19 04:16:08
End at: 2019-03-19 04:16:38
Local clock offset: 0.464 ms
Remote clock offset: -0.2 ms


# Below is generated by plot.py at 2019-03-19 05:18:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 628.73 Mbit/s
95th percentile per-packet one-way delay: 1.814 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 337.55 Mbit/s
95th percentile per-packet one-way delay: 1.750 ms
Loss rate: 0.42%
-- Flow 2:
Average throughput: 296.37 Mbit/s
95th percentile per-packet one-way delay: 1.861 ms
Loss rate: 0.53%
-- Flow 3:
Average throughput: 281.97 Mbit/s
95th percentile per-packet one-way delay: 1.906 ms
Loss rate: 0.53%
```
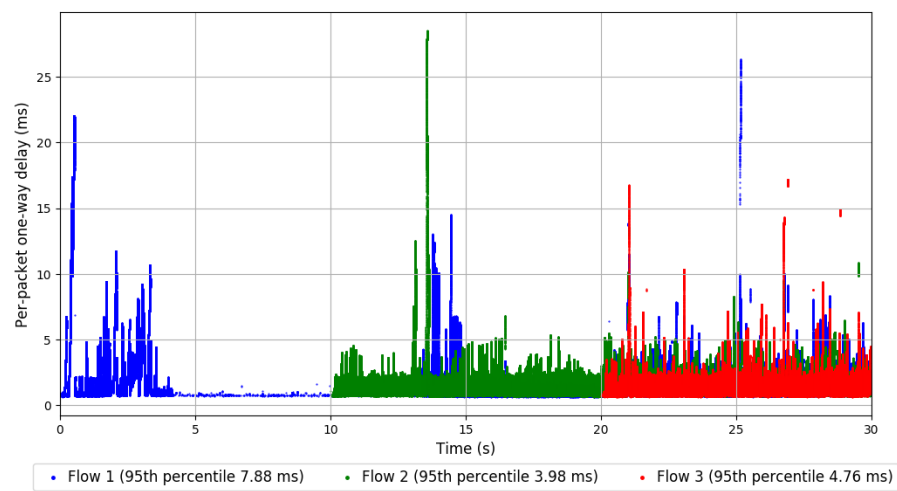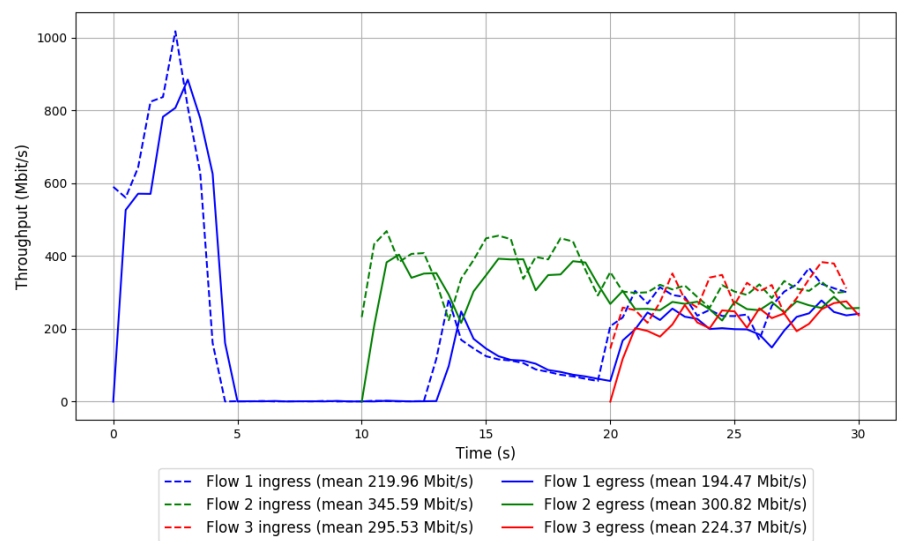
Run 4: Report of TCP Cubic — Data Link

- - - Flow 1 ingress (mean 339.00 Mbit/s) —— Flow 1 egress (mean 337.55 Mbit/s)
- - - Flow 2 ingress (mean 297.96 Mbit/s) —— Flow 2 egress (mean 296.37 Mbit/s)
- - - Flow 3 ingress (mean 283.46 Mbit/s) —— Flow 3 egress (mean 281.97 Mbit/s)

• Flow 1 (95th percentile 1.75 ms)　　• Flow 2 (95th percentile 1.86 ms)　　• Flow 3 (95th percentile 1.91 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2019-03-19 04:45:33
End at: 2019-03-19 04:46:03
Local clock offset: 0.774 ms
Remote clock offset: -0.219 ms


# Below is generated by plot.py at 2019-03-19 05:22:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 817.97 Mbit/s
95th percentile per-packet one-way delay: 2.796 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 475.11 Mbit/s
95th percentile per-packet one-way delay: 2.950 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 358.04 Mbit/s
95th percentile per-packet one-way delay: 2.274 ms
Loss rate: 0.17%
-- Flow 3:
Average throughput: 314.16 Mbit/s
95th percentile per-packet one-way delay: 2.606 ms
Loss rate: 0.17%
```

Run 5: Report of TCP Cubic — Data Link

```
Run 1: Statistics of FillP

Start at: 2019-03-19 02:44:12
End at: 2019-03-19 02:44:42
Local clock offset: 0.513 ms
Remote clock offset: -0.064 ms

# Below is generated by plot.py at 2019-03-19 05:22:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 469.19 Mbit/s
95th percentile per-packet one-way delay: 5.671 ms
Loss rate: 14.40%
-- Flow 1:
Average throughput: 194.47 Mbit/s
95th percentile per-packet one-way delay: 7.882 ms
Loss rate: 11.59%
-- Flow 2:
Average throughput: 300.82 Mbit/s
95th percentile per-packet one-way delay: 3.981 ms
Loss rate: 12.96%
-- Flow 3:
Average throughput: 224.37 Mbit/s
95th percentile per-packet one-way delay: 4.756 ms
Loss rate: 24.06%
```
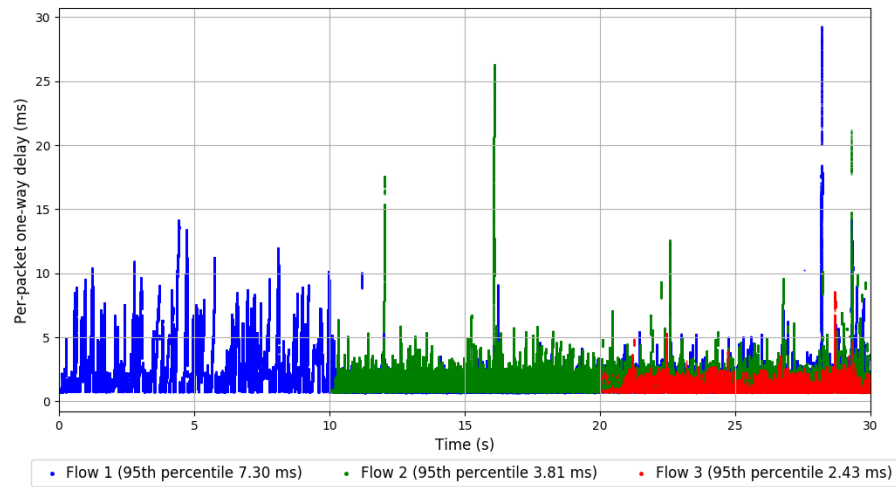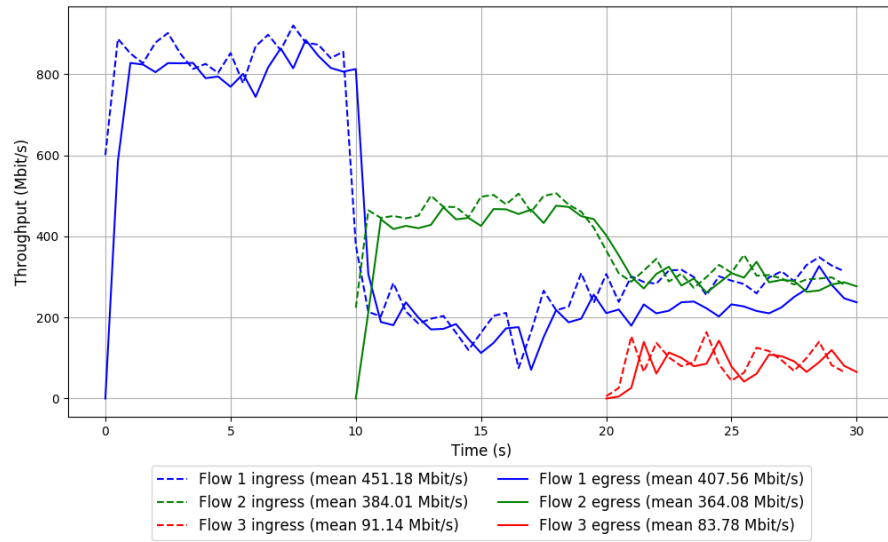
Run 1: Report of FillP — Data Link

```
Run 2: Statistics of FillP

Start at: 2019-03-19 03:13:56
End at: 2019-03-19 03:14:26
Local clock offset: -1.12 ms
Remote clock offset: 0.856 ms


# Below is generated by plot.py at 2019-03-19 05:23:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 677.59 Mbit/s
95th percentile per-packet one-way delay: 6.572 ms
Loss rate: 8.04%
-- Flow 1:
Average throughput: 407.56 Mbit/s
95th percentile per-packet one-way delay: 7.298 ms
Loss rate: 9.66%
-- Flow 2:
Average throughput: 364.08 Mbit/s
95th percentile per-packet one-way delay: 3.811 ms
Loss rate: 5.18%
-- Flow 3:
Average throughput: 83.78 Mbit/s
95th percentile per-packet one-way delay: 2.428 ms
Loss rate: 8.09%
```
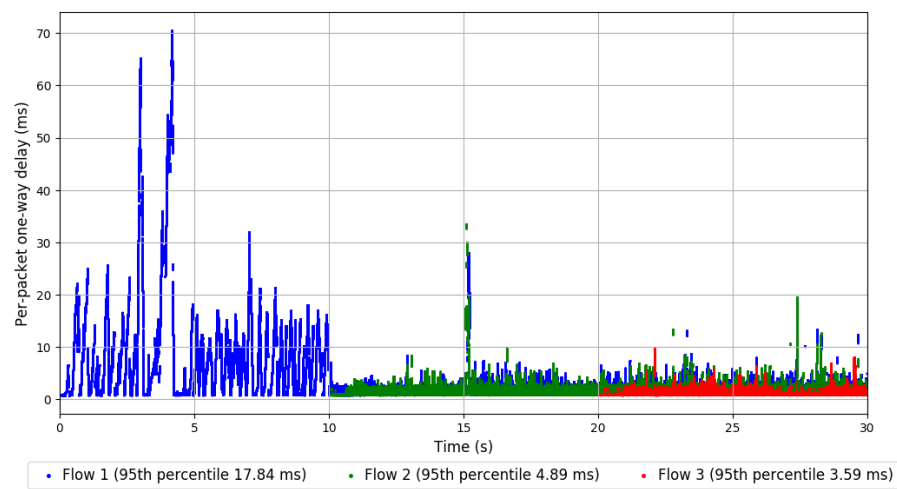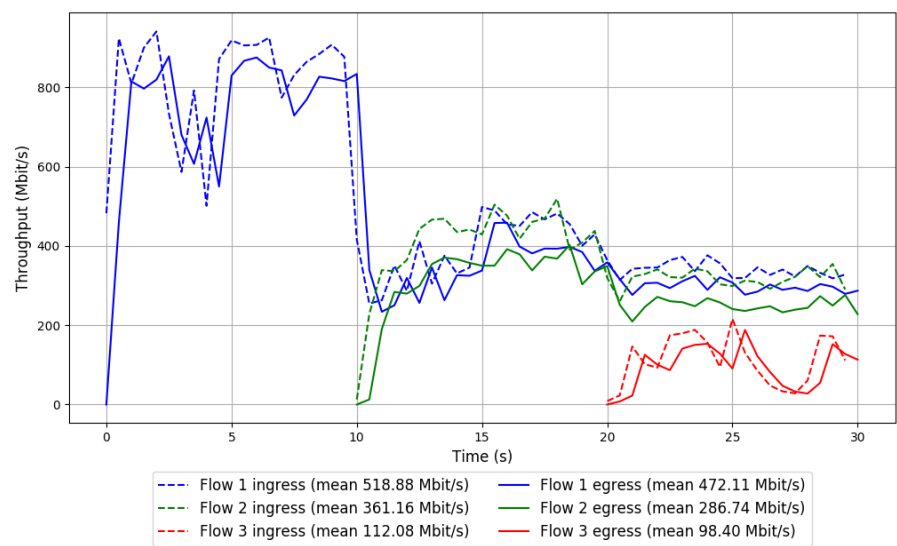
Run 2: Report of FillP — Data Link

Flow 1 ingress (mean 451.18 Mbit/s)   Flow 1 egress (mean 407.56 Mbit/s)
Flow 2 ingress (mean 384.01 Mbit/s)   Flow 2 egress (mean 364.08 Mbit/s)
Flow 3 ingress (mean 91.14 Mbit/s)   Flow 3 egress (mean 83.78 Mbit/s)

Flow 1 (95th percentile 7.30 ms)   Flow 2 (95th percentile 3.81 ms)   Flow 3 (95th percentile 2.43 ms)

```
Run 3: Statistics of FillP

Start at: 2019-03-19 03:43:53
End at: 2019-03-19 03:44:23
Local clock offset: 0.876 ms
Remote clock offset: 1.688 ms


# Below is generated by plot.py at 2019-03-19 05:24:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 695.46 Mbit/s
95th percentile per-packet one-way delay: 15.491 ms
Loss rate: 12.66%
-- Flow 1:
Average throughput: 472.11 Mbit/s
95th percentile per-packet one-way delay: 17.837 ms
Loss rate: 9.01%
-- Flow 2:
Average throughput: 286.74 Mbit/s
95th percentile per-packet one-way delay: 4.894 ms
Loss rate: 20.61%
-- Flow 3:
Average throughput: 98.40 Mbit/s
95th percentile per-packet one-way delay: 3.591 ms
Loss rate: 12.20%
```
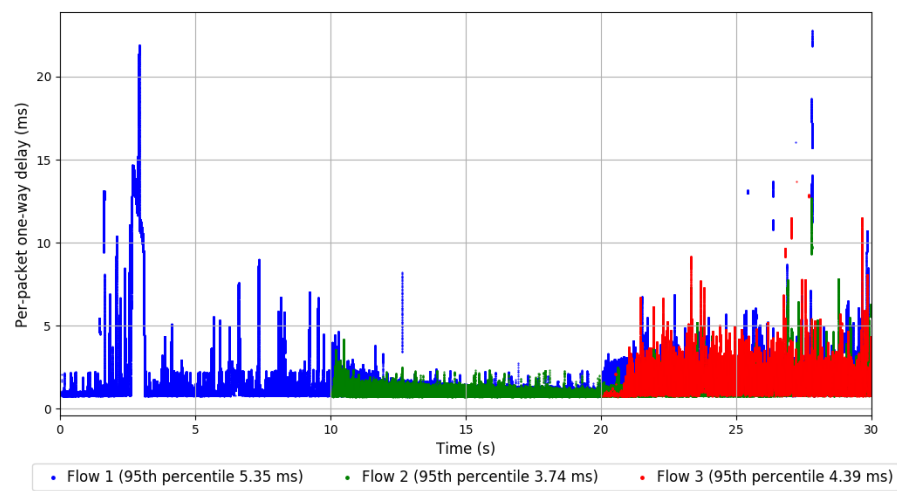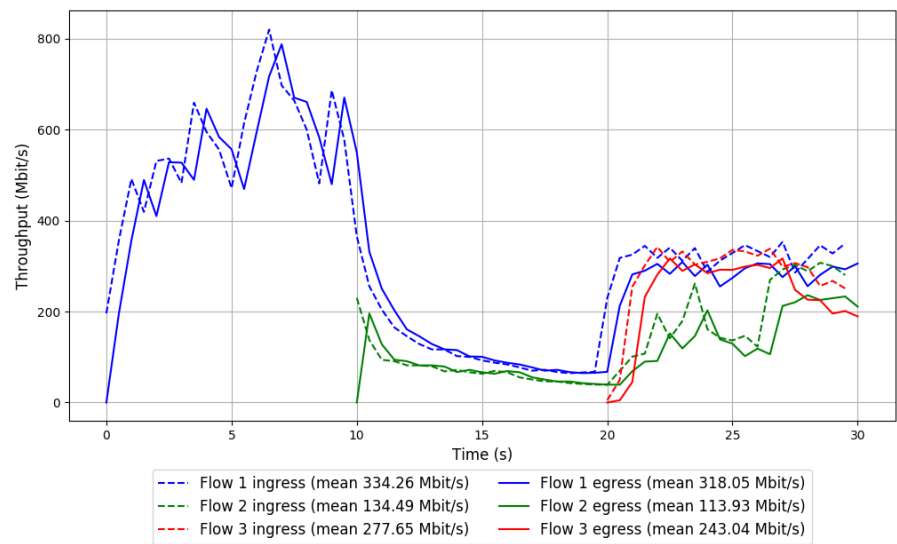
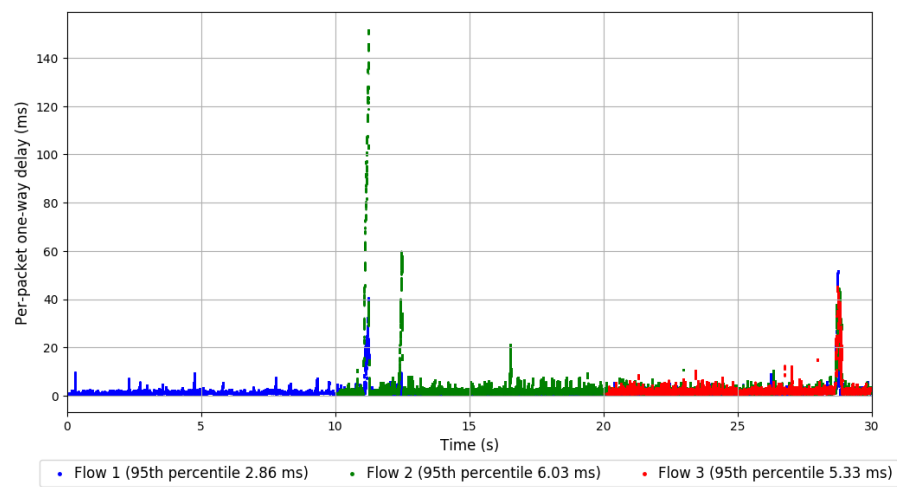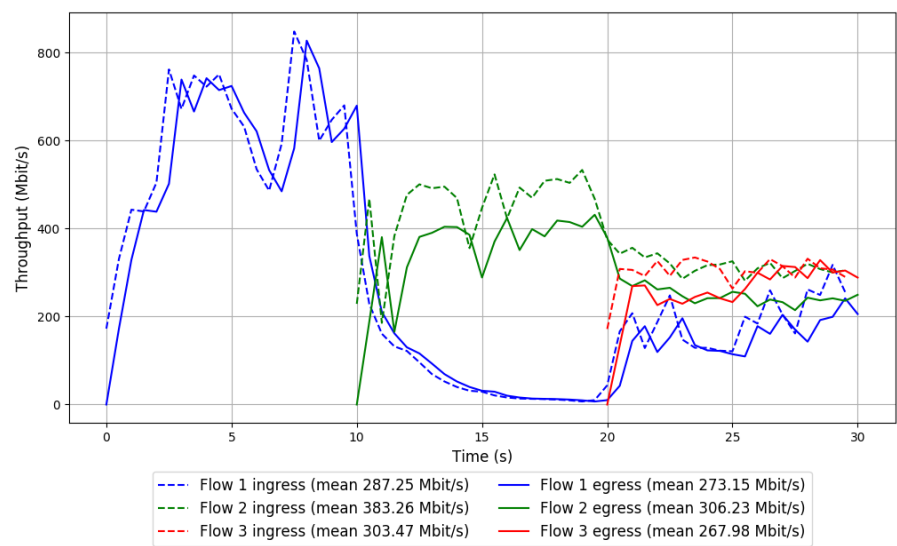Run 3: Report of FillP — Data Link

```
Run 4: Statistics of FillP

Start at: 2019-03-19 04:13:23
End at: 2019-03-19 04:13:53
Local clock offset: 0.481 ms
Remote clock offset: -0.2 ms

# Below is generated by plot.py at 2019-03-19 05:24:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 474.62 Mbit/s
95th percentile per-packet one-way delay: 4.758 ms
Loss rate: 8.01%
-- Flow 1:
Average throughput: 318.05 Mbit/s
95th percentile per-packet one-way delay: 5.353 ms
Loss rate: 4.84%
-- Flow 2:
Average throughput: 113.93 Mbit/s
95th percentile per-packet one-way delay: 3.737 ms
Loss rate: 15.27%
-- Flow 3:
Average throughput: 243.04 Mbit/s
95th percentile per-packet one-way delay: 4.392 ms
Loss rate: 12.47%
```
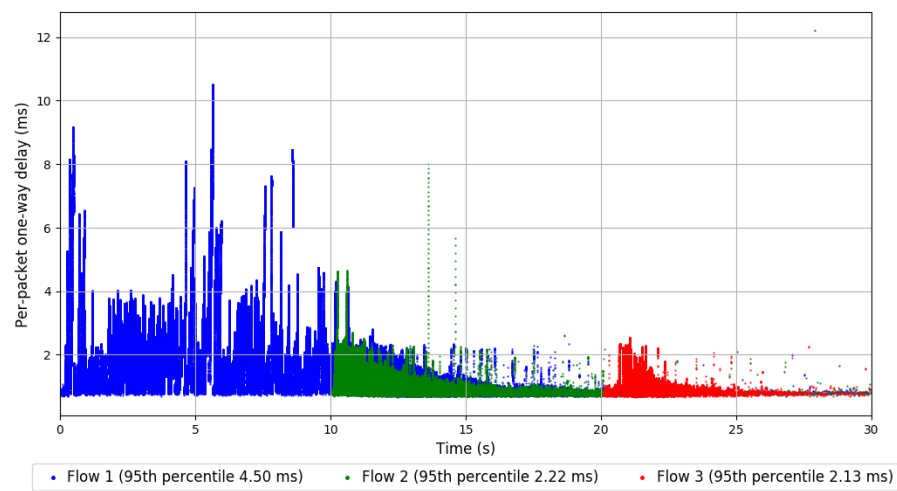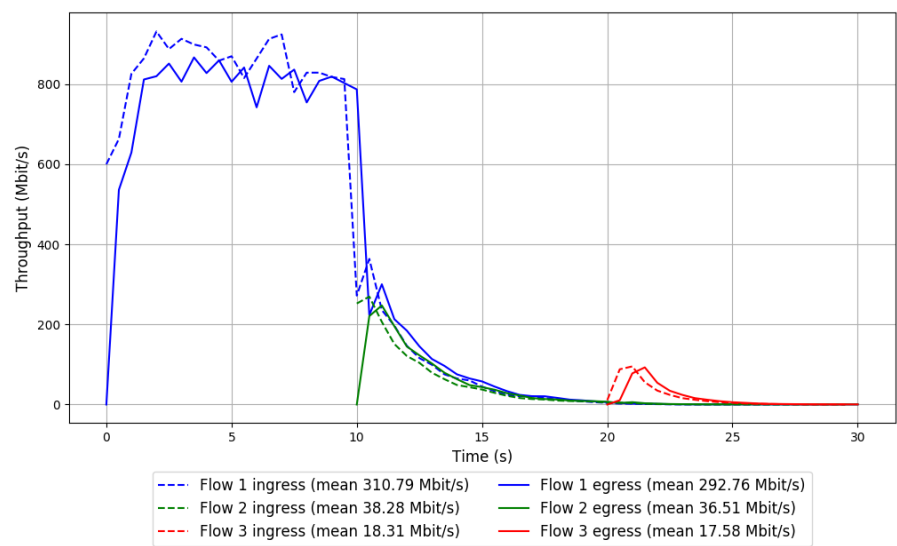
Run 4: Report of FillP — Data Link

```
Run 5: Statistics of FillP

Start at: 2019-03-19 04:42:44
End at: 2019-03-19 04:43:14
Local clock offset: 0.741 ms
Remote clock offset: -0.194 ms


# Below is generated by plot.py at 2019-03-19 05:24:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 565.53 Mbit/s
95th percentile per-packet one-way delay: 4.973 ms
Loss rate: 12.00%
-- Flow 1:
Average throughput: 273.15 Mbit/s
95th percentile per-packet one-way delay: 2.864 ms
Loss rate: 4.91%
-- Flow 2:
Average throughput: 306.23 Mbit/s
95th percentile per-packet one-way delay: 6.027 ms
Loss rate: 20.10%
-- Flow 3:
Average throughput: 267.98 Mbit/s
95th percentile per-packet one-way delay: 5.330 ms
Loss rate: 11.68%
```

Run 5: Report of FillP — Data Link

Flow 1 ingress (mean 287.25 Mbit/s) --- Flow 1 egress (mean 273.15 Mbit/s)
Flow 2 ingress (mean 383.26 Mbit/s) --- Flow 2 egress (mean 306.23 Mbit/s)
Flow 3 ingress (mean 303.47 Mbit/s) --- Flow 3 egress (mean 267.98 Mbit/s)

Flow 1 (95th percentile 2.86 ms)   •   Flow 2 (95th percentile 6.03 ms)   •   Flow 3 (95th percentile 5.33 ms)

```
Run 1: Statistics of FillP-Sheep

Start at: 2019-03-19 02:30:47
End at: 2019-03-19 02:31:17
Local clock offset: 0.561 ms
Remote clock offset: -0.455 ms


# Below is generated by plot.py at 2019-03-19 05:24:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 322.87 Mbit/s
95th percentile per-packet one-way delay: 4.347 ms
Loss rate: 5.68%
-- Flow 1:
Average throughput: 292.76 Mbit/s
95th percentile per-packet one-way delay: 4.503 ms
Loss rate: 5.80%
-- Flow 2:
Average throughput: 36.51 Mbit/s
95th percentile per-packet one-way delay: 2.220 ms
Loss rate: 4.64%
-- Flow 3:
Average throughput: 17.58 Mbit/s
95th percentile per-packet one-way delay: 2.128 ms
Loss rate: 3.99%
```
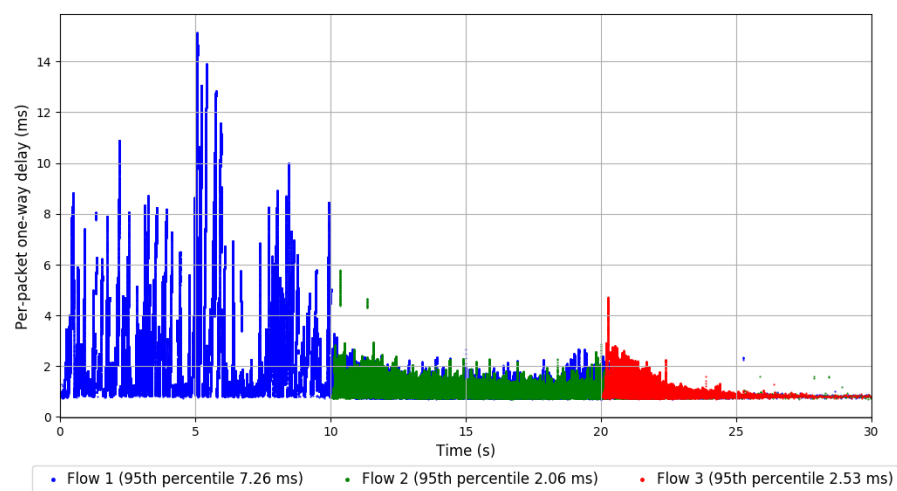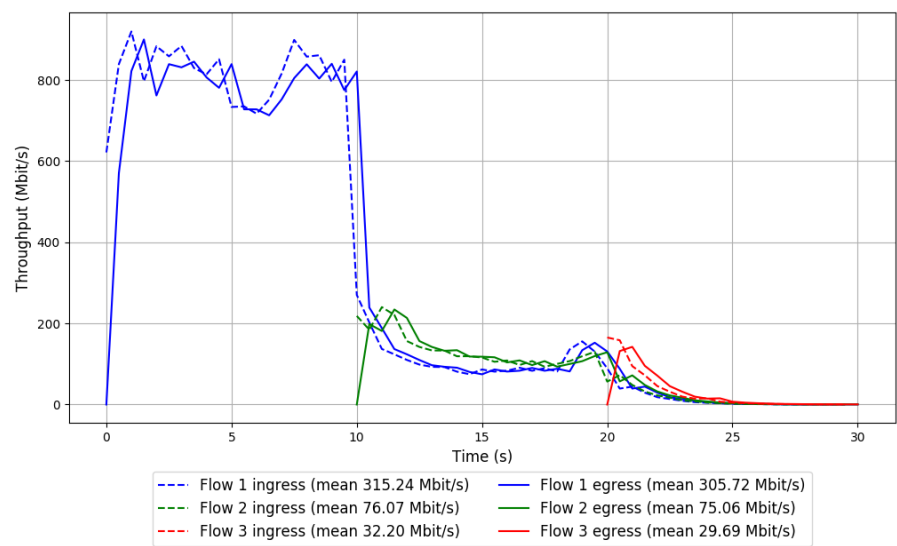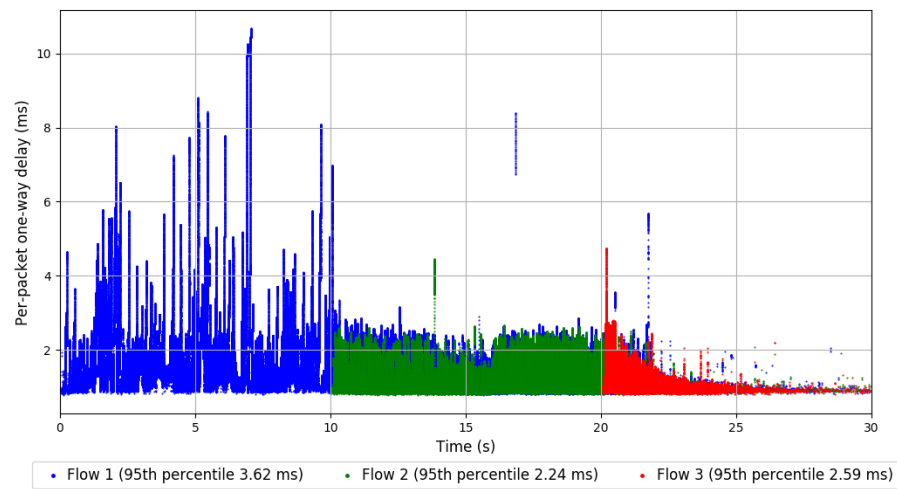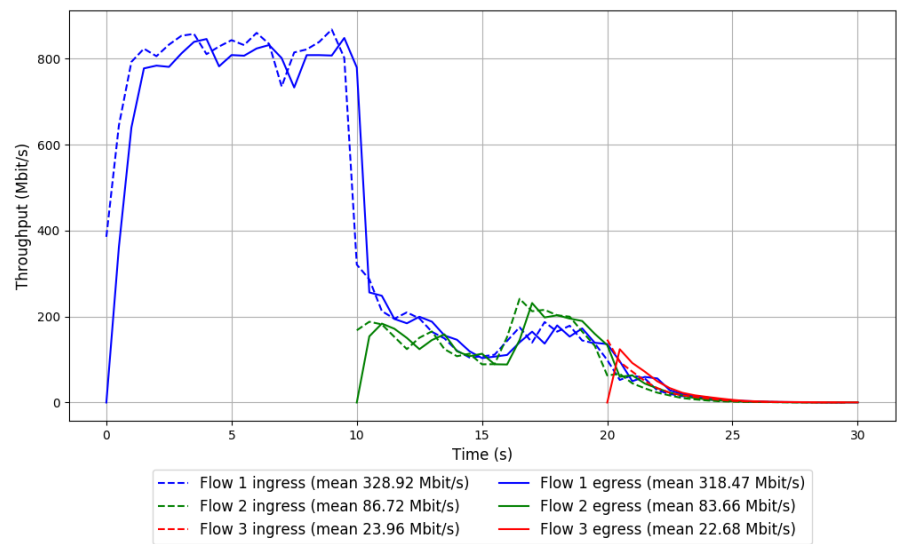
Run 1: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 310.79 Mbit/s) --- Flow 1 egress (mean 292.76 Mbit/s)
Flow 2 ingress (mean 38.28 Mbit/s) --- Flow 2 egress (mean 36.51 Mbit/s)
Flow 3 ingress (mean 18.31 Mbit/s) --- Flow 3 egress (mean 17.58 Mbit/s)

Flow 1 (95th percentile 4.50 ms)   Flow 2 (95th percentile 2.22 ms)   Flow 3 (95th percentile 2.13 ms)

```
Run 2: Statistics of FillP-Sheep

Start at: 2019-03-19 03:00:20
End at: 2019-03-19 03:00:50
Local clock offset: -0.654 ms
Remote clock offset: 0.532 ms


# Below is generated by plot.py at 2019-03-19 05:24:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 365.25 Mbit/s
95th percentile per-packet one-way delay: 6.797 ms
Loss rate: 2.93%
-- Flow 1:
Average throughput: 305.72 Mbit/s
95th percentile per-packet one-way delay: 7.262 ms
Loss rate: 3.02%
-- Flow 2:
Average throughput: 75.06 Mbit/s
95th percentile per-packet one-way delay: 2.062 ms
Loss rate: 1.33%
-- Flow 3:
Average throughput: 29.69 Mbit/s
95th percentile per-packet one-way delay: 2.529 ms
Loss rate: 7.81%
```
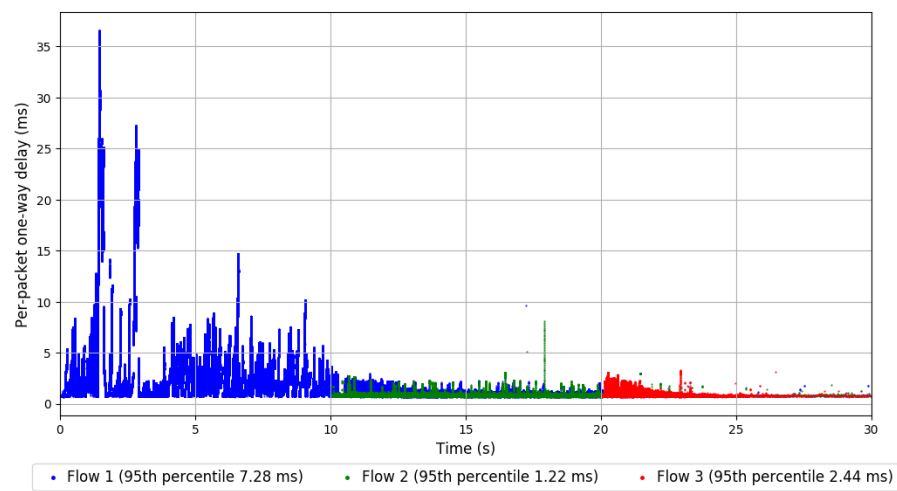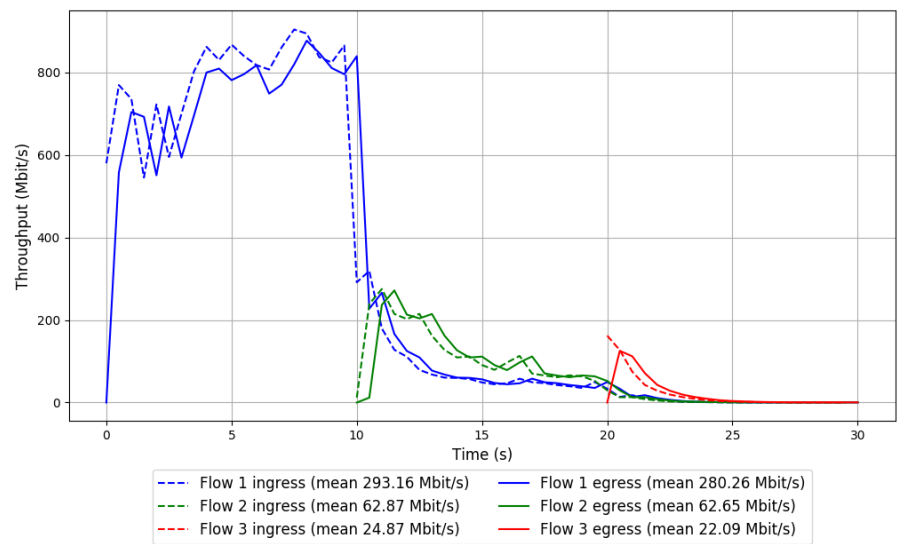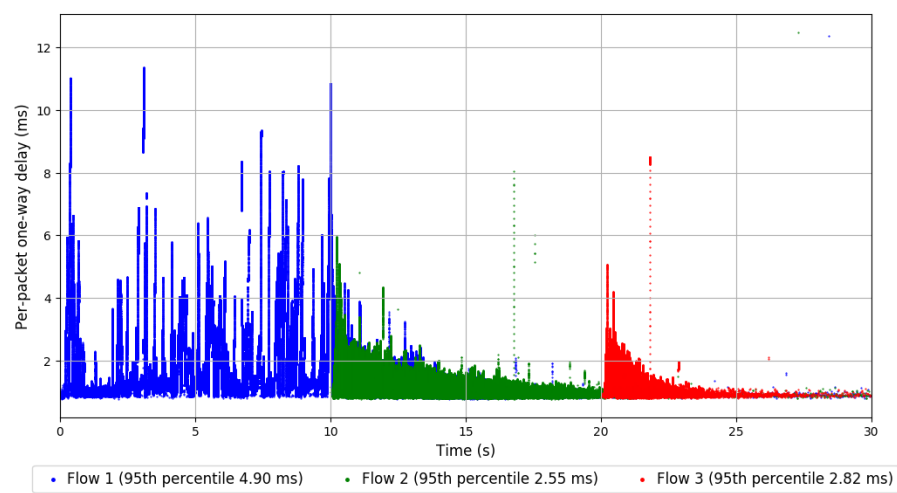
Run 2: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 315.24 Mbit/s)   Flow 1 egress (mean 305.72 Mbit/s)
Flow 2 ingress (mean 76.07 Mbit/s)   Flow 2 egress (mean 75.06 Mbit/s)
Flow 3 ingress (mean 32.20 Mbit/s)   Flow 3 egress (mean 29.69 Mbit/s)

Flow 1 (95th percentile 7.26 ms)   Flow 2 (95th percentile 2.06 ms)   Flow 3 (95th percentile 2.53 ms)

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```
Run 3: Statistics of FillP-Sheep

Start at: 2019-03-19 03:30:04
End at: 2019-03-19 03:30:34
Local clock offset: 0.436 ms
Remote clock offset: 1.429 ms


# Below is generated by plot.py at 2019-03-19 05:24:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 381.54 Mbit/s
95th percentile per-packet one-way delay: 3.418 ms
Loss rate: 3.27%
-- Flow 1:
Average throughput: 318.47 Mbit/s
95th percentile per-packet one-way delay: 3.618 ms
Loss rate: 3.18%
-- Flow 2:
Average throughput: 83.66 Mbit/s
95th percentile per-packet one-way delay: 2.238 ms
Loss rate: 3.53%
-- Flow 3:
Average throughput: 22.68 Mbit/s
95th percentile per-packet one-way delay: 2.590 ms
Loss rate: 5.34%
```
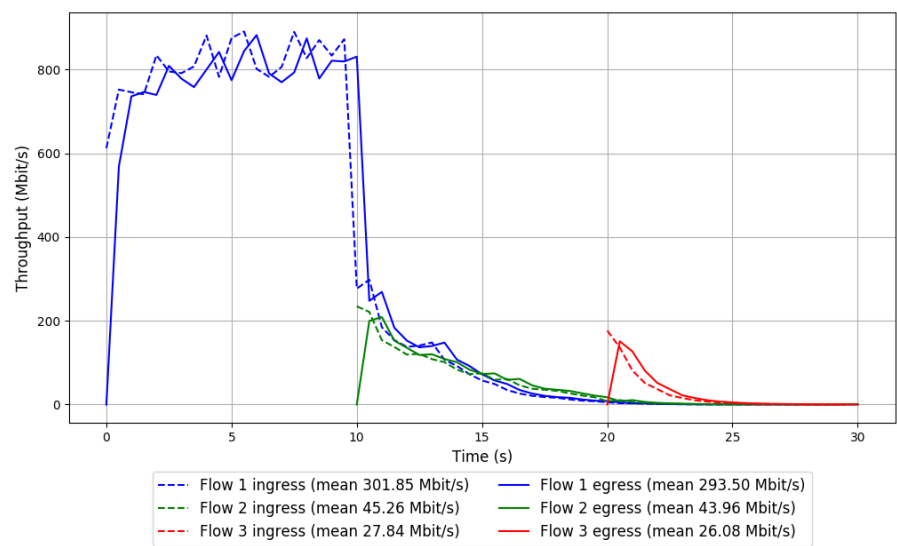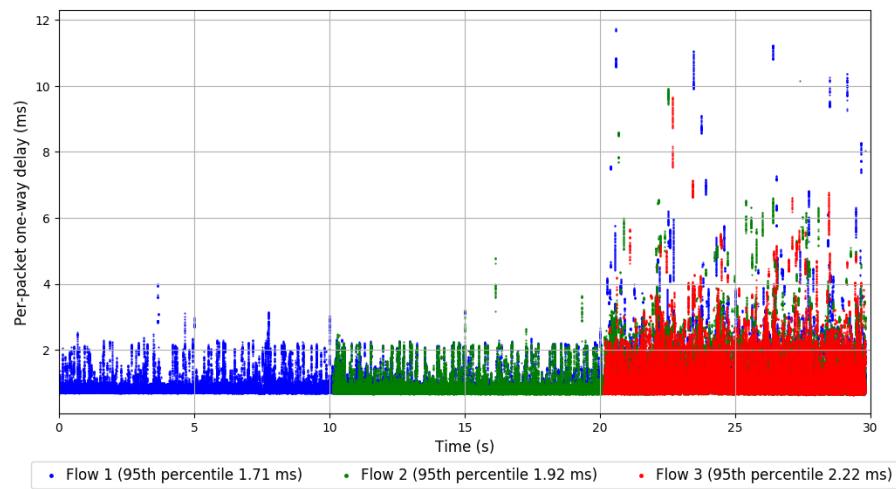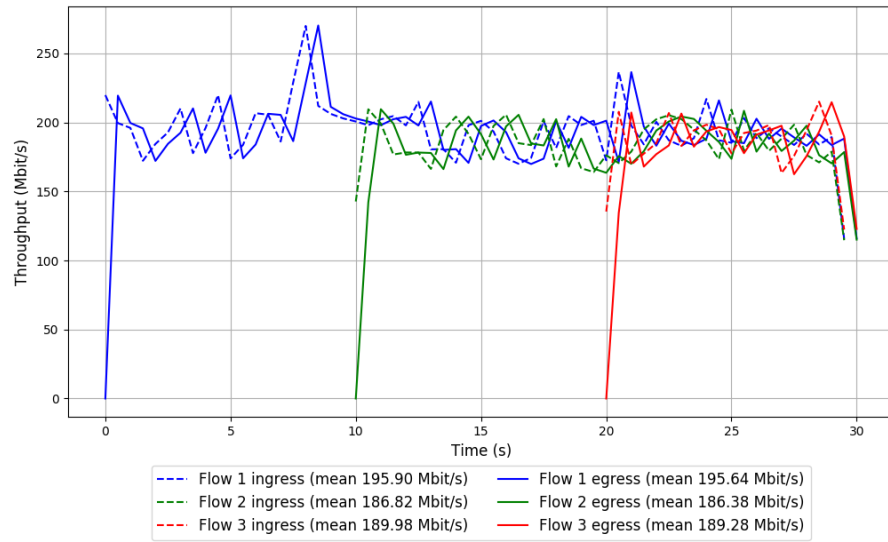
Run 3: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 328.92 Mbit/s) — — — Flow 1 egress (mean 318.47 Mbit/s) ———
Flow 2 ingress (mean 86.72 Mbit/s) — — — Flow 2 egress (mean 83.66 Mbit/s) ———
Flow 3 ingress (mean 23.96 Mbit/s) — — — Flow 3 egress (mean 22.68 Mbit/s) ———

Flow 1 (95th percentile 3.62 ms)　•　Flow 2 (95th percentile 2.24 ms)　•　Flow 3 (95th percentile 2.59 ms)

```
Run 4: Statistics of FillP-Sheep

Start at: 2019-03-19 03:59:54
End at: 2019-03-19 04:00:24
Local clock offset: 0.526 ms
Remote clock offset: 0.021 ms


# Below is generated by plot.py at 2019-03-19 05:25:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 329.15 Mbit/s
95th percentile per-packet one-way delay: 6.916 ms
Loss rate: 4.07%
-- Flow 1:
Average throughput: 280.26 Mbit/s
95th percentile per-packet one-way delay: 7.275 ms
Loss rate: 4.40%
-- Flow 2:
Average throughput: 62.65 Mbit/s
95th percentile per-packet one-way delay: 1.215 ms
Loss rate: 0.36%
-- Flow 3:
Average throughput: 22.09 Mbit/s
95th percentile per-packet one-way delay: 2.439 ms
Loss rate: 11.17%
```
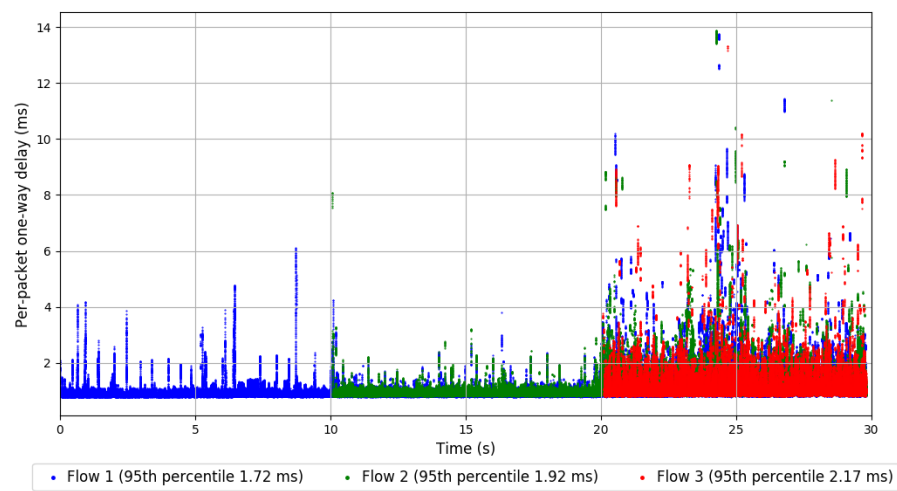
Run 4: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 293.16 Mbit/s) --- Flow 1 egress (mean 280.26 Mbit/s)
Flow 2 ingress (mean 62.87 Mbit/s) --- Flow 2 egress (mean 62.65 Mbit/s)
Flow 3 ingress (mean 24.87 Mbit/s) --- Flow 3 egress (mean 22.09 Mbit/s)

Flow 1 (95th percentile 7.28 ms)   Flow 2 (95th percentile 1.22 ms)   Flow 3 (95th percentile 2.44 ms)

```
Run 5: Statistics of FillP-Sheep

Start at: 2019-03-19 04:29:14
End at: 2019-03-19 04:29:44
Local clock offset: 0.658 ms
Remote clock offset: -0.173 ms


# Below is generated by plot.py at 2019-03-19 05:25:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 331.18 Mbit/s
95th percentile per-packet one-way delay: 4.774 ms
Loss rate: 2.87%
-- Flow 1:
Average throughput: 293.50 Mbit/s
95th percentile per-packet one-way delay: 4.903 ms
Loss rate: 2.77%
-- Flow 2:
Average throughput: 43.96 Mbit/s
95th percentile per-packet one-way delay: 2.546 ms
Loss rate: 2.88%
-- Flow 3:
Average throughput: 26.08 Mbit/s
95th percentile per-packet one-way delay: 2.818 ms
Loss rate: 6.34%
```
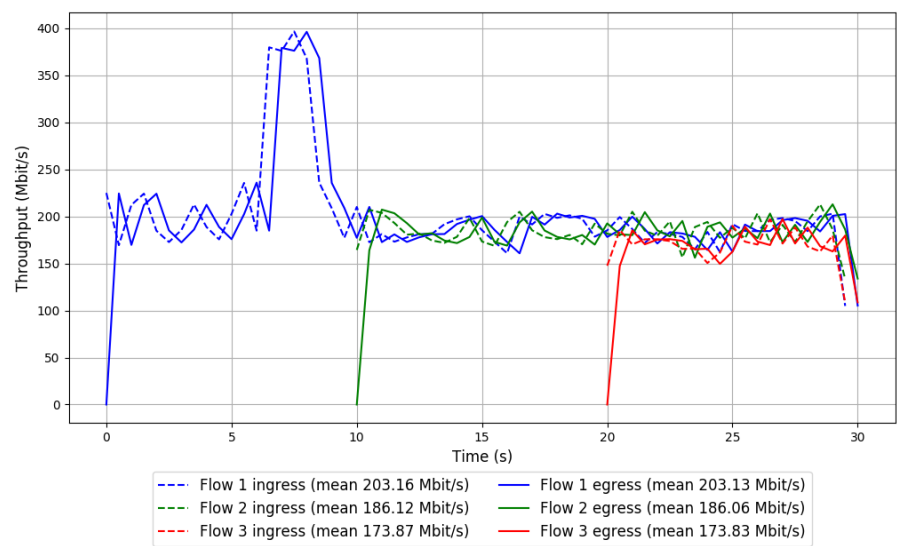
Run 5: Report of FillP-Sheep — Data Link

```
Run 1: Statistics of Indigo

Start at: 2019-03-19 02:55:46
End at: 2019-03-19 02:56:16
Local clock offset: -0.412 ms
Remote clock offset: 0.314 ms


# Below is generated by plot.py at 2019-03-19 05:26:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 380.11 Mbit/s
95th percentile per-packet one-way delay: 1.902 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 195.64 Mbit/s
95th percentile per-packet one-way delay: 1.711 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 186.38 Mbit/s
95th percentile per-packet one-way delay: 1.916 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 189.28 Mbit/s
95th percentile per-packet one-way delay: 2.218 ms
Loss rate: 0.36%
```
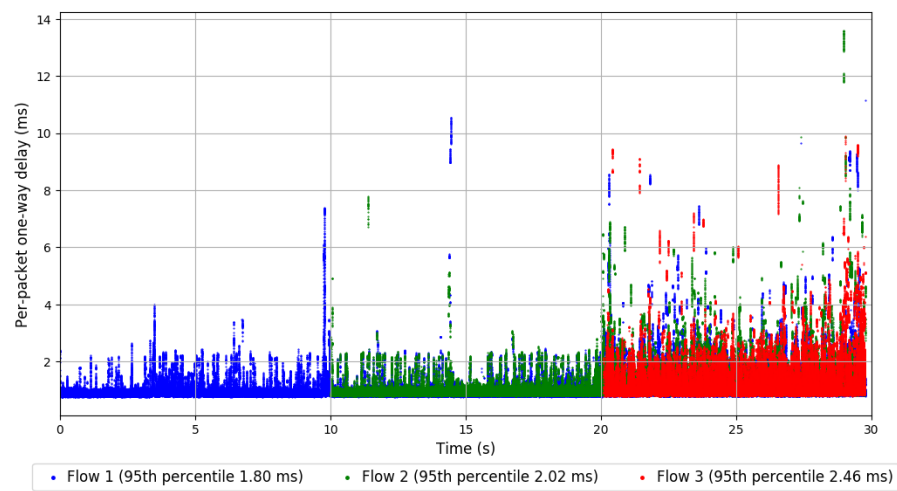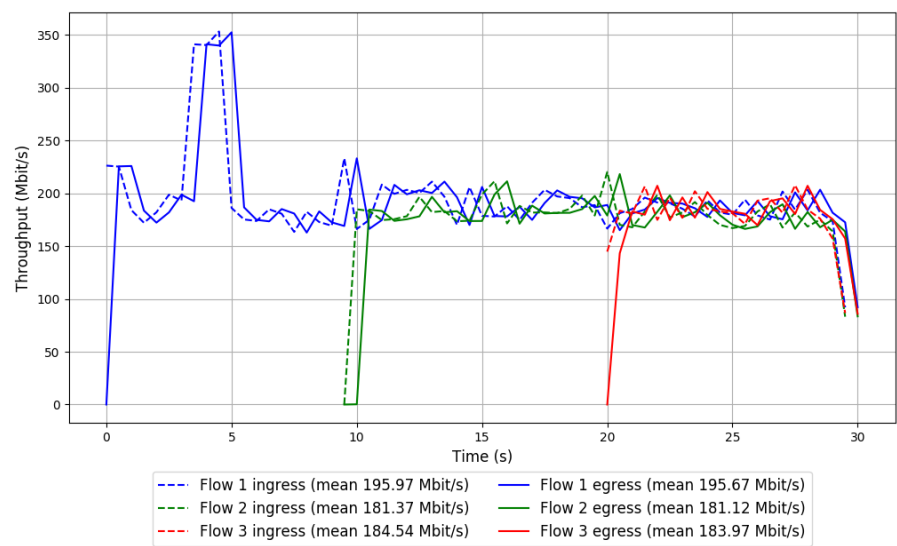
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2019-03-19 03:25:32
End at: 2019-03-19 03:26:02
Local clock offset: 0.133 ms
Remote clock offset: 1.176 ms


# Below is generated by plot.py at 2019-03-19 05:27:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 383.06 Mbit/s
95th percentile per-packet one-way delay: 1.872 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 203.13 Mbit/s
95th percentile per-packet one-way delay: 1.724 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 186.06 Mbit/s
95th percentile per-packet one-way delay: 1.920 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 173.83 Mbit/s
95th percentile per-packet one-way delay: 2.165 ms
Loss rate: 0.05%
```
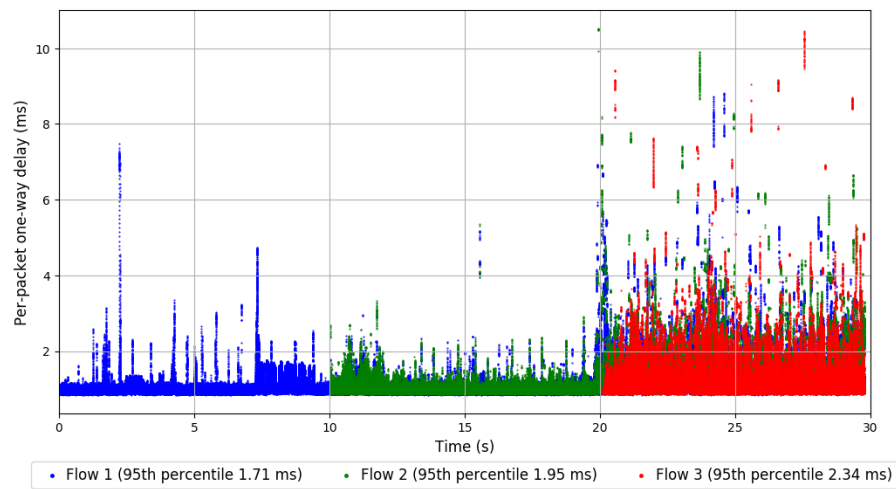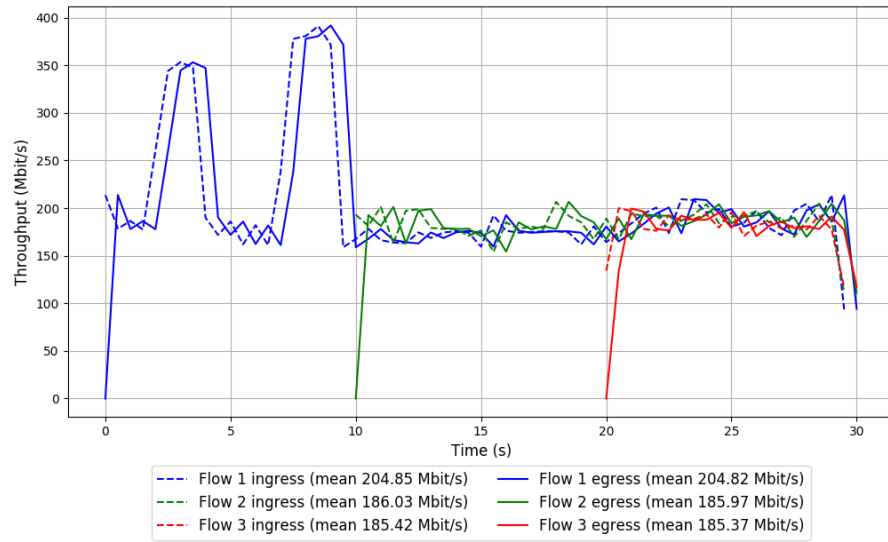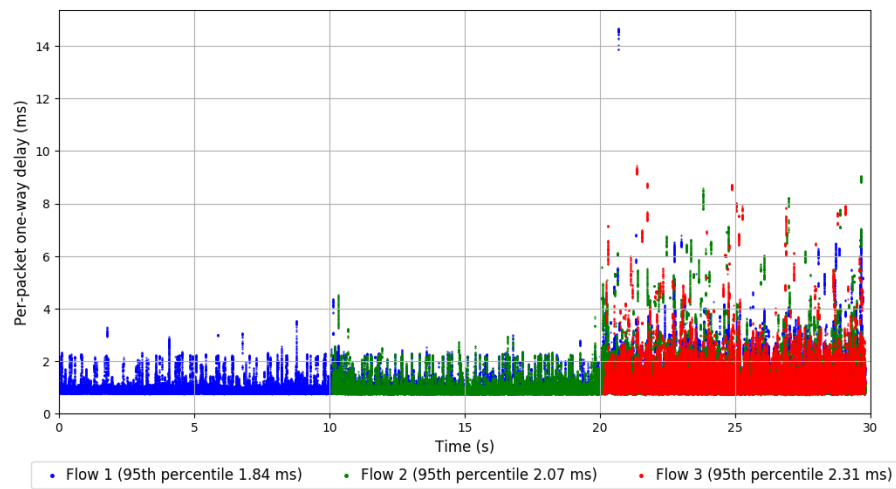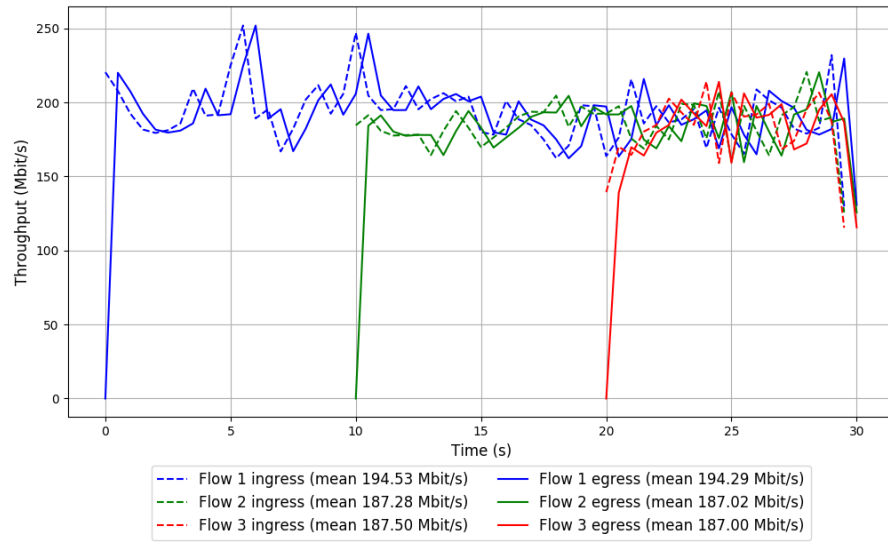
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2019-03-19 03:55:26
End at: 2019-03-19 03:55:56
Local clock offset: 0.594 ms
Remote clock offset: 0.261 ms


# Below is generated by plot.py at 2019-03-19 05:27:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 375.65 Mbit/s
95th percentile per-packet one-way delay: 2.017 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 195.67 Mbit/s
95th percentile per-packet one-way delay: 1.798 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 181.12 Mbit/s
95th percentile per-packet one-way delay: 2.017 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 183.97 Mbit/s
95th percentile per-packet one-way delay: 2.464 ms
Loss rate: 0.26%
```

Run 3: Report of Indigo — Data Link

Flow 1 ingress (mean 195.97 Mbit/s)   Flow 1 egress (mean 195.67 Mbit/s)
Flow 2 ingress (mean 181.37 Mbit/s)   Flow 2 egress (mean 181.12 Mbit/s)
Flow 3 ingress (mean 184.54 Mbit/s)   Flow 3 egress (mean 183.97 Mbit/s)

Flow 1 (95th percentile 1.80 ms)   Flow 2 (95th percentile 2.02 ms)   Flow 3 (95th percentile 2.46 ms)

```
Run 4: Statistics of Indigo

Start at: 2019-03-19 04:24:44
End at: 2019-03-19 04:25:14
Local clock offset: 0.611 ms
Remote clock offset: -0.19 ms

# Below is generated by plot.py at 2019-03-19 05:28:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 388.29 Mbit/s
95th percentile per-packet one-way delay: 1.937 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 204.82 Mbit/s
95th percentile per-packet one-way delay: 1.714 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 185.97 Mbit/s
95th percentile per-packet one-way delay: 1.954 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 185.37 Mbit/s
95th percentile per-packet one-way delay: 2.336 ms
Loss rate: 0.03%
```
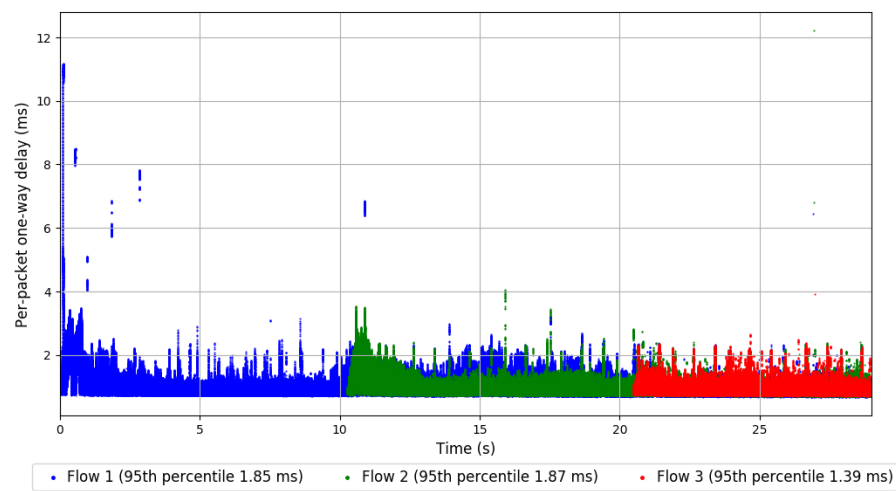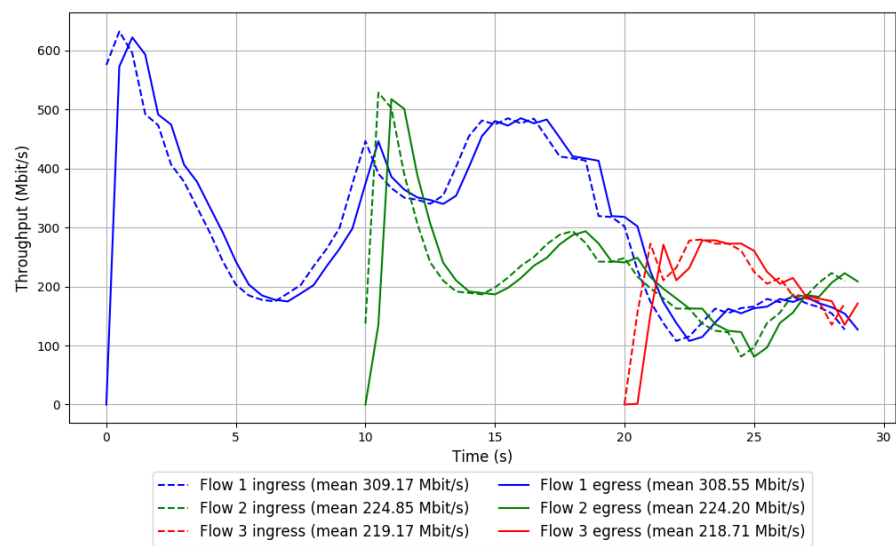
Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2019-03-19 04:54:23
End at: 2019-03-19 04:54:53
Local clock offset: 0.659 ms
Remote clock offset: -0.052 ms

# Below is generated by plot.py at 2019-03-19 05:28:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 378.77 Mbit/s
95th percentile per-packet one-way delay: 2.029 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 194.29 Mbit/s
95th percentile per-packet one-way delay: 1.842 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 187.02 Mbit/s
95th percentile per-packet one-way delay: 2.068 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 187.00 Mbit/s
95th percentile per-packet one-way delay: 2.313 ms
Loss rate: 0.26%
```
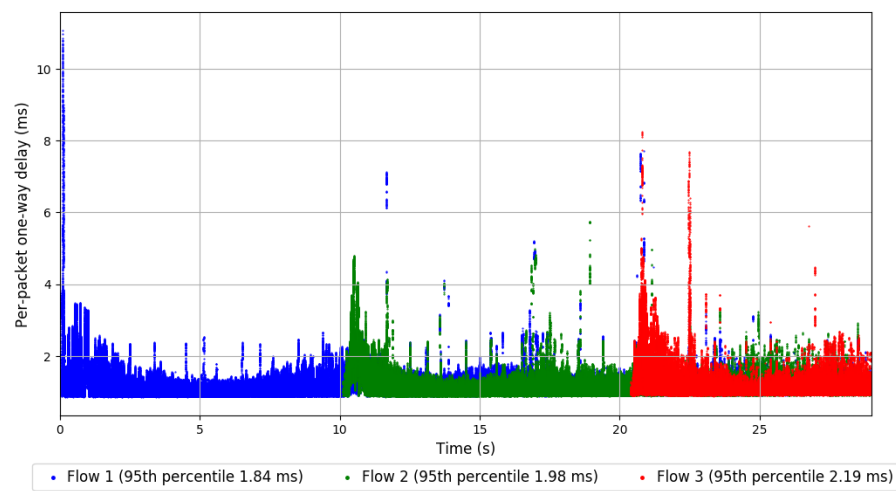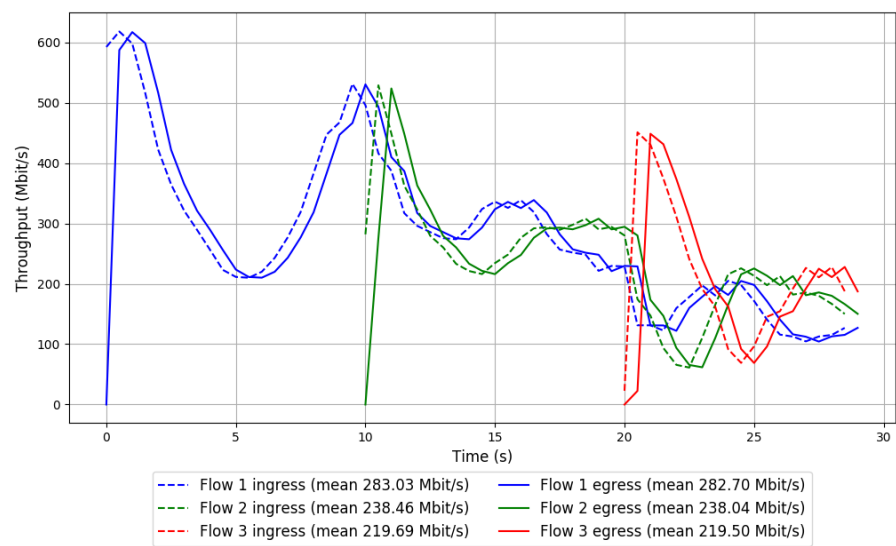
Run 5: Report of Indigo — Data Link

```
Run 1: Statistics of Indigo-MusesC3

Start at: 2019-03-19 02:49:54
End at: 2019-03-19 02:50:24
Local clock offset: 0.072 ms
Remote clock offset: 0.225 ms


# Below is generated by plot.py at 2019-03-19 05:30:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 517.55 Mbit/s
95th percentile per-packet one-way delay: 1.813 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 308.55 Mbit/s
95th percentile per-packet one-way delay: 1.851 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 224.20 Mbit/s
95th percentile per-packet one-way delay: 1.872 ms
Loss rate: 0.29%
-- Flow 3:
Average throughput: 218.71 Mbit/s
95th percentile per-packet one-way delay: 1.389 ms
Loss rate: 0.21%
```
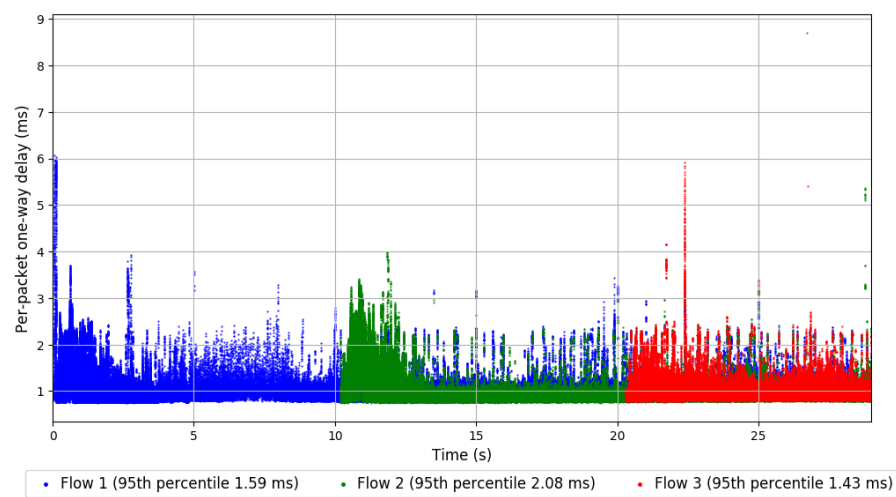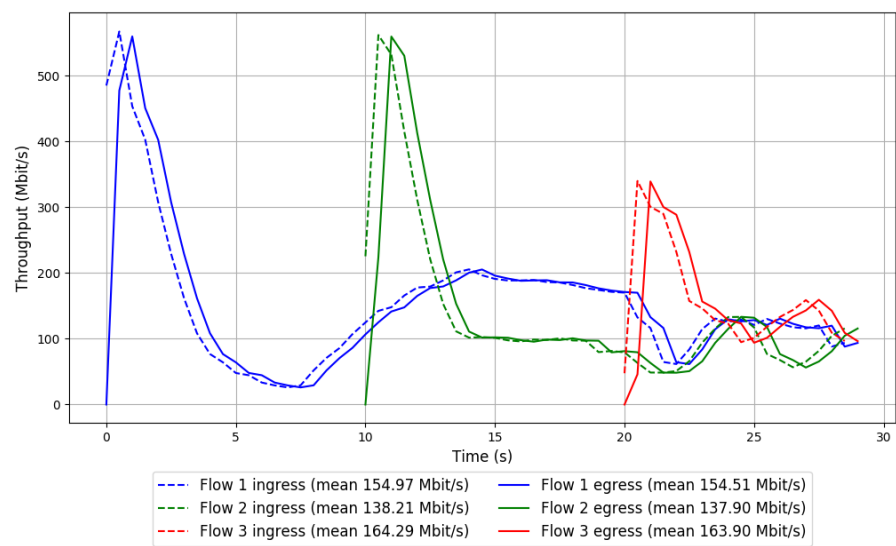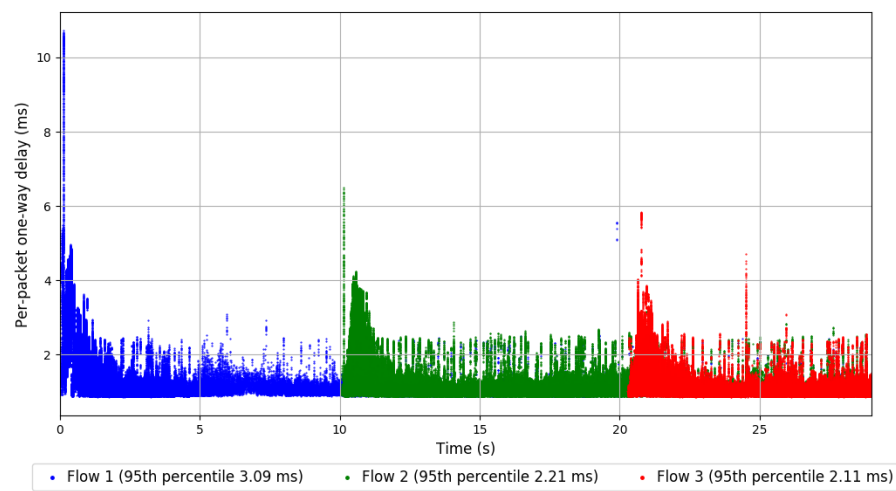
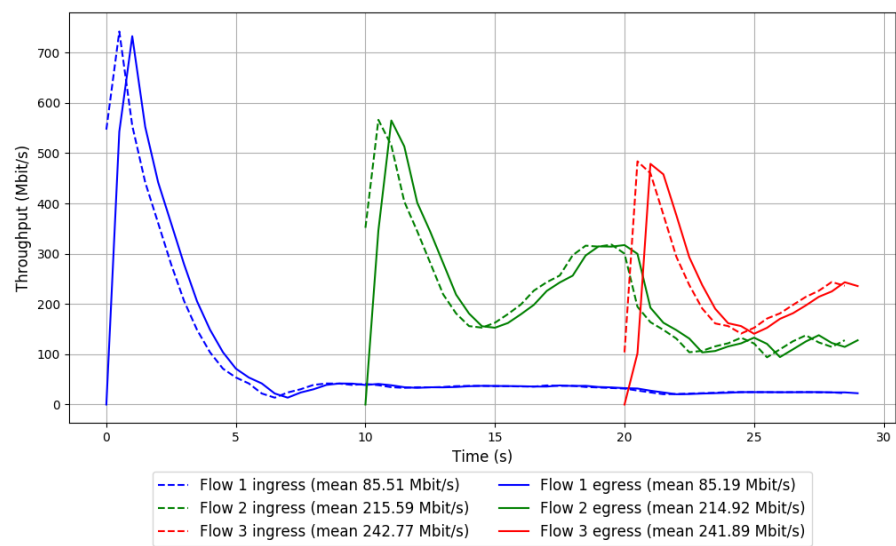Run 1: Report of Indigo-MusesC3 — Data Link

```
Run 2: Statistics of Indigo-MusesC3

Start at: 2019-03-19 03:19:38
End at: 2019-03-19 03:20:08
Local clock offset: -0.607 ms
Remote clock offset: 0.977 ms


# Below is generated by plot.py at 2019-03-19 05:31:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 502.93 Mbit/s
95th percentile per-packet one-way delay: 1.938 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 282.70 Mbit/s
95th percentile per-packet one-way delay: 1.838 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 238.04 Mbit/s
95th percentile per-packet one-way delay: 1.978 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 219.50 Mbit/s
95th percentile per-packet one-way delay: 2.188 ms
Loss rate: 0.09%
```
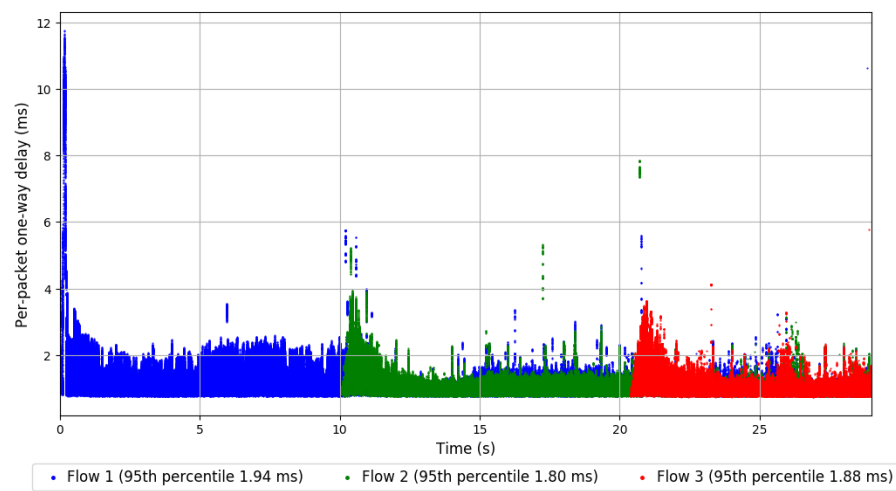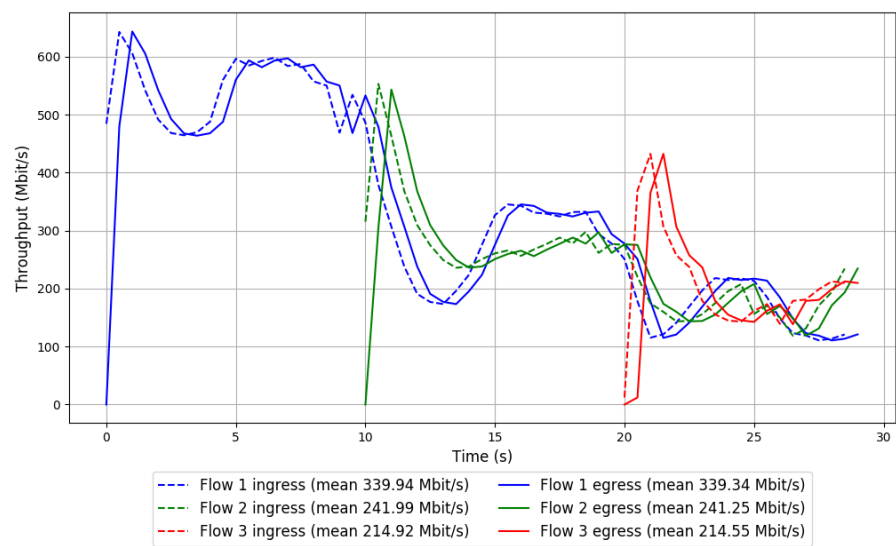
Run 2: Report of Indigo-MusesC3 — Data Link

- - - - Flow 1 ingress (mean 283.03 Mbit/s)   ——— Flow 1 egress (mean 282.70 Mbit/s)
- - - - Flow 2 ingress (mean 238.46 Mbit/s)   ——— Flow 2 egress (mean 238.04 Mbit/s)
- - - - Flow 3 ingress (mean 219.69 Mbit/s)   ——— Flow 3 egress (mean 219.50 Mbit/s)

• Flow 1 (95th percentile 1.84 ms)   • Flow 2 (95th percentile 1.98 ms)   • Flow 3 (95th percentile 2.19 ms)

```
Run 3: Statistics of Indigo-MusesC3

Start at: 2019-03-19 03:49:40
End at: 2019-03-19 03:50:10
Local clock offset: 0.75 ms
Remote clock offset: 0.728 ms


# Below is generated by plot.py at 2019-03-19 05:31:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 293.29 Mbit/s
95th percentile per-packet one-way delay: 1.719 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 154.51 Mbit/s
95th percentile per-packet one-way delay: 1.588 ms
Loss rate: 0.30%
-- Flow 2:
Average throughput: 137.90 Mbit/s
95th percentile per-packet one-way delay: 2.081 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 163.90 Mbit/s
95th percentile per-packet one-way delay: 1.433 ms
Loss rate: 0.24%
```

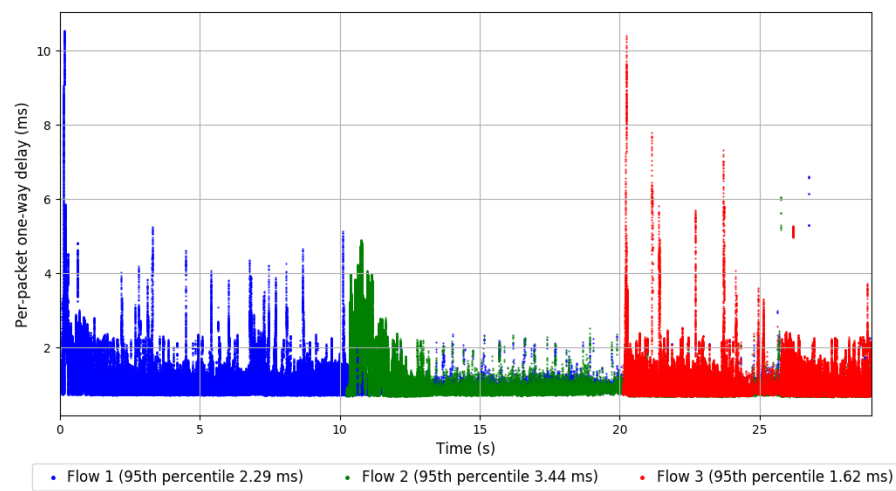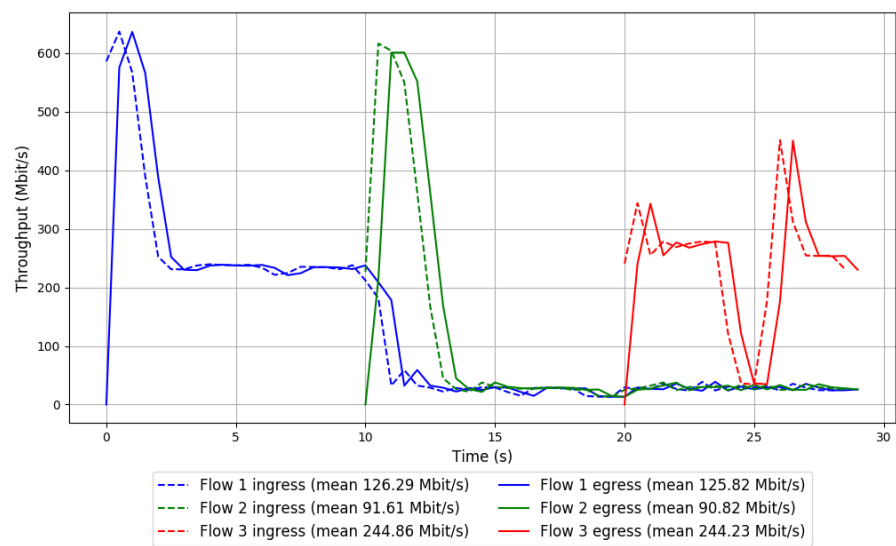Run 3: Report of Indigo-MusesC3 — Data Link

```
Run 4: Statistics of Indigo-MusesC3

Start at: 2019-03-19 04:18:59
End at: 2019-03-19 04:19:29
Local clock offset: 0.524 ms
Remote clock offset: -0.158 ms


# Below is generated by plot.py at 2019-03-19 05:31:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 298.09 Mbit/s
95th percentile per-packet one-way delay: 2.401 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 85.19 Mbit/s
95th percentile per-packet one-way delay: 3.088 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 214.92 Mbit/s
95th percentile per-packet one-way delay: 2.213 ms
Loss rate: 0.31%
-- Flow 3:
Average throughput: 241.89 Mbit/s
95th percentile per-packet one-way delay: 2.106 ms
Loss rate: 0.36%
```

Run 4: Report of Indigo-MusesC3 — Data Link

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```
Run 5: Statistics of Indigo-MusesC3

Start at: 2019-03-19 04:48:29
End at: 2019-03-19 04:48:59
Local clock offset: 0.732 ms
Remote clock offset: -0.255 ms


# Below is generated by plot.py at 2019-03-19 05:33:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 560.50 Mbit/s
95th percentile per-packet one-way delay: 1.909 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 339.34 Mbit/s
95th percentile per-packet one-way delay: 1.944 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 241.25 Mbit/s
95th percentile per-packet one-way delay: 1.799 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 214.55 Mbit/s
95th percentile per-packet one-way delay: 1.881 ms
Loss rate: 0.17%
```
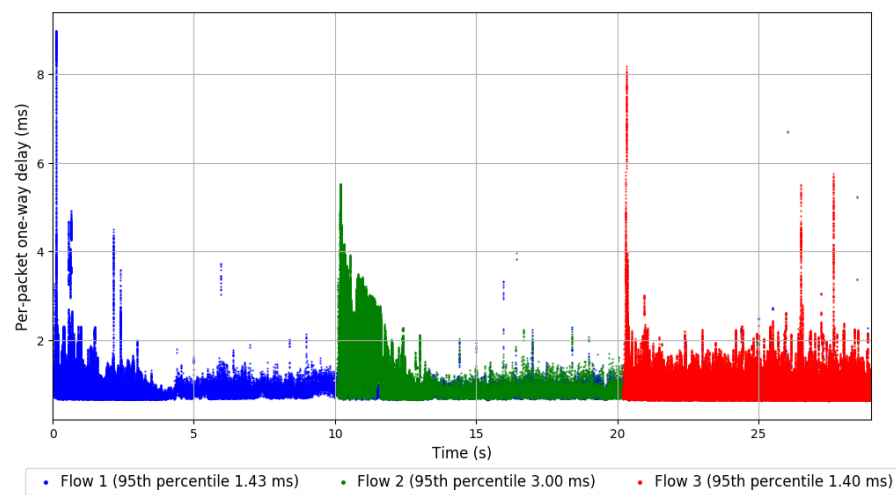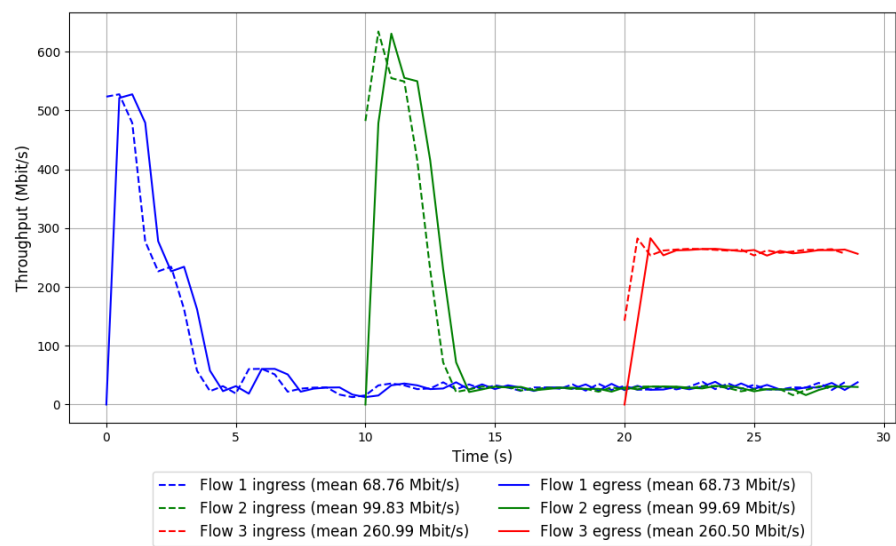
Run 5: Report of Indigo-MusesC3 — Data Link

```
Run 1: Statistics of Indigo-MusesC5

Start at: 2019-03-19 02:37:28
End at: 2019-03-19 02:37:58
Local clock offset: 0.546 ms
Remote clock offset: -0.318 ms


# Below is generated by plot.py at 2019-03-19 05:33:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 259.28 Mbit/s
95th percentile per-packet one-way delay: 2.626 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 125.82 Mbit/s
95th percentile per-packet one-way delay: 2.290 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 90.82 Mbit/s
95th percentile per-packet one-way delay: 3.441 ms
Loss rate: 0.86%
-- Flow 3:
Average throughput: 244.23 Mbit/s
95th percentile per-packet one-way delay: 1.620 ms
Loss rate: 0.26%
```
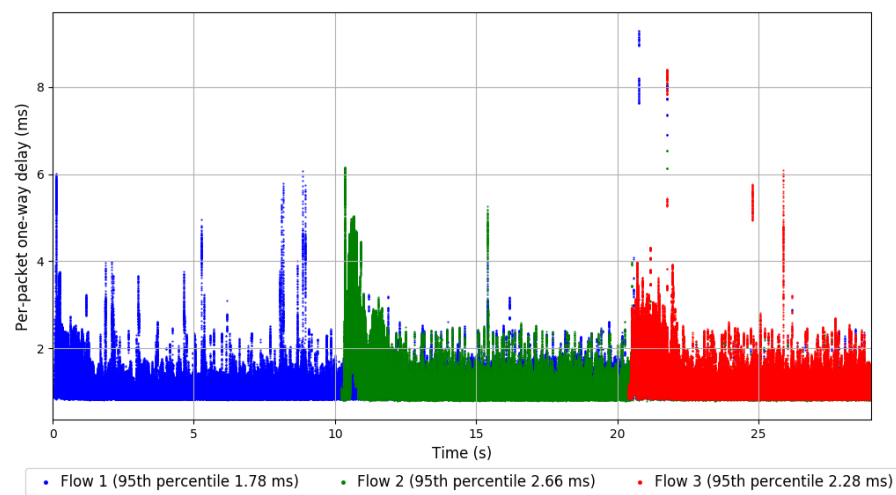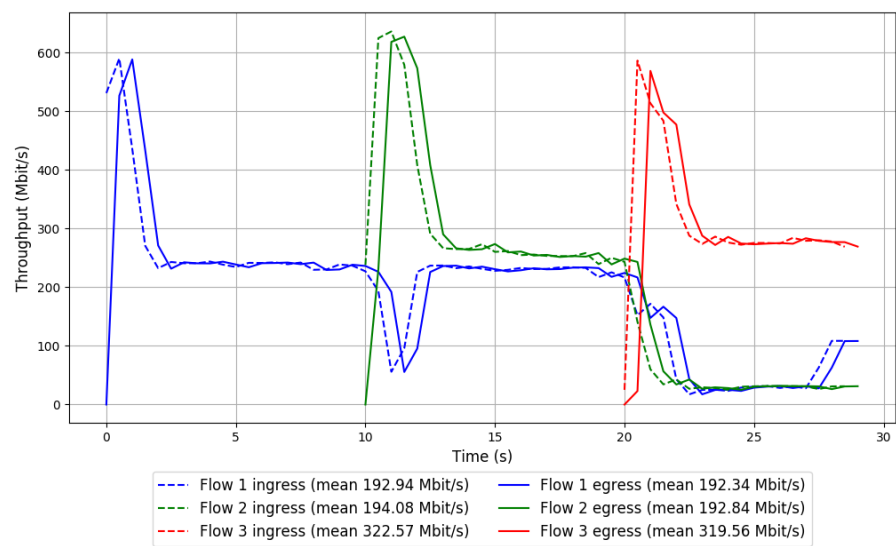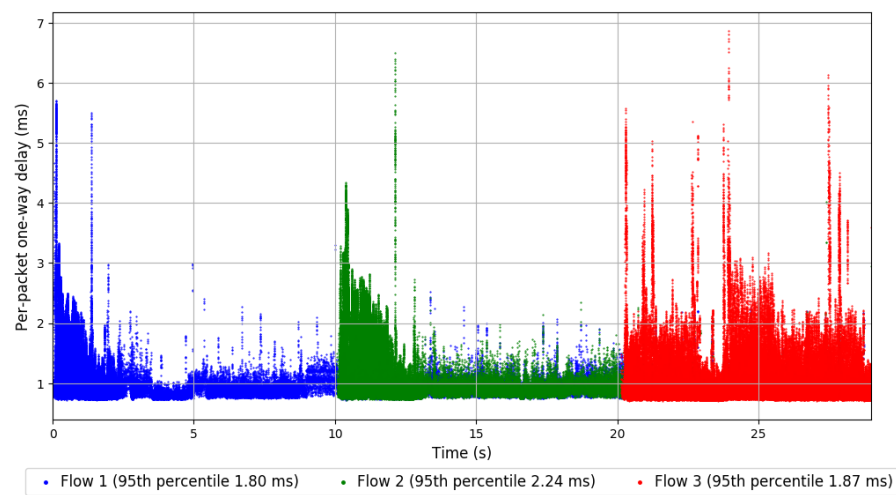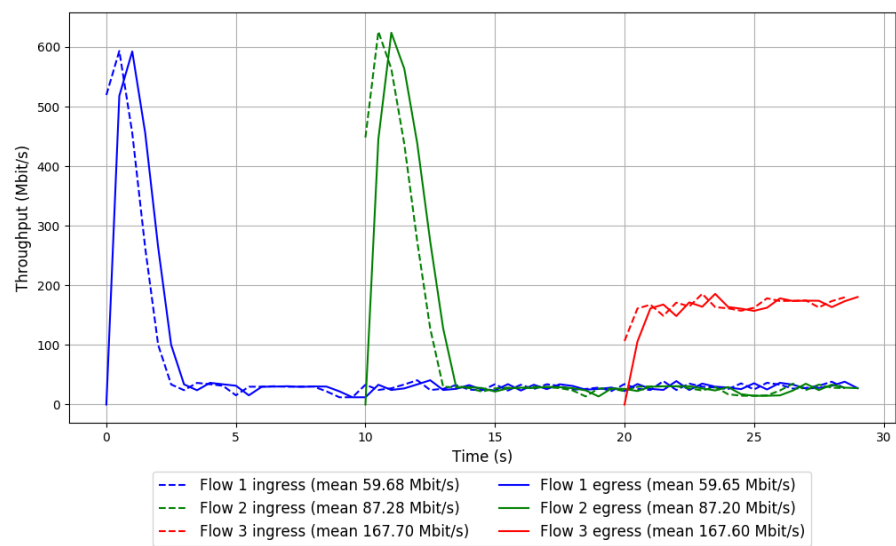
Run 1: Report of Indigo-MusesC5 — Data Link

```
Run 2: Statistics of Indigo-MusesC5

Start at: 2019-03-19 03:07:21
End at: 2019-03-19 03:07:51
Local clock offset: -0.937 ms
Remote clock offset: 0.631 ms


# Below is generated by plot.py at 2019-03-19 05:33:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 213.02 Mbit/s
95th percentile per-packet one-way delay: 2.471 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 68.73 Mbit/s
95th percentile per-packet one-way delay: 1.429 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 99.69 Mbit/s
95th percentile per-packet one-way delay: 2.995 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 260.50 Mbit/s
95th percentile per-packet one-way delay: 1.397 ms
Loss rate: 0.18%
```
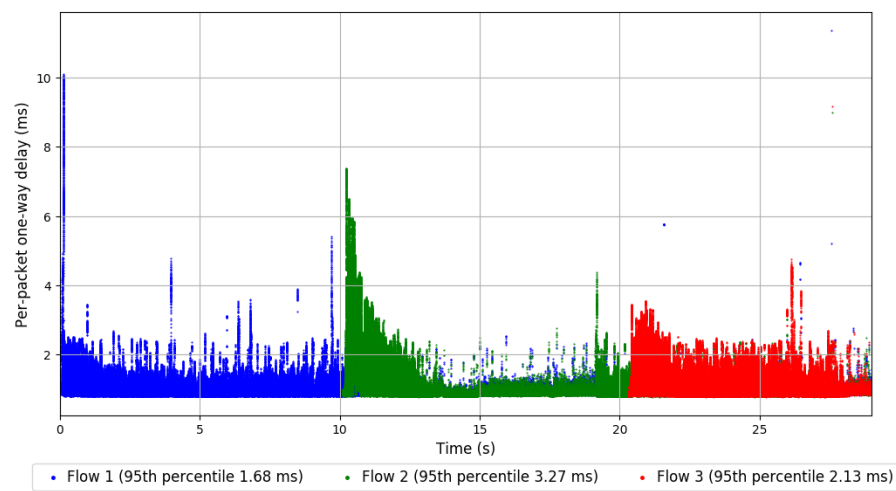
Run 2: Report of Indigo-MusesC5 — Data Link

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```
Run 3: Statistics of Indigo-MusesC5

Start at: 2019-03-19 03:37:02
End at: 2019-03-19 03:37:32
Local clock offset: 0.726 ms
Remote clock offset: 1.68 ms


# Below is generated by plot.py at 2019-03-19 05:33:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 412.24 Mbit/s
95th percentile per-packet one-way delay: 2.251 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 192.34 Mbit/s
95th percentile per-packet one-way delay: 1.778 ms
Loss rate: 0.31%
-- Flow 2:
Average throughput: 192.84 Mbit/s
95th percentile per-packet one-way delay: 2.658 ms
Loss rate: 0.64%
-- Flow 3:
Average throughput: 319.56 Mbit/s
95th percentile per-packet one-way delay: 2.278 ms
Loss rate: 0.93%
```

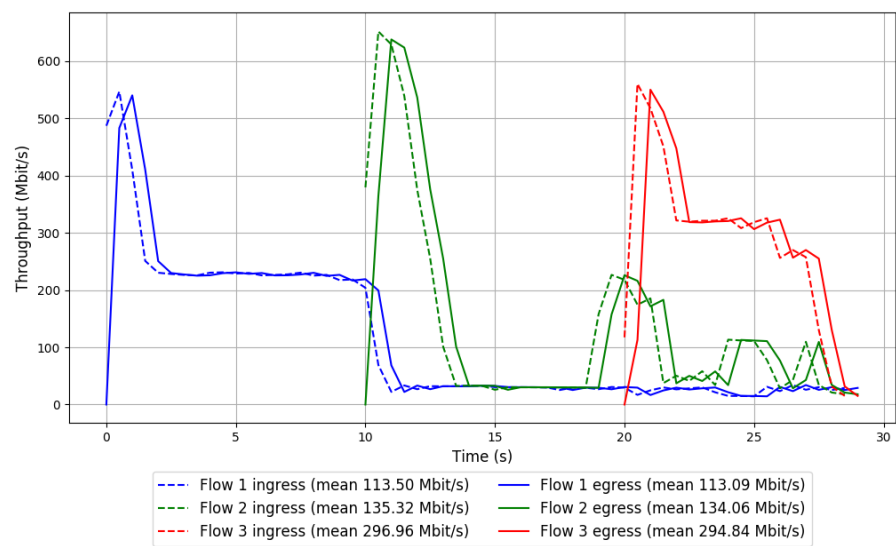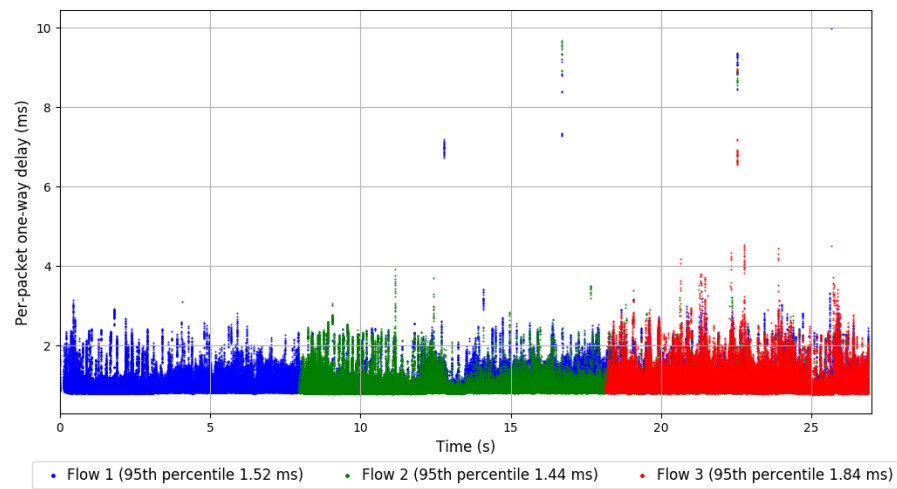Run 3: Report of Indigo-MusesC5 — Data Link

```
Run 4: Statistics of Indigo-MusesC5

Start at: 2019-03-19 04:06:51
End at: 2019-03-19 04:07:21
Local clock offset: 0.491 ms
Remote clock offset: -0.151 ms


# Below is generated by plot.py at 2019-03-19 05:33:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 167.70 Mbit/s
95th percentile per-packet one-way delay: 2.054 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 59.65 Mbit/s
95th percentile per-packet one-way delay: 1.803 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 87.20 Mbit/s
95th percentile per-packet one-way delay: 2.243 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 167.60 Mbit/s
95th percentile per-packet one-way delay: 1.873 ms
Loss rate: 0.03%
```
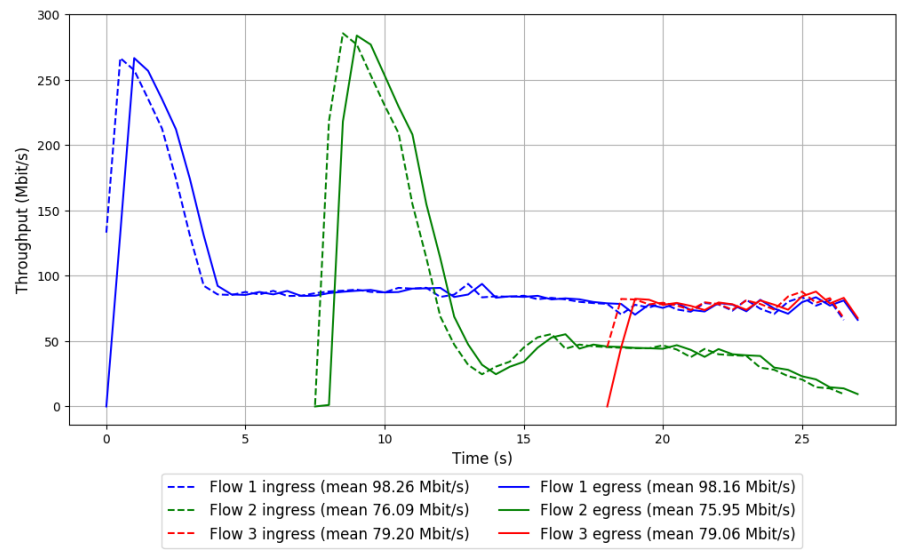
Run 4: Report of Indigo-MusesC5 — Data Link

```
Run 5: Statistics of Indigo-MusesC5

Start at: 2019-03-19 04:36:10
End at: 2019-03-19 04:36:40
Local clock offset: 0.713 ms
Remote clock offset: -0.199 ms


# Below is generated by plot.py at 2019-03-19 05:33:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 288.93 Mbit/s
95th percentile per-packet one-way delay: 2.311 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 113.09 Mbit/s
95th percentile per-packet one-way delay: 1.678 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 134.06 Mbit/s
95th percentile per-packet one-way delay: 3.273 ms
Loss rate: 0.93%
-- Flow 3:
Average throughput: 294.84 Mbit/s
95th percentile per-packet one-way delay: 2.132 ms
Loss rate: 0.71%
```
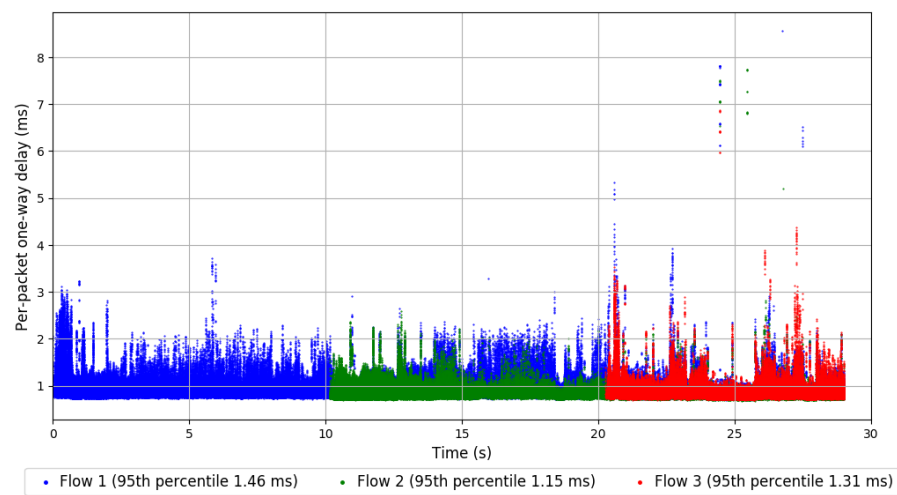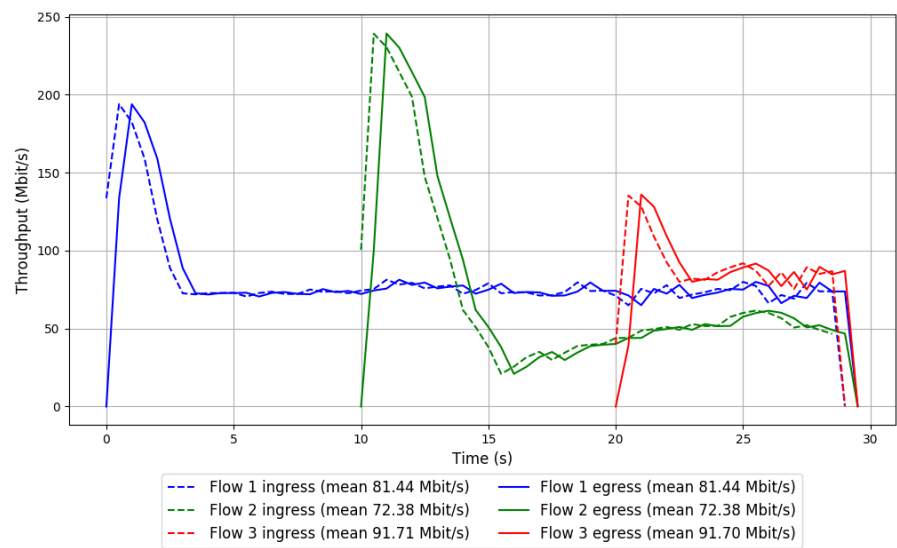
Run 5: Report of Indigo-MusesC5 — Data Link

Flow 1 ingress (mean 113.50 Mbit/s)   Flow 1 egress (mean 113.09 Mbit/s)
Flow 2 ingress (mean 135.32 Mbit/s)   Flow 2 egress (mean 134.06 Mbit/s)
Flow 3 ingress (mean 296.96 Mbit/s)   Flow 3 egress (mean 294.84 Mbit/s)

Flow 1 (95th percentile 1.68 ms)   Flow 2 (95th percentile 3.27 ms)   Flow 3 (95th percentile 2.13 ms)

```
Run 1: Statistics of Indigo-MusesD

Start at: 2019-03-19 02:34:51
End at: 2019-03-19 02:35:21
Local clock offset: 0.566 ms
Remote clock offset: -0.364 ms


# Below is generated by plot.py at 2019-03-19 05:33:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 177.35 Mbit/s
95th percentile per-packet one-way delay: 1.564 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 98.16 Mbit/s
95th percentile per-packet one-way delay: 1.517 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 75.95 Mbit/s
95th percentile per-packet one-way delay: 1.438 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 79.06 Mbit/s
95th percentile per-packet one-way delay: 1.843 ms
Loss rate: 0.17%
```
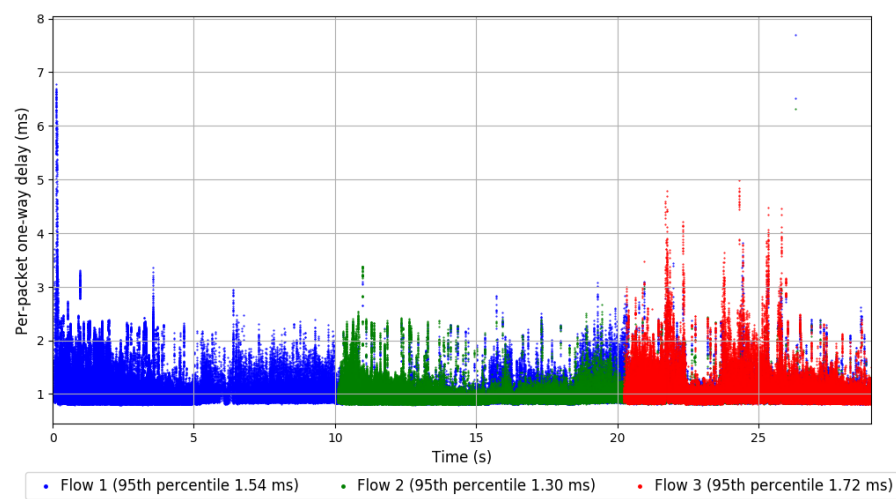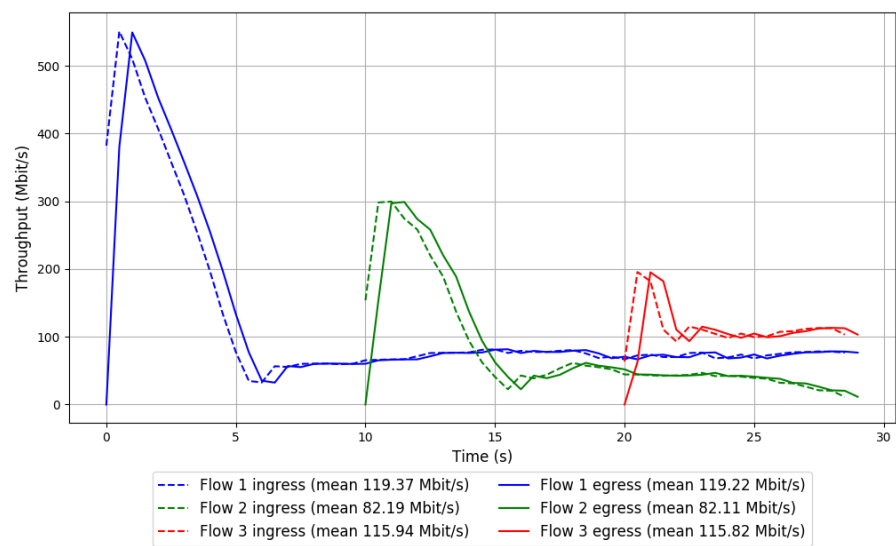
Run 1: Report of Indigo-MusesD — Data Link

```
Run 2: Statistics of Indigo-MusesD

Start at: 2019-03-19 03:04:30
End at: 2019-03-19 03:05:00
Local clock offset: -0.813 ms
Remote clock offset: 0.624 ms


# Below is generated by plot.py at 2019-03-19 05:33:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 156.12 Mbit/s
95th percentile per-packet one-way delay: 1.350 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 81.44 Mbit/s
95th percentile per-packet one-way delay: 1.463 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 72.38 Mbit/s
95th percentile per-packet one-way delay: 1.147 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 91.70 Mbit/s
95th percentile per-packet one-way delay: 1.315 ms
Loss rate: 0.01%
```
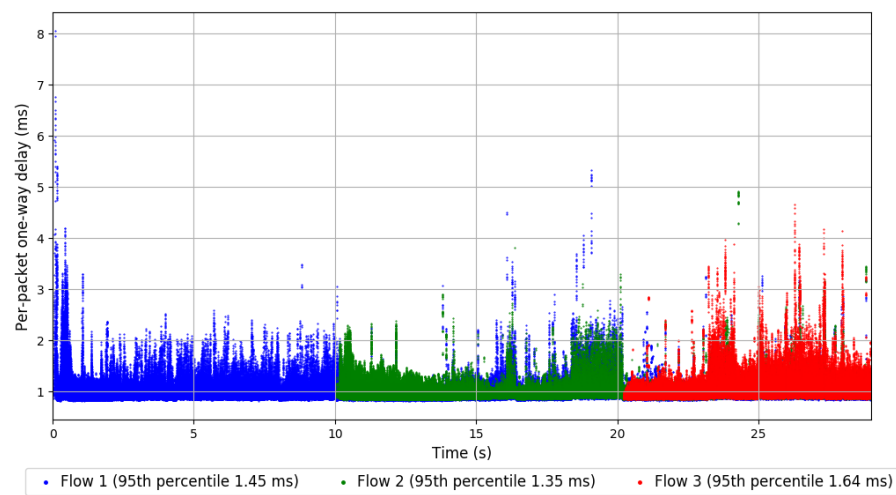
Run 2: Report of Indigo-MusesD — Data Link

```
Run 3: Statistics of Indigo-MusesD

Start at: 2019-03-19 03:34:10
End at: 2019-03-19 03:34:40
Local clock offset: 0.62 ms
Remote clock offset: 1.537 ms

# Below is generated by plot.py at 2019-03-19 05:33:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 207.81 Mbit/s
95th percentile per-packet one-way delay: 1.523 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 119.22 Mbit/s
95th percentile per-packet one-way delay: 1.540 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 82.11 Mbit/s
95th percentile per-packet one-way delay: 1.304 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 115.82 Mbit/s
95th percentile per-packet one-way delay: 1.719 ms
Loss rate: 0.10%
```
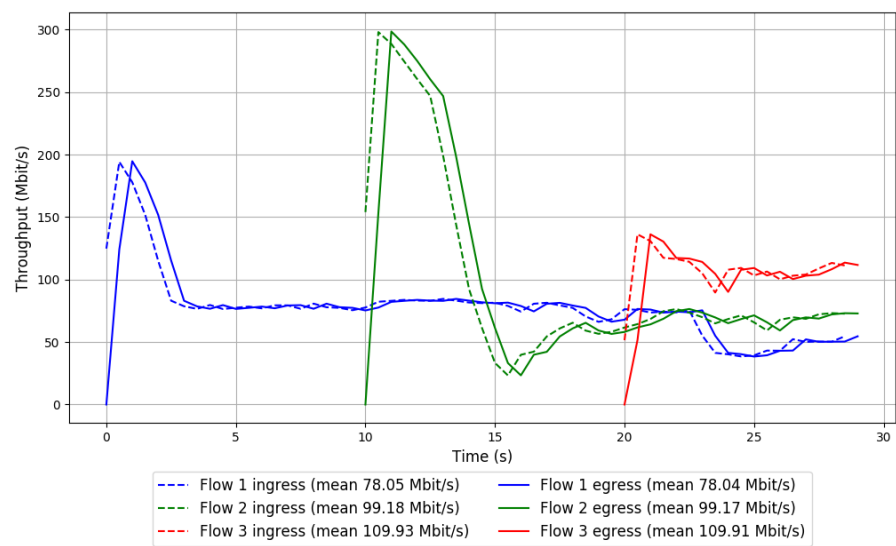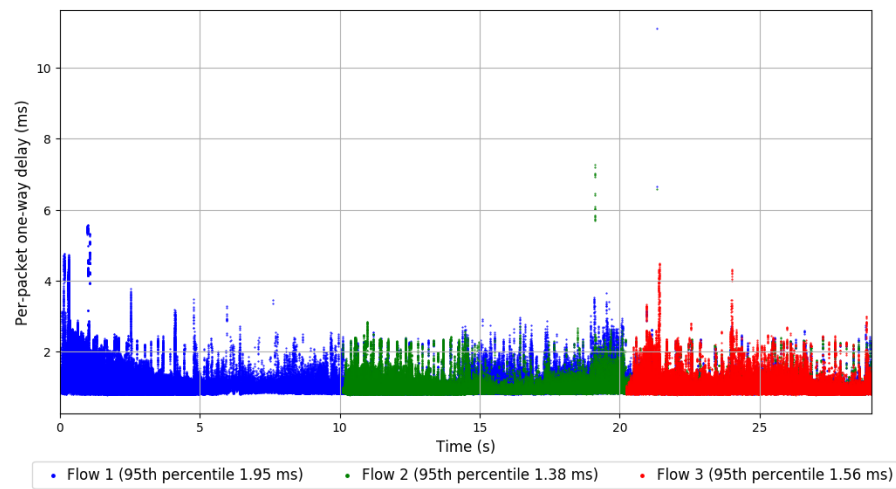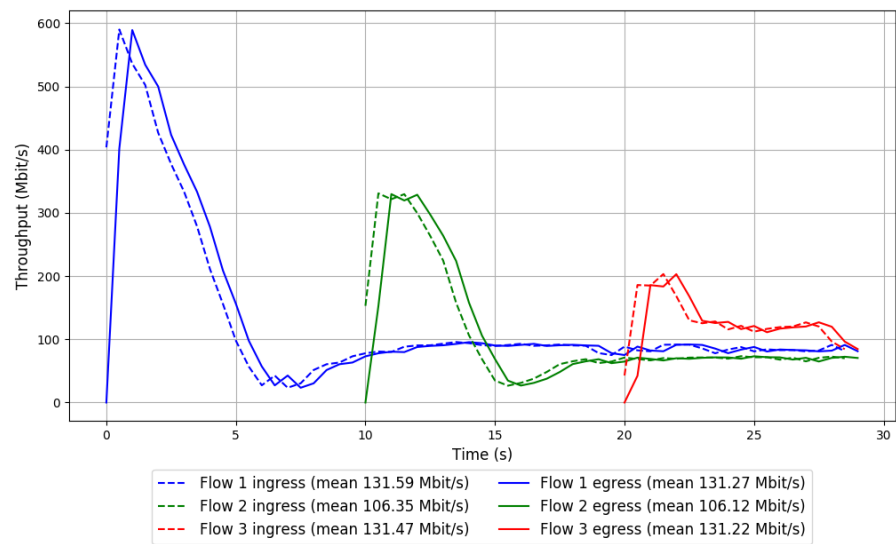
Run 3: Report of Indigo-MusesD — Data Link

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```
Run 4: Statistics of Indigo-MusesD

Start at: 2019-03-19 04:04:04
End at: 2019-03-19 04:04:34
Local clock offset: 0.5 ms
Remote clock offset: 0.012 ms


# Below is generated by plot.py at 2019-03-19 05:33:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 176.03 Mbit/s
95th percentile per-packet one-way delay: 1.456 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 78.04 Mbit/s
95th percentile per-packet one-way delay: 1.451 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 99.17 Mbit/s
95th percentile per-packet one-way delay: 1.347 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 109.91 Mbit/s
95th percentile per-packet one-way delay: 1.638 ms
Loss rate: 0.02%
```

Run 4: Report of Indigo-MusesD — Data Link

```
Run 5: Statistics of Indigo-MusesD

Start at: 2019-03-19 04:33:27
End at: 2019-03-19 04:33:57
Local clock offset: 0.691 ms
Remote clock offset: -0.195 ms


# Below is generated by plot.py at 2019-03-19 05:34:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 240.04 Mbit/s
95th percentile per-packet one-way delay: 1.752 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 131.27 Mbit/s
95th percentile per-packet one-way delay: 1.952 ms
Loss rate: 0.25%
-- Flow 2:
Average throughput: 106.12 Mbit/s
95th percentile per-packet one-way delay: 1.381 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 131.22 Mbit/s
95th percentile per-packet one-way delay: 1.560 ms
Loss rate: 0.19%
```
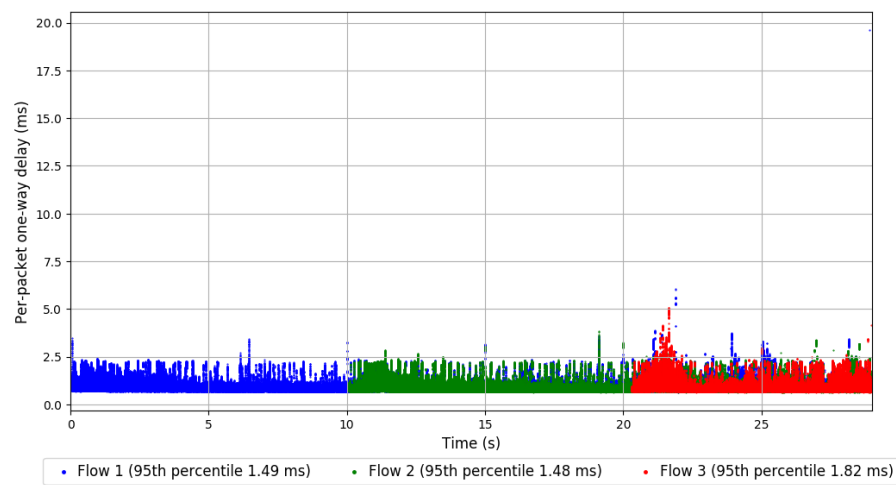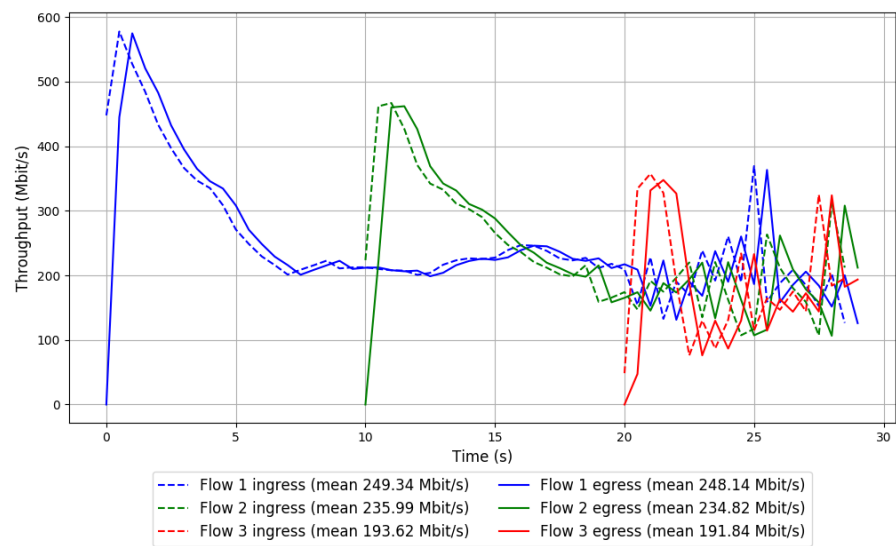
Run 5: Report of Indigo-MusesD — Data Link

```
Run 1: Statistics of Indigo-MusesT

Start at: 2019-03-19 02:57:16
End at: 2019-03-19 02:57:46
Local clock offset: -0.477 ms
Remote clock offset: 0.381 ms

# Below is generated by plot.py at 2019-03-19 05:37:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 459.16 Mbit/s
95th percentile per-packet one-way delay: 1.541 ms
Loss rate: 0.54%
-- Flow 1:
Average throughput: 248.14 Mbit/s
95th percentile per-packet one-way delay: 1.493 ms
Loss rate: 0.48%
-- Flow 2:
Average throughput: 234.82 Mbit/s
95th percentile per-packet one-way delay: 1.484 ms
Loss rate: 0.50%
-- Flow 3:
Average throughput: 191.84 Mbit/s
95th percentile per-packet one-way delay: 1.820 ms
Loss rate: 0.91%
```
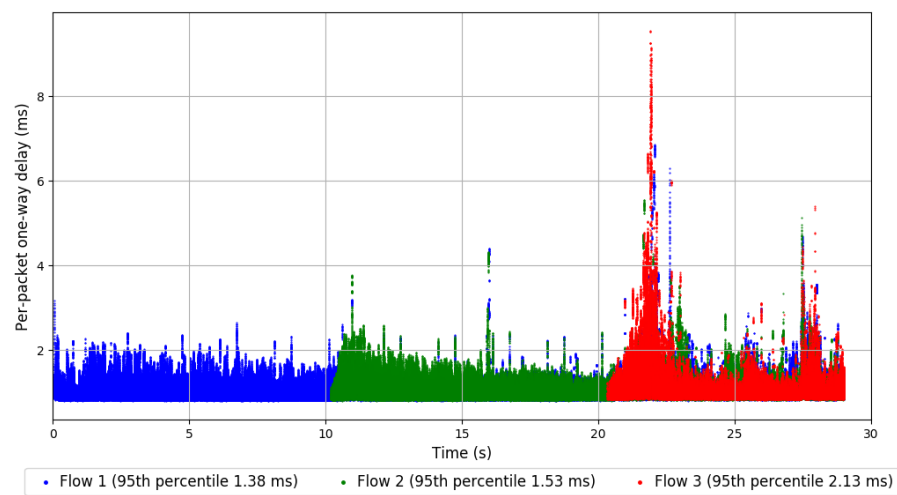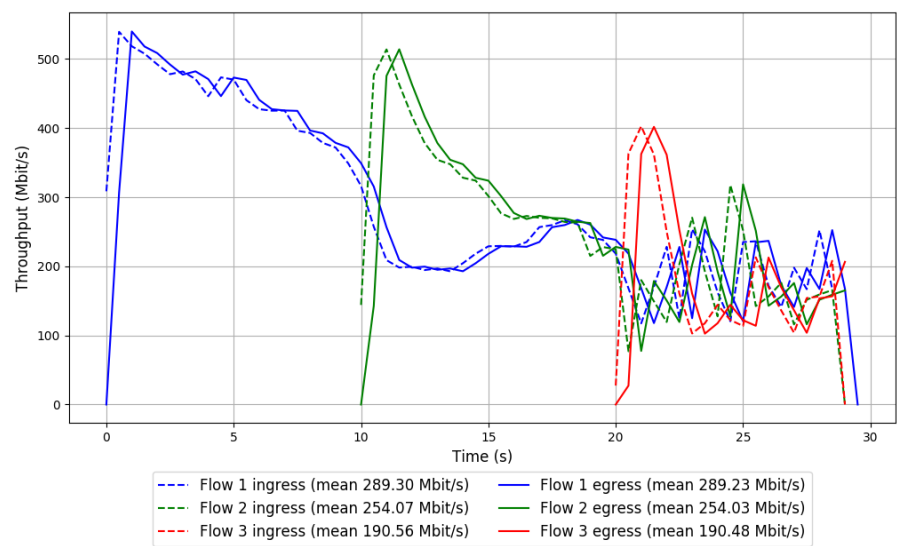
Run 1: Report of Indigo-MusesT — Data Link

```
Run 2: Statistics of Indigo-MusesT

Start at: 2019-03-19 03:27:03
End at: 2019-03-19 03:27:33
Local clock offset: 0.252 ms
Remote clock offset: 1.255 ms


# Below is generated by plot.py at 2019-03-19 05:38:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 510.93 Mbit/s
95th percentile per-packet one-way delay: 1.506 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 289.23 Mbit/s
95th percentile per-packet one-way delay: 1.377 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 254.03 Mbit/s
95th percentile per-packet one-way delay: 1.534 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 190.48 Mbit/s
95th percentile per-packet one-way delay: 2.130 ms
Loss rate: 0.07%
```
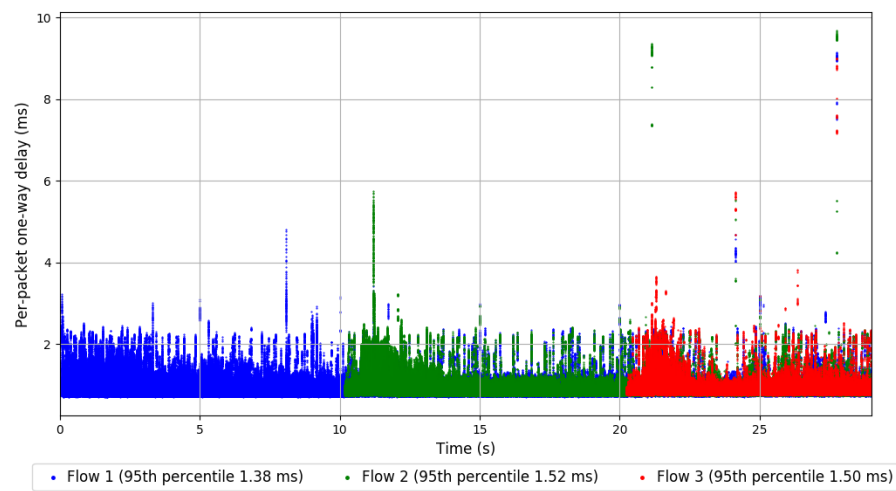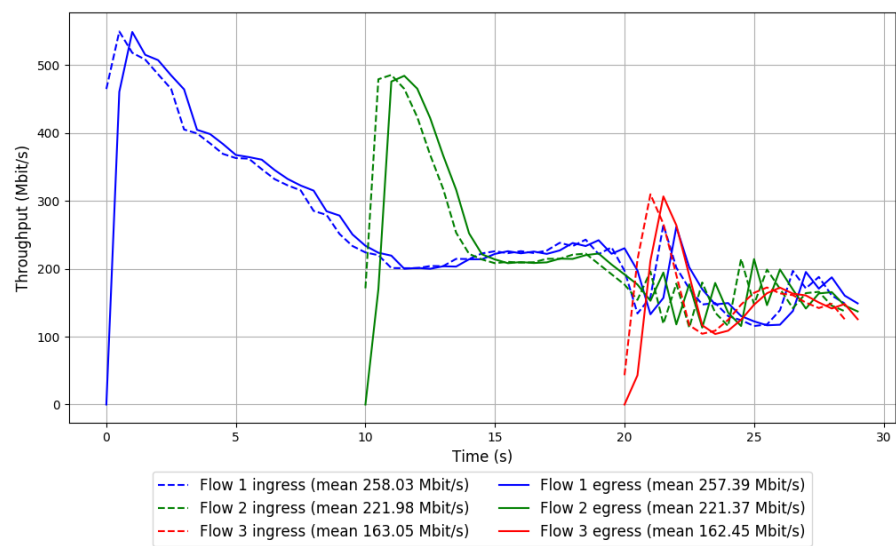
Run 2: Report of Indigo-MusesT — Data Link

```
Run 3: Statistics of Indigo-MusesT

Start at: 2019-03-19 03:56:56
End at: 2019-03-19 03:57:26
Local clock offset: 0.566 ms
Remote clock offset: 0.125 ms


# Below is generated by plot.py at 2019-03-19 05:38:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 450.28 Mbit/s
95th percentile per-packet one-way delay: 1.448 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 257.39 Mbit/s
95th percentile per-packet one-way delay: 1.381 ms
Loss rate: 0.25%
-- Flow 2:
Average throughput: 221.37 Mbit/s
95th percentile per-packet one-way delay: 1.520 ms
Loss rate: 0.27%
-- Flow 3:
Average throughput: 162.45 Mbit/s
95th percentile per-packet one-way delay: 1.502 ms
Loss rate: 0.37%
```

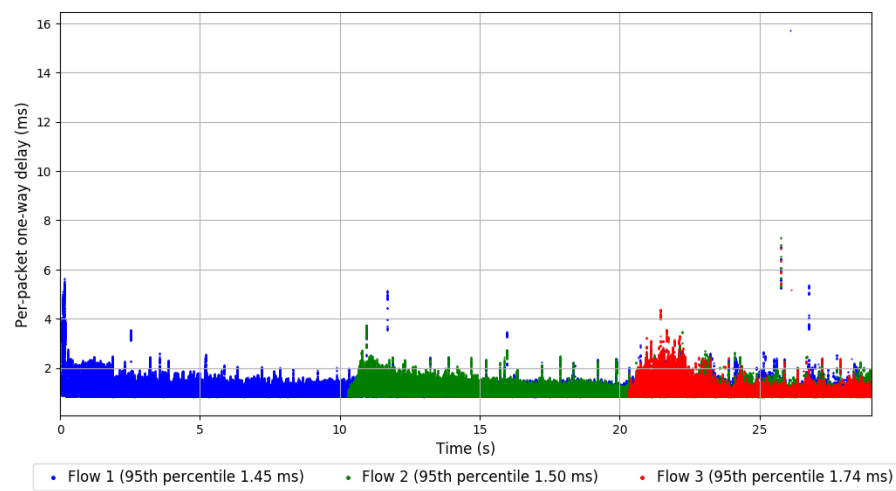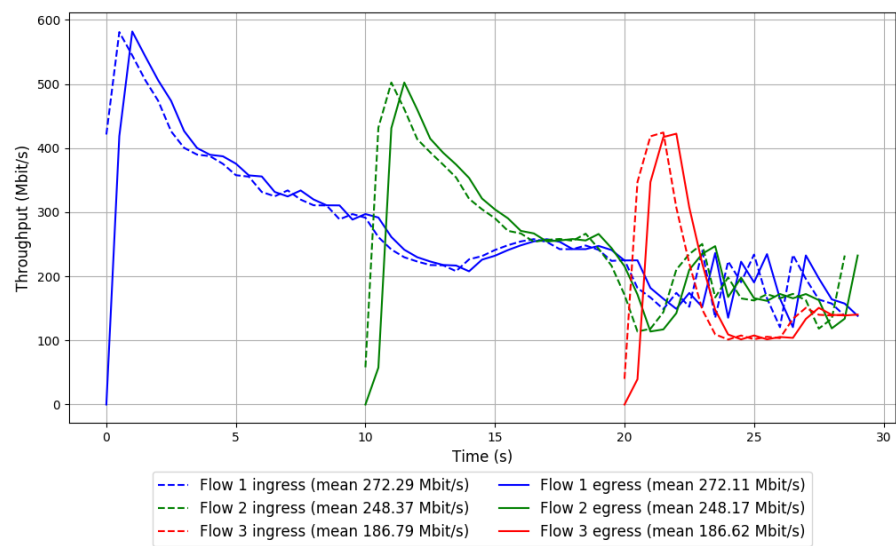# Run 3: Report of Indigo-MusesT — Data Link

```
Run 4: Statistics of Indigo-MusesT

Start at: 2019-03-19 04:26:15
End at: 2019-03-19 04:26:45
Local clock offset: 0.625 ms
Remote clock offset: -0.196 ms


# Below is generated by plot.py at 2019-03-19 05:38:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 487.94 Mbit/s
95th percentile per-packet one-way delay: 1.508 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 272.11 Mbit/s
95th percentile per-packet one-way delay: 1.449 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 248.17 Mbit/s
95th percentile per-packet one-way delay: 1.497 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 186.62 Mbit/s
95th percentile per-packet one-way delay: 1.742 ms
Loss rate: 0.12%
```

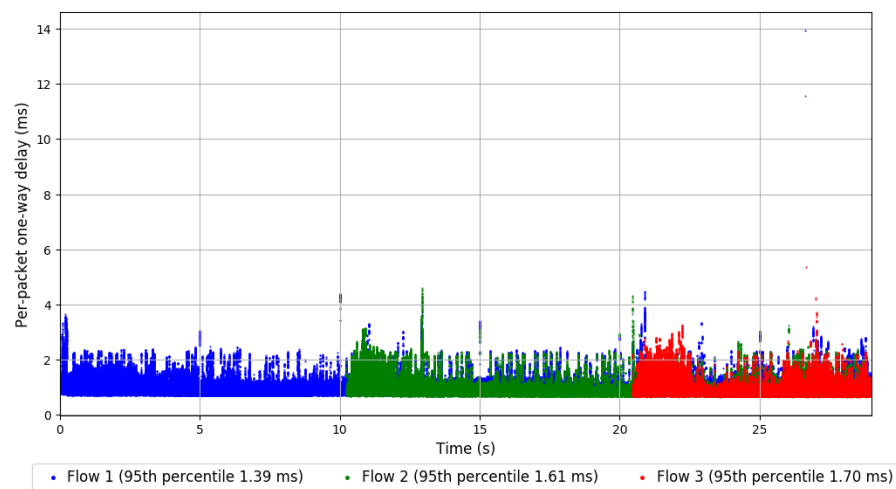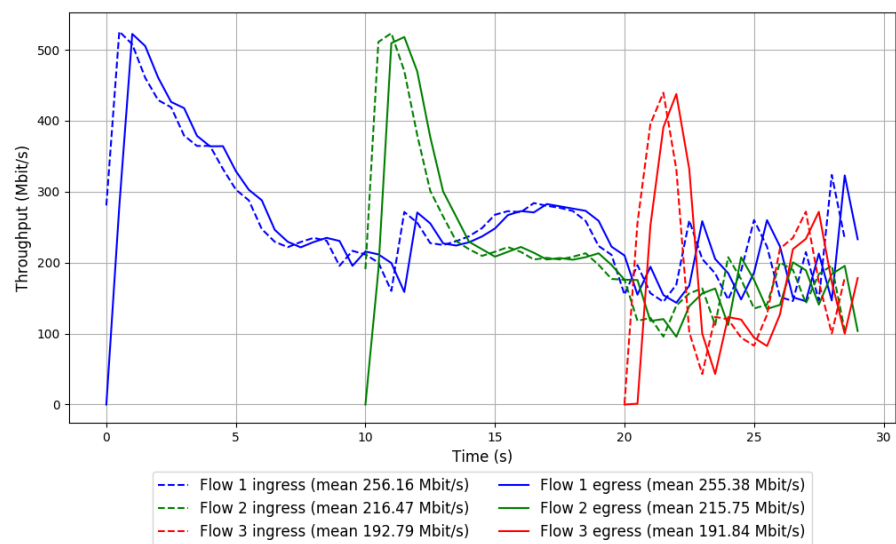Run 4: Report of Indigo-MusesT — Data Link

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```
Run 5: Statistics of Indigo-MusesT

Start at: 2019-03-19 04:55:54
End at: 2019-03-19 04:56:24
Local clock offset: 0.644 ms
Remote clock offset: -0.022 ms


# Below is generated by plot.py at 2019-03-19 05:38:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 451.56 Mbit/s
95th percentile per-packet one-way delay: 1.526 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 255.38 Mbit/s
95th percentile per-packet one-way delay: 1.393 ms
Loss rate: 0.31%
-- Flow 2:
Average throughput: 215.75 Mbit/s
95th percentile per-packet one-way delay: 1.614 ms
Loss rate: 0.33%
-- Flow 3:
Average throughput: 191.84 Mbit/s
95th percentile per-packet one-way delay: 1.699 ms
Loss rate: 0.49%
```

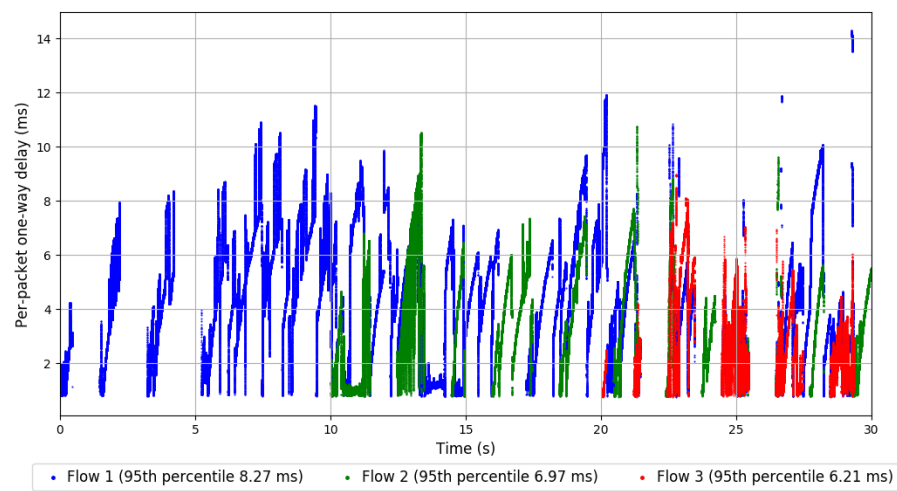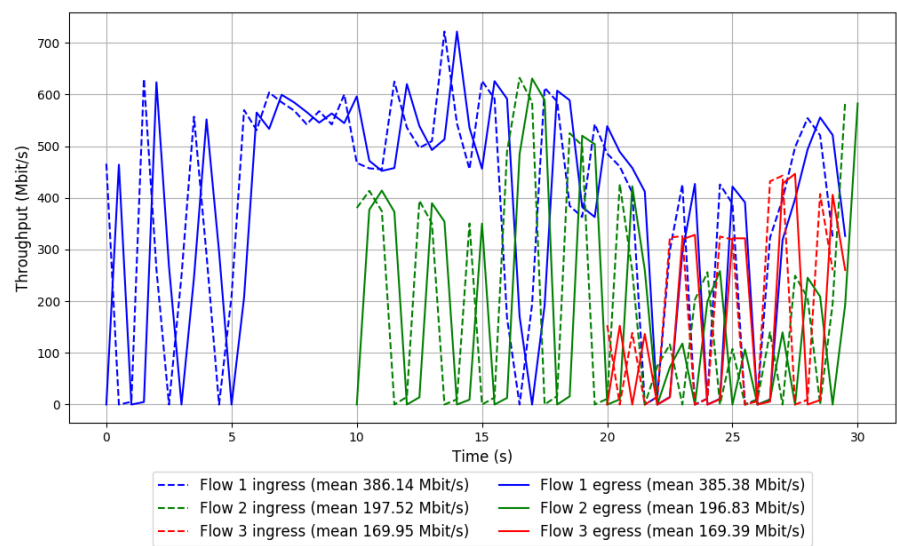# Run 5: Report of Indigo-MusesT — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2019-03-19 02:42:33
End at: 2019-03-19 02:43:03
Local clock offset: 0.525 ms
Remote clock offset: -0.056 ms

# Below is generated by plot.py at 2019-03-19 05:40:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 561.03 Mbit/s
95th percentile per-packet one-way delay: 7.835 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 385.38 Mbit/s
95th percentile per-packet one-way delay: 8.271 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 196.83 Mbit/s
95th percentile per-packet one-way delay: 6.972 ms
Loss rate: 0.35%
-- Flow 3:
Average throughput: 169.39 Mbit/s
95th percentile per-packet one-way delay: 6.210 ms
Loss rate: 0.31%
```

Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2019-03-19 03:12:24
End at: 2019-03-19 03:12:54
Local clock offset: -1.077 ms
Remote clock offset: 0.803 ms

# Below is generated by plot.py at 2019-03-19 05:40:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 399.21 Mbit/s
95th percentile per-packet one-way delay: 4.966 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 266.56 Mbit/s
95th percentile per-packet one-way delay: 5.158 ms
Loss rate: 0.42%
-- Flow 2:
Average throughput: 123.45 Mbit/s
95th percentile per-packet one-way delay: 4.378 ms
Loss rate: 0.59%
-- Flow 3:
Average throughput: 163.94 Mbit/s
95th percentile per-packet one-way delay: 4.576 ms
Loss rate: 0.66%
```
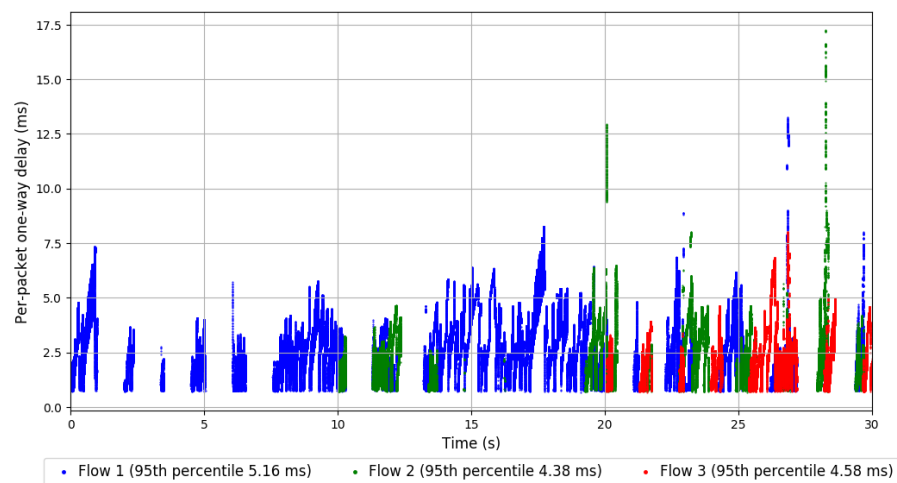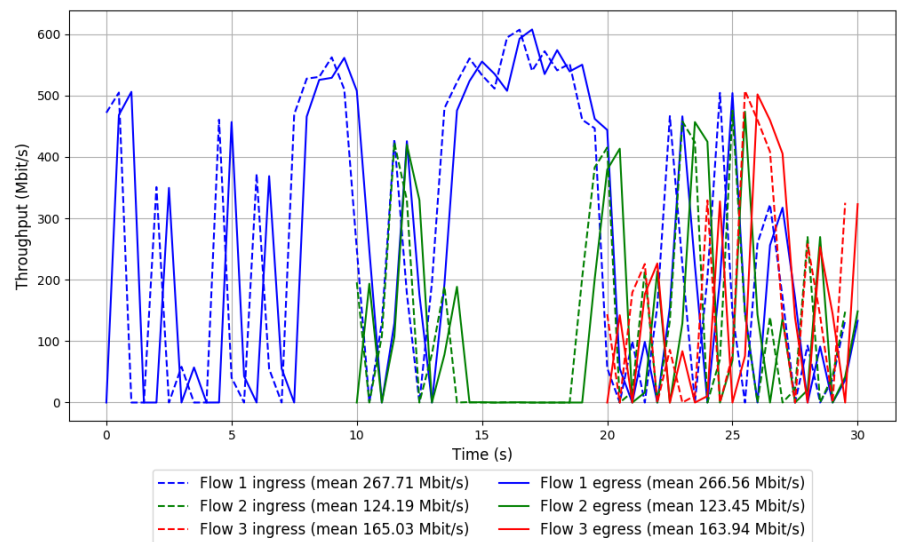
Run 2: Report of LEDBAT — Data Link

Flow 1 ingress (mean 267.71 Mbit/s)   Flow 1 egress (mean 266.56 Mbit/s)
Flow 2 ingress (mean 124.19 Mbit/s)   Flow 2 egress (mean 123.45 Mbit/s)
Flow 3 ingress (mean 165.03 Mbit/s)   Flow 3 egress (mean 163.94 Mbit/s)

Flow 1 (95th percentile 5.16 ms)   Flow 2 (95th percentile 4.38 ms)   Flow 3 (95th percentile 4.58 ms)

```
Run 3: Statistics of LEDBAT

Start at: 2019-03-19 03:42:13
End at: 2019-03-19 03:42:43
Local clock offset: 0.841 ms
Remote clock offset: 1.798 ms

# Below is generated by plot.py at 2019-03-19 05:41:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 615.73 Mbit/s
95th percentile per-packet one-way delay: 8.580 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 362.25 Mbit/s
95th percentile per-packet one-way delay: 9.520 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 256.07 Mbit/s
95th percentile per-packet one-way delay: 6.061 ms
Loss rate: 0.39%
-- Flow 3:
Average throughput: 249.35 Mbit/s
95th percentile per-packet one-way delay: 6.618 ms
Loss rate: 0.35%
```
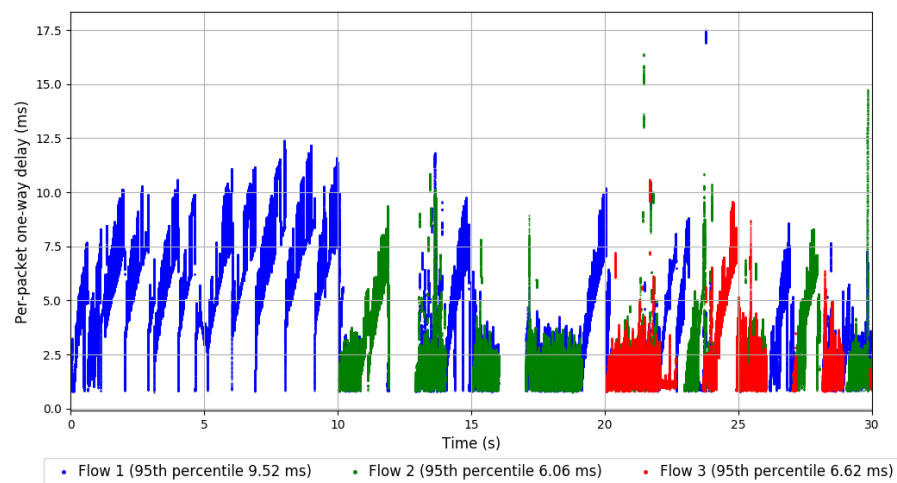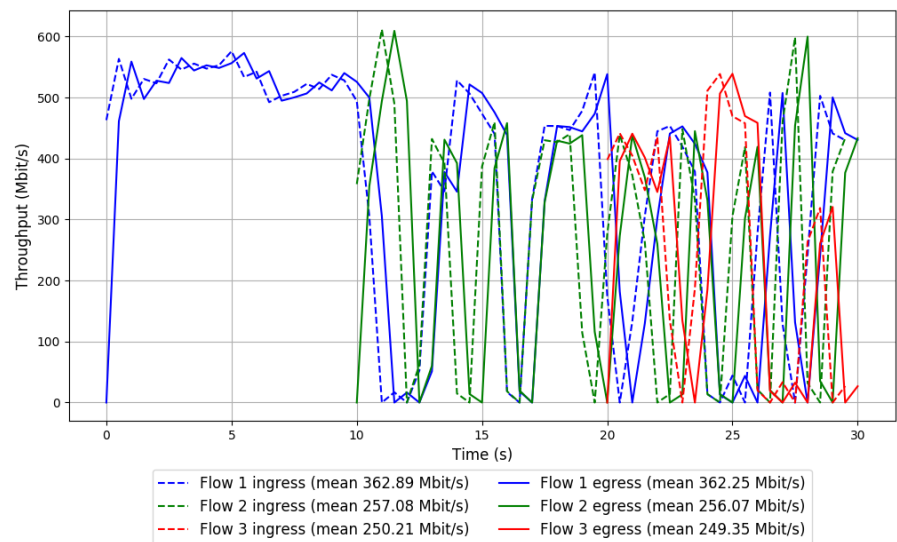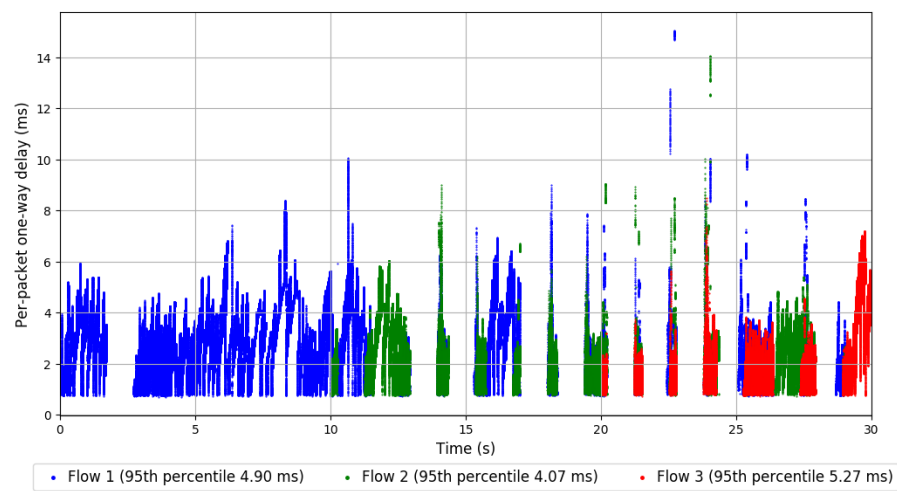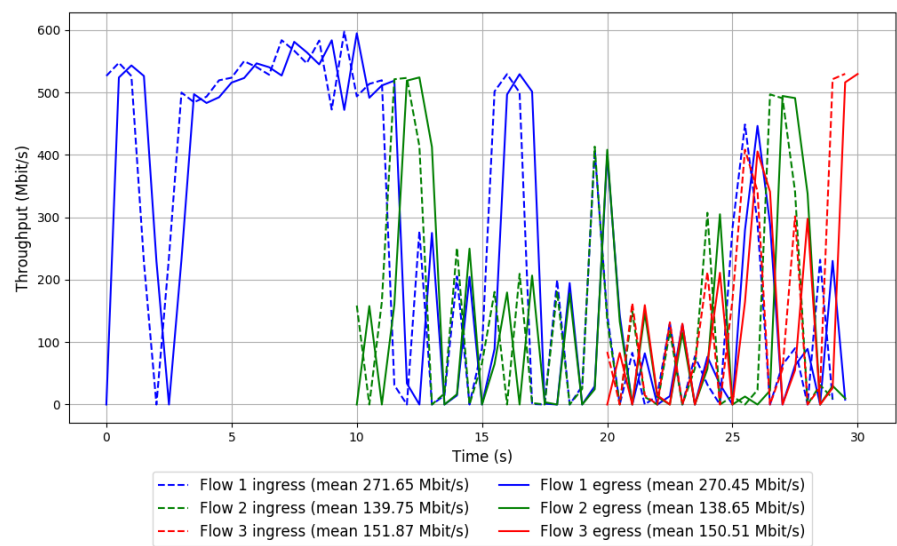
Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2019-03-19 04:11:52
End at: 2019-03-19 04:12:22
Local clock offset: 0.463 ms
Remote clock offset: -0.224 ms

# Below is generated by plot.py at 2019-03-19 05:42:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 399.55 Mbit/s
95th percentile per-packet one-way delay: 4.791 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 270.45 Mbit/s
95th percentile per-packet one-way delay: 4.900 ms
Loss rate: 0.44%
-- Flow 2:
Average throughput: 138.65 Mbit/s
95th percentile per-packet one-way delay: 4.069 ms
Loss rate: 0.78%
-- Flow 3:
Average throughput: 150.51 Mbit/s
95th percentile per-packet one-way delay: 5.269 ms
Loss rate: 0.90%
```
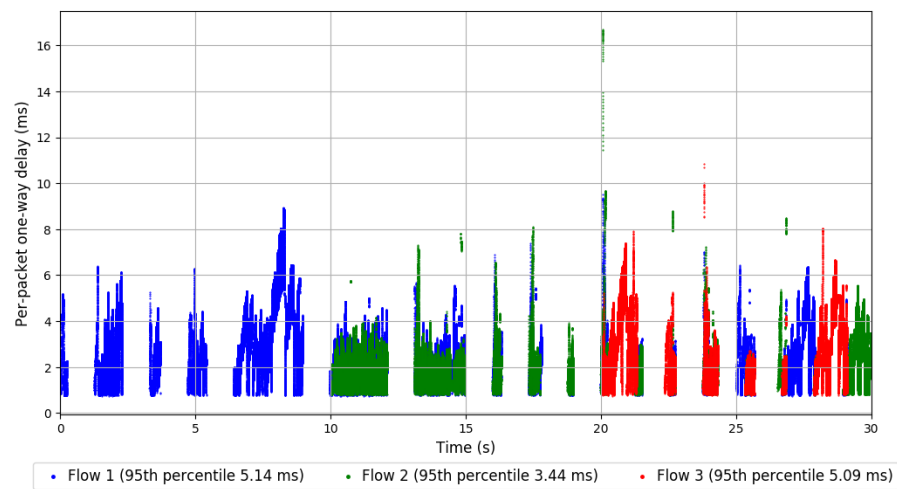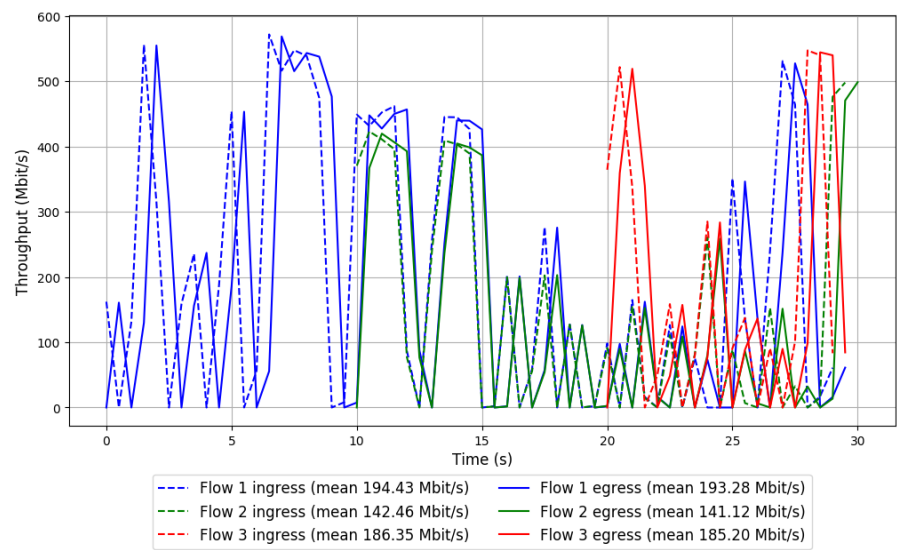
Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2019-03-19 04:41:16
End at: 2019-03-19 04:41:46
Local clock offset: 0.736 ms
Remote clock offset: -0.255 ms


# Below is generated by plot.py at 2019-03-19 05:42:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 337.75 Mbit/s
95th percentile per-packet one-way delay: 4.876 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 193.28 Mbit/s
95th percentile per-packet one-way delay: 5.140 ms
Loss rate: 0.59%
-- Flow 2:
Average throughput: 141.12 Mbit/s
95th percentile per-packet one-way delay: 3.438 ms
Loss rate: 0.94%
-- Flow 3:
Average throughput: 185.20 Mbit/s
95th percentile per-packet one-way delay: 5.086 ms
Loss rate: 0.62%
```
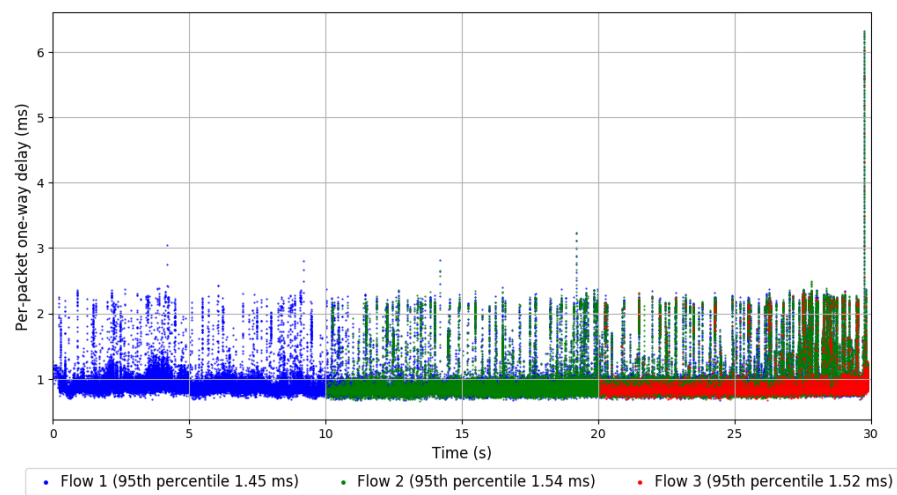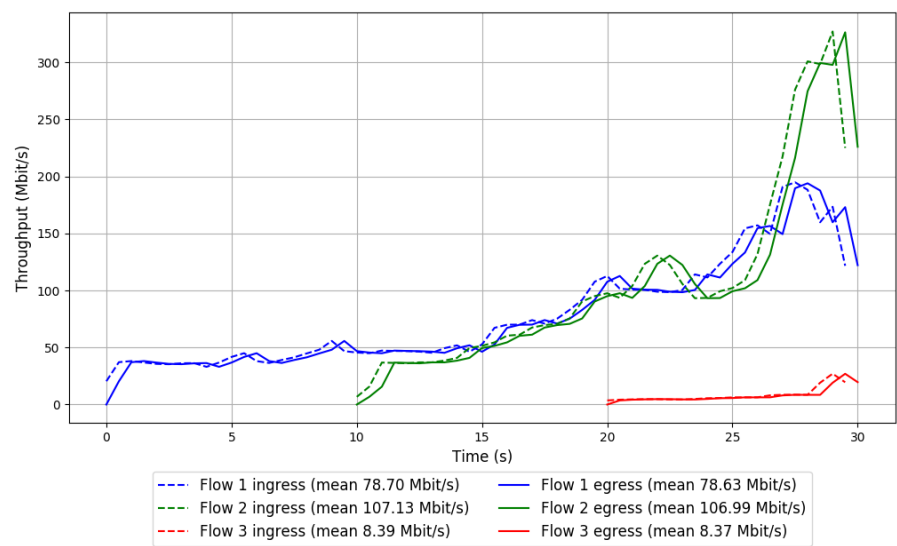
Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2019-03-19 02:36:11
End at: 2019-03-19 02:36:41
Local clock offset: 0.559 ms
Remote clock offset: -0.319 ms


# Below is generated by plot.py at 2019-03-19 05:42:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 152.55 Mbit/s
95th percentile per-packet one-way delay: 1.500 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 78.63 Mbit/s
95th percentile per-packet one-way delay: 1.452 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 106.99 Mbit/s
95th percentile per-packet one-way delay: 1.543 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 8.37 Mbit/s
95th percentile per-packet one-way delay: 1.519 ms
Loss rate: 0.18%
```

Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2019-03-19 03:05:49
End at: 2019-03-19 03:06:19
Local clock offset: -0.88 ms
Remote clock offset: 0.63 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 730.91 Mbit/s
95th percentile per-packet one-way delay: 1.528 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 549.27 Mbit/s
95th percentile per-packet one-way delay: 1.444 ms
Loss rate: 0.19%
-- Flow 2:
Average throughput: 259.39 Mbit/s
95th percentile per-packet one-way delay: 1.797 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 27.86 Mbit/s
95th percentile per-packet one-way delay: 1.693 ms
Loss rate: 0.11%
```
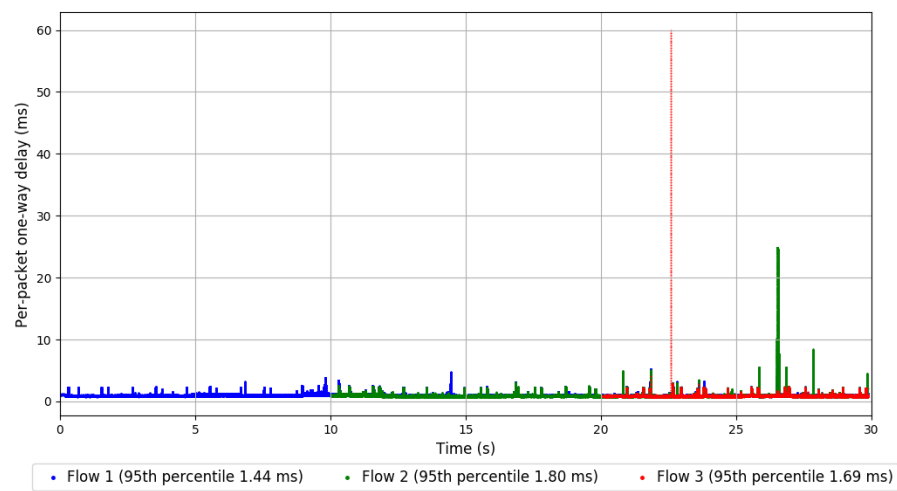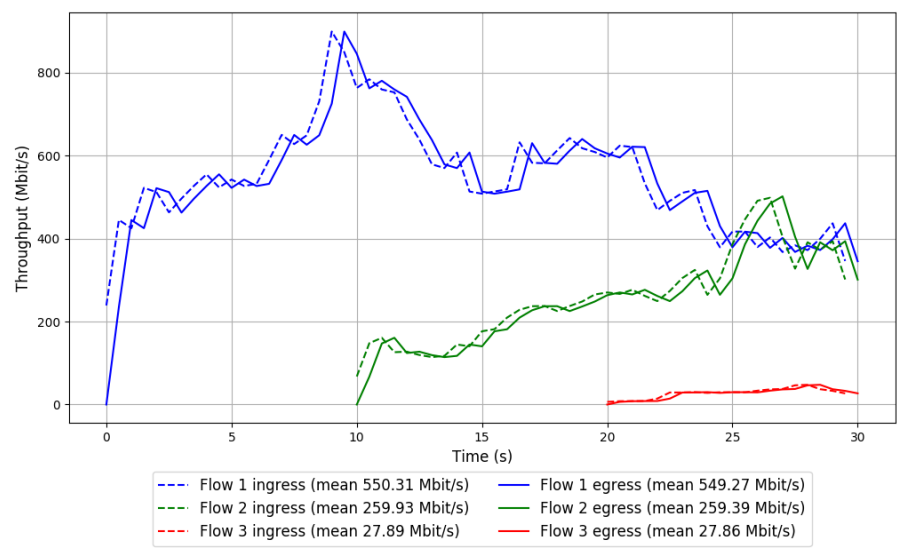
Run 2: Report of PCC-Allegro — Data Link

- - - Flow 1 ingress (mean 550.31 Mbit/s) — Flow 1 egress (mean 549.27 Mbit/s)
- - - Flow 2 ingress (mean 259.93 Mbit/s) — Flow 2 egress (mean 259.39 Mbit/s)
- - - Flow 3 ingress (mean 27.89 Mbit/s) — Flow 3 egress (mean 27.86 Mbit/s)

• Flow 1 (95th percentile 1.44 ms)   • Flow 2 (95th percentile 1.80 ms)   • Flow 3 (95th percentile 1.69 ms)

```
Run 3: Statistics of PCC-Allegro

Start at: 2019-03-19 03:35:31
End at: 2019-03-19 03:36:01
Local clock offset: 0.665 ms
Remote clock offset: 1.586 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 696.45 Mbit/s
95th percentile per-packet one-way delay: 2.506 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 647.34 Mbit/s
95th percentile per-packet one-way delay: 2.596 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 42.78 Mbit/s
95th percentile per-packet one-way delay: 1.988 ms
Loss rate: 0.45%
-- Flow 3:
Average throughput: 62.78 Mbit/s
95th percentile per-packet one-way delay: 2.049 ms
Loss rate: 0.63%
```
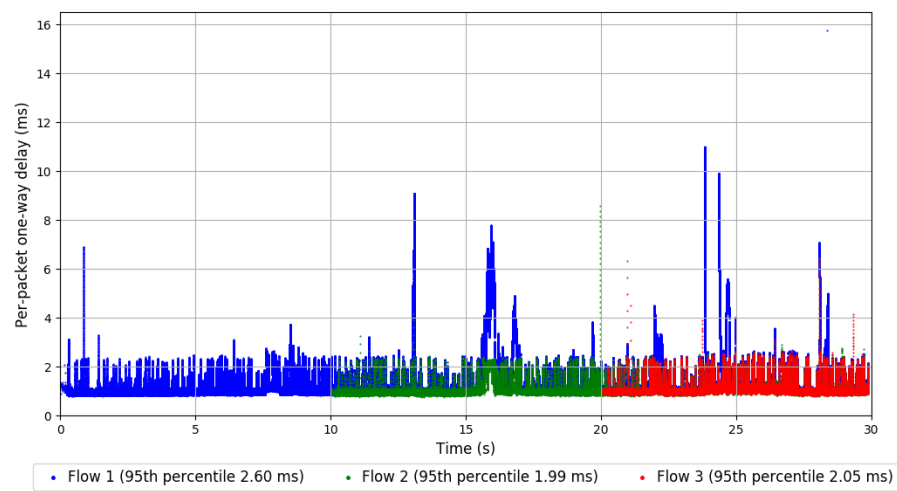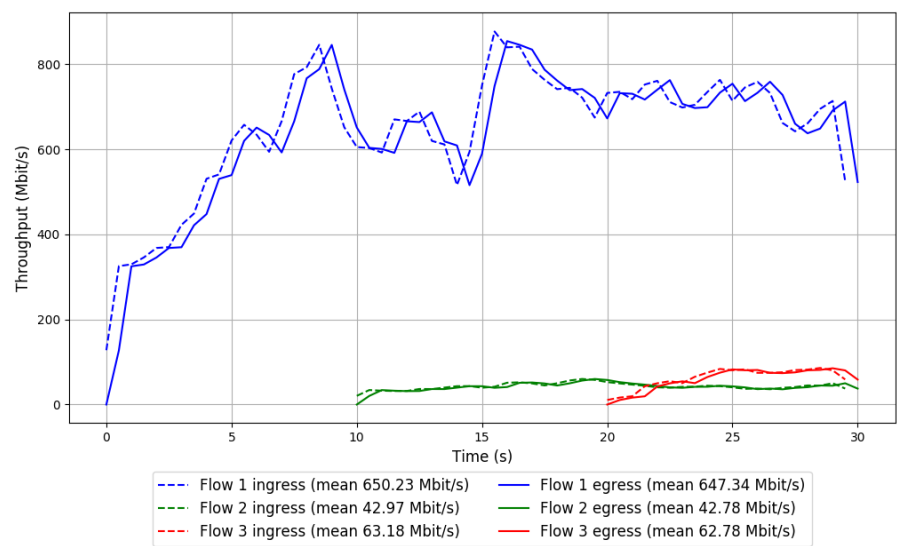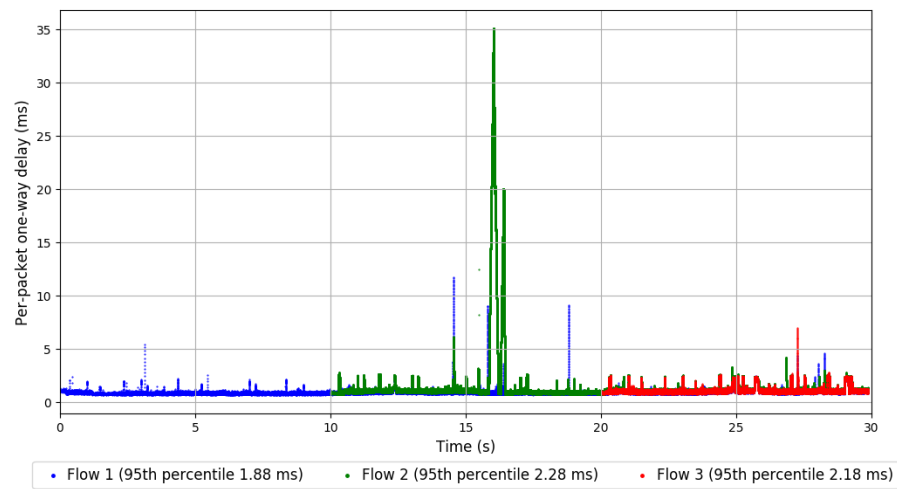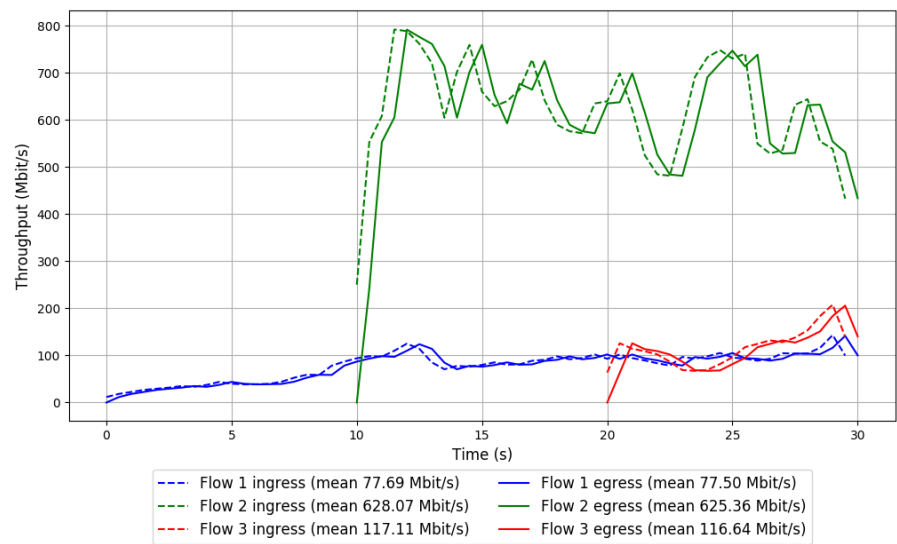
Run 3: Report of PCC-Allegro — Data Link

- - - Flow 1 ingress (mean 650.23 Mbit/s)   —— Flow 1 egress (mean 647.34 Mbit/s)
- - - Flow 2 ingress (mean 42.97 Mbit/s)   —— Flow 2 egress (mean 42.78 Mbit/s)
- - - Flow 3 ingress (mean 63.18 Mbit/s)   —— Flow 3 egress (mean 62.78 Mbit/s)

- Flow 1 (95th percentile 2.60 ms)   • Flow 2 (95th percentile 1.99 ms)   • Flow 3 (95th percentile 2.05 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2019-03-19 04:05:24
End at: 2019-03-19 04:05:54
Local clock offset: 0.495 ms
Remote clock offset: -0.109 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 531.87 Mbit/s
95th percentile per-packet one-way delay: 2.248 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 77.50 Mbit/s
95th percentile per-packet one-way delay: 1.883 ms
Loss rate: 0.23%
-- Flow 2:
Average throughput: 625.36 Mbit/s
95th percentile per-packet one-way delay: 2.282 ms
Loss rate: 0.43%
-- Flow 3:
Average throughput: 116.64 Mbit/s
95th percentile per-packet one-way delay: 2.182 ms
Loss rate: 0.39%
```

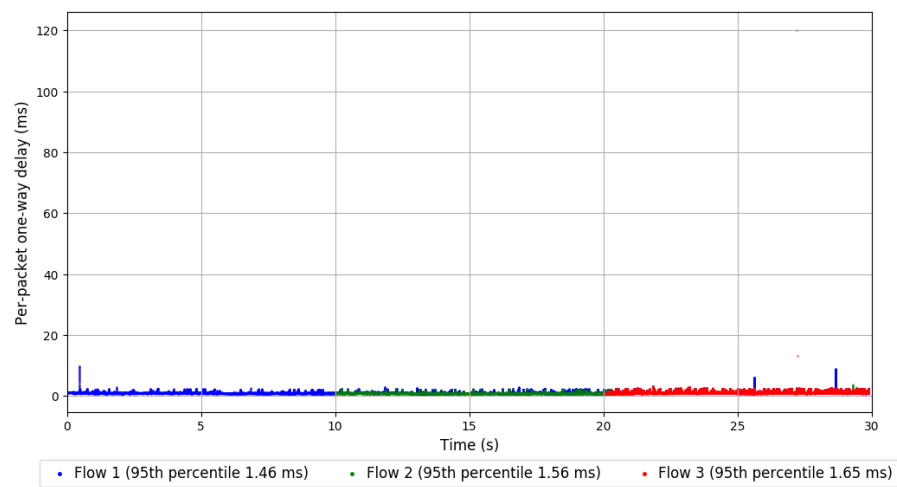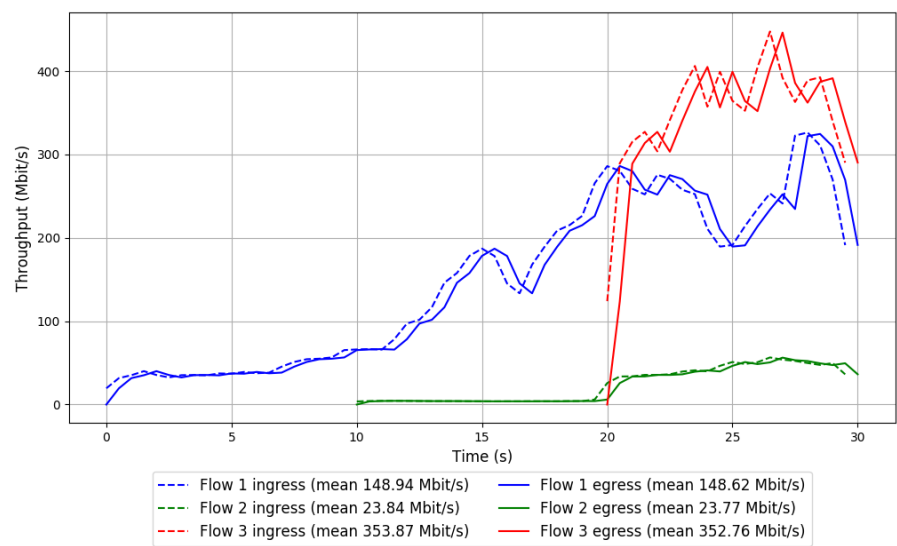Run 4: Report of PCC-Allegro — Data Link

```
Run 5: Statistics of PCC-Allegro

Start at: 2019-03-19 04:34:50
End at: 2019-03-19 04:35:20
Local clock offset: 0.709 ms
Remote clock offset: -0.211 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 280.82 Mbit/s
95th percentile per-packet one-way delay: 1.556 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 148.62 Mbit/s
95th percentile per-packet one-way delay: 1.456 ms
Loss rate: 0.22%
-- Flow 2:
Average throughput: 23.77 Mbit/s
95th percentile per-packet one-way delay: 1.560 ms
Loss rate: 0.31%
-- Flow 3:
Average throughput: 352.76 Mbit/s
95th percentile per-packet one-way delay: 1.652 ms
Loss rate: 0.31%
```
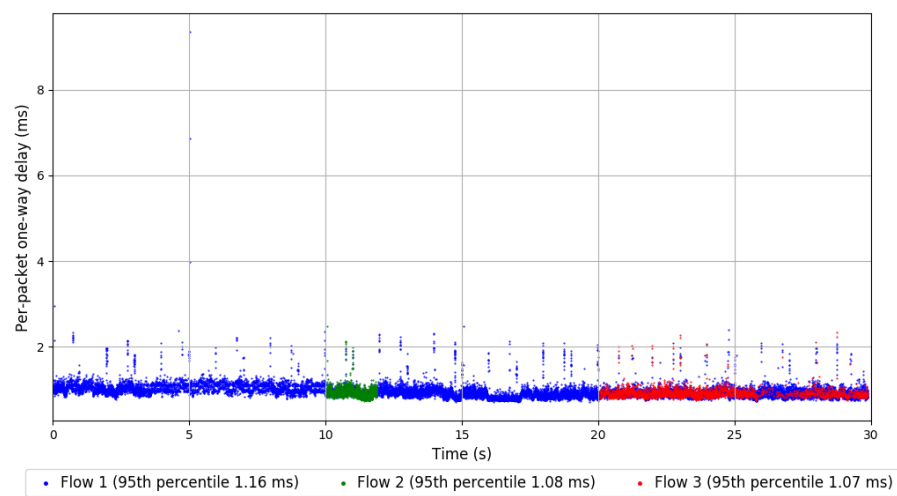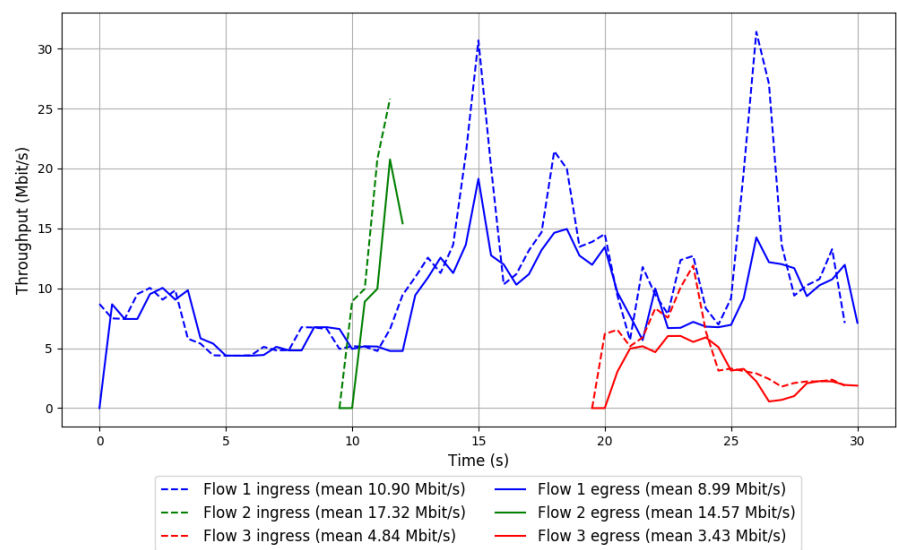
Run 5: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 148.94 Mbit/s) — Flow 1 egress (mean 148.62 Mbit/s)
Flow 2 ingress (mean 23.84 Mbit/s) — Flow 2 egress (mean 23.77 Mbit/s)
Flow 3 ingress (mean 353.87 Mbit/s) — Flow 3 egress (mean 352.76 Mbit/s)

Flow 1 (95th percentile 1.46 ms) • Flow 2 (95th percentile 1.56 ms) • Flow 3 (95th percentile 1.65 ms)

```
Run 1: Statistics of PCC-Expr

Start at: 2019-03-19 02:48:39
End at: 2019-03-19 02:49:09
Local clock offset: 0.21 ms
Remote clock offset: 0.193 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 11.05 Mbit/s
95th percentile per-packet one-way delay: 1.139 ms
Loss rate: 18.73%
-- Flow 1:
Average throughput: 8.99 Mbit/s
95th percentile per-packet one-way delay: 1.155 ms
Loss rate: 17.48%
-- Flow 2:
Average throughput: 14.57 Mbit/s
95th percentile per-packet one-way delay: 1.081 ms
Loss rate: 15.96%
-- Flow 3:
Average throughput: 3.43 Mbit/s
95th percentile per-packet one-way delay: 1.067 ms
Loss rate: 29.16%
```
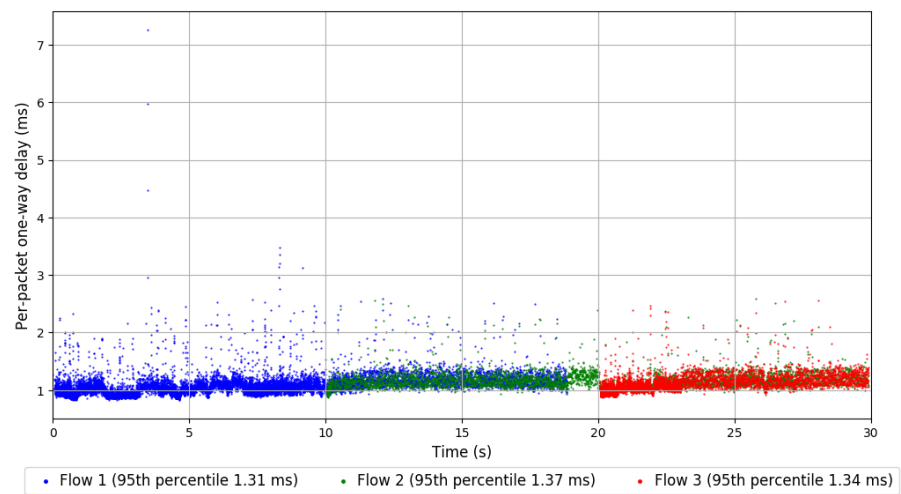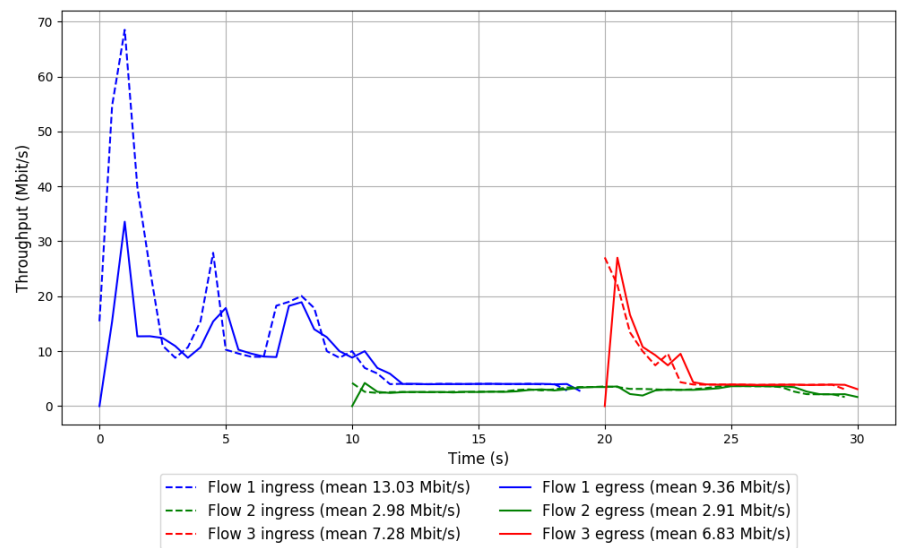
Run 1: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 10.90 Mbit/s) ---- Flow 1 egress (mean 8.99 Mbit/s)
Flow 2 ingress (mean 17.32 Mbit/s) ---- Flow 2 egress (mean 14.57 Mbit/s)
Flow 3 ingress (mean 4.84 Mbit/s) ---- Flow 3 egress (mean 3.43 Mbit/s)

Flow 1 (95th percentile 1.16 ms)   Flow 2 (95th percentile 1.08 ms)   Flow 3 (95th percentile 1.07 ms)

```
Run 2: Statistics of PCC-Expr

Start at: 2019-03-19 03:18:23
End at: 2019-03-19 03:18:53
Local clock offset: -0.751 ms
Remote clock offset: 0.983 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.10 Mbit/s
95th percentile per-packet one-way delay: 1.336 ms
Loss rate: 19.90%
-- Flow 1:
Average throughput: 9.36 Mbit/s
95th percentile per-packet one-way delay: 1.311 ms
Loss rate: 28.15%
-- Flow 2:
Average throughput: 2.91 Mbit/s
95th percentile per-packet one-way delay: 1.366 ms
Loss rate: 2.34%
-- Flow 3:
Average throughput: 6.83 Mbit/s
95th percentile per-packet one-way delay: 1.341 ms
Loss rate: 6.17%
```
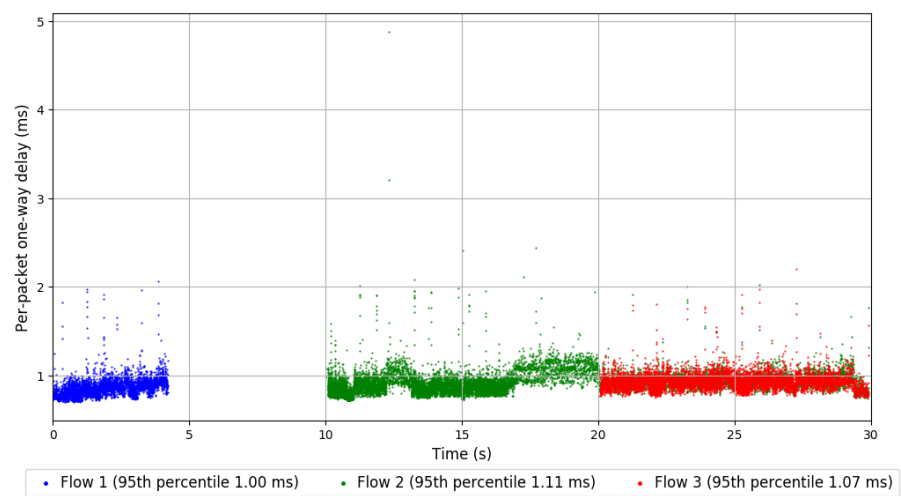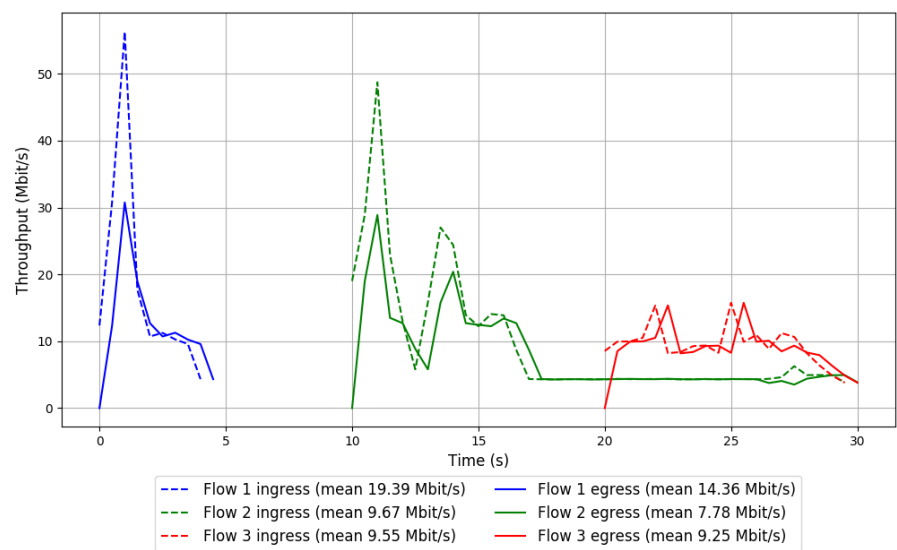
Run 2: Report of PCC-Expr — Data Link

```
Run 3: Statistics of PCC-Expr

Start at: 2019-03-19 03:48:26
End at: 2019-03-19 03:48:56
Local clock offset: 0.818 ms
Remote clock offset: 0.867 ms

# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.25 Mbit/s
95th percentile per-packet one-way delay: 1.084 ms
Loss rate: 16.78%
-- Flow 1:
Average throughput: 14.36 Mbit/s
95th percentile per-packet one-way delay: 0.997 ms
Loss rate: 25.95%
-- Flow 2:
Average throughput: 7.78 Mbit/s
95th percentile per-packet one-way delay: 1.114 ms
Loss rate: 19.60%
-- Flow 3:
Average throughput: 9.25 Mbit/s
95th percentile per-packet one-way delay: 1.068 ms
Loss rate: 3.06%
```
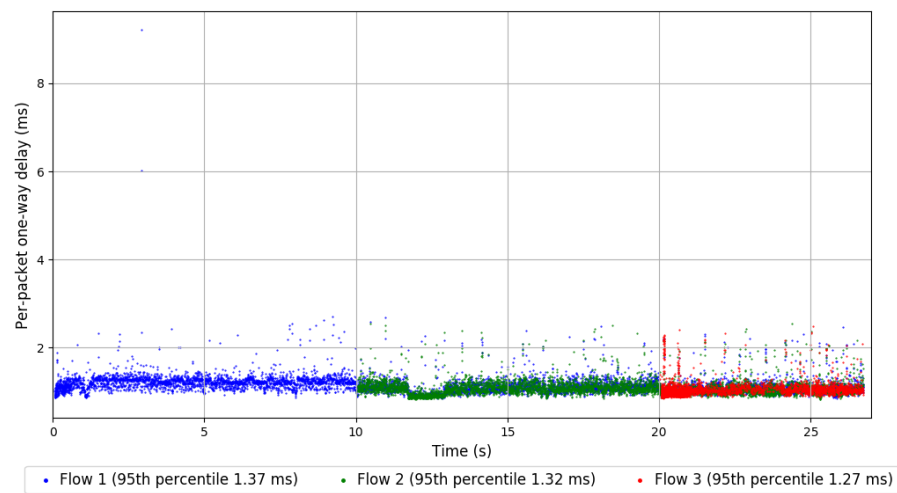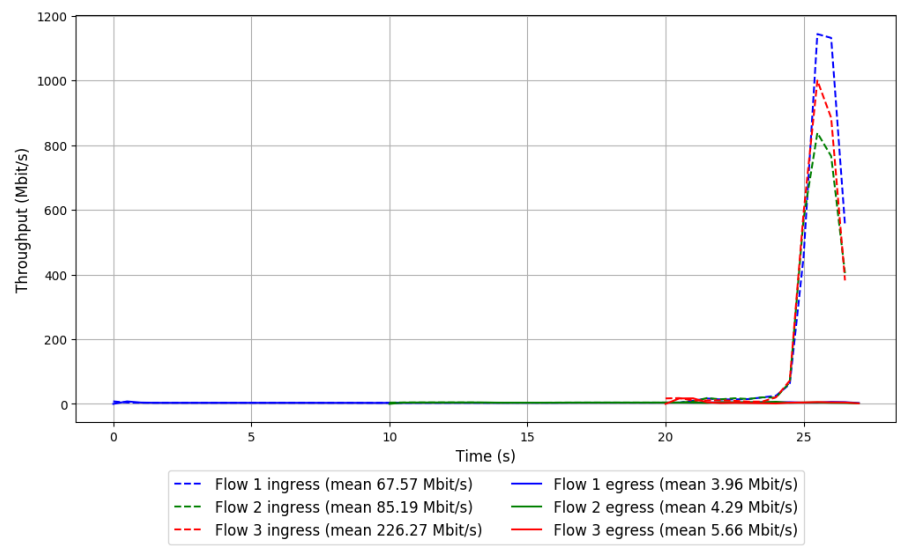
Run 3: Report of PCC-Expr — Data Link

```
Run 4: Statistics of PCC-Expr

Start at: 2019-03-19 04:17:43
End at: 2019-03-19 04:18:13
Local clock offset: 0.503 ms
Remote clock offset: -0.2 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.06 Mbit/s
95th percentile per-packet one-way delay: 1.353 ms
Loss rate: 95.47%
-- Flow 1:
Average throughput: 3.96 Mbit/s
95th percentile per-packet one-way delay: 1.374 ms
Loss rate: 94.15%
-- Flow 2:
Average throughput: 4.29 Mbit/s
95th percentile per-packet one-way delay: 1.319 ms
Loss rate: 94.97%
-- Flow 3:
Average throughput: 5.66 Mbit/s
95th percentile per-packet one-way delay: 1.275 ms
Loss rate: 97.50%
```
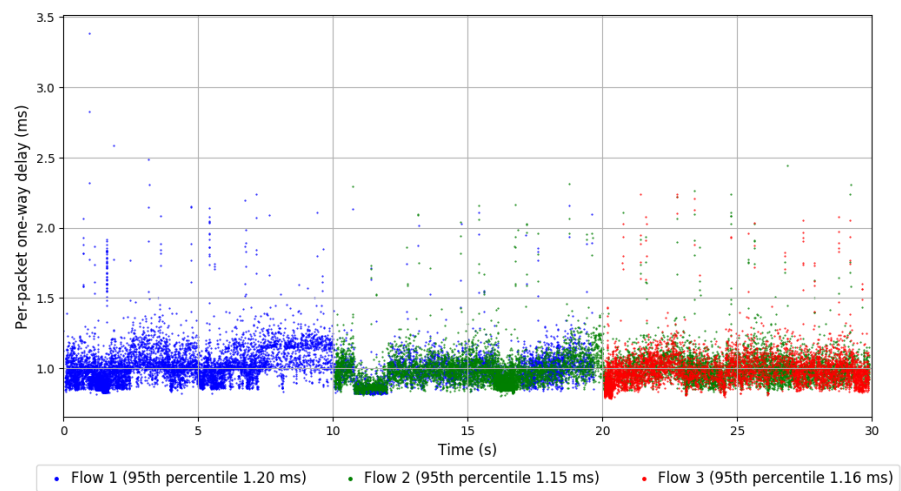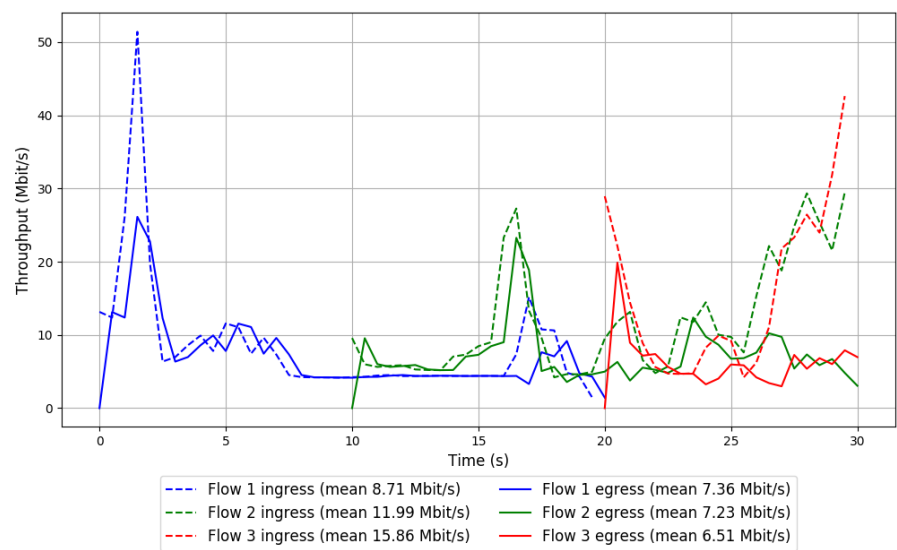
Run 4: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 67.57 Mbit/s) ---- Flow 1 egress (mean 3.96 Mbit/s)
Flow 2 ingress (mean 85.19 Mbit/s) ---- Flow 2 egress (mean 4.29 Mbit/s)
Flow 3 ingress (mean 226.27 Mbit/s) ---- Flow 3 egress (mean 5.66 Mbit/s)

Flow 1 (95th percentile 1.37 ms) • Flow 2 (95th percentile 1.32 ms) • Flow 3 (95th percentile 1.27 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2019-03-19 04:47:14
End at: 2019-03-19 04:47:44
Local clock offset: 0.748 ms
Remote clock offset: -0.223 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 11.80 Mbit/s
95th percentile per-packet one-way delay: 1.179 ms
Loss rate: 37.70%
-- Flow 1:
Average throughput: 7.36 Mbit/s
95th percentile per-packet one-way delay: 1.202 ms
Loss rate: 15.48%
-- Flow 2:
Average throughput: 7.23 Mbit/s
95th percentile per-packet one-way delay: 1.150 ms
Loss rate: 39.70%
-- Flow 3:
Average throughput: 6.51 Mbit/s
95th percentile per-packet one-way delay: 1.157 ms
Loss rate: 58.96%
```
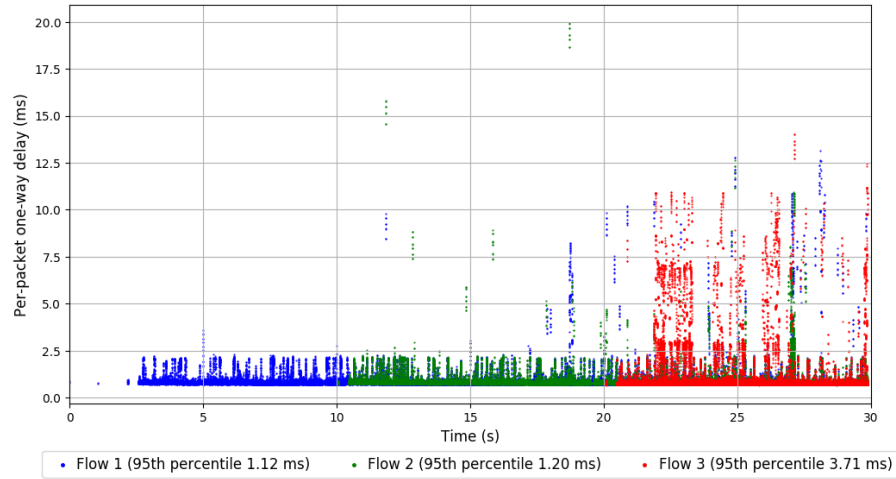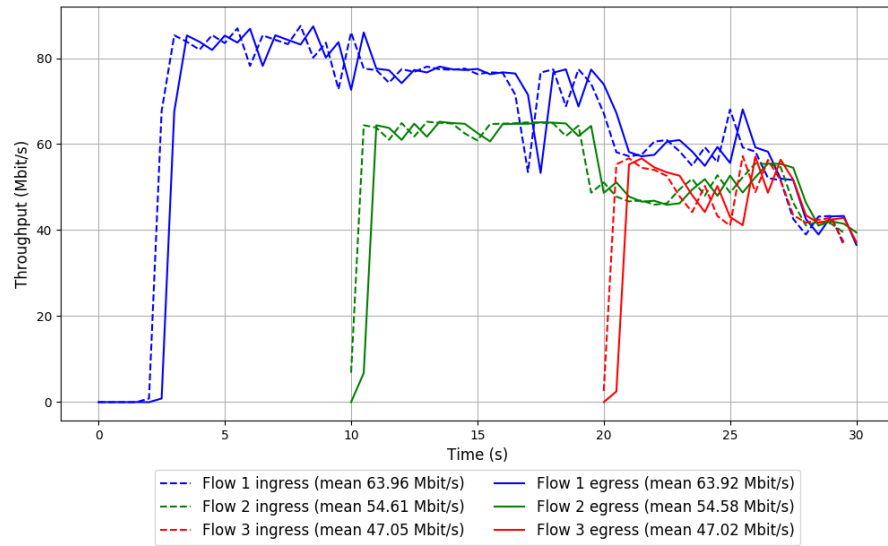
Run 5: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 8.71 Mbit/s)   Flow 1 egress (mean 7.36 Mbit/s)
Flow 2 ingress (mean 11.99 Mbit/s)   Flow 2 egress (mean 7.23 Mbit/s)
Flow 3 ingress (mean 15.86 Mbit/s)   Flow 3 egress (mean 6.51 Mbit/s)

Flow 1 (95th percentile 1.20 ms)   Flow 2 (95th percentile 1.15 ms)   Flow 3 (95th percentile 1.16 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2019-03-19 02:54:28
End at: 2019-03-19 02:54:58
Local clock offset: -0.321 ms
Remote clock offset: 0.308 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 115.64 Mbit/s
95th percentile per-packet one-way delay: 1.363 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 63.92 Mbit/s
95th percentile per-packet one-way delay: 1.121 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 54.58 Mbit/s
95th percentile per-packet one-way delay: 1.204 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 47.02 Mbit/s
95th percentile per-packet one-way delay: 3.712 ms
Loss rate: 0.06%
```
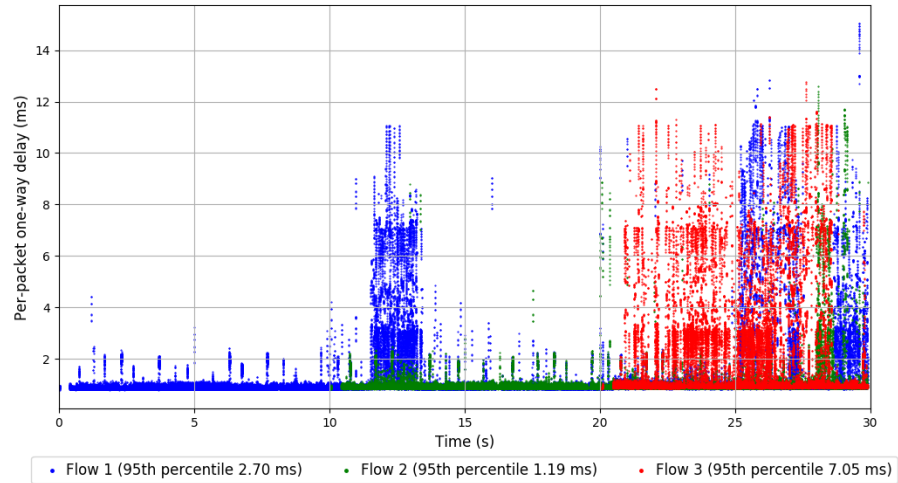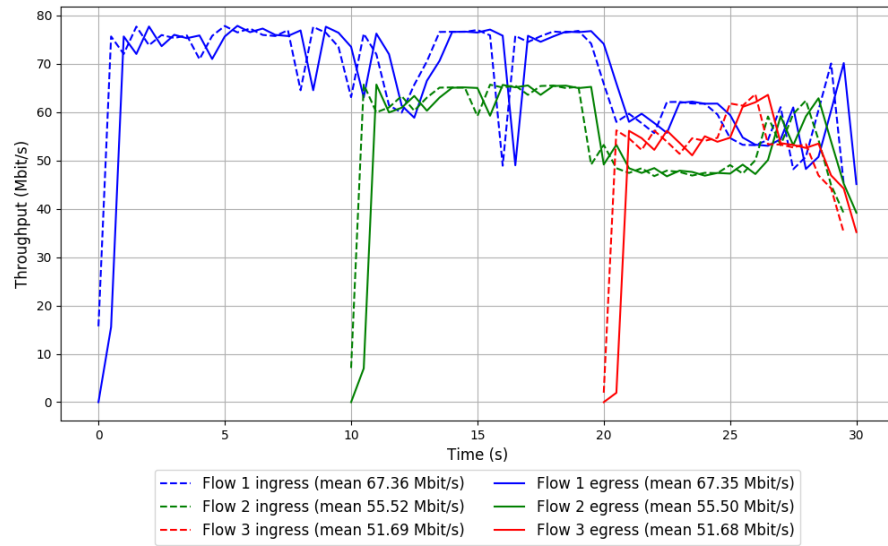
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2019-03-19 03:24:14
End at: 2019-03-19 03:24:44
Local clock offset: 0.04 ms
Remote clock offset: 1.192 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 121.18 Mbit/s
95th percentile per-packet one-way delay: 3.106 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 67.35 Mbit/s
95th percentile per-packet one-way delay: 2.702 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 55.50 Mbit/s
95th percentile per-packet one-way delay: 1.194 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 51.68 Mbit/s
95th percentile per-packet one-way delay: 7.053 ms
Loss rate: 0.03%
```
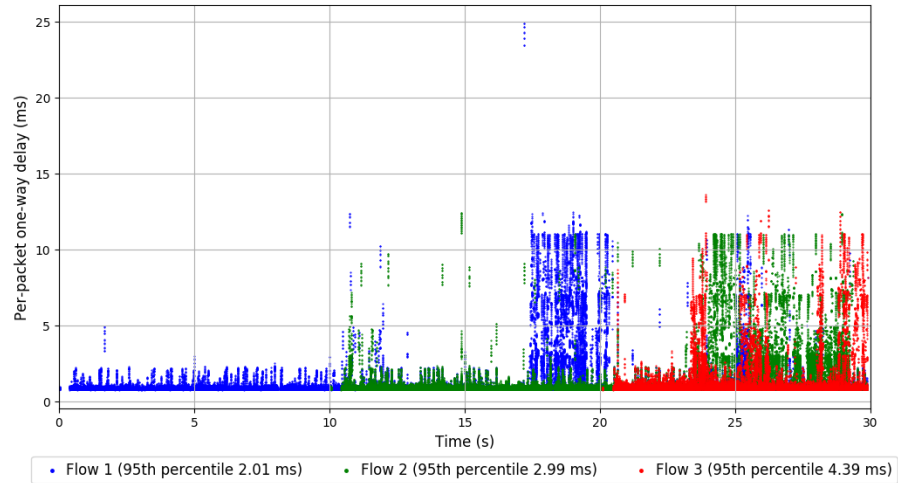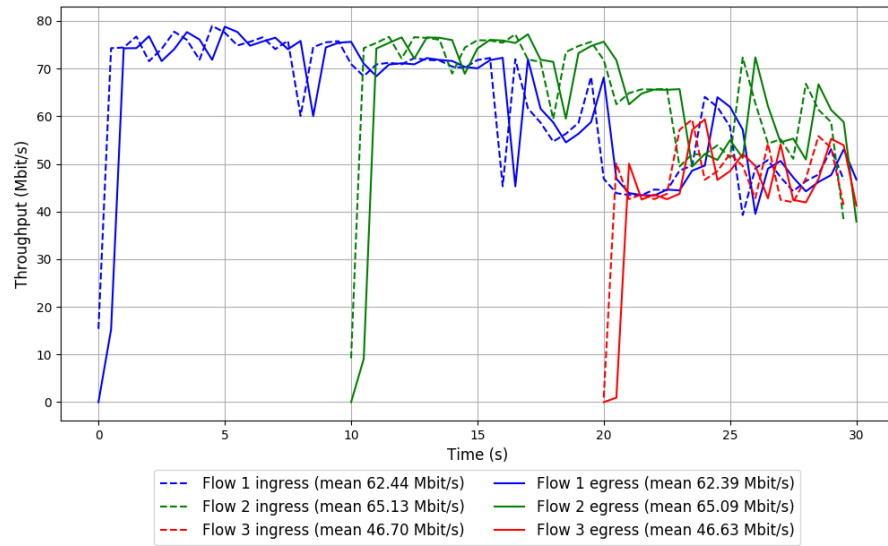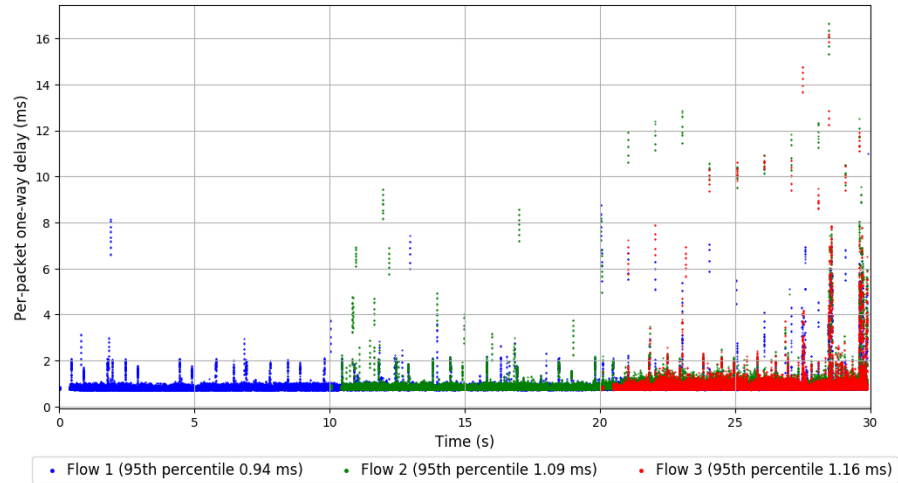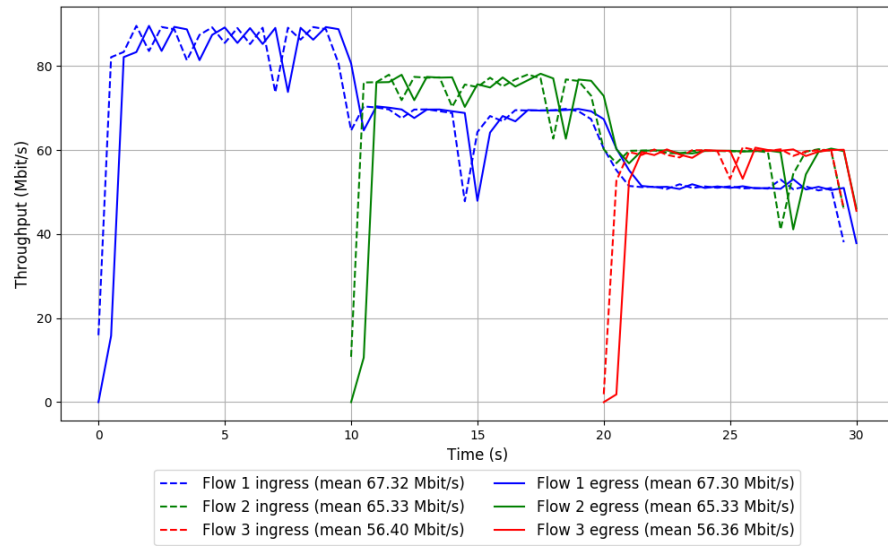
Run 2: Report of QUIC Cubic — Data Link

- - - Flow 1 ingress (mean 67.36 Mbit/s) ——— Flow 1 egress (mean 67.35 Mbit/s)
- - - Flow 2 ingress (mean 55.52 Mbit/s) ——— Flow 2 egress (mean 55.50 Mbit/s)
- - - Flow 3 ingress (mean 51.69 Mbit/s) ——— Flow 3 egress (mean 51.68 Mbit/s)

• Flow 1 (95th percentile 2.70 ms)   • Flow 2 (95th percentile 1.19 ms)   • Flow 3 (95th percentile 7.05 ms)

```
Run 3: Statistics of QUIC Cubic

Start at: 2019-03-19 03:54:08
End at: 2019-03-19 03:54:38
Local clock offset: 0.623 ms
Remote clock offset: 0.342 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 120.91 Mbit/s
95th percentile per-packet one-way delay: 2.795 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 62.39 Mbit/s
95th percentile per-packet one-way delay: 2.014 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 65.09 Mbit/s
95th percentile per-packet one-way delay: 2.991 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 46.63 Mbit/s
95th percentile per-packet one-way delay: 4.392 ms
Loss rate: 0.07%
```
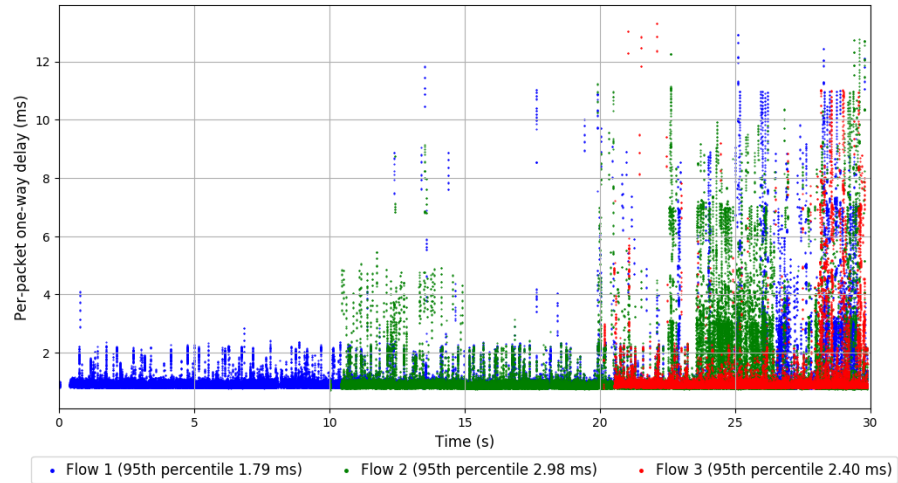
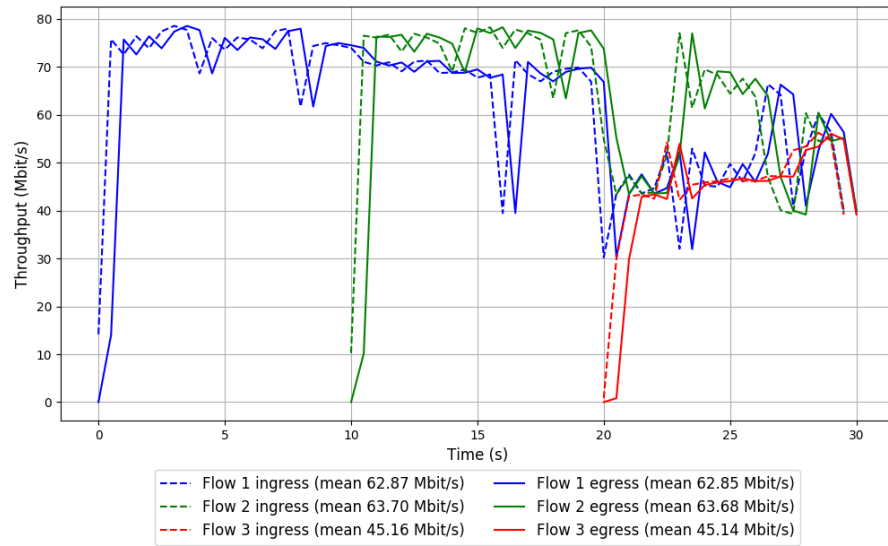Run 3: Report of QUIC Cubic — Data Link

```
Run 4: Statistics of QUIC Cubic

Start at: 2019-03-19 04:23:25
End at: 2019-03-19 04:23:55
Local clock offset: 0.61 ms
Remote clock offset: -0.287 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 129.22 Mbit/s
95th percentile per-packet one-way delay: 1.027 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 67.30 Mbit/s
95th percentile per-packet one-way delay: 0.941 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 65.33 Mbit/s
95th percentile per-packet one-way delay: 1.090 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 56.36 Mbit/s
95th percentile per-packet one-way delay: 1.164 ms
Loss rate: 0.06%
```
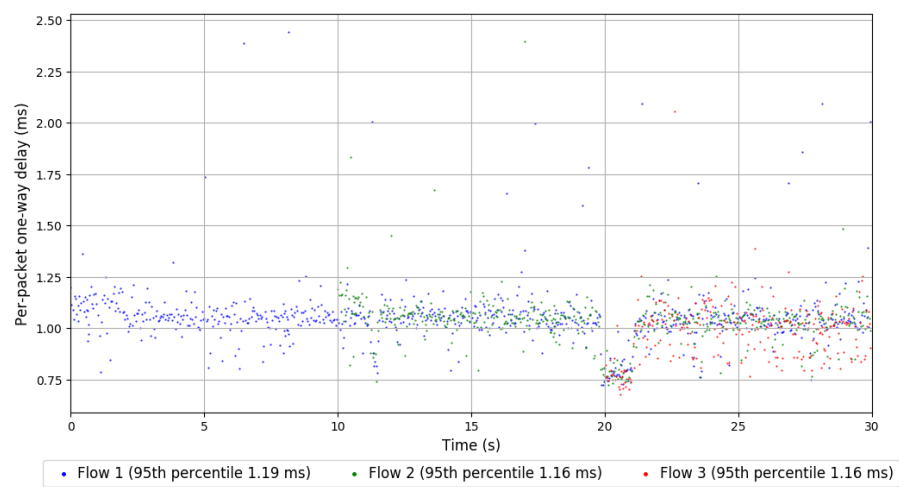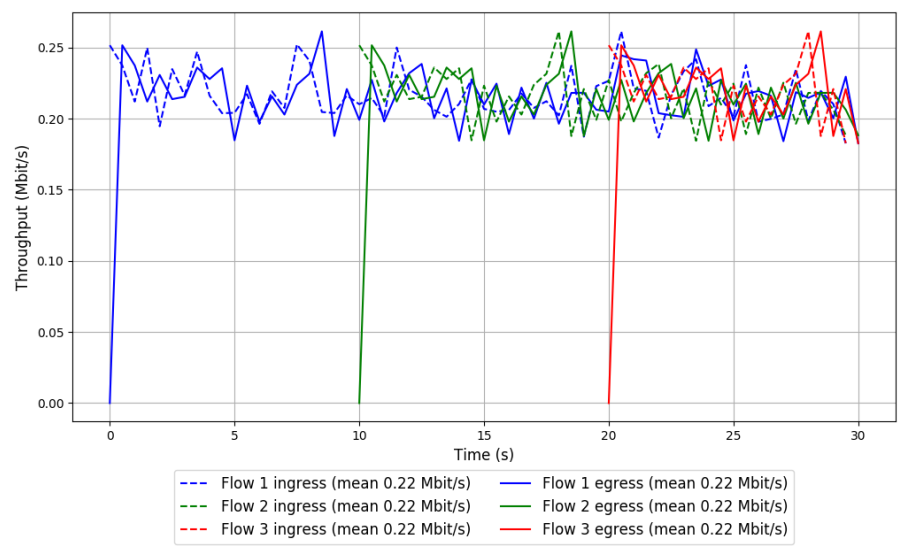
Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 67.32 Mbit/s) --- Flow 1 egress (mean 67.30 Mbit/s)
Flow 2 ingress (mean 65.33 Mbit/s) --- Flow 2 egress (mean 65.33 Mbit/s)
Flow 3 ingress (mean 56.40 Mbit/s) --- Flow 3 egress (mean 56.36 Mbit/s)

Flow 1 (95th percentile 0.94 ms) • Flow 2 (95th percentile 1.09 ms) • Flow 3 (95th percentile 1.16 ms)

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```
Run 5: Statistics of QUIC Cubic

Start at: 2019-03-19 04:53:05
End at: 2019-03-19 04:53:35
Local clock offset: 0.66 ms
Remote clock offset: -0.115 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 119.95 Mbit/s
95th percentile per-packet one-way delay: 2.248 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 62.85 Mbit/s
95th percentile per-packet one-way delay: 1.793 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 63.68 Mbit/s
95th percentile per-packet one-way delay: 2.983 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 45.14 Mbit/s
95th percentile per-packet one-way delay: 2.400 ms
Loss rate: 0.04%
```

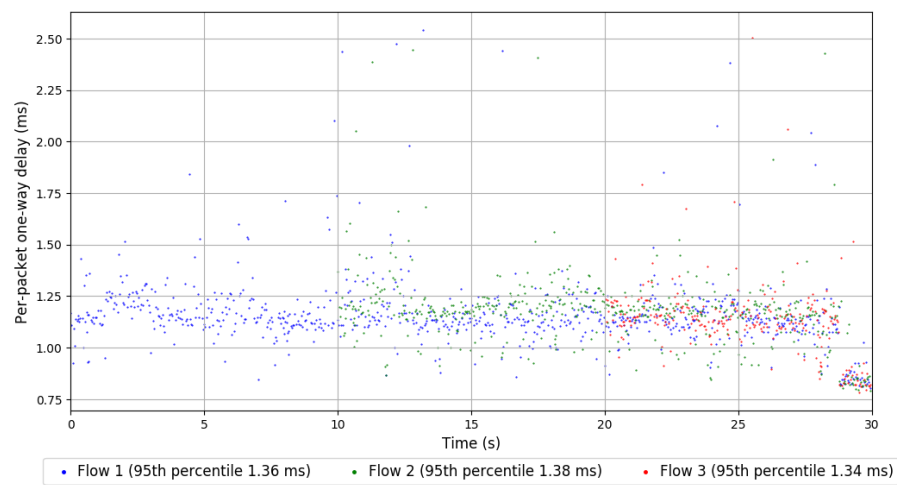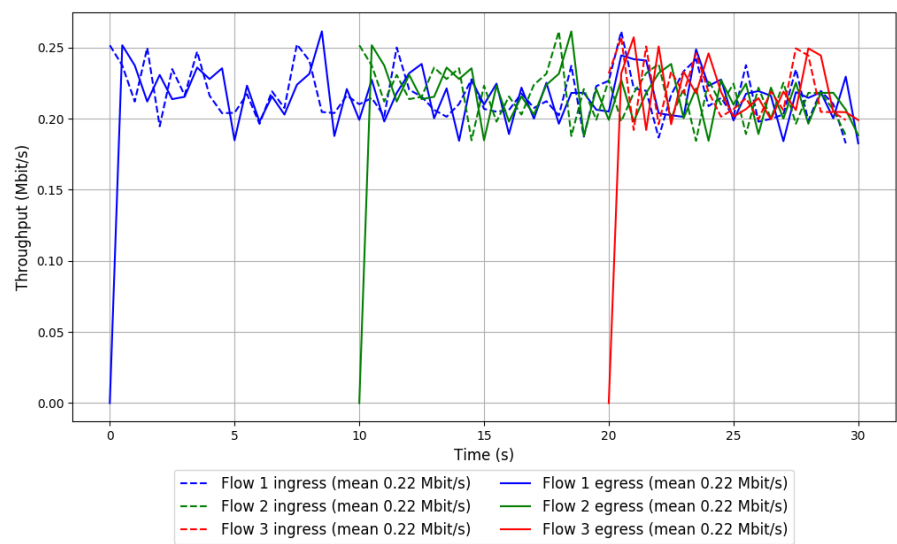Run 5: Report of QUIC Cubic — Data Link

```
Run 1: Statistics of SCReAM

Start at: 2019-03-19 02:40:05
End at: 2019-03-19 02:40:35
Local clock offset: 0.548 ms
Remote clock offset: -0.22 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.170 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.190 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.158 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.155 ms
Loss rate: 0.00%
```
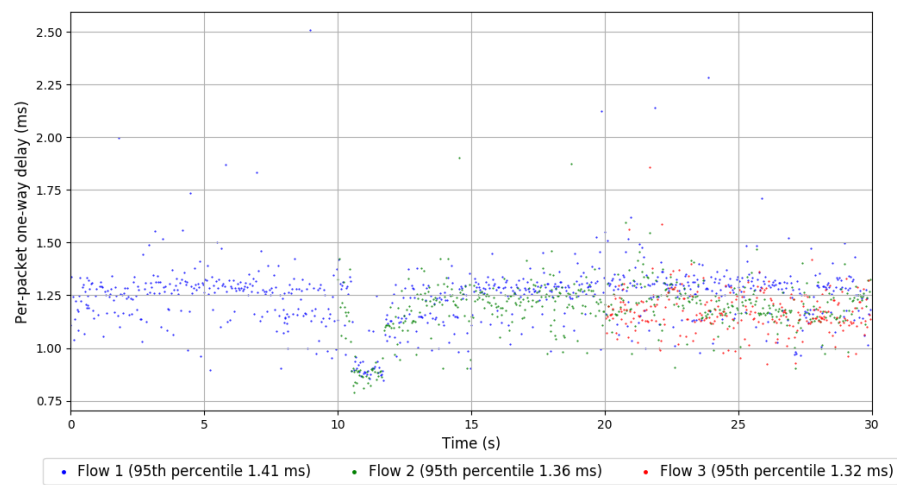
Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2019-03-19 03:09:56
End at: 2019-03-19 03:10:26
Local clock offset: -1.012 ms
Remote clock offset: 0.804 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.369 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.360 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.381 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.336 ms
Loss rate: 0.00%
```
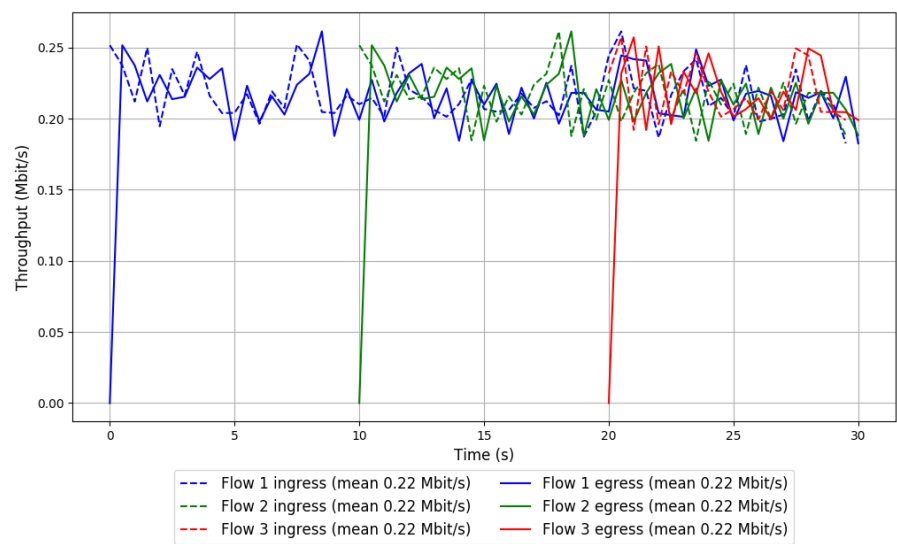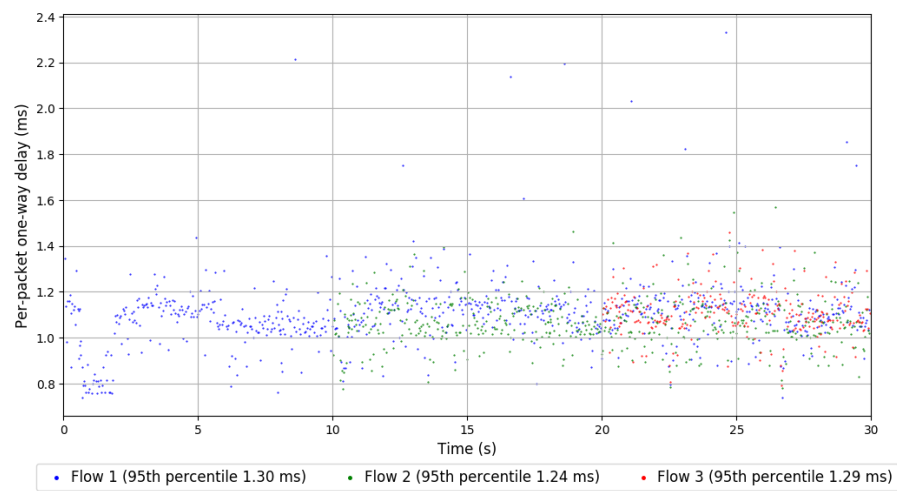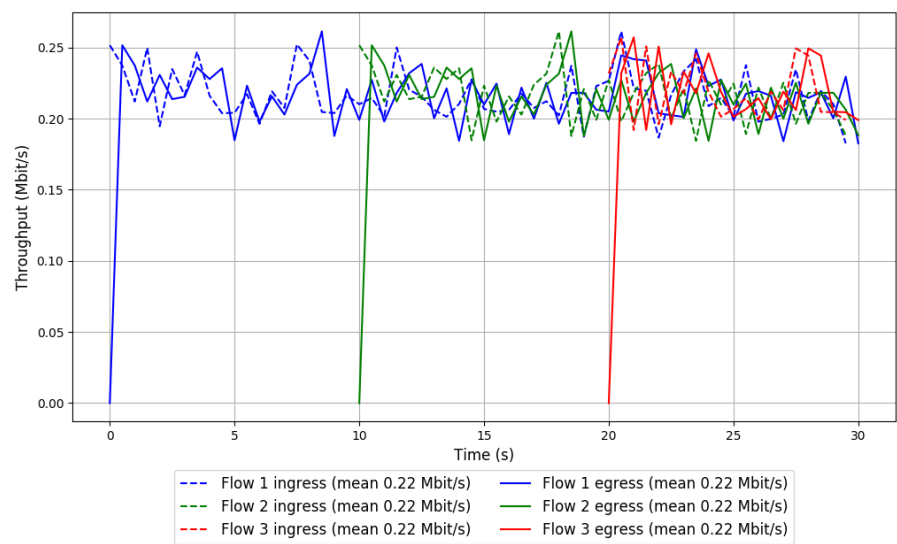
Run 2: Report of SCReAM — Data Link

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```
Run 3: Statistics of SCReAM

Start at: 2019-03-19 03:39:45
End at: 2019-03-19 03:40:15
Local clock offset: 0.789 ms
Remote clock offset: 1.758 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.378 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.413 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.360 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.322 ms
Loss rate: 0.00%
```
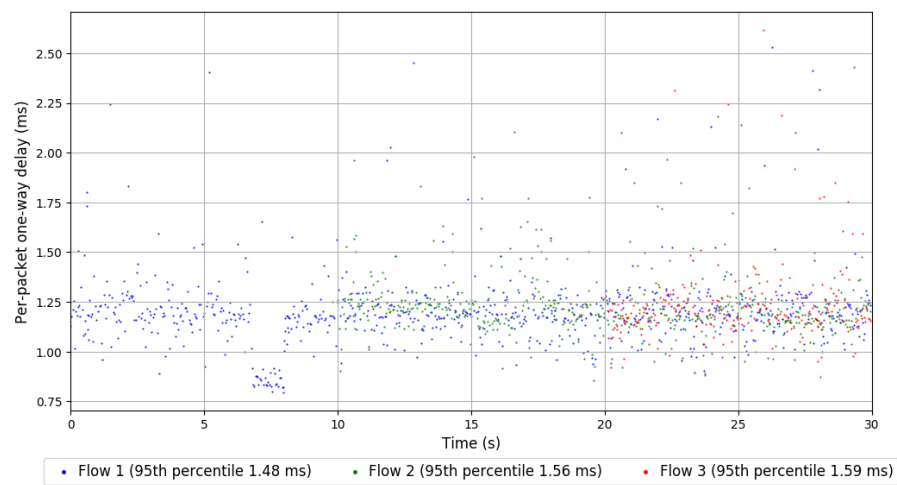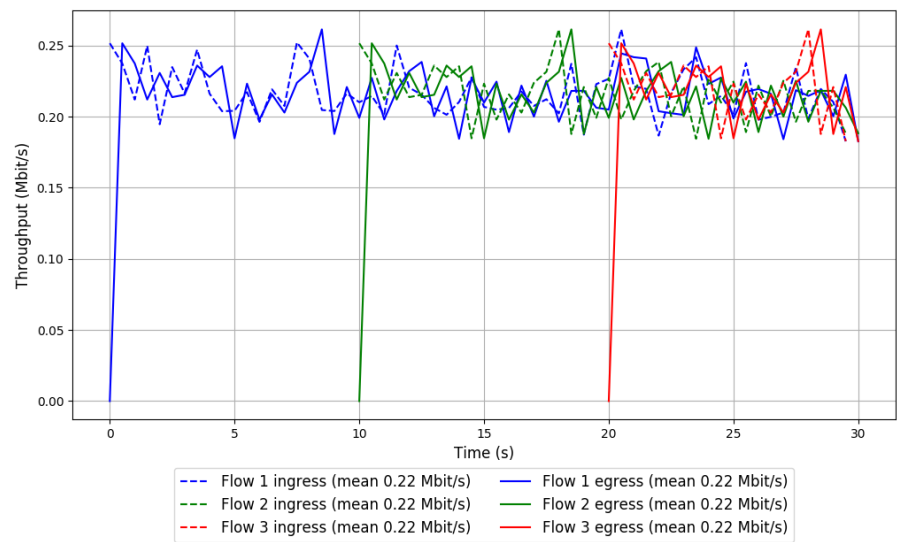
Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2019-03-19 04:09:24
End at: 2019-03-19 04:09:54
Local clock offset: 0.487 ms
Remote clock offset: -0.199 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.283 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.298 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.242 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.291 ms
Loss rate: 0.00%
```

Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2019-03-19 04:38:48
End at: 2019-03-19 04:39:18
Local clock offset: 0.715 ms
Remote clock offset: -0.204 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 1.517 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.481 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.559 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.594 ms
Loss rate: 0.00%
```
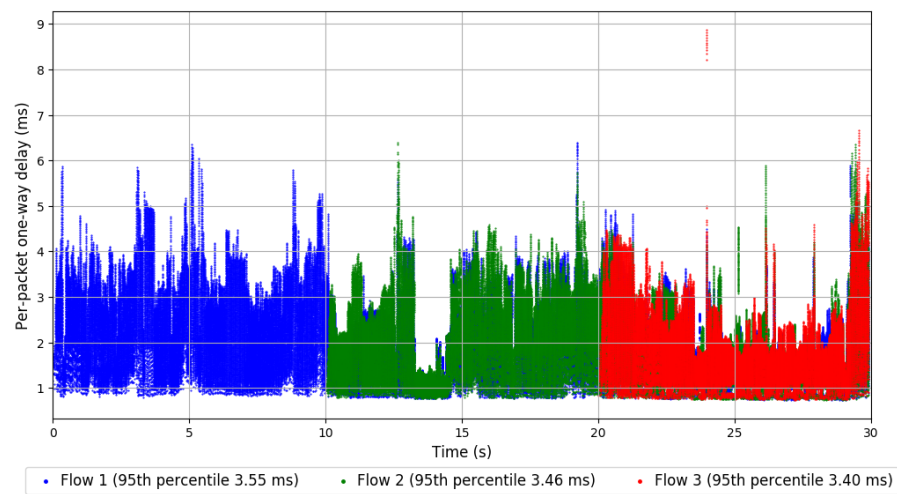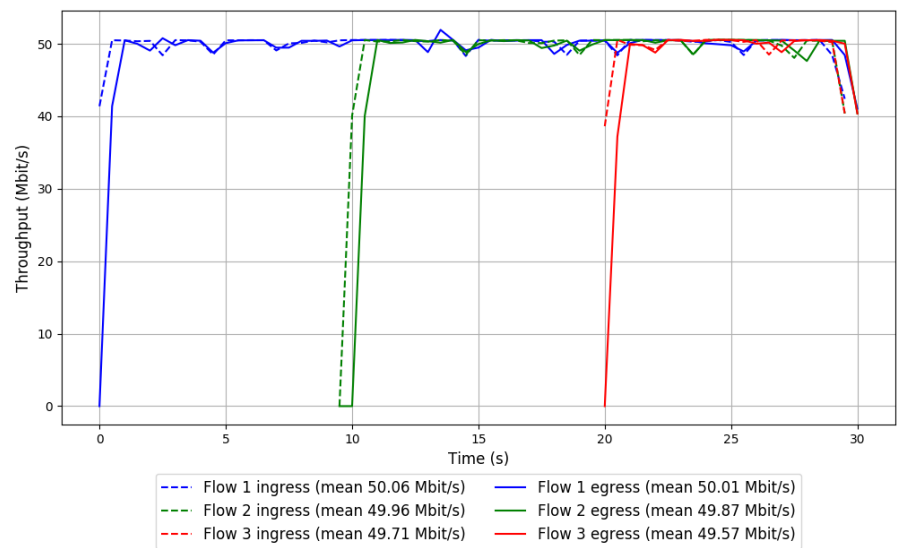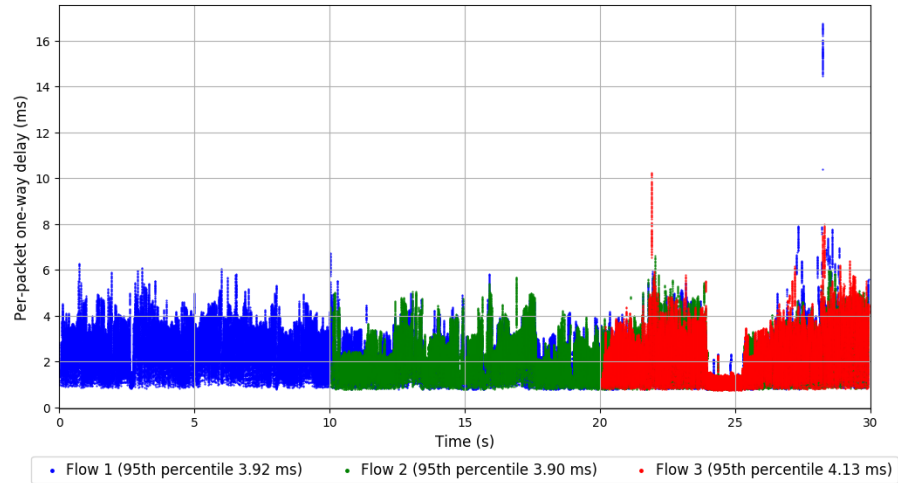
Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2019-03-19 02:45:42
End at: 2019-03-19 02:46:12
Local clock offset: 0.506 ms
Remote clock offset: 0.062 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 99.60 Mbit/s
95th percentile per-packet one-way delay: 3.507 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 50.01 Mbit/s
95th percentile per-packet one-way delay: 3.553 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 49.87 Mbit/s
95th percentile per-packet one-way delay: 3.459 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 49.57 Mbit/s
95th percentile per-packet one-way delay: 3.402 ms
Loss rate: 0.23%
```
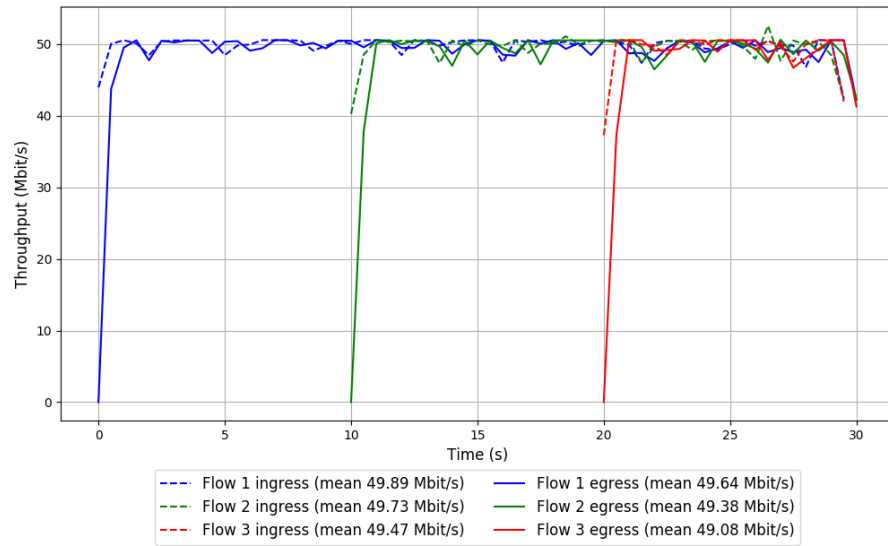
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2019-03-19 03:15:31
End at: 2019-03-19 03:16:01
Local clock offset: -1.156 ms
Remote clock offset: 0.912 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 98.71 Mbit/s
95th percentile per-packet one-way delay: 3.949 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 49.64 Mbit/s
95th percentile per-packet one-way delay: 3.922 ms
Loss rate: 0.50%
-- Flow 2:
Average throughput: 49.38 Mbit/s
95th percentile per-packet one-way delay: 3.898 ms
Loss rate: 0.68%
-- Flow 3:
Average throughput: 49.08 Mbit/s
95th percentile per-packet one-way delay: 4.133 ms
Loss rate: 0.74%
```
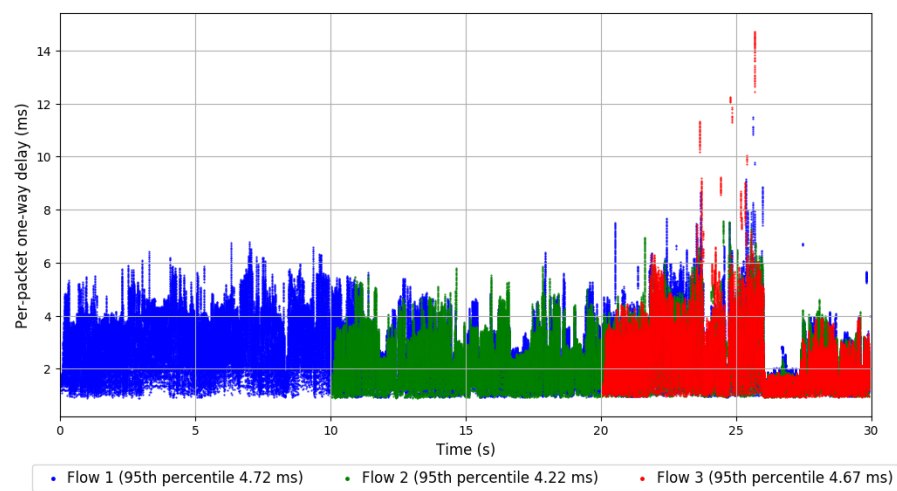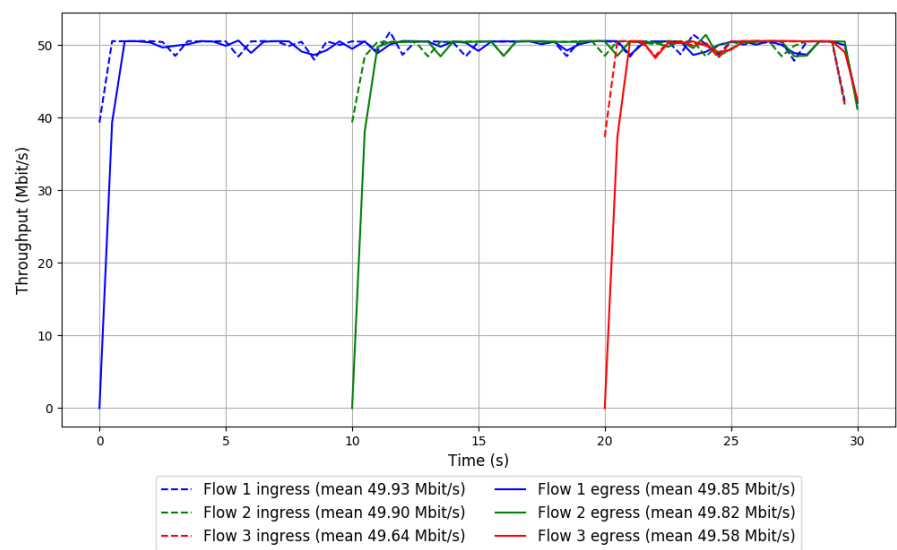
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2019-03-19 03:45:29
End at: 2019-03-19 03:45:59
Local clock offset: 0.89 ms
Remote clock offset: 1.424 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 99.38 Mbit/s
95th percentile per-packet one-way delay: 4.565 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 49.85 Mbit/s
95th percentile per-packet one-way delay: 4.722 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 49.82 Mbit/s
95th percentile per-packet one-way delay: 4.216 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 49.58 Mbit/s
95th percentile per-packet one-way delay: 4.674 ms
Loss rate: 0.13%
```
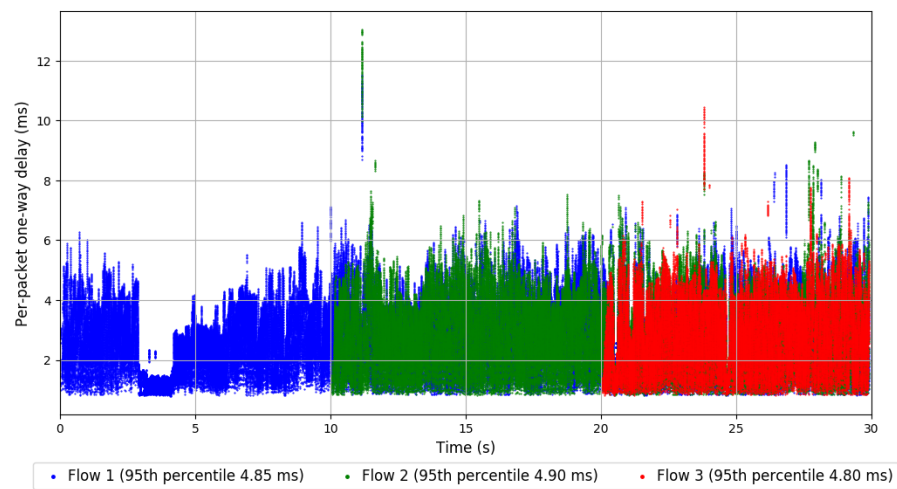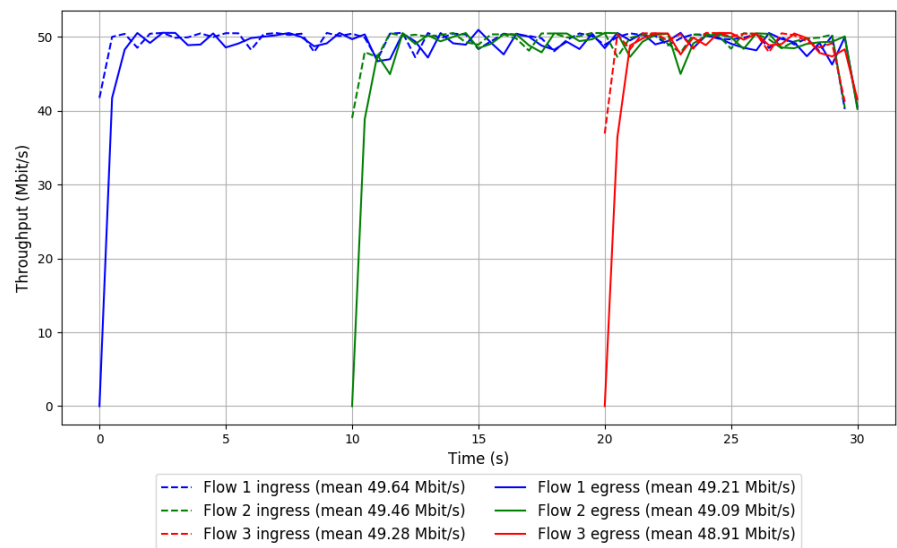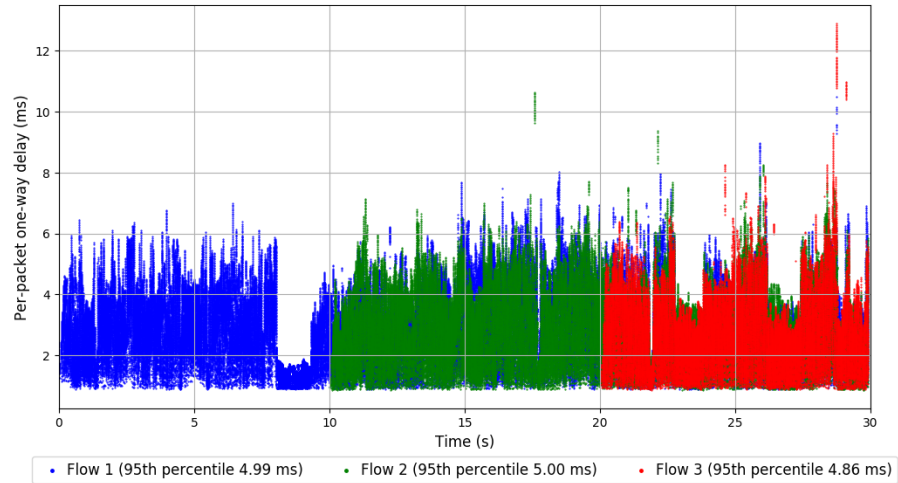
Run 3: Report of Sprout — Data Link

Flow 1 ingress (mean 49.93 Mbit/s) ---- Flow 1 egress (mean 49.85 Mbit/s) ——
Flow 2 ingress (mean 49.90 Mbit/s) ---- Flow 2 egress (mean 49.82 Mbit/s) ——
Flow 3 ingress (mean 49.64 Mbit/s) ---- Flow 3 egress (mean 49.58 Mbit/s) ——

• Flow 1 (95th percentile 4.72 ms)   • Flow 2 (95th percentile 4.22 ms)   • Flow 3 (95th percentile 4.67 ms)

```
Run 4: Statistics of Sprout

Start at: 2019-03-19 04:14:52
End at: 2019-03-19 04:15:22
Local clock offset: 0.474 ms
Remote clock offset: -0.228 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 98.02 Mbit/s
95th percentile per-packet one-way delay: 4.855 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 49.21 Mbit/s
95th percentile per-packet one-way delay: 4.846 ms
Loss rate: 0.85%
-- Flow 2:
Average throughput: 49.09 Mbit/s
95th percentile per-packet one-way delay: 4.899 ms
Loss rate: 0.73%
-- Flow 3:
Average throughput: 48.91 Mbit/s
95th percentile per-packet one-way delay: 4.797 ms
Loss rate: 0.73%
```
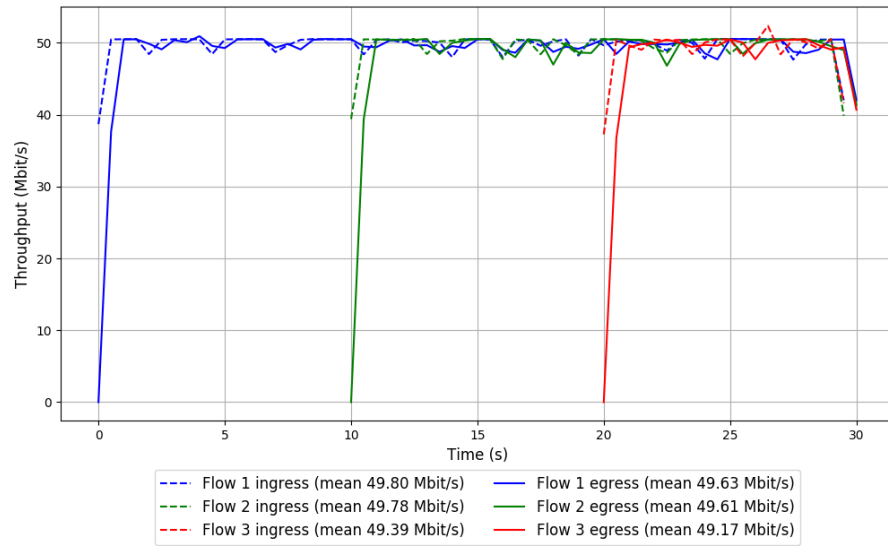
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2019-03-19 04:44:17
End at: 2019-03-19 04:44:47
Local clock offset: 0.746 ms
Remote clock offset: -0.209 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 98.88 Mbit/s
95th percentile per-packet one-way delay: 4.976 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 49.63 Mbit/s
95th percentile per-packet one-way delay: 4.986 ms
Loss rate: 0.34%
-- Flow 2:
Average throughput: 49.61 Mbit/s
95th percentile per-packet one-way delay: 5.005 ms
Loss rate: 0.33%
-- Flow 3:
Average throughput: 49.17 Mbit/s
95th percentile per-packet one-way delay: 4.860 ms
Loss rate: 0.44%
```
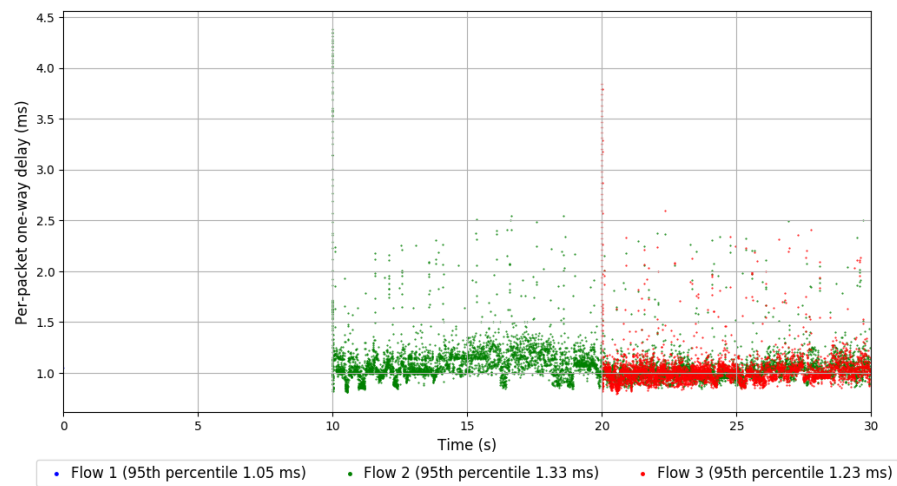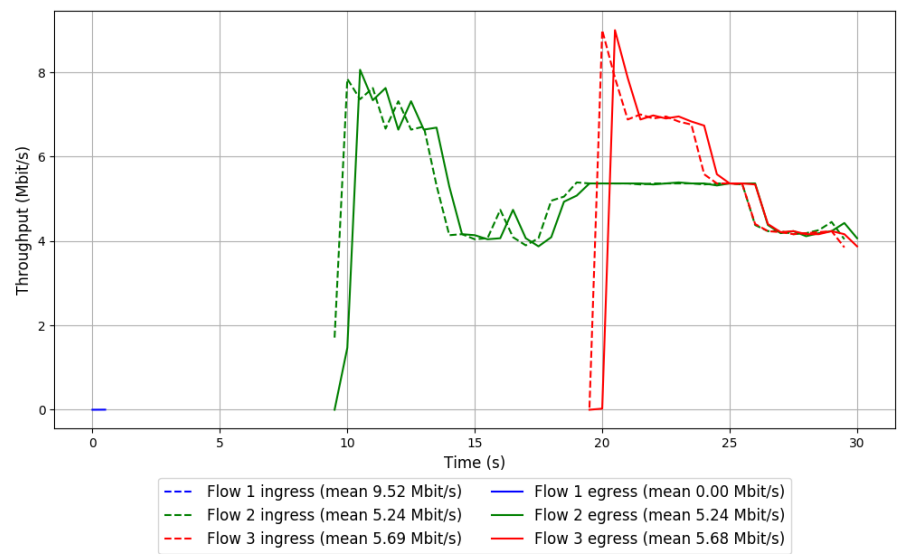
Run 5: Report of Sprout — Data Link

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

Start at: 2019-03-19 02:38:51
End at: 2019-03-19 02:39:21
Local clock offset: 0.545 ms
Remote clock offset: -0.171 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.38 Mbit/s
95th percentile per-packet one-way delay: 1.309 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 1.046 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 5.24 Mbit/s
95th percentile per-packet one-way delay: 1.331 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 5.68 Mbit/s
95th percentile per-packet one-way delay: 1.228 ms
Loss rate: 0.11%
```
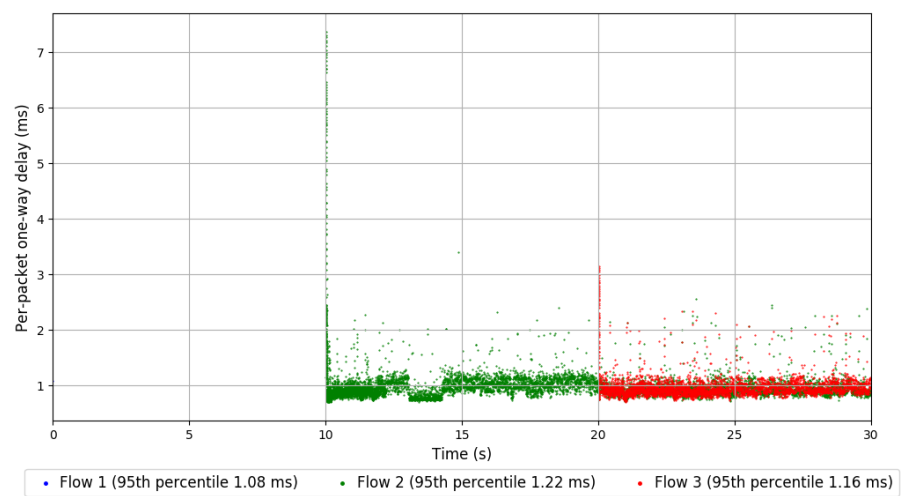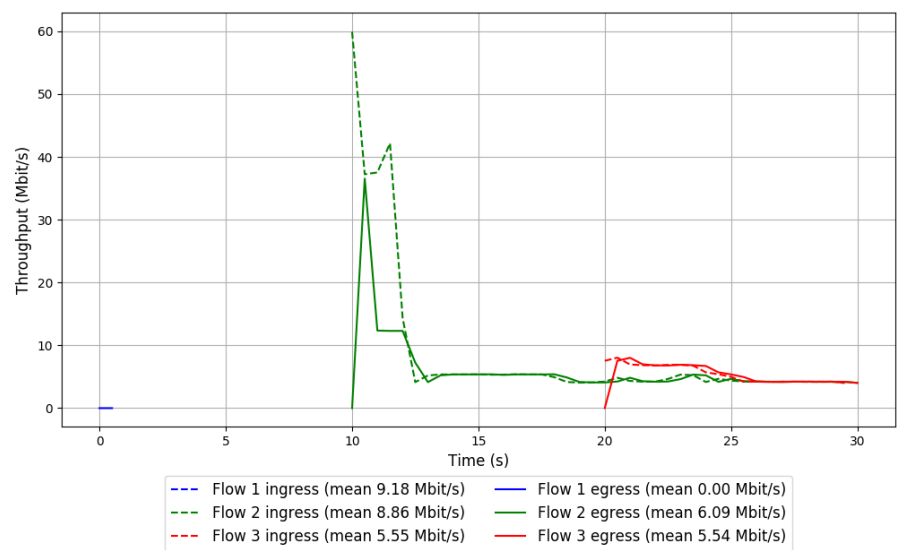
Run 1: Report of TaoVA-100x — Data Link

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

Start at: 2019-03-19 03:08:42
End at: 2019-03-19 03:09:12
Local clock offset: -0.977 ms
Remote clock offset: 0.686 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.90 Mbit/s
95th percentile per-packet one-way delay: 1.199 ms
Loss rate: 23.86%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 1.085 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 6.09 Mbit/s
95th percentile per-packet one-way delay: 1.218 ms
Loss rate: 31.24%
-- Flow 3:
Average throughput: 5.54 Mbit/s
95th percentile per-packet one-way delay: 1.158 ms
Loss rate: 0.20%
```
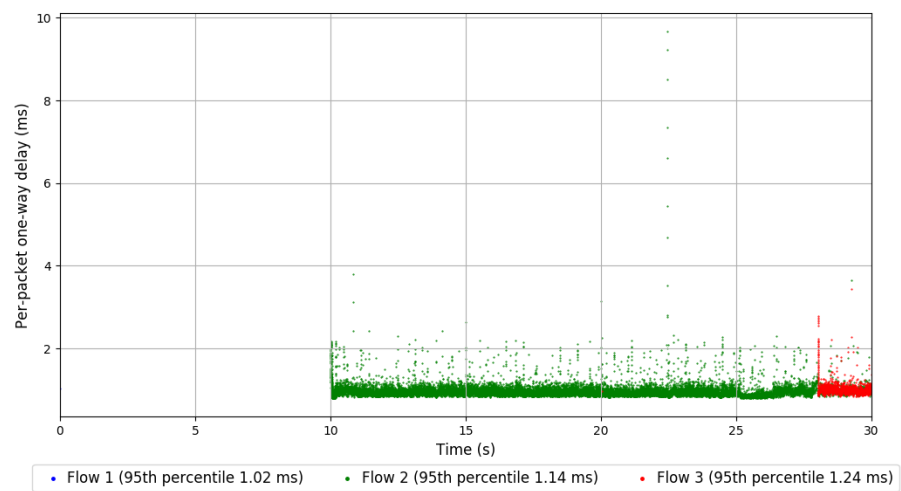
Run 2: Report of TaoVA-100x — Data Link

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

Start at: 2019-03-19 03:38:30
End at: 2019-03-19 03:39:00
Local clock offset: 0.77 ms
Remote clock offset: 1.697 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.61 Mbit/s
95th percentile per-packet one-way delay: 1.147 ms
Loss rate: 71.27%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 1.016 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 12.12 Mbit/s
95th percentile per-packet one-way delay: 1.142 ms
Loss rate: 72.56%
-- Flow 3:
Average throughput: 1.61 Mbit/s
95th percentile per-packet one-way delay: 1.242 ms
Loss rate: 0.67%
```
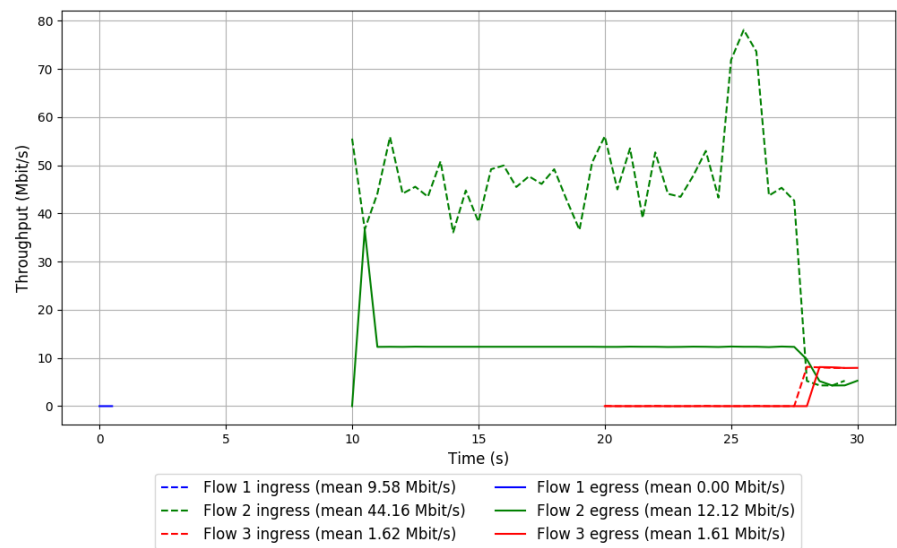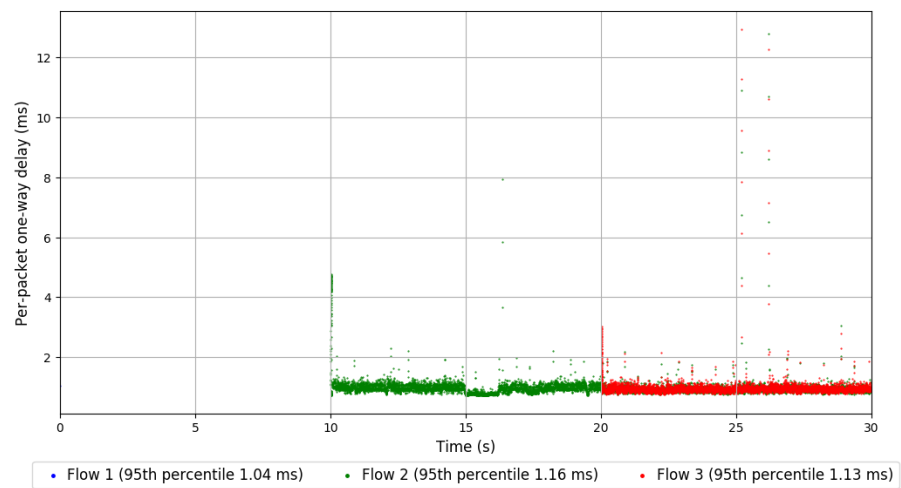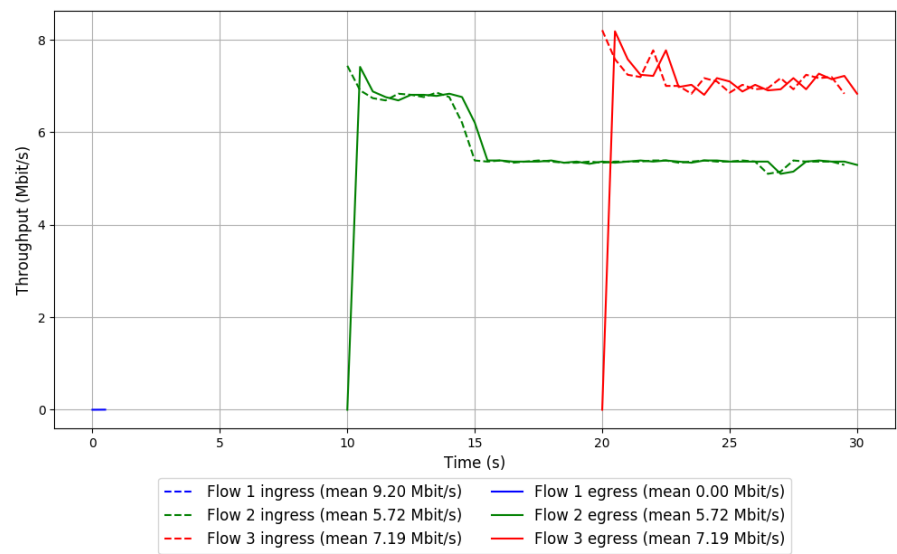
Run 3: Report of TaoVA-100x — Data Link

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

Start at: 2019-03-19 04:08:10
End at: 2019-03-19 04:08:40
Local clock offset: 0.487 ms
Remote clock offset: -0.171 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 6.20 Mbit/s
95th percentile per-packet one-way delay: 1.149 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 1.042 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 5.72 Mbit/s
95th percentile per-packet one-way delay: 1.161 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 7.19 Mbit/s
95th percentile per-packet one-way delay: 1.126 ms
Loss rate: 0.02%
```
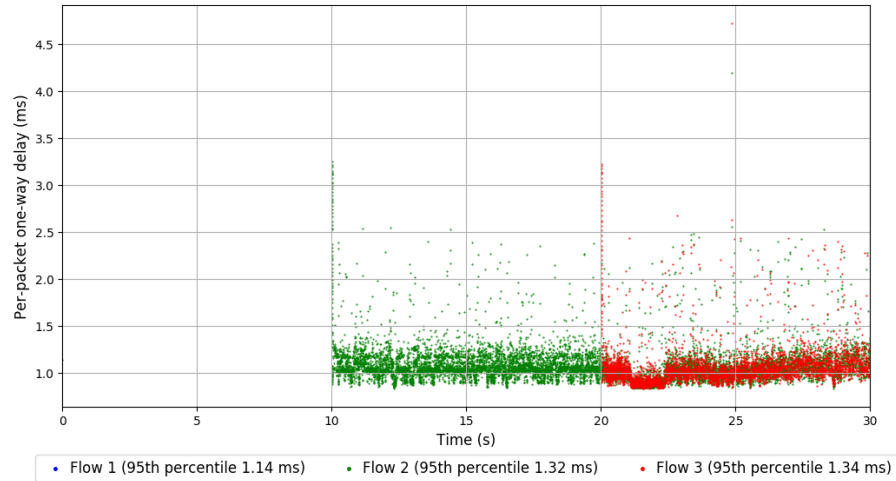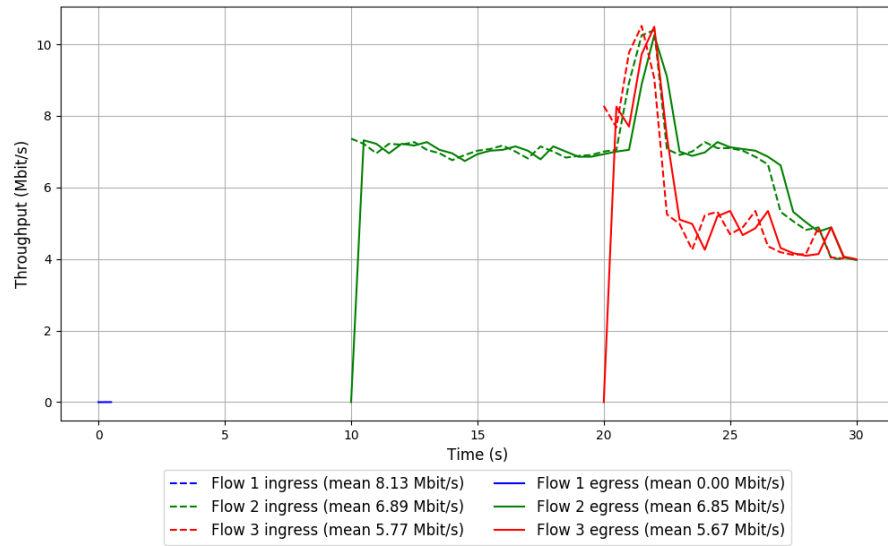
Run 4: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 9.20 Mbit/s) ---- Flow 1 egress (mean 0.00 Mbit/s) ——
Flow 2 ingress (mean 5.72 Mbit/s) ---- Flow 2 egress (mean 5.72 Mbit/s) ——
Flow 3 ingress (mean 7.19 Mbit/s) ---- Flow 3 egress (mean 7.19 Mbit/s) ——

• Flow 1 (95th percentile 1.04 ms)   • Flow 2 (95th percentile 1.16 ms)   • Flow 3 (95th percentile 1.13 ms)

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

Start at: 2019-03-19 04:37:34
End at: 2019-03-19 04:38:04
Local clock offset: 0.725 ms
Remote clock offset: -0.166 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 6.45 Mbit/s
95th percentile per-packet one-way delay: 1.319 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 1.139 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 6.85 Mbit/s
95th percentile per-packet one-way delay: 1.317 ms
Loss rate: 0.60%
-- Flow 3:
Average throughput: 5.67 Mbit/s
95th percentile per-packet one-way delay: 1.336 ms
Loss rate: 1.74%
```

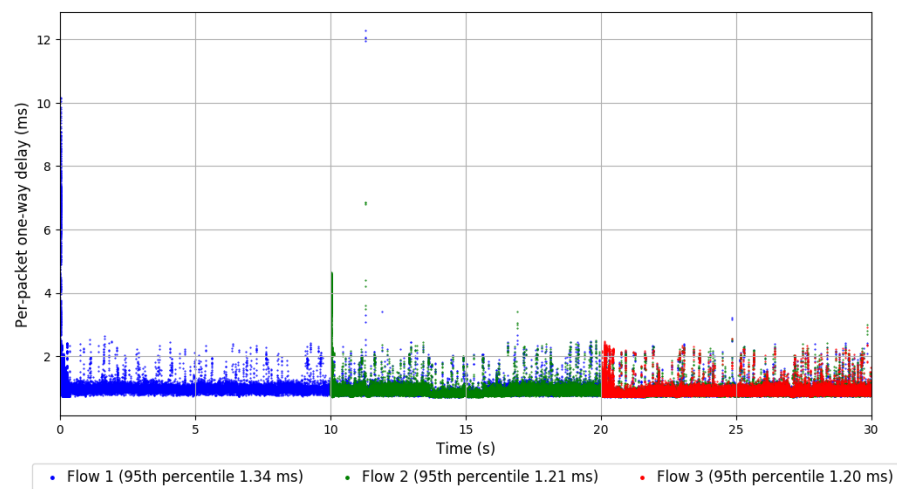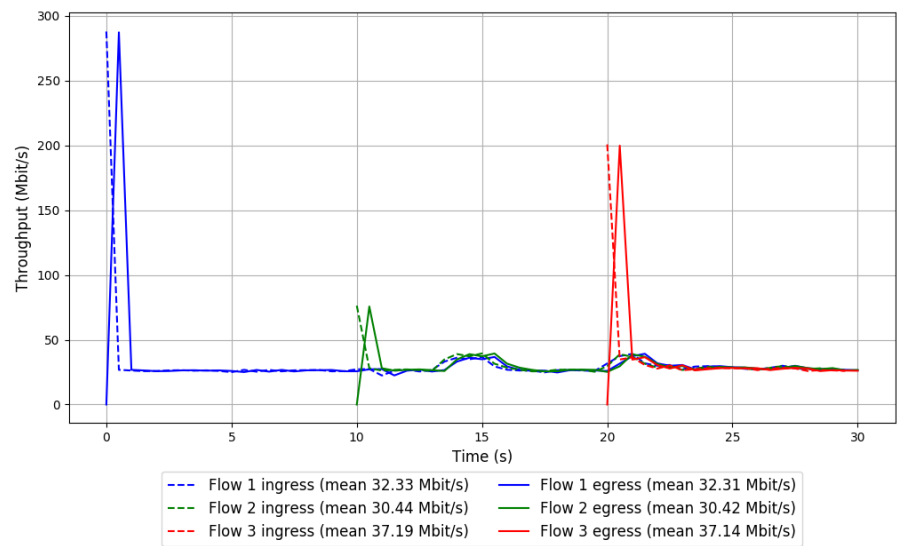# Run 5: Report of TaoVA-100x — Data Link

174

```
Run 1: Statistics of TCP Vegas

Start at: 2019-03-19 02:33:35
End at: 2019-03-19 02:34:05
Local clock offset: 0.571 ms
Remote clock offset: -0.424 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 64.92 Mbit/s
95th percentile per-packet one-way delay: 1.274 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 32.31 Mbit/s
95th percentile per-packet one-way delay: 1.345 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 30.42 Mbit/s
95th percentile per-packet one-way delay: 1.210 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 37.14 Mbit/s
95th percentile per-packet one-way delay: 1.200 ms
Loss rate: 0.15%
```

Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2019-03-19 03:03:10
End at: 2019-03-19 03:03:40
Local clock offset: -0.784 ms
Remote clock offset: 0.605 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 189.05 Mbit/s
95th percentile per-packet one-way delay: 1.507 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 43.76 Mbit/s
95th percentile per-packet one-way delay: 1.365 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 45.70 Mbit/s
95th percentile per-packet one-way delay: 1.287 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 345.04 Mbit/s
95th percentile per-packet one-way delay: 1.825 ms
Loss rate: 0.03%
```
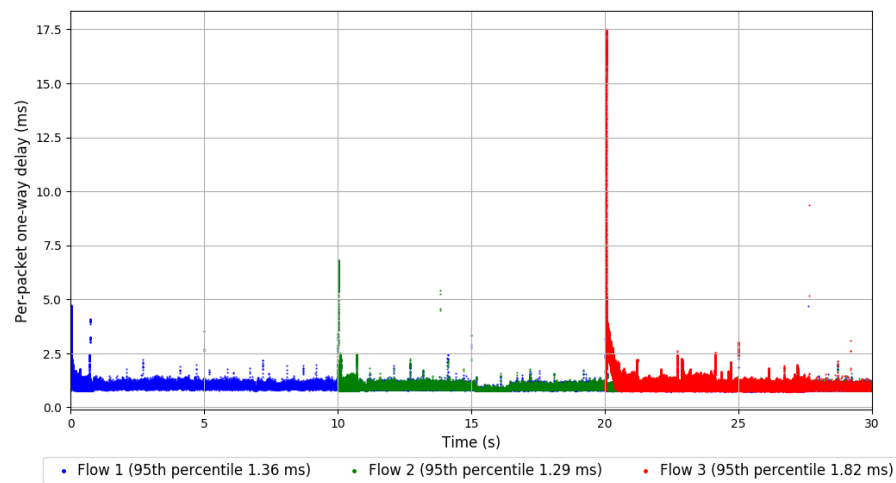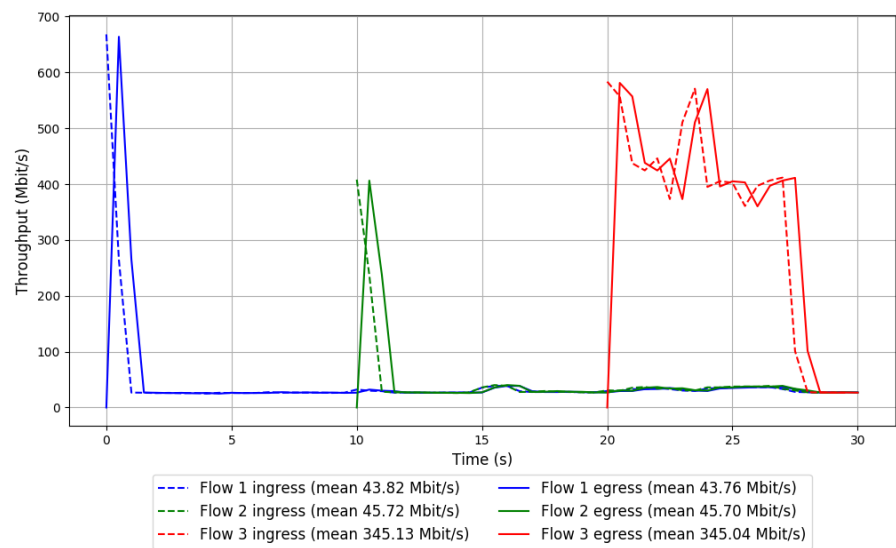
Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2019-03-19 03:32:53
End at: 2019-03-19 03:33:23
Local clock offset: 0.583 ms
Remote clock offset: 1.484 ms


# Below is generated by plot.py at 2019-03-19 05:47:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.61 Mbit/s
95th percentile per-packet one-way delay: 1.275 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 42.80 Mbit/s
95th percentile per-packet one-way delay: 1.242 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 47.66 Mbit/s
95th percentile per-packet one-way delay: 1.326 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 51.20 Mbit/s
95th percentile per-packet one-way delay: 1.295 ms
Loss rate: 0.14%
```
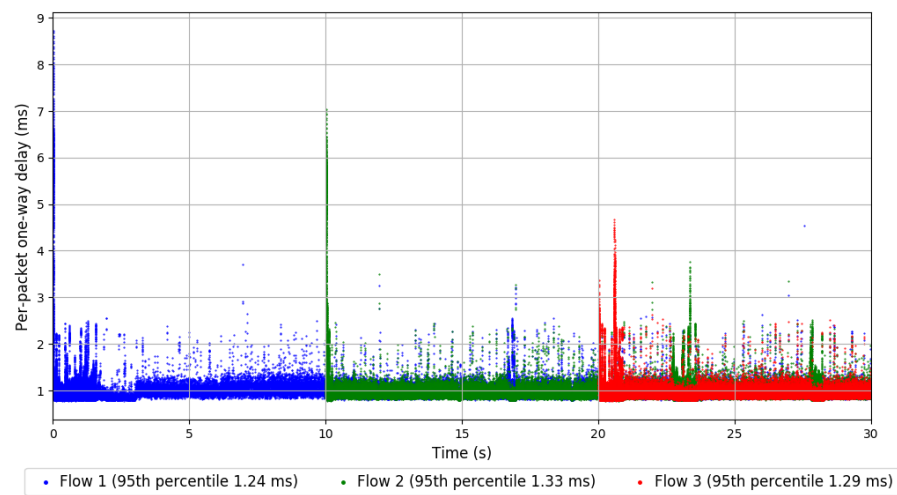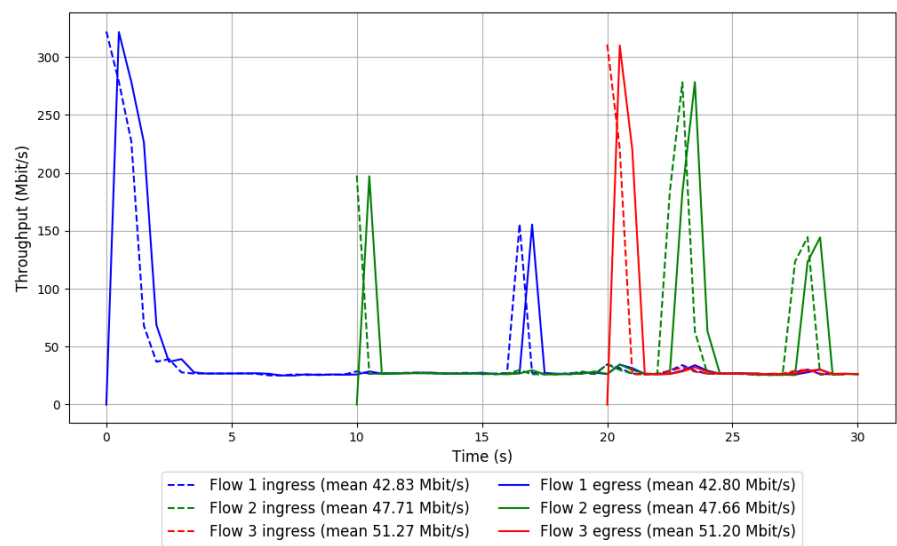
Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2019-03-19 04:02:42
End at: 2019-03-19 04:03:12
Local clock offset: 0.511 ms
Remote clock offset: -0.03 ms


# Below is generated by plot.py at 2019-03-19 05:47:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 231.06 Mbit/s
95th percentile per-packet one-way delay: 1.281 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 31.51 Mbit/s
95th percentile per-packet one-way delay: 1.193 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 202.96 Mbit/s
95th percentile per-packet one-way delay: 1.280 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 193.50 Mbit/s
95th percentile per-packet one-way delay: 1.317 ms
Loss rate: 0.07%
```
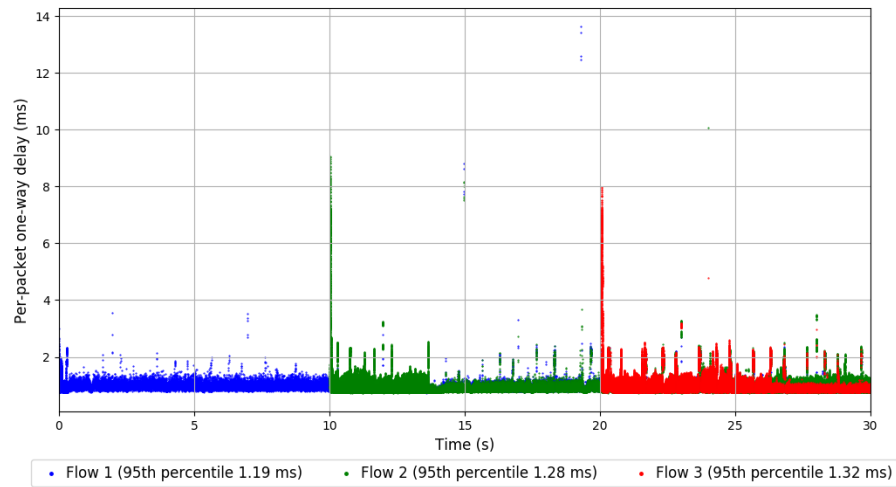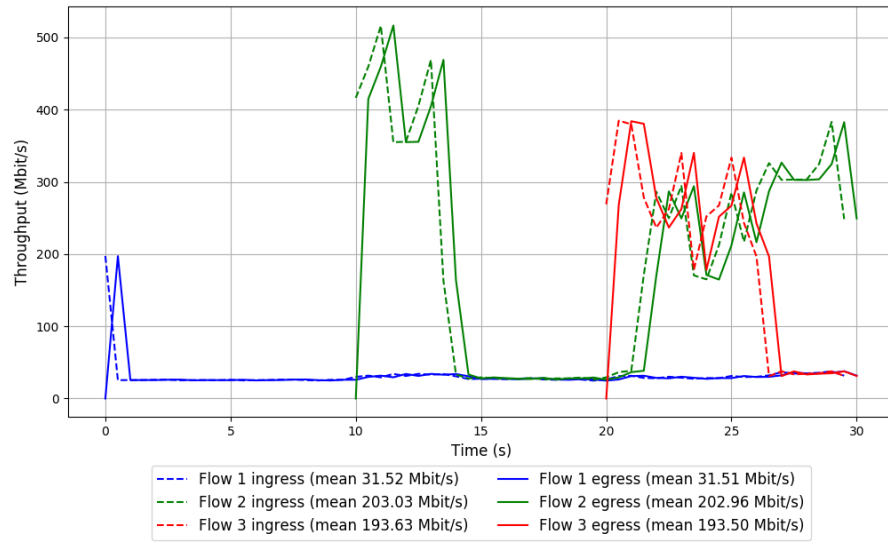
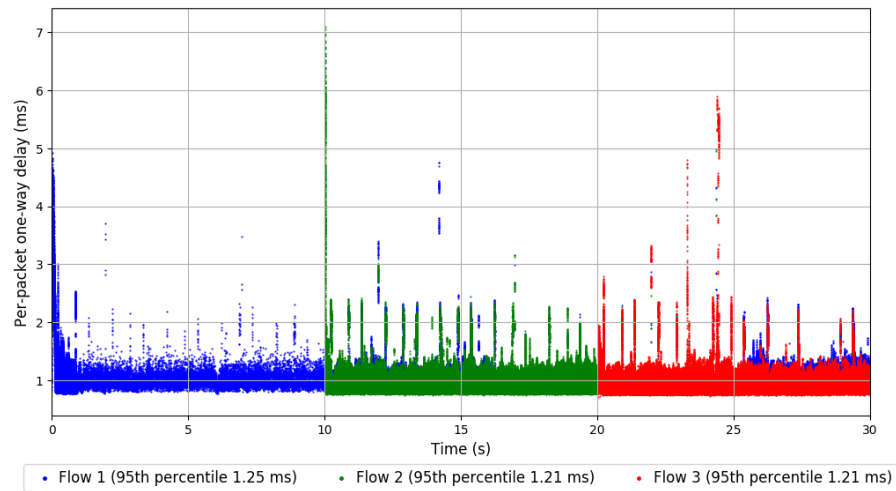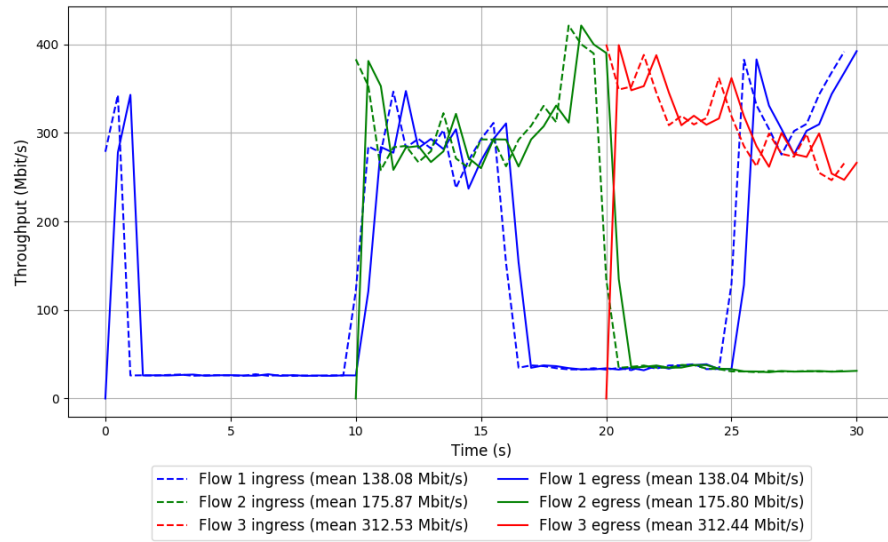Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2019-03-19 04:32:02
End at: 2019-03-19 04:32:32
Local clock offset: 0.689 ms
Remote clock offset: -0.239 ms


# Below is generated by plot.py at 2019-03-19 05:49:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 359.04 Mbit/s
95th percentile per-packet one-way delay: 1.224 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 138.04 Mbit/s
95th percentile per-packet one-way delay: 1.246 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 175.80 Mbit/s
95th percentile per-packet one-way delay: 1.210 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 312.44 Mbit/s
95th percentile per-packet one-way delay: 1.207 ms
Loss rate: 0.02%
```

Run 5: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 138.08 Mbit/s) --- Flow 1 egress (mean 138.04 Mbit/s)
Flow 2 ingress (mean 175.87 Mbit/s) --- Flow 2 egress (mean 175.80 Mbit/s)
Flow 3 ingress (mean 312.53 Mbit/s) --- Flow 3 egress (mean 312.44 Mbit/s)

Flow 1 (95th percentile 1.25 ms) • Flow 2 (95th percentile 1.21 ms) • Flow 3 (95th percentile 1.21 ms)
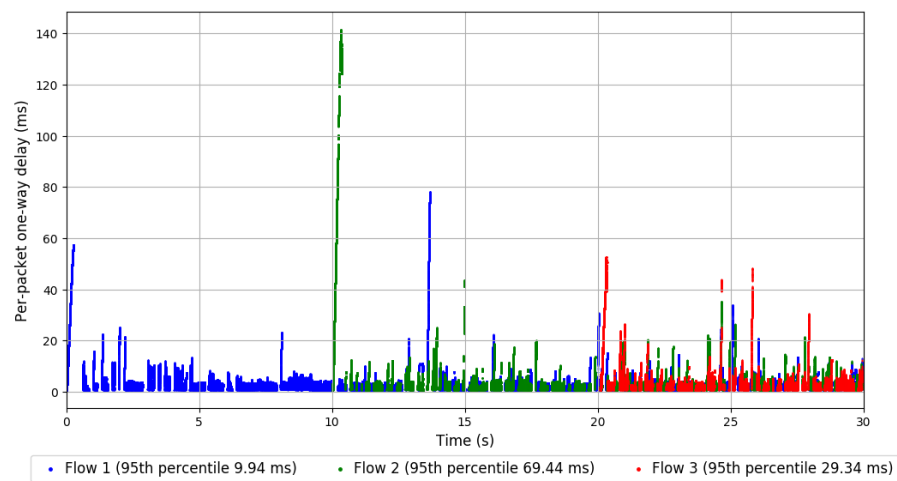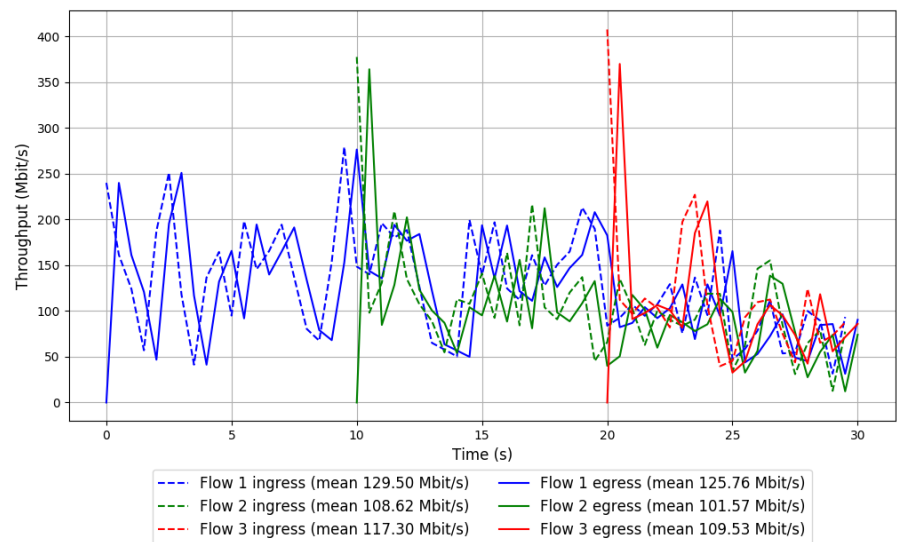
```
Run 1: Statistics of Verus

Start at: 2019-03-19 02:32:11
End at: 2019-03-19 02:32:41
Local clock offset: 0.574 ms
Remote clock offset: -0.423 ms


# Below is generated by plot.py at 2019-03-19 05:49:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 229.50 Mbit/s
95th percentile per-packet one-way delay: 21.235 ms
Loss rate: 4.54%
-- Flow 1:
Average throughput: 125.76 Mbit/s
95th percentile per-packet one-way delay: 9.940 ms
Loss rate: 2.86%
-- Flow 2:
Average throughput: 101.57 Mbit/s
95th percentile per-packet one-way delay: 69.438 ms
Loss rate: 6.47%
-- Flow 3:
Average throughput: 109.53 Mbit/s
95th percentile per-packet one-way delay: 29.336 ms
Loss rate: 6.57%
```

Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2019-03-19 03:01:45
End at: 2019-03-19 03:02:15
Local clock offset: -0.705 ms
Remote clock offset: 0.596 ms


# Below is generated by plot.py at 2019-03-19 05:49:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 256.74 Mbit/s
95th percentile per-packet one-way delay: 18.177 ms
Loss rate: 3.33%
-- Flow 1:
Average throughput: 116.60 Mbit/s
95th percentile per-packet one-way delay: 24.403 ms
Loss rate: 3.44%
-- Flow 2:
Average throughput: 150.31 Mbit/s
95th percentile per-packet one-way delay: 14.132 ms
Loss rate: 3.51%
-- Flow 3:
Average throughput: 120.91 Mbit/s
95th percentile per-packet one-way delay: 8.904 ms
Loss rate: 2.57%
```
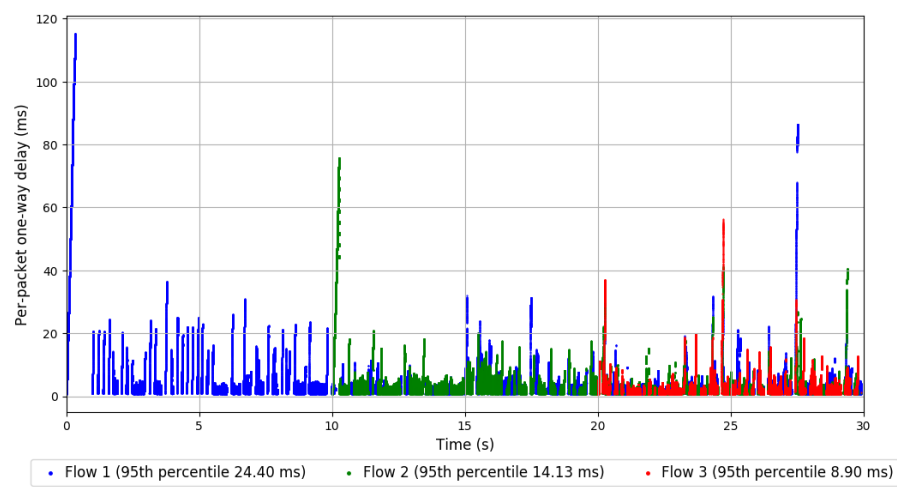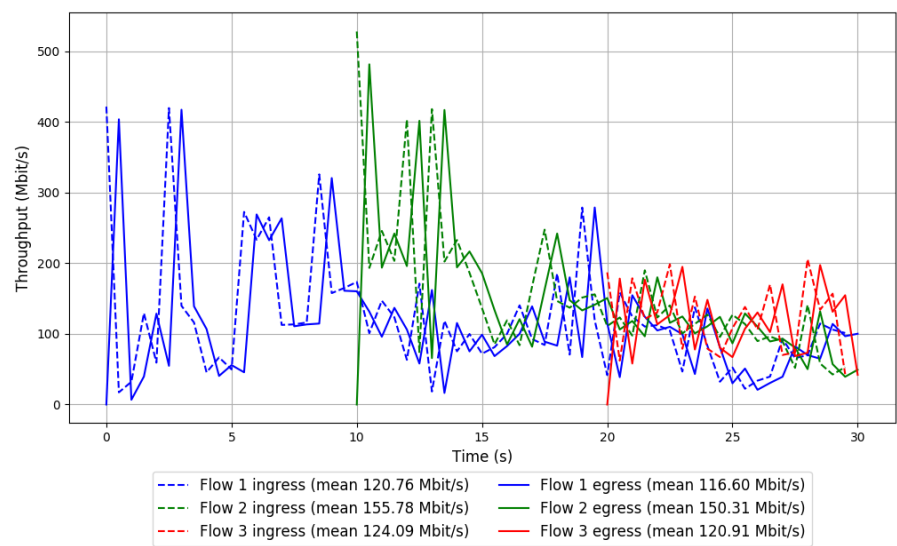
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2019-03-19 03:31:28
End at: 2019-03-19 03:31:58
Local clock offset: 0.503 ms
Remote clock offset: 1.381 ms


# Below is generated by plot.py at 2019-03-19 05:49:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 247.22 Mbit/s
95th percentile per-packet one-way delay: 45.934 ms
Loss rate: 3.84%
-- Flow 1:
Average throughput: 130.11 Mbit/s
95th percentile per-packet one-way delay: 16.523 ms
Loss rate: 2.75%
-- Flow 2:
Average throughput: 121.48 Mbit/s
95th percentile per-packet one-way delay: 62.134 ms
Loss rate: 4.99%
-- Flow 3:
Average throughput: 109.45 Mbit/s
95th percentile per-packet one-way delay: 72.322 ms
Loss rate: 5.11%
```
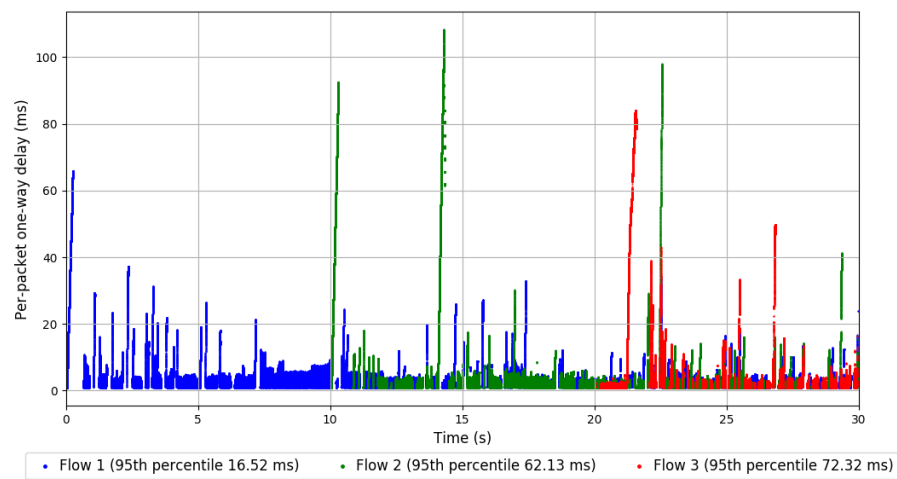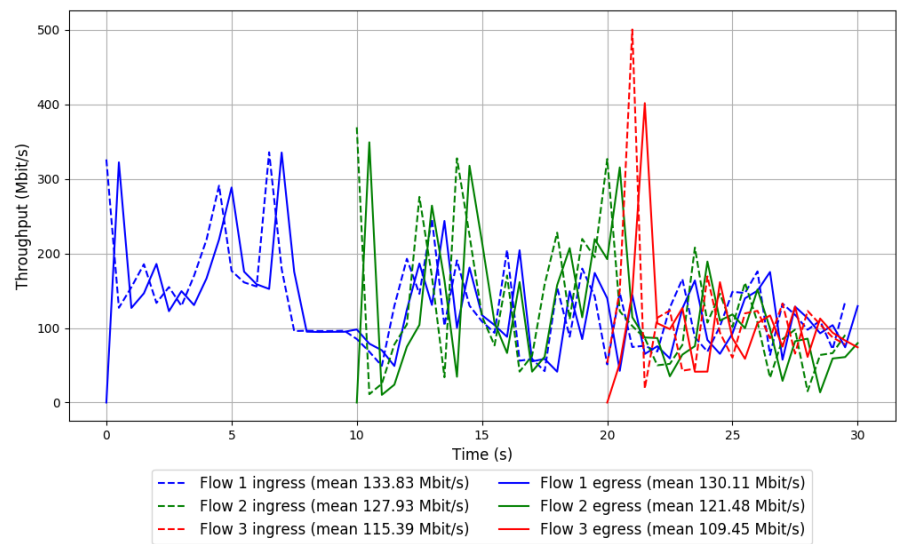
Run 3: Report of Verus — Data Link

Flow 1 ingress (mean 133.83 Mbit/s) — Flow 1 egress (mean 130.11 Mbit/s)
Flow 2 ingress (mean 127.93 Mbit/s) — Flow 2 egress (mean 121.48 Mbit/s)
Flow 3 ingress (mean 115.39 Mbit/s) — Flow 3 egress (mean 109.45 Mbit/s)

Flow 1 (95th percentile 16.52 ms)   • Flow 2 (95th percentile 62.13 ms)   • Flow 3 (95th percentile 72.32 ms)
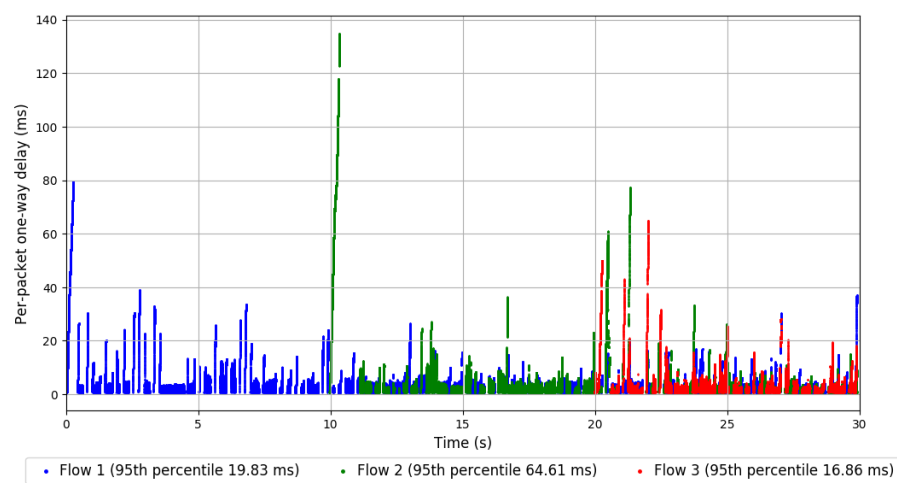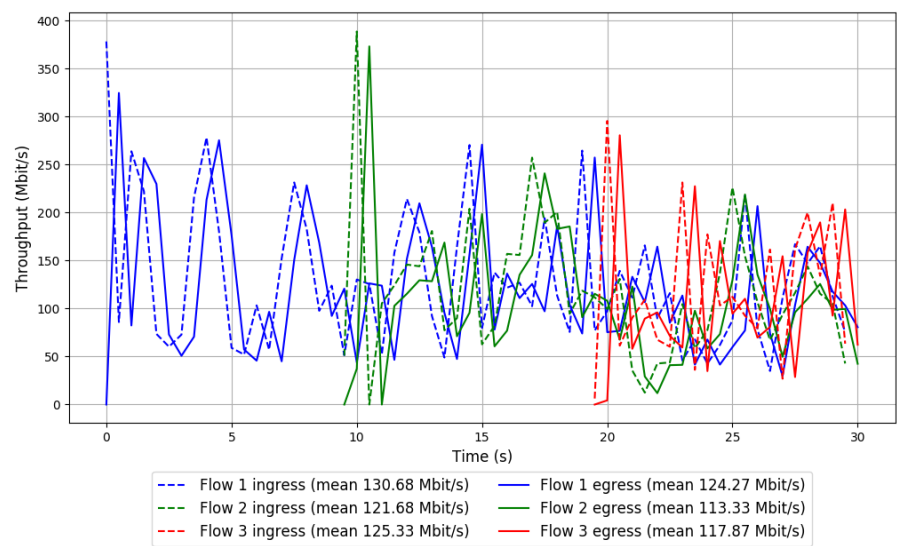
```
Run 4: Statistics of Verus

Start at: 2019-03-19 04:01:17
End at: 2019-03-19 04:01:47
Local clock offset: 0.511 ms
Remote clock offset: -0.034 ms


# Below is generated by plot.py at 2019-03-19 05:49:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 238.92 Mbit/s
95th percentile per-packet one-way delay: 26.600 ms
Loss rate: 5.62%
-- Flow 1:
Average throughput: 124.27 Mbit/s
95th percentile per-packet one-way delay: 19.829 ms
Loss rate: 4.79%
-- Flow 2:
Average throughput: 113.33 Mbit/s
95th percentile per-packet one-way delay: 64.614 ms
Loss rate: 6.87%
-- Flow 3:
Average throughput: 117.87 Mbit/s
95th percentile per-packet one-way delay: 16.860 ms
Loss rate: 5.80%
```

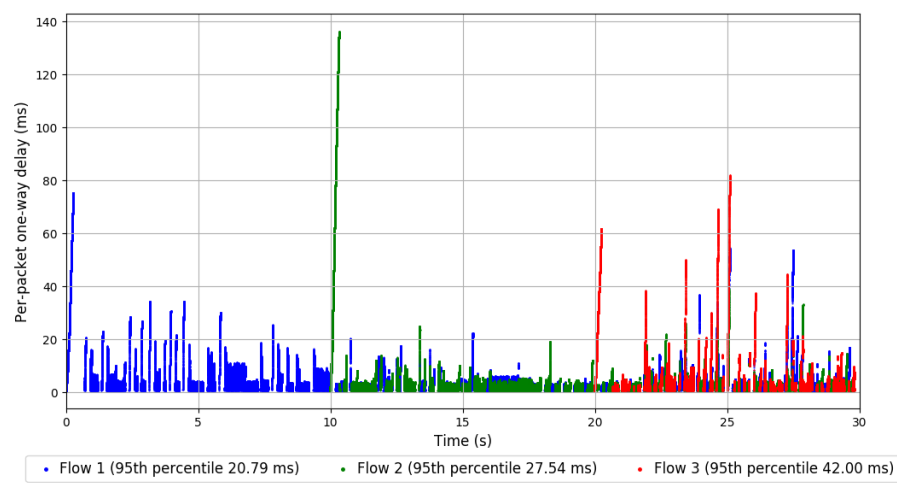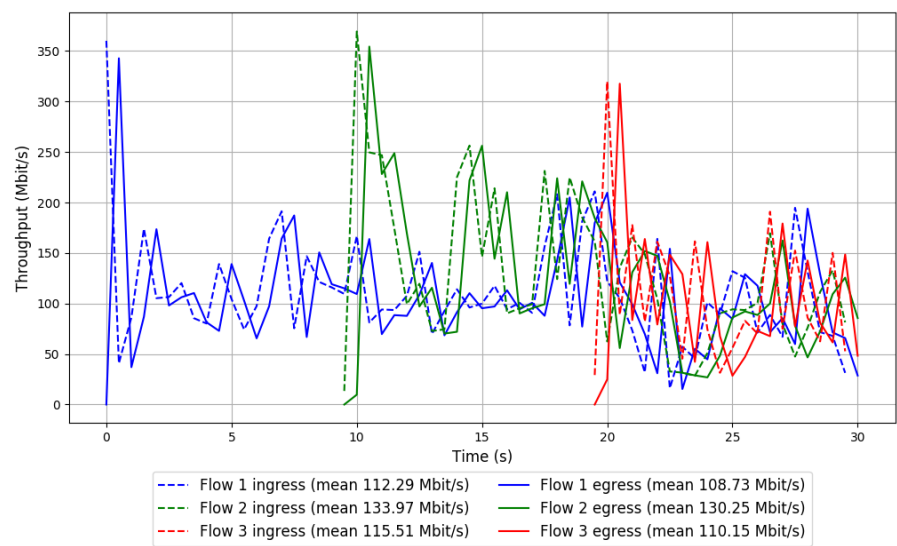Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2019-03-19 04:30:37
End at: 2019-03-19 04:31:07
Local clock offset: 0.668 ms
Remote clock offset: -0.208 ms


# Below is generated by plot.py at 2019-03-19 05:49:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 231.55 Mbit/s
95th percentile per-packet one-way delay: 28.112 ms
Loss rate: 3.25%
-- Flow 1:
Average throughput: 108.73 Mbit/s
95th percentile per-packet one-way delay: 20.785 ms
Loss rate: 3.16%
-- Flow 2:
Average throughput: 130.25 Mbit/s
95th percentile per-packet one-way delay: 27.541 ms
Loss rate: 2.77%
-- Flow 3:
Average throughput: 110.15 Mbit/s
95th percentile per-packet one-way delay: 42.004 ms
Loss rate: 4.64%
```

Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2019-03-19 02:58:45
End at: 2019-03-19 02:59:15
Local clock offset: -0.566 ms
Remote clock offset: 0.398 ms


# Below is generated by plot.py at 2019-03-19 05:51:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 446.44 Mbit/s
95th percentile per-packet one-way delay: 146.225 ms
Loss rate: 1.67%
-- Flow 1:
Average throughput: 274.61 Mbit/s
95th percentile per-packet one-way delay: 74.449 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 235.62 Mbit/s
95th percentile per-packet one-way delay: 181.263 ms
Loss rate: 3.96%
-- Flow 3:
Average throughput: 46.22 Mbit/s
95th percentile per-packet one-way delay: 1.641 ms
Loss rate: 0.31%
```
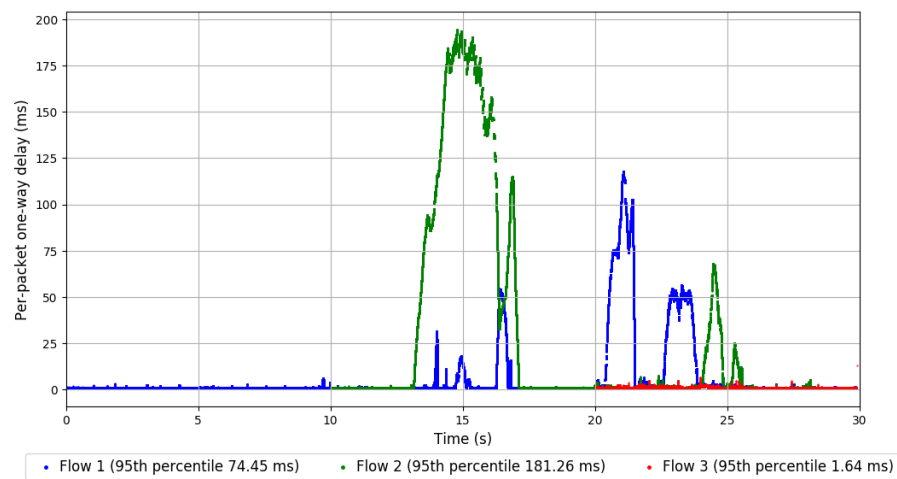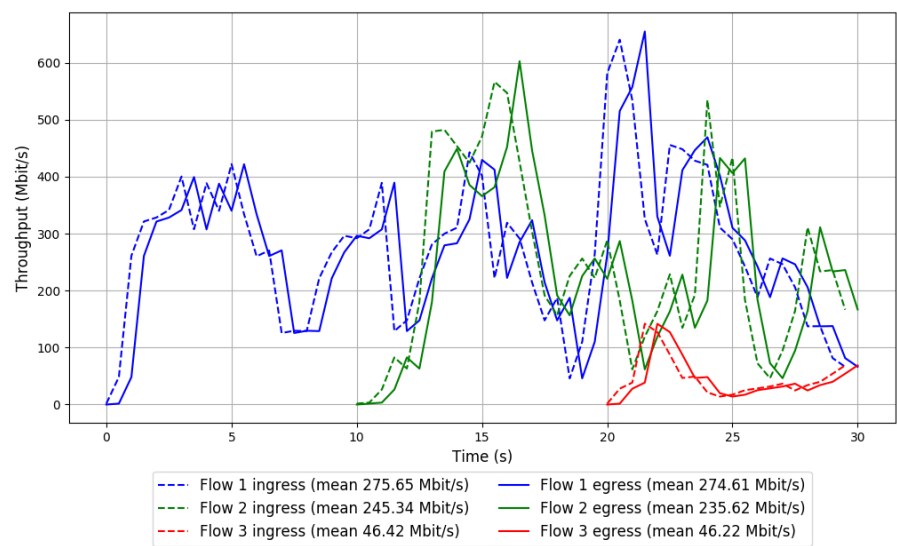
Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2019-03-19 03:28:33
End at: 2019-03-19 03:29:03
Local clock offset: 0.366 ms
Remote clock offset: 1.377 ms


# Below is generated by plot.py at 2019-03-19 05:51:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 350.72 Mbit/s
95th percentile per-packet one-way delay: 3.132 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 199.58 Mbit/s
95th percentile per-packet one-way delay: 2.293 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 162.00 Mbit/s
95th percentile per-packet one-way delay: 1.607 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 131.42 Mbit/s
95th percentile per-packet one-way delay: 118.602 ms
Loss rate: 4.51%
```
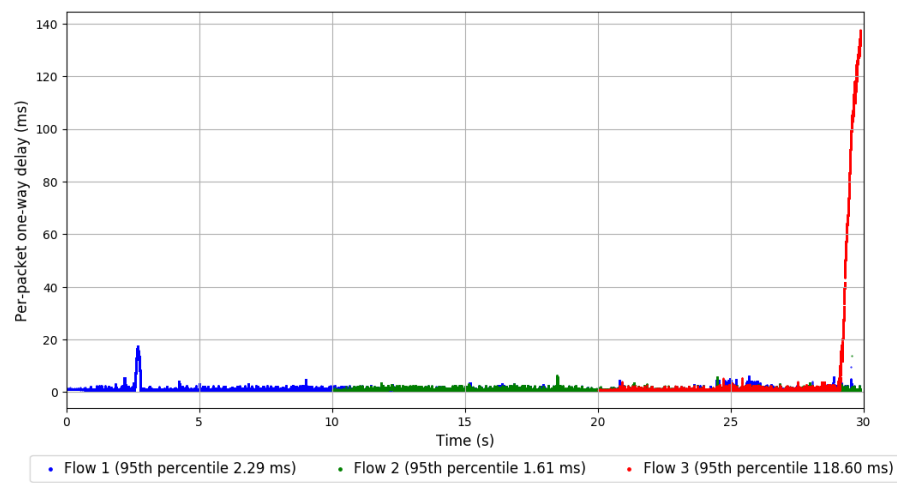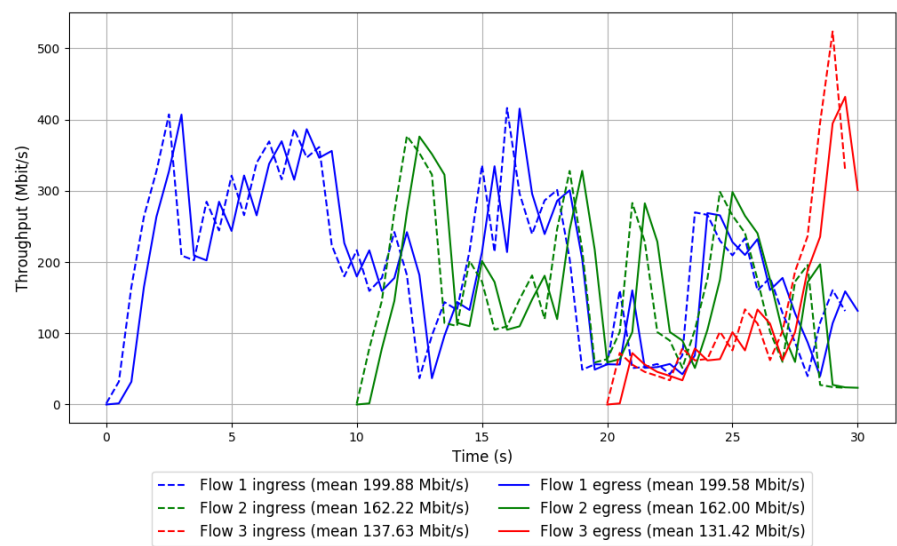
Run 2: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 199.88 Mbit/s)   Flow 1 egress (mean 199.58 Mbit/s)
Flow 2 ingress (mean 162.22 Mbit/s)   Flow 2 egress (mean 162.00 Mbit/s)
Flow 3 ingress (mean 137.63 Mbit/s)   Flow 3 egress (mean 131.42 Mbit/s)

Flow 1 (95th percentile 2.29 ms)   Flow 2 (95th percentile 1.61 ms)   Flow 3 (95th percentile 118.60 ms)

```
Run 3: Statistics of PCC-Vivace

Start at: 2019-03-19 03:58:25
End at: 2019-03-19 03:58:55
Local clock offset: 0.557 ms
Remote clock offset: 0.134 ms


# Below is generated by plot.py at 2019-03-19 05:51:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 319.32 Mbit/s
95th percentile per-packet one-way delay: 11.174 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 156.64 Mbit/s
95th percentile per-packet one-way delay: 2.206 ms
Loss rate: 0.54%
-- Flow 2:
Average throughput: 193.46 Mbit/s
95th percentile per-packet one-way delay: 21.629 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 103.06 Mbit/s
95th percentile per-packet one-way delay: 1.780 ms
Loss rate: 0.42%
```
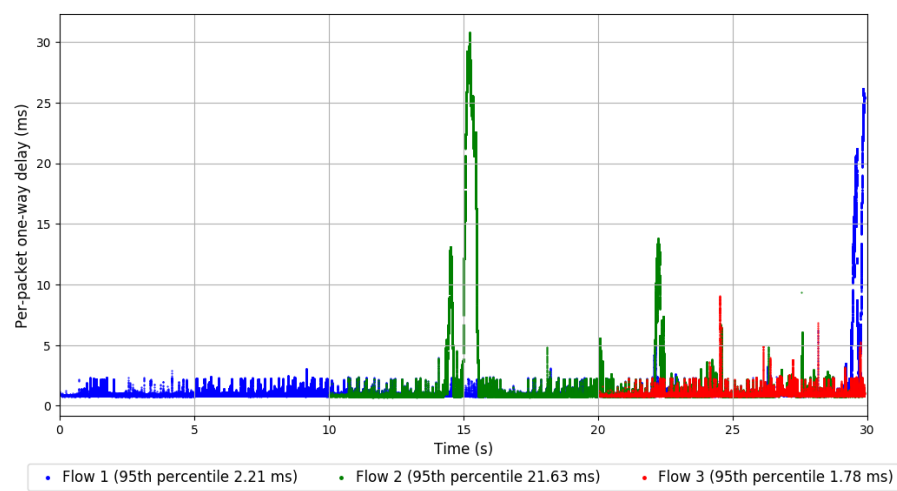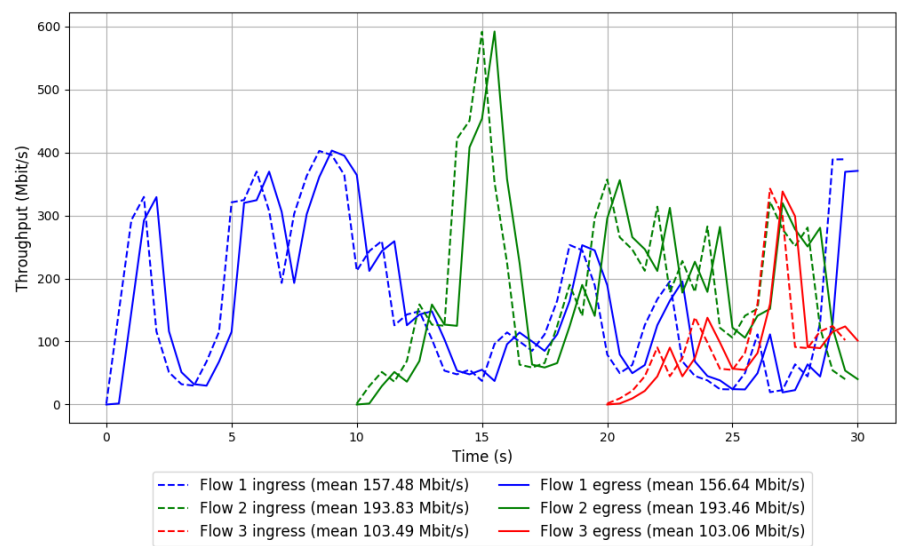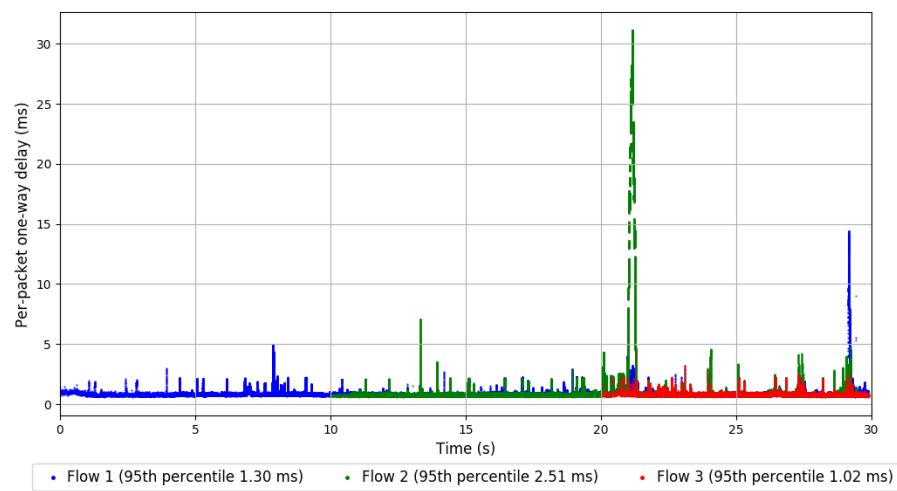
Run 3: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 157.48 Mbit/s)   Flow 1 egress (mean 156.64 Mbit/s)
Flow 2 ingress (mean 193.83 Mbit/s)   Flow 2 egress (mean 193.46 Mbit/s)
Flow 3 ingress (mean 103.49 Mbit/s)   Flow 3 egress (mean 103.06 Mbit/s)

Flow 1 (95th percentile 2.21 ms)   Flow 2 (95th percentile 21.63 ms)   Flow 3 (95th percentile 1.78 ms)
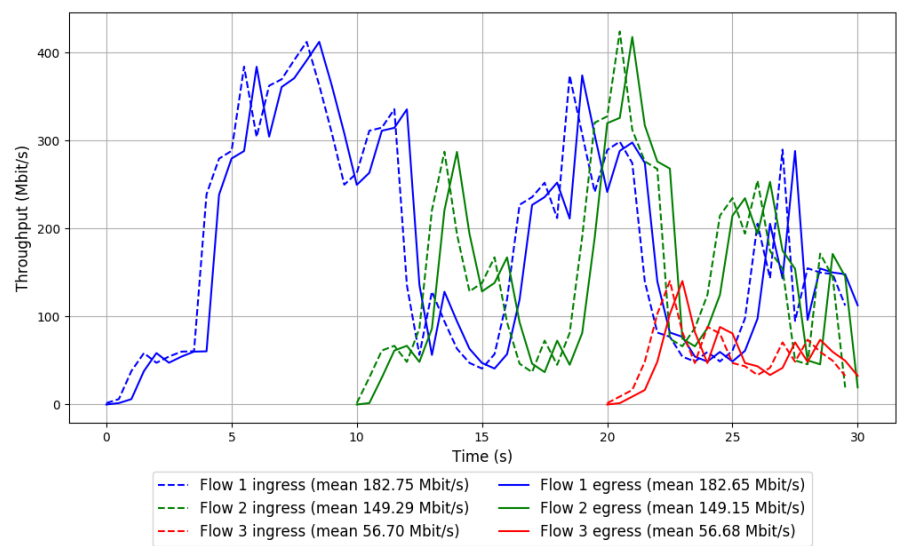
```
Run 4: Statistics of PCC-Vivace

Start at: 2019-03-19 04:27:45
End at: 2019-03-19 04:28:15
Local clock offset: 0.655 ms
Remote clock offset: -0.316 ms


# Below is generated by plot.py at 2019-03-19 05:51:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 300.55 Mbit/s
95th percentile per-packet one-way delay: 1.705 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 182.65 Mbit/s
95th percentile per-packet one-way delay: 1.304 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 149.15 Mbit/s
95th percentile per-packet one-way delay: 2.513 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 56.68 Mbit/s
95th percentile per-packet one-way delay: 1.019 ms
Loss rate: 0.04%
```

Run 4: Report of PCC-Vivace — Data Link

```
Run 5: Statistics of PCC-Vivace

Start at: 2019-03-19 04:57:23
End at: 2019-03-19 04:57:53
Local clock offset: 0.632 ms
Remote clock offset: 0.133 ms


# Below is generated by plot.py at 2019-03-19 05:51:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 300.54 Mbit/s
95th percentile per-packet one-way delay: 2.712 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 164.88 Mbit/s
95th percentile per-packet one-way delay: 10.274 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 128.89 Mbit/s
95th percentile per-packet one-way delay: 1.814 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 151.40 Mbit/s
95th percentile per-packet one-way delay: 2.073 ms
Loss rate: 0.29%
```
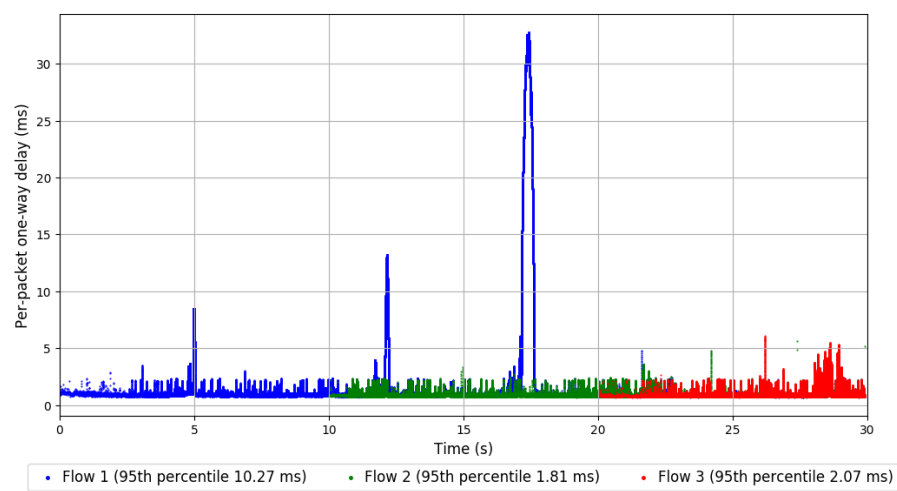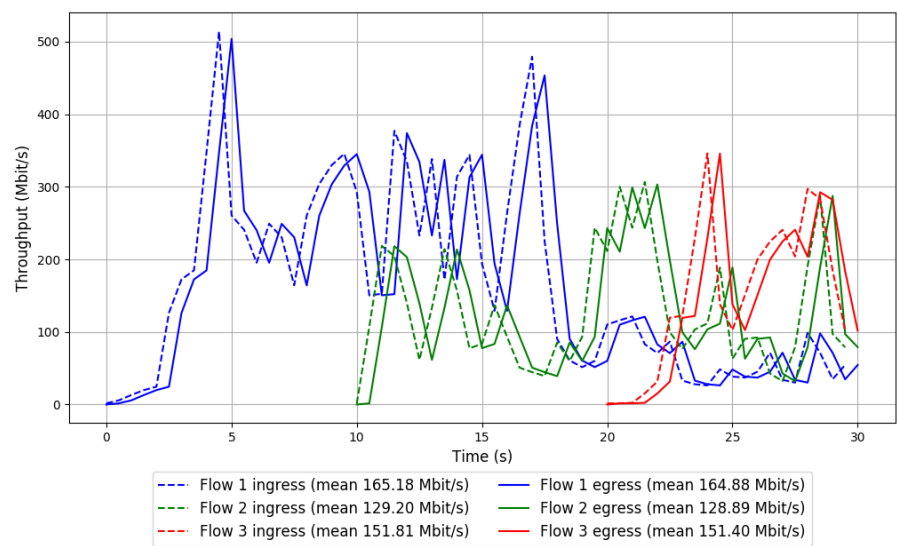
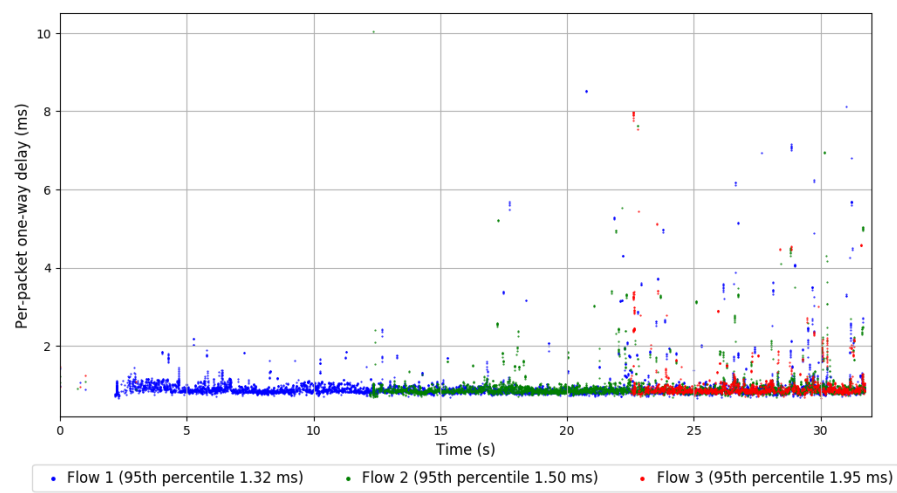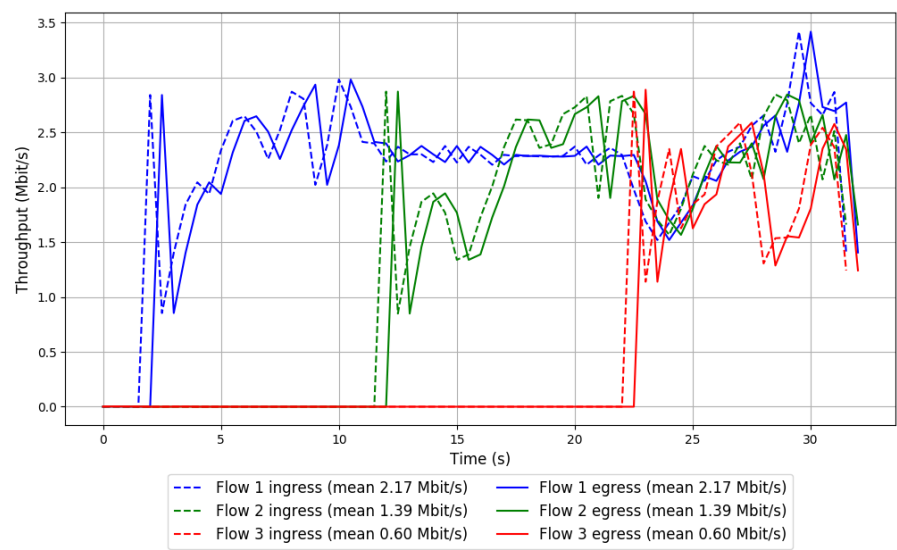Run 5: Report of PCC-Vivace — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2019-03-19 02:41:19
End at: 2019-03-19 02:41:49
Local clock offset: 0.548 ms
Remote clock offset: -0.114 ms


# Below is generated by plot.py at 2019-03-19 05:51:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.15 Mbit/s
95th percentile per-packet one-way delay: 1.496 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 2.17 Mbit/s
95th percentile per-packet one-way delay: 1.316 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 1.39 Mbit/s
95th percentile per-packet one-way delay: 1.496 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 1.947 ms
Loss rate: 0.05%
```

Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2019-03-19 03:11:10
End at: 2019-03-19 03:11:40
Local clock offset: -1.053 ms
Remote clock offset: 0.768 ms


# Below is generated by plot.py at 2019-03-19 05:51:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 3.204 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 2.859 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 9.258 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 2.700 ms
Loss rate: 0.00%
```
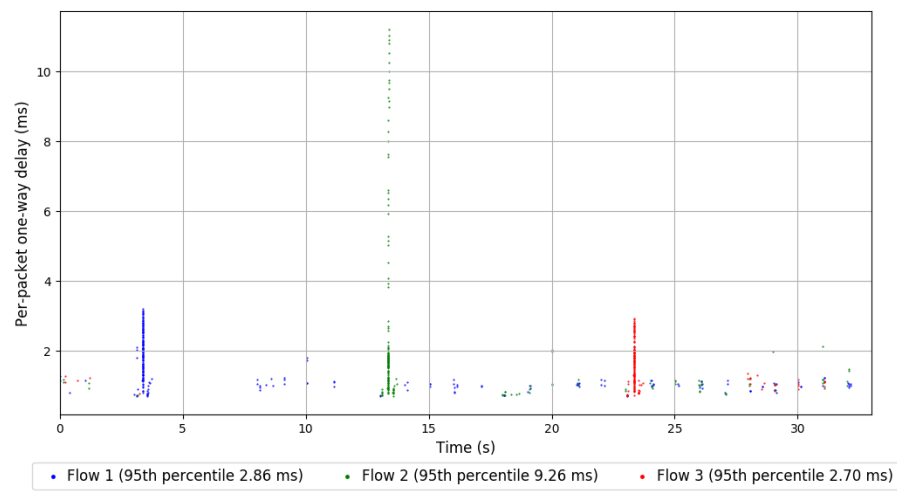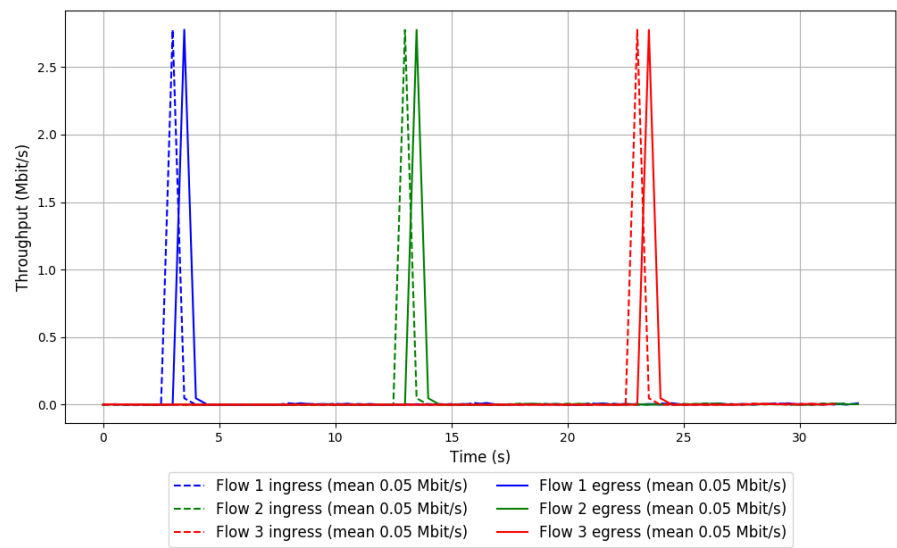
Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2019-03-19 03:40:59
End at: 2019-03-19 03:41:29
Local clock offset: 0.824 ms
Remote clock offset: 1.83 ms


# Below is generated by plot.py at 2019-03-19 05:51:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 4.231 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 5.879 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 3.482 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 4.310 ms
Loss rate: 0.00%
```
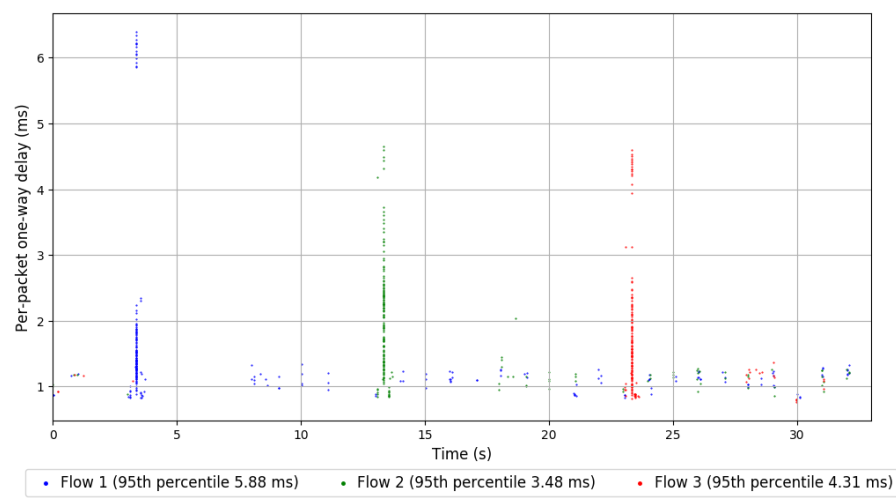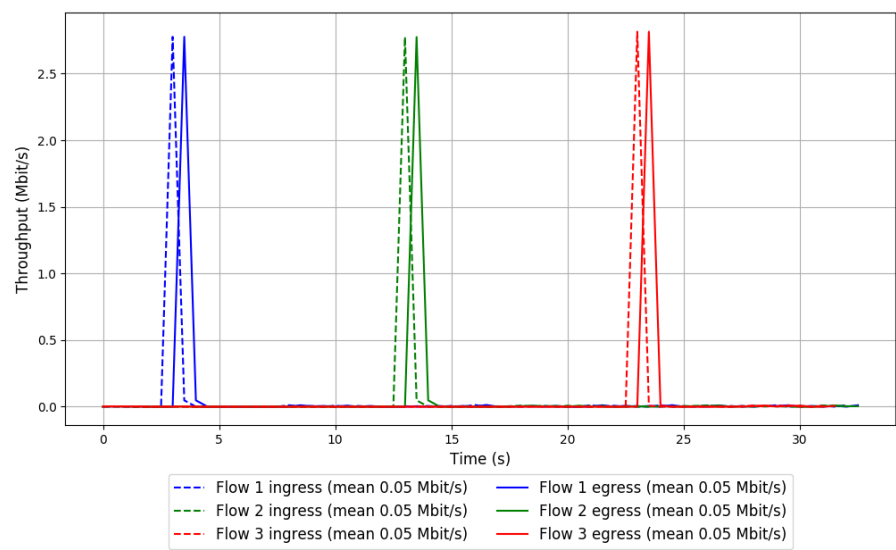
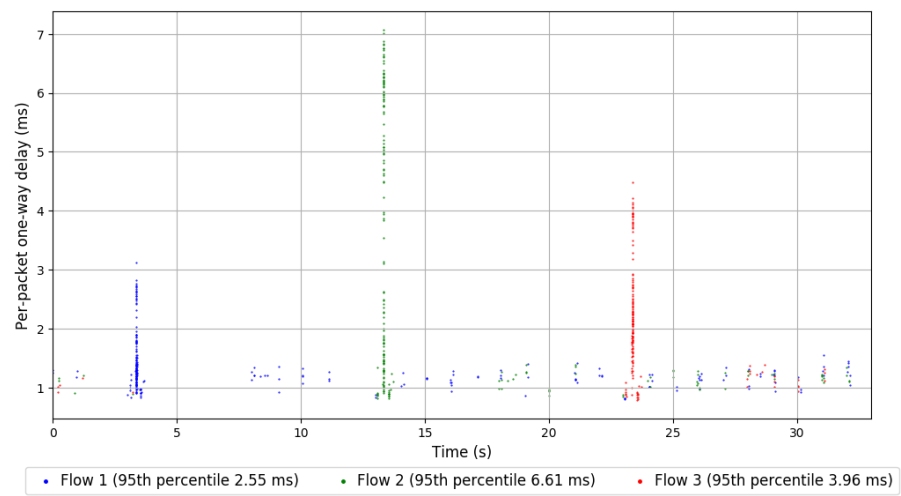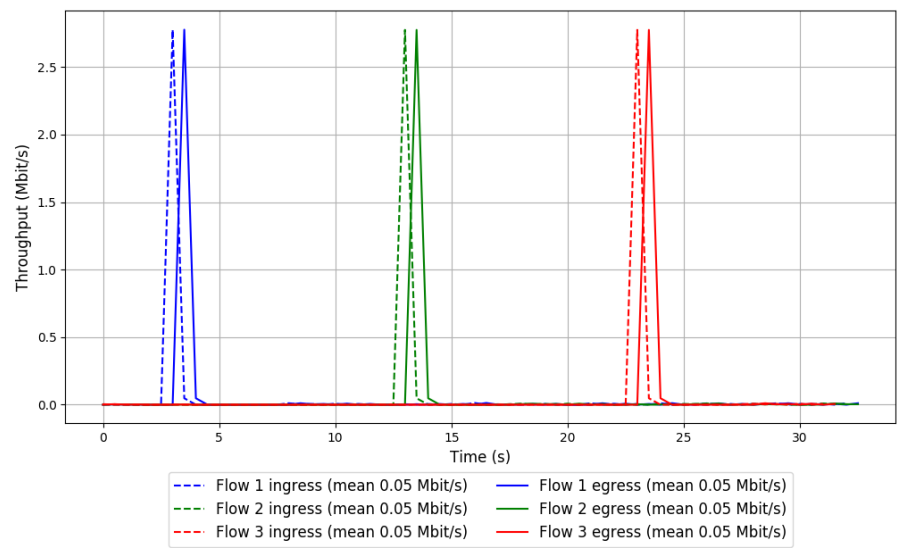Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2019-03-19 04:10:38
End at: 2019-03-19 04:11:08
Local clock offset: 0.469 ms
Remote clock offset: -0.114 ms


# Below is generated by plot.py at 2019-03-19 05:51:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 5.992 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 2.550 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 6.607 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 3.957 ms
Loss rate: 0.00%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2019-03-19 04:40:02
End at: 2019-03-19 04:40:32
Local clock offset: 0.732 ms
Remote clock offset: -0.248 ms


# Below is generated by plot.py at 2019-03-19 05:51:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 8.894 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 2.150 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 8.516 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 11.224 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link