

Pantheon Report

Generated at 2019-01-17 11:38:17 (UTC).
Data path: AWS India 1 on `ens5 (local)` → India cellular on `ppp0 (remote)`.
Repeated the test of 21 congestion control schemes 3 times.
Each test lasted for 30 seconds running 3 flows with 10-second interval between two flows.
NTP offsets were measured against `nets.org.sg` and have been applied to correct the timestamps in logs.

System info:

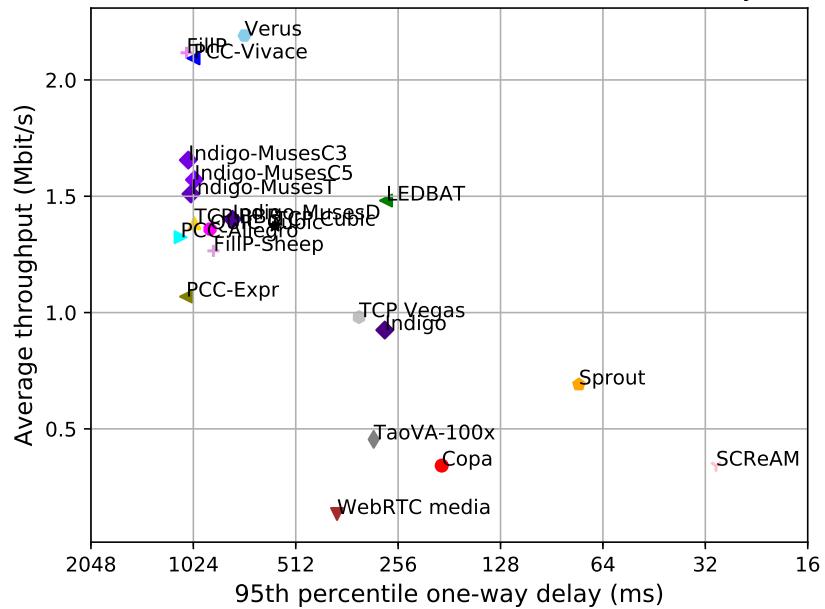
```
Linux 4.15.0-1031-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

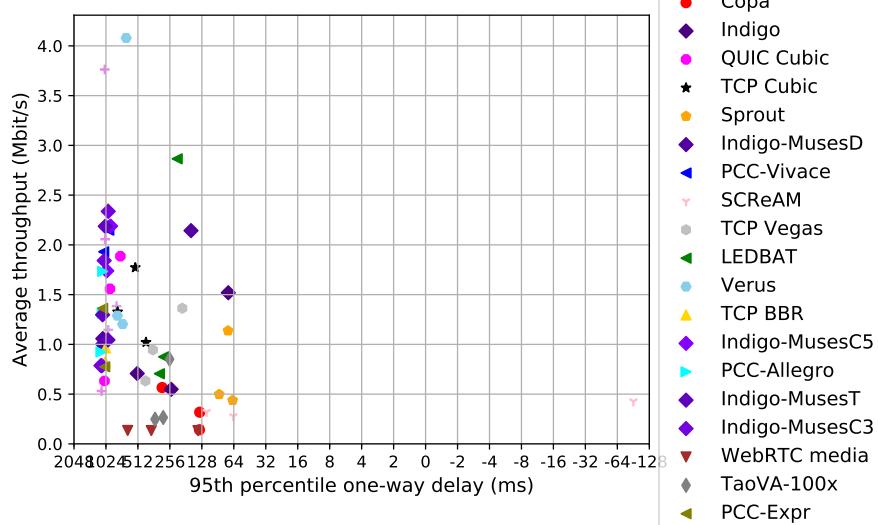
```
branch: muses @ c80a283586bf7b0cc1fe08c69c8f60d56498f81c
third_party/fillp @ d6da1459332fceef56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ c3eee875824760ec5b2fd207fefe166e1afe2170
third_party/pantheon-tunnel @ f866d3f58d27af942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
```

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

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



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



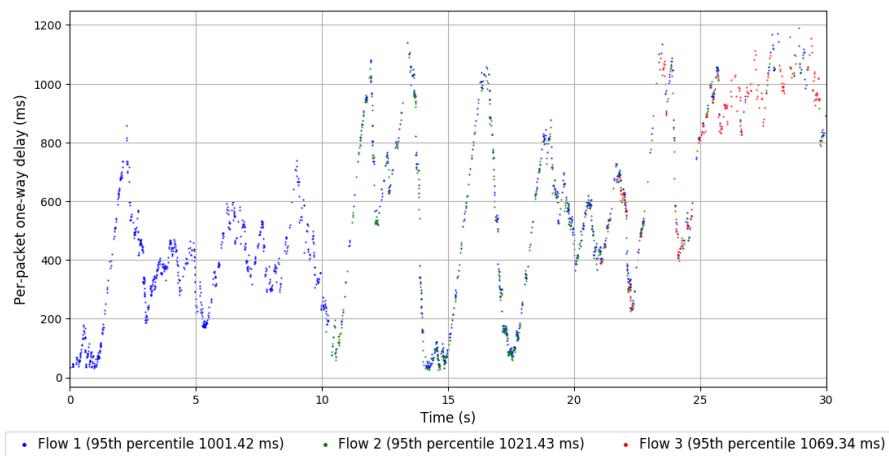
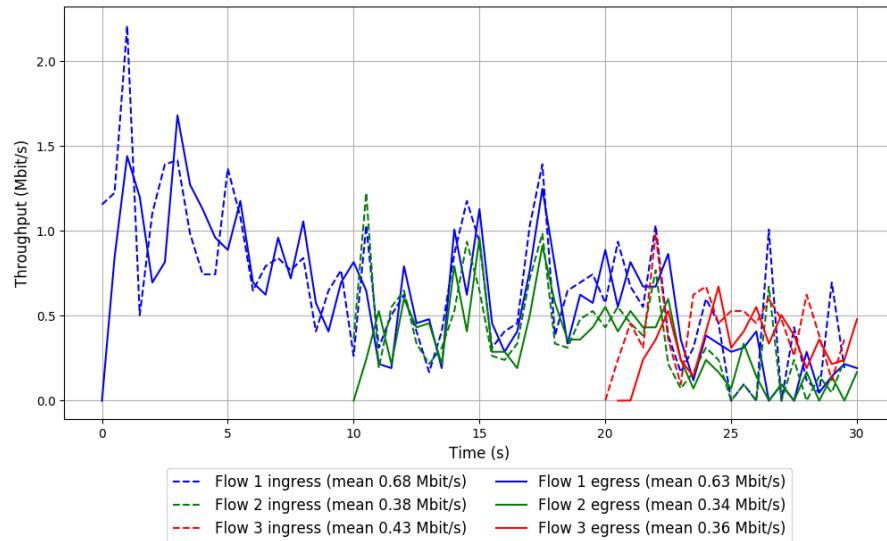
scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	3	0.90	0.52	0.42	972.77	1017.89	1043.24	6.54	9.22	17.33
Copa	3	0.16	0.12	0.33	150.57	169.00	188.50	60.49	59.69	27.17
TCP Cubic	3	0.72	0.52	0.95	453.23	509.56	651.69	1.81	2.21	3.25
FillP	3	1.30	0.90	0.69	1057.21	1074.95	1087.12	28.16	40.85	53.73
FillP-Sheep	2	0.67	0.56	0.69	770.90	896.54	1021.87	3.03	8.75	26.77
Indigo	3	0.52	0.41	0.40	285.21	232.23	376.58	1.76	0.66	1.08
Indigo-MusesC3	3	0.95	0.88	0.51	882.48	1060.04	1071.67	26.11	42.91	49.48
Indigo-MusesC5	3	0.93	0.76	0.56	1003.26	1024.28	1041.98	22.64	37.71	50.72
Indigo-MusesD	3	0.84	0.61	0.55	774.61	794.65	814.71	23.57	35.53	45.87
Indigo-MusesT	3	0.85	0.78	0.62	1015.63	1042.19	1051.23	27.12	49.24	69.45
LEDBAT	3	0.80	0.85	0.38	273.04	284.86	297.90	0.93	1.56	4.07
PCC-Allegro	3	0.90	0.60	0.15	1104.77	1135.50	1105.84	58.13	96.00	87.12
PCC-Expr	2	0.82	0.39	0.00	1073.98	1085.31	1045.97	84.76	94.33	89.01
QUIC Cubic	3	0.93	0.49	0.35	857.81	929.62	979.41	4.93	8.36	14.74
SCReAM	3	0.18	0.16	0.16	19.84	33.66	56.23	0.00	0.06	0.28
Sprout	3	0.37	0.36	0.25	75.21	77.84	70.83	0.06	0.01	0.35
TaoVA-100x	3	0.00	0.43	0.52	1.15	106.46	231.17	95.92	71.13	63.90
TCP Vegas	3	0.45	0.53	0.56	277.02	287.90	390.09	0.54	0.84	0.86
Verus	3	1.58	0.77	0.37	666.89	811.78	706.70	1.59	2.31	7.80
PCC-Vivace	3	1.13	1.02	0.89	1011.85	1025.74	1037.23	20.83	31.88	47.80
WebRTC media	3	0.05	0.04	0.05	290.43	438.57	227.01	1.04	1.60	1.23

Run 1: Statistics of TCP BBR

```
Start at: 2019-01-17 10:47:57
End at: 2019-01-17 10:48:27
Local clock offset: 0.926 ms
Remote clock offset: -6.315 ms

# Below is generated by plot.py at 2019-01-17 11:37:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.96 Mbit/s
95th percentile per-packet one-way delay: 1031.265 ms
Loss rate: 10.47%
-- Flow 1:
Average throughput: 0.63 Mbit/s
95th percentile per-packet one-way delay: 1001.425 ms
Loss rate: 7.73%
-- Flow 2:
Average throughput: 0.34 Mbit/s
95th percentile per-packet one-way delay: 1021.434 ms
Loss rate: 10.74%
-- Flow 3:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 1069.335 ms
Loss rate: 23.03%
```

Run 1: Report of TCP BBR — Data Link

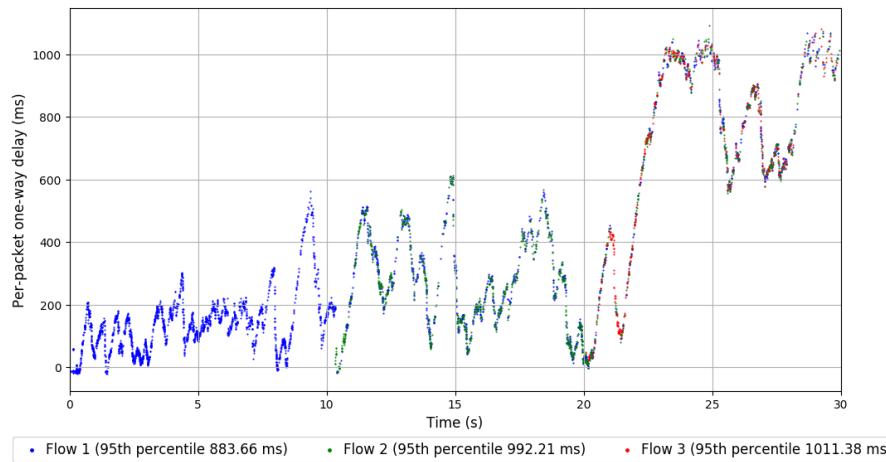
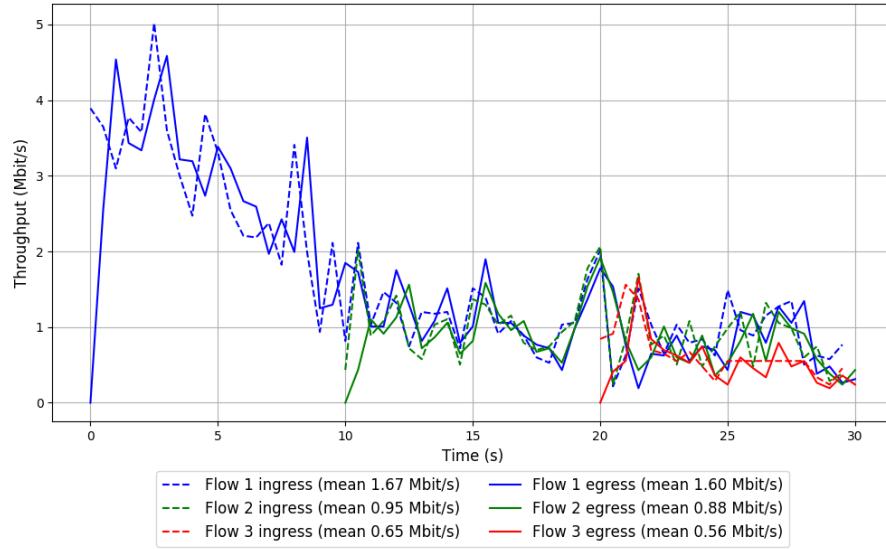


Run 2: Statistics of TCP BBR

```
Start at: 2019-01-17 11:12:25
End at: 2019-01-17 11:12:55
Local clock offset: 3.85 ms
Remote clock offset: -43.117 ms

# Below is generated by plot.py at 2019-01-17 11:37:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.37 Mbit/s
95th percentile per-packet one-way delay: 978.145 ms
Loss rate: 6.17%
-- Flow 1:
Average throughput: 1.60 Mbit/s
95th percentile per-packet one-way delay: 883.661 ms
Loss rate: 4.22%
-- Flow 2:
Average throughput: 0.88 Mbit/s
95th percentile per-packet one-way delay: 992.213 ms
Loss rate: 8.15%
-- Flow 3:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 1011.383 ms
Loss rate: 15.42%
```

Run 2: Report of TCP BBR — Data Link

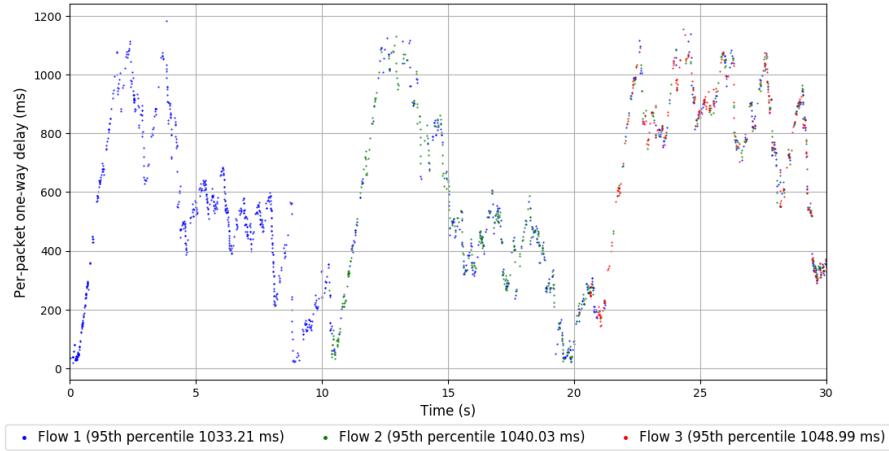
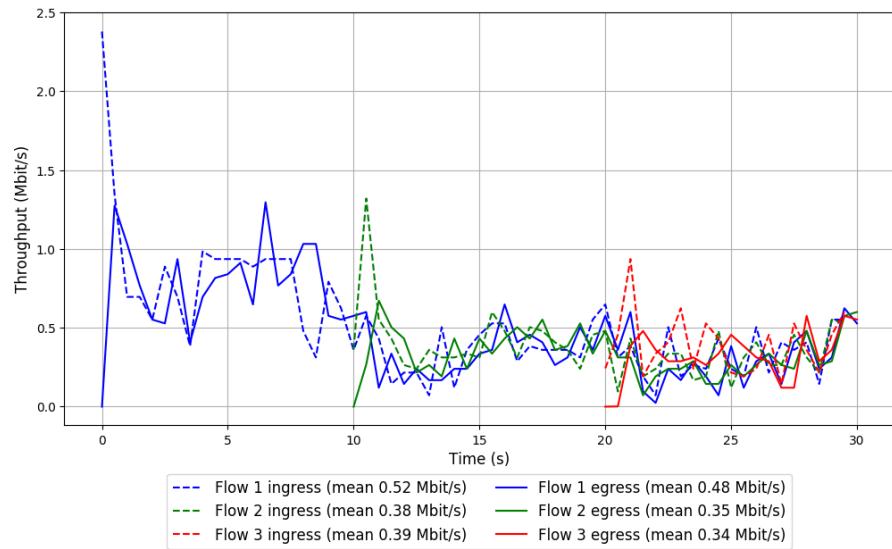


Run 3: Statistics of TCP BBR

```
Start at: 2019-01-17 11:36:46
End at: 2019-01-17 11:37:16
Local clock offset: -0.428 ms
Remote clock offset: -7.133 ms

# Below is generated by plot.py at 2019-01-17 11:37:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.82 Mbit/s
95th percentile per-packet one-way delay: 1040.699 ms
Loss rate: 8.83%
-- Flow 1:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 1033.210 ms
Loss rate: 7.67%
-- Flow 2:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 1040.033 ms
Loss rate: 8.78%
-- Flow 3:
Average throughput: 0.34 Mbit/s
95th percentile per-packet one-way delay: 1048.994 ms
Loss rate: 13.53%
```

Run 3: Report of TCP BBR — Data Link

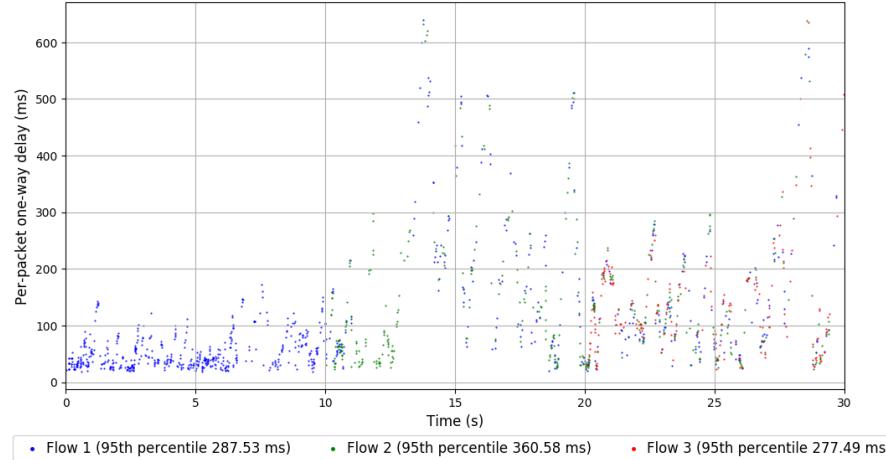
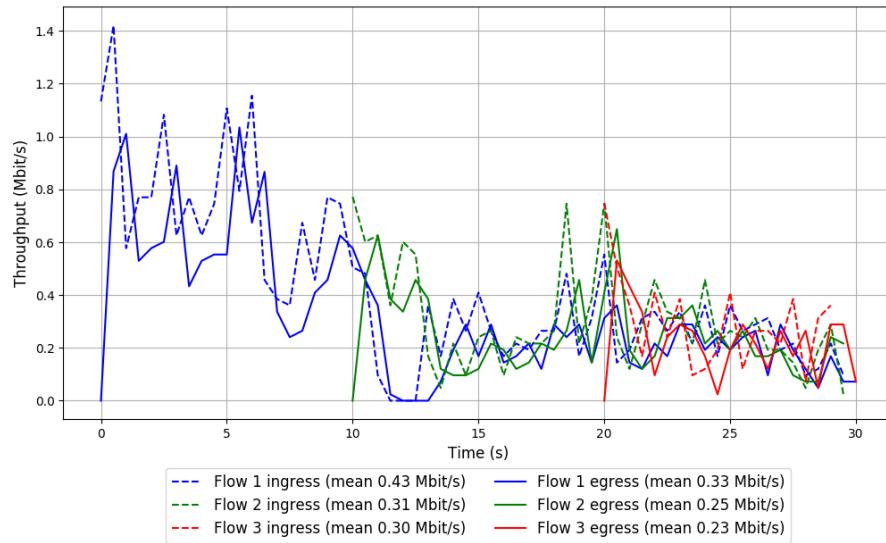


Run 1: Statistics of Copa

```
Start at: 2019-01-17 10:29:11
End at: 2019-01-17 10:29:41
Local clock offset: 0.881 ms
Remote clock offset: -11.429 ms

# Below is generated by plot.py at 2019-01-17 11:37:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 302.886 ms
Loss rate: 21.76%
-- Flow 1:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 287.530 ms
Loss rate: 23.13%
-- Flow 2:
Average throughput: 0.25 Mbit/s
95th percentile per-packet one-way delay: 360.585 ms
Loss rate: 20.47%
-- Flow 3:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 277.486 ms
Loss rate: 18.37%
```

Run 1: Report of Copa — Data Link

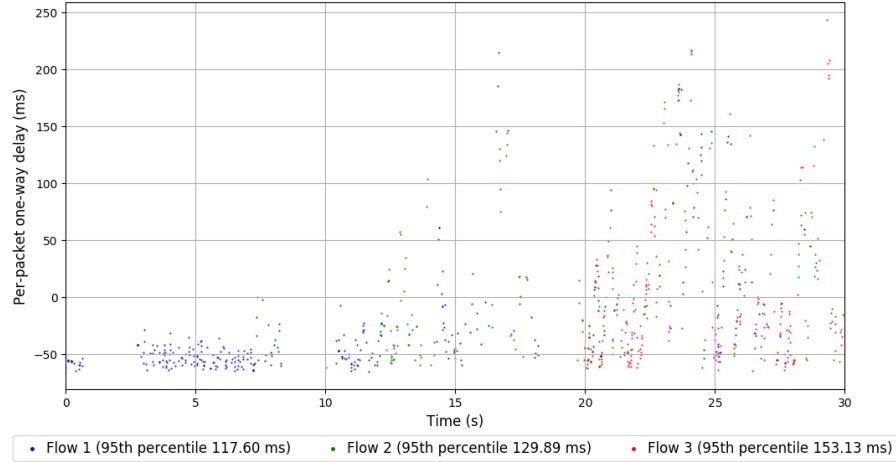
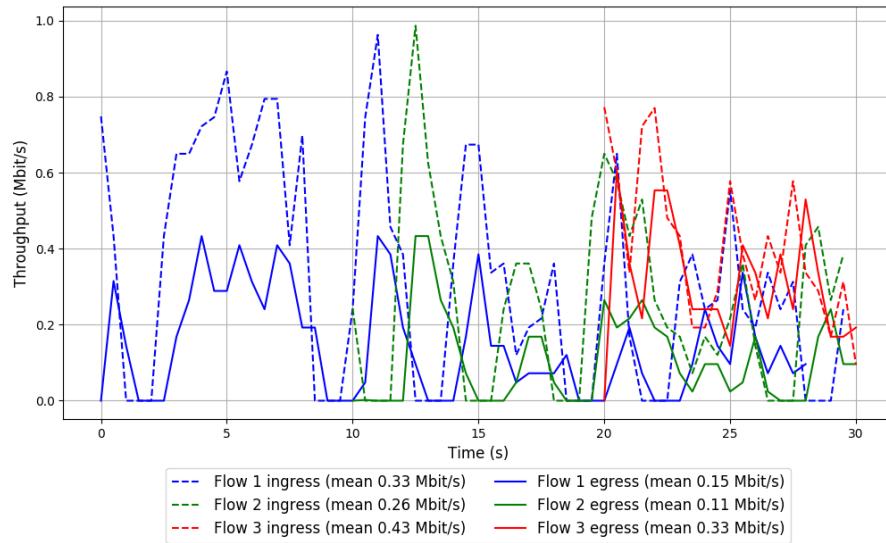


Run 2: Statistics of Copa

```
Start at: 2019-01-17 10:53:47
End at: 2019-01-17 10:54:17
Local clock offset: 0.999 ms
Remote clock offset: -92.291 ms

# Below is generated by plot.py at 2019-01-17 11:37:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 133.989 ms
Loss rate: 50.77%
-- Flow 1:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 117.602 ms
Loss rate: 58.39%
-- Flow 2:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 129.890 ms
Loss rate: 58.69%
-- Flow 3:
Average throughput: 0.33 Mbit/s
95th percentile per-packet one-way delay: 153.132 ms
Loss rate: 23.59%
```

Run 2: Report of Copa — Data Link

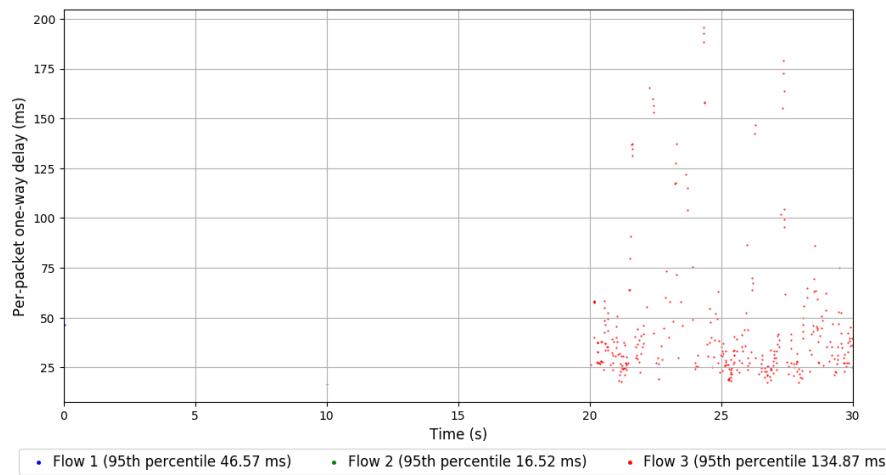
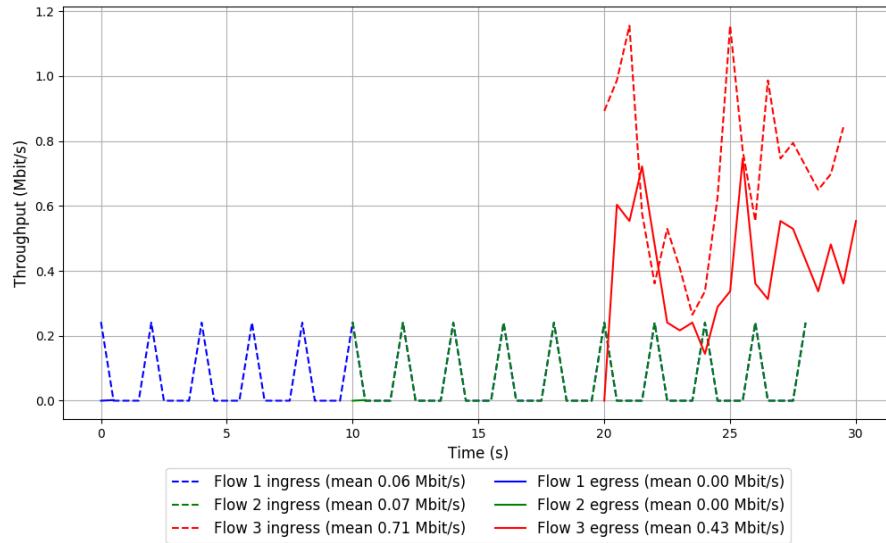


Run 3: Statistics of Copa

```
Start at: 2019-01-17 11:18:13
End at: 2019-01-17 11:18:43
Local clock offset: -1.382 ms
Remote clock offset: -15.714 ms

# Below is generated by plot.py at 2019-01-17 11:37:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 134.867 ms
Loss rate: 57.66%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 46.569 ms
Loss rate: 99.94%
-- Flow 2:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 16.523 ms
Loss rate: 99.91%
-- Flow 3:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 134.867 ms
Loss rate: 39.55%
```

Run 3: Report of Copa — Data Link

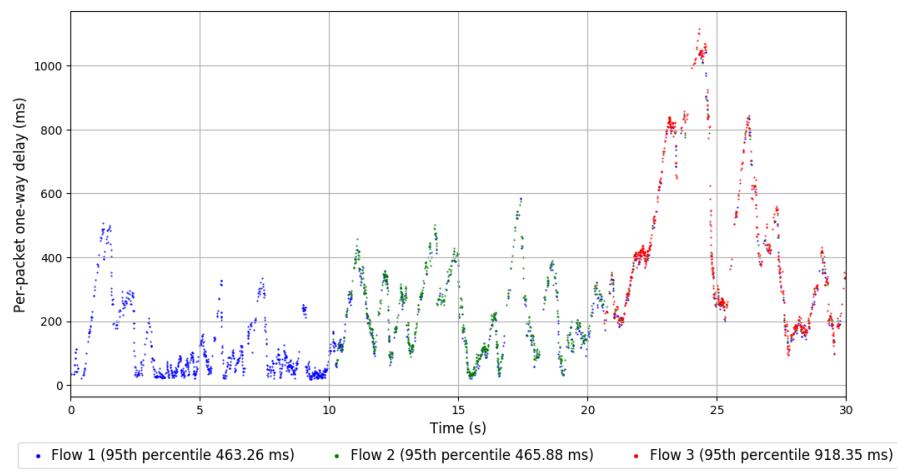
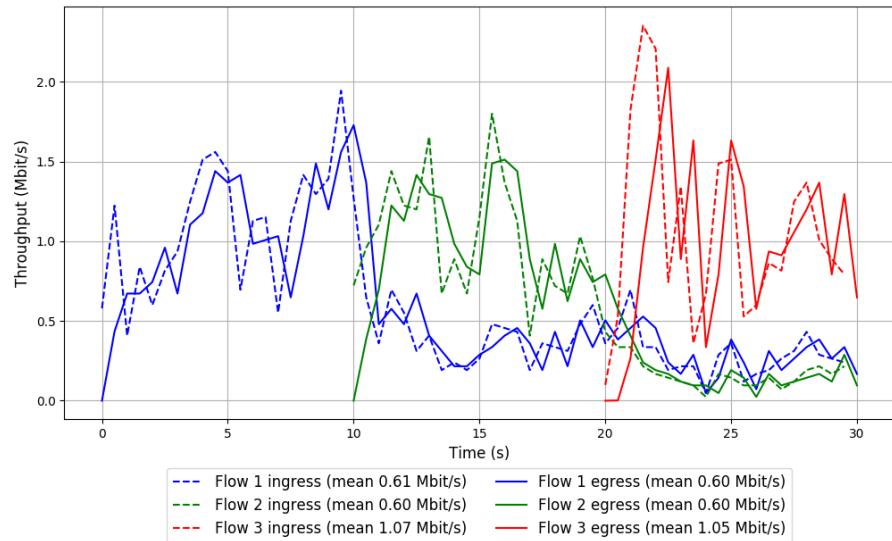


```
Run 1: Statistics of TCP Cubic
```

```
Start at: 2019-01-17 10:28:01
End at: 2019-01-17 10:28:31
Local clock offset: 1.369 ms
Remote clock offset: -10.692 ms

# Below is generated by plot.py at 2019-01-17 11:37:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.33 Mbit/s
95th percentile per-packet one-way delay: 795.589 ms
Loss rate: 2.67%
-- Flow 1:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 463.258 ms
Loss rate: 1.84%
-- Flow 2:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 465.882 ms
Loss rate: 2.10%
-- Flow 3:
Average throughput: 1.05 Mbit/s
95th percentile per-packet one-way delay: 918.353 ms
Loss rate: 4.75%
```

Run 1: Report of TCP Cubic — Data Link

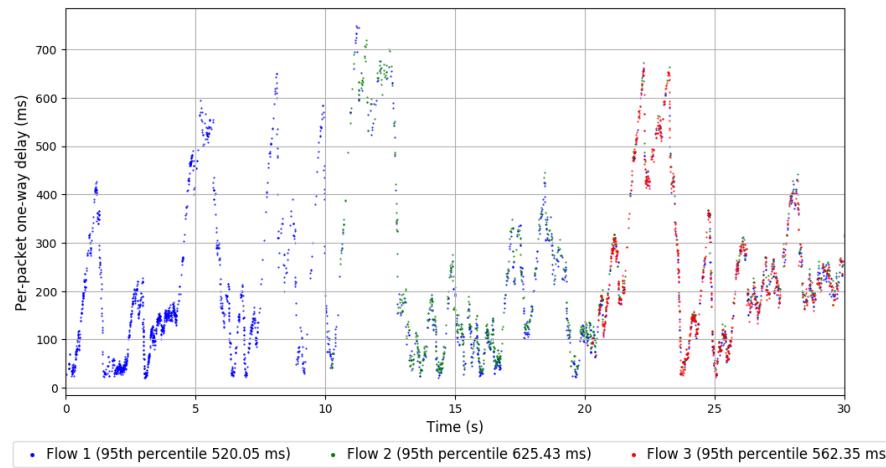
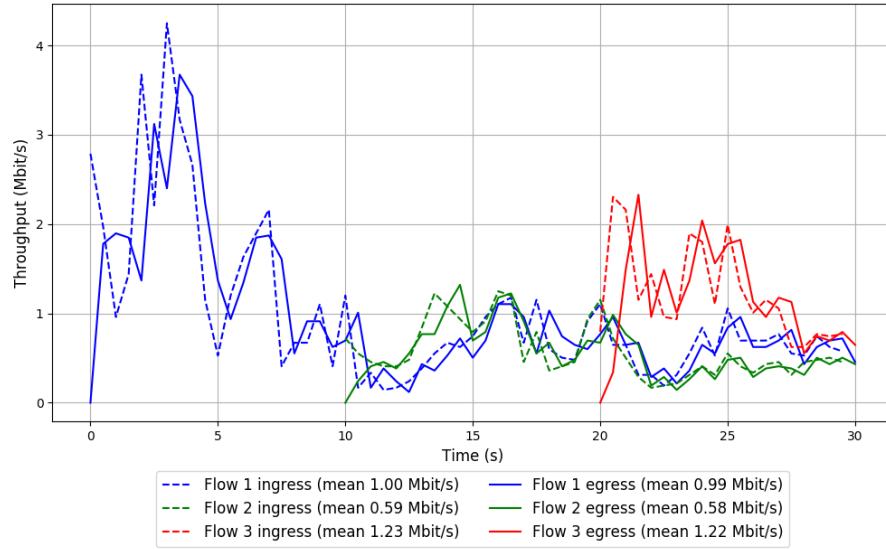


Run 2: Statistics of TCP Cubic

```
Start at: 2019-01-17 10:52:37
End at: 2019-01-17 10:53:07
Local clock offset: -2.007 ms
Remote clock offset: -7.643 ms

# Below is generated by plot.py at 2019-01-17 11:37:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.77 Mbit/s
95th percentile per-packet one-way delay: 541.432 ms
Loss rate: 1.73%
-- Flow 1:
Average throughput: 0.99 Mbit/s
95th percentile per-packet one-way delay: 520.050 ms
Loss rate: 1.36%
-- Flow 2:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 625.428 ms
Loss rate: 2.06%
-- Flow 3:
Average throughput: 1.22 Mbit/s
95th percentile per-packet one-way delay: 562.350 ms
Loss rate: 2.34%
```

Run 2: Report of TCP Cubic — Data Link

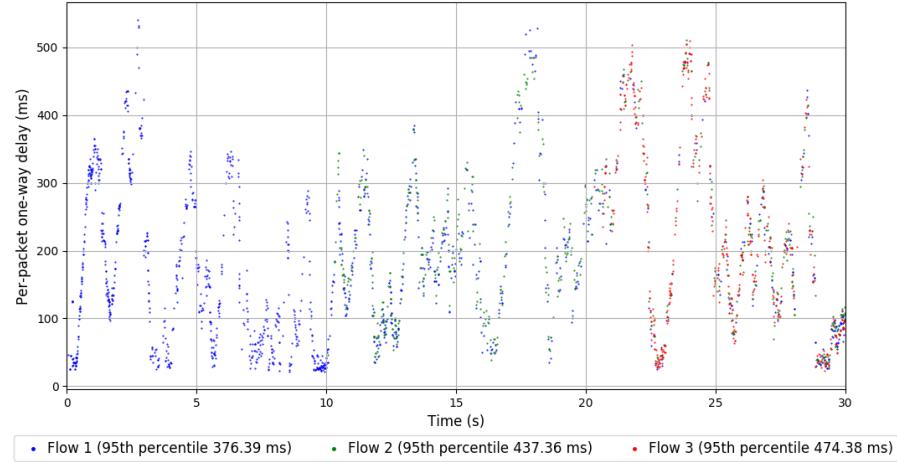
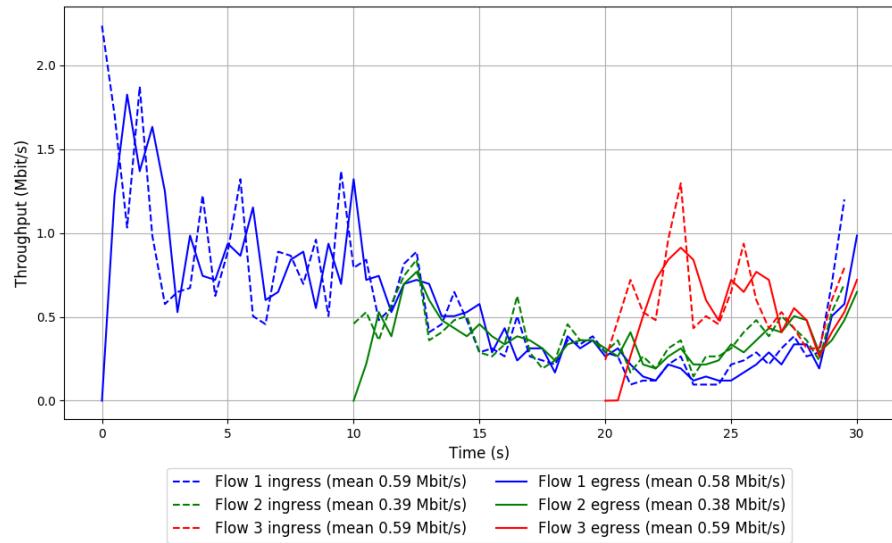


Run 3: Statistics of TCP Cubic

```
Start at: 2019-01-17 11:17:03
End at: 2019-01-17 11:17:33
Local clock offset: 0.573 ms
Remote clock offset: -6.175 ms

# Below is generated by plot.py at 2019-01-17 11:37:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.02 Mbit/s
95th percentile per-packet one-way delay: 429.989 ms
Loss rate: 2.38%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 376.393 ms
Loss rate: 2.24%
-- Flow 2:
Average throughput: 0.38 Mbit/s
95th percentile per-packet one-way delay: 437.355 ms
Loss rate: 2.46%
-- Flow 3:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 474.375 ms
Loss rate: 2.67%
```

Run 3: Report of TCP Cubic — Data Link

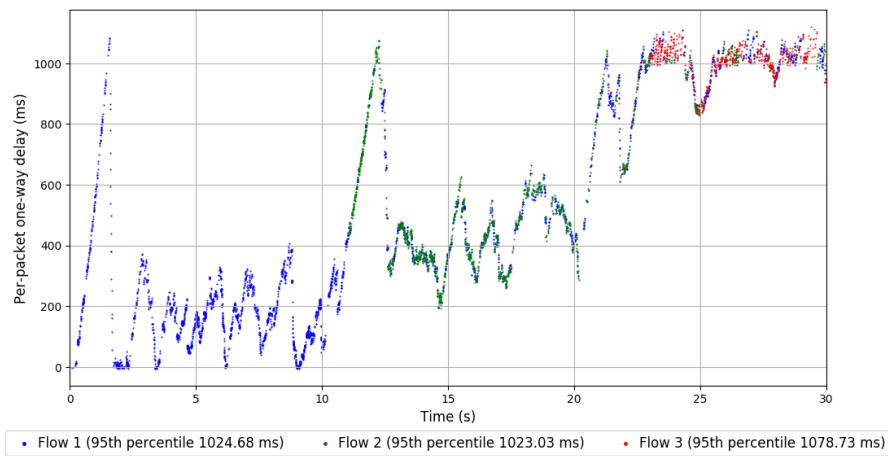
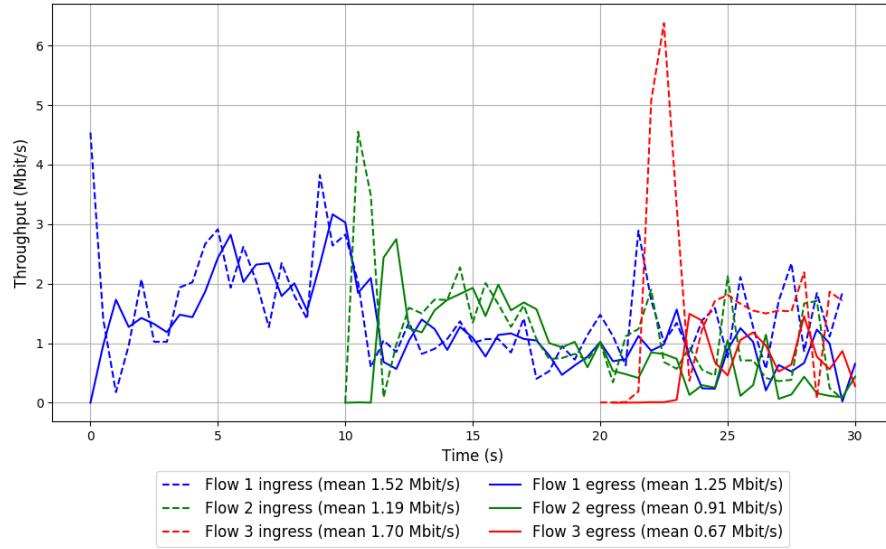


```
Run 1: Statistics of FillP

Start at: 2019-01-17 10:35:04
End at: 2019-01-17 10:35:34
Local clock offset: 0.319 ms
Remote clock offset: -34.411 ms

# Below is generated by plot.py at 2019-01-17 11:37:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.06 Mbit/s
95th percentile per-packet one-way delay: 1040.681 ms
Loss rate: 28.33%
-- Flow 1:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 1024.680 ms
Loss rate: 17.86%
-- Flow 2:
Average throughput: 0.91 Mbit/s
95th percentile per-packet one-way delay: 1023.035 ms
Loss rate: 23.56%
-- Flow 3:
Average throughput: 0.67 Mbit/s
95th percentile per-packet one-way delay: 1078.729 ms
Loss rate: 63.29%
```

Run 1: Report of FillP — Data Link

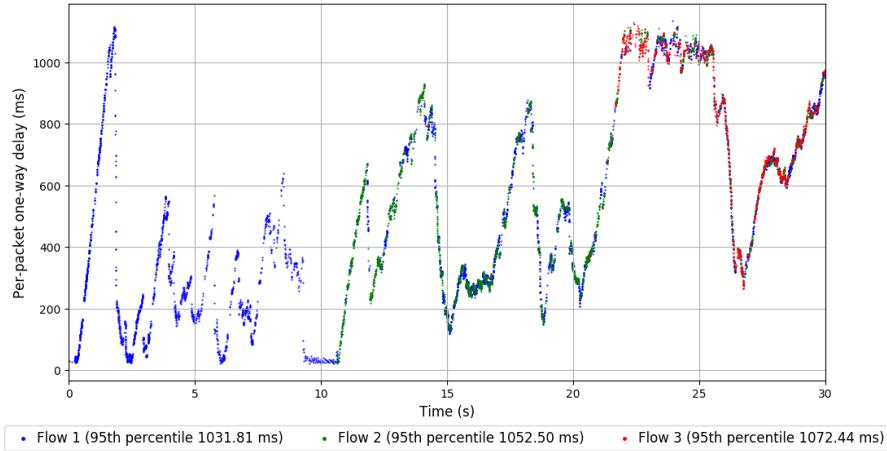
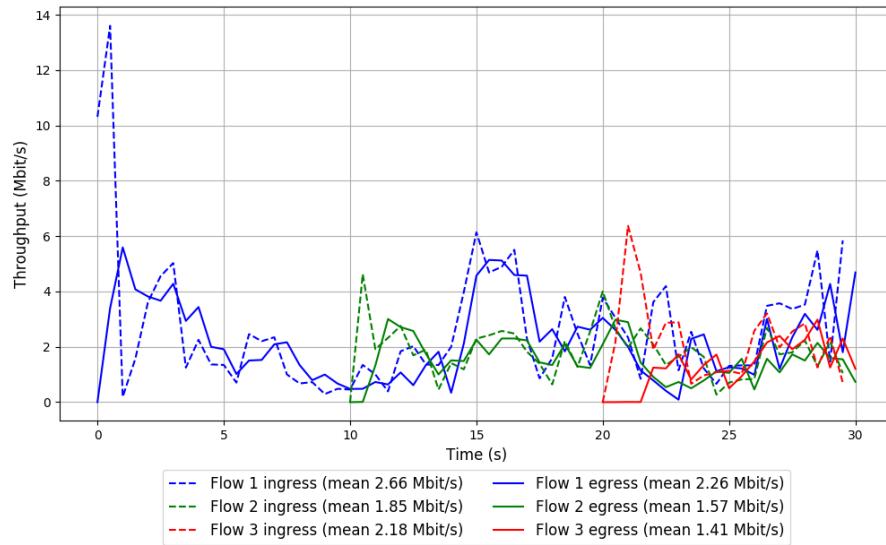


Run 2: Statistics of FillP

```
Start at: 2019-01-17 10:59:38
End at: 2019-01-17 11:00:08
Local clock offset: -1.447 ms
Remote clock offset: -6.861 ms

# Below is generated by plot.py at 2019-01-17 11:37:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.76 Mbit/s
95th percentile per-packet one-way delay: 1050.419 ms
Loss rate: 18.39%
-- Flow 1:
Average throughput: 2.26 Mbit/s
95th percentile per-packet one-way delay: 1031.812 ms
Loss rate: 15.06%
-- Flow 2:
Average throughput: 1.57 Mbit/s
95th percentile per-packet one-way delay: 1052.503 ms
Loss rate: 14.95%
-- Flow 3:
Average throughput: 1.41 Mbit/s
95th percentile per-packet one-way delay: 1072.442 ms
Loss rate: 36.49%
```

Run 2: Report of FillP — Data Link

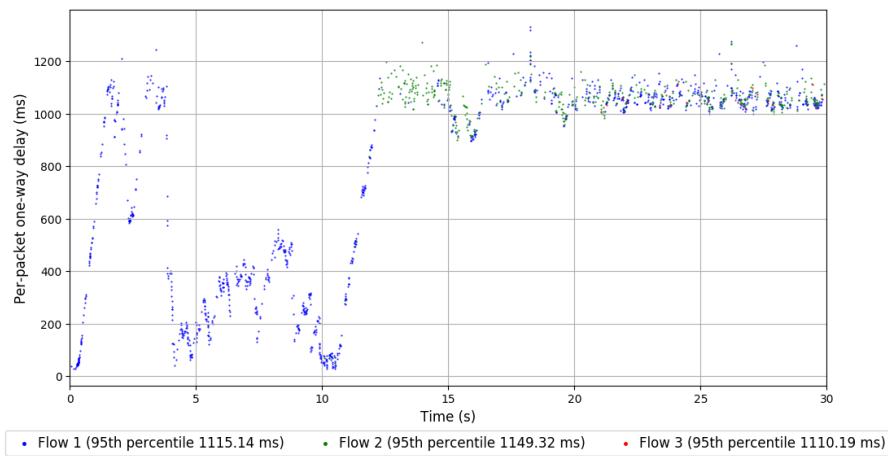
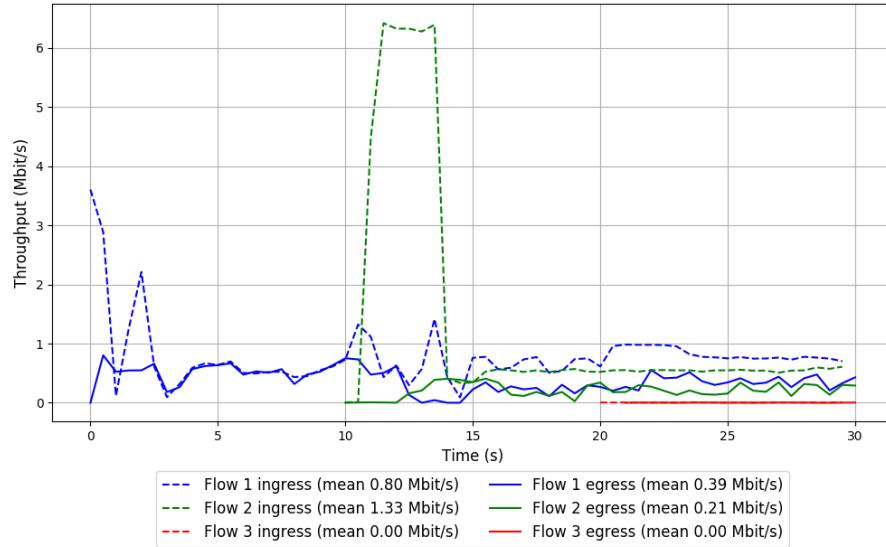


Run 3: Statistics of FillP

```
Start at: 2019-01-17 11:24:01
End at: 2019-01-17 11:24:31
Local clock offset: 0.448 ms
Remote clock offset: -5.668 ms

# Below is generated by plot.py at 2019-01-17 11:37:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.53 Mbit/s
95th percentile per-packet one-way delay: 1126.189 ms
Loss rate: 68.65%
-- Flow 1:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 1115.143 ms
Loss rate: 51.57%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 1149.322 ms
Loss rate: 84.03%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 1110.194 ms
Loss rate: 61.41%
```

Run 3: Report of FillP — Data Link

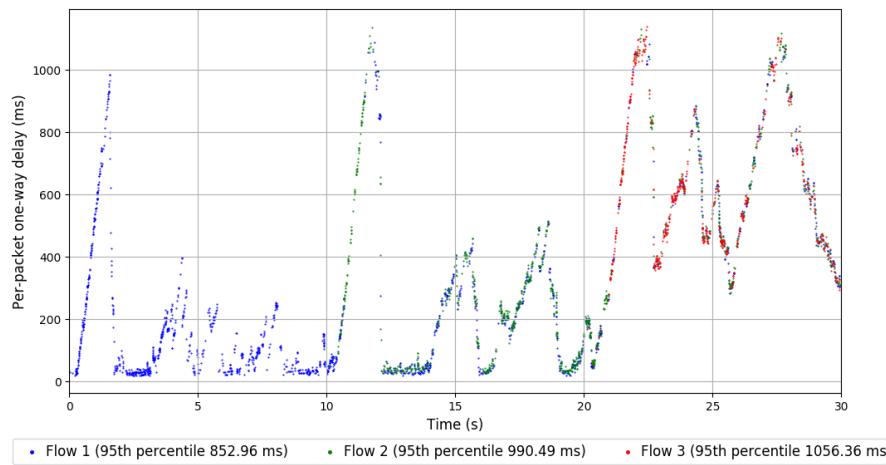
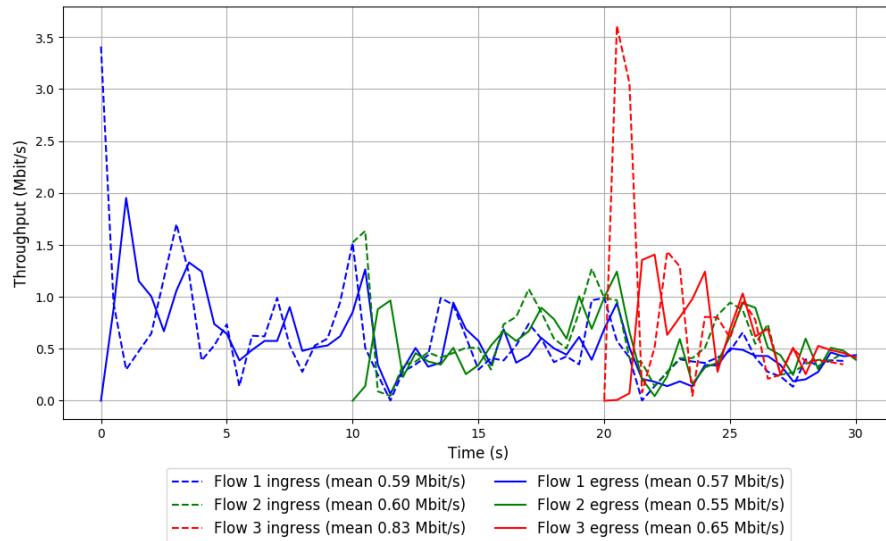


Run 1: Statistics of FillP-Sheep

```
Start at: 2019-01-17 10:37:25
End at: 2019-01-17 10:37:55
Local clock offset: 0.359 ms
Remote clock offset: -7.093 ms

# Below is generated by plot.py at 2019-01-17 11:37:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.15 Mbit/s
95th percentile per-packet one-way delay: 974.495 ms
Loss rate: 9.32%
-- Flow 1:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 852.958 ms
Loss rate: 3.18%
-- Flow 2:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 990.489 ms
Loss rate: 9.18%
-- Flow 3:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 1056.360 ms
Loss rate: 22.71%
```

Run 1: Report of FillP-Sheep — Data Link

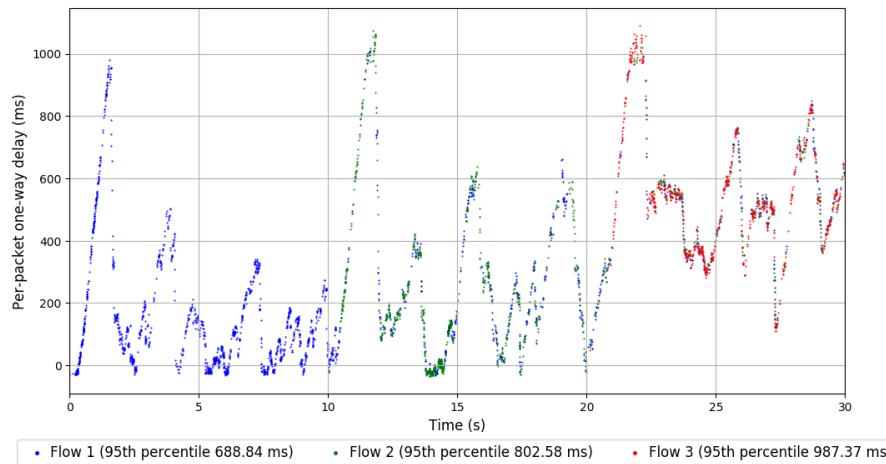
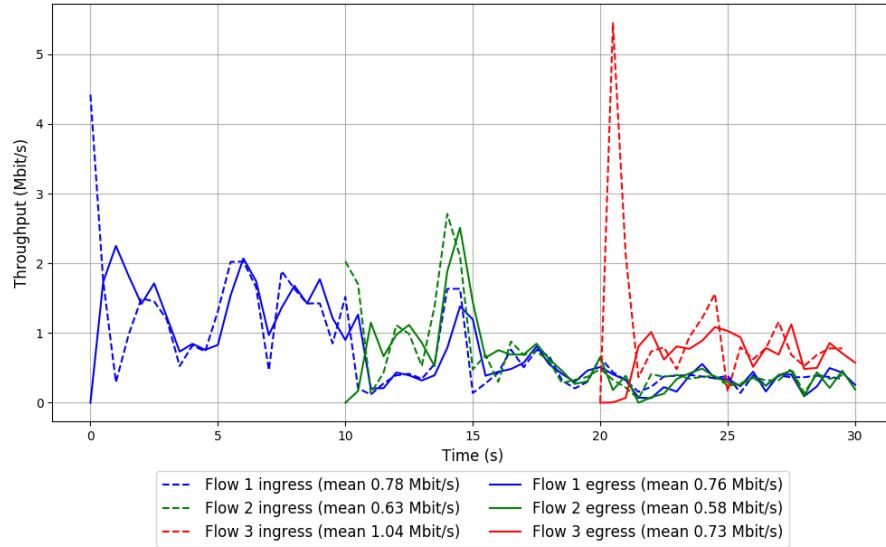


Run 2: Statistics of FillP-Sheep

```
Start at: 2019-01-17 11:01:58
End at: 2019-01-17 11:02:28
Local clock offset: 1.197 ms
Remote clock offset: -62.764 ms

# Below is generated by plot.py at 2019-01-17 11:37:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.38 Mbit/s
95th percentile per-packet one-way delay: 813.206 ms
Loss rate: 10.58%
-- Flow 1:
Average throughput: 0.76 Mbit/s
95th percentile per-packet one-way delay: 688.835 ms
Loss rate: 2.87%
-- Flow 2:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 802.584 ms
Loss rate: 8.32%
-- Flow 3:
Average throughput: 0.73 Mbit/s
95th percentile per-packet one-way delay: 987.371 ms
Loss rate: 30.84%
```

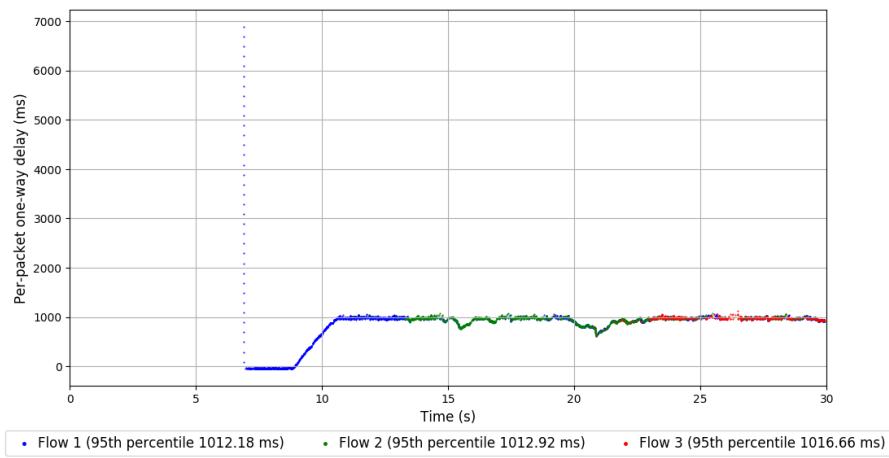
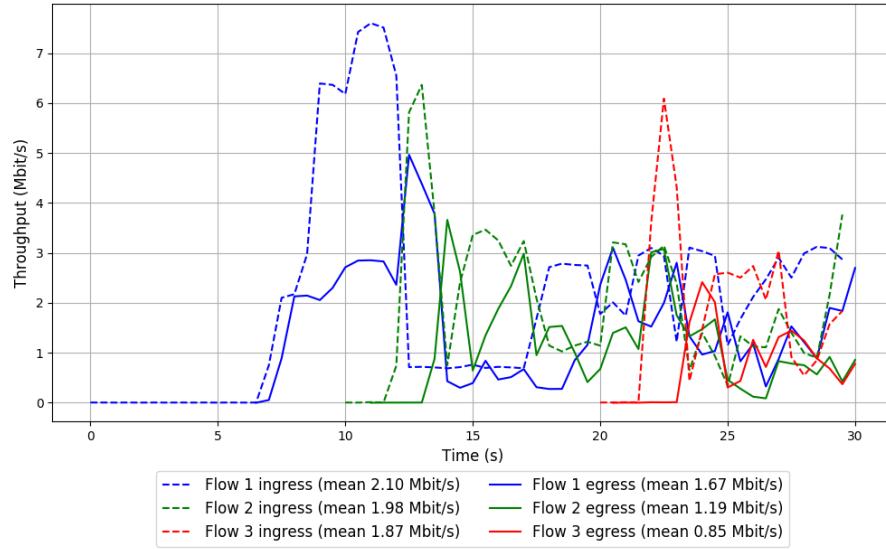
Run 2: Report of FillP-Sheep — Data Link



Run 3: Statistics of FillP-Sheep

Start at: 2019-01-17 11:26:21
End at: 2019-01-17 11:26:51
Local clock offset: -1.42 ms
Remote clock offset: -74.427 ms

Run 3: Report of FillP-Sheep — Data Link

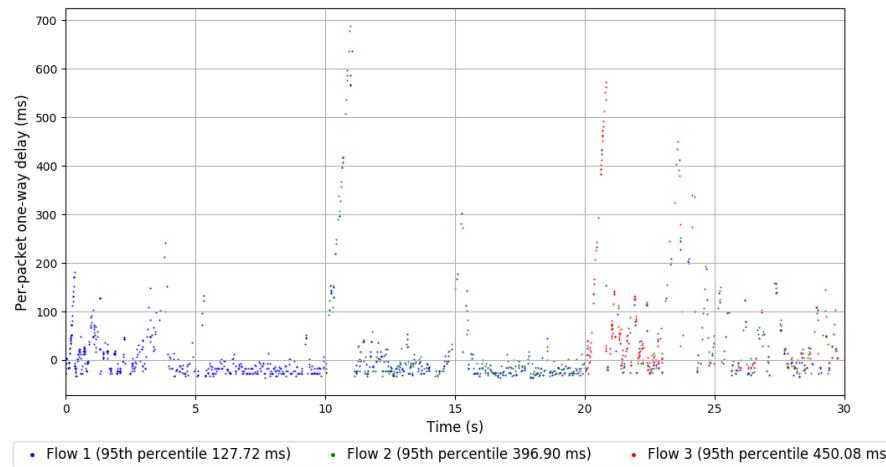
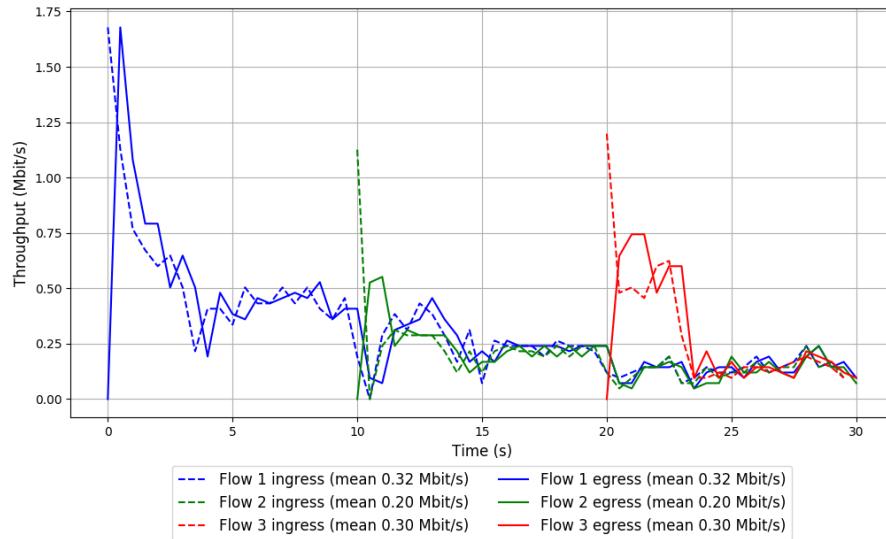


Run 1: Statistics of Indigo

```
Start at: 2019-01-17 10:36:15
End at: 2019-01-17 10:36:45
Local clock offset: -0.286 ms
Remote clock offset: -63.601 ms

# Below is generated by plot.py at 2019-01-17 11:37:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 248.845 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 127.719 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 396.904 ms
Loss rate: 1.54%
-- Flow 3:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 450.084 ms
Loss rate: 1.63%
```

Run 1: Report of Indigo — Data Link

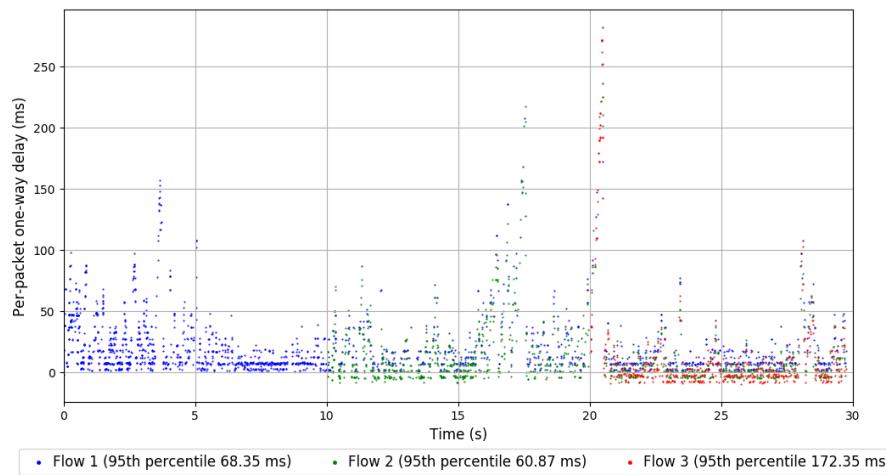
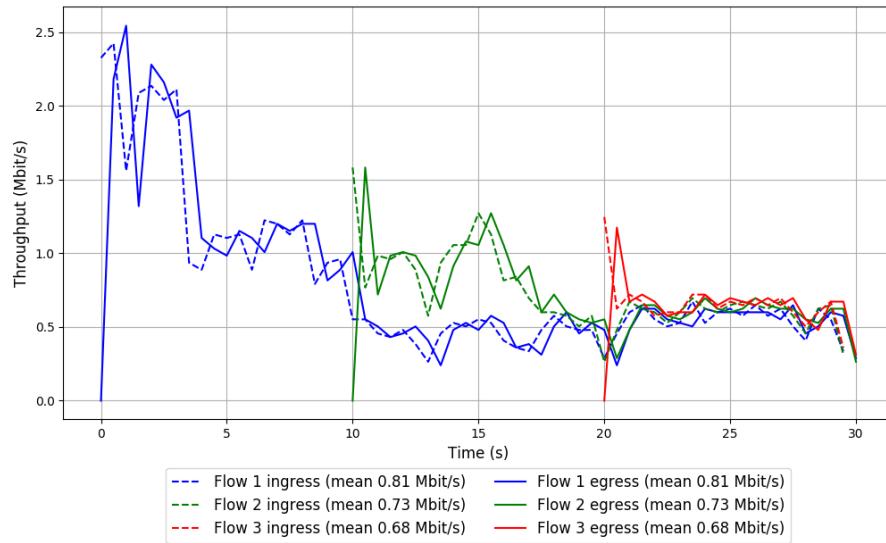


Run 2: Statistics of Indigo

```
Start at: 2019-01-17 11:00:49
End at: 2019-01-17 11:01:19
Local clock offset: 2.005 ms
Remote clock offset: -34.888 ms

# Below is generated by plot.py at 2019-01-17 11:37:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.52 Mbit/s
95th percentile per-packet one-way delay: 72.112 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 0.81 Mbit/s
95th percentile per-packet one-way delay: 68.350 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 0.73 Mbit/s
95th percentile per-packet one-way delay: 60.870 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 0.68 Mbit/s
95th percentile per-packet one-way delay: 172.353 ms
Loss rate: 0.55%
```

Run 2: Report of Indigo — Data Link

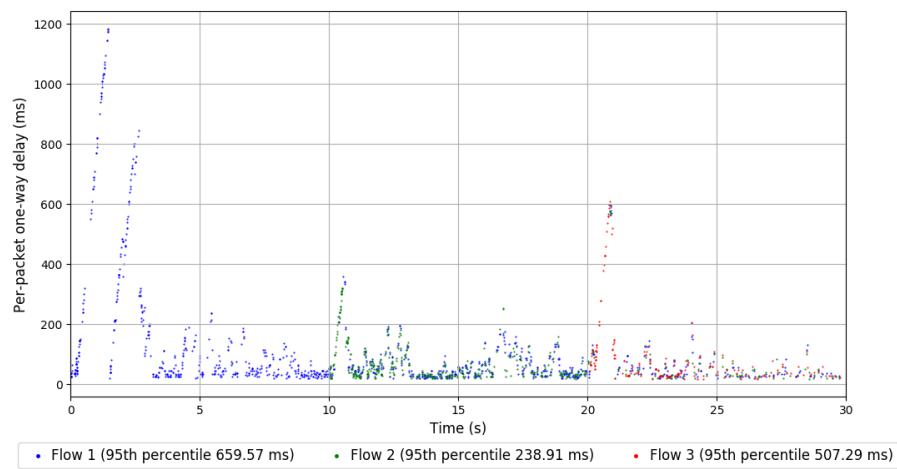
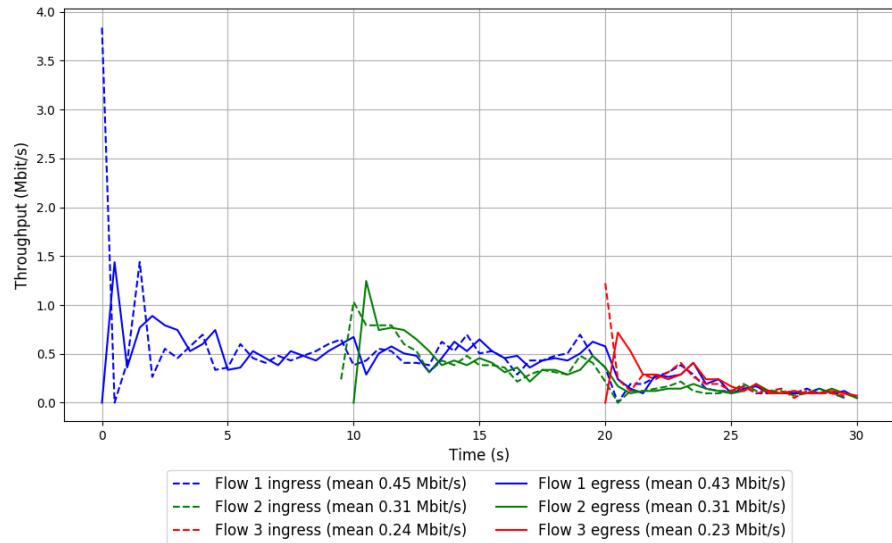


Run 3: Statistics of Indigo

```
Start at: 2019-01-17 11:25:11
End at: 2019-01-17 11:25:41
Local clock offset: 1.984 ms
Remote clock offset: -6.641 ms

# Below is generated by plot.py at 2019-01-17 11:37:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.71 Mbit/s
95th percentile per-packet one-way delay: 519.745 ms
Loss rate: 3.26%
-- Flow 1:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 659.565 ms
Loss rate: 5.05%
-- Flow 2:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 238.910 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 507.291 ms
Loss rate: 1.05%
```

Run 3: Report of Indigo — Data Link

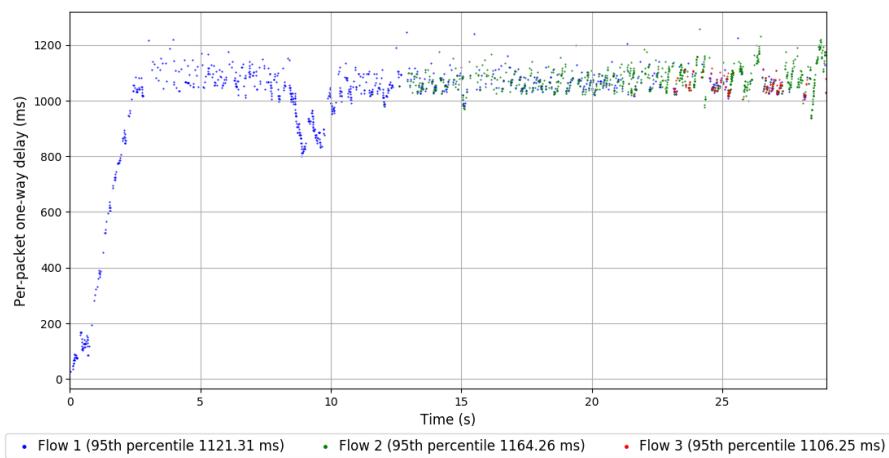
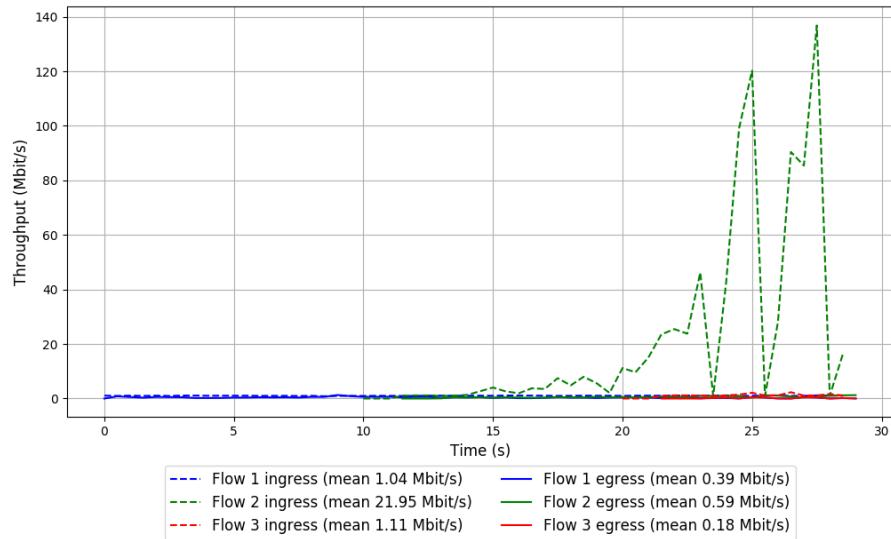


Run 1: Statistics of Indigo-MusesC3

```
Start at: 2019-01-17 10:24:34
End at: 2019-01-17 10:25:04
Local clock offset: -1.839 ms
Remote clock offset: -10.521 ms

# Below is generated by plot.py at 2019-01-17 11:37:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.79 Mbit/s
95th percentile per-packet one-way delay: 1141.027 ms
Loss rate: 94.99%
-- Flow 1:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 1121.309 ms
Loss rate: 62.44%
-- Flow 2:
Average throughput: 0.59 Mbit/s
95th percentile per-packet one-way delay: 1164.256 ms
Loss rate: 97.54%
-- Flow 3:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 1106.252 ms
Loss rate: 86.81%
```

Run 1: Report of Indigo-MusesC3 — Data Link

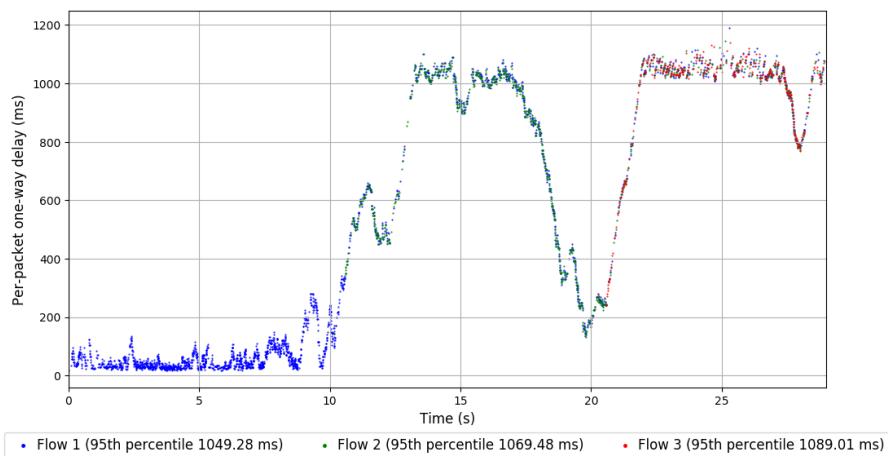
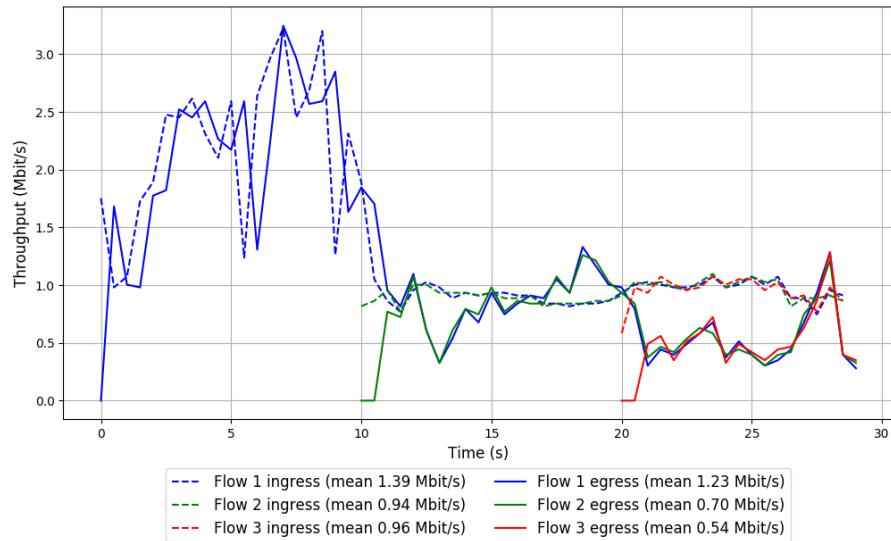


Run 2: Statistics of Indigo-MusesC3

```
Start at: 2019-01-17 10:49:06
End at: 2019-01-17 10:49:36
Local clock offset: 0.72 ms
Remote clock offset: -7.383 ms

# Below is generated by plot.py at 2019-01-17 11:37:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.84 Mbit/s
95th percentile per-packet one-way delay: 1063.653 ms
Loss rate: 19.92%
-- Flow 1:
Average throughput: 1.23 Mbit/s
95th percentile per-packet one-way delay: 1049.281 ms
Loss rate: 11.72%
-- Flow 2:
Average throughput: 0.70 Mbit/s
95th percentile per-packet one-way delay: 1069.482 ms
Loss rate: 26.01%
-- Flow 3:
Average throughput: 0.54 Mbit/s
95th percentile per-packet one-way delay: 1089.014 ms
Loss rate: 45.90%
```

Run 2: Report of Indigo-MusesC3 — Data Link

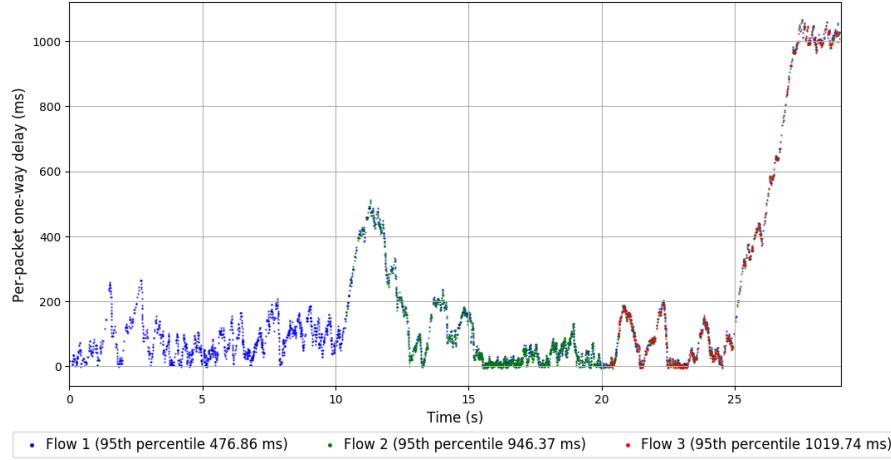
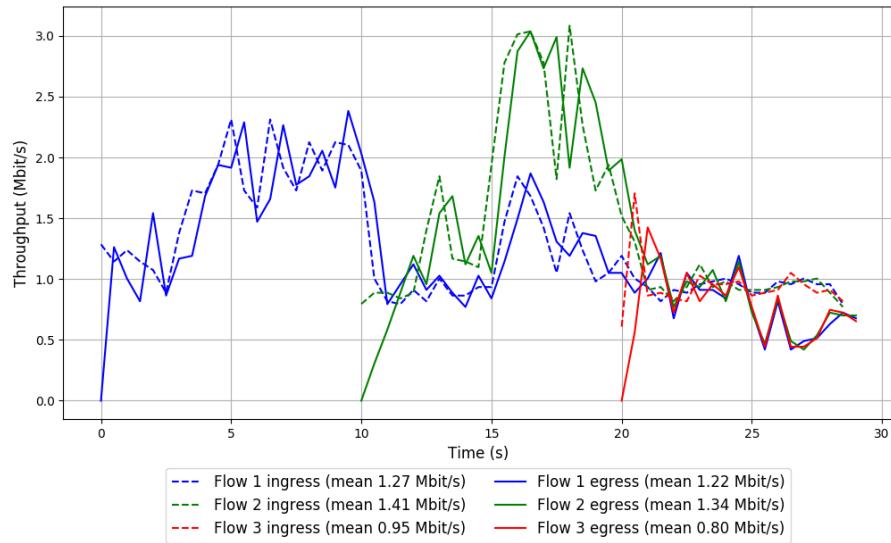


Run 3: Statistics of Indigo-MusesC3

```
Start at: 2019-01-17 11:13:35
End at: 2019-01-17 11:14:05
Local clock offset: -3.132 ms
Remote clock offset: -35.946 ms

# Below is generated by plot.py at 2019-01-17 11:37:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.34 Mbit/s
95th percentile per-packet one-way delay: 974.434 ms
Loss rate: 5.91%
-- Flow 1:
Average throughput: 1.22 Mbit/s
95th percentile per-packet one-way delay: 476.856 ms
Loss rate: 4.16%
-- Flow 2:
Average throughput: 1.34 Mbit/s
95th percentile per-packet one-way delay: 946.367 ms
Loss rate: 5.19%
-- Flow 3:
Average throughput: 0.80 Mbit/s
95th percentile per-packet one-way delay: 1019.739 ms
Loss rate: 15.72%
```

Run 3: Report of Indigo-MusesC3 — Data Link

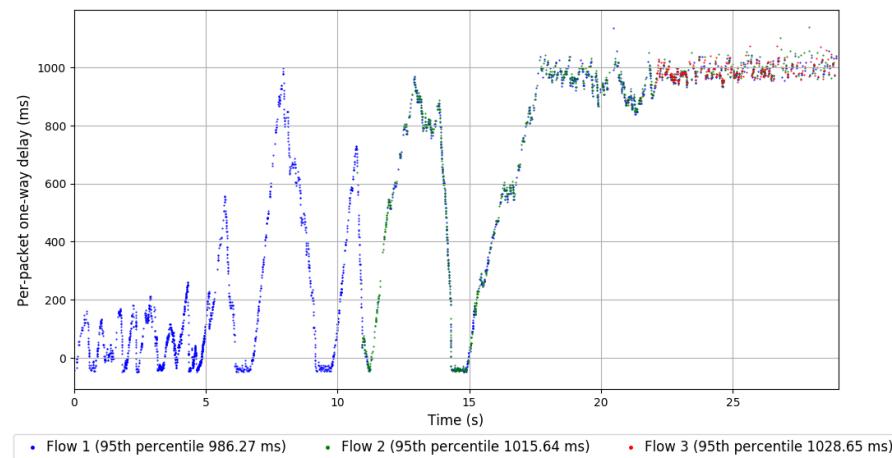
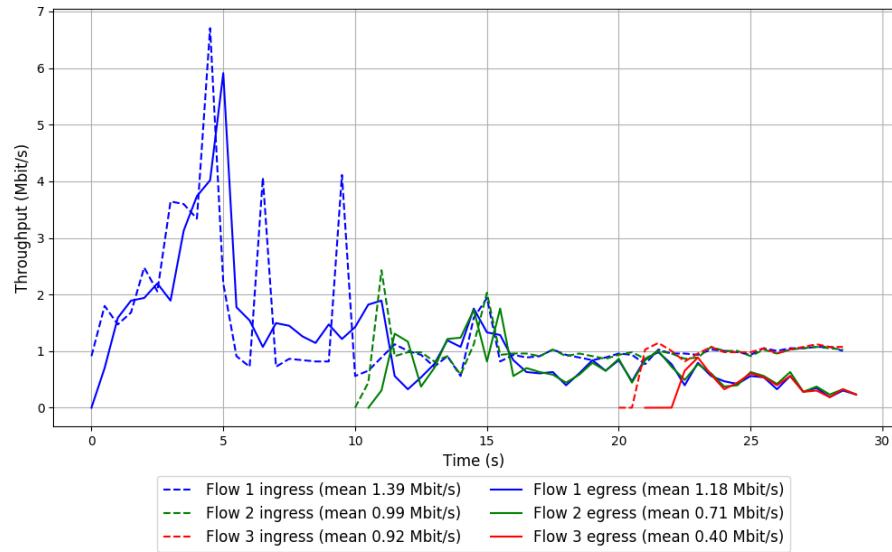


```
Run 1: Statistics of Indigo-MusesC5
```

```
Start at: 2019-01-17 10:38:37
End at: 2019-01-17 10:39:07
Local clock offset: -2.319 ms
Remote clock offset: -77.087 ms

# Below is generated by plot.py at 2019-01-17 11:37:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.74 Mbit/s
95th percentile per-packet one-way delay: 1005.791 ms
Loss rate: 25.07%
-- Flow 1:
Average throughput: 1.18 Mbit/s
95th percentile per-packet one-way delay: 986.268 ms
Loss rate: 14.96%
-- Flow 2:
Average throughput: 0.71 Mbit/s
95th percentile per-packet one-way delay: 1015.641 ms
Loss rate: 31.02%
-- Flow 3:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 1028.654 ms
Loss rate: 61.27%
```

Run 1: Report of Indigo-MusesC5 — Data Link

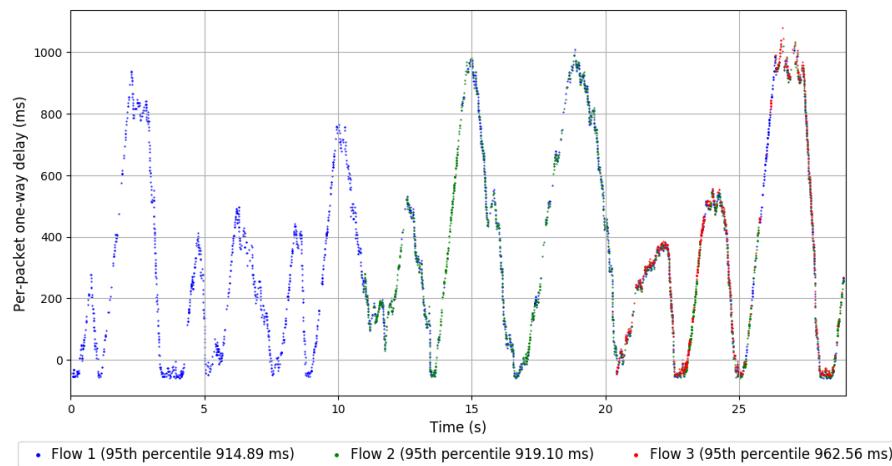
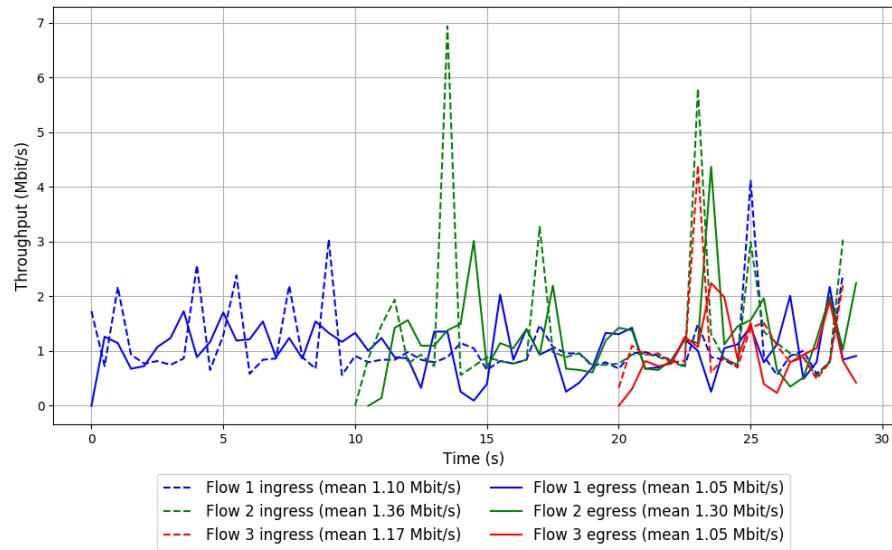


Run 2: Statistics of Indigo-MusesC5

```
Start at: 2019-01-17 11:03:09
End at: 2019-01-17 11:03:39
Local clock offset: -0.751 ms
Remote clock offset: -86.662 ms

# Below is generated by plot.py at 2019-01-17 11:37:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.19 Mbit/s
95th percentile per-packet one-way delay: 925.738 ms
Loss rate: 6.88%
-- Flow 1:
Average throughput: 1.05 Mbit/s
95th percentile per-packet one-way delay: 914.893 ms
Loss rate: 4.62%
-- Flow 2:
Average throughput: 1.30 Mbit/s
95th percentile per-packet one-way delay: 919.101 ms
Loss rate: 7.37%
-- Flow 3:
Average throughput: 1.05 Mbit/s
95th percentile per-packet one-way delay: 962.559 ms
Loss rate: 12.61%
```

Run 2: Report of Indigo-MusesC5 — Data Link

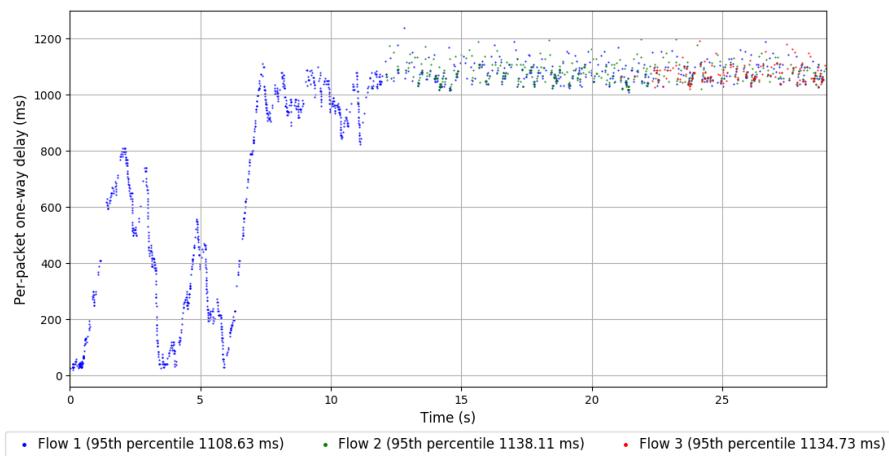
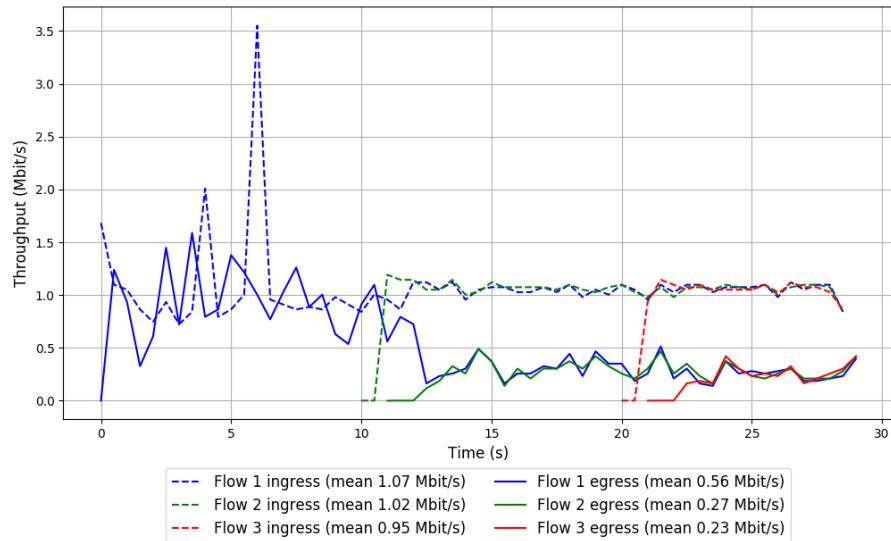


Run 3: Statistics of Indigo-MusesC5

```
Start at: 2019-01-17 11:27:31
End at: 2019-01-17 11:28:01
Local clock offset: -1.614 ms
Remote clock offset: -6.569 ms

# Below is generated by plot.py at 2019-01-17 11:37:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.78 Mbit/s
95th percentile per-packet one-way delay: 1118.538 ms
Loss rate: 61.28%
-- Flow 1:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 1108.634 ms
Loss rate: 48.34%
-- Flow 2:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 1138.107 ms
Loss rate: 74.73%
-- Flow 3:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 1134.730 ms
Loss rate: 78.29%
```

Run 3: Report of Indigo-MusesC5 — Data Link

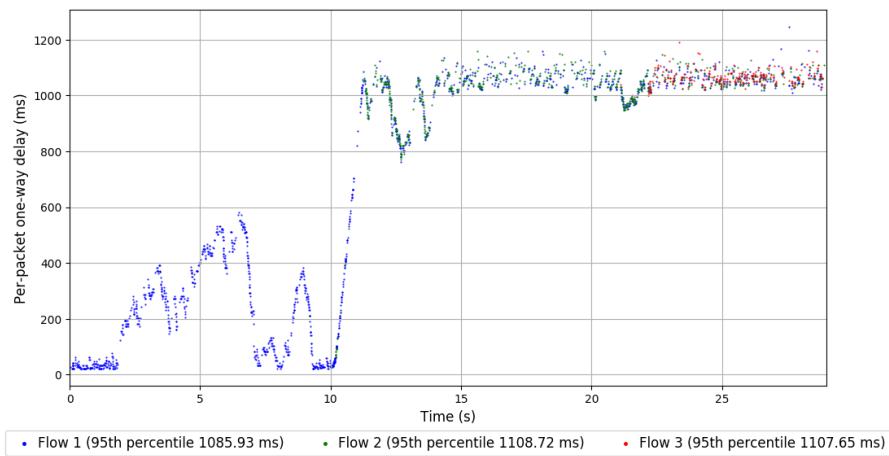
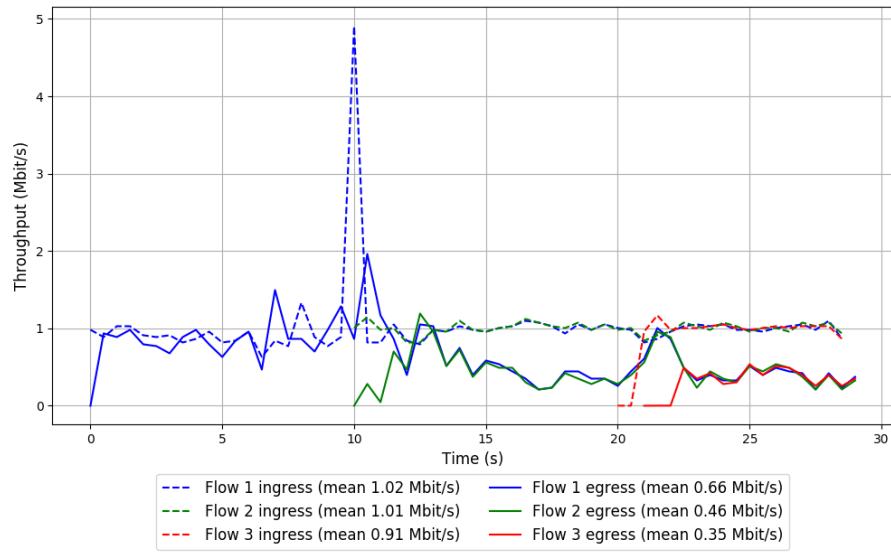


Run 1: Statistics of Indigo-MusesD

```
Start at: 2019-01-17 10:25:43
End at: 2019-01-17 10:26:13
Local clock offset: -1.081 ms
Remote clock offset: -8.986 ms

# Below is generated by plot.py at 2019-01-17 11:37:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.06 Mbit/s
95th percentile per-packet one-way delay: 1096.318 ms
Loss rate: 46.09%
-- Flow 1:
Average throughput: 0.66 Mbit/s
95th percentile per-packet one-way delay: 1085.928 ms
Loss rate: 35.24%
-- Flow 2:
Average throughput: 0.46 Mbit/s
95th percentile per-packet one-way delay: 1108.724 ms
Loss rate: 54.36%
-- Flow 3:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 1107.646 ms
Loss rate: 66.32%
```

Run 1: Report of Indigo-MusesD — Data Link

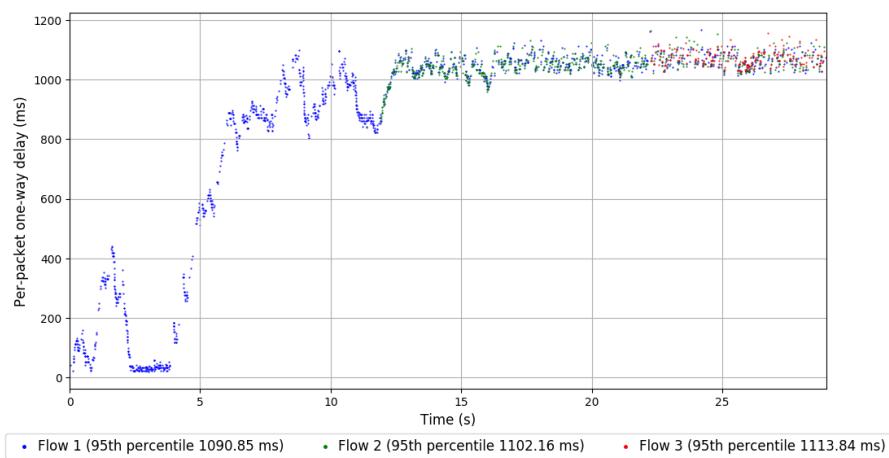
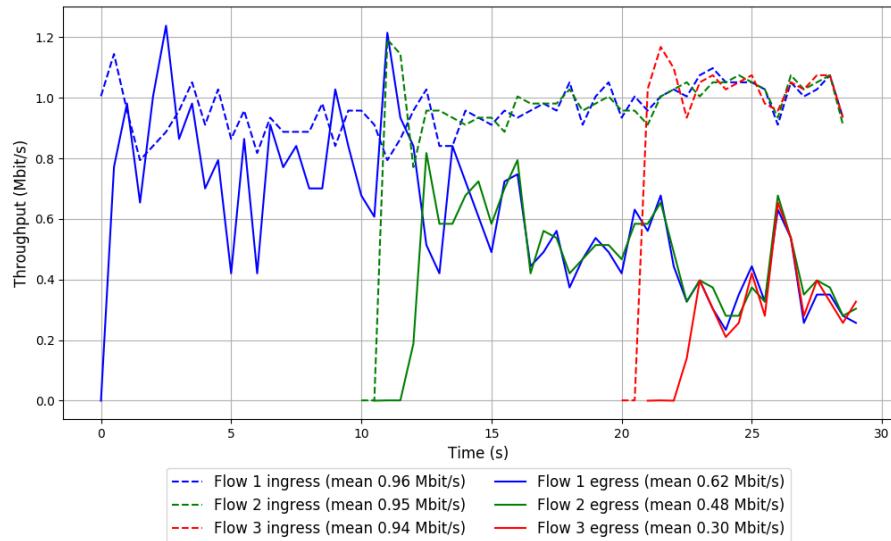


Run 2: Statistics of Indigo-MusesD

```
Start at: 2019-01-17 10:50:17
End at: 2019-01-17 10:50:47
Local clock offset: 1.052 ms
Remote clock offset: -6.834 ms

# Below is generated by plot.py at 2019-01-17 11:37:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.00 Mbit/s
95th percentile per-packet one-way delay: 1097.288 ms
Loss rate: 46.42%
-- Flow 1:
Average throughput: 0.62 Mbit/s
95th percentile per-packet one-way delay: 1090.845 ms
Loss rate: 35.40%
-- Flow 2:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 1102.163 ms
Loss rate: 52.08%
-- Flow 3:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 1113.841 ms
Loss rate: 71.17%
```

Run 2: Report of Indigo-MusesD — Data Link

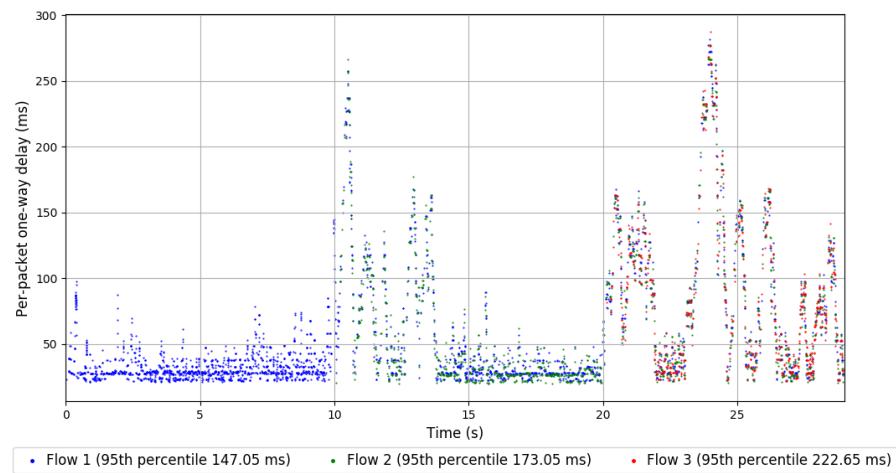
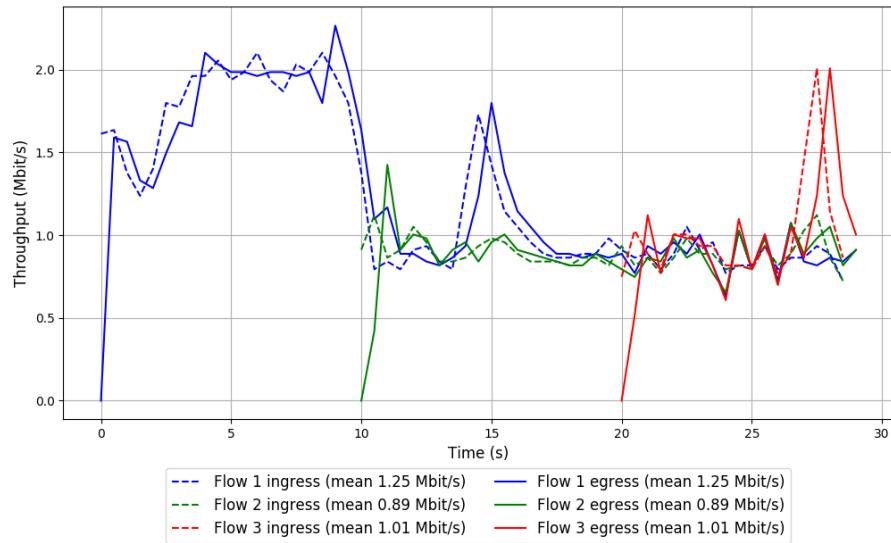


Run 3: Statistics of Indigo-MusesD

```
Start at: 2019-01-17 11:14:44
End at: 2019-01-17 11:15:14
Local clock offset: 0.608 ms
Remote clock offset: -7.107 ms

# Below is generated by plot.py at 2019-01-17 11:37:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.14 Mbit/s
95th percentile per-packet one-way delay: 161.818 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 147.049 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 0.89 Mbit/s
95th percentile per-packet one-way delay: 173.049 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 1.01 Mbit/s
95th percentile per-packet one-way delay: 222.653 ms
Loss rate: 0.13%
```

Run 3: Report of Indigo-MusesD — Data Link

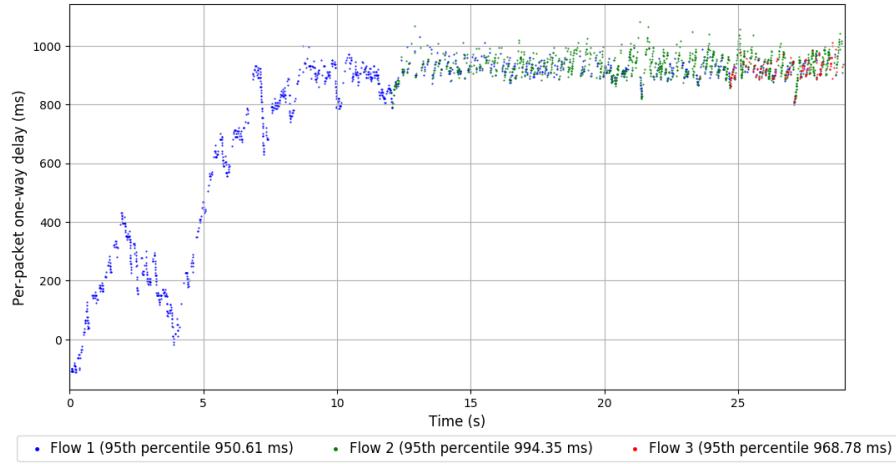
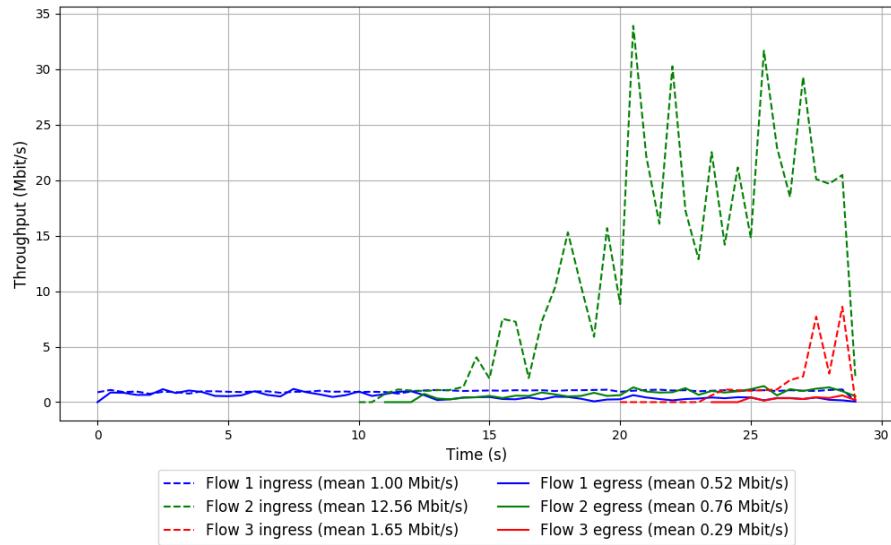


Run 1: Statistics of Indigo-MusesT

```
Start at: 2019-01-17 10:30:21
End at: 2019-01-17 10:30:51
Local clock offset: 1.659 ms
Remote clock offset: -143.006 ms

# Below is generated by plot.py at 2019-01-17 11:37:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.04 Mbit/s
95th percentile per-packet one-way delay: 980.780 ms
Loss rate: 89.24%
-- Flow 1:
Average throughput: 0.52 Mbit/s
95th percentile per-packet one-way delay: 950.611 ms
Loss rate: 48.10%
-- Flow 2:
Average throughput: 0.76 Mbit/s
95th percentile per-packet one-way delay: 994.349 ms
Loss rate: 94.26%
-- Flow 3:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 968.781 ms
Loss rate: 89.24%
```

Run 1: Report of Indigo-MusesT — Data Link

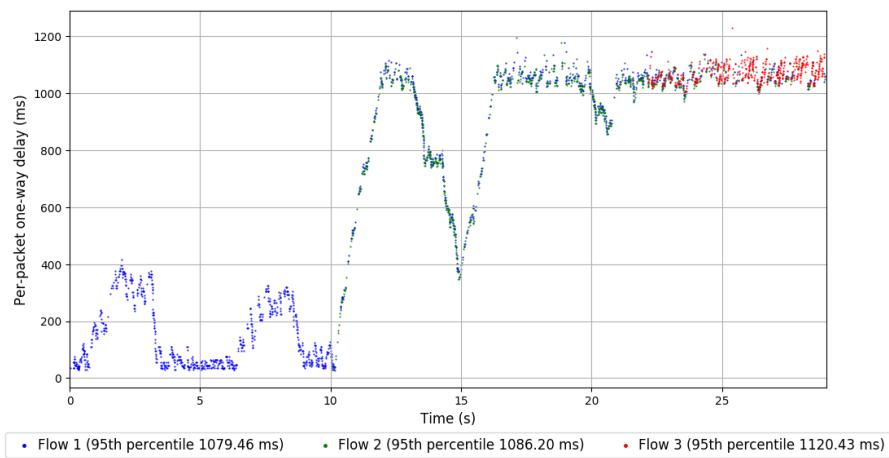
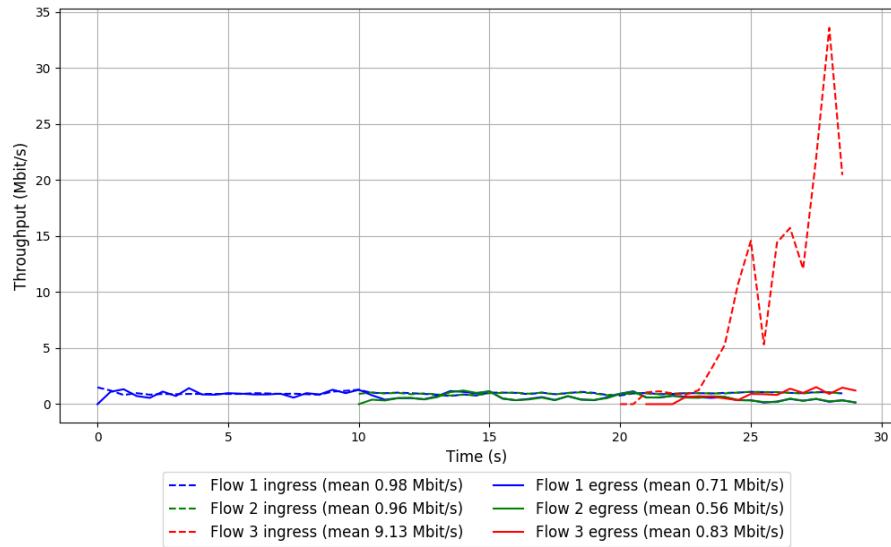


Run 2: Statistics of Indigo-MusesT

```
Start at: 2019-01-17 10:54:57
End at: 2019-01-17 10:55:27
Local clock offset: -0.887 ms
Remote clock offset: -6.395 ms

# Below is generated by plot.py at 2019-01-17 11:37:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.30 Mbit/s
95th percentile per-packet one-way delay: 1101.663 ms
Loss rate: 70.63%
-- Flow 1:
Average throughput: 0.71 Mbit/s
95th percentile per-packet one-way delay: 1079.456 ms
Loss rate: 27.55%
-- Flow 2:
Average throughput: 0.56 Mbit/s
95th percentile per-packet one-way delay: 1086.198 ms
Loss rate: 42.12%
-- Flow 3:
Average throughput: 0.83 Mbit/s
95th percentile per-packet one-way delay: 1120.434 ms
Loss rate: 92.00%
```

Run 2: Report of Indigo-MusesT — Data Link

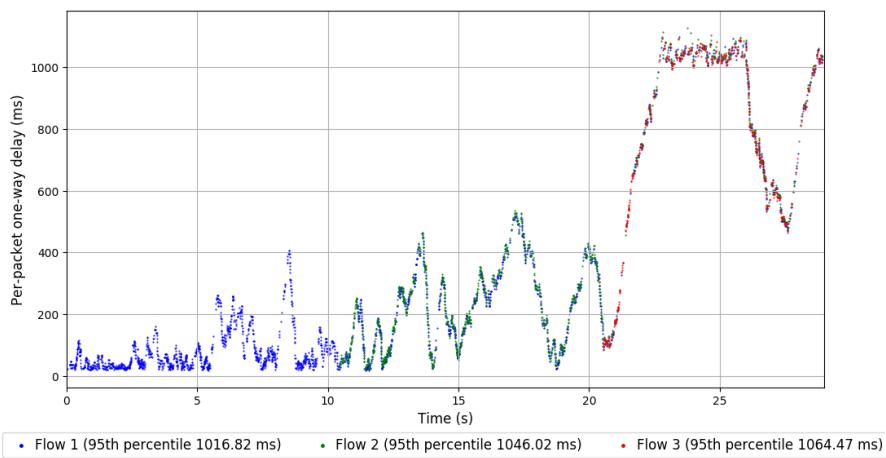
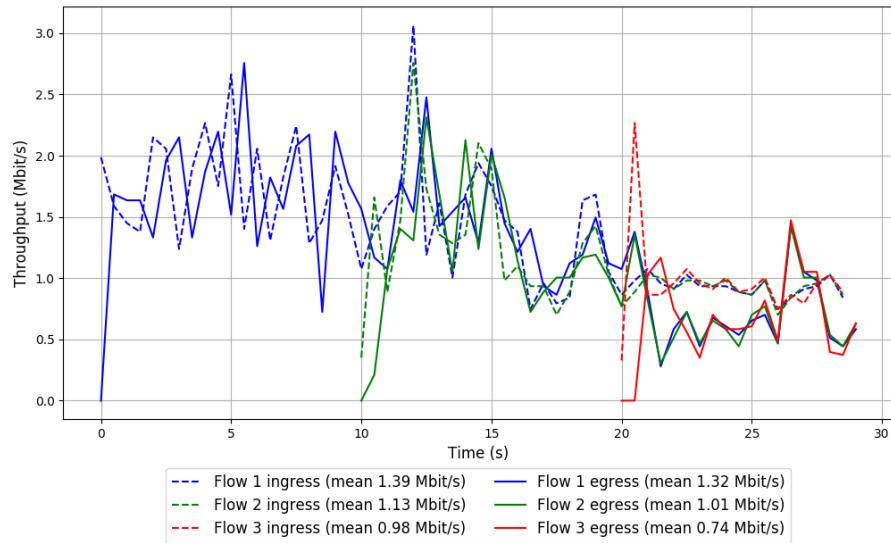


Run 3: Statistics of Indigo-MusesT

```
Start at: 2019-01-17 11:19:22
End at: 2019-01-17 11:19:52
Local clock offset: 1.354 ms
Remote clock offset: -7.274 ms

# Below is generated by plot.py at 2019-01-17 11:37:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.19 Mbit/s
95th percentile per-packet one-way delay: 1040.564 ms
Loss rate: 10.05%
-- Flow 1:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 1016.821 ms
Loss rate: 5.71%
-- Flow 2:
Average throughput: 1.01 Mbit/s
95th percentile per-packet one-way delay: 1046.024 ms
Loss rate: 11.34%
-- Flow 3:
Average throughput: 0.74 Mbit/s
95th percentile per-packet one-way delay: 1064.470 ms
Loss rate: 27.12%
```

Run 3: Report of Indigo-MusesT — Data Link

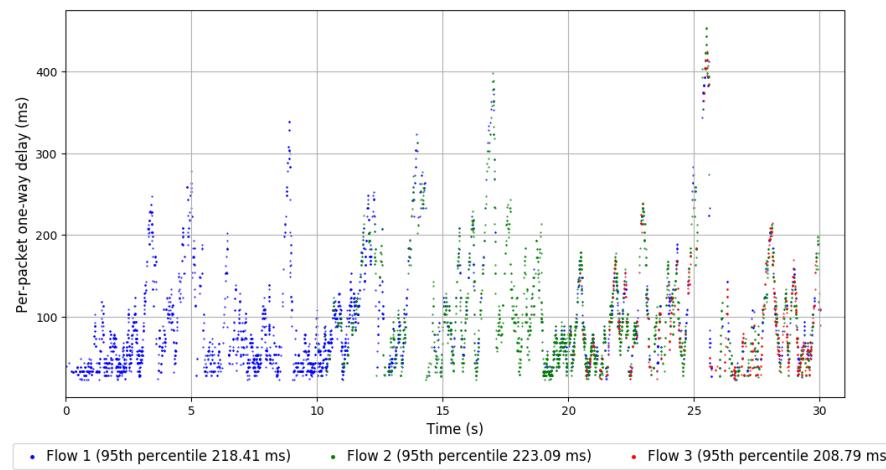
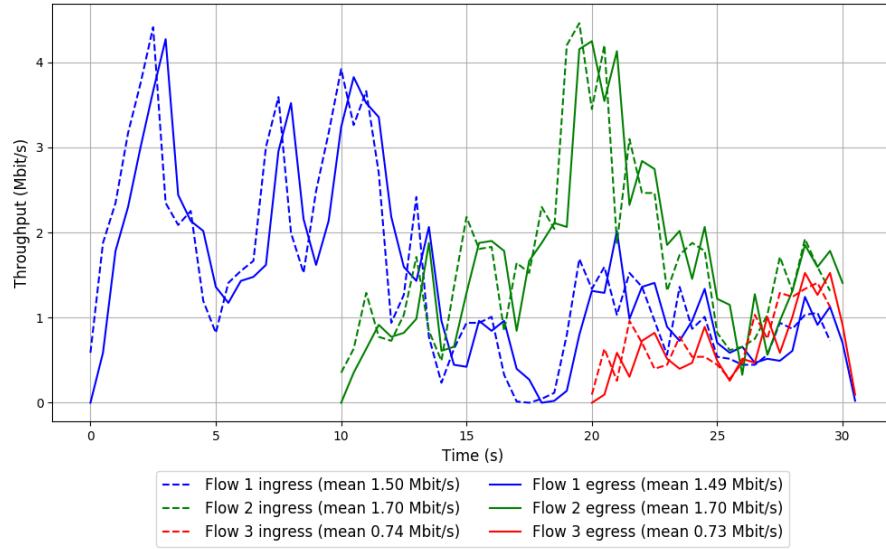


Run 1: Statistics of LEDBAT

```
Start at: 2019-01-17 10:43:18
End at: 2019-01-17 10:43:48
Local clock offset: -1.954 ms
Remote clock offset: -7.256 ms

# Below is generated by plot.py at 2019-01-17 11:37:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.86 Mbit/s
95th percentile per-packet one-way delay: 218.514 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 1.49 Mbit/s
95th percentile per-packet one-way delay: 218.411 ms
Loss rate: 0.26%
-- Flow 2:
Average throughput: 1.70 Mbit/s
95th percentile per-packet one-way delay: 223.093 ms
Loss rate: 0.28%
-- Flow 3:
Average throughput: 0.73 Mbit/s
95th percentile per-packet one-way delay: 208.791 ms
Loss rate: 1.75%
```

Run 1: Report of LEDBAT — Data Link

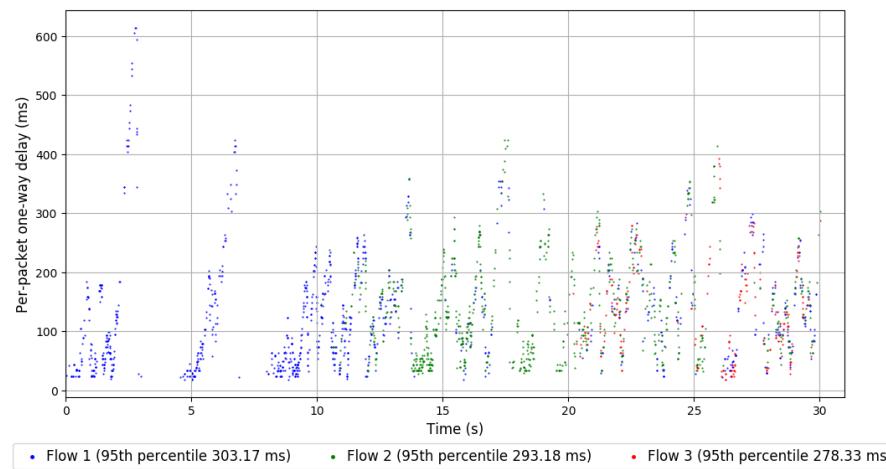
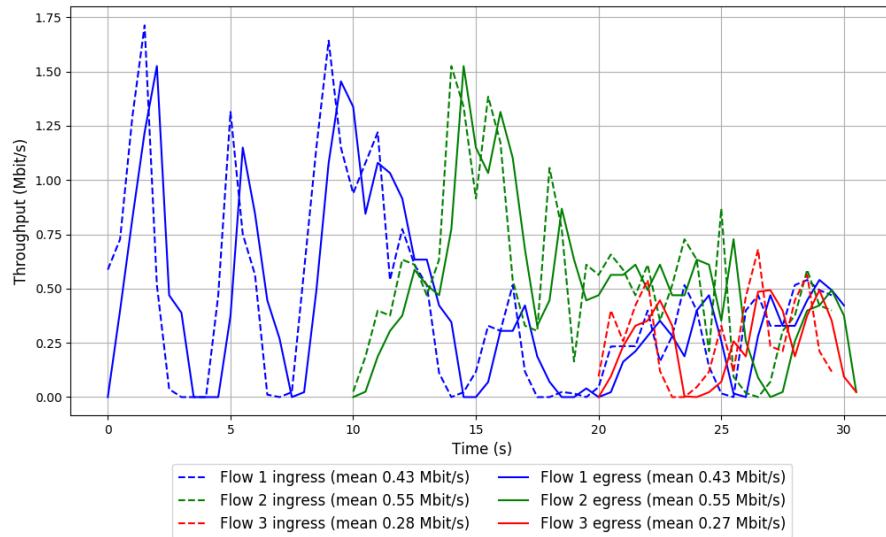


Run 2: Statistics of LEDBAT

```
Start at: 2019-01-17 11:07:46
End at: 2019-01-17 11:08:16
Local clock offset: 2.376 ms
Remote clock offset: -6.696 ms

# Below is generated by plot.py at 2019-01-17 11:37:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.87 Mbit/s
95th percentile per-packet one-way delay: 293.456 ms
Loss rate: 1.50%
-- Flow 1:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 303.174 ms
Loss rate: 1.63%
-- Flow 2:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 293.179 ms
Loss rate: 1.07%
-- Flow 3:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 278.331 ms
Loss rate: 2.62%
```

Run 2: Report of LEDBAT — Data Link

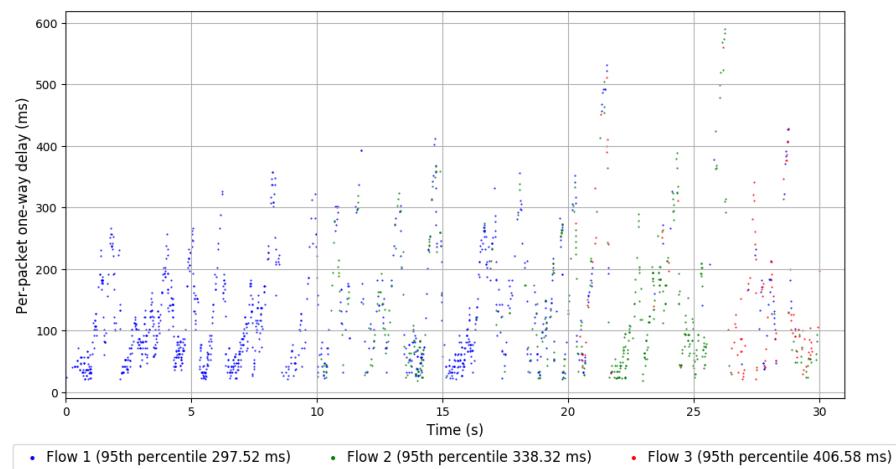
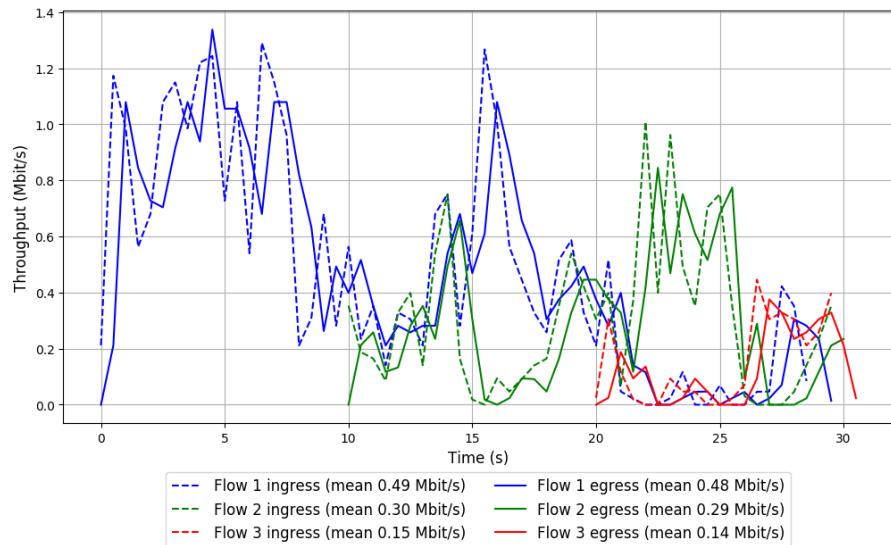


Run 3: Statistics of LEDBAT

```
Start at: 2019-01-17 11:32:09
End at: 2019-01-17 11:32:39
Local clock offset: 1.93 ms
Remote clock offset: -6.208 ms

# Below is generated by plot.py at 2019-01-17 11:37:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.71 Mbit/s
95th percentile per-packet one-way delay: 321.533 ms
Loss rate: 2.06%
-- Flow 1:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 297.521 ms
Loss rate: 0.91%
-- Flow 2:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 338.317 ms
Loss rate: 3.34%
-- Flow 3:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 406.582 ms
Loss rate: 7.83%
```

Run 3: Report of LEDBAT — Data Link

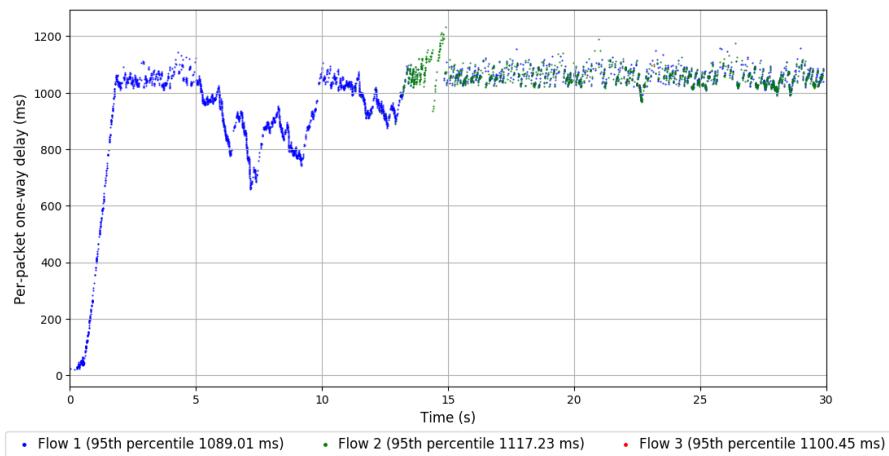
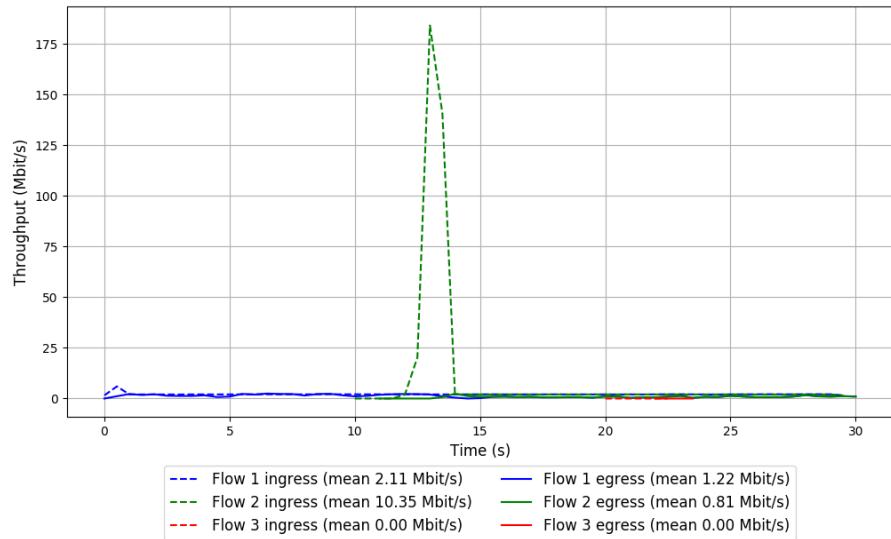


```
Run 1: Statistics of PCC-Allegro
```

```
Start at: 2019-01-17 10:40:58
End at: 2019-01-17 10:41:28
Local clock offset: -1.375 ms
Remote clock offset: -7.812 ms

# Below is generated by plot.py at 2019-01-17 11:37:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.73 Mbit/s
95th percentile per-packet one-way delay: 1098.580 ms
Loss rate: 80.75%
-- Flow 1:
Average throughput: 1.22 Mbit/s
95th percentile per-packet one-way delay: 1089.011 ms
Loss rate: 42.18%
-- Flow 2:
Average throughput: 0.81 Mbit/s
95th percentile per-packet one-way delay: 1117.229 ms
Loss rate: 92.61%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 1100.451 ms
Loss rate: 76.92%
```

Run 1: Report of PCC-Allegro — Data Link

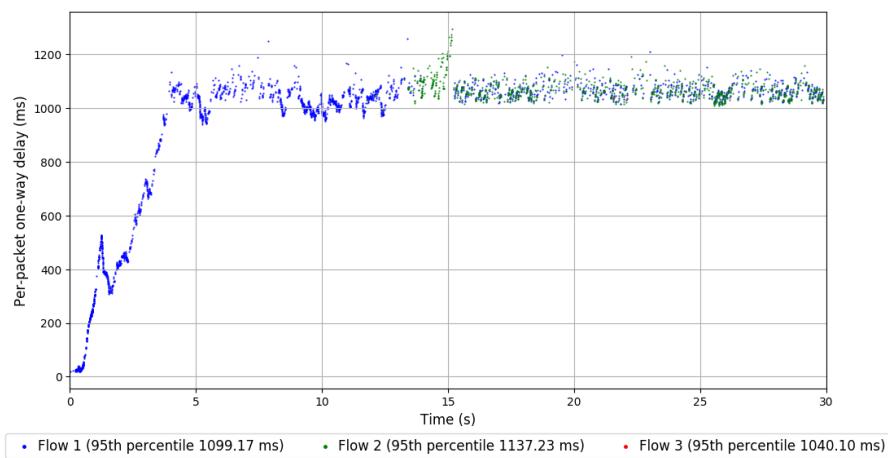
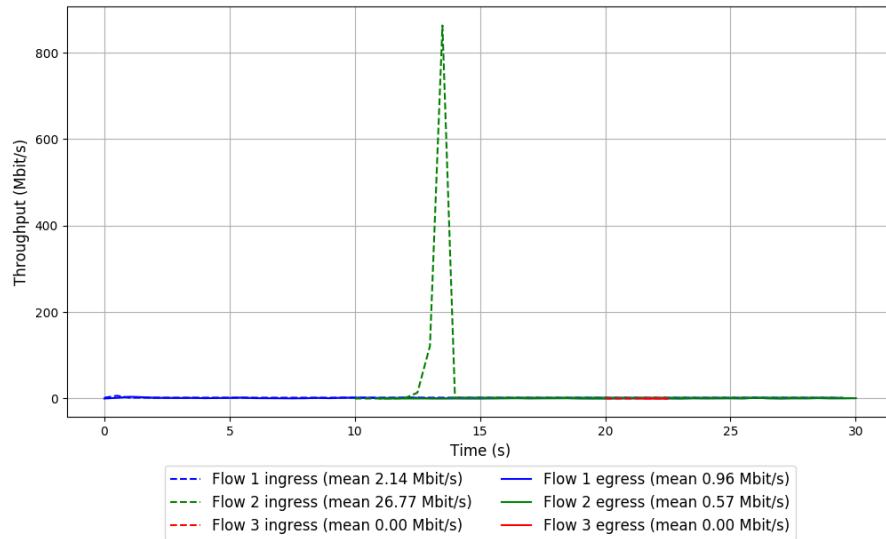


Run 2: Statistics of PCC-Allegro

```
Start at: 2019-01-17 11:05:27
End at: 2019-01-17 11:05:57
Local clock offset: 1.317 ms
Remote clock offset: -6.211 ms

# Below is generated by plot.py at 2019-01-17 11:38:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.32 Mbit/s
95th percentile per-packet one-way delay: 1109.340 ms
Loss rate: 93.41%
-- Flow 1:
Average throughput: 0.96 Mbit/s
95th percentile per-packet one-way delay: 1099.170 ms
Loss rate: 55.18%
-- Flow 2:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 1137.234 ms
Loss rate: 98.00%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 1040.096 ms
Loss rate: 85.71%
```

Run 2: Report of PCC-Allegro — Data Link

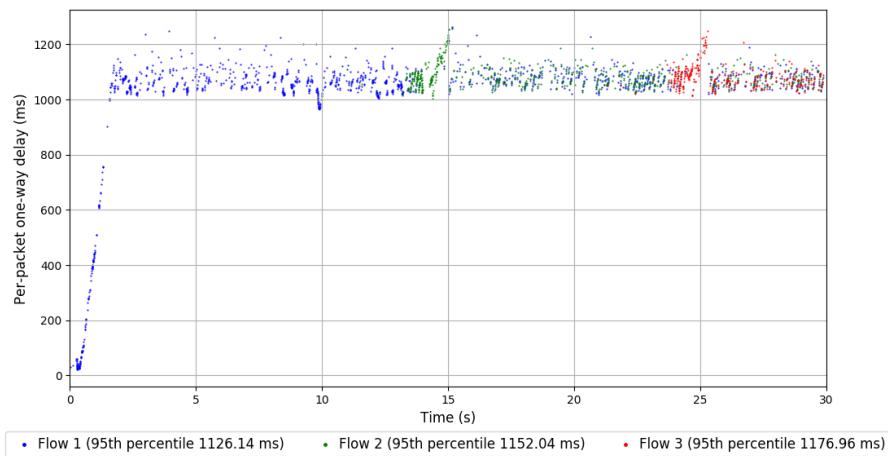
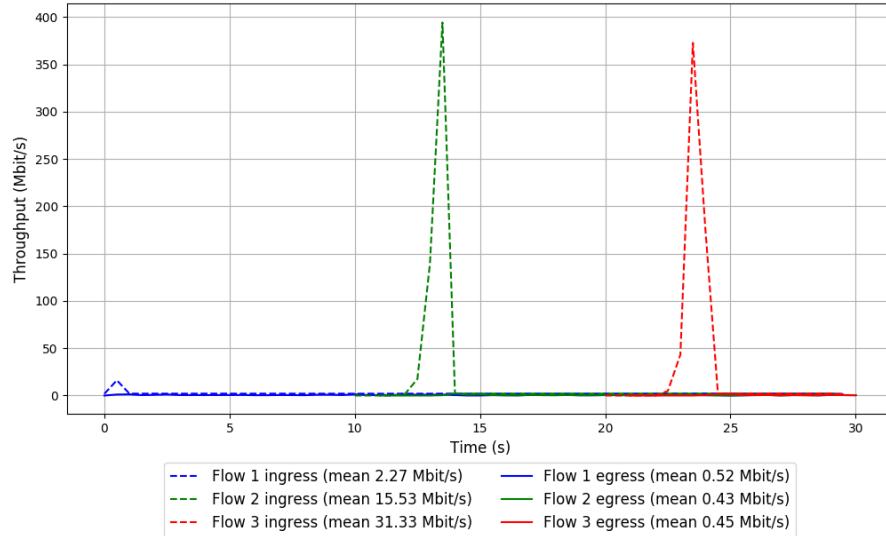


Run 3: Statistics of PCC-Allegro

```
Start at: 2019-01-17 11:29:49
End at: 2019-01-17 11:30:19
Local clock offset: -1.252 ms
Remote clock offset: -6.6 ms

# Below is generated by plot.py at 2019-01-17 11:38:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.92 Mbit/s
95th percentile per-packet one-way delay: 1141.126 ms
Loss rate: 95.98%
-- Flow 1:
Average throughput: 0.52 Mbit/s
95th percentile per-packet one-way delay: 1126.139 ms
Loss rate: 77.03%
-- Flow 2:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 1152.043 ms
Loss rate: 97.38%
-- Flow 3:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 1176.964 ms
Loss rate: 98.74%
```

Run 3: Report of PCC-Allegro — Data Link

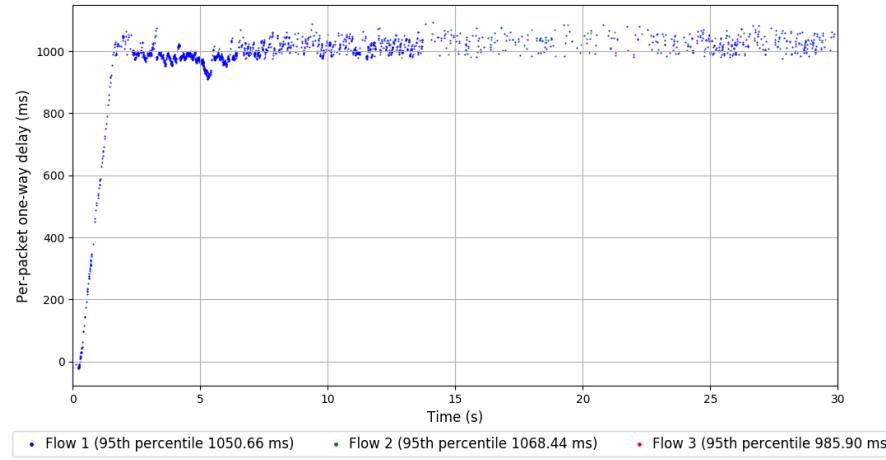
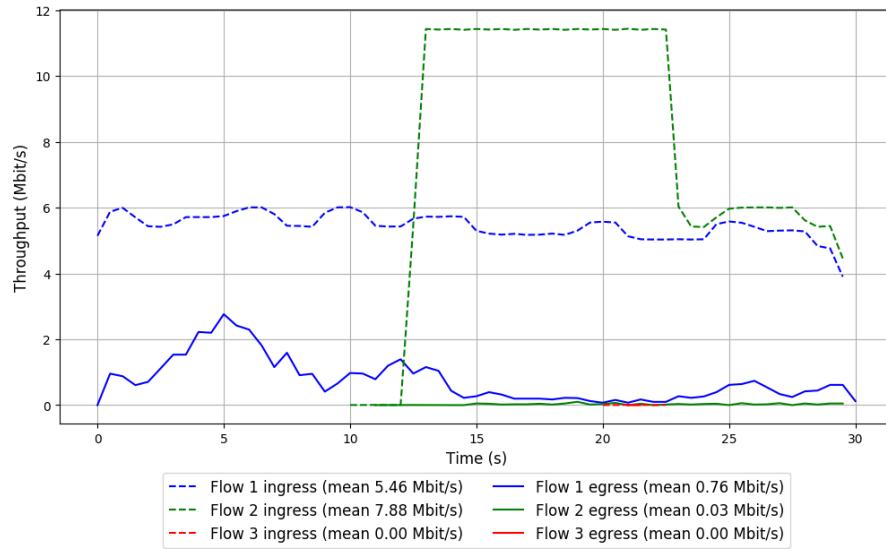


```
Run 1: Statistics of PCC-Expr
```

```
Start at: 2019-01-17 10:32:44
End at: 2019-01-17 10:33:14
Local clock offset: -0.083 ms
Remote clock offset: -55.229 ms

# Below is generated by plot.py at 2019-01-17 11:38:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.78 Mbit/s
95th percentile per-packet one-way delay: 1051.495 ms
Loss rate: 92.76%
-- Flow 1:
Average throughput: 0.76 Mbit/s
95th percentile per-packet one-way delay: 1050.660 ms
Loss rate: 86.12%
-- Flow 2:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 1068.444 ms
Loss rate: 99.68%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 985.905 ms
Loss rate: 92.31%
```

Run 1: Report of PCC-Expr — Data Link

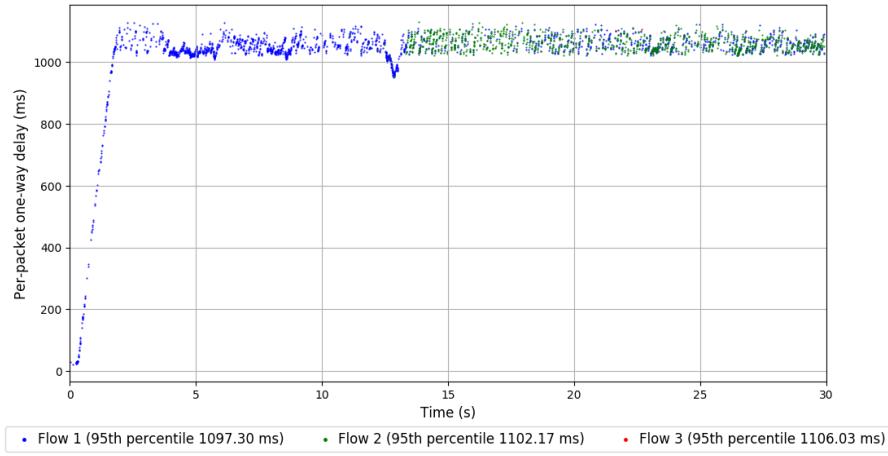
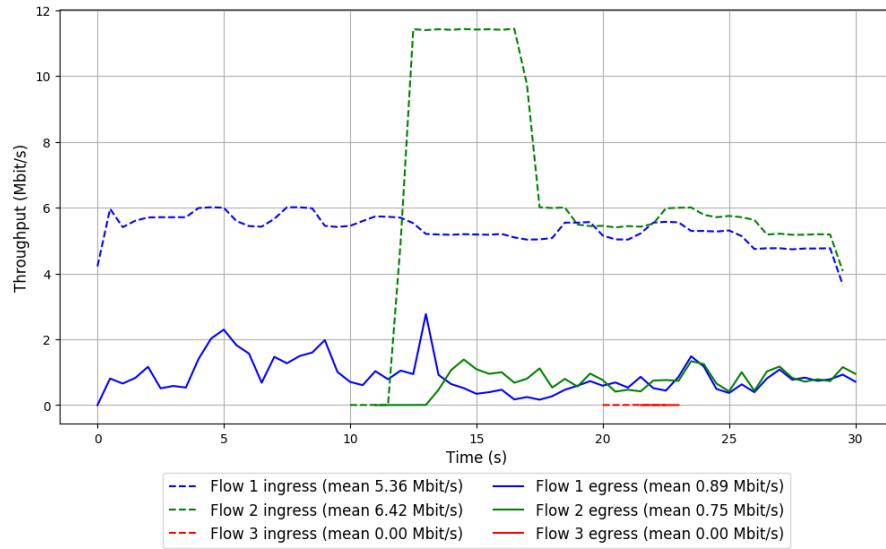


Run 2: Statistics of PCC-Expr

```
Start at: 2019-01-17 10:57:17
End at: 2019-01-17 10:57:47
Local clock offset: -0.683 ms
Remote clock offset: -6.119 ms

# Below is generated by plot.py at 2019-01-17 11:38:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.36 Mbit/s
95th percentile per-packet one-way delay: 1099.452 ms
Loss rate: 85.87%
-- Flow 1:
Average throughput: 0.89 Mbit/s
95th percentile per-packet one-way delay: 1097.304 ms
Loss rate: 83.40%
-- Flow 2:
Average throughput: 0.75 Mbit/s
95th percentile per-packet one-way delay: 1102.170 ms
Loss rate: 88.97%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 1106.031 ms
Loss rate: 85.71%
```

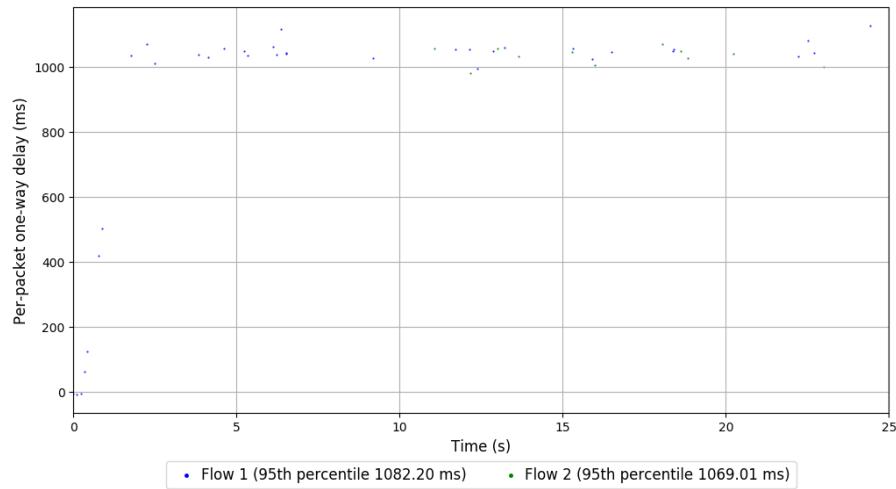
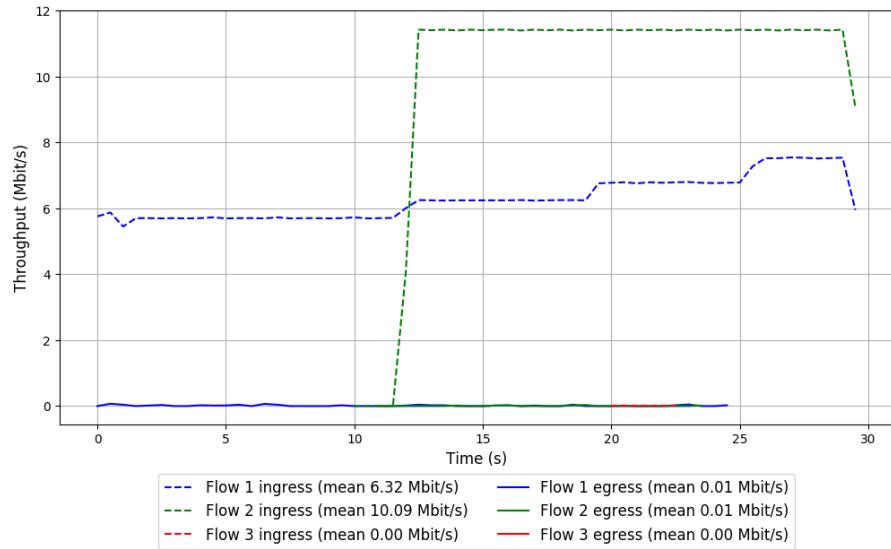
Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2019-01-17 11:21:42
End at: 2019-01-17 11:22:12
Local clock offset: -1.1 ms
Remote clock offset: -47.857 ms

Run 3: Report of PCC-Expr — Data Link

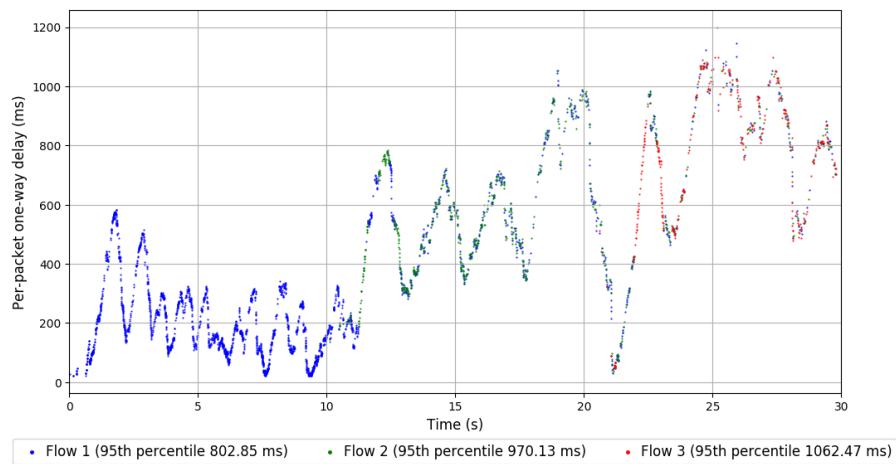
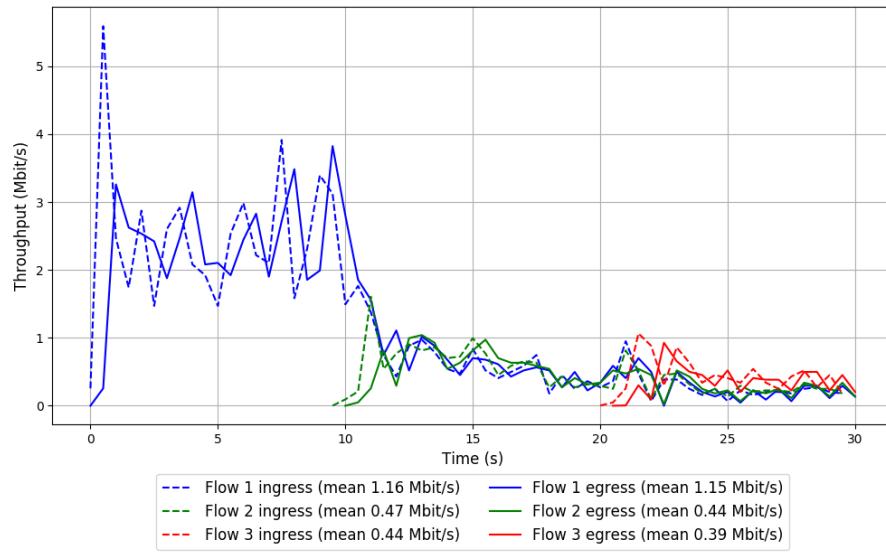


Run 1: Statistics of QUIC Cubic

```
Start at: 2019-01-17 10:44:29
End at: 2019-01-17 10:44:59
Local clock offset: -0.676 ms
Remote clock offset: -7.623 ms

# Below is generated by plot.py at 2019-01-17 11:38:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.56 Mbit/s
95th percentile per-packet one-way delay: 937.868 ms
Loss rate: 3.80%
-- Flow 1:
Average throughput: 1.15 Mbit/s
95th percentile per-packet one-way delay: 802.846 ms
Loss rate: 1.83%
-- Flow 2:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 970.126 ms
Loss rate: 5.73%
-- Flow 3:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 1062.470 ms
Loss rate: 15.58%
```

Run 1: Report of QUIC Cubic — Data Link

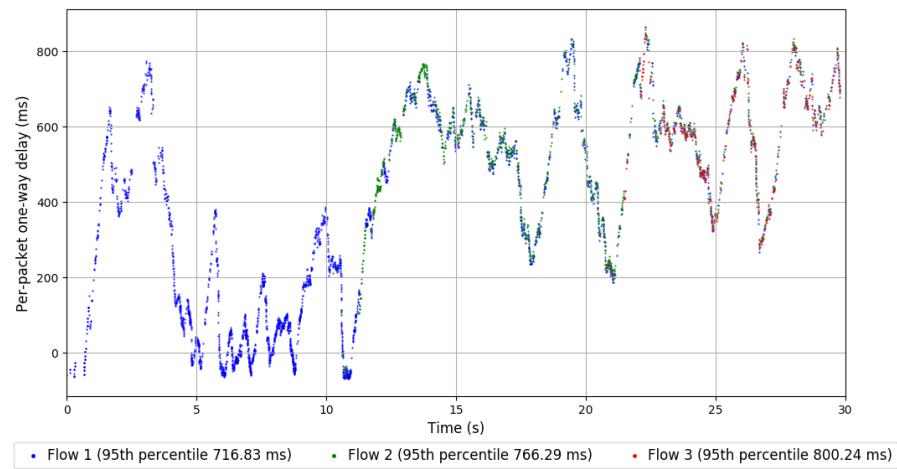
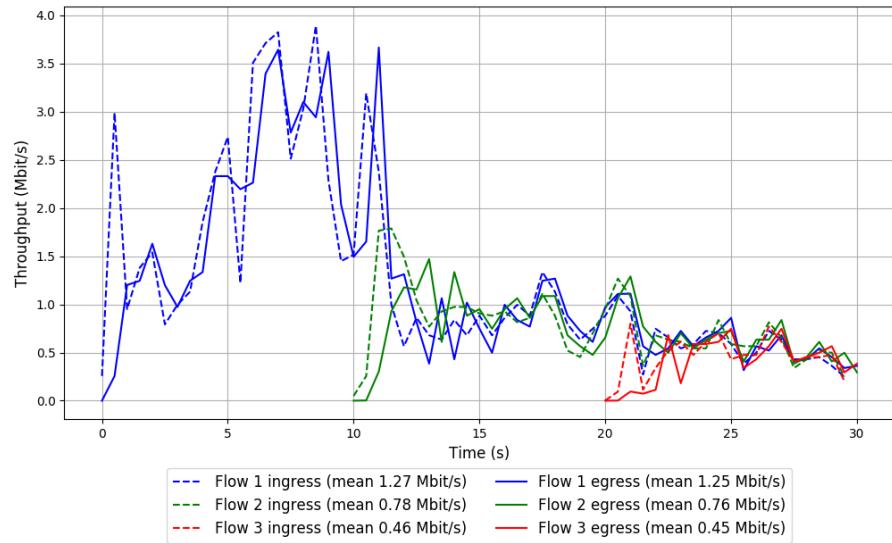


Run 2: Statistics of QUIC Cubic

```
Start at: 2019-01-17 11:08:56
End at: 2019-01-17 11:09:26
Local clock offset: 2.974 ms
Remote clock offset: -92.013 ms

# Below is generated by plot.py at 2019-01-17 11:38:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 748.454 ms
Loss rate: 2.67%
-- Flow 1:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 716.833 ms
Loss rate: 1.68%
-- Flow 2:
Average throughput: 0.76 Mbit/s
95th percentile per-packet one-way delay: 766.286 ms
Loss rate: 3.74%
-- Flow 3:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 800.244 ms
Loss rate: 7.27%
```

Run 2: Report of QUIC Cubic — Data Link

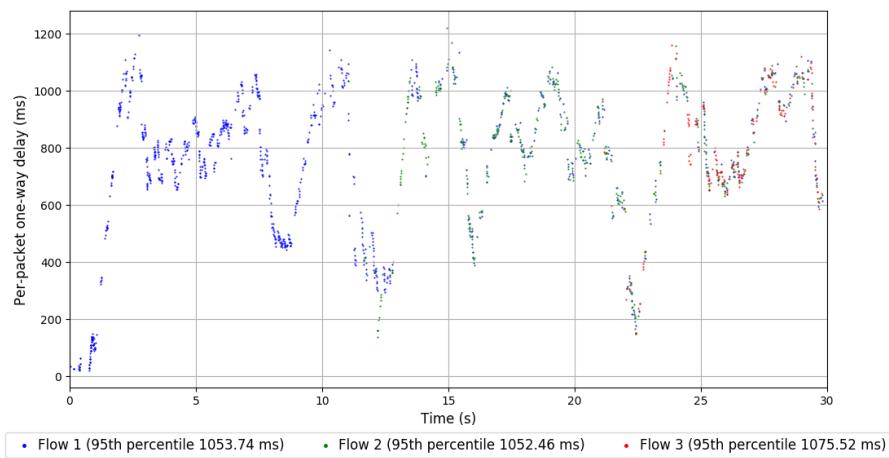
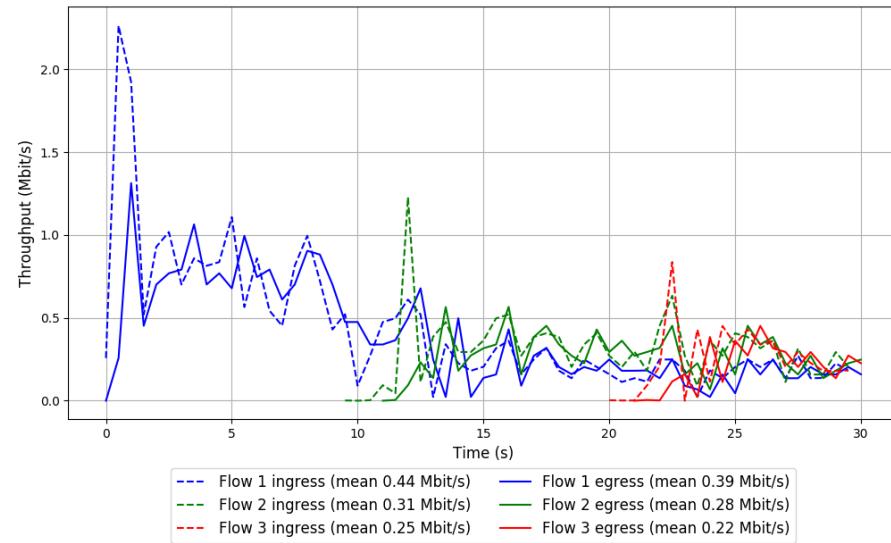


Run 3: Statistics of QUIC Cubic

```
Start at: 2019-01-17 11:33:18
End at: 2019-01-17 11:38:06
Local clock offset: 2.011 ms
Remote clock offset: -5.907 ms

# Below is generated by plot.py at 2019-01-17 11:38:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.63 Mbit/s
95th percentile per-packet one-way delay: 1057.364 ms
Loss rate: 13.64%
-- Flow 1:
Average throughput: 0.39 Mbit/s
95th percentile per-packet one-way delay: 1053.740 ms
Loss rate: 11.27%
-- Flow 2:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 1052.457 ms
Loss rate: 15.61%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1075.522 ms
Loss rate: 21.36%
```

Run 3: Report of QUIC Cubic — Data Link

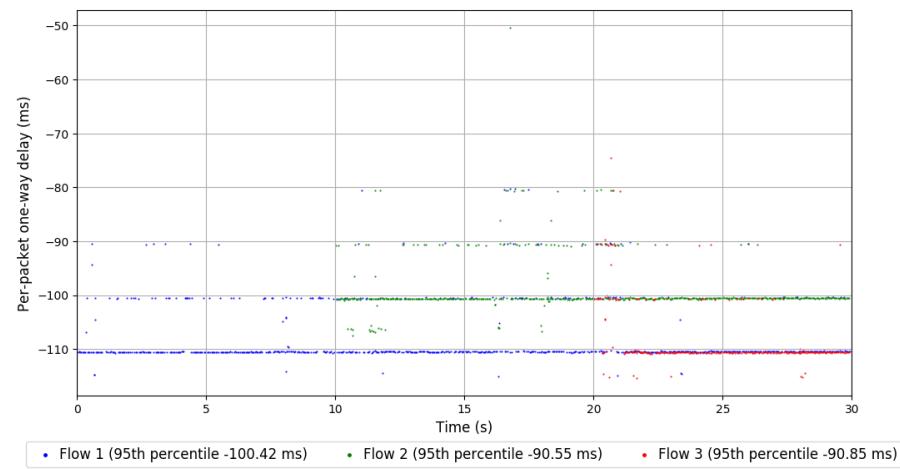
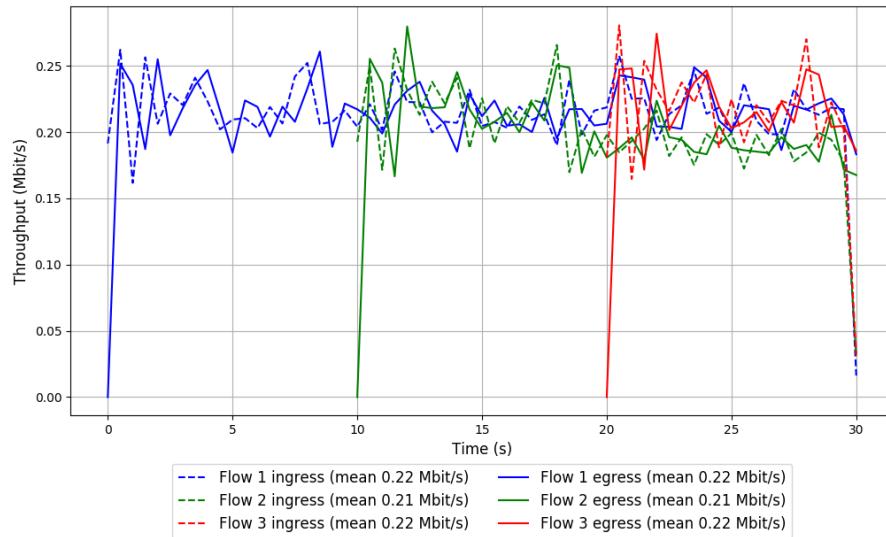


```
Run 1: Statistics of SCReAM

Start at: 2019-01-17 10:42:09
End at: 2019-01-17 10:42:39
Local clock offset: -2.299 ms
Remote clock offset: -146.614 ms

# Below is generated by plot.py at 2019-01-17 11:38:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: -90.646 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: -100.425 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: -90.551 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: -90.851 ms
Loss rate: 0.36%
```

Run 1: Report of SCReAM — Data Link

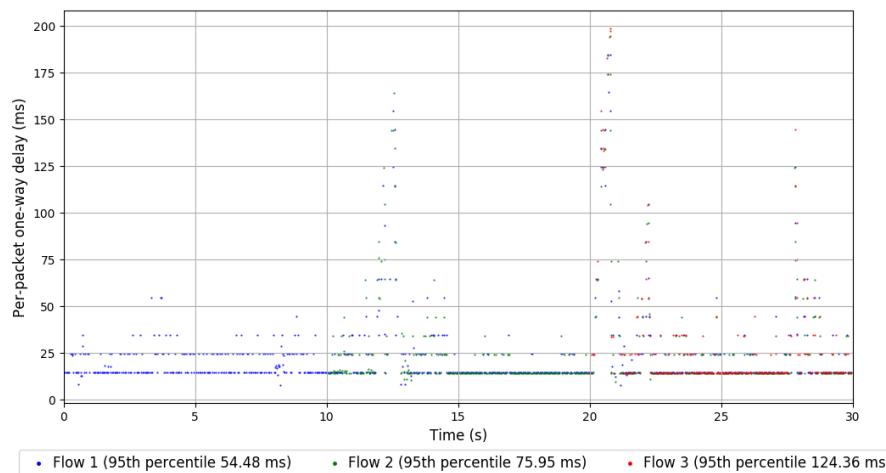
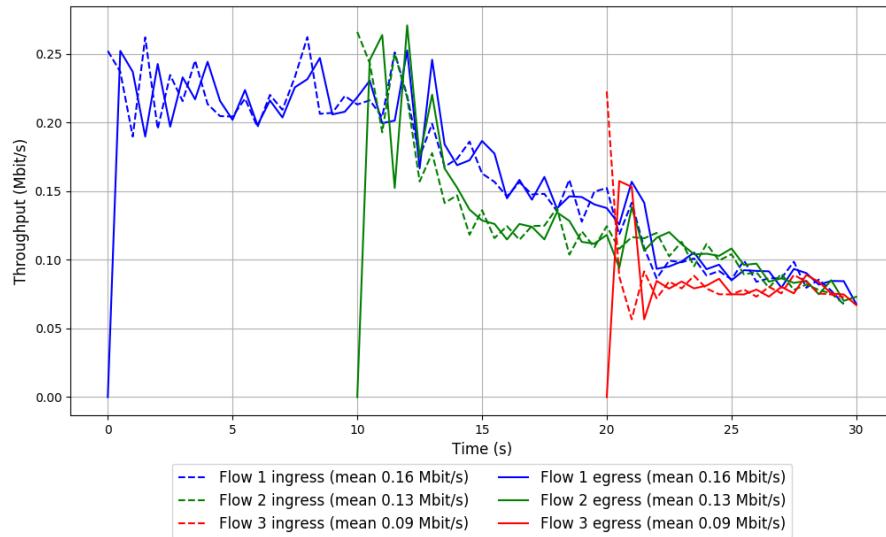


Run 2: Statistics of SCReAM

```
Start at: 2019-01-17 11:06:37
End at: 2019-01-17 11:07:07
Local clock offset: -0.109 ms
Remote clock offset: -18.931 ms

# Below is generated by plot.py at 2019-01-17 11:38:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 64.609 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 54.477 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 75.955 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 124.362 ms
Loss rate: 0.33%
```

Run 2: Report of SCReAM — Data Link

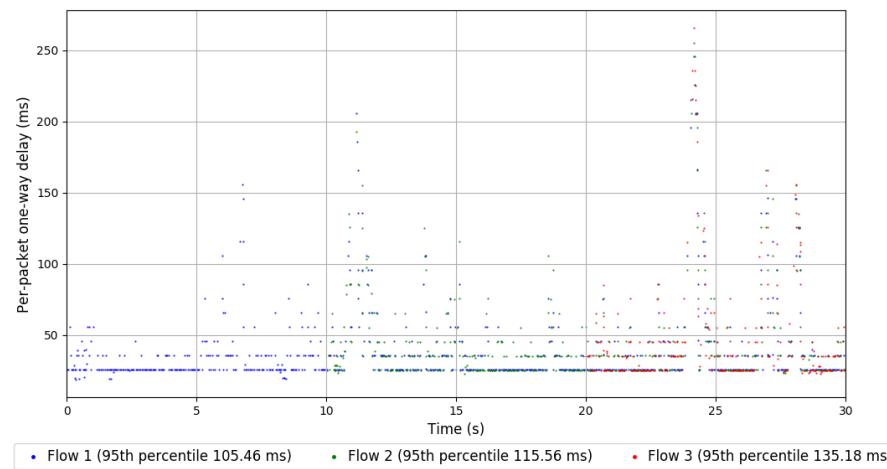
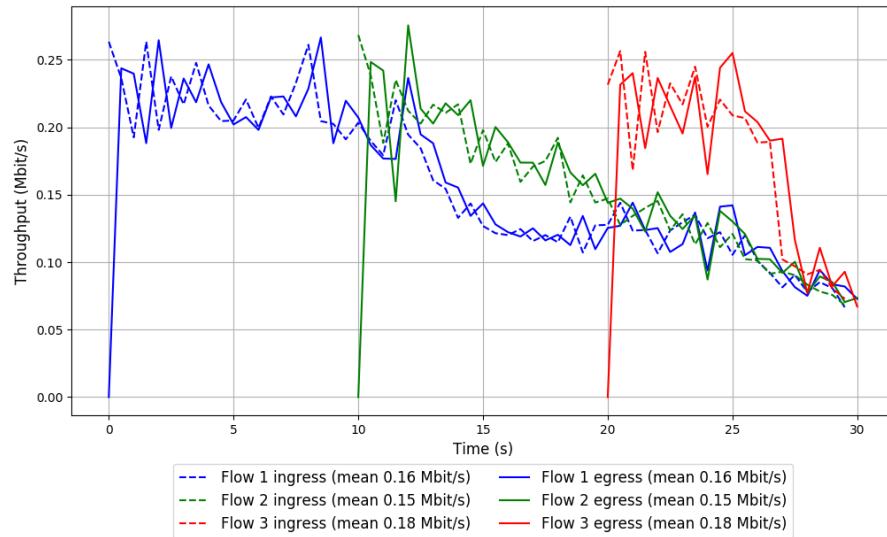


Run 3: Statistics of SCReAM

```
Start at: 2019-01-17 11:30:59
End at: 2019-01-17 11:31:29
Local clock offset: 1.27 ms
Remote clock offset: -5.454 ms

# Below is generated by plot.py at 2019-01-17 11:38:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.32 Mbit/s
95th percentile per-packet one-way delay: 115.331 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 105.459 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 115.563 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 135.182 ms
Loss rate: 0.16%
```

Run 3: Report of SCReAM — Data Link

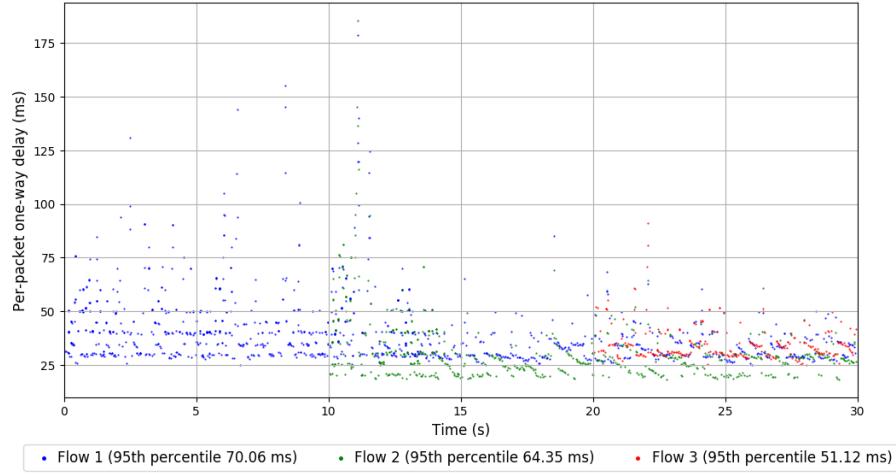
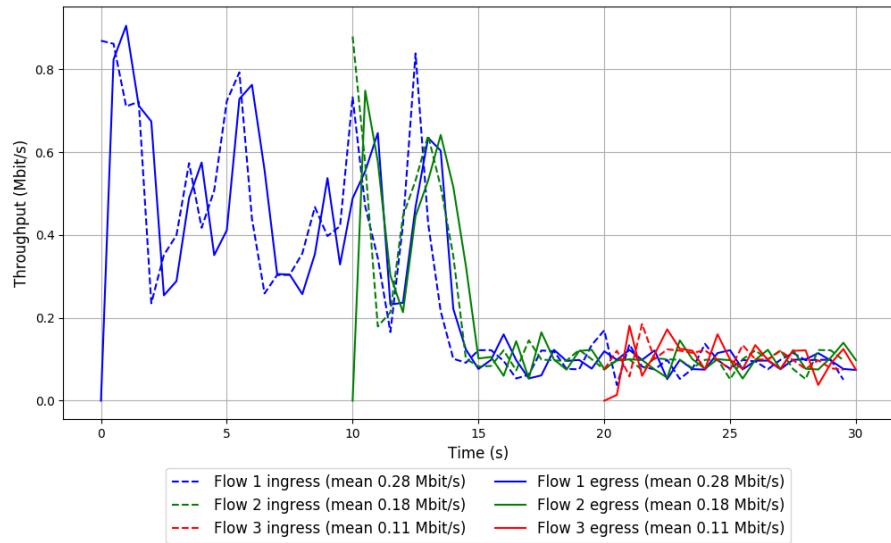


Run 1: Statistics of Sprout

```
Start at: 2019-01-17 10:39:48
End at: 2019-01-17 10:40:18
Local clock offset: 0.82 ms
Remote clock offset: -7.088 ms

# Below is generated by plot.py at 2019-01-17 11:38:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 65.643 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.28 Mbit/s
95th percentile per-packet one-way delay: 70.061 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 64.350 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 51.121 ms
Loss rate: 0.00%
```

Run 1: Report of Sprout — Data Link

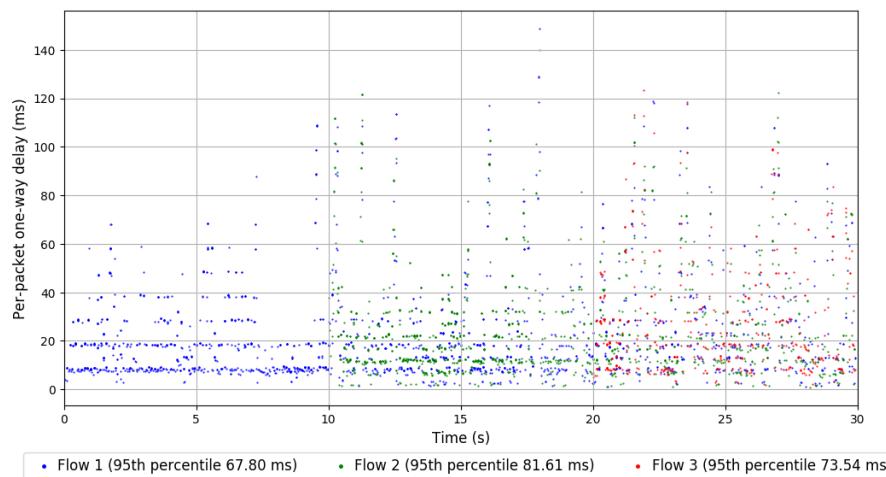
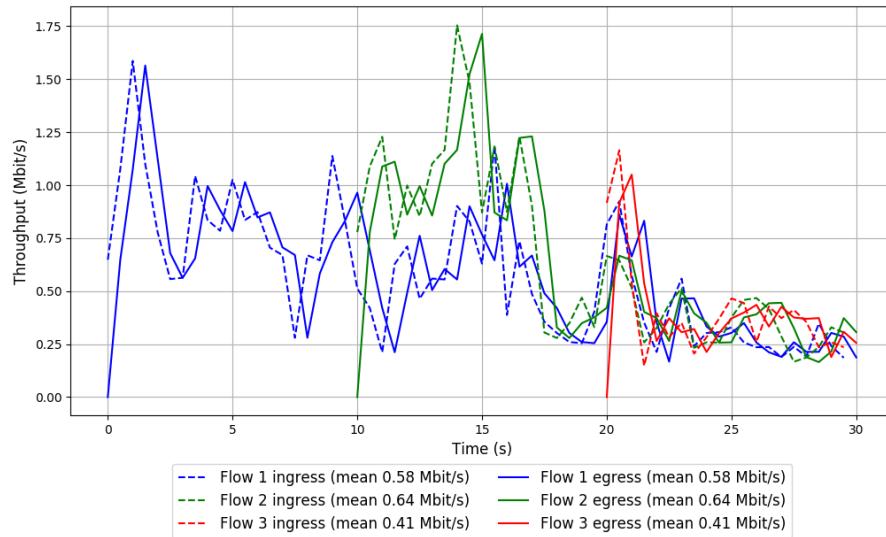


Run 2: Statistics of Sprout

```
Start at: 2019-01-17 11:04:18
End at: 2019-01-17 11:04:48
Local clock offset: -0.34 ms
Remote clock offset: -24.536 ms

# Below is generated by plot.py at 2019-01-17 11:38:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.14 Mbit/s
95th percentile per-packet one-way delay: 72.498 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.58 Mbit/s
95th percentile per-packet one-way delay: 67.801 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.64 Mbit/s
95th percentile per-packet one-way delay: 81.611 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 73.536 ms
Loss rate: 0.00%
```

Run 2: Report of Sprout — Data Link

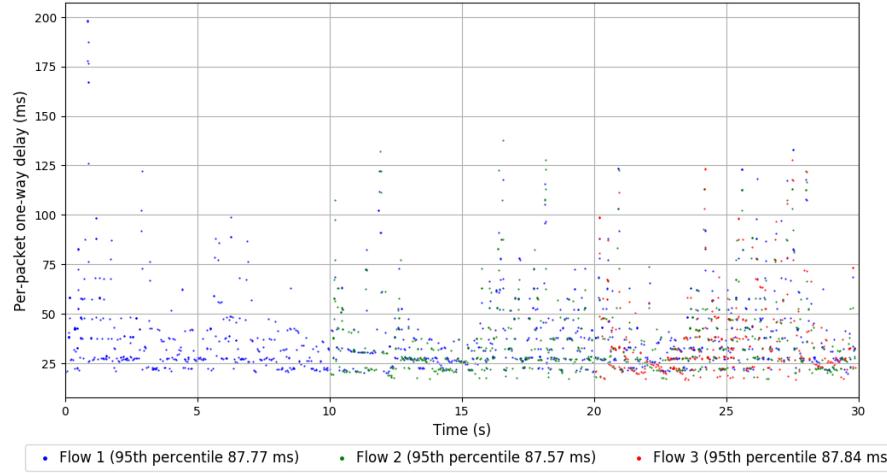
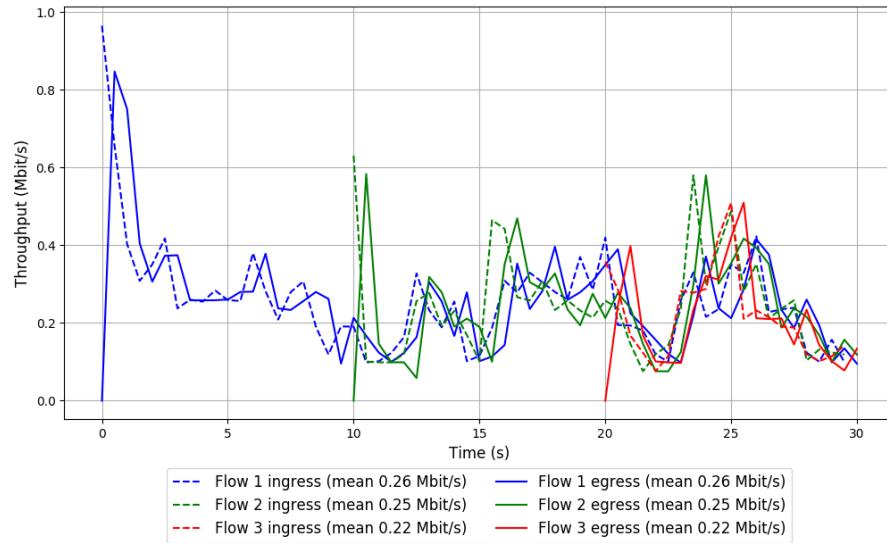


Run 3: Statistics of Sprout

```
Start at: 2019-01-17 11:28:40
End at: 2019-01-17 11:29:10
Local clock offset: -0.339 ms
Remote clock offset: -8.012 ms

# Below is generated by plot.py at 2019-01-17 11:38:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 87.812 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 87.765 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 0.25 Mbit/s
95th percentile per-packet one-way delay: 87.572 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 87.837 ms
Loss rate: 1.06%
```

Run 3: Report of Sprout — Data Link

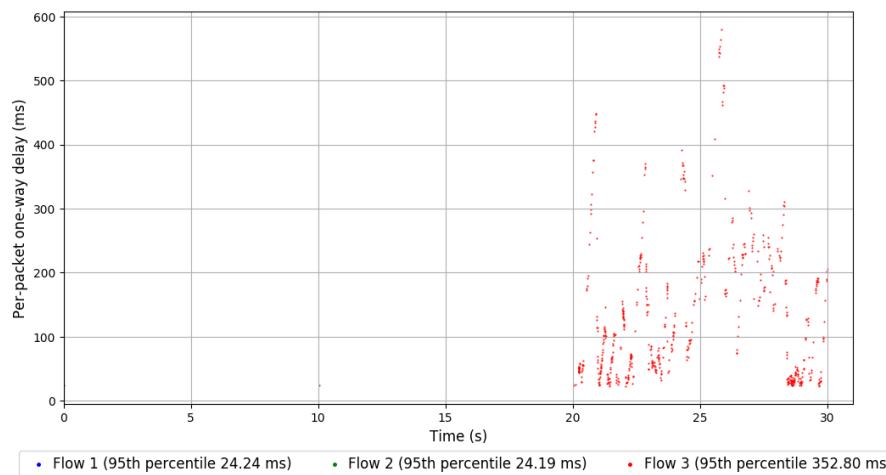
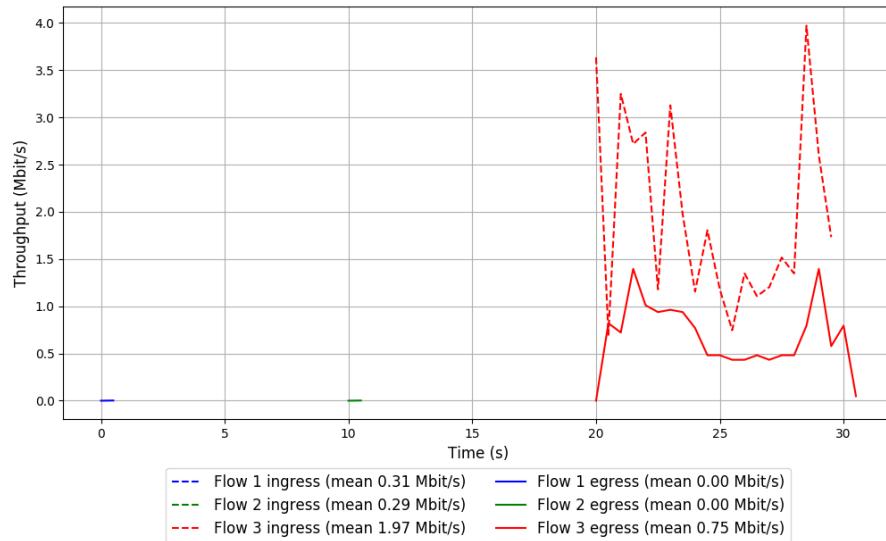


Run 1: Statistics of TaoVA-100x

```
Start at: 2019-01-17 10:26:52
End at: 2019-01-17 10:27:22
Local clock offset: 0.679 ms
Remote clock offset: -8.334 ms

# Below is generated by plot.py at 2019-01-17 11:38:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.25 Mbit/s
95th percentile per-packet one-way delay: 352.797 ms
Loss rate: 62.08%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 24.236 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 24.188 ms
Loss rate: 95.92%
-- Flow 3:
Average throughput: 0.75 Mbit/s
95th percentile per-packet one-way delay: 352.797 ms
Loss rate: 61.99%
```

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

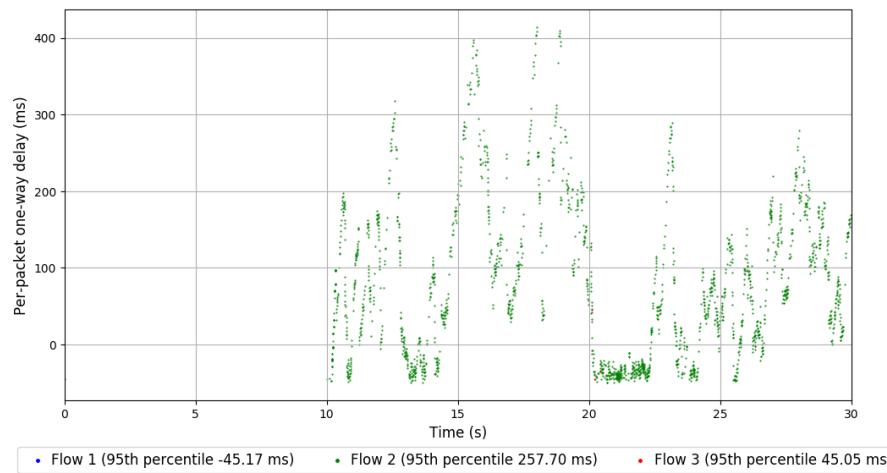
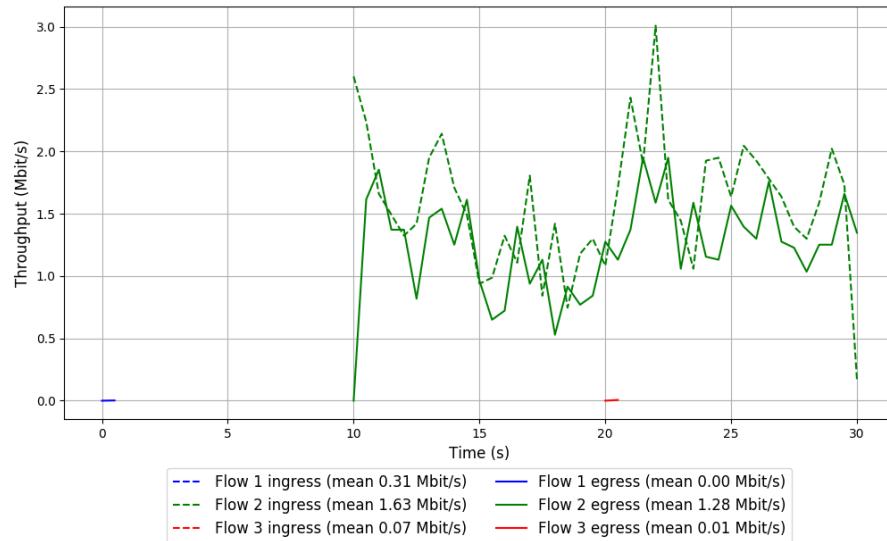


Run 2: Statistics of TaoVA-100x

```
Start at: 2019-01-17 10:51:27
End at: 2019-01-17 10:51:57
Local clock offset: -0.209 ms
Remote clock offset: -76.556 ms

# Below is generated by plot.py at 2019-01-17 11:38:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.85 Mbit/s
95th percentile per-packet one-way delay: 257.696 ms
Loss rate: 21.65%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: -45.174 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 1.28 Mbit/s
95th percentile per-packet one-way delay: 257.696 ms
Loss rate: 21.54%
-- Flow 3:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 45.048 ms
Loss rate: 88.68%
```

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

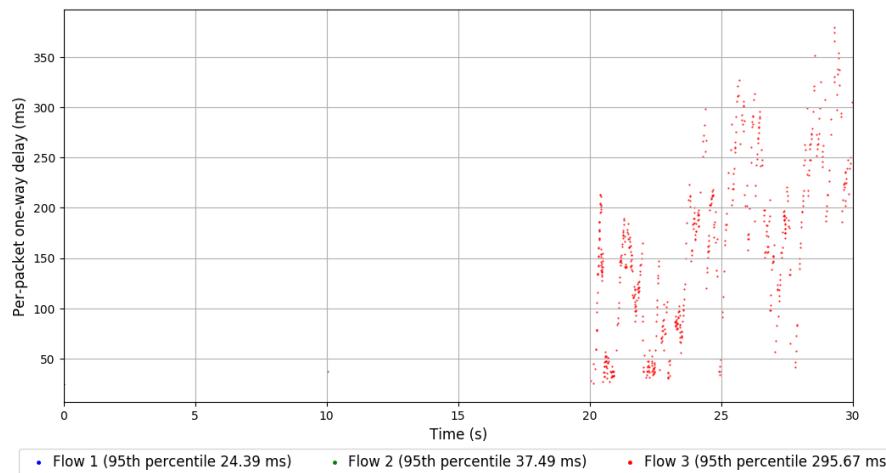
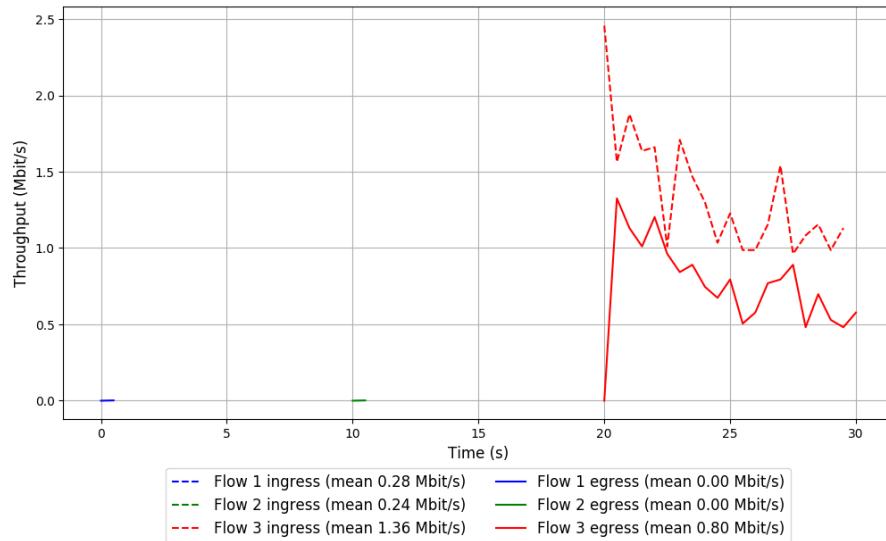


Run 3: Statistics of TaoVA-100x

```
Start at: 2019-01-17 11:15:54
End at: 2019-01-17 11:16:24
Local clock offset: -0.891 ms
Remote clock offset: -7.081 ms

# Below is generated by plot.py at 2019-01-17 11:38:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 295.668 ms
Loss rate: 41.22%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 24.390 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 37.494 ms
Loss rate: 95.92%
-- Flow 3:
Average throughput: 0.80 Mbit/s
95th percentile per-packet one-way delay: 295.668 ms
Loss rate: 41.02%
```

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

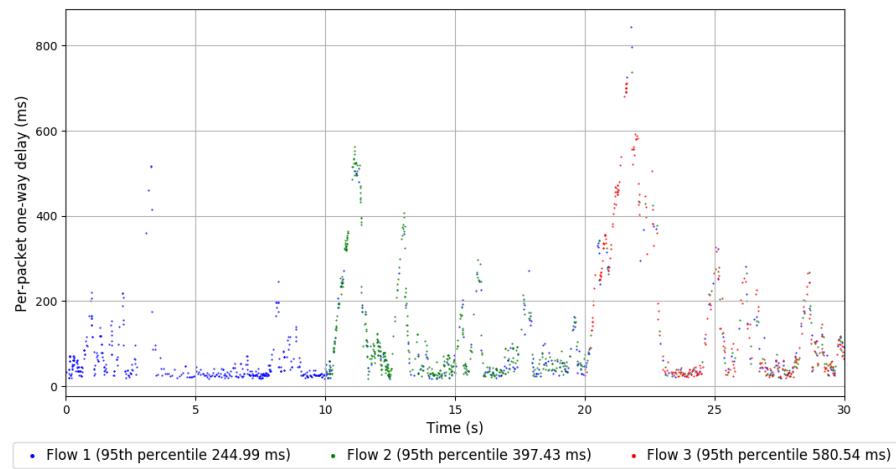
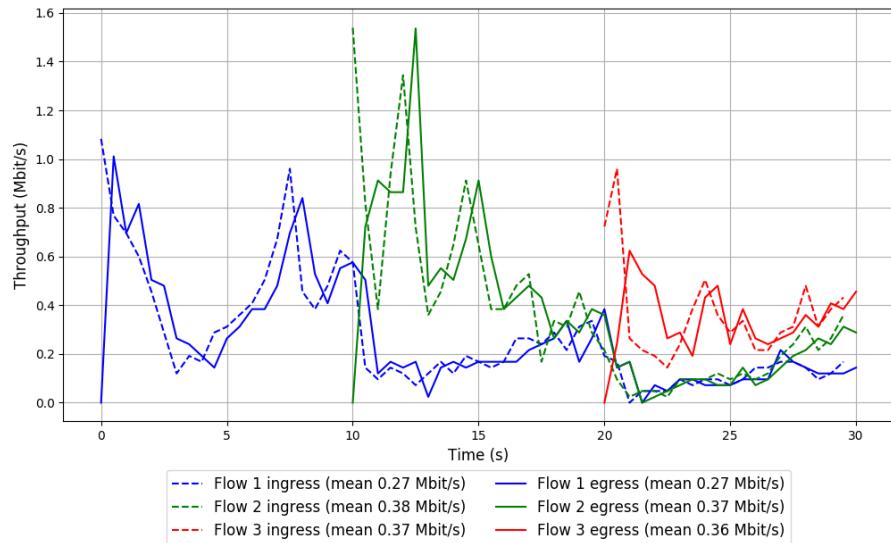


Run 1: Statistics of TCP Vegas

```
Start at: 2019-01-17 10:45:38
End at: 2019-01-17 10:46:08
Local clock offset: 2.652 ms
Remote clock offset: -6.558 ms

# Below is generated by plot.py at 2019-01-17 11:38:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.63 Mbit/s
95th percentile per-packet one-way delay: 435.023 ms
Loss rate: 1.19%
-- Flow 1:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 244.990 ms
Loss rate: 0.59%
-- Flow 2:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 397.433 ms
Loss rate: 1.60%
-- Flow 3:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 580.542 ms
Loss rate: 1.65%
```

Run 1: Report of TCP Vegas — Data Link

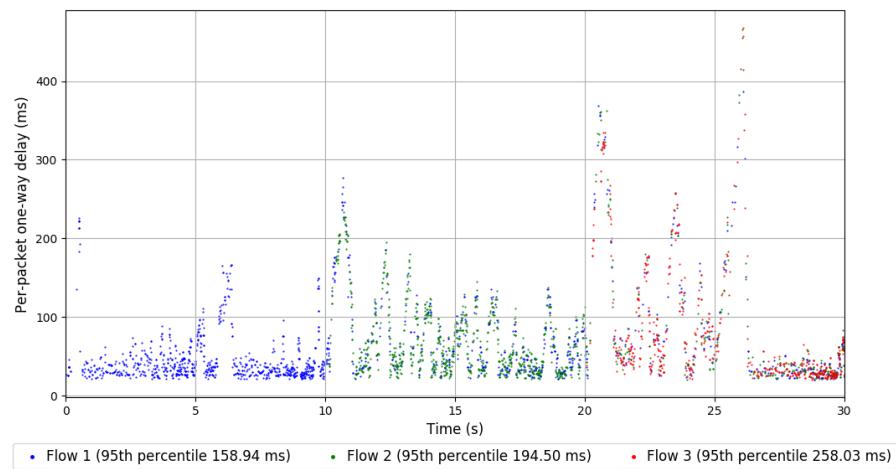
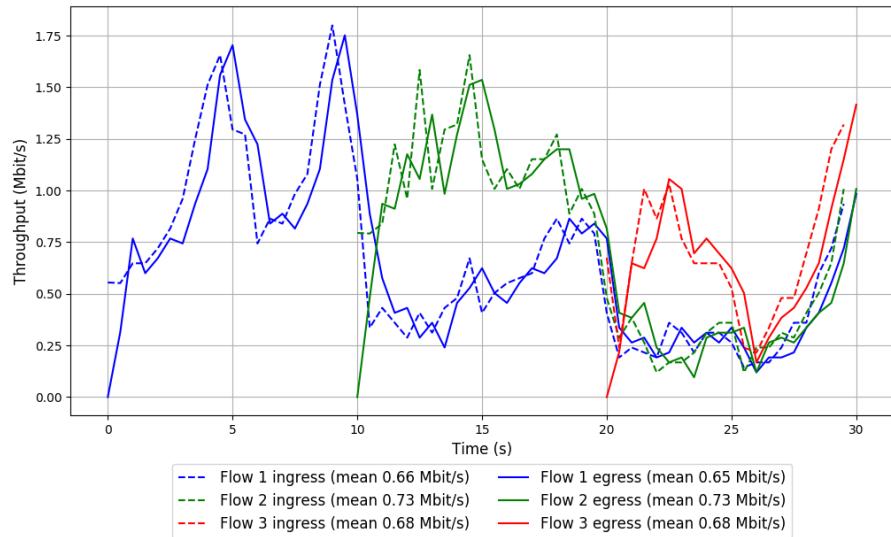


Run 2: Statistics of TCP Vegas

```
Start at: 2019-01-17 11:10:06
End at: 2019-01-17 11:10:36
Local clock offset: -0.655 ms
Remote clock offset: -6.262 ms

# Below is generated by plot.py at 2019-01-17 11:38:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.36 Mbit/s
95th percentile per-packet one-way delay: 195.579 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 0.65 Mbit/s
95th percentile per-packet one-way delay: 158.935 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 0.73 Mbit/s
95th percentile per-packet one-way delay: 194.496 ms
Loss rate: 0.17%
-- Flow 3:
Average throughput: 0.68 Mbit/s
95th percentile per-packet one-way delay: 258.033 ms
Loss rate: 0.35%
```

Run 2: Report of TCP Vegas — Data Link

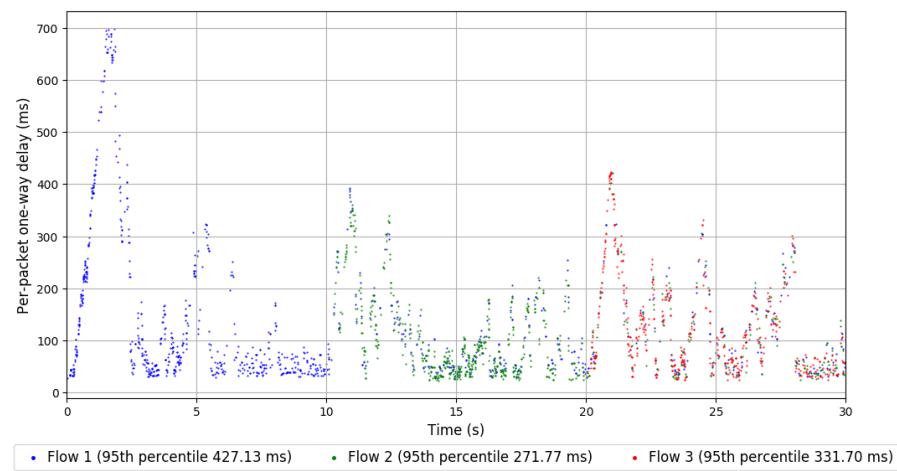
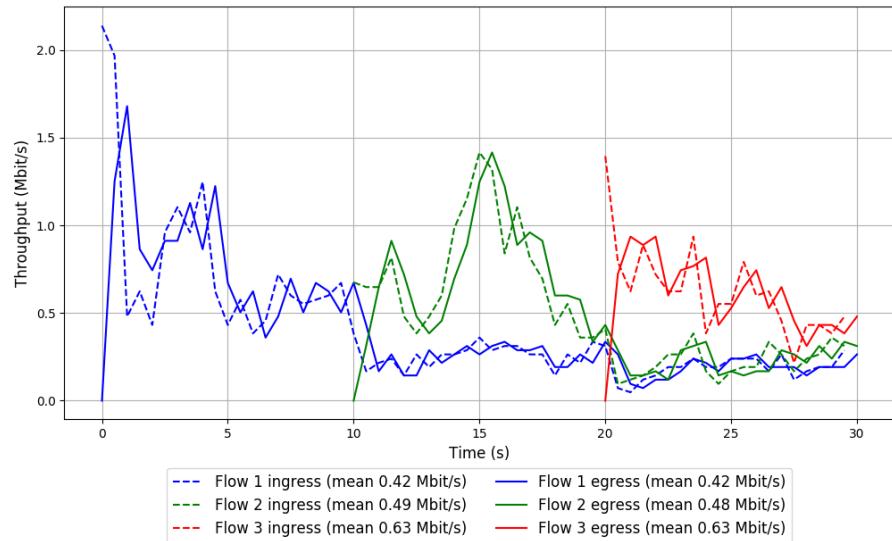


Run 3: Statistics of TCP Vegas

```
Start at: 2019-01-17 11:34:27
End at: 2019-01-17 11:34:57
Local clock offset: -1.784 ms
Remote clock offset: -6.085 ms

# Below is generated by plot.py at 2019-01-17 11:38:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.94 Mbit/s
95th percentile per-packet one-way delay: 370.018 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 427.134 ms
Loss rate: 0.86%
-- Flow 2:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 271.767 ms
Loss rate: 0.74%
-- Flow 3:
Average throughput: 0.63 Mbit/s
95th percentile per-packet one-way delay: 331.697 ms
Loss rate: 0.58%
```

Run 3: Report of TCP Vegas — Data Link

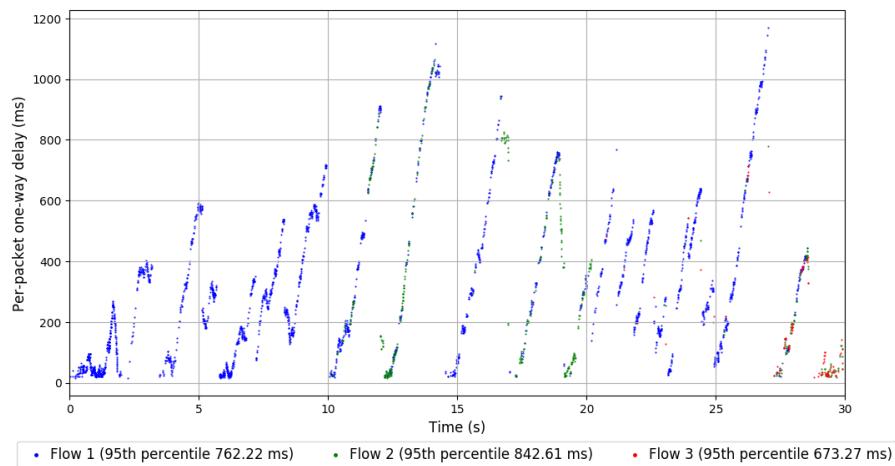
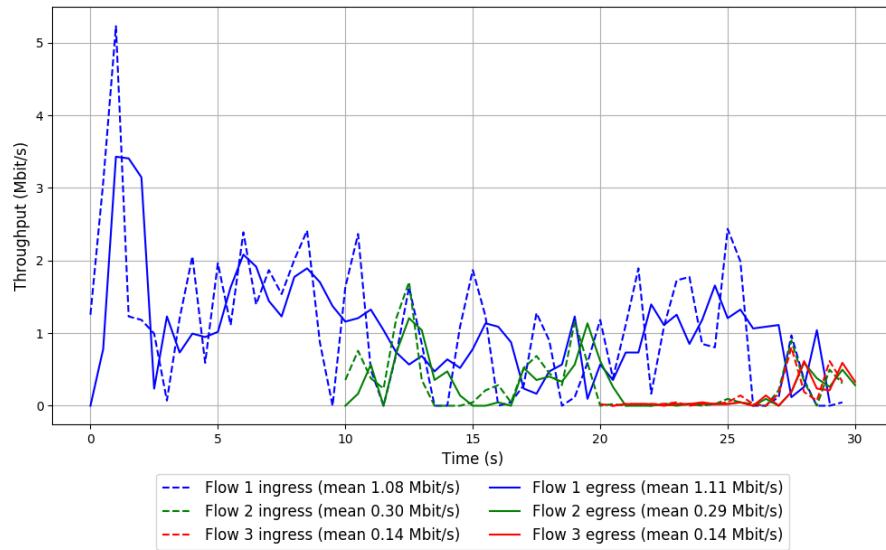


Run 1: Statistics of Verus

```
Start at: 2019-01-17 10:33:54
End at: 2019-01-17 10:34:24
Local clock offset: 0.968 ms
Remote clock offset: -10.673 ms

# Below is generated by plot.py at 2019-01-17 11:38:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.29 Mbit/s
95th percentile per-packet one-way delay: 799.388 ms
Loss rate: 2.34%
-- Flow 1:
Average throughput: 1.11 Mbit/s
95th percentile per-packet one-way delay: 762.216 ms
Loss rate: 2.13%
-- Flow 2:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 842.608 ms
Loss rate: 3.80%
-- Flow 3:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 673.269 ms
Loss rate: 0.91%
```

Run 1: Report of Verus — Data Link

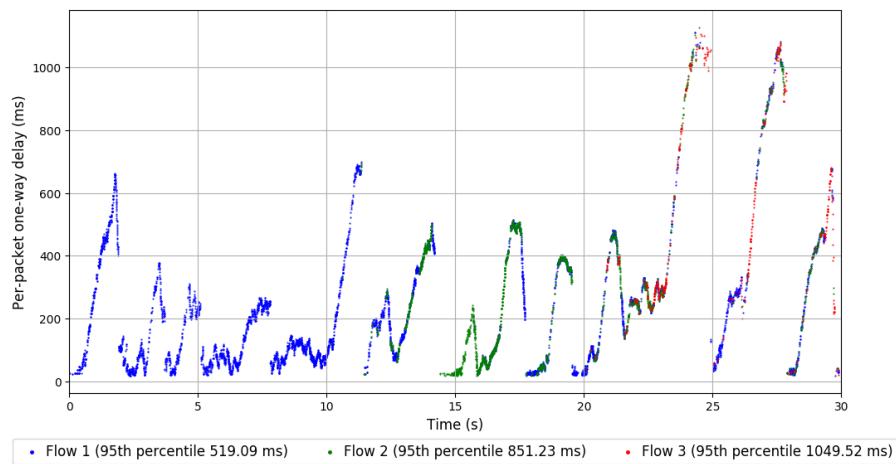
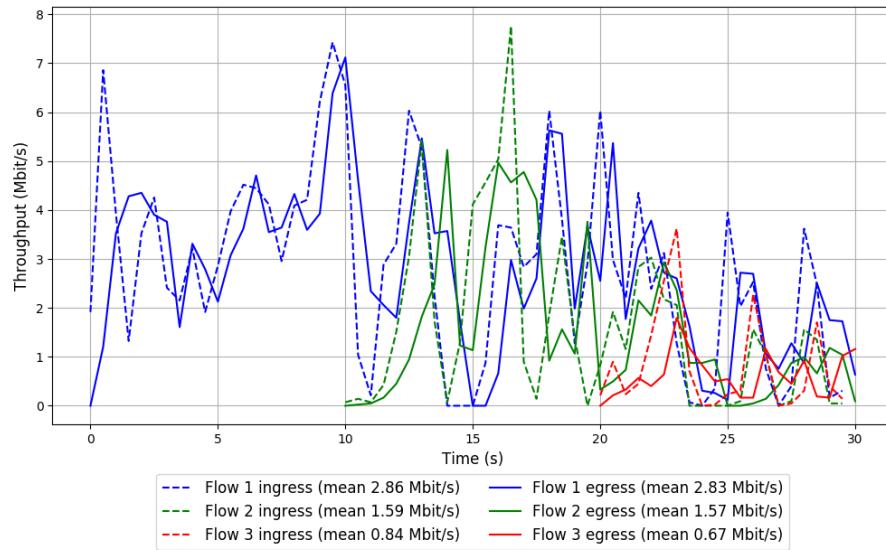


Run 2: Statistics of Verus

```
Start at: 2019-01-17 10:58:28
End at: 2019-01-17 10:58:58
Local clock offset: 1.255 ms
Remote clock offset: -7.099 ms

# Below is generated by plot.py at 2019-01-17 11:38:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.08 Mbit/s
95th percentile per-packet one-way delay: 660.874 ms
Loss rate: 2.71%
-- Flow 1:
Average throughput: 2.83 Mbit/s
95th percentile per-packet one-way delay: 519.092 ms
Loss rate: 1.18%
-- Flow 2:
Average throughput: 1.57 Mbit/s
95th percentile per-packet one-way delay: 851.232 ms
Loss rate: 1.96%
-- Flow 3:
Average throughput: 0.67 Mbit/s
95th percentile per-packet one-way delay: 1049.522 ms
Loss rate: 21.34%
```

Run 2: Report of Verus — Data Link

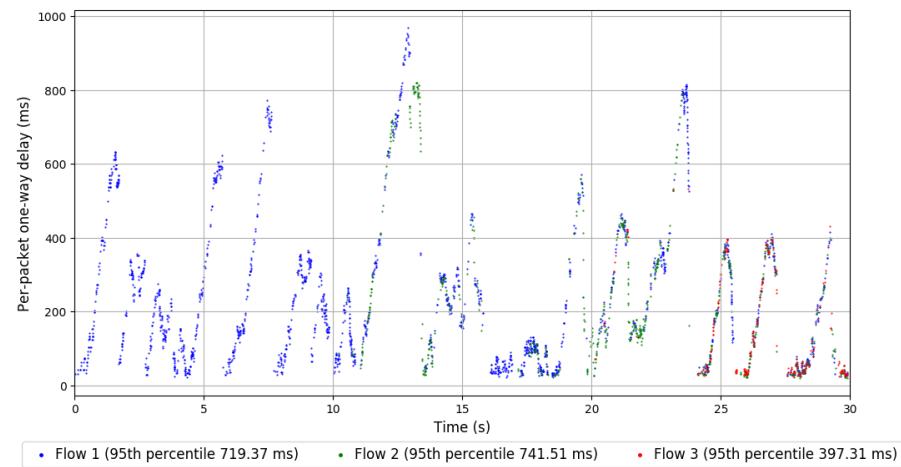
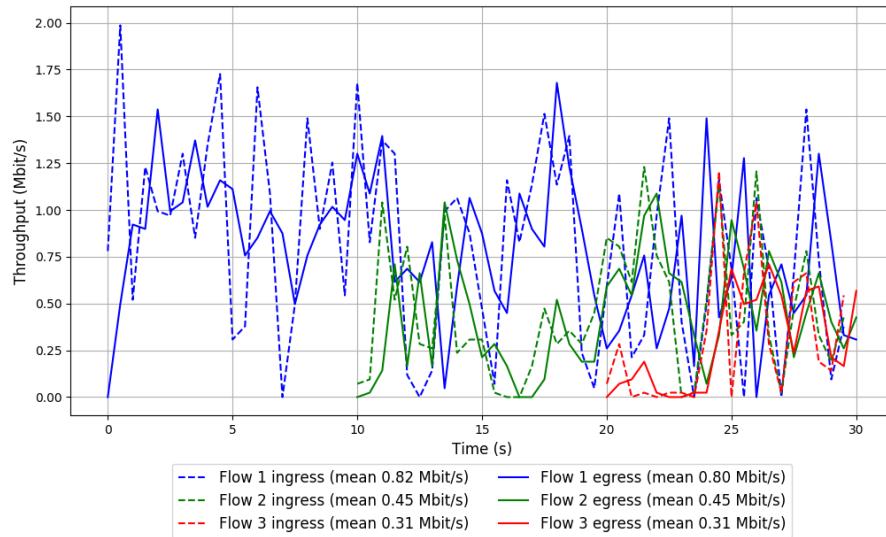


Run 3: Statistics of Verus

```
Start at: 2019-01-17 11:22:51
End at: 2019-01-17 11:23:21
Local clock offset: 1.053 ms
Remote clock offset: -5.311 ms

# Below is generated by plot.py at 2019-01-17 11:38:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.20 Mbit/s
95th percentile per-packet one-way delay: 713.104 ms
Loss rate: 1.36%
-- Flow 1:
Average throughput: 0.80 Mbit/s
95th percentile per-packet one-way delay: 719.374 ms
Loss rate: 1.45%
-- Flow 2:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 741.513 ms
Loss rate: 1.18%
-- Flow 3:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 397.306 ms
Loss rate: 1.15%
```

Run 3: Report of Verus — Data Link

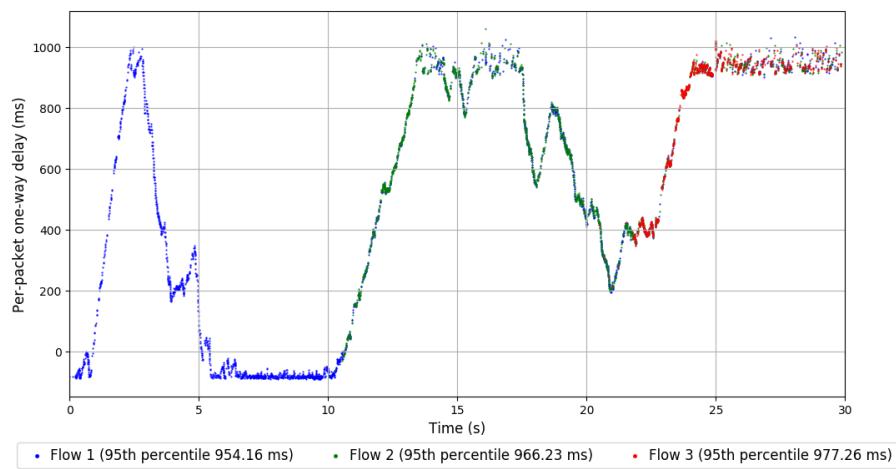
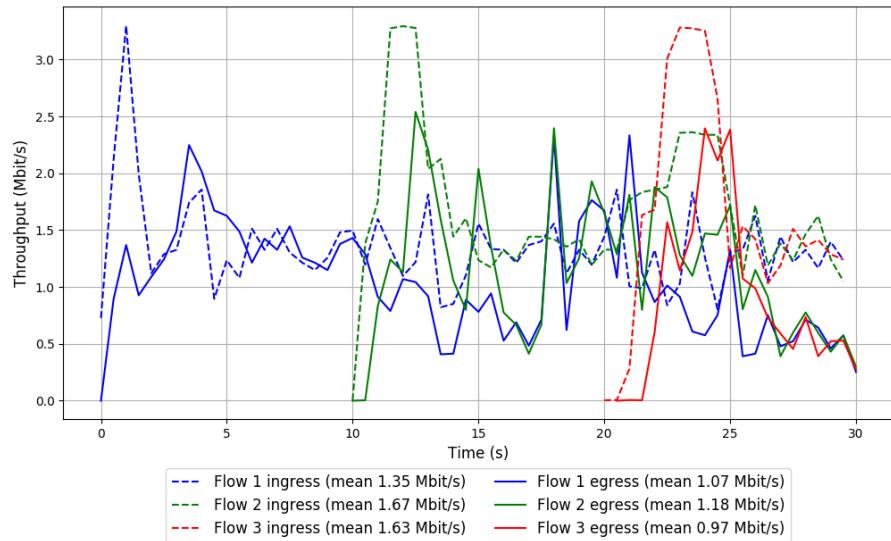


```
Run 1: Statistics of PCC-Vivace

Start at: 2019-01-17 10:31:33
End at: 2019-01-17 10:32:03
Local clock offset: -2.025 ms
Remote clock offset: -120.662 ms

# Below is generated by plot.py at 2019-01-17 11:38:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.15 Mbit/s
95th percentile per-packet one-way delay: 962.996 ms
Loss rate: 28.57%
-- Flow 1:
Average throughput: 1.07 Mbit/s
95th percentile per-packet one-way delay: 954.165 ms
Loss rate: 21.32%
-- Flow 2:
Average throughput: 1.18 Mbit/s
95th percentile per-packet one-way delay: 966.234 ms
Loss rate: 29.82%
-- Flow 3:
Average throughput: 0.97 Mbit/s
95th percentile per-packet one-way delay: 977.259 ms
Loss rate: 44.17%
```

Run 1: Report of PCC-Vivace — Data Link

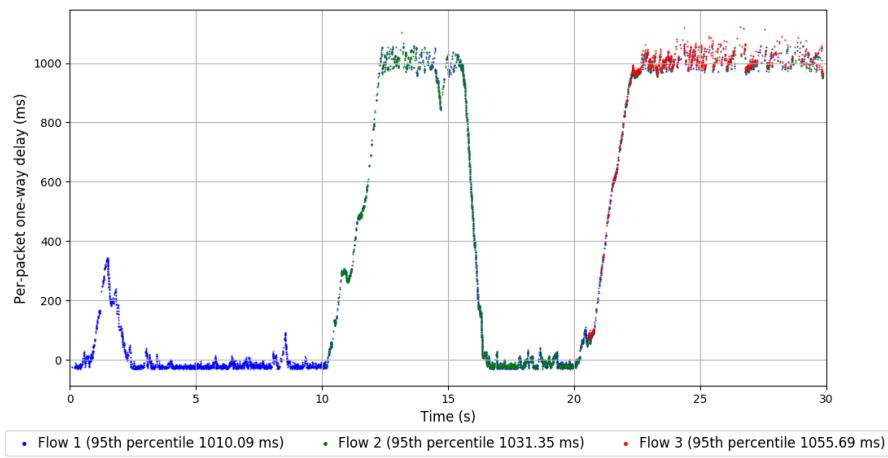
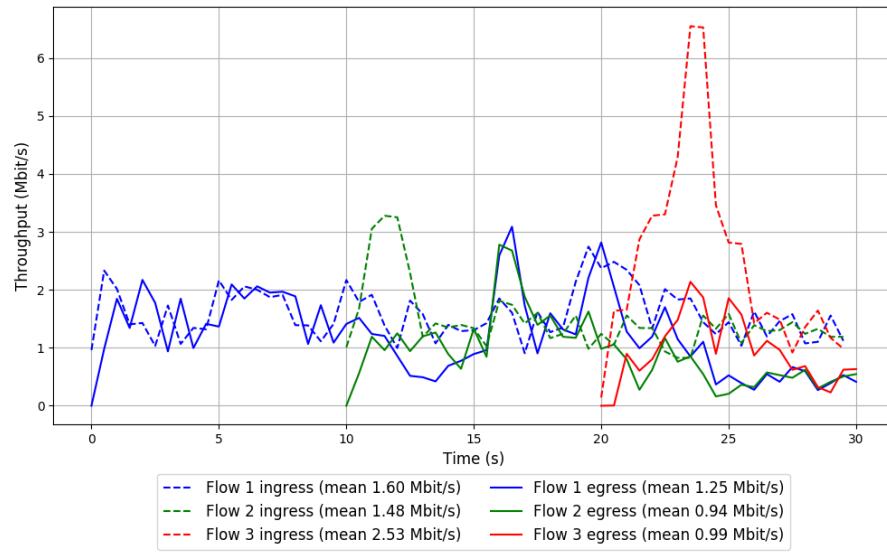


Run 2: Statistics of PCC-Vivace

```
Start at: 2019-01-17 10:56:07
End at: 2019-01-17 10:56:37
Local clock offset: -0.553 ms
Remote clock offset: -57.513 ms

# Below is generated by plot.py at 2019-01-17 11:38:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.20 Mbit/s
95th percentile per-packet one-way delay: 1029.803 ms
Loss rate: 35.72%
-- Flow 1:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 1010.093 ms
Loss rate: 22.01%
-- Flow 2:
Average throughput: 0.94 Mbit/s
95th percentile per-packet one-way delay: 1031.349 ms
Loss rate: 36.41%
-- Flow 3:
Average throughput: 0.99 Mbit/s
95th percentile per-packet one-way delay: 1055.688 ms
Loss rate: 61.17%
```

Run 2: Report of PCC-Vivace — Data Link

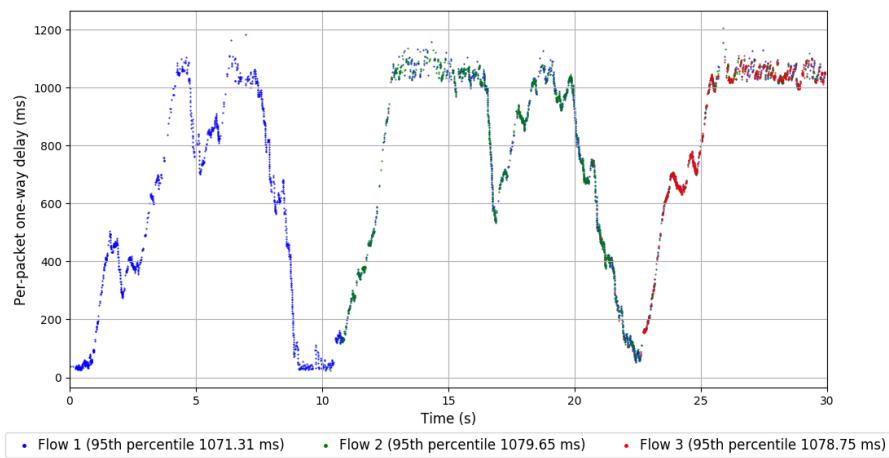
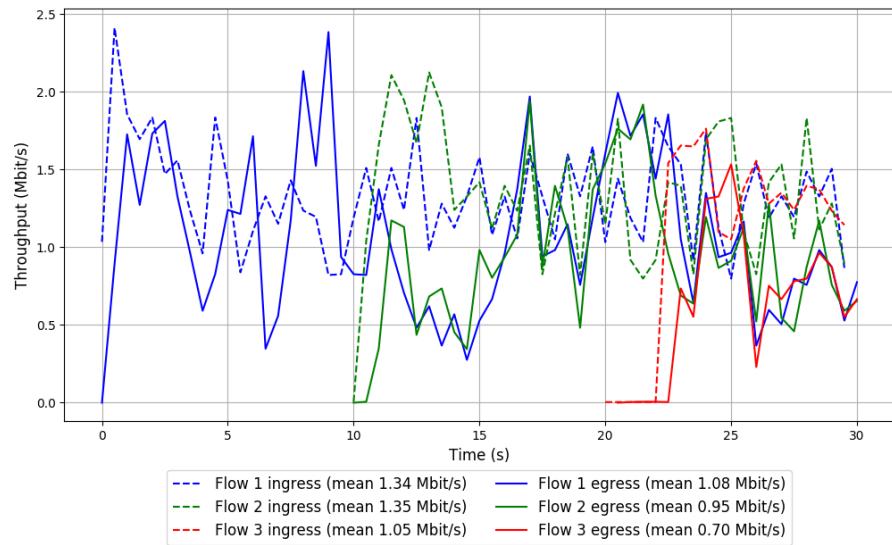


Run 3: Statistics of PCC-Vivace

```
Start at: 2019-01-17 11:20:32
End at: 2019-01-17 11:21:02
Local clock offset: -1.45 ms
Remote clock offset: -5.259 ms

# Below is generated by plot.py at 2019-01-17 11:38:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.93 Mbit/s
95th percentile per-packet one-way delay: 1075.325 ms
Loss rate: 25.26%
-- Flow 1:
Average throughput: 1.08 Mbit/s
95th percentile per-packet one-way delay: 1071.305 ms
Loss rate: 19.17%
-- Flow 2:
Average throughput: 0.95 Mbit/s
95th percentile per-packet one-way delay: 1079.650 ms
Loss rate: 29.40%
-- Flow 3:
Average throughput: 0.70 Mbit/s
95th percentile per-packet one-way delay: 1078.750 ms
Loss rate: 38.05%
```

Run 3: Report of PCC-Vivace — Data Link

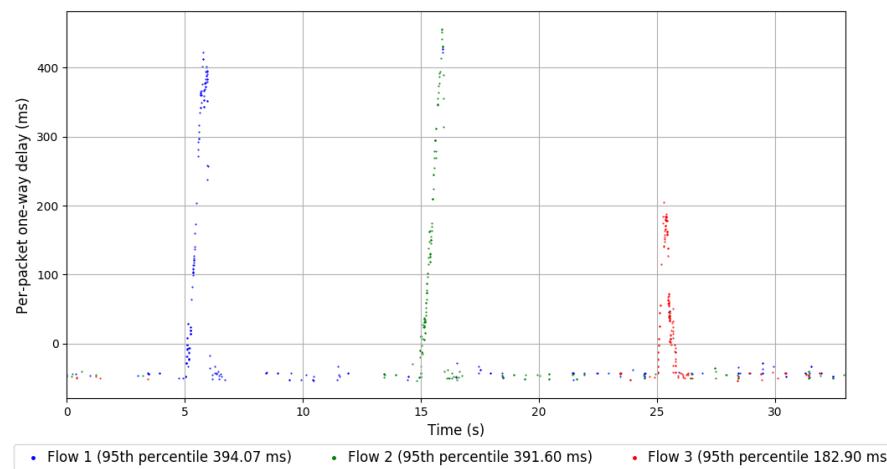
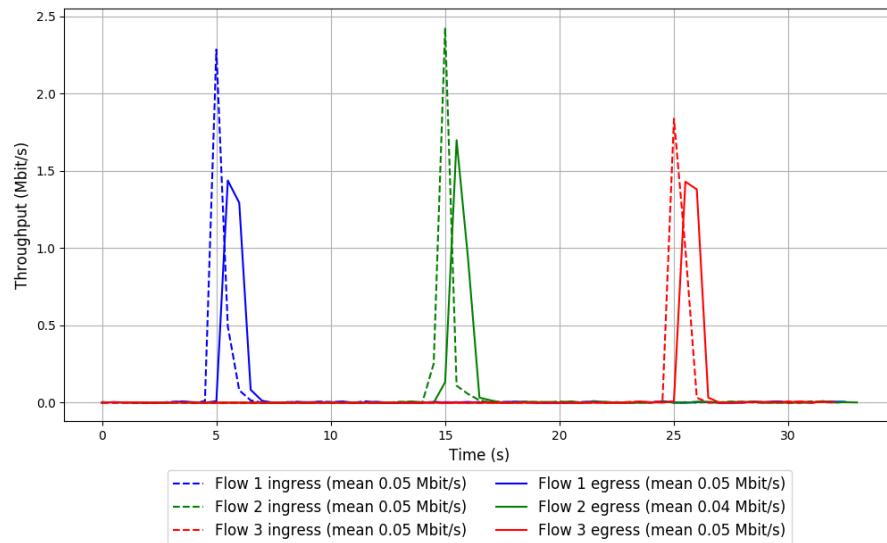


Run 1: Statistics of WebRTC media

```
Start at: 2019-01-17 10:46:48
End at: 2019-01-17 10:47:18
Local clock offset: -1.177 ms
Remote clock offset: -79.812 ms

# Below is generated by plot.py at 2019-01-17 11:38:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 382.848 ms
Loss rate: 1.34%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 394.070 ms
Loss rate: 1.57%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 391.595 ms
Loss rate: 1.62%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 182.902 ms
Loss rate: 0.82%
```

Run 1: Report of WebRTC media — Data Link

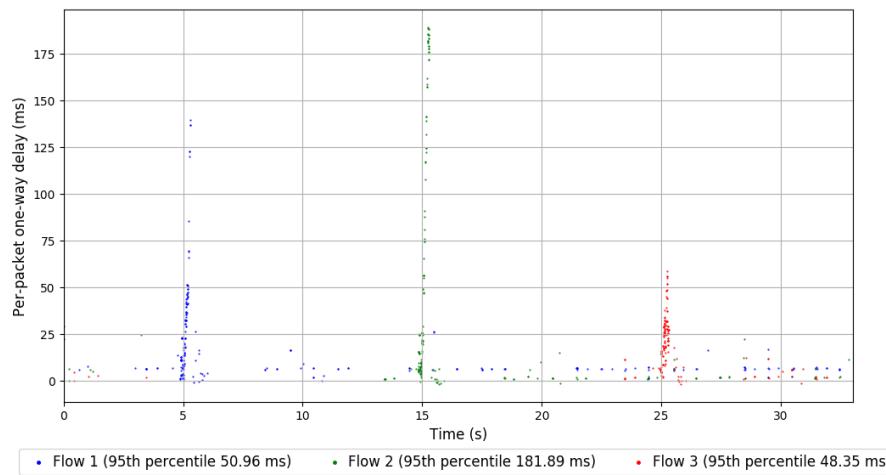
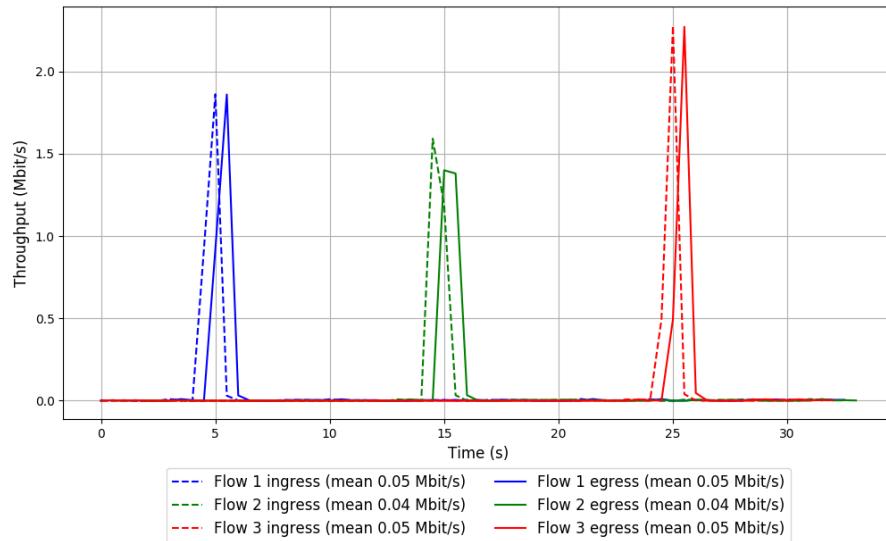


Run 2: Statistics of WebRTC media

```
Start at: 2019-01-17 11:11:16
End at: 2019-01-17 11:11:46
Local clock offset: 0.281 ms
Remote clock offset: -26.478 ms

# Below is generated by plot.py at 2019-01-17 11:38:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 139.123 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 50.962 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 181.888 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 48.351 ms
Loss rate: 0.00%
```

Run 2: Report of WebRTC media — Data Link



```
Run 3: Statistics of WebRTC media

Start at: 2019-01-17 11:35:37
End at: 2019-01-17 11:36:07
Local clock offset: 0.396 ms
Remote clock offset: -5.96 ms

# Below is generated by plot.py at 2019-01-17 11:38:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 639.349 ms
Loss rate: 2.52%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 426.266 ms
Loss rate: 1.55%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 742.221 ms
Loss rate: 3.17%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 449.766 ms
Loss rate: 2.88%
```

Run 3: Report of WebRTC media — Data Link

