Pantheon Report

Generated at 2018-07-04 10:17:45 (UTC).

Data path: India ppp0 ppp0 (*remote*) →AWS India 1 Ethernet (*local*).

Repeated the test of 17 congestion control schemes 3 times.

Each test lasted for 30 seconds running 3 flows with 10-second interval between two flows.
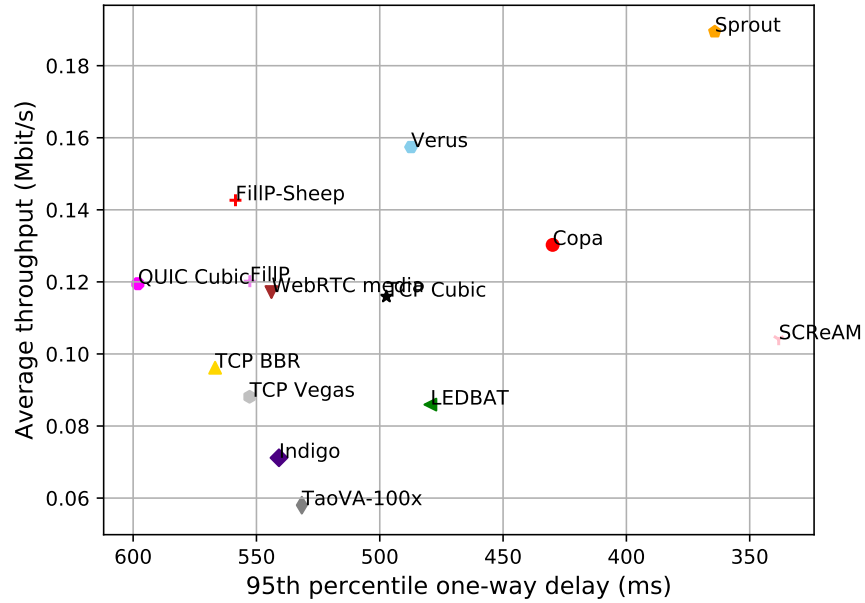
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

NTP offsets were measured against `nets.org.sg` and have been applied to correct the timestamps in logs.
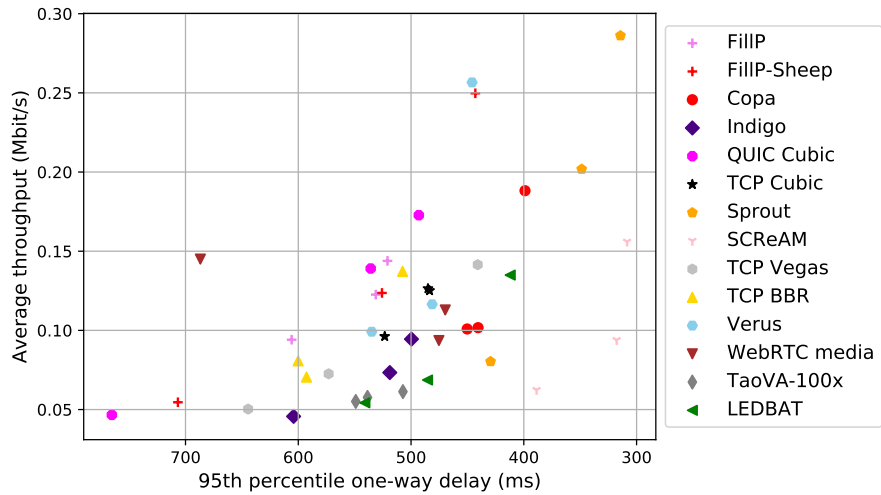
```
Git summary:
branch: master @ 9250dbeec7fb57193cdff1ba8c440b4e16ab30f0
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ 37162fe9af85249aeccac061c93e75640ef710b5
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ 6f038ed31259d366f9840f65b82cbe8f464b1b39
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
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from India ppp0 to AWS India 1, 3 runs of 30s each per scheme
3 flows with 10s interval between flows (mean of all runs by scheme)

test from India ppp0 to AWS India 1, 3 runs of 30s each per scheme
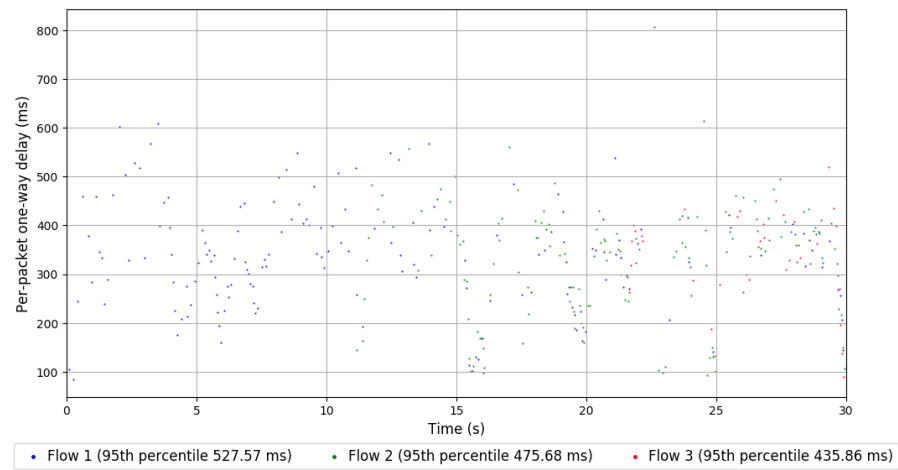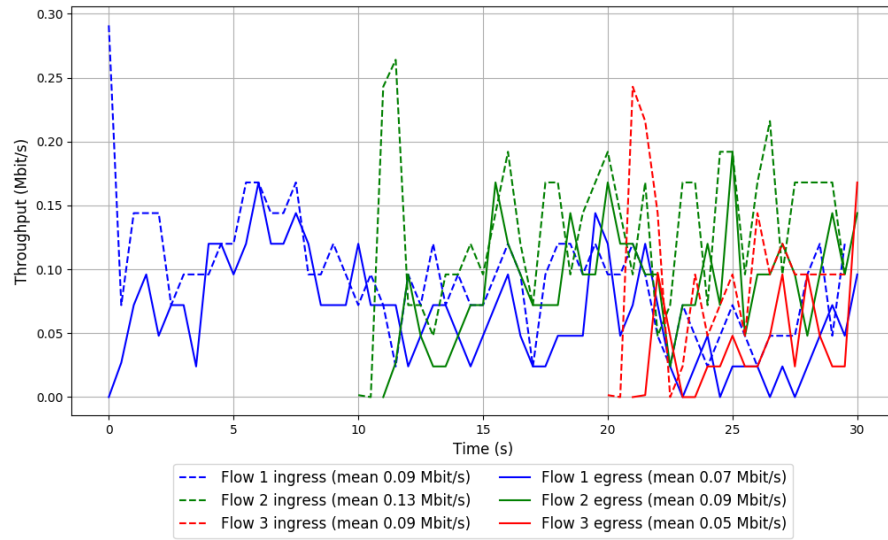3 flows with 10s interval between flows

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	0.06	0.04	0.03	591.04	500.76	521.20	32.22	50.08	63.91
Copa	3	0.08	0.07	0.02	425.22	426.17	497.87	40.46	49.65	76.88
TCP Cubic	3	0.07	0.07	0.02	508.13	474.86	458.94	23.40	29.13	55.73
FillP	3	0.09	0.05	0.01	546.72	475.37	441.41	90.74	93.35	95.22
FillP-Sheep	3	0.09	0.05	0.05	581.00	549.64	383.27	87.15	91.60	92.23
Indigo	3	0.04	0.03	0.03	529.33	540.41	517.71	58.52	83.31	86.68
LEDBAT	3	0.05	0.04	0.06	478.45	476.62	447.63	15.22	17.39	21.42
PCC-Allegro	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PCC-Expr	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
QUIC Cubic	3	0.07	0.06	0.03	575.34	574.64	493.22	56.65	63.38	84.76
SCReAM	3	0.05	0.05	0.05	314.54	334.86	378.73	4.23	8.21	10.61
Sprout	3	0.10	0.09	0.09	358.15	359.96	379.46	18.80	23.99	34.69
TaoVA-100x	3	0.03	0.03	0.04	505.42	540.95	494.63	93.75	97.06	92.79
TCP Vegas	3	0.05	0.04	0.04	554.58	510.00	509.39	25.73	37.28	43.68
Verus	3	0.11	0.03	0.09	493.73	491.09	446.19	62.74	69.43	60.35
PCC-Vivace	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
WebRTC media	3	0.06	0.05	0.01	557.57	528.40	478.28	55.46	44.09	60.81

```
Run 1: Statistics of TCP BBR

Start at: 2018-07-04 09:30:46
End at: 2018-07-04 09:31:16
Local clock offset: -0.889 ms
Remote clock offset: -21.285 ms


# Below is generated by plot.py at 2018-07-04 10:17:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 507.501 ms
Loss rate: 35.77%
-- Flow 1:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 527.572 ms
Loss rate: 31.63%
-- Flow 2:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 475.683 ms
Loss rate: 33.49%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 435.860 ms
Loss rate: 55.21%
```
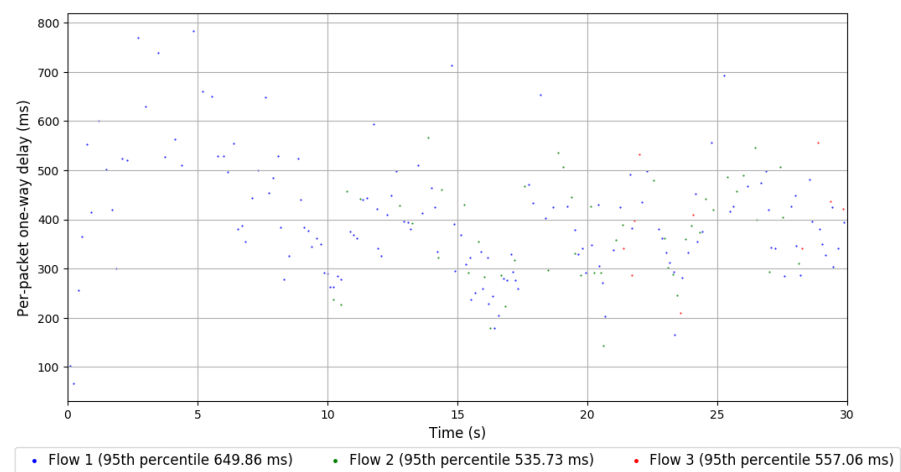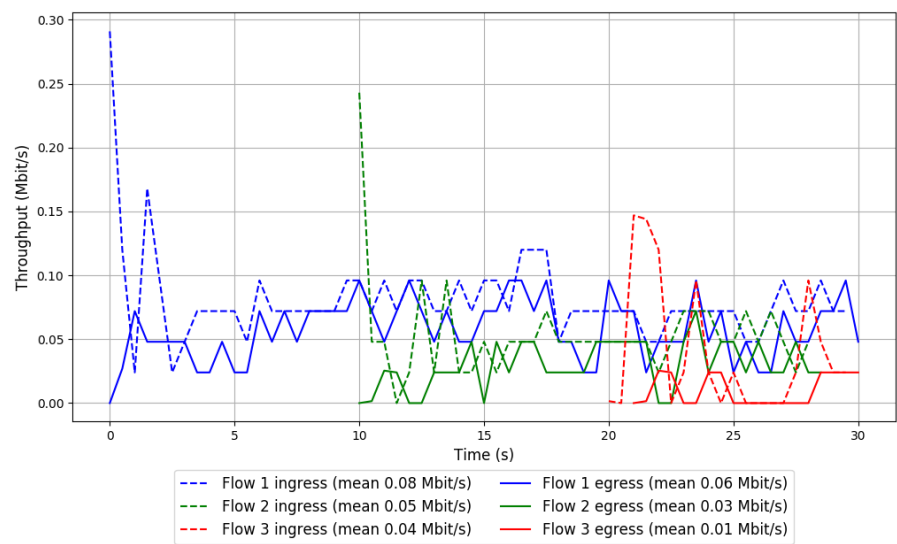
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2018-07-04 09:49:22
End at: 2018-07-04 09:49:52
Local clock offset: -3.305 ms
Remote clock offset: -5.114 ms


# Below is generated by plot.py at 2018-07-04 10:17:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 600.094 ms
Loss rate: 37.08%
-- Flow 1:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 649.861 ms
Loss rate: 28.20%
-- Flow 2:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 535.726 ms
Loss rate: 43.31%
-- Flow 3:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 557.059 ms
Loss rate: 75.52%
```
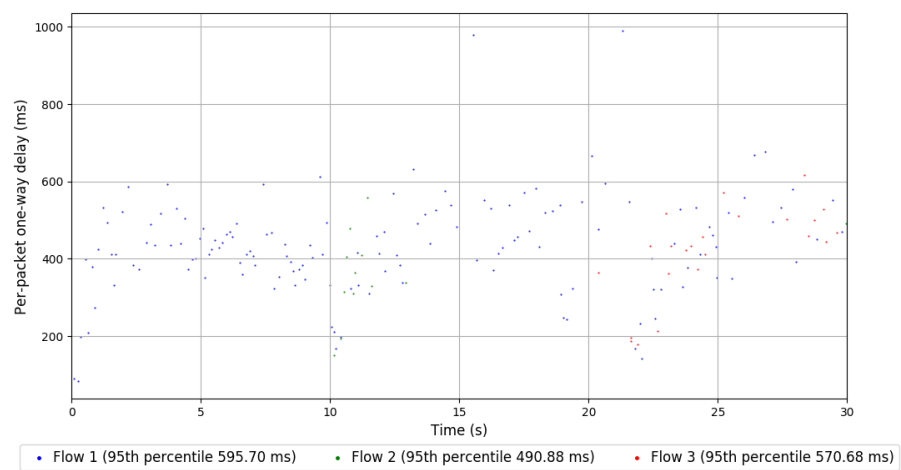
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-07-04 10:07:54
End at: 2018-07-04 10:08:24
Local clock offset: 0.573 ms
Remote clock offset: 2.085 ms


# Below is generated by plot.py at 2018-07-04 10:17:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 592.680 ms
Loss rate: 45.27%
-- Flow 1:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 595.702 ms
Loss rate: 36.82%
-- Flow 2:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 490.875 ms
Loss rate: 73.45%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 570.677 ms
Loss rate: 61.01%
```
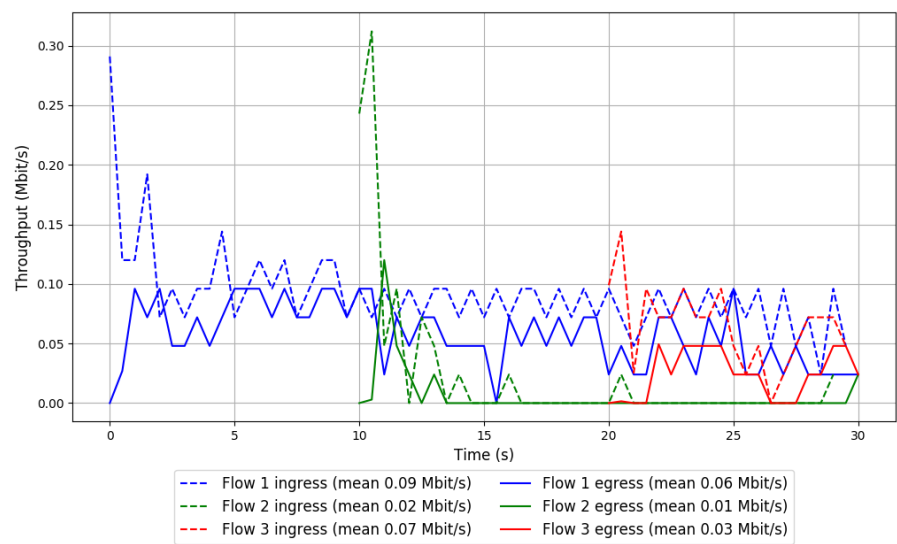
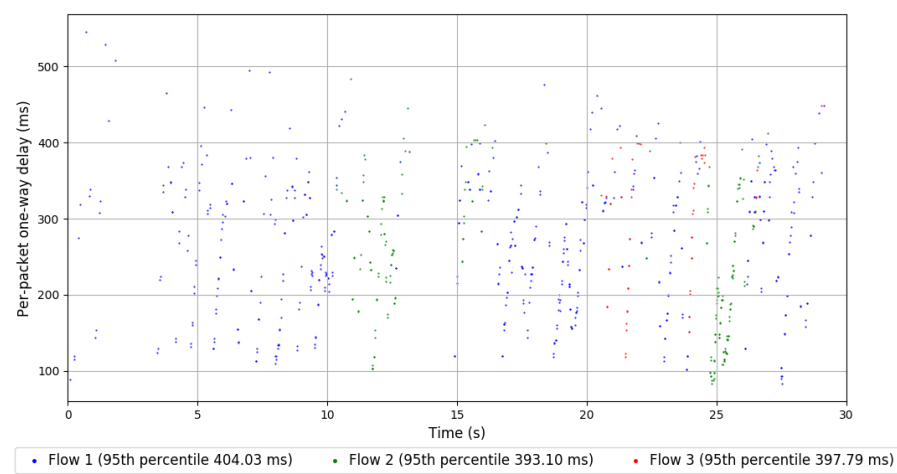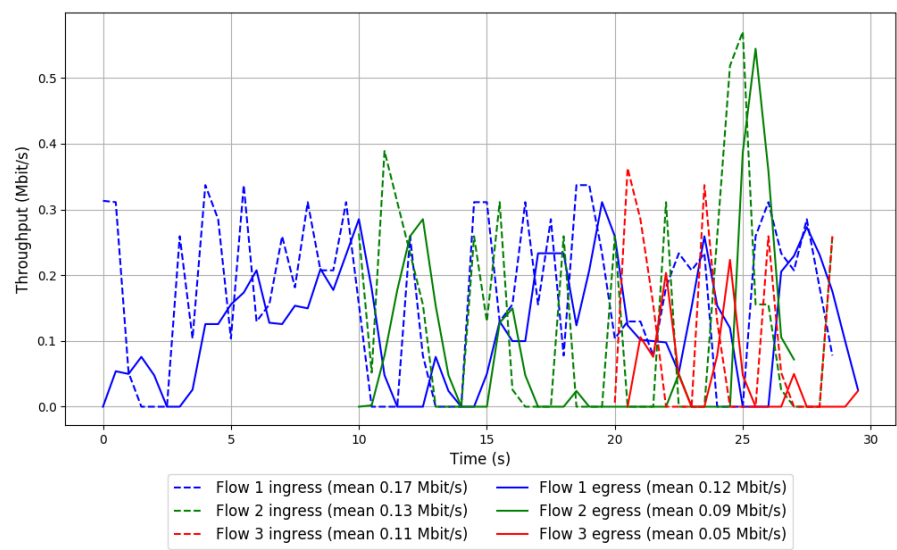# Run 3: Report of TCP BBR — Data Link

```
Run 1: Statistics of Copa

Start at: 2018-07-04 09:39:31
End at: 2018-07-04 09:40:01
Local clock offset: 0.64 ms
Remote clock offset: -7.137 ms


# Below is generated by plot.py at 2018-07-04 10:17:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 398.946 ms
Loss rate: 34.15%
-- Flow 1:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 404.031 ms
Loss rate: 26.85%
-- Flow 2:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 393.098 ms
Loss rate: 41.48%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 397.789 ms
Loss rate: 53.66%
```
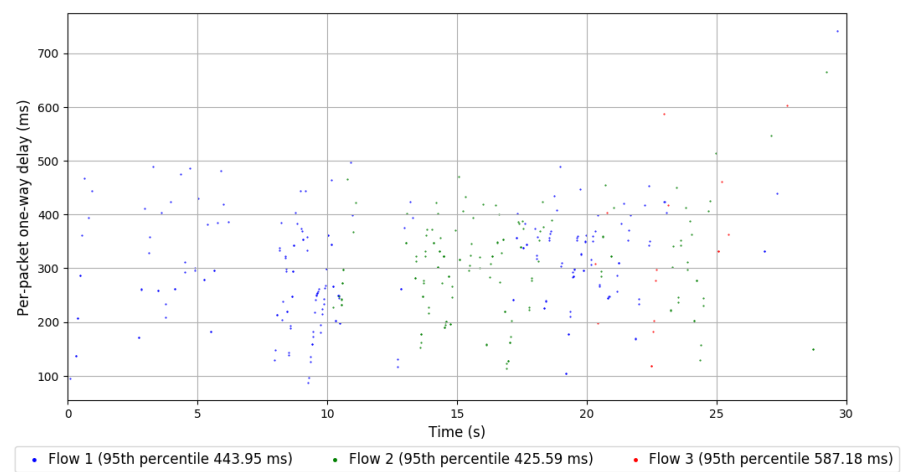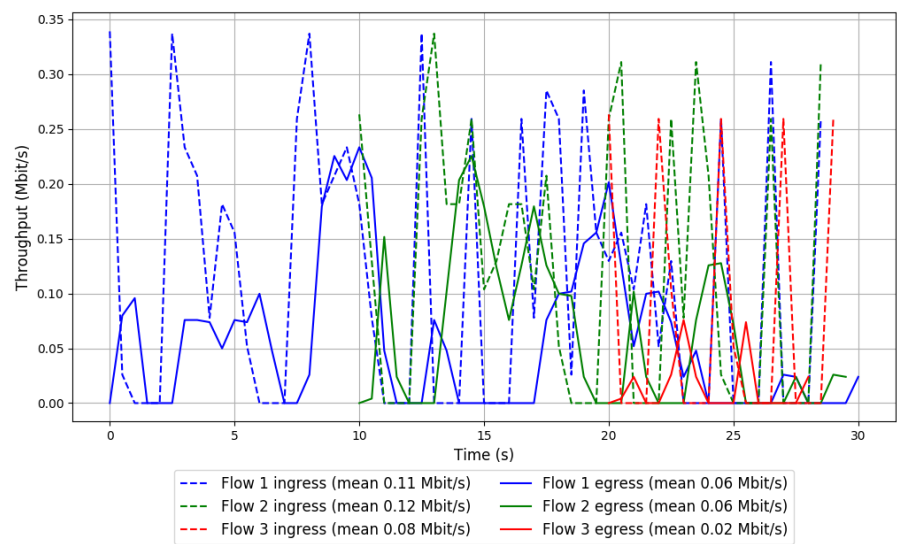
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 0.17 Mbit/s)   Flow 1 egress (mean 0.12 Mbit/s)
Flow 2 ingress (mean 0.13 Mbit/s)   Flow 2 egress (mean 0.09 Mbit/s)
Flow 3 ingress (mean 0.11 Mbit/s)   Flow 3 egress (mean 0.05 Mbit/s)

Flow 1 (95th percentile 404.03 ms)   Flow 2 (95th percentile 393.10 ms)   Flow 3 (95th percentile 397.79 ms)

```
Run 2: Statistics of Copa

Start at: 2018-07-04 09:58:05
End at: 2018-07-04 09:58:35
Local clock offset: 1.388 ms
Remote clock offset: 3.009 ms


# Below is generated by plot.py at 2018-07-04 10:17:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 450.200 ms
Loss rate: 52.90%
-- Flow 1:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 443.953 ms
Loss rate: 49.03%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 425.591 ms
Loss rate: 49.01%
-- Flow 3:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 587.179 ms
Loss rate: 82.73%
```
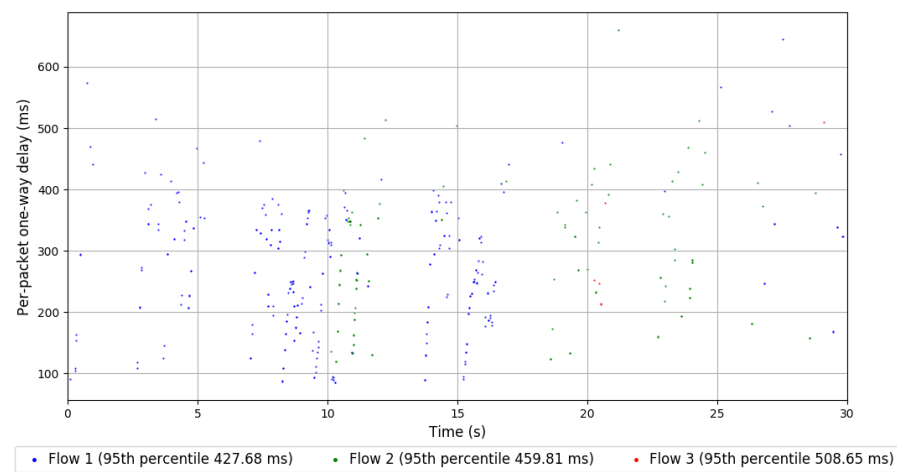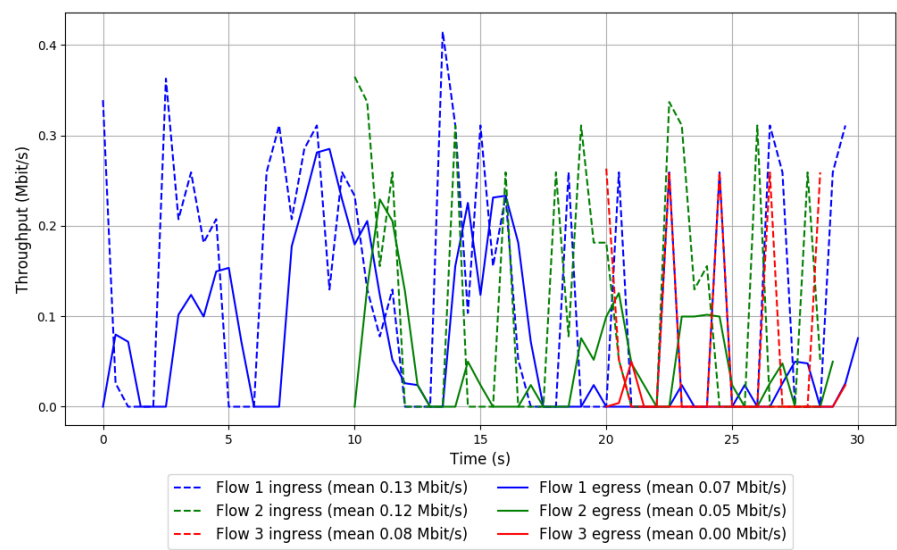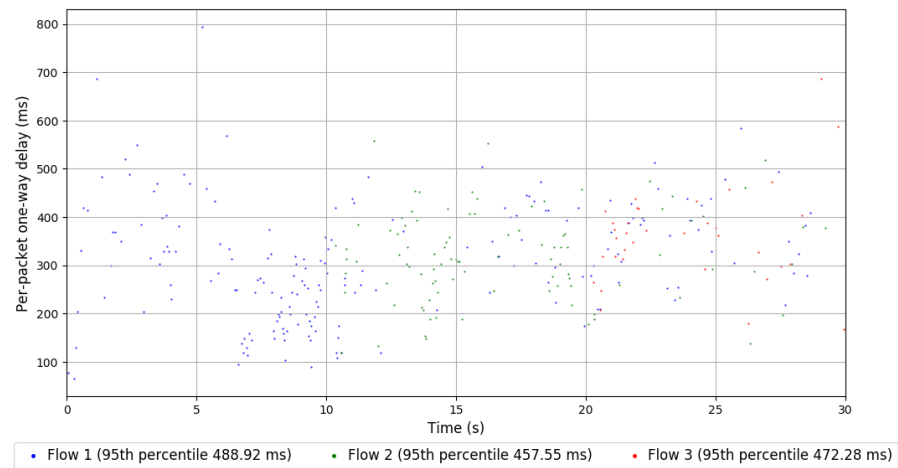
Run 2: Report of Copa — Data Link

Flow 1 ingress (mean 0.11 Mbit/s) --- Flow 1 egress (mean 0.06 Mbit/s)
Flow 2 ingress (mean 0.12 Mbit/s) --- Flow 2 egress (mean 0.06 Mbit/s)
Flow 3 ingress (mean 0.08 Mbit/s) --- Flow 3 egress (mean 0.02 Mbit/s)

Flow 1 (95th percentile 443.95 ms)   Flow 2 (95th percentile 425.59 ms)   Flow 3 (95th percentile 587.18 ms)

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```
Run 3: Statistics of Copa

Start at: 2018-07-04 10:16:37
End at: 2018-07-04 10:17:07
Local clock offset: -0.205 ms
Remote clock offset: -2.465 ms


# Below is generated by plot.py at 2018-07-04 10:17:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 440.566 ms
Loss rate: 54.63%
-- Flow 1:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 427.679 ms
Loss rate: 45.51%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 459.807 ms
Loss rate: 58.45%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 508.655 ms
Loss rate: 94.24%
```

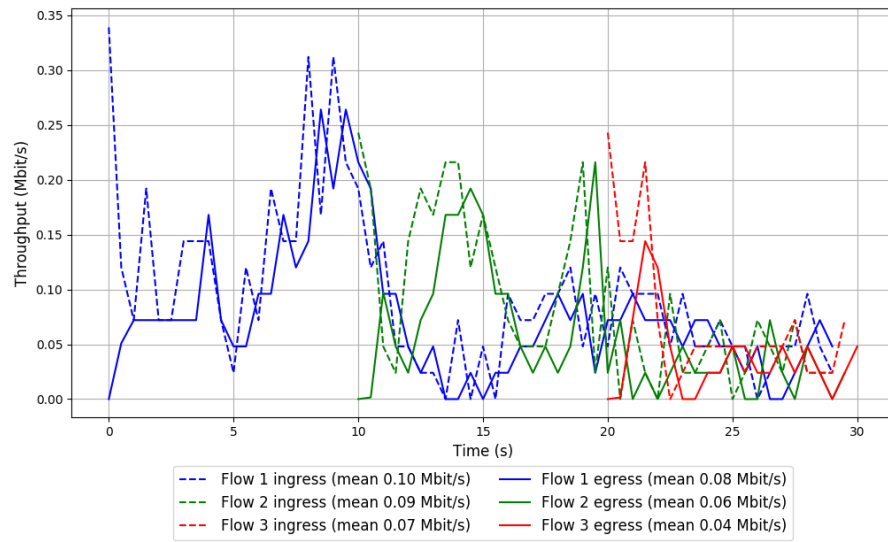# Run 3: Report of Copa — Data Link

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```
Run 1: Statistics of TCP Cubic

Start at: 2018-07-04 09:27:29
End at: 2018-07-04 09:27:59
Local clock offset: -1.24 ms
Remote clock offset: -20.411 ms


# Below is generated by plot.py at 2018-07-04 10:17:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 483.551 ms
Loss rate: 28.15%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 488.922 ms
Loss rate: 21.69%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 457.549 ms
Loss rate: 32.35%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 472.279 ms
Loss rate: 43.98%
```

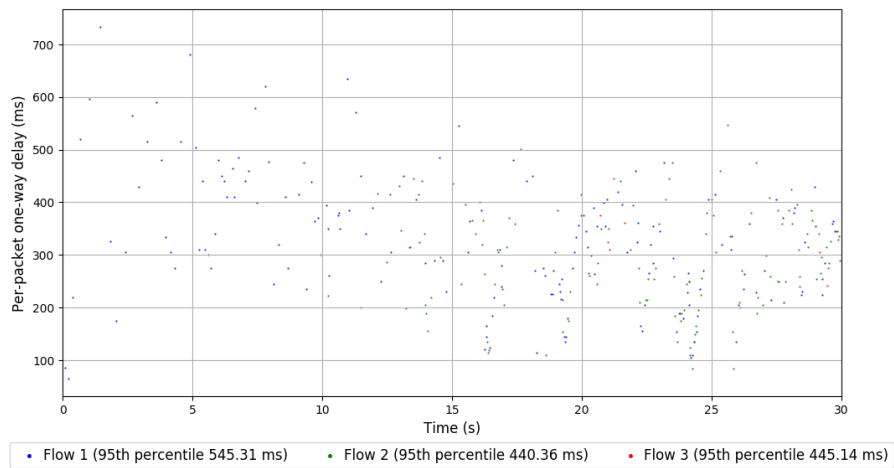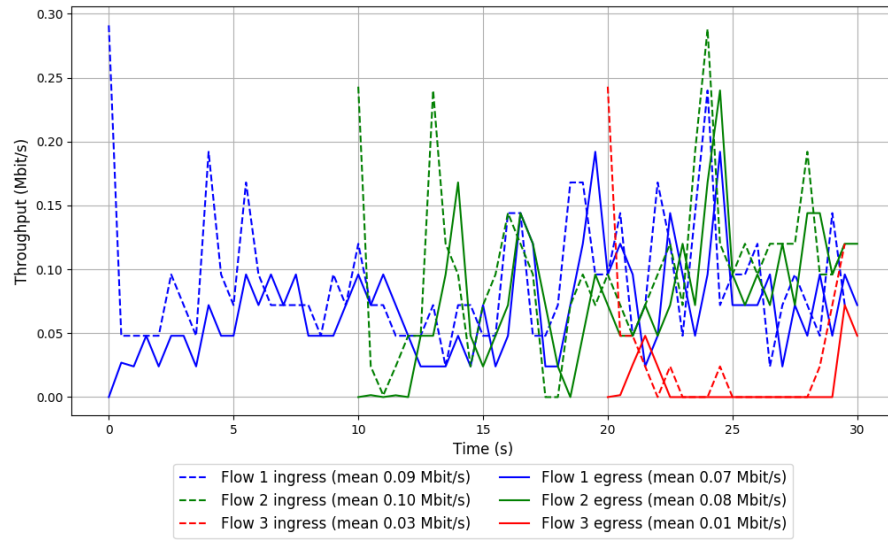Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-07-04 09:46:05
End at: 2018-07-04 09:46:35
Local clock offset: 0.209 ms
Remote clock offset: -2.449 ms


# Below is generated by plot.py at 2018-07-04 10:17:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 484.988 ms
Loss rate: 25.05%
-- Flow 1:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 545.312 ms
Loss rate: 23.78%
-- Flow 2:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 440.357 ms
Loss rate: 20.49%
-- Flow 3:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 445.144 ms
Loss rate: 65.08%
```
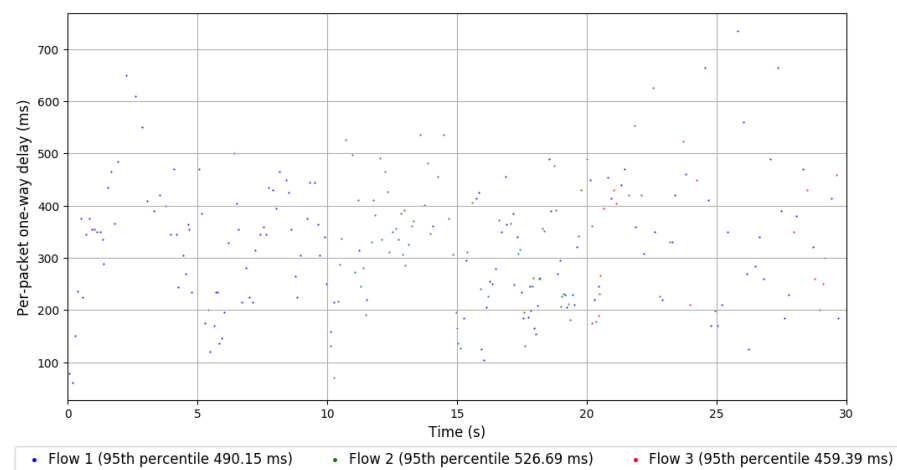
Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2018-07-04 10:04:38
End at: 2018-07-04 10:05:08
Local clock offset: -2.992 ms
Remote clock offset: 5.108 ms


# Below is generated by plot.py at 2018-07-04 10:17:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 523.362 ms
Loss rate: 31.27%
-- Flow 1:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 490.149 ms
Loss rate: 24.74%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 526.689 ms
Loss rate: 34.54%
-- Flow 3:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 459.393 ms
Loss rate: 58.14%
```
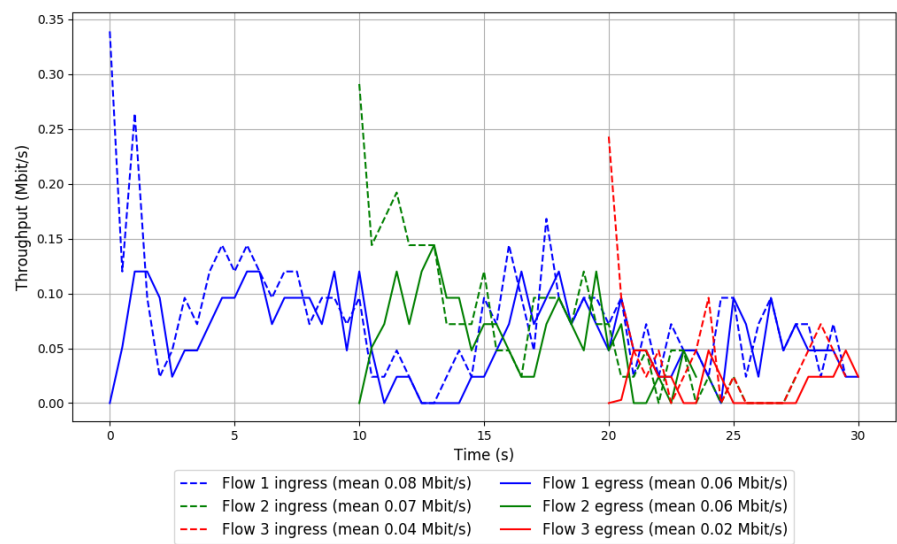
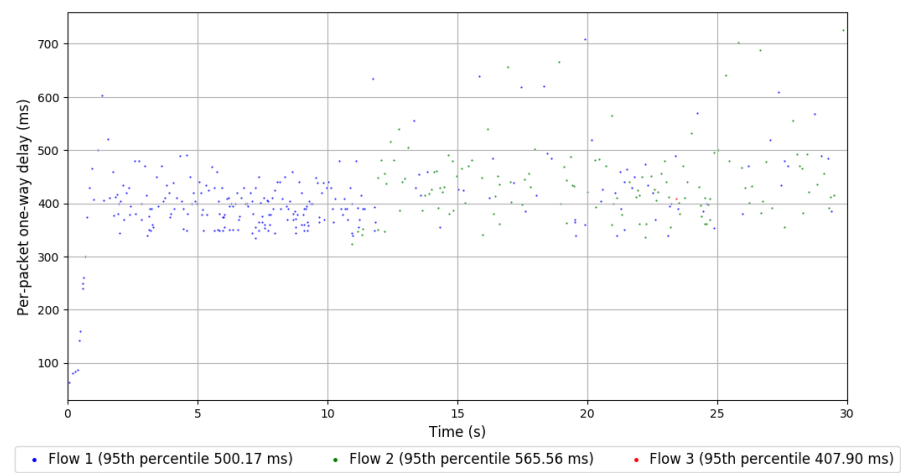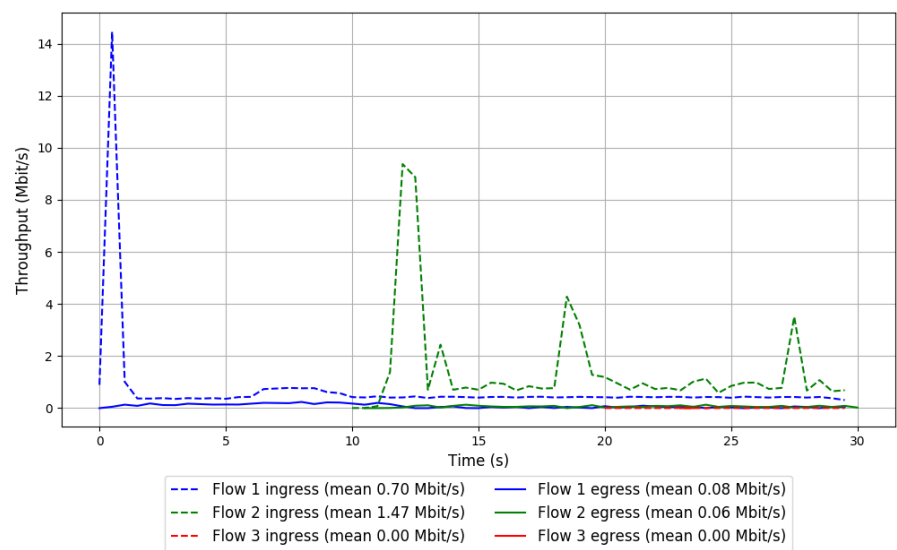Run 3: Report of TCP Cubic — Data Link

```
Run 1: Statistics of FillP

Start at: 2018-07-04 09:23:05
End at: 2018-07-04 09:23:35
Local clock offset: -0.367 ms
Remote clock offset: -19.509 ms


# Below is generated by plot.py at 2018-07-04 10:17:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 531.282 ms
Loss rate: 92.73%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 500.173 ms
Loss rate: 88.41%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 565.560 ms
Loss rate: 95.82%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 407.905 ms
Loss rate: 98.09%
```
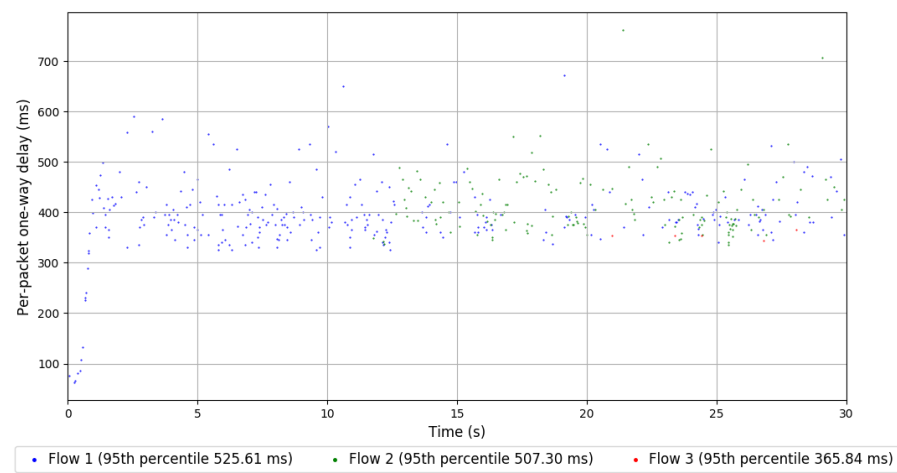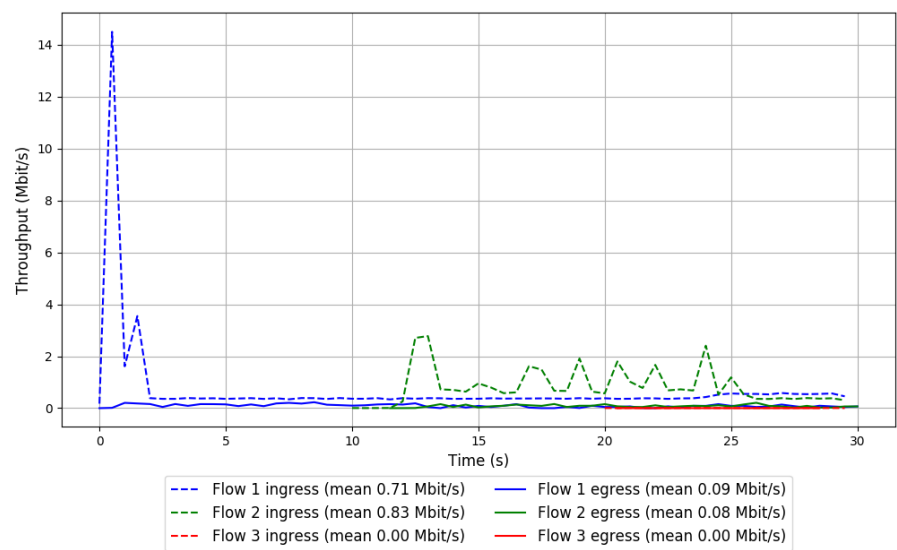
Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 0.70 Mbit/s)   Flow 1 egress (mean 0.08 Mbit/s)
Flow 2 ingress (mean 1.47 Mbit/s)   Flow 2 egress (mean 0.06 Mbit/s)
Flow 3 ingress (mean 0.00 Mbit/s)   Flow 3 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 500.17 ms)   Flow 2 (95th percentile 565.56 ms)   Flow 3 (95th percentile 407.90 ms)

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```
Run 2: Statistics of FillP

Start at: 2018-07-04 09:41:42
End at: 2018-07-04 09:42:12
Local clock offset: 1.189 ms
Remote clock offset: -4.435 ms


# Below is generated by plot.py at 2018-07-04 10:17:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 520.882 ms
Loss rate: 88.67%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 525.610 ms
Loss rate: 86.88%
-- Flow 2:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 507.301 ms
Loss rate: 90.96%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 365.839 ms
Loss rate: 91.91%
```
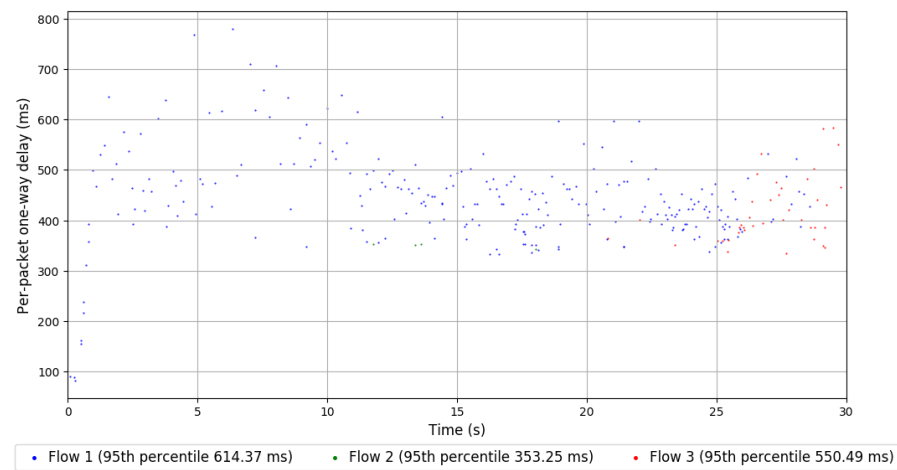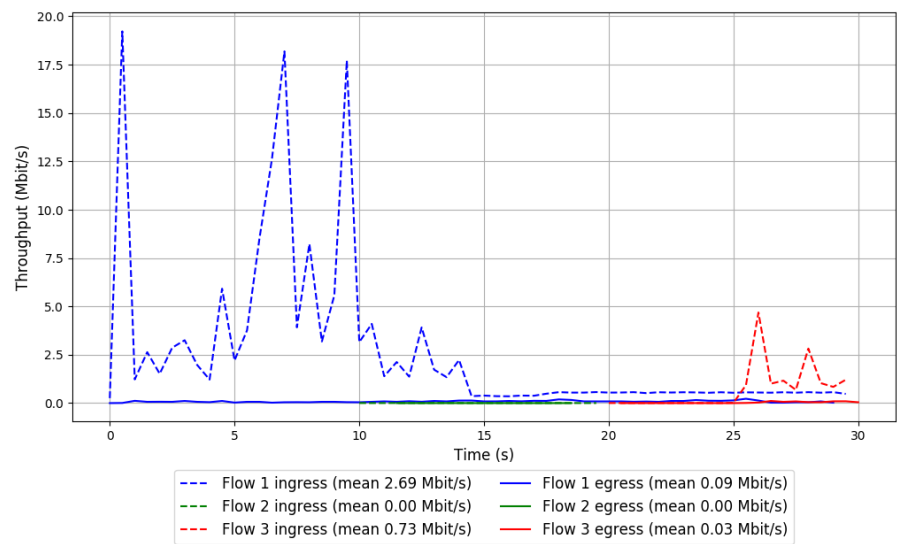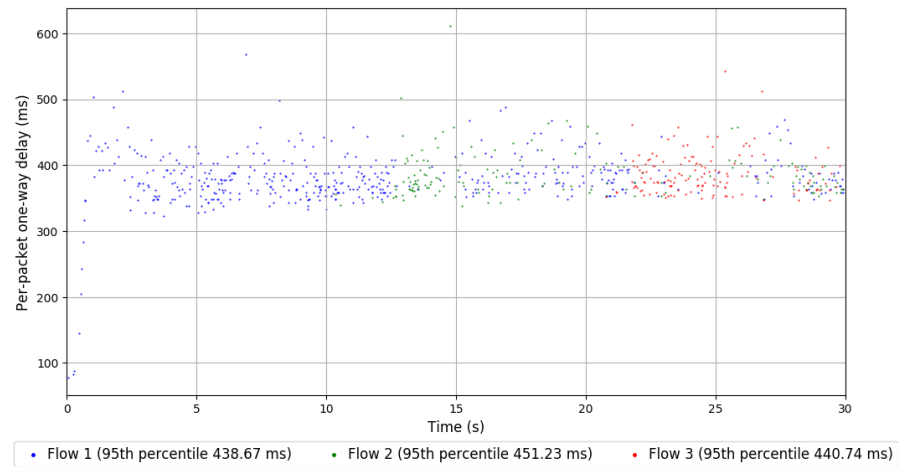
Run 2: Report of FillP — Data Link

Flow 1 ingress (mean 0.71 Mbit/s)   Flow 1 egress (mean 0.09 Mbit/s)
Flow 2 ingress (mean 0.83 Mbit/s)   Flow 2 egress (mean 0.08 Mbit/s)
Flow 3 ingress (mean 0.00 Mbit/s)   Flow 3 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 525.61 ms)   Flow 2 (95th percentile 507.30 ms)   Flow 3 (95th percentile 365.84 ms)

```
Run 3: Statistics of FillP

Start at: 2018-07-04 10:00:16
End at: 2018-07-04 10:00:46
Local clock offset: 1.135 ms
Remote clock offset: 3.509 ms


# Below is generated by plot.py at 2018-07-04 10:17:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 605.877 ms
Loss rate: 96.82%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 614.369 ms
Loss rate: 96.93%
-- Flow 2:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 353.246 ms
Loss rate: 93.27%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 550.489 ms
Loss rate: 95.65%
```

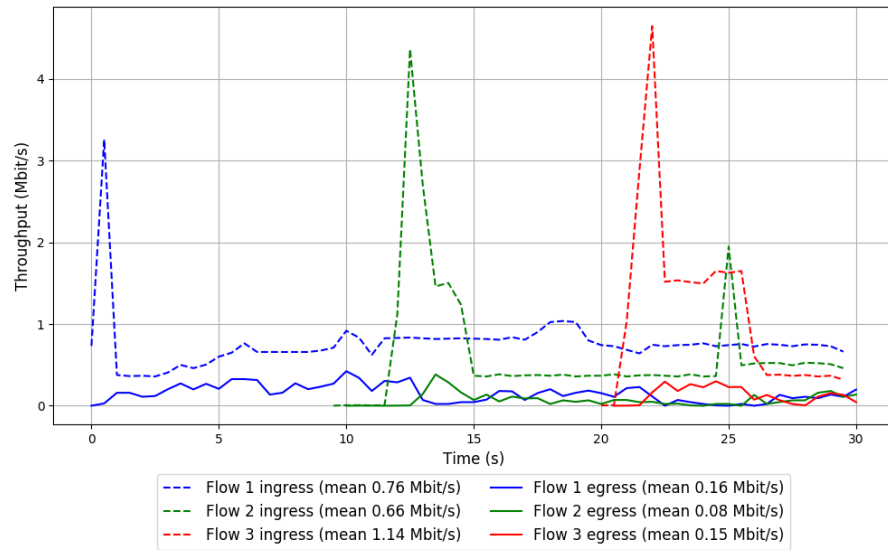## Run 3: Report of FillP — Data Link

```
Run 1: Statistics of FillP-Sheep

Start at: 2018-07-04 09:34:02
End at: 2018-07-04 09:34:32
Local clock offset: -1.261 ms
Remote clock offset: -16.173 ms


# Below is generated by plot.py at 2018-07-04 10:17:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.25 Mbit/s
95th percentile per-packet one-way delay: 442.991 ms
Loss rate: 84.25%
-- Flow 1:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 438.669 ms
Loss rate: 79.72%
-- Flow 2:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 451.234 ms
Loss rate: 88.55%
-- Flow 3:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 440.738 ms
Loss rate: 88.38%
```
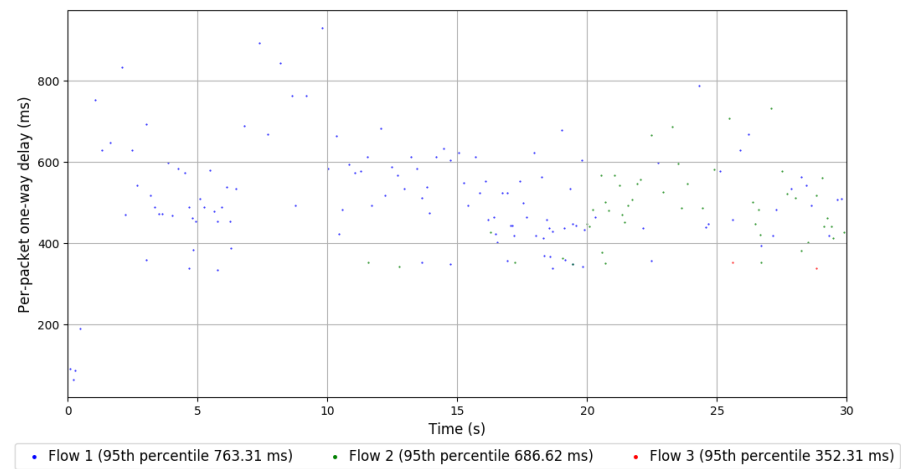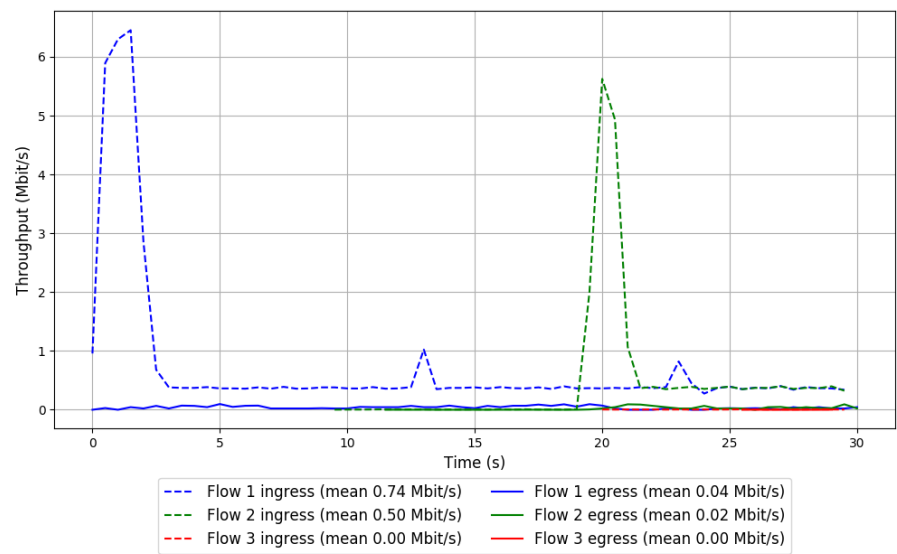
Run 1: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 0.76 Mbit/s) —— Flow 1 egress (mean 0.16 Mbit/s)
Flow 2 ingress (mean 0.66 Mbit/s) —— Flow 2 egress (mean 0.08 Mbit/s)
Flow 3 ingress (mean 1.14 Mbit/s) —— Flow 3 egress (mean 0.15 Mbit/s)

Flow 1 (95th percentile 438.67 ms)　　Flow 2 (95th percentile 451.23 ms)　　Flow 3 (95th percentile 440.74 ms)
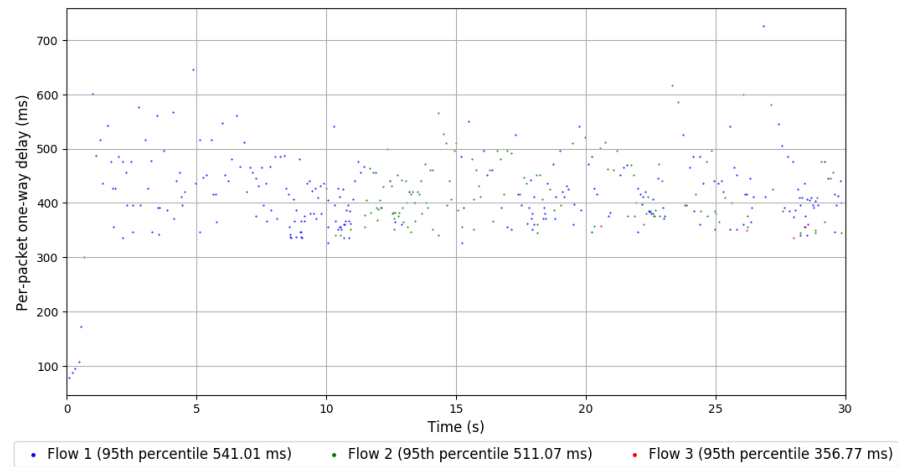
29

```
Run 2: Statistics of FillP-Sheep

Start at: 2018-07-04 09:52:38
End at: 2018-07-04 09:53:08
Local clock offset: -0.547 ms
Remote clock offset: 0.86 ms


# Below is generated by plot.py at 2018-07-04 10:17:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 706.740 ms
Loss rate: 94.94%
-- Flow 1:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 763.308 ms
Loss rate: 94.62%
-- Flow 2:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 686.624 ms
Loss rate: 95.65%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 352.315 ms
Loss rate: 96.35%
```

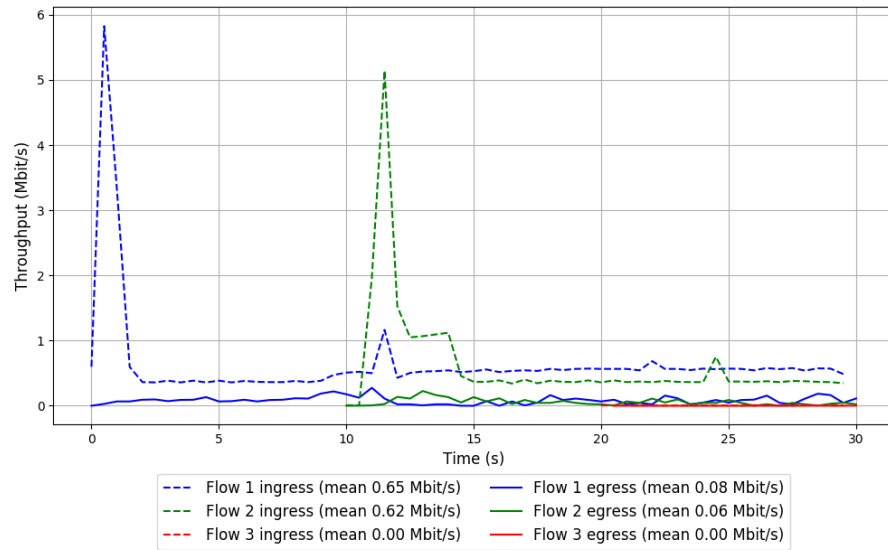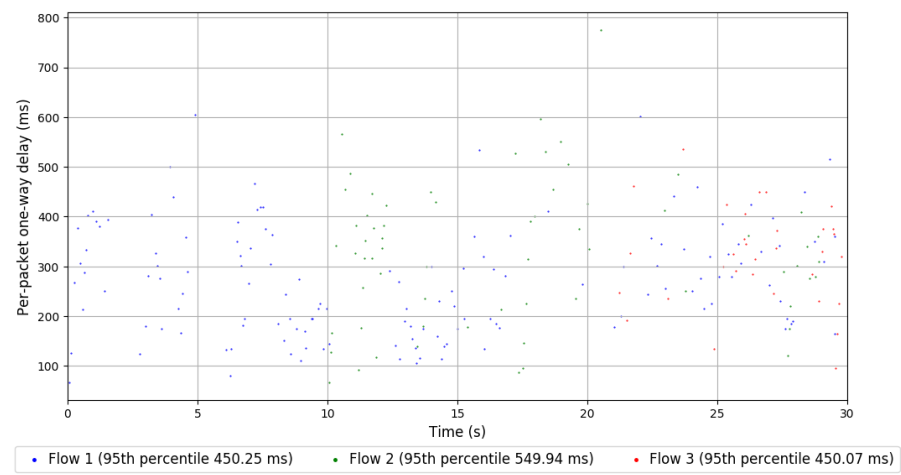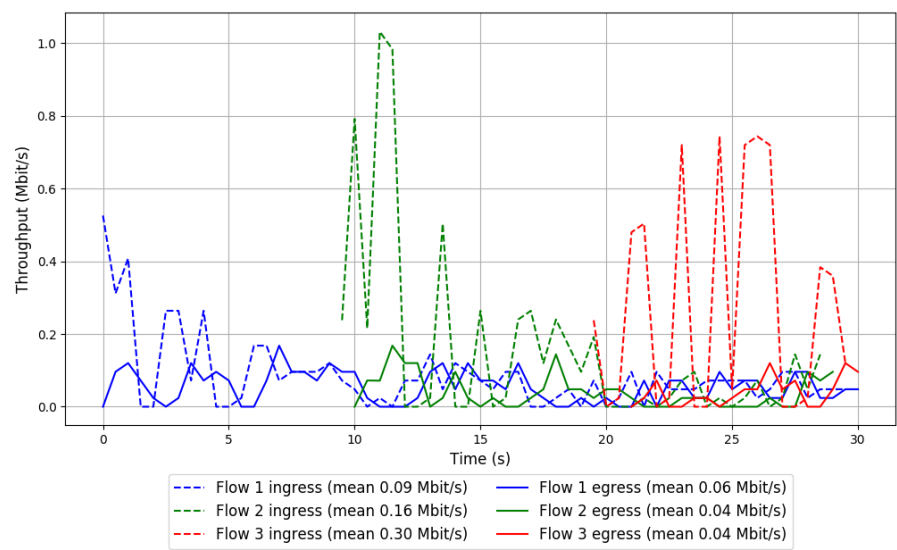# Run 2: Report of FillP-Sheep — Data Link

- Flow 1 ingress (mean 0.74 Mbit/s)
- Flow 1 egress (mean 0.04 Mbit/s)
- Flow 2 ingress (mean 0.50 Mbit/s)
- Flow 2 egress (mean 0.02 Mbit/s)
- Flow 3 ingress (mean 0.00 Mbit/s)
- Flow 3 egress (mean 0.00 Mbit/s)

- Flow 1 (95th percentile 763.31 ms)
- Flow 2 (95th percentile 686.62 ms)
- Flow 3 (95th percentile 352.31 ms)

```
Run 3: Statistics of FillP-Sheep

Start at: 2018-07-04 10:11:11
End at: 2018-07-04 10:11:41
Local clock offset: -0.604 ms
Remote clock offset: -0.578 ms


# Below is generated by plot.py at 2018-07-04 10:17:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 525.773 ms
Loss rate: 88.48%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 541.014 ms
Loss rate: 87.11%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 511.067 ms
Loss rate: 90.59%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 356.771 ms
Loss rate: 91.95%
```
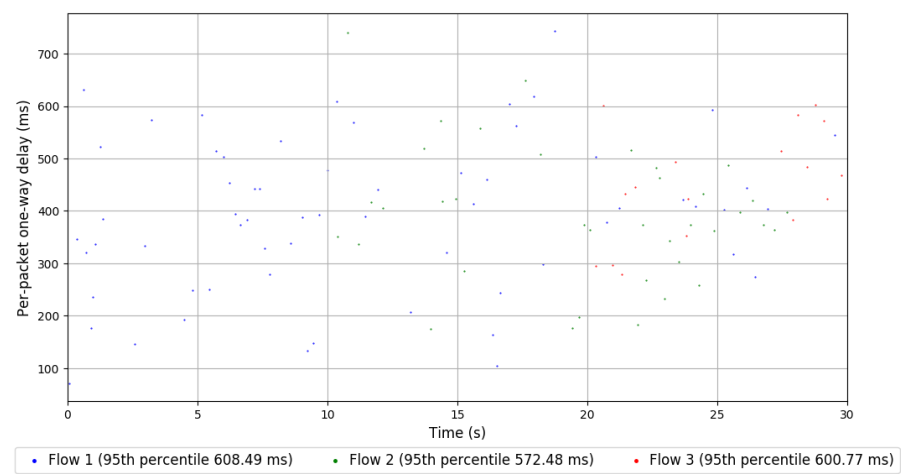
Run 3: Report of FillP-Sheep — Data Link

- Flow 1 ingress (mean 0.65 Mbit/s)
- Flow 2 ingress (mean 0.62 Mbit/s)
- Flow 3 ingress (mean 0.00 Mbit/s)
- Flow 1 egress (mean 0.08 Mbit/s)
- Flow 2 egress (mean 0.06 Mbit/s)
- Flow 3 egress (mean 0.00 Mbit/s)

- Flow 1 (95th percentile 541.01 ms)
- Flow 2 (95th percentile 511.07 ms)
- Flow 3 (95th percentile 356.77 ms)

33

```
Run 1: Statistics of Indigo

Start at: 2018-07-04 09:32:57
End at: 2018-07-04 09:33:27
Local clock offset: -1.569 ms
Remote clock offset: -18.476 ms


# Below is generated by plot.py at 2018-07-04 10:17:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 499.626 ms
Loss rate: 67.22%
-- Flow 1:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 450.255 ms
Loss rate: 36.08%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 549.939 ms
Loss rate: 74.80%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 450.071 ms
Loss rate: 86.88%
```
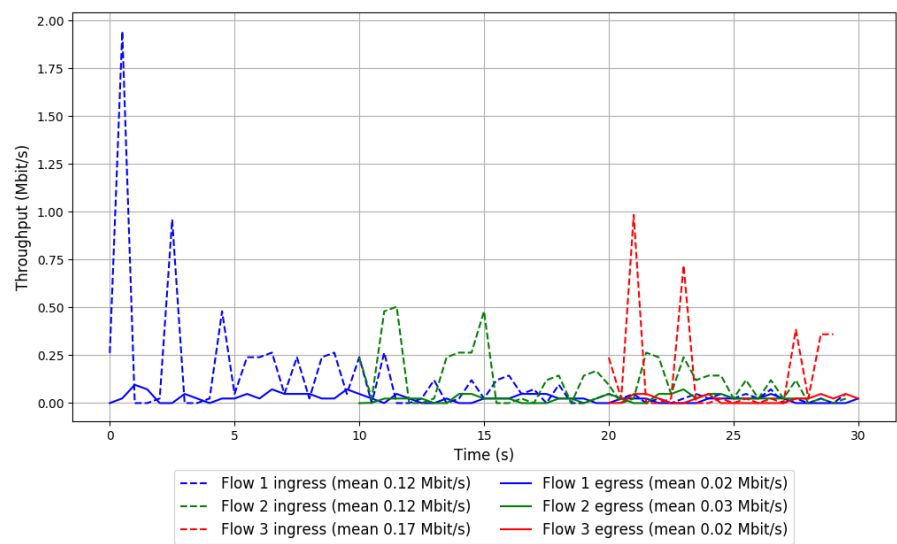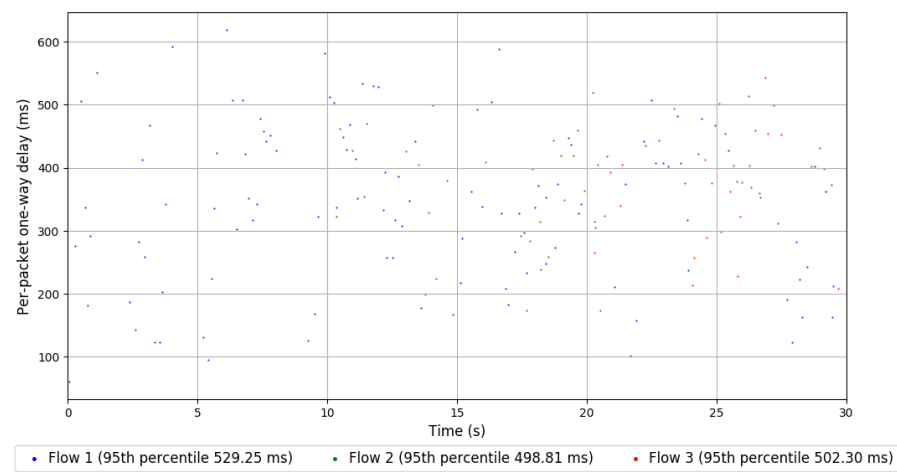
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-07-04 09:51:33
End at: 2018-07-04 09:52:03
Local clock offset: 1.911 ms
Remote clock offset: 0.942 ms


# Below is generated by plot.py at 2018-07-04 10:17:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 604.145 ms
Loss rate: 82.30%
-- Flow 1:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 608.488 ms
Loss rate: 79.72%
-- Flow 2:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 572.484 ms
Loss rate: 82.42%
-- Flow 3:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 600.767 ms
Loss rate: 87.94%
```
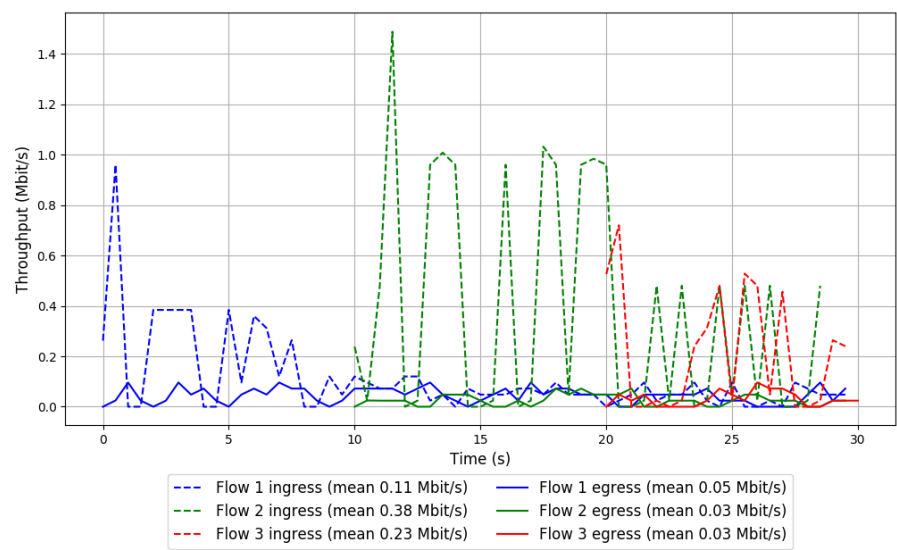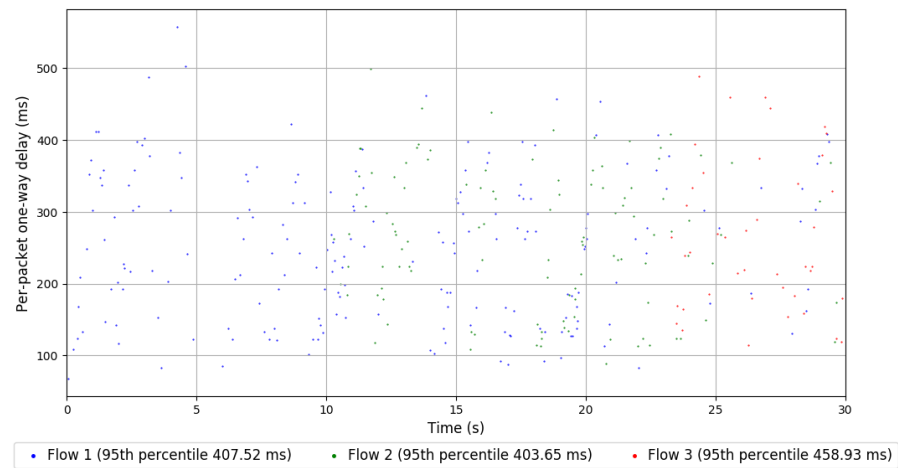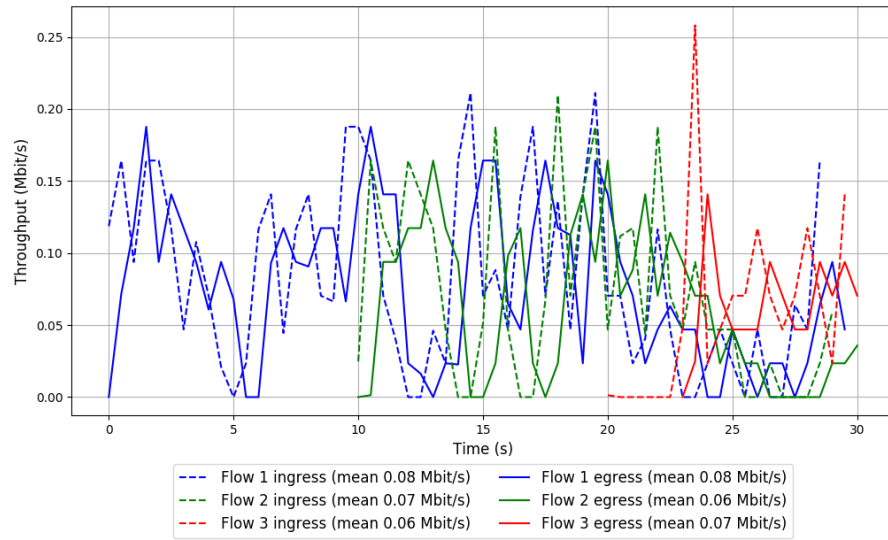
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-07-04 10:10:05
End at: 2018-07-04 10:10:35
Local clock offset: 0.284 ms
Remote clock offset: 1.275 ms


# Below is generated by plot.py at 2018-07-04 10:17:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 518.842 ms
Loss rate: 82.75%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 529.249 ms
Loss rate: 59.76%
-- Flow 2:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 498.806 ms
Loss rate: 92.72%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 502.297 ms
Loss rate: 85.23%
```

Run 3: Report of Indigo — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-07-04 09:36:13
End at: 2018-07-04 09:36:43
Local clock offset: 0.226 ms
Remote clock offset: -11.936 ms


# Below is generated by plot.py at 2018-07-04 10:17:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 412.075 ms
Loss rate: 8.30%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 407.520 ms
Loss rate: 4.88%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 403.648 ms
Loss rate: 10.07%
-- Flow 3:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 458.926 ms
Loss rate: 18.07%
```
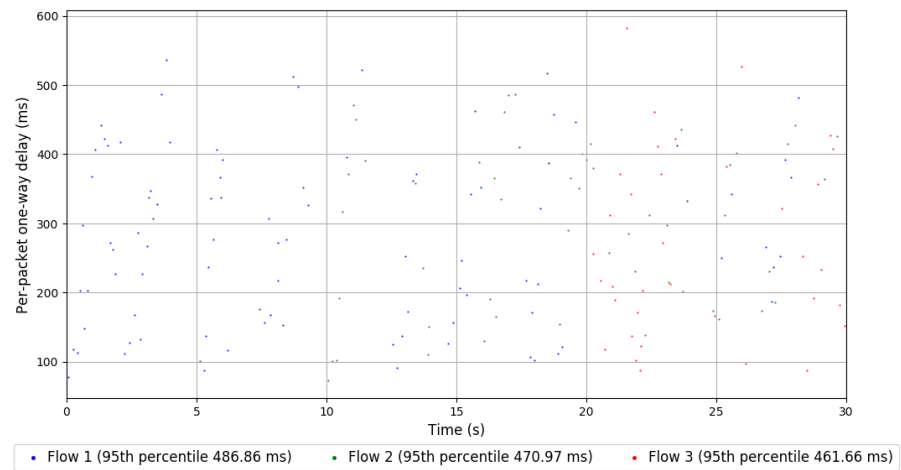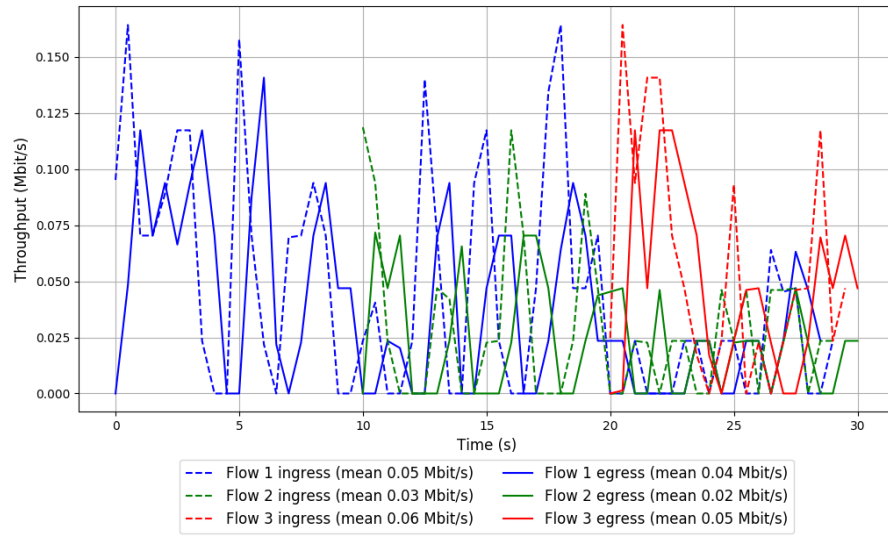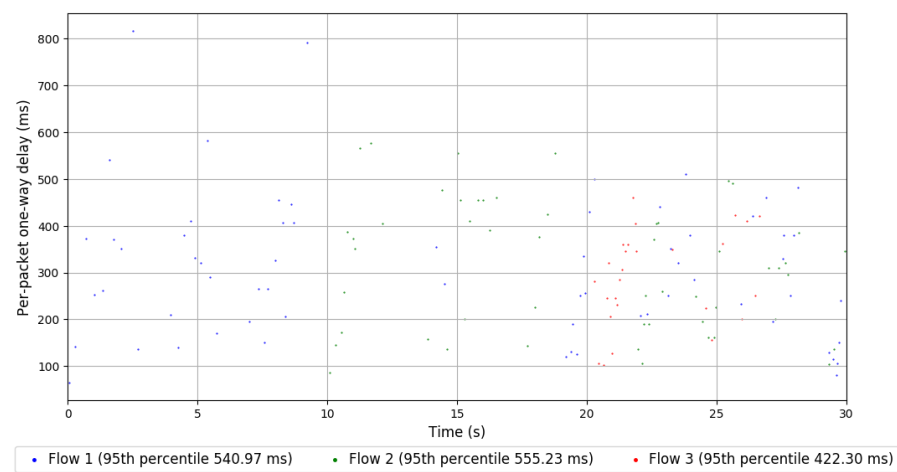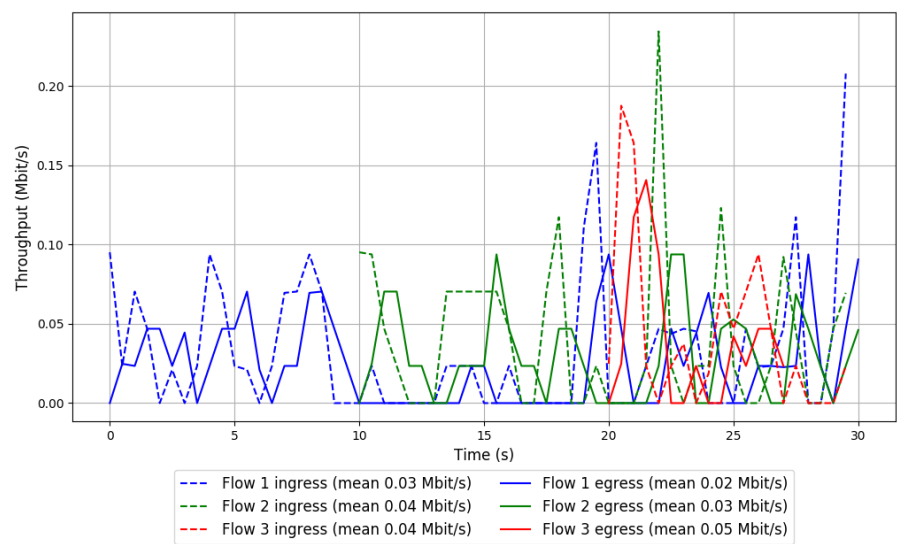
Run 1: Report of LEDBAT — Data Link

- Flow 1 ingress (mean 0.08 Mbit/s)
- Flow 1 egress (mean 0.08 Mbit/s)
- Flow 2 ingress (mean 0.07 Mbit/s)
- Flow 2 egress (mean 0.06 Mbit/s)
- Flow 3 ingress (mean 0.06 Mbit/s)
- Flow 3 egress (mean 0.07 Mbit/s)

- Flow 1 (95th percentile 407.52 ms)
- Flow 2 (95th percentile 403.65 ms)
- Flow 3 (95th percentile 458.93 ms)

```
Run 2: Statistics of LEDBAT

Start at: 2018-07-04 09:54:49
End at: 2018-07-04 09:55:19
Local clock offset: -1.775 ms
Remote clock offset: 1.107 ms


# Below is generated by plot.py at 2018-07-04 10:17:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 485.392 ms
Loss rate: 16.21%
-- Flow 1:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 486.864 ms
Loss rate: 17.65%
-- Flow 2:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 470.972 ms
Loss rate: 14.68%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 461.659 ms
Loss rate: 14.38%
```

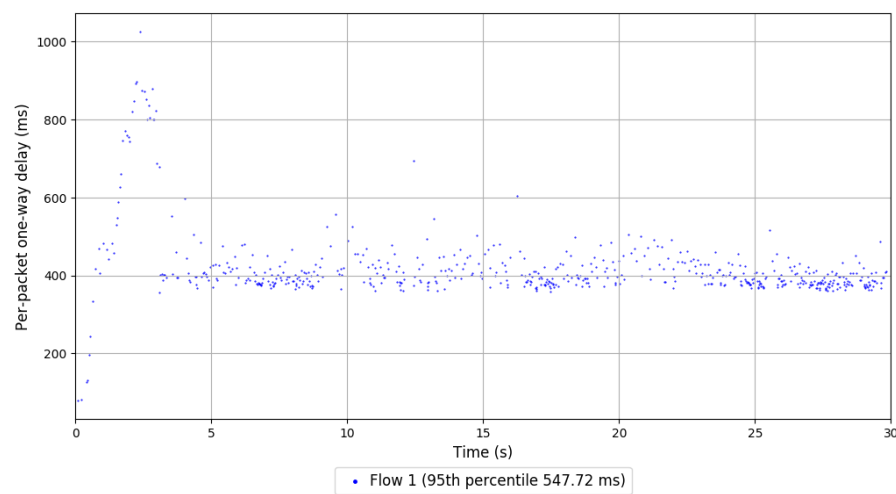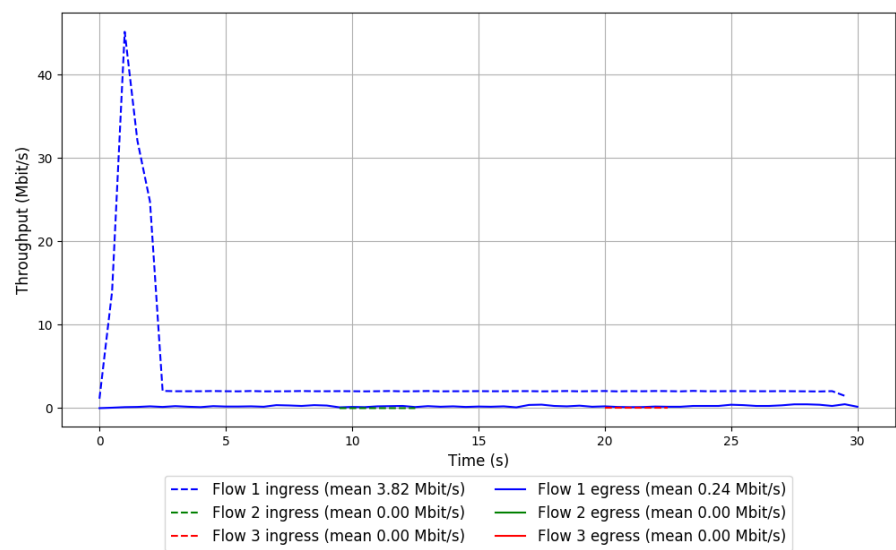Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-07-04 10:13:22
End at: 2018-07-04 10:13:52
Local clock offset: 1.2 ms
Remote clock offset: -1.702 ms


# Below is generated by plot.py at 2018-07-04 10:17:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 540.967 ms
Loss rate: 26.39%
-- Flow 1:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 540.967 ms
Loss rate: 23.12%
-- Flow 2:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 555.230 ms
Loss rate: 27.43%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 422.298 ms
Loss rate: 31.80%
```

Run 3: Report of LEDBAT — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-07-04 09:22:00
End at: 2018-07-04 09:22:30
Local clock offset: 3.4 ms
Remote clock offset: -19.305 ms
```

Run 1: Report of PCC-Allegro — Data Link
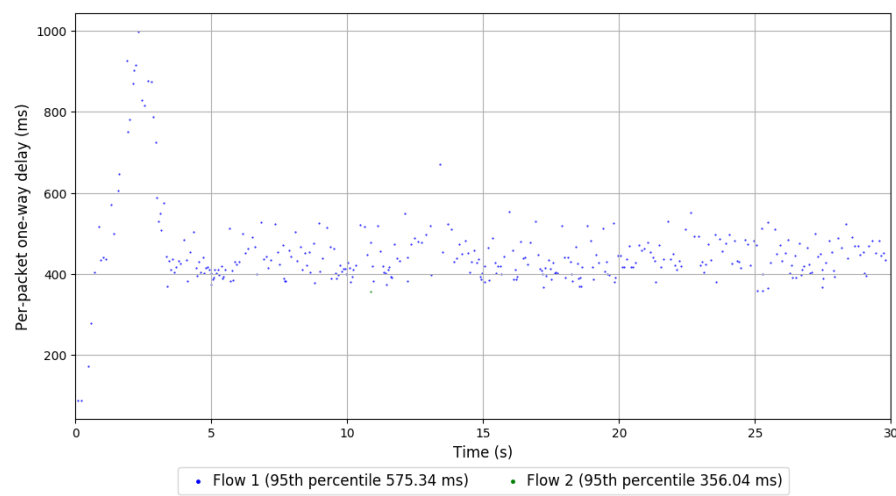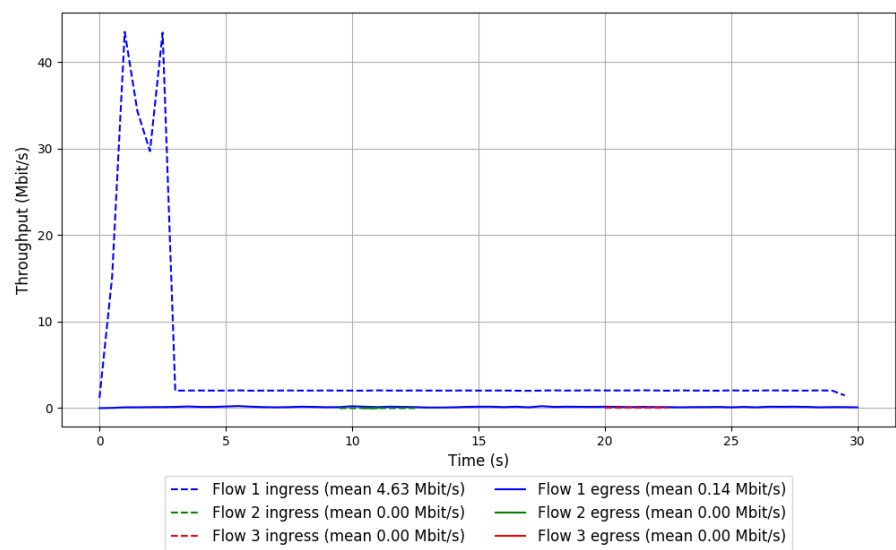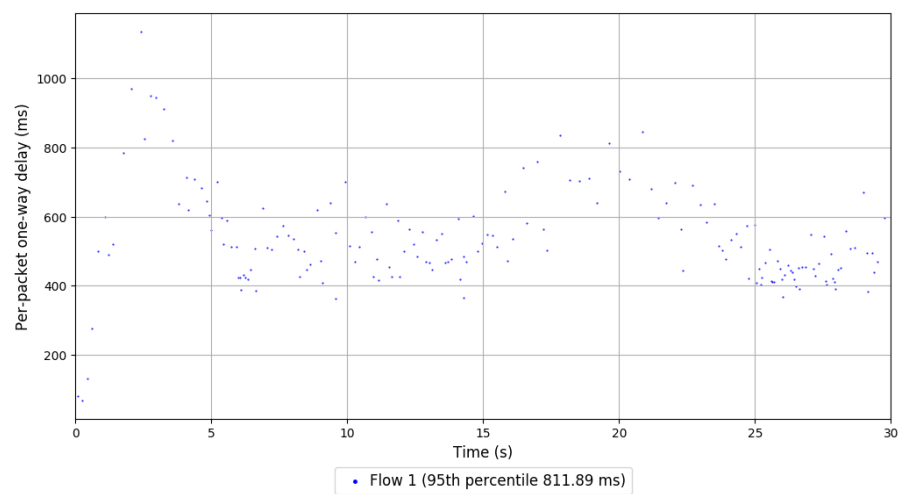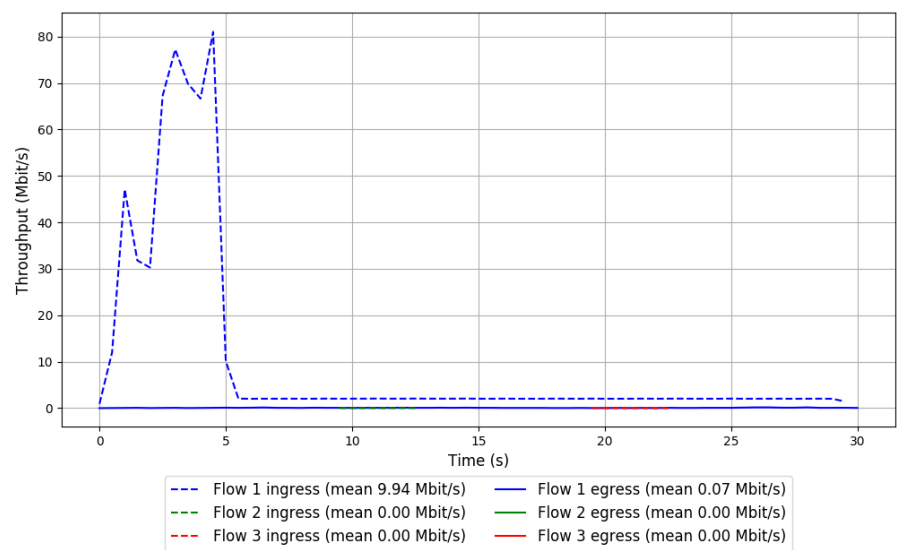
```
Run 2: Statistics of PCC-Allegro

Start at: 2018-07-04 09:40:36
End at: 2018-07-04 09:41:06
Local clock offset: -0.416 ms
Remote clock offset: -7.389 ms
```
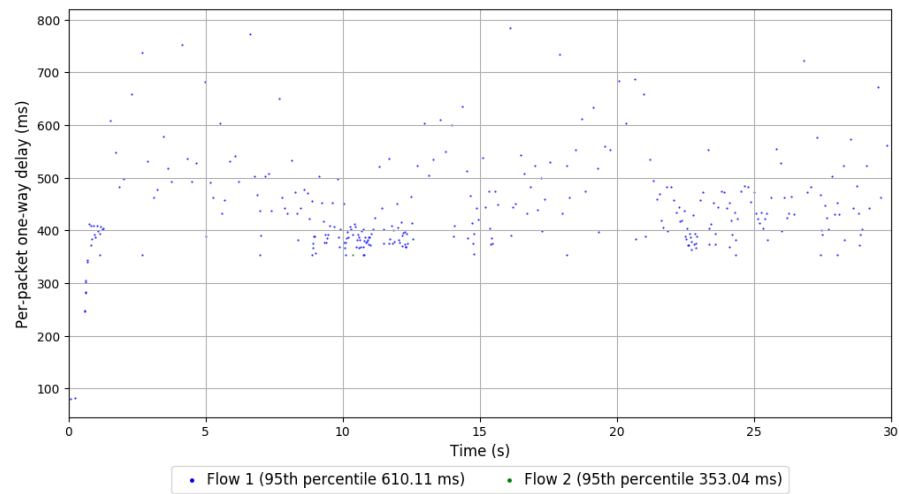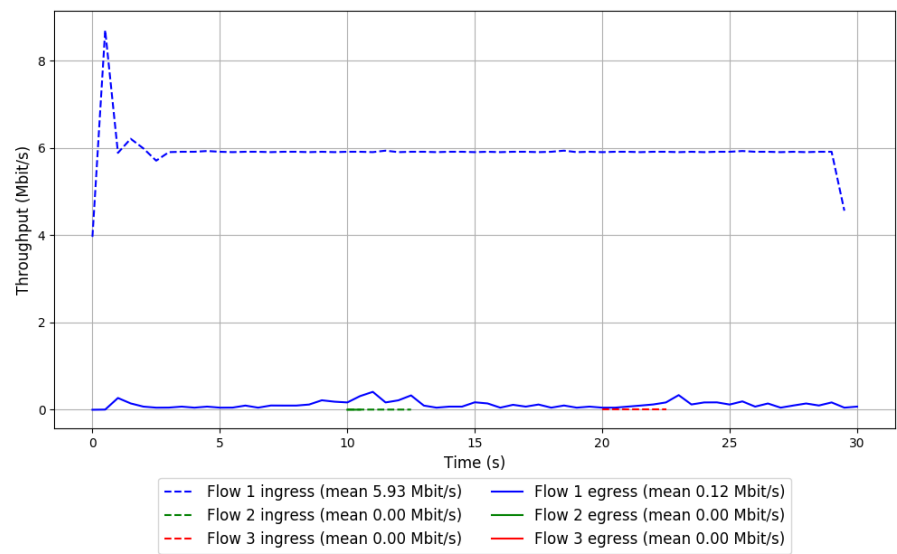
Run 2: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 4.63 Mbit/s)   Flow 1 egress (mean 0.14 Mbit/s)
Flow 2 ingress (mean 0.00 Mbit/s)   Flow 2 egress (mean 0.00 Mbit/s)
Flow 3 ingress (mean 0.00 Mbit/s)   Flow 3 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 575.34 ms)   Flow 2 (95th percentile 356.04 ms)
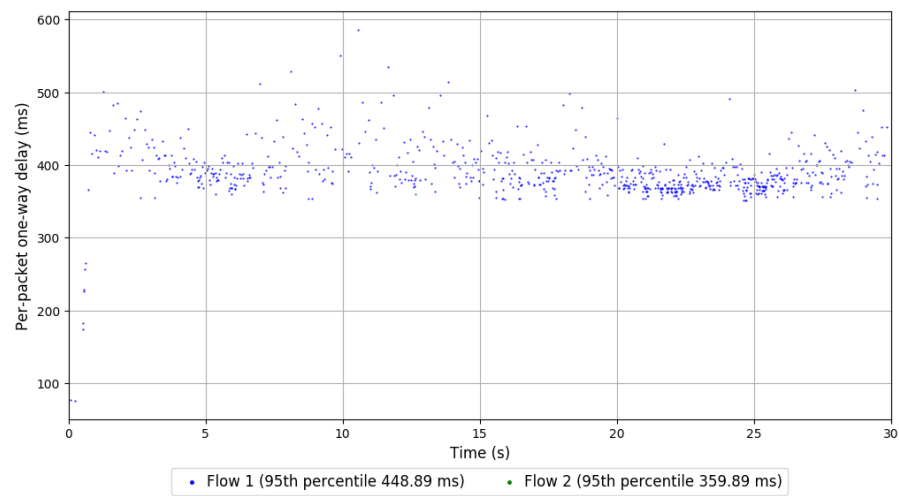
49

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-07-04 09:59:10
End at: 2018-07-04 09:59:40
Local clock offset: -0.037 ms
Remote clock offset: 3.109 ms
```

Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 9.94 Mbit/s)   Flow 1 egress (mean 0.07 Mbit/s)
Flow 2 ingress (mean 0.00 Mbit/s)   Flow 2 egress (mean 0.00 Mbit/s)
Flow 3 ingress (mean 0.00 Mbit/s)   Flow 3 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 811.89 ms)

51

```
Run 1: Statistics of PCC-Expr

Start at: 2018-07-04 09:25:16
End at: 2018-07-04 09:25:46
Local clock offset: 1.659 ms
Remote clock offset: -20.129 ms
```
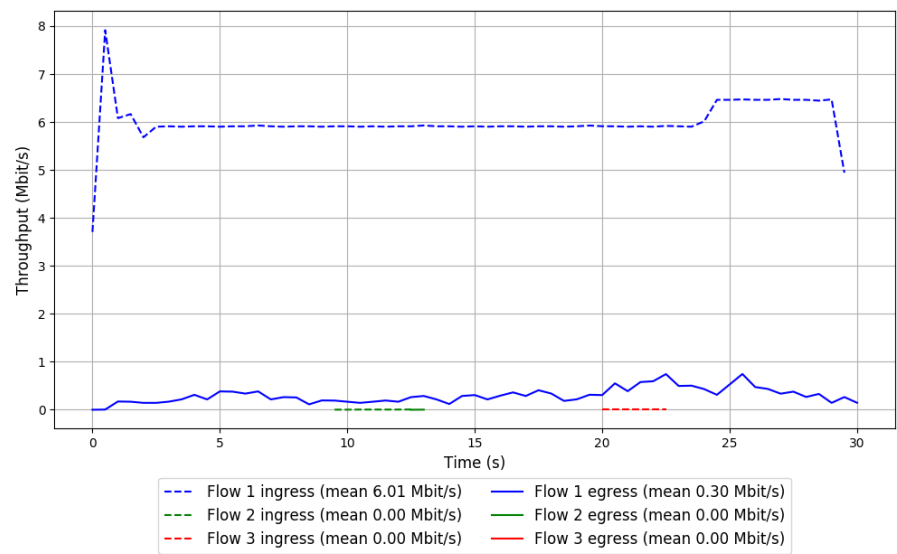
Run 1: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 5.93 Mbit/s) — Flow 1 egress (mean 0.12 Mbit/s)
Flow 2 ingress (mean 0.00 Mbit/s) — Flow 2 egress (mean 0.00 Mbit/s)
Flow 3 ingress (mean 0.00 Mbit/s) — Flow 3 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 610.11 ms) • Flow 2 (95th percentile 353.04 ms)

```
Run 2: Statistics of PCC-Expr

Start at: 2018-07-04 09:43:53
End at: 2018-07-04 09:44:23
Local clock offset: -1.213 ms
Remote clock offset: -3.522 ms
```

Run 2: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 6.01 Mbit/s) — Flow 1 egress (mean 0.30 Mbit/s)
Flow 2 ingress (mean 0.00 Mbit/s) — Flow 2 egress (mean 0.00 Mbit/s)
Flow 3 ingress (mean 0.00 Mbit/s) — Flow 3 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 448.89 ms) • Flow 2 (95th percentile 359.89 ms)

```
Run 3: Statistics of PCC-Expr

Start at: 2018-07-04 10:02:27
End at: 2018-07-04 10:02:57
Local clock offset: 1.41 ms
Remote clock offset: 4.995 ms
```

Run 3: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-07-04 09:29:40
End at: 2018-07-04 09:30:10
Local clock offset: 2.974 ms
Remote clock offset: -21.762 ms


# Below is generated by plot.py at 2018-07-04 10:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 493.116 ms
Loss rate: 54.74%
-- Flow 1:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 475.820 ms
Loss rate: 41.94%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 459.028 ms
Loss rate: 62.77%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 617.388 ms
Loss rate: 78.13%
```

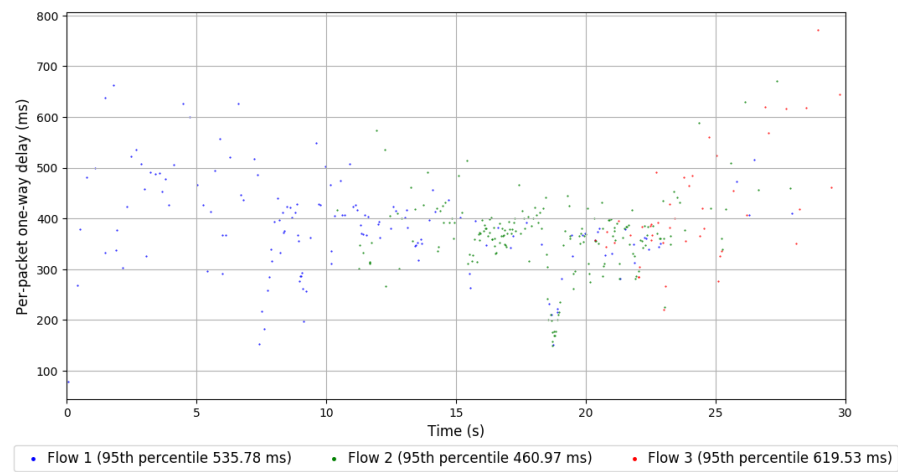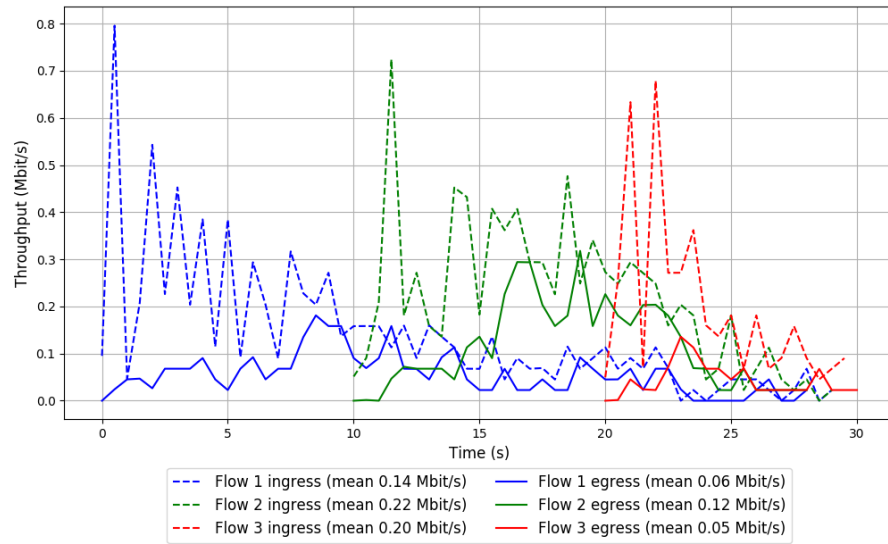Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-07-04 09:48:16
End at: 2018-07-04 09:48:46
Local clock offset: -1.822 ms
Remote clock offset: -0.618 ms


# Below is generated by plot.py at 2018-07-04 10:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 535.779 ms
Loss rate: 59.93%
-- Flow 1:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 535.779 ms
Loss rate: 61.67%
-- Flow 2:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 460.967 ms
Loss rate: 50.40%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 619.533 ms
Loss rate: 76.79%
```
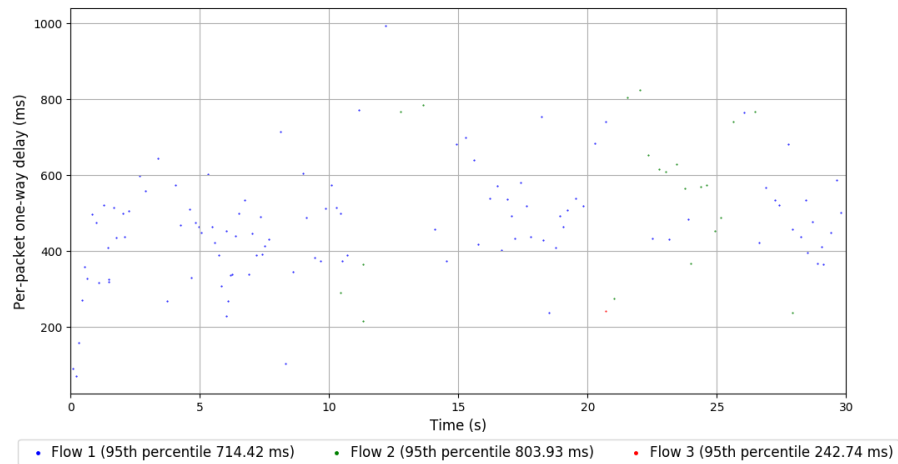
Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-07-04 10:06:49
End at: 2018-07-04 10:07:19
Local clock offset: 1.037 ms
Remote clock offset: 3.106 ms


# Below is generated by plot.py at 2018-07-04 10:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 765.313 ms
Loss rate: 69.31%
-- Flow 1:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 714.416 ms
Loss rate: 66.33%
-- Flow 2:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 803.930 ms
Loss rate: 76.98%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 242.744 ms
Loss rate: 99.37%
```
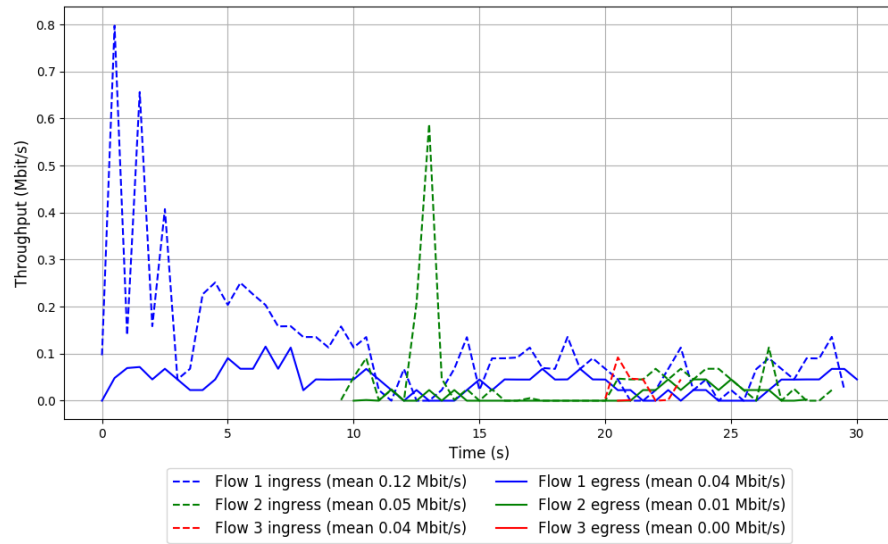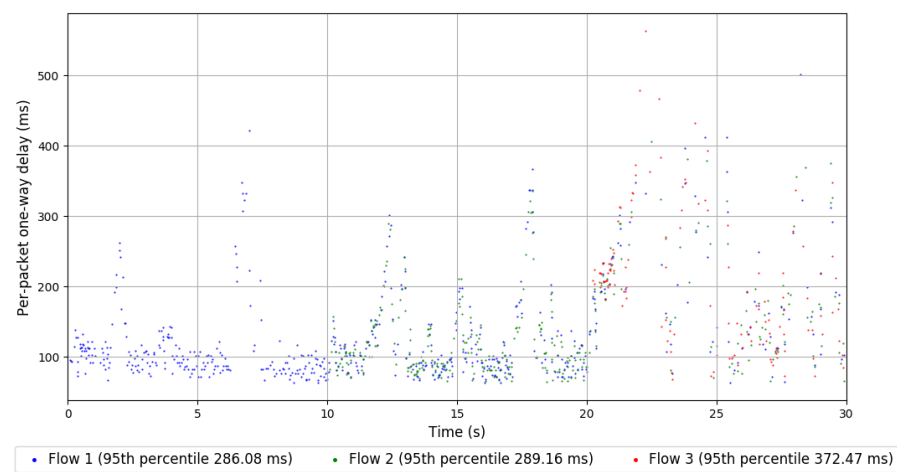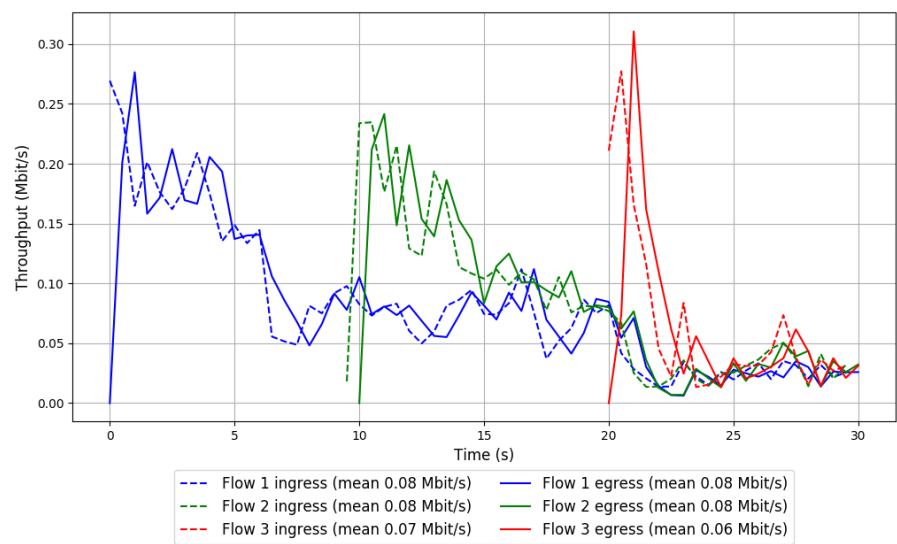
Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 0.12 Mbit/s) Flow 1 egress (mean 0.04 Mbit/s)
Flow 2 ingress (mean 0.05 Mbit/s) Flow 2 egress (mean 0.01 Mbit/s)
Flow 3 ingress (mean 0.04 Mbit/s) Flow 3 egress (mean 0.00 Mbit/s)

Flow 1 (95th percentile 714.42 ms) Flow 2 (95th percentile 803.93 ms) Flow 3 (95th percentile 242.74 ms)

63

```
Run 1: Statistics of SCReAM

Start at: 2018-07-04 09:37:19
End at: 2018-07-04 09:37:49
Local clock offset: 1.691 ms
Remote clock offset: -9.956 ms


# Below is generated by plot.py at 2018-07-04 10:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 308.421 ms
Loss rate: 2.43%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 286.085 ms
Loss rate: 1.21%
-- Flow 2:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 289.156 ms
Loss rate: 1.38%
-- Flow 3:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 372.472 ms
Loss rate: 9.51%
```
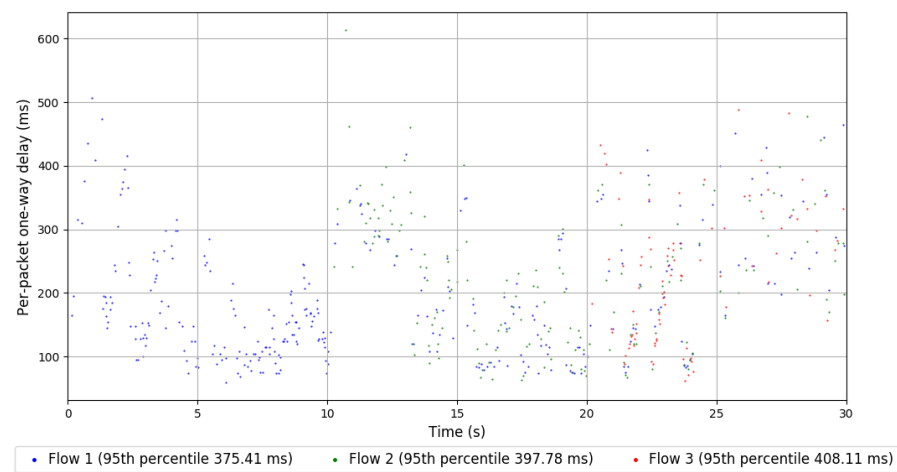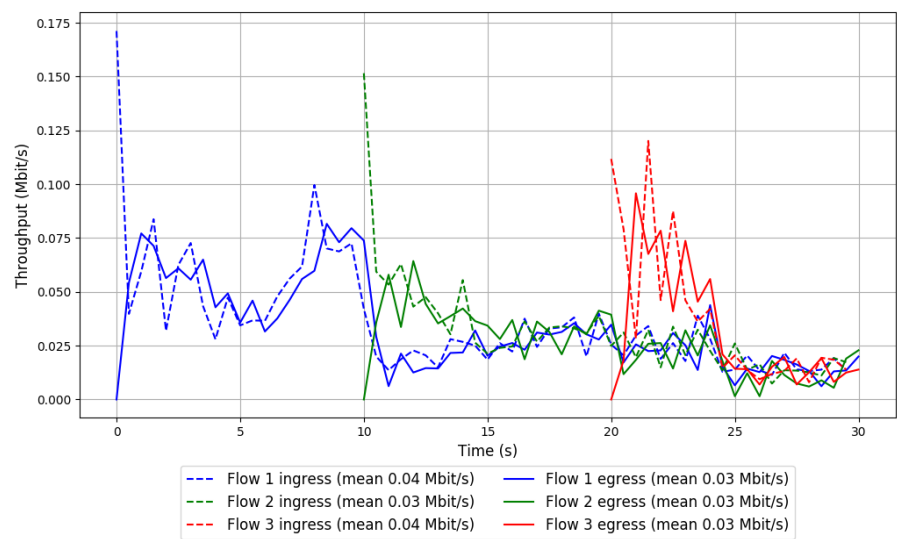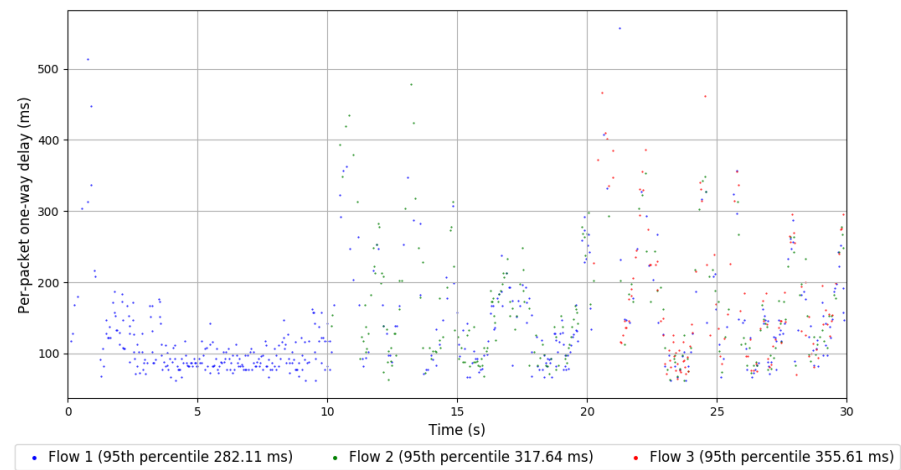
Run 1: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.08 Mbit/s)   Flow 1 egress (mean 0.08 Mbit/s)
Flow 2 ingress (mean 0.08 Mbit/s)   Flow 2 egress (mean 0.08 Mbit/s)
Flow 3 ingress (mean 0.07 Mbit/s)   Flow 3 egress (mean 0.06 Mbit/s)

Flow 1 (95th percentile 286.08 ms)   Flow 2 (95th percentile 289.16 ms)   Flow 3 (95th percentile 372.47 ms)

```
Run 2: Statistics of SCReAM

Start at: 2018-07-04 09:55:54
End at: 2018-07-04 09:56:24
Local clock offset: -2.688 ms
Remote clock offset: 2.273 ms


# Below is generated by plot.py at 2018-07-04 10:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 388.676 ms
Loss rate: 11.39%
-- Flow 1:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 375.414 ms
Loss rate: 6.67%
-- Flow 2:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 397.778 ms
Loss rate: 16.85%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 408.112 ms
Loss rate: 15.66%
```

Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-07-04 10:14:27
End at: 2018-07-04 10:14:57
Local clock offset: -0.449 ms
Remote clock offset: -2.029 ms


# Below is generated by plot.py at 2018-07-04 10:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 317.642 ms
Loss rate: 5.59%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 282.112 ms
Loss rate: 4.81%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 317.642 ms
Loss rate: 6.40%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 355.611 ms
Loss rate: 6.66%
```
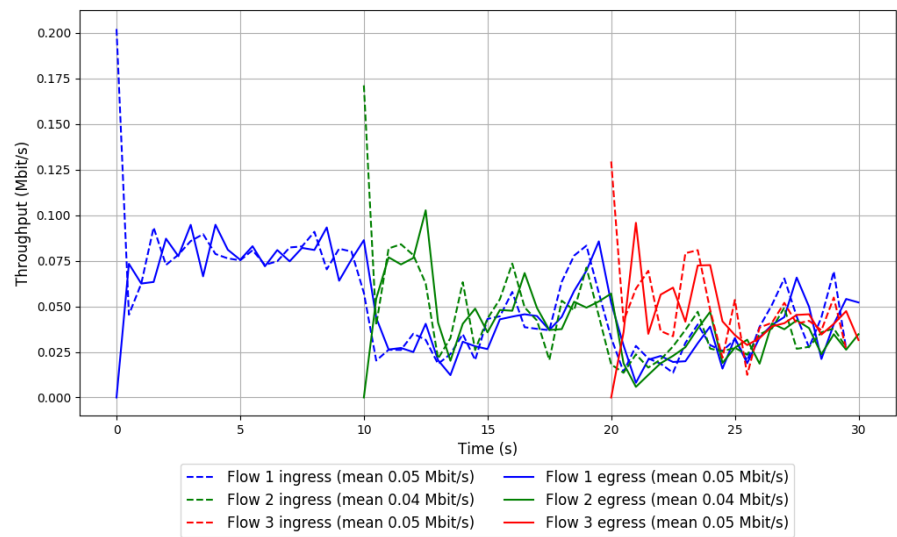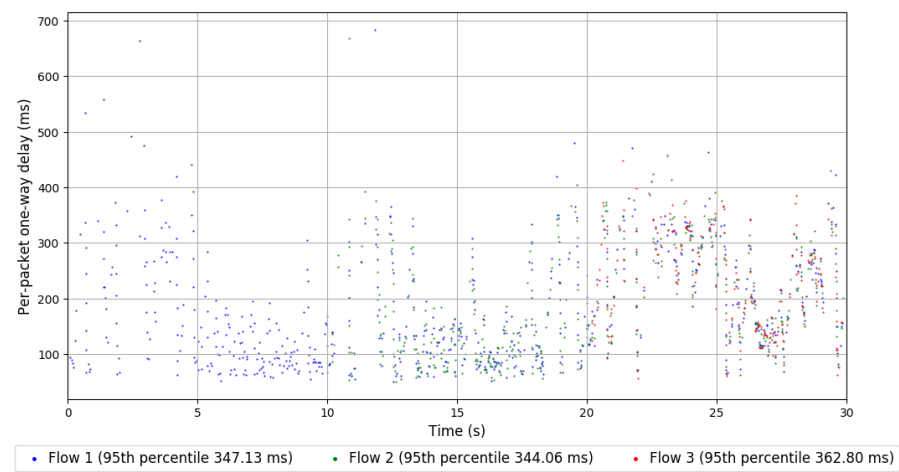
Run 3: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2018-07-04 09:26:23
End at: 2018-07-04 09:26:53
Local clock offset: -0.415 ms
Remote clock offset: -19.61 ms


# Below is generated by plot.py at 2018-07-04 10:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.20 Mbit/s
95th percentile per-packet one-way delay: 348.698 ms
Loss rate: 14.33%
-- Flow 1:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 347.130 ms
Loss rate: 12.50%
-- Flow 2:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 344.061 ms
Loss rate: 13.22%
-- Flow 3:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 362.799 ms
Loss rate: 21.66%
```
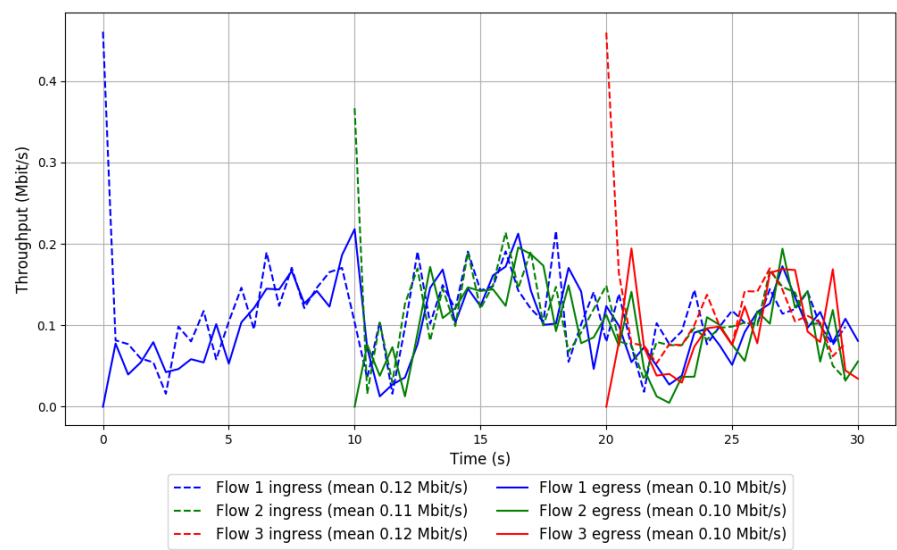
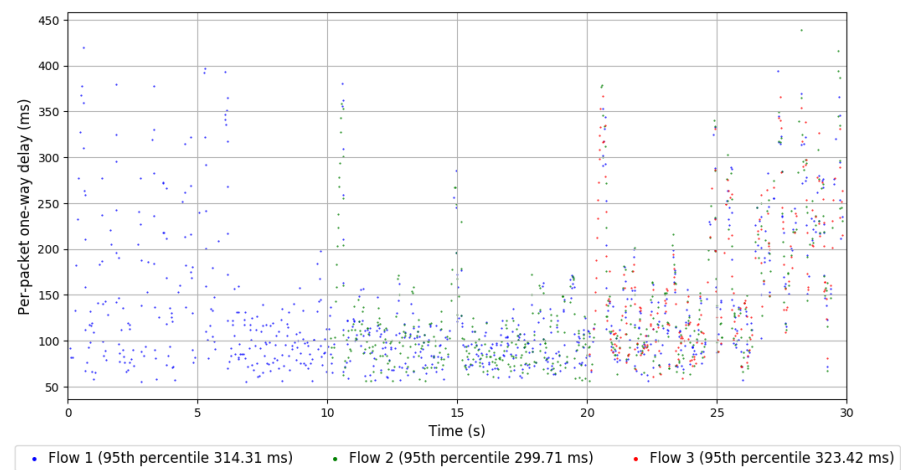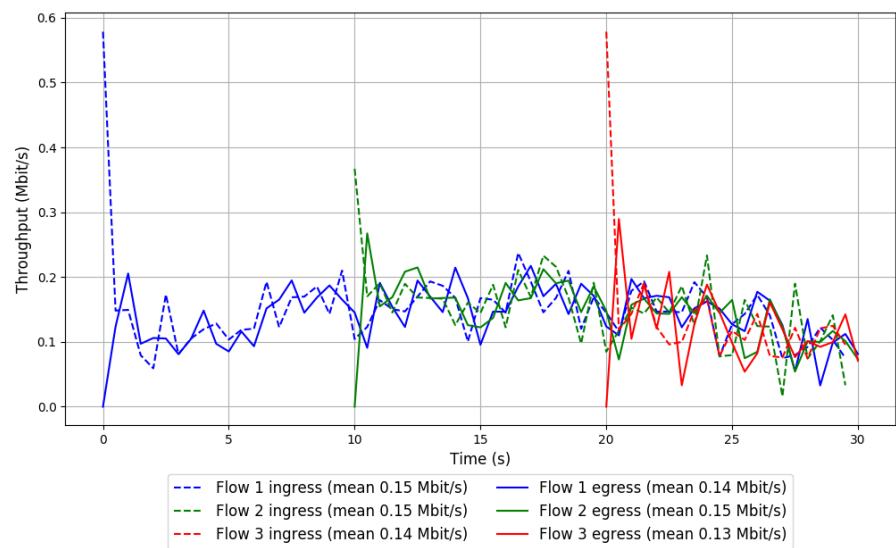# Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-07-04 09:45:00
End at: 2018-07-04 09:45:30
Local clock offset: 1.57 ms
Remote clock offset: -4.162 ms


# Below is generated by plot.py at 2018-07-04 10:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 314.307 ms
Loss rate: 4.91%
-- Flow 1:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 314.307 ms
Loss rate: 5.35%
-- Flow 2:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 299.713 ms
Loss rate: 1.68%
-- Flow 3:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 323.420 ms
Loss rate: 10.52%
```
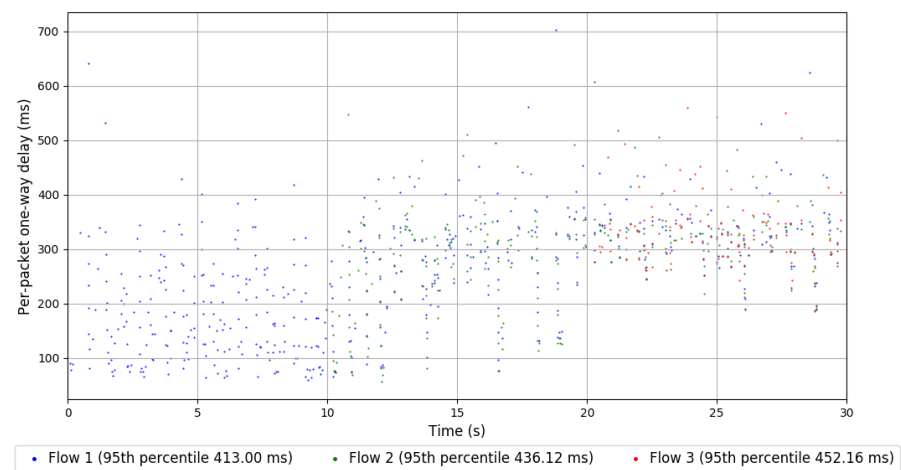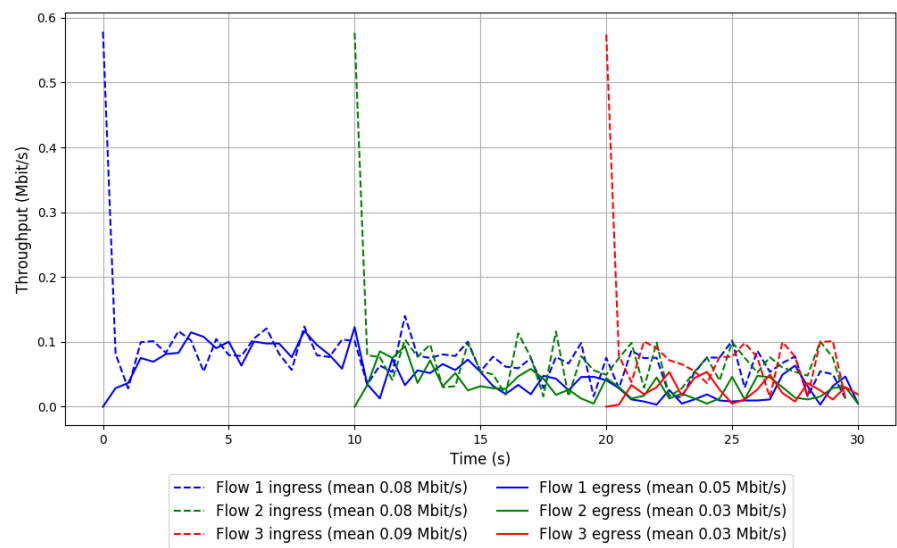
Run 2: Report of Sprout — Data Link

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```
Run 3: Statistics of Sprout

Start at: 2018-07-04 10:03:33
End at: 2018-07-04 10:04:03
Local clock offset: 0.344 ms
Remote clock offset: 4.631 ms


# Below is generated by plot.py at 2018-07-04 10:17:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 429.486 ms
Loss rate: 50.73%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 413.004 ms
Loss rate: 38.55%
-- Flow 2:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 436.116 ms
Loss rate: 57.06%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 452.159 ms
Loss rate: 71.88%
```

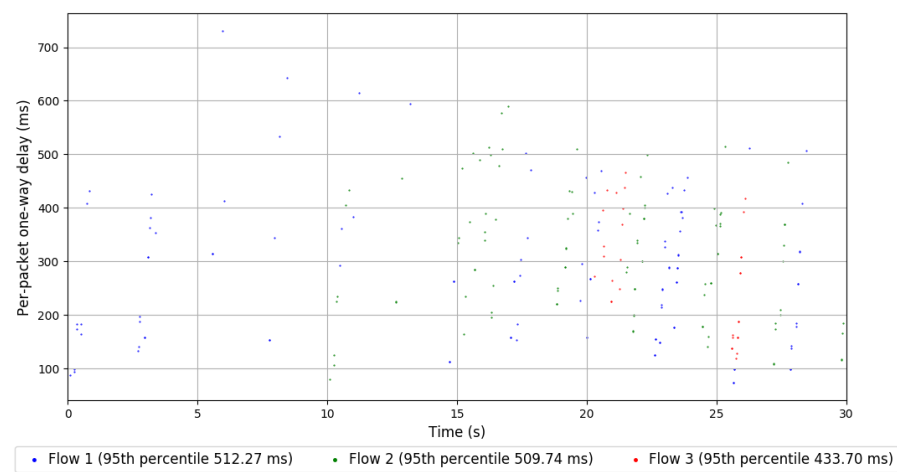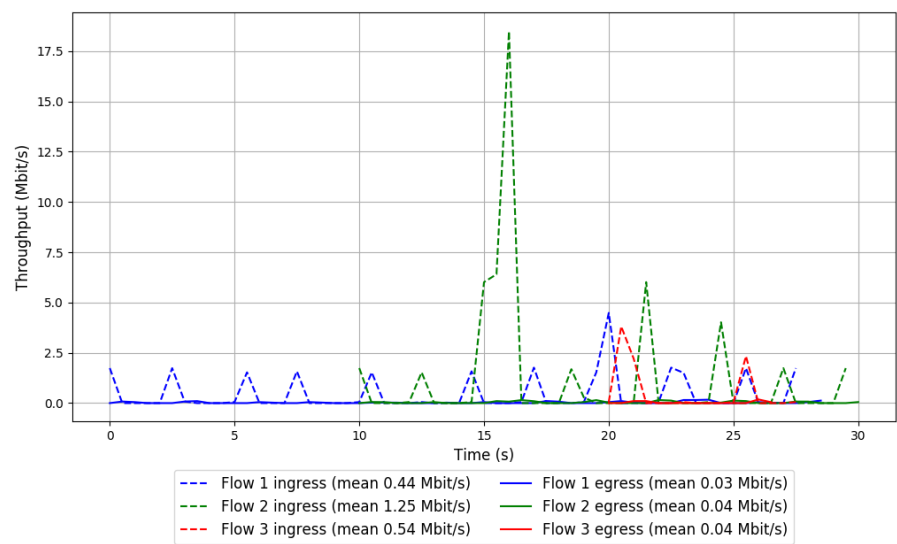Run 3: Report of Sprout — Data Link

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

Start at: 2018-07-04 09:31:51
End at: 2018-07-04 09:32:21
Local clock offset: 0.197 ms
Remote clock offset: -20.117 ms


# Below is generated by plot.py at 2018-07-04 10:17:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 507.185 ms
Loss rate: 95.60%
-- Flow 1:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 512.270 ms
Loss rate: 93.15%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 509.740 ms
Loss rate: 96.93%
-- Flow 3:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 433.697 ms
Loss rate: 94.92%
```

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

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

Start at: 2018-07-04 09:50:27
End at: 2018-07-04 09:50:57
Local clock offset: 0.661 ms
Remote clock offset: 1.23 ms


# Below is generated by plot.py at 2018-07-04 10:17:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 538.597 ms
Loss rate: 96.34%
-- Flow 1:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 451.245 ms
Loss rate: 91.02%
-- Flow 2:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 569.959 ms
Loss rate: 97.74%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 541.976 ms
Loss rate: 97.36%
```
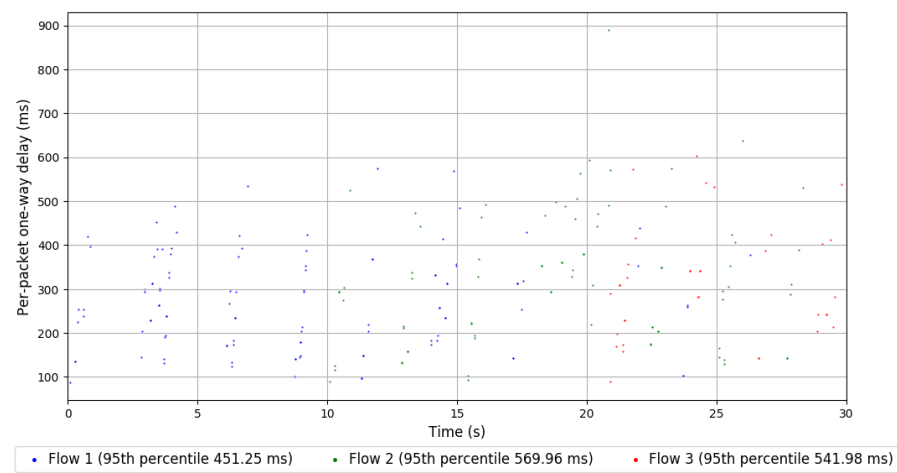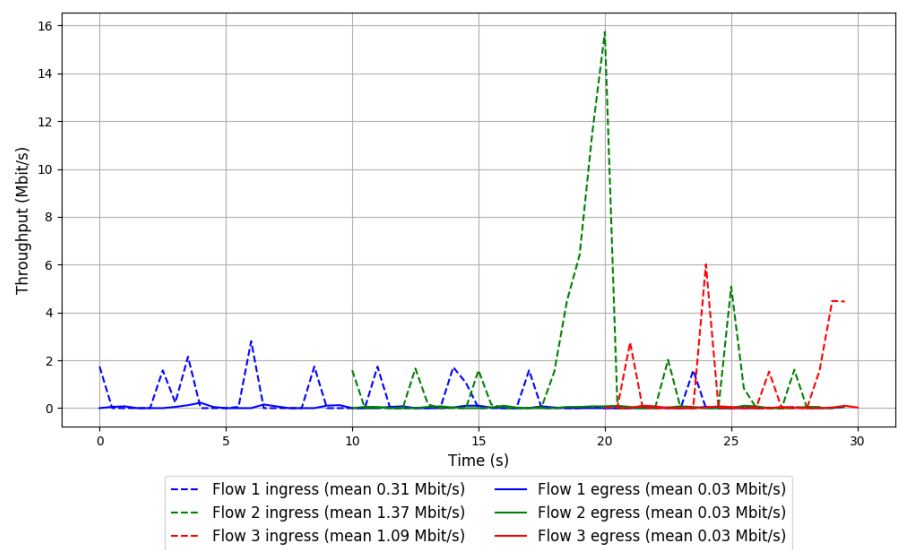
Run 2: Report of TaoVA-100x — Data Link

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

Start at: 2018-07-04 10:09:00
End at: 2018-07-04 10:09:30
Local clock offset: 0.435 ms
Remote clock offset: 1.196 ms


# Below is generated by plot.py at 2018-07-04 10:17:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 549.030 ms
Loss rate: 96.14%
-- Flow 1:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 552.736 ms
Loss rate: 97.07%
-- Flow 2:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 543.140 ms
Loss rate: 96.52%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 508.221 ms
Loss rate: 86.10%
```
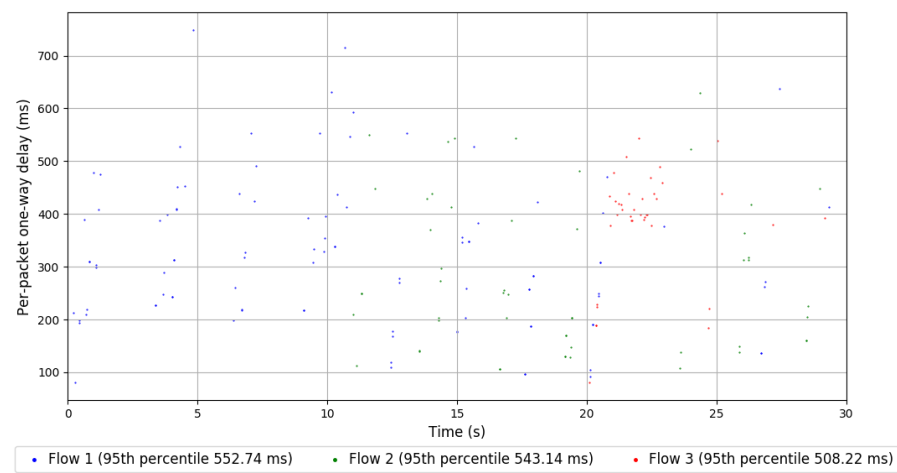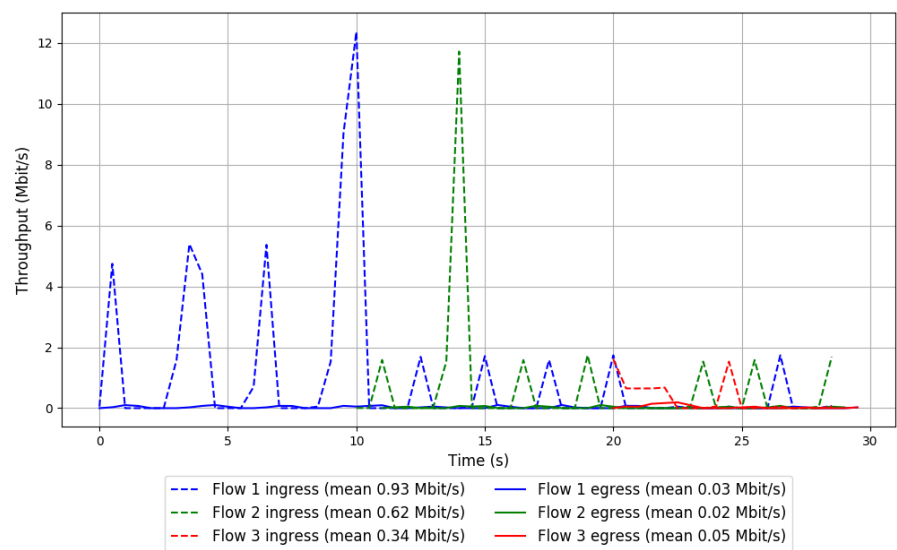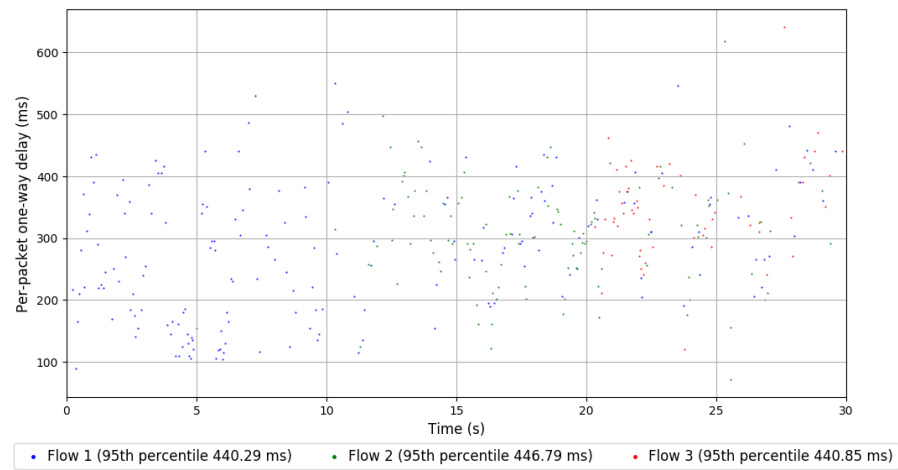
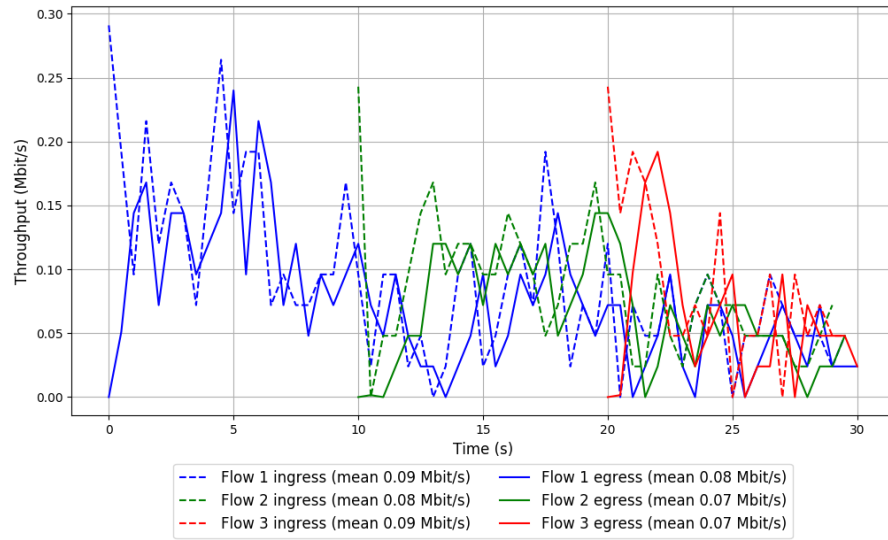Run 3: Report of TaoVA-100x — Data Link

```
Run 1: Statistics of TCP Vegas

Start at: 2018-07-04 09:35:08
End at: 2018-07-04 09:35:38
Local clock offset: 1.751 ms
Remote clock offset: -14.722 ms


# Below is generated by plot.py at 2018-07-04 10:17:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 440.851 ms
Loss rate: 19.95%
-- Flow 1:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 440.294 ms
Loss rate: 18.33%
-- Flow 2:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 446.785 ms
Loss rate: 20.03%
-- Flow 3:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 440.851 ms
Loss rate: 24.96%
```

Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-07-04 09:53:44
End at: 2018-07-04 09:54:14
Local clock offset: 1.829 ms
Remote clock offset: 1.087 ms


# Below is generated by plot.py at 2018-07-04 10:17:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 644.490 ms
Loss rate: 38.93%
-- Flow 1:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 644.490 ms
Loss rate: 29.43%
-- Flow 2:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 565.400 ms
Loss rate: 60.40%
-- Flow 3:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 599.779 ms
Loss rate: 50.16%
```
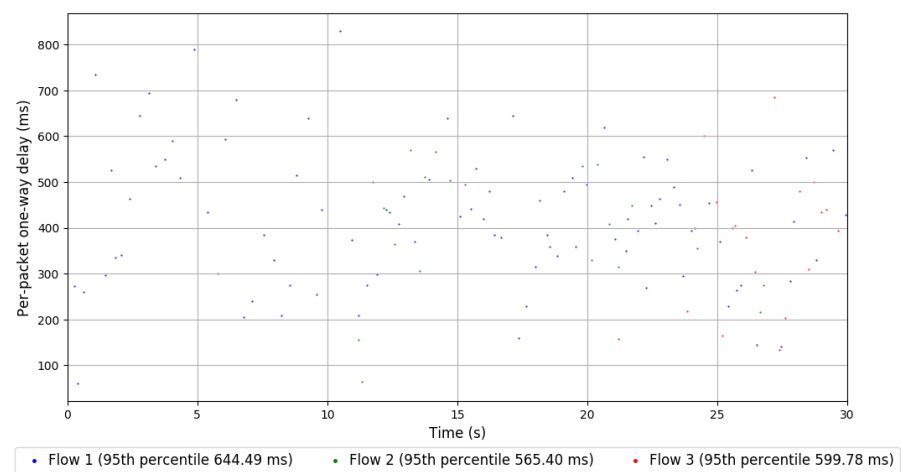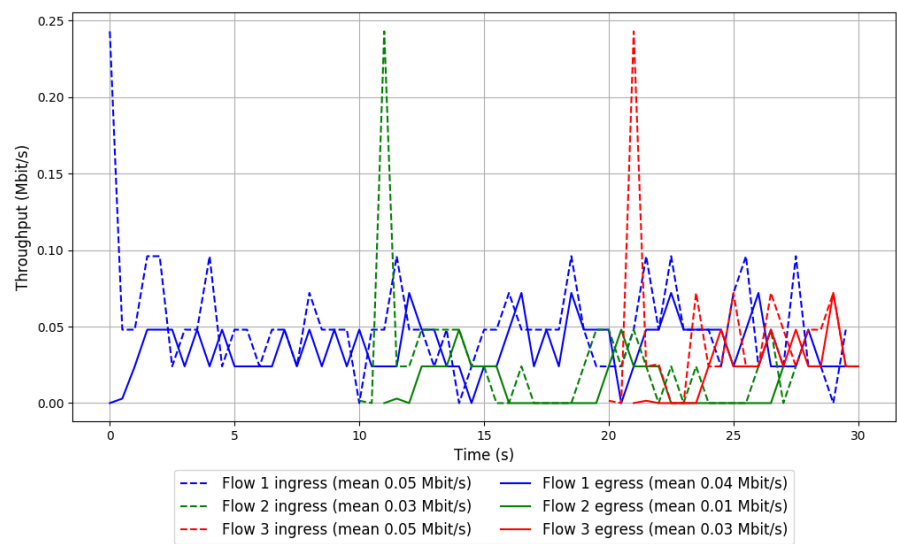
Run 2: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 0.05 Mbit/s) --- Flow 1 egress (mean 0.04 Mbit/s)
Flow 2 ingress (mean 0.03 Mbit/s) --- Flow 2 egress (mean 0.01 Mbit/s)
Flow 3 ingress (mean 0.05 Mbit/s) --- Flow 3 egress (mean 0.03 Mbit/s)

Flow 1 (95th percentile 644.49 ms)   Flow 2 (95th percentile 565.40 ms)   Flow 3 (95th percentile 599.78 ms)
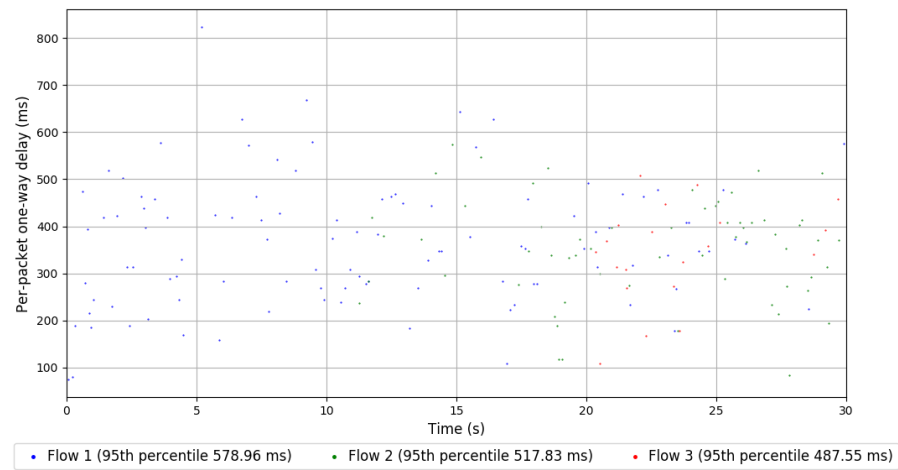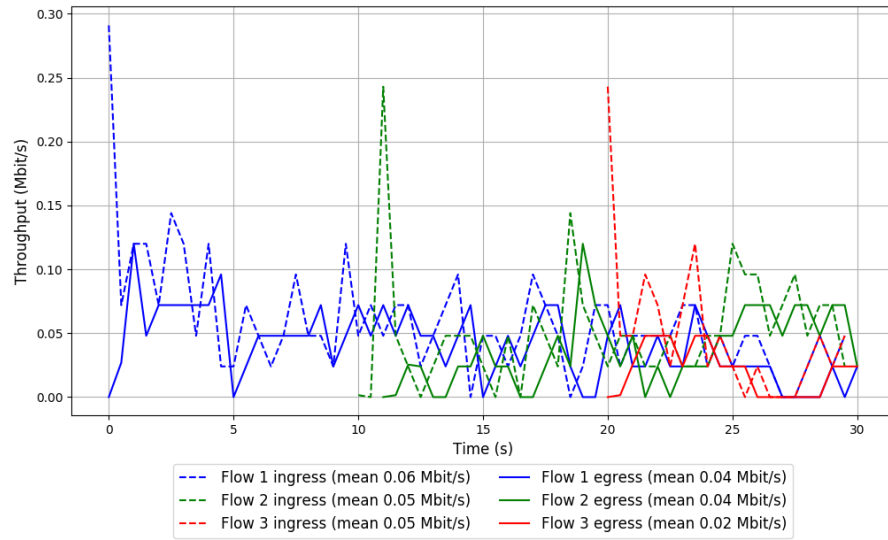
```
Run 3: Statistics of TCP Vegas

Start at: 2018-07-04 10:12:16
End at: 2018-07-04 10:12:46
Local clock offset: 1.917 ms
Remote clock offset: -1.028 ms


# Below is generated by plot.py at 2018-07-04 10:17:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 573.067 ms
Loss rate: 34.04%
-- Flow 1:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 578.957 ms
Loss rate: 29.43%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 517.829 ms
Loss rate: 31.40%
-- Flow 3:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 487.551 ms
Loss rate: 55.93%
```
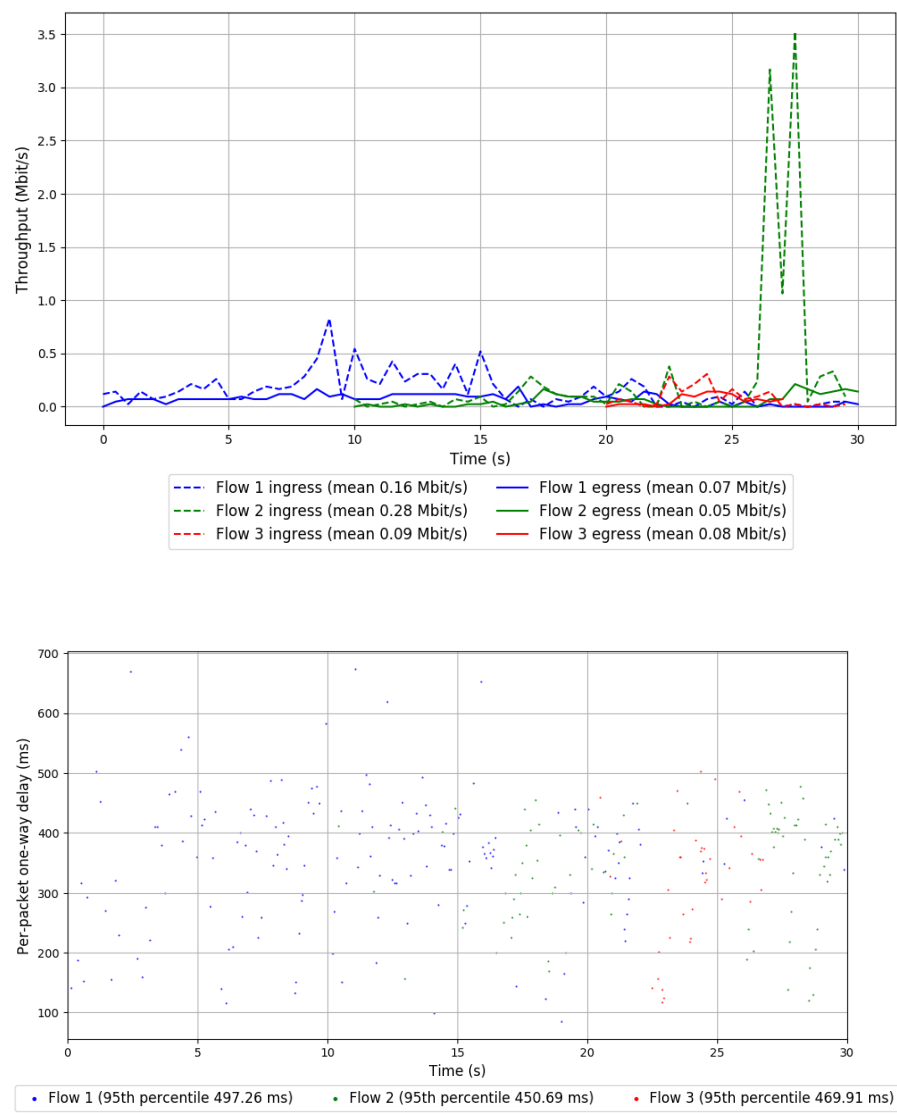
Run 3: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2018-07-04 09:24:10
End at: 2018-07-04 09:24:40
Local clock offset: -1.631 ms
Remote clock offset: -20.046 ms


# Below is generated by plot.py at 2018-07-04 10:17:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.12 Mbit/s
95th percentile per-packet one-way delay: 481.261 ms
Loss rate: 68.70%
-- Flow 1:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 497.265 ms
Loss rate: 58.38%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 450.690 ms
Loss rate: 81.06%
-- Flow 3:
Average throughput: 0.08 Mbit/s
95th percentile per-packet one-way delay: 469.909 ms
Loss rate: 44.44%
```

Run 1: Report of Verus — Data Link

Flow 1 ingress (mean 0.16 Mbit/s)
Flow 2 ingress (mean 0.28 Mbit/s)
Flow 3 ingress (mean 0.09 Mbit/s)
Flow 1 egress (mean 0.07 Mbit/s)
Flow 2 egress (mean 0.05 Mbit/s)
Flow 3 egress (mean 0.08 Mbit/s)

Flow 1 (95th percentile 497.26 ms)
Flow 2 (95th percentile 450.69 ms)
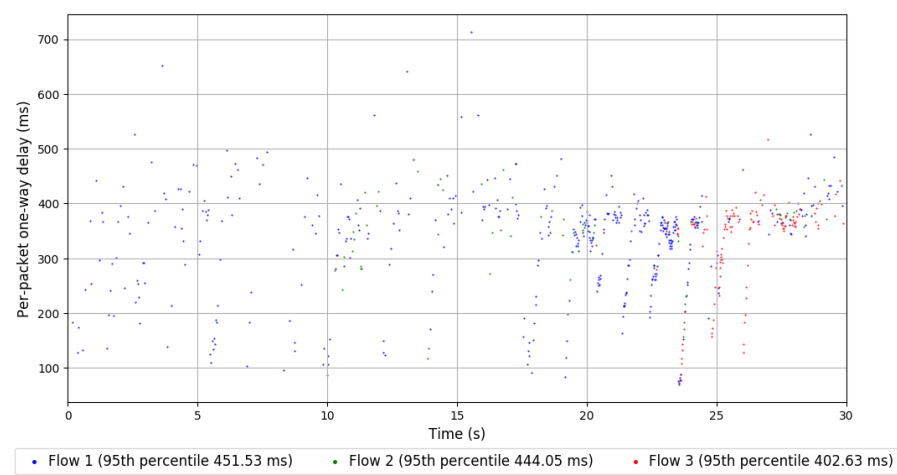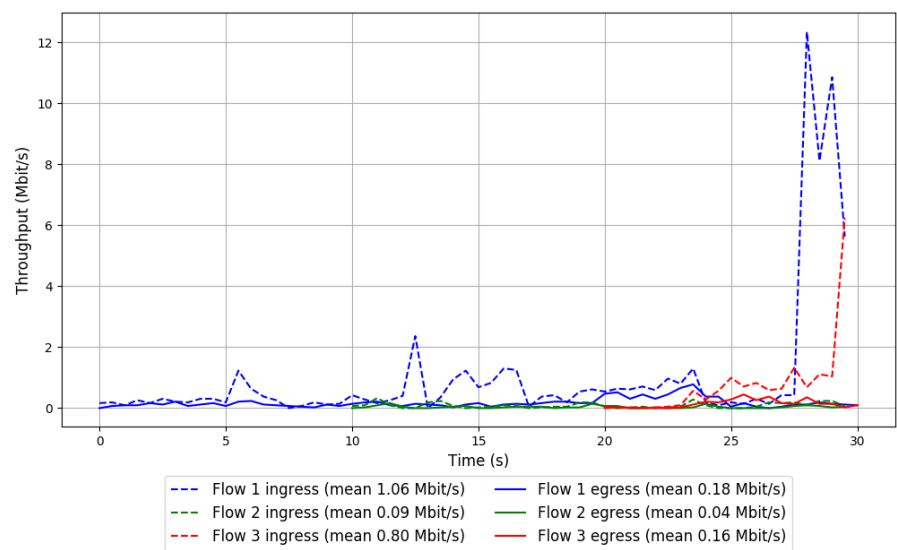Flow 3 (95th percentile 469.91 ms)

```
Run 2: Statistics of Verus

Start at: 2018-07-04 09:42:48
End at: 2018-07-04 09:43:18
Local clock offset: 0.89 ms
Remote clock offset: -4.079 ms


# Below is generated by plot.py at 2018-07-04 10:17:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 445.864 ms
Loss rate: 81.56%
-- Flow 1:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 451.526 ms
Loss rate: 83.07%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 444.050 ms
Loss rate: 57.52%
-- Flow 3:
Average throughput: 0.16 Mbit/s
95th percentile per-packet one-way delay: 402.627 ms
Loss rate: 81.04%
```

Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-07-04 10:01:22
End at: 2018-07-04 10:01:52
Local clock offset: 0.839 ms
Remote clock offset: 4.168 ms


# Below is generated by plot.py at 2018-07-04 10:17:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.10 Mbit/s
95th percentile per-packet one-way delay: 534.865 ms
Loss rate: 48.66%
-- Flow 1:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 532.410 ms
Loss rate: 46.77%
-- Flow 2:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 578.529 ms
Loss rate: 69.70%
-- Flow 3:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 466.029 ms
Loss rate: 55.56%
```
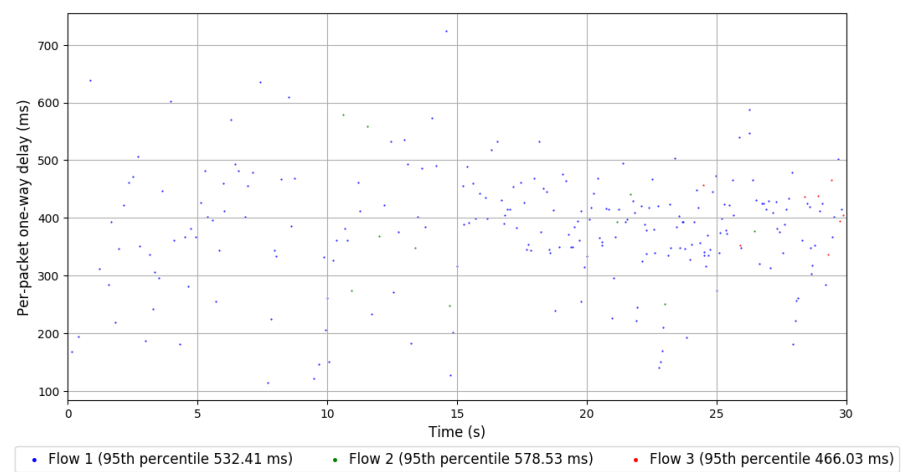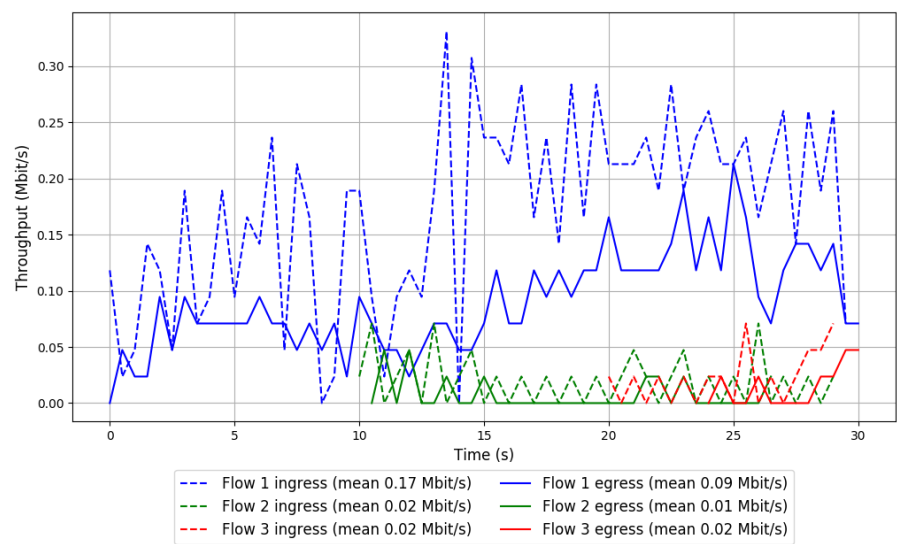
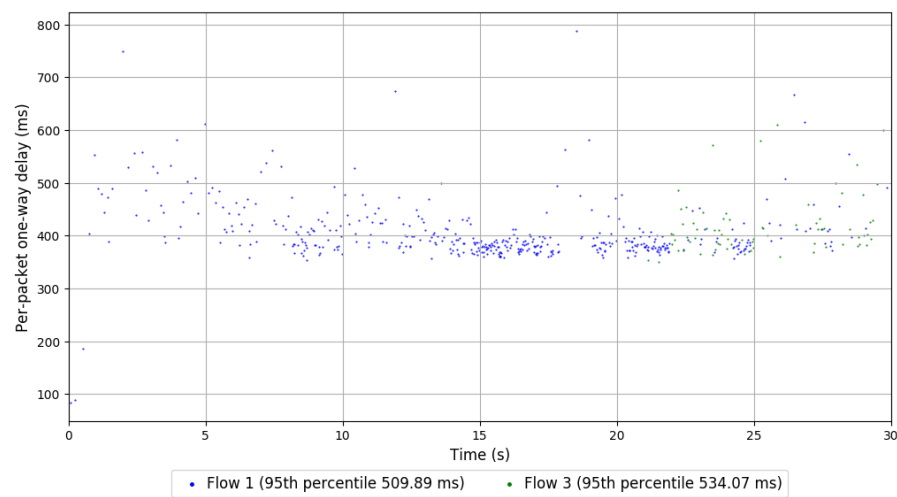# Run 3: Report of Verus — Data Link
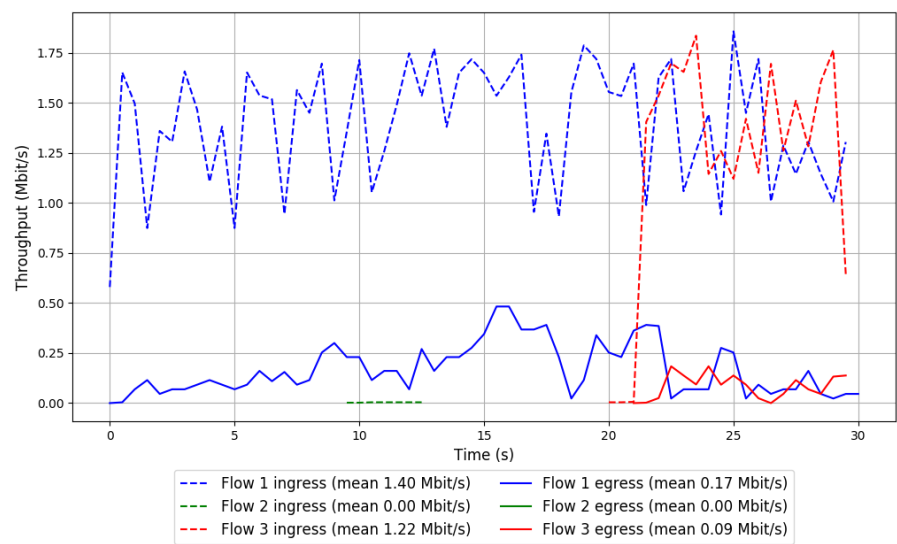
Run 1: Statistics of PCC-Vivace

Start at: 2018-07-04 09:28:35
End at: 2018-07-04 09:29:05
Local clock offset: -0.899 ms
Remote clock offset: -21.678 ms

Run 1: Report of PCC-Vivace — Data Link
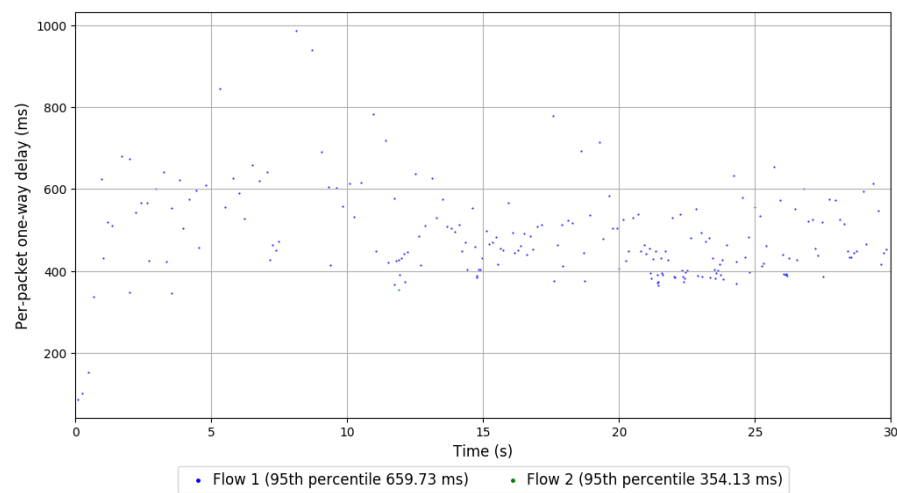
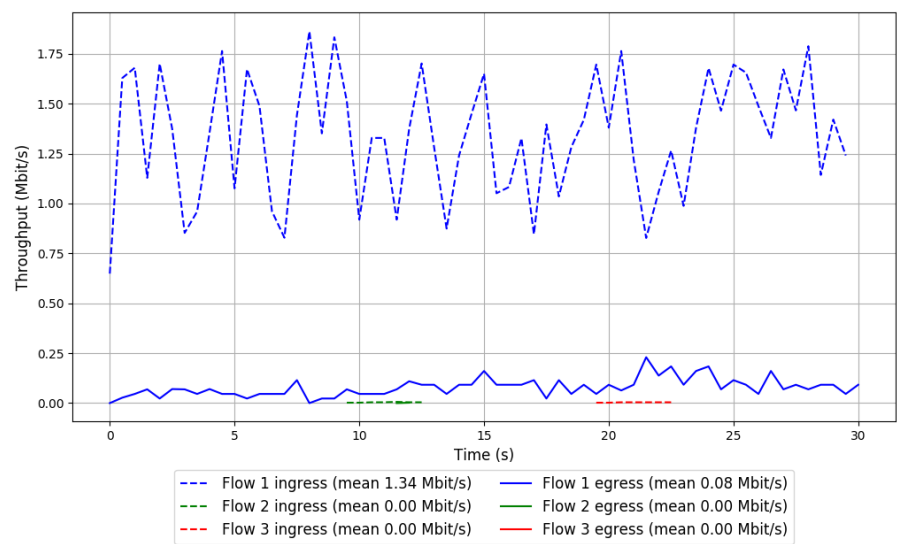Run 2: Statistics of PCC-Vivace

Start at: 2018-07-04 09:47:11
End at: 2018-07-04 09:47:41
Local clock offset: 1.698 ms
Remote clock offset: -1.207 ms

Run 2: Report of PCC-Vivace — Data Link
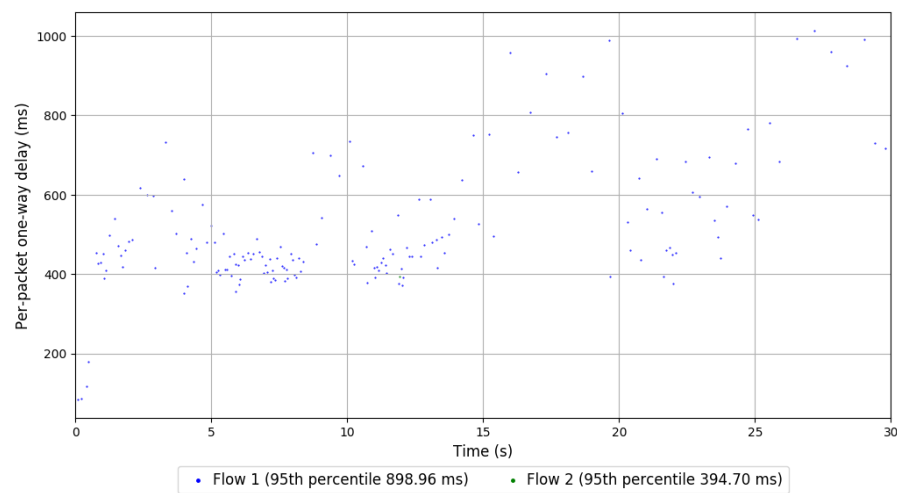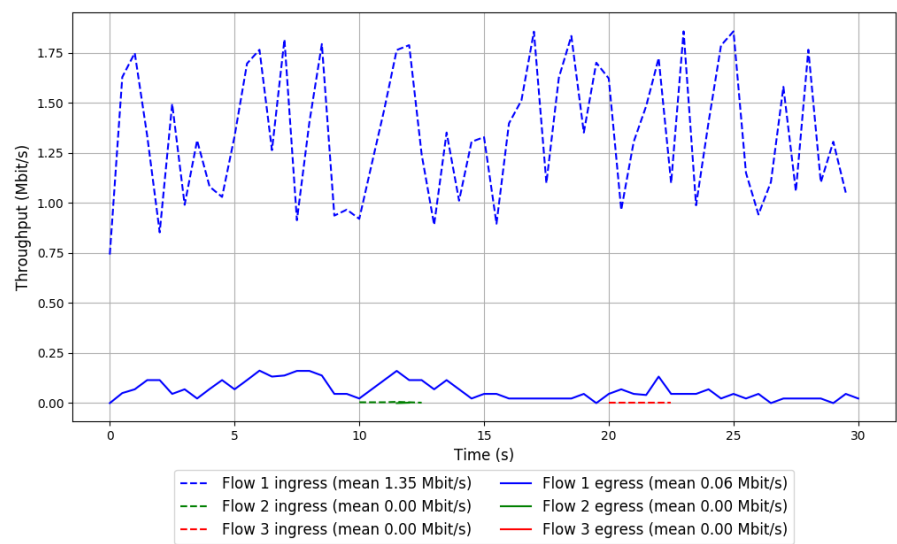
```
Run 3: Statistics of PCC-Vivace

Start at: 2018-07-04 10:05:43
End at: 2018-07-04 10:06:13
Local clock offset: -0.692 ms
Remote clock offset: 5.234 ms
```

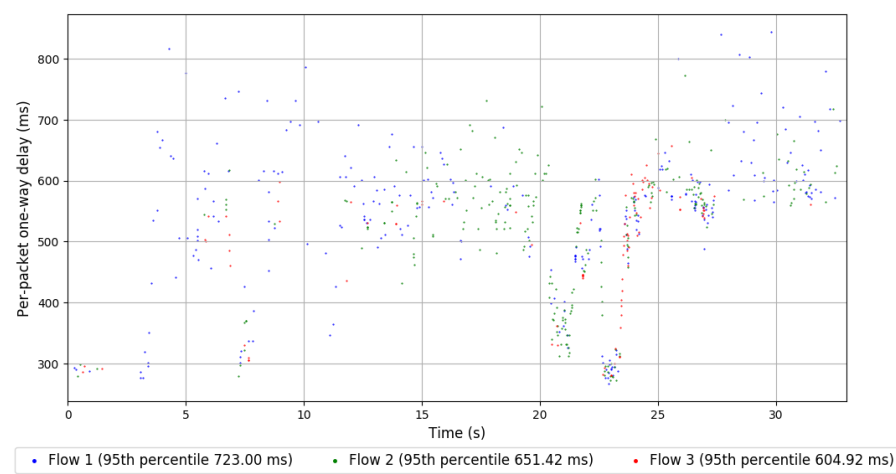## Run 3: Report of PCC-Vivace — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2018-07-04 09:38:26
End at: 2018-07-04 09:38:56
Local clock offset: 1.098 ms
Remote clock offset: -221.325 ms


# Below is generated by plot.py at 2018-07-04 10:17:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 686.821 ms
Loss rate: 59.30%
-- Flow 1:
Average throughput: 0.07 Mbit/s
95th percentile per-packet one-way delay: 722.996 ms
Loss rate: 62.08%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 651.421 ms
Loss rate: 57.32%
-- Flow 3:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 604.918 ms
Loss rate: 53.36%
```

Run 1: Report of WebRTC media — Data Link

Flow 1 ingress (mean 0.18 Mbit/s) --- Flow 1 egress (mean 0.07 Mbit/s)
Flow 2 ingress (mean 0.14 Mbit/s) --- Flow 2 egress (mean 0.06 Mbit/s)
Flow 3 ingress (mean 0.04 Mbit/s) --- Flow 3 egress (mean 0.02 Mbit/s)

Flow 1 (95th percentile 723.00 ms)   Flow 2 (95th percentile 651.42 ms)   Flow 3 (95th percentile 604.92 ms)

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```
Run 2: Statistics of WebRTC media

Start at: 2018-07-04 09:56:59
End at: 2018-07-04 09:57:29
Local clock offset: -1.052 ms
Remote clock offset: 3.486 ms


# Below is generated by plot.py at 2018-07-04 10:17:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.09 Mbit/s
95th percentile per-packet one-way delay: 475.290 ms
Loss rate: 50.86%
-- Flow 1:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 483.279 ms
Loss rate: 49.74%
-- Flow 2:
Average throughput: 0.03 Mbit/s
95th percentile per-packet one-way delay: 477.578 ms
Loss rate: 45.15%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 348.992 ms
Loss rate: 79.05%
```
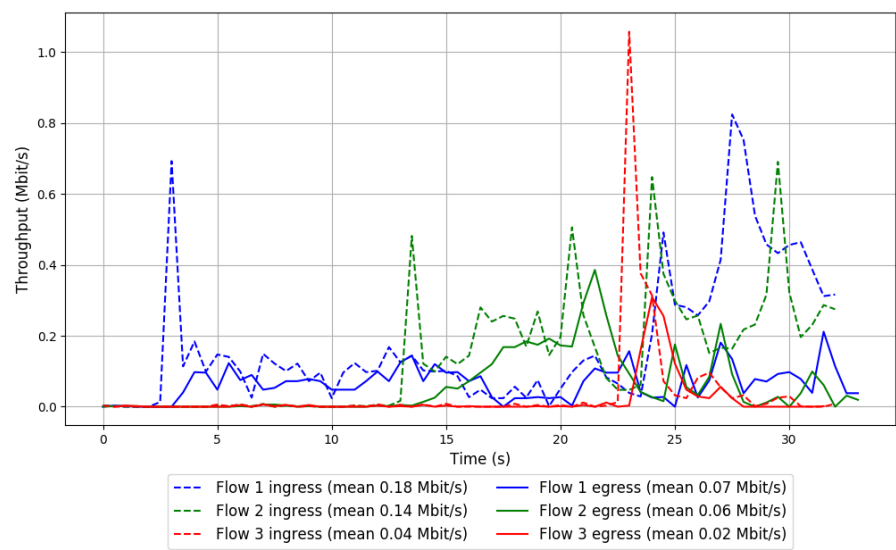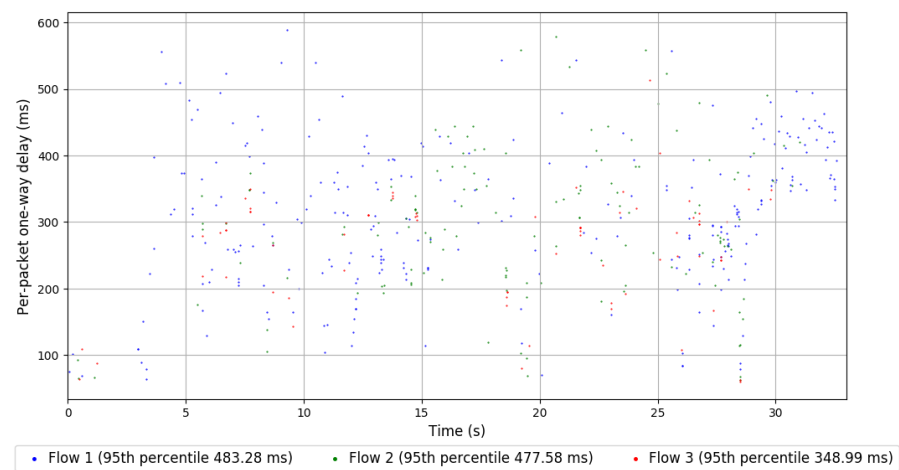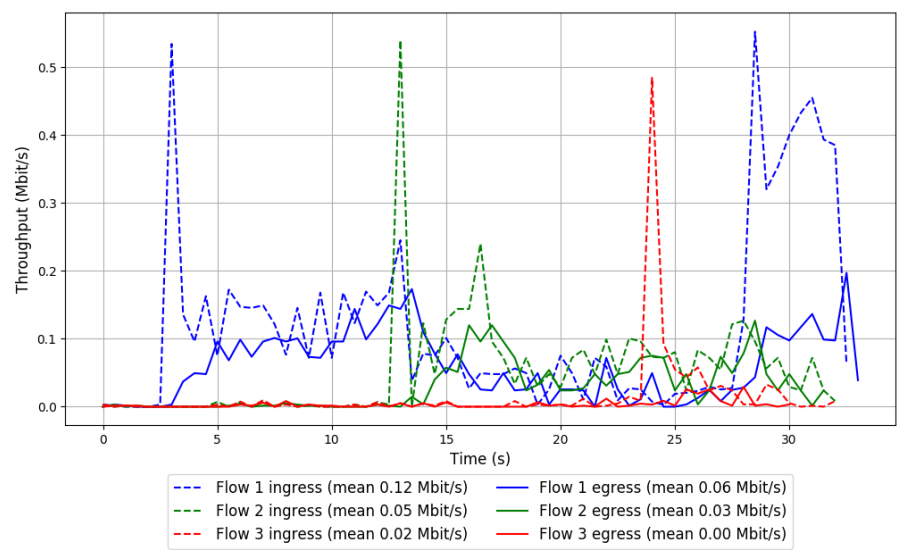
Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-07-04 10:15:32
End at: 2018-07-04 10:16:02
Local clock offset: 1.978 ms
Remote clock offset: -3.171 ms


# Below is generated by plot.py at 2018-07-04 10:17:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 469.663 ms
Loss rate: 46.46%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 466.445 ms
Loss rate: 54.57%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 456.212 ms
Loss rate: 29.79%
-- Flow 3:
Average throughput: 0.02 Mbit/s
95th percentile per-packet one-way delay: 480.936 ms
Loss rate: 50.02%
```

Run 3: Report of WebRTC media — Data Link

Flow 1 ingress (mean 0.12 Mbit/s) --- Flow 1 egress (mean 0.05 Mbit/s)
Flow 2 ingress (mean 0.06 Mbit/s) --- Flow 2 egress (mean 0.05 Mbit/s)
Flow 3 ingress (mean 0.03 Mbit/s) --- Flow 3 egress (mean 0.02 Mbit/s)

Flow 1 (95th percentile 466.44 ms)   Flow 2 (95th percentile 456.21 ms)   Flow 3 (95th percentile 480.94 ms)