Pantheon Report

Generated at 2018-10-02 18:42:38 (UTC).

Data path: Colombia on `p4p1` (*remote*) →AWS Brazil 2 on `ens5` (*local*).

Repeated the test of 18 congestion control schemes 5 times.

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

NTP offsets were measured against `gps.ntp.br` and have been applied to correct the timestamps in logs.
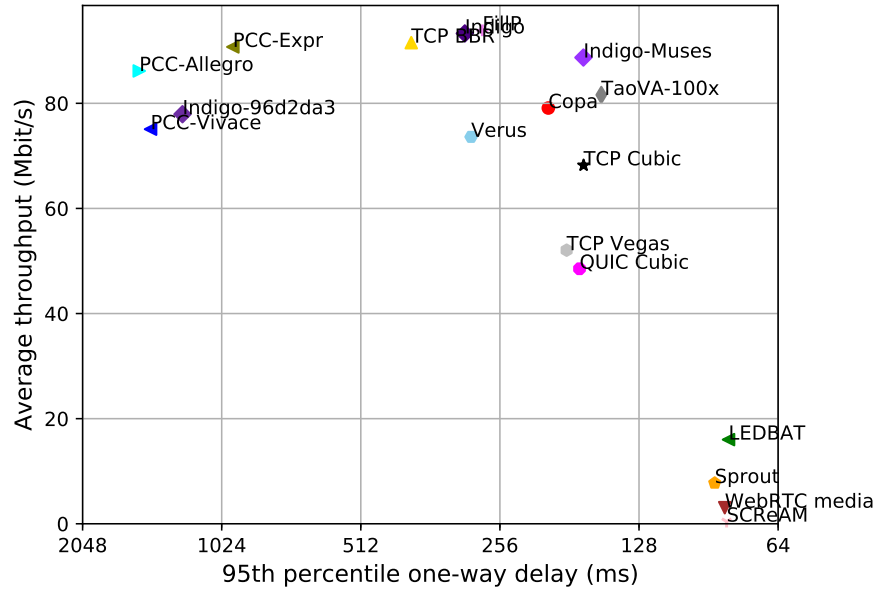
```
System info:
Linux 4.15.0-1021-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ 2e19c0464530faa92c63f8217c9971438a26a3be
third_party/fillp @ 5332fc9127c63565e13f4933b336c02d1aabdac6
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
 M src/ScreamClient
 M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
```
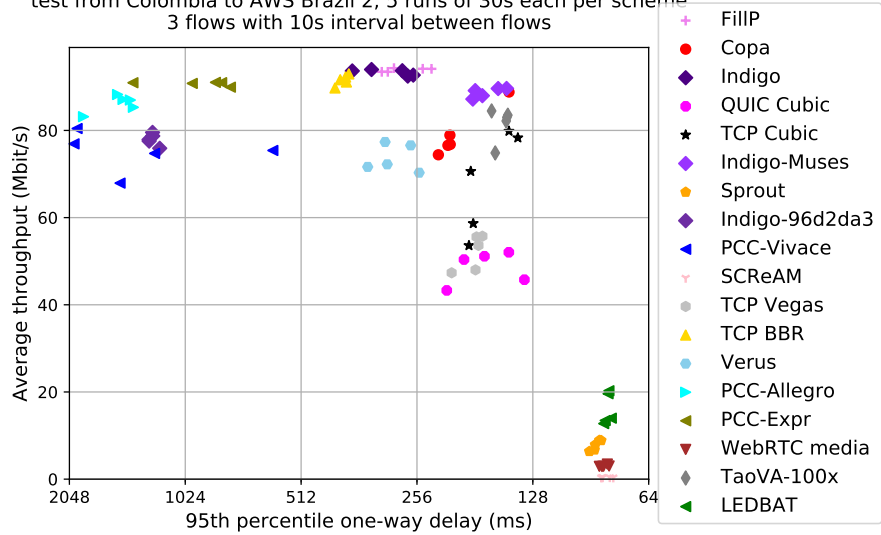
```
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from Colombia to AWS Brazil 2, 5 runs of 30s each per scheme
3 flows with 10s interval between flows (mean of all runs by scheme)

test from Colombia to AWS Brazil 2, 5 runs of 30s each per scheme
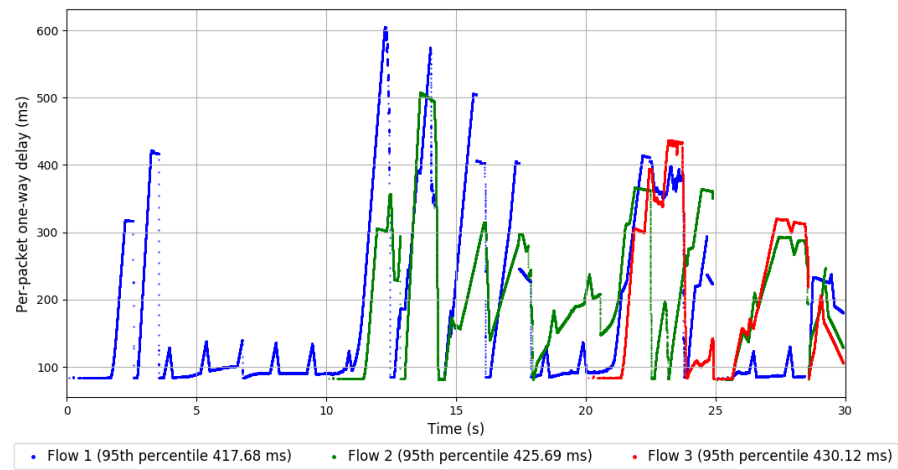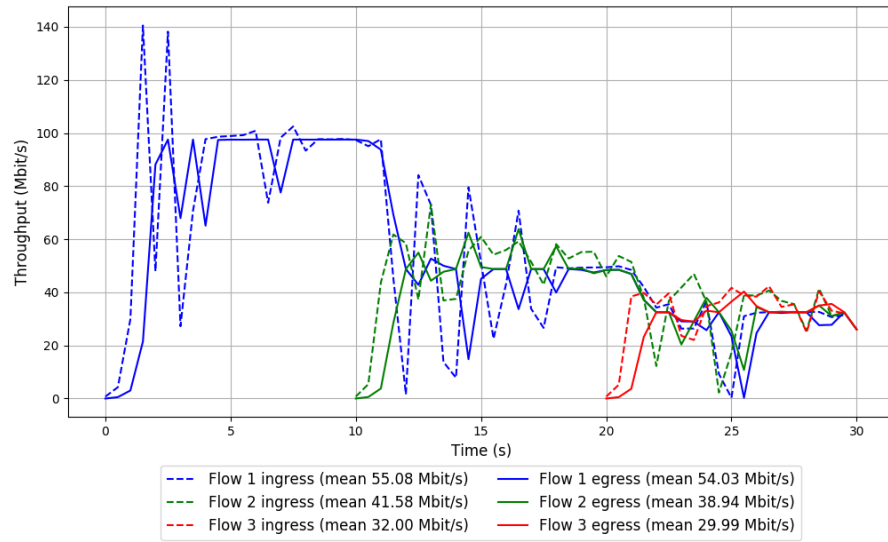3 flows with 10s interval between flows

scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	55.51	39.29	30.23	385.76	400.88	436.85	2.37	5.71	6.83
Copa	5	47.08	34.54	27.81	199.82	161.71	182.59	0.99	0.75	1.88
TCP Cubic	5	39.22	30.13	27.32	182.66	159.47	117.33	0.57	1.30	2.97
FillP	5	57.88	39.20	30.50	272.76	243.21	472.12	1.57	1.92	2.93
Indigo	5	57.91	38.86	29.56	329.70	144.97	135.63	3.75	1.81	2.64
Indigo-96d2da3	5	45.16	36.05	27.03	1257.16	1267.78	1223.74	25.12	31.56	41.53
LEDBAT	5	10.15	7.04	3.68	81.98	82.13	81.15	0.96	1.57	4.05
Indigo-Muses	5	55.62	37.19	25.66	171.35	154.17	175.56	1.15	2.54	3.38
PCC-Allegro	5	58.40	29.91	24.27	1611.09	791.77	1006.60	18.66	10.40	13.88
PCC-Expr	5	56.73	38.26	26.38	977.89	761.62	232.76	26.29	7.88	4.07
QUIC Cubic	5	28.55	23.02	14.37	132.35	198.05	226.26	0.95	1.69	3.34
SCReAM	5	0.21	0.19	0.22	81.61	82.48	81.44	0.51	1.07	1.61
Sprout	5	4.41	3.44	3.29	87.91	86.60	87.15	0.78	0.91	2.03
TaoVA-100x	5	48.78	35.92	27.55	148.22	167.58	143.26	0.63	0.94	2.51
TCP Vegas	5	27.21	25.13	24.78	213.71	167.80	159.49	0.62	0.87	1.85
Verus	5	46.83	29.15	22.70	282.56	310.66	348.53	1.19	0.88	2.48
PCC-Vivace	5	48.29	29.39	22.30	1489.72	782.52	313.61	5.21	6.40	4.28
WebRTC media	5	1.75	0.98	0.35	83.01	82.46	83.26	0.33	0.67	2.41

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```
Run 1: Statistics of TCP BBR

Start at: 2018-10-02 16:49:48
End at: 2018-10-02 16:50:18
Local clock offset: -5.072 ms
Remote clock offset: -2.097 ms


# Below is generated by plot.py at 2018-10-02 18:33:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.74 Mbit/s
95th percentile per-packet one-way delay: 418.043 ms
Loss rate: 4.44%
-- Flow 1:
Average throughput: 54.03 Mbit/s
95th percentile per-packet one-way delay: 417.683 ms
Loss rate: 2.44%
-- Flow 2:
Average throughput: 38.94 Mbit/s
95th percentile per-packet one-way delay: 425.694 ms
Loss rate: 7.12%
-- Flow 3:
Average throughput: 29.99 Mbit/s
95th percentile per-packet one-way delay: 430.117 ms
Loss rate: 7.86%
```
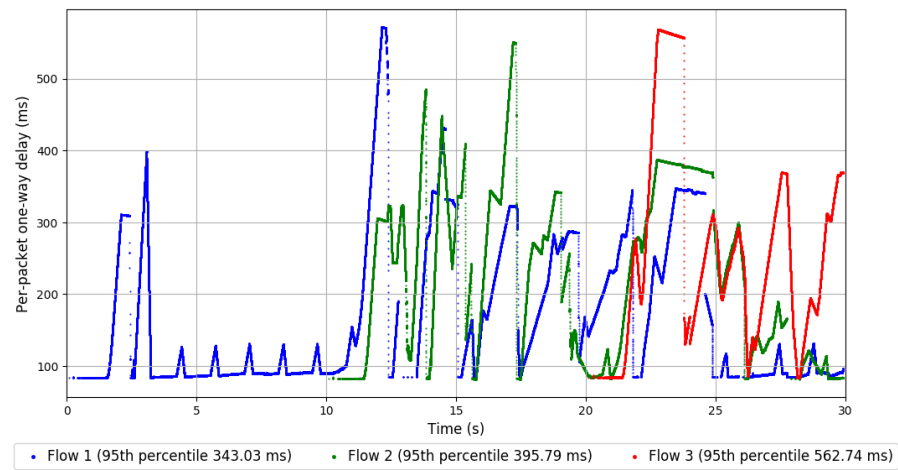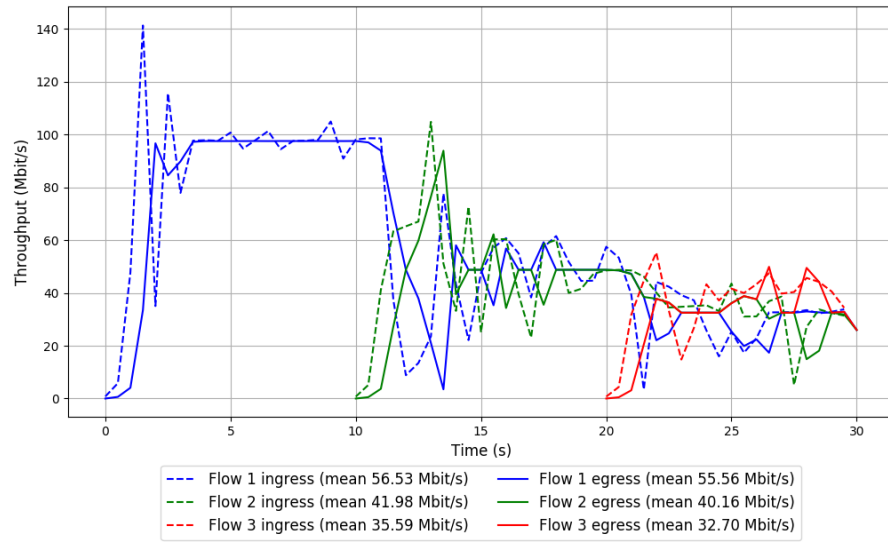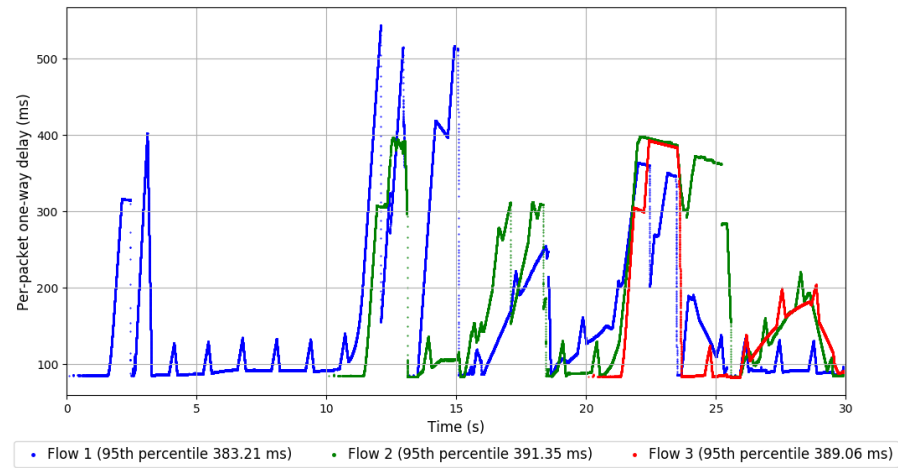
Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 55.08 Mbit/s) — Flow 1 egress (mean 54.03 Mbit/s)
Flow 2 ingress (mean 41.58 Mbit/s) — Flow 2 egress (mean 38.94 Mbit/s)
Flow 3 ingress (mean 32.00 Mbit/s) — Flow 3 egress (mean 29.99 Mbit/s)

Flow 1 (95th percentile 417.68 ms)   Flow 2 (95th percentile 425.69 ms)   Flow 3 (95th percentile 430.12 ms)

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Run 2: Statistics of TCP BBR

Start at: 2018-10-02 17:13:34
End at: 2018-10-02 17:14:04
Local clock offset: -4.821 ms
Remote clock offset: -1.647 ms


# Below is generated by plot.py at 2018-10-02 18:33:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.96 Mbit/s
95th percentile per-packet one-way delay: 384.860 ms
Loss rate: 4.00%
-- Flow 1:
Average throughput: 55.56 Mbit/s
95th percentile per-packet one-way delay: 343.034 ms
Loss rate: 2.27%
-- Flow 2:
Average throughput: 40.16 Mbit/s
95th percentile per-packet one-way delay: 395.793 ms
Loss rate: 5.12%
-- Flow 3:
Average throughput: 32.70 Mbit/s
95th percentile per-packet one-way delay: 562.735 ms
Loss rate: 9.66%
```
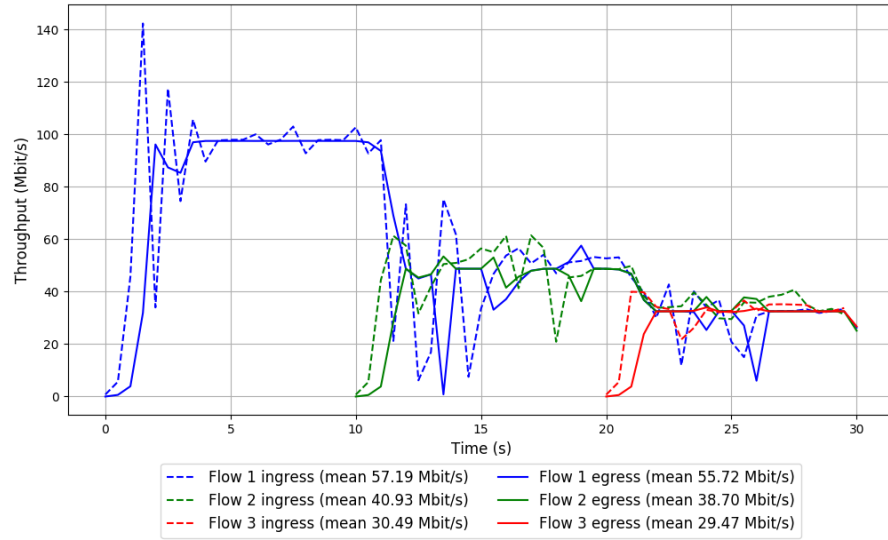
Run 2: Report of TCP BBR — Data Link

Flow 1 ingress (mean 56.53 Mbit/s)   Flow 1 egress (mean 55.56 Mbit/s)
Flow 2 ingress (mean 41.98 Mbit/s)   Flow 2 egress (mean 40.16 Mbit/s)
Flow 3 ingress (mean 35.59 Mbit/s)   Flow 3 egress (mean 32.70 Mbit/s)

Flow 1 (95th percentile 343.03 ms)   Flow 2 (95th percentile 395.79 ms)   Flow 3 (95th percentile 562.74 ms)

```
Run 3: Statistics of TCP BBR

Start at: 2018-10-02 17:36:55
End at: 2018-10-02 17:37:25
Local clock offset: -4.306 ms
Remote clock offset: -2.511 ms


# Below is generated by plot.py at 2018-10-02 18:33:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.11 Mbit/s
95th percentile per-packet one-way delay: 390.477 ms
Loss rate: 4.20%
-- Flow 1:
Average throughput: 55.72 Mbit/s
95th percentile per-packet one-way delay: 383.212 ms
Loss rate: 3.11%
-- Flow 2:
Average throughput: 38.70 Mbit/s
95th percentile per-packet one-way delay: 391.354 ms
Loss rate: 6.23%
-- Flow 3:
Average throughput: 29.47 Mbit/s
95th percentile per-packet one-way delay: 389.063 ms
Loss rate: 4.93%
```
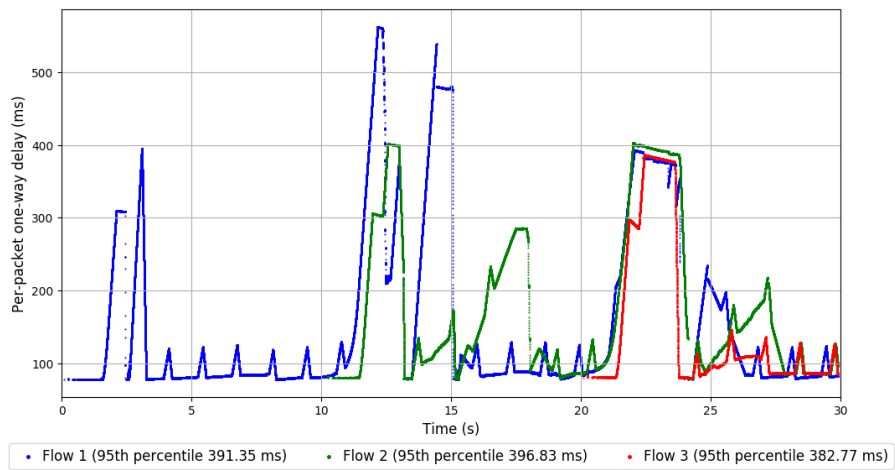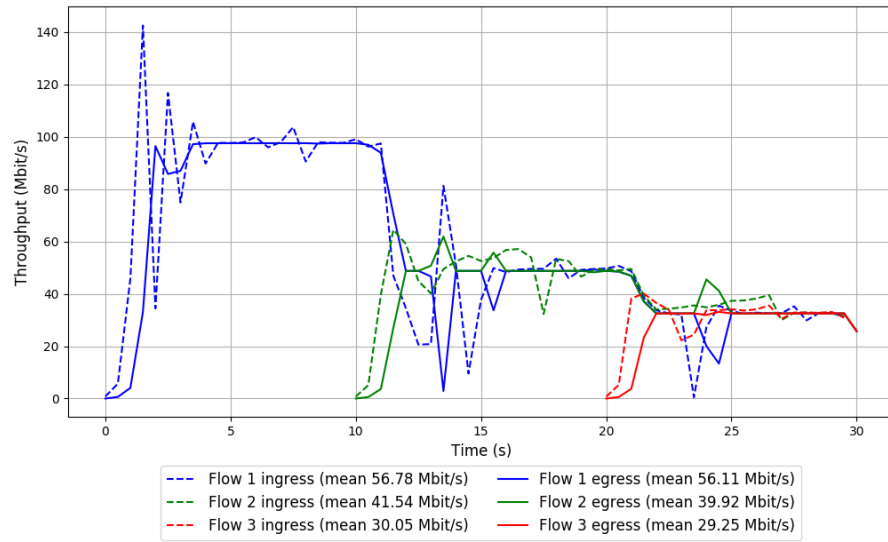
Run 3: Report of TCP BBR — Data Link

- - - Flow 1 ingress (mean 57.19 Mbit/s)   —— Flow 1 egress (mean 55.72 Mbit/s)
- - - Flow 2 ingress (mean 40.93 Mbit/s)   —— Flow 2 egress (mean 38.70 Mbit/s)
- - - Flow 3 ingress (mean 30.49 Mbit/s)   —— Flow 3 egress (mean 29.47 Mbit/s)

• Flow 1 (95th percentile 383.21 ms)   • Flow 2 (95th percentile 391.35 ms)   • Flow 3 (95th percentile 389.06 ms)

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Run 4: Statistics of TCP BBR

Start at: 2018-10-02 18:00:24
End at: 2018-10-02 18:00:54
Local clock offset: -3.105 ms
Remote clock offset: 2.972 ms


# Below is generated by plot.py at 2018-10-02 18:33:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.25 Mbit/s
95th percentile per-packet one-way delay: 392.308 ms
Loss rate: 2.86%
-- Flow 1:
Average throughput: 56.11 Mbit/s
95th percentile per-packet one-way delay: 391.345 ms
Loss rate: 1.72%
-- Flow 2:
Average throughput: 39.92 Mbit/s
95th percentile per-packet one-way delay: 396.835 ms
Loss rate: 4.68%
-- Flow 3:
Average throughput: 29.25 Mbit/s
95th percentile per-packet one-way delay: 382.769 ms
Loss rate: 4.27%
```
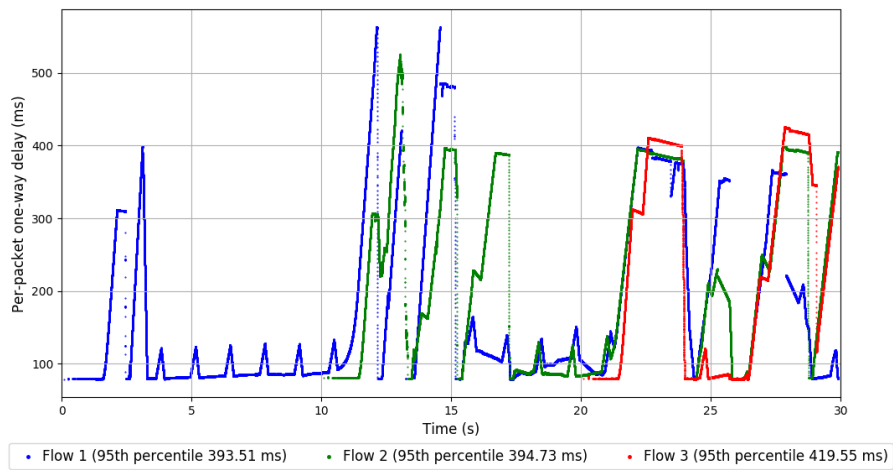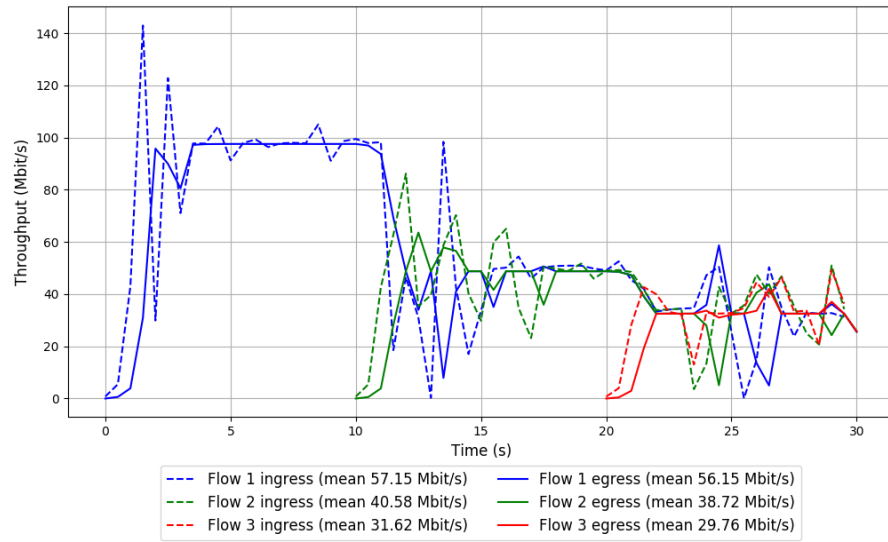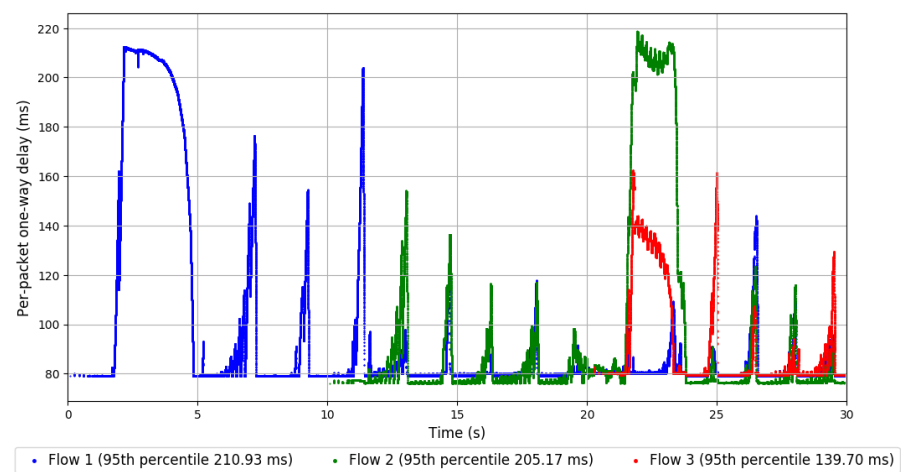
Run 4: Report of TCP BBR — Data Link

Flow 1 ingress (mean 56.78 Mbit/s) ---- Flow 1 egress (mean 56.11 Mbit/s)
Flow 2 ingress (mean 41.54 Mbit/s) ---- Flow 2 egress (mean 39.92 Mbit/s)
Flow 3 ingress (mean 30.05 Mbit/s) ---- Flow 3 egress (mean 29.25 Mbit/s)

Flow 1 (95th percentile 391.35 ms) • Flow 2 (95th percentile 396.83 ms) • Flow 3 (95th percentile 382.77 ms)

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```
Run 5: Statistics of TCP BBR

Start at: 2018-10-02 18:23:23
End at: 2018-10-02 18:23:53
Local clock offset: -2.538 ms
Remote clock offset: 4.045 ms


# Below is generated by plot.py at 2018-10-02 18:33:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.64 Mbit/s
95th percentile per-packet one-way delay: 405.197 ms
Loss rate: 3.75%
-- Flow 1:
Average throughput: 56.15 Mbit/s
95th percentile per-packet one-way delay: 393.513 ms
Loss rate: 2.30%
-- Flow 2:
Average throughput: 38.72 Mbit/s
95th percentile per-packet one-way delay: 394.728 ms
Loss rate: 5.39%
-- Flow 3:
Average throughput: 29.76 Mbit/s
95th percentile per-packet one-way delay: 419.553 ms
Loss rate: 7.45%
```
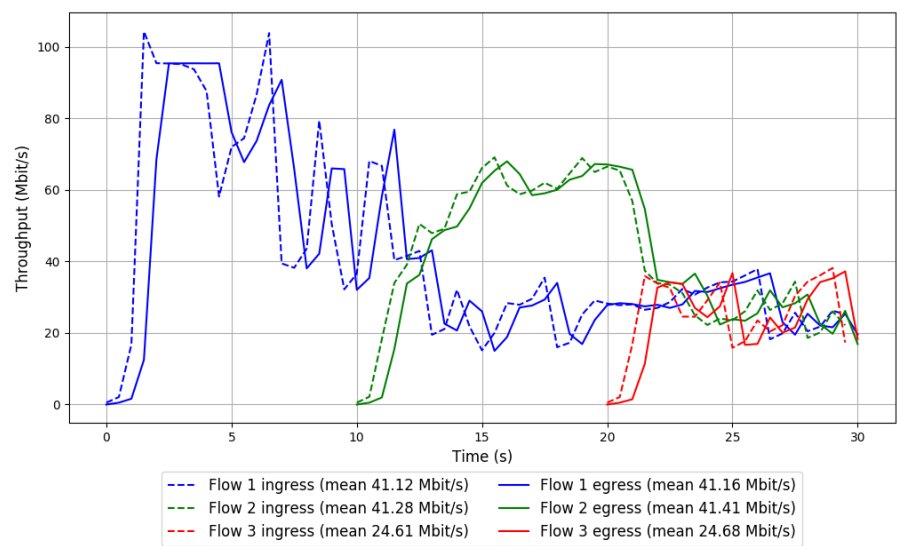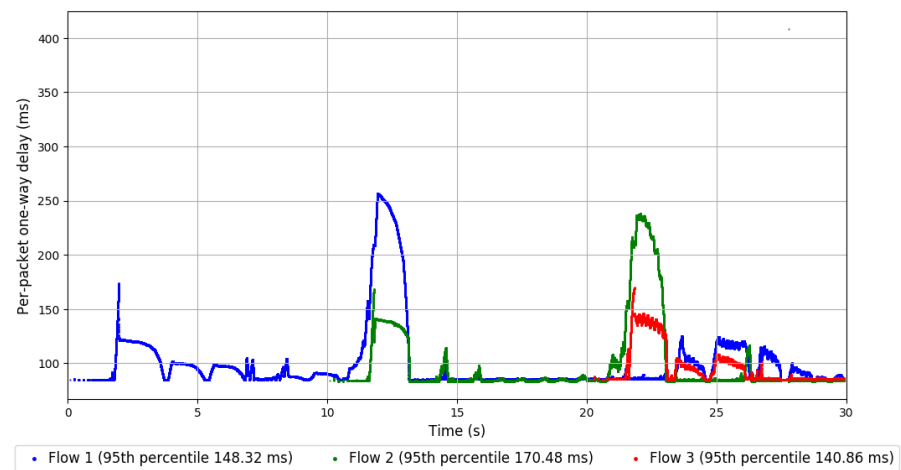
Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 57.15 Mbit/s) --- Flow 1 egress (mean 56.15 Mbit/s)
Flow 2 ingress (mean 40.58 Mbit/s) --- Flow 2 egress (mean 38.72 Mbit/s)
Flow 3 ingress (mean 31.62 Mbit/s) --- Flow 3 egress (mean 29.76 Mbit/s)

Flow 1 (95th percentile 393.51 ms) • Flow 2 (95th percentile 394.73 ms) • Flow 3 (95th percentile 419.55 ms)

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```
Run 1: Statistics of Copa

Start at: 2018-10-02 16:48:28
End at: 2018-10-02 16:48:58
Local clock offset: -5.102 ms
Remote clock offset: 2.987 ms


# Below is generated by plot.py at 2018-10-02 18:33:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 76.79 Mbit/s
95th percentile per-packet one-way delay: 209.825 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 41.16 Mbit/s
95th percentile per-packet one-way delay: 210.932 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 41.41 Mbit/s
95th percentile per-packet one-way delay: 205.174 ms
Loss rate: 0.50%
-- Flow 3:
Average throughput: 24.68 Mbit/s
95th percentile per-packet one-way delay: 139.699 ms
Loss rate: 1.36%
```
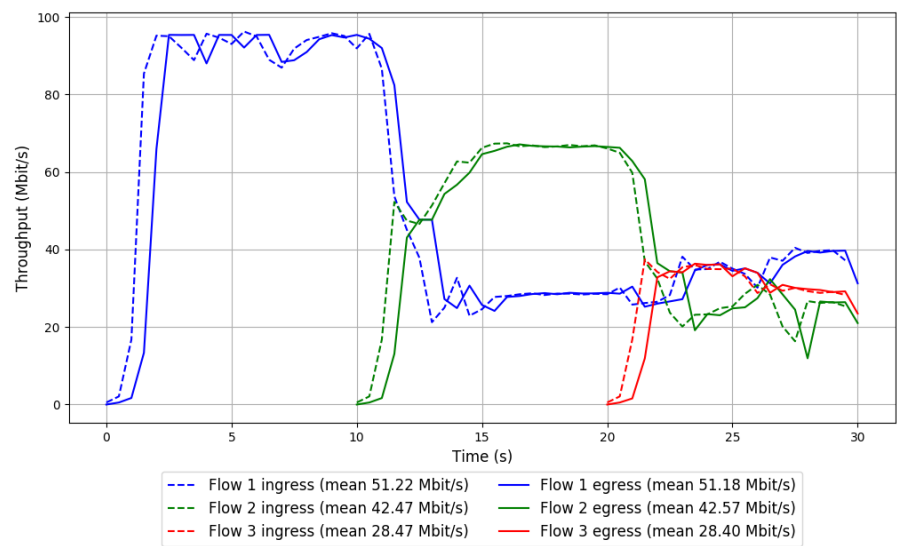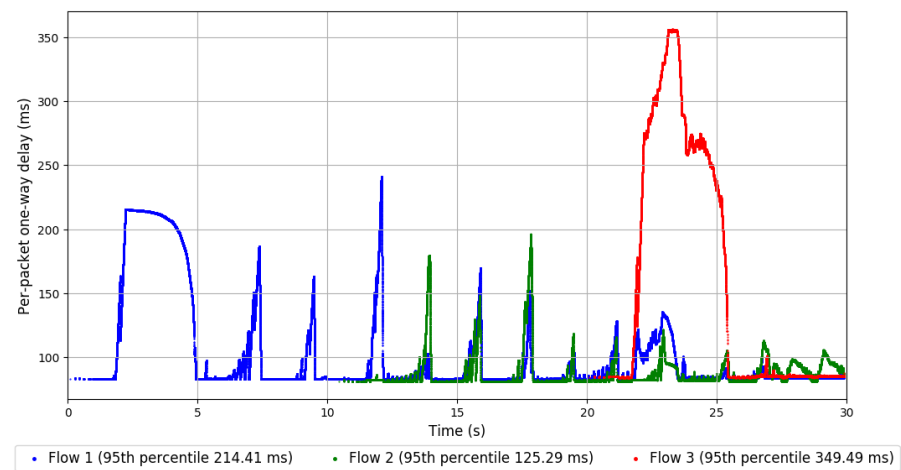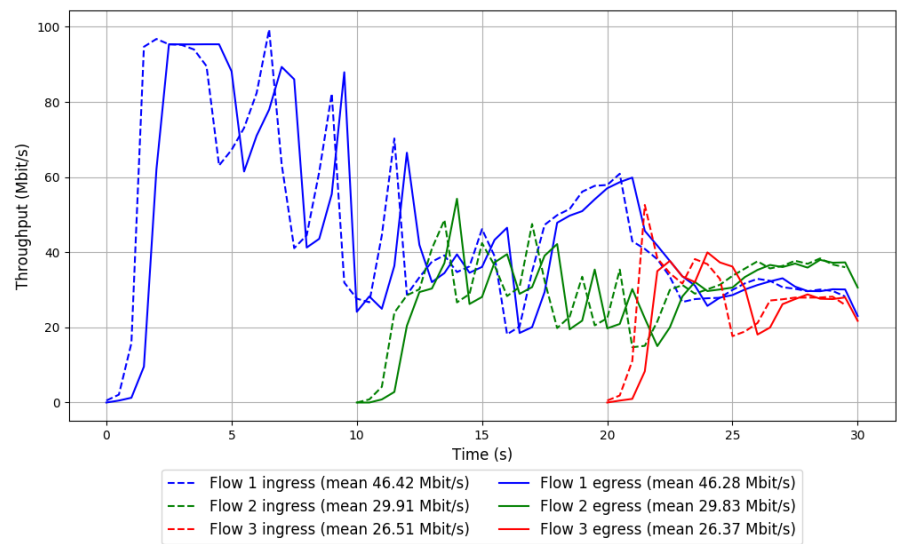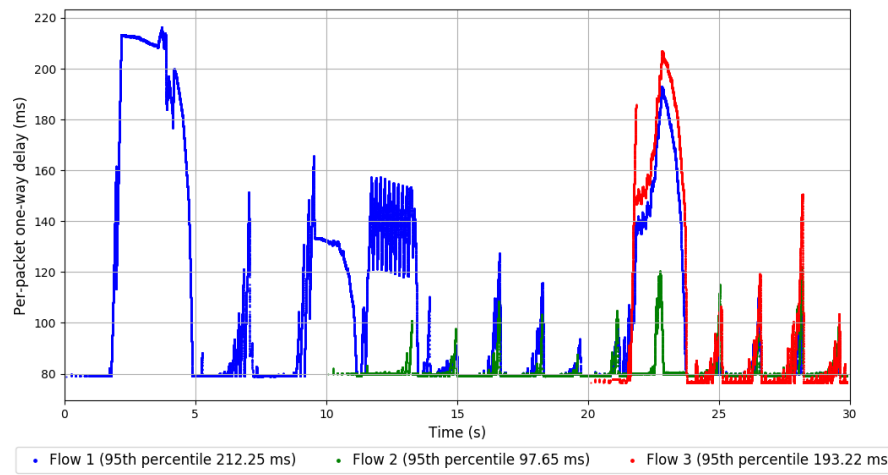
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 41.12 Mbit/s)   Flow 1 egress (mean 41.16 Mbit/s)
Flow 2 ingress (mean 41.28 Mbit/s)   Flow 2 egress (mean 41.41 Mbit/s)
Flow 3 ingress (mean 24.61 Mbit/s)   Flow 3 egress (mean 24.68 Mbit/s)

Flow 1 (95th percentile 210.93 ms)   Flow 2 (95th percentile 205.17 ms)   Flow 3 (95th percentile 139.70 ms)

```
Run 2: Statistics of Copa

Start at: 2018-10-02 17:12:12
End at: 2018-10-02 17:12:42
Local clock offset: -4.787 ms
Remote clock offset: -2.67 ms


# Below is generated by plot.py at 2018-10-02 18:33:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.81 Mbit/s
95th percentile per-packet one-way delay: 147.613 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 51.18 Mbit/s
95th percentile per-packet one-way delay: 148.324 ms
Loss rate: 0.62%
-- Flow 2:
Average throughput: 42.57 Mbit/s
95th percentile per-packet one-way delay: 170.477 ms
Loss rate: 0.60%
-- Flow 3:
Average throughput: 28.40 Mbit/s
95th percentile per-packet one-way delay: 140.864 ms
Loss rate: 1.88%
```
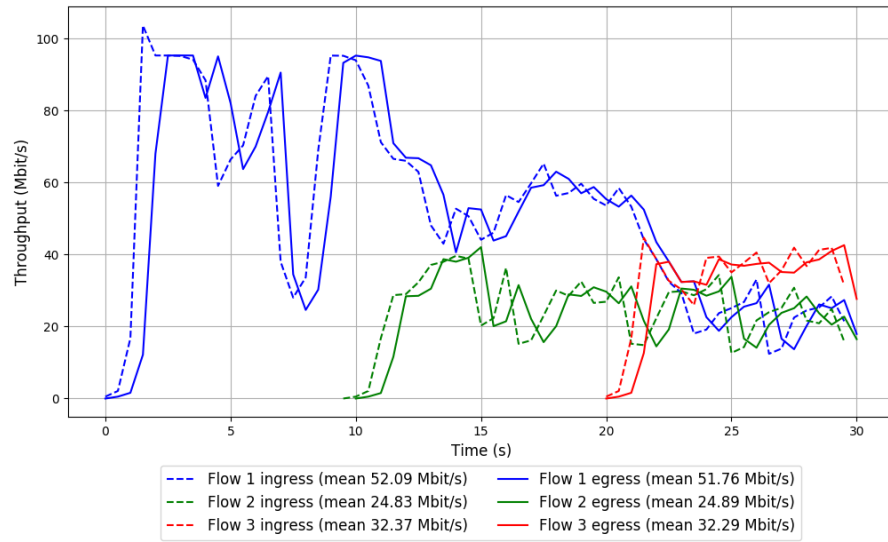
Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2018-10-02 17:35:33
End at: 2018-10-02 17:36:03
Local clock offset: -4.317 ms
Remote clock offset: -1.266 ms


# Below is generated by plot.py at 2018-10-02 18:33:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 74.41 Mbit/s
95th percentile per-packet one-way delay: 225.237 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 46.28 Mbit/s
95th percentile per-packet one-way delay: 214.406 ms
Loss rate: 0.85%
-- Flow 2:
Average throughput: 29.83 Mbit/s
95th percentile per-packet one-way delay: 125.286 ms
Loss rate: 1.10%
-- Flow 3:
Average throughput: 26.37 Mbit/s
95th percentile per-packet one-way delay: 349.485 ms
Loss rate: 2.17%
```
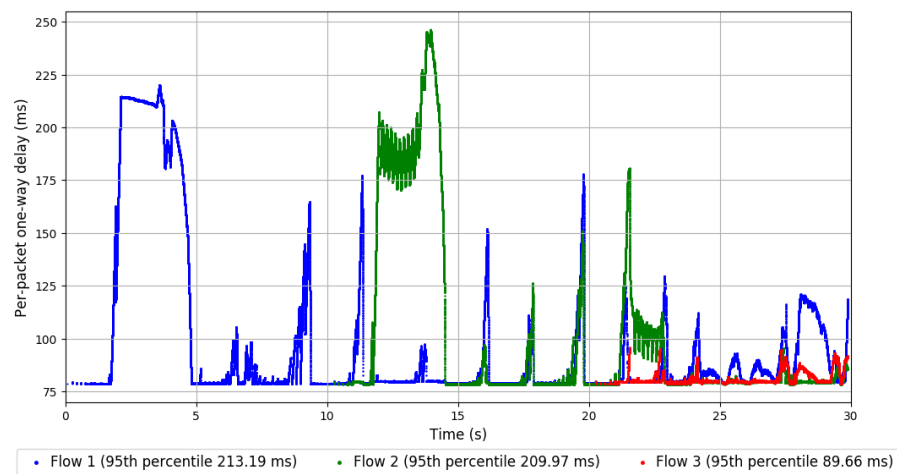
Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2018-10-02 17:59:03
End at: 2018-10-02 17:59:33
Local clock offset: -3.172 ms
Remote clock offset: 4.015 ms


# Below is generated by plot.py at 2018-10-02 18:34:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 78.92 Mbit/s
95th percentile per-packet one-way delay: 210.223 ms
Loss rate: 1.15%
-- Flow 1:
Average throughput: 51.76 Mbit/s
95th percentile per-packet one-way delay: 212.248 ms
Loss rate: 1.18%
-- Flow 2:
Average throughput: 24.89 Mbit/s
95th percentile per-packet one-way delay: 97.654 ms
Loss rate: 0.59%
-- Flow 3:
Average throughput: 32.29 Mbit/s
95th percentile per-packet one-way delay: 193.217 ms
Loss rate: 1.89%
```
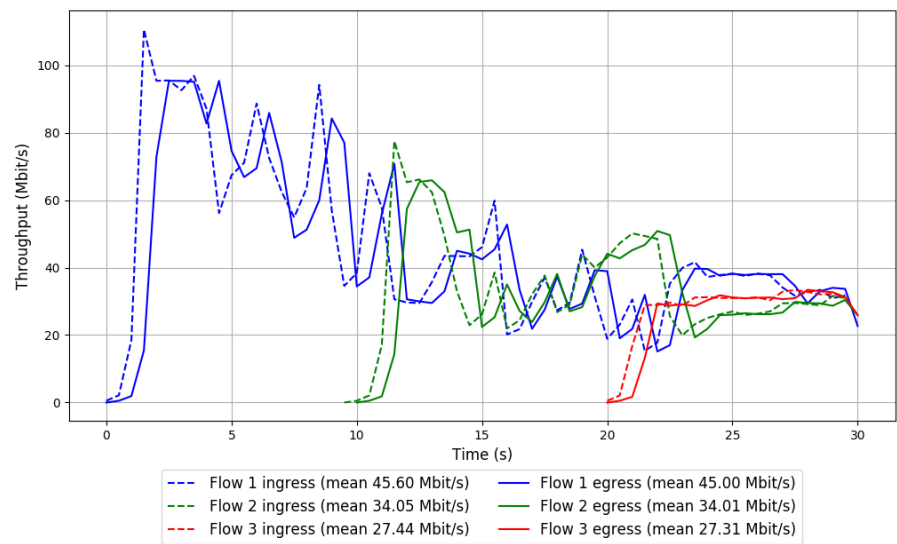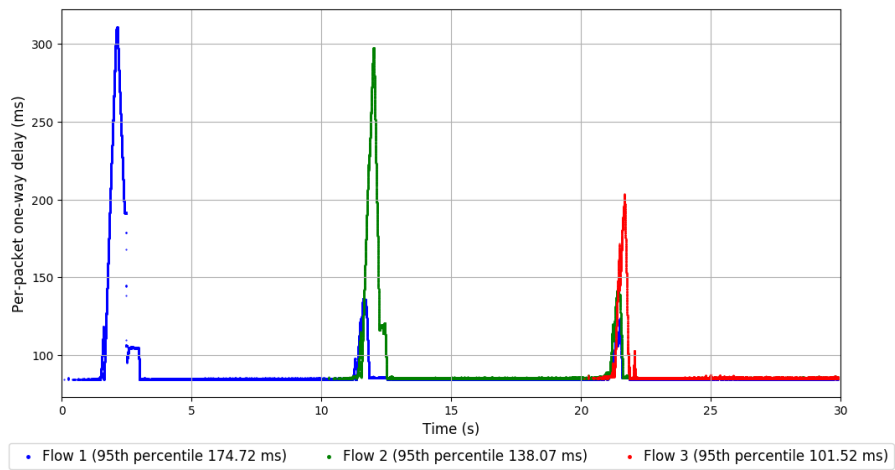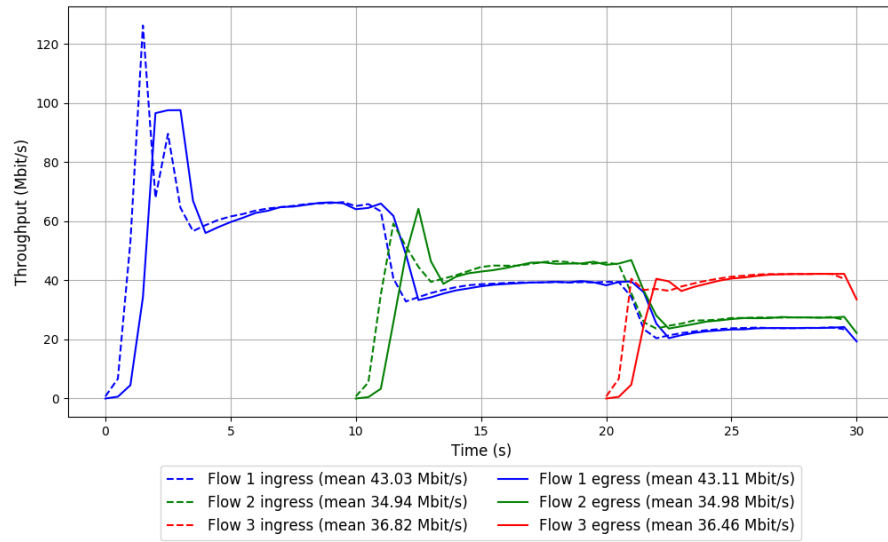
Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2018-10-02 18:22:04
End at: 2018-10-02 18:22:34
Local clock offset: -2.637 ms
Remote clock offset: 1.908 ms


# Below is generated by plot.py at 2018-10-02 18:34:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 76.58 Mbit/s
95th percentile per-packet one-way delay: 212.729 ms
Loss rate: 1.61%
-- Flow 1:
Average throughput: 45.00 Mbit/s
95th percentile per-packet one-way delay: 213.186 ms
Loss rate: 1.85%
-- Flow 2:
Average throughput: 34.01 Mbit/s
95th percentile per-packet one-way delay: 209.966 ms
Loss rate: 0.95%
-- Flow 3:
Average throughput: 27.31 Mbit/s
95th percentile per-packet one-way delay: 89.664 ms
Loss rate: 2.08%
```
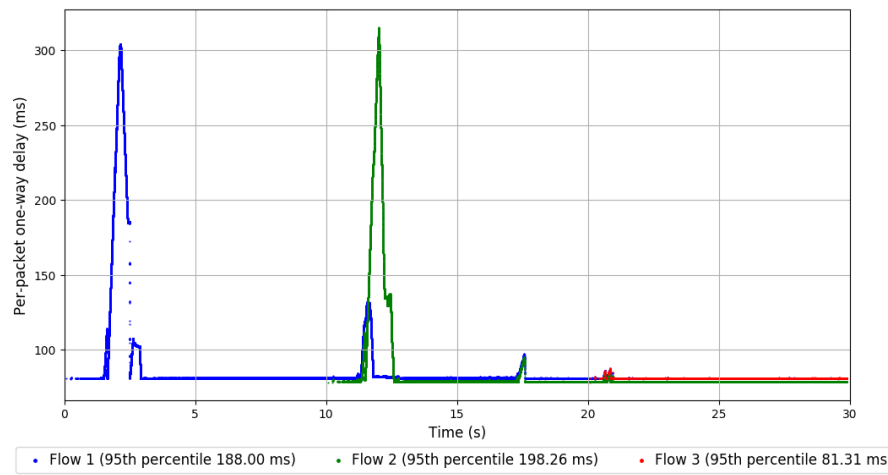
Run 5: Report of Copa — Data Link

- - - Flow 1 ingress (mean 45.60 Mbit/s) —— Flow 1 egress (mean 45.00 Mbit/s)
- - - Flow 2 ingress (mean 34.05 Mbit/s) —— Flow 2 egress (mean 34.01 Mbit/s)
- - - Flow 3 ingress (mean 27.44 Mbit/s) —— Flow 3 egress (mean 27.31 Mbit/s)

• Flow 1 (95th percentile 213.19 ms)   • Flow 2 (95th percentile 209.97 ms)   • Flow 3 (95th percentile 89.66 ms)

```
Run 1: Statistics of TCP Cubic

Start at: 2018-10-02 16:43:16
End at: 2018-10-02 16:43:46
Local clock offset: -5.252 ms
Remote clock offset: -3.354 ms


# Below is generated by plot.py at 2018-10-02 18:34:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 78.31 Mbit/s
95th percentile per-packet one-way delay: 139.999 ms
Loss rate: 0.82%
-- Flow 1:
Average throughput: 43.11 Mbit/s
95th percentile per-packet one-way delay: 174.718 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 34.98 Mbit/s
95th percentile per-packet one-way delay: 138.067 ms
Loss rate: 0.72%
-- Flow 3:
Average throughput: 36.46 Mbit/s
95th percentile per-packet one-way delay: 101.517 ms
Loss rate: 2.61%
```
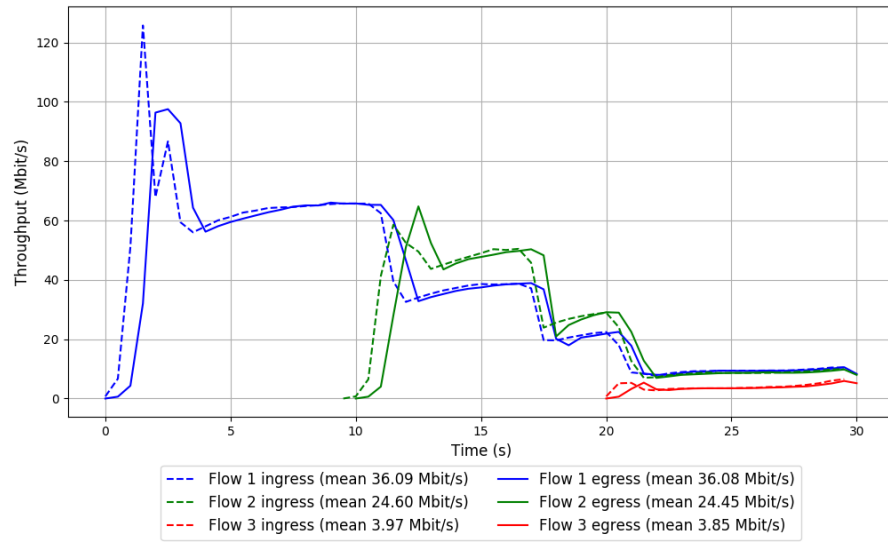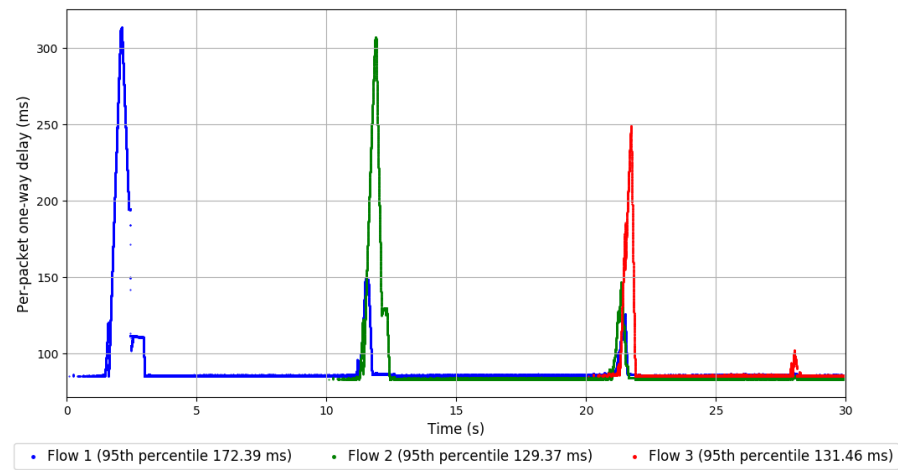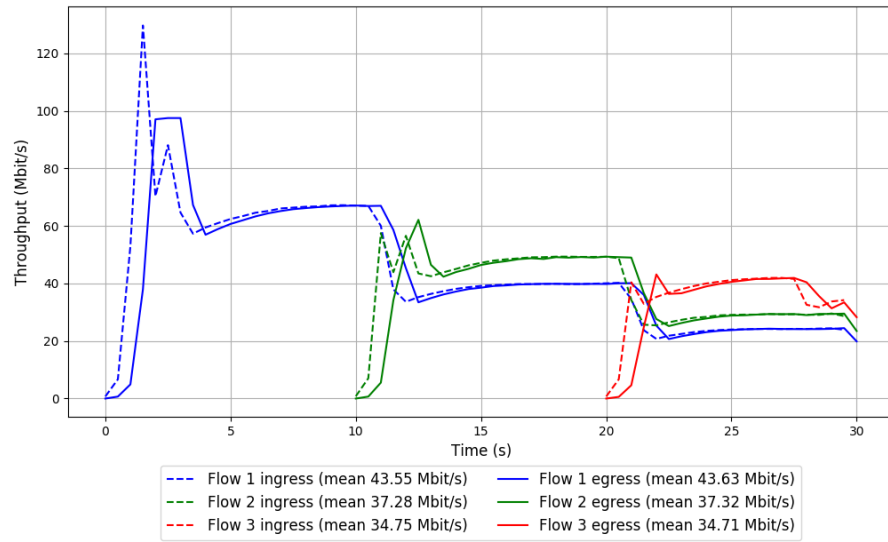
Run 1: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 43.03 Mbit/s) ---- Flow 1 egress (mean 43.11 Mbit/s)
Flow 2 ingress (mean 34.94 Mbit/s) ---- Flow 2 egress (mean 34.98 Mbit/s)
Flow 3 ingress (mean 36.82 Mbit/s) ---- Flow 3 egress (mean 36.46 Mbit/s)

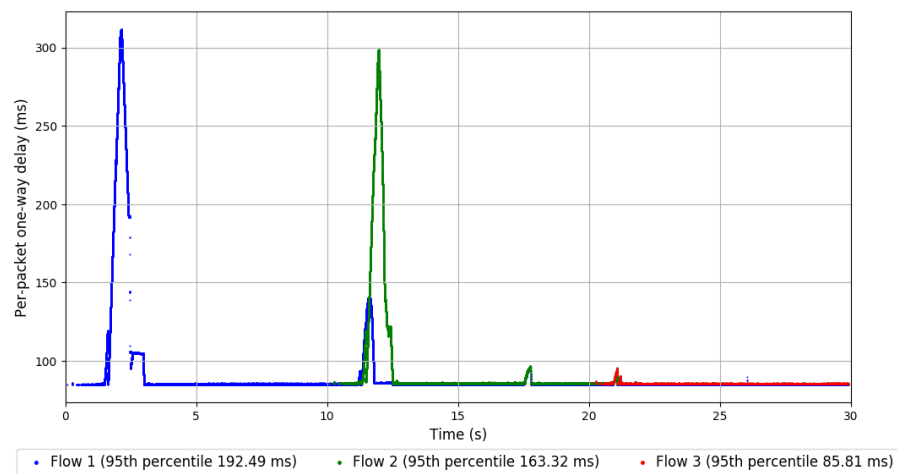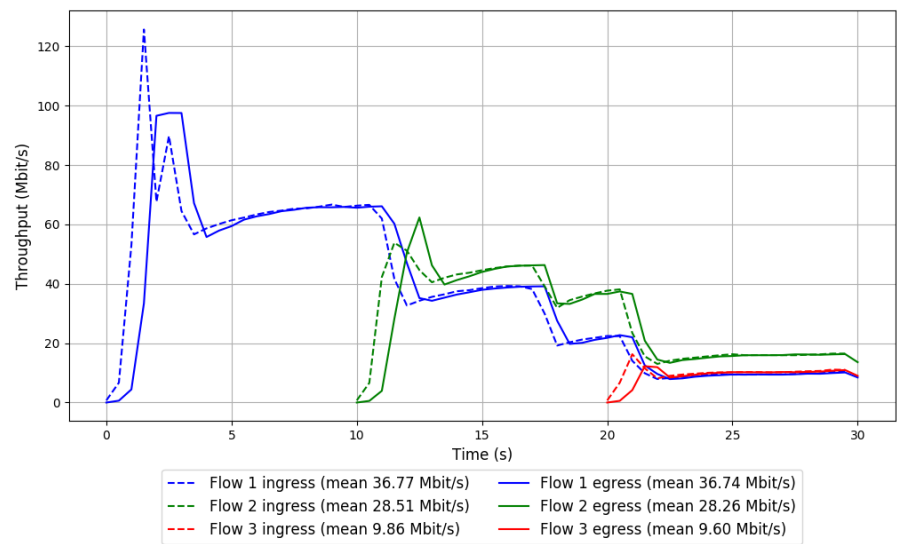Flow 1 (95th percentile 174.72 ms)   Flow 2 (95th percentile 138.07 ms)   Flow 3 (95th percentile 101.52 ms)

```
Run 2: Statistics of TCP Cubic

Start at: 2018-10-02 17:06:50
End at: 2018-10-02 17:07:20
Local clock offset: -4.84 ms
Remote clock offset: 0.98 ms


# Below is generated by plot.py at 2018-10-02 18:34:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 53.59 Mbit/s
95th percentile per-packet one-way delay: 187.574 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 36.08 Mbit/s
95th percentile per-packet one-way delay: 188.000 ms
Loss rate: 0.60%
-- Flow 2:
Average throughput: 24.45 Mbit/s
95th percentile per-packet one-way delay: 198.261 ms
Loss rate: 1.39%
-- Flow 3:
Average throughput: 3.85 Mbit/s
95th percentile per-packet one-way delay: 81.311 ms
Loss rate: 4.50%
```

Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2018-10-02 17:30:18
End at: 2018-10-02 17:30:48
Local clock offset: -4.413 ms
Remote clock offset: -2.624 ms


# Below is generated by plot.py at 2018-10-02 18:34:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 79.83 Mbit/s
95th percentile per-packet one-way delay: 147.639 ms
Loss rate: 0.68%
-- Flow 1:
Average throughput: 43.63 Mbit/s
95th percentile per-packet one-way delay: 172.392 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 37.32 Mbit/s
95th percentile per-packet one-way delay: 129.368 ms
Loss rate: 0.71%
-- Flow 3:
Average throughput: 34.71 Mbit/s
95th percentile per-packet one-way delay: 131.464 ms
Loss rate: 1.78%
```
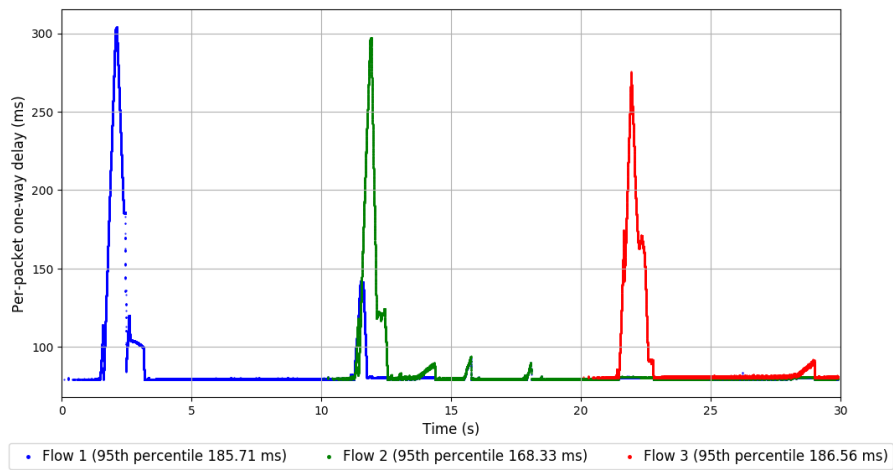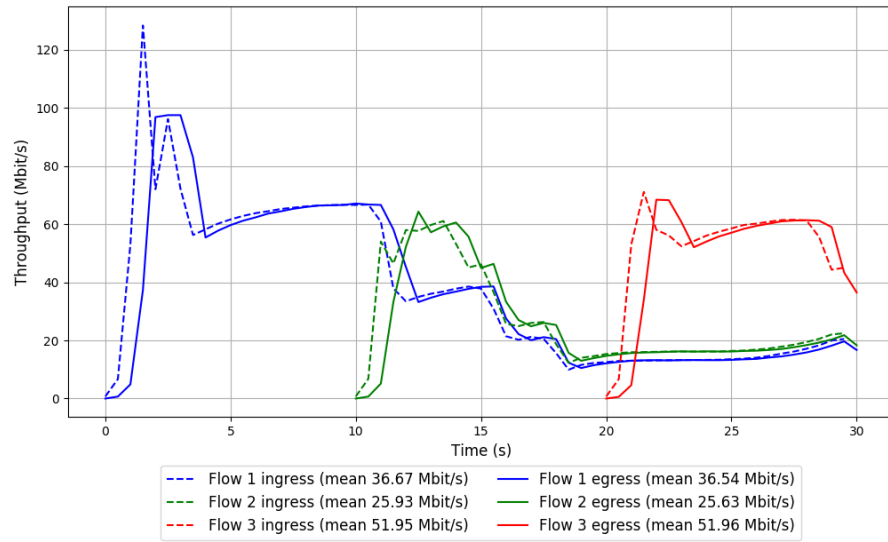
Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 43.55 Mbit/s) —— Flow 1 egress (mean 43.63 Mbit/s)
Flow 2 ingress (mean 37.28 Mbit/s) —— Flow 2 egress (mean 37.32 Mbit/s)
Flow 3 ingress (mean 34.75 Mbit/s) —— Flow 3 egress (mean 34.71 Mbit/s)

• Flow 1 (95th percentile 172.39 ms)   • Flow 2 (95th percentile 129.37 ms)   • Flow 3 (95th percentile 131.46 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2018-10-02 17:53:50
End at: 2018-10-02 17:54:20
Local clock offset: -3.458 ms
Remote clock offset: -2.233 ms


# Below is generated by plot.py at 2018-10-02 18:34:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 58.66 Mbit/s
95th percentile per-packet one-way delay: 182.825 ms
Loss rate: 1.19%
-- Flow 1:
Average throughput: 36.74 Mbit/s
95th percentile per-packet one-way delay: 192.490 ms
Loss rate: 0.63%
-- Flow 2:
Average throughput: 28.26 Mbit/s
95th percentile per-packet one-way delay: 163.318 ms
Loss rate: 1.72%
-- Flow 3:
Average throughput: 9.60 Mbit/s
95th percentile per-packet one-way delay: 85.815 ms
Loss rate: 4.29%
```
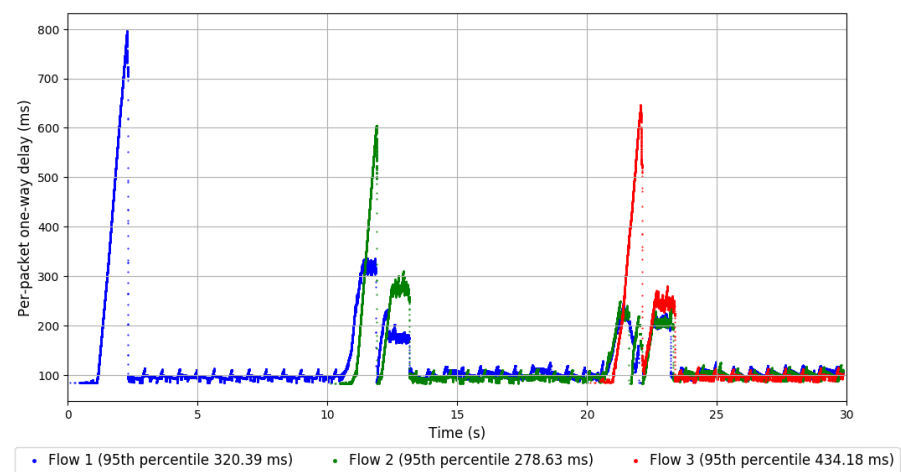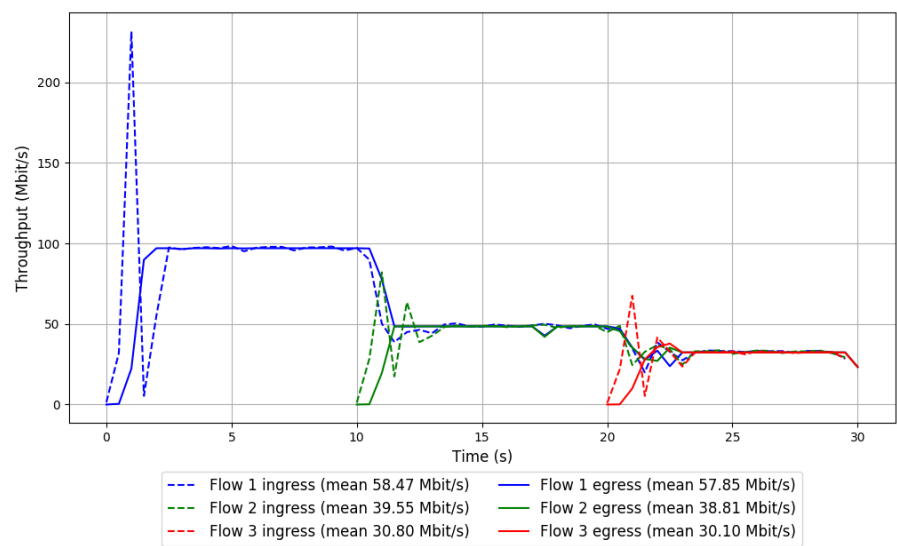
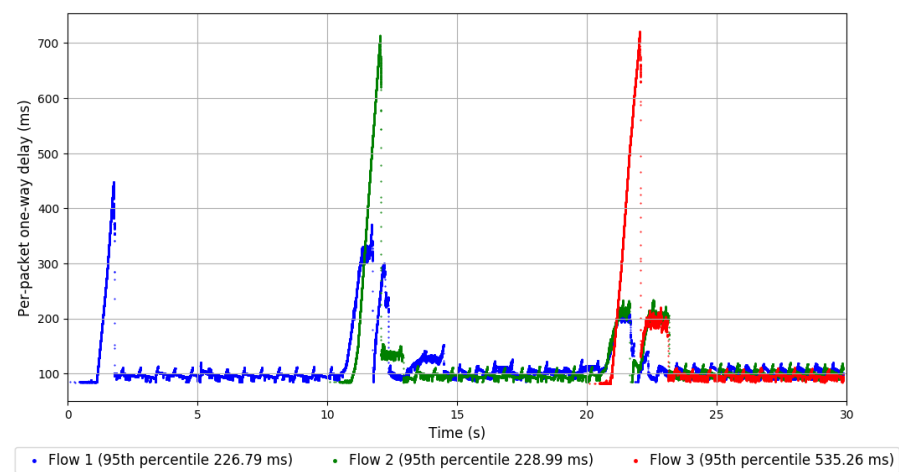Run 4: Report of TCP Cubic — Data Link

```
Run 5: Statistics of TCP Cubic

Start at: 2018-10-02 18:16:53
End at: 2018-10-02 18:17:23
Local clock offset: -2.596 ms
Remote clock offset: 1.805 ms


# Below is generated by plot.py at 2018-10-02 18:34:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 70.62 Mbit/s
95th percentile per-packet one-way delay: 185.578 ms
Loss rate: 1.34%
-- Flow 1:
Average throughput: 36.54 Mbit/s
95th percentile per-packet one-way delay: 185.712 ms
Loss rate: 0.89%
-- Flow 2:
Average throughput: 25.63 Mbit/s
95th percentile per-packet one-way delay: 168.332 ms
Loss rate: 1.98%
-- Flow 3:
Average throughput: 51.96 Mbit/s
95th percentile per-packet one-way delay: 186.563 ms
Loss rate: 1.65%
```

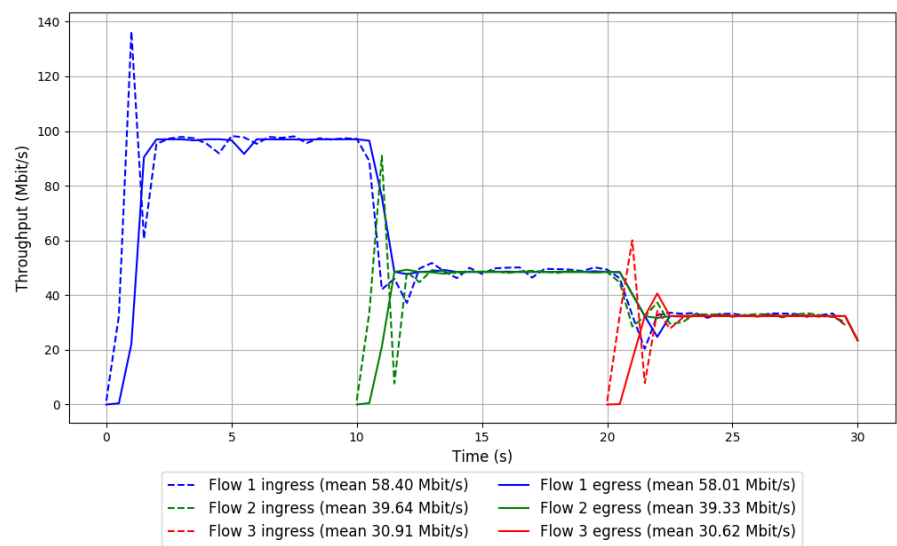# Run 5: Report of TCP Cubic — Data Link

```
Run 1: Statistics of FillP

Start at: 2018-10-02 16:54:50
End at: 2018-10-02 16:55:20
Local clock offset: -5.0 ms
Remote clock offset: -2.135 ms


# Below is generated by plot.py at 2018-10-02 18:35:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.45 Mbit/s
95th percentile per-packet one-way delay: 315.987 ms
Loss rate: 2.15%
-- Flow 1:
Average throughput: 57.85 Mbit/s
95th percentile per-packet one-way delay: 320.390 ms
Loss rate: 1.61%
-- Flow 2:
Average throughput: 38.81 Mbit/s
95th percentile per-packet one-way delay: 278.633 ms
Loss rate: 2.68%
-- Flow 3:
Average throughput: 30.10 Mbit/s
95th percentile per-packet one-way delay: 434.176 ms
Loss rate: 3.90%
```

Run 1: Report of FillP — Data Link

```
Run 2: Statistics of FillP

Start at: 2018-10-02 17:18:37
End at: 2018-10-02 17:19:07
Local clock offset: -4.658 ms
Remote clock offset: -1.609 ms


# Below is generated by plot.py at 2018-10-02 18:35:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.14 Mbit/s
95th percentile per-packet one-way delay: 247.315 ms
Loss rate: 1.47%
-- Flow 1:
Average throughput: 58.01 Mbit/s
95th percentile per-packet one-way delay: 226.786 ms
Loss rate: 1.22%
-- Flow 2:
Average throughput: 39.33 Mbit/s
95th percentile per-packet one-way delay: 228.990 ms
Loss rate: 1.61%
-- Flow 3:
Average throughput: 30.62 Mbit/s
95th percentile per-packet one-way delay: 535.259 ms
Loss rate: 2.56%
```
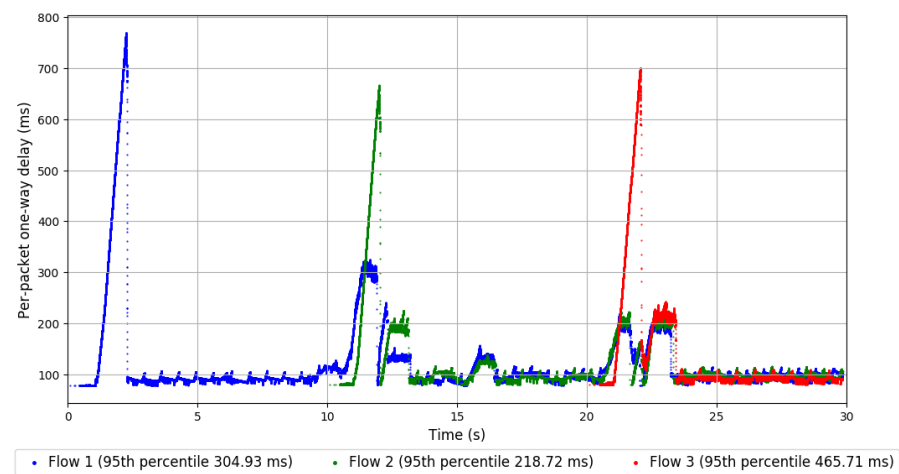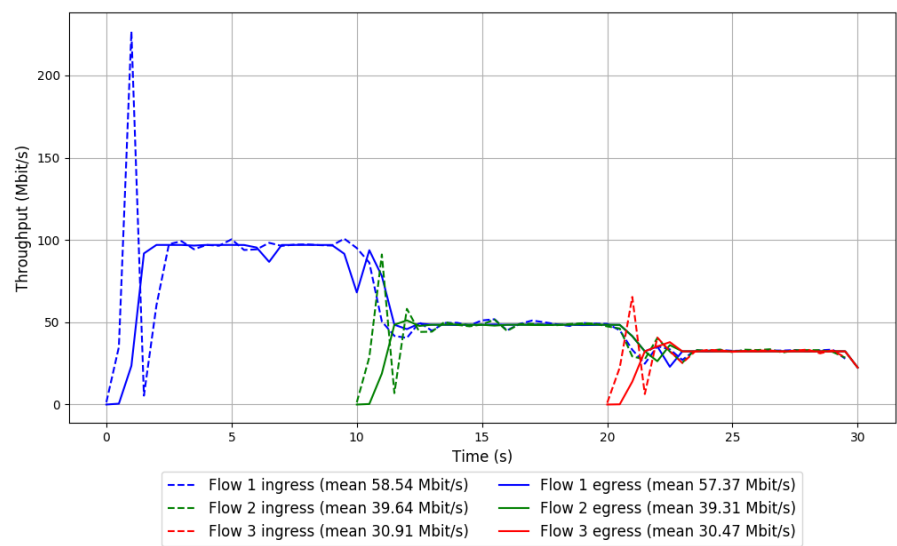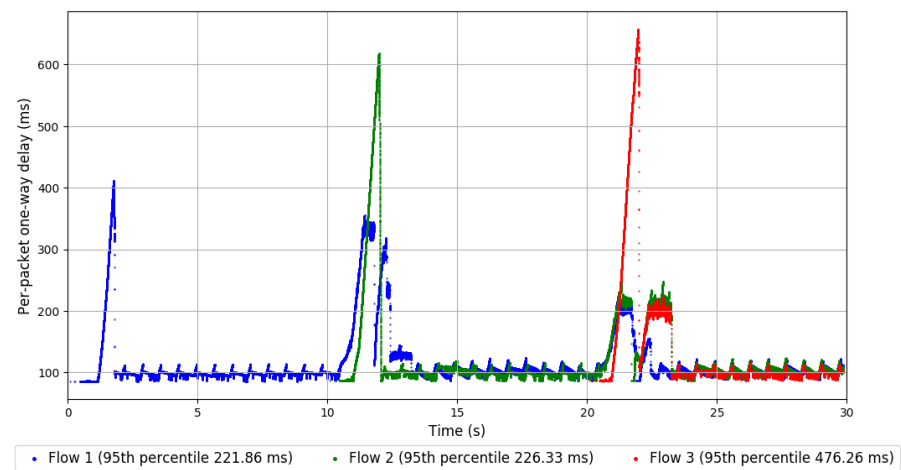
Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2018-10-02 17:42:01
End at: 2018-10-02 17:42:31
Local clock offset: -4.213 ms
Remote clock offset: 2.59 ms


# Below is generated by plot.py at 2018-10-02 18:35:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.44 Mbit/s
95th percentile per-packet one-way delay: 304.810 ms
Loss rate: 2.33%
-- Flow 1:
Average throughput: 57.37 Mbit/s
95th percentile per-packet one-way delay: 304.933 ms
Loss rate: 2.52%
-- Flow 2:
Average throughput: 39.31 Mbit/s
95th percentile per-packet one-way delay: 218.716 ms
Loss rate: 1.62%
-- Flow 3:
Average throughput: 30.47 Mbit/s
95th percentile per-packet one-way delay: 465.710 ms
Loss rate: 3.02%
```
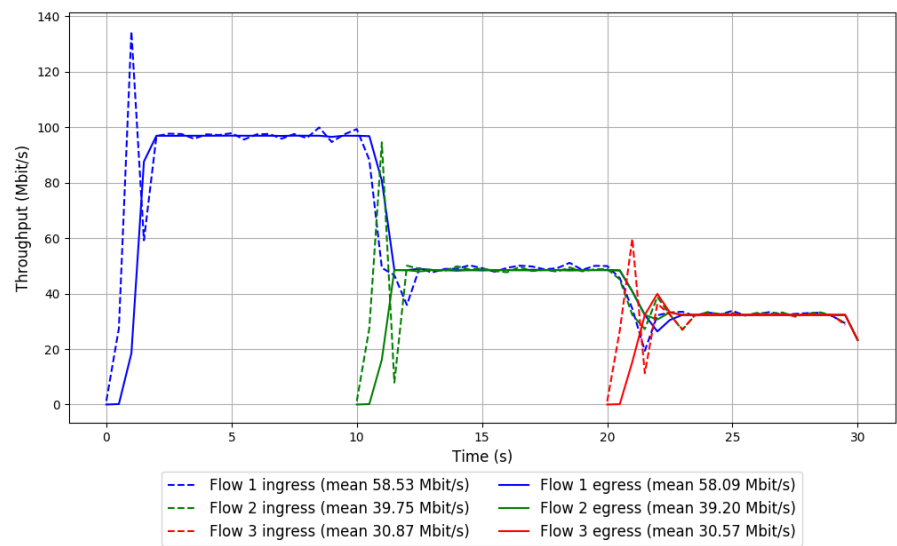
Run 3: Report of FillP — Data Link

- - - - Flow 1 ingress (mean 58.54 Mbit/s) ——— Flow 1 egress (mean 57.37 Mbit/s)
- - - - Flow 2 ingress (mean 39.64 Mbit/s) ——— Flow 2 egress (mean 39.31 Mbit/s)
- - - - Flow 3 ingress (mean 30.91 Mbit/s) ——— Flow 3 egress (mean 30.47 Mbit/s)

- Flow 1 (95th percentile 304.93 ms)   • Flow 2 (95th percentile 218.72 ms)   • Flow 3 (95th percentile 465.71 ms)
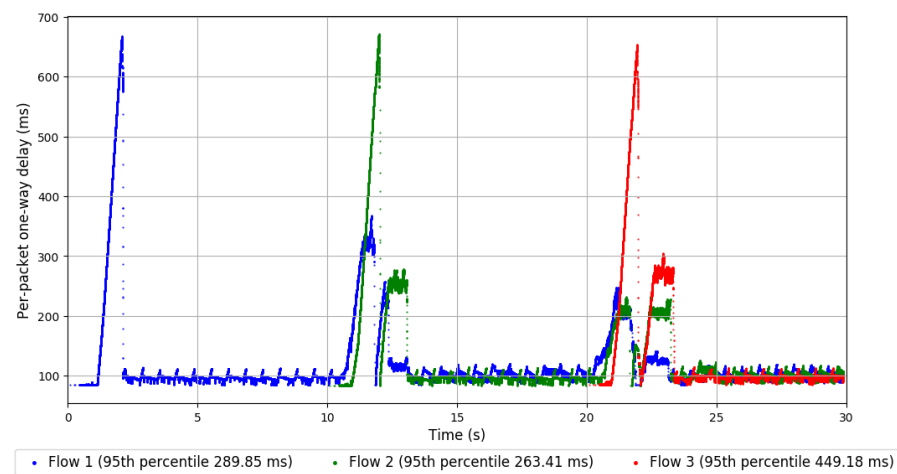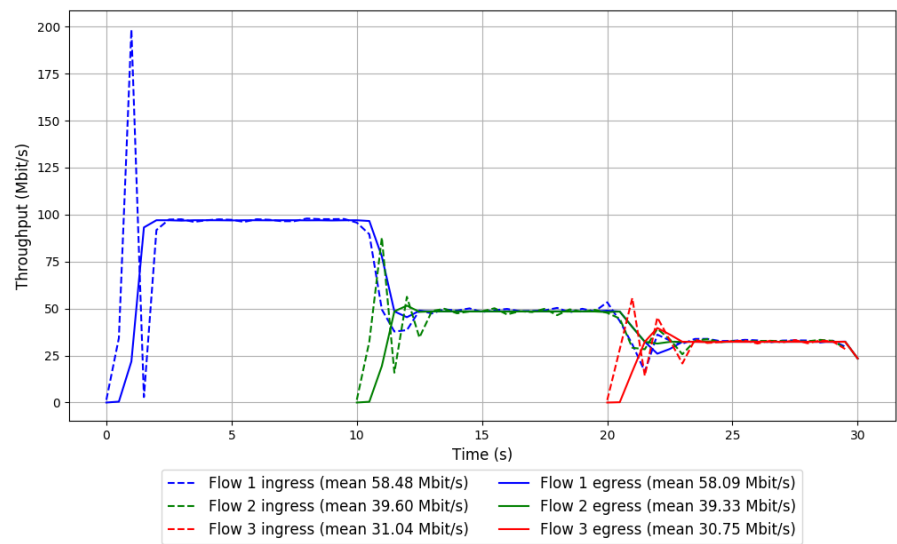
```
Run 4: Statistics of FillP

Start at: 2018-10-02 18:05:25
End at: 2018-10-02 18:05:55
Local clock offset: -2.918 ms
Remote clock offset: -2.205 ms

# Below is generated by plot.py at 2018-10-02 18:35:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.13 Mbit/s
95th percentile per-packet one-way delay: 234.681 ms
Loss rate: 1.68%
-- Flow 1:
Average throughput: 58.09 Mbit/s
95th percentile per-packet one-way delay: 221.863 ms
Loss rate: 1.29%
-- Flow 2:
Average throughput: 39.20 Mbit/s
95th percentile per-packet one-way delay: 226.328 ms
Loss rate: 2.19%
-- Flow 3:
Average throughput: 30.57 Mbit/s
95th percentile per-packet one-way delay: 476.263 ms
Loss rate: 2.61%
```
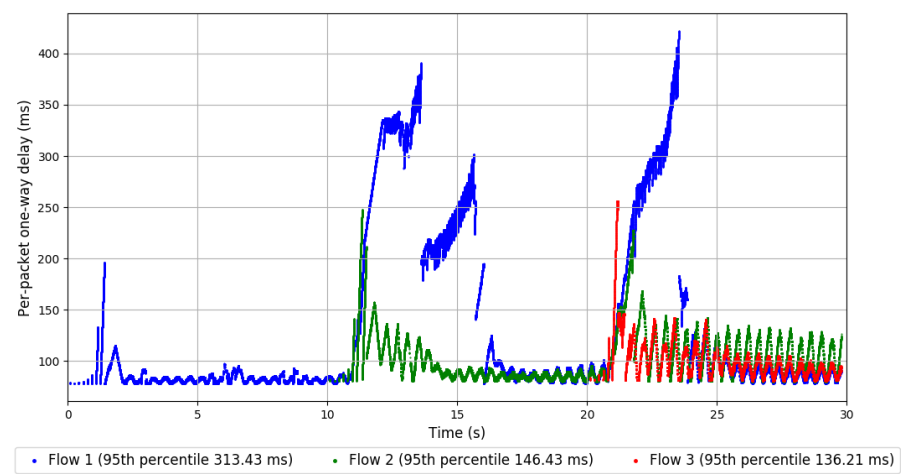
Run 4: Report of FillP — Data Link

```
Run 5: Statistics of FillP

Start at: 2018-10-02 18:28:26
End at: 2018-10-02 18:28:56
Local clock offset: -2.473 ms
Remote clock offset: -1.835 ms


# Below is generated by plot.py at 2018-10-02 18:35:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.29 Mbit/s
95th percentile per-packet one-way delay: 293.737 ms
Loss rate: 1.43%
-- Flow 1:
Average throughput: 58.09 Mbit/s
95th percentile per-packet one-way delay: 289.847 ms
Loss rate: 1.20%
-- Flow 2:
Average throughput: 39.33 Mbit/s
95th percentile per-packet one-way delay: 263.407 ms
Loss rate: 1.49%
-- Flow 3:
Average throughput: 30.75 Mbit/s
95th percentile per-packet one-way delay: 449.180 ms
Loss rate: 2.57%
```
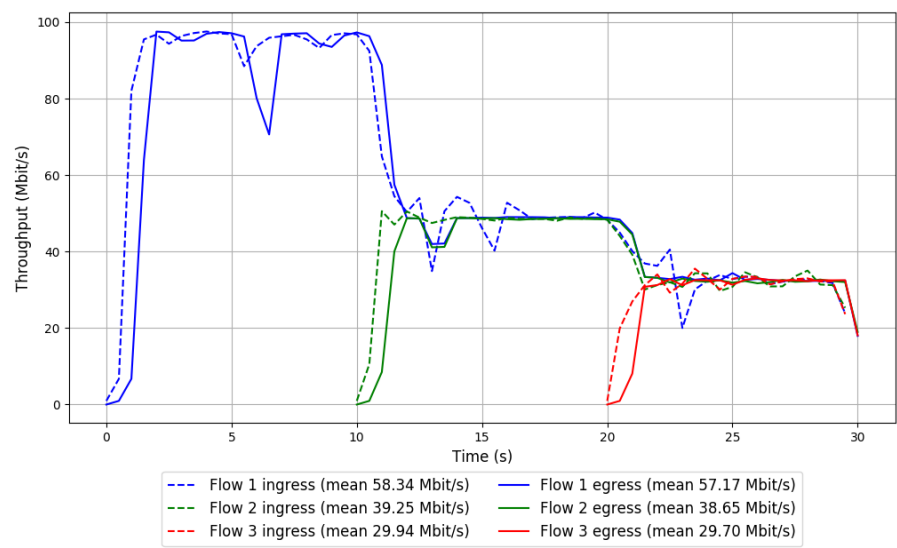
Run 5: Report of FillP — Data Link

```
Run 1: Statistics of Indigo

Start at: 2018-10-02 16:41:58
End at: 2018-10-02 16:42:28
Local clock offset: -5.221 ms
Remote clock offset: 1.971 ms


# Below is generated by plot.py at 2018-10-02 18:35:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.46 Mbit/s
95th percentile per-packet one-way delay: 270.496 ms
Loss rate: 2.47%
-- Flow 1:
Average throughput: 57.17 Mbit/s
95th percentile per-packet one-way delay: 313.432 ms
Loss rate: 2.53%
-- Flow 2:
Average throughput: 38.65 Mbit/s
95th percentile per-packet one-way delay: 146.430 ms
Loss rate: 2.33%
-- Flow 3:
Average throughput: 29.70 Mbit/s
95th percentile per-packet one-way delay: 136.213 ms
Loss rate: 2.49%
```
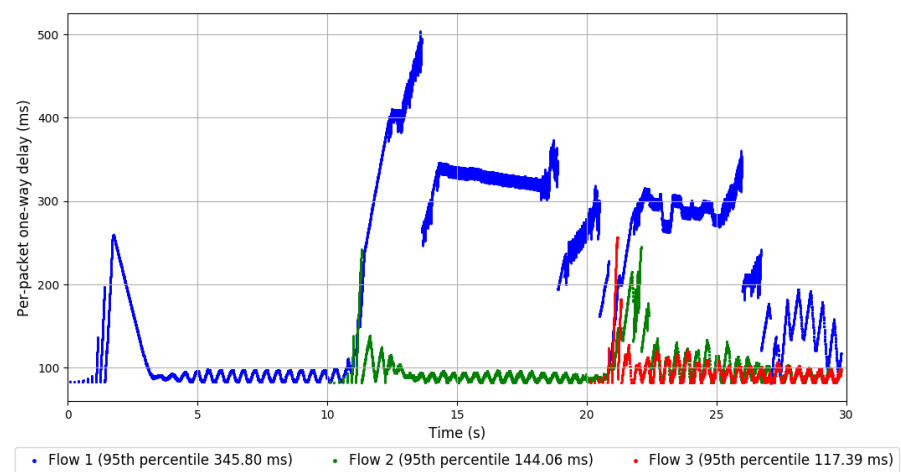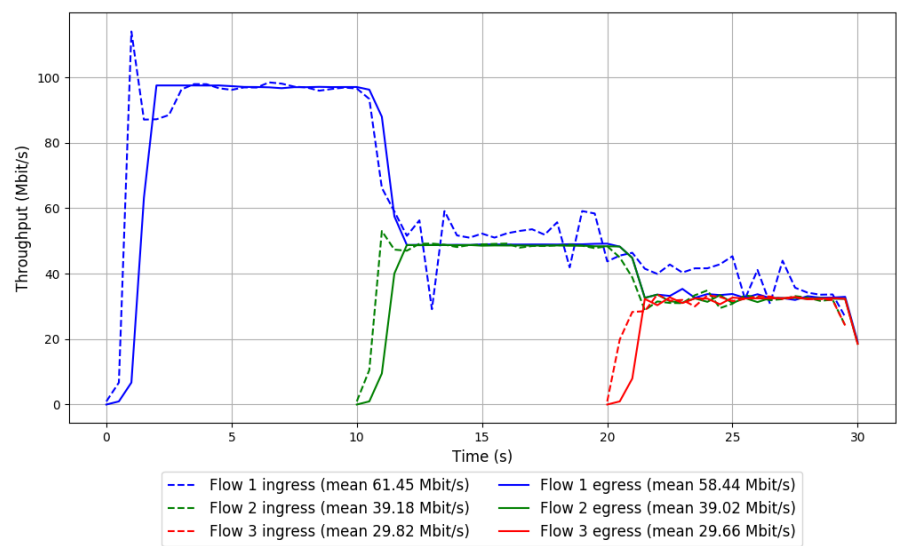
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-10-02 17:05:28
End at: 2018-10-02 17:05:58
Local clock offset: -4.935 ms
Remote clock offset: -1.868 ms


# Below is generated by plot.py at 2018-10-02 18:35:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.97 Mbit/s
95th percentile per-packet one-way delay: 335.973 ms
Loss rate: 3.97%
-- Flow 1:
Average throughput: 58.44 Mbit/s
95th percentile per-packet one-way delay: 345.795 ms
Loss rate: 5.40%
-- Flow 2:
Average throughput: 39.02 Mbit/s
95th percentile per-packet one-way delay: 144.064 ms
Loss rate: 1.24%
-- Flow 3:
Average throughput: 29.66 Mbit/s
95th percentile per-packet one-way delay: 117.387 ms
Loss rate: 2.18%
```
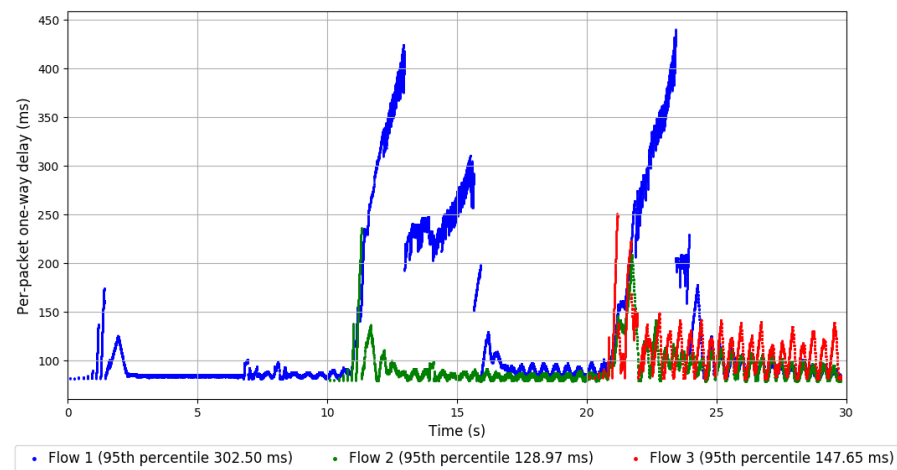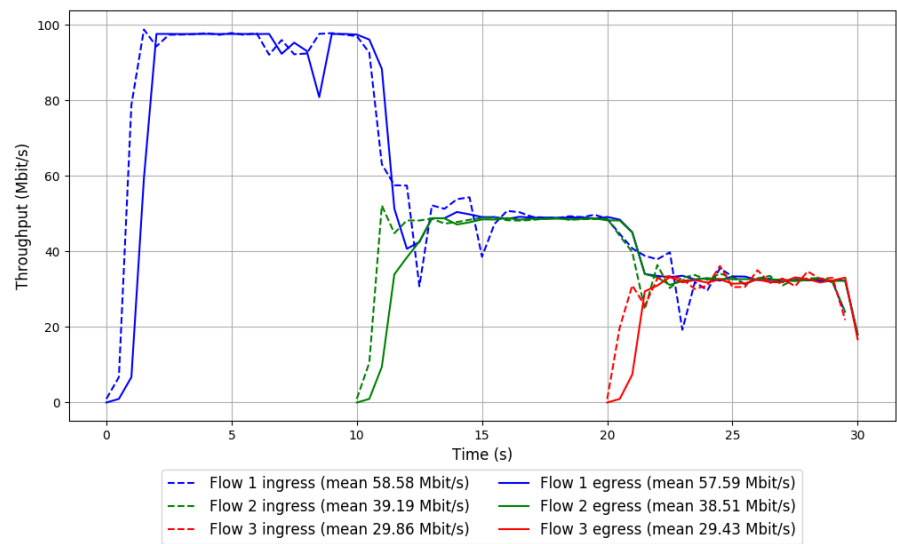
Run 2: Report of Indigo — Data Link

Flow 1 ingress (mean 61.45 Mbit/s)   Flow 1 egress (mean 58.44 Mbit/s)
Flow 2 ingress (mean 39.18 Mbit/s)   Flow 2 egress (mean 39.02 Mbit/s)
Flow 3 ingress (mean 29.82 Mbit/s)   Flow 3 egress (mean 29.66 Mbit/s)

Flow 1 (95th percentile 345.80 ms)   Flow 2 (95th percentile 144.06 ms)   Flow 3 (95th percentile 117.39 ms)

```
Run 3: Statistics of Indigo

Start at: 2018-10-02 17:28:59
End at: 2018-10-02 17:29:29
Local clock offset: -4.446 ms
Remote clock offset: 1.341 ms


# Below is generated by plot.py at 2018-10-02 18:35:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.69 Mbit/s
95th percentile per-packet one-way delay: 261.759 ms
Loss rate: 2.41%
-- Flow 1:
Average throughput: 57.59 Mbit/s
95th percentile per-packet one-way delay: 302.500 ms
Loss rate: 2.24%
-- Flow 2:
Average throughput: 38.51 Mbit/s
95th percentile per-packet one-way delay: 128.975 ms
Loss rate: 2.55%
-- Flow 3:
Average throughput: 29.43 Mbit/s
95th percentile per-packet one-way delay: 147.648 ms
Loss rate: 3.05%
```

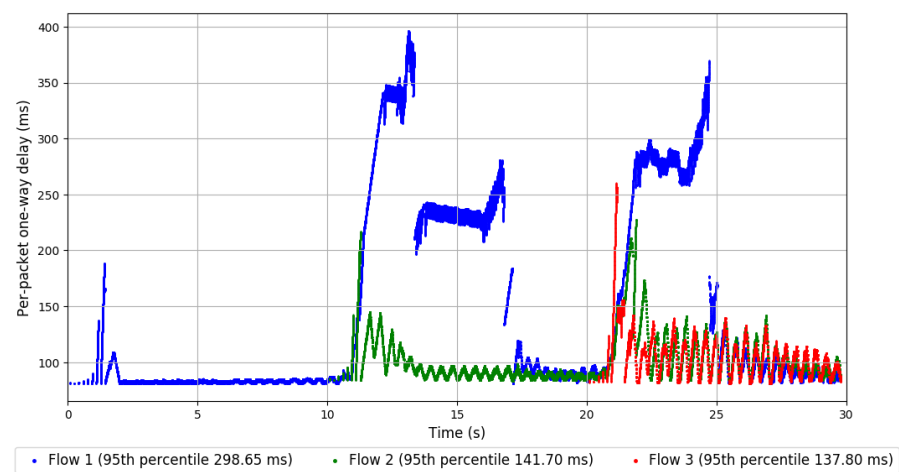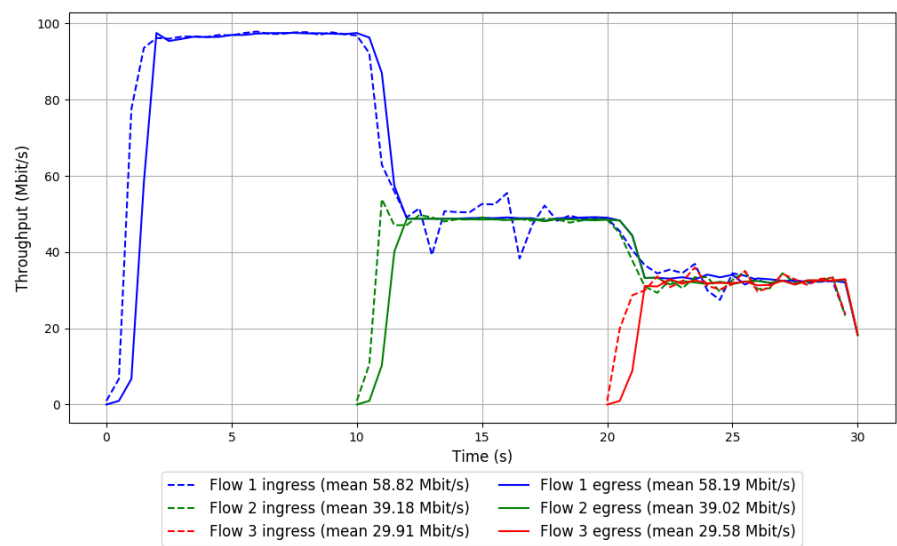Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-10-02 17:52:30
End at: 2018-10-02 17:53:00
Local clock offset: -3.545 ms
Remote clock offset: -1.157 ms


# Below is generated by plot.py at 2018-10-02 18:36:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.70 Mbit/s
95th percentile per-packet one-way delay: 279.449 ms
Loss rate: 1.63%
-- Flow 1:
Average throughput: 58.19 Mbit/s
95th percentile per-packet one-way delay: 298.649 ms
Loss rate: 1.61%
-- Flow 2:
Average throughput: 39.02 Mbit/s
95th percentile per-packet one-way delay: 141.703 ms
Loss rate: 1.24%
-- Flow 3:
Average throughput: 29.58 Mbit/s
95th percentile per-packet one-way delay: 137.801 ms
Loss rate: 2.78%
```
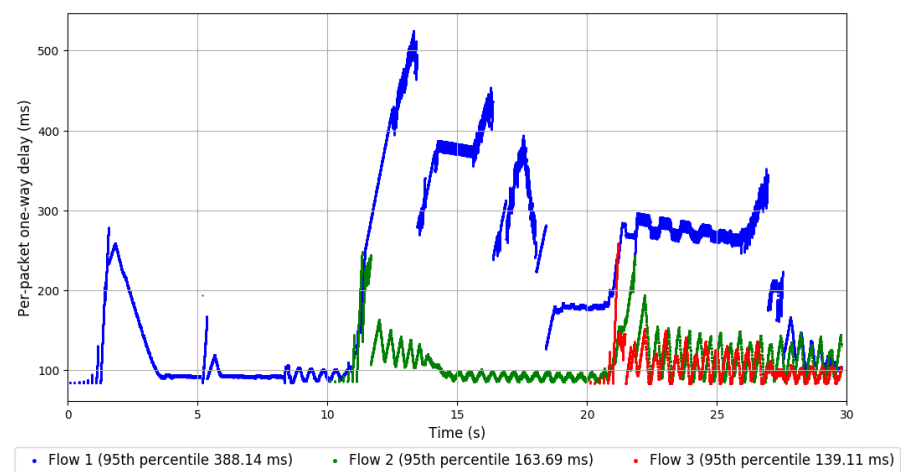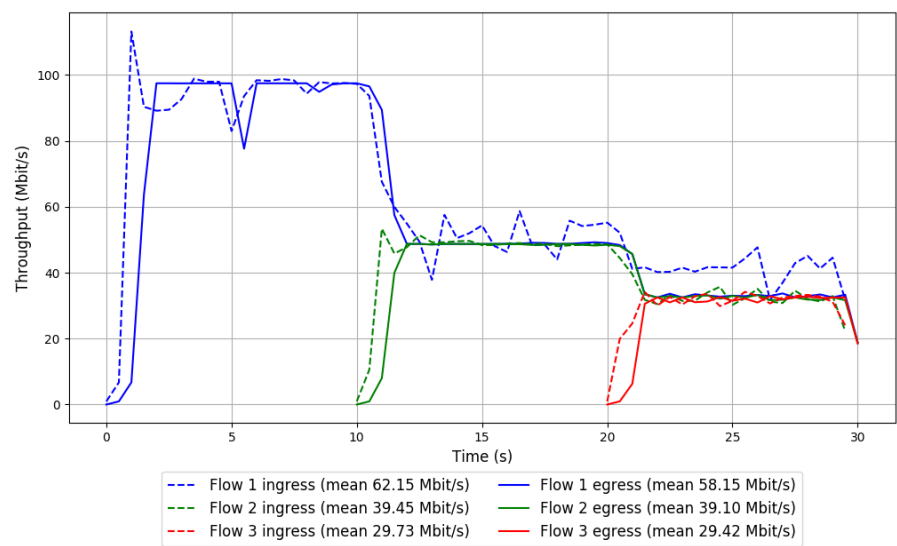
Run 4: Report of Indigo — Data Link

Flow 1 ingress (mean 58.82 Mbit/s)   Flow 1 egress (mean 58.19 Mbit/s)
Flow 2 ingress (mean 39.18 Mbit/s)   Flow 2 egress (mean 39.02 Mbit/s)
Flow 3 ingress (mean 29.91 Mbit/s)   Flow 3 egress (mean 29.58 Mbit/s)

Flow 1 (95th percentile 298.65 ms)   Flow 2 (95th percentile 141.70 ms)   Flow 3 (95th percentile 137.80 ms)

```
Run 5: Statistics of Indigo

Start at: 2018-10-02 18:15:34
End at: 2018-10-02 18:16:04
Local clock offset: -2.658 ms
Remote clock offset: -2.023 ms

# Below is generated by plot.py at 2018-10-02 18:36:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.65 Mbit/s
95th percentile per-packet one-way delay: 376.968 ms
Loss rate: 5.13%
-- Flow 1:
Average throughput: 58.15 Mbit/s
95th percentile per-packet one-way delay: 388.145 ms
Loss rate: 6.95%
-- Flow 2:
Average throughput: 39.10 Mbit/s
95th percentile per-packet one-way delay: 163.688 ms
Loss rate: 1.70%
-- Flow 3:
Average throughput: 29.42 Mbit/s
95th percentile per-packet one-way delay: 139.111 ms
Loss rate: 2.71%
```
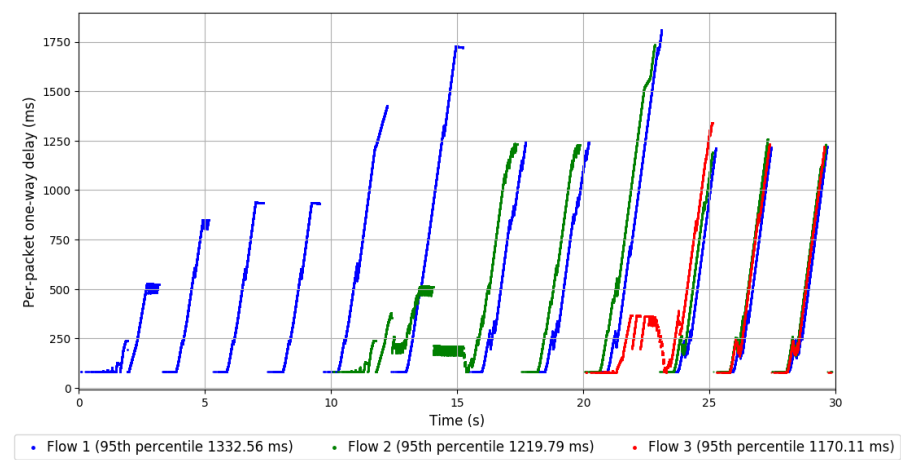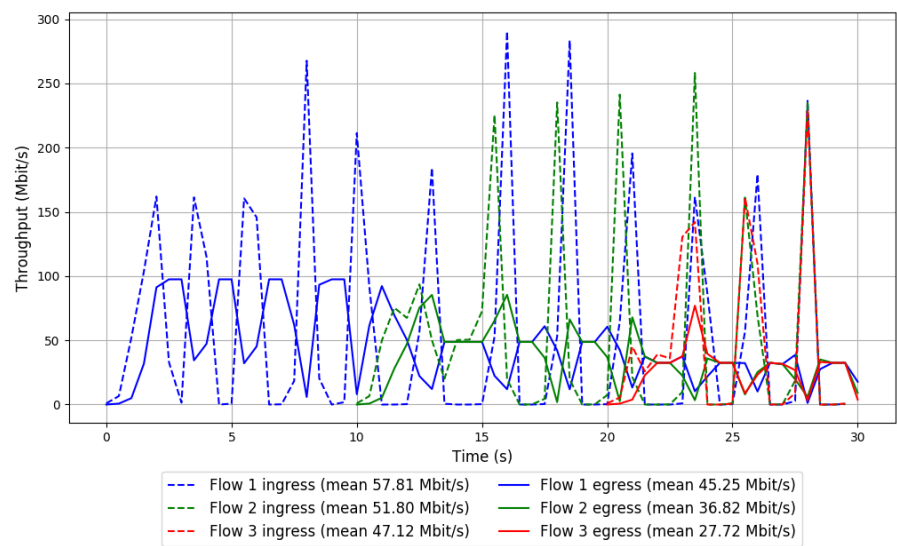
Run 5: Report of Indigo — Data Link

```
Run 1: Statistics of Indigo-96d2da3

Start at: 2018-10-02 16:40:40
End at: 2018-10-02 16:41:10
Local clock offset: -5.223 ms
Remote clock offset: 0.706 ms


# Below is generated by plot.py at 2018-10-02 18:36:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 78.73 Mbit/s
95th percentile per-packet one-way delay: 1243.855 ms
Loss rate: 27.46%
-- Flow 1:
Average throughput: 45.25 Mbit/s
95th percentile per-packet one-way delay: 1332.559 ms
Loss rate: 22.19%
-- Flow 2:
Average throughput: 36.82 Mbit/s
95th percentile per-packet one-way delay: 1219.785 ms
Loss rate: 29.55%
-- Flow 3:
Average throughput: 27.72 Mbit/s
95th percentile per-packet one-way delay: 1170.114 ms
Loss rate: 42.37%
```
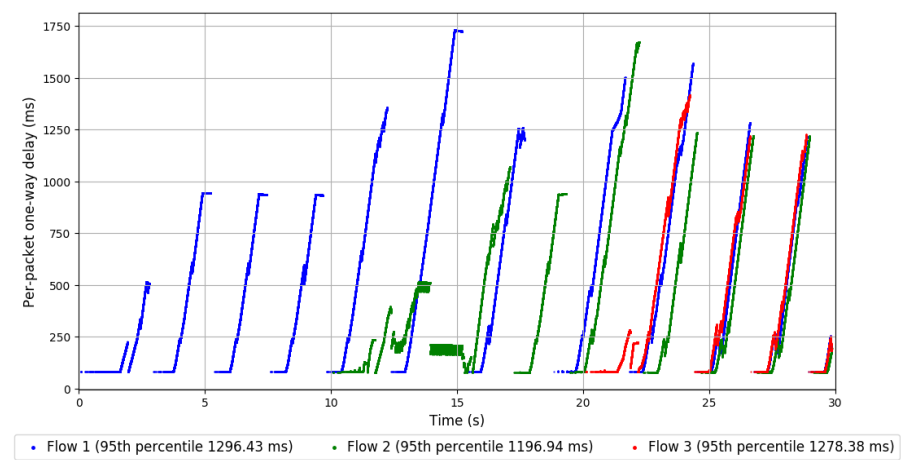
Run 1: Report of Indigo-96d2da3 — Data Link

```
Run 2: Statistics of Indigo-96d2da3

Start at: 2018-10-02 17:04:08
End at: 2018-10-02 17:04:38
Local clock offset: -4.877 ms
Remote clock offset: 1.031 ms


# Below is generated by plot.py at 2018-10-02 18:36:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 77.56 Mbit/s
95th percentile per-packet one-way delay: 1270.927 ms
Loss rate: 29.96%
-- Flow 1:
Average throughput: 42.40 Mbit/s
95th percentile per-packet one-way delay: 1296.435 ms
Loss rate: 24.79%
-- Flow 2:
Average throughput: 39.94 Mbit/s
95th percentile per-packet one-way delay: 1196.945 ms
Loss rate: 28.27%
-- Flow 3:
Average throughput: 26.37 Mbit/s
95th percentile per-packet one-way delay: 1278.377 ms
Loss rate: 50.36%
```
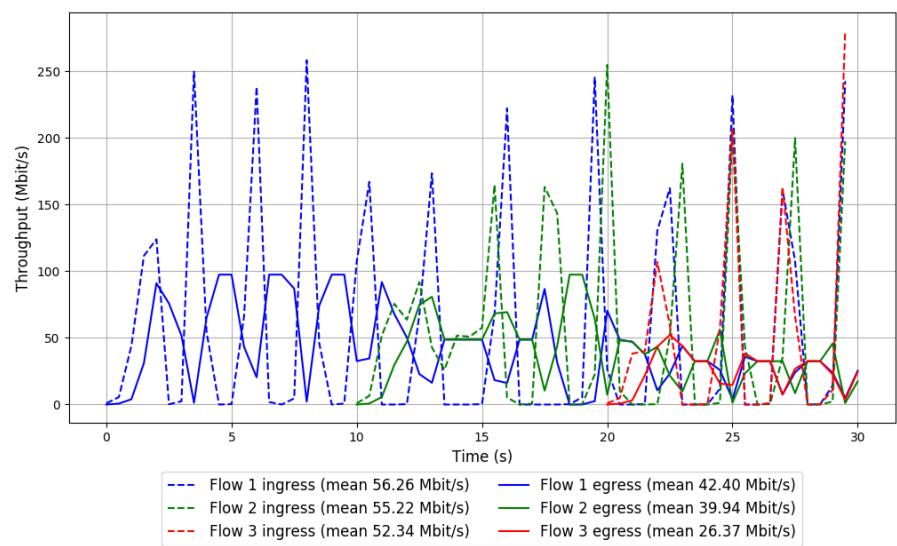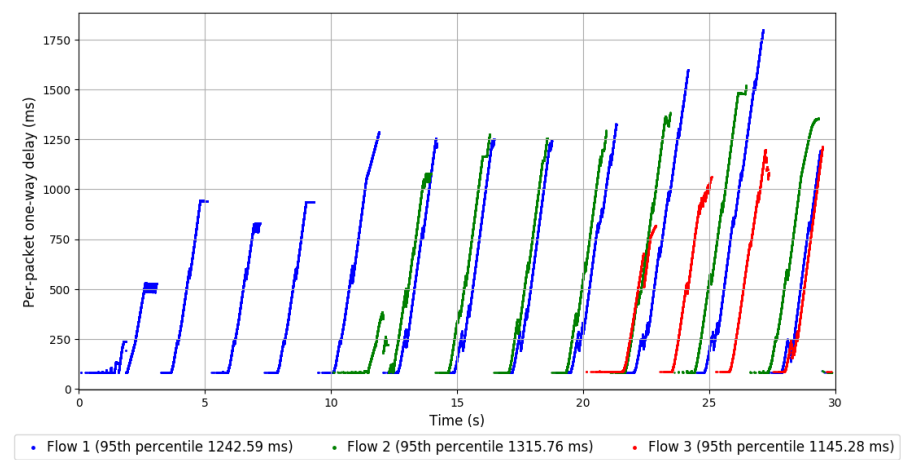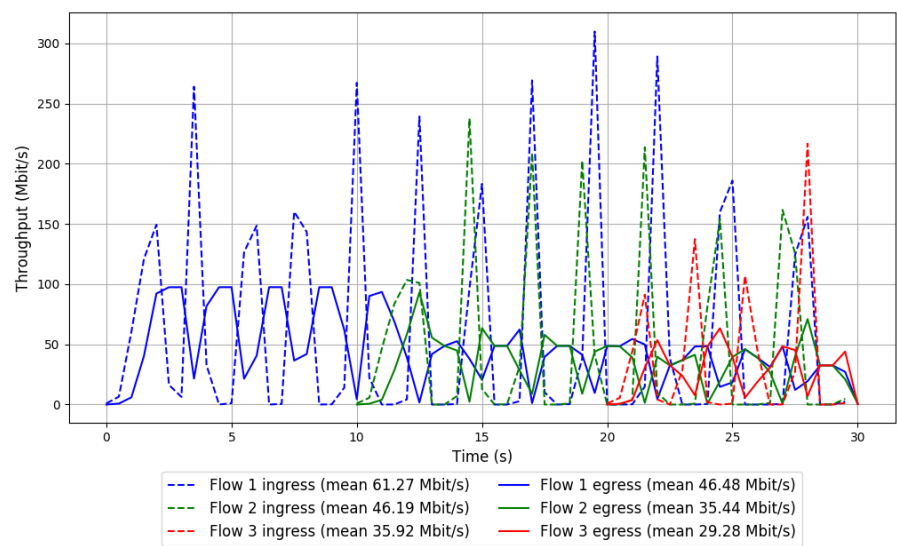
Run 2: Report of Indigo-96d2da3 — Data Link

```
Run 3: Statistics of Indigo-96d2da3

Start at: 2018-10-02 17:27:41
End at: 2018-10-02 17:28:11
Local clock offset: -4.475 ms
Remote clock offset: -1.435 ms


# Below is generated by plot.py at 2018-10-02 18:36:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 79.55 Mbit/s
95th percentile per-packet one-way delay: 1245.378 ms
Loss rate: 23.86%
-- Flow 1:
Average throughput: 46.48 Mbit/s
95th percentile per-packet one-way delay: 1242.594 ms
Loss rate: 24.58%
-- Flow 2:
Average throughput: 35.44 Mbit/s
95th percentile per-packet one-way delay: 1315.760 ms
Loss rate: 23.91%
-- Flow 3:
Average throughput: 29.28 Mbit/s
95th percentile per-packet one-way delay: 1145.276 ms
Loss rate: 20.06%
```
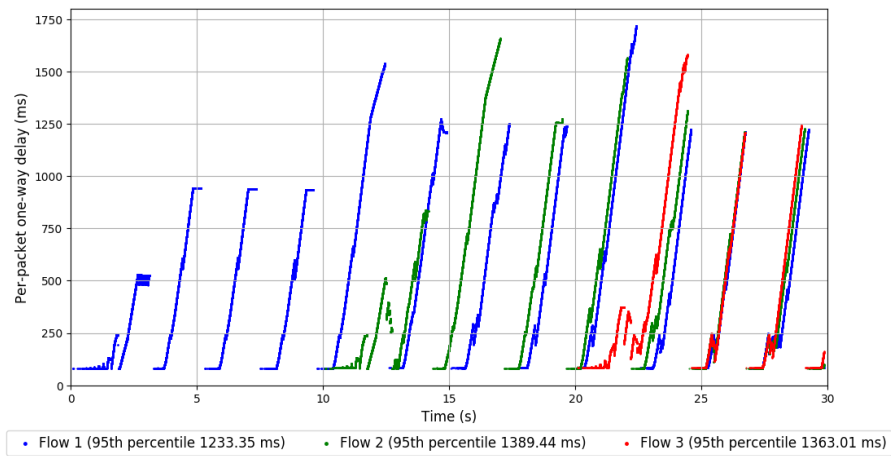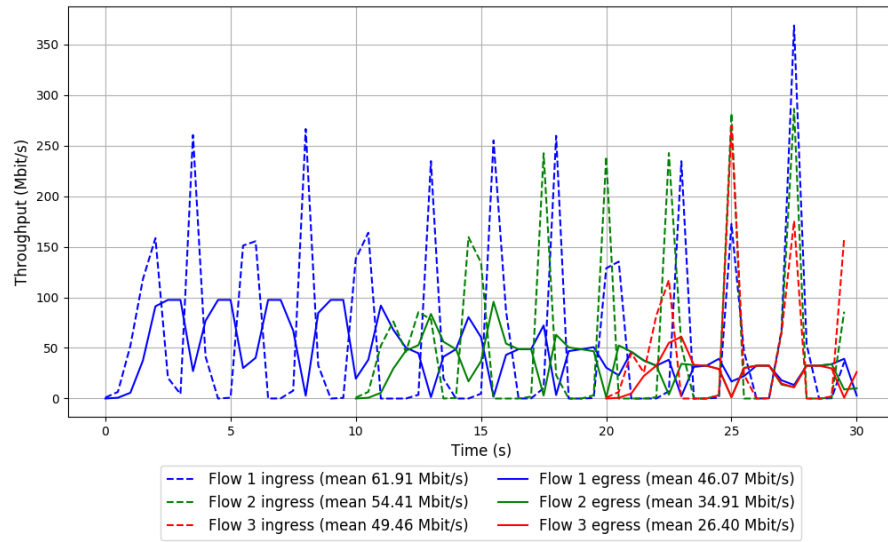
Run 3: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 61.27 Mbit/s)
Flow 2 ingress (mean 46.19 Mbit/s)
Flow 3 ingress (mean 35.92 Mbit/s)
Flow 1 egress (mean 46.48 Mbit/s)
Flow 2 egress (mean 35.44 Mbit/s)
Flow 3 egress (mean 29.28 Mbit/s)

Flow 1 (95th percentile 1242.59 ms)
Flow 2 (95th percentile 1315.76 ms)
Flow 3 (95th percentile 1145.28 ms)

60

```
Run 4: Statistics of Indigo-96d2da3

Start at: 2018-10-02 17:51:12
End at: 2018-10-02 17:51:42
Local clock offset: -3.633 ms
Remote clock offset: -1.124 ms


# Below is generated by plot.py at 2018-10-02 18:36:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 77.89 Mbit/s
95th percentile per-packet one-way delay: 1271.724 ms
Loss rate: 32.30%
-- Flow 1:
Average throughput: 46.07 Mbit/s
95th percentile per-packet one-way delay: 1233.349 ms
Loss rate: 26.00%
-- Flow 2:
Average throughput: 34.91 Mbit/s
95th percentile per-packet one-way delay: 1389.440 ms
Loss rate: 36.36%
-- Flow 3:
Average throughput: 26.40 Mbit/s
95th percentile per-packet one-way delay: 1363.009 ms
Loss rate: 47.20%
```
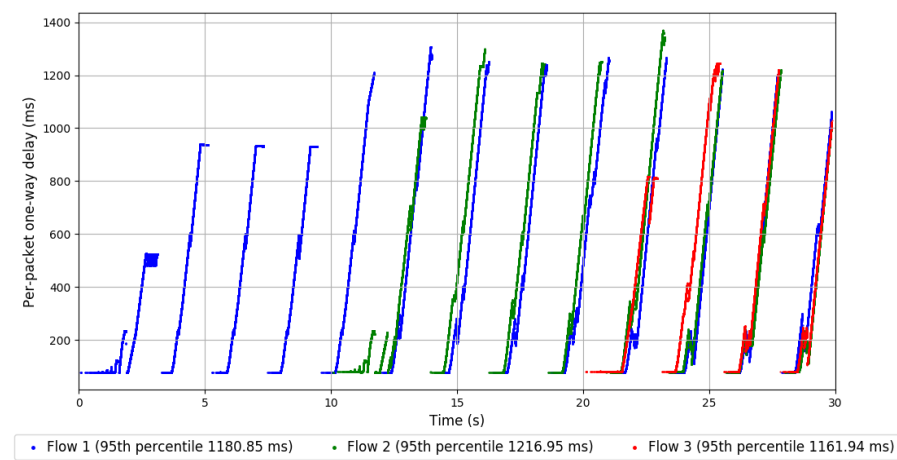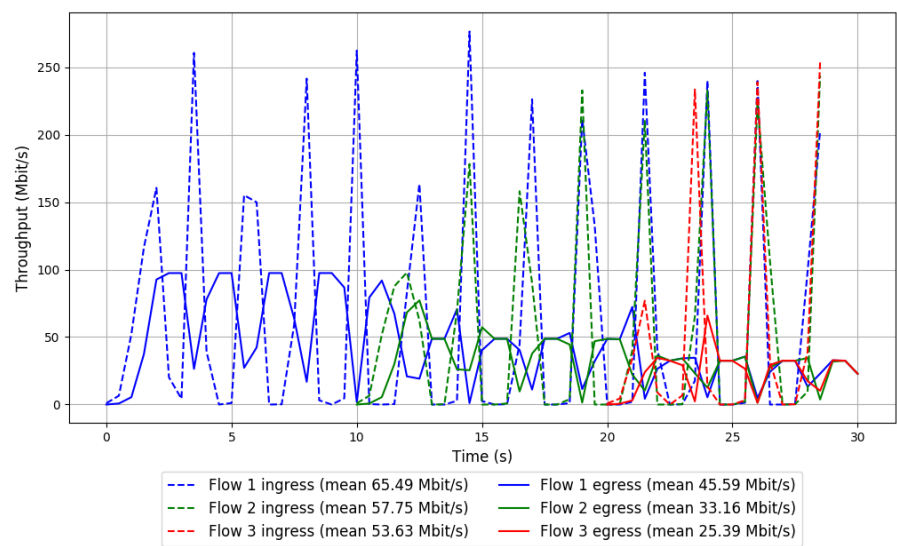
Run 4: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 61.91 Mbit/s) --- Flow 1 egress (mean 46.07 Mbit/s)
Flow 2 ingress (mean 54.41 Mbit/s) --- Flow 2 egress (mean 34.91 Mbit/s)
Flow 3 ingress (mean 49.46 Mbit/s) --- Flow 3 egress (mean 26.40 Mbit/s)

Flow 1 (95th percentile 1233.35 ms)   Flow 2 (95th percentile 1389.44 ms)   Flow 3 (95th percentile 1363.01 ms)

62

```
Run 5: Statistics of Indigo-96d2da3

Start at: 2018-10-02 18:14:16
End at: 2018-10-02 18:14:46
Local clock offset: -2.623 ms
Remote clock offset: 2.948 ms


# Below is generated by plot.py at 2018-10-02 18:36:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 75.90 Mbit/s
95th percentile per-packet one-way delay: 1193.161 ms
Loss rate: 34.40%
-- Flow 1:
Average throughput: 45.59 Mbit/s
95th percentile per-packet one-way delay: 1180.852 ms
Loss rate: 28.02%
-- Flow 2:
Average throughput: 33.16 Mbit/s
95th percentile per-packet one-way delay: 1216.955 ms
Loss rate: 39.73%
-- Flow 3:
Average throughput: 25.39 Mbit/s
95th percentile per-packet one-way delay: 1161.940 ms
Loss rate: 47.64%
```
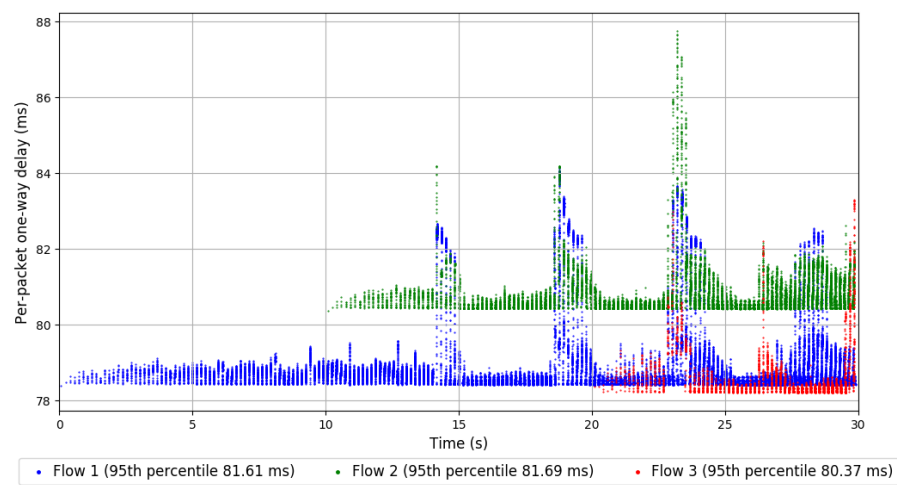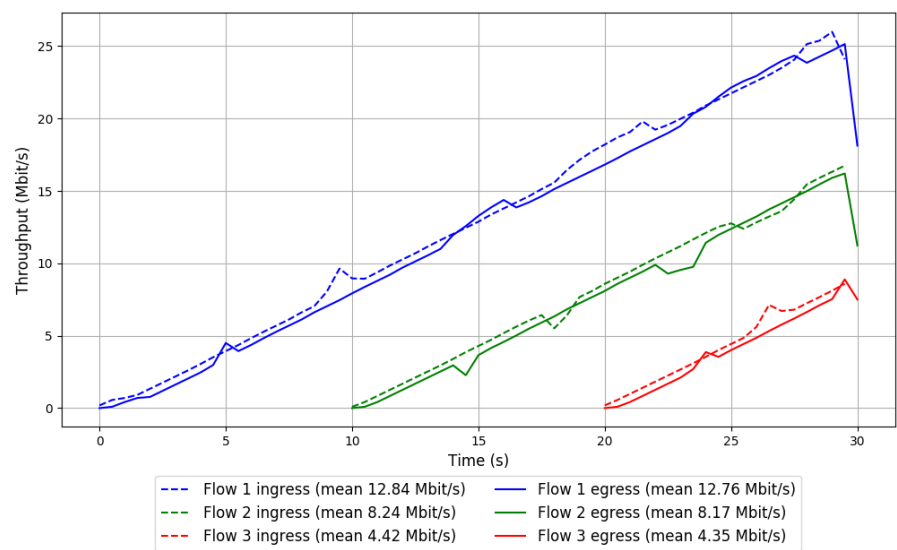
Run 5: Report of Indigo-96d2da3 — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-10-02 16:38:10
End at: 2018-10-02 16:38:40
Local clock offset: -5.333 ms
Remote clock offset: 0.747 ms

# Below is generated by plot.py at 2018-10-02 18:36:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 19.60 Mbit/s
95th percentile per-packet one-way delay: 81.628 ms
Loss rate: 1.44%
-- Flow 1:
Average throughput: 12.76 Mbit/s
95th percentile per-packet one-way delay: 81.605 ms
Loss rate: 1.12%
-- Flow 2:
Average throughput: 8.17 Mbit/s
95th percentile per-packet one-way delay: 81.689 ms
Loss rate: 1.71%
-- Flow 3:
Average throughput: 4.35 Mbit/s
95th percentile per-packet one-way delay: 80.372 ms
Loss rate: 3.32%
```
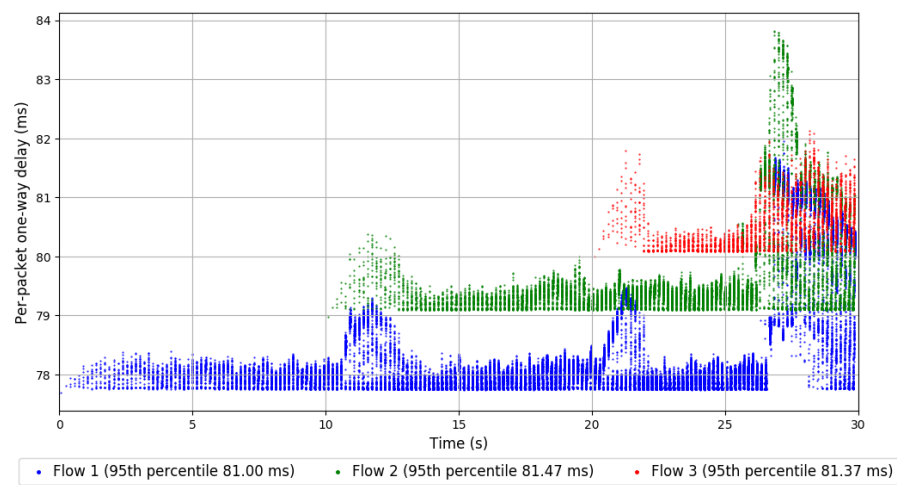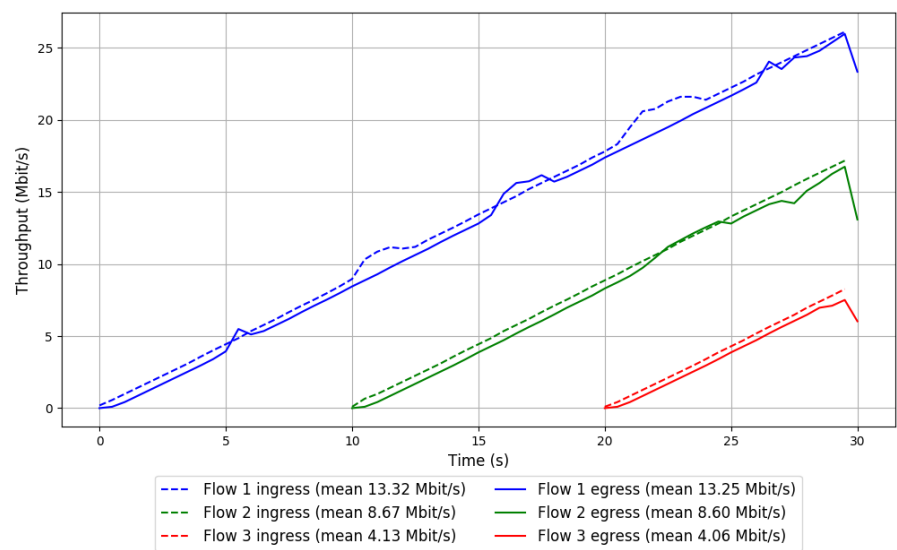
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-10-02 17:01:36
End at: 2018-10-02 17:02:06
Local clock offset: -4.918 ms
Remote clock offset: 2.121 ms

# Below is generated by plot.py at 2018-10-02 18:36:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 20.28 Mbit/s
95th percentile per-packet one-way delay: 81.212 ms
Loss rate: 1.41%
-- Flow 1:
Average throughput: 13.25 Mbit/s
95th percentile per-packet one-way delay: 81.002 ms
Loss rate: 1.10%
-- Flow 2:
Average throughput: 8.60 Mbit/s
95th percentile per-packet one-way delay: 81.475 ms
Loss rate: 1.67%
-- Flow 3:
Average throughput: 4.06 Mbit/s
95th percentile per-packet one-way delay: 81.373 ms
Loss rate: 3.43%
```
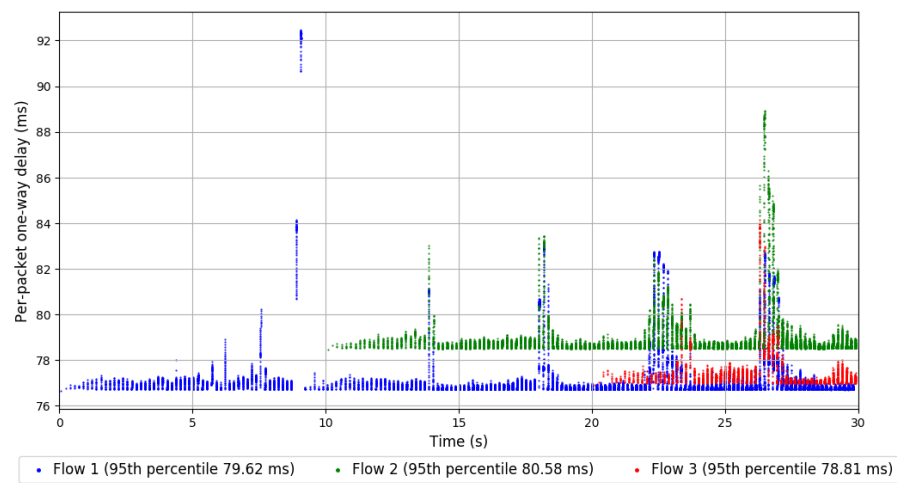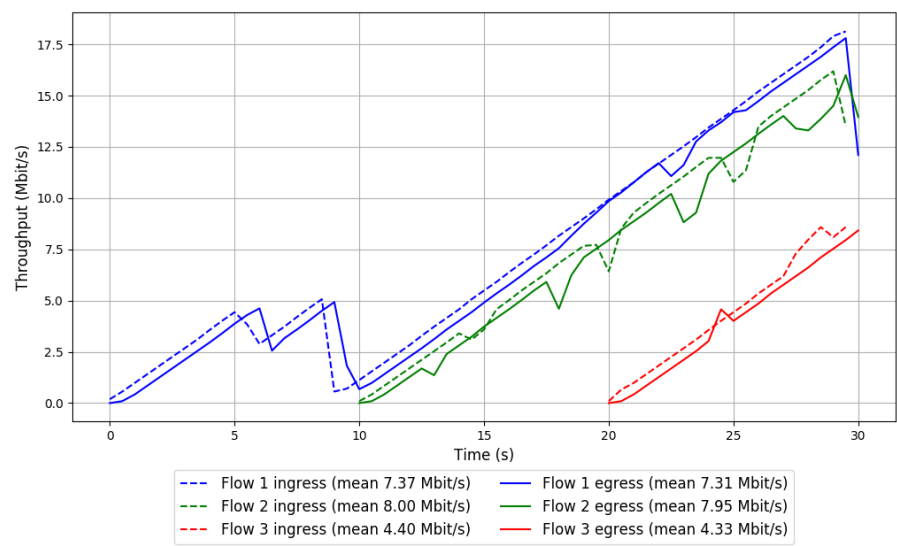
Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-10-02 17:25:02
End at: 2018-10-02 17:25:32
Local clock offset: -4.582 ms
Remote clock offset: 3.64 ms


# Below is generated by plot.py at 2018-10-02 18:36:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.98 Mbit/s
95th percentile per-packet one-way delay: 80.069 ms
Loss rate: 1.69%
-- Flow 1:
Average throughput: 7.31 Mbit/s
95th percentile per-packet one-way delay: 79.617 ms
Loss rate: 1.45%
-- Flow 2:
Average throughput: 7.95 Mbit/s
95th percentile per-packet one-way delay: 80.577 ms
Loss rate: 1.56%
-- Flow 3:
Average throughput: 4.33 Mbit/s
95th percentile per-packet one-way delay: 78.809 ms
Loss rate: 3.32%
```

Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2018-10-02 17:48:42
End at: 2018-10-02 17:49:12
Local clock offset: -3.937 ms
Remote clock offset: 1.707 ms

# Below is generated by plot.py at 2018-10-02 18:36:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.45 Mbit/s
95th percentile per-packet one-way delay: 83.051 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 9.57 Mbit/s
95th percentile per-packet one-way delay: 84.037 ms
Loss rate: 0.45%
-- Flow 2:
Average throughput: 5.08 Mbit/s
95th percentile per-packet one-way delay: 82.305 ms
Loss rate: 1.23%
-- Flow 3:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 80.506 ms
Loss rate: 6.76%
```
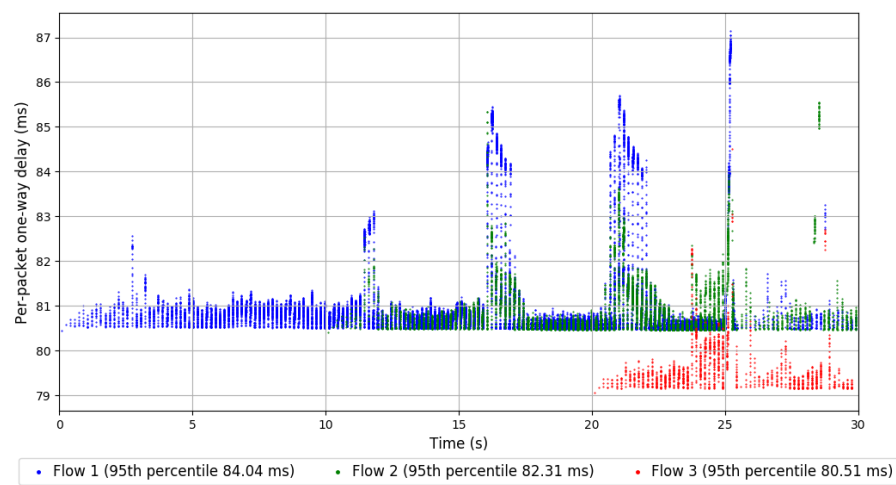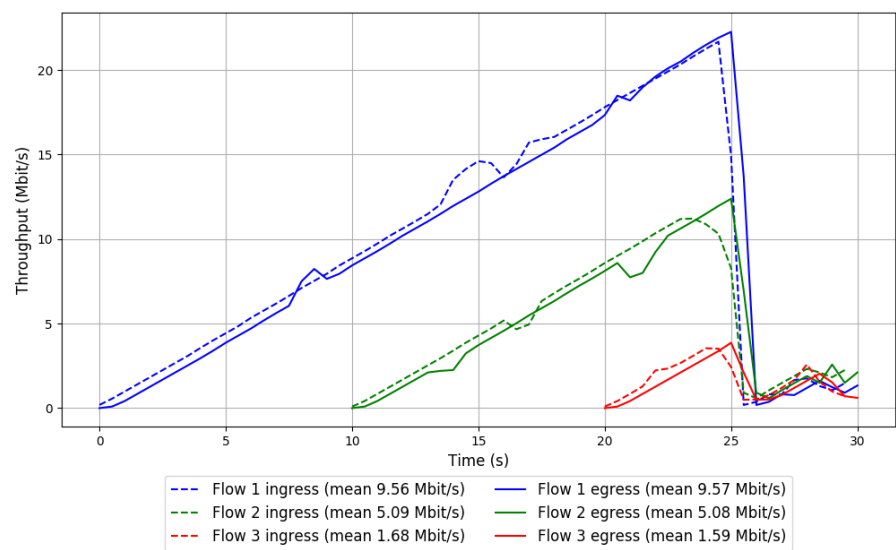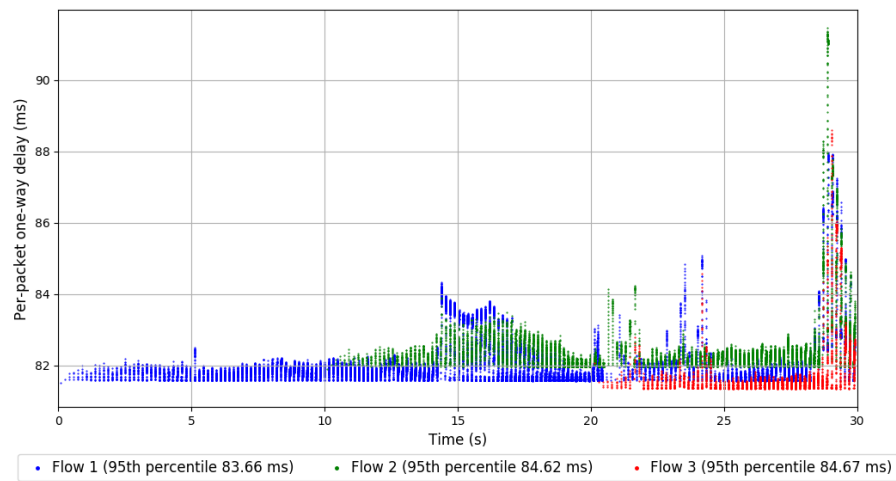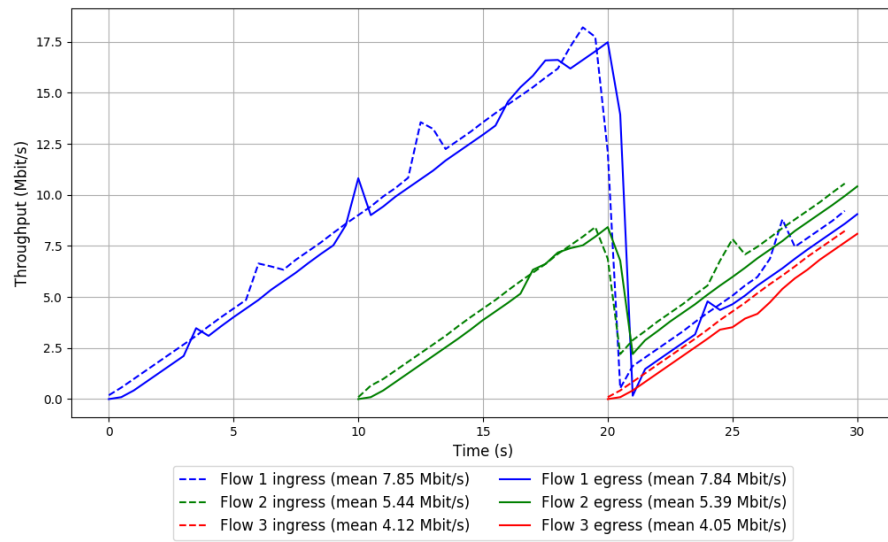
Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2018-10-02 18:11:47
End at: 2018-10-02 18:12:17
Local clock offset: -2.7 ms
Remote clock offset: -1.061 ms

# Below is generated by plot.py at 2018-10-02 18:36:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.75 Mbit/s
95th percentile per-packet one-way delay: 83.770 ms
Loss rate: 1.27%
-- Flow 1:
Average throughput: 7.84 Mbit/s
95th percentile per-packet one-way delay: 83.655 ms
Loss rate: 0.70%
-- Flow 2:
Average throughput: 5.39 Mbit/s
95th percentile per-packet one-way delay: 84.616 ms
Loss rate: 1.69%
-- Flow 3:
Average throughput: 4.05 Mbit/s
95th percentile per-packet one-way delay: 84.675 ms
Loss rate: 3.41%
```

Run 5: Report of LEDBAT — Data Link

Flow 1 ingress (mean 7.85 Mbit/s)   Flow 1 egress (mean 7.84 Mbit/s)
Flow 2 ingress (mean 5.44 Mbit/s)   Flow 2 egress (mean 5.39 Mbit/s)
Flow 3 ingress (mean 4.12 Mbit/s)   Flow 3 egress (mean 4.05 Mbit/s)

Flow 1 (95th percentile 83.66 ms)   Flow 2 (95th percentile 84.62 ms)   Flow 3 (95th percentile 84.67 ms)

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-10-02 16:45:50
End at: 2018-10-02 16:46:20
Local clock offset: -5.159 ms
Remote clock offset: 0.78 ms


# Below is generated by plot.py at 2018-10-02 18:37:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.97 Mbit/s
95th percentile per-packet one-way delay: 173.114 ms
Loss rate: 2.49%
-- Flow 1:
Average throughput: 55.42 Mbit/s
95th percentile per-packet one-way delay: 174.221 ms
Loss rate: 1.76%
-- Flow 2:
Average throughput: 37.23 Mbit/s
95th percentile per-packet one-way delay: 152.367 ms
Loss rate: 3.77%
-- Flow 3:
Average throughput: 23.95 Mbit/s
95th percentile per-packet one-way delay: 189.582 ms
Loss rate: 3.47%
```
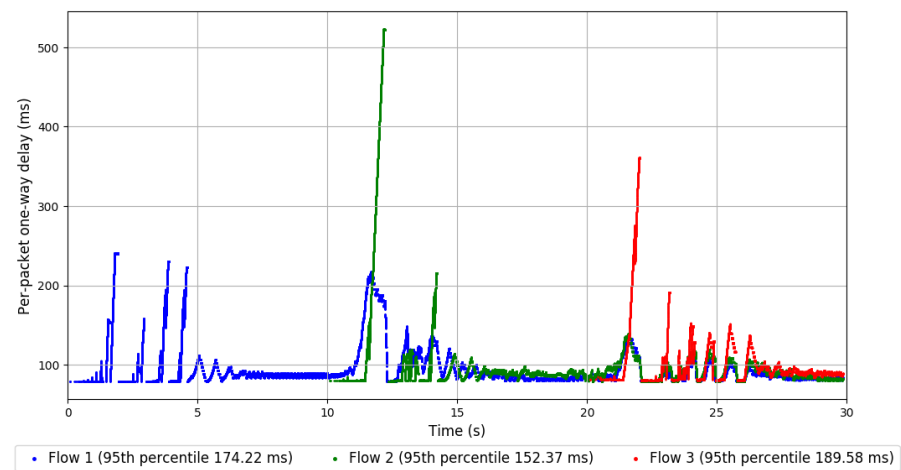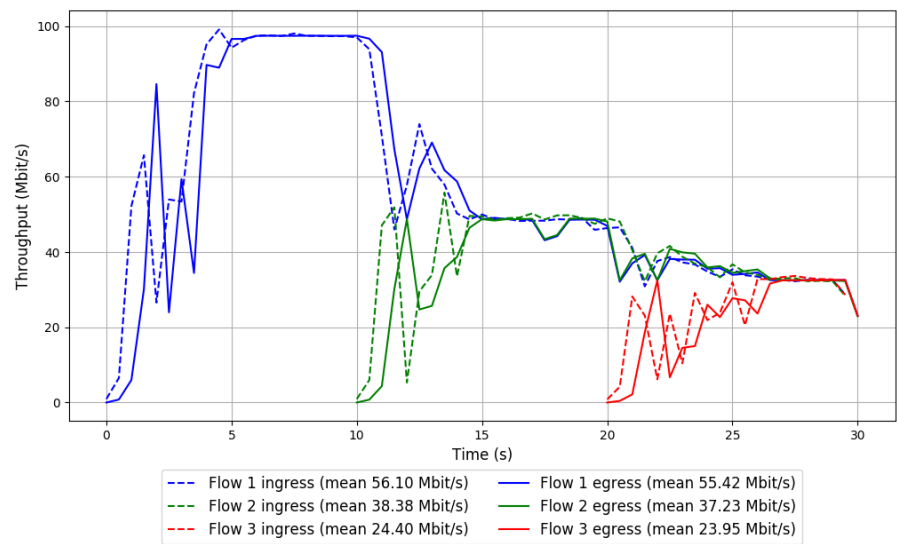
Run 1: Report of Indigo-Muses — Data Link

- - - - Flow 1 ingress (mean 56.10 Mbit/s) ——— Flow 1 egress (mean 55.42 Mbit/s)
- - - - Flow 2 ingress (mean 38.38 Mbit/s) ——— Flow 2 egress (mean 37.23 Mbit/s)
- - - - Flow 3 ingress (mean 24.40 Mbit/s) ——— Flow 3 egress (mean 23.95 Mbit/s)

• Flow 1 (95th percentile 174.22 ms)   • Flow 2 (95th percentile 152.37 ms)   • Flow 3 (95th percentile 189.58 ms)
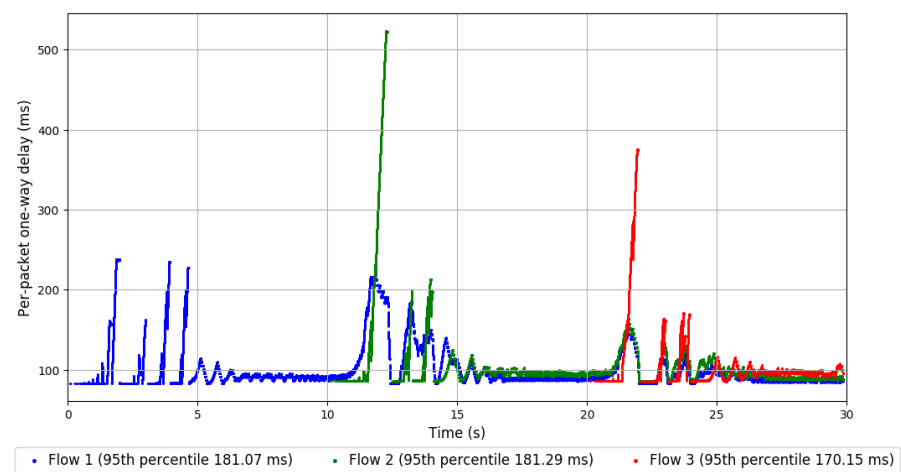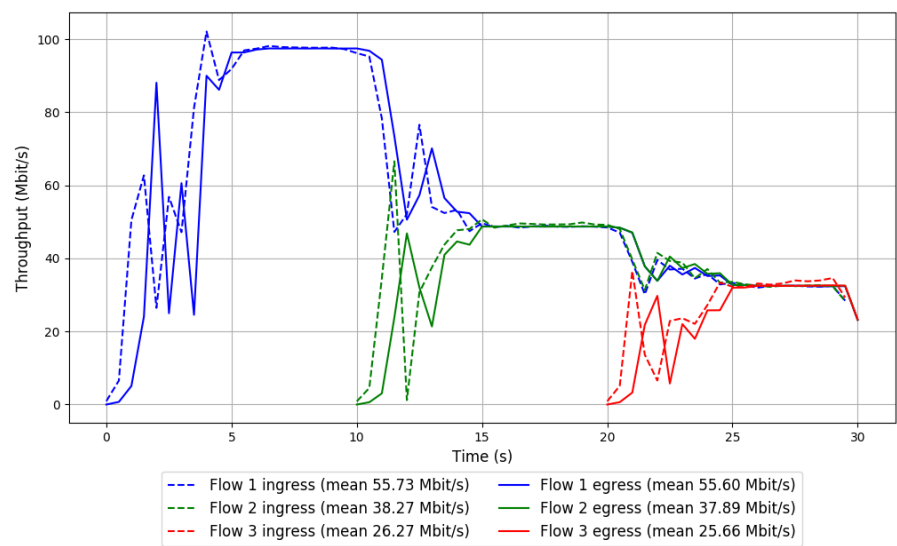
```
Run 2: Statistics of Indigo-Muses

Start at: 2018-10-02 17:09:23
End at: 2018-10-02 17:09:53
Local clock offset: -4.82 ms
Remote clock offset: -2.863 ms

# Below is generated by plot.py at 2018-10-02 18:37:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.14 Mbit/s
95th percentile per-packet one-way delay: 180.653 ms
Loss rate: 1.39%
-- Flow 1:
Average throughput: 55.60 Mbit/s
95th percentile per-packet one-way delay: 181.068 ms
Loss rate: 0.78%
-- Flow 2:
Average throughput: 37.89 Mbit/s
95th percentile per-packet one-way delay: 181.295 ms
Loss rate: 1.83%
-- Flow 3:
Average throughput: 25.66 Mbit/s
95th percentile per-packet one-way delay: 170.149 ms
Loss rate: 3.98%
```

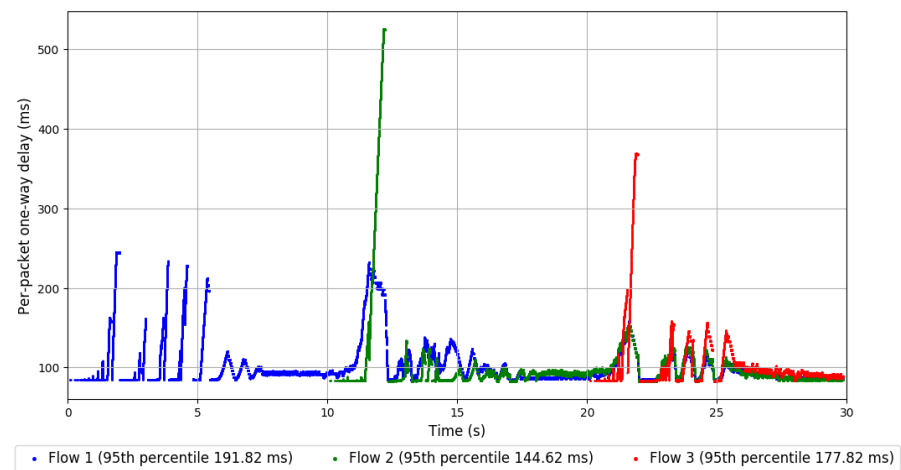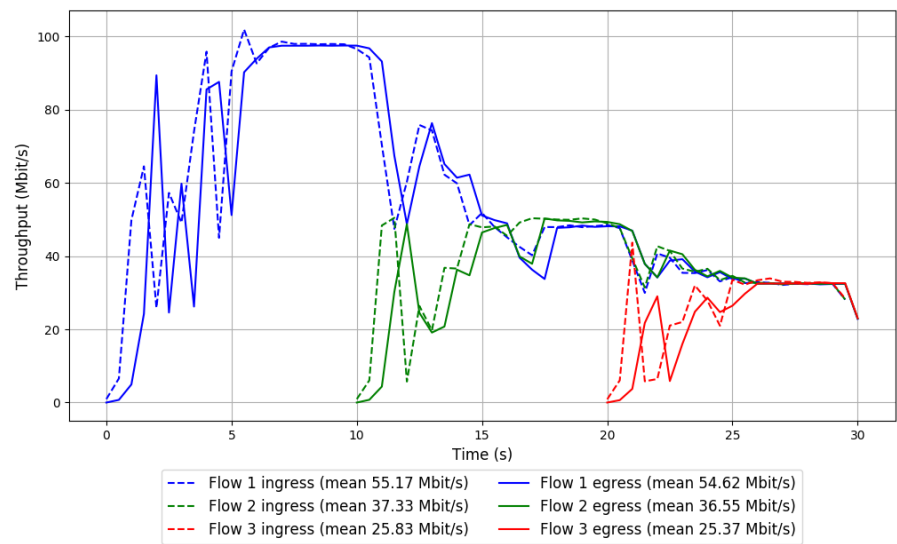Run 2: Report of Indigo-Muses — Data Link

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-10-02 17:32:54
End at: 2018-10-02 17:33:24
Local clock offset: -4.369 ms
Remote clock offset: -2.497 ms


# Below is generated by plot.py at 2018-10-02 18:37:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.19 Mbit/s
95th percentile per-packet one-way delay: 183.285 ms
Loss rate: 2.10%
-- Flow 1:
Average throughput: 54.62 Mbit/s
95th percentile per-packet one-way delay: 191.819 ms
Loss rate: 1.53%
-- Flow 2:
Average throughput: 36.55 Mbit/s
95th percentile per-packet one-way delay: 144.622 ms
Loss rate: 2.91%
-- Flow 3:
Average throughput: 25.37 Mbit/s
95th percentile per-packet one-way delay: 177.821 ms
Loss rate: 3.40%
```

Run 3: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 55.17 Mbit/s) — Flow 1 egress (mean 54.62 Mbit/s)
Flow 2 ingress (mean 37.33 Mbit/s) — Flow 2 egress (mean 36.55 Mbit/s)
Flow 3 ingress (mean 25.83 Mbit/s) — Flow 3 egress (mean 25.37 Mbit/s)

Flow 1 (95th percentile 191.82 ms) • Flow 2 (95th percentile 144.62 ms) • Flow 3 (95th percentile 177.82 ms)

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-10-02 17:56:24
End at: 2018-10-02 17:56:54
Local clock offset: -3.296 ms
Remote clock offset: 1.709 ms


# Below is generated by plot.py at 2018-10-02 18:37:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.63 Mbit/s
95th percentile per-packet one-way delay: 149.787 ms
Loss rate: 1.47%
-- Flow 1:
Average throughput: 56.65 Mbit/s
95th percentile per-packet one-way delay: 147.574 ms
Loss rate: 0.80%
-- Flow 2:
Average throughput: 36.57 Mbit/s
95th percentile per-packet one-way delay: 151.327 ms
Loss rate: 2.42%
-- Flow 3:
Average throughput: 26.62 Mbit/s
95th percentile per-packet one-way delay: 175.262 ms
Loss rate: 3.03%
```
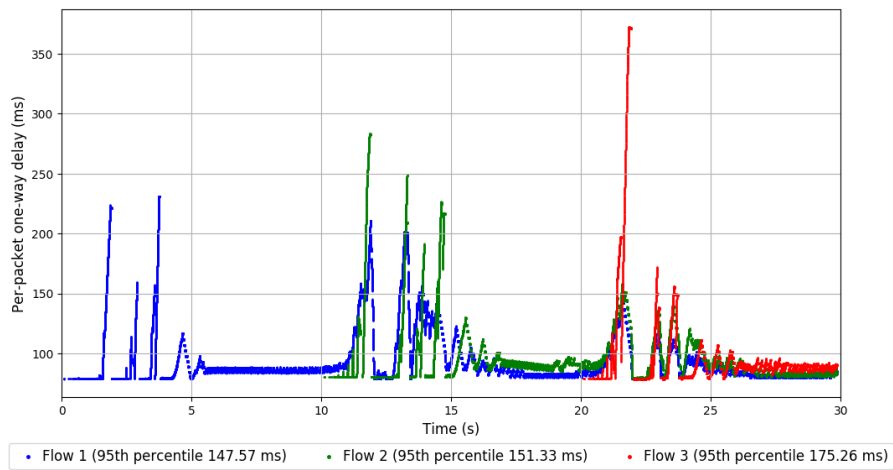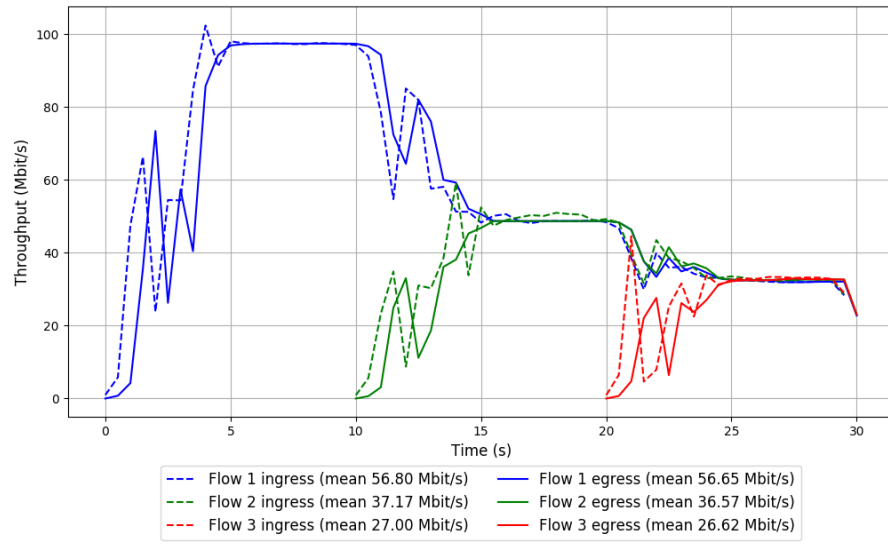
Run 4: Report of Indigo-Muses — Data Link

- - - Flow 1 ingress (mean 56.80 Mbit/s) —— Flow 1 egress (mean 56.65 Mbit/s)
- - - Flow 2 ingress (mean 37.17 Mbit/s) —— Flow 2 egress (mean 36.57 Mbit/s)
- - - Flow 3 ingress (mean 27.00 Mbit/s) —— Flow 3 egress (mean 26.62 Mbit/s)

• Flow 1 (95th percentile 147.57 ms)   • Flow 2 (95th percentile 151.33 ms)   • Flow 3 (95th percentile 175.26 ms)

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-10-02 18:19:26
End at: 2018-10-02 18:19:56
Local clock offset: -2.586 ms
Remote clock offset: 2.971 ms


# Below is generated by plot.py at 2018-10-02 18:37:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.61 Mbit/s
95th percentile per-packet one-way delay: 157.500 ms
Loss rate: 1.33%
-- Flow 1:
Average throughput: 55.83 Mbit/s
95th percentile per-packet one-way delay: 162.069 ms
Loss rate: 0.86%
-- Flow 2:
Average throughput: 37.72 Mbit/s
95th percentile per-packet one-way delay: 141.222 ms
Loss rate: 1.78%
-- Flow 3:
Average throughput: 26.70 Mbit/s
95th percentile per-packet one-way delay: 164.972 ms
Loss rate: 3.02%
```
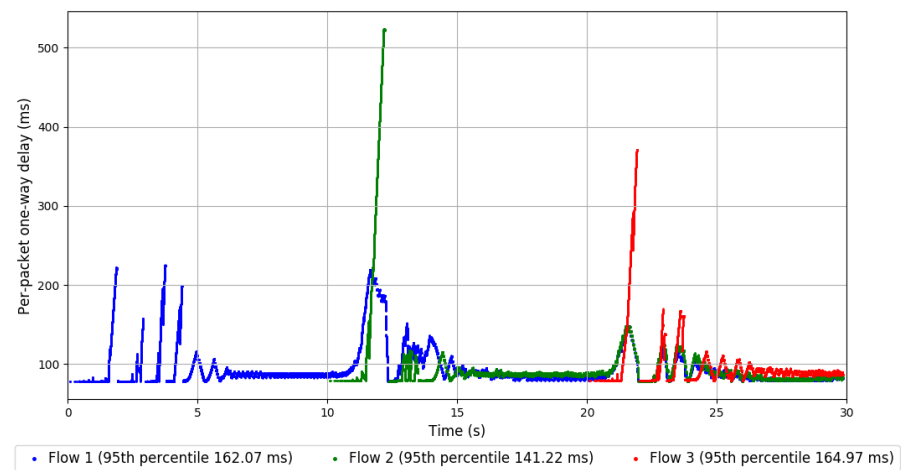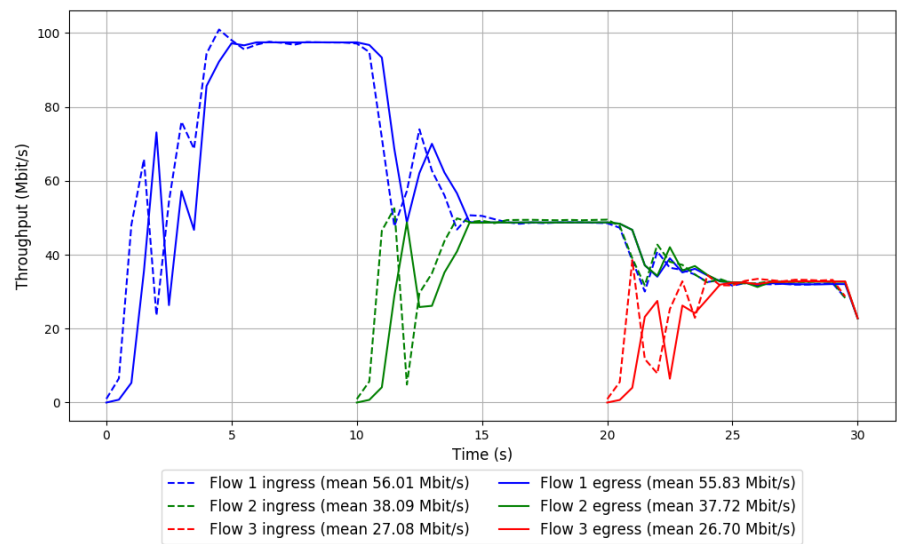
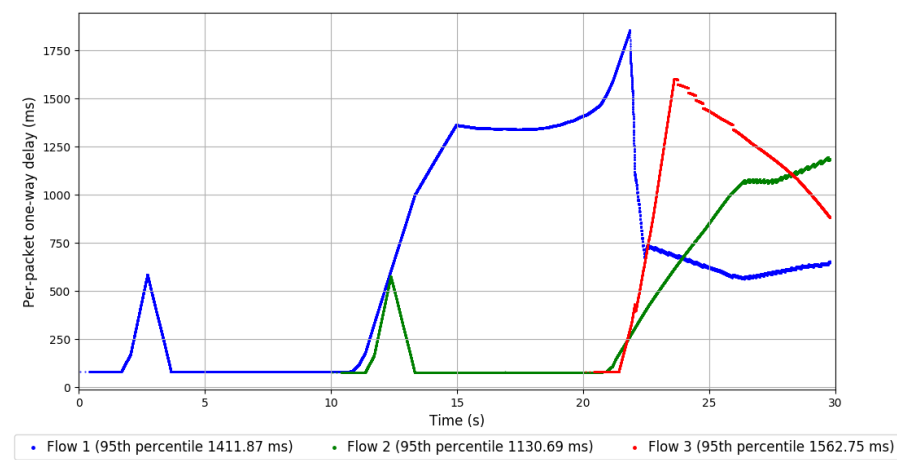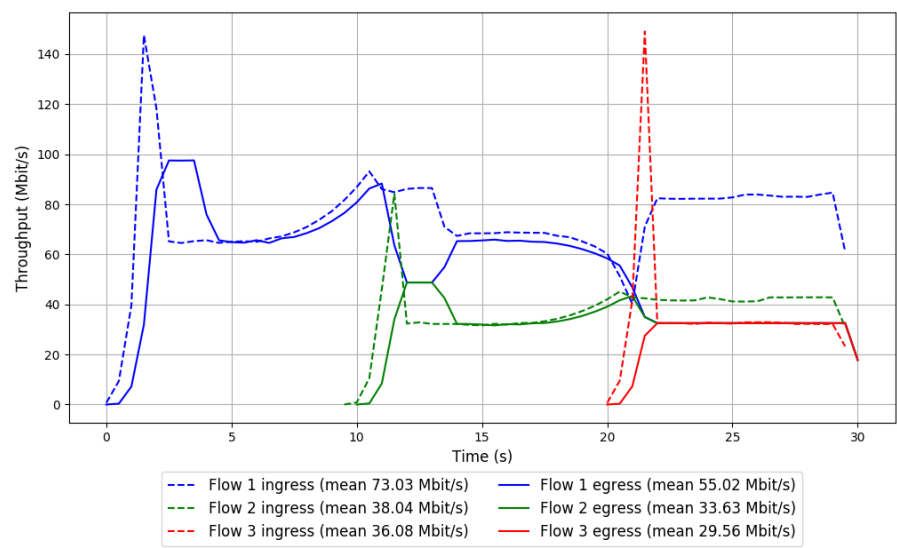# Run 5: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 56.01 Mbit/s) --- Flow 1 egress (mean 55.83 Mbit/s)
Flow 2 ingress (mean 38.09 Mbit/s) --- Flow 2 egress (mean 37.72 Mbit/s)
Flow 3 ingress (mean 27.08 Mbit/s) --- Flow 3 egress (mean 26.70 Mbit/s)

Flow 1 (95th percentile 162.07 ms)   Flow 2 (95th percentile 141.22 ms)   Flow 3 (95th percentile 164.97 ms)

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-10-02 16:39:24
End at: 2018-10-02 16:39:54
Local clock offset: -5.234 ms
Remote clock offset: 3.033 ms

# Below is generated by plot.py at 2018-10-02 18:37:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.97 Mbit/s
95th percentile per-packet one-way delay: 1422.013 ms
Loss rate: 21.54%
-- Flow 1:
Average throughput: 55.02 Mbit/s
95th percentile per-packet one-way delay: 1411.866 ms
Loss rate: 25.08%
-- Flow 2:
Average throughput: 33.63 Mbit/s
95th percentile per-packet one-way delay: 1130.695 ms
Loss rate: 12.31%
-- Flow 3:
Average throughput: 29.56 Mbit/s
95th percentile per-packet one-way delay: 1562.750 ms
Loss rate: 19.44%
```
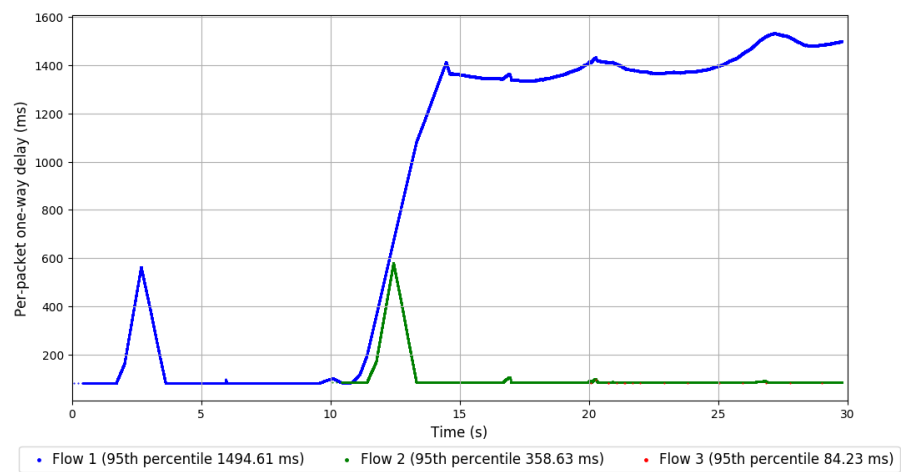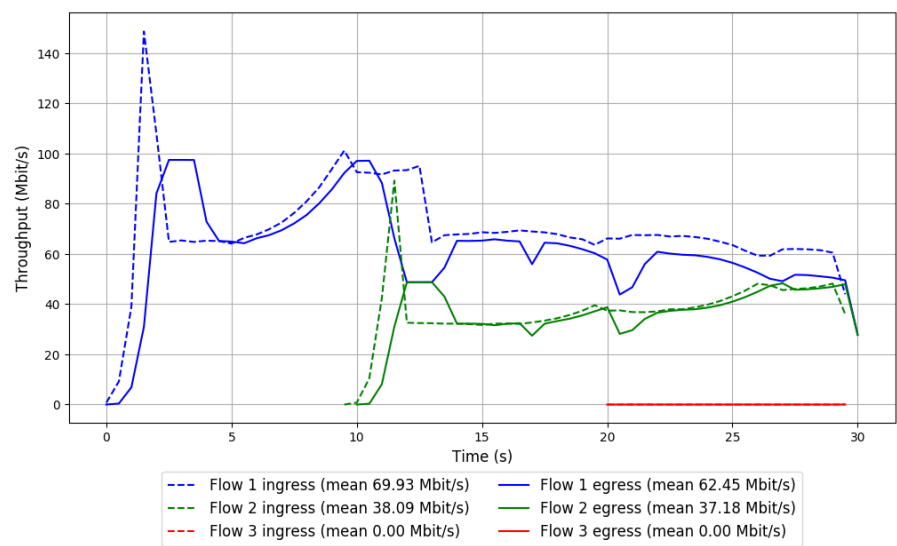
Run 1: Report of PCC-Allegro — Data Link

- - - - Flow 1 ingress (mean 73.03 Mbit/s) ——— Flow 1 egress (mean 55.02 Mbit/s)
- - - - Flow 2 ingress (mean 38.04 Mbit/s) ——— Flow 2 egress (mean 33.63 Mbit/s)
- - - - Flow 3 ingress (mean 36.08 Mbit/s) ——— Flow 3 egress (mean 29.56 Mbit/s)

• Flow 1 (95th percentile 1411.87 ms) • Flow 2 (95th percentile 1130.69 ms) • Flow 3 (95th percentile 1562.75 ms)

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-10-02 17:02:50
End at: 2018-10-02 17:03:20
Local clock offset: -4.897 ms
Remote clock offset: -3.026 ms


# Below is generated by plot.py at 2018-10-02 18:37:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.11 Mbit/s
95th percentile per-packet one-way delay: 1485.535 ms
Loss rate: 9.05%
-- Flow 1:
Average throughput: 62.45 Mbit/s
95th percentile per-packet one-way delay: 1494.605 ms
Loss rate: 11.17%
-- Flow 2:
Average throughput: 37.18 Mbit/s
95th percentile per-packet one-way delay: 358.632 ms
Loss rate: 3.20%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 84.230 ms
Loss rate: 6.01%
```
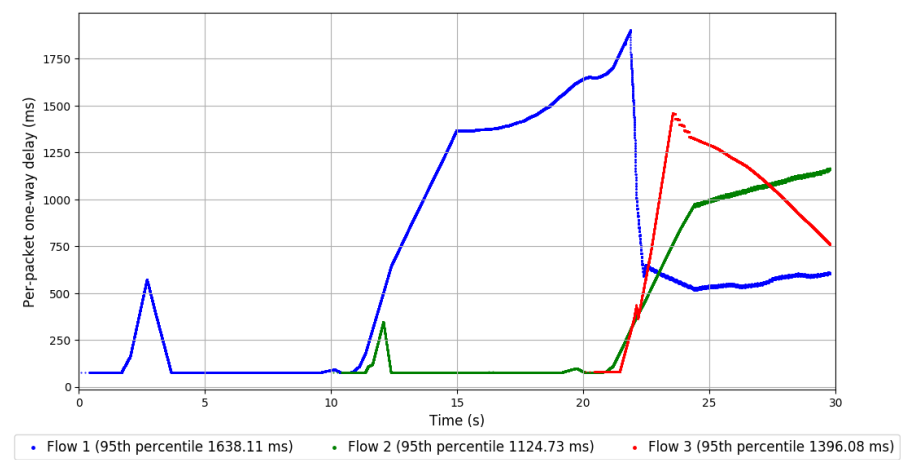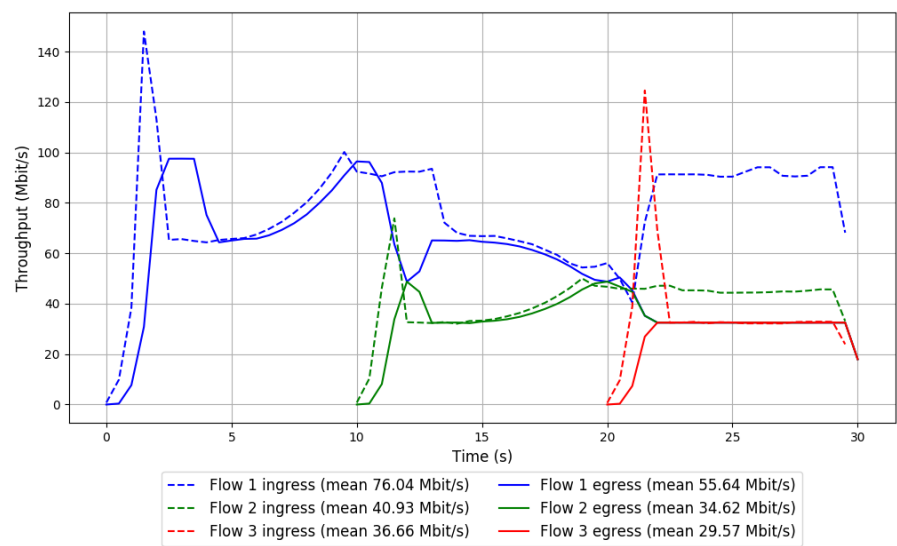
Run 2: Report of PCC-Allegro — Data Link

- - - Flow 1 ingress (mean 69.93 Mbit/s) —— Flow 1 egress (mean 62.45 Mbit/s)
- - - Flow 2 ingress (mean 38.09 Mbit/s) —— Flow 2 egress (mean 37.18 Mbit/s)
- - - Flow 3 ingress (mean 0.00 Mbit/s) —— Flow 3 egress (mean 0.00 Mbit/s)

- Flow 1 (95th percentile 1494.61 ms)   - Flow 2 (95th percentile 358.63 ms)   - Flow 3 (95th percentile 84.23 ms)

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-10-02 17:26:15
End at: 2018-10-02 17:26:45
Local clock offset: -4.532 ms
Remote clock offset: 2.376 ms


# Below is generated by plot.py at 2018-10-02 18:38:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.24 Mbit/s
95th percentile per-packet one-way delay: 1535.054 ms
Loss rate: 23.91%
-- Flow 1:
Average throughput: 55.64 Mbit/s
95th percentile per-packet one-way delay: 1638.110 ms
Loss rate: 27.22%
-- Flow 2:
Average throughput: 34.62 Mbit/s
95th percentile per-packet one-way delay: 1124.734 ms
Loss rate: 16.12%
-- Flow 3:
Average throughput: 29.57 Mbit/s
95th percentile per-packet one-way delay: 1396.082 ms
Loss rate: 20.70%
```
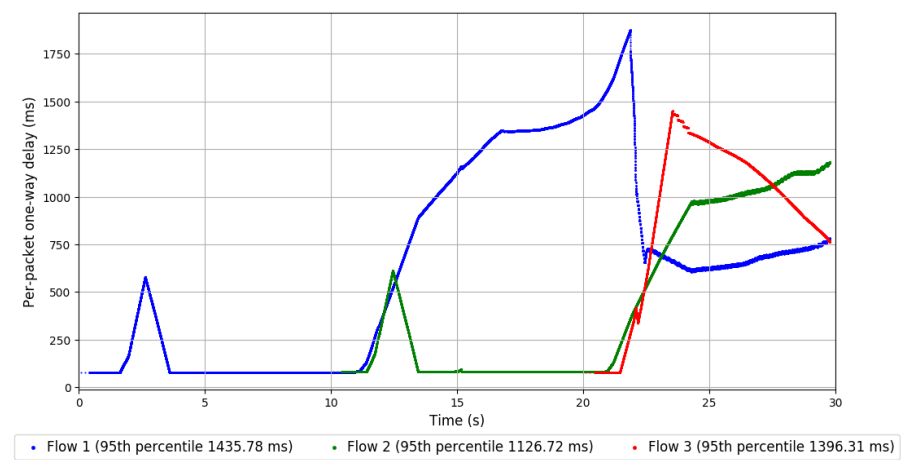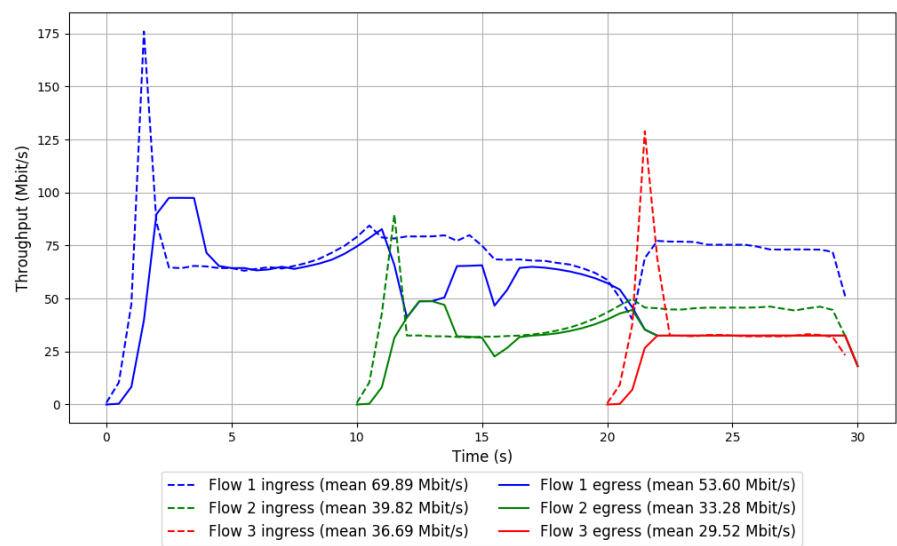
Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 76.04 Mbit/s) — — — Flow 1 egress (mean 55.64 Mbit/s)
Flow 2 ingress (mean 40.93 Mbit/s) — — — Flow 2 egress (mean 34.62 Mbit/s)
Flow 3 ingress (mean 36.66 Mbit/s) — — — Flow 3 egress (mean 29.57 Mbit/s)

Flow 1 (95th percentile 1638.11 ms)   Flow 2 (95th percentile 1124.73 ms)   Flow 3 (95th percentile 1396.08 ms)

90

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-10-02 17:49:55
End at: 2018-10-02 17:50:25
Local clock offset: -3.755 ms
Remote clock offset: 1.557 ms


# Below is generated by plot.py at 2018-10-02 18:38:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.30 Mbit/s
95th percentile per-packet one-way delay: 1396.550 ms
Loss rate: 21.79%
-- Flow 1:
Average throughput: 53.60 Mbit/s
95th percentile per-packet one-way delay: 1435.780 ms
Loss rate: 23.72%
-- Flow 2:
Average throughput: 33.28 Mbit/s
95th percentile per-packet one-way delay: 1126.722 ms
Loss rate: 17.11%
-- Flow 3:
Average throughput: 29.52 Mbit/s
95th percentile per-packet one-way delay: 1396.308 ms
Loss rate: 20.86%
```
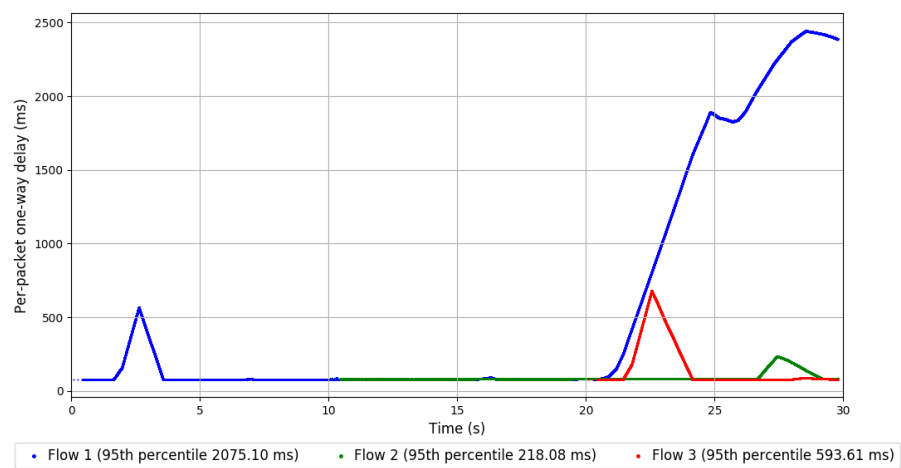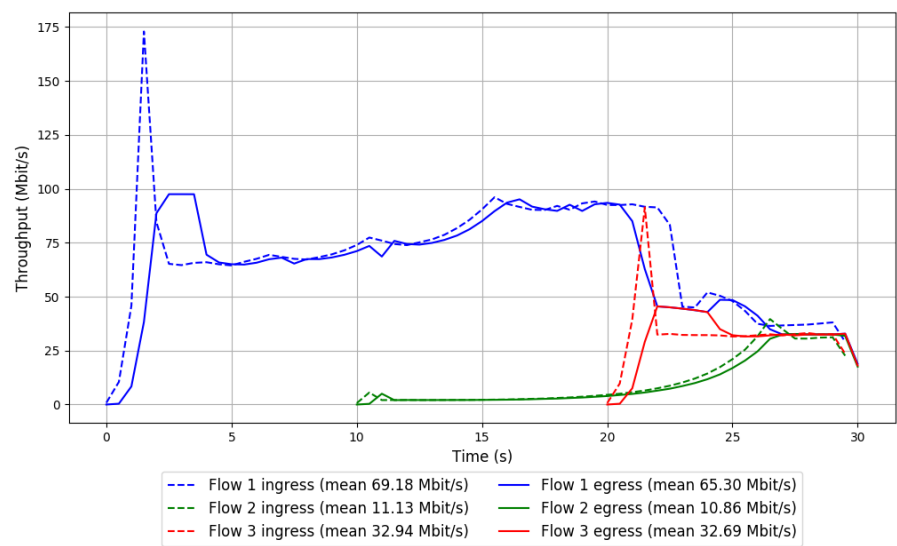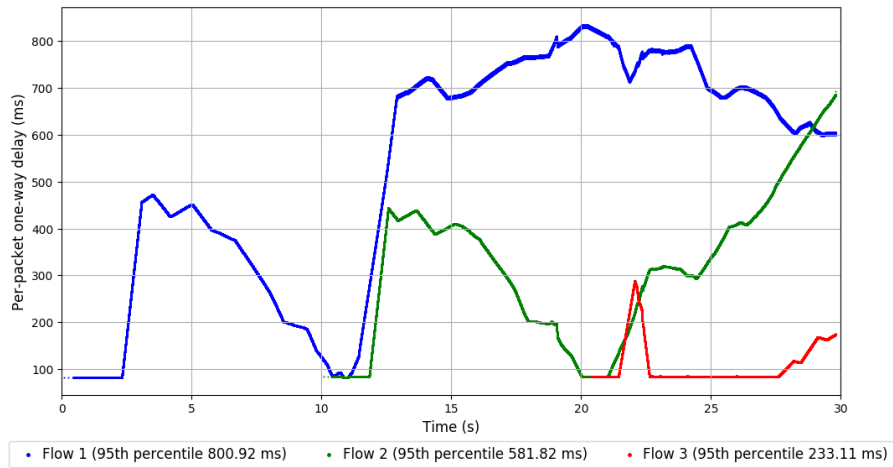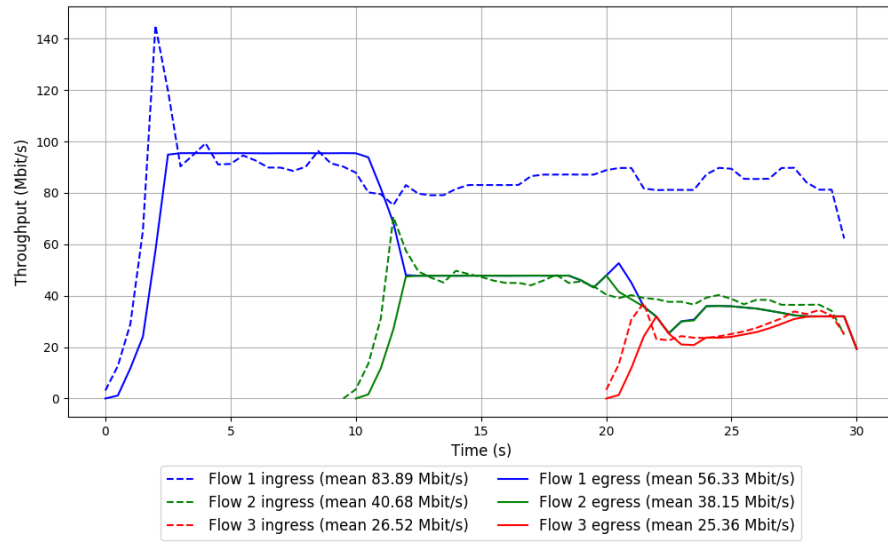
Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 69.89 Mbit/s) — — — Flow 1 egress (mean 53.60 Mbit/s)
Flow 2 ingress (mean 39.82 Mbit/s) — — — Flow 2 egress (mean 33.28 Mbit/s)
Flow 3 ingress (mean 36.69 Mbit/s) — — — Flow 3 egress (mean 29.52 Mbit/s)

Flow 1 (95th percentile 1435.78 ms)   Flow 2 (95th percentile 1126.72 ms)   Flow 3 (95th percentile 1396.31 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-10-02 18:13:00
End at: 2018-10-02 18:13:30
Local clock offset: -2.649 ms
Remote clock offset: 3.009 ms


# Below is generated by plot.py at 2018-10-02 18:38:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.15 Mbit/s
95th percentile per-packet one-way delay: 1881.987 ms
Loss rate: 5.43%
-- Flow 1:
Average throughput: 65.30 Mbit/s
95th percentile per-packet one-way delay: 2075.097 ms
Loss rate: 6.13%
-- Flow 2:
Average throughput: 10.86 Mbit/s
95th percentile per-packet one-way delay: 218.082 ms
Loss rate: 3.28%
-- Flow 3:
Average throughput: 32.69 Mbit/s
95th percentile per-packet one-way delay: 593.612 ms
Loss rate: 2.40%
```

Run 5: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2018-10-02 16:36:48
End at: 2018-10-02 16:37:18
Local clock offset: -5.363 ms
Remote clock offset: -3.2 ms


# Below is generated by plot.py at 2018-10-02 18:39:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.92 Mbit/s
95th percentile per-packet one-way delay: 781.750 ms
Loss rate: 25.28%
-- Flow 1:
Average throughput: 56.33 Mbit/s
95th percentile per-packet one-way delay: 800.925 ms
Loss rate: 33.22%
-- Flow 2:
Average throughput: 38.15 Mbit/s
95th percentile per-packet one-way delay: 581.820 ms
Loss rate: 6.95%
-- Flow 3:
Average throughput: 25.36 Mbit/s
95th percentile per-packet one-way delay: 233.109 ms
Loss rate: 5.95%
```
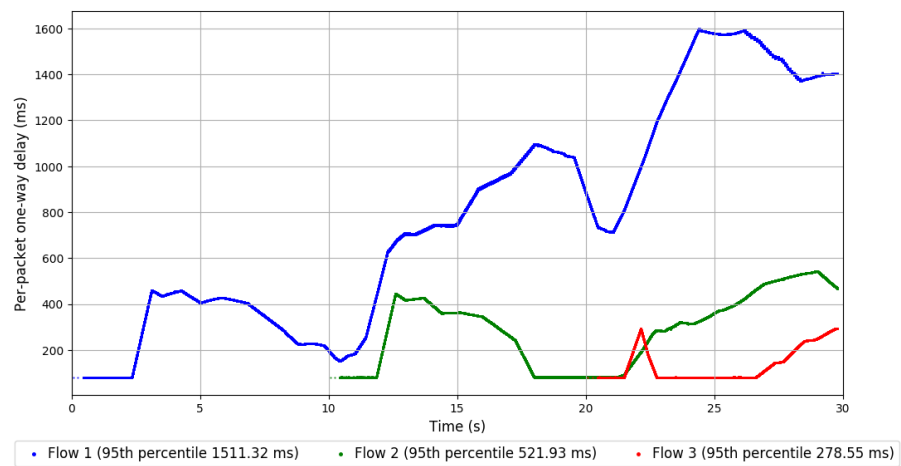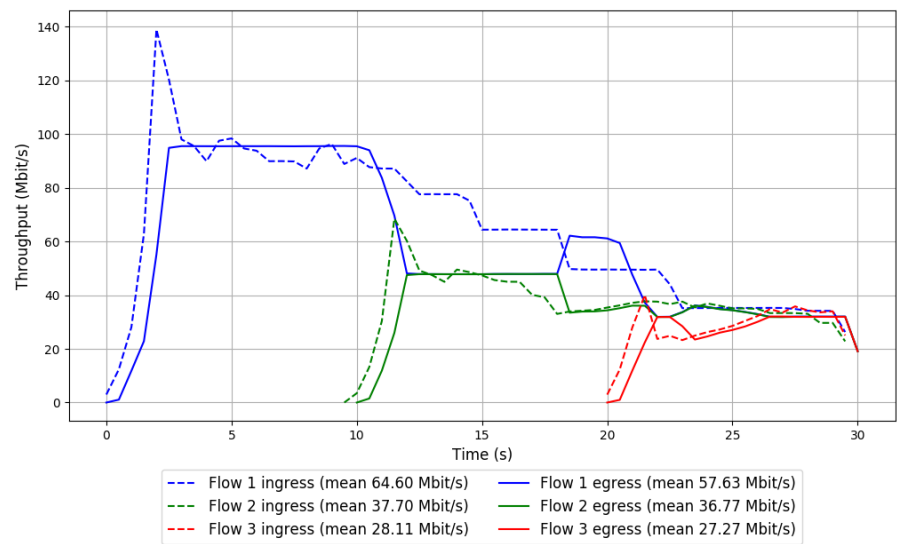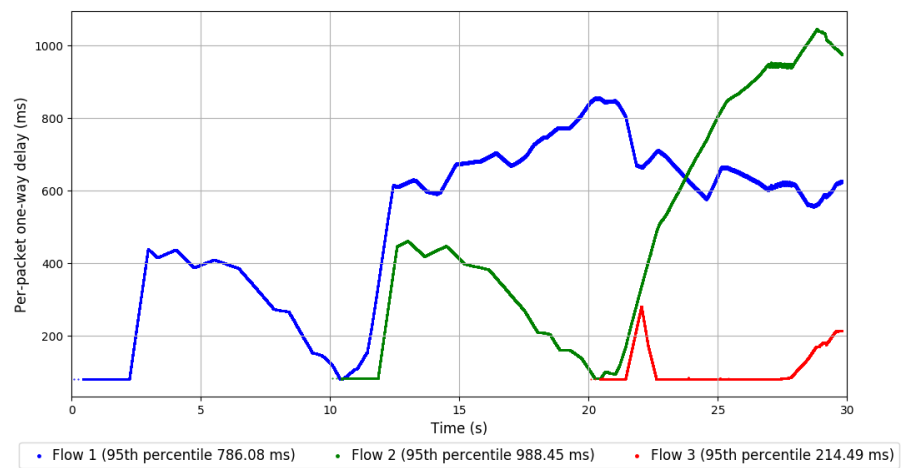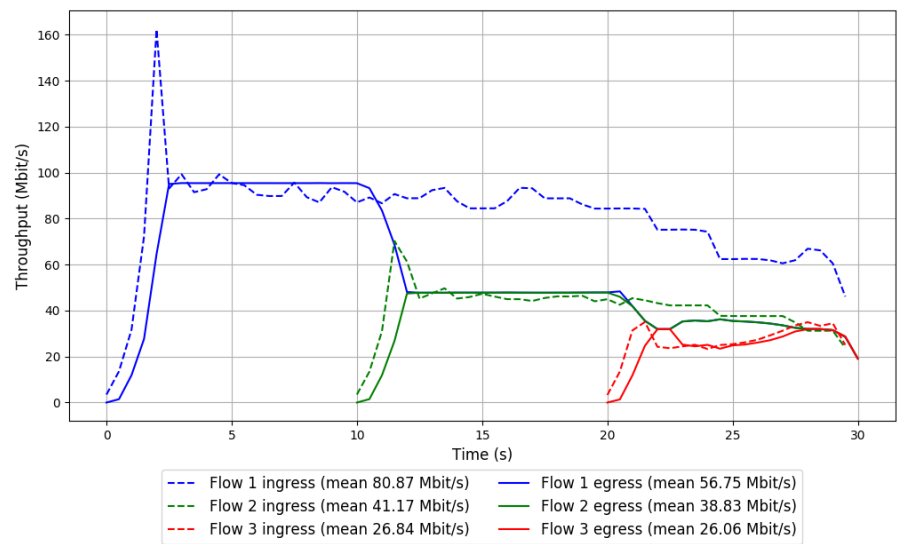
Run 1: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 83.89 Mbit/s) --- Flow 1 egress (mean 56.33 Mbit/s)
Flow 2 ingress (mean 40.68 Mbit/s) --- Flow 2 egress (mean 38.15 Mbit/s)
Flow 3 ingress (mean 26.52 Mbit/s) --- Flow 3 egress (mean 25.36 Mbit/s)

Flow 1 (95th percentile 800.92 ms)   Flow 2 (95th percentile 581.82 ms)   Flow 3 (95th percentile 233.11 ms)

```
Run 2: Statistics of PCC-Expr

Start at: 2018-10-02 17:00:12
End at: 2018-10-02 17:00:42
Local clock offset: -4.913 ms
Remote clock offset: 0.997 ms


# Below is generated by plot.py at 2018-10-02 18:39:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.95 Mbit/s
95th percentile per-packet one-way delay: 1400.701 ms
Loss rate: 8.63%
-- Flow 1:
Average throughput: 57.63 Mbit/s
95th percentile per-packet one-way delay: 1511.322 ms
Loss rate: 11.28%
-- Flow 2:
Average throughput: 36.77 Mbit/s
95th percentile per-packet one-way delay: 521.933 ms
Loss rate: 3.28%
-- Flow 3:
Average throughput: 27.27 Mbit/s
95th percentile per-packet one-way delay: 278.545 ms
Loss rate: 4.65%
```
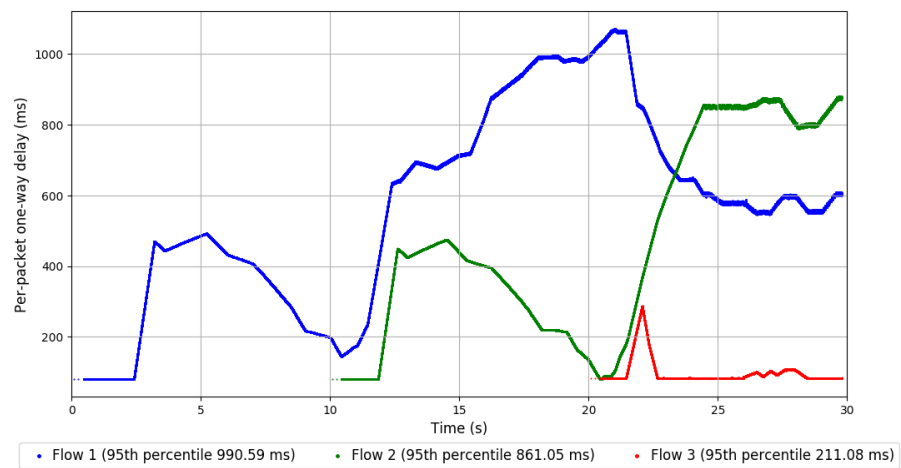
Run 2: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 64.60 Mbit/s) —— Flow 1 egress (mean 57.63 Mbit/s)
Flow 2 ingress (mean 37.70 Mbit/s) —— Flow 2 egress (mean 36.77 Mbit/s)
Flow 3 ingress (mean 28.11 Mbit/s) —— Flow 3 egress (mean 27.27 Mbit/s)

Flow 1 (95th percentile 1511.32 ms)   Flow 2 (95th percentile 521.93 ms)   Flow 3 (95th percentile 278.55 ms)

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```
Run 3: Statistics of PCC-Expr

Start at: 2018-10-02 17:23:38
End at: 2018-10-02 17:24:08
Local clock offset: -4.617 ms
Remote clock offset: -1.518 ms


# Below is generated by plot.py at 2018-10-02 18:39:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.03 Mbit/s
95th percentile per-packet one-way delay: 855.079 ms
Loss rate: 22.70%
-- Flow 1:
Average throughput: 56.75 Mbit/s
95th percentile per-packet one-way delay: 786.084 ms
Loss rate: 30.20%
-- Flow 2:
Average throughput: 38.83 Mbit/s
95th percentile per-packet one-way delay: 988.453 ms
Loss rate: 6.45%
-- Flow 3:
Average throughput: 26.06 Mbit/s
95th percentile per-packet one-way delay: 214.490 ms
Loss rate: 4.48%
```
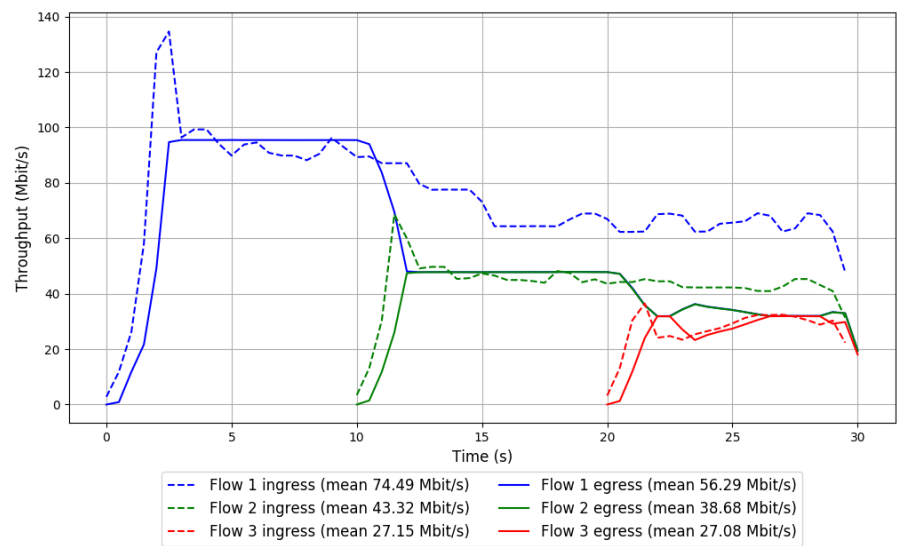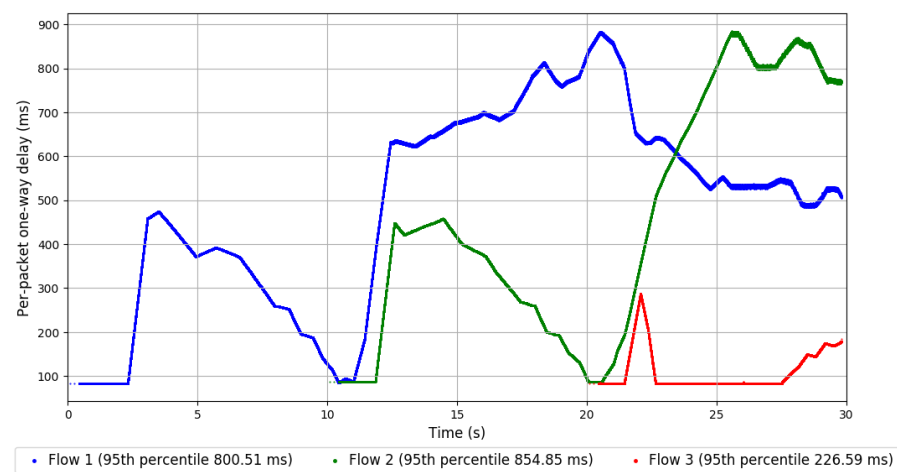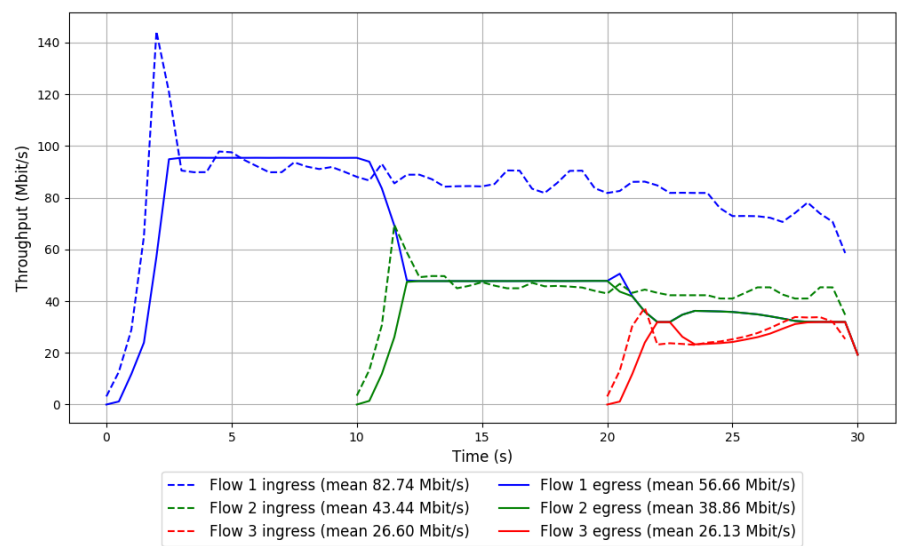
Run 3: Report of PCC-Expr — Data Link

- - - Flow 1 ingress (mean 80.87 Mbit/s) ——— Flow 1 egress (mean 56.75 Mbit/s)
- - - Flow 2 ingress (mean 41.17 Mbit/s) ——— Flow 2 egress (mean 38.83 Mbit/s)
- - - Flow 3 ingress (mean 26.84 Mbit/s) ——— Flow 3 egress (mean 26.06 Mbit/s)

- Flow 1 (95th percentile 786.08 ms) • Flow 2 (95th percentile 988.45 ms) • Flow 3 (95th percentile 214.49 ms)

```
Run 4: Statistics of PCC-Expr

Start at: 2018-10-02 17:47:20
End at: 2018-10-02 17:47:50
Local clock offset: -4.031 ms
Remote clock offset: 1.646 ms


# Below is generated by plot.py at 2018-10-02 18:39:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.79 Mbit/s
95th percentile per-packet one-way delay: 982.332 ms
Loss rate: 19.58%
-- Flow 1:
Average throughput: 56.29 Mbit/s
95th percentile per-packet one-way delay: 990.594 ms
Loss rate: 24.86%
-- Flow 2:
Average throughput: 38.68 Mbit/s
95th percentile per-packet one-way delay: 861.049 ms
Loss rate: 11.44%
-- Flow 3:
Average throughput: 27.08 Mbit/s
95th percentile per-packet one-way delay: 211.079 ms
Loss rate: 1.89%
```
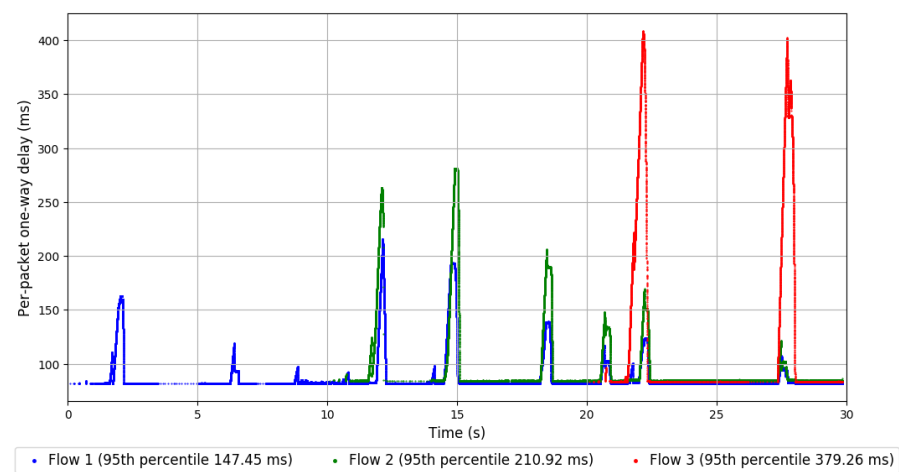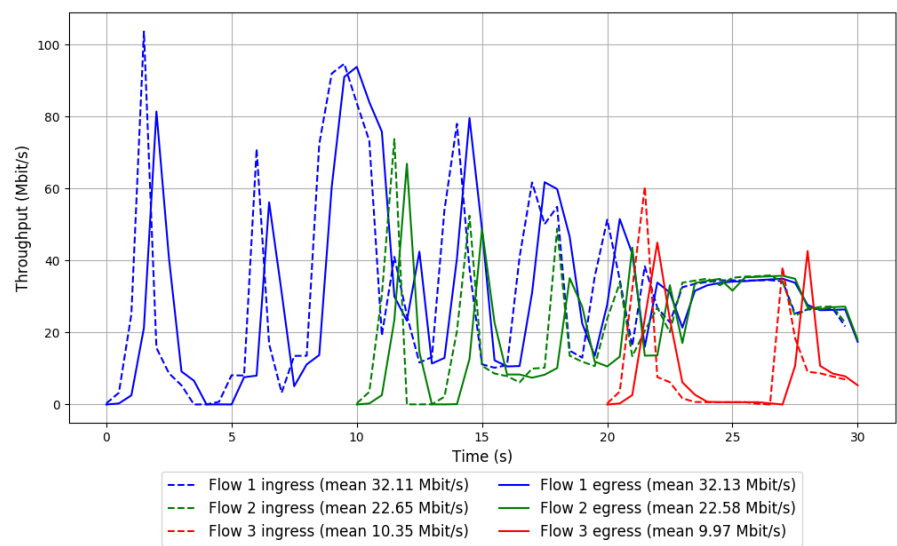
Run 4: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 74.49 Mbit/s) —— Flow 1 egress (mean 56.29 Mbit/s)
Flow 2 ingress (mean 43.32 Mbit/s) —— Flow 2 egress (mean 38.68 Mbit/s)
Flow 3 ingress (mean 27.15 Mbit/s) —— Flow 3 egress (mean 27.08 Mbit/s)

Flow 1 (95th percentile 990.59 ms)   Flow 2 (95th percentile 861.05 ms)   Flow 3 (95th percentile 211.08 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2018-10-02 18:10:25
End at: 2018-10-02 18:10:55
Local clock offset: -2.814 ms
Remote clock offset: -1.986 ms


# Below is generated by plot.py at 2018-10-02 18:40:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.96 Mbit/s
95th percentile per-packet one-way delay: 823.815 ms
Loss rate: 24.87%
-- Flow 1:
Average throughput: 56.66 Mbit/s
95th percentile per-packet one-way delay: 800.507 ms
Loss rate: 31.89%
-- Flow 2:
Average throughput: 38.86 Mbit/s
95th percentile per-packet one-way delay: 854.853 ms
Loss rate: 11.29%
-- Flow 3:
Average throughput: 26.13 Mbit/s
95th percentile per-packet one-way delay: 226.593 ms
Loss rate: 3.37%
```
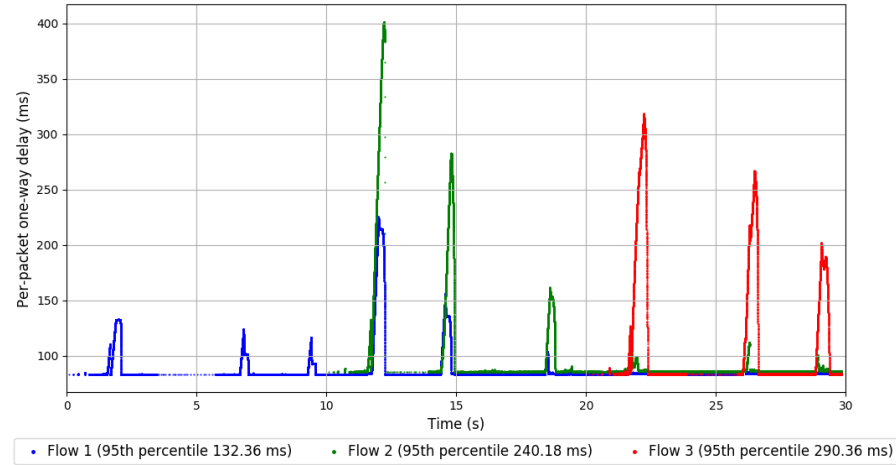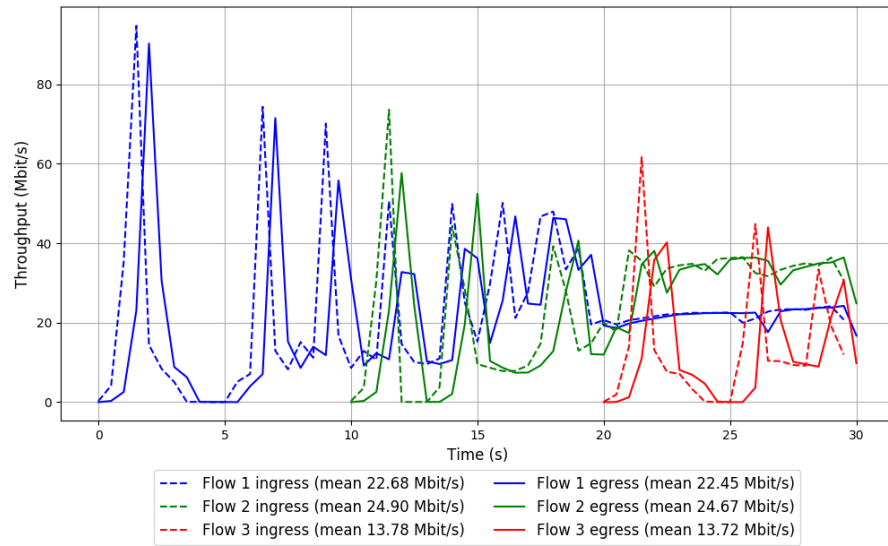
Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-10-02 16:35:33
End at: 2018-10-02 16:36:03
Local clock offset: -5.304 ms
Remote clock offset: -2.048 ms


# Below is generated by plot.py at 2018-10-02 18:40:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 50.38 Mbit/s
95th percentile per-packet one-way delay: 193.220 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 32.13 Mbit/s
95th percentile per-packet one-way delay: 147.453 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 22.58 Mbit/s
95th percentile per-packet one-way delay: 210.917 ms
Loss rate: 1.11%
-- Flow 3:
Average throughput: 9.97 Mbit/s
95th percentile per-packet one-way delay: 379.261 ms
Loss rate: 5.28%
```
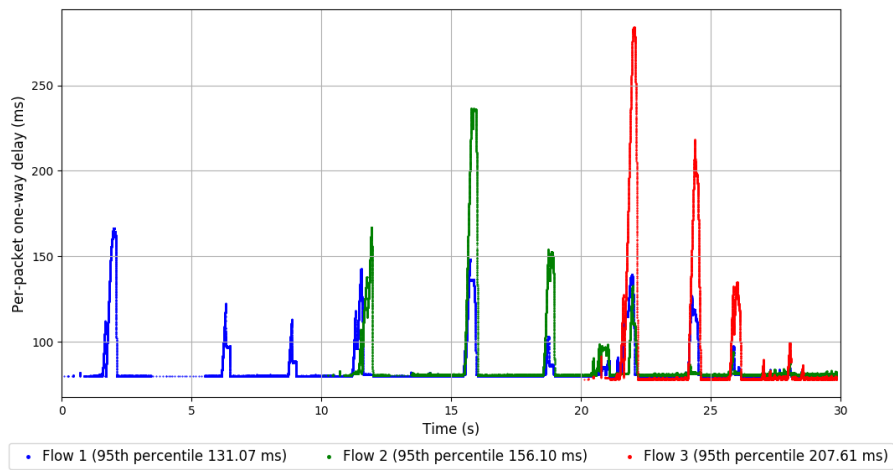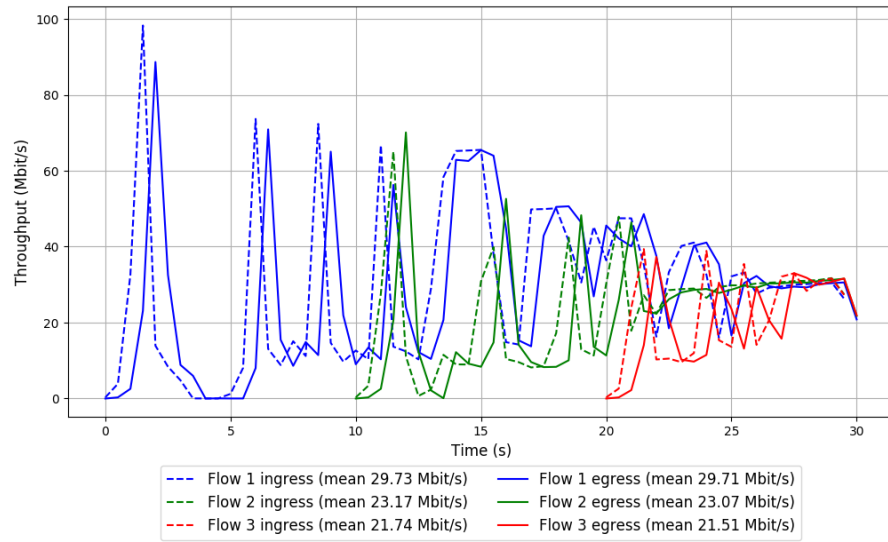
Run 1: Report of QUIC Cubic — Data Link

- Flow 1 ingress (mean 32.11 Mbit/s)
- Flow 1 egress (mean 32.13 Mbit/s)
- Flow 2 ingress (mean 22.65 Mbit/s)
- Flow 2 egress (mean 22.58 Mbit/s)
- Flow 3 ingress (mean 10.35 Mbit/s)
- Flow 3 egress (mean 9.97 Mbit/s)

- Flow 1 (95th percentile 147.45 ms)
- Flow 2 (95th percentile 210.92 ms)
- Flow 3 (95th percentile 379.26 ms)

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-10-02 16:58:51
End at: 2018-10-02 16:59:21
Local clock offset: -4.953 ms
Remote clock offset: -3.01 ms


# Below is generated by plot.py at 2018-10-02 18:40:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 43.30 Mbit/s
95th percentile per-packet one-way delay: 214.212 ms
Loss rate: 1.68%
-- Flow 1:
Average throughput: 22.45 Mbit/s
95th percentile per-packet one-way delay: 132.359 ms
Loss rate: 1.56%
-- Flow 2:
Average throughput: 24.67 Mbit/s
95th percentile per-packet one-way delay: 240.179 ms
Loss rate: 1.75%
-- Flow 3:
Average throughput: 13.72 Mbit/s
95th percentile per-packet one-way delay: 290.356 ms
Loss rate: 2.06%
```
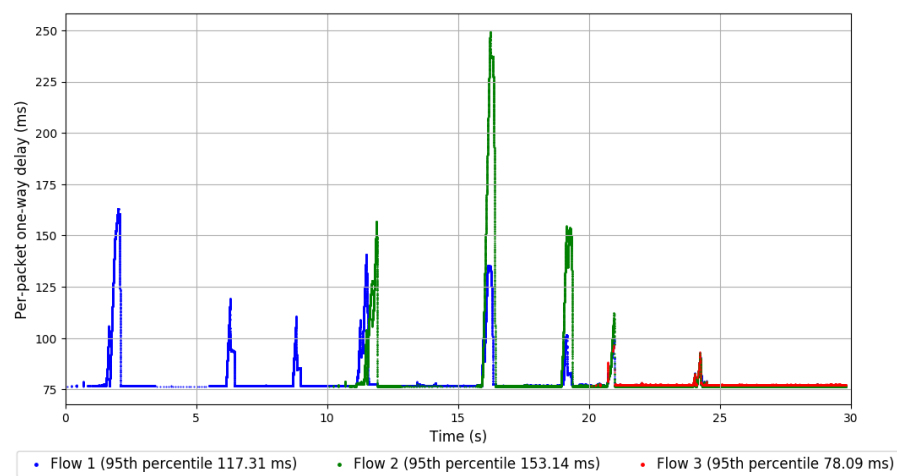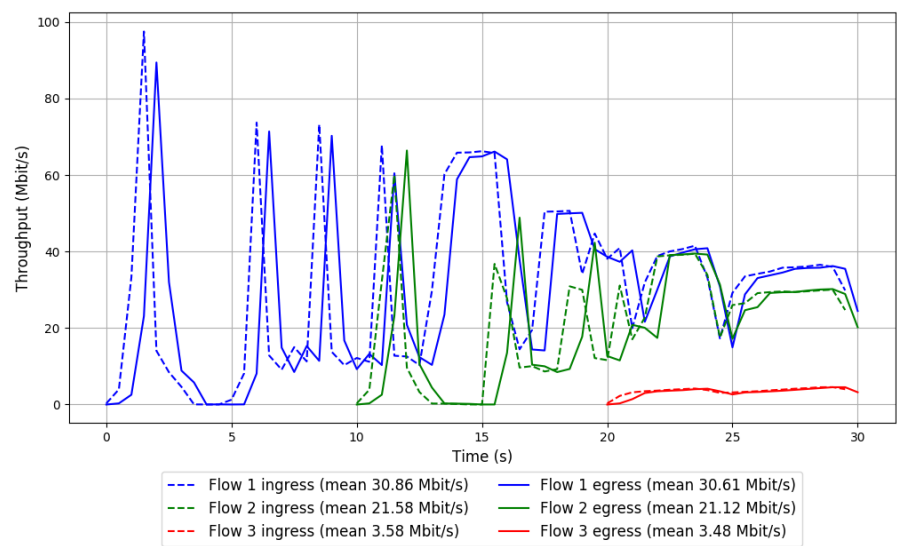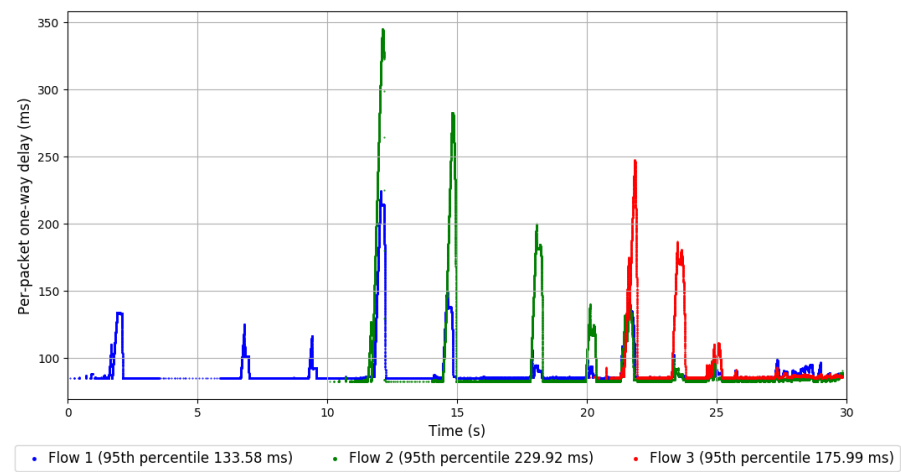
Run 2: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 22.68 Mbit/s)   Flow 1 egress (mean 22.45 Mbit/s)
Flow 2 ingress (mean 24.90 Mbit/s)   Flow 2 egress (mean 24.67 Mbit/s)
Flow 3 ingress (mean 13.78 Mbit/s)   Flow 3 egress (mean 13.72 Mbit/s)

Flow 1 (95th percentile 132.36 ms)   Flow 2 (95th percentile 240.18 ms)   Flow 3 (95th percentile 290.36 ms)
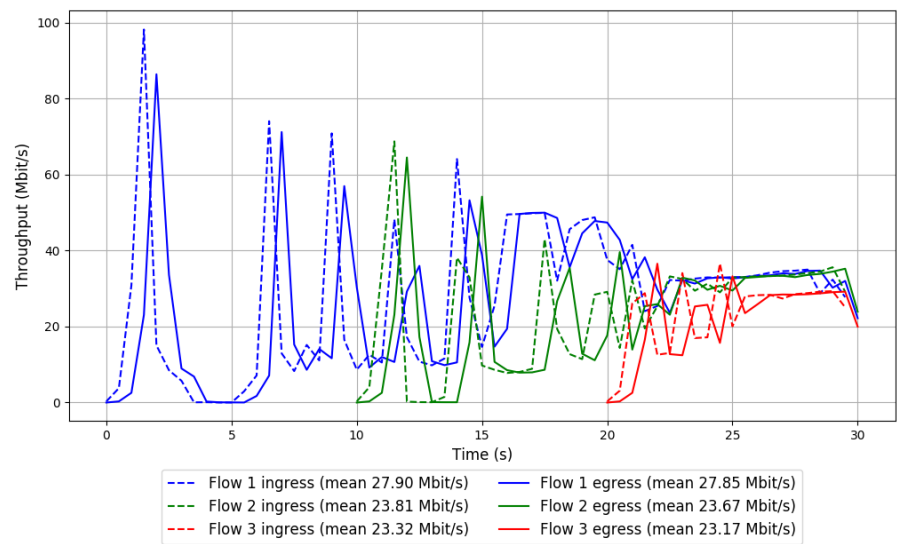
108

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-10-02 17:22:22
End at: 2018-10-02 17:22:52
Local clock offset: -4.562 ms
Remote clock offset: 2.365 ms


# Below is generated by plot.py at 2018-10-02 18:40:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 52.04 Mbit/s
95th percentile per-packet one-way delay: 147.762 ms
Loss rate: 1.08%
-- Flow 1:
Average throughput: 29.71 Mbit/s
95th percentile per-packet one-way delay: 131.072 ms
Loss rate: 0.62%
-- Flow 2:
Average throughput: 23.07 Mbit/s
95th percentile per-packet one-way delay: 156.103 ms
Loss rate: 1.24%
-- Flow 3:
Average throughput: 21.51 Mbit/s
95th percentile per-packet one-way delay: 207.612 ms
Loss rate: 2.66%
```
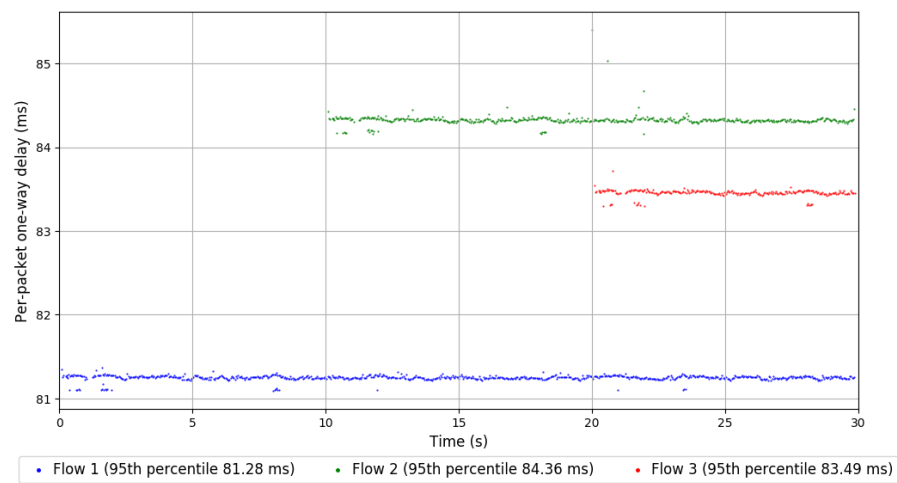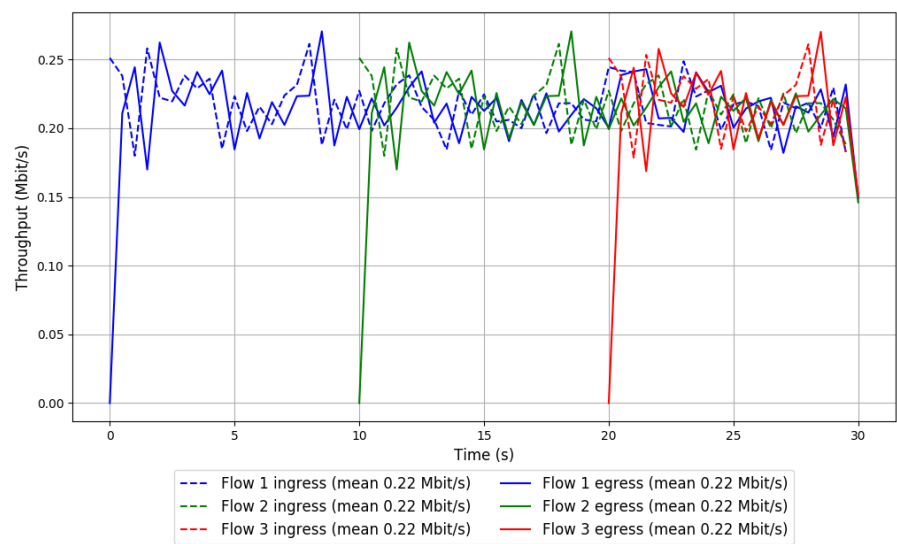
Run 3: Report of QUIC Cubic — Data Link

- - - Flow 1 ingress (mean 29.73 Mbit/s)   —— Flow 1 egress (mean 29.71 Mbit/s)
- - - Flow 2 ingress (mean 23.17 Mbit/s)   —— Flow 2 egress (mean 23.07 Mbit/s)
- - - Flow 3 ingress (mean 21.74 Mbit/s)   —— Flow 3 egress (mean 21.51 Mbit/s)

- Flow 1 (95th percentile 131.07 ms)   • Flow 2 (95th percentile 156.10 ms)   • Flow 3 (95th percentile 207.61 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-10-02 17:45:46
End at: 2018-10-02 17:46:16
Local clock offset: -4.214 ms
Remote clock offset: 3.796 ms


# Below is generated by plot.py at 2018-10-02 18:40:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 45.76 Mbit/s
95th percentile per-packet one-way delay: 134.623 ms
Loss rate: 1.93%
-- Flow 1:
Average throughput: 30.61 Mbit/s
95th percentile per-packet one-way delay: 117.305 ms
Loss rate: 1.35%
-- Flow 2:
Average throughput: 21.12 Mbit/s
95th percentile per-packet one-way delay: 153.139 ms
Loss rate: 2.98%
-- Flow 3:
Average throughput: 3.48 Mbit/s
95th percentile per-packet one-way delay: 78.087 ms
Loss rate: 4.40%
```
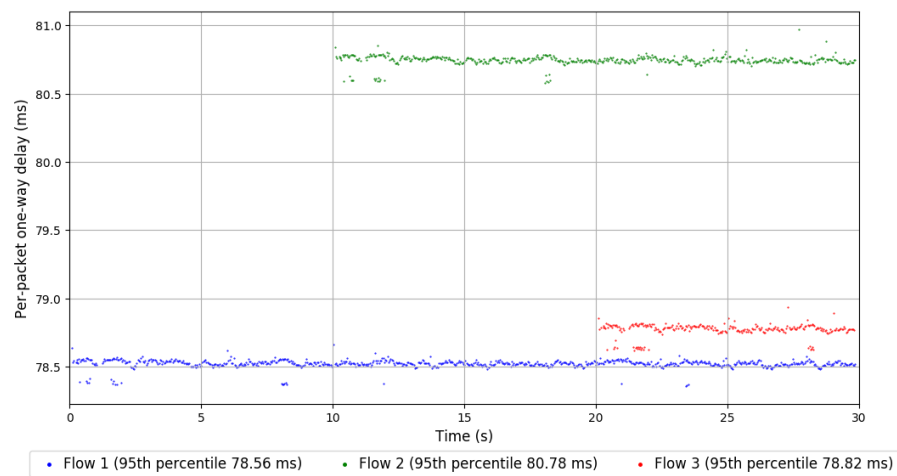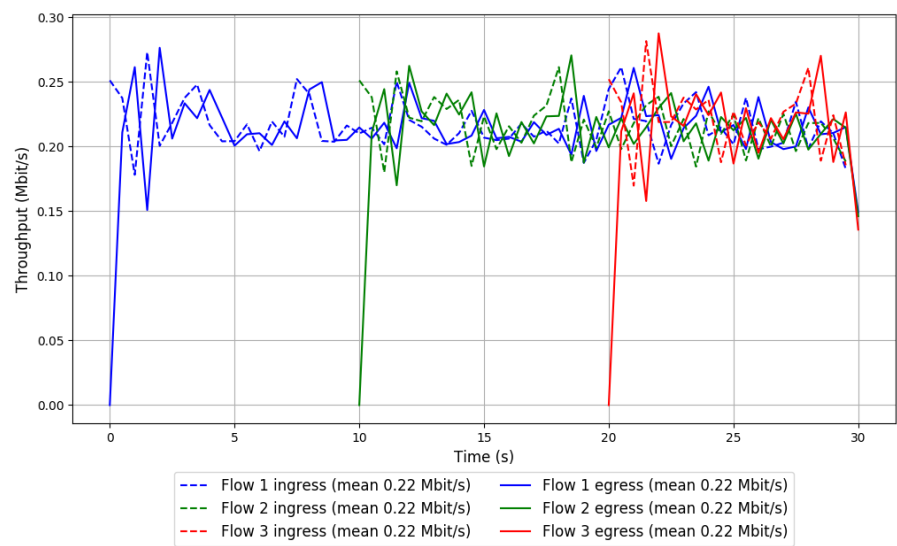
Run 4: Report of QUIC Cubic — Data Link

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-10-02 18:09:10
End at: 2018-10-02 18:09:40
Local clock offset: -2.782 ms
Remote clock offset: -2.033 ms


# Below is generated by plot.py at 2018-10-02 18:40:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 51.13 Mbit/s
95th percentile per-packet one-way delay: 170.966 ms
Loss rate: 1.17%
-- Flow 1:
Average throughput: 27.85 Mbit/s
95th percentile per-packet one-way delay: 133.579 ms
Loss rate: 0.73%
-- Flow 2:
Average throughput: 23.67 Mbit/s
95th percentile per-packet one-way delay: 229.922 ms
Loss rate: 1.39%
-- Flow 3:
Average throughput: 23.17 Mbit/s
95th percentile per-packet one-way delay: 175.989 ms
Loss rate: 2.30%
```

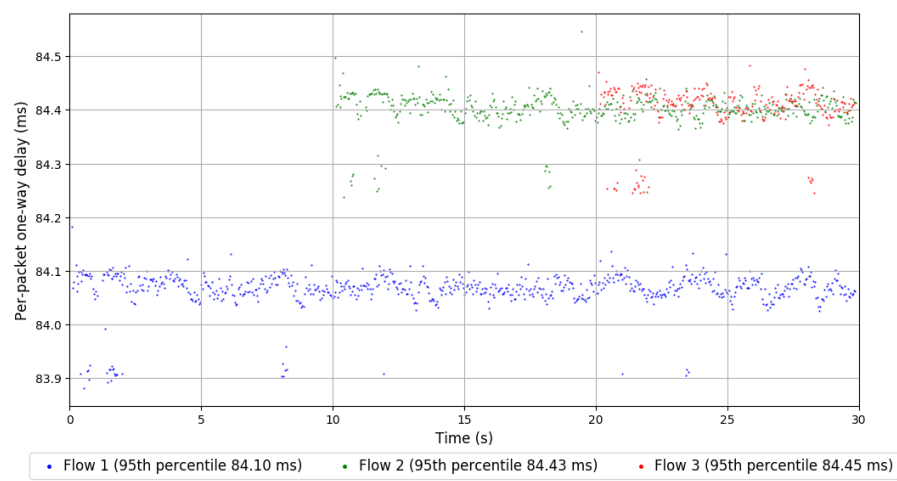Run 5: Report of QUIC Cubic — Data Link

```
Run 1: Statistics of SCReAM

Start at: 2018-10-02 16:52:24
End at: 2018-10-02 16:52:54
Local clock offset: -5.044 ms
Remote clock offset: -1.998 ms


# Below is generated by plot.py at 2018-10-02 18:40:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 84.345 ms
Loss rate: 0.77%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 81.281 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 84.360 ms
Loss rate: 0.82%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 83.490 ms
Loss rate: 1.45%
```
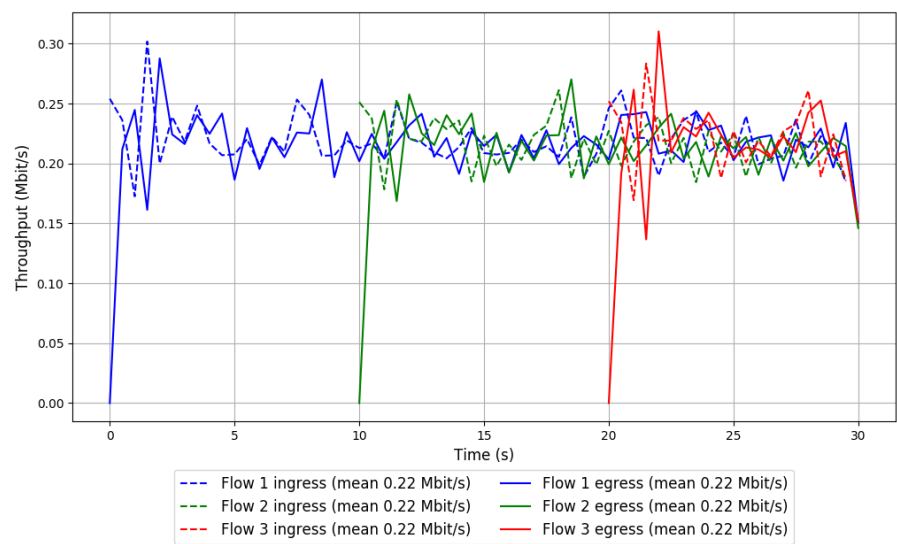
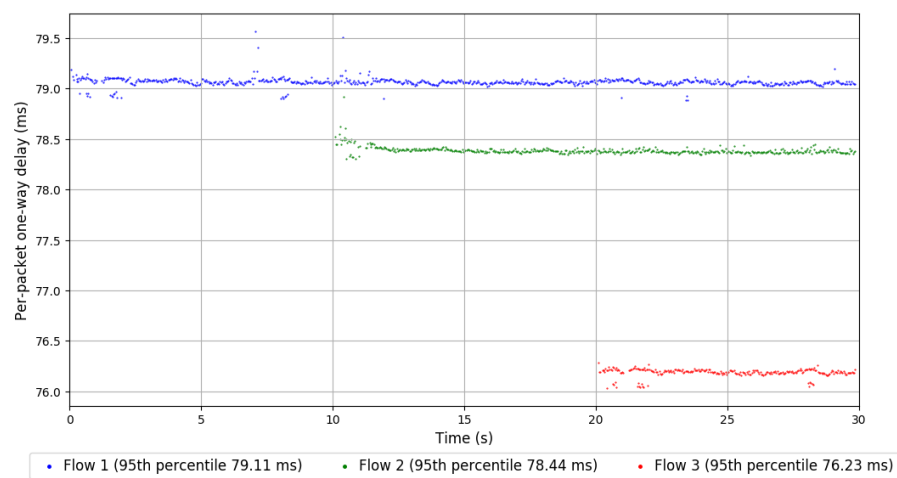# Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2018-10-02 17:16:12
End at: 2018-10-02 17:16:42
Local clock offset: -4.737 ms
Remote clock offset: 1.336 ms


# Below is generated by plot.py at 2018-10-02 18:40:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 80.769 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 78.556 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 80.782 ms
Loss rate: 0.82%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 78.816 ms
Loss rate: 1.85%
```
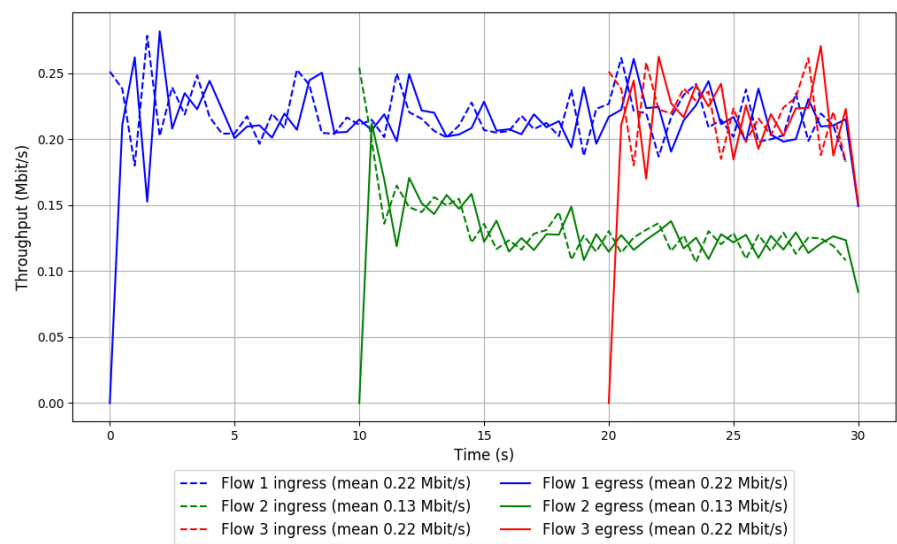
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-10-02 17:39:36
End at: 2018-10-02 17:40:06
Local clock offset: -4.268 ms
Remote clock offset: -1.349 ms


# Below is generated by plot.py at 2018-10-02 18:40:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 84.434 ms
Loss rate: 0.84%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 84.100 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 84.433 ms
Loss rate: 0.82%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 84.446 ms
Loss rate: 1.85%
```
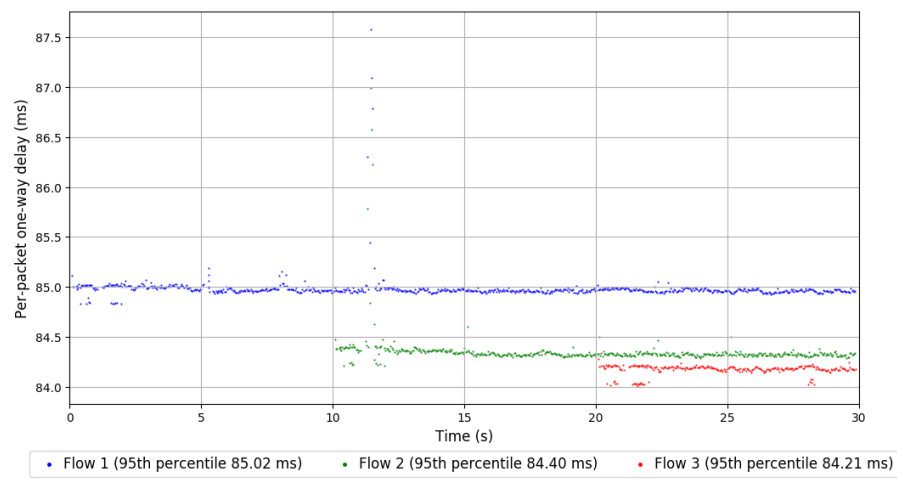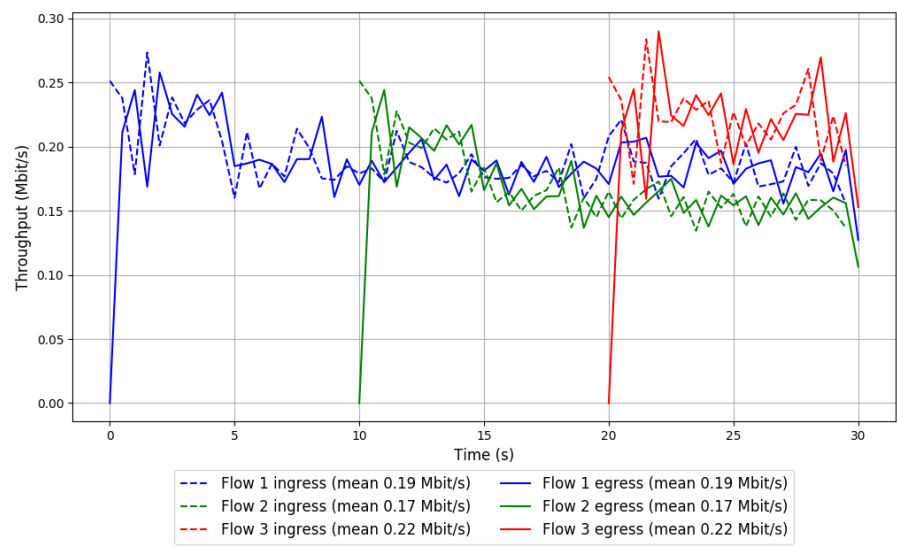
Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2018-10-02 18:03:00
End at: 2018-10-02 18:03:30
Local clock offset: -2.996 ms
Remote clock offset: 4.007 ms


# Below is generated by plot.py at 2018-10-02 18:40:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.38 Mbit/s
95th percentile per-packet one-way delay: 79.097 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 79.107 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 78.445 ms
Loss rate: 1.83%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 76.228 ms
Loss rate: 1.45%
```
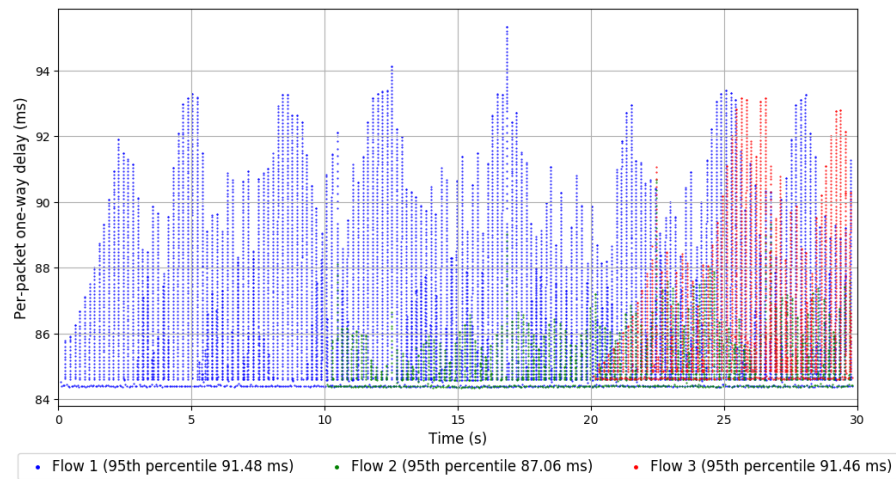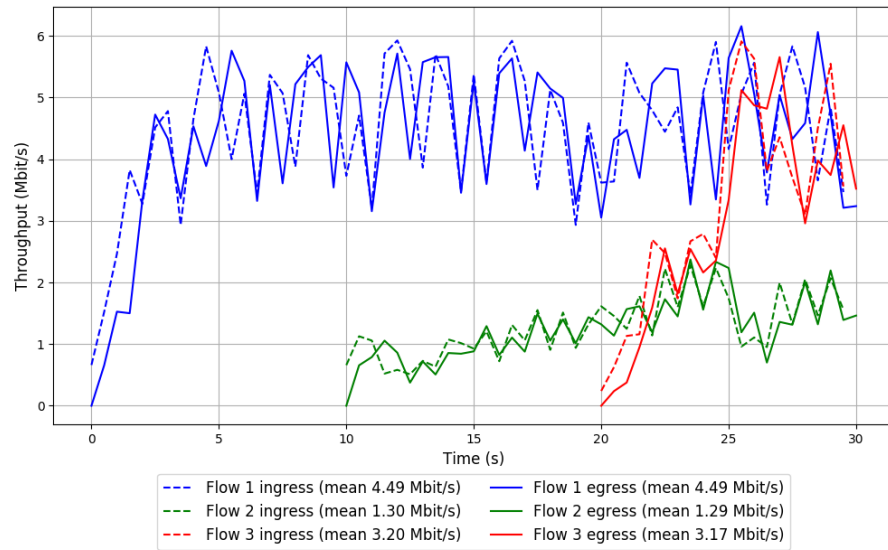
Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2018-10-02 18:25:59
End at: 2018-10-02 18:26:29
Local clock offset: -2.579 ms
Remote clock offset: -1.845 ms


# Below is generated by plot.py at 2018-10-02 18:40:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.38 Mbit/s
95th percentile per-packet one-way delay: 85.012 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 85.023 ms
Loss rate: 0.49%
-- Flow 2:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 84.397 ms
Loss rate: 1.06%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 84.214 ms
Loss rate: 1.45%
```
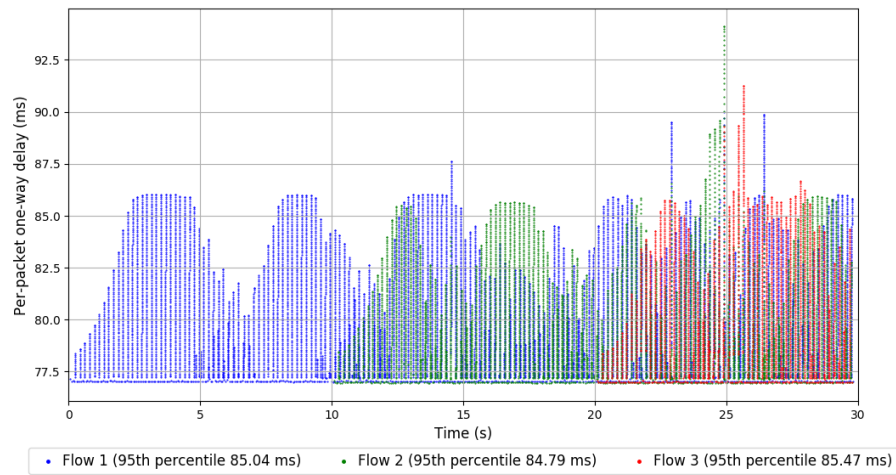
Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2018-10-02 16:53:36
End at: 2018-10-02 16:54:06
Local clock offset: -5.015 ms
Remote clock offset: -3.059 ms


# Below is generated by plot.py at 2018-10-02 18:40:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 6.37 Mbit/s
95th percentile per-packet one-way delay: 91.268 ms
Loss rate: 1.16%
-- Flow 1:
Average throughput: 4.49 Mbit/s
95th percentile per-packet one-way delay: 91.481 ms
Loss rate: 0.69%
-- Flow 2:
Average throughput: 1.29 Mbit/s
95th percentile per-packet one-way delay: 87.062 ms
Loss rate: 1.50%
-- Flow 3:
Average throughput: 3.17 Mbit/s
95th percentile per-packet one-way delay: 91.456 ms
Loss rate: 2.84%
```
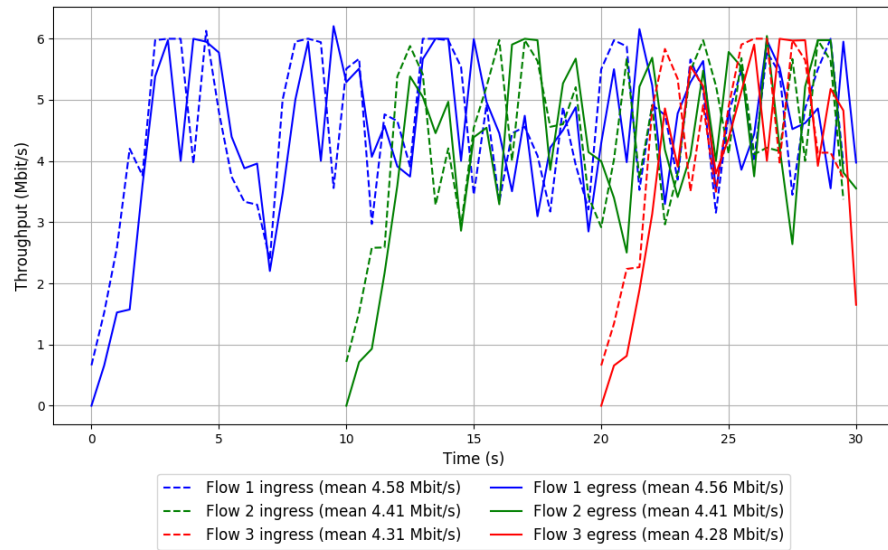
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-10-02 17:17:24
End at: 2018-10-02 17:17:54
Local clock offset: -4.769 ms
Remote clock offset: 2.447 ms


# Below is generated by plot.py at 2018-10-02 18:40:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.88 Mbit/s
95th percentile per-packet one-way delay: 85.051 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 4.56 Mbit/s
95th percentile per-packet one-way delay: 85.040 ms
Loss rate: 0.72%
-- Flow 2:
Average throughput: 4.41 Mbit/s
95th percentile per-packet one-way delay: 84.793 ms
Loss rate: 0.94%
-- Flow 3:
Average throughput: 4.28 Mbit/s
95th percentile per-packet one-way delay: 85.468 ms
Loss rate: 2.44%
```
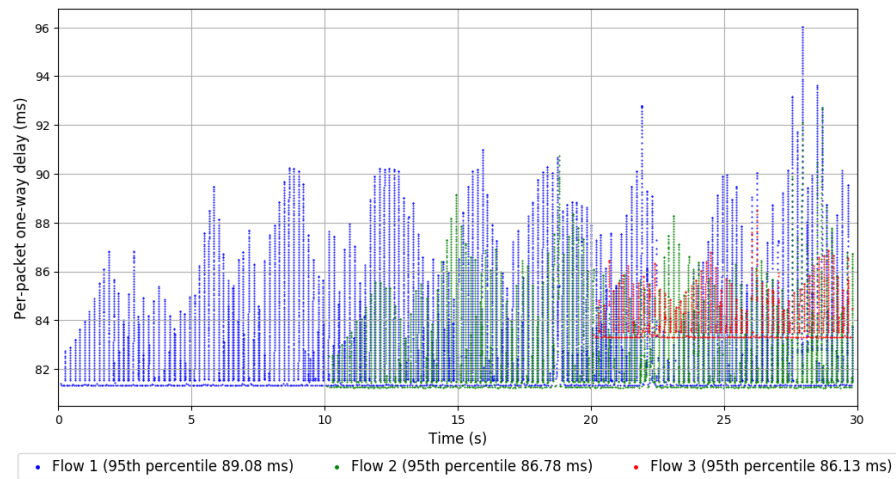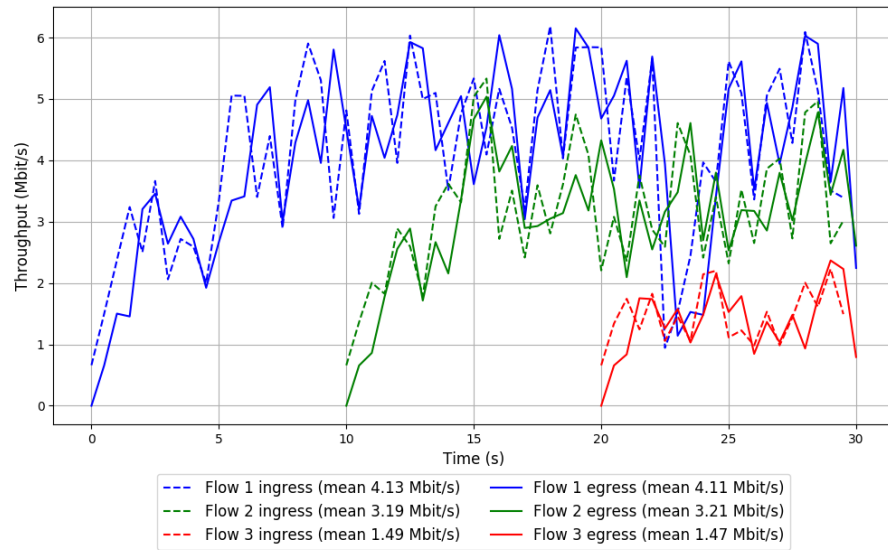
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-10-02 17:40:48
End at: 2018-10-02 17:41:18
Local clock offset: -4.314 ms
Remote clock offset: -1.308 ms


# Below is generated by plot.py at 2018-10-02 18:40:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 6.72 Mbit/s
95th percentile per-packet one-way delay: 88.498 ms
Loss rate: 1.02%
-- Flow 1:
Average throughput: 4.11 Mbit/s
95th percentile per-packet one-way delay: 89.078 ms
Loss rate: 1.13%
-- Flow 2:
Average throughput: 3.21 Mbit/s
95th percentile per-packet one-way delay: 86.781 ms
Loss rate: 0.47%
-- Flow 3:
Average throughput: 1.47 Mbit/s
95th percentile per-packet one-way delay: 86.128 ms
Loss rate: 2.55%
```
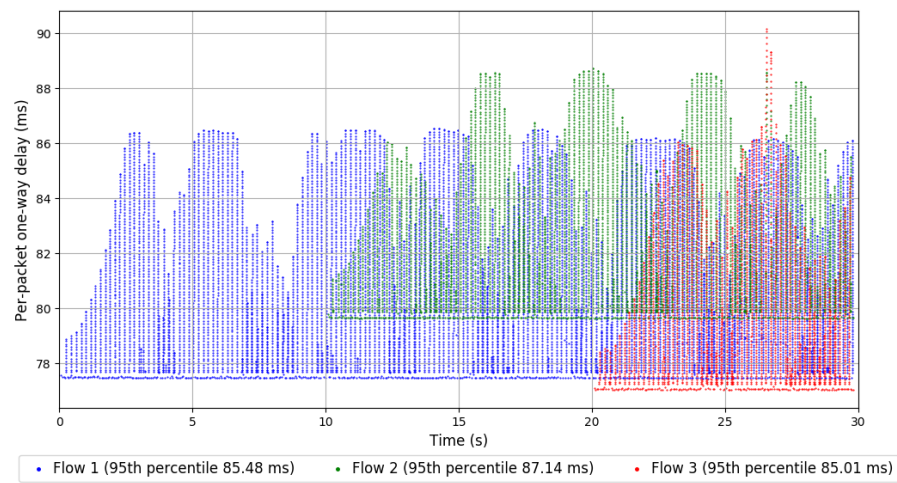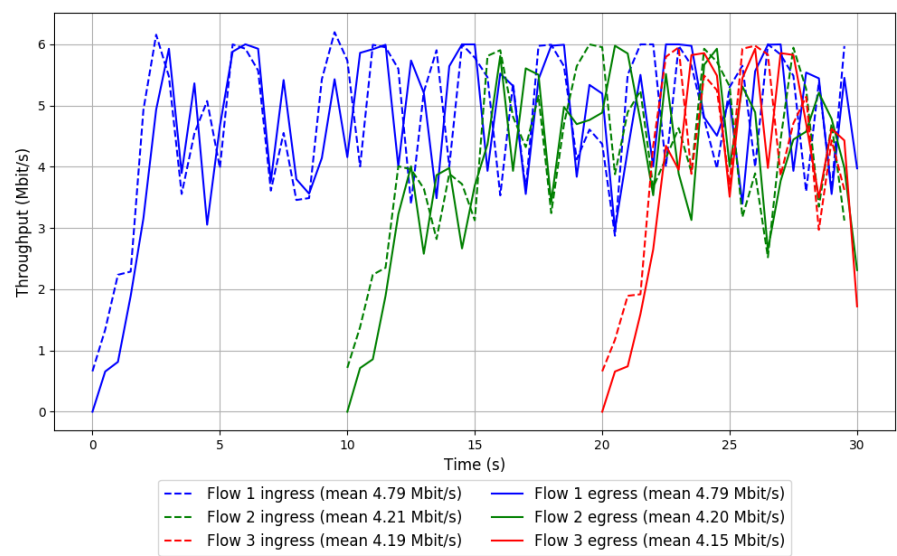
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2018-10-02 18:04:12
End at: 2018-10-02 18:04:42
Local clock offset: -3.026 ms
Remote clock offset: 2.986 ms


# Below is generated by plot.py at 2018-10-02 18:40:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.92 Mbit/s
95th percentile per-packet one-way delay: 85.941 ms
Loss rate: 1.01%
-- Flow 1:
Average throughput: 4.79 Mbit/s
95th percentile per-packet one-way delay: 85.477 ms
Loss rate: 0.70%
-- Flow 2:
Average throughput: 4.20 Mbit/s
95th percentile per-packet one-way delay: 87.142 ms
Loss rate: 0.92%
-- Flow 3:
Average throughput: 4.15 Mbit/s
95th percentile per-packet one-way delay: 85.011 ms
Loss rate: 2.31%
```
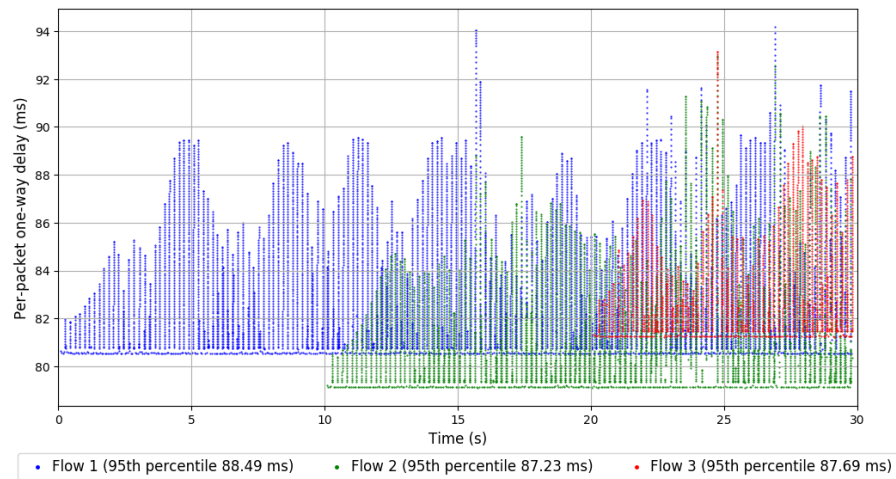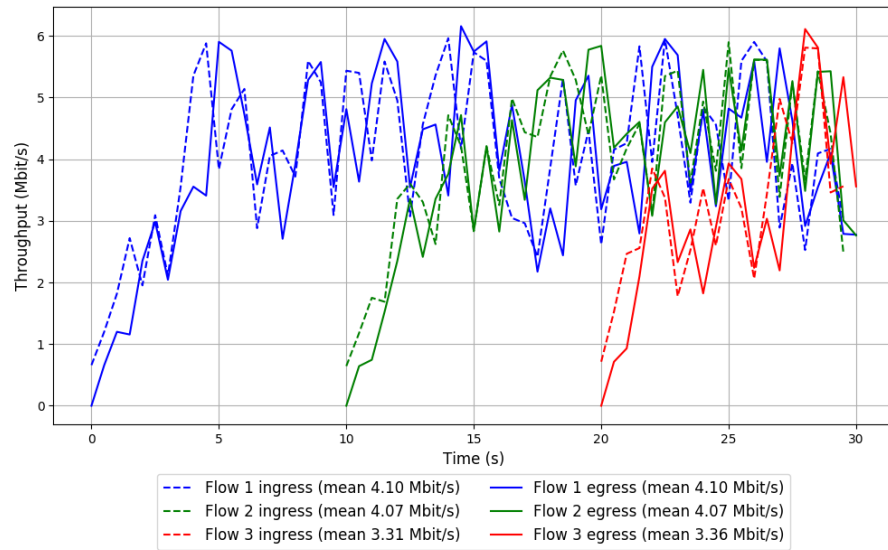
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-10-02 18:27:11
End at: 2018-10-02 18:27:41
Local clock offset: -2.492 ms
Remote clock offset: 1.912 ms


# Below is generated by plot.py at 2018-10-02 18:40:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 7.89 Mbit/s
95th percentile per-packet one-way delay: 88.162 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 4.10 Mbit/s
95th percentile per-packet one-way delay: 88.489 ms
Loss rate: 0.66%
-- Flow 2:
Average throughput: 4.07 Mbit/s
95th percentile per-packet one-way delay: 87.230 ms
Loss rate: 0.70%
-- Flow 3:
Average throughput: 3.36 Mbit/s
95th percentile per-packet one-way delay: 87.691 ms
Loss rate: 0.01%
```
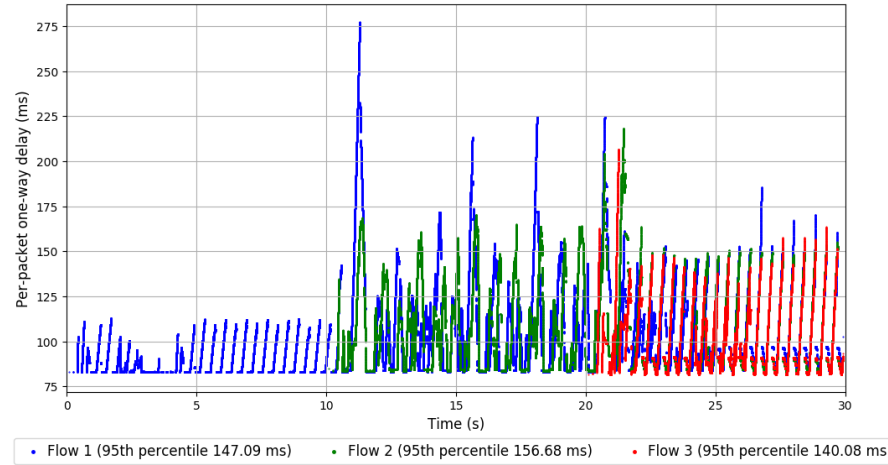
Run 5: Report of Sprout — Data Link

Flow 1 ingress (mean 4.10 Mbit/s) --- Flow 1 egress (mean 4.10 Mbit/s)
Flow 2 ingress (mean 4.07 Mbit/s) --- Flow 2 egress (mean 4.07 Mbit/s)
Flow 3 ingress (mean 3.31 Mbit/s) --- Flow 3 egress (mean 3.36 Mbit/s)

Flow 1 (95th percentile 88.49 ms) Flow 2 (95th percentile 87.23 ms) Flow 3 (95th percentile 87.69 ms)
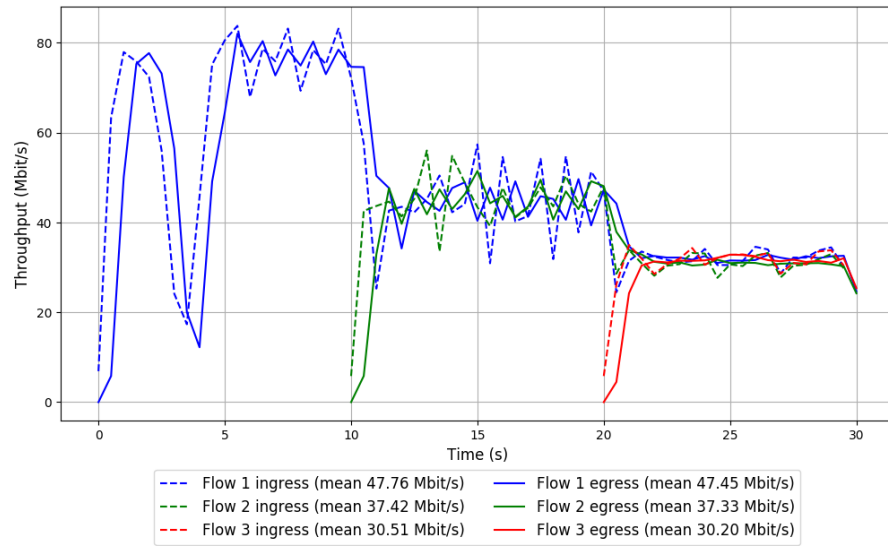
134

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

Start at: 2018-10-02 16:47:08
End at: 2018-10-02 16:47:38
Local clock offset: -5.207 ms
Remote clock offset: -2.169 ms

# Below is generated by plot.py at 2018-10-02 18:41:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 82.18 Mbit/s
95th percentile per-packet one-way delay: 150.091 ms
Loss rate: 1.25%
-- Flow 1:
Average throughput: 47.45 Mbit/s
95th percentile per-packet one-way delay: 147.092 ms
Loss rate: 1.11%
-- Flow 2:
Average throughput: 37.33 Mbit/s
95th percentile per-packet one-way delay: 156.683 ms
Loss rate: 1.05%
-- Flow 3:
Average throughput: 30.20 Mbit/s
95th percentile per-packet one-way delay: 140.078 ms
Loss rate: 2.39%
```

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

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

Start at: 2018-10-02 17:10:41
End at: 2018-10-02 17:11:11
Local clock offset: -4.815 ms
Remote clock offset: 1.148 ms

# Below is generated by plot.py at 2018-10-02 18:41:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.47 Mbit/s
95th percentile per-packet one-way delay: 163.810 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 49.94 Mbit/s
95th percentile per-packet one-way delay: 158.164 ms
Loss rate: 0.34%
-- Flow 2:
Average throughput: 37.72 Mbit/s
95th percentile per-packet one-way delay: 177.375 ms
Loss rate: 0.78%
-- Flow 3:
Average throughput: 28.79 Mbit/s
95th percentile per-packet one-way delay: 147.179 ms
Loss rate: 1.81%
```
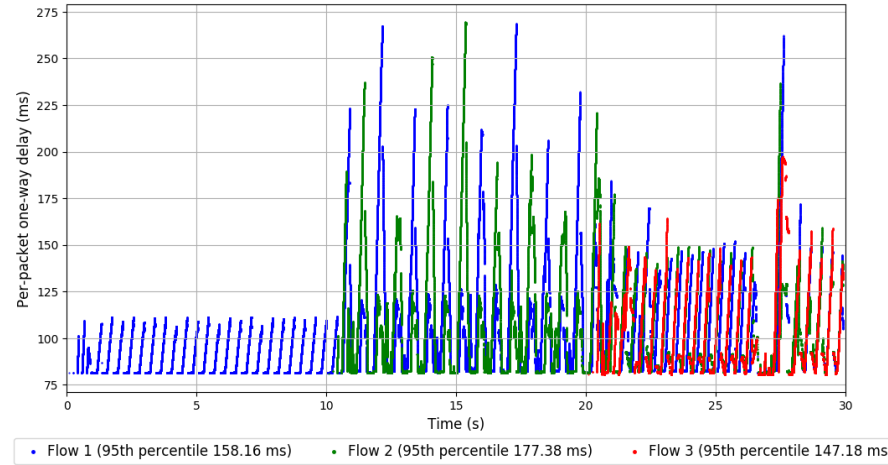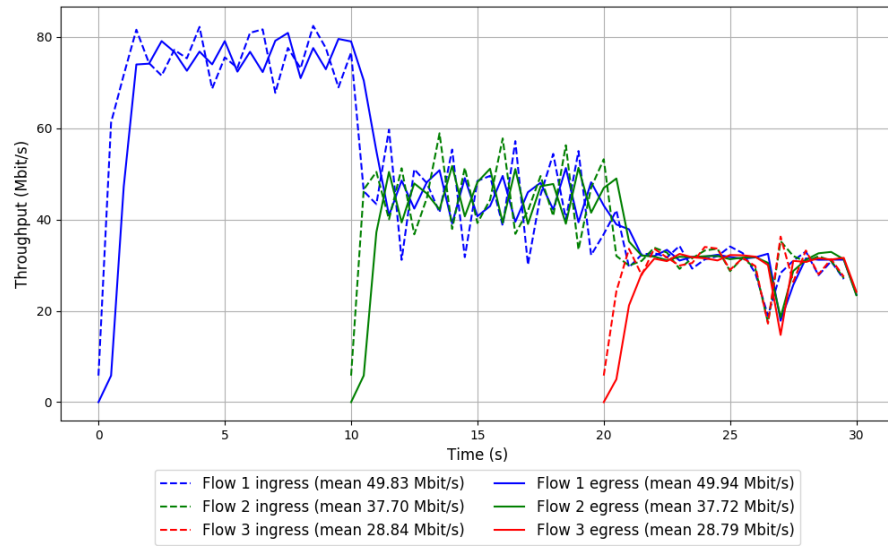
Run 2: Report of TaoVA-100x — Data Link

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

Start at: 2018-10-02 17:34:12
End at: 2018-10-02 17:34:42
Local clock offset: -4.409 ms
Remote clock offset: 1.458 ms

# Below is generated by plot.py at 2018-10-02 18:41:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.50 Mbit/s
95th percentile per-packet one-way delay: 148.663 ms
Loss rate: 1.05%
-- Flow 1:
Average throughput: 48.97 Mbit/s
95th percentile per-packet one-way delay: 145.759 ms
Loss rate: 0.65%
-- Flow 2:
Average throughput: 37.49 Mbit/s
95th percentile per-packet one-way delay: 158.709 ms
Loss rate: 0.74%
-- Flow 3:
Average throughput: 30.97 Mbit/s
95th percentile per-packet one-way delay: 136.648 ms
Loss rate: 3.60%
```
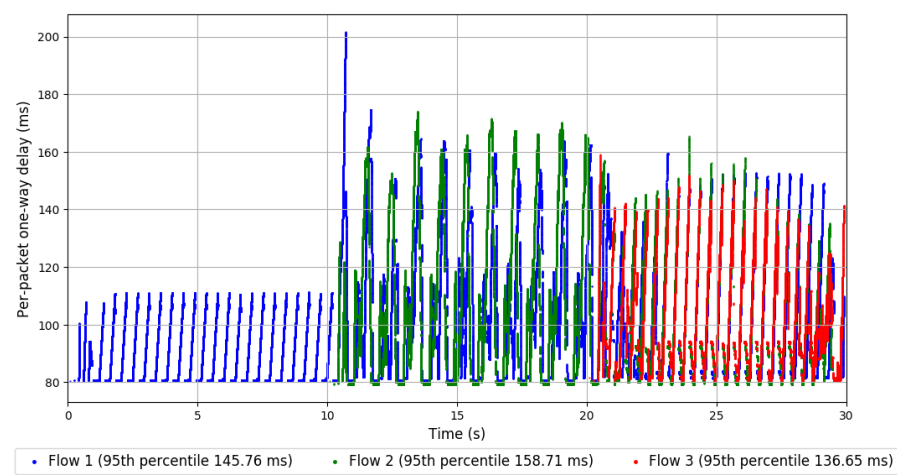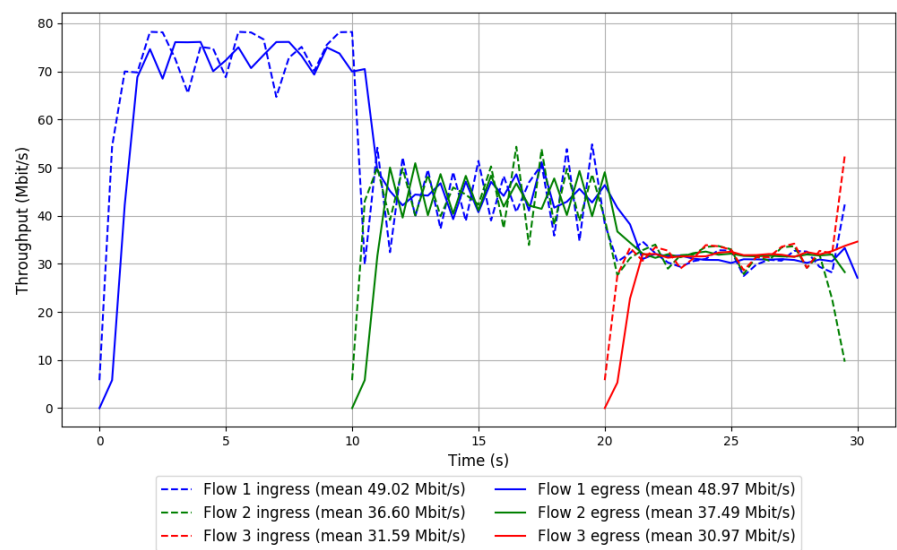
Run 3: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 49.02 Mbit/s) Flow 1 egress (mean 48.97 Mbit/s)
Flow 2 ingress (mean 36.60 Mbit/s) Flow 2 egress (mean 37.49 Mbit/s)
Flow 3 ingress (mean 31.59 Mbit/s) Flow 3 egress (mean 30.97 Mbit/s)

Flow 1 (95th percentile 145.76 ms) Flow 2 (95th percentile 158.71 ms) Flow 3 (95th percentile 136.65 ms)
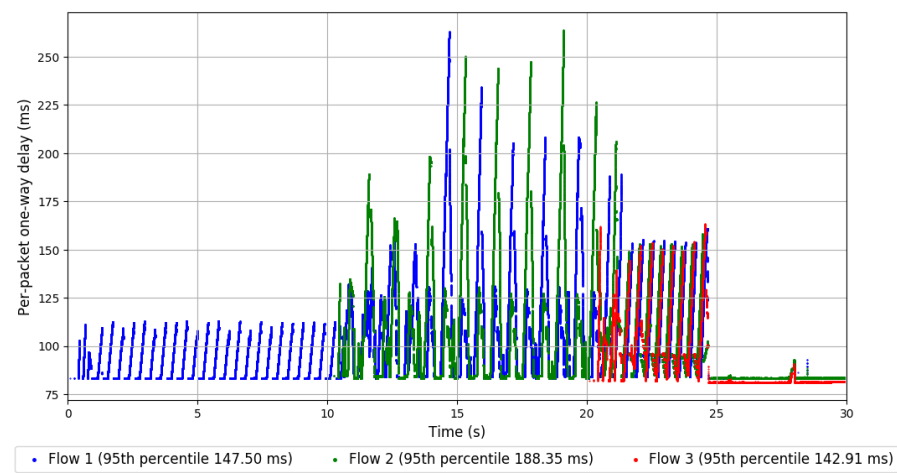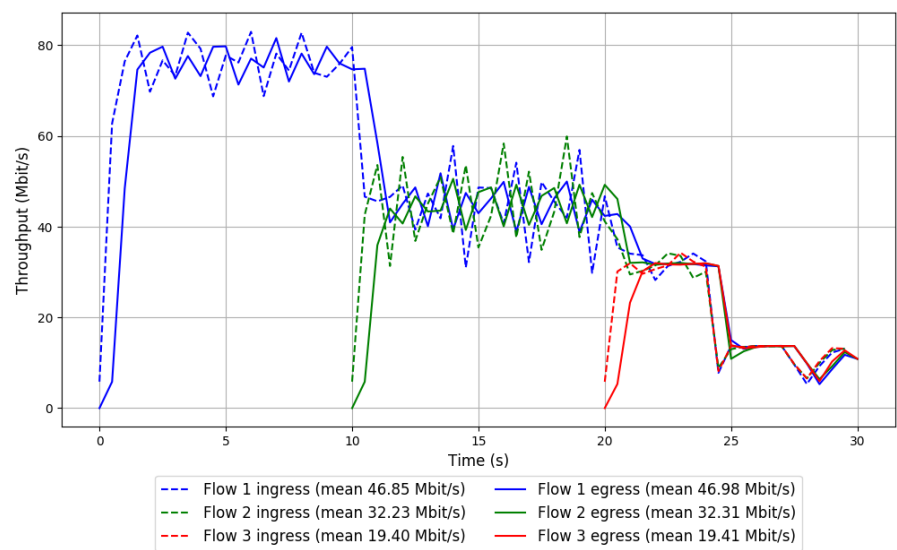
```
Run 4: Statistics of TaoVA-100x

Start at: 2018-10-02 17:57:43
End at: 2018-10-02 17:58:13
Local clock offset: -3.232 ms
Remote clock offset: -1.056 ms


# Below is generated by plot.py at 2018-10-02 18:41:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 74.84 Mbit/s
95th percentile per-packet one-way delay: 160.277 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 46.98 Mbit/s
95th percentile per-packet one-way delay: 147.497 ms
Loss rate: 0.27%
-- Flow 2:
Average throughput: 32.31 Mbit/s
95th percentile per-packet one-way delay: 188.350 ms
Loss rate: 0.58%
-- Flow 3:
Average throughput: 19.41 Mbit/s
95th percentile per-packet one-way delay: 142.909 ms
Loss rate: 1.59%
```

Run 4: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 46.85 Mbit/s) --- Flow 1 egress (mean 46.98 Mbit/s)
Flow 2 ingress (mean 32.23 Mbit/s) --- Flow 2 egress (mean 32.31 Mbit/s)
Flow 3 ingress (mean 19.40 Mbit/s) --- Flow 3 egress (mean 19.41 Mbit/s)

Flow 1 (95th percentile 147.50 ms) · Flow 2 (95th percentile 188.35 ms) · Flow 3 (95th percentile 142.91 ms)

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

Start at: 2018-10-02 18:20:43
End at: 2018-10-02 18:21:13
Local clock offset: -2.564 ms
Remote clock offset: 1.901 ms


# Below is generated by plot.py at 2018-10-02 18:41:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 82.99 Mbit/s
95th percentile per-packet one-way delay: 149.497 ms
Loss rate: 1.28%
-- Flow 1:
Average throughput: 50.57 Mbit/s
95th percentile per-packet one-way delay: 142.566 ms
Loss rate: 0.80%
-- Flow 2:
Average throughput: 34.76 Mbit/s
95th percentile per-packet one-way delay: 156.786 ms
Loss rate: 1.55%
-- Flow 3:
Average throughput: 28.37 Mbit/s
95th percentile per-packet one-way delay: 149.491 ms
Loss rate: 3.17%
```
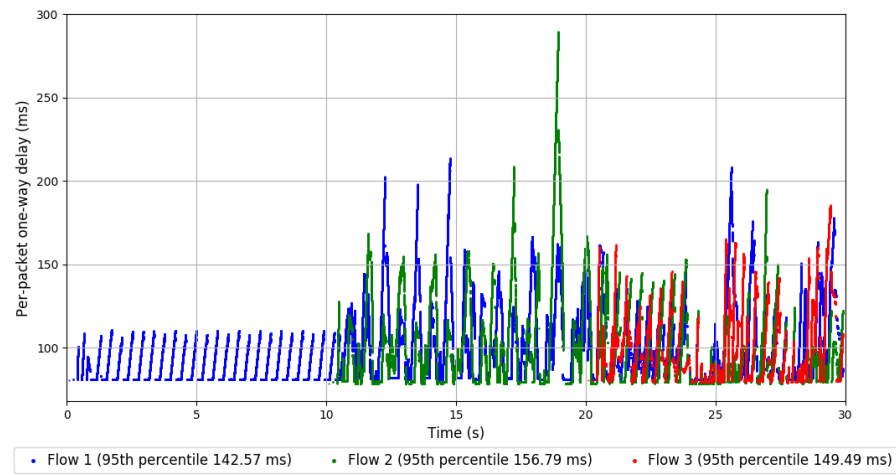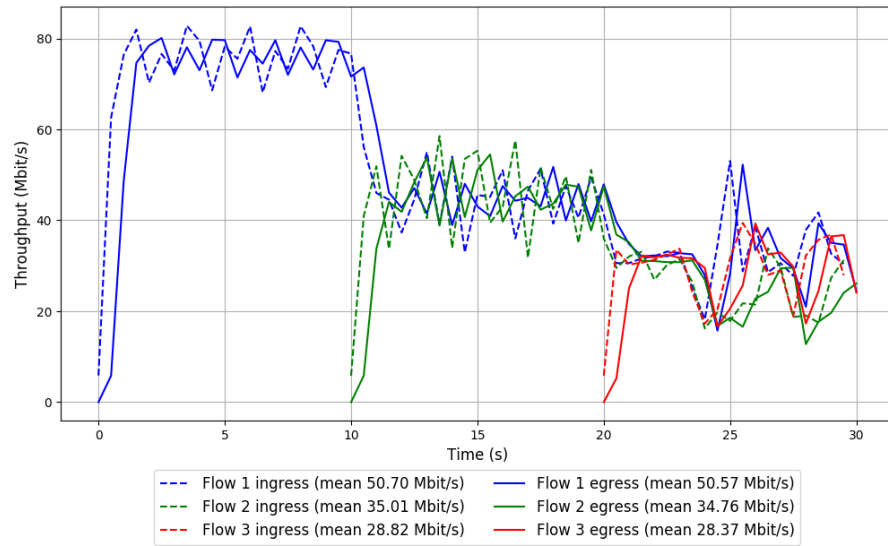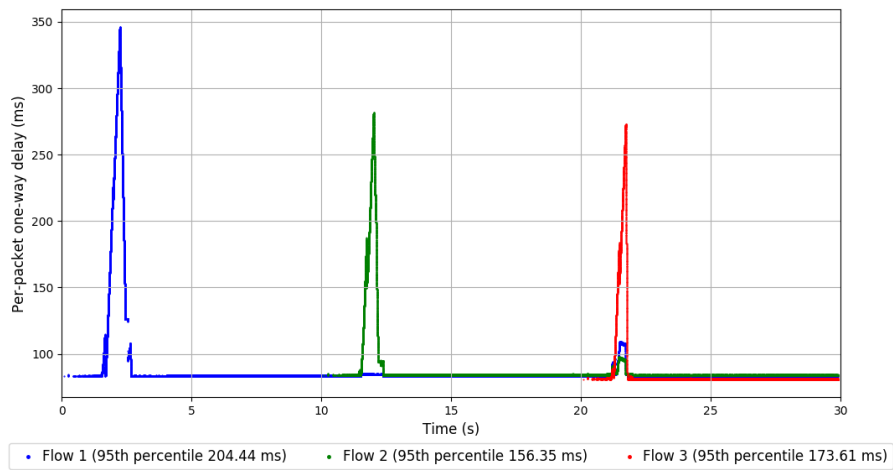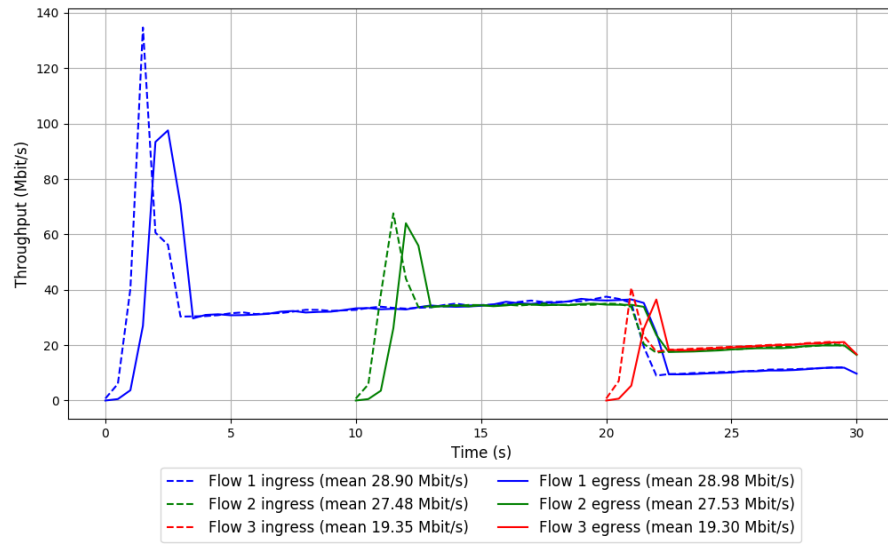
Run 5: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 50.70 Mbit/s) ——— Flow 1 egress (mean 50.57 Mbit/s)
Flow 2 ingress (mean 35.01 Mbit/s) ——— Flow 2 egress (mean 34.76 Mbit/s)
Flow 3 ingress (mean 28.82 Mbit/s) ——— Flow 3 egress (mean 28.37 Mbit/s)

• Flow 1 (95th percentile 142.57 ms)   • Flow 2 (95th percentile 156.79 ms)   • Flow 3 (95th percentile 149.49 ms)

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```
Run 1: Statistics of TCP Vegas

Start at: 2018-10-02 16:34:18
End at: 2018-10-02 16:34:48
Local clock offset: -5.336 ms
Remote clock offset: -2.022 ms


# Below is generated by plot.py at 2018-10-02 18:41:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 53.62 Mbit/s
95th percentile per-packet one-way delay: 177.184 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 28.98 Mbit/s
95th percentile per-packet one-way delay: 204.438 ms
Loss rate: 0.28%
-- Flow 2:
Average throughput: 27.53 Mbit/s
95th percentile per-packet one-way delay: 156.347 ms
Loss rate: 0.66%
-- Flow 3:
Average throughput: 19.30 Mbit/s
95th percentile per-packet one-way delay: 173.607 ms
Loss rate: 1.87%
```

Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-10-02 16:57:29
End at: 2018-10-02 16:57:59
Local clock offset: -4.971 ms
Remote clock offset: 1.973 ms


# Below is generated by plot.py at 2018-10-02 18:41:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 55.57 Mbit/s
95th percentile per-packet one-way delay: 179.268 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 33.39 Mbit/s
95th percentile per-packet one-way delay: 183.433 ms
Loss rate: 0.42%
-- Flow 2:
Average throughput: 22.46 Mbit/s
95th percentile per-packet one-way delay: 181.448 ms
Loss rate: 0.97%
-- Flow 3:
Average throughput: 22.10 Mbit/s
95th percentile per-packet one-way delay: 157.918 ms
Loss rate: 1.85%
```
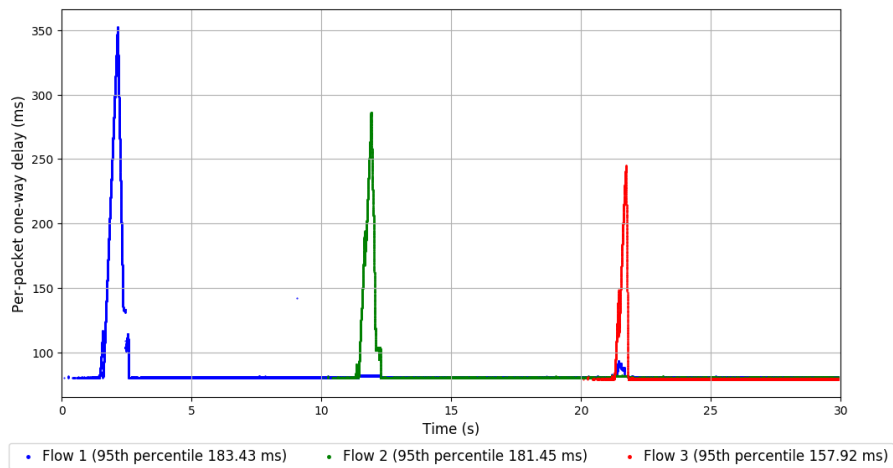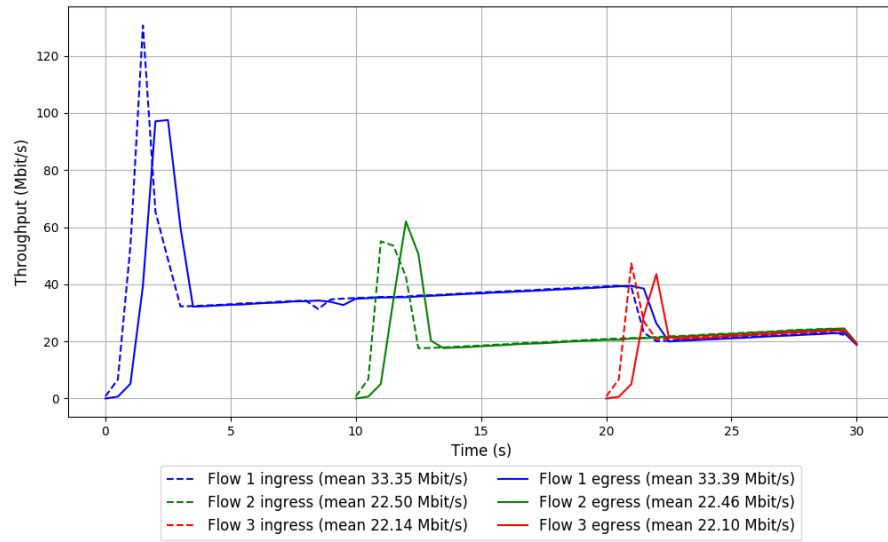
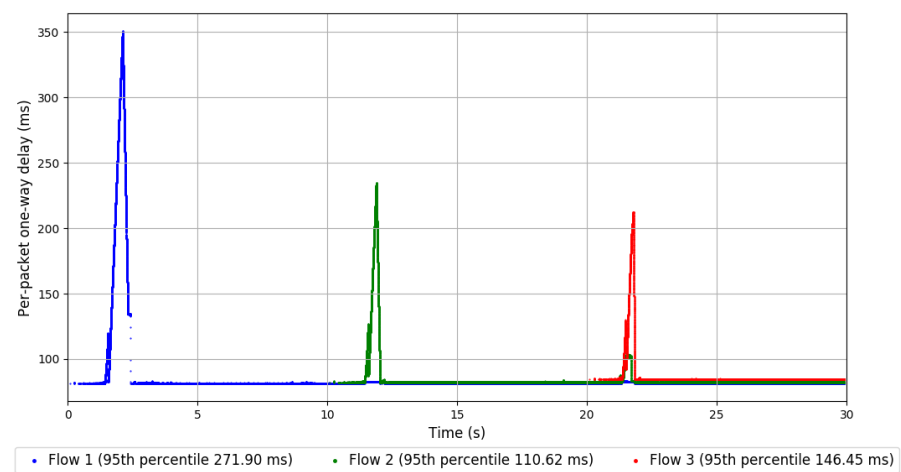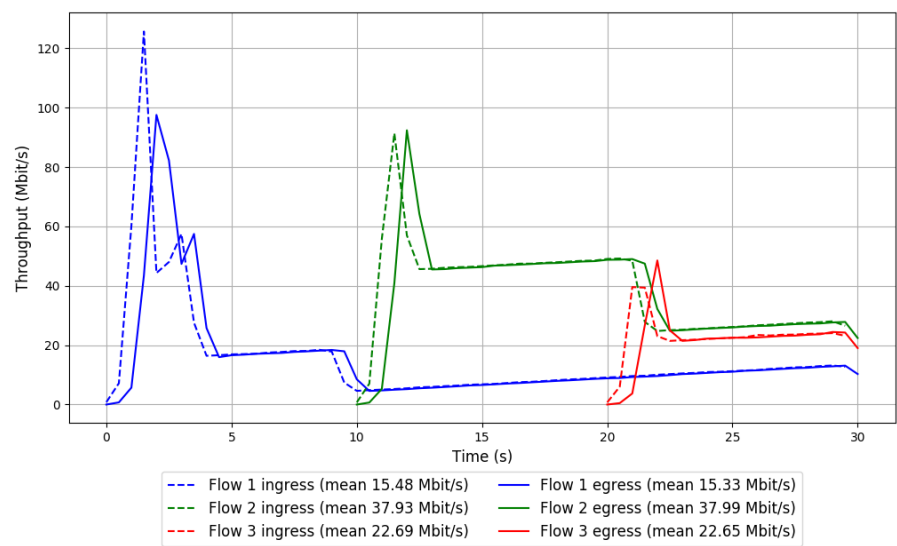Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-10-02 17:21:07
End at: 2018-10-02 17:21:37
Local clock offset: -4.609 ms
Remote clock offset: -1.502 ms


# Below is generated by plot.py at 2018-10-02 18:41:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 48.01 Mbit/s
95th percentile per-packet one-way delay: 180.377 ms
Loss rate: 1.12%
-- Flow 1:
Average throughput: 15.33 Mbit/s
95th percentile per-packet one-way delay: 271.903 ms
Loss rate: 1.49%
-- Flow 2:
Average throughput: 37.99 Mbit/s
95th percentile per-packet one-way delay: 110.622 ms
Loss rate: 0.68%
-- Flow 3:
Average throughput: 22.65 Mbit/s
95th percentile per-packet one-way delay: 146.452 ms
Loss rate: 1.81%
```

Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2018-10-02 17:44:31
End at: 2018-10-02 17:45:01
Local clock offset: -4.203 ms
Remote clock offset: 2.769 ms


# Below is generated by plot.py at 2018-10-02 18:41:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 55.74 Mbit/s
95th percentile per-packet one-way delay: 173.061 ms
Loss rate: 0.75%
-- Flow 1:
Average throughput: 33.98 Mbit/s
95th percentile per-packet one-way delay: 178.802 ms
Loss rate: 0.42%
-- Flow 2:
Average throughput: 22.59 Mbit/s
95th percentile per-packet one-way delay: 178.256 ms
Loss rate: 0.98%
-- Flow 3:
Average throughput: 20.53 Mbit/s
95th percentile per-packet one-way delay: 146.742 ms
Loss rate: 1.91%
```
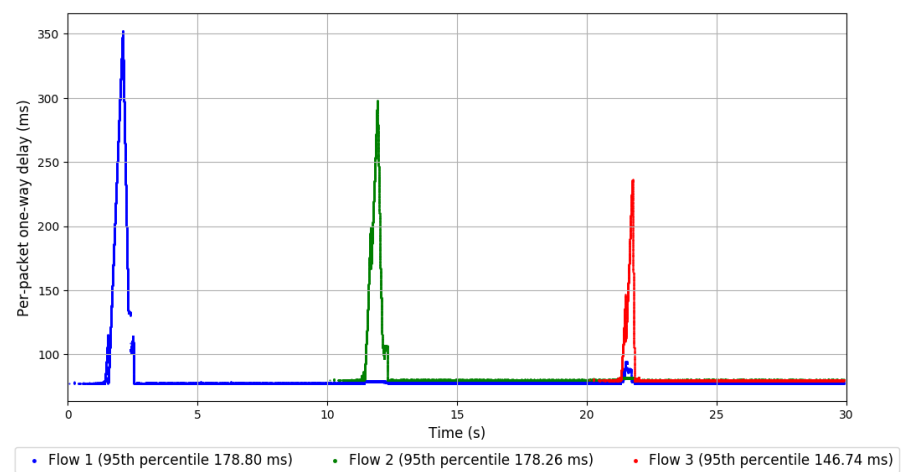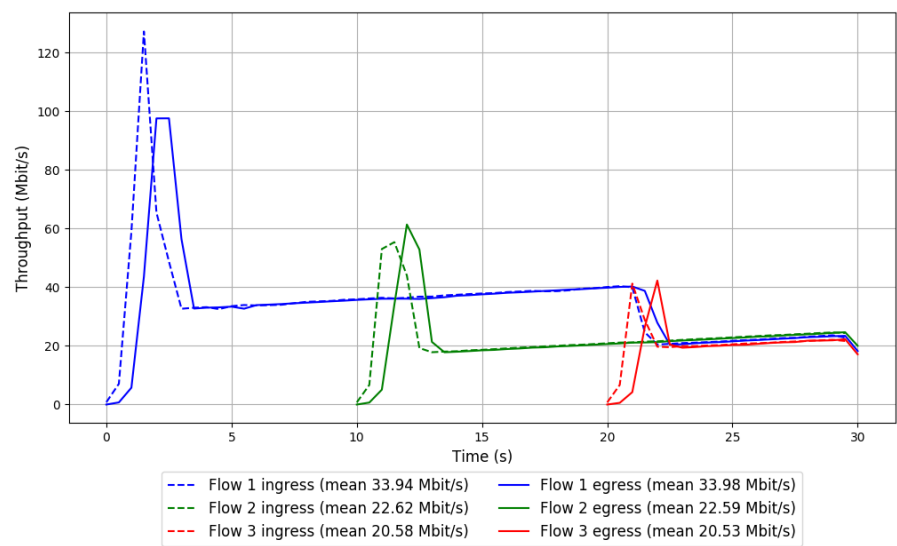
Run 4: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 33.94 Mbit/s) — Flow 1 egress (mean 33.98 Mbit/s)
Flow 2 ingress (mean 22.62 Mbit/s) — Flow 2 egress (mean 22.59 Mbit/s)
Flow 3 ingress (mean 20.58 Mbit/s) — Flow 3 egress (mean 20.53 Mbit/s)

Flow 1 (95th percentile 178.80 ms)   Flow 2 (95th percentile 178.26 ms)   Flow 3 (95th percentile 146.74 ms)

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```
Run 5: Statistics of TCP Vegas

Start at: 2018-10-02 18:07:54
End at: 2018-10-02 18:08:24
Local clock offset: -2.832 ms
Remote clock offset: 1.767 ms


# Below is generated by plot.py at 2018-10-02 18:41:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 47.34 Mbit/s
95th percentile per-packet one-way delay: 208.047 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 24.38 Mbit/s
95th percentile per-packet one-way delay: 229.973 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 15.09 Mbit/s
95th percentile per-packet one-way delay: 212.304 ms
Loss rate: 1.06%
-- Flow 3:
Average throughput: 39.34 Mbit/s
95th percentile per-packet one-way delay: 172.730 ms
Loss rate: 1.81%
```
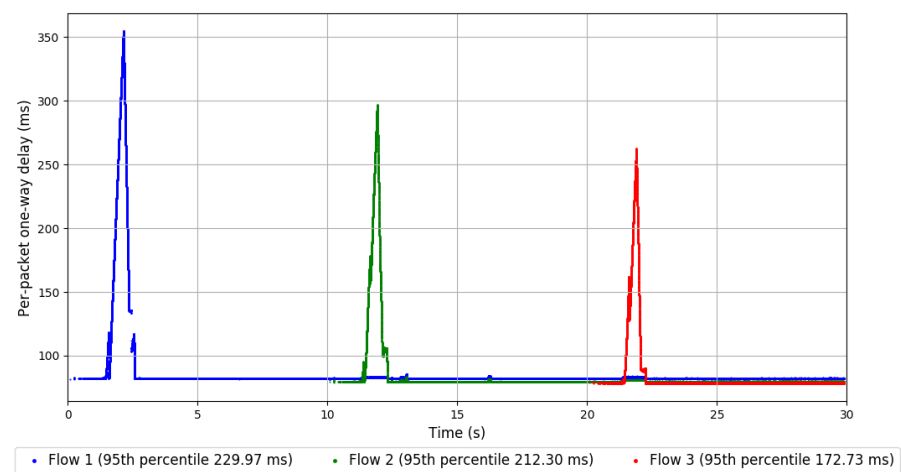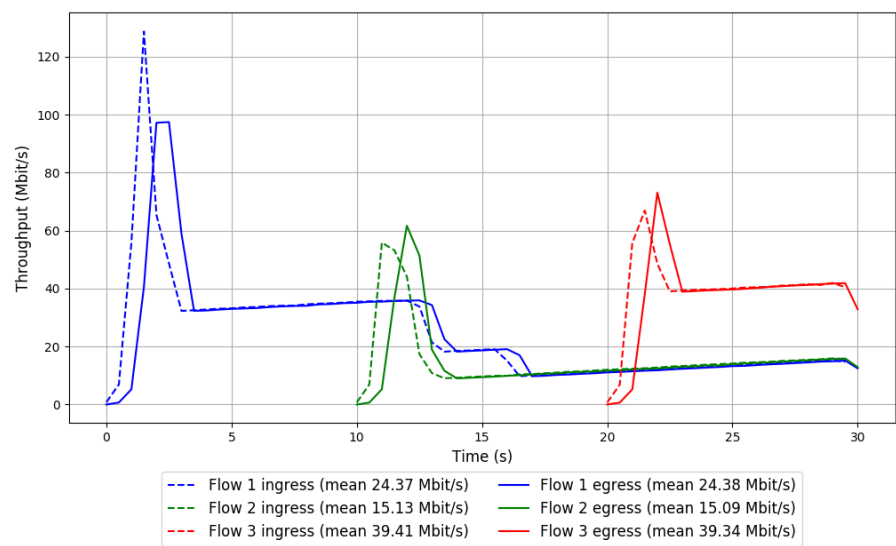
Run 5: Report of TCP Vegas — Data Link

- - - Flow 1 ingress (mean 24.37 Mbit/s) —— Flow 1 egress (mean 24.38 Mbit/s)
- - - Flow 2 ingress (mean 15.13 Mbit/s) —— Flow 2 egress (mean 15.09 Mbit/s)
- - - Flow 3 ingress (mean 39.41 Mbit/s) —— Flow 3 egress (mean 39.34 Mbit/s)

• Flow 1 (95th percentile 229.97 ms)   • Flow 2 (95th percentile 212.30 ms)   • Flow 3 (95th percentile 172.73 ms)

154

```
Run 1: Statistics of Verus

Start at: 2018-10-02 16:44:33
End at: 2018-10-02 16:45:03
Local clock offset: -5.163 ms
Remote clock offset: 0.789 ms


# Below is generated by plot.py at 2018-10-02 18:41:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 77.35 Mbit/s
95th percentile per-packet one-way delay: 309.790 ms
Loss rate: 1.02%
-- Flow 1:
Average throughput: 51.97 Mbit/s
95th percentile per-packet one-way delay: 292.302 ms
Loss rate: 0.77%
-- Flow 2:
Average throughput: 25.75 Mbit/s
95th percentile per-packet one-way delay: 348.985 ms
Loss rate: 0.38%
-- Flow 3:
Average throughput: 25.24 Mbit/s
95th percentile per-packet one-way delay: 308.967 ms
Loss rate: 3.84%
```
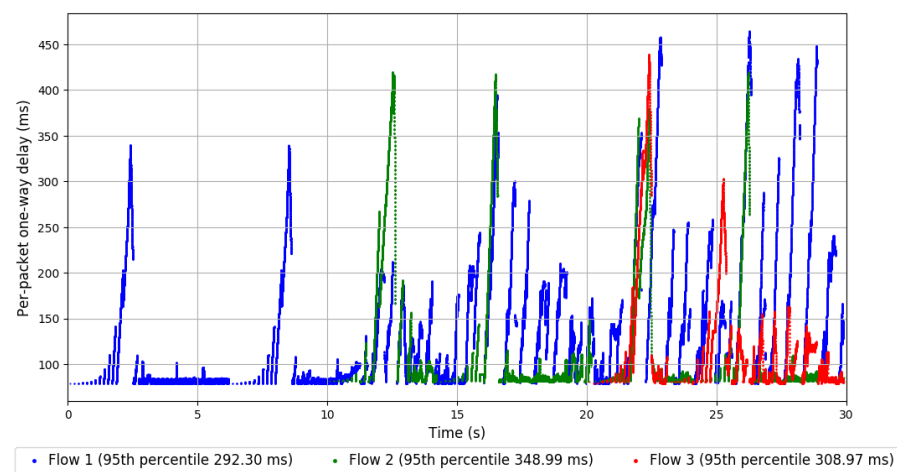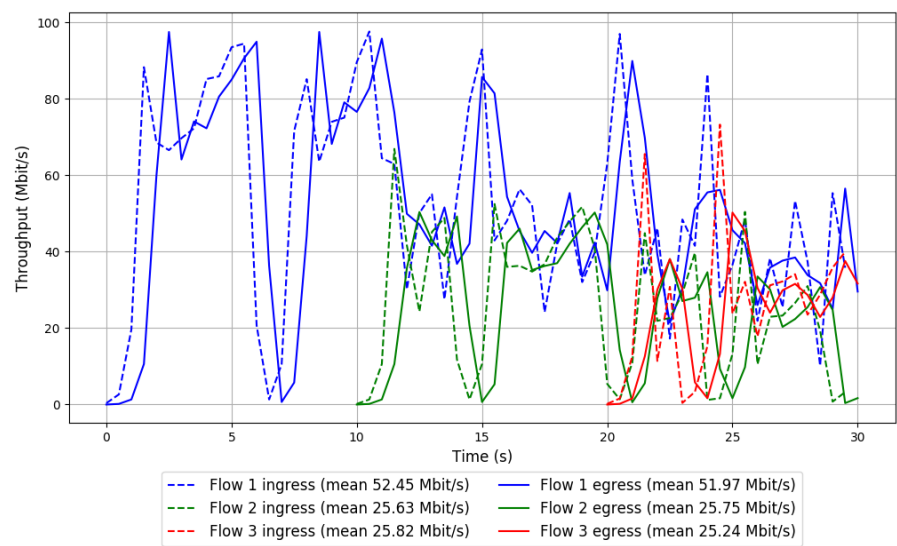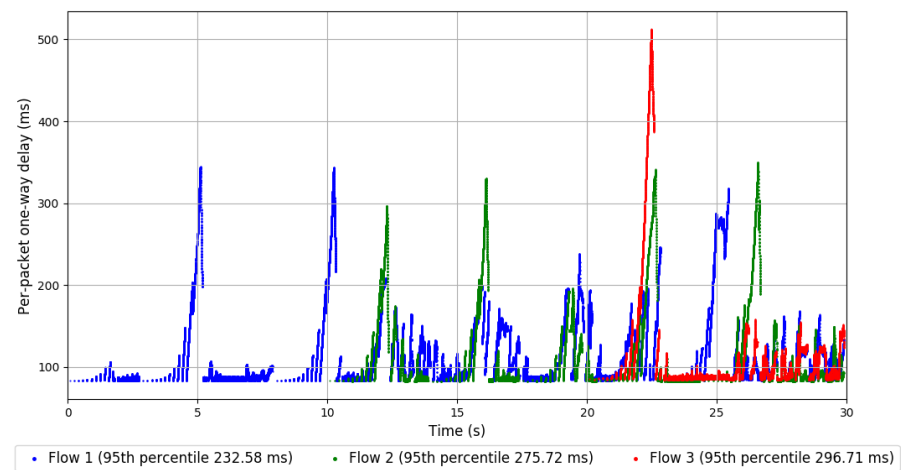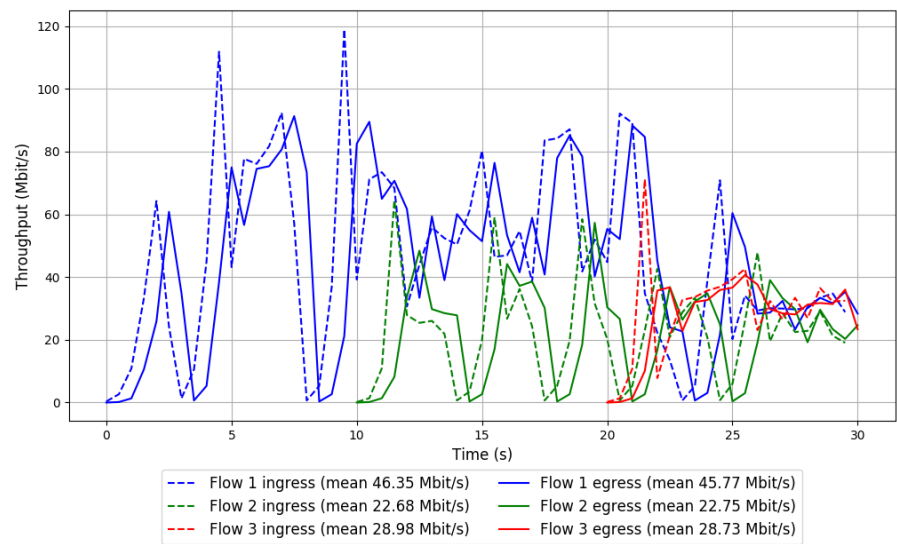
Run 1: Report of Verus — Data Link

Flow 1 ingress (mean 52.45 Mbit/s) --- Flow 1 egress (mean 51.97 Mbit/s)
Flow 2 ingress (mean 25.63 Mbit/s) --- Flow 2 egress (mean 25.75 Mbit/s)
Flow 3 ingress (mean 25.82 Mbit/s) --- Flow 3 egress (mean 25.24 Mbit/s)

Flow 1 (95th percentile 292.30 ms)   Flow 2 (95th percentile 348.99 ms)   Flow 3 (95th percentile 308.97 ms)

```
Run 2: Statistics of Verus

Start at: 2018-10-02 17:08:06
End at: 2018-10-02 17:08:36
Local clock offset: -4.824 ms
Remote clock offset: -1.797 ms


# Below is generated by plot.py at 2018-10-02 18:41:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 70.30 Mbit/s
95th percentile per-packet one-way delay: 252.658 ms
Loss rate: 1.36%
-- Flow 1:
Average throughput: 45.77 Mbit/s
95th percentile per-packet one-way delay: 232.578 ms
Loss rate: 1.46%
-- Flow 2:
Average throughput: 22.75 Mbit/s
95th percentile per-packet one-way delay: 275.724 ms
Loss rate: 0.34%
-- Flow 3:
Average throughput: 28.73 Mbit/s
95th percentile per-packet one-way delay: 296.713 ms
Loss rate: 2.50%
```

Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-10-02 17:31:35
End at: 2018-10-02 17:32:05
Local clock offset: -4.383 ms
Remote clock offset: 2.672 ms


# Below is generated by plot.py at 2018-10-02 18:42:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 76.57 Mbit/s
95th percentile per-packet one-way delay: 265.783 ms
Loss rate: 1.42%
-- Flow 1:
Average throughput: 48.22 Mbit/s
95th percentile per-packet one-way delay: 271.413 ms
Loss rate: 0.99%
-- Flow 2:
Average throughput: 35.37 Mbit/s
95th percentile per-packet one-way delay: 255.650 ms
Loss rate: 1.65%
-- Flow 3:
Average throughput: 14.87 Mbit/s
95th percentile per-packet one-way delay: 289.061 ms
Loss rate: 4.35%
```
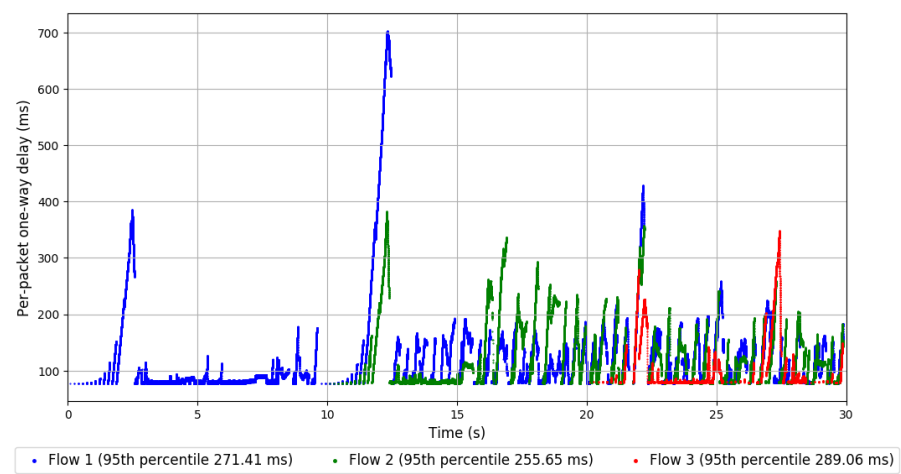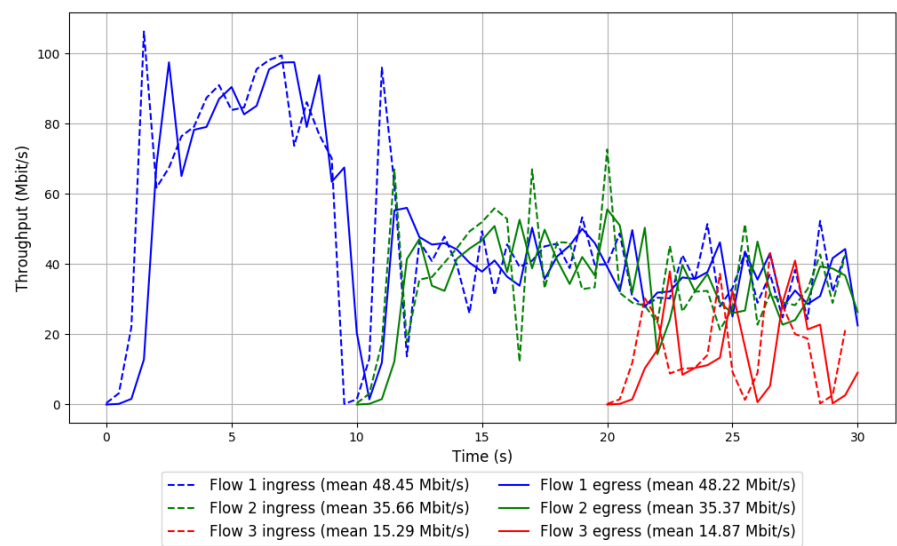
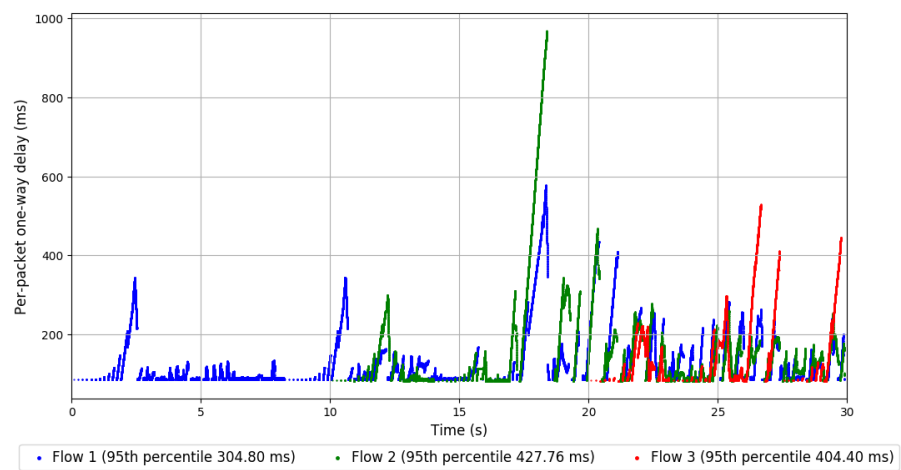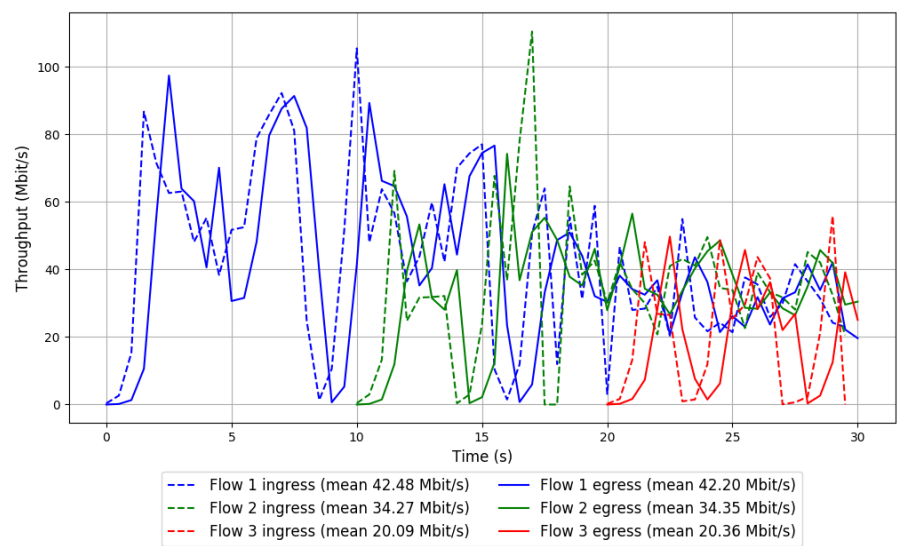Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-10-02 17:55:06
End at: 2018-10-02 17:55:36
Local clock offset: -3.382 ms
Remote clock offset: -2.181 ms


# Below is generated by plot.py at 2018-10-02 18:42:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 71.63 Mbit/s
95th percentile per-packet one-way delay: 343.757 ms
Loss rate: 0.94%
-- Flow 1:
Average throughput: 42.20 Mbit/s
95th percentile per-packet one-way delay: 304.797 ms
Loss rate: 1.20%
-- Flow 2:
Average throughput: 34.35 Mbit/s
95th percentile per-packet one-way delay: 427.764 ms
Loss rate: 0.60%
-- Flow 3:
Average throughput: 20.36 Mbit/s
95th percentile per-packet one-way delay: 404.396 ms
Loss rate: 0.45%
```

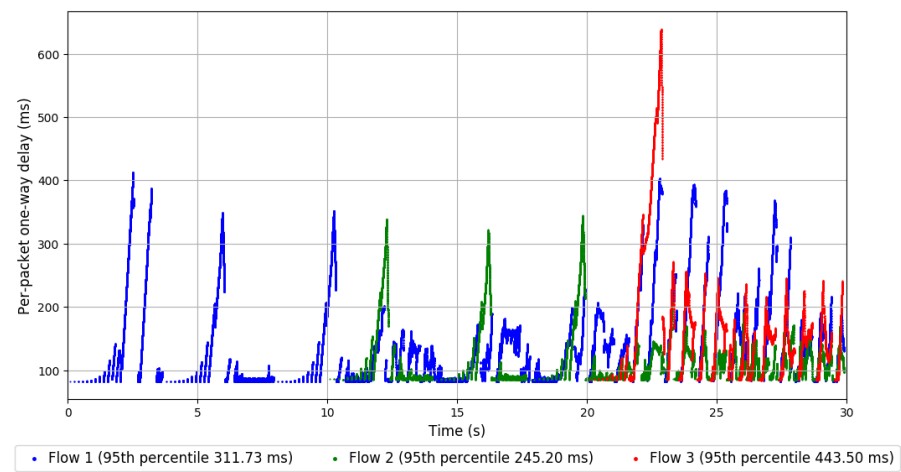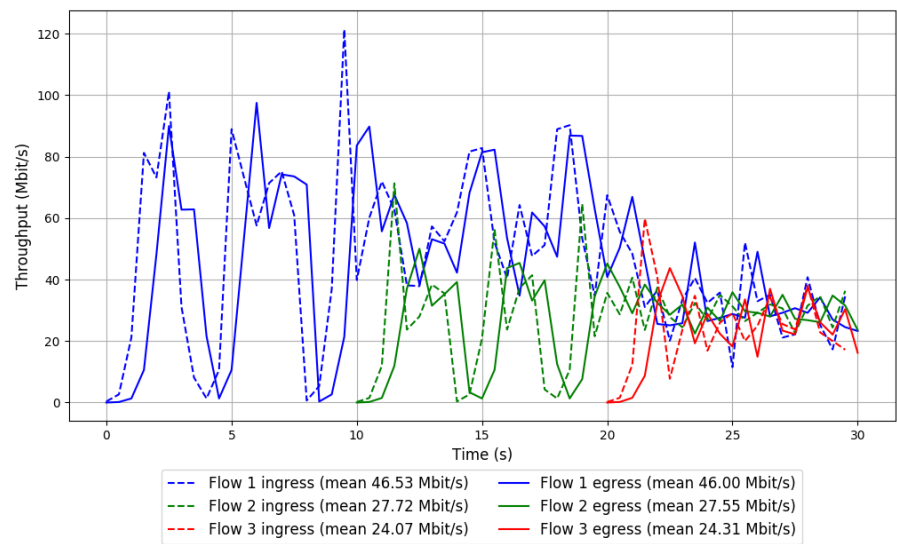Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-10-02 18:18:09
End at: 2018-10-02 18:18:39
Local clock offset: -2.582 ms
Remote clock offset: -1.865 ms


# Below is generated by plot.py at 2018-10-02 18:42:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 72.22 Mbit/s
95th percentile per-packet one-way delay: 305.836 ms
Loss rate: 1.50%
-- Flow 1:
Average throughput: 46.00 Mbit/s
95th percentile per-packet one-way delay: 311.732 ms
Loss rate: 1.55%
-- Flow 2:
Average throughput: 27.55 Mbit/s
95th percentile per-packet one-way delay: 245.197 ms
Loss rate: 1.45%
-- Flow 3:
Average throughput: 24.31 Mbit/s
95th percentile per-packet one-way delay: 443.495 ms
Loss rate: 1.27%
```
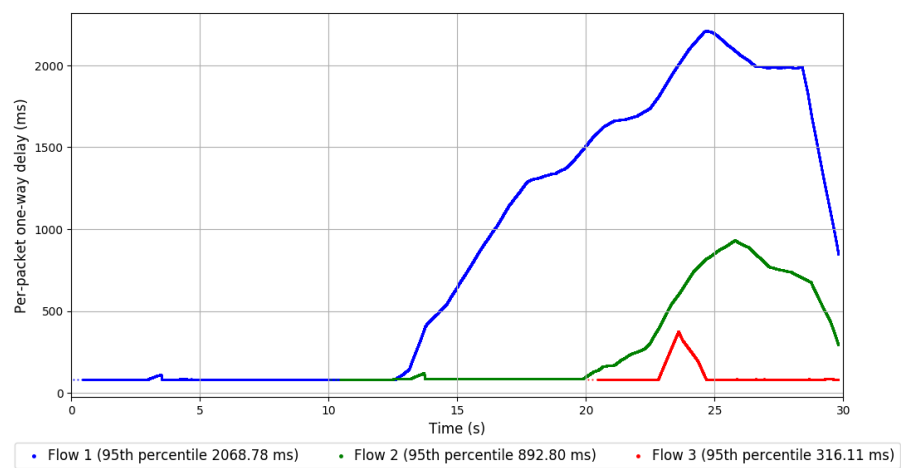
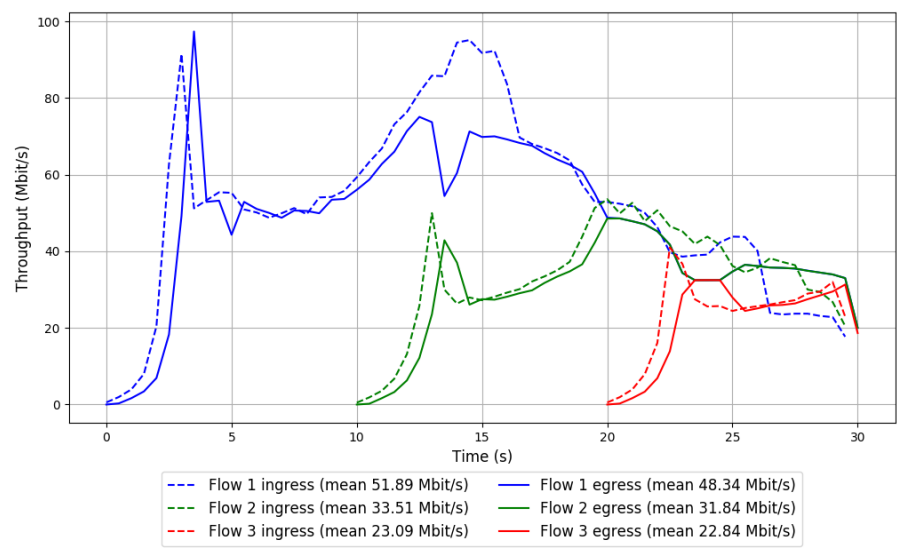## Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-10-02 16:51:06
End at: 2018-10-02 16:51:36
Local clock offset: -5.121 ms
Remote clock offset: -3.188 ms


# Below is generated by plot.py at 2018-10-02 18:42:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 76.92 Mbit/s
95th percentile per-packet one-way delay: 1992.294 ms
Loss rate: 6.50%
-- Flow 1:
Average throughput: 48.34 Mbit/s
95th percentile per-packet one-way delay: 2068.777 ms
Loss rate: 7.36%
-- Flow 2:
Average throughput: 31.84 Mbit/s
95th percentile per-packet one-way delay: 892.804 ms
Loss rate: 5.79%
-- Flow 3:
Average throughput: 22.84 Mbit/s
95th percentile per-packet one-way delay: 316.107 ms
Loss rate: 2.71%
```

Run 1: Report of PCC-Vivace — Data Link

- - - Flow 1 ingress (mean 51.89 Mbit/s) —— Flow 1 egress (mean 48.34 Mbit/s)
- - - Flow 2 ingress (mean 33.51 Mbit/s) —— Flow 2 egress (mean 31.84 Mbit/s)
- - - Flow 3 ingress (mean 23.09 Mbit/s) —— Flow 3 egress (mean 22.84 Mbit/s)

• Flow 1 (95th percentile 2068.78 ms)   • Flow 2 (95th percentile 892.80 ms)   • Flow 3 (95th percentile 316.11 ms)

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-10-02 17:14:53
End at: 2018-10-02 17:15:23
Local clock offset: -4.758 ms
Remote clock offset: 2.258 ms


# Below is generated by plot.py at 2018-10-02 18:42:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 75.40 Mbit/s
95th percentile per-packet one-way delay: 606.477 ms
Loss rate: 2.78%
-- Flow 1:
Average throughput: 50.15 Mbit/s
95th percentile per-packet one-way delay: 616.026 ms
Loss rate: 2.69%
-- Flow 2:
Average throughput: 26.41 Mbit/s
95th percentile per-packet one-way delay: 98.138 ms
Loss rate: 2.60%
-- Flow 3:
Average throughput: 23.65 Mbit/s
95th percentile per-packet one-way delay: 271.905 ms
Loss rate: 3.77%
```
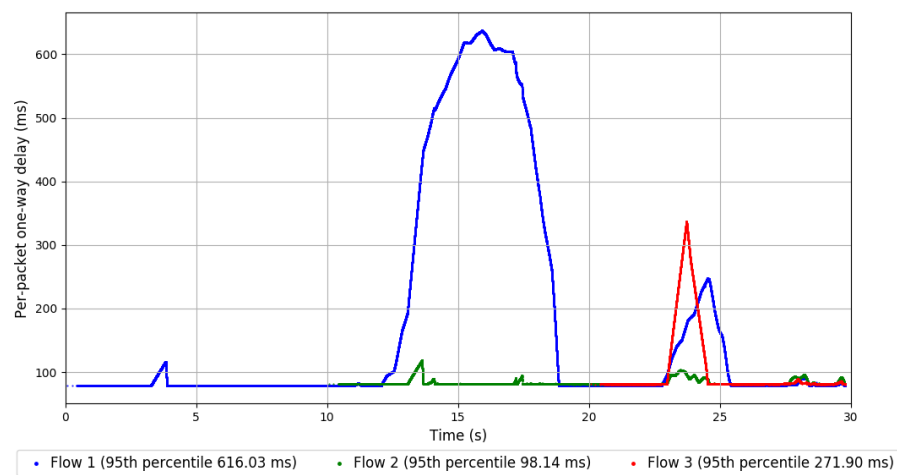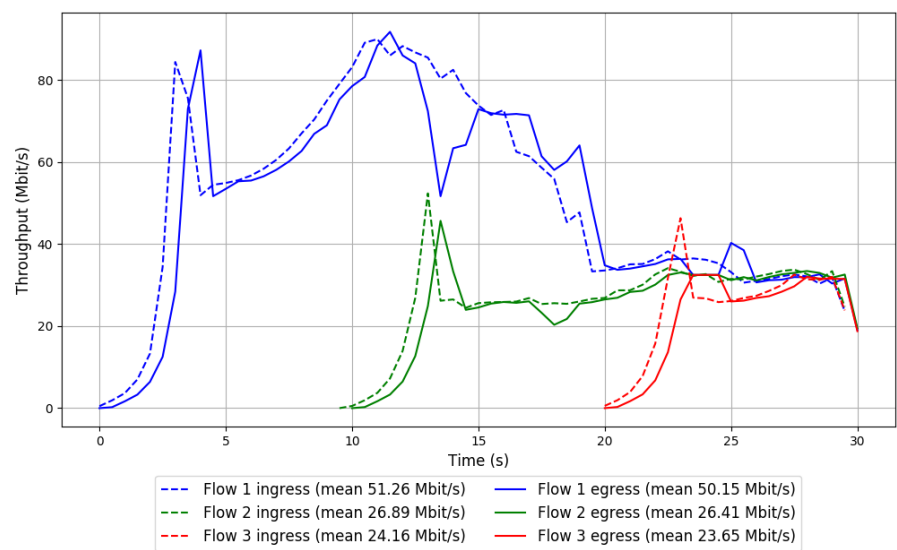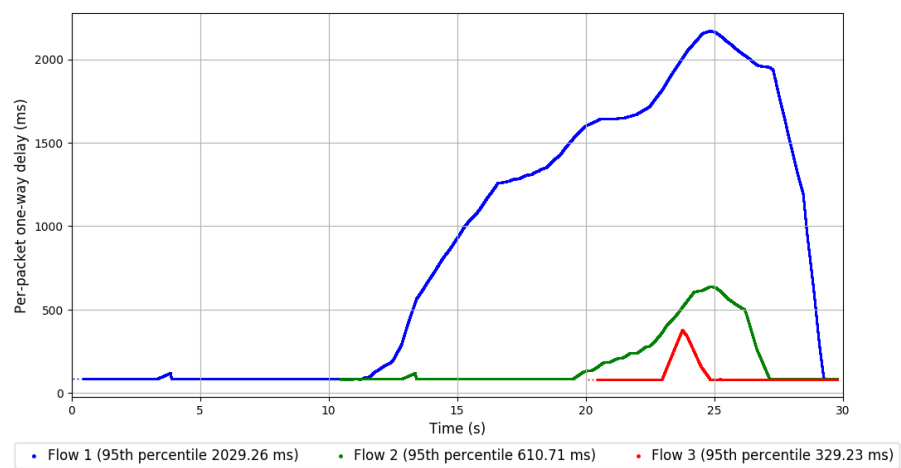
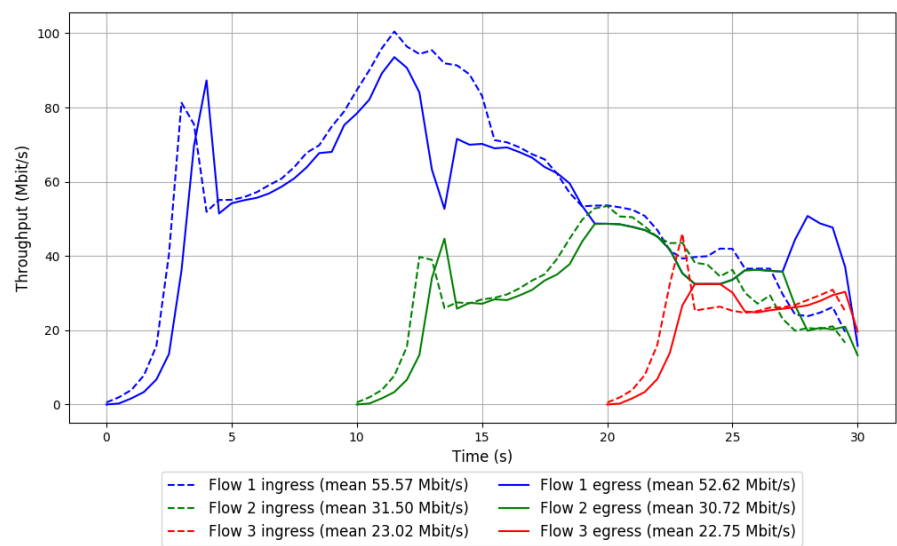## Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-10-02 17:38:16
End at: 2018-10-02 17:38:46
Local clock offset: -4.284 ms
Remote clock offset: -1.205 ms


# Below is generated by plot.py at 2018-10-02 18:42:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 80.43 Mbit/s
95th percentile per-packet one-way delay: 1956.265 ms
Loss rate: 4.92%
-- Flow 1:
Average throughput: 52.62 Mbit/s
95th percentile per-packet one-way delay: 2029.262 ms
Loss rate: 5.83%
-- Flow 2:
Average throughput: 30.72 Mbit/s
95th percentile per-packet one-way delay: 610.709 ms
Loss rate: 3.26%
-- Flow 3:
Average throughput: 22.75 Mbit/s
95th percentile per-packet one-way delay: 329.233 ms
Loss rate: 2.83%
```

Run 3: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 55.57 Mbit/s)   Flow 1 egress (mean 52.62 Mbit/s)
Flow 2 ingress (mean 31.50 Mbit/s)   Flow 2 egress (mean 30.72 Mbit/s)
Flow 3 ingress (mean 23.02 Mbit/s)   Flow 3 egress (mean 22.75 Mbit/s)

Flow 1 (95th percentile 2029.26 ms)   Flow 2 (95th percentile 610.71 ms)   Flow 3 (95th percentile 329.23 ms)
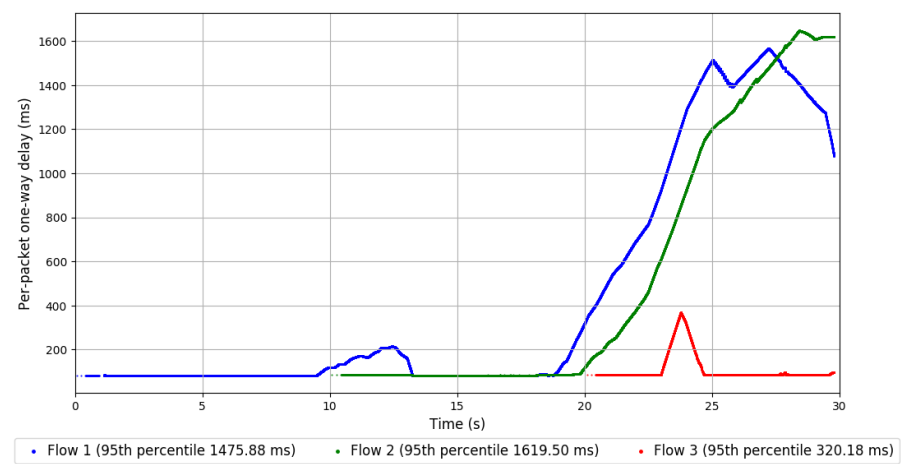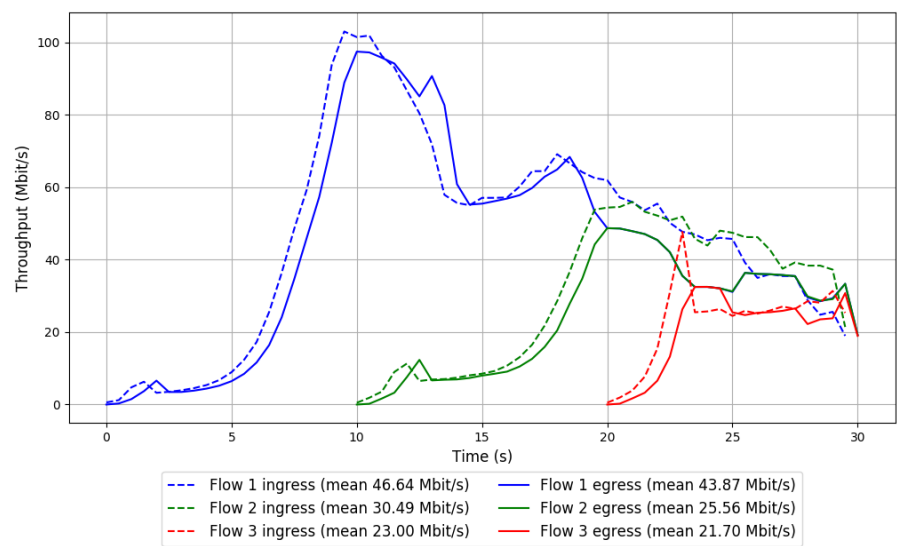
```
Run 4: Statistics of PCC-Vivace

Start at: 2018-10-02 18:01:43
End at: 2018-10-02 18:02:13
Local clock offset: -3.06 ms
Remote clock offset: -0.998 ms


# Below is generated by plot.py at 2018-10-02 18:42:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 67.91 Mbit/s
95th percentile per-packet one-way delay: 1512.942 ms
Loss rate: 9.35%
-- Flow 1:
Average throughput: 43.87 Mbit/s
95th percentile per-packet one-way delay: 1475.879 ms
Loss rate: 6.44%
-- Flow 2:
Average throughput: 25.56 Mbit/s
95th percentile per-packet one-way delay: 1619.497 ms
Loss rate: 16.86%
-- Flow 3:
Average throughput: 21.70 Mbit/s
95th percentile per-packet one-way delay: 320.181 ms
Loss rate: 7.24%
```

Run 4: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 46.64 Mbit/s) — — — Flow 1 egress (mean 43.87 Mbit/s)
Flow 2 ingress (mean 30.49 Mbit/s) — — — Flow 2 egress (mean 25.56 Mbit/s)
Flow 3 ingress (mean 23.00 Mbit/s) — — — Flow 3 egress (mean 21.70 Mbit/s)

Flow 1 (95th percentile 1475.88 ms)   Flow 2 (95th percentile 1619.50 ms)   Flow 3 (95th percentile 320.18 ms)
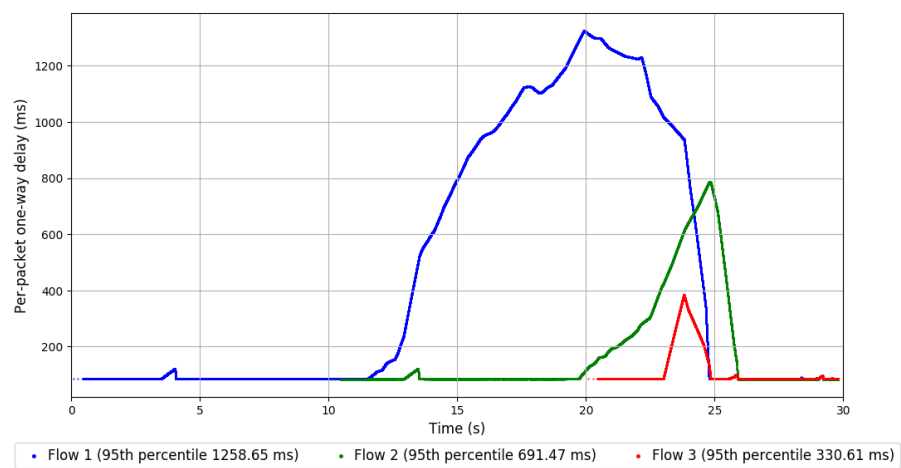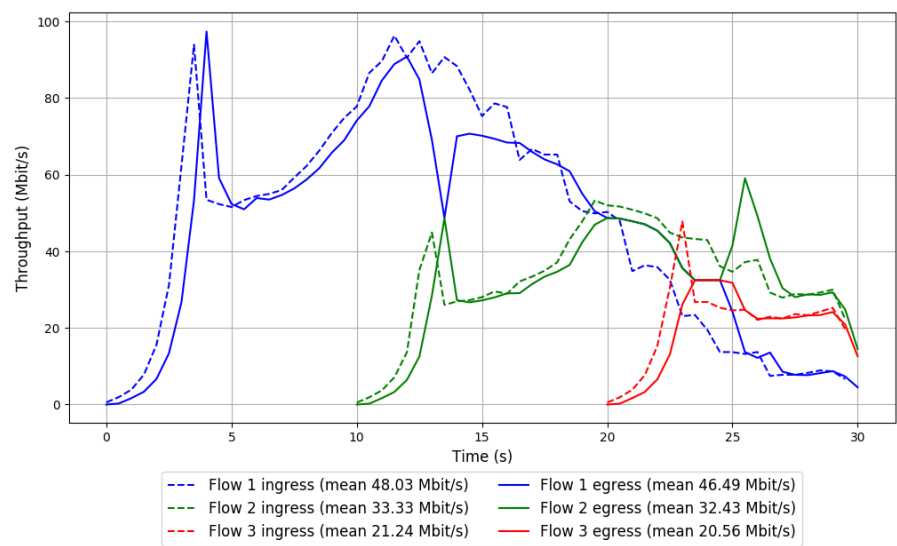
172

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-10-02 18:24:41
End at: 2018-10-02 18:25:11
Local clock offset: -2.586 ms
Remote clock offset: -2.115 ms


# Below is generated by plot.py at 2018-10-02 18:42:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 74.73 Mbit/s
95th percentile per-packet one-way delay: 1230.451 ms
Loss rate: 3.76%
-- Flow 1:
Average throughput: 46.49 Mbit/s
95th percentile per-packet one-way delay: 1258.647 ms
Loss rate: 3.73%
-- Flow 2:
Average throughput: 32.43 Mbit/s
95th percentile per-packet one-way delay: 691.470 ms
Loss rate: 3.50%
-- Flow 3:
Average throughput: 20.56 Mbit/s
95th percentile per-packet one-way delay: 330.606 ms
Loss rate: 4.83%
```

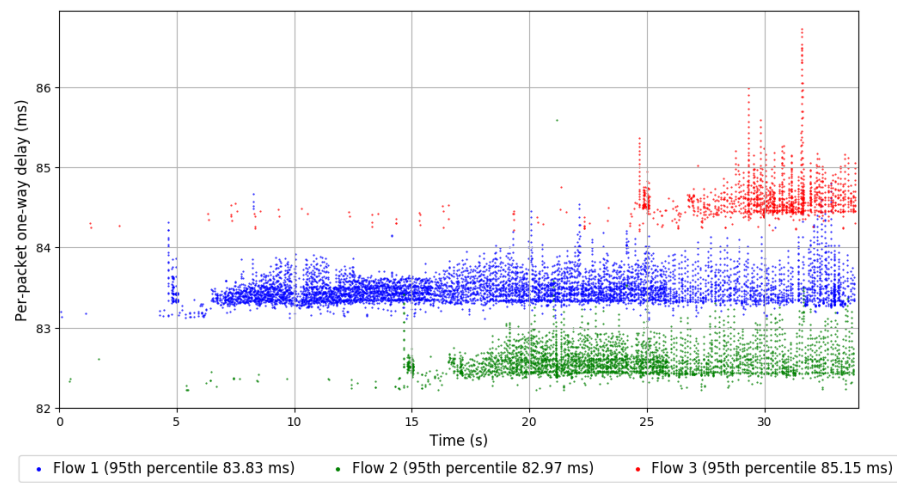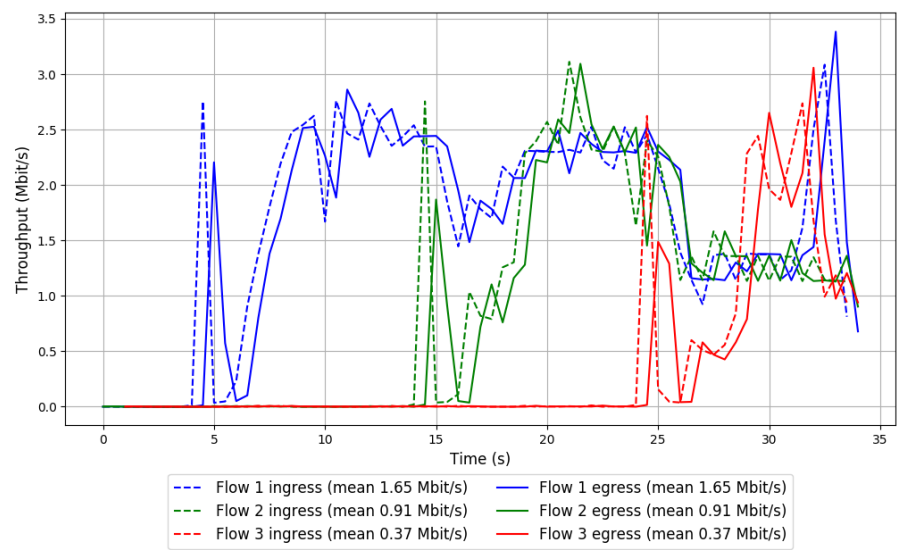## Run 5: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 48.03 Mbit/s) --- Flow 1 egress (mean 46.49 Mbit/s)
Flow 2 ingress (mean 33.33 Mbit/s) --- Flow 2 egress (mean 32.43 Mbit/s)
Flow 3 ingress (mean 21.24 Mbit/s) --- Flow 3 egress (mean 20.56 Mbit/s)

Flow 1 (95th percentile 1258.65 ms)   Flow 2 (95th percentile 691.47 ms)   Flow 3 (95th percentile 330.61 ms)

```
Run 1: Statistics of WebRTC media

Start at: 2018-10-02 16:56:15
End at: 2018-10-02 16:56:45
Local clock offset: -4.992 ms
Remote clock offset: -3.086 ms


# Below is generated by plot.py at 2018-10-02 18:42:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.91 Mbit/s
95th percentile per-packet one-way delay: 84.620 ms
Loss rate: 0.55%
-- Flow 1:
Average throughput: 1.65 Mbit/s
95th percentile per-packet one-way delay: 83.835 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 0.91 Mbit/s
95th percentile per-packet one-way delay: 82.971 ms
Loss rate: 0.74%
-- Flow 3:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 85.154 ms
Loss rate: 0.96%
```

Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-10-02 17:19:55
End at: 2018-10-02 17:20:25
Local clock offset: -4.68 ms
Remote clock offset: 1.332 ms


# Below is generated by plot.py at 2018-10-02 18:42:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.46 Mbit/s
95th percentile per-packet one-way delay: 81.956 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 2.00 Mbit/s
95th percentile per-packet one-way delay: 82.050 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 1.11 Mbit/s
95th percentile per-packet one-way delay: 79.277 ms
Loss rate: 1.20%
-- Flow 3:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 81.954 ms
Loss rate: 1.89%
```
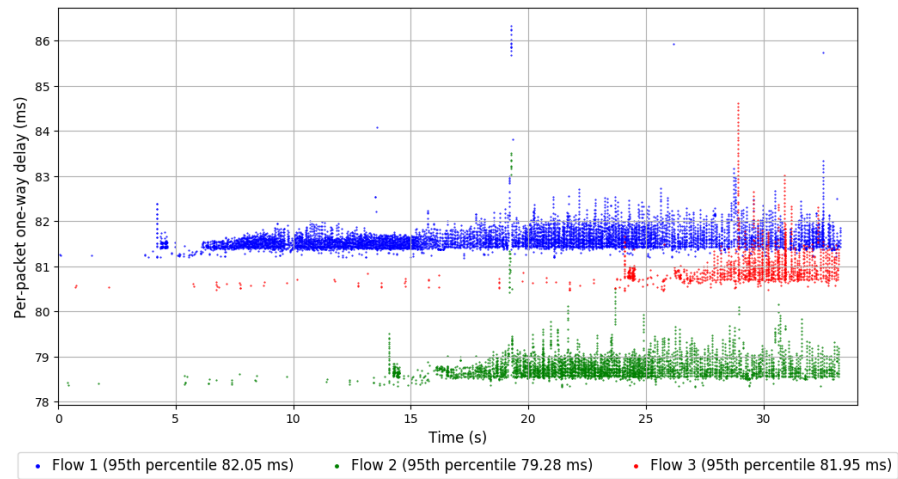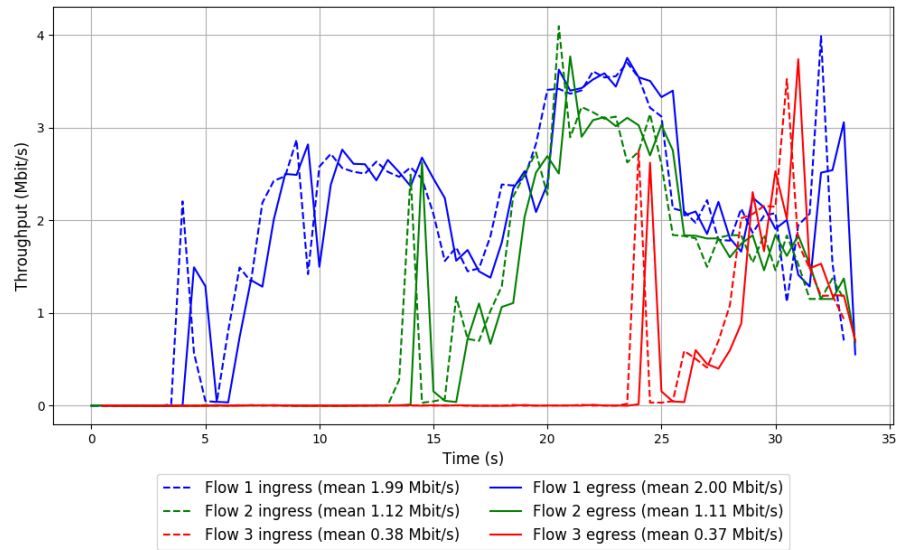
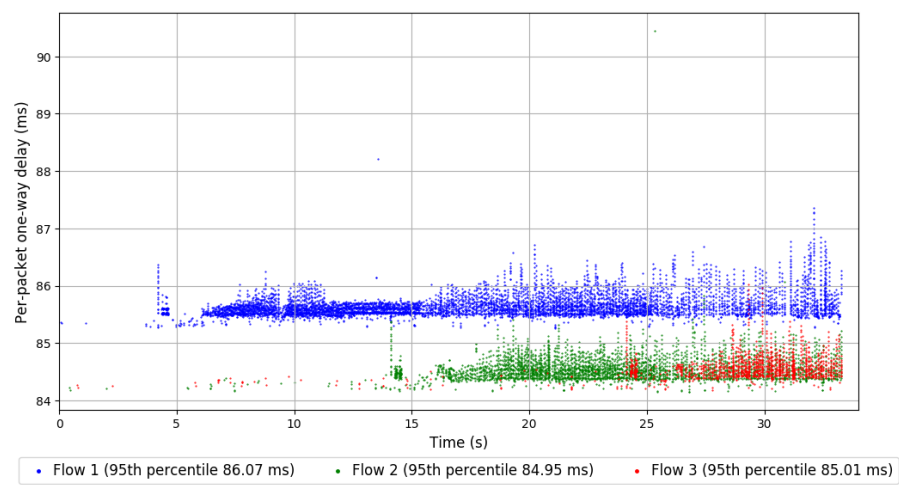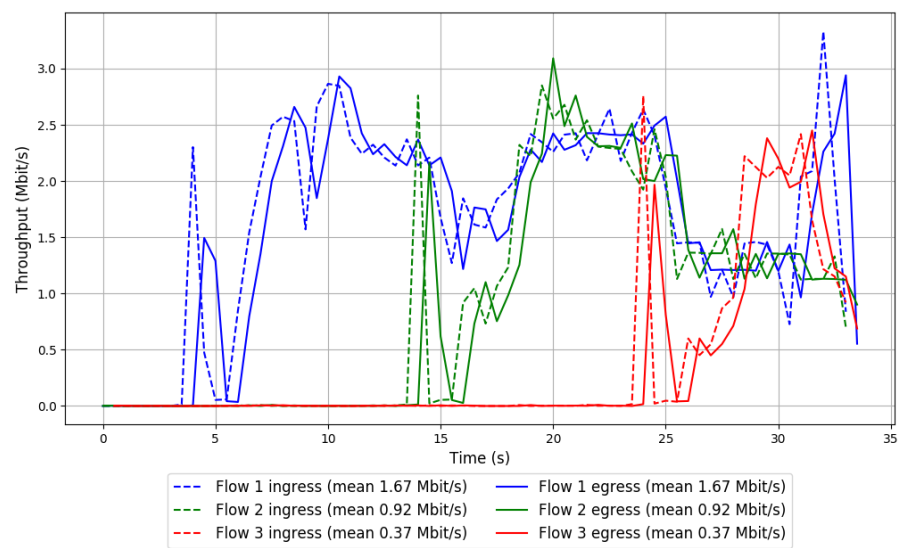Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-10-02 17:43:18
End at: 2018-10-02 17:43:48
Local clock offset: -4.271 ms
Remote clock offset: -2.377 ms


# Below is generated by plot.py at 2018-10-02 18:42:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.94 Mbit/s
95th percentile per-packet one-way delay: 85.956 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 1.67 Mbit/s
95th percentile per-packet one-way delay: 86.069 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 0.92 Mbit/s
95th percentile per-packet one-way delay: 84.951 ms
Loss rate: 0.38%
-- Flow 3:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 85.010 ms
Loss rate: 1.89%
```

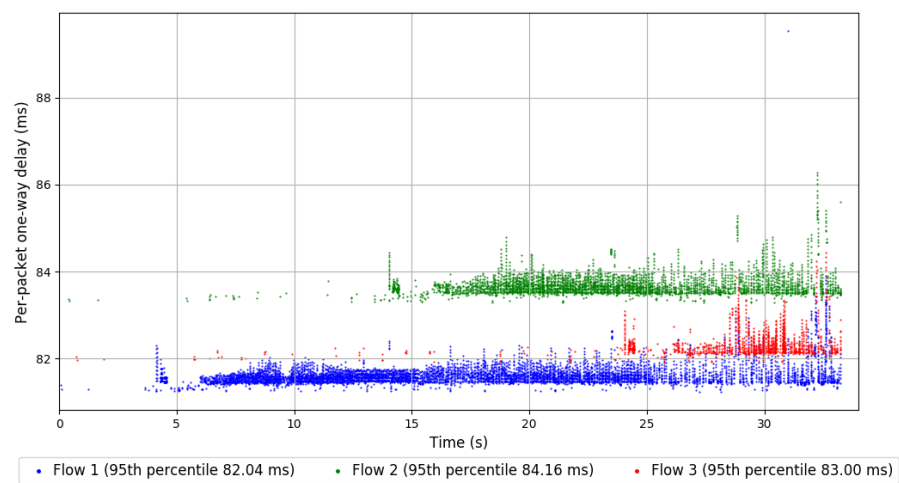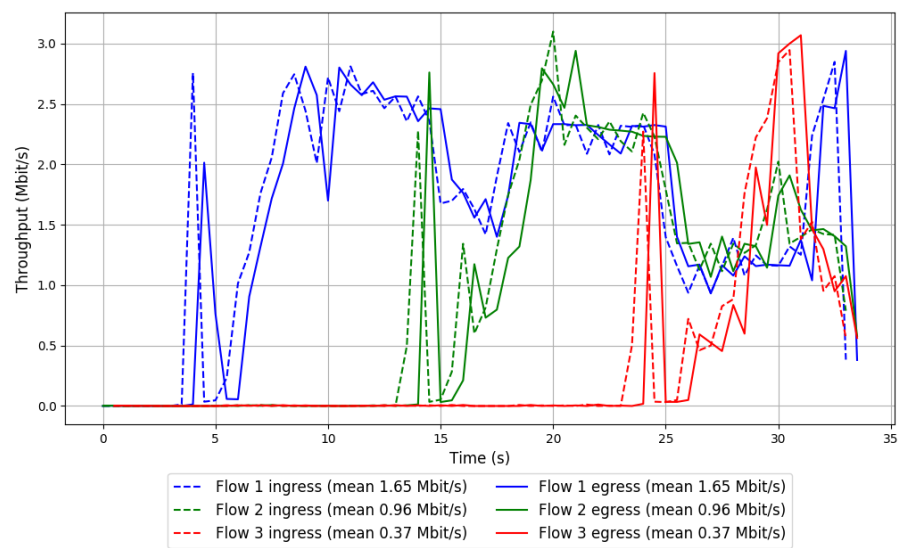Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-10-02 18:06:42
End at: 2018-10-02 18:07:12
Local clock offset: -2.86 ms
Remote clock offset: -1.015 ms


# Below is generated by plot.py at 2018-10-02 18:42:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.96 Mbit/s
95th percentile per-packet one-way delay: 83.884 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 1.65 Mbit/s
95th percentile per-packet one-way delay: 82.038 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 0.96 Mbit/s
95th percentile per-packet one-way delay: 84.157 ms
Loss rate: 0.54%
-- Flow 3:
Average throughput: 0.37 Mbit/s
95th percentile per-packet one-way delay: 82.995 ms
Loss rate: 0.97%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-10-02 18:29:49
End at: 2018-10-02 18:30:19
Local clock offset: -2.523 ms
Remote clock offset: 2.045 ms


# Below is generated by plot.py at 2018-10-02 18:42:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.01 Mbit/s
95th percentile per-packet one-way delay: 81.094 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 1.77 Mbit/s
95th percentile per-packet one-way delay: 81.082 ms
Loss rate: 0.32%
-- Flow 2:
Average throughput: 0.99 Mbit/s
95th percentile per-packet one-way delay: 80.952 ms
Loss rate: 0.49%
-- Flow 3:
Average throughput: 0.27 Mbit/s
95th percentile per-packet one-way delay: 81.204 ms
Loss rate: 6.34%
```

Run 5: Report of WebRTC media — Data Link