Pantheon Report

Generated at 2019-10-03 13:58:30 (UTC).

Data path: India on **em1** (*remote*) →AWS India 1 on **ens5** (*local*).

Repeated the test of 24 congestion control schemes 5 times.

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

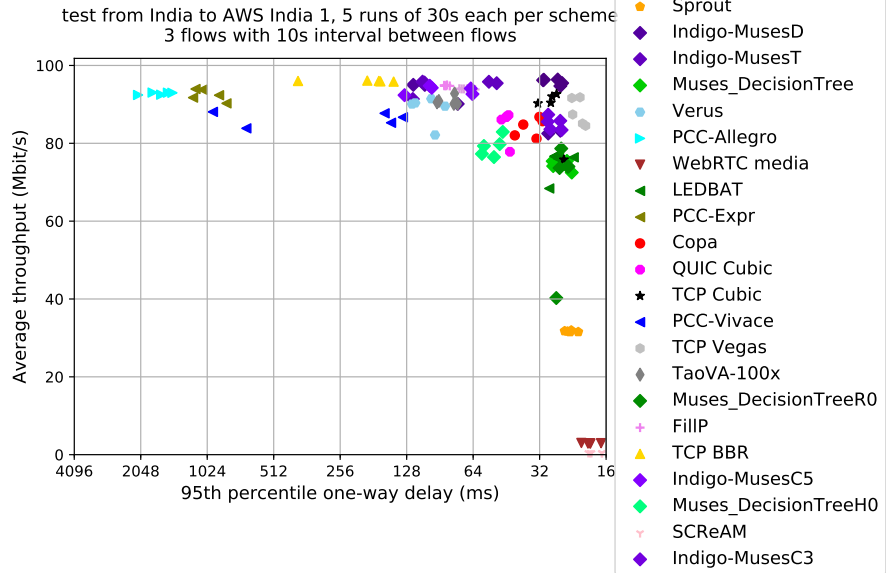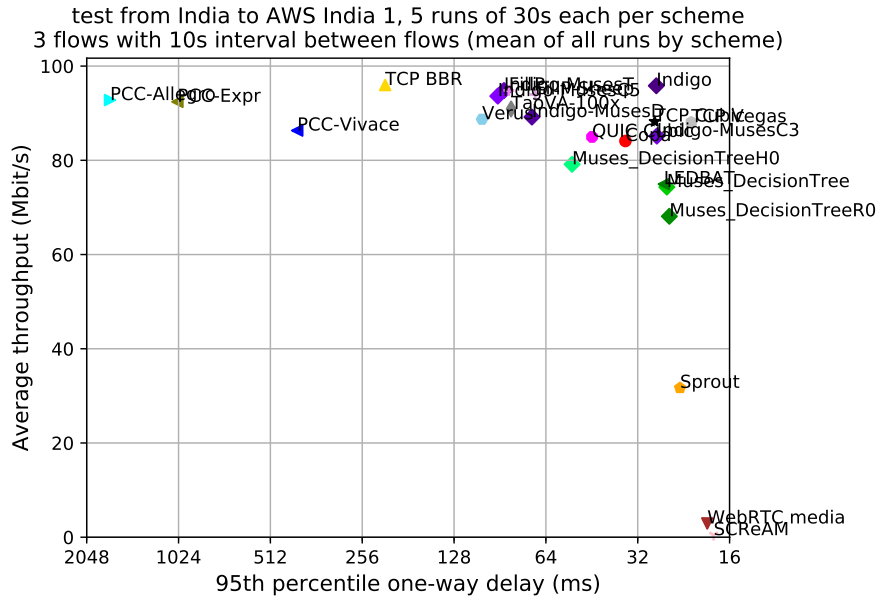NTP offsets were measured against **nets.org.sg** and have been applied to correct the timestamps in logs.

```
System info:
Linux 4.15.0-1050-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 @ de42328552b3776a75a932a94dfafd722537b0ec
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 5ce721187ad823da20955337730c746486ca4966
third_party/muses_dtree @ 387225f7b5f61ddbe92d708a8869ffbb84eb3200
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
```
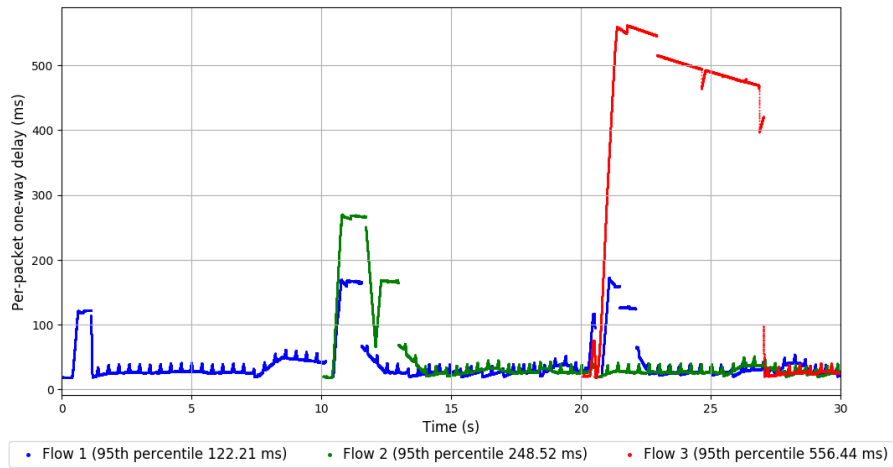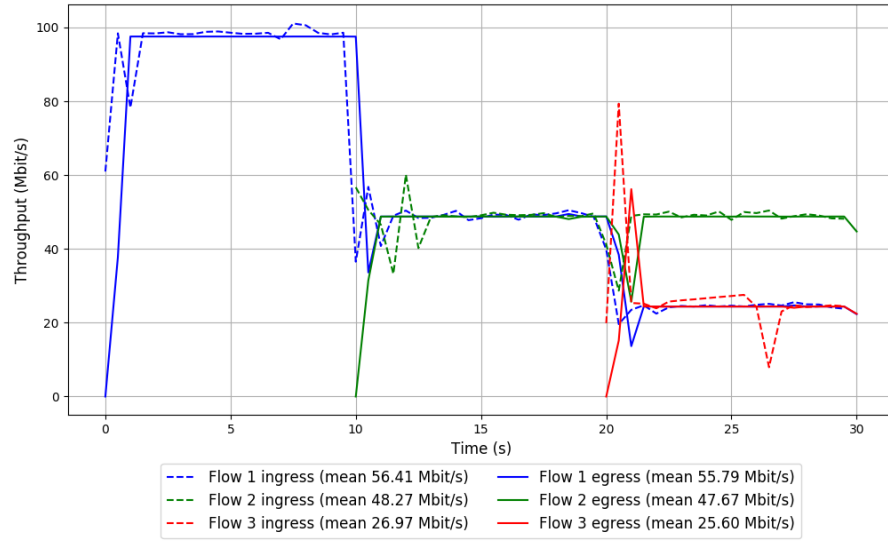
test from India to AWS India 1, 5 runs of 30s each per scheme
3 flows with 10s interval between flows (mean of all runs by scheme)

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

Legend:
- FillP-Sheep
- Indigo
- Sprout
- Indigo-MusesD
- Indigo-MusesT
- Muses_DecisionTree
- Verus
- PCC-Allegro
- WebRTC media
- LEDBAT
- PCC-Expr
- Copa
- QUIC Cubic
- TCP Cubic
- PCC-Vivace
- TCP Vegas
- TaoVA-100x
- Muses_DecisionTreeR0
- FillP
- TCP BBR
- Indigo-MusesC5
- Muses_DecisionTreeH0
- SCReAM
- Indigo-MusesC3

3

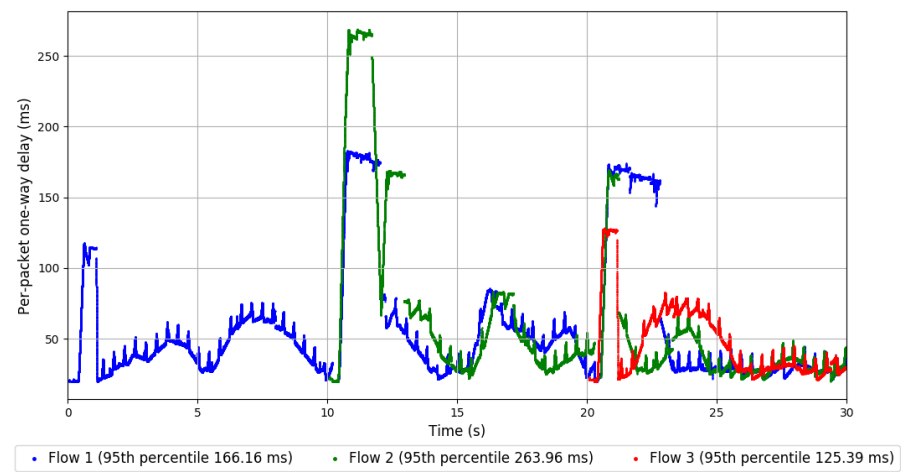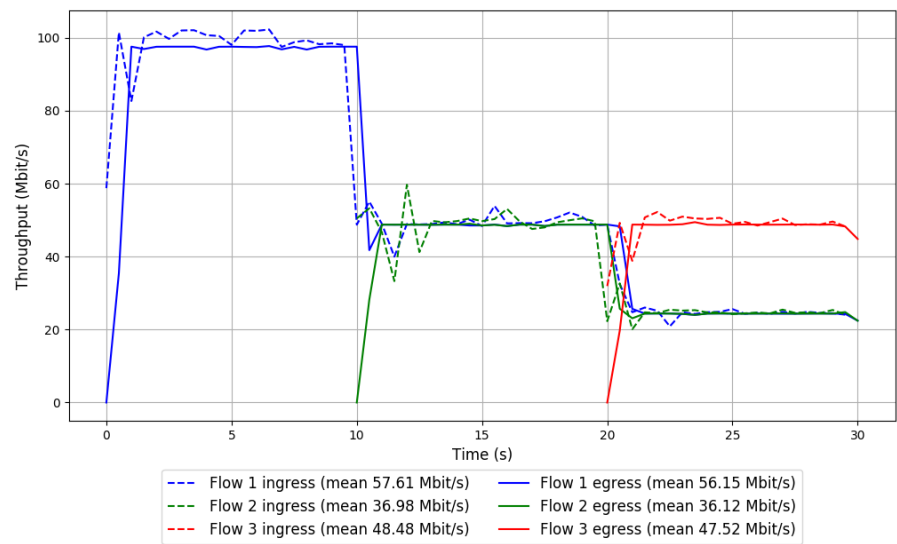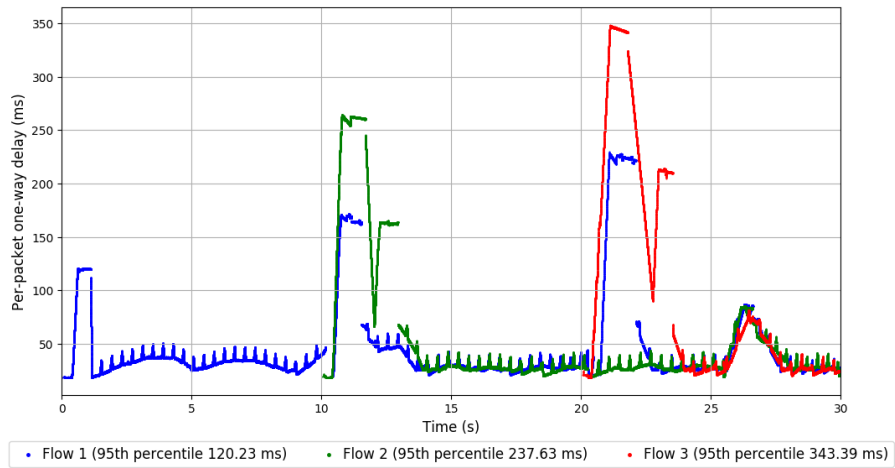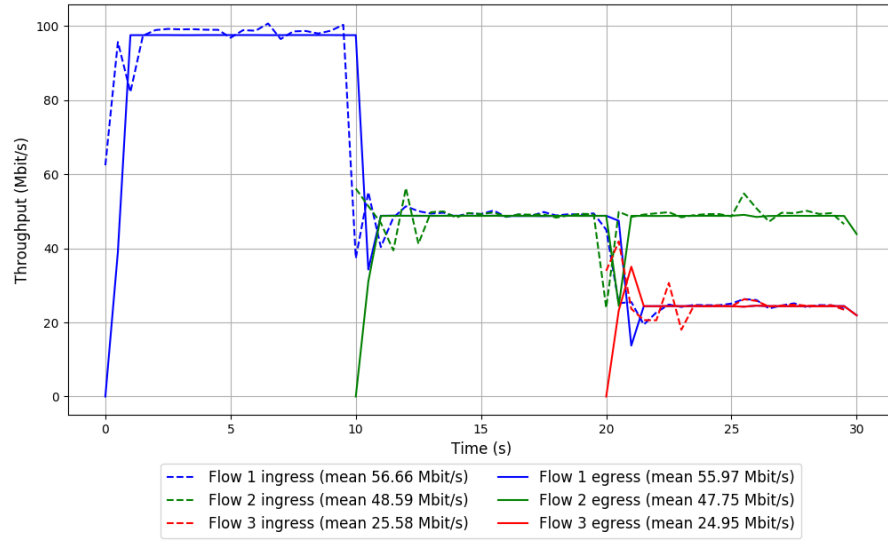| scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	56.94	42.33	32.79	130.43	228.45	330.90	1.71	2.53	3.34
Copa	5	50.44	36.52	28.19	41.89	29.47	26.44	0.12	0.25	0.60
TCP Cubic	5	52.44	37.04	33.60	27.96	30.50	28.55	0.15	0.22	0.55
FillP	5	59.93	40.38	24.26	54.56	95.18	91.52	0.24	3.30	4.93
FillP-Sheep	5	55.37	42.19	31.80	63.91	88.76	60.12	0.17	0.41	0.88
Indigo	5	58.99	41.96	27.46	28.97	25.88	25.08	0.14	0.24	0.58
Indigo-MusesC3	5	57.03	33.91	25.02	28.22	27.06	28.69	0.08	0.18	0.86
Indigo-MusesC5	5	56.66	41.24	39.62	64.20	119.58	81.78	0.89	3.01	3.53
Indigo-MusesD	5	56.76	41.45	22.77	62.42	59.84	38.00	2.02	2.40	1.86
Indigo-MusesT	5	61.34	41.41	26.51	79.68	113.10	43.51	0.90	1.65	1.24
LEDBAT	5	43.87	32.10	29.30	25.93	27.12	25.53	0.13	0.27	0.59
Muses_DecisionTree	5	48.25	29.54	20.58	23.53	31.47	39.58	0.04	0.19	0.24
Muses_DecisionTreeH0	5	50.72	31.25	24.31	56.77	51.05	35.27	0.15	0.20	0.38
Muses_DecisionTreeR0	5	48.60	21.56	16.56	24.50	26.78	37.60	0.07	0.20	0.35
PCC-Allegro	5	59.76	35.00	29.76	1745.72	1683.04	170.15	16.31	15.43	2.44
PCC-Expr	5	59.44	36.50	26.46	769.25	1018.01	294.88	36.72	35.28	5.52
QUIC Cubic	5	50.99	36.89	28.71	41.46	44.46	99.38	0.16	0.24	0.78
SCReAM	5	0.22	0.22	0.22	18.03	18.02	17.90	0.13	0.23	0.63
Sprout	5	16.02	15.83	15.46	23.12	23.05	23.69	0.21	0.26	0.55
TaoVA-100x	5	48.58	37.86	56.01	73.89	101.92	117.34	0.05	0.27	1.10
TCP Vegas	5	52.68	38.89	28.74	21.53	21.06	29.53	0.12	0.21	0.57
Verus	5	55.98	34.69	29.19	102.00	102.82	236.71	0.32	0.48	0.96
PCC-Vivace	5	54.60	36.37	22.88	511.16	231.95	34.37	1.66	0.89	1.03
WebRTC media	5	1.62	0.94	0.38	18.87	18.91	18.85	0.06	0.17	0.54

```
Run 1: Statistics of TCP BBR

Start at: 2019-10-03 11:12:31
End at: 2019-10-03 11:13:01
Local clock offset: 2.939 ms
Remote clock offset: -0.867 ms


# Below is generated by plot.py at 2019-10-03 13:43:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.01 Mbit/s
95th percentile per-packet one-way delay: 397.346 ms
Loss rate: 1.73%
-- Flow 1:
Average throughput: 55.79 Mbit/s
95th percentile per-packet one-way delay: 122.208 ms
Loss rate: 1.25%
-- Flow 2:
Average throughput: 47.67 Mbit/s
95th percentile per-packet one-way delay: 248.520 ms
Loss rate: 1.49%
-- Flow 3:
Average throughput: 25.60 Mbit/s
95th percentile per-packet one-way delay: 556.442 ms
Loss rate: 5.58%
```
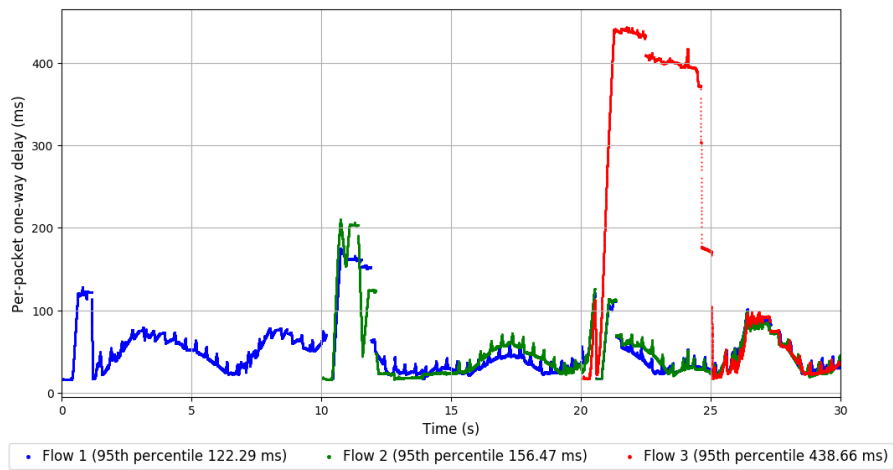
Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 56.41 Mbit/s) --- Flow 1 egress (mean 55.79 Mbit/s)
Flow 2 ingress (mean 48.27 Mbit/s) --- Flow 2 egress (mean 47.67 Mbit/s)
Flow 3 ingress (mean 26.97 Mbit/s) --- Flow 3 egress (mean 25.60 Mbit/s)

Flow 1 (95th percentile 122.21 ms)   Flow 2 (95th percentile 248.52 ms)   Flow 3 (95th percentile 556.44 ms)

```
Run 2: Statistics of TCP BBR

Start at: 2019-10-03 11:44:21
End at: 2019-10-03 11:44:51
Local clock offset: 3.897 ms
Remote clock offset: -2.747 ms


# Below is generated by plot.py at 2019-10-03 13:43:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.92 Mbit/s
95th percentile per-packet one-way delay: 168.410 ms
Loss rate: 2.63%
-- Flow 1:
Average throughput: 56.15 Mbit/s
95th percentile per-packet one-way delay: 166.164 ms
Loss rate: 2.69%
-- Flow 2:
Average throughput: 36.12 Mbit/s
95th percentile per-packet one-way delay: 263.959 ms
Loss rate: 2.60%
-- Flow 3:
Average throughput: 47.52 Mbit/s
95th percentile per-packet one-way delay: 125.393 ms
Loss rate: 2.47%
```
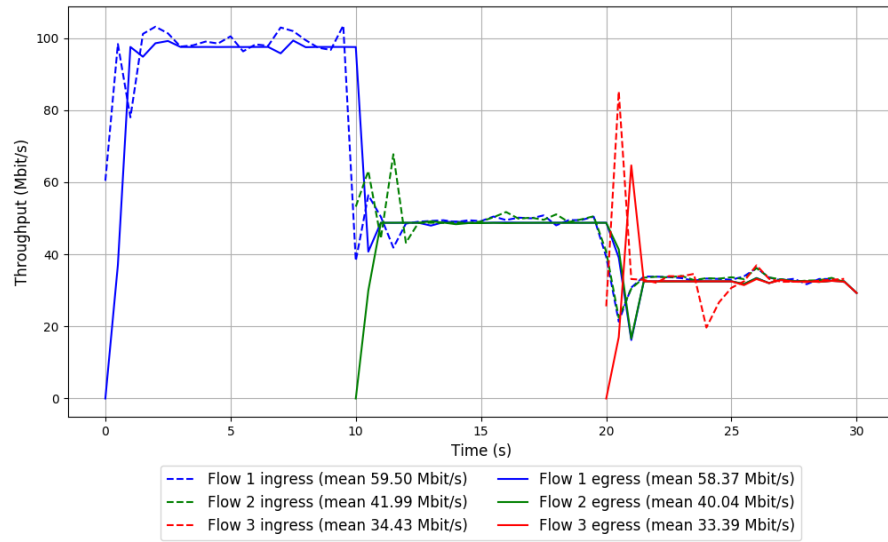
Run 2: Report of TCP BBR — Data Link

Flow 1 ingress (mean 57.61 Mbit/s)   Flow 1 egress (mean 56.15 Mbit/s)
Flow 2 ingress (mean 36.98 Mbit/s)   Flow 2 egress (mean 36.12 Mbit/s)
Flow 3 ingress (mean 48.48 Mbit/s)   Flow 3 egress (mean 47.52 Mbit/s)

Flow 1 (95th percentile 166.16 ms)   Flow 2 (95th percentile 263.96 ms)   Flow 3 (95th percentile 125.39 ms)
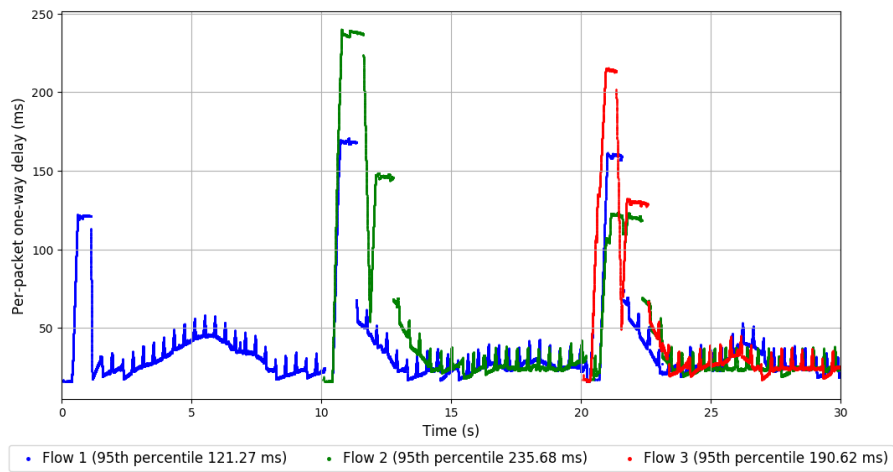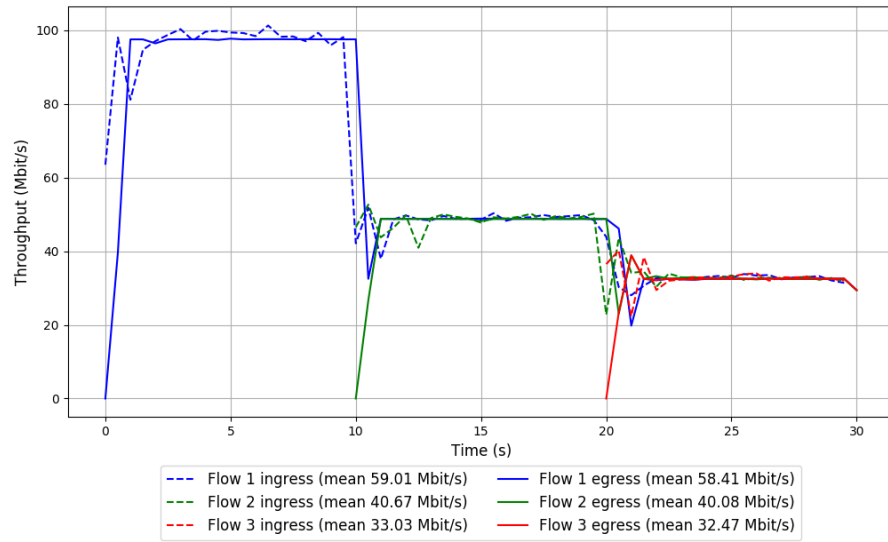
8

```
Run 3: Statistics of TCP BBR

Start at: 2019-10-03 12:17:10
End at: 2019-10-03 12:17:40
Local clock offset: -1.311 ms
Remote clock offset: -3.428 ms


# Below is generated by plot.py at 2019-10-03 13:43:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.03 Mbit/s
95th percentile per-packet one-way delay: 171.078 ms
Loss rate: 1.72%
-- Flow 1:
Average throughput: 55.97 Mbit/s
95th percentile per-packet one-way delay: 120.231 ms
Loss rate: 1.39%
-- Flow 2:
Average throughput: 47.75 Mbit/s
95th percentile per-packet one-way delay: 237.627 ms
Loss rate: 1.96%
-- Flow 3:
Average throughput: 24.95 Mbit/s
95th percentile per-packet one-way delay: 343.390 ms
Loss rate: 2.96%
```
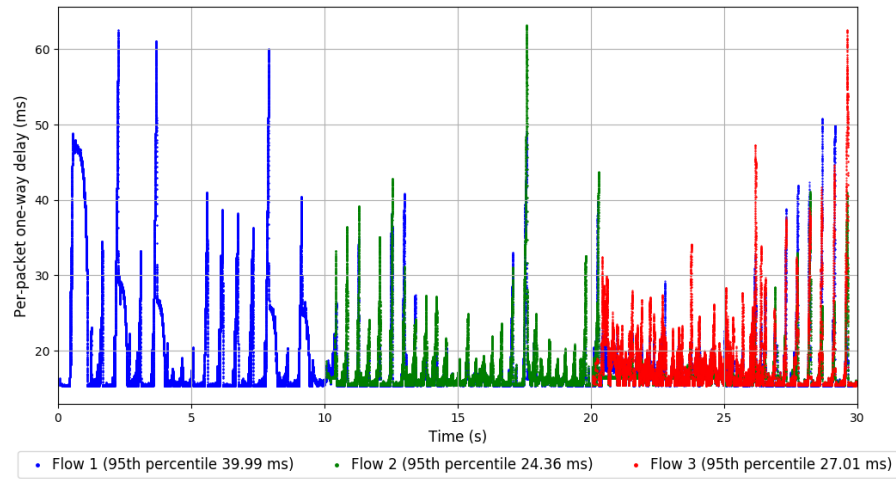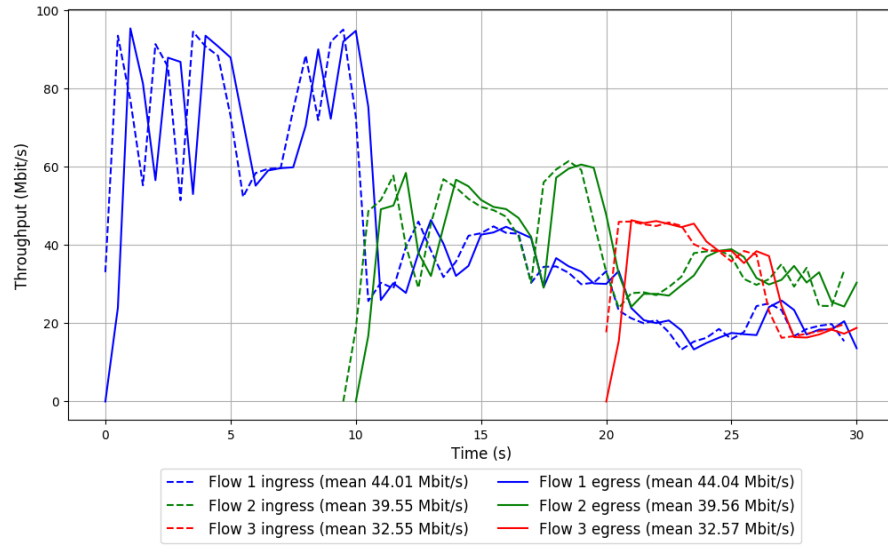
Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 56.66 Mbit/s) --- Flow 1 egress (mean 55.97 Mbit/s)
Flow 2 ingress (mean 48.59 Mbit/s) --- Flow 2 egress (mean 47.75 Mbit/s)
Flow 3 ingress (mean 25.58 Mbit/s) --- Flow 3 egress (mean 24.95 Mbit/s)

Flow 1 (95th percentile 120.23 ms)   Flow 2 (95th percentile 237.63 ms)   Flow 3 (95th percentile 343.39 ms)

```
Run 4: Statistics of TCP BBR

Start at: 2019-10-03 12:49:17
End at: 2019-10-03 12:49:47
Local clock offset: 4.646 ms
Remote clock offset: -3.522 ms


# Below is generated by plot.py at 2019-10-03 13:43:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.11 Mbit/s
95th percentile per-packet one-way delay: 192.945 ms
Loss rate: 3.02%
-- Flow 1:
Average throughput: 58.37 Mbit/s
95th percentile per-packet one-way delay: 122.288 ms
Loss rate: 2.05%
-- Flow 2:
Average throughput: 40.04 Mbit/s
95th percentile per-packet one-way delay: 156.471 ms
Loss rate: 4.89%
-- Flow 3:
Average throughput: 33.39 Mbit/s
95th percentile per-packet one-way delay: 438.661 ms
Loss rate: 3.50%
```
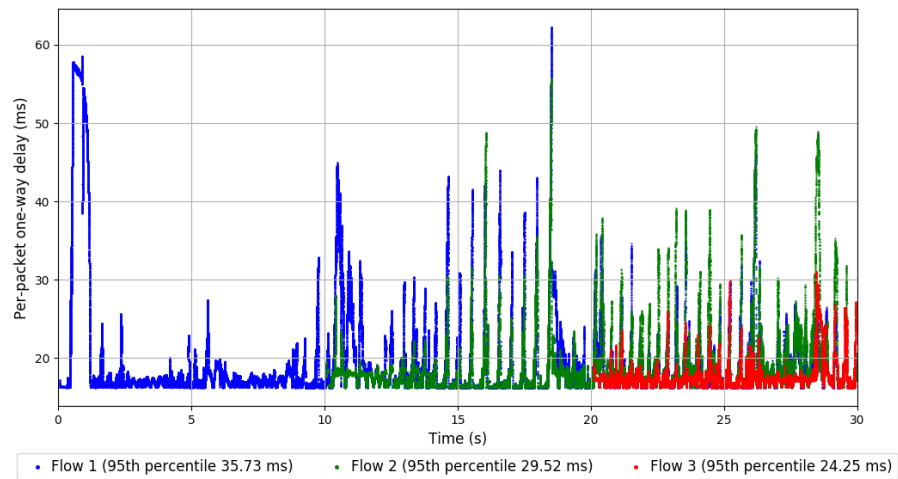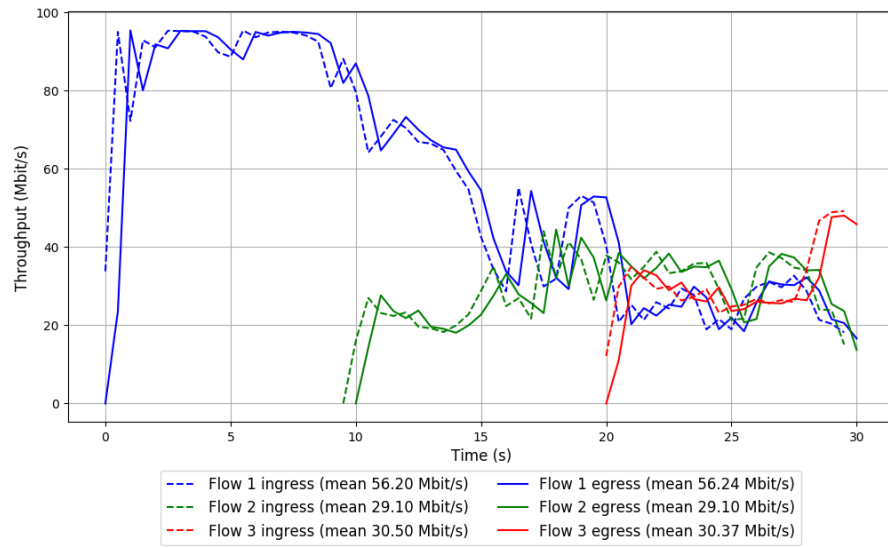
Run 4: Report of TCP BBR — Data Link

Flow 1 ingress (mean 59.50 Mbit/s) --- Flow 1 egress (mean 58.37 Mbit/s)
Flow 2 ingress (mean 41.99 Mbit/s) --- Flow 2 egress (mean 40.04 Mbit/s)
Flow 3 ingress (mean 34.43 Mbit/s) --- Flow 3 egress (mean 33.39 Mbit/s)

Flow 1 (95th percentile 122.29 ms)   Flow 2 (95th percentile 156.47 ms)   Flow 3 (95th percentile 438.66 ms)
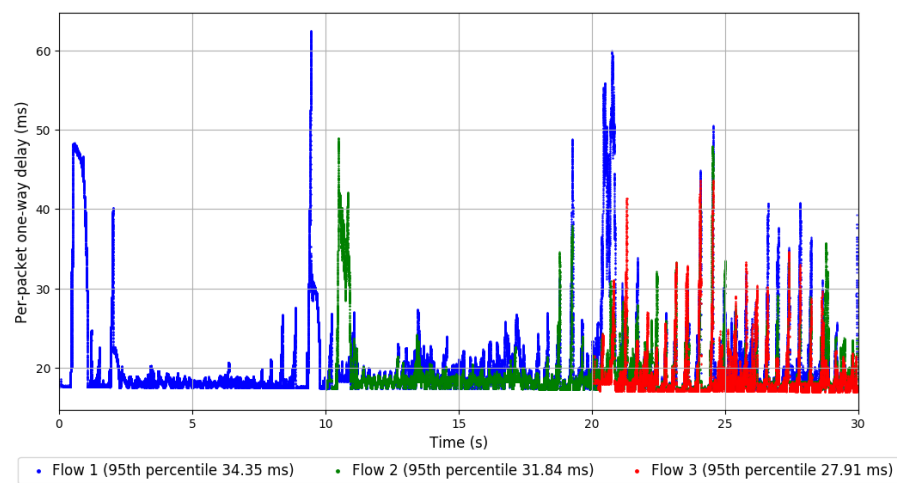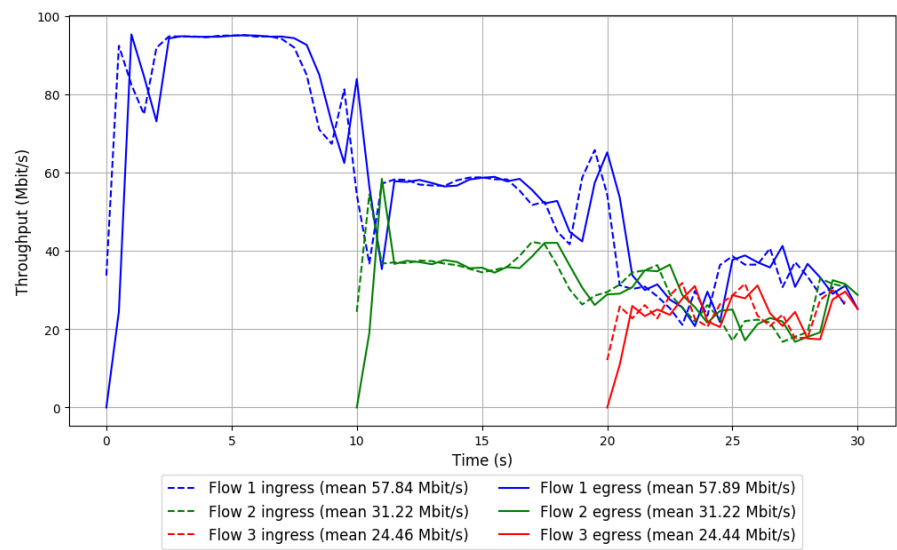
```
Run 5: Statistics of TCP BBR

Start at: 2019-10-03 13:21:06
End at: 2019-10-03 13:21:36
Local clock offset: 1.487 ms
Remote clock offset: -2.575 ms


# Below is generated by plot.py at 2019-10-03 13:43:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.85 Mbit/s
95th percentile per-packet one-way delay: 146.641 ms
Loss rate: 1.43%
-- Flow 1:
Average throughput: 58.41 Mbit/s
95th percentile per-packet one-way delay: 121.269 ms
Loss rate: 1.17%
-- Flow 2:
Average throughput: 40.08 Mbit/s
95th percentile per-packet one-way delay: 235.682 ms
Loss rate: 1.69%
-- Flow 3:
Average throughput: 32.47 Mbit/s
95th percentile per-packet one-way delay: 190.617 ms
Loss rate: 2.18%
```

Run 5: Report of TCP BBR — Data Link

- - - Flow 1 ingress (mean 59.01 Mbit/s)   —— Flow 1 egress (mean 58.41 Mbit/s)
- - - Flow 2 ingress (mean 40.67 Mbit/s)   —— Flow 2 egress (mean 40.08 Mbit/s)
- - - Flow 3 ingress (mean 33.03 Mbit/s)   —— Flow 3 egress (mean 32.47 Mbit/s)

• Flow 1 (95th percentile 121.27 ms)   • Flow 2 (95th percentile 235.68 ms)   • Flow 3 (95th percentile 190.62 ms)
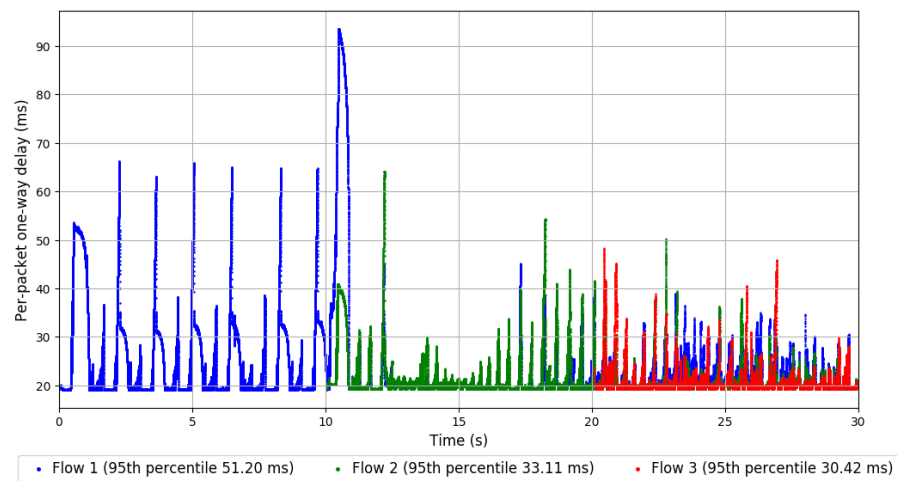
14

```
Run 1: Statistics of Copa

Start at: 2019-10-03 11:20:25
End at: 2019-10-03 11:20:55
Local clock offset: -0.143 ms
Remote clock offset: -0.896 ms


# Below is generated by plot.py at 2019-10-03 13:43:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.18 Mbit/s
95th percentile per-packet one-way delay: 33.060 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 44.04 Mbit/s
95th percentile per-packet one-way delay: 39.989 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 39.56 Mbit/s
95th percentile per-packet one-way delay: 24.364 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 32.57 Mbit/s
95th percentile per-packet one-way delay: 27.010 ms
Loss rate: 0.41%
```
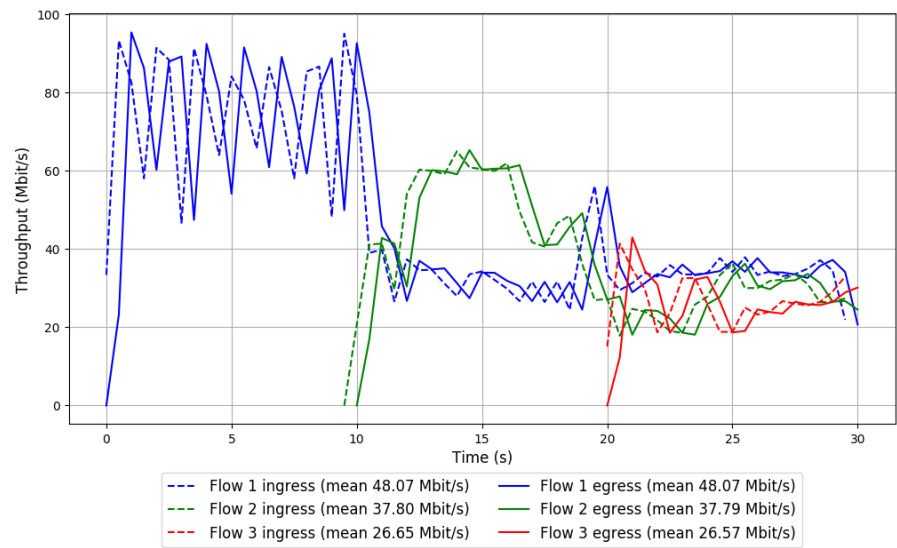
Run 1: Report of Copa — Data Link

16

```
Run 2: Statistics of Copa

Start at: 2019-10-03 11:52:45
End at: 2019-10-03 11:53:15
Local clock offset: 2.041 ms
Remote clock offset: -1.569 ms


# Below is generated by plot.py at 2019-10-03 13:43:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.68 Mbit/s
95th percentile per-packet one-way delay: 31.061 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 56.24 Mbit/s
95th percentile per-packet one-way delay: 35.725 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 29.10 Mbit/s
95th percentile per-packet one-way delay: 29.524 ms
Loss rate: 0.23%
-- Flow 3:
Average throughput: 30.37 Mbit/s
95th percentile per-packet one-way delay: 24.249 ms
Loss rate: 0.96%
```
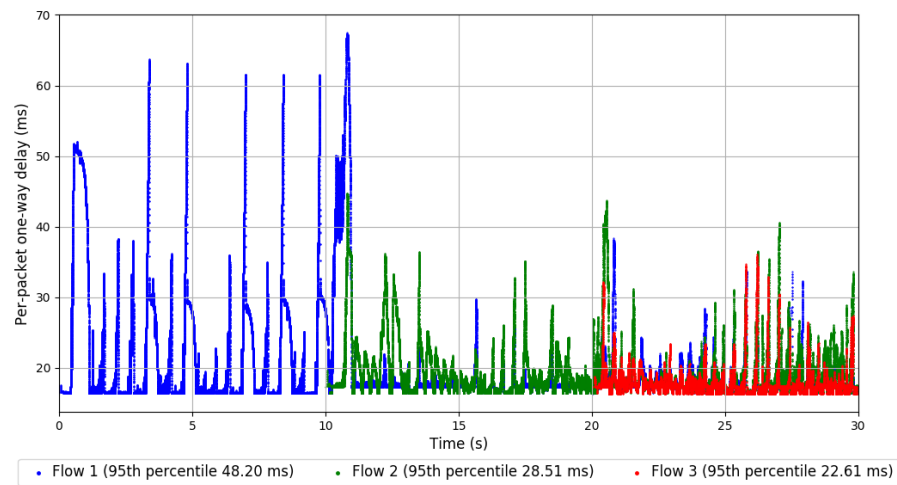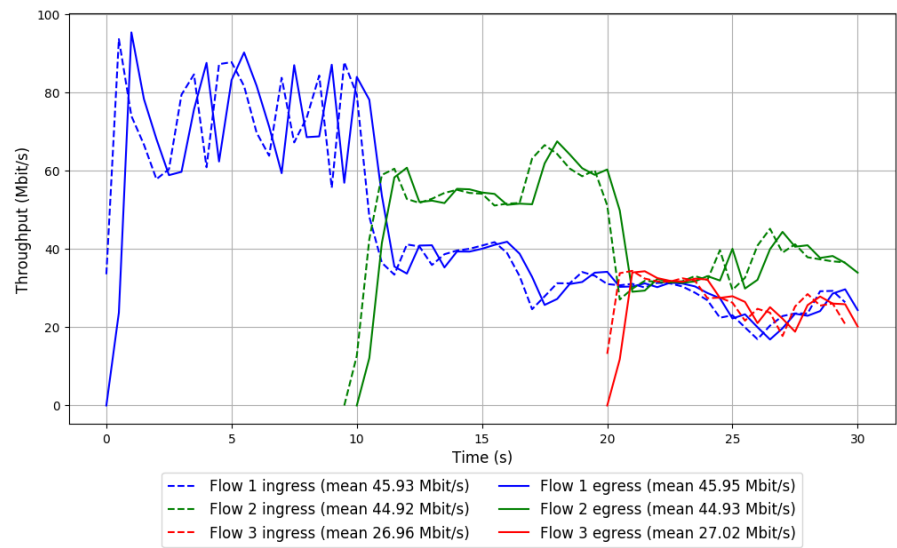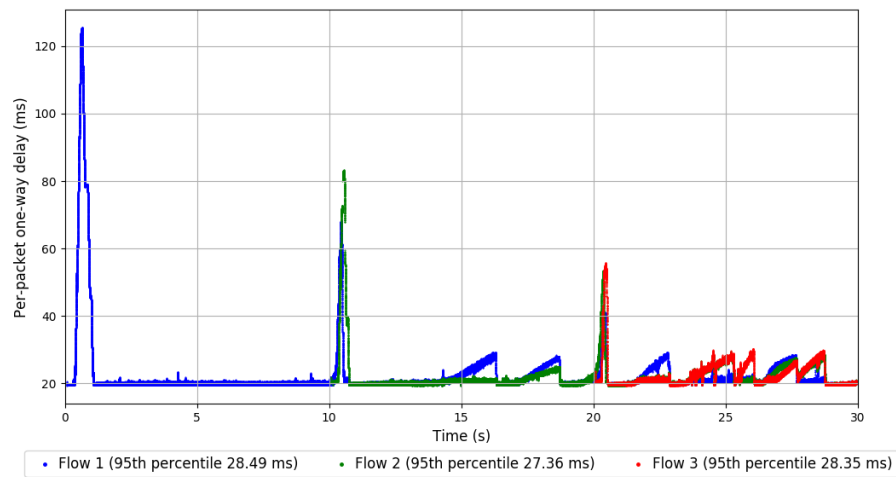
Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2019-10-03 12:25:09
End at: 2019-10-03 12:25:39
Local clock offset: -2.123 ms
Remote clock offset: -3.799 ms


# Below is generated by plot.py at 2019-10-03 13:43:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.78 Mbit/s
95th percentile per-packet one-way delay: 32.068 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 57.89 Mbit/s
95th percentile per-packet one-way delay: 34.354 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 31.22 Mbit/s
95th percentile per-packet one-way delay: 31.838 ms
Loss rate: 0.28%
-- Flow 3:
Average throughput: 24.44 Mbit/s
95th percentile per-packet one-way delay: 27.912 ms
Loss rate: 0.58%
```
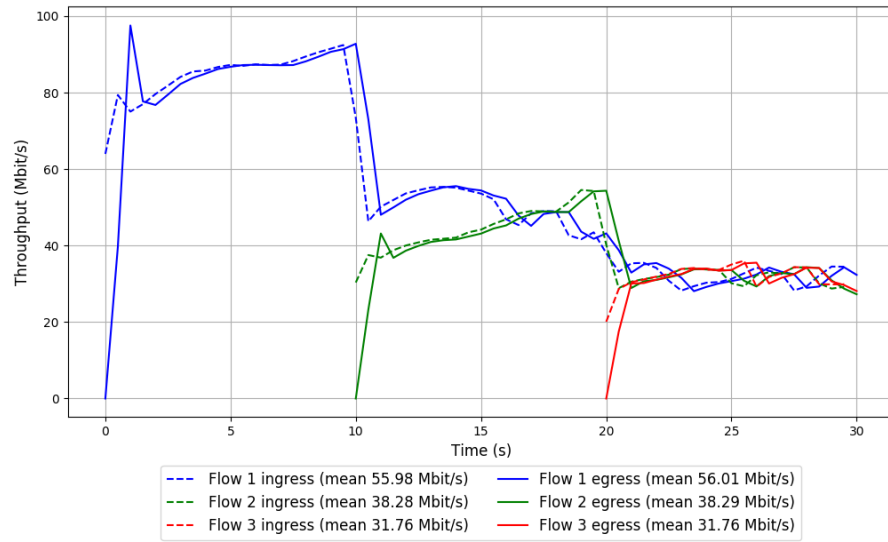
Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2019-10-03 12:57:55
End at: 2019-10-03 12:58:25
Local clock offset: 6.586 ms
Remote clock offset: -3.643 ms


# Below is generated by plot.py at 2019-10-03 13:44:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 82.03 Mbit/s
95th percentile per-packet one-way delay: 41.454 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 48.07 Mbit/s
95th percentile per-packet one-way delay: 51.197 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 37.79 Mbit/s
95th percentile per-packet one-way delay: 33.113 ms
Loss rate: 0.26%
-- Flow 3:
Average throughput: 26.57 Mbit/s
95th percentile per-packet one-way delay: 30.418 ms
Loss rate: 0.79%
```
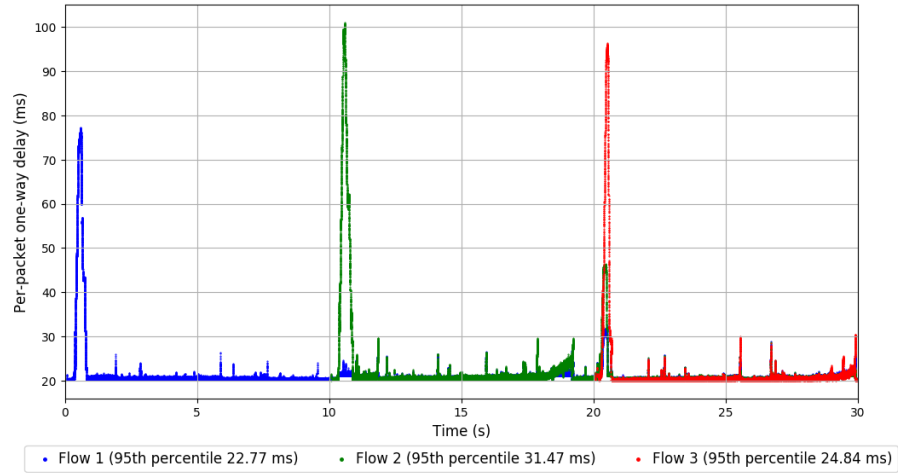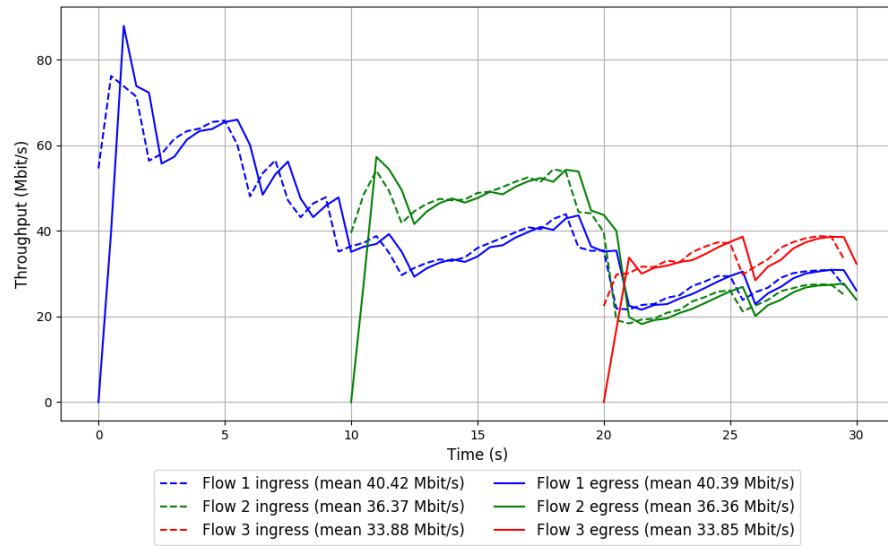
Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2019-10-03 13:28:47
End at: 2019-10-03 13:29:17
Local clock offset: 1.674 ms
Remote clock offset: -3.4 ms

# Below is generated by plot.py at 2019-10-03 13:44:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.81 Mbit/s
95th percentile per-packet one-way delay: 37.957 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 45.95 Mbit/s
95th percentile per-packet one-way delay: 48.203 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 44.93 Mbit/s
95th percentile per-packet one-way delay: 28.508 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 27.02 Mbit/s
95th percentile per-packet one-way delay: 22.608 ms
Loss rate: 0.28%
```

Run 5: Report of Copa — Data Link

24

```
Run 1: Statistics of TCP Cubic

Start at: 2019-10-03 11:11:16
End at: 2019-10-03 11:11:46
Local clock offset: 3.226 ms
Remote clock offset: -1.588 ms


# Below is generated by plot.py at 2019-10-03 13:44:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.02 Mbit/s
95th percentile per-packet one-way delay: 28.118 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 56.01 Mbit/s
95th percentile per-packet one-way delay: 28.491 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 38.29 Mbit/s
95th percentile per-packet one-way delay: 27.355 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 31.76 Mbit/s
95th percentile per-packet one-way delay: 28.351 ms
Loss rate: 0.51%
```
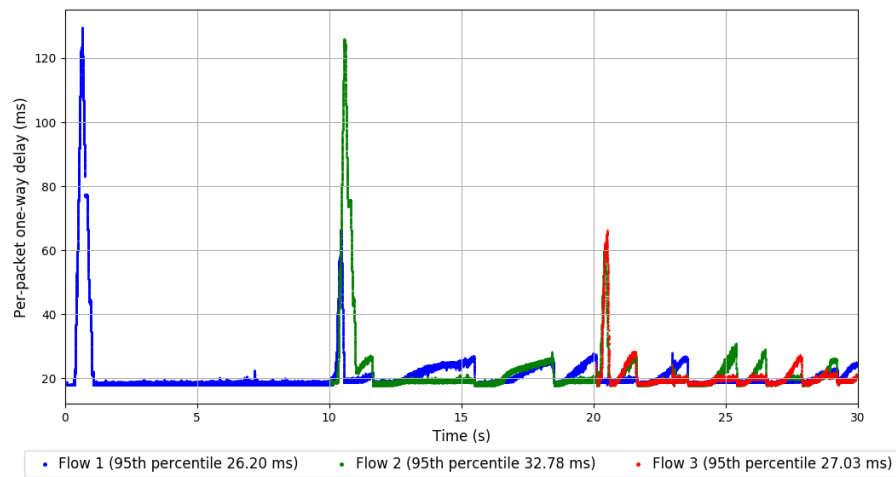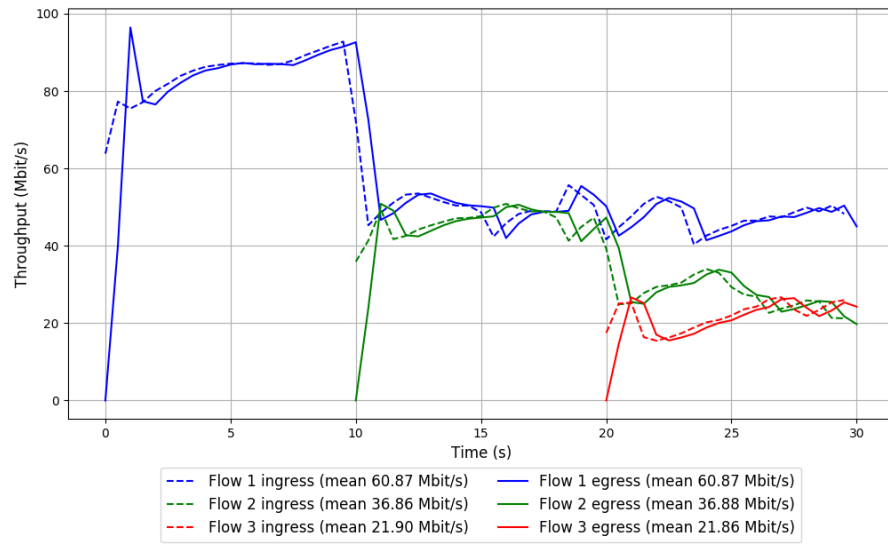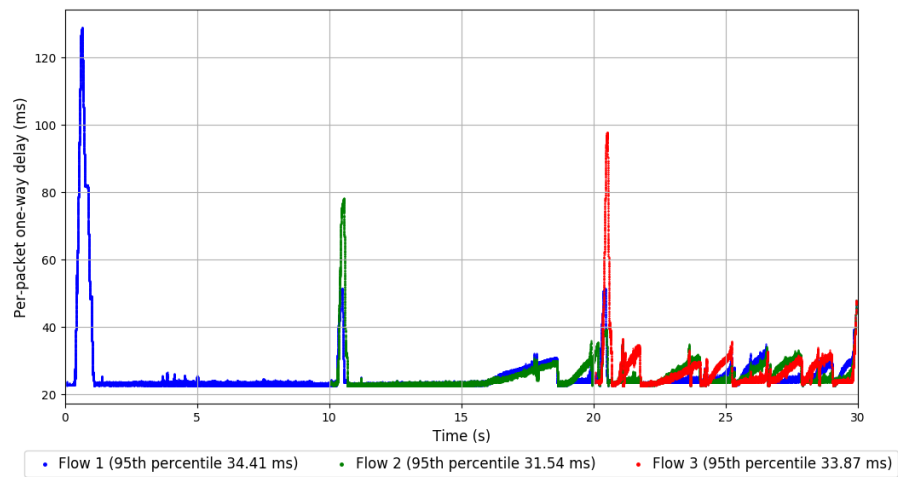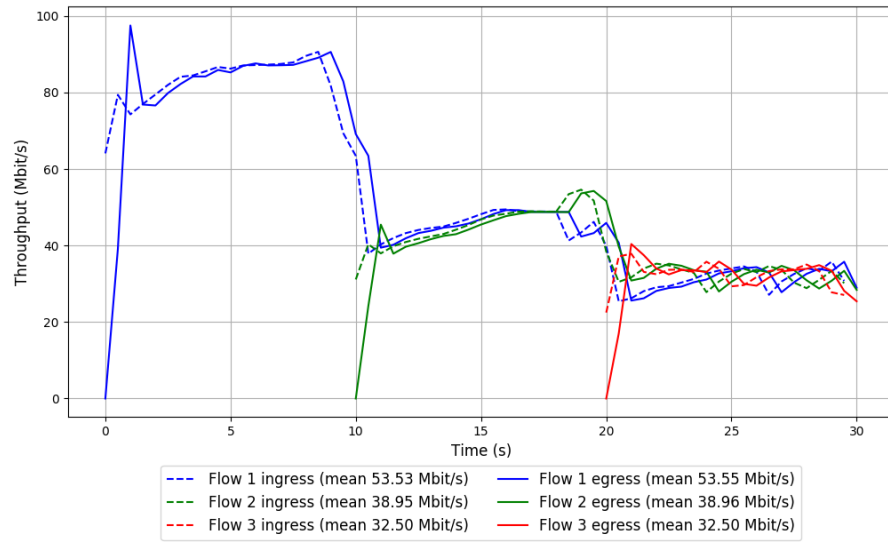
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2019-10-03 11:42:58
End at: 2019-10-03 11:43:28
Local clock offset: 4.622 ms
Remote clock offset: -2.599 ms


# Below is generated by plot.py at 2019-10-03 13:44:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 75.80 Mbit/s
95th percentile per-packet one-way delay: 24.842 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 40.39 Mbit/s
95th percentile per-packet one-way delay: 22.767 ms
Loss rate: 0.24%
-- Flow 2:
Average throughput: 36.36 Mbit/s
95th percentile per-packet one-way delay: 31.472 ms
Loss rate: 0.26%
-- Flow 3:
Average throughput: 33.85 Mbit/s
95th percentile per-packet one-way delay: 24.836 ms
Loss rate: 0.56%
```
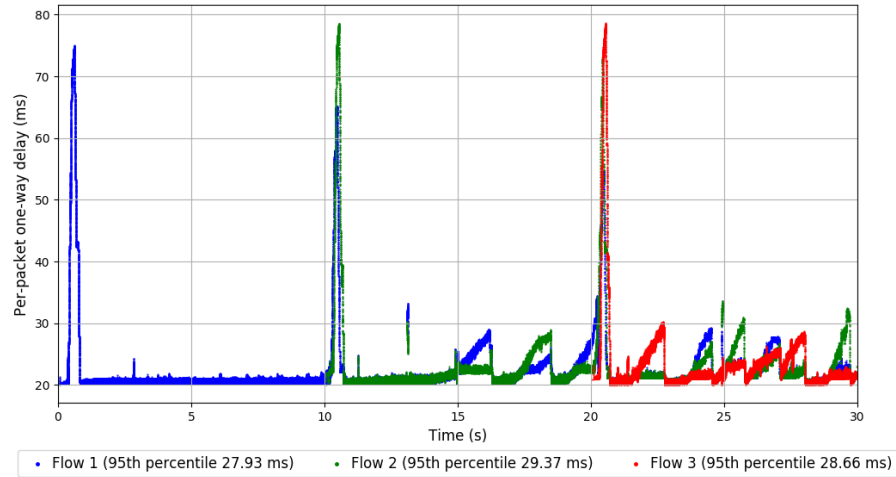
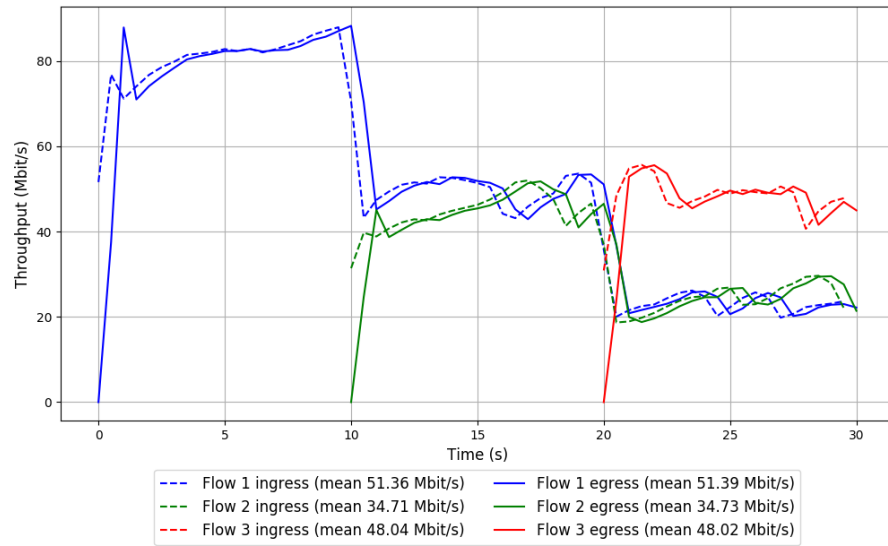Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2019-10-03 12:15:54
End at: 2019-10-03 12:16:24
Local clock offset: 0.068 ms
Remote clock offset: -1.417 ms


# Below is generated by plot.py at 2019-10-03 13:44:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.65 Mbit/s
95th percentile per-packet one-way delay: 26.826 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 60.87 Mbit/s
95th percentile per-packet one-way delay: 26.200 ms
Loss rate: 0.16%
-- Flow 2:
Average throughput: 36.88 Mbit/s
95th percentile per-packet one-way delay: 32.779 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 21.86 Mbit/s
95th percentile per-packet one-way delay: 27.033 ms
Loss rate: 0.65%
```

Run 3: Report of TCP Cubic — Data Link

- - - Flow 1 ingress (mean 60.87 Mbit/s) —— Flow 1 egress (mean 60.87 Mbit/s)
- - - Flow 2 ingress (mean 36.86 Mbit/s) —— Flow 2 egress (mean 36.88 Mbit/s)
- - - Flow 3 ingress (mean 21.90 Mbit/s) —— Flow 3 egress (mean 21.86 Mbit/s)

- Flow 1 (95th percentile 26.20 ms)   • Flow 2 (95th percentile 32.78 ms)   • Flow 3 (95th percentile 27.03 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2019-10-03 12:47:52
End at: 2019-10-03 12:48:22
Local clock offset: 1.286 ms
Remote clock offset: -13.212 ms


# Below is generated by plot.py at 2019-10-03 13:44:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.25 Mbit/s
95th percentile per-packet one-way delay: 32.555 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 53.55 Mbit/s
95th percentile per-packet one-way delay: 34.413 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 38.96 Mbit/s
95th percentile per-packet one-way delay: 31.536 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 32.50 Mbit/s
95th percentile per-packet one-way delay: 33.866 ms
Loss rate: 0.51%
```
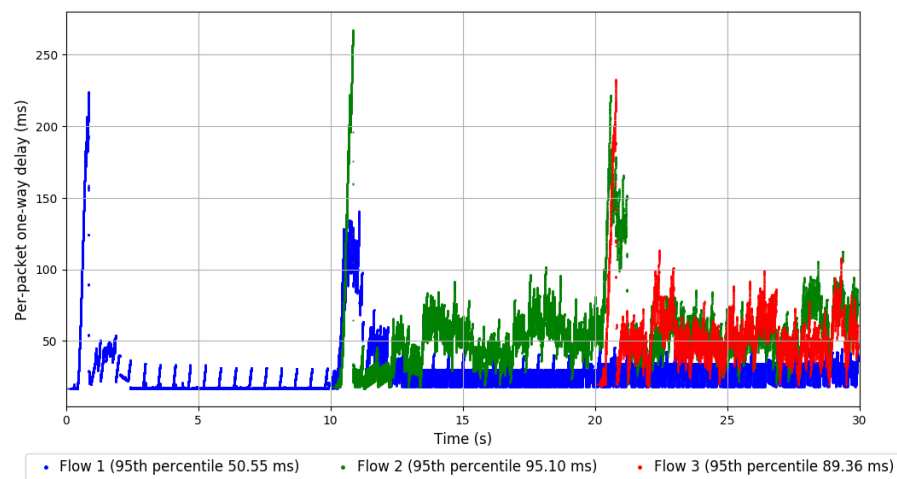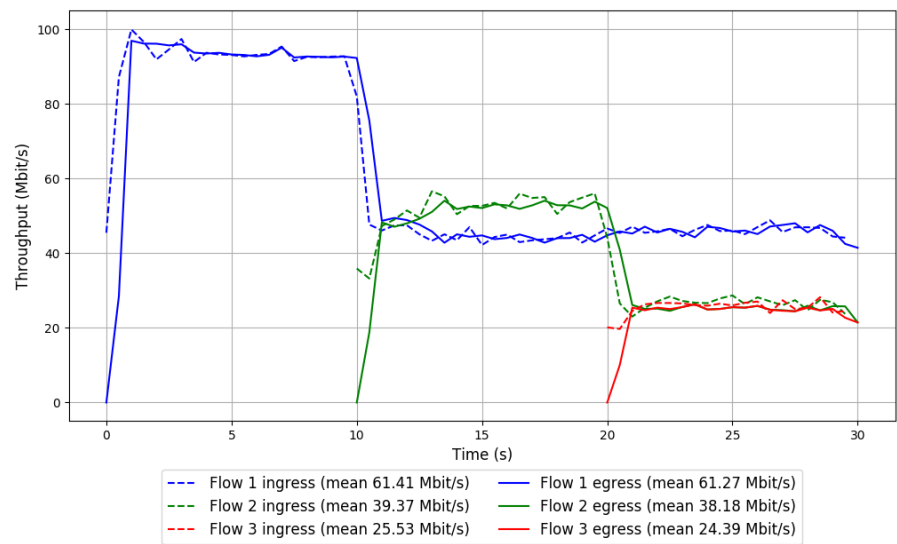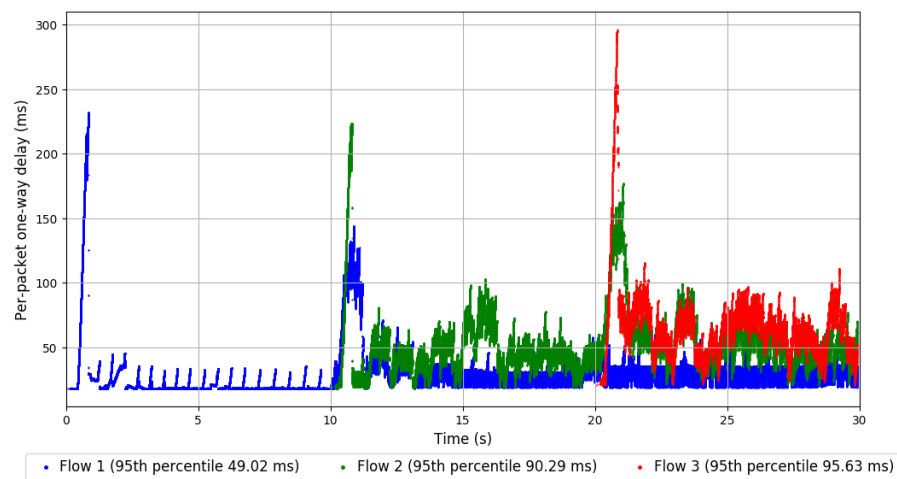
Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 53.53 Mbit/s) --- Flow 1 egress (mean 53.55 Mbit/s)
Flow 2 ingress (mean 38.95 Mbit/s) --- Flow 2 egress (mean 38.96 Mbit/s)
Flow 3 ingress (mean 32.50 Mbit/s) --- Flow 3 egress (mean 32.50 Mbit/s)

Flow 1 (95th percentile 34.41 ms)   Flow 2 (95th percentile 31.54 ms)   Flow 3 (95th percentile 33.87 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2019-10-03 13:19:51
End at: 2019-10-03 13:20:21
Local clock offset: 3.189 ms
Remote clock offset: -5.019 ms


# Below is generated by plot.py at 2019-10-03 13:44:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.42 Mbit/s
95th percentile per-packet one-way delay: 28.471 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 51.39 Mbit/s
95th percentile per-packet one-way delay: 27.934 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 34.73 Mbit/s
95th percentile per-packet one-way delay: 29.368 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 48.02 Mbit/s
95th percentile per-packet one-way delay: 28.665 ms
Loss rate: 0.53%
```

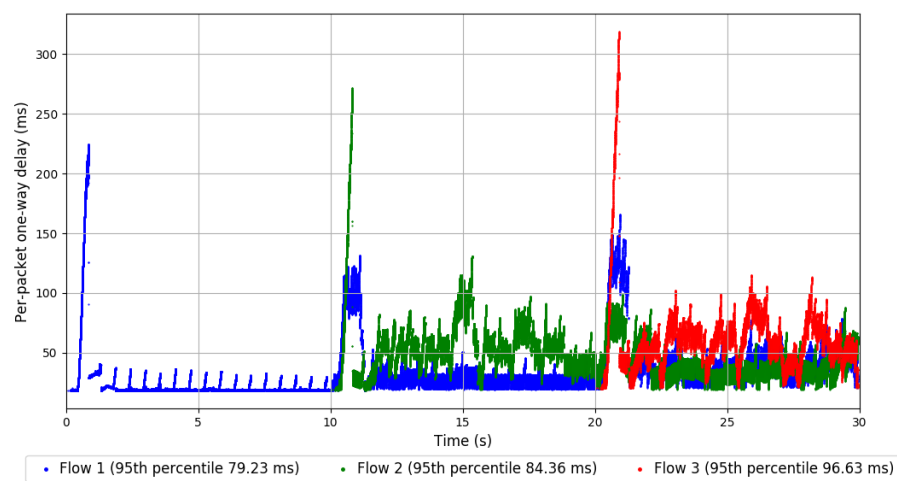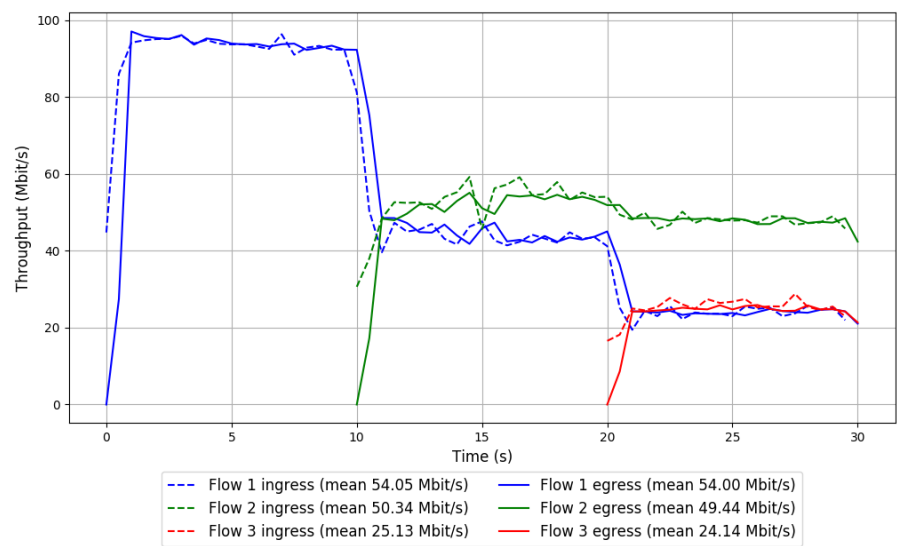Run 5: Report of TCP Cubic — Data Link

```
Run 1: Statistics of FillP

Start at: 2019-10-03 11:02:34
End at: 2019-10-03 11:03:04
Local clock offset: 3.171 ms
Remote clock offset: 0.13 ms


# Below is generated by plot.py at 2019-10-03 13:45:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.74 Mbit/s
95th percentile per-packet one-way delay: 81.668 ms
Loss rate: 1.56%
-- Flow 1:
Average throughput: 61.27 Mbit/s
95th percentile per-packet one-way delay: 50.553 ms
Loss rate: 0.39%
-- Flow 2:
Average throughput: 38.18 Mbit/s
95th percentile per-packet one-way delay: 95.102 ms
Loss rate: 3.23%
-- Flow 3:
Average throughput: 24.39 Mbit/s
95th percentile per-packet one-way delay: 89.362 ms
Loss rate: 4.93%
```

Run 1: Report of FillP — Data Link

```
Run 2: Statistics of FillP

Start at: 2019-10-03 11:33:38
End at: 2019-10-03 11:34:08
Local clock offset: -4.707 ms
Remote clock offset: -9.692 ms


# Below is generated by plot.py at 2019-10-03 13:45:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.00 Mbit/s
95th percentile per-packet one-way delay: 84.118 ms
Loss rate: 1.14%
-- Flow 1:
Average throughput: 62.06 Mbit/s
95th percentile per-packet one-way delay: 49.022 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 37.37 Mbit/s
95th percentile per-packet one-way delay: 90.288 ms
Loss rate: 1.90%
-- Flow 3:
Average throughput: 24.37 Mbit/s
95th percentile per-packet one-way delay: 95.631 ms
Loss rate: 5.69%
```
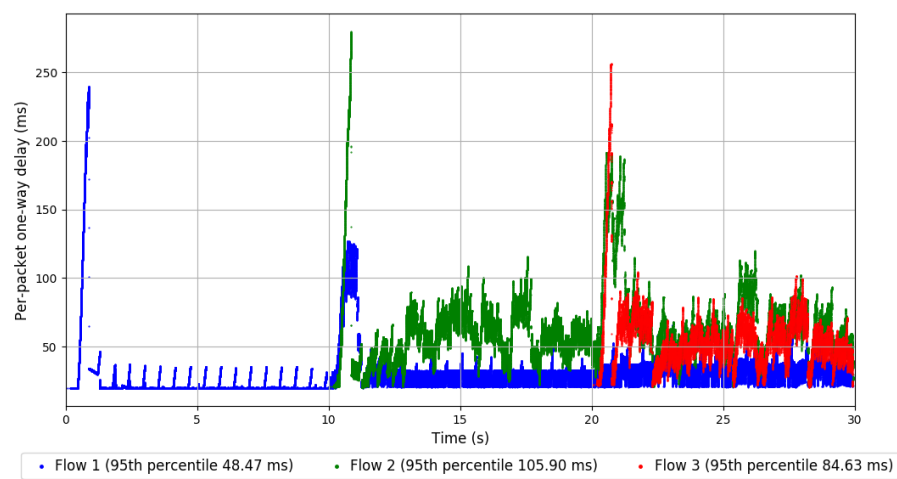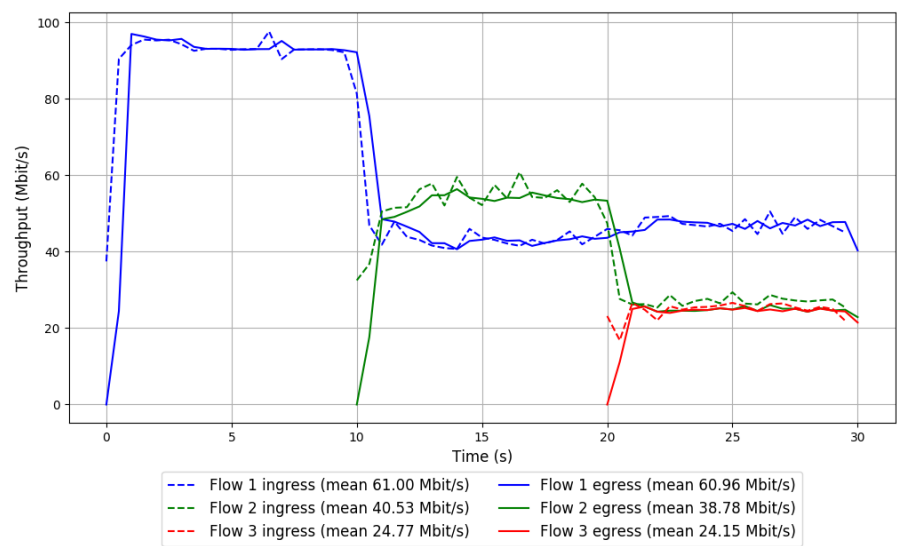
Run 2: Report of FillP — Data Link

```
Run 3: Statistics of FillP

Start at: 2019-10-03 12:06:13
End at: 2019-10-03 12:06:43
Local clock offset: 1.293 ms
Remote clock offset: -1.746 ms


# Below is generated by plot.py at 2019-10-03 13:45:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.89 Mbit/s
95th percentile per-packet one-way delay: 86.535 ms
Loss rate: 1.19%
-- Flow 1:
Average throughput: 54.00 Mbit/s
95th percentile per-packet one-way delay: 79.233 ms
Loss rate: 0.22%
-- Flow 2:
Average throughput: 49.44 Mbit/s
95th percentile per-packet one-way delay: 84.360 ms
Loss rate: 1.95%
-- Flow 3:
Average throughput: 24.14 Mbit/s
95th percentile per-packet one-way delay: 96.634 ms
Loss rate: 4.43%
```
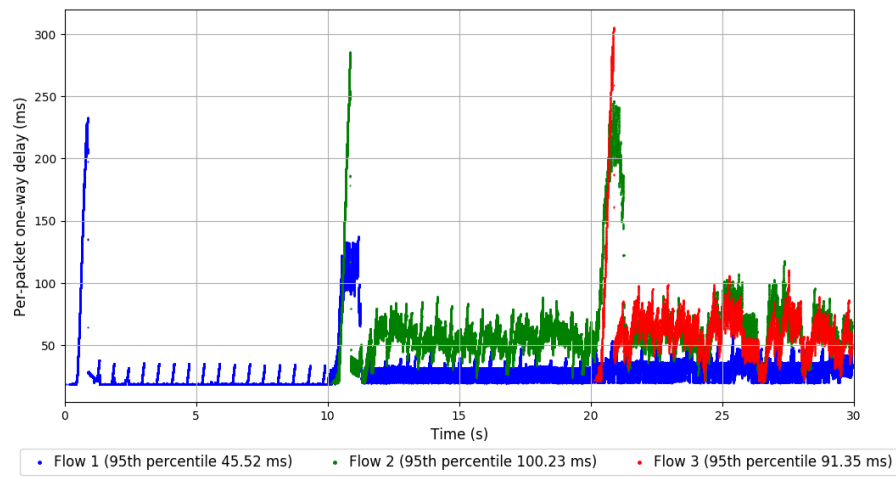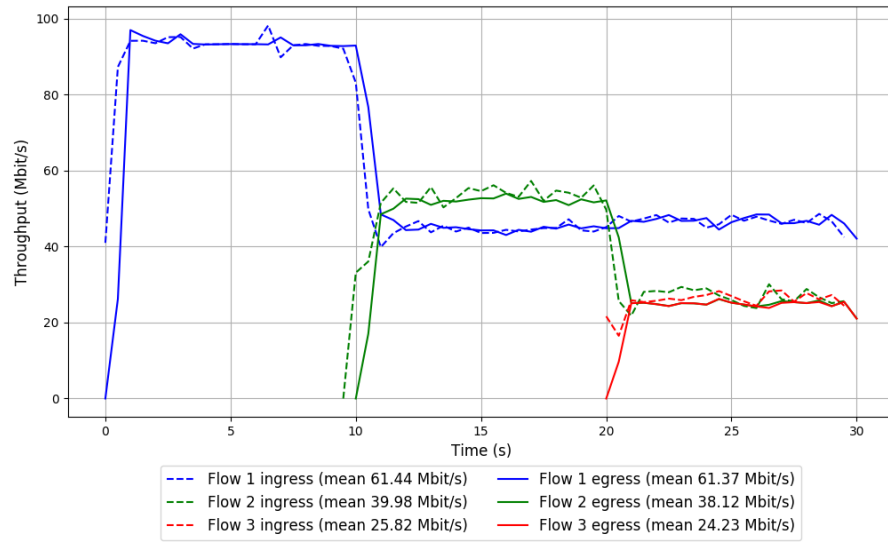
Run 3: Report of FillP — Data Link

```
Run 4: Statistics of FillP

Start at: 2019-10-03 12:38:26
End at: 2019-10-03 12:38:56
Local clock offset: 5.54 ms
Remote clock offset: -4.67 ms


# Below is generated by plot.py at 2019-10-03 13:45:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.76 Mbit/s
95th percentile per-packet one-way delay: 86.265 ms
Loss rate: 1.67%
-- Flow 1:
Average throughput: 60.96 Mbit/s
95th percentile per-packet one-way delay: 48.465 ms
Loss rate: 0.22%
-- Flow 2:
Average throughput: 38.78 Mbit/s
95th percentile per-packet one-way delay: 105.902 ms
Loss rate: 4.54%
-- Flow 3:
Average throughput: 24.15 Mbit/s
95th percentile per-packet one-way delay: 84.629 ms
Loss rate: 3.00%
```
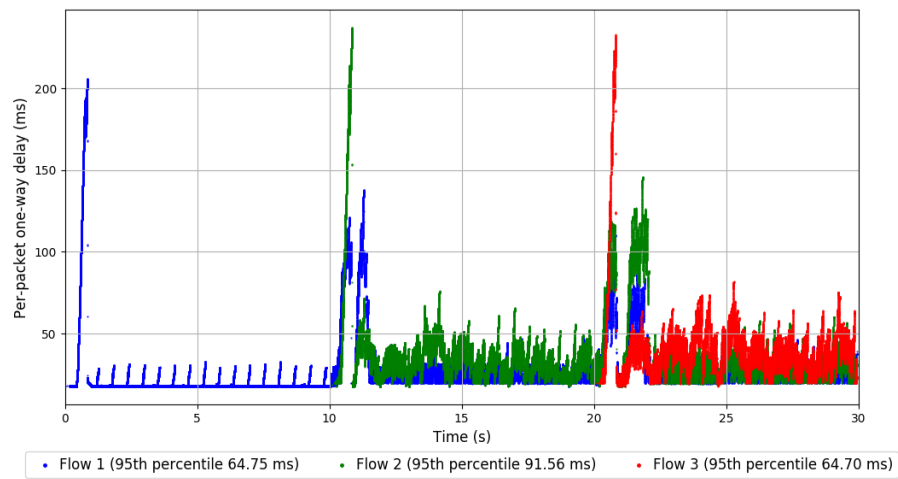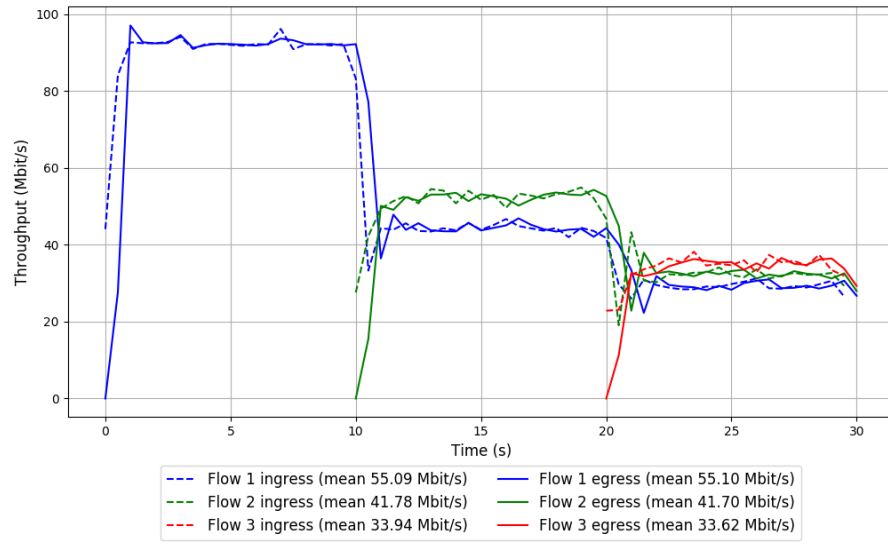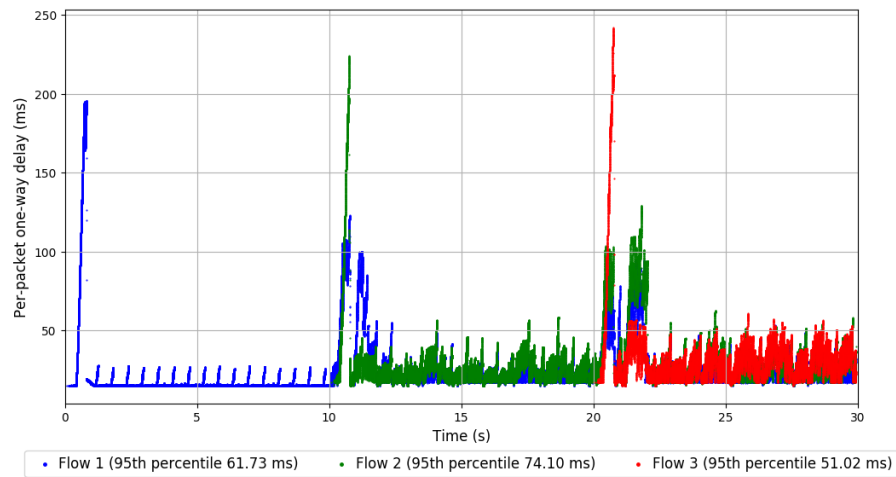
Run 4: Report of FillP — Data Link

Flow 1 ingress (mean 61.00 Mbit/s) — Flow 1 egress (mean 60.96 Mbit/s)
Flow 2 ingress (mean 40.53 Mbit/s) — Flow 2 egress (mean 38.78 Mbit/s)
Flow 3 ingress (mean 24.77 Mbit/s) — Flow 3 egress (mean 24.15 Mbit/s)

Flow 1 (95th percentile 48.47 ms)   Flow 2 (95th percentile 105.90 ms)   Flow 3 (95th percentile 84.63 ms)

42

```
Run 5: Statistics of FillP

Start at: 2019-10-03 13:10:39
End at: 2019-10-03 13:11:09
Local clock offset: 4.196 ms
Remote clock offset: -3.12 ms


# Below is generated by plot.py at 2019-10-03 13:46:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.78 Mbit/s
95th percentile per-packet one-way delay: 84.750 ms
Loss rate: 2.02%
-- Flow 1:
Average throughput: 61.37 Mbit/s
95th percentile per-packet one-way delay: 45.523 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 38.12 Mbit/s
95th percentile per-packet one-way delay: 100.235 ms
Loss rate: 4.87%
-- Flow 3:
Average throughput: 24.23 Mbit/s
95th percentile per-packet one-way delay: 91.354 ms
Loss rate: 6.62%
```
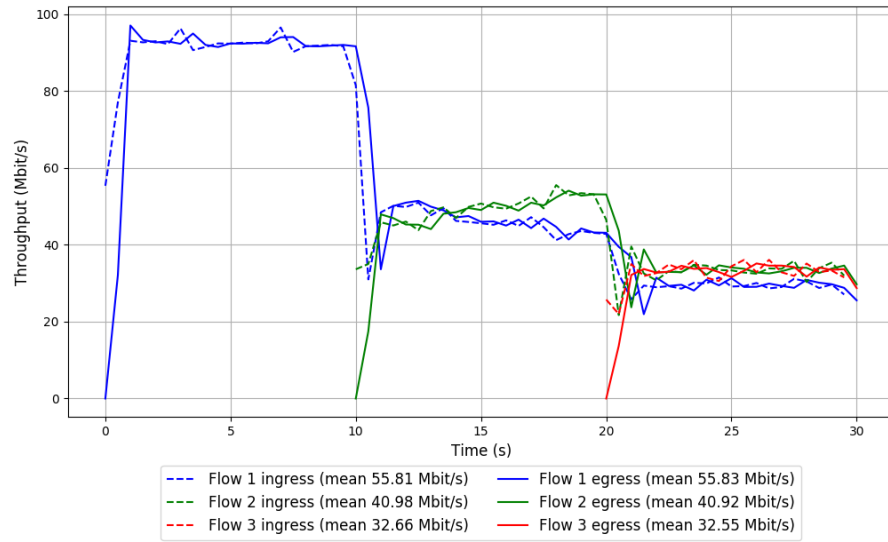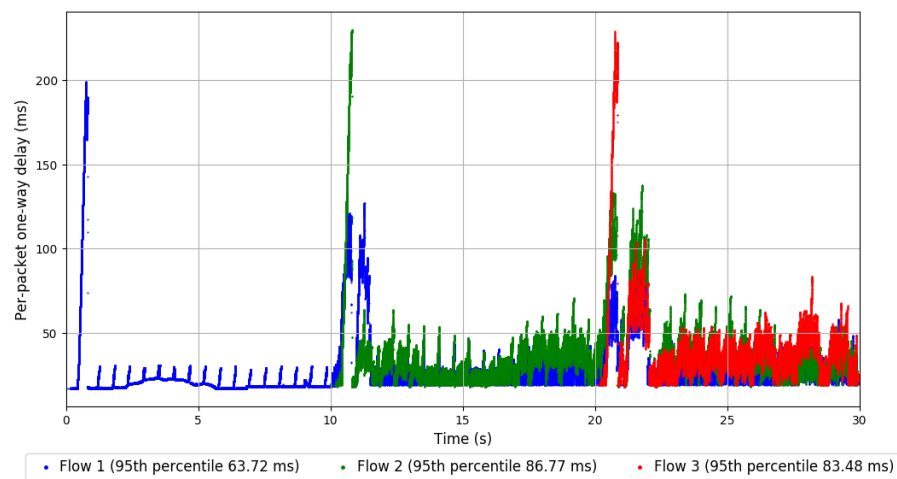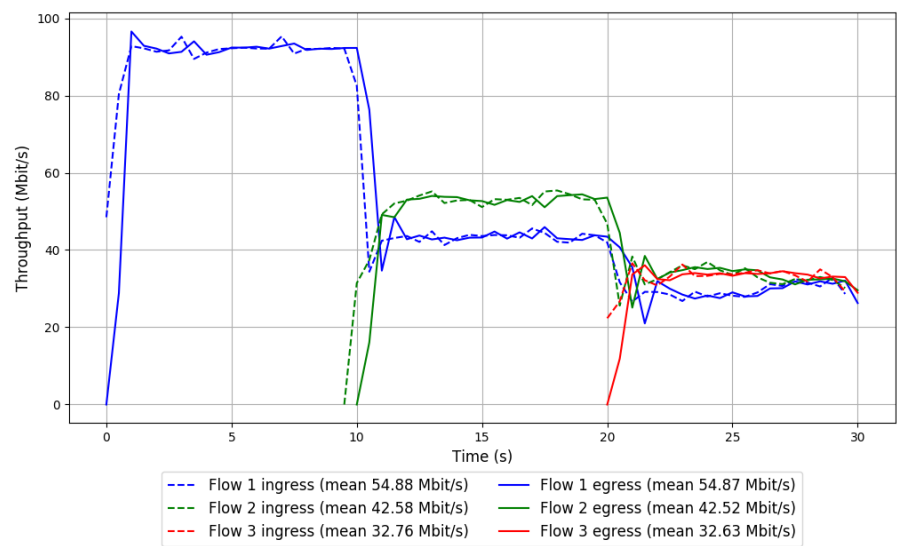
Run 5: Report of FillP — Data Link

```
Run 1: Statistics of FillP-Sheep

Start at: 2019-10-03 11:06:11
End at: 2019-10-03 11:06:41
Local clock offset: 3.324 ms
Remote clock offset: 0.004 ms


# Below is generated by plot.py at 2019-10-03 13:46:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.97 Mbit/s
95th percentile per-packet one-way delay: 70.357 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 55.10 Mbit/s
95th percentile per-packet one-way delay: 64.750 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 41.70 Mbit/s
95th percentile per-packet one-way delay: 91.557 ms
Loss rate: 0.38%
-- Flow 3:
Average throughput: 33.62 Mbit/s
95th percentile per-packet one-way delay: 64.698 ms
Loss rate: 1.45%
```

Run 1: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 55.09 Mbit/s) ----   Flow 1 egress (mean 55.10 Mbit/s) ——
Flow 2 ingress (mean 41.78 Mbit/s) ----   Flow 2 egress (mean 41.70 Mbit/s) ——
Flow 3 ingress (mean 33.94 Mbit/s) ----   Flow 3 egress (mean 33.62 Mbit/s) ——

Flow 1 (95th percentile 64.75 ms)   Flow 2 (95th percentile 91.56 ms)   Flow 3 (95th percentile 64.70 ms)

```
Run 2: Statistics of FillP-Sheep

Start at: 2019-10-03 11:37:30
End at: 2019-10-03 11:38:00
Local clock offset: 1.028 ms
Remote clock offset: -1.146 ms


# Below is generated by plot.py at 2019-10-03 13:46:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.84 Mbit/s
95th percentile per-packet one-way delay: 62.718 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 55.83 Mbit/s
95th percentile per-packet one-way delay: 61.727 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 40.92 Mbit/s
95th percentile per-packet one-way delay: 74.102 ms
Loss rate: 0.34%
-- Flow 3:
Average throughput: 32.55 Mbit/s
95th percentile per-packet one-way delay: 51.019 ms
Loss rate: 0.80%
```
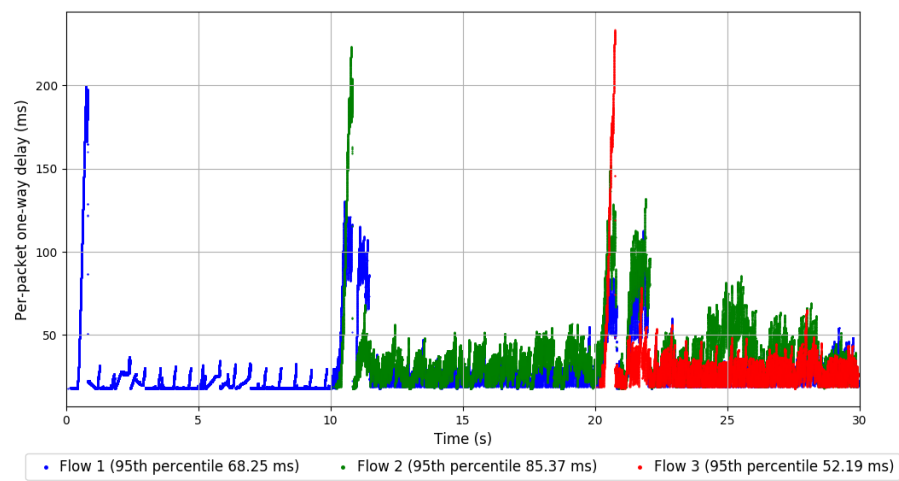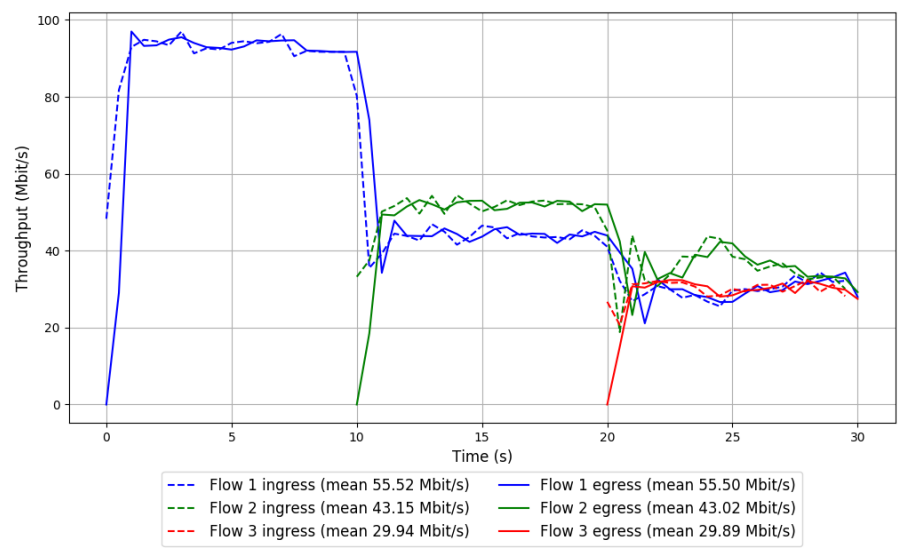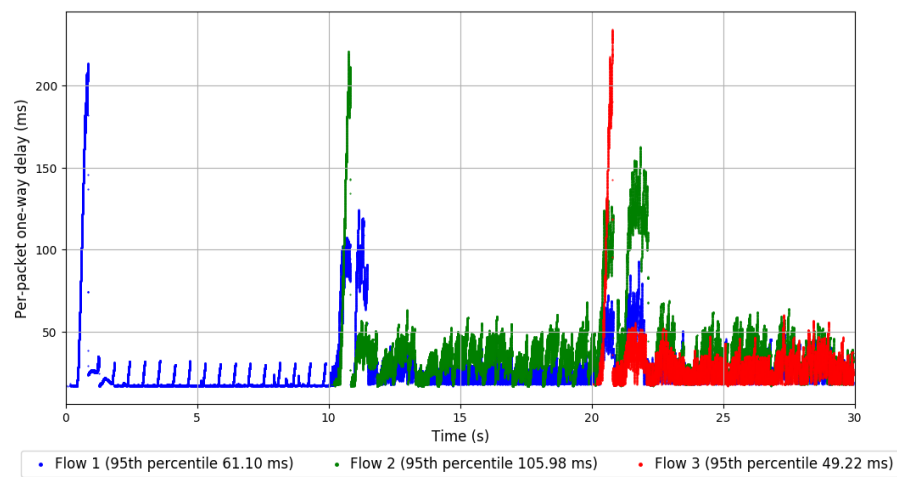
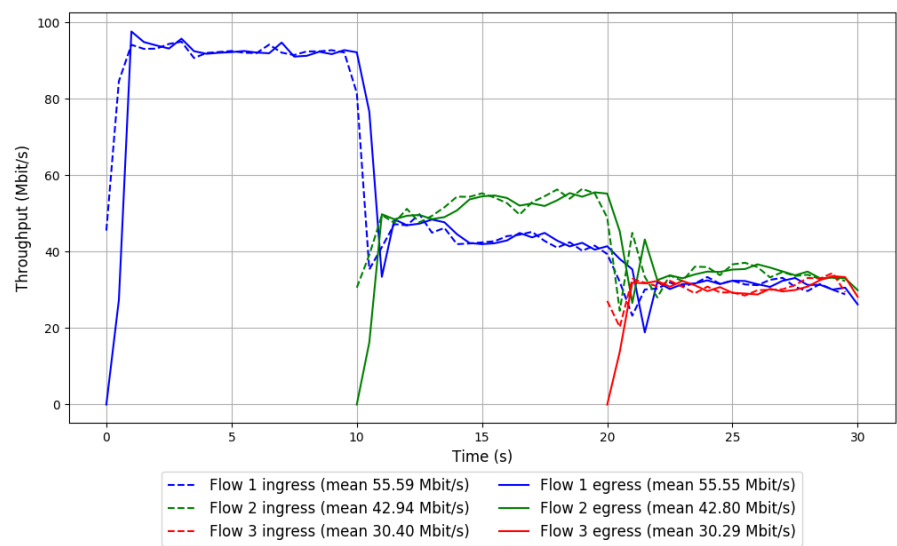Run 2: Report of FillP-Sheep — Data Link

```
Run 3: Statistics of FillP-Sheep

Start at: 2019-10-03 12:10:28
End at: 2019-10-03 12:10:58
Local clock offset: 0.68 ms
Remote clock offset: -1.901 ms


# Below is generated by plot.py at 2019-10-03 13:46:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.97 Mbit/s
95th percentile per-packet one-way delay: 72.115 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 54.87 Mbit/s
95th percentile per-packet one-way delay: 63.718 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 42.52 Mbit/s
95th percentile per-packet one-way delay: 86.772 ms
Loss rate: 0.36%
-- Flow 3:
Average throughput: 32.63 Mbit/s
95th percentile per-packet one-way delay: 83.484 ms
Loss rate: 0.84%
```
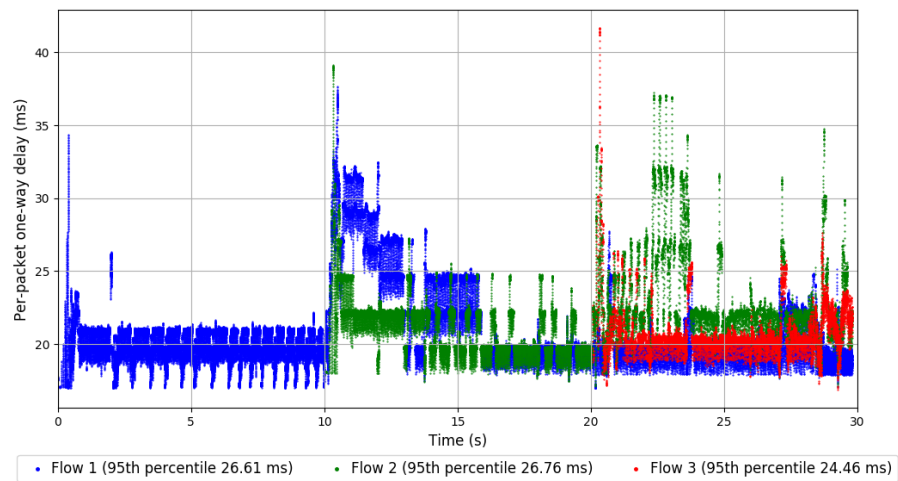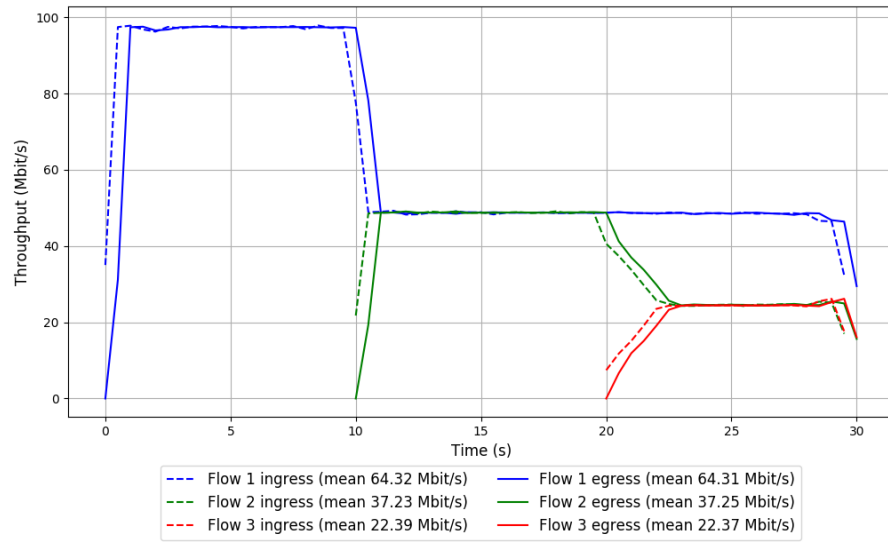
Run 3: Report of FillP-Sheep — Data Link

- - - Flow 1 ingress (mean 54.88 Mbit/s) —— Flow 1 egress (mean 54.87 Mbit/s)
- - - Flow 2 ingress (mean 42.58 Mbit/s) —— Flow 2 egress (mean 42.52 Mbit/s)
- - - Flow 3 ingress (mean 32.76 Mbit/s) —— Flow 3 egress (mean 32.63 Mbit/s)

• Flow 1 (95th percentile 63.72 ms)   • Flow 2 (95th percentile 86.77 ms)   • Flow 3 (95th percentile 83.48 ms)

50

```
Run 4: Statistics of FillP-Sheep

Start at: 2019-10-03 12:42:19
End at: 2019-10-03 12:42:49
Local clock offset: 4.079 ms
Remote clock offset: -4.91 ms


# Below is generated by plot.py at 2019-10-03 13:46:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.03 Mbit/s
95th percentile per-packet one-way delay: 73.892 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 55.50 Mbit/s
95th percentile per-packet one-way delay: 68.254 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 43.02 Mbit/s
95th percentile per-packet one-way delay: 85.368 ms
Loss rate: 0.45%
-- Flow 3:
Average throughput: 29.89 Mbit/s
95th percentile per-packet one-way delay: 52.188 ms
Loss rate: 0.54%
```
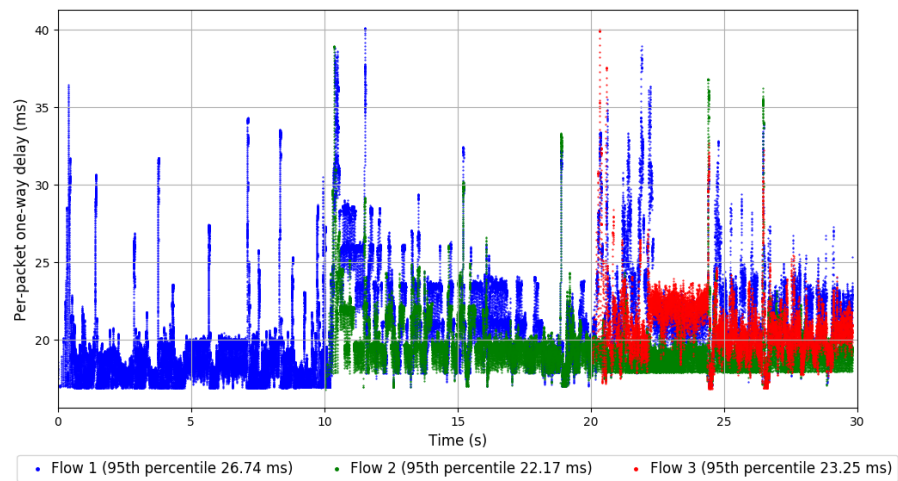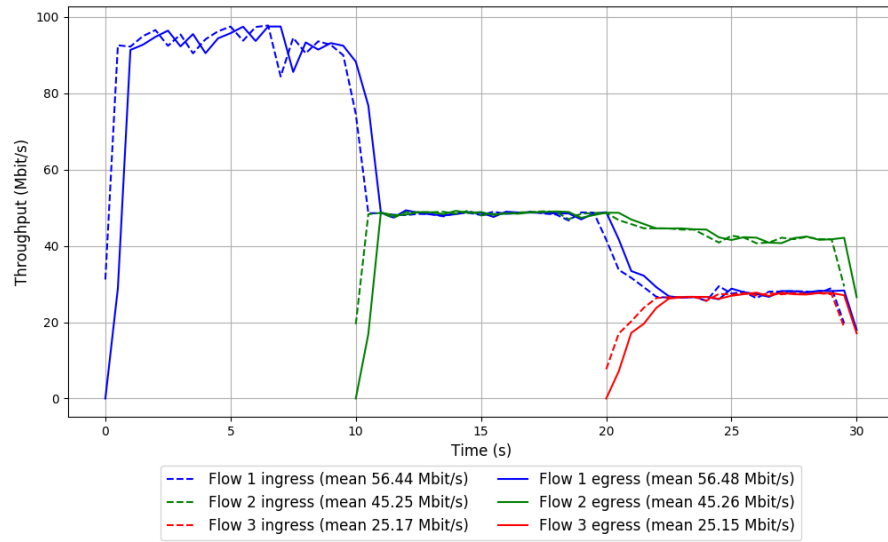
Run 4: Report of FillP-Sheep — Data Link

- - - - Flow 1 ingress (mean 55.52 Mbit/s)   —— Flow 1 egress (mean 55.50 Mbit/s)
- - - - Flow 2 ingress (mean 43.15 Mbit/s)   —— Flow 2 egress (mean 43.02 Mbit/s)
- - - - Flow 3 ingress (mean 29.94 Mbit/s)   —— Flow 3 egress (mean 29.89 Mbit/s)

• Flow 1 (95th percentile 68.25 ms)   • Flow 2 (95th percentile 85.37 ms)   • Flow 3 (95th percentile 52.19 ms)
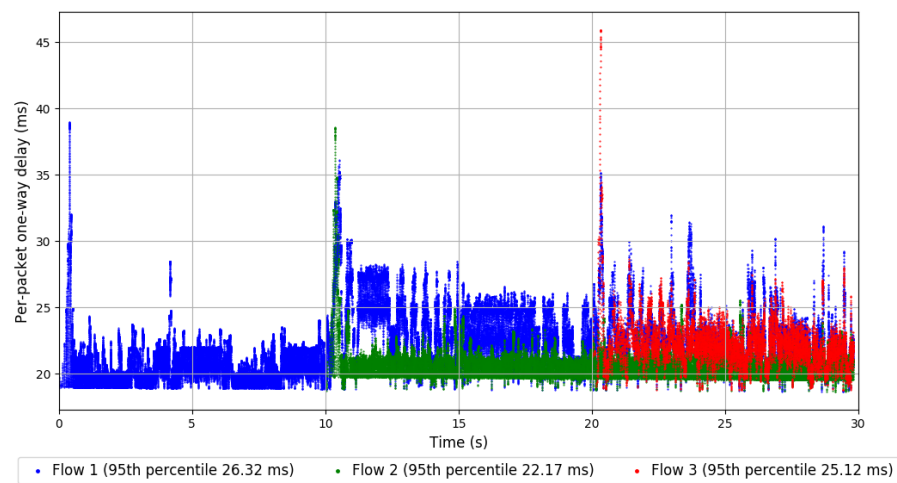
```
Run 5: Statistics of FillP-Sheep

Start at: 2019-10-03 13:14:33
End at: 2019-10-03 13:15:03
Local clock offset: 1.48 ms
Remote clock offset: -3.941 ms


# Below is generated by plot.py at 2019-10-03 13:46:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.06 Mbit/s
95th percentile per-packet one-way delay: 67.924 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 55.55 Mbit/s
95th percentile per-packet one-way delay: 61.096 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 42.80 Mbit/s
95th percentile per-packet one-way delay: 105.979 ms
Loss rate: 0.52%
-- Flow 3:
Average throughput: 30.29 Mbit/s
95th percentile per-packet one-way delay: 49.221 ms
Loss rate: 0.78%
```

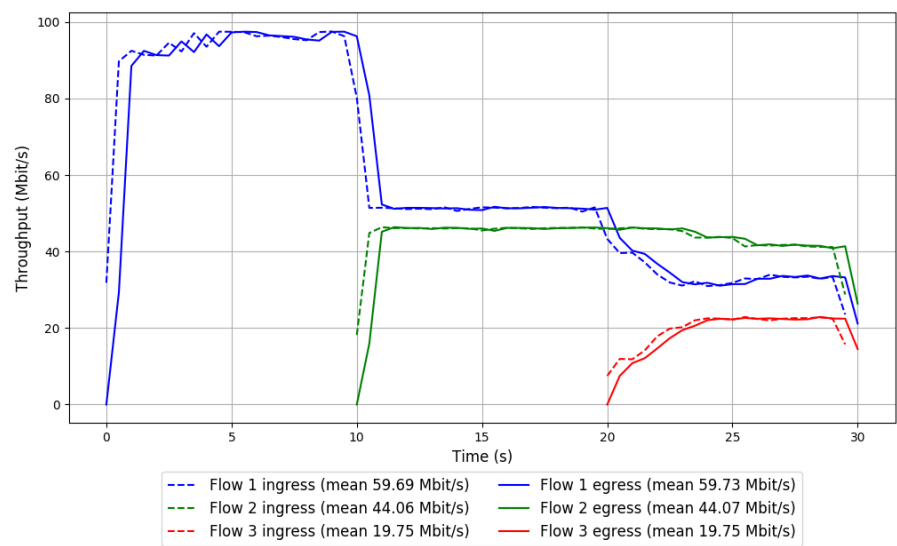# Run 5: Report of FillP-Sheep — Data Link

```
Run 1: Statistics of Indigo

Start at: 2019-10-03 11:21:44
End at: 2019-10-03 11:22:15
Local clock offset: 0.817 ms
Remote clock offset: -1.613 ms


# Below is generated by plot.py at 2019-10-03 13:46:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.38 Mbit/s
95th percentile per-packet one-way delay: 26.502 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 64.31 Mbit/s
95th percentile per-packet one-way delay: 26.615 ms
Loss rate: 0.16%
-- Flow 2:
Average throughput: 37.25 Mbit/s
95th percentile per-packet one-way delay: 26.759 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 22.37 Mbit/s
95th percentile per-packet one-way delay: 24.463 ms
Loss rate: 0.62%
```
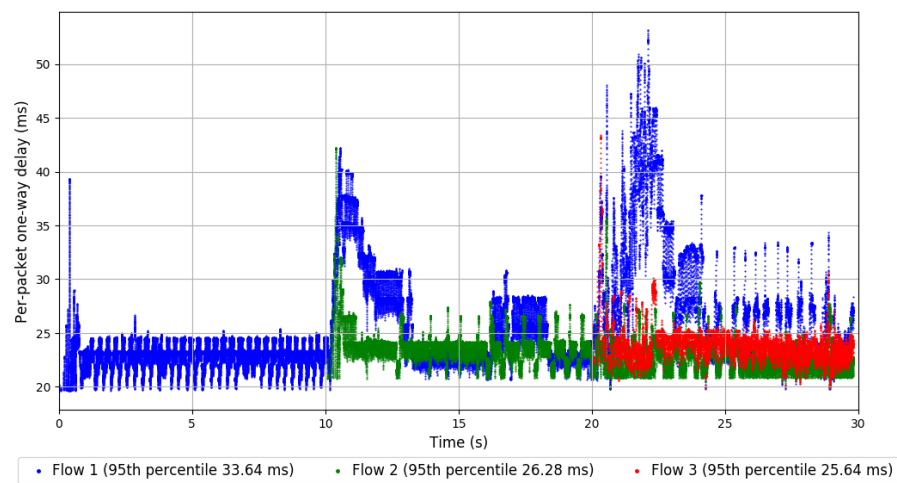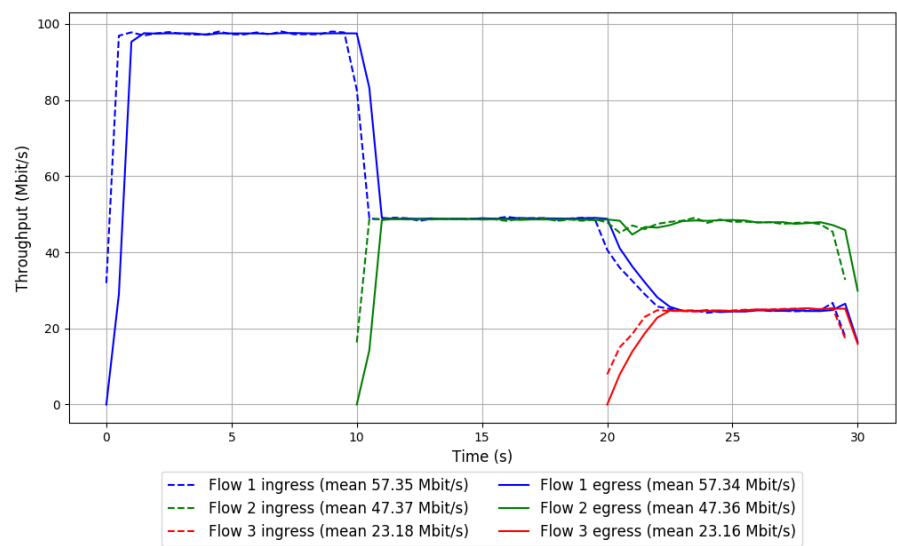
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2019-10-03 11:54:11
End at: 2019-10-03 11:54:41
Local clock offset: 2.902 ms
Remote clock offset: -1.396 ms


# Below is generated by plot.py at 2019-10-03 13:46:42
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.73 Mbit/s
95th percentile per-packet one-way delay: 25.781 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 56.48 Mbit/s
95th percentile per-packet one-way delay: 26.743 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 45.26 Mbit/s
95th percentile per-packet one-way delay: 22.171 ms
Loss rate: 0.24%
-- Flow 3:
Average throughput: 25.15 Mbit/s
95th percentile per-packet one-way delay: 23.254 ms
Loss rate: 0.58%
```
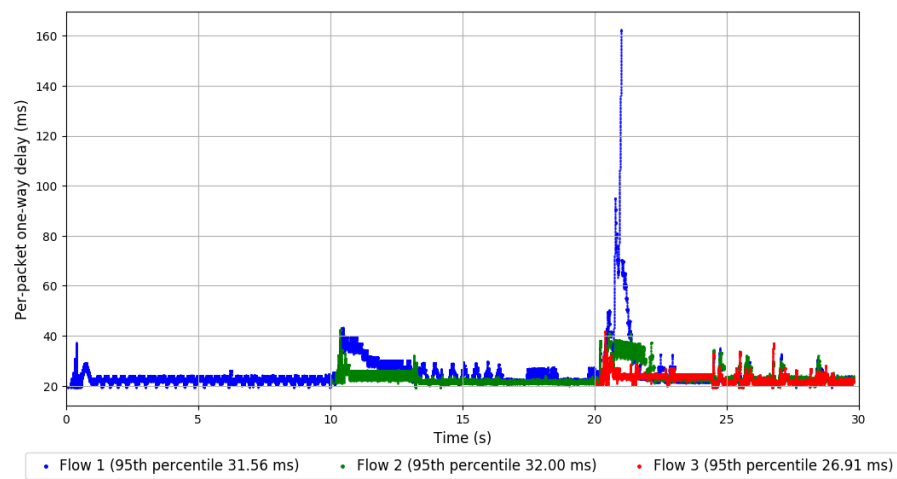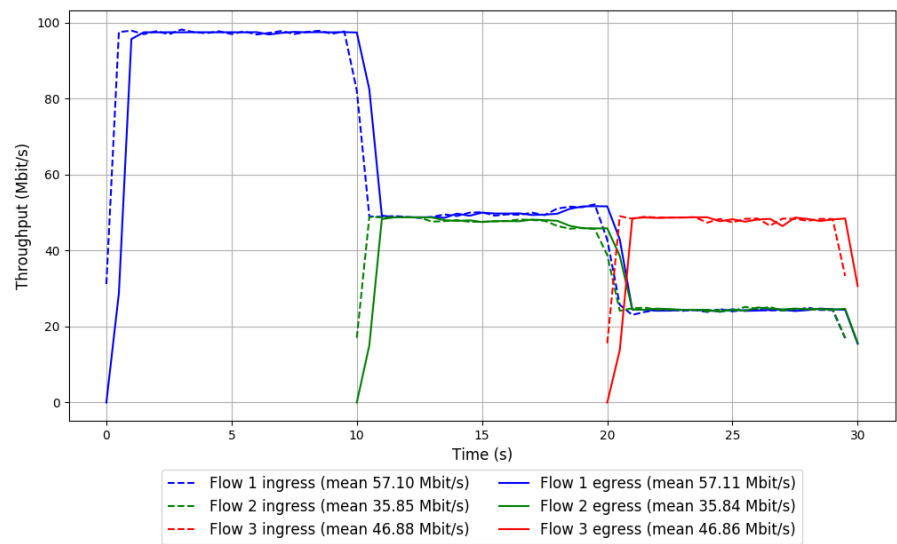
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2019-10-03 12:26:33
End at: 2019-10-03 12:27:03
Local clock offset: 1.649 ms
Remote clock offset: -2.538 ms


# Below is generated by plot.py at 2019-10-03 13:47:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.47 Mbit/s
95th percentile per-packet one-way delay: 25.300 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 59.73 Mbit/s
95th percentile per-packet one-way delay: 26.318 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 44.07 Mbit/s
95th percentile per-packet one-way delay: 22.169 ms
Loss rate: 0.24%
-- Flow 3:
Average throughput: 19.75 Mbit/s
95th percentile per-packet one-way delay: 25.119 ms
Loss rate: 0.61%
```
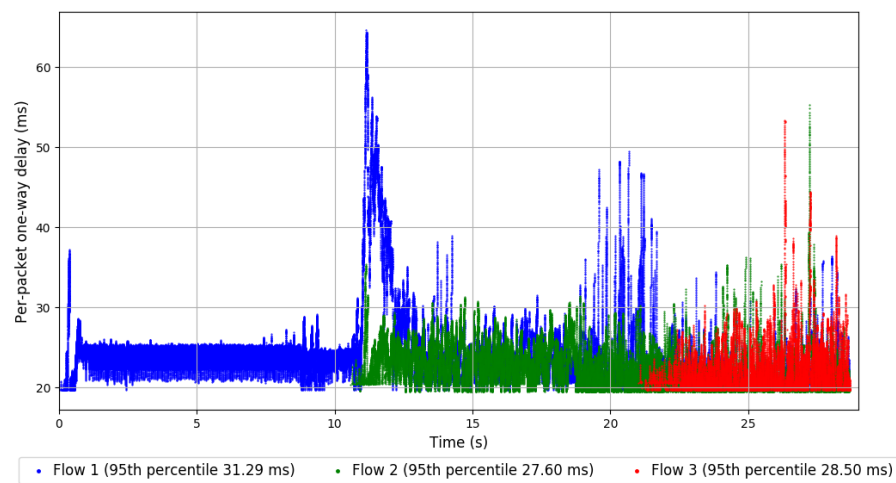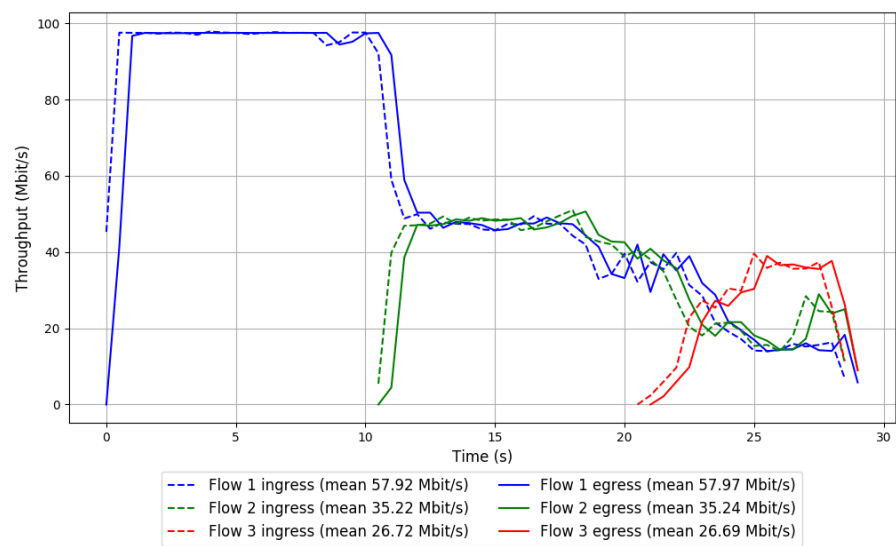
Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2019-10-03 12:59:16
End at: 2019-10-03 12:59:46
Local clock offset: 4.973 ms
Remote clock offset: -5.506 ms


# Below is generated by plot.py at 2019-10-03 13:47:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.33 Mbit/s
95th percentile per-packet one-way delay: 30.629 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 57.34 Mbit/s
95th percentile per-packet one-way delay: 33.638 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 47.36 Mbit/s
95th percentile per-packet one-way delay: 26.283 ms
Loss rate: 0.26%
-- Flow 3:
Average throughput: 23.16 Mbit/s
95th percentile per-packet one-way delay: 25.637 ms
Loss rate: 0.57%
```
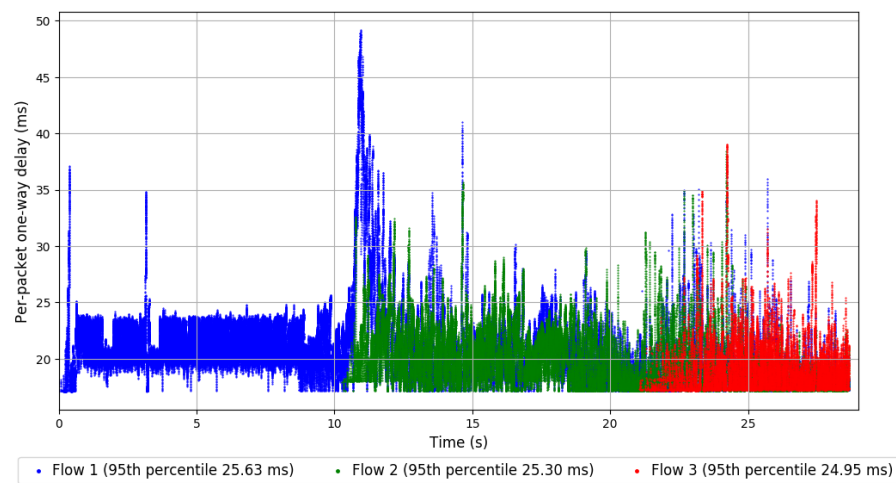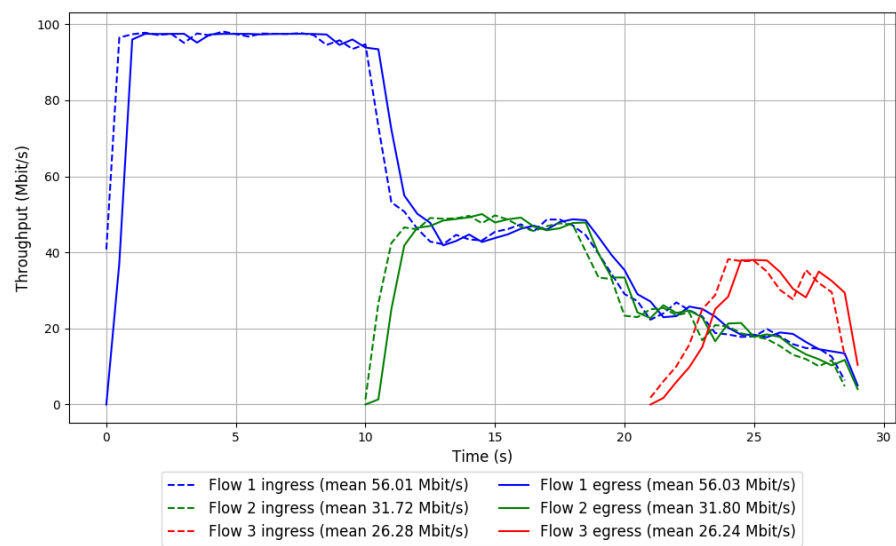
Run 4: Report of Indigo — Data Link

Flow 1 ingress (mean 57.35 Mbit/s) Flow 1 egress (mean 57.34 Mbit/s)
Flow 2 ingress (mean 47.37 Mbit/s) Flow 2 egress (mean 47.36 Mbit/s)
Flow 3 ingress (mean 23.18 Mbit/s) Flow 3 egress (mean 23.16 Mbit/s)

Flow 1 (95th percentile 33.64 ms)   Flow 2 (95th percentile 26.28 ms)   Flow 3 (95th percentile 25.64 ms)

```
Run 5: Statistics of Indigo

Start at: 2019-10-03 13:30:05
End at: 2019-10-03 13:30:35
Local clock offset: 5.206 ms
Remote clock offset: -2.967 ms


# Below is generated by plot.py at 2019-10-03 13:47:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.20 Mbit/s
95th percentile per-packet one-way delay: 30.861 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 57.11 Mbit/s
95th percentile per-packet one-way delay: 31.559 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 35.84 Mbit/s
95th percentile per-packet one-way delay: 31.998 ms
Loss rate: 0.26%
-- Flow 3:
Average throughput: 46.86 Mbit/s
95th percentile per-packet one-way delay: 26.912 ms
Loss rate: 0.53%
```
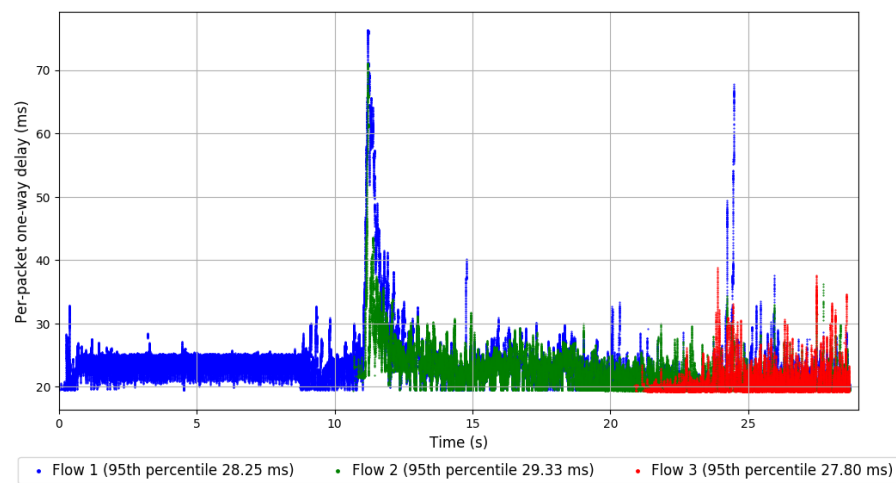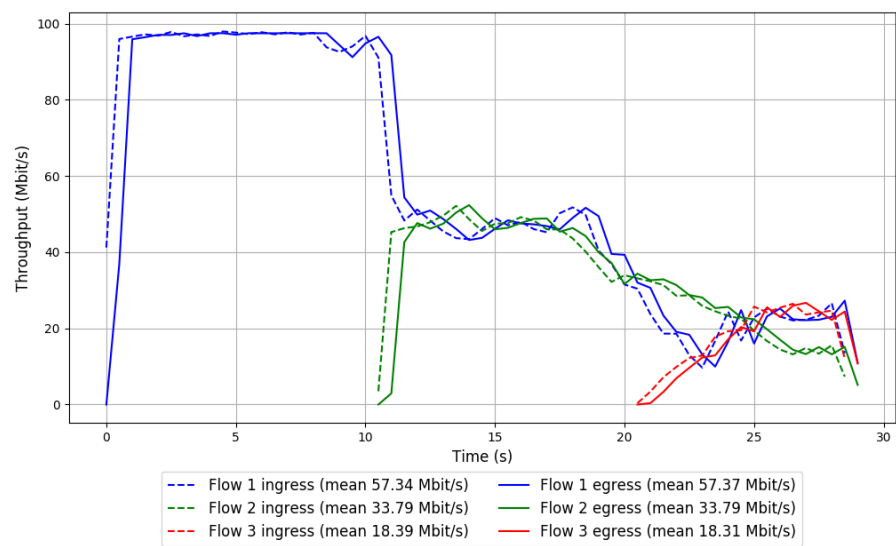
Run 5: Report of Indigo — Data Link

```
Run 1: Statistics of Indigo-MusesC3

Start at: 2019-10-03 11:30:58
End at: 2019-10-03 11:31:28
Local clock offset: 3.495 ms
Remote clock offset: -2.465 ms

# Below is generated by plot.py at 2019-10-03 13:47:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.36 Mbit/s
95th percentile per-packet one-way delay: 29.257 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 57.97 Mbit/s
95th percentile per-packet one-way delay: 31.291 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 35.24 Mbit/s
95th percentile per-packet one-way delay: 27.598 ms
Loss rate: 0.23%
-- Flow 3:
Average throughput: 26.69 Mbit/s
95th percentile per-packet one-way delay: 28.498 ms
Loss rate: 0.75%
```
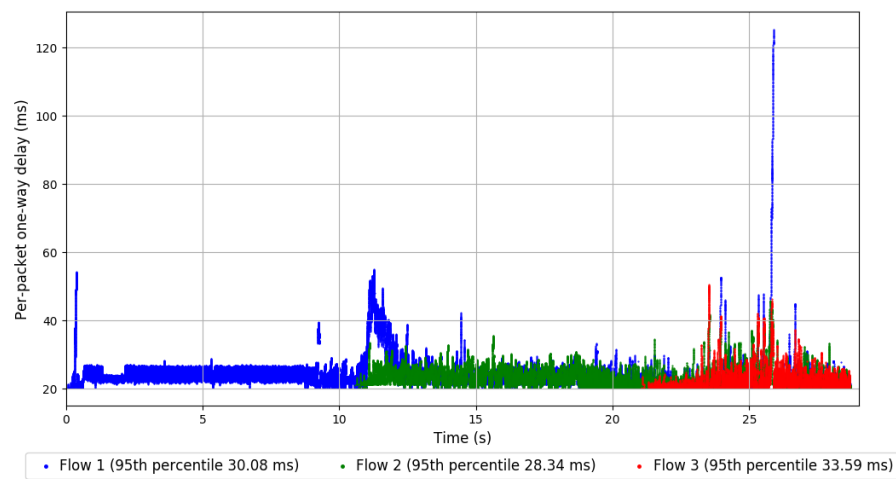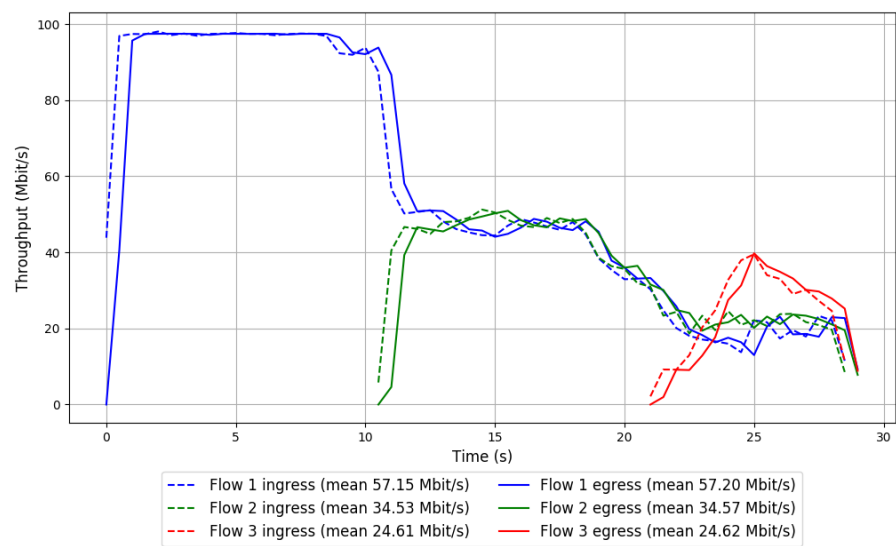
Run 1: Report of Indigo-MusesC3 — Data Link

```
Run 2: Statistics of Indigo-MusesC3

Start at: 2019-10-03 12:03:23
End at: 2019-10-03 12:03:53
Local clock offset: -0.862 ms
Remote clock offset: -2.957 ms


# Below is generated by plot.py at 2019-10-03 13:47:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.42 Mbit/s
95th percentile per-packet one-way delay: 25.451 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 56.03 Mbit/s
95th percentile per-packet one-way delay: 25.632 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 31.80 Mbit/s
95th percentile per-packet one-way delay: 25.301 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 26.24 Mbit/s
95th percentile per-packet one-way delay: 24.946 ms
Loss rate: 0.76%
```

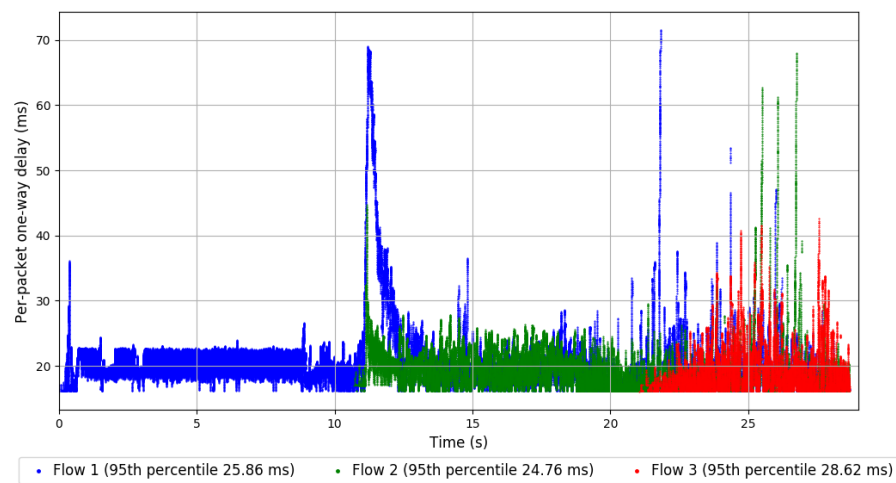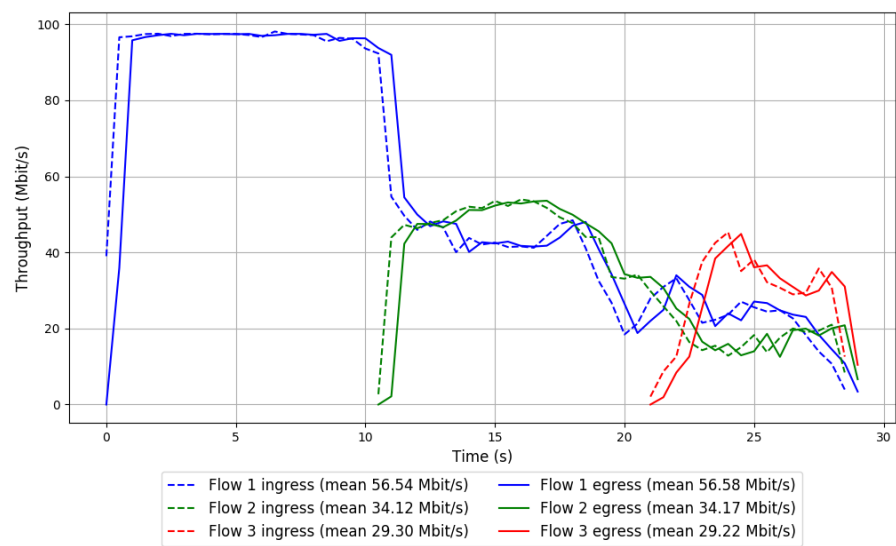Run 2: Report of Indigo-MusesC3 — Data Link

```
Run 3: Statistics of Indigo-MusesC3

Start at: 2019-10-03 12:35:51
End at: 2019-10-03 12:36:21
Local clock offset: 4.513 ms
Remote clock offset: -4.533 ms


# Below is generated by plot.py at 2019-10-03 13:47:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.60 Mbit/s
95th percentile per-packet one-way delay: 28.602 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 57.37 Mbit/s
95th percentile per-packet one-way delay: 28.253 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 33.79 Mbit/s
95th percentile per-packet one-way delay: 29.326 ms
Loss rate: 0.26%
-- Flow 3:
Average throughput: 18.31 Mbit/s
95th percentile per-packet one-way delay: 27.797 ms
Loss rate: 1.22%
```

Run 3: Report of Indigo-MusesC3 — Data Link

Flow 1 ingress (mean 57.34 Mbit/s) — — — Flow 1 egress (mean 57.37 Mbit/s)
Flow 2 ingress (mean 33.79 Mbit/s) — — — Flow 2 egress (mean 33.79 Mbit/s)
Flow 3 ingress (mean 18.39 Mbit/s) — — — Flow 3 egress (mean 18.31 Mbit/s)

Flow 1 (95th percentile 28.25 ms)   • Flow 2 (95th percentile 29.33 ms)   • Flow 3 (95th percentile 27.80 ms)
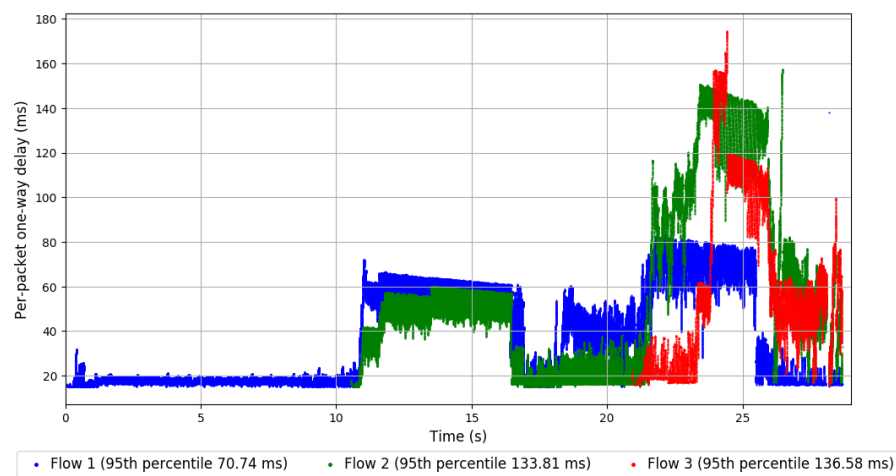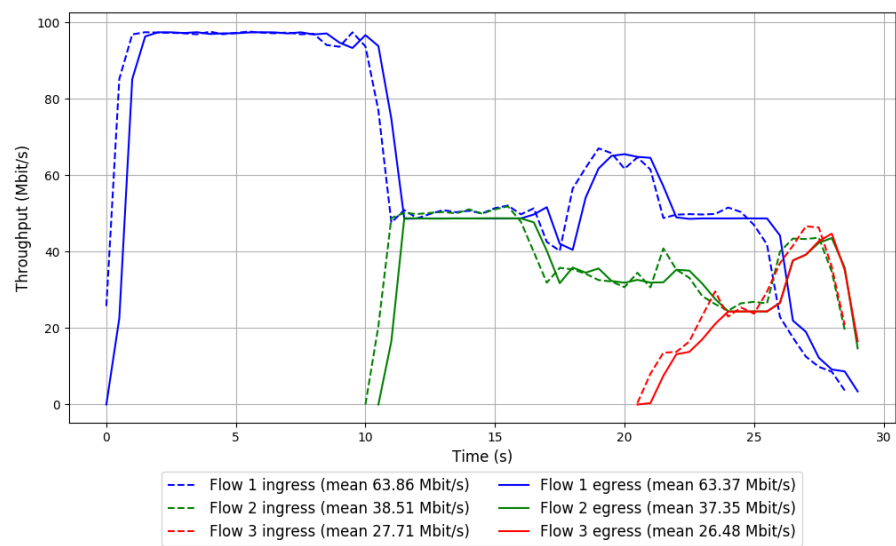
```
Run 4: Statistics of Indigo-MusesC3

Start at: 2019-10-03 13:08:09
End at: 2019-10-03 13:08:39
Local clock offset: 3.864 ms
Remote clock offset: -5.219 ms


# Below is generated by plot.py at 2019-10-03 13:47:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.55 Mbit/s
95th percentile per-packet one-way delay: 29.399 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 57.20 Mbit/s
95th percentile per-packet one-way delay: 30.082 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 34.57 Mbit/s
95th percentile per-packet one-way delay: 28.341 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 24.62 Mbit/s
95th percentile per-packet one-way delay: 33.587 ms
Loss rate: 0.75%
```

Run 4: Report of Indigo-MusesC3 — Data Link

Flow 1 ingress (mean 57.15 Mbit/s) ---- Flow 1 egress (mean 57.20 Mbit/s) ——
Flow 2 ingress (mean 34.53 Mbit/s) ---- Flow 2 egress (mean 34.57 Mbit/s) ——
Flow 3 ingress (mean 24.61 Mbit/s) ---- Flow 3 egress (mean 24.62 Mbit/s) ——

Flow 1 (95th percentile 30.08 ms)   •   Flow 2 (95th percentile 28.34 ms)   •   Flow 3 (95th percentile 33.59 ms)
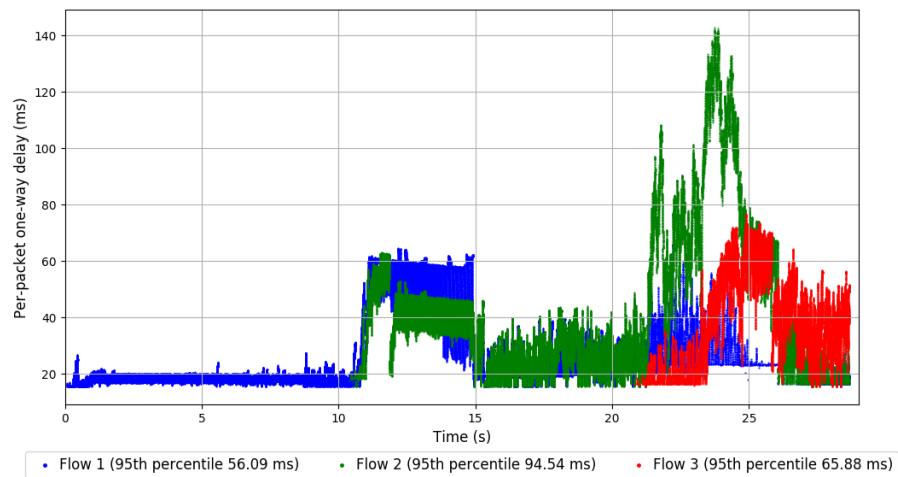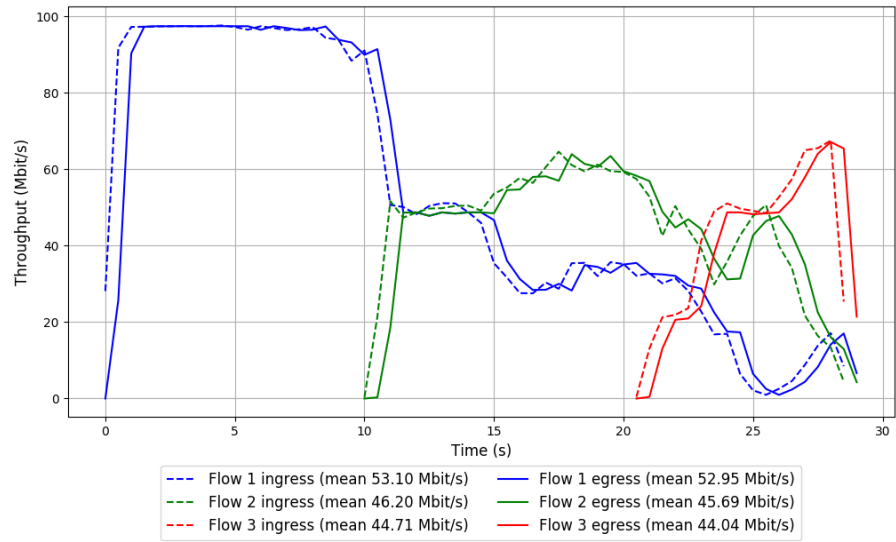
```
Run 5: Statistics of Indigo-MusesC3

Start at: 2019-10-03 13:38:49
End at: 2019-10-03 13:39:19
Local clock offset: 2.646 ms
Remote clock offset: -3.077 ms

# Below is generated by plot.py at 2019-10-03 13:47:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.78 Mbit/s
95th percentile per-packet one-way delay: 25.807 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 56.58 Mbit/s
95th percentile per-packet one-way delay: 25.861 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 34.17 Mbit/s
95th percentile per-packet one-way delay: 24.756 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 29.22 Mbit/s
95th percentile per-packet one-way delay: 28.621 ms
Loss rate: 0.81%
```

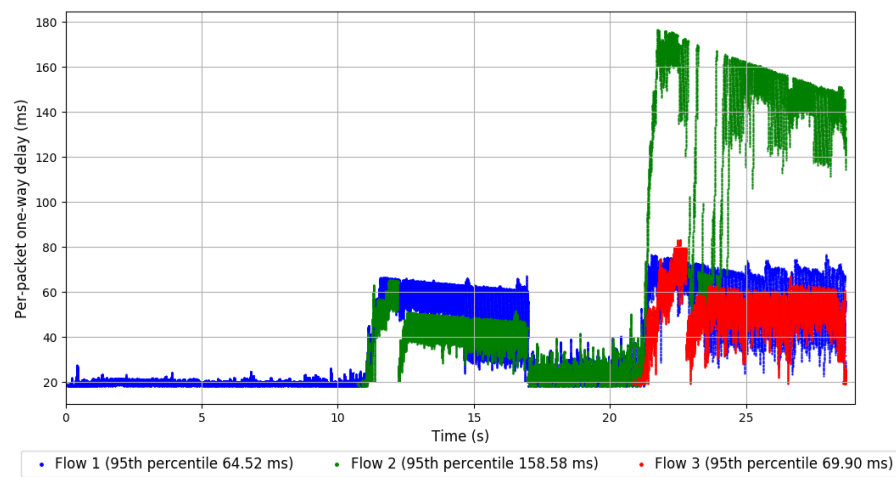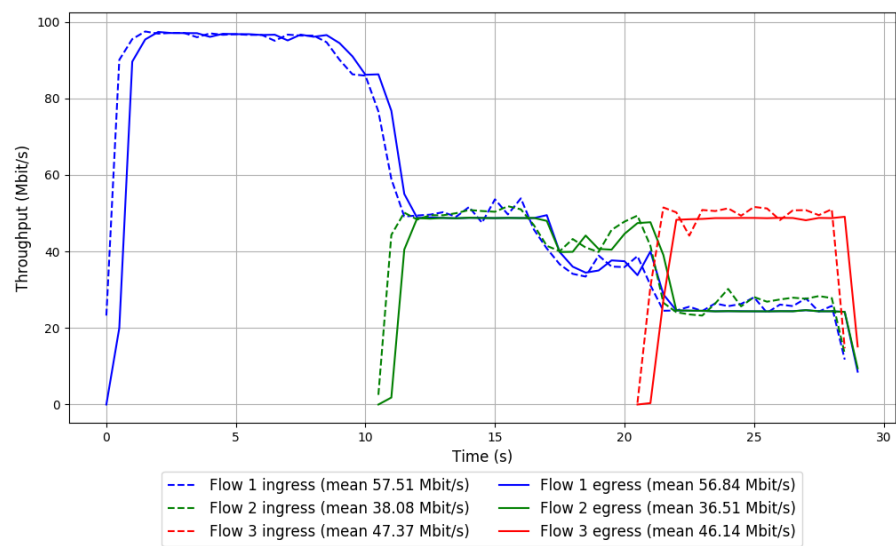Run 5: Report of Indigo-MusesC3 — Data Link

74

```
Run 1: Statistics of Indigo-MusesC5

Start at: 2019-10-03 11:03:45
End at: 2019-10-03 11:04:15
Local clock offset: -0.807 ms
Remote clock offset: -1.836 ms


# Below is generated by plot.py at 2019-10-03 13:48:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.26 Mbit/s
95th percentile per-packet one-way delay: 98.544 ms
Loss rate: 1.83%
-- Flow 1:
Average throughput: 63.37 Mbit/s
95th percentile per-packet one-way delay: 70.737 ms
Loss rate: 0.90%
-- Flow 2:
Average throughput: 37.35 Mbit/s
95th percentile per-packet one-way delay: 133.808 ms
Loss rate: 3.26%
-- Flow 3:
Average throughput: 26.48 Mbit/s
95th percentile per-packet one-way delay: 136.580 ms
Loss rate: 5.06%
```
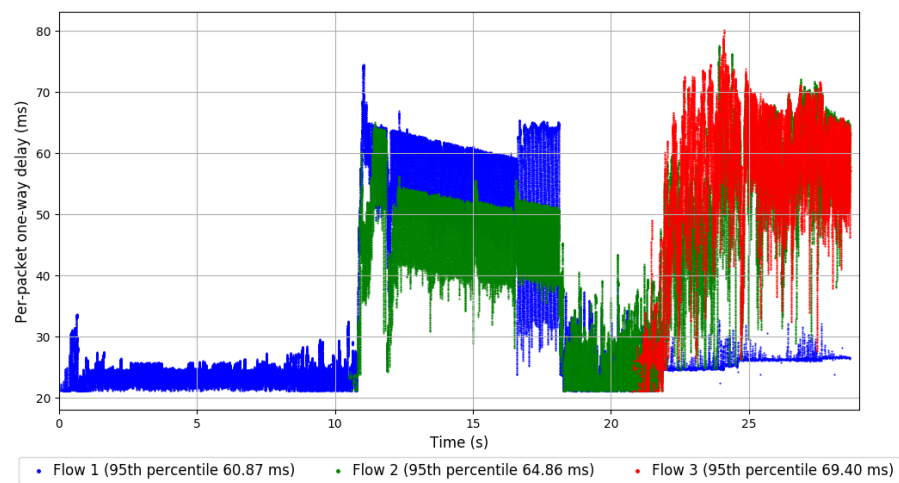
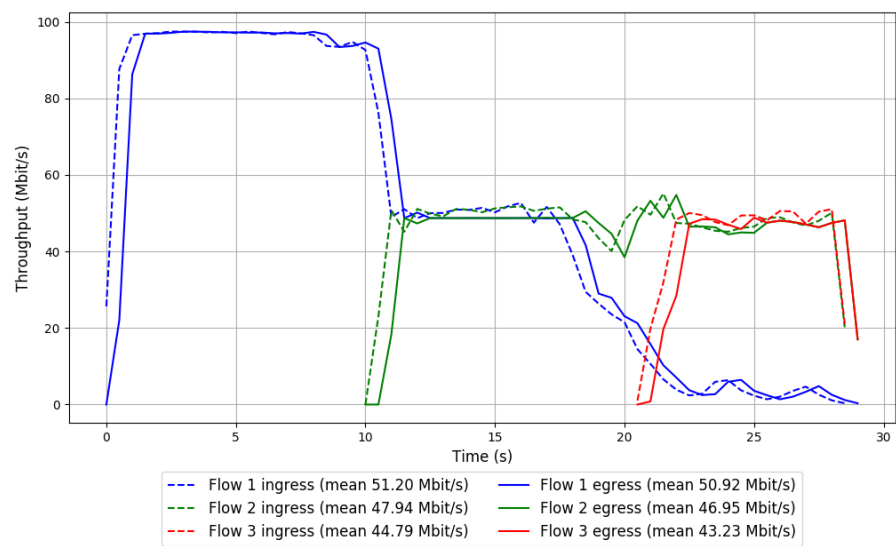Run 1: Report of Indigo-MusesC5 — Data Link

```
Run 2: Statistics of Indigo-MusesC5

Start at: 2019-10-03 11:34:54
End at: 2019-10-03 11:35:24
Local clock offset: 1.724 ms
Remote clock offset: -0.524 ms


# Below is generated by plot.py at 2019-10-03 13:48:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.08 Mbit/s
95th percentile per-packet one-way delay: 65.600 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 52.95 Mbit/s
95th percentile per-packet one-way delay: 56.088 ms
Loss rate: 0.47%
-- Flow 2:
Average throughput: 45.69 Mbit/s
95th percentile per-packet one-way delay: 94.538 ms
Loss rate: 1.34%
-- Flow 3:
Average throughput: 44.04 Mbit/s
95th percentile per-packet one-way delay: 65.877 ms
Loss rate: 2.04%
```

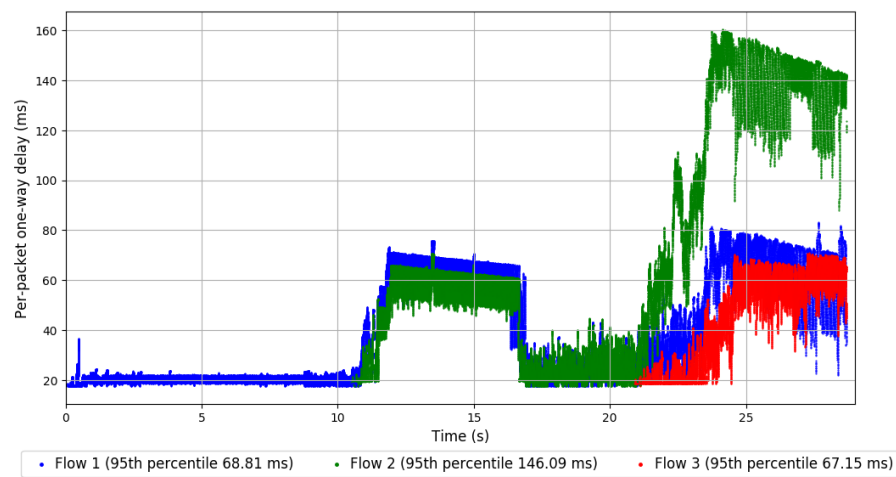Run 2: Report of Indigo-MusesC5 — Data Link

```
Run 3: Statistics of Indigo-MusesC5

Start at: 2019-10-03 12:07:43
End at: 2019-10-03 12:08:13
Local clock offset: 0.103 ms
Remote clock offset: -2.376 ms


# Below is generated by plot.py at 2019-10-03 13:48:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.37 Mbit/s
95th percentile per-packet one-way delay: 130.872 ms
Loss rate: 2.32%
-- Flow 1:
Average throughput: 56.84 Mbit/s
95th percentile per-packet one-way delay: 64.518 ms
Loss rate: 1.29%
-- Flow 2:
Average throughput: 36.51 Mbit/s
95th percentile per-packet one-way delay: 158.583 ms
Loss rate: 4.39%
-- Flow 3:
Average throughput: 46.14 Mbit/s
95th percentile per-packet one-way delay: 69.900 ms
Loss rate: 3.08%
```

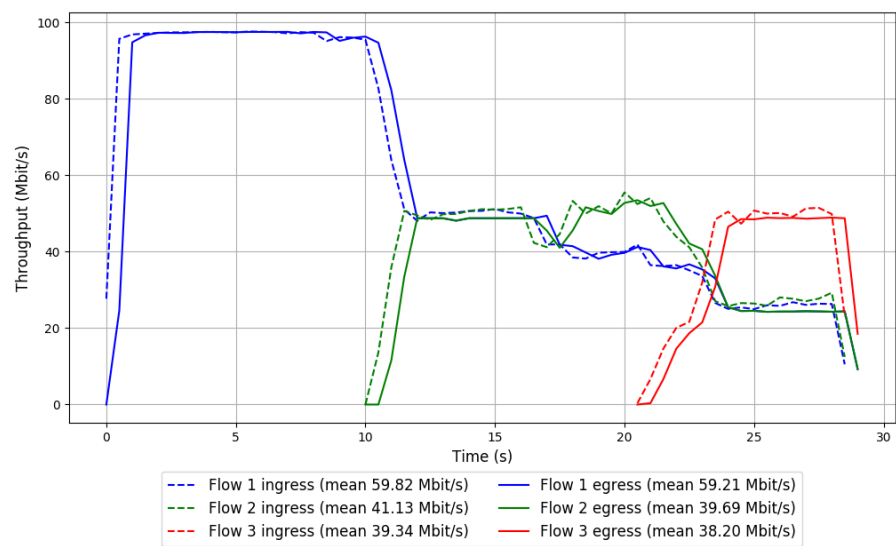# Run 3: Report of Indigo-MusesC5 — Data Link

- - - - Flow 1 ingress (mean 57.51 Mbit/s) ——— Flow 1 egress (mean 56.84 Mbit/s)
- - - - Flow 2 ingress (mean 38.08 Mbit/s) ——— Flow 2 egress (mean 36.51 Mbit/s)
- - - - Flow 3 ingress (mean 47.37 Mbit/s) ——— Flow 3 egress (mean 46.14 Mbit/s)

• Flow 1 (95th percentile 64.52 ms) • Flow 2 (95th percentile 158.58 ms) • Flow 3 (95th percentile 69.90 ms)

```
Run 4: Statistics of Indigo-MusesC5

Start at: 2019-10-03 12:39:40
End at: 2019-10-03 12:40:10
Local clock offset: 5.951 ms
Remote clock offset: -5.728 ms


# Below is generated by plot.py at 2019-10-03 13:48:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.64 Mbit/s
95th percentile per-packet one-way delay: 64.444 ms
Loss rate: 1.67%
-- Flow 1:
Average throughput: 50.92 Mbit/s
95th percentile per-packet one-way delay: 60.873 ms
Loss rate: 0.72%
-- Flow 2:
Average throughput: 46.95 Mbit/s
95th percentile per-packet one-way delay: 64.865 ms
Loss rate: 2.30%
-- Flow 3:
Average throughput: 43.23 Mbit/s
95th percentile per-packet one-way delay: 69.399 ms
Loss rate: 4.07%
```
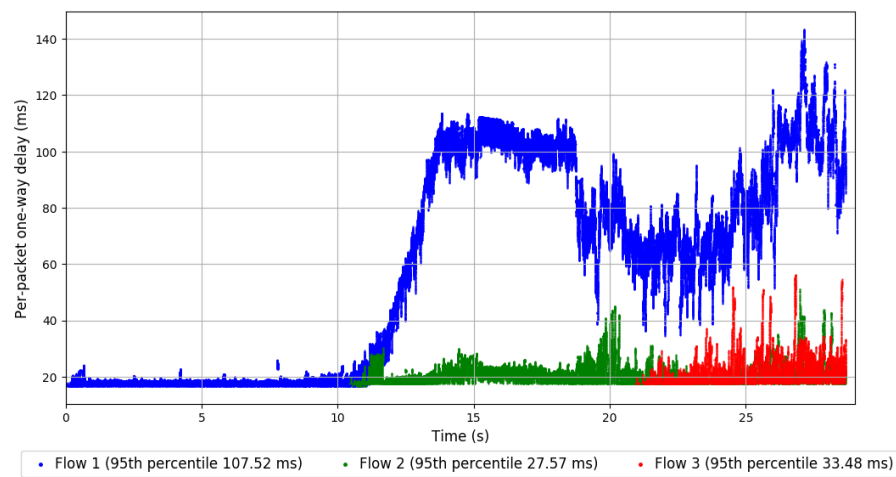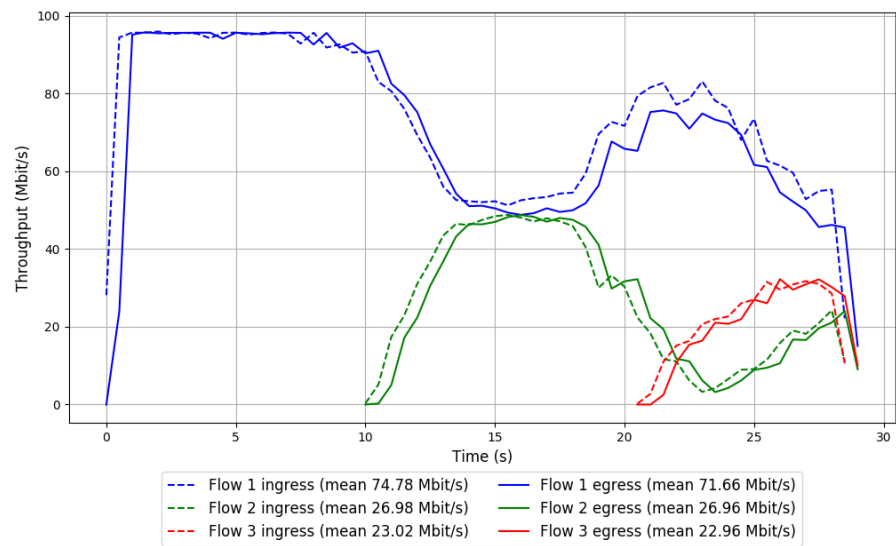
Run 4: Report of Indigo-MusesC5 — Data Link

Flow 1 ingress (mean 51.20 Mbit/s) --- Flow 1 egress (mean 50.92 Mbit/s)
Flow 2 ingress (mean 47.94 Mbit/s) --- Flow 2 egress (mean 46.95 Mbit/s)
Flow 3 ingress (mean 44.79 Mbit/s) --- Flow 3 egress (mean 43.23 Mbit/s)

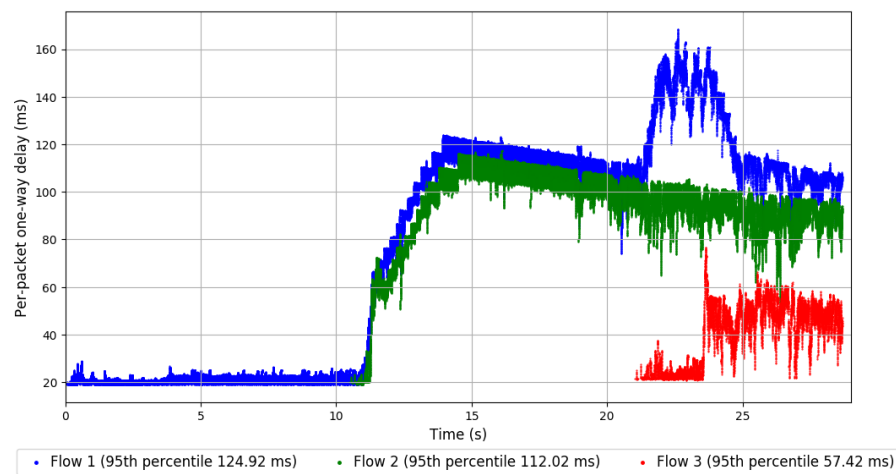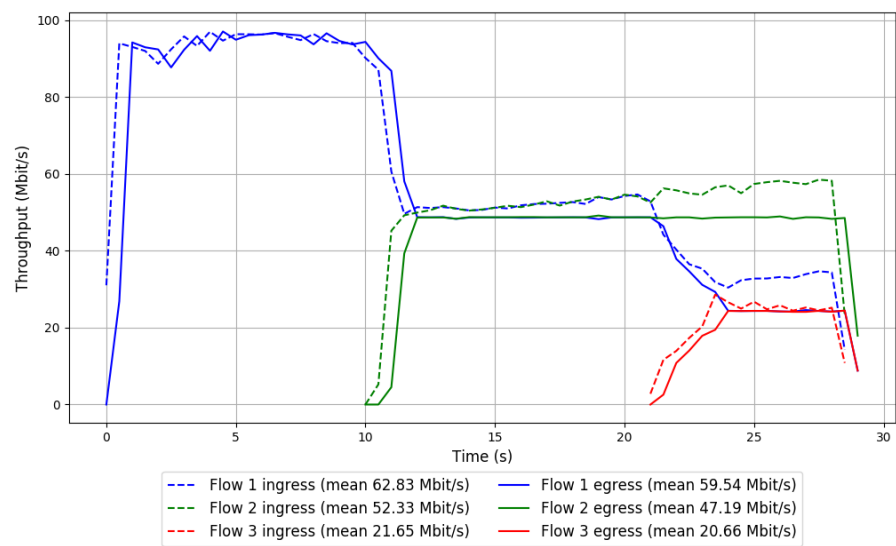Flow 1 (95th percentile 60.87 ms)   Flow 2 (95th percentile 64.86 ms)   Flow 3 (95th percentile 69.40 ms)

```
Run 5: Statistics of Indigo-MusesC5

Start at: 2019-10-03 13:11:57
End at: 2019-10-03 13:12:27
Local clock offset: 3.089 ms
Remote clock offset: -2.831 ms


# Below is generated by plot.py at 2019-10-03 13:48:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.79 Mbit/s
95th percentile per-packet one-way delay: 100.625 ms
Loss rate: 2.06%
-- Flow 1:
Average throughput: 59.21 Mbit/s
95th percentile per-packet one-way delay: 68.806 ms
Loss rate: 1.08%
-- Flow 2:
Average throughput: 39.69 Mbit/s
95th percentile per-packet one-way delay: 146.088 ms
Loss rate: 3.75%
-- Flow 3:
Average throughput: 38.20 Mbit/s
95th percentile per-packet one-way delay: 67.153 ms
Loss rate: 3.40%
```
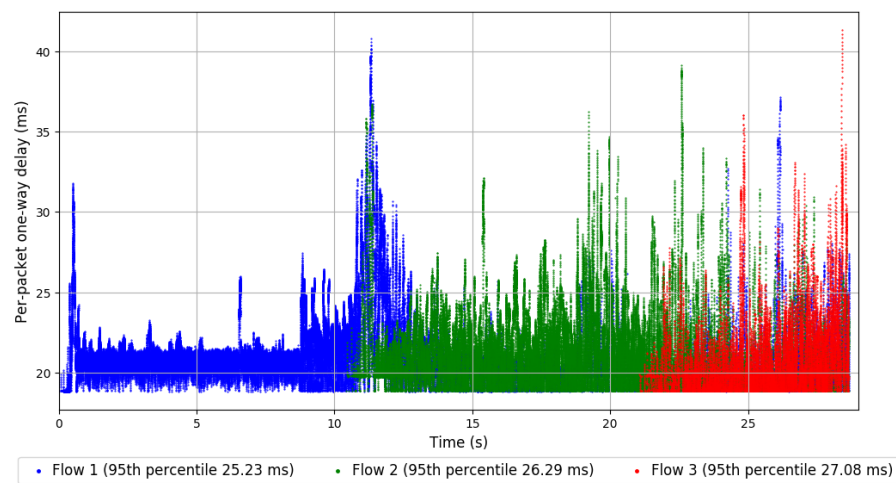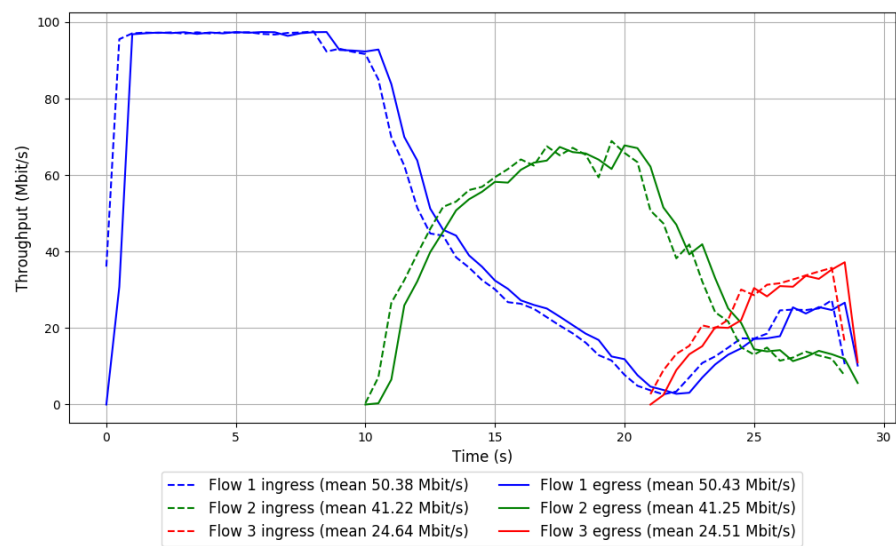
Run 5: Report of Indigo-MusesC5 — Data Link

```
Run 1: Statistics of Indigo-MusesD

Start at: 2019-10-03 11:13:48
End at: 2019-10-03 11:14:18
Local clock offset: 1.13 ms
Remote clock offset: -0.939 ms


# Below is generated by plot.py at 2019-10-03 13:48:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.01 Mbit/s
95th percentile per-packet one-way delay: 105.964 ms
Loss rate: 3.41%
-- Flow 1:
Average throughput: 71.66 Mbit/s
95th percentile per-packet one-way delay: 107.519 ms
Loss rate: 4.34%
-- Flow 2:
Average throughput: 26.96 Mbit/s
95th percentile per-packet one-way delay: 27.566 ms
Loss rate: 0.33%
-- Flow 3:
Average throughput: 22.96 Mbit/s
95th percentile per-packet one-way delay: 33.479 ms
Loss rate: 0.80%
```

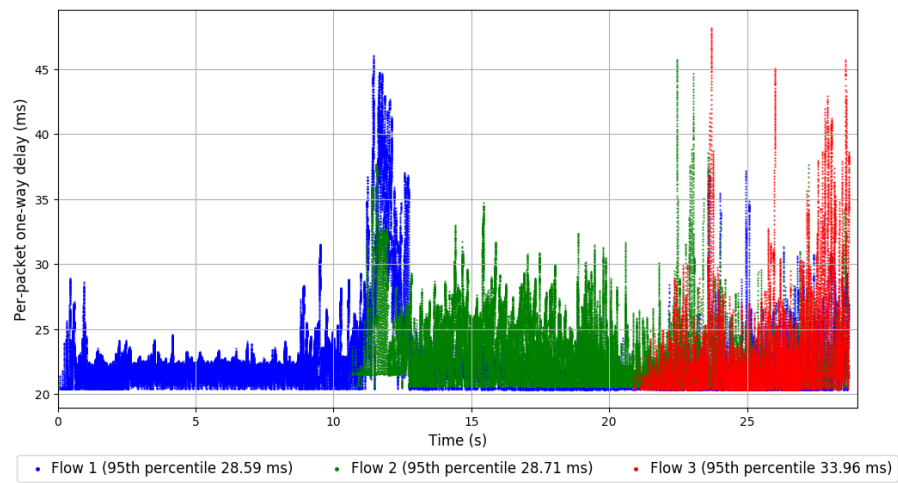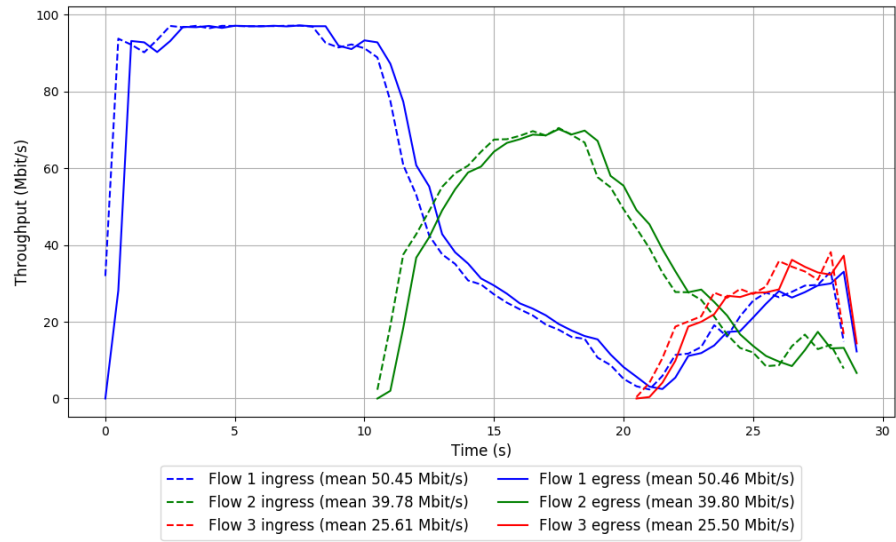Run 1: Report of Indigo-MusesD — Data Link

- - - - Flow 1 ingress (mean 74.78 Mbit/s) ——— Flow 1 egress (mean 71.66 Mbit/s)
- - - - Flow 2 ingress (mean 26.98 Mbit/s) ——— Flow 2 egress (mean 26.96 Mbit/s)
- - - - Flow 3 ingress (mean 23.02 Mbit/s) ——— Flow 3 egress (mean 22.96 Mbit/s)

• Flow 1 (95th percentile 107.52 ms)   • Flow 2 (95th percentile 27.57 ms)   • Flow 3 (95th percentile 33.48 ms)

86

```
Run 2: Statistics of Indigo-MusesD

Start at: 2019-10-03 11:45:57
End at: 2019-10-03 11:46:27
Local clock offset: 3.643 ms
Remote clock offset: -2.567 ms


# Below is generated by plot.py at 2019-10-03 13:48:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.02 Mbit/s
95th percentile per-packet one-way delay: 119.449 ms
Loss rate: 6.89%
-- Flow 1:
Average throughput: 59.54 Mbit/s
95th percentile per-packet one-way delay: 124.919 ms
Loss rate: 5.37%
-- Flow 2:
Average throughput: 47.19 Mbit/s
95th percentile per-packet one-way delay: 112.022 ms
Loss rate: 10.05%
-- Flow 3:
Average throughput: 20.66 Mbit/s
95th percentile per-packet one-way delay: 57.420 ms
Loss rate: 5.18%
```
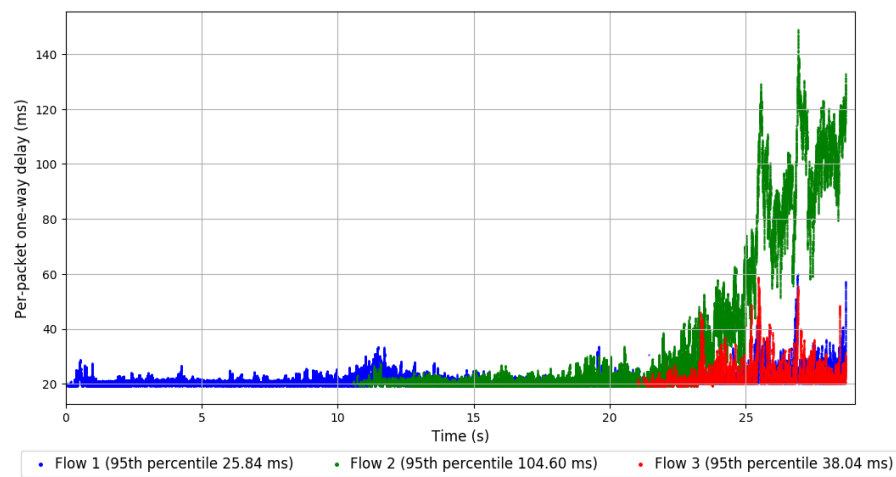
Run 2: Report of Indigo-MusesD — Data Link

```
Run 3: Statistics of Indigo-MusesD

Start at: 2019-10-03 12:18:28
End at: 2019-10-03 12:18:58
Local clock offset: -0.183 ms
Remote clock offset: -2.569 ms


# Below is generated by plot.py at 2019-10-03 13:48:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.23 Mbit/s
95th percentile per-packet one-way delay: 25.788 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 50.43 Mbit/s
95th percentile per-packet one-way delay: 25.229 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 41.25 Mbit/s
95th percentile per-packet one-way delay: 26.292 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 24.51 Mbit/s
95th percentile per-packet one-way delay: 27.079 ms
Loss rate: 1.37%
```
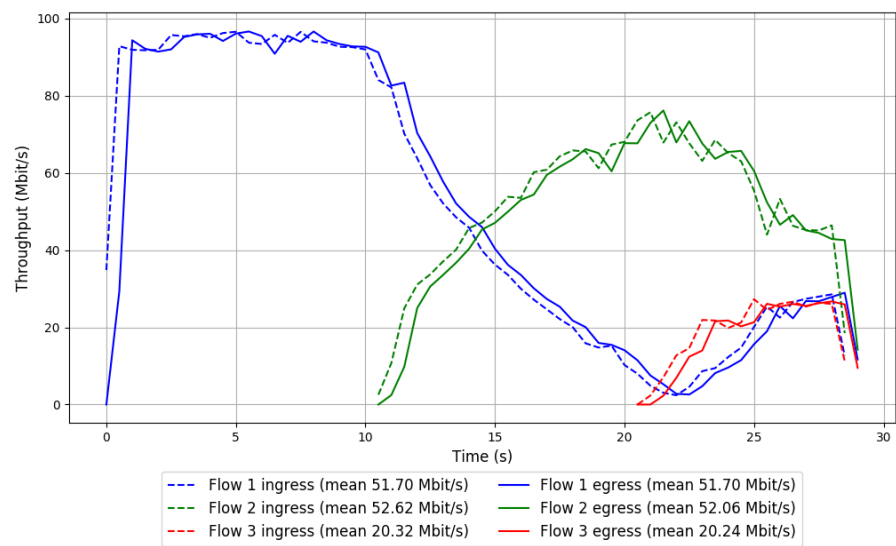
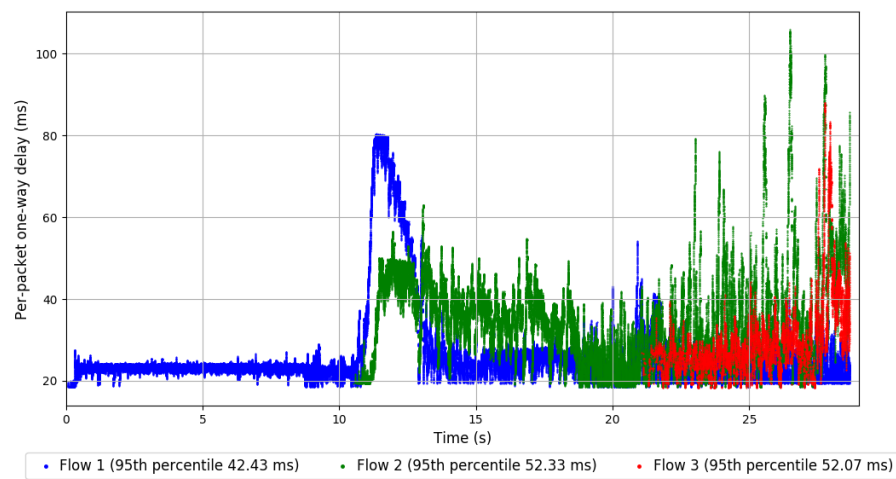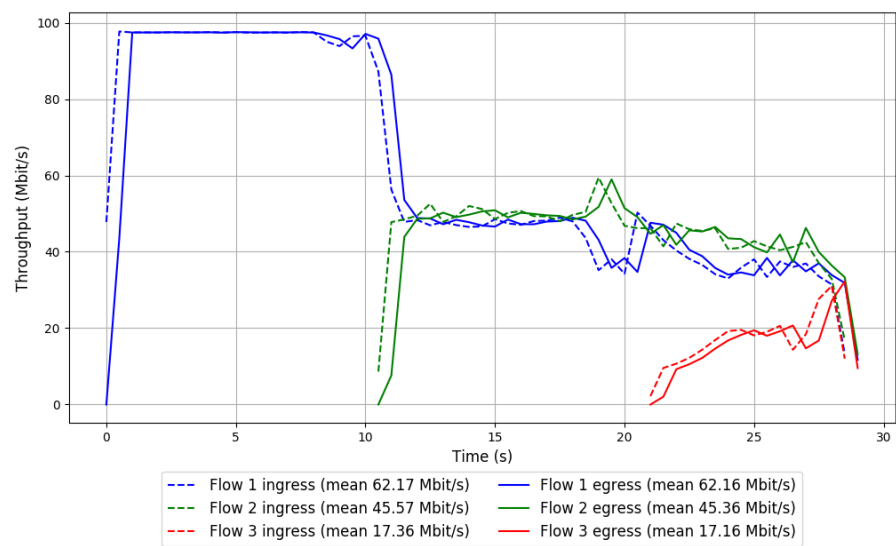Run 3: Report of Indigo-MusesD — Data Link

- - - Flow 1 ingress (mean 50.38 Mbit/s) —— Flow 1 egress (mean 50.43 Mbit/s)
- - - Flow 2 ingress (mean 41.22 Mbit/s) —— Flow 2 egress (mean 41.25 Mbit/s)
- - - Flow 3 ingress (mean 24.64 Mbit/s) —— Flow 3 egress (mean 24.51 Mbit/s)

• Flow 1 (95th percentile 25.23 ms)   • Flow 2 (95th percentile 26.29 ms)   • Flow 3 (95th percentile 27.08 ms)
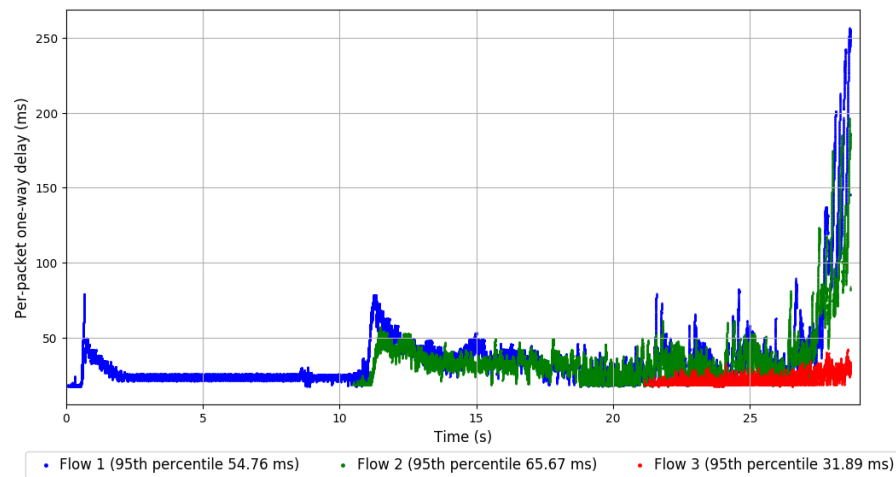
90

```
Run 4: Statistics of Indigo-MusesD

Start at: 2019-10-03 12:51:29
End at: 2019-10-03 12:51:59
Local clock offset: 6.608 ms
Remote clock offset: -6.218 ms


# Below is generated by plot.py at 2019-10-03 13:49:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 82.52 Mbit/s
95th percentile per-packet one-way delay: 29.252 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 50.46 Mbit/s
95th percentile per-packet one-way delay: 28.595 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 39.80 Mbit/s
95th percentile per-packet one-way delay: 28.707 ms
Loss rate: 0.17%
-- Flow 3:
Average throughput: 25.50 Mbit/s
95th percentile per-packet one-way delay: 33.962 ms
Loss rate: 1.01%
```

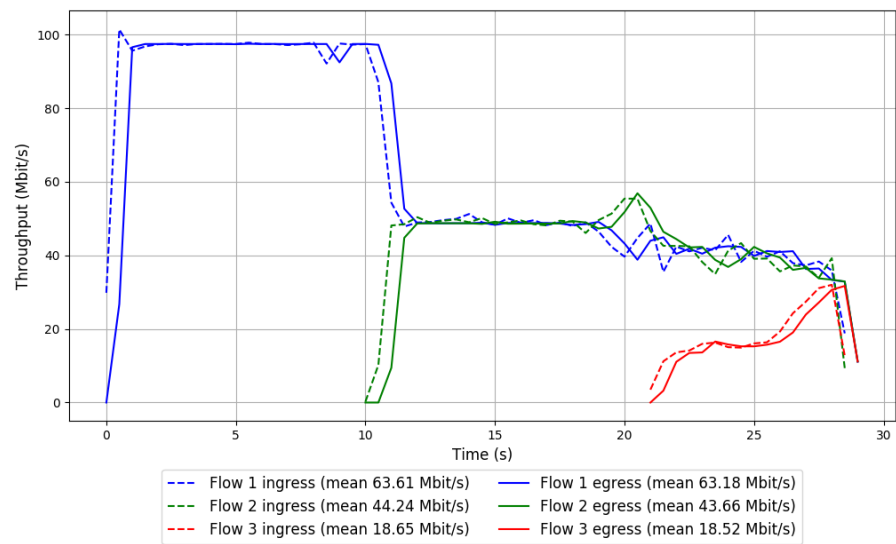Run 4: Report of Indigo-MusesD — Data Link

```
Run 5: Statistics of Indigo-MusesD

Start at: 2019-10-03 13:22:25
End at: 2019-10-03 13:22:55
Local clock offset: 3.378 ms
Remote clock offset: -3.74 ms


# Below is generated by plot.py at 2019-10-03 13:49:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.12 Mbit/s
95th percentile per-packet one-way delay: 75.166 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 51.70 Mbit/s
95th percentile per-packet one-way delay: 25.844 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 52.06 Mbit/s
95th percentile per-packet one-way delay: 104.597 ms
Loss rate: 1.31%
-- Flow 3:
Average throughput: 20.24 Mbit/s
95th percentile per-packet one-way delay: 38.039 ms
Loss rate: 0.95%
```

Run 5: Report of Indigo-MusesD — Data Link

94

```
Run 1: Statistics of Indigo-MusesT

Start at: 2019-10-03 11:28:23
End at: 2019-10-03 11:28:53
Local clock offset: 2.773 ms
Remote clock offset: -1.699 ms


# Below is generated by plot.py at 2019-10-03 13:49:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.44 Mbit/s
95th percentile per-packet one-way delay: 50.063 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 62.16 Mbit/s
95th percentile per-packet one-way delay: 42.432 ms
Loss rate: 0.19%
-- Flow 2:
Average throughput: 45.36 Mbit/s
95th percentile per-packet one-way delay: 52.330 ms
Loss rate: 0.71%
-- Flow 3:
Average throughput: 17.16 Mbit/s
95th percentile per-packet one-way delay: 52.068 ms
Loss rate: 1.65%
```
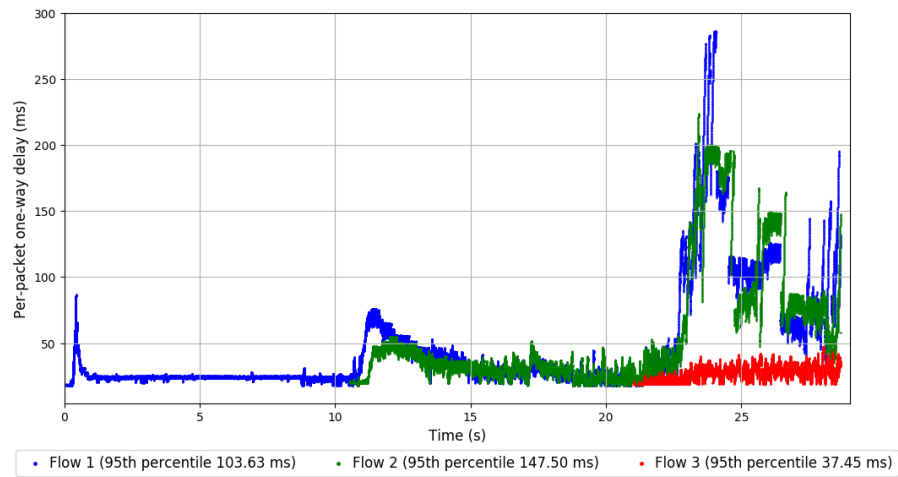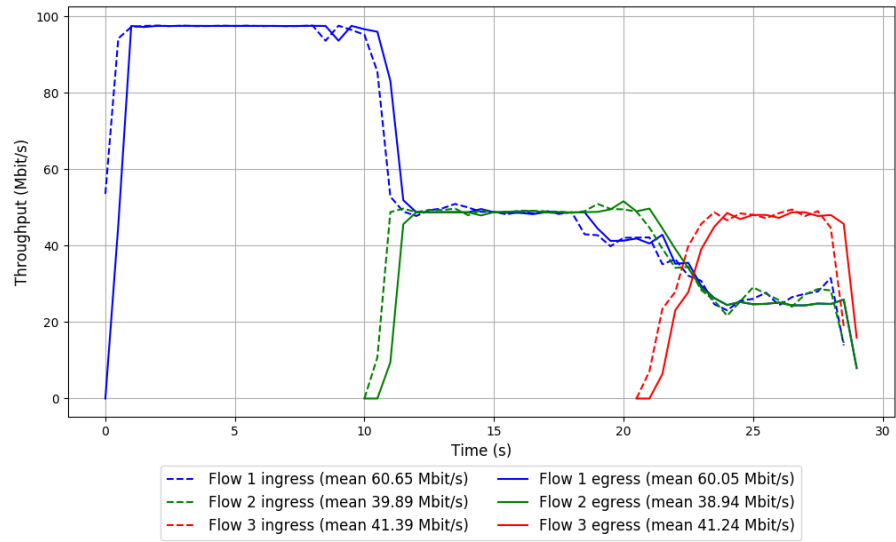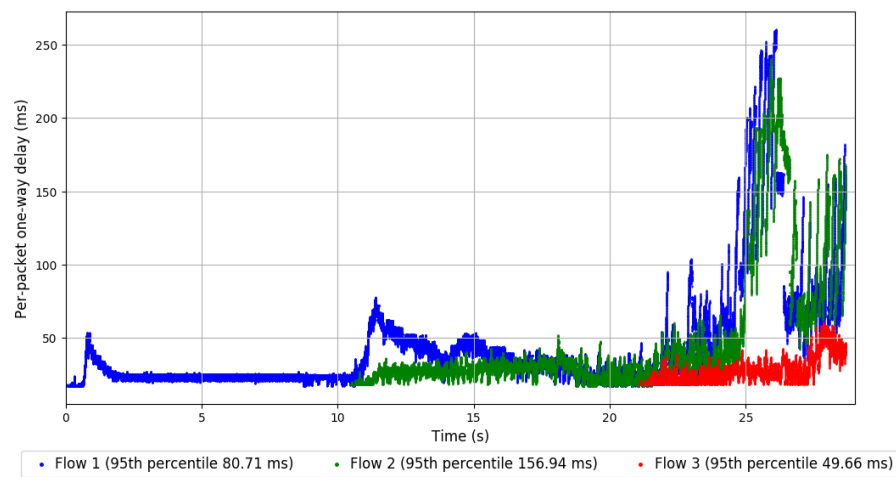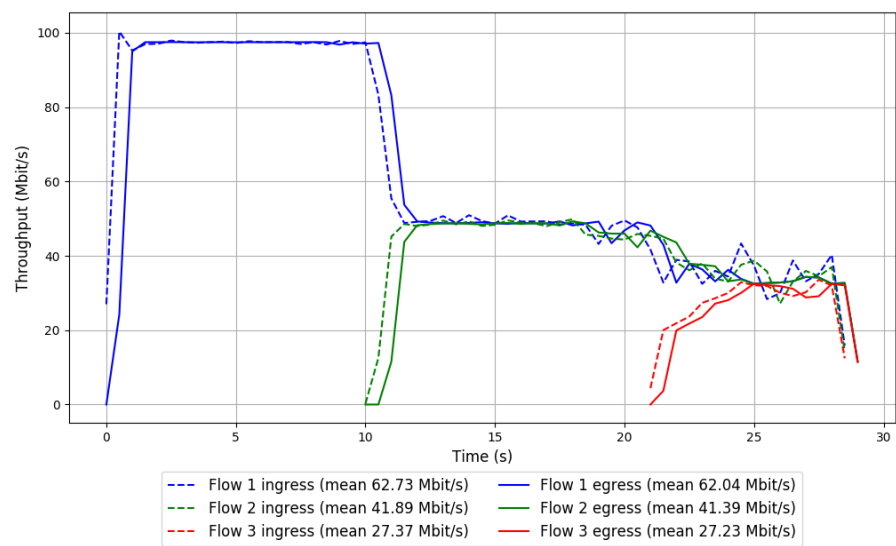
Run 1: Report of Indigo-MusesT — Data Link

```
Run 2: Statistics of Indigo-MusesT

Start at: 2019-10-03 12:00:49
End at: 2019-10-03 12:01:19
Local clock offset: -0.299 ms
Remote clock offset: -3.255 ms


# Below is generated by plot.py at 2019-10-03 13:49:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.81 Mbit/s
95th percentile per-packet one-way delay: 54.298 ms
Loss rate: 0.94%
-- Flow 1:
Average throughput: 63.18 Mbit/s
95th percentile per-packet one-way delay: 54.757 ms
Loss rate: 0.85%
-- Flow 2:
Average throughput: 43.66 Mbit/s
95th percentile per-packet one-way delay: 65.667 ms
Loss rate: 1.09%
-- Flow 3:
Average throughput: 18.52 Mbit/s
95th percentile per-packet one-way delay: 31.891 ms
Loss rate: 1.31%
```

Run 2: Report of Indigo-MusesT — Data Link

- - - Flow 1 ingress (mean 63.61 Mbit/s) —— Flow 1 egress (mean 63.18 Mbit/s)
- - - Flow 2 ingress (mean 44.24 Mbit/s) —— Flow 2 egress (mean 43.66 Mbit/s)
- - - Flow 3 ingress (mean 18.65 Mbit/s) —— Flow 3 egress (mean 18.52 Mbit/s)

• Flow 1 (95th percentile 54.76 ms) • Flow 2 (95th percentile 65.67 ms) • Flow 3 (95th percentile 31.89 ms)
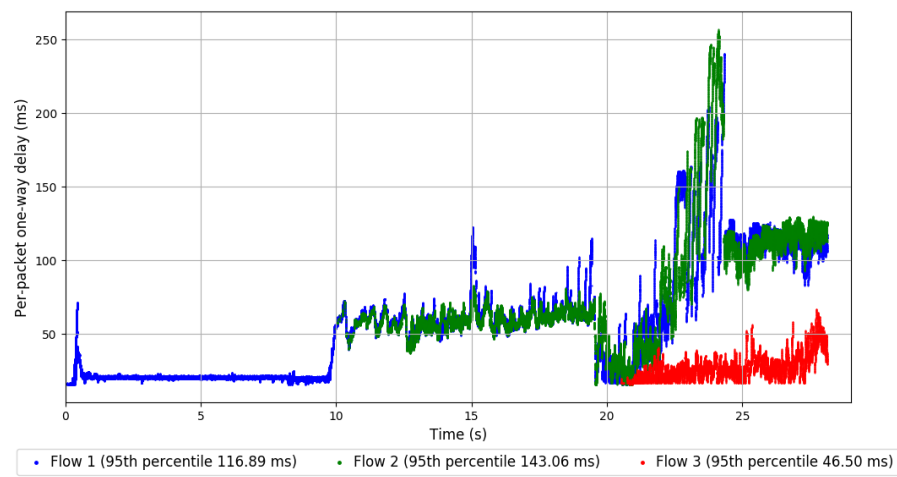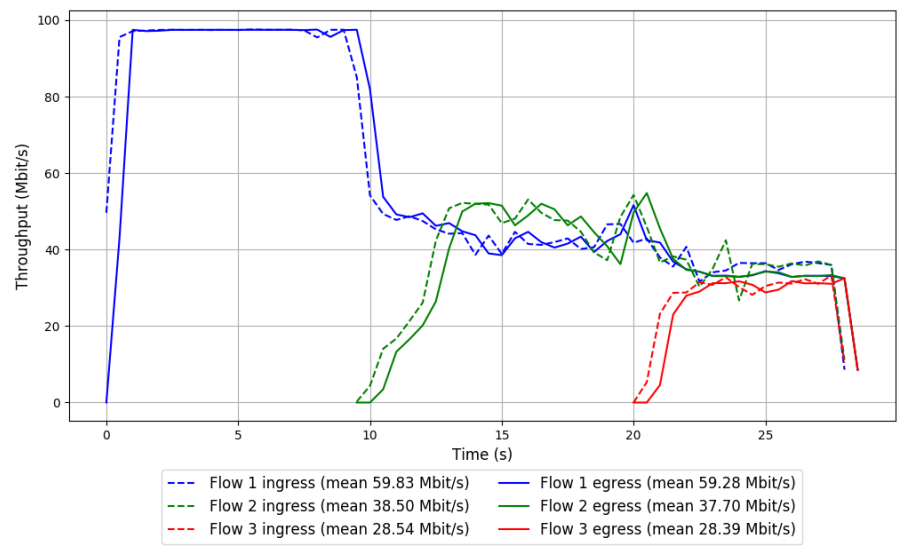
98

```
Run 3: Statistics of Indigo-MusesT

Start at: 2019-10-03 12:33:24
End at: 2019-10-03 12:33:54
Local clock offset: 2.008 ms
Remote clock offset: -4.62 ms


# Below is generated by plot.py at 2019-10-03 13:49:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.83 Mbit/s
95th percentile per-packet one-way delay: 108.487 ms
Loss rate: 1.52%
-- Flow 1:
Average throughput: 60.05 Mbit/s
95th percentile per-packet one-way delay: 103.630 ms
Loss rate: 1.18%
-- Flow 2:
Average throughput: 38.94 Mbit/s
95th percentile per-packet one-way delay: 147.499 ms
Loss rate: 2.55%
-- Flow 3:
Average throughput: 41.24 Mbit/s
95th percentile per-packet one-way delay: 37.452 ms
Loss rate: 1.01%
```

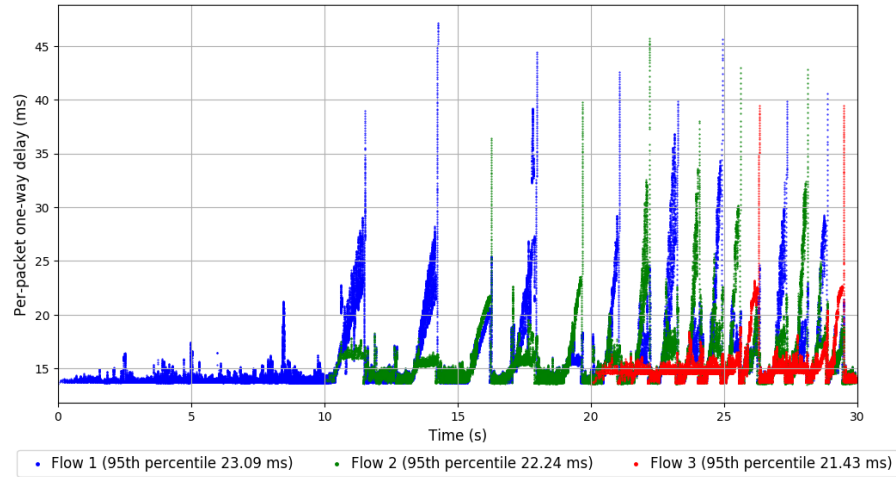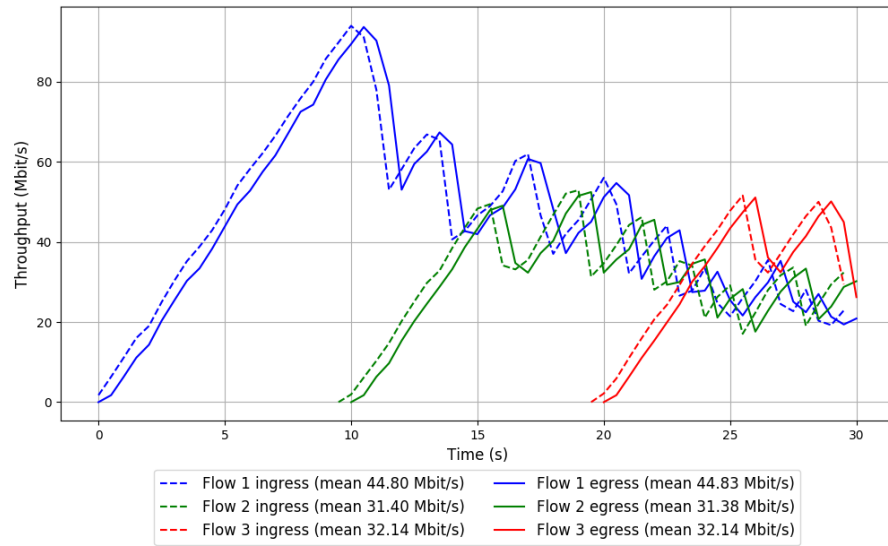Run 3: Report of Indigo-MusesT — Data Link

```
Run 4: Statistics of Indigo-MusesT

Start at: 2019-10-03 13:05:42
End at: 2019-10-03 13:06:12
Local clock offset: 2.343 ms
Remote clock offset: -4.142 ms


# Below is generated by plot.py at 2019-10-03 13:49:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.60 Mbit/s
95th percentile per-packet one-way delay: 106.259 ms
Loss rate: 1.24%
-- Flow 1:
Average throughput: 62.04 Mbit/s
95th percentile per-packet one-way delay: 80.708 ms
Loss rate: 1.19%
-- Flow 2:
Average throughput: 41.39 Mbit/s
95th percentile per-packet one-way delay: 156.939 ms
Loss rate: 1.41%
-- Flow 3:
Average throughput: 27.23 Mbit/s
95th percentile per-packet one-way delay: 49.660 ms
Loss rate: 1.08%
```

Run 4: Report of Indigo-MusesT — Data Link
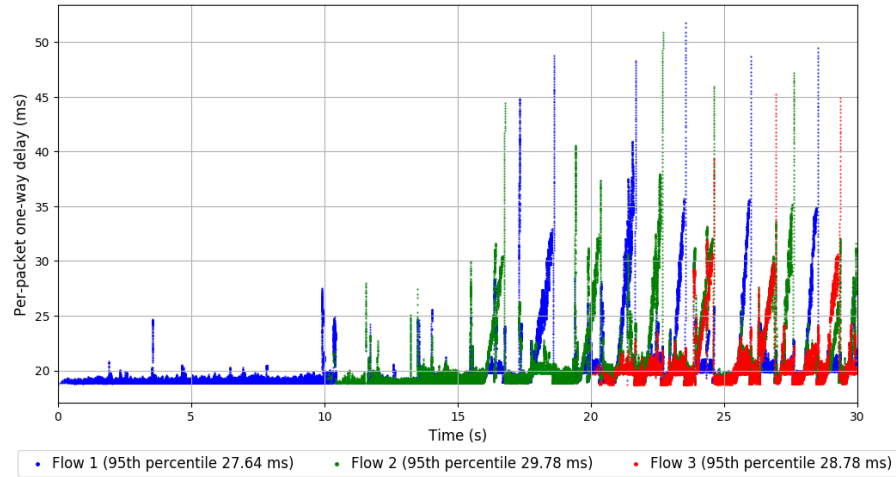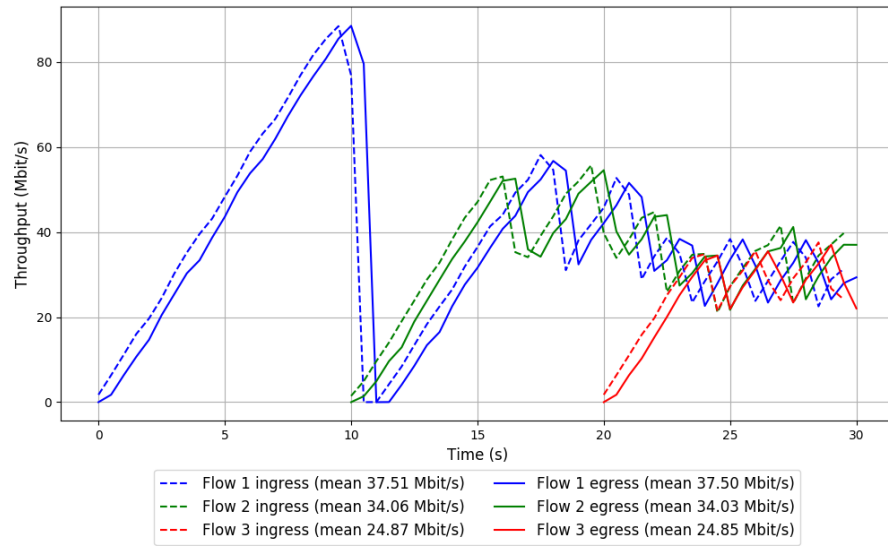

102

```
Run 5: Statistics of Indigo-MusesT

Start at: 2019-10-03 13:36:25
End at: 2019-10-03 13:36:55
Local clock offset: 1.98 ms
Remote clock offset: -2.903 ms


# Below is generated by plot.py at 2019-10-03 13:49:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.37 Mbit/s
95th percentile per-packet one-way delay: 120.025 ms
Loss rate: 1.48%
-- Flow 1:
Average throughput: 59.28 Mbit/s
95th percentile per-packet one-way delay: 116.894 ms
Loss rate: 1.10%
-- Flow 2:
Average throughput: 37.70 Mbit/s
95th percentile per-packet one-way delay: 143.060 ms
Loss rate: 2.48%
-- Flow 3:
Average throughput: 28.39 Mbit/s
95th percentile per-packet one-way delay: 46.500 ms
Loss rate: 1.17%
```

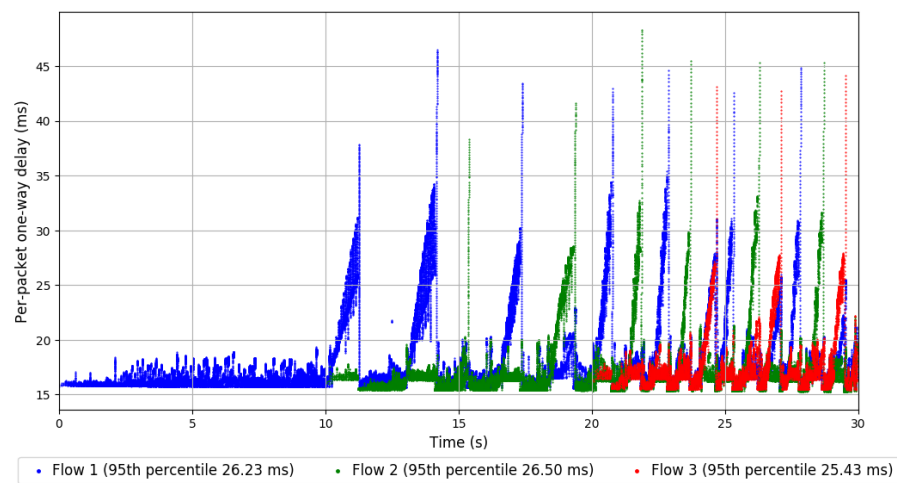Run 5: Report of Indigo-MusesT — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2019-10-03 11:23:01
End at: 2019-10-03 11:23:31
Local clock offset: -1.493 ms
Remote clock offset: -0.517 ms


# Below is generated by plot.py at 2019-10-03 13:49:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 76.39 Mbit/s
95th percentile per-packet one-way delay: 22.436 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 44.83 Mbit/s
95th percentile per-packet one-way delay: 23.085 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 31.38 Mbit/s
95th percentile per-packet one-way delay: 22.240 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 32.14 Mbit/s
95th percentile per-packet one-way delay: 21.428 ms
Loss rate: 0.50%
```
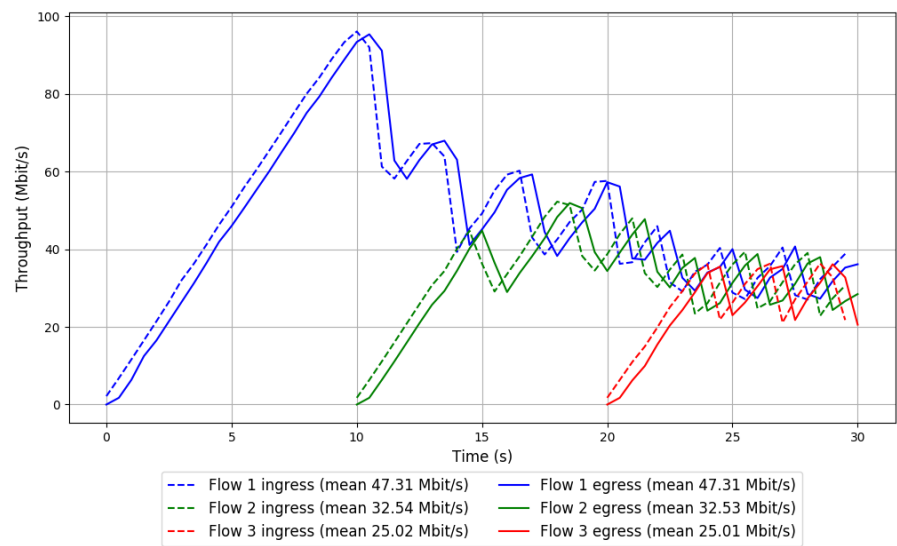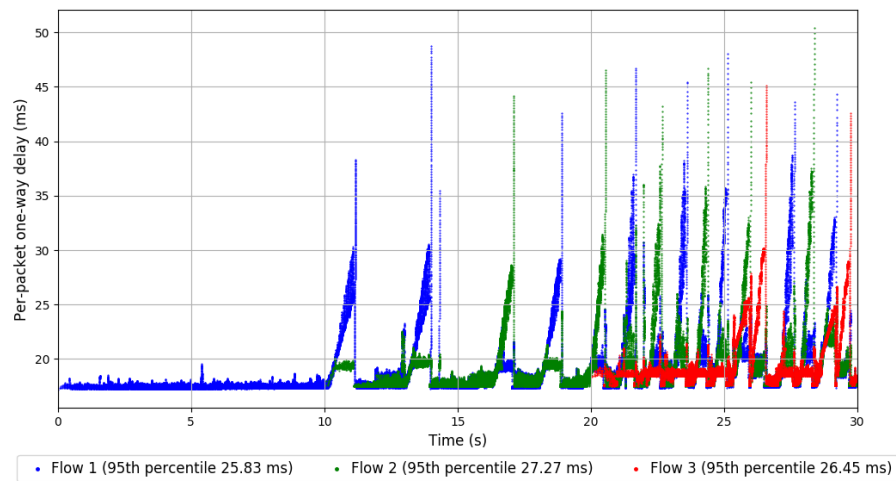
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2019-10-03 11:55:37
End at: 2019-10-03 11:56:07
Local clock offset: 3.945 ms
Remote clock offset: -1.695 ms


# Below is generated by plot.py at 2019-10-03 13:50:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 68.39 Mbit/s
95th percentile per-packet one-way delay: 28.954 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 37.50 Mbit/s
95th percentile per-packet one-way delay: 27.641 ms
Loss rate: 0.19%
-- Flow 2:
Average throughput: 34.03 Mbit/s
95th percentile per-packet one-way delay: 29.780 ms
Loss rate: 0.34%
-- Flow 3:
Average throughput: 24.85 Mbit/s
95th percentile per-packet one-way delay: 28.780 ms
Loss rate: 0.56%
```
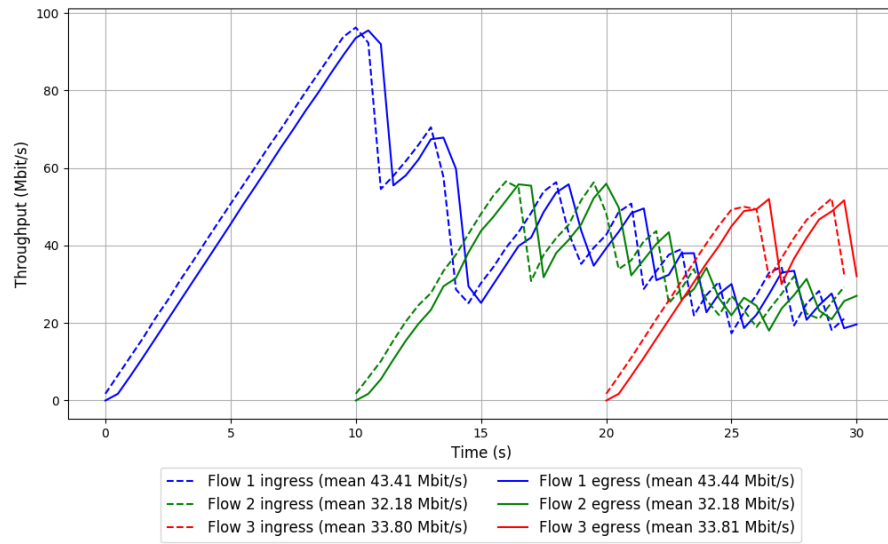
Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2019-10-03 12:27:58
End at: 2019-10-03 12:28:28
Local clock offset: -0.886 ms
Remote clock offset: -2.741 ms


# Below is generated by plot.py at 2019-10-03 13:50:32
# Datalink statistics
-- Total of 3 flows:
Average throughput: 77.25 Mbit/s
95th percentile per-packet one-way delay: 26.156 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 47.31 Mbit/s
95th percentile per-packet one-way delay: 26.234 ms
Loss rate: 0.16%
-- Flow 2:
Average throughput: 32.53 Mbit/s
95th percentile per-packet one-way delay: 26.501 ms
Loss rate: 0.28%
-- Flow 3:
Average throughput: 25.01 Mbit/s
95th percentile per-packet one-way delay: 25.434 ms
Loss rate: 0.52%
```
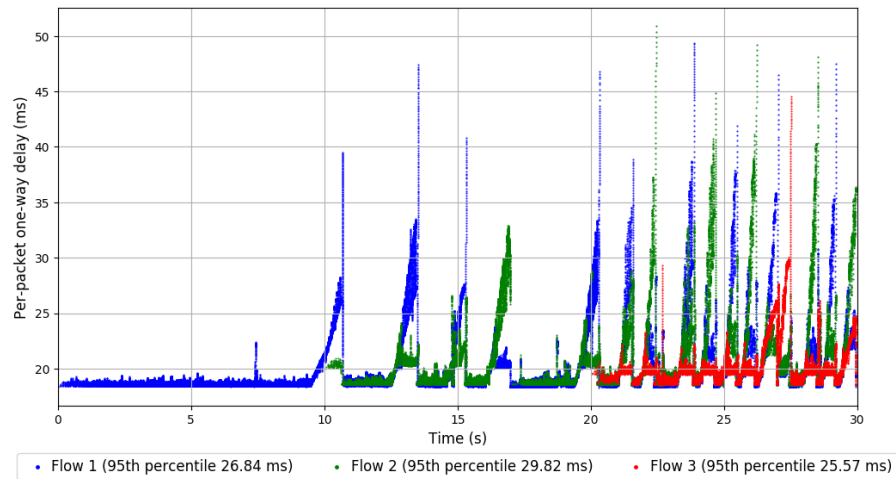
Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2019-10-03 13:00:40
End at: 2019-10-03 13:01:10
Local clock offset: 4.071 ms
Remote clock offset: -3.613 ms


# Below is generated by plot.py at 2019-10-03 13:50:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 76.05 Mbit/s
95th percentile per-packet one-way delay: 26.428 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 43.44 Mbit/s
95th percentile per-packet one-way delay: 25.828 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 32.18 Mbit/s
95th percentile per-packet one-way delay: 27.273 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 33.81 Mbit/s
95th percentile per-packet one-way delay: 26.455 ms
Loss rate: 0.48%
```
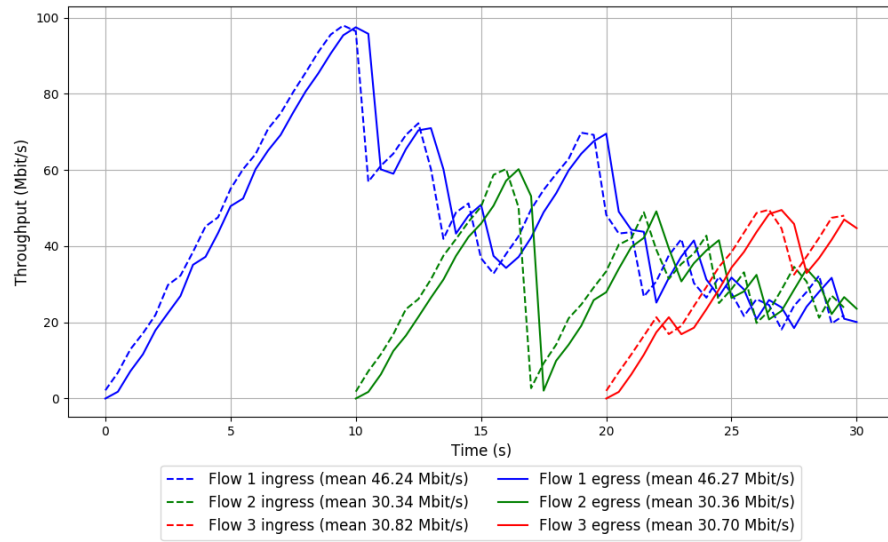
Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2019-10-03 13:31:23
End at: 2019-10-03 13:31:53
Local clock offset: 4.586 ms
Remote clock offset: -2.98 ms


# Below is generated by plot.py at 2019-10-03 13:50:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 76.65 Mbit/s
95th percentile per-packet one-way delay: 27.471 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 46.27 Mbit/s
95th percentile per-packet one-way delay: 26.842 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 30.36 Mbit/s
95th percentile per-packet one-way delay: 29.818 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 30.70 Mbit/s
95th percentile per-packet one-way delay: 25.572 ms
Loss rate: 0.87%
```
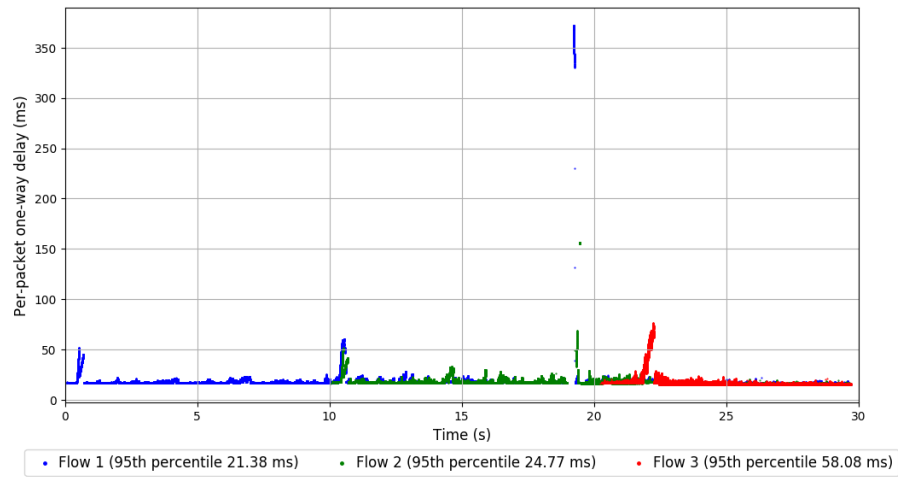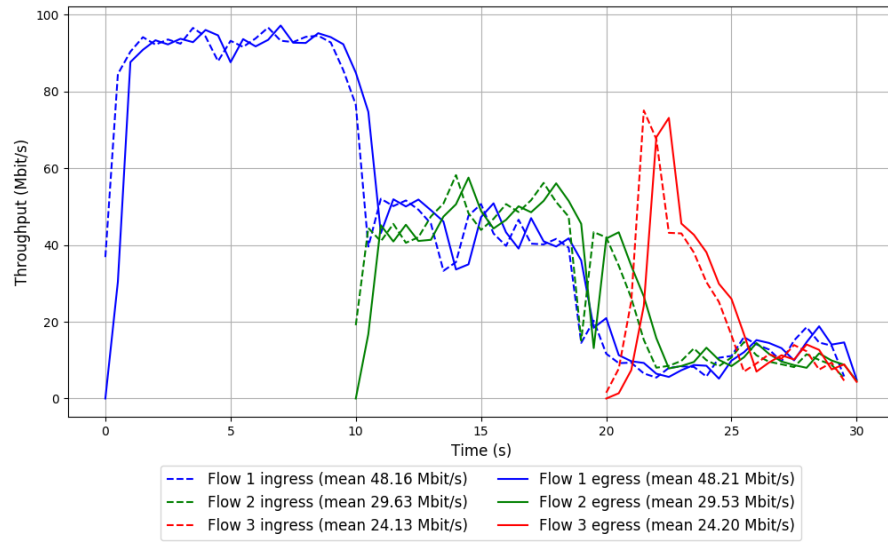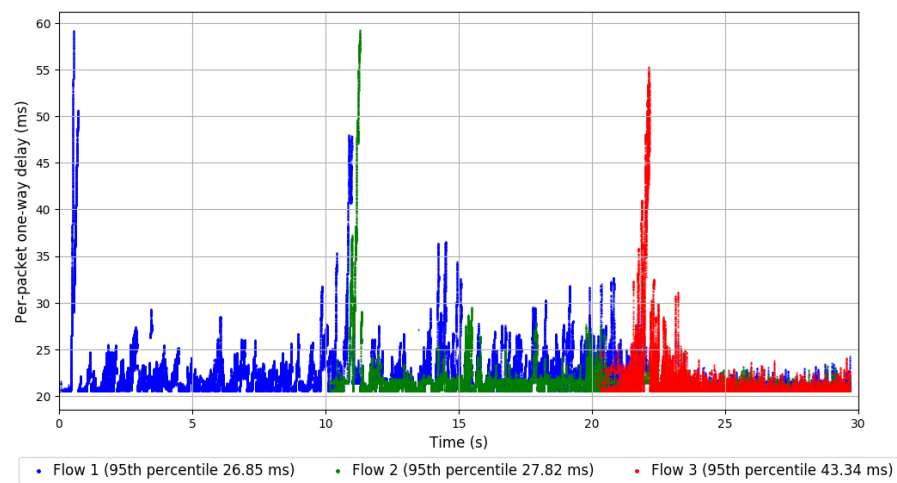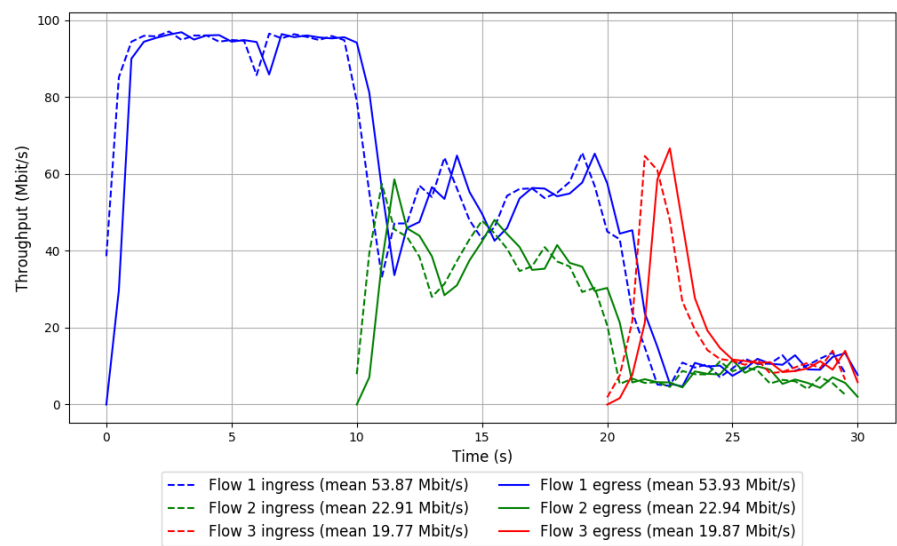
Run 5: Report of LEDBAT — Data Link

Flow 1 ingress (mean 46.24 Mbit/s)   Flow 1 egress (mean 46.27 Mbit/s)
Flow 2 ingress (mean 30.34 Mbit/s)   Flow 2 egress (mean 30.36 Mbit/s)
Flow 3 ingress (mean 30.82 Mbit/s)   Flow 3 egress (mean 30.70 Mbit/s)

Flow 1 (95th percentile 26.84 ms)   Flow 2 (95th percentile 29.82 ms)   Flow 3 (95th percentile 25.57 ms)
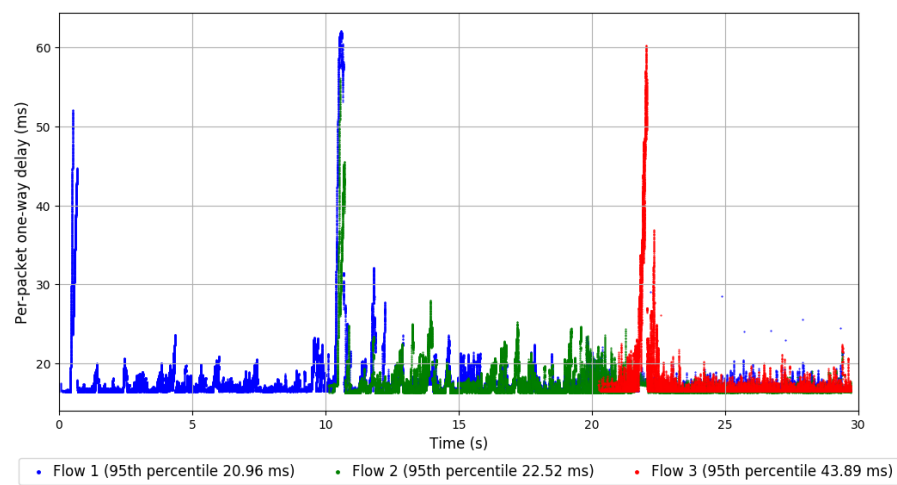
114

```
Run 1: Statistics of Muses\_DecisionTree

Start at: 2019-10-03 11:07:23
End at: 2019-10-03 11:07:53
Local clock offset: 2.723 ms
Remote clock offset: 0.398 ms


# Below is generated by plot.py at 2019-10-03 13:50:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 75.47 Mbit/s
95th percentile per-packet one-way delay: 24.070 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 48.21 Mbit/s
95th percentile per-packet one-way delay: 21.384 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 29.53 Mbit/s
95th percentile per-packet one-way delay: 24.771 ms
Loss rate: 0.62%
-- Flow 3:
Average throughput: 24.20 Mbit/s
95th percentile per-packet one-way delay: 58.080 ms
Loss rate: 0.20%
```

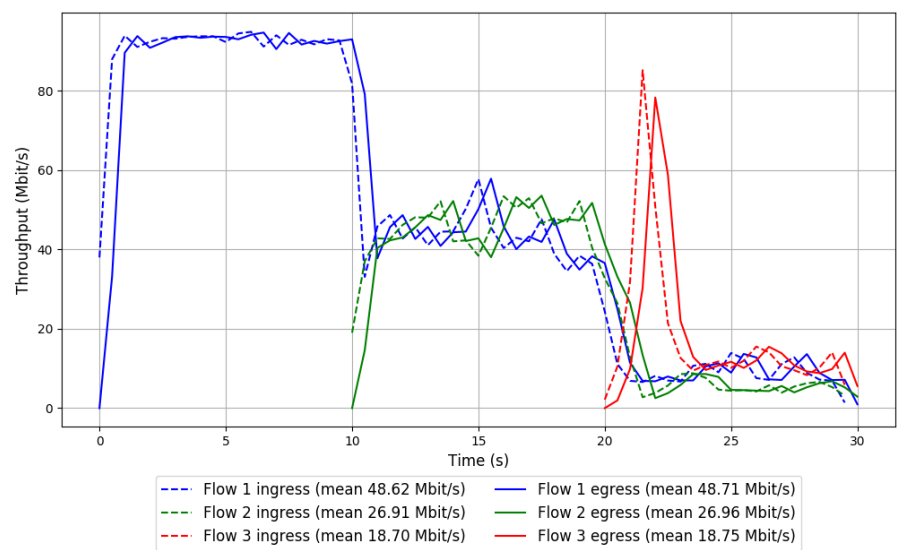Run 1: Report of Muses_DecisionTree — Data Link

```
Run 2: Statistics of Muses\_DecisionTree

Start at: 2019-10-03 11:38:46
End at: 2019-10-03 11:39:16
Local clock offset: 4.605 ms
Remote clock offset: -2.743 ms


# Below is generated by plot.py at 2019-10-03 13:50:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 75.40 Mbit/s
95th percentile per-packet one-way delay: 27.916 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 53.93 Mbit/s
95th percentile per-packet one-way delay: 26.846 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 22.94 Mbit/s
95th percentile per-packet one-way delay: 27.825 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 19.87 Mbit/s
95th percentile per-packet one-way delay: 43.336 ms
Loss rate: 0.29%
```

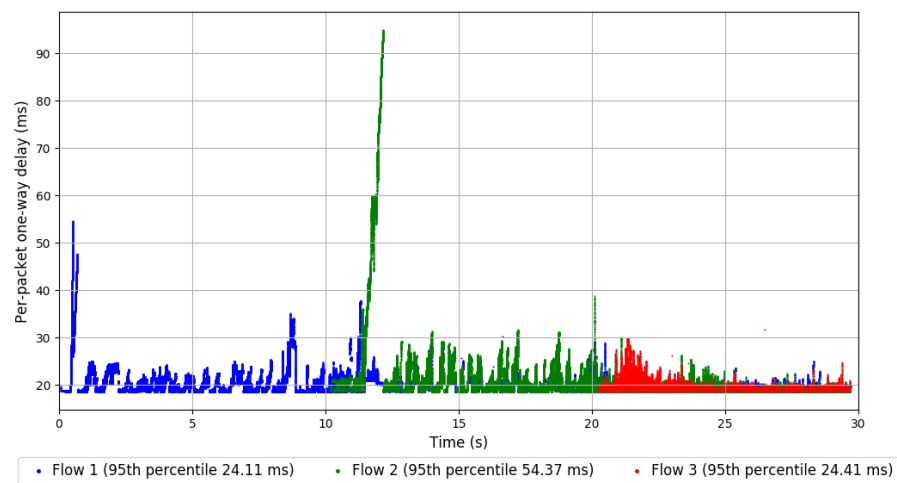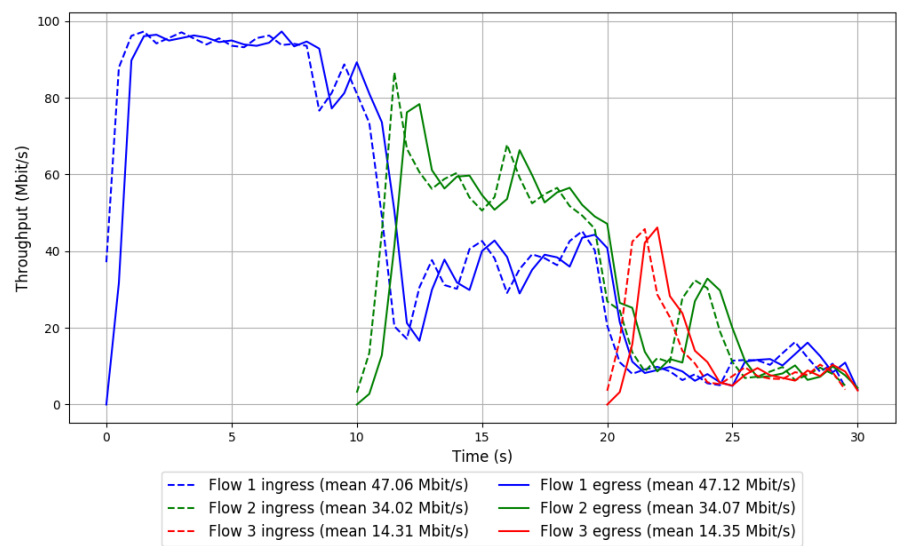Run 2: Report of Muses_DecisionTree — Data Link

```
Run 3: Statistics of Muses\_DecisionTree

Start at: 2019-10-03 12:11:47
End at: 2019-10-03 12:12:17
Local clock offset: -2.916 ms
Remote clock offset: -3.394 ms


# Below is generated by plot.py at 2019-10-03 13:50:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 72.49 Mbit/s
95th percentile per-packet one-way delay: 22.892 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 48.71 Mbit/s
95th percentile per-packet one-way delay: 20.961 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 26.96 Mbit/s
95th percentile per-packet one-way delay: 22.518 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 18.75 Mbit/s
95th percentile per-packet one-way delay: 43.886 ms
Loss rate: 0.26%
```

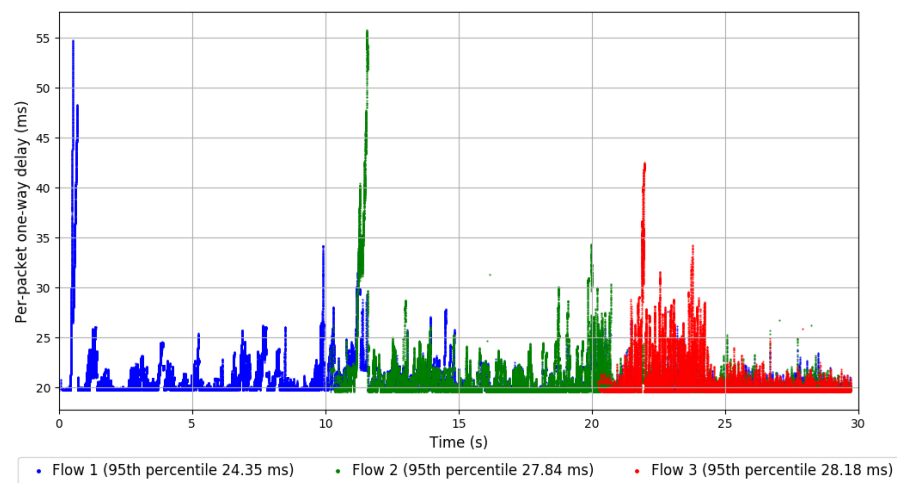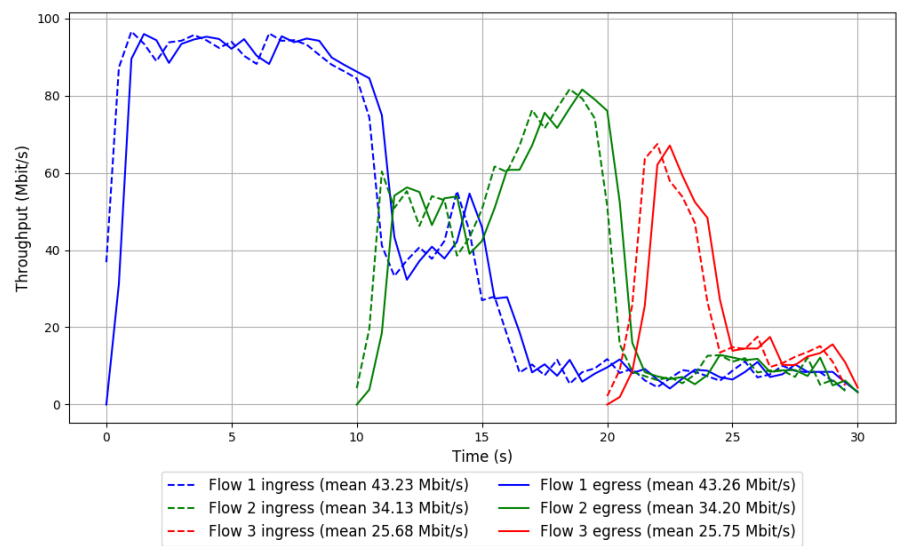Run 3: Report of Muses_DecisionTree — Data Link

```
Run 4: Statistics of Muses\_DecisionTree

Start at: 2019-10-03 12:43:40
End at: 2019-10-03 12:44:10
Local clock offset: 6.448 ms
Remote clock offset: -3.553 ms


# Below is generated by plot.py at 2019-10-03 13:50:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 74.15 Mbit/s
95th percentile per-packet one-way delay: 27.777 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 47.12 Mbit/s
95th percentile per-packet one-way delay: 24.114 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 34.07 Mbit/s
95th percentile per-packet one-way delay: 54.373 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 14.35 Mbit/s
95th percentile per-packet one-way delay: 24.407 ms
Loss rate: 0.23%
```

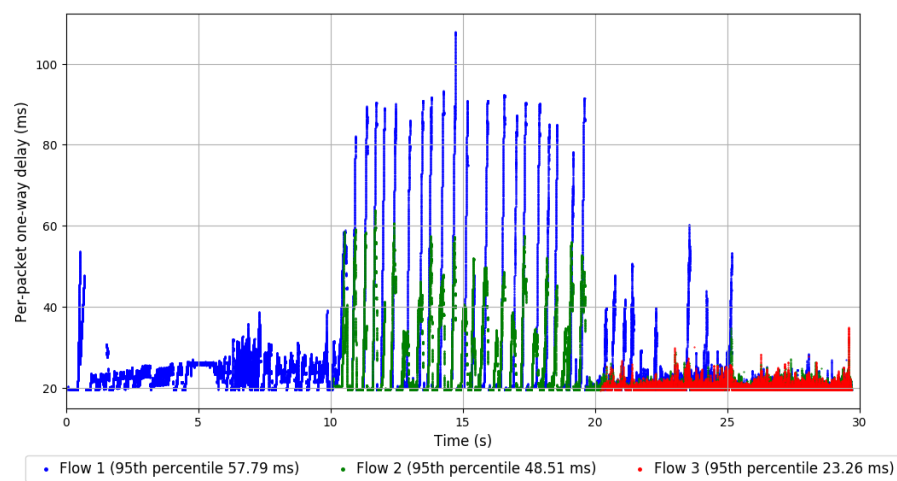Run 4: Report of Muses_DecisionTree — Data Link

```
Run 5: Statistics of Muses\_DecisionTree

Start at: 2019-10-03 13:16:01
End at: 2019-10-03 13:16:31
Local clock offset: 3.931 ms
Remote clock offset: -3.976 ms


# Below is generated by plot.py at 2019-10-03 13:51:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 74.10 Mbit/s
95th percentile per-packet one-way delay: 25.799 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 43.26 Mbit/s
95th percentile per-packet one-way delay: 24.354 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 34.20 Mbit/s
95th percentile per-packet one-way delay: 27.841 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 25.75 Mbit/s
95th percentile per-packet one-way delay: 28.180 ms
Loss rate: 0.22%
```

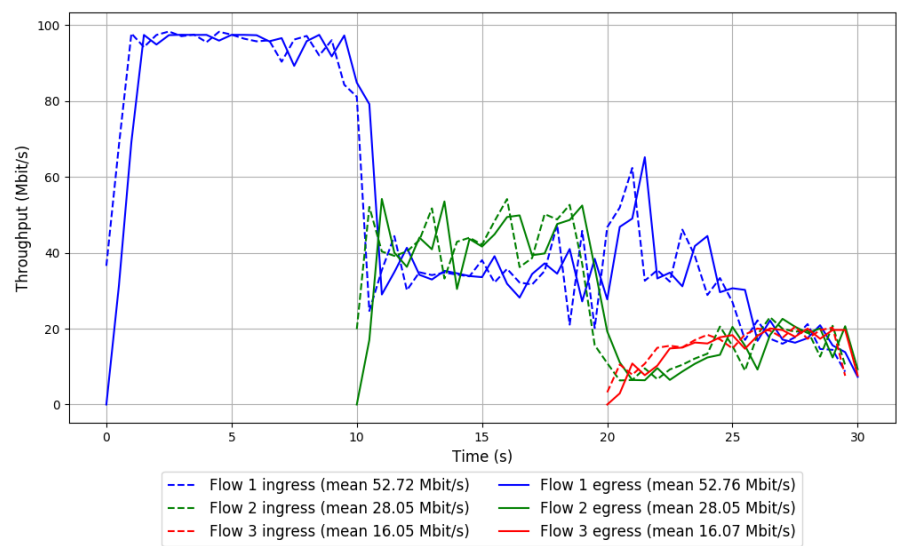Run 5: Report of Muses_DecisionTree — Data Link

```
Run 1: Statistics of Muses\_DecisionTreeH0

Start at: 2019-10-03 11:08:37
End at: 2019-10-03 11:09:07
Local clock offset: 3.29 ms
Remote clock offset: -1.693 ms


# Below is generated by plot.py at 2019-10-03 13:51:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 76.46 Mbit/s
95th percentile per-packet one-way delay: 51.505 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 52.76 Mbit/s
95th percentile per-packet one-way delay: 57.791 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 28.05 Mbit/s
95th percentile per-packet one-way delay: 48.506 ms
Loss rate: 0.27%
-- Flow 3:
Average throughput: 16.07 Mbit/s
95th percentile per-packet one-way delay: 23.260 ms
Loss rate: 0.49%
```

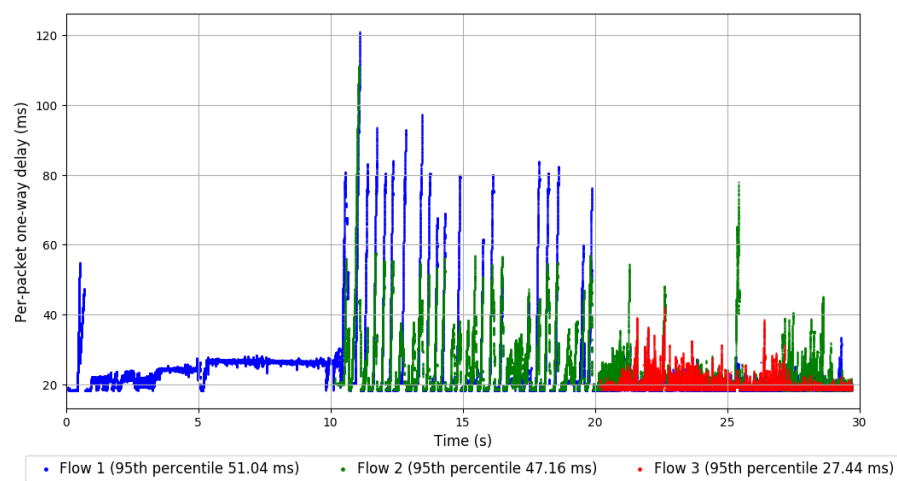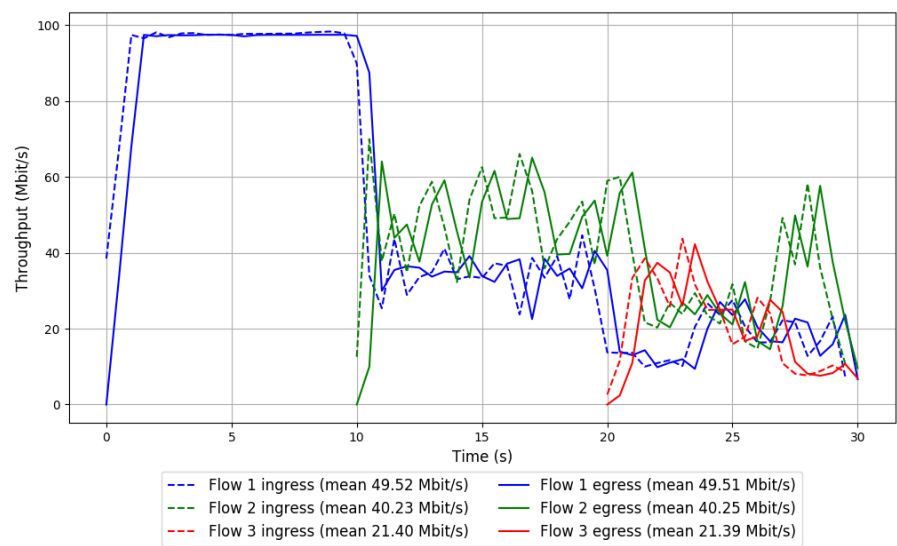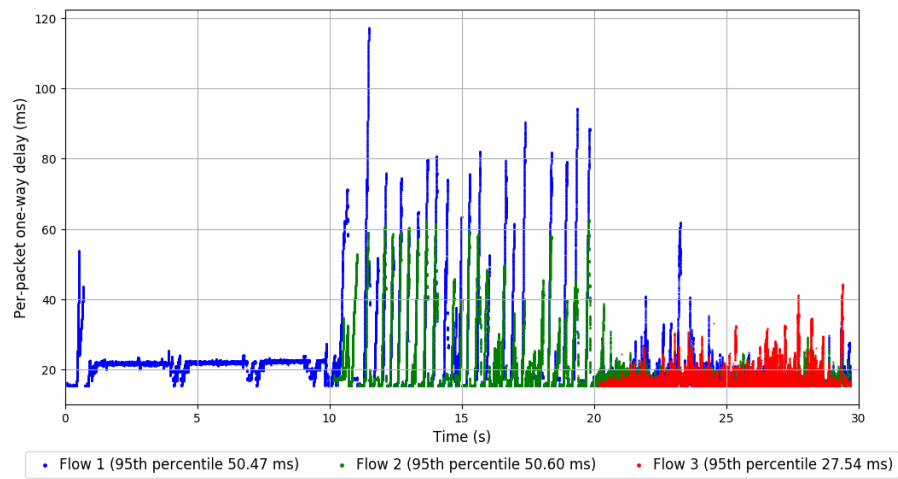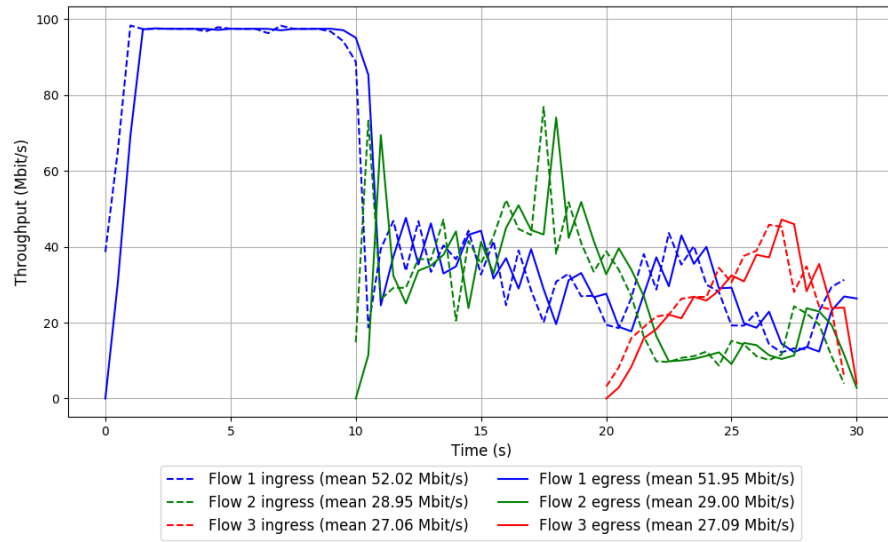Run 1: Report of Muses_DecisionTreeH0 — Data Link

Flow 1 ingress (mean 52.72 Mbit/s) — — — Flow 1 egress (mean 52.76 Mbit/s)
Flow 2 ingress (mean 28.05 Mbit/s) — — — Flow 2 egress (mean 28.05 Mbit/s)
Flow 3 ingress (mean 16.05 Mbit/s) — — — Flow 3 egress (mean 16.07 Mbit/s)

Flow 1 (95th percentile 57.79 ms) — Flow 2 (95th percentile 48.51 ms) — Flow 3 (95th percentile 23.26 ms)

```
Run 2: Statistics of Muses\_DecisionTreeH0

Start at: 2019-10-03 11:40:04
End at: 2019-10-03 11:40:34
Local clock offset: 4.12 ms
Remote clock offset: -1.163 ms


# Below is generated by plot.py at 2019-10-03 13:51:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 82.93 Mbit/s
95th percentile per-packet one-way delay: 46.989 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 49.51 Mbit/s
95th percentile per-packet one-way delay: 51.043 ms
Loss rate: 0.22%
-- Flow 2:
Average throughput: 40.25 Mbit/s
95th percentile per-packet one-way delay: 47.165 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 21.39 Mbit/s
95th percentile per-packet one-way delay: 27.442 ms
Loss rate: 0.55%
```
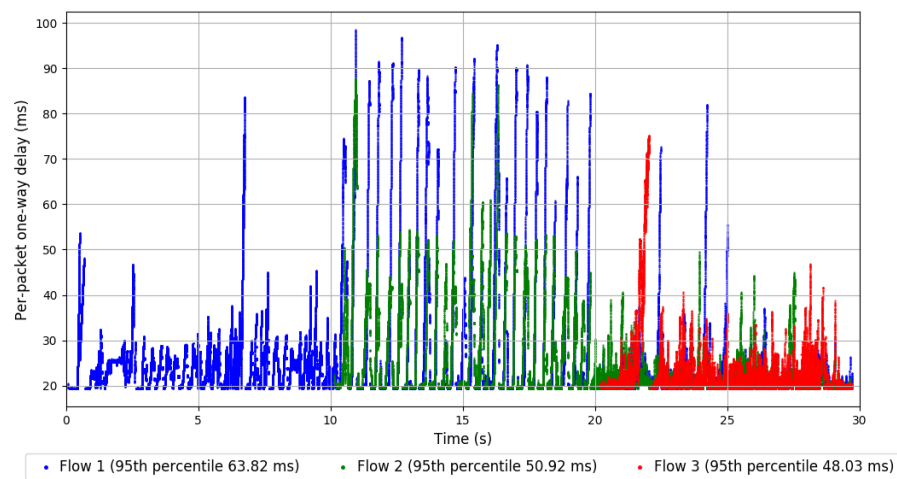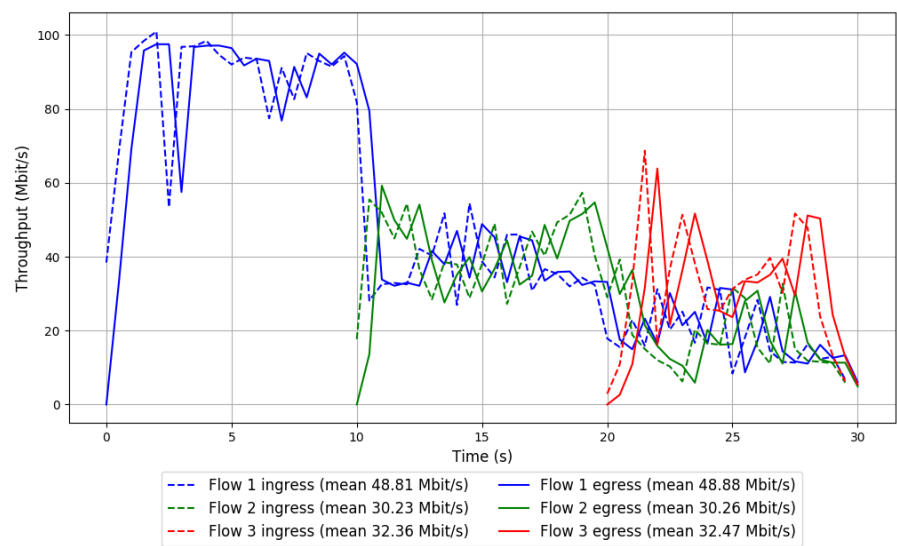
Run 2: Report of Muses_DecisionTreeH0 — Data Link

- - - - Flow 1 ingress (mean 49.52 Mbit/s)   —— Flow 1 egress (mean 49.51 Mbit/s)
- - - - Flow 2 ingress (mean 40.23 Mbit/s)   —— Flow 2 egress (mean 40.25 Mbit/s)
- - - - Flow 3 ingress (mean 21.40 Mbit/s)   —— Flow 3 egress (mean 21.39 Mbit/s)

- Flow 1 (95th percentile 51.04 ms)   • Flow 2 (95th percentile 47.16 ms)   • Flow 3 (95th percentile 27.44 ms)

```
Run 3: Statistics of Muses\_DecisionTreeH0

Start at: 2019-10-03 12:13:08
End at: 2019-10-03 12:13:38
Local clock offset: -2.973 ms
Remote clock offset: -2.123 ms


# Below is generated by plot.py at 2019-10-03 13:51:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 79.78 Mbit/s
95th percentile per-packet one-way delay: 48.522 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 51.95 Mbit/s
95th percentile per-packet one-way delay: 50.472 ms
Loss rate: 0.30%
-- Flow 2:
Average throughput: 29.00 Mbit/s
95th percentile per-packet one-way delay: 50.603 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 27.09 Mbit/s
95th percentile per-packet one-way delay: 27.544 ms
Loss rate: 0.35%
```
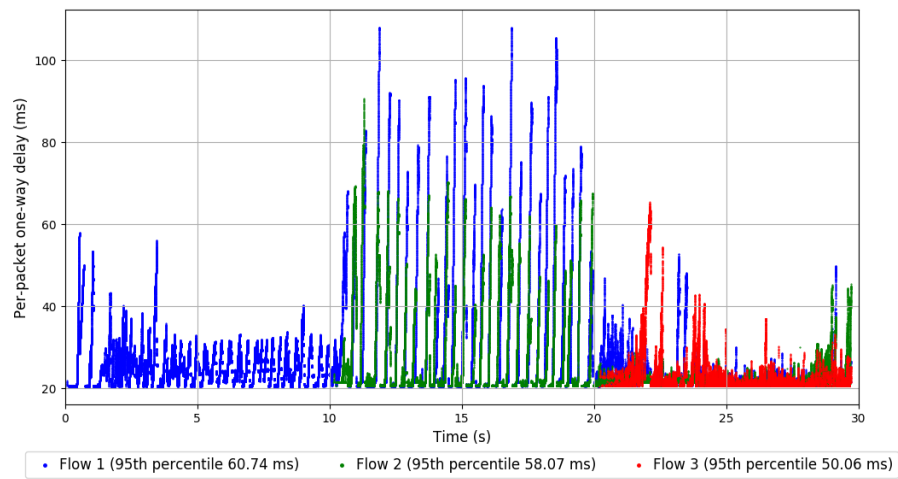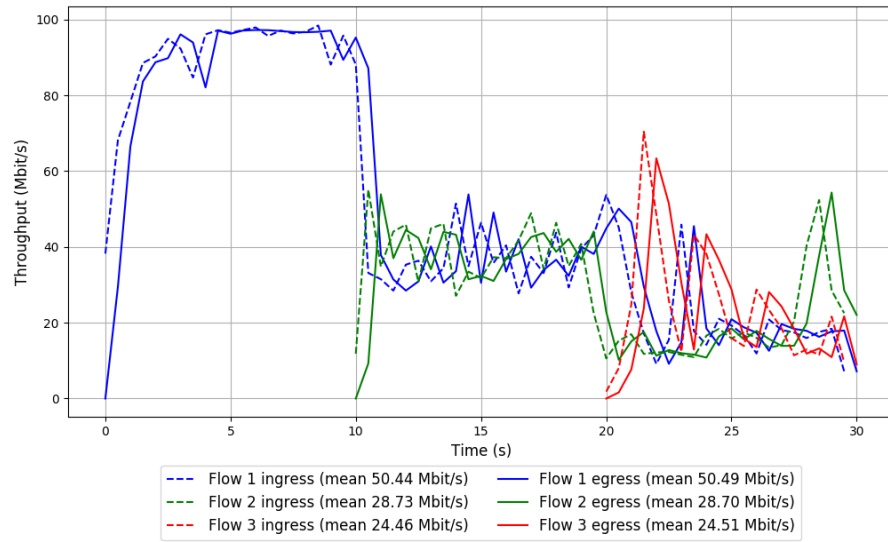
Run 3: Report of Muses_DecisionTreeH0 — Data Link

```
Run 4: Statistics of Muses\_DecisionTreeH0

Start at: 2019-10-03 12:45:03
End at: 2019-10-03 12:45:33
Local clock offset: 5.359 ms
Remote clock offset: -5.555 ms


# Below is generated by plot.py at 2019-10-03 13:51:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 79.31 Mbit/s
95th percentile per-packet one-way delay: 57.197 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 48.88 Mbit/s
95th percentile per-packet one-way delay: 63.820 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 30.26 Mbit/s
95th percentile per-packet one-way delay: 50.921 ms
Loss rate: 0.16%
-- Flow 3:
Average throughput: 32.47 Mbit/s
95th percentile per-packet one-way delay: 48.027 ms
Loss rate: 0.21%
```

Run 4: Report of Muses_DecisionTreeH0 — Data Link

Flow 1 ingress (mean 48.81 Mbit/s)   Flow 1 egress (mean 48.88 Mbit/s)
Flow 2 ingress (mean 30.23 Mbit/s)   Flow 2 egress (mean 30.26 Mbit/s)
Flow 3 ingress (mean 32.36 Mbit/s)   Flow 3 egress (mean 32.47 Mbit/s)

Flow 1 (95th percentile 63.82 ms)   Flow 2 (95th percentile 50.92 ms)   Flow 3 (95th percentile 48.03 ms)

```
Run 5: Statistics of Muses\_DecisionTreeH0

Start at: 2019-10-03 13:17:15
End at: 2019-10-03 13:17:45
Local clock offset: 3.977 ms
Remote clock offset: -4.596 ms


# Below is generated by plot.py at 2019-10-03 13:51:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 77.28 Mbit/s
95th percentile per-packet one-way delay: 58.394 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 50.49 Mbit/s
95th percentile per-packet one-way delay: 60.741 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 28.70 Mbit/s
95th percentile per-packet one-way delay: 58.069 ms
Loss rate: 0.23%
-- Flow 3:
Average throughput: 24.51 Mbit/s
95th percentile per-packet one-way delay: 50.061 ms
Loss rate: 0.28%
```
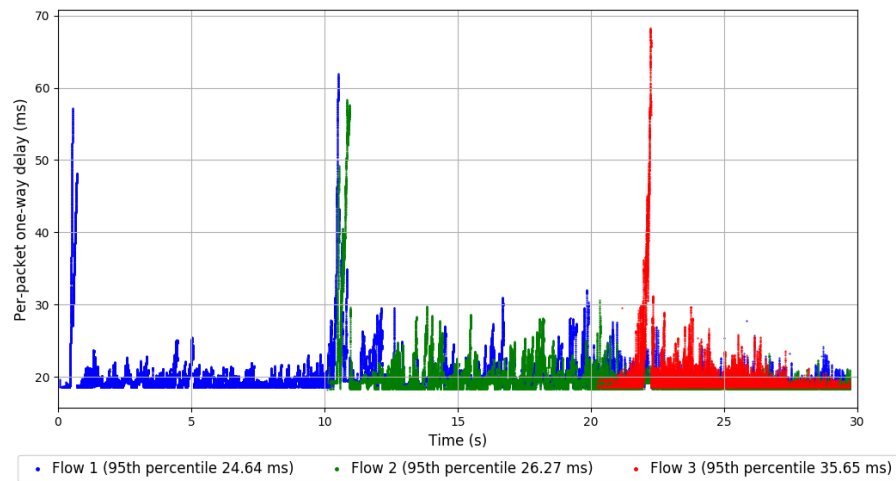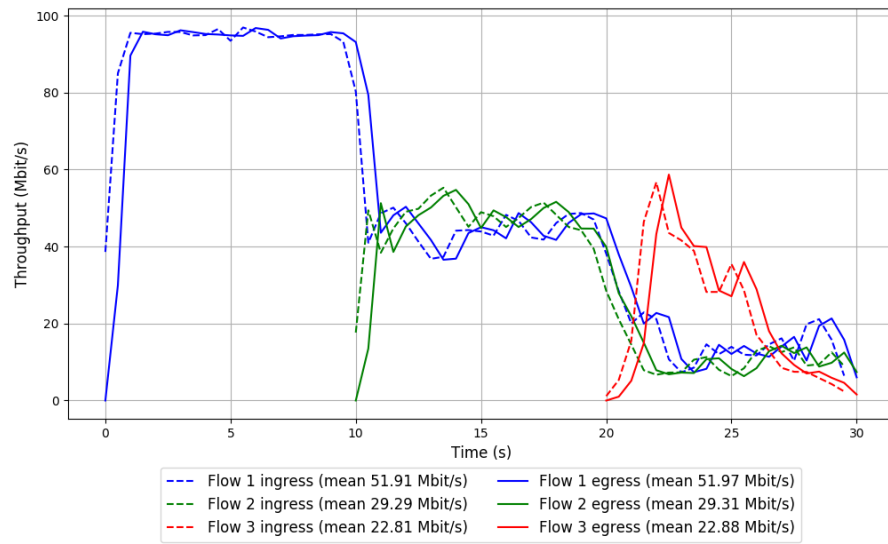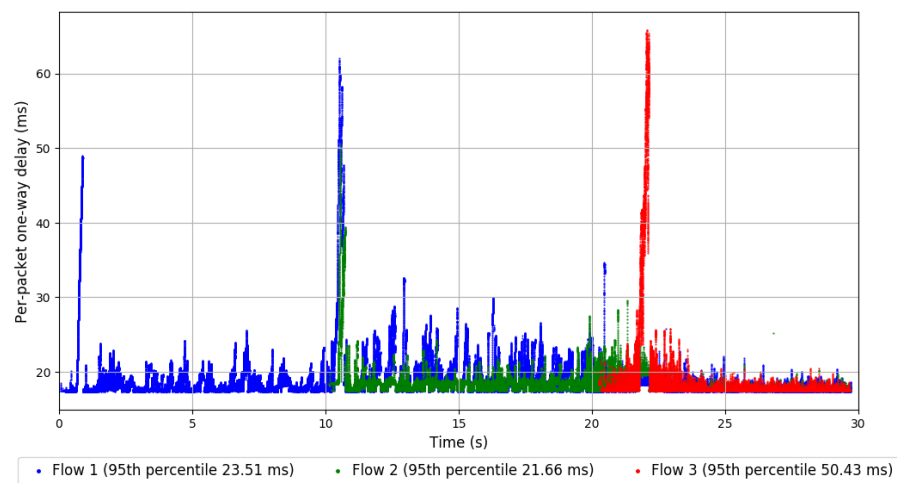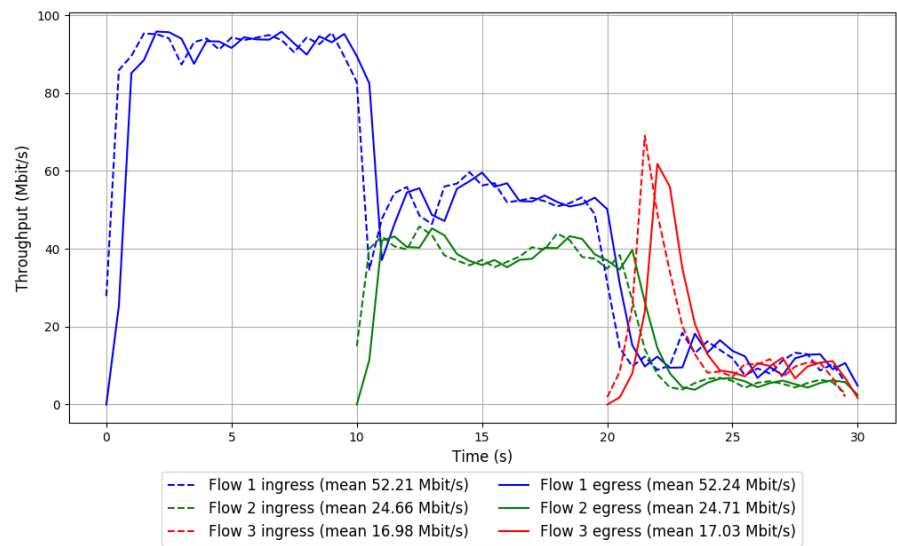
Run 5: Report of Muses_DecisionTreeH0 — Data Link

Flow 1 ingress (mean 50.44 Mbit/s) --- Flow 1 egress (mean 50.49 Mbit/s)
Flow 2 ingress (mean 28.73 Mbit/s) --- Flow 2 egress (mean 28.70 Mbit/s)
Flow 3 ingress (mean 24.46 Mbit/s) --- Flow 3 egress (mean 24.51 Mbit/s)

Flow 1 (95th percentile 60.74 ms)   Flow 2 (95th percentile 58.07 ms)   Flow 3 (95th percentile 50.06 ms)
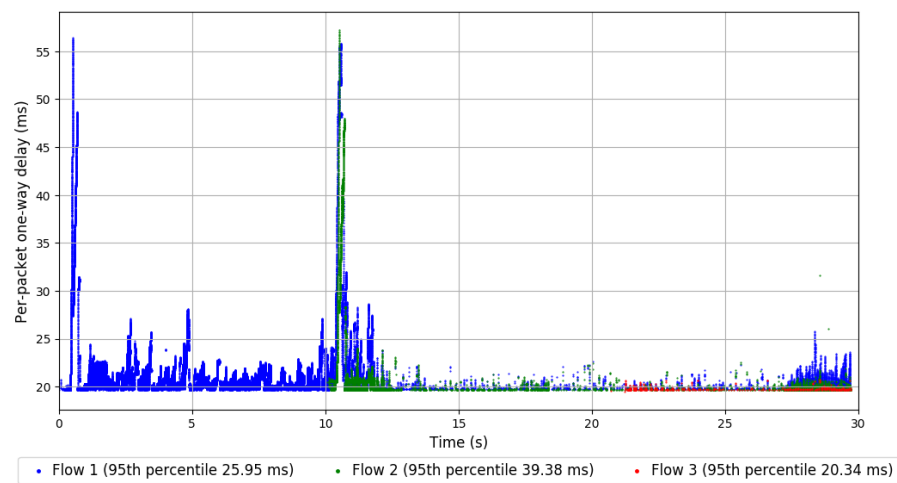
134

```
Run 1: Statistics of Muses\_DecisionTreeR0

Start at: 2019-10-03 11:16:35
End at: 2019-10-03 11:17:05
Local clock offset: 2.377 ms
Remote clock offset: -1.55 ms


# Below is generated by plot.py at 2019-10-03 13:51:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 78.65 Mbit/s
95th percentile per-packet one-way delay: 25.543 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 51.97 Mbit/s
95th percentile per-packet one-way delay: 24.638 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 29.31 Mbit/s
95th percentile per-packet one-way delay: 26.275 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 22.88 Mbit/s
95th percentile per-packet one-way delay: 35.648 ms
Loss rate: 0.20%
```

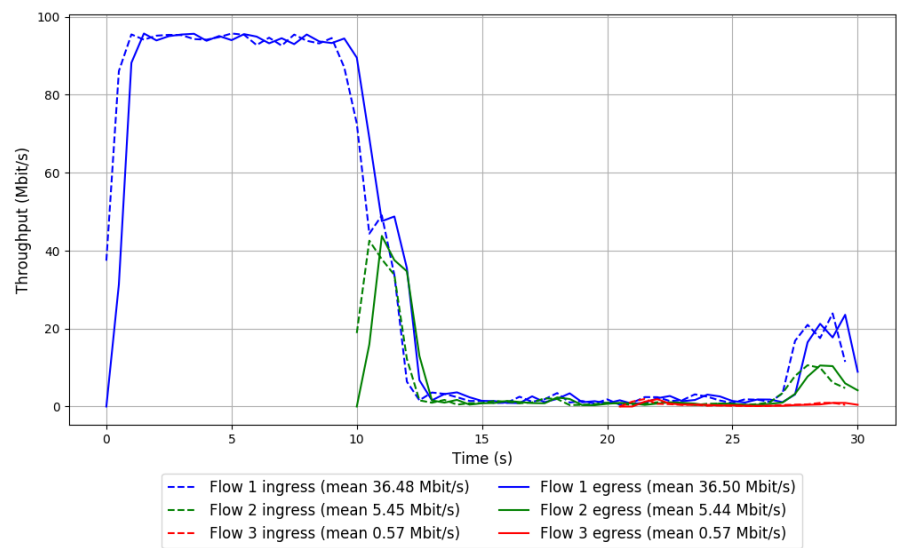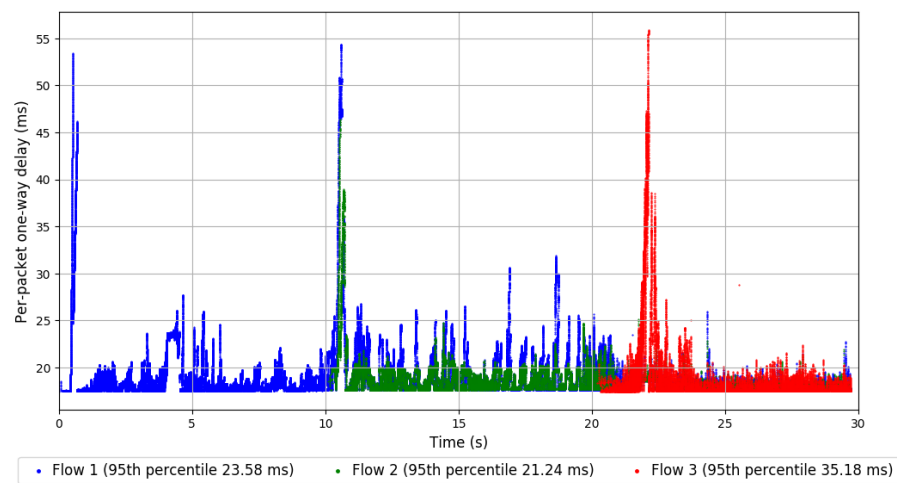Run 1: Report of Muses_DecisionTreeR0 — Data Link

```
Run 2: Statistics of Muses\_DecisionTreeR0

Start at: 2019-10-03 11:48:44
End at: 2019-10-03 11:49:14
Local clock offset: 3.262 ms
Remote clock offset: -1.559 ms


# Below is generated by plot.py at 2019-10-03 13:51:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 74.00 Mbit/s
95th percentile per-packet one-way delay: 23.912 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 52.24 Mbit/s
95th percentile per-packet one-way delay: 23.514 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 24.71 Mbit/s
95th percentile per-packet one-way delay: 21.657 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 17.03 Mbit/s
95th percentile per-packet one-way delay: 50.432 ms
Loss rate: 0.14%
```
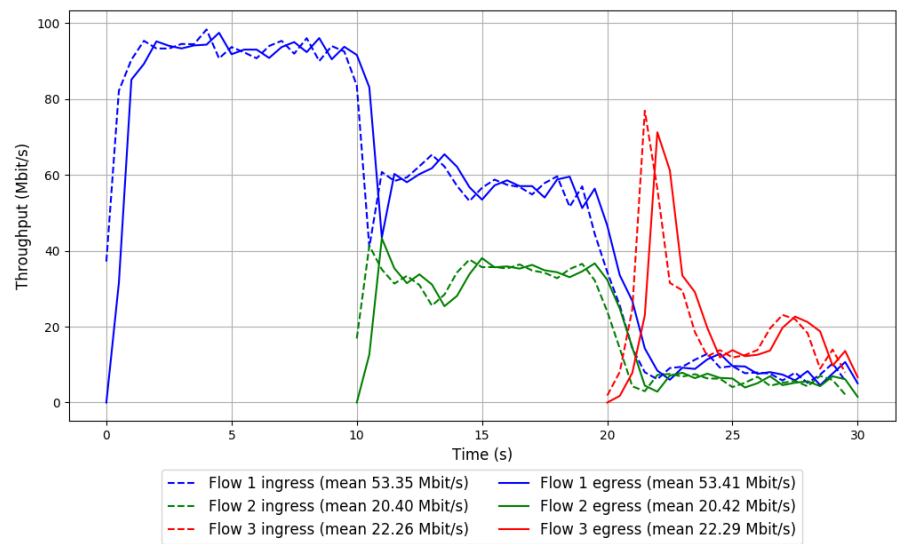
Run 2: Report of Muses_DecisionTreeR0 — Data Link

```
Run 3: Statistics of Muses\_DecisionTreeR0

Start at: 2019-10-03 12:21:05
End at: 2019-10-03 12:21:35
Local clock offset: -0.17 ms
Remote clock offset: -3.288 ms


# Below is generated by plot.py at 2019-10-03 13:51:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 40.25 Mbit/s
95th percentile per-packet one-way delay: 26.898 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 36.50 Mbit/s
95th percentile per-packet one-way delay: 25.948 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 5.44 Mbit/s
95th percentile per-packet one-way delay: 39.376 ms
Loss rate: 0.54%
-- Flow 3:
Average throughput: 0.57 Mbit/s
95th percentile per-packet one-way delay: 20.338 ms
Loss rate: 0.90%
```

Run 3: Report of Muses_DecisionTreeR0 — Data Link

140

```
Run 4: Statistics of Muses\_DecisionTreeR0

Start at: 2019-10-03 12:54:16
End at: 2019-10-03 12:54:46
Local clock offset: 5.376 ms
Remote clock offset: -4.649 ms


# Below is generated by plot.py at 2019-10-03 13:52:18
# Datalink statistics
-- Total of 3 flows:
Average throughput: 74.03 Mbit/s
95th percentile per-packet one-way delay: 23.694 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 53.41 Mbit/s
95th percentile per-packet one-way delay: 23.576 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 20.42 Mbit/s
95th percentile per-packet one-way delay: 21.239 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 22.29 Mbit/s
95th percentile per-packet one-way delay: 35.181 ms
Loss rate: 0.40%
```
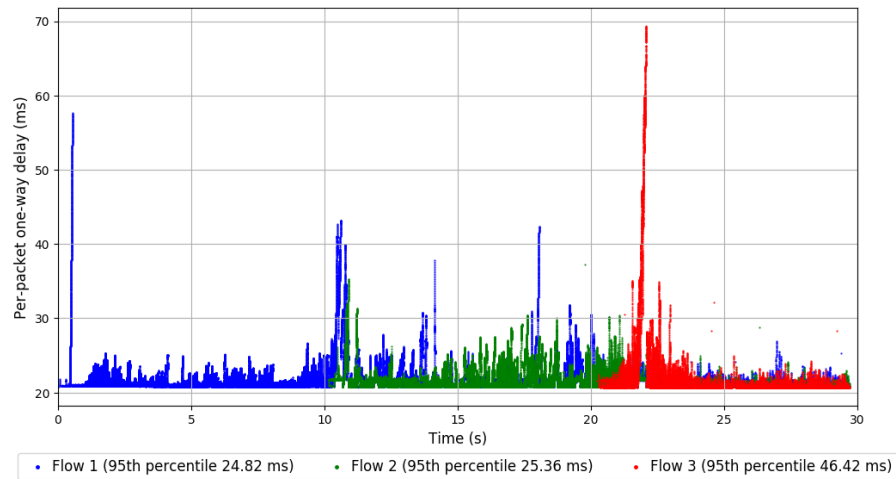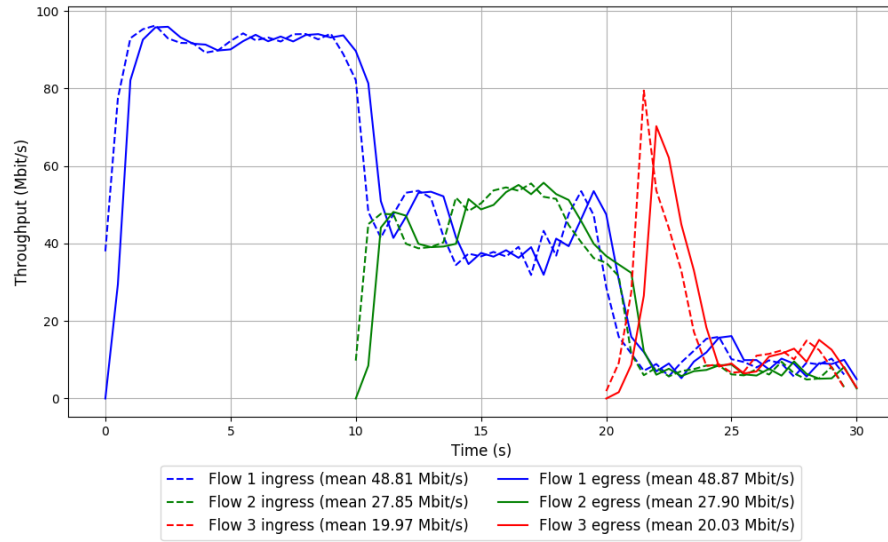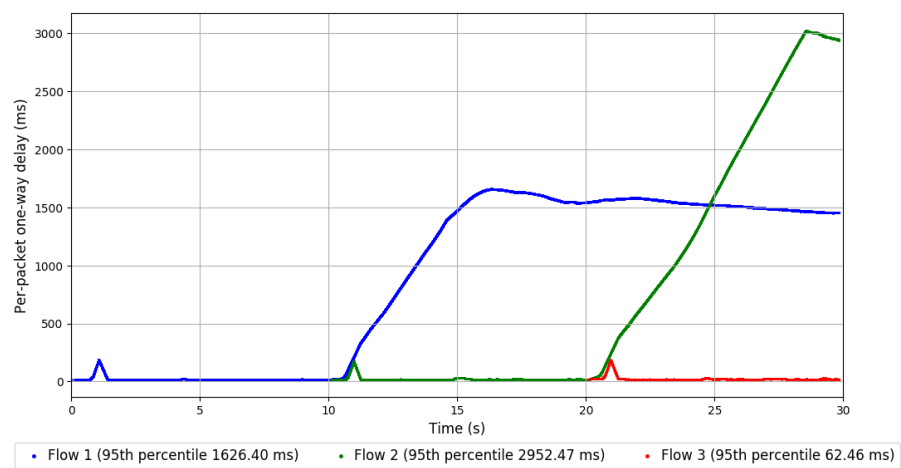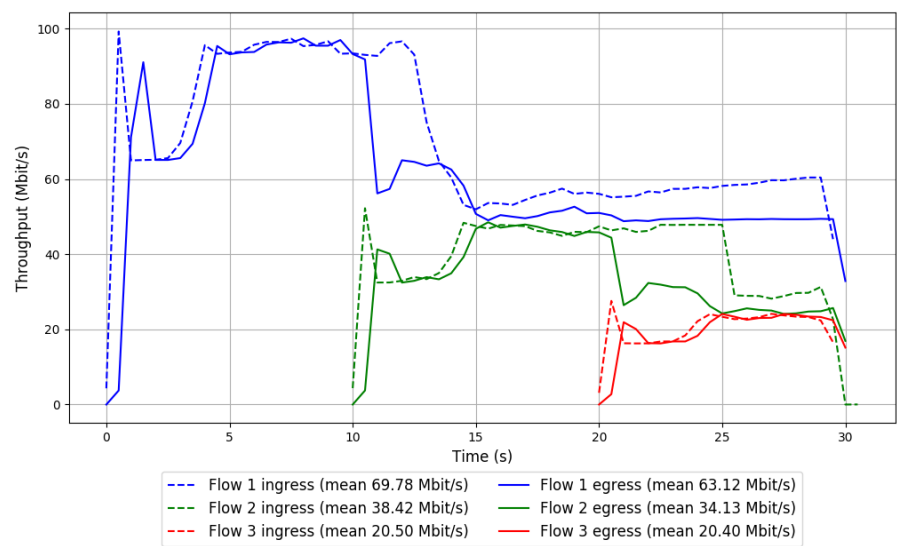
Run 4: Report of Muses_DecisionTreeR0 — Data Link

```
Run 5: Statistics of Muses\_DecisionTreeR0

Start at: 2019-10-03 13:25:09
End at: 2019-10-03 13:25:39
Local clock offset: 4.165 ms
Remote clock offset: -4.65 ms


# Below is generated by plot.py at 2019-10-03 13:52:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 73.65 Mbit/s
95th percentile per-packet one-way delay: 25.997 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 48.87 Mbit/s
95th percentile per-packet one-way delay: 24.818 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 27.90 Mbit/s
95th percentile per-packet one-way delay: 25.365 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 20.03 Mbit/s
95th percentile per-packet one-way delay: 46.424 ms
Loss rate: 0.12%
```
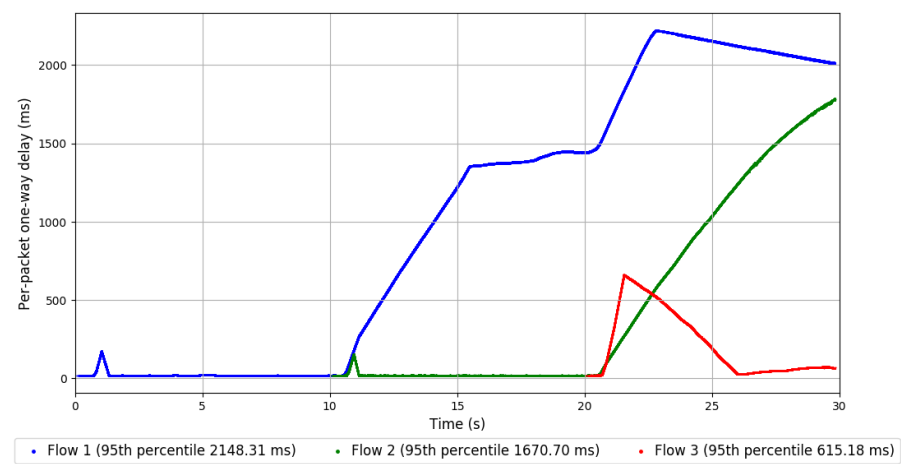
Run 5: Report of Muses_DecisionTreeR0 — Data Link

Flow 1 ingress (mean 48.81 Mbit/s) --- Flow 1 egress (mean 48.87 Mbit/s)
Flow 2 ingress (mean 27.85 Mbit/s) --- Flow 2 egress (mean 27.90 Mbit/s)
Flow 3 ingress (mean 19.97 Mbit/s) --- Flow 3 egress (mean 20.03 Mbit/s)

Flow 1 (95th percentile 24.82 ms) Flow 2 (95th percentile 25.36 ms) Flow 3 (95th percentile 46.42 ms)
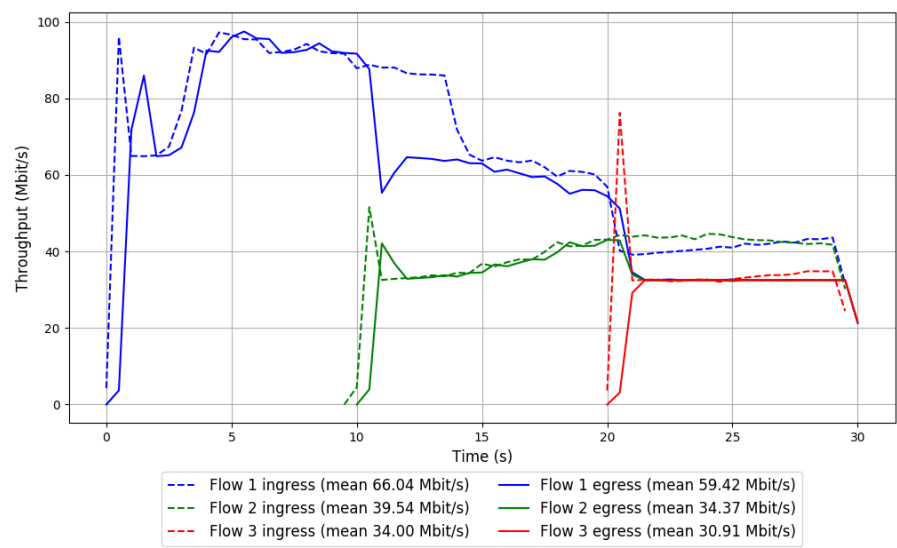
```
Run 1: Statistics of PCC-Allegro

Start at: 2019-10-03 11:04:58
End at: 2019-10-03 11:05:28
Local clock offset: 2.878 ms
Remote clock offset: -0.634 ms


# Below is generated by plot.py at 2019-10-03 13:52:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.49 Mbit/s
95th percentile per-packet one-way delay: 1654.702 ms
Loss rate: 10.43%
-- Flow 1:
Average throughput: 63.12 Mbit/s
95th percentile per-packet one-way delay: 1626.399 ms
Loss rate: 9.69%
-- Flow 2:
Average throughput: 34.13 Mbit/s
95th percentile per-packet one-way delay: 2952.467 ms
Loss rate: 14.77%
-- Flow 3:
Average throughput: 20.40 Mbit/s
95th percentile per-packet one-way delay: 62.461 ms
Loss rate: 0.97%
```

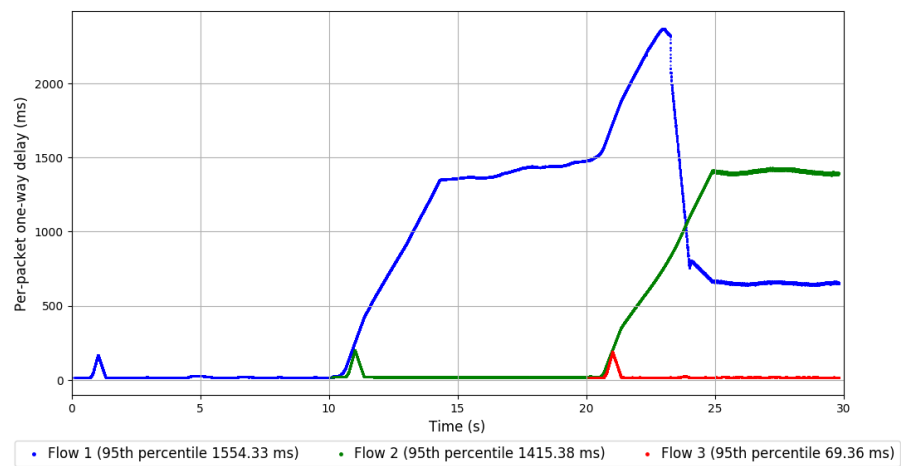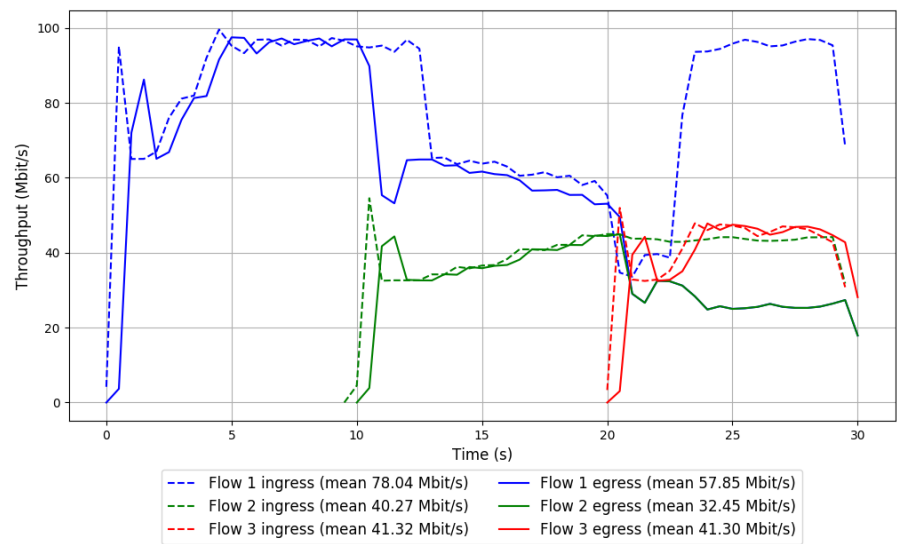Run 1: Report of PCC-Allegro — Data Link

- - - Flow 1 ingress (mean 69.78 Mbit/s)   —— Flow 1 egress (mean 63.12 Mbit/s)
- - - Flow 2 ingress (mean 38.42 Mbit/s)   —— Flow 2 egress (mean 34.13 Mbit/s)
- - - Flow 3 ingress (mean 20.50 Mbit/s)   —— Flow 3 egress (mean 20.40 Mbit/s)

• Flow 1 (95th percentile 1626.40 ms)   • Flow 2 (95th percentile 2952.47 ms)   • Flow 3 (95th percentile 62.46 ms)

146

```
Run 2: Statistics of PCC-Allegro

Start at: 2019-10-03 11:36:13
End at: 2019-10-03 11:36:43
Local clock offset: 2.505 ms
Remote clock offset: -1.611 ms


# Below is generated by plot.py at 2019-10-03 13:52:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.42 Mbit/s
95th percentile per-packet one-way delay: 2105.696 ms
Loss rate: 10.89%
-- Flow 1:
Average throughput: 59.42 Mbit/s
95th percentile per-packet one-way delay: 2148.309 ms
Loss rate: 10.17%
-- Flow 2:
Average throughput: 34.37 Mbit/s
95th percentile per-packet one-way delay: 1670.697 ms
Loss rate: 13.27%
-- Flow 3:
Average throughput: 30.91 Mbit/s
95th percentile per-packet one-way delay: 615.178 ms
Loss rate: 9.50%
```
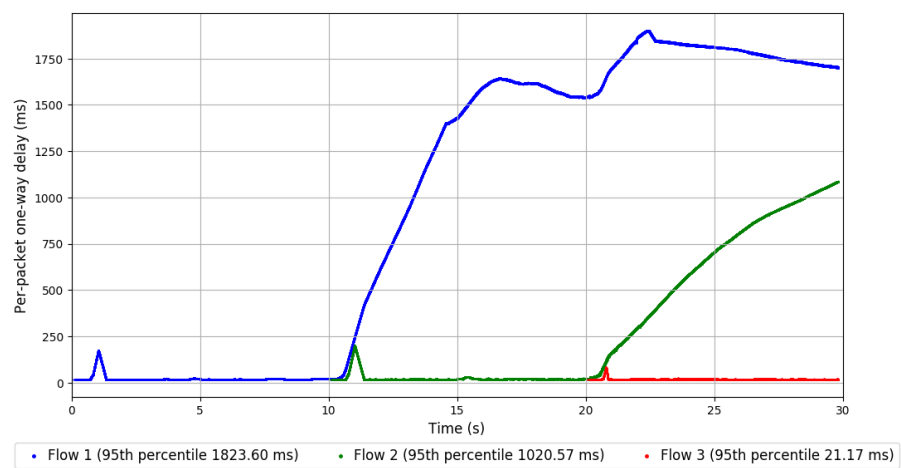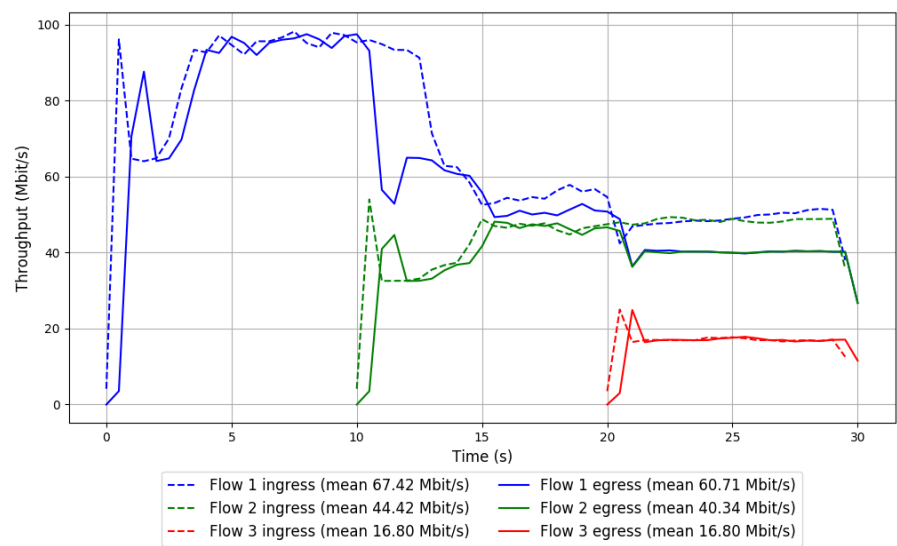
Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2019-10-03 12:09:08
End at: 2019-10-03 12:09:38
Local clock offset: -1.535 ms
Remote clock offset: -1.766 ms


# Below is generated by plot.py at 2019-10-03 13:52:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.98 Mbit/s
95th percentile per-packet one-way delay: 1471.545 ms
Loss rate: 21.62%
-- Flow 1:
Average throughput: 57.85 Mbit/s
95th percentile per-packet one-way delay: 1554.334 ms
Loss rate: 25.99%
-- Flow 2:
Average throughput: 32.45 Mbit/s
95th percentile per-packet one-way delay: 1415.377 ms
Loss rate: 19.61%
-- Flow 3:
Average throughput: 41.30 Mbit/s
95th percentile per-packet one-way delay: 69.359 ms
Loss rate: 0.55%
```
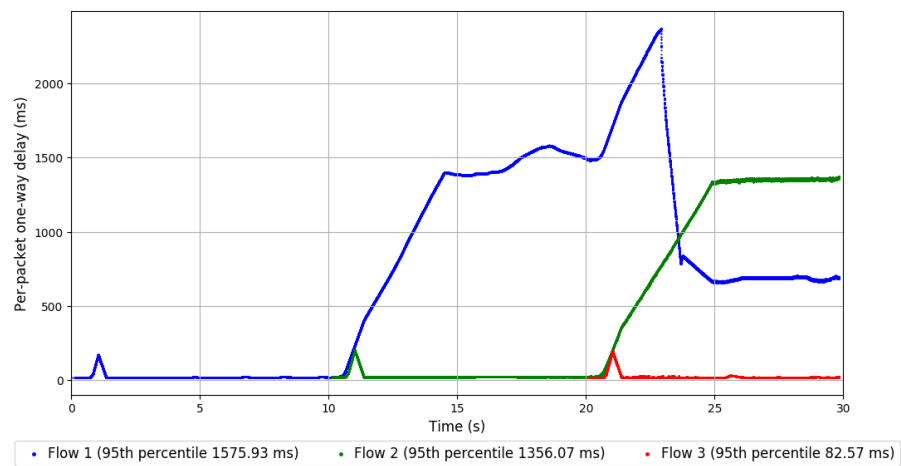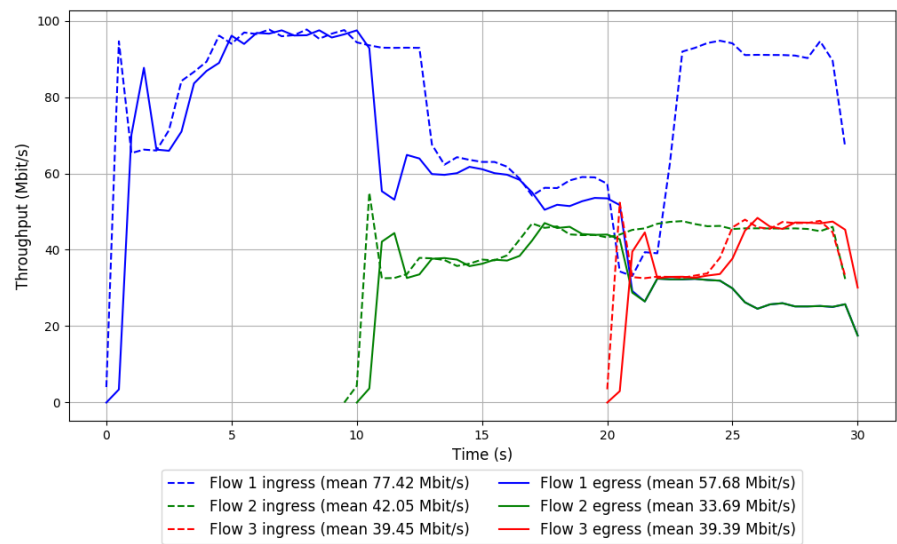
Run 3: Report of PCC-Allegro — Data Link

- - - Flow 1 ingress (mean 78.04 Mbit/s)   —— Flow 1 egress (mean 57.85 Mbit/s)
- - - Flow 2 ingress (mean 40.27 Mbit/s)   —— Flow 2 egress (mean 32.45 Mbit/s)
- - - Flow 3 ingress (mean 41.32 Mbit/s)   —— Flow 3 egress (mean 41.30 Mbit/s)

- Flow 1 (95th percentile 1554.33 ms)   • Flow 2 (95th percentile 1415.38 ms)   • Flow 3 (95th percentile 69.36 ms)

150

```
Run 4: Statistics of PCC-Allegro

Start at: 2019-10-03 12:40:56
End at: 2019-10-03 12:41:26
Local clock offset: 4.429 ms
Remote clock offset: -4.193 ms


# Below is generated by plot.py at 2019-10-03 13:52:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.03 Mbit/s
95th percentile per-packet one-way delay: 1809.283 ms
Loss rate: 9.39%
-- Flow 1:
Average throughput: 60.71 Mbit/s
95th percentile per-packet one-way delay: 1823.603 ms
Loss rate: 10.10%
-- Flow 2:
Average throughput: 40.34 Mbit/s
95th percentile per-packet one-way delay: 1020.568 ms
Loss rate: 9.42%
-- Flow 3:
Average throughput: 16.80 Mbit/s
95th percentile per-packet one-way delay: 21.168 ms
Loss rate: 0.52%
```

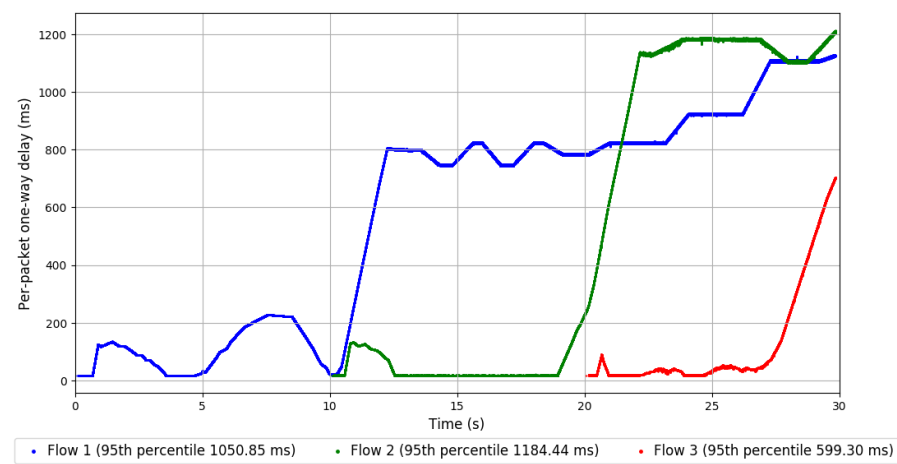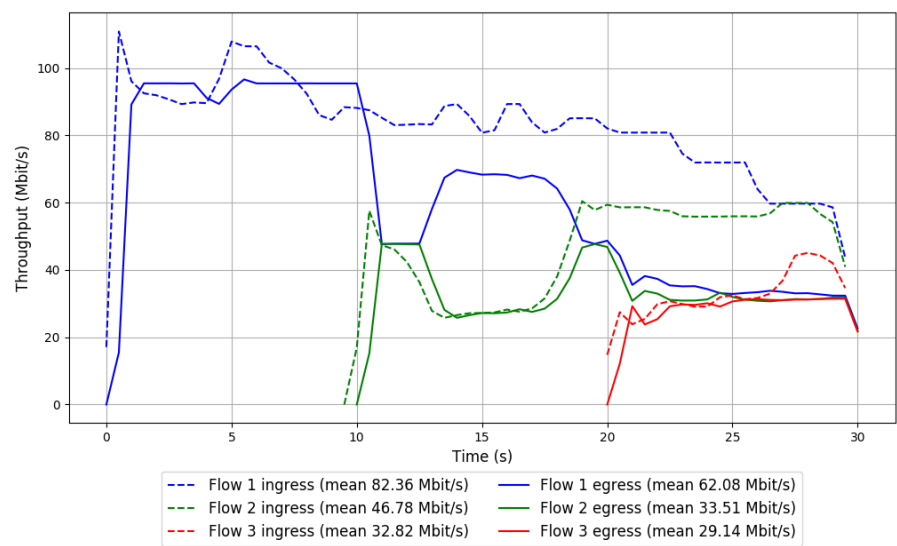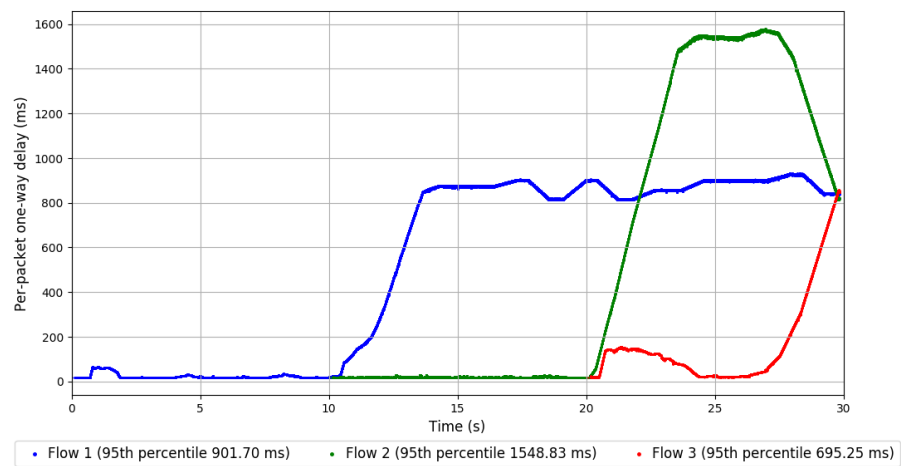Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 67.42 Mbit/s)   Flow 1 egress (mean 60.71 Mbit/s)
Flow 2 ingress (mean 44.42 Mbit/s)   Flow 2 egress (mean 40.34 Mbit/s)
Flow 3 ingress (mean 16.80 Mbit/s)   Flow 3 egress (mean 16.80 Mbit/s)

Flow 1 (95th percentile 1823.60 ms)   Flow 2 (95th percentile 1020.57 ms)   Flow 3 (95th percentile 21.17 ms)
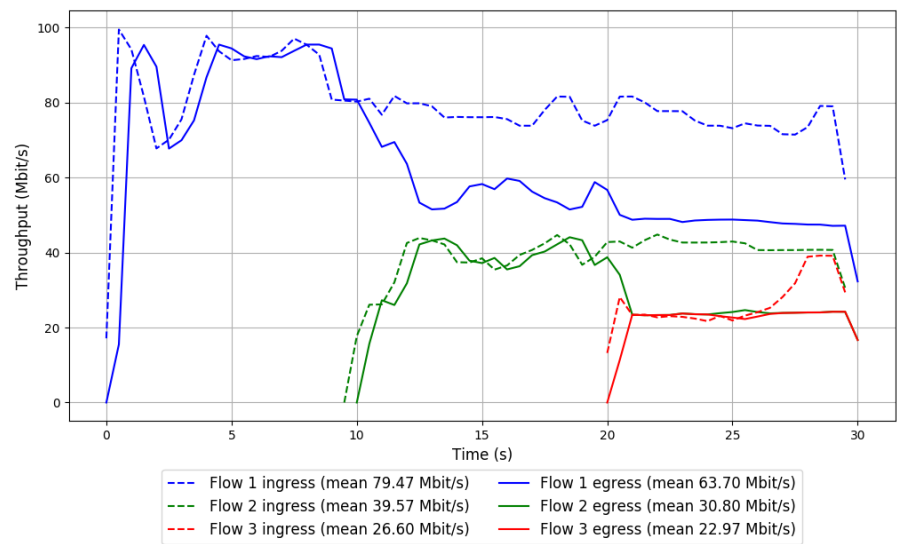
```
Run 5: Statistics of PCC-Allegro

Start at: 2019-10-03 13:13:14
End at: 2019-10-03 13:13:44
Local clock offset: 4.0 ms
Remote clock offset: -3.727 ms


# Below is generated by plot.py at 2019-10-03 13:52:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.01 Mbit/s
95th percentile per-packet one-way delay: 1542.279 ms
Loss rate: 21.56%
-- Flow 1:
Average throughput: 57.68 Mbit/s
95th percentile per-packet one-way delay: 1575.934 ms
Loss rate: 25.61%
-- Flow 2:
Average throughput: 33.69 Mbit/s
95th percentile per-packet one-way delay: 1356.074 ms
Loss rate: 20.07%
-- Flow 3:
Average throughput: 39.39 Mbit/s
95th percentile per-packet one-way delay: 82.573 ms
Loss rate: 0.64%
```

Run 5: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 77.42 Mbit/s) --- Flow 1 egress (mean 57.68 Mbit/s)
Flow 2 ingress (mean 42.05 Mbit/s) --- Flow 2 egress (mean 33.69 Mbit/s)
Flow 3 ingress (mean 39.45 Mbit/s) --- Flow 3 egress (mean 39.39 Mbit/s)

Flow 1 (95th percentile 1575.93 ms) Flow 2 (95th percentile 1356.07 ms) Flow 3 (95th percentile 82.57 ms)
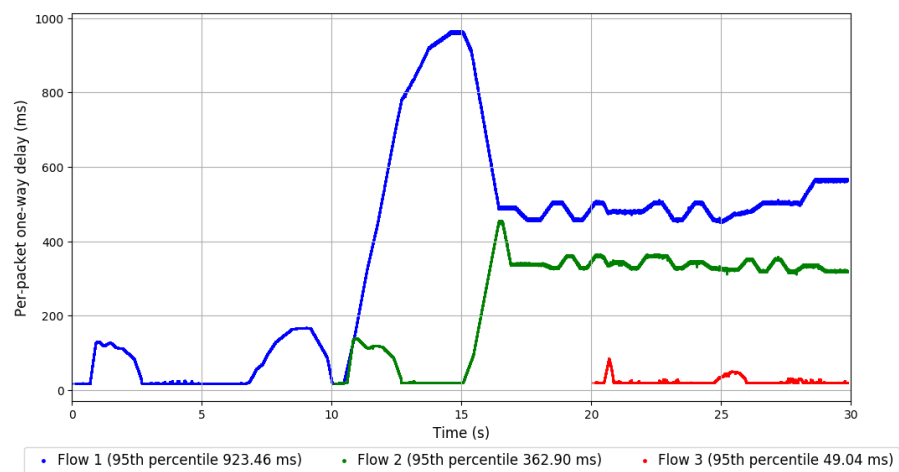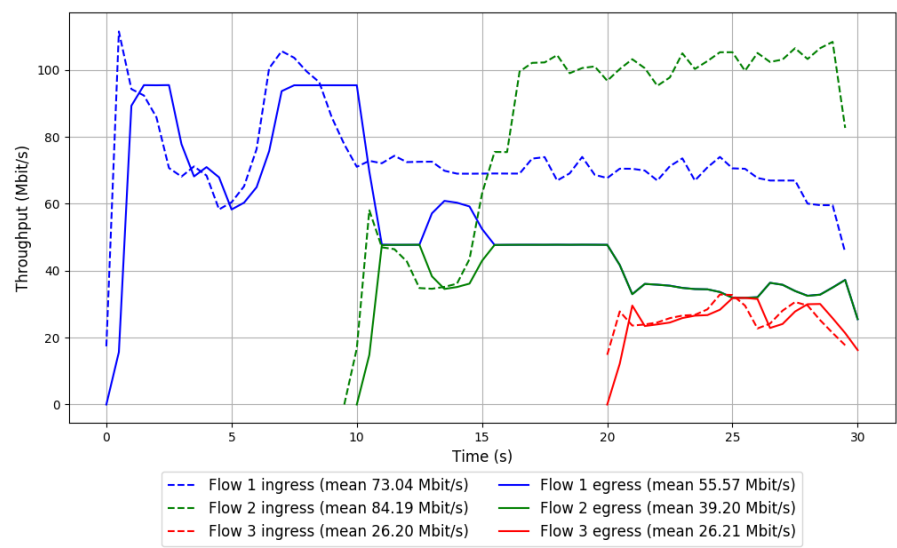
154

```
Run 1: Statistics of PCC-Expr

Start at: 2019-10-03 11:15:11
End at: 2019-10-03 11:15:41
Local clock offset: 1.421 ms
Remote clock offset: -1.082 ms


# Below is generated by plot.py at 2019-10-03 13:53:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.95 Mbit/s
95th percentile per-packet one-way delay: 1157.424 ms
Loss rate: 24.55%
-- Flow 1:
Average throughput: 62.08 Mbit/s
95th percentile per-packet one-way delay: 1050.853 ms
Loss rate: 24.74%
-- Flow 2:
Average throughput: 33.51 Mbit/s
95th percentile per-packet one-way delay: 1184.437 ms
Loss rate: 28.54%
-- Flow 3:
Average throughput: 29.14 Mbit/s
95th percentile per-packet one-way delay: 599.298 ms
Loss rate: 11.67%
```

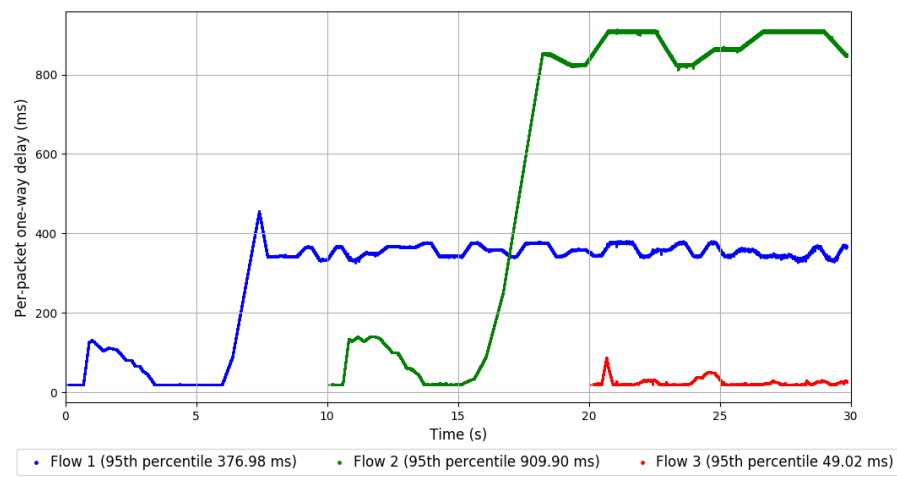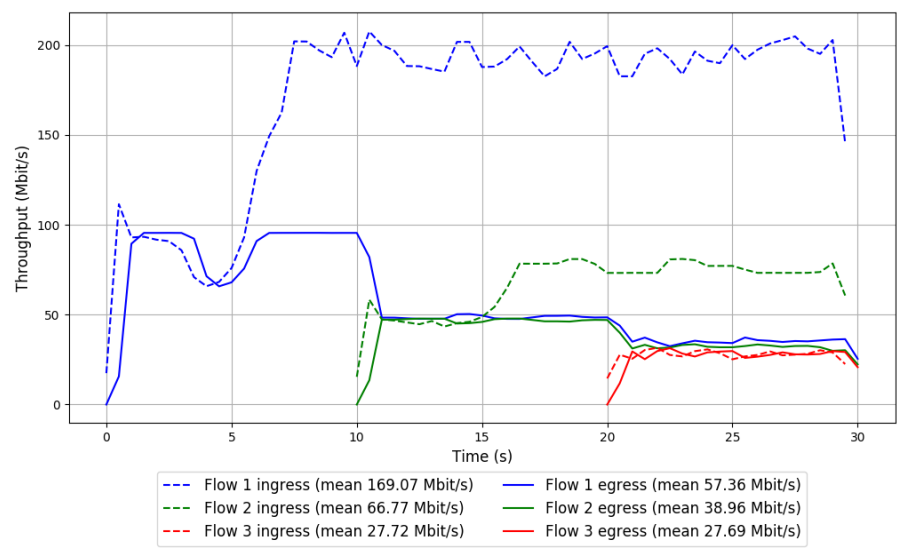Run 1: Report of PCC-Expr — Data Link

```
Run 2: Statistics of PCC-Expr

Start at: 2019-10-03 11:47:18
End at: 2019-10-03 11:47:48
Local clock offset: 1.251 ms
Remote clock offset: -3.162 ms


# Below is generated by plot.py at 2019-10-03 13:54:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.74 Mbit/s
95th percentile per-packet one-way delay: 1187.240 ms
Loss rate: 20.08%
-- Flow 1:
Average throughput: 63.70 Mbit/s
95th percentile per-packet one-way delay: 901.701 ms
Loss rate: 19.97%
-- Flow 2:
Average throughput: 30.80 Mbit/s
95th percentile per-packet one-way delay: 1548.834 ms
Loss rate: 22.39%
-- Flow 3:
Average throughput: 22.97 Mbit/s
95th percentile per-packet one-way delay: 695.245 ms
Loss rate: 14.07%
```

Run 2: Report of PCC-Expr — Data Link

- - - Flow 1 ingress (mean 79.47 Mbit/s) —— Flow 1 egress (mean 63.70 Mbit/s)
- - - Flow 2 ingress (mean 39.57 Mbit/s) —— Flow 2 egress (mean 30.80 Mbit/s)
- - - Flow 3 ingress (mean 26.60 Mbit/s) —— Flow 3 egress (mean 22.97 Mbit/s)

- Flow 1 (95th percentile 901.70 ms)   - Flow 2 (95th percentile 1548.83 ms)   - Flow 3 (95th percentile 695.25 ms)

```
Run 3: Statistics of PCC-Expr

Start at: 2019-10-03 12:19:48
End at: 2019-10-03 12:20:18
Local clock offset: -0.544 ms
Remote clock offset: -2.422 ms


# Below is generated by plot.py at 2019-10-03 13:54:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.26 Mbit/s
95th percentile per-packet one-way delay: 838.002 ms
Loss rate: 34.57%
-- Flow 1:
Average throughput: 55.57 Mbit/s
95th percentile per-packet one-way delay: 923.460 ms
Loss rate: 24.04%
-- Flow 2:
Average throughput: 39.20 Mbit/s
95th percentile per-packet one-way delay: 362.901 ms
Loss rate: 53.57%
-- Flow 3:
Average throughput: 26.21 Mbit/s
95th percentile per-packet one-way delay: 49.041 ms
Loss rate: 0.49%
```
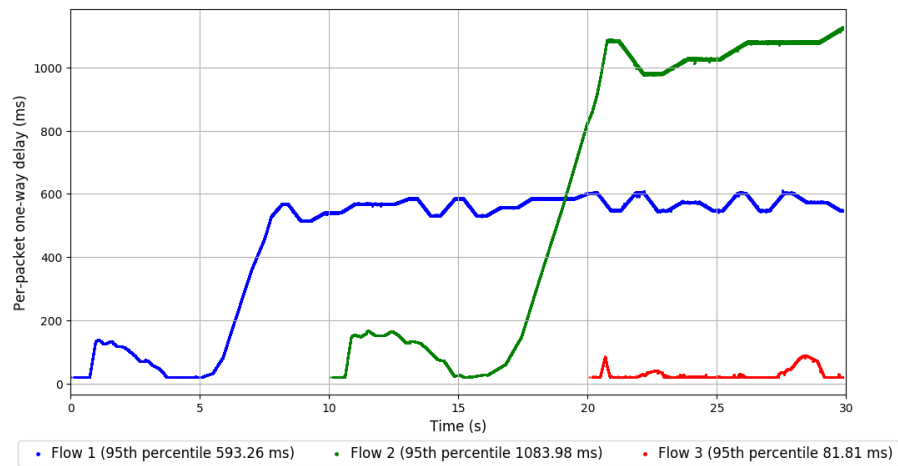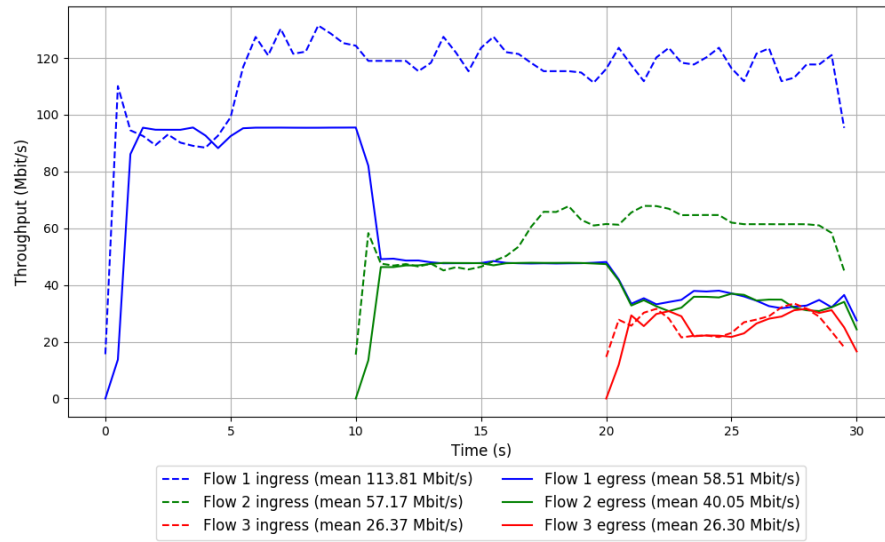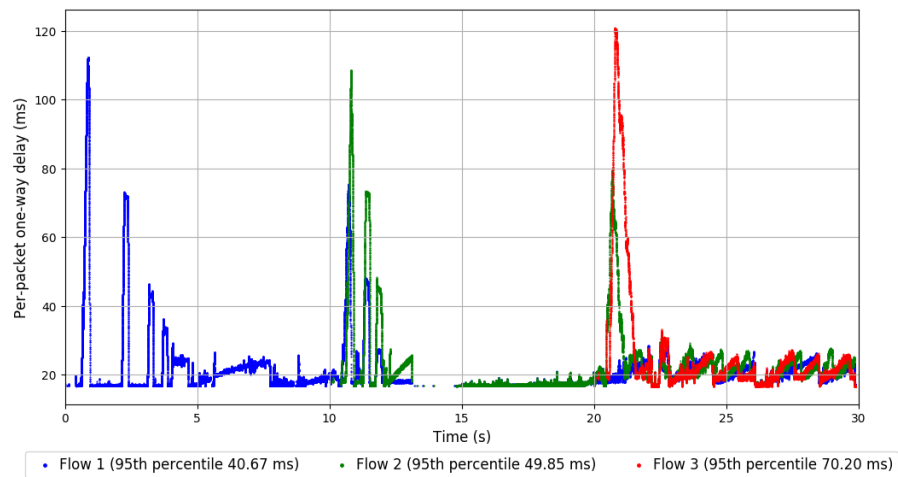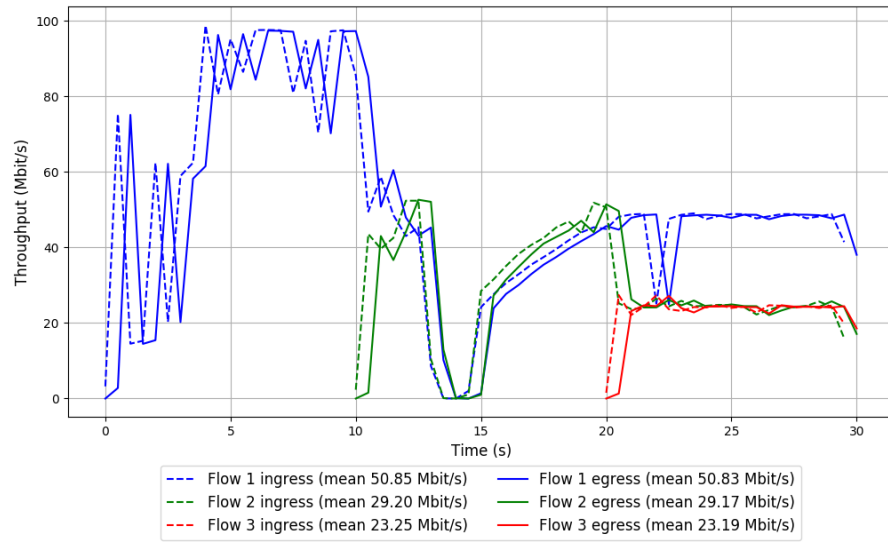
Run 3: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 73.04 Mbit/s) --- Flow 1 egress (mean 55.57 Mbit/s) ---
Flow 2 ingress (mean 84.19 Mbit/s) --- Flow 2 egress (mean 39.20 Mbit/s) ---
Flow 3 ingress (mean 26.20 Mbit/s) --- Flow 3 egress (mean 26.21 Mbit/s) ---

Flow 1 (95th percentile 923.46 ms) ● Flow 2 (95th percentile 362.90 ms) ● Flow 3 (95th percentile 49.04 ms)

```
Run 4: Statistics of PCC-Expr

Start at: 2019-10-03 12:52:46
End at: 2019-10-03 12:53:16
Local clock offset: 7.371 ms
Remote clock offset: -3.866 ms


# Below is generated by plot.py at 2019-10-03 13:55:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.35 Mbit/s
95th percentile per-packet one-way delay: 905.359 ms
Loss rate: 58.59%
-- Flow 1:
Average throughput: 57.36 Mbit/s
95th percentile per-packet one-way delay: 376.975 ms
Loss rate: 66.14%
-- Flow 2:
Average throughput: 38.96 Mbit/s
95th percentile per-packet one-way delay: 909.904 ms
Loss rate: 41.79%
-- Flow 3:
Average throughput: 27.69 Mbit/s
95th percentile per-packet one-way delay: 49.015 ms
Loss rate: 0.60%
```
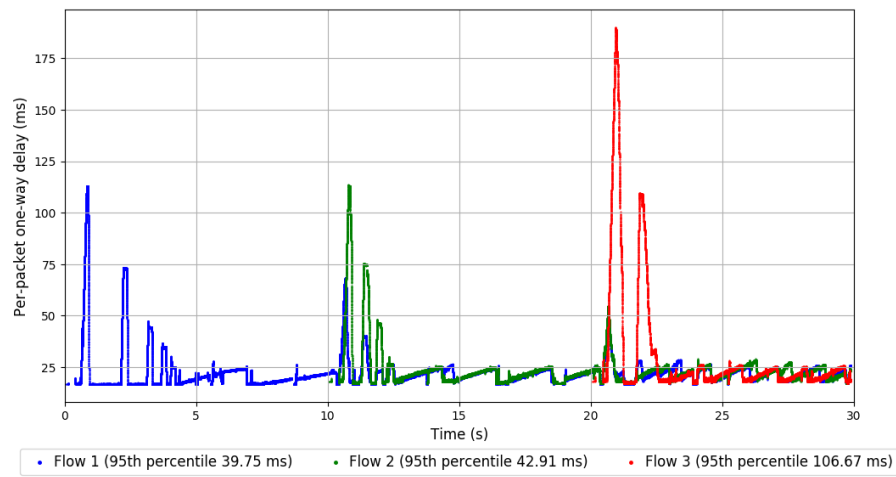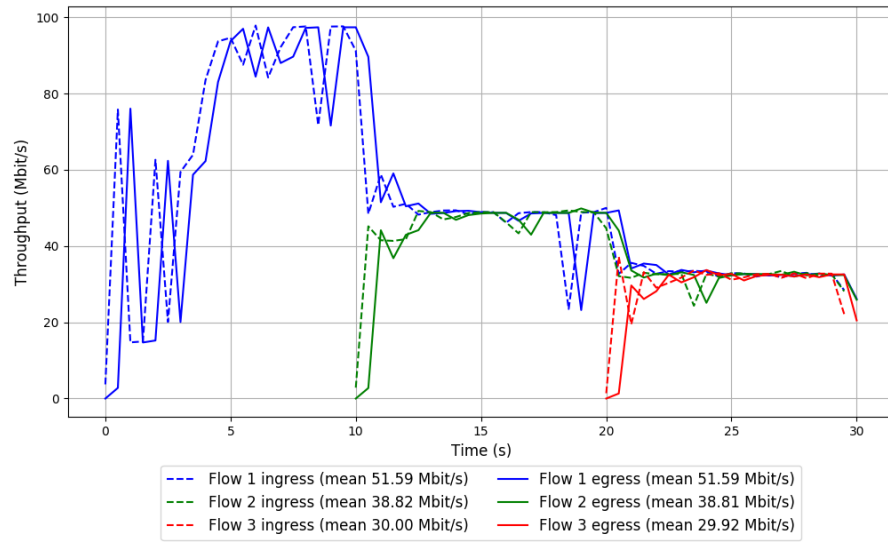
Run 4: Report of PCC-Expr — Data Link

```
Run 5: Statistics of PCC-Expr

Start at: 2019-10-03 13:23:45
End at: 2019-10-03 13:24:15
Local clock offset: 3.045 ms
Remote clock offset: -4.84 ms


# Below is generated by plot.py at 2019-10-03 13:55:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.78 Mbit/s
95th percentile per-packet one-way delay: 1076.845 ms
Loss rate: 41.70%
-- Flow 1:
Average throughput: 58.51 Mbit/s
95th percentile per-packet one-way delay: 593.260 ms
Loss rate: 48.70%
-- Flow 2:
Average throughput: 40.05 Mbit/s
95th percentile per-packet one-way delay: 1083.985 ms
Loss rate: 30.12%
-- Flow 3:
Average throughput: 26.30 Mbit/s
95th percentile per-packet one-way delay: 81.815 ms
Loss rate: 0.75%
```

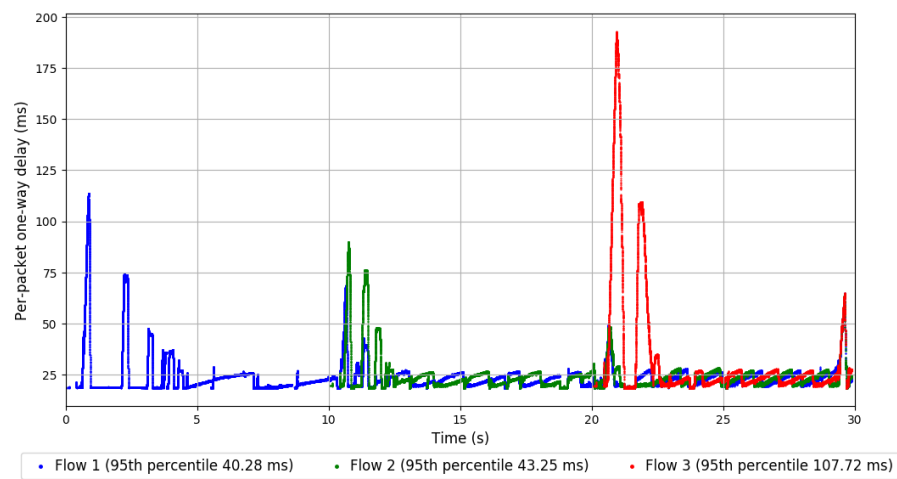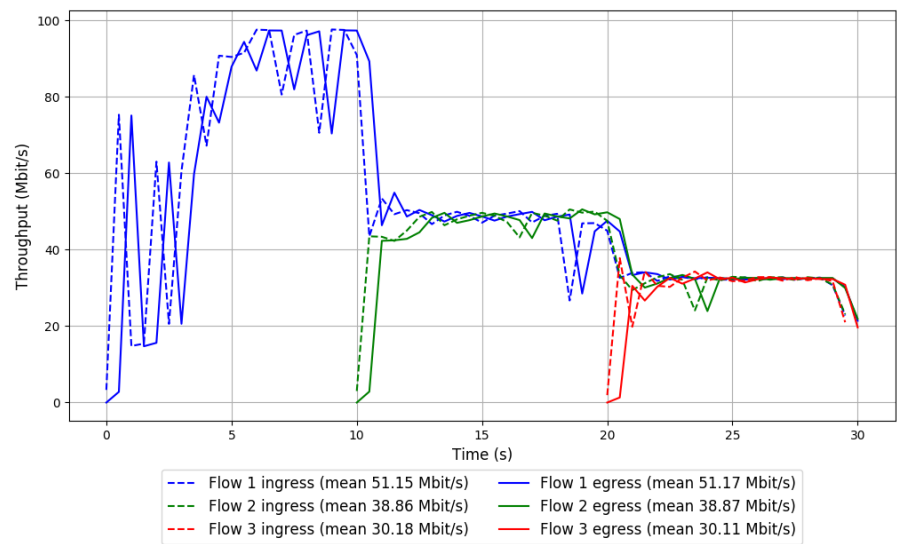## Run 5: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 113.81 Mbit/s)
Flow 1 egress (mean 58.51 Mbit/s)
Flow 2 ingress (mean 57.17 Mbit/s)
Flow 2 egress (mean 40.05 Mbit/s)
Flow 3 ingress (mean 26.37 Mbit/s)
Flow 3 egress (mean 26.30 Mbit/s)

Flow 1 (95th percentile 593.26 ms)
Flow 2 (95th percentile 1083.98 ms)
Flow 3 (95th percentile 81.81 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2019-10-03 11:25:33
End at: 2019-10-03 11:26:03
Local clock offset: 1.134 ms
Remote clock offset: -1.373 ms


# Below is generated by plot.py at 2019-10-03 13:55:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 77.82 Mbit/s
95th percentile per-packet one-way delay: 43.612 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 50.83 Mbit/s
95th percentile per-packet one-way delay: 40.666 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 29.17 Mbit/s
95th percentile per-packet one-way delay: 49.849 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 23.19 Mbit/s
95th percentile per-packet one-way delay: 70.196 ms
Loss rate: 0.77%
```
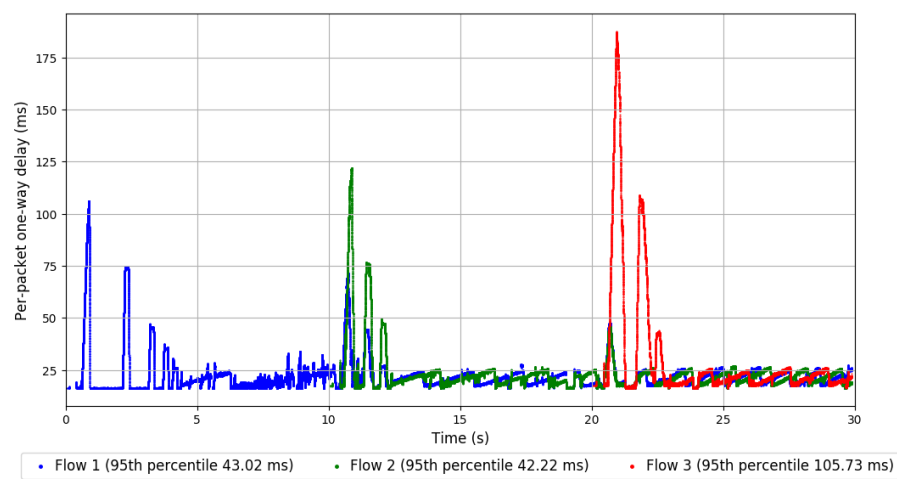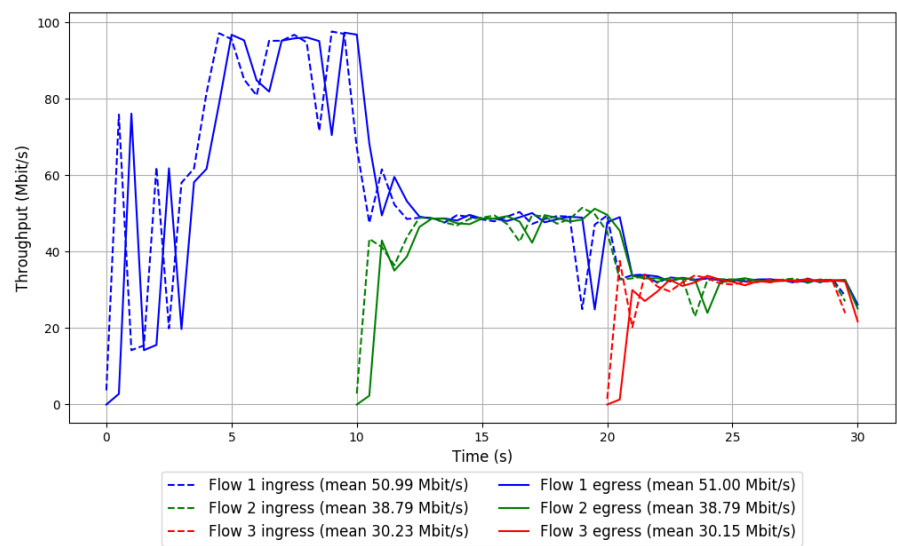
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2019-10-03 11:58:10
End at: 2019-10-03 11:58:41
Local clock offset: 1.022 ms
Remote clock offset: -1.976 ms


# Below is generated by plot.py at 2019-10-03 13:55:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.25 Mbit/s
95th percentile per-packet one-way delay: 44.239 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 51.59 Mbit/s
95th percentile per-packet one-way delay: 39.748 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 38.81 Mbit/s
95th percentile per-packet one-way delay: 42.910 ms
Loss rate: 0.28%
-- Flow 3:
Average throughput: 29.92 Mbit/s
95th percentile per-packet one-way delay: 106.668 ms
Loss rate: 0.75%
```
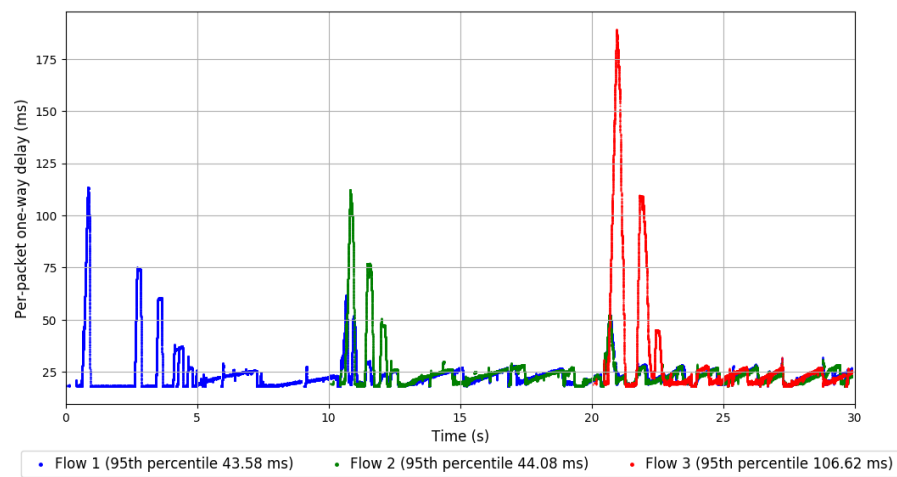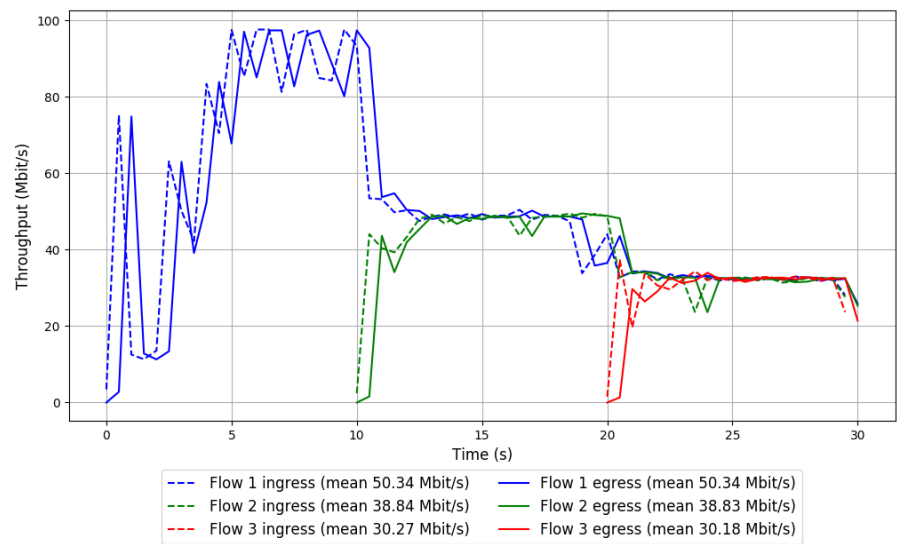
Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2019-10-03 12:30:27
End at: 2019-10-03 12:30:57
Local clock offset: 2.894 ms
Remote clock offset: -3.171 ms


# Below is generated by plot.py at 2019-10-03 13:55:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.93 Mbit/s
95th percentile per-packet one-way delay: 45.051 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 51.17 Mbit/s
95th percentile per-packet one-way delay: 40.276 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 38.87 Mbit/s
95th percentile per-packet one-way delay: 43.252 ms
Loss rate: 0.27%
-- Flow 3:
Average throughput: 30.11 Mbit/s
95th percentile per-packet one-way delay: 107.715 ms
Loss rate: 0.80%
```
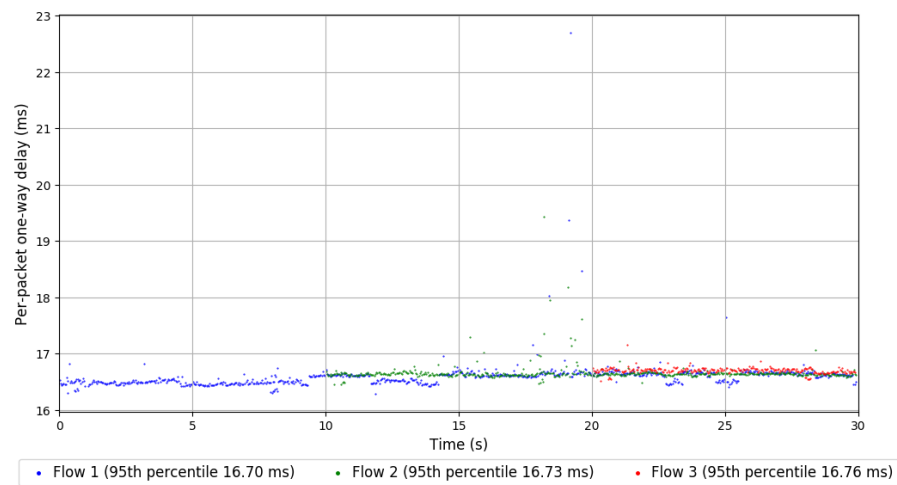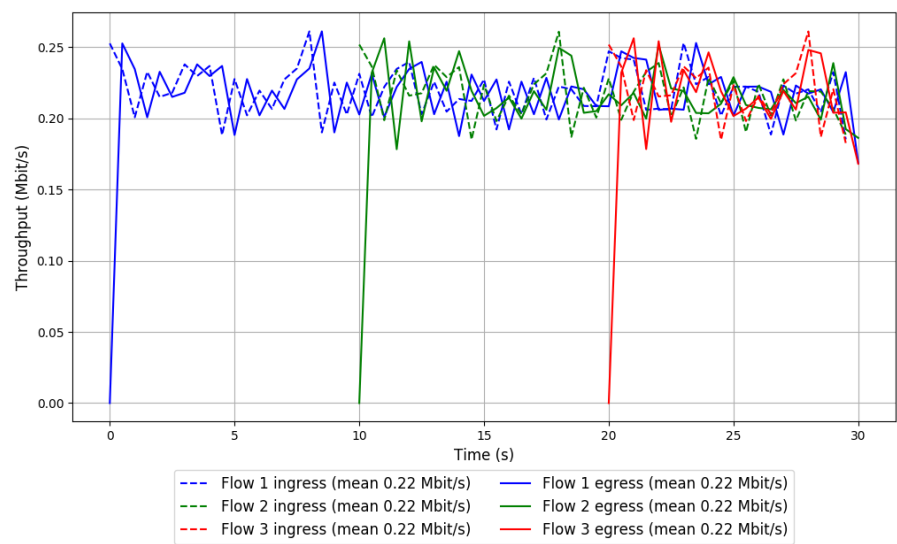
Run 3: Report of QUIC Cubic — Data Link

- - - Flow 1 ingress (mean 51.15 Mbit/s)   —— Flow 1 egress (mean 51.17 Mbit/s)
- - - Flow 2 ingress (mean 38.86 Mbit/s)   —— Flow 2 egress (mean 38.87 Mbit/s)
- - - Flow 3 ingress (mean 30.18 Mbit/s)   —— Flow 3 egress (mean 30.11 Mbit/s)

• Flow 1 (95th percentile 40.28 ms)   • Flow 2 (95th percentile 43.25 ms)   • Flow 3 (95th percentile 107.72 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2019-10-03 13:03:08
End at: 2019-10-03 13:03:38
Local clock offset: 2.339 ms
Remote clock offset: -3.759 ms


# Below is generated by plot.py at 2019-10-03 13:55:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.72 Mbit/s
95th percentile per-packet one-way delay: 45.315 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 51.00 Mbit/s
95th percentile per-packet one-way delay: 43.015 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 38.79 Mbit/s
95th percentile per-packet one-way delay: 42.215 ms
Loss rate: 0.26%
-- Flow 3:
Average throughput: 30.15 Mbit/s
95th percentile per-packet one-way delay: 105.728 ms
Loss rate: 0.75%
```
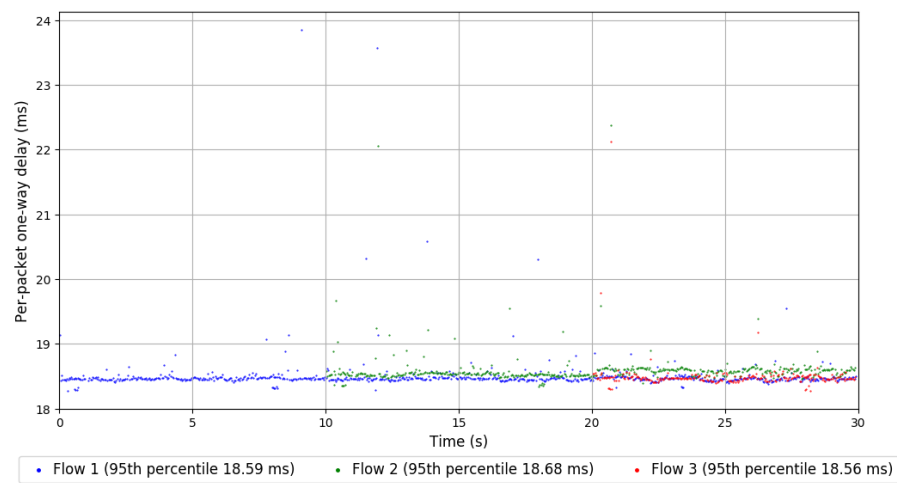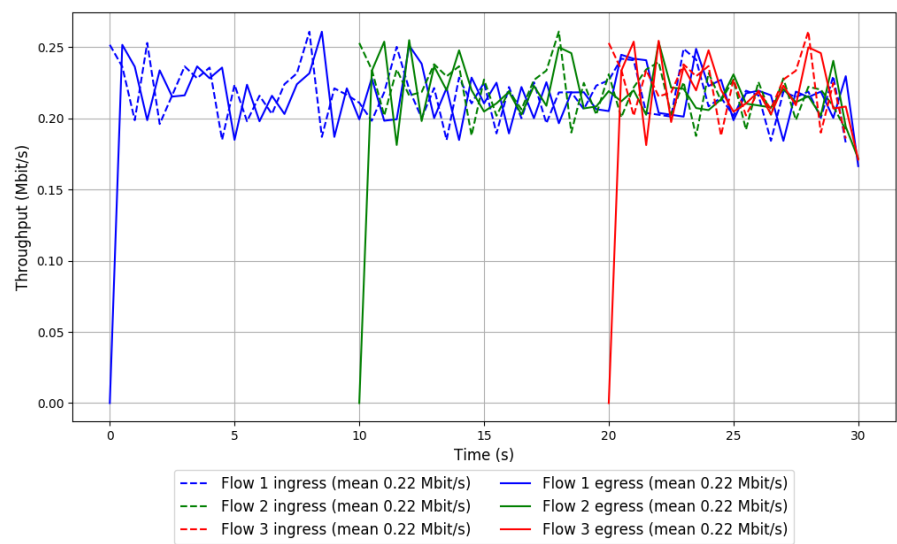
Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 50.99 Mbit/s) — Flow 1 egress (mean 51.00 Mbit/s)
Flow 2 ingress (mean 38.79 Mbit/s) — Flow 2 egress (mean 38.79 Mbit/s)
Flow 3 ingress (mean 30.23 Mbit/s) — Flow 3 egress (mean 30.15 Mbit/s)

Flow 1 (95th percentile 43.02 ms) • Flow 2 (95th percentile 42.22 ms) • Flow 3 (95th percentile 105.73 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2019-10-03 13:33:50
End at: 2019-10-03 13:34:20
Local clock offset: 4.676 ms
Remote clock offset: -2.784 ms


# Below is generated by plot.py at 2019-10-03 13:55:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.09 Mbit/s
95th percentile per-packet one-way delay: 47.667 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 50.34 Mbit/s
95th percentile per-packet one-way delay: 43.576 ms
Loss rate: 0.16%
-- Flow 2:
Average throughput: 38.83 Mbit/s
95th percentile per-packet one-way delay: 44.084 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 30.18 Mbit/s
95th percentile per-packet one-way delay: 106.617 ms
Loss rate: 0.82%
```
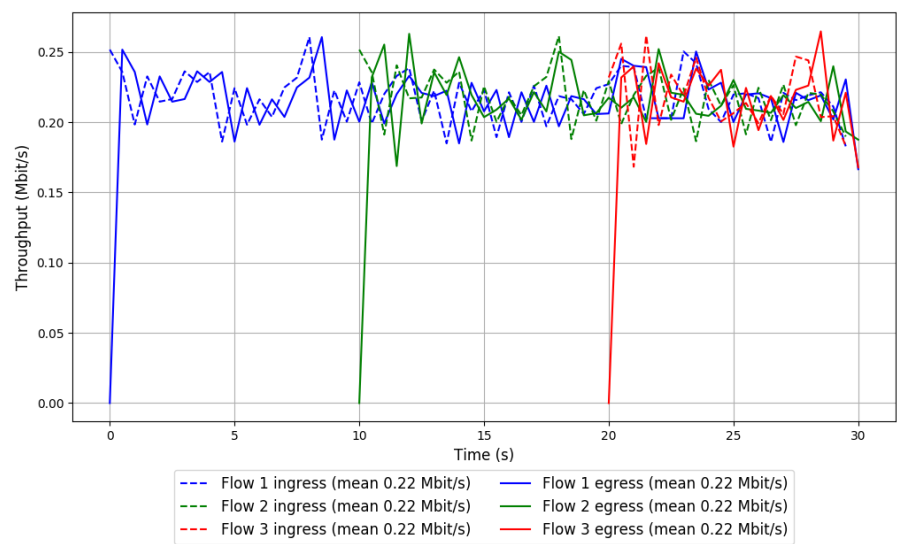
Run 5: Report of QUIC Cubic — Data Link

- - - Flow 1 ingress (mean 50.34 Mbit/s) —— Flow 1 egress (mean 50.34 Mbit/s)
- - - Flow 2 ingress (mean 38.84 Mbit/s) —— Flow 2 egress (mean 38.83 Mbit/s)
- - - Flow 3 ingress (mean 30.27 Mbit/s) —— Flow 3 egress (mean 30.18 Mbit/s)

• Flow 1 (95th percentile 43.58 ms)   • Flow 2 (95th percentile 44.08 ms)   • Flow 3 (95th percentile 106.62 ms)
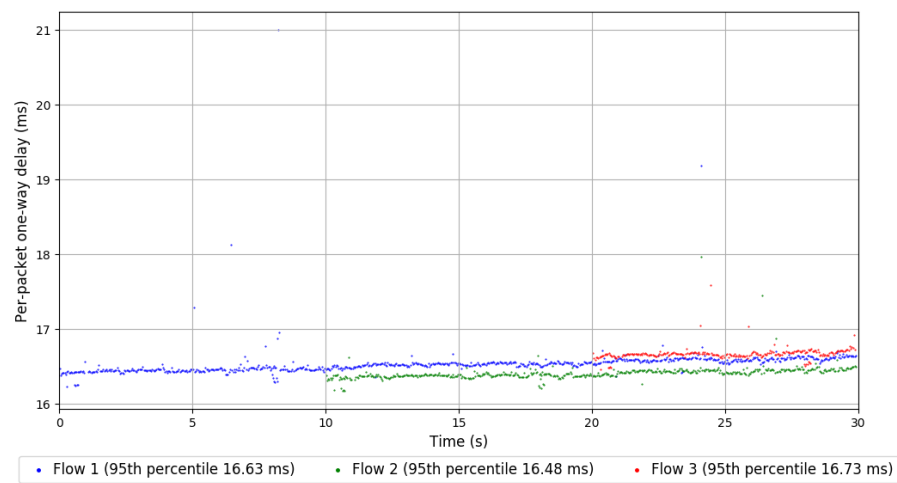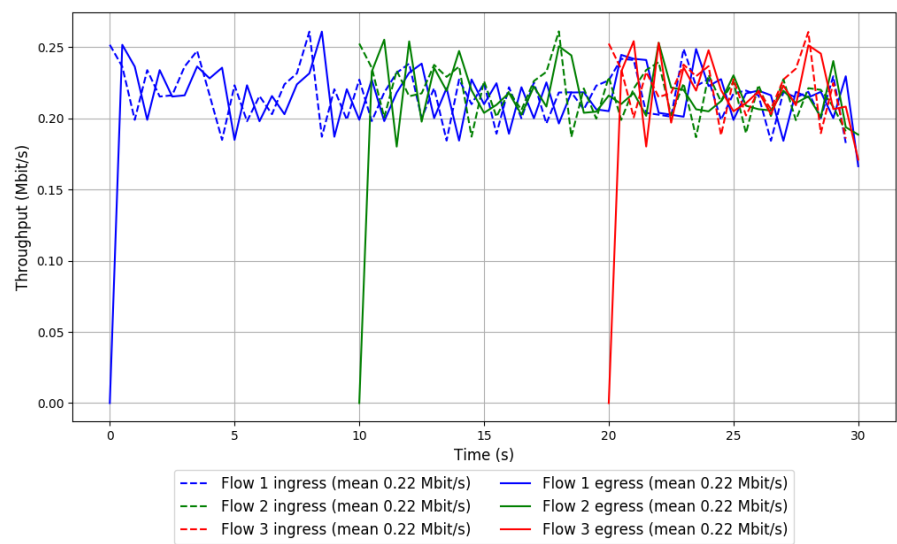
174

```
Run 1: Statistics of SCReAM

Start at: 2019-10-03 11:17:57
End at: 2019-10-03 11:18:27
Local clock offset: 1.45 ms
Remote clock offset: -0.517 ms


# Below is generated by plot.py at 2019-10-03 13:55:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 16.743 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 16.700 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 16.729 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 16.757 ms
Loss rate: 0.70%
```
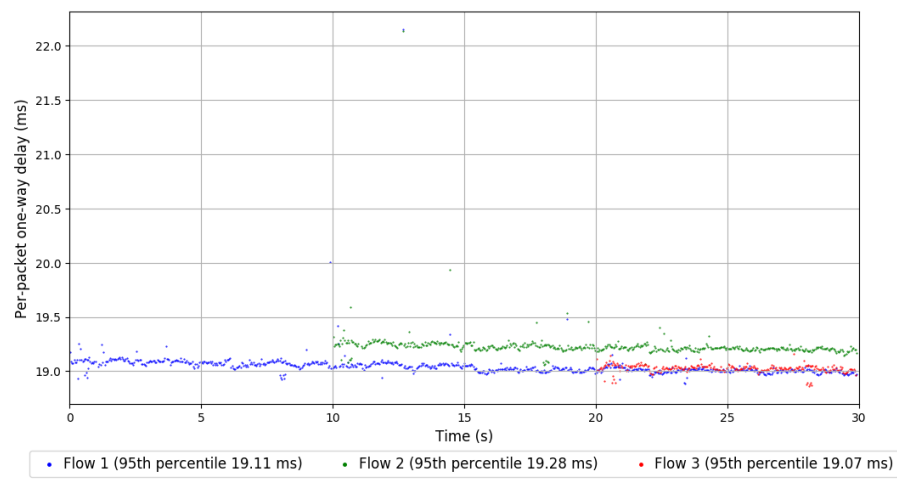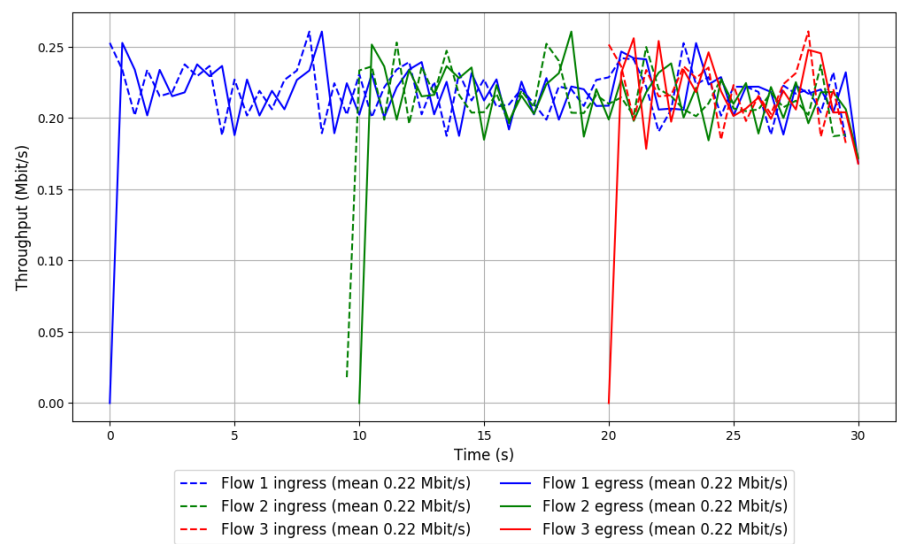
Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2019-10-03 11:50:09
End at: 2019-10-03 11:50:39
Local clock offset: 3.529 ms
Remote clock offset: -2.22 ms


# Below is generated by plot.py at 2019-10-03 13:55:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 18.637 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 18.589 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 18.680 ms
Loss rate: 0.40%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 18.556 ms
Loss rate: 0.71%
```
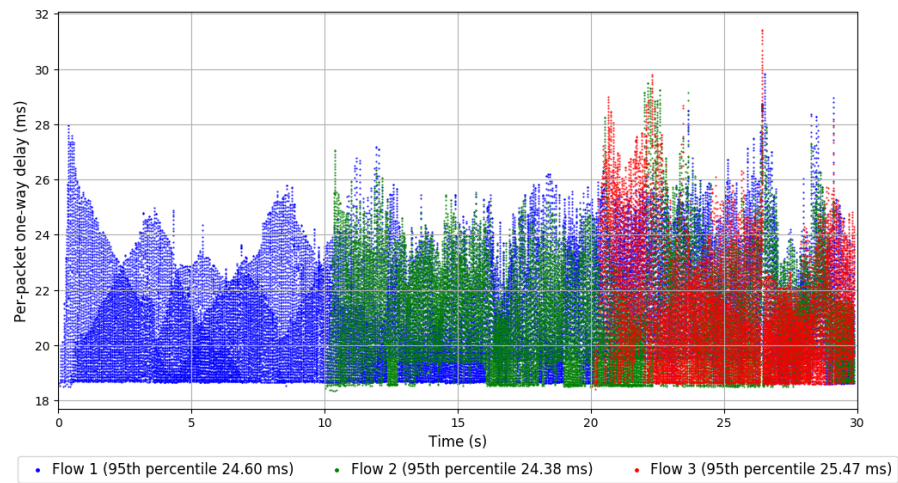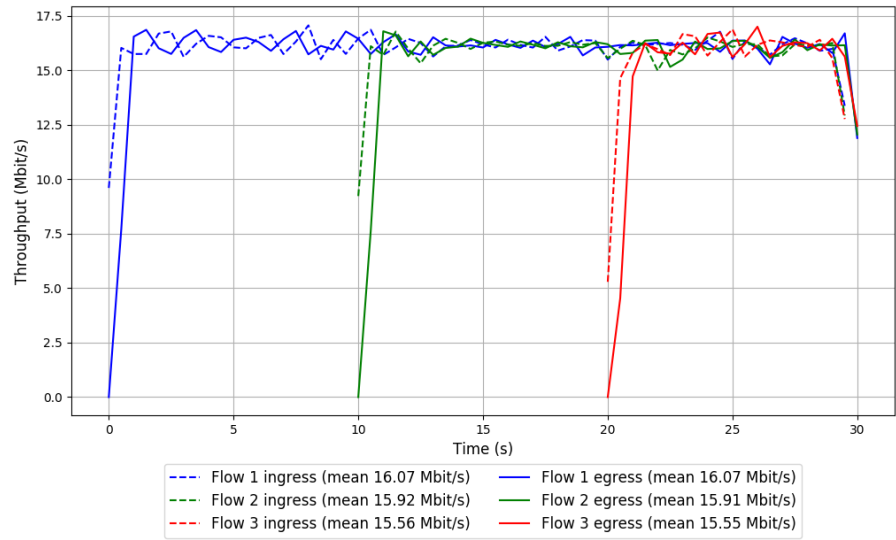
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2019-10-03 12:22:18
End at: 2019-10-03 12:22:48
Local clock offset: -0.83 ms
Remote clock offset: -2.498 ms


# Below is generated by plot.py at 2019-10-03 13:55:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 18.908 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 19.106 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 18.945 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 18.381 ms
Loss rate: 0.35%
```
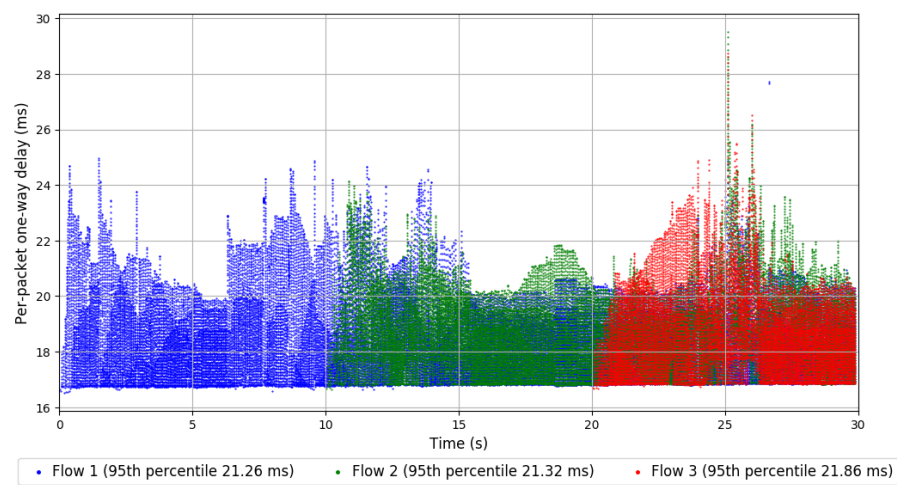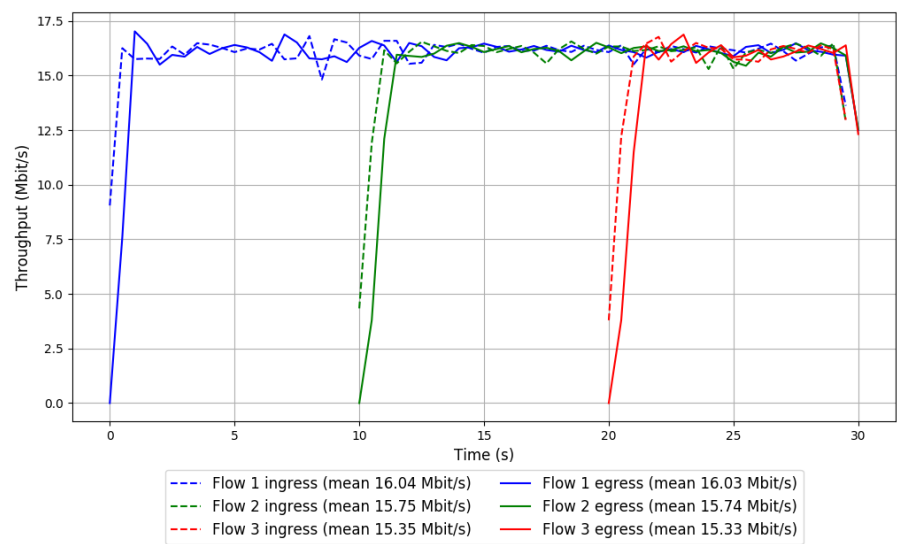
Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2019-10-03 12:55:30
End at: 2019-10-03 12:56:00
Local clock offset: 4.401 ms
Remote clock offset: -3.981 ms

# Below is generated by plot.py at 2019-10-03 13:55:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 16.687 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 16.632 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 16.478 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 16.725 ms
Loss rate: 0.71%
```

Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2019-10-03 13:26:24
End at: 2019-10-03 13:26:54
Local clock offset: 2.727 ms
Remote clock offset: -4.769 ms


# Below is generated by plot.py at 2019-10-03 13:55:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 19.259 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 19.111 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 19.280 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 19.071 ms
Loss rate: 0.70%
```
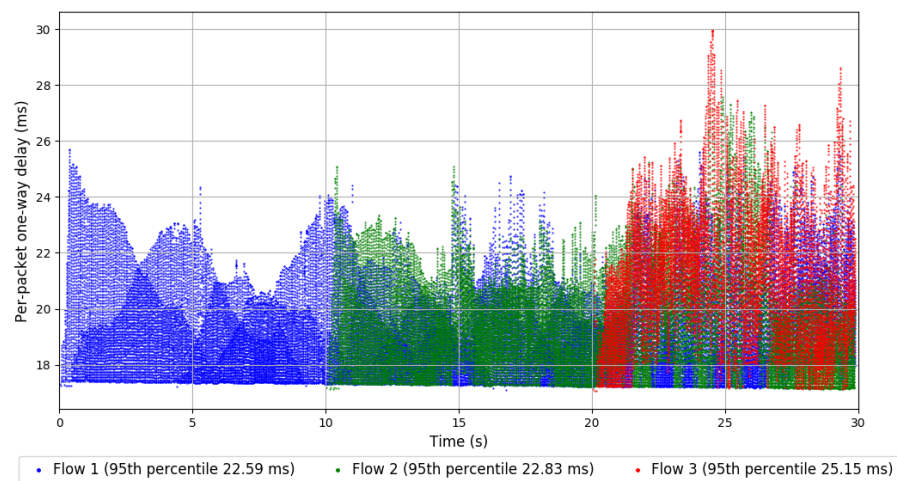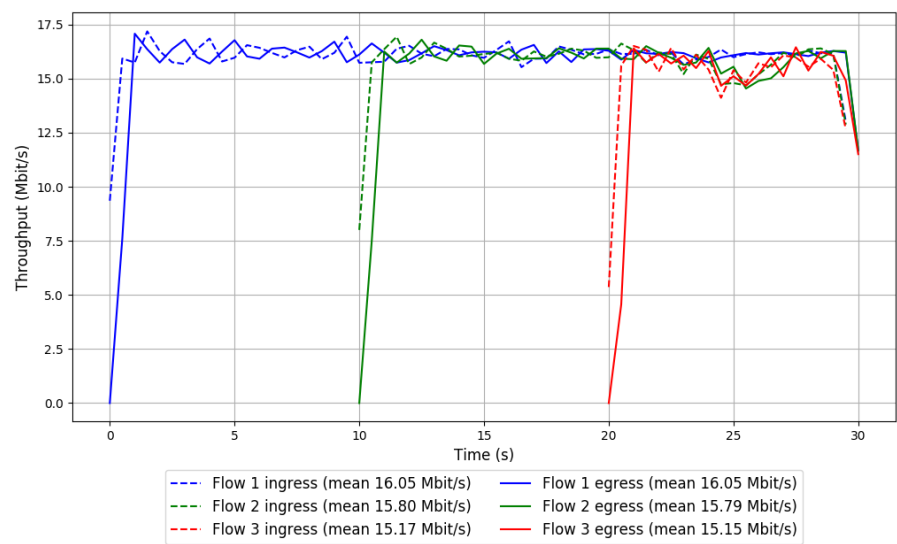
Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2019-10-03 11:24:20
End at: 2019-10-03 11:24:50
Local clock offset: 3.394 ms
Remote clock offset: -0.673 ms


# Below is generated by plot.py at 2019-10-03 13:55:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 31.77 Mbit/s
95th percentile per-packet one-way delay: 24.651 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 16.07 Mbit/s
95th percentile per-packet one-way delay: 24.598 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 15.91 Mbit/s
95th percentile per-packet one-way delay: 24.376 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 15.55 Mbit/s
95th percentile per-packet one-way delay: 25.469 ms
Loss rate: 0.36%
```
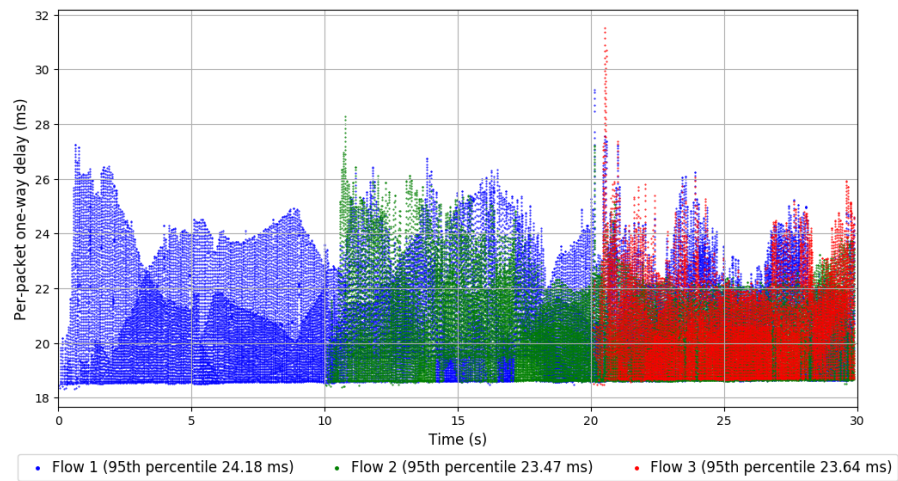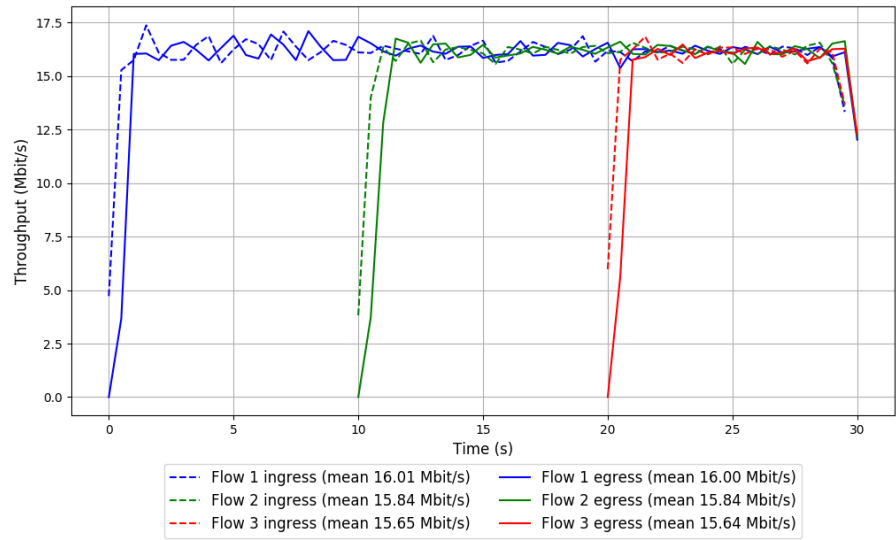
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2019-10-03 11:57:01
End at: 2019-10-03 11:57:31
Local clock offset: 1.51 ms
Remote clock offset: -1.586 ms


# Below is generated by plot.py at 2019-10-03 13:55:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 31.55 Mbit/s
95th percentile per-packet one-way delay: 21.387 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 16.03 Mbit/s
95th percentile per-packet one-way delay: 21.258 ms
Loss rate: 0.22%
-- Flow 2:
Average throughput: 15.74 Mbit/s
95th percentile per-packet one-way delay: 21.323 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 15.33 Mbit/s
95th percentile per-packet one-way delay: 21.859 ms
Loss rate: 0.52%
```
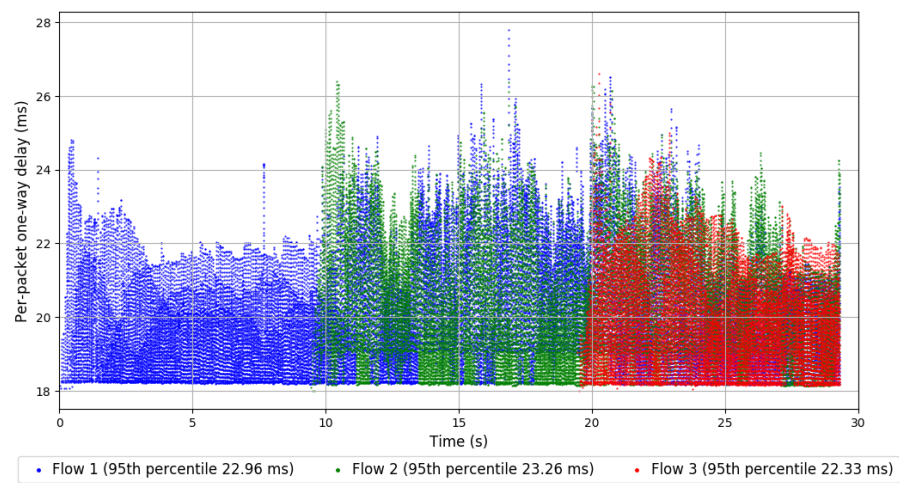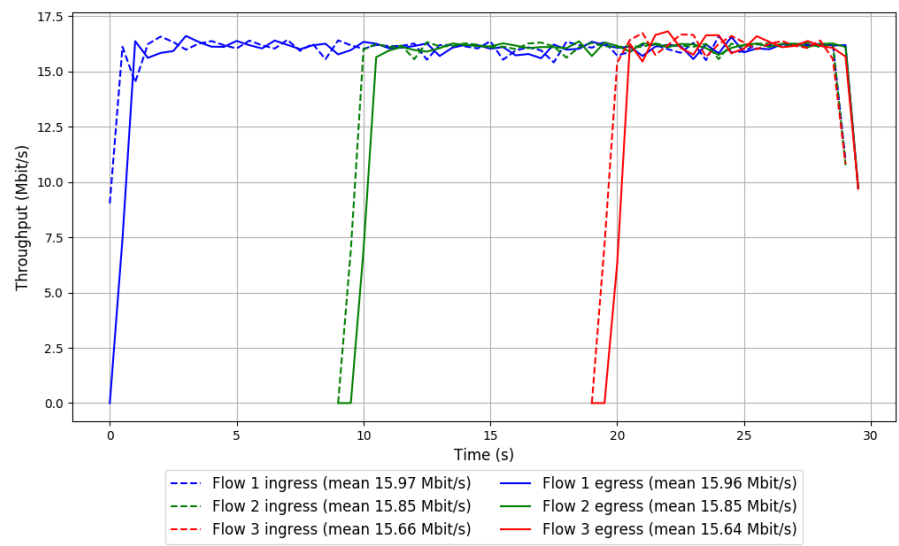
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2019-10-03 12:29:17
End at: 2019-10-03 12:29:47
Local clock offset: 1.644 ms
Remote clock offset: -2.592 ms


# Below is generated by plot.py at 2019-10-03 13:55:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 31.53 Mbit/s
95th percentile per-packet one-way delay: 23.325 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 16.05 Mbit/s
95th percentile per-packet one-way delay: 22.585 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 15.79 Mbit/s
95th percentile per-packet one-way delay: 22.826 ms
Loss rate: 0.31%
-- Flow 3:
Average throughput: 15.15 Mbit/s
95th percentile per-packet one-way delay: 25.150 ms
Loss rate: 0.65%
```

Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2019-10-03 13:01:58
End at: 2019-10-03 13:02:28
Local clock offset: 4.655 ms
Remote clock offset: -3.788 ms


# Below is generated by plot.py at 2019-10-03 13:55:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 31.67 Mbit/s
95th percentile per-packet one-way delay: 23.933 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 16.00 Mbit/s
95th percentile per-packet one-way delay: 24.181 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 15.84 Mbit/s
95th percentile per-packet one-way delay: 23.473 ms
Loss rate: 0.23%
-- Flow 3:
Average throughput: 15.64 Mbit/s
95th percentile per-packet one-way delay: 23.638 ms
Loss rate: 0.63%
```
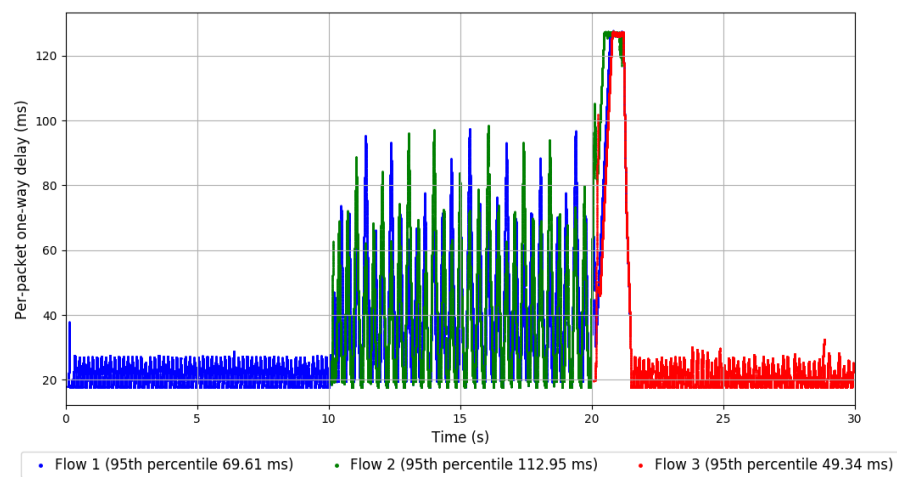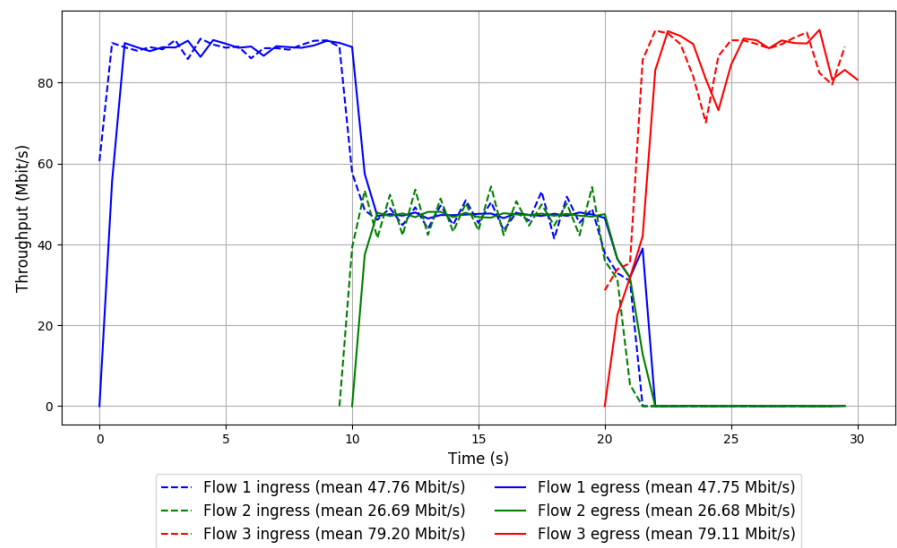
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2019-10-03 13:32:40
End at: 2019-10-03 13:33:10
Local clock offset: 3.742 ms
Remote clock offset: -3.521 ms


# Below is generated by plot.py at 2019-10-03 13:55:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 31.95 Mbit/s
95th percentile per-packet one-way delay: 23.015 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 15.96 Mbit/s
95th percentile per-packet one-way delay: 22.965 ms
Loss rate: 0.23%
-- Flow 2:
Average throughput: 15.85 Mbit/s
95th percentile per-packet one-way delay: 23.262 ms
Loss rate: 0.27%
-- Flow 3:
Average throughput: 15.64 Mbit/s
95th percentile per-packet one-way delay: 22.333 ms
Loss rate: 0.60%
```
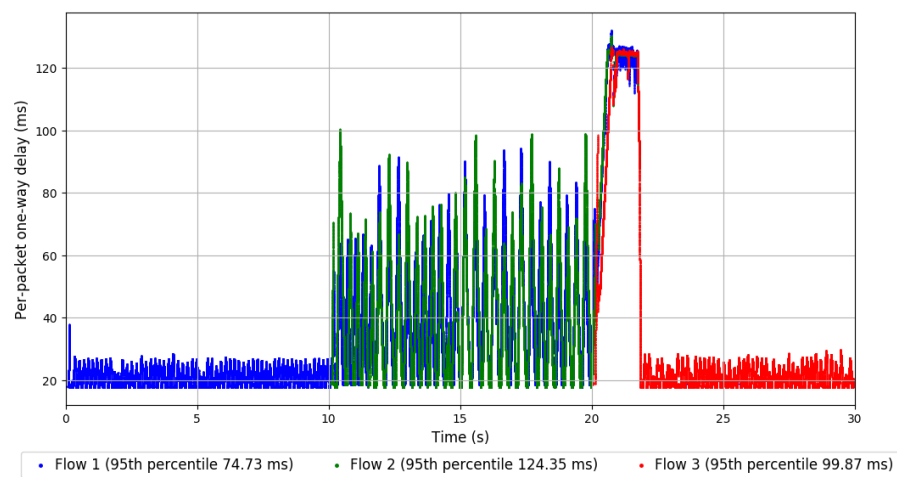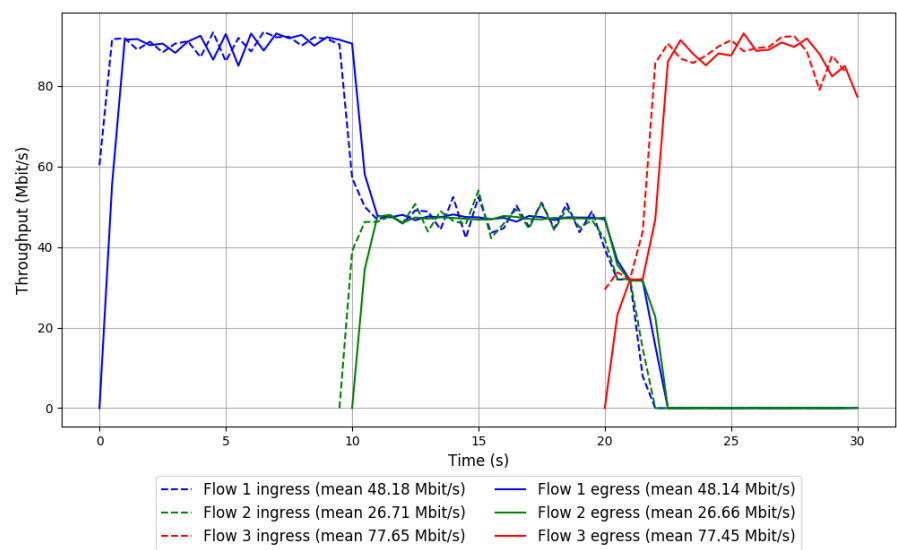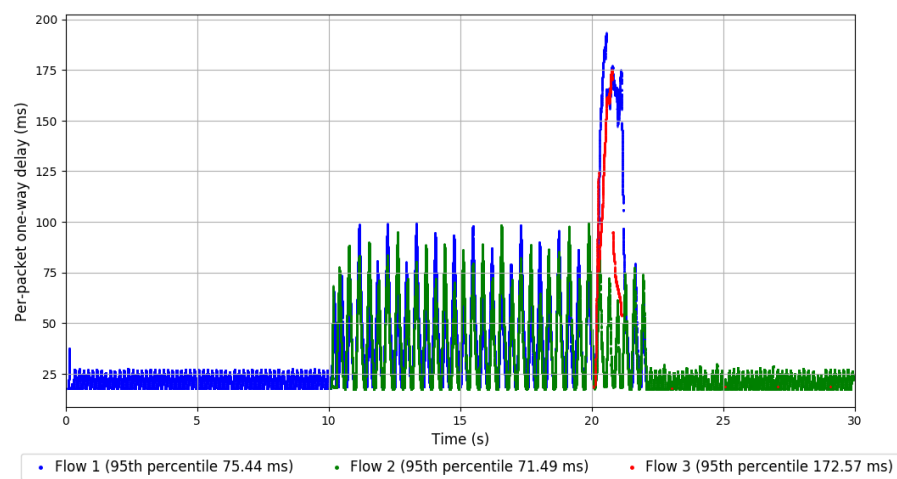
Run 5: Report of Sprout — Data Link

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

Start at: 2019-10-03 11:09:51
End at: 2019-10-03 11:10:21
Local clock offset: 3.76 ms
Remote clock offset: 0.477 ms


# Below is generated by plot.py at 2019-10-03 13:56:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.14 Mbit/s
95th percentile per-packet one-way delay: 78.260 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 47.75 Mbit/s
95th percentile per-packet one-way delay: 69.607 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 26.68 Mbit/s
95th percentile per-packet one-way delay: 112.953 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 79.11 Mbit/s
95th percentile per-packet one-way delay: 49.341 ms
Loss rate: 0.62%
```
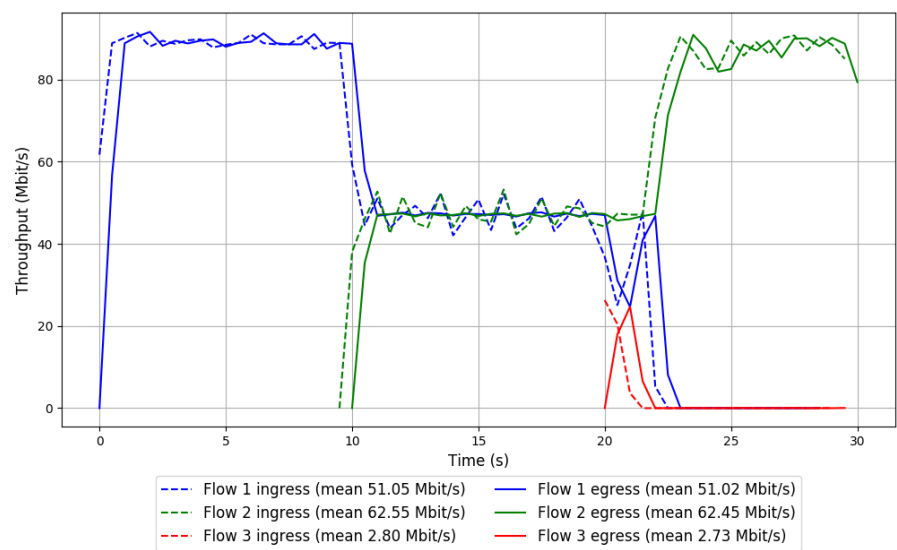
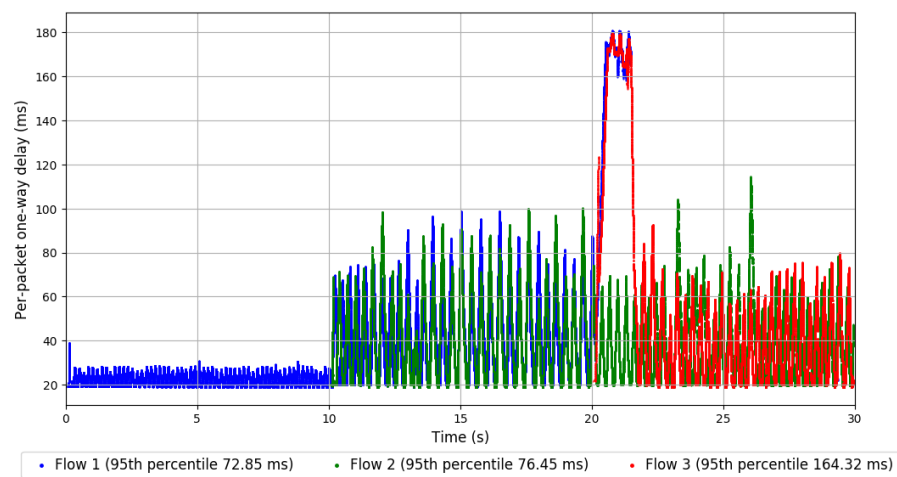## Run 1: Report of TaoVA-100x — Data Link

196

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

Start at: 2019-10-03 11:41:22
End at: 2019-10-03 11:41:52
Local clock offset: 2.584 ms
Remote clock offset: -2.263 ms


# Below is generated by plot.py at 2019-10-03 13:56:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.87 Mbit/s
95th percentile per-packet one-way delay: 91.529 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 48.14 Mbit/s
95th percentile per-packet one-way delay: 74.726 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 26.66 Mbit/s
95th percentile per-packet one-way delay: 124.351 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 77.45 Mbit/s
95th percentile per-packet one-way delay: 99.874 ms
Loss rate: 0.76%
```

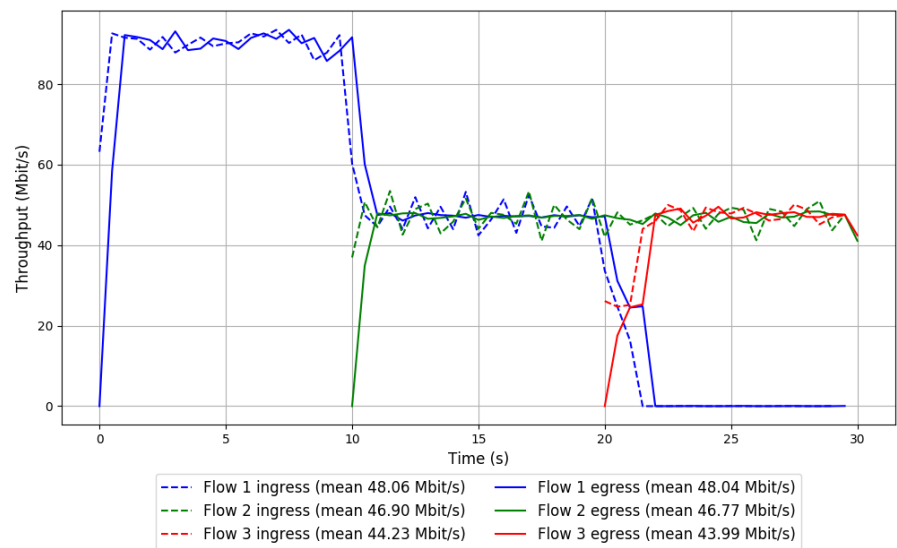Run 2: Report of TaoVA-100x — Data Link

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

Start at: 2019-10-03 12:14:32
End at: 2019-10-03 12:15:02
Local clock offset: -0.475 ms
Remote clock offset: -1.776 ms


# Below is generated by plot.py at 2019-10-03 13:56:51
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.16 Mbit/s
95th percentile per-packet one-way delay: 75.309 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 51.02 Mbit/s
95th percentile per-packet one-way delay: 75.437 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 62.45 Mbit/s
95th percentile per-packet one-way delay: 71.488 ms
Loss rate: 0.40%
-- Flow 3:
Average throughput: 2.73 Mbit/s
95th percentile per-packet one-way delay: 172.571 ms
Loss rate: 2.44%
```

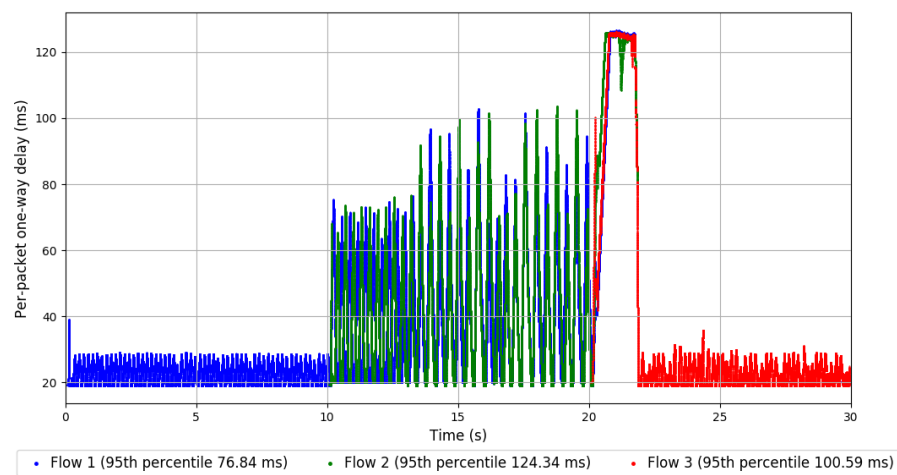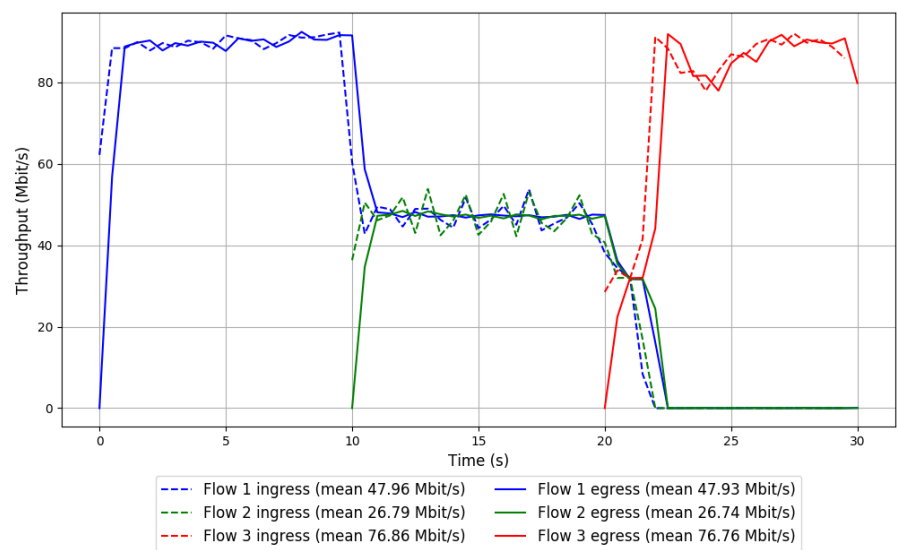## Run 3: Report of TaoVA-100x — Data Link

200

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

Start at: 2019-10-03 12:46:28
End at: 2019-10-03 12:46:58
Local clock offset: 6.651 ms
Remote clock offset: -3.937 ms


# Below is generated by plot.py at 2019-10-03 13:56:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.78 Mbit/s
95th percentile per-packet one-way delay: 77.700 ms
Loss rate: 0.37%
-- Flow 1:
Average throughput: 48.04 Mbit/s
95th percentile per-packet one-way delay: 72.846 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 46.77 Mbit/s
95th percentile per-packet one-way delay: 76.446 ms
Loss rate: 0.53%
-- Flow 3:
Average throughput: 43.99 Mbit/s
95th percentile per-packet one-way delay: 164.322 ms
Loss rate: 1.08%
```
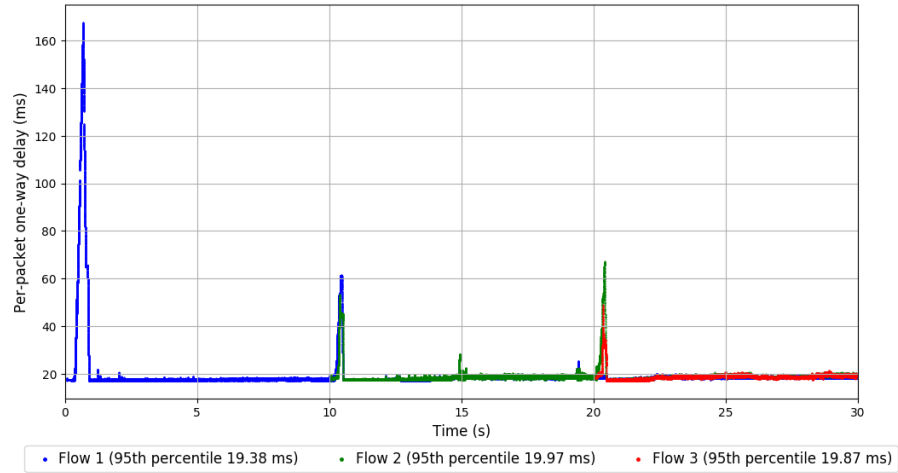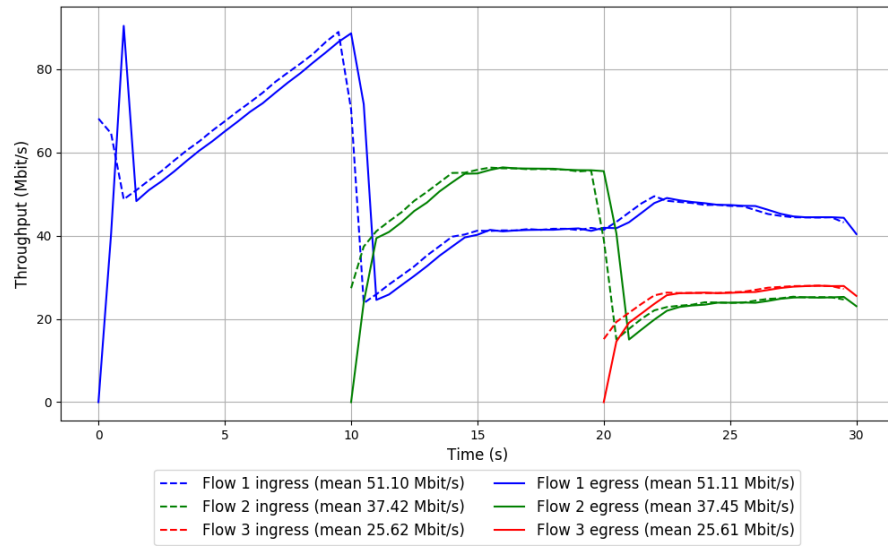
Run 4: Report of TaoVA-100x — Data Link

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

Start at: 2019-10-03 13:18:30
End at: 2019-10-03 13:19:00
Local clock offset: 3.6 ms
Remote clock offset: -3.433 ms


# Below is generated by plot.py at 2019-10-03 13:56:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.53 Mbit/s
95th percentile per-packet one-way delay: 93.253 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 47.93 Mbit/s
95th percentile per-packet one-way delay: 76.841 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 26.74 Mbit/s
95th percentile per-packet one-way delay: 124.345 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 76.76 Mbit/s
95th percentile per-packet one-way delay: 100.588 ms
Loss rate: 0.62%
```
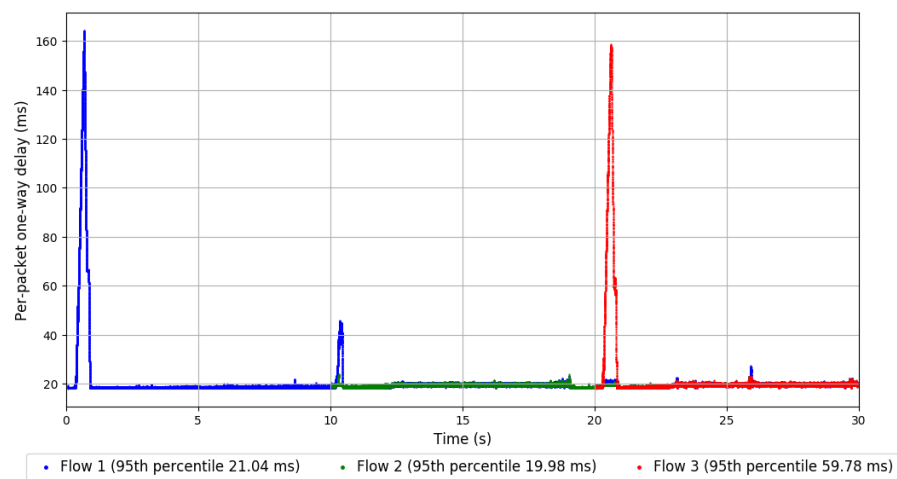
Run 5: Report of TaoVA-100x — Data Link

```
Run 1: Statistics of TCP Vegas

Start at: 2019-10-03 11:01:22
End at: 2019-10-03 11:01:52
Local clock offset: 3.14 ms
Remote clock offset: -0.203 ms


# Below is generated by plot.py at 2019-10-03 13:56:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.51 Mbit/s
95th percentile per-packet one-way delay: 19.815 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 51.11 Mbit/s
95th percentile per-packet one-way delay: 19.379 ms
Loss rate: 0.16%
-- Flow 2:
Average throughput: 37.45 Mbit/s
95th percentile per-packet one-way delay: 19.966 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 25.61 Mbit/s
95th percentile per-packet one-way delay: 19.869 ms
Loss rate: 0.55%
```

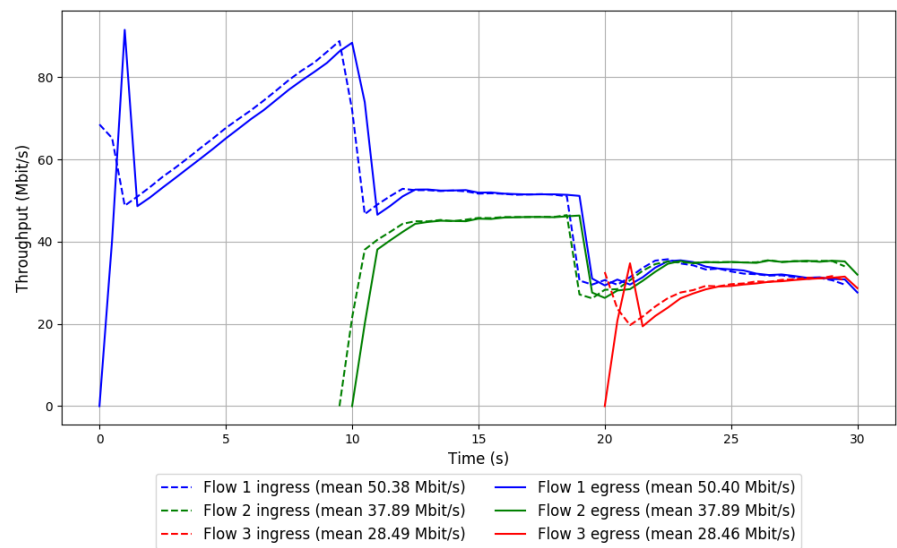Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2019-10-03 11:32:18
End at: 2019-10-03 11:32:48
Local clock offset: 3.793 ms
Remote clock offset: -0.921 ms


# Below is generated by plot.py at 2019-10-03 13:56:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.08 Mbit/s
95th percentile per-packet one-way delay: 20.455 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 50.40 Mbit/s
95th percentile per-packet one-way delay: 21.037 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 37.89 Mbit/s
95th percentile per-packet one-way delay: 19.978 ms
Loss rate: 0.26%
-- Flow 3:
Average throughput: 28.46 Mbit/s
95th percentile per-packet one-way delay: 59.779 ms
Loss rate: 0.59%
```

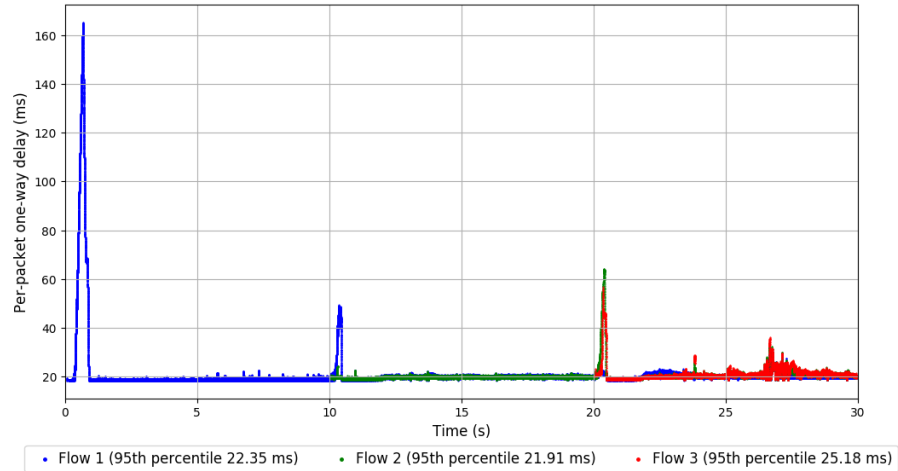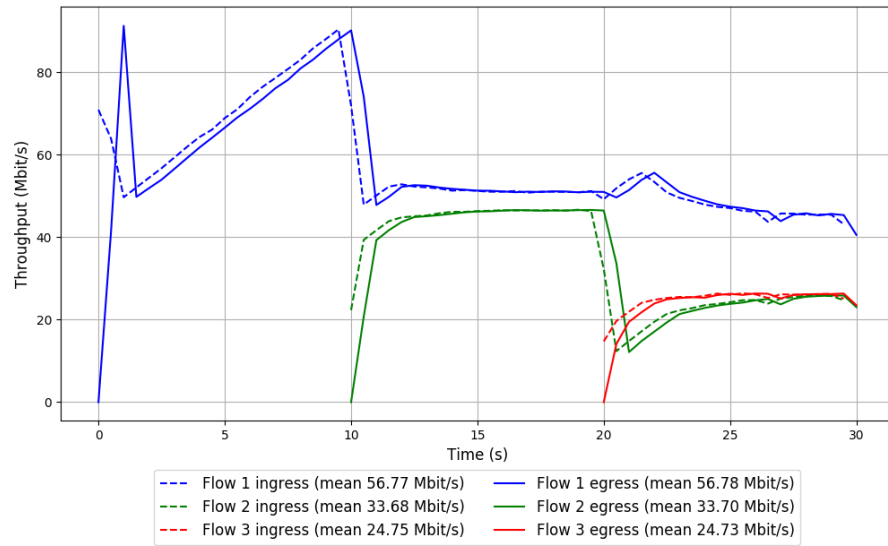Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2019-10-03 12:04:42
End at: 2019-10-03 12:05:12
Local clock offset: 1.294 ms
Remote clock offset: -1.894 ms


# Below is generated by plot.py at 2019-10-03 13:56:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.41 Mbit/s
95th percentile per-packet one-way delay: 22.675 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 56.78 Mbit/s
95th percentile per-packet one-way delay: 22.348 ms
Loss rate: 0.14%
-- Flow 2:
Average throughput: 33.70 Mbit/s
95th percentile per-packet one-way delay: 21.912 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 24.73 Mbit/s
95th percentile per-packet one-way delay: 25.181 ms
Loss rate: 0.54%
```

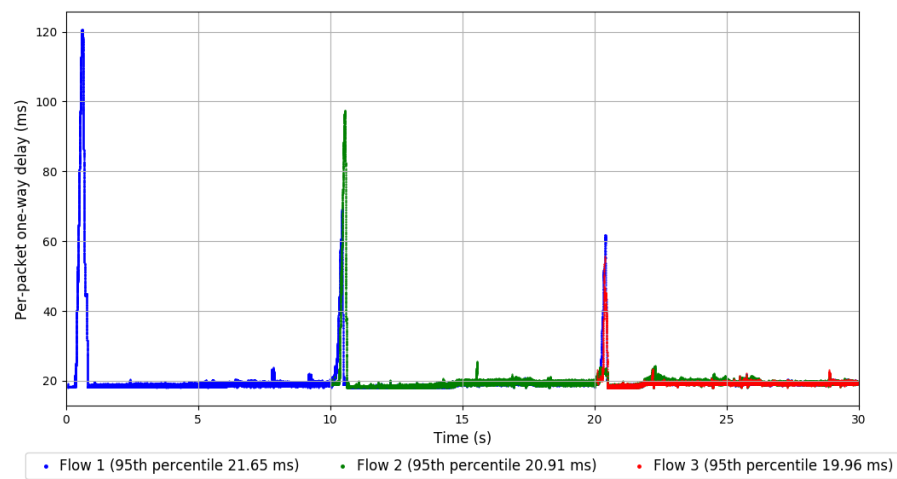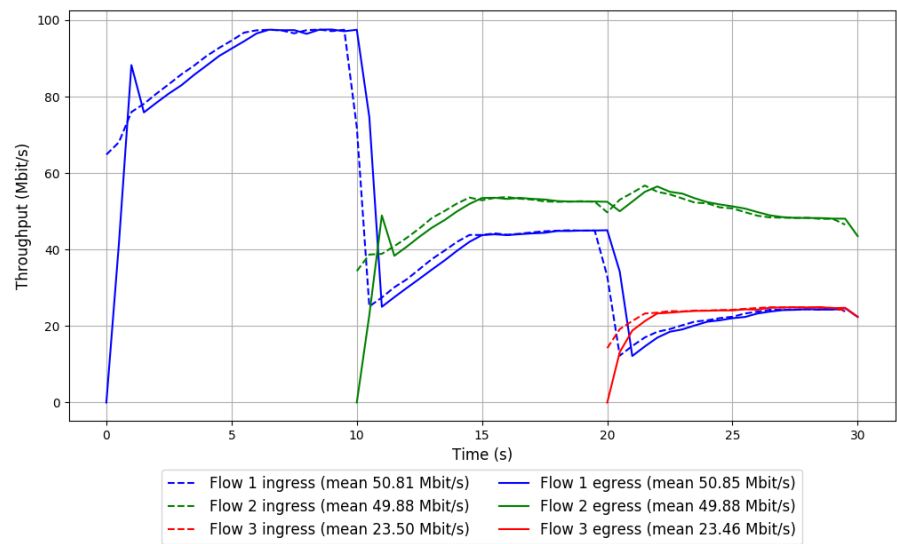Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2019-10-03 12:37:10
End at: 2019-10-03 12:37:40
Local clock offset: 4.851 ms
Remote clock offset: -3.084 ms


# Below is generated by plot.py at 2019-10-03 13:57:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.81 Mbit/s
95th percentile per-packet one-way delay: 21.002 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 50.85 Mbit/s
95th percentile per-packet one-way delay: 21.654 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 49.88 Mbit/s
95th percentile per-packet one-way delay: 20.914 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 23.46 Mbit/s
95th percentile per-packet one-way delay: 19.959 ms
Loss rate: 0.68%
```

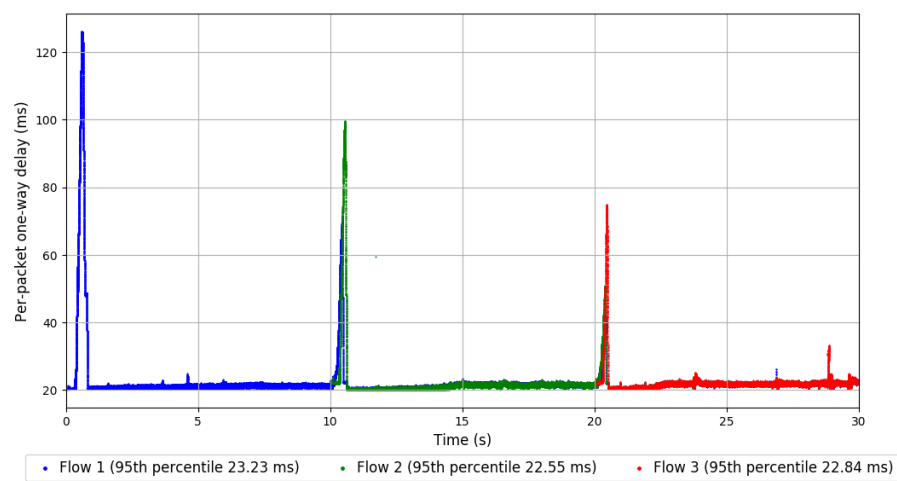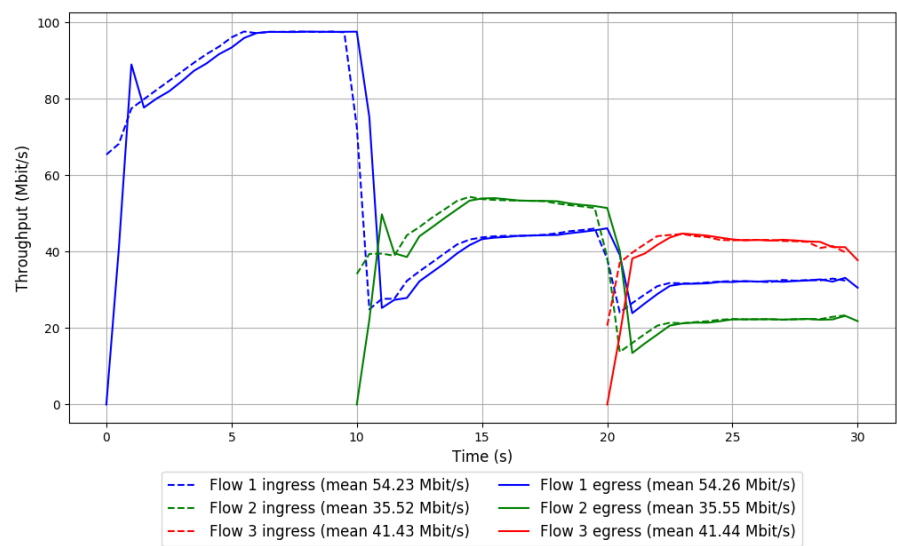## Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2019-10-03 13:09:23
End at: 2019-10-03 13:09:53
Local clock offset: 4.259 ms
Remote clock offset: -4.699 ms


# Below is generated by plot.py at 2019-10-03 13:57:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.64 Mbit/s
95th percentile per-packet one-way delay: 22.874 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 54.26 Mbit/s
95th percentile per-packet one-way delay: 23.234 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 35.55 Mbit/s
95th percentile per-packet one-way delay: 22.554 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 41.44 Mbit/s
95th percentile per-packet one-way delay: 22.840 ms
Loss rate: 0.49%
```

Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2019-10-03 11:19:05
End at: 2019-10-03 11:19:35
Local clock offset: 2.7 ms
Remote clock offset: -1.33 ms


# Below is generated by plot.py at 2019-10-03 13:57:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.38 Mbit/s
95th percentile per-packet one-way delay: 117.030 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 53.29 Mbit/s
95th percentile per-packet one-way delay: 114.912 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 40.63 Mbit/s
95th percentile per-packet one-way delay: 106.633 ms
Loss rate: 0.44%
-- Flow 3:
Average throughput: 30.39 Mbit/s
95th percentile per-packet one-way delay: 222.416 ms
Loss rate: 0.97%
```
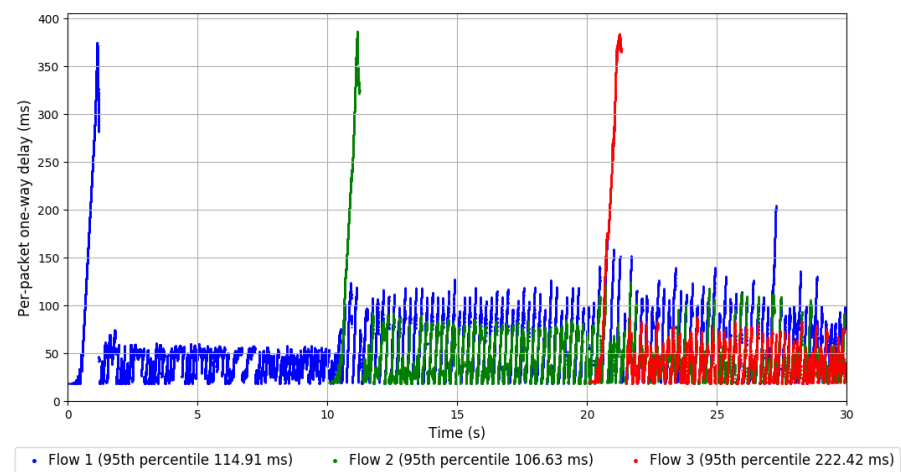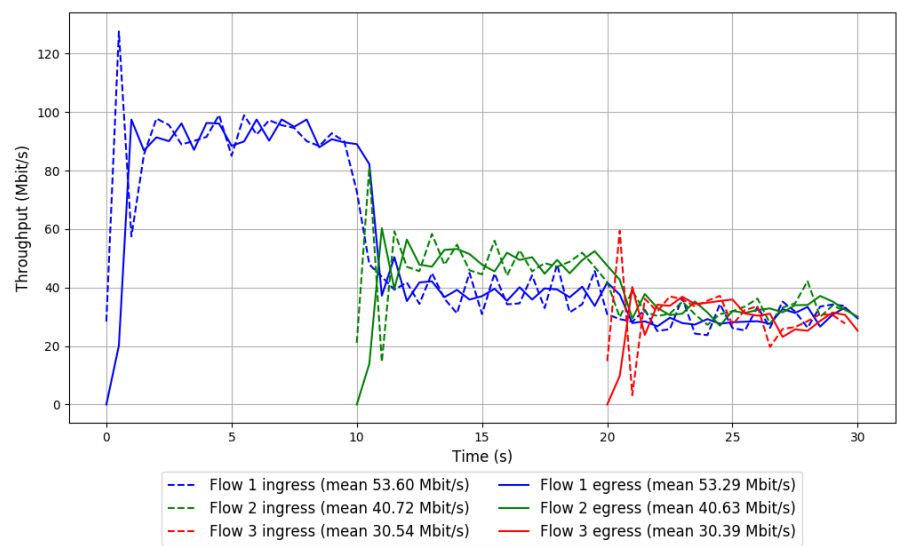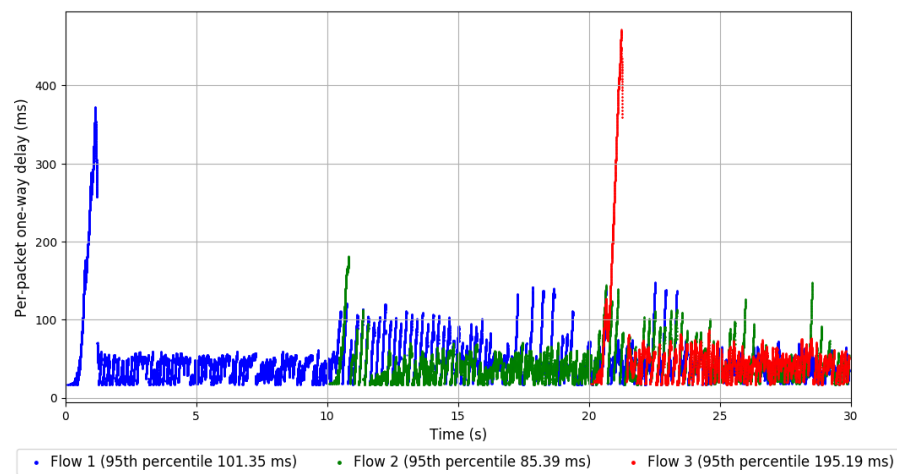
Run 1: Report of Verus — Data Link

Flow 1 ingress (mean 53.60 Mbit/s) — Flow 1 egress (mean 53.29 Mbit/s)
Flow 2 ingress (mean 40.72 Mbit/s) — Flow 2 egress (mean 40.63 Mbit/s)
Flow 3 ingress (mean 30.54 Mbit/s) — Flow 3 egress (mean 30.39 Mbit/s)

Flow 1 (95th percentile 114.91 ms)   Flow 2 (95th percentile 106.63 ms)   Flow 3 (95th percentile 222.42 ms)
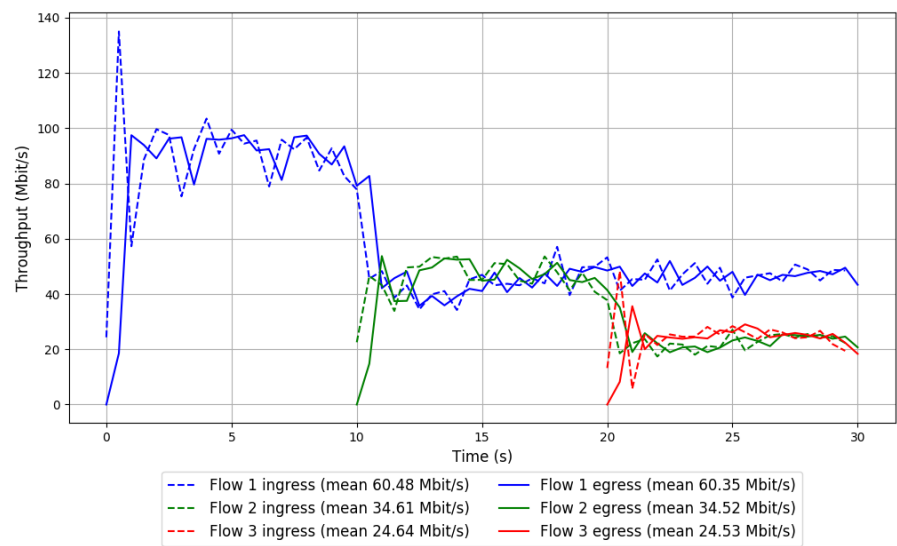
216

```
Run 2: Statistics of Verus

Start at: 2019-10-03 11:51:16
End at: 2019-10-03 11:51:46
Local clock offset: 1.17 ms
Remote clock offset: -3.338 ms


# Below is generated by plot.py at 2019-10-03 13:57:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.44 Mbit/s
95th percentile per-packet one-way delay: 99.052 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 60.35 Mbit/s
95th percentile per-packet one-way delay: 101.354 ms
Loss rate: 0.38%
-- Flow 2:
Average throughput: 34.52 Mbit/s
95th percentile per-packet one-way delay: 85.391 ms
Loss rate: 0.47%
-- Flow 3:
Average throughput: 24.53 Mbit/s
95th percentile per-packet one-way delay: 195.190 ms
Loss rate: 1.00%
```
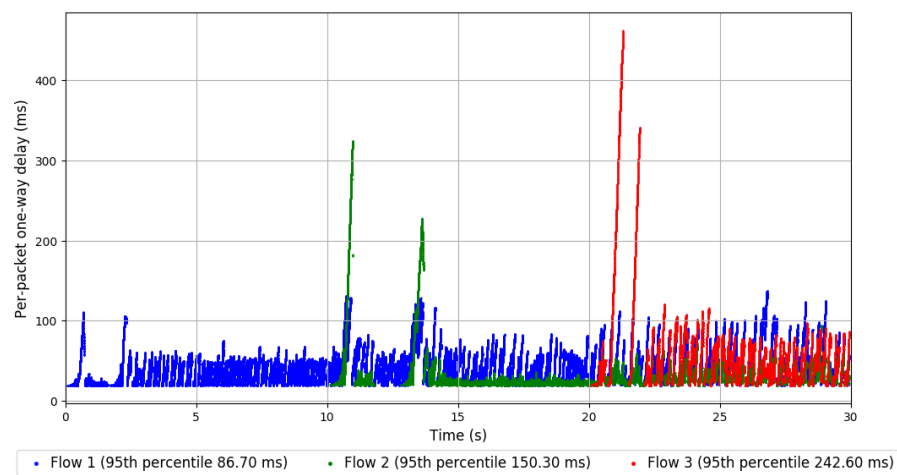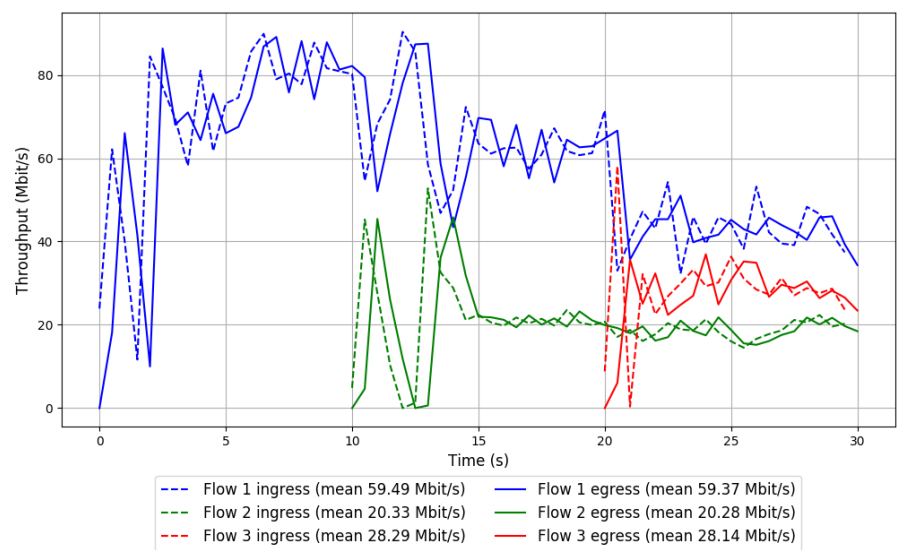
Run 2: Report of Verus — Data Link

Flow 1 ingress (mean 60.48 Mbit/s) --- Flow 1 egress (mean 60.35 Mbit/s)
Flow 2 ingress (mean 34.61 Mbit/s) --- Flow 2 egress (mean 34.52 Mbit/s)
Flow 3 ingress (mean 24.64 Mbit/s) --- Flow 3 egress (mean 24.53 Mbit/s)

Flow 1 (95th percentile 101.35 ms) • Flow 2 (95th percentile 85.39 ms) • Flow 3 (95th percentile 195.19 ms)

```
Run 3: Statistics of Verus

Start at: 2019-10-03 12:23:32
End at: 2019-10-03 12:24:02
Local clock offset: -0.098 ms
Remote clock offset: -2.784 ms


# Below is generated by plot.py at 2019-10-03 13:57:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 82.14 Mbit/s
95th percentile per-packet one-way delay: 95.219 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 59.37 Mbit/s
95th percentile per-packet one-way delay: 86.699 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 20.28 Mbit/s
95th percentile per-packet one-way delay: 150.304 ms
Loss rate: 0.50%
-- Flow 3:
Average throughput: 28.14 Mbit/s
95th percentile per-packet one-way delay: 242.598 ms
Loss rate: 1.00%
```

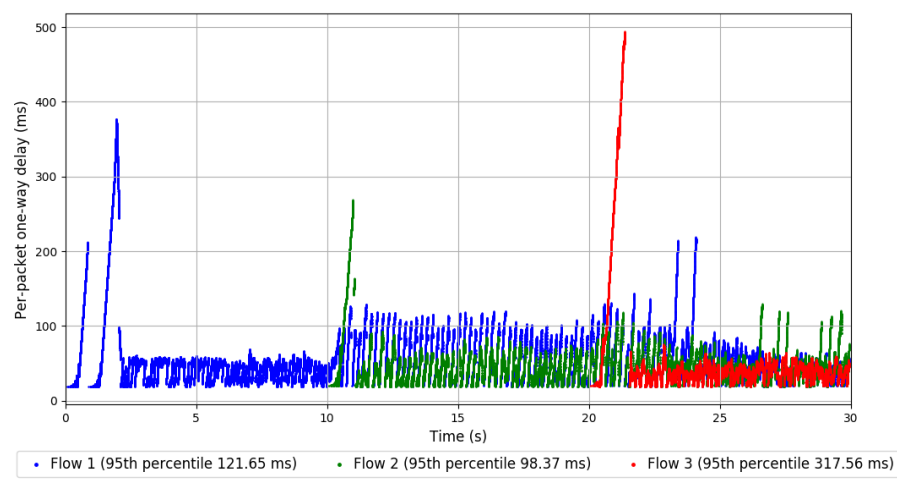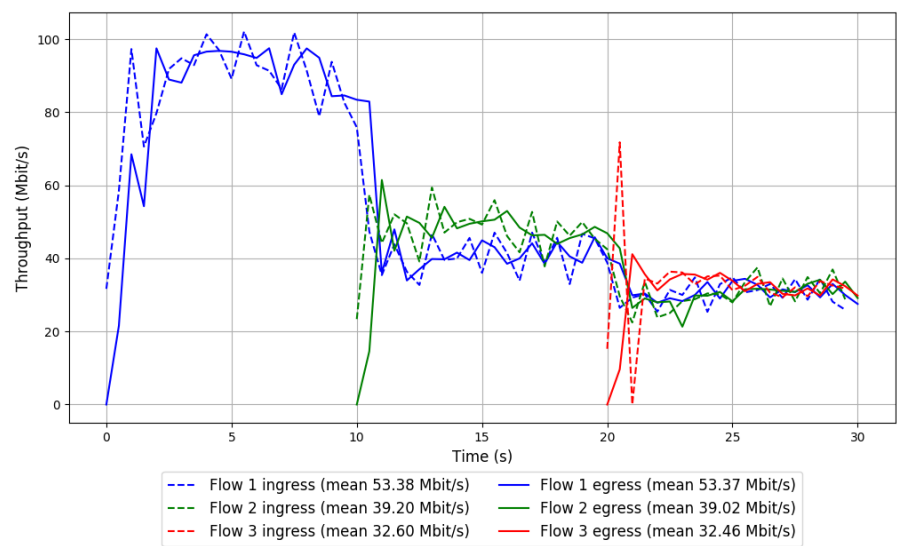# Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2019-10-03 12:56:38
End at: 2019-10-03 12:57:08
Local clock offset: 6.265 ms
Remote clock offset: -4.079 ms


# Below is generated by plot.py at 2019-10-03 13:57:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.08 Mbit/s
95th percentile per-packet one-way delay: 121.083 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 53.37 Mbit/s
95th percentile per-packet one-way delay: 121.646 ms
Loss rate: 0.16%
-- Flow 2:
Average throughput: 39.02 Mbit/s
95th percentile per-packet one-way delay: 98.368 ms
Loss rate: 0.52%
-- Flow 3:
Average throughput: 32.46 Mbit/s
95th percentile per-packet one-way delay: 317.564 ms
Loss rate: 0.92%
```

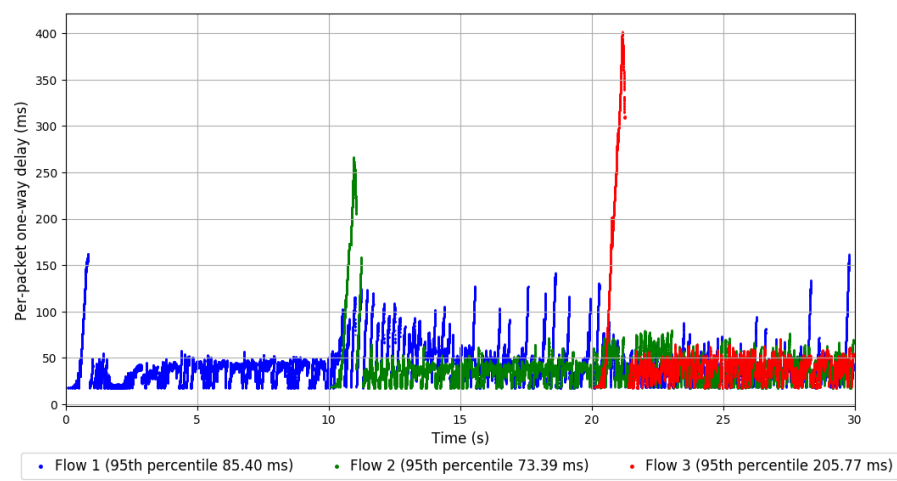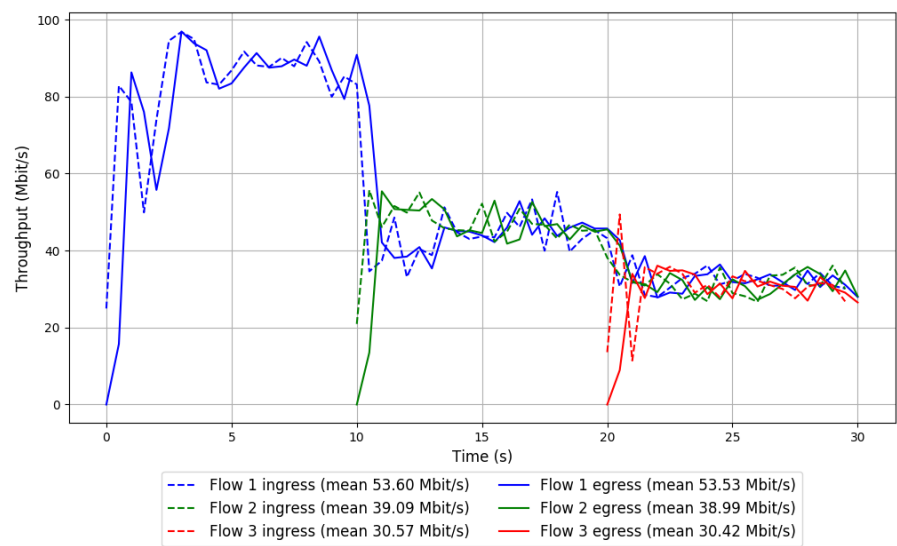## Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2019-10-03 13:27:31
End at: 2019-10-03 13:28:01
Local clock offset: 1.725 ms
Remote clock offset: -4.356 ms


# Below is generated by plot.py at 2019-10-03 13:58:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.54 Mbit/s
95th percentile per-packet one-way delay: 85.819 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 53.53 Mbit/s
95th percentile per-packet one-way delay: 85.397 ms
Loss rate: 0.29%
-- Flow 2:
Average throughput: 38.99 Mbit/s
95th percentile per-packet one-way delay: 73.391 ms
Loss rate: 0.47%
-- Flow 3:
Average throughput: 30.42 Mbit/s
95th percentile per-packet one-way delay: 205.774 ms
Loss rate: 0.92%
```
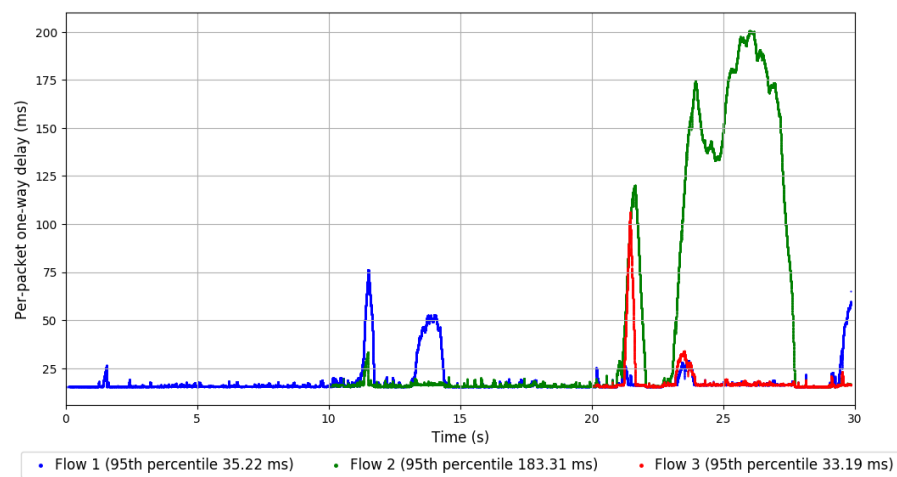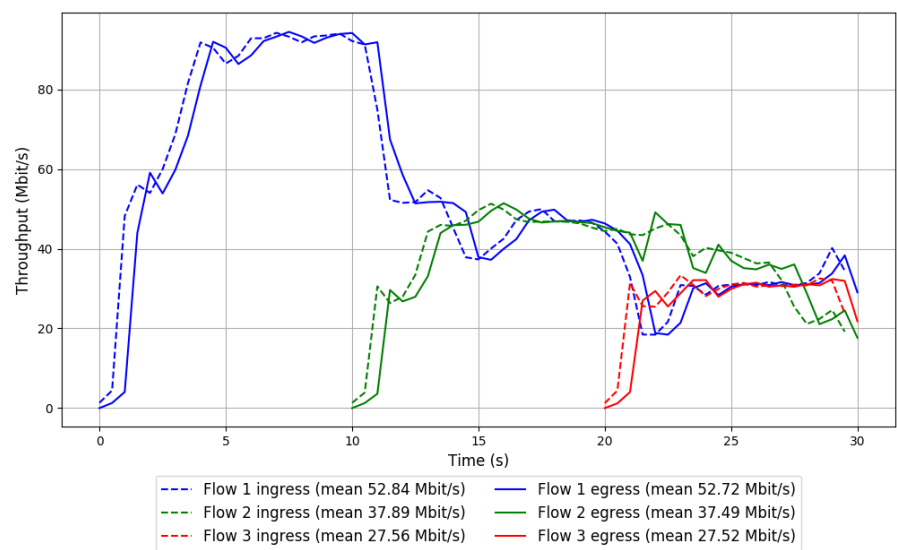
Run 5: Report of Verus — Data Link

Flow 1 ingress (mean 53.60 Mbit/s) --- Flow 1 egress (mean 53.53 Mbit/s)
Flow 2 ingress (mean 39.09 Mbit/s) --- Flow 2 egress (mean 38.99 Mbit/s)
Flow 3 ingress (mean 30.57 Mbit/s) --- Flow 3 egress (mean 30.42 Mbit/s)

Flow 1 (95th percentile 85.40 ms) • Flow 2 (95th percentile 73.39 ms) • Flow 3 (95th percentile 205.77 ms)

```
Run 1: Statistics of PCC-Vivace

Start at: 2019-10-03 11:26:57
End at: 2019-10-03 11:27:27
Local clock offset: 0.626 ms
Remote clock offset: -0.674 ms


# Below is generated by plot.py at 2019-10-03 13:58:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.69 Mbit/s
95th percentile per-packet one-way delay: 133.107 ms
Loss rate: 0.67%
-- Flow 1:
Average throughput: 52.72 Mbit/s
95th percentile per-packet one-way delay: 35.223 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 37.49 Mbit/s
95th percentile per-packet one-way delay: 183.309 ms
Loss rate: 1.30%
-- Flow 3:
Average throughput: 27.52 Mbit/s
95th percentile per-packet one-way delay: 33.189 ms
Loss rate: 0.63%
```
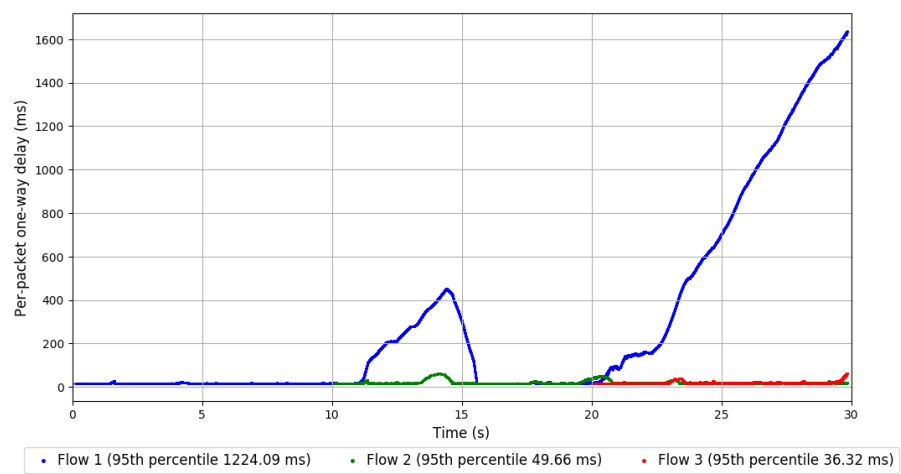
Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2019-10-03 11:59:29
End at: 2019-10-03 11:59:59
Local clock offset: 1.793 ms
Remote clock offset: -1.03 ms


# Below is generated by plot.py at 2019-10-03 13:58:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.08 Mbit/s
95th percentile per-packet one-way delay: 964.981 ms
Loss rate: 4.27%
-- Flow 1:
Average throughput: 56.50 Mbit/s
95th percentile per-packet one-way delay: 1224.089 ms
Loss rate: 6.19%
-- Flow 2:
Average throughput: 34.91 Mbit/s
95th percentile per-packet one-way delay: 49.659 ms
Loss rate: 0.34%
-- Flow 3:
Average throughput: 25.46 Mbit/s
95th percentile per-packet one-way delay: 36.318 ms
Loss rate: 1.43%
```
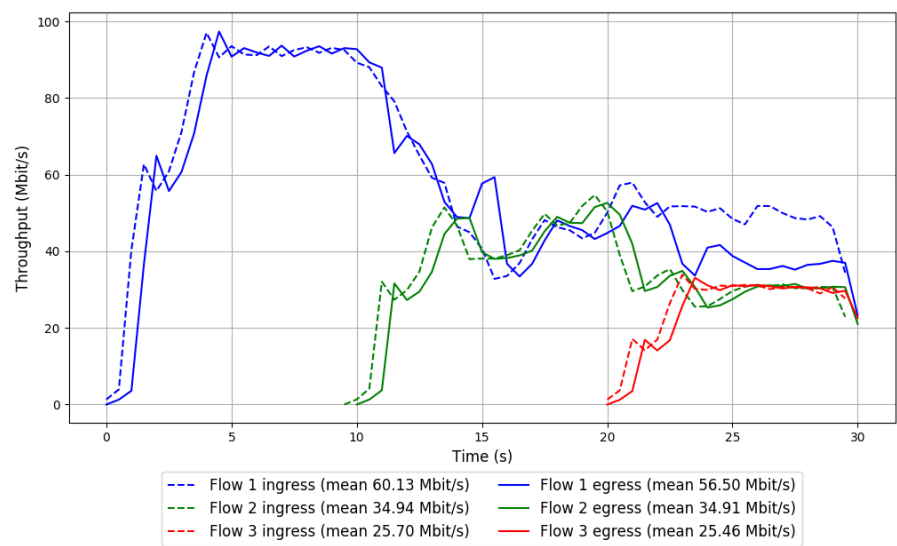
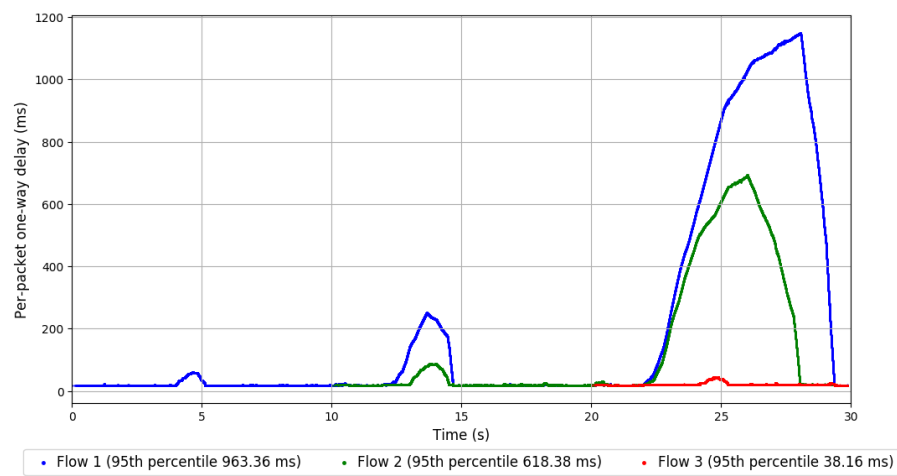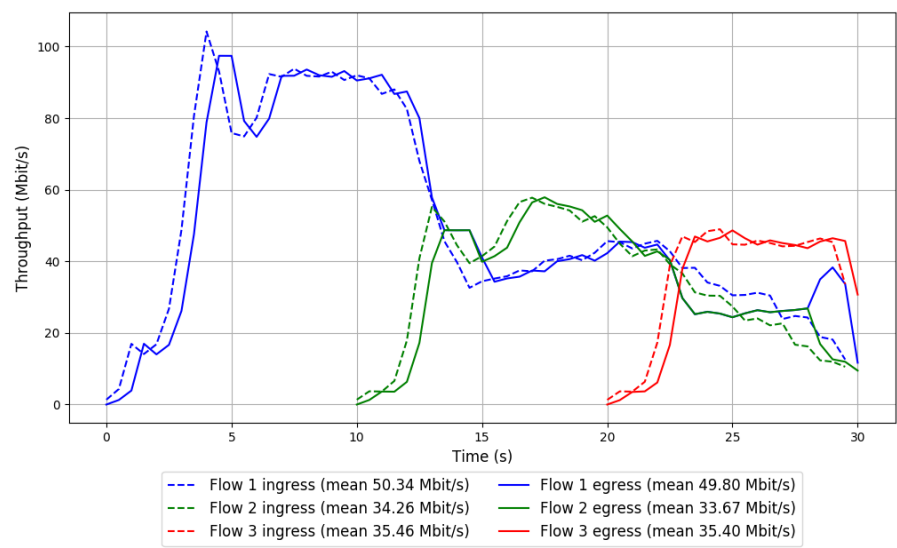## Run 2: Report of PCC-Vivace — Data Link

228

```
Run 3: Statistics of PCC-Vivace

Start at: 2019-10-03 12:31:44
End at: 2019-10-03 12:32:14
Local clock offset: 3.662 ms
Remote clock offset: -3.342 ms


# Below is generated by plot.py at 2019-10-03 13:58:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 83.84 Mbit/s
95th percentile per-packet one-way delay: 681.094 ms
Loss rate: 1.35%
-- Flow 1:
Average throughput: 49.80 Mbit/s
95th percentile per-packet one-way delay: 963.358 ms
Loss rate: 1.22%
-- Flow 2:
Average throughput: 33.67 Mbit/s
95th percentile per-packet one-way delay: 618.385 ms
Loss rate: 1.97%
-- Flow 3:
Average throughput: 35.40 Mbit/s
95th percentile per-packet one-way delay: 38.162 ms
Loss rate: 0.72%
```
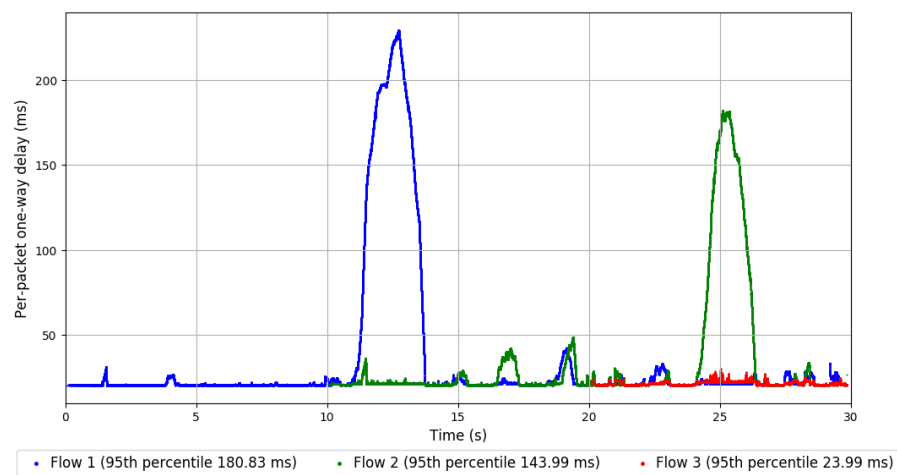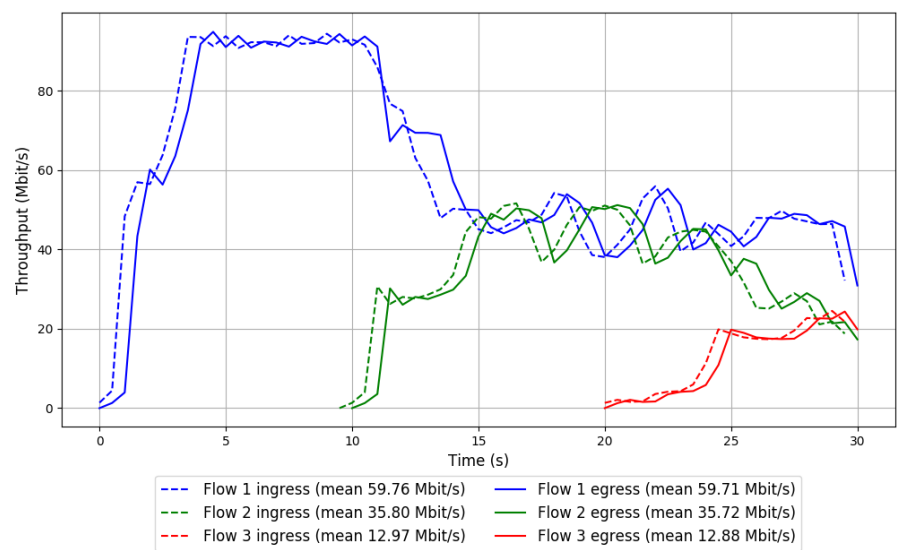
Run 3: Report of PCC-Vivace — Data Link

- - - - Flow 1 ingress (mean 50.34 Mbit/s) ——— Flow 1 egress (mean 49.80 Mbit/s)
- - - - Flow 2 ingress (mean 34.26 Mbit/s) ——— Flow 2 egress (mean 33.67 Mbit/s)
- - - - Flow 3 ingress (mean 35.46 Mbit/s) ——— Flow 3 egress (mean 35.40 Mbit/s)

• Flow 1 (95th percentile 963.36 ms)   • Flow 2 (95th percentile 618.38 ms)   • Flow 3 (95th percentile 38.16 ms)

```
Run 4: Statistics of PCC-Vivace

Start at: 2019-10-03 13:04:23
End at: 2019-10-03 13:04:53
Local clock offset: 4.558 ms
Remote clock offset: -5.194 ms


# Below is generated by plot.py at 2019-10-03 13:58:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 87.70 Mbit/s
95th percentile per-packet one-way delay: 161.189 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 59.71 Mbit/s
95th percentile per-packet one-way delay: 180.827 ms
Loss rate: 0.24%
-- Flow 2:
Average throughput: 35.72 Mbit/s
95th percentile per-packet one-way delay: 143.988 ms
Loss rate: 0.42%
-- Flow 3:
Average throughput: 12.88 Mbit/s
95th percentile per-packet one-way delay: 23.993 ms
Loss rate: 1.16%
```

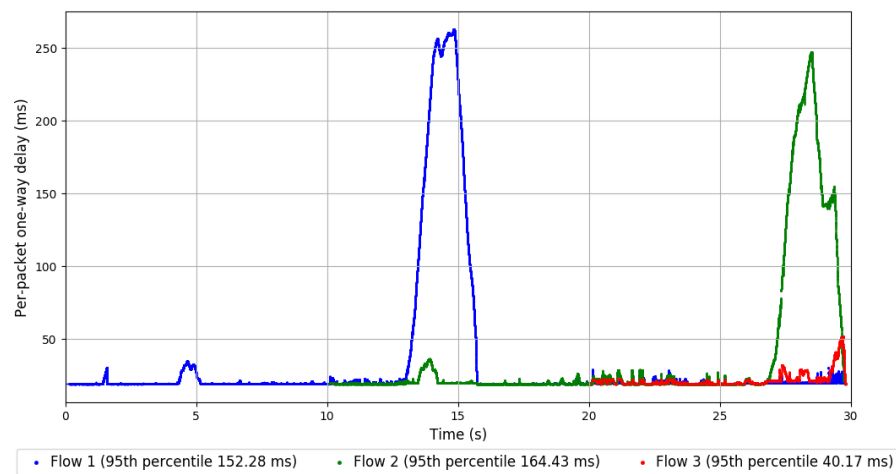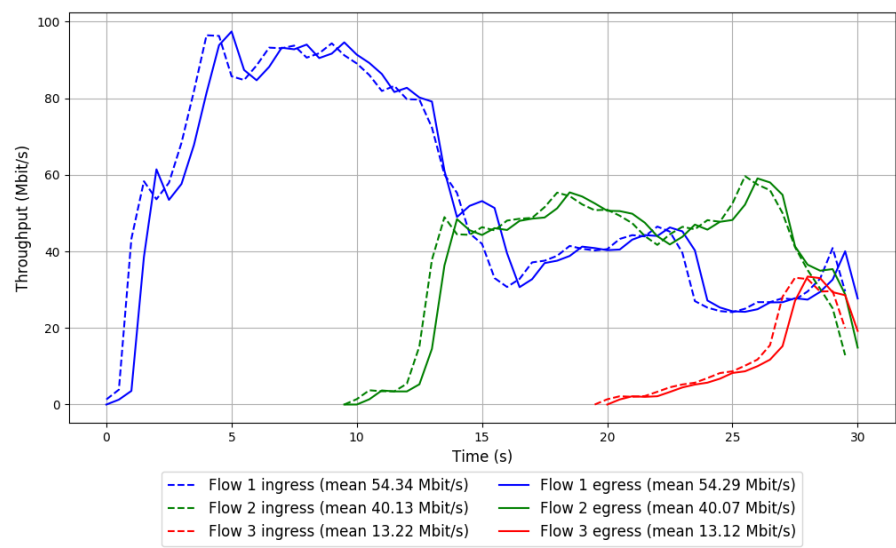Run 4: Report of PCC-Vivace — Data Link

```
Run 5: Statistics of PCC-Vivace

Start at: 2019-10-03 13:35:06
End at: 2019-10-03 13:35:36
Local clock offset: 5.577 ms
Remote clock offset: -2.786 ms


# Below is generated by plot.py at 2019-10-03 13:58:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.27 Mbit/s
95th percentile per-packet one-way delay: 150.668 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 54.29 Mbit/s
95th percentile per-packet one-way delay: 152.282 ms
Loss rate: 0.26%
-- Flow 2:
Average throughput: 40.07 Mbit/s
95th percentile per-packet one-way delay: 164.434 ms
Loss rate: 0.40%
-- Flow 3:
Average throughput: 13.12 Mbit/s
95th percentile per-packet one-way delay: 40.169 ms
Loss rate: 1.21%
```

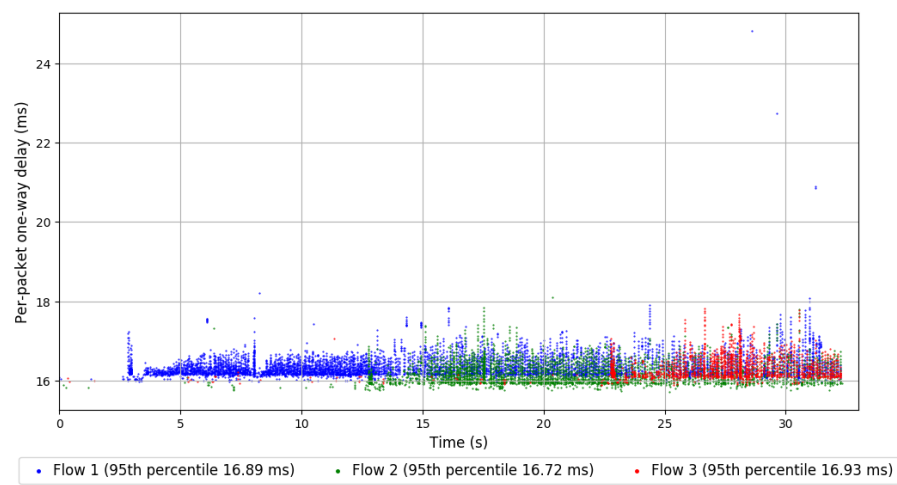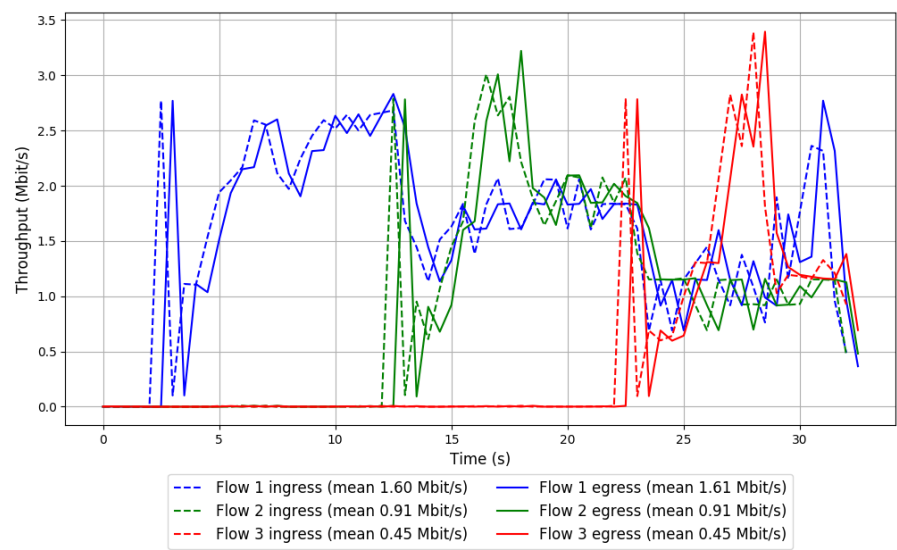Run 5: Report of PCC-Vivace — Data Link

234

```
Run 1: Statistics of WebRTC media

Start at: 2019-10-03 11:29:49
End at: 2019-10-03 11:30:19
Local clock offset: 1.199 ms
Remote clock offset: -1.044 ms


# Below is generated by plot.py at 2019-10-03 13:58:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.96 Mbit/s
95th percentile per-packet one-way delay: 16.858 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 1.61 Mbit/s
95th percentile per-packet one-way delay: 16.889 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 0.91 Mbit/s
95th percentile per-packet one-way delay: 16.716 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 16.929 ms
Loss rate: 0.80%
```

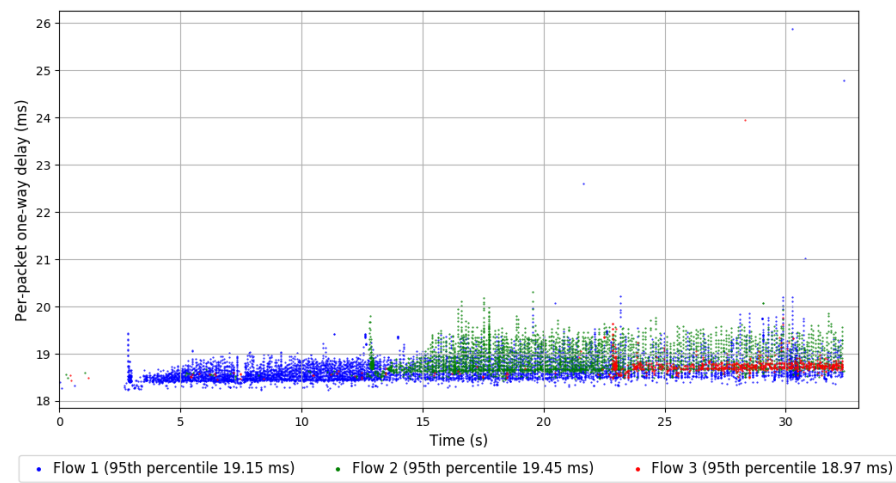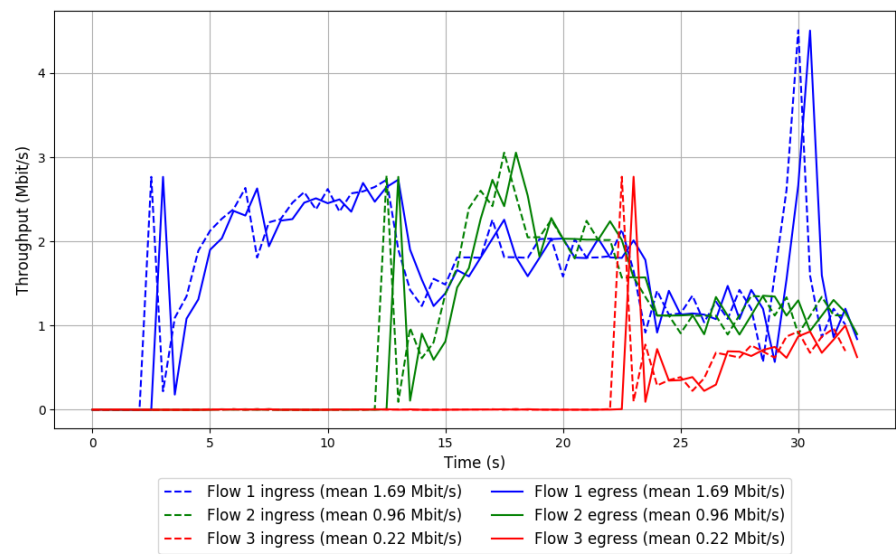Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2019-10-03 12:02:15
End at: 2019-10-03 12:02:45
Local clock offset: 1.349 ms
Remote clock offset: -2.418 ms


# Below is generated by plot.py at 2019-10-03 13:58:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.86 Mbit/s
95th percentile per-packet one-way delay: 19.325 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 1.69 Mbit/s
95th percentile per-packet one-way delay: 19.148 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 0.96 Mbit/s
95th percentile per-packet one-way delay: 19.455 ms
Loss rate: 0.36%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 18.969 ms
Loss rate: 0.51%
```

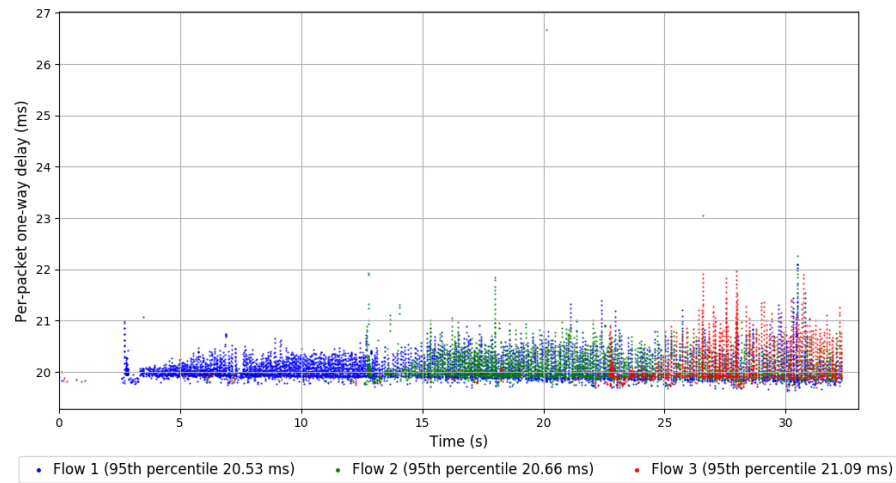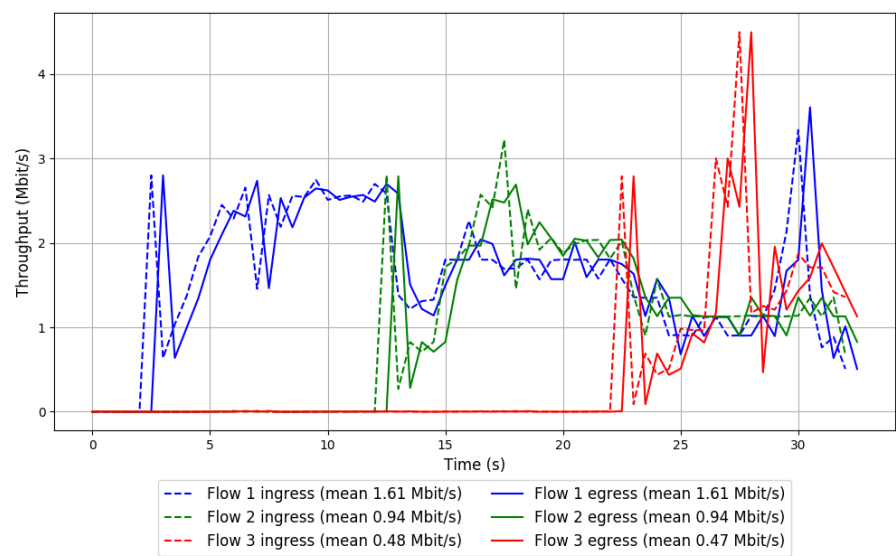Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2019-10-03 12:34:43
End at: 2019-10-03 12:35:13
Local clock offset: 4.374 ms
Remote clock offset: -4.693 ms


# Below is generated by plot.py at 2019-10-03 13:58:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.02 Mbit/s
95th percentile per-packet one-way delay: 20.703 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 1.61 Mbit/s
95th percentile per-packet one-way delay: 20.530 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.94 Mbit/s
95th percentile per-packet one-way delay: 20.661 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 0.47 Mbit/s
95th percentile per-packet one-way delay: 21.086 ms
Loss rate: 0.75%
```

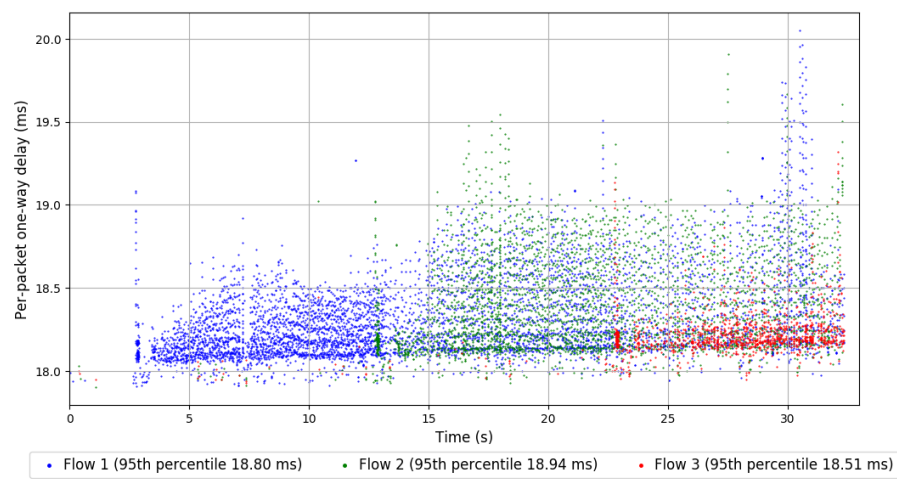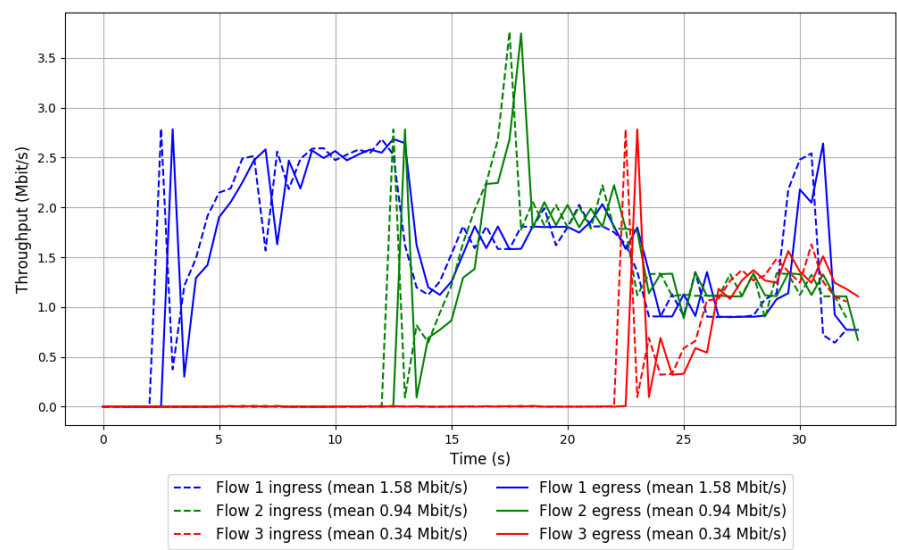Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2019-10-03 13:07:01
End at: 2019-10-03 13:07:31
Local clock offset: 2.99 ms
Remote clock offset: -4.039 ms


# Below is generated by plot.py at 2019-10-03 13:58:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.85 Mbit/s
95th percentile per-packet one-way delay: 18.861 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 1.58 Mbit/s
95th percentile per-packet one-way delay: 18.800 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.94 Mbit/s
95th percentile per-packet one-way delay: 18.938 ms
Loss rate: 0.37%
-- Flow 3:
Average throughput: 0.34 Mbit/s
95th percentile per-packet one-way delay: 18.511 ms
Loss rate: 0.01%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2019-10-03 13:37:40
End at: 2019-10-03 13:38:10
Local clock offset: 4.523 ms
Remote clock offset: -3.306 ms


# Below is generated by plot.py at 2019-10-03 13:58:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.92 Mbit/s
95th percentile per-packet one-way delay: 18.928 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 1.60 Mbit/s
95th percentile per-packet one-way delay: 18.994 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 0.93 Mbit/s
95th percentile per-packet one-way delay: 18.760 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 18.772 ms
Loss rate: 0.65%
```

Run 5: Report of WebRTC media — Data Link