Pantheon Report

Generated at 2018-11-15 13:09:40 (UTC).

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

Repeated the test of 18 congestion control schemes 5 times.

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

NTP offsets were measured against `nets.org.sg` and have been applied to correct the timestamps in logs.
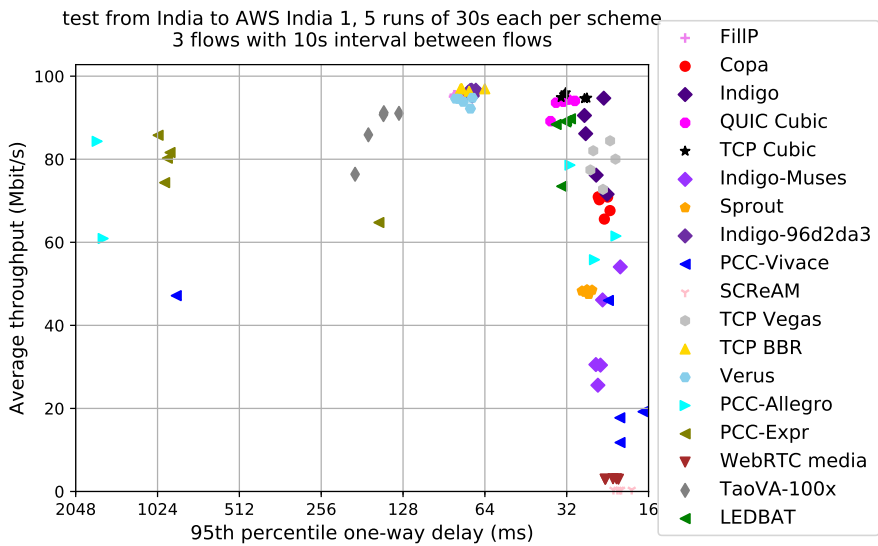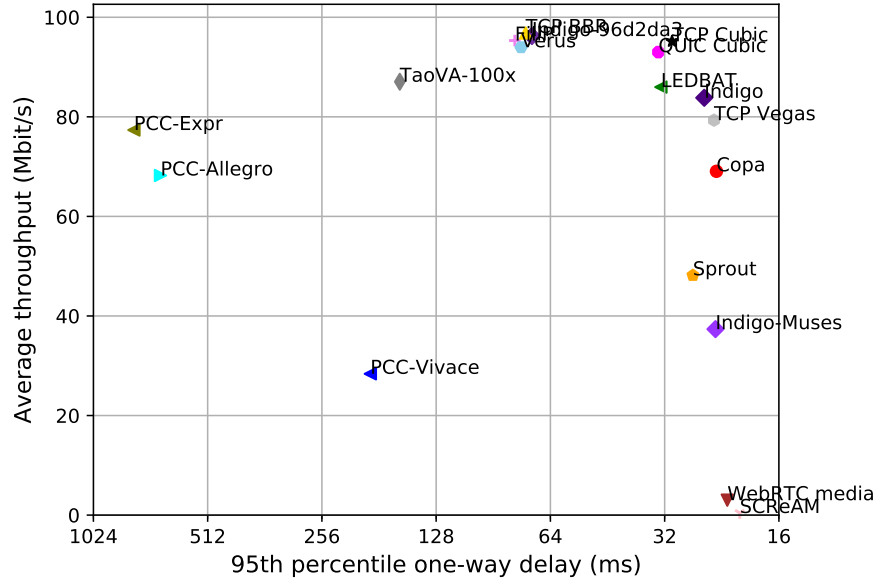
```
System info:
Linux 4.15.0-1023-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ 794ca3866981572cb73700a276691acf79c60f2b
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/indigo-96d2da3 @ 8413272d46f8aa0bcb967ed7048b6a8f994abb95
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
 M src/ScreamClient
 M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
```

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

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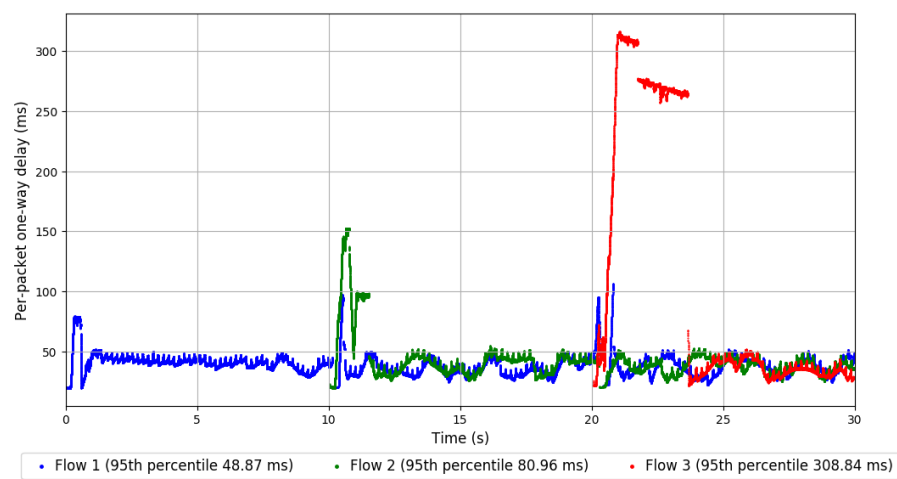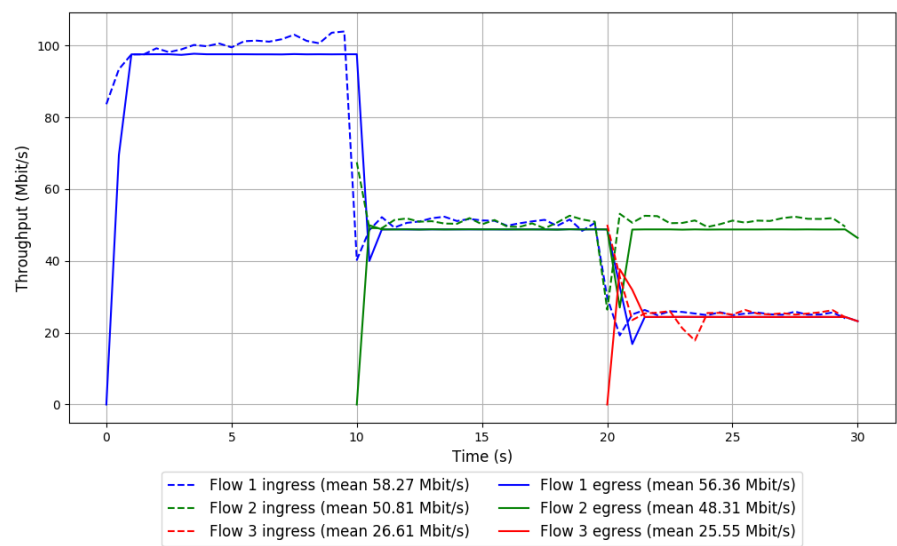3 flows with 10s interval between flows (mean of all runs by scheme)

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

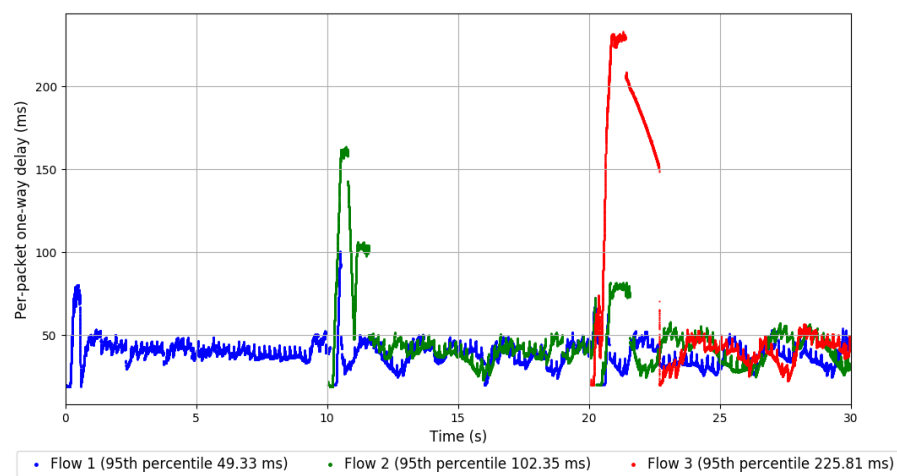| scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	5	57.27	40.57	37.83	52.30	101.11	172.10	3.46	4.21	3.70
Copa	5	38.12	32.70	27.59	22.88	23.48	24.54	0.05	0.10	0.25
TCP Cubic	5	56.86	40.99	33.19	30.58	30.75	30.93	0.06	0.14	0.33
FillP	5	58.30	40.57	30.16	56.01	89.79	80.24	0.21	2.98	3.03
Indigo	5	43.01	41.28	40.71	24.37	25.43	26.06	0.04	0.10	0.28
Indigo-96d2da3	5	58.57	40.57	32.28	71.34	84.16	96.11	1.52	2.21	3.14
LEDBAT	5	51.62	35.15	33.05	31.98	34.24	33.51	0.07	0.15	0.38
Indigo-Muses	5	19.05	18.17	18.79	22.72	23.27	26.62	0.02	0.04	0.10
PCC-Allegro	5	32.25	46.87	14.60	411.53	528.88	111.12	1.80	3.59	2.46
PCC-Expr	5	47.01	33.89	23.66	856.46	217.01	143.53	14.30	4.03	1.84
QUIC Cubic	5	55.86	41.48	28.96	31.89	33.62	46.52	0.09	0.19	0.48
SCReAM	5	0.21	0.21	0.22	20.29	20.28	20.29	0.10	0.19	0.36
Sprout	5	24.31	24.10	23.73	26.74	27.12	27.13	0.09	0.17	0.20
TaoVA-100x	5	50.67	40.09	29.13	133.53	134.84	166.06	0.56	1.17	3.22
TCP Vegas	5	45.69	34.81	31.72	23.13	24.58	23.52	0.06	0.12	0.25
Verus	5	57.72	39.52	30.02	76.90	71.95	107.34	0.27	0.38	0.94
PCC-Vivace	5	18.44	11.64	6.67	195.59	21.13	20.40	0.42	0.20	0.43
WebRTC media	5	1.60	0.97	0.43	21.78	21.90	22.01	0.05	0.00	0.01

```
Run 1: Statistics of TCP BBR

Start at: 2018-11-15 11:22:28
End at: 2018-11-15 11:22:58
Local clock offset: 1.767 ms
Remote clock offset: -4.404 ms


# Below is generated by plot.py at 2018-11-15 12:59:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.99 Mbit/s
95th percentile per-packet one-way delay: 77.905 ms
Loss rate: 4.01%
-- Flow 1:
Average throughput: 56.36 Mbit/s
95th percentile per-packet one-way delay: 48.872 ms
Loss rate: 3.37%
-- Flow 2:
Average throughput: 48.31 Mbit/s
95th percentile per-packet one-way delay: 80.959 ms
Loss rate: 5.05%
-- Flow 3:
Average throughput: 25.55 Mbit/s
95th percentile per-packet one-way delay: 308.838 ms
Loss rate: 4.27%
```

Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2018-11-15 11:46:04
End at: 2018-11-15 11:46:34
Local clock offset: 1.493 ms
Remote clock offset: -4.653 ms


# Below is generated by plot.py at 2018-11-15 12:59:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.92 Mbit/s
95th percentile per-packet one-way delay: 78.687 ms
Loss rate: 3.77%
-- Flow 1:
Average throughput: 58.86 Mbit/s
95th percentile per-packet one-way delay: 49.331 ms
Loss rate: 3.62%
-- Flow 2:
Average throughput: 40.59 Mbit/s
95th percentile per-packet one-way delay: 102.353 ms
Loss rate: 4.25%
-- Flow 3:
Average throughput: 33.27 Mbit/s
95th percentile per-packet one-way delay: 225.814 ms
Loss rate: 3.42%
```
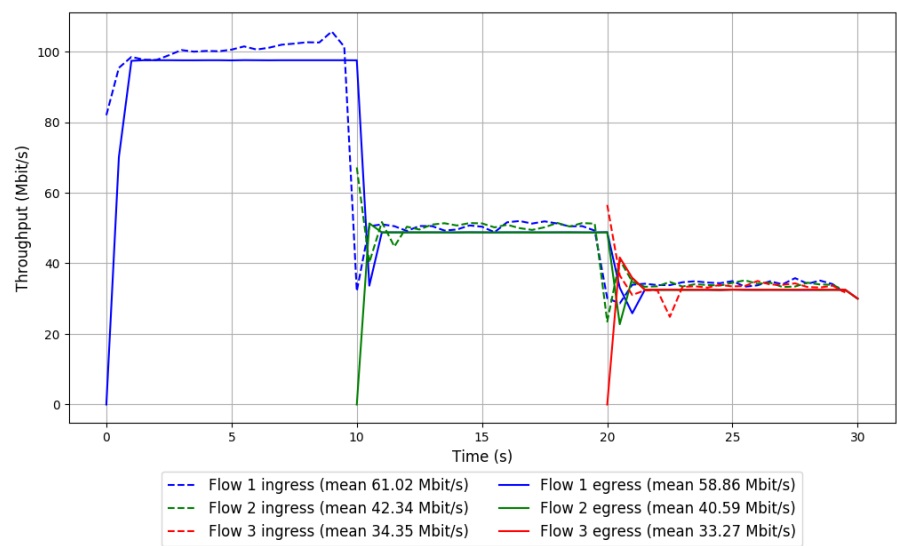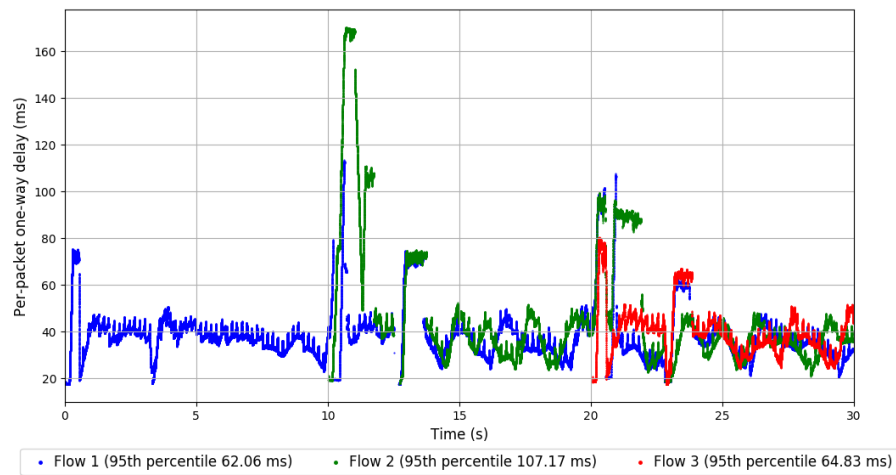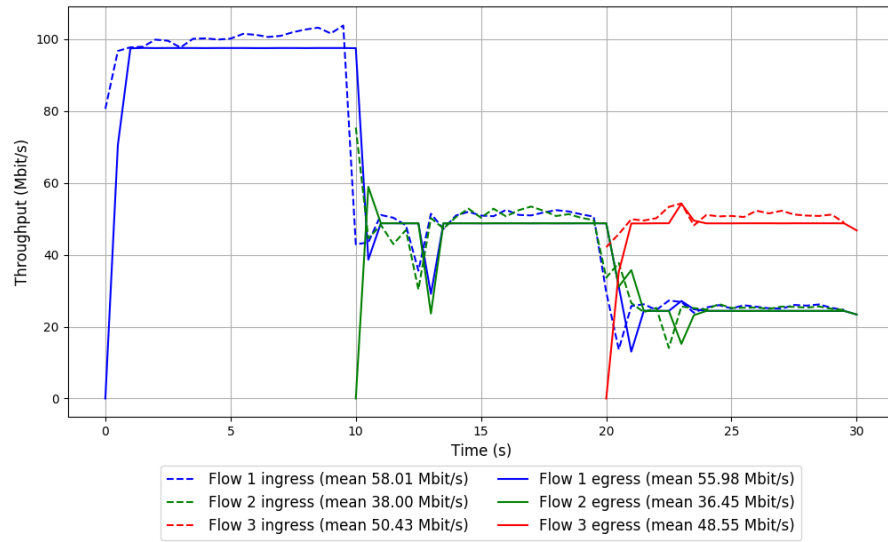
Run 2: Report of TCP BBR — Data Link

Flow 1 ingress (mean 61.02 Mbit/s) --- Flow 1 egress (mean 58.86 Mbit/s)
Flow 2 ingress (mean 42.34 Mbit/s) --- Flow 2 egress (mean 40.59 Mbit/s)
Flow 3 ingress (mean 34.35 Mbit/s) --- Flow 3 egress (mean 33.27 Mbit/s)

Flow 1 (95th percentile 49.33 ms) • Flow 2 (95th percentile 102.35 ms) • Flow 3 (95th percentile 225.81 ms)

```
Run 3: Statistics of TCP BBR

Start at: 2018-11-15 12:08:28
End at: 2018-11-15 12:08:58
Local clock offset: 1.429 ms
Remote clock offset: -3.246 ms


# Below is generated by plot.py at 2018-11-15 12:59:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.37 Mbit/s
95th percentile per-packet one-way delay: 73.126 ms
Loss rate: 3.80%
-- Flow 1:
Average throughput: 55.98 Mbit/s
95th percentile per-packet one-way delay: 62.060 ms
Loss rate: 3.59%
-- Flow 2:
Average throughput: 36.45 Mbit/s
95th percentile per-packet one-way delay: 107.173 ms
Loss rate: 4.21%
-- Flow 3:
Average throughput: 48.55 Mbit/s
95th percentile per-packet one-way delay: 64.828 ms
Loss rate: 3.95%
```
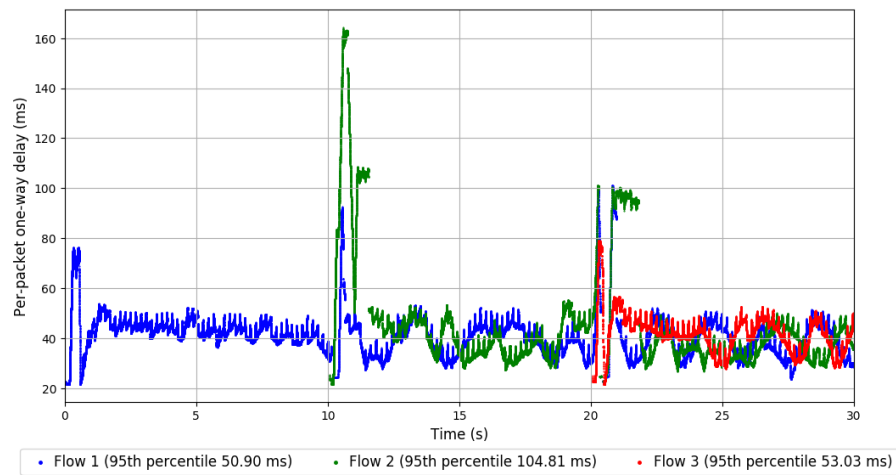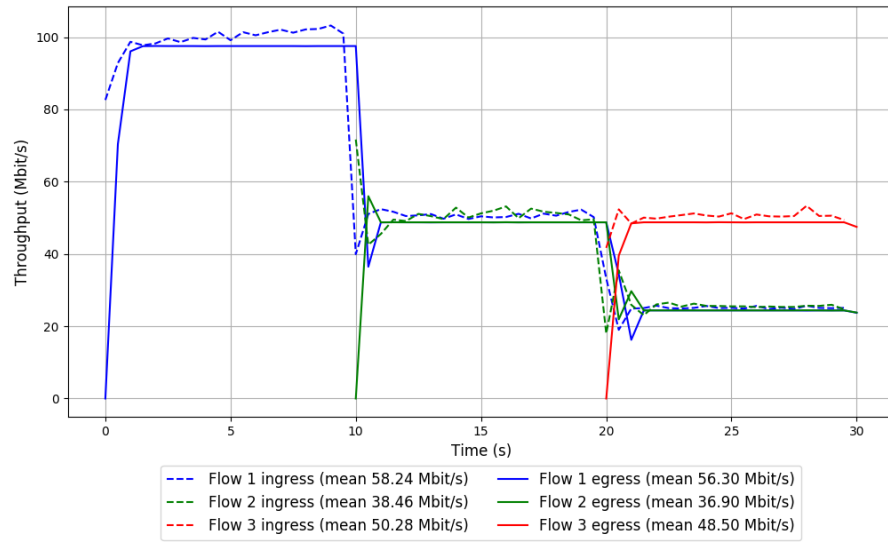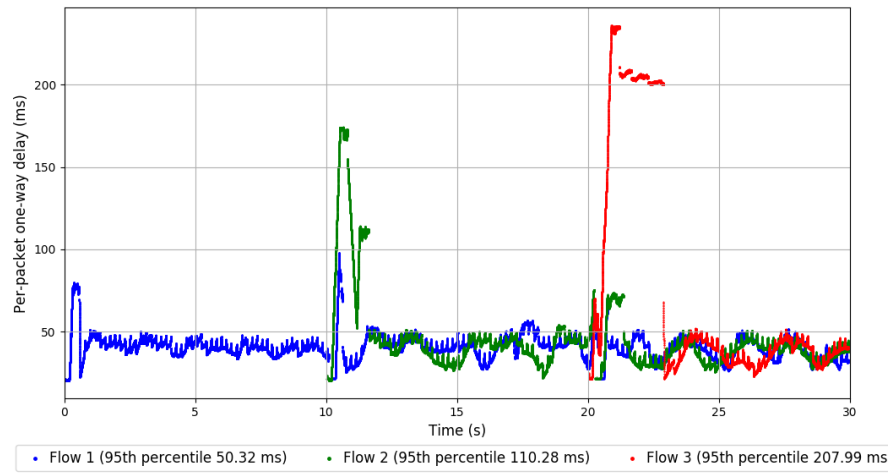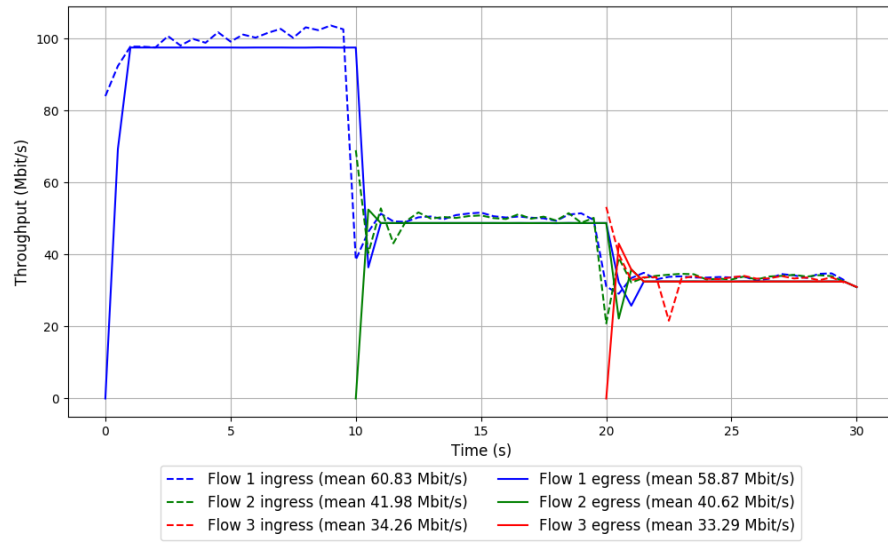
Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 58.01 Mbit/s) --- Flow 1 egress (mean 55.98 Mbit/s)
Flow 2 ingress (mean 38.00 Mbit/s) --- Flow 2 egress (mean 36.45 Mbit/s)
Flow 3 ingress (mean 50.43 Mbit/s) --- Flow 3 egress (mean 48.55 Mbit/s)

Flow 1 (95th percentile 62.06 ms)   Flow 2 (95th percentile 107.17 ms)   Flow 3 (95th percentile 64.83 ms)

```
Run 4: Statistics of TCP BBR

Start at: 2018-11-15 12:30:10
End at: 2018-11-15 12:30:40
Local clock offset: 3.872 ms
Remote clock offset: -4.759 ms


# Below is generated by plot.py at 2018-11-15 12:59:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.96 Mbit/s
95th percentile per-packet one-way delay: 64.048 ms
Loss rate: 3.67%
-- Flow 1:
Average throughput: 56.30 Mbit/s
95th percentile per-packet one-way delay: 50.899 ms
Loss rate: 3.42%
-- Flow 2:
Average throughput: 36.90 Mbit/s
95th percentile per-packet one-way delay: 104.812 ms
Loss rate: 4.17%
-- Flow 3:
Average throughput: 48.50 Mbit/s
95th percentile per-packet one-way delay: 53.034 ms
Loss rate: 3.79%
```
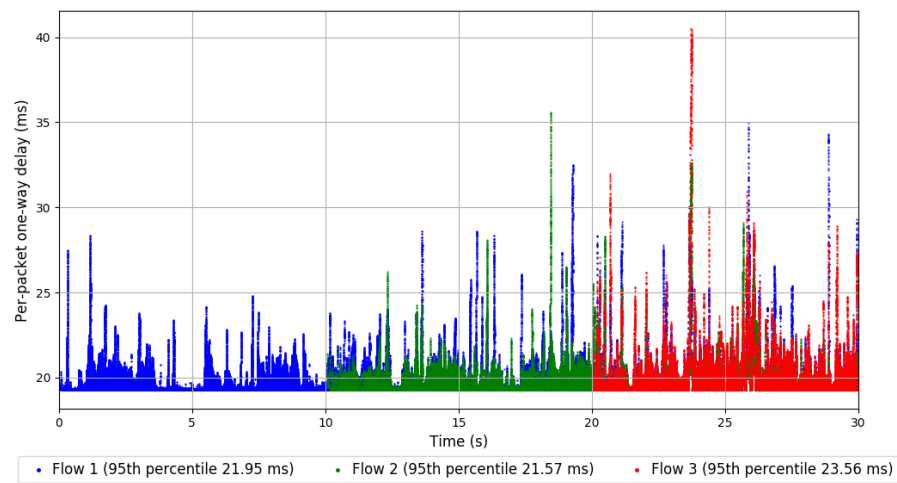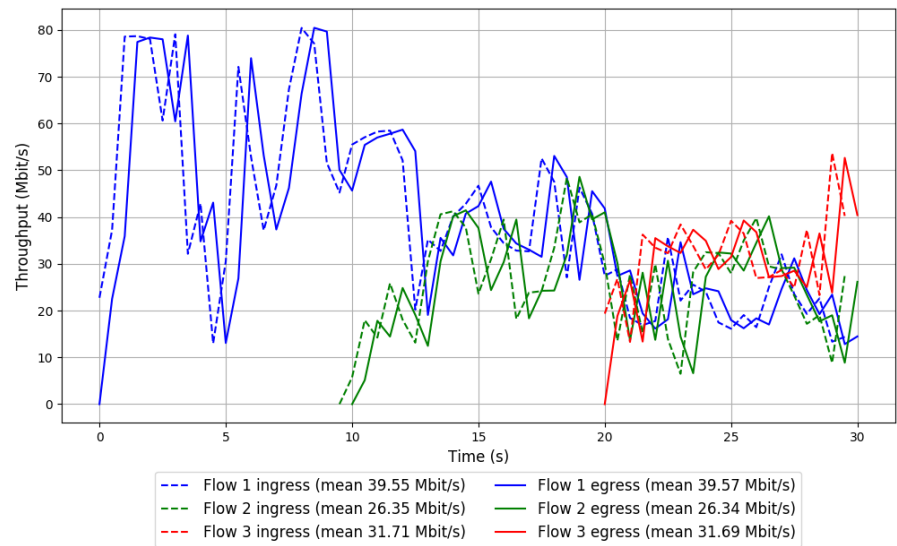
Run 4: Report of TCP BBR — Data Link

Flow 1 ingress (mean 58.24 Mbit/s) --- Flow 1 egress (mean 56.30 Mbit/s)
Flow 2 ingress (mean 38.46 Mbit/s) --- Flow 2 egress (mean 36.90 Mbit/s)
Flow 3 ingress (mean 50.28 Mbit/s) --- Flow 3 egress (mean 48.50 Mbit/s)

Flow 1 (95th percentile 50.90 ms)　　Flow 2 (95th percentile 104.81 ms)　　Flow 3 (95th percentile 53.03 ms)

```
Run 5: Statistics of TCP BBR

Start at: 2018-11-15 12:52:17
End at: 2018-11-15 12:52:47
Local clock offset: 2.641 ms
Remote clock offset: -2.601 ms


# Below is generated by plot.py at 2018-11-15 12:59:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.98 Mbit/s
95th percentile per-packet one-way delay: 78.114 ms
Loss rate: 3.29%
-- Flow 1:
Average throughput: 58.87 Mbit/s
95th percentile per-packet one-way delay: 50.317 ms
Loss rate: 3.30%
-- Flow 2:
Average throughput: 40.62 Mbit/s
95th percentile per-packet one-way delay: 110.277 ms
Loss rate: 3.36%
-- Flow 3:
Average throughput: 33.29 Mbit/s
95th percentile per-packet one-way delay: 207.990 ms
Loss rate: 3.07%
```
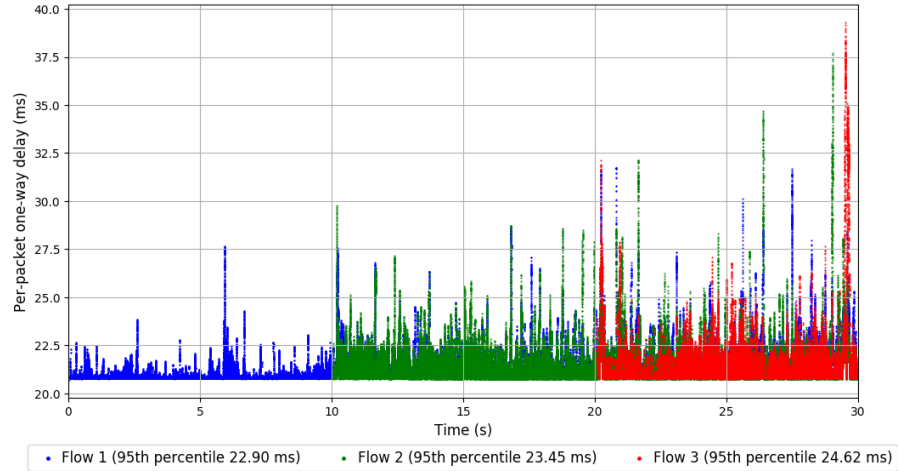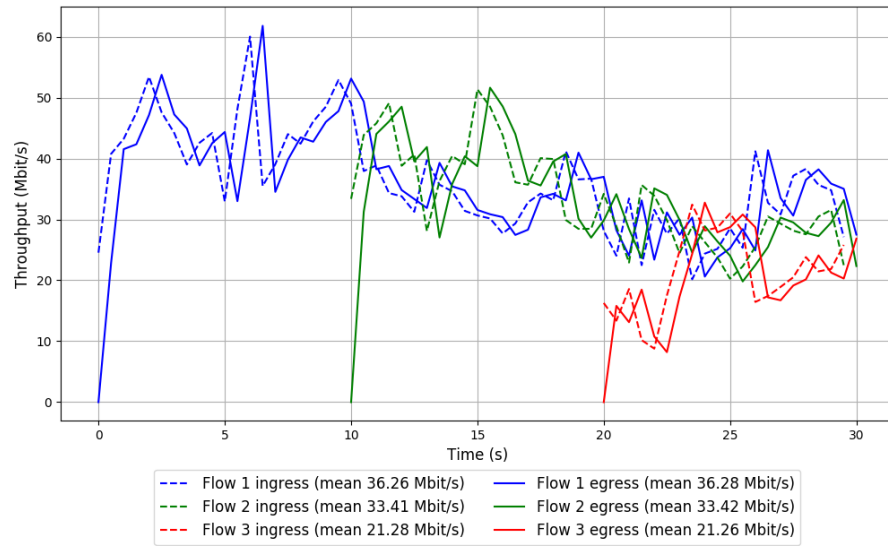
Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 60.83 Mbit/s) --- Flow 1 egress (mean 58.87 Mbit/s)
Flow 2 ingress (mean 41.98 Mbit/s) --- Flow 2 egress (mean 40.62 Mbit/s)
Flow 3 ingress (mean 34.26 Mbit/s) --- Flow 3 egress (mean 33.29 Mbit/s)

Flow 1 (95th percentile 50.32 ms)   Flow 2 (95th percentile 110.28 ms)   Flow 3 (95th percentile 207.99 ms)

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```
Run 1: Statistics of Copa

Start at: 2018-11-15 11:18:30
End at: 2018-11-15 11:19:00
Local clock offset: 1.217 ms
Remote clock offset: -4.629 ms


# Below is generated by plot.py at 2018-11-15 12:59:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 67.64 Mbit/s
95th percentile per-packet one-way delay: 22.176 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 39.57 Mbit/s
95th percentile per-packet one-way delay: 21.948 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 26.34 Mbit/s
95th percentile per-packet one-way delay: 21.574 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 31.69 Mbit/s
95th percentile per-packet one-way delay: 23.560 ms
Loss rate: 0.31%
```
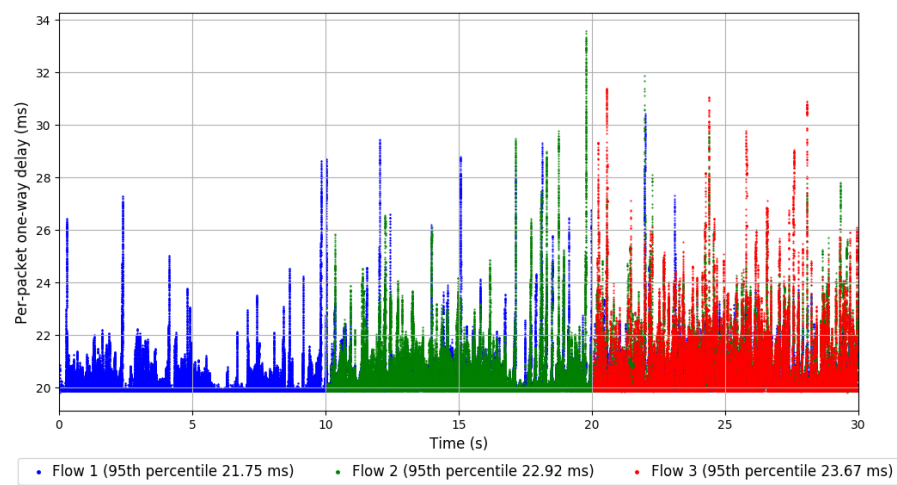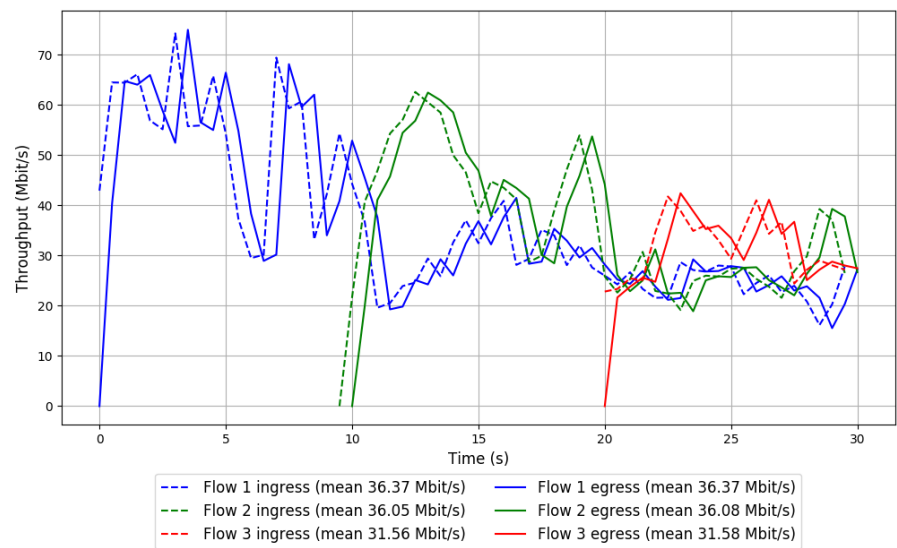
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 39.55 Mbit/s)   Flow 1 egress (mean 39.57 Mbit/s)
Flow 2 ingress (mean 26.35 Mbit/s)   Flow 2 egress (mean 26.34 Mbit/s)
Flow 3 ingress (mean 31.71 Mbit/s)   Flow 3 egress (mean 31.69 Mbit/s)

Flow 1 (95th percentile 21.95 ms)   Flow 2 (95th percentile 21.57 ms)   Flow 3 (95th percentile 23.56 ms)

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```
Run 2: Statistics of Copa

Start at: 2018-11-15 11:42:12
End at: 2018-11-15 11:42:42
Local clock offset: 3.103 ms
Remote clock offset: -4.684 ms


# Below is generated by plot.py at 2018-11-15 12:59:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 65.59 Mbit/s
95th percentile per-packet one-way delay: 23.264 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 36.28 Mbit/s
95th percentile per-packet one-way delay: 22.896 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 33.42 Mbit/s
95th percentile per-packet one-way delay: 23.455 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 21.26 Mbit/s
95th percentile per-packet one-way delay: 24.625 ms
Loss rate: 0.34%
```
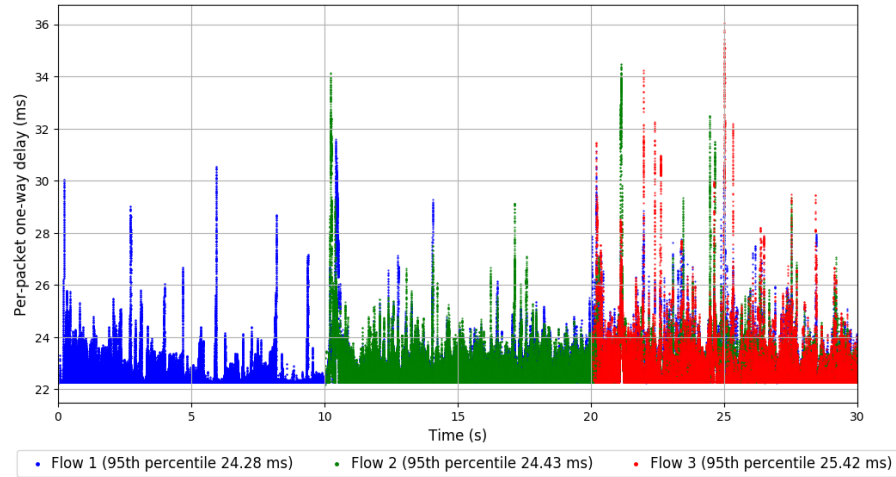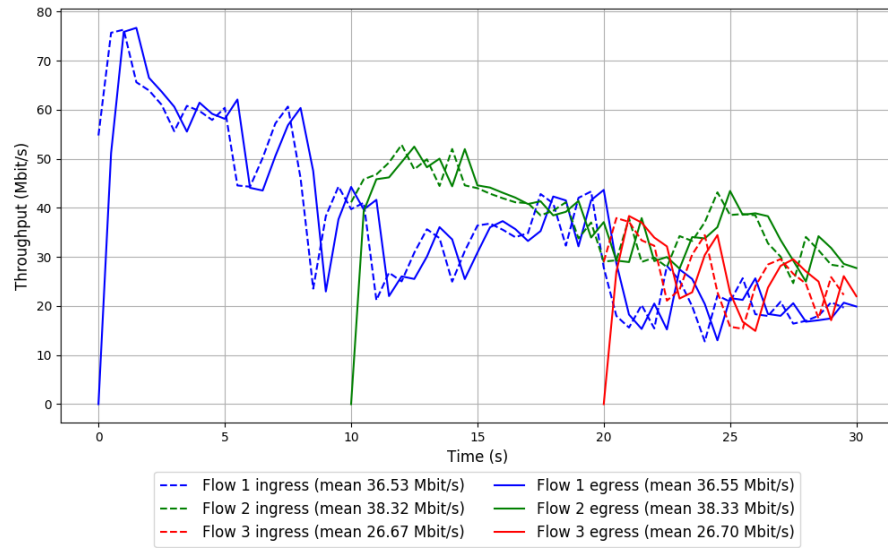
Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2018-11-15 12:04:53
End at: 2018-11-15 12:05:23
Local clock offset: 3.866 ms
Remote clock offset: -3.086 ms


# Below is generated by plot.py at 2018-11-15 13:00:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 70.89 Mbit/s
95th percentile per-packet one-way delay: 22.631 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 36.37 Mbit/s
95th percentile per-packet one-way delay: 21.752 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 36.08 Mbit/s
95th percentile per-packet one-way delay: 22.916 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 31.58 Mbit/s
95th percentile per-packet one-way delay: 23.672 ms
Loss rate: 0.15%
```
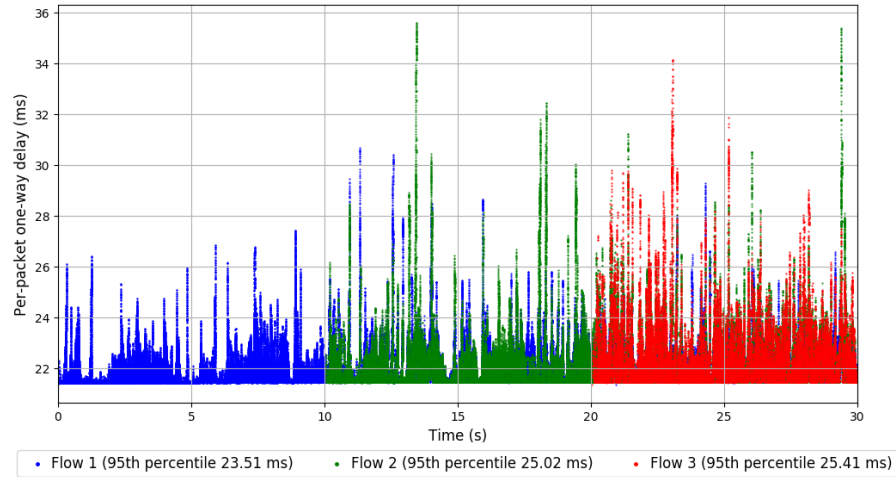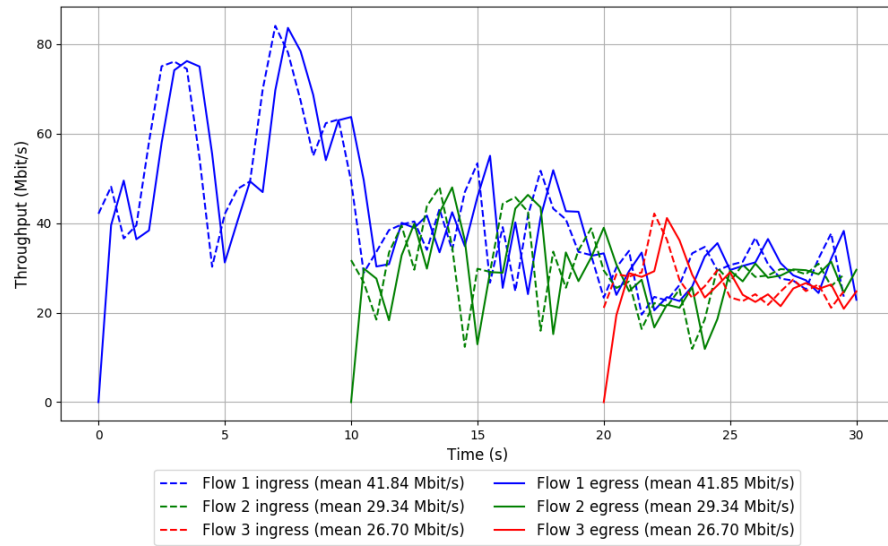
Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2018-11-15 12:26:32
End at: 2018-11-15 12:27:02
Local clock offset: 4.193 ms
Remote clock offset: -5.028 ms


# Below is generated by plot.py at 2018-11-15 13:01:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 70.94 Mbit/s
95th percentile per-packet one-way delay: 24.500 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 36.55 Mbit/s
95th percentile per-packet one-way delay: 24.276 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 38.33 Mbit/s
95th percentile per-packet one-way delay: 24.426 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 26.70 Mbit/s
95th percentile per-packet one-way delay: 25.424 ms
Loss rate: 0.21%
```

Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2018-11-15 12:48:42
End at: 2018-11-15 12:49:12
Local clock offset: 3.004 ms
Remote clock offset: -3.808 ms


# Below is generated by plot.py at 2018-11-15 13:01:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 70.25 Mbit/s
95th percentile per-packet one-way delay: 24.281 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 41.85 Mbit/s
95th percentile per-packet one-way delay: 23.514 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 29.34 Mbit/s
95th percentile per-packet one-way delay: 25.022 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 26.70 Mbit/s
95th percentile per-packet one-way delay: 25.412 ms
Loss rate: 0.23%
```
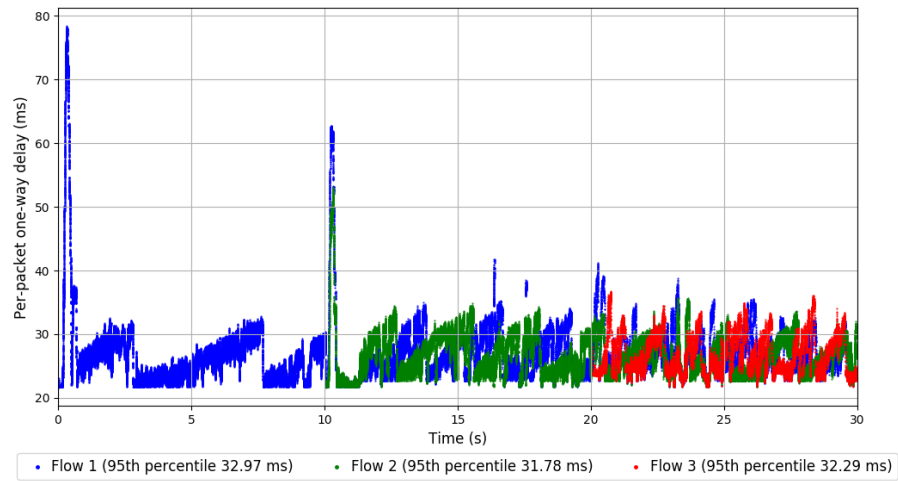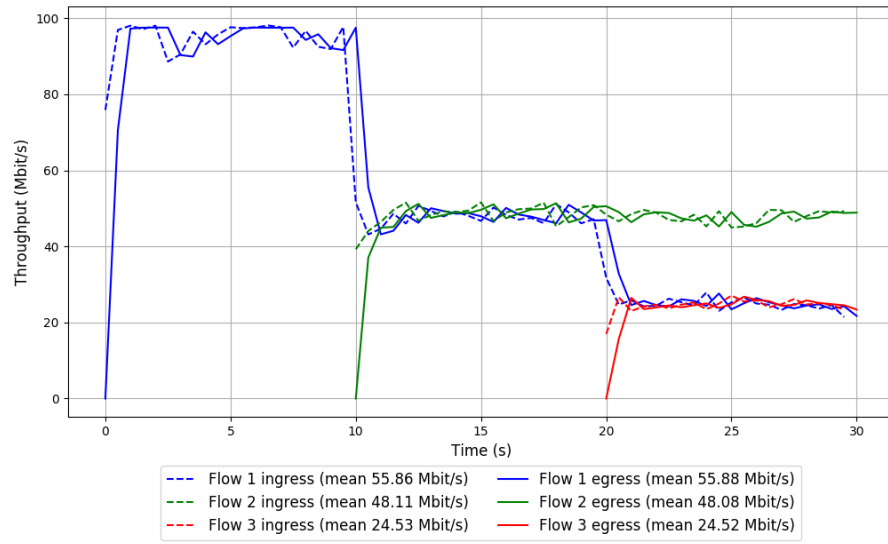
Run 5: Report of Copa — Data Link

Flow 1 ingress (mean 41.84 Mbit/s) — Flow 1 egress (mean 41.85 Mbit/s)
Flow 2 ingress (mean 29.34 Mbit/s) — Flow 2 egress (mean 29.34 Mbit/s)
Flow 3 ingress (mean 26.70 Mbit/s) — Flow 3 egress (mean 26.70 Mbit/s)

Flow 1 (95th percentile 23.51 ms)   Flow 2 (95th percentile 25.02 ms)   Flow 3 (95th percentile 25.41 ms)

```
Run 1: Statistics of TCP Cubic

Start at: 2018-11-15 11:13:24
End at: 2018-11-15 11:13:54
Local clock offset: 3.055 ms
Remote clock offset: -5.21 ms


# Below is generated by plot.py at 2018-11-15 13:01:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.02 Mbit/s
95th percentile per-packet one-way delay: 32.312 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 55.88 Mbit/s
95th percentile per-packet one-way delay: 32.969 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 48.08 Mbit/s
95th percentile per-packet one-way delay: 31.782 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 24.52 Mbit/s
95th percentile per-packet one-way delay: 32.293 ms
Loss rate: 0.32%
```
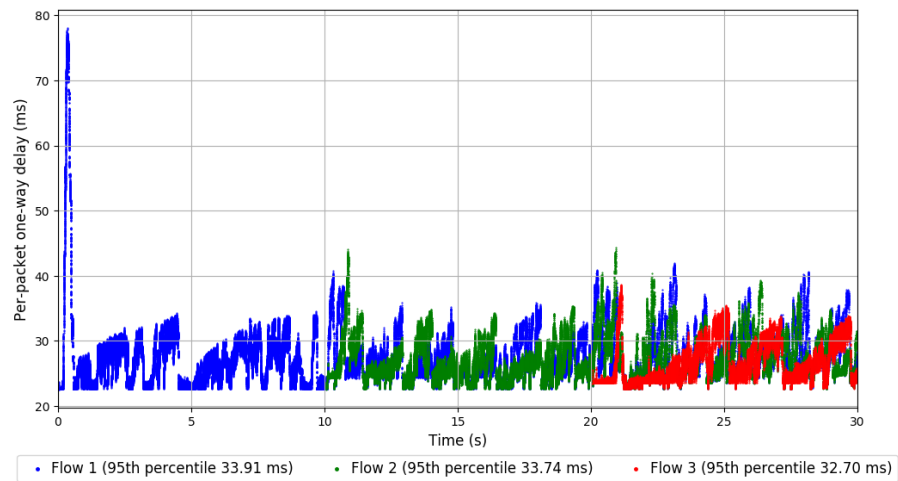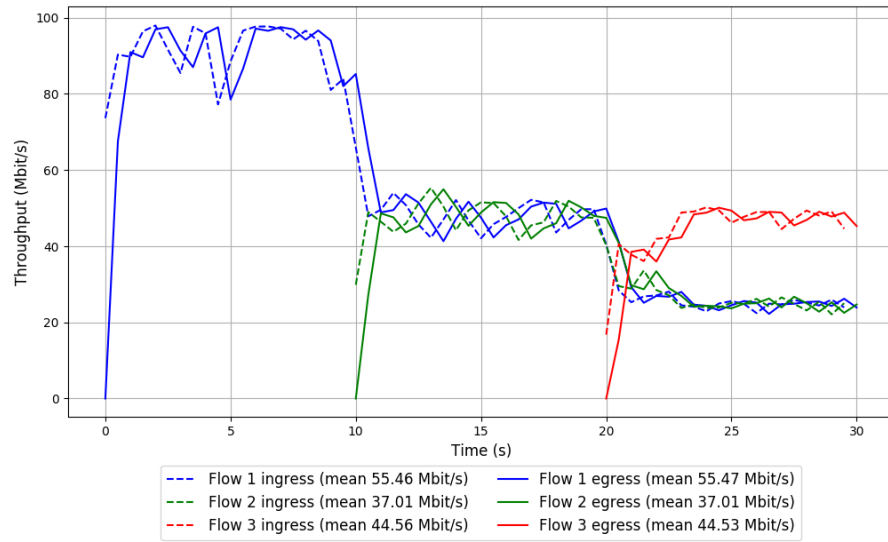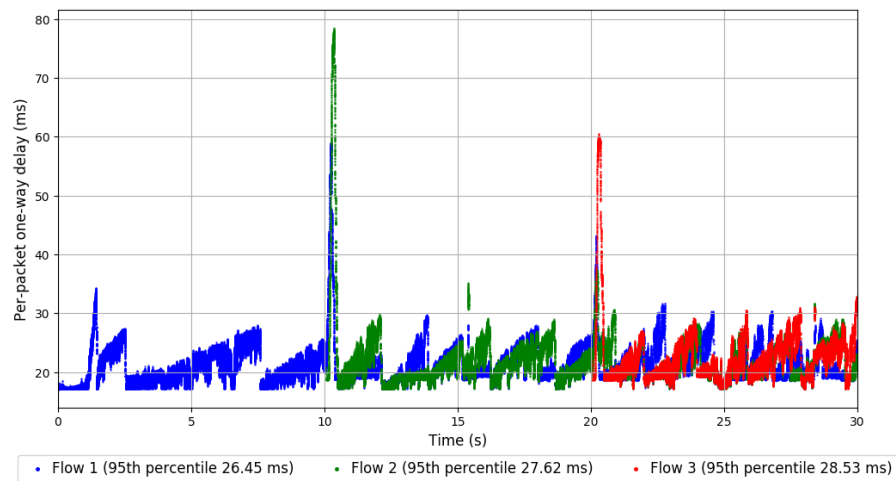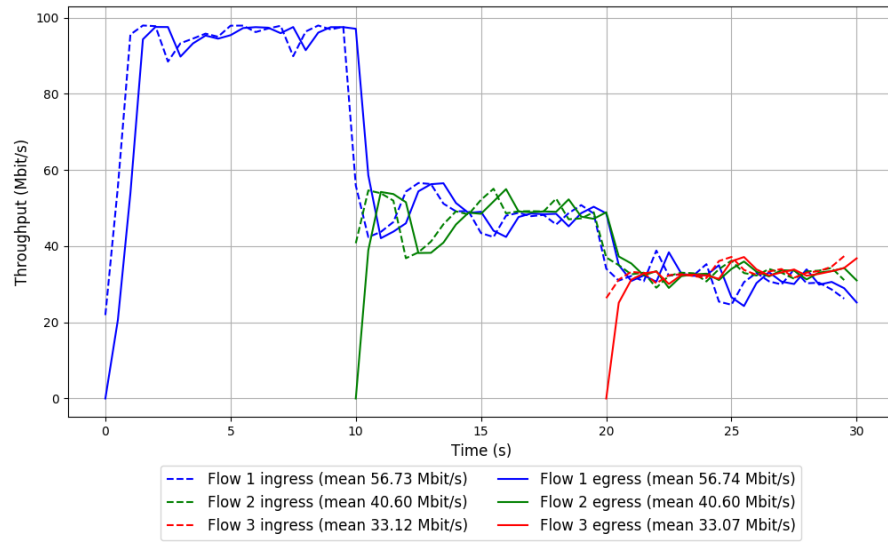
Run 1: Report of TCP Cubic — Data Link

- - - Flow 1 ingress (mean 55.86 Mbit/s) —— Flow 1 egress (mean 55.88 Mbit/s)
- - - Flow 2 ingress (mean 48.11 Mbit/s) —— Flow 2 egress (mean 48.08 Mbit/s)
- - - Flow 3 ingress (mean 24.53 Mbit/s) —— Flow 3 egress (mean 24.52 Mbit/s)

• Flow 1 (95th percentile 32.97 ms)　　• Flow 2 (95th percentile 31.78 ms)　　• Flow 3 (95th percentile 32.29 ms)

```
Run 2: Statistics of TCP Cubic

Start at: 2018-11-15 11:37:01
End at: 2018-11-15 11:37:31
Local clock offset: 4.093 ms
Remote clock offset: -5.53 ms

# Below is generated by plot.py at 2018-11-15 13:01:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.89 Mbit/s
95th percentile per-packet one-way delay: 33.549 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 55.47 Mbit/s
95th percentile per-packet one-way delay: 33.911 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 37.01 Mbit/s
95th percentile per-packet one-way delay: 33.742 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 44.53 Mbit/s
95th percentile per-packet one-way delay: 32.699 ms
Loss rate: 0.30%
```
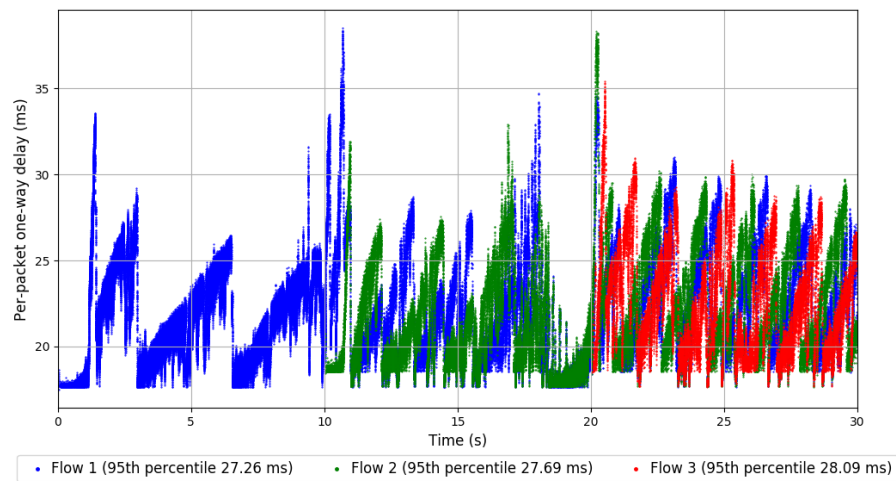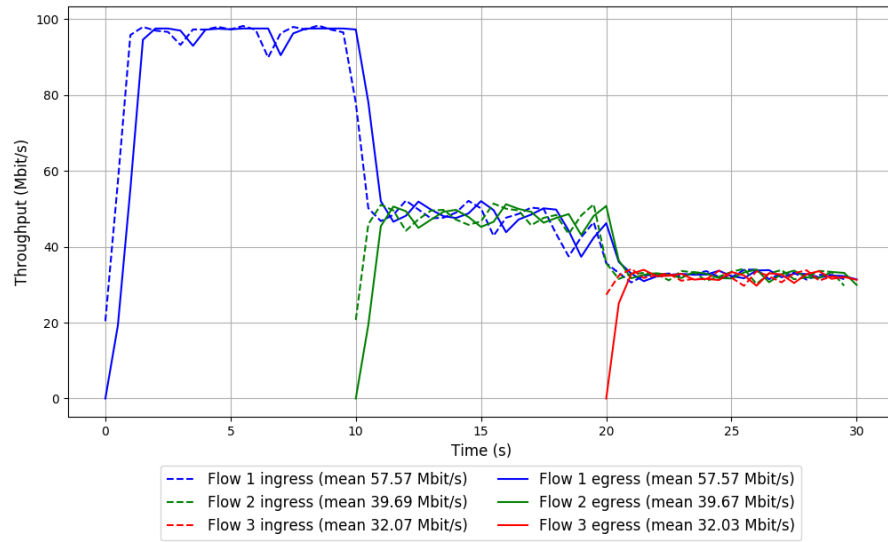
Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 55.46 Mbit/s) --- Flow 1 egress (mean 55.47 Mbit/s)
Flow 2 ingress (mean 37.01 Mbit/s) --- Flow 2 egress (mean 37.01 Mbit/s)
Flow 3 ingress (mean 44.56 Mbit/s) --- Flow 3 egress (mean 44.53 Mbit/s)

Flow 1 (95th percentile 33.91 ms) Flow 2 (95th percentile 33.74 ms) Flow 3 (95th percentile 32.70 ms)

28

```
Run 3: Statistics of TCP Cubic

Start at: 2018-11-15 12:00:05
End at: 2018-11-15 12:00:36
Local clock offset: 1.592 ms
Remote clock offset: -2.672 ms


# Below is generated by plot.py at 2018-11-15 13:01:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.75 Mbit/s
95th percentile per-packet one-way delay: 26.972 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 56.74 Mbit/s
95th percentile per-packet one-way delay: 26.450 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 40.60 Mbit/s
95th percentile per-packet one-way delay: 27.617 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 33.07 Mbit/s
95th percentile per-packet one-way delay: 28.526 ms
Loss rate: 0.40%
```
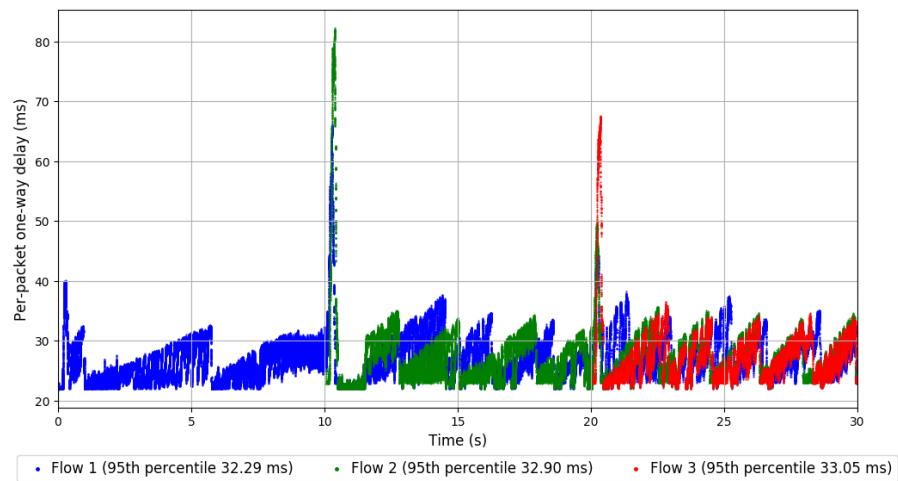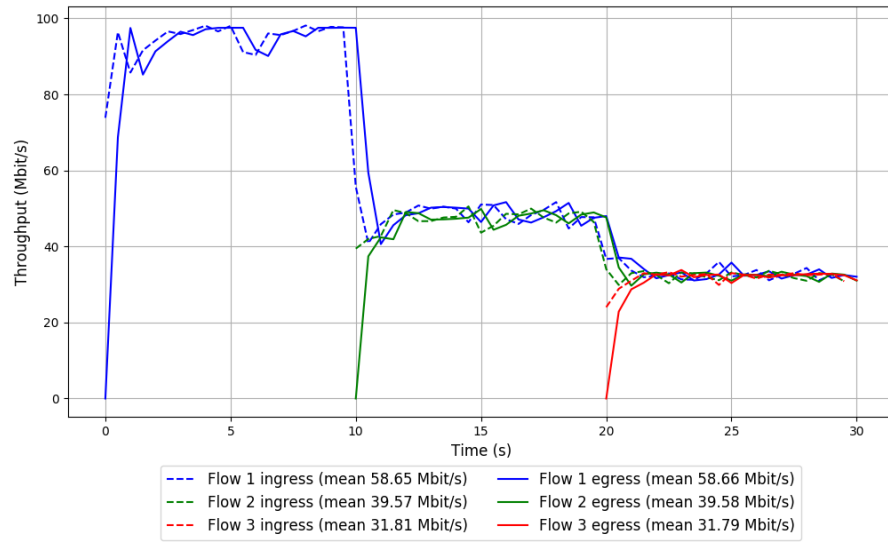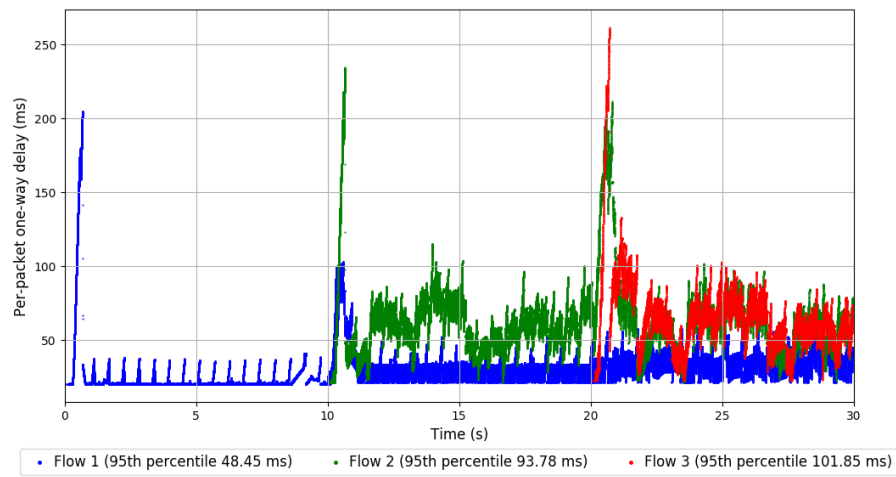
Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 56.73 Mbit/s) --- Flow 1 egress (mean 56.74 Mbit/s)
Flow 2 ingress (mean 40.60 Mbit/s) --- Flow 2 egress (mean 40.60 Mbit/s)
Flow 3 ingress (mean 33.12 Mbit/s) --- Flow 3 egress (mean 33.07 Mbit/s)

Flow 1 (95th percentile 26.45 ms)   Flow 2 (95th percentile 27.62 ms)   Flow 3 (95th percentile 28.53 ms)

30

```
Run 4: Statistics of TCP Cubic

Start at: 2018-11-15 12:21:38
End at: 2018-11-15 12:22:08
Local clock offset: 1.756 ms
Remote clock offset: -2.861 ms


# Below is generated by plot.py at 2018-11-15 13:01:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.61 Mbit/s
95th percentile per-packet one-way delay: 27.514 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 57.57 Mbit/s
95th percentile per-packet one-way delay: 27.259 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 39.67 Mbit/s
95th percentile per-packet one-way delay: 27.692 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 32.03 Mbit/s
95th percentile per-packet one-way delay: 28.087 ms
Loss rate: 0.36%
```
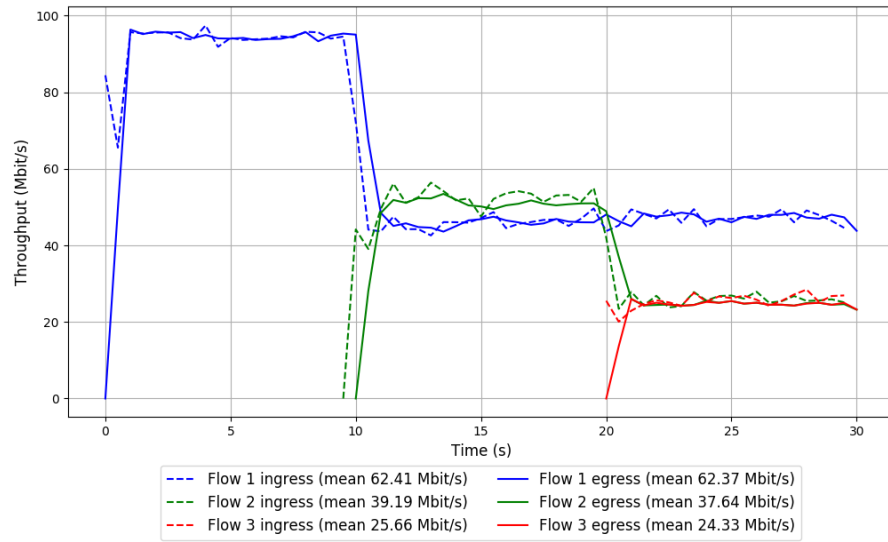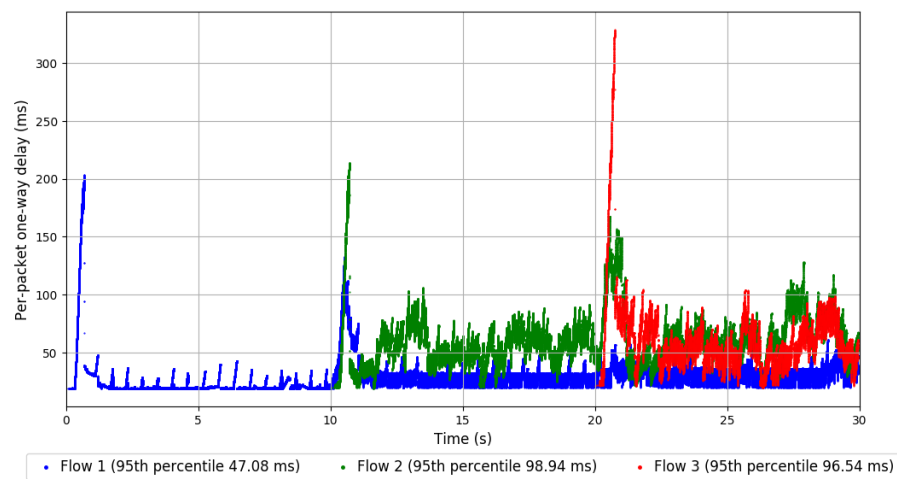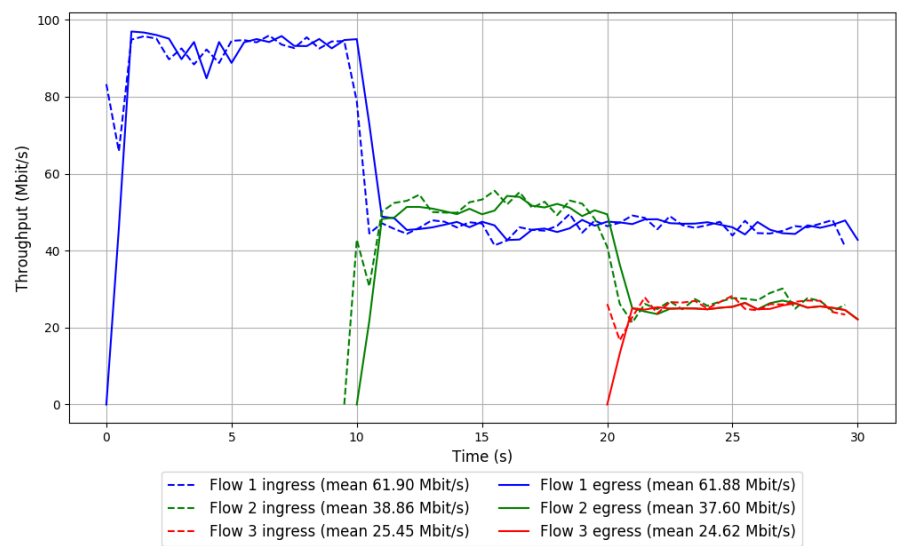
Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 57.57 Mbit/s) --- Flow 1 egress (mean 57.57 Mbit/s)
Flow 2 ingress (mean 39.69 Mbit/s) --- Flow 2 egress (mean 39.67 Mbit/s)
Flow 3 ingress (mean 32.07 Mbit/s) --- Flow 3 egress (mean 32.03 Mbit/s)

Flow 1 (95th percentile 27.26 ms)   Flow 2 (95th percentile 27.69 ms)   Flow 3 (95th percentile 28.09 ms)

32

```
Run 5: Statistics of TCP Cubic

Start at: 2018-11-15 12:43:40
End at: 2018-11-15 12:44:10
Local clock offset: 3.725 ms
Remote clock offset: -4.001 ms


# Below is generated by plot.py at 2018-11-15 13:01:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.56 Mbit/s
95th percentile per-packet one-way delay: 32.649 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 58.66 Mbit/s
95th percentile per-packet one-way delay: 32.294 ms
Loss rate: 0.07%
-- Flow 2:
Average throughput: 39.58 Mbit/s
95th percentile per-packet one-way delay: 32.901 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 31.79 Mbit/s
95th percentile per-packet one-way delay: 33.052 ms
Loss rate: 0.27%
```

Run 5: Report of TCP Cubic — Data Link

```
Run 1: Statistics of FillP

Start at: 2018-11-15 11:09:28
End at: 2018-11-15 11:09:58
Local clock offset: 2.49 ms
Remote clock offset: -4.137 ms


# Below is generated by plot.py at 2018-11-15 13:01:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.51 Mbit/s
95th percentile per-packet one-way delay: 82.172 ms
Loss rate: 1.65%
-- Flow 1:
Average throughput: 62.37 Mbit/s
95th percentile per-packet one-way delay: 48.449 ms
Loss rate: 0.16%
-- Flow 2:
Average throughput: 37.64 Mbit/s
95th percentile per-packet one-way delay: 93.779 ms
Loss rate: 4.02%
-- Flow 3:
Average throughput: 24.33 Mbit/s
95th percentile per-packet one-way delay: 101.848 ms
Loss rate: 5.37%
```
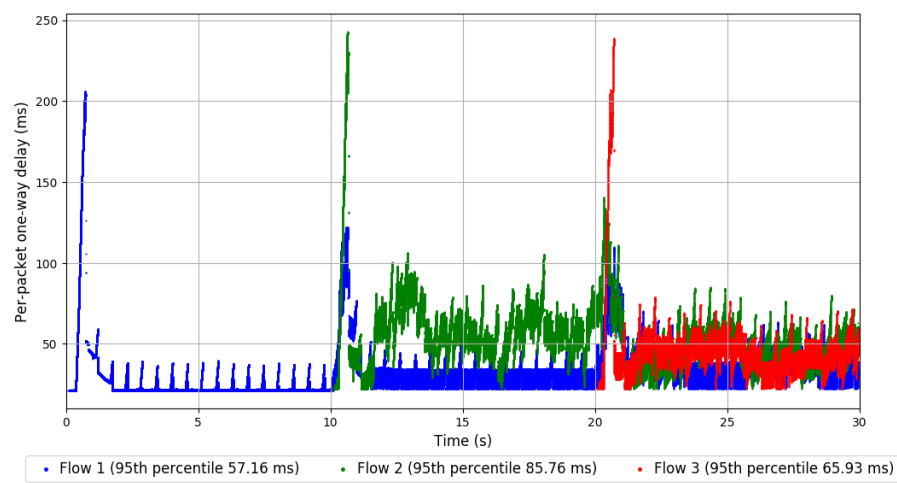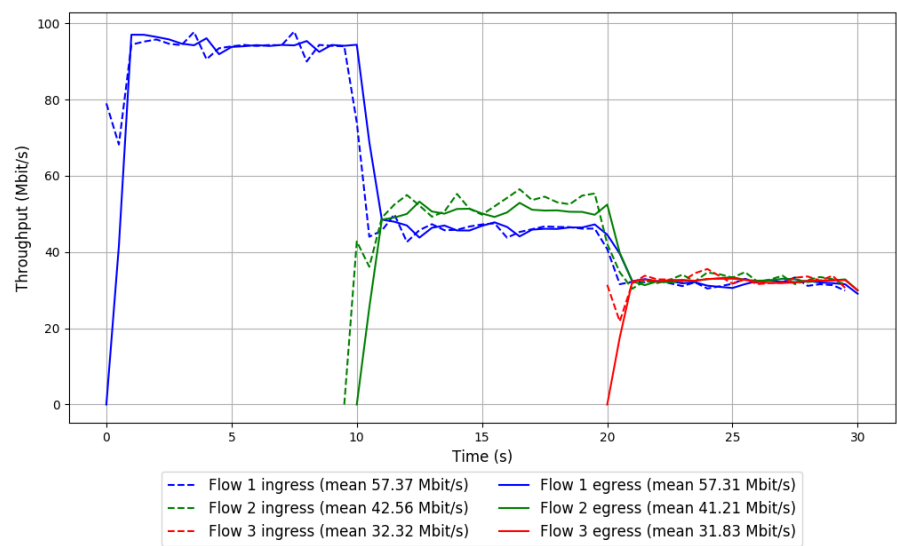
Run 1: Report of FillP — Data Link

- - - Flow 1 ingress (mean 62.41 Mbit/s) ——— Flow 1 egress (mean 62.37 Mbit/s)
- - - Flow 2 ingress (mean 39.19 Mbit/s) ——— Flow 2 egress (mean 37.64 Mbit/s)
- - - Flow 3 ingress (mean 25.66 Mbit/s) ——— Flow 3 egress (mean 24.33 Mbit/s)

• Flow 1 (95th percentile 48.45 ms)   • Flow 2 (95th percentile 93.78 ms)   • Flow 3 (95th percentile 101.85 ms)
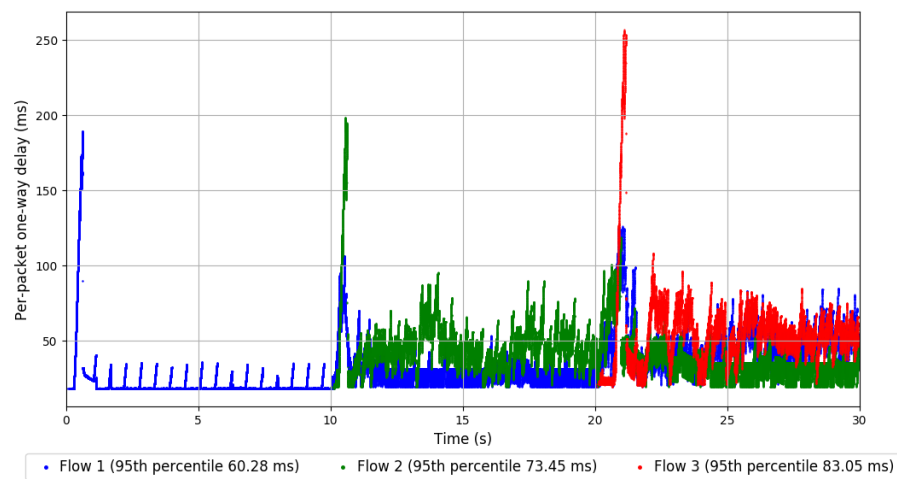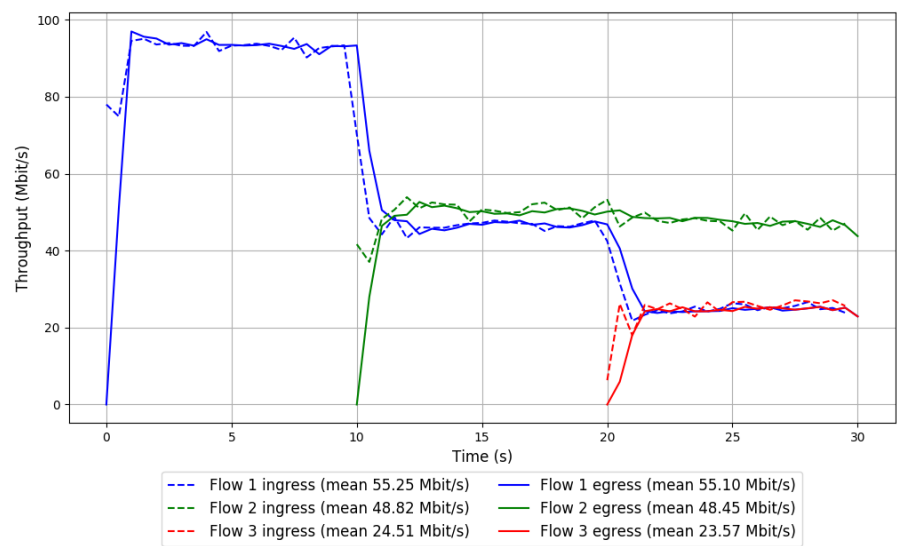
```
Run 2: Statistics of FillP

Start at: 2018-11-15 11:33:08
End at: 2018-11-15 11:33:38
Local clock offset: 1.936 ms
Remote clock offset: -4.016 ms


# Below is generated by plot.py at 2018-11-15 13:02:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.07 Mbit/s
95th percentile per-packet one-way delay: 83.452 ms
Loss rate: 1.25%
-- Flow 1:
Average throughput: 61.88 Mbit/s
95th percentile per-packet one-way delay: 47.083 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 37.60 Mbit/s
95th percentile per-packet one-way delay: 98.945 ms
Loss rate: 3.35%
-- Flow 3:
Average throughput: 24.62 Mbit/s
95th percentile per-packet one-way delay: 96.538 ms
Loss rate: 3.45%
```
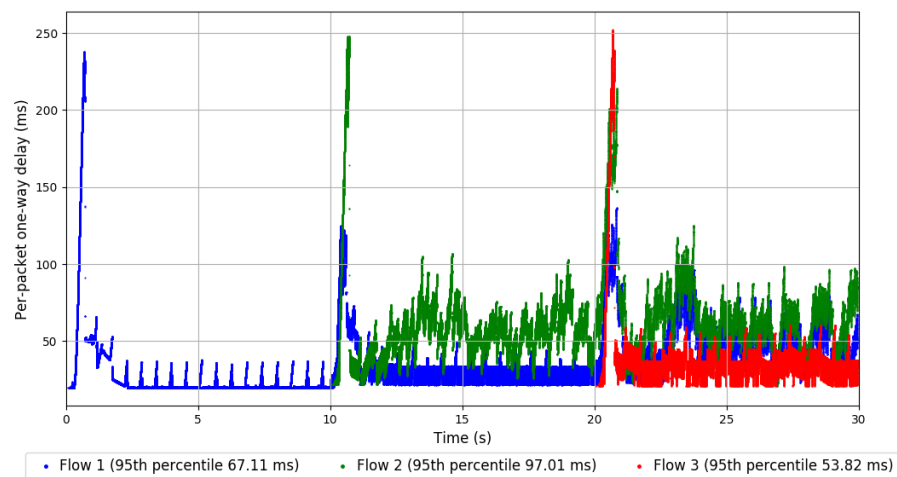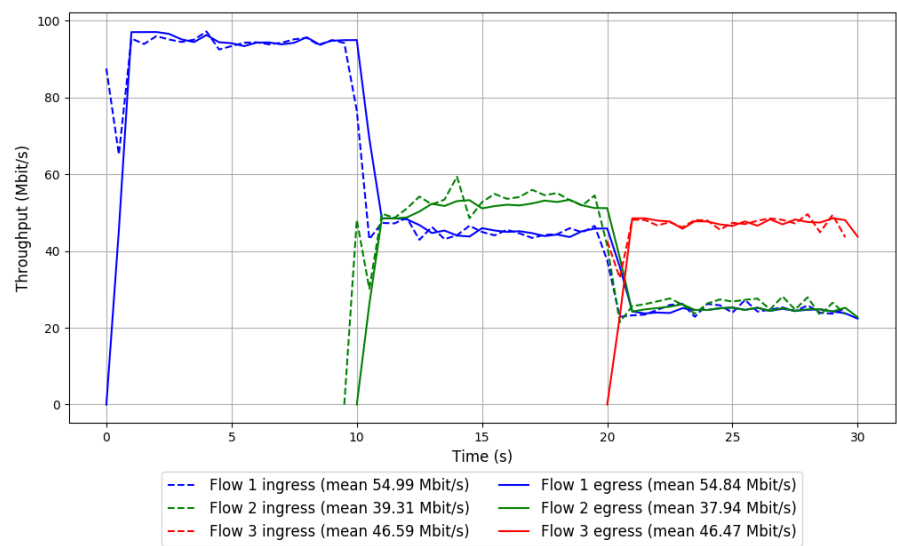
Run 2: Report of FillP — Data Link

- - - Flow 1 ingress (mean 61.90 Mbit/s) —— Flow 1 egress (mean 61.88 Mbit/s)
- - - Flow 2 ingress (mean 38.86 Mbit/s) —— Flow 2 egress (mean 37.60 Mbit/s)
- - - Flow 3 ingress (mean 25.45 Mbit/s) —— Flow 3 egress (mean 24.62 Mbit/s)

• Flow 1 (95th percentile 47.08 ms)   • Flow 2 (95th percentile 98.94 ms)   • Flow 3 (95th percentile 96.54 ms)

```
Run 3: Statistics of FillP

Start at: 2018-11-15 11:56:18
End at: 2018-11-15 11:56:48
Local clock offset: 3.788 ms
Remote clock offset: -4.67 ms

# Below is generated by plot.py at 2018-11-15 13:02:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.32 Mbit/s
95th percentile per-packet one-way delay: 77.286 ms
Loss rate: 1.24%
-- Flow 1:
Average throughput: 57.31 Mbit/s
95th percentile per-packet one-way delay: 57.157 ms
Loss rate: 0.16%
-- Flow 2:
Average throughput: 41.21 Mbit/s
95th percentile per-packet one-way delay: 85.756 ms
Loss rate: 3.21%
-- Flow 3:
Average throughput: 31.83 Mbit/s
95th percentile per-packet one-way delay: 65.928 ms
Loss rate: 1.80%
```
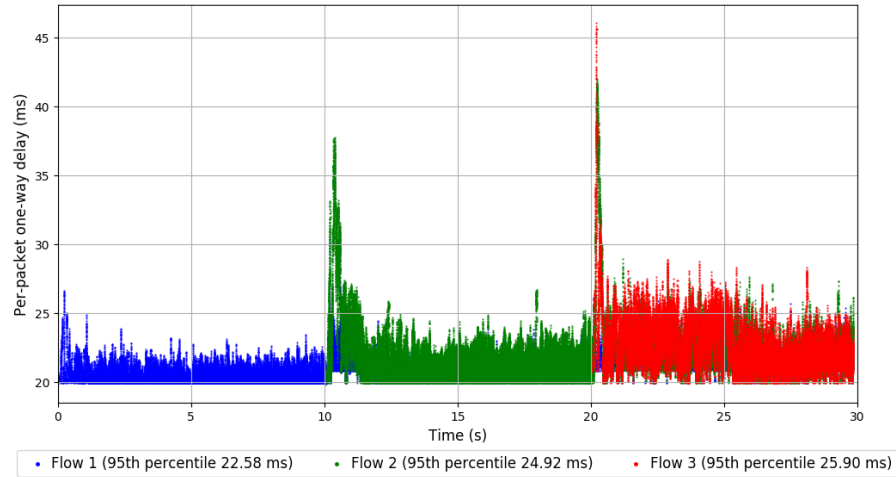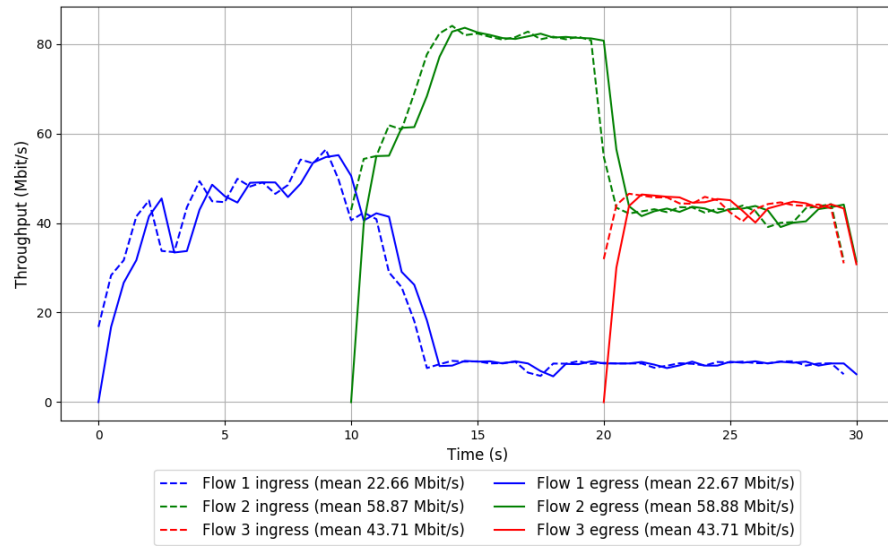
Run 3: Report of FillP — Data Link

```
Run 4: Statistics of FillP

Start at: 2018-11-15 12:18:03
End at: 2018-11-15 12:18:33
Local clock offset: 3.056 ms
Remote clock offset: -2.051 ms


# Below is generated by plot.py at 2018-11-15 13:02:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.18 Mbit/s
95th percentile per-packet one-way delay: 71.213 ms
Loss rate: 0.81%
-- Flow 1:
Average throughput: 55.10 Mbit/s
95th percentile per-packet one-way delay: 60.280 ms
Loss rate: 0.32%
-- Flow 2:
Average throughput: 48.45 Mbit/s
95th percentile per-packet one-way delay: 73.447 ms
Loss rate: 0.81%
-- Flow 3:
Average throughput: 23.57 Mbit/s
95th percentile per-packet one-way delay: 83.049 ms
Loss rate: 4.08%
```
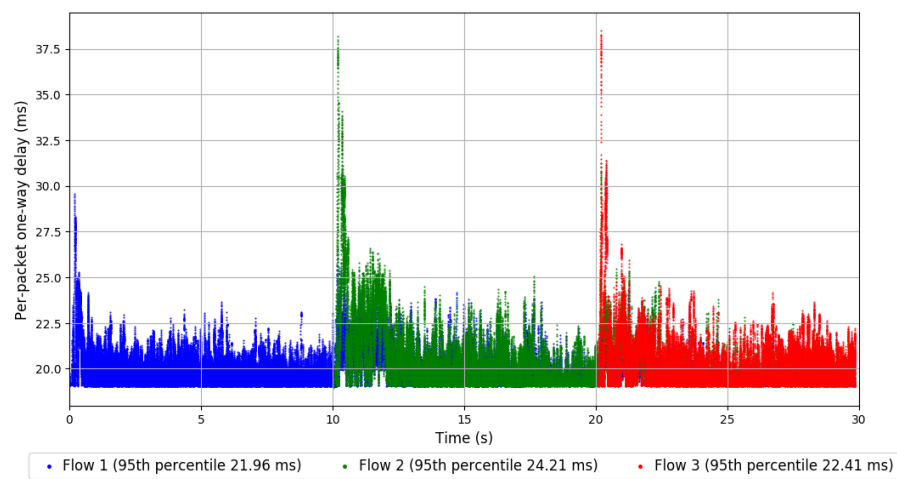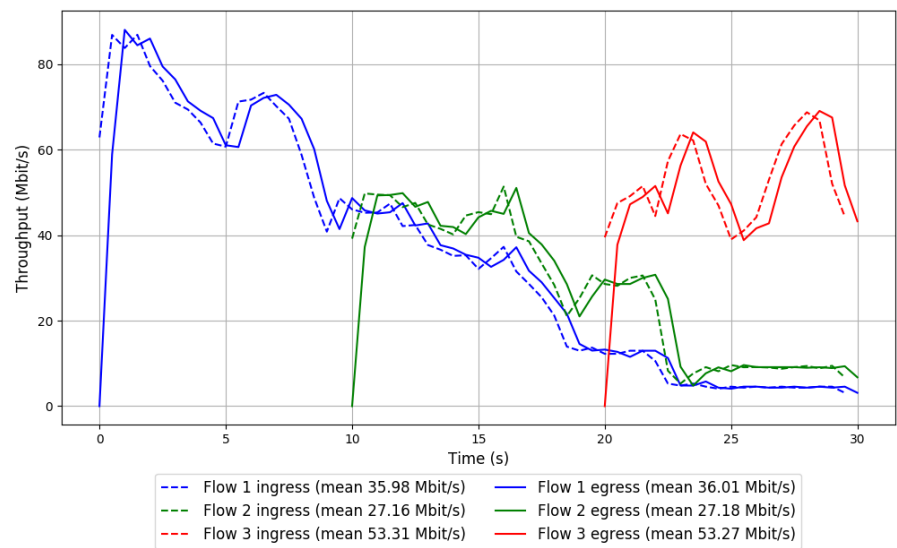
Run 4: Report of FillP — Data Link

```
Run 5: Statistics of FillP

Start at: 2018-11-15 12:39:52
End at: 2018-11-15 12:40:22
Local clock offset: 1.524 ms
Remote clock offset: -4.418 ms


# Below is generated by plot.py at 2018-11-15 13:02:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.52 Mbit/s
95th percentile per-packet one-way delay: 82.939 ms
Loss rate: 1.21%
-- Flow 1:
Average throughput: 54.84 Mbit/s
95th percentile per-packet one-way delay: 67.105 ms
Loss rate: 0.35%
-- Flow 2:
Average throughput: 37.94 Mbit/s
95th percentile per-packet one-way delay: 97.013 ms
Loss rate: 3.49%
-- Flow 3:
Average throughput: 46.47 Mbit/s
95th percentile per-packet one-way delay: 53.818 ms
Loss rate: 0.43%
```
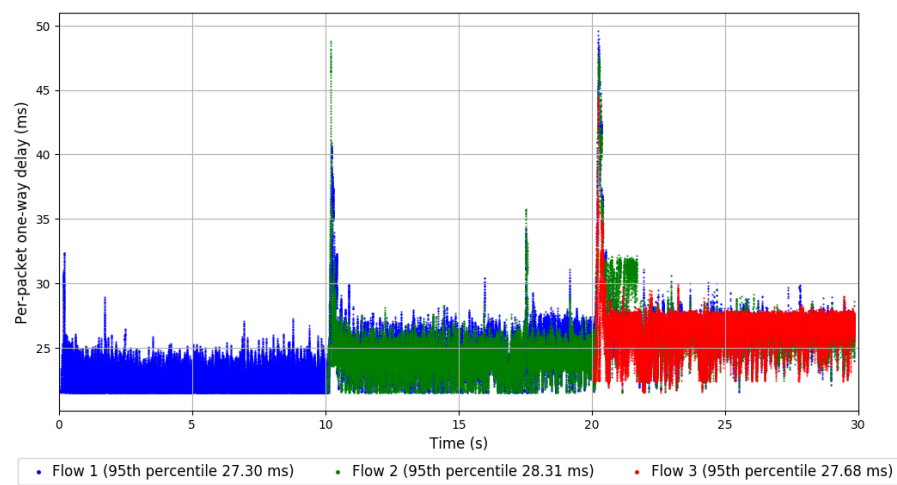
Run 5: Report of FillP — Data Link

Flow 1 ingress (mean 54.99 Mbit/s) --- Flow 1 egress (mean 54.84 Mbit/s)
Flow 2 ingress (mean 39.31 Mbit/s) --- Flow 2 egress (mean 37.94 Mbit/s)
Flow 3 ingress (mean 46.59 Mbit/s) --- Flow 3 egress (mean 46.47 Mbit/s)

Flow 1 (95th percentile 67.11 ms)   Flow 2 (95th percentile 97.01 ms)   Flow 3 (95th percentile 53.82 ms)
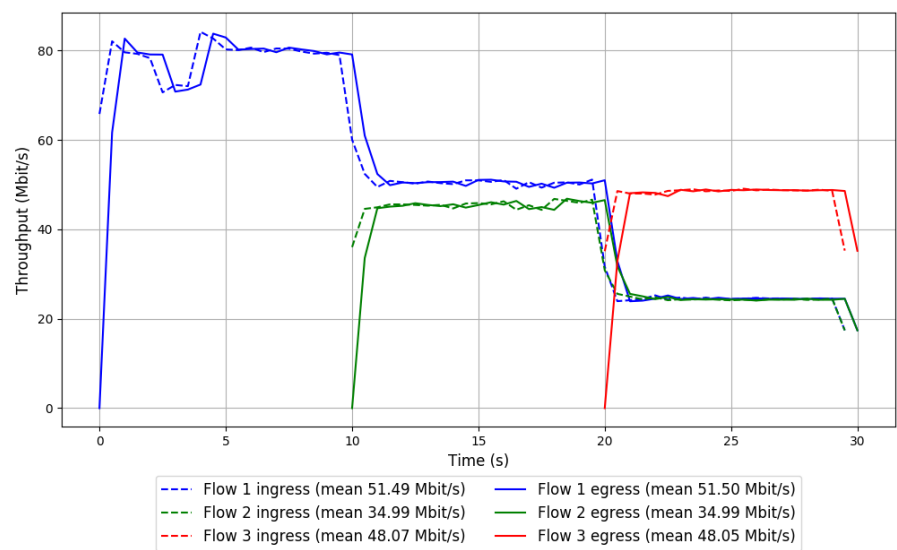
44

```
Run 1: Statistics of Indigo

Start at: 2018-11-15 11:10:42
End at: 2018-11-15 11:11:12
Local clock offset: 2.281 ms
Remote clock offset: -4.178 ms


# Below is generated by plot.py at 2018-11-15 13:02:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 76.16 Mbit/s
95th percentile per-packet one-way delay: 24.931 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 22.67 Mbit/s
95th percentile per-packet one-way delay: 22.581 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 58.88 Mbit/s
95th percentile per-packet one-way delay: 24.923 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 43.71 Mbit/s
95th percentile per-packet one-way delay: 25.896 ms
Loss rate: 0.26%
```
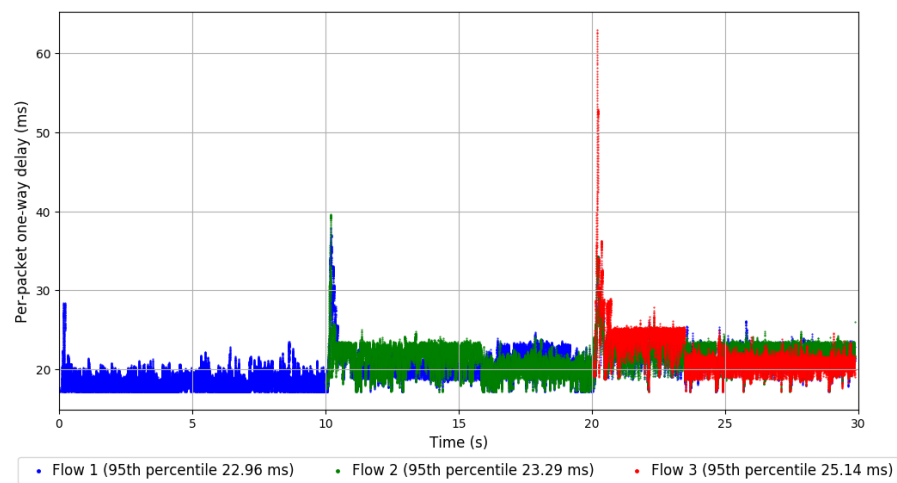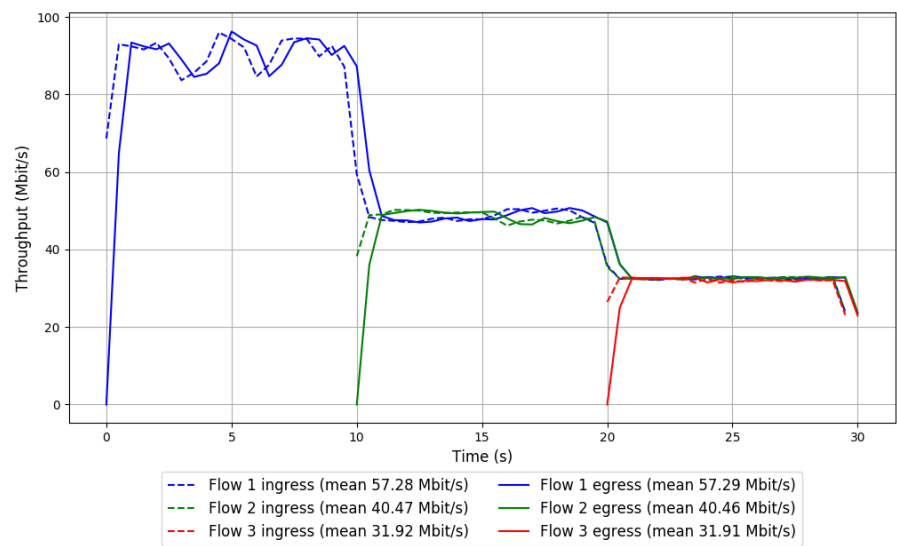
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-11-15 11:34:22
End at: 2018-11-15 11:34:52
Local clock offset: 1.899 ms
Remote clock offset: -4.069 ms

# Below is generated by plot.py at 2018-11-15 13:02:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 71.58 Mbit/s
95th percentile per-packet one-way delay: 22.728 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 36.01 Mbit/s
95th percentile per-packet one-way delay: 21.957 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 27.18 Mbit/s
95th percentile per-packet one-way delay: 24.213 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 53.27 Mbit/s
95th percentile per-packet one-way delay: 22.414 ms
Loss rate: 0.32%
```
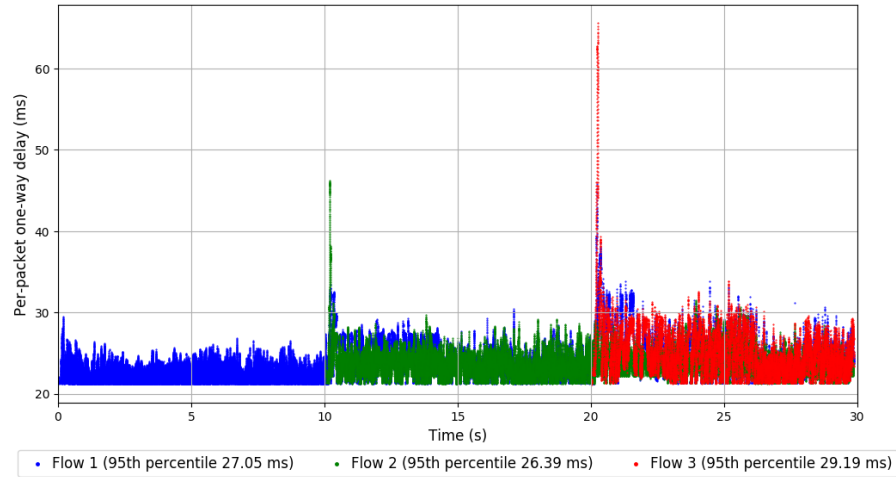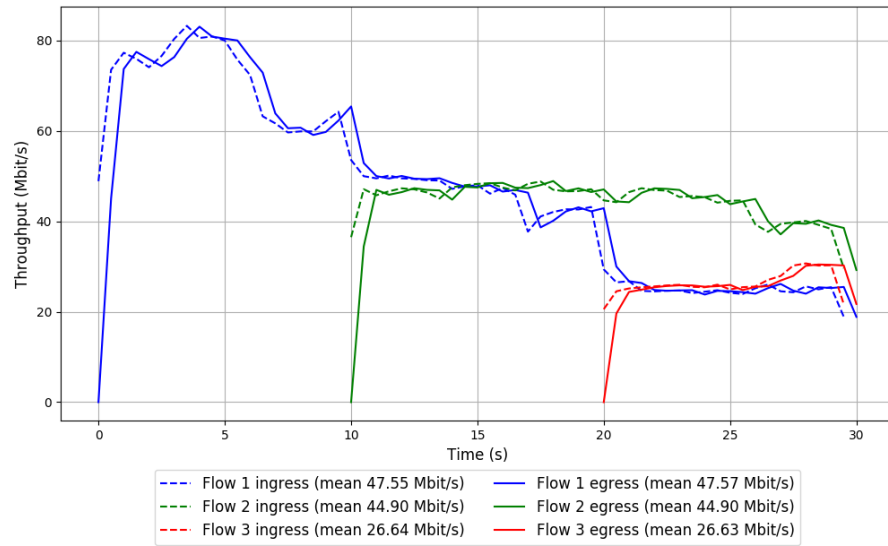
Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2018-11-15 11:57:35
End at: 2018-11-15 11:58:05
Local clock offset: 3.751 ms
Remote clock offset: -4.849 ms


# Below is generated by plot.py at 2018-11-15 13:02:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.53 Mbit/s
95th percentile per-packet one-way delay: 27.536 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 51.50 Mbit/s
95th percentile per-packet one-way delay: 27.299 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 34.99 Mbit/s
95th percentile per-packet one-way delay: 28.313 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 48.05 Mbit/s
95th percentile per-packet one-way delay: 27.679 ms
Loss rate: 0.29%
```
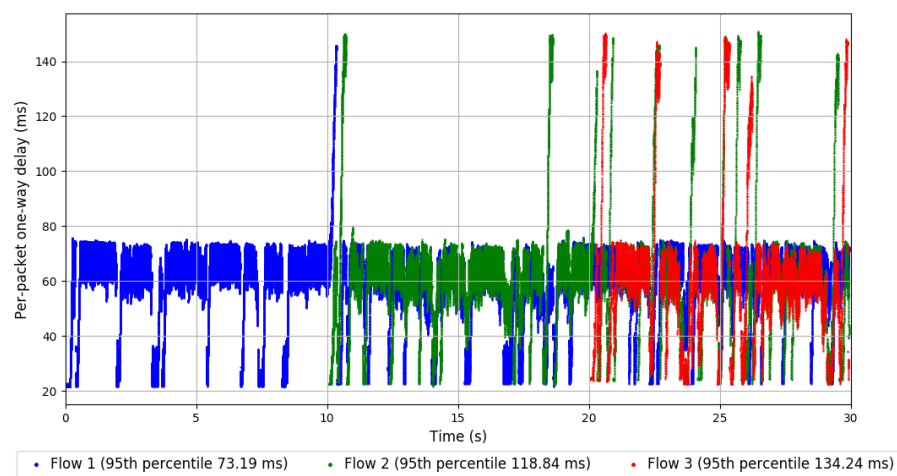
Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-11-15 12:19:12
End at: 2018-11-15 12:19:43
Local clock offset: 1.802 ms
Remote clock offset: -2.358 ms


# Below is generated by plot.py at 2018-11-15 13:02:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.70 Mbit/s
95th percentile per-packet one-way delay: 23.382 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 57.29 Mbit/s
95th percentile per-packet one-way delay: 22.956 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 40.46 Mbit/s
95th percentile per-packet one-way delay: 23.289 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 31.91 Mbit/s
95th percentile per-packet one-way delay: 25.140 ms
Loss rate: 0.26%
```
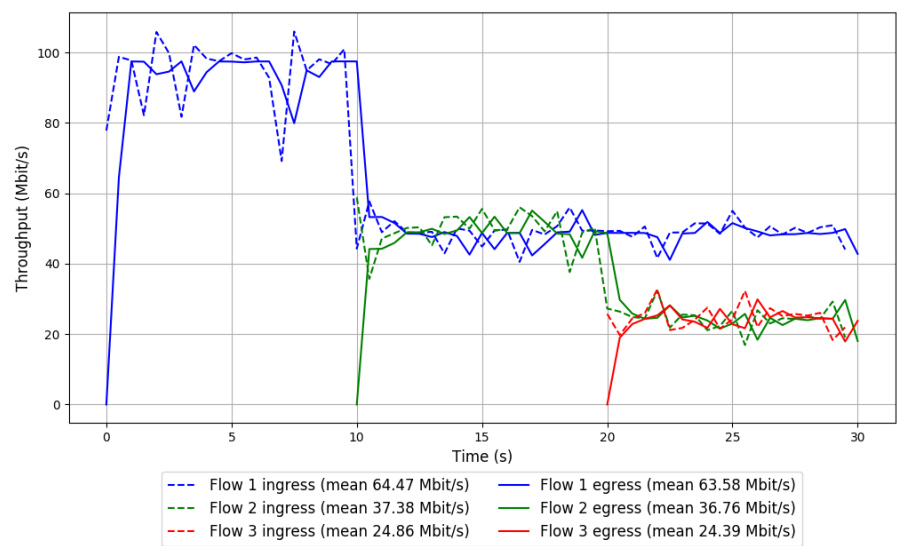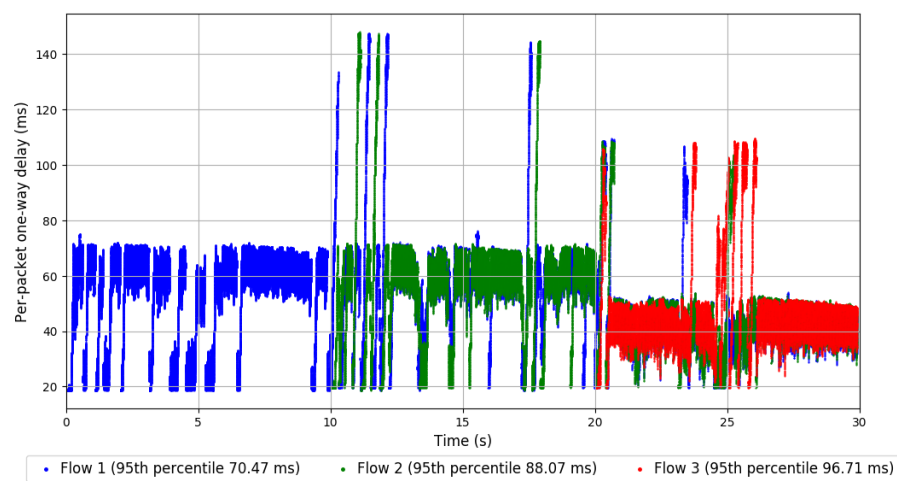
Run 4: Report of Indigo — Data Link

Flow 1 ingress (mean 57.28 Mbit/s) --- Flow 1 egress (mean 57.29 Mbit/s)
Flow 2 ingress (mean 40.47 Mbit/s) --- Flow 2 egress (mean 40.46 Mbit/s)
Flow 3 ingress (mean 31.92 Mbit/s) --- Flow 3 egress (mean 31.91 Mbit/s)

Flow 1 (95th percentile 22.96 ms)   Flow 2 (95th percentile 23.29 ms)   Flow 3 (95th percentile 25.14 ms)

```
Run 5: Statistics of Indigo

Start at: 2018-11-15 12:41:09
End at: 2018-11-15 12:41:39
Local clock offset: 2.662 ms
Remote clock offset: -4.492 ms


# Below is generated by plot.py at 2018-11-15 13:02:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.16 Mbit/s
95th percentile per-packet one-way delay: 27.250 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 47.57 Mbit/s
95th percentile per-packet one-way delay: 27.054 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 44.90 Mbit/s
95th percentile per-packet one-way delay: 26.395 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 26.63 Mbit/s
95th percentile per-packet one-way delay: 29.189 ms
Loss rate: 0.27%
```

Run 5: Report of Indigo — Data Link

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

Start at: 2018-11-15 11:19:47
End at: 2018-11-15 11:20:17
Local clock offset: 3.097 ms
Remote clock offset: -5.153 ms

# Below is generated by plot.py at 2018-11-15 13:03:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.10 Mbit/s
95th percentile per-packet one-way delay: 73.716 ms
Loss rate: 1.59%
-- Flow 1:
Average throughput: 63.58 Mbit/s
95th percentile per-packet one-way delay: 73.194 ms
Loss rate: 1.46%
-- Flow 2:
Average throughput: 36.76 Mbit/s
95th percentile per-packet one-way delay: 118.842 ms
Loss rate: 1.71%
-- Flow 3:
Average throughput: 24.39 Mbit/s
95th percentile per-packet one-way delay: 134.242 ms
Loss rate: 2.24%
```
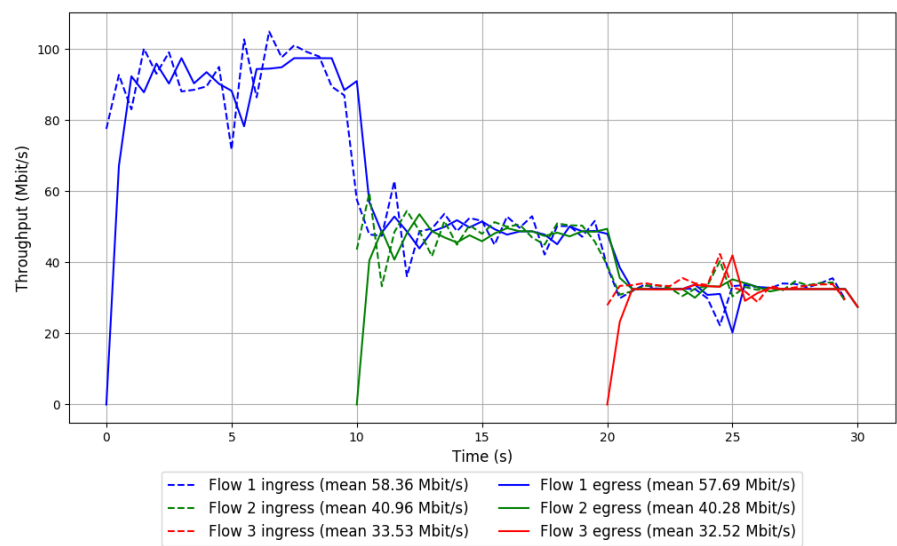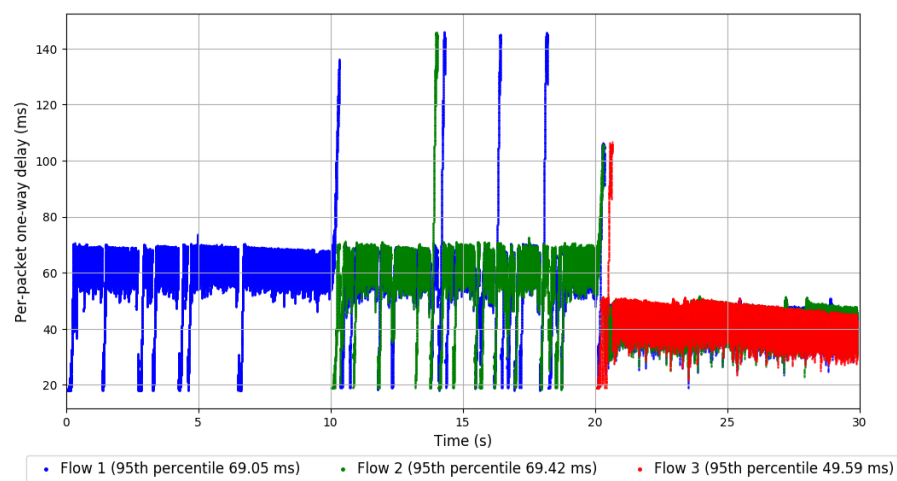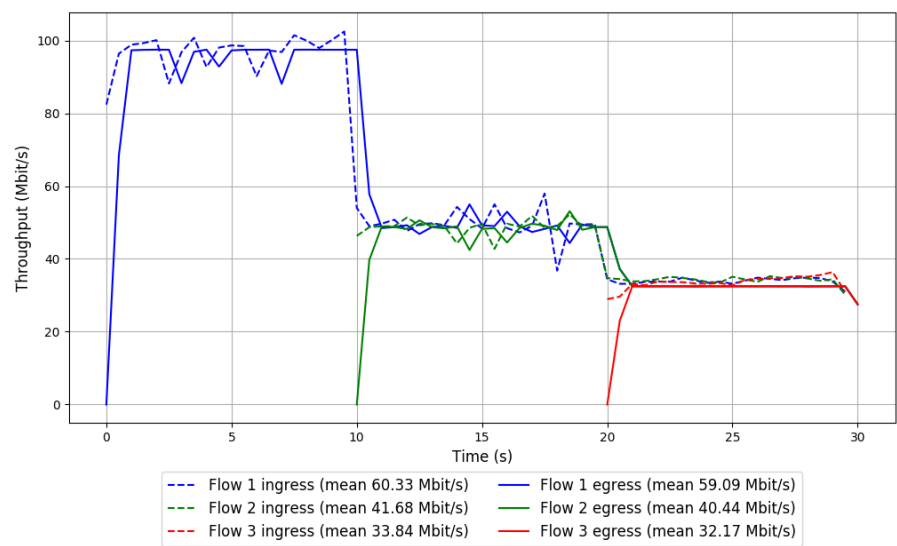
Run 1: Report of Indigo-96d2da3 — Data Link

- - - - Flow 1 ingress (mean 64.47 Mbit/s)   —— Flow 1 egress (mean 63.58 Mbit/s)
- - - - Flow 2 ingress (mean 37.38 Mbit/s)   —— Flow 2 egress (mean 36.76 Mbit/s)
- - - - Flow 3 ingress (mean 24.86 Mbit/s)   —— Flow 3 egress (mean 24.39 Mbit/s)

• Flow 1 (95th percentile 73.19 ms)   • Flow 2 (95th percentile 118.84 ms)   • Flow 3 (95th percentile 134.24 ms)
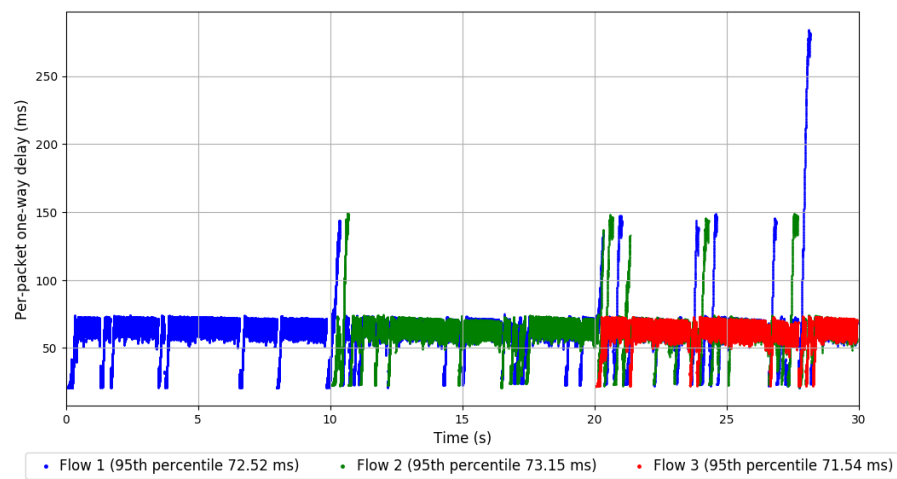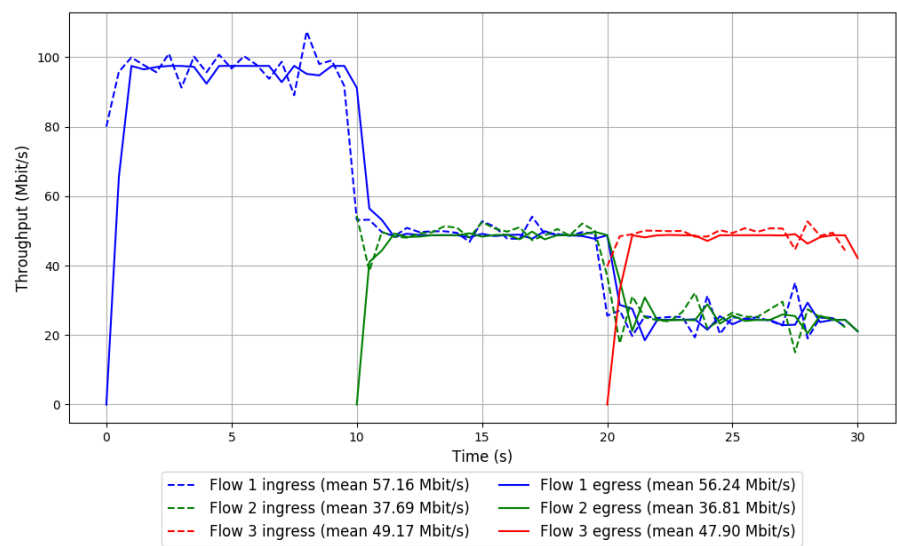
```
Run 2: Statistics of Indigo-96d2da3

Start at: 2018-11-15 11:43:36
End at: 2018-11-15 11:44:06
Local clock offset: 0.997 ms
Remote clock offset: -4.696 ms


# Below is generated by plot.py at 2018-11-15 13:03:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 95.24 Mbit/s
95th percentile per-packet one-way delay: 71.200 ms
Loss rate: 1.61%
-- Flow 1:
Average throughput: 57.69 Mbit/s
95th percentile per-packet one-way delay: 70.473 ms
Loss rate: 1.23%
-- Flow 2:
Average throughput: 40.28 Mbit/s
95th percentile per-packet one-way delay: 88.072 ms
Loss rate: 1.74%
-- Flow 3:
Average throughput: 32.52 Mbit/s
95th percentile per-packet one-way delay: 96.711 ms
Loss rate: 3.27%
```

Run 2: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-11-15 12:06:07
End at: 2018-11-15 12:06:37
Local clock offset: 1.465 ms
Remote clock offset: -3.516 ms


# Below is generated by plot.py at 2018-11-15 13:03:11
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.61 Mbit/s
95th percentile per-packet one-way delay: 69.089 ms
Loss rate: 2.72%
-- Flow 1:
Average throughput: 59.09 Mbit/s
95th percentile per-packet one-way delay: 69.046 ms
Loss rate: 2.14%
-- Flow 2:
Average throughput: 40.44 Mbit/s
95th percentile per-packet one-way delay: 69.420 ms
Loss rate: 3.04%
-- Flow 3:
Average throughput: 32.17 Mbit/s
95th percentile per-packet one-way delay: 49.588 ms
Loss rate: 5.13%
```
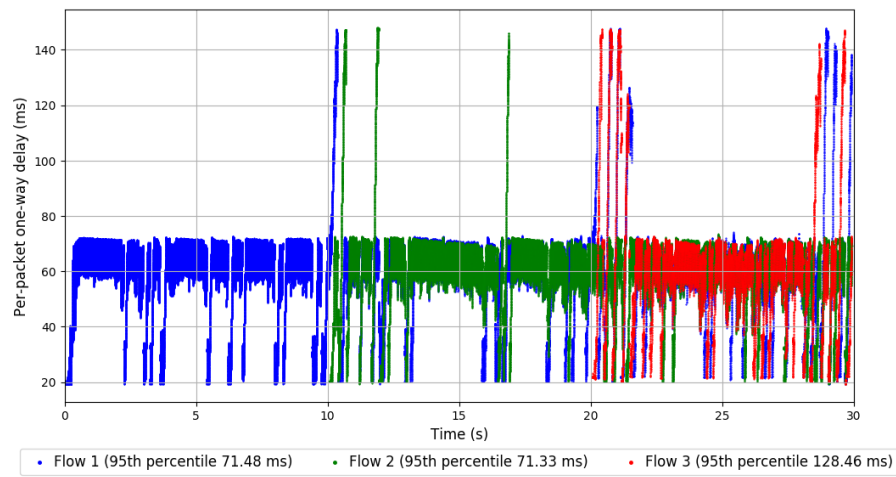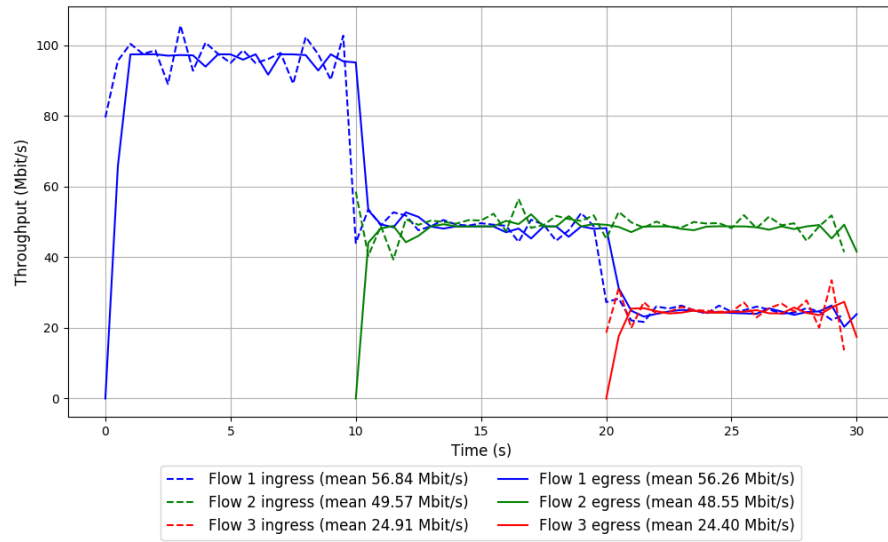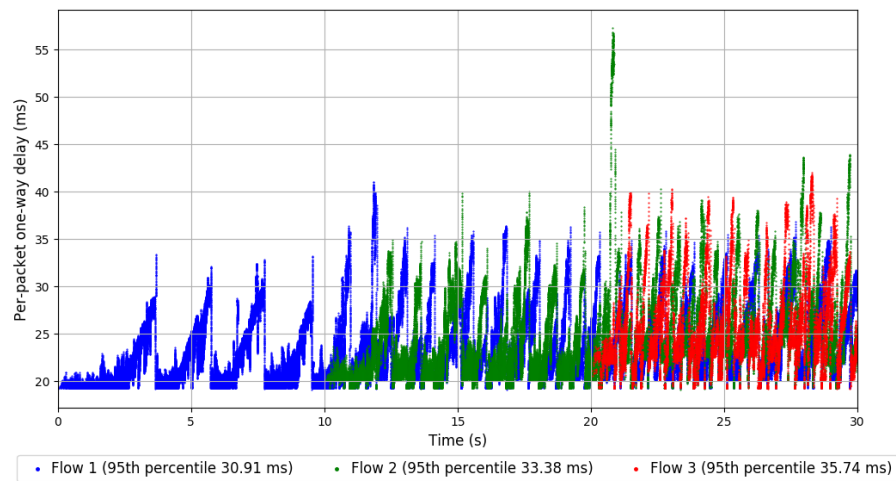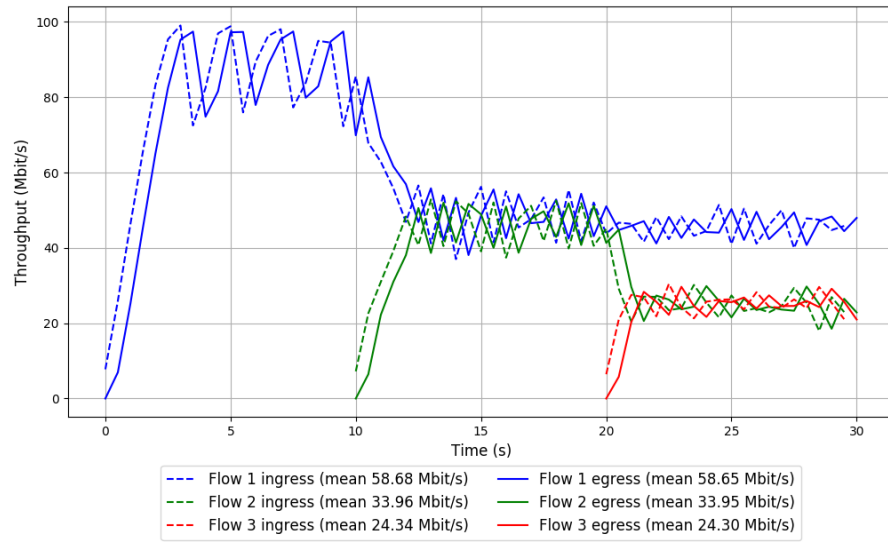
Run 3: Report of Indigo-96d2da3 — Data Link

Flow 1 ingress (mean 60.33 Mbit/s) —— Flow 1 egress (mean 59.09 Mbit/s)
Flow 2 ingress (mean 41.68 Mbit/s) —— Flow 2 egress (mean 40.44 Mbit/s)
Flow 3 ingress (mean 33.84 Mbit/s) —— Flow 3 egress (mean 32.17 Mbit/s)

Flow 1 (95th percentile 69.05 ms)   Flow 2 (95th percentile 69.42 ms)   Flow 3 (95th percentile 49.59 ms)

60

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

Start at: 2018-11-15 12:27:49
End at: 2018-11-15 12:28:19
Local clock offset: 3.078 ms
Remote clock offset: -4.685 ms


# Below is generated by plot.py at 2018-11-15 13:03:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.57 Mbit/s
95th percentile per-packet one-way delay: 72.445 ms
Loss rate: 2.07%
-- Flow 1:
Average throughput: 56.24 Mbit/s
95th percentile per-packet one-way delay: 72.516 ms
Loss rate: 1.69%
-- Flow 2:
Average throughput: 36.81 Mbit/s
95th percentile per-packet one-way delay: 73.154 ms
Loss rate: 2.44%
-- Flow 3:
Average throughput: 47.90 Mbit/s
95th percentile per-packet one-way delay: 71.538 ms
Loss rate: 2.83%
```

Run 4: Report of Indigo-96d2da3 — Data Link
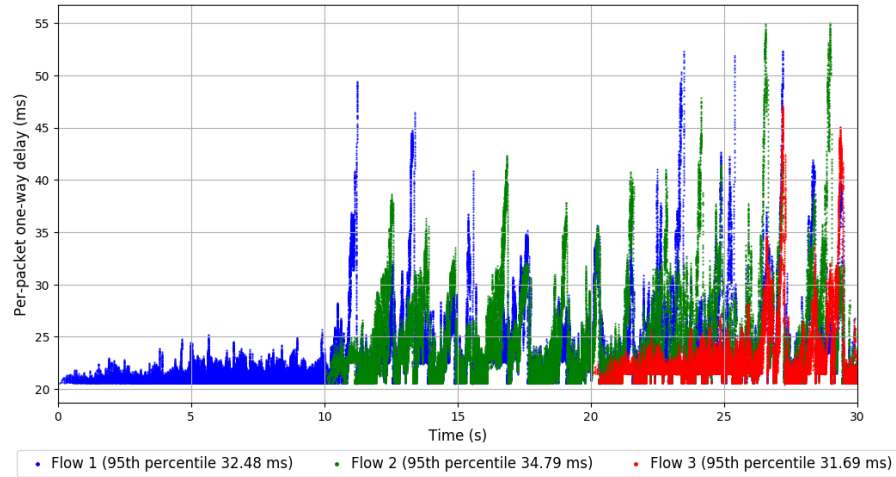

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```
Run 5: Statistics of Indigo-96d2da3

Start at: 2018-11-15 12:49:56
End at: 2018-11-15 12:50:26
Local clock offset: 1.563 ms
Remote clock offset: -3.043 ms


# Below is generated by plot.py at 2018-11-15 13:03:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 96.61 Mbit/s
95th percentile per-packet one-way delay: 71.563 ms
Loss rate: 1.54%
-- Flow 1:
Average throughput: 56.26 Mbit/s
95th percentile per-packet one-way delay: 71.481 ms
Loss rate: 1.09%
-- Flow 2:
Average throughput: 48.55 Mbit/s
95th percentile per-packet one-way delay: 71.327 ms
Loss rate: 2.13%
-- Flow 3:
Average throughput: 24.40 Mbit/s
95th percentile per-packet one-way delay: 128.460 ms
Loss rate: 2.24%
```

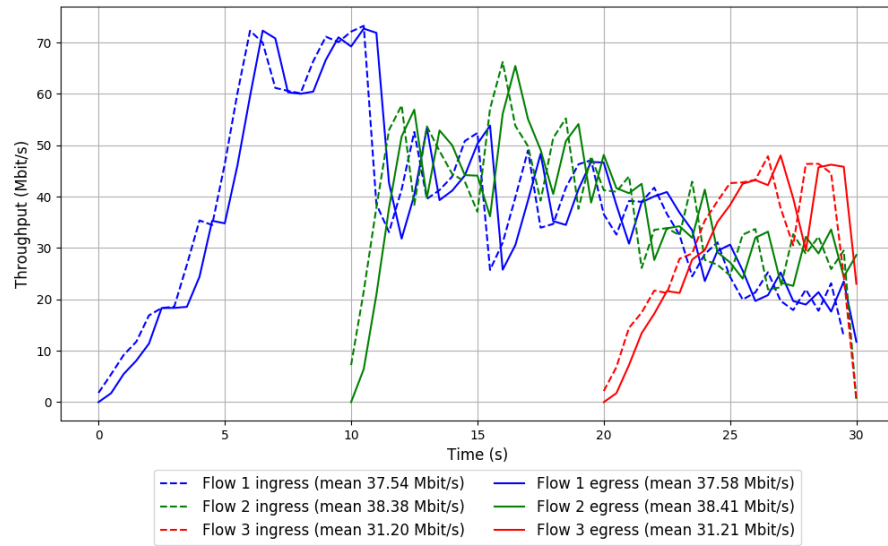Run 5: Report of Indigo-96d2da3 — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-11-15 11:08:06
End at: 2018-11-15 11:08:36
Local clock offset: 2.02 ms
Remote clock offset: -3.696 ms


# Below is generated by plot.py at 2018-11-15 13:03:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.32 Mbit/s
95th percentile per-packet one-way delay: 32.056 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 58.65 Mbit/s
95th percentile per-packet one-way delay: 30.910 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 33.95 Mbit/s
95th percentile per-packet one-way delay: 33.376 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 24.30 Mbit/s
95th percentile per-packet one-way delay: 35.744 ms
Loss rate: 0.34%
```
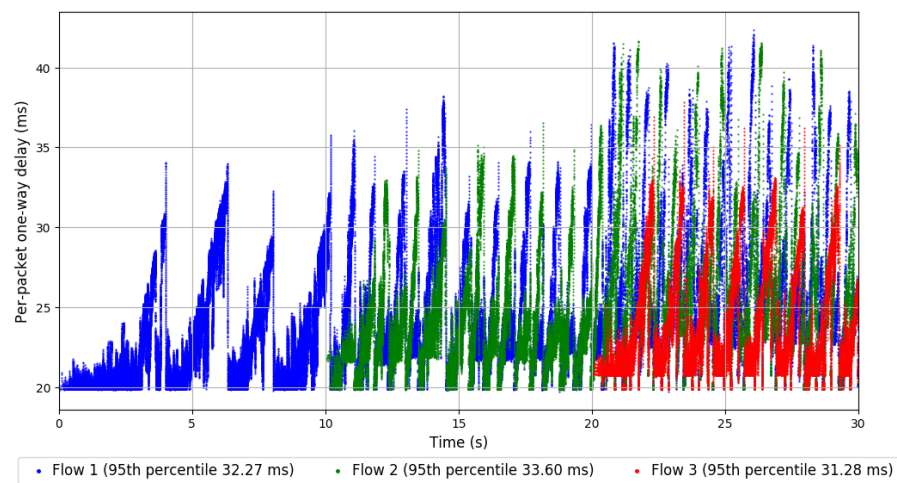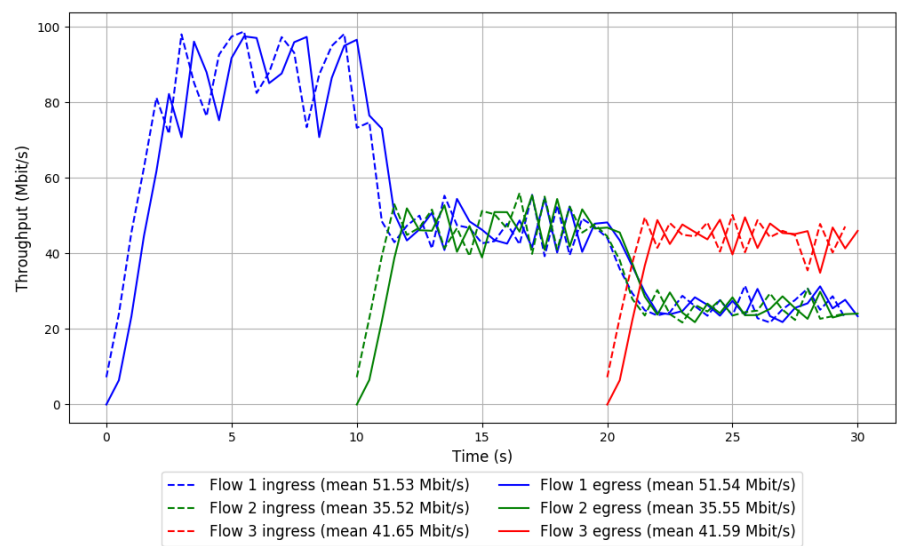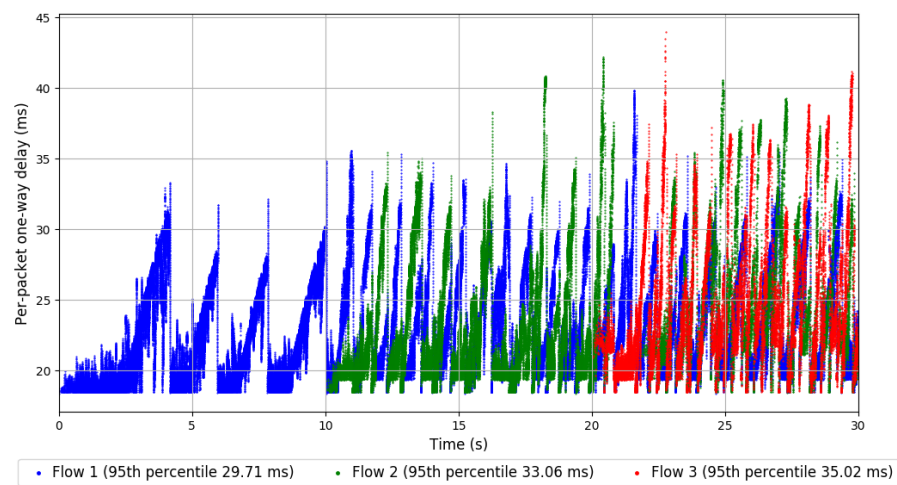
Run 1: Report of LEDBAT — Data Link

Flow 1 ingress (mean 58.68 Mbit/s) ---- Flow 1 egress (mean 58.65 Mbit/s)
Flow 2 ingress (mean 33.96 Mbit/s) ---- Flow 2 egress (mean 33.95 Mbit/s)
Flow 3 ingress (mean 24.34 Mbit/s) ---- Flow 3 egress (mean 24.30 Mbit/s)

Flow 1 (95th percentile 30.91 ms)   Flow 2 (95th percentile 33.38 ms)   Flow 3 (95th percentile 35.74 ms)

```
Run 2: Statistics of LEDBAT

Start at: 2018-11-15 11:31:33
End at: 2018-11-15 11:32:03
Local clock offset: 3.026 ms
Remote clock offset: -4.386 ms


# Below is generated by plot.py at 2018-11-15 13:03:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 73.47 Mbit/s
95th percentile per-packet one-way delay: 33.403 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 37.58 Mbit/s
95th percentile per-packet one-way delay: 32.483 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 38.41 Mbit/s
95th percentile per-packet one-way delay: 34.792 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 31.21 Mbit/s
95th percentile per-packet one-way delay: 31.687 ms
Loss rate: 0.48%
```
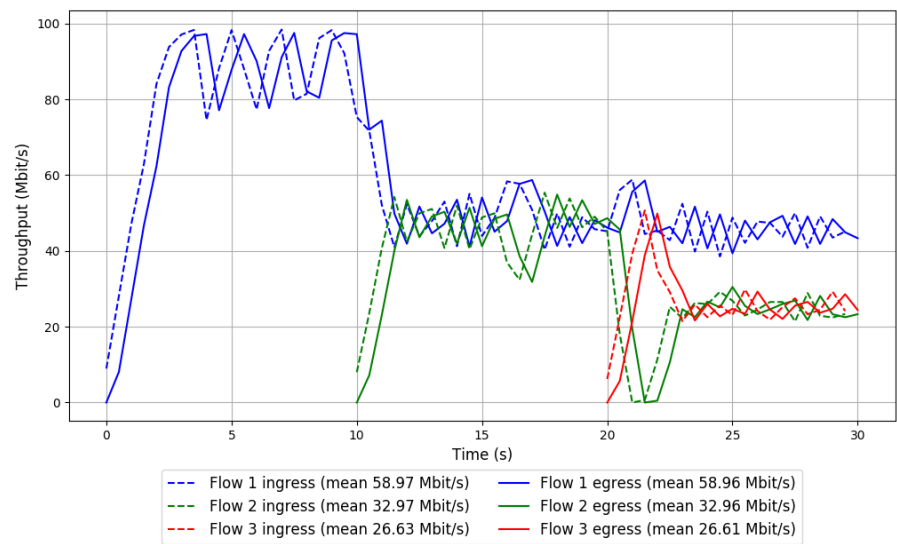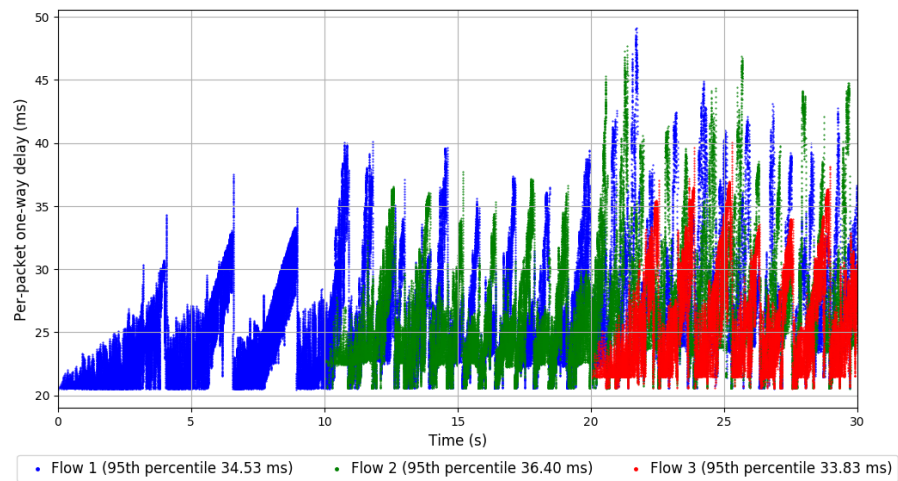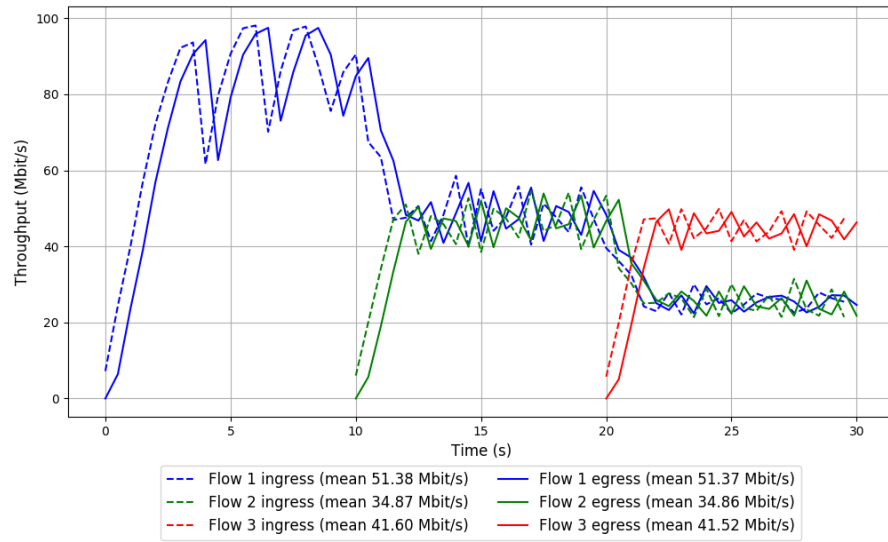
Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-11-15 11:55:01
End at: 2018-11-15 11:55:31
Local clock offset: 1.851 ms
Remote clock offset: -5.064 ms


# Below is generated by plot.py at 2018-11-15 13:04:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.99 Mbit/s
95th percentile per-packet one-way delay: 32.233 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 51.54 Mbit/s
95th percentile per-packet one-way delay: 32.272 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 35.55 Mbit/s
95th percentile per-packet one-way delay: 33.598 ms
Loss rate: 0.11%
-- Flow 3:
Average throughput: 41.59 Mbit/s
95th percentile per-packet one-way delay: 31.280 ms
Loss rate: 0.37%
```

Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2018-11-15 12:16:51
End at: 2018-11-15 12:17:21
Local clock offset: 2.946 ms
Remote clock offset: -2.507 ms


# Below is generated by plot.py at 2018-11-15 13:04:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.74 Mbit/s
95th percentile per-packet one-way delay: 31.010 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 58.96 Mbit/s
95th percentile per-packet one-way delay: 29.714 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 32.96 Mbit/s
95th percentile per-packet one-way delay: 33.056 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 26.61 Mbit/s
95th percentile per-packet one-way delay: 35.023 ms
Loss rate: 0.32%
```
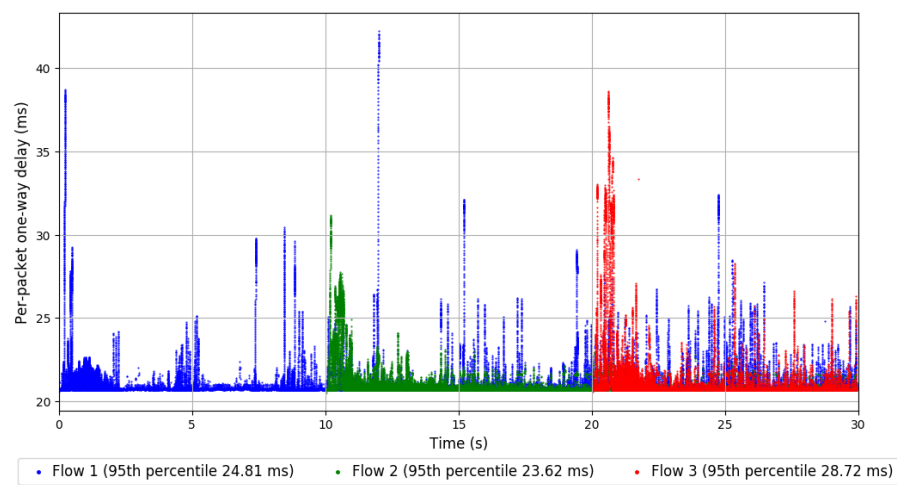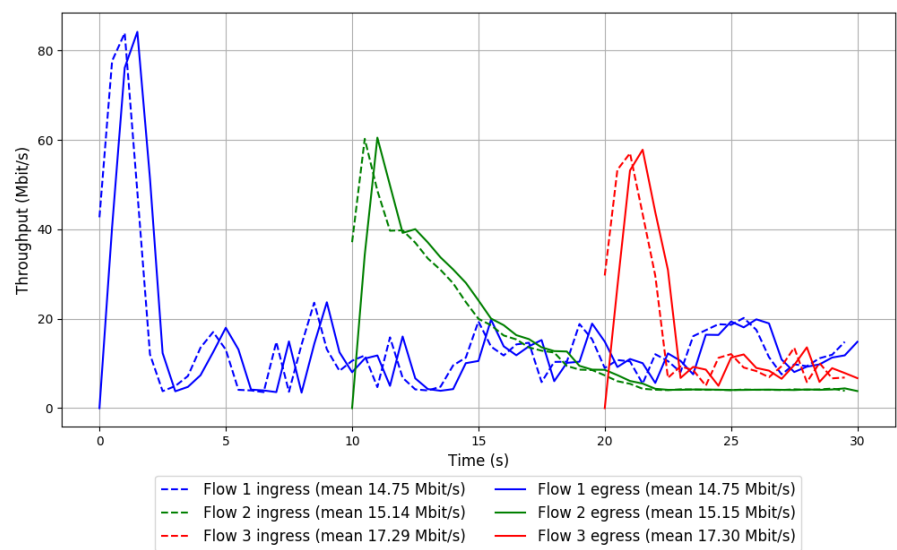
Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2018-11-15 12:38:36
End at: 2018-11-15 12:39:06
Local clock offset: 1.567 ms
Remote clock offset: -5.059 ms

# Below is generated by plot.py at 2018-11-15 13:04:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 88.37 Mbit/s
95th percentile per-packet one-way delay: 35.001 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 51.37 Mbit/s
95th percentile per-packet one-way delay: 34.535 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 34.86 Mbit/s
95th percentile per-packet one-way delay: 36.396 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 41.52 Mbit/s
95th percentile per-packet one-way delay: 33.831 ms
Loss rate: 0.39%
```
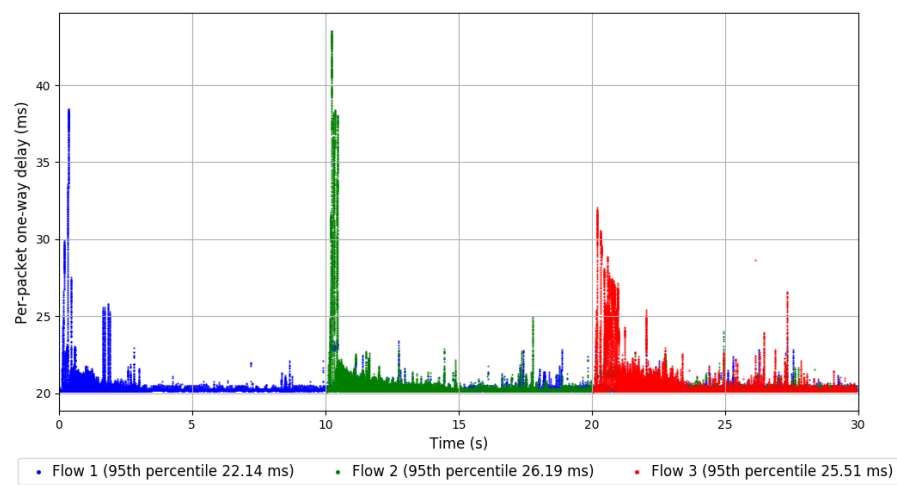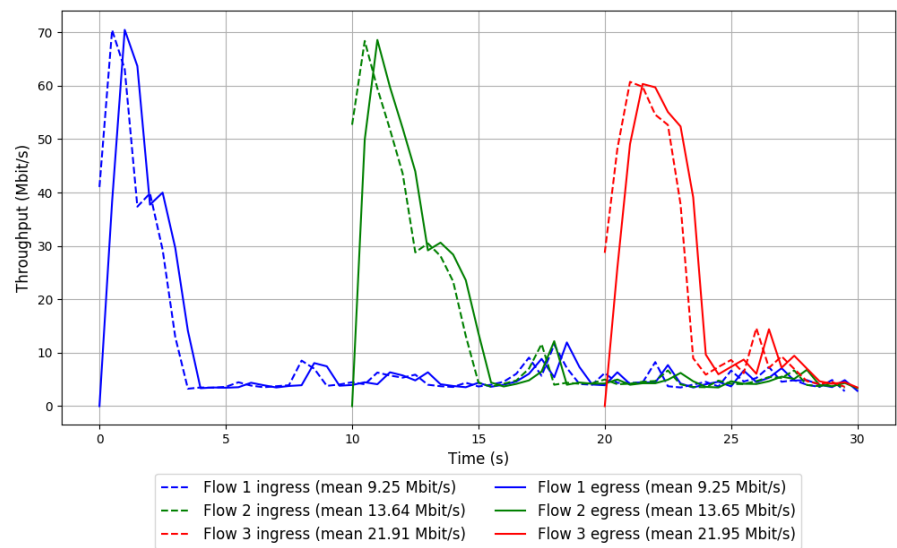
Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-11-15 11:21:17
End at: 2018-11-15 11:21:47
Local clock offset: 2.212 ms
Remote clock offset: -5.075 ms


# Below is generated by plot.py at 2018-11-15 13:04:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 30.56 Mbit/s
95th percentile per-packet one-way delay: 24.995 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 14.75 Mbit/s
95th percentile per-packet one-way delay: 24.808 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 15.15 Mbit/s
95th percentile per-packet one-way delay: 23.620 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 17.30 Mbit/s
95th percentile per-packet one-way delay: 28.716 ms
Loss rate: 0.09%
```
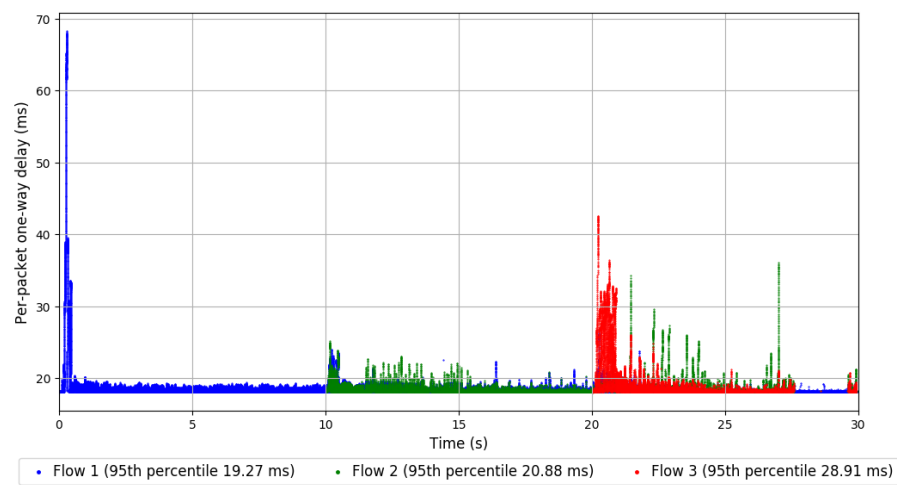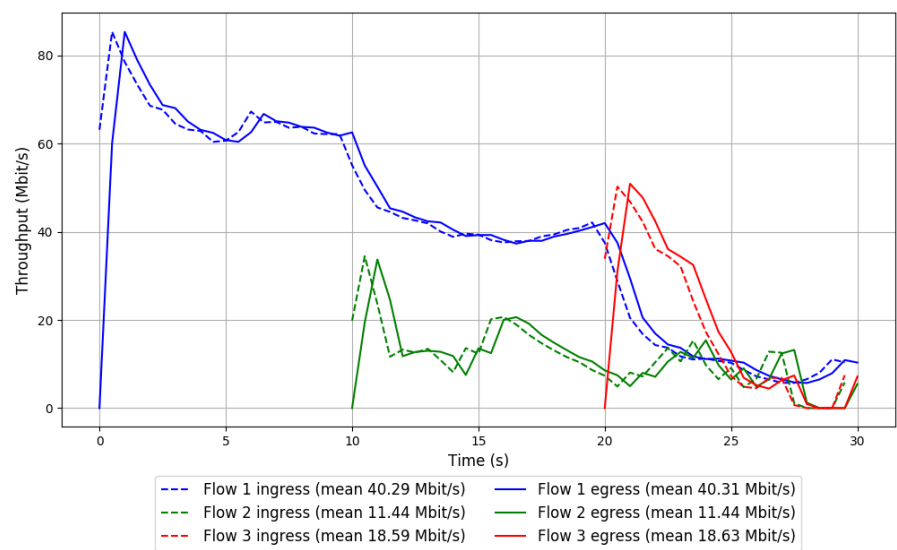
Run 1: Report of Indigo-Muses — Data Link

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-11-15 11:44:55
End at: 2018-11-15 11:45:25
Local clock offset: 1.565 ms
Remote clock offset: -5.631 ms


# Below is generated by plot.py at 2018-11-15 13:04:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 25.59 Mbit/s
95th percentile per-packet one-way delay: 24.574 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 9.25 Mbit/s
95th percentile per-packet one-way delay: 22.139 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 13.65 Mbit/s
95th percentile per-packet one-way delay: 26.189 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 21.95 Mbit/s
95th percentile per-packet one-way delay: 25.512 ms
Loss rate: 0.07%
```
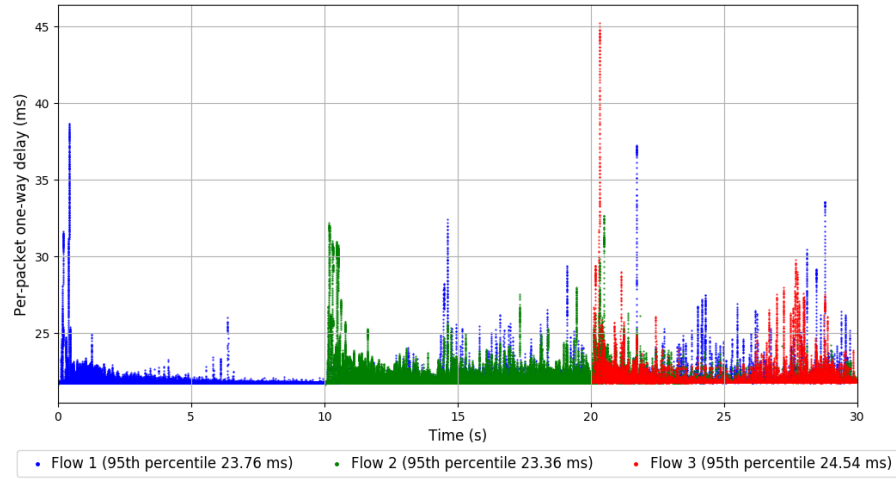
Run 2: Report of Indigo-Muses — Data Link

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-11-15 12:07:19
End at: 2018-11-15 12:07:49
Local clock offset: 1.668 ms
Remote clock offset: -3.574 ms


# Below is generated by plot.py at 2018-11-15 13:04:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 54.08 Mbit/s
95th percentile per-packet one-way delay: 20.329 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 40.31 Mbit/s
95th percentile per-packet one-way delay: 19.270 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 11.44 Mbit/s
95th percentile per-packet one-way delay: 20.882 ms
Loss rate: 0.08%
-- Flow 3:
Average throughput: 18.63 Mbit/s
95th percentile per-packet one-way delay: 28.907 ms
Loss rate: 0.08%
```

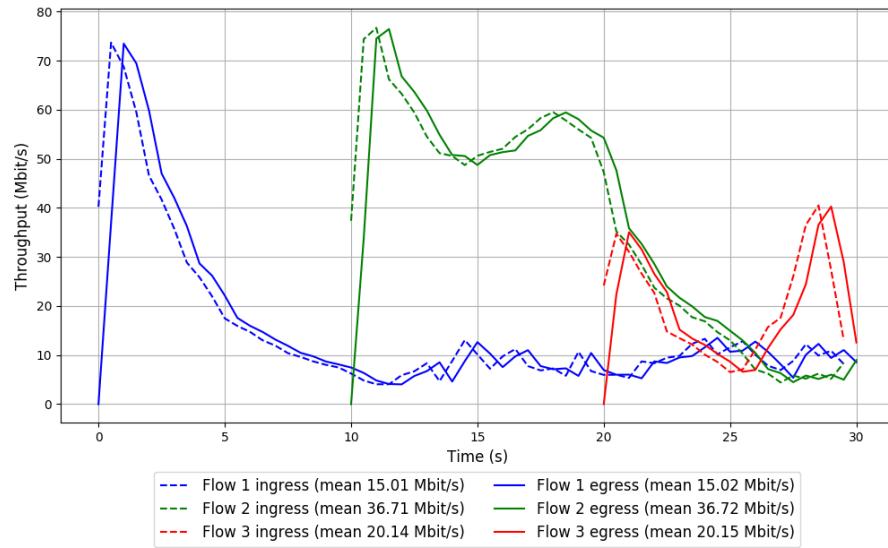Run 3: Report of Indigo-Muses — Data Link

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-11-15 12:29:01
End at: 2018-11-15 12:29:31
Local clock offset: 3.922 ms
Remote clock offset: -4.707 ms


# Below is generated by plot.py at 2018-11-15 13:04:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 46.12 Mbit/s
95th percentile per-packet one-way delay: 23.621 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 15.02 Mbit/s
95th percentile per-packet one-way delay: 23.761 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 36.72 Mbit/s
95th percentile per-packet one-way delay: 23.355 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 20.15 Mbit/s
95th percentile per-packet one-way delay: 24.539 ms
Loss rate: 0.18%
```

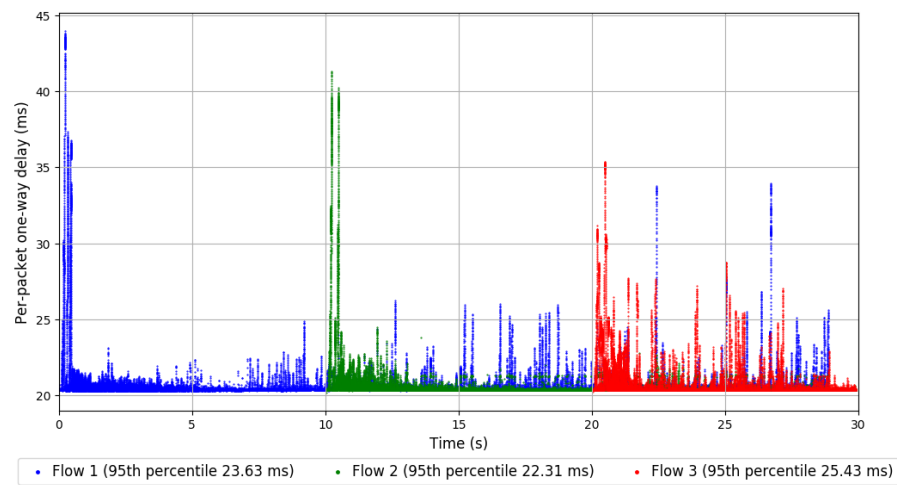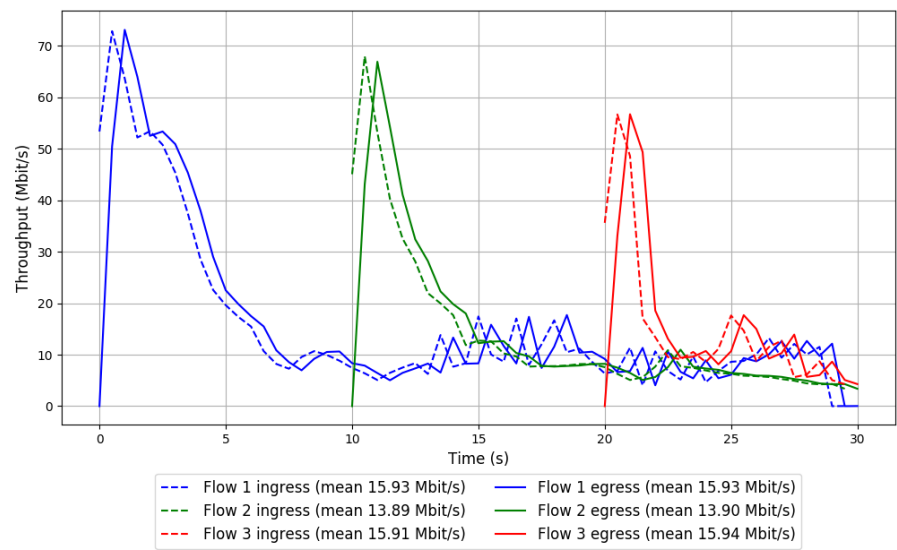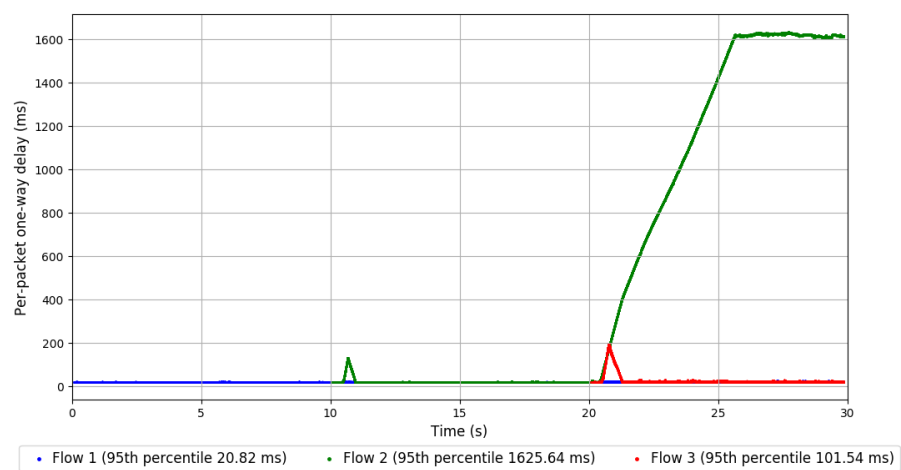Run 4: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 15.01 Mbit/s)   Flow 1 egress (mean 15.02 Mbit/s)
Flow 2 ingress (mean 36.71 Mbit/s)   Flow 2 egress (mean 36.72 Mbit/s)
Flow 3 ingress (mean 20.14 Mbit/s)   Flow 3 egress (mean 20.15 Mbit/s)

Flow 1 (95th percentile 23.76 ms)   Flow 2 (95th percentile 23.36 ms)   Flow 3 (95th percentile 24.54 ms)

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-11-15 12:51:09
End at: 2018-11-15 12:51:39
Local clock offset: 2.712 ms
Remote clock offset: -2.846 ms


# Below is generated by plot.py at 2018-11-15 13:04:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 30.43 Mbit/s
95th percentile per-packet one-way delay: 24.042 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 15.93 Mbit/s
95th percentile per-packet one-way delay: 23.634 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 13.90 Mbit/s
95th percentile per-packet one-way delay: 22.307 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 15.94 Mbit/s
95th percentile per-packet one-way delay: 25.432 ms
Loss rate: 0.06%
```

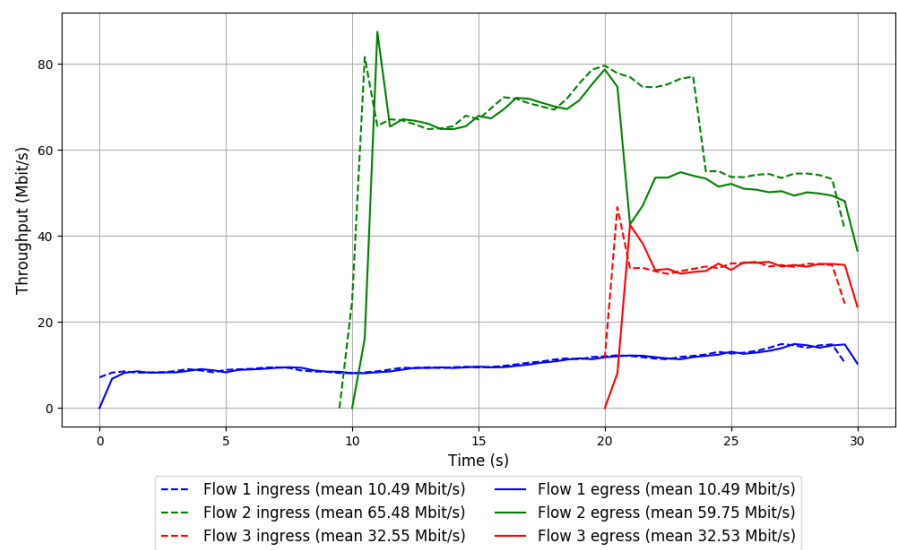Run 5: Report of Indigo-Muses — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-11-15 11:05:28
End at: 2018-11-15 11:05:58
Local clock offset: 1.8 ms
Remote clock offset: -4.31 ms


# Below is generated by plot.py at 2018-11-15 13:04:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 60.91 Mbit/s
95th percentile per-packet one-way delay: 1622.821 ms
Loss rate: 6.04%
-- Flow 1:
Average throughput: 10.49 Mbit/s
95th percentile per-packet one-way delay: 20.817 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 59.75 Mbit/s
95th percentile per-packet one-way delay: 1625.637 ms
Loss rate: 8.85%
-- Flow 3:
Average throughput: 32.53 Mbit/s
95th percentile per-packet one-way delay: 101.539 ms
Loss rate: 0.38%
```

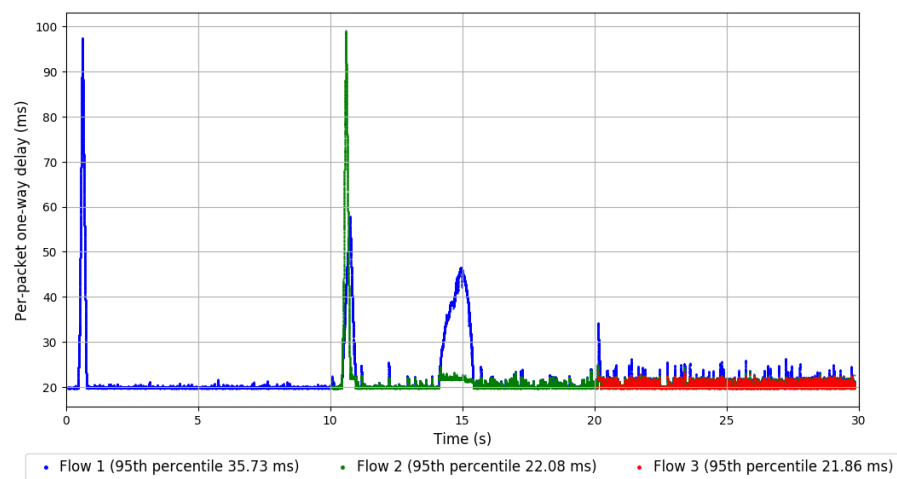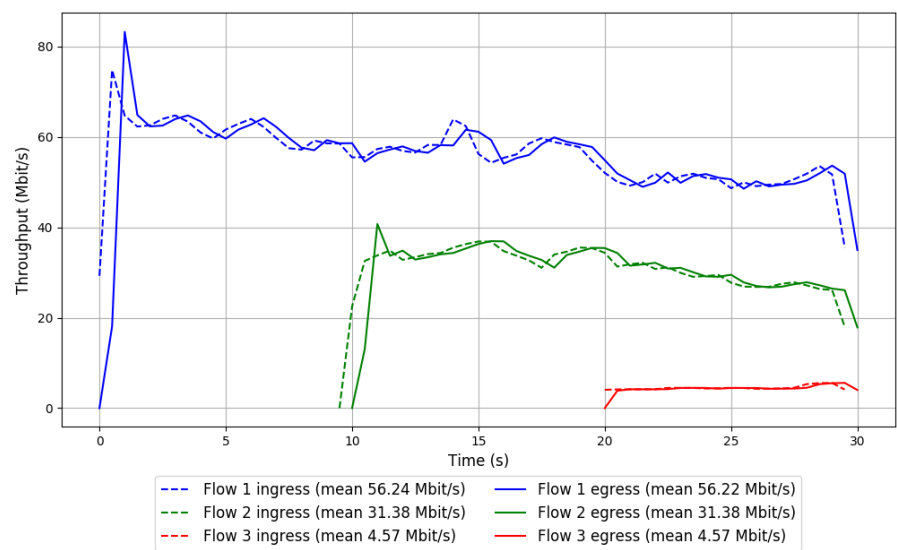Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-11-15 11:29:03
End at: 2018-11-15 11:29:33
Local clock offset: 1.672 ms
Remote clock offset: -4.901 ms


# Below is generated by plot.py at 2018-11-15 13:04:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 78.59 Mbit/s
95th percentile per-packet one-way delay: 31.127 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 56.22 Mbit/s
95th percentile per-packet one-way delay: 35.732 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 31.38 Mbit/s
95th percentile per-packet one-way delay: 22.079 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 4.57 Mbit/s
95th percentile per-packet one-way delay: 21.855 ms
Loss rate: 0.35%
```

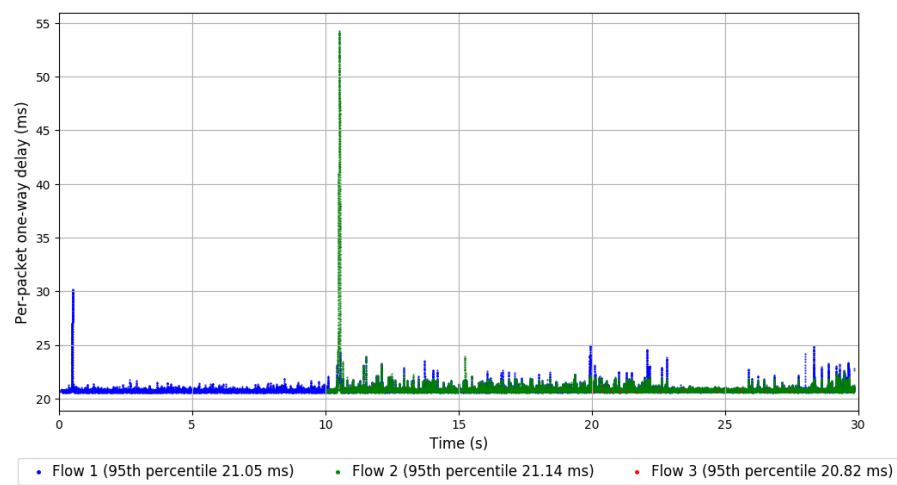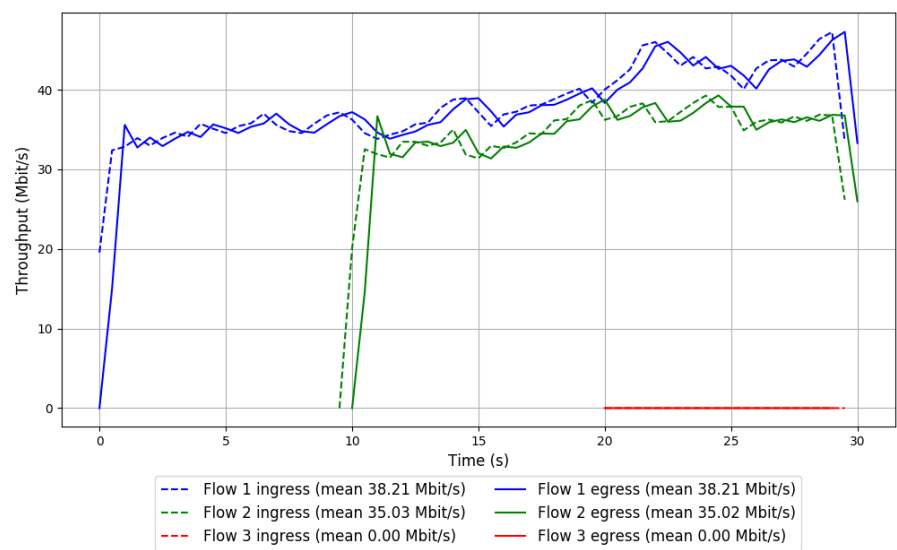Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-11-15 11:52:37
End at: 2018-11-15 11:53:07
Local clock offset: 1.508 ms
Remote clock offset: -6.296 ms


# Below is generated by plot.py at 2018-11-15 13:04:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 61.50 Mbit/s
95th percentile per-packet one-way delay: 21.083 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 38.21 Mbit/s
95th percentile per-packet one-way delay: 21.050 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 35.02 Mbit/s
95th percentile per-packet one-way delay: 21.142 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 20.816 ms
Loss rate: 6.12%
```

Run 3: Report of PCC-Allegro — Data Link

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-11-15 12:14:29
End at: 2018-11-15 12:14:59
Local clock offset: 1.968 ms
Remote clock offset: -6.13 ms


# Below is generated by plot.py at 2018-11-15 13:05:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.31 Mbit/s
95th percentile per-packet one-way delay: 1707.698 ms
Loss rate: 8.18%
-- Flow 1:
Average throughput: 51.35 Mbit/s
95th percentile per-packet one-way delay: 1956.373 ms
Loss rate: 8.54%
-- Flow 2:
Average throughput: 34.05 Mbit/s
95th percentile per-packet one-way delay: 949.910 ms
Loss rate: 8.71%
-- Flow 3:
Average throughput: 31.39 Mbit/s
95th percentile per-packet one-way delay: 389.011 ms
Loss rate: 5.15%
```
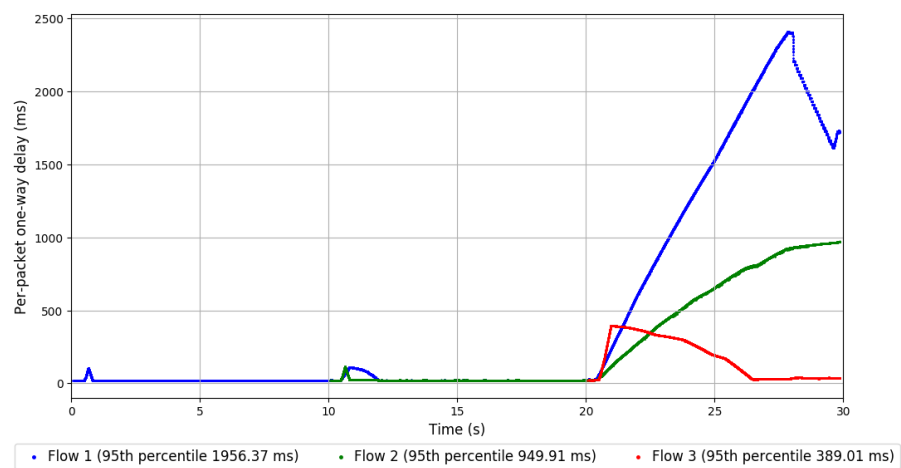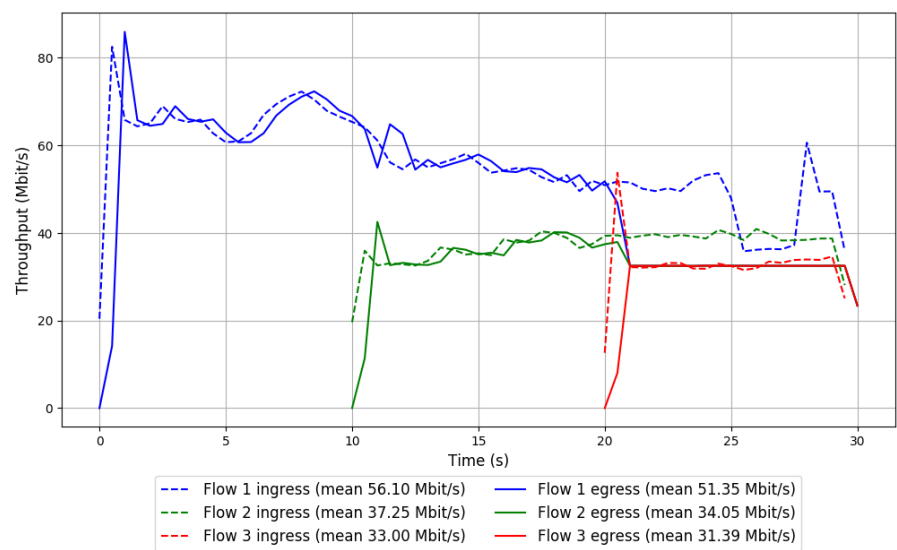
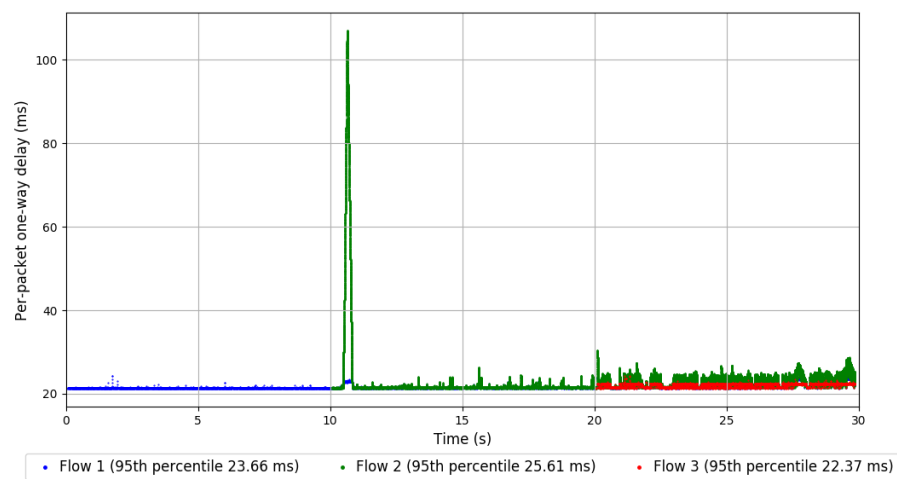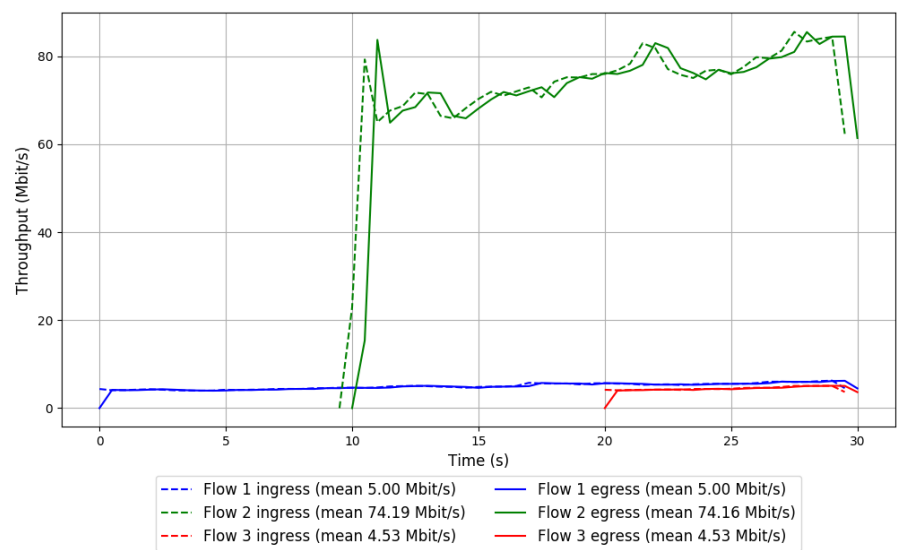Run 4: Report of PCC-Allegro — Data Link

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-11-15 12:36:09
End at: 2018-11-15 12:36:39
Local clock offset: 2.922 ms
Remote clock offset: -4.718 ms


# Below is generated by plot.py at 2018-11-15 13:05:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 55.81 Mbit/s
95th percentile per-packet one-way delay: 25.298 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 5.00 Mbit/s
95th percentile per-packet one-way delay: 23.655 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 74.16 Mbit/s
95th percentile per-packet one-way delay: 25.612 ms
Loss rate: 0.17%
-- Flow 3:
Average throughput: 4.53 Mbit/s
95th percentile per-packet one-way delay: 22.372 ms
Loss rate: 0.28%
```

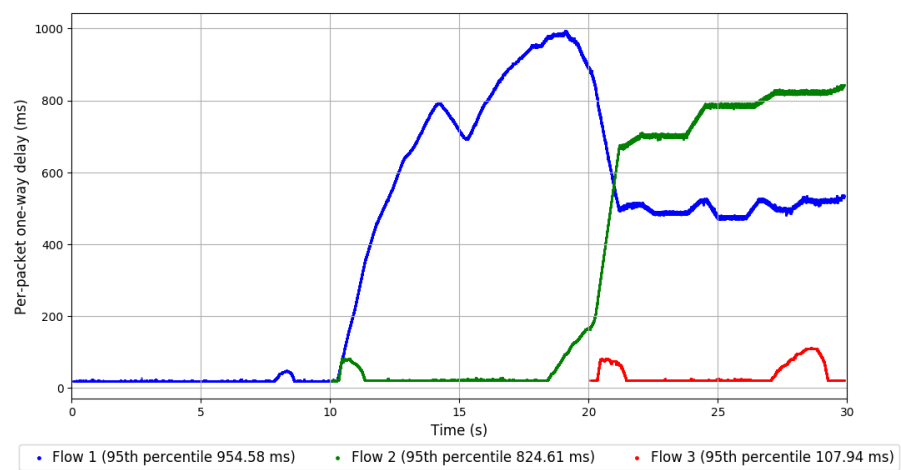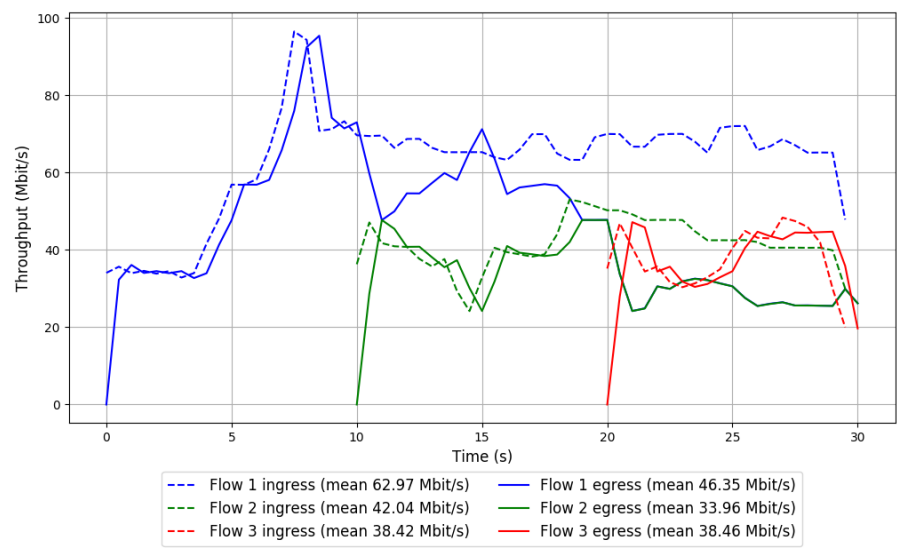Run 5: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2018-11-15 11:24:58
End at: 2018-11-15 11:25:28
Local clock offset: 1.152 ms
Remote clock offset: -4.695 ms


# Below is generated by plot.py at 2018-11-15 13:06:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.62 Mbit/s
95th percentile per-packet one-way delay: 921.357 ms
Loss rate: 21.32%
-- Flow 1:
Average throughput: 46.35 Mbit/s
95th percentile per-packet one-way delay: 954.581 ms
Loss rate: 26.45%
-- Flow 2:
Average throughput: 33.96 Mbit/s
95th percentile per-packet one-way delay: 824.611 ms
Loss rate: 19.35%
-- Flow 3:
Average throughput: 38.46 Mbit/s
95th percentile per-packet one-way delay: 107.936 ms
Loss rate: 0.27%
```

Run 1: Report of PCC-Expr — Data Link

- - - Flow 1 ingress (mean 62.97 Mbit/s) —— Flow 1 egress (mean 46.35 Mbit/s)
- - - Flow 2 ingress (mean 42.04 Mbit/s) —— Flow 2 egress (mean 33.96 Mbit/s)
- - - Flow 3 ingress (mean 38.42 Mbit/s) —— Flow 3 egress (mean 38.46 Mbit/s)

- Flow 1 (95th percentile 954.58 ms)   - Flow 2 (95th percentile 824.61 ms)   - Flow 3 (95th percentile 107.94 ms)
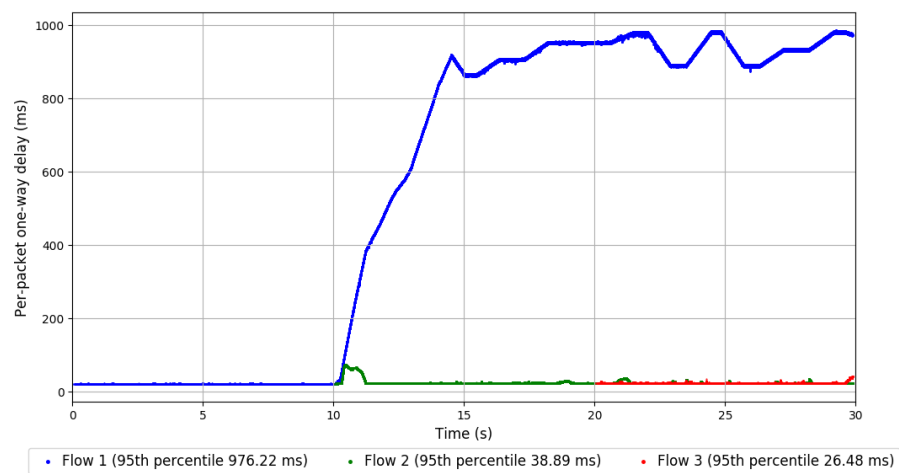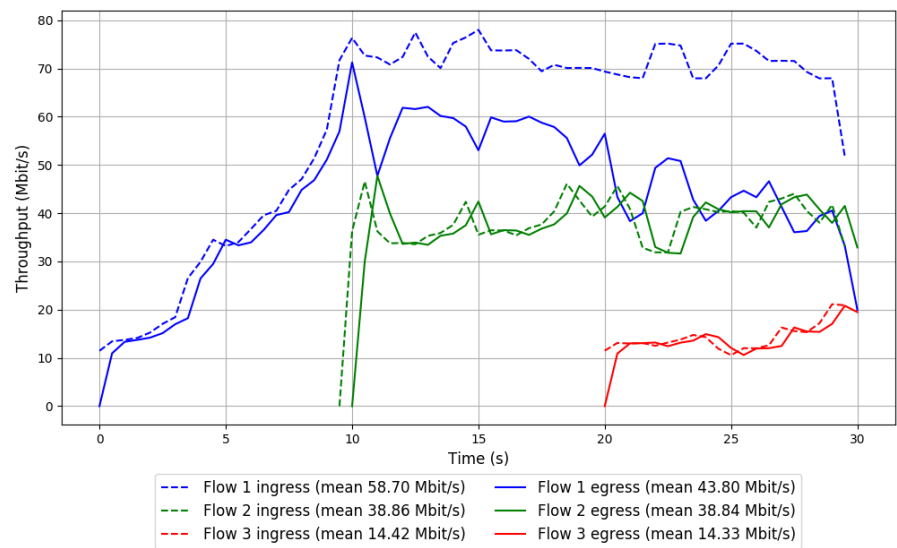
```
Run 2: Statistics of PCC-Expr

Start at: 2018-11-15 11:48:33
End at: 2018-11-15 11:49:03
Local clock offset: 2.229 ms
Remote clock offset: -5.424 ms


# Below is generated by plot.py at 2018-11-15 13:06:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 74.37 Mbit/s
95th percentile per-packet one-way delay: 964.192 ms
Loss rate: 16.84%
-- Flow 1:
Average throughput: 43.80 Mbit/s
95th percentile per-packet one-way delay: 976.215 ms
Loss rate: 25.49%
-- Flow 2:
Average throughput: 38.84 Mbit/s
95th percentile per-packet one-way delay: 38.886 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 14.33 Mbit/s
95th percentile per-packet one-way delay: 26.484 ms
Loss rate: 0.89%
```
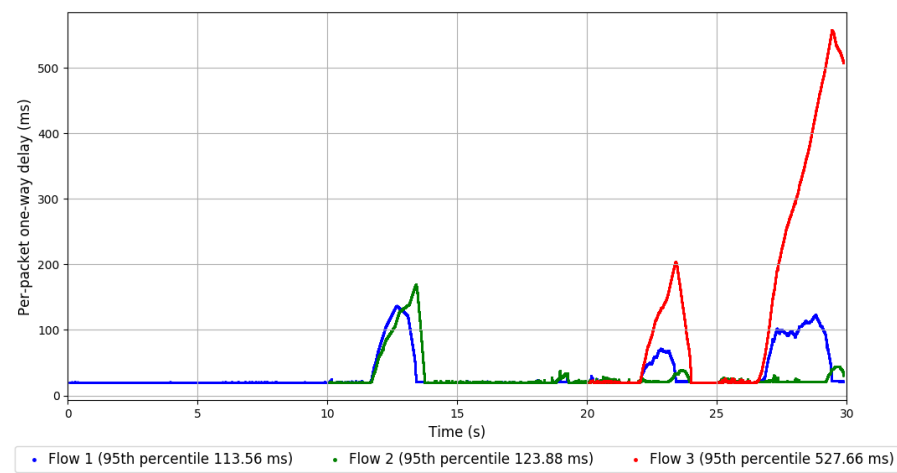
Run 2: Report of PCC-Expr — Data Link

- Flow 1 ingress (mean 58.70 Mbit/s) — Flow 1 egress (mean 43.80 Mbit/s)
- Flow 2 ingress (mean 38.86 Mbit/s) — Flow 2 egress (mean 38.84 Mbit/s)
- Flow 3 ingress (mean 14.42 Mbit/s) — Flow 3 egress (mean 14.33 Mbit/s)

- Flow 1 (95th percentile 976.22 ms) • Flow 2 (95th percentile 38.89 ms) • Flow 3 (95th percentile 26.48 ms)
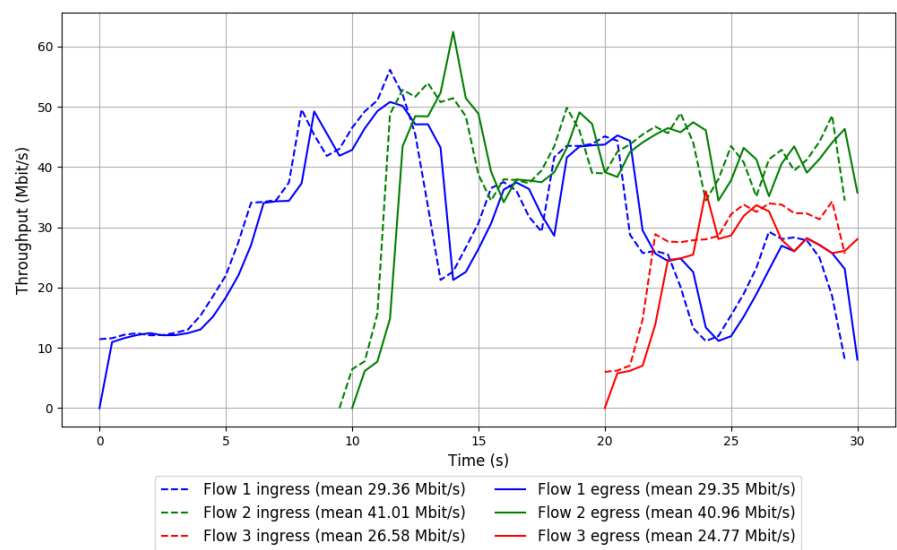
98

```
Run 3: Statistics of PCC-Expr

Start at: 2018-11-15 12:10:54
End at: 2018-11-15 12:11:24
Local clock offset: 3.904 ms
Remote clock offset: -3.144 ms


# Below is generated by plot.py at 2018-11-15 13:06:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 64.76 Mbit/s
95th percentile per-packet one-way delay: 157.064 ms
Loss rate: 1.12%
-- Flow 1:
Average throughput: 29.35 Mbit/s
95th percentile per-packet one-way delay: 113.562 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 40.96 Mbit/s
95th percentile per-packet one-way delay: 123.881 ms
Loss rate: 0.29%
-- Flow 3:
Average throughput: 24.77 Mbit/s
95th percentile per-packet one-way delay: 527.659 ms
Loss rate: 7.04%
```
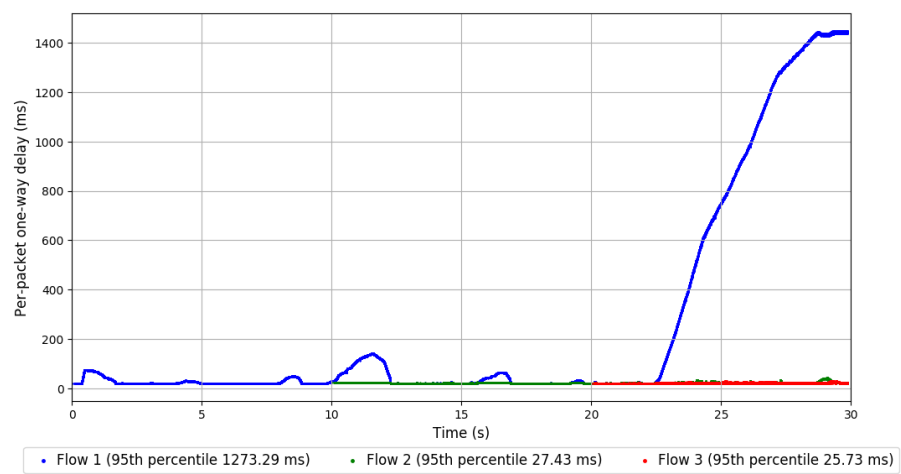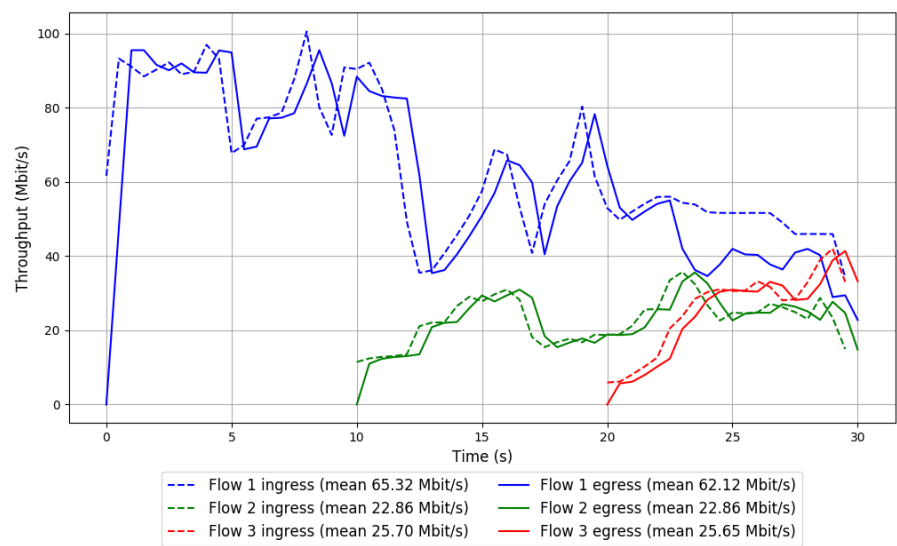
Run 3: Report of PCC-Expr — Data Link

```
Run 4: Statistics of PCC-Expr

Start at: 2018-11-15 12:32:31
End at: 2018-11-15 12:33:01
Local clock offset: 2.939 ms
Remote clock offset: -4.363 ms


# Below is generated by plot.py at 2018-11-15 13:06:16
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.77 Mbit/s
95th percentile per-packet one-way delay: 1019.280 ms
Loss rate: 3.72%
-- Flow 1:
Average throughput: 62.12 Mbit/s
95th percentile per-packet one-way delay: 1273.288 ms
Loss rate: 4.98%
-- Flow 2:
Average throughput: 22.86 Mbit/s
95th percentile per-packet one-way delay: 27.430 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 25.65 Mbit/s
95th percentile per-packet one-way delay: 25.726 ms
Loss rate: 0.45%
```
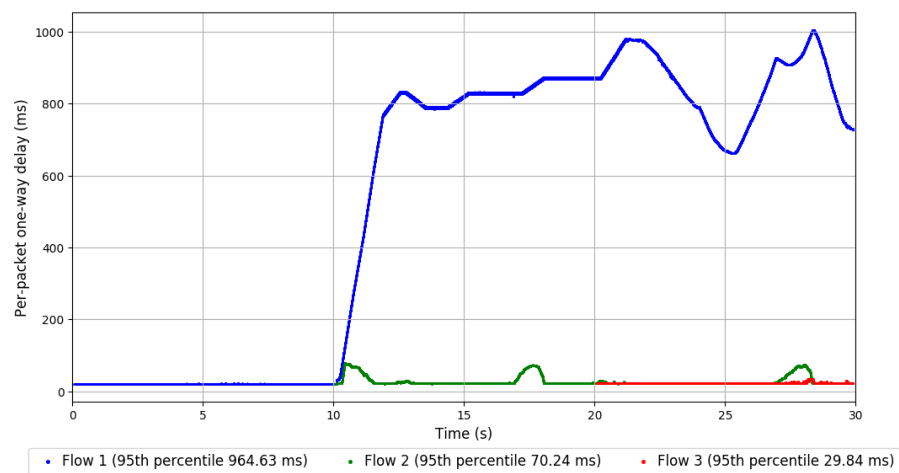
Run 4: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 65.32 Mbit/s) —— Flow 1 egress (mean 62.12 Mbit/s)
Flow 2 ingress (mean 22.86 Mbit/s) —— Flow 2 egress (mean 22.86 Mbit/s)
Flow 3 ingress (mean 25.70 Mbit/s) —— Flow 3 egress (mean 25.65 Mbit/s)

• Flow 1 (95th percentile 1273.29 ms)   • Flow 2 (95th percentile 27.43 ms)   • Flow 3 (95th percentile 25.73 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2018-11-15 12:54:39
End at: 2018-11-15 12:55:09
Local clock offset: 3.065 ms
Remote clock offset: -3.437 ms


# Below is generated by plot.py at 2018-11-15 13:06:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 80.23 Mbit/s
95th percentile per-packet one-way delay: 942.480 ms
Loss rate: 10.17%
-- Flow 1:
Average throughput: 53.42 Mbit/s
95th percentile per-packet one-way delay: 964.634 ms
Loss rate: 14.43%
-- Flow 2:
Average throughput: 32.83 Mbit/s
95th percentile per-packet one-way delay: 70.239 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 15.10 Mbit/s
95th percentile per-packet one-way delay: 29.836 ms
Loss rate: 0.56%
```
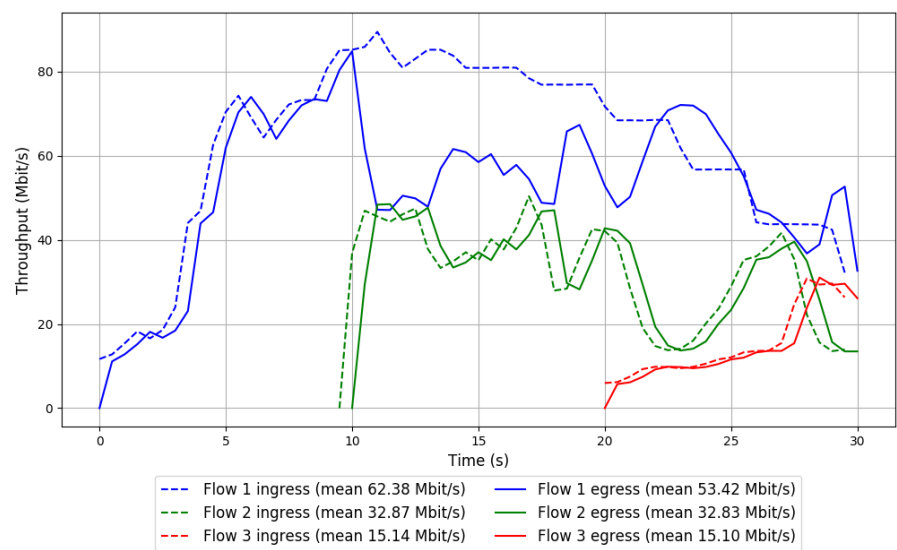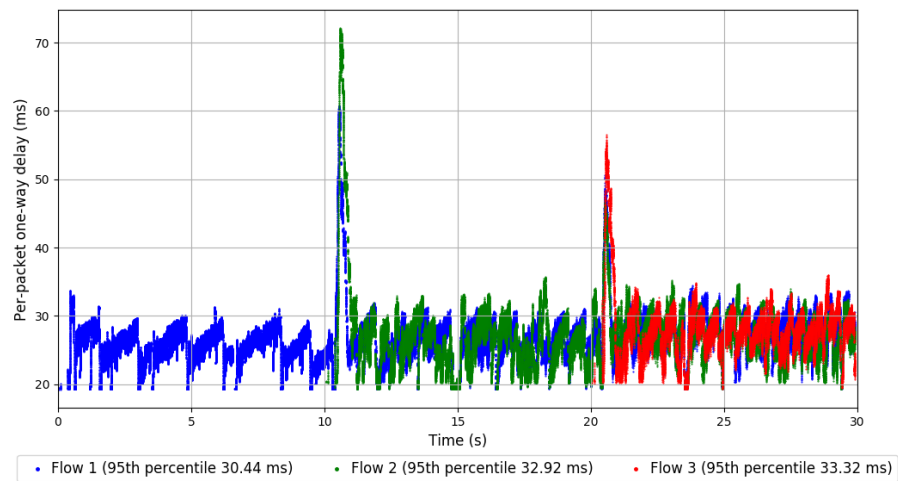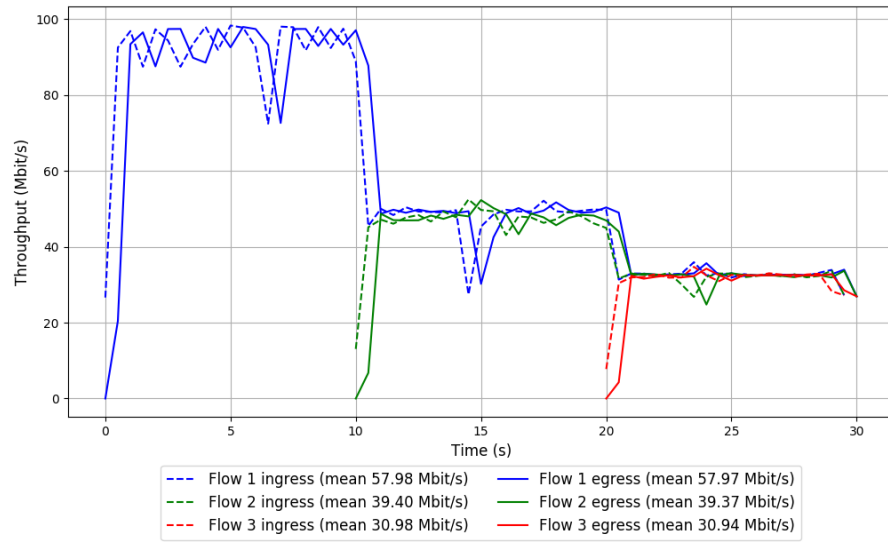
Run 5: Report of PCC-Expr — Data Link

- - - Flow 1 ingress (mean 62.38 Mbit/s) —— Flow 1 egress (mean 53.42 Mbit/s)
- - - Flow 2 ingress (mean 32.87 Mbit/s) —— Flow 2 egress (mean 32.83 Mbit/s)
- - - Flow 3 ingress (mean 15.14 Mbit/s) —— Flow 3 egress (mean 15.10 Mbit/s)

• Flow 1 (95th percentile 964.63 ms)   • Flow 2 (95th percentile 70.24 ms)   • Flow 3 (95th percentile 29.84 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-11-15 11:12:02
End at: 2018-11-15 11:12:32
Local clock offset: 1.472 ms
Remote clock offset: -4.395 ms


# Below is generated by plot.py at 2018-11-15 13:06:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.35 Mbit/s
95th percentile per-packet one-way delay: 31.614 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 57.97 Mbit/s
95th percentile per-packet one-way delay: 30.444 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 39.37 Mbit/s
95th percentile per-packet one-way delay: 32.919 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 30.94 Mbit/s
95th percentile per-packet one-way delay: 33.316 ms
Loss rate: 0.40%
```
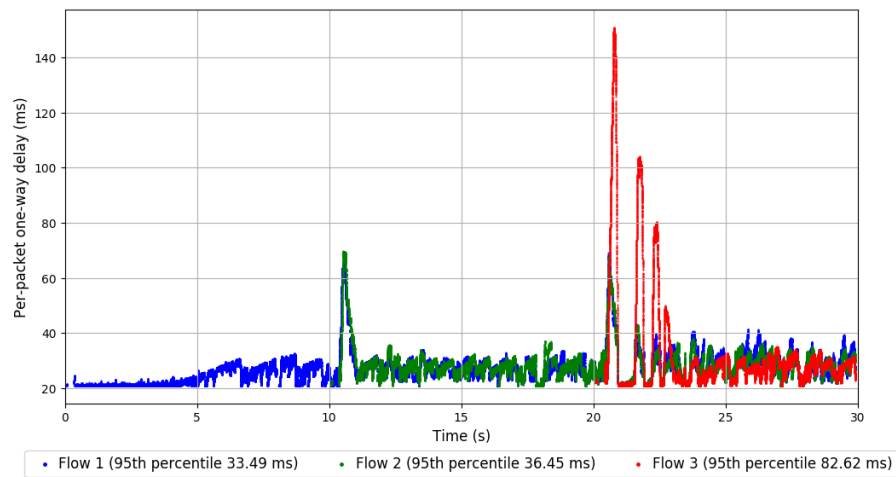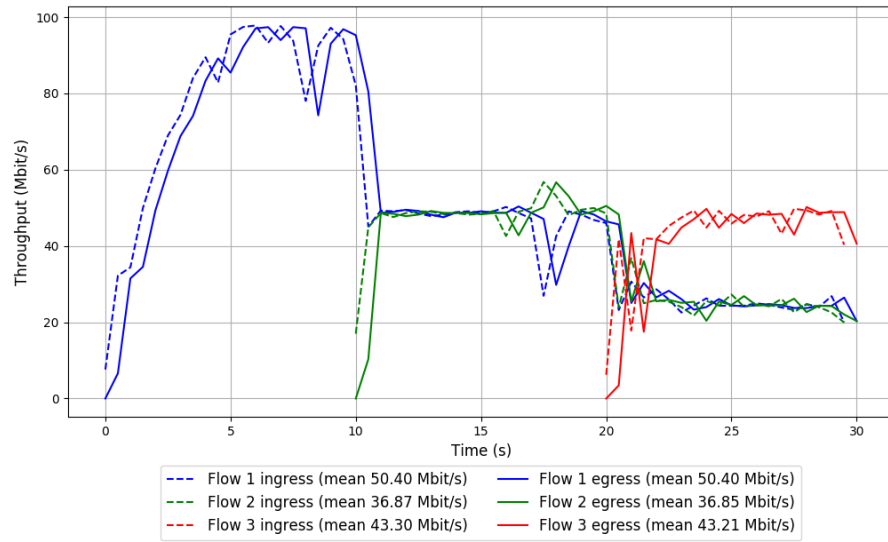
Run 1: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 57.98 Mbit/s) --- Flow 1 egress (mean 57.97 Mbit/s)
Flow 2 ingress (mean 39.40 Mbit/s) --- Flow 2 egress (mean 39.37 Mbit/s)
Flow 3 ingress (mean 30.98 Mbit/s) --- Flow 3 egress (mean 30.94 Mbit/s)

Flow 1 (95th percentile 30.44 ms)   Flow 2 (95th percentile 32.92 ms)   Flow 3 (95th percentile 33.32 ms)

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-11-15 11:35:45
End at: 2018-11-15 11:36:15
Local clock offset: 2.508 ms
Remote clock offset: -5.525 ms


# Below is generated by plot.py at 2018-11-15 13:06:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.16 Mbit/s
95th percentile per-packet one-way delay: 36.707 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 50.40 Mbit/s
95th percentile per-packet one-way delay: 33.495 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 36.85 Mbit/s
95th percentile per-packet one-way delay: 36.450 ms
Loss rate: 0.17%
-- Flow 3:
Average throughput: 43.21 Mbit/s
95th percentile per-packet one-way delay: 82.624 ms
Loss rate: 0.44%
```
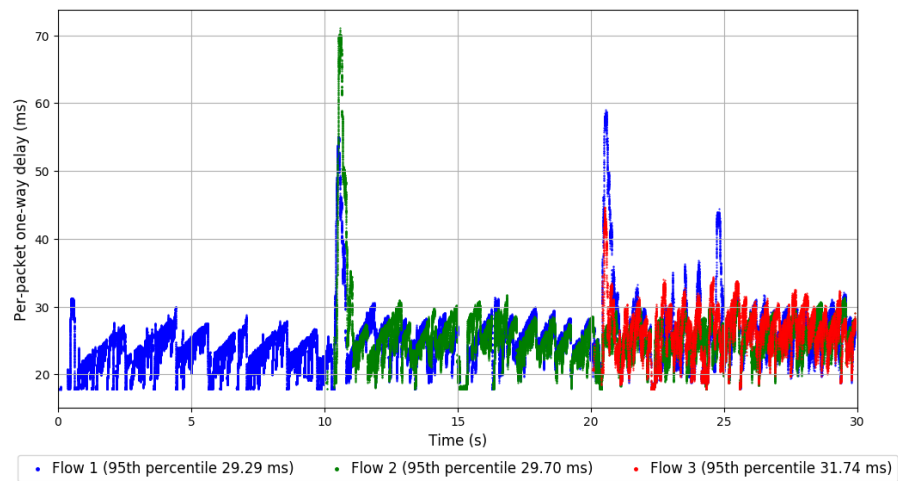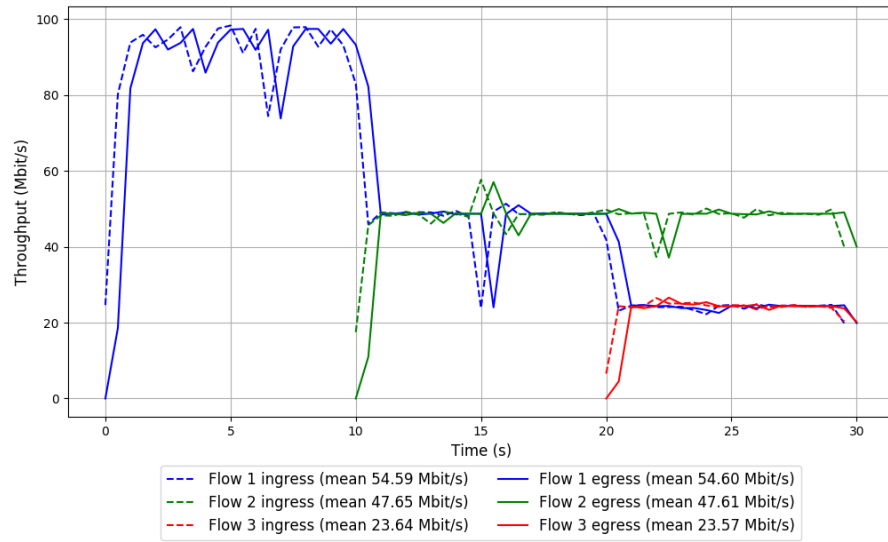
Run 2: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 50.40 Mbit/s) — Flow 1 egress (mean 50.40 Mbit/s)
Flow 2 ingress (mean 36.87 Mbit/s) — Flow 2 egress (mean 36.85 Mbit/s)
Flow 3 ingress (mean 43.30 Mbit/s) — Flow 3 egress (mean 43.21 Mbit/s)

Flow 1 (95th percentile 33.49 ms) — Flow 2 (95th percentile 36.45 ms) — Flow 3 (95th percentile 82.62 ms)
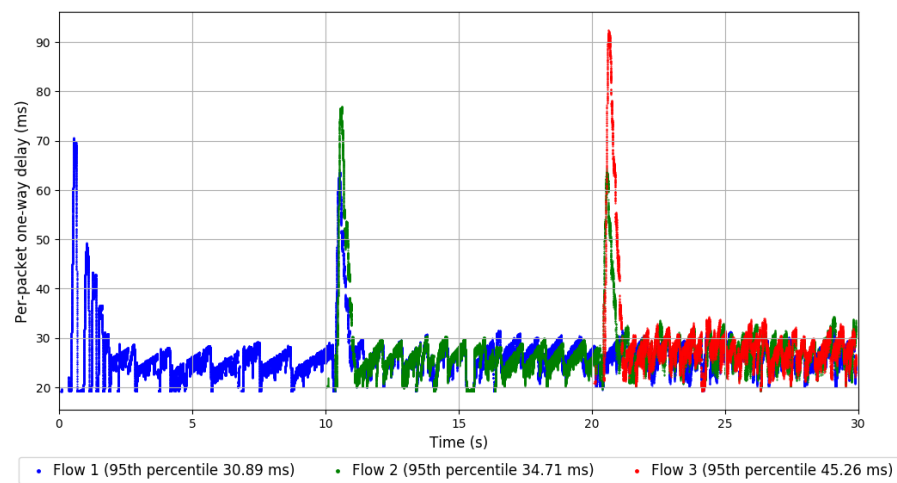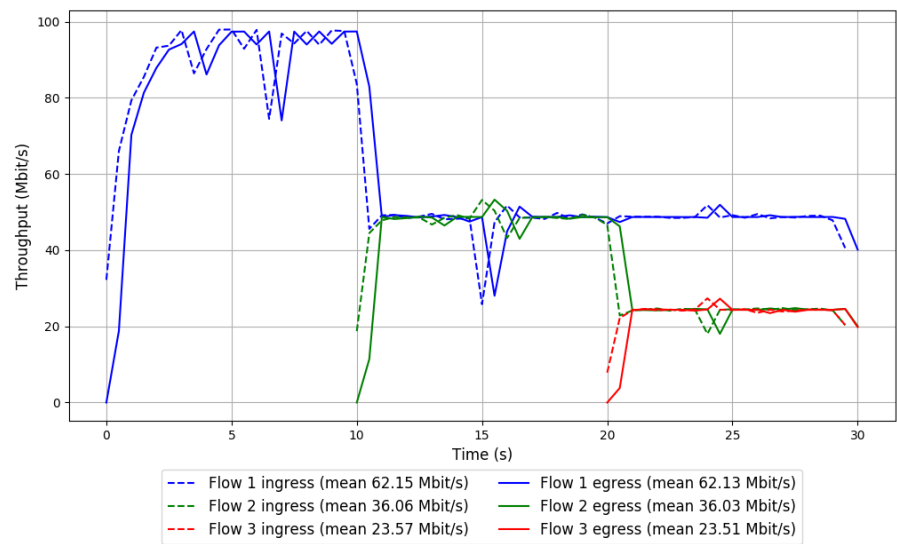
```
Run 3: Statistics of QUIC Cubic

Start at: 2018-11-15 11:58:53
End at: 2018-11-15 11:59:23
Local clock offset: 3.291 ms
Remote clock offset: -1.689 ms


# Below is generated by plot.py at 2018-11-15 13:06:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.05 Mbit/s
95th percentile per-packet one-way delay: 29.880 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 54.60 Mbit/s
95th percentile per-packet one-way delay: 29.288 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 47.61 Mbit/s
95th percentile per-packet one-way delay: 29.701 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 23.57 Mbit/s
95th percentile per-packet one-way delay: 31.736 ms
Loss rate: 0.64%
```

Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 54.59 Mbit/s) --- Flow 1 egress (mean 54.60 Mbit/s)
Flow 2 ingress (mean 47.65 Mbit/s) --- Flow 2 egress (mean 47.61 Mbit/s)
Flow 3 ingress (mean 23.64 Mbit/s) --- Flow 3 egress (mean 23.57 Mbit/s)

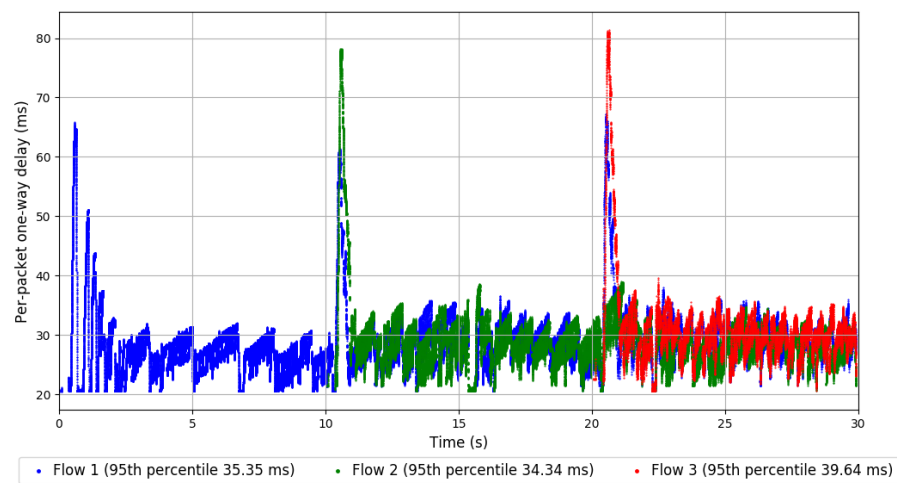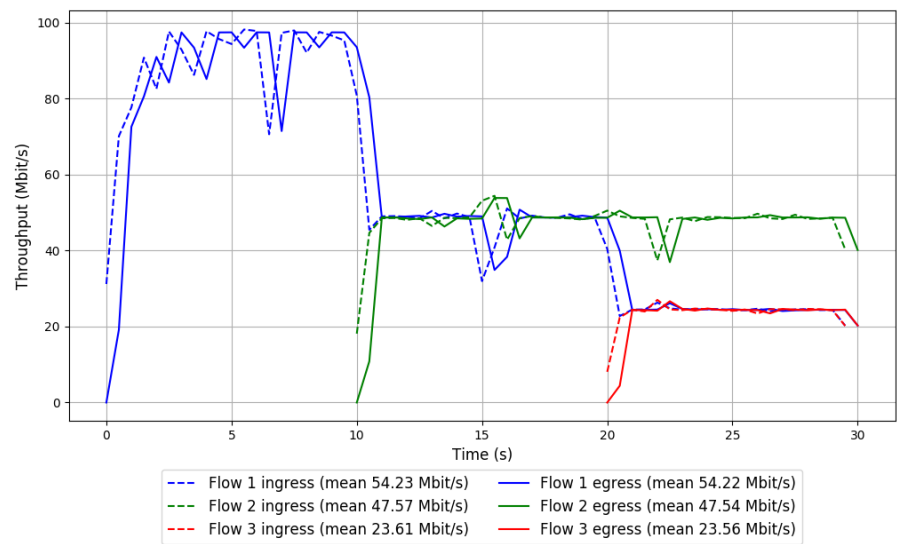Flow 1 (95th percentile 29.29 ms)   Flow 2 (95th percentile 29.70 ms)   Flow 3 (95th percentile 31.74 ms)

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-11-15 12:20:25
End at: 2018-11-15 12:20:55
Local clock offset: 3.5 ms
Remote clock offset: -2.686 ms


# Below is generated by plot.py at 2018-11-15 13:06:55
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.85 Mbit/s
95th percentile per-packet one-way delay: 32.957 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 62.13 Mbit/s
95th percentile per-packet one-way delay: 30.885 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 36.03 Mbit/s
95th percentile per-packet one-way delay: 34.706 ms
Loss rate: 0.18%
-- Flow 3:
Average throughput: 23.51 Mbit/s
95th percentile per-packet one-way delay: 45.261 ms
Loss rate: 0.47%
```
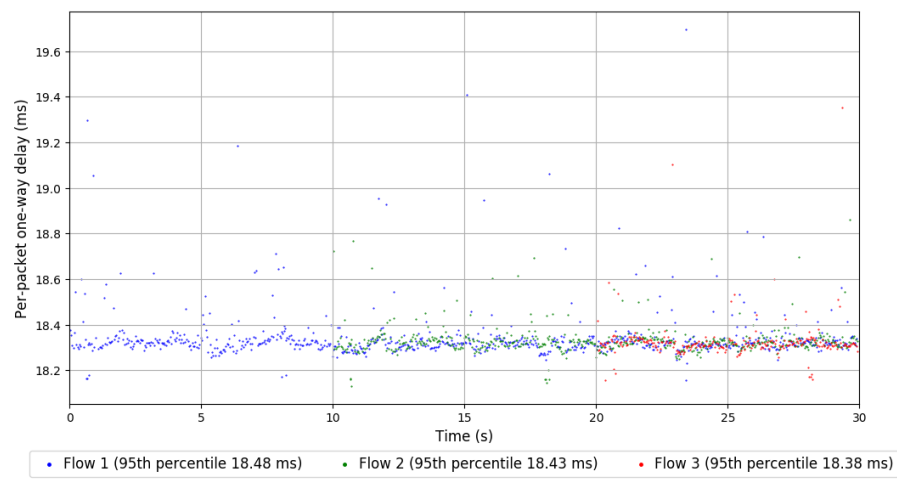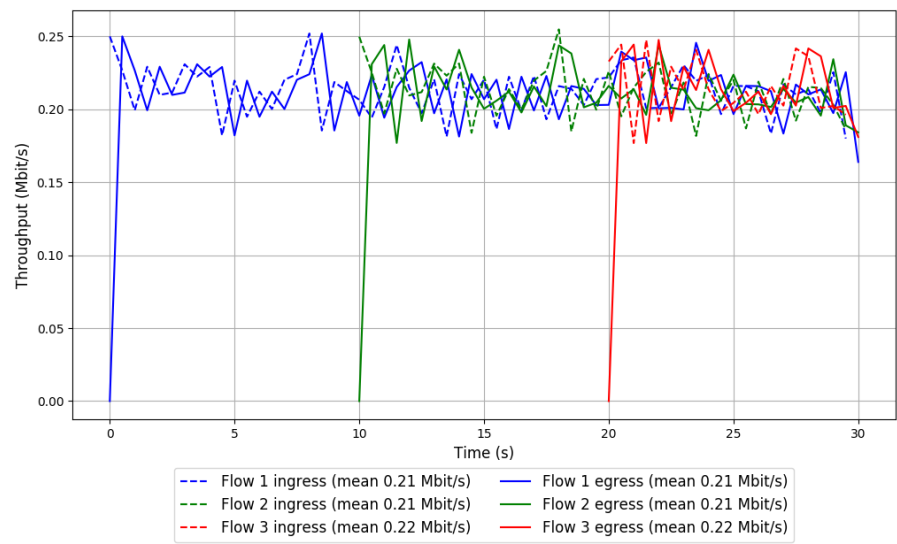
Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 62.15 Mbit/s) --- Flow 1 egress (mean 62.13 Mbit/s)
Flow 2 ingress (mean 36.06 Mbit/s) --- Flow 2 egress (mean 36.03 Mbit/s)
Flow 3 ingress (mean 23.57 Mbit/s) --- Flow 3 egress (mean 23.51 Mbit/s)

Flow 1 (95th percentile 30.89 ms)   Flow 2 (95th percentile 34.71 ms)   Flow 3 (95th percentile 45.26 ms)

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```
Run 5: Statistics of QUIC Cubic

Start at: 2018-11-15 12:42:25
End at: 2018-11-15 12:42:55
Local clock offset: 3.153 ms
Remote clock offset: -3.219 ms


# Below is generated by plot.py at 2018-11-15 13:07:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.61 Mbit/s
95th percentile per-packet one-way delay: 35.020 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 54.22 Mbit/s
95th percentile per-packet one-way delay: 35.355 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 47.54 Mbit/s
95th percentile per-packet one-way delay: 34.343 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 23.56 Mbit/s
95th percentile per-packet one-way delay: 39.644 ms
Loss rate: 0.46%
```
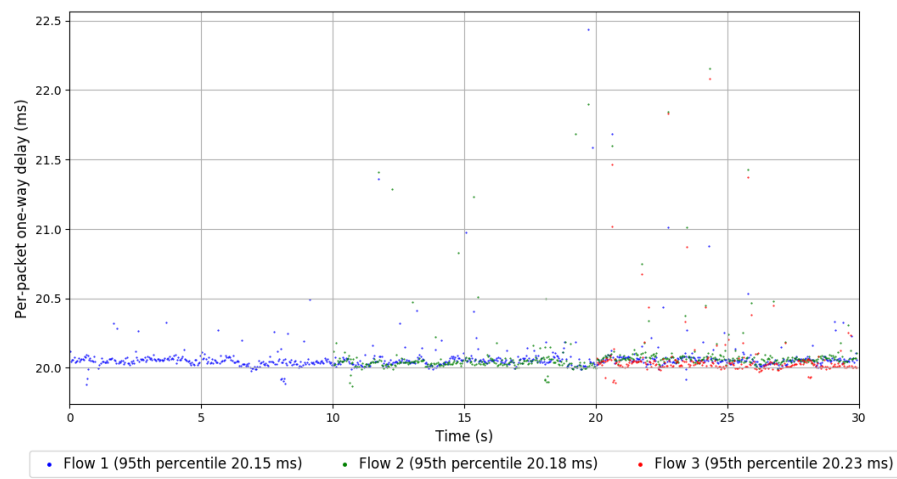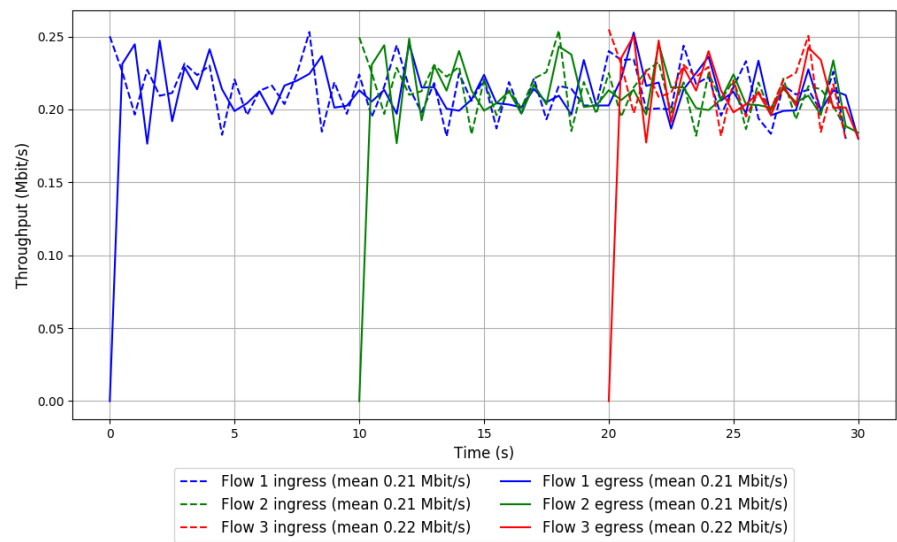
Run 5: Report of QUIC Cubic — Data Link

- - - Flow 1 ingress (mean 54.23 Mbit/s)   —— Flow 1 egress (mean 54.22 Mbit/s)
- - - Flow 2 ingress (mean 47.57 Mbit/s)   —— Flow 2 egress (mean 47.54 Mbit/s)
- - - Flow 3 ingress (mean 23.61 Mbit/s)   —— Flow 3 egress (mean 23.56 Mbit/s)

- Flow 1 (95th percentile 35.35 ms)   • Flow 2 (95th percentile 34.34 ms)   • Flow 3 (95th percentile 39.64 ms)

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```
Run 1: Statistics of SCReAM

Start at: 2018-11-15 11:23:52
End at: 2018-11-15 11:24:22
Local clock offset: 1.075 ms
Remote clock offset: -3.857 ms

# Below is generated by plot.py at 2018-11-15 13:07:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 18.451 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 18.475 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 18.425 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 18.382 ms
Loss rate: 0.36%
```
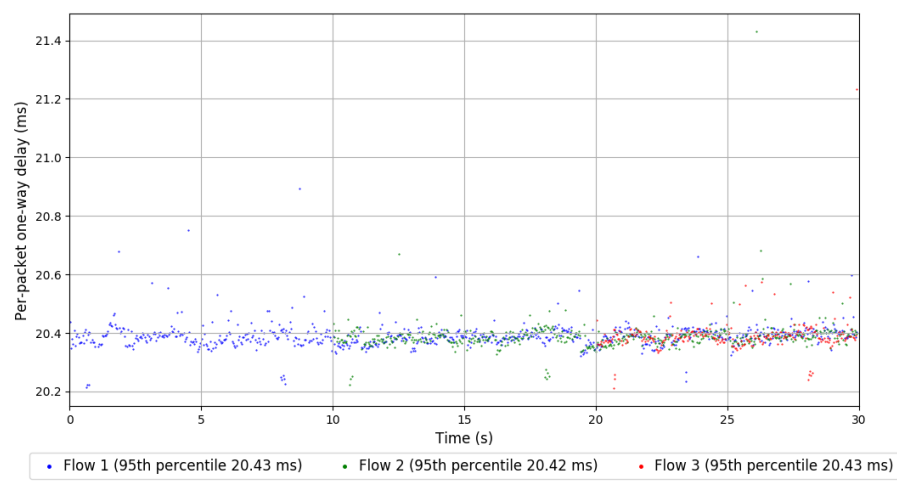
Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2018-11-15 11:47:27
End at: 2018-11-15 11:47:57
Local clock offset: 2.532 ms
Remote clock offset: -4.556 ms


# Below is generated by plot.py at 2018-11-15 13:07:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 20.183 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 20.151 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 20.183 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 20.232 ms
Loss rate: 0.35%
```
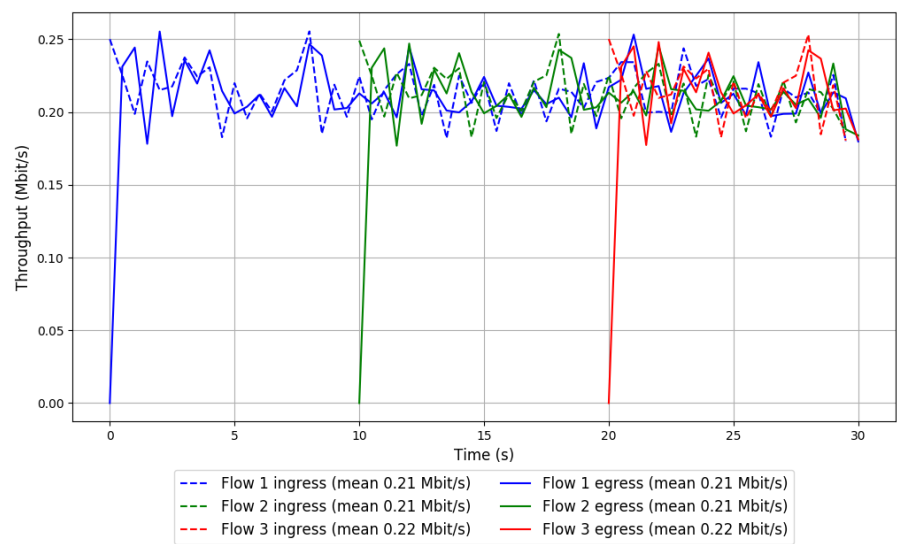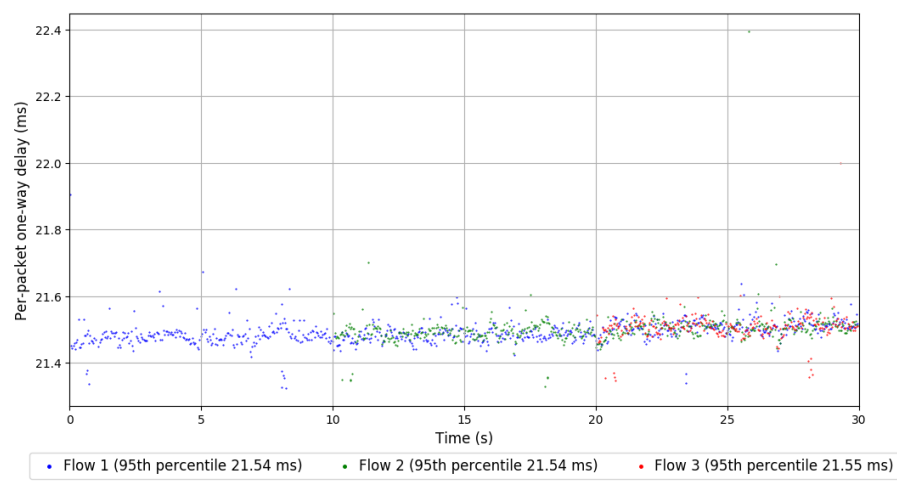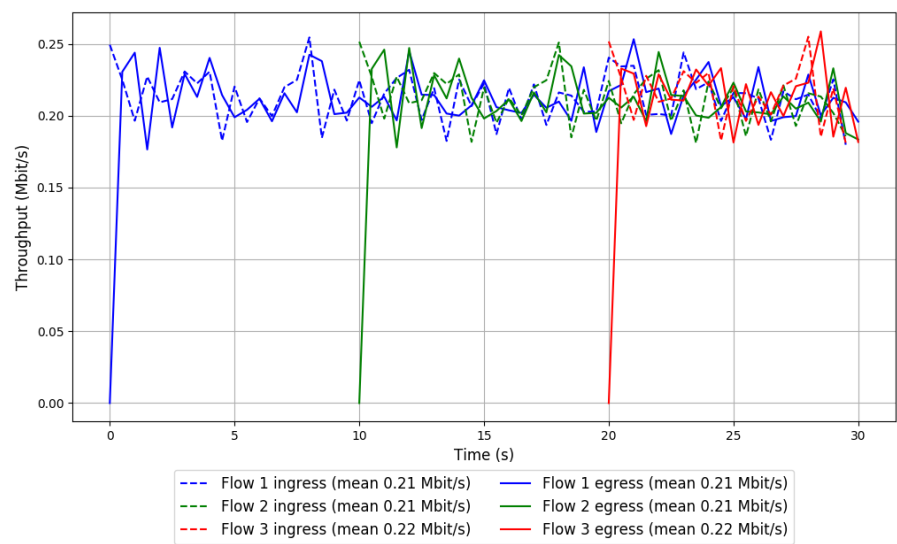
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-11-15 12:09:48
End at: 2018-11-15 12:10:18
Local clock offset: 4.055 ms
Remote clock offset: -3.38 ms

# Below is generated by plot.py at 2018-11-15 13:07:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 20.431 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 20.435 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 20.424 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 20.427 ms
Loss rate: 0.35%
```
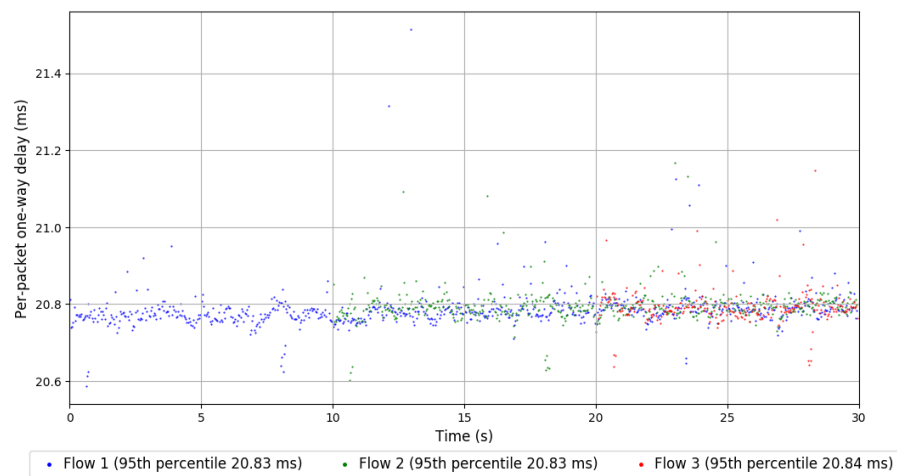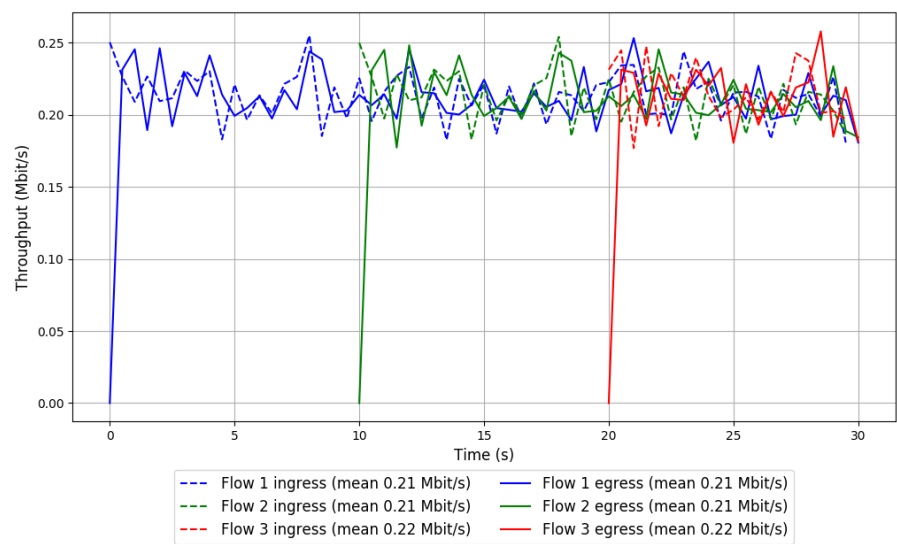
Run 3: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.21 Mbit/s)   Flow 1 egress (mean 0.21 Mbit/s)
Flow 2 ingress (mean 0.21 Mbit/s)   Flow 2 egress (mean 0.21 Mbit/s)
Flow 3 ingress (mean 0.22 Mbit/s)   Flow 3 egress (mean 0.22 Mbit/s)

• Flow 1 (95th percentile 20.43 ms)   • Flow 2 (95th percentile 20.42 ms)   • Flow 3 (95th percentile 20.43 ms)

```
Run 4: Statistics of SCReAM

Start at: 2018-11-15 12:31:25
End at: 2018-11-15 12:31:55
Local clock offset: 2.721 ms
Remote clock offset: -5.465 ms


# Below is generated by plot.py at 2018-11-15 13:07:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 21.544 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 21.543 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 21.537 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 21.549 ms
Loss rate: 0.36%
```
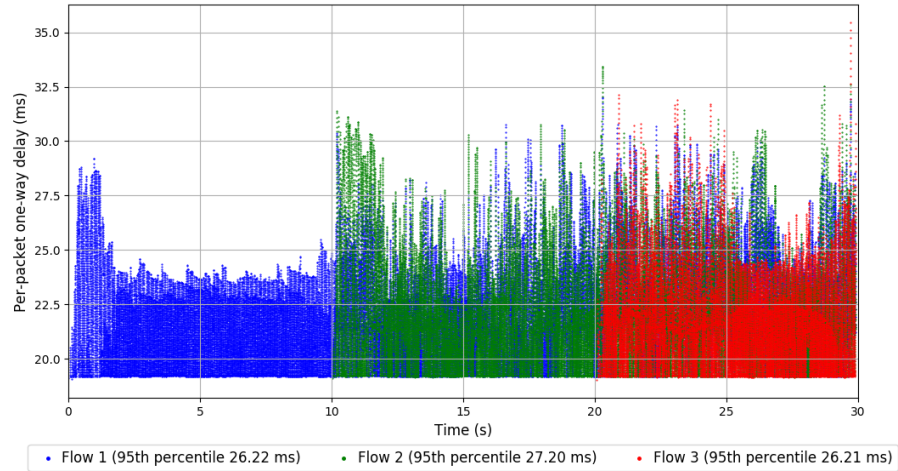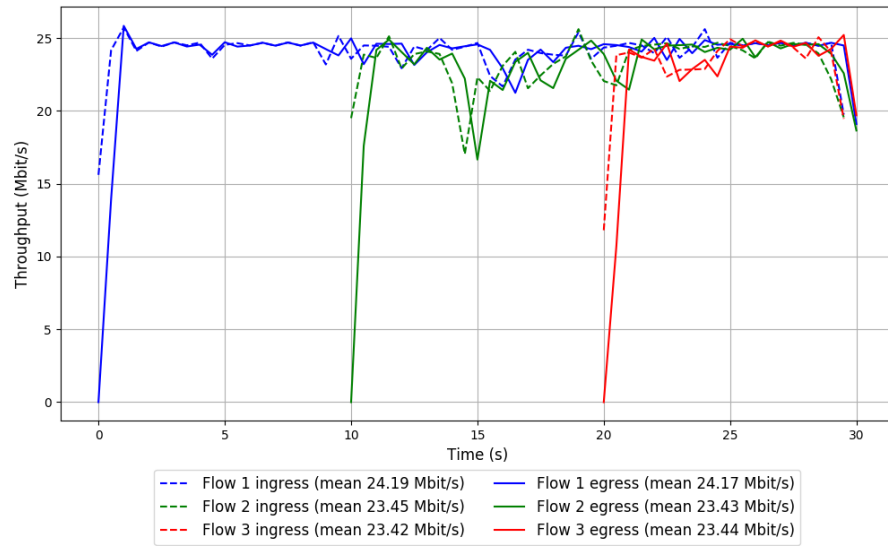
Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2018-11-15 12:53:33
End at: 2018-11-15 12:54:03
Local clock offset: 3.351 ms
Remote clock offset: -2.529 ms

# Below is generated by plot.py at 2018-11-15 13:07:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 20.836 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 20.830 ms
Loss rate: 0.13%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 20.831 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 20.843 ms
Loss rate: 0.36%
```
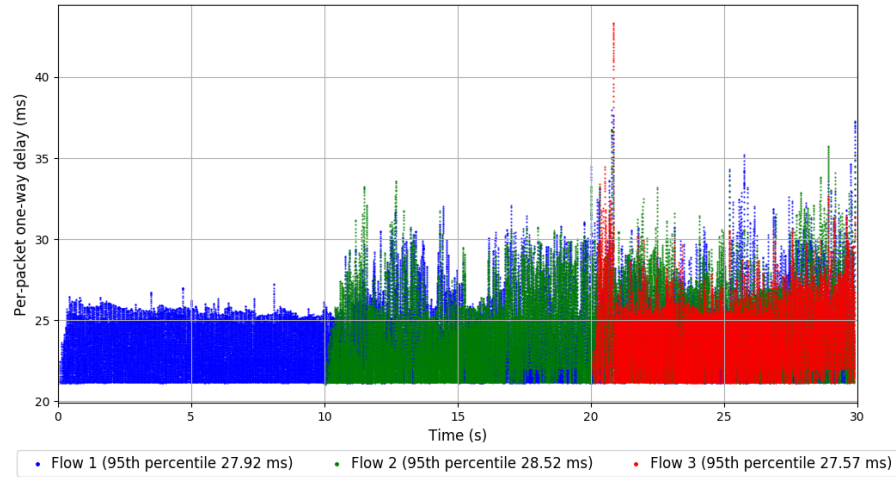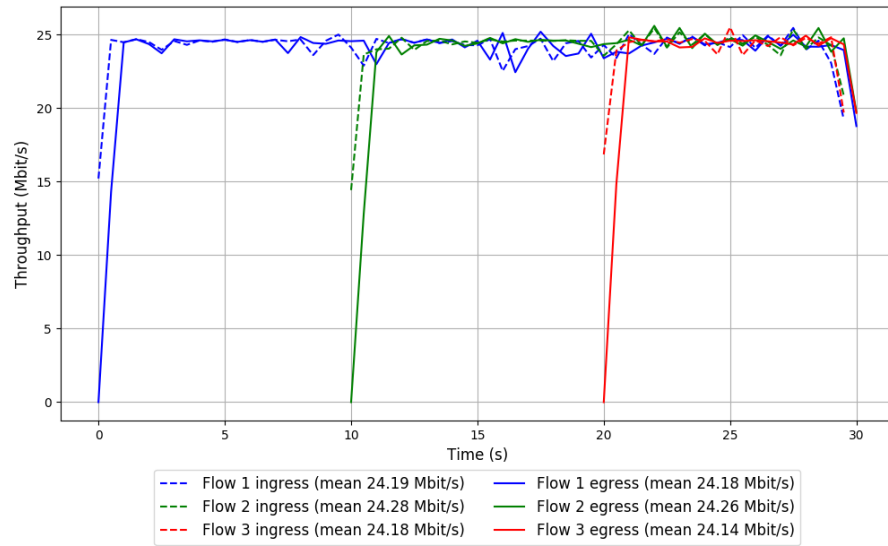
Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2018-11-15 11:14:48
End at: 2018-11-15 11:15:18
Local clock offset: 0.768 ms
Remote clock offset: -4.915 ms


# Below is generated by plot.py at 2018-11-15 13:07:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 47.49 Mbit/s
95th percentile per-packet one-way delay: 26.563 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 24.17 Mbit/s
95th percentile per-packet one-way delay: 26.222 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 23.43 Mbit/s
95th percentile per-packet one-way delay: 27.196 ms
Loss rate: 0.16%
-- Flow 3:
Average throughput: 23.44 Mbit/s
95th percentile per-packet one-way delay: 26.206 ms
Loss rate: 0.01%
```
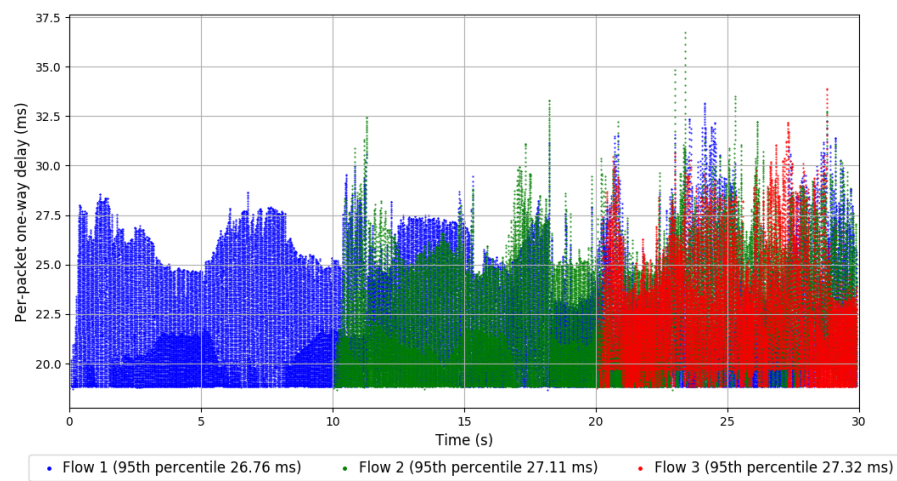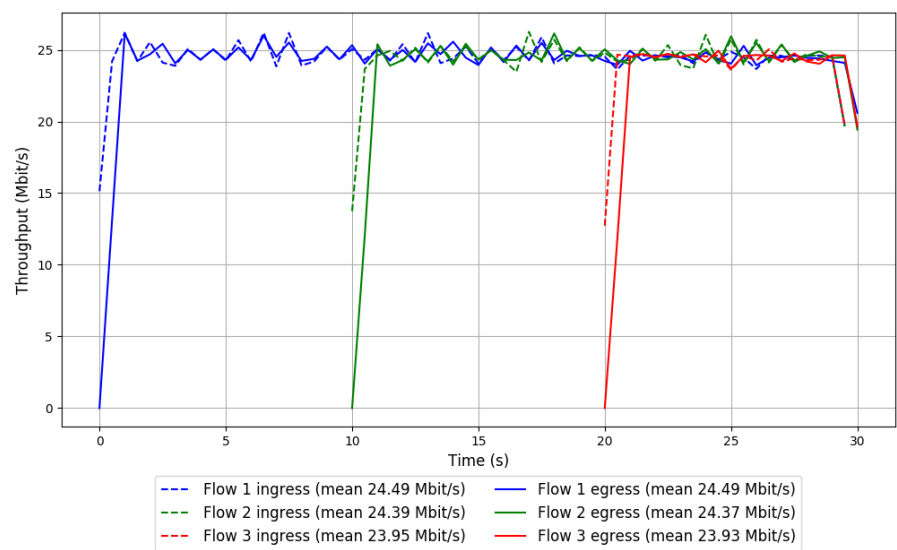
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-11-15 11:38:16
End at: 2018-11-15 11:38:46
Local clock offset: 3.778 ms
Remote clock offset: -4.308 ms


# Below is generated by plot.py at 2018-11-15 13:07:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 48.28 Mbit/s
95th percentile per-packet one-way delay: 28.126 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 24.18 Mbit/s
95th percentile per-packet one-way delay: 27.919 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 24.26 Mbit/s
95th percentile per-packet one-way delay: 28.516 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 24.14 Mbit/s
95th percentile per-packet one-way delay: 27.569 ms
Loss rate: 0.27%
```

Run 2: Report of Sprout — Data Link

- - - Flow 1 ingress (mean 24.19 Mbit/s) ——— Flow 1 egress (mean 24.18 Mbit/s)
- - - Flow 2 ingress (mean 24.28 Mbit/s) ——— Flow 2 egress (mean 24.26 Mbit/s)
- - - Flow 3 ingress (mean 24.18 Mbit/s) ——— Flow 3 egress (mean 24.14 Mbit/s)

- Flow 1 (95th percentile 27.92 ms)   - Flow 2 (95th percentile 28.52 ms)   - Flow 3 (95th percentile 27.57 ms)
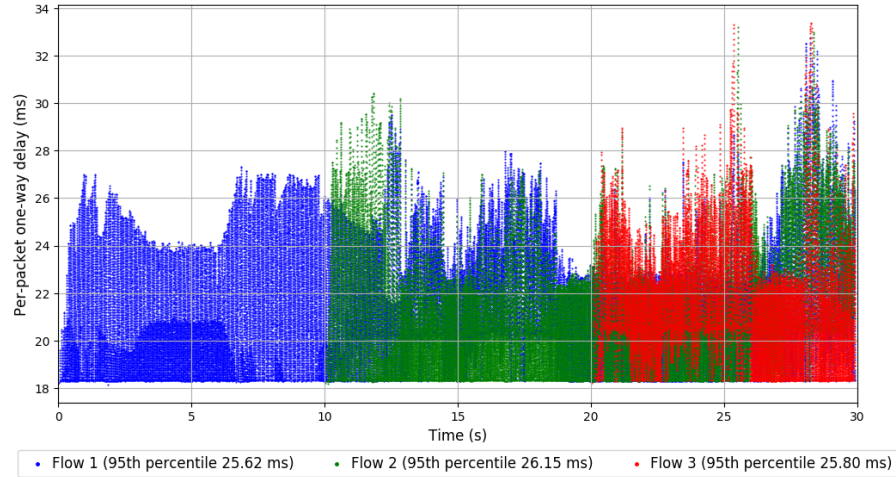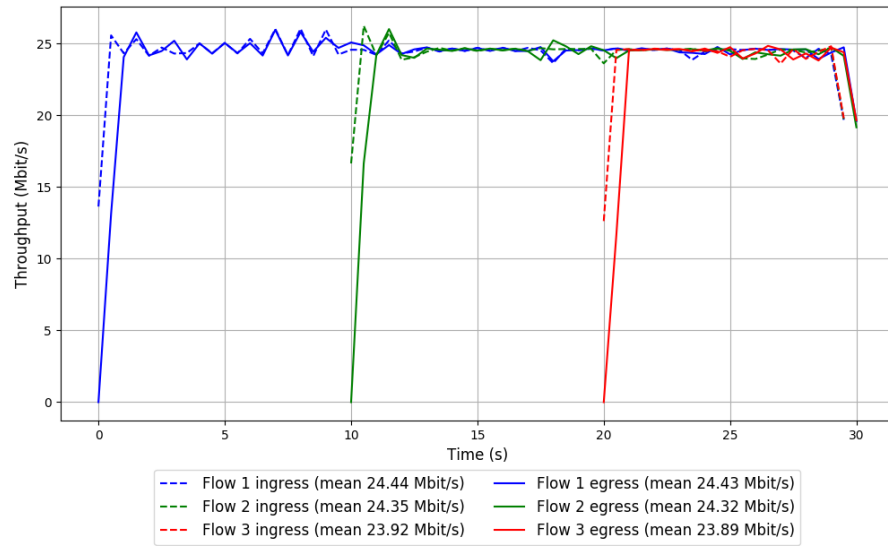
```
Run 3: Statistics of Sprout

Start at: 2018-11-15 12:01:17
End at: 2018-11-15 12:01:47
Local clock offset: 2.823 ms
Remote clock offset: -3.057 ms


# Below is generated by plot.py at 2018-11-15 13:07:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 48.59 Mbit/s
95th percentile per-packet one-way delay: 26.953 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 24.49 Mbit/s
95th percentile per-packet one-way delay: 26.759 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 24.37 Mbit/s
95th percentile per-packet one-way delay: 27.112 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 23.93 Mbit/s
95th percentile per-packet one-way delay: 27.322 ms
Loss rate: 0.22%
```
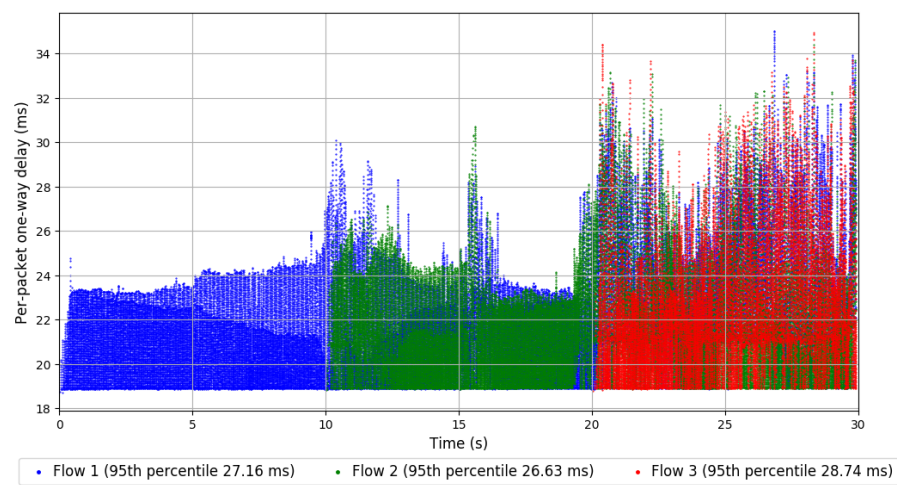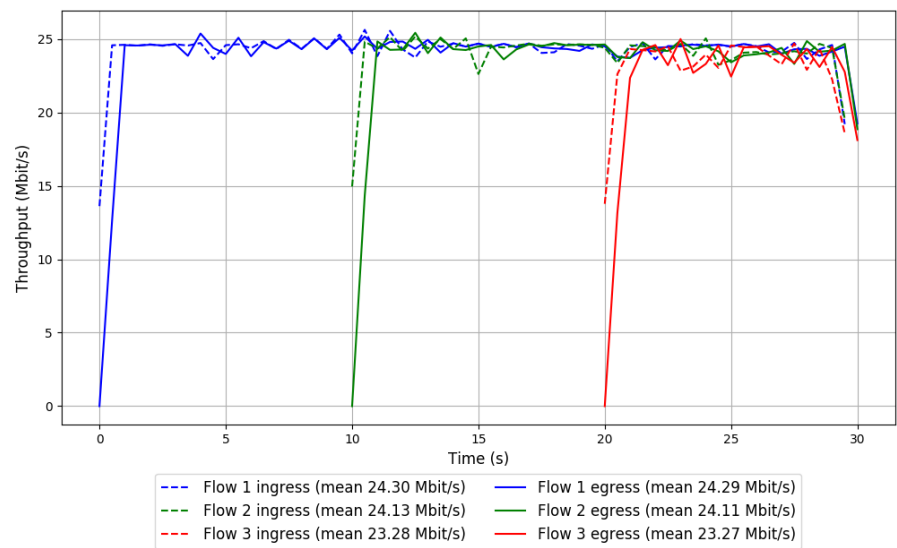
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2018-11-15 12:22:51
End at: 2018-11-15 12:23:21
Local clock offset: 2.123 ms
Remote clock offset: -3.114 ms


# Below is generated by plot.py at 2018-11-15 13:07:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 48.50 Mbit/s
95th percentile per-packet one-way delay: 25.820 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 24.43 Mbit/s
95th percentile per-packet one-way delay: 25.618 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 24.32 Mbit/s
95th percentile per-packet one-way delay: 26.150 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 23.89 Mbit/s
95th percentile per-packet one-way delay: 25.797 ms
Loss rate: 0.29%
```
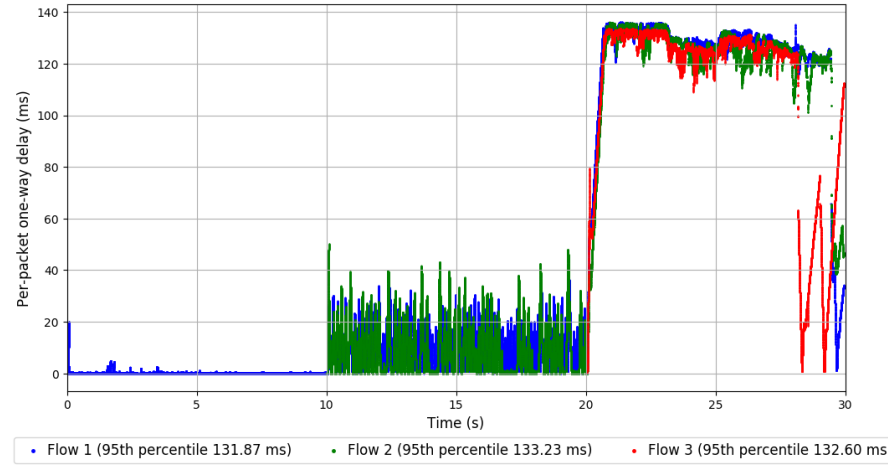
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-11-15 12:44:53
End at: 2018-11-15 12:45:23
Local clock offset: 1.324 ms
Remote clock offset: -3.164 ms


# Below is generated by plot.py at 2018-11-15 13:07:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 48.00 Mbit/s
95th percentile per-packet one-way delay: 27.358 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 24.29 Mbit/s
95th percentile per-packet one-way delay: 27.165 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 24.11 Mbit/s
95th percentile per-packet one-way delay: 26.633 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 23.27 Mbit/s
95th percentile per-packet one-way delay: 28.738 ms
Loss rate: 0.20%
```
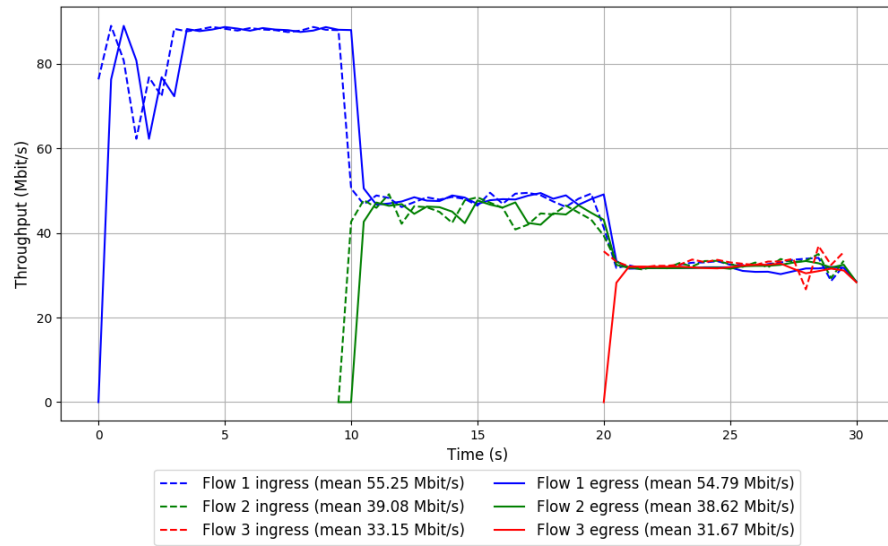
Run 5: Report of Sprout — Data Link

Flow 1 ingress (mean 24.30 Mbit/s)   Flow 1 egress (mean 24.29 Mbit/s)
Flow 2 ingress (mean 24.13 Mbit/s)   Flow 2 egress (mean 24.11 Mbit/s)
Flow 3 ingress (mean 23.28 Mbit/s)   Flow 3 egress (mean 23.27 Mbit/s)

Flow 1 (95th percentile 27.16 ms)   Flow 2 (95th percentile 26.63 ms)   Flow 3 (95th percentile 28.74 ms)
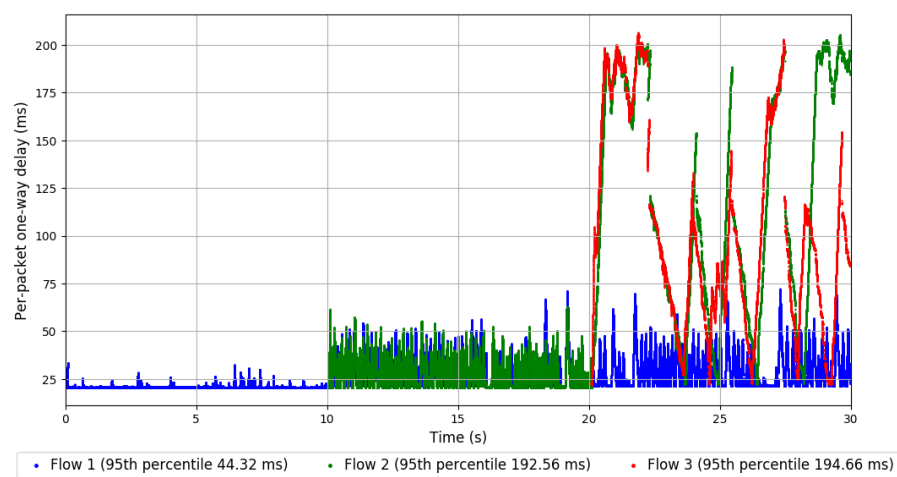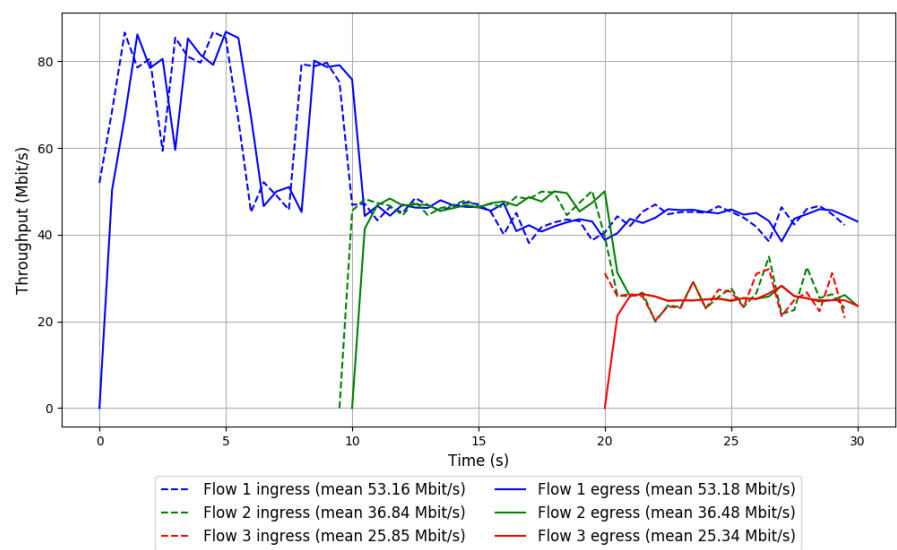
```
Run 1: Statistics of TaoVA-100x

Start at: 2018-11-15 11:16:02
End at: 2018-11-15 11:16:32
Local clock offset: 1.788 ms
Remote clock offset: 15.212 ms


# Below is generated by plot.py at 2018-11-15 13:08:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.05 Mbit/s
95th percentile per-packet one-way delay: 132.492 ms
Loss rate: 1.46%
-- Flow 1:
Average throughput: 54.79 Mbit/s
95th percentile per-packet one-way delay: 131.873 ms
Loss rate: 0.90%
-- Flow 2:
Average throughput: 38.62 Mbit/s
95th percentile per-packet one-way delay: 133.227 ms
Loss rate: 1.31%
-- Flow 3:
Average throughput: 31.67 Mbit/s
95th percentile per-packet one-way delay: 132.603 ms
Loss rate: 4.66%
```

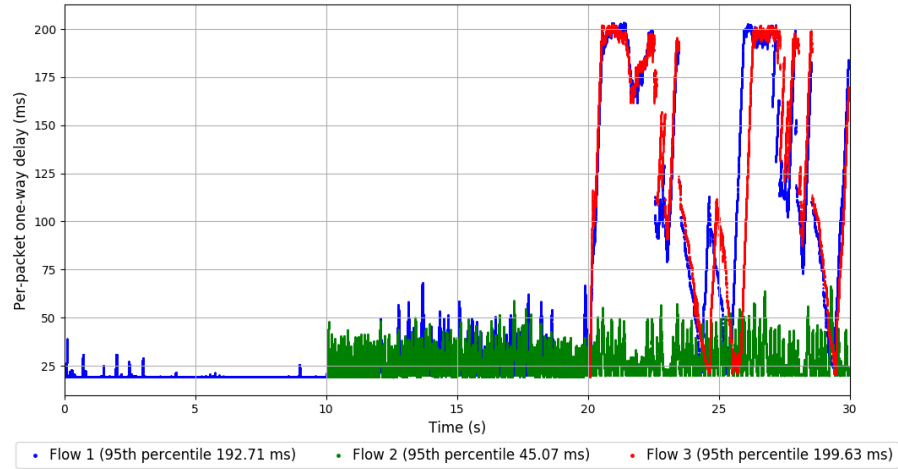Run 1: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 55.25 Mbit/s) --- Flow 1 egress (mean 54.79 Mbit/s)
Flow 2 ingress (mean 39.08 Mbit/s) --- Flow 2 egress (mean 38.62 Mbit/s)
Flow 3 ingress (mean 33.15 Mbit/s) --- Flow 3 egress (mean 31.67 Mbit/s)

Flow 1 (95th percentile 131.87 ms) • Flow 2 (95th percentile 133.23 ms) • Flow 3 (95th percentile 132.60 ms)
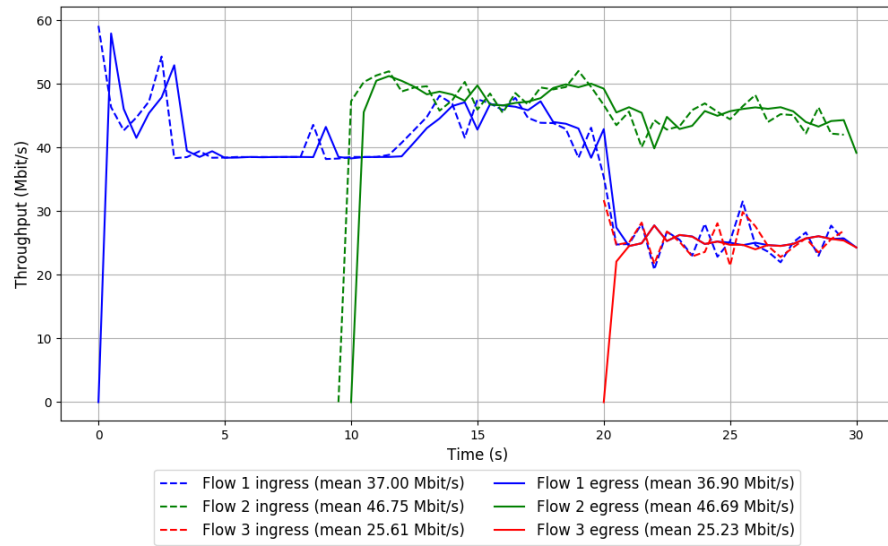
```
Run 2: Statistics of TaoVA-100x

Start at: 2018-11-15 11:39:27
End at: 2018-11-15 11:39:57
Local clock offset: 1.827 ms
Remote clock offset: -5.756 ms

# Below is generated by plot.py at 2018-11-15 13:08:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 85.88 Mbit/s
95th percentile per-packet one-way delay: 171.685 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 53.18 Mbit/s
95th percentile per-packet one-way delay: 44.319 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 36.48 Mbit/s
95th percentile per-packet one-way delay: 192.555 ms
Loss rate: 1.02%
-- Flow 3:
Average throughput: 25.34 Mbit/s
95th percentile per-packet one-way delay: 194.655 ms
Loss rate: 2.32%
```
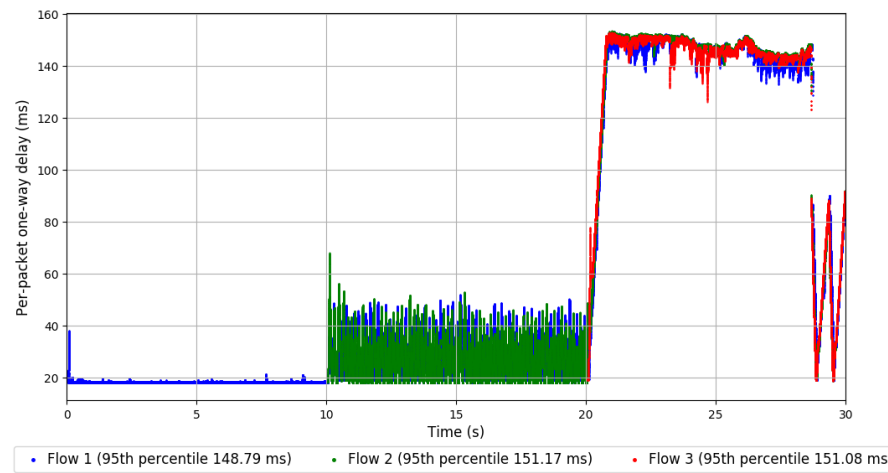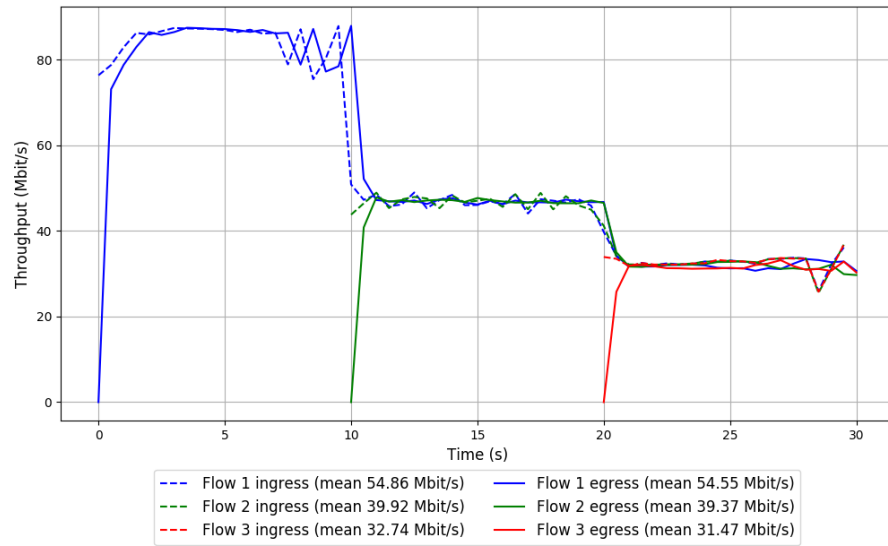
Run 2: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 53.16 Mbit/s) — — — Flow 1 egress (mean 53.18 Mbit/s)
Flow 2 ingress (mean 36.84 Mbit/s) — — — Flow 2 egress (mean 36.48 Mbit/s)
Flow 3 ingress (mean 25.85 Mbit/s) — — — Flow 3 egress (mean 25.34 Mbit/s)

Flow 1 (95th percentile 44.32 ms) • Flow 2 (95th percentile 192.56 ms) • Flow 3 (95th percentile 194.66 ms)
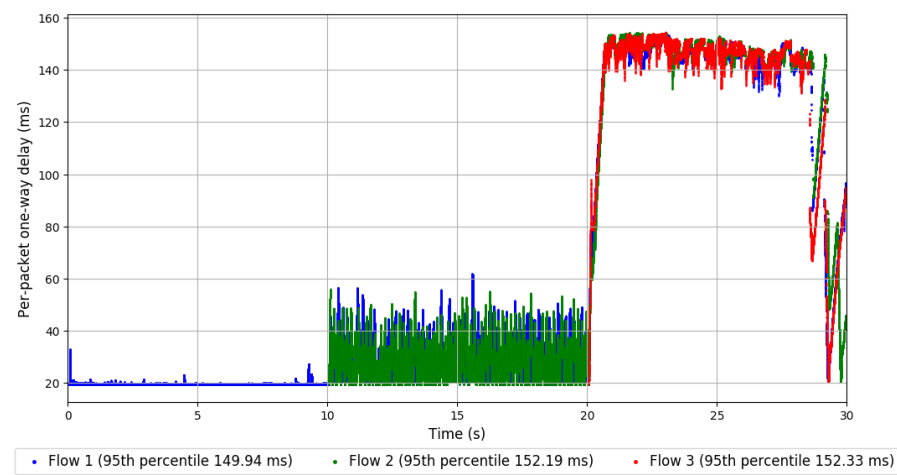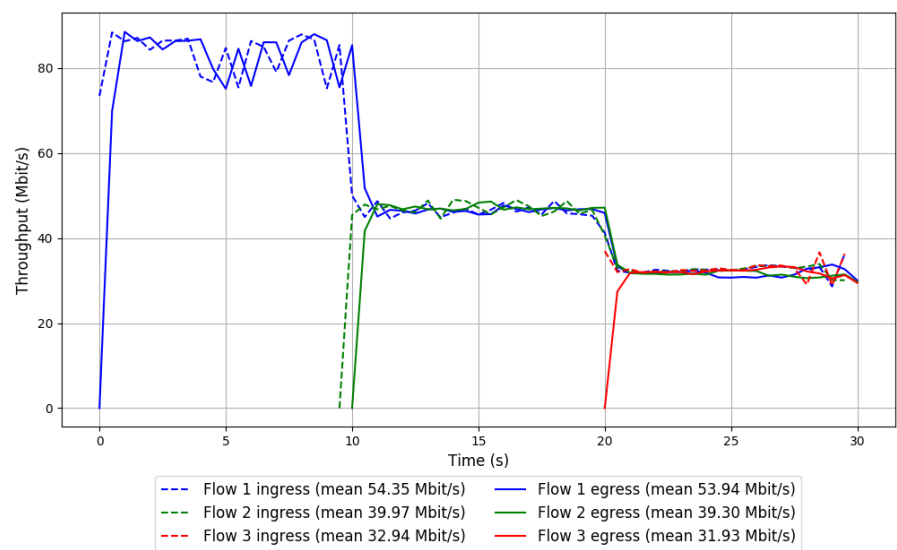
```
Run 3: Statistics of TaoVA-100x

Start at: 2018-11-15 12:02:25
End at: 2018-11-15 12:02:55
Local clock offset: 3.296 ms
Remote clock offset: -3.017 ms


# Below is generated by plot.py at 2018-11-15 13:08:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 76.38 Mbit/s
95th percentile per-packet one-way delay: 192.129 ms
Loss rate: 0.47%
-- Flow 1:
Average throughput: 36.90 Mbit/s
95th percentile per-packet one-way delay: 192.714 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 46.69 Mbit/s
95th percentile per-packet one-way delay: 45.071 ms
Loss rate: 0.25%
-- Flow 3:
Average throughput: 25.23 Mbit/s
95th percentile per-packet one-way delay: 199.626 ms
Loss rate: 1.72%
```

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

Flow 1 ingress (mean 37.00 Mbit/s) --- Flow 1 egress (mean 36.90 Mbit/s)
Flow 2 ingress (mean 46.75 Mbit/s) --- Flow 2 egress (mean 46.69 Mbit/s)
Flow 3 ingress (mean 25.61 Mbit/s) --- Flow 3 egress (mean 25.23 Mbit/s)

Flow 1 (95th percentile 192.71 ms)   Flow 2 (95th percentile 45.07 ms)   Flow 3 (95th percentile 199.63 ms)

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

Start at: 2018-11-15 12:23:59
End at: 2018-11-15 12:24:29
Local clock offset: 1.822 ms
Remote clock offset: -3.268 ms


# Below is generated by plot.py at 2018-11-15 13:08:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.21 Mbit/s
95th percentile per-packet one-way delay: 150.591 ms
Loss rate: 1.30%
-- Flow 1:
Average throughput: 54.55 Mbit/s
95th percentile per-packet one-way delay: 148.789 ms
Loss rate: 0.65%
-- Flow 2:
Average throughput: 39.37 Mbit/s
95th percentile per-packet one-way delay: 151.169 ms
Loss rate: 1.48%
-- Flow 3:
Average throughput: 31.47 Mbit/s
95th percentile per-packet one-way delay: 151.081 ms
Loss rate: 4.10%
```
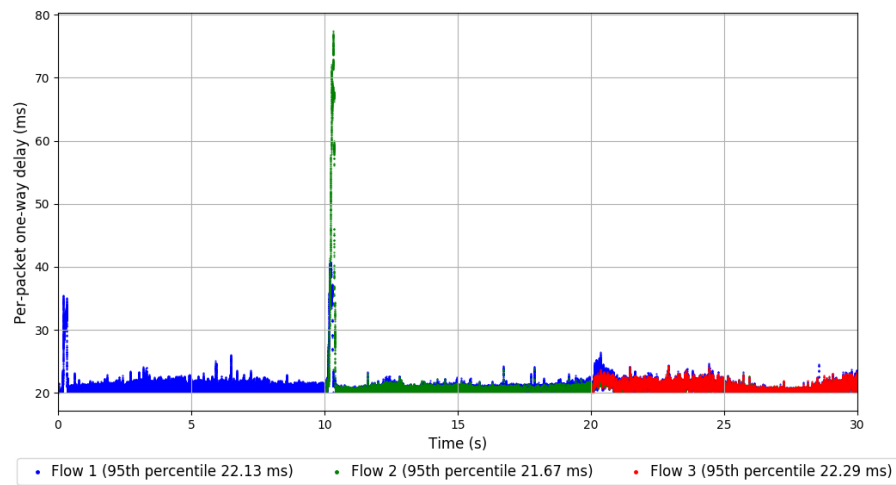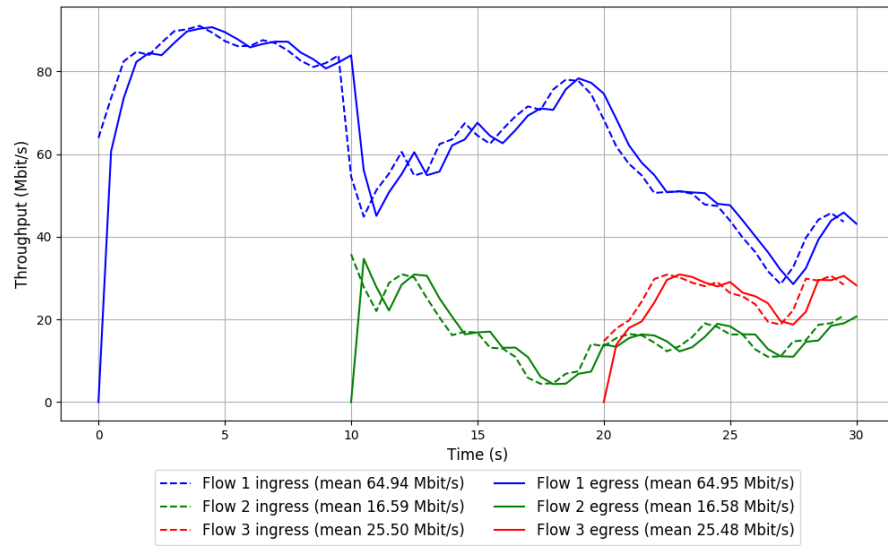
Run 4: Report of TaoVA-100x — Data Link

- Flow 1 ingress (mean 54.86 Mbit/s)
- Flow 1 egress (mean 54.55 Mbit/s)
- Flow 2 ingress (mean 39.92 Mbit/s)
- Flow 2 egress (mean 39.37 Mbit/s)
- Flow 3 ingress (mean 32.74 Mbit/s)
- Flow 3 egress (mean 31.47 Mbit/s)

- Flow 1 (95th percentile 148.79 ms)
- Flow 2 (95th percentile 151.17 ms)
- Flow 3 (95th percentile 151.08 ms)

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

Start at: 2018-11-15 12:46:03
End at: 2018-11-15 12:46:33
Local clock offset: 1.639 ms
Remote clock offset: -3.488 ms


# Below is generated by plot.py at 2018-11-15 13:08:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 90.74 Mbit/s
95th percentile per-packet one-way delay: 151.091 ms
Loss rate: 1.40%
-- Flow 1:
Average throughput: 53.94 Mbit/s
95th percentile per-packet one-way delay: 149.935 ms
Loss rate: 0.82%
-- Flow 2:
Average throughput: 39.30 Mbit/s
95th percentile per-packet one-way delay: 152.190 ms
Loss rate: 1.80%
-- Flow 3:
Average throughput: 31.93 Mbit/s
95th percentile per-packet one-way delay: 152.329 ms
Loss rate: 3.30%
```
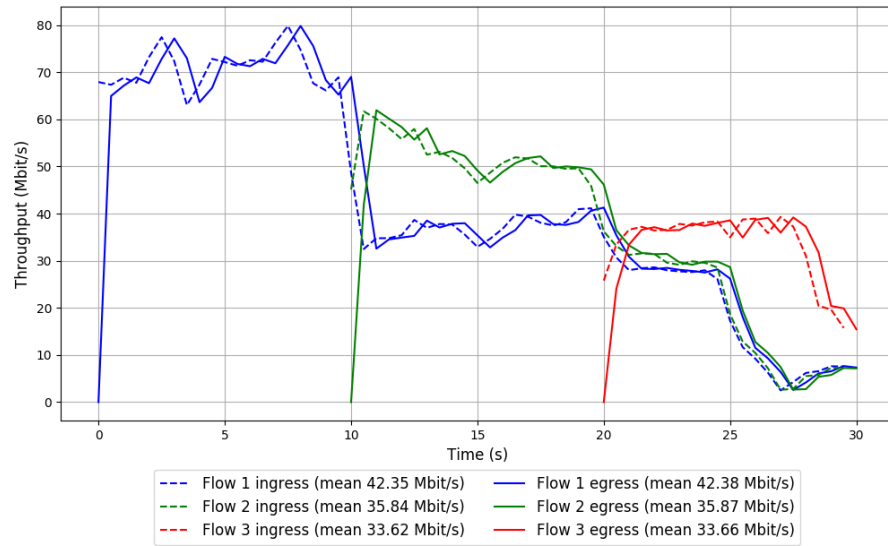
Run 5: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 54.35 Mbit/s) --- Flow 1 egress (mean 53.94 Mbit/s)
Flow 2 ingress (mean 39.97 Mbit/s) --- Flow 2 egress (mean 39.30 Mbit/s)
Flow 3 ingress (mean 32.94 Mbit/s) --- Flow 3 egress (mean 31.93 Mbit/s)

Flow 1 (95th percentile 149.94 ms) · Flow 2 (95th percentile 152.19 ms) · Flow 3 (95th percentile 152.33 ms)

```
Run 1: Statistics of TCP Vegas

Start at: 2018-11-15 11:06:44
End at: 2018-11-15 11:07:14
Local clock offset: 1.706 ms
Remote clock offset: -4.922 ms


# Below is generated by plot.py at 2018-11-15 13:08:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 84.43 Mbit/s
95th percentile per-packet one-way delay: 22.159 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 64.95 Mbit/s
95th percentile per-packet one-way delay: 22.128 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 16.58 Mbit/s
95th percentile per-packet one-way delay: 21.670 ms
Loss rate: 0.19%
-- Flow 3:
Average throughput: 25.48 Mbit/s
95th percentile per-packet one-way delay: 22.290 ms
Loss rate: 0.29%
```
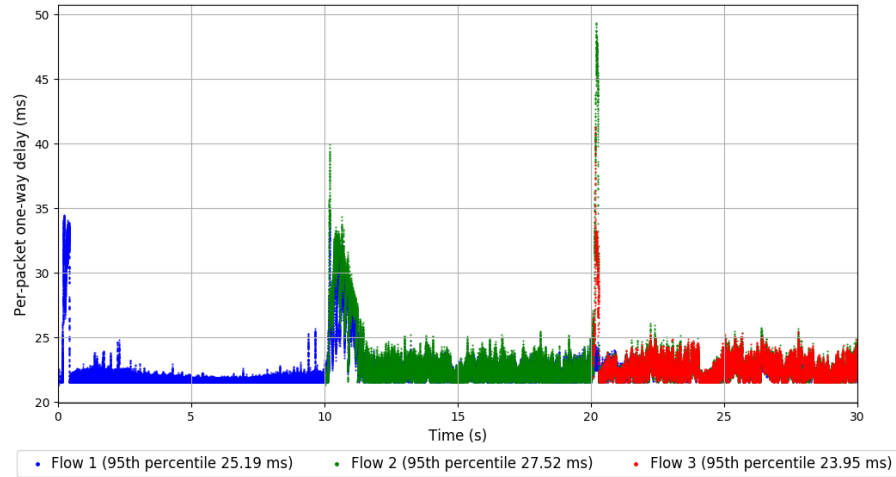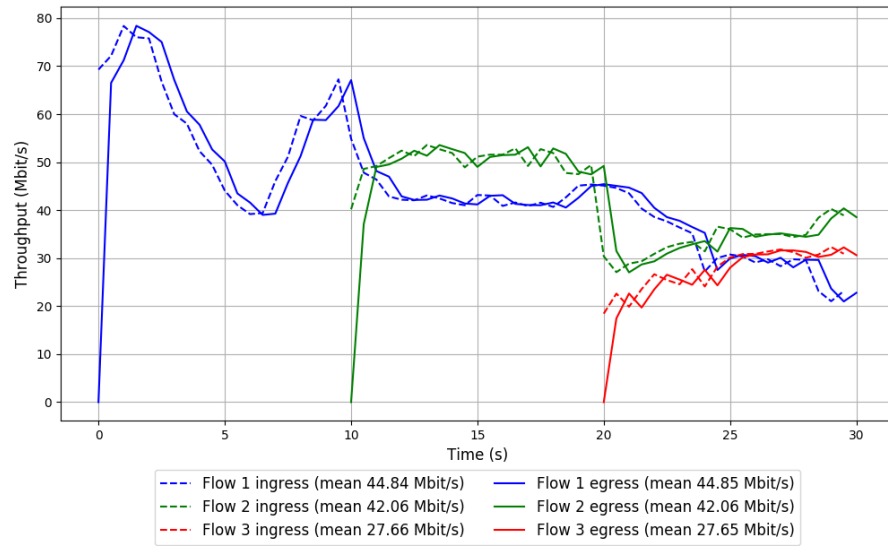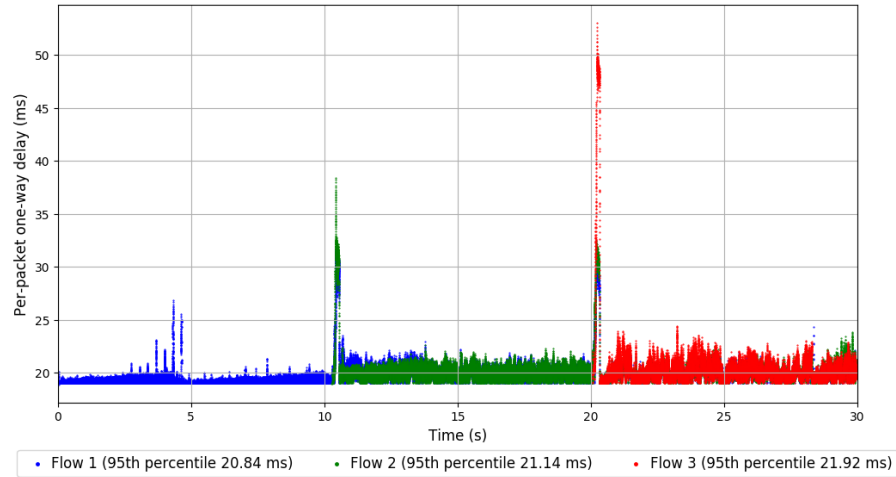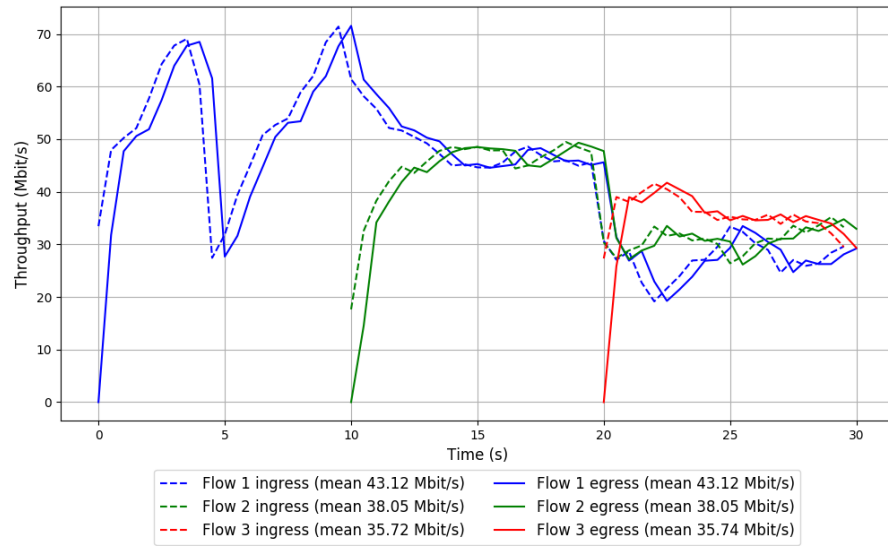
Run 1: Report of TCP Vegas — Data Link

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```
Run 2: Statistics of TCP Vegas

Start at: 2018-11-15 11:30:17
End at: 2018-11-15 11:30:47
Local clock offset: 4.247 ms
Remote clock offset: -5.121 ms


# Below is generated by plot.py at 2018-11-15 13:08:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 77.42 Mbit/s
95th percentile per-packet one-way delay: 26.186 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 42.38 Mbit/s
95th percentile per-packet one-way delay: 24.988 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 35.87 Mbit/s
95th percentile per-packet one-way delay: 28.071 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 33.66 Mbit/s
95th percentile per-packet one-way delay: 25.926 ms
Loss rate: 0.15%
```

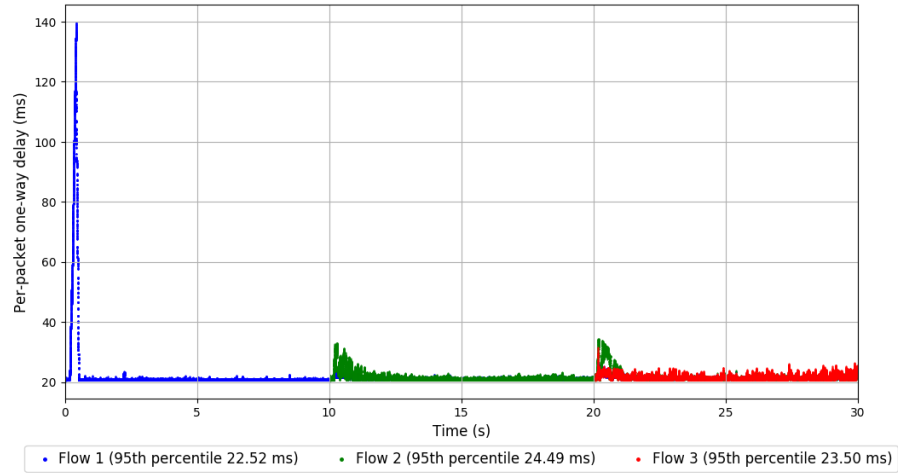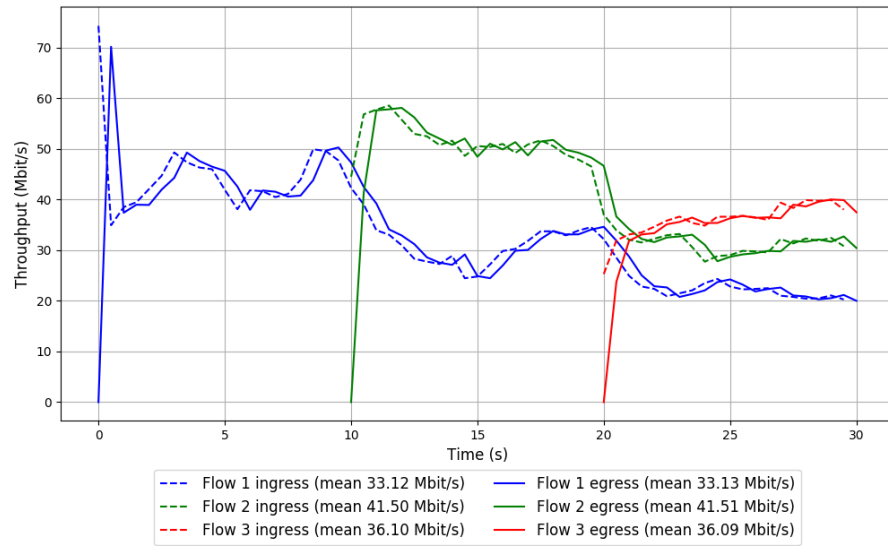Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-11-15 11:53:47
End at: 2018-11-15 11:54:17
Local clock offset: 2.373 ms
Remote clock offset: -6.208 ms


# Below is generated by plot.py at 2018-11-15 13:08:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 82.04 Mbit/s
95th percentile per-packet one-way delay: 25.556 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 44.85 Mbit/s
95th percentile per-packet one-way delay: 25.191 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 42.06 Mbit/s
95th percentile per-packet one-way delay: 27.524 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 27.65 Mbit/s
95th percentile per-packet one-way delay: 23.951 ms
Loss rate: 0.31%
```

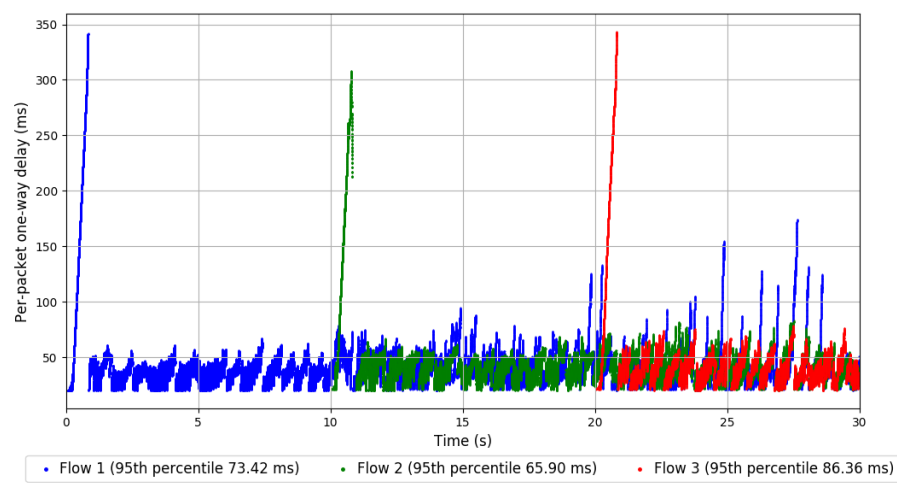# Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2018-11-15 12:15:39
End at: 2018-11-15 12:16:09
Local clock offset: 3.327 ms
Remote clock offset: -2.694 ms


# Below is generated by plot.py at 2018-11-15 13:08:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 80.02 Mbit/s
95th percentile per-packet one-way delay: 21.179 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 43.12 Mbit/s
95th percentile per-packet one-way delay: 20.837 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 38.05 Mbit/s
95th percentile per-packet one-way delay: 21.139 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 35.74 Mbit/s
95th percentile per-packet one-way delay: 21.918 ms
Loss rate: 0.22%
```
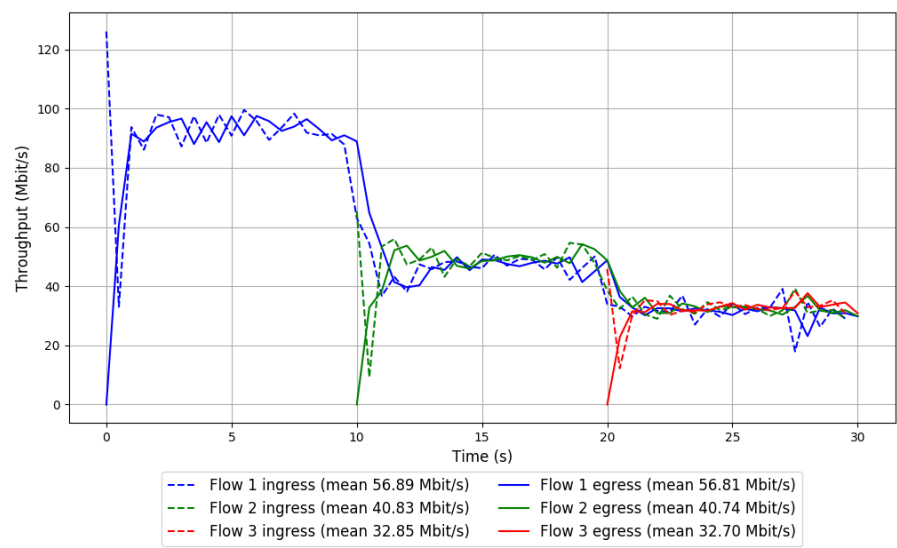
Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2018-11-15 12:37:21
End at: 2018-11-15 12:37:51
Local clock offset: 2.828 ms
Remote clock offset: -3.986 ms


# Below is generated by plot.py at 2018-11-15 13:08:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 72.74 Mbit/s
95th percentile per-packet one-way delay: 23.540 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 33.13 Mbit/s
95th percentile per-packet one-way delay: 22.517 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 41.51 Mbit/s
95th percentile per-packet one-way delay: 24.488 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 36.09 Mbit/s
95th percentile per-packet one-way delay: 23.500 ms
Loss rate: 0.30%
```
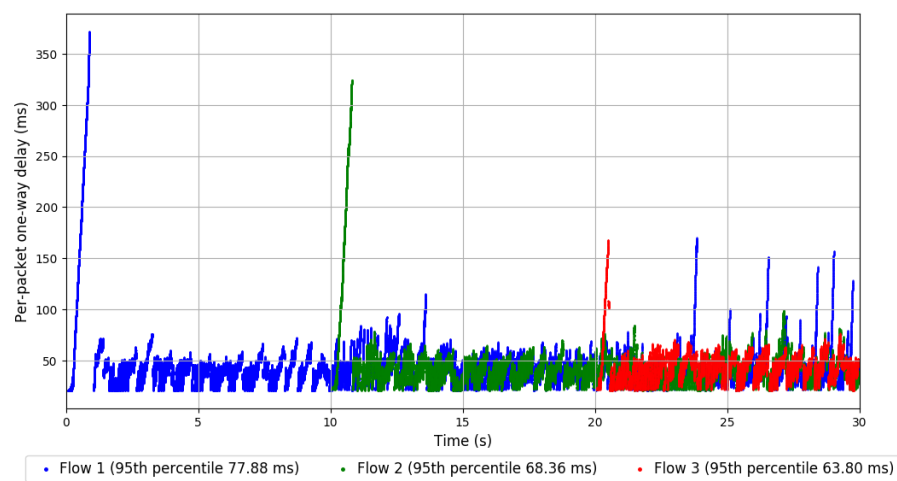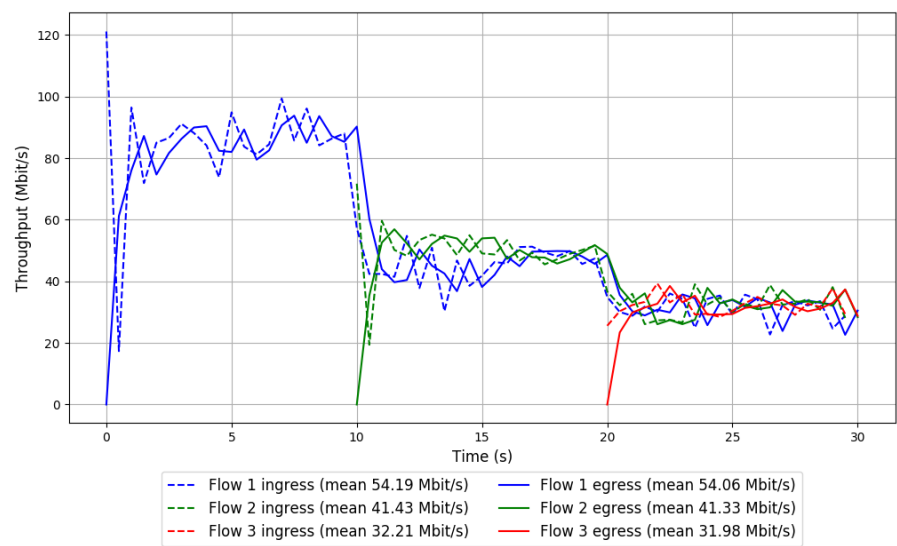
Run 5: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 33.12 Mbit/s)   Flow 1 egress (mean 33.13 Mbit/s)
Flow 2 ingress (mean 41.50 Mbit/s)   Flow 2 egress (mean 41.51 Mbit/s)
Flow 3 ingress (mean 36.10 Mbit/s)   Flow 3 egress (mean 36.09 Mbit/s)

Flow 1 (95th percentile 22.52 ms)   Flow 2 (95th percentile 24.49 ms)   Flow 3 (95th percentile 23.50 ms)

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```
Run 1: Statistics of Verus

Start at: 2018-11-15 11:26:36
End at: 2018-11-15 11:27:06
Local clock offset: 2.343 ms
Remote clock offset: -4.603 ms


# Below is generated by plot.py at 2018-11-15 13:09:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.78 Mbit/s
95th percentile per-packet one-way delay: 71.161 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 56.81 Mbit/s
95th percentile per-packet one-way delay: 73.419 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 40.74 Mbit/s
95th percentile per-packet one-way delay: 65.899 ms
Loss rate: 0.35%
-- Flow 3:
Average throughput: 32.70 Mbit/s
95th percentile per-packet one-way delay: 86.357 ms
Loss rate: 0.69%
```
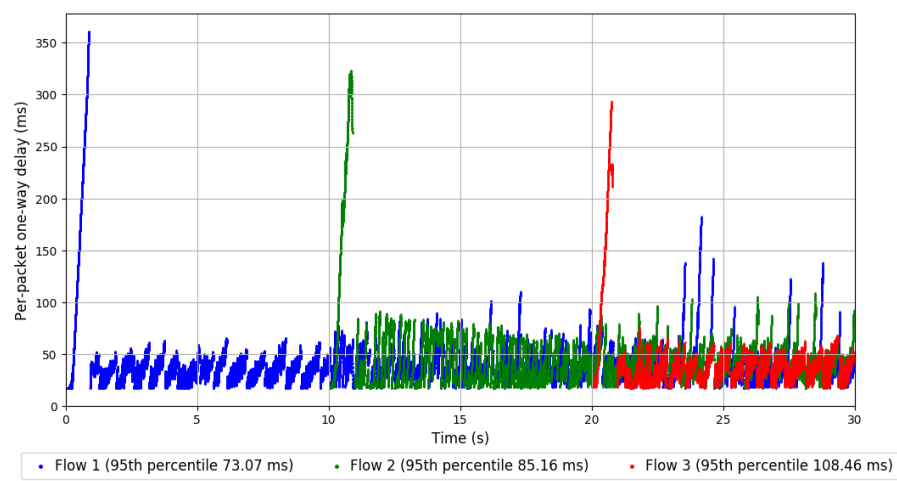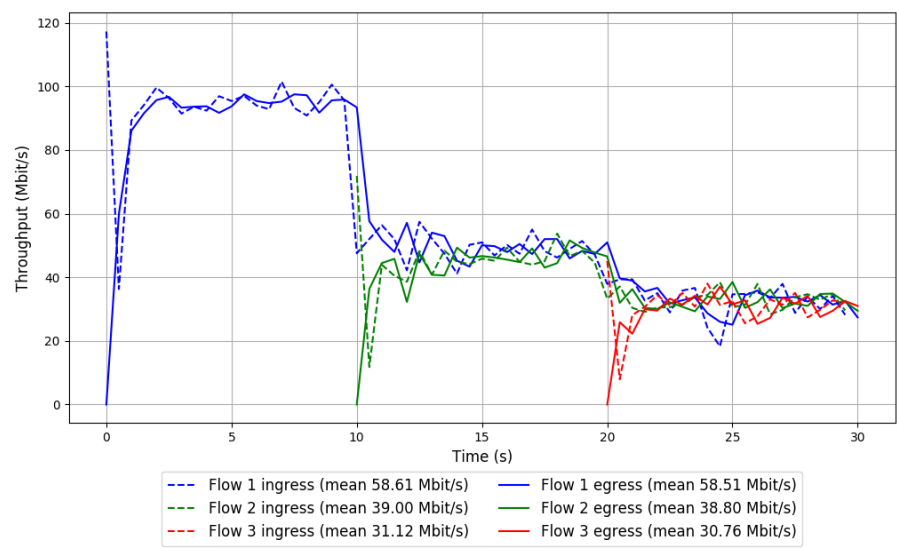
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-11-15 11:50:05
End at: 2018-11-15 11:50:35
Local clock offset: 2.966 ms
Remote clock offset: -5.131 ms


# Below is generated by plot.py at 2018-11-15 13:09:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.19 Mbit/s
95th percentile per-packet one-way delay: 72.337 ms
Loss rate: 0.41%
-- Flow 1:
Average throughput: 54.06 Mbit/s
95th percentile per-packet one-way delay: 77.879 ms
Loss rate: 0.32%
-- Flow 2:
Average throughput: 41.33 Mbit/s
95th percentile per-packet one-way delay: 68.361 ms
Loss rate: 0.37%
-- Flow 3:
Average throughput: 31.98 Mbit/s
95th percentile per-packet one-way delay: 63.798 ms
Loss rate: 0.94%
```
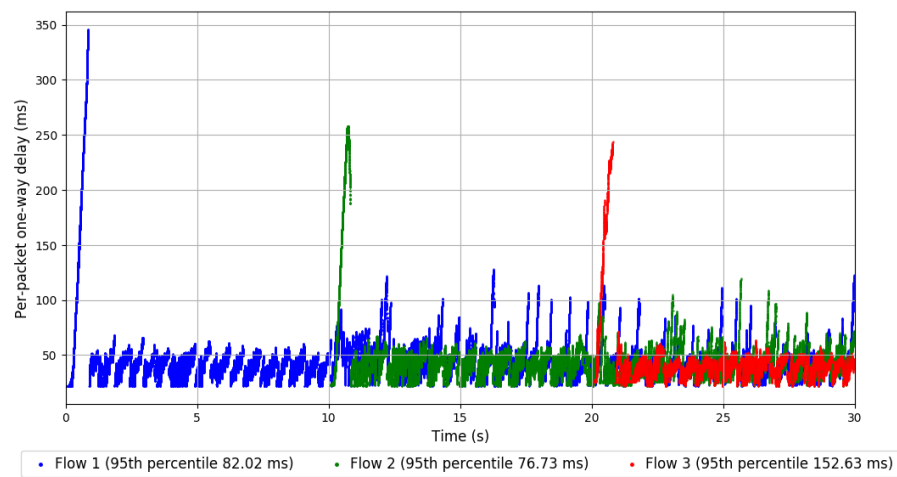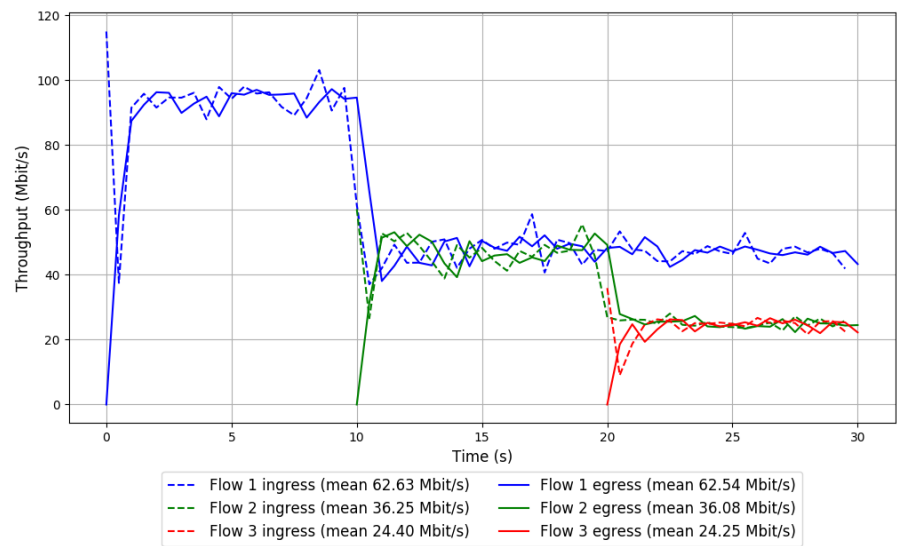
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-11-15 12:12:09
End at: 2018-11-15 12:12:39
Local clock offset: 1.862 ms
Remote clock offset: -2.829 ms


# Below is generated by plot.py at 2018-11-15 13:09:35
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.54 Mbit/s
95th percentile per-packet one-way delay: 79.914 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 58.51 Mbit/s
95th percentile per-packet one-way delay: 73.072 ms
Loss rate: 0.23%
-- Flow 2:
Average throughput: 38.80 Mbit/s
95th percentile per-packet one-way delay: 85.156 ms
Loss rate: 0.37%
-- Flow 3:
Average throughput: 30.76 Mbit/s
95th percentile per-packet one-way delay: 108.459 ms
Loss rate: 1.32%
```

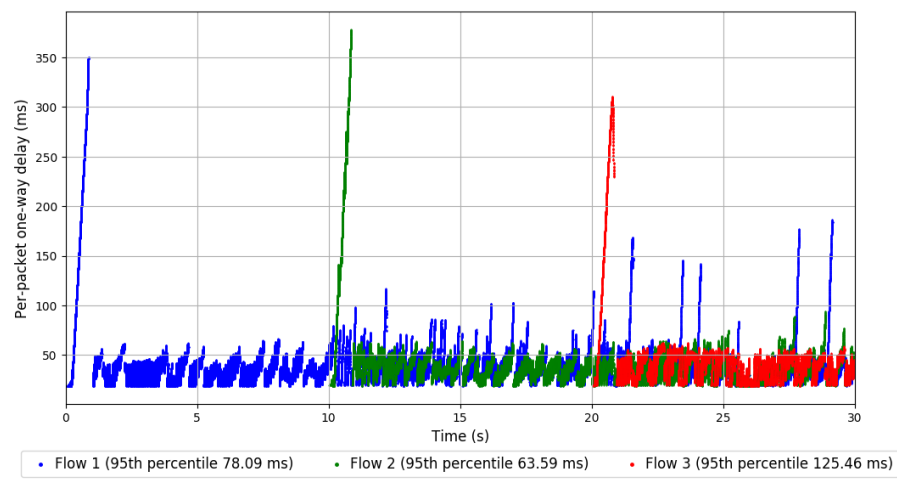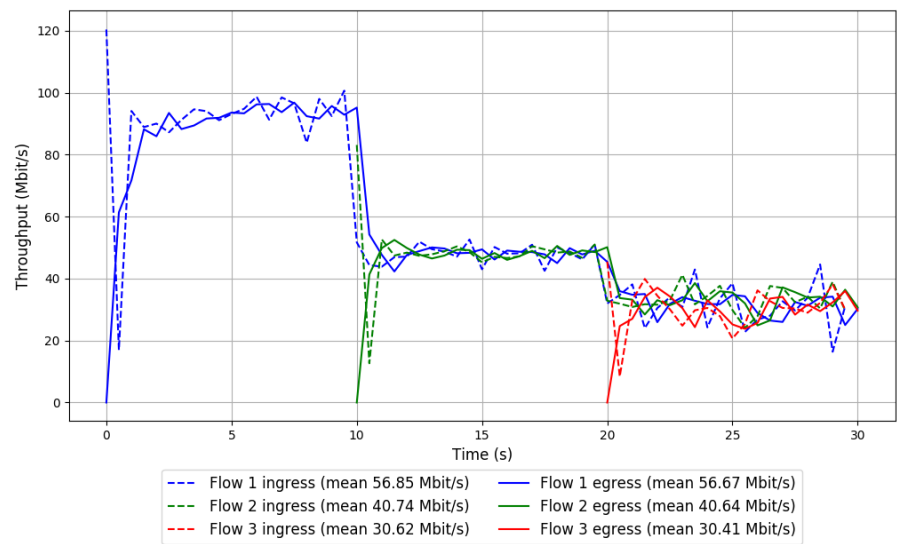## Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2018-11-15 12:33:50
End at: 2018-11-15 12:34:20
Local clock offset: 3.13 ms
Remote clock offset: -5.236 ms


# Below is generated by plot.py at 2018-11-15 13:09:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 94.58 Mbit/s
95th percentile per-packet one-way delay: 82.013 ms
Loss rate: 0.34%
-- Flow 1:
Average throughput: 62.54 Mbit/s
95th percentile per-packet one-way delay: 82.020 ms
Loss rate: 0.22%
-- Flow 2:
Average throughput: 36.08 Mbit/s
95th percentile per-packet one-way delay: 76.728 ms
Loss rate: 0.48%
-- Flow 3:
Average throughput: 24.25 Mbit/s
95th percentile per-packet one-way delay: 152.626 ms
Loss rate: 0.86%
```
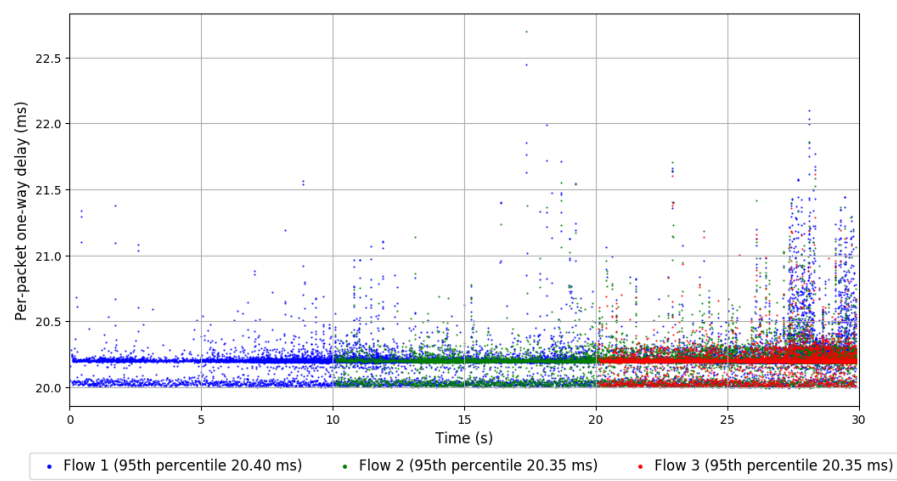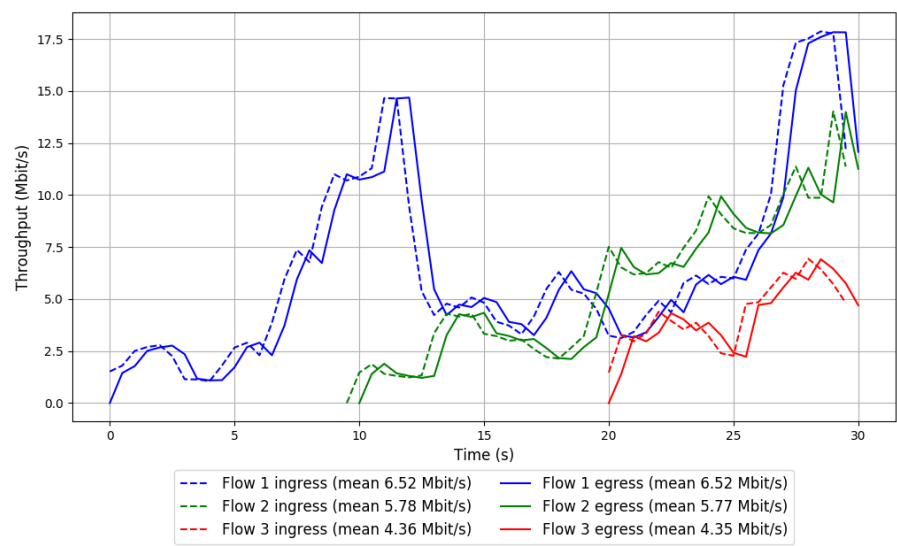
Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-11-15 12:55:59
End at: 2018-11-15 12:56:29
Local clock offset: 1.003 ms
Remote clock offset: -2.781 ms

# Below is generated by plot.py at 2018-11-15 13:09:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 93.82 Mbit/s
95th percentile per-packet one-way delay: 76.891 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 56.67 Mbit/s
95th percentile per-packet one-way delay: 78.090 ms
Loss rate: 0.39%
-- Flow 2:
Average throughput: 40.64 Mbit/s
95th percentile per-packet one-way delay: 63.593 ms
Loss rate: 0.35%
-- Flow 3:
Average throughput: 30.41 Mbit/s
95th percentile per-packet one-way delay: 125.462 ms
Loss rate: 0.90%
```

Run 5: Report of Verus — Data Link

Flow 1 ingress (mean 56.85 Mbit/s) — — — Flow 1 egress (mean 56.67 Mbit/s)
Flow 2 ingress (mean 40.74 Mbit/s) — — — Flow 2 egress (mean 40.64 Mbit/s)
Flow 3 ingress (mean 30.62 Mbit/s) — — — Flow 3 egress (mean 30.41 Mbit/s)

Flow 1 (95th percentile 78.09 ms) • Flow 2 (95th percentile 63.59 ms) • Flow 3 (95th percentile 125.46 ms)
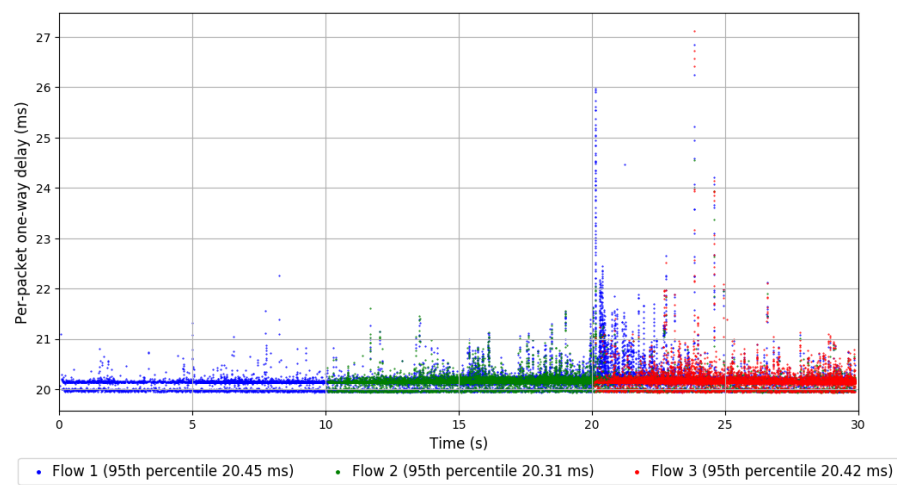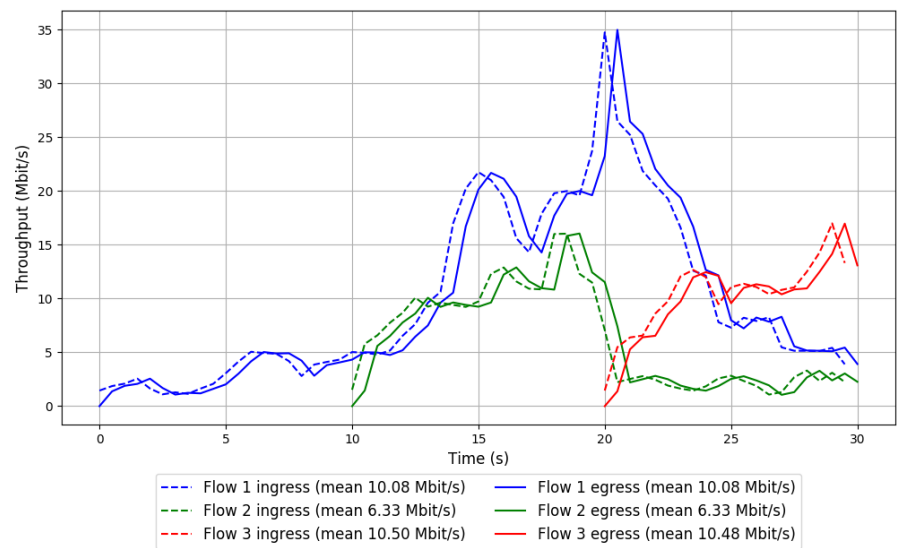
```
Run 1: Statistics of PCC-Vivace

Start at: 2018-11-15 11:17:20
End at: 2018-11-15 11:17:50
Local clock offset: 2.12 ms
Remote clock offset: -4.625 ms


# Below is generated by plot.py at 2018-11-15 13:09:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 11.79 Mbit/s
95th percentile per-packet one-way delay: 20.377 ms
Loss rate: 0.26%
-- Flow 1:
Average throughput: 6.52 Mbit/s
95th percentile per-packet one-way delay: 20.402 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 5.77 Mbit/s
95th percentile per-packet one-way delay: 20.349 ms
Loss rate: 0.30%
-- Flow 3:
Average throughput: 4.35 Mbit/s
95th percentile per-packet one-way delay: 20.352 ms
Loss rate: 0.40%
```

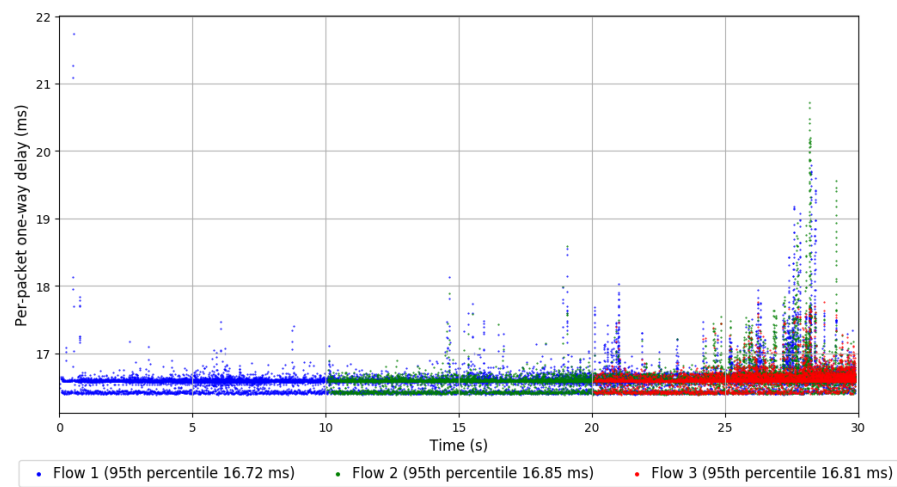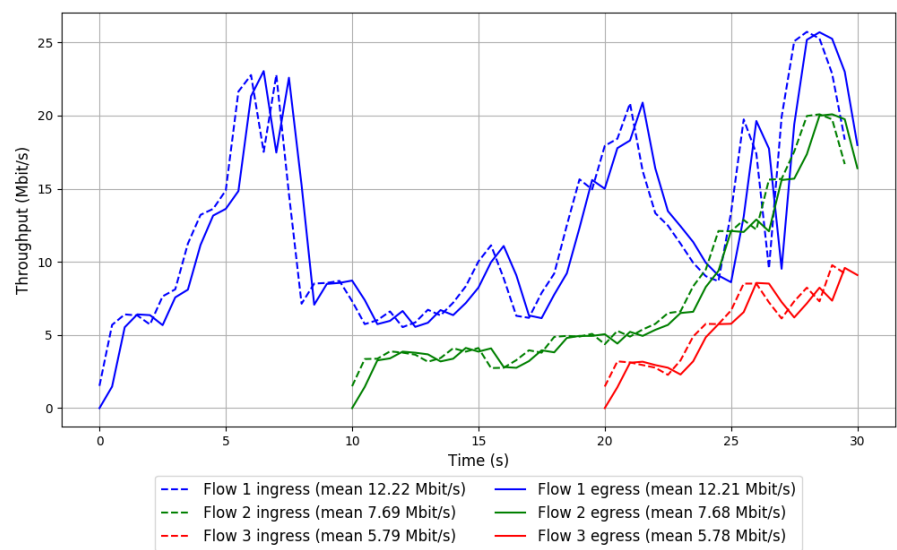Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-11-15 11:40:54
End at: 2018-11-15 11:41:24
Local clock offset: 1.814 ms
Remote clock offset: -5.324 ms


# Below is generated by plot.py at 2018-11-15 13:09:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 17.74 Mbit/s
95th percentile per-packet one-way delay: 20.410 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 10.08 Mbit/s
95th percentile per-packet one-way delay: 20.454 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 6.33 Mbit/s
95th percentile per-packet one-way delay: 20.312 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 10.48 Mbit/s
95th percentile per-packet one-way delay: 20.418 ms
Loss rate: 0.48%
```
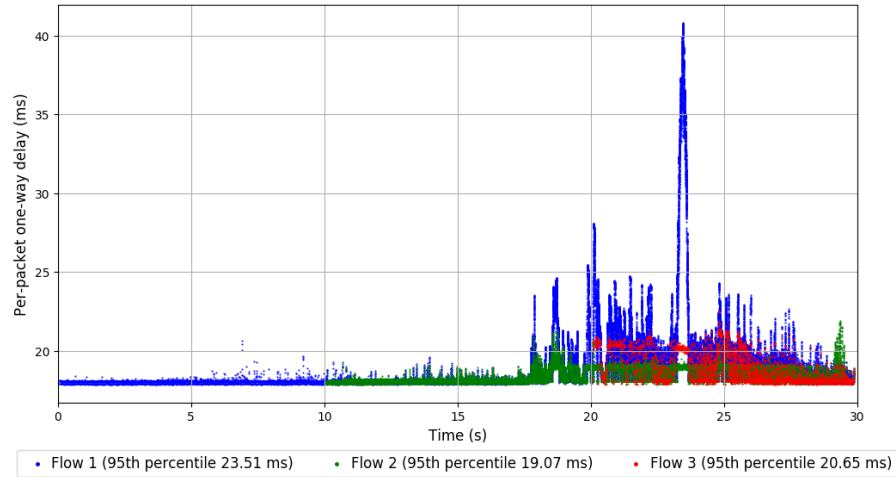
Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-11-15 12:03:44
End at: 2018-11-15 12:04:14
Local clock offset: 1.459 ms
Remote clock offset: -2.209 ms


# Below is generated by plot.py at 2018-11-15 13:09:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 19.22 Mbit/s
95th percentile per-packet one-way delay: 16.772 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 12.21 Mbit/s
95th percentile per-packet one-way delay: 16.720 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 7.68 Mbit/s
95th percentile per-packet one-way delay: 16.850 ms
Loss rate: 0.32%
-- Flow 3:
Average throughput: 5.78 Mbit/s
95th percentile per-packet one-way delay: 16.810 ms
Loss rate: 0.48%
```

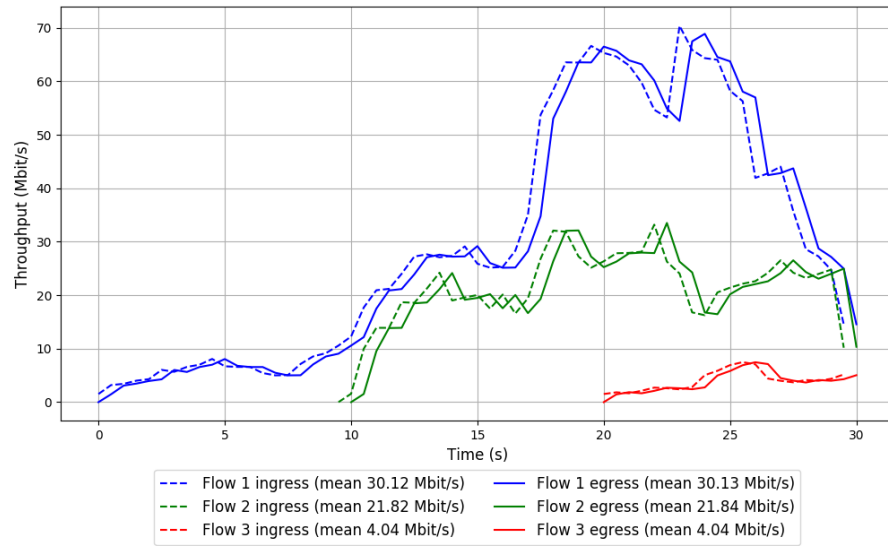Run 3: Report of PCC-Vivace — Data Link

```
Run 4: Statistics of PCC-Vivace

Start at: 2018-11-15 12:25:20
End at: 2018-11-15 12:25:50
Local clock offset: 2.354 ms
Remote clock offset: -2.683 ms


# Below is generated by plot.py at 2018-11-15 13:09:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 46.00 Mbit/s
95th percentile per-packet one-way delay: 22.484 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 30.13 Mbit/s
95th percentile per-packet one-way delay: 23.513 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 21.84 Mbit/s
95th percentile per-packet one-way delay: 19.067 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 4.04 Mbit/s
95th percentile per-packet one-way delay: 20.652 ms
Loss rate: 0.44%
```

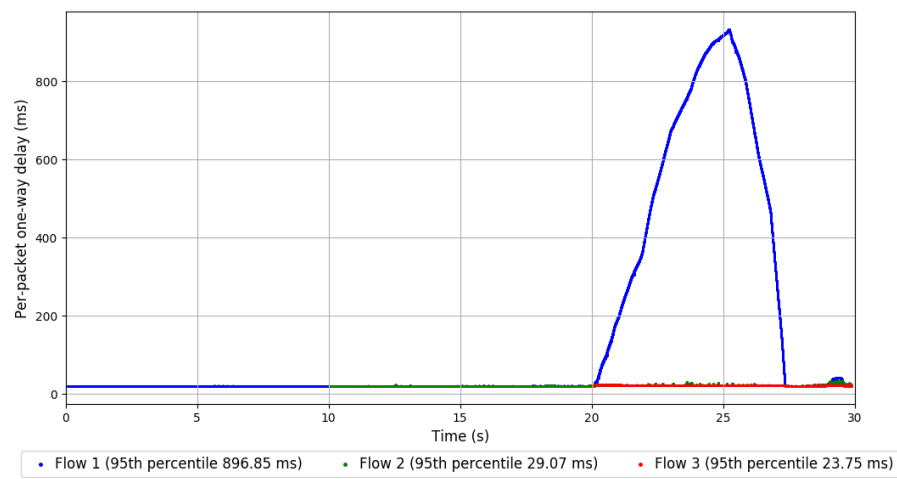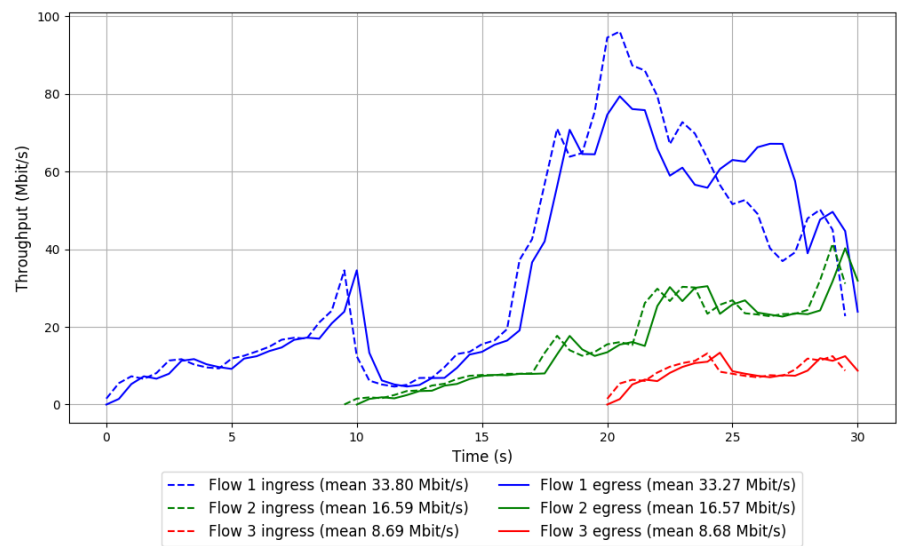Run 4: Report of PCC-Vivace — Data Link

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-11-15 12:47:29
End at: 2018-11-15 12:47:59
Local clock offset: 2.807 ms
Remote clock offset: -3.717 ms


# Below is generated by plot.py at 2018-11-15 13:09:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 47.15 Mbit/s
95th percentile per-packet one-way delay: 874.162 ms
Loss rate: 1.26%
-- Flow 1:
Average throughput: 33.27 Mbit/s
95th percentile per-packet one-way delay: 896.848 ms
Loss rate: 1.66%
-- Flow 2:
Average throughput: 16.57 Mbit/s
95th percentile per-packet one-way delay: 29.071 ms
Loss rate: 0.28%
-- Flow 3:
Average throughput: 8.68 Mbit/s
95th percentile per-packet one-way delay: 23.750 ms
Loss rate: 0.35%
```

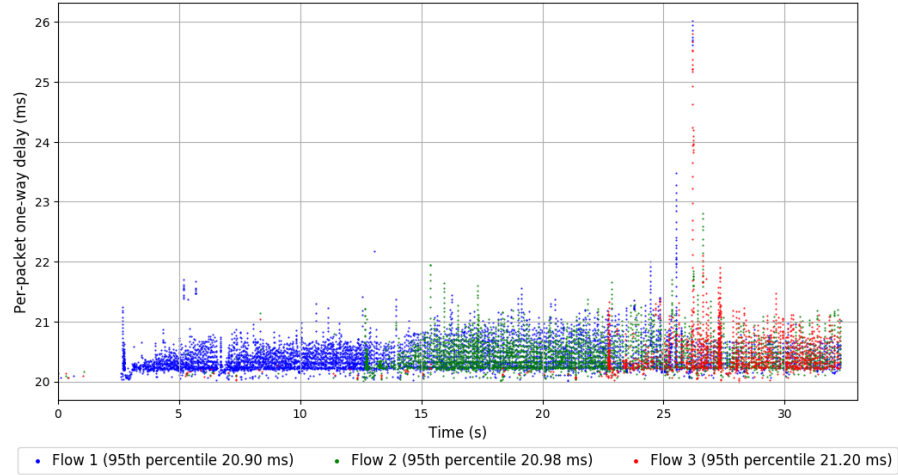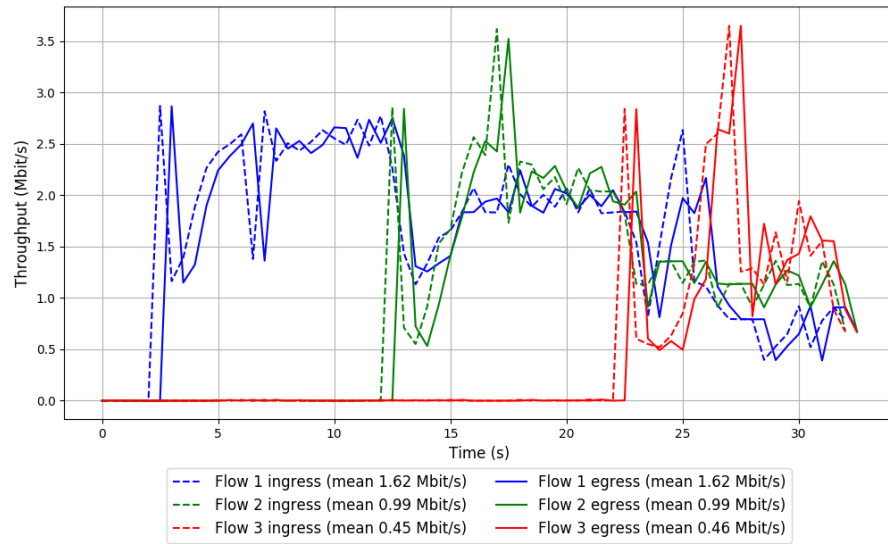Run 5: Report of PCC-Vivace — Data Link

```
Run 1: Statistics of WebRTC media

Start at: 2018-11-15 11:04:20
End at: 2018-11-15 11:04:50
Local clock offset: 2.788 ms
Remote clock offset: -3.872 ms


# Below is generated by plot.py at 2018-11-15 13:09:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.06 Mbit/s
95th percentile per-packet one-way delay: 20.987 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 1.62 Mbit/s
95th percentile per-packet one-way delay: 20.897 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 0.99 Mbit/s
95th percentile per-packet one-way delay: 20.983 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.46 Mbit/s
95th percentile per-packet one-way delay: 21.199 ms
Loss rate: 0.00%
```

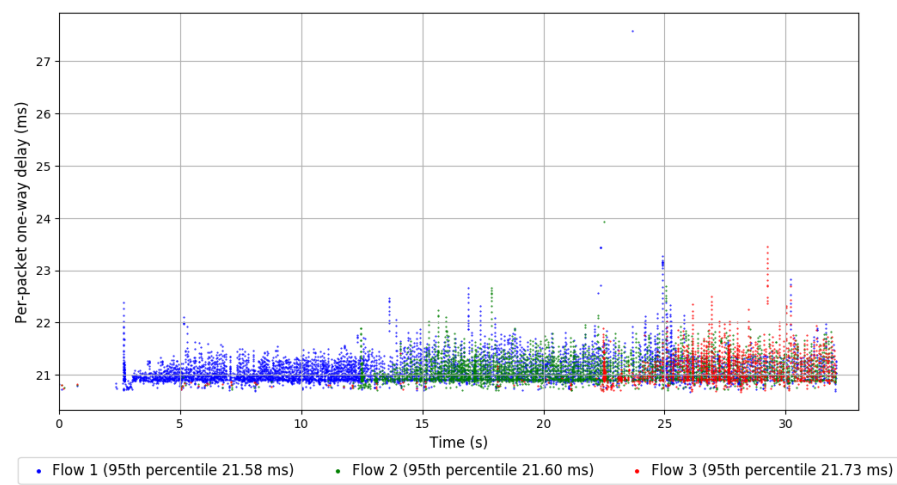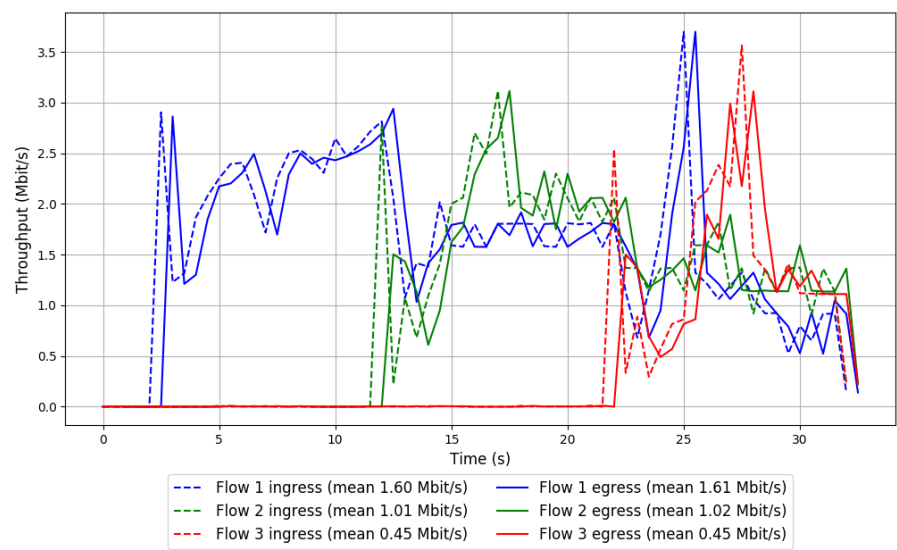Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-11-15 11:27:55
End at: 2018-11-15 11:28:25
Local clock offset: 3.28 ms
Remote clock offset: -4.268 ms


# Below is generated by plot.py at 2018-11-15 13:09:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.07 Mbit/s
95th percentile per-packet one-way delay: 21.613 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 1.61 Mbit/s
95th percentile per-packet one-way delay: 21.582 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.02 Mbit/s
95th percentile per-packet one-way delay: 21.597 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 21.733 ms
Loss rate: 0.01%
```

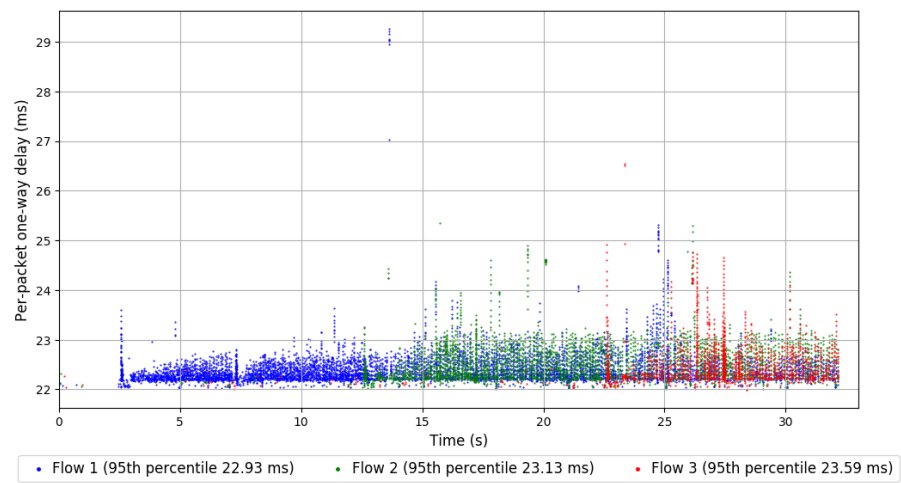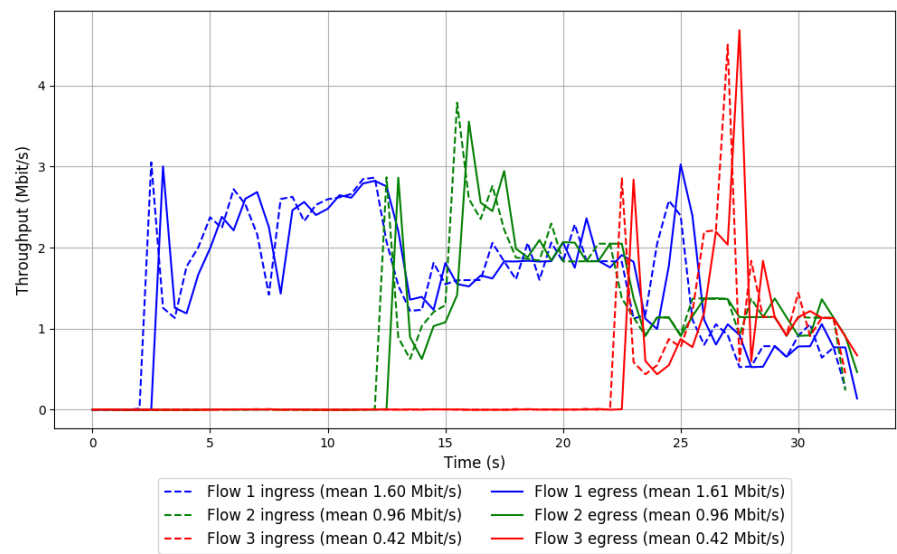Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-11-15 11:51:31
End at: 2018-11-15 11:52:01
Local clock offset: 3.791 ms
Remote clock offset: -5.436 ms


# Below is generated by plot.py at 2018-11-15 13:09:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.98 Mbit/s
95th percentile per-packet one-way delay: 23.108 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 1.61 Mbit/s
95th percentile per-packet one-way delay: 22.928 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 0.96 Mbit/s
95th percentile per-packet one-way delay: 23.133 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 23.594 ms
Loss rate: 0.01%
```
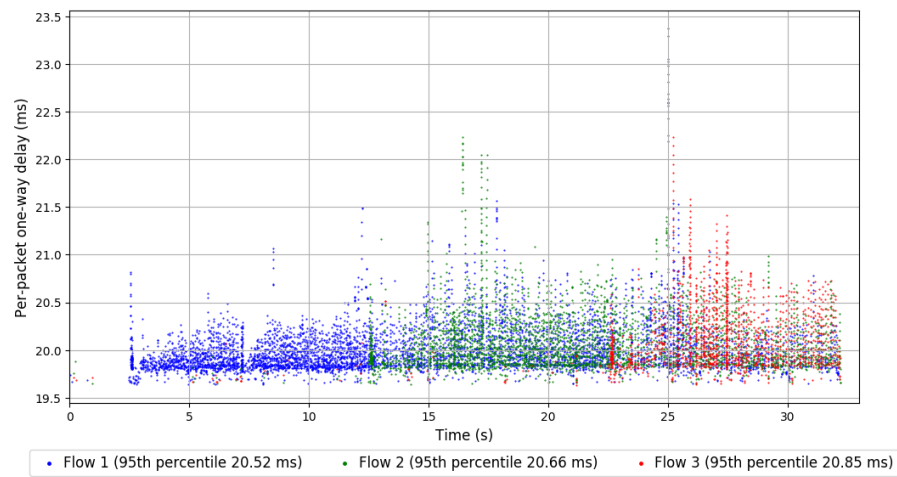
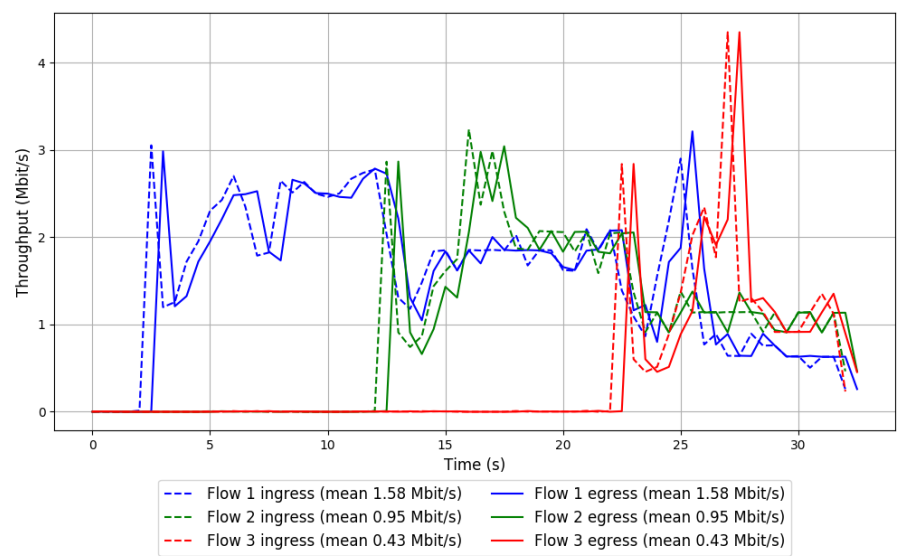Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-11-15 12:13:23
End at: 2018-11-15 12:13:53
Local clock offset: 3.306 ms
Remote clock offset: -3.535 ms


# Below is generated by plot.py at 2018-11-15 13:09:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.95 Mbit/s
95th percentile per-packet one-way delay: 20.647 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.58 Mbit/s
95th percentile per-packet one-way delay: 20.520 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.95 Mbit/s
95th percentile per-packet one-way delay: 20.657 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 20.850 ms
Loss rate: 0.01%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-11-15 12:35:02
End at: 2018-11-15 12:35:32
Local clock offset: 3.947 ms
Remote clock offset: -4.682 ms


# Below is generated by plot.py at 2018-11-15 13:09:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.93 Mbit/s
95th percentile per-packet one-way delay: 23.064 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 1.59 Mbit/s
95th percentile per-packet one-way delay: 22.977 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 0.94 Mbit/s
95th percentile per-packet one-way delay: 23.152 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 22.675 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link