Pantheon Report

Generated at 2018-12-11 05:55:16 (UTC).

Data path: GCE Tokyo on `ens4` (*local*) →GCE London on `ens4` (*remote*).

Repeated the test of 19 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 `time.google.com` and have been applied to correct the timestamps in logs.
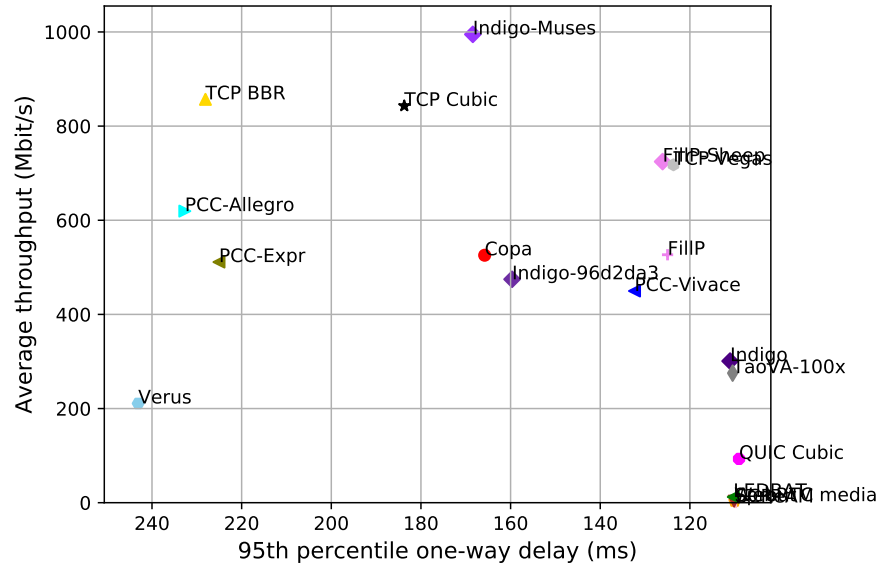
```
System info:
Linux 4.15.0-1024-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ 7b6dad87cde3ab65f7c4052140eb54098aa58e9d
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
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
```
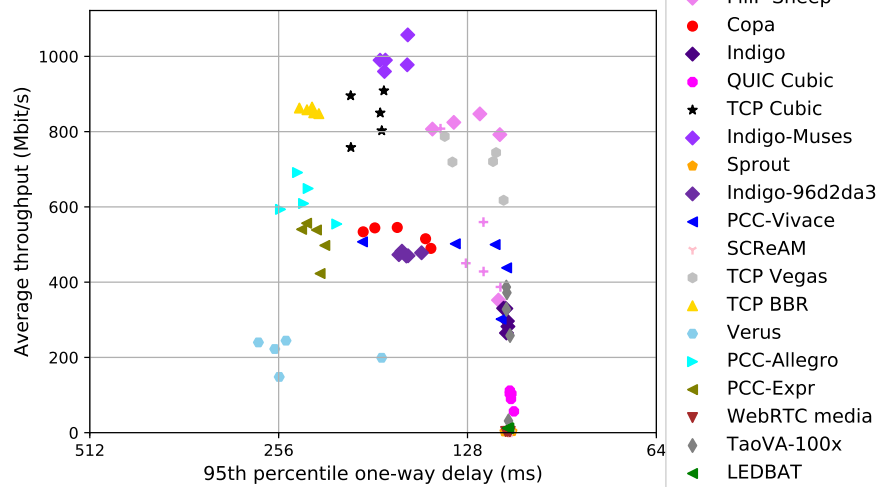
```
 M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from GCE Tokyo to GCE London, 5 runs of 30s each per scheme
3 flows with 10s interval between flows (mean of all runs by scheme)

test from GCE Tokyo to GCE London, 5 runs of 30s each per scheme
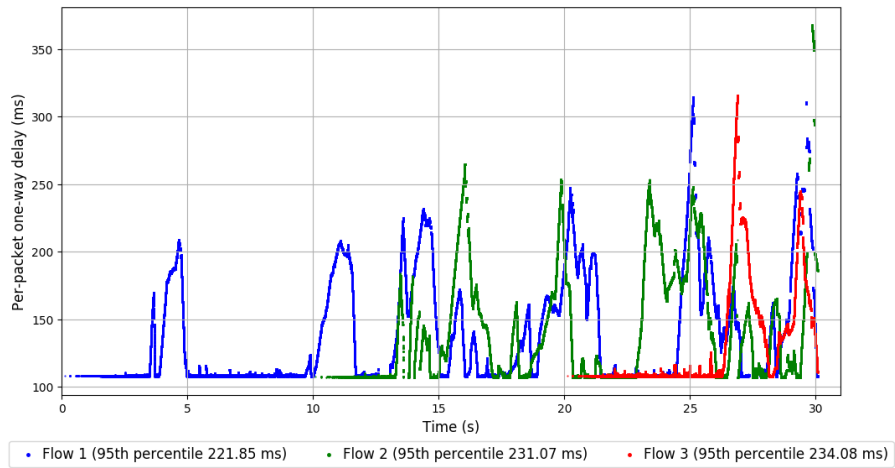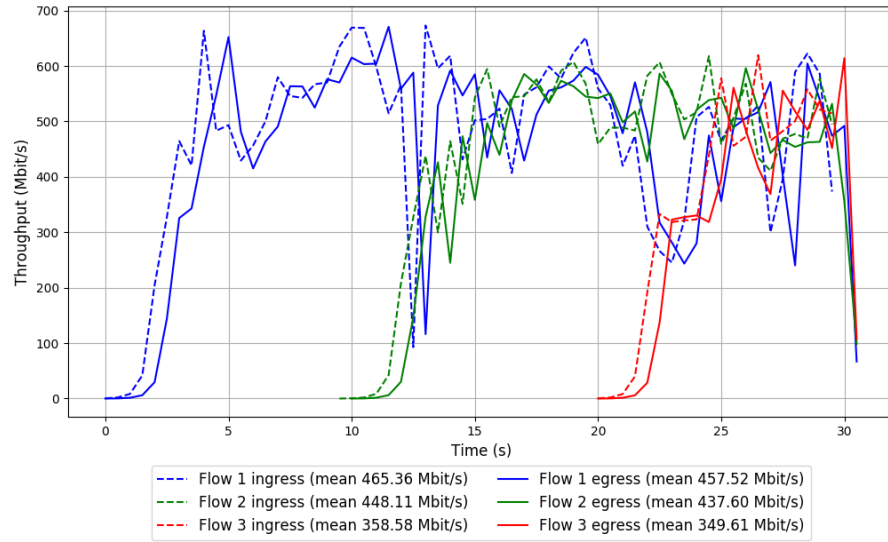3 flows with 10s interval between flows

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	471.78	405.67	345.59	220.21	225.91	214.54	1.88	2.07	1.53
Copa	5	283.39	257.73	212.09	135.37	164.52	185.78	0.01	0.01	0.01
TCP Cubic	5	444.72	439.42	317.57	160.74	185.23	170.77	0.02	0.08	0.21
FillP	5	208.59	354.46	248.52	132.86	114.14	111.86	0.10	0.00	0.00
FillP-Sheep	5	429.24	321.01	246.29	129.91	113.26	113.70	0.04	0.00	0.00
Indigo	5	147.10	167.91	133.14	110.60	111.85	111.24	0.00	0.00	0.00
Indigo-96d2da3	5	260.12	228.15	195.78	160.52	163.33	145.65	0.24	0.45	0.00
LEDBAT	5	7.84	5.19	2.55	110.39	109.95	110.07	0.00	0.00	0.00
Indigo-Muses	5	561.89	486.07	341.25	166.43	168.20	174.72	0.16	0.22	0.57
PCC-Allegro	5	364.26	268.32	233.37	236.83	159.34	222.13	4.44	0.98	2.54
PCC-Expr	5	293.28	249.41	157.76	213.61	214.09	179.27	2.52	6.38	0.52
QUIC Cubic	5	46.33	54.06	33.86	109.07	108.70	109.04	0.00	0.00	0.00
SCReAM	5	0.22	0.22	0.22	109.70	109.55	109.57	0.00	0.00	0.00
Sprout	5	1.87	1.06	1.02	109.49	109.13	109.49	0.00	0.00	0.00
TaoVA-100x	5	158.84	119.84	110.08	110.34	110.23	110.44	0.00	0.00	0.00
TCP Vegas	5	384.51	354.20	292.94	116.91	125.30	143.35	0.04	0.00	0.01
Verus	5	143.60	80.38	44.44	251.91	186.27	123.84	5.38	1.02	0.00
PCC-Vivace	5	268.88	182.69	179.82	123.51	111.08	163.21	0.13	0.00	0.49
WebRTC media	5	1.85	1.07	0.37	110.06	109.49	109.45	0.00	0.00	0.00

```
Run 1: Statistics of TCP BBR

Start at: 2018-12-11 00:45:55
End at: 2018-12-11 00:46:25
Local clock offset: 1.154 ms
Remote clock offset: -0.148 ms


# Below is generated by plot.py at 2018-12-11 04:05:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 865.38 Mbit/s
95th percentile per-packet one-way delay: 226.457 ms
Loss rate: 2.01%
-- Flow 1:
Average throughput: 457.52 Mbit/s
95th percentile per-packet one-way delay: 221.846 ms
Loss rate: 1.68%
-- Flow 2:
Average throughput: 437.60 Mbit/s
95th percentile per-packet one-way delay: 231.070 ms
Loss rate: 2.34%
-- Flow 3:
Average throughput: 349.61 Mbit/s
95th percentile per-packet one-way delay: 234.076 ms
Loss rate: 2.48%
```
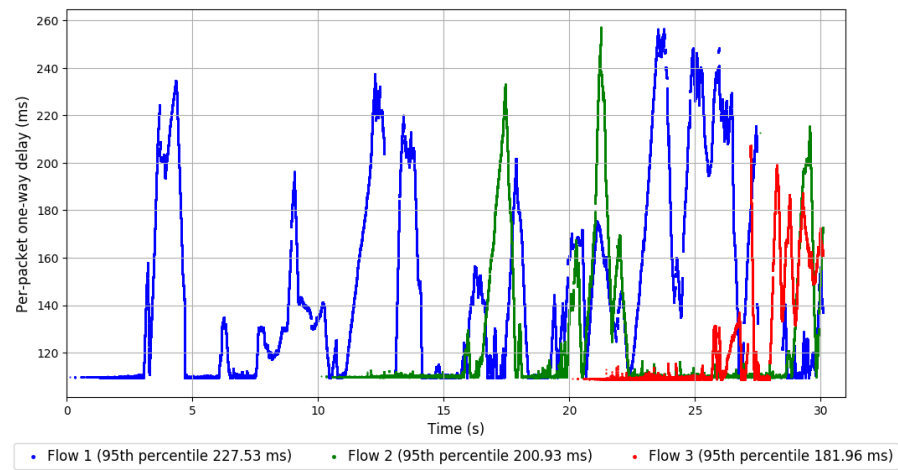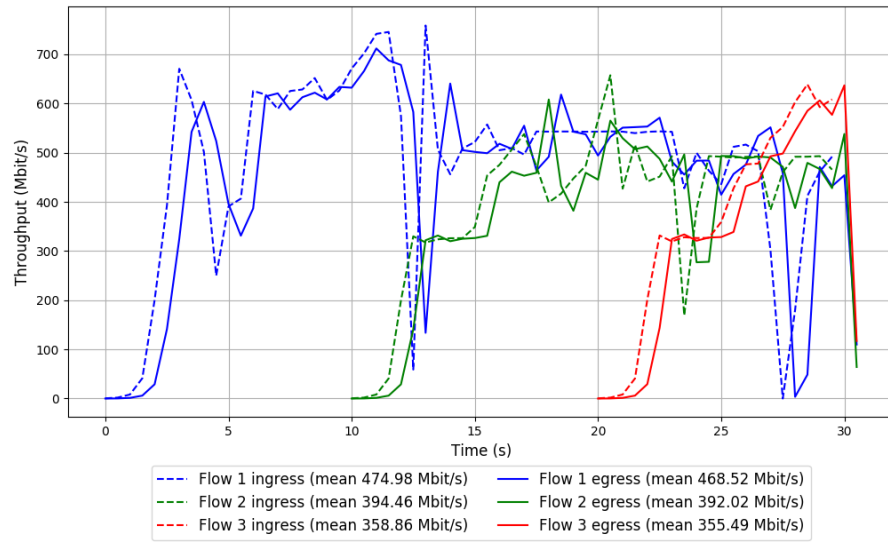
Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2018-12-11 01:20:16
End at: 2018-12-11 01:20:46
Local clock offset: -0.805 ms
Remote clock offset: -0.291 ms


# Below is generated by plot.py at 2018-12-11 04:05:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 847.88 Mbit/s
95th percentile per-packet one-way delay: 220.887 ms
Loss rate: 1.07%
-- Flow 1:
Average throughput: 468.52 Mbit/s
95th percentile per-packet one-way delay: 227.531 ms
Loss rate: 1.36%
-- Flow 2:
Average throughput: 392.02 Mbit/s
95th percentile per-packet one-way delay: 200.926 ms
Loss rate: 0.62%
-- Flow 3:
Average throughput: 355.49 Mbit/s
95th percentile per-packet one-way delay: 181.961 ms
Loss rate: 0.93%
```
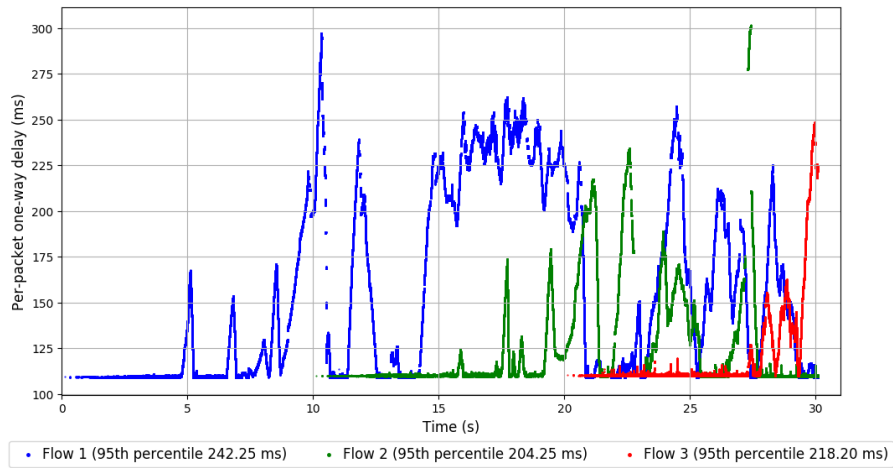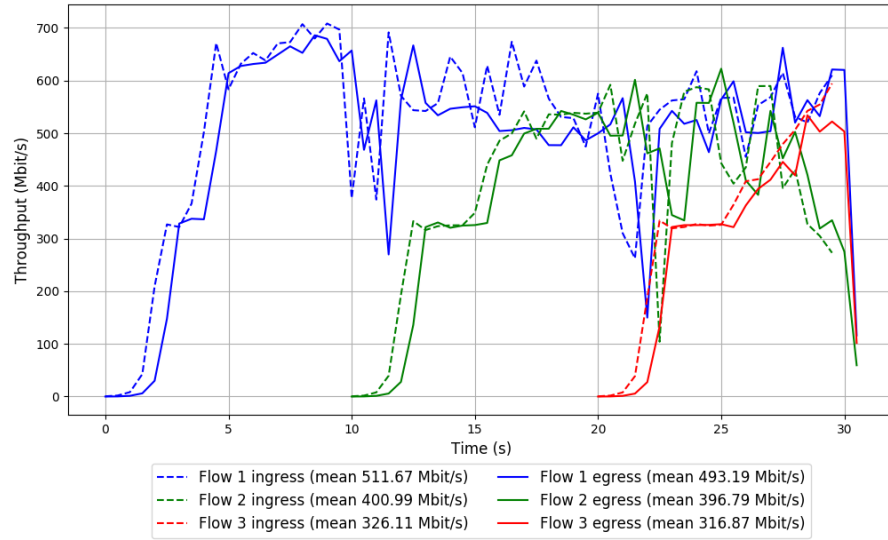
Run 2: Report of TCP BBR — Data Link

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```
Run 3: Statistics of TCP BBR

Start at: 2018-12-11 01:58:46
End at: 2018-12-11 01:59:16
Local clock offset: -0.846 ms
Remote clock offset: -0.036 ms


# Below is generated by plot.py at 2018-12-11 04:05:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 862.73 Mbit/s
95th percentile per-packet one-way delay: 237.235 ms
Loss rate: 2.74%
-- Flow 1:
Average throughput: 493.19 Mbit/s
95th percentile per-packet one-way delay: 242.247 ms
Loss rate: 3.61%
-- Flow 2:
Average throughput: 396.79 Mbit/s
95th percentile per-packet one-way delay: 204.251 ms
Loss rate: 1.05%
-- Flow 3:
Average throughput: 316.87 Mbit/s
95th percentile per-packet one-way delay: 218.198 ms
Loss rate: 2.83%
```
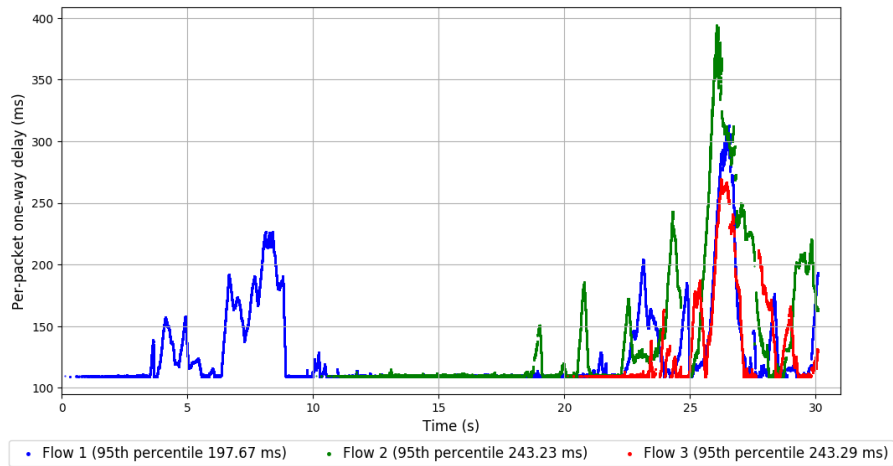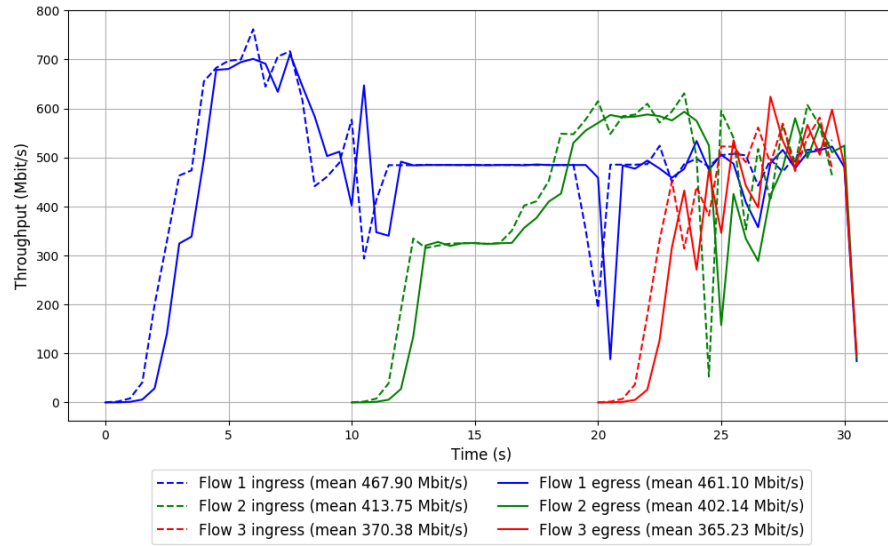
Run 3: Report of TCP BBR — Data Link

```
Run 4: Statistics of TCP BBR

Start at: 2018-12-11 02:34:33
End at: 2018-12-11 02:35:03
Local clock offset: -0.129 ms
Remote clock offset: -0.058 ms


# Below is generated by plot.py at 2018-12-11 04:05:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 850.12 Mbit/s
95th percentile per-packet one-way delay: 225.065 ms
Loss rate: 1.87%
-- Flow 1:
Average throughput: 461.10 Mbit/s
95th percentile per-packet one-way delay: 197.672 ms
Loss rate: 1.45%
-- Flow 2:
Average throughput: 402.14 Mbit/s
95th percentile per-packet one-way delay: 243.231 ms
Loss rate: 2.80%
-- Flow 3:
Average throughput: 365.23 Mbit/s
95th percentile per-packet one-way delay: 243.292 ms
Loss rate: 1.39%
```

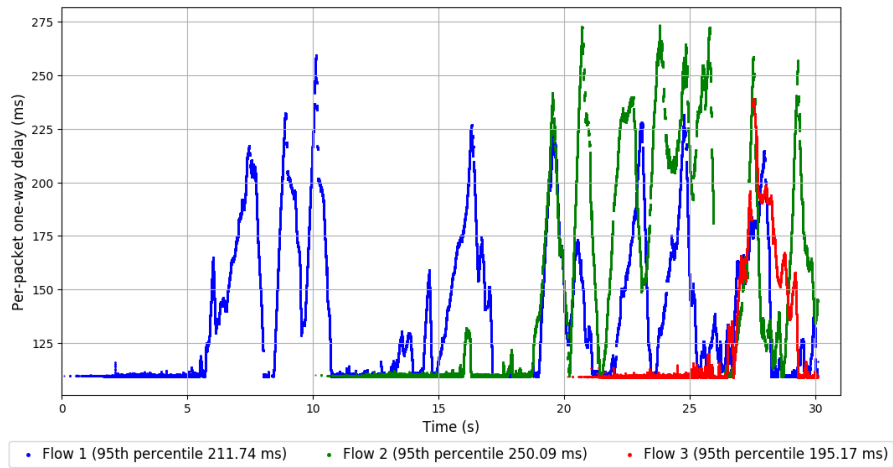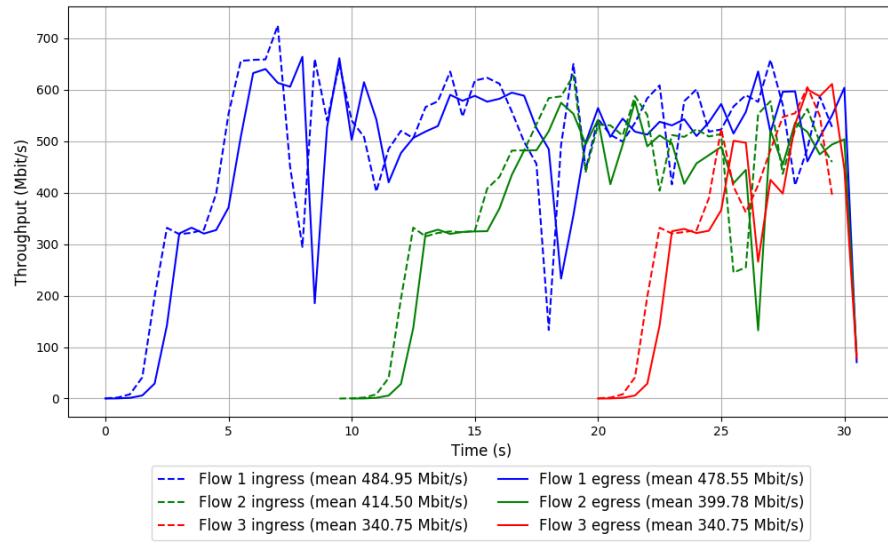Run 4: Report of TCP BBR — Data Link

```
Run 5: Statistics of TCP BBR

Start at: 2018-12-11 03:08:19
End at: 2018-12-11 03:08:49
Local clock offset: -0.11 ms
Remote clock offset: -0.033 ms

# Below is generated by plot.py at 2018-12-11 04:05:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 858.23 Mbit/s
95th percentile per-packet one-way delay: 230.732 ms
Loss rate: 1.85%
-- Flow 1:
Average throughput: 478.55 Mbit/s
95th percentile per-packet one-way delay: 211.735 ms
Loss rate: 1.31%
-- Flow 2:
Average throughput: 399.78 Mbit/s
95th percentile per-packet one-way delay: 250.091 ms
Loss rate: 3.55%
-- Flow 3:
Average throughput: 340.75 Mbit/s
95th percentile per-packet one-way delay: 195.171 ms
Loss rate: 0.00%
```

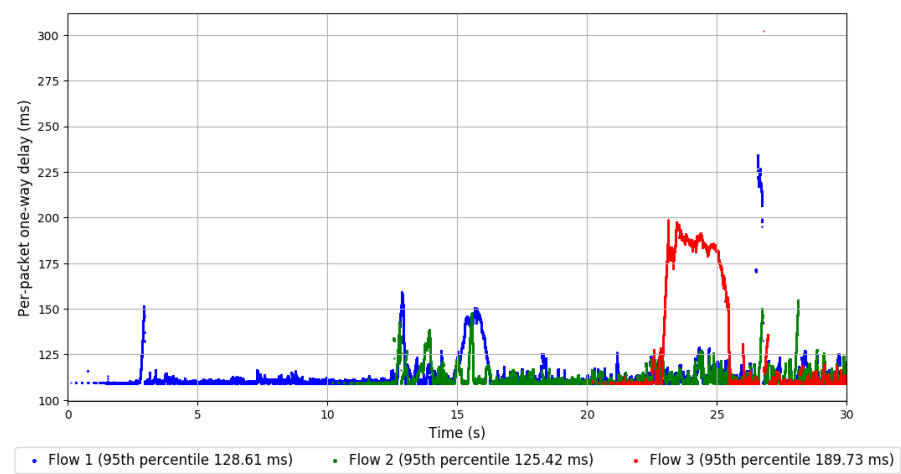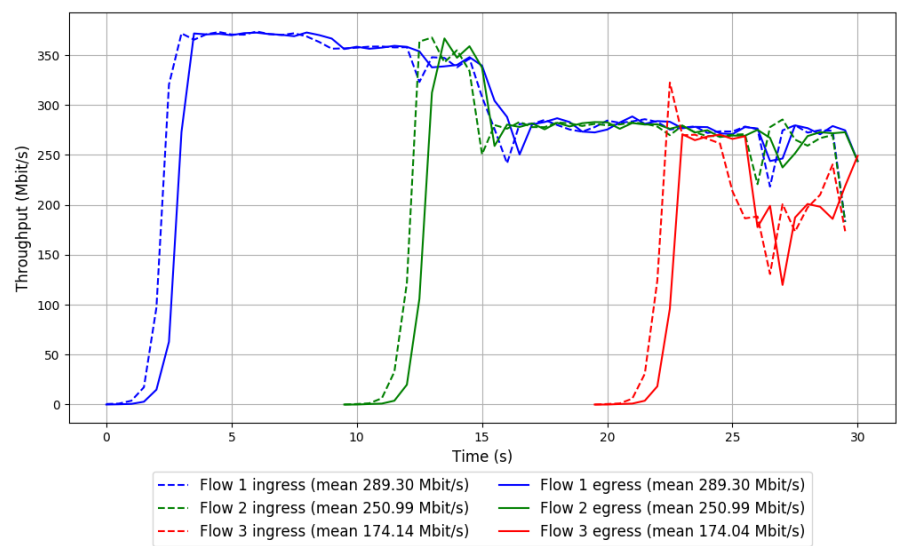Run 5: Report of TCP BBR — Data Link

```
Run 1: Statistics of Copa

Start at: 2018-12-11 00:42:28
End at: 2018-12-11 00:42:58
Local clock offset: -0.202 ms
Remote clock offset: -0.188 ms


# Below is generated by plot.py at 2018-12-11 04:06:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 515.35 Mbit/s
95th percentile per-packet one-way delay: 149.291 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 289.30 Mbit/s
95th percentile per-packet one-way delay: 128.614 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 250.99 Mbit/s
95th percentile per-packet one-way delay: 125.420 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 174.04 Mbit/s
95th percentile per-packet one-way delay: 189.734 ms
Loss rate: 0.06%
```

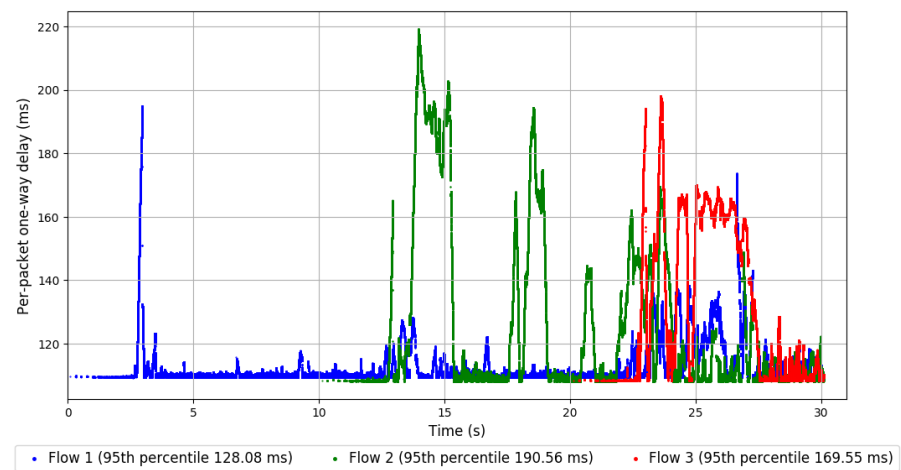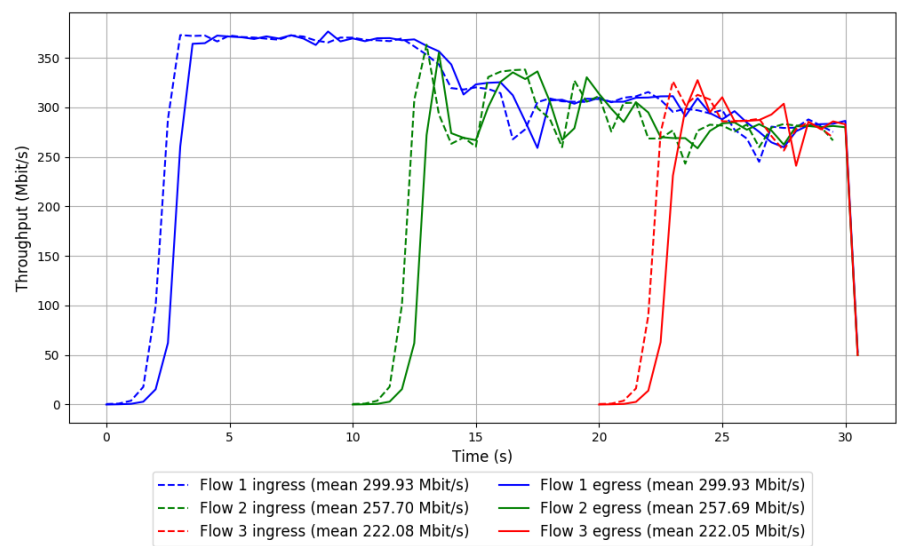Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2018-12-11 01:16:46
End at: 2018-12-11 01:17:16
Local clock offset: -0.181 ms
Remote clock offset: -0.294 ms


# Below is generated by plot.py at 2018-12-11 04:07:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 545.34 Mbit/s
95th percentile per-packet one-way delay: 165.643 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 299.93 Mbit/s
95th percentile per-packet one-way delay: 128.083 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 257.69 Mbit/s
95th percentile per-packet one-way delay: 190.564 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 222.05 Mbit/s
95th percentile per-packet one-way delay: 169.549 ms
Loss rate: 0.00%
```

Run 2: Report of Copa — Data Link

Flow 1 ingress (mean 299.93 Mbit/s) --- Flow 1 egress (mean 299.93 Mbit/s)
Flow 2 ingress (mean 257.70 Mbit/s) --- Flow 2 egress (mean 257.69 Mbit/s)
Flow 3 ingress (mean 222.08 Mbit/s) --- Flow 3 egress (mean 222.05 Mbit/s)

Flow 1 (95th percentile 128.08 ms) • Flow 2 (95th percentile 190.56 ms) • Flow 3 (95th percentile 169.55 ms)
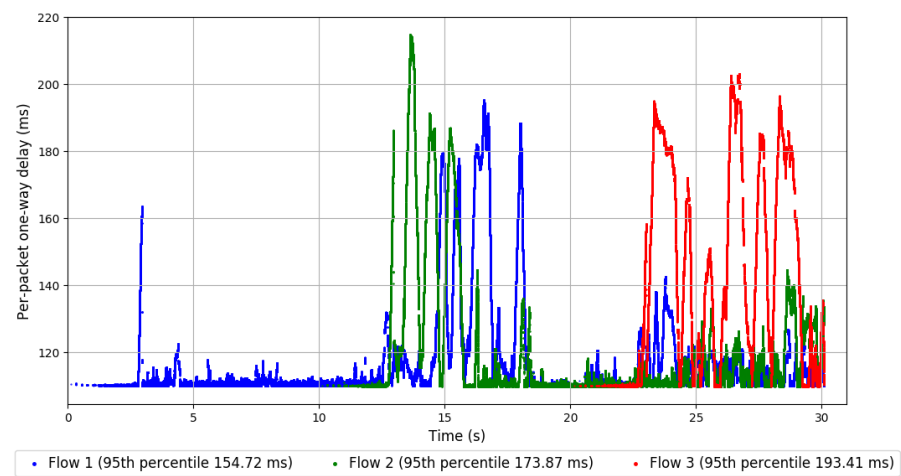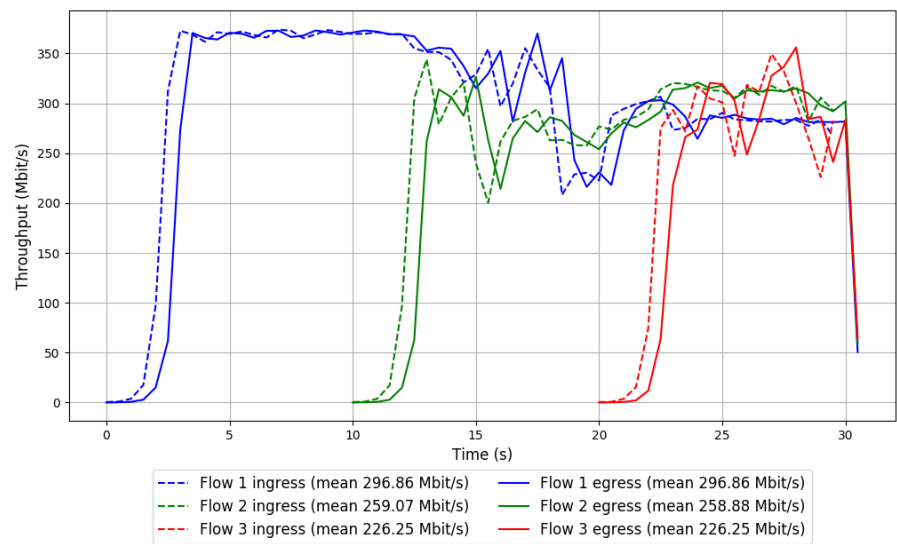
```
Run 3: Statistics of Copa

Start at: 2018-12-11 01:51:23
End at: 2018-12-11 01:51:53
Local clock offset: -0.883 ms
Remote clock offset: -0.085 ms


# Below is generated by plot.py at 2018-12-11 04:07:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 544.22 Mbit/s
95th percentile per-packet one-way delay: 179.864 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 296.86 Mbit/s
95th percentile per-packet one-way delay: 154.720 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 258.88 Mbit/s
95th percentile per-packet one-way delay: 173.865 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 226.25 Mbit/s
95th percentile per-packet one-way delay: 193.410 ms
Loss rate: 0.00%
```
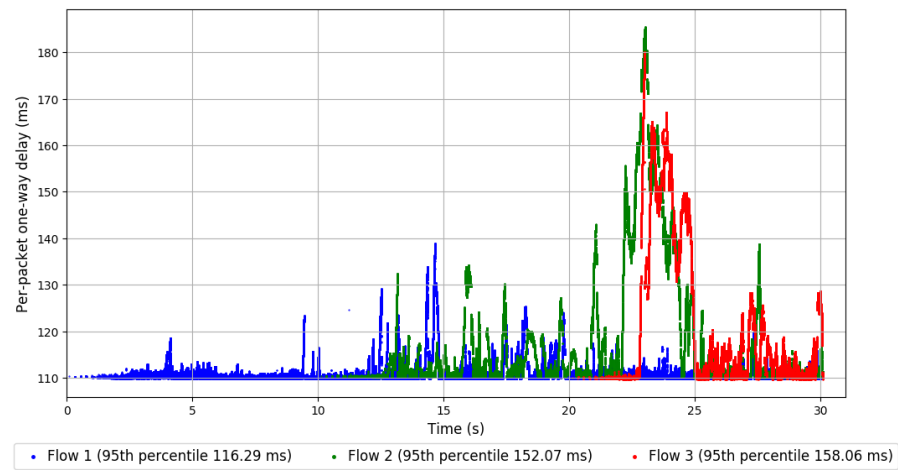
Run 3: Report of Copa — Data Link

Flow 1 ingress (mean 296.86 Mbit/s) --- Flow 1 egress (mean 296.86 Mbit/s)
Flow 2 ingress (mean 259.07 Mbit/s) --- Flow 2 egress (mean 258.88 Mbit/s)
Flow 3 ingress (mean 226.25 Mbit/s) --- Flow 3 egress (mean 226.25 Mbit/s)

Flow 1 (95th percentile 154.72 ms)   Flow 2 (95th percentile 173.87 ms)   Flow 3 (95th percentile 193.41 ms)
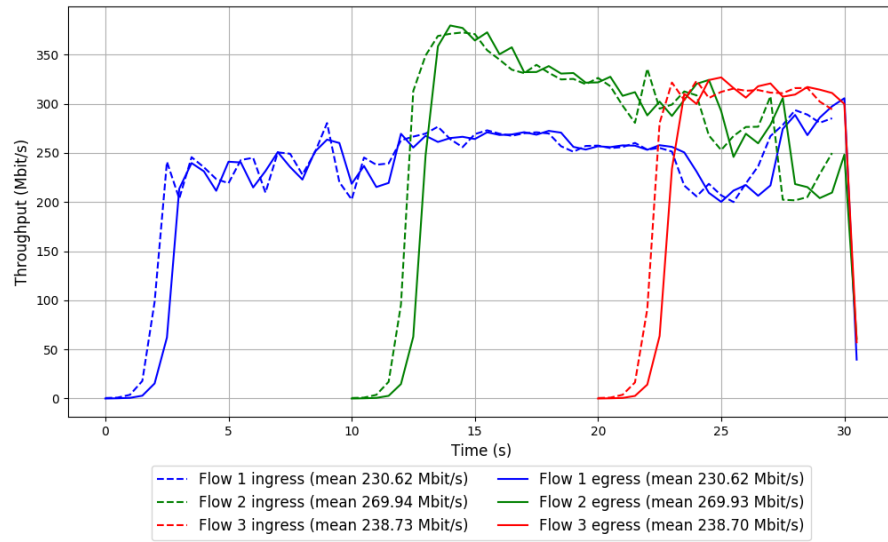
```
Run 4: Statistics of Copa

Start at: 2018-12-11 02:31:09
End at: 2018-12-11 02:31:39
Local clock offset: -0.949 ms
Remote clock offset: -0.104 ms


# Below is generated by plot.py at 2018-12-11 04:22:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 489.70 Mbit/s
95th percentile per-packet one-way delay: 146.414 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 230.62 Mbit/s
95th percentile per-packet one-way delay: 116.288 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 269.93 Mbit/s
95th percentile per-packet one-way delay: 152.072 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 238.70 Mbit/s
95th percentile per-packet one-way delay: 158.062 ms
Loss rate: 0.01%
```

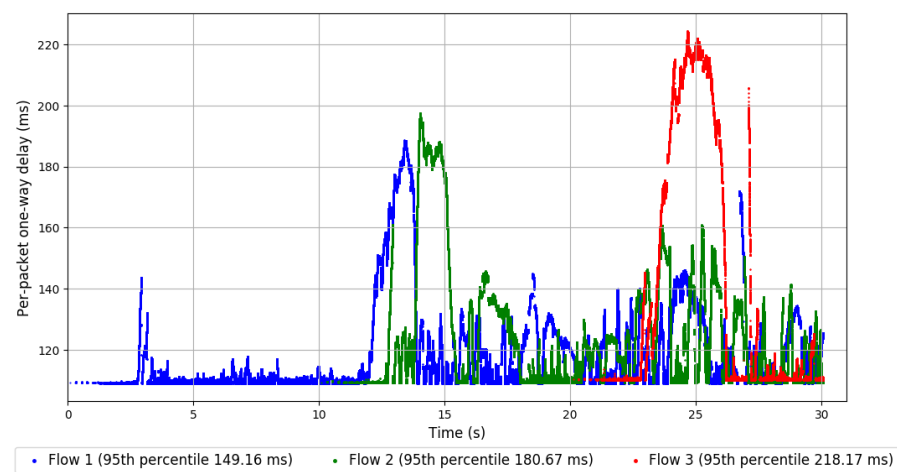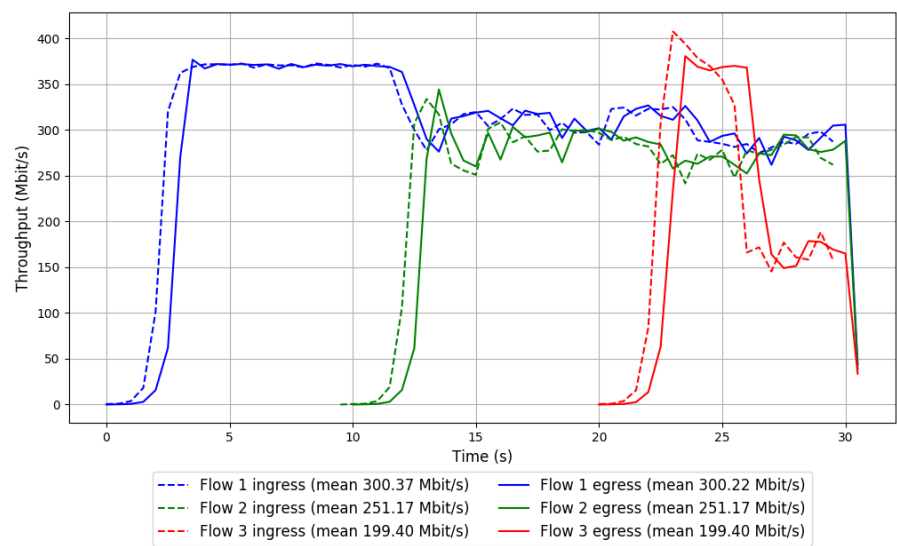Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2018-12-11 03:04:49
End at: 2018-12-11 03:05:19
Local clock offset: -0.918 ms
Remote clock offset: -0.021 ms


# Below is generated by plot.py at 2018-12-11 04:23:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 533.75 Mbit/s
95th percentile per-packet one-way delay: 187.712 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 300.22 Mbit/s
95th percentile per-packet one-way delay: 149.159 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 251.17 Mbit/s
95th percentile per-packet one-way delay: 180.667 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 199.40 Mbit/s
95th percentile per-packet one-way delay: 218.168 ms
Loss rate: 0.00%
```
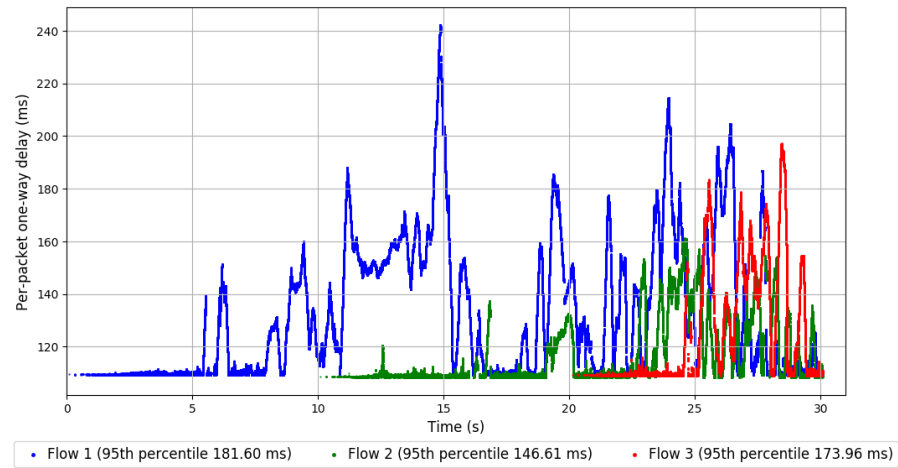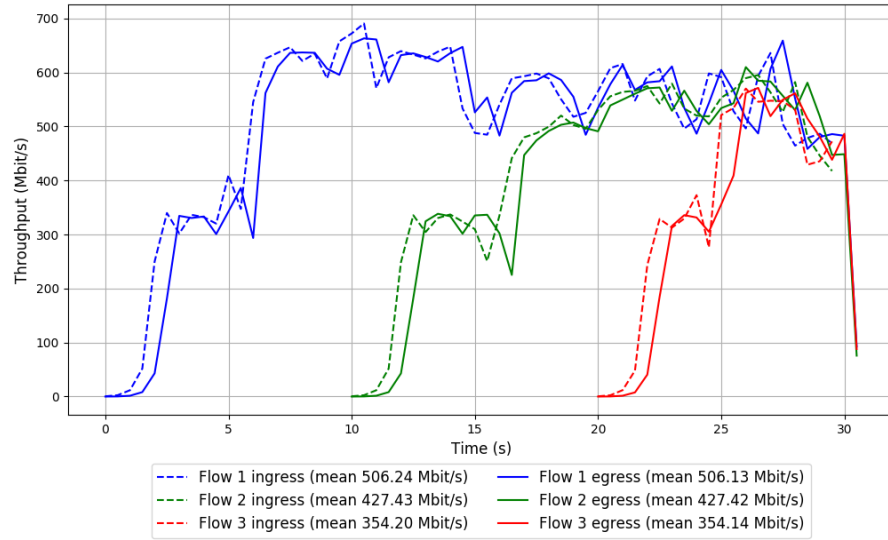
Run 5: Report of Copa — Data Link

Flow 1 ingress (mean 300.37 Mbit/s)   Flow 1 egress (mean 300.22 Mbit/s)
Flow 2 ingress (mean 251.17 Mbit/s)   Flow 2 egress (mean 251.17 Mbit/s)
Flow 3 ingress (mean 199.40 Mbit/s)   Flow 3 egress (mean 199.40 Mbit/s)

Flow 1 (95th percentile 149.16 ms)   Flow 2 (95th percentile 180.67 ms)   Flow 3 (95th percentile 218.17 ms)

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```
Run 1: Statistics of TCP Cubic

Start at: 2018-12-11 00:57:08
End at: 2018-12-11 00:57:38
Local clock offset: -0.157 ms
Remote clock offset: -0.069 ms


# Below is generated by plot.py at 2018-12-11 04:23:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 908.69 Mbit/s
95th percentile per-packet one-way delay: 173.974 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 506.13 Mbit/s
95th percentile per-packet one-way delay: 181.601 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 427.42 Mbit/s
95th percentile per-packet one-way delay: 146.614 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 354.14 Mbit/s
95th percentile per-packet one-way delay: 173.959 ms
Loss rate: 0.01%
```

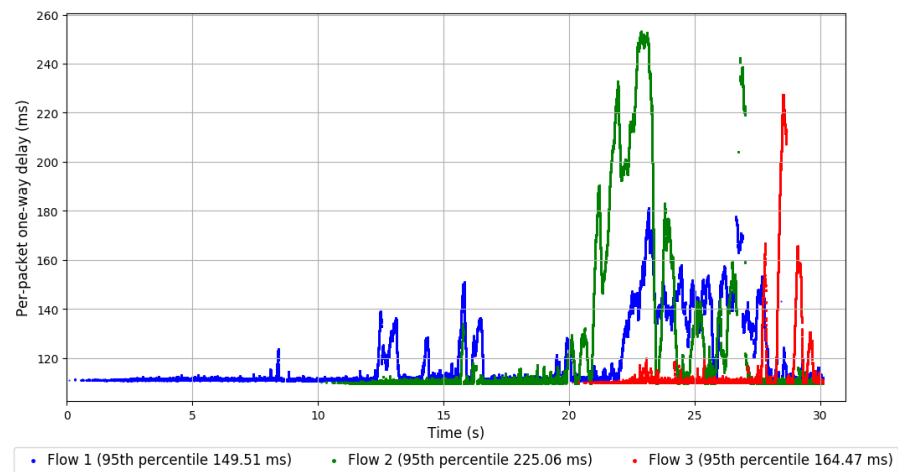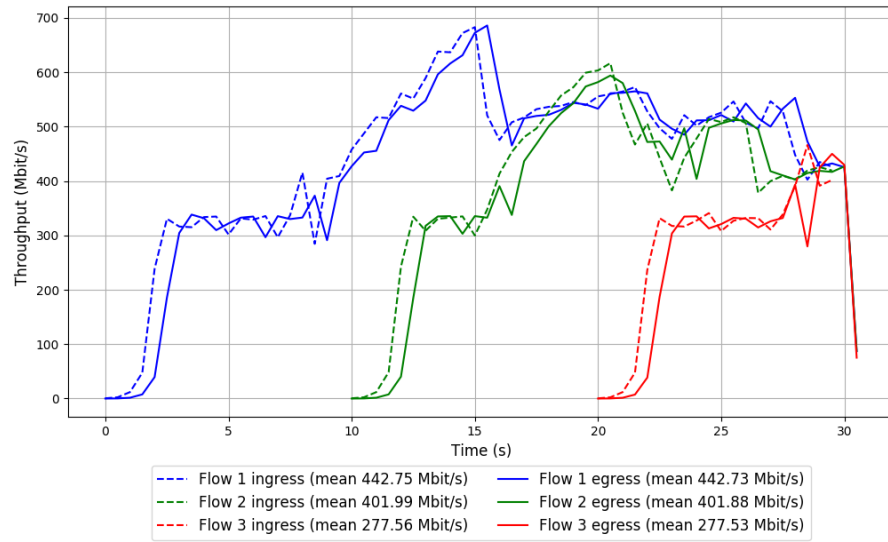Run 1: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 506.24 Mbit/s) --- Flow 1 egress (mean 506.13 Mbit/s)
Flow 2 ingress (mean 427.43 Mbit/s) --- Flow 2 egress (mean 427.42 Mbit/s)
Flow 3 ingress (mean 354.20 Mbit/s) --- Flow 3 egress (mean 354.14 Mbit/s)

Flow 1 (95th percentile 181.60 ms)   Flow 2 (95th percentile 146.61 ms)   Flow 3 (95th percentile 173.96 ms)

```
Run 2: Statistics of TCP Cubic

Start at: 2018-12-11 01:31:44
End at: 2018-12-11 01:32:14
Local clock offset: -0.682 ms
Remote clock offset: -0.287 ms


# Below is generated by plot.py at 2018-12-11 04:23:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 802.63 Mbit/s
95th percentile per-packet one-way delay: 175.359 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 442.73 Mbit/s
95th percentile per-packet one-way delay: 149.512 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 401.88 Mbit/s
95th percentile per-packet one-way delay: 225.061 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 277.53 Mbit/s
95th percentile per-packet one-way delay: 164.468 ms
Loss rate: 0.01%
```

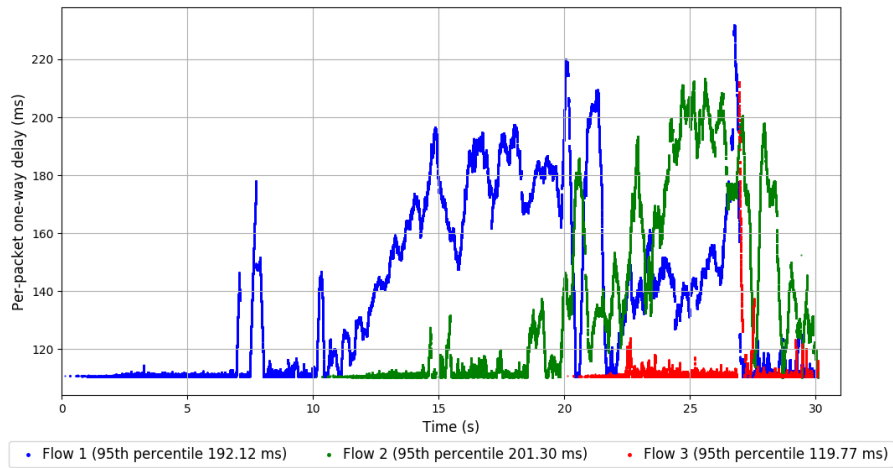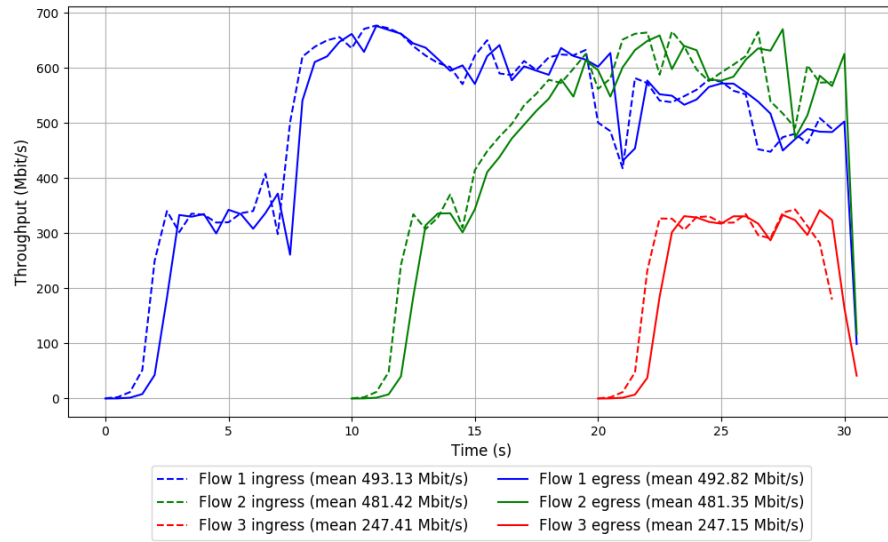Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2018-12-11 02:11:08
End at: 2018-12-11 02:11:38
Local clock offset: -1.385 ms
Remote clock offset: -0.044 ms


# Below is generated by plot.py at 2018-12-11 04:23:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 895.60 Mbit/s
95th percentile per-packet one-way delay: 196.536 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 492.82 Mbit/s
95th percentile per-packet one-way delay: 192.119 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 481.35 Mbit/s
95th percentile per-packet one-way delay: 201.304 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 247.15 Mbit/s
95th percentile per-packet one-way delay: 119.766 ms
Loss rate: 0.11%
```

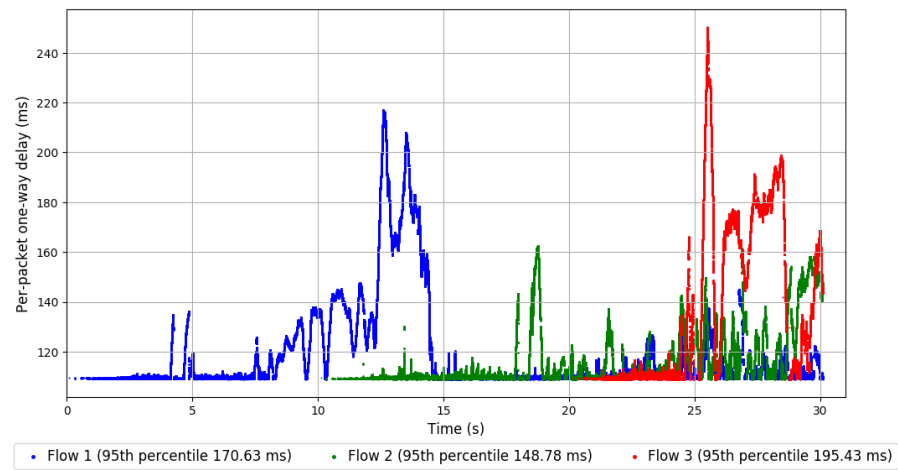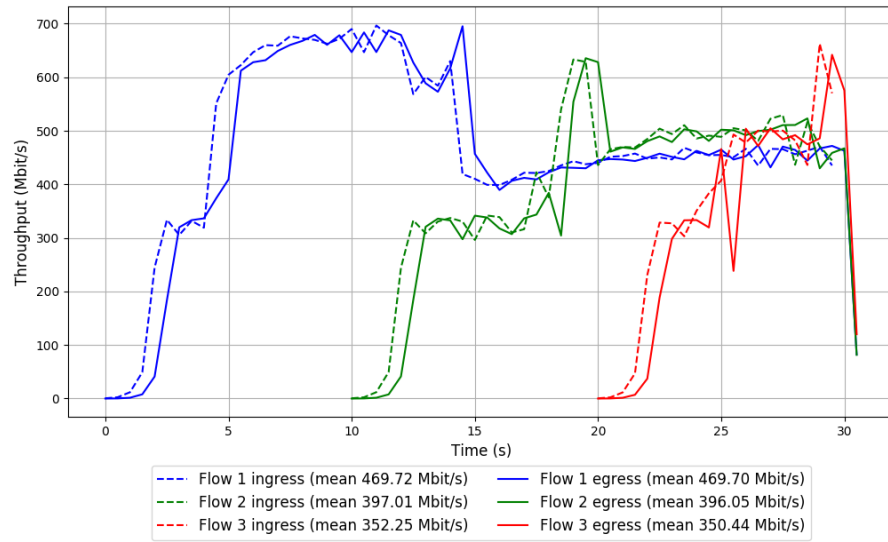Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 493.13 Mbit/s) Flow 1 egress (mean 492.82 Mbit/s)
Flow 2 ingress (mean 481.42 Mbit/s) Flow 2 egress (mean 481.35 Mbit/s)
Flow 3 ingress (mean 247.41 Mbit/s) Flow 3 egress (mean 247.15 Mbit/s)

Flow 1 (95th percentile 192.12 ms)   Flow 2 (95th percentile 201.30 ms)   Flow 3 (95th percentile 119.77 ms)

```
Run 4: Statistics of TCP Cubic

Start at: 2018-12-11 02:45:46
End at: 2018-12-11 02:46:16
Local clock offset: -0.116 ms
Remote clock offset: -0.031 ms


# Below is generated by plot.py at 2018-12-11 04:23:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 849.84 Mbit/s
95th percentile per-packet one-way delay: 176.326 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 469.70 Mbit/s
95th percentile per-packet one-way delay: 170.626 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 396.05 Mbit/s
95th percentile per-packet one-way delay: 148.785 ms
Loss rate: 0.24%
-- Flow 3:
Average throughput: 350.44 Mbit/s
95th percentile per-packet one-way delay: 195.425 ms
Loss rate: 0.51%
```

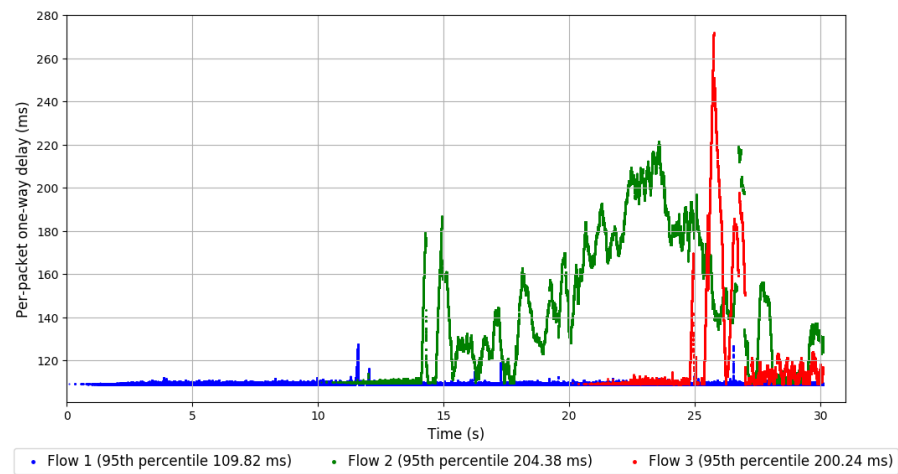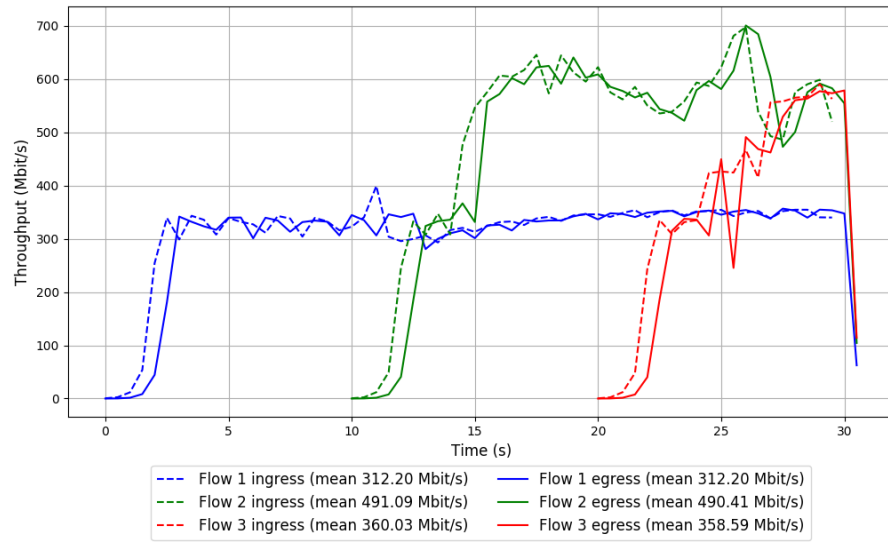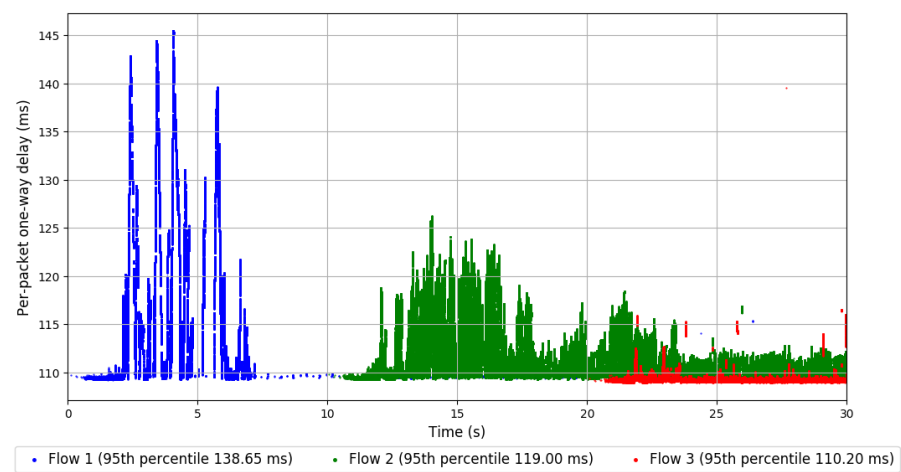## Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 469.72 Mbit/s) Flow 1 egress (mean 469.70 Mbit/s)
Flow 2 ingress (mean 397.01 Mbit/s) Flow 2 egress (mean 396.05 Mbit/s)
Flow 3 ingress (mean 352.25 Mbit/s) Flow 3 egress (mean 350.44 Mbit/s)

Flow 1 (95th percentile 170.63 ms)   Flow 2 (95th percentile 148.78 ms)   Flow 3 (95th percentile 195.43 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2018-12-11 03:19:28
End at: 2018-12-11 03:19:58
Local clock offset: -0.666 ms
Remote clock offset: -0.066 ms


# Below is generated by plot.py at 2018-12-11 04:23:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 757.98 Mbit/s
95th percentile per-packet one-way delay: 196.384 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 312.20 Mbit/s
95th percentile per-packet one-way delay: 109.824 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 490.41 Mbit/s
95th percentile per-packet one-way delay: 204.375 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 358.59 Mbit/s
95th percentile per-packet one-way delay: 200.242 ms
Loss rate: 0.39%
```

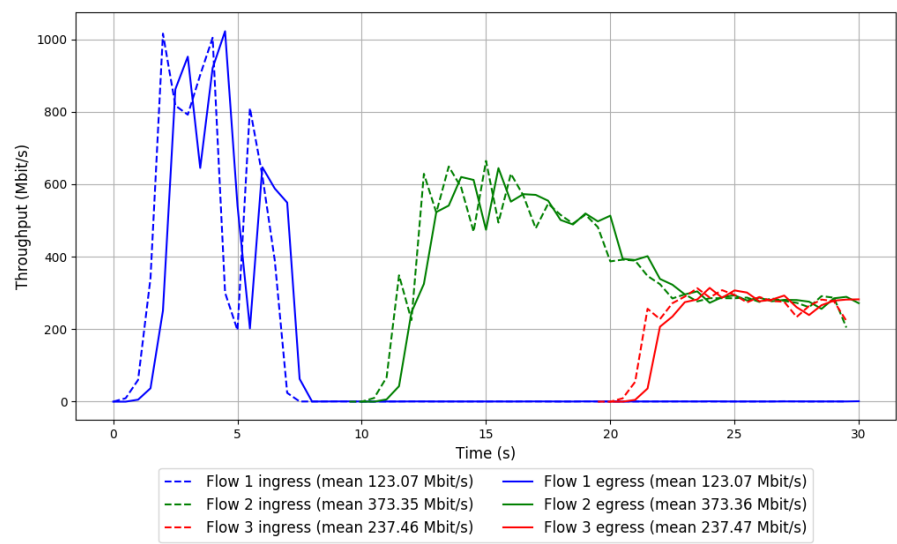Run 5: Report of TCP Cubic — Data Link

```
Run 1: Statistics of FillP

Start at: 2018-12-11 00:40:48
End at: 2018-12-11 00:41:18
Local clock offset: -0.103 ms
Remote clock offset: -0.152 ms


# Below is generated by plot.py at 2018-12-11 04:23:36
# Datalink statistics
-- Total of 3 flows:
Average throughput: 450.31 Mbit/s
95th percentile per-packet one-way delay: 128.762 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 123.07 Mbit/s
95th percentile per-packet one-way delay: 138.652 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 373.36 Mbit/s
95th percentile per-packet one-way delay: 118.995 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 237.47 Mbit/s
95th percentile per-packet one-way delay: 110.203 ms
Loss rate: 0.00%
```

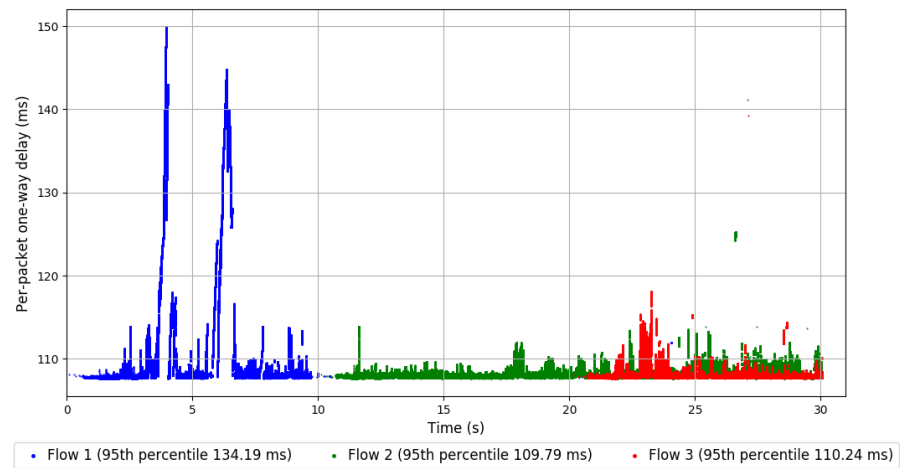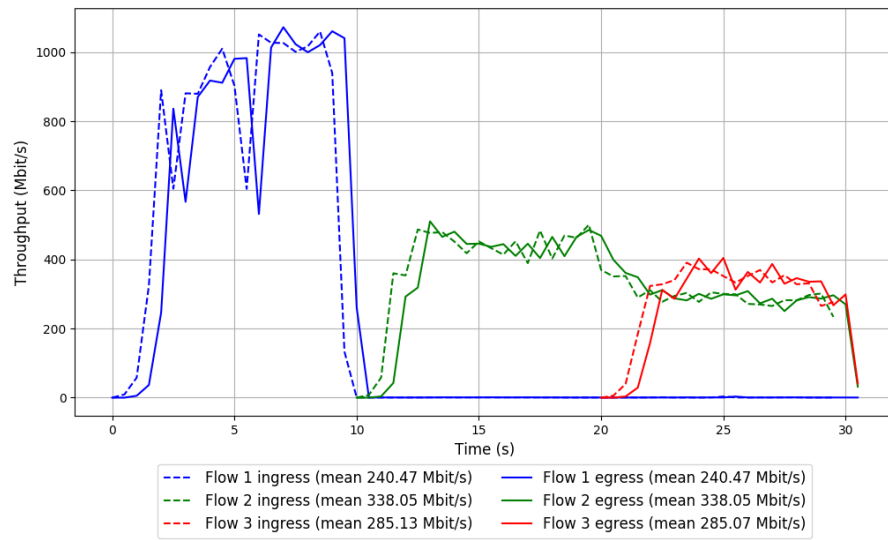# Run 1: Report of FillP — Data Link

```
Run 2: Statistics of FillP

Start at: 2018-12-11 01:15:01
End at: 2018-12-11 01:15:31
Local clock offset: 0.472 ms
Remote clock offset: -0.285 ms


# Below is generated by plot.py at 2018-12-11 04:29:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 559.70 Mbit/s
95th percentile per-packet one-way delay: 120.720 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 240.47 Mbit/s
95th percentile per-packet one-way delay: 134.195 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 338.05 Mbit/s
95th percentile per-packet one-way delay: 109.794 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 285.07 Mbit/s
95th percentile per-packet one-way delay: 110.244 ms
Loss rate: 0.00%
```
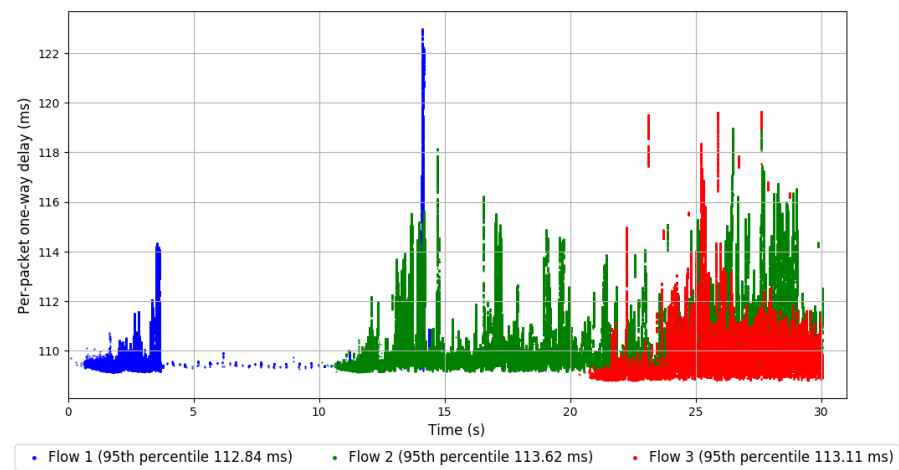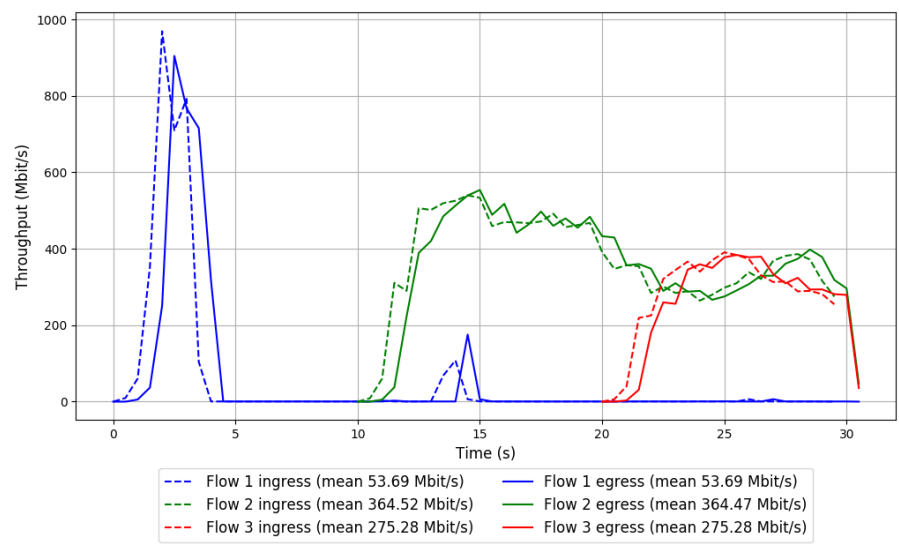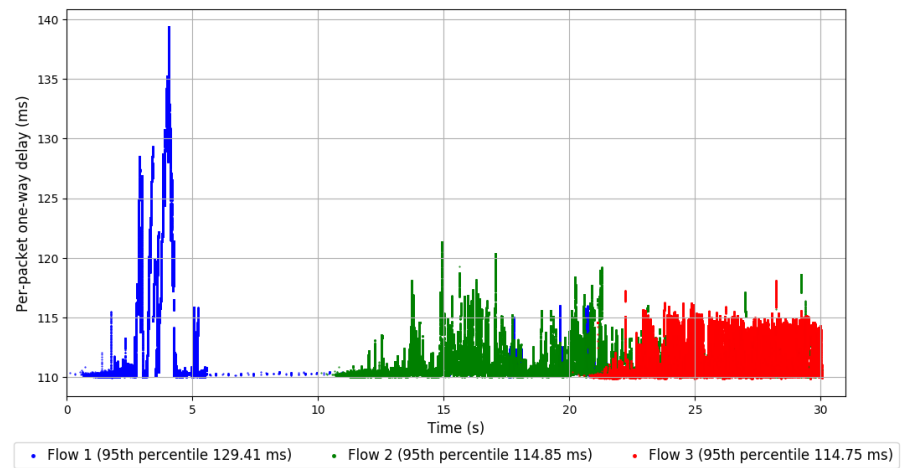
Run 2: Report of FillP — Data Link

Flow 1 ingress (mean 240.47 Mbit/s) --- Flow 1 egress (mean 240.47 Mbit/s)
Flow 2 ingress (mean 338.05 Mbit/s) --- Flow 2 egress (mean 338.05 Mbit/s)
Flow 3 ingress (mean 285.13 Mbit/s) --- Flow 3 egress (mean 285.07 Mbit/s)

Flow 1 (95th percentile 134.19 ms)   Flow 2 (95th percentile 109.79 ms)   Flow 3 (95th percentile 110.24 ms)

```
Run 3: Statistics of FillP

Start at: 2018-12-11 01:49:45
End at: 2018-12-11 01:50:15
Local clock offset: 0.072 ms
Remote clock offset: -0.092 ms


# Below is generated by plot.py at 2018-12-11 04:29:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 387.28 Mbit/s
95th percentile per-packet one-way delay: 113.439 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 53.69 Mbit/s
95th percentile per-packet one-way delay: 112.840 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 364.47 Mbit/s
95th percentile per-packet one-way delay: 113.620 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 275.28 Mbit/s
95th percentile per-packet one-way delay: 113.106 ms
Loss rate: 0.00%
```

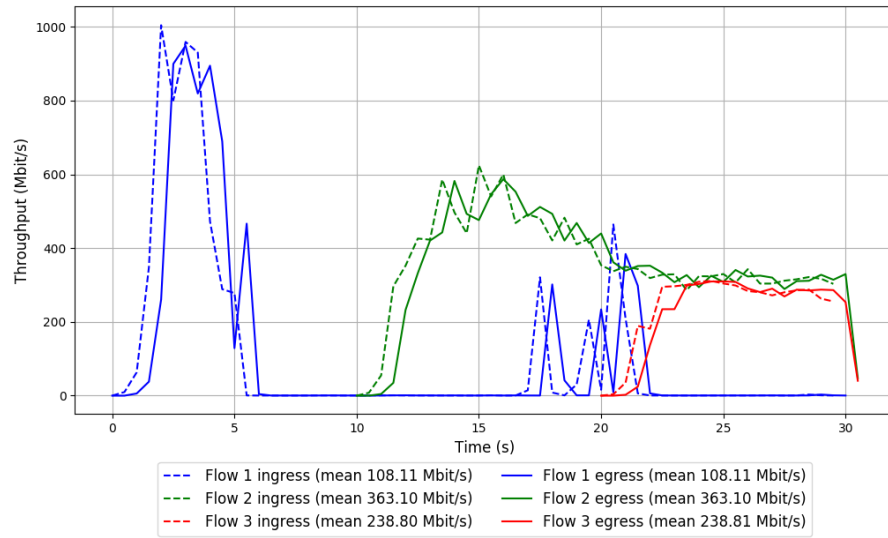Run 3: Report of FillP — Data Link

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```
Run 4: Statistics of FillP

Start at: 2018-12-11 02:29:30
End at: 2018-12-11 02:30:00
Local clock offset: -1.112 ms
Remote clock offset: -0.069 ms


# Below is generated by plot.py at 2018-12-11 04:30:17
# Datalink statistics
-- Total of 3 flows:
Average throughput: 428.37 Mbit/s
95th percentile per-packet one-way delay: 120.664 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 108.11 Mbit/s
95th percentile per-packet one-way delay: 129.413 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 363.10 Mbit/s
95th percentile per-packet one-way delay: 114.850 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 238.81 Mbit/s
95th percentile per-packet one-way delay: 114.751 ms
Loss rate: 0.00%
```
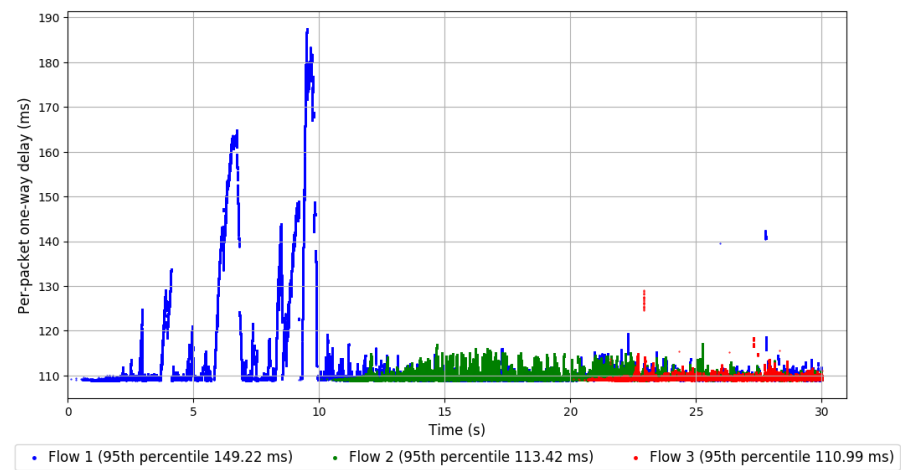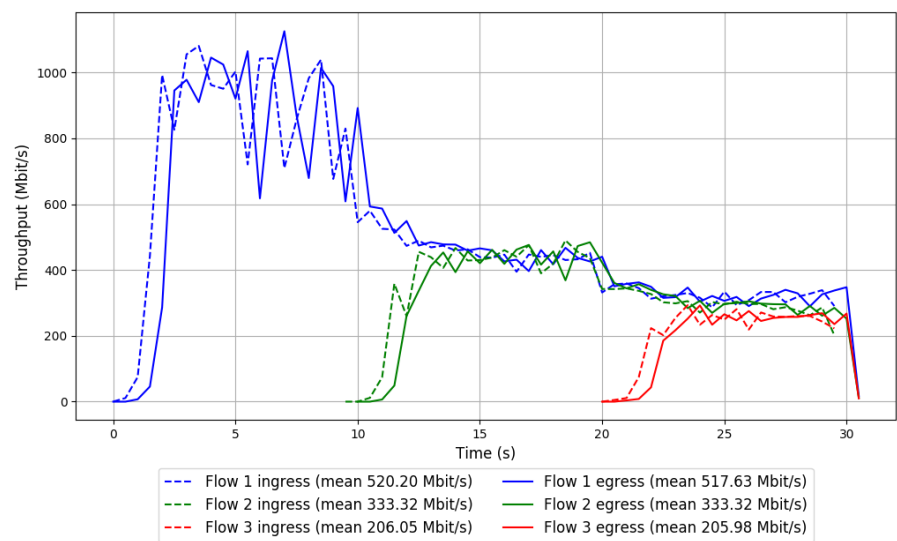
Run 4: Report of FillP — Data Link

```
Run 5: Statistics of FillP

Start at: 2018-12-11 03:02:53
End at: 2018-12-11 03:03:23
Local clock offset: -0.001 ms
Remote clock offset: 0.004 ms


# Below is generated by plot.py at 2018-12-11 04:40:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 807.95 Mbit/s
95th percentile per-packet one-way delay: 141.327 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 517.63 Mbit/s
95th percentile per-packet one-way delay: 149.217 ms
Loss rate: 0.49%
-- Flow 2:
Average throughput: 333.32 Mbit/s
95th percentile per-packet one-way delay: 113.419 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 205.98 Mbit/s
95th percentile per-packet one-way delay: 110.992 ms
Loss rate: 0.02%
```
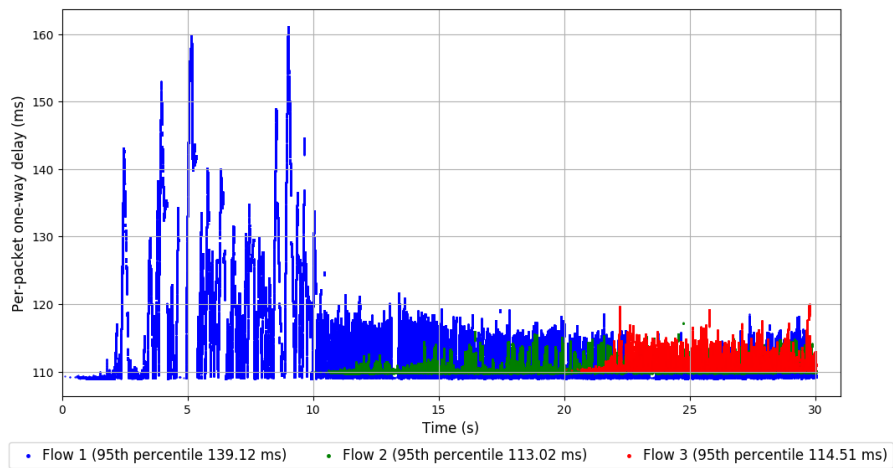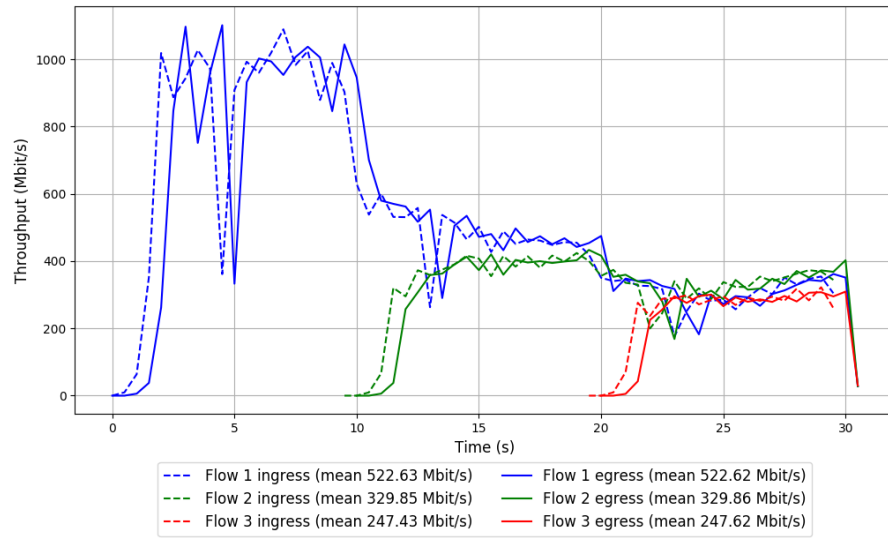
Run 5: Report of FillP — Data Link

Flow 1 ingress (mean 520.20 Mbit/s) --- Flow 1 egress (mean 517.63 Mbit/s)
Flow 2 ingress (mean 333.32 Mbit/s) --- Flow 2 egress (mean 333.32 Mbit/s)
Flow 3 ingress (mean 206.05 Mbit/s) --- Flow 3 egress (mean 205.98 Mbit/s)

Flow 1 (95th percentile 149.22 ms) Flow 2 (95th percentile 113.42 ms) Flow 3 (95th percentile 110.99 ms)

```
Run 1: Statistics of FillP-Sheep

Start at: 2018-12-11 01:05:56
End at: 2018-12-11 01:06:26
Local clock offset: -0.824 ms
Remote clock offset: -0.197 ms


# Below is generated by plot.py at 2018-12-11 04:40:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 824.58 Mbit/s
95th percentile per-packet one-way delay: 134.597 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 522.62 Mbit/s
95th percentile per-packet one-way delay: 139.118 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 329.86 Mbit/s
95th percentile per-packet one-way delay: 113.019 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 247.62 Mbit/s
95th percentile per-packet one-way delay: 114.510 ms
Loss rate: 0.00%
```

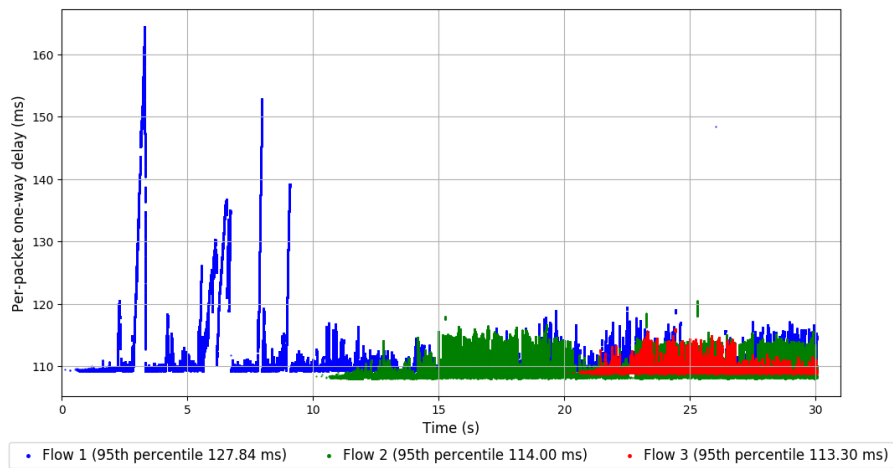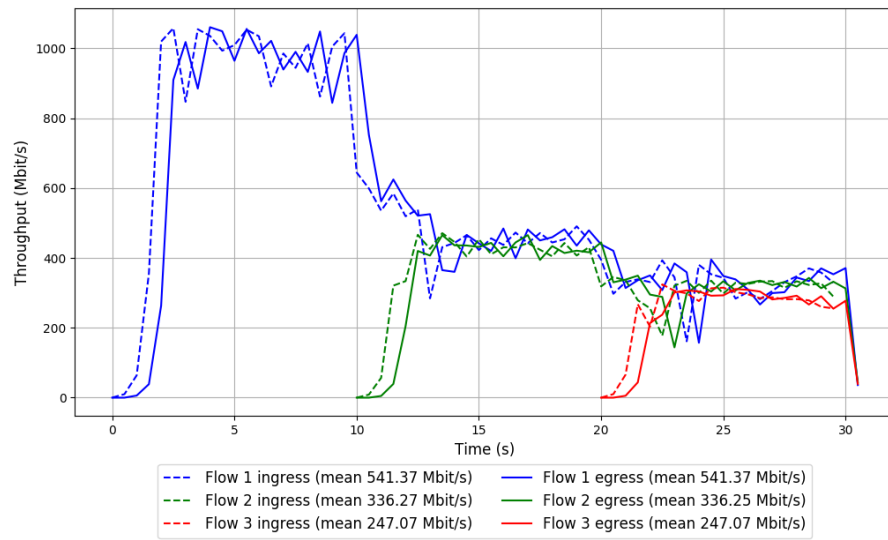# Run 1: Report of FillP-Sheep — Data Link

- - - - Flow 1 ingress (mean 522.63 Mbit/s)   —— Flow 1 egress (mean 522.62 Mbit/s)
- - - - Flow 2 ingress (mean 329.85 Mbit/s)   —— Flow 2 egress (mean 329.86 Mbit/s)
- - - - Flow 3 ingress (mean 247.43 Mbit/s)   —— Flow 3 egress (mean 247.62 Mbit/s)

- Flow 1 (95th percentile 139.12 ms)   • Flow 2 (95th percentile 113.02 ms)   • Flow 3 (95th percentile 114.51 ms)

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```
Run 2: Statistics of FillP-Sheep

Start at: 2018-12-11 01:40:40
End at: 2018-12-11 01:41:10
Local clock offset: -0.027 ms
Remote clock offset: -0.202 ms


# Below is generated by plot.py at 2018-12-11 04:41:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 847.12 Mbit/s
95th percentile per-packet one-way delay: 122.322 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 541.37 Mbit/s
95th percentile per-packet one-way delay: 127.842 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 336.25 Mbit/s
95th percentile per-packet one-way delay: 113.995 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 247.07 Mbit/s
95th percentile per-packet one-way delay: 113.300 ms
Loss rate: 0.00%
```
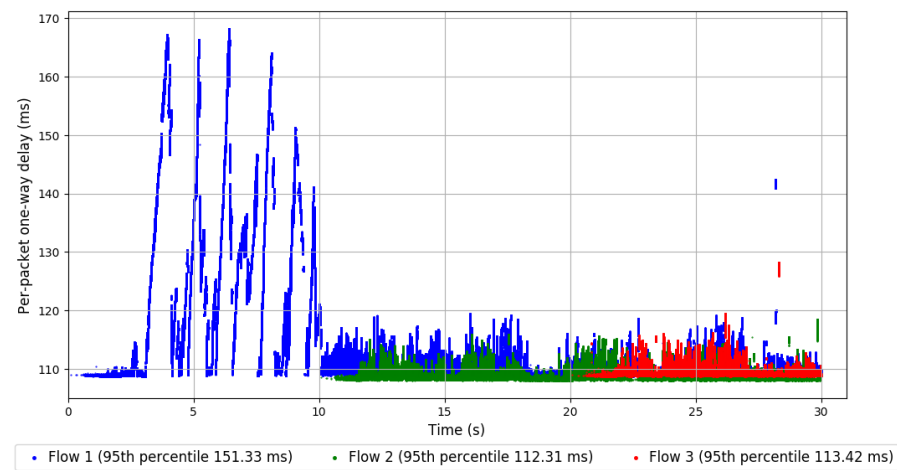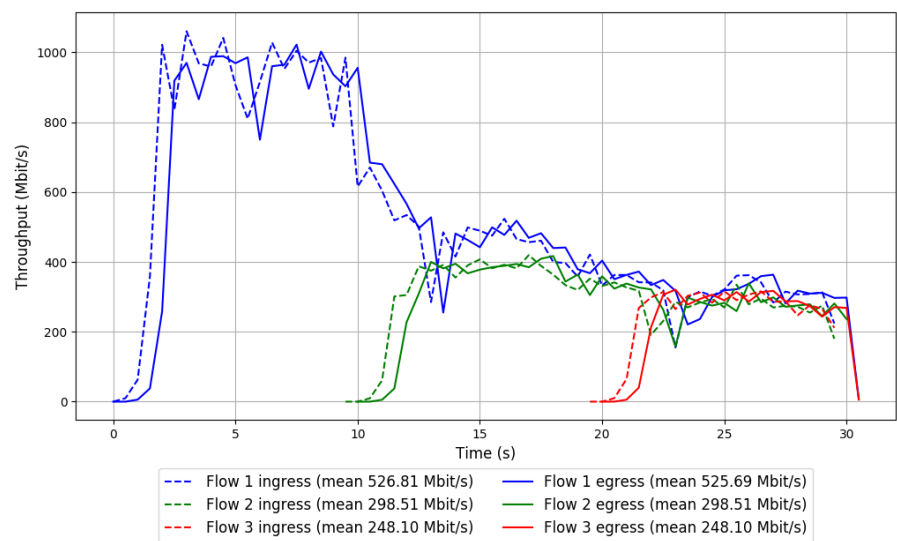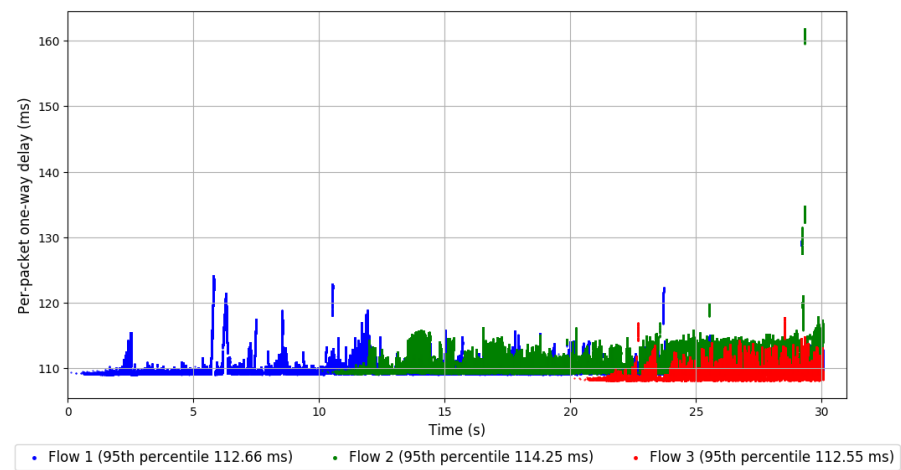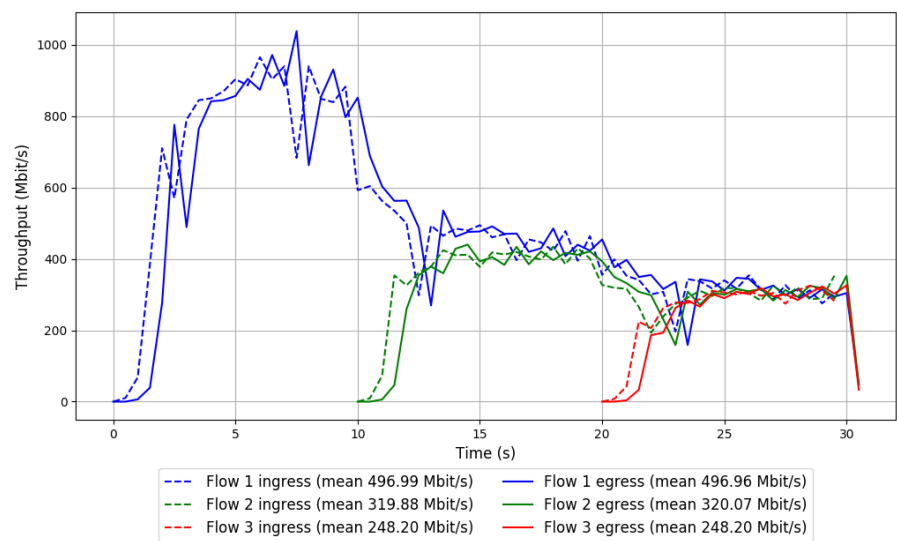
Run 2: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 541.37 Mbit/s)   Flow 1 egress (mean 541.37 Mbit/s)
Flow 2 ingress (mean 336.27 Mbit/s)   Flow 2 egress (mean 336.25 Mbit/s)
Flow 3 ingress (mean 247.07 Mbit/s)   Flow 3 egress (mean 247.07 Mbit/s)

Flow 1 (95th percentile 127.84 ms)   Flow 2 (95th percentile 114.00 ms)   Flow 3 (95th percentile 113.30 ms)

```
Run 3: Statistics of FillP-Sheep

Start at: 2018-12-11 02:20:35
End at: 2018-12-11 02:21:05
Local clock offset: 0.573 ms
Remote clock offset: 0.32 ms


# Below is generated by plot.py at 2018-12-11 04:41:27
# Datalink statistics
-- Total of 3 flows:
Average throughput: 806.81 Mbit/s
95th percentile per-packet one-way delay: 145.583 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 525.69 Mbit/s
95th percentile per-packet one-way delay: 151.329 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 298.51 Mbit/s
95th percentile per-packet one-way delay: 112.309 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 248.10 Mbit/s
95th percentile per-packet one-way delay: 113.425 ms
Loss rate: 0.00%
```

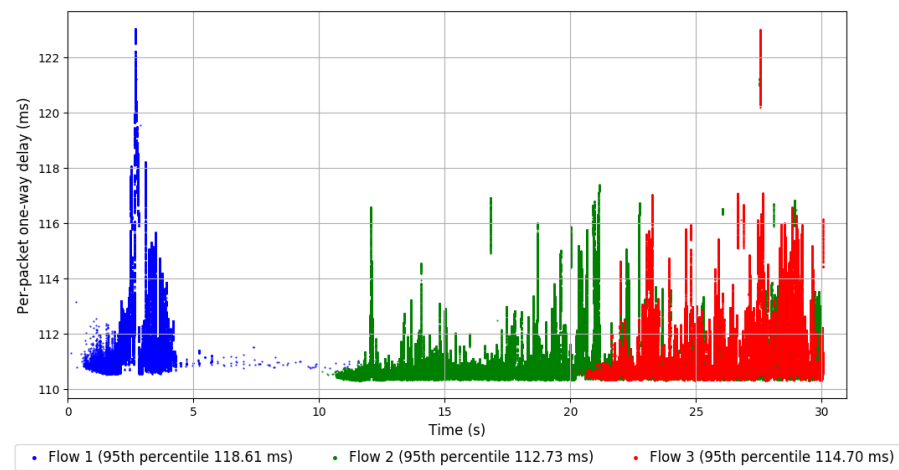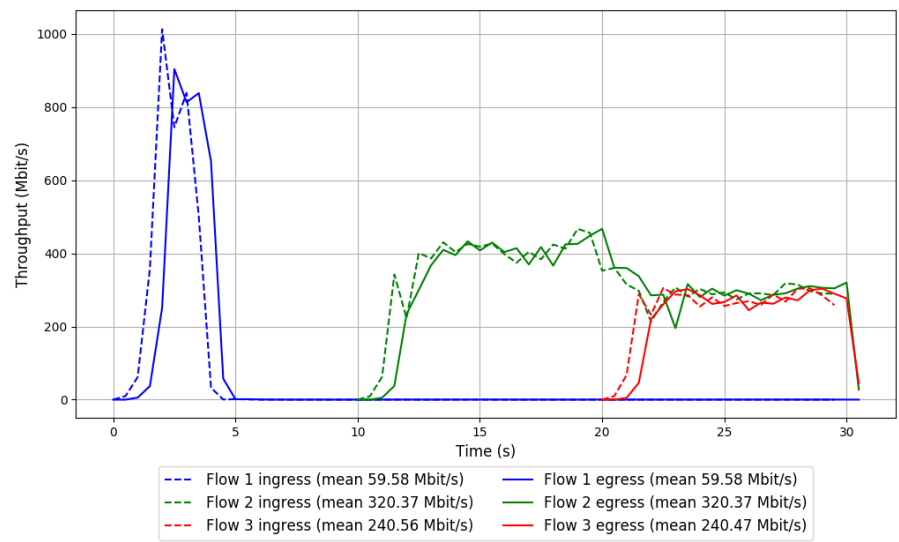Run 3: Report of FillP-Sheep — Data Link

```
Run 4: Statistics of FillP-Sheep

Start at: 2018-12-11 02:53:55
End at: 2018-12-11 02:54:25
Local clock offset: -0.155 ms
Remote clock offset: -0.089 ms


# Below is generated by plot.py at 2018-12-11 04:41:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 792.07 Mbit/s
95th percentile per-packet one-way delay: 113.674 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 496.96 Mbit/s
95th percentile per-packet one-way delay: 112.663 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 320.07 Mbit/s
95th percentile per-packet one-way delay: 114.246 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 248.20 Mbit/s
95th percentile per-packet one-way delay: 112.547 ms
Loss rate: 0.00%
```

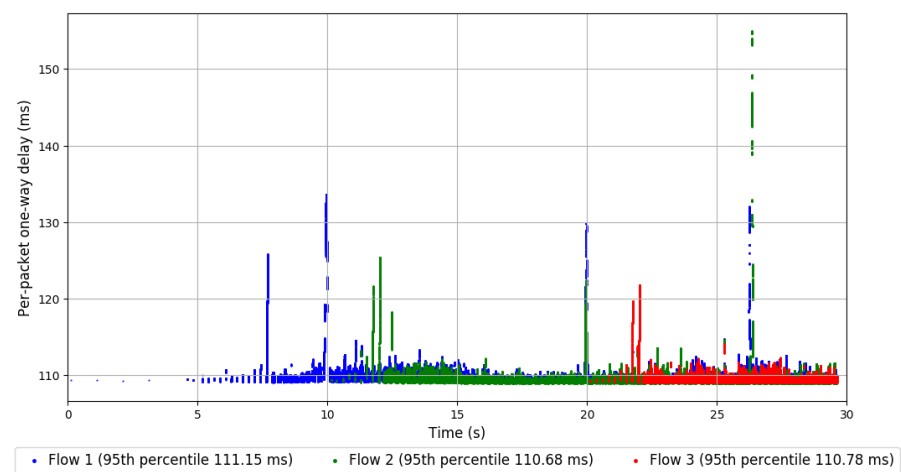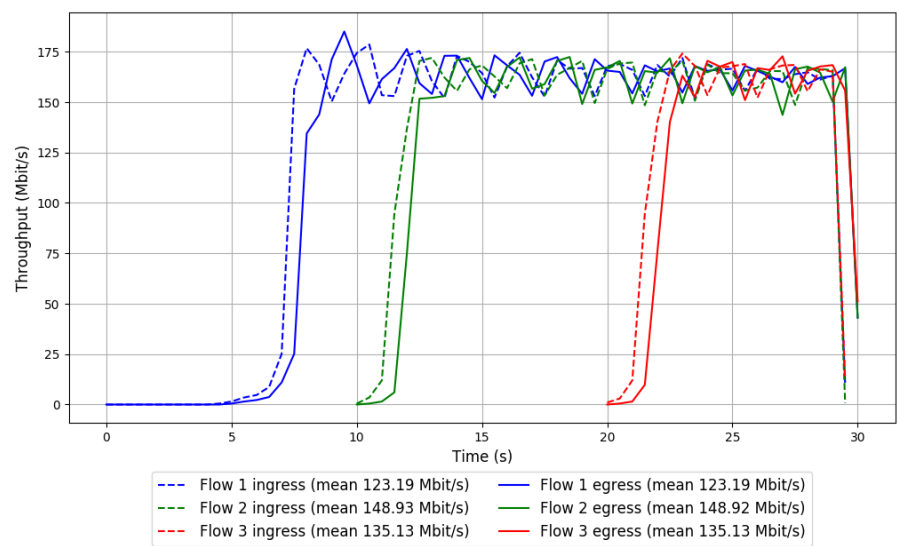# Run 4: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 496.99 Mbit/s) --- Flow 1 egress (mean 496.96 Mbit/s)
Flow 2 ingress (mean 319.88 Mbit/s) --- Flow 2 egress (mean 320.07 Mbit/s)
Flow 3 ingress (mean 248.20 Mbit/s) --- Flow 3 egress (mean 248.20 Mbit/s)

Flow 1 (95th percentile 112.66 ms)   Flow 2 (95th percentile 114.25 ms)   Flow 3 (95th percentile 112.55 ms)

```
Run 5: Statistics of FillP-Sheep

Start at: 2018-12-11 03:28:08
End at: 2018-12-11 03:28:38
Local clock offset: -1.397 ms
Remote clock offset: -0.115 ms


# Below is generated by plot.py at 2018-12-11 04:41:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 352.34 Mbit/s
95th percentile per-packet one-way delay: 114.253 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 59.58 Mbit/s
95th percentile per-packet one-way delay: 118.609 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 320.37 Mbit/s
95th percentile per-packet one-way delay: 112.728 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 240.47 Mbit/s
95th percentile per-packet one-way delay: 114.701 ms
Loss rate: 0.00%
```

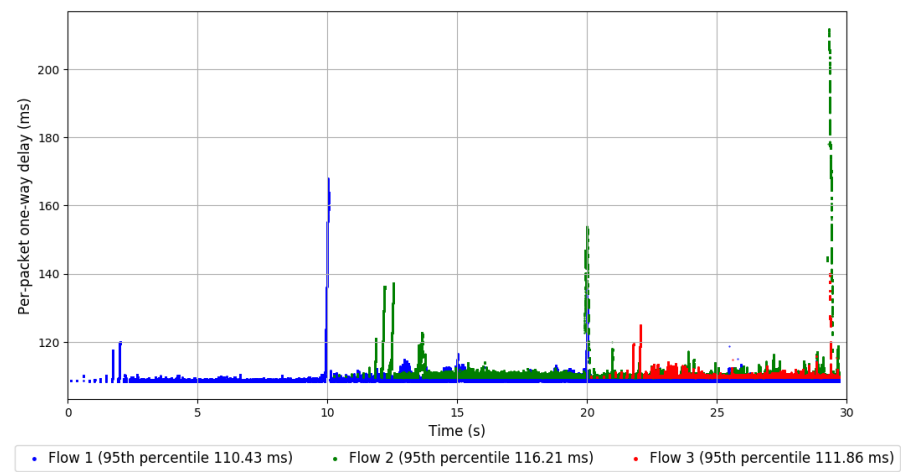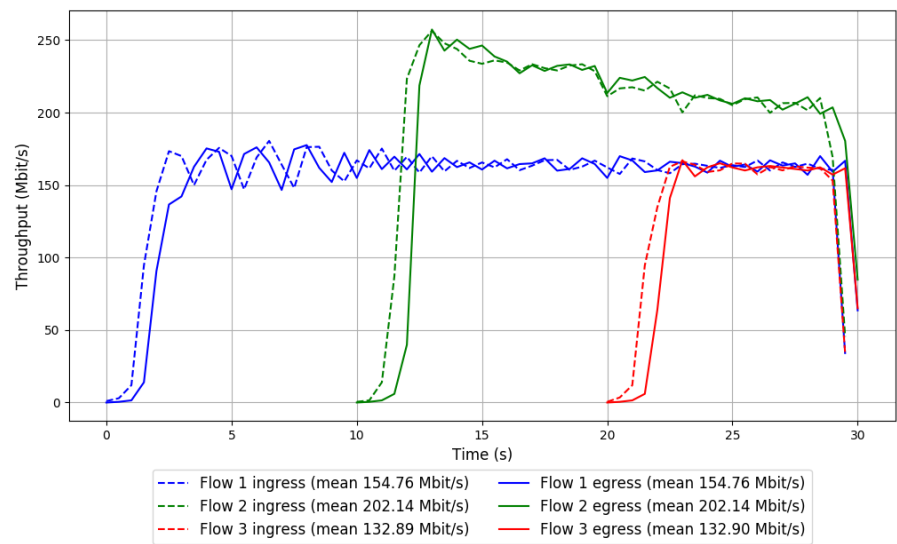Run 5: Report of FillP-Sheep — Data Link

```
Run 1: Statistics of Indigo

Start at: 2018-12-11 00:39:02
End at: 2018-12-11 00:39:32
Local clock offset: -0.146 ms
Remote clock offset: -0.207 ms


# Below is generated by plot.py at 2018-12-11 04:41:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 264.93 Mbit/s
95th percentile per-packet one-way delay: 110.946 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 123.19 Mbit/s
95th percentile per-packet one-way delay: 111.152 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 148.92 Mbit/s
95th percentile per-packet one-way delay: 110.676 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 135.13 Mbit/s
95th percentile per-packet one-way delay: 110.784 ms
Loss rate: 0.00%
```
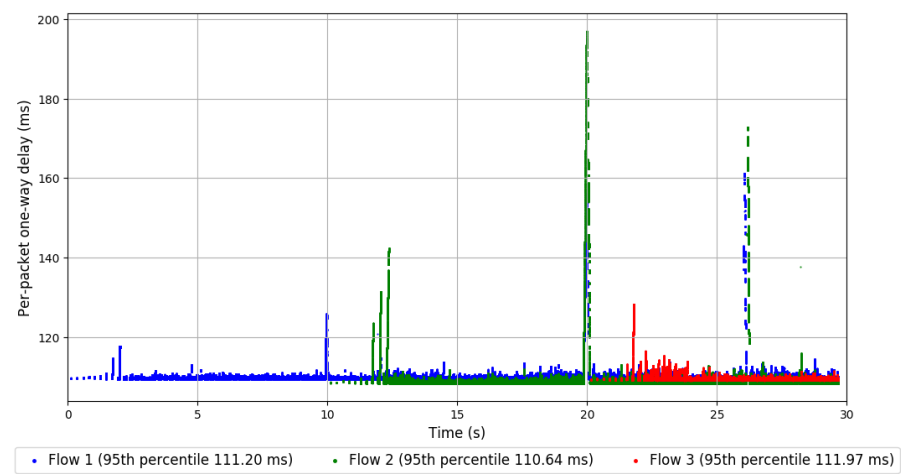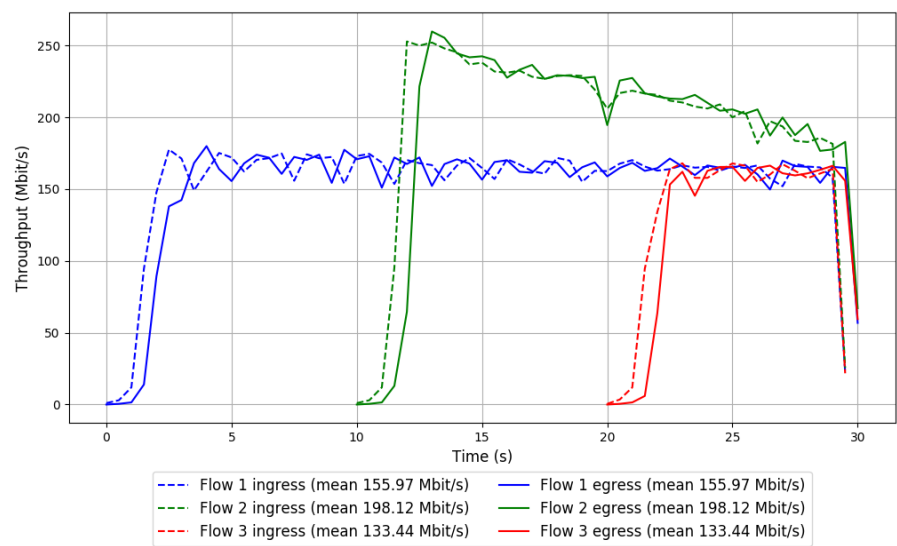
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-12-11 01:13:08
End at: 2018-12-11 01:13:38
Local clock offset: -0.282 ms
Remote clock offset: -0.244 ms

# Below is generated by plot.py at 2018-12-11 04:43:08
# Datalink statistics
-- Total of 3 flows:
Average throughput: 330.69 Mbit/s
95th percentile per-packet one-way delay: 112.116 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 154.76 Mbit/s
95th percentile per-packet one-way delay: 110.431 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 202.14 Mbit/s
95th percentile per-packet one-way delay: 116.209 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 132.90 Mbit/s
95th percentile per-packet one-way delay: 111.860 ms
Loss rate: 0.00%
```
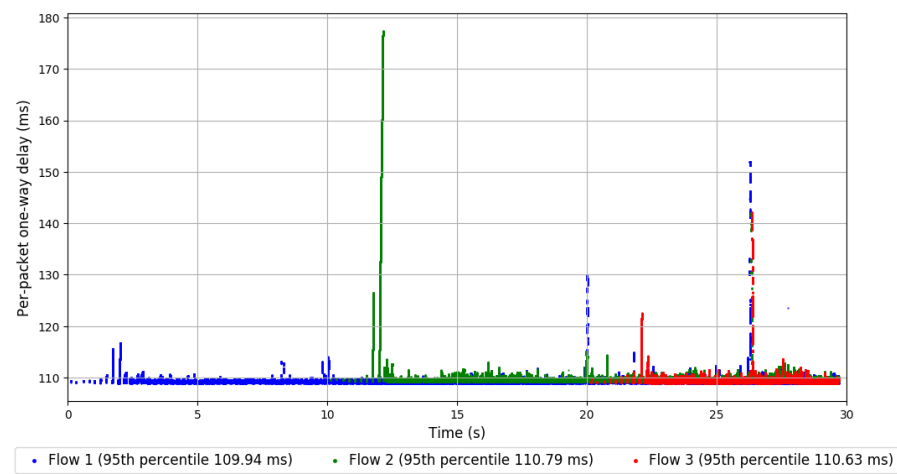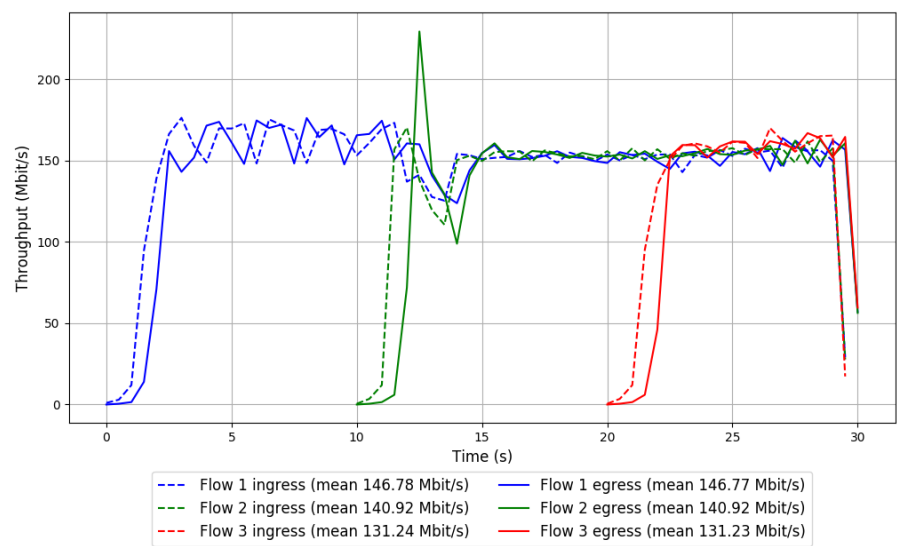
Run 2: Report of Indigo — Data Link

Flow 1 ingress (mean 154.76 Mbit/s) --- Flow 1 egress (mean 154.76 Mbit/s)
Flow 2 ingress (mean 202.14 Mbit/s) --- Flow 2 egress (mean 202.14 Mbit/s)
Flow 3 ingress (mean 132.89 Mbit/s) --- Flow 3 egress (mean 132.90 Mbit/s)

Flow 1 (95th percentile 110.43 ms)   Flow 2 (95th percentile 116.21 ms)   Flow 3 (95th percentile 111.86 ms)

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```
Run 3: Statistics of Indigo

Start at: 2018-12-11 01:47:52
End at: 2018-12-11 01:48:22
Local clock offset: -0.334 ms
Remote clock offset: -0.164 ms


# Below is generated by plot.py at 2018-12-11 04:48:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 329.92 Mbit/s
95th percentile per-packet one-way delay: 111.197 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 155.97 Mbit/s
95th percentile per-packet one-way delay: 111.203 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 198.12 Mbit/s
95th percentile per-packet one-way delay: 110.643 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 133.44 Mbit/s
95th percentile per-packet one-way delay: 111.966 ms
Loss rate: 0.00%
```

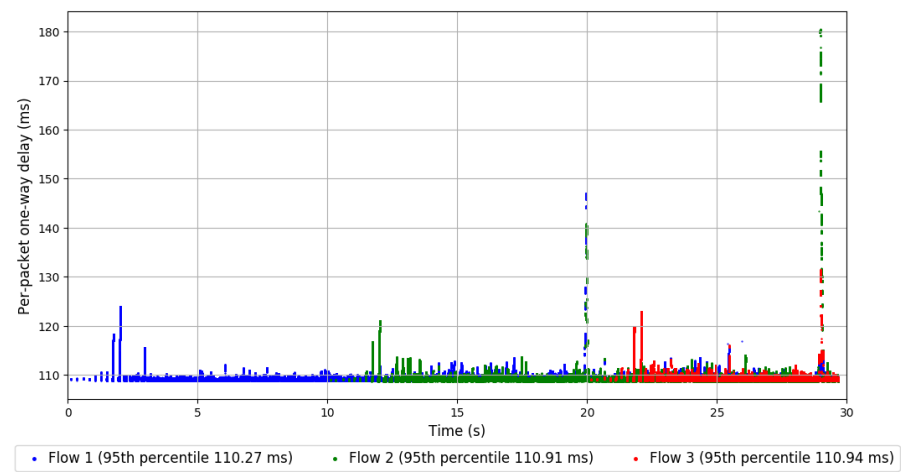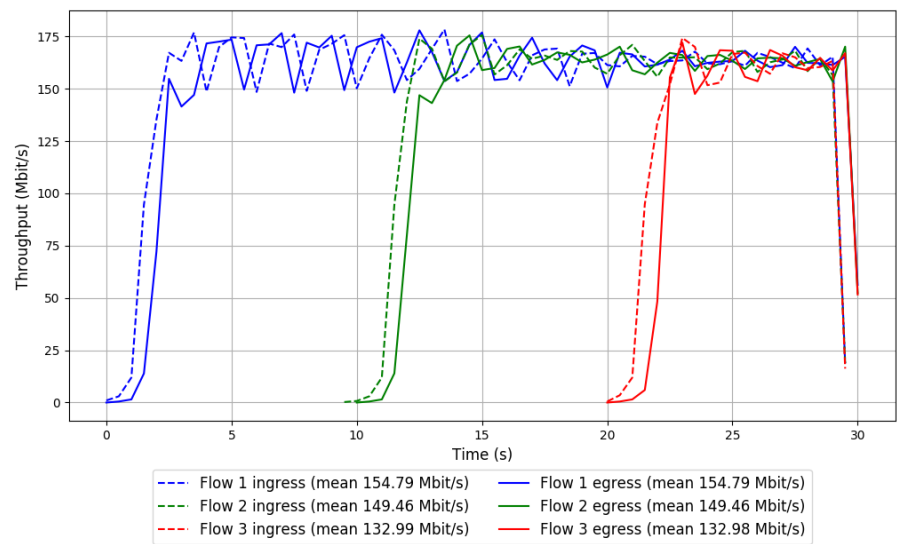Run 3: Report of Indigo — Data Link

- - - - Flow 1 ingress (mean 155.97 Mbit/s)   —— Flow 1 egress (mean 155.97 Mbit/s)
- - - - Flow 2 ingress (mean 198.12 Mbit/s)   —— Flow 2 egress (mean 198.12 Mbit/s)
- - - - Flow 3 ingress (mean 133.44 Mbit/s)   —— Flow 3 egress (mean 133.44 Mbit/s)

- Flow 1 (95th percentile 111.20 ms)   • Flow 2 (95th percentile 110.64 ms)   • Flow 3 (95th percentile 111.97 ms)

```
Run 4: Statistics of Indigo

Start at: 2018-12-11 02:27:43
End at: 2018-12-11 02:28:13
Local clock offset: -0.108 ms
Remote clock offset: -0.036 ms


# Below is generated by plot.py at 2018-12-11 04:50:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 282.17 Mbit/s
95th percentile per-packet one-way delay: 110.352 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 146.77 Mbit/s
95th percentile per-packet one-way delay: 109.937 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 140.92 Mbit/s
95th percentile per-packet one-way delay: 110.789 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 131.23 Mbit/s
95th percentile per-packet one-way delay: 110.631 ms
Loss rate: 0.01%
```
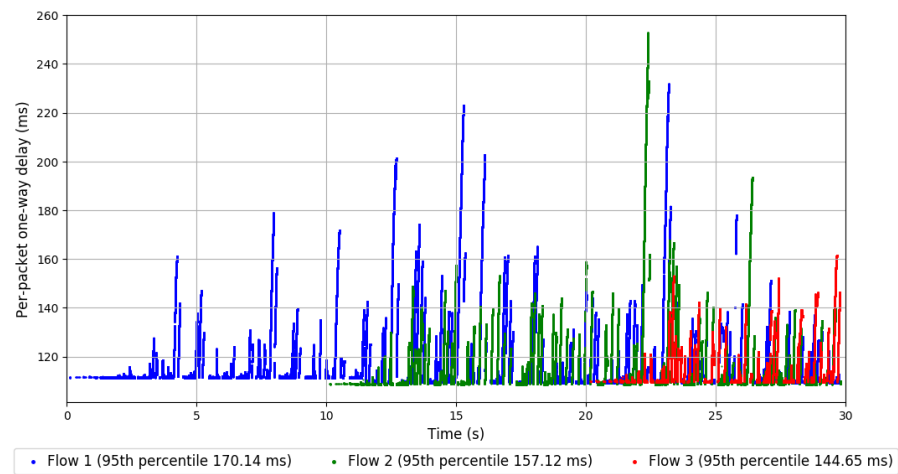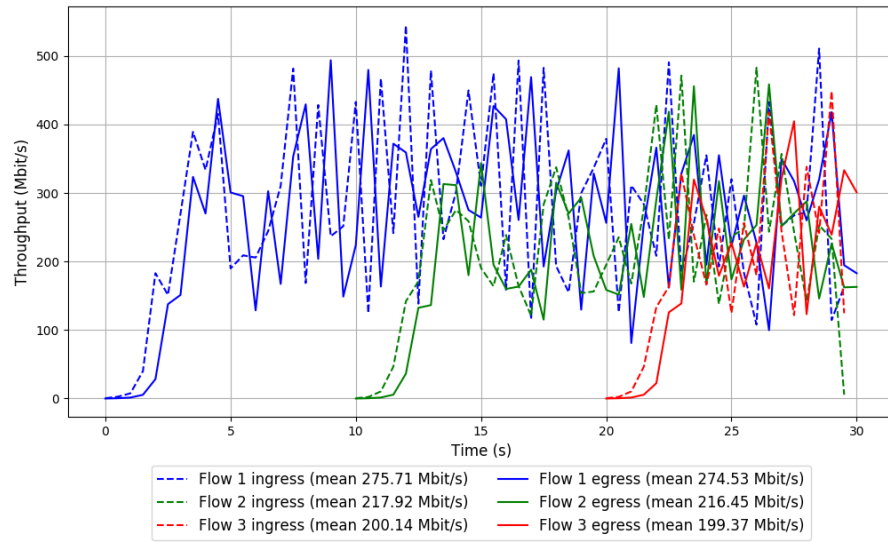
Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2018-12-11 03:01:04
End at: 2018-12-11 03:01:34
Local clock offset: -0.327 ms
Remote clock offset: -0.378 ms


# Below is generated by plot.py at 2018-12-11 04:51:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 296.47 Mbit/s
95th percentile per-packet one-way delay: 110.557 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 154.79 Mbit/s
95th percentile per-packet one-way delay: 110.273 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 149.46 Mbit/s
95th percentile per-packet one-way delay: 110.909 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 132.98 Mbit/s
95th percentile per-packet one-way delay: 110.938 ms
Loss rate: 0.01%
```
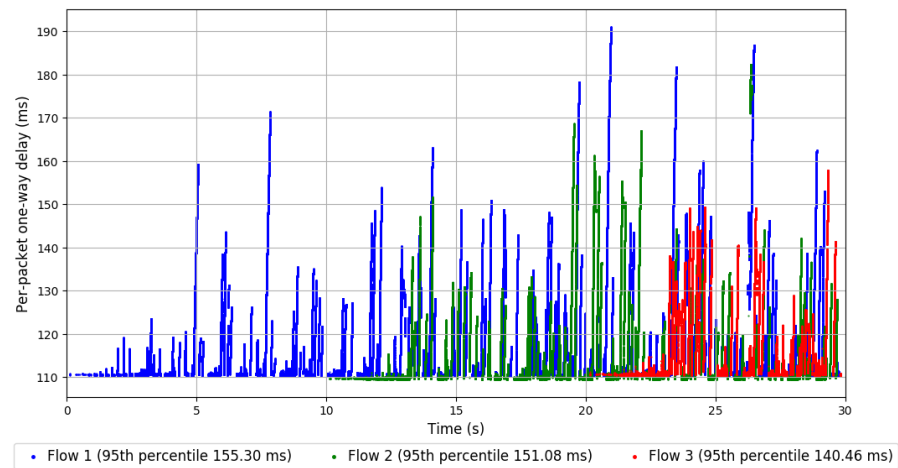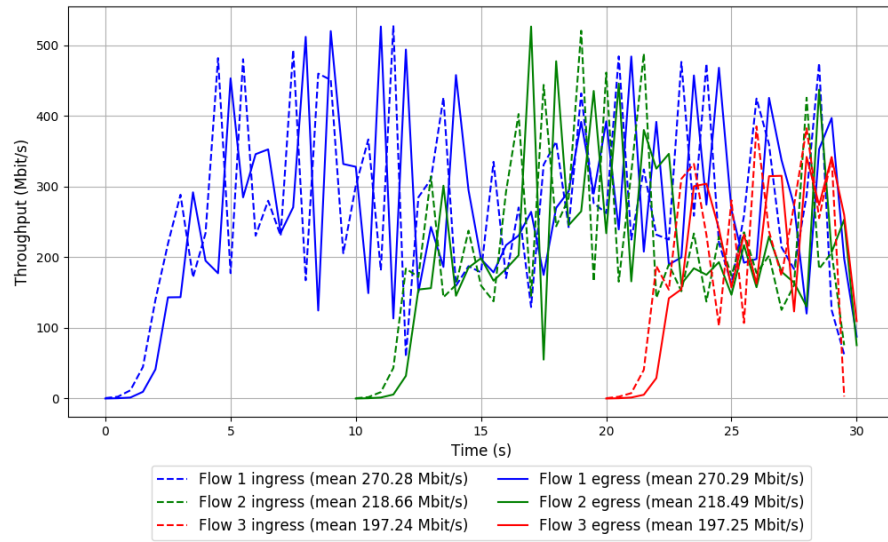
Run 5: Report of Indigo — Data Link

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

Start at: 2018-12-11 01:07:53
End at: 2018-12-11 01:08:23
Local clock offset: -0.485 ms
Remote clock offset: -0.197 ms


# Below is generated by plot.py at 2018-12-11 04:51:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 482.33 Mbit/s
95th percentile per-packet one-way delay: 162.814 ms
Loss rate: 0.45%
-- Flow 1:
Average throughput: 274.53 Mbit/s
95th percentile per-packet one-way delay: 170.141 ms
Loss rate: 0.43%
-- Flow 2:
Average throughput: 216.45 Mbit/s
95th percentile per-packet one-way delay: 157.118 ms
Loss rate: 0.68%
-- Flow 3:
Average throughput: 199.37 Mbit/s
95th percentile per-packet one-way delay: 144.648 ms
Loss rate: 0.00%
```
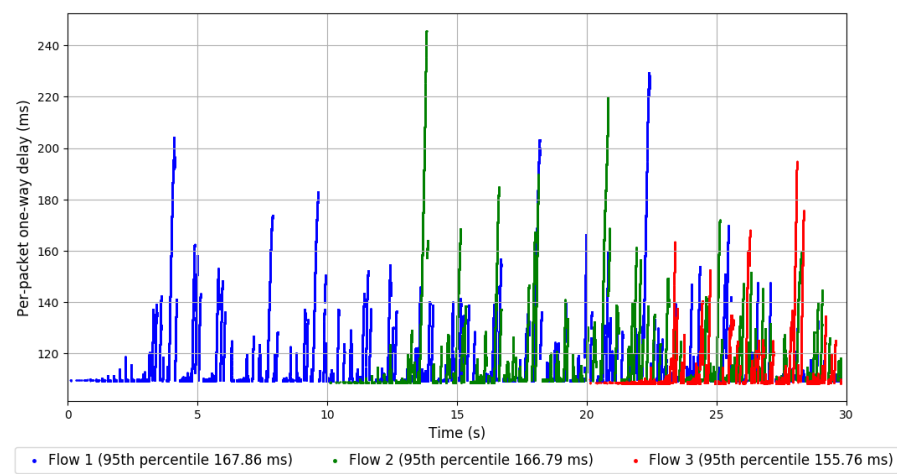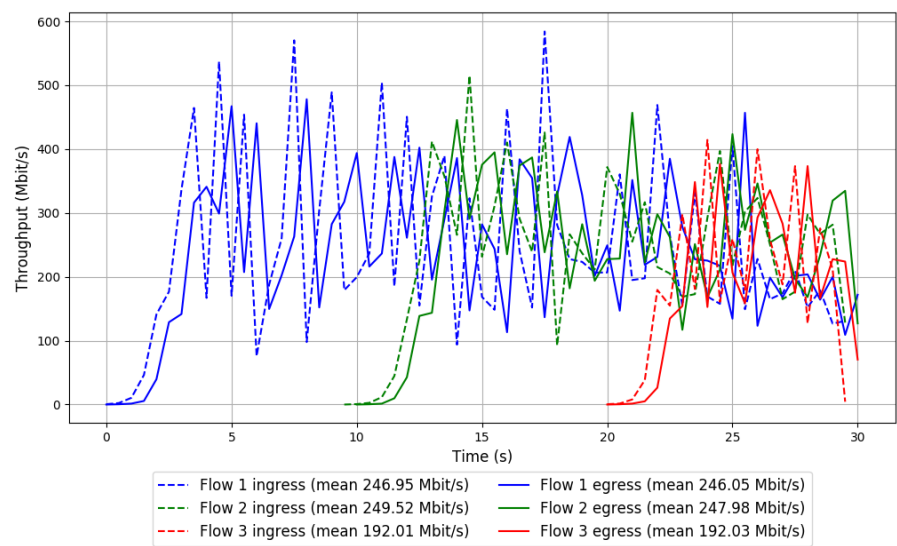
Run 1: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-12-11 01:42:37
End at: 2018-12-11 01:43:07
Local clock offset: -1.331 ms
Remote clock offset: -0.128 ms


# Below is generated by plot.py at 2018-12-11 04:51:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 478.08 Mbit/s
95th percentile per-packet one-way delay: 151.514 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 270.29 Mbit/s
95th percentile per-packet one-way delay: 155.304 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 218.49 Mbit/s
95th percentile per-packet one-way delay: 151.078 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 197.25 Mbit/s
95th percentile per-packet one-way delay: 140.459 ms
Loss rate: 0.00%
```
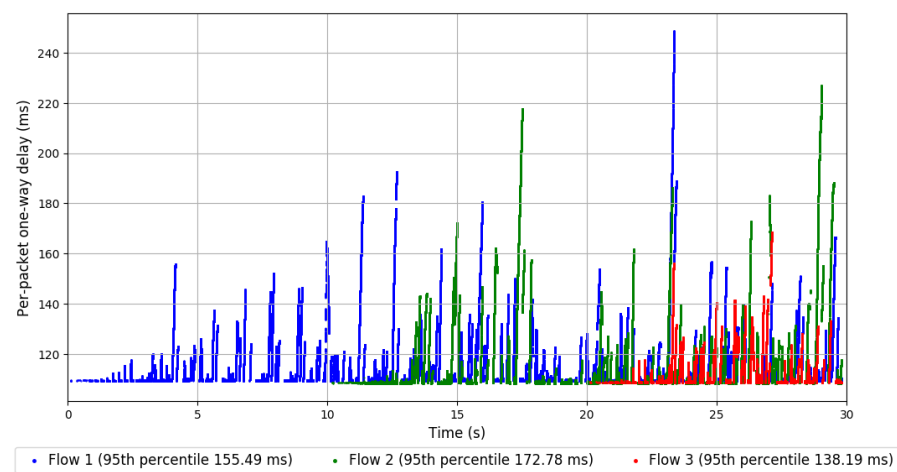
Run 2: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-12-11 02:22:30
End at: 2018-12-11 02:23:00
Local clock offset: -0.13 ms
Remote clock offset: -0.075 ms


# Below is generated by plot.py at 2018-12-11 04:51:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 473.04 Mbit/s
95th percentile per-packet one-way delay: 164.645 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 246.05 Mbit/s
95th percentile per-packet one-way delay: 167.857 ms
Loss rate: 0.36%
-- Flow 2:
Average throughput: 247.98 Mbit/s
95th percentile per-packet one-way delay: 166.792 ms
Loss rate: 0.62%
-- Flow 3:
Average throughput: 192.03 Mbit/s
95th percentile per-packet one-way delay: 155.763 ms
Loss rate: 0.00%
```
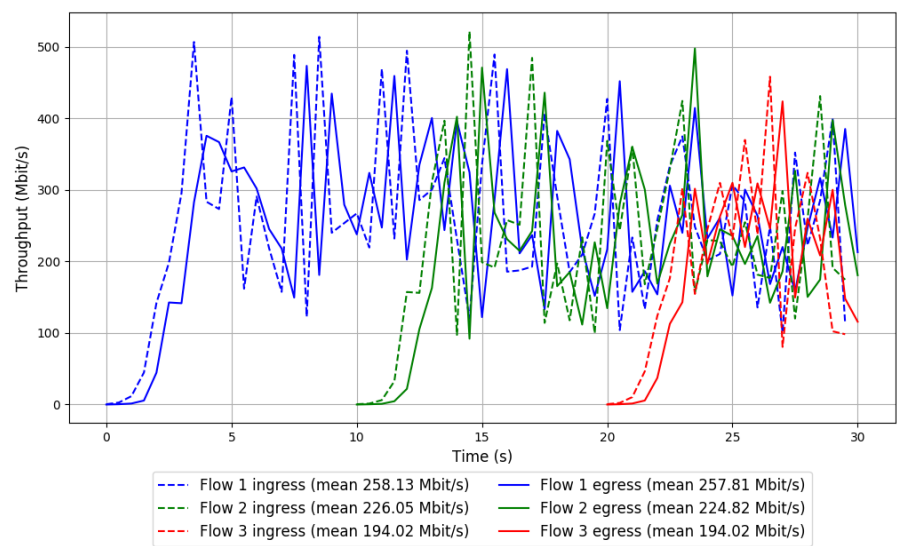
Run 3: Report of Indigo-96d2da3 — Data Link

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

Start at: 2018-12-11 02:55:49
End at: 2018-12-11 02:56:19
Local clock offset: -0.583 ms
Remote clock offset: -0.385 ms


# Below is generated by plot.py at 2018-12-11 04:51:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 469.48 Mbit/s
95th percentile per-packet one-way delay: 160.189 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 257.81 Mbit/s
95th percentile per-packet one-way delay: 155.494 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 224.82 Mbit/s
95th percentile per-packet one-way delay: 172.782 ms
Loss rate: 0.54%
-- Flow 3:
Average throughput: 194.02 Mbit/s
95th percentile per-packet one-way delay: 138.192 ms
Loss rate: 0.00%
```

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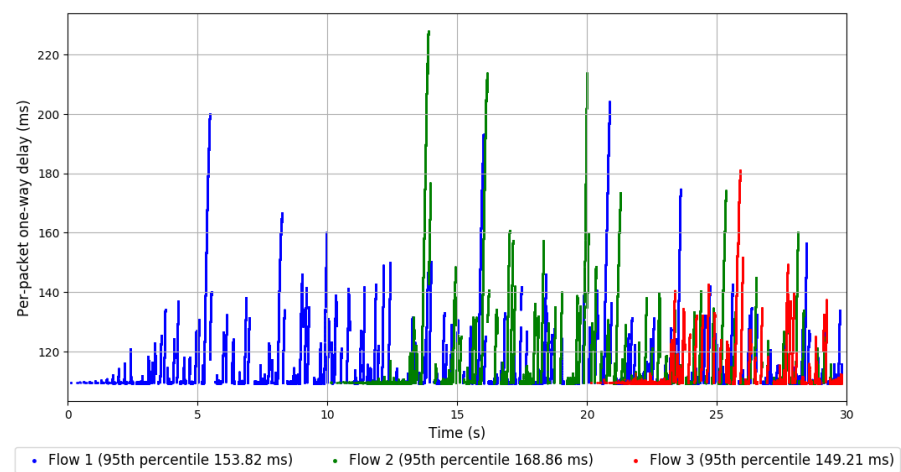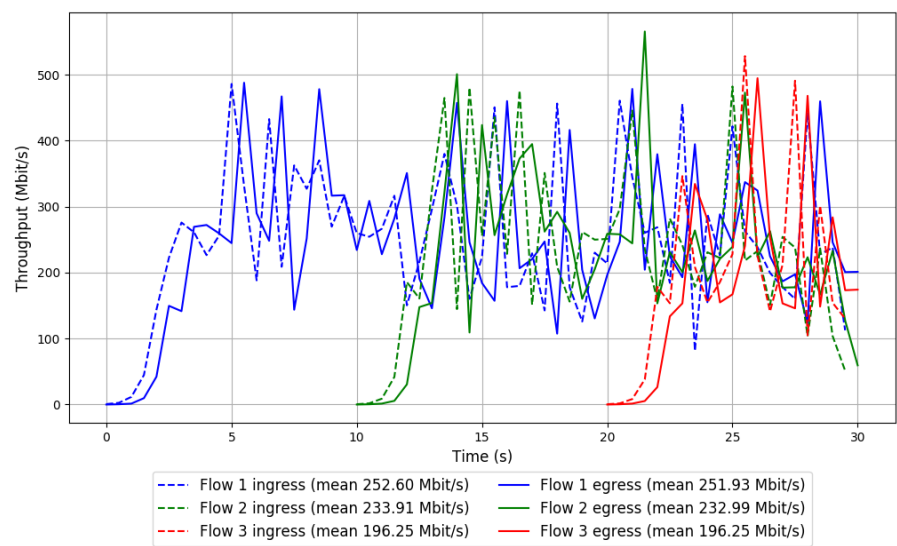

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```
Run 5: Statistics of Indigo-96d2da3

Start at: 2018-12-11 03:29:47
End at: 2018-12-11 03:30:17
Local clock offset: -0.147 ms
Remote clock offset: -0.113 ms


# Below is generated by plot.py at 2018-12-11 04:52:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 470.11 Mbit/s
95th percentile per-packet one-way delay: 159.209 ms
Loss rate: 0.27%
-- Flow 1:
Average throughput: 251.93 Mbit/s
95th percentile per-packet one-way delay: 153.823 ms
Loss rate: 0.27%
-- Flow 2:
Average throughput: 232.99 Mbit/s
95th percentile per-packet one-way delay: 168.860 ms
Loss rate: 0.40%
-- Flow 3:
Average throughput: 196.25 Mbit/s
95th percentile per-packet one-way delay: 149.212 ms
Loss rate: 0.00%
```
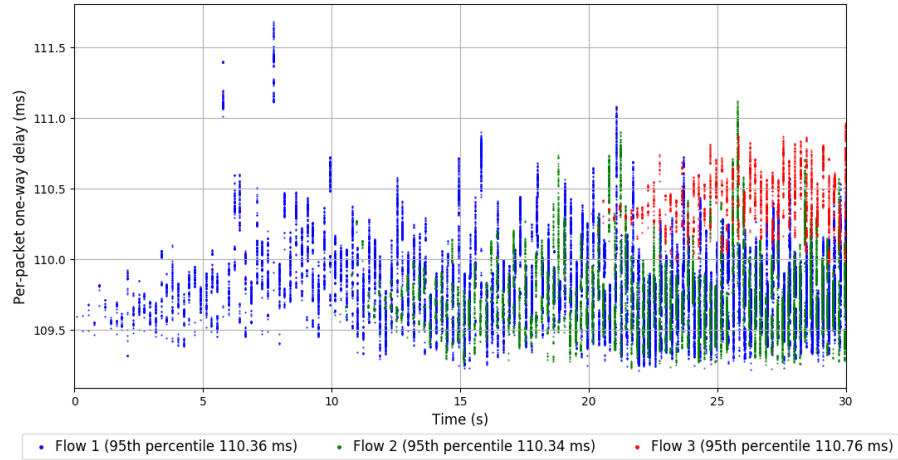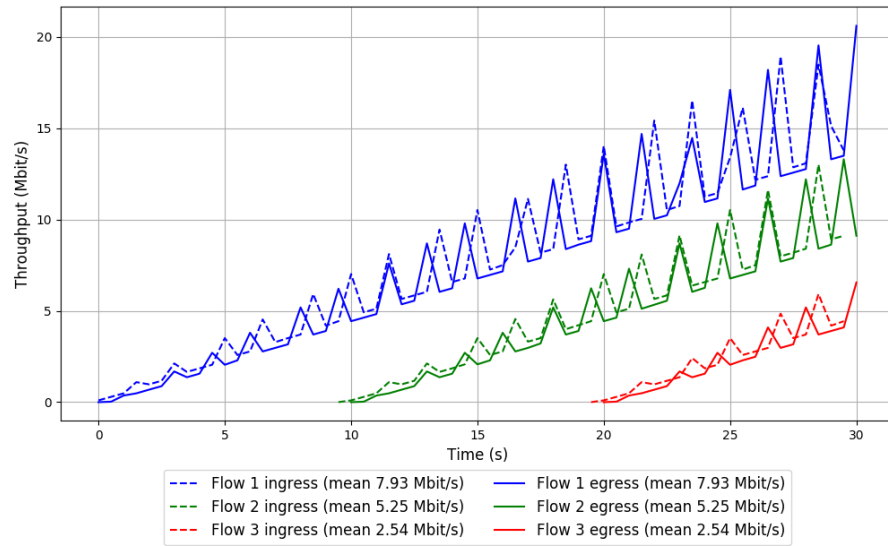
Run 5: Report of Indigo-96d2da3 — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-12-11 01:04:37
End at: 2018-12-11 01:05:07
Local clock offset: -1.456 ms
Remote clock offset: -0.572 ms

# Below is generated by plot.py at 2018-12-11 04:52:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.26 Mbit/s
95th percentile per-packet one-way delay: 110.500 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.93 Mbit/s
95th percentile per-packet one-way delay: 110.360 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 5.25 Mbit/s
95th percentile per-packet one-way delay: 110.345 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 2.54 Mbit/s
95th percentile per-packet one-way delay: 110.758 ms
Loss rate: 0.00%
```

Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-12-11 01:39:22
End at: 2018-12-11 01:39:52
Local clock offset: -0.005 ms
Remote clock offset: -0.217 ms


# Below is generated by plot.py at 2018-12-11 04:52:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.06 Mbit/s
95th percentile per-packet one-way delay: 109.987 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.82 Mbit/s
95th percentile per-packet one-way delay: 110.050 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 5.15 Mbit/s
95th percentile per-packet one-way delay: 109.207 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 2.55 Mbit/s
95th percentile per-packet one-way delay: 110.142 ms
Loss rate: 0.00%
```
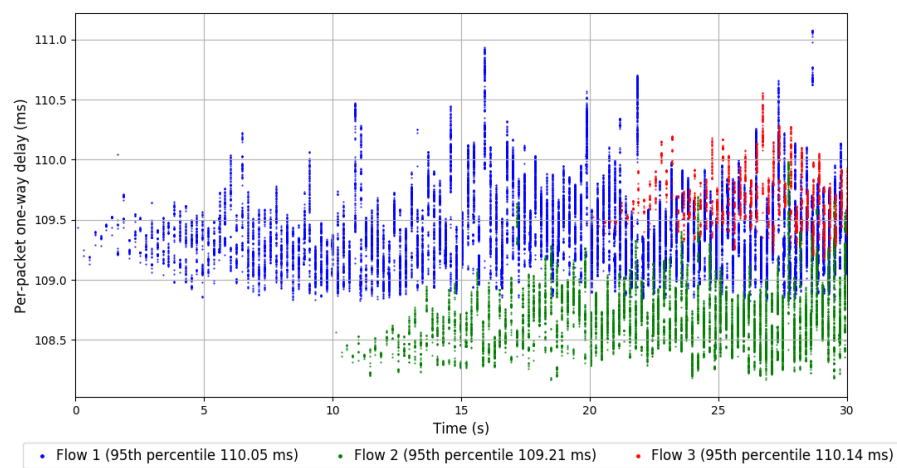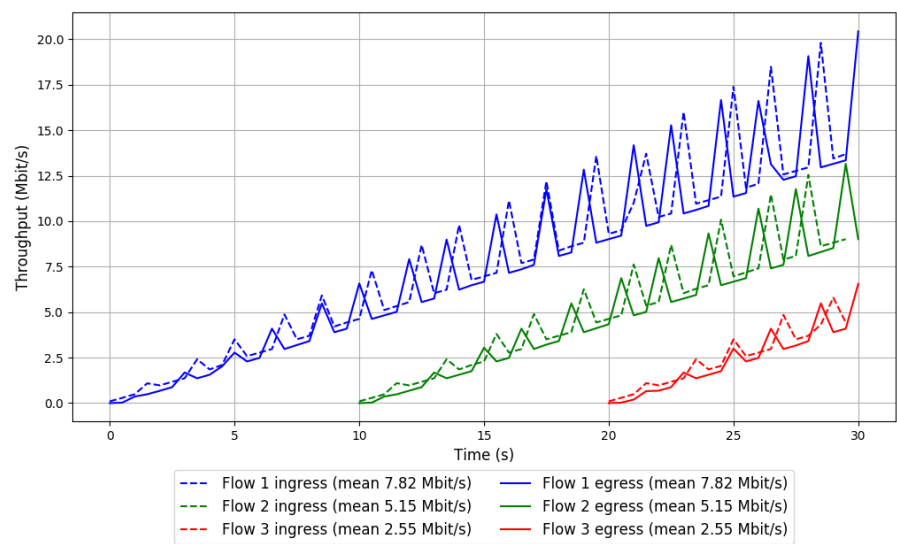
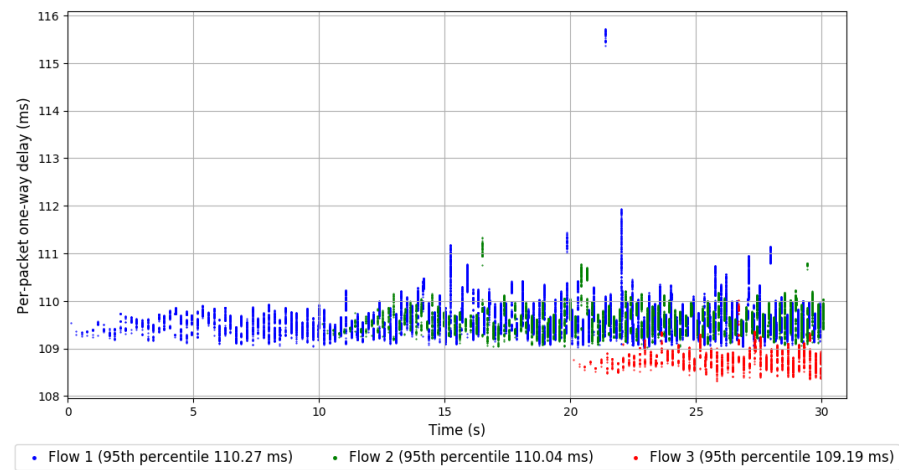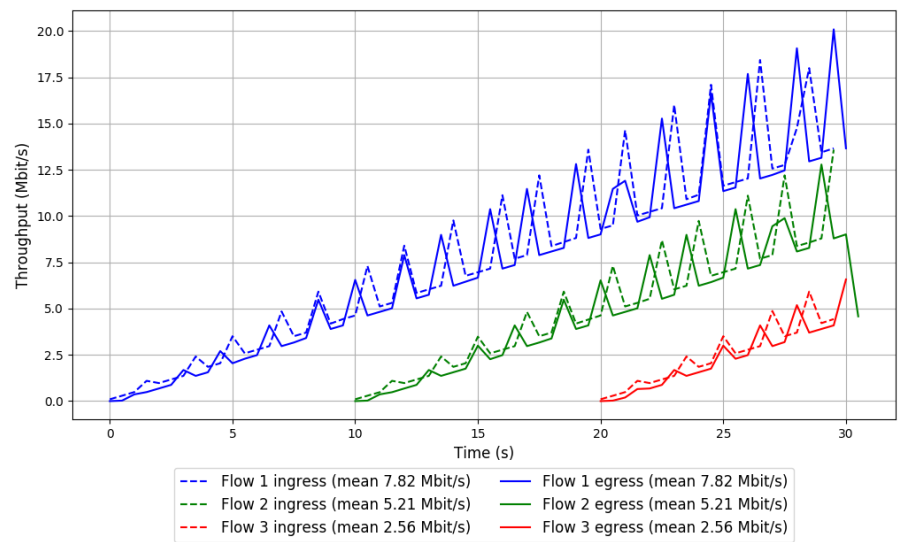# Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-12-11 02:19:16
End at: 2018-12-11 02:19:46
Local clock offset: -0.088 ms
Remote clock offset: -0.034 ms


# Below is generated by plot.py at 2018-12-11 04:52:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.09 Mbit/s
95th percentile per-packet one-way delay: 110.189 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.82 Mbit/s
95th percentile per-packet one-way delay: 110.270 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 5.21 Mbit/s
95th percentile per-packet one-way delay: 110.043 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 2.56 Mbit/s
95th percentile per-packet one-way delay: 109.186 ms
Loss rate: 0.00%
```
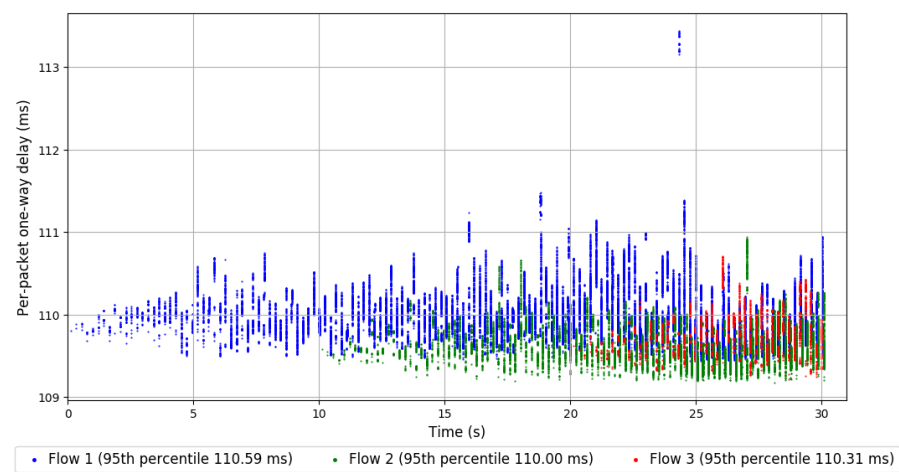
Run 3: Report of LEDBAT — Data Link

Flow 1 ingress (mean 7.82 Mbit/s)   Flow 1 egress (mean 7.82 Mbit/s)
Flow 2 ingress (mean 5.21 Mbit/s)   Flow 2 egress (mean 5.21 Mbit/s)
Flow 3 ingress (mean 2.56 Mbit/s)   Flow 3 egress (mean 2.56 Mbit/s)

Flow 1 (95th percentile 110.27 ms)   Flow 2 (95th percentile 110.04 ms)   Flow 3 (95th percentile 109.19 ms)
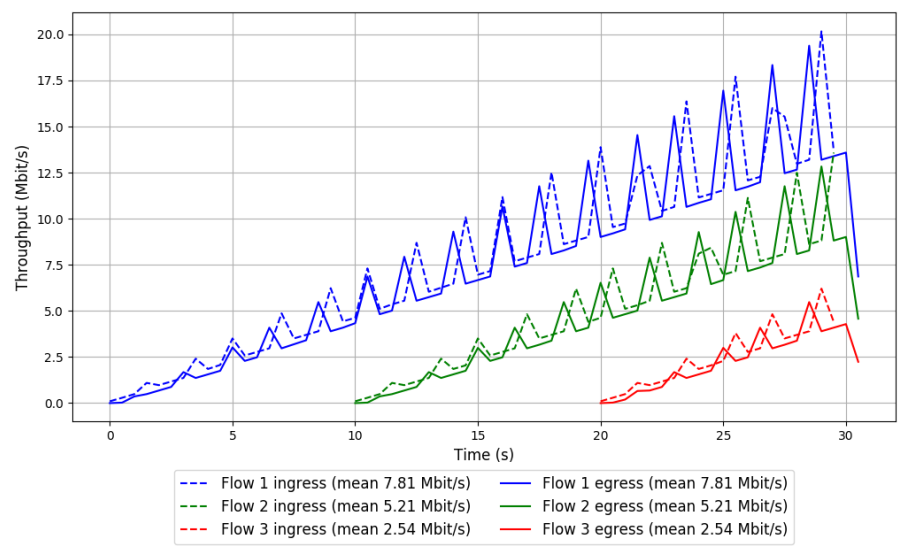
```
Run 4: Statistics of LEDBAT

Start at: 2018-12-11 02:52:36
End at: 2018-12-11 02:53:06
Local clock offset: -0.689 ms
Remote clock offset: -0.404 ms


# Below is generated by plot.py at 2018-12-11 04:52:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.10 Mbit/s
95th percentile per-packet one-way delay: 110.507 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.81 Mbit/s
95th percentile per-packet one-way delay: 110.594 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 5.21 Mbit/s
95th percentile per-packet one-way delay: 109.997 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 2.54 Mbit/s
95th percentile per-packet one-way delay: 110.305 ms
Loss rate: 0.00%
```
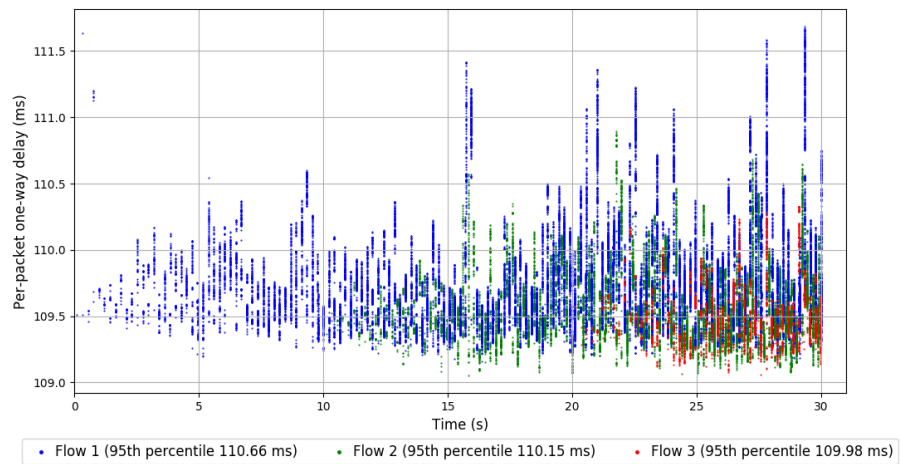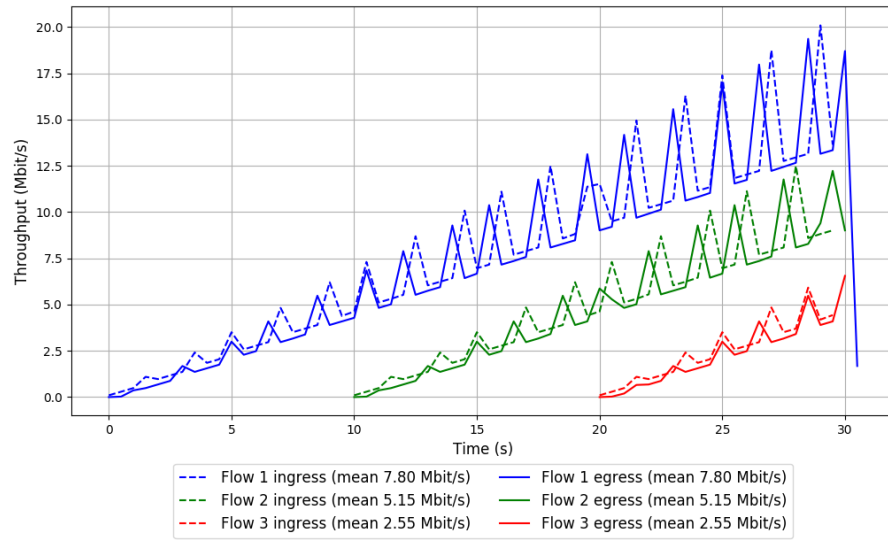
Run 4: Report of LEDBAT — Data Link

- Flow 1 ingress (mean 7.81 Mbit/s) — Flow 1 egress (mean 7.81 Mbit/s)
- Flow 2 ingress (mean 5.21 Mbit/s) — Flow 2 egress (mean 5.21 Mbit/s)
- Flow 3 ingress (mean 2.54 Mbit/s) — Flow 3 egress (mean 2.54 Mbit/s)

- Flow 1 (95th percentile 110.59 ms)
- Flow 2 (95th percentile 110.00 ms)
- Flow 3 (95th percentile 110.31 ms)

```
Run 5: Statistics of LEDBAT

Start at: 2018-12-11 03:26:50
End at: 2018-12-11 03:27:20
Local clock offset: 0.038 ms
Remote clock offset: -0.13 ms


# Below is generated by plot.py at 2018-12-11 04:52:41
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.04 Mbit/s
95th percentile per-packet one-way delay: 110.442 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.80 Mbit/s
95th percentile per-packet one-way delay: 110.657 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 5.15 Mbit/s
95th percentile per-packet one-way delay: 110.154 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 2.55 Mbit/s
95th percentile per-packet one-way delay: 109.976 ms
Loss rate: 0.00%
```

Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of Indigo-Muses

Start at: 2018-12-11 01:10:56
End at: 2018-12-11 01:11:26
Local clock offset: -1.383 ms
Remote clock offset: 0.129 ms

# Below is generated by plot.py at 2018-12-11 05:07:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 989.83 Mbit/s
95th percentile per-packet one-way delay: 176.416 ms
Loss rate: 0.36%
-- Flow 1:
Average throughput: 554.78 Mbit/s
95th percentile per-packet one-way delay: 170.842 ms
Loss rate: 0.27%
-- Flow 2:
Average throughput: 509.97 Mbit/s
95th percentile per-packet one-way delay: 182.951 ms
Loss rate: 0.37%
-- Flow 3:
Average throughput: 299.53 Mbit/s
95th percentile per-packet one-way delay: 178.593 ms
Loss rate: 0.89%
```
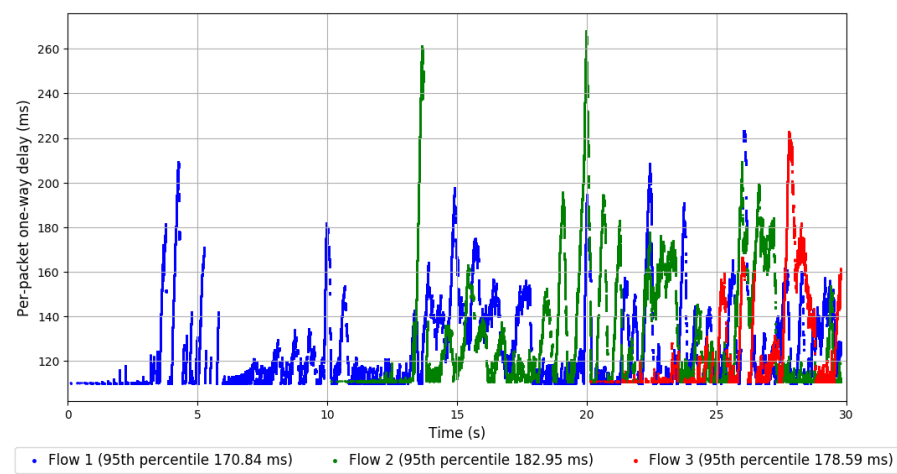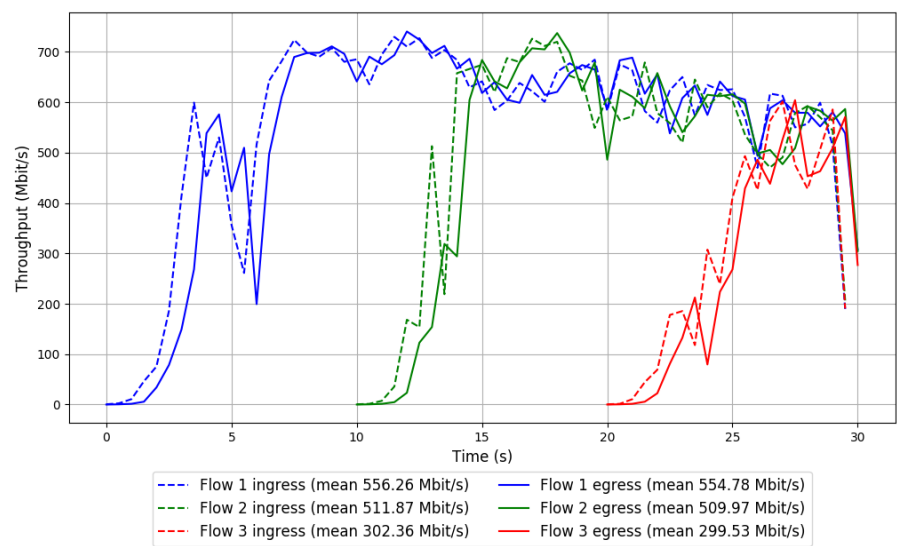
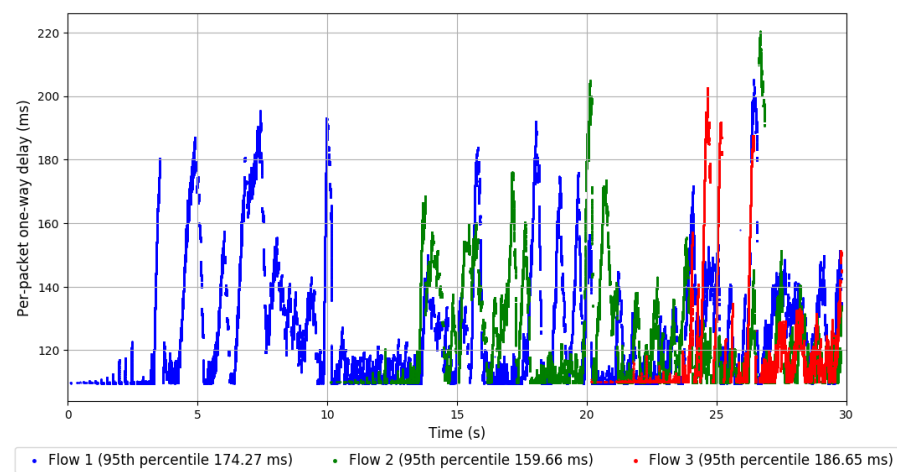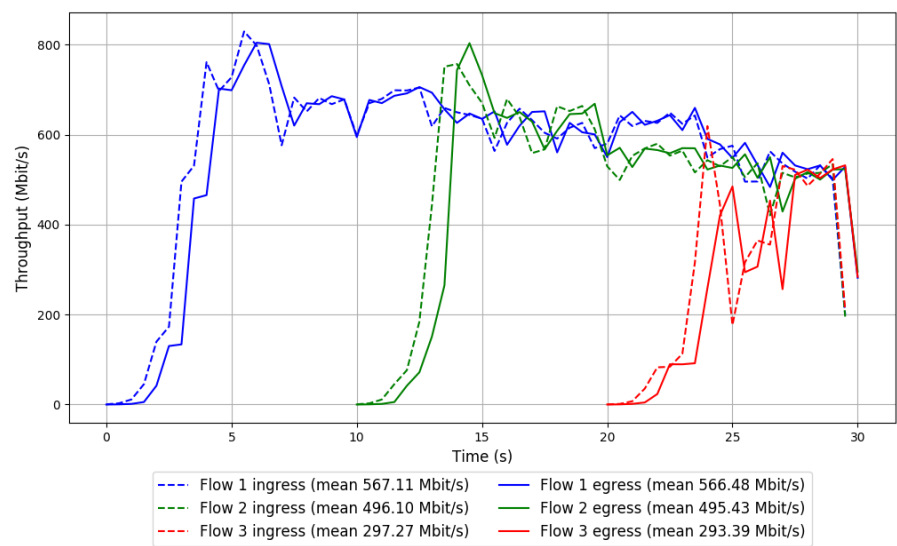# Run 1: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 556.26 Mbit/s)   Flow 1 egress (mean 554.78 Mbit/s)
Flow 2 ingress (mean 511.87 Mbit/s)   Flow 2 egress (mean 509.97 Mbit/s)
Flow 3 ingress (mean 302.36 Mbit/s)   Flow 3 egress (mean 299.53 Mbit/s)

Flow 1 (95th percentile 170.84 ms)   Flow 2 (95th percentile 182.95 ms)   Flow 3 (95th percentile 178.59 ms)

```
Run 2: Statistics of Indigo-Muses

Start at: 2018-12-11 01:45:39
End at: 2018-12-11 01:46:09
Local clock offset: -0.718 ms
Remote clock offset: -0.132 ms

# Below is generated by plot.py at 2018-12-11 05:08:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 989.96 Mbit/s
95th percentile per-packet one-way delay: 173.023 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 566.48 Mbit/s
95th percentile per-packet one-way delay: 174.269 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 495.43 Mbit/s
95th percentile per-packet one-way delay: 159.656 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 293.39 Mbit/s
95th percentile per-packet one-way delay: 186.646 ms
Loss rate: 1.31%
```

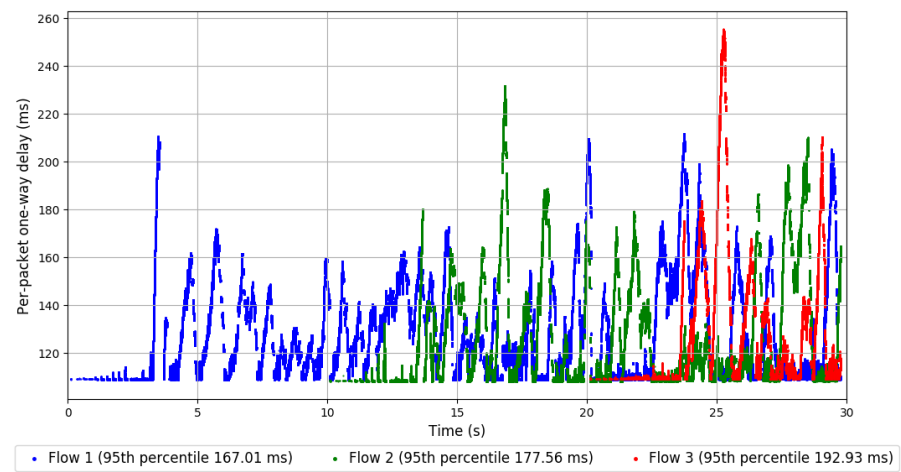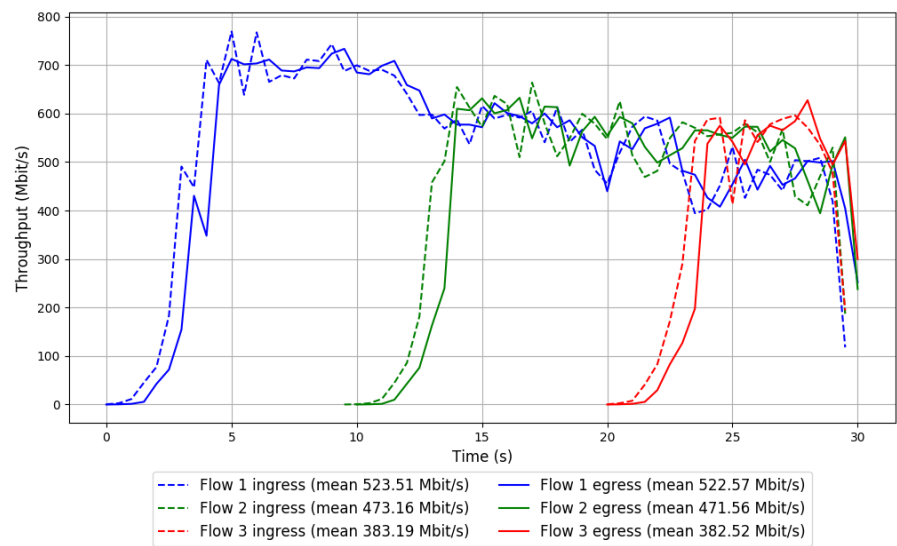Run 2: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 567.11 Mbit/s)   Flow 1 egress (mean 566.48 Mbit/s)
Flow 2 ingress (mean 496.10 Mbit/s)   Flow 2 egress (mean 495.43 Mbit/s)
Flow 3 ingress (mean 297.27 Mbit/s)   Flow 3 egress (mean 293.39 Mbit/s)

Flow 1 (95th percentile 174.27 ms)   Flow 2 (95th percentile 159.66 ms)   Flow 3 (95th percentile 186.65 ms)

```
Run 3: Statistics of Indigo-Muses

Start at: 2018-12-11 02:25:31
End at: 2018-12-11 02:26:01
Local clock offset: -0.072 ms
Remote clock offset: -0.107 ms


# Below is generated by plot.py at 2018-12-11 05:08:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 959.89 Mbit/s
95th percentile per-packet one-way delay: 173.609 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 522.57 Mbit/s
95th percentile per-packet one-way delay: 167.011 ms
Loss rate: 0.18%
-- Flow 2:
Average throughput: 471.56 Mbit/s
95th percentile per-packet one-way delay: 177.556 ms
Loss rate: 0.31%
-- Flow 3:
Average throughput: 382.52 Mbit/s
95th percentile per-packet one-way delay: 192.926 ms
Loss rate: 0.17%
```
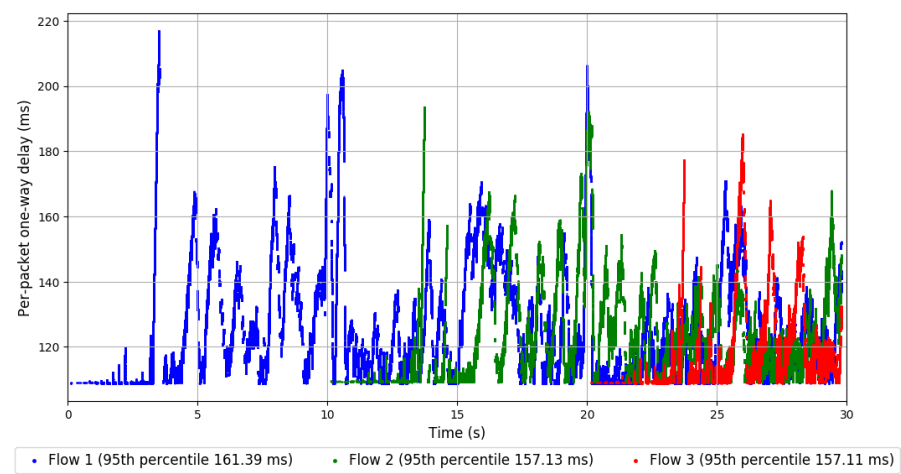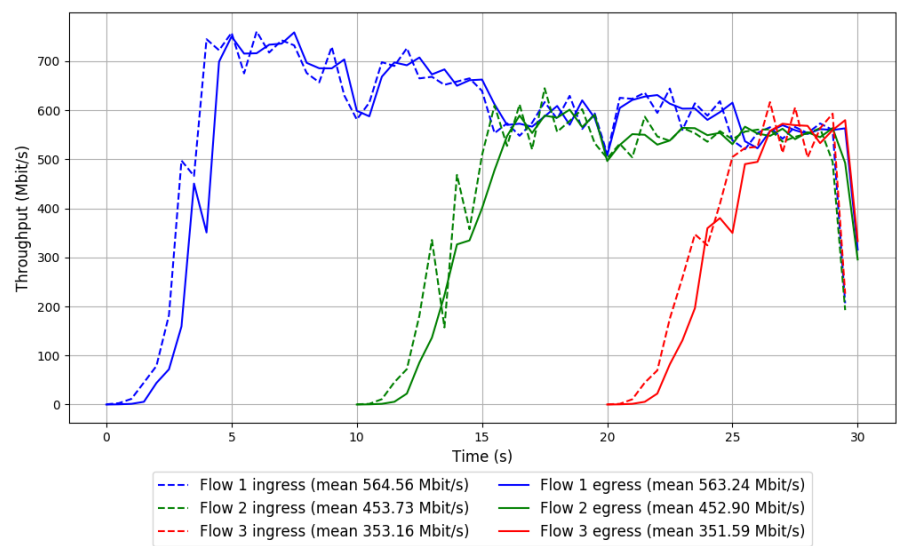
Run 3: Report of Indigo-Muses — Data Link

```
Run 4: Statistics of Indigo-Muses

Start at: 2018-12-11 02:58:51
End at: 2018-12-11 02:59:21
Local clock offset: -0.074 ms
Remote clock offset: -0.067 ms

# Below is generated by plot.py at 2018-12-11 05:08:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 977.60 Mbit/s
95th percentile per-packet one-way delay: 159.689 ms
Loss rate: 0.23%
-- Flow 1:
Average throughput: 563.24 Mbit/s
95th percentile per-packet one-way delay: 161.392 ms
Loss rate: 0.23%
-- Flow 2:
Average throughput: 452.90 Mbit/s
95th percentile per-packet one-way delay: 157.127 ms
Loss rate: 0.17%
-- Flow 3:
Average throughput: 351.59 Mbit/s
95th percentile per-packet one-way delay: 157.110 ms
Loss rate: 0.43%
```

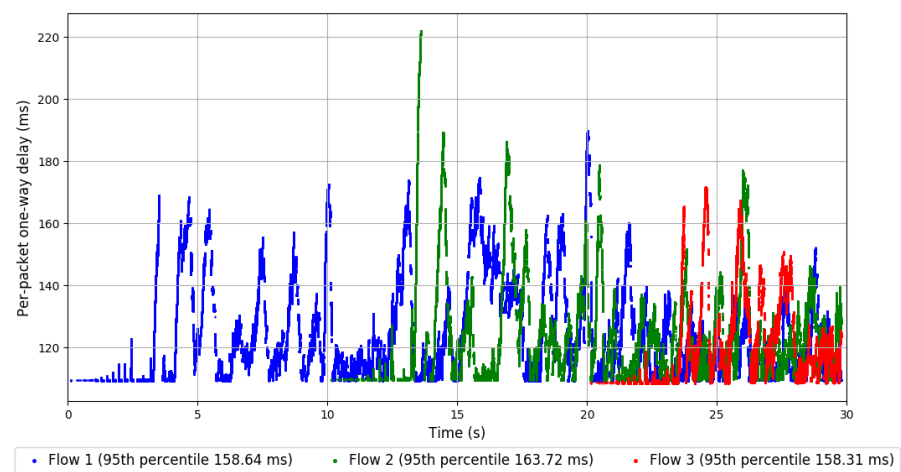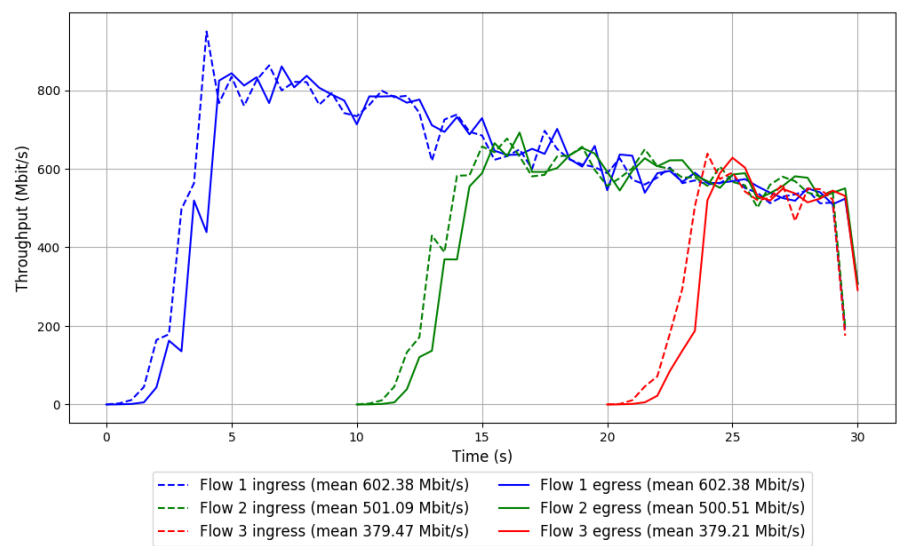Run 4: Report of Indigo-Muses — Data Link

```
Run 5: Statistics of Indigo-Muses

Start at: 2018-12-11 03:32:53
End at: 2018-12-11 03:33:23
Local clock offset: -0.419 ms
Remote clock offset: -0.139 ms


# Below is generated by plot.py at 2018-12-11 05:10:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1057.09 Mbit/s
95th percentile per-packet one-way delay: 159.390 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 602.38 Mbit/s
95th percentile per-packet one-way delay: 158.642 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 500.51 Mbit/s
95th percentile per-packet one-way delay: 163.723 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 379.21 Mbit/s
95th percentile per-packet one-way delay: 158.306 ms
Loss rate: 0.06%
```
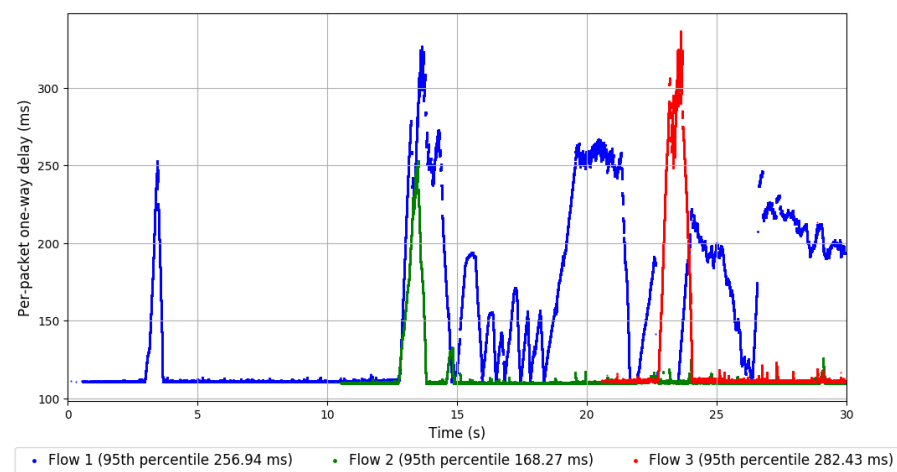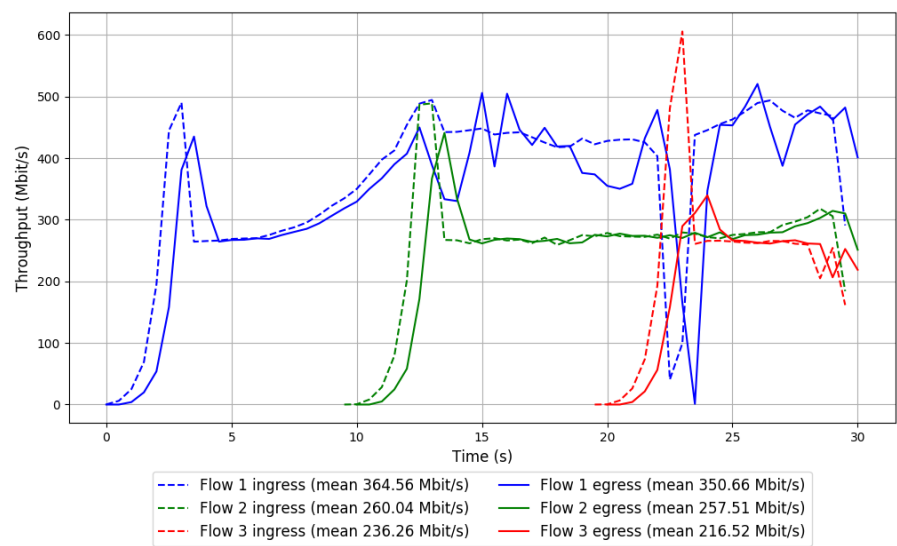
Run 5: Report of Indigo-Muses — Data Link

Flow 1 ingress (mean 602.38 Mbit/s) --- Flow 1 egress (mean 602.38 Mbit/s)
Flow 2 ingress (mean 501.09 Mbit/s) --- Flow 2 egress (mean 500.51 Mbit/s)
Flow 3 ingress (mean 379.47 Mbit/s) --- Flow 3 egress (mean 379.21 Mbit/s)

Flow 1 (95th percentile 158.64 ms)   Flow 2 (95th percentile 163.72 ms)   Flow 3 (95th percentile 158.31 ms)

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-12-11 00:59:17
End at: 2018-12-11 00:59:47
Local clock offset: -1.2 ms
Remote clock offset: 0.296 ms


# Below is generated by plot.py at 2018-12-11 05:11:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 593.45 Mbit/s
95th percentile per-packet one-way delay: 254.271 ms
Loss rate: 3.59%
-- Flow 1:
Average throughput: 350.66 Mbit/s
95th percentile per-packet one-way delay: 256.937 ms
Loss rate: 3.81%
-- Flow 2:
Average throughput: 257.51 Mbit/s
95th percentile per-packet one-way delay: 168.273 ms
Loss rate: 0.97%
-- Flow 3:
Average throughput: 216.52 Mbit/s
95th percentile per-packet one-way delay: 282.431 ms
Loss rate: 8.36%
```

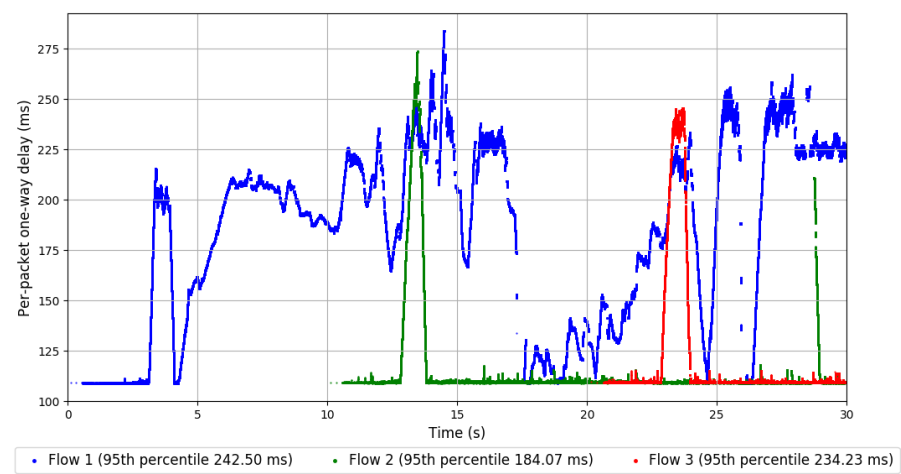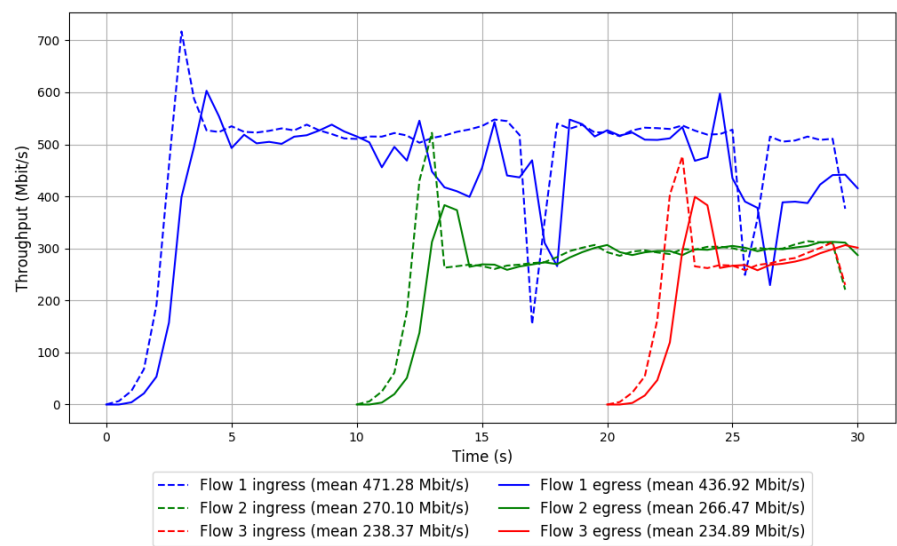Run 1: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 364.56 Mbit/s)   Flow 1 egress (mean 350.66 Mbit/s)
Flow 2 ingress (mean 260.04 Mbit/s)   Flow 2 egress (mean 257.51 Mbit/s)
Flow 3 ingress (mean 236.26 Mbit/s)   Flow 3 egress (mean 216.52 Mbit/s)

Flow 1 (95th percentile 256.94 ms)   Flow 2 (95th percentile 168.27 ms)   Flow 3 (95th percentile 282.43 ms)
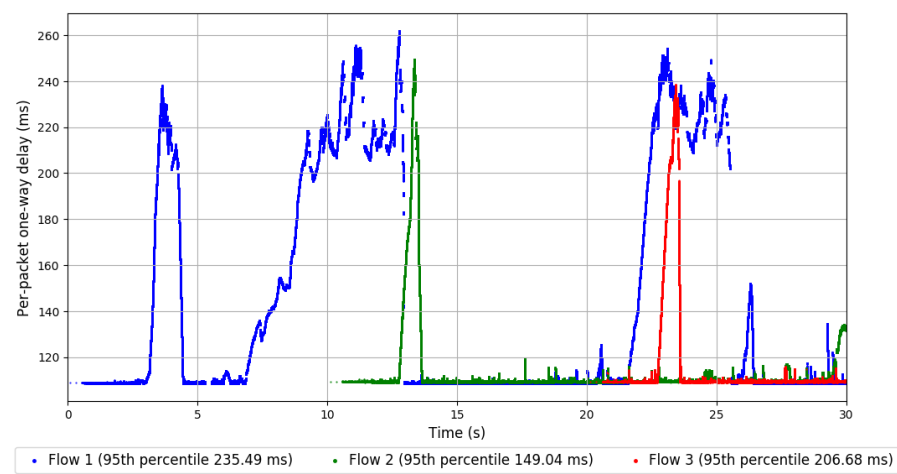
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```
Run 2: Statistics of PCC-Allegro

Start at: 2018-12-11 01:33:50
End at: 2018-12-11 01:34:20
Local clock offset: 0.167 ms
Remote clock offset: -0.337 ms


# Below is generated by plot.py at 2018-12-11 05:15:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 691.25 Mbit/s
95th percentile per-packet one-way delay: 238.873 ms
Loss rate: 5.20%
-- Flow 1:
Average throughput: 436.92 Mbit/s
95th percentile per-packet one-way delay: 242.497 ms
Loss rate: 7.29%
-- Flow 2:
Average throughput: 266.47 Mbit/s
95th percentile per-packet one-way delay: 184.074 ms
Loss rate: 1.36%
-- Flow 3:
Average throughput: 234.89 Mbit/s
95th percentile per-packet one-way delay: 234.233 ms
Loss rate: 1.46%
```

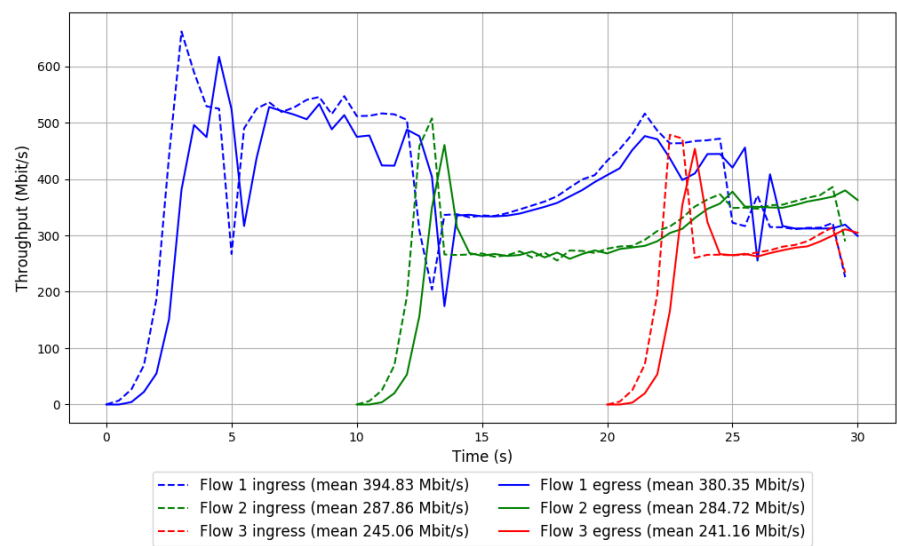Run 2: Report of PCC-Allegro — Data Link

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-12-11 02:13:18
End at: 2018-12-11 02:13:48
Local clock offset: -0.146 ms
Remote clock offset: -0.044 ms


# Below is generated by plot.py at 2018-12-11 05:15:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 648.85 Mbit/s
95th percentile per-packet one-way delay: 229.722 ms
Loss rate: 2.68%
-- Flow 1:
Average throughput: 380.35 Mbit/s
95th percentile per-packet one-way delay: 235.486 ms
Loss rate: 3.67%
-- Flow 2:
Average throughput: 284.72 Mbit/s
95th percentile per-packet one-way delay: 149.045 ms
Loss rate: 1.09%
-- Flow 3:
Average throughput: 241.16 Mbit/s
95th percentile per-packet one-way delay: 206.678 ms
Loss rate: 1.60%
```
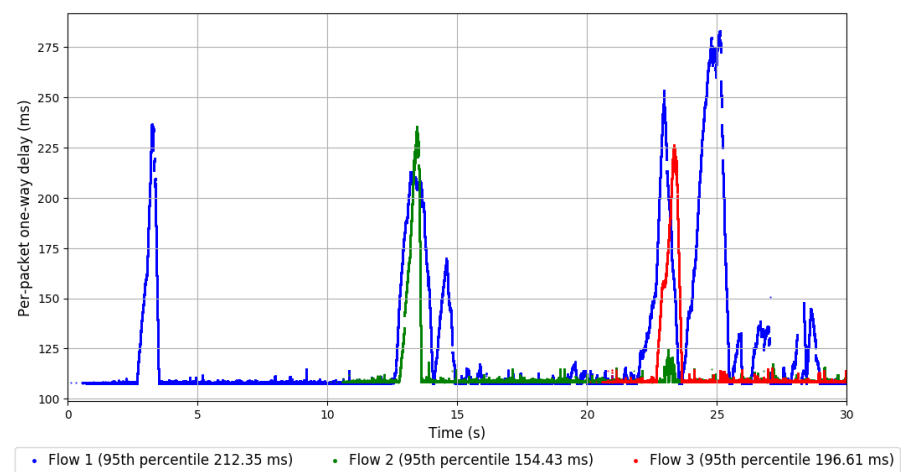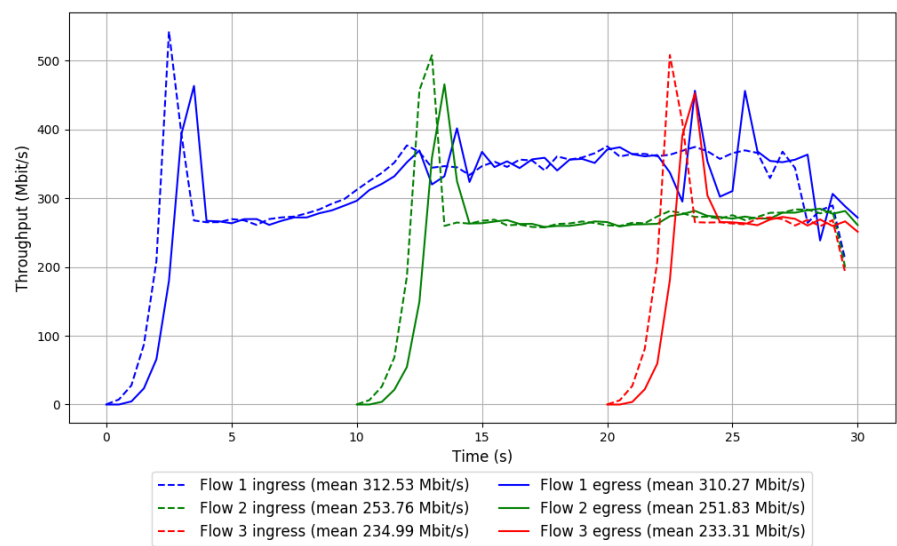
Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 394.83 Mbit/s) --- Flow 1 egress (mean 380.35 Mbit/s)
Flow 2 ingress (mean 287.86 Mbit/s) --- Flow 2 egress (mean 284.72 Mbit/s)
Flow 3 ingress (mean 245.06 Mbit/s) --- Flow 3 egress (mean 241.16 Mbit/s)

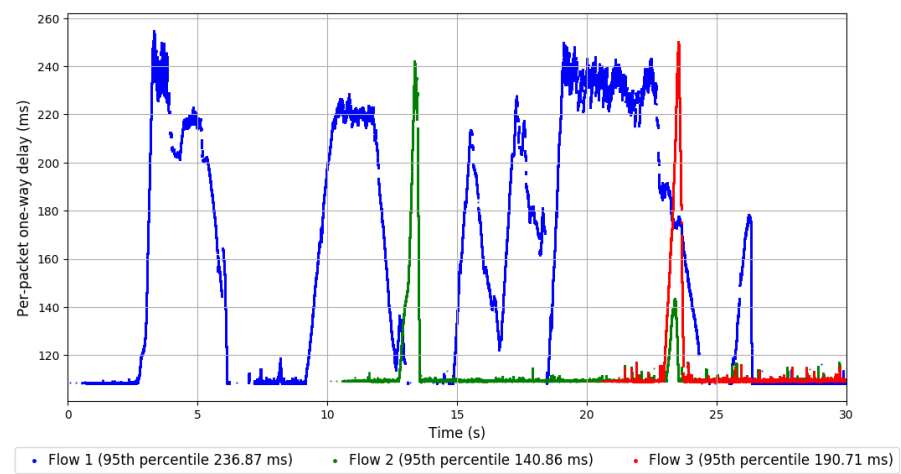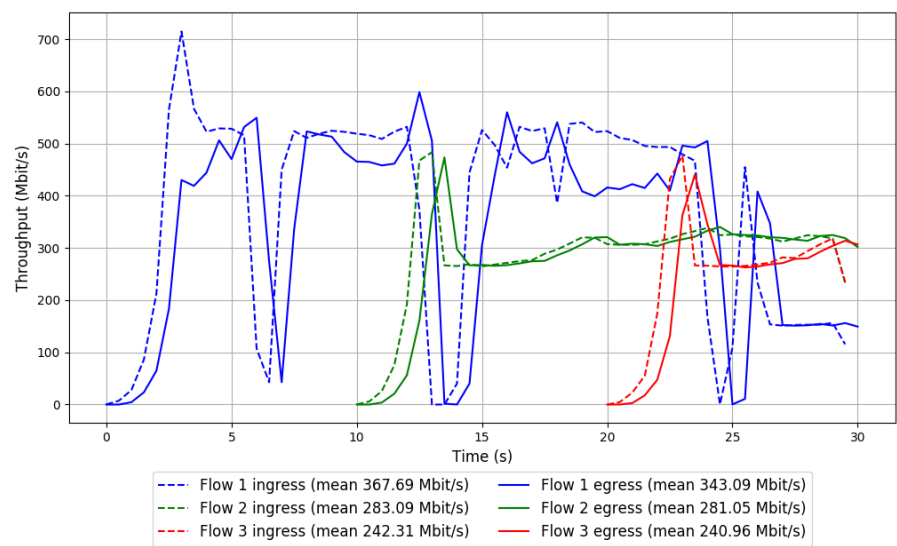Flow 1 (95th percentile 235.49 ms)　Flow 2 (95th percentile 149.04 ms)　Flow 3 (95th percentile 206.68 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-12-11 02:47:52
End at: 2018-12-11 02:48:22
Local clock offset: 0.597 ms
Remote clock offset: 0.003 ms


# Below is generated by plot.py at 2018-12-11 05:28:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 554.50 Mbit/s
95th percentile per-packet one-way delay: 206.837 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 310.27 Mbit/s
95th percentile per-packet one-way delay: 212.346 ms
Loss rate: 0.72%
-- Flow 2:
Average throughput: 251.83 Mbit/s
95th percentile per-packet one-way delay: 154.431 ms
Loss rate: 0.76%
-- Flow 3:
Average throughput: 233.31 Mbit/s
95th percentile per-packet one-way delay: 196.609 ms
Loss rate: 0.74%
```
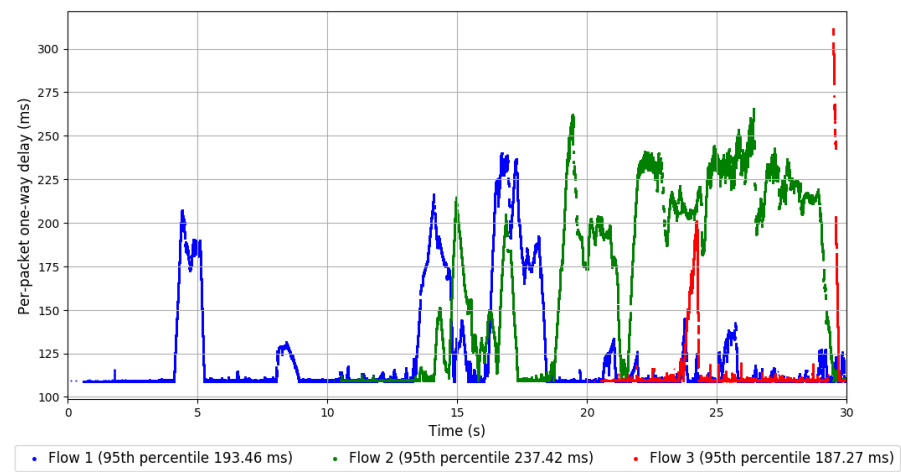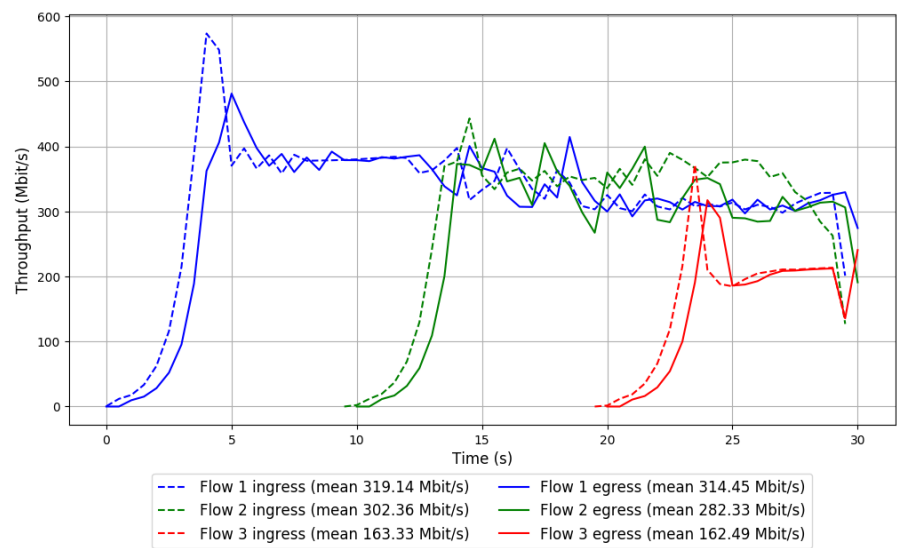
Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 312.53 Mbit/s) --- Flow 1 egress (mean 310.27 Mbit/s)
Flow 2 ingress (mean 253.76 Mbit/s) --- Flow 2 egress (mean 251.83 Mbit/s)
Flow 3 ingress (mean 234.99 Mbit/s) --- Flow 3 egress (mean 233.31 Mbit/s)

Flow 1 (95th percentile 212.35 ms)   Flow 2 (95th percentile 154.43 ms)   Flow 3 (95th percentile 196.61 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2018-12-11 03:21:29
End at: 2018-12-11 03:21:59
Local clock offset: -0.018 ms
Remote clock offset: -0.093 ms


# Below is generated by plot.py at 2018-12-11 05:31:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 609.00 Mbit/s
95th percentile per-packet one-way delay: 233.654 ms
Loss rate: 4.15%
-- Flow 1:
Average throughput: 343.09 Mbit/s
95th percentile per-packet one-way delay: 236.867 ms
Loss rate: 6.69%
-- Flow 2:
Average throughput: 281.05 Mbit/s
95th percentile per-packet one-way delay: 140.863 ms
Loss rate: 0.72%
-- Flow 3:
Average throughput: 240.96 Mbit/s
95th percentile per-packet one-way delay: 190.710 ms
Loss rate: 0.56%
```

Run 5: Report of PCC-Allegro — Data Link

- Flow 1 ingress (mean 367.69 Mbit/s)   — Flow 1 egress (mean 343.09 Mbit/s)
- Flow 2 ingress (mean 283.09 Mbit/s)   — Flow 2 egress (mean 281.05 Mbit/s)
- Flow 3 ingress (mean 242.31 Mbit/s)   — Flow 3 egress (mean 240.96 Mbit/s)

- Flow 1 (95th percentile 236.87 ms)   • Flow 2 (95th percentile 140.86 ms)   • Flow 3 (95th percentile 190.71 ms)

```
Run 1: Statistics of PCC-Expr

Start at: 2018-12-11 00:54:53
End at: 2018-12-11 00:55:23
Local clock offset: 0.457 ms
Remote clock offset: 0.282 ms

# Below is generated by plot.py at 2018-12-11 05:31:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 556.53 Mbit/s
95th percentile per-packet one-way delay: 231.055 ms
Loss rate: 3.19%
-- Flow 1:
Average throughput: 314.45 Mbit/s
95th percentile per-packet one-way delay: 193.463 ms
Loss rate: 1.47%
-- Flow 2:
Average throughput: 282.33 Mbit/s
95th percentile per-packet one-way delay: 237.423 ms
Loss rate: 6.62%
-- Flow 3:
Average throughput: 162.49 Mbit/s
95th percentile per-packet one-way delay: 187.269 ms
Loss rate: 0.52%
```
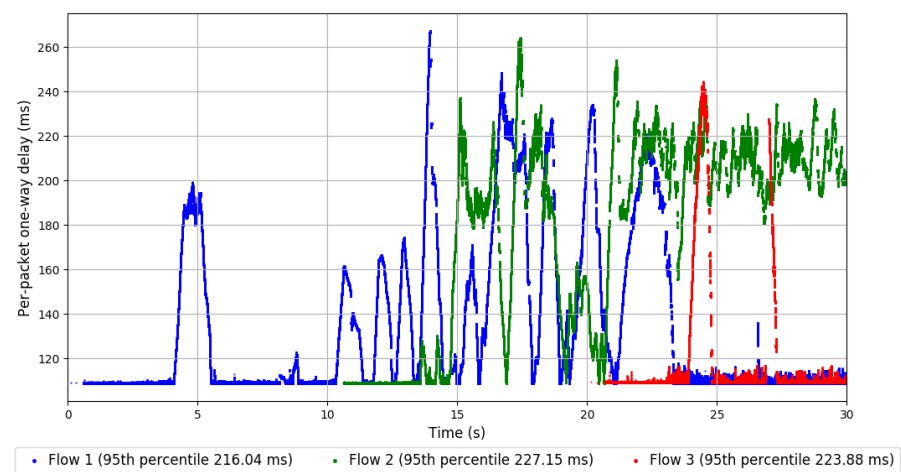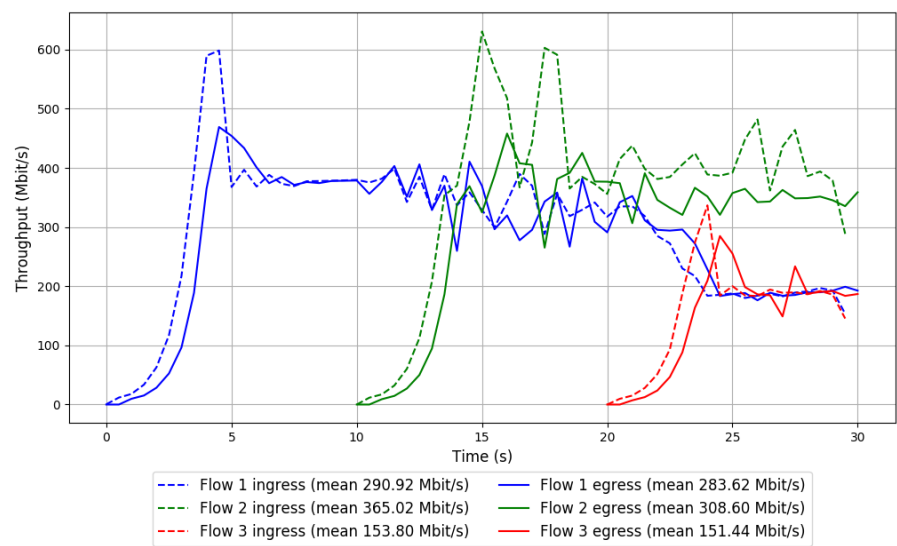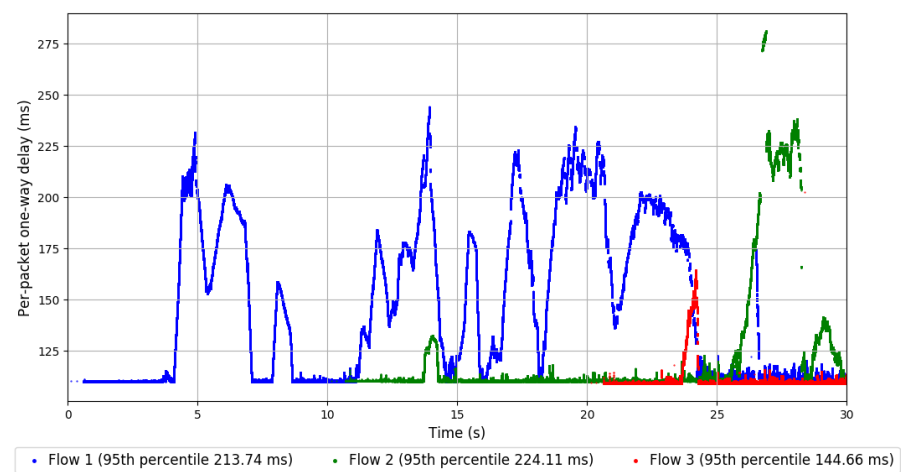
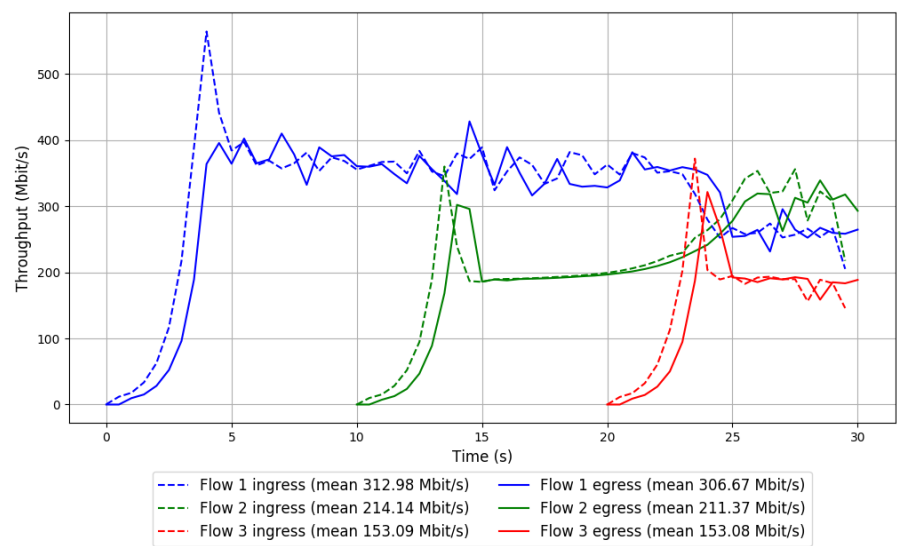# Run 1: Report of PCC-Expr — Data Link

```
Run 2: Statistics of PCC-Expr

Start at: 2018-12-11 01:29:21
End at: 2018-12-11 01:29:51
Local clock offset: -0.053 ms
Remote clock offset: -0.3 ms


# Below is generated by plot.py at 2018-12-11 05:31:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 538.64 Mbit/s
95th percentile per-packet one-way delay: 222.871 ms
Loss rate: 7.80%
-- Flow 1:
Average throughput: 283.62 Mbit/s
95th percentile per-packet one-way delay: 216.043 ms
Loss rate: 2.51%
-- Flow 2:
Average throughput: 308.60 Mbit/s
95th percentile per-packet one-way delay: 227.152 ms
Loss rate: 15.45%
-- Flow 3:
Average throughput: 151.44 Mbit/s
95th percentile per-packet one-way delay: 223.875 ms
Loss rate: 1.54%
```

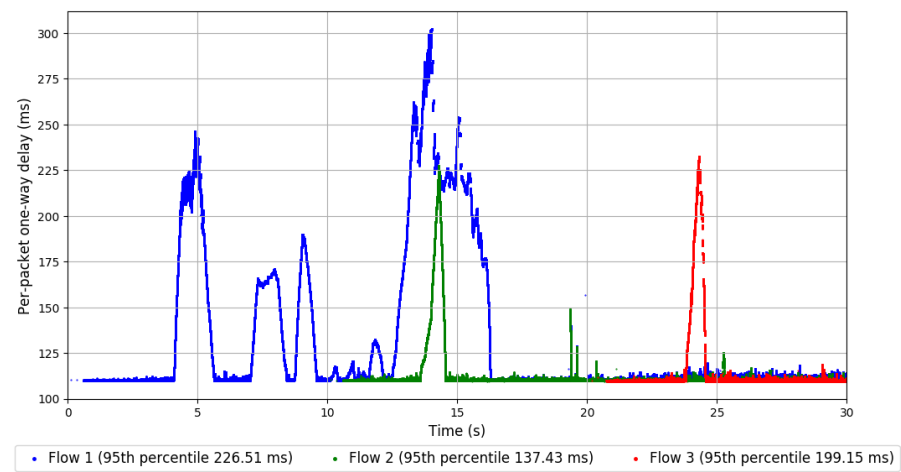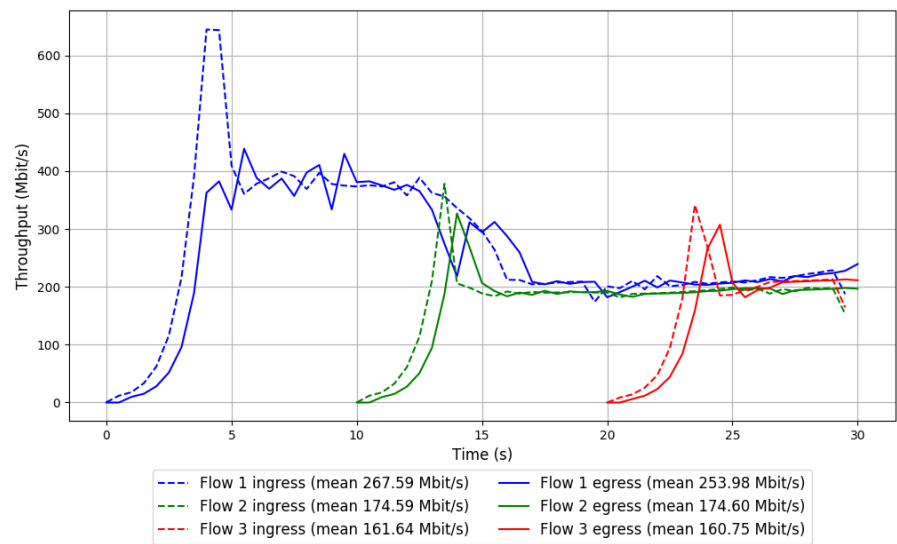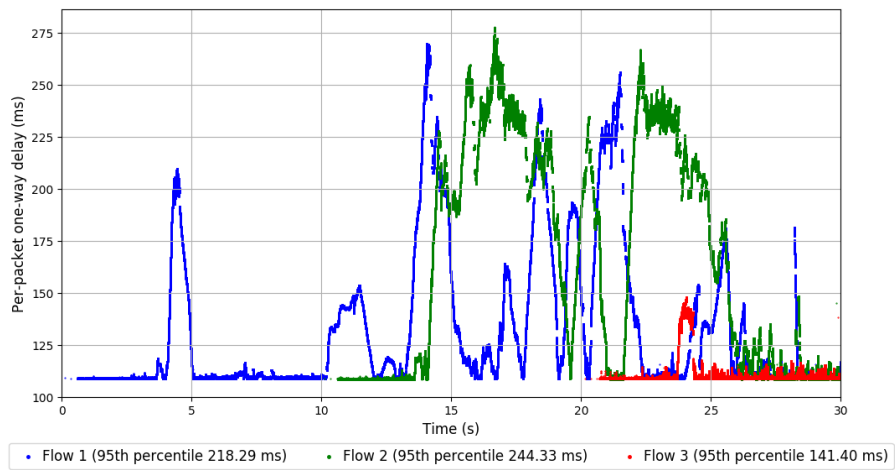# Run 2: Report of PCC-Expr — Data Link

```
Run 3: Statistics of PCC-Expr

Start at: 2018-12-11 02:08:59
End at: 2018-12-11 02:09:29
Local clock offset: -0.8 ms
Remote clock offset: -0.024 ms


# Below is generated by plot.py at 2018-12-11 05:31:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 497.58 Mbit/s
95th percentile per-packet one-way delay: 216.130 ms
Loss rate: 1.61%
-- Flow 1:
Average throughput: 306.67 Mbit/s
95th percentile per-packet one-way delay: 213.739 ms
Loss rate: 2.02%
-- Flow 2:
Average throughput: 211.37 Mbit/s
95th percentile per-packet one-way delay: 224.113 ms
Loss rate: 1.30%
-- Flow 3:
Average throughput: 153.08 Mbit/s
95th percentile per-packet one-way delay: 144.662 ms
Loss rate: 0.00%
```

Run 3: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 312.98 Mbit/s) — Flow 1 egress (mean 306.67 Mbit/s)
Flow 2 ingress (mean 214.14 Mbit/s) — Flow 2 egress (mean 211.37 Mbit/s)
Flow 3 ingress (mean 153.09 Mbit/s) — Flow 3 egress (mean 153.08 Mbit/s)

Flow 1 (95th percentile 213.74 ms)   Flow 2 (95th percentile 224.11 ms)   Flow 3 (95th percentile 144.66 ms)

```
Run 4: Statistics of PCC-Expr

Start at: 2018-12-11 02:43:44
End at: 2018-12-11 02:44:14
Local clock offset: -1.084 ms
Remote clock offset: -0.435 ms

# Below is generated by plot.py at 2018-12-11 05:31:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 422.89 Mbit/s
95th percentile per-packet one-way delay: 219.906 ms
Loss rate: 3.18%
-- Flow 1:
Average throughput: 253.98 Mbit/s
95th percentile per-packet one-way delay: 226.508 ms
Loss rate: 5.09%
-- Flow 2:
Average throughput: 174.60 Mbit/s
95th percentile per-packet one-way delay: 137.432 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 160.75 Mbit/s
95th percentile per-packet one-way delay: 199.147 ms
Loss rate: 0.55%
```
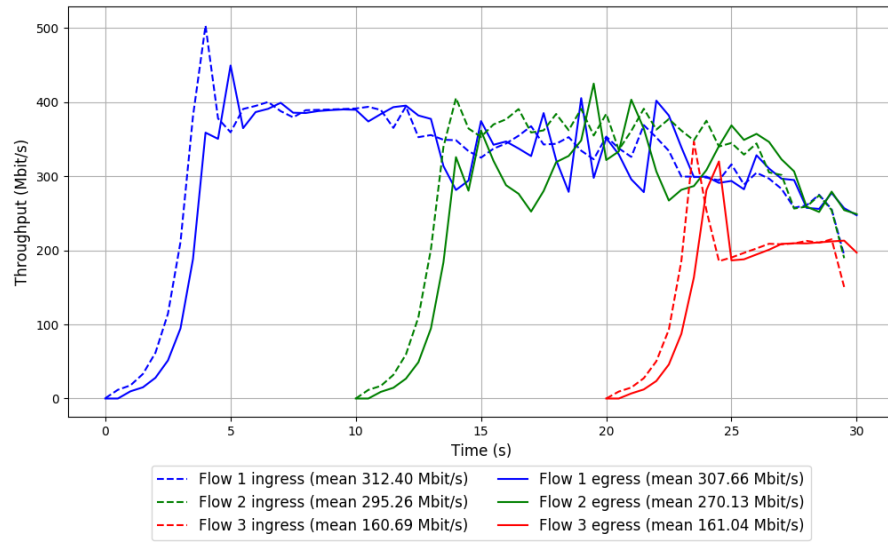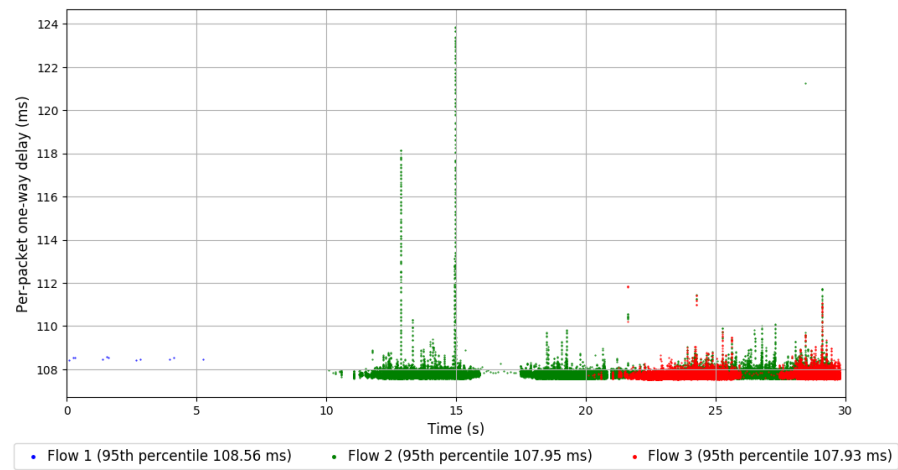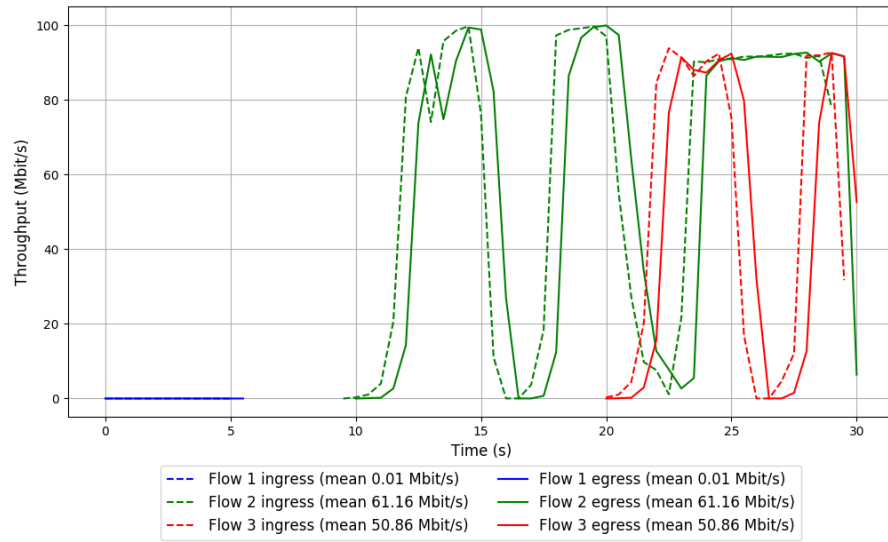
Run 4: Report of PCC-Expr — Data Link

```
Run 5: Statistics of PCC-Expr

Start at: 2018-12-11 03:17:14
End at: 2018-12-11 03:17:44
Local clock offset: -0.104 ms
Remote clock offset: -0.428 ms


# Below is generated by plot.py at 2018-12-11 05:34:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 540.29 Mbit/s
95th percentile per-packet one-way delay: 235.342 ms
Loss rate: 3.82%
-- Flow 1:
Average throughput: 307.66 Mbit/s
95th percentile per-packet one-way delay: 218.289 ms
Loss rate: 1.52%
-- Flow 2:
Average throughput: 270.13 Mbit/s
95th percentile per-packet one-way delay: 244.332 ms
Loss rate: 8.52%
-- Flow 3:
Average throughput: 161.04 Mbit/s
95th percentile per-packet one-way delay: 141.400 ms
Loss rate: 0.00%
```
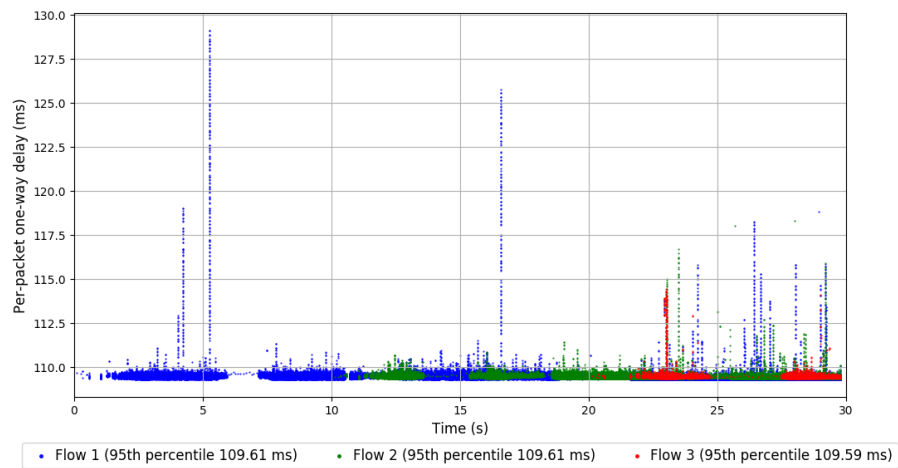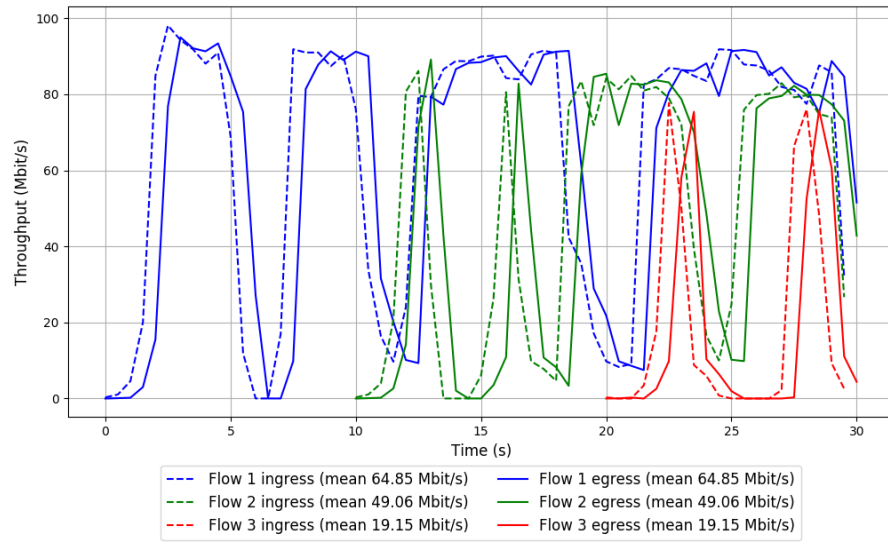
Run 5: Report of PCC-Expr — Data Link

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```
Run 1: Statistics of QUIC Cubic

Start at: 2018-12-11 01:03:17
End at: 2018-12-11 01:03:47
Local clock offset: 0.576 ms
Remote clock offset: -0.176 ms


# Below is generated by plot.py at 2018-12-11 05:34:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 56.62 Mbit/s
95th percentile per-packet one-way delay: 107.948 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.01 Mbit/s
95th percentile per-packet one-way delay: 108.562 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 61.16 Mbit/s
95th percentile per-packet one-way delay: 107.953 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 50.86 Mbit/s
95th percentile per-packet one-way delay: 107.933 ms
Loss rate: 0.00%
```

Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-12-11 01:37:58
End at: 2018-12-11 01:38:28
Local clock offset: -0.225 ms
Remote clock offset: -0.244 ms


# Below is generated by plot.py at 2018-12-11 05:34:33
# Datalink statistics
-- Total of 3 flows:
Average throughput: 103.59 Mbit/s
95th percentile per-packet one-way delay: 109.609 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 64.85 Mbit/s
95th percentile per-packet one-way delay: 109.610 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 49.06 Mbit/s
95th percentile per-packet one-way delay: 109.611 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 19.15 Mbit/s
95th percentile per-packet one-way delay: 109.593 ms
Loss rate: 0.00%
```
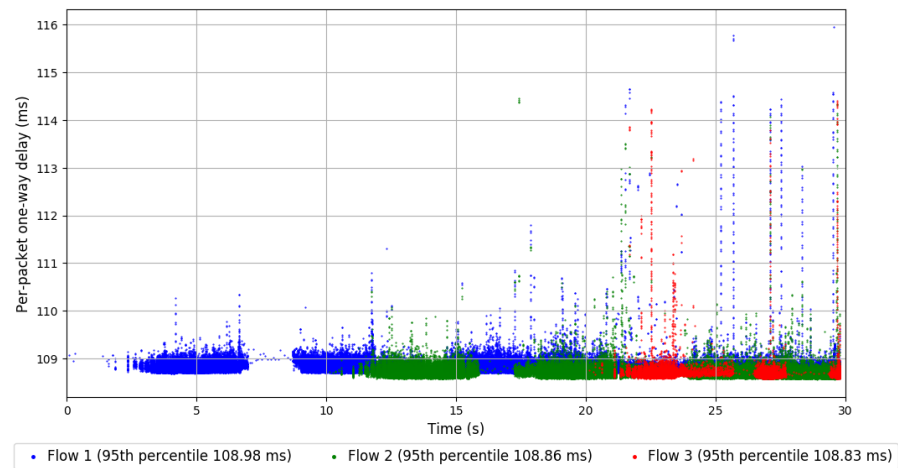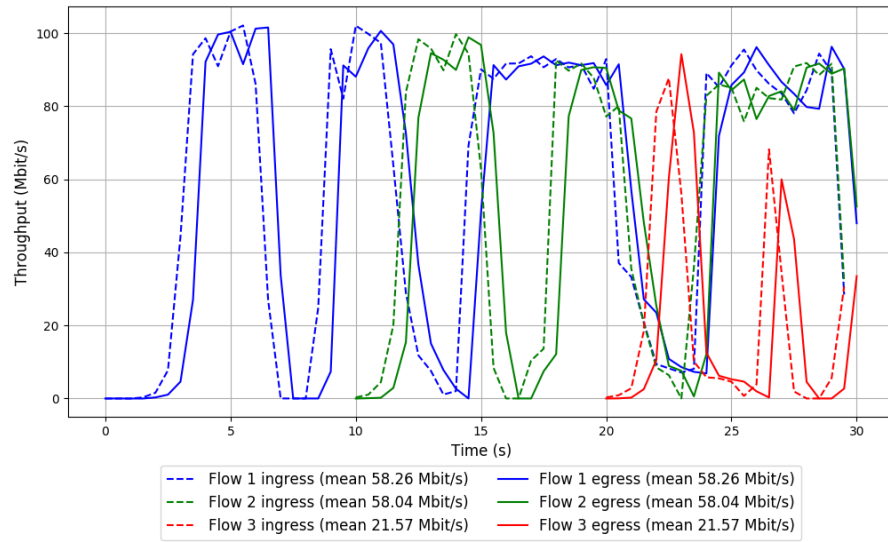
Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-12-11 02:17:52
End at: 2018-12-11 02:18:22
Local clock offset: 0.318 ms
Remote clock offset: -0.07 ms


# Below is generated by plot.py at 2018-12-11 05:34:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 103.74 Mbit/s
95th percentile per-packet one-way delay: 108.953 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 58.26 Mbit/s
95th percentile per-packet one-way delay: 108.984 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 58.04 Mbit/s
95th percentile per-packet one-way delay: 108.865 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 21.57 Mbit/s
95th percentile per-packet one-way delay: 108.835 ms
Loss rate: 0.00%
```

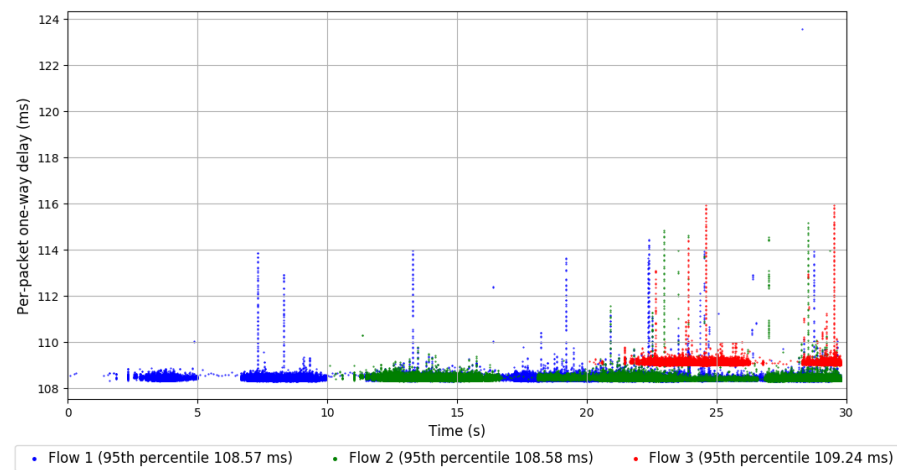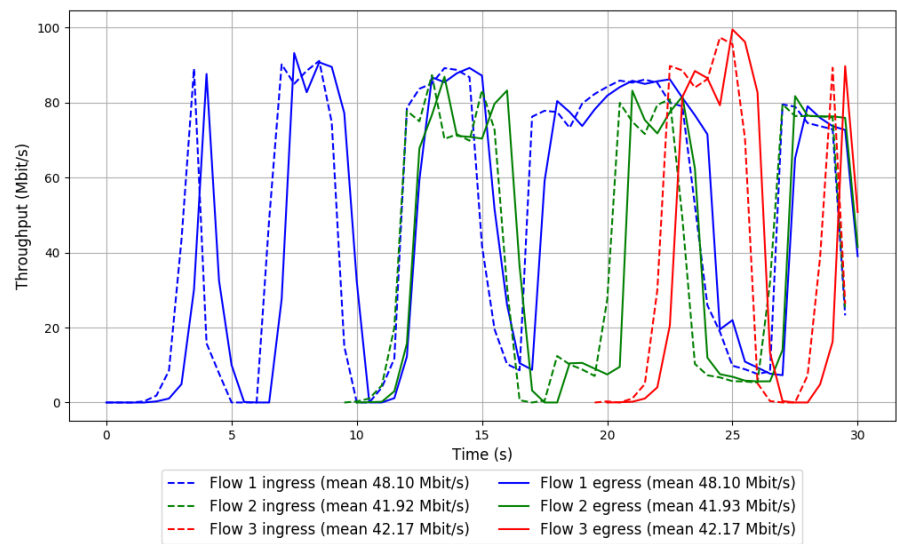# Run 3: Report of QUIC Cubic — Data Link

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-12-11 02:51:13
End at: 2018-12-11 02:51:43
Local clock offset: -0.135 ms
Remote clock offset: -0.017 ms


# Below is generated by plot.py at 2018-12-11 05:34:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 89.64 Mbit/s
95th percentile per-packet one-way delay: 109.120 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 48.10 Mbit/s
95th percentile per-packet one-way delay: 108.568 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 41.93 Mbit/s
95th percentile per-packet one-way delay: 108.578 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 42.17 Mbit/s
95th percentile per-packet one-way delay: 109.236 ms
Loss rate: 0.00%
```

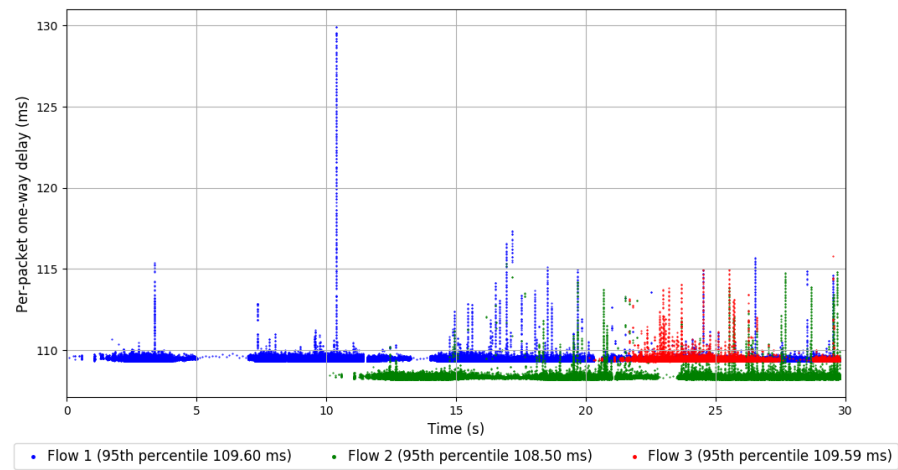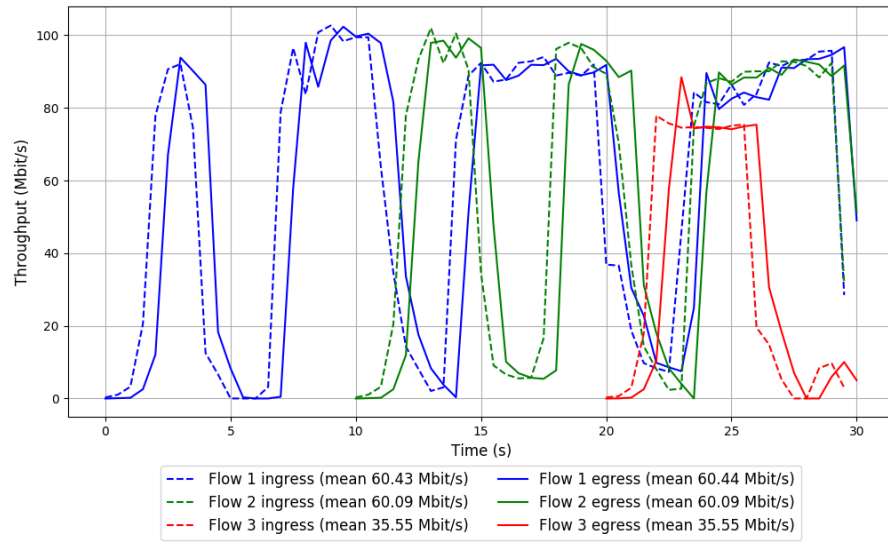# Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 48.10 Mbit/s) — — — — Flow 1 egress (mean 48.10 Mbit/s)
Flow 2 ingress (mean 41.92 Mbit/s) — — — — Flow 2 egress (mean 41.93 Mbit/s)
Flow 3 ingress (mean 42.17 Mbit/s) — — — — Flow 3 egress (mean 42.17 Mbit/s)

Flow 1 (95th percentile 108.57 ms)   Flow 2 (95th percentile 108.58 ms)   Flow 3 (95th percentile 109.24 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-12-11 03:25:25
End at: 2018-12-11 03:25:55
Local clock offset: -0.198 ms
Remote clock offset: -0.108 ms


# Below is generated by plot.py at 2018-12-11 05:34:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 111.80 Mbit/s
95th percentile per-packet one-way delay: 109.565 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 60.44 Mbit/s
95th percentile per-packet one-way delay: 109.601 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 60.09 Mbit/s
95th percentile per-packet one-way delay: 108.498 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 35.55 Mbit/s
95th percentile per-packet one-way delay: 109.589 ms
Loss rate: 0.00%
```

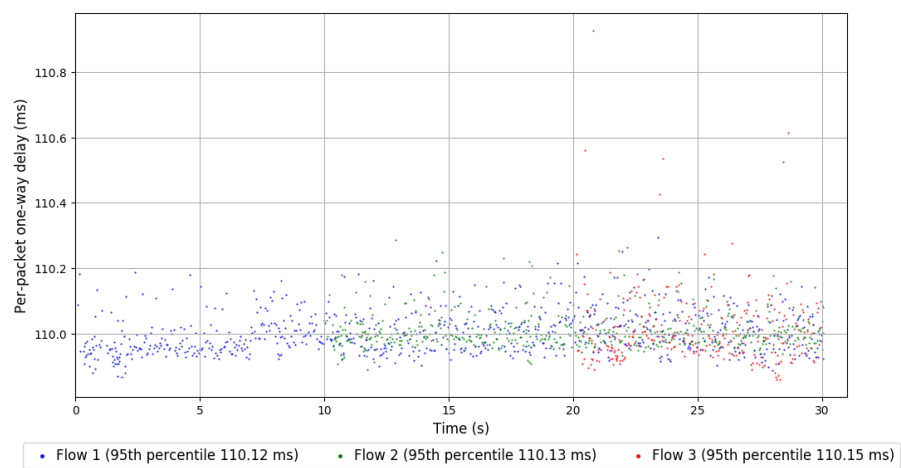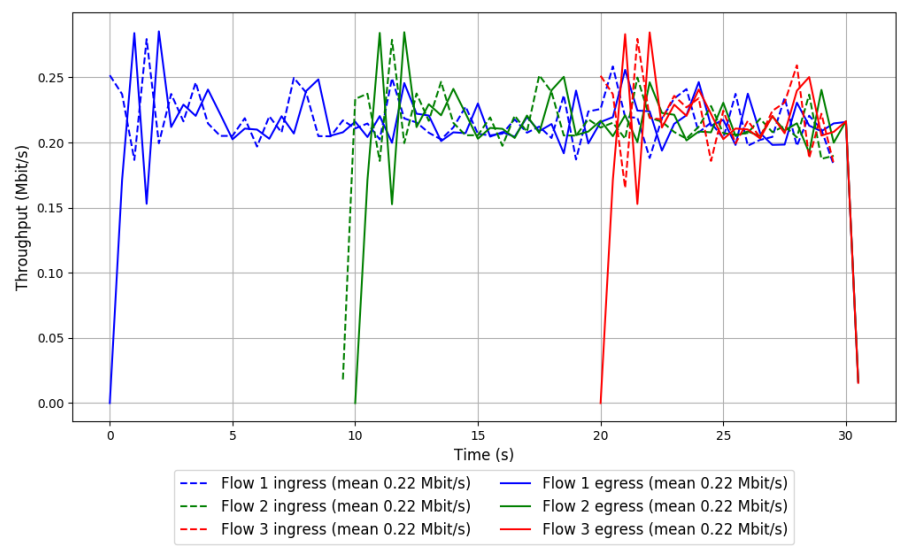# Run 5: Report of QUIC Cubic — Data Link

- Flow 1 ingress (mean 60.43 Mbit/s)
- Flow 1 egress (mean 60.44 Mbit/s)
- Flow 2 ingress (mean 60.09 Mbit/s)
- Flow 2 egress (mean 60.09 Mbit/s)
- Flow 3 ingress (mean 35.55 Mbit/s)
- Flow 3 egress (mean 35.55 Mbit/s)

- Flow 1 (95th percentile 109.60 ms)
- Flow 2 (95th percentile 108.50 ms)
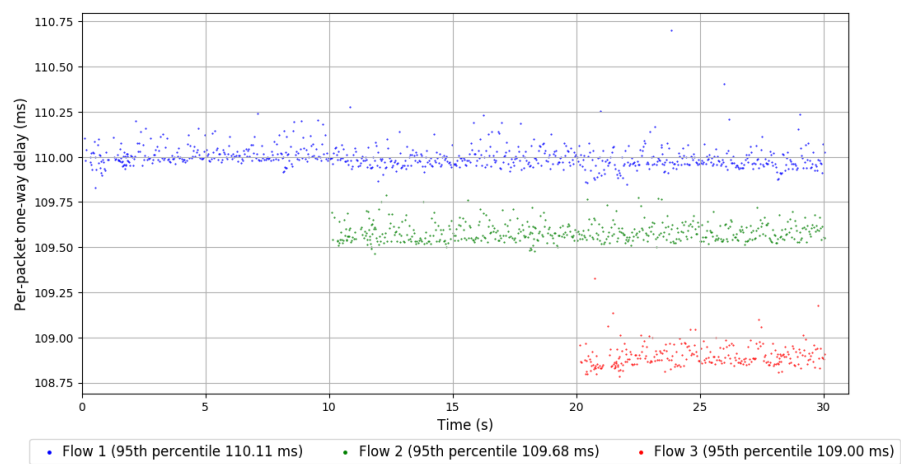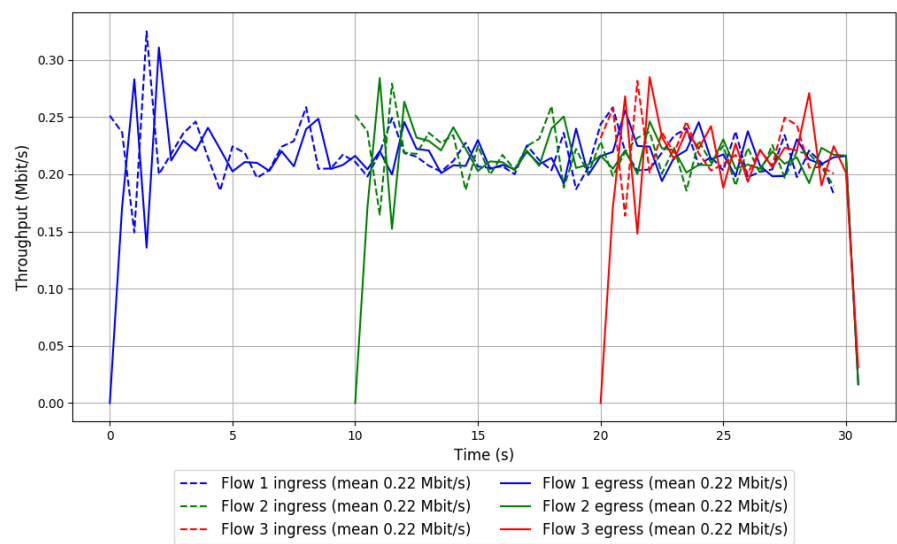- Flow 3 (95th percentile 109.59 ms)

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```
Run 1: Statistics of SCReAM

Start at: 2018-12-11 00:44:39
End at: 2018-12-11 00:45:09
Local clock offset: -0.684 ms
Remote clock offset: -0.128 ms


# Below is generated by plot.py at 2018-12-11 05:34:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 110.133 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.125 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.132 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.154 ms
Loss rate: 0.00%
```
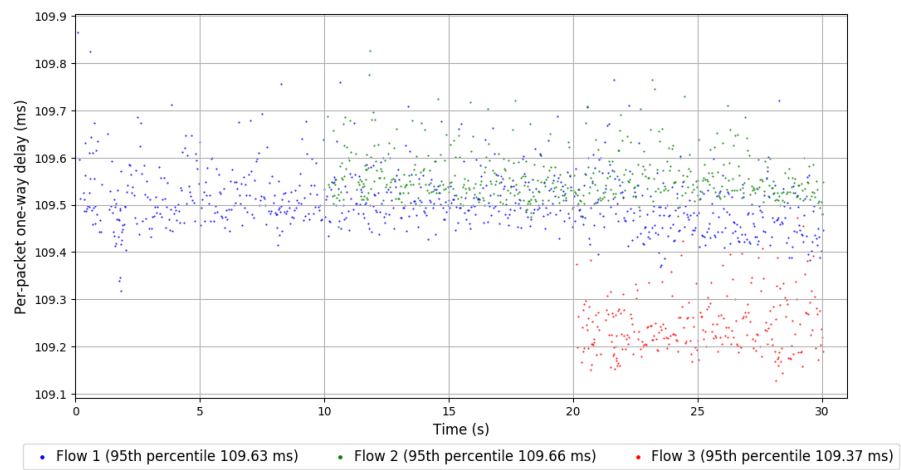
Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2018-12-11 01:19:00
End at: 2018-12-11 01:19:30
Local clock offset: -0.146 ms
Remote clock offset: 0.092 ms


# Below is generated by plot.py at 2018-12-11 05:34:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 110.069 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.114 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.684 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 108.997 ms
Loss rate: 0.00%
```

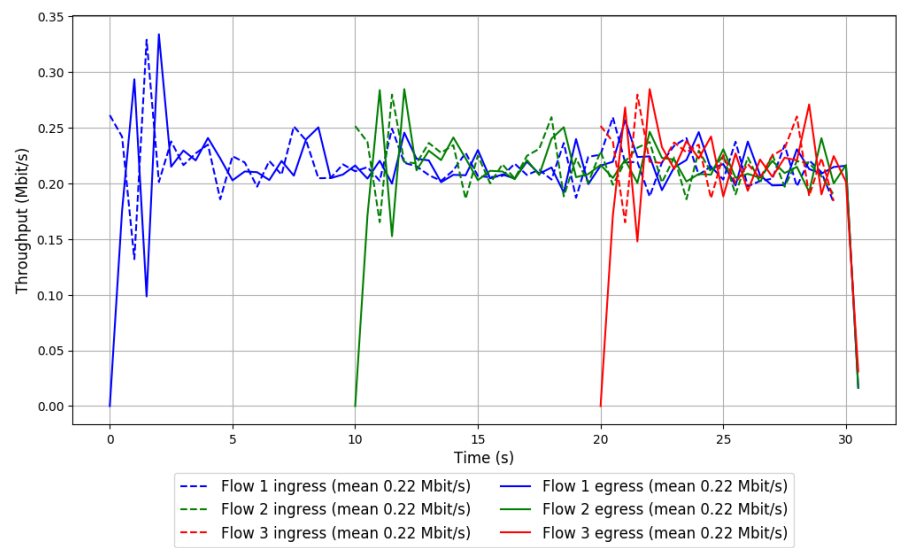# Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-12-11 01:57:30
End at: 2018-12-11 01:58:00
Local clock offset: -0.09 ms
Remote clock offset: -0.061 ms


# Below is generated by plot.py at 2018-12-11 05:34:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 109.636 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.626 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.661 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.372 ms
Loss rate: 0.00%
```

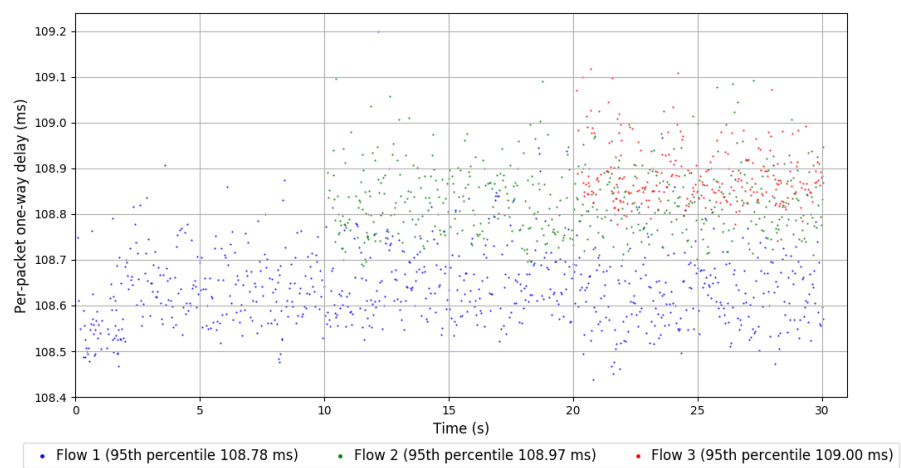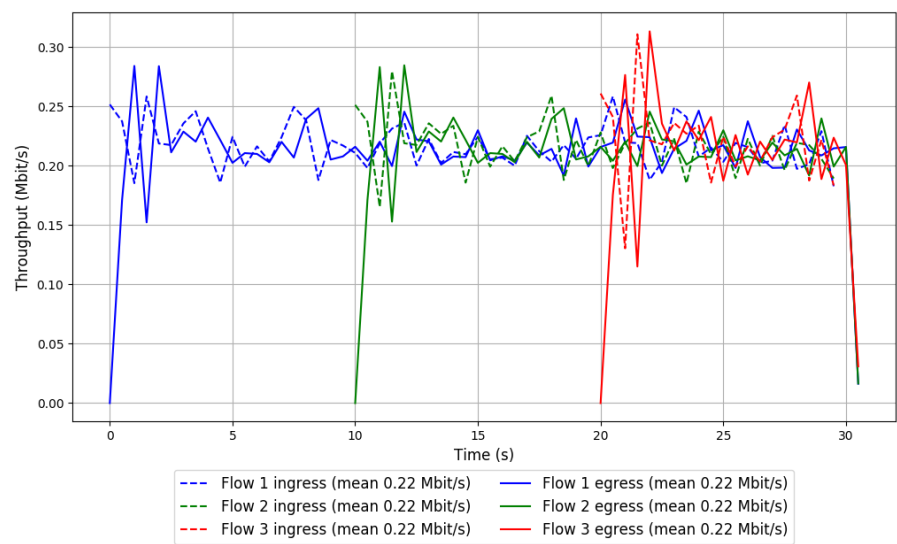# Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2018-12-11 02:33:17
End at: 2018-12-11 02:33:47
Local clock offset: 0.606 ms
Remote clock offset: -0.017 ms


# Below is generated by plot.py at 2018-12-11 05:34:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 108.946 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 108.778 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 108.967 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 108.995 ms
Loss rate: 0.00%
```

Run 4: Report of SCReAM — Data Link

```
Run 5: Statistics of SCReAM

Start at: 2018-12-11 03:07:03
End at: 2018-12-11 03:07:33
Local clock offset: -0.518 ms
Remote clock offset: -0.029 ms

# Below is generated by plot.py at 2018-12-11 05:34:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 110.182 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.850 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 109.294 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.333 ms
Loss rate: 0.00%
```
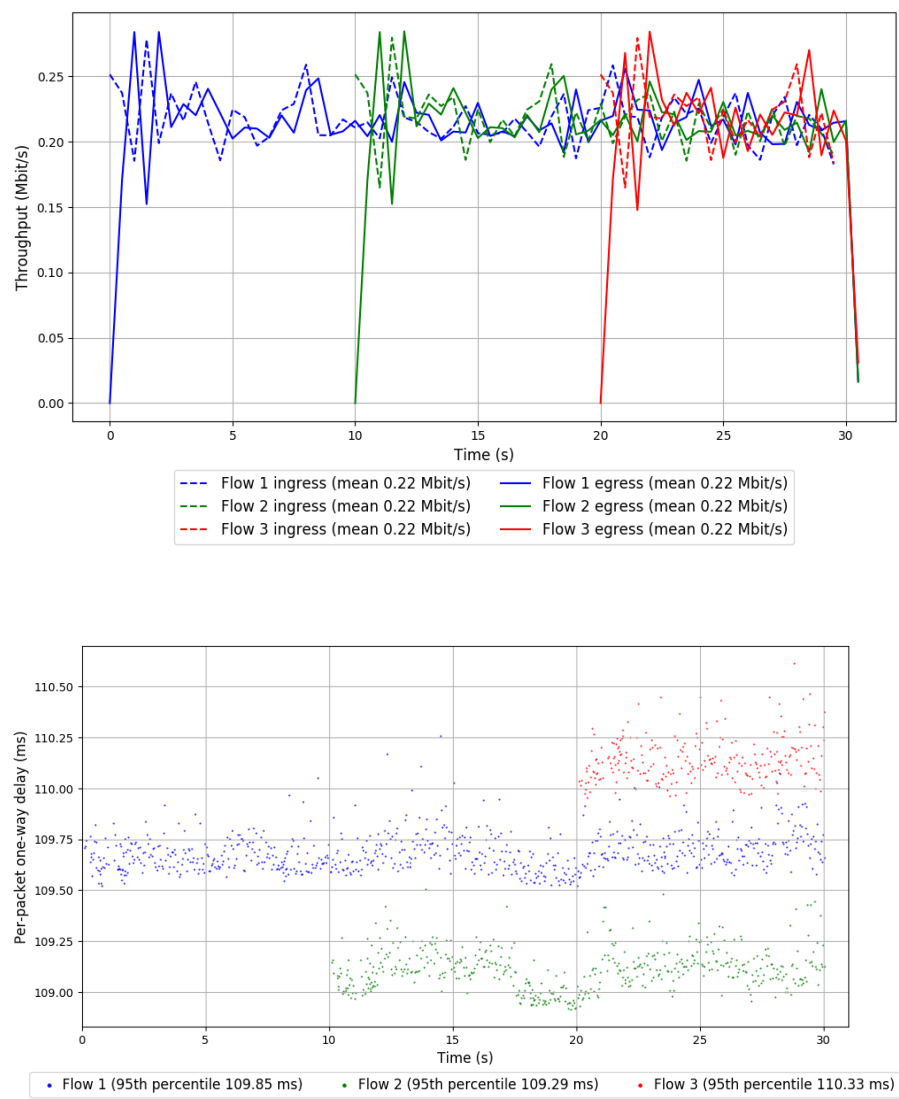
Run 5: Report of SCReAM — Data Link

```
Run 1: Statistics of Sprout

Start at: 2018-12-11 01:09:39
End at: 2018-12-11 01:10:09
Local clock offset: -0.326 ms
Remote clock offset: -0.232 ms


# Below is generated by plot.py at 2018-12-11 05:34:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.78 Mbit/s
95th percentile per-packet one-way delay: 110.201 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.25 Mbit/s
95th percentile per-packet one-way delay: 110.242 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.55 Mbit/s
95th percentile per-packet one-way delay: 108.921 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 108.808 ms
Loss rate: 0.00%
```
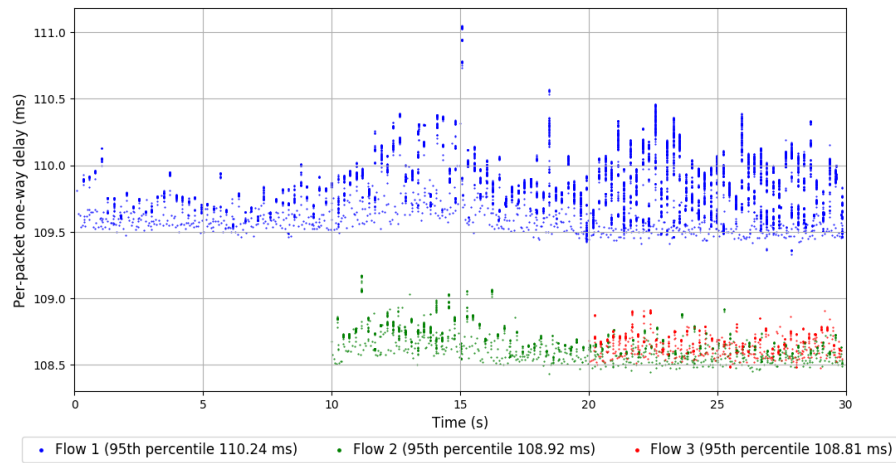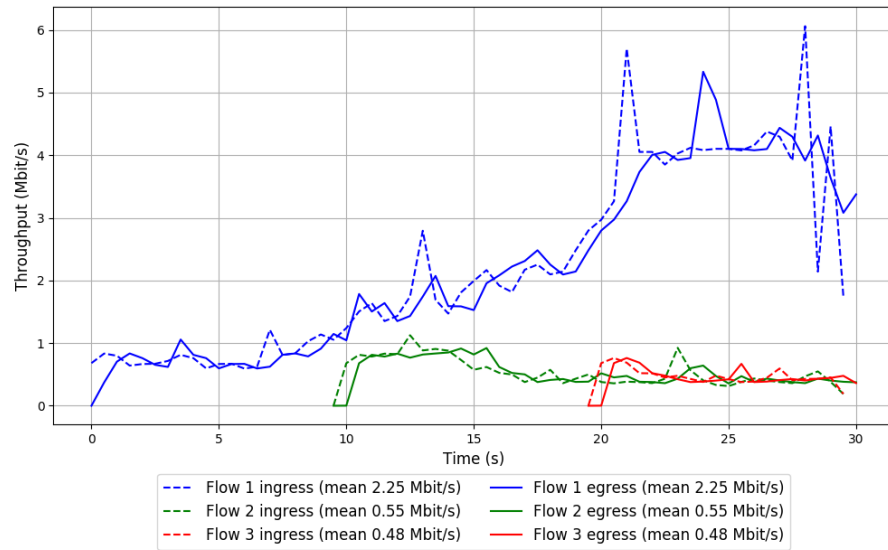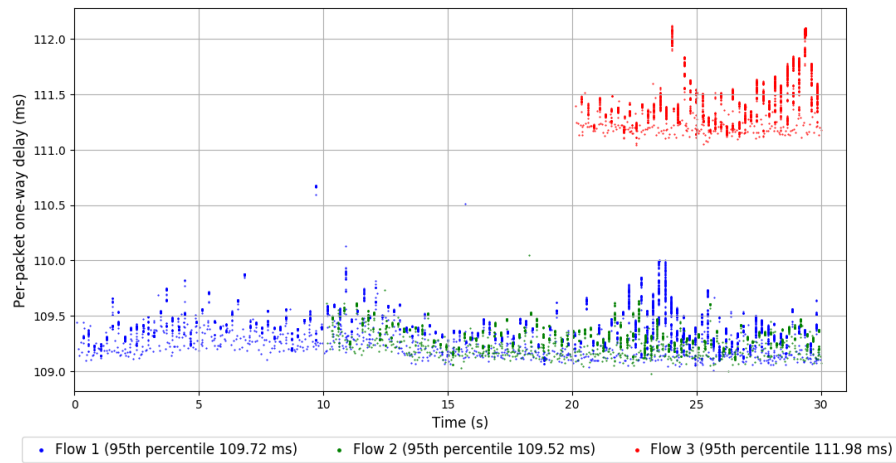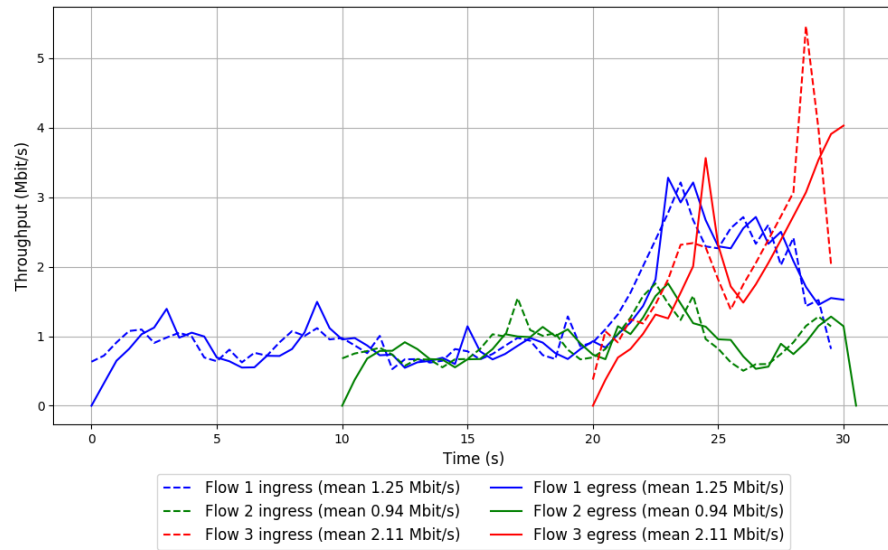
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-12-11 01:44:22
End at: 2018-12-11 01:44:52
Local clock offset: 0.068 ms
Remote clock offset: -0.125 ms


# Below is generated by plot.py at 2018-12-11 05:34:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.57 Mbit/s
95th percentile per-packet one-way delay: 111.657 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.25 Mbit/s
95th percentile per-packet one-way delay: 109.719 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.94 Mbit/s
95th percentile per-packet one-way delay: 109.522 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 2.11 Mbit/s
95th percentile per-packet one-way delay: 111.983 ms
Loss rate: 0.00%
```
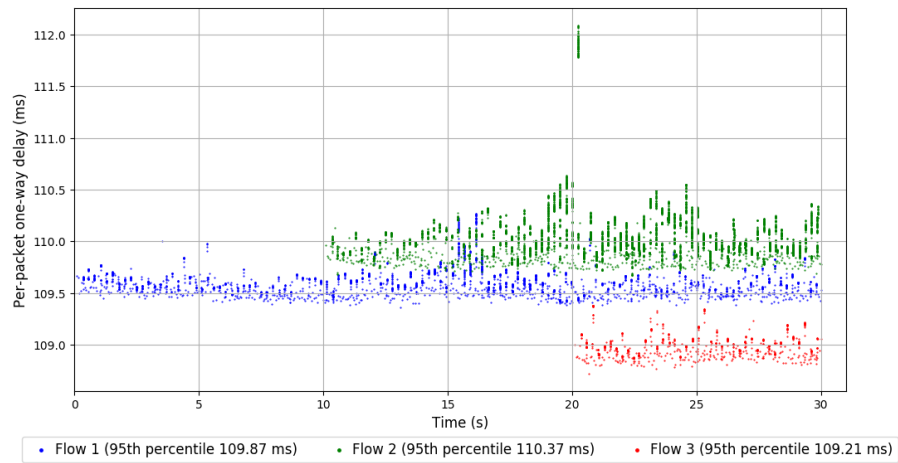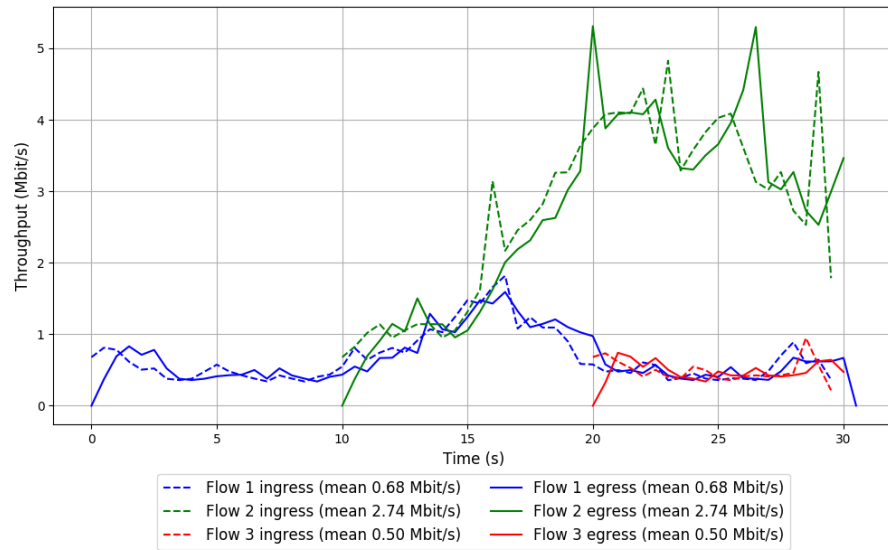
Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2018-12-11 02:24:14
End at: 2018-12-11 02:24:44
Local clock offset: -0.071 ms
Remote clock offset: 0.316 ms


# Below is generated by plot.py at 2018-12-11 05:34:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.66 Mbit/s
95th percentile per-packet one-way delay: 110.317 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.68 Mbit/s
95th percentile per-packet one-way delay: 109.872 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 2.74 Mbit/s
95th percentile per-packet one-way delay: 110.368 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 109.210 ms
Loss rate: 0.00%
```
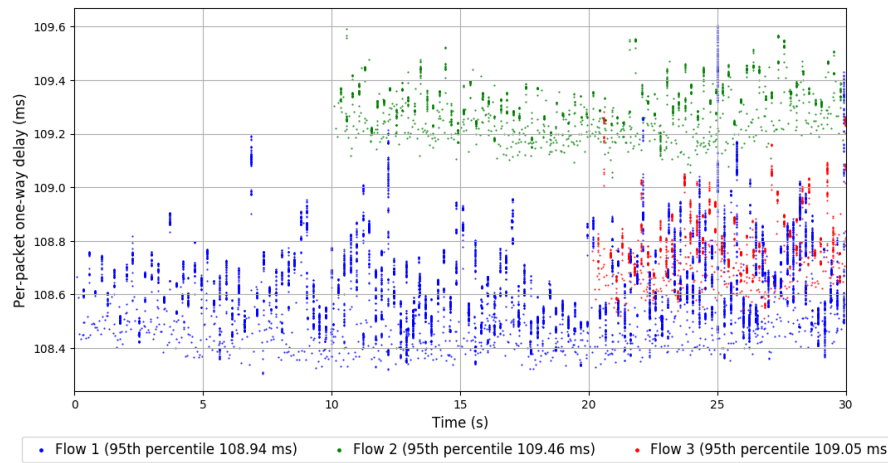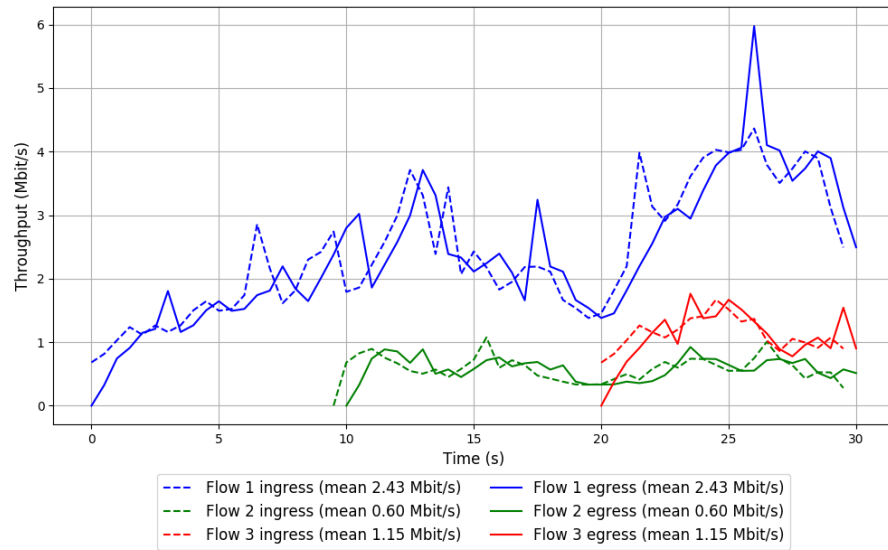
Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2018-12-11 02:57:34
End at: 2018-12-11 02:58:04
Local clock offset: -0.124 ms
Remote clock offset: -0.027 ms


# Below is generated by plot.py at 2018-12-11 05:34:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.21 Mbit/s
95th percentile per-packet one-way delay: 109.348 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.43 Mbit/s
95th percentile per-packet one-way delay: 108.942 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.60 Mbit/s
95th percentile per-packet one-way delay: 109.464 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 1.15 Mbit/s
95th percentile per-packet one-way delay: 109.049 ms
Loss rate: 0.00%
```

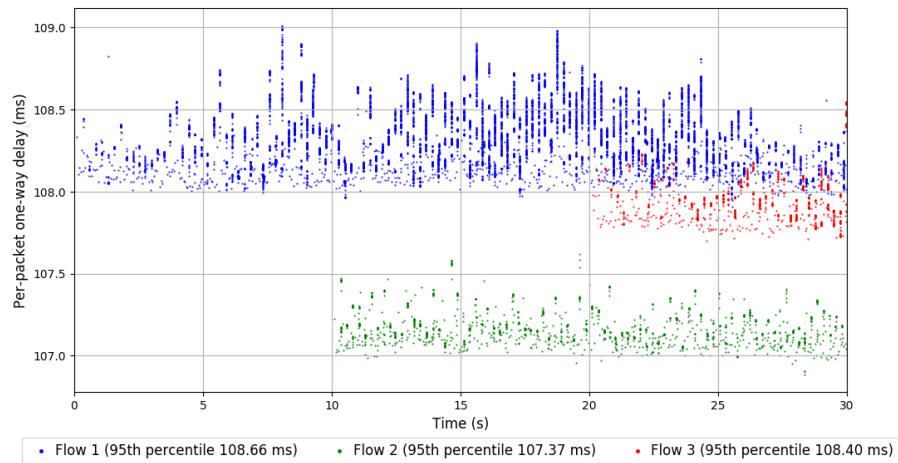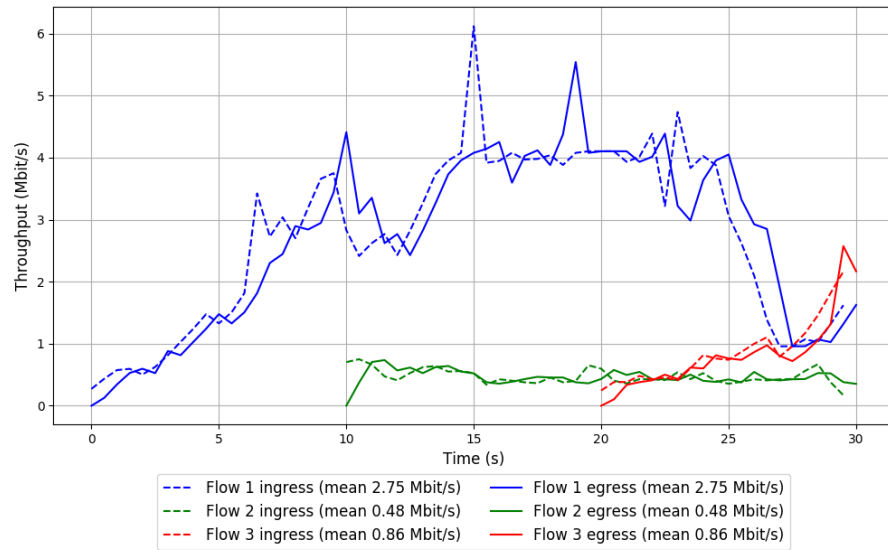## Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-12-11 03:31:35
End at: 2018-12-11 03:32:05
Local clock offset: 1.308 ms
Remote clock offset: -0.109 ms


# Below is generated by plot.py at 2018-12-11 05:34:34
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.35 Mbit/s
95th percentile per-packet one-way delay: 108.633 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.75 Mbit/s
95th percentile per-packet one-way delay: 108.656 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.48 Mbit/s
95th percentile per-packet one-way delay: 107.374 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.86 Mbit/s
95th percentile per-packet one-way delay: 108.404 ms
Loss rate: 0.00%
```
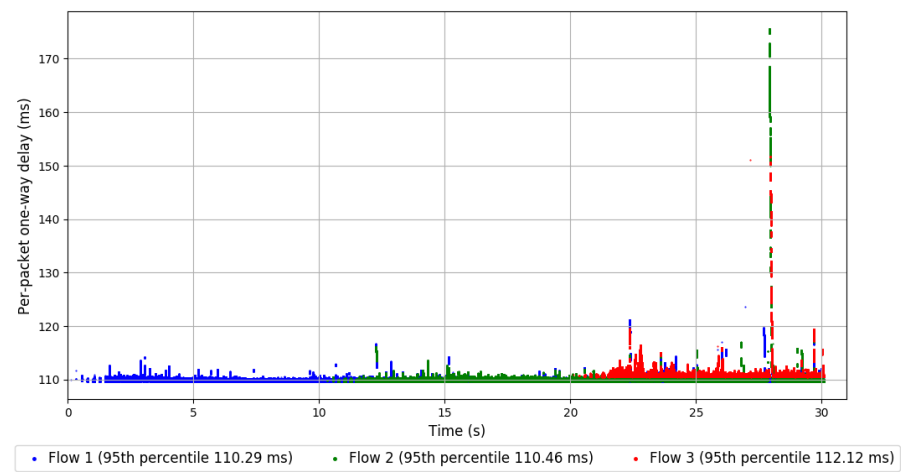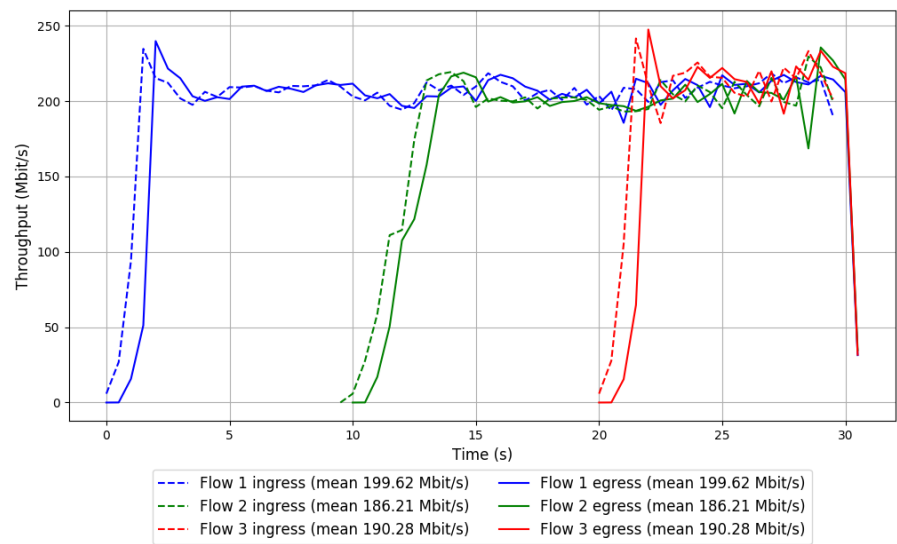
Run 5: Report of Sprout — Data Link

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

Start at: 2018-12-11 01:01:19
End at: 2018-12-11 01:01:49
Local clock offset: -1.45 ms
Remote clock offset: -0.114 ms


# Below is generated by plot.py at 2018-12-11 05:40:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 386.90 Mbit/s
95th percentile per-packet one-way delay: 110.984 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 199.62 Mbit/s
95th percentile per-packet one-way delay: 110.287 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 186.21 Mbit/s
95th percentile per-packet one-way delay: 110.459 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 190.28 Mbit/s
95th percentile per-packet one-way delay: 112.125 ms
Loss rate: 0.00%
```

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

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

Start at: 2018-12-11 01:36:00
End at: 2018-12-11 01:36:30
Local clock offset: -0.222 ms
Remote clock offset: 0.122 ms


# Below is generated by plot.py at 2018-12-11 05:40:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 371.98 Mbit/s
95th percentile per-packet one-way delay: 110.762 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 191.96 Mbit/s
95th percentile per-packet one-way delay: 110.700 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 192.69 Mbit/s
95th percentile per-packet one-way delay: 110.782 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 155.71 Mbit/s
95th percentile per-packet one-way delay: 111.040 ms
Loss rate: 0.00%
```
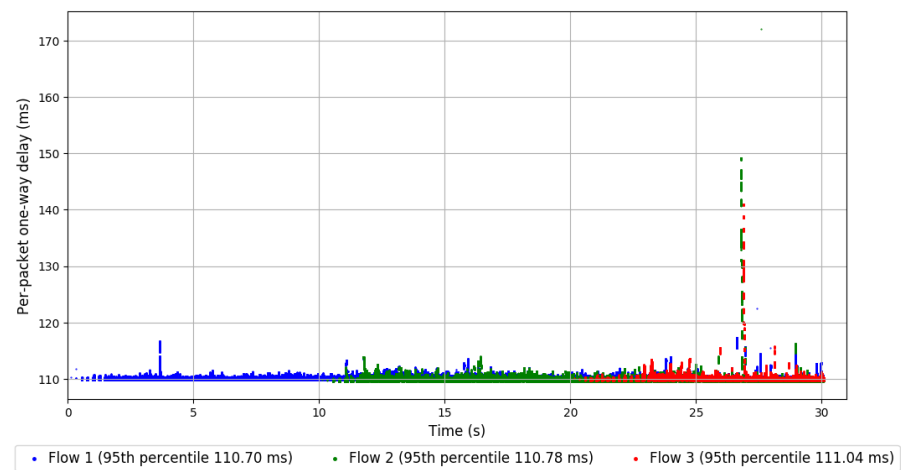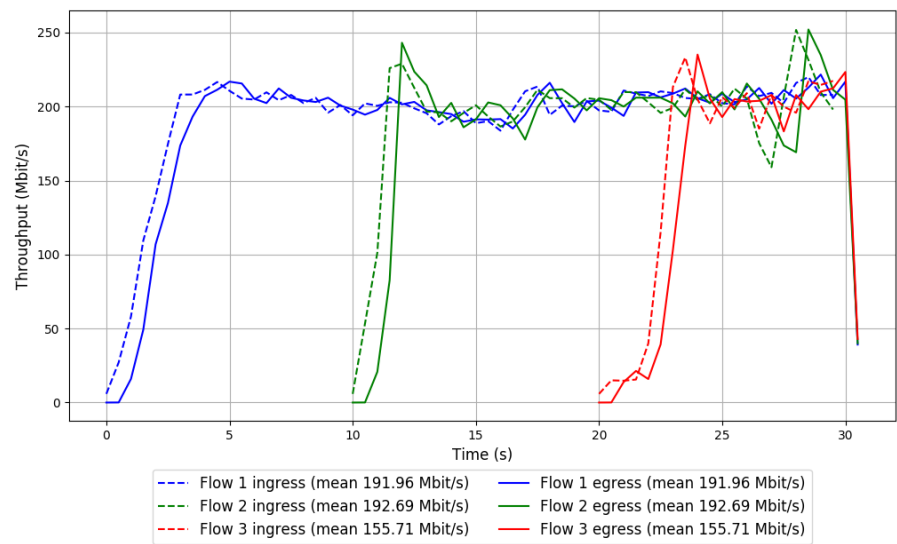
Run 2: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 191.96 Mbit/s) --- Flow 1 egress (mean 191.96 Mbit/s)
Flow 2 ingress (mean 192.69 Mbit/s) --- Flow 2 egress (mean 192.69 Mbit/s)
Flow 3 ingress (mean 155.71 Mbit/s) --- Flow 3 egress (mean 155.71 Mbit/s)

Flow 1 (95th percentile 110.70 ms)   Flow 2 (95th percentile 110.78 ms)   Flow 3 (95th percentile 111.04 ms)
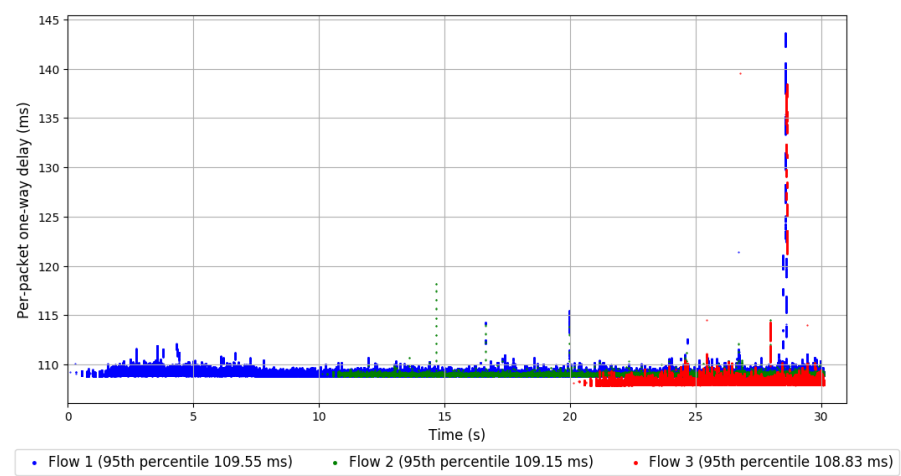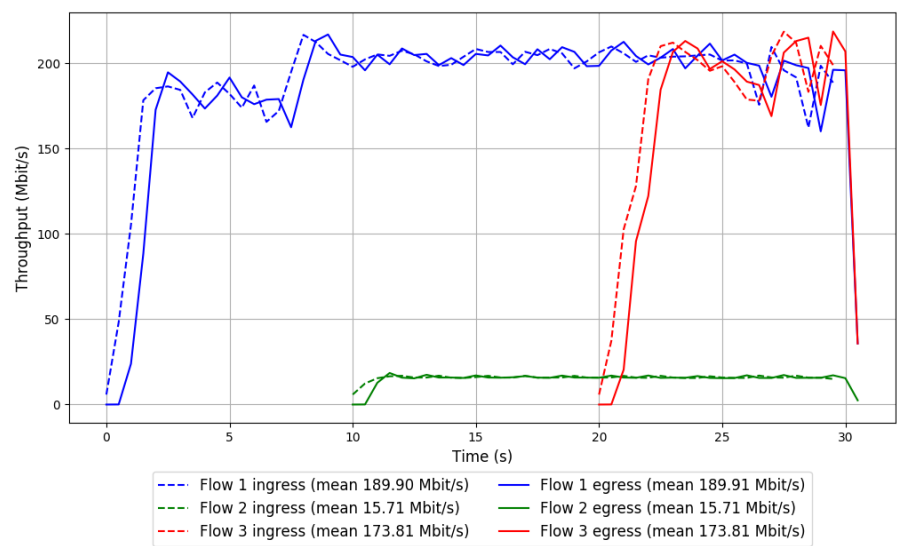
148

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

Start at: 2018-12-11 02:16:08
End at: 2018-12-11 02:16:38
Local clock offset: -0.092 ms
Remote clock offset: -0.442 ms


# Below is generated by plot.py at 2018-12-11 05:40:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 258.09 Mbit/s
95th percentile per-packet one-way delay: 109.496 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 189.91 Mbit/s
95th percentile per-packet one-way delay: 109.549 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 15.71 Mbit/s
95th percentile per-packet one-way delay: 109.147 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 173.81 Mbit/s
95th percentile per-packet one-way delay: 108.825 ms
Loss rate: 0.00%
```

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

Flow 1 ingress (mean 189.90 Mbit/s) --- Flow 1 egress (mean 189.91 Mbit/s)
Flow 2 ingress (mean 15.71 Mbit/s) --- Flow 2 egress (mean 15.71 Mbit/s)
Flow 3 ingress (mean 173.81 Mbit/s) --- Flow 3 egress (mean 173.81 Mbit/s)

Flow 1 (95th percentile 109.55 ms) · Flow 2 (95th percentile 109.15 ms) · Flow 3 (95th percentile 108.83 ms)
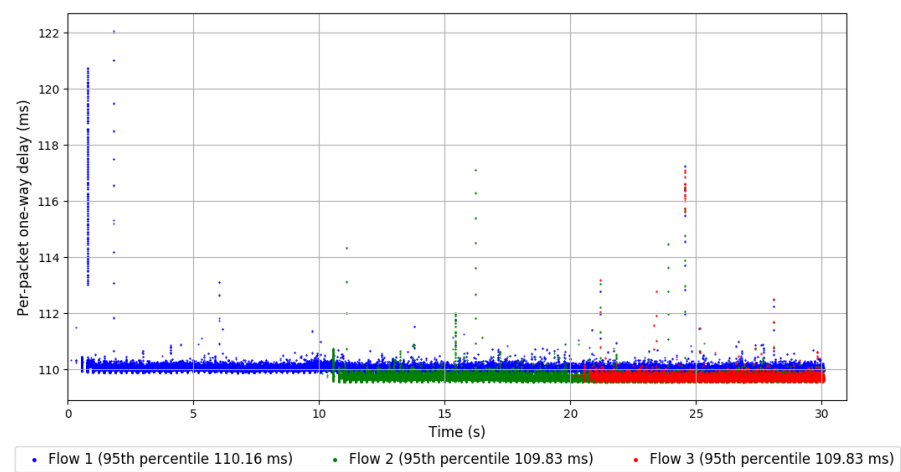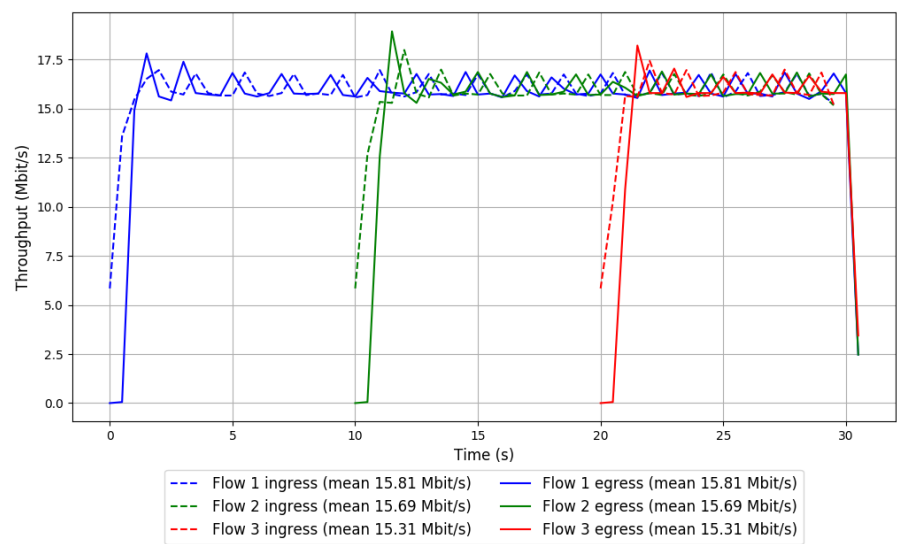
```
Run 4: Statistics of TaoVA-100x

Start at: 2018-12-11 02:49:52
End at: 2018-12-11 02:50:22
Local clock offset: -0.739 ms
Remote clock offset: -0.081 ms


# Below is generated by plot.py at 2018-12-11 05:40:38
# Datalink statistics
-- Total of 3 flows:
Average throughput: 31.35 Mbit/s
95th percentile per-packet one-way delay: 110.118 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 15.81 Mbit/s
95th percentile per-packet one-way delay: 110.163 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 15.69 Mbit/s
95th percentile per-packet one-way delay: 109.832 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 15.31 Mbit/s
95th percentile per-packet one-way delay: 109.828 ms
Loss rate: 0.00%
```

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

Flow 1 ingress (mean 15.81 Mbit/s) --- Flow 1 egress (mean 15.81 Mbit/s)
Flow 2 ingress (mean 15.69 Mbit/s) --- Flow 2 egress (mean 15.69 Mbit/s)
Flow 3 ingress (mean 15.31 Mbit/s) --- Flow 3 egress (mean 15.31 Mbit/s)

Flow 1 (95th percentile 110.16 ms)   Flow 2 (95th percentile 109.83 ms)   Flow 3 (95th percentile 109.83 ms)
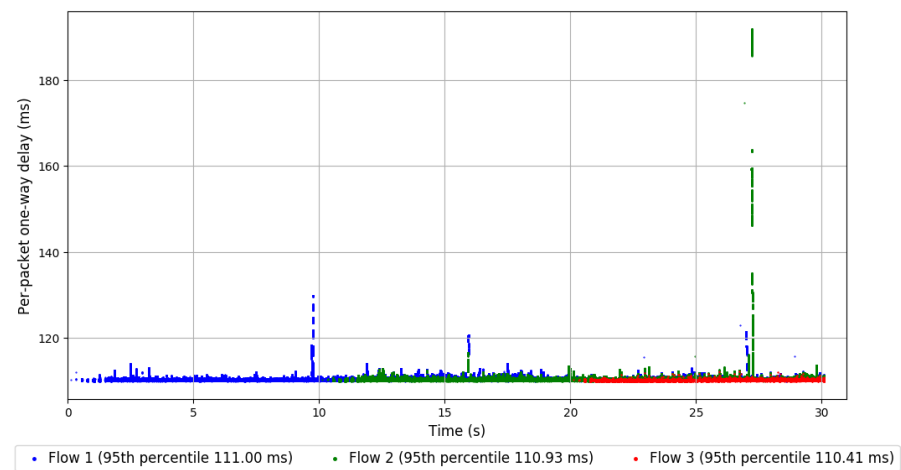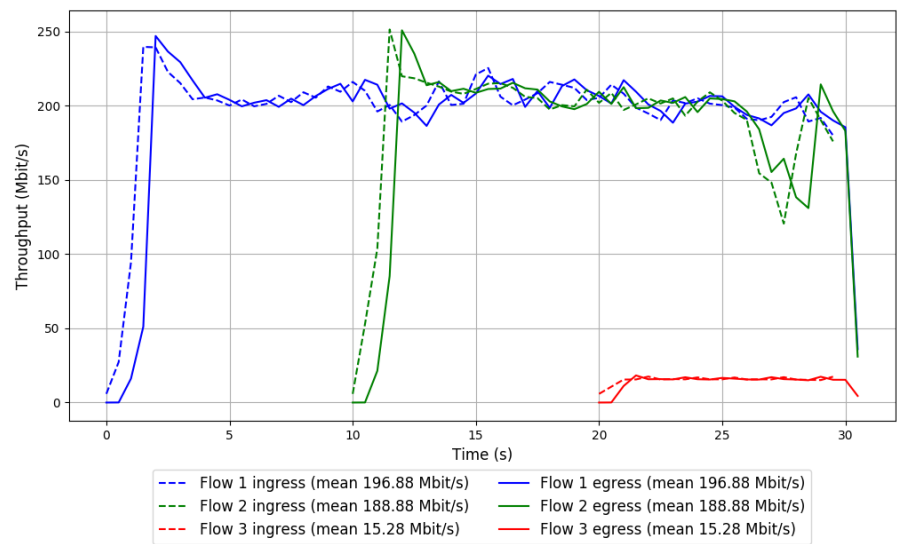
```
Run 5: Statistics of TaoVA-100x

Start at: 2018-12-11 03:23:32
End at: 2018-12-11 03:24:02
Local clock offset: -0.874 ms
Remote clock offset: -0.123 ms


# Below is generated by plot.py at 2018-12-11 05:40:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 327.77 Mbit/s
95th percentile per-packet one-way delay: 110.965 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 196.88 Mbit/s
95th percentile per-packet one-way delay: 111.001 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 188.88 Mbit/s
95th percentile per-packet one-way delay: 110.927 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 15.28 Mbit/s
95th percentile per-packet one-way delay: 110.405 ms
Loss rate: 0.00%
```

Run 5: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 196.88 Mbit/s) --- Flow 1 egress (mean 196.88 Mbit/s)
Flow 2 ingress (mean 188.88 Mbit/s) --- Flow 2 egress (mean 188.88 Mbit/s)
Flow 3 ingress (mean 15.28 Mbit/s) --- Flow 3 egress (mean 15.28 Mbit/s)

Flow 1 (95th percentile 111.00 ms)   Flow 2 (95th percentile 110.93 ms)   Flow 3 (95th percentile 110.41 ms)

```
Run 1: Statistics of TCP Vegas

Start at: 2018-12-11 00:52:53
End at: 2018-12-11 00:53:23
Local clock offset: 0.005 ms
Remote clock offset: -0.1 ms


# Below is generated by plot.py at 2018-12-11 05:43:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 744.25 Mbit/s
95th percentile per-packet one-way delay: 115.241 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 393.74 Mbit/s
95th percentile per-packet one-way delay: 111.335 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 386.79 Mbit/s
95th percentile per-packet one-way delay: 118.519 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 279.39 Mbit/s
95th percentile per-packet one-way delay: 128.430 ms
Loss rate: 0.00%
```
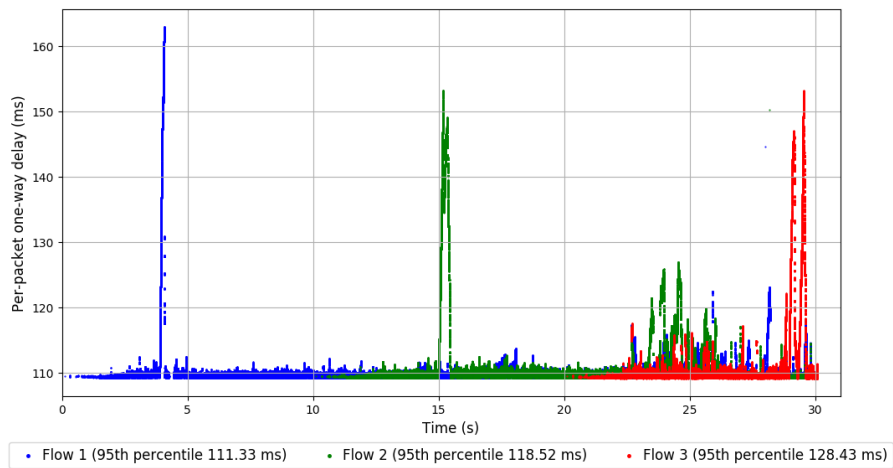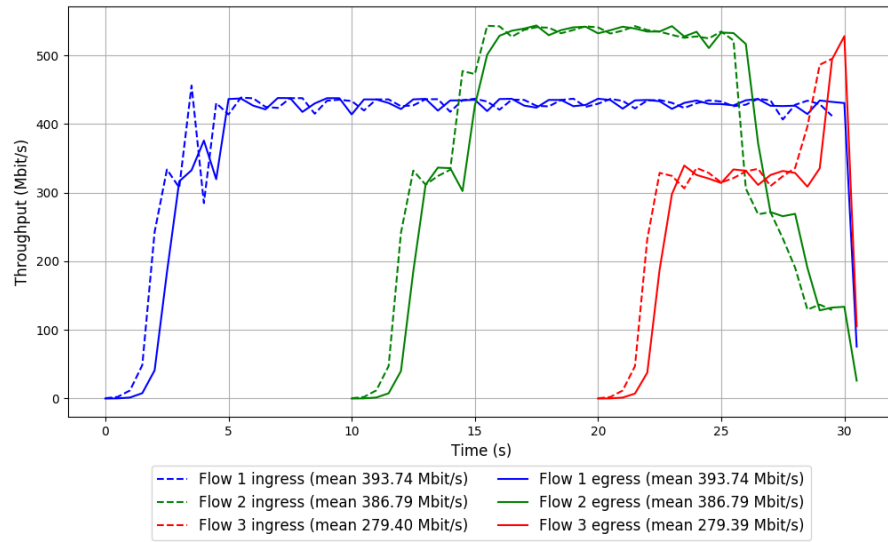
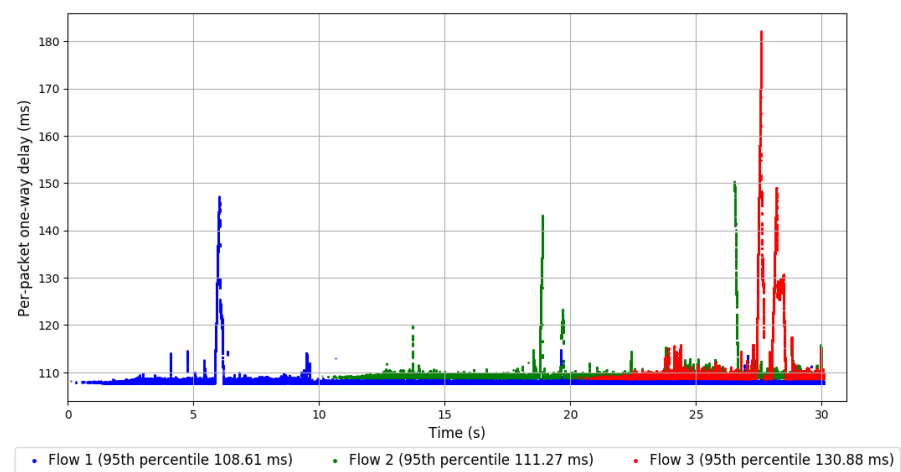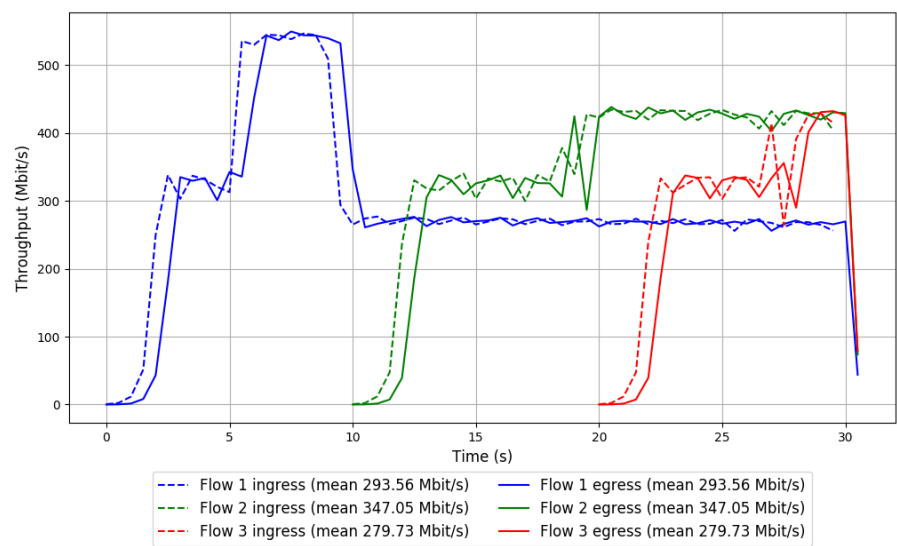# Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-12-11 01:27:26
End at: 2018-12-11 01:27:56
Local clock offset: 0.004 ms
Remote clock offset: -0.663 ms

# Below is generated by plot.py at 2018-12-11 05:43:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 617.61 Mbit/s
95th percentile per-packet one-way delay: 112.108 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 293.56 Mbit/s
95th percentile per-packet one-way delay: 108.611 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 347.05 Mbit/s
95th percentile per-packet one-way delay: 111.274 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 279.73 Mbit/s
95th percentile per-packet one-way delay: 130.875 ms
Loss rate: 0.00%
```

Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-12-11 02:05:54
End at: 2018-12-11 02:06:24
Local clock offset: -0.268 ms
Remote clock offset: -0.43 ms


# Below is generated by plot.py at 2018-12-11 05:45:28
# Datalink statistics
-- Total of 3 flows:
Average throughput: 719.24 Mbit/s
95th percentile per-packet one-way delay: 135.270 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 391.68 Mbit/s
95th percentile per-packet one-way delay: 114.020 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 344.16 Mbit/s
95th percentile per-packet one-way delay: 158.359 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 295.92 Mbit/s
95th percentile per-packet one-way delay: 140.001 ms
Loss rate: 0.05%
```
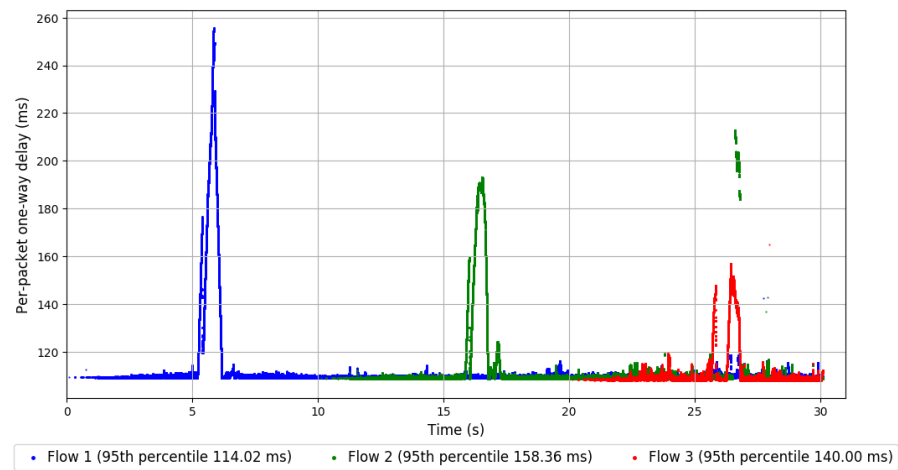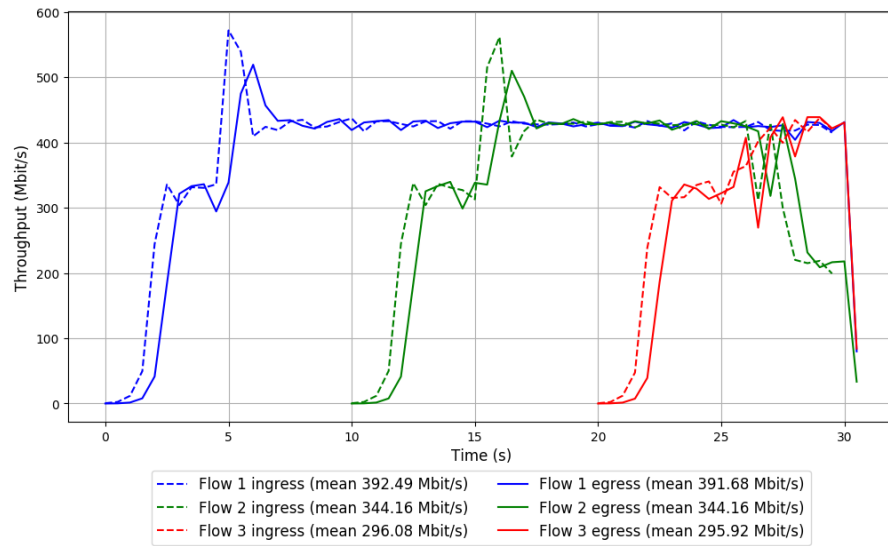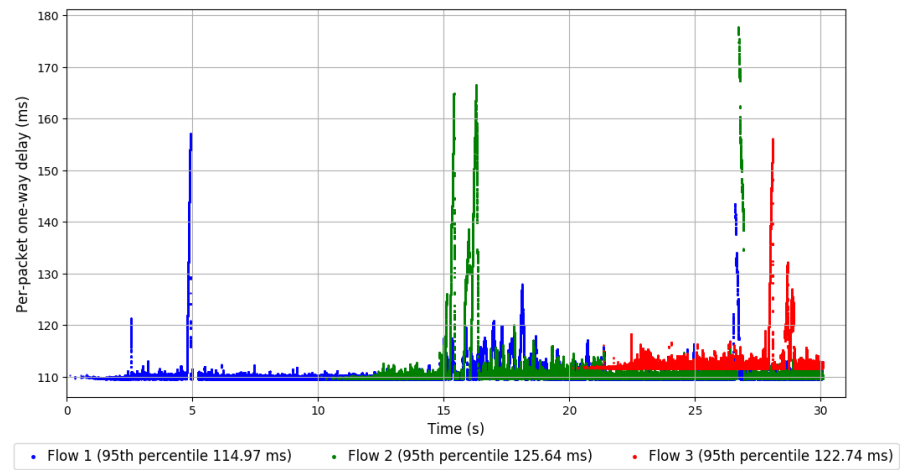
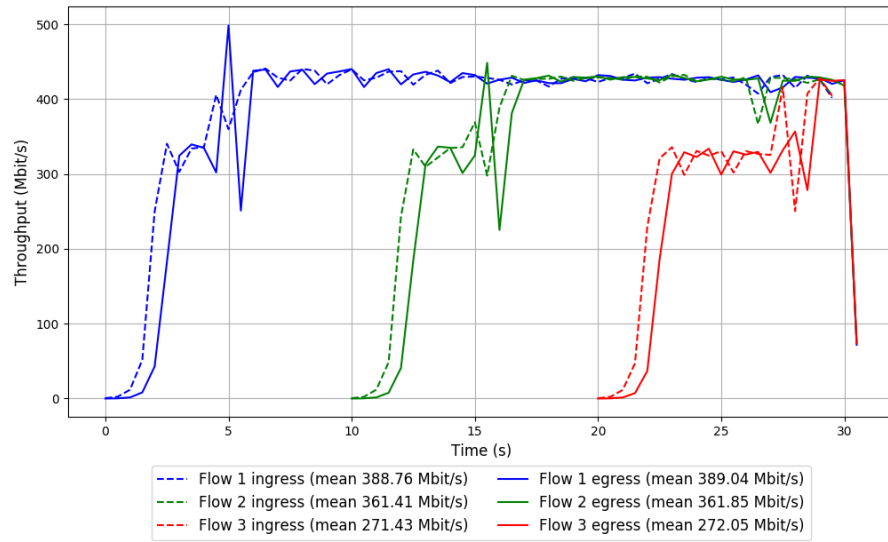Run 3: Report of TCP Vegas — Data Link

```
Run 4: Statistics of TCP Vegas

Start at: 2018-12-11 02:41:45
End at: 2018-12-11 02:42:15
Local clock offset: -0.615 ms
Remote clock offset: -0.009 ms


# Below is generated by plot.py at 2018-12-11 05:49:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 720.55 Mbit/s
95th percentile per-packet one-way delay: 116.543 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 389.04 Mbit/s
95th percentile per-packet one-way delay: 114.965 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 361.85 Mbit/s
95th percentile per-packet one-way delay: 125.637 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 272.05 Mbit/s
95th percentile per-packet one-way delay: 122.744 ms
Loss rate: 0.02%
```

Run 4: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 388.76 Mbit/s)   Flow 1 egress (mean 389.04 Mbit/s)
Flow 2 ingress (mean 361.41 Mbit/s)   Flow 2 egress (mean 361.85 Mbit/s)
Flow 3 ingress (mean 271.43 Mbit/s)   Flow 3 egress (mean 272.05 Mbit/s)

Flow 1 (95th percentile 114.97 ms)   Flow 2 (95th percentile 125.64 ms)   Flow 3 (95th percentile 122.74 ms)

```
Run 5: Statistics of TCP Vegas

Start at: 2018-12-11 03:15:12
End at: 2018-12-11 03:15:42
Local clock offset: -0.179 ms
Remote clock offset: 0.038 ms


# Below is generated by plot.py at 2018-12-11 05:52:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 787.30 Mbit/s
95th percentile per-packet one-way delay: 139.160 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 454.51 Mbit/s
95th percentile per-packet one-way delay: 135.639 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 331.17 Mbit/s
95th percentile per-packet one-way delay: 112.718 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 337.63 Mbit/s
95th percentile per-packet one-way delay: 194.687 ms
Loss rate: 0.00%
```
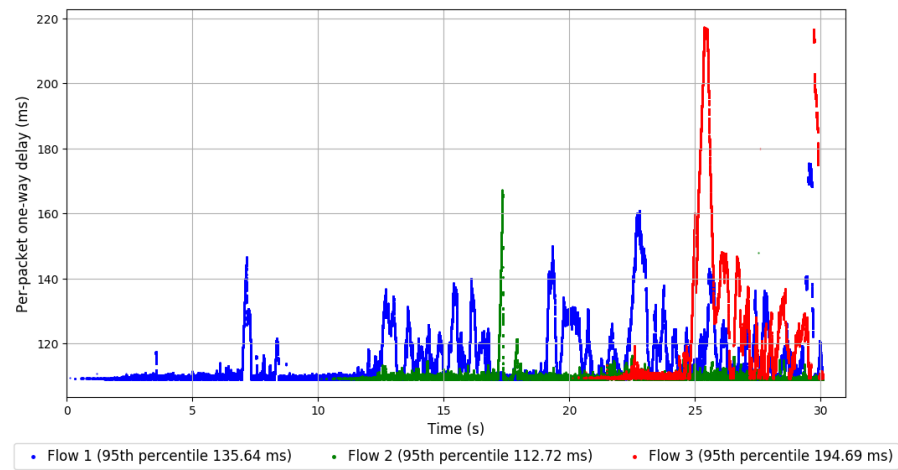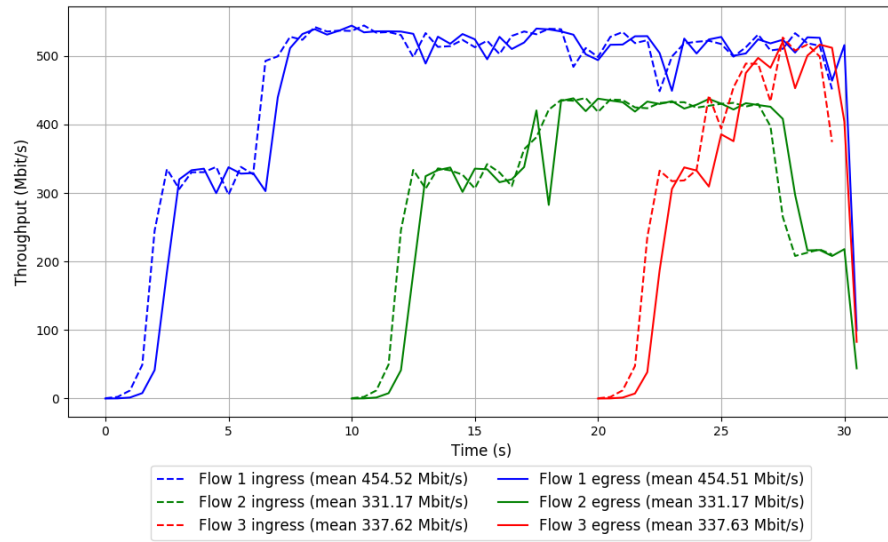
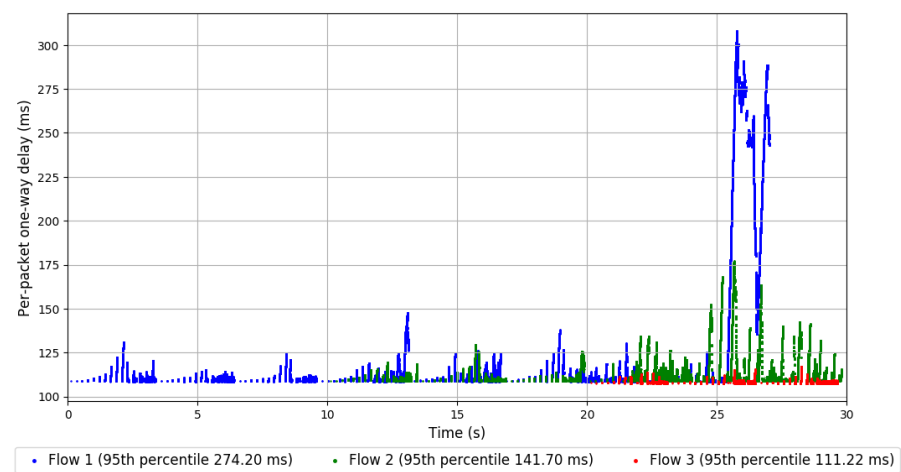Run 5: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 454.52 Mbit/s)   Flow 1 egress (mean 454.51 Mbit/s)
Flow 2 ingress (mean 331.17 Mbit/s)   Flow 2 egress (mean 331.17 Mbit/s)
Flow 3 ingress (mean 337.62 Mbit/s)   Flow 3 egress (mean 337.63 Mbit/s)

Flow 1 (95th percentile 135.64 ms)   Flow 2 (95th percentile 112.72 ms)   Flow 3 (95th percentile 194.69 ms)
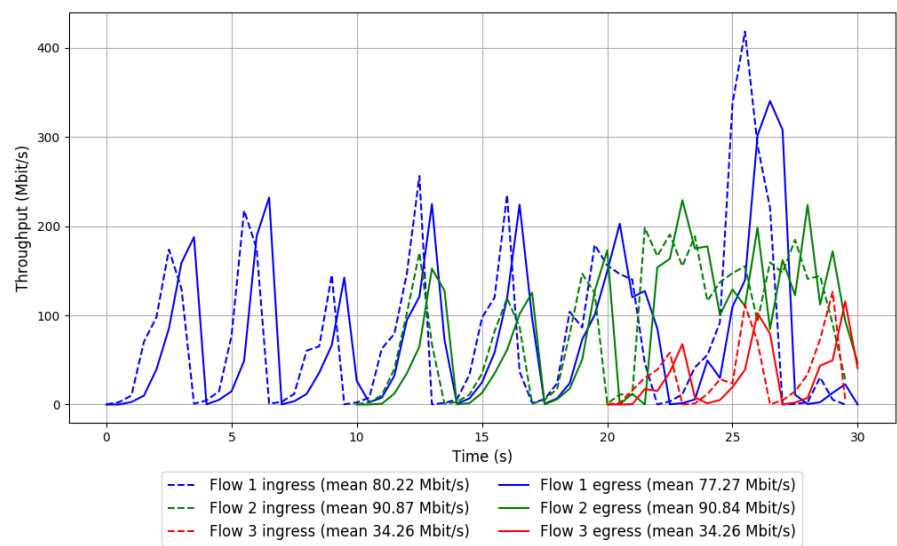
```
Run 1: Statistics of Verus

Start at: 2018-12-11 00:51:18
End at: 2018-12-11 00:51:48
Local clock offset: 0.607 ms
Remote clock offset: -0.124 ms


# Below is generated by plot.py at 2018-12-11 05:52:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 148.23 Mbit/s
95th percentile per-packet one-way delay: 255.461 ms
Loss rate: 1.95%
-- Flow 1:
Average throughput: 77.27 Mbit/s
95th percentile per-packet one-way delay: 274.197 ms
Loss rate: 3.68%
-- Flow 2:
Average throughput: 90.84 Mbit/s
95th percentile per-packet one-way delay: 141.697 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 34.26 Mbit/s
95th percentile per-packet one-way delay: 111.215 ms
Loss rate: 0.00%
```

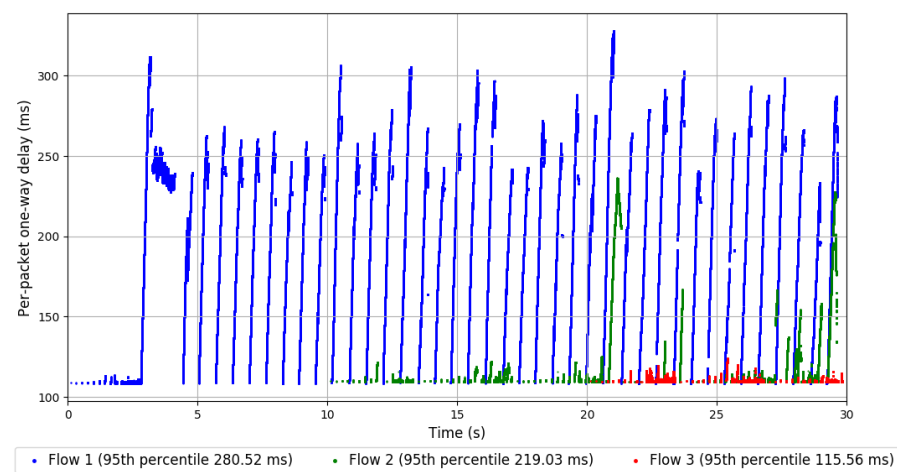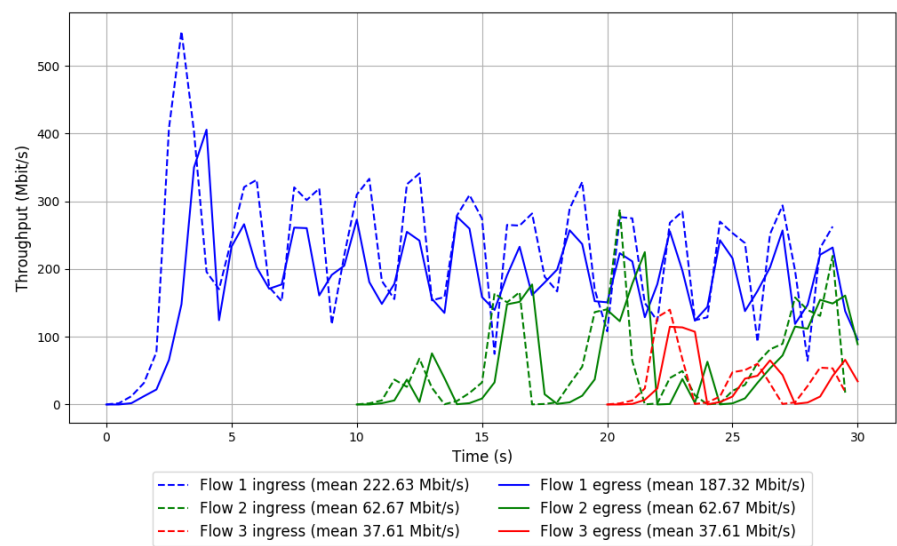Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2018-12-11 01:25:42
End at: 2018-12-11 01:26:12
Local clock offset: -0.203 ms
Remote clock offset: -0.326 ms


# Below is generated by plot.py at 2018-12-11 05:52:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 239.88 Mbit/s
95th percentile per-packet one-way delay: 275.743 ms
Loss rate: 12.48%
-- Flow 1:
Average throughput: 187.32 Mbit/s
95th percentile per-packet one-way delay: 280.516 ms
Loss rate: 15.53%
-- Flow 2:
Average throughput: 62.67 Mbit/s
95th percentile per-packet one-way delay: 219.035 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 37.61 Mbit/s
95th percentile per-packet one-way delay: 115.561 ms
Loss rate: 0.00%
```

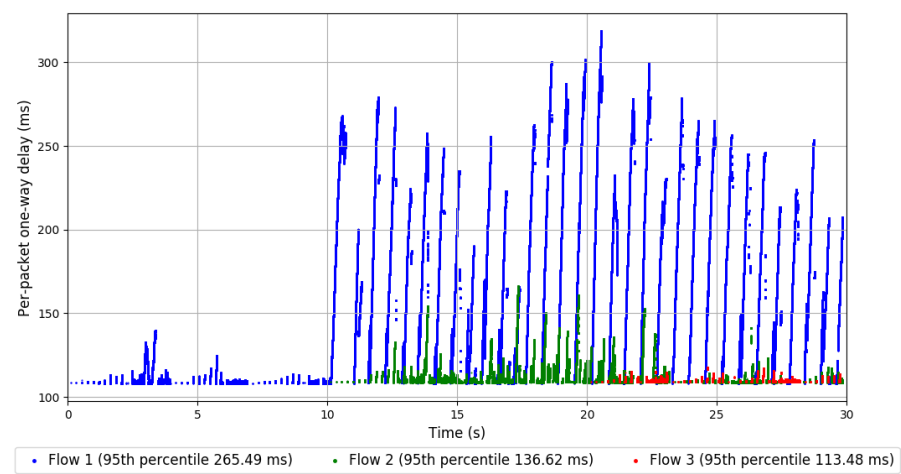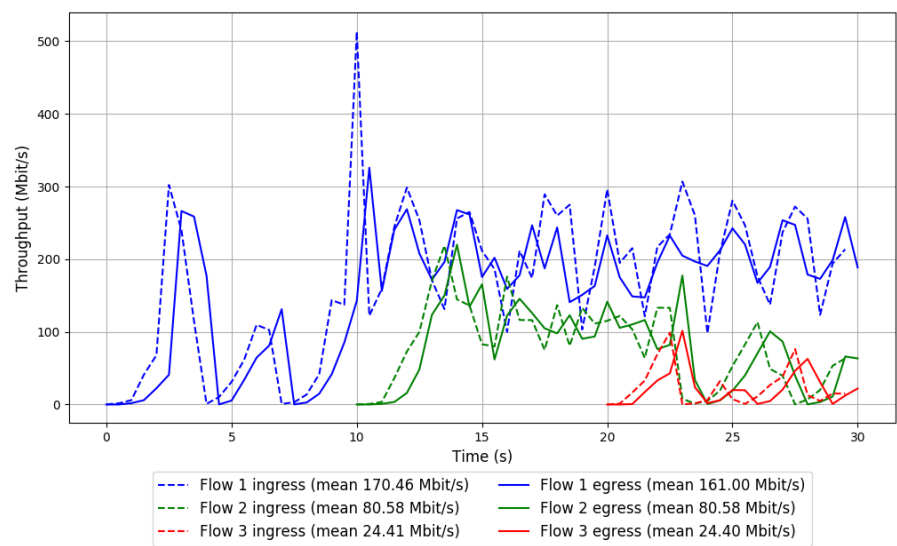## Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-12-11 02:04:12
End at: 2018-12-11 02:04:42
Local clock offset: 0.119 ms
Remote clock offset: -0.091 ms


# Below is generated by plot.py at 2018-12-11 05:52:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 222.33 Mbit/s
95th percentile per-packet one-way delay: 259.666 ms
Loss rate: 4.08%
-- Flow 1:
Average throughput: 161.00 Mbit/s
95th percentile per-packet one-way delay: 265.485 ms
Loss rate: 5.55%
-- Flow 2:
Average throughput: 80.58 Mbit/s
95th percentile per-packet one-way delay: 136.619 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 24.40 Mbit/s
95th percentile per-packet one-way delay: 113.479 ms
Loss rate: 0.00%
```

Run 3: Report of Verus — Data Link

Flow 1 ingress (mean 170.46 Mbit/s)   Flow 1 egress (mean 161.00 Mbit/s)
Flow 2 ingress (mean 80.58 Mbit/s)   Flow 2 egress (mean 80.58 Mbit/s)
Flow 3 ingress (mean 24.41 Mbit/s)   Flow 3 egress (mean 24.40 Mbit/s)

Flow 1 (95th percentile 265.49 ms)   Flow 2 (95th percentile 136.62 ms)   Flow 3 (95th percentile 113.48 ms)
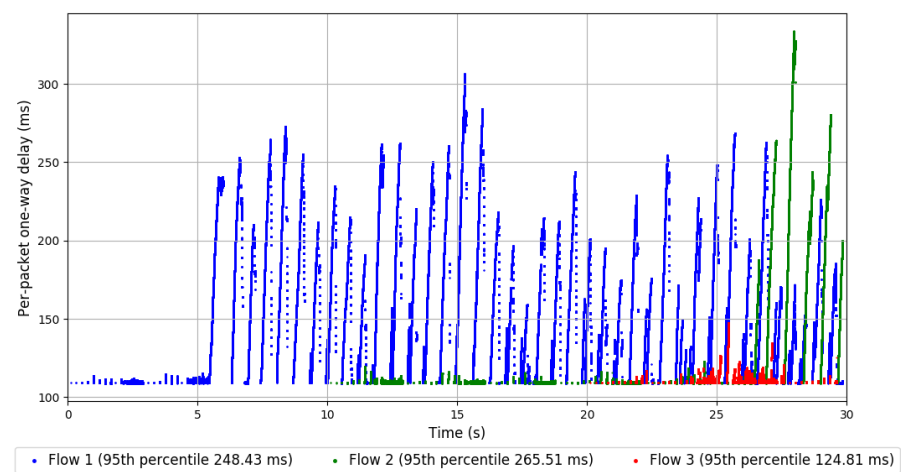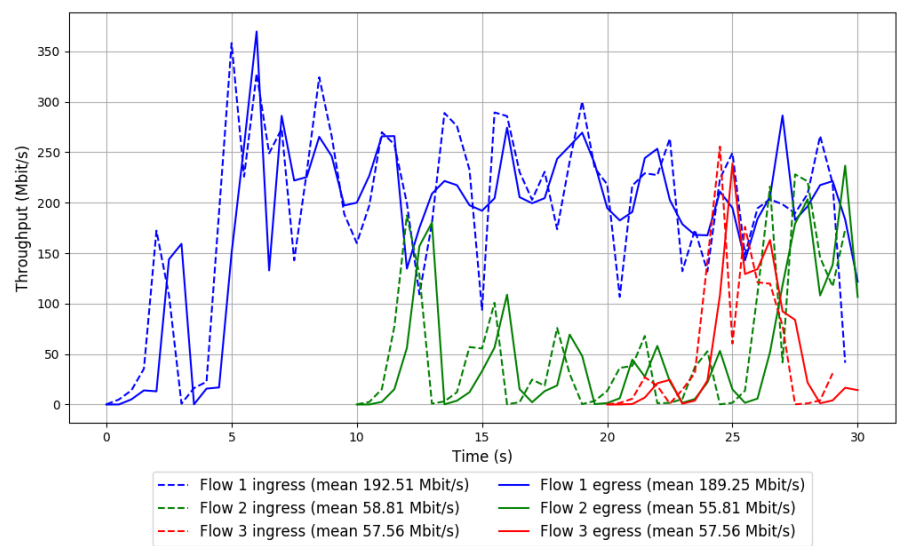
```
Run 4: Statistics of Verus

Start at: 2018-12-11 02:40:01
End at: 2018-12-11 02:40:31
Local clock offset: -0.209 ms
Remote clock offset: -0.435 ms


# Below is generated by plot.py at 2018-12-11 05:52:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 244.58 Mbit/s
95th percentile per-packet one-way delay: 249.164 ms
Loss rate: 2.10%
-- Flow 1:
Average throughput: 189.25 Mbit/s
95th percentile per-packet one-way delay: 248.429 ms
Loss rate: 1.69%
-- Flow 2:
Average throughput: 55.81 Mbit/s
95th percentile per-packet one-way delay: 265.515 ms
Loss rate: 5.12%
-- Flow 3:
Average throughput: 57.56 Mbit/s
95th percentile per-packet one-way delay: 124.806 ms
Loss rate: 0.00%
```

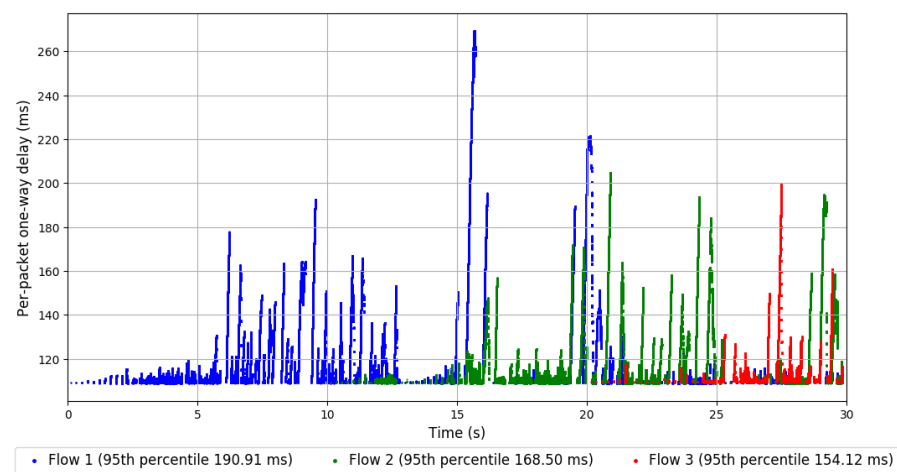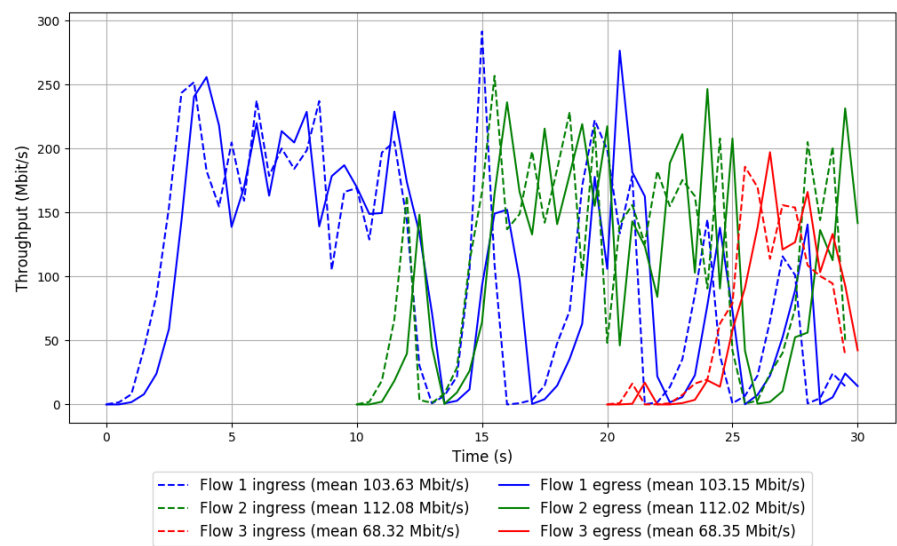## Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-12-11 03:13:32
End at: 2018-12-11 03:14:02
Local clock offset: -0.091 ms
Remote clock offset: -0.028 ms


# Below is generated by plot.py at 2018-12-11 05:52:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 199.02 Mbit/s
95th percentile per-packet one-way delay: 175.387 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 103.15 Mbit/s
95th percentile per-packet one-way delay: 190.907 ms
Loss rate: 0.46%
-- Flow 2:
Average throughput: 112.02 Mbit/s
95th percentile per-packet one-way delay: 168.502 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 68.35 Mbit/s
95th percentile per-packet one-way delay: 154.125 ms
Loss rate: 0.00%
```

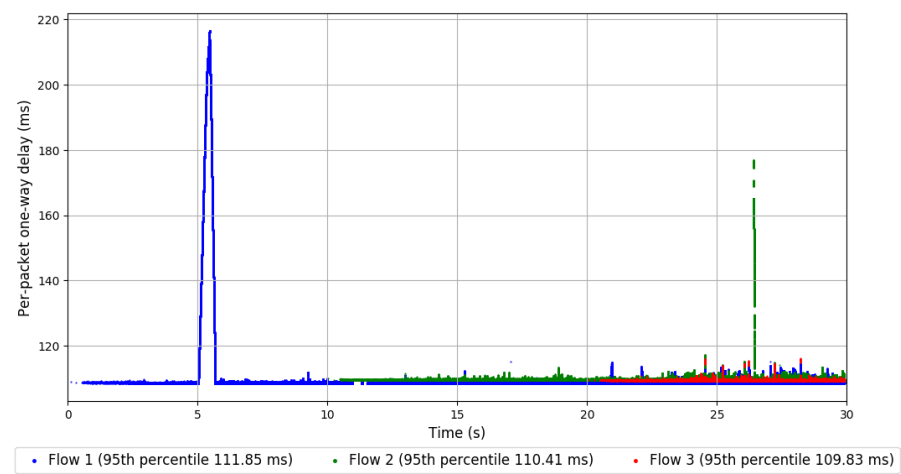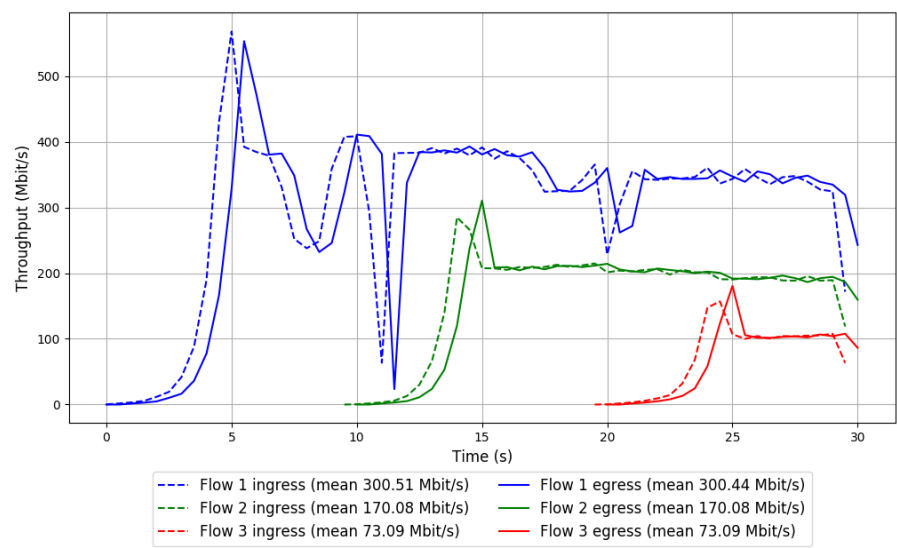Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-12-11 00:49:27
End at: 2018-12-11 00:49:57
Local clock offset: -0.369 ms
Remote clock offset: -0.132 ms


# Below is generated by plot.py at 2018-12-11 05:53:31
# Datalink statistics
-- Total of 3 flows:
Average throughput: 438.01 Mbit/s
95th percentile per-packet one-way delay: 110.885 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 300.44 Mbit/s
95th percentile per-packet one-way delay: 111.854 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 170.08 Mbit/s
95th percentile per-packet one-way delay: 110.410 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 73.09 Mbit/s
95th percentile per-packet one-way delay: 109.826 ms
Loss rate: 0.00%
```

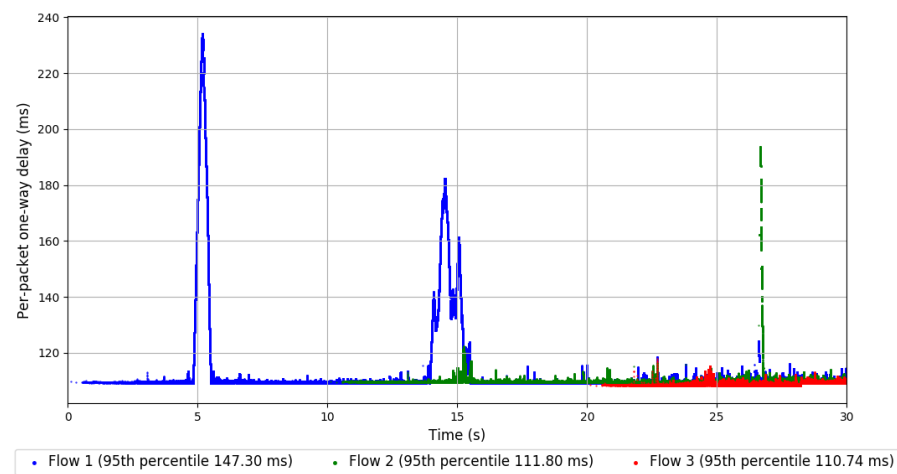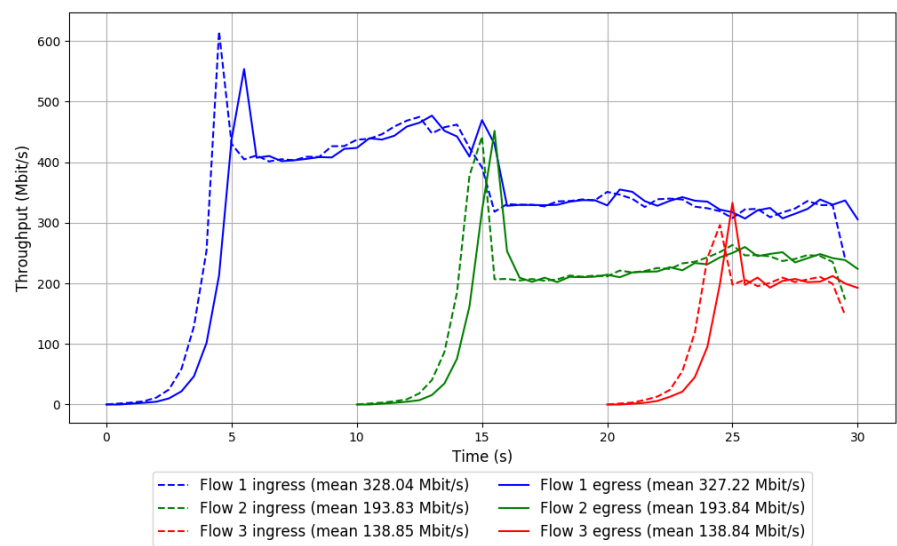Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2018-12-11 01:23:44
End at: 2018-12-11 01:24:14
Local clock offset: -0.184 ms
Remote clock offset: -0.286 ms


# Below is generated by plot.py at 2018-12-11 05:54:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 501.94 Mbit/s
95th percentile per-packet one-way delay: 133.876 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 327.22 Mbit/s
95th percentile per-packet one-way delay: 147.303 ms
Loss rate: 0.25%
-- Flow 2:
Average throughput: 193.84 Mbit/s
95th percentile per-packet one-way delay: 111.798 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 138.84 Mbit/s
95th percentile per-packet one-way delay: 110.743 ms
Loss rate: 0.00%
```

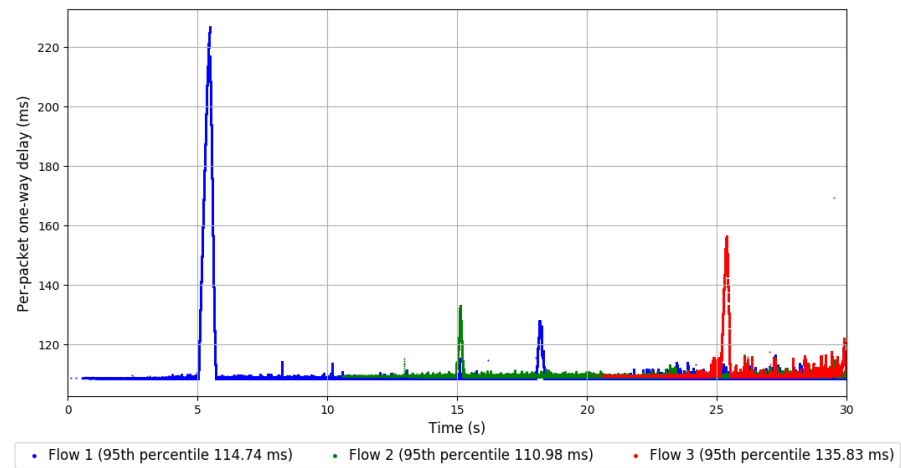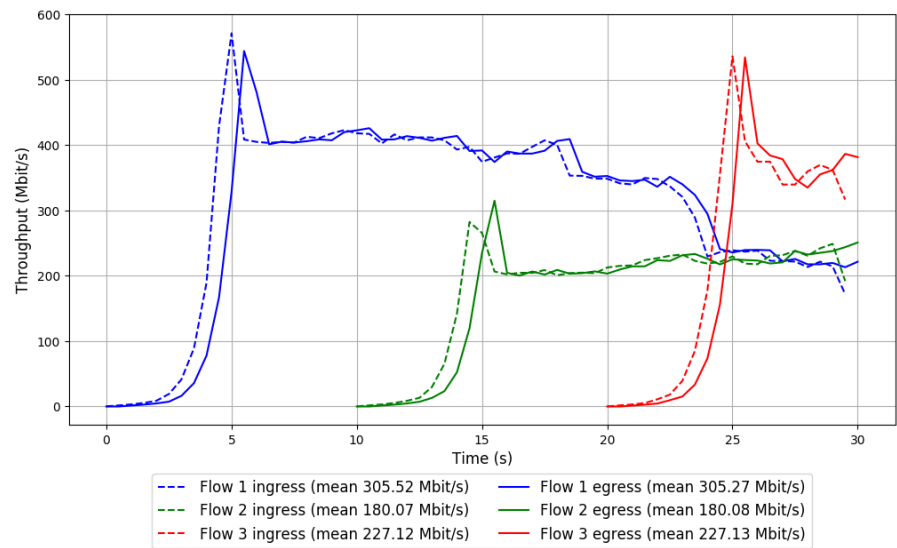Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2018-12-11 02:02:15
End at: 2018-12-11 02:02:45
Local clock offset: -0.231 ms
Remote clock offset: -0.046 ms


# Below is generated by plot.py at 2018-12-11 05:55:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 499.84 Mbit/s
95th percentile per-packet one-way delay: 115.670 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 305.27 Mbit/s
95th percentile per-packet one-way delay: 114.737 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 180.08 Mbit/s
95th percentile per-packet one-way delay: 110.983 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 227.13 Mbit/s
95th percentile per-packet one-way delay: 135.832 ms
Loss rate: 0.00%
```

Run 3: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 305.52 Mbit/s) --- Flow 1 egress (mean 305.27 Mbit/s)
Flow 2 ingress (mean 180.07 Mbit/s) --- Flow 2 egress (mean 180.08 Mbit/s)
Flow 3 ingress (mean 227.12 Mbit/s) --- Flow 3 egress (mean 227.13 Mbit/s)

Flow 1 (95th percentile 114.74 ms)   Flow 2 (95th percentile 110.98 ms)   Flow 3 (95th percentile 135.83 ms)
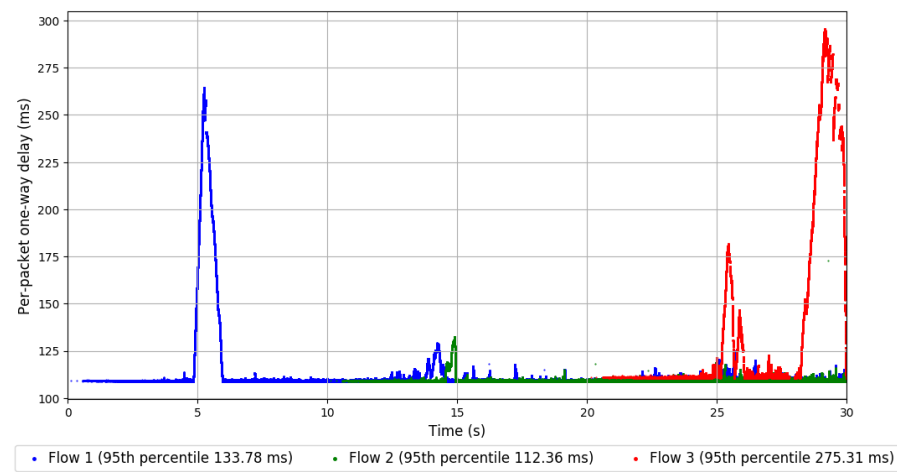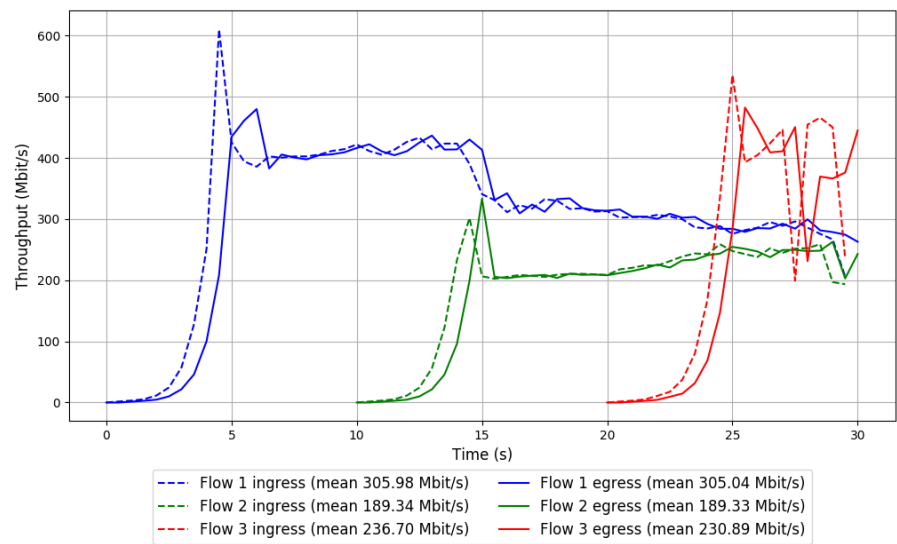
```
Run 4: Statistics of PCC-Vivace

Start at: 2018-12-11 02:38:04
End at: 2018-12-11 02:38:34
Local clock offset: 0.241 ms
Remote clock offset: -0.018 ms


# Below is generated by plot.py at 2018-12-11 05:55:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 507.11 Mbit/s
95th percentile per-packet one-way delay: 188.206 ms
Loss rate: 0.56%
-- Flow 1:
Average throughput: 305.04 Mbit/s
95th percentile per-packet one-way delay: 133.775 ms
Loss rate: 0.30%
-- Flow 2:
Average throughput: 189.33 Mbit/s
95th percentile per-packet one-way delay: 112.359 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 230.89 Mbit/s
95th percentile per-packet one-way delay: 275.312 ms
Loss rate: 2.46%
```

Run 4: Report of PCC-Vivace — Data Link

- --- Flow 1 ingress (mean 305.98 Mbit/s)   — Flow 1 egress (mean 305.04 Mbit/s)
- --- Flow 2 ingress (mean 189.34 Mbit/s)   — Flow 2 egress (mean 189.33 Mbit/s)
- --- Flow 3 ingress (mean 236.70 Mbit/s)   — Flow 3 egress (mean 230.89 Mbit/s)

- Flow 1 (95th percentile 133.78 ms)   • Flow 2 (95th percentile 112.36 ms)   • Flow 3 (95th percentile 275.31 ms)

Run 5: Statistics of PCC-Vivace

Start at: 2018-12-11 03:11:50
End at: 2018-12-11 03:12:20
Local clock offset: 0.077 ms
Remote clock offset: -0.02 ms

Below is generated by plot.py at 2018-12-11 05:55:13
Datalink statistics
-- Total of 3 flows:
Average throughput: 301.69 Mbit/s
95th percentile per-packet one-way delay: 113.164 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 106.41 Mbit/s
95th percentile per-packet one-way delay: 109.871 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 180.13 Mbit/s
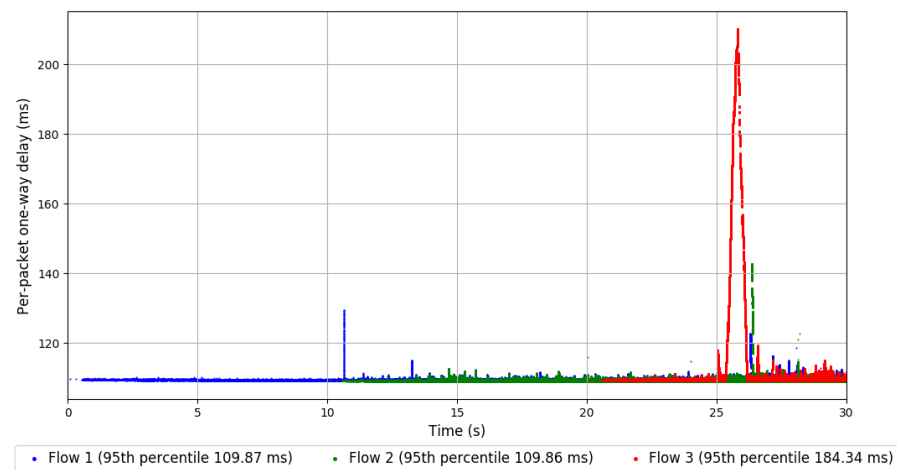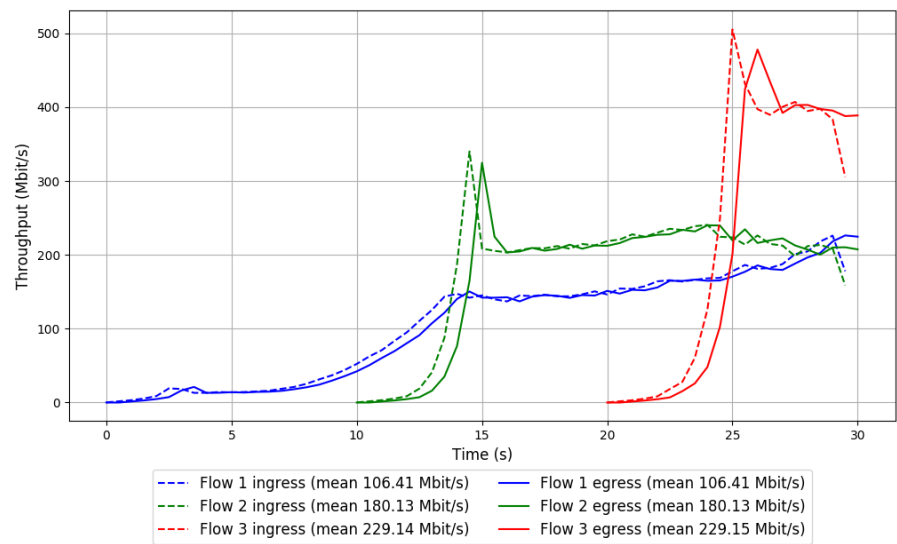95th percentile per-packet one-way delay: 109.858 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 229.15 Mbit/s
95th percentile per-packet one-way delay: 184.339 ms
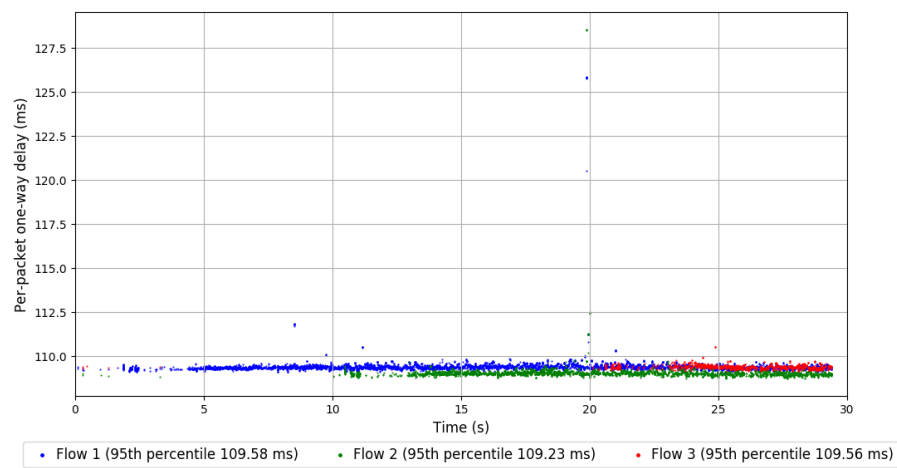Loss rate: 0.00%

Run 5: Report of PCC-Vivace — Data Link

- - - - Flow 1 ingress (mean 106.41 Mbit/s) —— Flow 1 egress (mean 106.41 Mbit/s)
- - - - Flow 2 ingress (mean 180.13 Mbit/s) —— Flow 2 egress (mean 180.13 Mbit/s)
- - - - Flow 3 ingress (mean 229.14 Mbit/s) —— Flow 3 egress (mean 229.15 Mbit/s)

- Flow 1 (95th percentile 109.87 ms)   • Flow 2 (95th percentile 109.86 ms)   • Flow 3 (95th percentile 184.34 ms)
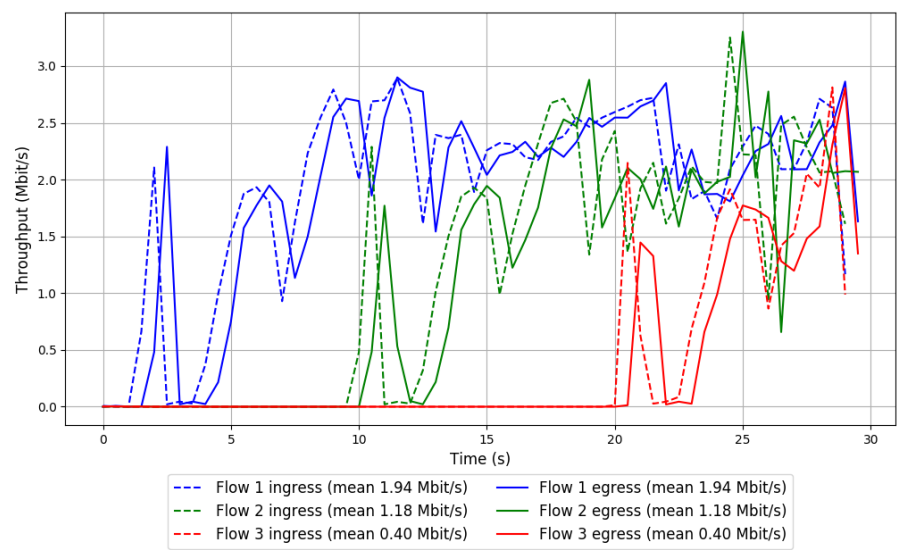
```
Run 1: Statistics of WebRTC media

Start at: 2018-12-11 00:48:09
End at: 2018-12-11 00:48:39
Local clock offset: 0.207 ms
Remote clock offset: -0.134 ms


# Below is generated by plot.py at 2018-12-11 05:55:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.51 Mbit/s
95th percentile per-packet one-way delay: 109.541 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.94 Mbit/s
95th percentile per-packet one-way delay: 109.576 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.18 Mbit/s
95th percentile per-packet one-way delay: 109.233 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 109.564 ms
Loss rate: 0.00%
```

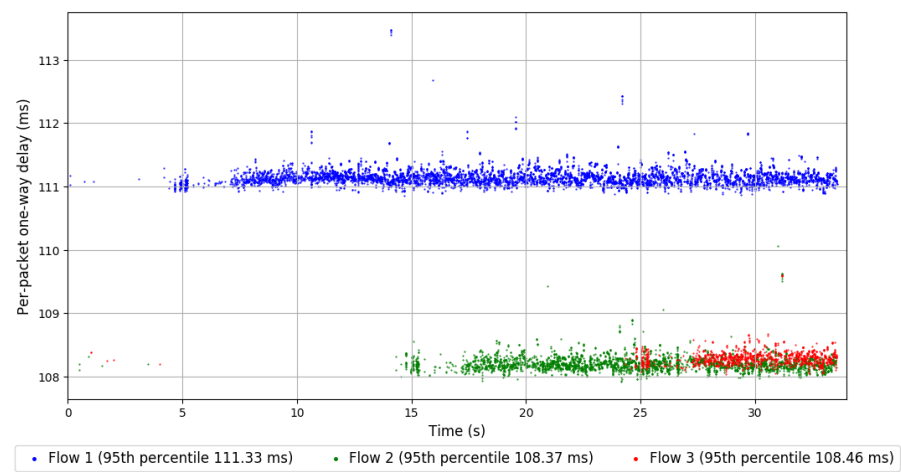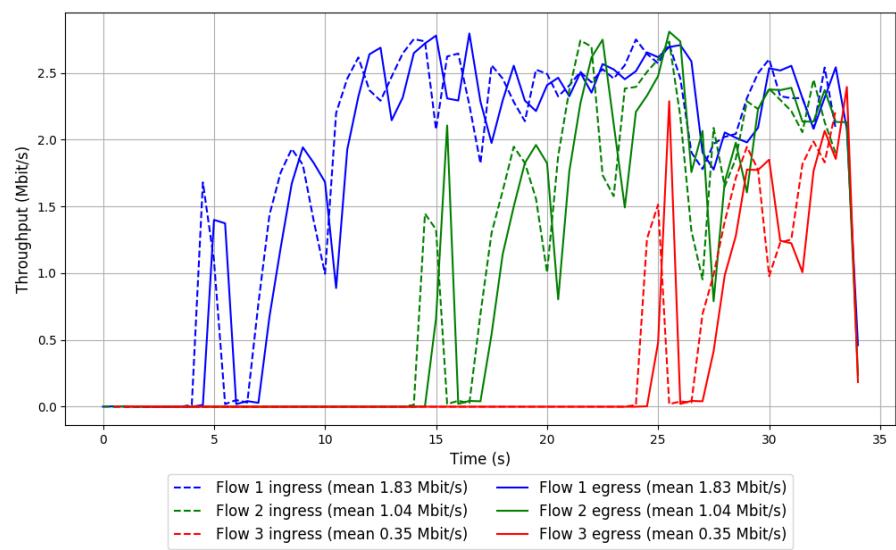Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-12-11 01:22:27
End at: 2018-12-11 01:22:57
Local clock offset: -0.291 ms
Remote clock offset: -0.689 ms


# Below is generated by plot.py at 2018-12-11 05:55:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.19 Mbit/s
95th percentile per-packet one-way delay: 111.289 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.83 Mbit/s
95th percentile per-packet one-way delay: 111.332 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.04 Mbit/s
95th percentile per-packet one-way delay: 108.374 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.35 Mbit/s
95th percentile per-packet one-way delay: 108.464 ms
Loss rate: 0.00%
```

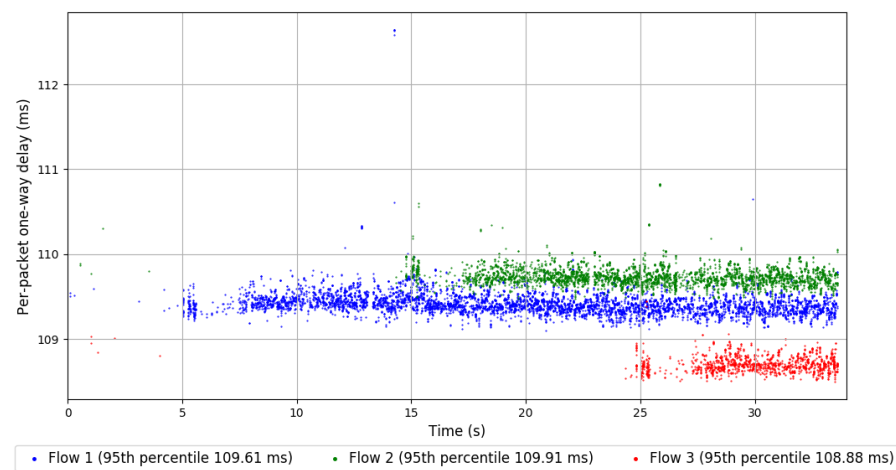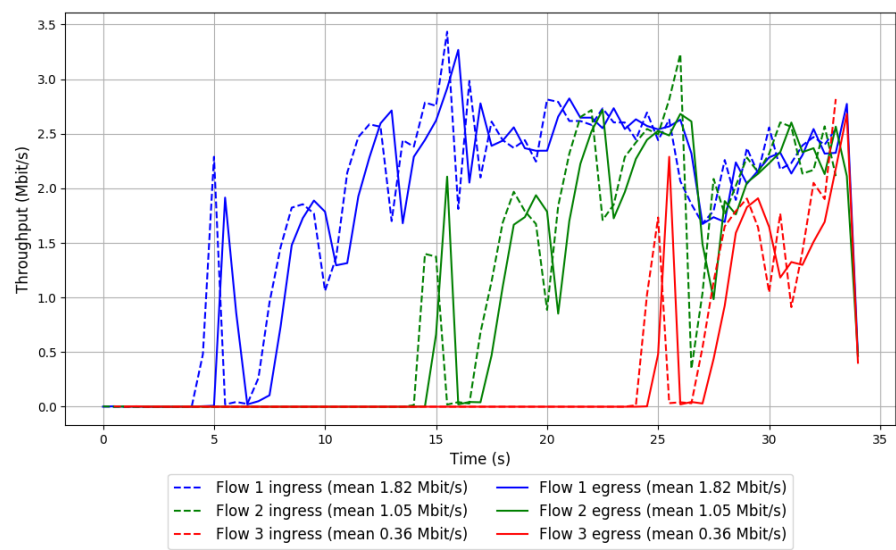Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-12-11 02:00:58
End at: 2018-12-11 02:01:28
Local clock offset: -0.192 ms
Remote clock offset: -0.057 ms


# Below is generated by plot.py at 2018-12-11 05:55:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.21 Mbit/s
95th percentile per-packet one-way delay: 109.824 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.82 Mbit/s
95th percentile per-packet one-way delay: 109.615 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.05 Mbit/s
95th percentile per-packet one-way delay: 109.909 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 108.881 ms
Loss rate: 0.00%
```
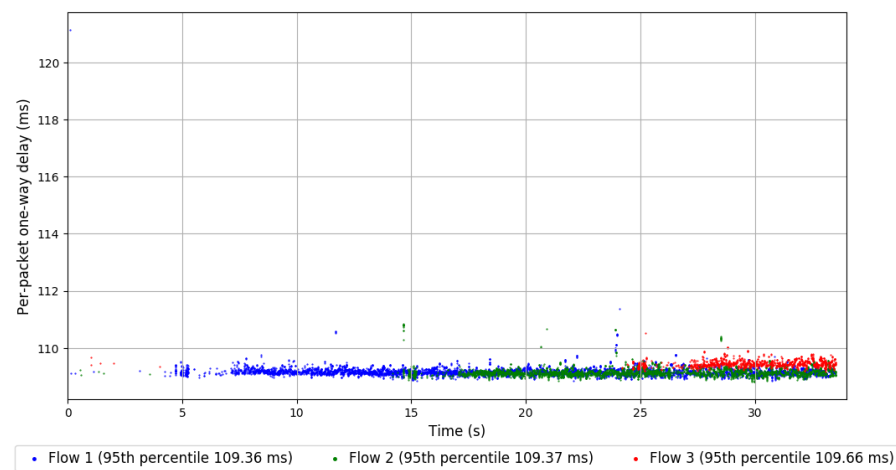
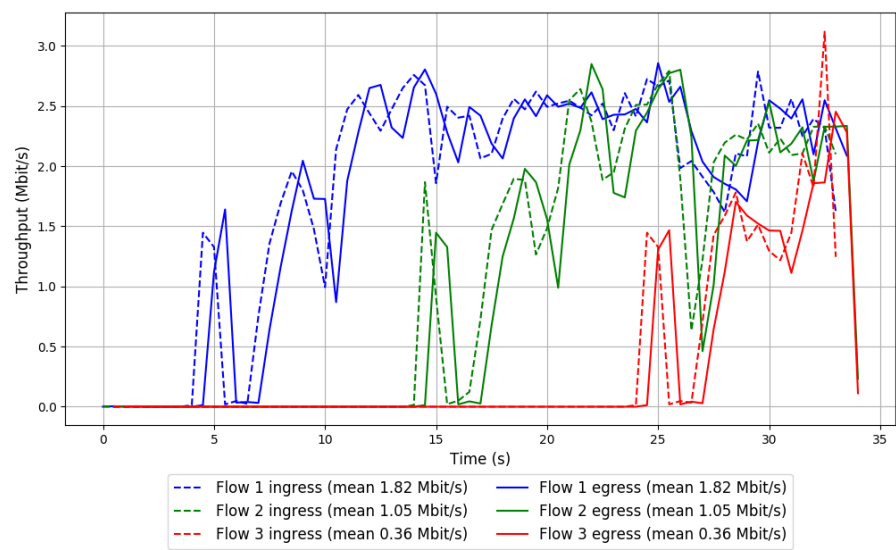Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-12-11 02:36:46
End at: 2018-12-11 02:37:16
Local clock offset: -0.297 ms
Remote clock offset: -0.431 ms


# Below is generated by plot.py at 2018-12-11 05:55:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.21 Mbit/s
95th percentile per-packet one-way delay: 109.490 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.82 Mbit/s
95th percentile per-packet one-way delay: 109.362 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.05 Mbit/s
95th percentile per-packet one-way delay: 109.371 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 109.657 ms
Loss rate: 0.00%
```

Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-12-11 03:10:33
End at: 2018-12-11 03:11:03
Local clock offset: -0.944 ms
Remote clock offset: -0.04 ms


# Below is generated by plot.py at 2018-12-11 05:55:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.23 Mbit/s
95th percentile per-packet one-way delay: 110.535 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 1.84 Mbit/s
95th percentile per-packet one-way delay: 110.410 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.05 Mbit/s
95th percentile per-packet one-way delay: 110.540 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 110.664 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link