Pantheon Report

Generated at 2018-05-24 10:26:59 (UTC).

Data path: GCE Tokyo Ethernet (*local*) →GCE London Ethernet (*remote*).

Repeated the test of 16 congestion control schemes 10 times.

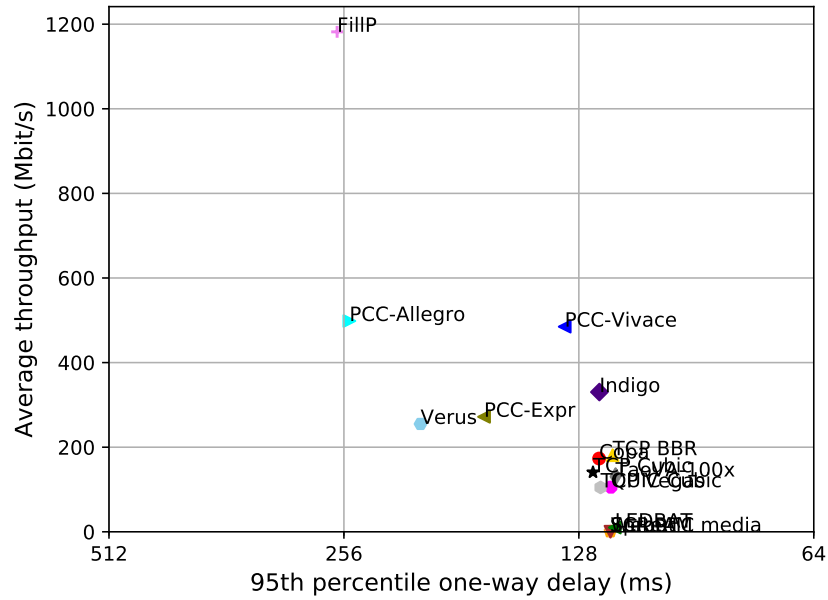Each test lasted for 30 seconds running 3 flows with 10-second interval between two flows.

Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

NTP offsets were measured against `time.google.com` and have been applied to correct the timestamps in logs.
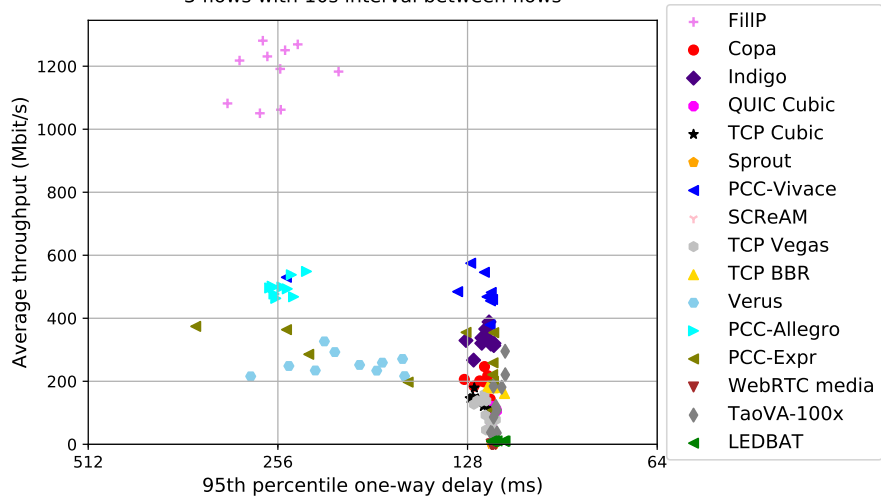
```
Git summary:
branch: master @ 0088822873ea99180f63545a341ef069f40efe59
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/genericCC @ c7966e494a929986eaa5a9c169a7f381fe1bbbe5
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ 6f038ed31259d366f9840f65b82cbe8f464b1b39
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
third_party/sprout @ c838669682f0c19f6baf92afc9a596a406d48c1f
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, 10 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, 10 runs of 30s each per scheme
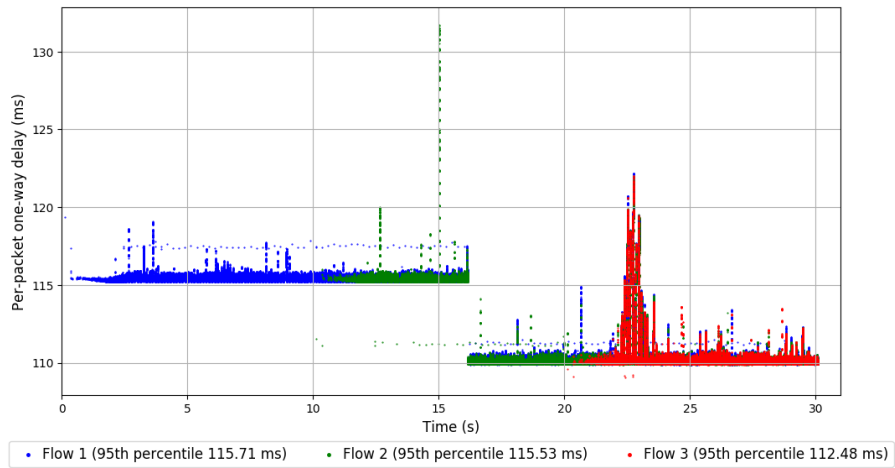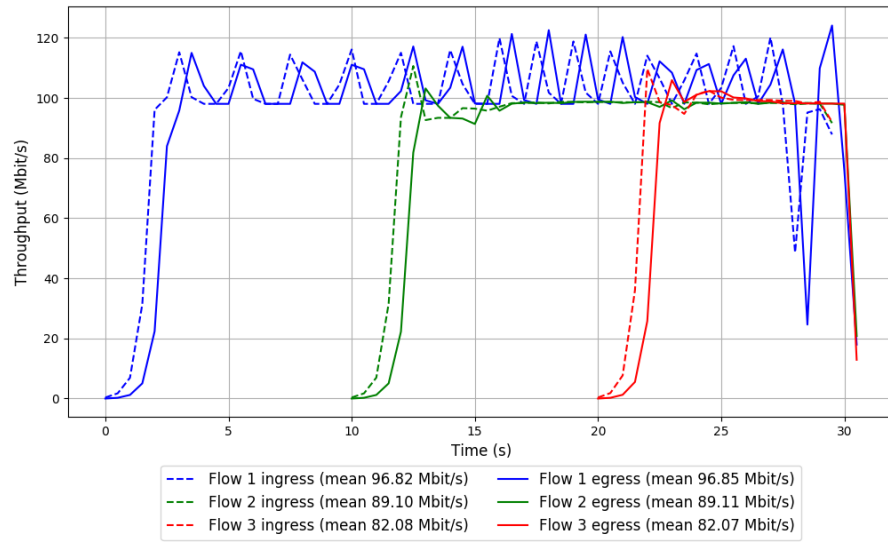3 flows with 10s interval between flows

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	10	92.78	90.60	84.57	115.39	115.18	114.99	0.00	0.00	0.00
Copa	10	97.82	79.38	68.11	120.52	118.34	119.70	0.00	0.01	9.10
TCP Cubic	10	82.64	68.87	37.06	122.53	123.28	118.70	0.00	0.00	0.12
FillP	10	630.89	570.63	517.37	275.89	212.94	152.38	1.71	1.12	0.87
Indigo	10	167.76	172.22	150.79	118.94	120.78	123.12	0.00	0.04	0.02
LEDBAT	10	6.76	4.02	1.94	115.22	114.63	114.31	0.03	0.22	0.00
PCC-Allegro	10	440.10	41.55	93.03	251.94	250.56	234.65	3.13	2.52	3.43
PCC-Expr	10	161.80	138.26	65.94	152.71	155.59	164.27	1.68	0.86	0.74
QUIC Cubic	10	57.09	53.17	40.67	114.56	112.91	114.24	0.00	0.00	0.02
SCReAM	10	0.21	0.22	0.22	114.68	116.51	114.41	0.00	0.00	0.07
Sprout	10	0.20	0.21	0.27	115.54	116.41	115.41	0.00	0.00	0.00
TaoVA-100x	10	86.09	53.97	53.50	114.47	114.87	115.20	0.00	0.00	0.00
TCP Vegas	10	65.21	40.40	39.01	119.36	119.34	119.61	0.00	0.02	0.12
Verus	10	163.46	112.47	53.85	193.41	202.60	190.85	0.57	0.64	0.70
PCC-Vivace	10	291.82	217.22	147.58	134.10	125.33	132.67	0.14	0.05	0.03
WebRTC media	10	0.05	0.05	0.05	115.12	115.49	115.58	0.00	0.00	0.00

```
Run 1: Statistics of TCP BBR

Start at: 2018-05-24 04:51:20
End at: 2018-05-24 04:51:50
Local clock offset: -0.188 ms
Remote clock offset: -0.088 ms


# Below is generated by plot.py at 2018-05-24 08:53:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 183.48 Mbit/s
95th percentile per-packet one-way delay: 115.658 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 96.85 Mbit/s
95th percentile per-packet one-way delay: 115.709 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 89.11 Mbit/s
95th percentile per-packet one-way delay: 115.527 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 82.07 Mbit/s
95th percentile per-packet one-way delay: 112.482 ms
Loss rate: 0.00%
```

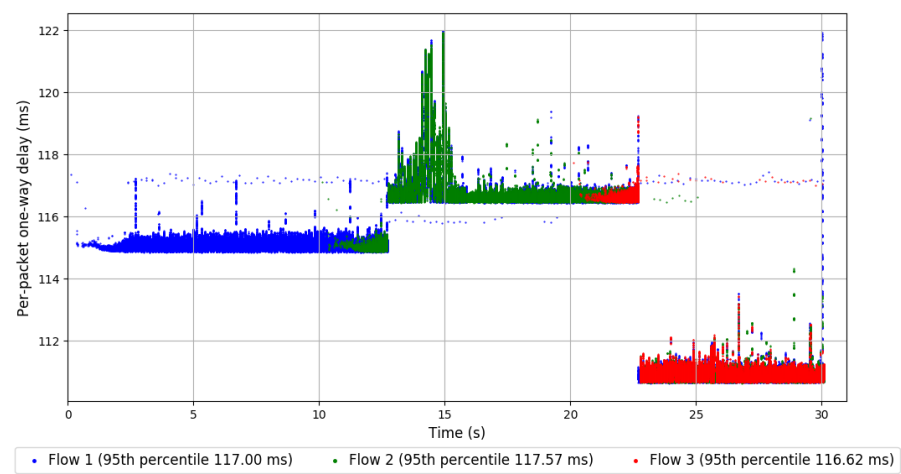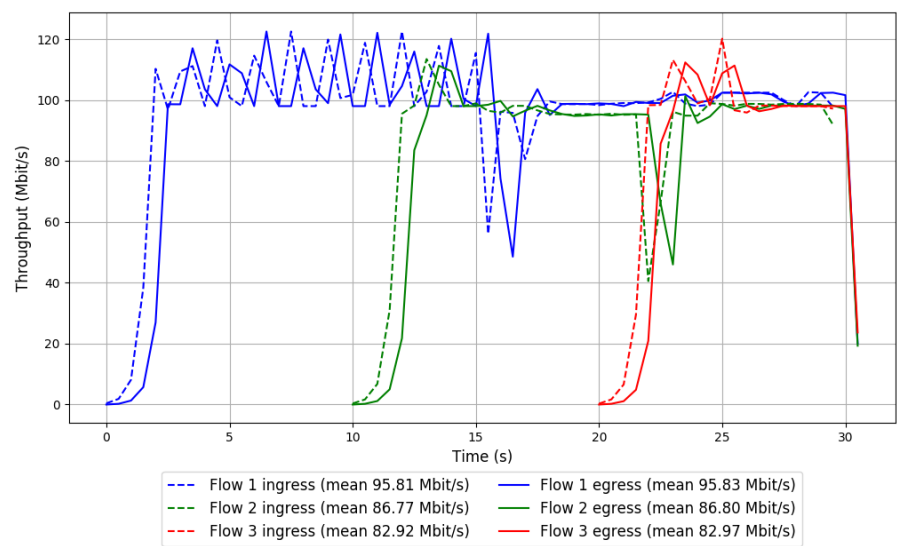# Run 1: Report of TCP BBR — Data Link

```
Run 2: Statistics of TCP BBR

Start at: 2018-05-24 05:14:54
End at: 2018-05-24 05:15:24
Local clock offset: 0.14 ms
Remote clock offset: -0.202 ms


# Below is generated by plot.py at 2018-05-24 08:53:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 181.20 Mbit/s
95th percentile per-packet one-way delay: 117.016 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 95.83 Mbit/s
95th percentile per-packet one-way delay: 116.996 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 86.80 Mbit/s
95th percentile per-packet one-way delay: 117.573 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 82.97 Mbit/s
95th percentile per-packet one-way delay: 116.621 ms
Loss rate: 0.00%
```
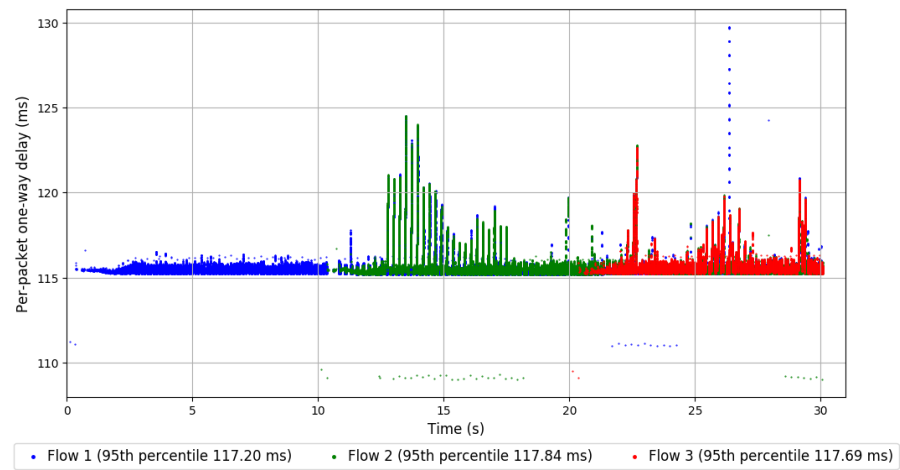
Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2018-05-24 05:38:25
End at: 2018-05-24 05:38:55
Local clock offset: 0.128 ms
Remote clock offset: 0.202 ms


# Below is generated by plot.py at 2018-05-24 08:53:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 181.74 Mbit/s
95th percentile per-packet one-way delay: 117.546 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 92.88 Mbit/s
95th percentile per-packet one-way delay: 117.197 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 90.28 Mbit/s
95th percentile per-packet one-way delay: 117.839 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 86.77 Mbit/s
95th percentile per-packet one-way delay: 117.691 ms
Loss rate: 0.00%
```
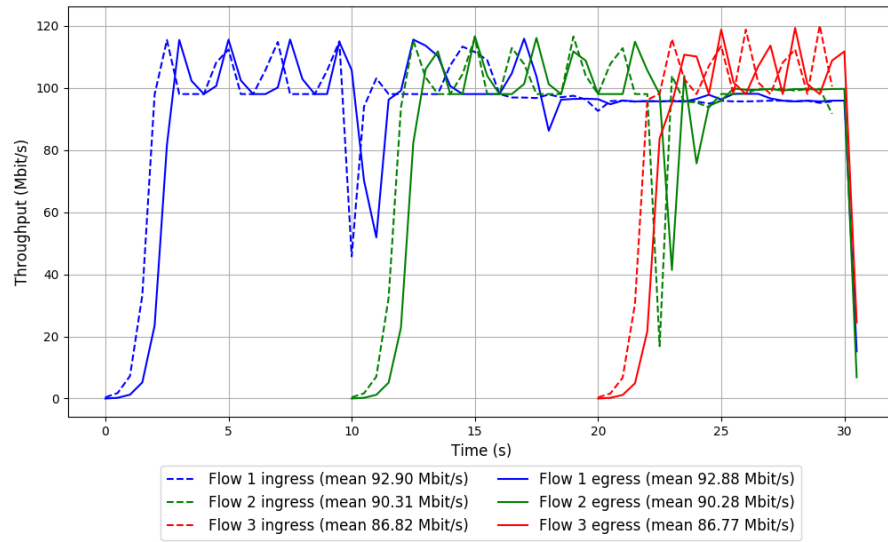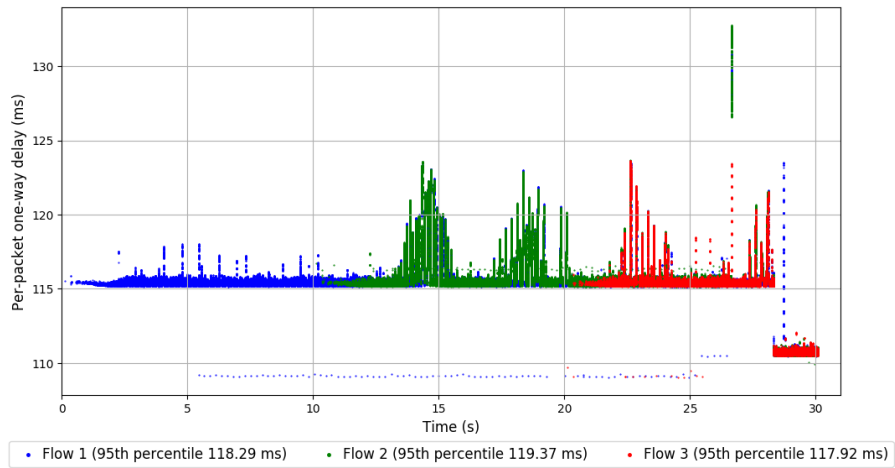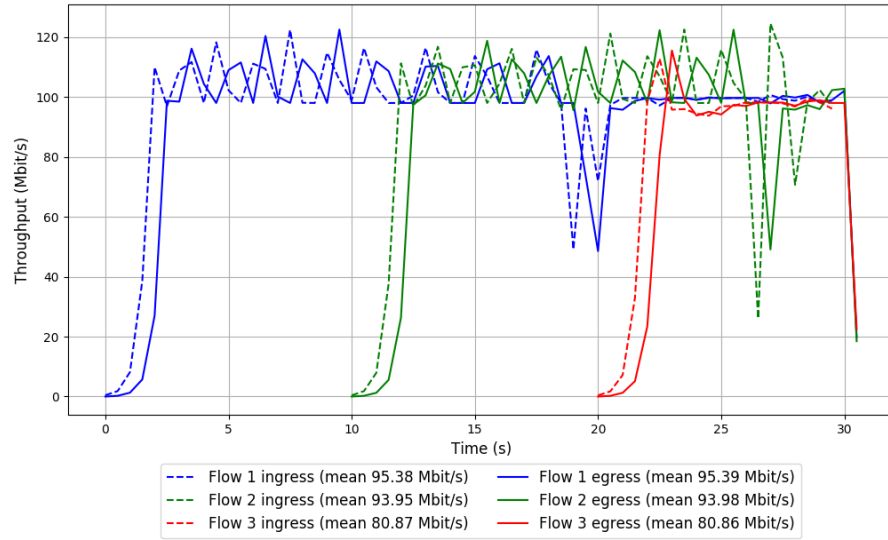
Run 3: Report of TCP BBR — Data Link

```
Run 4: Statistics of TCP BBR

Start at: 2018-05-24 06:02:08
End at: 2018-05-24 06:02:38
Local clock offset: -0.294 ms
Remote clock offset: -0.167 ms


# Below is generated by plot.py at 2018-05-24 08:53:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 184.80 Mbit/s
95th percentile per-packet one-way delay: 118.718 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 95.39 Mbit/s
95th percentile per-packet one-way delay: 118.287 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 93.98 Mbit/s
95th percentile per-packet one-way delay: 119.371 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 80.86 Mbit/s
95th percentile per-packet one-way delay: 117.917 ms
Loss rate: 0.00%
```
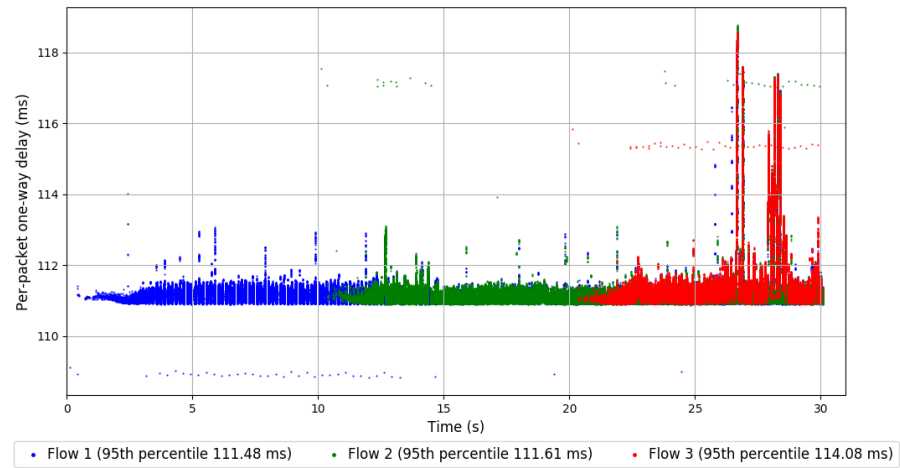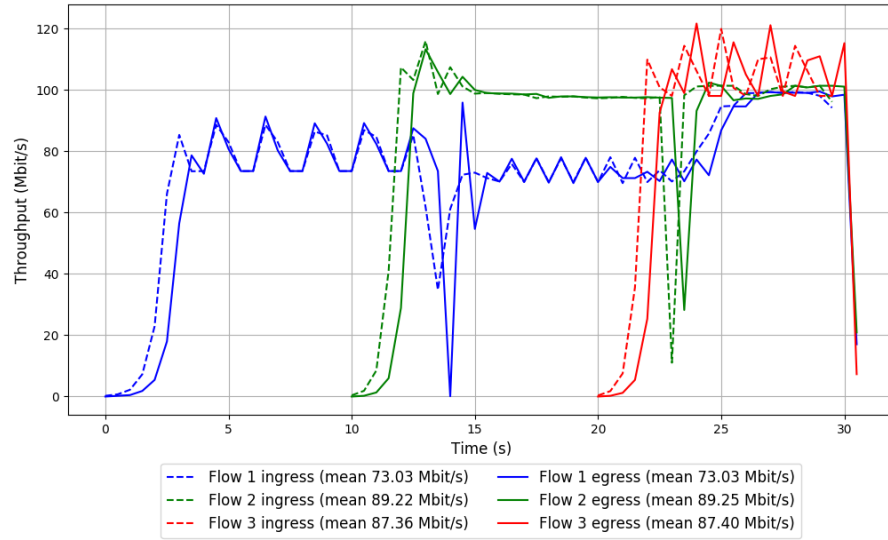
Run 4: Report of TCP BBR — Data Link

- - - Flow 1 ingress (mean 95.38 Mbit/s) —— Flow 1 egress (mean 95.39 Mbit/s)
- - - Flow 2 ingress (mean 93.95 Mbit/s) —— Flow 2 egress (mean 93.98 Mbit/s)
- - - Flow 3 ingress (mean 80.87 Mbit/s) —— Flow 3 egress (mean 80.86 Mbit/s)

- Flow 1 (95th percentile 118.29 ms)   • Flow 2 (95th percentile 119.37 ms)   • Flow 3 (95th percentile 117.92 ms)

```
Run 5: Statistics of TCP BBR

Start at: 2018-05-24 06:26:04
End at: 2018-05-24 06:26:34
Local clock offset: -0.095 ms
Remote clock offset: -0.204 ms


# Below is generated by plot.py at 2018-05-24 08:53:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 161.24 Mbit/s
95th percentile per-packet one-way delay: 111.809 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 73.03 Mbit/s
95th percentile per-packet one-way delay: 111.480 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 89.25 Mbit/s
95th percentile per-packet one-way delay: 111.615 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 87.40 Mbit/s
95th percentile per-packet one-way delay: 114.076 ms
Loss rate: 0.00%
```
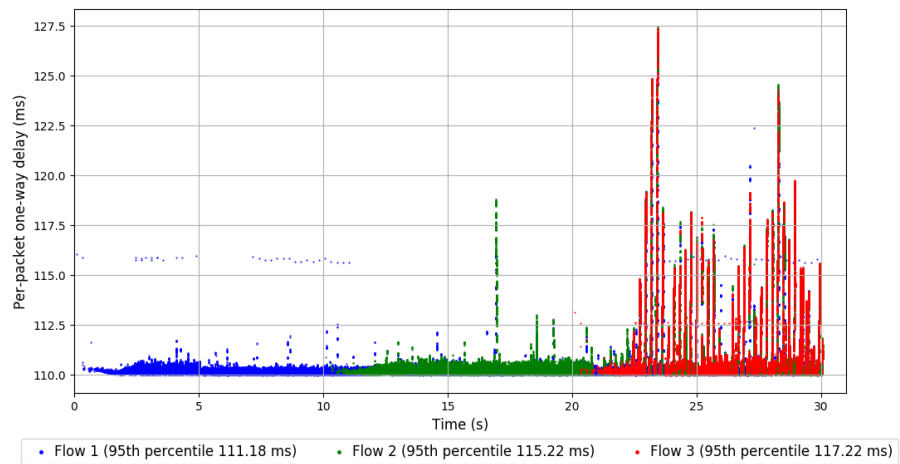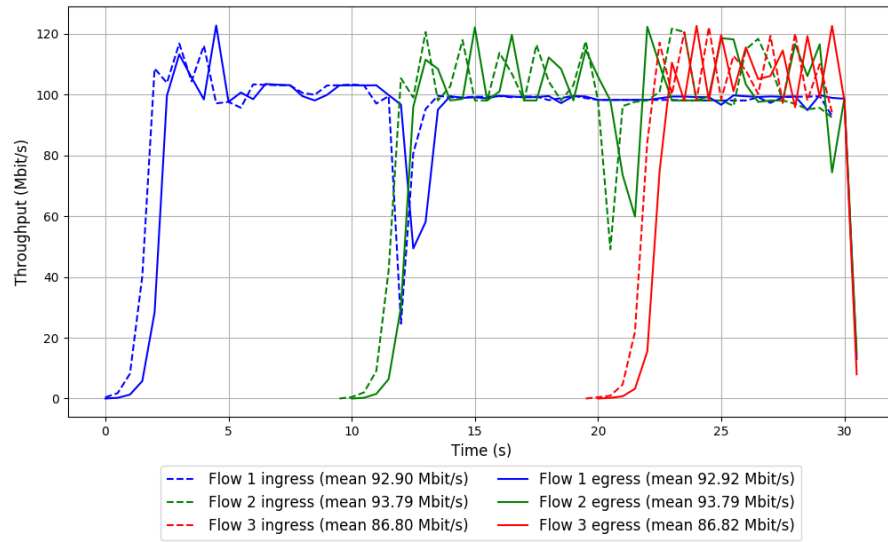
Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 73.03 Mbit/s) — Flow 1 egress (mean 73.03 Mbit/s)
Flow 2 ingress (mean 89.22 Mbit/s) — Flow 2 egress (mean 89.25 Mbit/s)
Flow 3 ingress (mean 87.36 Mbit/s) — Flow 3 egress (mean 87.40 Mbit/s)

Flow 1 (95th percentile 111.48 ms)   Flow 2 (95th percentile 111.61 ms)   Flow 3 (95th percentile 114.08 ms)

```
Run 6: Statistics of TCP BBR

Start at: 2018-05-24 06:49:58
End at: 2018-05-24 06:50:28
Local clock offset: 0.223 ms
Remote clock offset: -0.24 ms


# Below is generated by plot.py at 2018-05-24 08:53:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 184.28 Mbit/s
95th percentile per-packet one-way delay: 114.897 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 92.92 Mbit/s
95th percentile per-packet one-way delay: 111.177 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 93.79 Mbit/s
95th percentile per-packet one-way delay: 115.222 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 86.82 Mbit/s
95th percentile per-packet one-way delay: 117.225 ms
Loss rate: 0.00%
```

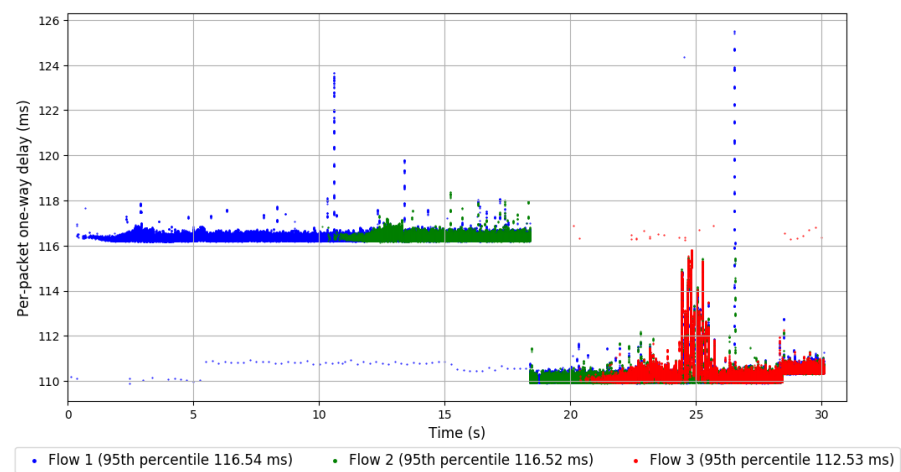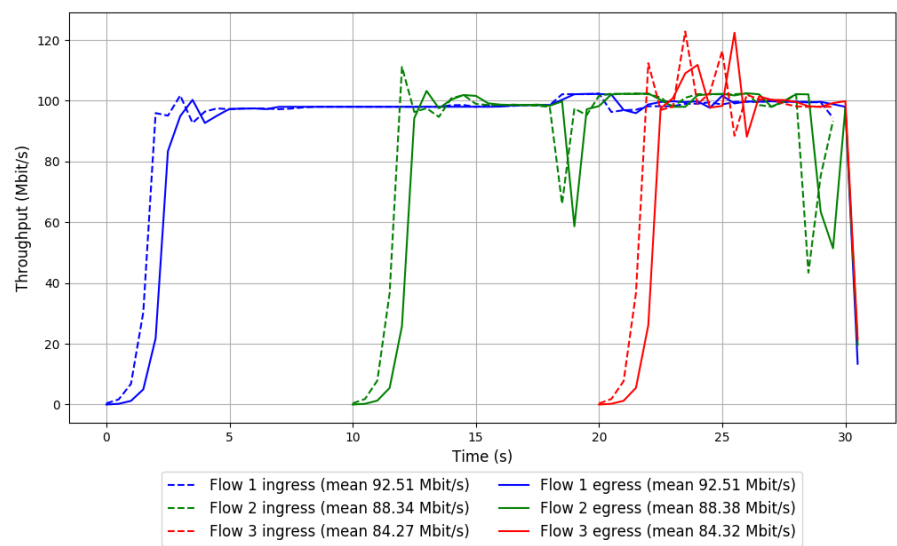Run 6: Report of TCP BBR — Data Link

```
Run 7: Statistics of TCP BBR

Start at: 2018-05-24 07:13:48
End at: 2018-05-24 07:14:18
Local clock offset: 0.334 ms
Remote clock offset: -0.186 ms


# Below is generated by plot.py at 2018-05-24 08:53:57
# Datalink statistics
-- Total of 3 flows:
Average throughput: 179.37 Mbit/s
95th percentile per-packet one-way delay: 116.522 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 92.51 Mbit/s
95th percentile per-packet one-way delay: 116.544 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 88.38 Mbit/s
95th percentile per-packet one-way delay: 116.524 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 84.32 Mbit/s
95th percentile per-packet one-way delay: 112.531 ms
Loss rate: 0.00%
```

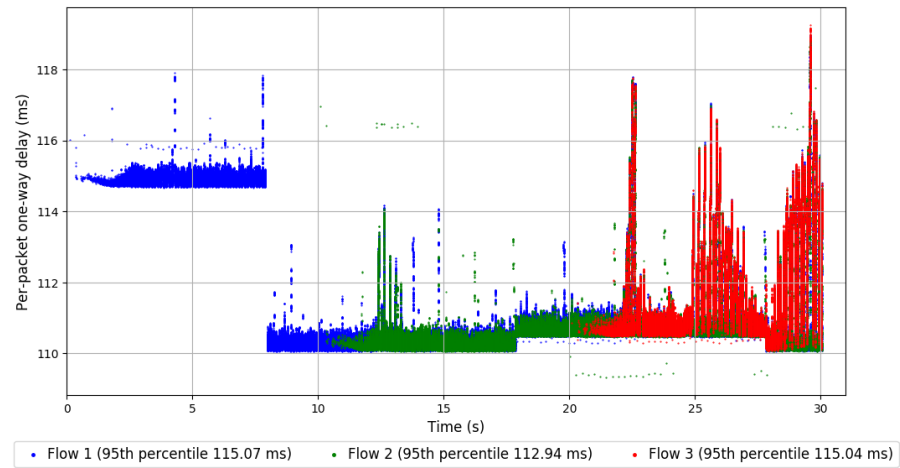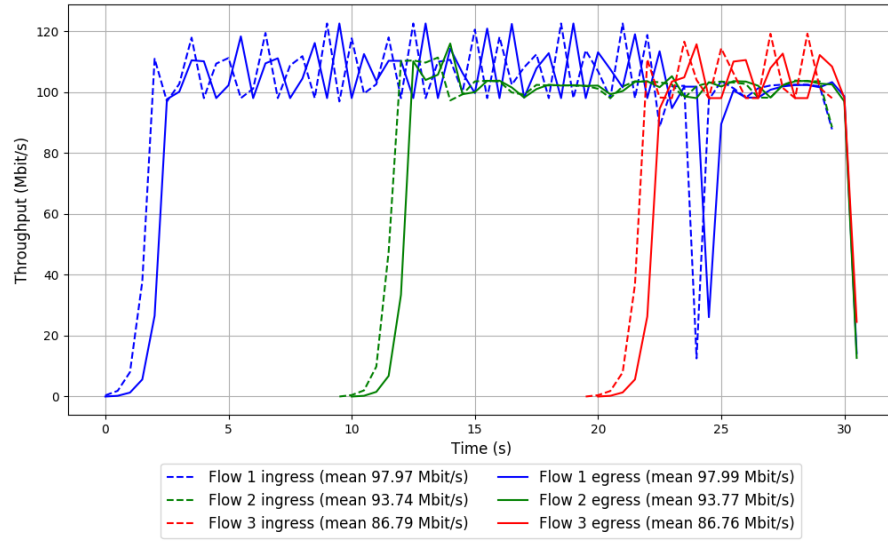Run 7: Report of TCP BBR — Data Link

```
Run 8: Statistics of TCP BBR

Start at: 2018-05-24 07:37:28
End at: 2018-05-24 07:37:58
Local clock offset: 0.145 ms
Remote clock offset: -0.264 ms


# Below is generated by plot.py at 2018-05-24 08:54:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 189.31 Mbit/s
95th percentile per-packet one-way delay: 115.023 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.99 Mbit/s
95th percentile per-packet one-way delay: 115.074 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 93.77 Mbit/s
95th percentile per-packet one-way delay: 112.940 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 86.76 Mbit/s
95th percentile per-packet one-way delay: 115.044 ms
Loss rate: 0.00%
```

Run 8: Report of TCP BBR — Data Link

```
Run 9: Statistics of TCP BBR

Start at: 2018-05-24 08:01:17
End at: 2018-05-24 08:01:47
Local clock offset: 0.203 ms
Remote clock offset: -0.2 ms


# Below is generated by plot.py at 2018-05-24 08:56:13
# Datalink statistics
-- Total of 3 flows:
Average throughput: 180.31 Mbit/s
95th percentile per-packet one-way delay: 115.029 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 94.57 Mbit/s
95th percentile per-packet one-way delay: 115.087 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 88.26 Mbit/s
95th percentile per-packet one-way delay: 114.811 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 82.88 Mbit/s
95th percentile per-packet one-way delay: 114.932 ms
Loss rate: 0.00%
```
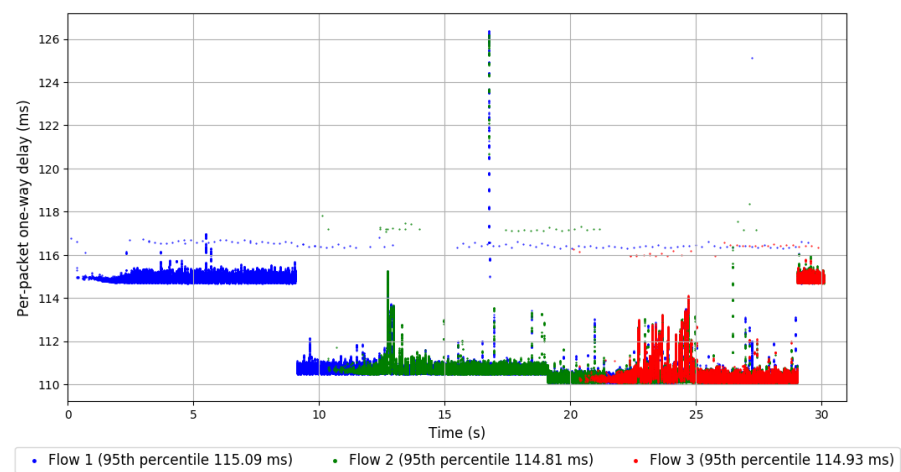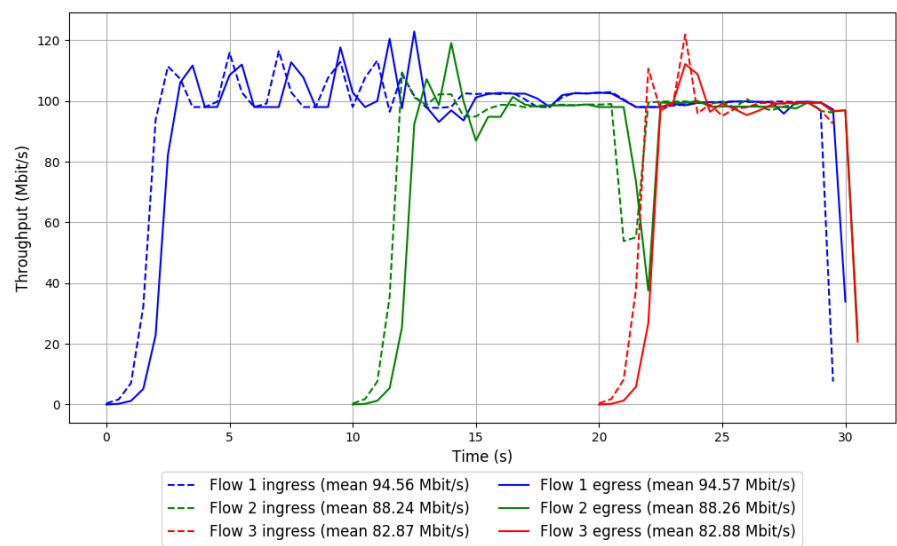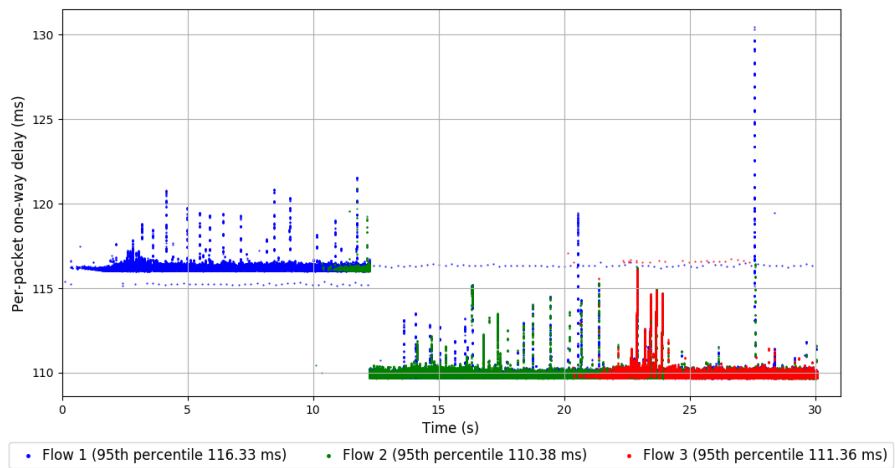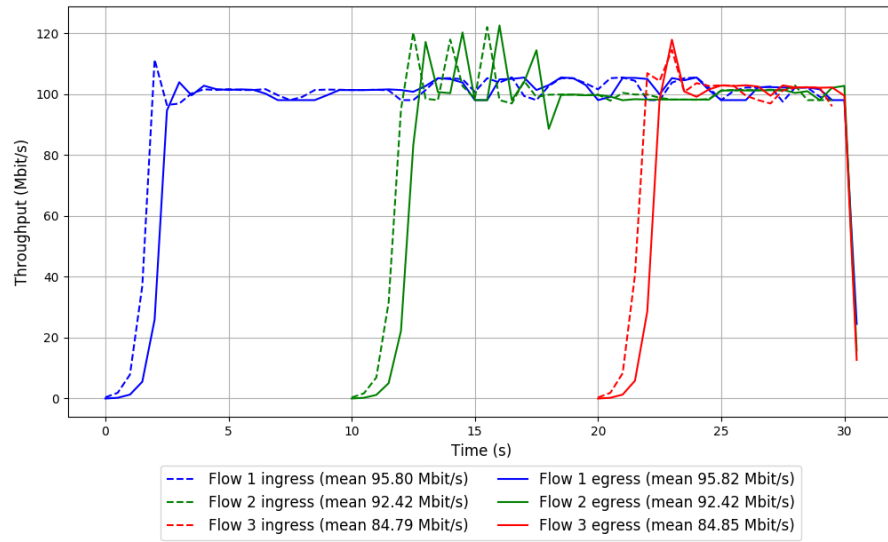
Run 9: Report of TCP BBR — Data Link

- - - - Flow 1 ingress (mean 94.56 Mbit/s)   —— Flow 1 egress (mean 94.57 Mbit/s)
- - - - Flow 2 ingress (mean 88.24 Mbit/s)   —— Flow 2 egress (mean 88.26 Mbit/s)
- - - - Flow 3 ingress (mean 82.87 Mbit/s)   —— Flow 3 egress (mean 82.88 Mbit/s)

- Flow 1 (95th percentile 115.09 ms)   - Flow 2 (95th percentile 114.81 ms)   - Flow 3 (95th percentile 114.93 ms)

```
Run 10: Statistics of TCP BBR

Start at: 2018-05-24 08:25:14
End at: 2018-05-24 08:25:44
Local clock offset: 0.115 ms
Remote clock offset: -0.423 ms


# Below is generated by plot.py at 2018-05-24 08:56:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 185.45 Mbit/s
95th percentile per-packet one-way delay: 116.274 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 95.82 Mbit/s
95th percentile per-packet one-way delay: 116.331 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 92.42 Mbit/s
95th percentile per-packet one-way delay: 110.381 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 84.85 Mbit/s
95th percentile per-packet one-way delay: 111.355 ms
Loss rate: 0.00%
```
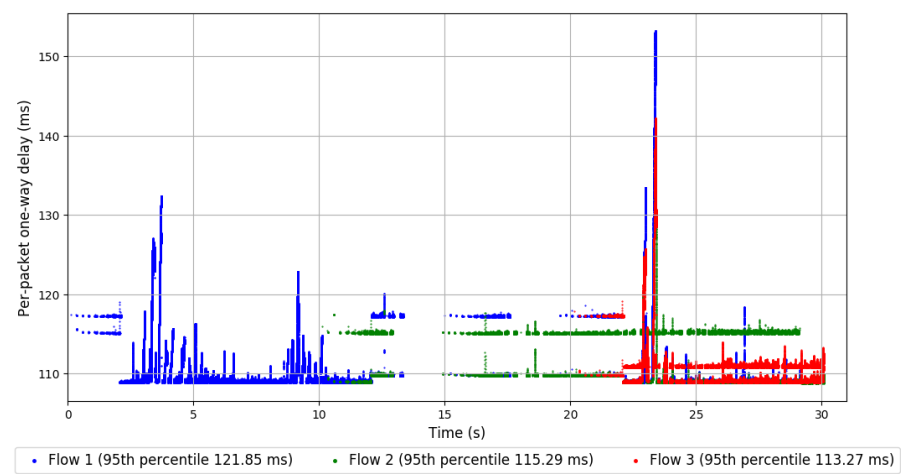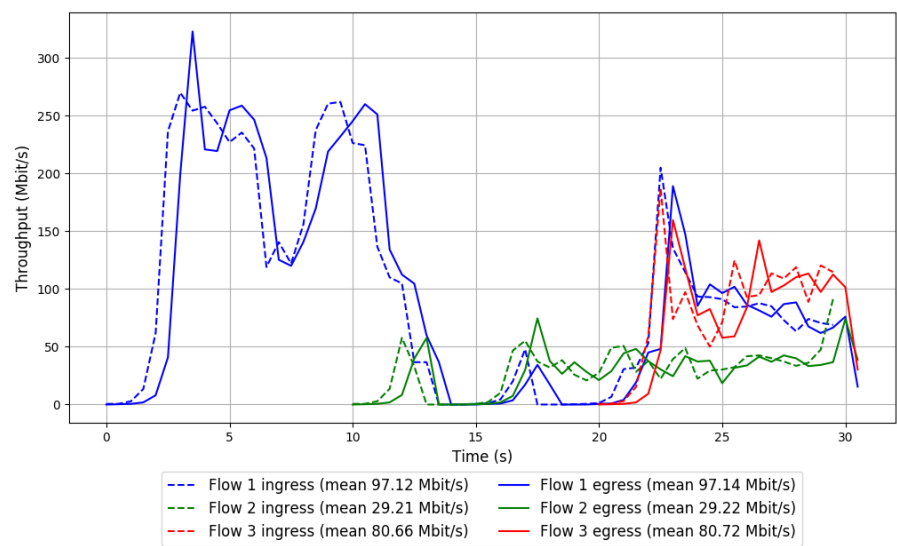
Run 10: Report of TCP BBR — Data Link

- Flow 1 ingress (mean 95.80 Mbit/s)
- Flow 1 egress (mean 95.82 Mbit/s)
- Flow 2 ingress (mean 92.42 Mbit/s)
- Flow 2 egress (mean 92.42 Mbit/s)
- Flow 3 ingress (mean 84.79 Mbit/s)
- Flow 3 egress (mean 84.85 Mbit/s)

- Flow 1 (95th percentile 116.33 ms)
- Flow 2 (95th percentile 110.38 ms)
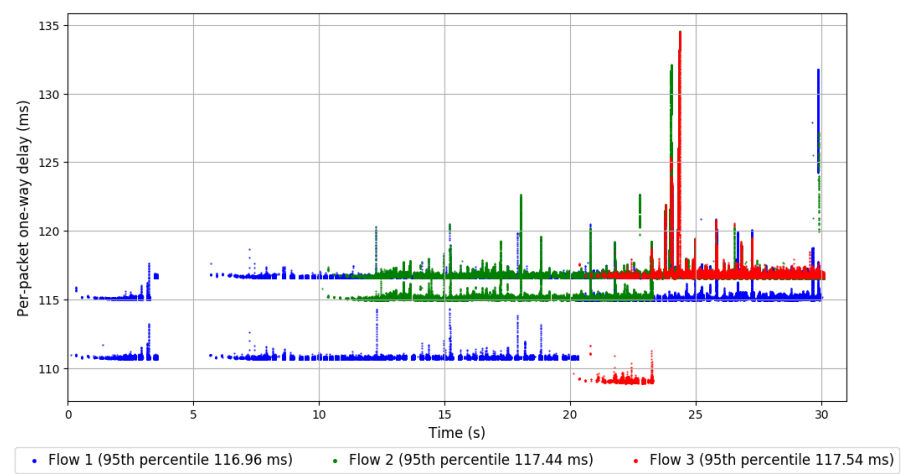- Flow 3 (95th percentile 111.36 ms)

23

```
Run 1: Statistics of Copa

Start at: 2018-05-24 05:00:54
End at: 2018-05-24 05:01:24
Local clock offset: -0.011 ms
Remote clock offset: -0.1 ms


# Below is generated by plot.py at 2018-05-24 08:57:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 143.39 Mbit/s
95th percentile per-packet one-way delay: 117.822 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.14 Mbit/s
95th percentile per-packet one-way delay: 121.850 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 29.22 Mbit/s
95th percentile per-packet one-way delay: 115.289 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 80.72 Mbit/s
95th percentile per-packet one-way delay: 113.272 ms
Loss rate: 0.00%
```
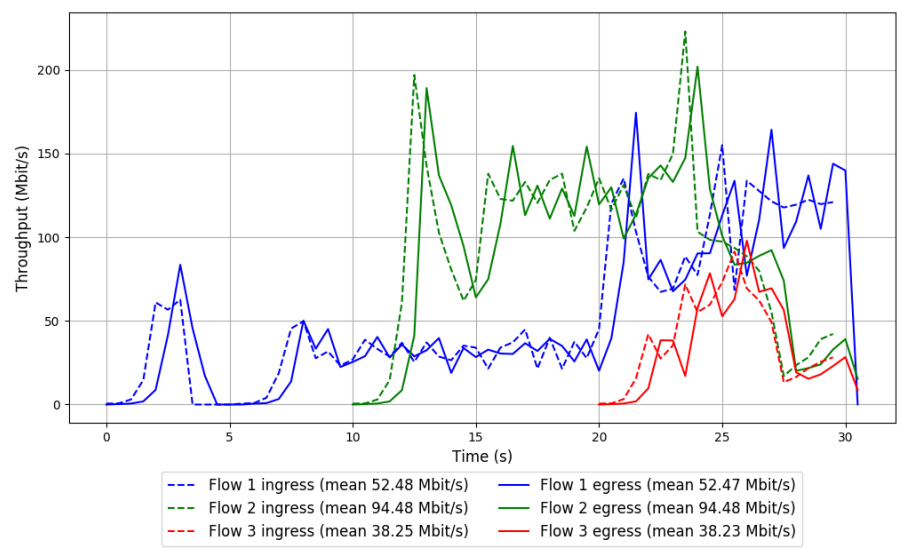
Run 1: Report of Copa — Data Link

Flow 1 ingress (mean 97.12 Mbit/s) — — —   Flow 1 egress (mean 97.14 Mbit/s) ———
Flow 2 ingress (mean 29.21 Mbit/s) — — —   Flow 2 egress (mean 29.22 Mbit/s) ———
Flow 3 ingress (mean 80.66 Mbit/s) — — —   Flow 3 egress (mean 80.72 Mbit/s) ———

Flow 1 (95th percentile 121.85 ms)   Flow 2 (95th percentile 115.29 ms)   Flow 3 (95th percentile 113.27 ms)
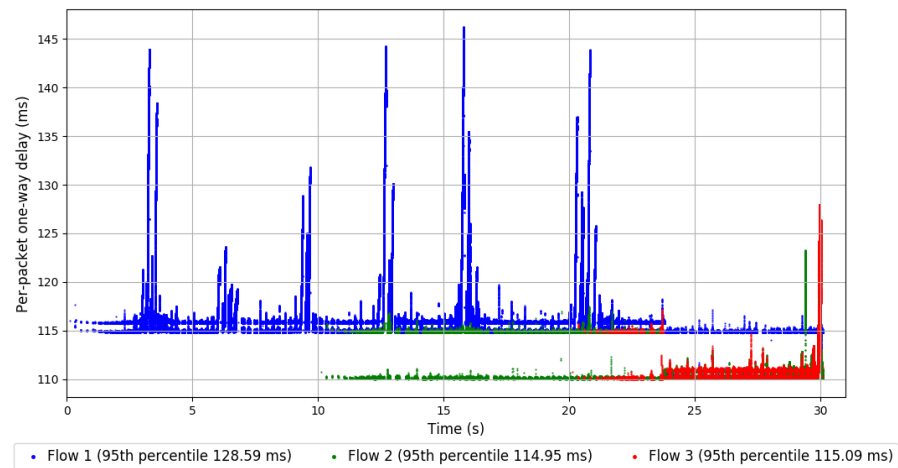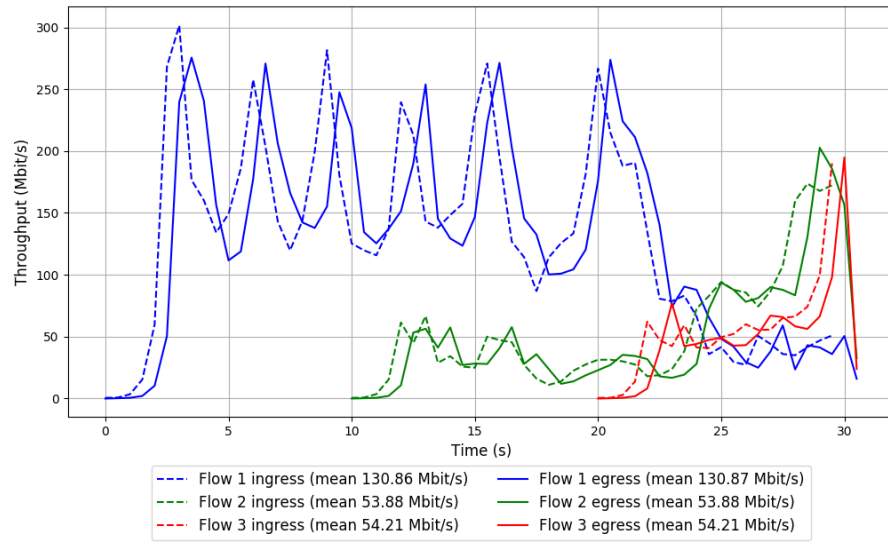
```
Run 2: Statistics of Copa

Start at: 2018-05-24 05:24:33
End at: 2018-05-24 05:25:03
Local clock offset: 0.122 ms
Remote clock offset: -0.119 ms


# Below is generated by plot.py at 2018-05-24 08:57:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 127.97 Mbit/s
95th percentile per-packet one-way delay: 117.179 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 52.47 Mbit/s
95th percentile per-packet one-way delay: 116.958 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 94.48 Mbit/s
95th percentile per-packet one-way delay: 117.442 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 38.23 Mbit/s
95th percentile per-packet one-way delay: 117.540 ms
Loss rate: 0.04%
```
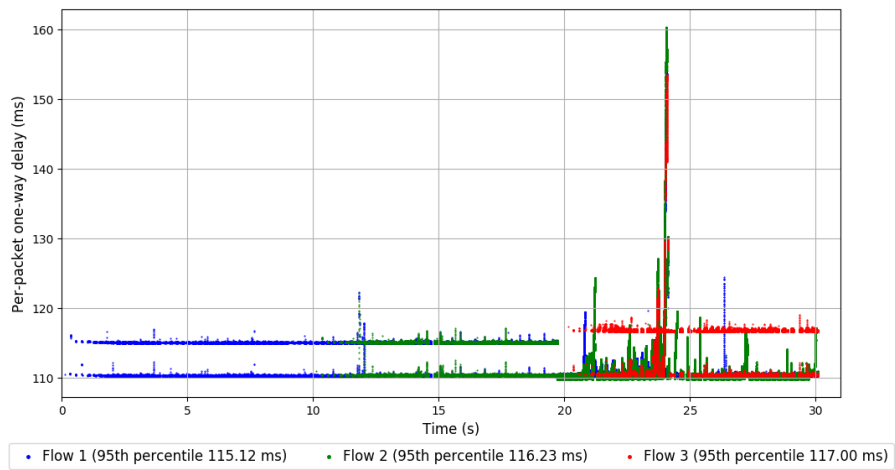
Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2018-05-24 05:48:13
End at: 2018-05-24 05:48:43
Local clock offset: 0.147 ms
Remote clock offset: -0.145 ms


# Below is generated by plot.py at 2018-05-24 08:59:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 184.73 Mbit/s
95th percentile per-packet one-way delay: 125.010 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 130.87 Mbit/s
95th percentile per-packet one-way delay: 128.592 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 53.88 Mbit/s
95th percentile per-packet one-way delay: 114.946 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 54.21 Mbit/s
95th percentile per-packet one-way delay: 115.088 ms
Loss rate: 0.00%
```

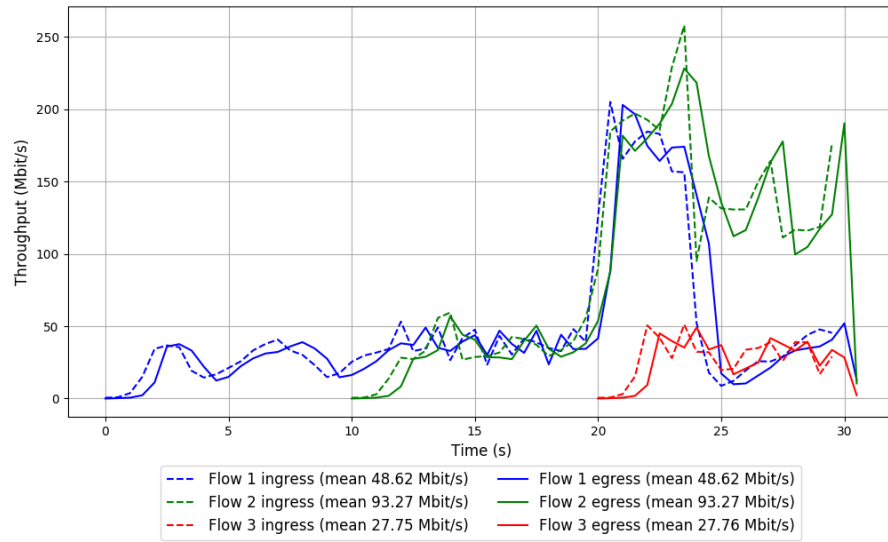Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2018-05-24 06:11:47
End at: 2018-05-24 06:12:17
Local clock offset: -0.055 ms
Remote clock offset: -0.114 ms


# Below is generated by plot.py at 2018-05-24 08:59:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 119.92 Mbit/s
95th percentile per-packet one-way delay: 116.768 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 48.62 Mbit/s
95th percentile per-packet one-way delay: 115.119 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 93.27 Mbit/s
95th percentile per-packet one-way delay: 116.232 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 27.76 Mbit/s
95th percentile per-packet one-way delay: 117.000 ms
Loss rate: 0.00%
```

Run 4: Report of Copa — Data Link

```
Run 5: Statistics of Copa

Start at: 2018-05-24 06:35:49
End at: 2018-05-24 06:36:19
Local clock offset: 0.016 ms
Remote clock offset: -0.234 ms


# Below is generated by plot.py at 2018-05-24 09:01:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 246.59 Mbit/s
95th percentile per-packet one-way delay: 120.309 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 167.72 Mbit/s
95th percentile per-packet one-way delay: 118.588 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 80.89 Mbit/s
95th percentile per-packet one-way delay: 125.081 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 75.50 Mbit/s
95th percentile per-packet one-way delay: 117.413 ms
Loss rate: 0.00%
```
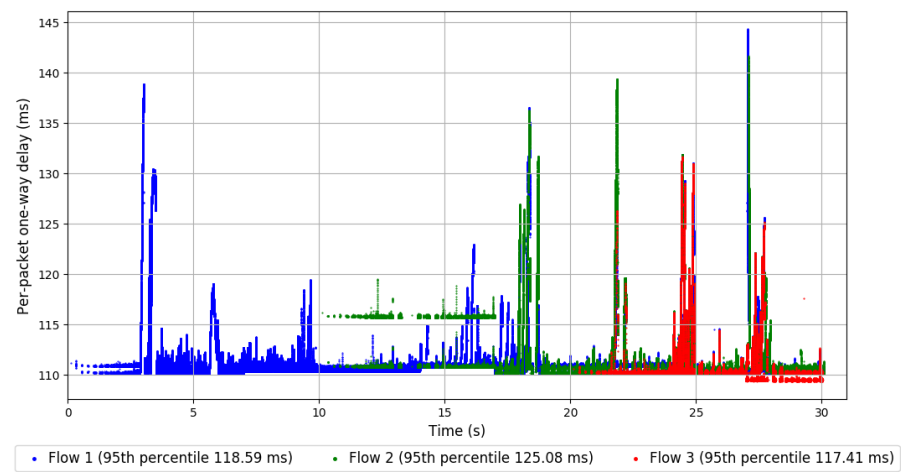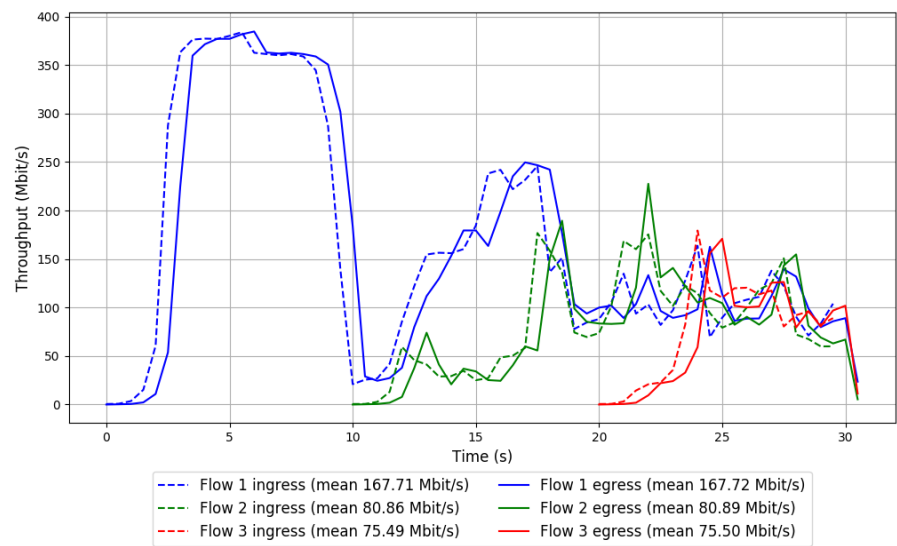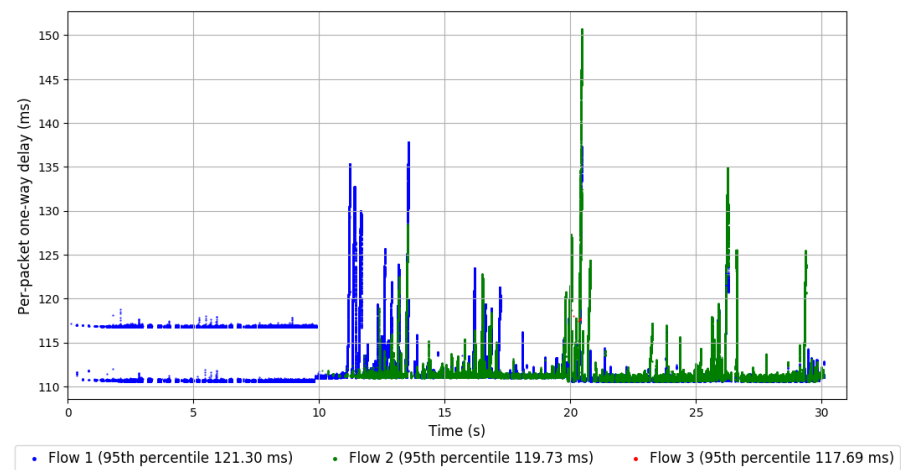
Run 5: Report of Copa — Data Link

```
Run 6: Statistics of Copa

Start at: 2018-05-24 06:59:47
End at: 2018-05-24 07:00:17
Local clock offset: 0.04 ms
Remote clock offset: 0.18 ms


# Below is generated by plot.py at 2018-05-24 09:01:15
# Datalink statistics
-- Total of 3 flows:
Average throughput: 198.21 Mbit/s
95th percentile per-packet one-way delay: 120.523 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 104.59 Mbit/s
95th percentile per-packet one-way delay: 121.299 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 140.59 Mbit/s
95th percentile per-packet one-way delay: 119.734 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 117.695 ms
Loss rate: 90.91%
```
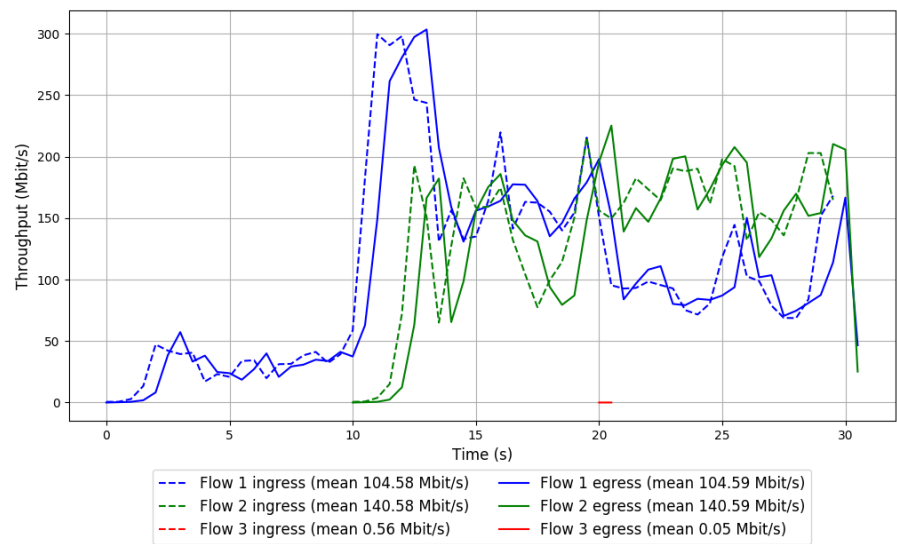
Run 6: Report of Copa — Data Link

```
Run 7: Statistics of Copa

Start at: 2018-05-24 07:23:32
End at: 2018-05-24 07:24:02
Local clock offset: -0.166 ms
Remote clock offset: 0.22 ms


# Below is generated by plot.py at 2018-05-24 09:03:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 205.86 Mbit/s
95th percentile per-packet one-way delay: 129.506 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 107.63 Mbit/s
95th percentile per-packet one-way delay: 129.570 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 39.01 Mbit/s
95th percentile per-packet one-way delay: 117.478 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 218.78 Mbit/s
95th percentile per-packet one-way delay: 135.600 ms
Loss rate: 0.00%
```
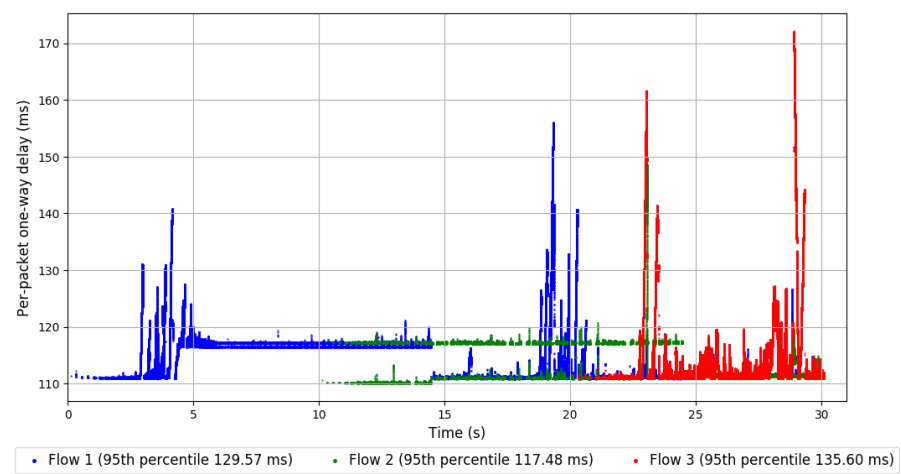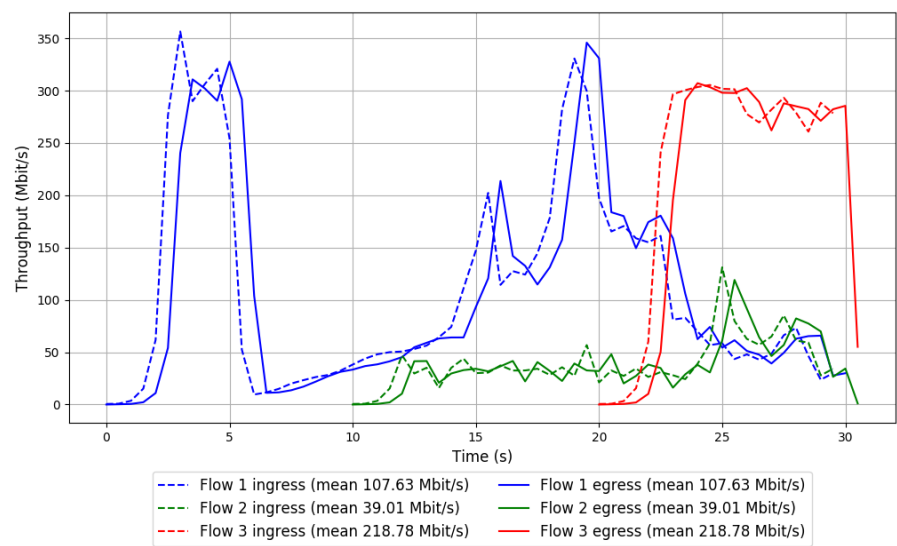
Run 7: Report of Copa — Data Link

```
Run 8: Statistics of Copa

Start at: 2018-05-24 07:46:58
End at: 2018-05-24 07:47:28
Local clock offset: -0.24 ms
Remote clock offset: -0.242 ms


# Below is generated by plot.py at 2018-05-24 09:03:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 201.17 Mbit/s
95th percentile per-packet one-way delay: 122.433 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 46.61 Mbit/s
95th percentile per-packet one-way delay: 116.853 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 190.53 Mbit/s
95th percentile per-packet one-way delay: 123.822 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 83.52 Mbit/s
95th percentile per-packet one-way delay: 129.830 ms
Loss rate: 0.00%
```
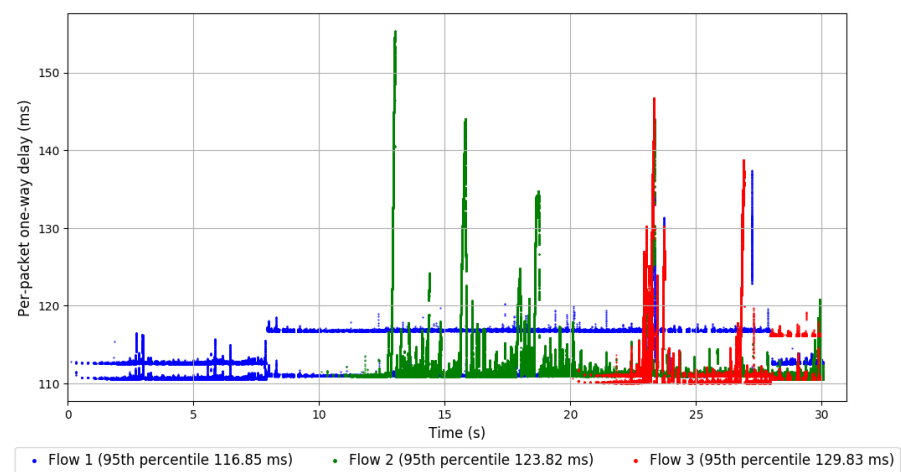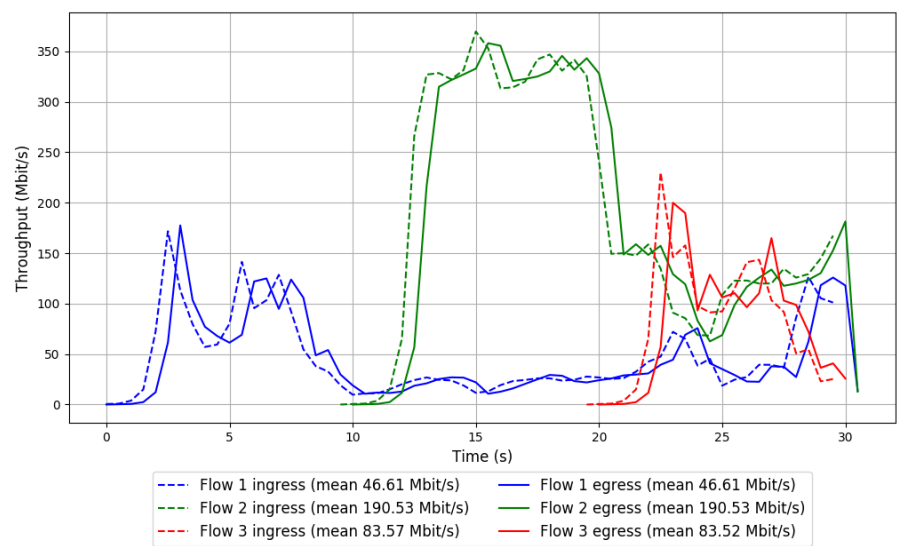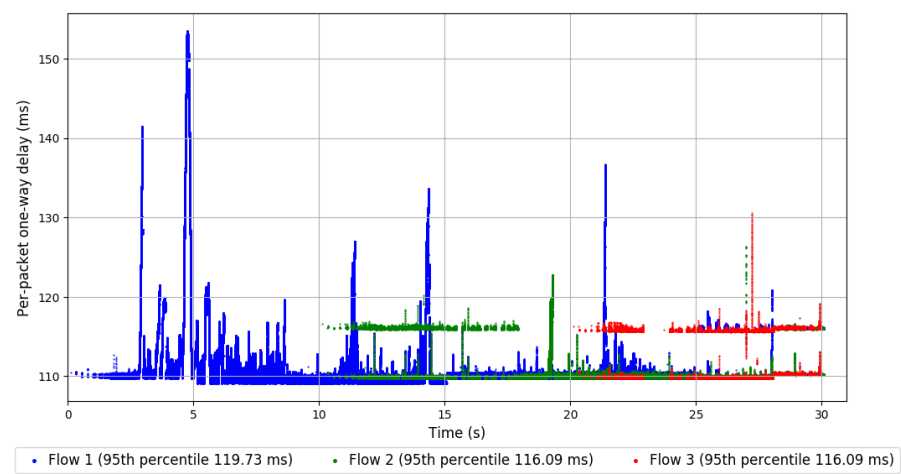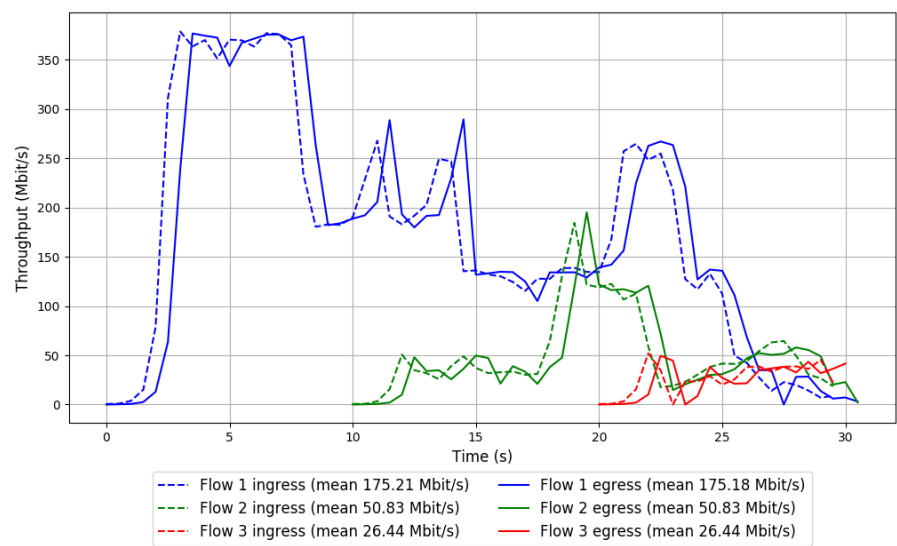
Run 8: Report of Copa — Data Link

```
Run 9: Statistics of Copa

Start at: 2018-05-24 08:11:08
End at: 2018-05-24 08:11:38
Local clock offset: 0.221 ms
Remote clock offset: -0.54 ms


# Below is generated by plot.py at 2018-05-24 09:04:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 217.69 Mbit/s
95th percentile per-packet one-way delay: 118.894 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 175.18 Mbit/s
95th percentile per-packet one-way delay: 119.734 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 50.83 Mbit/s
95th percentile per-packet one-way delay: 116.090 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 26.44 Mbit/s
95th percentile per-packet one-way delay: 116.087 ms
Loss rate: 0.00%
```

Run 9: Report of Copa — Data Link

- Flow 1 ingress (mean 175.21 Mbit/s) — Flow 1 egress (mean 175.18 Mbit/s)
- Flow 2 ingress (mean 50.83 Mbit/s) — Flow 2 egress (mean 50.83 Mbit/s)
- Flow 3 ingress (mean 26.44 Mbit/s) — Flow 3 egress (mean 26.44 Mbit/s)

- Flow 1 (95th percentile 119.73 ms)
- Flow 2 (95th percentile 116.09 ms)
- Flow 3 (95th percentile 116.09 ms)

```
Run 10: Statistics of Copa

Start at: 2018-05-24 08:34:48
End at: 2018-05-24 08:35:18
Local clock offset: 0.022 ms
Remote clock offset: 0.178 ms


# Below is generated by plot.py at 2018-05-24 09:04:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.52 Mbit/s
95th percentile per-packet one-way delay: 117.365 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 47.34 Mbit/s
95th percentile per-packet one-way delay: 116.609 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 21.09 Mbit/s
95th percentile per-packet one-way delay: 117.293 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 75.85 Mbit/s
95th percentile per-packet one-way delay: 117.495 ms
Loss rate: 0.00%
```
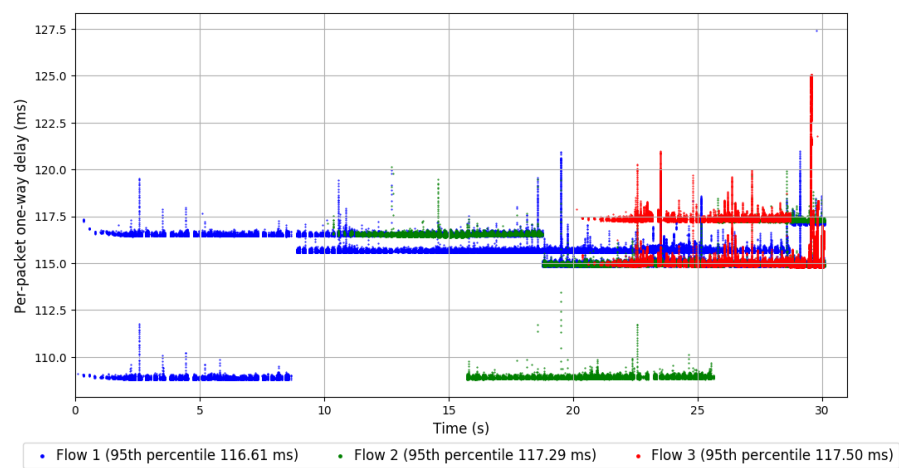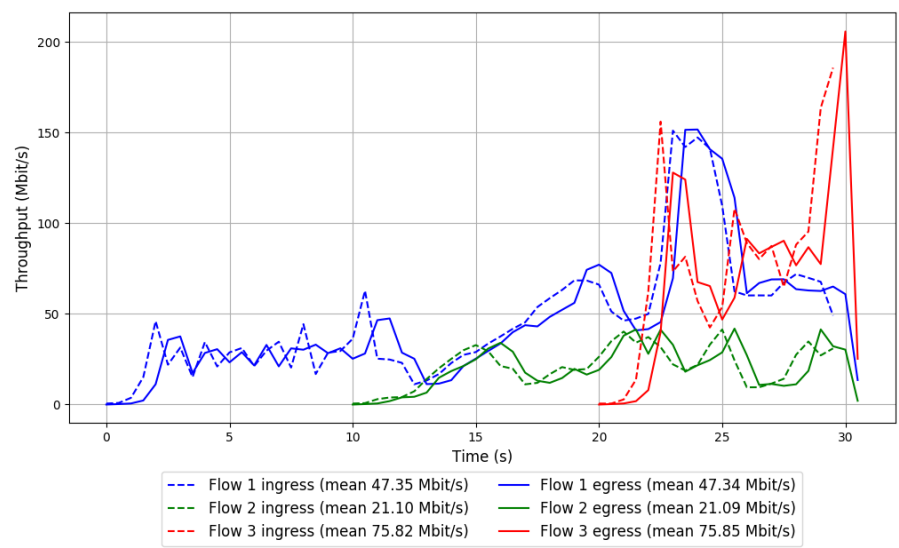
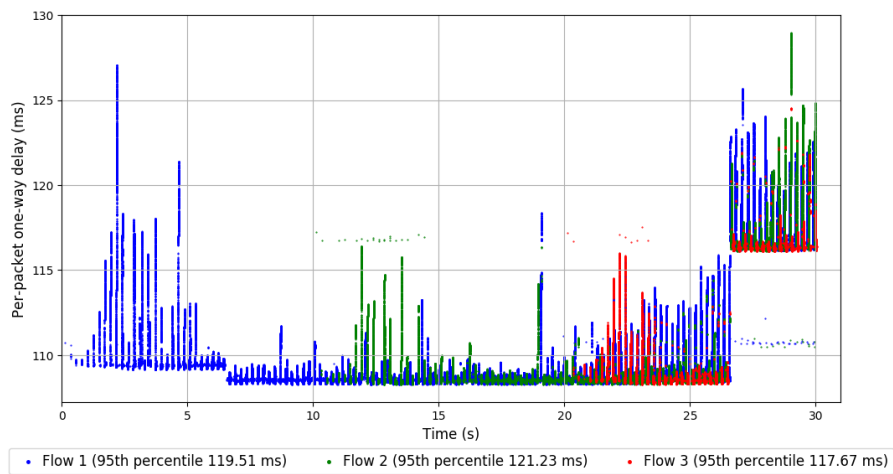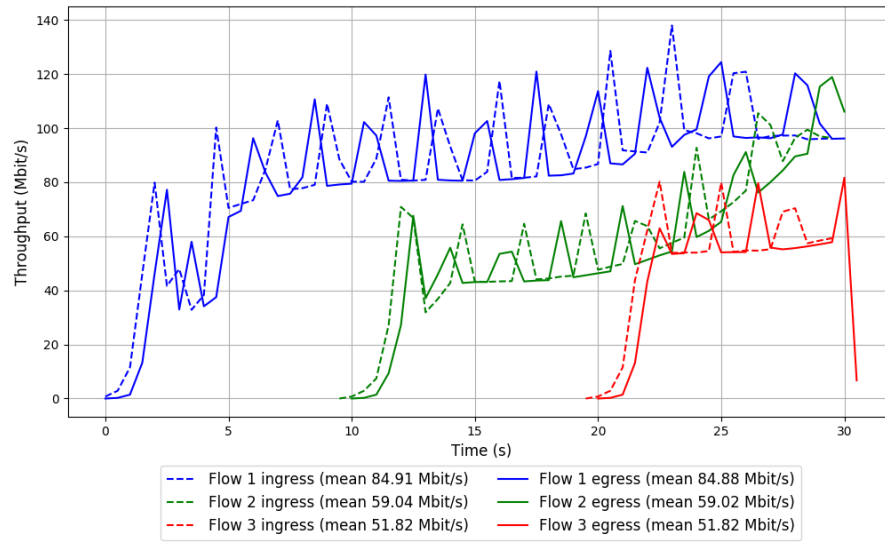## Run 10: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2018-05-24 04:45:20
End at: 2018-05-24 04:45:50
Local clock offset: 0.465 ms
Remote clock offset: -0.128 ms


# Below is generated by plot.py at 2018-05-24 09:04:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 140.90 Mbit/s
95th percentile per-packet one-way delay: 120.038 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 84.88 Mbit/s
95th percentile per-packet one-way delay: 119.507 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 59.02 Mbit/s
95th percentile per-packet one-way delay: 121.229 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 51.82 Mbit/s
95th percentile per-packet one-way delay: 117.668 ms
Loss rate: 0.00%
```

Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2018-05-24 05:08:43
End at: 2018-05-24 05:09:13
Local clock offset: -0.242 ms
Remote clock offset: -0.56 ms


# Below is generated by plot.py at 2018-05-24 09:04:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 179.25 Mbit/s
95th percentile per-packet one-way delay: 124.855 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 99.26 Mbit/s
95th percentile per-packet one-way delay: 124.774 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 97.66 Mbit/s
95th percentile per-packet one-way delay: 125.487 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 45.31 Mbit/s
95th percentile per-packet one-way delay: 122.353 ms
Loss rate: 0.00%
```
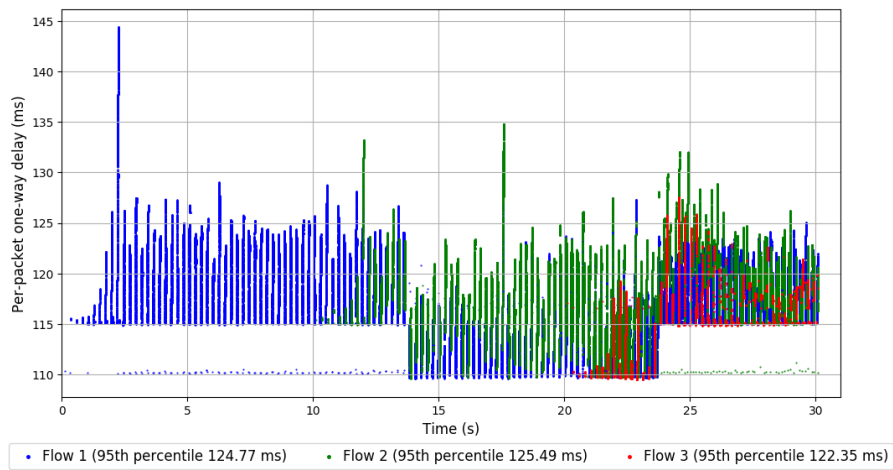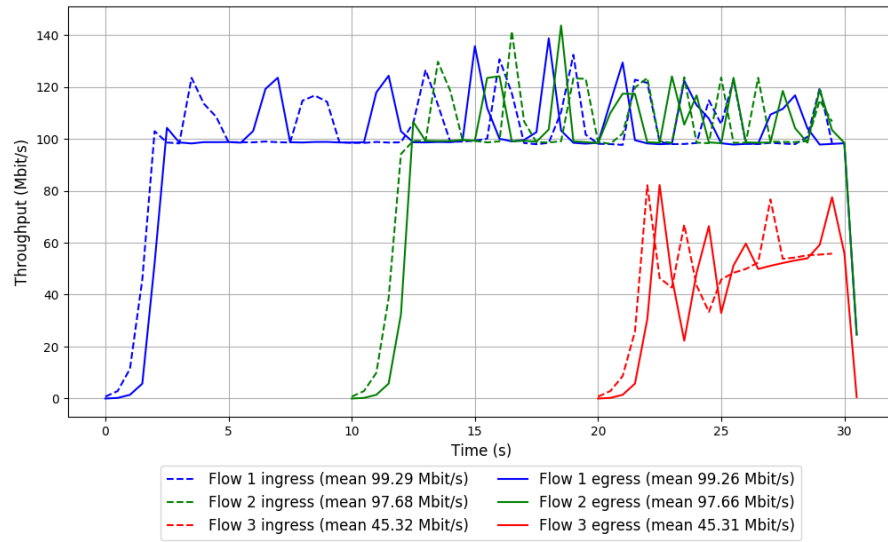
Run 2: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 99.29 Mbit/s) --- Flow 1 egress (mean 99.26 Mbit/s)
Flow 2 ingress (mean 97.68 Mbit/s) --- Flow 2 egress (mean 97.66 Mbit/s)
Flow 3 ingress (mean 45.32 Mbit/s) --- Flow 3 egress (mean 45.31 Mbit/s)

Flow 1 (95th percentile 124.77 ms)   Flow 2 (95th percentile 125.49 ms)   Flow 3 (95th percentile 122.35 ms)
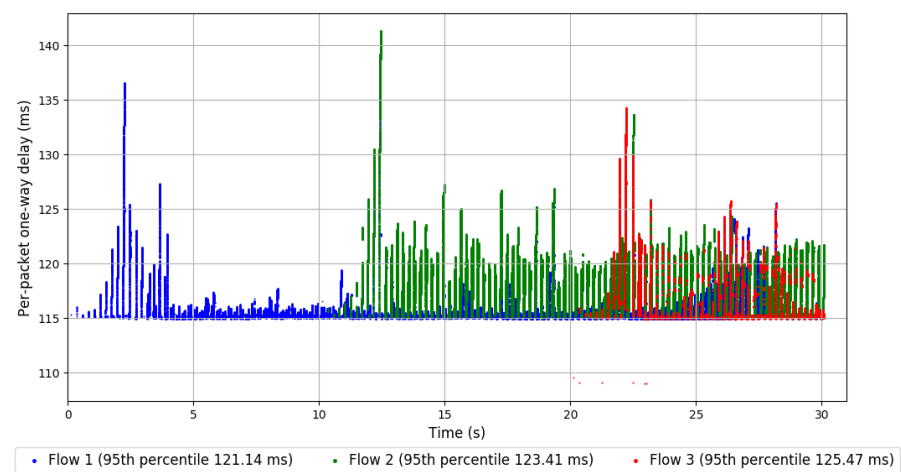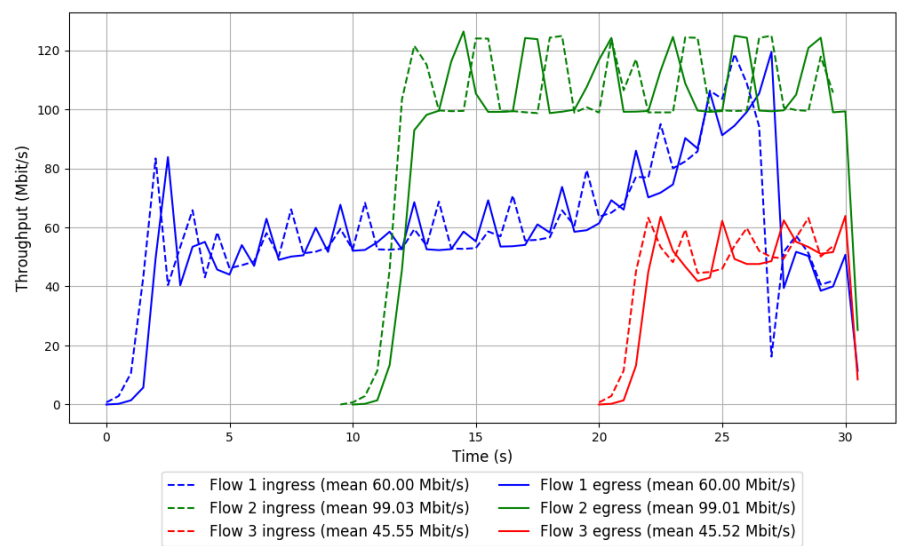
```
Run 3: Statistics of TCP Cubic

Start at: 2018-05-24 05:32:09
End at: 2018-05-24 05:32:39
Local clock offset: 0.077 ms
Remote clock offset: -0.178 ms


# Below is generated by plot.py at 2018-05-24 09:04:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 141.08 Mbit/s
95th percentile per-packet one-way delay: 123.019 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 60.00 Mbit/s
95th percentile per-packet one-way delay: 121.137 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 99.01 Mbit/s
95th percentile per-packet one-way delay: 123.412 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 45.52 Mbit/s
95th percentile per-packet one-way delay: 125.467 ms
Loss rate: 0.00%
```
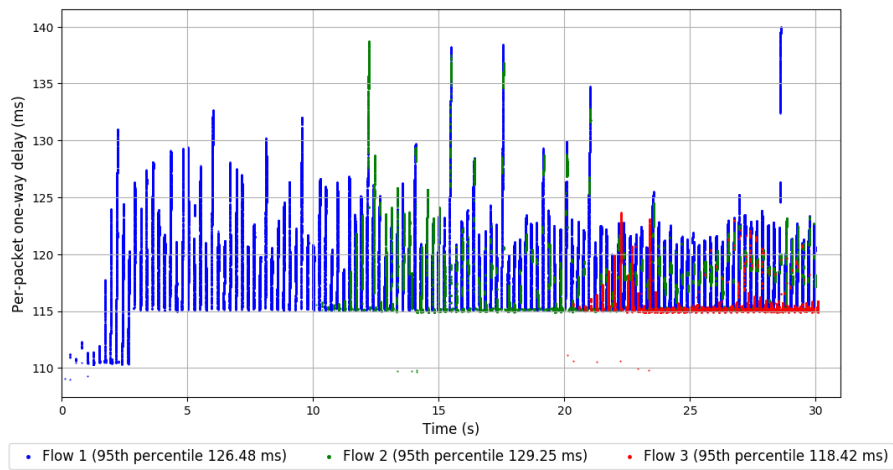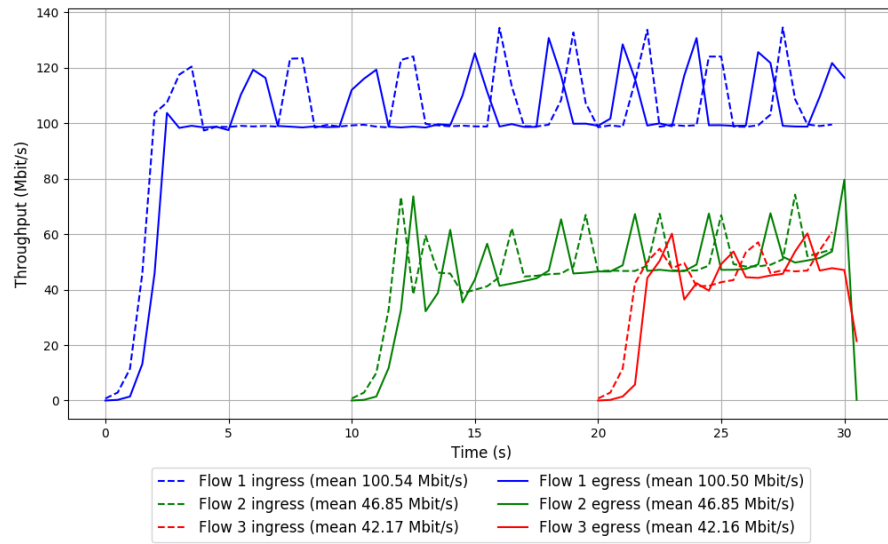
Run 3: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 60.00 Mbit/s) --- Flow 1 egress (mean 60.00 Mbit/s) —
Flow 2 ingress (mean 99.03 Mbit/s) --- Flow 2 egress (mean 99.01 Mbit/s) —
Flow 3 ingress (mean 45.55 Mbit/s) --- Flow 3 egress (mean 45.52 Mbit/s) —

Flow 1 (95th percentile 121.14 ms) Flow 2 (95th percentile 123.41 ms) Flow 3 (95th percentile 125.47 ms)

49

```
Run 4: Statistics of TCP Cubic

Start at: 2018-05-24 05:55:54
End at: 2018-05-24 05:56:24
Local clock offset: 0.058 ms
Remote clock offset: -0.081 ms


# Below is generated by plot.py at 2018-05-24 09:04:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 145.30 Mbit/s
95th percentile per-packet one-way delay: 126.840 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 100.50 Mbit/s
95th percentile per-packet one-way delay: 126.478 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 46.85 Mbit/s
95th percentile per-packet one-way delay: 129.245 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 42.16 Mbit/s
95th percentile per-packet one-way delay: 118.425 ms
Loss rate: 0.00%
```

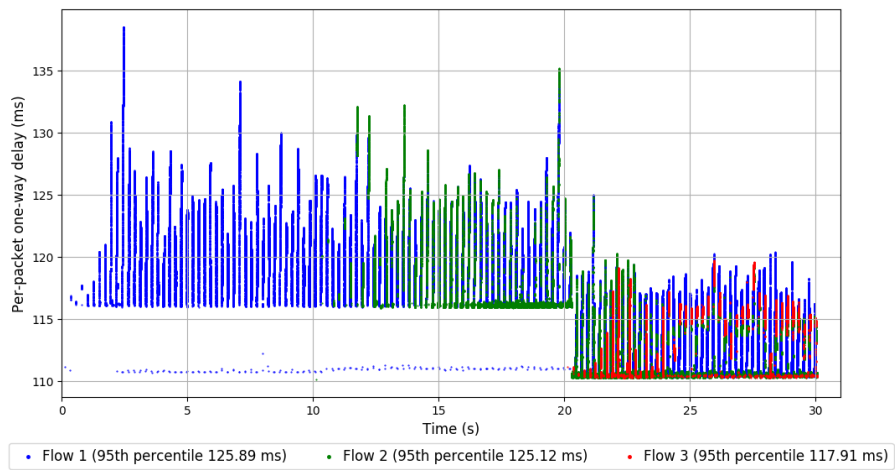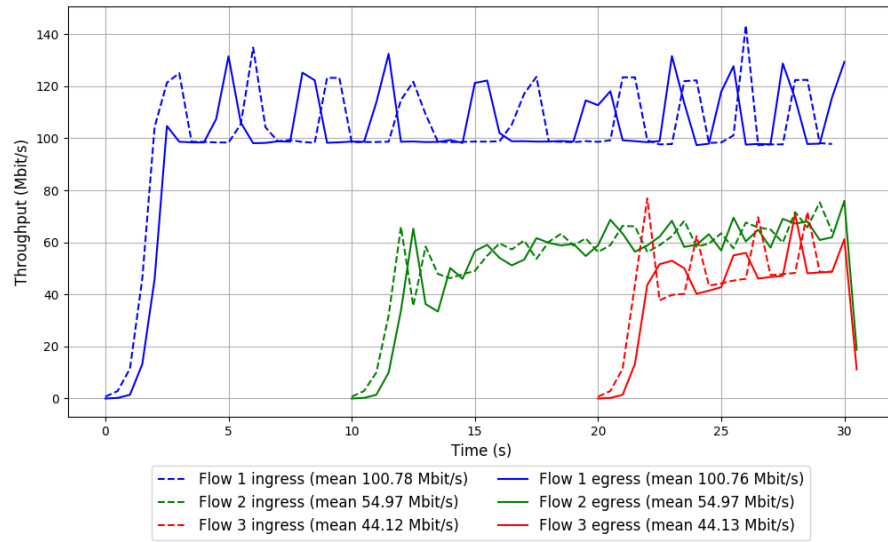Run 4: Report of TCP Cubic — Data Link

```
Run 5: Statistics of TCP Cubic

Start at: 2018-05-24 06:19:26
End at: 2018-05-24 06:19:56
Local clock offset: -0.053 ms
Remote clock offset: -0.178 ms


# Below is generated by plot.py at 2018-05-24 09:04:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 151.76 Mbit/s
95th percentile per-packet one-way delay: 125.517 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 100.76 Mbit/s
95th percentile per-packet one-way delay: 125.893 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 54.97 Mbit/s
95th percentile per-packet one-way delay: 125.116 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 44.13 Mbit/s
95th percentile per-packet one-way delay: 117.914 ms
Loss rate: 0.00%
```

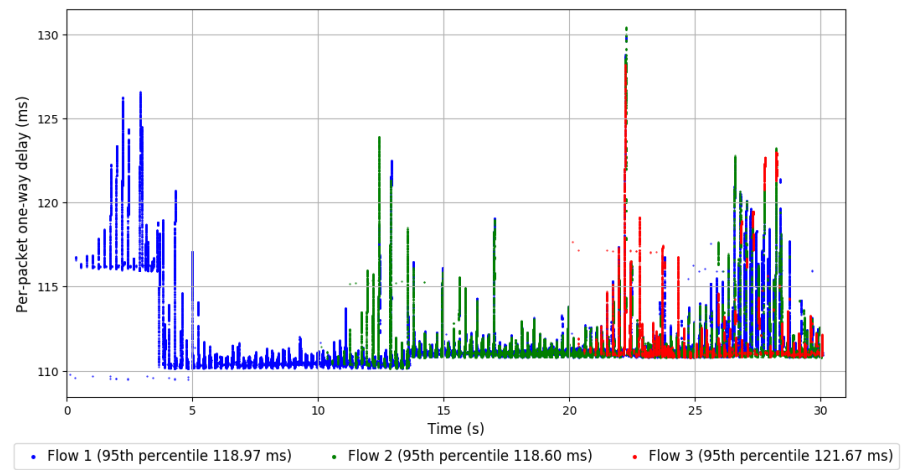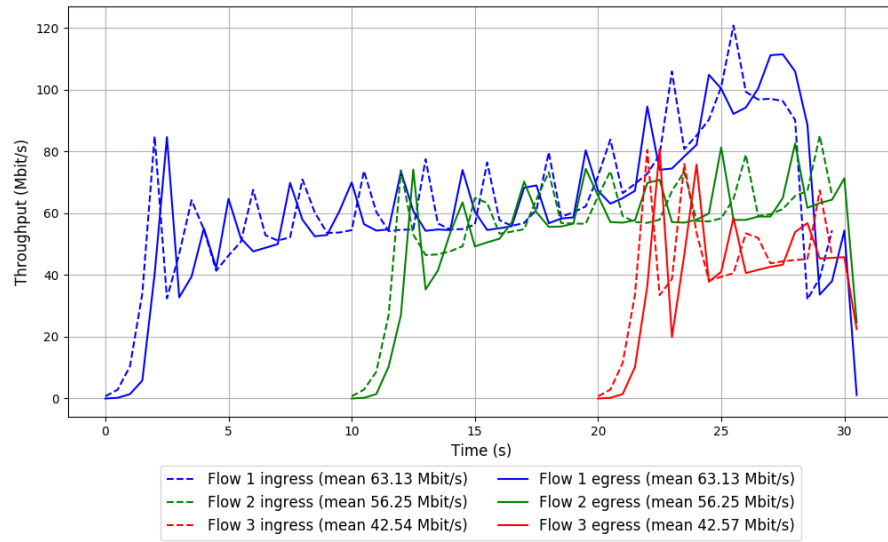Run 5: Report of TCP Cubic — Data Link

- - - Flow 1 ingress (mean 100.78 Mbit/s) —— Flow 1 egress (mean 100.76 Mbit/s)
- - - Flow 2 ingress (mean 54.97 Mbit/s) —— Flow 2 egress (mean 54.97 Mbit/s)
- - - Flow 3 ingress (mean 44.12 Mbit/s) —— Flow 3 egress (mean 44.13 Mbit/s)

• Flow 1 (95th percentile 125.89 ms)   • Flow 2 (95th percentile 125.12 ms)   • Flow 3 (95th percentile 117.91 ms)

53

```
Run 6: Statistics of TCP Cubic

Start at: 2018-05-24 06:43:33
End at: 2018-05-24 06:44:03
Local clock offset: 0.049 ms
Remote clock offset: -0.173 ms


# Below is generated by plot.py at 2018-05-24 09:04:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 114.70 Mbit/s
95th percentile per-packet one-way delay: 119.049 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 63.13 Mbit/s
95th percentile per-packet one-way delay: 118.965 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 56.25 Mbit/s
95th percentile per-packet one-way delay: 118.604 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 42.57 Mbit/s
95th percentile per-packet one-way delay: 121.675 ms
Loss rate: 0.00%
```
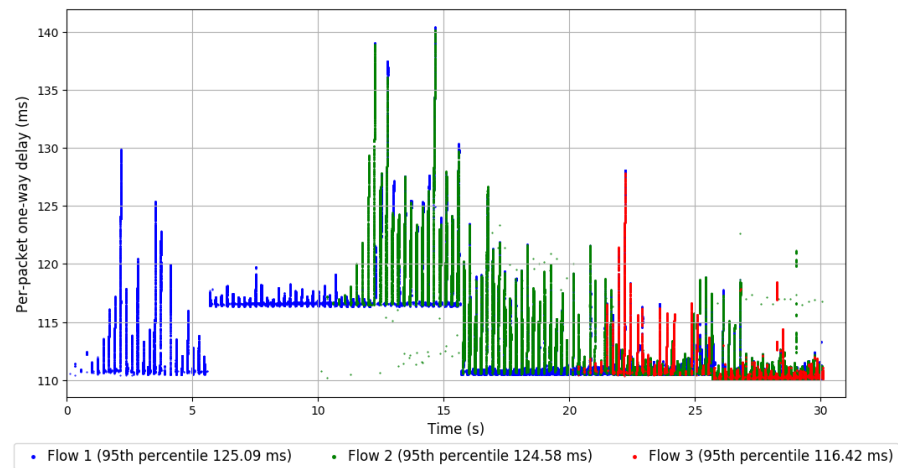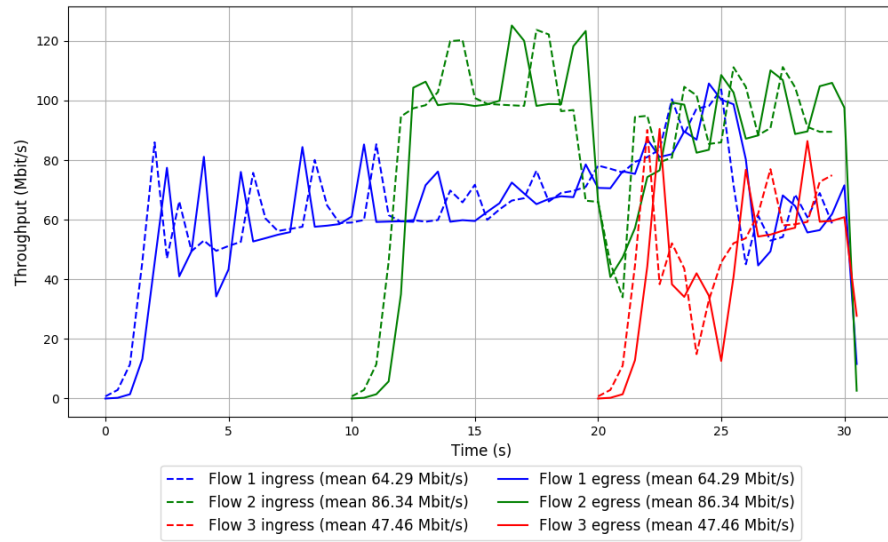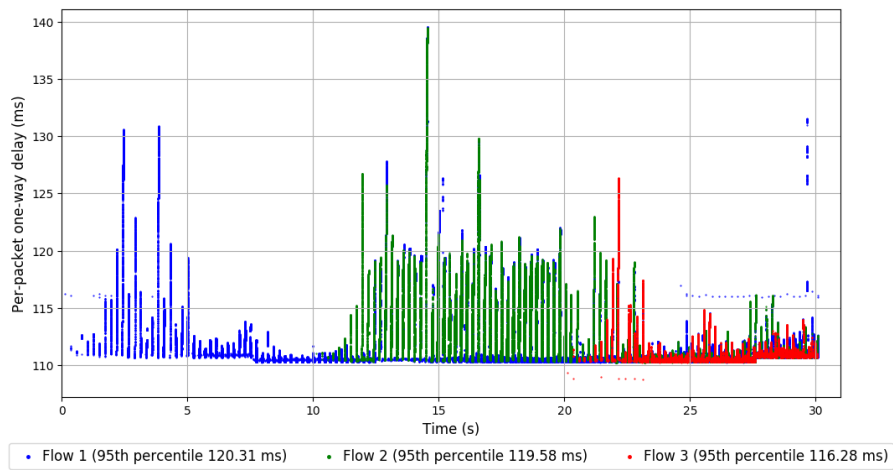
Run 6: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 63.13 Mbit/s) --- Flow 1 egress (mean 63.13 Mbit/s)
Flow 2 ingress (mean 56.25 Mbit/s) --- Flow 2 egress (mean 56.25 Mbit/s)
Flow 3 ingress (mean 42.54 Mbit/s) --- Flow 3 egress (mean 42.57 Mbit/s)

Flow 1 (95th percentile 118.97 ms)   Flow 2 (95th percentile 118.60 ms)   Flow 3 (95th percentile 121.67 ms)

55

```
Run 7: Statistics of TCP Cubic

Start at: 2018-05-24 07:07:31
End at: 2018-05-24 07:08:01
Local clock offset: -0.211 ms
Remote clock offset: -0.576 ms


# Below is generated by plot.py at 2018-05-24 09:04:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 137.54 Mbit/s
95th percentile per-packet one-way delay: 124.406 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 64.29 Mbit/s
95th percentile per-packet one-way delay: 125.086 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 86.34 Mbit/s
95th percentile per-packet one-way delay: 124.577 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 47.46 Mbit/s
95th percentile per-packet one-way delay: 116.425 ms
Loss rate: 0.00%
```

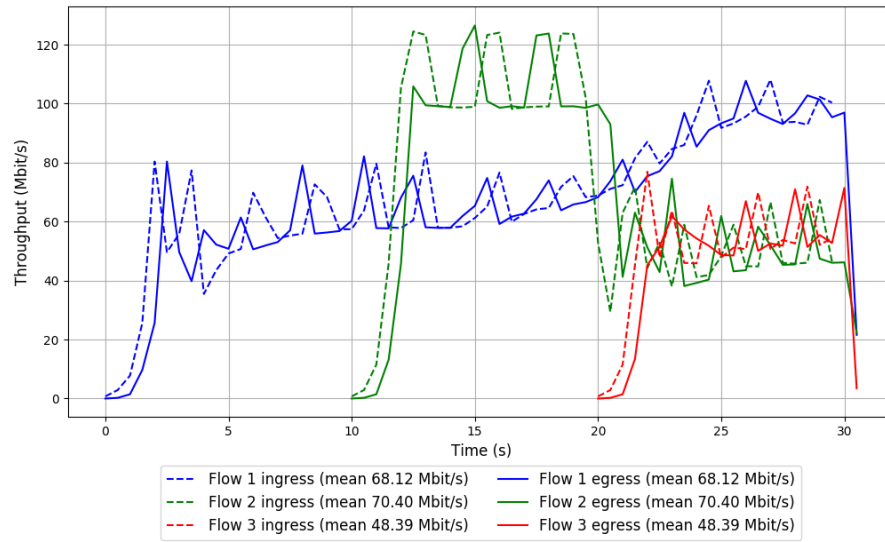Run 7: Report of TCP Cubic — Data Link

```
Run 8: Statistics of TCP Cubic

Start at: 2018-05-24 07:31:19
End at: 2018-05-24 07:31:49
Local clock offset: -0.013 ms
Remote clock offset: -0.208 ms


# Below is generated by plot.py at 2018-05-24 09:04:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 131.03 Mbit/s
95th percentile per-packet one-way delay: 119.937 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 68.12 Mbit/s
95th percentile per-packet one-way delay: 120.306 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 70.40 Mbit/s
95th percentile per-packet one-way delay: 119.582 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 48.39 Mbit/s
95th percentile per-packet one-way delay: 116.276 ms
Loss rate: 0.00%
```

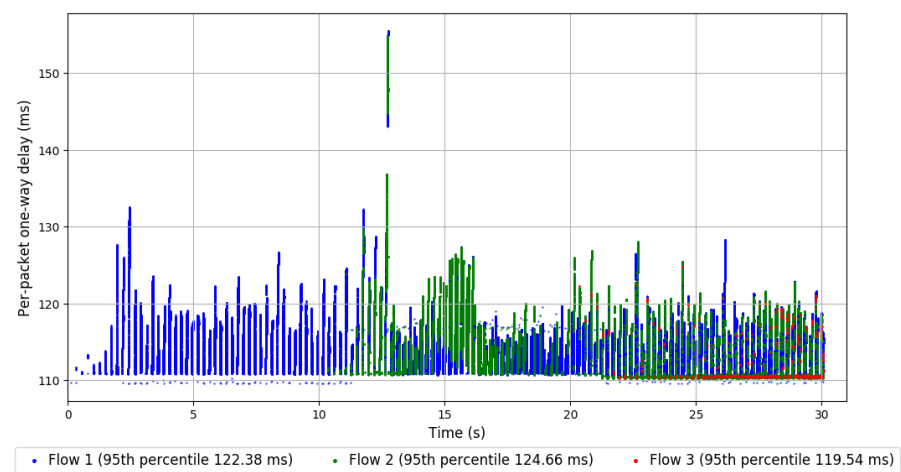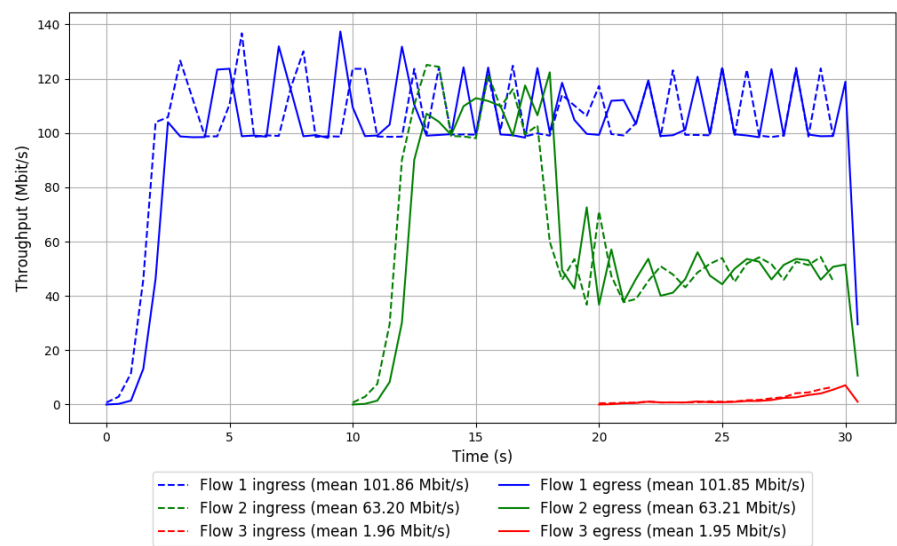# Run 8: Report of TCP Cubic — Data Link

```
Run 9: Statistics of TCP Cubic

Start at: 2018-05-24 07:54:45
End at: 2018-05-24 07:55:15
Local clock offset: -0.04 ms
Remote clock offset: -0.218 ms


# Below is generated by plot.py at 2018-05-24 09:05:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 144.56 Mbit/s
95th percentile per-packet one-way delay: 123.204 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 101.85 Mbit/s
95th percentile per-packet one-way delay: 122.379 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 63.21 Mbit/s
95th percentile per-packet one-way delay: 124.657 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 1.95 Mbit/s
95th percentile per-packet one-way delay: 119.542 ms
Loss rate: 0.31%
```
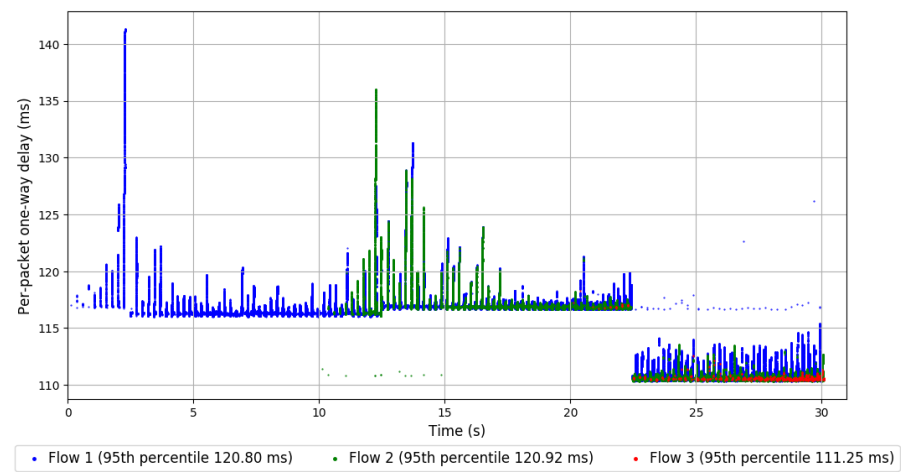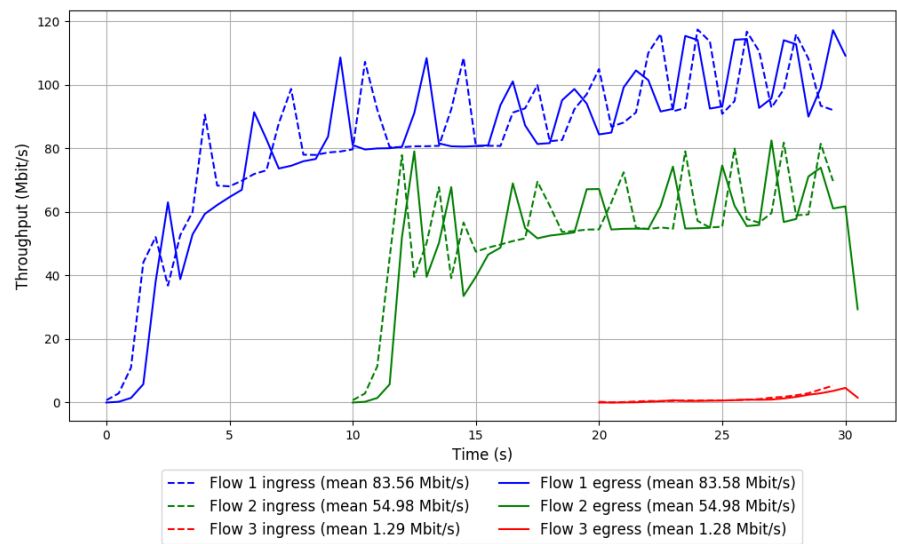
Run 9: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 101.86 Mbit/s)   Flow 1 egress (mean 101.85 Mbit/s)
Flow 2 ingress (mean 63.20 Mbit/s)   Flow 2 egress (mean 63.21 Mbit/s)
Flow 3 ingress (mean 1.96 Mbit/s)   Flow 3 egress (mean 1.95 Mbit/s)

Flow 1 (95th percentile 122.38 ms)   Flow 2 (95th percentile 124.66 ms)   Flow 3 (95th percentile 119.54 ms)

```
Run 10: Statistics of TCP Cubic

Start at: 2018-05-24 08:19:04
End at: 2018-05-24 08:19:34
Local clock offset: 0.205 ms
Remote clock offset: 0.186 ms


# Below is generated by plot.py at 2018-05-24 09:05:10
# Datalink statistics
-- Total of 3 flows:
Average throughput: 120.34 Mbit/s
95th percentile per-packet one-way delay: 120.826 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 83.58 Mbit/s
95th percentile per-packet one-way delay: 120.799 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 54.98 Mbit/s
95th percentile per-packet one-way delay: 120.919 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 1.28 Mbit/s
95th percentile per-packet one-way delay: 111.252 ms
Loss rate: 0.94%
```

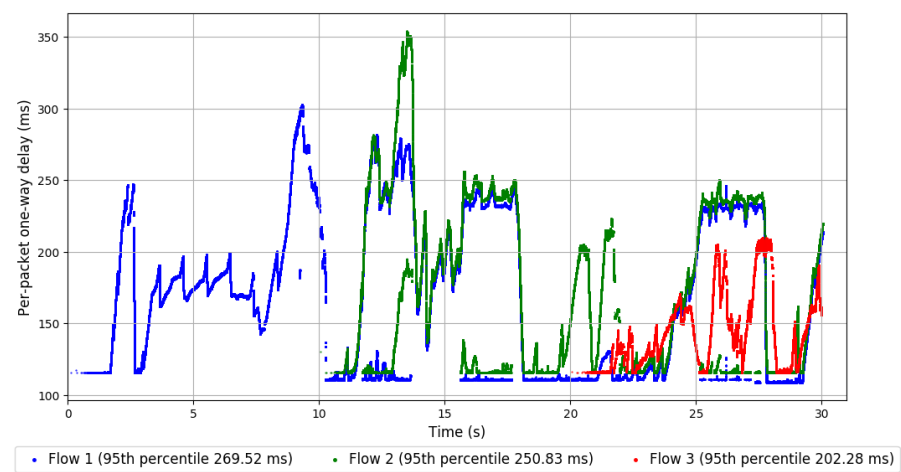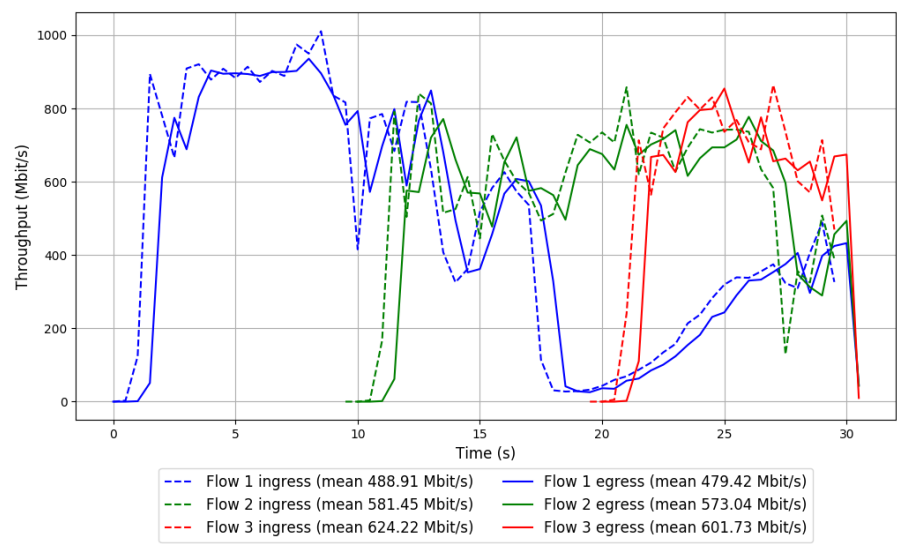## Run 10: Report of TCP Cubic — Data Link

```
Run 1: Statistics of FillP

Start at: 2018-05-24 04:47:59
End at: 2018-05-24 04:48:29
Local clock offset: 0.083 ms
Remote clock offset: -0.116 ms


# Below is generated by plot.py at 2018-05-24 09:22:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1061.89 Mbit/s
95th percentile per-packet one-way delay: 253.287 ms
Loss rate: 1.77%
-- Flow 1:
Average throughput: 479.42 Mbit/s
95th percentile per-packet one-way delay: 269.522 ms
Loss rate: 1.67%
-- Flow 2:
Average throughput: 573.04 Mbit/s
95th percentile per-packet one-way delay: 250.833 ms
Loss rate: 1.13%
-- Flow 3:
Average throughput: 601.73 Mbit/s
95th percentile per-packet one-way delay: 202.285 ms
Loss rate: 3.21%
```
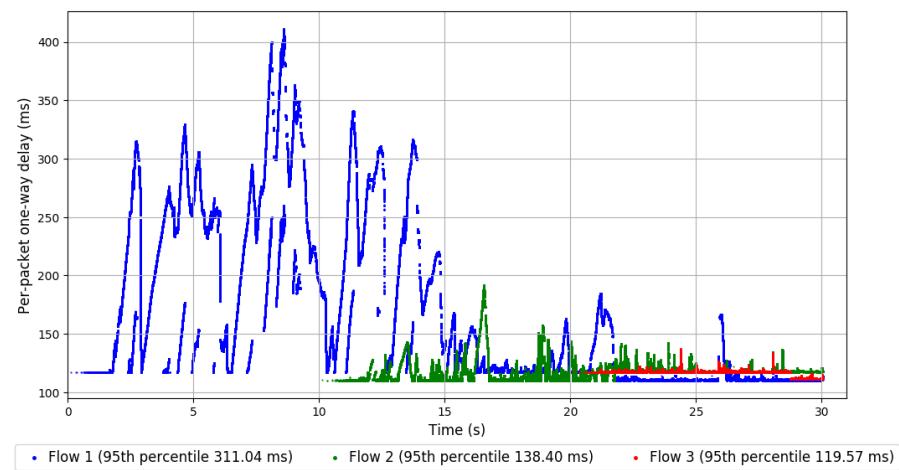
Run 1: Report of FillP — Data Link

```
Run 2: Statistics of FillP

Start at: 2018-05-24 05:11:25
End at: 2018-05-24 05:11:55
Local clock offset: 0.081 ms
Remote clock offset: 0.185 ms


# Below is generated by plot.py at 2018-05-24 09:26:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1217.97 Mbit/s
95th percentile per-packet one-way delay: 294.495 ms
Loss rate: 0.90%
-- Flow 1:
Average throughput: 676.34 Mbit/s
95th percentile per-packet one-way delay: 311.035 ms
Loss rate: 1.55%
-- Flow 2:
Average throughput: 566.15 Mbit/s
95th percentile per-packet one-way delay: 138.400 ms
Loss rate: 0.10%
-- Flow 3:
Average throughput: 496.91 Mbit/s
95th percentile per-packet one-way delay: 119.570 ms
Loss rate: 0.02%
```
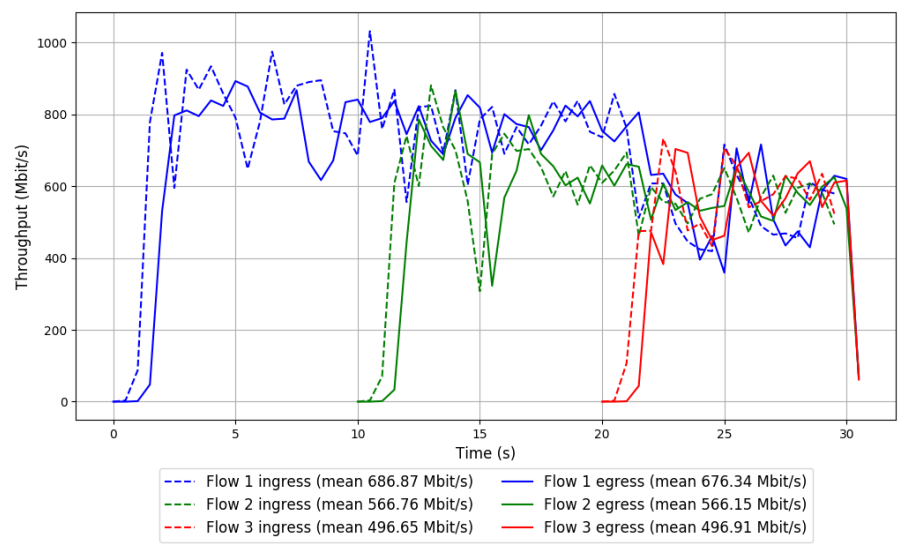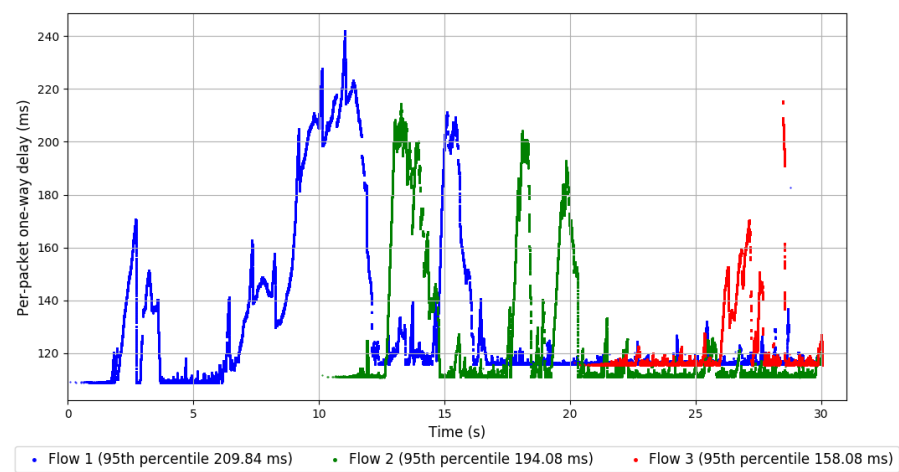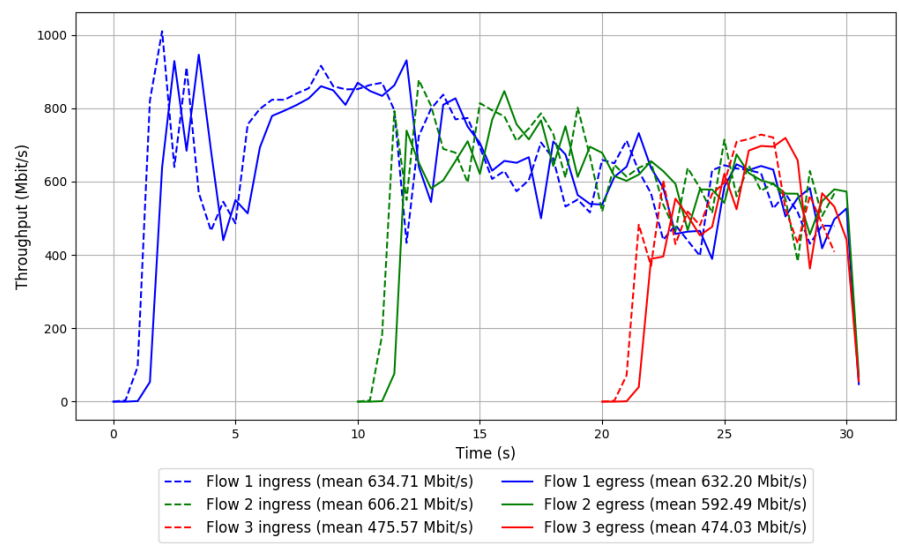
Run 2: Report of FillP — Data Link

Flow 1 ingress (mean 686.87 Mbit/s) — — — — Flow 1 egress (mean 676.34 Mbit/s)
Flow 2 ingress (mean 566.76 Mbit/s) — — — — Flow 2 egress (mean 566.15 Mbit/s)
Flow 3 ingress (mean 496.65 Mbit/s) — — — — Flow 3 egress (mean 496.91 Mbit/s)

Flow 1 (95th percentile 311.04 ms)   •   Flow 2 (95th percentile 138.40 ms)   •   Flow 3 (95th percentile 119.57 ms)

```
Run 3: Statistics of FillP

Start at: 2018-05-24 05:34:57
End at: 2018-05-24 05:35:27
Local clock offset: 0.244 ms
Remote clock offset: -0.214 ms


# Below is generated by plot.py at 2018-05-24 09:26:14
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1182.91 Mbit/s
95th percentile per-packet one-way delay: 205.079 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 632.20 Mbit/s
95th percentile per-packet one-way delay: 209.845 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 592.49 Mbit/s
95th percentile per-packet one-way delay: 194.080 ms
Loss rate: 2.24%
-- Flow 3:
Average throughput: 474.03 Mbit/s
95th percentile per-packet one-way delay: 158.081 ms
Loss rate: 0.33%
```
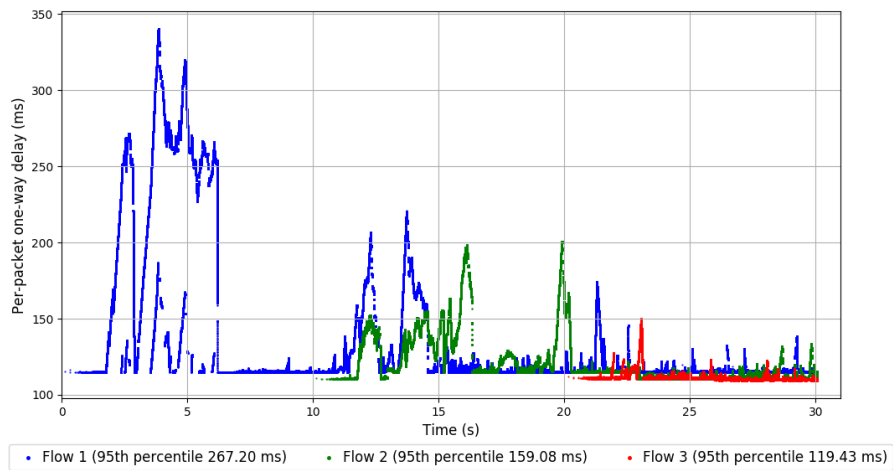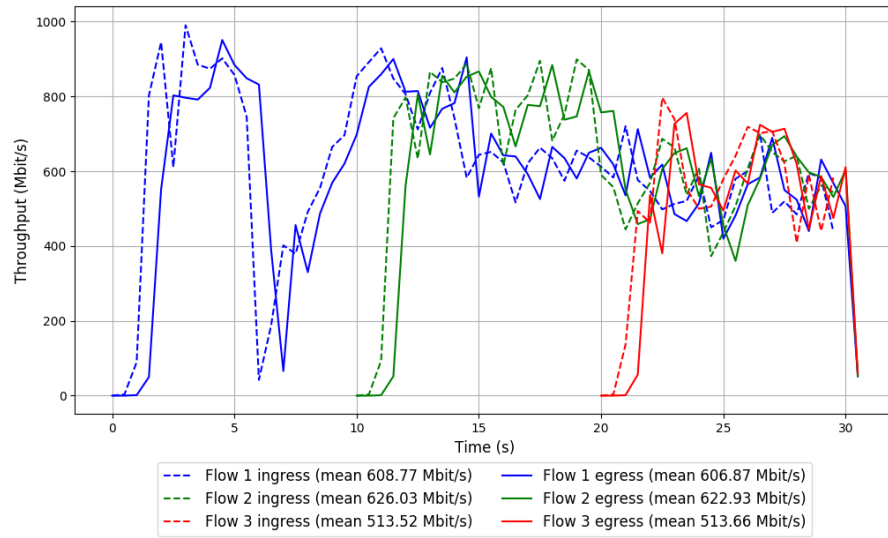
Run 3: Report of FillP — Data Link

- - - Flow 1 ingress (mean 634.71 Mbit/s)   —— Flow 1 egress (mean 632.20 Mbit/s)
- - - Flow 2 ingress (mean 606.21 Mbit/s)   —— Flow 2 egress (mean 592.49 Mbit/s)
- - - Flow 3 ingress (mean 475.57 Mbit/s)   —— Flow 3 egress (mean 474.03 Mbit/s)

- Flow 1 (95th percentile 209.84 ms)   • Flow 2 (95th percentile 194.08 ms)   • Flow 3 (95th percentile 158.08 ms)
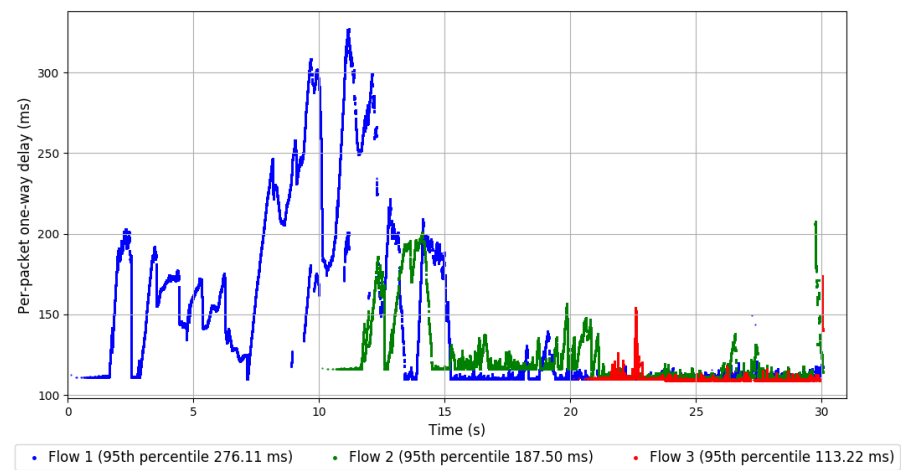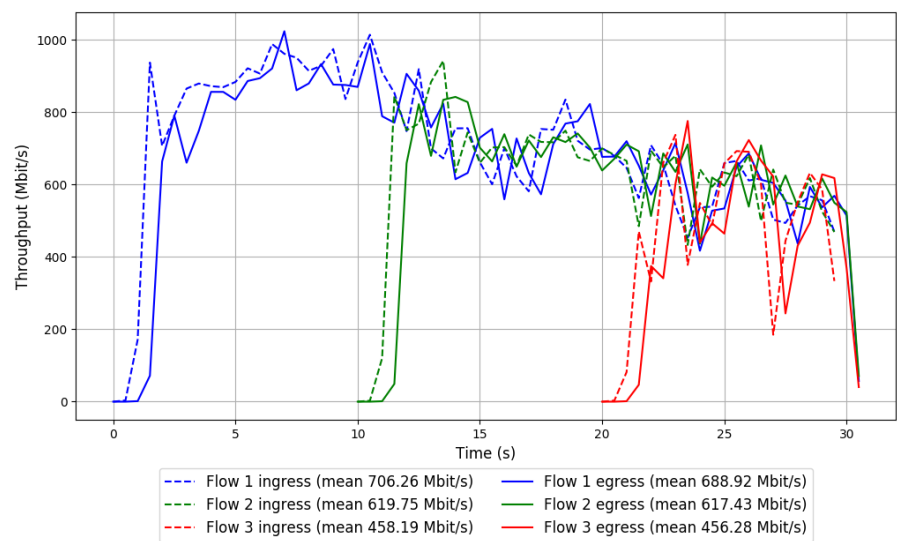
```
Run 4: Statistics of FillP

Start at: 2018-05-24 05:58:40
End at: 2018-05-24 05:59:10
Local clock offset: 0.301 ms
Remote clock offset: -0.146 ms

# Below is generated by plot.py at 2018-05-24 09:26:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1191.41 Mbit/s
95th percentile per-packet one-way delay: 253.813 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 606.87 Mbit/s
95th percentile per-packet one-way delay: 267.201 ms
Loss rate: 0.32%
-- Flow 2:
Average throughput: 622.93 Mbit/s
95th percentile per-packet one-way delay: 159.082 ms
Loss rate: 0.48%
-- Flow 3:
Average throughput: 513.66 Mbit/s
95th percentile per-packet one-way delay: 119.431 ms
Loss rate: 0.00%
```

Run 4: Report of FillP — Data Link

```
Run 5: Statistics of FillP

Start at: 2018-05-24 06:22:33
End at: 2018-05-24 06:23:03
Local clock offset: -0.093 ms
Remote clock offset: -0.202 ms

# Below is generated by plot.py at 2018-05-24 09:28:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1250.78 Mbit/s
95th percentile per-packet one-way delay: 249.349 ms
Loss rate: 1.54%
-- Flow 1:
Average throughput: 688.92 Mbit/s
95th percentile per-packet one-way delay: 276.113 ms
Loss rate: 2.46%
-- Flow 2:
Average throughput: 617.43 Mbit/s
95th percentile per-packet one-way delay: 187.495 ms
Loss rate: 0.40%
-- Flow 3:
Average throughput: 456.28 Mbit/s
95th percentile per-packet one-way delay: 113.223 ms
Loss rate: 0.40%
```
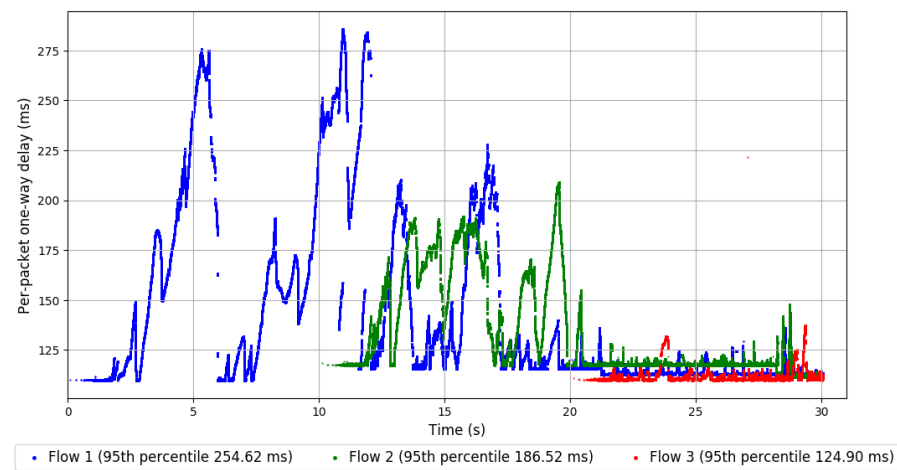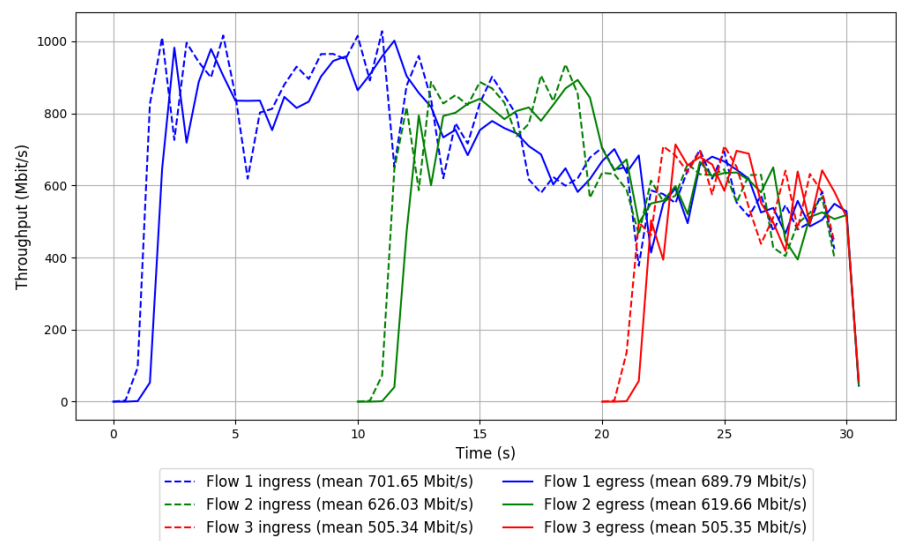
Run 5: Report of FillP — Data Link

Flow 1 ingress (mean 706.26 Mbit/s)   Flow 1 egress (mean 688.92 Mbit/s)
Flow 2 ingress (mean 619.75 Mbit/s)   Flow 2 egress (mean 617.43 Mbit/s)
Flow 3 ingress (mean 458.19 Mbit/s)   Flow 3 egress (mean 456.28 Mbit/s)

Flow 1 (95th percentile 276.11 ms)   Flow 2 (95th percentile 187.50 ms)   Flow 3 (95th percentile 113.22 ms)
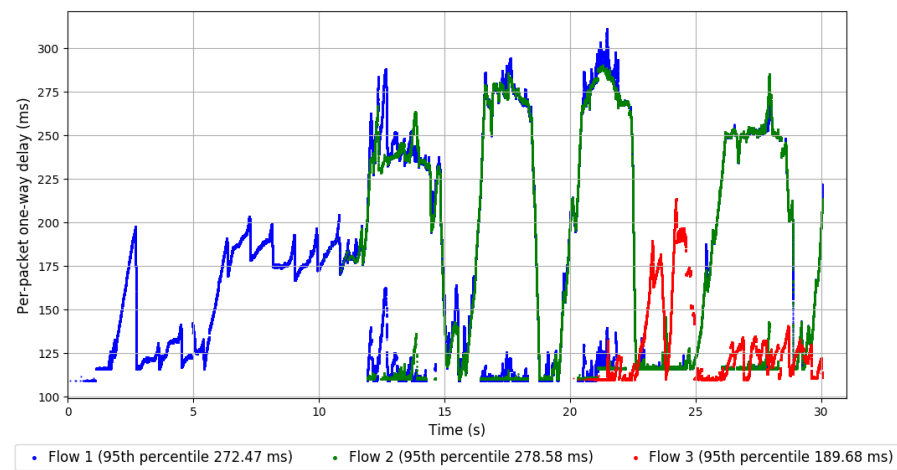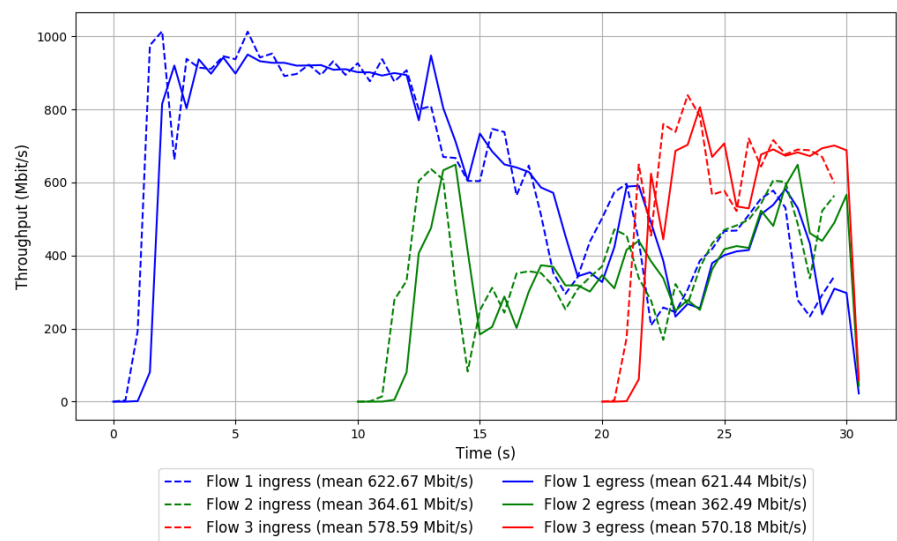
```
Run 6: Statistics of FillP

Start at: 2018-05-24 06:46:25
End at: 2018-05-24 06:46:55
Local clock offset: 0.234 ms
Remote clock offset: 0.168 ms


# Below is generated by plot.py at 2018-05-24 09:28:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1269.27 Mbit/s
95th percentile per-packet one-way delay: 238.070 ms
Loss rate: 1.29%
-- Flow 1:
Average throughput: 689.79 Mbit/s
95th percentile per-packet one-way delay: 254.624 ms
Loss rate: 1.74%
-- Flow 2:
Average throughput: 619.66 Mbit/s
95th percentile per-packet one-way delay: 186.518 ms
Loss rate: 1.05%
-- Flow 3:
Average throughput: 505.35 Mbit/s
95th percentile per-packet one-way delay: 124.900 ms
Loss rate: 0.00%
```

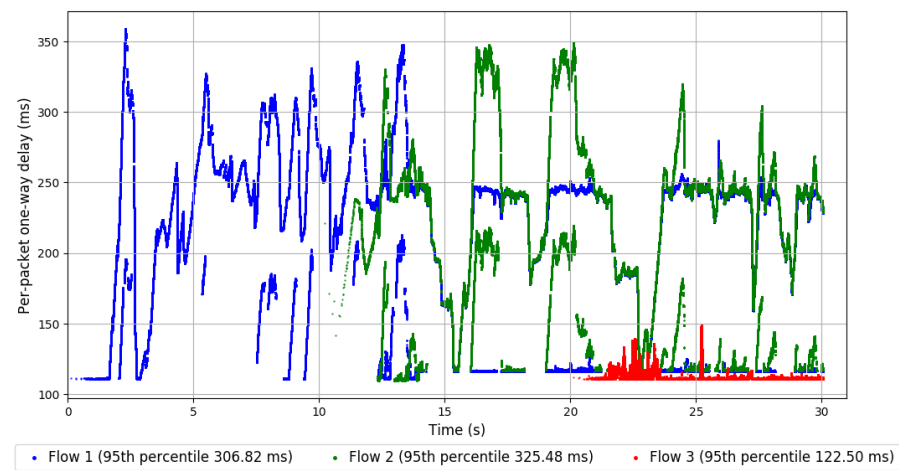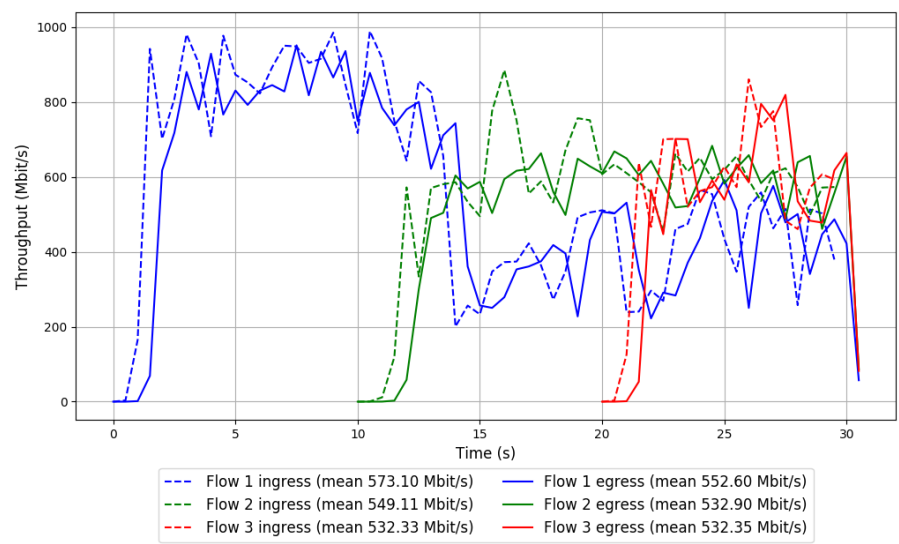# Run 6: Report of FillP — Data Link

```
Run 7: Statistics of FillP

Start at: 2018-05-24 07:10:25
End at: 2018-05-24 07:10:55
Local clock offset: 0.231 ms
Remote clock offset: -0.573 ms


# Below is generated by plot.py at 2018-05-24 09:28:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1050.67 Mbit/s
95th percentile per-packet one-way delay: 273.390 ms
Loss rate: 0.66%
-- Flow 1:
Average throughput: 621.44 Mbit/s
95th percentile per-packet one-way delay: 272.466 ms
Loss rate: 0.32%
-- Flow 2:
Average throughput: 362.49 Mbit/s
95th percentile per-packet one-way delay: 278.576 ms
Loss rate: 0.90%
-- Flow 3:
Average throughput: 570.18 Mbit/s
95th percentile per-packet one-way delay: 189.677 ms
Loss rate: 1.43%
```

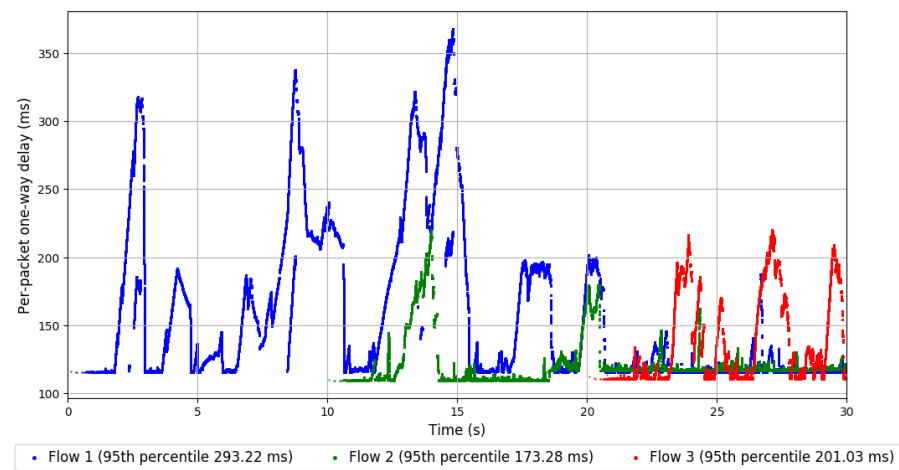Run 7: Report of FillP — Data Link

77

```
Run 8: Statistics of FillP

Start at: 2018-05-24 07:34:02
End at: 2018-05-24 07:34:32
Local clock offset: -0.022 ms
Remote clock offset: -0.221 ms


# Below is generated by plot.py at 2018-05-24 09:28:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1081.91 Mbit/s
95th percentile per-packet one-way delay: 307.748 ms
Loss rate: 2.96%
-- Flow 1:
Average throughput: 552.60 Mbit/s
95th percentile per-packet one-way delay: 306.816 ms
Loss rate: 3.56%
-- Flow 2:
Average throughput: 532.90 Mbit/s
95th percentile per-packet one-way delay: 325.480 ms
Loss rate: 3.46%
-- Flow 3:
Average throughput: 532.35 Mbit/s
95th percentile per-packet one-way delay: 122.503 ms
Loss rate: 0.00%
```
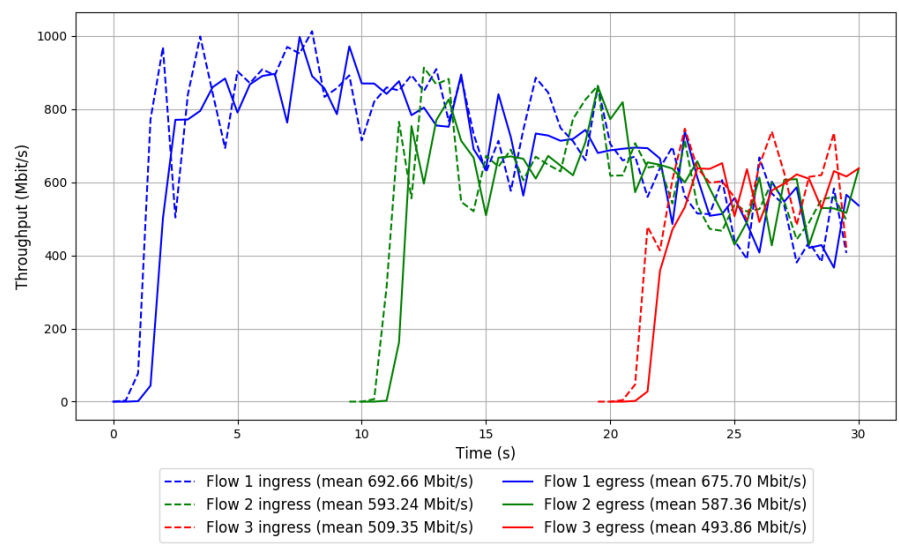
Run 8: Report of FillP — Data Link

Flow 1 ingress (mean 573.10 Mbit/s) --- Flow 1 egress (mean 552.60 Mbit/s)
Flow 2 ingress (mean 549.11 Mbit/s) --- Flow 2 egress (mean 532.90 Mbit/s)
Flow 3 ingress (mean 532.33 Mbit/s) --- Flow 3 egress (mean 532.35 Mbit/s)

Flow 1 (95th percentile 306.82 ms) • Flow 2 (95th percentile 325.48 ms) • Flow 3 (95th percentile 122.50 ms)

```
Run 9: Statistics of FillP

Start at: 2018-05-24 07:57:45
End at: 2018-05-24 07:58:15
Local clock offset: 0.009 ms
Remote clock offset: -0.153 ms


# Below is generated by plot.py at 2018-05-24 09:48:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1231.03 Mbit/s
95th percentile per-packet one-way delay: 266.039 ms
Loss rate: 2.07%
-- Flow 1:
Average throughput: 675.70 Mbit/s
95th percentile per-packet one-way delay: 293.221 ms
Loss rate: 2.46%
-- Flow 2:
Average throughput: 587.36 Mbit/s
95th percentile per-packet one-way delay: 173.280 ms
Loss rate: 0.98%
-- Flow 3:
Average throughput: 493.86 Mbit/s
95th percentile per-packet one-way delay: 201.034 ms
Loss rate: 3.05%
```
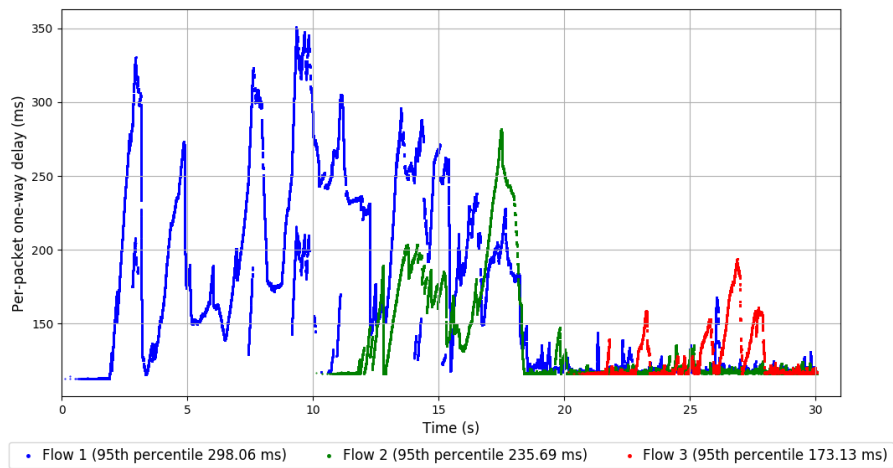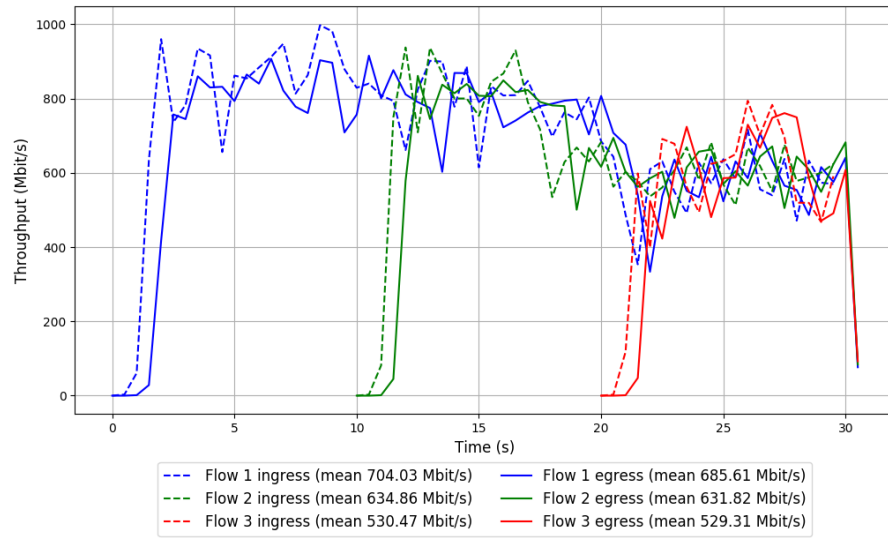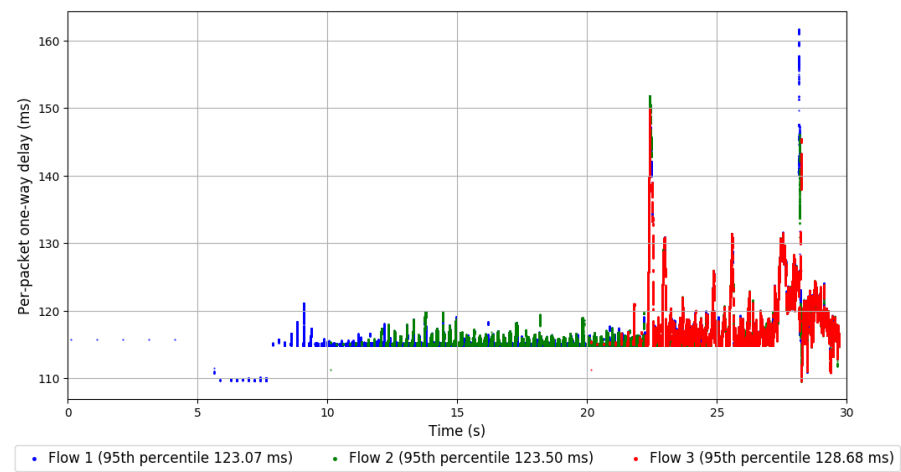
Run 9: Report of FillP — Data Link

- - - - Flow 1 ingress (mean 692.66 Mbit/s)   —— Flow 1 egress (mean 675.70 Mbit/s)
- - - - Flow 2 ingress (mean 593.24 Mbit/s)   —— Flow 2 egress (mean 587.36 Mbit/s)
- - - - Flow 3 ingress (mean 509.35 Mbit/s)   —— Flow 3 egress (mean 493.86 Mbit/s)

• Flow 1 (95th percentile 293.22 ms)   • Flow 2 (95th percentile 173.28 ms)   • Flow 3 (95th percentile 201.03 ms)
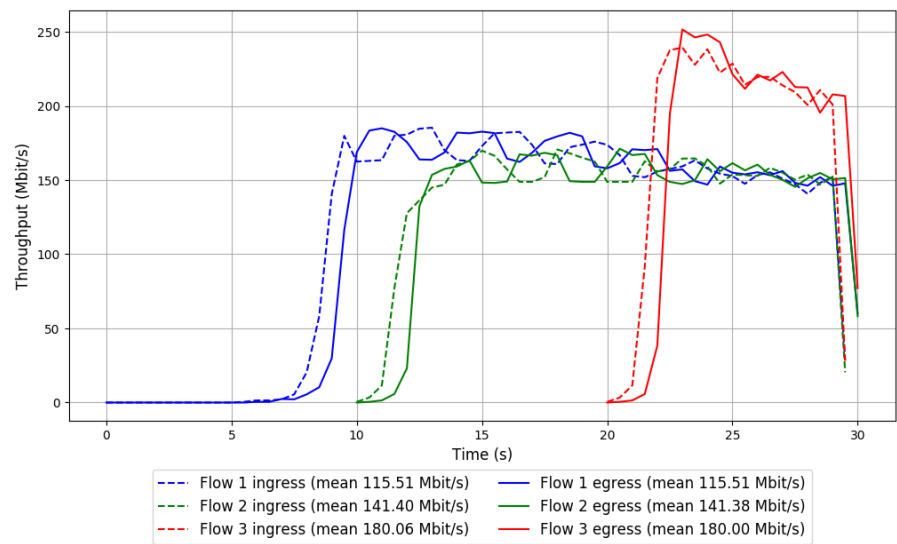
```
Run 10: Statistics of FillP

Start at: 2018-05-24 08:21:42
End at: 2018-05-24 08:22:12
Local clock offset: 0.25 ms
Remote clock offset: -0.11 ms


# Below is generated by plot.py at 2018-05-24 09:52:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1281.04 Mbit/s
95th percentile per-packet one-way delay: 270.480 ms
Loss rate: 1.62%
-- Flow 1:
Average throughput: 685.61 Mbit/s
95th percentile per-packet one-way delay: 298.058 ms
Loss rate: 2.62%
-- Flow 2:
Average throughput: 631.82 Mbit/s
95th percentile per-packet one-way delay: 235.695 ms
Loss rate: 0.50%
-- Flow 3:
Average throughput: 529.31 Mbit/s
95th percentile per-packet one-way delay: 173.127 ms
Loss rate: 0.28%
```

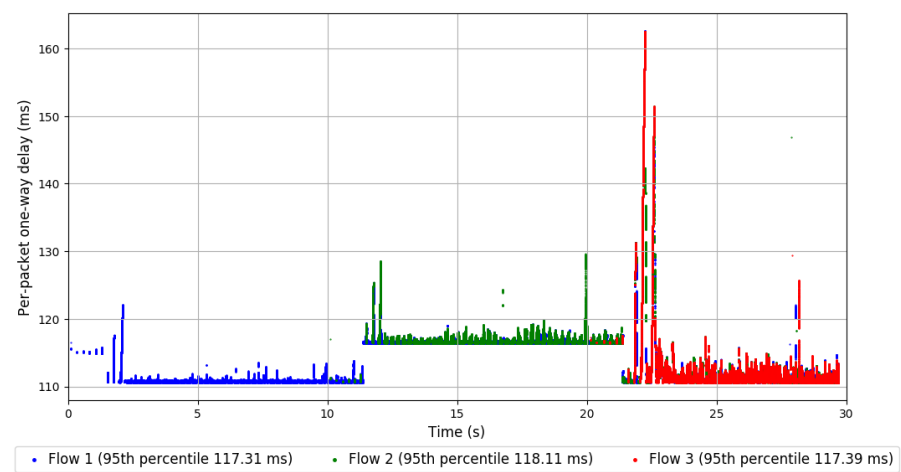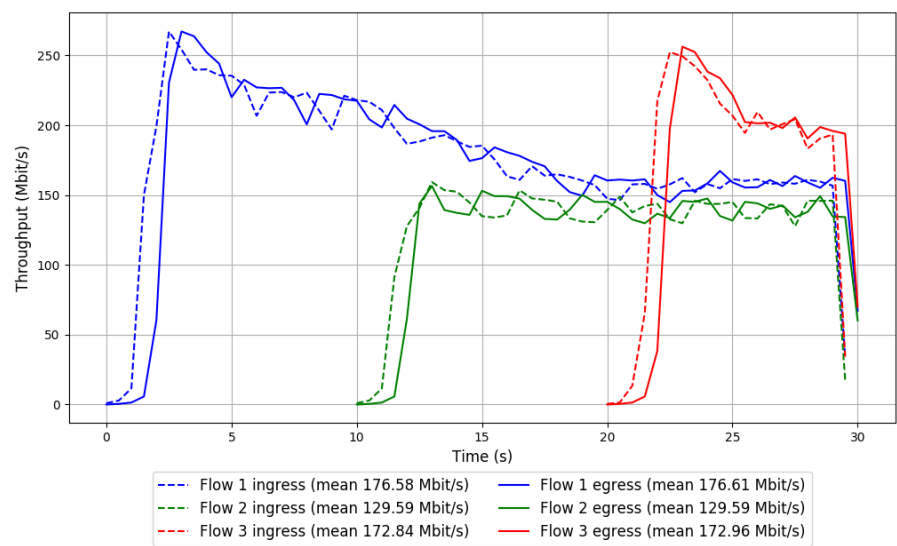Run 10: Report of FillP — Data Link

83

```
Run 1: Statistics of Indigo

Start at: 2018-05-24 04:57:58
End at: 2018-05-24 04:58:28
Local clock offset: 0.104 ms
Remote clock offset: -0.11 ms


# Below is generated by plot.py at 2018-05-24 09:52:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 267.19 Mbit/s
95th percentile per-packet one-way delay: 125.206 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 115.51 Mbit/s
95th percentile per-packet one-way delay: 123.067 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 141.38 Mbit/s
95th percentile per-packet one-way delay: 123.498 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 180.00 Mbit/s
95th percentile per-packet one-way delay: 128.681 ms
Loss rate: 0.00%
```
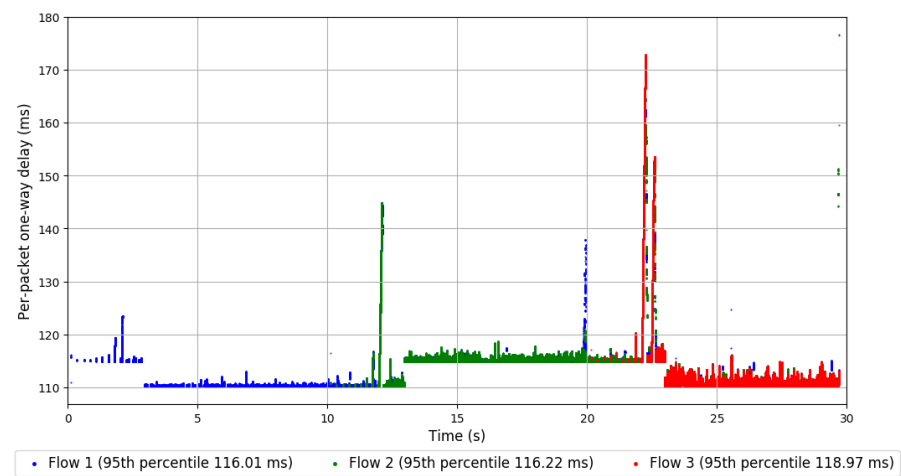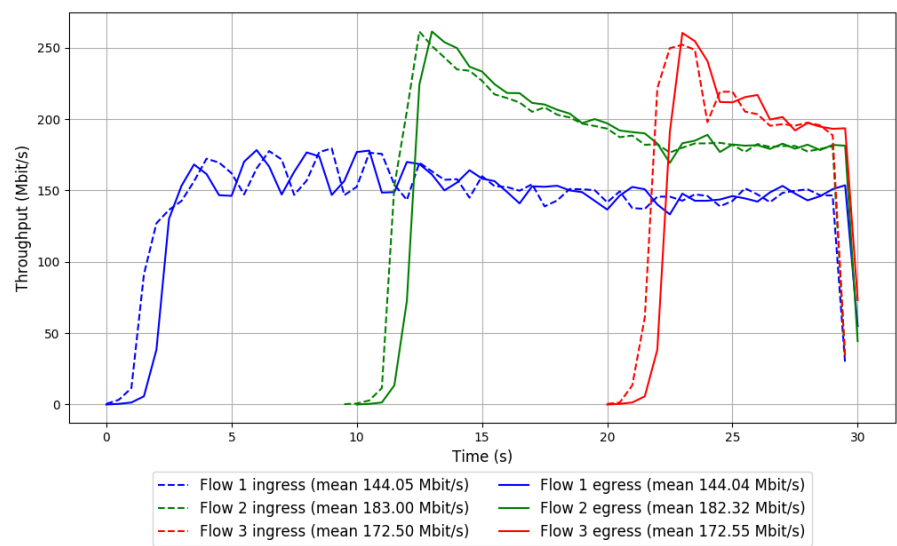
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2018-05-24 05:21:35
End at: 2018-05-24 05:22:05
Local clock offset: 0.172 ms
Remote clock offset: -0.235 ms


# Below is generated by plot.py at 2018-05-24 09:52:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 318.06 Mbit/s
95th percentile per-packet one-way delay: 117.554 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 176.61 Mbit/s
95th percentile per-packet one-way delay: 117.306 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 129.59 Mbit/s
95th percentile per-packet one-way delay: 118.112 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 172.96 Mbit/s
95th percentile per-packet one-way delay: 117.395 ms
Loss rate: 0.00%
```
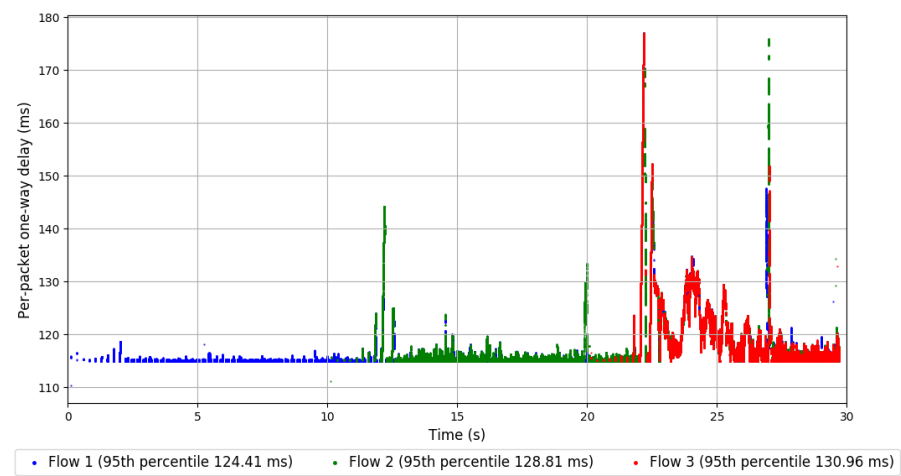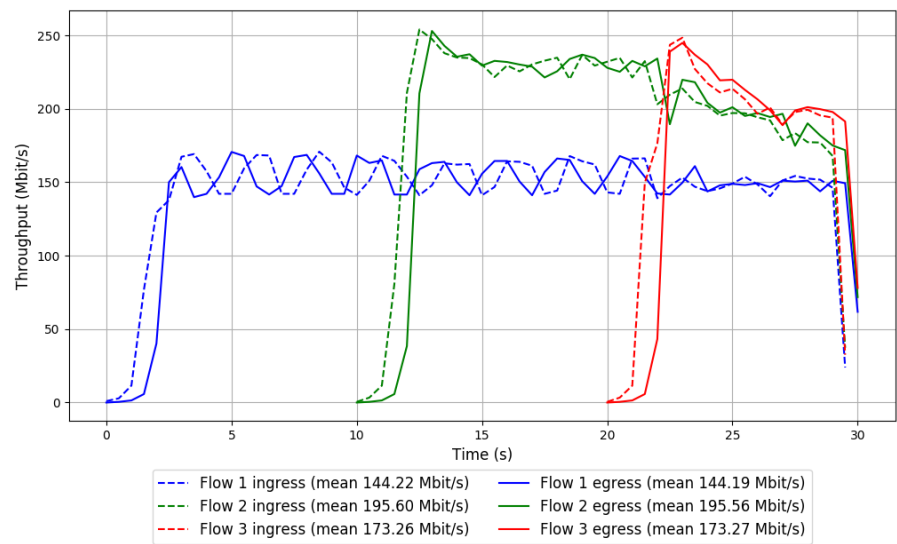
Run 2: Report of Indigo — Data Link

Legend:
- Flow 1 ingress (mean 176.58 Mbit/s)
- Flow 1 egress (mean 176.61 Mbit/s)
- Flow 2 ingress (mean 129.59 Mbit/s)
- Flow 2 egress (mean 129.59 Mbit/s)
- Flow 3 ingress (mean 172.84 Mbit/s)
- Flow 3 egress (mean 172.96 Mbit/s)

Legend:
- Flow 1 (95th percentile 117.31 ms)
- Flow 2 (95th percentile 118.11 ms)
- Flow 3 (95th percentile 117.39 ms)

87

```
Run 3: Statistics of Indigo

Start at: 2018-05-24 05:45:13
End at: 2018-05-24 05:45:43
Local clock offset: 0.068 ms
Remote clock offset: -0.121 ms

# Below is generated by plot.py at 2018-05-24 09:52:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 320.38 Mbit/s
95th percentile per-packet one-way delay: 116.212 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 144.04 Mbit/s
95th percentile per-packet one-way delay: 116.011 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 182.32 Mbit/s
95th percentile per-packet one-way delay: 116.223 ms
Loss rate: 0.34%
-- Flow 3:
Average throughput: 172.55 Mbit/s
95th percentile per-packet one-way delay: 118.972 ms
Loss rate: 0.01%
```
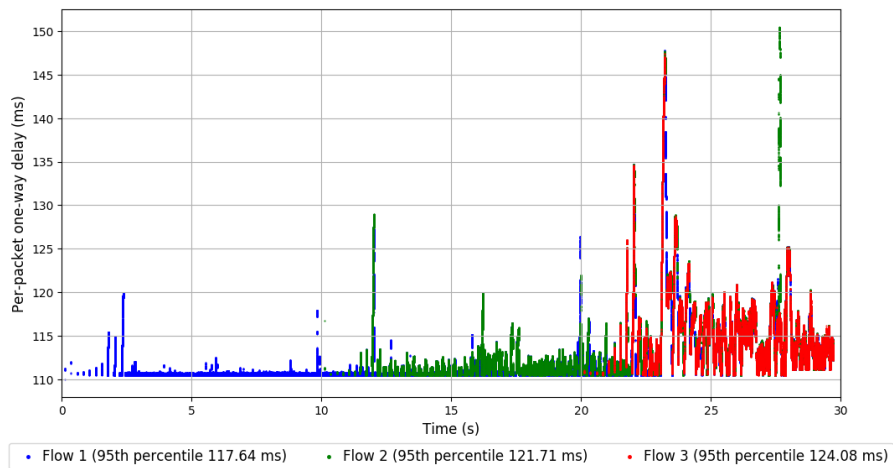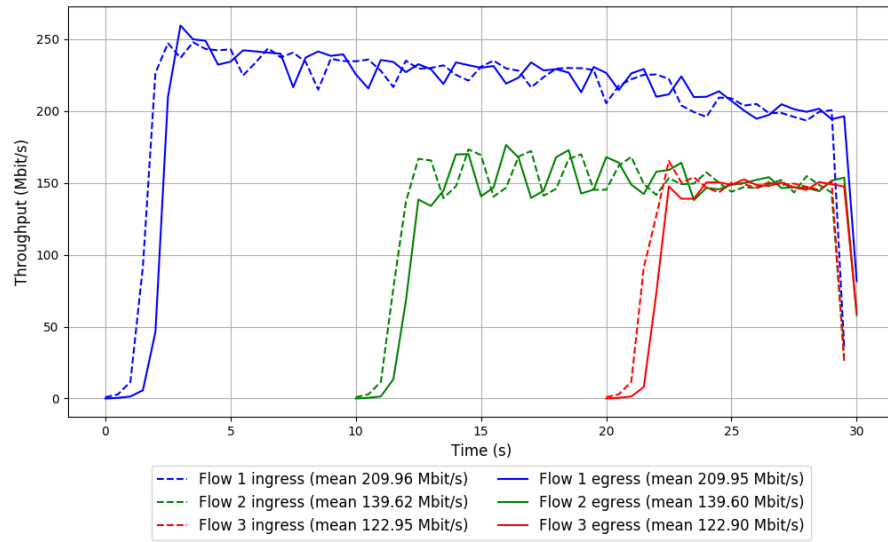
Run 3: Report of Indigo — Data Link

```
Run 4: Statistics of Indigo

Start at: 2018-05-24 06:08:50
End at: 2018-05-24 06:09:20
Local clock offset: 0.064 ms
Remote clock offset: -0.119 ms


# Below is generated by plot.py at 2018-05-24 09:52:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 329.52 Mbit/s
95th percentile per-packet one-way delay: 128.734 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 144.19 Mbit/s
95th percentile per-packet one-way delay: 124.414 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 195.56 Mbit/s
95th percentile per-packet one-way delay: 128.807 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 173.27 Mbit/s
95th percentile per-packet one-way delay: 130.955 ms
Loss rate: 0.00%
```

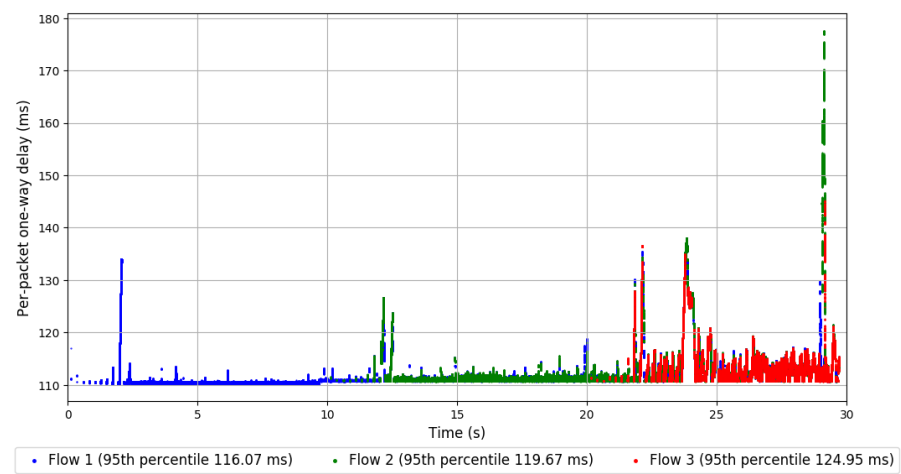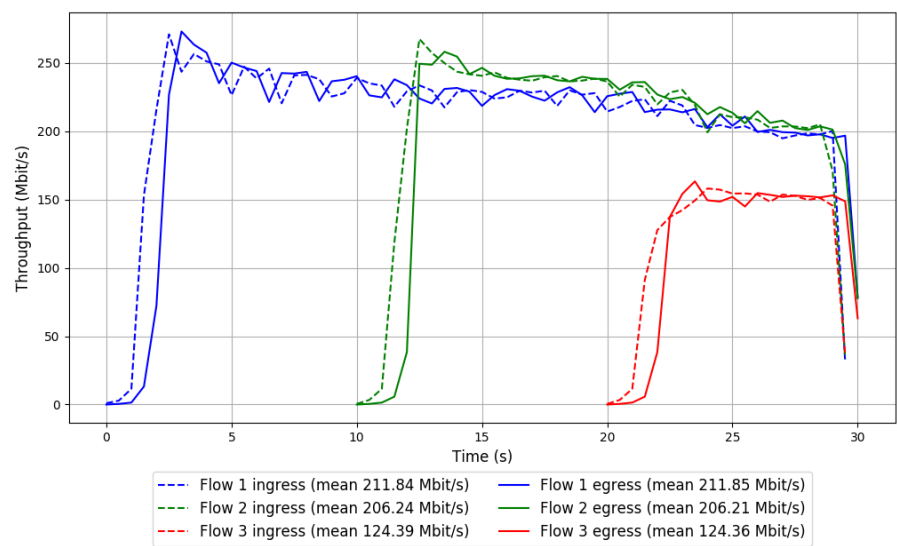Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2018-05-24 06:32:48
End at: 2018-05-24 06:33:18
Local clock offset: -0.336 ms
Remote clock offset: -0.224 ms


# Below is generated by plot.py at 2018-05-24 09:52:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 342.14 Mbit/s
95th percentile per-packet one-way delay: 119.732 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 209.95 Mbit/s
95th percentile per-packet one-way delay: 117.643 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 139.60 Mbit/s
95th percentile per-packet one-way delay: 121.712 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 122.90 Mbit/s
95th percentile per-packet one-way delay: 124.084 ms
Loss rate: 0.03%
```

Run 5: Report of Indigo — Data Link

```
Run 6: Statistics of Indigo

Start at: 2018-05-24 06:56:46
End at: 2018-05-24 06:57:16
Local clock offset: -0.041 ms
Remote clock offset: -0.201 ms


# Below is generated by plot.py at 2018-05-24 09:52:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 388.44 Mbit/s
95th percentile per-packet one-way delay: 118.327 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 211.85 Mbit/s
95th percentile per-packet one-way delay: 116.071 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 206.21 Mbit/s
95th percentile per-packet one-way delay: 119.672 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 124.36 Mbit/s
95th percentile per-packet one-way delay: 124.955 ms
Loss rate: 0.03%
```
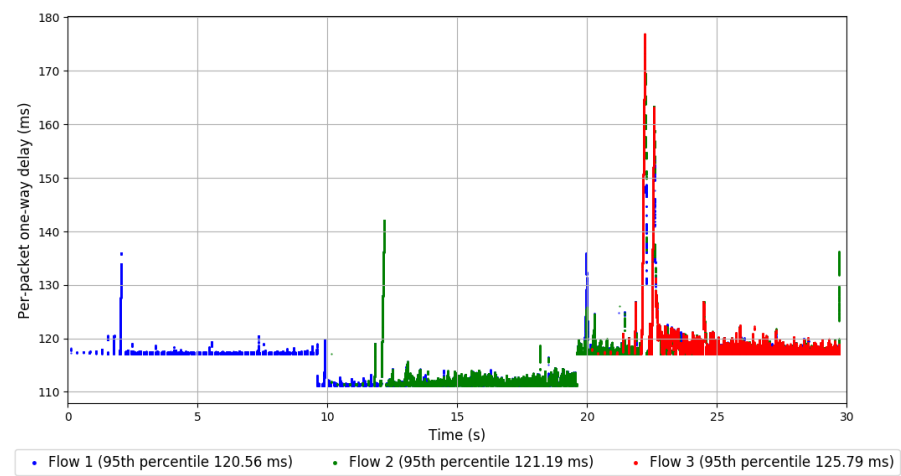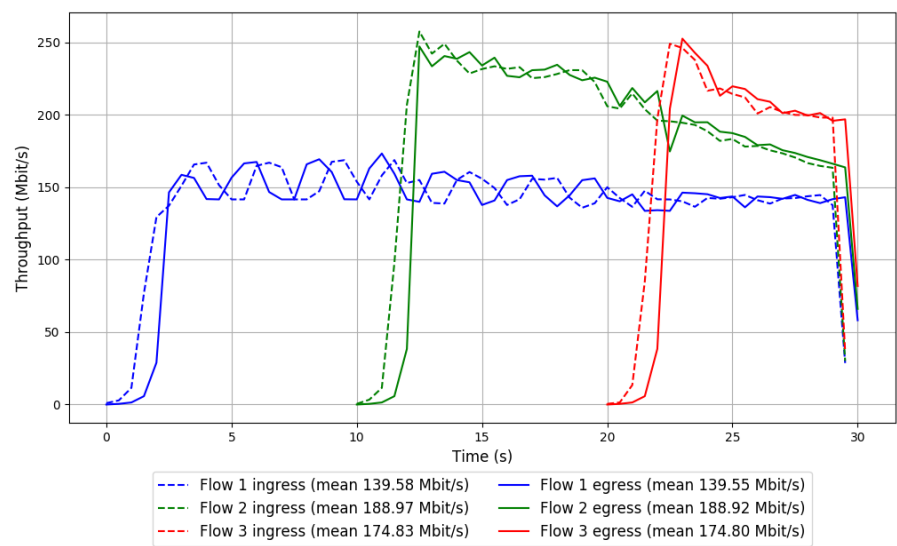
Run 6: Report of Indigo — Data Link

```
Run 7: Statistics of Indigo

Start at: 2018-05-24 07:20:36
End at: 2018-05-24 07:21:06
Local clock offset: -0.187 ms
Remote clock offset: 0.164 ms


# Below is generated by plot.py at 2018-05-24 09:52:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 320.67 Mbit/s
95th percentile per-packet one-way delay: 121.516 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 139.55 Mbit/s
95th percentile per-packet one-way delay: 120.559 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 188.92 Mbit/s
95th percentile per-packet one-way delay: 121.186 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 174.80 Mbit/s
95th percentile per-packet one-way delay: 125.786 ms
Loss rate: 0.09%
```
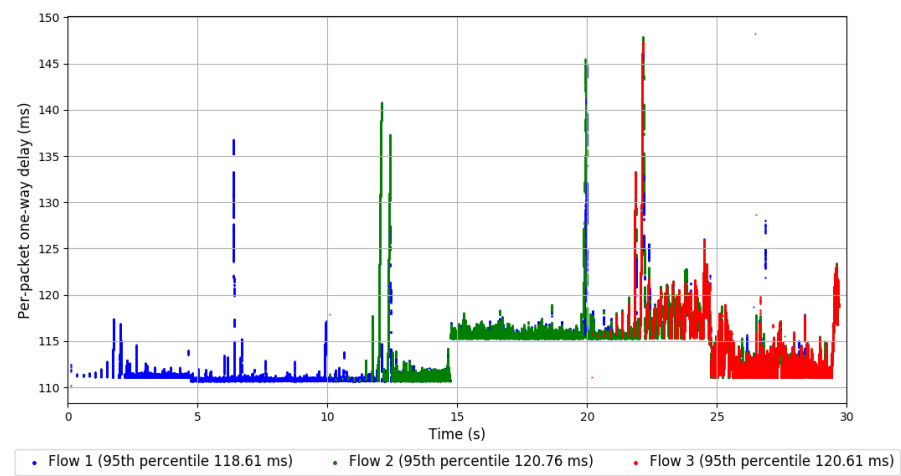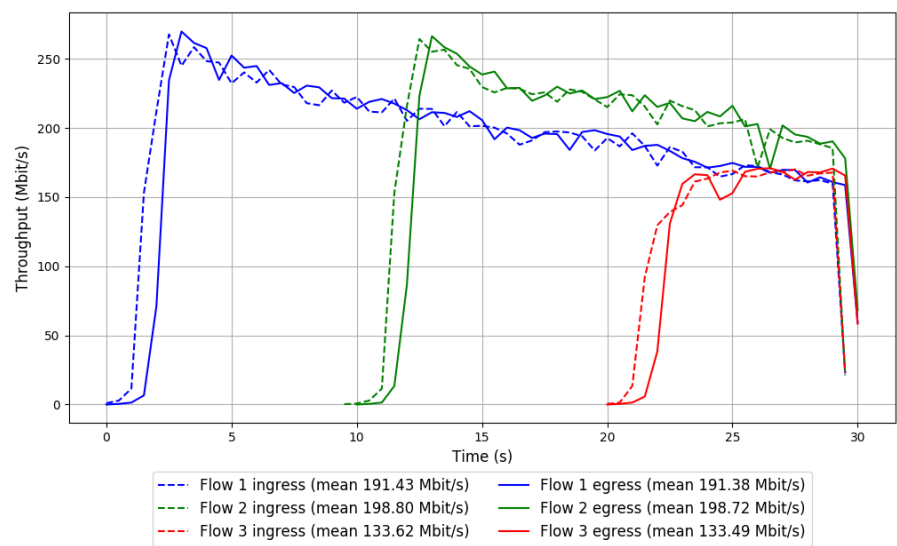
Run 7: Report of Indigo — Data Link

97

```
Run 8: Statistics of Indigo

Start at: 2018-05-24 07:44:01
End at: 2018-05-24 07:44:31
Local clock offset: -0.044 ms
Remote clock offset: 0.161 ms


# Below is generated by plot.py at 2018-05-24 09:52:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 365.97 Mbit/s
95th percentile per-packet one-way delay: 119.763 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 191.38 Mbit/s
95th percentile per-packet one-way delay: 118.609 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 198.72 Mbit/s
95th percentile per-packet one-way delay: 120.764 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 133.49 Mbit/s
95th percentile per-packet one-way delay: 120.611 ms
Loss rate: 0.03%
```
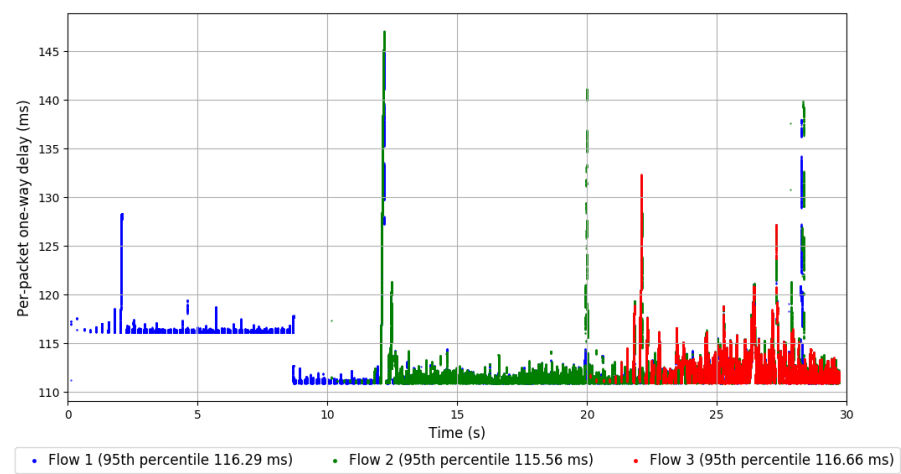
Run 8: Report of Indigo — Data Link

```
Run 9: Statistics of Indigo

Start at: 2018-05-24 08:08:07
End at: 2018-05-24 08:08:37
Local clock offset: 0.212 ms
Remote clock offset: 0.238 ms


# Below is generated by plot.py at 2018-05-24 09:52:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 313.34 Mbit/s
95th percentile per-packet one-way delay: 116.283 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 140.07 Mbit/s
95th percentile per-packet one-way delay: 116.293 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 201.27 Mbit/s
95th percentile per-packet one-way delay: 115.559 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 124.55 Mbit/s
95th percentile per-packet one-way delay: 116.658 ms
Loss rate: 0.00%
```
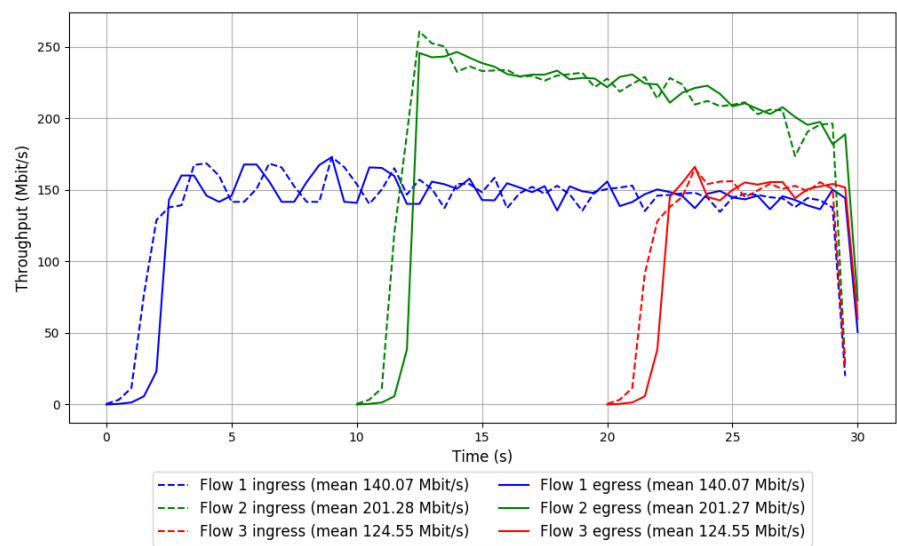
Run 9: Report of Indigo — Data Link

```
Run 10: Statistics of Indigo

Start at: 2018-05-24 08:31:50
End at: 2018-05-24 08:32:20
Local clock offset: 0.149 ms
Remote clock offset: 0.143 ms


# Below is generated by plot.py at 2018-05-24 09:52:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 337.92 Mbit/s
95th percentile per-packet one-way delay: 121.439 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 204.42 Mbit/s
95th percentile per-packet one-way delay: 119.434 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 138.65 Mbit/s
95th percentile per-packet one-way delay: 122.258 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 128.99 Mbit/s
95th percentile per-packet one-way delay: 123.100 ms
Loss rate: 0.00%
```
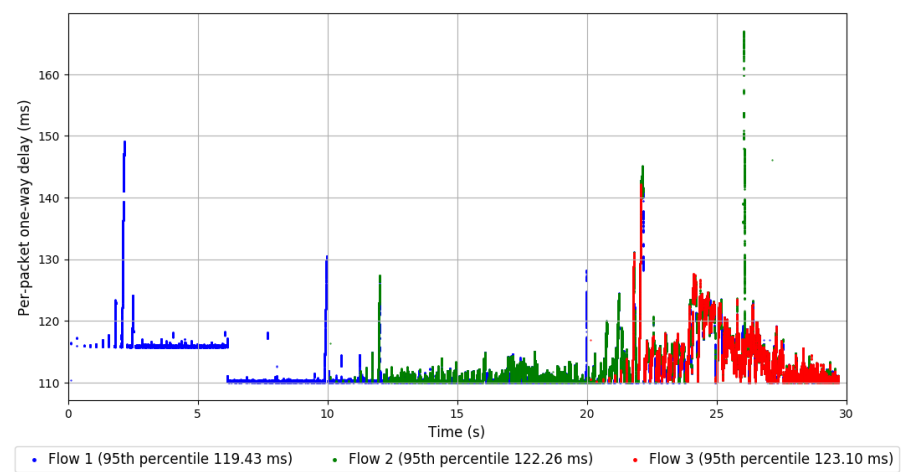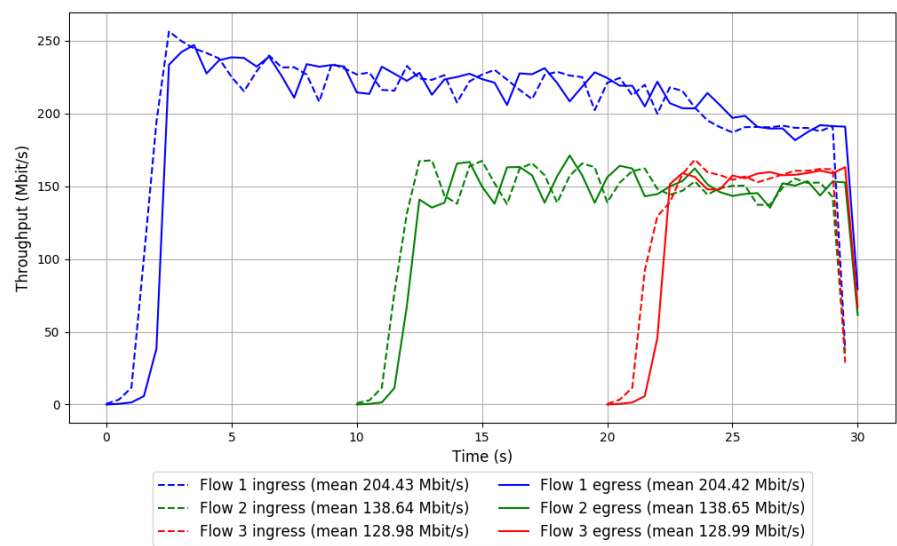
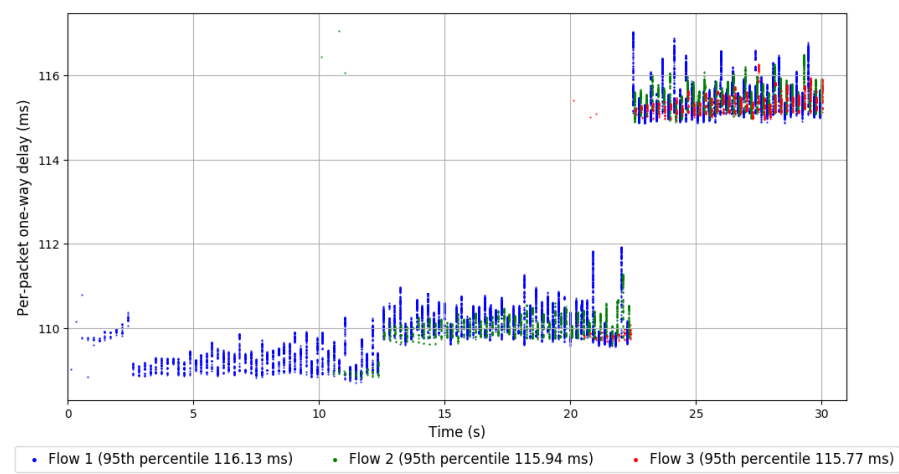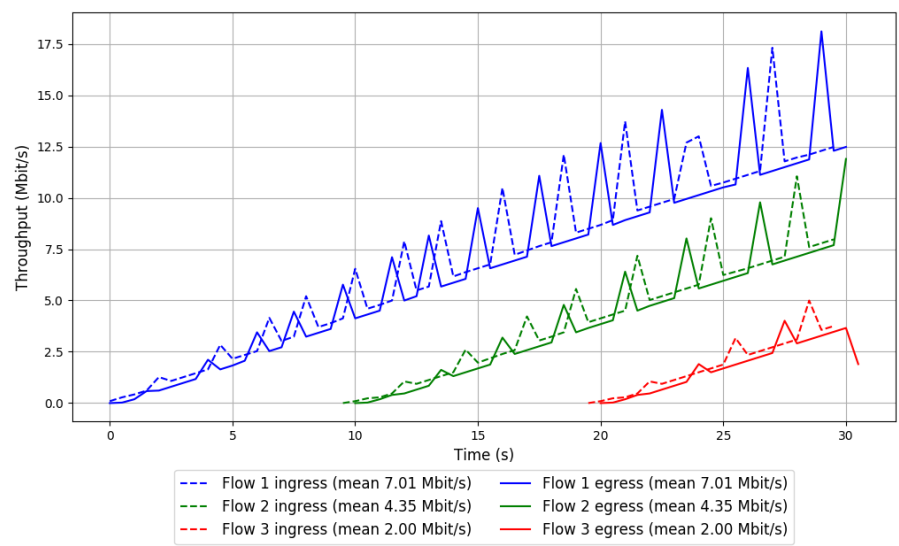## Run 10: Report of Indigo — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2018-05-24 04:56:44
End at: 2018-05-24 04:57:14
Local clock offset: 0.151 ms
Remote clock offset: -0.056 ms

# Below is generated by plot.py at 2018-05-24 09:52:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.53 Mbit/s
95th percentile per-packet one-way delay: 116.004 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.01 Mbit/s
95th percentile per-packet one-way delay: 116.127 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 4.35 Mbit/s
95th percentile per-packet one-way delay: 115.936 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 2.00 Mbit/s
95th percentile per-packet one-way delay: 115.770 ms
Loss rate: 0.00%
```

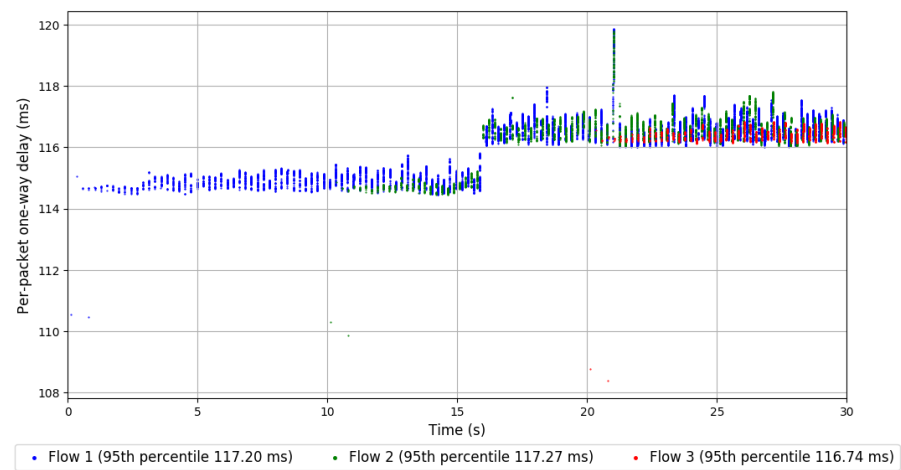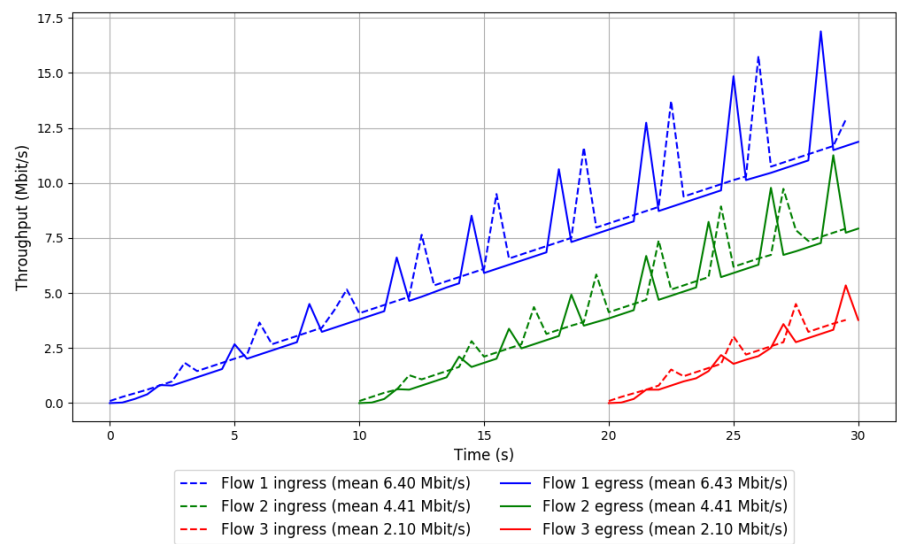# Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2018-05-24 05:20:20
End at: 2018-05-24 05:20:50
Local clock offset: 0.245 ms
Remote clock offset: -0.565 ms


# Below is generated by plot.py at 2018-05-24 09:52:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.02 Mbit/s
95th percentile per-packet one-way delay: 117.209 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 6.43 Mbit/s
95th percentile per-packet one-way delay: 117.201 ms
Loss rate: 0.26%
-- Flow 2:
Average throughput: 4.41 Mbit/s
95th percentile per-packet one-way delay: 117.274 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 2.10 Mbit/s
95th percentile per-packet one-way delay: 116.736 ms
Loss rate: 0.00%
```

Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: 2018-05-24 05:43:59
End at: 2018-05-24 05:44:29
Local clock offset: 0.006 ms
Remote clock offset: 0.235 ms


# Below is generated by plot.py at 2018-05-24 09:52:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.17 Mbit/s
95th percentile per-packet one-way delay: 116.476 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 6.65 Mbit/s
95th percentile per-packet one-way delay: 116.482 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 4.30 Mbit/s
95th percentile per-packet one-way delay: 116.595 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 2.03 Mbit/s
95th percentile per-packet one-way delay: 116.145 ms
Loss rate: 0.00%
```
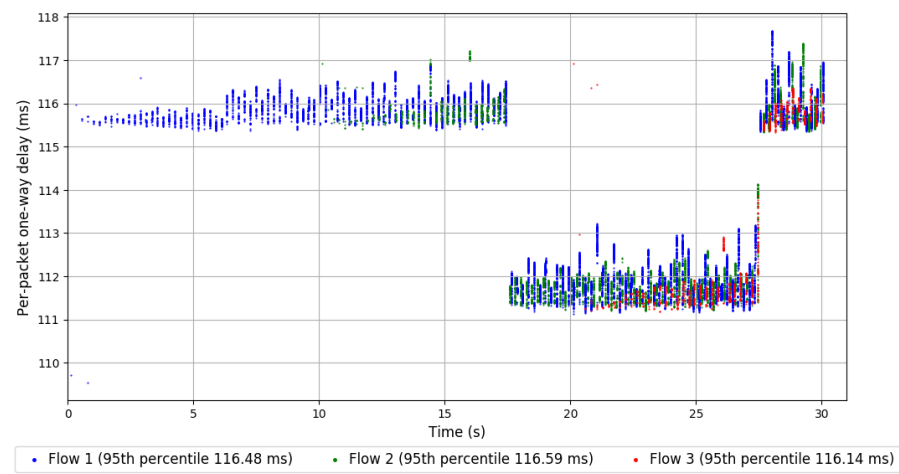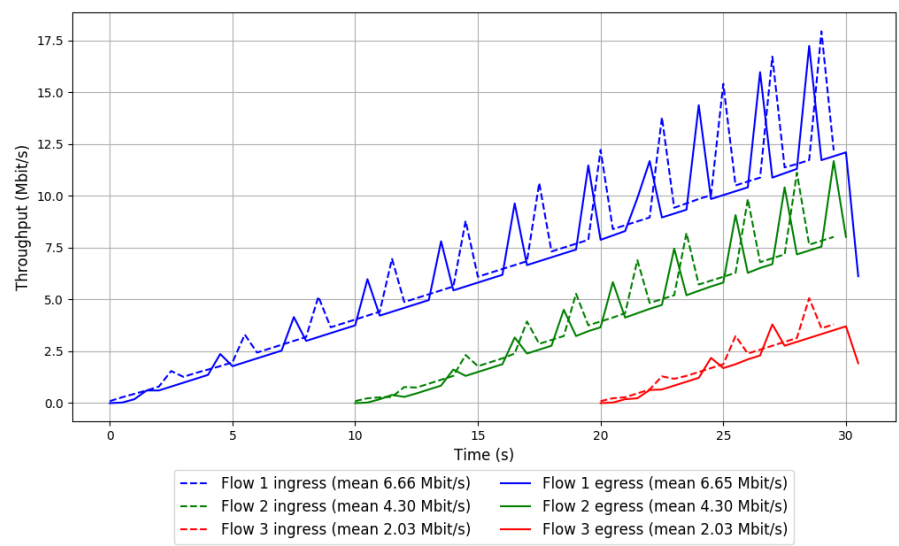
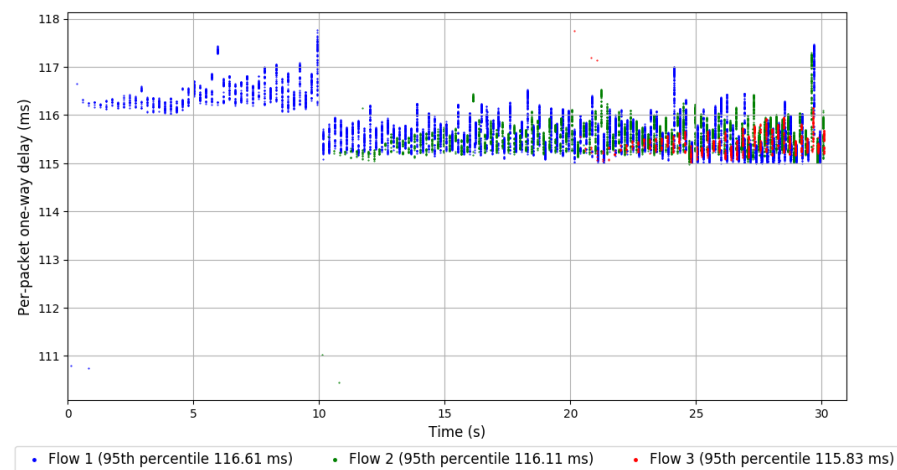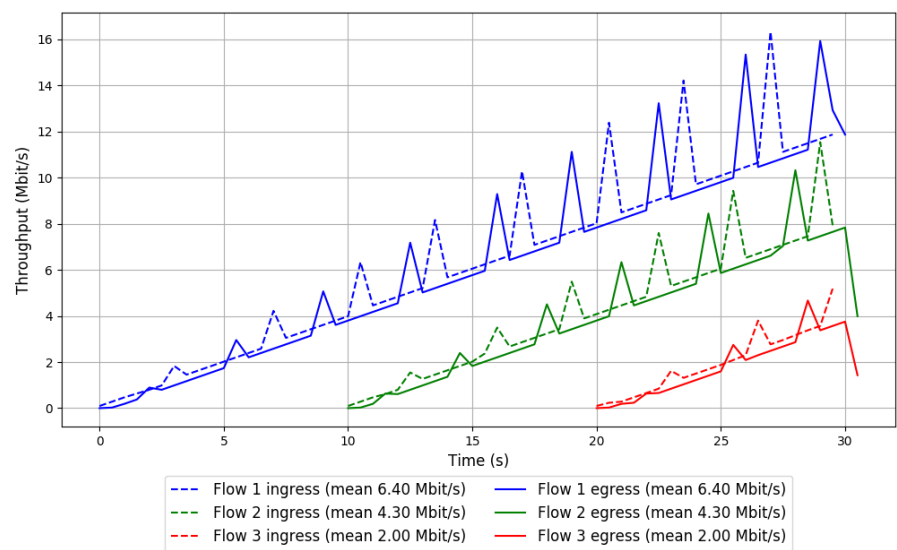# Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2018-05-24 06:07:36
End at: 2018-05-24 06:08:06
Local clock offset: -0.162 ms
Remote clock offset: -0.179 ms

# Below is generated by plot.py at 2018-05-24 09:52:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 9.88 Mbit/s
95th percentile per-packet one-way delay: 116.474 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 6.40 Mbit/s
95th percentile per-packet one-way delay: 116.612 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 4.30 Mbit/s
95th percentile per-packet one-way delay: 116.107 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 2.00 Mbit/s
95th percentile per-packet one-way delay: 115.827 ms
Loss rate: 0.00%
```

Run 4: Report of LEDBAT — Data Link

Flow 1 ingress (mean 6.40 Mbit/s) — — — Flow 1 egress (mean 6.40 Mbit/s)
Flow 2 ingress (mean 4.30 Mbit/s) — — — Flow 2 egress (mean 4.30 Mbit/s)
Flow 3 ingress (mean 2.00 Mbit/s) — — — Flow 3 egress (mean 2.00 Mbit/s)

• Flow 1 (95th percentile 116.61 ms)   • Flow 2 (95th percentile 116.11 ms)   • Flow 3 (95th percentile 115.83 ms)
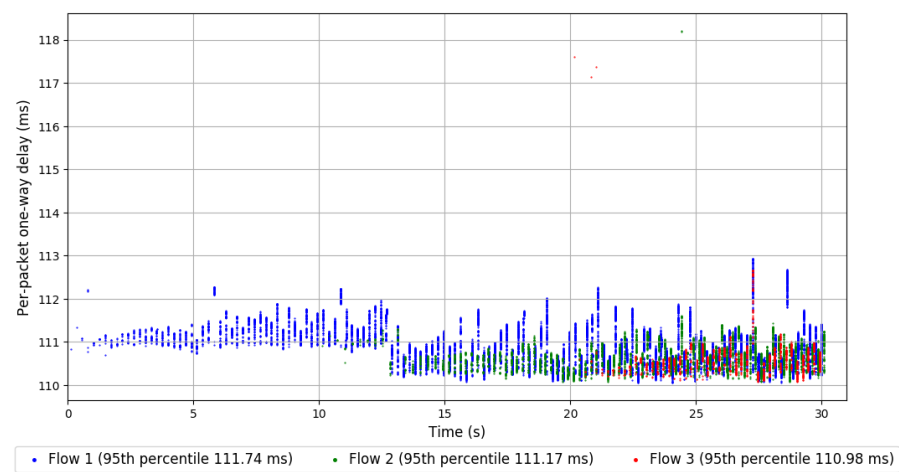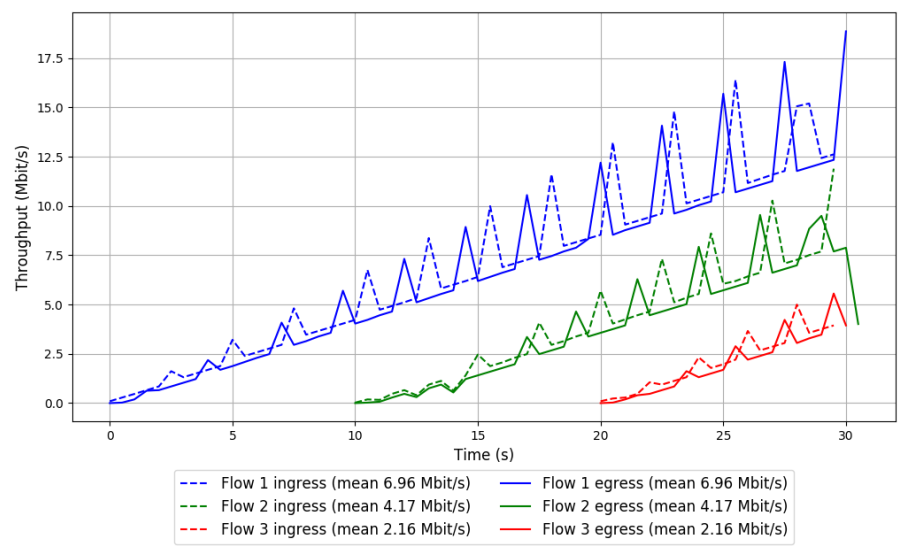
```
Run 5: Statistics of LEDBAT

Start at: 2018-05-24 06:31:34
End at: 2018-05-24 06:32:04
Local clock offset: 0.066 ms
Remote clock offset: -0.226 ms


# Below is generated by plot.py at 2018-05-24 09:52:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.42 Mbit/s
95th percentile per-packet one-way delay: 111.634 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 6.96 Mbit/s
95th percentile per-packet one-way delay: 111.736 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 4.17 Mbit/s
95th percentile per-packet one-way delay: 111.167 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 2.16 Mbit/s
95th percentile per-packet one-way delay: 110.979 ms
Loss rate: 0.00%
```

Run 5: Report of LEDBAT — Data Link

```
Run 6: Statistics of LEDBAT

Start at: 2018-05-24 06:55:32
End at: 2018-05-24 06:56:02
Local clock offset: -0.221 ms
Remote clock offset: -0.165 ms

# Below is generated by plot.py at 2018-05-24 09:52:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 9.38 Mbit/s
95th percentile per-packet one-way delay: 111.984 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 6.90 Mbit/s
95th percentile per-packet one-way delay: 112.032 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 3.56 Mbit/s
95th percentile per-packet one-way delay: 111.765 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 111.445 ms
Loss rate: 0.00%
```
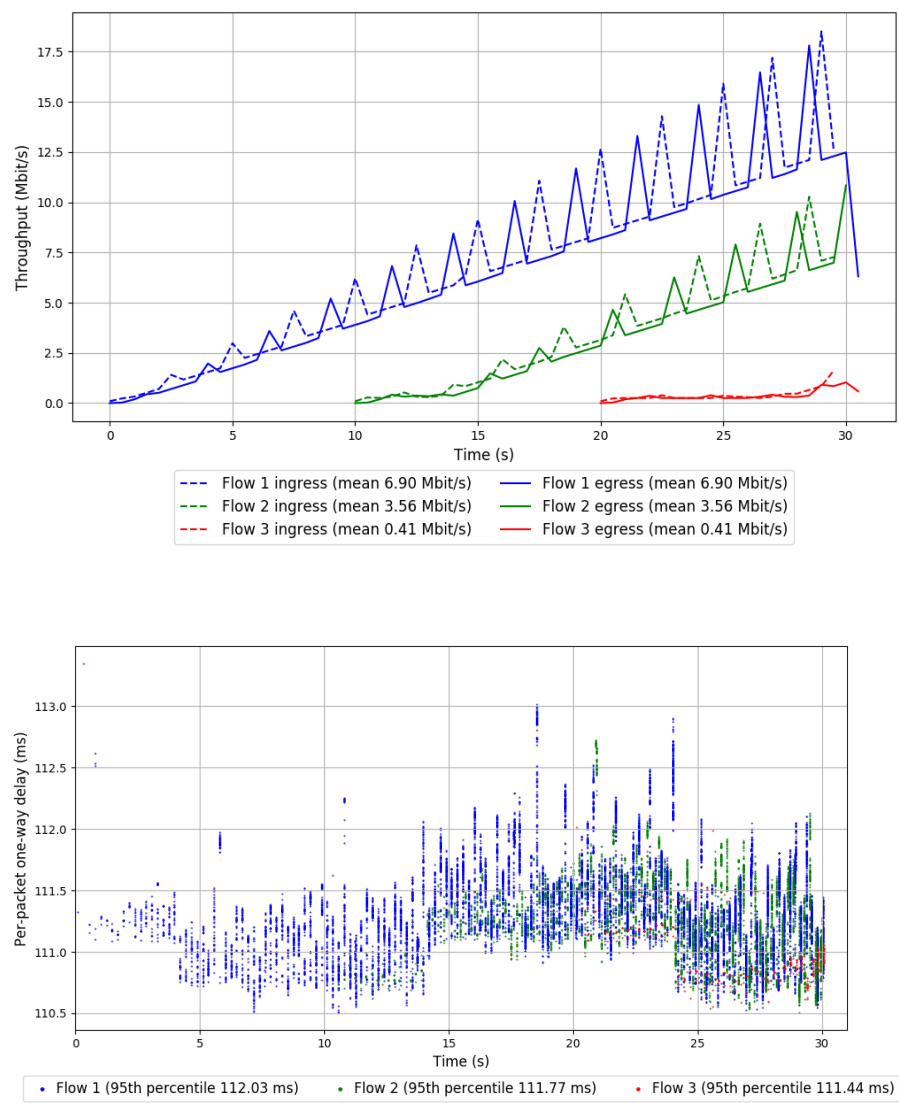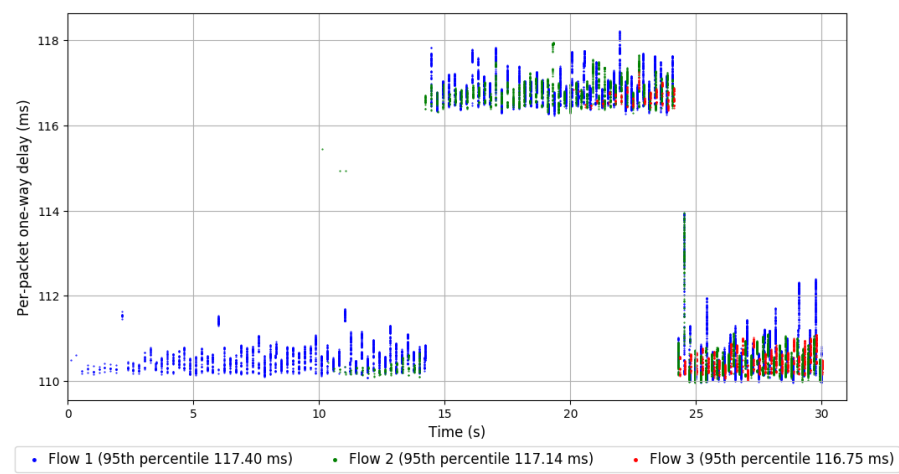
Run 6: Report of LEDBAT — Data Link

Flow 1 ingress (mean 6.90 Mbit/s) --- Flow 1 egress (mean 6.90 Mbit/s)
Flow 2 ingress (mean 3.56 Mbit/s) --- Flow 2 egress (mean 3.56 Mbit/s)
Flow 3 ingress (mean 0.41 Mbit/s) --- Flow 3 egress (mean 0.41 Mbit/s)

Flow 1 (95th percentile 112.03 ms) · Flow 2 (95th percentile 111.77 ms) · Flow 3 (95th percentile 111.44 ms)
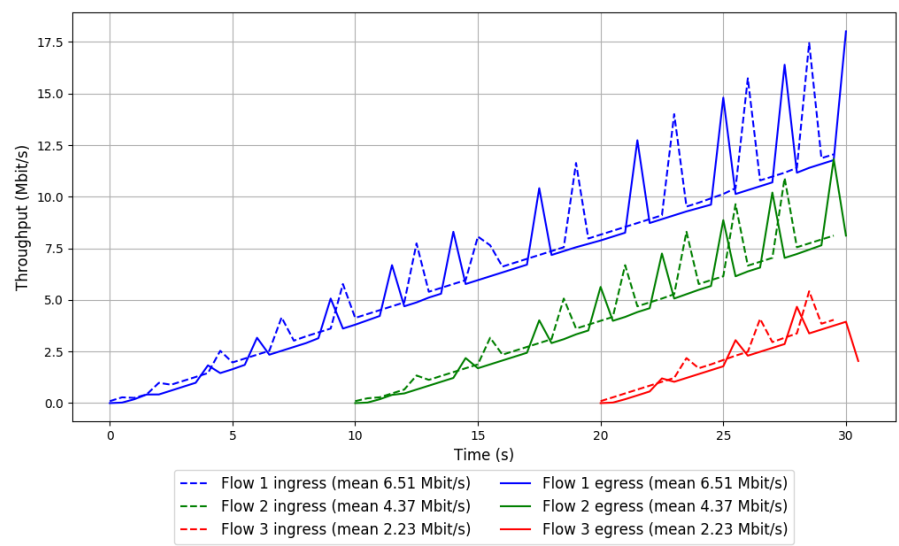
```
Run 7: Statistics of LEDBAT

Start at: 2018-05-24 07:19:22
End at: 2018-05-24 07:19:52
Local clock offset: -0.113 ms
Remote clock offset: -0.606 ms


# Below is generated by plot.py at 2018-05-24 09:52:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.14 Mbit/s
95th percentile per-packet one-way delay: 117.263 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 6.51 Mbit/s
95th percentile per-packet one-way delay: 117.400 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 4.37 Mbit/s
95th percentile per-packet one-way delay: 117.141 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 2.23 Mbit/s
95th percentile per-packet one-way delay: 116.753 ms
Loss rate: 0.00%
```
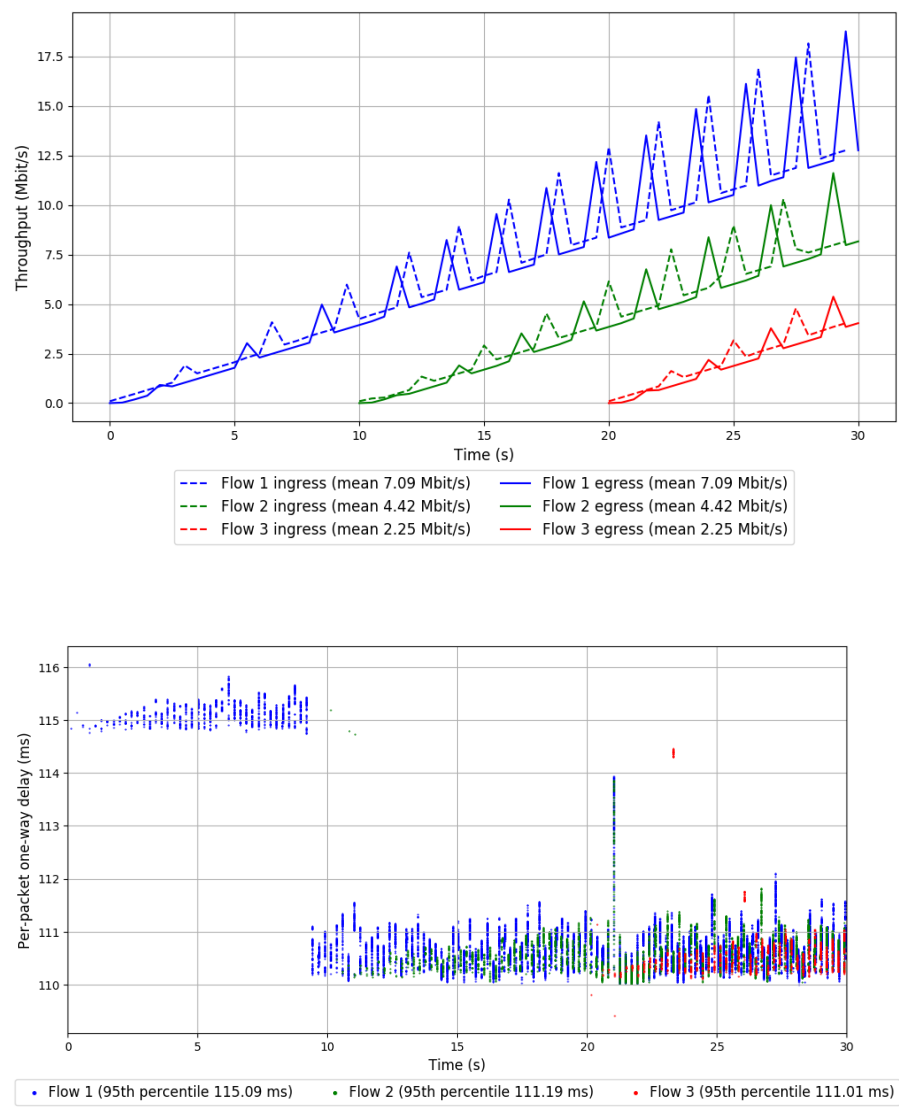
Run 7: Report of LEDBAT — Data Link

Flow 1 ingress (mean 6.51 Mbit/s) ---- Flow 1 egress (mean 6.51 Mbit/s)
Flow 2 ingress (mean 4.37 Mbit/s) ---- Flow 2 egress (mean 4.37 Mbit/s)
Flow 3 ingress (mean 2.23 Mbit/s) ---- Flow 3 egress (mean 2.23 Mbit/s)

Flow 1 (95th percentile 117.40 ms) • Flow 2 (95th percentile 117.14 ms) • Flow 3 (95th percentile 116.75 ms)

117

```
Run 8: Statistics of LEDBAT

Start at: 2018-05-24 07:42:47
End at: 2018-05-24 07:43:17
Local clock offset: 0.217 ms
Remote clock offset: -0.235 ms

# Below is generated by plot.py at 2018-05-24 09:52:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.76 Mbit/s
95th percentile per-packet one-way delay: 114.918 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.09 Mbit/s
95th percentile per-packet one-way delay: 115.088 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 4.42 Mbit/s
95th percentile per-packet one-way delay: 111.191 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 2.25 Mbit/s
95th percentile per-packet one-way delay: 111.013 ms
Loss rate: 0.00%
```

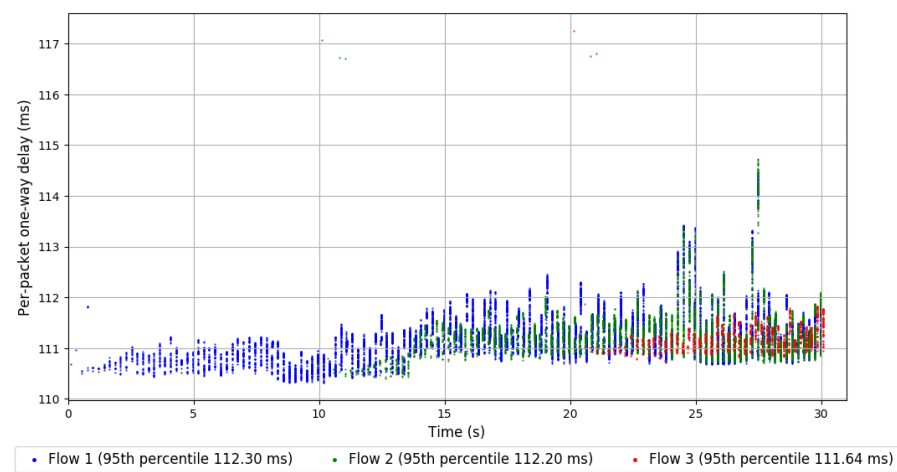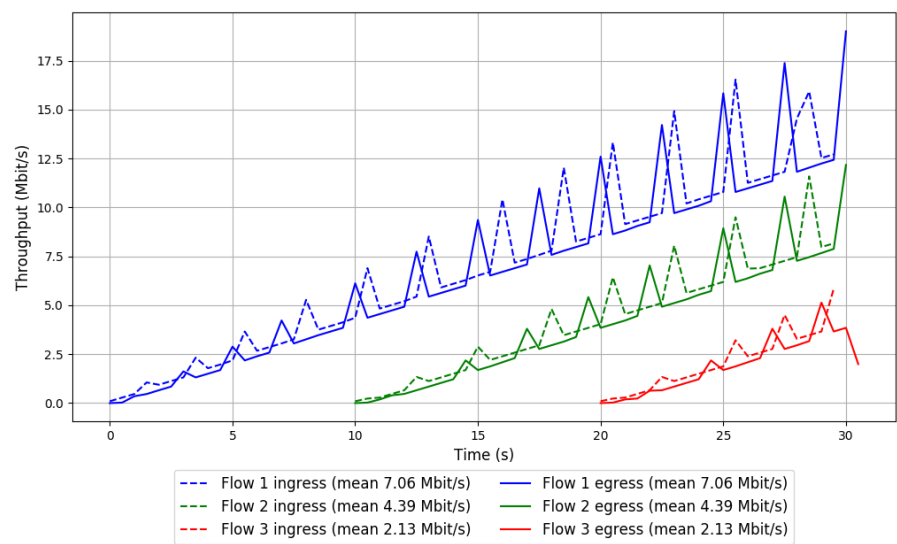# Run 8: Report of LEDBAT — Data Link

```
Run 9: Statistics of LEDBAT

Start at: 2018-05-24 08:06:53
End at: 2018-05-24 08:07:23
Local clock offset: 0.021 ms
Remote clock offset: -0.158 ms


# Below is generated by plot.py at 2018-05-24 09:52:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.66 Mbit/s
95th percentile per-packet one-way delay: 112.209 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.06 Mbit/s
95th percentile per-packet one-way delay: 112.303 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 4.39 Mbit/s
95th percentile per-packet one-way delay: 112.202 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 2.13 Mbit/s
95th percentile per-packet one-way delay: 111.640 ms
Loss rate: 0.00%
```

Run 9: Report of LEDBAT — Data Link

```
Run 10: Statistics of LEDBAT

Start at: 2018-05-24 08:30:36
End at: 2018-05-24 08:31:06
Local clock offset: 0.291 ms
Remote clock offset: -0.225 ms


# Below is generated by plot.py at 2018-05-24 09:52:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.50 Mbit/s
95th percentile per-packet one-way delay: 117.182 ms
Loss rate: 0.33%
-- Flow 1:
Average throughput: 6.57 Mbit/s
95th percentile per-packet one-way delay: 117.212 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 116.935 ms
Loss rate: 2.19%
-- Flow 3:
Average throughput: 2.07 Mbit/s
95th percentile per-packet one-way delay: 116.811 ms
Loss rate: 0.00%
```
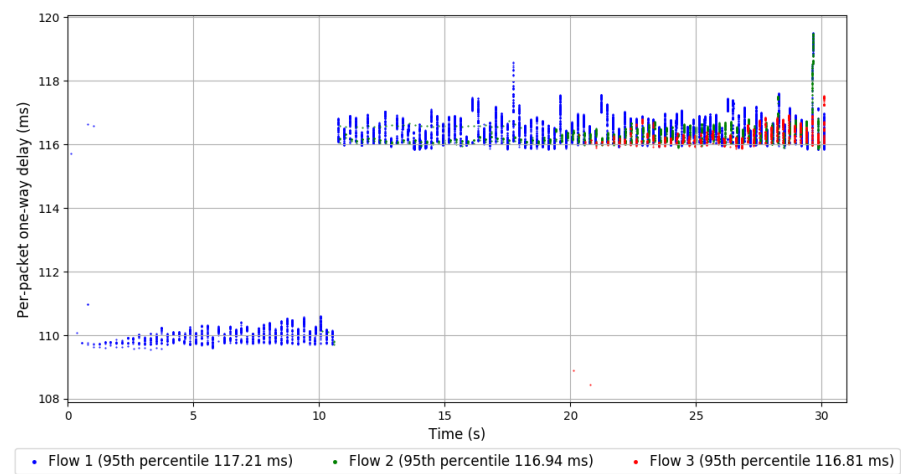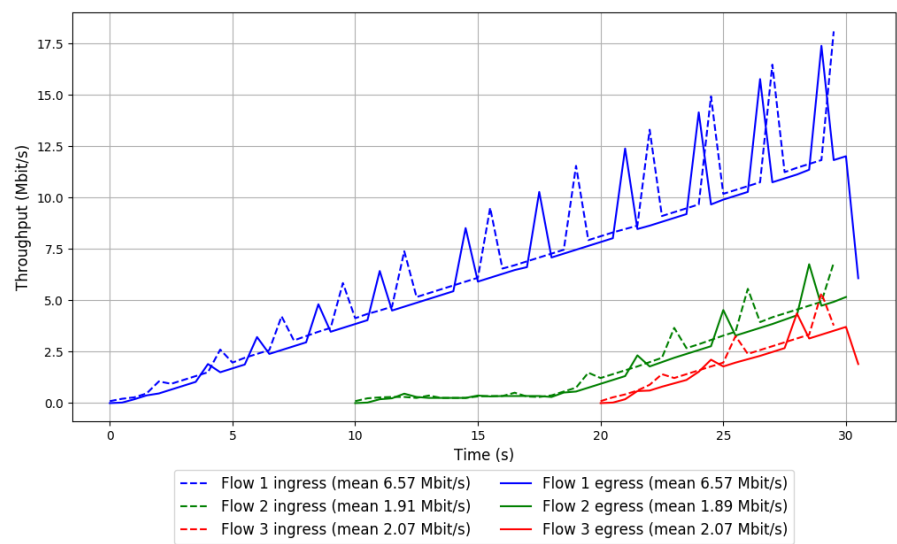
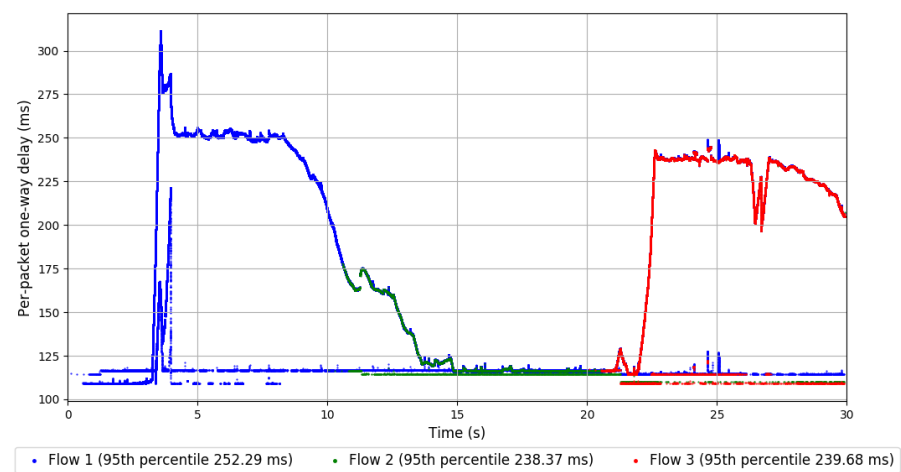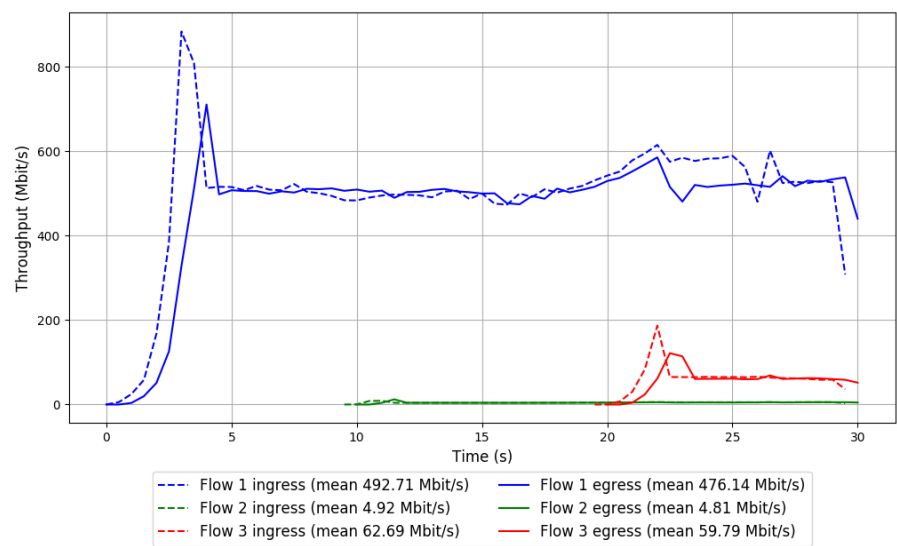# Run 10: Report of LEDBAT — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2018-05-24 05:03:35
End at: 2018-05-24 05:04:05
Local clock offset: 0.357 ms
Remote clock offset: -0.525 ms


# Below is generated by plot.py at 2018-05-24 09:52:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 499.09 Mbit/s
95th percentile per-packet one-way delay: 252.235 ms
Loss rate: 3.40%
-- Flow 1:
Average throughput: 476.14 Mbit/s
95th percentile per-packet one-way delay: 252.291 ms
Loss rate: 3.35%
-- Flow 2:
Average throughput: 4.81 Mbit/s
95th percentile per-packet one-way delay: 238.370 ms
Loss rate: 2.32%
-- Flow 3:
Average throughput: 59.79 Mbit/s
95th percentile per-packet one-way delay: 239.675 ms
Loss rate: 4.63%
```

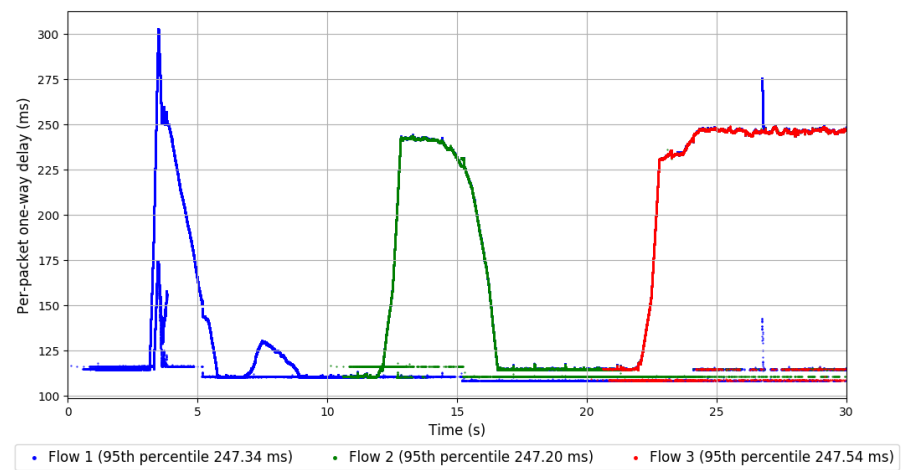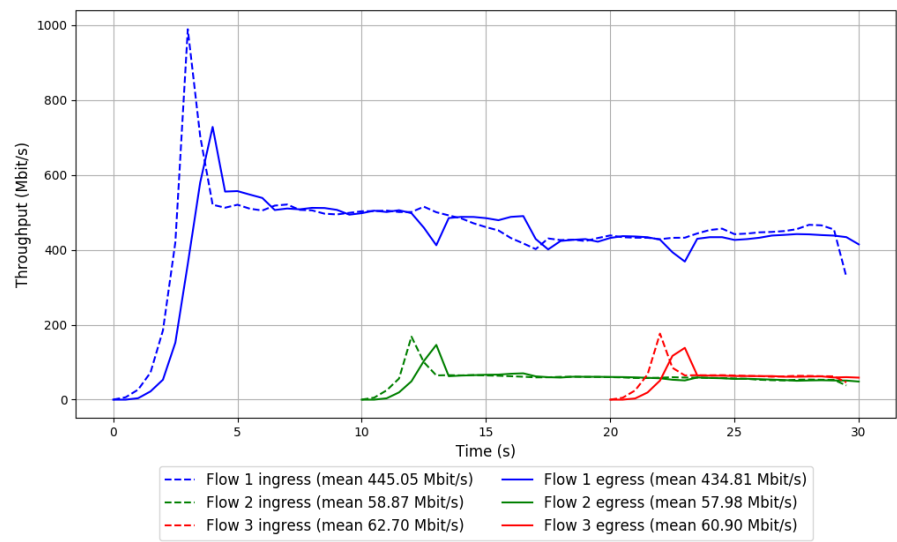## Run 1: Report of PCC-Allegro — Data Link

- --- Flow 1 ingress (mean 492.71 Mbit/s)   —— Flow 1 egress (mean 476.14 Mbit/s)
- --- Flow 2 ingress (mean 4.92 Mbit/s)   —— Flow 2 egress (mean 4.81 Mbit/s)
- --- Flow 3 ingress (mean 62.69 Mbit/s)   —— Flow 3 egress (mean 59.79 Mbit/s)

- Flow 1 (95th percentile 252.29 ms)   • Flow 2 (95th percentile 238.37 ms)   • Flow 3 (95th percentile 239.68 ms)

```
Run 2: Statistics of PCC-Allegro

Start at: 2018-05-24 05:27:11
End at: 2018-05-24 05:27:41
Local clock offset: 0.452 ms
Remote clock offset: -0.221 ms


# Below is generated by plot.py at 2018-05-24 09:52:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 493.40 Mbit/s
95th percentile per-packet one-way delay: 247.348 ms
Loss rate: 2.26%
-- Flow 1:
Average throughput: 434.81 Mbit/s
95th percentile per-packet one-way delay: 247.337 ms
Loss rate: 2.30%
-- Flow 2:
Average throughput: 57.98 Mbit/s
95th percentile per-packet one-way delay: 247.198 ms
Loss rate: 1.51%
-- Flow 3:
Average throughput: 60.90 Mbit/s
95th percentile per-packet one-way delay: 247.540 ms
Loss rate: 2.79%
```
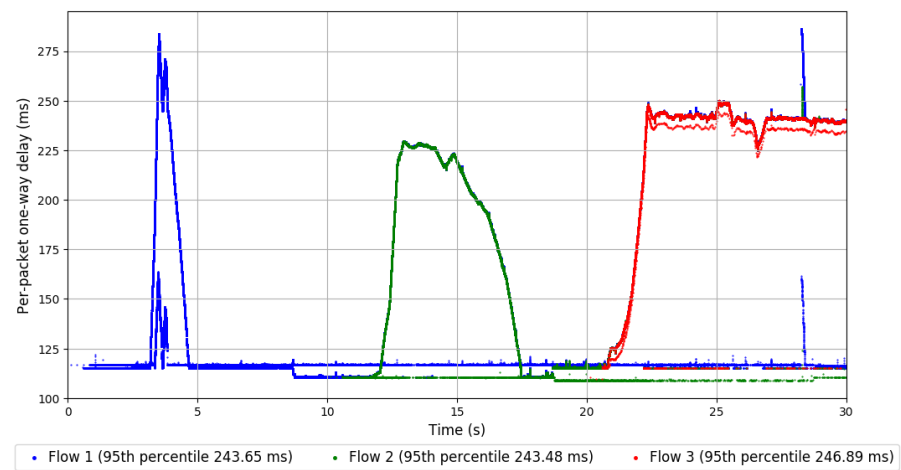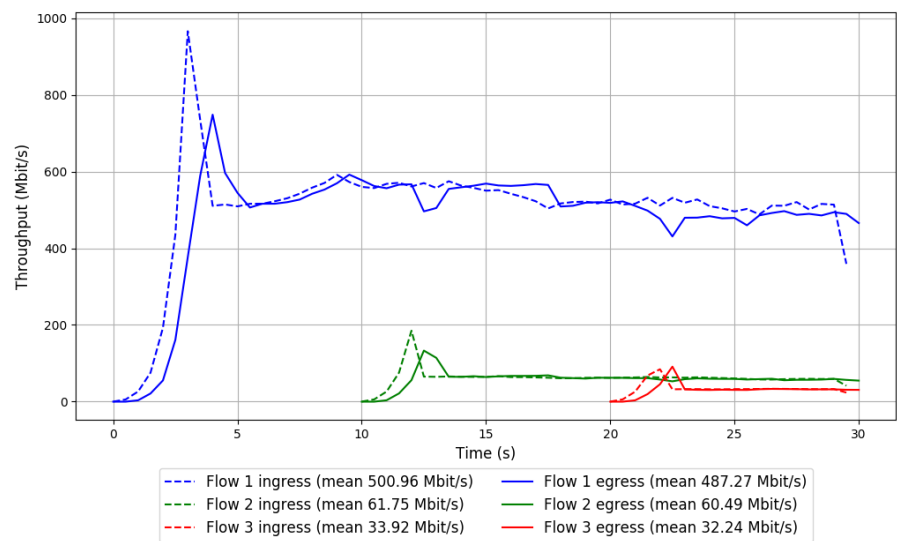
Run 2: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 445.05 Mbit/s) --- Flow 1 egress (mean 434.81 Mbit/s)
Flow 2 ingress (mean 58.87 Mbit/s) --- Flow 2 egress (mean 57.98 Mbit/s)
Flow 3 ingress (mean 62.70 Mbit/s) --- Flow 3 egress (mean 60.90 Mbit/s)

Flow 1 (95th percentile 247.34 ms)   Flow 2 (95th percentile 247.20 ms)   Flow 3 (95th percentile 247.54 ms)

```
Run 3: Statistics of PCC-Allegro

Start at: 2018-05-24 05:50:58
End at: 2018-05-24 05:51:28
Local clock offset: 0.235 ms
Remote clock offset: 0.217 ms


# Below is generated by plot.py at 2018-05-24 09:52:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 538.02 Mbit/s
95th percentile per-packet one-way delay: 243.717 ms
Loss rate: 2.73%
-- Flow 1:
Average throughput: 487.27 Mbit/s
95th percentile per-packet one-way delay: 243.645 ms
Loss rate: 2.74%
-- Flow 2:
Average throughput: 60.49 Mbit/s
95th percentile per-packet one-way delay: 243.480 ms
Loss rate: 2.02%
-- Flow 3:
Average throughput: 32.24 Mbit/s
95th percentile per-packet one-way delay: 246.888 ms
Loss rate: 4.88%
```
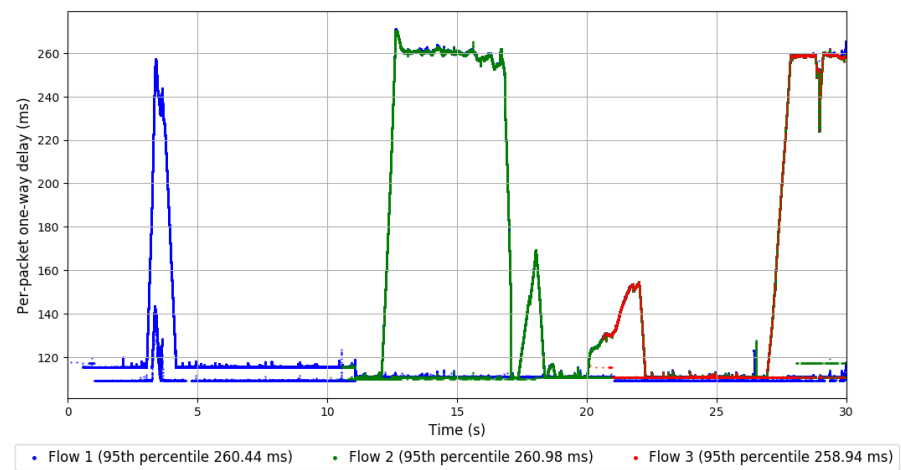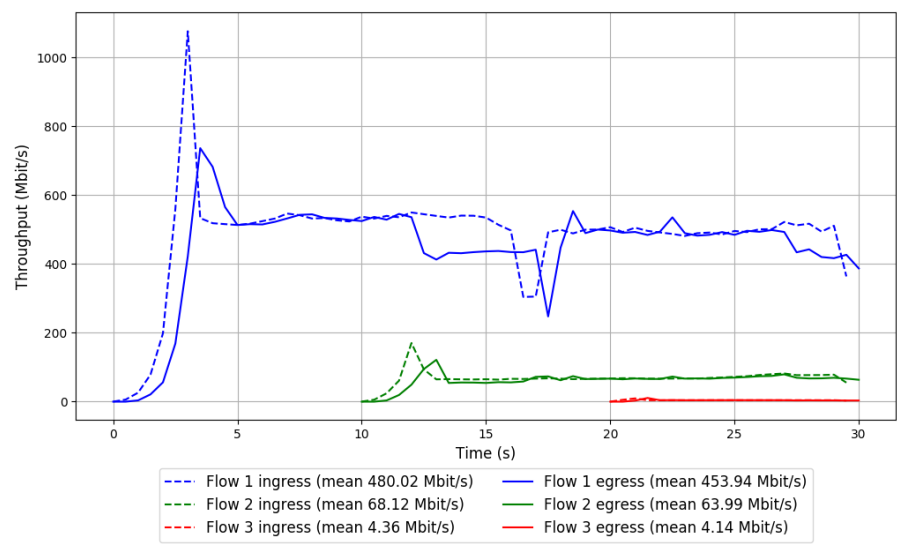
Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 500.96 Mbit/s)   Flow 1 egress (mean 487.27 Mbit/s)
Flow 2 ingress (mean 61.75 Mbit/s)   Flow 2 egress (mean 60.49 Mbit/s)
Flow 3 ingress (mean 33.92 Mbit/s)   Flow 3 egress (mean 32.24 Mbit/s)

Flow 1 (95th percentile 243.65 ms)   Flow 2 (95th percentile 243.48 ms)   Flow 3 (95th percentile 246.89 ms)

```
Run 4: Statistics of PCC-Allegro

Start at: 2018-05-24 06:14:25
End at: 2018-05-24 06:14:55
Local clock offset: -0.05 ms
Remote clock offset: 0.221 ms


# Below is generated by plot.py at 2018-05-24 09:52:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 497.84 Mbit/s
95th percentile per-packet one-way delay: 260.495 ms
Loss rate: 5.50%
-- Flow 1:
Average throughput: 453.94 Mbit/s
95th percentile per-packet one-way delay: 260.435 ms
Loss rate: 5.45%
-- Flow 2:
Average throughput: 63.99 Mbit/s
95th percentile per-packet one-way delay: 260.979 ms
Loss rate: 6.06%
-- Flow 3:
Average throughput: 4.14 Mbit/s
95th percentile per-packet one-way delay: 258.938 ms
Loss rate: 5.09%
```
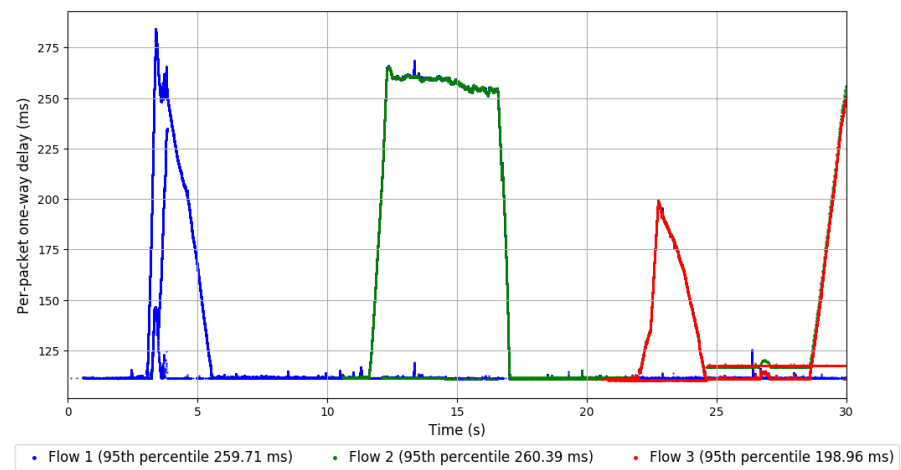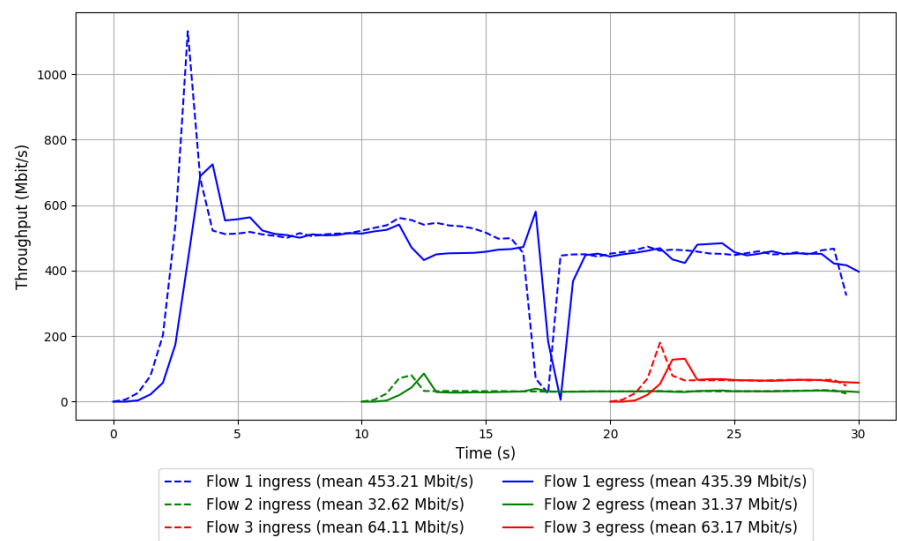
Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 480.02 Mbit/s) — Flow 1 egress (mean 453.94 Mbit/s)
Flow 2 ingress (mean 68.12 Mbit/s) — Flow 2 egress (mean 63.99 Mbit/s)
Flow 3 ingress (mean 4.36 Mbit/s) — Flow 3 egress (mean 4.14 Mbit/s)

Flow 1 (95th percentile 260.44 ms) • Flow 2 (95th percentile 260.98 ms) • Flow 3 (95th percentile 258.94 ms)
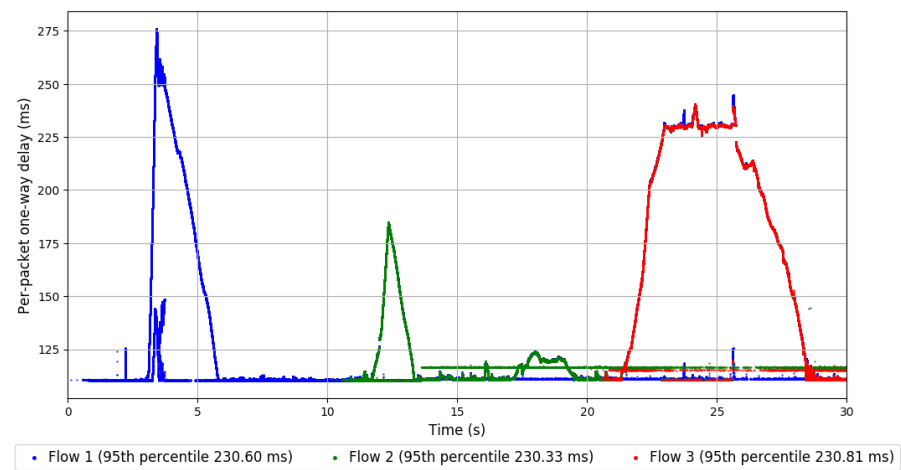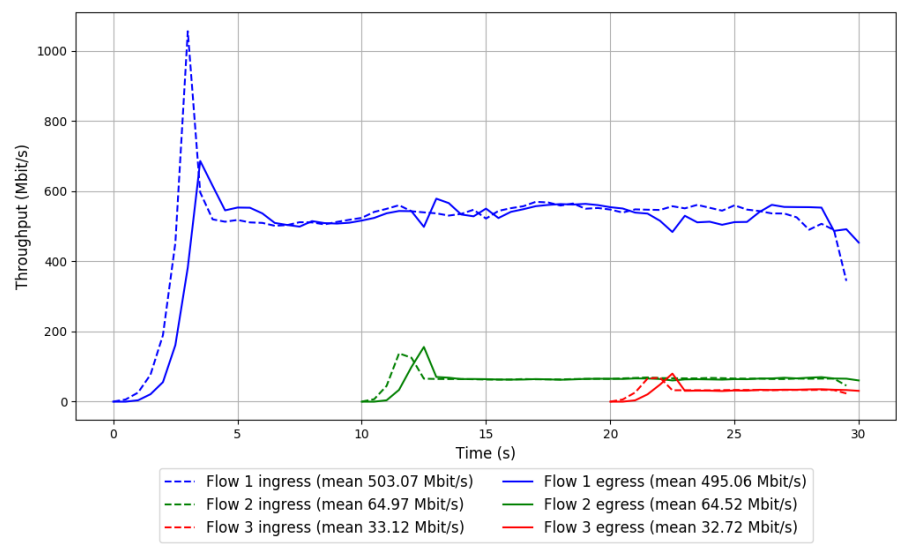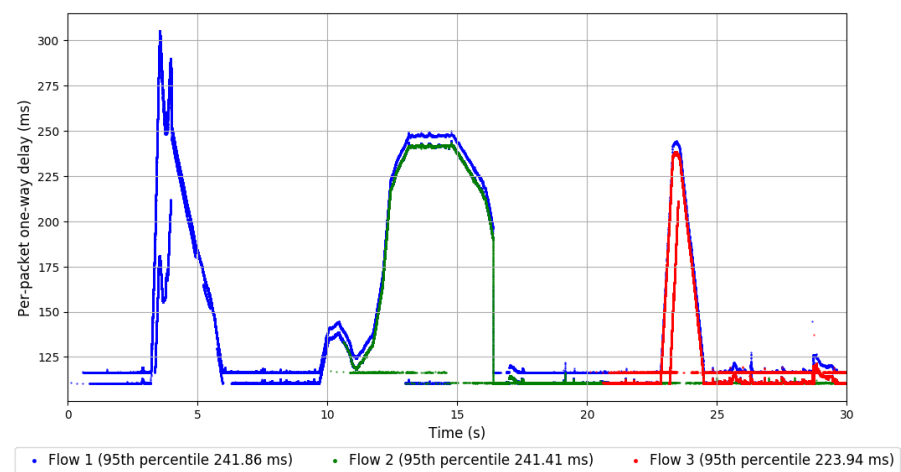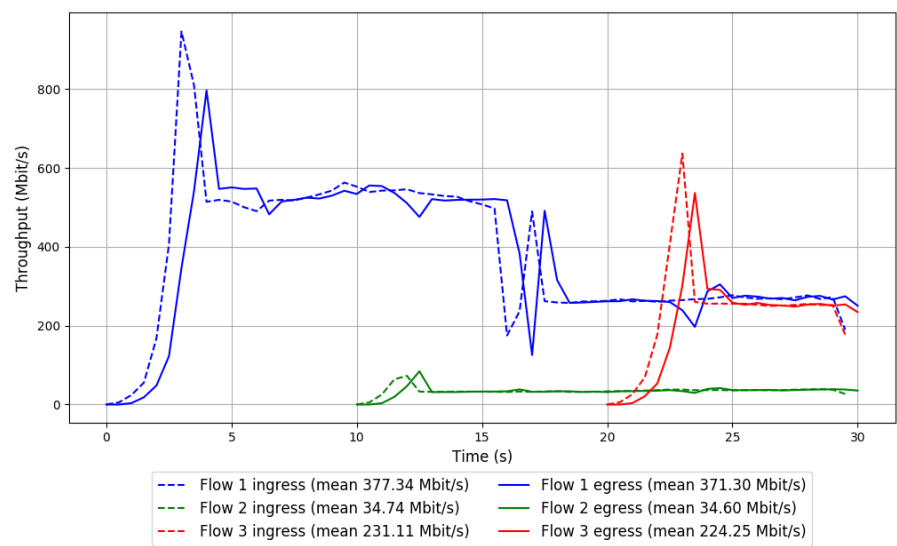
```
Run 5: Statistics of PCC-Allegro

Start at: 2018-05-24 06:38:42
End at: 2018-05-24 06:39:12
Local clock offset: -0.137 ms
Remote clock offset: 0.135 ms

# Below is generated by plot.py at 2018-05-24 09:52:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 477.04 Mbit/s
95th percentile per-packet one-way delay: 259.688 ms
Loss rate: 3.82%
-- Flow 1:
Average throughput: 435.39 Mbit/s
95th percentile per-packet one-way delay: 259.712 ms
Loss rate: 3.93%
-- Flow 2:
Average throughput: 31.37 Mbit/s
95th percentile per-packet one-way delay: 260.393 ms
Loss rate: 3.82%
-- Flow 3:
Average throughput: 63.17 Mbit/s
95th percentile per-packet one-way delay: 198.964 ms
Loss rate: 1.45%
```

Run 5: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 453.21 Mbit/s)   Flow 1 egress (mean 435.39 Mbit/s)
Flow 2 ingress (mean 32.62 Mbit/s)   Flow 2 egress (mean 31.37 Mbit/s)
Flow 3 ingress (mean 64.11 Mbit/s)   Flow 3 egress (mean 63.17 Mbit/s)

Flow 1 (95th percentile 259.71 ms)   Flow 2 (95th percentile 260.39 ms)   Flow 3 (95th percentile 198.96 ms)
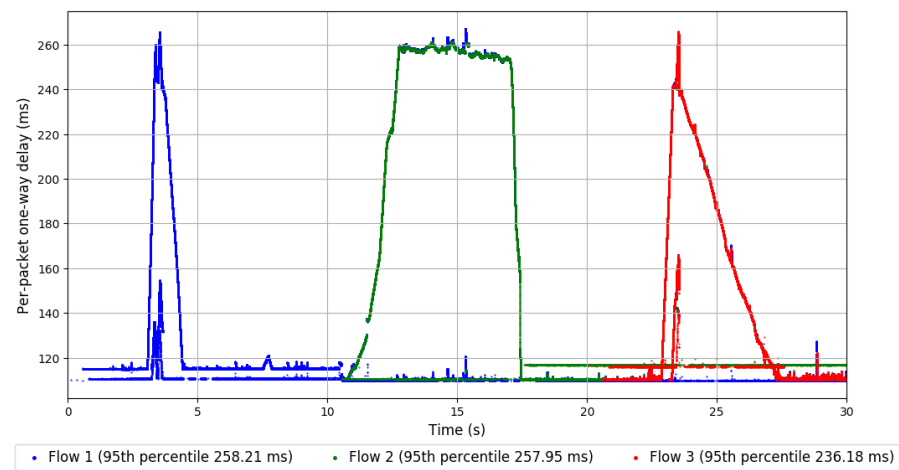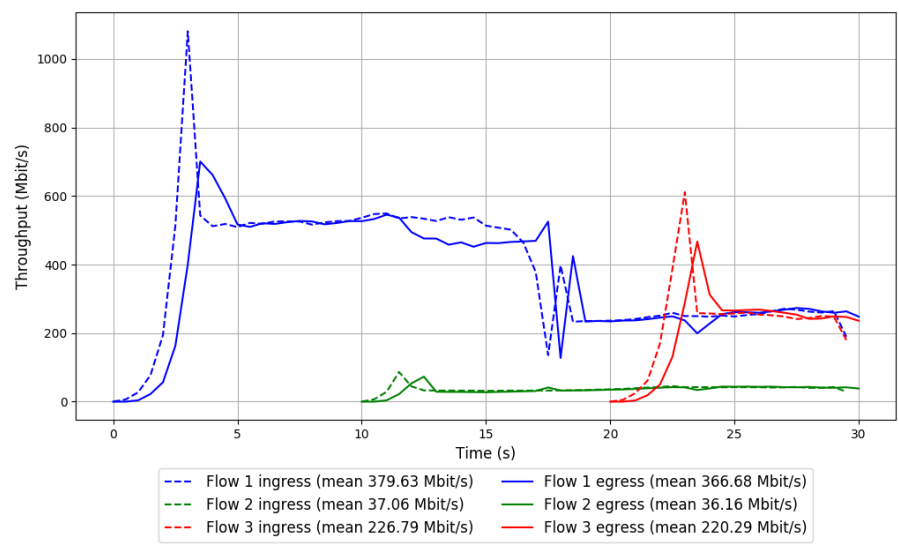
```
Run 6: Statistics of PCC-Allegro

Start at: 2018-05-24 07:02:33
End at: 2018-05-24 07:03:03
Local clock offset: -0.022 ms
Remote clock offset: -0.172 ms


# Below is generated by plot.py at 2018-05-24 09:52:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 548.66 Mbit/s
95th percentile per-packet one-way delay: 230.583 ms
Loss rate: 1.51%
-- Flow 1:
Average throughput: 495.06 Mbit/s
95th percentile per-packet one-way delay: 230.603 ms
Loss rate: 1.59%
-- Flow 2:
Average throughput: 64.52 Mbit/s
95th percentile per-packet one-way delay: 230.330 ms
Loss rate: 0.69%
-- Flow 3:
Average throughput: 32.72 Mbit/s
95th percentile per-packet one-way delay: 230.814 ms
Loss rate: 1.26%
```

Run 6: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 503.07 Mbit/s) ---- Flow 1 egress (mean 495.06 Mbit/s) ——
Flow 2 ingress (mean 64.97 Mbit/s) ---- Flow 2 egress (mean 64.52 Mbit/s) ——
Flow 3 ingress (mean 33.12 Mbit/s) ---- Flow 3 egress (mean 32.72 Mbit/s) ——

• Flow 1 (95th percentile 230.60 ms)   • Flow 2 (95th percentile 230.33 ms)   • Flow 3 (95th percentile 230.81 ms)
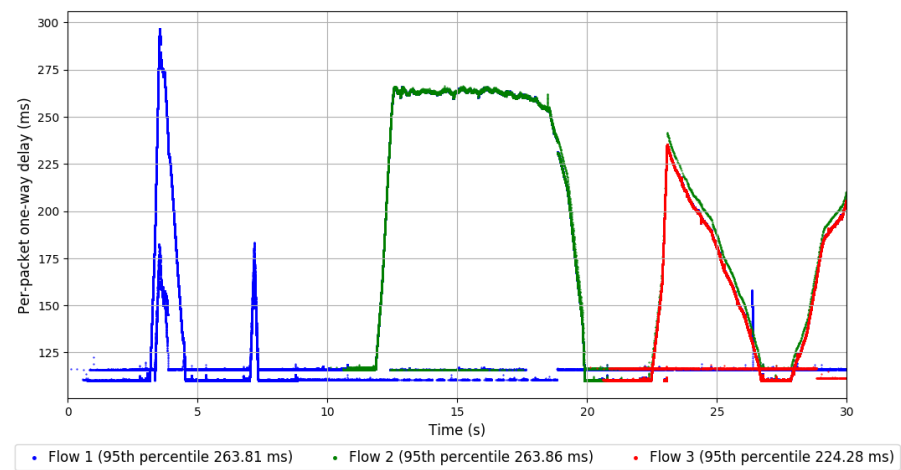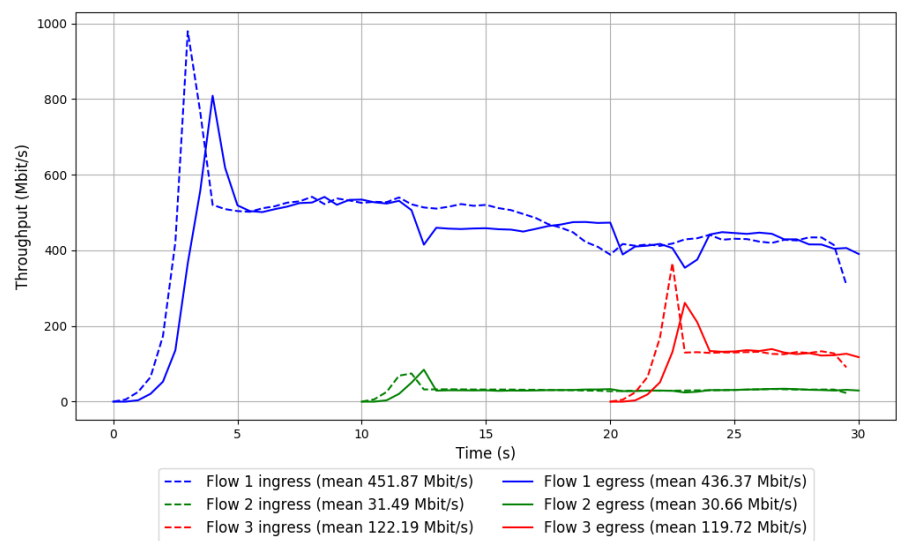
```
Run 7: Statistics of PCC-Allegro

Start at: 2018-05-24 07:26:19
End at: 2018-05-24 07:26:49
Local clock offset: 0.167 ms
Remote clock offset: -0.219 ms


# Below is generated by plot.py at 2018-05-24 09:52:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 468.18 Mbit/s
95th percentile per-packet one-way delay: 241.728 ms
Loss rate: 1.76%
-- Flow 1:
Average throughput: 371.30 Mbit/s
95th percentile per-packet one-way delay: 241.862 ms
Loss rate: 1.59%
-- Flow 2:
Average throughput: 34.60 Mbit/s
95th percentile per-packet one-way delay: 241.415 ms
Loss rate: 0.45%
-- Flow 3:
Average throughput: 224.25 Mbit/s
95th percentile per-packet one-way delay: 223.935 ms
Loss rate: 2.98%
```

Run 7: Report of PCC-Allegro — Data Link

```
Run 8: Statistics of PCC-Allegro

Start at: 2018-05-24 07:49:46
End at: 2018-05-24 07:50:16
Local clock offset: -0.004 ms
Remote clock offset: -0.247 ms


# Below is generated by plot.py at 2018-05-24 09:52:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 463.24 Mbit/s
95th percentile per-packet one-way delay: 257.965 ms
Loss rate: 3.28%
-- Flow 1:
Average throughput: 366.68 Mbit/s
95th percentile per-packet one-way delay: 258.207 ms
Loss rate: 3.41%
-- Flow 2:
Average throughput: 36.16 Mbit/s
95th percentile per-packet one-way delay: 257.948 ms
Loss rate: 2.42%
-- Flow 3:
Average throughput: 220.29 Mbit/s
95th percentile per-packet one-way delay: 236.184 ms
Loss rate: 2.91%
```
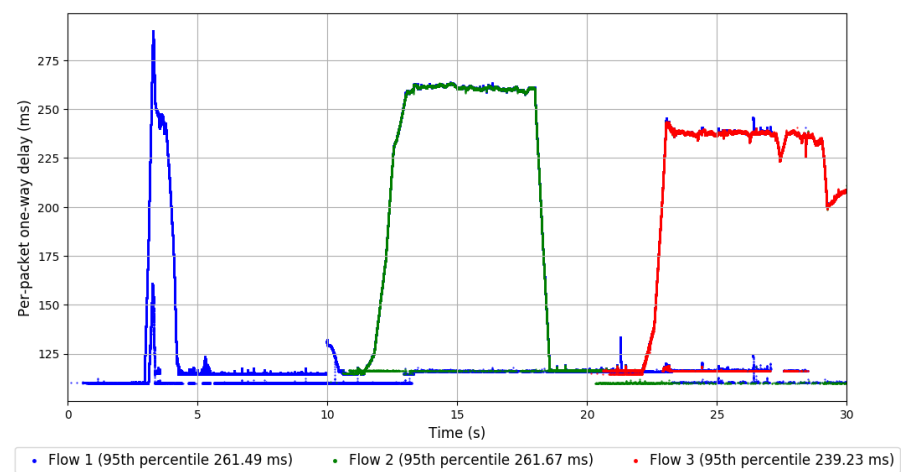
Run 8: Report of PCC-Allegro — Data Link

139

```
Run 9: Statistics of PCC-Allegro

Start at: 2018-05-24 08:13:57
End at: 2018-05-24 08:14:27
Local clock offset: 0.074 ms
Remote clock offset: -0.186 ms


# Below is generated by plot.py at 2018-05-24 09:53:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 496.21 Mbit/s
95th percentile per-packet one-way delay: 263.744 ms
Loss rate: 3.29%
-- Flow 1:
Average throughput: 436.37 Mbit/s
95th percentile per-packet one-way delay: 263.805 ms
Loss rate: 3.43%
-- Flow 2:
Average throughput: 30.66 Mbit/s
95th percentile per-packet one-way delay: 263.857 ms
Loss rate: 2.67%
-- Flow 3:
Average throughput: 119.72 Mbit/s
95th percentile per-packet one-way delay: 224.284 ms
Loss rate: 2.07%
```
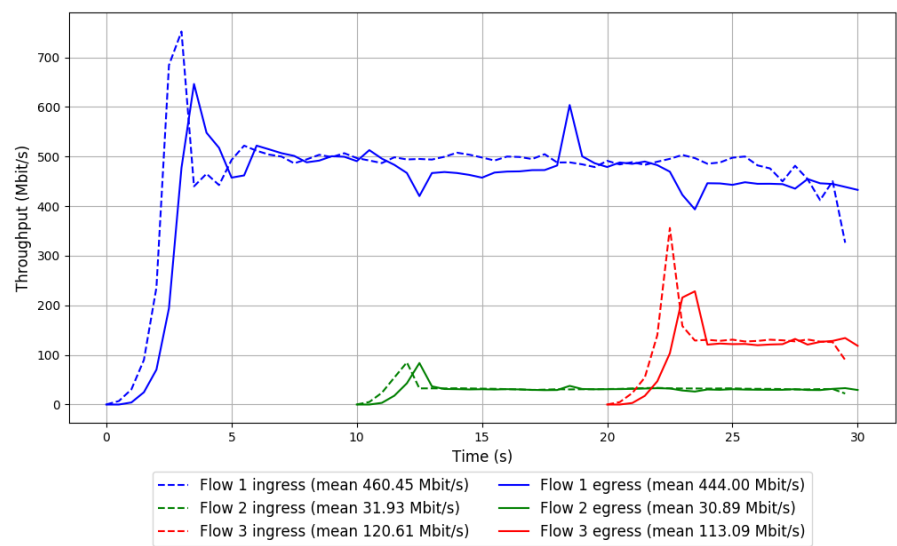
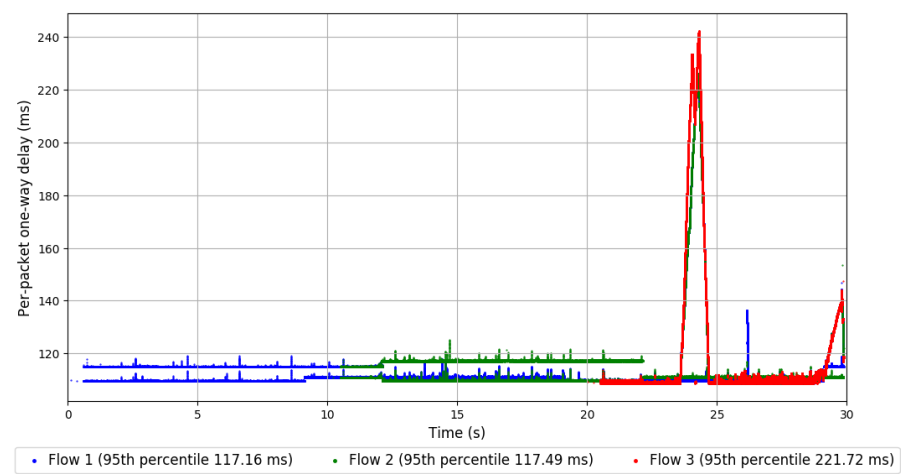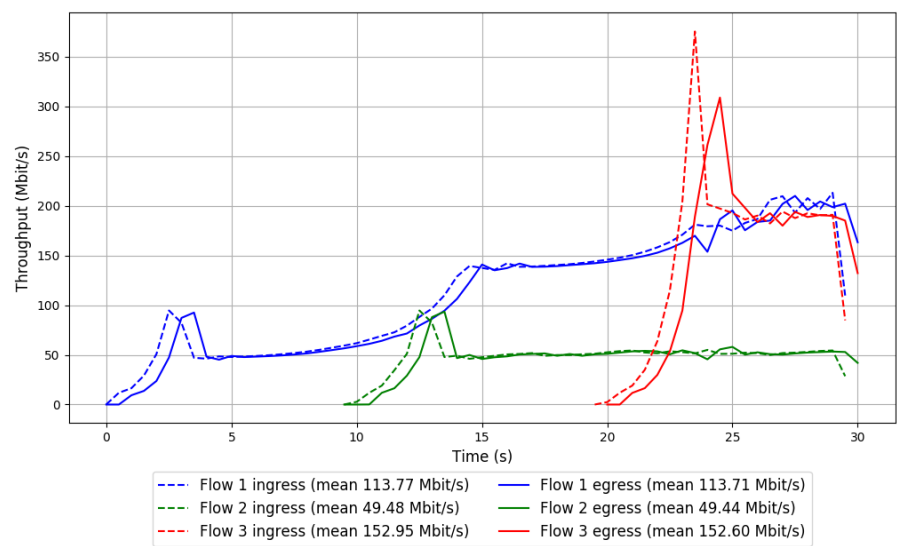## Run 9: Report of PCC-Allegro — Data Link

- - - Flow 1 ingress (mean 451.87 Mbit/s) —— Flow 1 egress (mean 436.37 Mbit/s)
- - - Flow 2 ingress (mean 31.49 Mbit/s) —— Flow 2 egress (mean 30.66 Mbit/s)
- - - Flow 3 ingress (mean 122.19 Mbit/s) —— Flow 3 egress (mean 119.72 Mbit/s)

- Flow 1 (95th percentile 263.81 ms)   - Flow 2 (95th percentile 263.86 ms)   - Flow 3 (95th percentile 224.28 ms)

```
Run 10: Statistics of PCC-Allegro

Start at: 2018-05-24 08:37:23
End at: 2018-05-24 08:37:53
Local clock offset: 0.251 ms
Remote clock offset: 0.218 ms


# Below is generated by plot.py at 2018-05-24 09:54:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 501.74 Mbit/s
95th percentile per-packet one-way delay: 261.430 ms
Loss rate: 3.74%
-- Flow 1:
Average throughput: 444.00 Mbit/s
95th percentile per-packet one-way delay: 261.488 ms
Loss rate: 3.55%
-- Flow 2:
Average throughput: 30.89 Mbit/s
95th percentile per-packet one-way delay: 261.673 ms
Loss rate: 3.23%
-- Flow 3:
Average throughput: 113.09 Mbit/s
95th percentile per-packet one-way delay: 239.229 ms
Loss rate: 6.21%
```

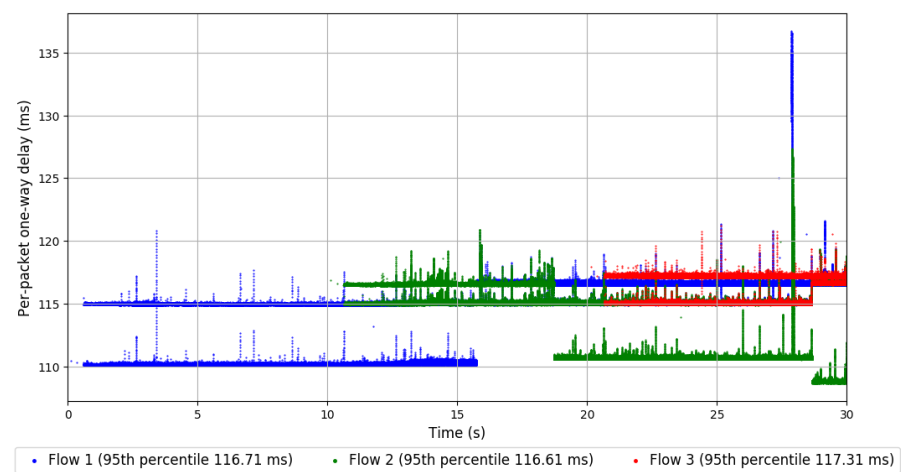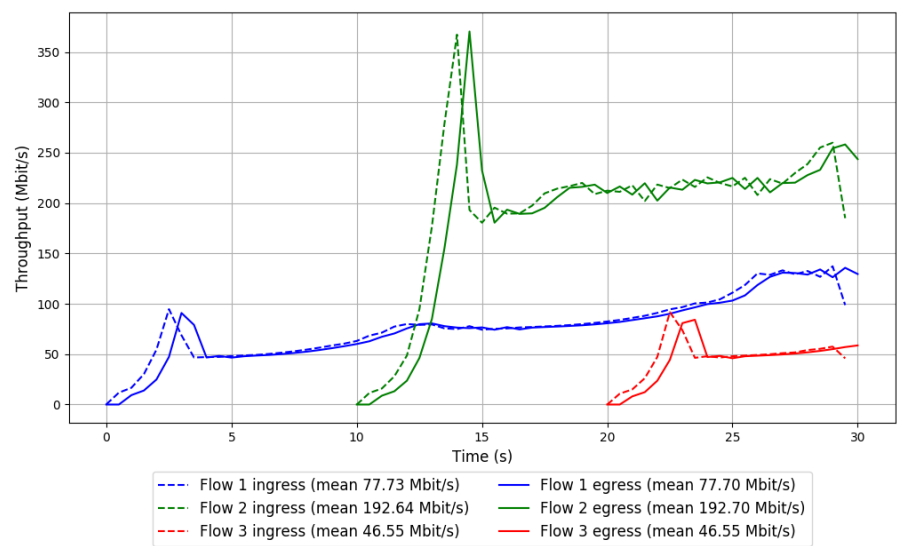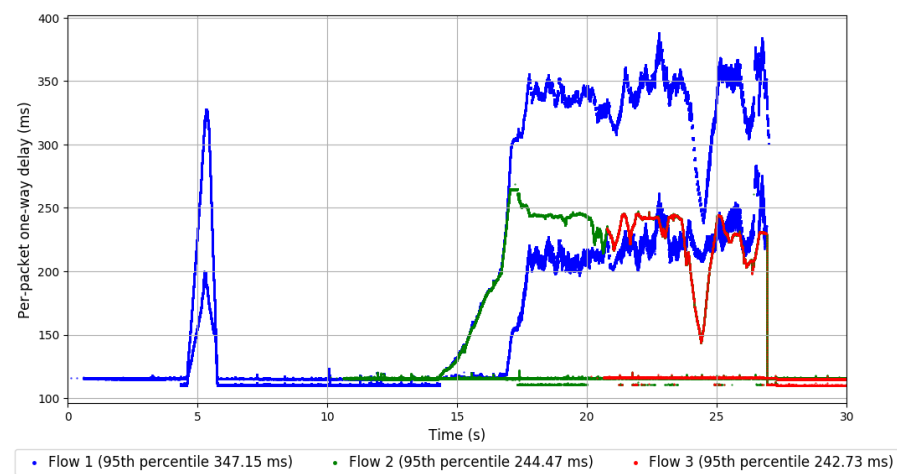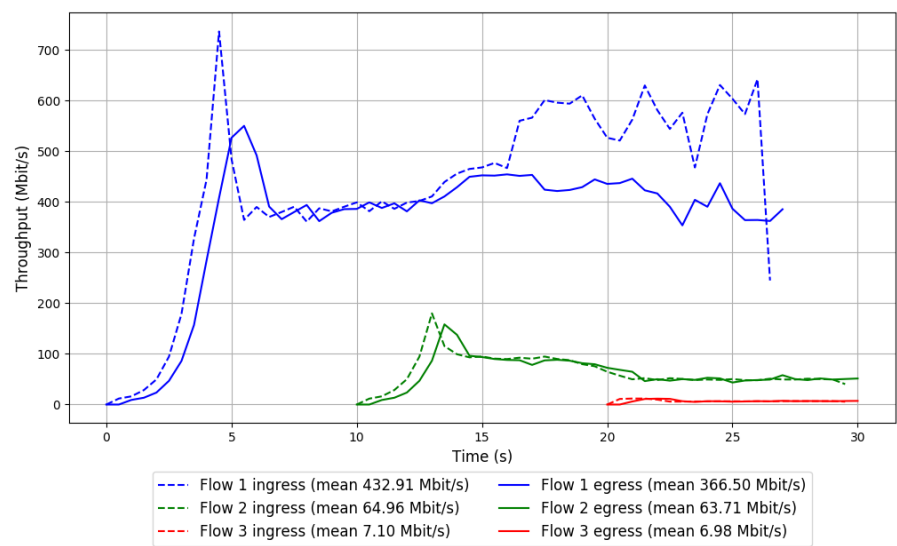Run 10: Report of PCC-Allegro — Data Link

```
Run 1: Statistics of PCC-Expr

Start at: 2018-05-24 04:52:44
End at: 2018-05-24 04:53:14
Local clock offset: 0.098 ms
Remote clock offset: -0.103 ms


# Below is generated by plot.py at 2018-05-24 09:54:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 197.29 Mbit/s
95th percentile per-packet one-way delay: 159.052 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 113.71 Mbit/s
95th percentile per-packet one-way delay: 117.164 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 49.44 Mbit/s
95th percentile per-packet one-way delay: 117.489 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 152.60 Mbit/s
95th percentile per-packet one-way delay: 221.724 ms
Loss rate: 0.17%
```

Run 1: Report of PCC-Expr — Data Link

- - - - Flow 1 ingress (mean 113.77 Mbit/s) ——— Flow 1 egress (mean 113.71 Mbit/s)
- - - - Flow 2 ingress (mean 49.48 Mbit/s) ——— Flow 2 egress (mean 49.44 Mbit/s)
- - - - Flow 3 ingress (mean 152.95 Mbit/s) ——— Flow 3 egress (mean 152.60 Mbit/s)

• Flow 1 (95th percentile 117.16 ms)   • Flow 2 (95th percentile 117.49 ms)   • Flow 3 (95th percentile 221.72 ms)
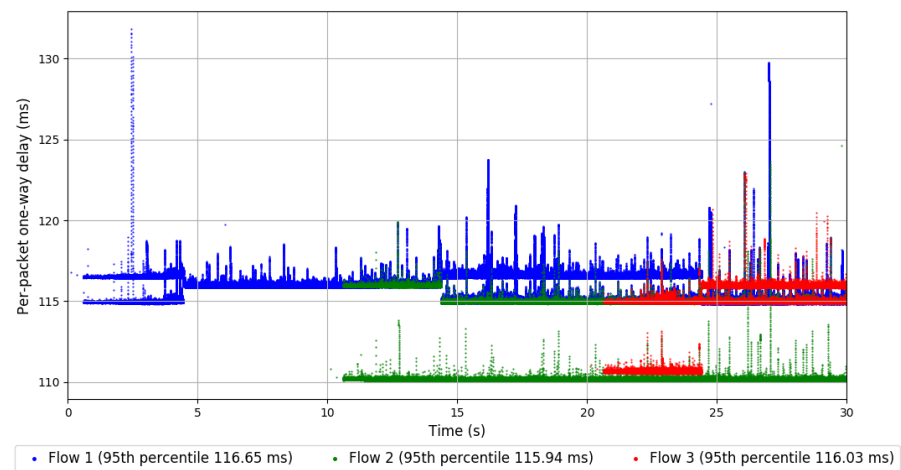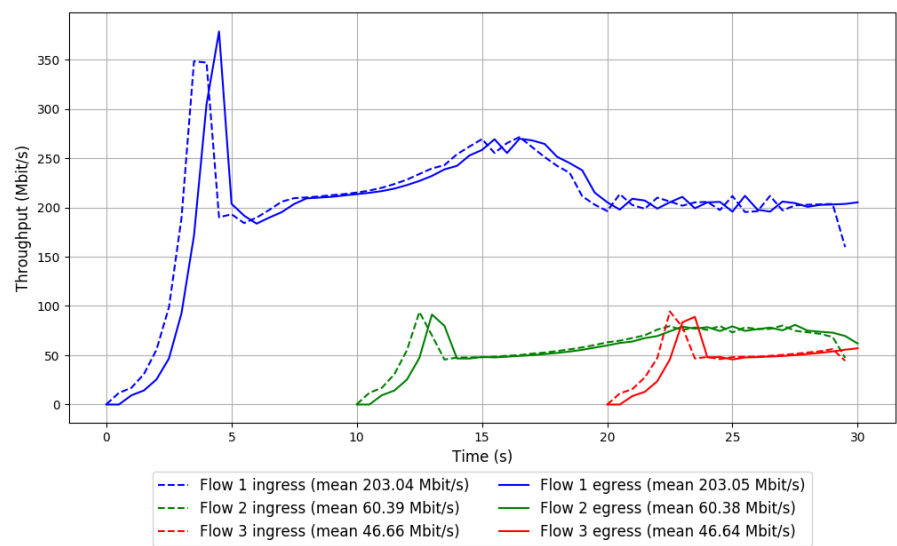
```
Run 2: Statistics of PCC-Expr

Start at: 2018-05-24 05:16:18
End at: 2018-05-24 05:16:48
Local clock offset: 0.141 ms
Remote clock offset: -0.173 ms


# Below is generated by plot.py at 2018-05-24 09:55:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 221.15 Mbit/s
95th percentile per-packet one-way delay: 116.784 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 77.70 Mbit/s
95th percentile per-packet one-way delay: 116.711 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 192.70 Mbit/s
95th percentile per-packet one-way delay: 116.615 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 46.55 Mbit/s
95th percentile per-packet one-way delay: 117.314 ms
Loss rate: 0.06%
```

Run 2: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 77.73 Mbit/s) --- Flow 1 egress (mean 77.70 Mbit/s)
Flow 2 ingress (mean 192.64 Mbit/s) --- Flow 2 egress (mean 192.70 Mbit/s)
Flow 3 ingress (mean 46.55 Mbit/s) --- Flow 3 egress (mean 46.55 Mbit/s)

Flow 1 (95th percentile 116.71 ms) Flow 2 (95th percentile 116.61 ms) Flow 3 (95th percentile 117.31 ms)

```
Run 3: Statistics of PCC-Expr

Start at: 2018-05-24 05:39:49
End at: 2018-05-24 05:40:19
Local clock offset: 0.087 ms
Remote clock offset: -0.149 ms


# Below is generated by plot.py at 2018-05-24 10:01:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 374.23 Mbit/s
95th percentile per-packet one-way delay: 345.720 ms
Loss rate: 13.40%
-- Flow 1:
Average throughput: 366.50 Mbit/s
95th percentile per-packet one-way delay: 347.146 ms
Loss rate: 14.75%
-- Flow 2:
Average throughput: 63.71 Mbit/s
95th percentile per-packet one-way delay: 244.468 ms
Loss rate: 1.96%
-- Flow 3:
Average throughput: 6.98 Mbit/s
95th percentile per-packet one-way delay: 242.726 ms
Loss rate: 1.68%
```
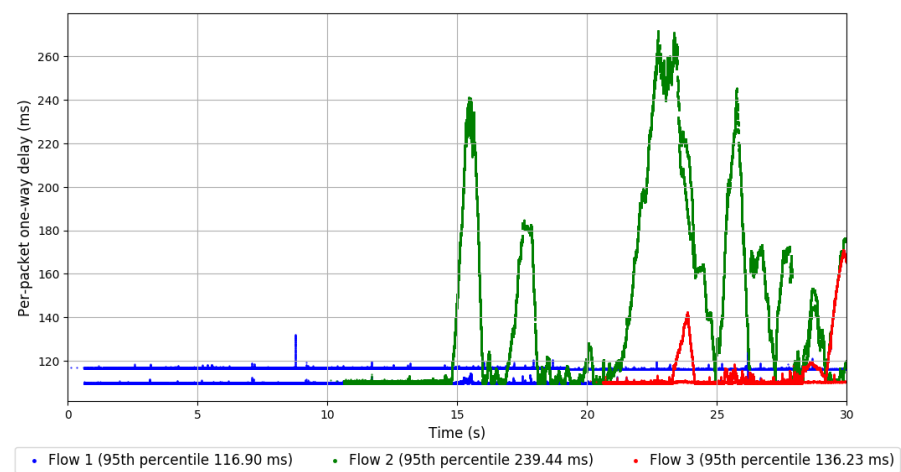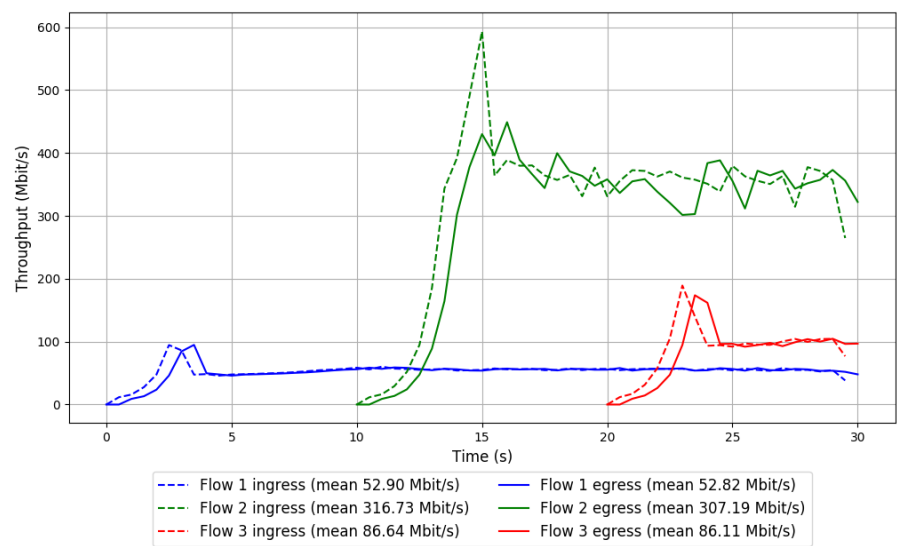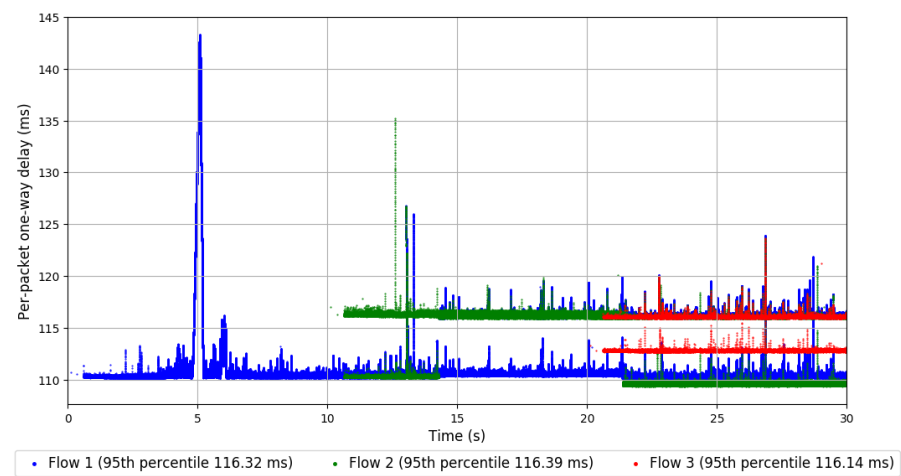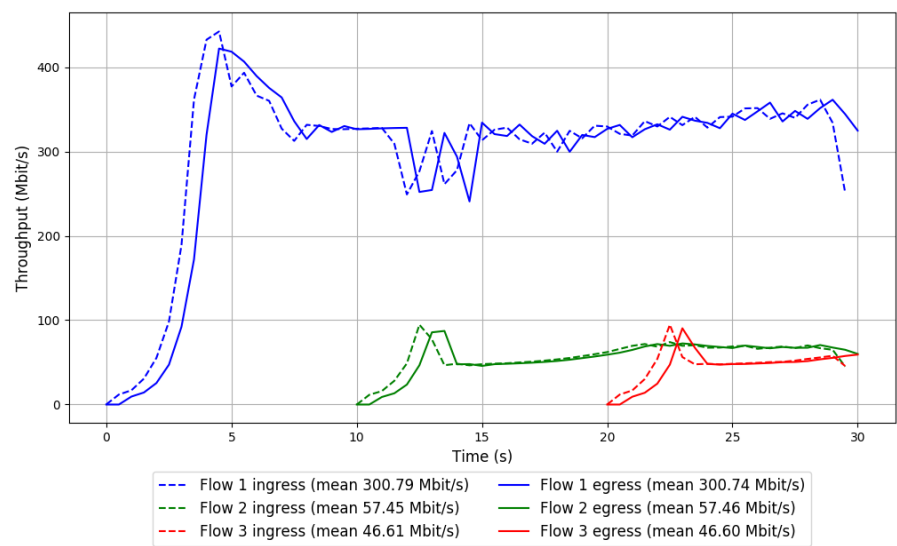
Run 3: Report of PCC-Expr — Data Link

```
Run 4: Statistics of PCC-Expr

Start at: 2018-05-24 06:03:32
End at: 2018-05-24 06:04:02
Local clock offset: 0.112 ms
Remote clock offset: -0.065 ms


# Below is generated by plot.py at 2018-05-24 10:01:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 258.59 Mbit/s
95th percentile per-packet one-way delay: 116.620 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 203.05 Mbit/s
95th percentile per-packet one-way delay: 116.654 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 60.38 Mbit/s
95th percentile per-packet one-way delay: 115.937 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 46.64 Mbit/s
95th percentile per-packet one-way delay: 116.026 ms
Loss rate: 0.05%
```
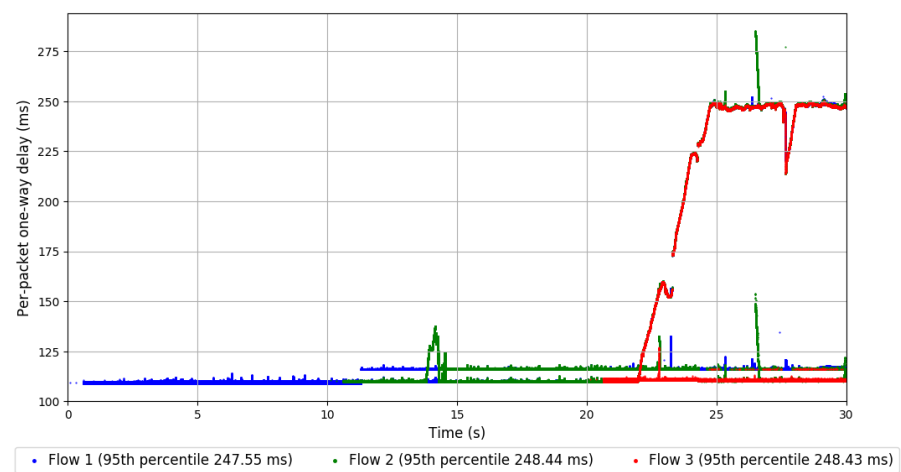
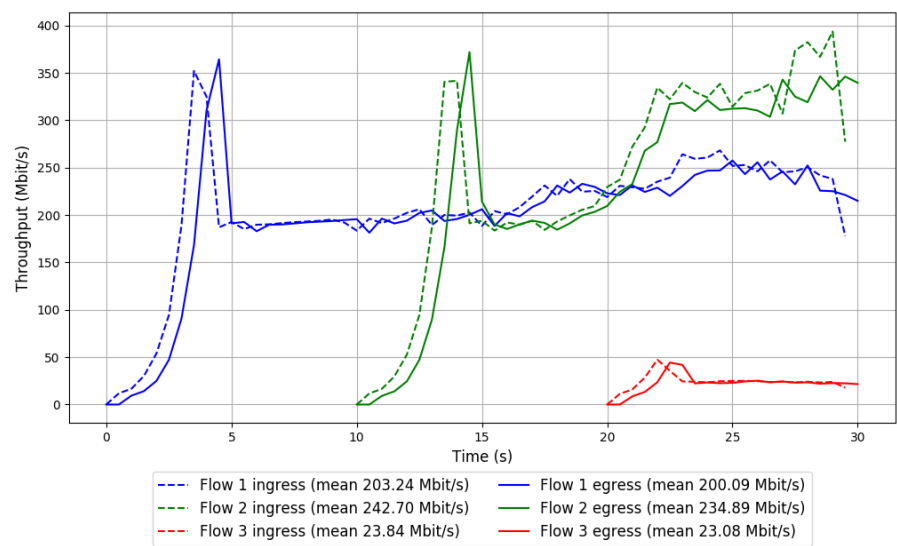Run 4: Report of PCC-Expr — Data Link

```
Run 5: Statistics of PCC-Expr

Start at: 2018-05-24 06:27:27
End at: 2018-05-24 06:27:57
Local clock offset: 0.341 ms
Remote clock offset: -0.22 ms


# Below is generated by plot.py at 2018-05-24 10:01:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 285.56 Mbit/s
95th percentile per-packet one-way delay: 228.708 ms
Loss rate: 2.26%
-- Flow 1:
Average throughput: 52.82 Mbit/s
95th percentile per-packet one-way delay: 116.902 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 307.19 Mbit/s
95th percentile per-packet one-way delay: 239.438 ms
Loss rate: 3.01%
-- Flow 3:
Average throughput: 86.11 Mbit/s
95th percentile per-packet one-way delay: 136.226 ms
Loss rate: 0.61%
```

Run 5: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 52.90 Mbit/s) --- Flow 1 egress (mean 52.82 Mbit/s)
Flow 2 ingress (mean 316.73 Mbit/s) --- Flow 2 egress (mean 307.19 Mbit/s)
Flow 3 ingress (mean 86.64 Mbit/s) --- Flow 3 egress (mean 86.11 Mbit/s)

Flow 1 (95th percentile 116.90 ms)   Flow 2 (95th percentile 239.44 ms)   Flow 3 (95th percentile 136.23 ms)
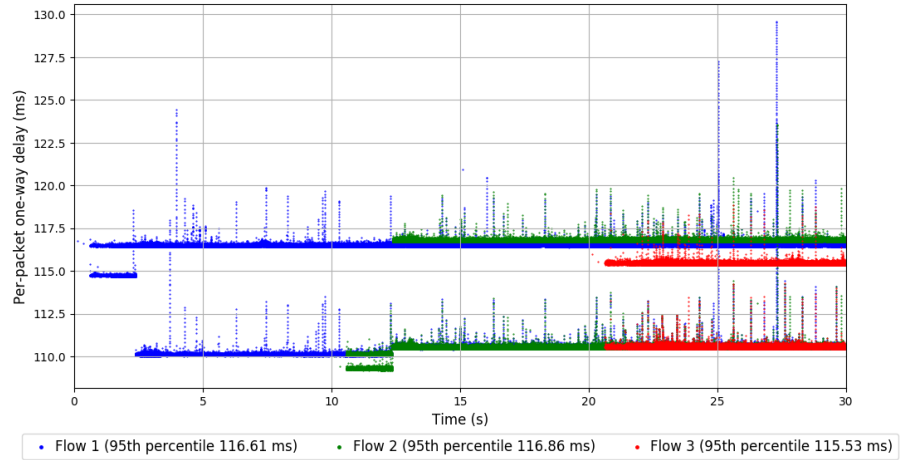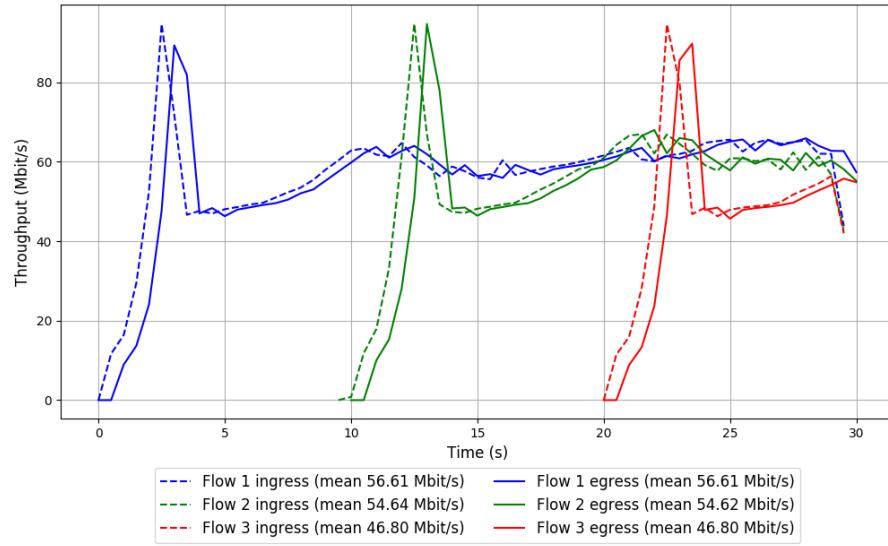
```
Run 6: Statistics of PCC-Expr

Start at: 2018-05-24 06:51:22
End at: 2018-05-24 06:51:52
Local clock offset: 0.075 ms
Remote clock offset: -0.224 ms


# Below is generated by plot.py at 2018-05-24 10:03:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 354.34 Mbit/s
95th percentile per-packet one-way delay: 116.329 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 300.74 Mbit/s
95th percentile per-packet one-way delay: 116.316 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 57.46 Mbit/s
95th percentile per-packet one-way delay: 116.390 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 46.60 Mbit/s
95th percentile per-packet one-way delay: 116.136 ms
Loss rate: 0.00%
```
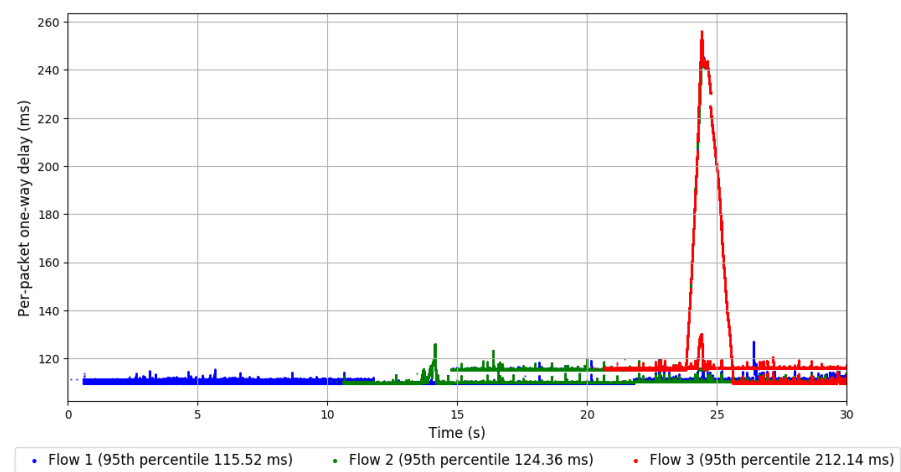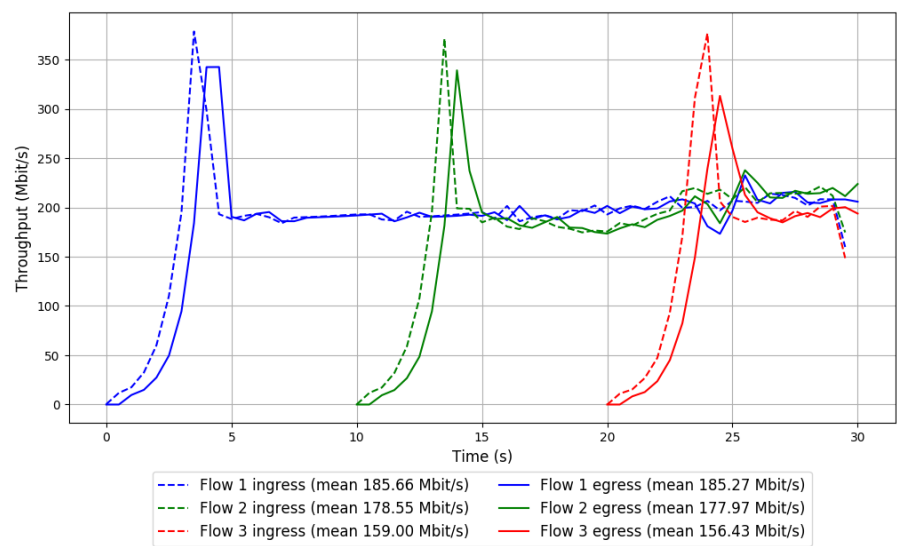
Run 6: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 300.79 Mbit/s)   Flow 1 egress (mean 300.74 Mbit/s)
Flow 2 ingress (mean 57.45 Mbit/s)   Flow 2 egress (mean 57.46 Mbit/s)
Flow 3 ingress (mean 46.61 Mbit/s)   Flow 3 egress (mean 46.60 Mbit/s)

Flow 1 (95th percentile 116.32 ms)   Flow 2 (95th percentile 116.39 ms)   Flow 3 (95th percentile 116.14 ms)

```
Run 7: Statistics of PCC-Expr

Start at: 2018-05-24 07:15:12
End at: 2018-05-24 07:15:42
Local clock offset: 0.141 ms
Remote clock offset: -0.576 ms


# Below is generated by plot.py at 2018-05-24 10:04:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 363.87 Mbit/s
95th percentile per-packet one-way delay: 248.098 ms
Loss rate: 2.30%
-- Flow 1:
Average throughput: 200.09 Mbit/s
95th percentile per-packet one-way delay: 247.553 ms
Loss rate: 1.54%
-- Flow 2:
Average throughput: 234.89 Mbit/s
95th percentile per-packet one-way delay: 248.445 ms
Loss rate: 3.22%
-- Flow 3:
Average throughput: 23.08 Mbit/s
95th percentile per-packet one-way delay: 248.430 ms
Loss rate: 3.13%
```
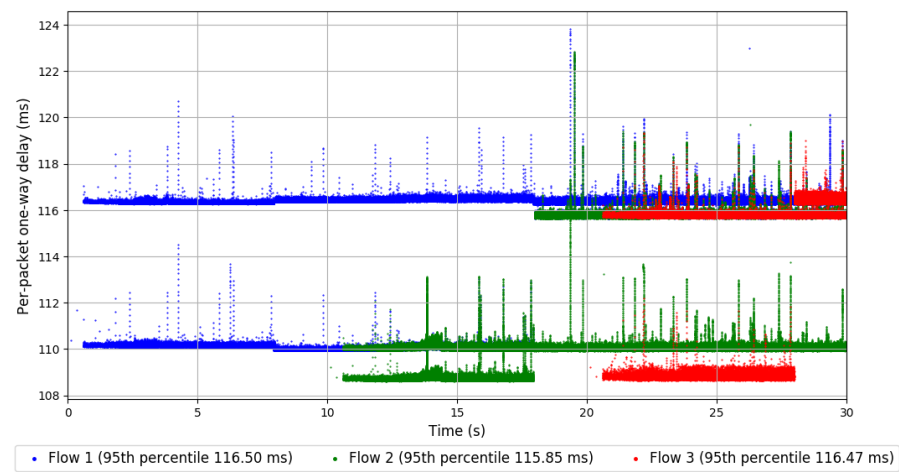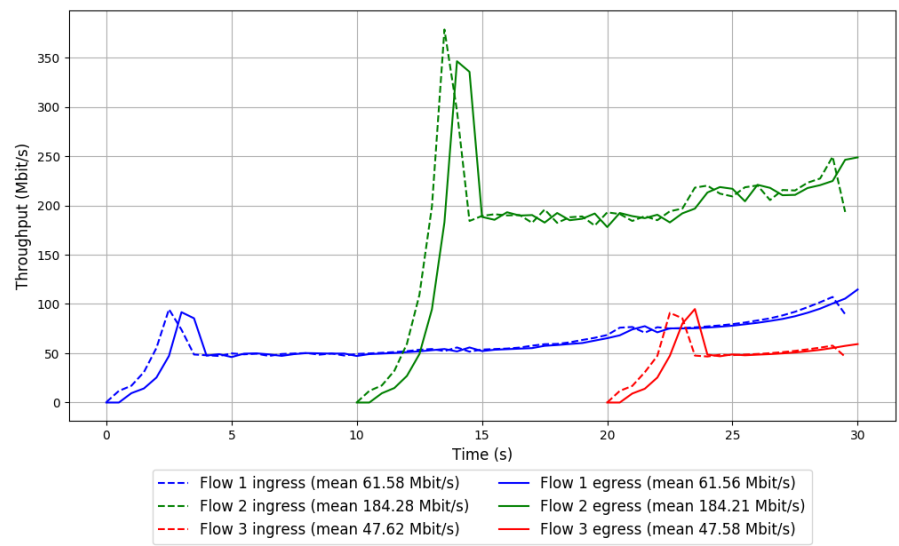
Run 7: Report of PCC-Expr — Data Link

```
Run 8: Statistics of PCC-Expr

Start at: 2018-05-24 07:38:54
End at: 2018-05-24 07:39:24
Local clock offset: 0.217 ms
Remote clock offset: -0.224 ms


# Below is generated by plot.py at 2018-05-24 10:04:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 108.42 Mbit/s
95th percentile per-packet one-way delay: 116.815 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 56.61 Mbit/s
95th percentile per-packet one-way delay: 116.610 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 54.62 Mbit/s
95th percentile per-packet one-way delay: 116.862 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 46.80 Mbit/s
95th percentile per-packet one-way delay: 115.528 ms
Loss rate: 0.00%
```
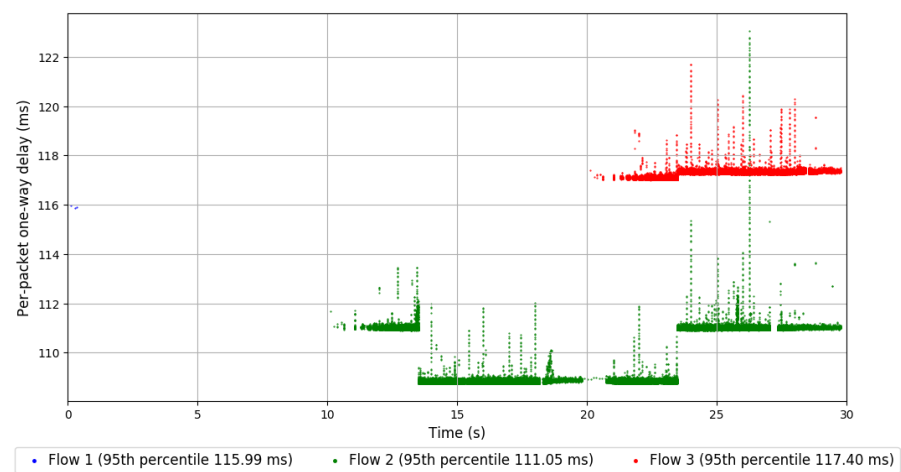
Run 8: Report of PCC-Expr — Data Link

- Flow 1 ingress (mean 56.61 Mbit/s)
- Flow 1 egress (mean 56.61 Mbit/s)
- Flow 2 ingress (mean 54.64 Mbit/s)
- Flow 2 egress (mean 54.62 Mbit/s)
- Flow 3 ingress (mean 46.80 Mbit/s)
- Flow 3 egress (mean 46.80 Mbit/s)

- Flow 1 (95th percentile 116.61 ms)
- Flow 2 (95th percentile 116.86 ms)
- Flow 3 (95th percentile 115.53 ms)

```
Run 9: Statistics of PCC-Expr

Start at: 2018-05-24 08:02:42
End at: 2018-05-24 08:03:12
Local clock offset: 0.262 ms
Remote clock offset: -0.574 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 355.21 Mbit/s
95th percentile per-packet one-way delay: 128.716 ms
Loss rate: 0.46%
-- Flow 1:
Average throughput: 185.27 Mbit/s
95th percentile per-packet one-way delay: 115.518 ms
Loss rate: 0.21%
-- Flow 2:
Average throughput: 177.97 Mbit/s
95th percentile per-packet one-way delay: 124.363 ms
Loss rate: 0.33%
-- Flow 3:
Average throughput: 156.43 Mbit/s
95th percentile per-packet one-way delay: 212.142 ms
Loss rate: 1.67%
```
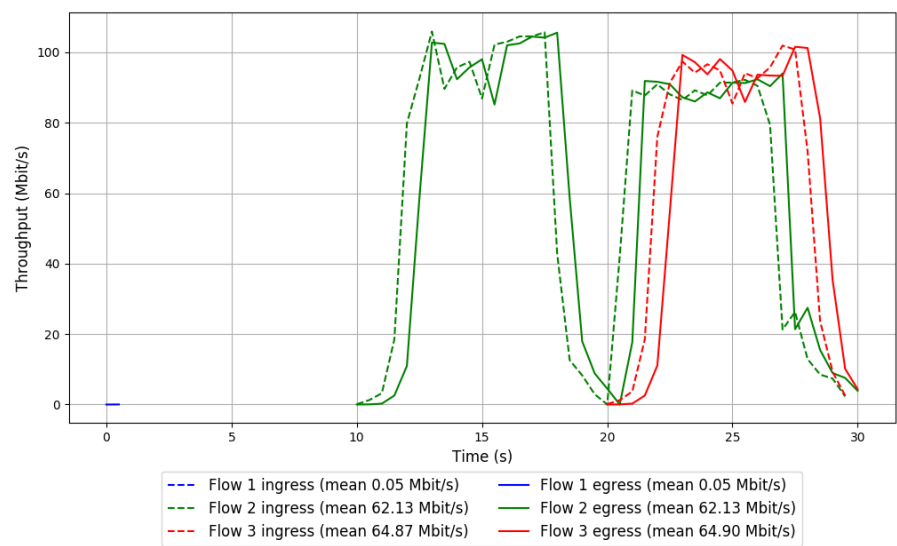
Run 9: Report of PCC-Expr — Data Link

- - - - Flow 1 ingress (mean 185.66 Mbit/s) —— Flow 1 egress (mean 185.27 Mbit/s)
- - - - Flow 2 ingress (mean 178.55 Mbit/s) —— Flow 2 egress (mean 177.97 Mbit/s)
- - - - Flow 3 ingress (mean 159.00 Mbit/s) —— Flow 3 egress (mean 156.43 Mbit/s)

- Flow 1 (95th percentile 115.52 ms)   - Flow 2 (95th percentile 124.36 ms)   - Flow 3 (95th percentile 212.14 ms)

161

```
Run 10: Statistics of PCC-Expr

Start at: 2018-05-24 08:26:38
End at: 2018-05-24 08:27:08
Local clock offset: 0.193 ms
Remote clock offset: -0.009 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 199.79 Mbit/s
95th percentile per-packet one-way delay: 116.436 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 61.56 Mbit/s
95th percentile per-packet one-way delay: 116.504 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 184.21 Mbit/s
95th percentile per-packet one-way delay: 115.847 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 47.58 Mbit/s
95th percentile per-packet one-way delay: 116.465 ms
Loss rate: 0.06%
```
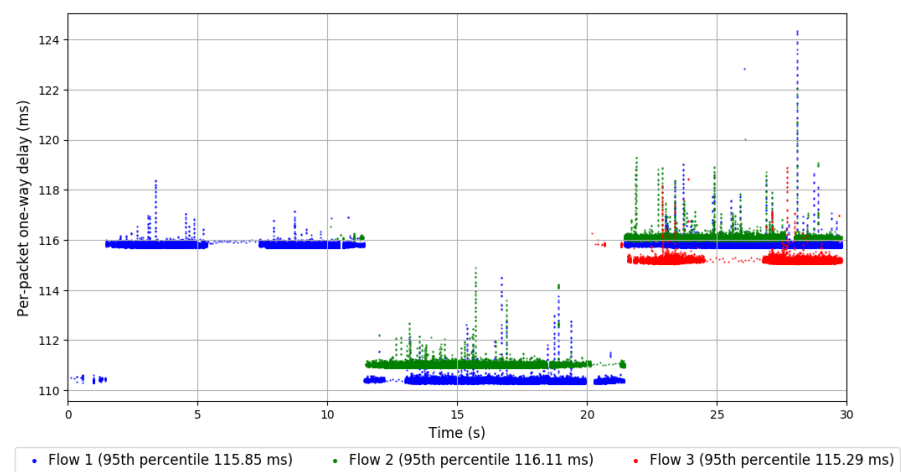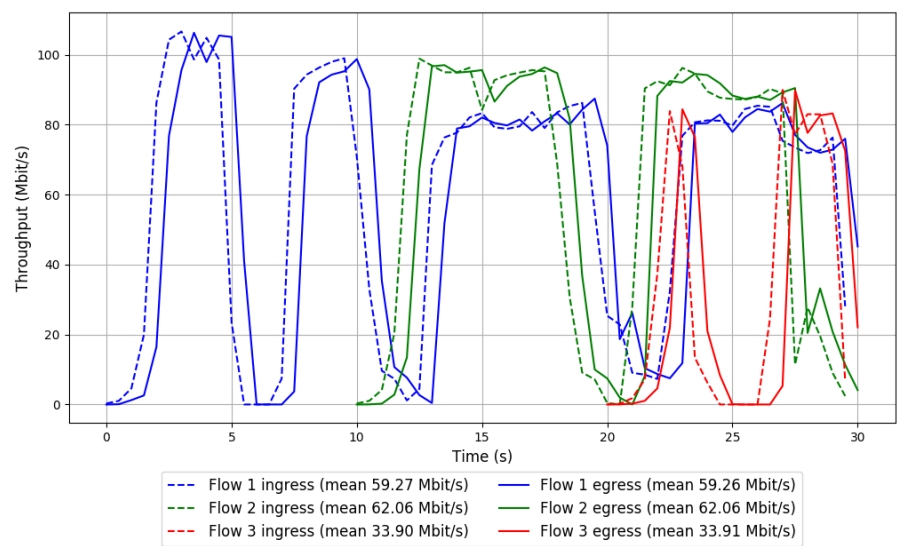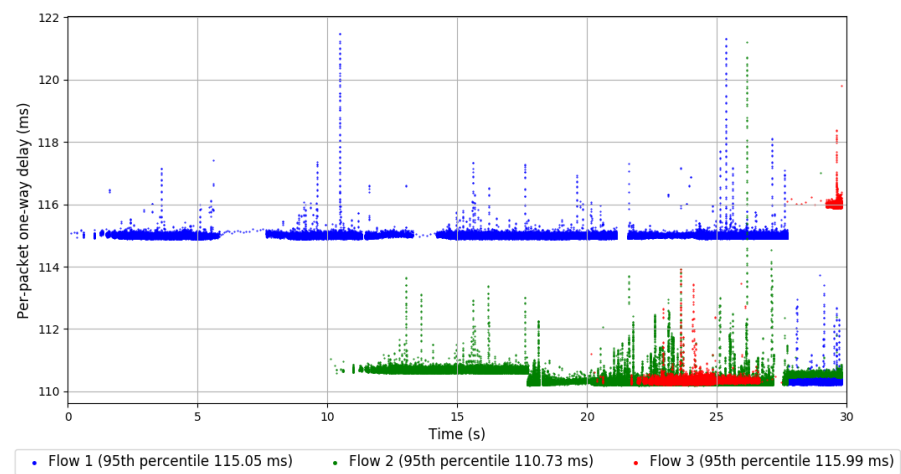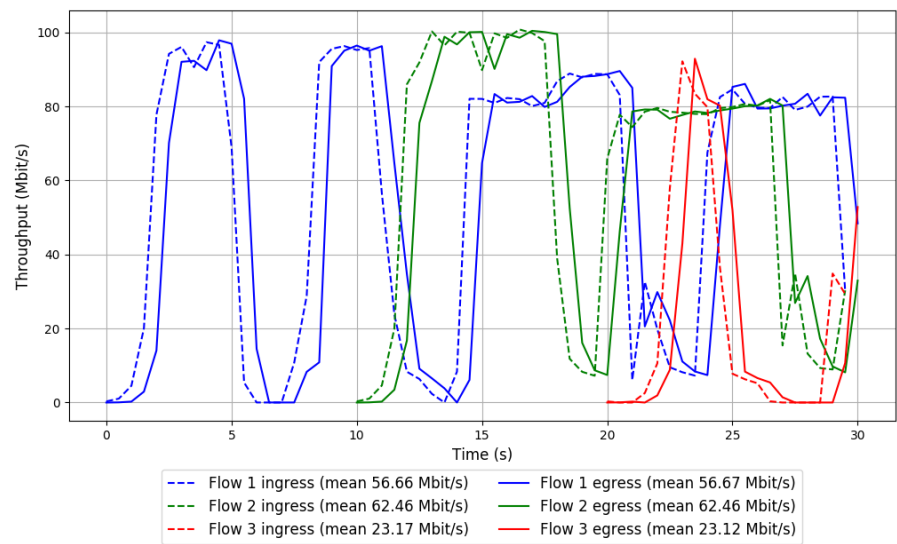
Run 10: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2018-05-24 04:50:03
End at: 2018-05-24 04:50:33
Local clock offset: 0.056 ms
Remote clock offset: -0.07 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 62.28 Mbit/s
95th percentile per-packet one-way delay: 117.354 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 115.989 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 62.13 Mbit/s
95th percentile per-packet one-way delay: 111.048 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 64.90 Mbit/s
95th percentile per-packet one-way delay: 117.399 ms
Loss rate: 0.01%
```

Run 1: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 0.05 Mbit/s) --- Flow 1 egress (mean 0.05 Mbit/s)
Flow 2 ingress (mean 62.13 Mbit/s) --- Flow 2 egress (mean 62.13 Mbit/s)
Flow 3 ingress (mean 64.87 Mbit/s) --- Flow 3 egress (mean 64.90 Mbit/s)

Flow 1 (95th percentile 115.99 ms) Flow 2 (95th percentile 111.05 ms) Flow 3 (95th percentile 117.40 ms)
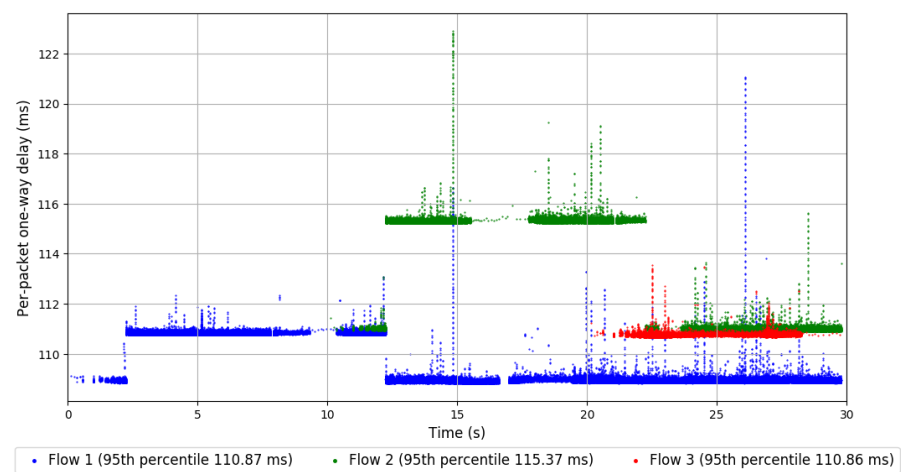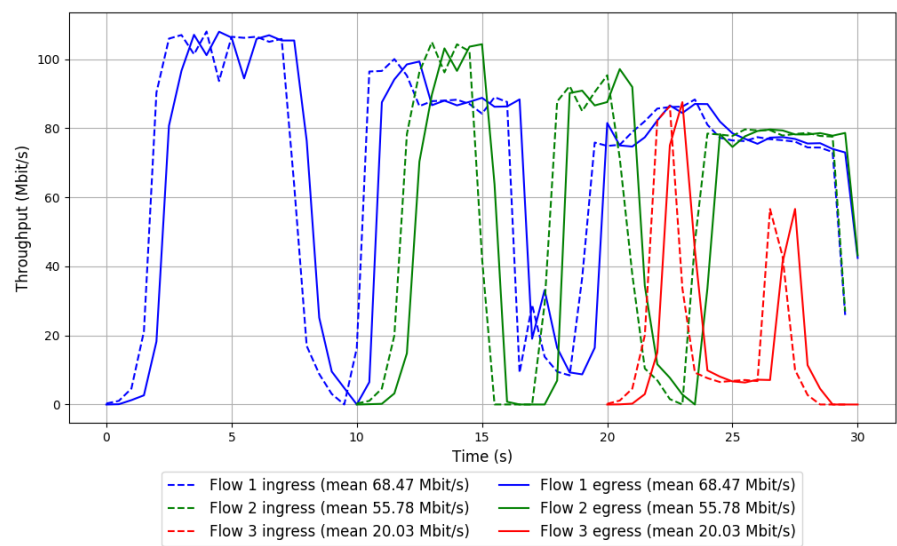
165

```
Run 2: Statistics of QUIC Cubic

Start at: 2018-05-24 05:13:34
End at: 2018-05-24 05:14:04
Local clock offset: -0.109 ms
Remote clock offset: -0.209 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.15 Mbit/s
95th percentile per-packet one-way delay: 116.763 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 68.06 Mbit/s
95th percentile per-packet one-way delay: 116.763 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 26.28 Mbit/s
95th percentile per-packet one-way delay: 110.736 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 20.54 Mbit/s
95th percentile per-packet one-way delay: 116.805 ms
Loss rate: 0.00%
```

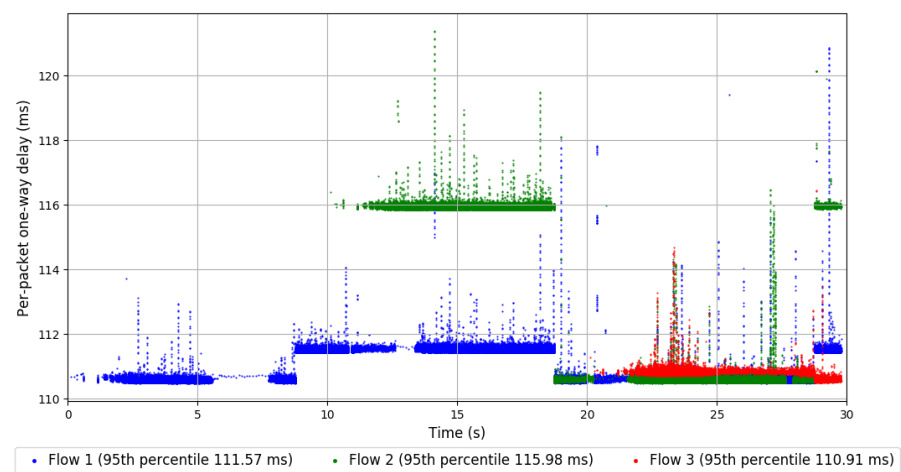## Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2018-05-24 05:37:05
End at: 2018-05-24 05:37:35
Local clock offset: -0.065 ms
Remote clock offset: -0.166 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 111.36 Mbit/s
95th percentile per-packet one-way delay: 116.073 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 59.26 Mbit/s
95th percentile per-packet one-way delay: 115.847 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 62.06 Mbit/s
95th percentile per-packet one-way delay: 116.113 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 33.91 Mbit/s
95th percentile per-packet one-way delay: 115.291 ms
Loss rate: 0.00%
```

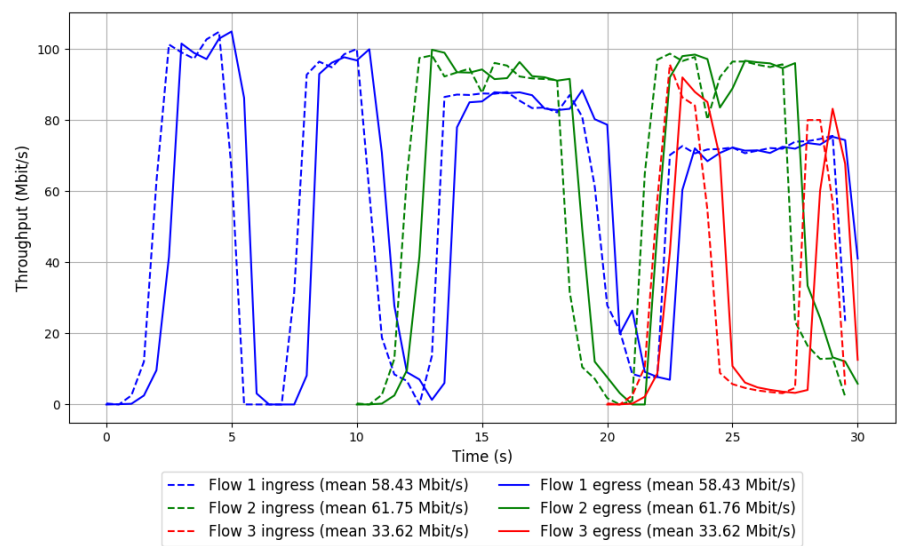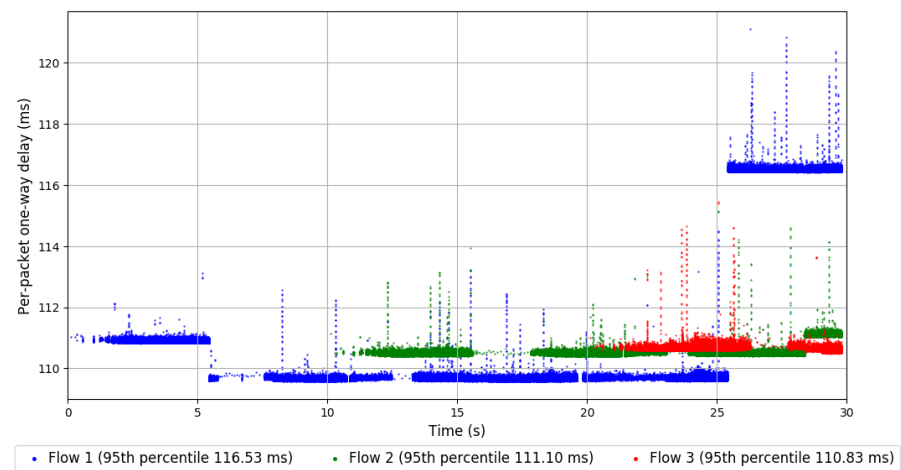# Run 3: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 59.27 Mbit/s)   Flow 1 egress (mean 59.26 Mbit/s)
Flow 2 ingress (mean 62.06 Mbit/s)   Flow 2 egress (mean 62.06 Mbit/s)
Flow 3 ingress (mean 33.90 Mbit/s)   Flow 3 egress (mean 33.91 Mbit/s)

Flow 1 (95th percentile 115.85 ms)   Flow 2 (95th percentile 116.11 ms)   Flow 3 (95th percentile 115.29 ms)
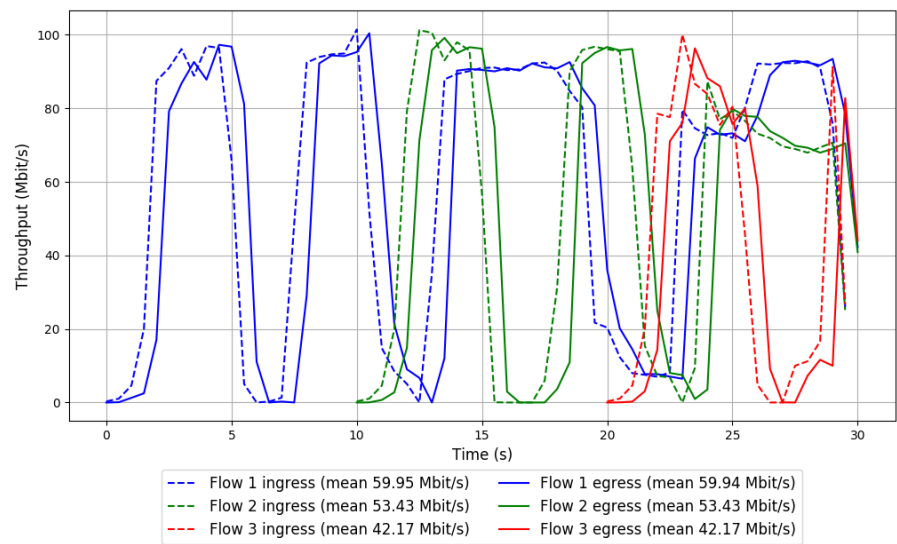
169

```
Run 4: Statistics of QUIC Cubic

Start at: 2018-05-24 06:00:48
End at: 2018-05-24 06:01:18
Local clock offset: 0.075 ms
Remote clock offset: -0.065 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 105.57 Mbit/s
95th percentile per-packet one-way delay: 115.039 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 56.67 Mbit/s
95th percentile per-packet one-way delay: 115.054 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 62.46 Mbit/s
95th percentile per-packet one-way delay: 110.734 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 23.12 Mbit/s
95th percentile per-packet one-way delay: 115.994 ms
Loss rate: 0.16%
```
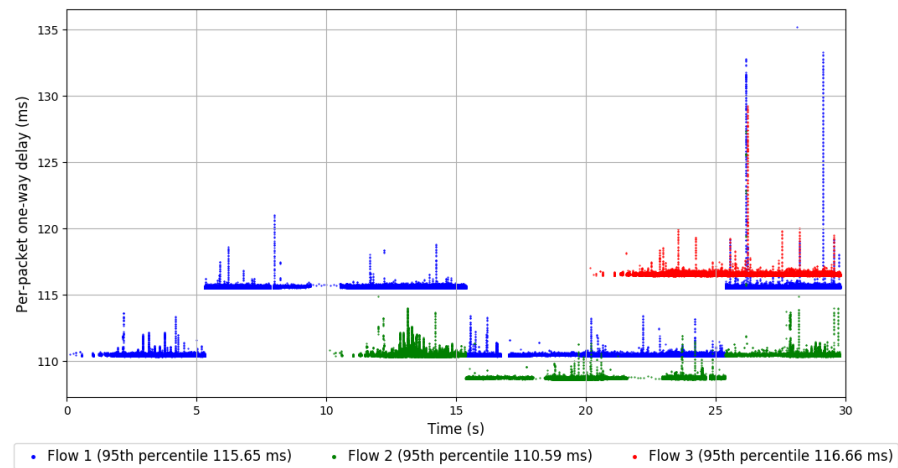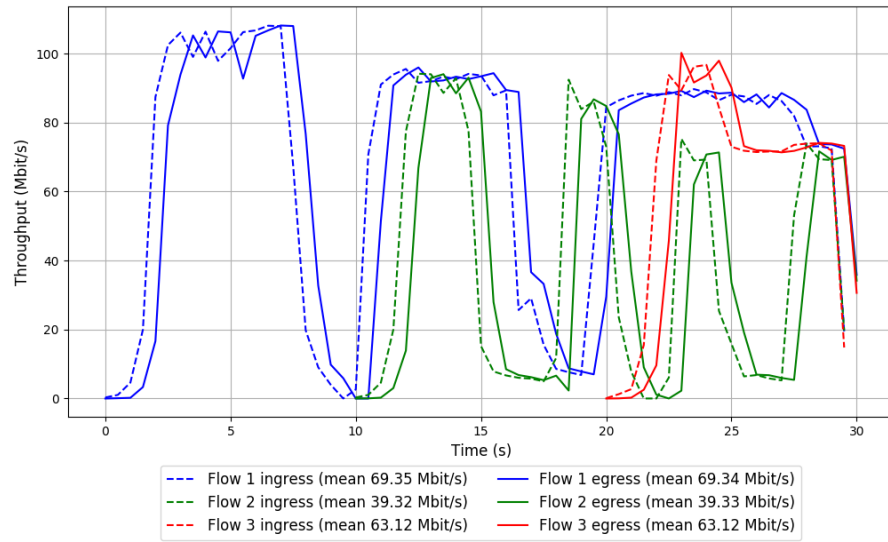
Run 4: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 56.66 Mbit/s) —— Flow 1 egress (mean 56.67 Mbit/s)
Flow 2 ingress (mean 62.46 Mbit/s) —— Flow 2 egress (mean 62.46 Mbit/s)
Flow 3 ingress (mean 23.17 Mbit/s) —— Flow 3 egress (mean 23.12 Mbit/s)

Flow 1 (95th percentile 115.05 ms)   Flow 2 (95th percentile 110.73 ms)   Flow 3 (95th percentile 115.99 ms)

```
Run 5: Statistics of QUIC Cubic

Start at: 2018-05-24 06:24:44
End at: 2018-05-24 06:25:14
Local clock offset: -0.124 ms
Remote clock offset: -0.197 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 111.93 Mbit/s
95th percentile per-packet one-way delay: 115.324 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 68.47 Mbit/s
95th percentile per-packet one-way delay: 110.870 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 55.78 Mbit/s
95th percentile per-packet one-way delay: 115.373 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 20.03 Mbit/s
95th percentile per-packet one-way delay: 110.862 ms
Loss rate: 0.00%
```

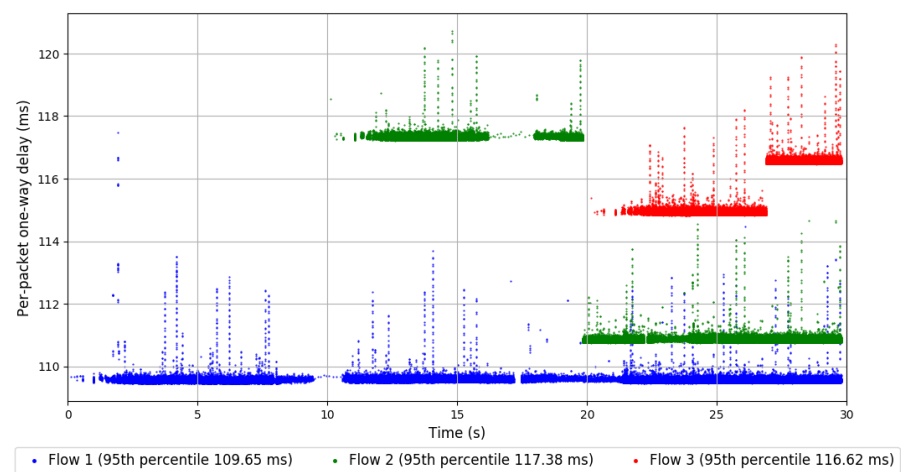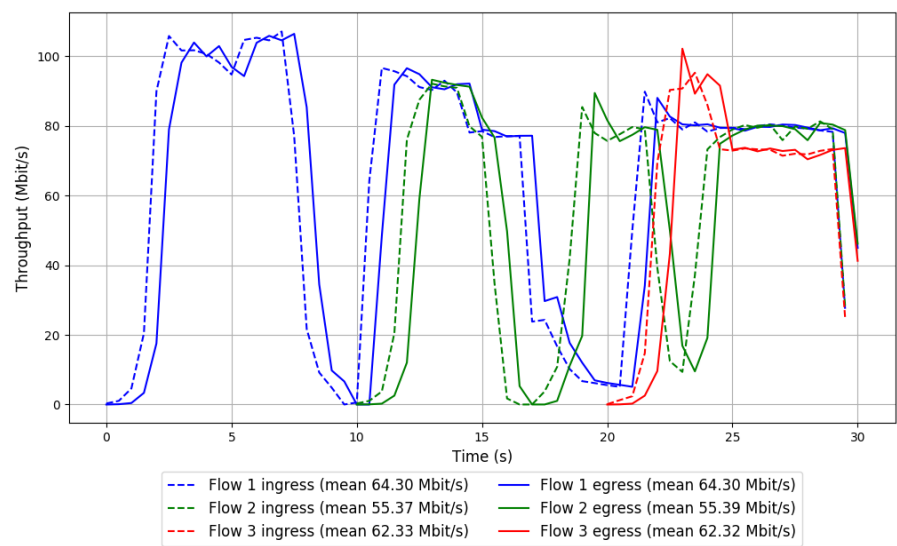Run 5: Report of QUIC Cubic — Data Link

```
Run 6: Statistics of QUIC Cubic

Start at: 2018-05-24 06:48:37
End at: 2018-05-24 06:49:07
Local clock offset: 0.167 ms
Remote clock offset: -0.212 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 110.28 Mbit/s
95th percentile per-packet one-way delay: 115.938 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 58.43 Mbit/s
95th percentile per-packet one-way delay: 111.570 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 61.76 Mbit/s
95th percentile per-packet one-way delay: 115.981 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 33.62 Mbit/s
95th percentile per-packet one-way delay: 110.913 ms
Loss rate: 0.00%
```

Run 6: Report of QUIC Cubic — Data Link

Flow 1 ingress (mean 58.43 Mbit/s) --- Flow 1 egress (mean 58.43 Mbit/s)
Flow 2 ingress (mean 61.75 Mbit/s) --- Flow 2 egress (mean 61.76 Mbit/s)
Flow 3 ingress (mean 33.62 Mbit/s) --- Flow 3 egress (mean 33.62 Mbit/s)

Flow 1 (95th percentile 111.57 ms)   Flow 2 (95th percentile 115.98 ms)   Flow 3 (95th percentile 110.91 ms)

```
Run 7: Statistics of QUIC Cubic

Start at: 2018-05-24 07:12:28
End at: 2018-05-24 07:12:58
Local clock offset: -0.01 ms
Remote clock offset: -0.212 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 109.07 Mbit/s
95th percentile per-packet one-way delay: 116.503 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 59.94 Mbit/s
95th percentile per-packet one-way delay: 116.533 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 53.43 Mbit/s
95th percentile per-packet one-way delay: 111.104 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 42.17 Mbit/s
95th percentile per-packet one-way delay: 110.825 ms
Loss rate: 0.00%
```
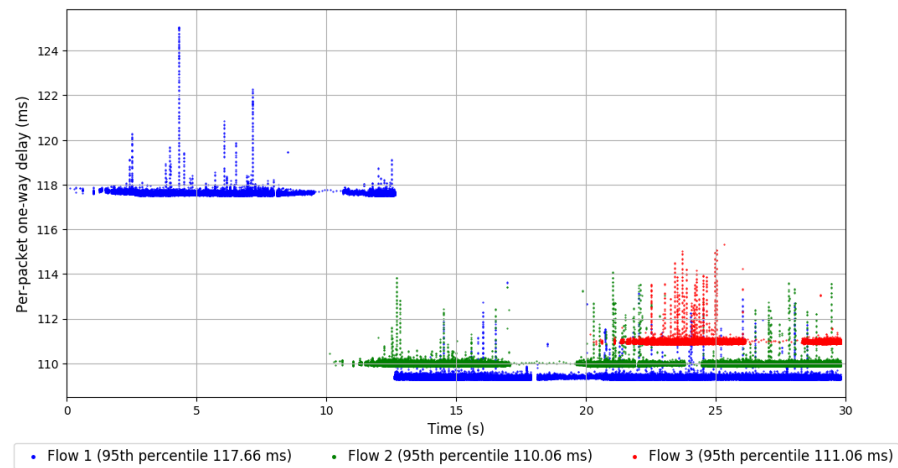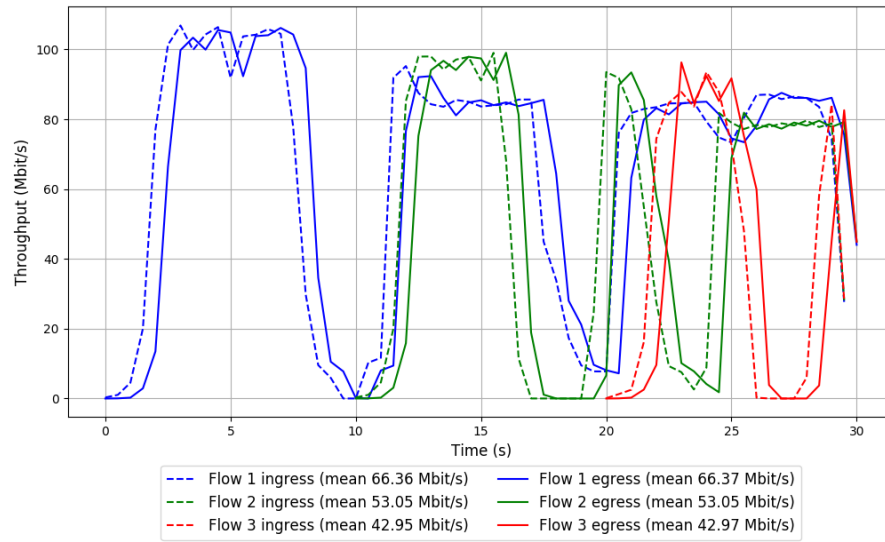
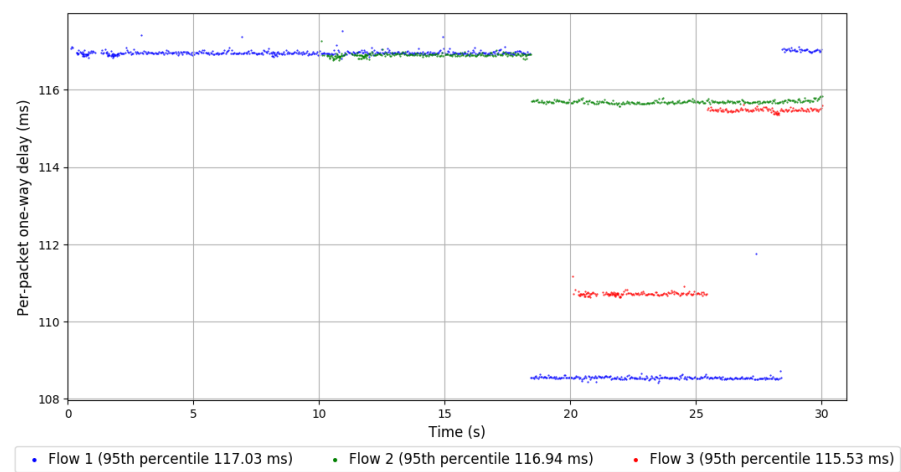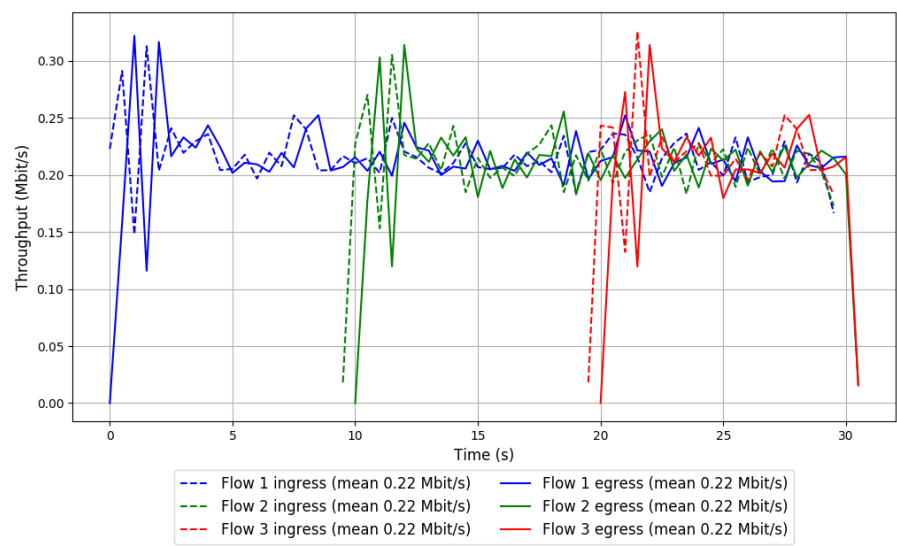## Run 7: Report of QUIC Cubic — Data Link

```
Run 8: Statistics of QUIC Cubic

Start at: 2018-05-24 07:36:08
End at: 2018-05-24 07:36:38
Local clock offset: 0.034 ms
Remote clock offset: -0.255 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 115.89 Mbit/s
95th percentile per-packet one-way delay: 116.544 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 69.34 Mbit/s
95th percentile per-packet one-way delay: 115.647 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 39.33 Mbit/s
95th percentile per-packet one-way delay: 110.588 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 63.12 Mbit/s
95th percentile per-packet one-way delay: 116.657 ms
Loss rate: 0.00%
```

Run 8: Report of QUIC Cubic — Data Link
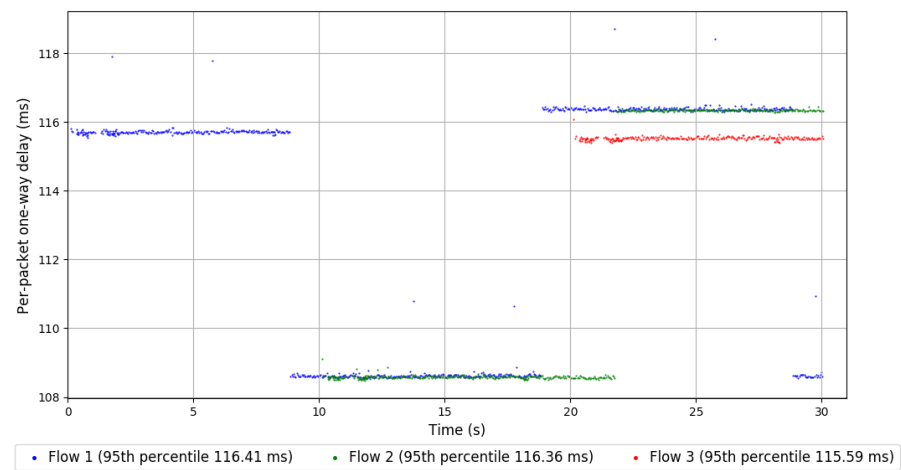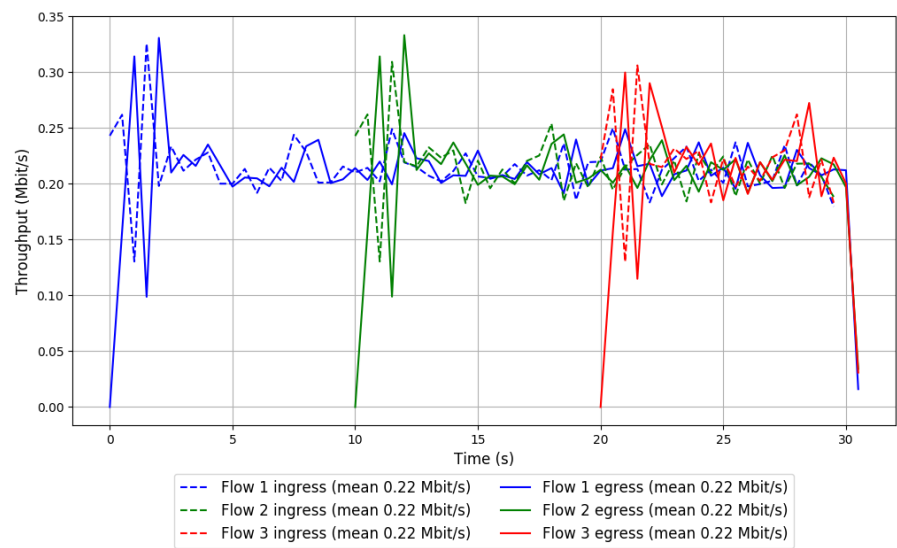

179

```
Run 9: Statistics of QUIC Cubic

Start at: 2018-05-24 07:59:56
End at: 2018-05-24 08:00:26
Local clock offset: -0.015 ms
Remote clock offset: -0.213 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 121.25 Mbit/s
95th percentile per-packet one-way delay: 117.318 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 64.30 Mbit/s
95th percentile per-packet one-way delay: 109.646 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 55.39 Mbit/s
95th percentile per-packet one-way delay: 117.377 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 62.32 Mbit/s
95th percentile per-packet one-way delay: 116.621 ms
Loss rate: 0.00%
```
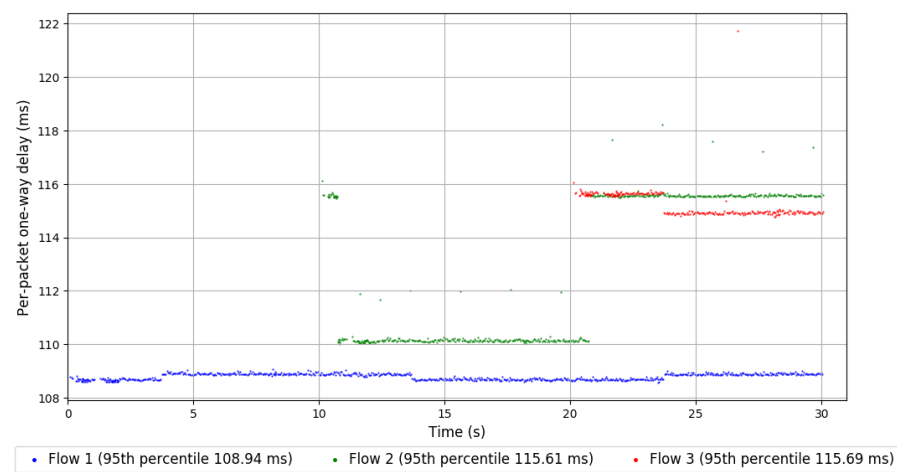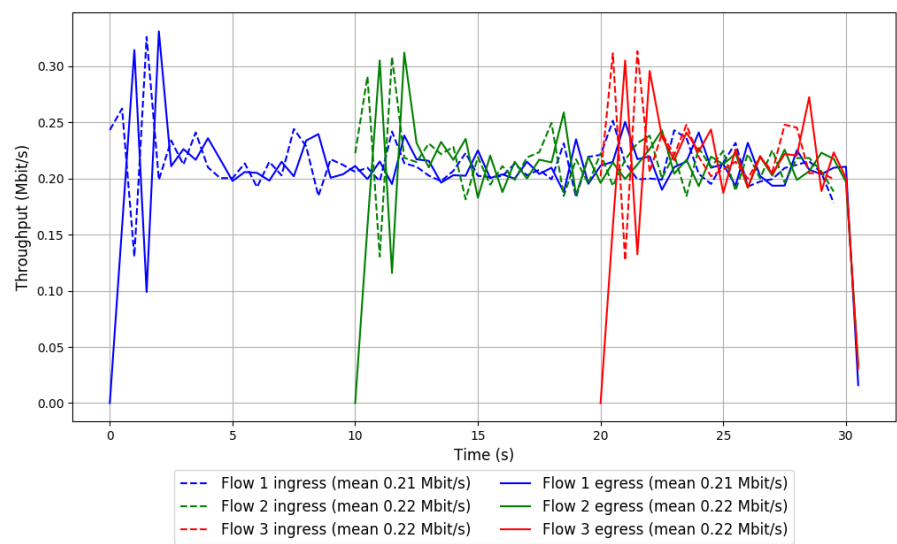
Run 9: Report of QUIC Cubic — Data Link

181

```
Run 10: Statistics of QUIC Cubic

Start at: 2018-05-24 08:23:53
End at: 2018-05-24 08:24:24
Local clock offset: -0.058 ms
Remote clock offset: 0.288 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 115.49 Mbit/s
95th percentile per-packet one-way delay: 117.629 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 66.37 Mbit/s
95th percentile per-packet one-way delay: 117.657 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 53.05 Mbit/s
95th percentile per-packet one-way delay: 110.062 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 42.97 Mbit/s
95th percentile per-packet one-way delay: 111.063 ms
Loss rate: 0.00%
```

Run 10: Report of QUIC Cubic — Data Link

- Flow 1 ingress (mean 66.36 Mbit/s)
- Flow 1 egress (mean 66.37 Mbit/s)
- Flow 2 ingress (mean 53.05 Mbit/s)
- Flow 2 egress (mean 53.05 Mbit/s)
- Flow 3 ingress (mean 42.95 Mbit/s)
- Flow 3 egress (mean 42.97 Mbit/s)

- Flow 1 (95th percentile 117.66 ms)
- Flow 2 (95th percentile 110.06 ms)
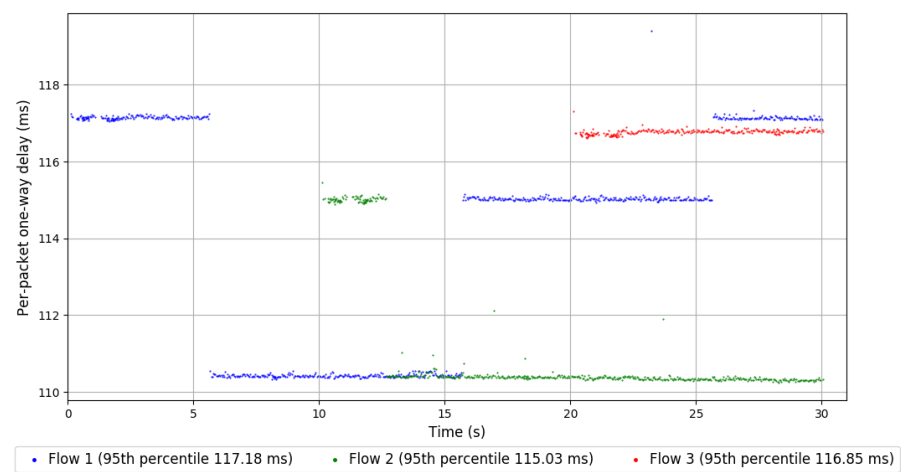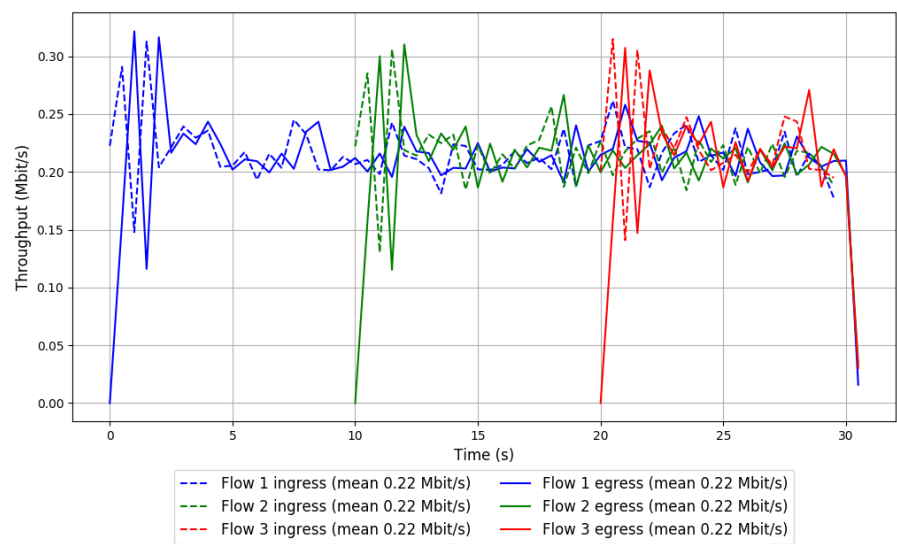- Flow 3 (95th percentile 111.06 ms)

```
Run 1: Statistics of SCReAM

Start at: 2018-05-24 04:54:18
End at: 2018-05-24 04:54:48
Local clock offset: 0.093 ms
Remote clock offset: -0.45 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 117.012 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 117.034 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 116.942 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 115.528 ms
Loss rate: 0.00%
```

Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: 2018-05-24 05:17:55
End at: 2018-05-24 05:18:25
Local clock offset: 0.412 ms
Remote clock offset: -0.206 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 116.386 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 116.409 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 116.356 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 115.594 ms
Loss rate: 0.00%
```
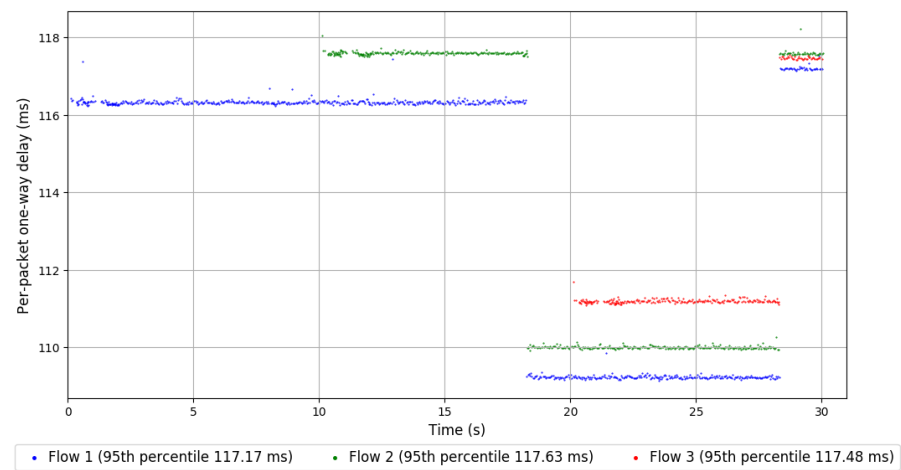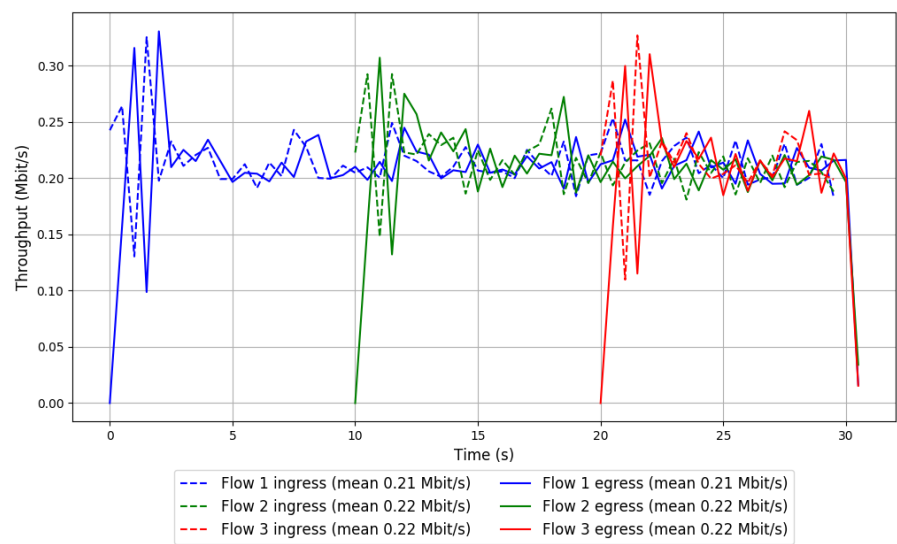
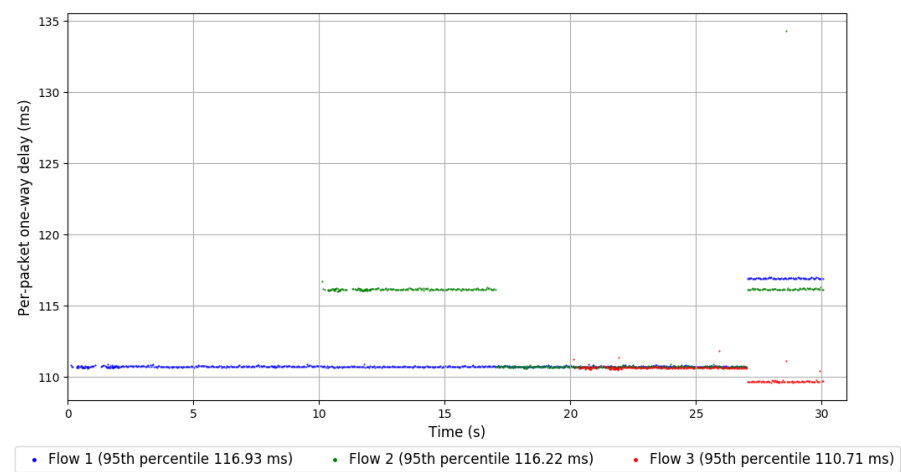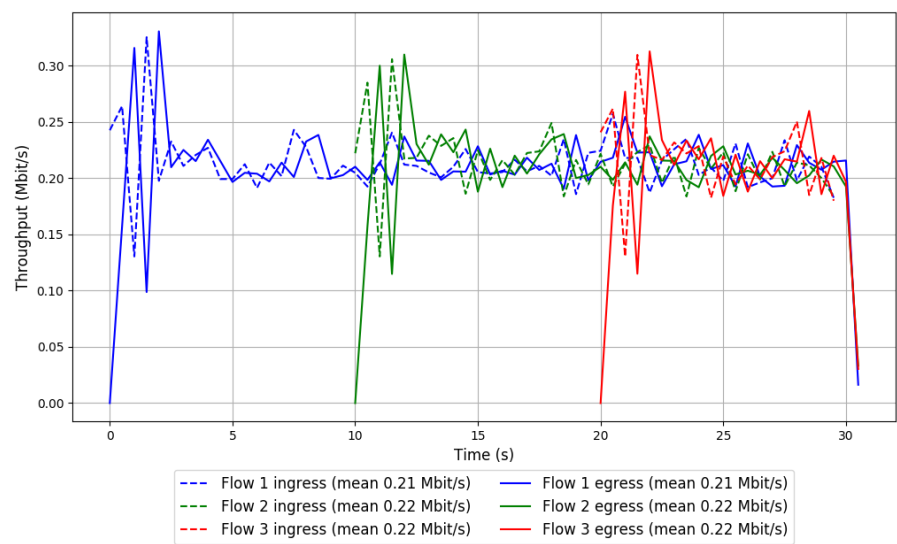# Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2018-05-24 05:41:33
End at: 2018-05-24 05:42:03
Local clock offset: -0.061 ms
Remote clock offset: -0.506 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 115.628 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 108.941 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 115.607 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 115.693 ms
Loss rate: 0.00%
```
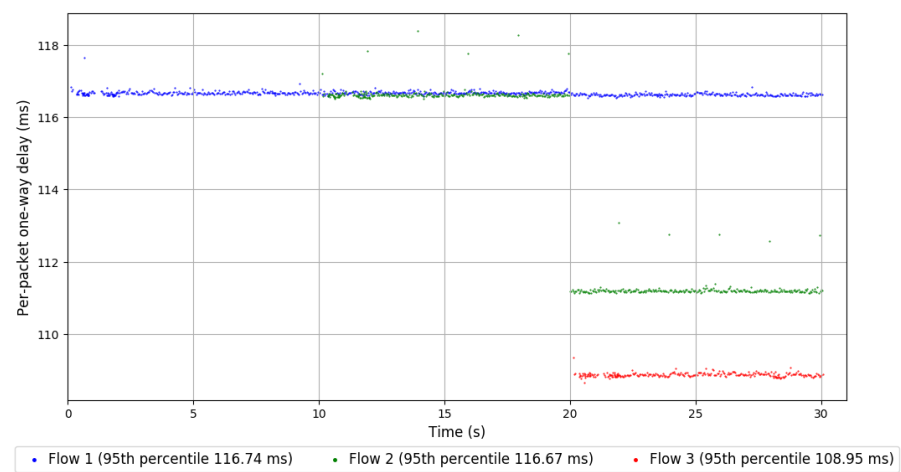
Run 3: Report of SCReAM — Data Link

```
Run 4: Statistics of SCReAM

Start at: 2018-05-24 06:05:11
End at: 2018-05-24 06:05:41
Local clock offset: 0.029 ms
Remote clock offset: -0.114 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 117.157 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 117.179 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 115.035 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 116.852 ms
Loss rate: 0.00%
```
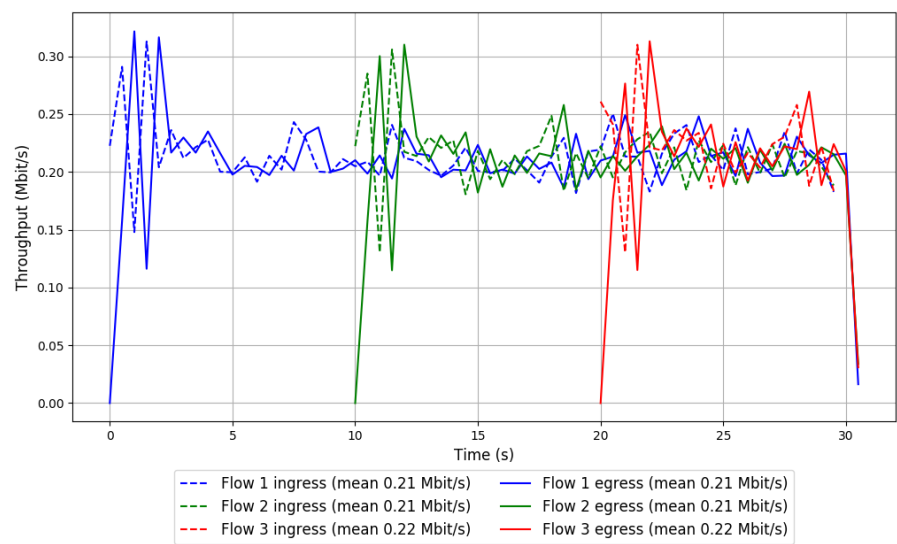
Run 4: Report of SCReAM — Data Link

191

```
Run 5: Statistics of SCReAM

Start at: 2018-05-24 06:29:08
End at: 2018-05-24 06:29:38
Local clock offset: -0.015 ms
Remote clock offset: 0.125 ms

# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 117.608 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 117.172 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 117.633 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 117.481 ms
Loss rate: 0.35%
```
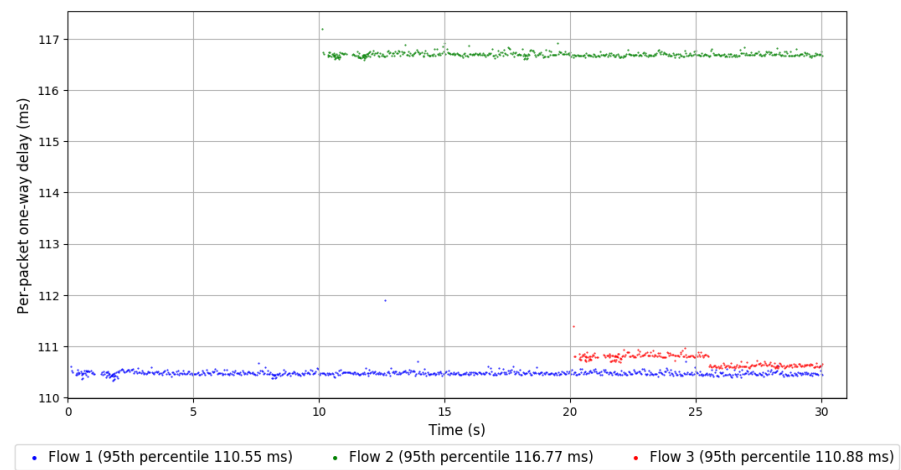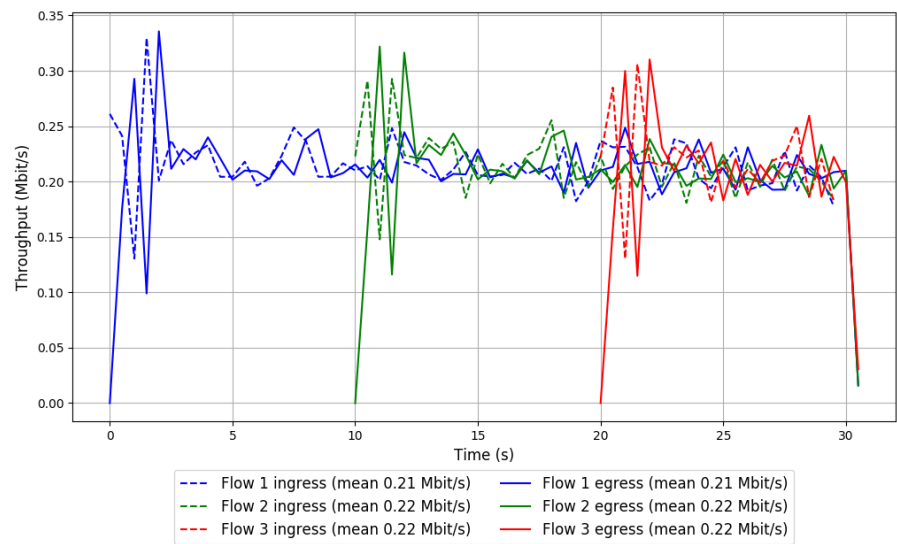
Run 5: Report of SCReAM — Data Link

```
Run 6: Statistics of SCReAM

Start at: 2018-05-24 06:53:06
End at: 2018-05-24 06:53:36
Local clock offset: 0.119 ms
Remote clock offset: -0.178 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 116.327 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 116.929 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 116.222 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.708 ms
Loss rate: 0.00%
```

Run 6: Report of SCReAM — Data Link

195

```
Run 7: Statistics of SCReAM

Start at: 2018-05-24 07:16:56
End at: 2018-05-24 07:17:26
Local clock offset: 0.047 ms
Remote clock offset: -0.215 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 116.721 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 116.738 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 116.666 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 108.955 ms
Loss rate: 0.00%
```
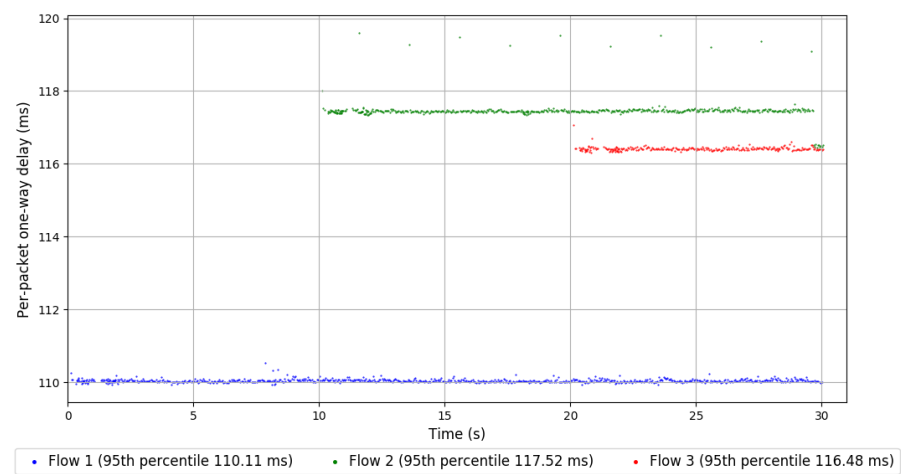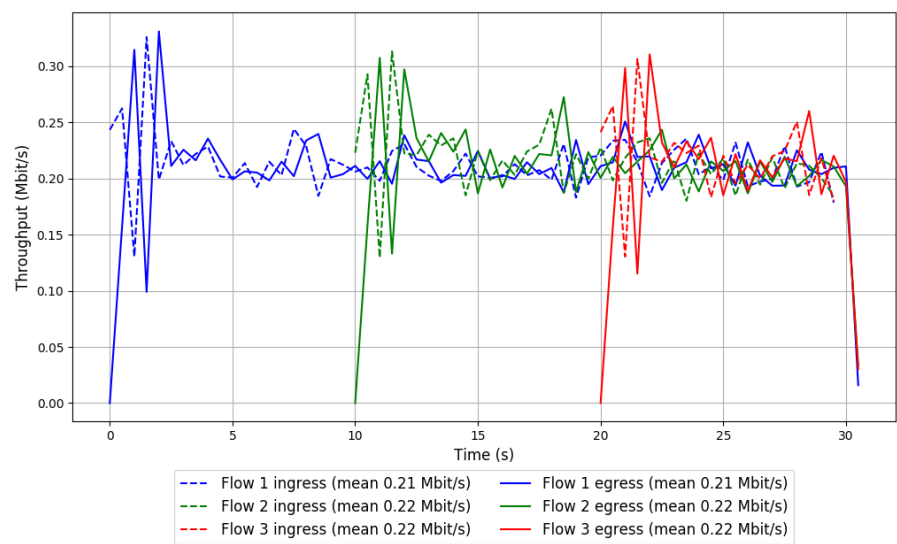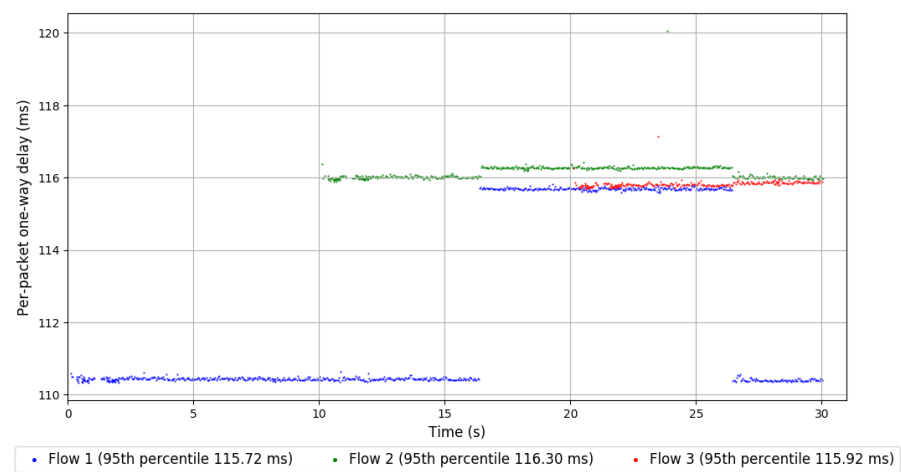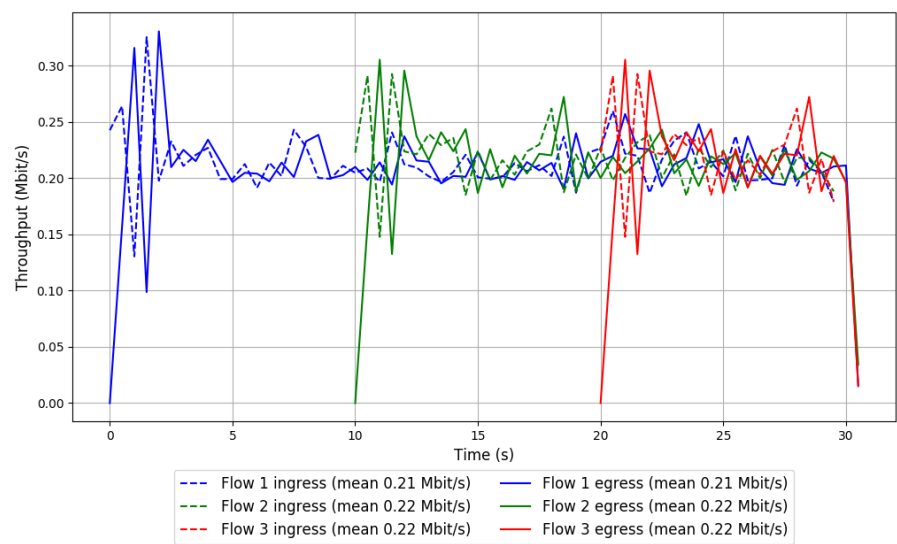
Run 7: Report of SCReAM — Data Link

197

```
Run 8: Statistics of SCReAM

Start at: 2018-05-24 07:40:21
End at: 2018-05-24 07:40:51
Local clock offset: -0.017 ms
Remote clock offset: -0.211 ms

# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 116.732 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 110.547 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 116.772 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 110.884 ms
Loss rate: 0.00%
```
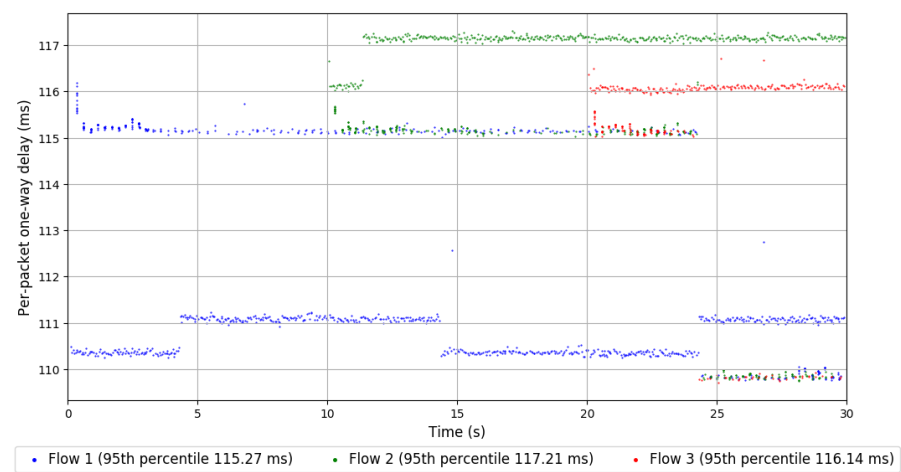
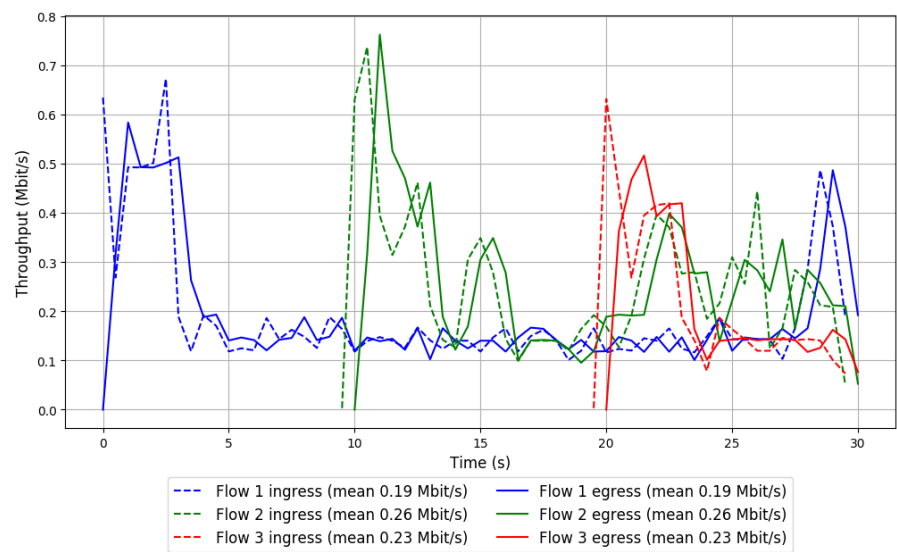# Run 8: Report of SCReAM — Data Link

```
Run 9: Statistics of SCReAM

Start at: 2018-05-24 08:04:27
End at: 2018-05-24 08:04:57
Local clock offset: 0.282 ms
Remote clock offset: 0.196 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 117.486 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 110.113 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 117.515 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 116.480 ms
Loss rate: 0.00%
```
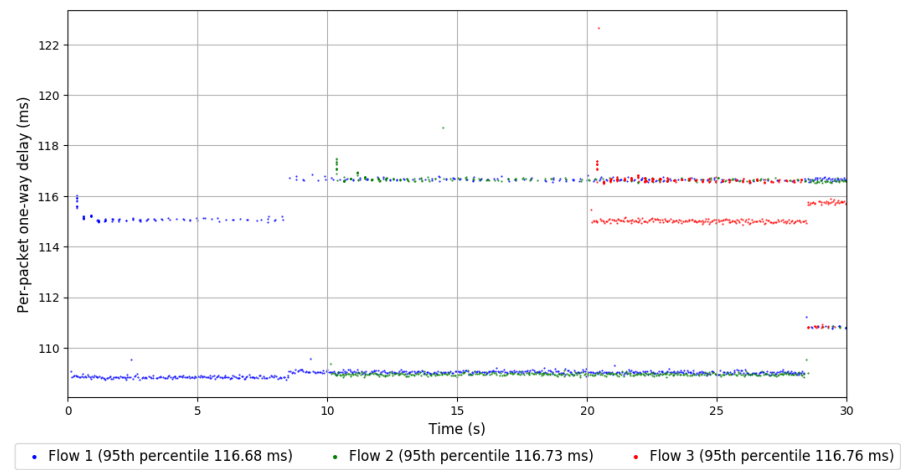
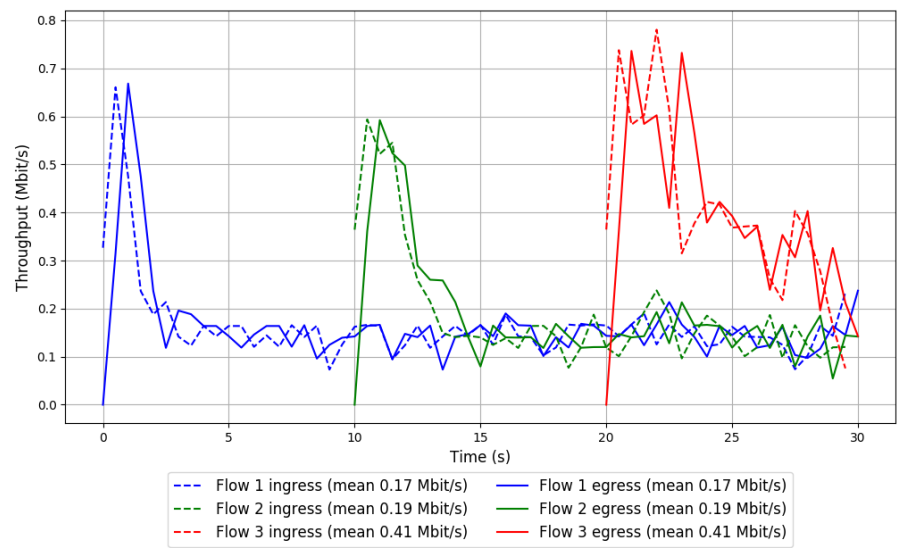# Run 9: Report of SCReAM — Data Link

```
Run 10: Statistics of SCReAM

Start at: 2018-05-24 08:28:10
End at: 2018-05-24 08:28:40
Local clock offset: 0.009 ms
Remote clock offset: -0.297 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 116.282 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 115.720 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 116.303 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 115.915 ms
Loss rate: 0.34%
```

Run 10: Report of SCReAM — Data Link

203

```
Run 1: Statistics of Sprout

Start at: 2018-05-24 05:02:22
End at: 2018-05-24 05:02:52
Local clock offset: 0.069 ms
Remote clock offset: -0.116 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.44 Mbit/s
95th percentile per-packet one-way delay: 117.180 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 115.267 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 117.212 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 116.140 ms
Loss rate: 0.00%
```
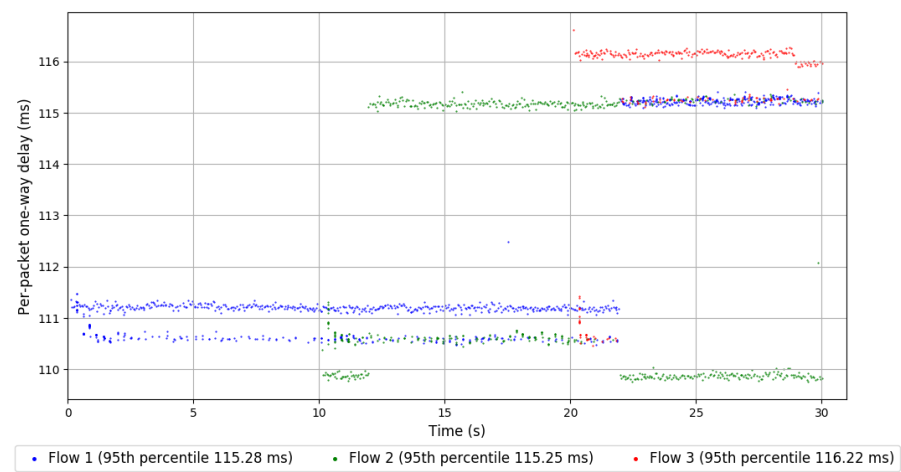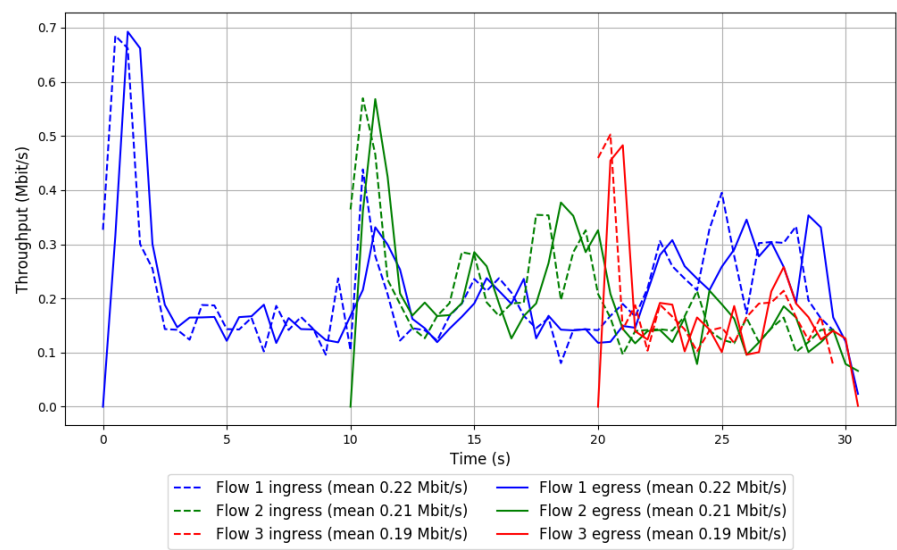
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2018-05-24 05:25:58
End at: 2018-05-24 05:26:28
Local clock offset: 0.198 ms
Remote clock offset: -0.209 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 116.716 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 116.683 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 116.734 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 116.761 ms
Loss rate: 0.00%
```
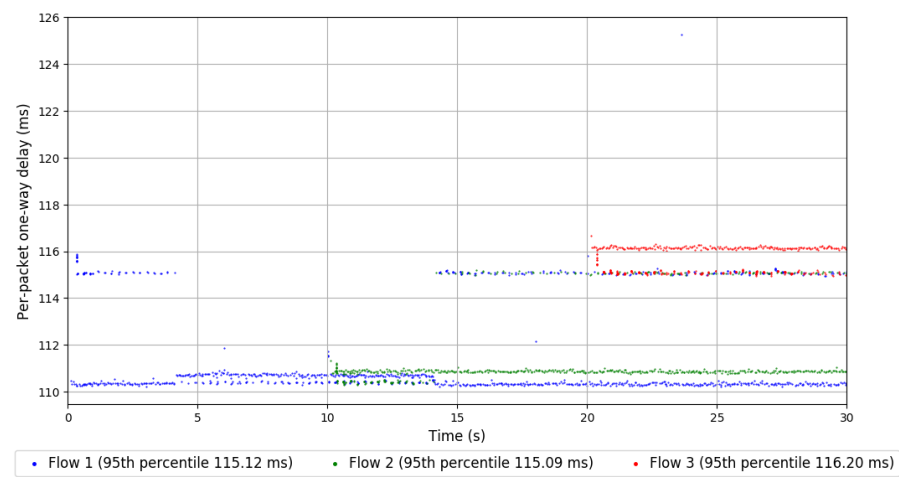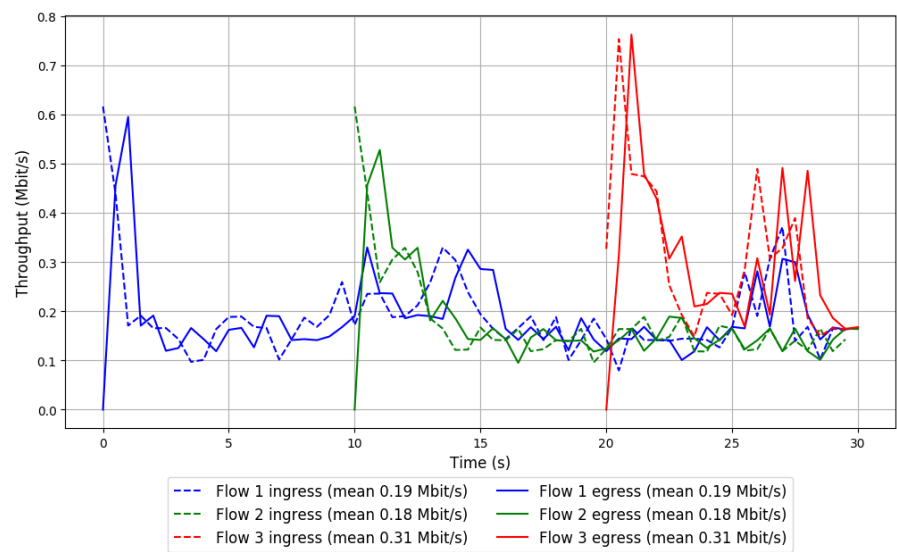
Run 2: Report of Sprout — Data Link

207

```
Run 3: Statistics of Sprout

Start at: 2018-05-24 05:49:44
End at: 2018-05-24 05:50:14
Local clock offset: -0.061 ms
Remote clock offset: -0.093 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.42 Mbit/s
95th percentile per-packet one-way delay: 116.159 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 115.282 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 115.255 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 116.222 ms
Loss rate: 0.00%
```
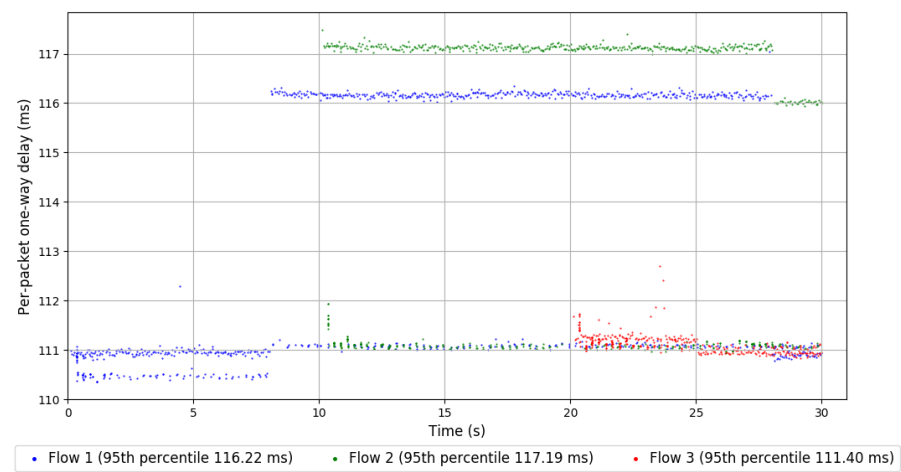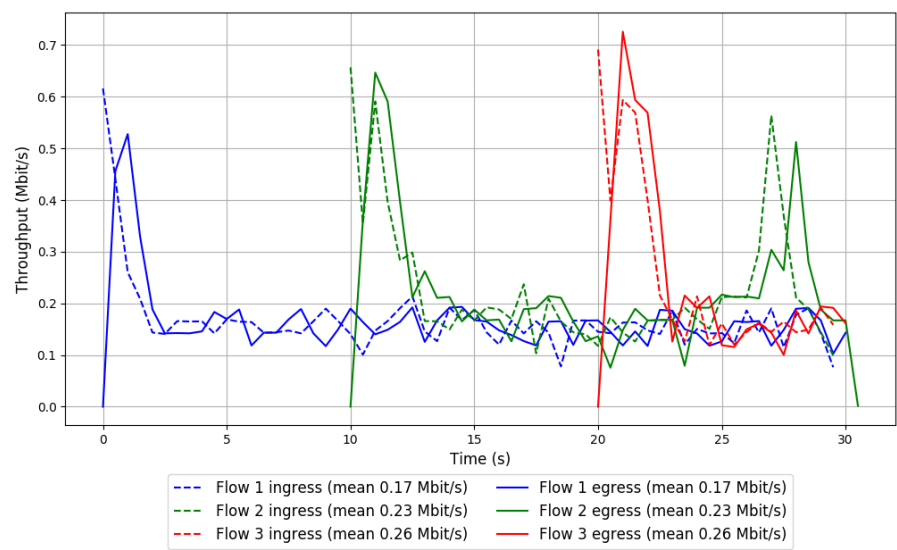
Run 3: Report of Sprout — Data Link

209

```
Run 4: Statistics of Sprout

Start at: 2018-05-24 06:13:12
End at: 2018-05-24 06:13:42
Local clock offset: -0.011 ms
Remote clock offset: -0.174 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 116.143 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 115.123 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 115.093 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 116.205 ms
Loss rate: 0.00%
```
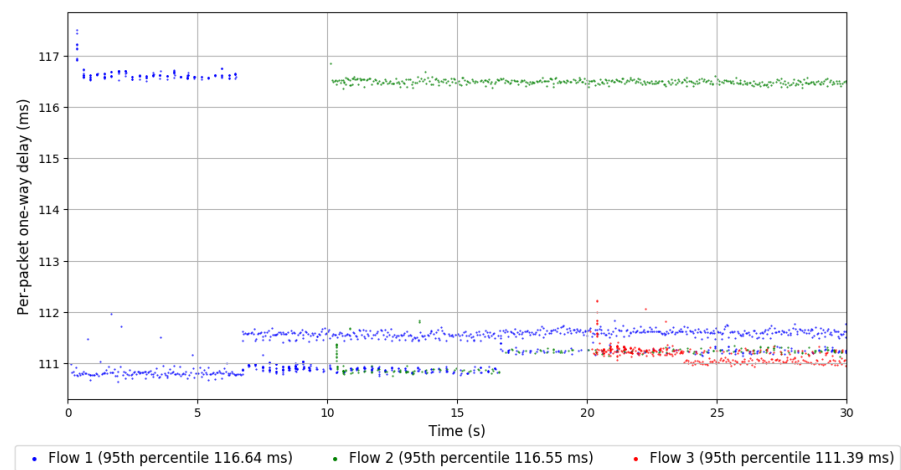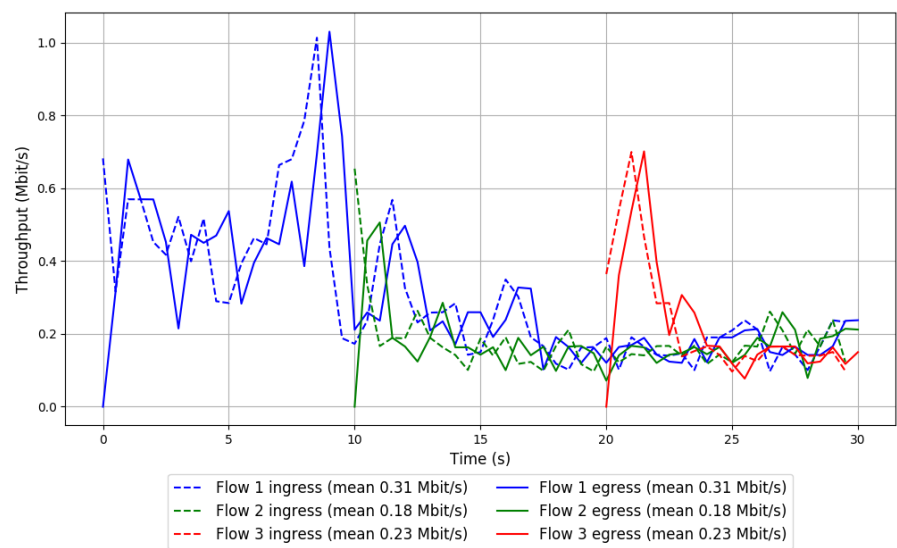
Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2018-05-24 06:37:28
End at: 2018-05-24 06:37:58
Local clock offset: -0.123 ms
Remote clock offset: -0.268 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.40 Mbit/s
95th percentile per-packet one-way delay: 117.153 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 116.225 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 117.191 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.26 Mbit/s
95th percentile per-packet one-way delay: 111.399 ms
Loss rate: 0.00%
```
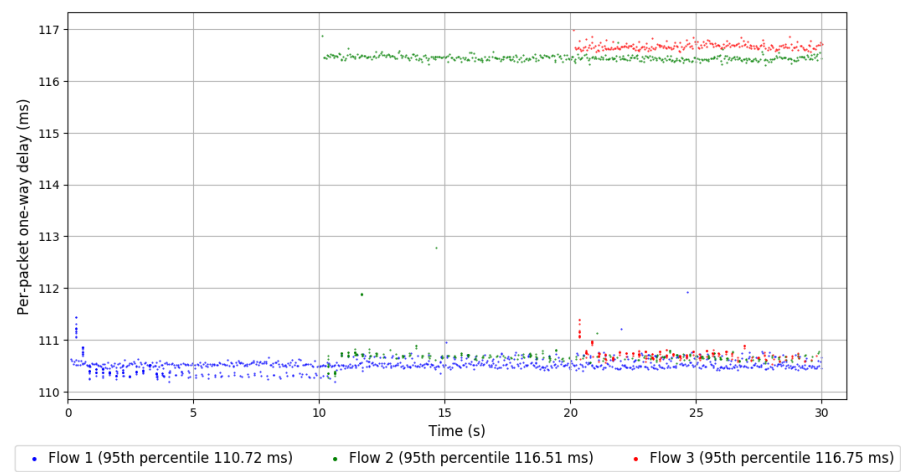
Run 5: Report of Sprout — Data Link

213

```
Run 6: Statistics of Sprout

Start at: 2018-05-24 07:01:20
End at: 2018-05-24 07:01:50
Local clock offset: 0.007 ms
Remote clock offset: 0.183 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.50 Mbit/s
95th percentile per-packet one-way delay: 116.615 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.31 Mbit/s
95th percentile per-packet one-way delay: 116.640 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.18 Mbit/s
95th percentile per-packet one-way delay: 116.553 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 111.389 ms
Loss rate: 0.00%
```
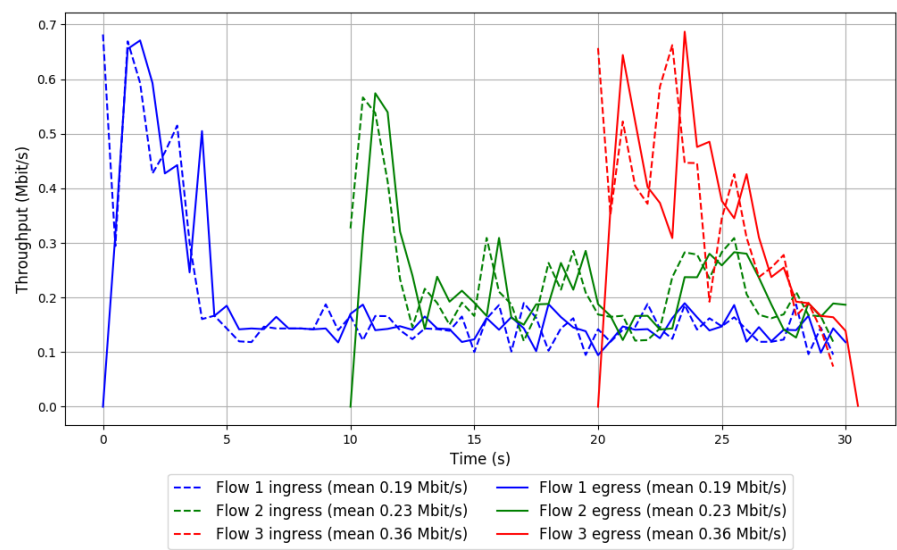
Run 6: Report of Sprout — Data Link

```
Run 7: Statistics of Sprout

Start at: 2018-05-24 07:25:06
End at: 2018-05-24 07:25:36
Local clock offset: -0.206 ms
Remote clock offset: -0.592 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.46 Mbit/s
95th percentile per-packet one-way delay: 116.665 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 110.718 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 116.506 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.36 Mbit/s
95th percentile per-packet one-way delay: 116.754 ms
Loss rate: 0.00%
```

Run 7: Report of Sprout — Data Link

```
Run 8: Statistics of Sprout

Start at: 2018-05-24 07:48:32
End at: 2018-05-24 07:49:02
Local clock offset: 0.242 ms
Remote clock offset: -0.272 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.38 Mbit/s
95th percentile per-packet one-way delay: 116.398 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 116.415 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.19 Mbit/s
95th percentile per-packet one-way delay: 115.881 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 116.770 ms
Loss rate: 0.00%
```
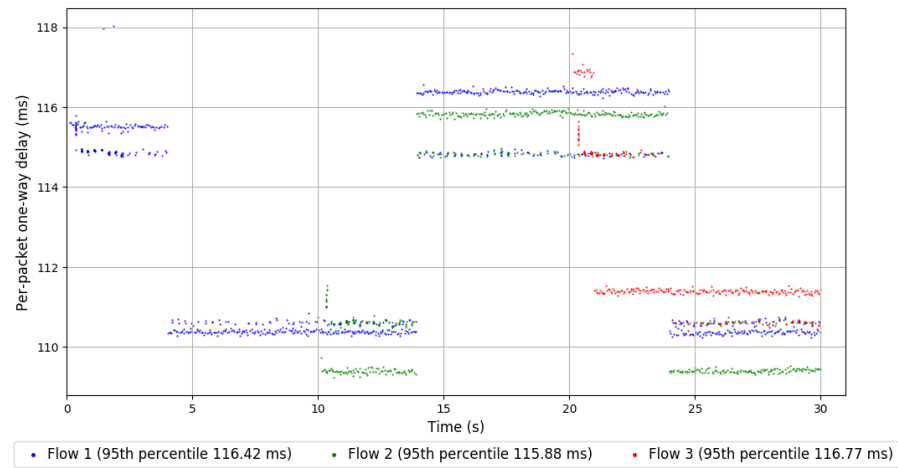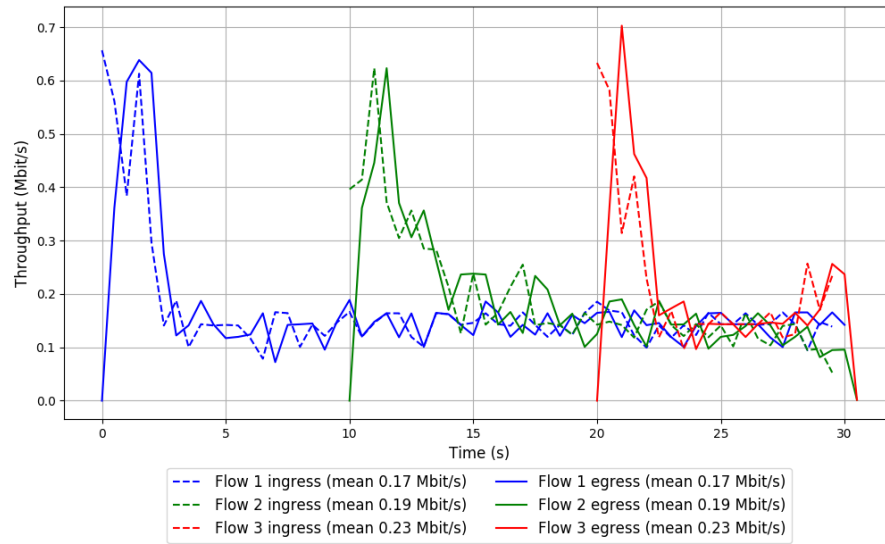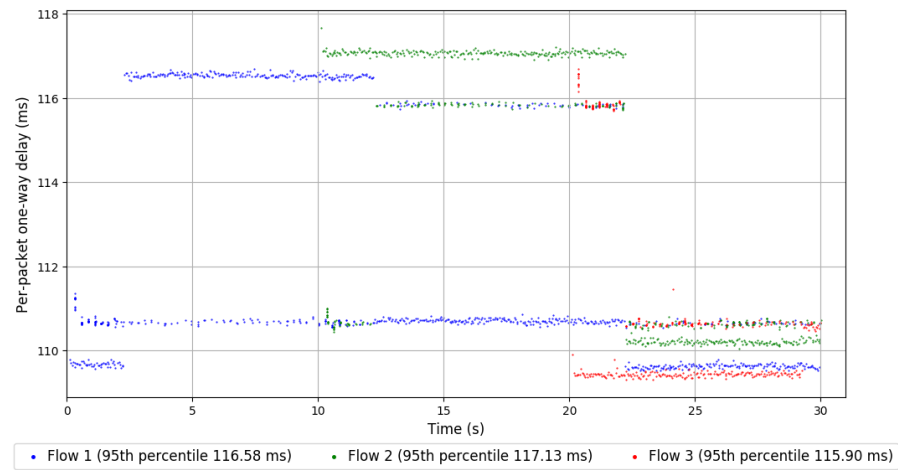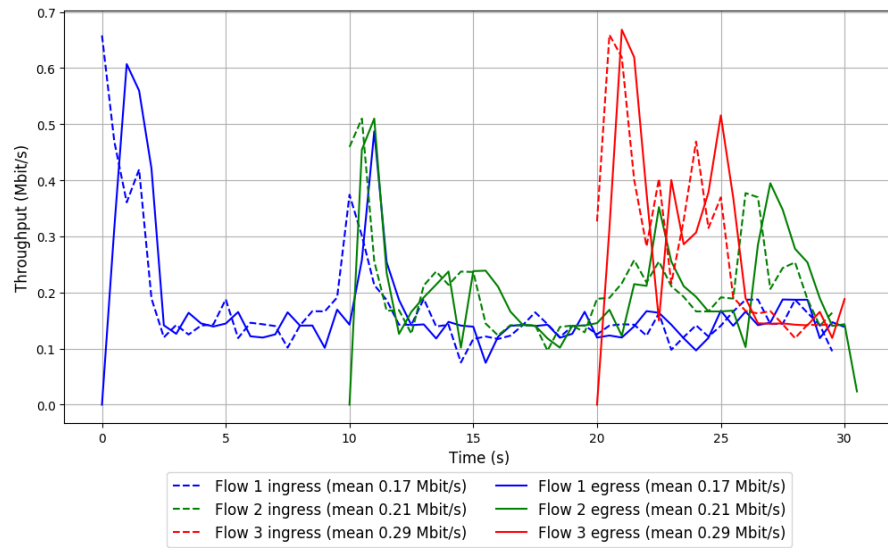
Run 8: Report of Sprout — Data Link

```
Run 9: Statistics of Sprout

Start at: 2018-05-24 08:12:44
End at: 2018-05-24 08:13:14
Local clock offset: 0.259 ms
Remote clock offset: -0.175 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.41 Mbit/s
95th percentile per-packet one-way delay: 117.089 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.17 Mbit/s
95th percentile per-packet one-way delay: 116.575 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 117.126 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.29 Mbit/s
95th percentile per-packet one-way delay: 115.901 ms
Loss rate: 0.00%
```
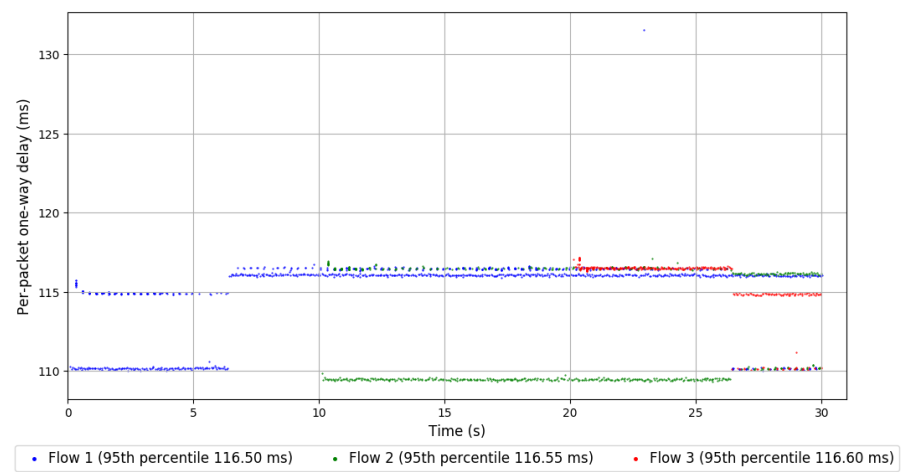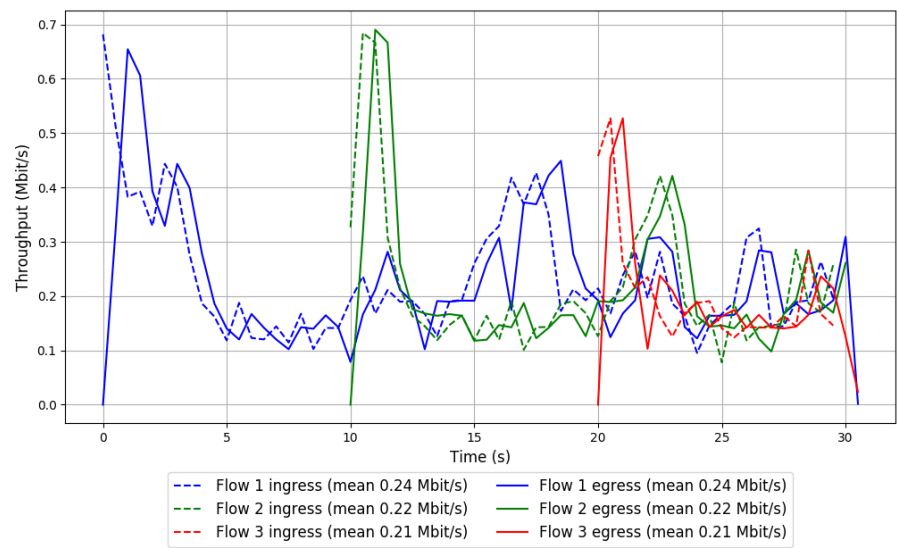
Run 9: Report of Sprout — Data Link

```
Run 10: Statistics of Sprout

Start at: 2018-05-24 08:36:10
End at: 2018-05-24 08:36:40
Local clock offset: 0.23 ms
Remote clock offset: 0.21 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.45 Mbit/s
95th percentile per-packet one-way delay: 116.543 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 116.504 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 116.549 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 116.596 ms
Loss rate: 0.00%
```
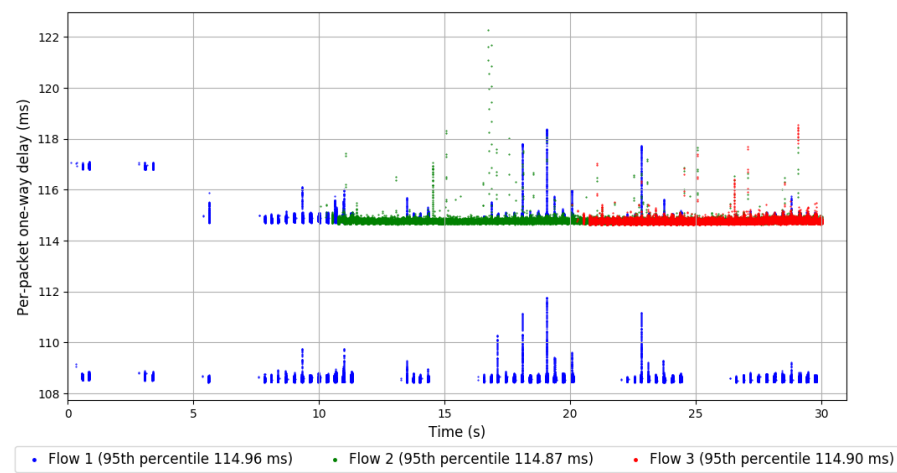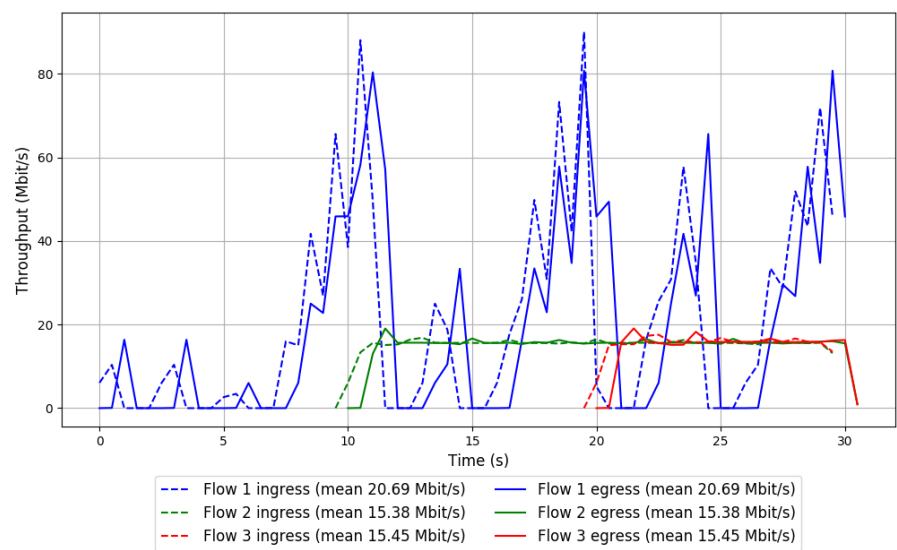
Run 10: Report of Sprout — Data Link

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

Start at: 2018-05-24 04:46:42
End at: 2018-05-24 04:47:12
Local clock offset: 0.301 ms
Remote clock offset: -0.094 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 35.94 Mbit/s
95th percentile per-packet one-way delay: 114.930 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 20.69 Mbit/s
95th percentile per-packet one-way delay: 114.958 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 15.38 Mbit/s
95th percentile per-packet one-way delay: 114.872 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 15.45 Mbit/s
95th percentile per-packet one-way delay: 114.896 ms
Loss rate: 0.00%
```

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

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

Start at: 2018-05-24 05:10:07
End at: 2018-05-24 05:10:37
Local clock offset: 0.094 ms
Remote clock offset: 0.16 ms


# Below is generated by plot.py at 2018-05-24 10:05:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 37.48 Mbit/s
95th percentile per-packet one-way delay: 117.579 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 16.48 Mbit/s
95th percentile per-packet one-way delay: 116.948 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 11.18 Mbit/s
95th percentile per-packet one-way delay: 117.577 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 40.93 Mbit/s
95th percentile per-packet one-way delay: 117.629 ms
Loss rate: 0.00%
```
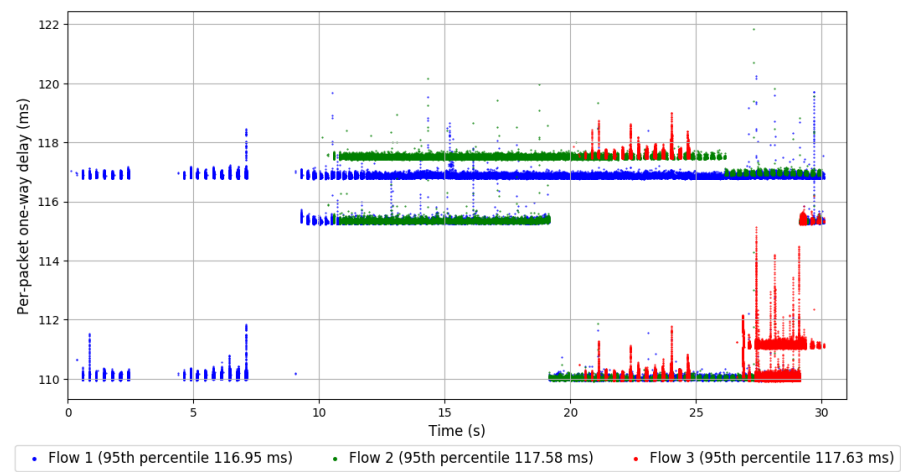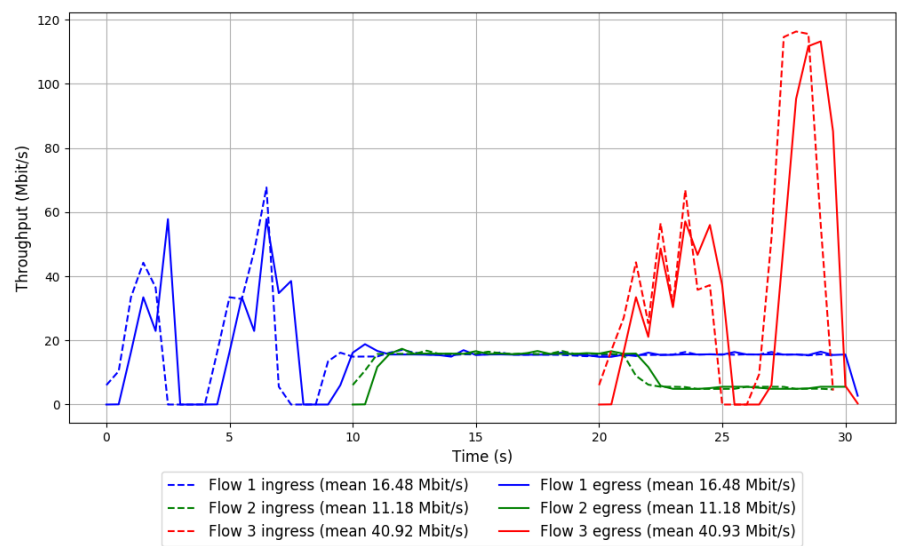
Run 2: Report of TaoVA-100x — Data Link
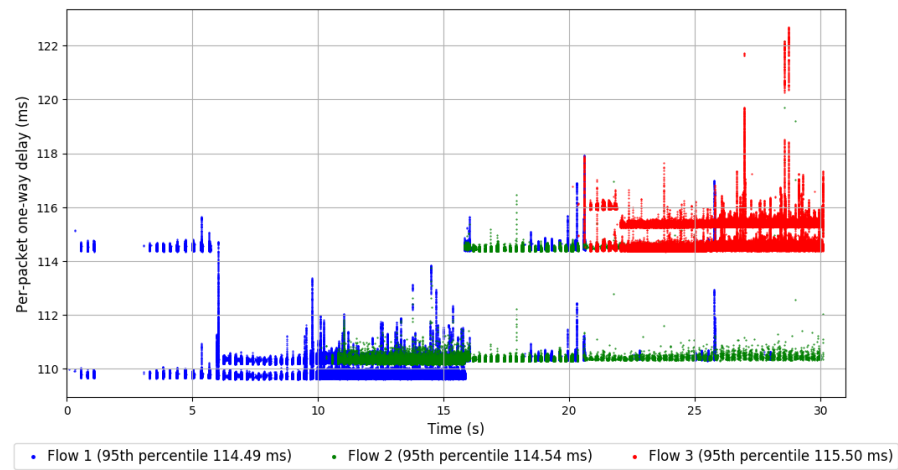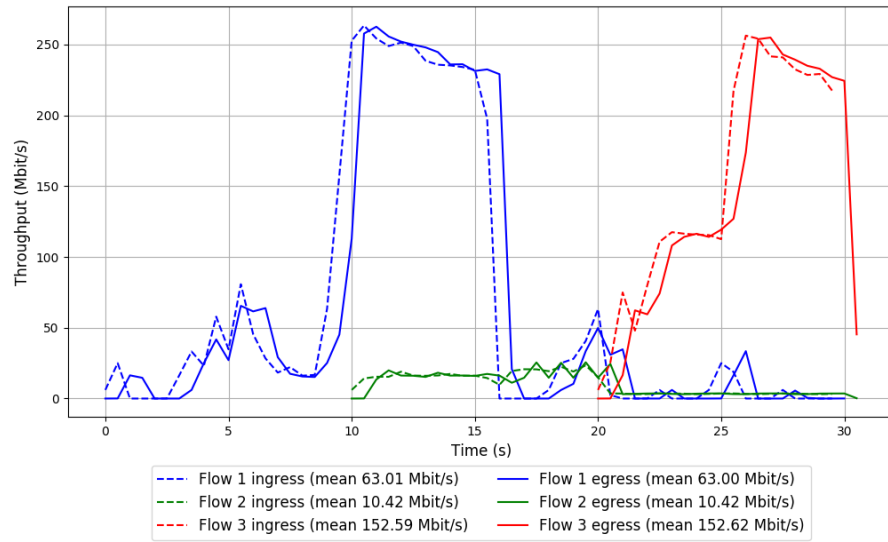

227

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

Start at: 2018-05-24 05:33:31
End at: 2018-05-24 05:34:01
Local clock offset: 0.265 ms
Remote clock offset: -0.539 ms


# Below is generated by plot.py at 2018-05-24 10:07:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 120.41 Mbit/s
95th percentile per-packet one-way delay: 115.417 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 63.00 Mbit/s
95th percentile per-packet one-way delay: 114.489 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 10.42 Mbit/s
95th percentile per-packet one-way delay: 114.544 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 152.62 Mbit/s
95th percentile per-packet one-way delay: 115.500 ms
Loss rate: 0.00%
```

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

- - - - Flow 1 ingress (mean 63.01 Mbit/s) —— Flow 1 egress (mean 63.00 Mbit/s)
- - - - Flow 2 ingress (mean 10.42 Mbit/s) —— Flow 2 egress (mean 10.42 Mbit/s)
- - - - Flow 3 ingress (mean 152.59 Mbit/s) —— Flow 3 egress (mean 152.62 Mbit/s)

- Flow 1 (95th percentile 114.49 ms)　　- Flow 2 (95th percentile 114.54 ms)　　- Flow 3 (95th percentile 115.50 ms)
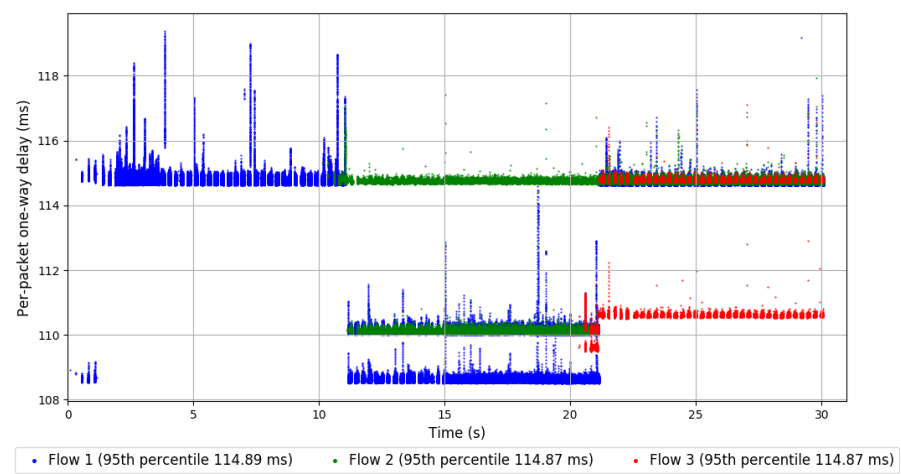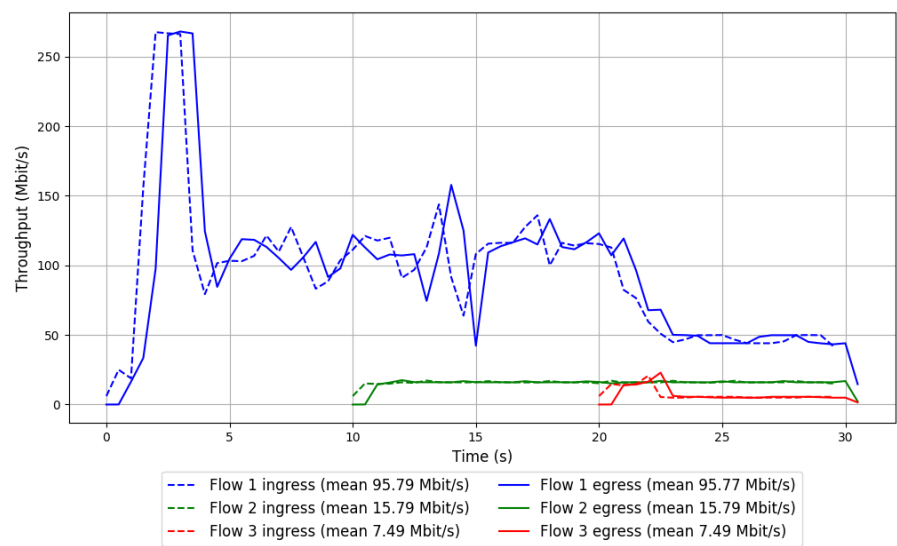
229

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

Start at: 2018-05-24 05:57:15
End at: 2018-05-24 05:57:45
Local clock offset: -0.101 ms
Remote clock offset: -0.468 ms


# Below is generated by plot.py at 2018-05-24 10:07:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 108.78 Mbit/s
95th percentile per-packet one-way delay: 114.887 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 95.77 Mbit/s
95th percentile per-packet one-way delay: 114.889 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 15.79 Mbit/s
95th percentile per-packet one-way delay: 114.871 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 7.49 Mbit/s
95th percentile per-packet one-way delay: 114.866 ms
Loss rate: 0.00%
```

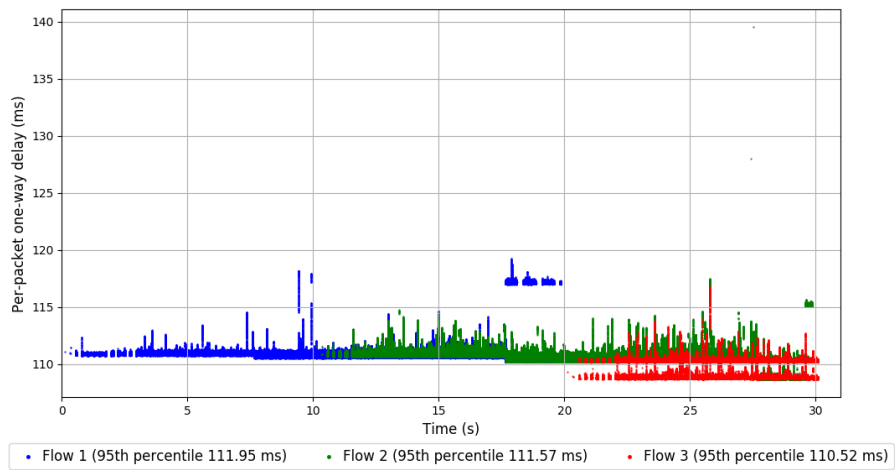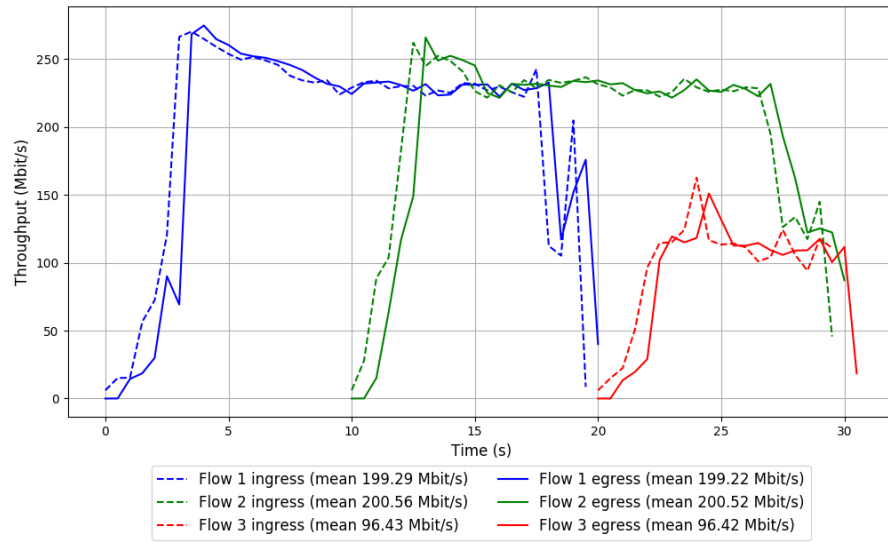Run 4: Report of TaoVA-100x — Data Link

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

Start at: 2018-05-24 06:20:49
End at: 2018-05-24 06:21:19
Local clock offset: -0.037 ms
Remote clock offset: -0.223 ms


# Below is generated by plot.py at 2018-05-24 10:13:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 295.23 Mbit/s
95th percentile per-packet one-way delay: 111.562 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 199.22 Mbit/s
95th percentile per-packet one-way delay: 111.955 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 200.52 Mbit/s
95th percentile per-packet one-way delay: 111.567 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 96.42 Mbit/s
95th percentile per-packet one-way delay: 110.518 ms
Loss rate: 0.00%
```

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

Flow 1 ingress (mean 199.29 Mbit/s)   Flow 1 egress (mean 199.22 Mbit/s)
Flow 2 ingress (mean 200.56 Mbit/s)   Flow 2 egress (mean 200.52 Mbit/s)
Flow 3 ingress (mean 96.43 Mbit/s)   Flow 3 egress (mean 96.42 Mbit/s)

Flow 1 (95th percentile 111.95 ms)   Flow 2 (95th percentile 111.57 ms)   Flow 3 (95th percentile 110.52 ms)

233

```
Run 6: Statistics of TaoVA-100x

Start at: 2018-05-24 06:44:53
End at: 2018-05-24 06:45:23
Local clock offset: 0.132 ms
Remote clock offset: 0.158 ms


# Below is generated by plot.py at 2018-05-24 10:13:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 181.21 Mbit/s
95th percentile per-packet one-way delay: 112.965 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 121.06 Mbit/s
95th percentile per-packet one-way delay: 112.169 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 15.37 Mbit/s
95th percentile per-packet one-way delay: 116.416 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 150.70 Mbit/s
95th percentile per-packet one-way delay: 111.978 ms
Loss rate: 0.00%
```
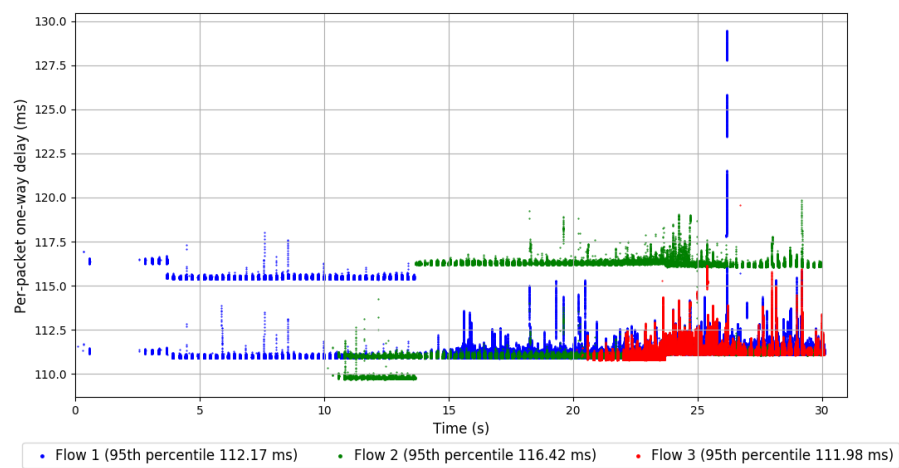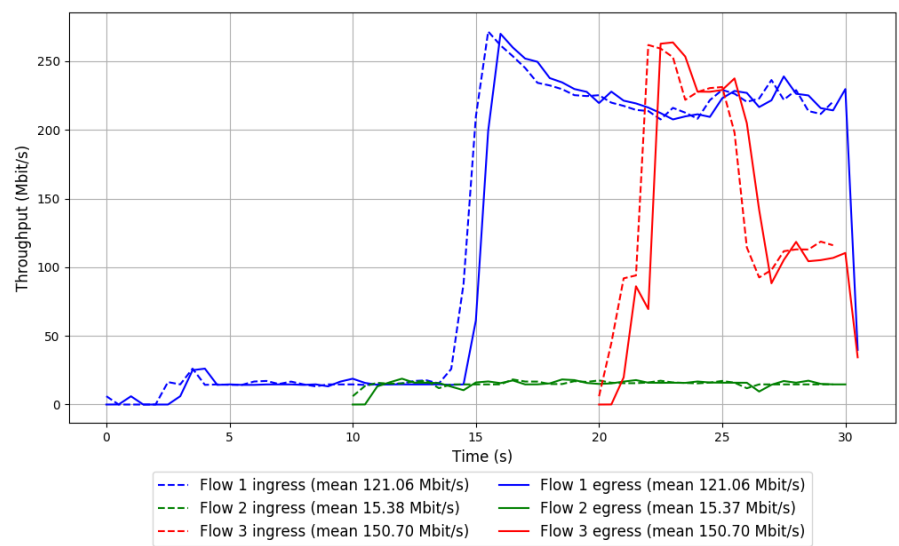
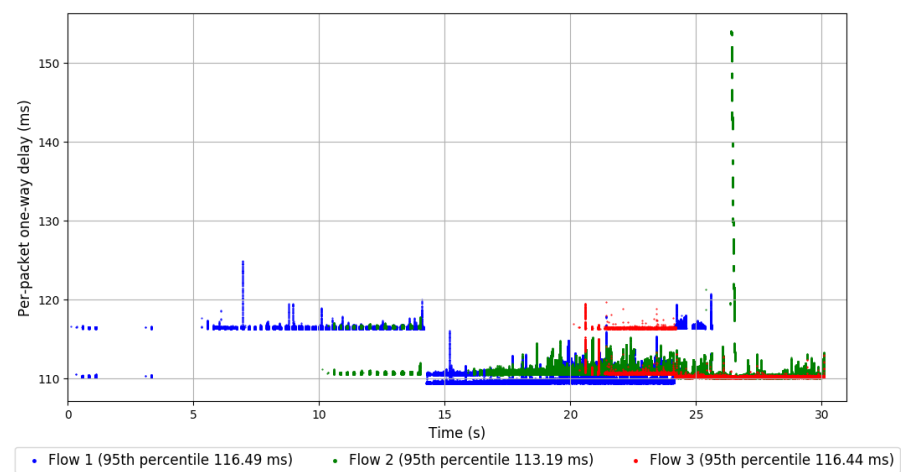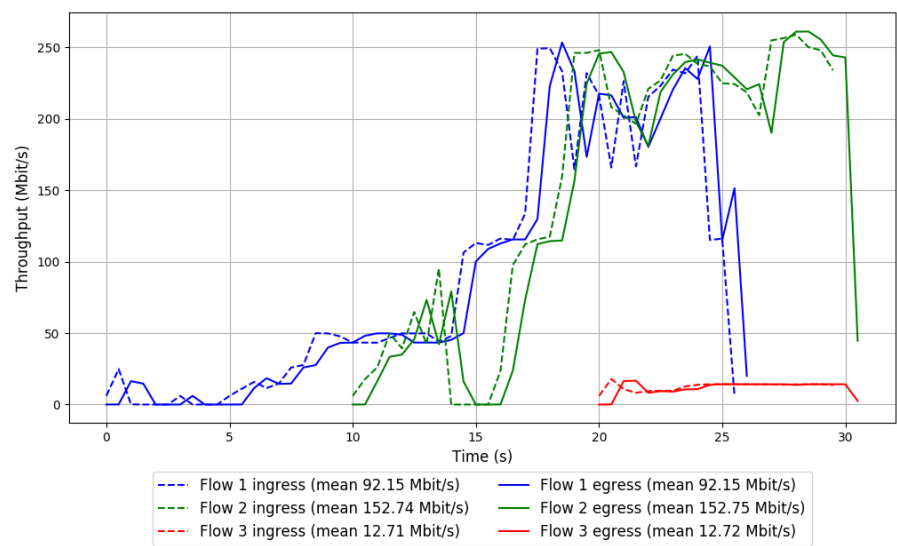## Run 6: Report of TaoVA-100x — Data Link

```
Run 7: Statistics of TaoVA-100x

Start at: 2018-05-24 07:08:52
End at: 2018-05-24 07:09:22
Local clock offset: -0.167 ms
Remote clock offset: -0.527 ms


# Below is generated by plot.py at 2018-05-24 10:13:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 184.42 Mbit/s
95th percentile per-packet one-way delay: 116.461 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 92.15 Mbit/s
95th percentile per-packet one-way delay: 116.489 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 152.75 Mbit/s
95th percentile per-packet one-way delay: 113.191 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 12.72 Mbit/s
95th percentile per-packet one-way delay: 116.437 ms
Loss rate: 0.00%
```

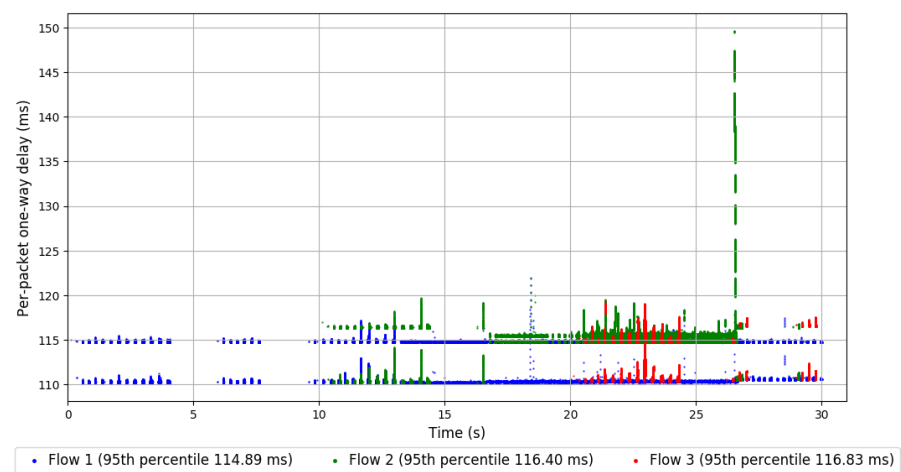# Run 7: Report of TaoVA-100x — Data Link
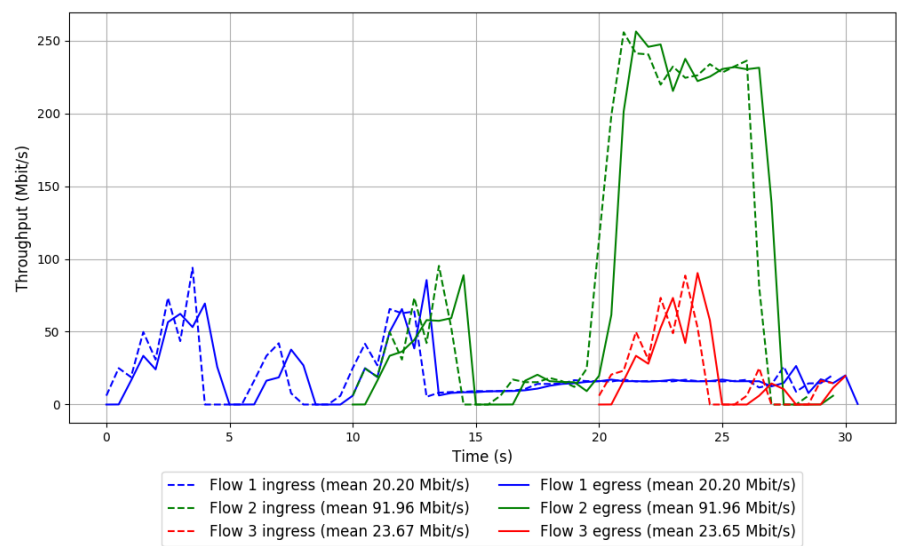

237

```
Run 8: Statistics of TaoVA-100x

Start at: 2018-05-24 07:32:40
End at: 2018-05-24 07:33:10
Local clock offset: 0.158 ms
Remote clock offset: -0.228 ms

# Below is generated by plot.py at 2018-05-24 10:13:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 86.14 Mbit/s
95th percentile per-packet one-way delay: 116.379 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 20.20 Mbit/s
95th percentile per-packet one-way delay: 114.888 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 91.96 Mbit/s
95th percentile per-packet one-way delay: 116.396 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 23.65 Mbit/s
95th percentile per-packet one-way delay: 116.826 ms
Loss rate: 0.00%
```
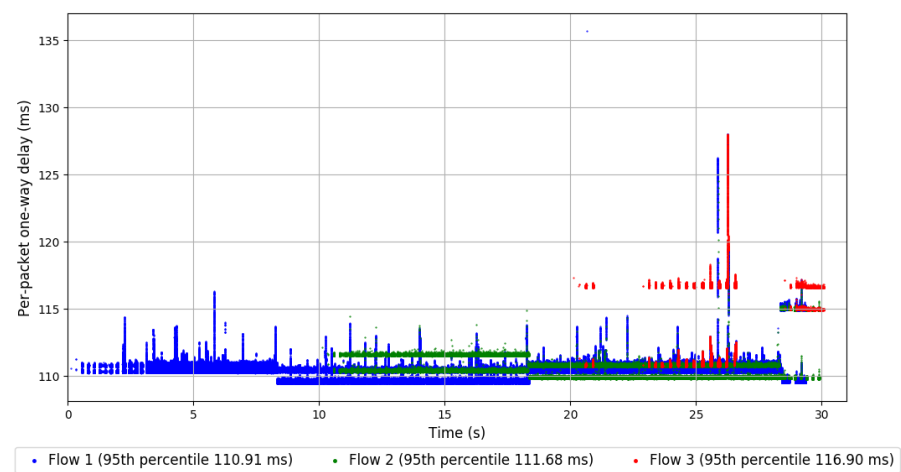
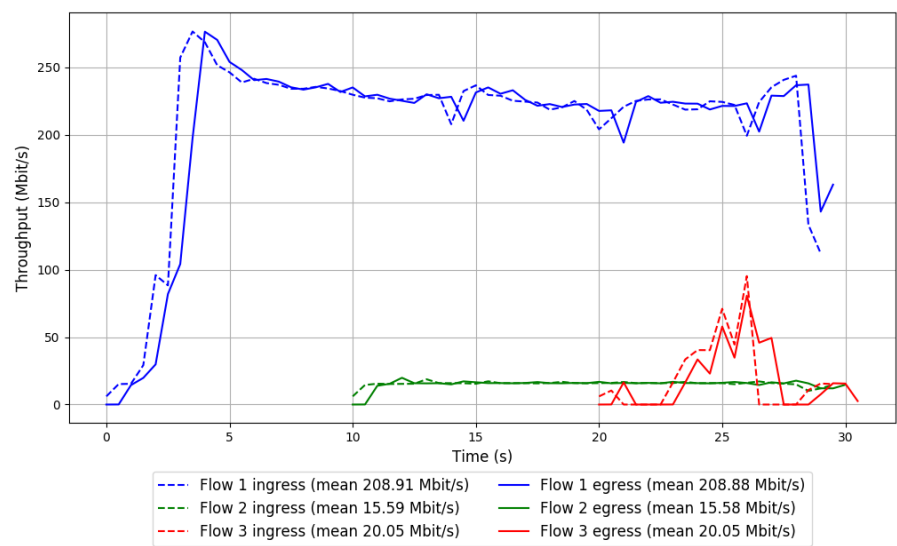Run 8: Report of TaoVA-100x — Data Link

```
Run 9: Statistics of TaoVA-100x

Start at: 2018-05-24 07:56:08
End at: 2018-05-24 07:56:38
Local clock offset: -0.338 ms
Remote clock offset: -0.569 ms


# Below is generated by plot.py at 2018-05-24 10:13:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 220.82 Mbit/s
95th percentile per-packet one-way delay: 111.511 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 208.88 Mbit/s
95th percentile per-packet one-way delay: 110.907 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 15.58 Mbit/s
95th percentile per-packet one-way delay: 111.684 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 20.05 Mbit/s
95th percentile per-packet one-way delay: 116.899 ms
Loss rate: 0.02%
```

Run 9: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 208.91 Mbit/s) Flow 1 egress (mean 208.88 Mbit/s)
Flow 2 ingress (mean 15.59 Mbit/s) Flow 2 egress (mean 15.58 Mbit/s)
Flow 3 ingress (mean 20.05 Mbit/s) Flow 3 egress (mean 20.05 Mbit/s)

Flow 1 (95th percentile 110.91 ms) Flow 2 (95th percentile 111.68 ms) Flow 3 (95th percentile 116.90 ms)

241

```
Run 10: Statistics of TaoVA-100x

Start at: 2018-05-24 08:20:25
End at: 2018-05-24 08:20:55
Local clock offset: 0.117 ms
Remote clock offset: 0.218 ms


# Below is generated by plot.py at 2018-05-24 10:13:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 35.48 Mbit/s
95th percentile per-packet one-way delay: 117.004 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 23.41 Mbit/s
95th percentile per-packet one-way delay: 116.975 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 10.70 Mbit/s
95th percentile per-packet one-way delay: 117.566 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 14.93 Mbit/s
95th percentile per-packet one-way delay: 116.422 ms
Loss rate: 0.00%
```
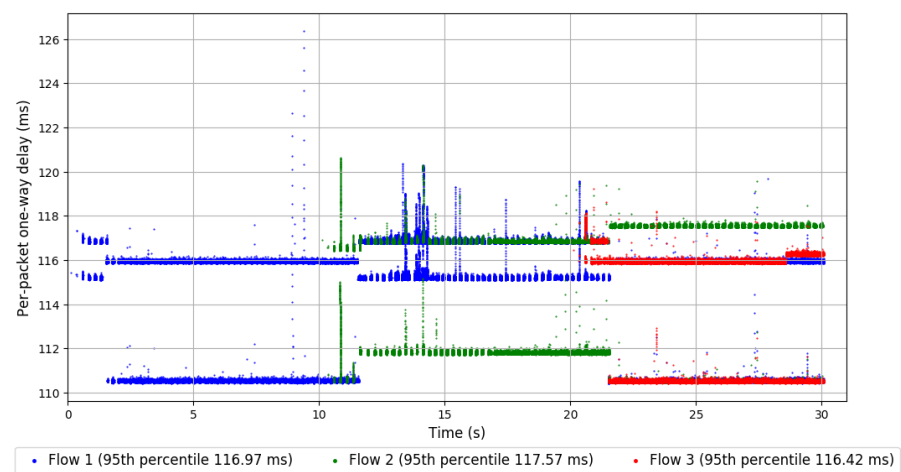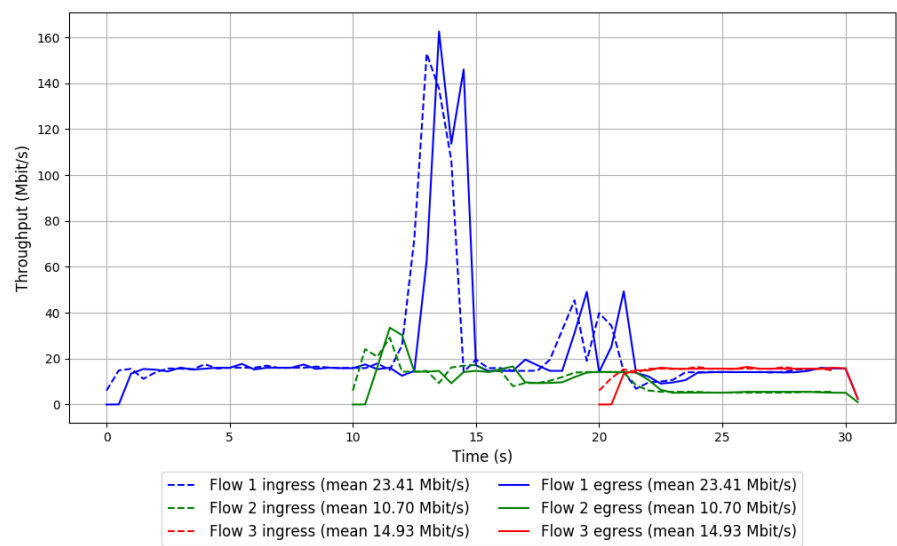
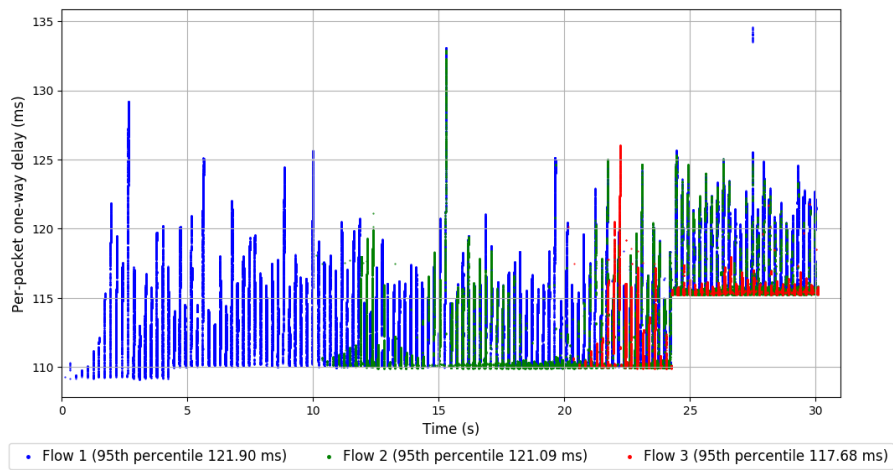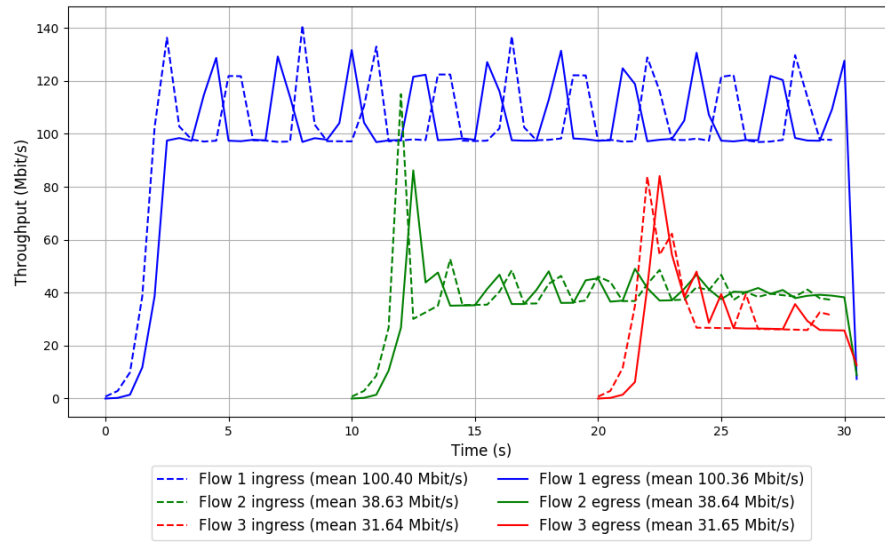# Run 10: Report of TaoVA-100x — Data Link

243

```
Run 1: Statistics of TCP Vegas

Start at: 2018-05-24 04:59:32
End at: 2018-05-24 05:00:02
Local clock offset: -0.198 ms
Remote clock offset: -0.095 ms

# Below is generated by plot.py at 2018-05-24 10:13:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 136.29 Mbit/s
95th percentile per-packet one-way delay: 121.734 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 100.36 Mbit/s
95th percentile per-packet one-way delay: 121.896 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 38.64 Mbit/s
95th percentile per-packet one-way delay: 121.086 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 31.65 Mbit/s
95th percentile per-packet one-way delay: 117.683 ms
Loss rate: 0.00%
```

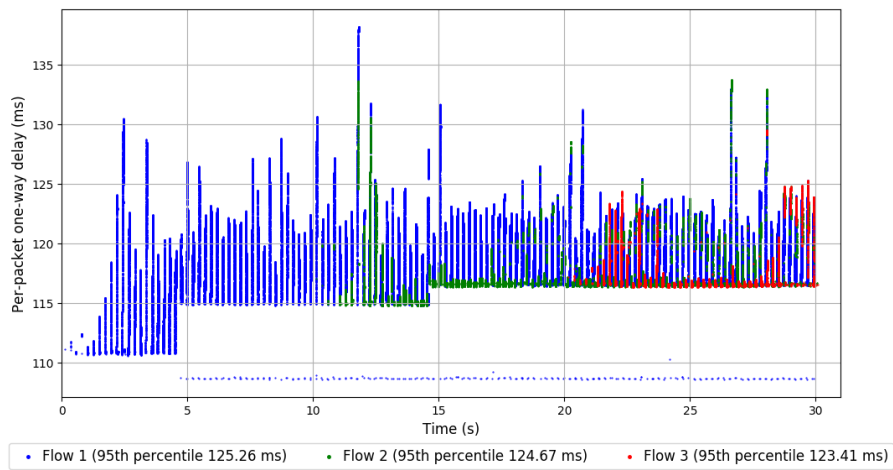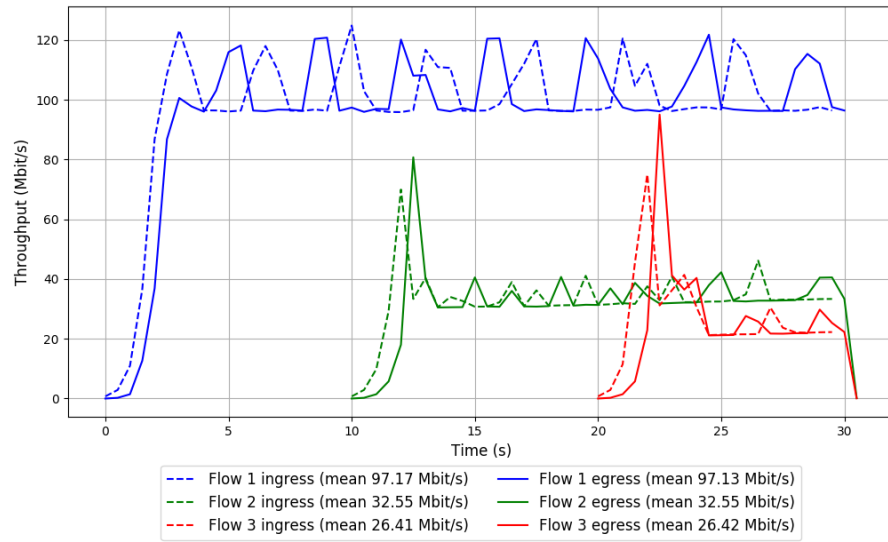# Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2018-05-24 05:23:12
End at: 2018-05-24 05:23:42
Local clock offset: -0.105 ms
Remote clock offset: -0.584 ms


# Below is generated by plot.py at 2018-05-24 10:13:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 127.10 Mbit/s
95th percentile per-packet one-way delay: 125.067 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 97.13 Mbit/s
95th percentile per-packet one-way delay: 125.259 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 32.55 Mbit/s
95th percentile per-packet one-way delay: 124.668 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 26.42 Mbit/s
95th percentile per-packet one-way delay: 123.409 ms
Loss rate: 0.00%
```

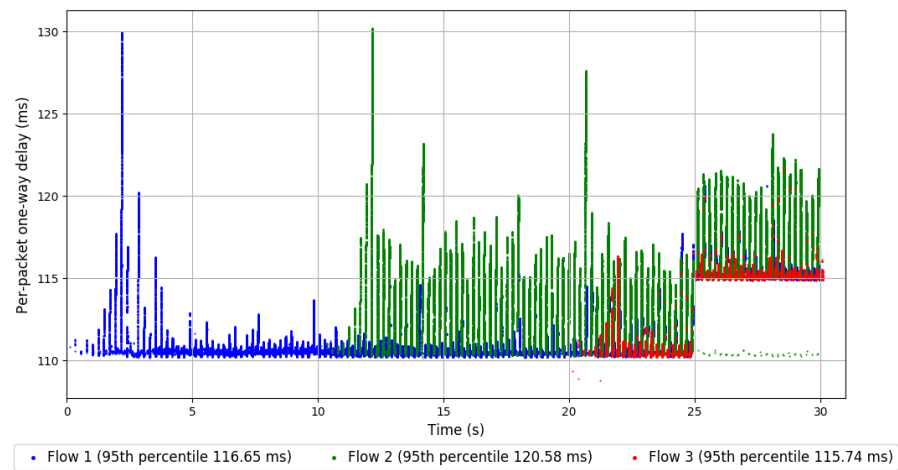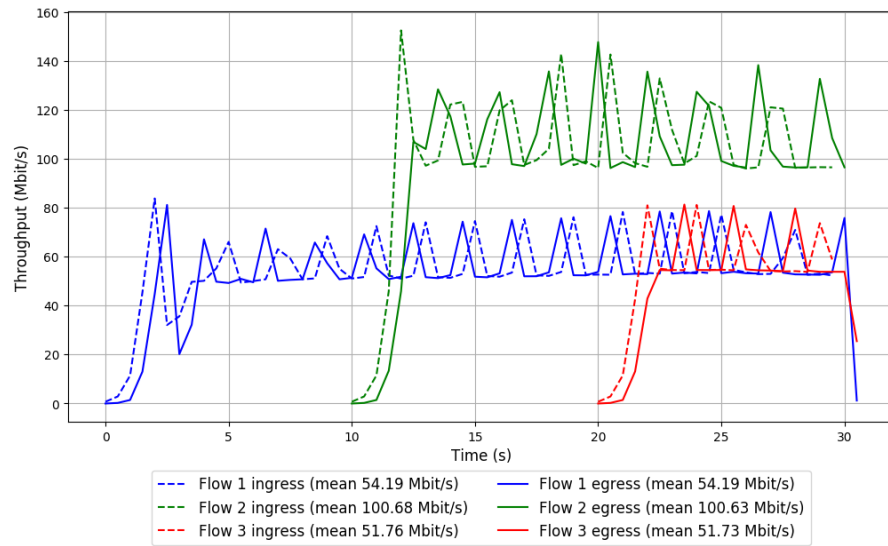Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2018-05-24 05:46:51
End at: 2018-05-24 05:47:21
Local clock offset: 0.049 ms
Remote clock offset: -0.158 ms


# Below is generated by plot.py at 2018-05-24 10:13:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 137.80 Mbit/s
95th percentile per-packet one-way delay: 119.487 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 54.19 Mbit/s
95th percentile per-packet one-way delay: 116.653 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 100.63 Mbit/s
95th percentile per-packet one-way delay: 120.576 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 51.73 Mbit/s
95th percentile per-packet one-way delay: 115.743 ms
Loss rate: 0.00%
```

Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 54.19 Mbit/s) --- Flow 1 egress (mean 54.19 Mbit/s)
Flow 2 ingress (mean 100.68 Mbit/s) --- Flow 2 egress (mean 100.63 Mbit/s)
Flow 3 ingress (mean 51.76 Mbit/s) --- Flow 3 egress (mean 51.73 Mbit/s)

Flow 1 (95th percentile 116.65 ms)   Flow 2 (95th percentile 120.58 ms)   Flow 3 (95th percentile 115.74 ms)

```
Run 4: Statistics of TCP Vegas

Start at: 2018-05-24 06:10:29
End at: 2018-05-24 06:10:59
Local clock offset: 0.201 ms
Remote clock offset: -0.546 ms


# Below is generated by plot.py at 2018-05-24 10:13:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 78.11 Mbit/s
95th percentile per-packet one-way delay: 115.426 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 66.16 Mbit/s
95th percentile per-packet one-way delay: 115.242 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 2.30 Mbit/s
95th percentile per-packet one-way delay: 114.655 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 31.43 Mbit/s
95th percentile per-packet one-way delay: 119.132 ms
Loss rate: 0.00%
```
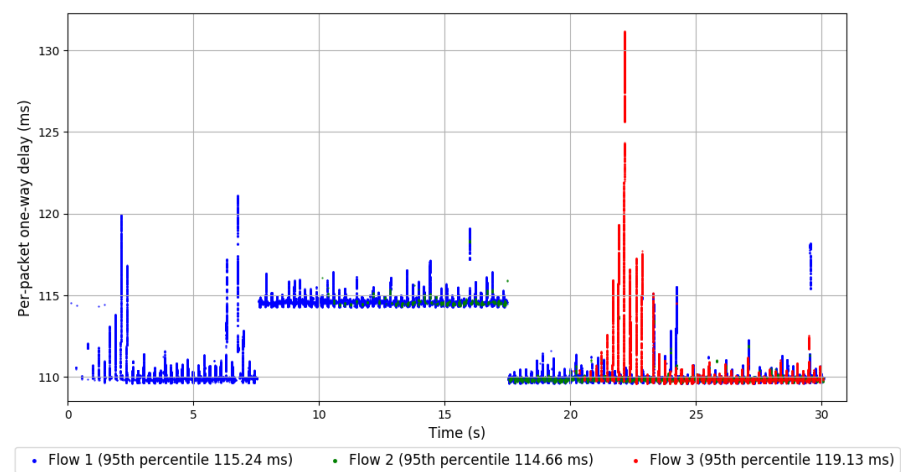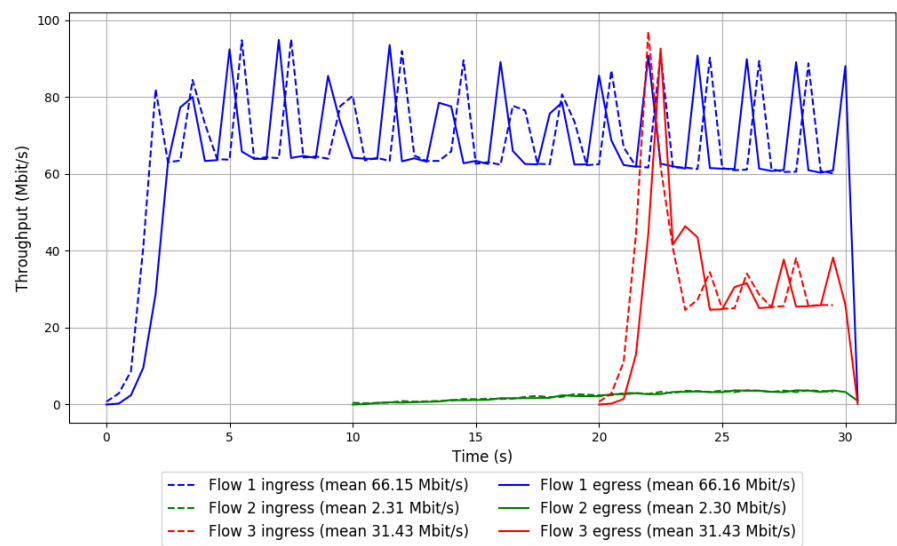
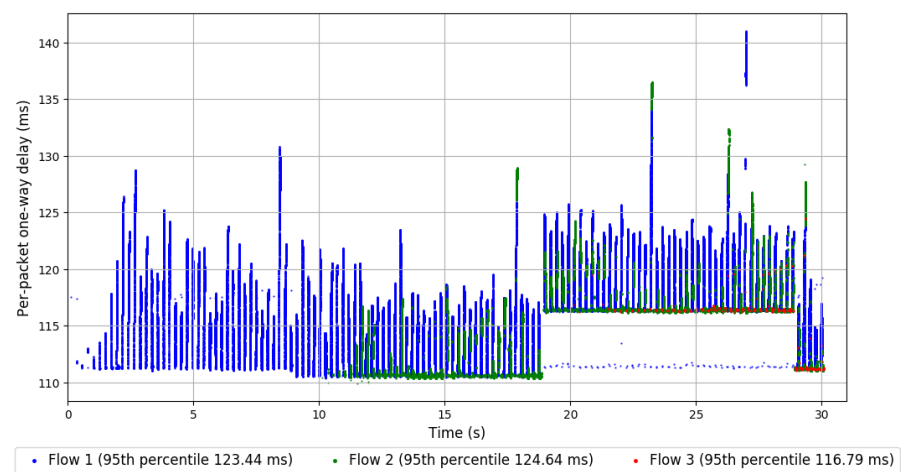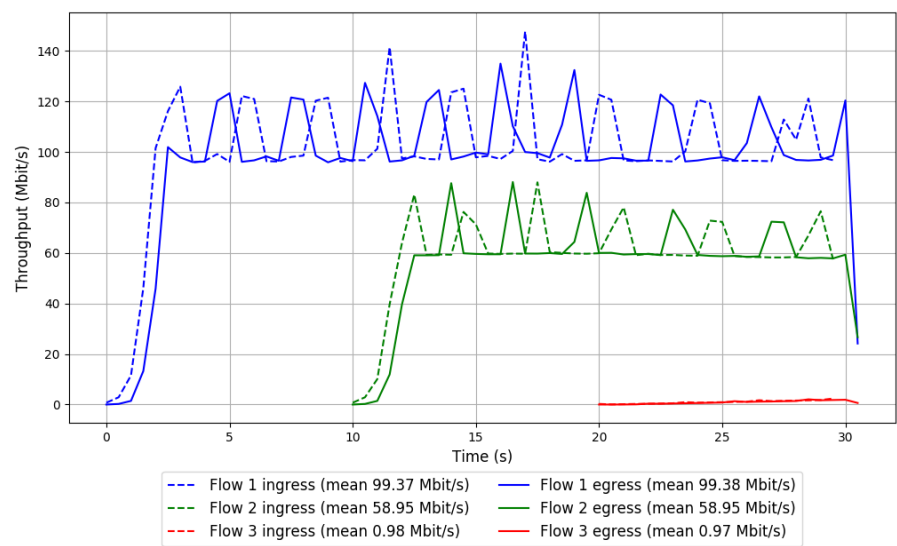Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2018-05-24 06:34:27
End at: 2018-05-24 06:34:57
Local clock offset: -0.248 ms
Remote clock offset: -0.226 ms


# Below is generated by plot.py at 2018-05-24 10:13:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 138.77 Mbit/s
95th percentile per-packet one-way delay: 123.538 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 99.38 Mbit/s
95th percentile per-packet one-way delay: 123.442 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 58.95 Mbit/s
95th percentile per-packet one-way delay: 124.640 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.97 Mbit/s
95th percentile per-packet one-way delay: 116.793 ms
Loss rate: 1.23%
```

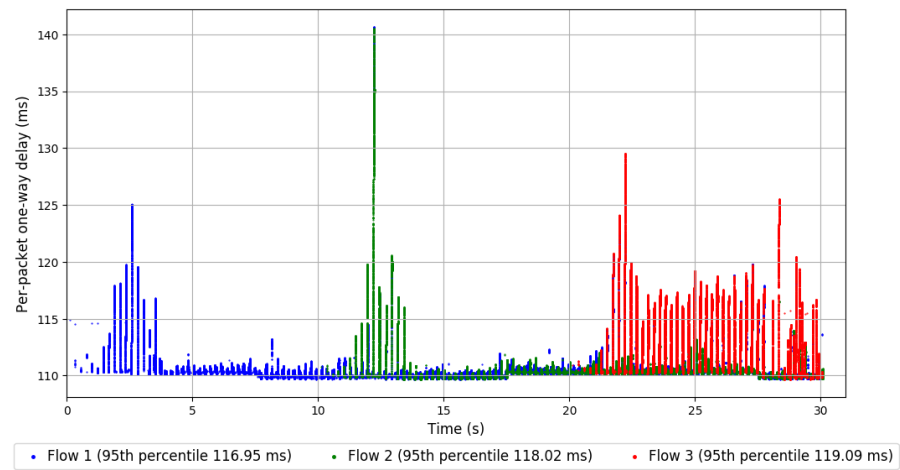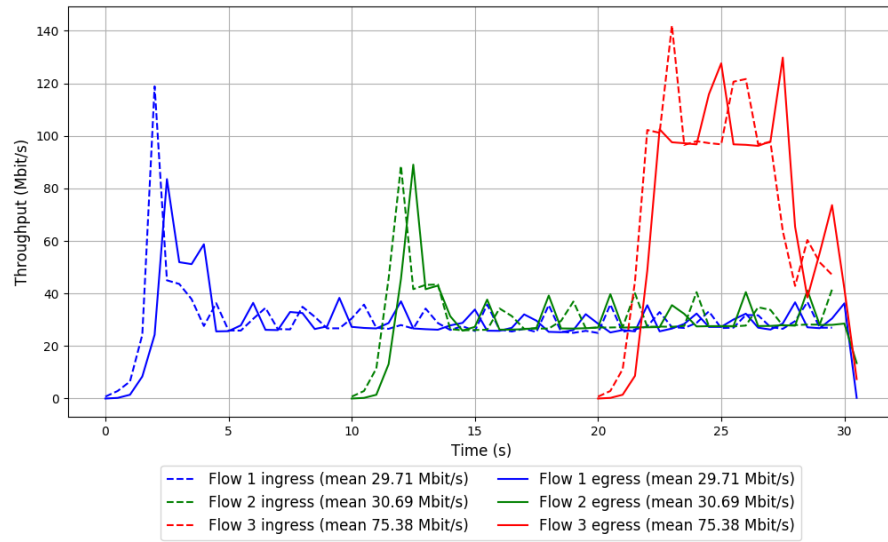# Run 5: Report of TCP Vegas — Data Link

```
Run 6: Statistics of TCP Vegas

Start at: 2018-05-24 06:58:29
End at: 2018-05-24 06:58:59
Local clock offset: 0.184 ms
Remote clock offset: -0.566 ms


# Below is generated by plot.py at 2018-05-24 10:13:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 75.11 Mbit/s
95th percentile per-packet one-way delay: 118.218 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 29.71 Mbit/s
95th percentile per-packet one-way delay: 116.947 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 30.69 Mbit/s
95th percentile per-packet one-way delay: 118.020 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 75.38 Mbit/s
95th percentile per-packet one-way delay: 119.088 ms
Loss rate: 0.00%
```

Run 6: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 29.71 Mbit/s) --- Flow 1 egress (mean 29.71 Mbit/s)
Flow 2 ingress (mean 30.69 Mbit/s) --- Flow 2 egress (mean 30.69 Mbit/s)
Flow 3 ingress (mean 75.38 Mbit/s) --- Flow 3 egress (mean 75.38 Mbit/s)

Flow 1 (95th percentile 116.95 ms)   Flow 2 (95th percentile 118.02 ms)   Flow 3 (95th percentile 119.09 ms)
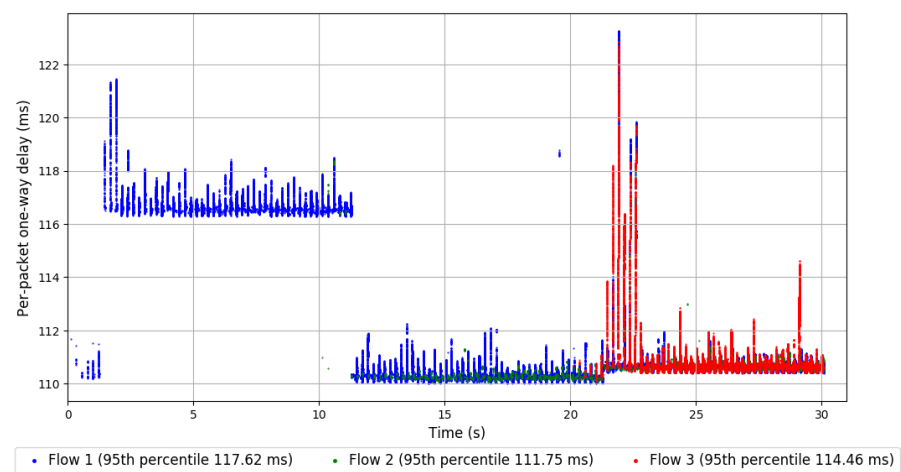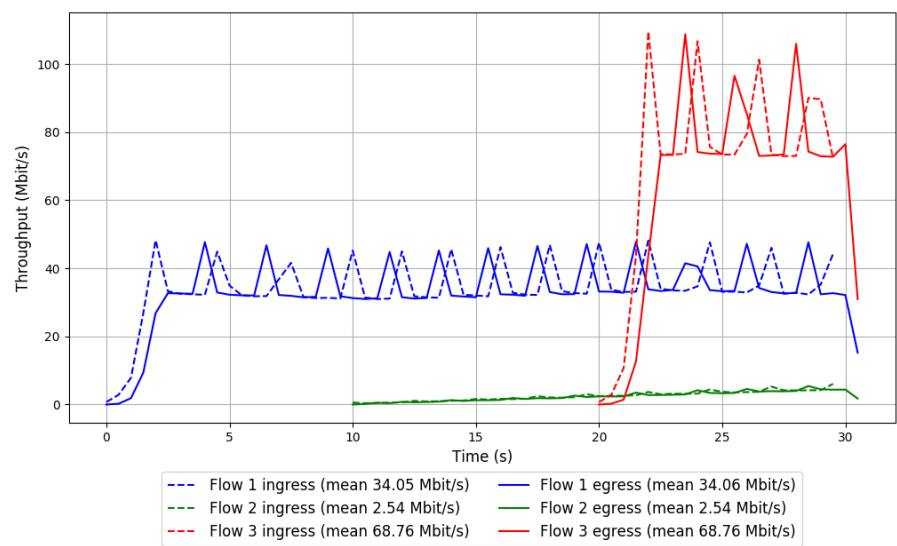
255

```
Run 7: Statistics of TCP Vegas

Start at: 2018-05-24 07:22:15
End at: 2018-05-24 07:22:45
Local clock offset: 0.22 ms
Remote clock offset: -0.229 ms


# Below is generated by plot.py at 2018-05-24 10:13:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 58.59 Mbit/s
95th percentile per-packet one-way delay: 117.275 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 34.06 Mbit/s
95th percentile per-packet one-way delay: 117.617 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 2.54 Mbit/s
95th percentile per-packet one-way delay: 111.747 ms
Loss rate: 0.07%
-- Flow 3:
Average throughput: 68.76 Mbit/s
95th percentile per-packet one-way delay: 114.462 ms
Loss rate: 0.00%
```

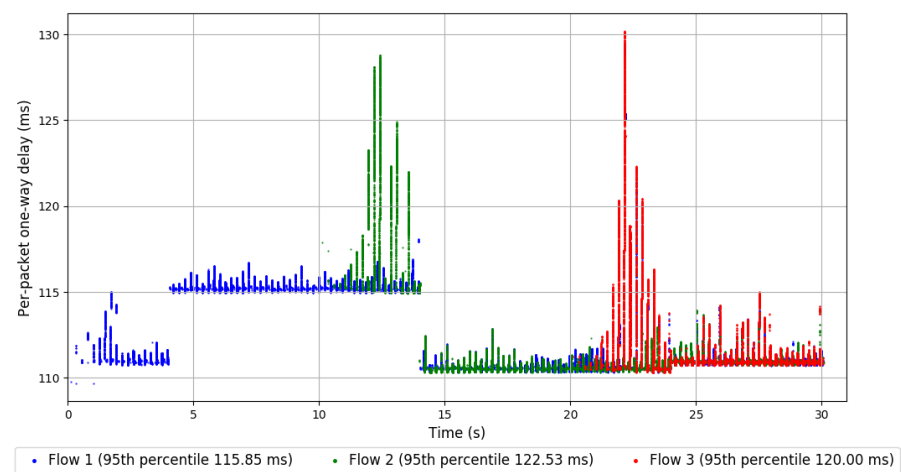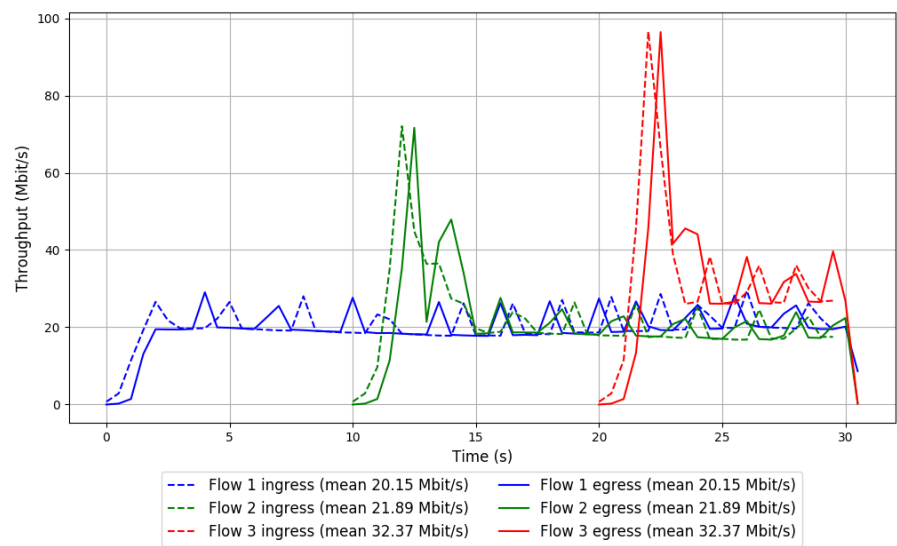# Run 7: Report of TCP Vegas — Data Link

```
Run 8: Statistics of TCP Vegas

Start at: 2018-05-24 07:45:42
End at: 2018-05-24 07:46:12
Local clock offset: -0.396 ms
Remote clock offset: -0.576 ms


# Below is generated by plot.py at 2018-05-24 10:13:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 45.44 Mbit/s
95th percentile per-packet one-way delay: 119.660 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 20.15 Mbit/s
95th percentile per-packet one-way delay: 115.850 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 21.89 Mbit/s
95th percentile per-packet one-way delay: 122.532 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 32.37 Mbit/s
95th percentile per-packet one-way delay: 120.002 ms
Loss rate: 0.00%
```

Run 8: Report of TCP Vegas — Data Link

```
Run 9: Statistics of TCP Vegas

Start at: 2018-05-24 08:09:45
End at: 2018-05-24 08:10:15
Local clock offset: 0.041 ms
Remote clock offset: 0.226 ms


# Below is generated by plot.py at 2018-05-24 10:13:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 158.96 Mbit/s
95th percentile per-packet one-way delay: 120.289 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 102.28 Mbit/s
95th percentile per-packet one-way delay: 120.778 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 64.14 Mbit/s
95th percentile per-packet one-way delay: 116.677 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 42.14 Mbit/s
95th percentile per-packet one-way delay: 121.926 ms
Loss rate: 0.00%
```
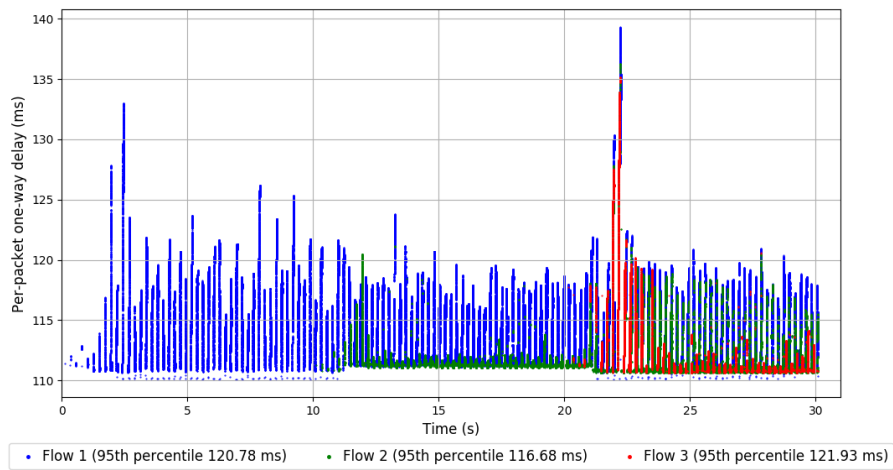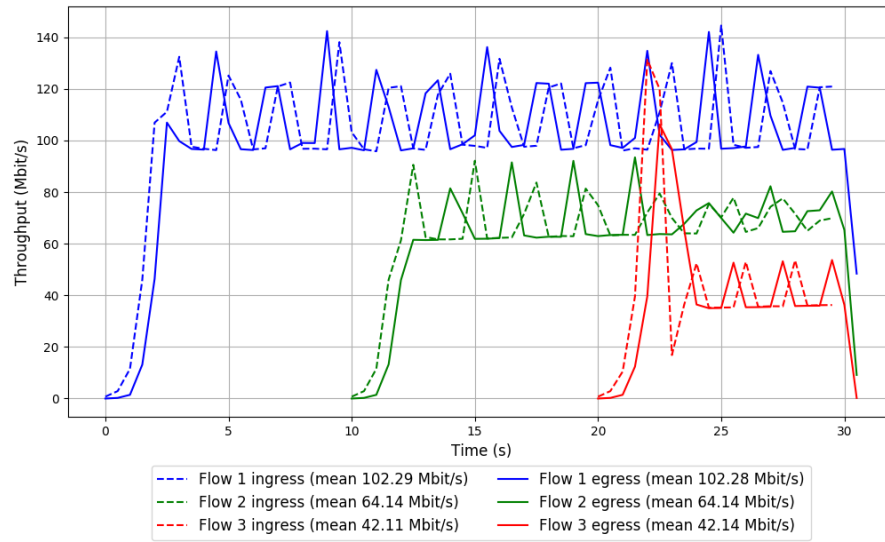
Run 9: Report of TCP Vegas — Data Link

```
Run 10: Statistics of TCP Vegas

Start at: 2018-05-24 08:33:29
End at: 2018-05-24 08:33:59
Local clock offset: 0.015 ms
Remote clock offset: 0.16 ms


# Below is generated by plot.py at 2018-05-24 10:13:43
# Datalink statistics
-- Total of 3 flows:
Average throughput: 92.78 Mbit/s
95th percentile per-packet one-way delay: 119.862 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 48.71 Mbit/s
95th percentile per-packet one-way delay: 119.961 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 51.68 Mbit/s
95th percentile per-packet one-way delay: 118.808 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 29.29 Mbit/s
95th percentile per-packet one-way delay: 127.814 ms
Loss rate: 0.00%
```
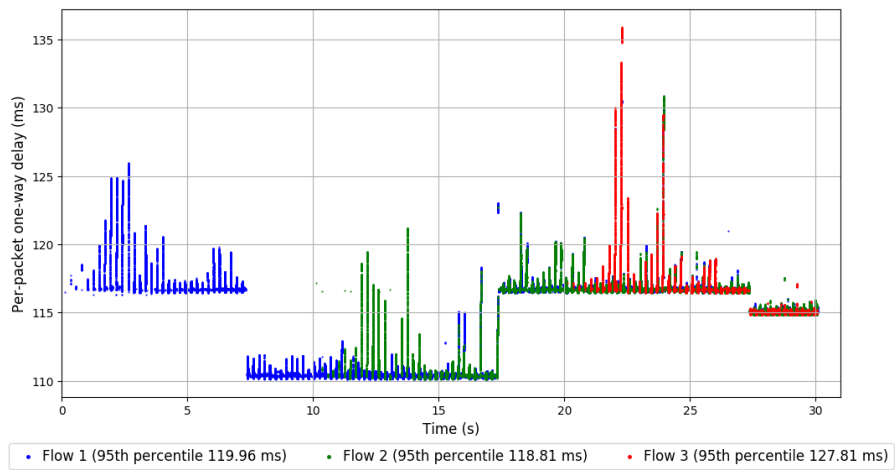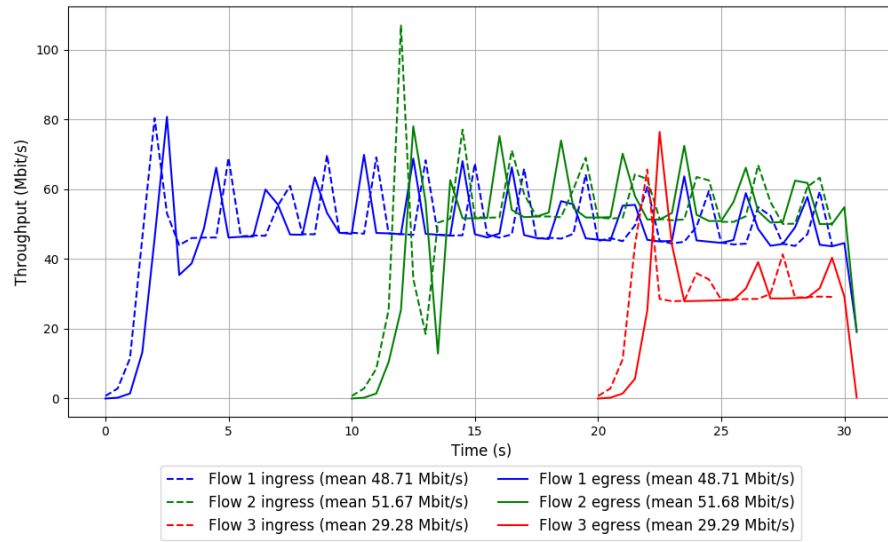
Run 10: Report of TCP Vegas — Data Link

- - - Flow 1 ingress (mean 48.71 Mbit/s)   —— Flow 1 egress (mean 48.71 Mbit/s)
- - - Flow 2 ingress (mean 51.67 Mbit/s)   —— Flow 2 egress (mean 51.68 Mbit/s)
- - - Flow 3 ingress (mean 29.28 Mbit/s)   —— Flow 3 egress (mean 29.29 Mbit/s)

• Flow 1 (95th percentile 119.96 ms)   • Flow 2 (95th percentile 118.81 ms)   • Flow 3 (95th percentile 127.81 ms)

263

```
Run 1: Statistics of Verus

Start at: 2018-05-24 04:43:48
End at: 2018-05-24 04:44:18
Local clock offset: -0.126 ms
Remote clock offset: 0.273 ms


# Below is generated by plot.py at 2018-05-24 10:14:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 233.81 Mbit/s
95th percentile per-packet one-way delay: 178.385 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 149.77 Mbit/s
95th percentile per-packet one-way delay: 177.424 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 103.77 Mbit/s
95th percentile per-packet one-way delay: 182.119 ms
Loss rate: 0.21%
-- Flow 3:
Average throughput: 52.33 Mbit/s
95th percentile per-packet one-way delay: 171.124 ms
Loss rate: 0.00%
```
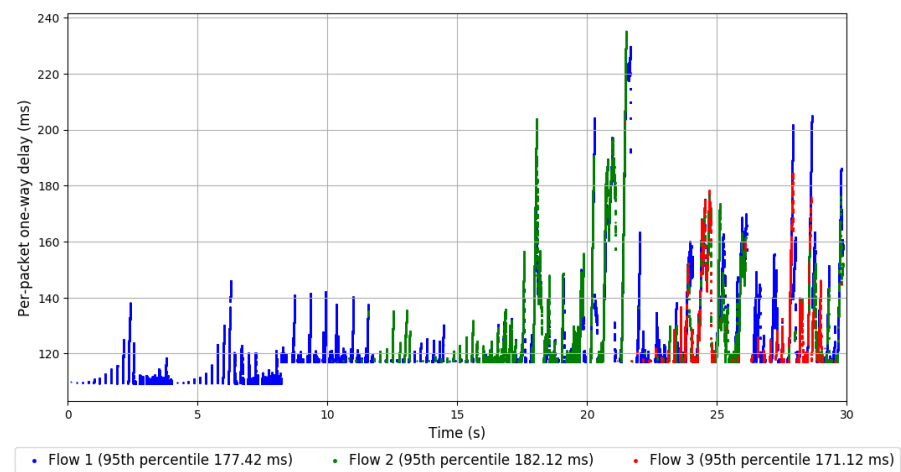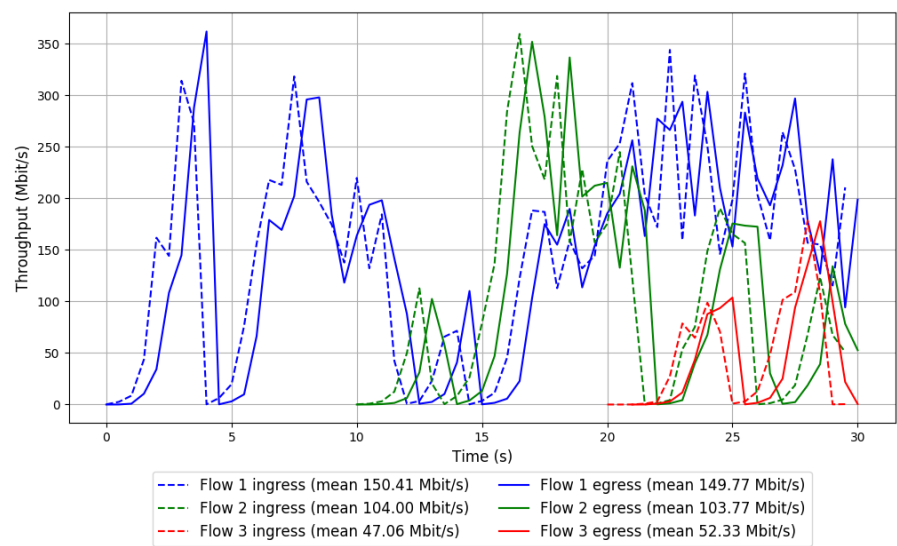
Run 1: Report of Verus — Data Link

Flow 1 ingress (mean 150.41 Mbit/s)   Flow 1 egress (mean 149.77 Mbit/s)
Flow 2 ingress (mean 104.00 Mbit/s)   Flow 2 egress (mean 103.77 Mbit/s)
Flow 3 ingress (mean 47.06 Mbit/s)   Flow 3 egress (mean 52.33 Mbit/s)

Flow 1 (95th percentile 177.42 ms)   Flow 2 (95th percentile 182.12 ms)   Flow 3 (95th percentile 171.12 ms)
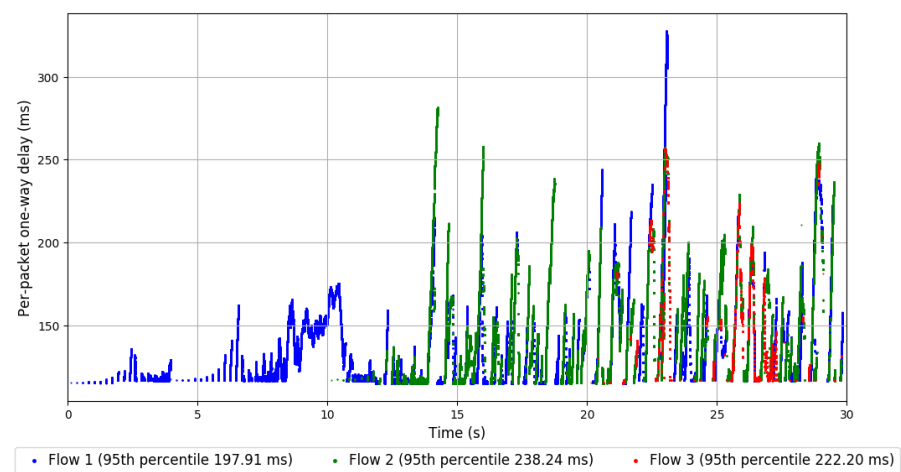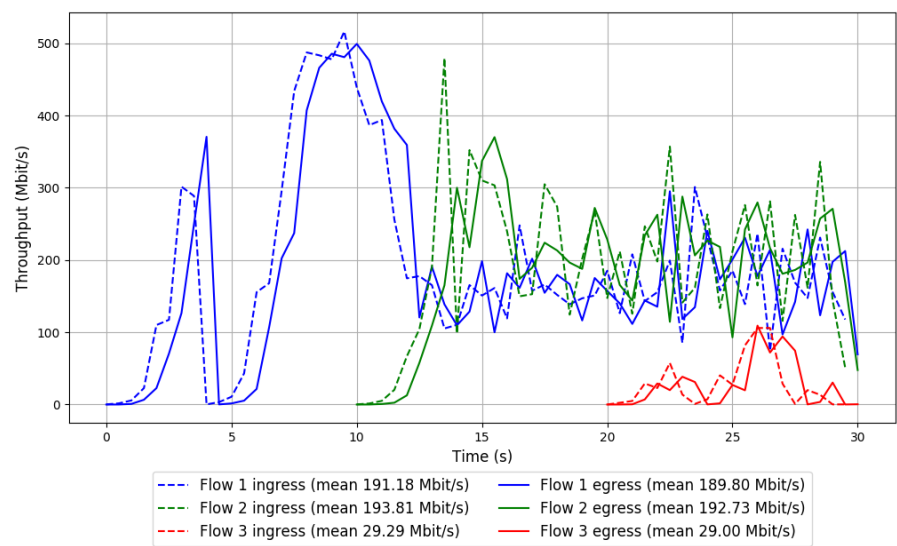
```
Run 2: Statistics of Verus

Start at: 2018-05-24 05:07:04
End at: 2018-05-24 05:07:34
Local clock offset: 0.046 ms
Remote clock offset: -0.168 ms


# Below is generated by plot.py at 2018-05-24 10:16:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 326.61 Mbit/s
95th percentile per-packet one-way delay: 215.975 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 189.80 Mbit/s
95th percentile per-packet one-way delay: 197.910 ms
Loss rate: 0.64%
-- Flow 2:
Average throughput: 192.73 Mbit/s
95th percentile per-packet one-way delay: 238.243 ms
Loss rate: 0.88%
-- Flow 3:
Average throughput: 29.00 Mbit/s
95th percentile per-packet one-way delay: 222.198 ms
Loss rate: 0.82%
```
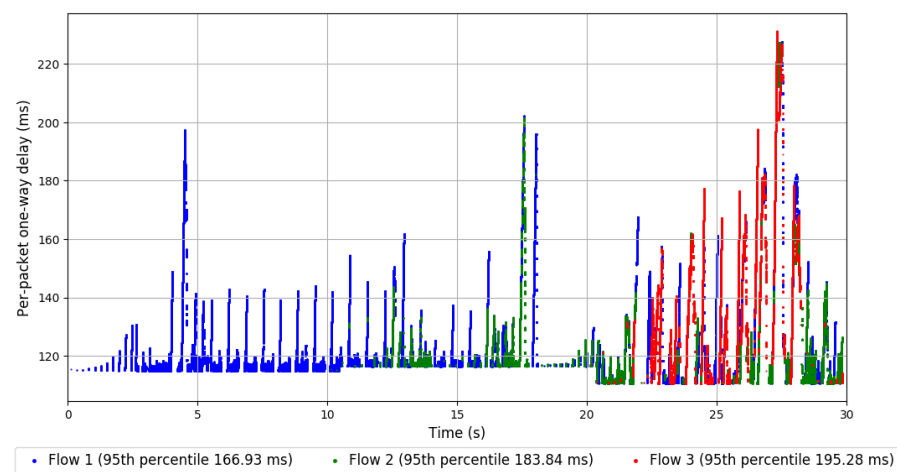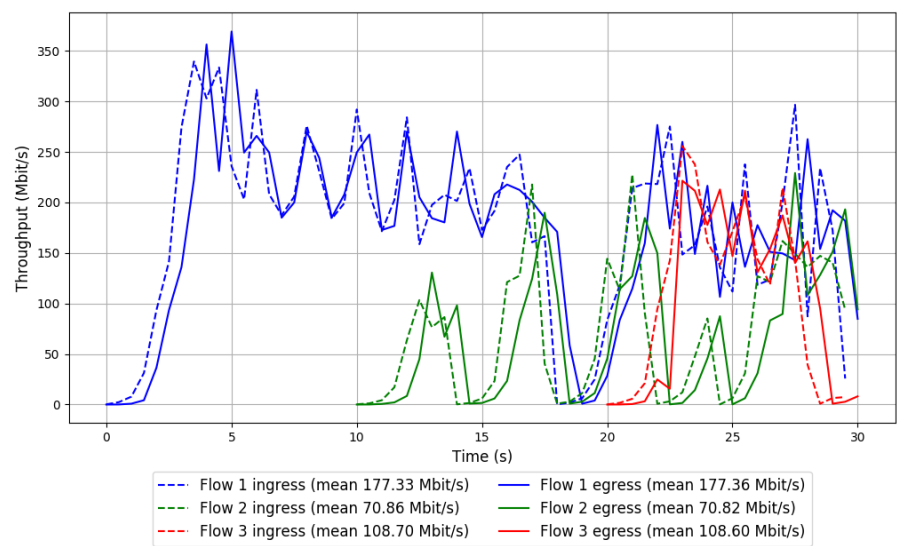
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2018-05-24 05:30:36
End at: 2018-05-24 05:31:06
Local clock offset: 0.166 ms
Remote clock offset: -0.212 ms


# Below is generated by plot.py at 2018-05-24 10:16:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 259.11 Mbit/s
95th percentile per-packet one-way delay: 174.746 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 177.36 Mbit/s
95th percentile per-packet one-way delay: 166.929 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 70.82 Mbit/s
95th percentile per-packet one-way delay: 183.844 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 108.60 Mbit/s
95th percentile per-packet one-way delay: 195.282 ms
Loss rate: 0.14%
```

Run 3: Report of Verus — Data Link

- - - Flow 1 ingress (mean 177.33 Mbit/s) —— Flow 1 egress (mean 177.36 Mbit/s)
- - - Flow 2 ingress (mean 70.86 Mbit/s) —— Flow 2 egress (mean 70.82 Mbit/s)
- - - Flow 3 ingress (mean 108.70 Mbit/s) —— Flow 3 egress (mean 108.60 Mbit/s)

• Flow 1 (95th percentile 166.93 ms)   • Flow 2 (95th percentile 183.84 ms)   • Flow 3 (95th percentile 195.28 ms)
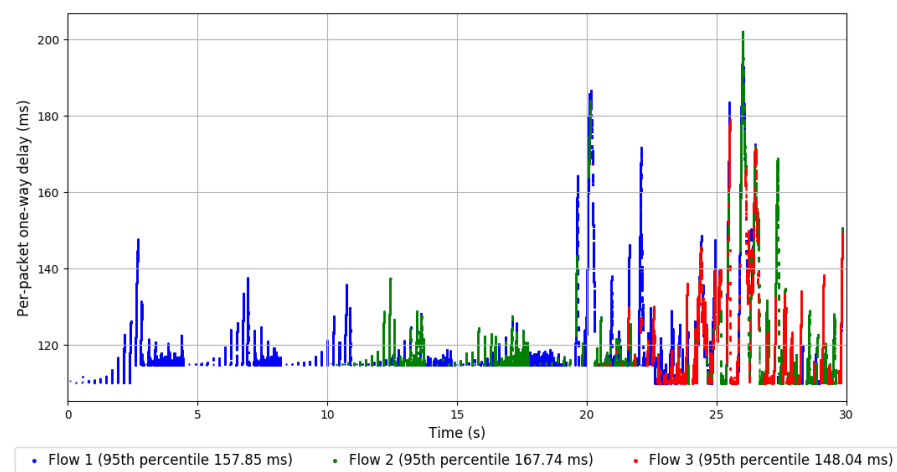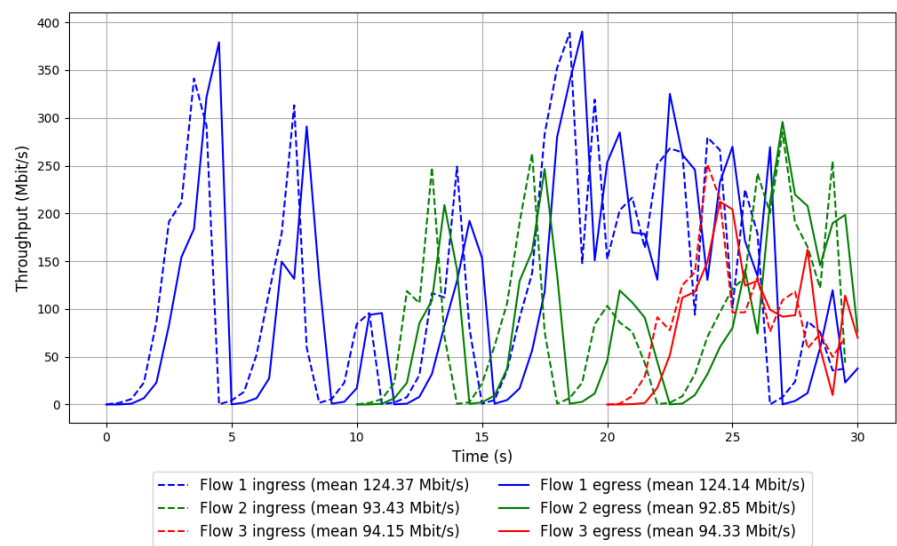
```
Run 4: Statistics of Verus

Start at: 2018-05-24 05:54:24
End at: 2018-05-24 05:54:54
Local clock offset: 0.273 ms
Remote clock offset: -0.127 ms


# Below is generated by plot.py at 2018-05-24 10:16:26
# Datalink statistics
-- Total of 3 flows:
Average throughput: 216.35 Mbit/s
95th percentile per-packet one-way delay: 161.108 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 124.14 Mbit/s
95th percentile per-packet one-way delay: 157.848 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 92.85 Mbit/s
95th percentile per-packet one-way delay: 167.739 ms
Loss rate: 0.64%
-- Flow 3:
Average throughput: 94.33 Mbit/s
95th percentile per-packet one-way delay: 148.042 ms
Loss rate: 0.00%
```

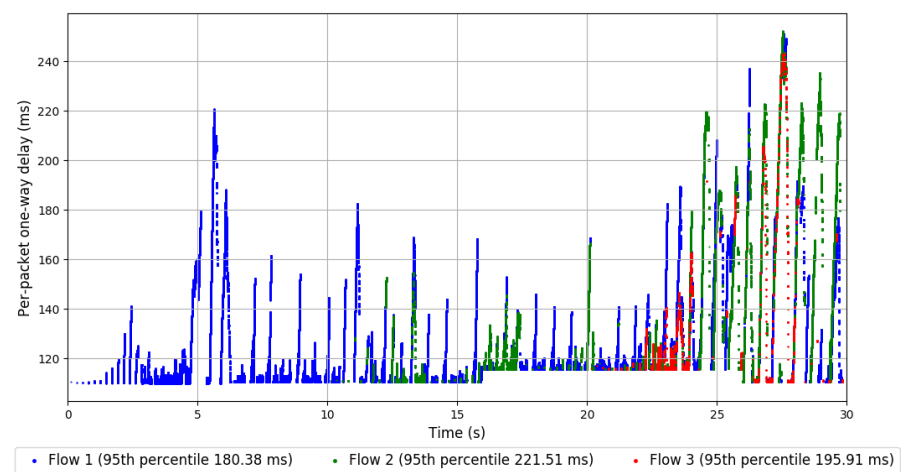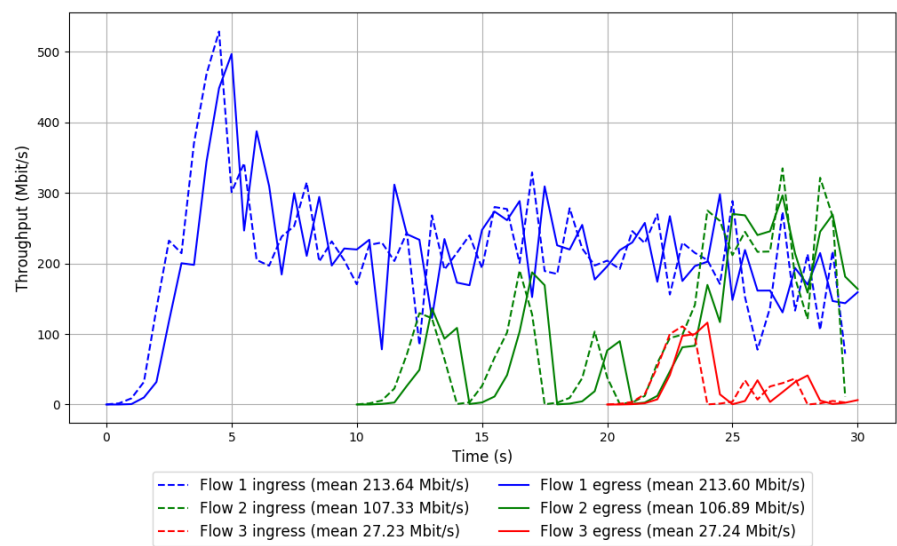Run 4: Report of Verus — Data Link

```
Run 5: Statistics of Verus

Start at: 2018-05-24 06:17:50
End at: 2018-05-24 06:18:20
Local clock offset: 0.023 ms
Remote clock offset: -0.618 ms


# Below is generated by plot.py at 2018-05-24 10:17:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 292.72 Mbit/s
95th percentile per-packet one-way delay: 207.908 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 213.60 Mbit/s
95th percentile per-packet one-way delay: 180.375 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 106.89 Mbit/s
95th percentile per-packet one-way delay: 221.515 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 27.24 Mbit/s
95th percentile per-packet one-way delay: 195.906 ms
Loss rate: 0.00%
```

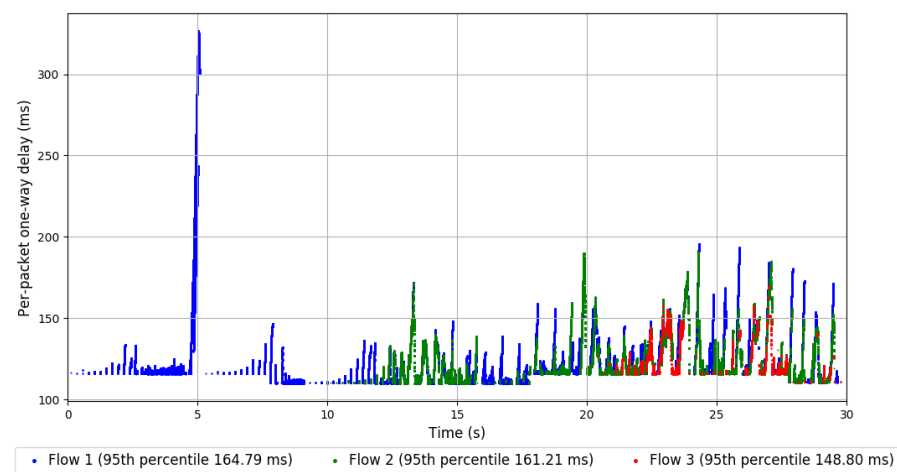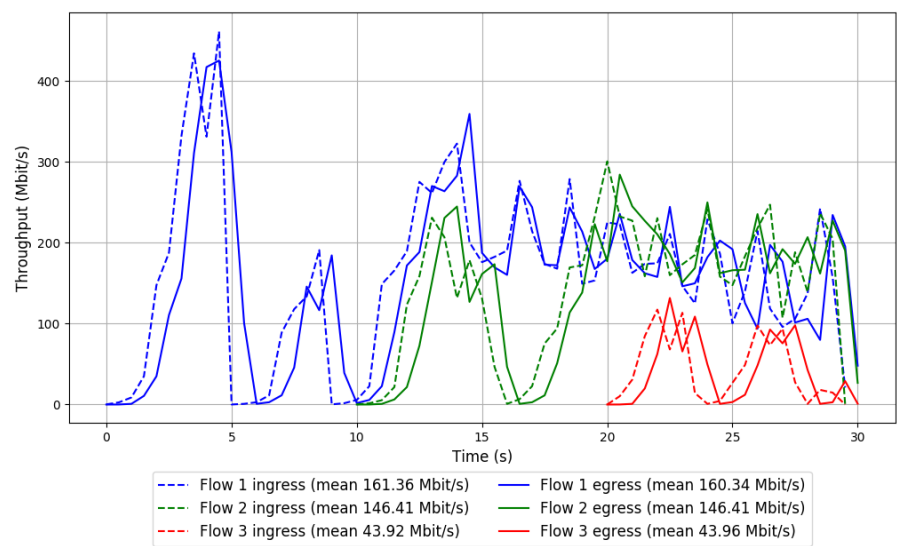Run 5: Report of Verus — Data Link

273

```
Run 6: Statistics of Verus

Start at: 2018-05-24 06:41:58
End at: 2018-05-24 06:42:28
Local clock offset: 0.206 ms
Remote clock offset: -0.256 ms


# Below is generated by plot.py at 2018-05-24 10:17:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 270.82 Mbit/s
95th percentile per-packet one-way delay: 162.303 ms
Loss rate: 0.38%
-- Flow 1:
Average throughput: 160.34 Mbit/s
95th percentile per-packet one-way delay: 164.786 ms
Loss rate: 0.64%
-- Flow 2:
Average throughput: 146.41 Mbit/s
95th percentile per-packet one-way delay: 161.210 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 43.96 Mbit/s
95th percentile per-packet one-way delay: 148.804 ms
Loss rate: 0.00%
```

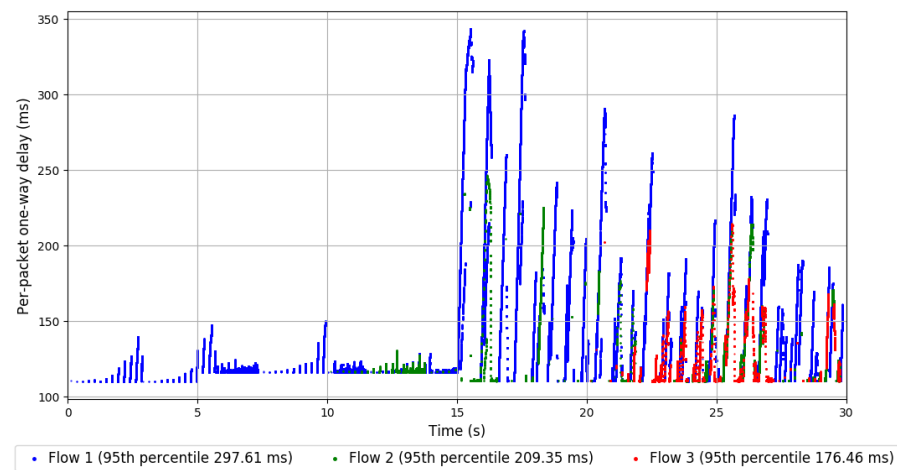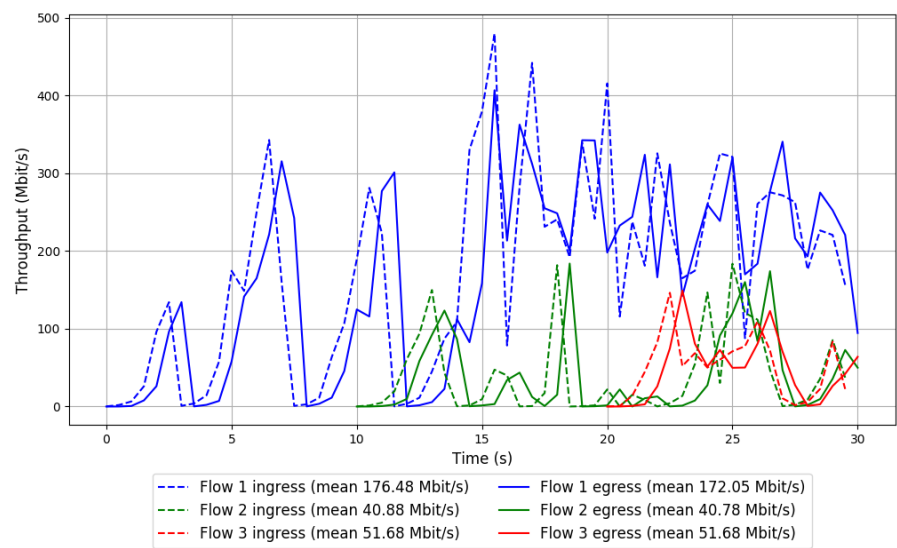# Run 6: Report of Verus — Data Link

275

```
Run 7: Statistics of Verus

Start at: 2018-05-24 07:06:01
End at: 2018-05-24 07:06:31
Local clock offset: 0.185 ms
Remote clock offset: -0.53 ms

# Below is generated by plot.py at 2018-05-24 10:17:06
# Datalink statistics
-- Total of 3 flows:
Average throughput: 215.70 Mbit/s
95th percentile per-packet one-way delay: 282.736 ms
Loss rate: 2.01%
-- Flow 1:
Average throughput: 172.05 Mbit/s
95th percentile per-packet one-way delay: 297.609 ms
Loss rate: 2.47%
-- Flow 2:
Average throughput: 40.78 Mbit/s
95th percentile per-packet one-way delay: 209.348 ms
Loss rate: 0.22%
-- Flow 3:
Average throughput: 51.68 Mbit/s
95th percentile per-packet one-way delay: 176.463 ms
Loss rate: 0.00%
```
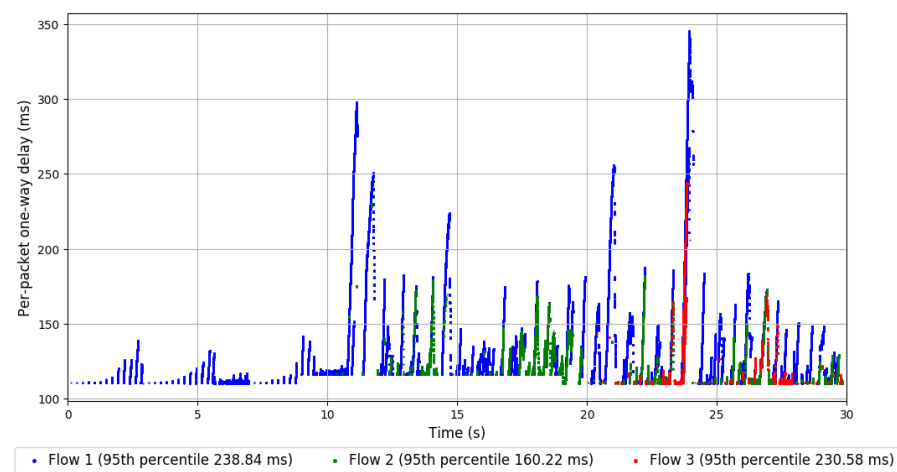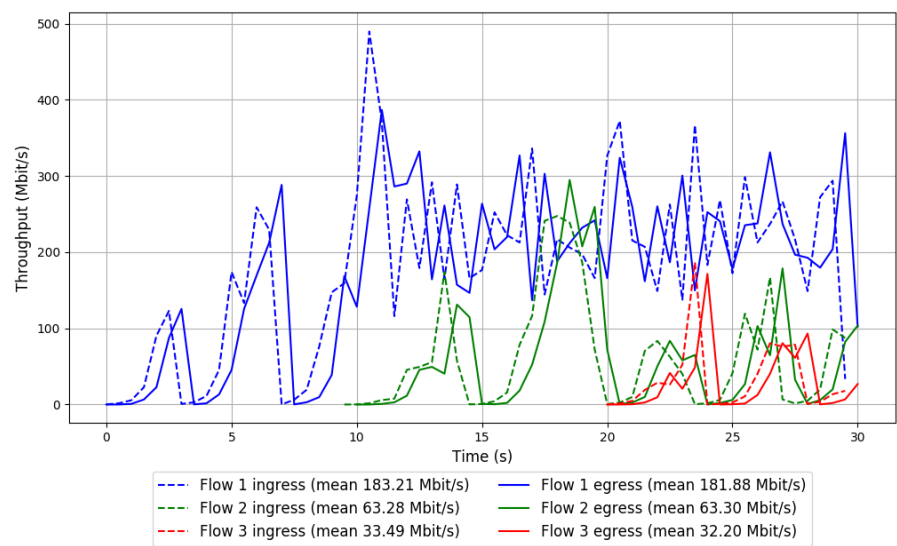
Run 7: Report of Verus — Data Link

```
Run 8: Statistics of Verus

Start at: 2018-05-24 07:29:47
End at: 2018-05-24 07:30:17
Local clock offset: 0.194 ms
Remote clock offset: -0.237 ms


# Below is generated by plot.py at 2018-05-24 10:17:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 234.31 Mbit/s
95th percentile per-packet one-way delay: 223.277 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 181.88 Mbit/s
95th percentile per-packet one-way delay: 238.838 ms
Loss rate: 0.72%
-- Flow 2:
Average throughput: 63.30 Mbit/s
95th percentile per-packet one-way delay: 160.220 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 32.20 Mbit/s
95th percentile per-packet one-way delay: 230.576 ms
Loss rate: 3.81%
```

Run 8: Report of Verus — Data Link

```
Run 9: Statistics of Verus

Start at: 2018-05-24 07:53:11
End at: 2018-05-24 07:53:41
Local clock offset: 0.166 ms
Remote clock offset: -0.23 ms


# Below is generated by plot.py at 2018-05-24 10:18:44
# Datalink statistics
-- Total of 3 flows:
Average throughput: 251.90 Mbit/s
95th percentile per-packet one-way delay: 189.905 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 132.22 Mbit/s
95th percentile per-packet one-way delay: 161.986 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 148.72 Mbit/s
95th percentile per-packet one-way delay: 219.489 ms
Loss rate: 1.74%
-- Flow 3:
Average throughput: 65.07 Mbit/s
95th percentile per-packet one-way delay: 178.044 ms
Loss rate: 0.25%
```
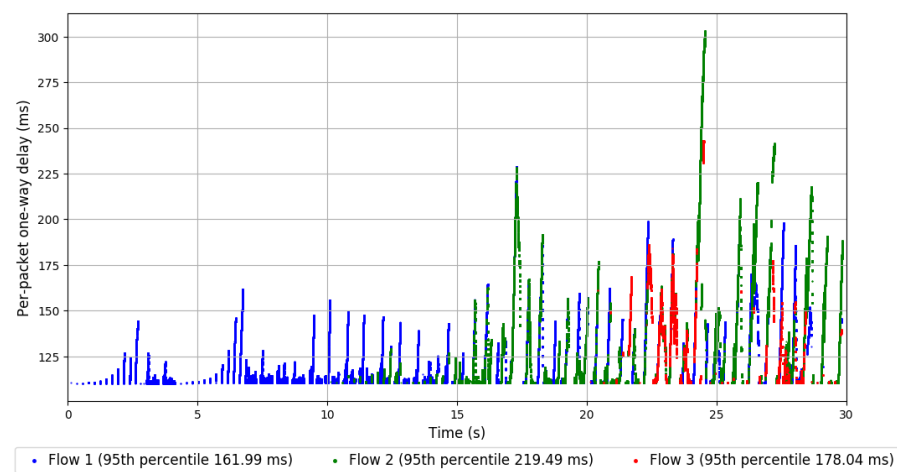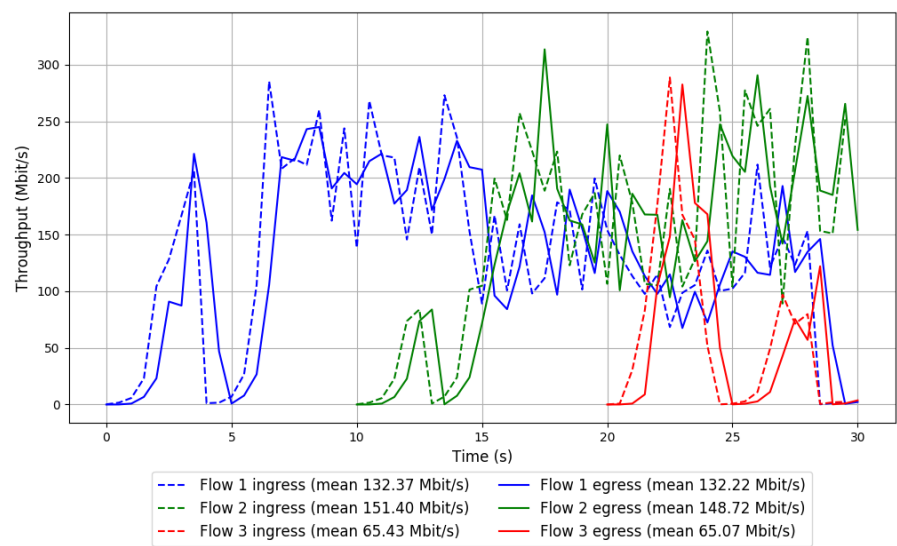
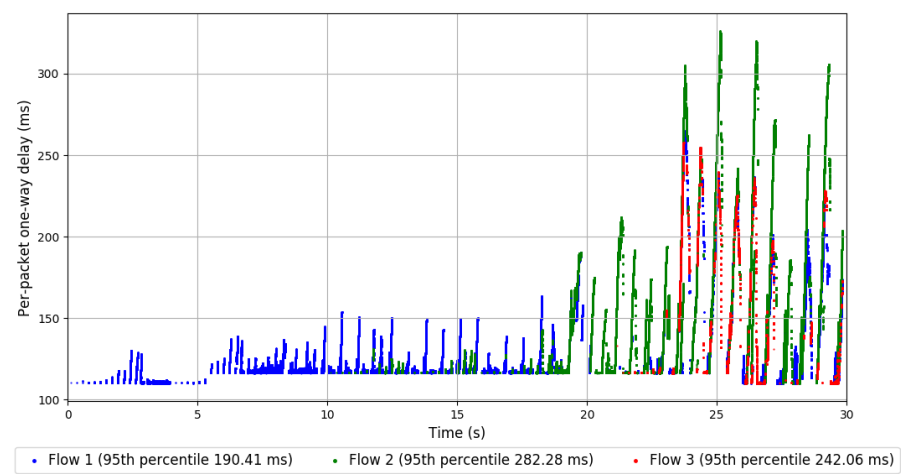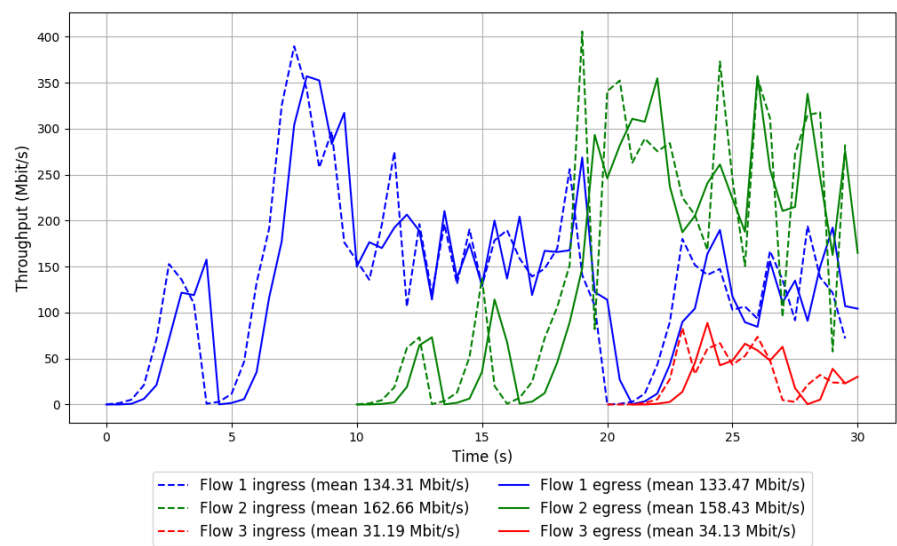## Run 9: Report of Verus — Data Link

```
Run 10: Statistics of Verus

Start at: 2018-05-24 08:17:31
End at: 2018-05-24 08:18:01
Local clock offset: 0.106 ms
Remote clock offset: -0.172 ms


# Below is generated by plot.py at 2018-05-24 10:18:58
# Datalink statistics
-- Total of 3 flows:
Average throughput: 248.53 Mbit/s
95th percentile per-packet one-way delay: 245.922 ms
Loss rate: 1.51%
-- Flow 1:
Average throughput: 133.47 Mbit/s
95th percentile per-packet one-way delay: 190.410 ms
Loss rate: 0.60%
-- Flow 2:
Average throughput: 158.43 Mbit/s
95th percentile per-packet one-way delay: 282.282 ms
Loss rate: 2.60%
-- Flow 3:
Average throughput: 34.13 Mbit/s
95th percentile per-packet one-way delay: 242.064 ms
Loss rate: 2.02%
```

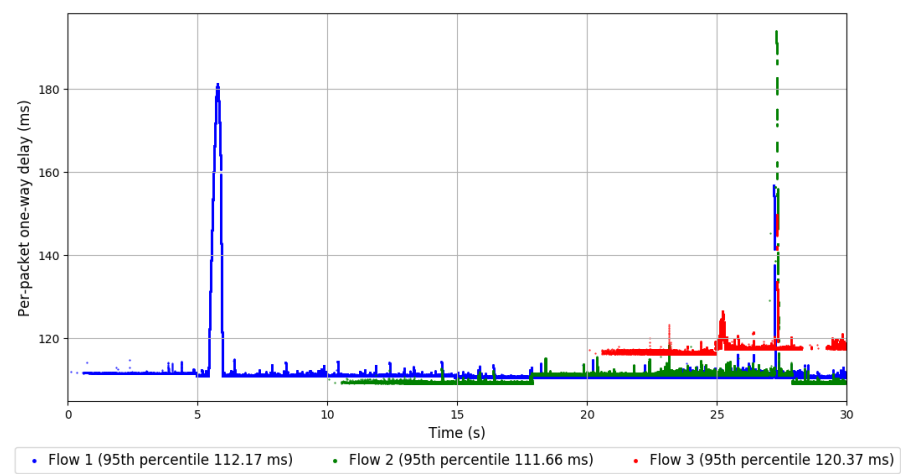## Run 10: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2018-05-24 04:41:58
End at: 2018-05-24 04:42:28
Local clock offset: -0.344 ms
Remote clock offset: -0.098 ms


# Below is generated by plot.py at 2018-05-24 10:22:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 455.30 Mbit/s
95th percentile per-packet one-way delay: 117.709 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 280.04 Mbit/s
95th percentile per-packet one-way delay: 112.171 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 174.83 Mbit/s
95th percentile per-packet one-way delay: 111.663 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 178.27 Mbit/s
95th percentile per-packet one-way delay: 120.373 ms
Loss rate: 0.05%
```

Run 1: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 280.02 Mbit/s) --- Flow 1 egress (mean 280.04 Mbit/s)
Flow 2 ingress (mean 174.82 Mbit/s) --- Flow 2 egress (mean 174.83 Mbit/s)
Flow 3 ingress (mean 178.32 Mbit/s) --- Flow 3 egress (mean 178.27 Mbit/s)

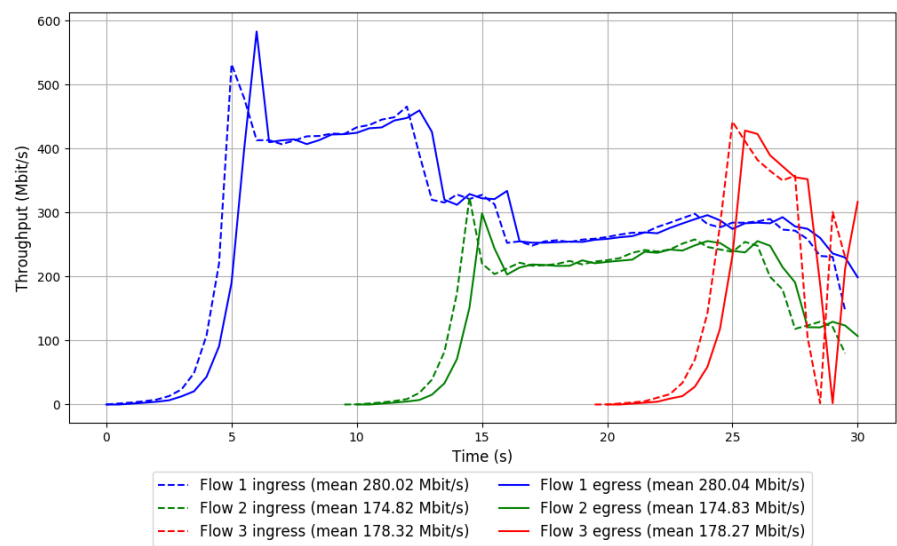Flow 1 (95th percentile 112.17 ms) • Flow 2 (95th percentile 111.66 ms) • Flow 3 (95th percentile 120.37 ms)
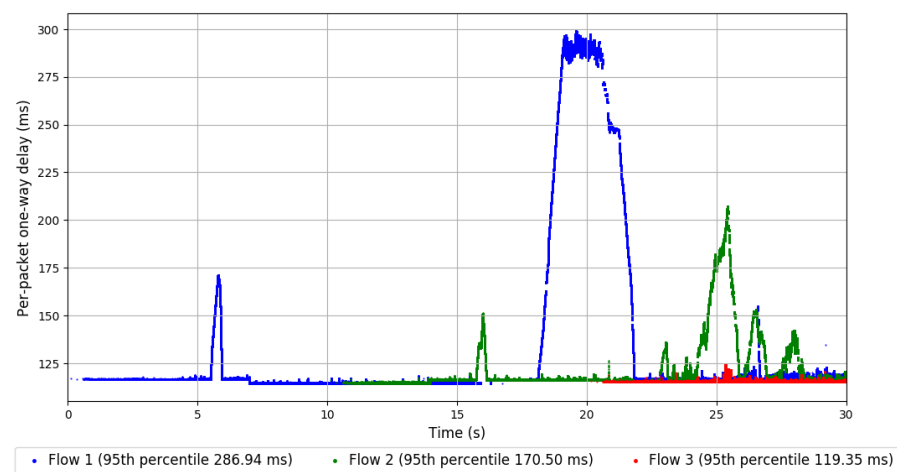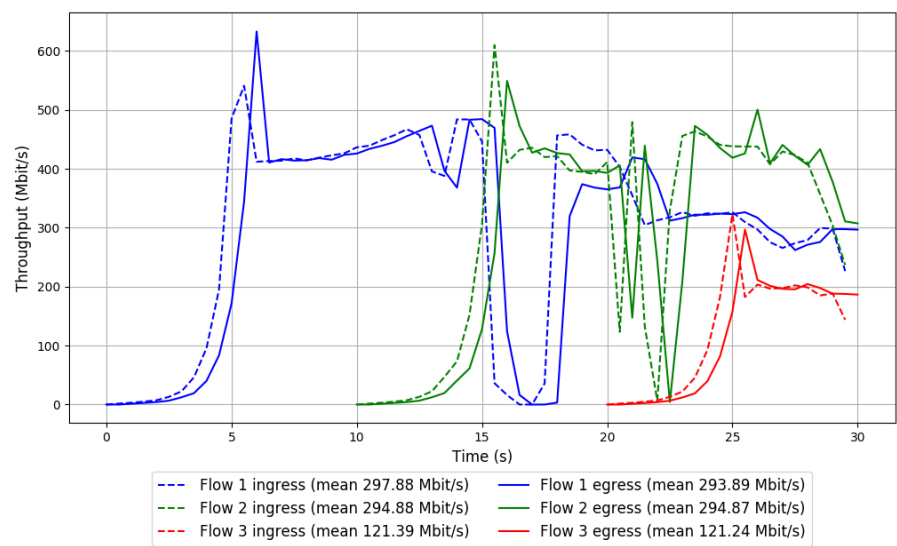
```
Run 2: Statistics of PCC-Vivace

Start at: 2018-05-24 05:05:09
End at: 2018-05-24 05:05:39
Local clock offset: 0.37 ms
Remote clock offset: -0.168 ms


# Below is generated by plot.py at 2018-05-24 10:24:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 529.98 Mbit/s
95th percentile per-packet one-way delay: 248.203 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 293.89 Mbit/s
95th percentile per-packet one-way delay: 286.935 ms
Loss rate: 1.34%
-- Flow 2:
Average throughput: 294.87 Mbit/s
95th percentile per-packet one-way delay: 170.495 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 121.24 Mbit/s
95th percentile per-packet one-way delay: 119.348 ms
Loss rate: 0.12%
```

Run 2: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 297.88 Mbit/s)   Flow 1 egress (mean 293.89 Mbit/s)
Flow 2 ingress (mean 294.88 Mbit/s)   Flow 2 egress (mean 294.87 Mbit/s)
Flow 3 ingress (mean 121.39 Mbit/s)   Flow 3 egress (mean 121.24 Mbit/s)

Flow 1 (95th percentile 286.94 ms)   Flow 2 (95th percentile 170.50 ms)   Flow 3 (95th percentile 119.35 ms)
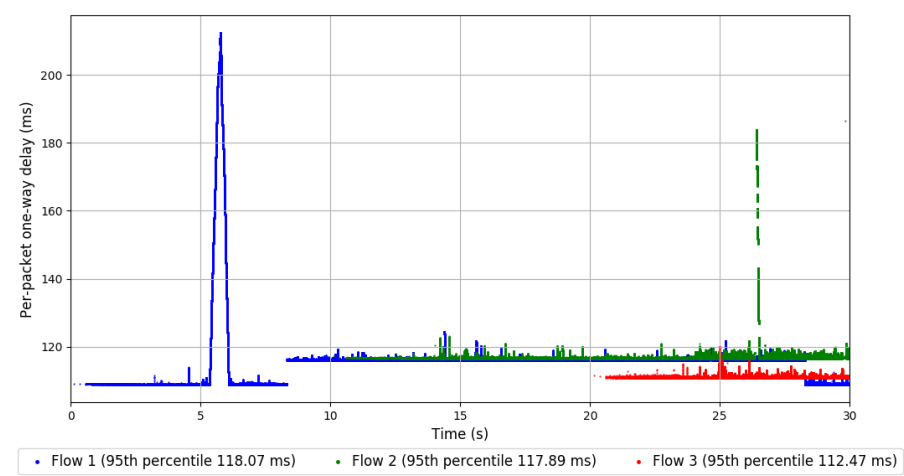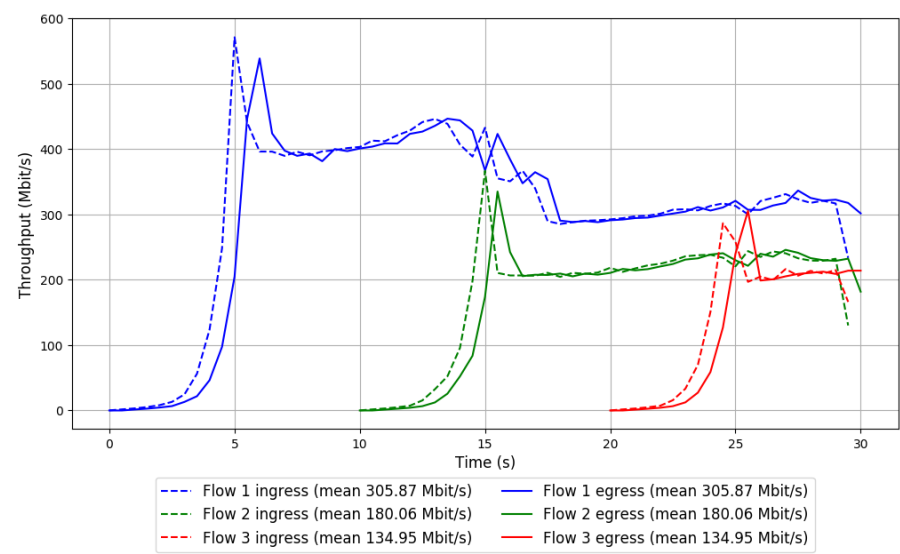
```
Run 3: Statistics of PCC-Vivace

Start at: 2018-05-24 05:28:45
End at: 2018-05-24 05:29:15
Local clock offset: 0.087 ms
Remote clock offset: -0.185 ms


# Below is generated by plot.py at 2018-05-24 10:24:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 470.06 Mbit/s
95th percentile per-packet one-way delay: 117.737 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 305.87 Mbit/s
95th percentile per-packet one-way delay: 118.073 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 180.06 Mbit/s
95th percentile per-packet one-way delay: 117.893 ms
Loss rate: 0.03%
-- Flow 3:
Average throughput: 134.95 Mbit/s
95th percentile per-packet one-way delay: 112.466 ms
Loss rate: 0.00%
```

Run 3: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 305.87 Mbit/s) --- Flow 1 egress (mean 305.87 Mbit/s)
Flow 2 ingress (mean 180.06 Mbit/s) --- Flow 2 egress (mean 180.06 Mbit/s)
Flow 3 ingress (mean 134.95 Mbit/s) --- Flow 3 egress (mean 134.95 Mbit/s)

Flow 1 (95th percentile 118.07 ms) · Flow 2 (95th percentile 117.89 ms) · Flow 3 (95th percentile 112.47 ms)
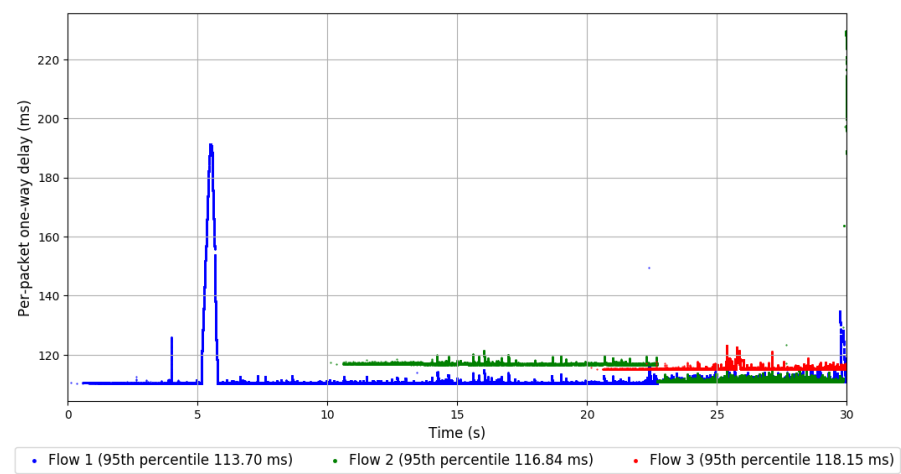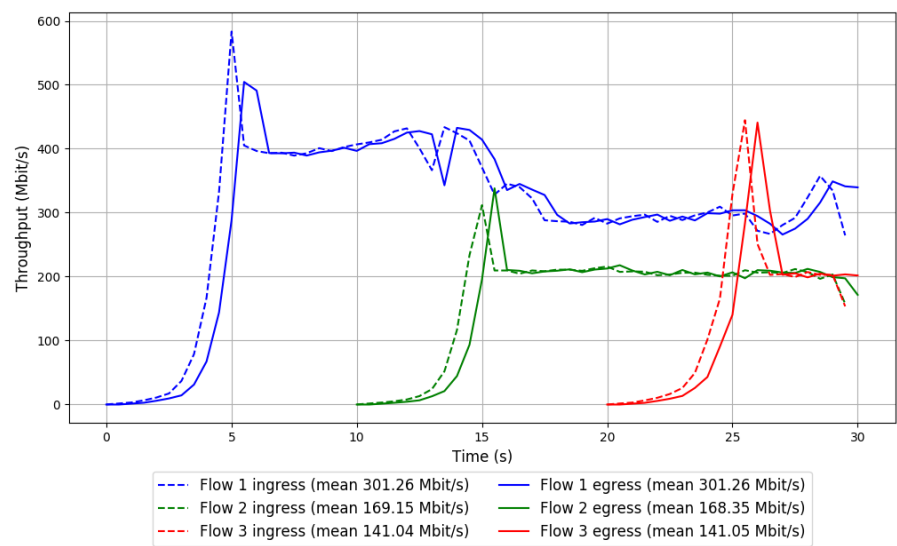
```
Run 4: Statistics of PCC-Vivace

Start at: 2018-05-24 05:52:34
End at: 2018-05-24 05:53:04
Local clock offset: -0.107 ms
Remote clock offset: -0.153 ms


# Below is generated by plot.py at 2018-05-24 10:24:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 459.62 Mbit/s
95th percentile per-packet one-way delay: 116.831 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 301.26 Mbit/s
95th percentile per-packet one-way delay: 113.700 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 168.35 Mbit/s
95th percentile per-packet one-way delay: 116.845 ms
Loss rate: 0.49%
-- Flow 3:
Average throughput: 141.05 Mbit/s
95th percentile per-packet one-way delay: 118.152 ms
Loss rate: 0.00%
```

Run 4: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 301.26 Mbit/s) — Flow 1 egress (mean 301.26 Mbit/s)
Flow 2 ingress (mean 169.15 Mbit/s) — Flow 2 egress (mean 168.35 Mbit/s)
Flow 3 ingress (mean 141.04 Mbit/s) — Flow 3 egress (mean 141.05 Mbit/s)

Flow 1 (95th percentile 113.70 ms) • Flow 2 (95th percentile 116.84 ms) • Flow 3 (95th percentile 118.15 ms)

```
Run 5: Statistics of PCC-Vivace

Start at: 2018-05-24 06:16:00
End at: 2018-05-24 06:16:30
Local clock offset: -0.086 ms
Remote clock offset: -0.21 ms


# Below is generated by plot.py at 2018-05-24 10:24:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 468.38 Mbit/s
95th percentile per-packet one-way delay: 119.225 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 296.09 Mbit/s
95th percentile per-packet one-way delay: 121.254 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 195.05 Mbit/s
95th percentile per-packet one-way delay: 117.517 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 129.22 Mbit/s
95th percentile per-packet one-way delay: 112.331 ms
Loss rate: 0.00%
```
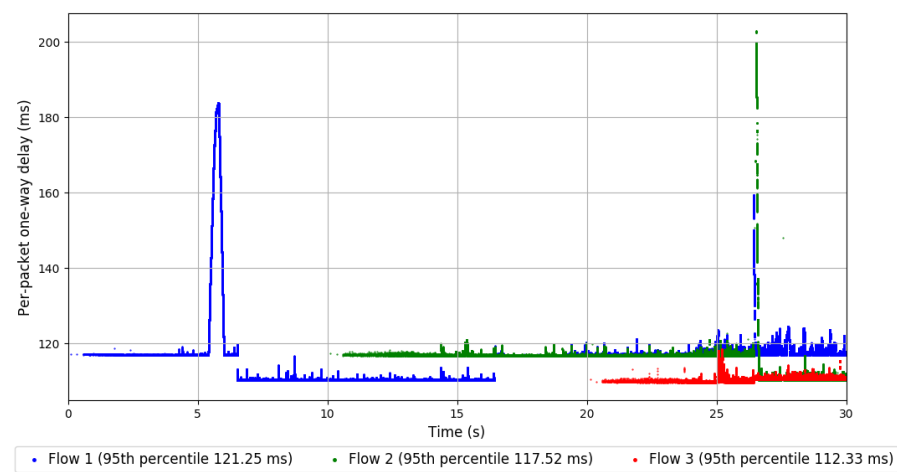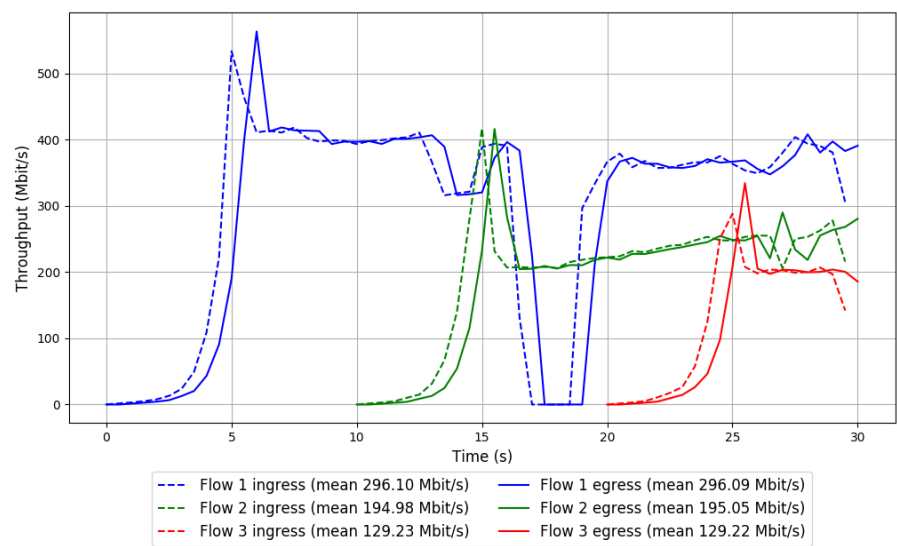
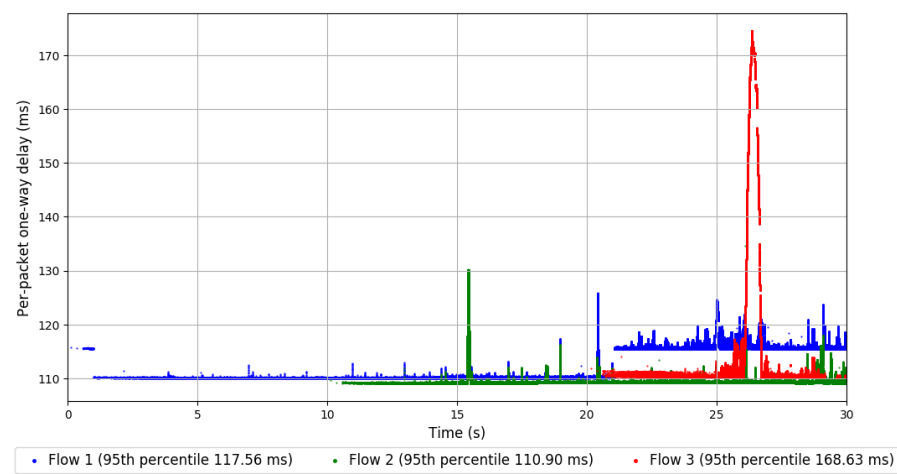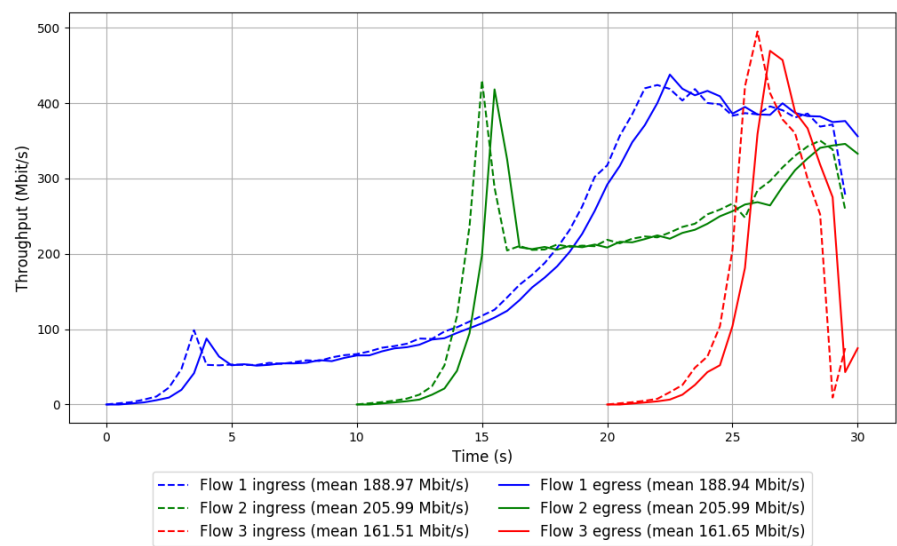# Run 5: Report of PCC-Vivace — Data Link

293

```
Run 6: Statistics of PCC-Vivace

Start at: 2018-05-24 06:40:15
End at: 2018-05-24 06:40:45
Local clock offset: -0.027 ms
Remote clock offset: -0.611 ms


# Below is generated by plot.py at 2018-05-24 10:24:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 379.25 Mbit/s
95th percentile per-packet one-way delay: 117.884 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 188.94 Mbit/s
95th percentile per-packet one-way delay: 117.564 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 205.99 Mbit/s
95th percentile per-packet one-way delay: 110.897 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 161.65 Mbit/s
95th percentile per-packet one-way delay: 168.634 ms
Loss rate: 0.00%
```

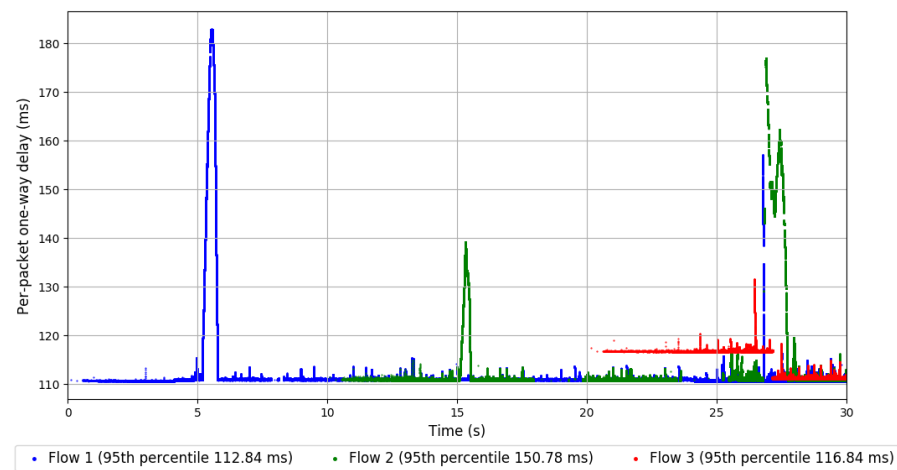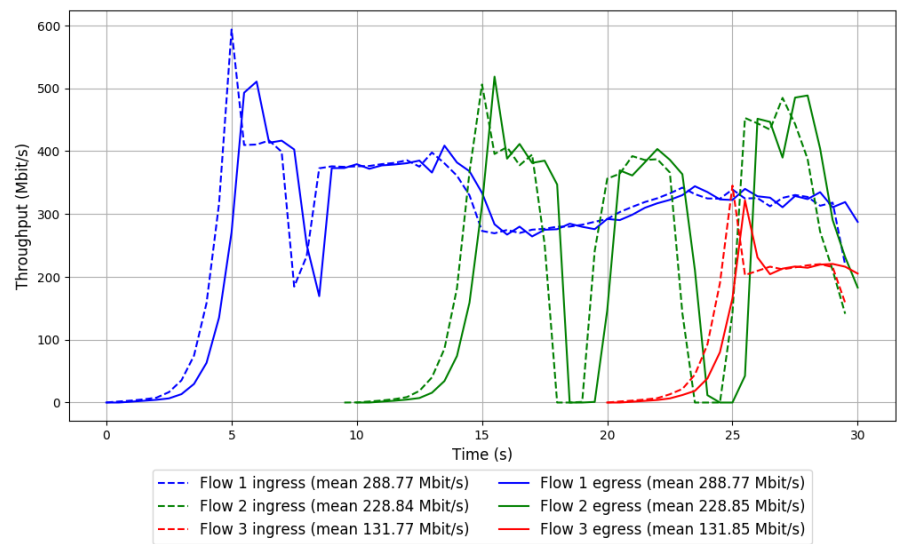# Run 6: Report of PCC-Vivace — Data Link

```
Run 7: Statistics of PCC-Vivace

Start at: 2018-05-24 07:04:09
End at: 2018-05-24 07:04:39
Local clock offset: -0.069 ms
Remote clock offset: -0.166 ms


# Below is generated by plot.py at 2018-05-24 10:25:49
# Datalink statistics
-- Total of 3 flows:
Average throughput: 484.45 Mbit/s
95th percentile per-packet one-way delay: 132.722 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 288.77 Mbit/s
95th percentile per-packet one-way delay: 112.842 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 228.85 Mbit/s
95th percentile per-packet one-way delay: 150.780 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 131.85 Mbit/s
95th percentile per-packet one-way delay: 116.844 ms
Loss rate: 0.00%
```

Run 7: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 288.77 Mbit/s) --- Flow 1 egress (mean 288.77 Mbit/s)
Flow 2 ingress (mean 228.84 Mbit/s) --- Flow 2 egress (mean 228.85 Mbit/s)
Flow 3 ingress (mean 131.77 Mbit/s) --- Flow 3 egress (mean 131.85 Mbit/s)

Flow 1 (95th percentile 112.84 ms)　Flow 2 (95th percentile 150.78 ms)　Flow 3 (95th percentile 116.84 ms)

```
Run 8: Statistics of PCC-Vivace

Start at: 2018-05-24 07:27:52
End at: 2018-05-24 07:28:22
Local clock offset: -0.035 ms
Remote clock offset: 0.148 ms


# Below is generated by plot.py at 2018-05-24 10:26:09
# Datalink statistics
-- Total of 3 flows:
Average throughput: 545.91 Mbit/s
95th percentile per-packet one-way delay: 120.364 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 371.94 Mbit/s
95th percentile per-packet one-way delay: 122.106 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 194.81 Mbit/s
95th percentile per-packet one-way delay: 117.551 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 134.71 Mbit/s
95th percentile per-packet one-way delay: 112.265 ms
Loss rate: 0.00%
```
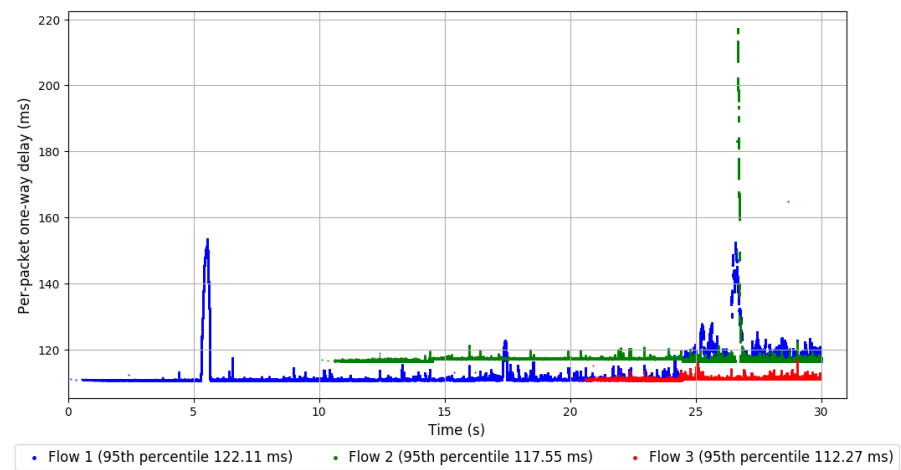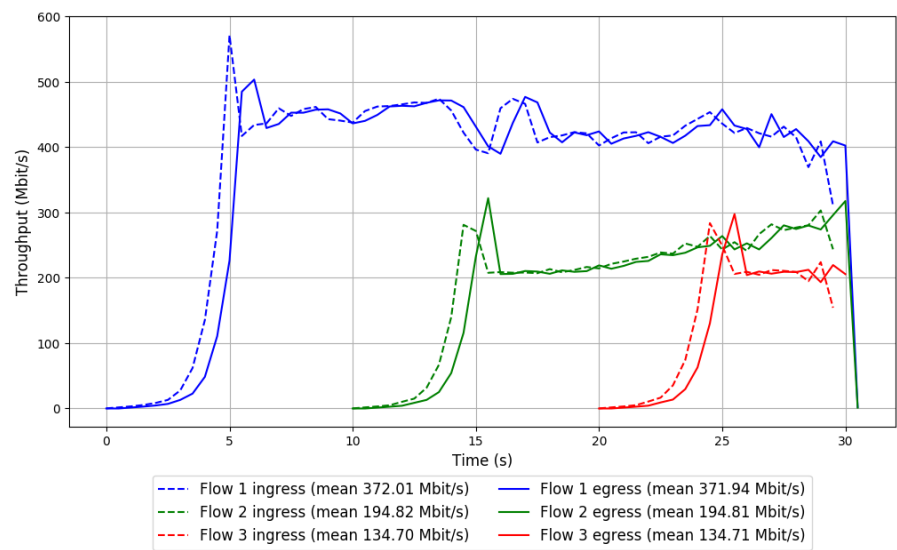
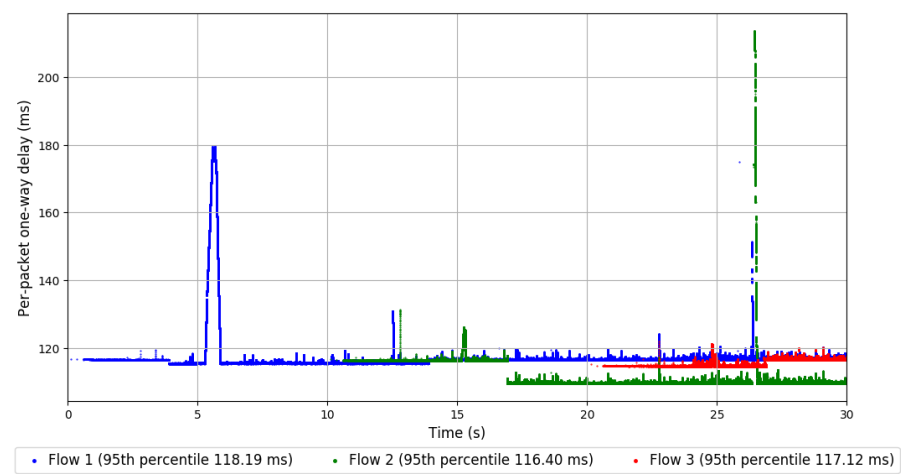Run 8: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 372.01 Mbit/s) --- Flow 1 egress (mean 371.94 Mbit/s)
Flow 2 ingress (mean 194.82 Mbit/s) --- Flow 2 egress (mean 194.81 Mbit/s)
Flow 3 ingress (mean 134.70 Mbit/s) --- Flow 3 egress (mean 134.71 Mbit/s)

Flow 1 (95th percentile 122.11 ms)   Flow 2 (95th percentile 117.55 ms)   Flow 3 (95th percentile 112.27 ms)
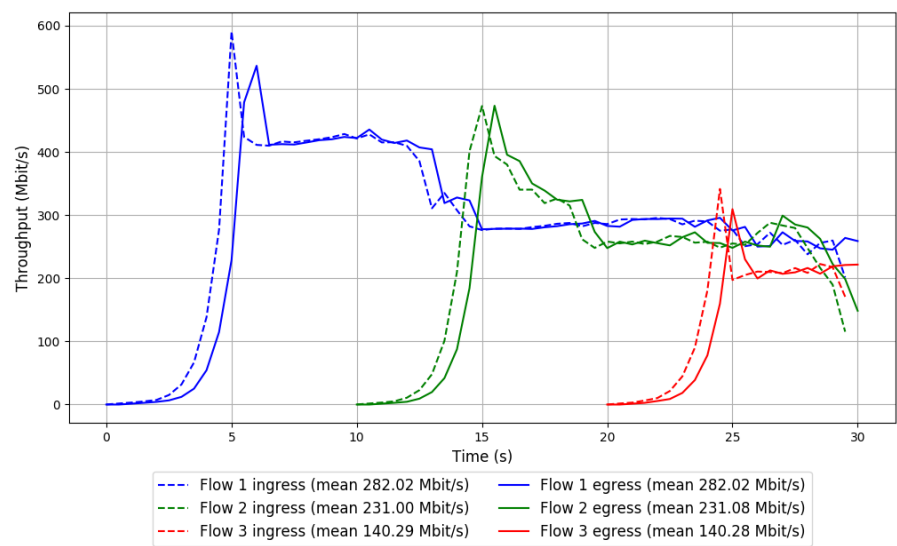
299

```
Run 9: Statistics of PCC-Vivace

Start at: 2018-05-24 07:51:19
End at: 2018-05-24 07:51:49
Local clock offset: 0.308 ms
Remote clock offset: -0.178 ms


# Below is generated by plot.py at 2018-05-24 10:26:37
# Datalink statistics
-- Total of 3 flows:
Average throughput: 481.92 Mbit/s
95th percentile per-packet one-way delay: 117.395 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 282.02 Mbit/s
95th percentile per-packet one-way delay: 118.188 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 231.08 Mbit/s
95th percentile per-packet one-way delay: 116.404 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 140.28 Mbit/s
95th percentile per-packet one-way delay: 117.119 ms
Loss rate: 0.00%
```
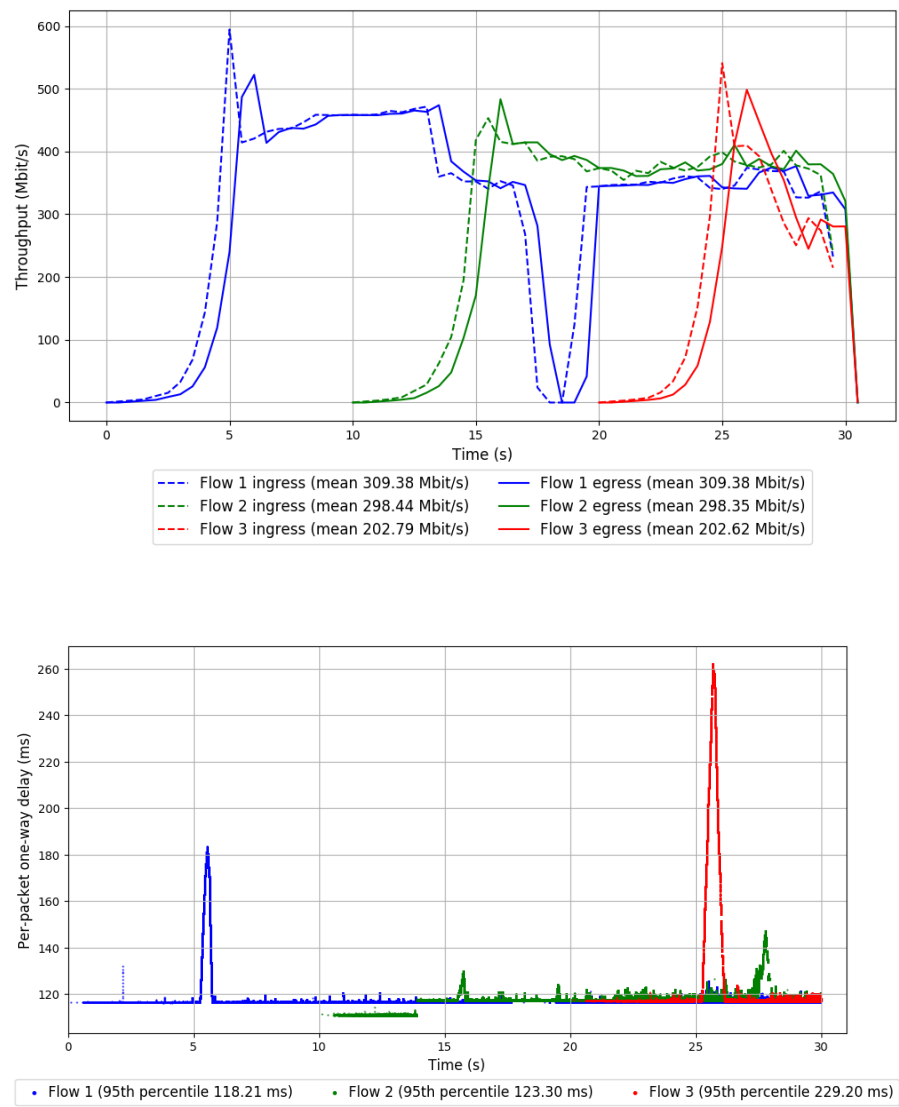
Run 9: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 282.02 Mbit/s) --- Flow 1 egress (mean 282.02 Mbit/s)
Flow 2 ingress (mean 231.00 Mbit/s) --- Flow 2 egress (mean 231.08 Mbit/s)
Flow 3 ingress (mean 140.29 Mbit/s) --- Flow 3 egress (mean 140.28 Mbit/s)

Flow 1 (95th percentile 118.19 ms)   Flow 2 (95th percentile 116.40 ms)   Flow 3 (95th percentile 117.12 ms)

```
Run 10: Statistics of PCC-Vivace

Start at: 2018-05-24 08:15:32
End at: 2018-05-24 08:16:02
Local clock offset: -0.126 ms
Remote clock offset: 0.21 ms


# Below is generated by plot.py at 2018-05-24 10:26:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 574.64 Mbit/s
95th percentile per-packet one-way delay: 126.556 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 309.38 Mbit/s
95th percentile per-packet one-way delay: 118.208 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 298.35 Mbit/s
95th percentile per-packet one-way delay: 123.298 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 202.62 Mbit/s
95th percentile per-packet one-way delay: 229.197 ms
Loss rate: 0.09%
```

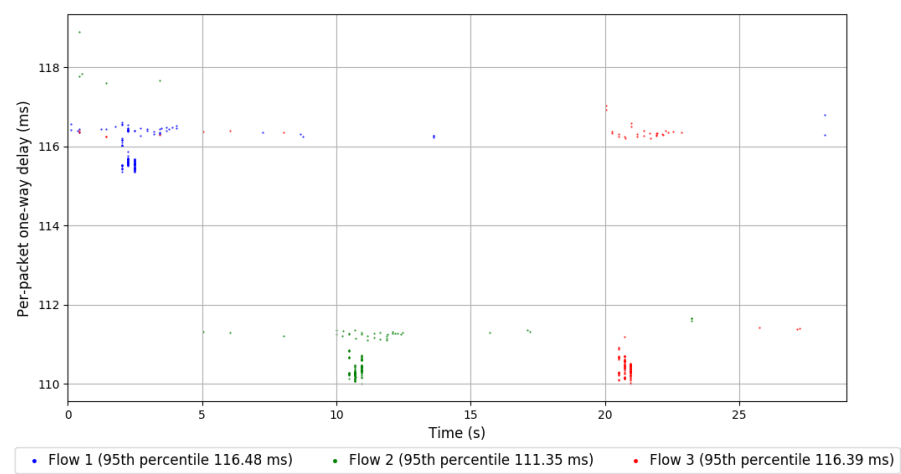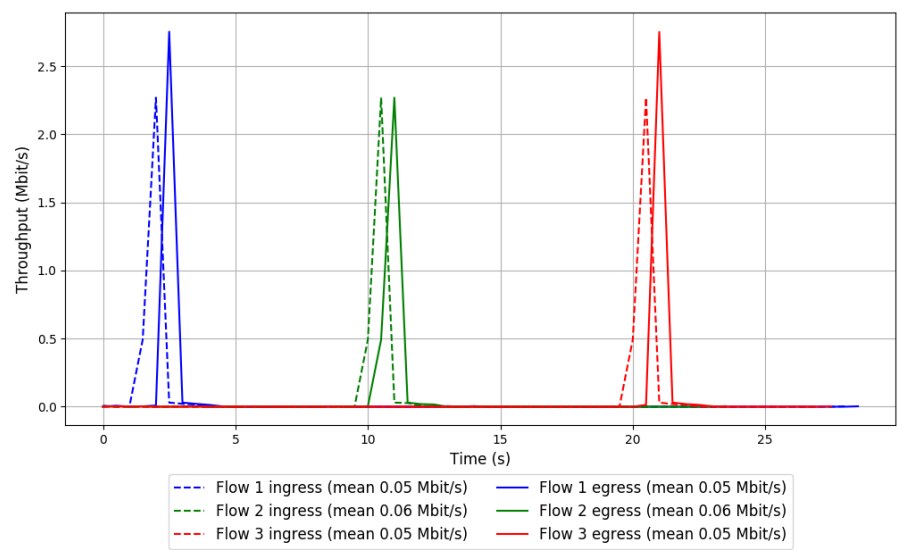# Run 10: Report of PCC-Vivace — Data Link

- --- Flow 1 ingress (mean 309.38 Mbit/s)
- —— Flow 1 egress (mean 309.38 Mbit/s)
- --- Flow 2 ingress (mean 298.44 Mbit/s)
- —— Flow 2 egress (mean 298.35 Mbit/s)
- --- Flow 3 ingress (mean 202.79 Mbit/s)
- —— Flow 3 egress (mean 202.62 Mbit/s)

- Flow 1 (95th percentile 118.21 ms)
- Flow 2 (95th percentile 123.30 ms)
- Flow 3 (95th percentile 229.20 ms)

```
Run 1: Statistics of WebRTC media

Start at: 2018-05-24 04:55:31
End at: 2018-05-24 04:56:01
Local clock offset: -0.303 ms
Remote clock offset: -0.099 ms


# Below is generated by plot.py at 2018-05-24 10:26:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 116.445 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 116.476 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 111.353 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 116.391 ms
Loss rate: 0.00%
```
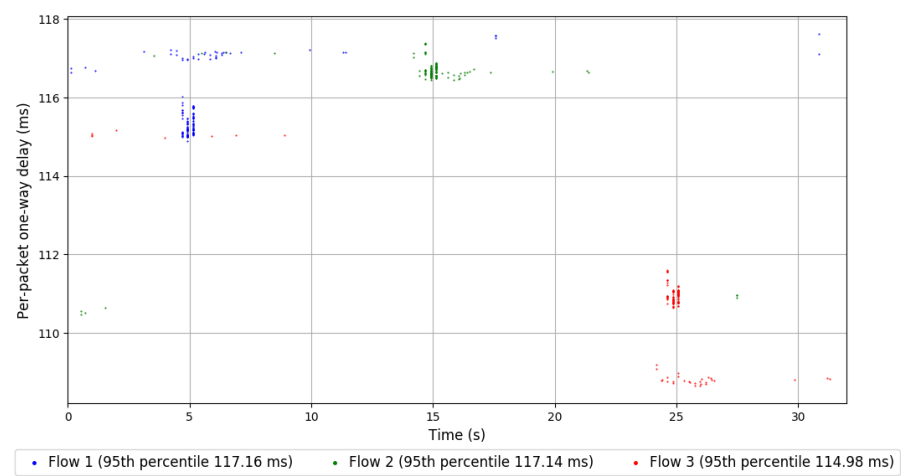
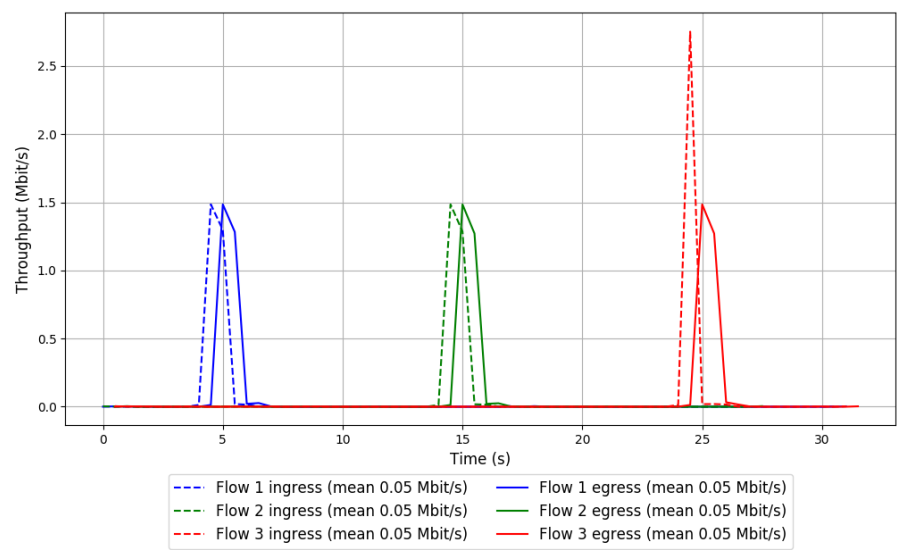Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2018-05-24 05:19:08
End at: 2018-05-24 05:19:38
Local clock offset: -0.153 ms
Remote clock offset: -0.538 ms


# Below is generated by plot.py at 2018-05-24 10:26:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 117.136 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 117.163 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 117.143 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 114.979 ms
Loss rate: 0.00%
```
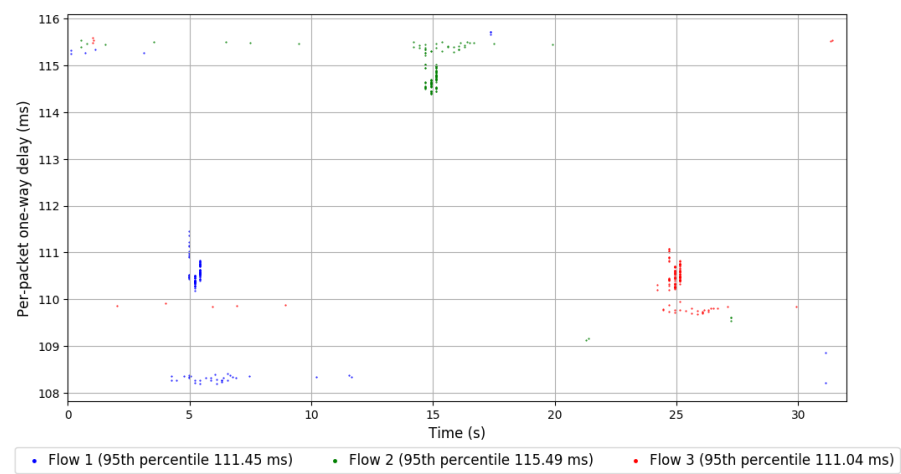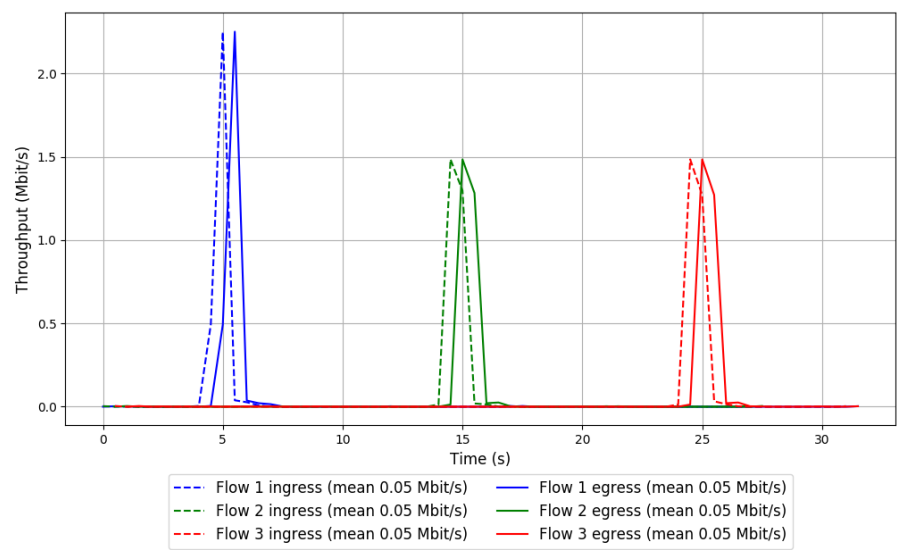
Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2018-05-24 05:42:46
End at: 2018-05-24 05:43:16
Local clock offset: 0.29 ms
Remote clock offset: -0.48 ms


# Below is generated by plot.py at 2018-05-24 10:26:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 115.448 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 111.450 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 115.488 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 111.042 ms
Loss rate: 0.00%
```

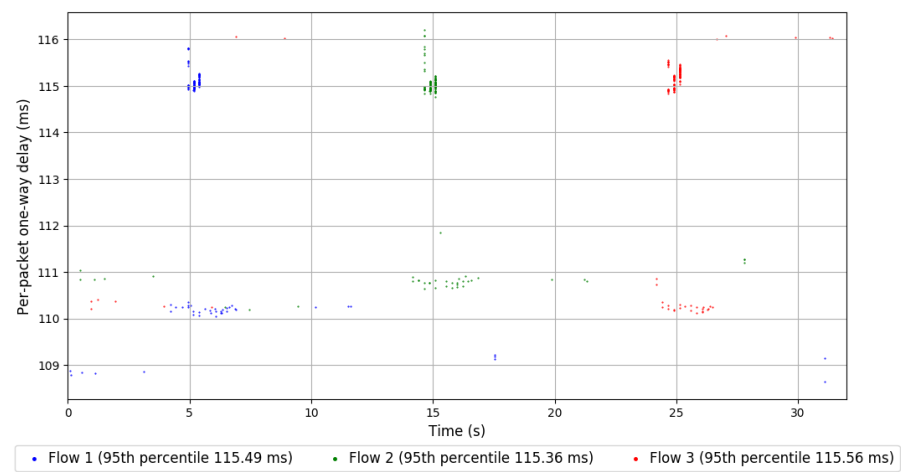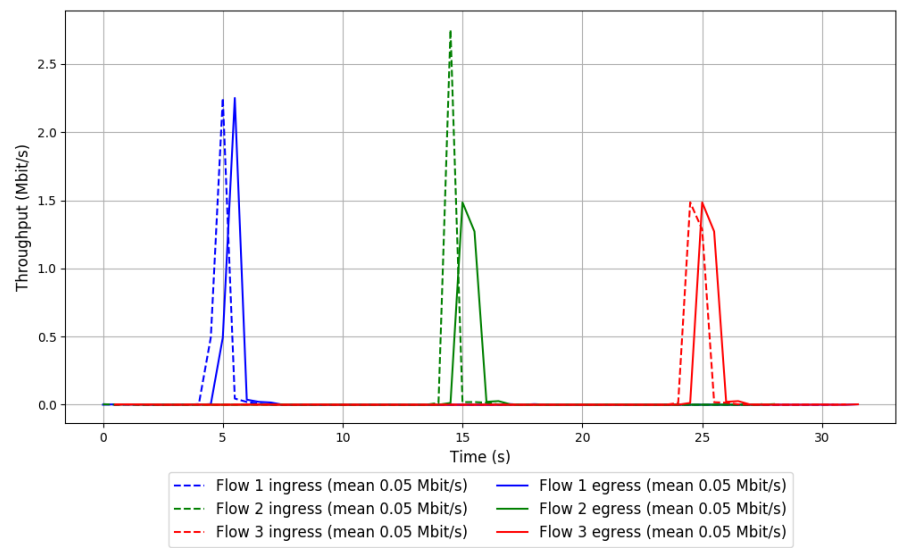Run 3: Report of WebRTC media — Data Link

```
Run 4: Statistics of WebRTC media

Start at: 2018-05-24 06:06:23
End at: 2018-05-24 06:06:53
Local clock offset: 0.151 ms
Remote clock offset: -0.124 ms


# Below is generated by plot.py at 2018-05-24 10:26:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 115.521 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 115.489 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 115.364 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 115.564 ms
Loss rate: 0.00%
```

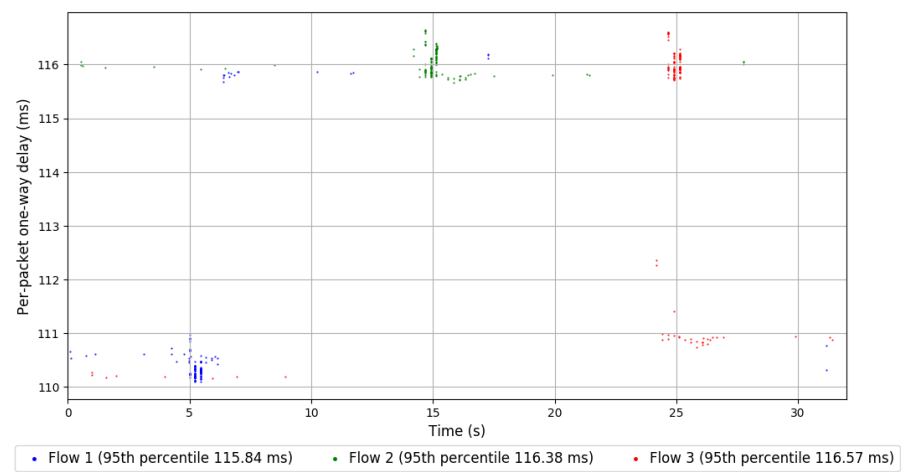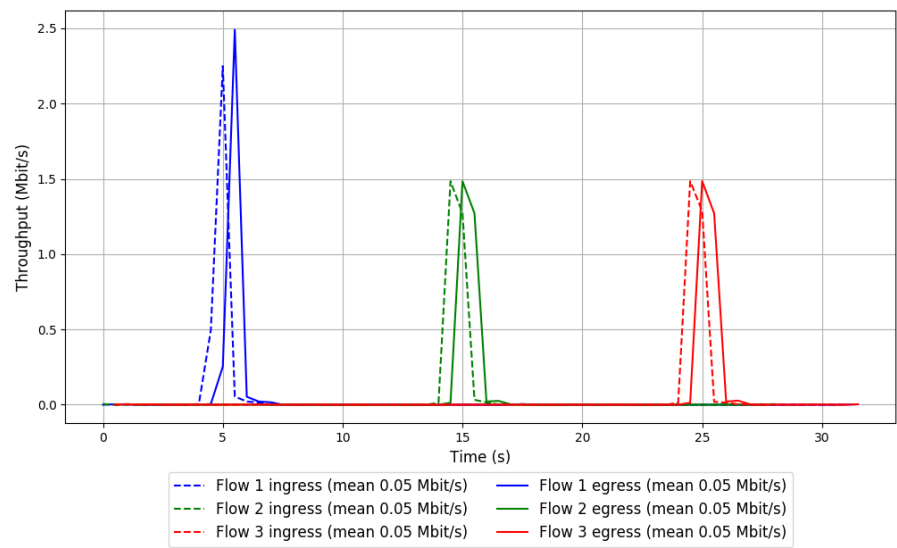Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2018-05-24 06:30:21
End at: 2018-05-24 06:30:51
Local clock offset: 0.142 ms
Remote clock offset: -0.235 ms


# Below is generated by plot.py at 2018-05-24 10:26:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 116.345 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 115.837 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 116.384 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 116.571 ms
Loss rate: 0.00%
```

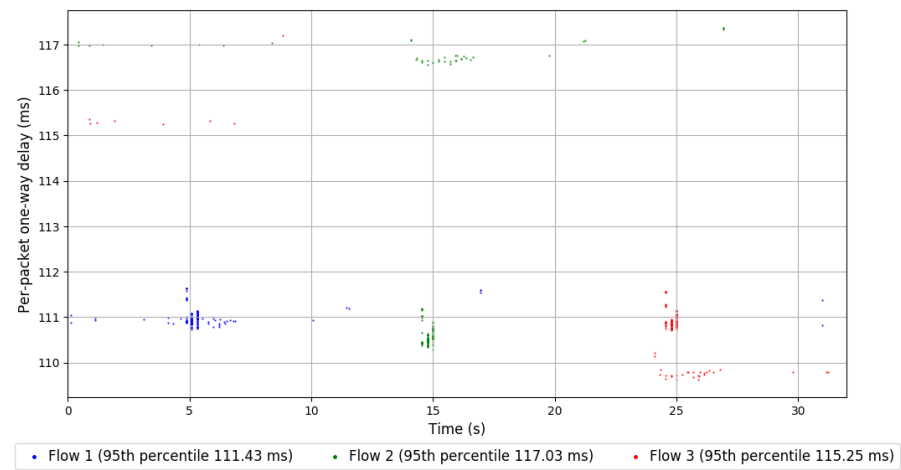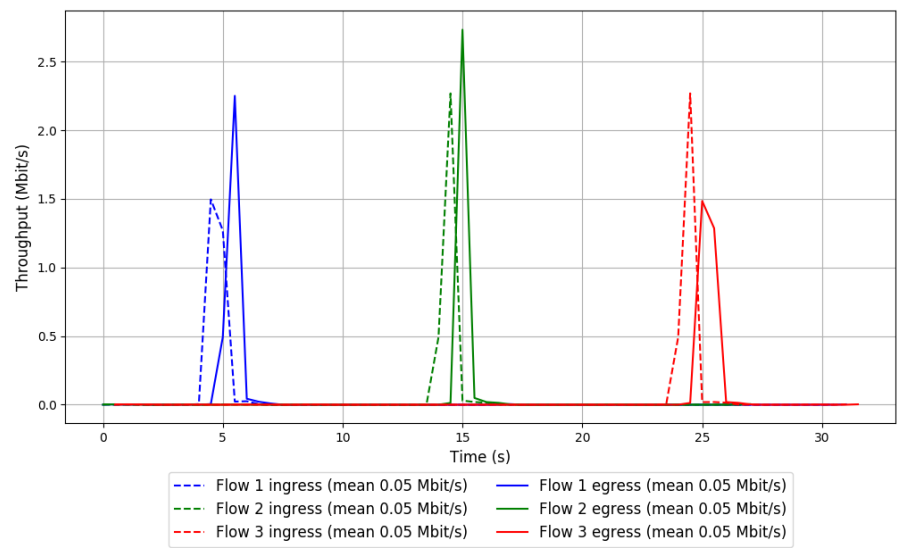Run 5: Report of WebRTC media — Data Link

```
Run 6: Statistics of WebRTC media

Start at: 2018-05-24 06:54:20
End at: 2018-05-24 06:54:50
Local clock offset: 0.018 ms
Remote clock offset: -0.184 ms


# Below is generated by plot.py at 2018-05-24 10:26:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 116.695 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 111.427 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 117.026 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 115.247 ms
Loss rate: 0.00%
```

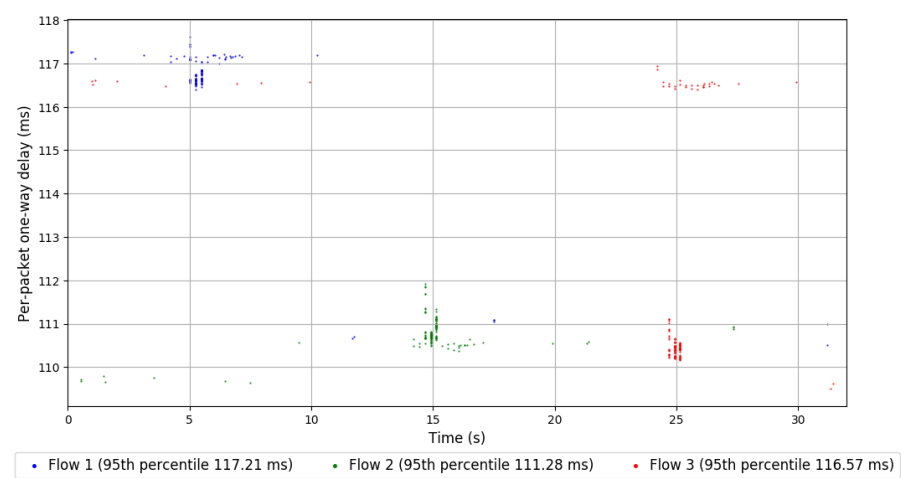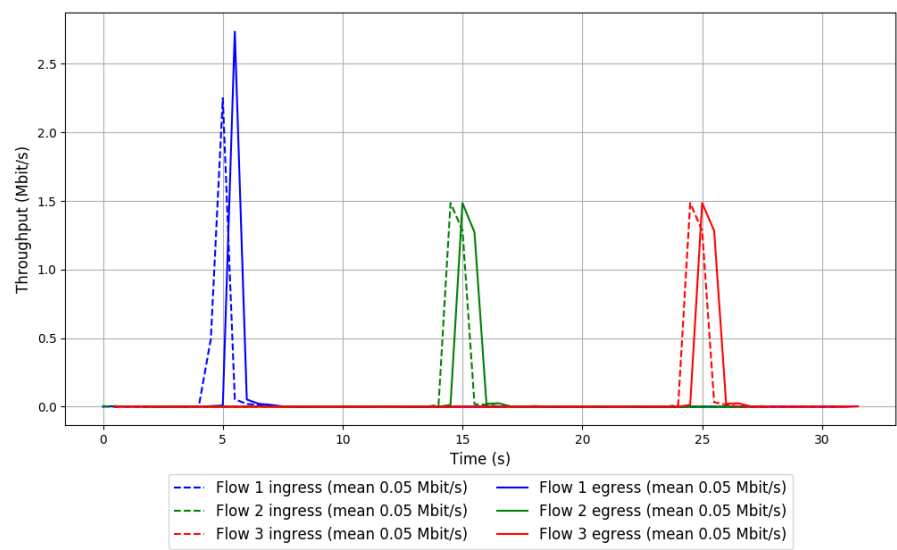Run 6: Report of WebRTC media — Data Link

```
Run 7: Statistics of WebRTC media

Start at: 2018-05-24 07:18:09
End at: 2018-05-24 07:18:39
Local clock offset: 0.133 ms
Remote clock offset: -0.203 ms


# Below is generated by plot.py at 2018-05-24 10:26:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 117.147 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 117.211 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 111.285 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 116.566 ms
Loss rate: 0.00%
```

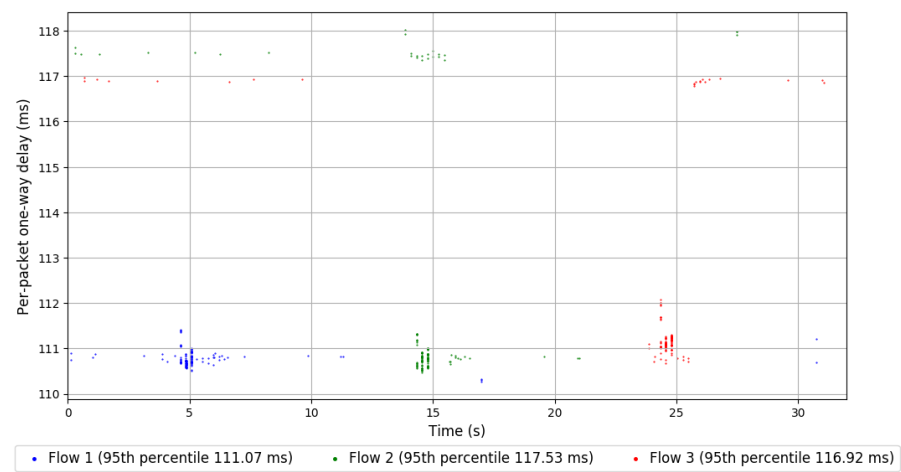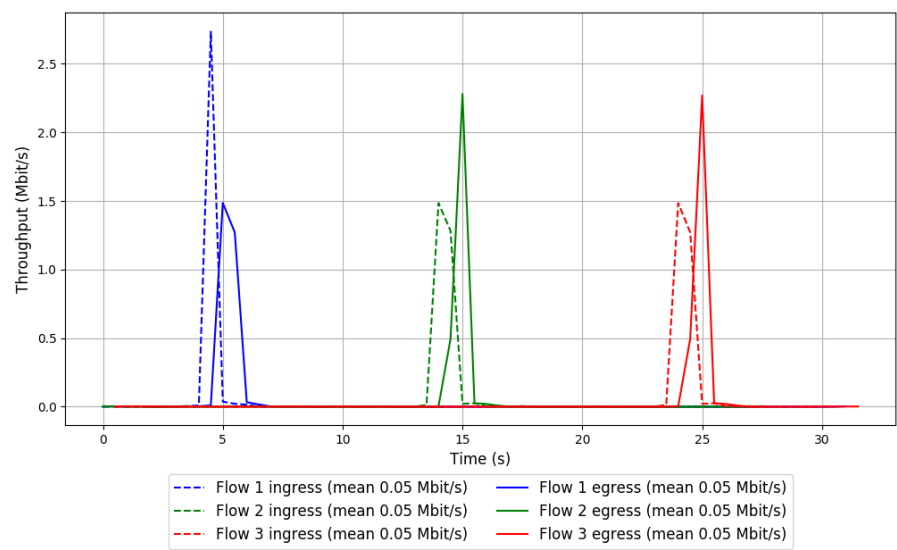Run 7: Report of WebRTC media — Data Link

```
Run 8: Statistics of WebRTC media

Start at: 2018-05-24 07:41:34
End at: 2018-05-24 07:42:04
Local clock offset: -0.203 ms
Remote clock offset: -0.241 ms


# Below is generated by plot.py at 2018-05-24 10:26:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 117.412 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 111.069 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 117.529 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 116.919 ms
Loss rate: 0.00%
```

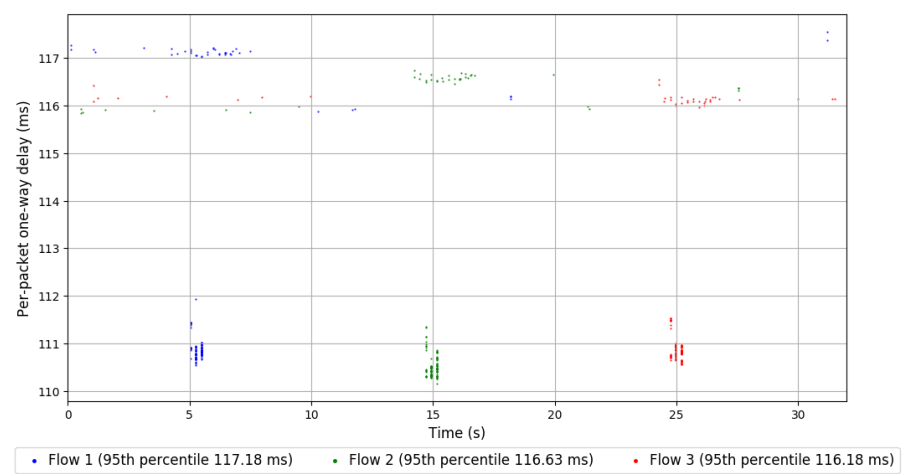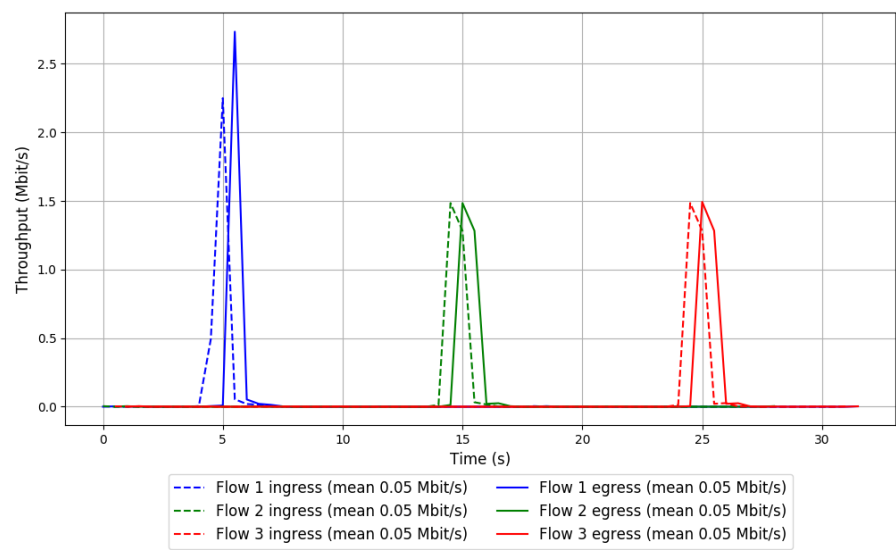Run 8: Report of WebRTC media — Data Link

```
Run 9: Statistics of WebRTC media

Start at: 2018-05-24 08:05:40
End at: 2018-05-24 08:06:10
Local clock offset: 0.233 ms
Remote clock offset: -0.142 ms


# Below is generated by plot.py at 2018-05-24 10:26:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 117.095 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 117.183 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 116.629 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 116.178 ms
Loss rate: 0.00%
```

Run 9: Report of WebRTC media — Data Link

```
Run 10: Statistics of WebRTC media

Start at: 2018-05-24 08:29:23
End at: 2018-05-24 08:29:53
Local clock offset: 0.192 ms
Remote clock offset: 0.072 ms


# Below is generated by plot.py at 2018-05-24 10:26:56
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.14 Mbit/s
95th percentile per-packet one-way delay: 116.751 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 117.856 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 116.708 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 116.358 ms
Loss rate: 0.00%
```

Run 10: Report of WebRTC media — Data Link