

Pantheon Report

Generated at 2019-01-18 23:37:05 (UTC).
Data path: AWS India 1 on `ens5 (local)` → India cellular on `ppp0 (remote)`.
Repeated the test of 21 congestion control schemes 3 times.
Each test lasted for 30 seconds running 3 flows with 10-second interval between two flows.
NTP offsets were measured against `nets.org.sg` and have been applied to correct the timestamps in logs.

System info:

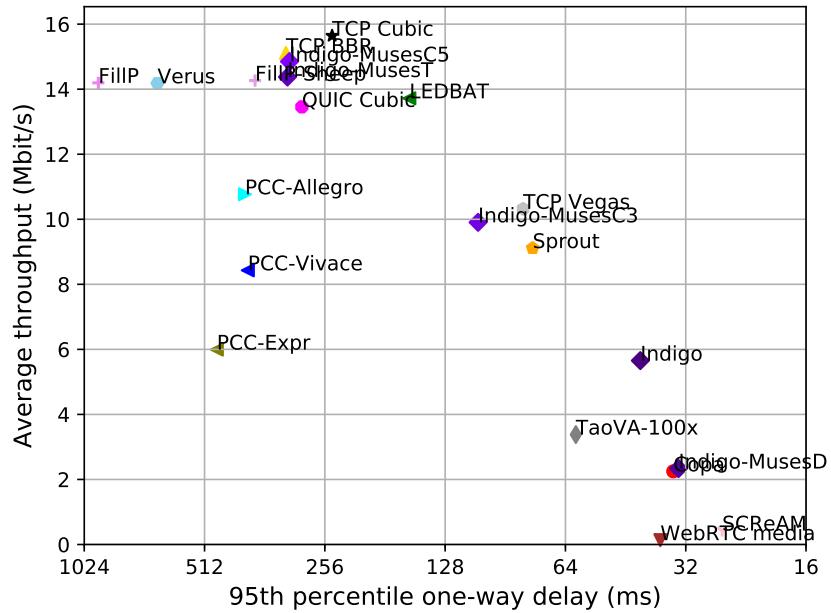
```
Linux 4.15.0-1031-aws
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
```

Git summary:

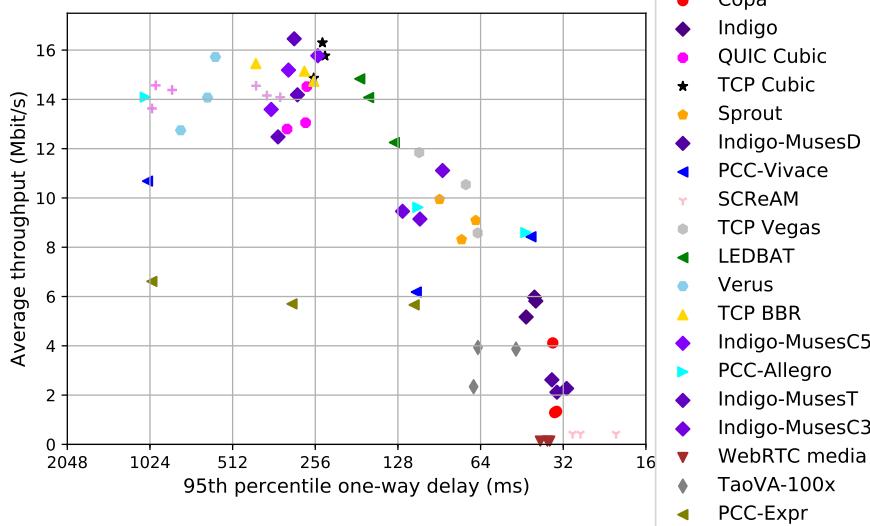
```
branch: muses @ c80a283586bf7b0cc1fe08c69c8f60d56498f81c
third_party/fillp @ d6da1459332fceef56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ c3eee875824760ec5b2fd207fefe166e1afe2170
third_party/pantheon-tunnel @ f866d3f58d27af942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
```

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

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



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



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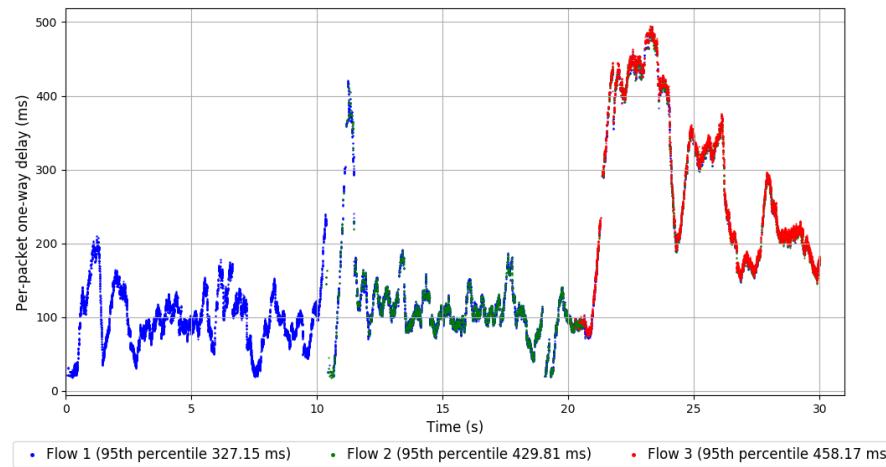
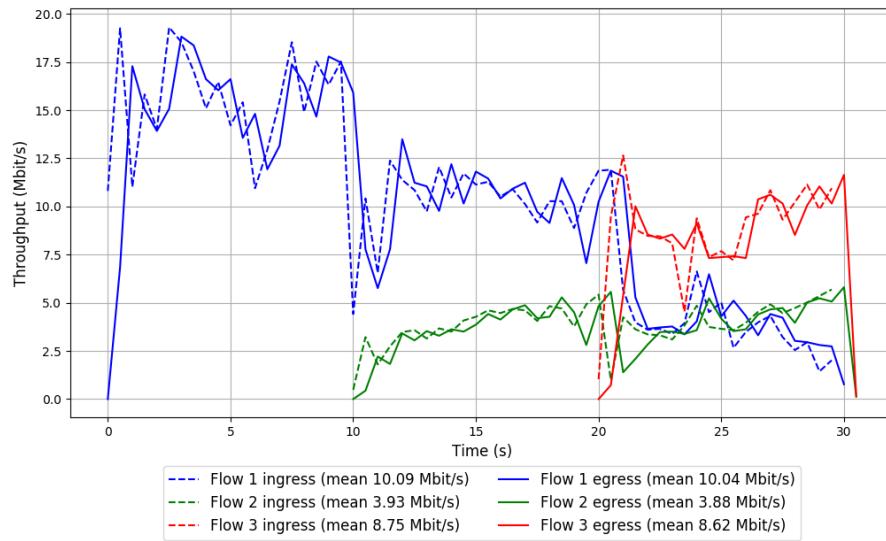
scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	3	9.84	4.22	7.51	268.06	325.28	381.92	0.40	1.22	2.15
Copa	3	1.13	1.10	1.17	31.34	27.68	33.88	54.27	54.35	51.34
TCP Cubic	3	10.47	6.15	3.35	240.27	258.50	270.97	0.50	1.15	2.57
FillP	3	8.64	6.11	4.76	890.10	937.20	1018.33	2.70	3.31	14.56
FillP-Sheep	3	7.35	6.34	8.23	309.74	412.37	519.72	0.92	1.29	2.67
Indigo	3	2.50	3.05	3.44	37.87	44.15	44.62	0.05	0.06	0.06
Indigo-MusesC3	3	4.35	6.83	3.61	92.77	109.89	116.13	0.36	0.55	1.27
Indigo-MusesC5	3	10.71	4.69	3.66	286.52	331.01	351.77	0.91	1.43	2.48
Indigo-MusesD	3	1.34	1.05	1.03	32.56	34.04	33.03	0.02	0.08	0.09
Indigo-MusesT	3	9.65	6.38	1.96	301.96	338.66	333.63	0.90	1.54	4.24
LEDBAT	3	10.17	4.32	2.07	151.67	168.57	182.30	0.38	0.64	1.69
PCC-Allegro	3	7.03	4.58	2.32	396.75	428.08	440.05	10.01	30.12	32.48
PCC-Expr	3	2.66	3.76	2.52	443.07	468.85	587.03	49.38	58.93	65.83
QUIC Cubic	3	10.50	3.29	2.48	279.30	313.75	320.13	0.51	1.52	3.12
SCReAM	3	0.21	0.21	0.22	20.18	25.01	23.93	0.00	0.00	0.12
Sprout	3	4.29	5.06	4.42	69.26	82.25	88.37	0.05	0.28	0.81
TaoVA-100x	3	0.00	3.27	3.62	23.38	47.94	80.36	95.92	27.67	26.50
TCP Vegas	3	4.72	5.86	5.14	77.04	72.36	68.45	0.06	0.12	0.24
Verus	3	10.18	4.60	3.17	668.98	609.39	757.20	1.19	2.02	2.67
PCC-Vivace	3	6.15	1.79	3.34	393.51	396.29	412.85	2.48	4.37	9.34
WebRTC media	3	0.05	0.04	0.05	36.41	36.44	35.33	0.00	0.02	0.00

Run 1: Statistics of TCP BBR

```
Start at: 2019-01-18 22:35:36
End at: 2019-01-18 22:36:06
Local clock offset: -0.254 ms
Remote clock offset: -5.032 ms

# Below is generated by plot.py at 2019-01-18 23:35:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 15.45 Mbit/s
95th percentile per-packet one-way delay: 421.309 ms
Loss rate: 1.05%
-- Flow 1:
Average throughput: 10.04 Mbit/s
95th percentile per-packet one-way delay: 327.146 ms
Loss rate: 0.49%
-- Flow 2:
Average throughput: 3.88 Mbit/s
95th percentile per-packet one-way delay: 429.812 ms
Loss rate: 1.84%
-- Flow 3:
Average throughput: 8.62 Mbit/s
95th percentile per-packet one-way delay: 458.171 ms
Loss rate: 2.26%
```

Run 1: Report of TCP BBR — Data Link

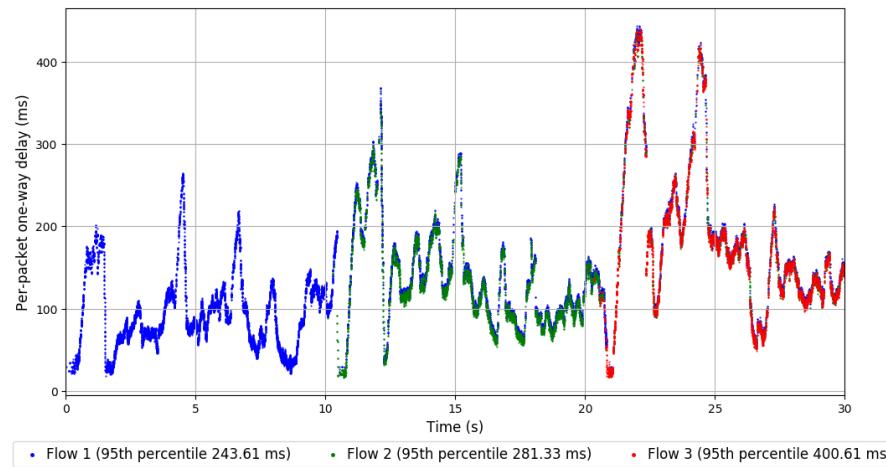
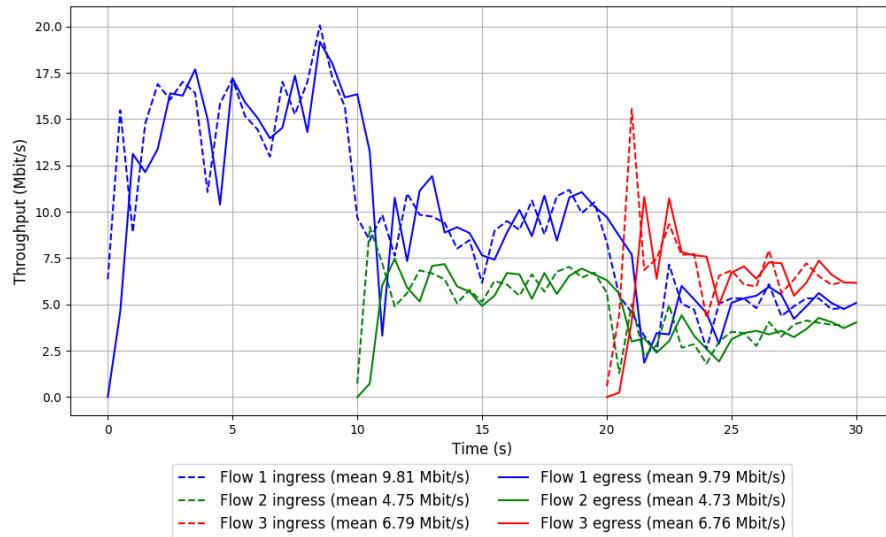


Run 2: Statistics of TCP BBR

```
Start at: 2019-01-18 23:00:34
End at: 2019-01-18 23:01:04
Local clock offset: 0.505 ms
Remote clock offset: -5.655 ms

# Below is generated by plot.py at 2019-01-18 23:35:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 15.15 Mbit/s
95th percentile per-packet one-way delay: 280.446 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 9.79 Mbit/s
95th percentile per-packet one-way delay: 243.613 ms
Loss rate: 0.30%
-- Flow 2:
Average throughput: 4.73 Mbit/s
95th percentile per-packet one-way delay: 281.335 ms
Loss rate: 0.70%
-- Flow 3:
Average throughput: 6.76 Mbit/s
95th percentile per-packet one-way delay: 400.610 ms
Loss rate: 1.72%
```

Run 2: Report of TCP BBR — Data Link

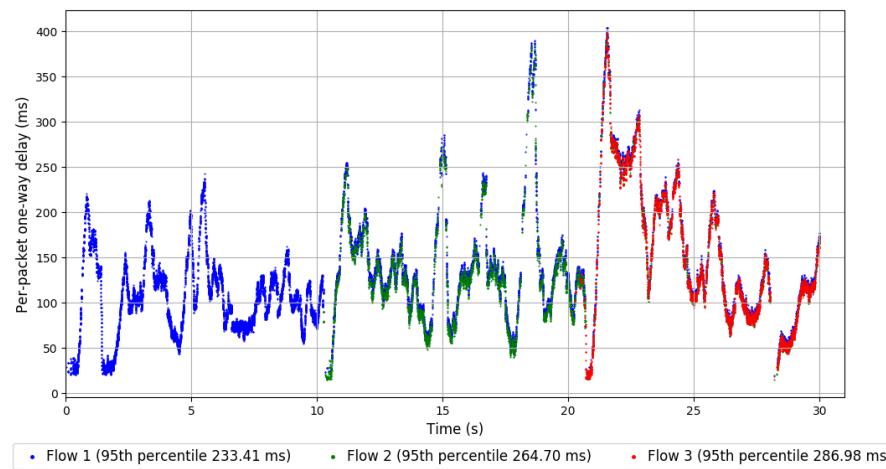
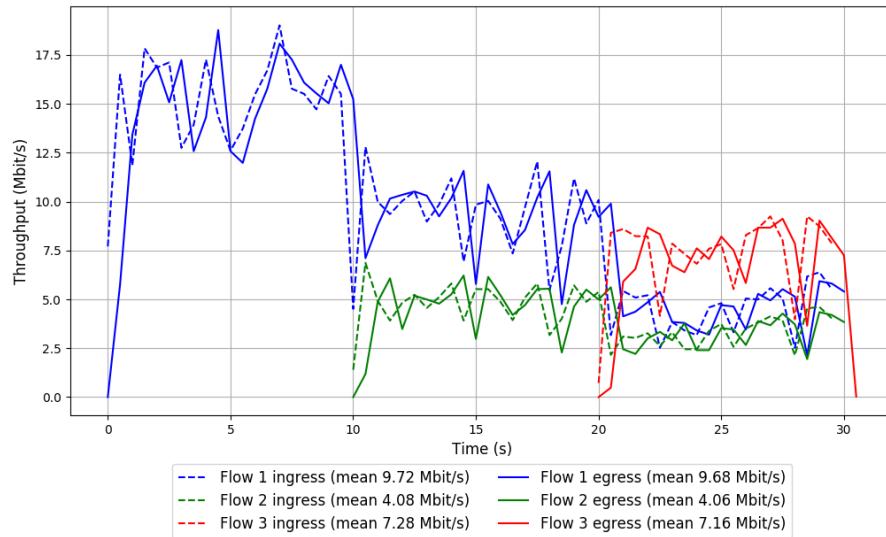


Run 3: Statistics of TCP BBR

```
Start at: 2019-01-18 23:25:16
End at: 2019-01-18 23:25:46
Local clock offset: 1.486 ms
Remote clock offset: -5.02 ms

# Below is generated by plot.py at 2019-01-18 23:35:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.74 Mbit/s
95th percentile per-packet one-way delay: 259.288 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 9.68 Mbit/s
95th percentile per-packet one-way delay: 233.413 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 4.06 Mbit/s
95th percentile per-packet one-way delay: 264.700 ms
Loss rate: 1.12%
-- Flow 3:
Average throughput: 7.16 Mbit/s
95th percentile per-packet one-way delay: 286.979 ms
Loss rate: 2.48%
```

Run 3: Report of TCP BBR — Data Link

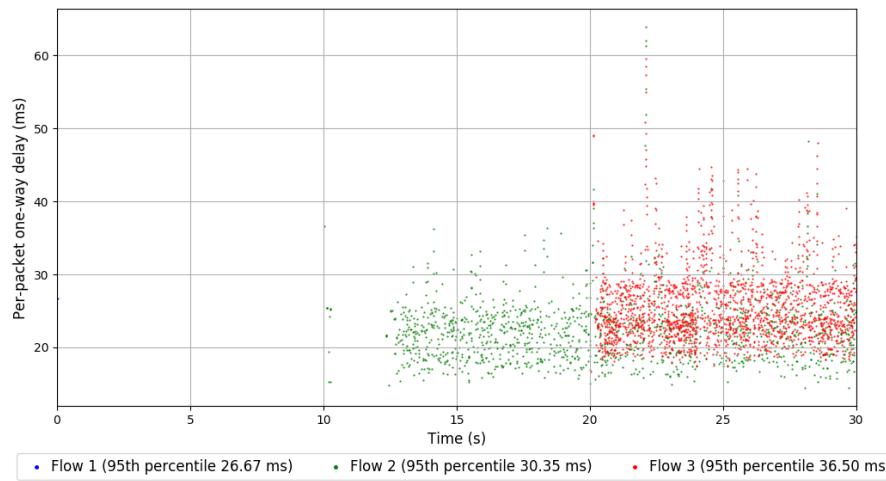
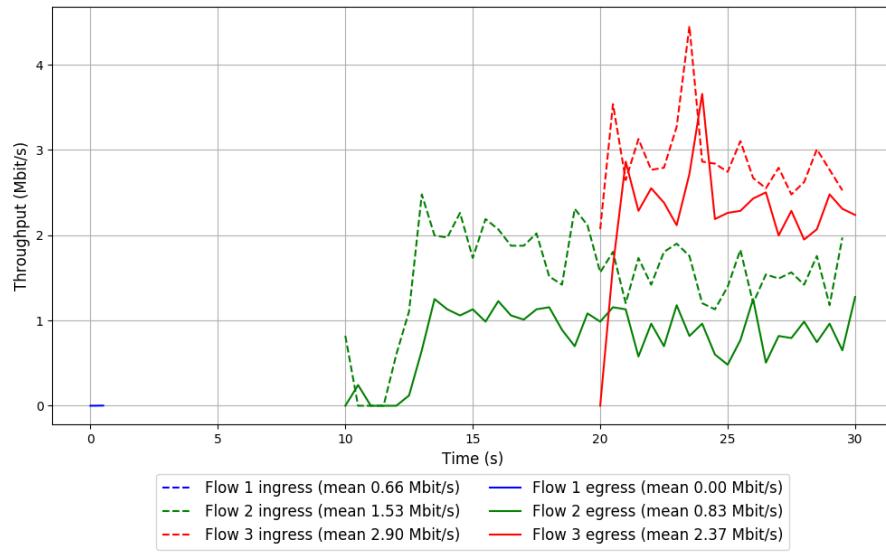


Run 1: Statistics of Copa

```
Start at: 2019-01-18 22:27:28
End at: 2019-01-18 22:27:58
Local clock offset: 1.527 ms
Remote clock offset: -5.755 ms

# Below is generated by plot.py at 2019-01-18 23:35:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.34 Mbit/s
95th percentile per-packet one-way delay: 33.832 ms
Loss rate: 32.48%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 26.672 ms
Loss rate: 98.33%
-- Flow 2:
Average throughput: 0.83 Mbit/s
95th percentile per-packet one-way delay: 30.348 ms
Loss rate: 45.89%
-- Flow 3:
Average throughput: 2.37 Mbit/s
95th percentile per-packet one-way delay: 36.499 ms
Loss rate: 18.08%
```

Run 1: Report of Copa — Data Link

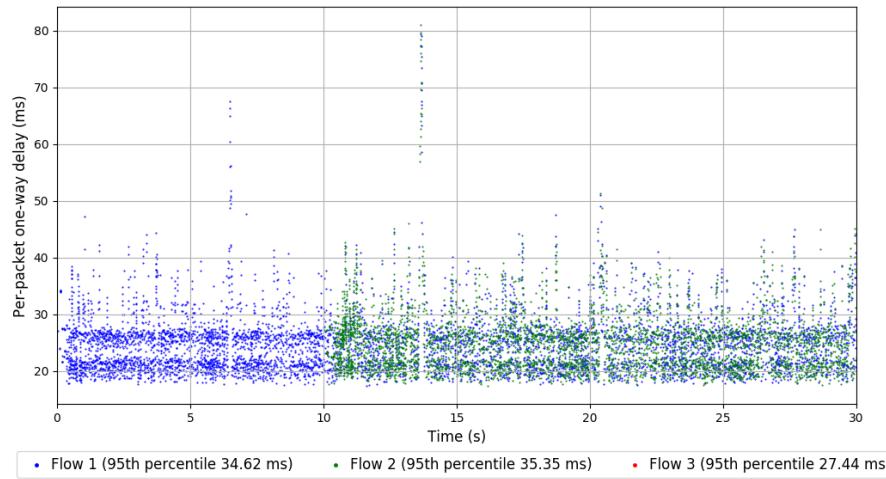
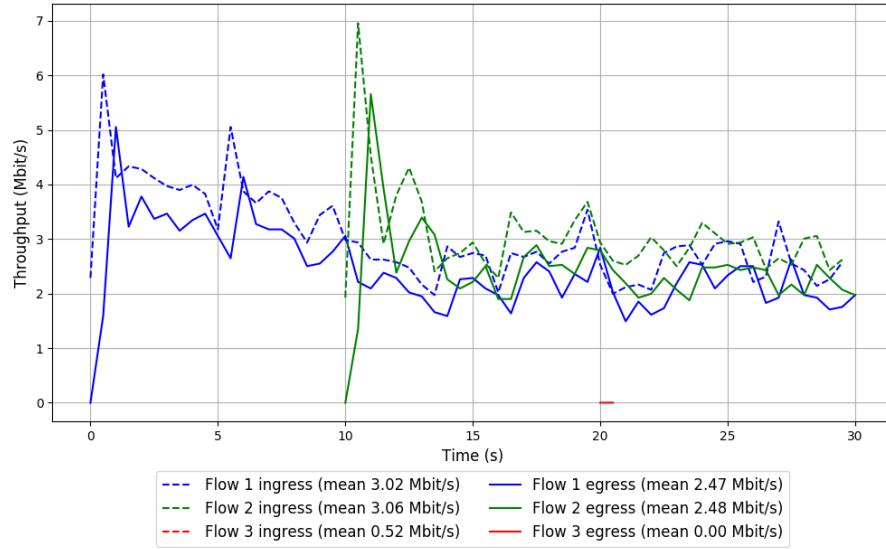


Run 2: Statistics of Copa

```
Start at: 2019-01-18 22:52:19
End at: 2019-01-18 22:52:49
Local clock offset: 2.302 ms
Remote clock offset: -5.285 ms

# Below is generated by plot.py at 2019-01-18 23:35:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 4.12 Mbit/s
95th percentile per-packet one-way delay: 34.933 ms
Loss rate: 18.73%
-- Flow 1:
Average throughput: 2.47 Mbit/s
95th percentile per-packet one-way delay: 34.619 ms
Loss rate: 18.34%
-- Flow 2:
Average throughput: 2.48 Mbit/s
95th percentile per-packet one-way delay: 35.354 ms
Loss rate: 19.24%
-- Flow 3:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 27.437 ms
Loss rate: 97.92%
```

Run 2: Report of Copa — Data Link

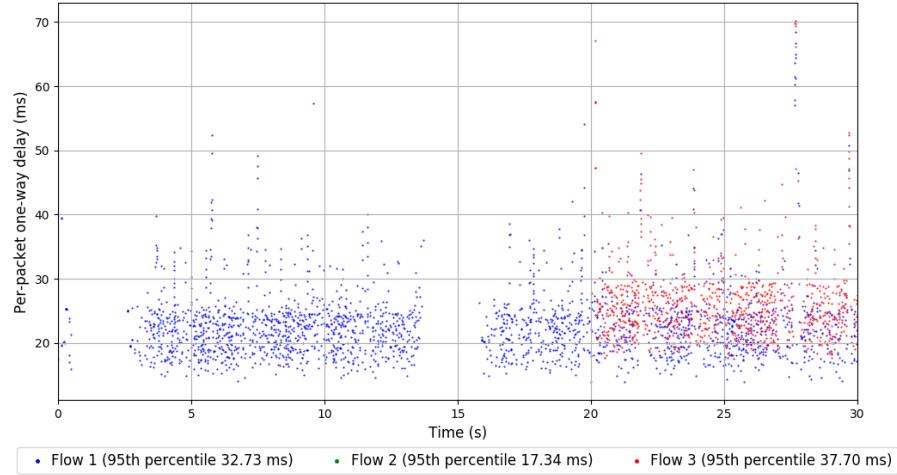
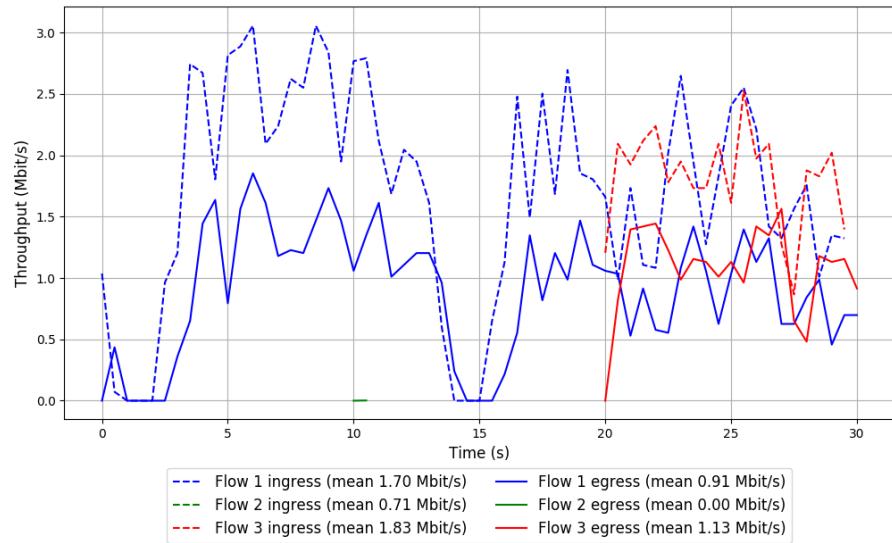


Run 3: Statistics of Copa

```
Start at: 2019-01-18 23:16:58
End at: 2019-01-18 23:17:28
Local clock offset: 1.406 ms
Remote clock offset: -5.394 ms

# Below is generated by plot.py at 2019-01-18 23:35:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 1.29 Mbit/s
95th percentile per-packet one-way delay: 34.383 ms
Loss rate: 44.05%
-- Flow 1:
Average throughput: 0.91 Mbit/s
95th percentile per-packet one-way delay: 32.728 ms
Loss rate: 46.15%
-- Flow 2:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 17.345 ms
Loss rate: 97.92%
-- Flow 3:
Average throughput: 1.13 Mbit/s
95th percentile per-packet one-way delay: 37.702 ms
Loss rate: 38.01%
```

Run 3: Report of Copa — Data Link

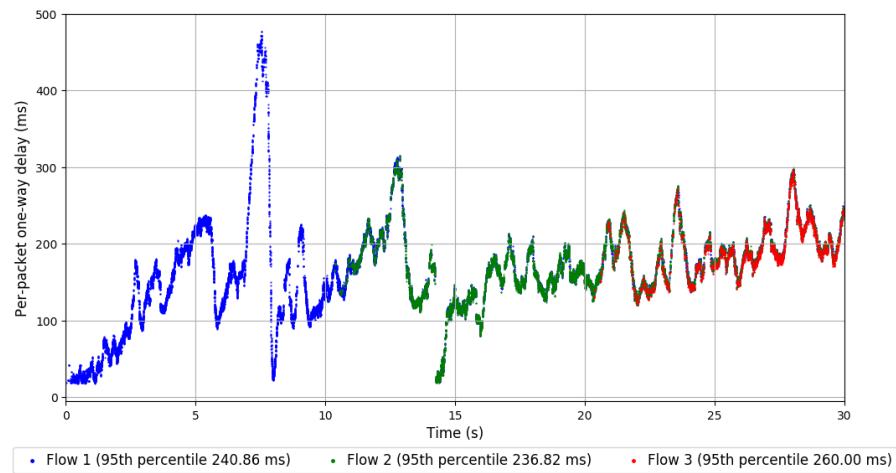
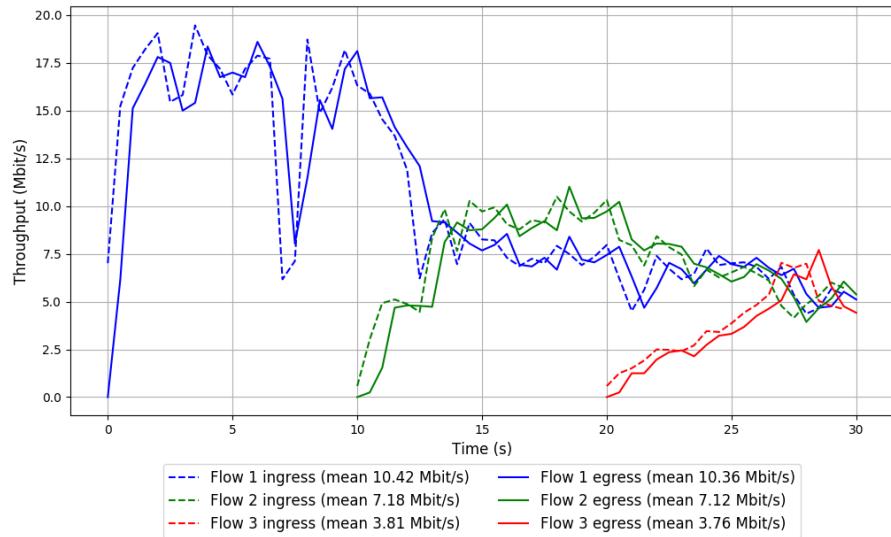


```
Run 1: Statistics of TCP Cubic
```

```
Start at: 2019-01-18 22:23:59
End at: 2019-01-18 22:24:29
Local clock offset: 1.804 ms
Remote clock offset: -5.365 ms

# Below is generated by plot.py at 2019-01-18 23:35:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.30 Mbit/s
95th percentile per-packet one-way delay: 241.030 ms
Loss rate: 1.02%
-- Flow 1:
Average throughput: 10.36 Mbit/s
95th percentile per-packet one-way delay: 240.856 ms
Loss rate: 0.63%
-- Flow 2:
Average throughput: 7.12 Mbit/s
95th percentile per-packet one-way delay: 236.820 ms
Loss rate: 1.42%
-- Flow 3:
Average throughput: 3.76 Mbit/s
95th percentile per-packet one-way delay: 260.004 ms
Loss rate: 2.75%
```

Run 1: Report of TCP Cubic — Data Link

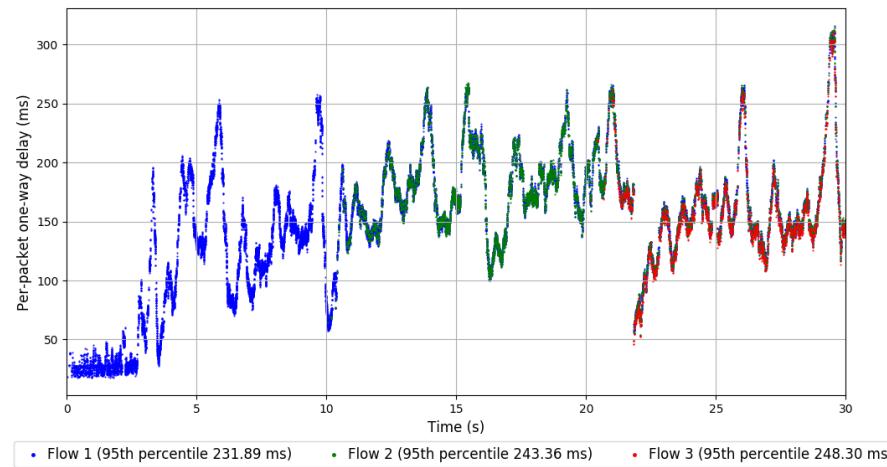
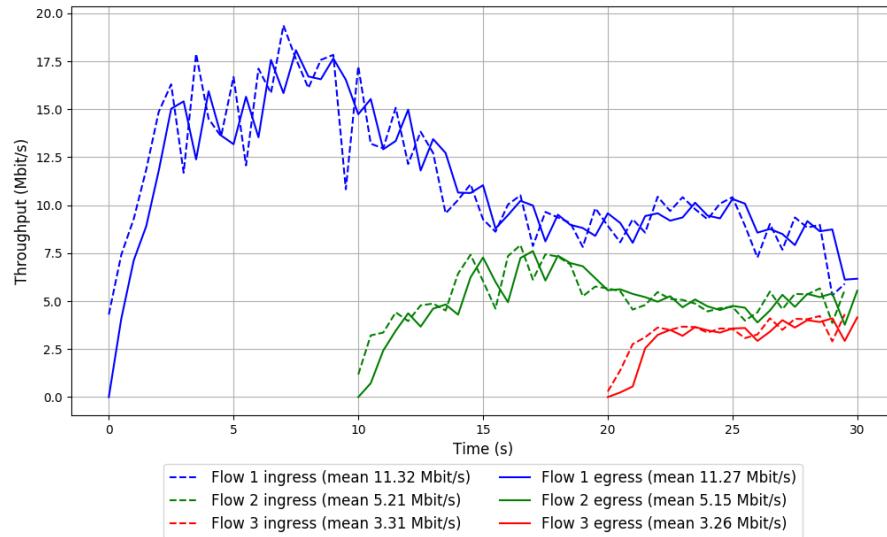


Run 2: Statistics of TCP Cubic

```
Start at: 2019-01-18 22:48:43
End at: 2019-01-18 22:49:13
Local clock offset: 0.557 ms
Remote clock offset: -5.807 ms

# Below is generated by plot.py at 2019-01-18 23:35:47
# Datalink statistics
-- Total of 3 flows:
Average throughput: 15.77 Mbit/s
95th percentile per-packet one-way delay: 236.070 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 11.27 Mbit/s
95th percentile per-packet one-way delay: 231.886 ms
Loss rate: 0.48%
-- Flow 2:
Average throughput: 5.15 Mbit/s
95th percentile per-packet one-way delay: 243.357 ms
Loss rate: 1.34%
-- Flow 3:
Average throughput: 3.26 Mbit/s
95th percentile per-packet one-way delay: 248.302 ms
Loss rate: 3.05%
```

Run 2: Report of TCP Cubic — Data Link

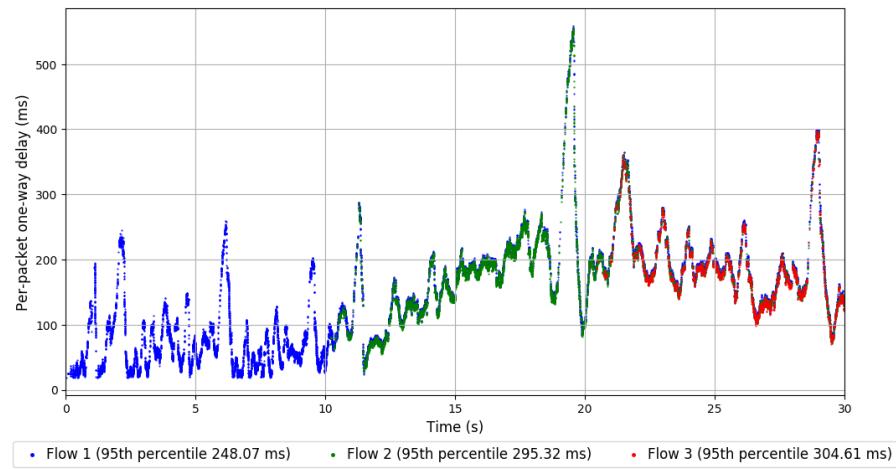
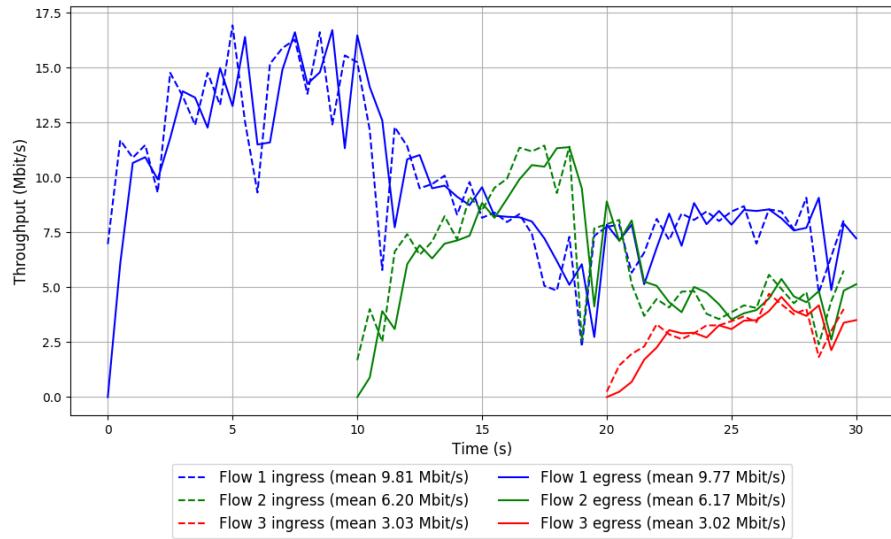


Run 3: Statistics of TCP Cubic

```
Start at: 2019-01-18 23:13:24
End at: 2019-01-18 23:13:54
Local clock offset: 1.408 ms
Remote clock offset: -5.7 ms

# Below is generated by plot.py at 2019-01-18 23:35:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.86 Mbit/s
95th percentile per-packet one-way delay: 259.376 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 9.77 Mbit/s
95th percentile per-packet one-way delay: 248.066 ms
Loss rate: 0.40%
-- Flow 2:
Average throughput: 6.17 Mbit/s
95th percentile per-packet one-way delay: 295.323 ms
Loss rate: 0.68%
-- Flow 3:
Average throughput: 3.02 Mbit/s
95th percentile per-packet one-way delay: 304.609 ms
Loss rate: 1.91%
```

Run 3: Report of TCP Cubic — Data Link

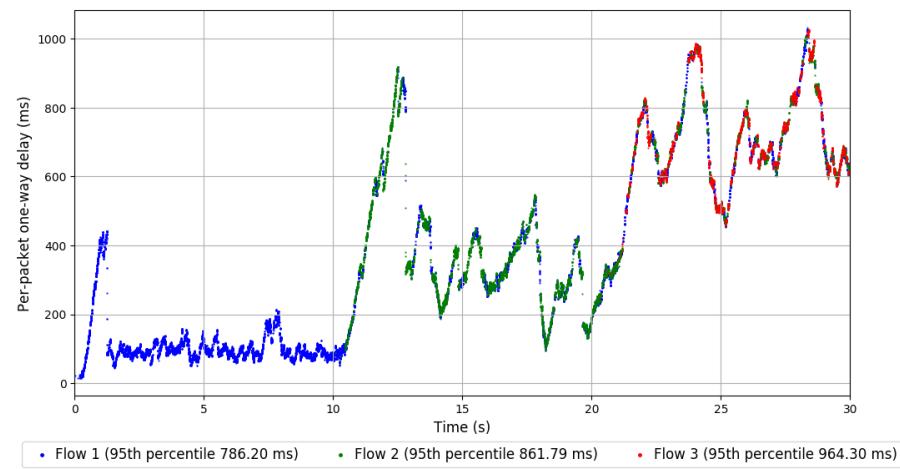
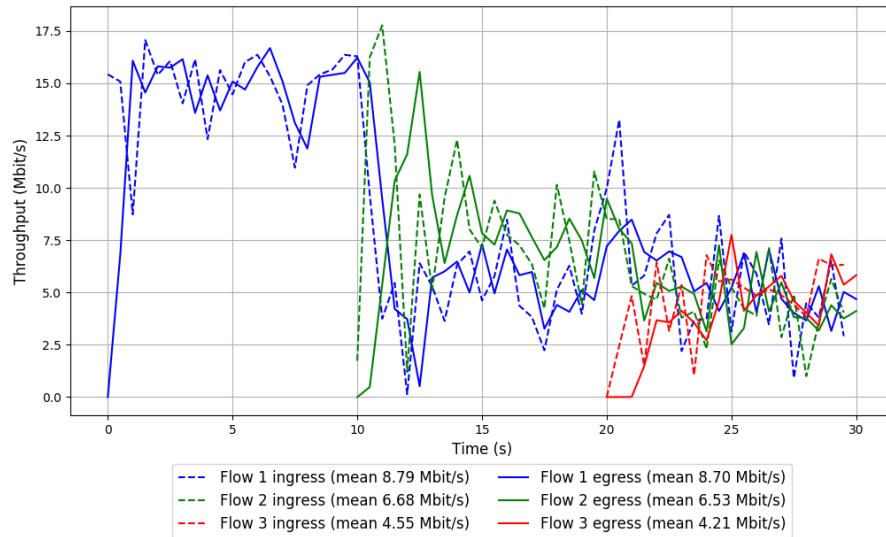


```
Run 1: Statistics of FillP

Start at: 2019-01-18 22:28:37
End at: 2019-01-18 22:29:07
Local clock offset: 1.265 ms
Remote clock offset: -5.35 ms

# Below is generated by plot.py at 2019-01-18 23:35:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.38 Mbit/s
95th percentile per-packet one-way delay: 850.230 ms
Loss rate: 2.47%
-- Flow 1:
Average throughput: 8.70 Mbit/s
95th percentile per-packet one-way delay: 786.198 ms
Loss rate: 1.21%
-- Flow 2:
Average throughput: 6.53 Mbit/s
95th percentile per-packet one-way delay: 861.795 ms
Loss rate: 2.52%
-- Flow 3:
Average throughput: 4.21 Mbit/s
95th percentile per-packet one-way delay: 964.297 ms
Loss rate: 9.67%
```

Run 1: Report of FillP — Data Link

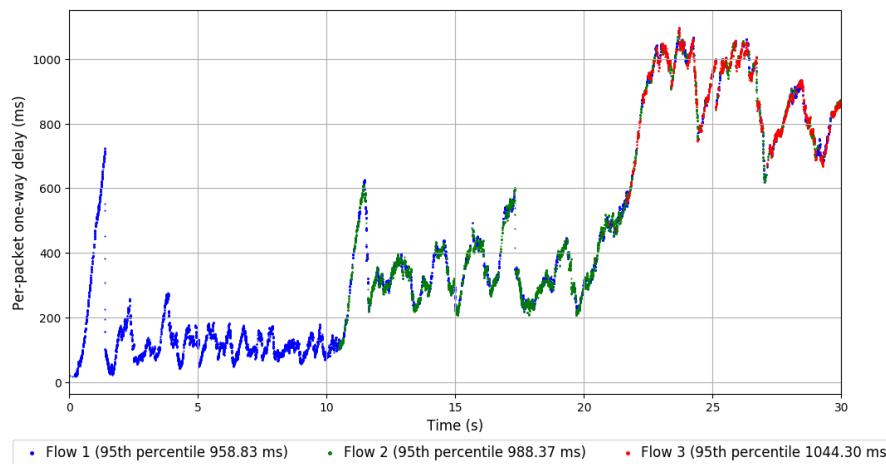
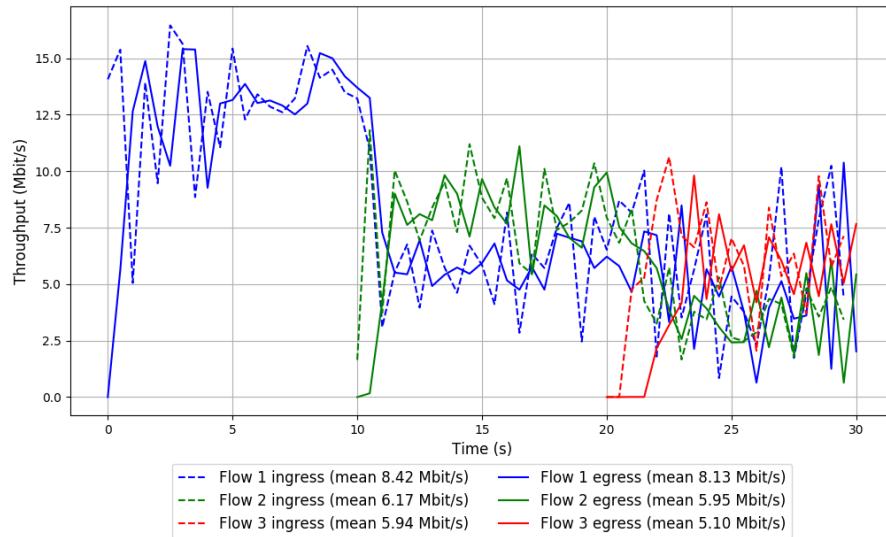


Run 2: Statistics of FillP

```
Start at: 2019-01-18 22:53:30
End at: 2019-01-18 22:54:00
Local clock offset: 1.535 ms
Remote clock offset: -6.113 ms

# Below is generated by plot.py at 2019-01-18 23:35:52
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.63 Mbit/s
95th percentile per-packet one-way delay: 1006.525 ms
Loss rate: 5.97%
-- Flow 1:
Average throughput: 8.13 Mbit/s
95th percentile per-packet one-way delay: 958.825 ms
Loss rate: 4.32%
-- Flow 2:
Average throughput: 5.95 Mbit/s
95th percentile per-packet one-way delay: 988.371 ms
Loss rate: 3.94%
-- Flow 3:
Average throughput: 5.10 Mbit/s
95th percentile per-packet one-way delay: 1044.304 ms
Loss rate: 17.25%
```

Run 2: Report of FillP — Data Link

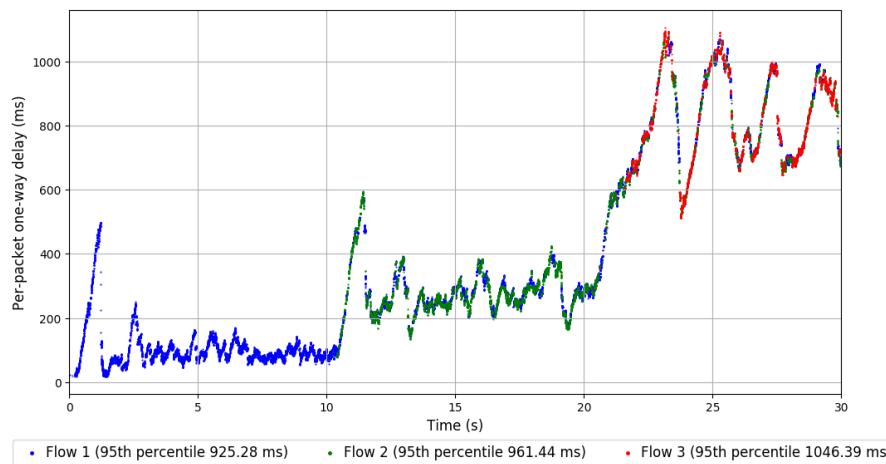
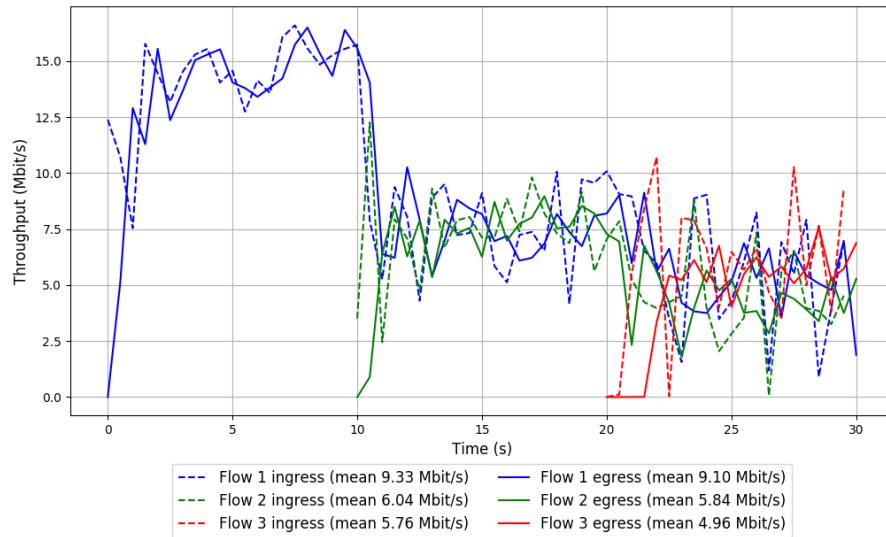


```
Run 3: Statistics of FillP
```

```
Start at: 2019-01-18 23:18:07
End at: 2019-01-18 23:18:37
Local clock offset: 1.269 ms
Remote clock offset: -5.133 ms

# Below is generated by plot.py at 2019-01-18 23:36:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.57 Mbit/s
95th percentile per-packet one-way delay: 975.578 ms
Loss rate: 4.58%
-- Flow 1:
Average throughput: 9.10 Mbit/s
95th percentile per-packet one-way delay: 925.276 ms
Loss rate: 2.57%
-- Flow 2:
Average throughput: 5.84 Mbit/s
95th percentile per-packet one-way delay: 961.437 ms
Loss rate: 3.48%
-- Flow 3:
Average throughput: 4.96 Mbit/s
95th percentile per-packet one-way delay: 1046.388 ms
Loss rate: 16.75%
```

Run 3: Report of FillP — Data Link

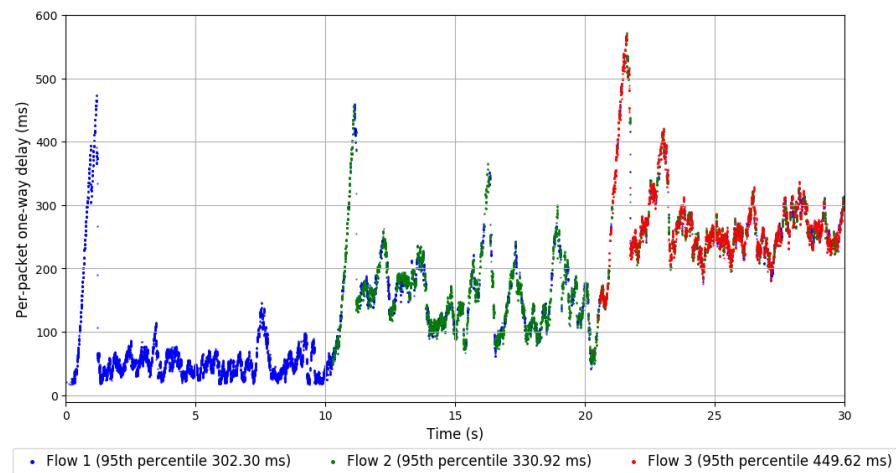
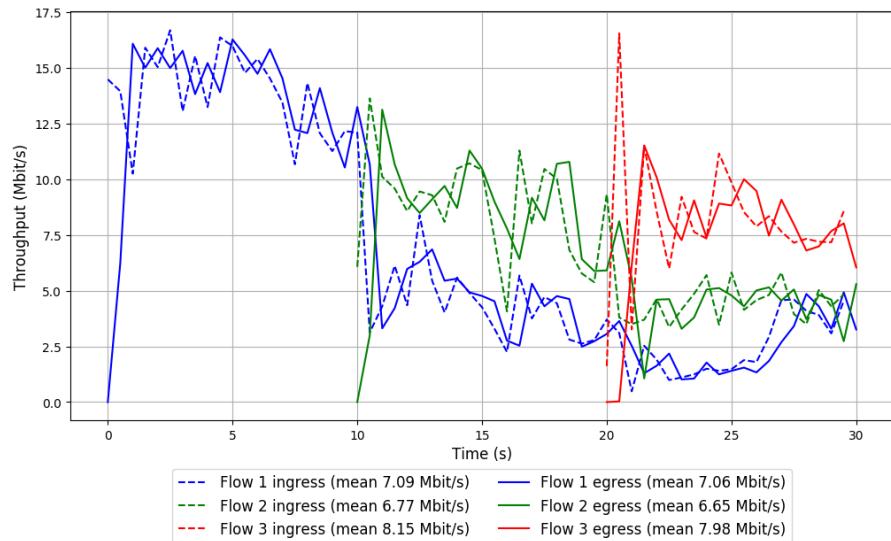


```
Run 1: Statistics of FillP-Sheep
```

```
Start at: 2019-01-18 22:25:09
End at: 2019-01-18 22:25:39
Local clock offset: 1.929 ms
Remote clock offset: -5.053 ms

# Below is generated by plot.py at 2019-01-18 23:36:04
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.09 Mbit/s
95th percentile per-packet one-way delay: 343.432 ms
Loss rate: 1.38%
-- Flow 1:
Average throughput: 7.06 Mbit/s
95th percentile per-packet one-way delay: 302.302 ms
Loss rate: 0.59%
-- Flow 2:
Average throughput: 6.65 Mbit/s
95th percentile per-packet one-way delay: 330.916 ms
Loss rate: 1.39%
-- Flow 3:
Average throughput: 7.98 Mbit/s
95th percentile per-packet one-way delay: 449.624 ms
Loss rate: 3.42%
```

Run 1: Report of FillP-Sheep — Data Link

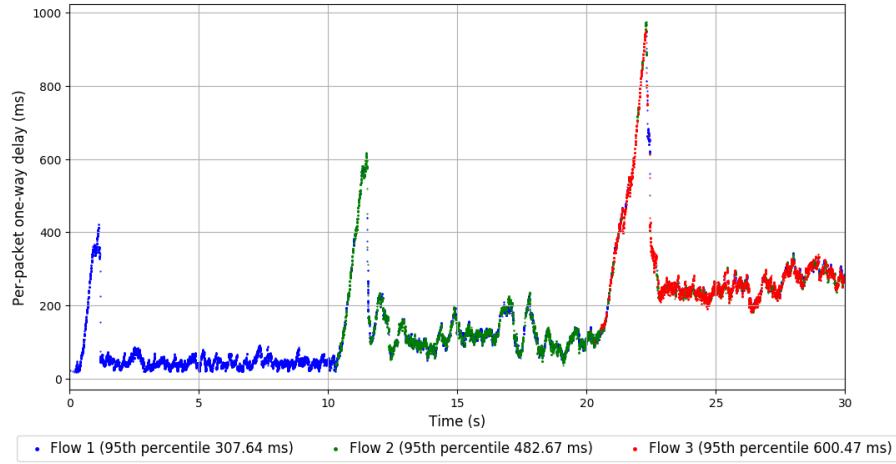
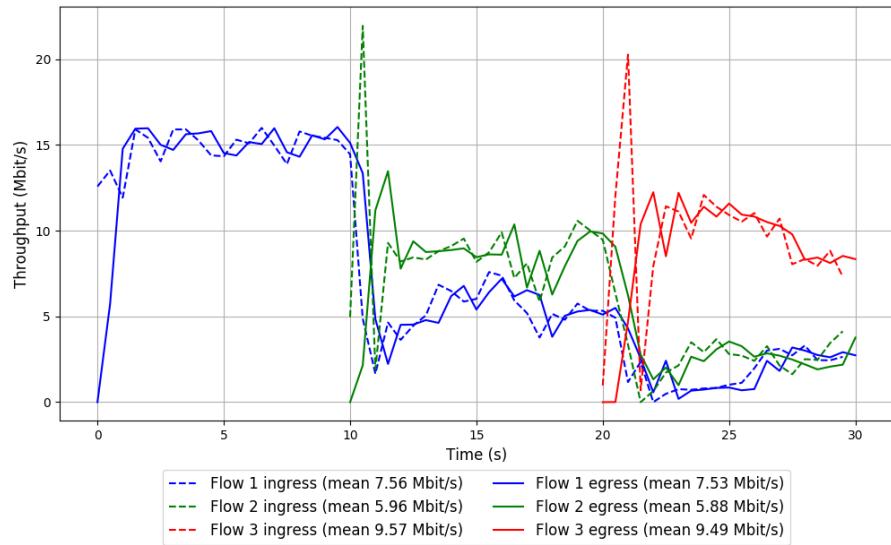


Run 2: Statistics of FillP-Sheep

```
Start at: 2019-01-18 22:49:58
End at: 2019-01-18 22:50:28
Local clock offset: 1.181 ms
Remote clock offset: -5.501 ms

# Below is generated by plot.py at 2019-01-18 23:36:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.55 Mbit/s
95th percentile per-packet one-way delay: 420.625 ms
Loss rate: 1.04%
-- Flow 1:
Average throughput: 7.53 Mbit/s
95th percentile per-packet one-way delay: 307.636 ms
Loss rate: 0.29%
-- Flow 2:
Average throughput: 5.88 Mbit/s
95th percentile per-packet one-way delay: 482.668 ms
Loss rate: 1.44%
-- Flow 3:
Average throughput: 9.49 Mbit/s
95th percentile per-packet one-way delay: 600.468 ms
Loss rate: 2.32%
```

Run 2: Report of FillP-Sheep — Data Link

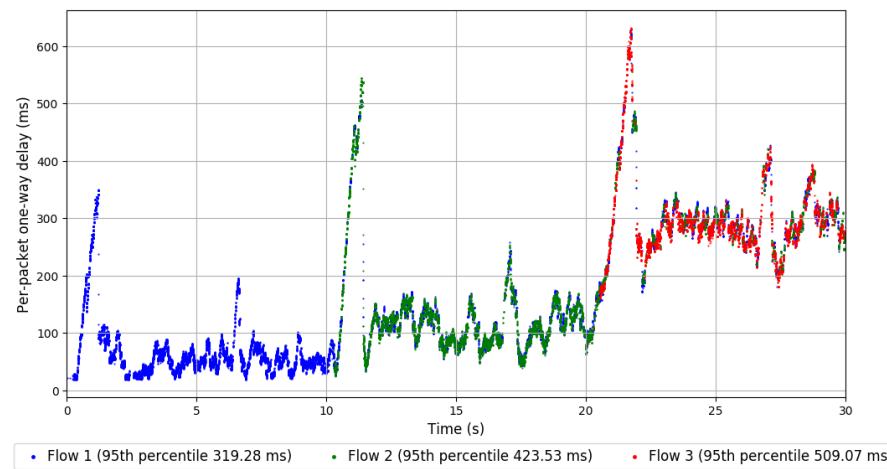
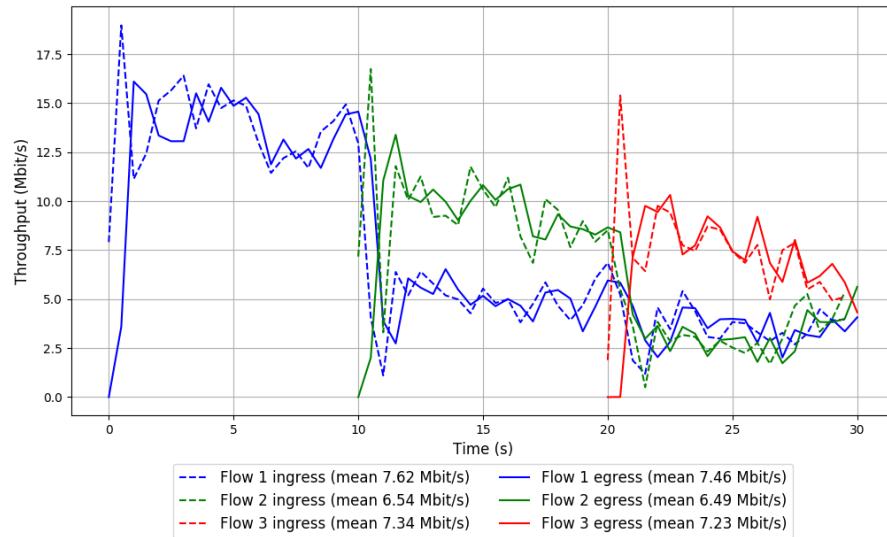


Run 3: Statistics of FillP-Sheep

```
Start at: 2019-01-18 23:14:36
End at: 2019-01-18 23:15:06
Local clock offset: 0.908 ms
Remote clock offset: -5.736 ms

# Below is generated by plot.py at 2019-01-18 23:36:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.16 Mbit/s
95th percentile per-packet one-way delay: 384.174 ms
Loss rate: 1.70%
-- Flow 1:
Average throughput: 7.46 Mbit/s
95th percentile per-packet one-way delay: 319.284 ms
Loss rate: 1.89%
-- Flow 2:
Average throughput: 6.49 Mbit/s
95th percentile per-packet one-way delay: 423.527 ms
Loss rate: 1.04%
-- Flow 3:
Average throughput: 7.23 Mbit/s
95th percentile per-packet one-way delay: 509.066 ms
Loss rate: 2.27%
```

Run 3: Report of FillP-Sheep — Data Link

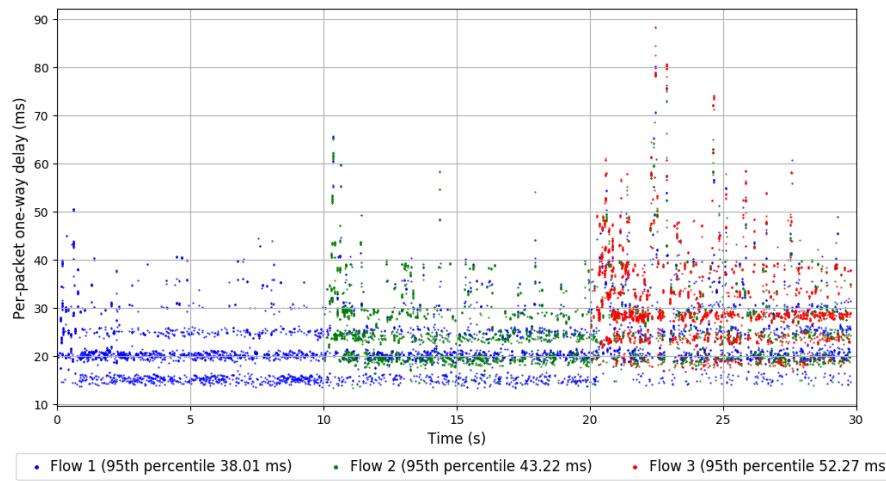
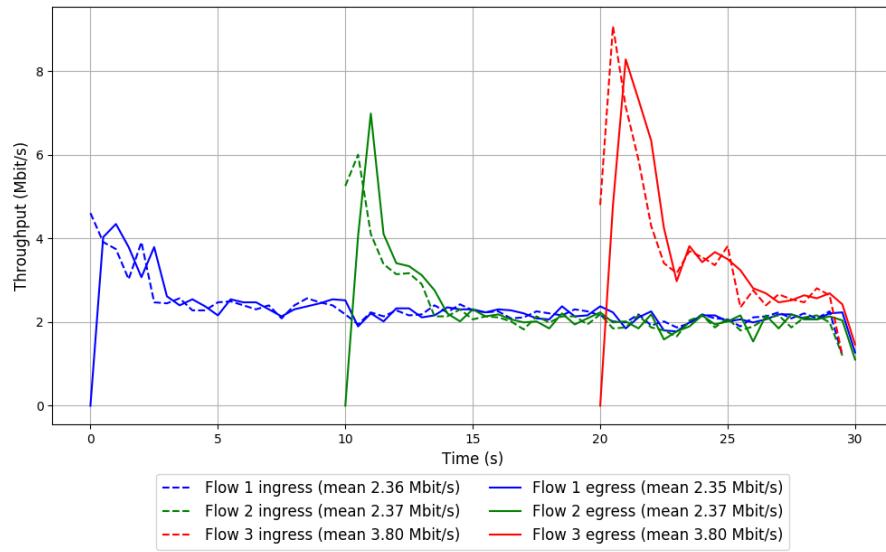


Run 1: Statistics of Indigo

```
Start at: 2019-01-18 22:29:46
End at: 2019-01-18 22:30:16
Local clock offset: 1.495 ms
Remote clock offset: -5.7 ms

# Below is generated by plot.py at 2019-01-18 23:36:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.17 Mbit/s
95th percentile per-packet one-way delay: 43.678 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 2.35 Mbit/s
95th percentile per-packet one-way delay: 38.011 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 2.37 Mbit/s
95th percentile per-packet one-way delay: 43.220 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 3.80 Mbit/s
95th percentile per-packet one-way delay: 52.273 ms
Loss rate: 0.19%
```

Run 1: Report of Indigo — Data Link

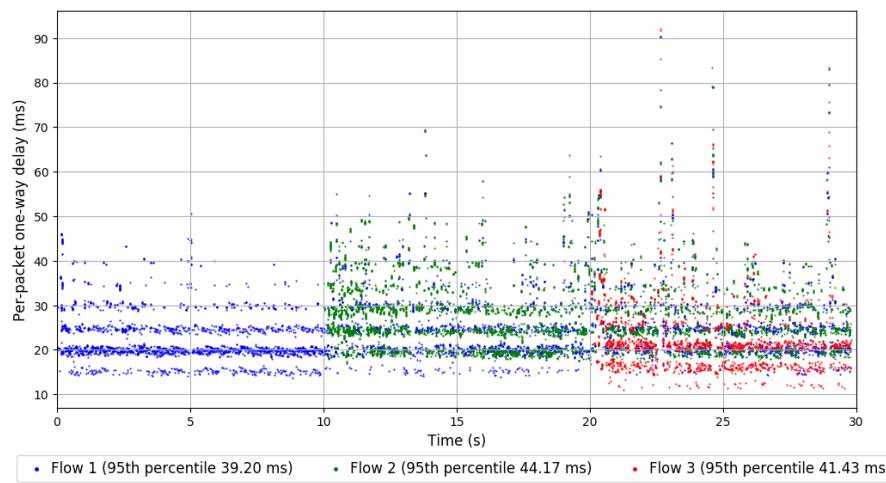
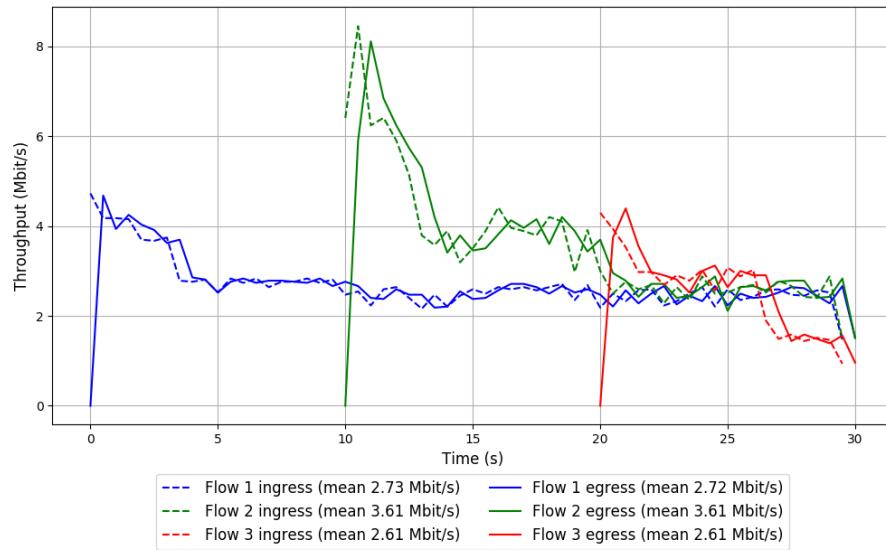


Run 2: Statistics of Indigo

```
Start at: 2019-01-18 22:54:41
End at: 2019-01-18 22:55:11
Local clock offset: 3.408 ms
Remote clock offset: -5.89 ms

# Below is generated by plot.py at 2019-01-18 23:36:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.98 Mbit/s
95th percentile per-packet one-way delay: 40.731 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 2.72 Mbit/s
95th percentile per-packet one-way delay: 39.199 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 3.61 Mbit/s
95th percentile per-packet one-way delay: 44.170 ms
Loss rate: 0.02%
-- Flow 3:
Average throughput: 2.61 Mbit/s
95th percentile per-packet one-way delay: 41.431 ms
Loss rate: 0.00%
```

Run 2: Report of Indigo — Data Link

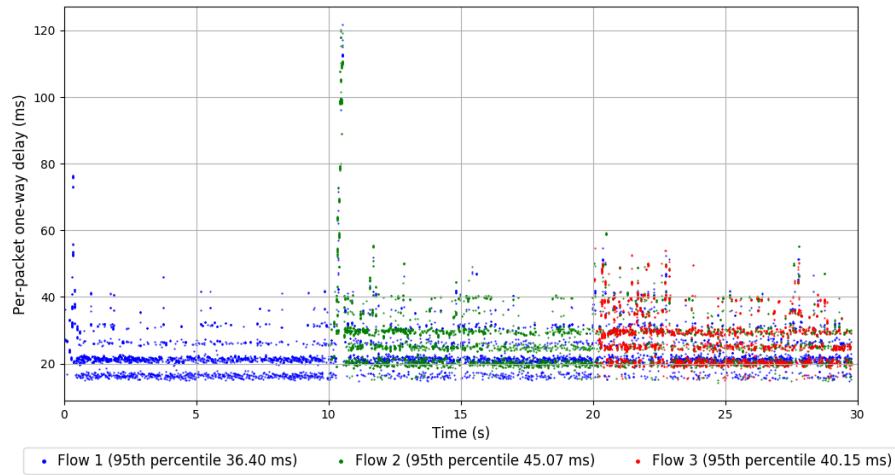
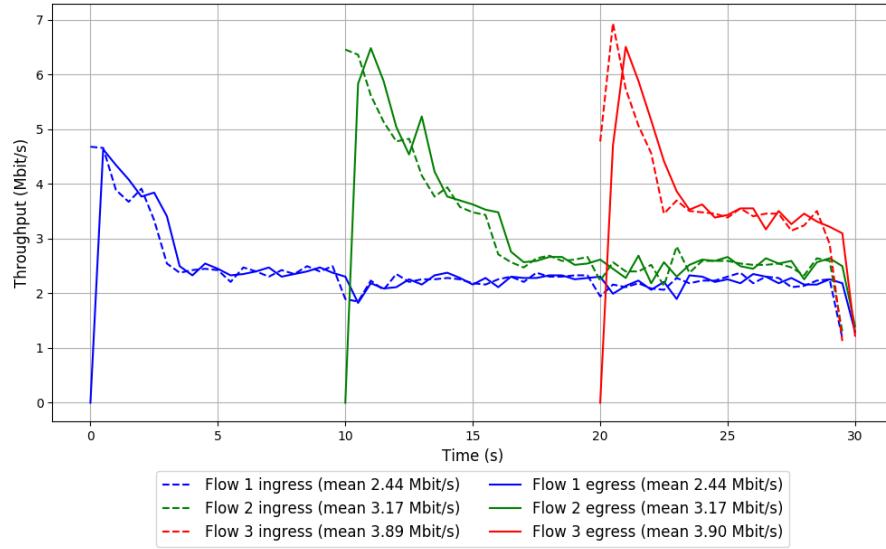


Run 3: Statistics of Indigo

```
Start at: 2019-01-18 23:19:19
End at: 2019-01-18 23:19:49
Local clock offset: 0.536 ms
Remote clock offset: -6.095 ms

# Below is generated by plot.py at 2019-01-18 23:36:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.82 Mbit/s
95th percentile per-packet one-way delay: 40.290 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.44 Mbit/s
95th percentile per-packet one-way delay: 36.400 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 3.17 Mbit/s
95th percentile per-packet one-way delay: 45.073 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 3.90 Mbit/s
95th percentile per-packet one-way delay: 40.151 ms
Loss rate: 0.00%
```

Run 3: Report of Indigo — Data Link

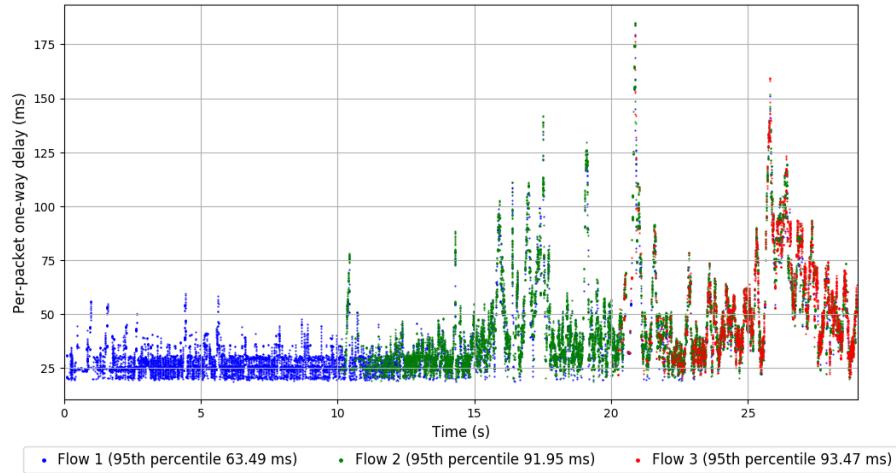
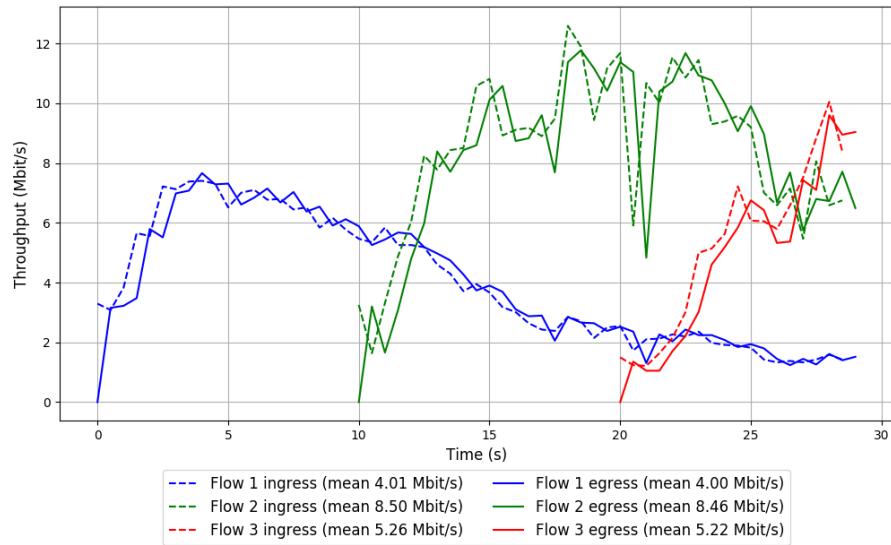


```
Run 1: Statistics of Indigo-MusesC3
```

```
Start at: 2019-01-18 22:43:46
End at: 2019-01-18 22:44:16
Local clock offset: 1.722 ms
Remote clock offset: -5.331 ms

# Below is generated by plot.py at 2019-01-18 23:36:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 11.11 Mbit/s
95th percentile per-packet one-way delay: 88.036 ms
Loss rate: 0.49%
-- Flow 1:
Average throughput: 4.00 Mbit/s
95th percentile per-packet one-way delay: 63.486 ms
Loss rate: 0.20%
-- Flow 2:
Average throughput: 8.46 Mbit/s
95th percentile per-packet one-way delay: 91.955 ms
Loss rate: 0.53%
-- Flow 3:
Average throughput: 5.22 Mbit/s
95th percentile per-packet one-way delay: 93.469 ms
Loss rate: 1.08%
```

Run 1: Report of Indigo-MusesC3 — Data Link

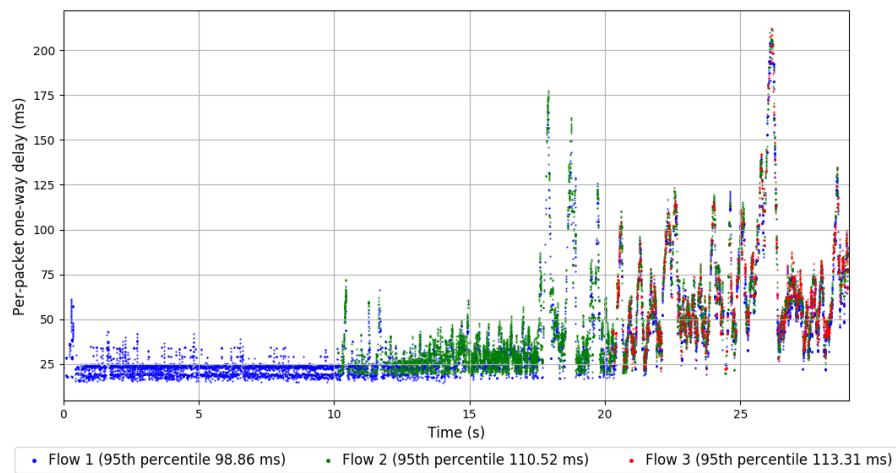
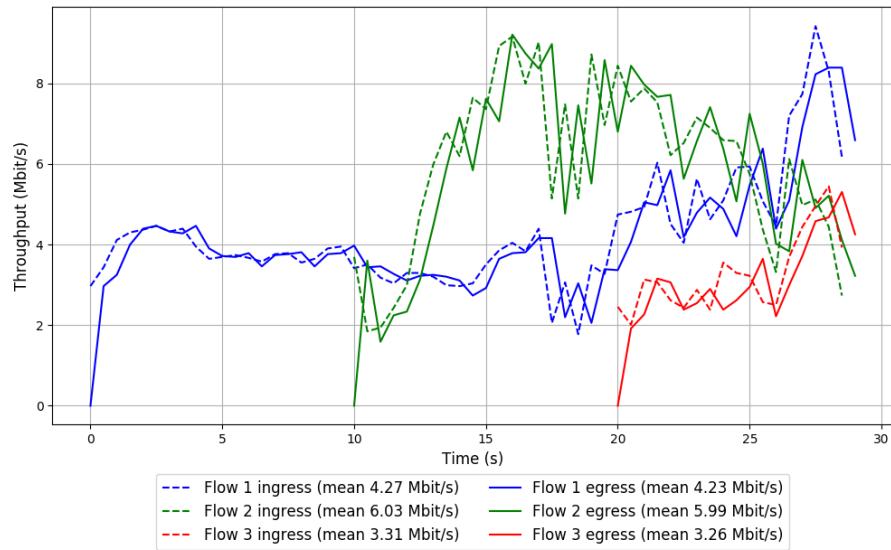


Run 2: Statistics of Indigo-MusesC3

```
Start at: 2019-01-18 23:08:45
End at: 2019-01-18 23:09:15
Local clock offset: 0.311 ms
Remote clock offset: -5.809 ms

# Below is generated by plot.py at 2019-01-18 23:36:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 9.14 Mbit/s
95th percentile per-packet one-way delay: 106.444 ms
Loss rate: 0.80%
-- Flow 1:
Average throughput: 4.23 Mbit/s
95th percentile per-packet one-way delay: 98.862 ms
Loss rate: 0.71%
-- Flow 2:
Average throughput: 5.99 Mbit/s
95th percentile per-packet one-way delay: 110.519 ms
Loss rate: 0.67%
-- Flow 3:
Average throughput: 3.26 Mbit/s
95th percentile per-packet one-way delay: 113.312 ms
Loss rate: 1.72%
```

Run 2: Report of Indigo-MusesC3 — Data Link

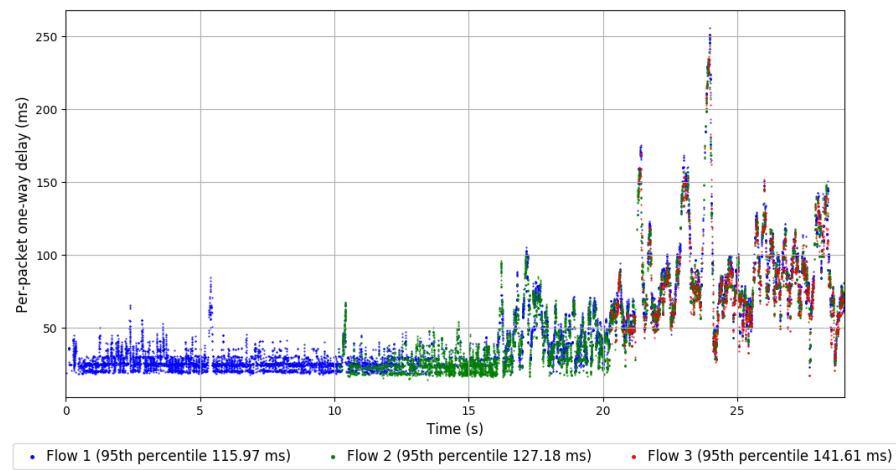
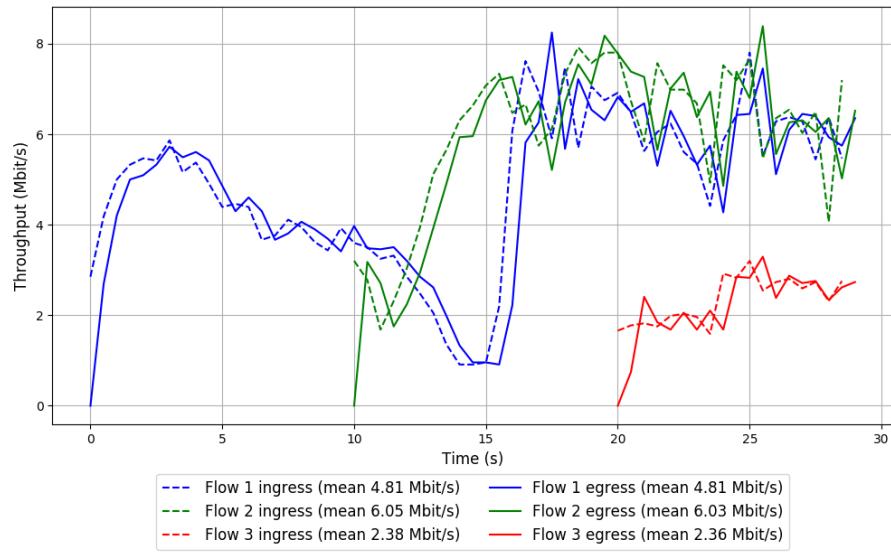


Run 3: Statistics of Indigo-MusesC3

```
Start at: 2019-01-18 23:33:29
End at: 2019-01-18 23:33:59
Local clock offset: 1.394 ms
Remote clock offset: -4.756 ms

# Below is generated by plot.py at 2019-01-18 23:36:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 9.46 Mbit/s
95th percentile per-packet one-way delay: 123.157 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 4.81 Mbit/s
95th percentile per-packet one-way delay: 115.972 ms
Loss rate: 0.17%
-- Flow 2:
Average throughput: 6.03 Mbit/s
95th percentile per-packet one-way delay: 127.183 ms
Loss rate: 0.46%
-- Flow 3:
Average throughput: 2.36 Mbit/s
95th percentile per-packet one-way delay: 141.612 ms
Loss rate: 1.00%
```

Run 3: Report of Indigo-MusesC3 — Data Link

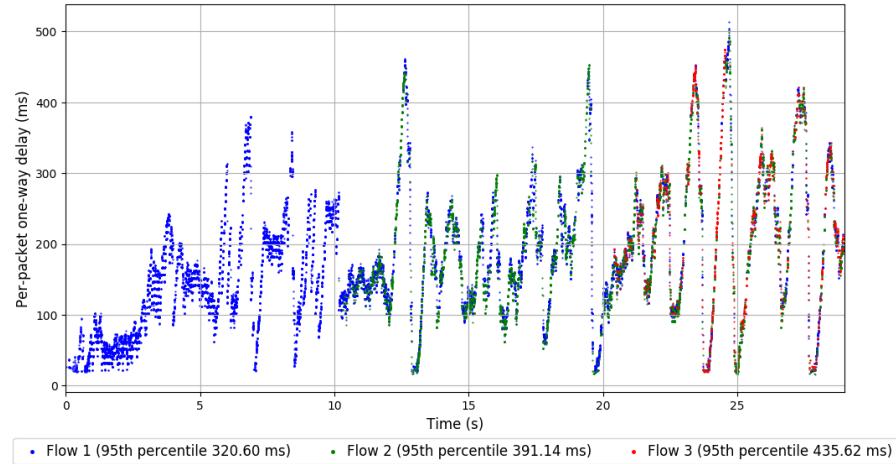
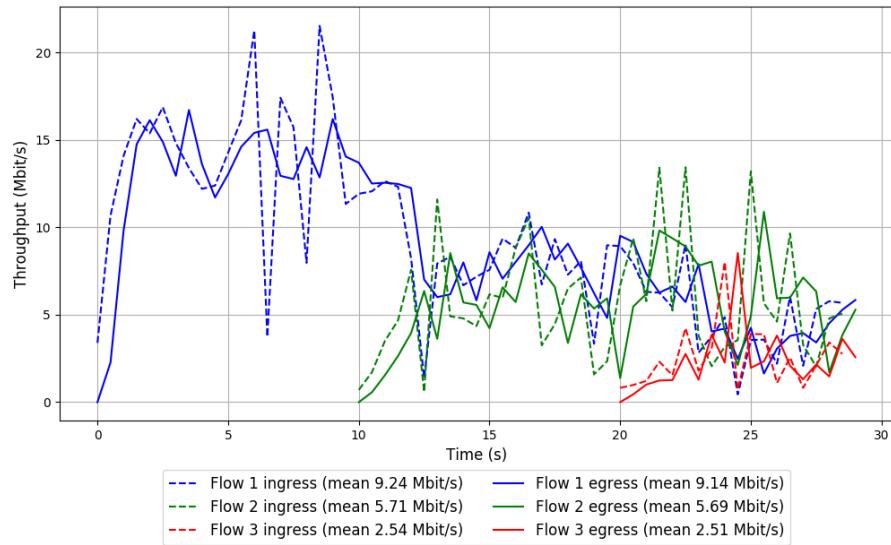


```
Run 1: Statistics of Indigo-MusesC5
```

```
Start at: 2019-01-18 22:39:07
End at: 2019-01-18 22:39:37
Local clock offset: 0.291 ms
Remote clock offset: -6.068 ms

# Below is generated by plot.py at 2019-01-18 23:36:12
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.59 Mbit/s
95th percentile per-packet one-way delay: 370.480 ms
Loss rate: 1.23%
-- Flow 1:
Average throughput: 9.14 Mbit/s
95th percentile per-packet one-way delay: 320.604 ms
Loss rate: 1.18%
-- Flow 2:
Average throughput: 5.69 Mbit/s
95th percentile per-packet one-way delay: 391.136 ms
Loss rate: 1.02%
-- Flow 3:
Average throughput: 2.51 Mbit/s
95th percentile per-packet one-way delay: 435.624 ms
Loss rate: 2.79%
```

Run 1: Report of Indigo-MusesC5 — Data Link

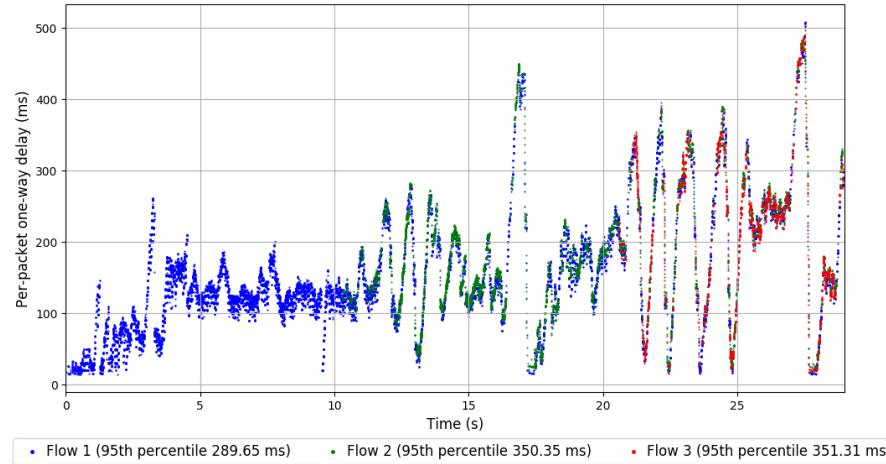
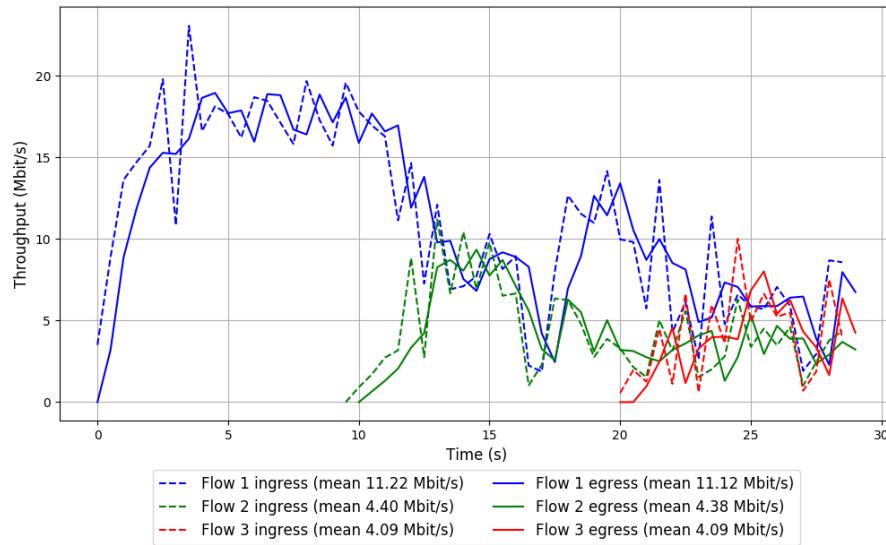


Run 2: Statistics of Indigo-MusesC5

```
Start at: 2019-01-18 23:04:07
End at: 2019-01-18 23:04:37
Local clock offset: 1.444 ms
Remote clock offset: -6.181 ms

# Below is generated by plot.py at 2019-01-18 23:36:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 15.19 Mbit/s
95th percentile per-packet one-way delay: 320.513 ms
Loss rate: 1.09%
-- Flow 1:
Average throughput: 11.12 Mbit/s
95th percentile per-packet one-way delay: 289.655 ms
Loss rate: 0.92%
-- Flow 2:
Average throughput: 4.38 Mbit/s
95th percentile per-packet one-way delay: 350.350 ms
Loss rate: 1.12%
-- Flow 3:
Average throughput: 4.09 Mbit/s
95th percentile per-packet one-way delay: 351.311 ms
Loss rate: 2.45%
```

Run 2: Report of Indigo-MusesC5 — Data Link

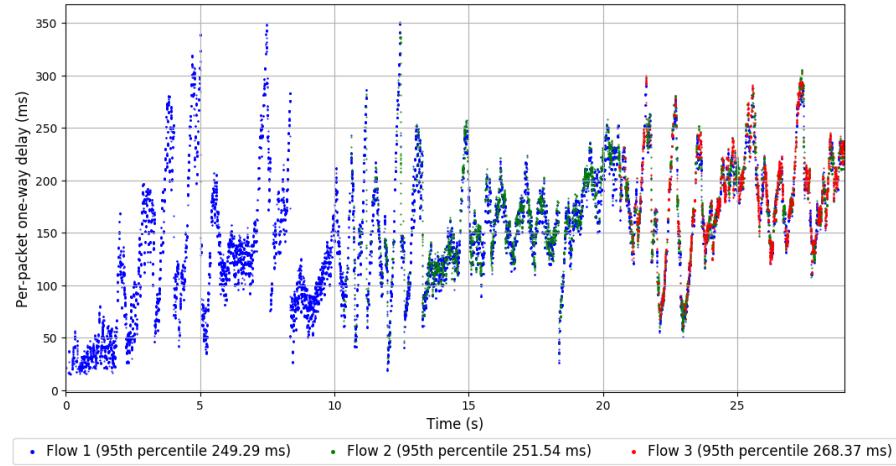
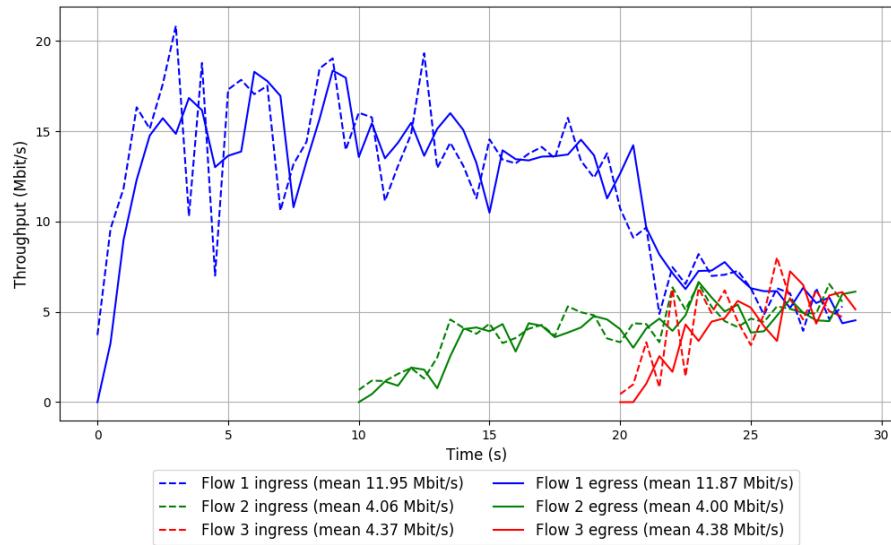


Run 3: Statistics of Indigo-MusesC5

```
Start at: 2019-01-18 23:28:49
End at: 2019-01-18 23:29:19
Local clock offset: 0.976 ms
Remote clock offset: -4.967 ms

# Below is generated by plot.py at 2019-01-18 23:36:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 15.77 Mbit/s
95th percentile per-packet one-way delay: 250.641 ms
Loss rate: 1.02%
-- Flow 1:
Average throughput: 11.87 Mbit/s
95th percentile per-packet one-way delay: 249.290 ms
Loss rate: 0.64%
-- Flow 2:
Average throughput: 4.00 Mbit/s
95th percentile per-packet one-way delay: 251.536 ms
Loss rate: 2.15%
-- Flow 3:
Average throughput: 4.38 Mbit/s
95th percentile per-packet one-way delay: 268.365 ms
Loss rate: 2.20%
```

Run 3: Report of Indigo-MusesC5 — Data Link

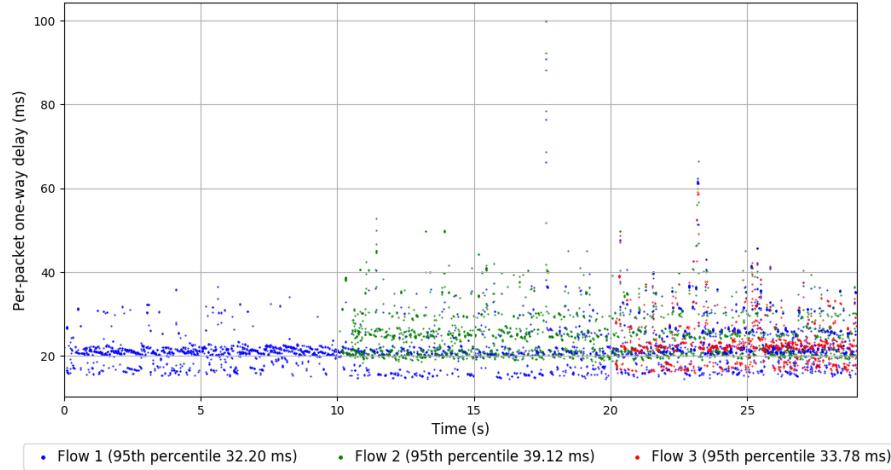
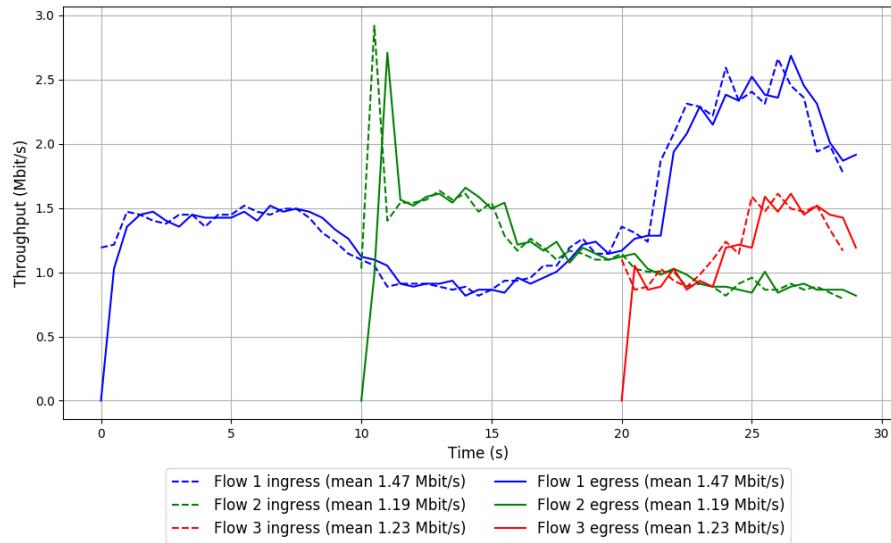


Run 1: Statistics of Indigo-MusesD

```
Start at: 2019-01-18 22:36:47
End at: 2019-01-18 22:37:17
Local clock offset: 1.053 ms
Remote clock offset: -5.849 ms

# Below is generated by plot.py at 2019-01-18 23:36:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.62 Mbit/s
95th percentile per-packet one-way delay: 35.198 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 1.47 Mbit/s
95th percentile per-packet one-way delay: 32.204 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 1.19 Mbit/s
95th percentile per-packet one-way delay: 39.123 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 1.23 Mbit/s
95th percentile per-packet one-way delay: 33.781 ms
Loss rate: 0.00%
```

Run 1: Report of Indigo-MusesD — Data Link

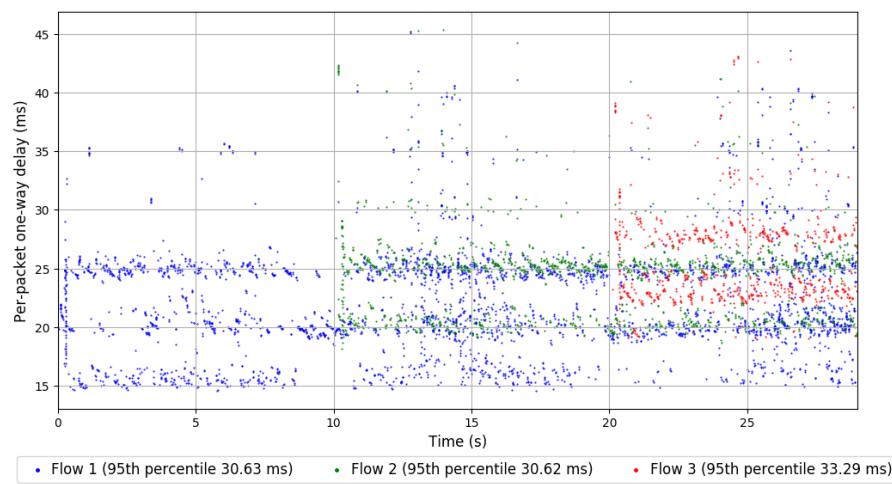
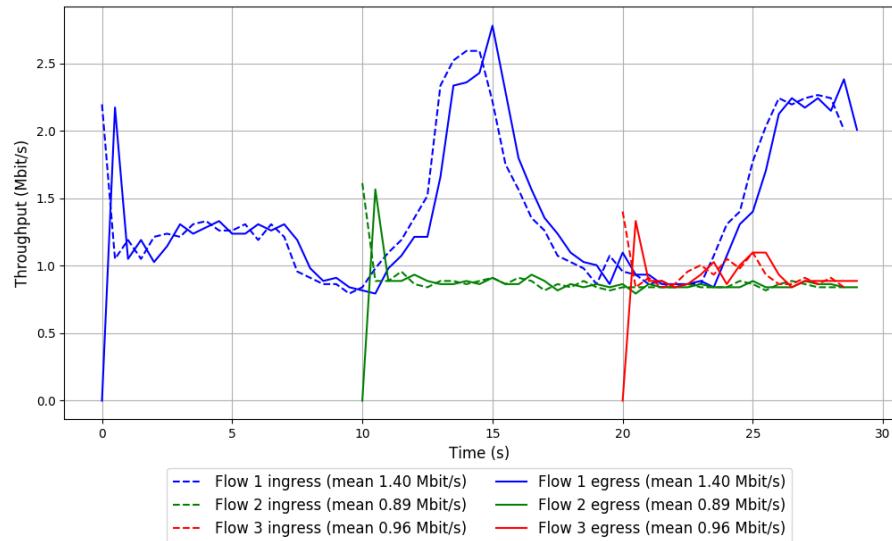


Run 2: Statistics of Indigo-MusesD

```
Start at: 2019-01-18 23:01:45
End at: 2019-01-18 23:02:15
Local clock offset: 0.937 ms
Remote clock offset: -5.464 ms

# Below is generated by plot.py at 2019-01-18 23:36:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.27 Mbit/s
95th percentile per-packet one-way delay: 31.111 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 1.40 Mbit/s
95th percentile per-packet one-way delay: 30.628 ms
Loss rate: 0.03%
-- Flow 2:
Average throughput: 0.89 Mbit/s
95th percentile per-packet one-way delay: 30.624 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 0.96 Mbit/s
95th percentile per-packet one-way delay: 33.286 ms
Loss rate: 0.14%
```

Run 2: Report of Indigo-MusesD — Data Link

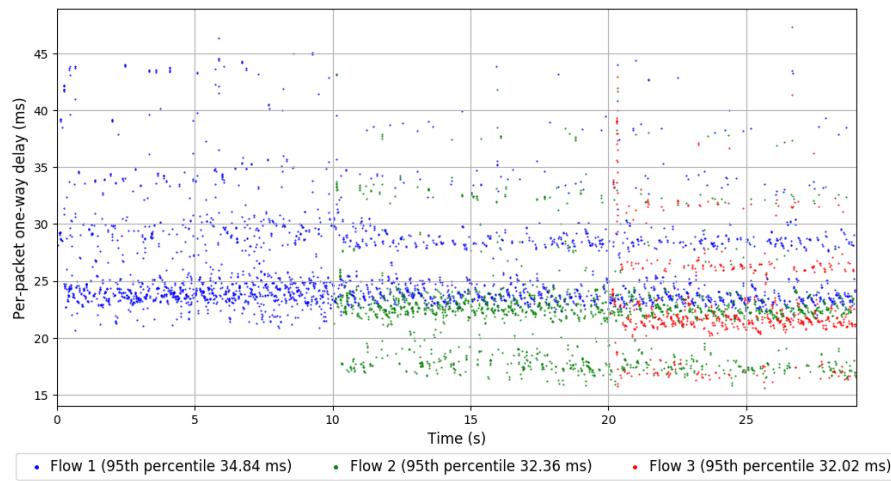
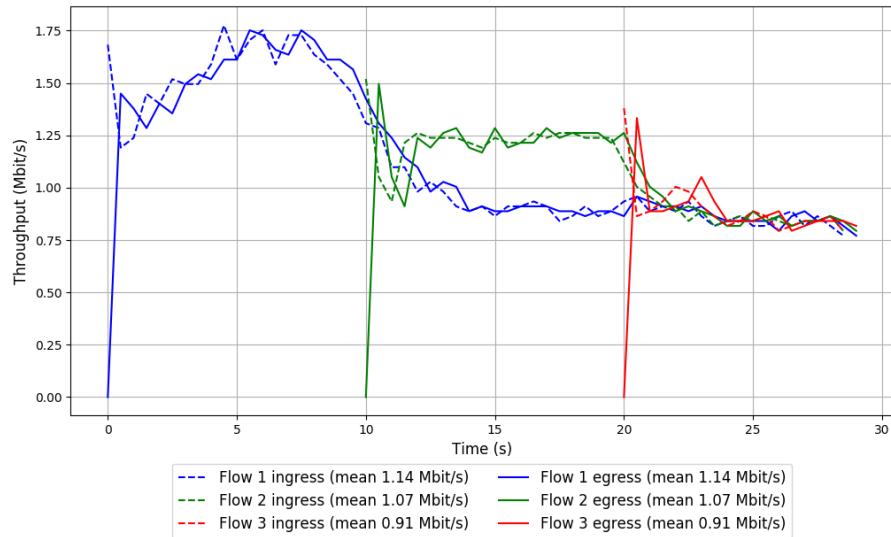


Run 3: Statistics of Indigo-MusesD

```
Start at: 2019-01-18 23:26:27
End at: 2019-01-18 23:26:57
Local clock offset: -0.238 ms
Remote clock offset: -5.362 ms

# Below is generated by plot.py at 2019-01-18 23:36:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.12 Mbit/s
95th percentile per-packet one-way delay: 33.744 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 1.14 Mbit/s
95th percentile per-packet one-way delay: 34.840 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 1.07 Mbit/s
95th percentile per-packet one-way delay: 32.364 ms
Loss rate: 0.06%
-- Flow 3:
Average throughput: 0.91 Mbit/s
95th percentile per-packet one-way delay: 32.019 ms
Loss rate: 0.14%
```

Run 3: Report of Indigo-MusesD — Data Link

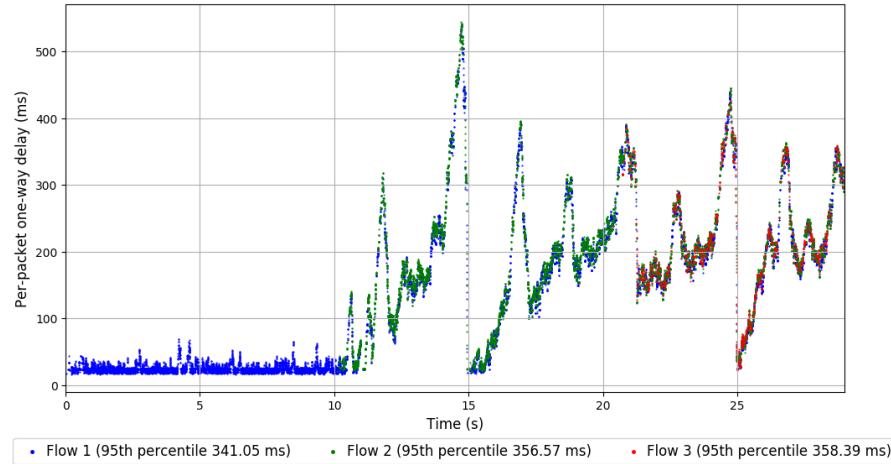
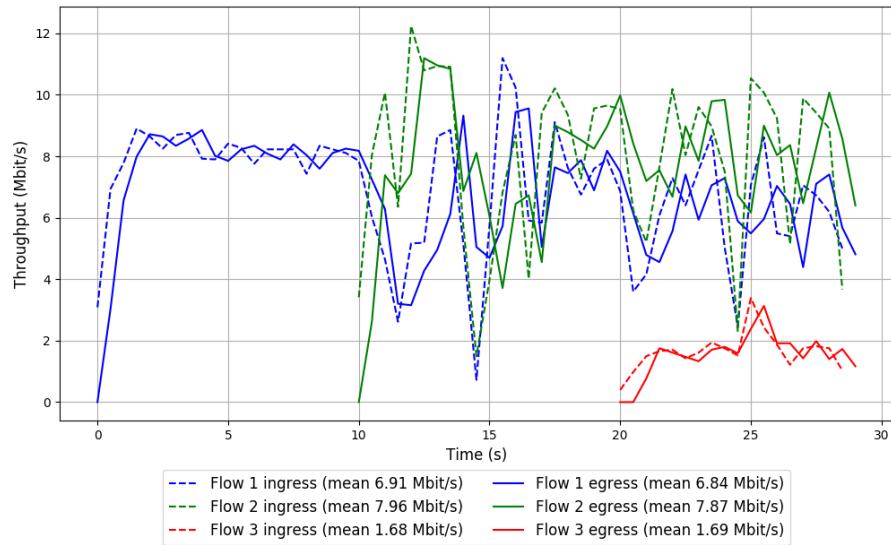


```
Run 1: Statistics of Indigo-MusesT
```

```
Start at: 2019-01-18 22:26:18
End at: 2019-01-18 22:26:48
Local clock offset: 0.264 ms
Remote clock offset: -5.297 ms

# Below is generated by plot.py at 2019-01-18 23:36:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.48 Mbit/s
95th percentile per-packet one-way delay: 349.941 ms
Loss rate: 1.13%
-- Flow 1:
Average throughput: 6.84 Mbit/s
95th percentile per-packet one-way delay: 341.051 ms
Loss rate: 1.06%
-- Flow 2:
Average throughput: 7.87 Mbit/s
95th percentile per-packet one-way delay: 356.571 ms
Loss rate: 1.13%
-- Flow 3:
Average throughput: 1.69 Mbit/s
95th percentile per-packet one-way delay: 358.388 ms
Loss rate: 2.20%
```

Run 1: Report of Indigo-MusesT — Data Link

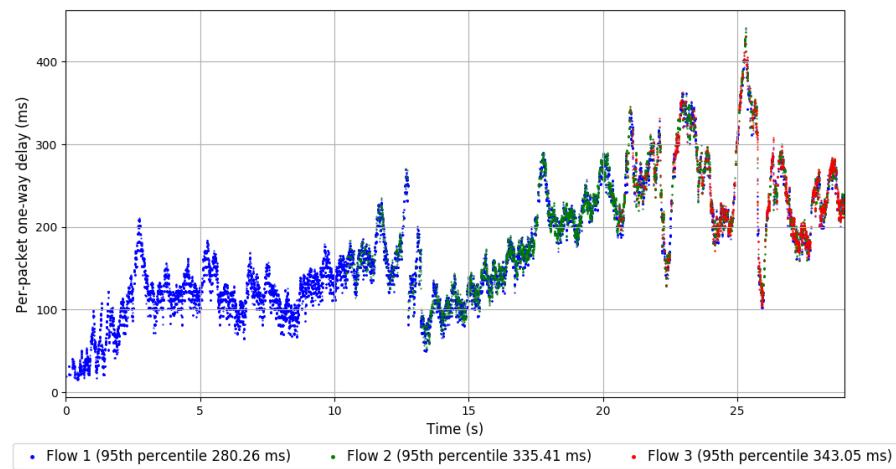
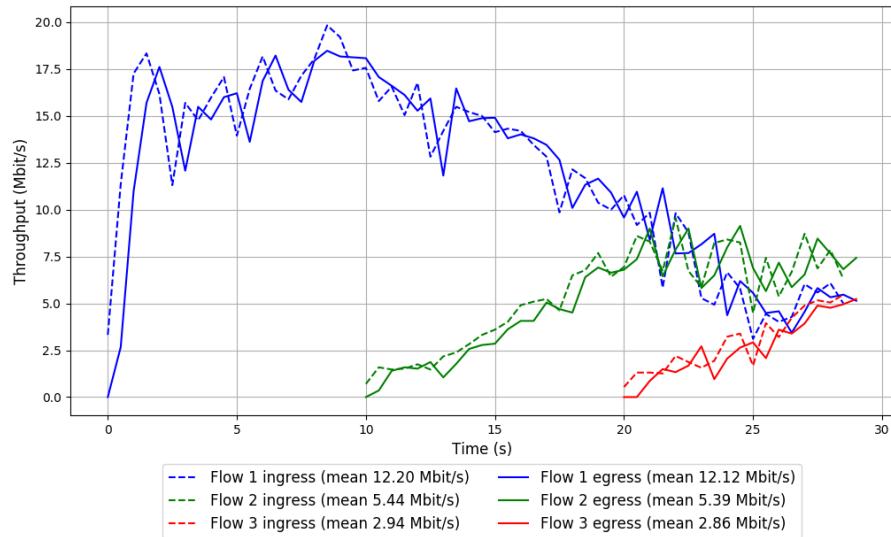


Run 2: Statistics of Indigo-MusesT

```
Start at: 2019-01-18 22:51:08
End at: 2019-01-18 22:51:38
Local clock offset: 1.385 ms
Remote clock offset: -5.644 ms

# Below is generated by plot.py at 2019-01-18 23:36:22
# Datalink statistics
-- Total of 3 flows:
Average throughput: 16.46 Mbit/s
95th percentile per-packet one-way delay: 305.419 ms
Loss rate: 1.15%
-- Flow 1:
Average throughput: 12.12 Mbit/s
95th percentile per-packet one-way delay: 280.263 ms
Loss rate: 0.73%
-- Flow 2:
Average throughput: 5.39 Mbit/s
95th percentile per-packet one-way delay: 335.410 ms
Loss rate: 1.58%
-- Flow 3:
Average throughput: 2.86 Mbit/s
95th percentile per-packet one-way delay: 343.054 ms
Loss rate: 5.23%
```

Run 2: Report of Indigo-MusesT — Data Link

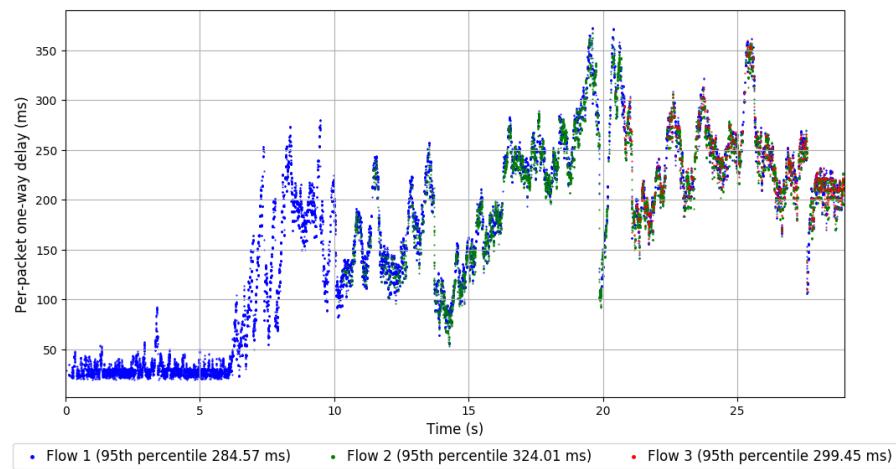
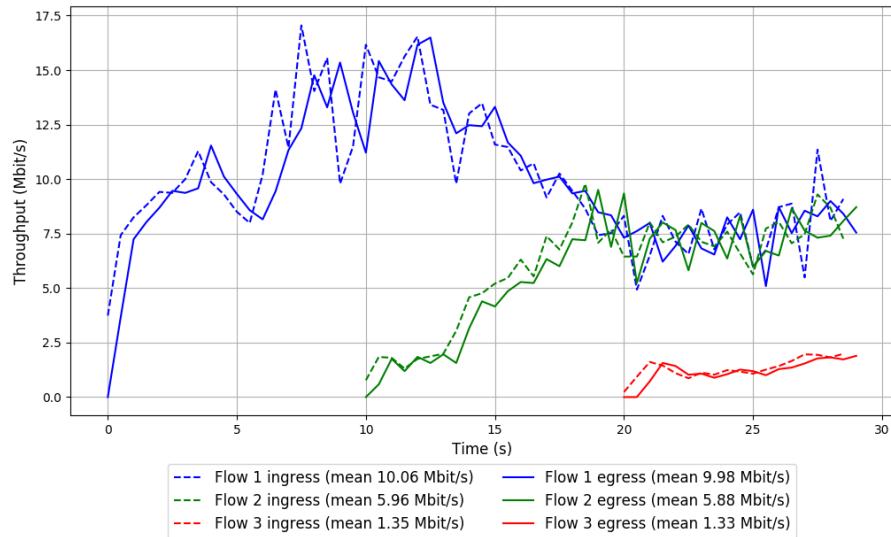


Run 3: Statistics of Indigo-MusesT

```
Start at: 2019-01-18 23:15:47
End at: 2019-01-18 23:16:17
Local clock offset: 1.041 ms
Remote clock offset: -5.065 ms

# Below is generated by plot.py at 2019-01-18 23:36:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.19 Mbit/s
95th percentile per-packet one-way delay: 297.333 ms
Loss rate: 1.31%
-- Flow 1:
Average throughput: 9.98 Mbit/s
95th percentile per-packet one-way delay: 284.569 ms
Loss rate: 0.92%
-- Flow 2:
Average throughput: 5.88 Mbit/s
95th percentile per-packet one-way delay: 324.009 ms
Loss rate: 1.92%
-- Flow 3:
Average throughput: 1.33 Mbit/s
95th percentile per-packet one-way delay: 299.449 ms
Loss rate: 5.28%
```

Run 3: Report of Indigo-MusesT — Data Link

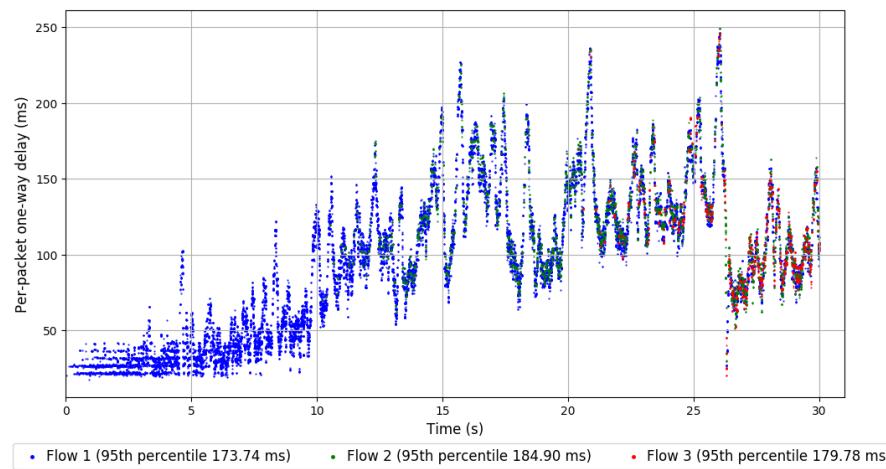
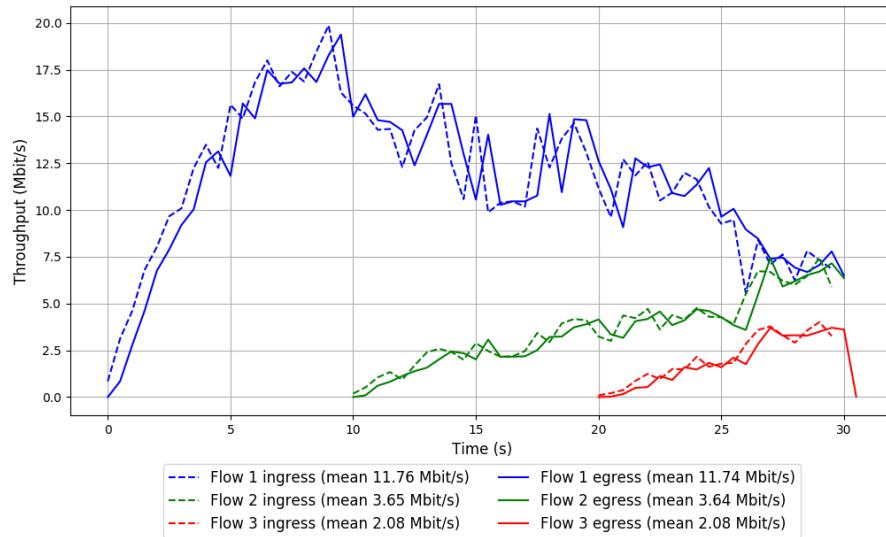


Run 1: Statistics of LEDBAT

```
Start at: 2019-01-18 22:44:58
End at: 2019-01-18 22:45:28
Local clock offset: 0.507 ms
Remote clock offset: -5.77 ms

# Below is generated by plot.py at 2019-01-18 23:36:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.83 Mbit/s
95th percentile per-packet one-way delay: 176.320 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 11.74 Mbit/s
95th percentile per-packet one-way delay: 173.737 ms
Loss rate: 0.24%
-- Flow 2:
Average throughput: 3.64 Mbit/s
95th percentile per-packet one-way delay: 184.896 ms
Loss rate: 0.64%
-- Flow 3:
Average throughput: 2.08 Mbit/s
95th percentile per-packet one-way delay: 179.775 ms
Loss rate: 1.19%
```

Run 1: Report of LEDBAT — Data Link

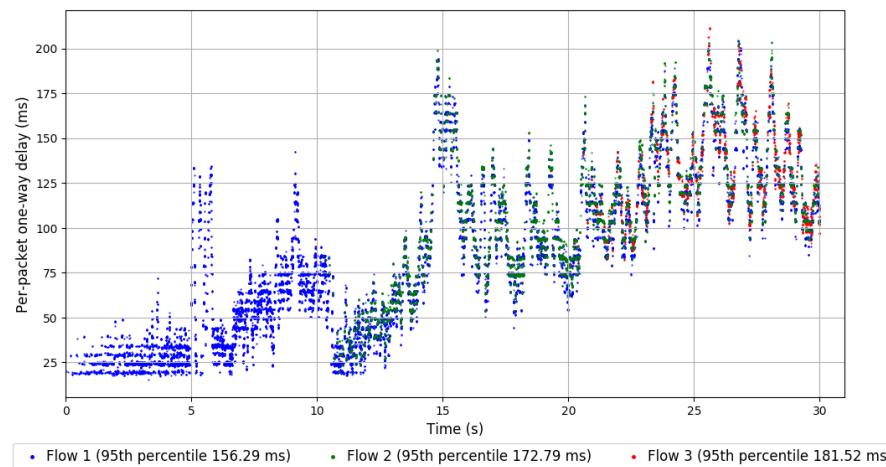
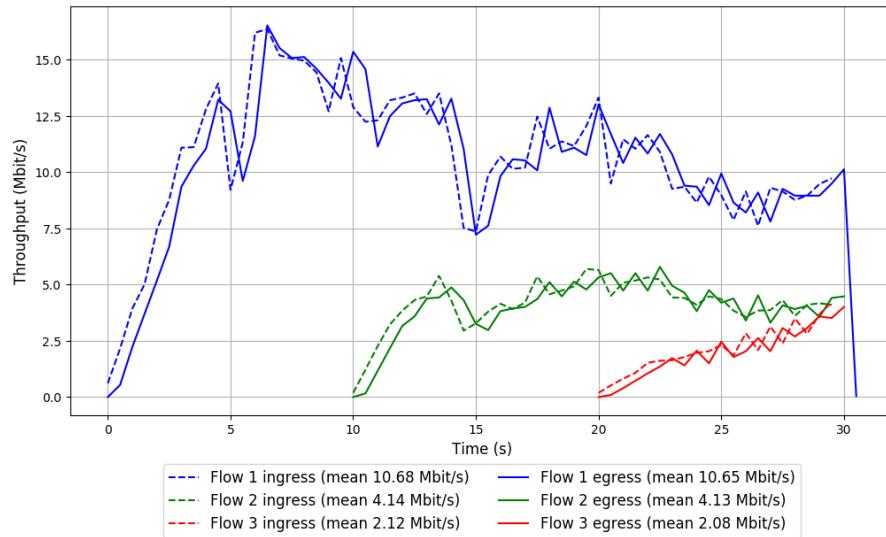


Run 2: Statistics of LEDBAT

```
Start at: 2019-01-18 23:09:55
End at: 2019-01-18 23:10:25
Local clock offset: 1.136 ms
Remote clock offset: -5.147 ms

# Below is generated by plot.py at 2019-01-18 23:36:24
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.07 Mbit/s
95th percentile per-packet one-way delay: 163.743 ms
Loss rate: 0.42%
-- Flow 1:
Average throughput: 10.65 Mbit/s
95th percentile per-packet one-way delay: 156.286 ms
Loss rate: 0.32%
-- Flow 2:
Average throughput: 4.13 Mbit/s
95th percentile per-packet one-way delay: 172.787 ms
Loss rate: 0.47%
-- Flow 3:
Average throughput: 2.08 Mbit/s
95th percentile per-packet one-way delay: 181.523 ms
Loss rate: 1.84%
```

Run 2: Report of LEDBAT — Data Link

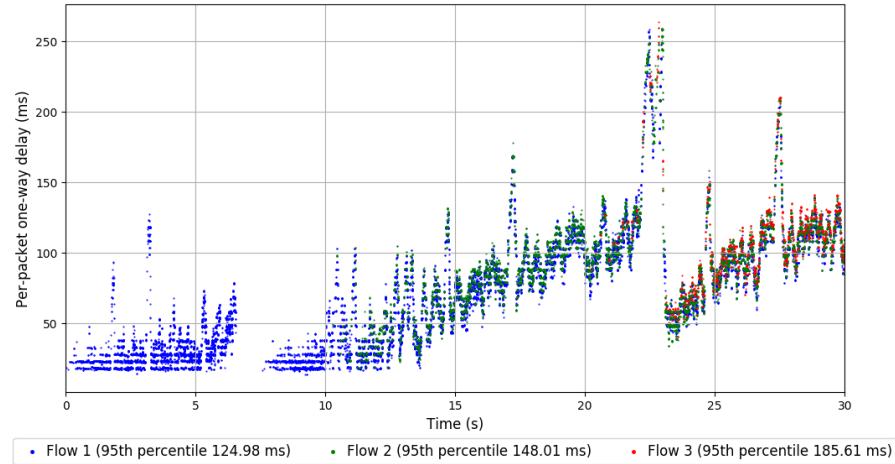
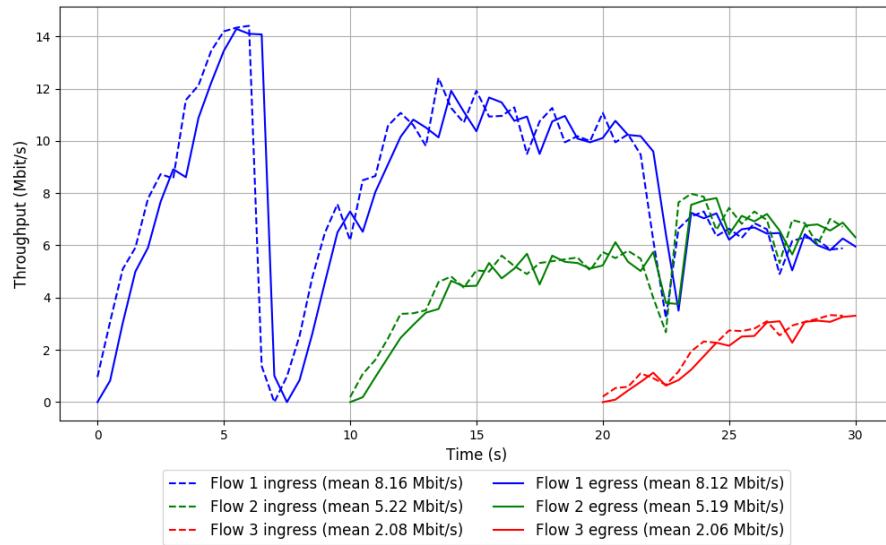


Run 3: Statistics of LEDBAT

```
Start at: 2019-01-18 23:34:40
End at: 2019-01-18 23:35:10
Local clock offset: 3.04 ms
Remote clock offset: -4.783 ms

# Below is generated by plot.py at 2019-01-18 23:36:25
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.25 Mbit/s
95th percentile per-packet one-way delay: 131.939 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 8.12 Mbit/s
95th percentile per-packet one-way delay: 124.979 ms
Loss rate: 0.58%
-- Flow 2:
Average throughput: 5.19 Mbit/s
95th percentile per-packet one-way delay: 148.013 ms
Loss rate: 0.82%
-- Flow 3:
Average throughput: 2.06 Mbit/s
95th percentile per-packet one-way delay: 185.606 ms
Loss rate: 2.04%
```

Run 3: Report of LEDBAT — Data Link

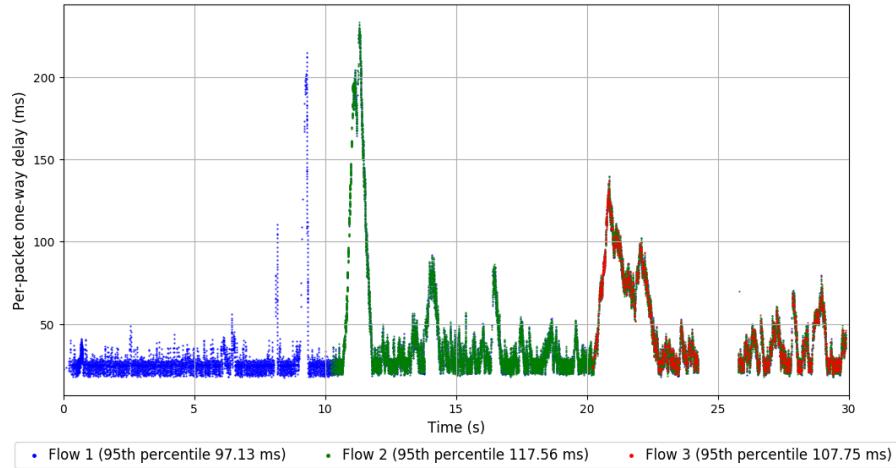
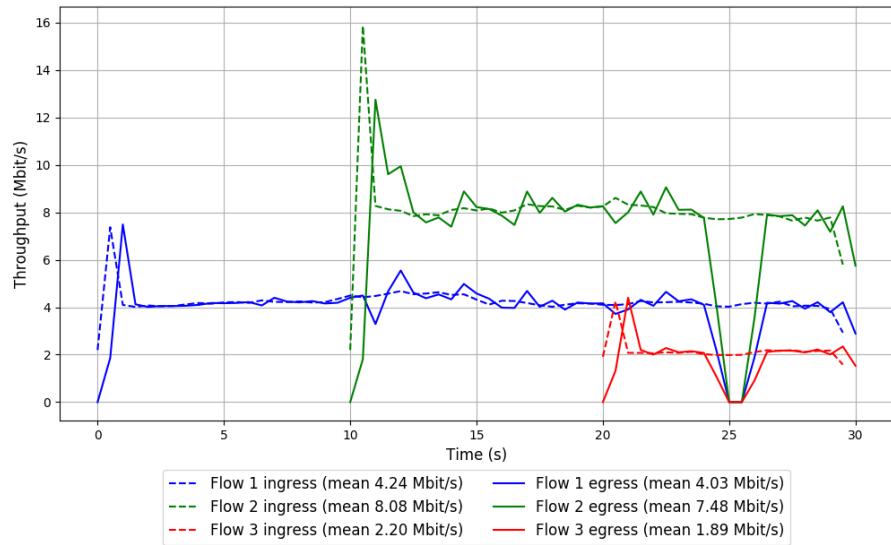


Run 1: Statistics of PCC-Allegro

```
Start at: 2019-01-18 22:30:56
End at: 2019-01-18 22:31:26
Local clock offset: 1.973 ms
Remote clock offset: -5.234 ms

# Below is generated by plot.py at 2019-01-18 23:36:30
# Datalink statistics
-- Total of 3 flows:
Average throughput: 9.62 Mbit/s
95th percentile per-packet one-way delay: 108.246 ms
Loss rate: 6.92%
-- Flow 1:
Average throughput: 4.03 Mbit/s
95th percentile per-packet one-way delay: 97.127 ms
Loss rate: 4.96%
-- Flow 2:
Average throughput: 7.48 Mbit/s
95th percentile per-packet one-way delay: 117.561 ms
Loss rate: 7.46%
-- Flow 3:
Average throughput: 1.89 Mbit/s
95th percentile per-packet one-way delay: 107.746 ms
Loss rate: 14.27%
```

Run 1: Report of PCC-Allegro — Data Link

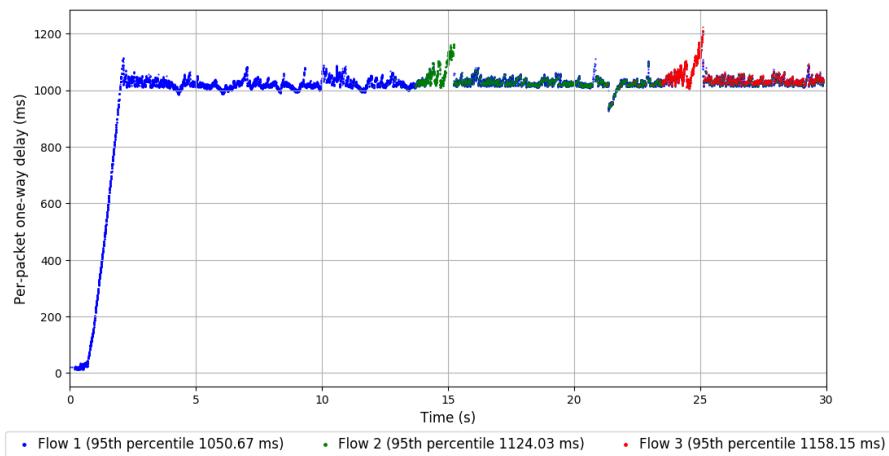
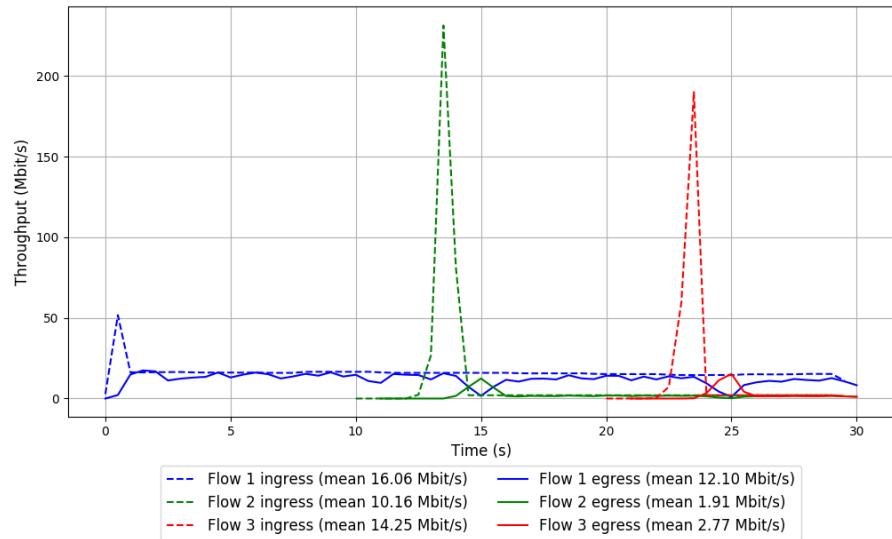


Run 2: Statistics of PCC-Allegro

```
Start at: 2019-01-18 22:55:52
End at: 2019-01-18 22:56:22
Local clock offset: 1.774 ms
Remote clock offset: -6.192 ms

# Below is generated by plot.py at 2019-01-18 23:36:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.09 Mbit/s
95th percentile per-packet one-way delay: 1065.136 ms
Loss rate: 48.83%
-- Flow 1:
Average throughput: 12.10 Mbit/s
95th percentile per-packet one-way delay: 1050.667 ms
Loss rate: 24.69%
-- Flow 2:
Average throughput: 1.91 Mbit/s
95th percentile per-packet one-way delay: 1124.026 ms
Loss rate: 82.40%
-- Flow 3:
Average throughput: 2.77 Mbit/s
95th percentile per-packet one-way delay: 1158.150 ms
Loss rate: 83.04%
```

Run 2: Report of PCC-Allegro — Data Link

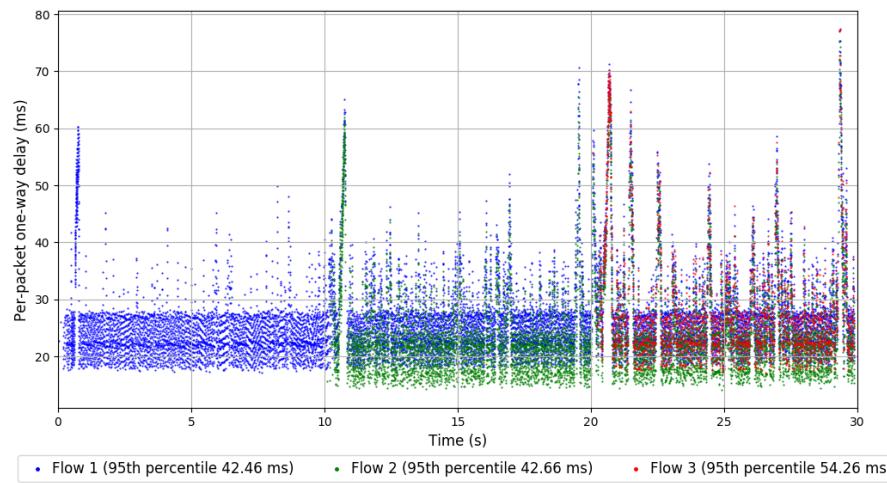
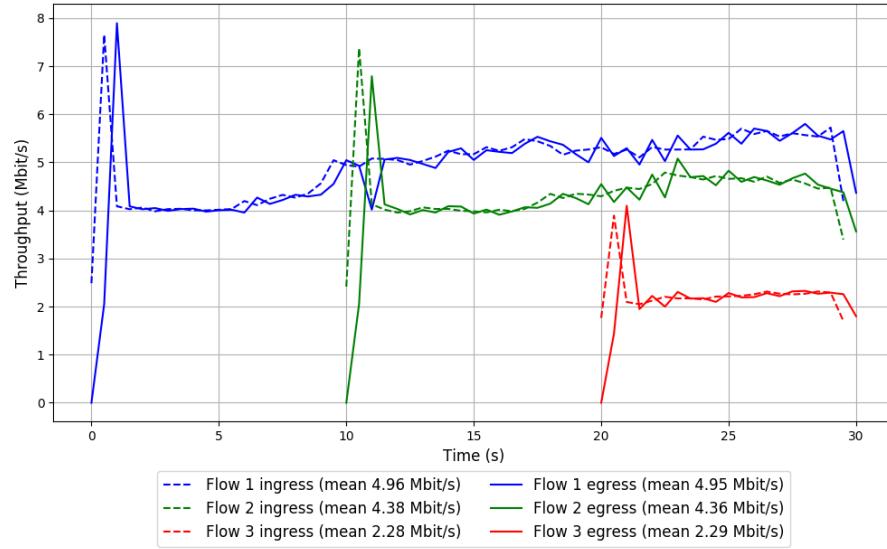


Run 3: Statistics of PCC-Allegro

```
Start at: 2019-01-18 23:20:30
End at: 2019-01-18 23:21:00
Local clock offset: 0.909 ms
Remote clock offset: -5.772 ms

# Below is generated by plot.py at 2019-01-18 23:36:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.59 Mbit/s
95th percentile per-packet one-way delay: 43.775 ms
Loss rate: 0.40%
-- Flow 1:
Average throughput: 4.95 Mbit/s
95th percentile per-packet one-way delay: 42.461 ms
Loss rate: 0.37%
-- Flow 2:
Average throughput: 4.36 Mbit/s
95th percentile per-packet one-way delay: 42.659 ms
Loss rate: 0.51%
-- Flow 3:
Average throughput: 2.29 Mbit/s
95th percentile per-packet one-way delay: 54.263 ms
Loss rate: 0.13%
```

Run 3: Report of PCC-Allegro — Data Link

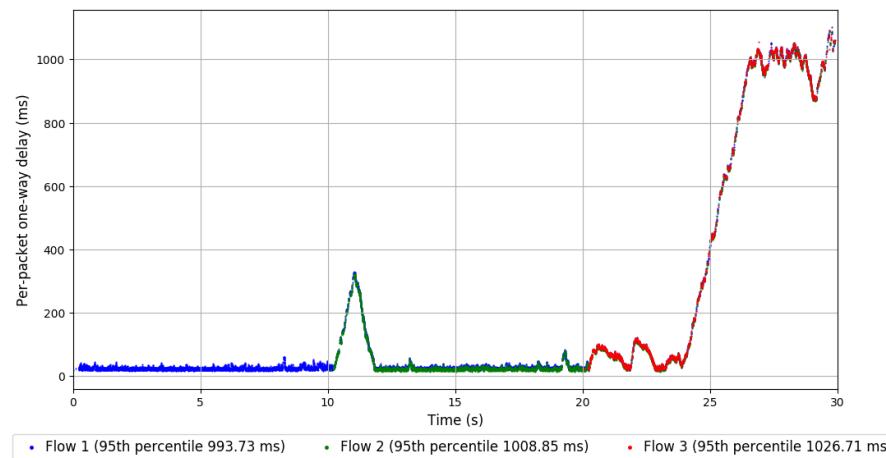
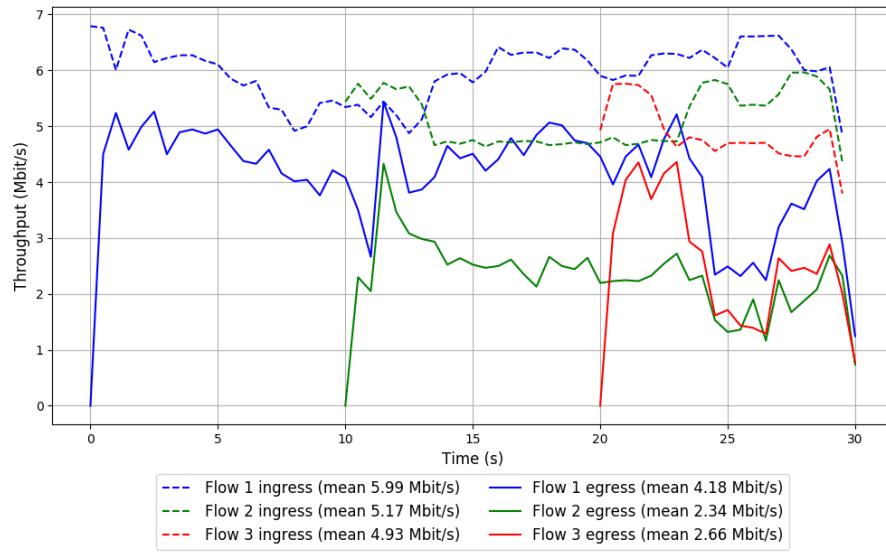


```
Run 1: Statistics of PCC-Expr
```

```
Start at: 2019-01-18 22:32:06
End at: 2019-01-18 22:32:36
Local clock offset: 1.853 ms
Remote clock offset: -5.109 ms

# Below is generated by plot.py at 2019-01-18 23:36:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 6.61 Mbit/s
95th percentile per-packet one-way delay: 1008.150 ms
Loss rate: 40.22%
-- Flow 1:
Average throughput: 4.18 Mbit/s
95th percentile per-packet one-way delay: 993.728 ms
Loss rate: 30.29%
-- Flow 2:
Average throughput: 2.34 Mbit/s
95th percentile per-packet one-way delay: 1008.850 ms
Loss rate: 54.72%
-- Flow 3:
Average throughput: 2.66 Mbit/s
95th percentile per-packet one-way delay: 1026.709 ms
Loss rate: 46.12%
```

Run 1: Report of PCC-Expr — Data Link

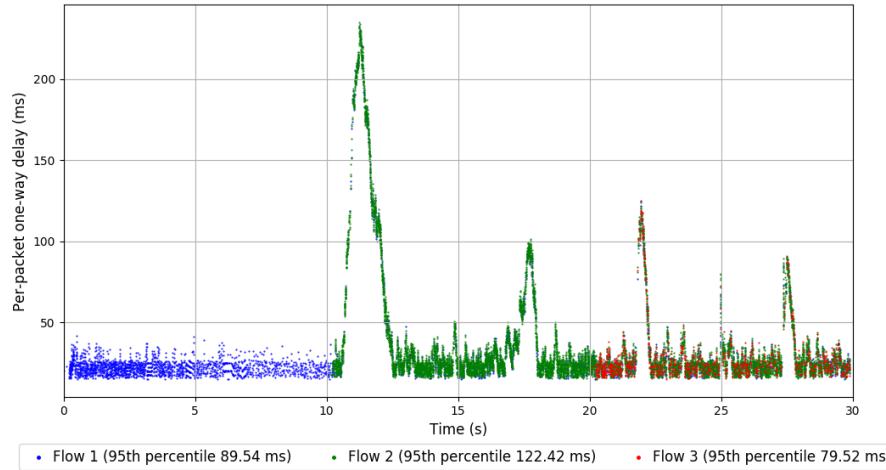
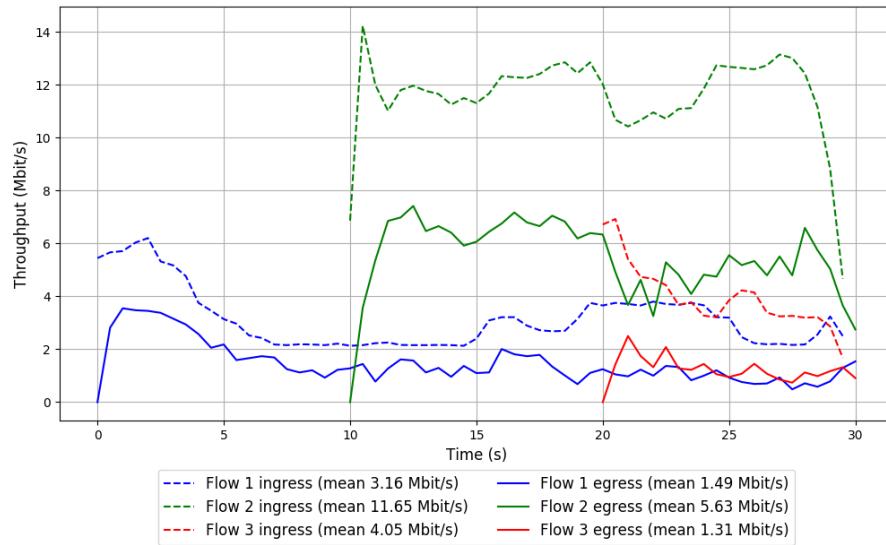


Run 2: Statistics of PCC-Expr

```
Start at: 2019-01-18 22:57:03
End at: 2019-01-18 22:57:33
Local clock offset: 1.377 ms
Remote clock offset: -5.07 ms

# Below is generated by plot.py at 2019-01-18 23:36:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.66 Mbit/s
95th percentile per-packet one-way delay: 111.761 ms
Loss rate: 53.78%
-- Flow 1:
Average throughput: 1.49 Mbit/s
95th percentile per-packet one-way delay: 89.541 ms
Loss rate: 52.81%
-- Flow 2:
Average throughput: 5.63 Mbit/s
95th percentile per-packet one-way delay: 122.420 ms
Loss rate: 51.76%
-- Flow 3:
Average throughput: 1.31 Mbit/s
95th percentile per-packet one-way delay: 79.523 ms
Loss rate: 67.79%
```

Run 2: Report of PCC-Expr — Data Link

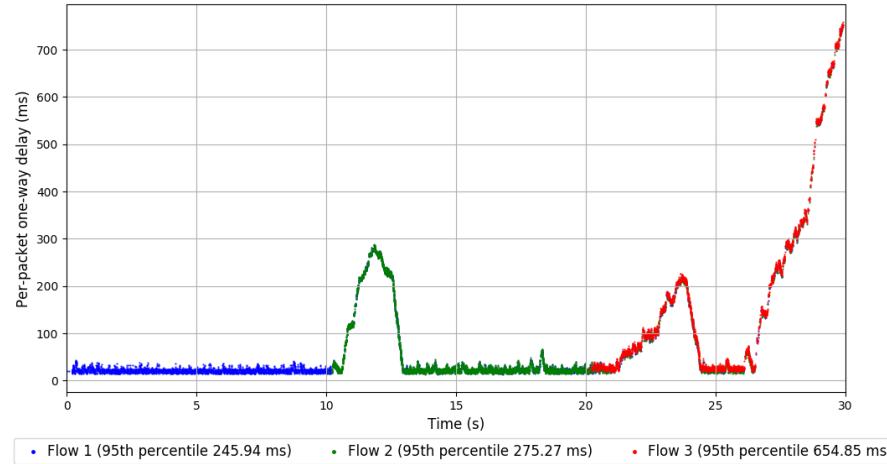
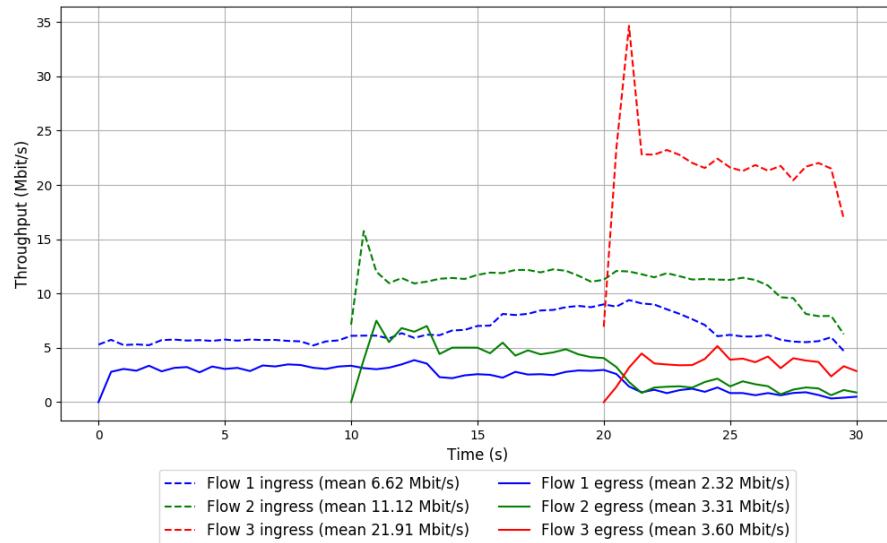


Run 3: Statistics of PCC-Expr

```
Start at: 2019-01-18 23:21:41
End at: 2019-01-18 23:22:11
Local clock offset: 1.043 ms
Remote clock offset: -5.816 ms

# Below is generated by plot.py at 2019-01-18 23:36:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 5.70 Mbit/s
95th percentile per-packet one-way delay: 311.280 ms
Loss rate: 73.19%
-- Flow 1:
Average throughput: 2.32 Mbit/s
95th percentile per-packet one-way delay: 245.939 ms
Loss rate: 65.05%
-- Flow 2:
Average throughput: 3.31 Mbit/s
95th percentile per-packet one-way delay: 275.273 ms
Loss rate: 70.31%
-- Flow 3:
Average throughput: 3.60 Mbit/s
95th percentile per-packet one-way delay: 654.845 ms
Loss rate: 83.58%
```

Run 3: Report of PCC-Expr — Data Link

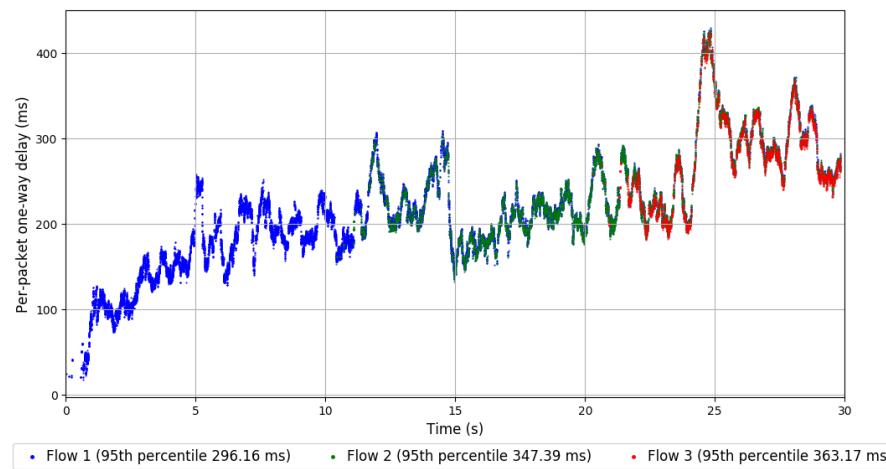
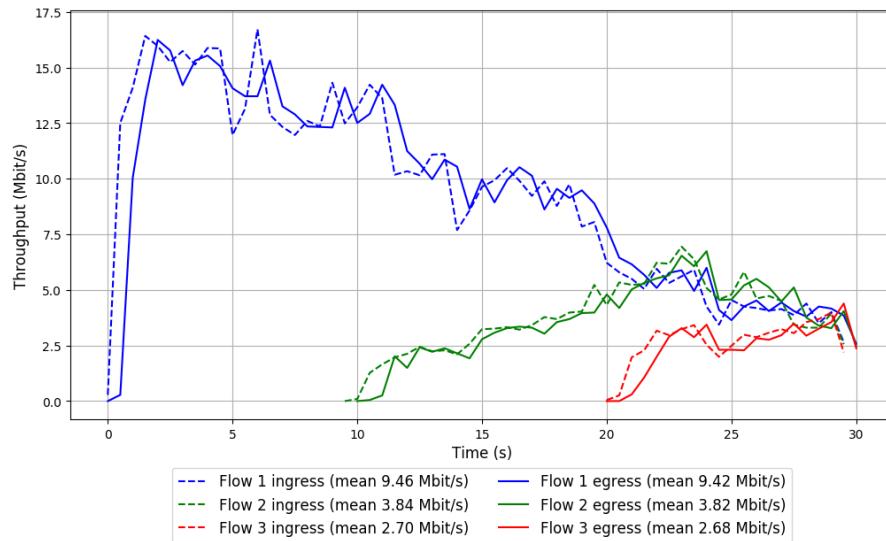


```
Run 1: Statistics of QUIC Cubic

Start at: 2019-01-18 22:37:56
End at: 2019-01-18 22:38:26
Local clock offset: 1.722 ms
Remote clock offset: -5.523 ms

# Below is generated by plot.py at 2019-01-18 23:36:40
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.80 Mbit/s
95th percentile per-packet one-way delay: 324.292 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 9.42 Mbit/s
95th percentile per-packet one-way delay: 296.163 ms
Loss rate: 0.47%
-- Flow 2:
Average throughput: 3.82 Mbit/s
95th percentile per-packet one-way delay: 347.387 ms
Loss rate: 1.45%
-- Flow 3:
Average throughput: 2.68 Mbit/s
95th percentile per-packet one-way delay: 363.174 ms
Loss rate: 3.20%
```

Run 1: Report of QUIC Cubic — Data Link

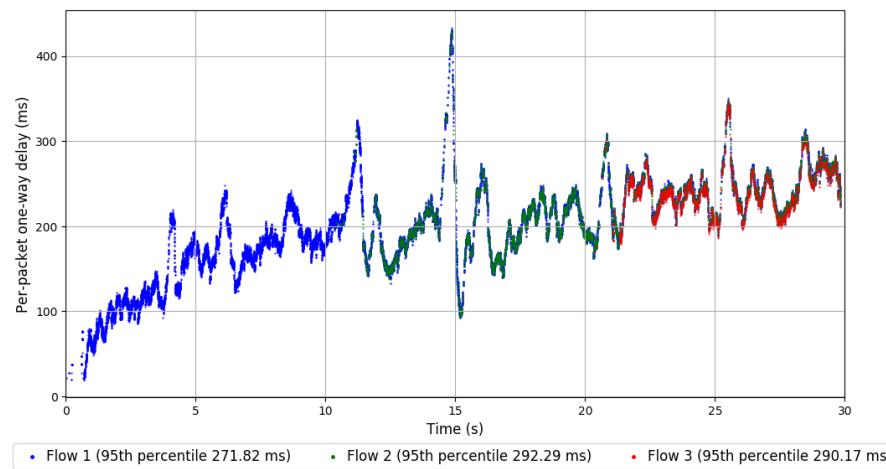
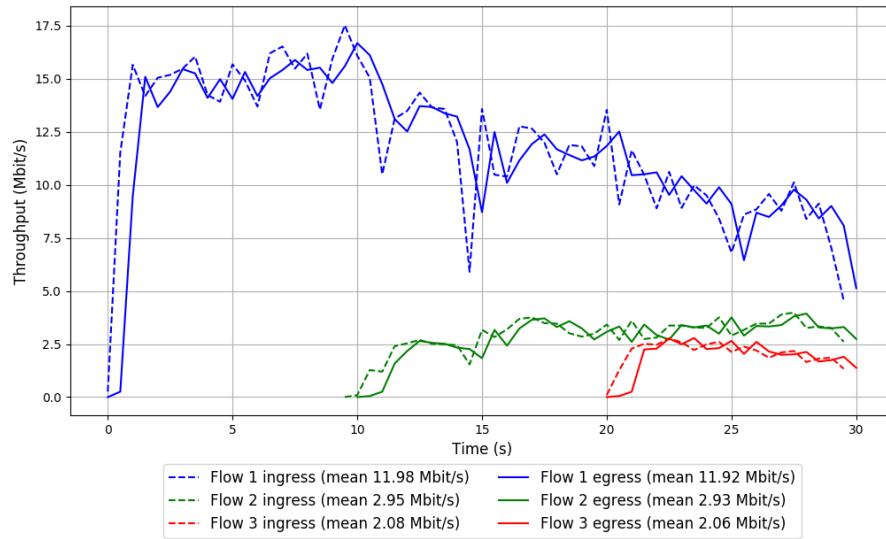


Run 2: Statistics of QUIC Cubic

```
Start at: 2019-01-18 23:02:56
End at: 2019-01-18 23:03:26
Local clock offset: 0.334 ms
Remote clock offset: -5.028 ms

# Below is generated by plot.py at 2019-01-18 23:36:46
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.52 Mbit/s
95th percentile per-packet one-way delay: 274.740 ms
Loss rate: 0.76%
-- Flow 1:
Average throughput: 11.92 Mbit/s
95th percentile per-packet one-way delay: 271.824 ms
Loss rate: 0.51%
-- Flow 2:
Average throughput: 2.93 Mbit/s
95th percentile per-packet one-way delay: 292.285 ms
Loss rate: 1.60%
-- Flow 3:
Average throughput: 2.06 Mbit/s
95th percentile per-packet one-way delay: 290.168 ms
Loss rate: 2.61%
```

Run 2: Report of QUIC Cubic — Data Link

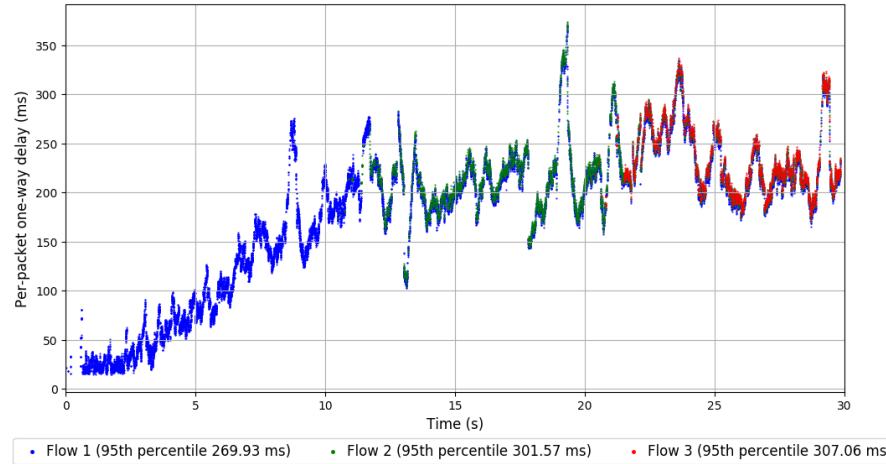
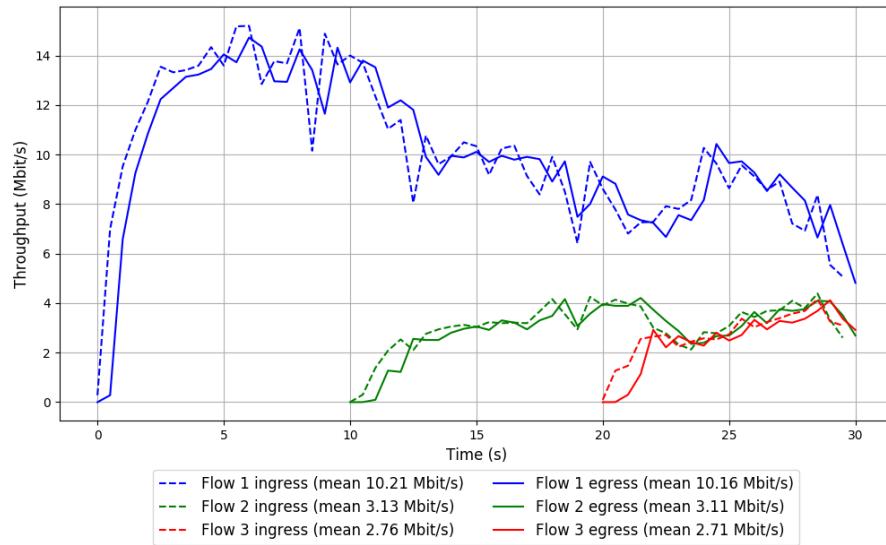


Run 3: Statistics of QUIC Cubic

```
Start at: 2019-01-18 23:27:37
End at: 2019-01-18 23:28:07
Local clock offset: 2.143 ms
Remote clock offset: -4.71 ms

# Below is generated by plot.py at 2019-01-18 23:36:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.05 Mbit/s
95th percentile per-packet one-way delay: 277.637 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 10.16 Mbit/s
95th percentile per-packet one-way delay: 269.926 ms
Loss rate: 0.55%
-- Flow 2:
Average throughput: 3.11 Mbit/s
95th percentile per-packet one-way delay: 301.567 ms
Loss rate: 1.52%
-- Flow 3:
Average throughput: 2.71 Mbit/s
95th percentile per-packet one-way delay: 307.060 ms
Loss rate: 3.55%
```

Run 3: Report of QUIC Cubic — Data Link

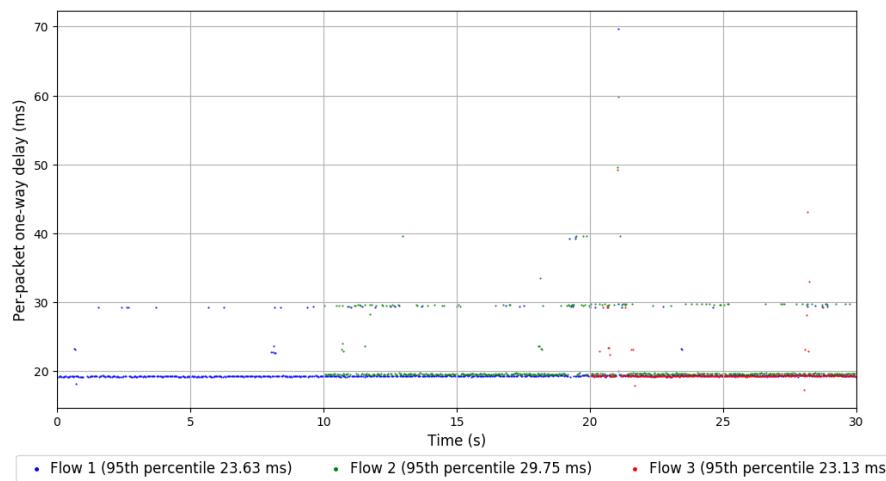
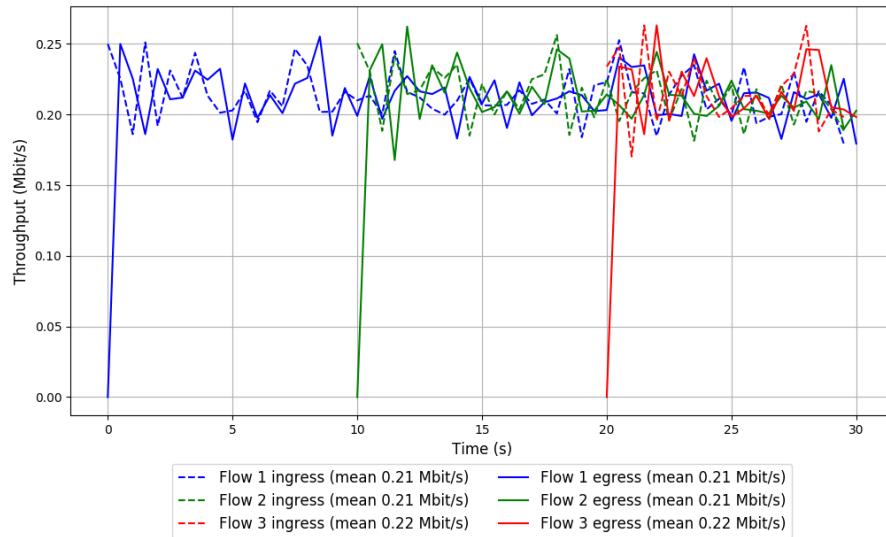


Run 1: Statistics of SCReAM

```
Start at: 2019-01-18 22:41:26
End at: 2019-01-18 22:41:56
Local clock offset: 1.813 ms
Remote clock offset: -5.004 ms

# Below is generated by plot.py at 2019-01-18 23:36:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 29.592 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 23.632 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 29.750 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 23.129 ms
Loss rate: 0.00%
```

Run 1: Report of SCReAM — Data Link

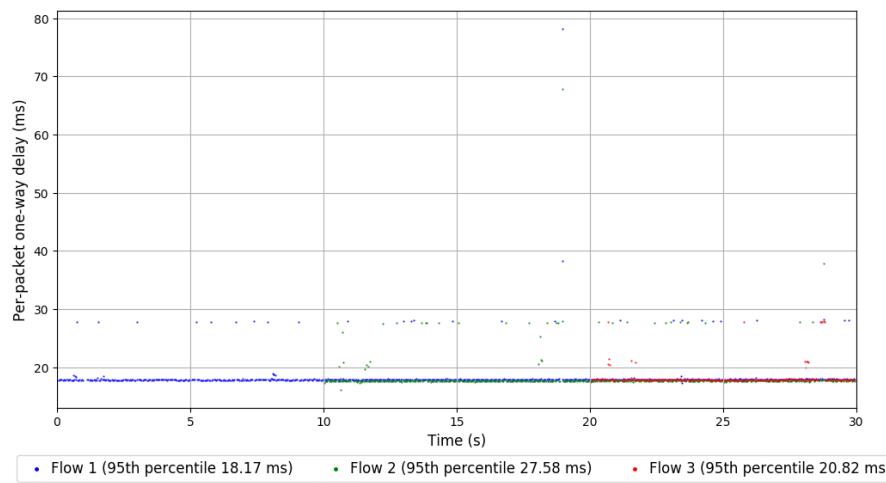
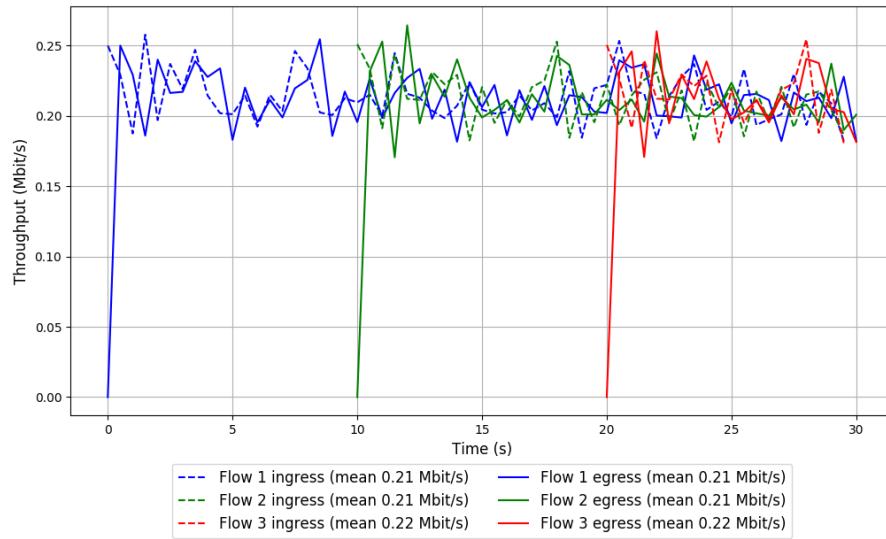


Run 2: Statistics of SCReAM

```
Start at: 2019-01-18 23:06:26
End at: 2019-01-18 23:06:56
Local clock offset: 2.791 ms
Remote clock offset: -5.544 ms

# Below is generated by plot.py at 2019-01-18 23:36:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 20.551 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 18.170 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 27.577 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 20.819 ms
Loss rate: 0.35%
```

Run 2: Report of SCReAM — Data Link

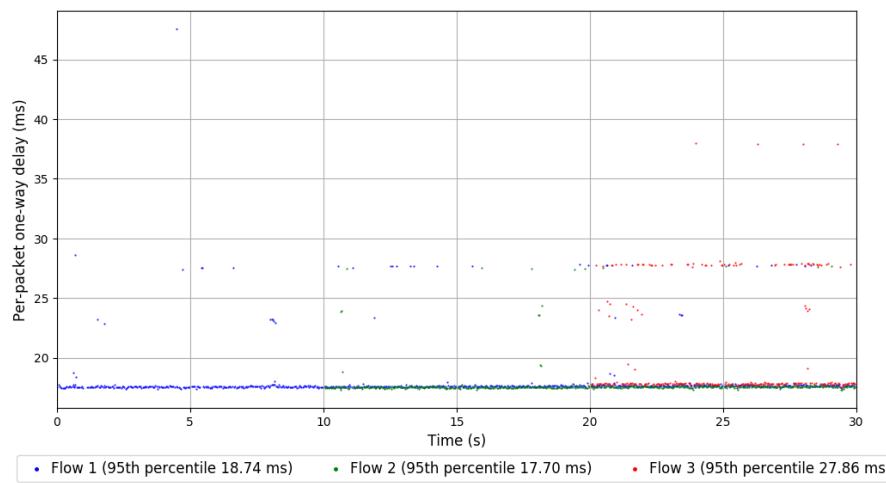
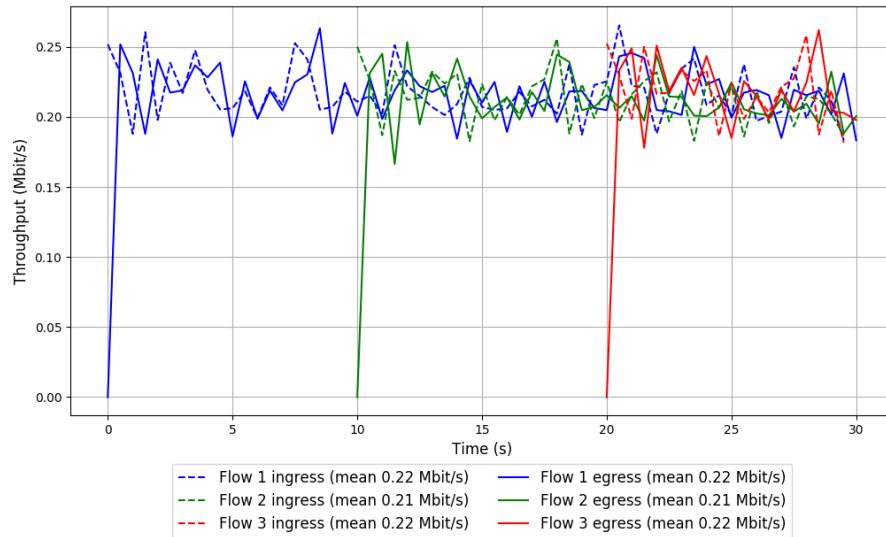


Run 3: Statistics of SCReAM

```
Start at: 2019-01-18 23:31:10
End at: 2019-01-18 23:31:40
Local clock offset: 2.449 ms
Remote clock offset: -5.04 ms

# Below is generated by plot.py at 2019-01-18 23:36:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.43 Mbit/s
95th percentile per-packet one-way delay: 27.686 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 18.736 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.21 Mbit/s
95th percentile per-packet one-way delay: 17.702 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 27.855 ms
Loss rate: 0.00%
```

Run 3: Report of SCReAM — Data Link

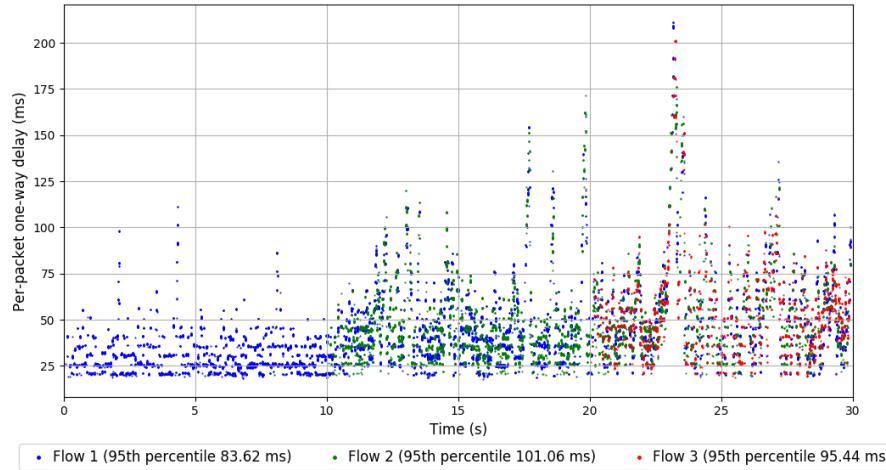
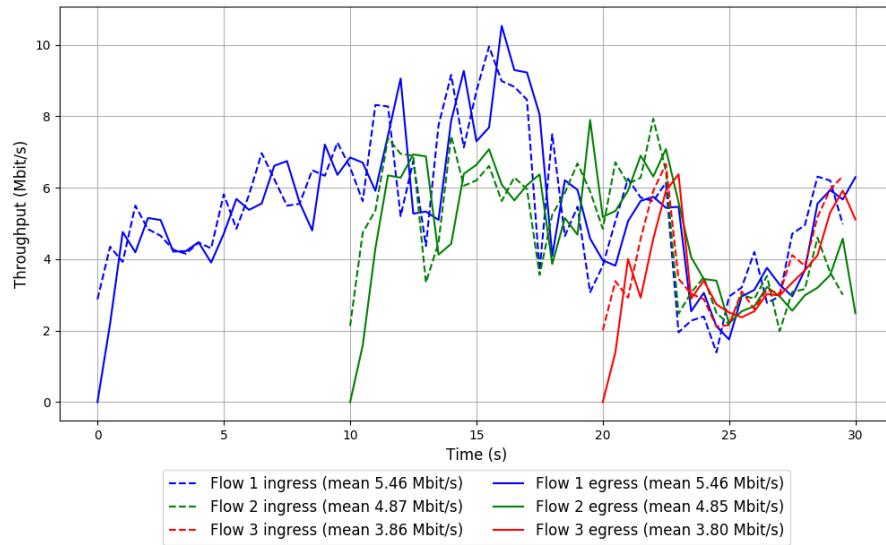


Run 1: Statistics of Sprout

```
Start at: 2019-01-18 22:42:36
End at: 2019-01-18 22:43:06
Local clock offset: 1.257 ms
Remote clock offset: -4.938 ms

# Below is generated by plot.py at 2019-01-18 23:36:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 9.94 Mbit/s
95th percentile per-packet one-way delay: 90.284 ms
Loss rate: 0.32%
-- Flow 1:
Average throughput: 5.46 Mbit/s
95th percentile per-packet one-way delay: 83.620 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 4.85 Mbit/s
95th percentile per-packet one-way delay: 101.061 ms
Loss rate: 0.35%
-- Flow 3:
Average throughput: 3.80 Mbit/s
95th percentile per-packet one-way delay: 95.441 ms
Loss rate: 1.62%
```

Run 1: Report of Sprout — Data Link

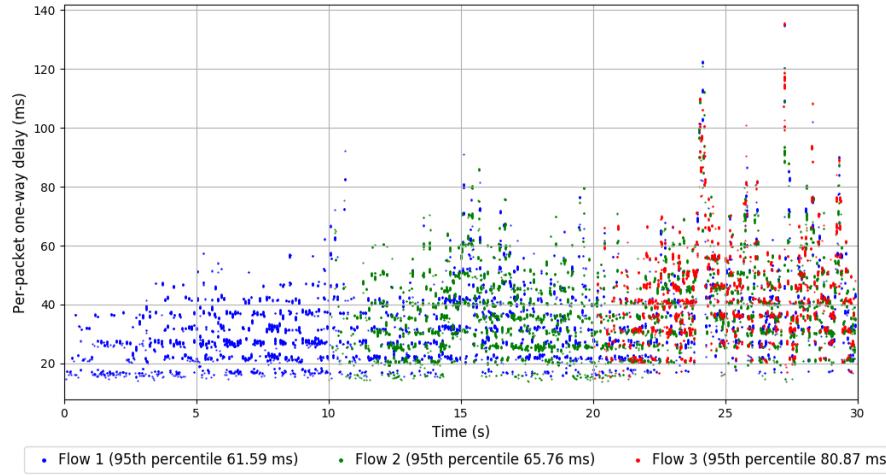
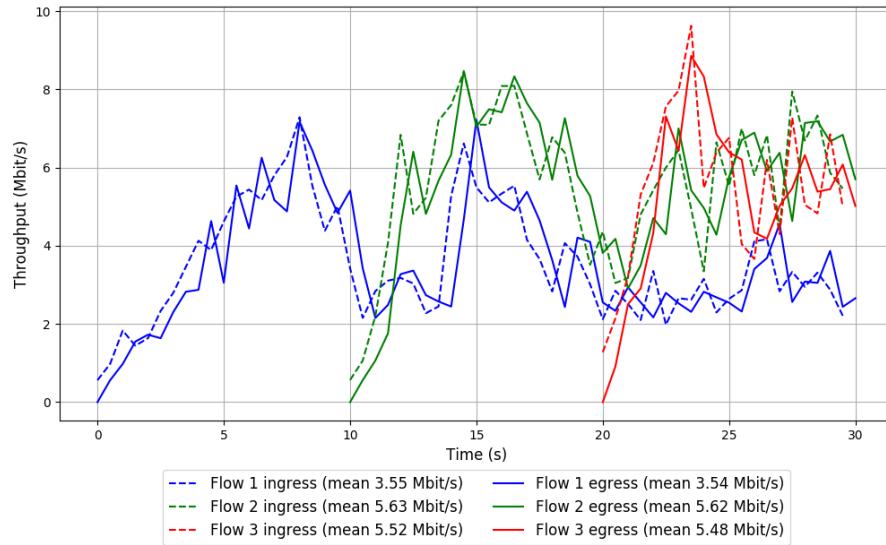


Run 2: Statistics of Sprout

```
Start at: 2019-01-18 23:07:36
End at: 2019-01-18 23:08:06
Local clock offset: 1.421 ms
Remote clock offset: -5.399 ms

# Below is generated by plot.py at 2019-01-18 23:36:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 9.09 Mbit/s
95th percentile per-packet one-way delay: 66.642 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 3.54 Mbit/s
95th percentile per-packet one-way delay: 61.592 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 5.62 Mbit/s
95th percentile per-packet one-way delay: 65.763 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 5.48 Mbit/s
95th percentile per-packet one-way delay: 80.871 ms
Loss rate: 0.69%
```

Run 2: Report of Sprout — Data Link

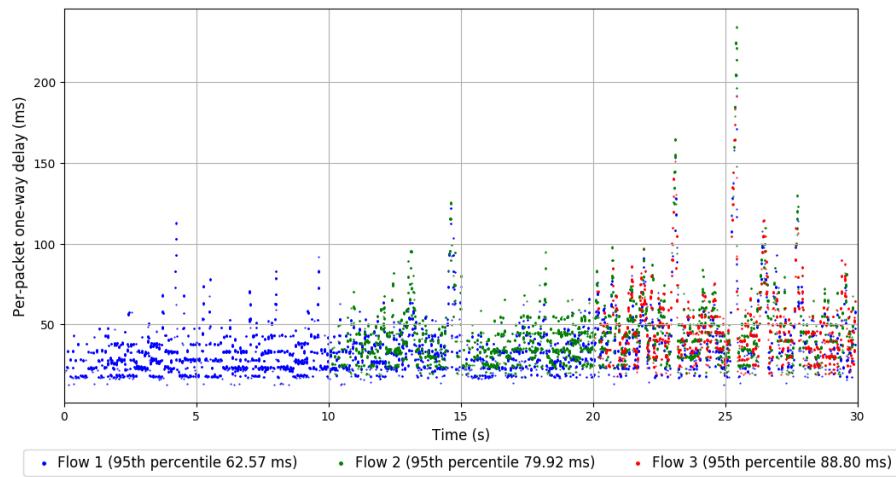
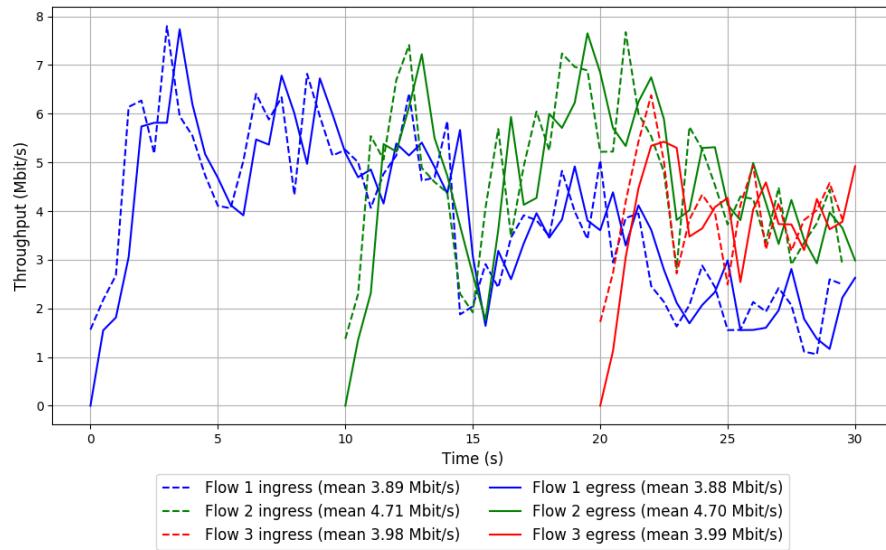


Run 3: Statistics of Sprout

```
Start at: 2019-01-18 23:32:20
End at: 2019-01-18 23:32:50
Local clock offset: 1.895 ms
Remote clock offset: -5.087 ms

# Below is generated by plot.py at 2019-01-18 23:36:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.31 Mbit/s
95th percentile per-packet one-way delay: 75.033 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 3.88 Mbit/s
95th percentile per-packet one-way delay: 62.569 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 4.70 Mbit/s
95th percentile per-packet one-way delay: 79.916 ms
Loss rate: 0.48%
-- Flow 3:
Average throughput: 3.99 Mbit/s
95th percentile per-packet one-way delay: 88.798 ms
Loss rate: 0.13%
```

Run 3: Report of Sprout — Data Link

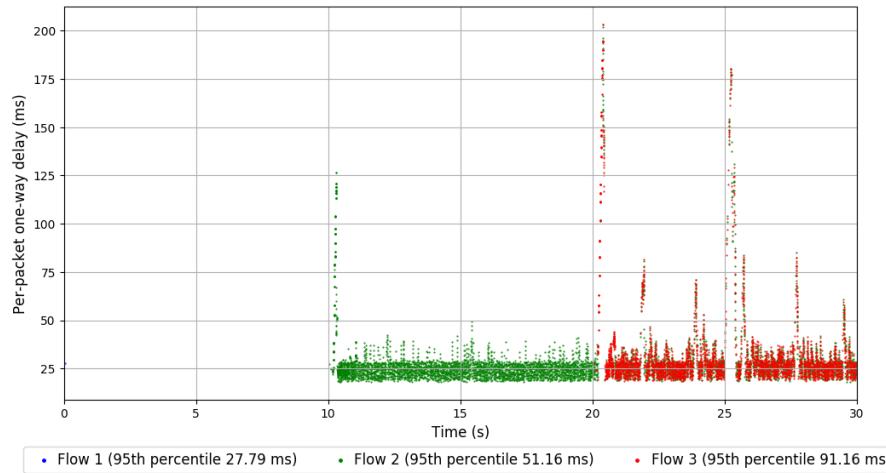
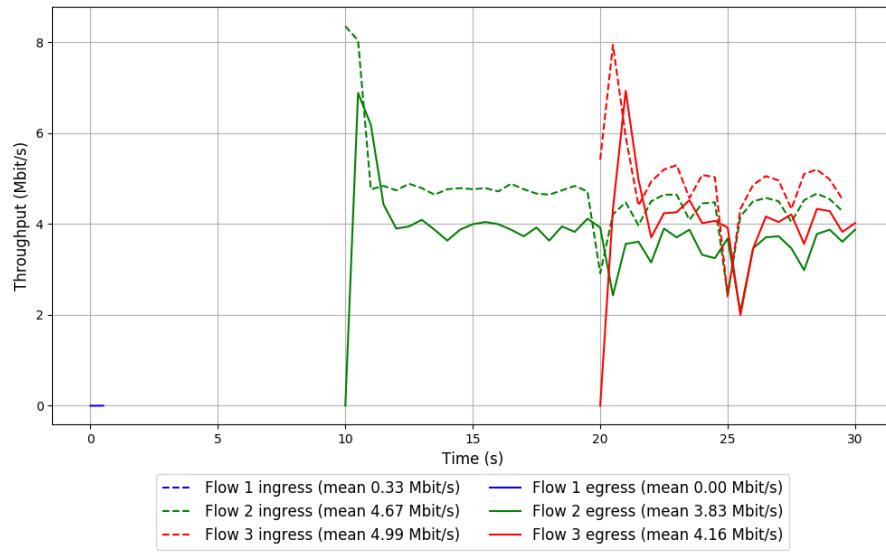


Run 1: Statistics of TaoVA-100x

```
Start at: 2019-01-18 22:22:50
End at: 2019-01-18 22:23:20
Local clock offset: 0.423 ms
Remote clock offset: -5.003 ms

# Below is generated by plot.py at 2019-01-18 23:36:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.93 Mbit/s
95th percentile per-packet one-way delay: 65.432 ms
Loss rate: 17.67%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 27.793 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 3.83 Mbit/s
95th percentile per-packet one-way delay: 51.156 ms
Loss rate: 18.14%
-- Flow 3:
Average throughput: 4.16 Mbit/s
95th percentile per-packet one-way delay: 91.158 ms
Loss rate: 16.75%
```

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

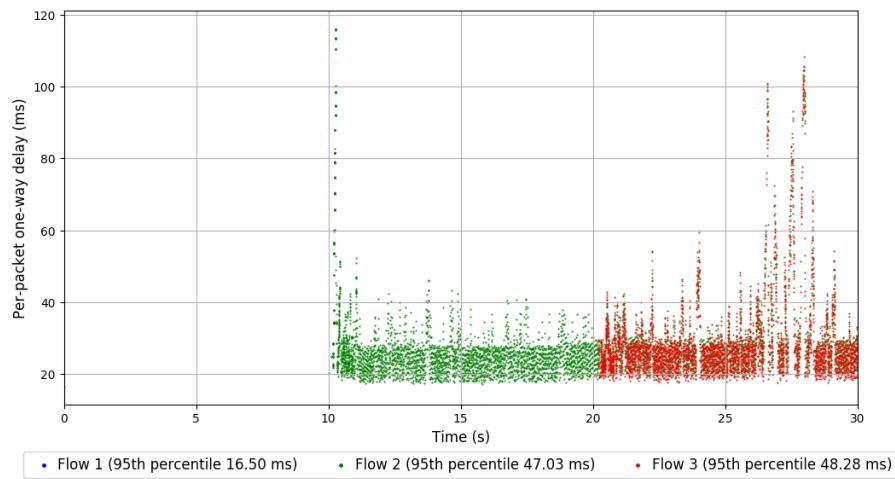
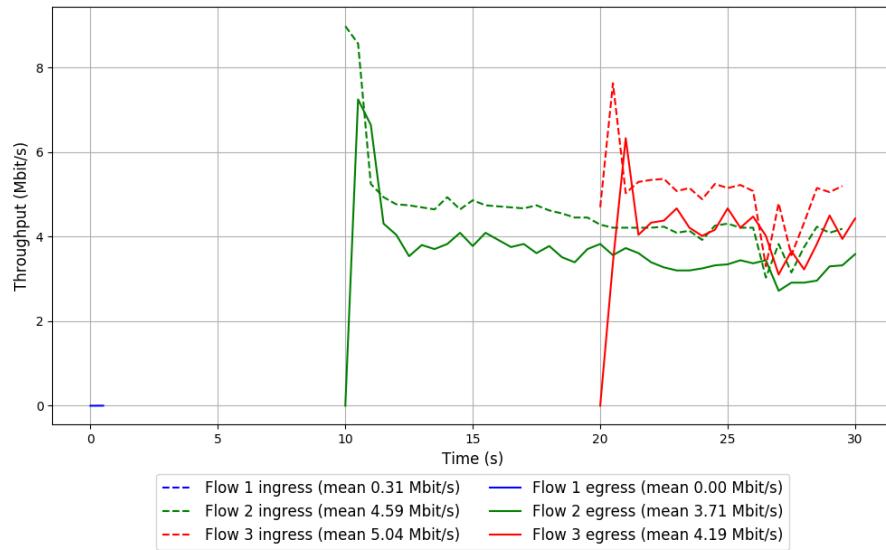


Run 2: Statistics of TaoVA-100x

```
Start at: 2019-01-18 22:47:33
End at: 2019-01-18 22:48:03
Local clock offset: 1.989 ms
Remote clock offset: -5.321 ms

# Below is generated by plot.py at 2019-01-18 23:36:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 3.87 Mbit/s
95th percentile per-packet one-way delay: 47.553 ms
Loss rate: 18.37%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 16.505 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 3.71 Mbit/s
95th percentile per-packet one-way delay: 47.028 ms
Loss rate: 19.18%
-- Flow 3:
Average throughput: 4.19 Mbit/s
95th percentile per-packet one-way delay: 48.282 ms
Loss rate: 16.85%
```

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

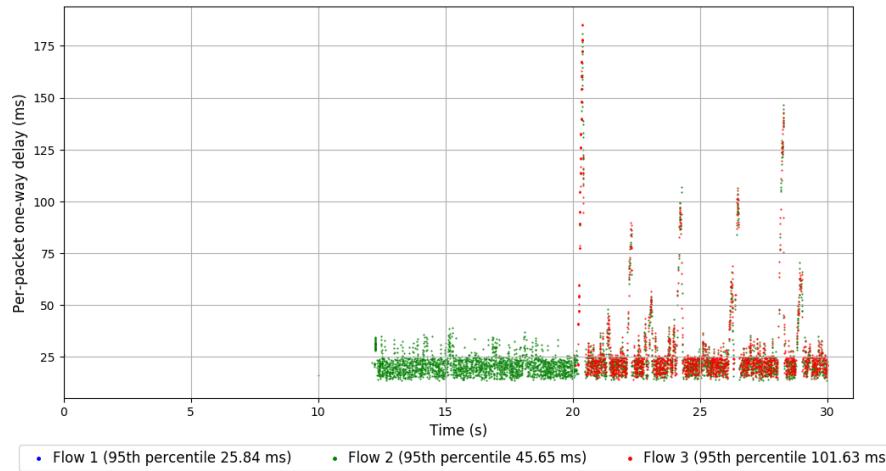
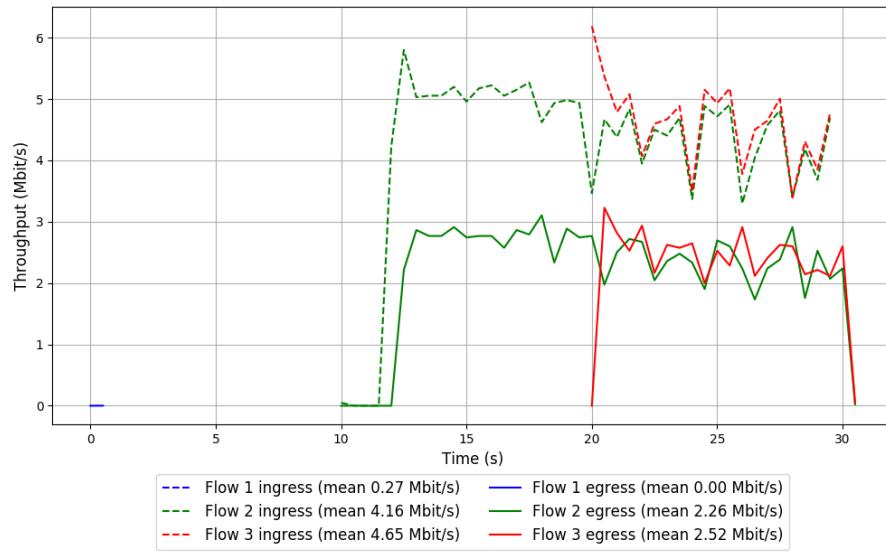


Run 3: Statistics of TaoVA-100x

```
Start at: 2019-01-18 23:12:15
End at: 2019-01-18 23:12:45
Local clock offset: 2.438 ms
Remote clock offset: -5.34 ms

# Below is generated by plot.py at 2019-01-18 23:36:48
# Datalink statistics
-- Total of 3 flows:
Average throughput: 2.34 Mbit/s
95th percentile per-packet one-way delay: 67.856 ms
Loss rate: 45.77%
-- Flow 1:
Average throughput: 0.00 Mbit/s
95th percentile per-packet one-way delay: 25.845 ms
Loss rate: 95.92%
-- Flow 2:
Average throughput: 2.26 Mbit/s
95th percentile per-packet one-way delay: 45.649 ms
Loss rate: 45.68%
-- Flow 3:
Average throughput: 2.52 Mbit/s
95th percentile per-packet one-way delay: 101.634 ms
Loss rate: 45.91%
```

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

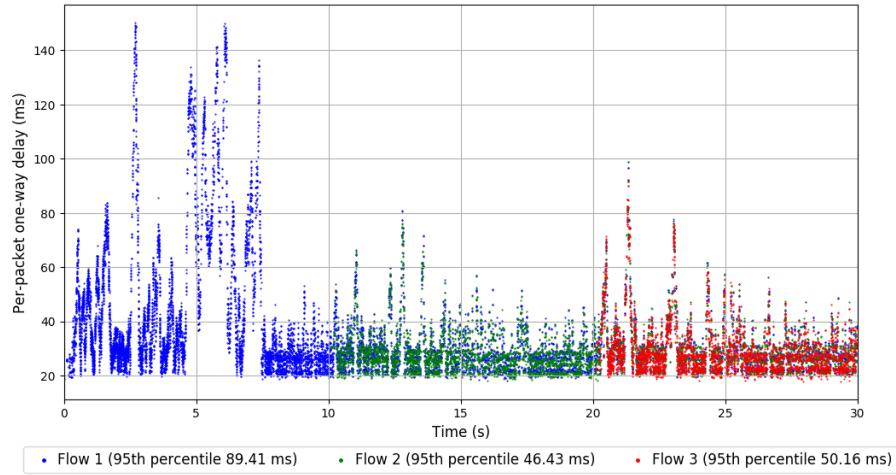
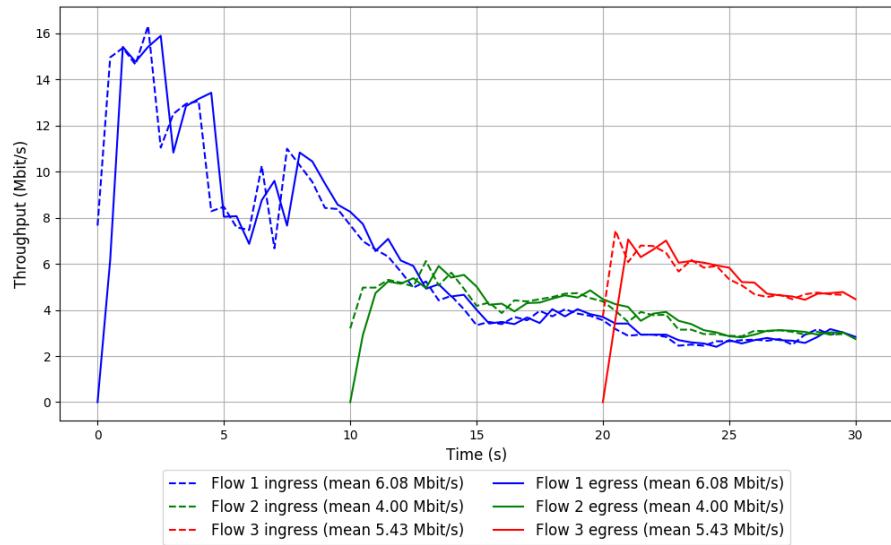


Run 1: Statistics of TCP Vegas

```
Start at: 2019-01-18 22:34:25
End at: 2019-01-18 22:34:55
Local clock offset: 1.227 ms
Remote clock offset: -5.804 ms

# Below is generated by plot.py at 2019-01-18 23:36:53
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.54 Mbit/s
95th percentile per-packet one-way delay: 72.423 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 6.08 Mbit/s
95th percentile per-packet one-way delay: 89.410 ms
Loss rate: 0.08%
-- Flow 2:
Average throughput: 4.00 Mbit/s
95th percentile per-packet one-way delay: 46.428 ms
Loss rate: 0.20%
-- Flow 3:
Average throughput: 5.43 Mbit/s
95th percentile per-packet one-way delay: 50.165 ms
Loss rate: 0.35%
```

Run 1: Report of TCP Vegas — Data Link

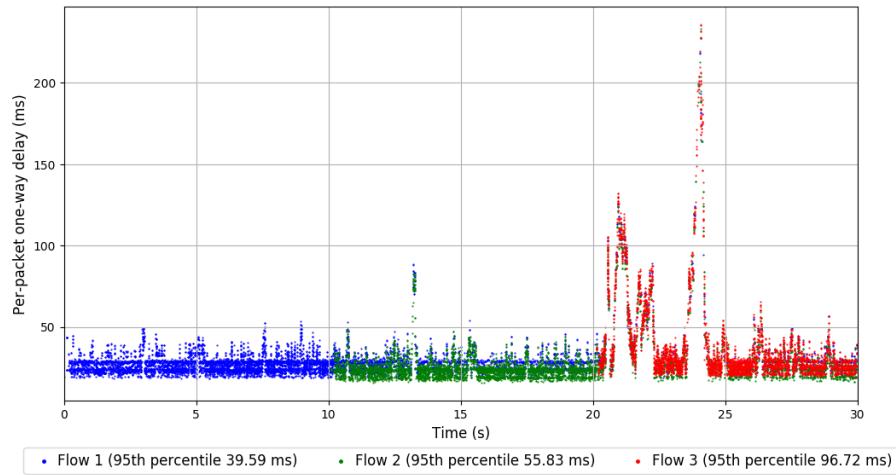
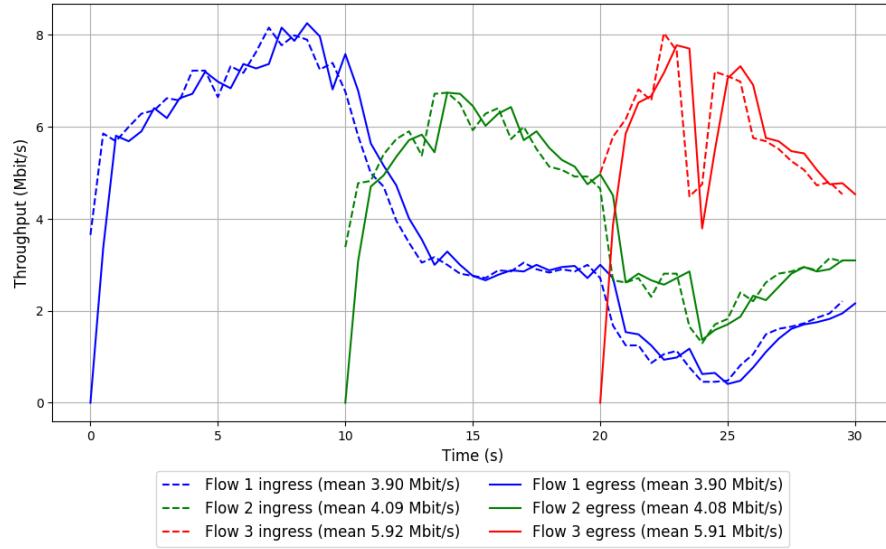


Run 2: Statistics of TCP Vegas

```
Start at: 2019-01-18 22:59:24
End at: 2019-01-18 22:59:54
Local clock offset: 1.123 ms
Remote clock offset: -5.305 ms

# Below is generated by plot.py at 2019-01-18 23:36:54
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.58 Mbit/s
95th percentile per-packet one-way delay: 65.571 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 3.90 Mbit/s
95th percentile per-packet one-way delay: 39.592 ms
Loss rate: 0.06%
-- Flow 2:
Average throughput: 4.08 Mbit/s
95th percentile per-packet one-way delay: 55.832 ms
Loss rate: 0.12%
-- Flow 3:
Average throughput: 5.91 Mbit/s
95th percentile per-packet one-way delay: 96.715 ms
Loss rate: 0.24%
```

Run 2: Report of TCP Vegas — Data Link

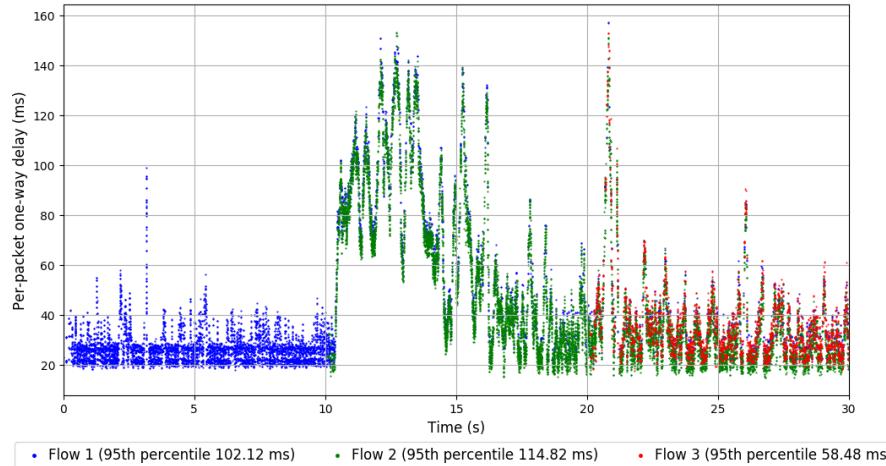
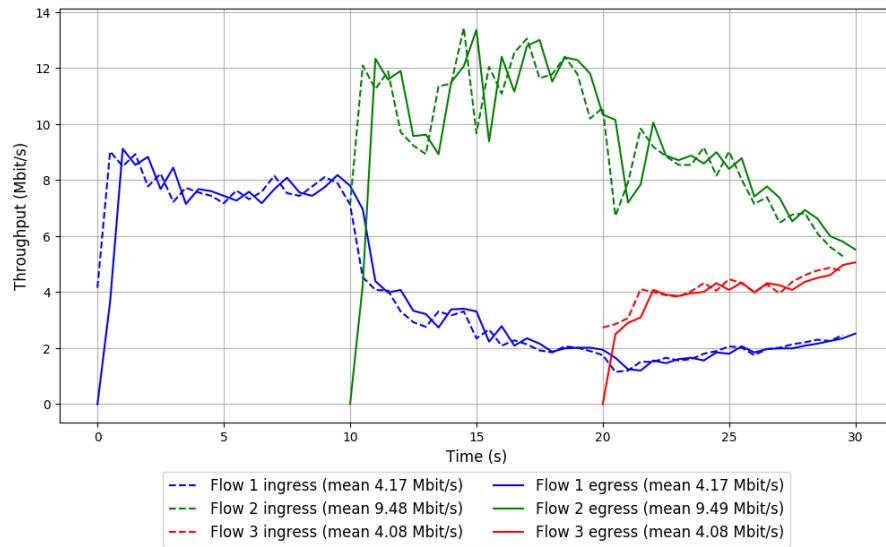


Run 3: Statistics of TCP Vegas

```
Start at: 2019-01-18 23:24:05
End at: 2019-01-18 23:24:35
Local clock offset: 0.86 ms
Remote clock offset: -5.592 ms

# Below is generated by plot.py at 2019-01-18 23:37:00
# Datalink statistics
-- Total of 3 flows:
Average throughput: 11.84 Mbit/s
95th percentile per-packet one-way delay: 107.083 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 4.17 Mbit/s
95th percentile per-packet one-way delay: 102.117 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 9.49 Mbit/s
95th percentile per-packet one-way delay: 114.817 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 4.08 Mbit/s
95th percentile per-packet one-way delay: 58.475 ms
Loss rate: 0.12%
```

Run 3: Report of TCP Vegas — Data Link

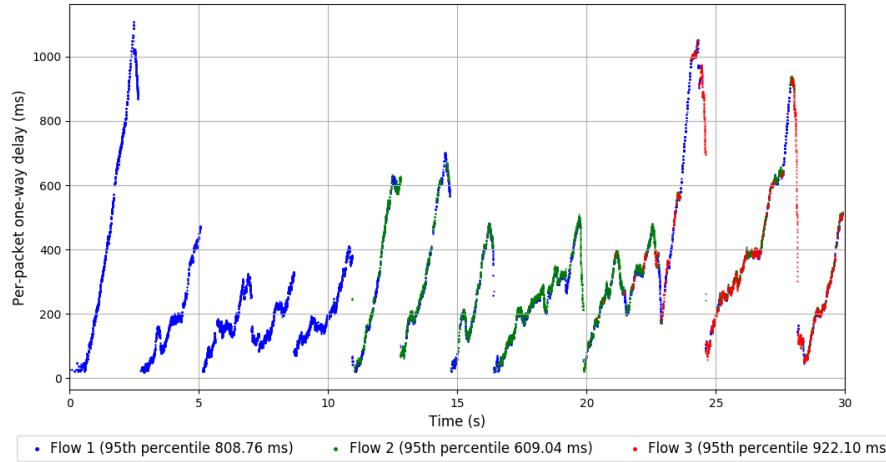
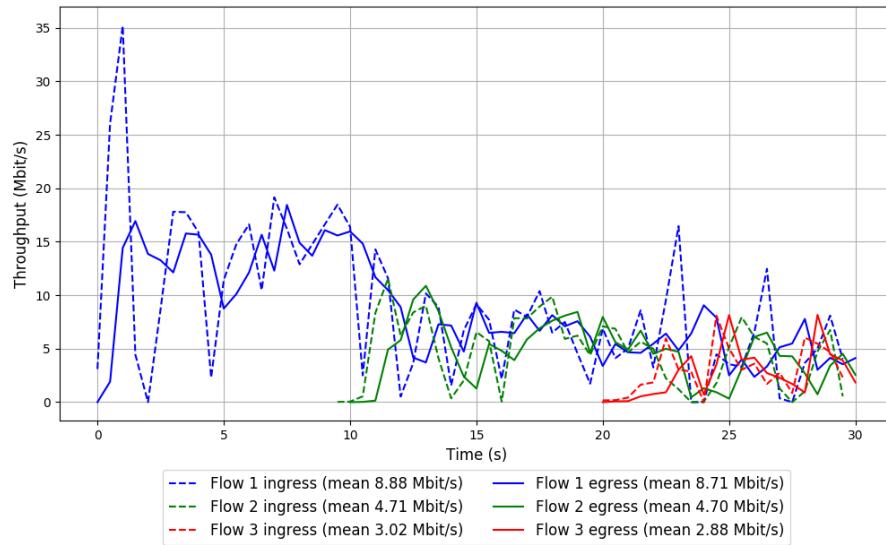


Run 1: Statistics of Verus

```
Start at: 2019-01-18 22:21:40
End at: 2019-01-18 22:22:10
Local clock offset: -0.057 ms
Remote clock offset: -4.719 ms

# Below is generated by plot.py at 2019-01-18 23:37:01
# Datalink statistics
-- Total of 3 flows:
Average throughput: 12.75 Mbit/s
95th percentile per-packet one-way delay: 791.686 ms
Loss rate: 2.05%
-- Flow 1:
Average throughput: 8.71 Mbit/s
95th percentile per-packet one-way delay: 808.765 ms
Loss rate: 1.90%
-- Flow 2:
Average throughput: 4.70 Mbit/s
95th percentile per-packet one-way delay: 609.044 ms
Loss rate: 1.30%
-- Flow 3:
Average throughput: 2.88 Mbit/s
95th percentile per-packet one-way delay: 922.104 ms
Loss rate: 5.79%
```

Run 1: Report of Verus — Data Link

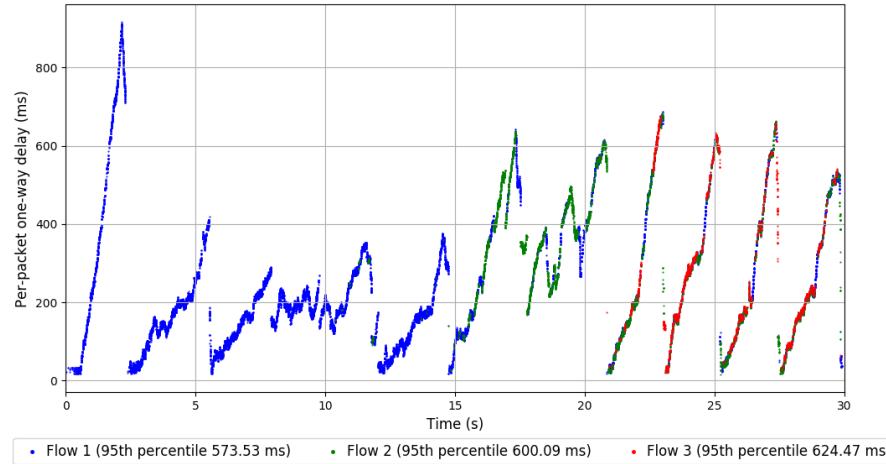
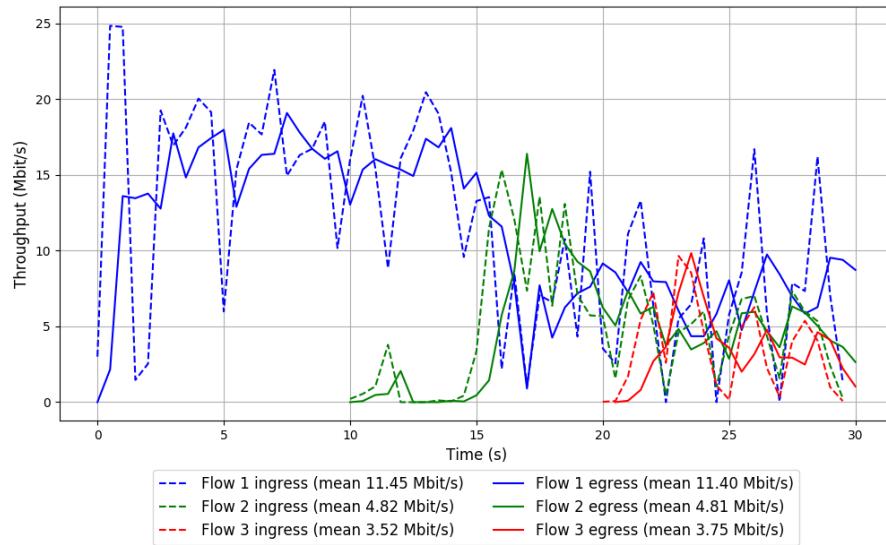


Run 2: Statistics of Verus

```
Start at: 2019-01-18 22:46:16
End at: 2019-01-18 22:46:46
Local clock offset: 1.992 ms
Remote clock offset: -5.294 ms

# Below is generated by plot.py at 2019-01-18 23:37:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 15.72 Mbit/s
95th percentile per-packet one-way delay: 591.471 ms
Loss rate: 0.59%
-- Flow 1:
Average throughput: 11.40 Mbit/s
95th percentile per-packet one-way delay: 573.535 ms
Loss rate: 0.41%
-- Flow 2:
Average throughput: 4.81 Mbit/s
95th percentile per-packet one-way delay: 600.089 ms
Loss rate: 1.36%
-- Flow 3:
Average throughput: 3.75 Mbit/s
95th percentile per-packet one-way delay: 624.467 ms
Loss rate: 0.24%
```

Run 2: Report of Verus — Data Link

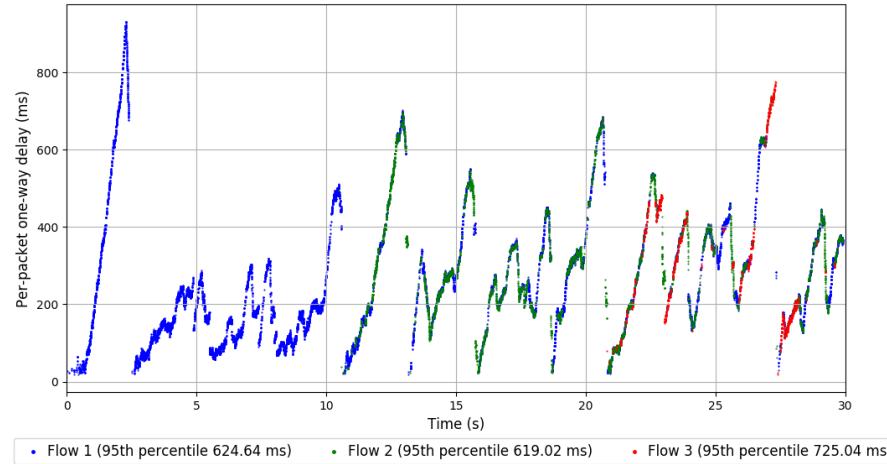
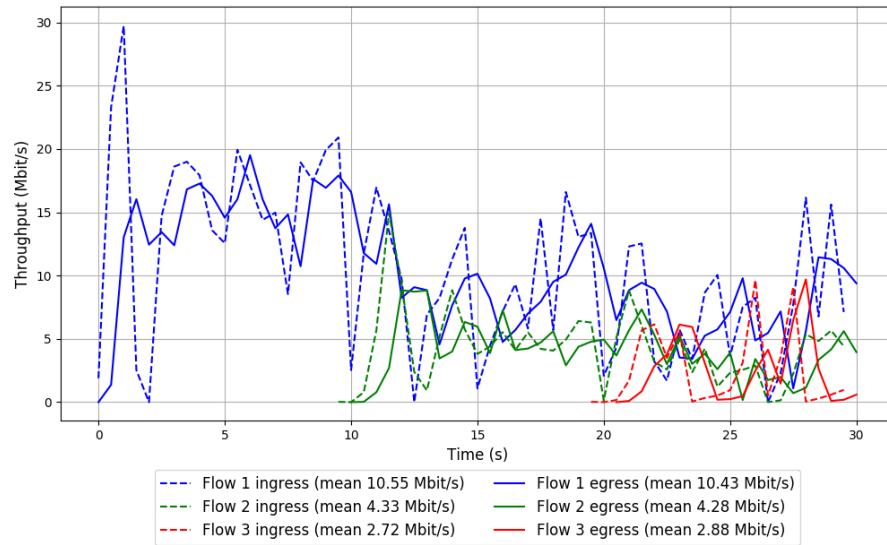


Run 3: Statistics of Verus

```
Start at: 2019-01-18 23:11:04
End at: 2019-01-18 23:11:34
Local clock offset: 0.328 ms
Remote clock offset: -5.557 ms

# Below is generated by plot.py at 2019-01-18 23:37:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 14.07 Mbit/s
95th percentile per-packet one-way delay: 632.051 ms
Loss rate: 1.73%
-- Flow 1:
Average throughput: 10.43 Mbit/s
95th percentile per-packet one-way delay: 624.636 ms
Loss rate: 1.25%
-- Flow 2:
Average throughput: 4.28 Mbit/s
95th percentile per-packet one-way delay: 619.022 ms
Loss rate: 3.41%
-- Flow 3:
Average throughput: 2.88 Mbit/s
95th percentile per-packet one-way delay: 725.042 ms
Loss rate: 1.98%
```

Run 3: Report of Verus — Data Link

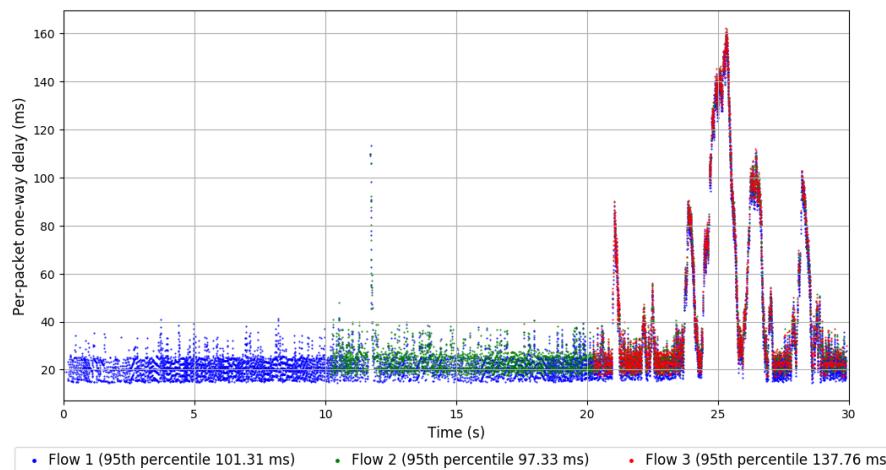
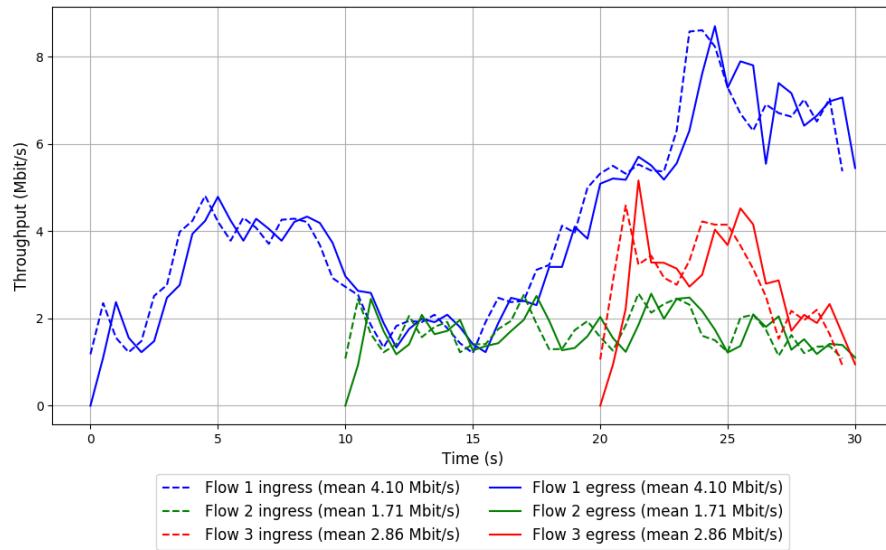


Run 1: Statistics of PCC-Vivace

```
Start at: 2019-01-18 22:33:15
End at: 2019-01-18 22:33:45
Local clock offset: 1.449 ms
Remote clock offset: -5.583 ms

# Below is generated by plot.py at 2019-01-18 23:37:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 6.18 Mbit/s
95th percentile per-packet one-way delay: 109.770 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 4.10 Mbit/s
95th percentile per-packet one-way delay: 101.306 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 1.71 Mbit/s
95th percentile per-packet one-way delay: 97.333 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 2.86 Mbit/s
95th percentile per-packet one-way delay: 137.758 ms
Loss rate: 0.08%
```

Run 1: Report of PCC-Vivace — Data Link

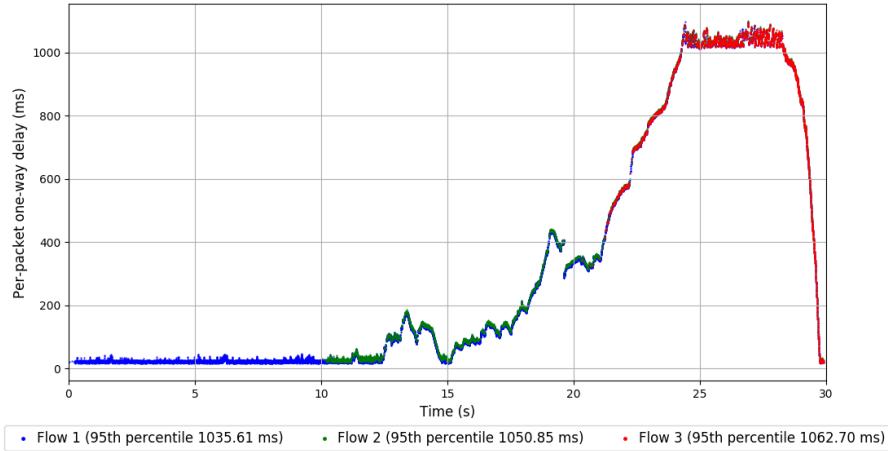
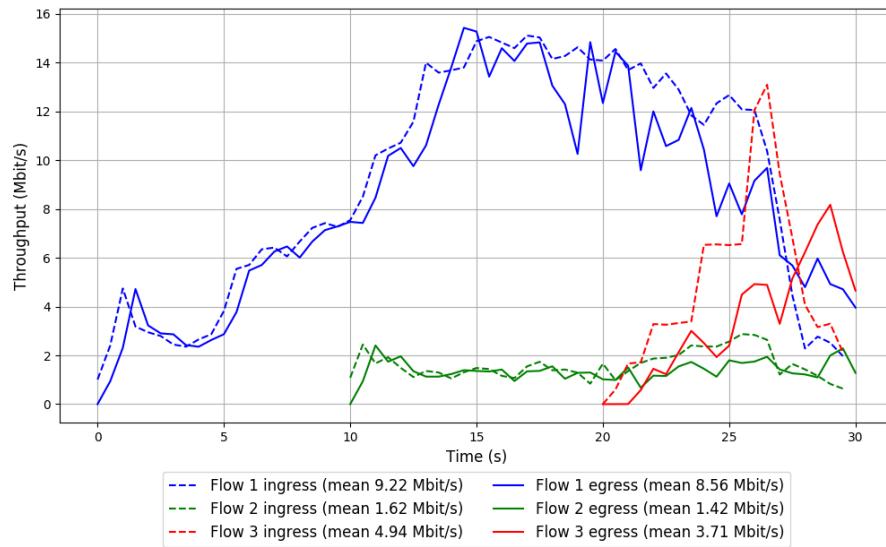


Run 2: Statistics of PCC-Vivace

```
Start at: 2019-01-18 22:58:12
End at: 2019-01-18 22:58:42
Local clock offset: 0.834 ms
Remote clock offset: -5.061 ms

# Below is generated by plot.py at 2019-01-18 23:37:02
# Datalink statistics
-- Total of 3 flows:
Average throughput: 10.68 Mbit/s
95th percentile per-packet one-way delay: 1045.422 ms
Loss rate: 10.48%
-- Flow 1:
Average throughput: 8.56 Mbit/s
95th percentile per-packet one-way delay: 1035.612 ms
Loss rate: 7.20%
-- Flow 2:
Average throughput: 1.42 Mbit/s
95th percentile per-packet one-way delay: 1050.848 ms
Loss rate: 12.72%
-- Flow 3:
Average throughput: 3.71 Mbit/s
95th percentile per-packet one-way delay: 1062.699 ms
Loss rate: 27.54%
```

Run 2: Report of PCC-Vivace — Data Link

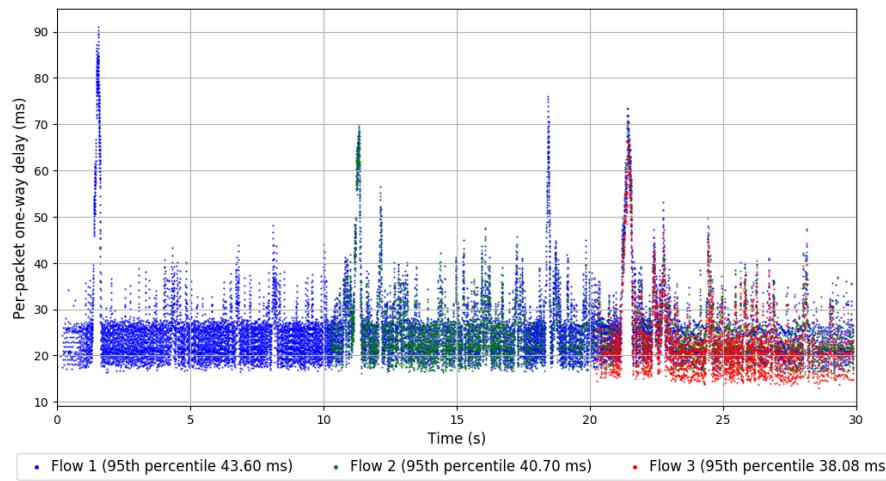
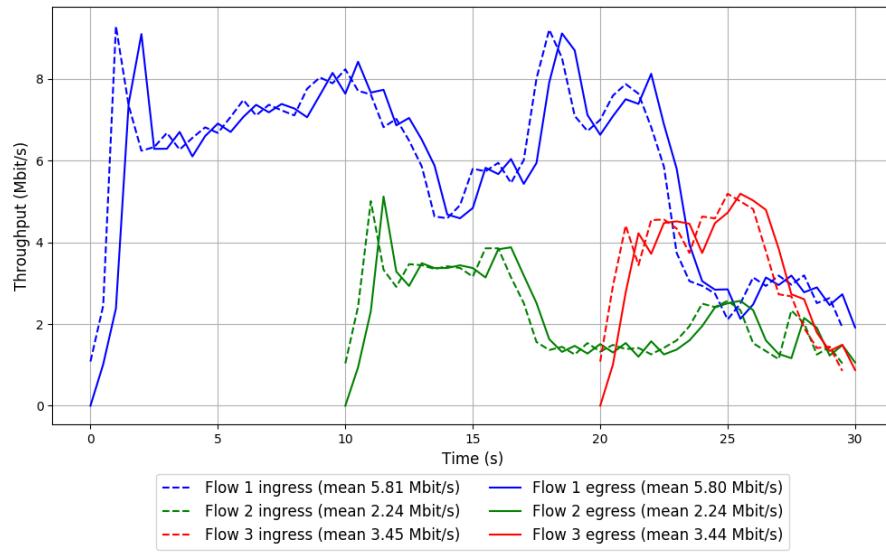


Run 3: Statistics of PCC-Vivace

```
Start at: 2019-01-18 23:22:53
End at: 2019-01-18 23:23:23
Local clock offset: 3.026 ms
Remote clock offset: -4.668 ms

# Below is generated by plot.py at 2019-01-18 23:37:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 8.42 Mbit/s
95th percentile per-packet one-way delay: 41.954 ms
Loss rate: 0.22%
-- Flow 1:
Average throughput: 5.80 Mbit/s
95th percentile per-packet one-way delay: 43.604 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 2.24 Mbit/s
95th percentile per-packet one-way delay: 40.695 ms
Loss rate: 0.36%
-- Flow 3:
Average throughput: 3.44 Mbit/s
95th percentile per-packet one-way delay: 38.081 ms
Loss rate: 0.41%
```

Run 3: Report of PCC-Vivace — Data Link

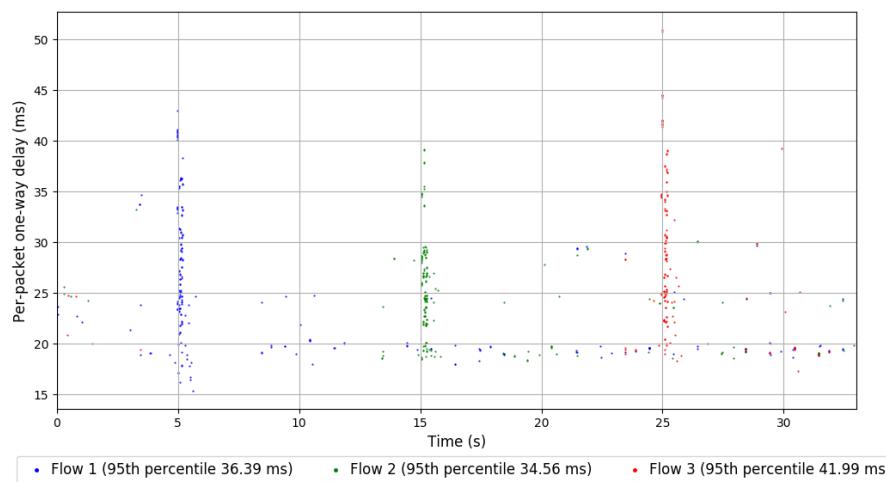
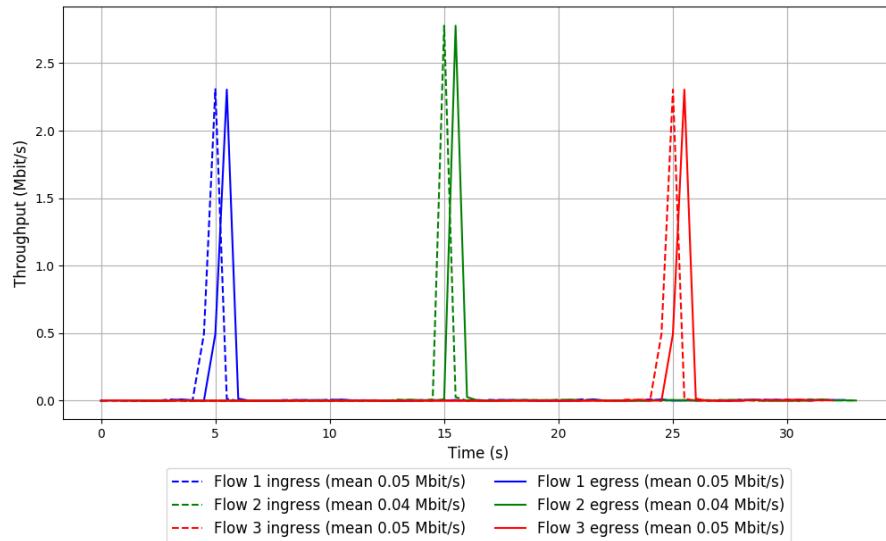


```
Run 1: Statistics of WebRTC media
```

```
Start at: 2019-01-18 22:40:18
End at: 2019-01-18 22:40:48
Local clock offset: 1.011 ms
Remote clock offset: -6.046 ms

# Below is generated by plot.py at 2019-01-18 23:37:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 38.770 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 36.390 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 34.556 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 41.993 ms
Loss rate: 0.00%
```

Run 1: Report of WebRTC media — Data Link

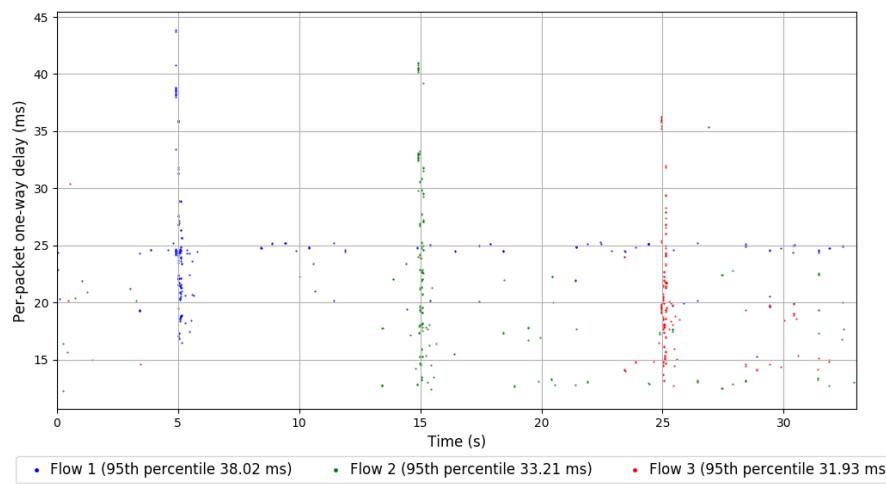
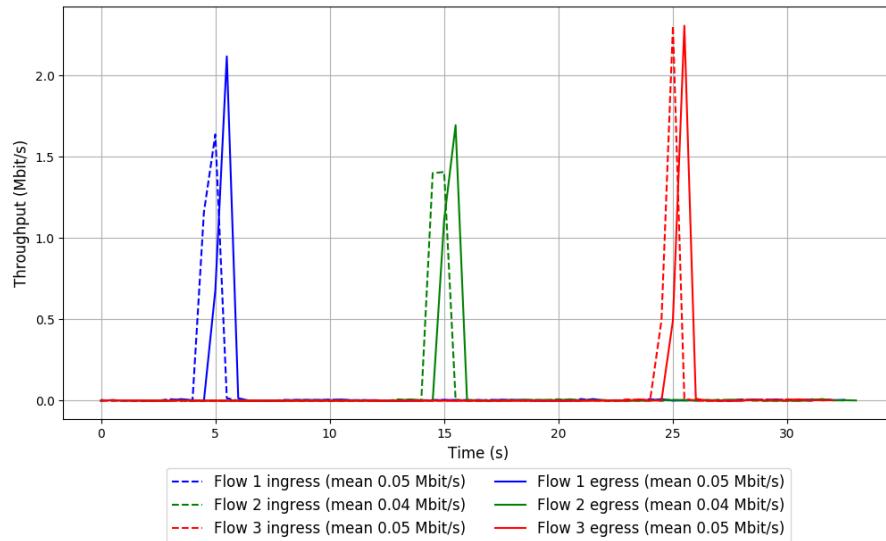


Run 2: Statistics of WebRTC media

```
Start at: 2019-01-18 23:05:18
End at: 2019-01-18 23:05:48
Local clock offset: -2.209 ms
Remote clock offset: -11.133 ms

# Below is generated by plot.py at 2019-01-18 23:37:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 35.831 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 38.016 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 33.213 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 31.928 ms
Loss rate: 0.00%
```

Run 2: Report of WebRTC media — Data Link



```
Run 3: Statistics of WebRTC media

Start at: 2019-01-18 23:30:02
End at: 2019-01-18 23:30:32
Local clock offset: 0.482 ms
Remote clock offset: -4.97 ms

# Below is generated by plot.py at 2019-01-18 23:37:03
# Datalink statistics
-- Total of 3 flows:
Average throughput: 0.13 Mbit/s
95th percentile per-packet one-way delay: 36.552 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 34.835 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 0.04 Mbit/s
95th percentile per-packet one-way delay: 41.540 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 32.063 ms
Loss rate: 0.00%
```

Run 3: Report of WebRTC media — Data Link

