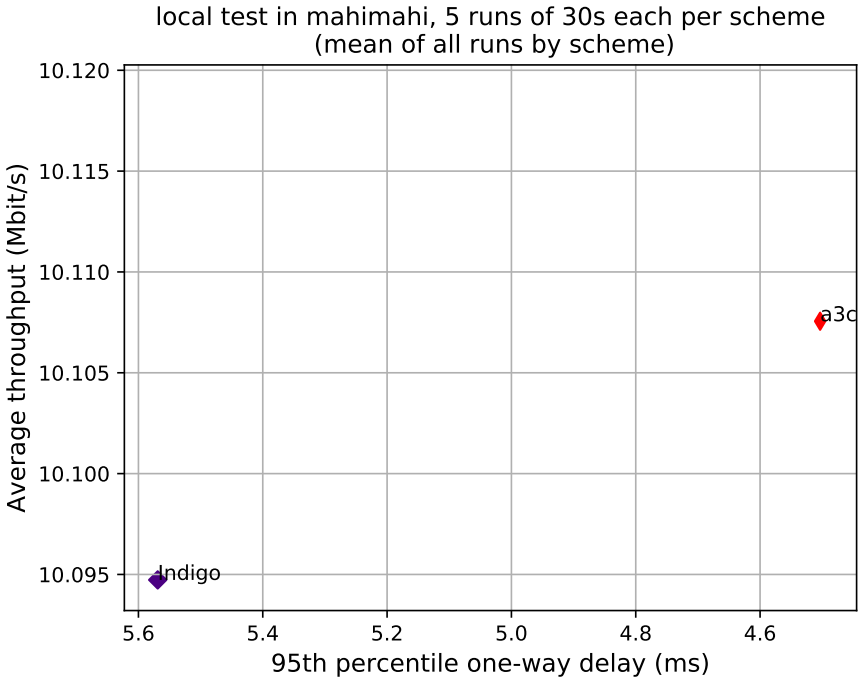
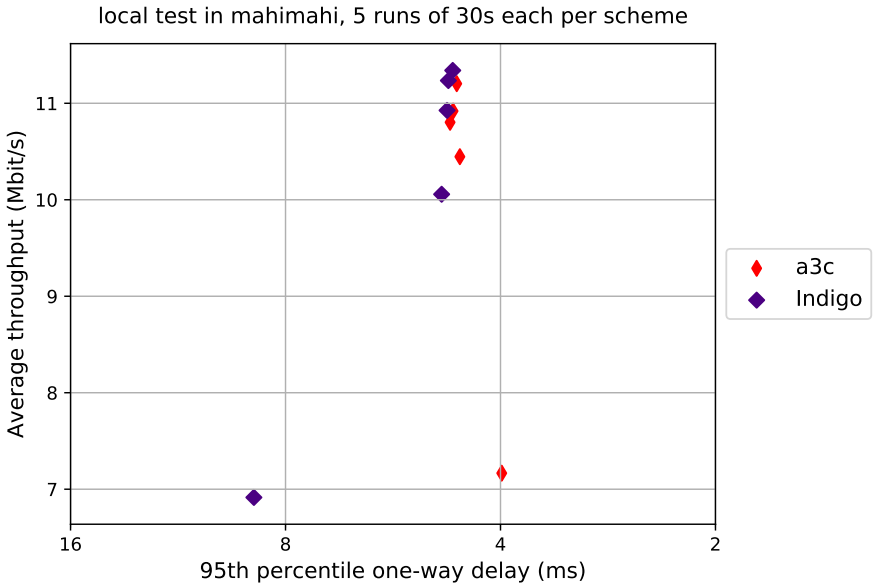
Pantheon Report

Generated at 2018-12-24 13:36:10 (UTC).
Tested in mahimahi: `mm-link 12mbps.trace 12mbps.trace`
Repeated the test of 2 congestion control schemes 5 times.
Each test lasted for 30 seconds running 1 flow.

```
System info:
Linux 4.13.0-46-generic
net.core.default_qdisc = pfifo_fast
net.core.rmem_default = 212992
net.core.rmem_max = 212992
net.core.wmem_default = 212992
net.core.wmem_max = 212992
net.ipv4.tcp_rmem = 4096 87380 6291456
net.ipv4.tcp_wmem = 4096 16384 4194304

Git summary:
branch: master @ 2b2e50c0a94a3b88e0d2b0352d8d762b3f82d6a7
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
 M a3c/a3c.py
 M a3c/models.py
 M a3c/run_sender.py
 M a3c/worker.py
 M env/environment.py
 M env/sender.py
 M reinforce/train_sender.py
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```


local test in mahimahi, 5 runs of 30s each per scheme
(mean of all runs by scheme)
Average throughput (Mbit/s)
10.120
10.115
10.110
10.105
10.100
10.095
a3c
Indigo
5.6
5.4
5.2
5.0
4.8
4.6
95th percentile one-way delay (ms)


local test in mahimahi, 5 runs of 30s each per scheme
Average throughput (Mbit/s)
11
10
9
8
7
16
8
4
2
95th percentile one-way delay (ms)
a3c
Indigo

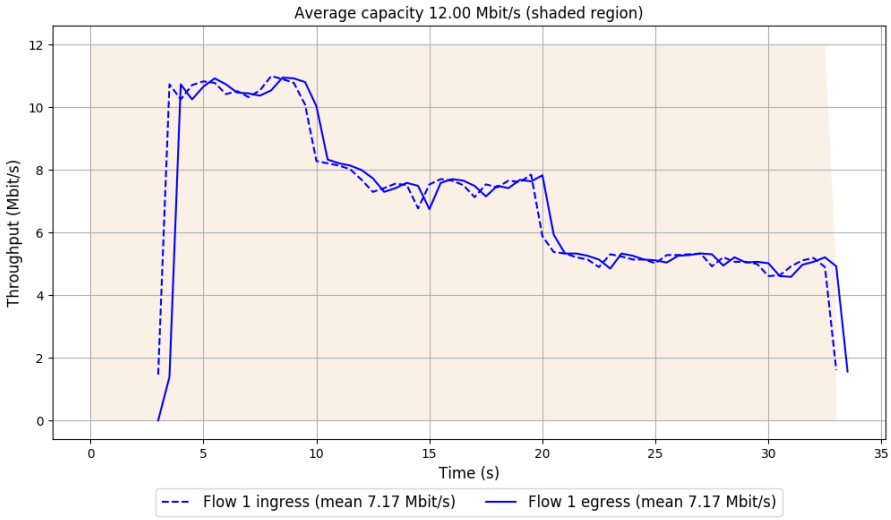
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
a3c	5	10.11	4.50	0.01
Indigo	5	10.10	5.57	0.01

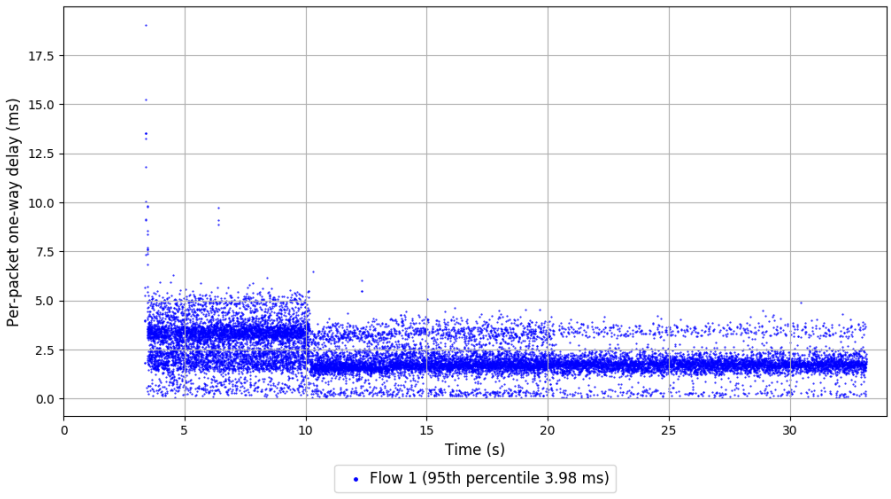
```
Run 1: Statistics of a3c

Start at: 2018-12-24 13:29:49
End at: 2018-12-24 13:30:19

# Below is generated by plot.py at 2018-12-24 13:35:58
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 7.17 Mbit/s (59.7% utilization)
95th percentile per-packet one-way delay: 3.984 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 7.17 Mbit/s
95th percentile per-packet one-way delay: 3.984 ms
Loss rate: 0.01%
```

Run 1: Report of a3c — Data Link



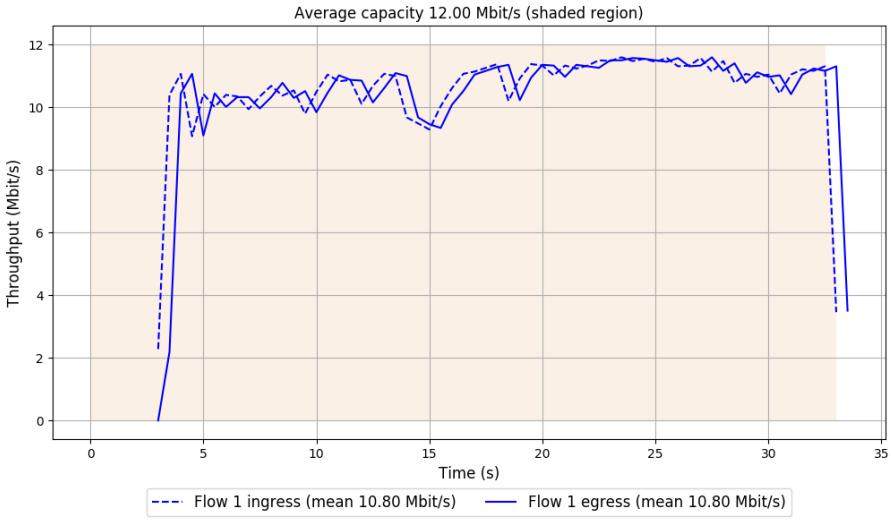


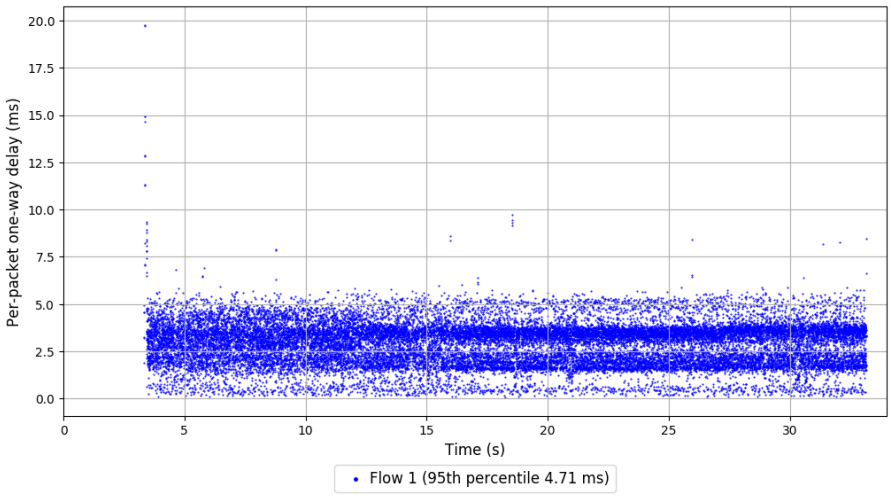
```
Run 2: Statistics of a3c

Start at: 2018-12-24 13:30:59
End at: 2018-12-24 13:31:29

# Below is generated by plot.py at 2018-12-24 13:36:00
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 10.80 Mbit/s (90.0% utilization)
95th percentile per-packet one-way delay: 4.706 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 10.80 Mbit/s
95th percentile per-packet one-way delay: 4.706 ms
Loss rate: 0.00%
```

Run 2: Report of a3c — Data Link



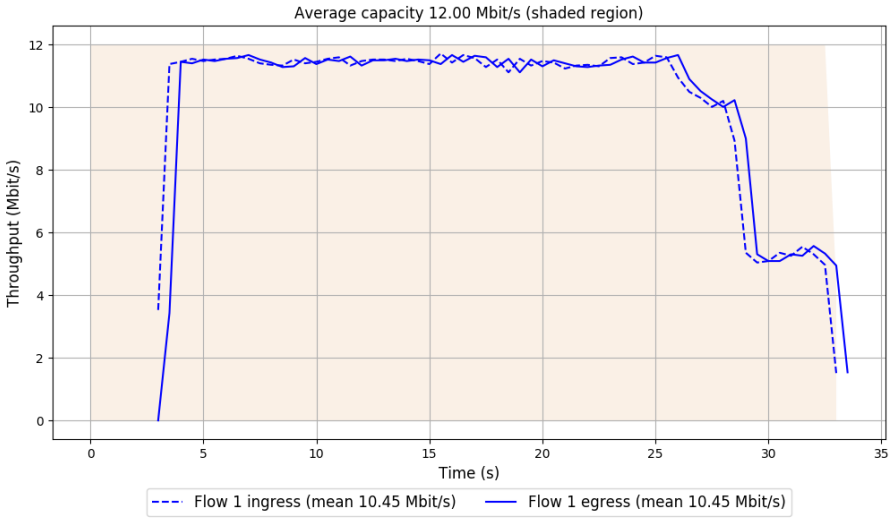


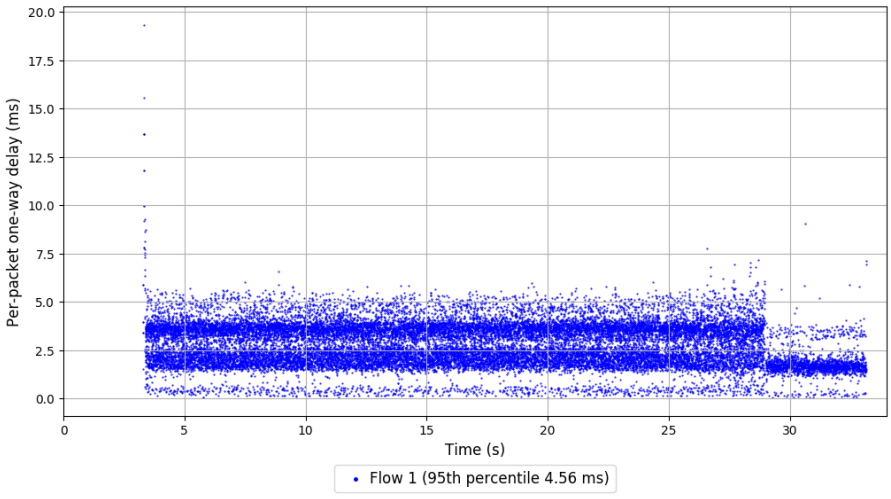
```
Run 3: Statistics of a3c

Start at: 2018-12-24 13:32:08
End at: 2018-12-24 13:32:38

# Below is generated by plot.py at 2018-12-24 13:36:01
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 10.45 Mbit/s (87.1% utilization)
95th percentile per-packet one-way delay: 4.560 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 10.45 Mbit/s
95th percentile per-packet one-way delay: 4.560 ms
Loss rate: 0.00%
```

Run 3: Report of a3c — Data Link



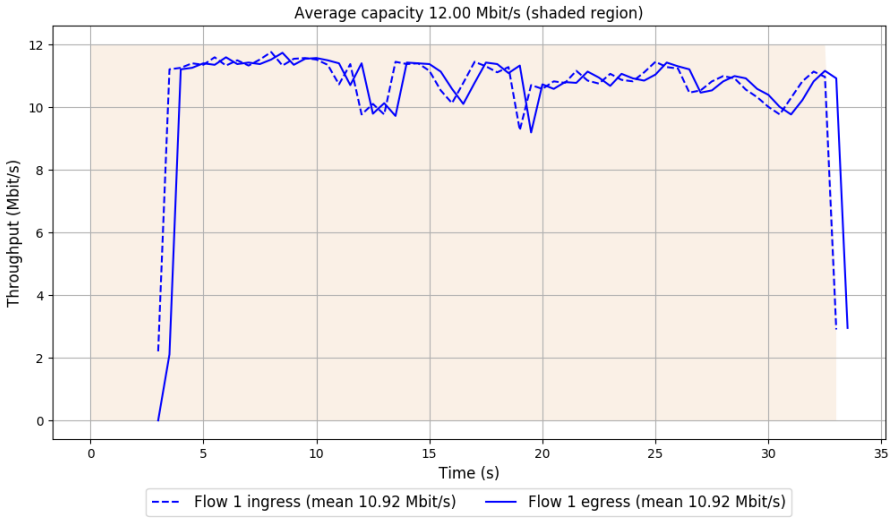


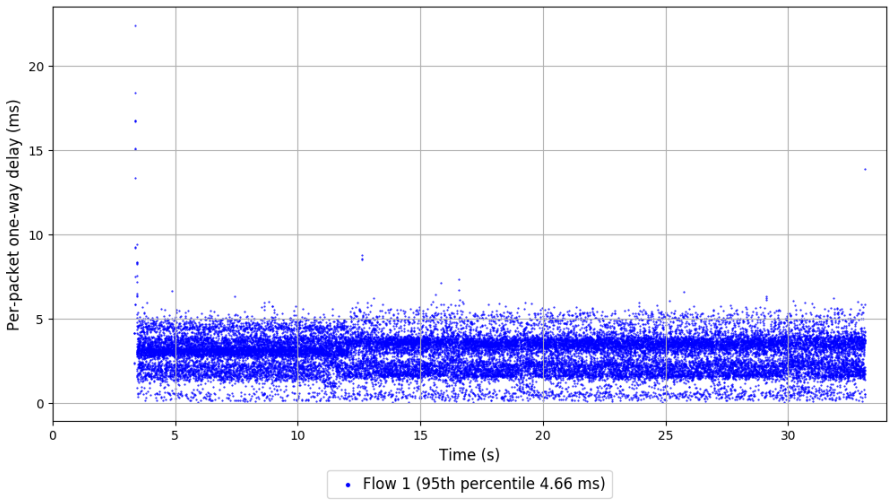
```
Run 4: Statistics of a3c

Start at: 2018-12-24 13:33:17
End at: 2018-12-24 13:33:47

# Below is generated by plot.py at 2018-12-24 13:36:02
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 10.92 Mbit/s (91.0% utilization)
95th percentile per-packet one-way delay: 4.661 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 10.92 Mbit/s
95th percentile per-packet one-way delay: 4.661 ms
Loss rate: 0.01%
```

Run 4: Report of a3c — Data Link



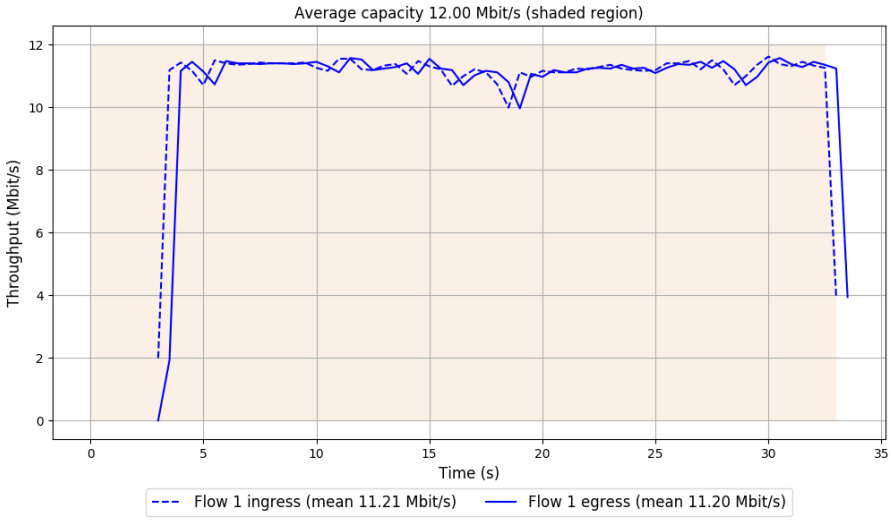


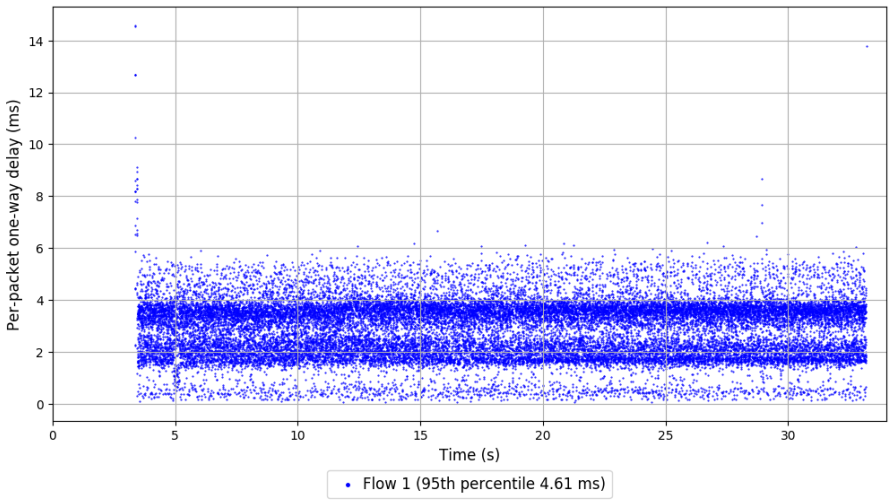
```
Run 5: Statistics of a3c

Start at: 2018-12-24 13:34:26
End at: 2018-12-24 13:34:56

# Below is generated by plot.py at 2018-12-24 13:36:03
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 11.20 Mbit/s (93.4% utilization)
95th percentile per-packet one-way delay: 4.606 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 11.20 Mbit/s
95th percentile per-packet one-way delay: 4.606 ms
Loss rate: 0.01%
```

Run 5: Report of a3c — Data Link



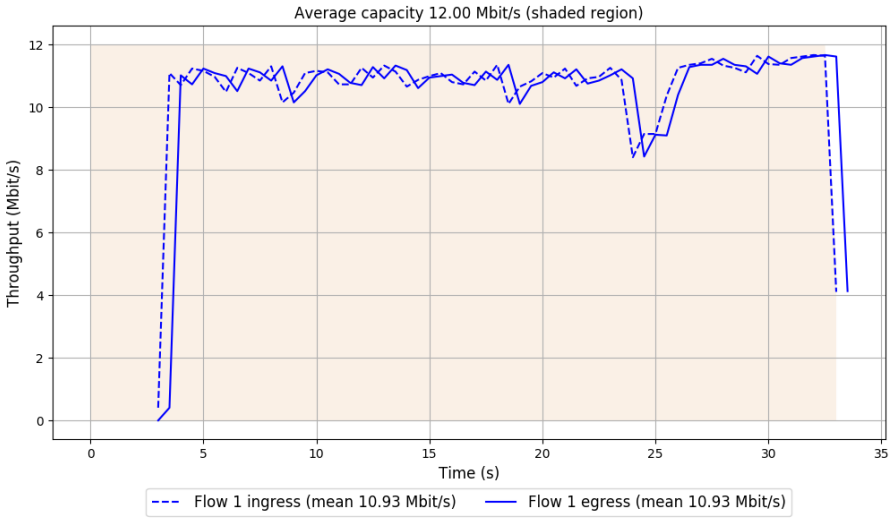


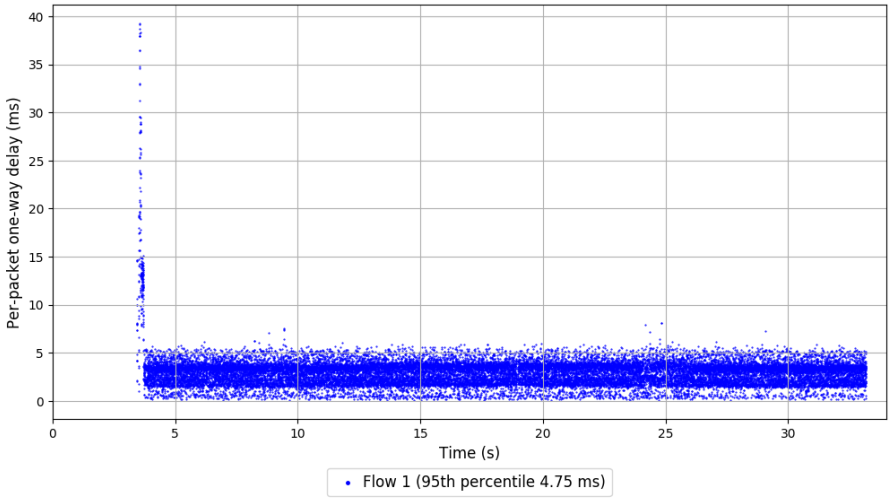
```
Run 1: Statistics of Indigo

Start at: 2018-12-24 13:30:24
End at: 2018-12-24 13:30:54

# Below is generated by plot.py at 2018-12-24 13:36:04
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 10.93 Mbit/s (91.0% utilization)
95th percentile per-packet one-way delay: 4.752 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 10.93 Mbit/s
95th percentile per-packet one-way delay: 4.752 ms
Loss rate: 0.01%
```

Run 1: Report of Indigo — Data Link



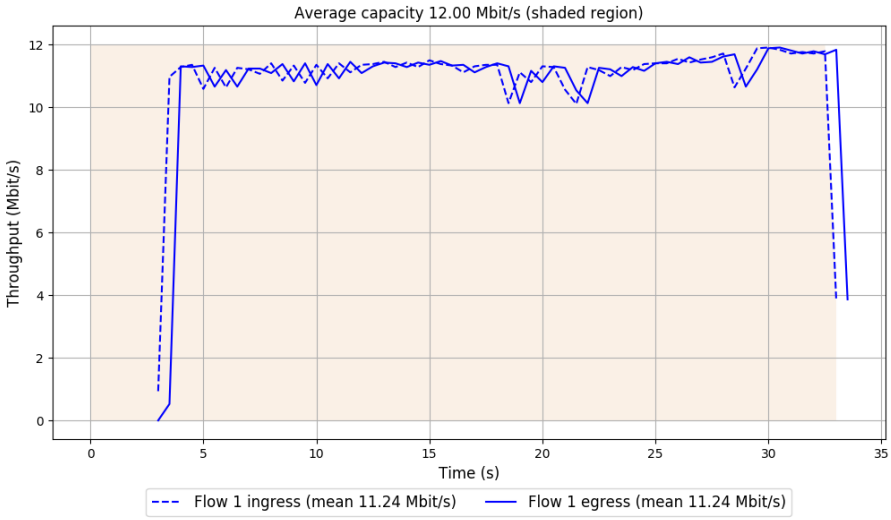


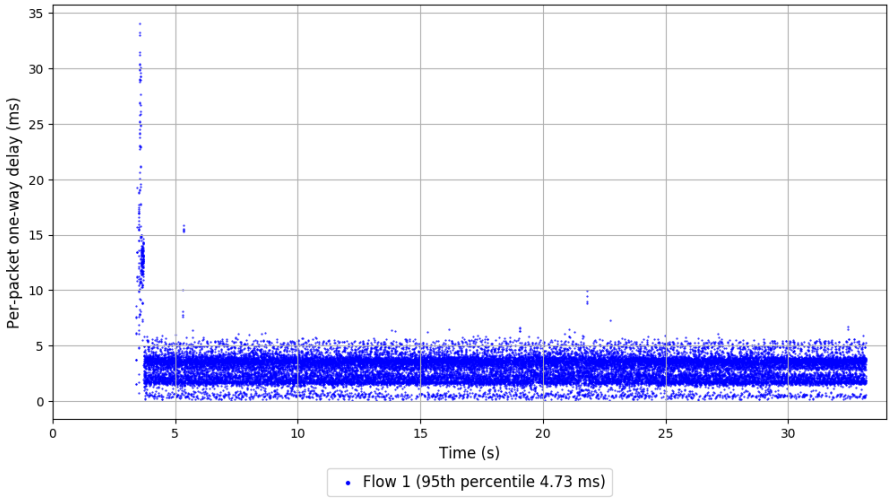
```
Run 2: Statistics of Indigo

Start at: 2018-12-24 13:31:33
End at: 2018-12-24 13:32:03

# Below is generated by plot.py at 2018-12-24 13:36:05
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 11.24 Mbit/s (93.6% utilization)
95th percentile per-packet one-way delay: 4.732 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 11.24 Mbit/s
95th percentile per-packet one-way delay: 4.732 ms
Loss rate: 0.00%
```

Run 2: Report of Indigo — Data Link



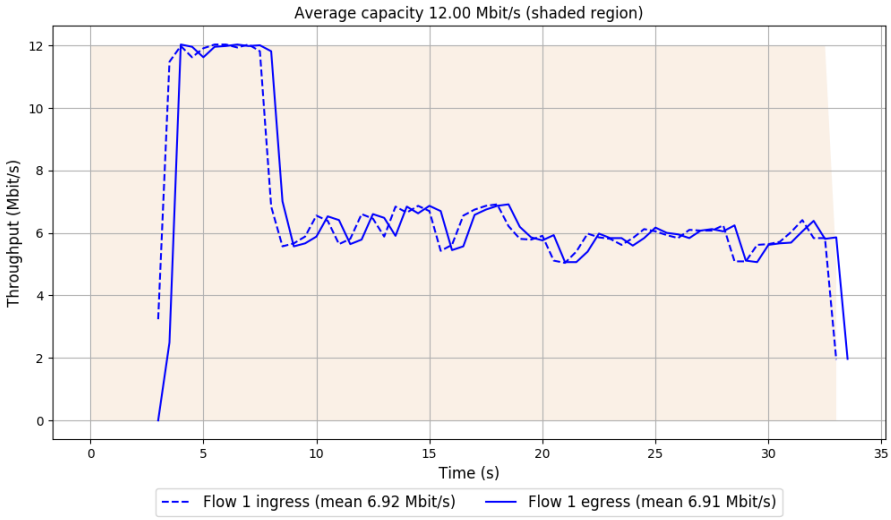


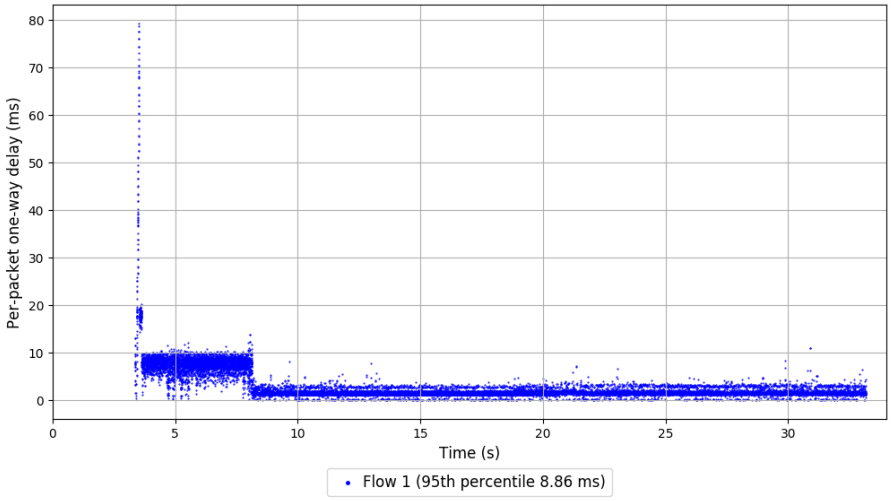
```
Run 3: Statistics of Indigo

Start at: 2018-12-24 13:32:43
End at: 2018-12-24 13:33:13

# Below is generated by plot.py at 2018-12-24 13:36:06
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 6.91 Mbit/s (57.6% utilization)
95th percentile per-packet one-way delay: 8.859 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 6.91 Mbit/s
95th percentile per-packet one-way delay: 8.859 ms
Loss rate: 0.00%
```

Run 3: Report of Indigo — Data Link



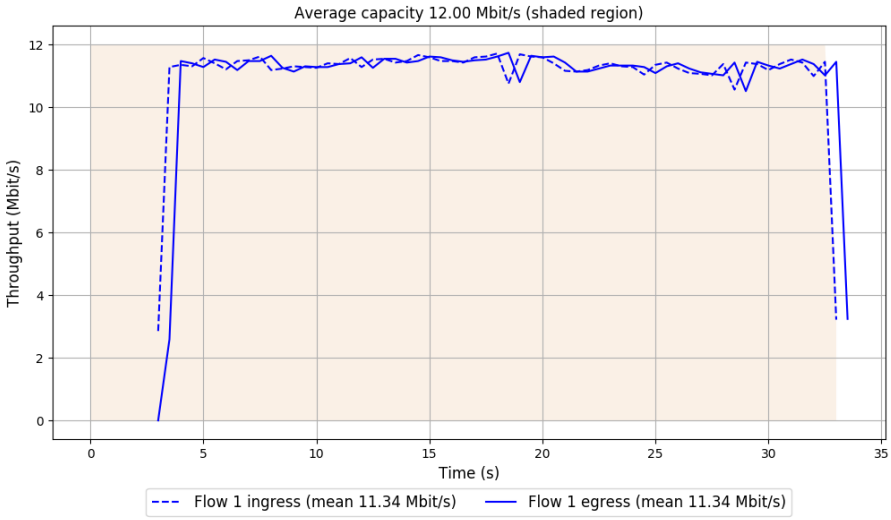


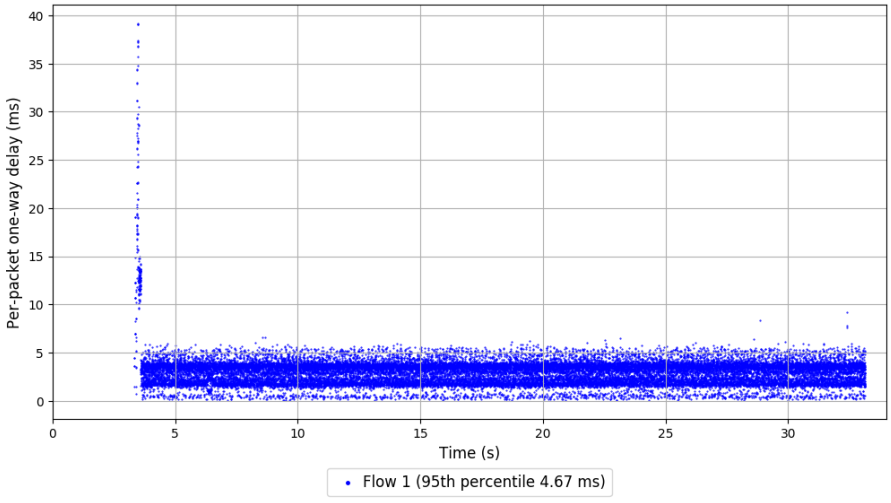
```
Run 4: Statistics of Indigo

Start at: 2018-12-24 13:33:52
End at: 2018-12-24 13:34:22

# Below is generated by plot.py at 2018-12-24 13:36:07
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 11.34 Mbit/s (94.5% utilization)
95th percentile per-packet one-way delay: 4.666 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 11.34 Mbit/s
95th percentile per-packet one-way delay: 4.666 ms
Loss rate: 0.01%
```

Run 4: Report of Indigo — Data Link





```
Run 5: Statistics of Indigo

Start at: 2018-12-24 13:35:01
End at: 2018-12-24 13:35:33

# Below is generated by plot.py at 2018-12-24 13:36:08
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 10.06 Mbit/s (83.8% utilization)
95th percentile per-packet one-way delay: 4.836 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 10.06 Mbit/s
95th percentile per-packet one-way delay: 4.836 ms
Loss rate: 0.01%
```

Run 5: Report of Indigo — Data Link