

## Pantheon Report

Generated at 2019-10-29 01:22:33 (UTC).  
Tested in mahimahi: mm-delay 40 mm-link 50mbps.trace 50mbps.trace  
--uplink-queue=droptail --uplink-queue-args=packets=300  
Repeated the test of 9 congestion control schemes 5 times.  
Each test lasted for 30 seconds running 1 flow.

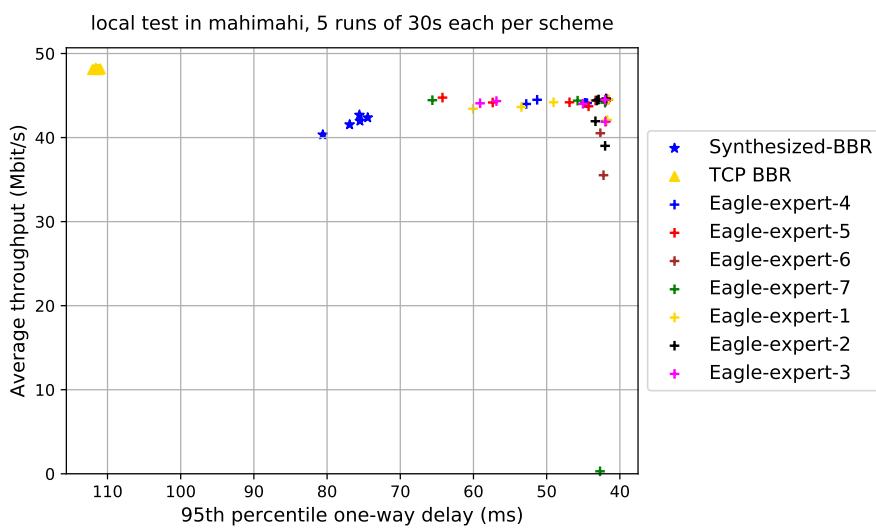
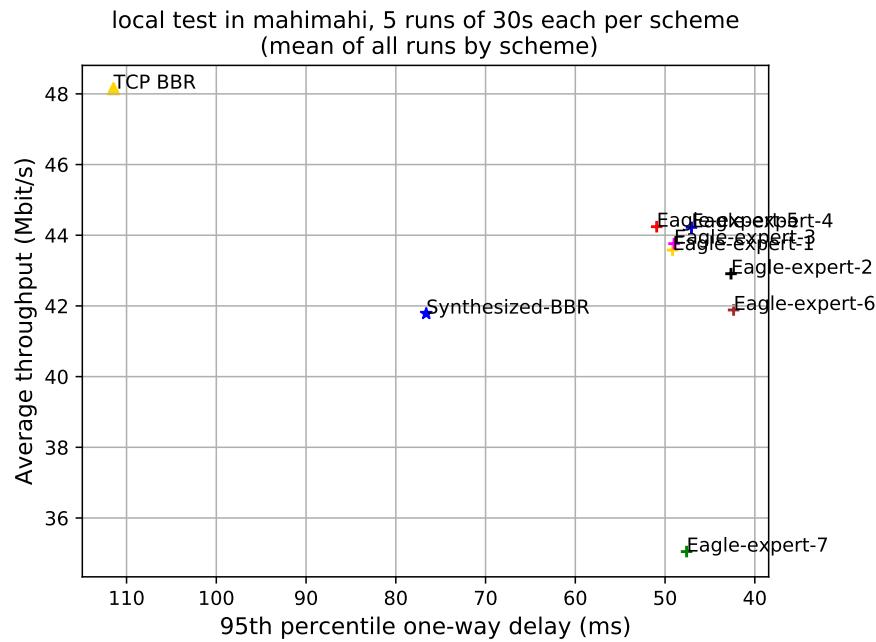
System info:

```
Linux 4.15.0-65-generic
net.core.default_qdisc = fq
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 @ b54fc866b3140559c1fa1782d26fa636f7a43a8d
third_party/aurora @ f3e943d61015b39960854ba6391797e0c7984d74
third_party/aurora-model @ e292c316c23fb837255c4e142e40590d154bbe95
third_party/eagle-v1 @ c68d985e042be5c30704c0aee48c363861951a95
third_party/eagle-v2 @ c8a1737b3c84d7d49eadab5b8785045d272a70120
third_party/eagle-v3 @ d5f1ab4416fa417052ddc65de5dbdbd20955d293
M sender-receiver/sender-receiver/sender_receiver/envs/_/pycache__/datagram_pb2.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/_/pycache__/helpers.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/_/pycache__/mahimahi.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/_/pycache__/project_root.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/_/pycache__/receiver.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/example-xentropy-random-switch.py
M sender-receiver/sender-receiver/sender_receiver/envs/example-xentropy.py
D sender-receiver/sender-receiver/sender_receiver/envs/model-xentropy/model-xentropy-2.pt
D sender-receiver/sender-receiver/sender_receiver/envs/model-xentropy/model-xentropy-240it
M sender-receiver/sender-receiver/sender_receiver/envs/model-xentropy/model-xentropy.pt
M sender-receiver/sender-receiver/sender_receiver/logs.txt
third_party/fillp @ d6da1459332fceef56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fc45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
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/synthesizedBBR @ d5f1ab4416fa417052ddc65de5dbdbd20955d293
M sender-receiver/sender-receiver/sender_receiver/_pycache__/_init__.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/_pycache__/_init__.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/_pycache__/datagram_pb2.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/_pycache__/helpers.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/_pycache__/mahimahi.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/_pycache__/project_root.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/_pycache__/receiver.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/_pycache__/sender_receiver_env.cpython-36.pyc
M sender-receiver/sender-receiver/sender_receiver/envs/example-xentropy.py
M sender-receiver/sender-receiver/sender_receiver/logs.txt
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```



scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	48.15	111.45	2.12
Eagle-expert-1	5	43.58	49.17	0.15
Eagle-expert-2	5	42.91	42.65	0.13
Eagle-expert-3	5	43.76	49.00	0.17
Eagle-expert-4	5	44.22	47.06	0.17
Eagle-expert-5	5	44.24	50.93	0.18
Eagle-expert-6	5	41.89	42.36	0.14
Eagle-expert-7	5	35.05	47.60	0.14
Synthesized-BBR	5	41.78	76.61	0.19

Run 1: Statistics of TCP BBR

Start at: 2019-10-29 00:53:10

End at: 2019-10-29 00:53:41

# Below is generated by plot.py at 2019-10-29 01:17:48

# Datalink statistics

-- Total of 1 flow:

Average capacity: 50.00 Mbit/s

Average throughput: 48.26 Mbit/s (96.5% utilization)

95th percentile per-packet one-way delay: 111.623 ms

Loss rate: 2.32%

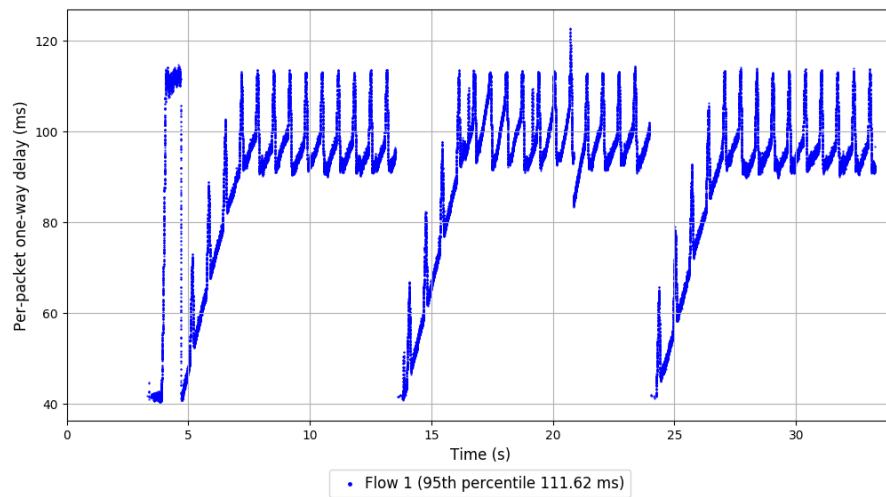
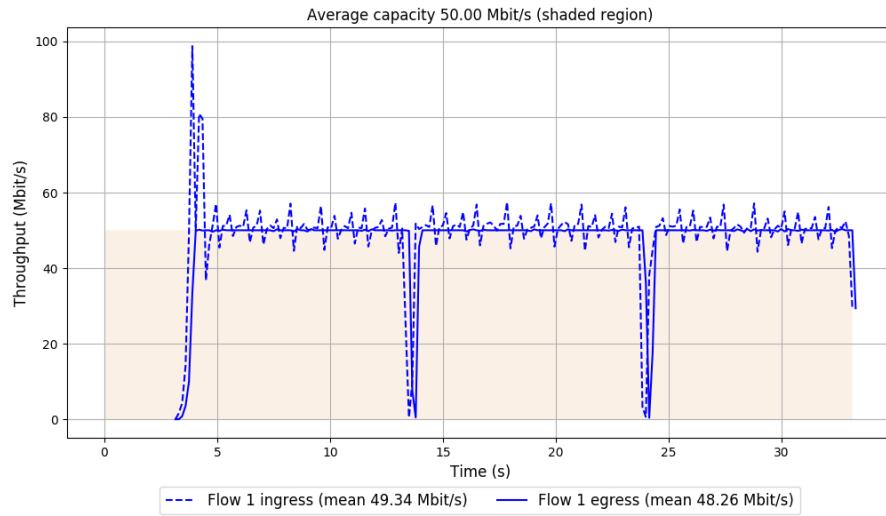
-- Flow 1:

Average throughput: 48.26 Mbit/s

95th percentile per-packet one-way delay: 111.623 ms

Loss rate: 2.32%

## Run 1: Report of TCP BBR — Data Link



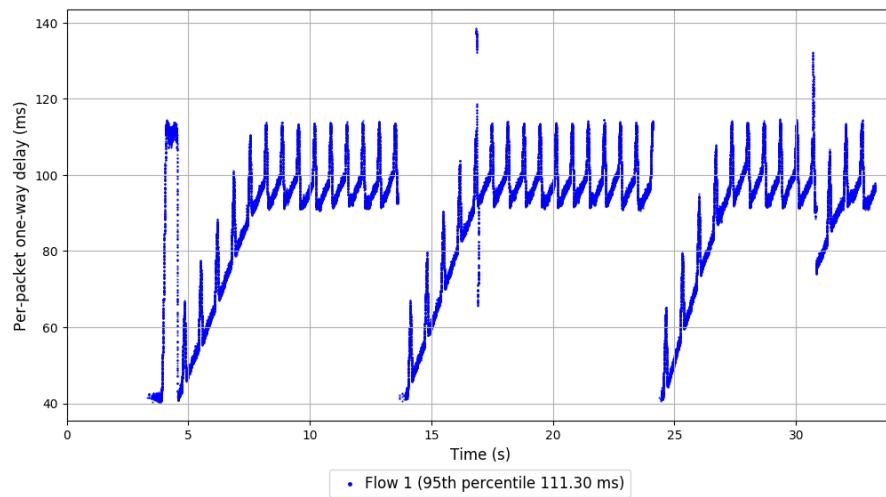
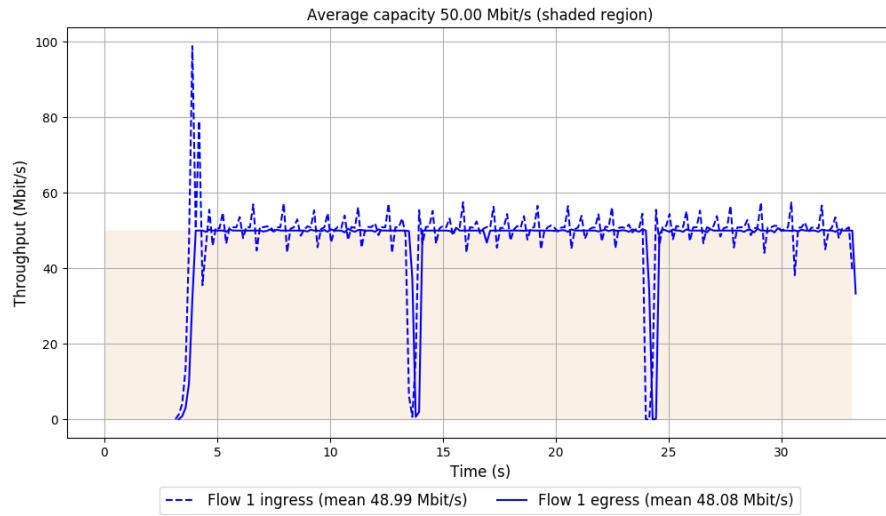
Run 2: Statistics of TCP BBR

Start at: 2019-10-29 00:58:42

End at: 2019-10-29 00:59:12

```
# Below is generated by plot.py at 2019-10-29 01:17:49
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 48.08 Mbit/s (96.2% utilization)
95th percentile per-packet one-way delay: 111.300 ms
Loss rate: 1.99%
-- Flow 1:
Average throughput: 48.08 Mbit/s
95th percentile per-packet one-way delay: 111.300 ms
Loss rate: 1.99%
```

## Run 2: Report of TCP BBR — Data Link



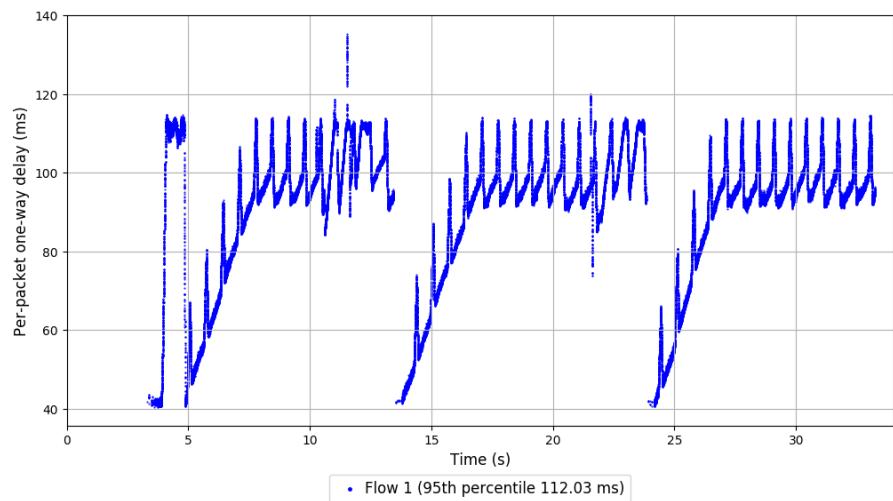
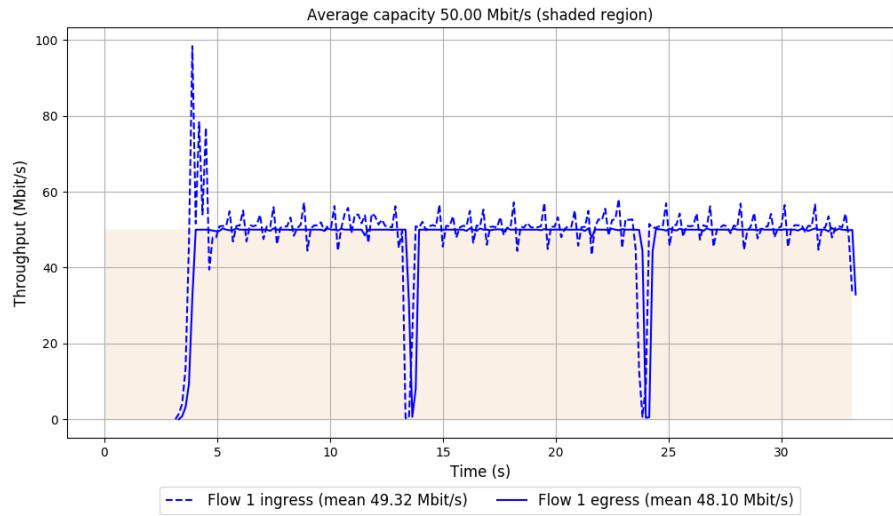
Run 3: Statistics of TCP BBR

Start at: 2019-10-29 01:04:12

End at: 2019-10-29 01:04:42

```
# Below is generated by plot.py at 2019-10-29 01:17:49
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 48.10 Mbit/s (96.2% utilization)
95th percentile per-packet one-way delay: 112.032 ms
Loss rate: 2.61%
-- Flow 1:
Average throughput: 48.10 Mbit/s
95th percentile per-packet one-way delay: 112.032 ms
Loss rate: 2.61%
```

### Run 3: Report of TCP BBR — Data Link



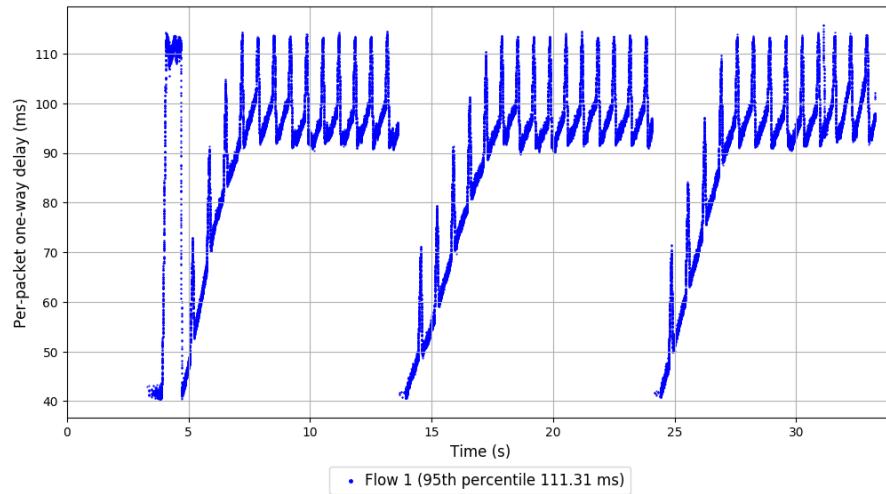
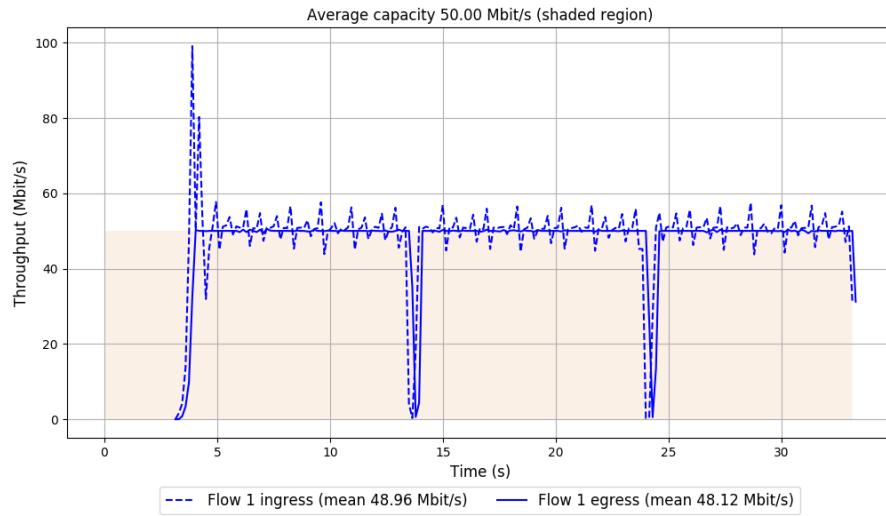
Run 4: Statistics of TCP BBR

Start at: 2019-10-29 01:09:43

End at: 2019-10-29 01:10:13

```
# Below is generated by plot.py at 2019-10-29 01:17:49
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 48.12 Mbit/s (96.2% utilization)
95th percentile per-packet one-way delay: 111.311 ms
Loss rate: 1.92%
-- Flow 1:
Average throughput: 48.12 Mbit/s
95th percentile per-packet one-way delay: 111.311 ms
Loss rate: 1.92%
```

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



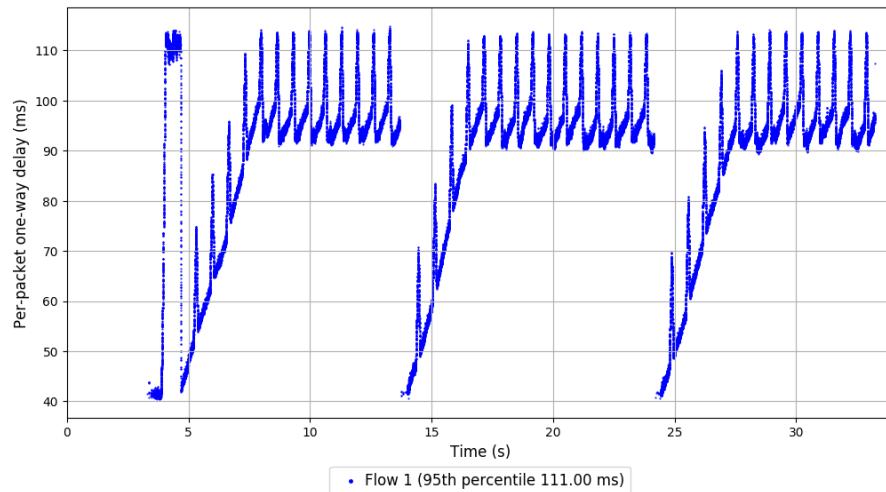
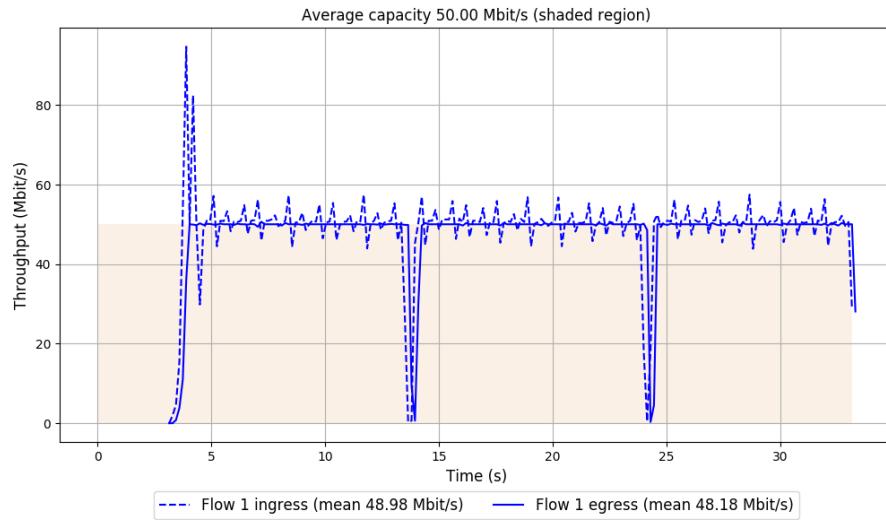
Run 5: Statistics of TCP BBR

Start at: 2019-10-29 01:15:14

End at: 2019-10-29 01:15:44

```
# Below is generated by plot.py at 2019-10-29 01:18:20
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 48.18 Mbit/s (96.4% utilization)
95th percentile per-packet one-way delay: 110.997 ms
Loss rate: 1.74%
-- Flow 1:
Average throughput: 48.18 Mbit/s
95th percentile per-packet one-way delay: 110.997 ms
Loss rate: 1.74%
```

### Run 5: Report of TCP BBR — Data Link

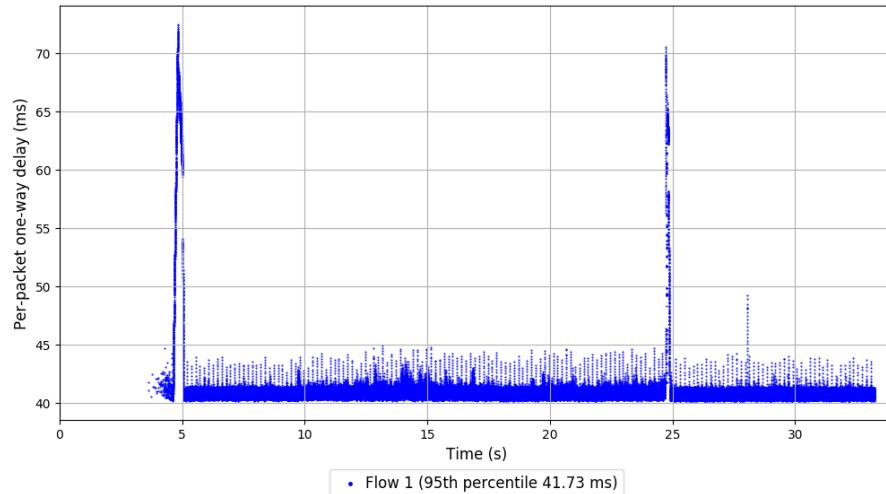
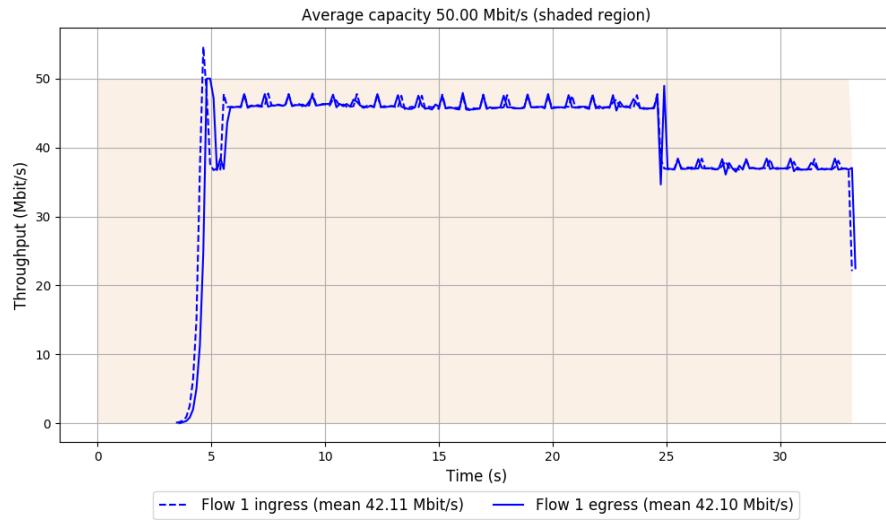


```
Run 1: Statistics of Eagle-expert-1

Start at: 2019-10-29 00:48:19
End at: 2019-10-29 00:48:49

# Below is generated by plot.py at 2019-10-29 01:18:20
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 42.10 Mbit/s (84.2% utilization)
95th percentile per-packet one-way delay: 41.725 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 42.10 Mbit/s
95th percentile per-packet one-way delay: 41.725 ms
Loss rate: 0.16%
```

## Run 1: Report of Eagle-expert-1 — Data Link



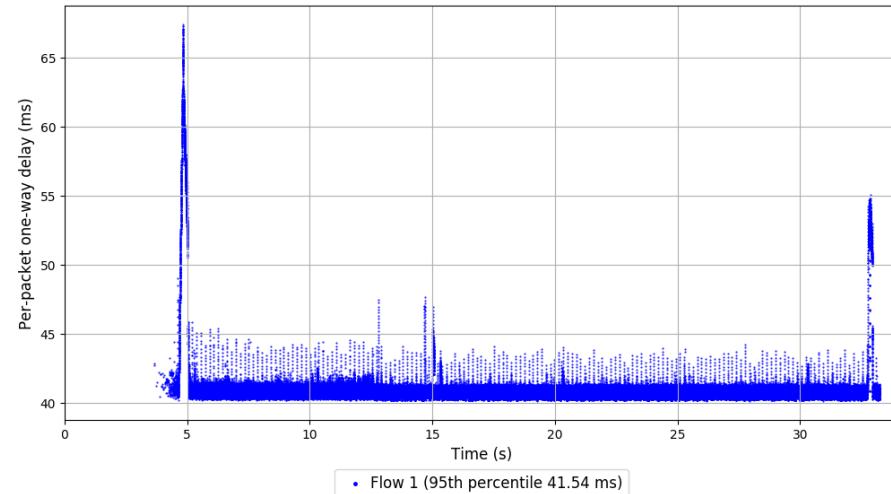
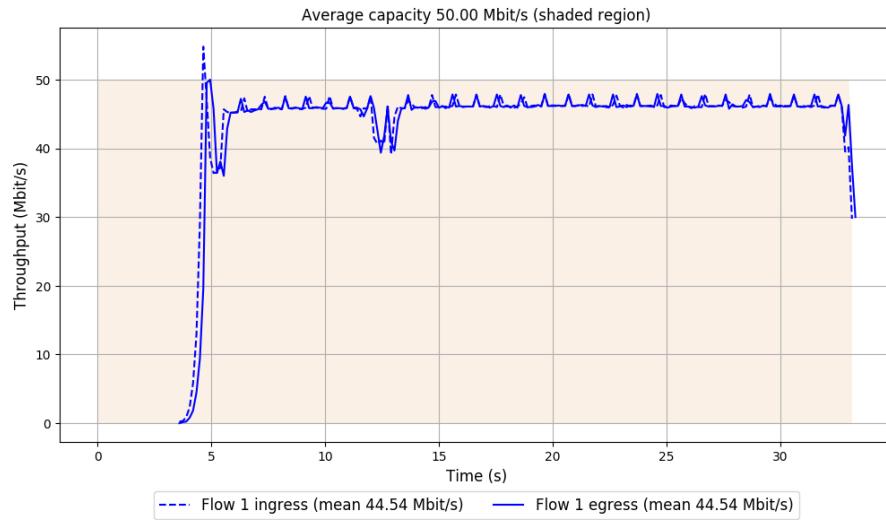
Run 2: Statistics of Eagle-expert-1

Start at: 2019-10-29 00:53:47

End at: 2019-10-29 00:54:17

```
# Below is generated by plot.py at 2019-10-29 01:18:20
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 44.54 Mbit/s (89.1% utilization)
95th percentile per-packet one-way delay: 41.540 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 44.54 Mbit/s
95th percentile per-packet one-way delay: 41.540 ms
Loss rate: 0.15%
```

Run 2: Report of Eagle-expert-1 — Data Link

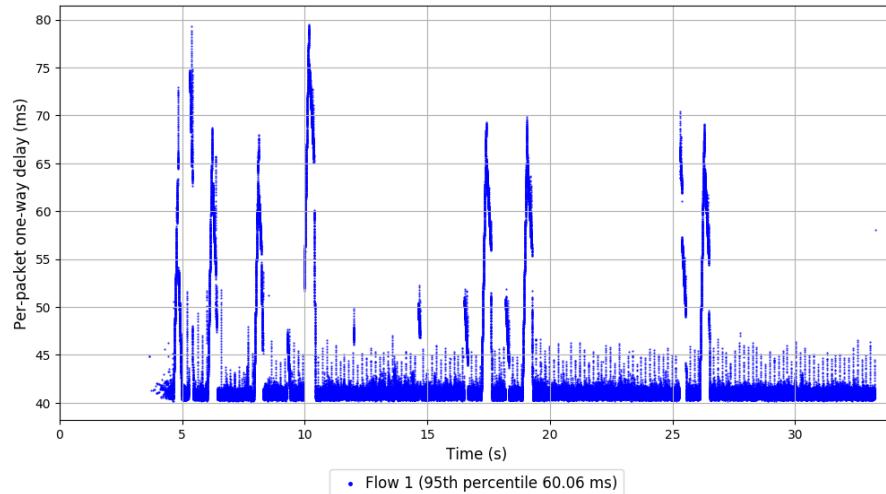


```
Run 3: Statistics of Eagle-expert-1

Start at: 2019-10-29 00:59:18
End at: 2019-10-29 00:59:48

# Below is generated by plot.py at 2019-10-29 01:18:20
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 43.43 Mbit/s (86.8% utilization)
95th percentile per-packet one-way delay: 60.062 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 43.43 Mbit/s
95th percentile per-packet one-way delay: 60.062 ms
Loss rate: 0.13%
```

### Run 3: Report of Eagle-expert-1 — Data Link



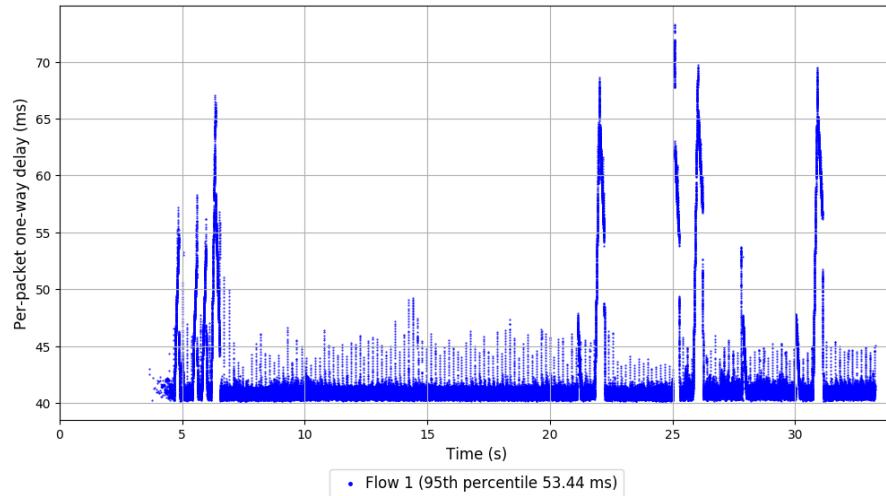
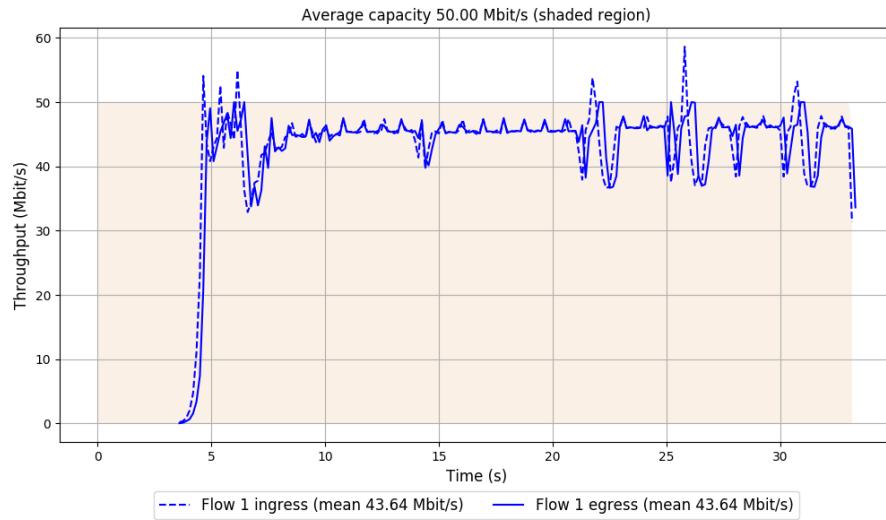
Run 4: Statistics of Eagle-expert-1

Start at: 2019-10-29 01:04:49

End at: 2019-10-29 01:05:19

```
# Below is generated by plot.py at 2019-10-29 01:18:34
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 43.64 Mbit/s (87.3% utilization)
95th percentile per-packet one-way delay: 53.444 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 43.64 Mbit/s
95th percentile per-packet one-way delay: 53.444 ms
Loss rate: 0.13%
```

### Run 4: Report of Eagle-expert-1 — Data Link

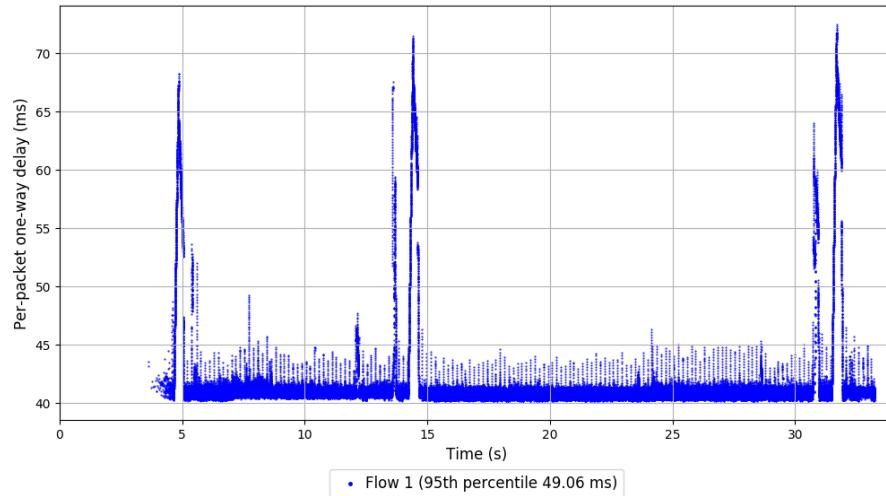
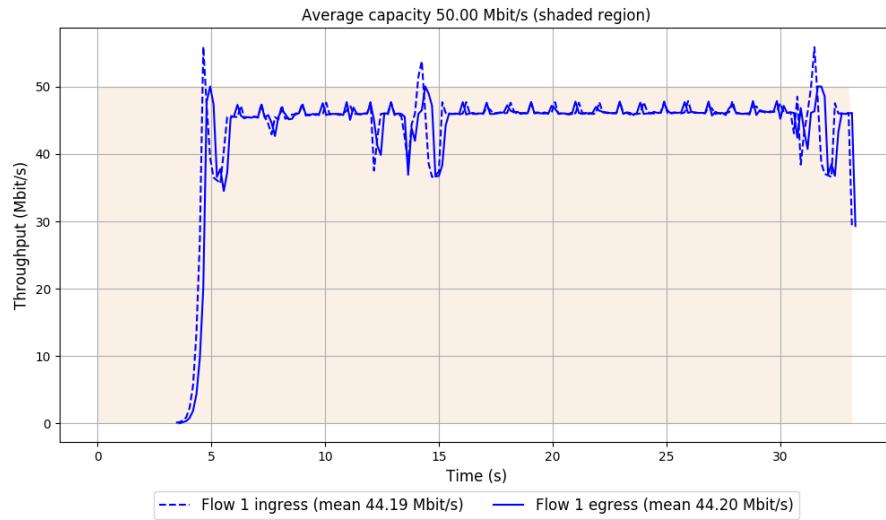


```
Run 5: Statistics of Eagle-expert-1

Start at: 2019-10-29 01:10:19
End at: 2019-10-29 01:10:49

# Below is generated by plot.py at 2019-10-29 01:18:45
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 44.20 Mbit/s (88.4% utilization)
95th percentile per-packet one-way delay: 49.056 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 44.20 Mbit/s
95th percentile per-packet one-way delay: 49.056 ms
Loss rate: 0.18%
```

Run 5: Report of Eagle-expert-1 — Data Link

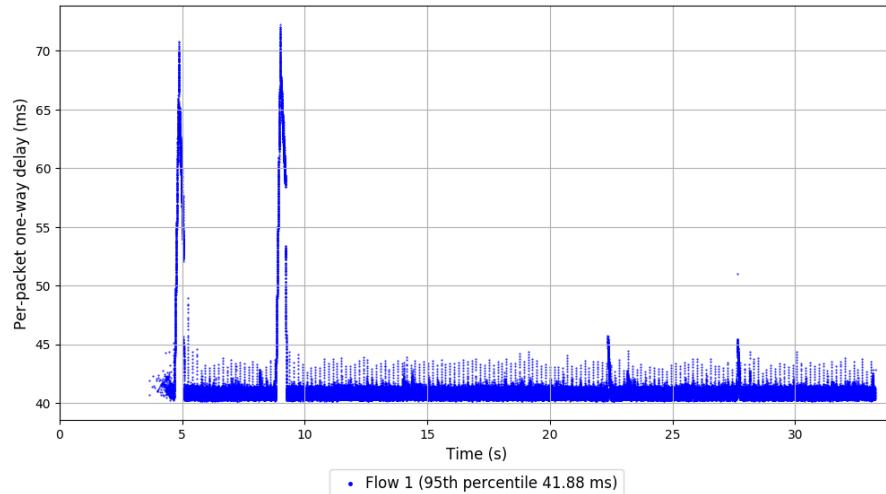
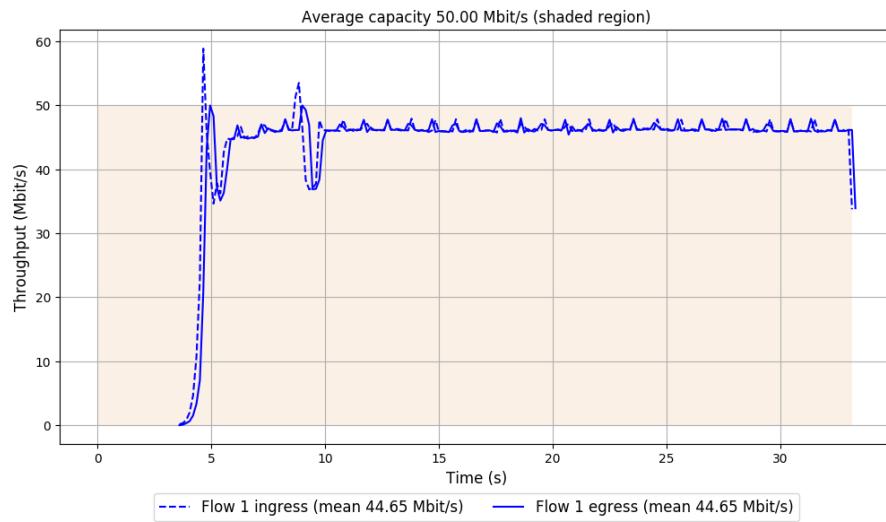


```
Run 1: Statistics of Eagle-expert-2

Start at: 2019-10-29 00:48:55
End at: 2019-10-29 00:49:25

# Below is generated by plot.py at 2019-10-29 01:18:45
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 44.65 Mbit/s (89.3% utilization)
95th percentile per-packet one-way delay: 41.878 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 44.65 Mbit/s
95th percentile per-packet one-way delay: 41.878 ms
Loss rate: 0.15%
```

Run 1: Report of Eagle-expert-2 — Data Link



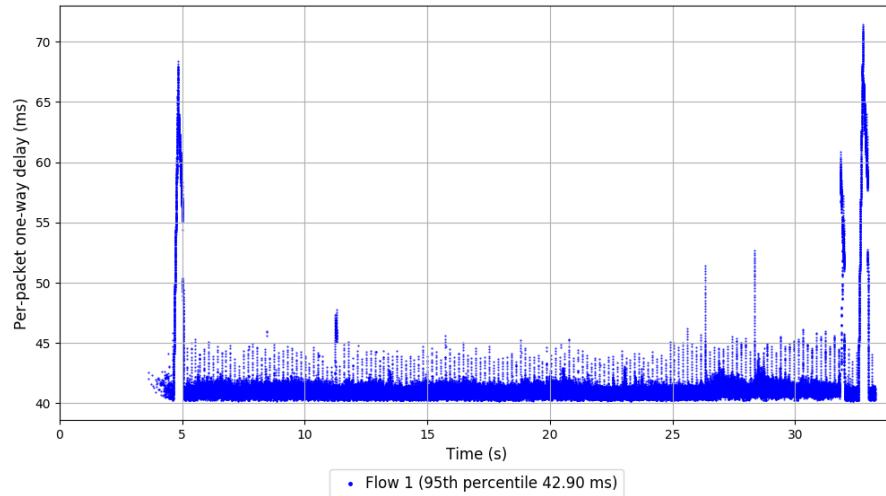
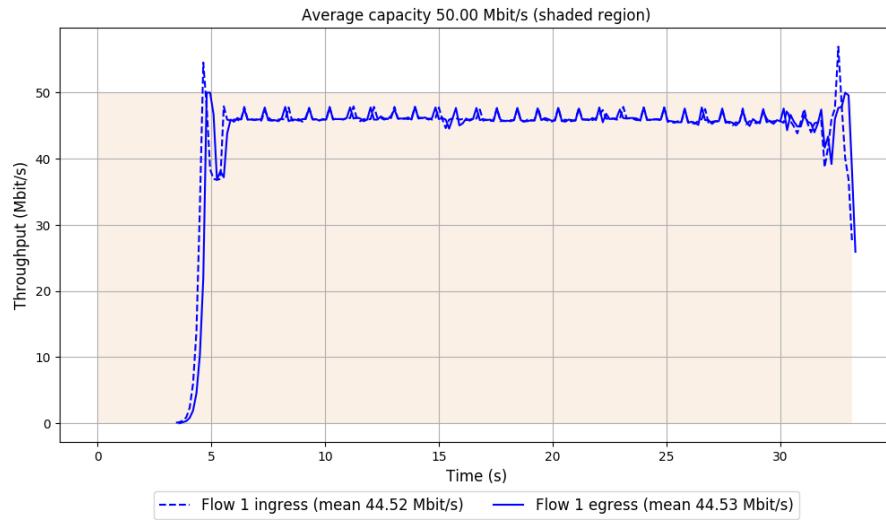
Run 2: Statistics of Eagle-expert-2

Start at: 2019-10-29 00:54:24

End at: 2019-10-29 00:54:54

```
# Below is generated by plot.py at 2019-10-29 01:18:54
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 44.53 Mbit/s (89.1% utilization)
95th percentile per-packet one-way delay: 42.899 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 44.53 Mbit/s
95th percentile per-packet one-way delay: 42.899 ms
Loss rate: 0.12%
```

Run 2: Report of Eagle-expert-2 — Data Link

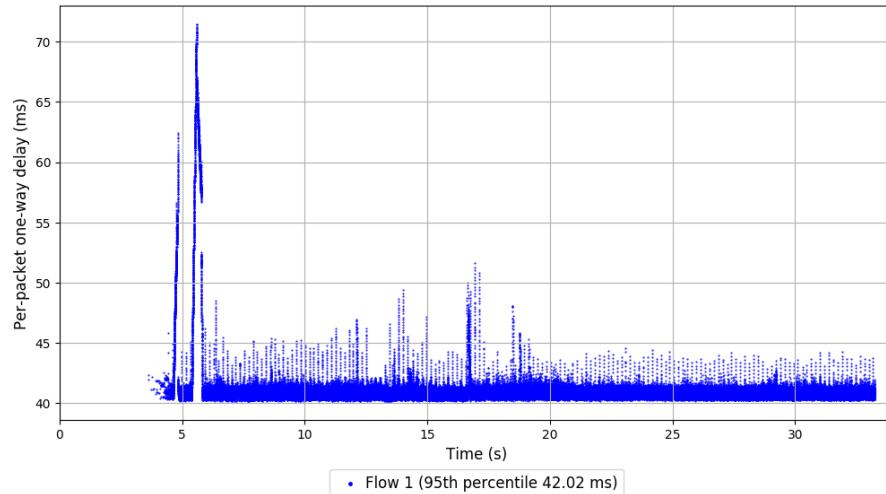
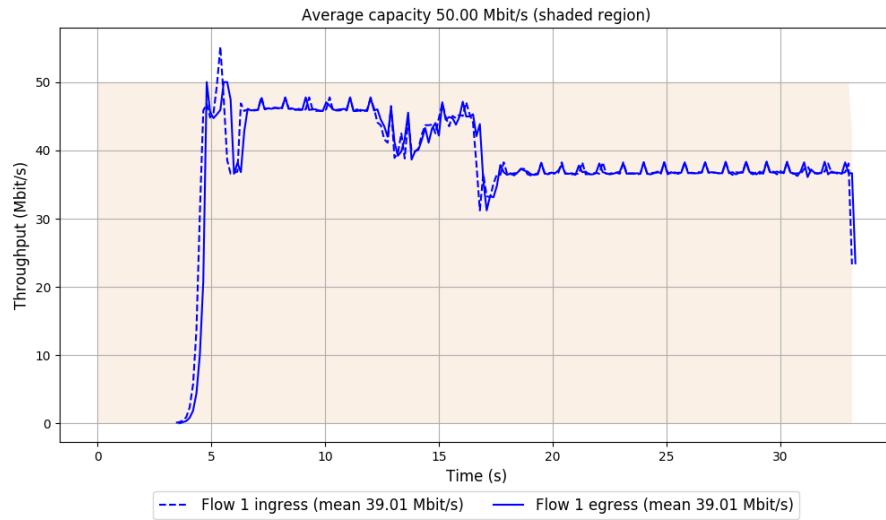


```
Run 3: Statistics of Eagle-expert-2

Start at: 2019-10-29 00:59:55
End at: 2019-10-29 01:00:25

# Below is generated by plot.py at 2019-10-29 01:18:56
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 39.01 Mbit/s (78.0% utilization)
95th percentile per-packet one-way delay: 42.016 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 39.01 Mbit/s
95th percentile per-packet one-way delay: 42.016 ms
Loss rate: 0.13%
```

### Run 3: Report of Eagle-expert-2 — Data Link



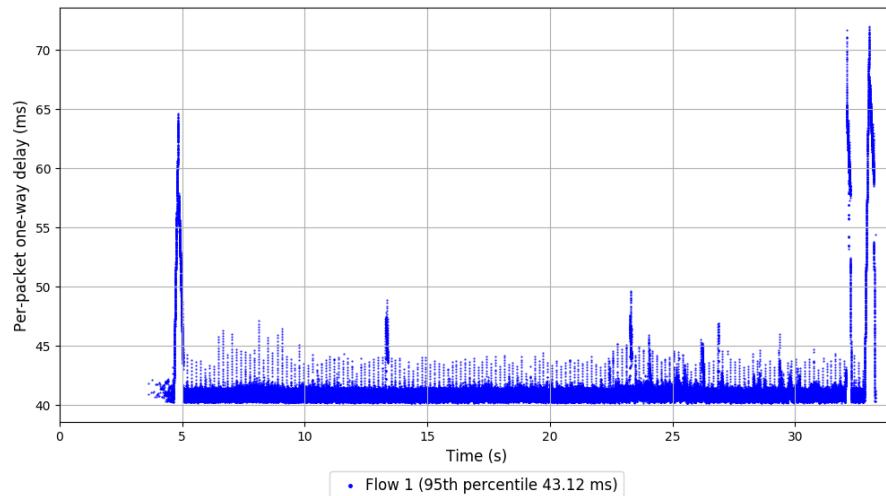
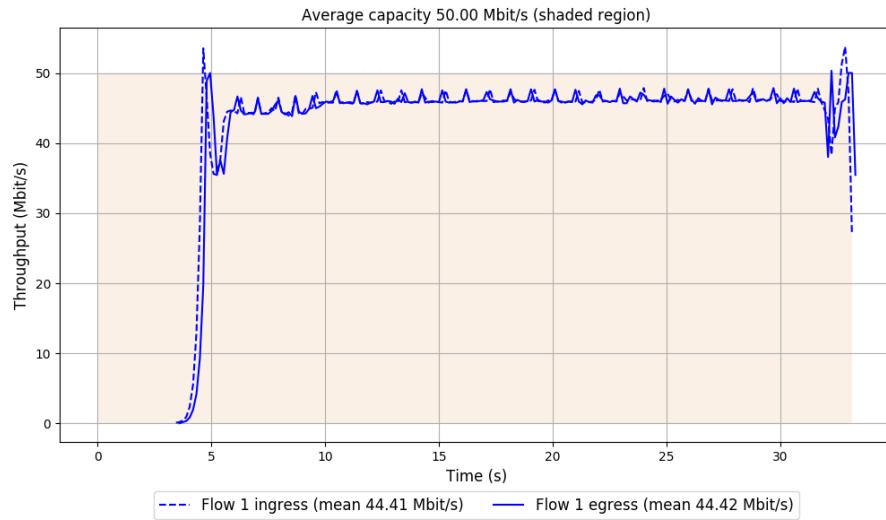
Run 4: Statistics of Eagle-expert-2

Start at: 2019-10-29 01:05:25

End at: 2019-10-29 01:05:55

```
# Below is generated by plot.py at 2019-10-29 01:19:06
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 44.42 Mbit/s (88.8% utilization)
95th percentile per-packet one-way delay: 43.123 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 44.42 Mbit/s
95th percentile per-packet one-way delay: 43.123 ms
Loss rate: 0.12%
```

Run 4: Report of Eagle-expert-2 — Data Link

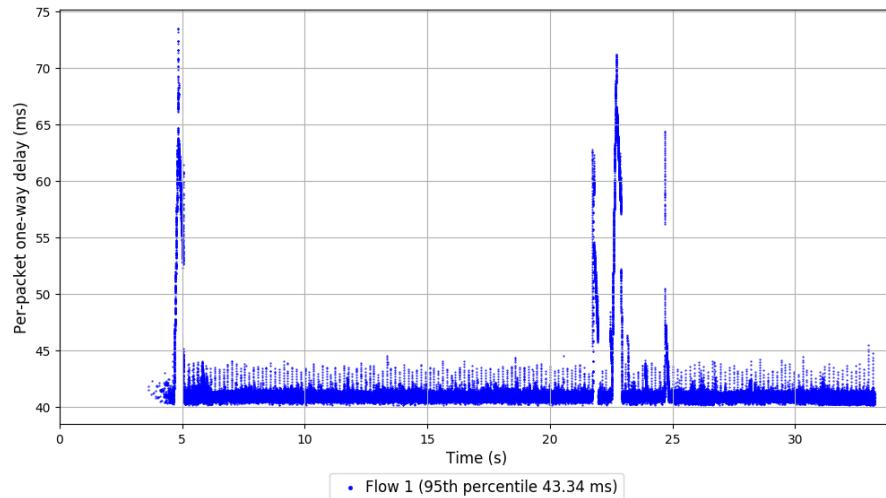
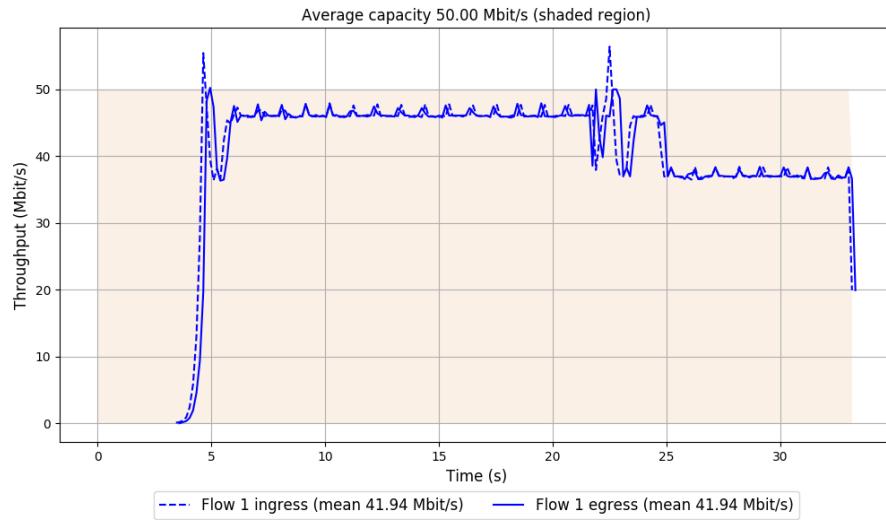


```
Run 5: Statistics of Eagle-expert-2

Start at: 2019-10-29 01:10:56
End at: 2019-10-29 01:11:26

# Below is generated by plot.py at 2019-10-29 01:19:17
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 41.94 Mbit/s (83.9% utilization)
95th percentile per-packet one-way delay: 43.338 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 41.94 Mbit/s
95th percentile per-packet one-way delay: 43.338 ms
Loss rate: 0.14%
```

Run 5: Report of Eagle-expert-2 — Data Link

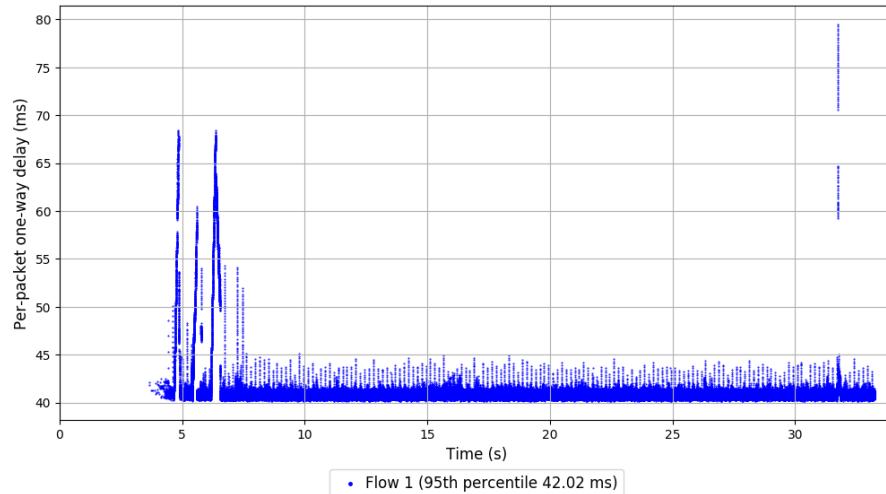
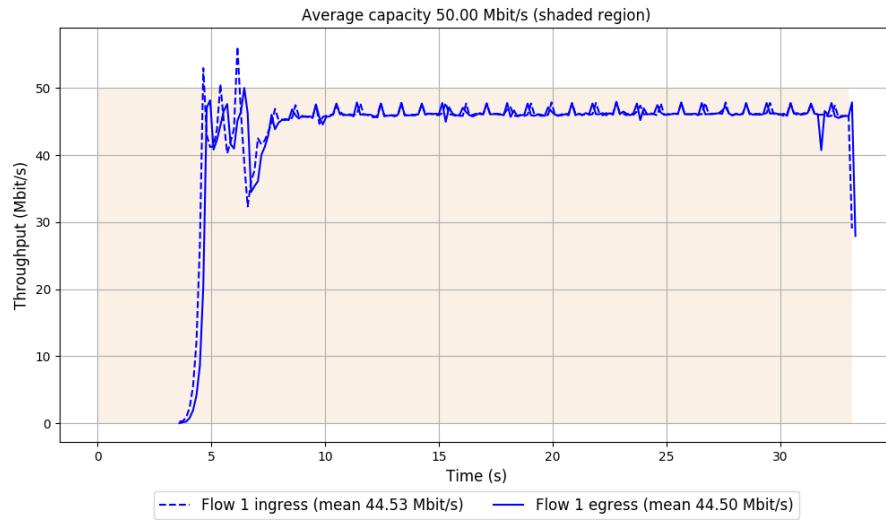


```
Run 1: Statistics of Eagle-expert-3

Start at: 2019-10-29 00:49:32
End at: 2019-10-29 00:50:02

# Below is generated by plot.py at 2019-10-29 01:19:22
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 44.50 Mbit/s (89.0% utilization)
95th percentile per-packet one-way delay: 42.019 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 44.50 Mbit/s
95th percentile per-packet one-way delay: 42.019 ms
Loss rate: 0.20%
```

## Run 1: Report of Eagle-expert-3 — Data Link



Run 2: Statistics of Eagle-expert-3

Start at: 2019-10-29 00:55:01

End at: 2019-10-29 00:55:31

# Below is generated by plot.py at 2019-10-29 01:19:23

# Datalink statistics

-- Total of 1 flow:

Average capacity: 50.00 Mbit/s

Average throughput: 44.34 Mbit/s (88.7% utilization)

95th percentile per-packet one-way delay: 56.863 ms

Loss rate: 0.16%

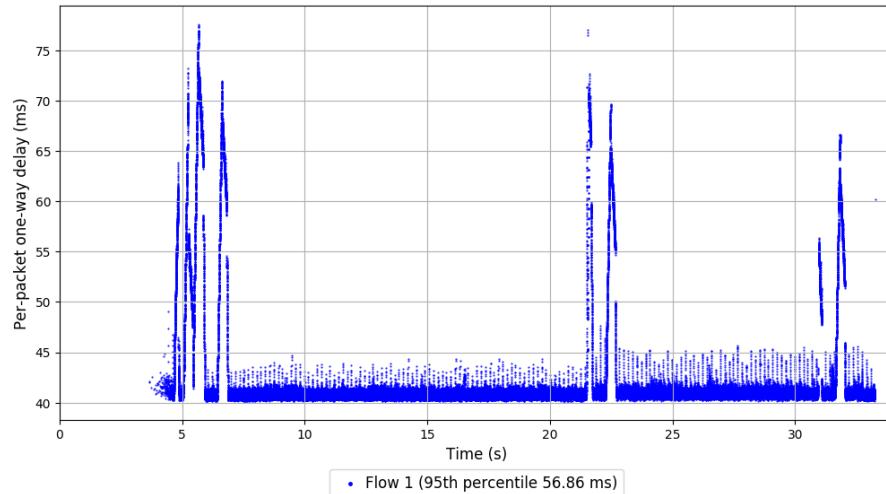
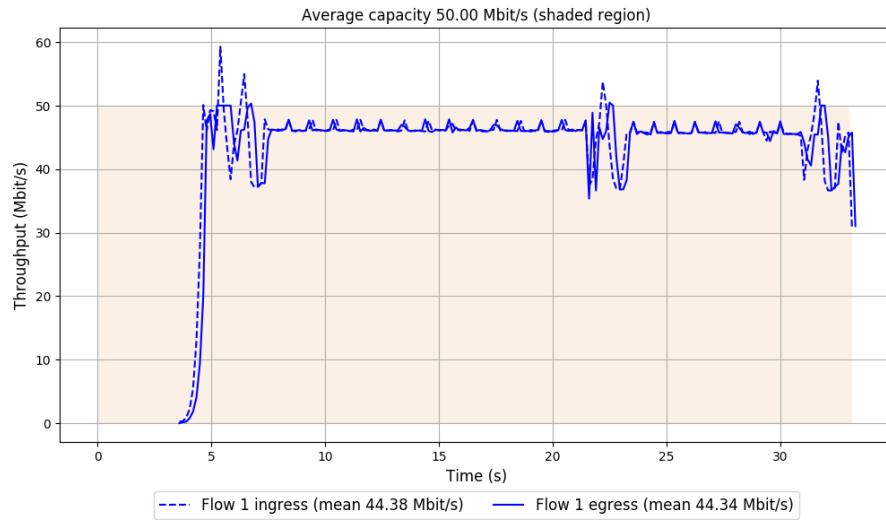
-- Flow 1:

Average throughput: 44.34 Mbit/s

95th percentile per-packet one-way delay: 56.863 ms

Loss rate: 0.16%

## Run 2: Report of Eagle-expert-3 — Data Link

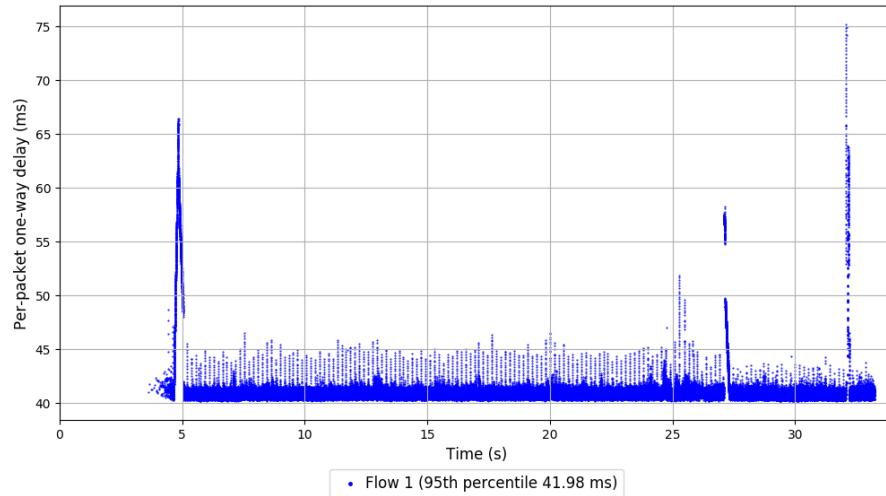
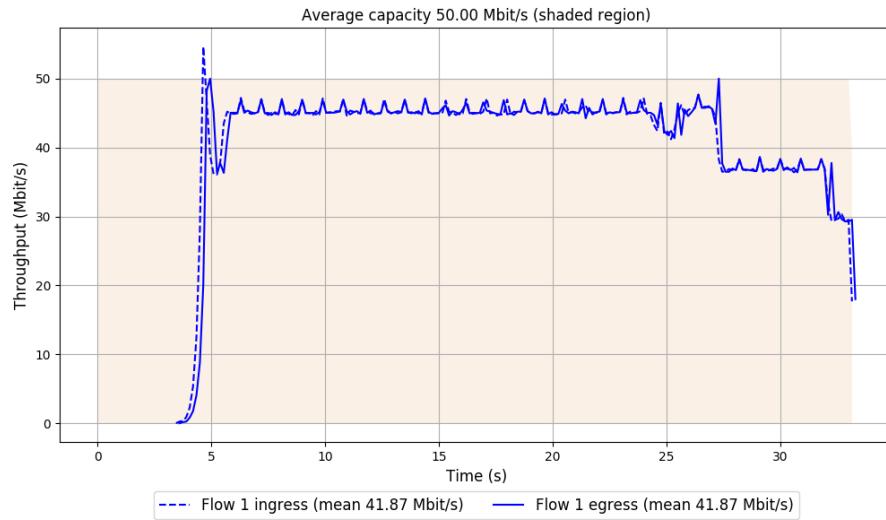


```
Run 3: Statistics of Eagle-expert-3

Start at: 2019-10-29 01:00:31
End at: 2019-10-29 01:01:01

# Below is generated by plot.py at 2019-10-29 01:19:33
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 41.87 Mbit/s (83.7% utilization)
95th percentile per-packet one-way delay: 41.976 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 41.87 Mbit/s
95th percentile per-packet one-way delay: 41.976 ms
Loss rate: 0.13%
```

### Run 3: Report of Eagle-expert-3 — Data Link



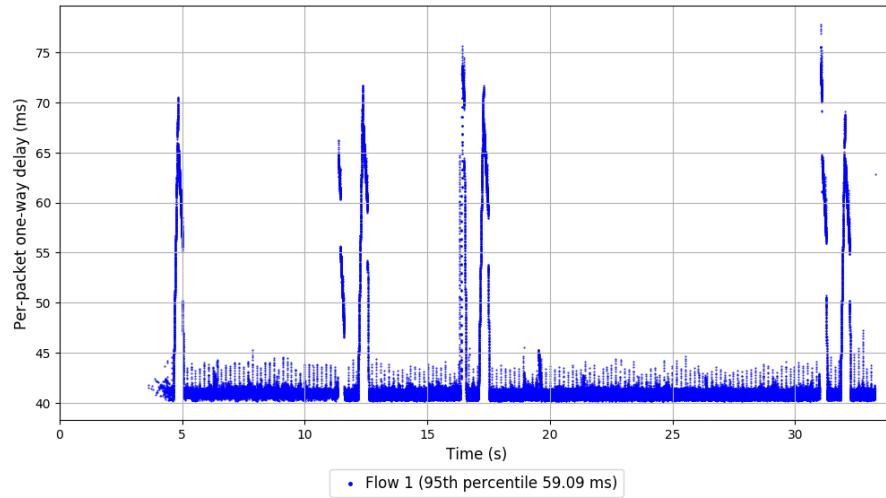
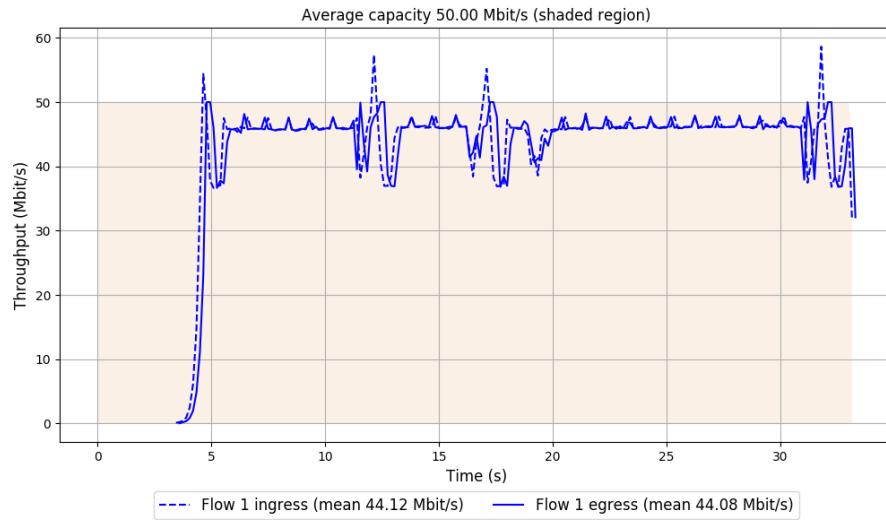
Run 4: Statistics of Eagle-expert-3

Start at: 2019-10-29 01:06:02

End at: 2019-10-29 01:06:32

```
# Below is generated by plot.py at 2019-10-29 01:19:55
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 44.08 Mbit/s (88.2% utilization)
95th percentile per-packet one-way delay: 59.094 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 44.08 Mbit/s
95th percentile per-packet one-way delay: 59.094 ms
Loss rate: 0.16%
```

## Run 4: Report of Eagle-expert-3 — Data Link

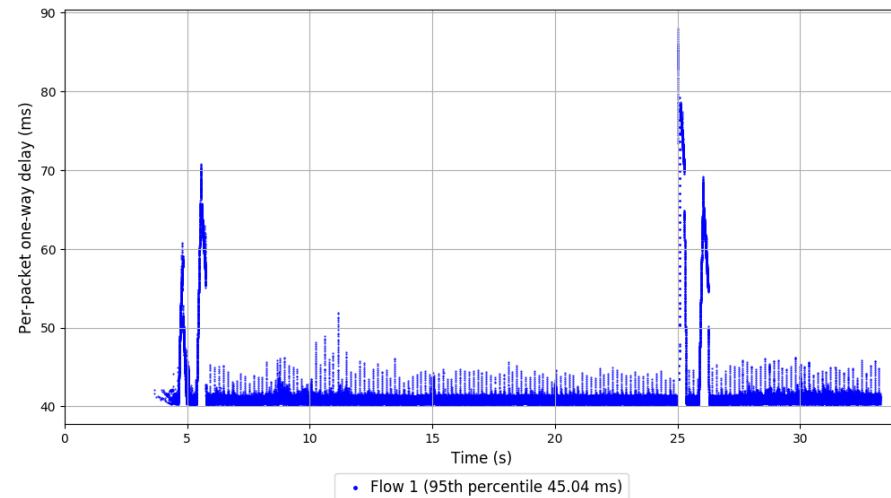
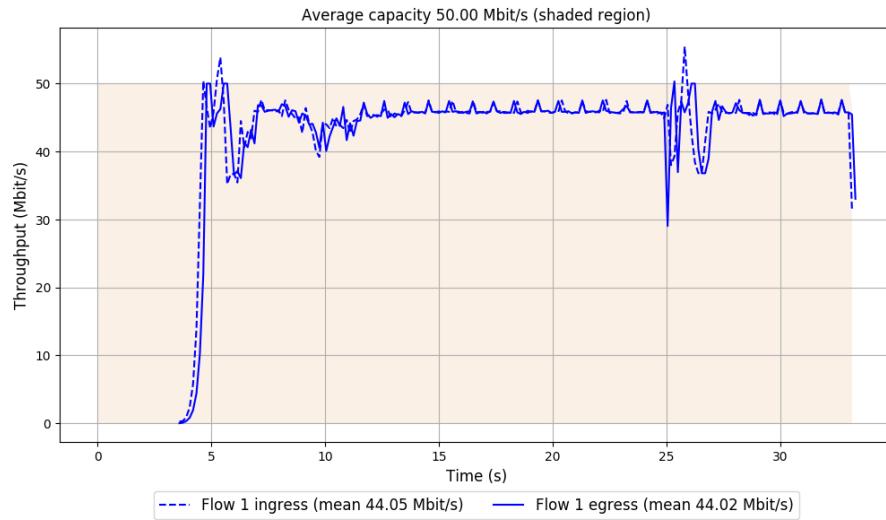


```
Run 5: Statistics of Eagle-expert-3

Start at: 2019-10-29 01:11:33
End at: 2019-10-29 01:12:03

# Below is generated by plot.py at 2019-10-29 01:19:55
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 44.02 Mbit/s (88.0% utilization)
95th percentile per-packet one-way delay: 45.042 ms
Loss rate: 0.21%
-- Flow 1:
Average throughput: 44.02 Mbit/s
95th percentile per-packet one-way delay: 45.042 ms
Loss rate: 0.21%
```

## Run 5: Report of Eagle-expert-3 — Data Link

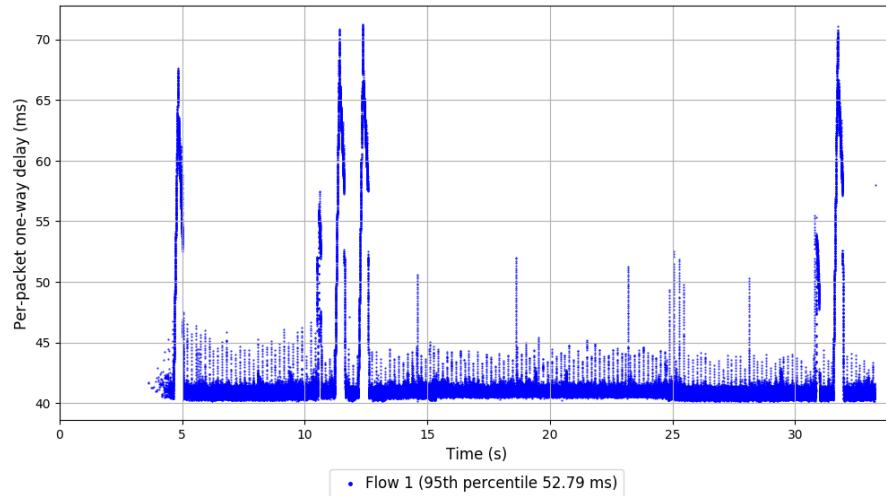
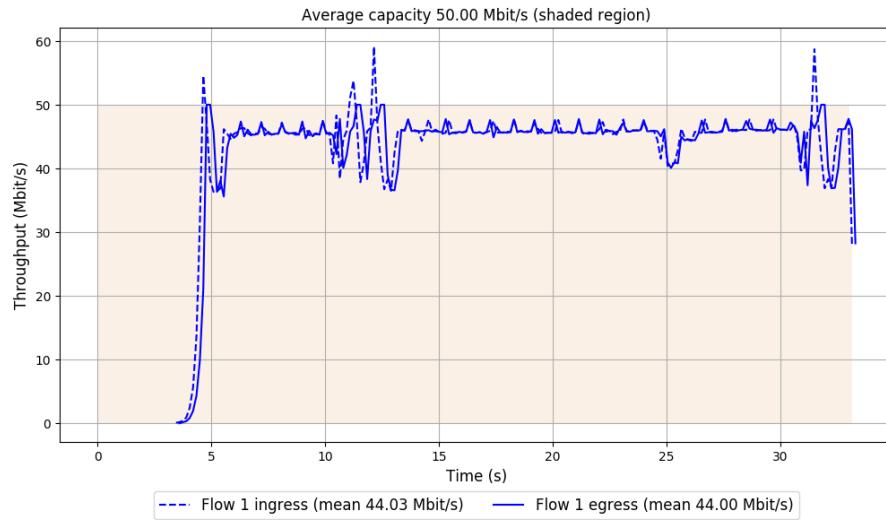


```
Run 1: Statistics of Eagle-expert-4

Start at: 2019-10-29 00:50:09
End at: 2019-10-29 00:50:39

# Below is generated by plot.py at 2019-10-29 01:19:55
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 44.00 Mbit/s (88.0% utilization)
95th percentile per-packet one-way delay: 52.791 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 44.00 Mbit/s
95th percentile per-packet one-way delay: 52.791 ms
Loss rate: 0.15%
```

## Run 1: Report of Eagle-expert-4 — Data Link



Run 2: Statistics of Eagle-expert-4

Start at: 2019-10-29 00:55:38

End at: 2019-10-29 00:56:08

# Below is generated by plot.py at 2019-10-29 01:20:03

# Datalink statistics

-- Total of 1 flow:

Average capacity: 50.00 Mbit/s

Average throughput: 44.49 Mbit/s (89.0% utilization)

95th percentile per-packet one-way delay: 51.302 ms

Loss rate: 0.17%

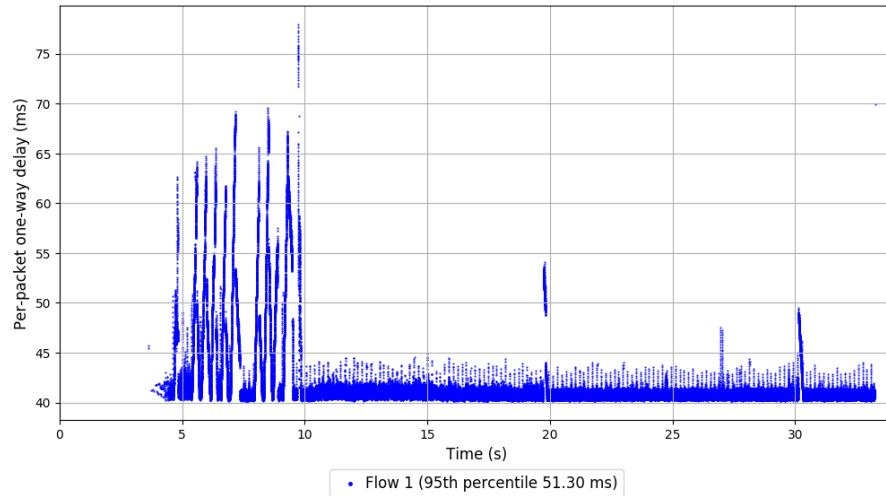
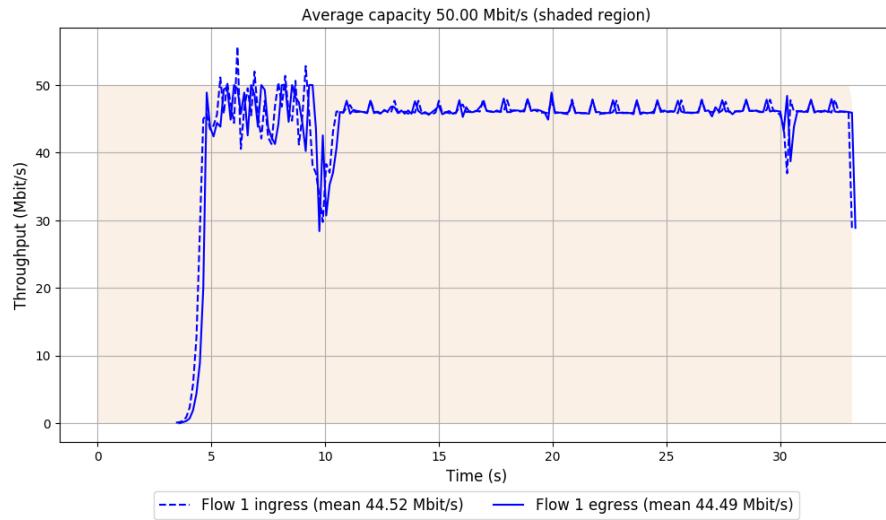
-- Flow 1:

Average throughput: 44.49 Mbit/s

95th percentile per-packet one-way delay: 51.302 ms

Loss rate: 0.17%

## Run 2: Report of Eagle-expert-4 — Data Link

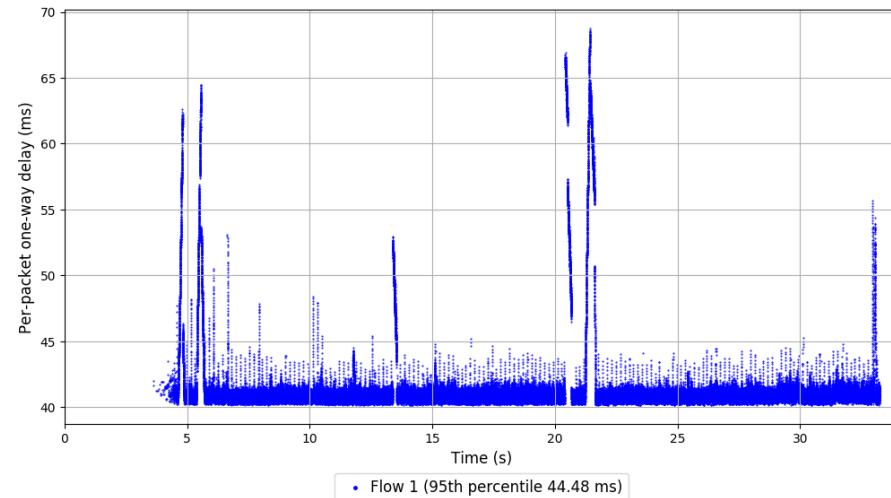
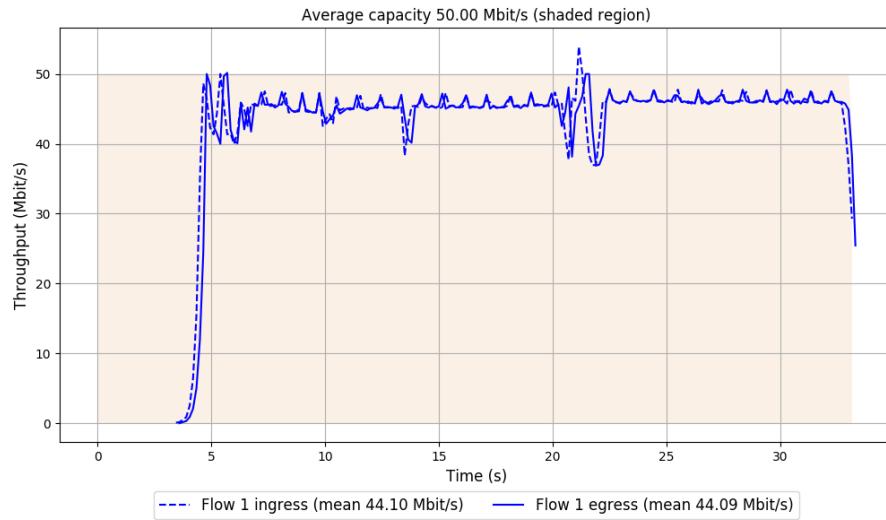


```
Run 3: Statistics of Eagle-expert-4

Start at: 2019-10-29 01:01:08
End at: 2019-10-29 01:01:38

# Below is generated by plot.py at 2019-10-29 01:20:14
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 44.09 Mbit/s (88.2% utilization)
95th percentile per-packet one-way delay: 44.477 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 44.09 Mbit/s
95th percentile per-packet one-way delay: 44.477 ms
Loss rate: 0.15%
```

### Run 3: Report of Eagle-expert-4 — Data Link



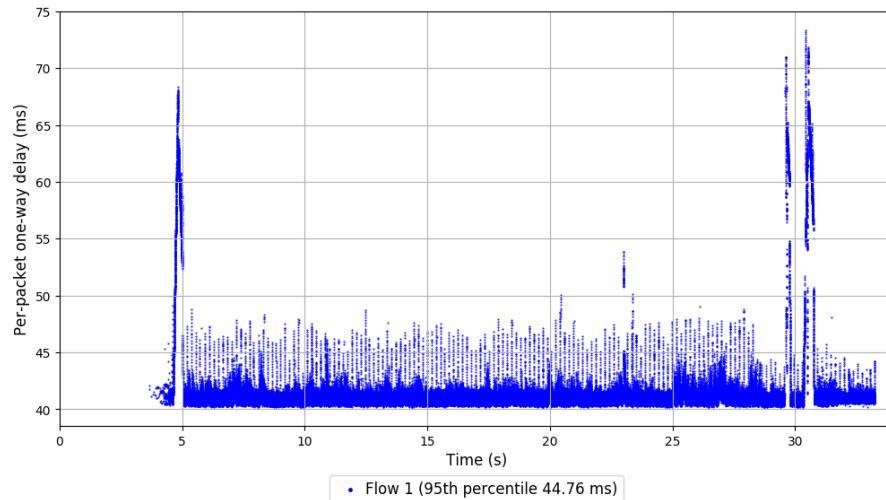
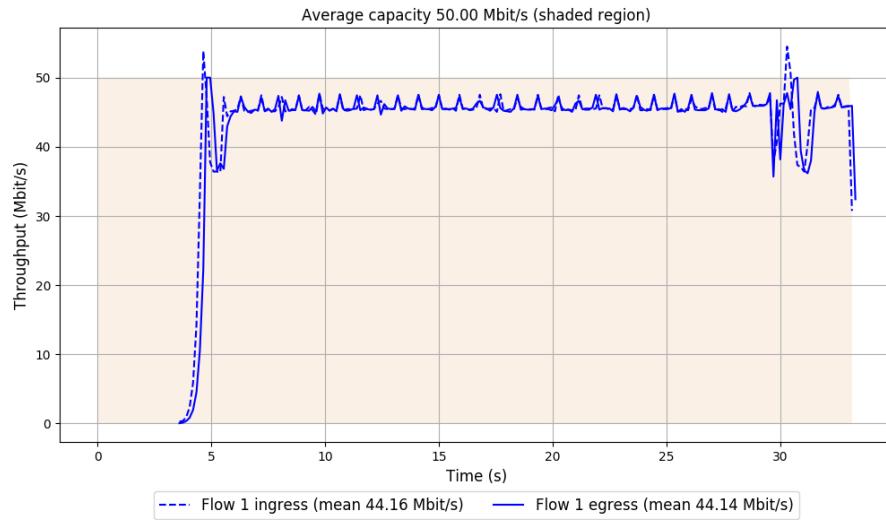
Run 4: Statistics of Eagle-expert-4

Start at: 2019-10-29 01:06:39

End at: 2019-10-29 01:07:09

```
# Below is generated by plot.py at 2019-10-29 01:20:24
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 44.14 Mbit/s (88.3% utilization)
95th percentile per-packet one-way delay: 44.756 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 44.14 Mbit/s
95th percentile per-packet one-way delay: 44.756 ms
Loss rate: 0.19%
```

## Run 4: Report of Eagle-expert-4 — Data Link

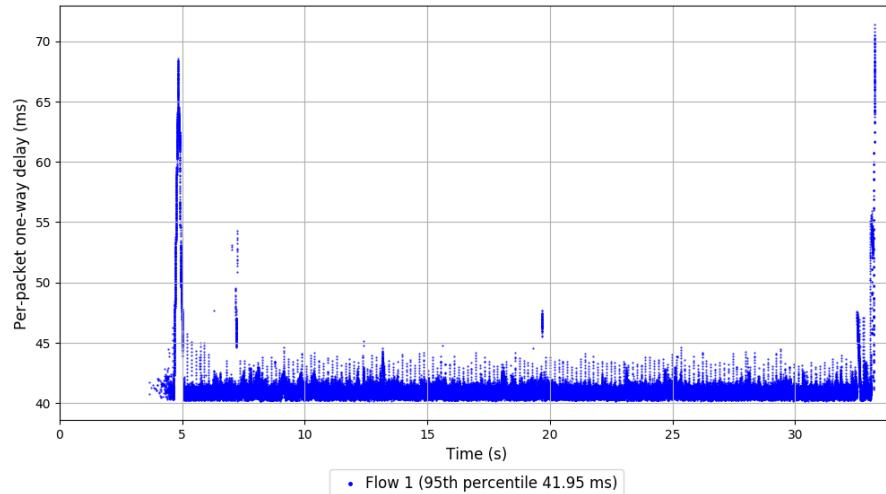
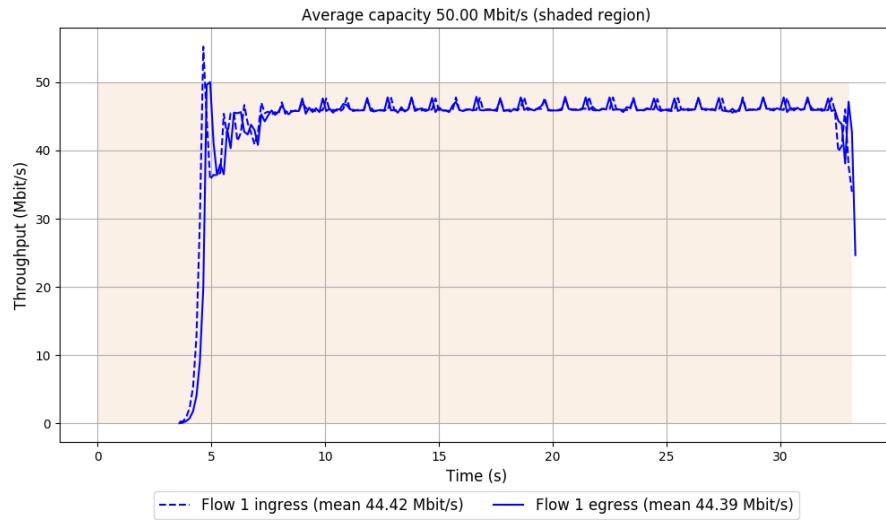


```
Run 5: Statistics of Eagle-expert-4

Start at: 2019-10-29 01:12:10
End at: 2019-10-29 01:12:40

# Below is generated by plot.py at 2019-10-29 01:20:24
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 44.39 Mbit/s (88.8% utilization)
95th percentile per-packet one-way delay: 41.952 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 44.39 Mbit/s
95th percentile per-packet one-way delay: 41.952 ms
Loss rate: 0.19%
```

Run 5: Report of Eagle-expert-4 — Data Link

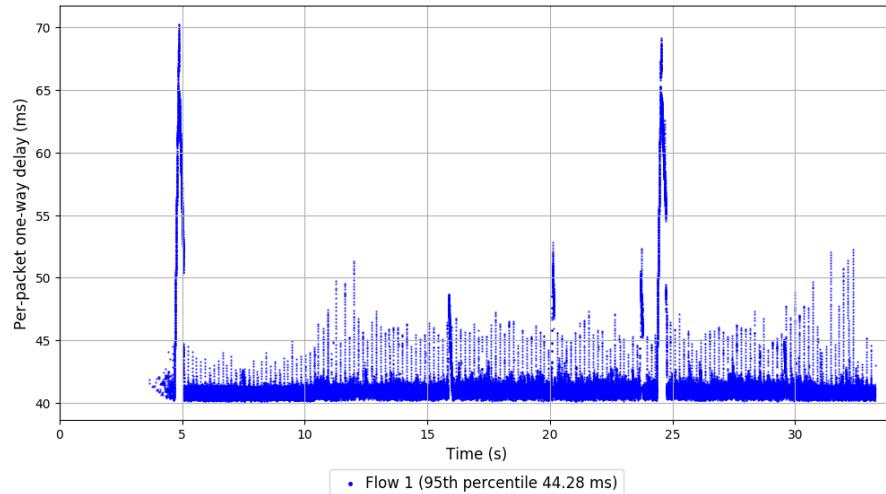
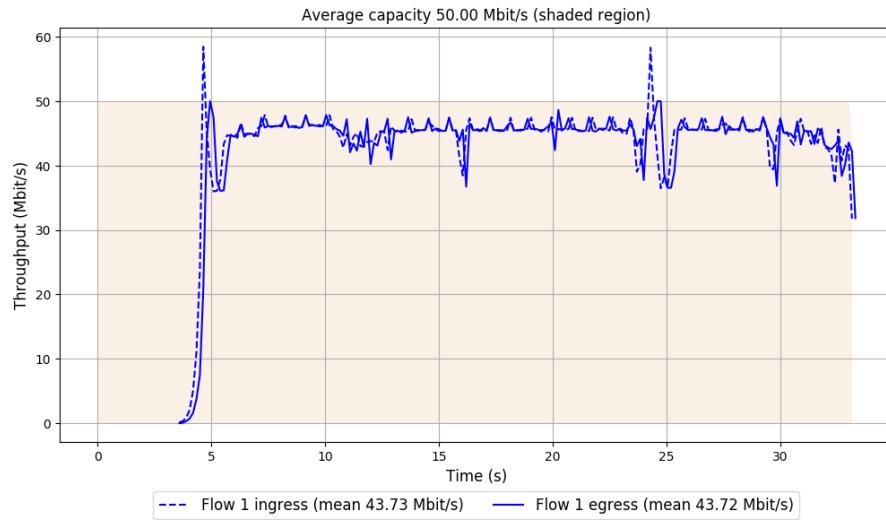


```
Run 1: Statistics of Eagle-expert-5

Start at: 2019-10-29 00:50:46
End at: 2019-10-29 00:51:16

# Below is generated by plot.py at 2019-10-29 01:20:32
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 43.72 Mbit/s (87.4% utilization)
95th percentile per-packet one-way delay: 44.277 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 43.72 Mbit/s
95th percentile per-packet one-way delay: 44.277 ms
Loss rate: 0.14%
```

Run 1: Report of Eagle-expert-5 — Data Link



Run 2: Statistics of Eagle-expert-5

Start at: 2019-10-29 00:56:15

End at: 2019-10-29 00:56:45

# Below is generated by plot.py at 2019-10-29 01:20:43

# Datalink statistics

-- Total of 1 flow:

Average capacity: 50.00 Mbit/s

Average throughput: 44.36 Mbit/s (88.7% utilization)

95th percentile per-packet one-way delay: 41.909 ms

Loss rate: 0.14%

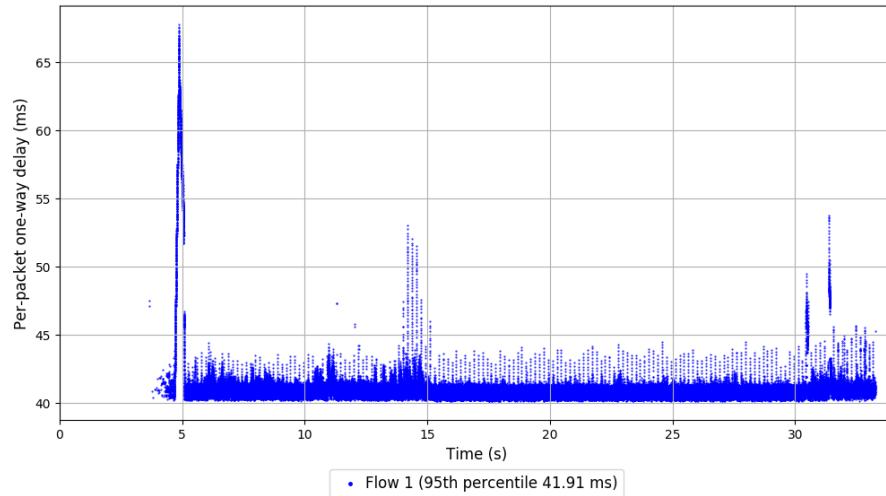
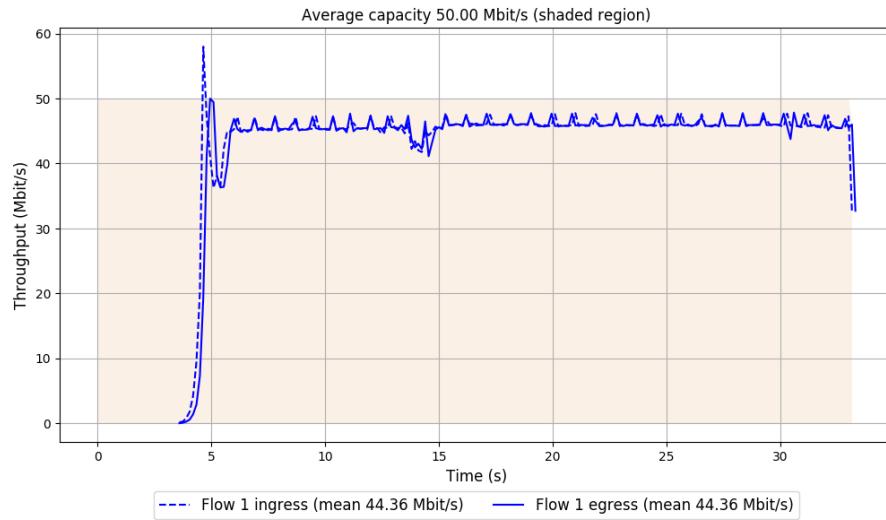
-- Flow 1:

Average throughput: 44.36 Mbit/s

95th percentile per-packet one-way delay: 41.909 ms

Loss rate: 0.14%

Run 2: Report of Eagle-expert-5 — Data Link

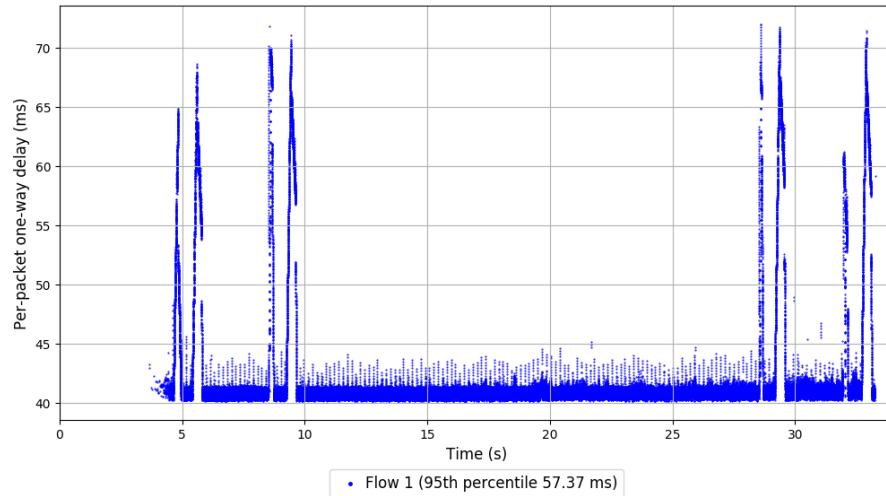
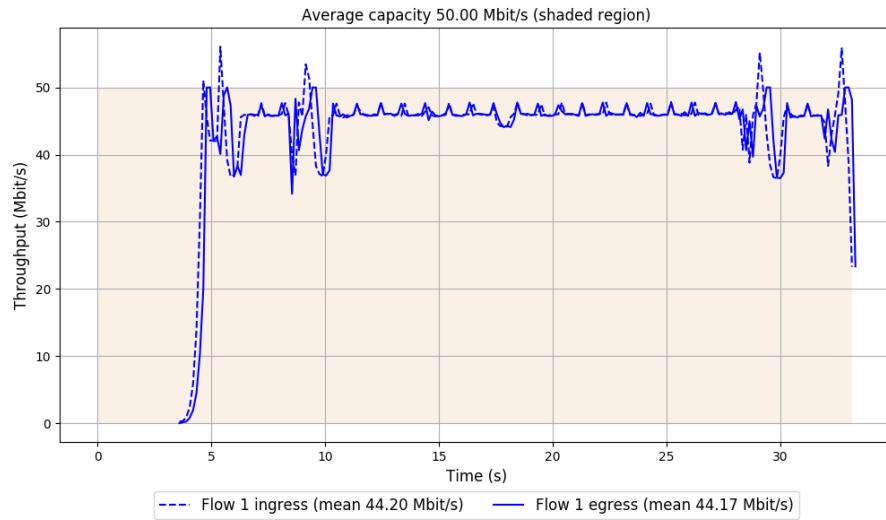


```
Run 3: Statistics of Eagle-expert-5

Start at: 2019-10-29 01:01:45
End at: 2019-10-29 01:02:15

# Below is generated by plot.py at 2019-10-29 01:20:57
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 44.17 Mbit/s (88.3% utilization)
95th percentile per-packet one-way delay: 57.371 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 44.17 Mbit/s
95th percentile per-packet one-way delay: 57.371 ms
Loss rate: 0.17%
```

### Run 3: Report of Eagle-expert-5 — Data Link



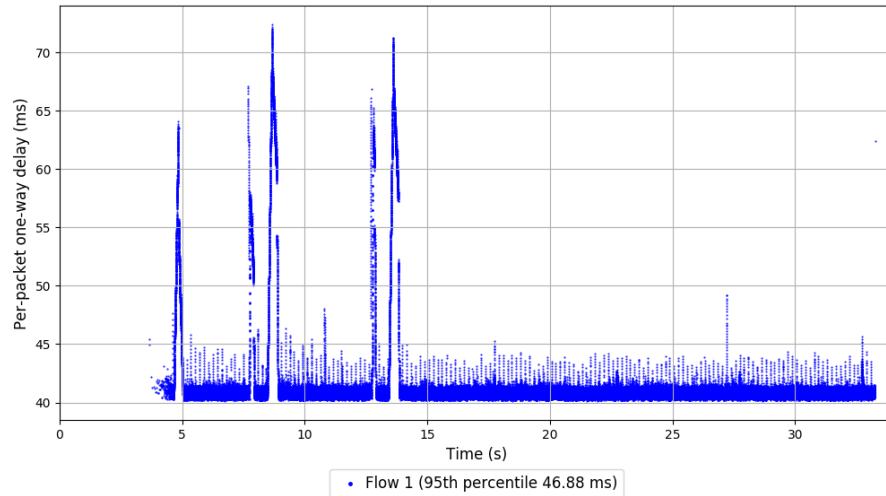
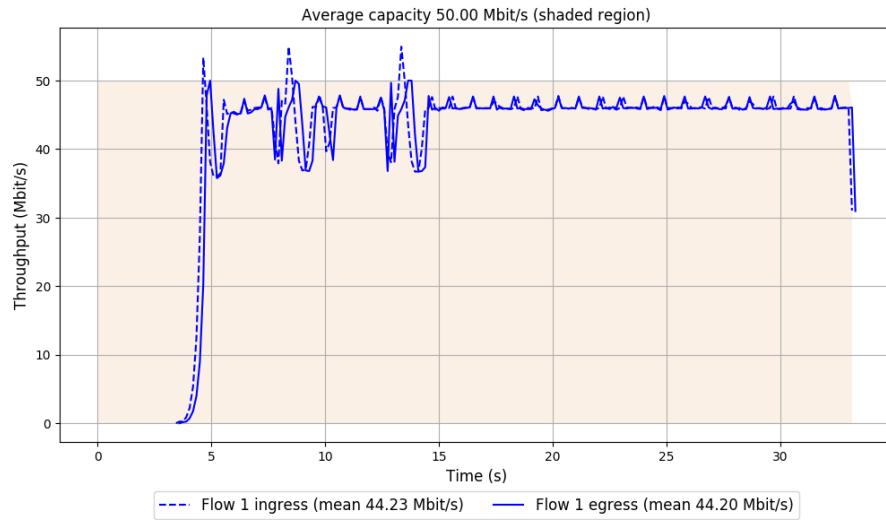
Run 4: Statistics of Eagle-expert-5

Start at: 2019-10-29 01:07:16

End at: 2019-10-29 01:07:46

```
# Below is generated by plot.py at 2019-10-29 01:20:57
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 44.20 Mbit/s (88.4% utilization)
95th percentile per-packet one-way delay: 46.880 ms
Loss rate: 0.20%
-- Flow 1:
Average throughput: 44.20 Mbit/s
95th percentile per-packet one-way delay: 46.880 ms
Loss rate: 0.20%
```

## Run 4: Report of Eagle-expert-5 — Data Link

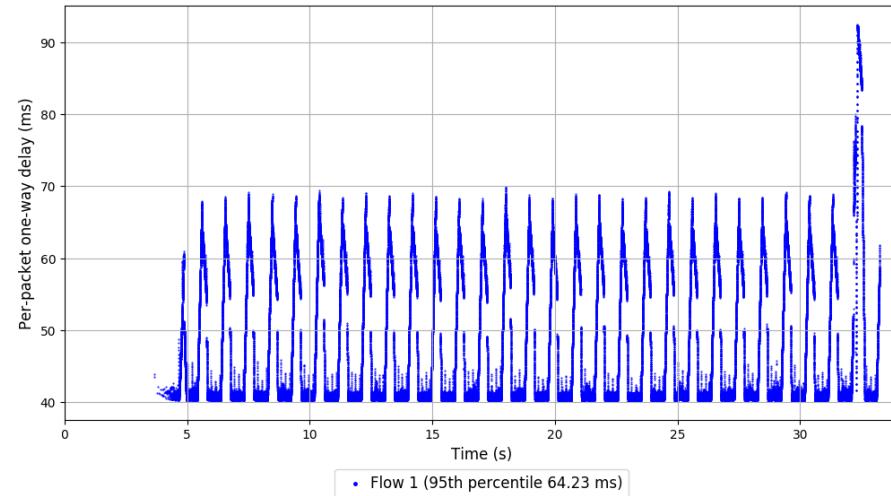


```
Run 5: Statistics of Eagle-expert-5

Start at: 2019-10-29 01:12:47
End at: 2019-10-29 01:13:17

# Below is generated by plot.py at 2019-10-29 01:21:01
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 44.75 Mbit/s (89.5% utilization)
95th percentile per-packet one-way delay: 64.232 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 44.75 Mbit/s
95th percentile per-packet one-way delay: 64.232 ms
Loss rate: 0.24%
```

## Run 5: Report of Eagle-expert-5 — Data Link

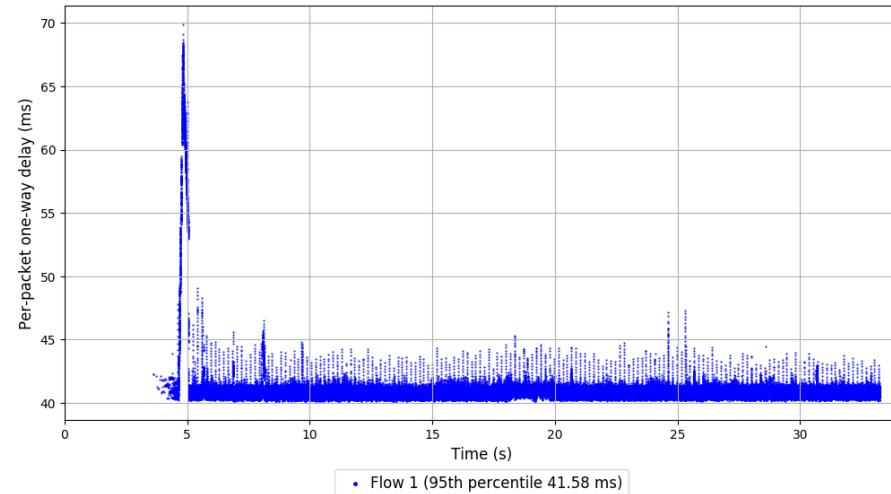
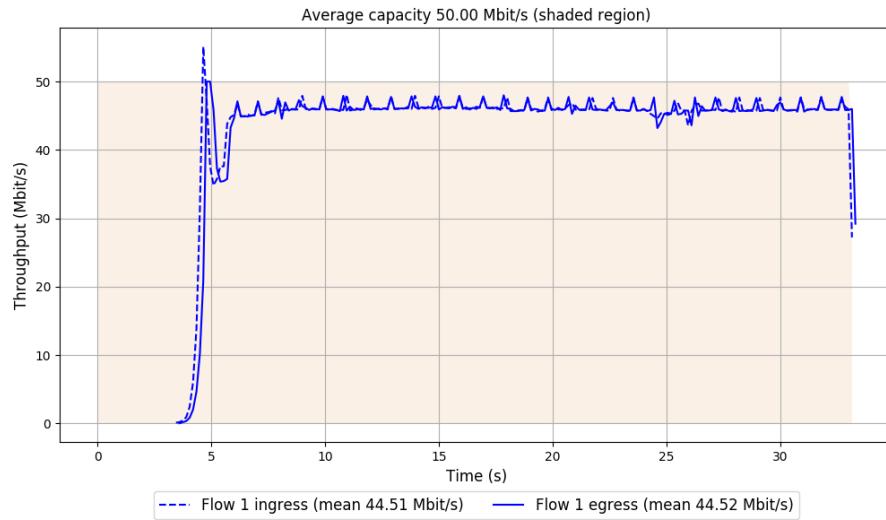


```
Run 1: Statistics of Eagle-expert-6

Start at: 2019-10-29 00:51:23
End at: 2019-10-29 00:51:53

# Below is generated by plot.py at 2019-10-29 01:21:13
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 44.52 Mbit/s (89.0% utilization)
95th percentile per-packet one-way delay: 41.582 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 44.52 Mbit/s
95th percentile per-packet one-way delay: 41.582 ms
Loss rate: 0.13%
```

## Run 1: Report of Eagle-expert-6 — Data Link



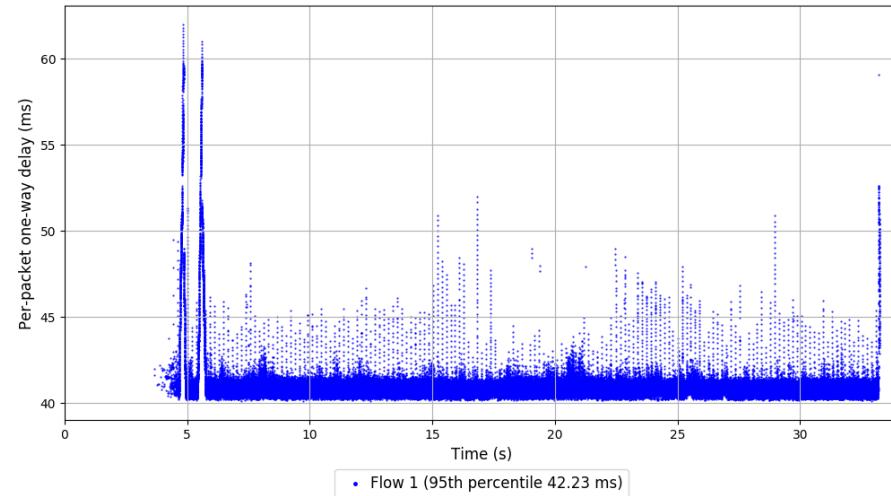
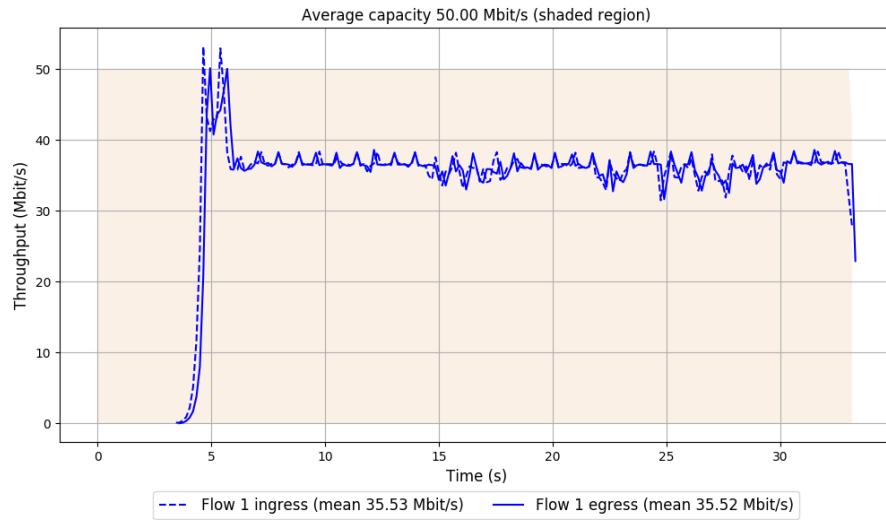
Run 2: Statistics of Eagle-expert-6

Start at: 2019-10-29 00:56:52

End at: 2019-10-29 00:57:22

```
# Below is generated by plot.py at 2019-10-29 01:21:15
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 35.52 Mbit/s (71.0% utilization)
95th percentile per-packet one-way delay: 42.234 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 35.52 Mbit/s
95th percentile per-packet one-way delay: 42.234 ms
Loss rate: 0.16%
```

## Run 2: Report of Eagle-expert-6 — Data Link

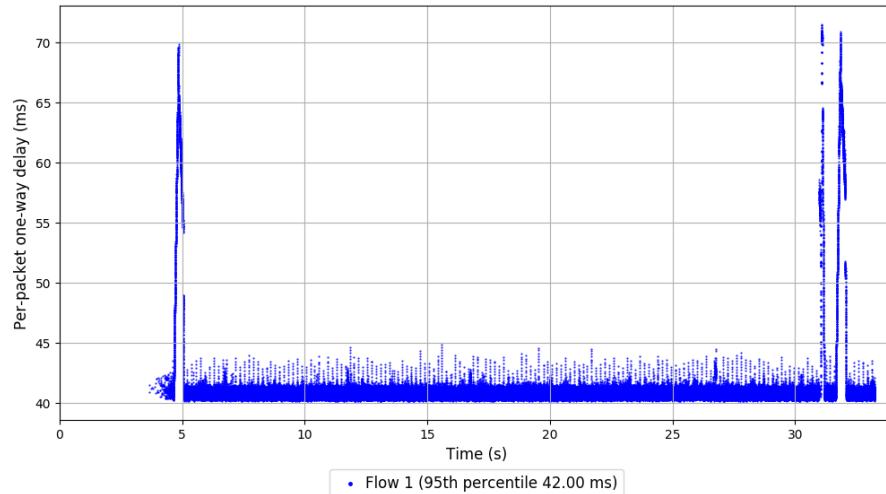
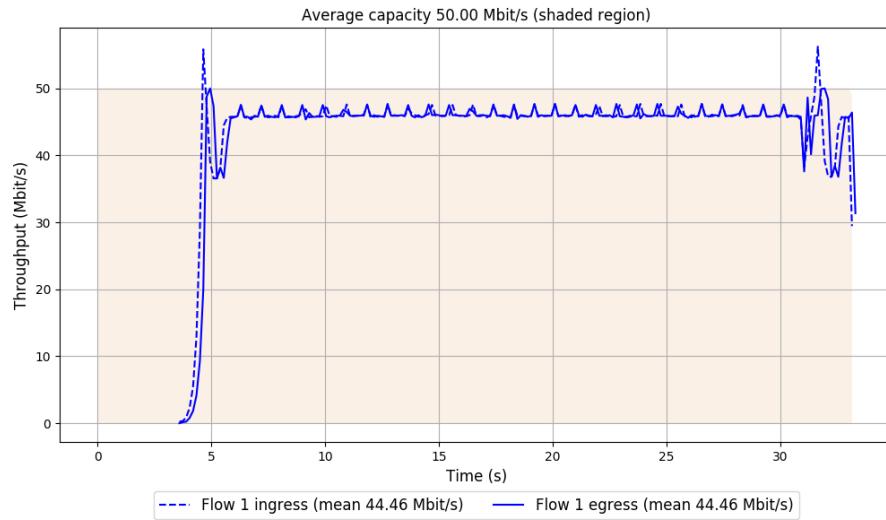


```
Run 3: Statistics of Eagle-expert-6

Start at: 2019-10-29 01:02:22
End at: 2019-10-29 01:02:52

# Below is generated by plot.py at 2019-10-29 01:21:25
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 44.46 Mbit/s (88.9% utilization)
95th percentile per-packet one-way delay: 42.003 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 44.46 Mbit/s
95th percentile per-packet one-way delay: 42.003 ms
Loss rate: 0.12%
```

### Run 3: Report of Eagle-expert-6 — Data Link

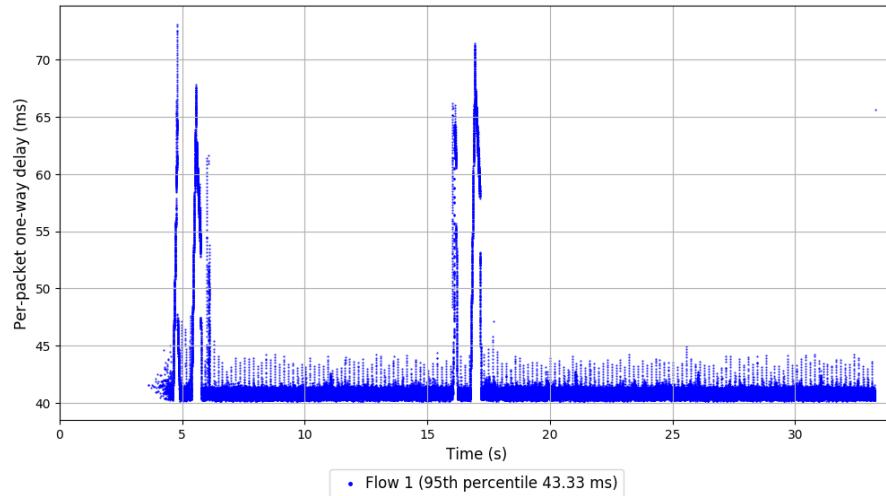
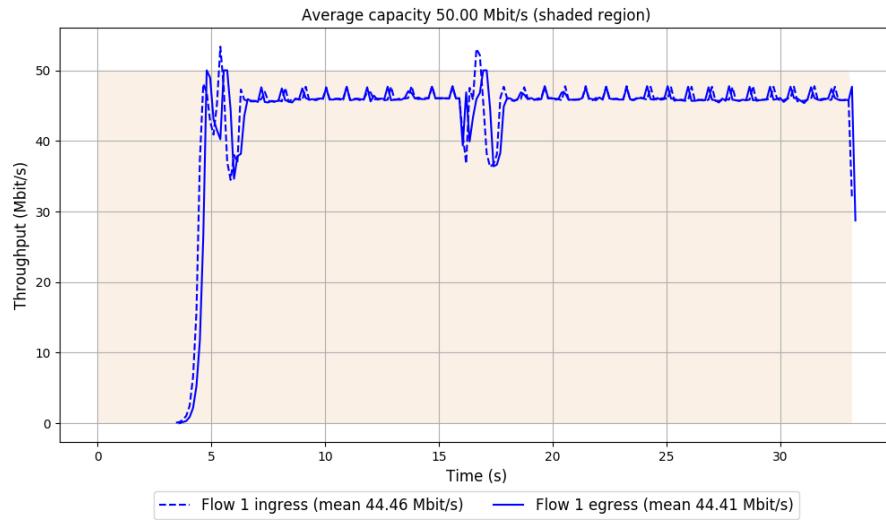


```
Run 4: Statistics of Eagle-expert-6

Start at: 2019-10-29 01:07:53
End at: 2019-10-29 01:08:23

# Below is generated by plot.py at 2019-10-29 01:21:32
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 44.41 Mbit/s (88.8% utilization)
95th percentile per-packet one-way delay: 43.325 ms
Loss rate: 0.18%
-- Flow 1:
Average throughput: 44.41 Mbit/s
95th percentile per-packet one-way delay: 43.325 ms
Loss rate: 0.18%
```

## Run 4: Report of Eagle-expert-6 — Data Link

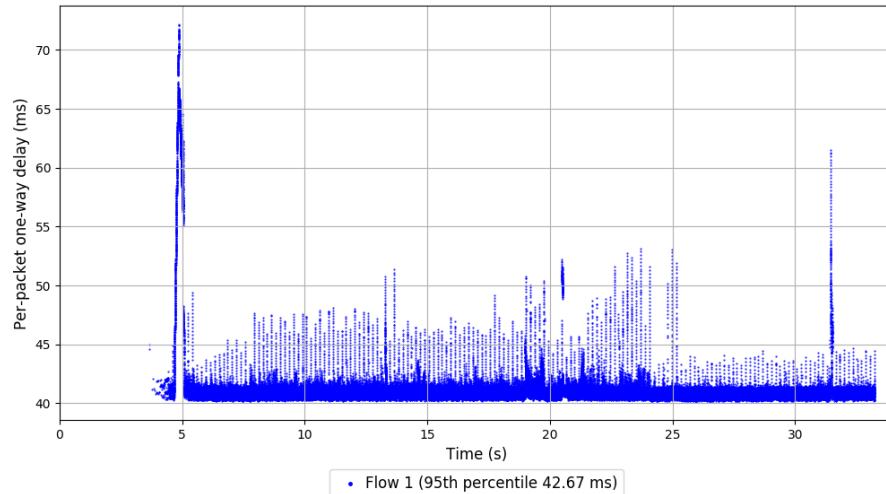
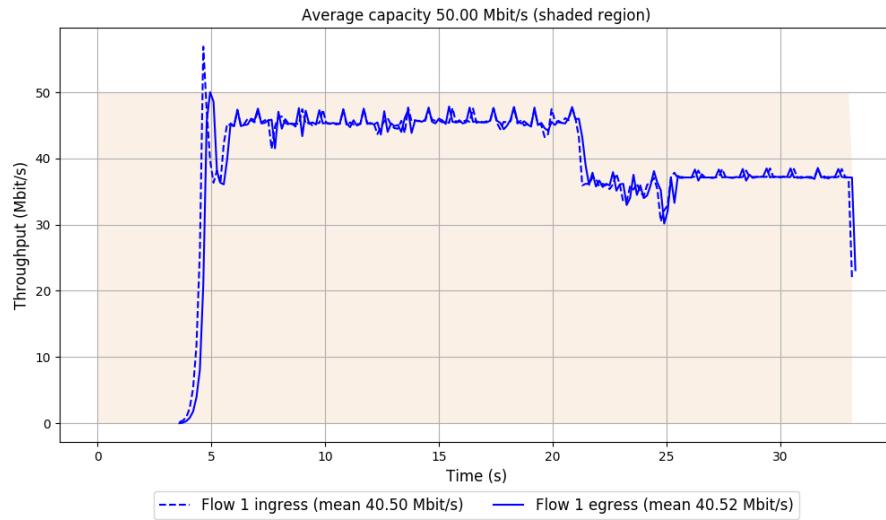


```
Run 5: Statistics of Eagle-expert-6

Start at: 2019-10-29 01:13:24
End at: 2019-10-29 01:13:54

# Below is generated by plot.py at 2019-10-29 01:21:42
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 40.52 Mbit/s (81.0% utilization)
95th percentile per-packet one-way delay: 42.667 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 40.52 Mbit/s
95th percentile per-packet one-way delay: 42.667 ms
Loss rate: 0.12%
```

## Run 5: Report of Eagle-expert-6 — Data Link

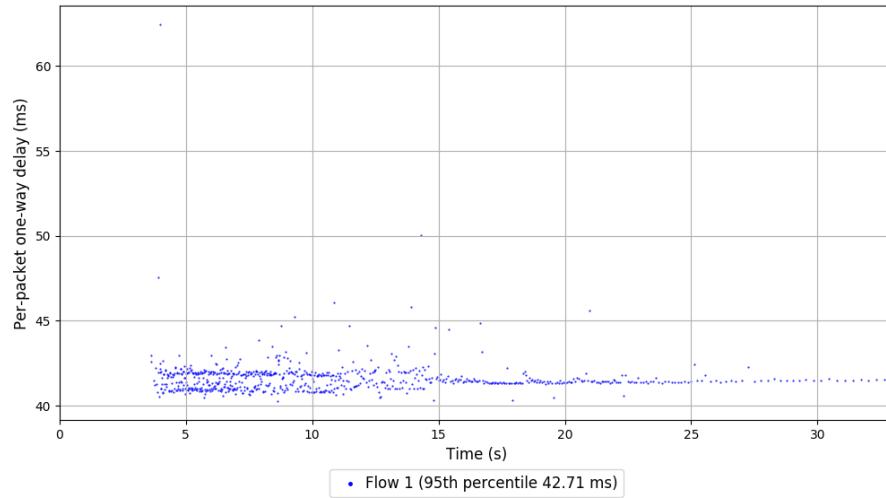
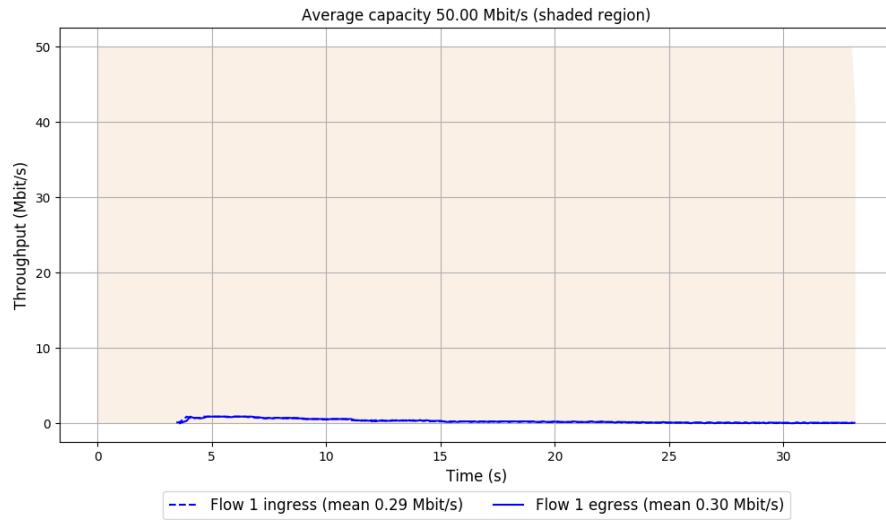


```
Run 1: Statistics of Eagle-expert-7

Start at: 2019-10-29 00:51:59
End at: 2019-10-29 00:52:29

# Below is generated by plot.py at 2019-10-29 01:21:42
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 0.30 Mbit/s (0.6% utilization)
95th percentile per-packet one-way delay: 42.707 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 0.30 Mbit/s
95th percentile per-packet one-way delay: 42.707 ms
Loss rate: 0.14%
```

Run 1: Report of Eagle-expert-7 — Data Link

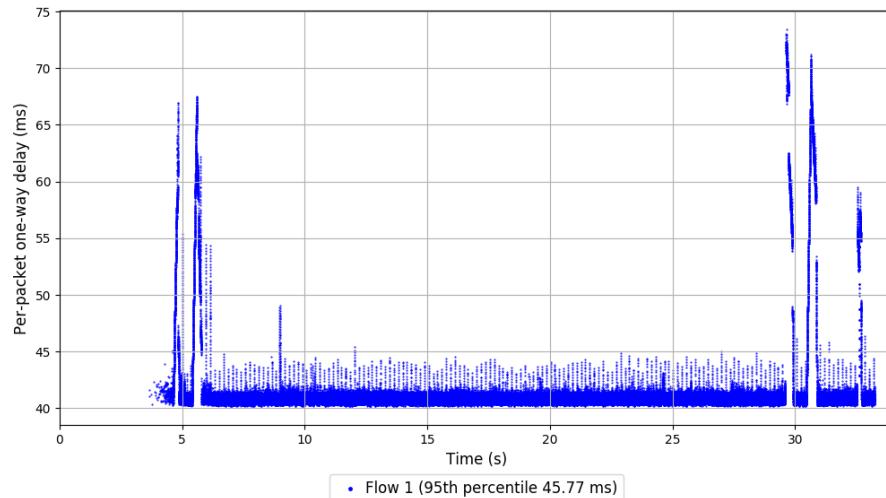
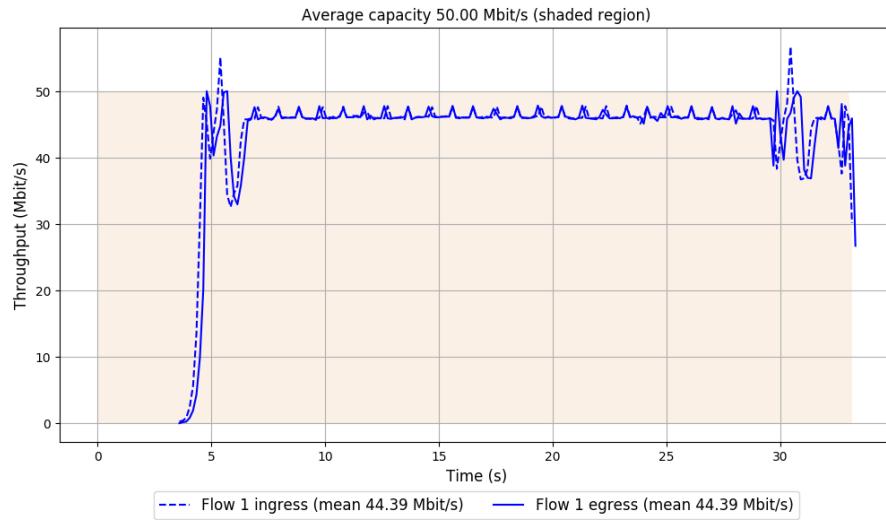


```
Run 2: Statistics of Eagle-expert-7

Start at: 2019-10-29 00:57:28
End at: 2019-10-29 00:57:58

# Below is generated by plot.py at 2019-10-29 01:21:50
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 44.39 Mbit/s (88.8% utilization)
95th percentile per-packet one-way delay: 45.773 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 44.39 Mbit/s
95th percentile per-packet one-way delay: 45.773 ms
Loss rate: 0.19%
```

## Run 2: Report of Eagle-expert-7 — Data Link

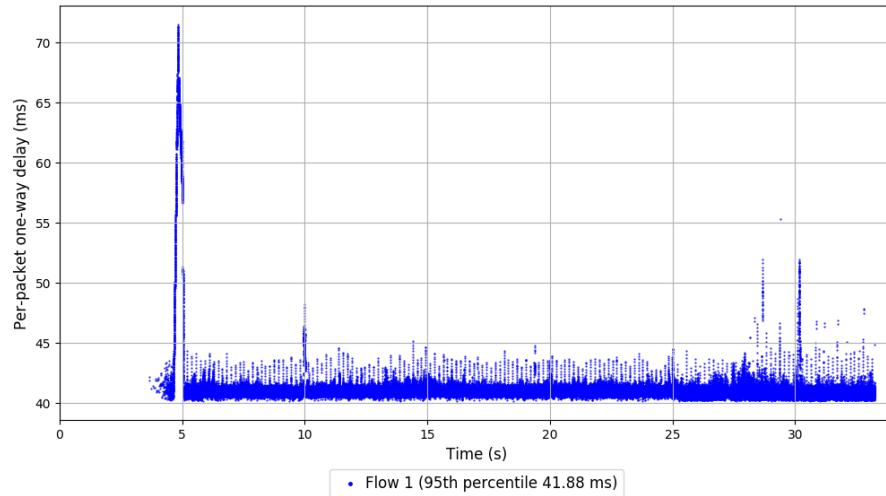
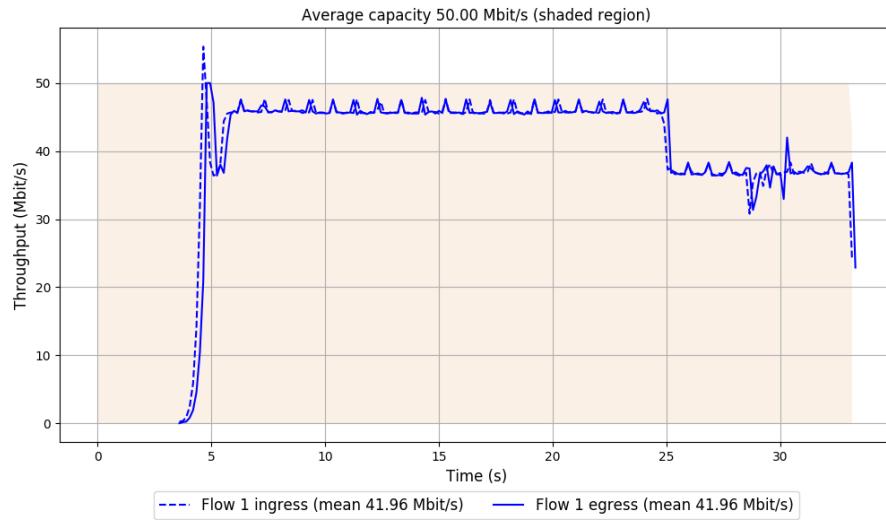


```
Run 3: Statistics of Eagle-expert-7

Start at: 2019-10-29 01:02:59
End at: 2019-10-29 01:03:29

# Below is generated by plot.py at 2019-10-29 01:21:56
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 41.96 Mbit/s (83.9% utilization)
95th percentile per-packet one-way delay: 41.884 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 41.96 Mbit/s
95th percentile per-packet one-way delay: 41.884 ms
Loss rate: 0.12%
```

### Run 3: Report of Eagle-expert-7 — Data Link

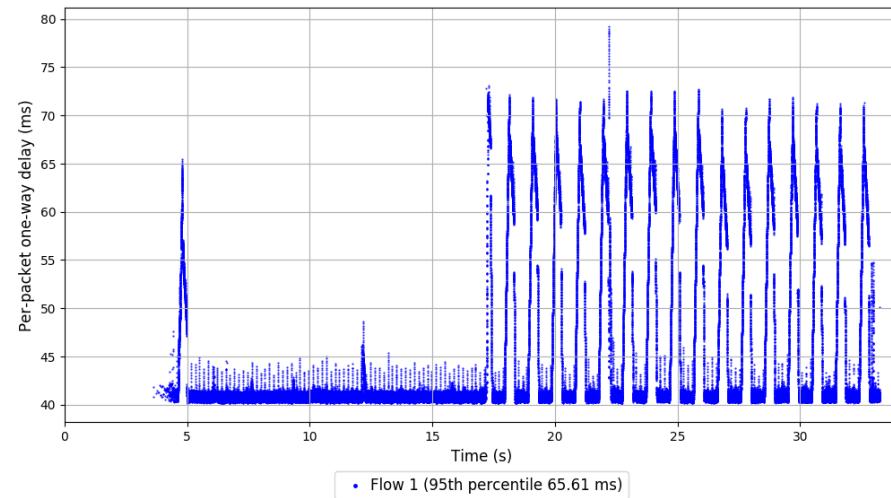
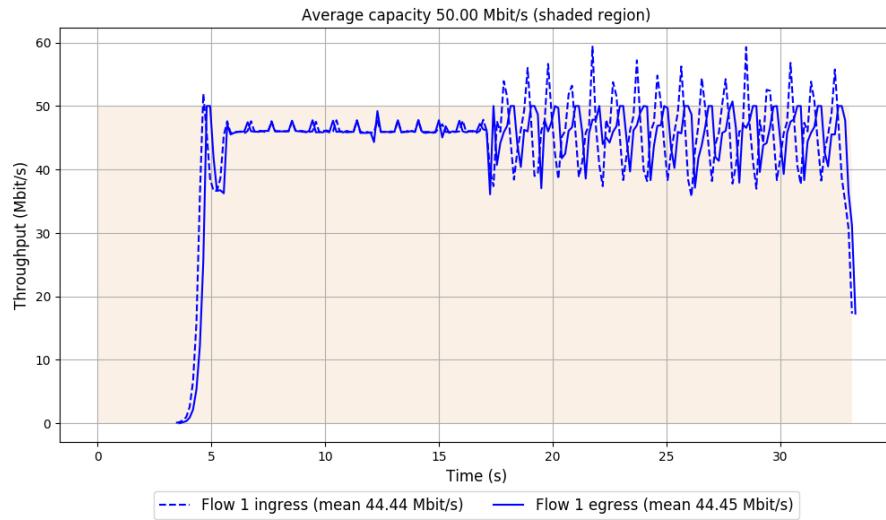


```
Run 4: Statistics of Eagle-expert-7

Start at: 2019-10-29 01:08:29
End at: 2019-10-29 01:08:59

# Below is generated by plot.py at 2019-10-29 01:22:00
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 44.45 Mbit/s (88.9% utilization)
95th percentile per-packet one-way delay: 65.615 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 44.45 Mbit/s
95th percentile per-packet one-way delay: 65.615 ms
Loss rate: 0.10%
```

## Run 4: Report of Eagle-expert-7 — Data Link

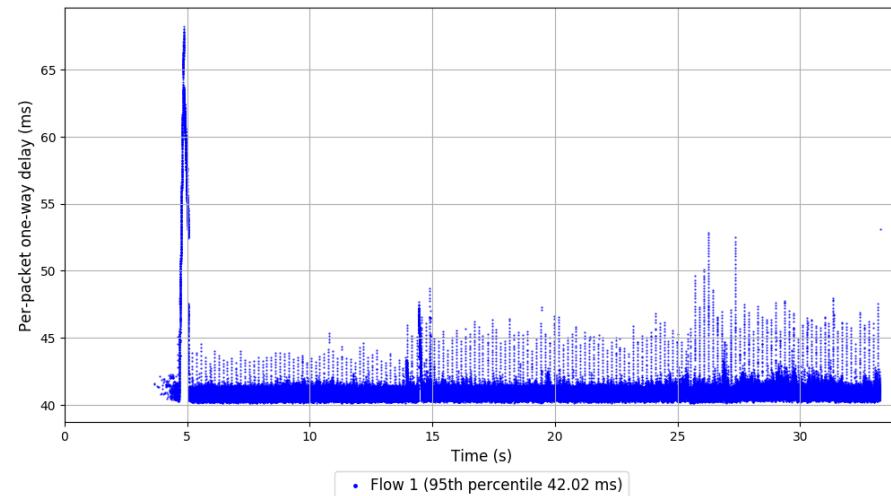
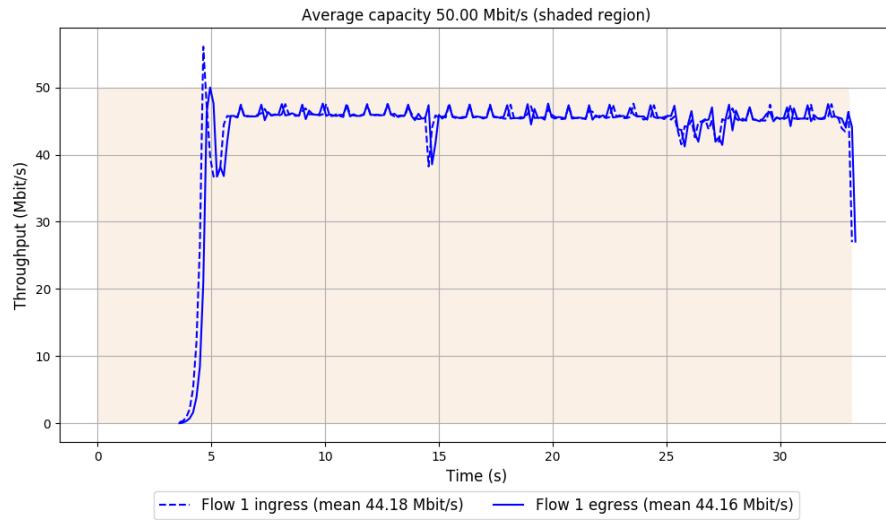


```
Run 5: Statistics of Eagle-expert-7

Start at: 2019-10-29 01:14:00
End at: 2019-10-29 01:14:30

# Below is generated by plot.py at 2019-10-29 01:22:08
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 44.16 Mbit/s (88.3% utilization)
95th percentile per-packet one-way delay: 42.023 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 44.16 Mbit/s
95th percentile per-packet one-way delay: 42.023 ms
Loss rate: 0.14%
```

Run 5: Report of Eagle-expert-7 — Data Link



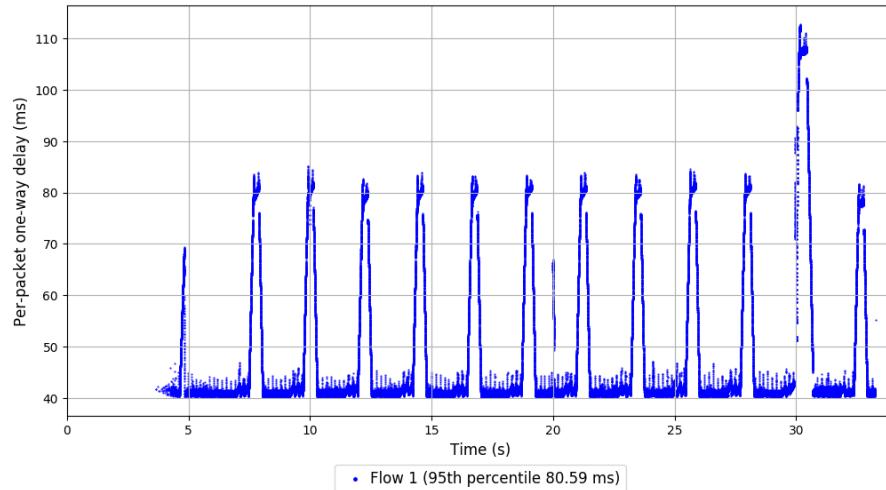
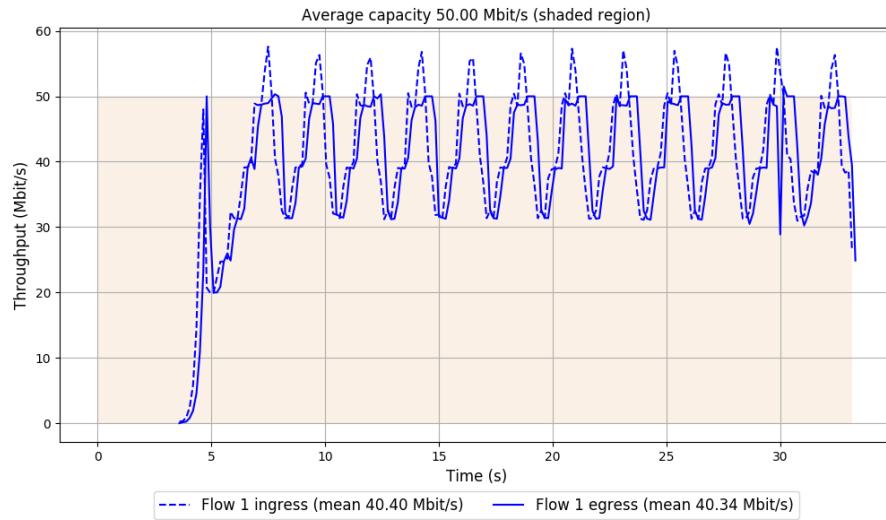
Run 1: Statistics of Synthesized-BBR

Start at: 2019-10-29 00:52:34

End at: 2019-10-29 00:53:04

```
# Below is generated by plot.py at 2019-10-29 01:22:18
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 40.34 Mbit/s (80.7% utilization)
95th percentile per-packet one-way delay: 80.587 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 40.34 Mbit/s
95th percentile per-packet one-way delay: 80.587 ms
Loss rate: 0.25%
```

## Run 1: Report of Synthesized-BBR — Data Link



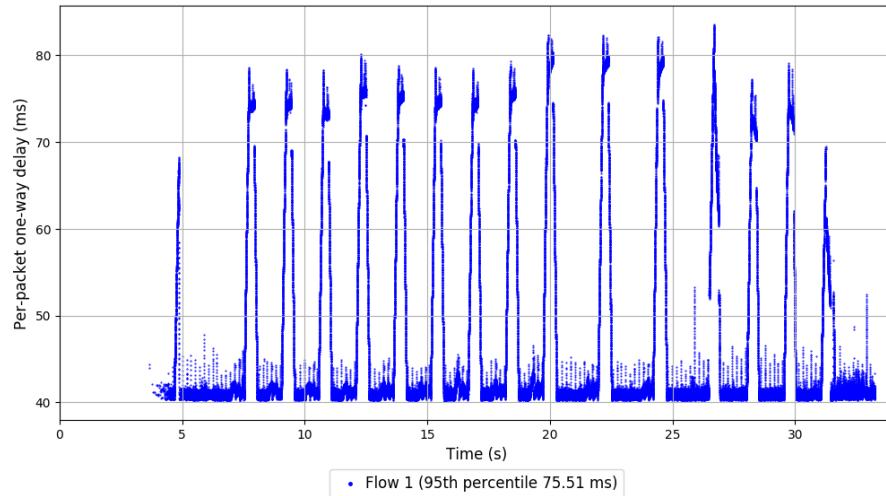
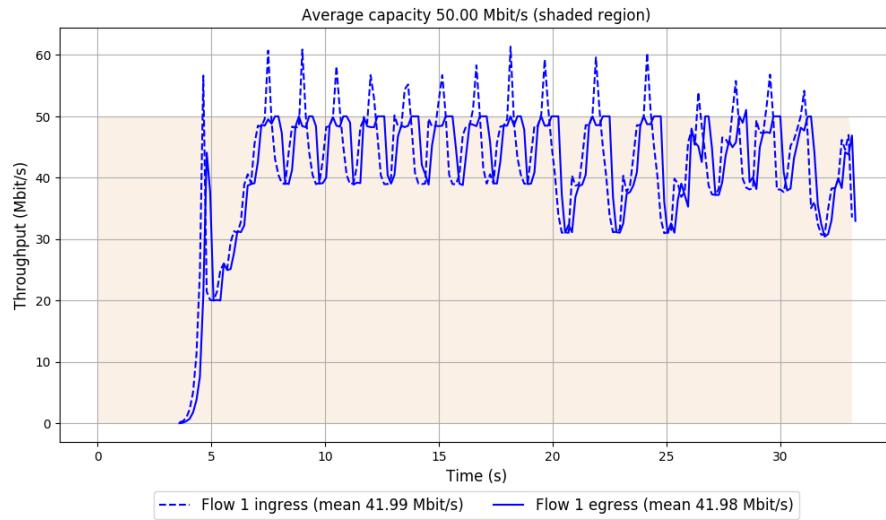
Run 2: Statistics of Synthesized-BBR

Start at: 2019-10-29 00:58:05

End at: 2019-10-29 00:58:35

```
# Below is generated by plot.py at 2019-10-29 01:22:24
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 41.98 Mbit/s (84.0% utilization)
95th percentile per-packet one-way delay: 75.512 ms
Loss rate: 0.17%
-- Flow 1:
Average throughput: 41.98 Mbit/s
95th percentile per-packet one-way delay: 75.512 ms
Loss rate: 0.17%
```

## Run 2: Report of Synthesized-BBR — Data Link



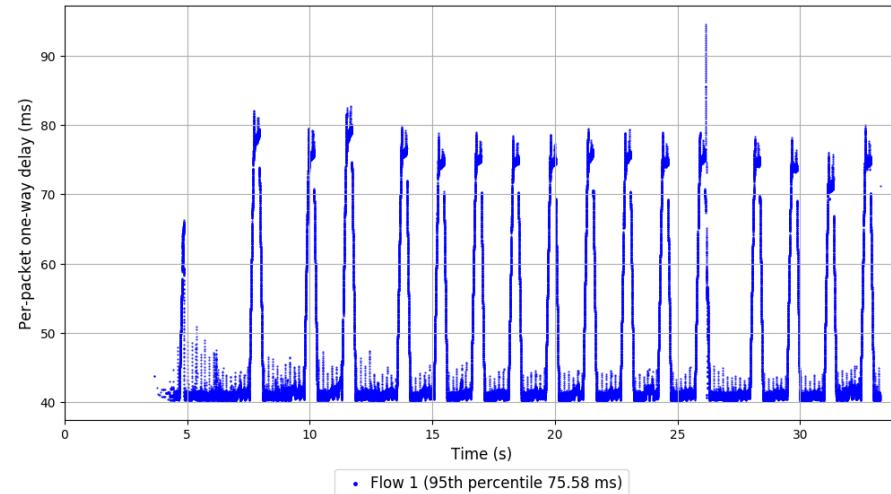
Run 3: Statistics of Synthesized-BBR

Start at: 2019-10-29 01:03:35

End at: 2019-10-29 01:04:05

```
# Below is generated by plot.py at 2019-10-29 01:22:26
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 42.69 Mbit/s (85.4% utilization)
95th percentile per-packet one-way delay: 75.579 ms
Loss rate: 0.16%
-- Flow 1:
Average throughput: 42.69 Mbit/s
95th percentile per-packet one-way delay: 75.579 ms
Loss rate: 0.16%
```

### Run 3: Report of Synthesized-BBR — Data Link



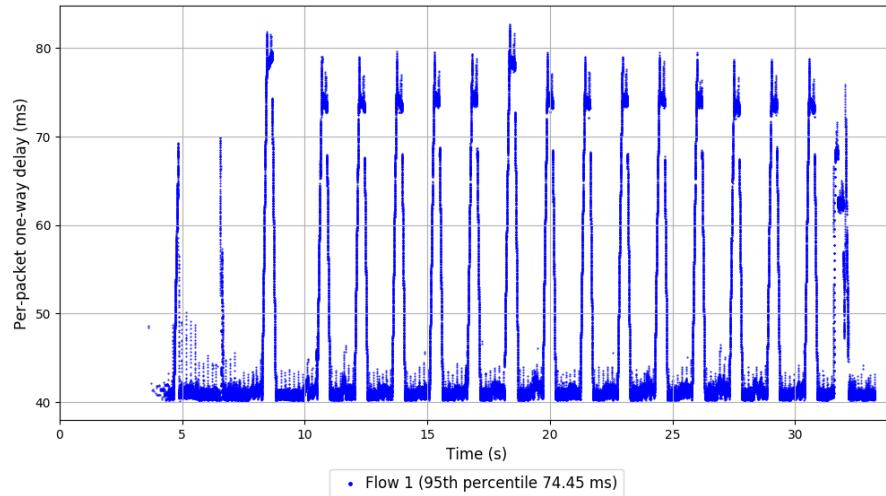
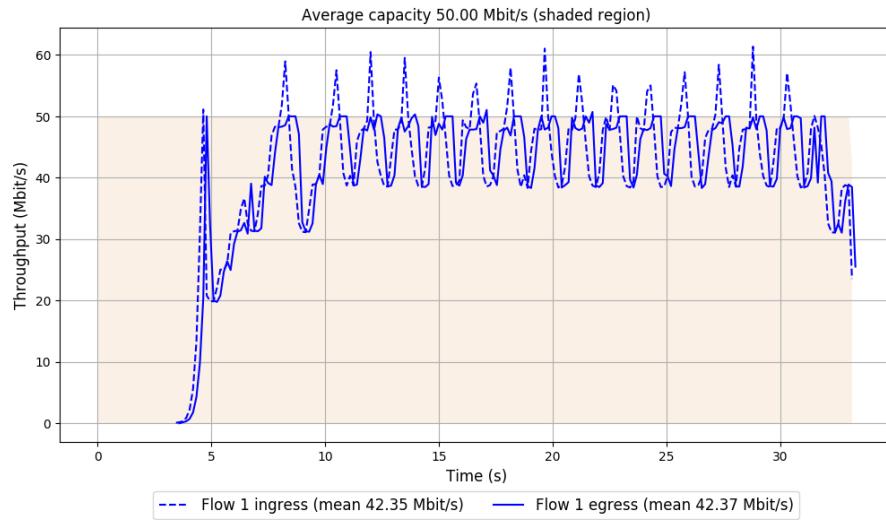
Run 4: Statistics of Synthesized-BBR

Start at: 2019-10-29 01:09:06

End at: 2019-10-29 01:09:36

```
# Below is generated by plot.py at 2019-10-29 01:22:29
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 42.37 Mbit/s (84.7% utilization)
95th percentile per-packet one-way delay: 74.449 ms
Loss rate: 0.13%
-- Flow 1:
Average throughput: 42.37 Mbit/s
95th percentile per-packet one-way delay: 74.449 ms
Loss rate: 0.13%
```

## Run 4: Report of Synthesized-BBR — Data Link



Run 5: Statistics of Synthesized-BBR

Start at: 2019-10-29 01:14:37

End at: 2019-10-29 01:15:07

```
# Below is generated by plot.py at 2019-10-29 01:22:32
# Datalink statistics
-- Total of 1 flow:
Average capacity: 50.00 Mbit/s
Average throughput: 41.54 Mbit/s (83.1% utilization)
95th percentile per-packet one-way delay: 76.919 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 41.54 Mbit/s
95th percentile per-packet one-way delay: 76.919 ms
Loss rate: 0.25%
```

## Run 5: Report of Synthesized-BBR — Data Link

