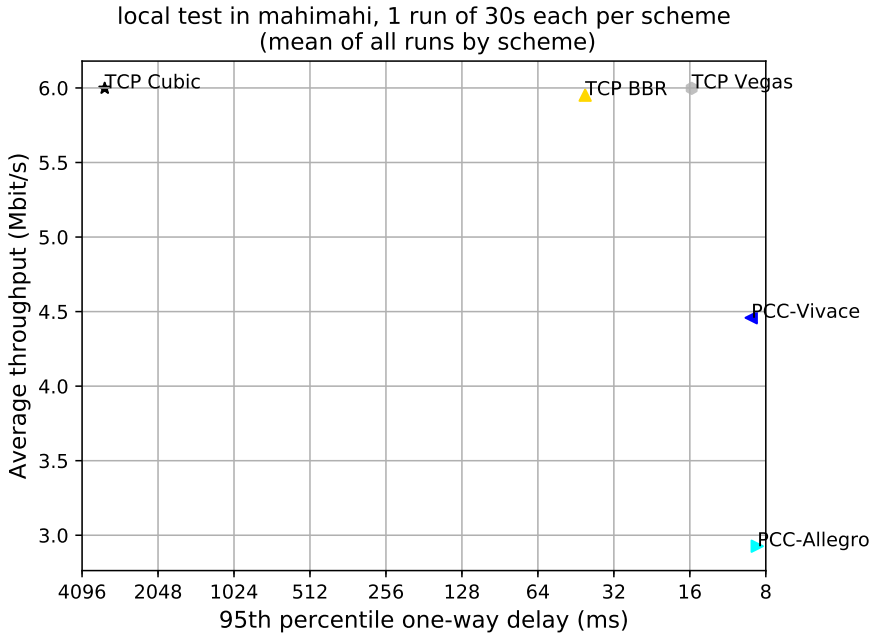
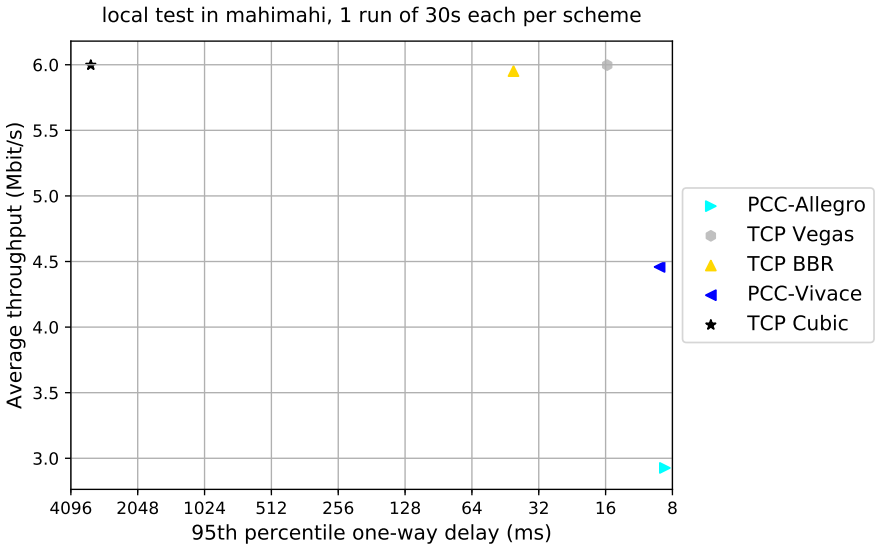
Pantheon Report

Generated at 2022-04-13 14:51:44 (UTC).
Tested in mahimahi: `mm-delay 5 mm-link 6mbps.trace 6mbps.trace`
Repeated the test of 5 congestion control schemes once.
Each test lasted for 30 seconds running 1 flow.

```
System info:
Linux 4.15.0-175-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 131072 6291456
net.ipv4.tcp_wmem = 4096 16384 4194304

Git summary:
branch: master @ 99ce503a4b7f0c69e0a7c7e25dfa3753c361252a
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 463d89b09699a57bfdfbae351646df6a60040b90
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
 M src/ScreamClient
 M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```


local test in mahimahi, 1 run of 30s each per scheme
(mean of all runs by scheme)
TCP Cubic
TCP BBR
TCP Vegas
PCC-Vivace
PCC-Allegro
Average throughput (Mbit/s)
6.0
5.5
5.0
4.5
4.0
3.5
3.0
4096
2048
1024
512
256
128
64
32
16
8
95th percentile one-way delay (ms)


local test in mahimahi, 1 run of 30s each per scheme
Average throughput (Mbit/s)
6.0
5.5
5.0
4.5
4.0
3.5
3.0
4096
2048
1024
512
256
128
64
32
16
8
95th percentile one-way delay (ms)
PCC-Allegro
TCP Vegas
TCP BBR
PCC-Vivace
TCP Cubic

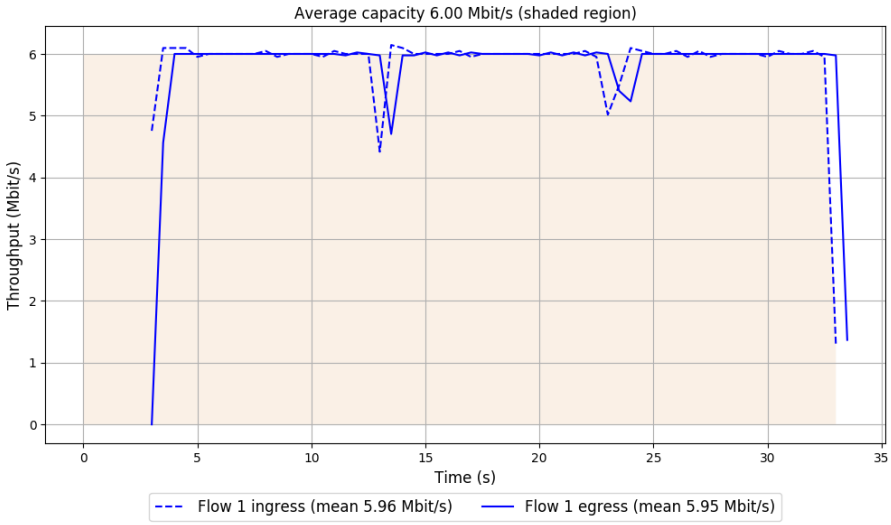
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	1	5.95	41.58	0.11
TCP Cubic	1	6.00	3331.84	10.30
PCC-Allegro	1	2.93	8.65	0.03
TCP Vegas	1	6.00	15.73	0.05
PCC-Vivace	1	4.46	9.14	0.02

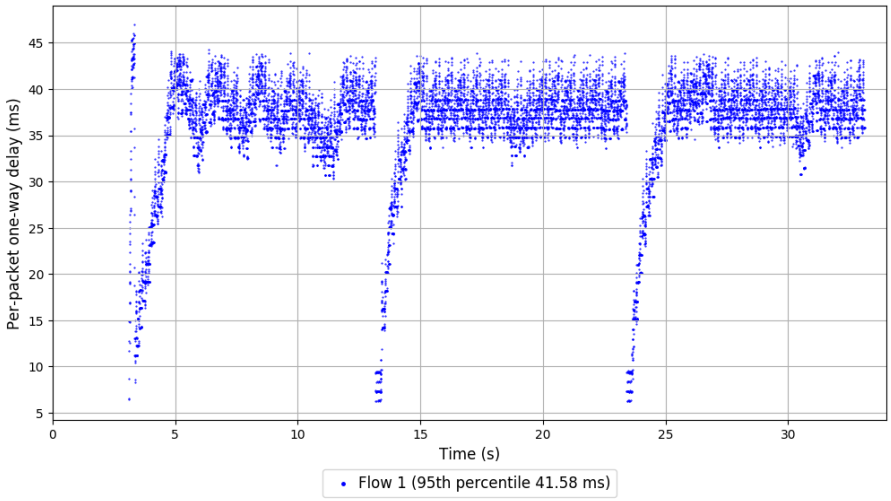
```
Run 1: Statistics of TCP BBR

Start at: 2022-04-13 14:49:18
End at: 2022-04-13 14:49:48

# Below is generated by plot.py at 2022-04-13 14:51:43
# Datalink statistics
-- Total of 1 flow:
Average capacity: 6.00 Mbit/s
Average throughput: 5.95 Mbit/s (99.2% utilization)
95th percentile per-packet one-way delay: 41.578 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 5.95 Mbit/s
95th percentile per-packet one-way delay: 41.578 ms
Loss rate: 0.11%
```

Run 1: Report of TCP BBR — Data Link



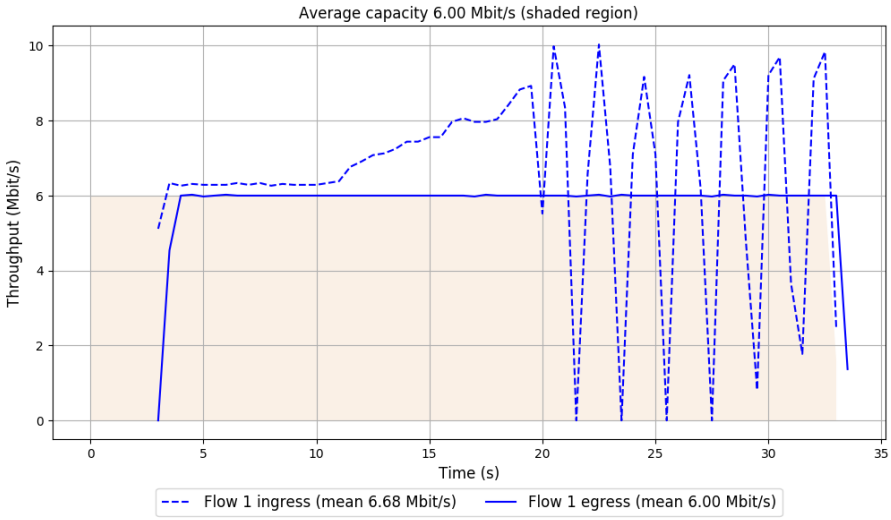


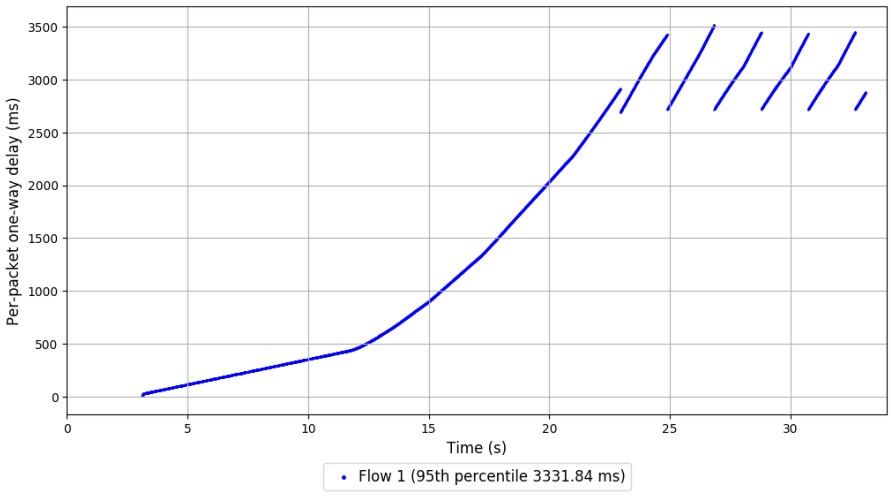
```
Run 1: Statistics of TCP Cubic

Start at: 2022-04-13 14:50:26
End at: 2022-04-13 14:50:56

# Below is generated by plot.py at 2022-04-13 14:51:43
# Datalink statistics
-- Total of 1 flow:
Average capacity: 6.00 Mbit/s
Average throughput: 6.00 Mbit/s (100.0% utilization)
95th percentile per-packet one-way delay: 3331.844 ms
Loss rate: 10.30%
-- Flow 1:
Average throughput: 6.00 Mbit/s
95th percentile per-packet one-way delay: 3331.844 ms
Loss rate: 10.30%
```

Run 1: Report of TCP Cubic — Data Link



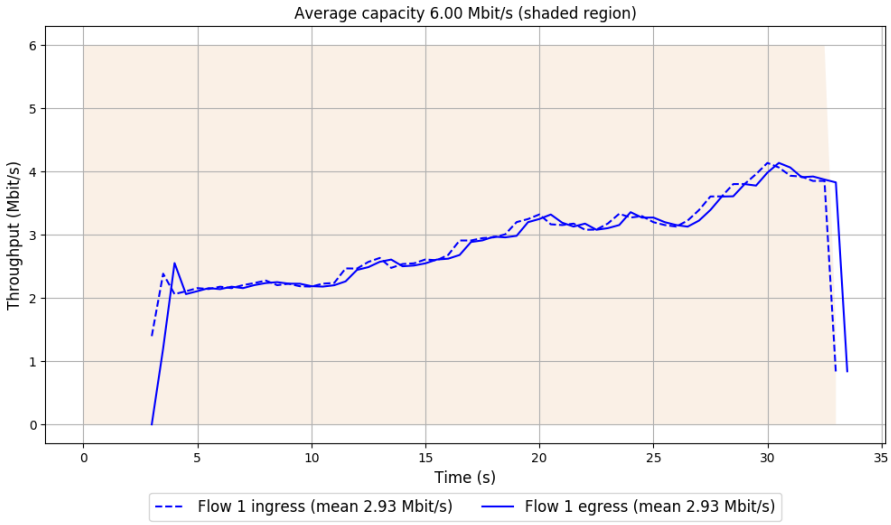


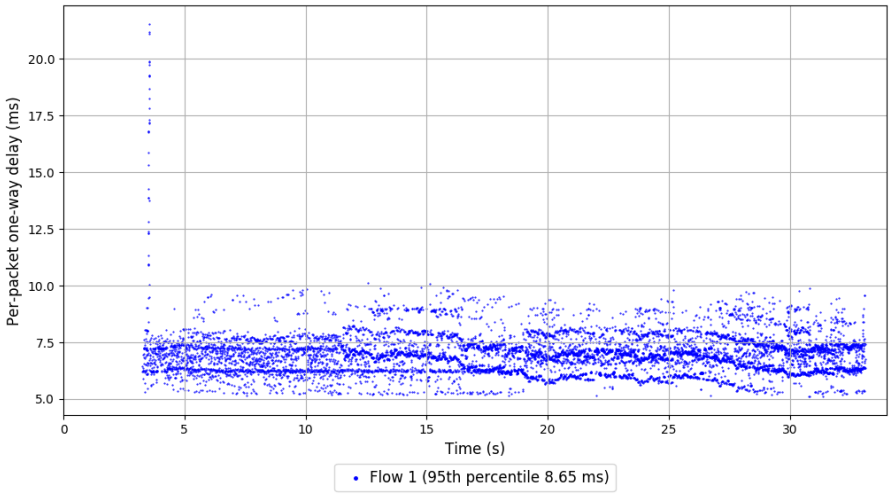
```
Run 1: Statistics of PCC-Allegro

Start at: 2022-04-13 14:48:10
End at: 2022-04-13 14:48:40

# Below is generated by plot.py at 2022-04-13 14:51:43
# Datalink statistics
-- Total of 1 flow:
Average capacity: 6.00 Mbit/s
Average throughput: 2.93 Mbit/s (48.8% utilization)
95th percentile per-packet one-way delay: 8.650 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 2.93 Mbit/s
95th percentile per-packet one-way delay: 8.650 ms
Loss rate: 0.03%
```

Run 1: Report of PCC-Allegro — Data Link



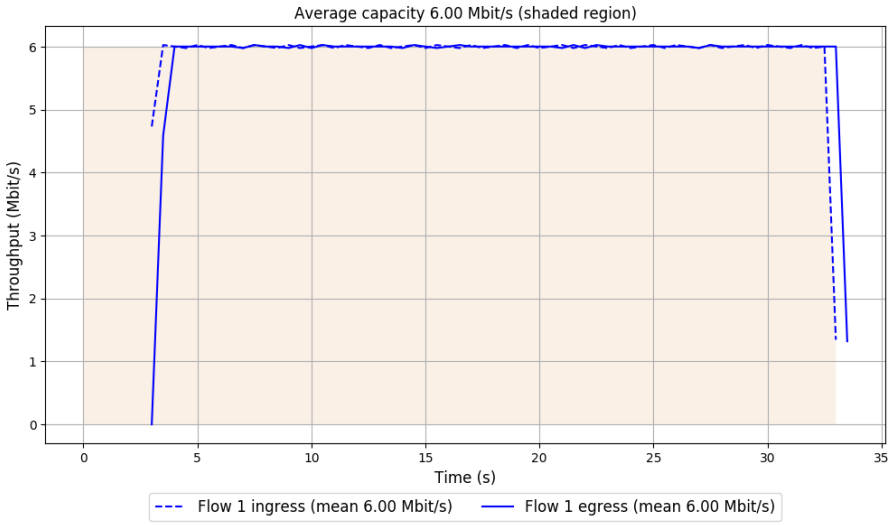


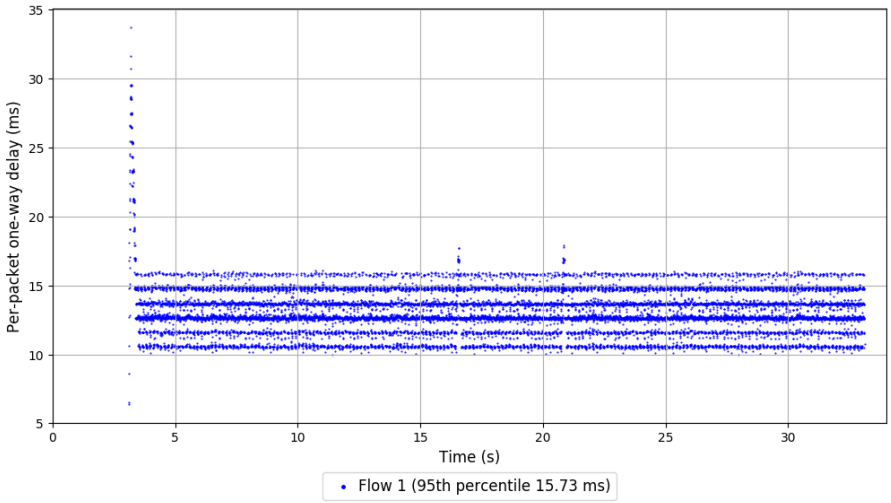
```
Run 1: Statistics of TCP Vegas

Start at: 2022-04-13 14:48:44
End at: 2022-04-13 14:49:14

# Below is generated by plot.py at 2022-04-13 14:51:43
# Datalink statistics
-- Total of 1 flow:
Average capacity: 6.00 Mbit/s
Average throughput: 6.00 Mbit/s (99.9% utilization)
95th percentile per-packet one-way delay: 15.735 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 6.00 Mbit/s
95th percentile per-packet one-way delay: 15.735 ms
Loss rate: 0.05%
```

Run 1: Report of TCP Vegas — Data Link





```
Run 1: Statistics of PCC-Vivace

Start at: 2022-04-13 14:49:52
End at: 2022-04-13 14:50:22

# Below is generated by plot.py at 2022-04-13 14:51:43
# Datalink statistics
-- Total of 1 flow:
Average capacity: 6.00 Mbit/s
Average throughput: 4.46 Mbit/s (74.3% utilization)
95th percentile per-packet one-way delay: 9.142 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 4.46 Mbit/s
95th percentile per-packet one-way delay: 9.142 ms
Loss rate: 0.02%
```

Run 1: Report of PCC-Vivace — Data Link