Pantheon Report

Generated at 2022-03-11 09:26:37 (UTC).
Tested in mahimahi: `mm-delay 0 mm-link 12Mbps_trace 12Mbps_trace`
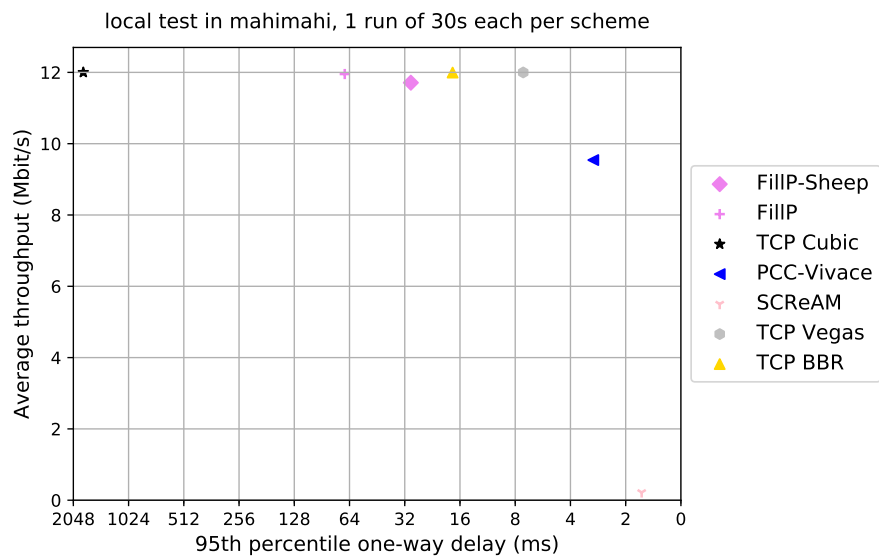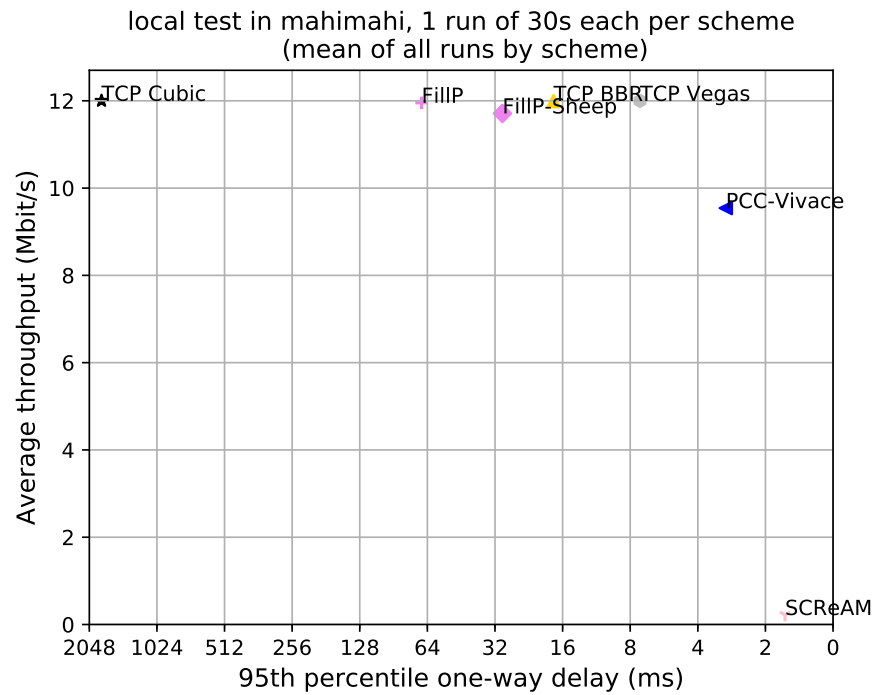Repeated the test of 7 congestion control schemes once.
Each test lasted for 30 seconds running 1 flow.

```
System info:
Linux 4.15.0-159-generic
net.core.default_qdisc = fq_codel
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 @ 8c15853b47b3cd75526cce5db14a9c109a5d944f
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
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
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)

local test in mahimahi, 1 run of 30s each per scheme

scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	1	12.00	17.55	0.05
TCP Cubic	1	12.00	1807.06	1.95
FillP	1	11.95	67.93	0.24
FillP-Sheep	1	11.71	29.65	0.08
SCReAM	1	0.22	1.42	0.00
TCP Vegas	1	12.00	7.24	0.02
PCC-Vivace	1	9.54	3.00	0.01

```
Run 1: Statistics of TCP BBR

Start at: 2022-03-11 09:23:49
End at: 2022-03-11 09:24:19

# Below is generated by plot.py at 2022-03-11 09:26:33
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 12.00 Mbit/s (100.0% utilization)
95th percentile per-packet one-way delay: 17.551 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 12.00 Mbit/s
95th percentile per-packet one-way delay: 17.551 ms
Loss rate: 0.05%
```
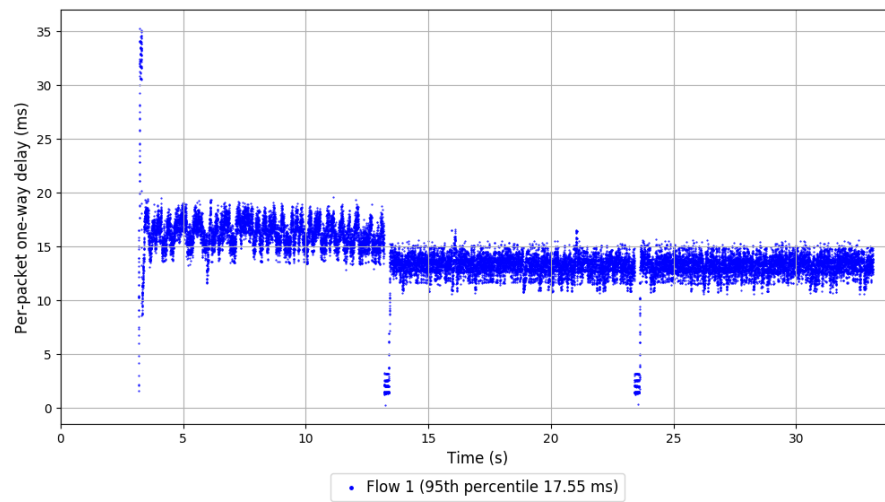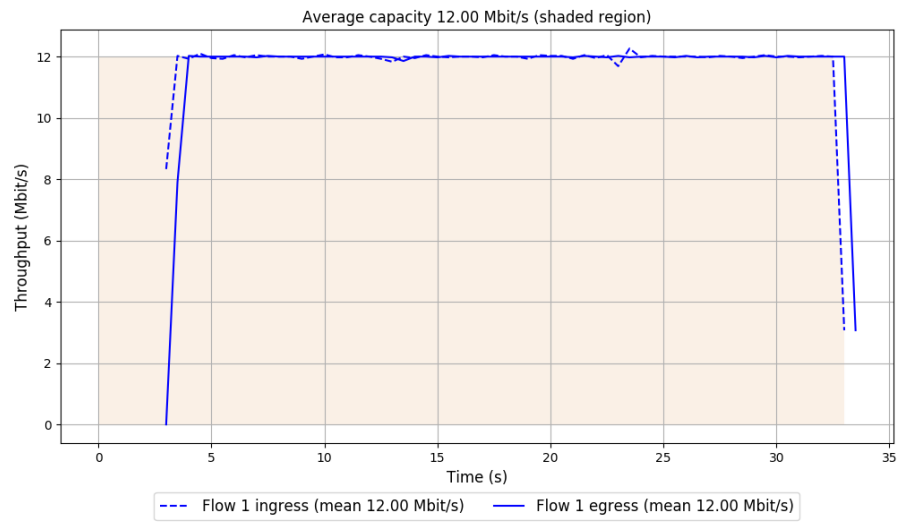
Run 1: Report of TCP BBR — Data Link

Average capacity 12.00 Mbit/s (shaded region)

Flow 1 ingress (mean 12.00 Mbit/s)   Flow 1 egress (mean 12.00 Mbit/s)

• Flow 1 (95th percentile 17.55 ms)

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```
Run 1: Statistics of TCP Cubic

Start at: 2022-03-11 09:23:15
End at: 2022-03-11 09:23:45

# Below is generated by plot.py at 2022-03-11 09:26:34
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 12.00 Mbit/s (100.0% utilization)
95th percentile per-packet one-way delay: 1807.063 ms
Loss rate: 1.95%
-- Flow 1:
Average throughput: 12.00 Mbit/s
95th percentile per-packet one-way delay: 1807.063 ms
Loss rate: 1.95%
```
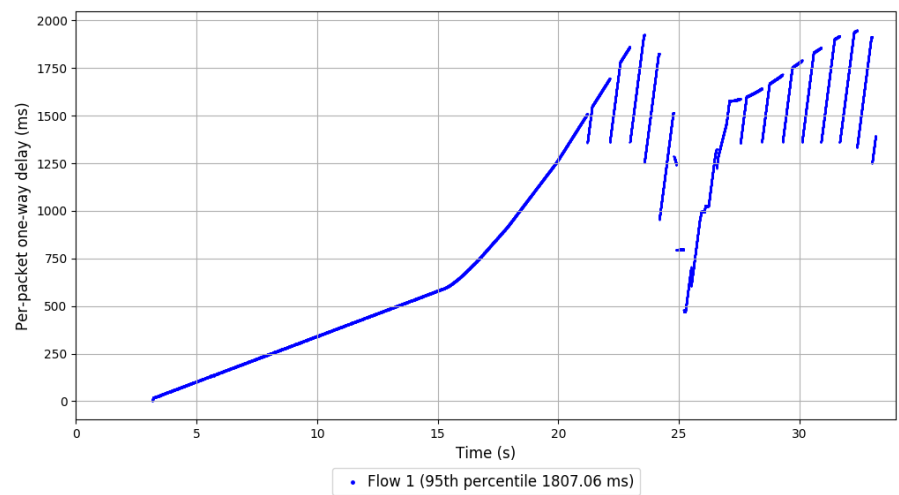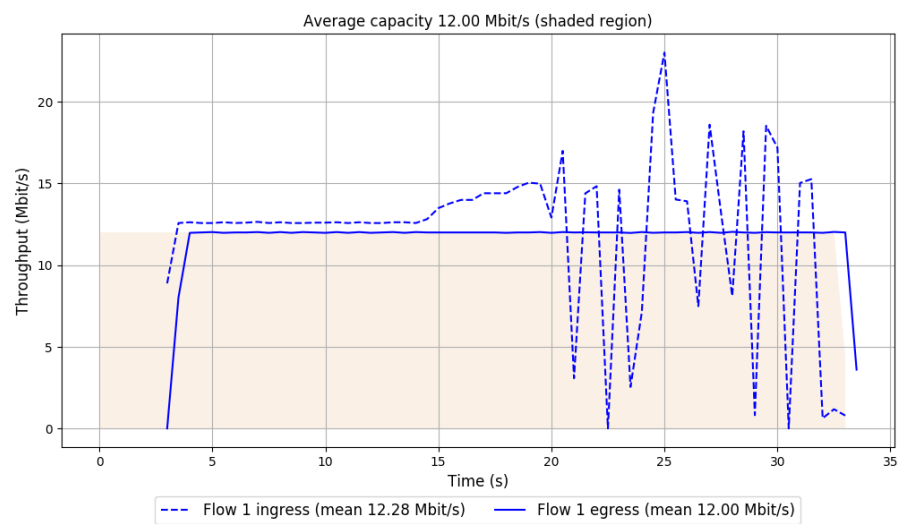
Run 1: Report of TCP Cubic — Data Link

Average capacity 12.00 Mbit/s (shaded region)

--- Flow 1 ingress (mean 12.28 Mbit/s)   —— Flow 1 egress (mean 12.00 Mbit/s)

• Flow 1 (95th percentile 1807.06 ms)

```
Run 1: Statistics of FillP

Start at: 2022-03-11 09:22:40
End at: 2022-03-11 09:23:10

# Below is generated by plot.py at 2022-03-11 09:26:34
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 11.95 Mbit/s (99.6% utilization)
95th percentile per-packet one-way delay: 67.931 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 11.95 Mbit/s
95th percentile per-packet one-way delay: 67.931 ms
Loss rate: 0.24%
```
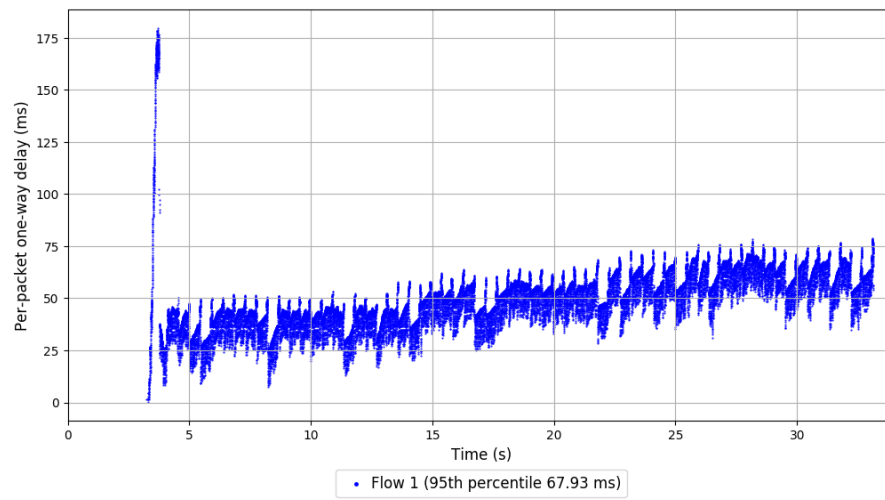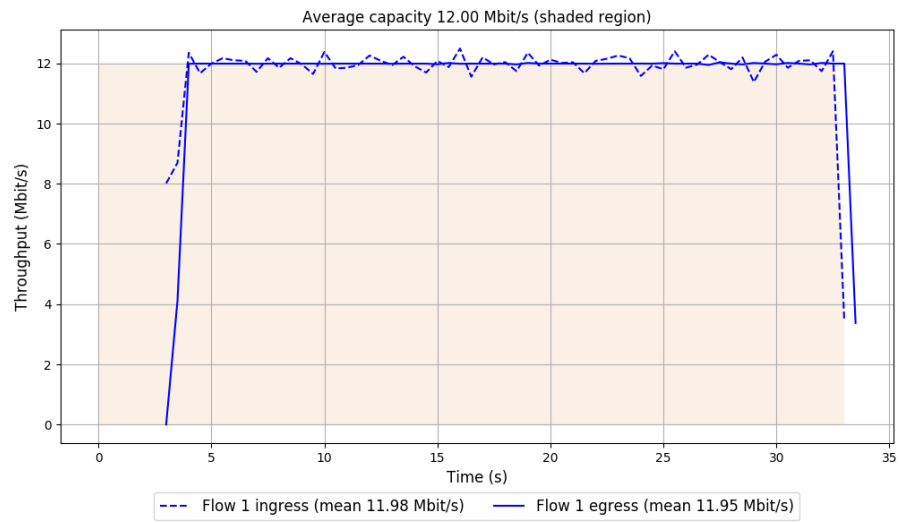
Run 1: Report of FillP — Data Link

Average capacity 12.00 Mbit/s (shaded region)

Flow 1 ingress (mean 11.98 Mbit/s)   Flow 1 egress (mean 11.95 Mbit/s)

Flow 1 (95th percentile 67.93 ms)

```
Run 1: Statistics of FillP-Sheep

Start at: 2022-03-11 09:21:31
End at: 2022-03-11 09:22:01

# Below is generated by plot.py at 2022-03-11 09:26:35
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 11.71 Mbit/s (97.6% utilization)
95th percentile per-packet one-way delay: 29.648 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 11.71 Mbit/s
95th percentile per-packet one-way delay: 29.648 ms
Loss rate: 0.08%
```
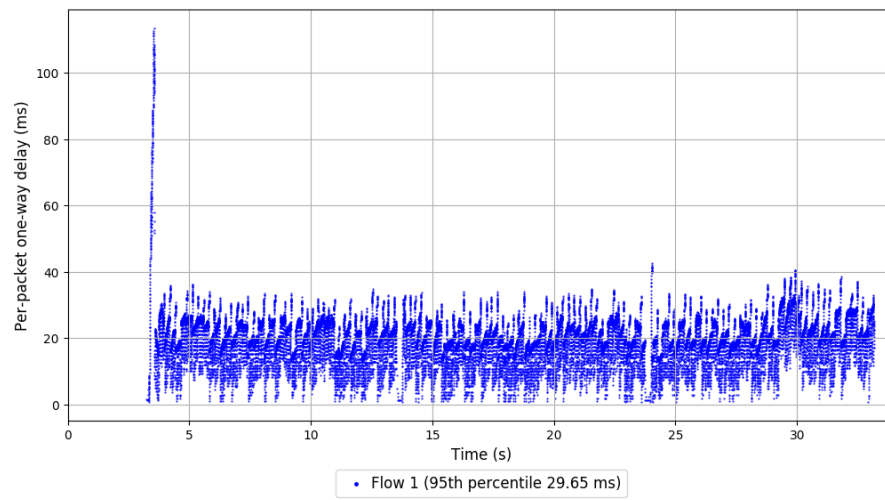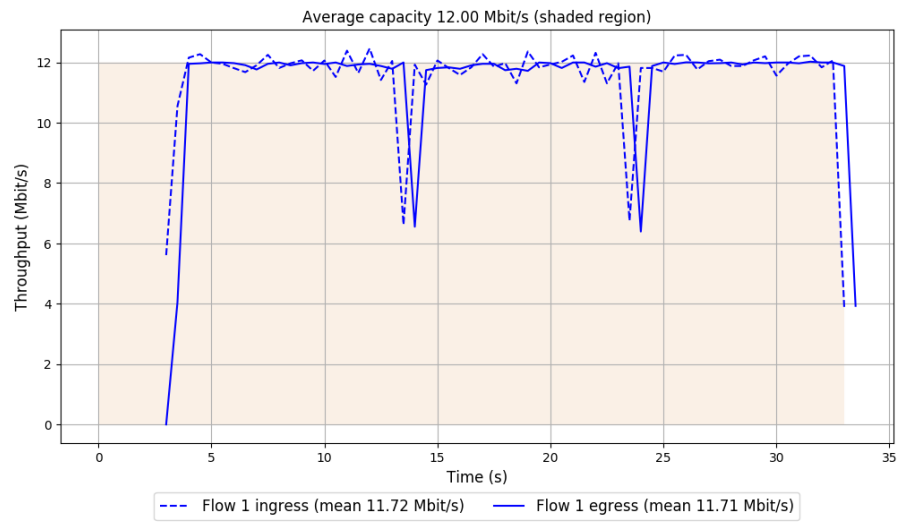
Run 1: Report of FillP-Sheep — Data Link

Average capacity 12.00 Mbit/s (shaded region)

- - - Flow 1 ingress (mean 11.72 Mbit/s) ——— Flow 1 egress (mean 11.71 Mbit/s)

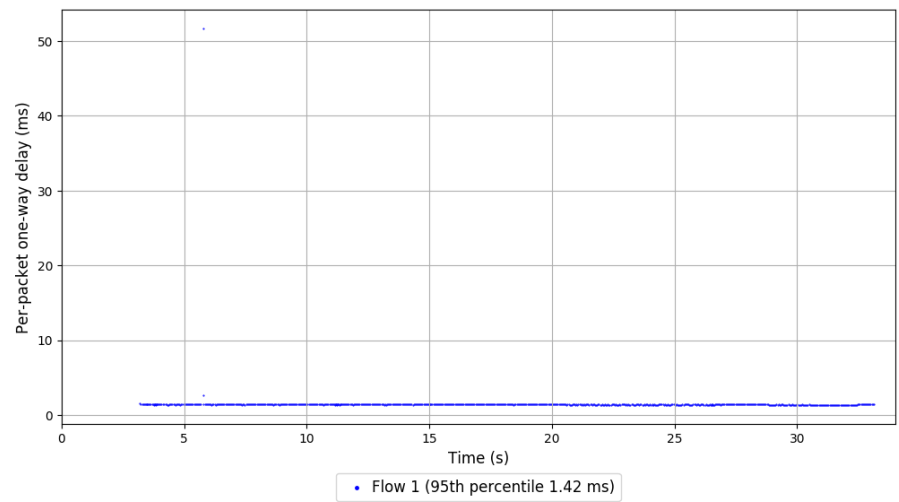

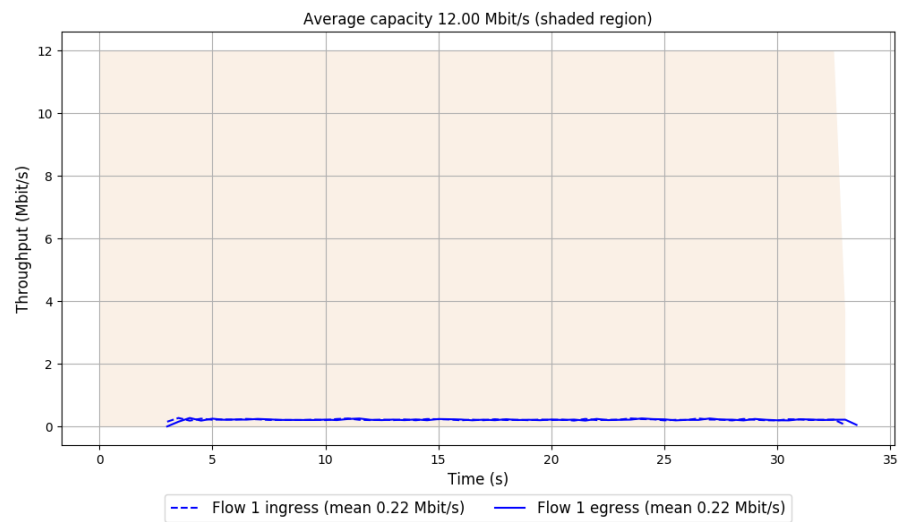• Flow 1 (95th percentile 29.65 ms)

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```
Run 1: Statistics of SCReAM

Start at: 2022-03-11 09:24:59
End at: 2022-03-11 09:25:29

# Below is generated by plot.py at 2022-03-11 09:26:35
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 0.22 Mbit/s (1.8% utilization)
95th percentile per-packet one-way delay: 1.421 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 1.421 ms
Loss rate: 0.00%
```

Run 1: Report of SCReAM — Data Link

Average capacity 12.00 Mbit/s (shaded region)

--- Flow 1 ingress (mean 0.22 Mbit/s)   —— Flow 1 egress (mean 0.22 Mbit/s)

• Flow 1 (95th percentile 1.42 ms)

```
Run 1: Statistics of TCP Vegas

Start at: 2022-03-11 09:22:05
End at: 2022-03-11 09:22:35

# Below is generated by plot.py at 2022-03-11 09:26:35
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 12.00 Mbit/s (100.0% utilization)
95th percentile per-packet one-way delay: 7.236 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 12.00 Mbit/s
95th percentile per-packet one-way delay: 7.236 ms
Loss rate: 0.02%
```
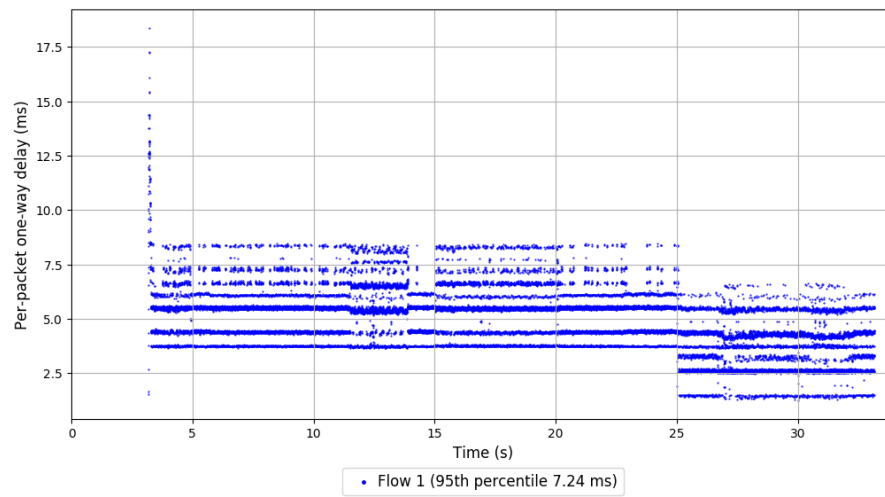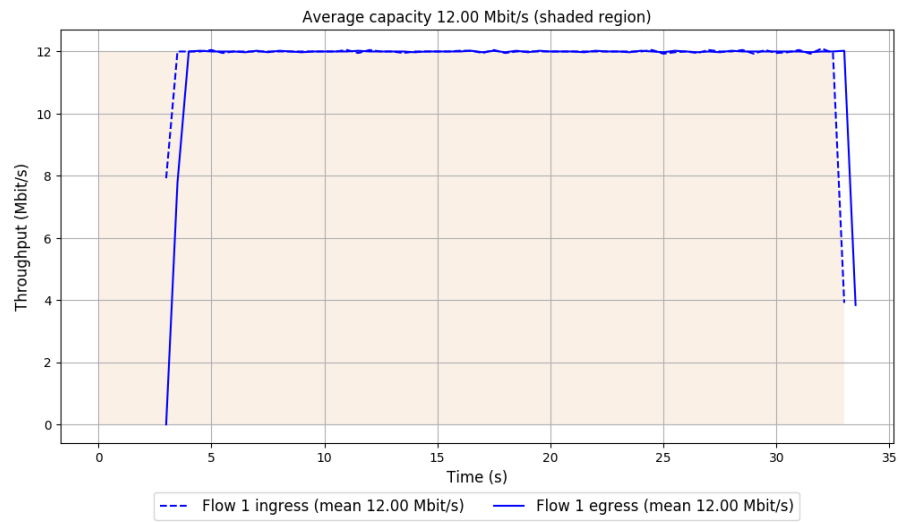
Run 1: Report of TCP Vegas — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2022-03-11 09:24:24
End at: 2022-03-11 09:24:54

# Below is generated by plot.py at 2022-03-11 09:26:35
# Datalink statistics
-- Total of 1 flow:
Average capacity: 12.00 Mbit/s
Average throughput: 9.54 Mbit/s (79.5% utilization)
95th percentile per-packet one-way delay: 3.004 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 9.54 Mbit/s
95th percentile per-packet one-way delay: 3.004 ms
Loss rate: 0.01%
```

Run 1: Report of PCC-Vivace — Data Link

Average capacity 12.00 Mbit/s (shaded region)

- - - Flow 1 ingress (mean 9.54 Mbit/s) —— Flow 1 egress (mean 9.54 Mbit/s)

• Flow 1 (95th percentile 3.00 ms)

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