



Ultra Low Latency without the Pain

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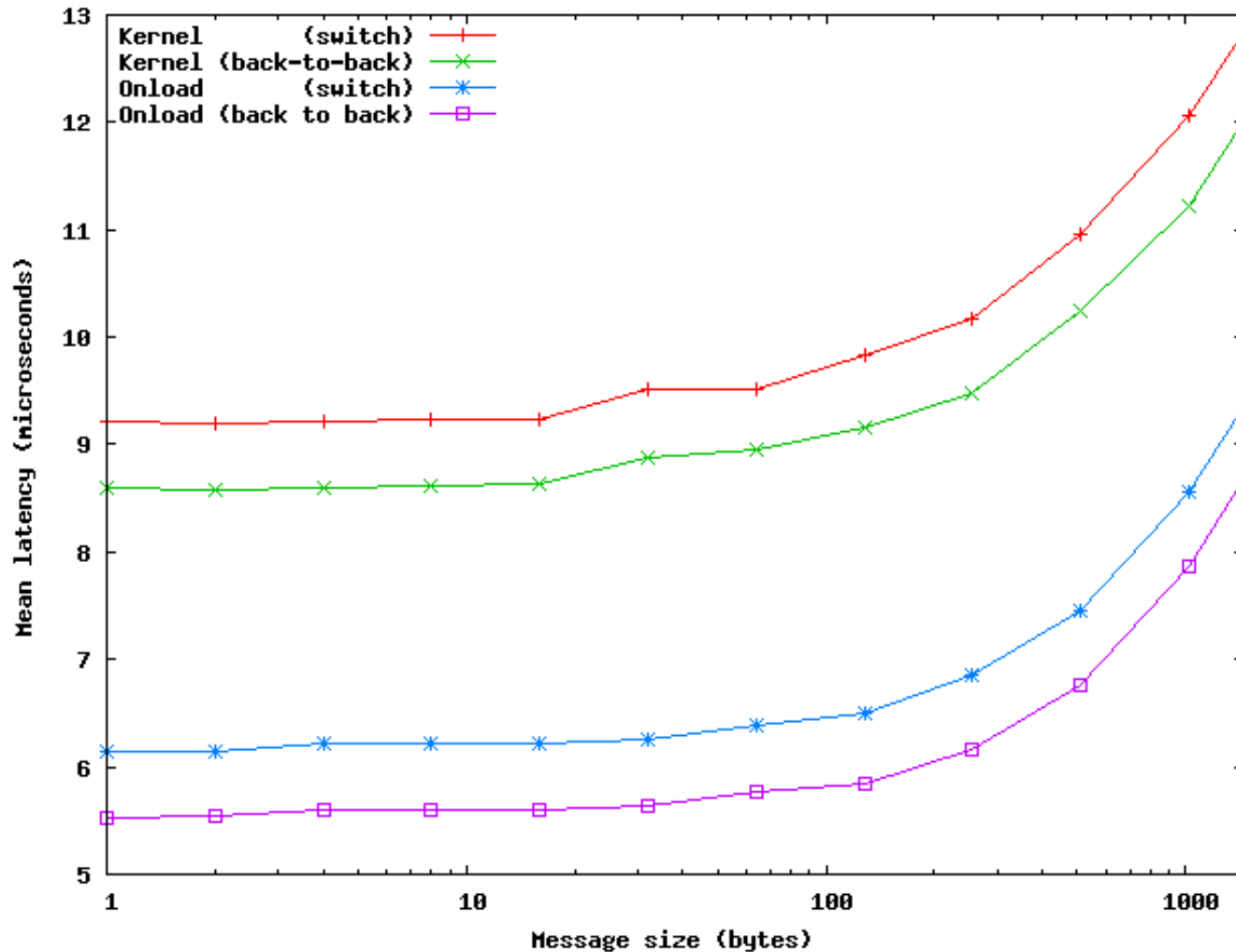
Solarstorm Ethernet Adapters

Best performance



Lowest power

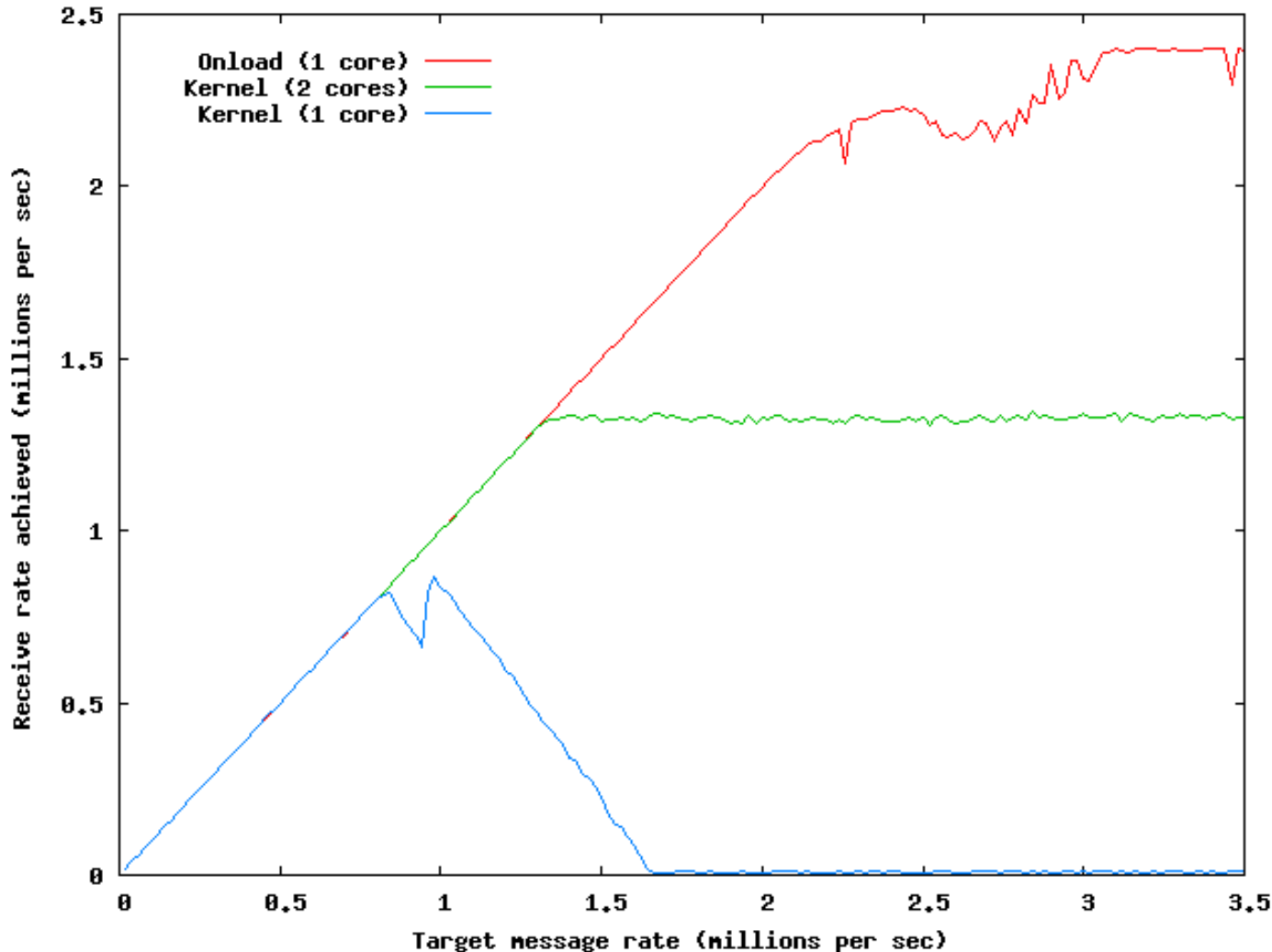
Performance – Latency



6us latency
including
switch

lower jitter

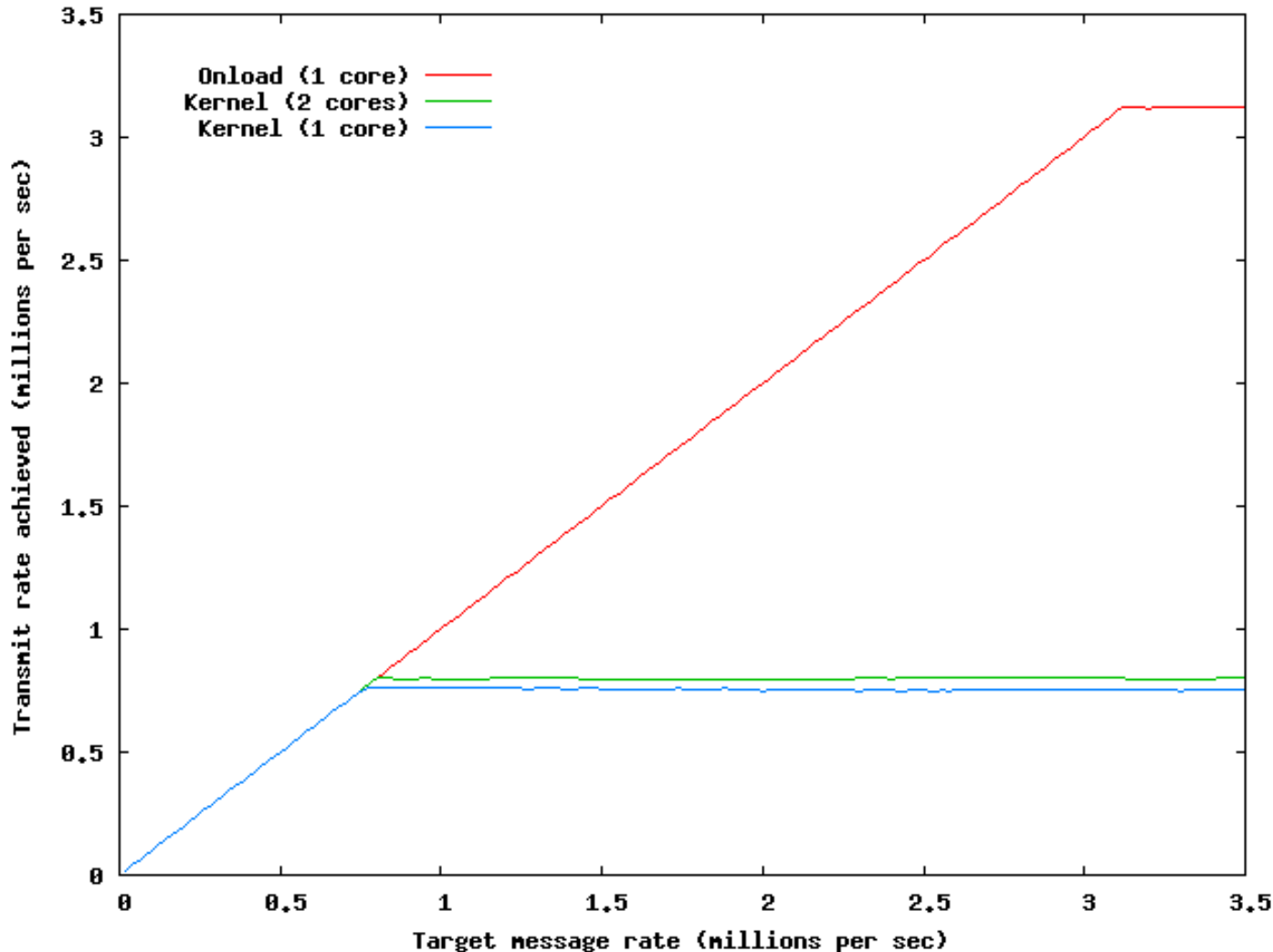
Performance – UDP RX message rate



2.5x higher
throughput
per core

better
scalability

Performance – UDP TX message rate



4.5x higher
throughput
per core

better
scalability

Performance – 29west LBM latency

- STAC Report
 - “Latency Busters Messaging 3.3.9 with Cisco Catalyst 4900M 10GigE Switch and Solarflare NIC with OpenOnload”
 - UDP multicast transport

- Latency @ 125,000 messages/sec
 - 128 byte payload => 15 microseconds
 - 1024 byte payload => 18 microseconds

Performance – 29west LBM throughput

- 4 senders on one host => 4 receivers on another host
- UDP multicast transport
- Results are LBM message rate

Message size	Kernel rate	Onload rate	Speedup
256	1,280,000	1,880,000	46%
1024	344,000	600,000	74%
4096	80,000	148,000	85%

NB. These are not STAC results

Performance is all very well...

...but can you deploy it?

OpenOnload is fully *Compatible*

- Physical layer – Ethernet
 - Standard switches, standard cabling
- APIs
 - Standard BSD sockets
 - Fully supports `fork()`, `exec()`, threads, signals etc.
- Protocols
 - TCP, UDP, IP, Ethernet
 - Single-ended acceleration possible
- Works with existing binaries
 - You don't need application source
 - No need to recompile

Summary – Solarflare Solarstorm

- Solarflare Solarstorm + OpenOnload
 - 6us End-to-end latency including switch
 - Millions of messages per second per core
 - Lowest power – 6.5W for dual port adapter

- More information
 - Bruce Tolley btolley@solarflare.com
 - www.openonload.org
 - Or grab me after the show!