



## High Performance Networking in Increasingly Regulated Environments

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# Leading Supplier of End-to-End Interconnect Solutions



## Comprehensive End-to-End InfiniBand and Ethernet Portfolio (VPI)

ICs	Adapter Cards	NPU & Multicore	Switches/Gateways	Software	Metro / WAN	Cables/Modules

Performance

Security

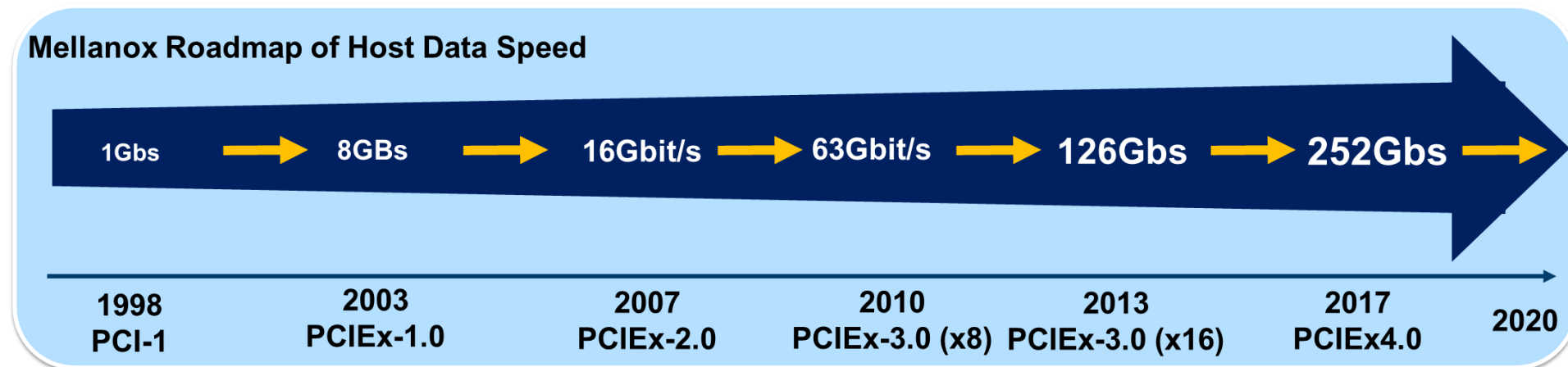
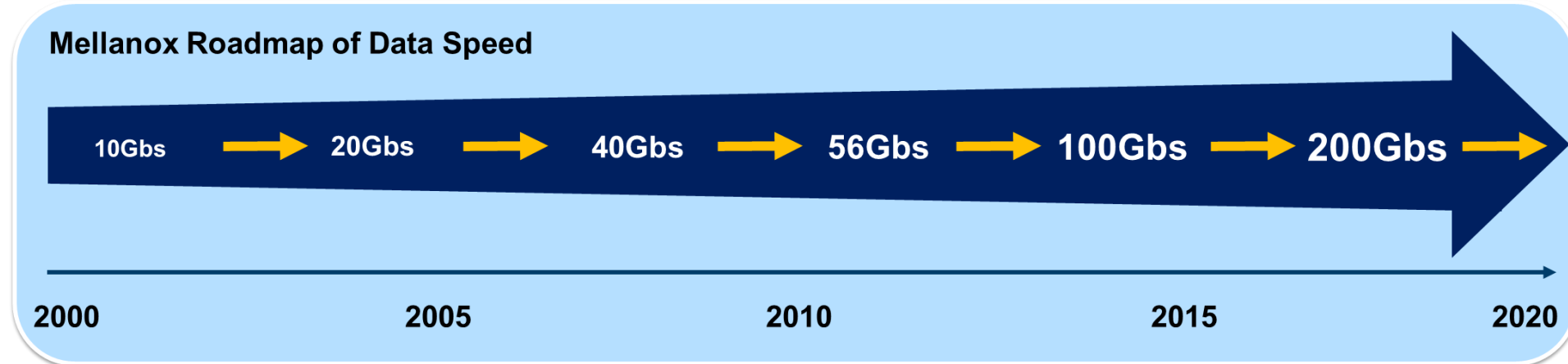
Analysis



VALUE BEYOND HARDWARE

# Performance: Wire Speed Challenges

- CPUs not keeping up with Data Ingest Rates
- Network speed & PCI speed growing faster
- Network and PCI will be at 200Gb/s in 2017
- NIC hardware and software have to bridge the gaps



# Performance: From Linear To Parallel Machines

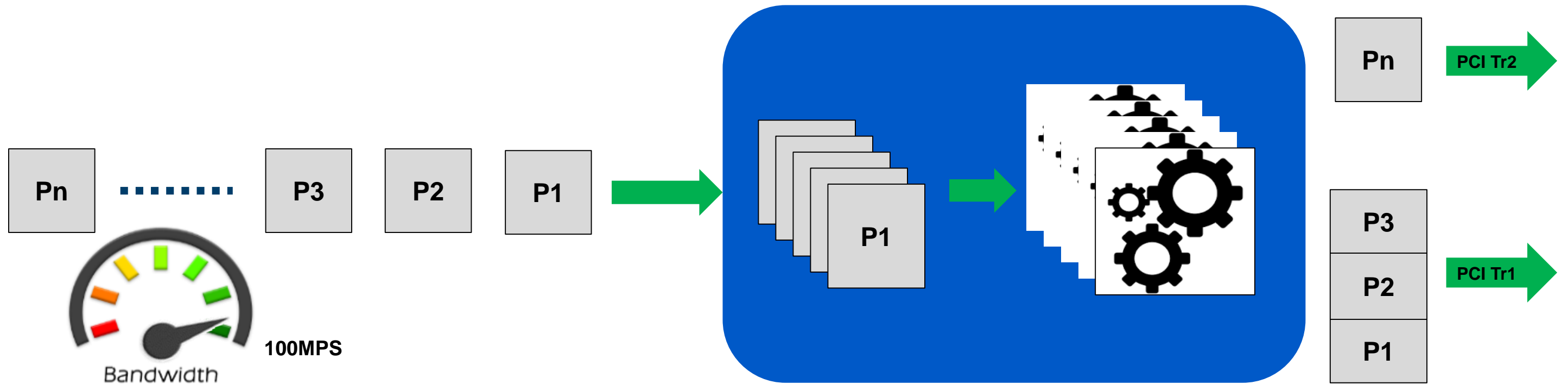


LARGE RECEIVE  
BUFFERS

FIREWALL

XL STEERING TABLE

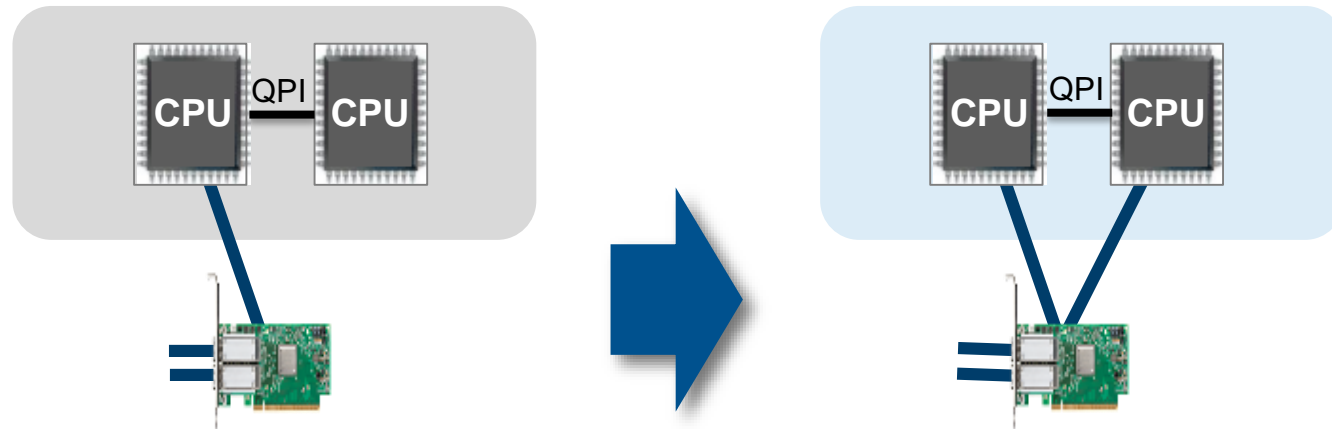
MEMORY  
INTERFACE



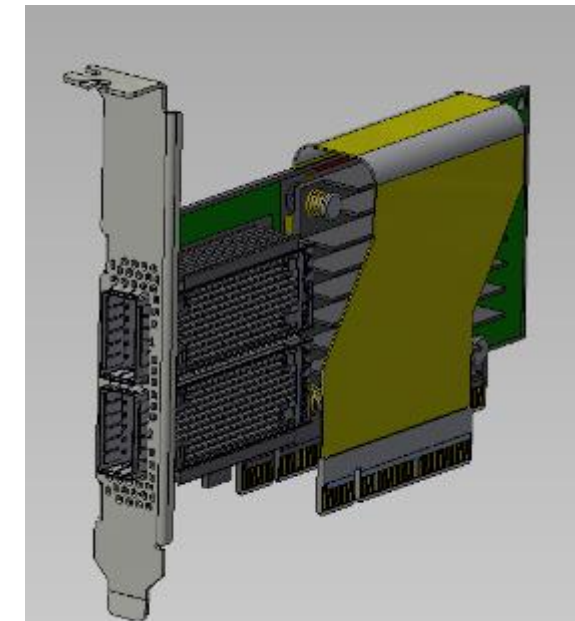
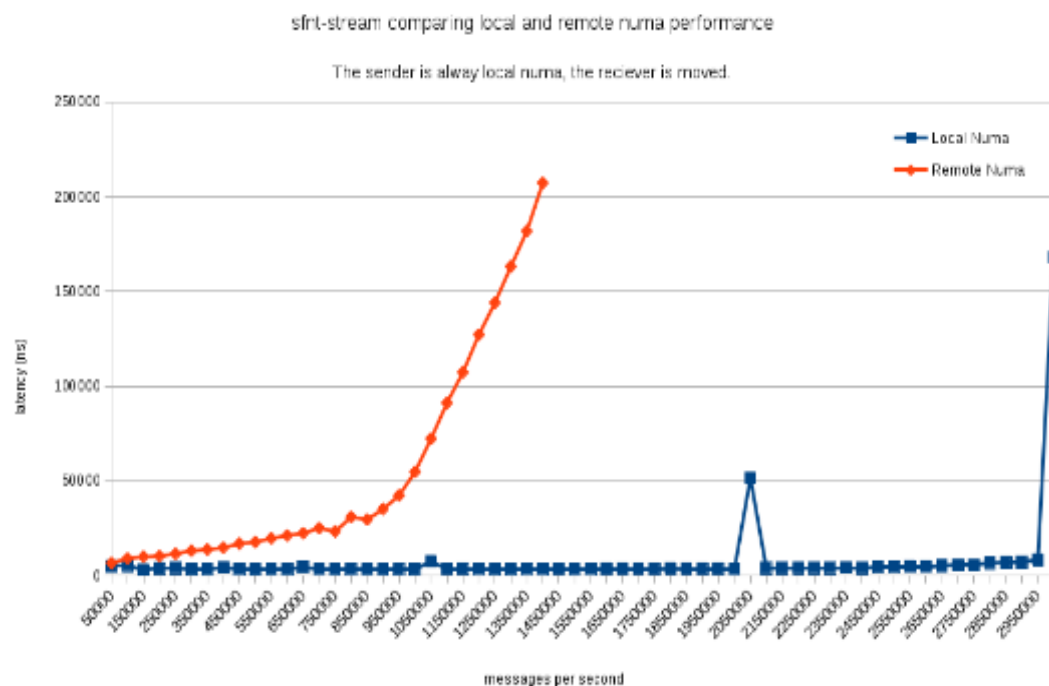
SCALING TO YOUR NEEDS



# ConnectX-4 Dual PCI – Maximizing CPU Cores Utilization



- Direct connectivity of single NIC to multiple NUMA Nodes or Hosts
  - Split PCIe x16 to two PCIe x8
  - Direct access from each CPU to network
- Unique solution for **Feed-Handlers**
  - No QPI penalty (QPI Bypass)
  - Single Adapter local to feeds on all cores
- Fits into standard servers
- Solution is transparent to software



Distributed Firewall Implementations

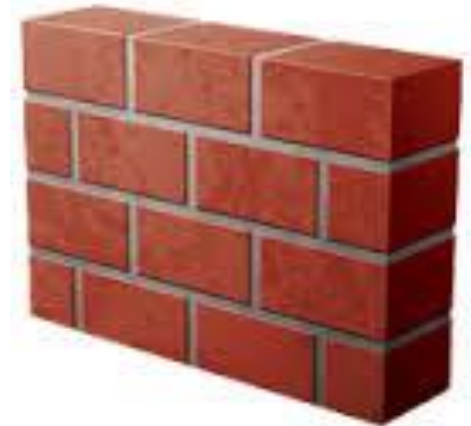
Advanced Sniffer

Encryption / Decryption Offload

DDoS / Intrusion Prevention Offload

Commodity NICs & Dedicated Offload NICs

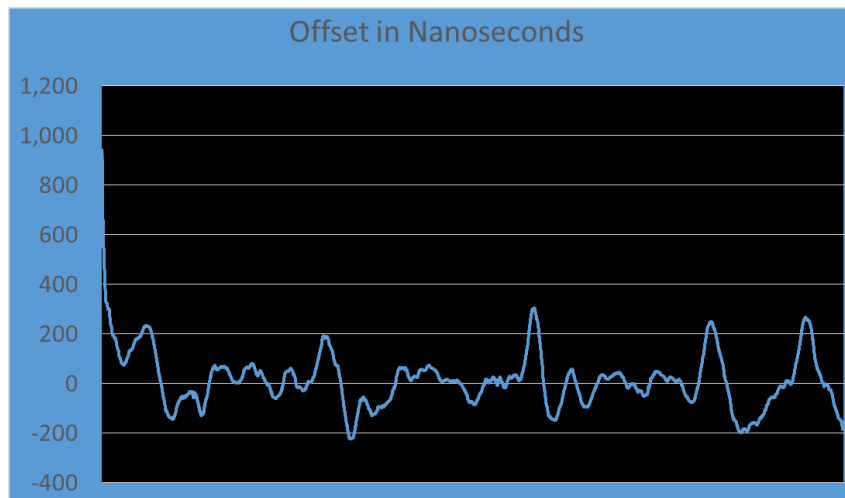
All at Line Rate from 10Gb/s to 100Gb/s



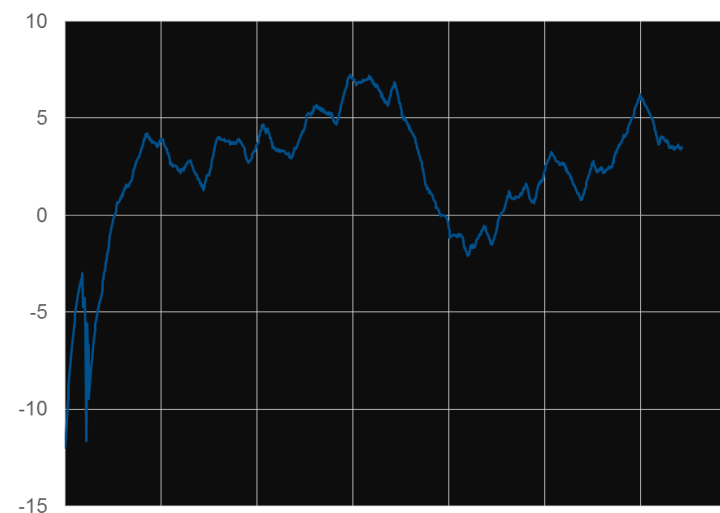
# Meeting MiFID II Requirements on both Linux & Windows

- Hardware timestamp to ALL incoming packets
- Read via standard socket API
- Highly accurate PTP/1588 sync with no special HW

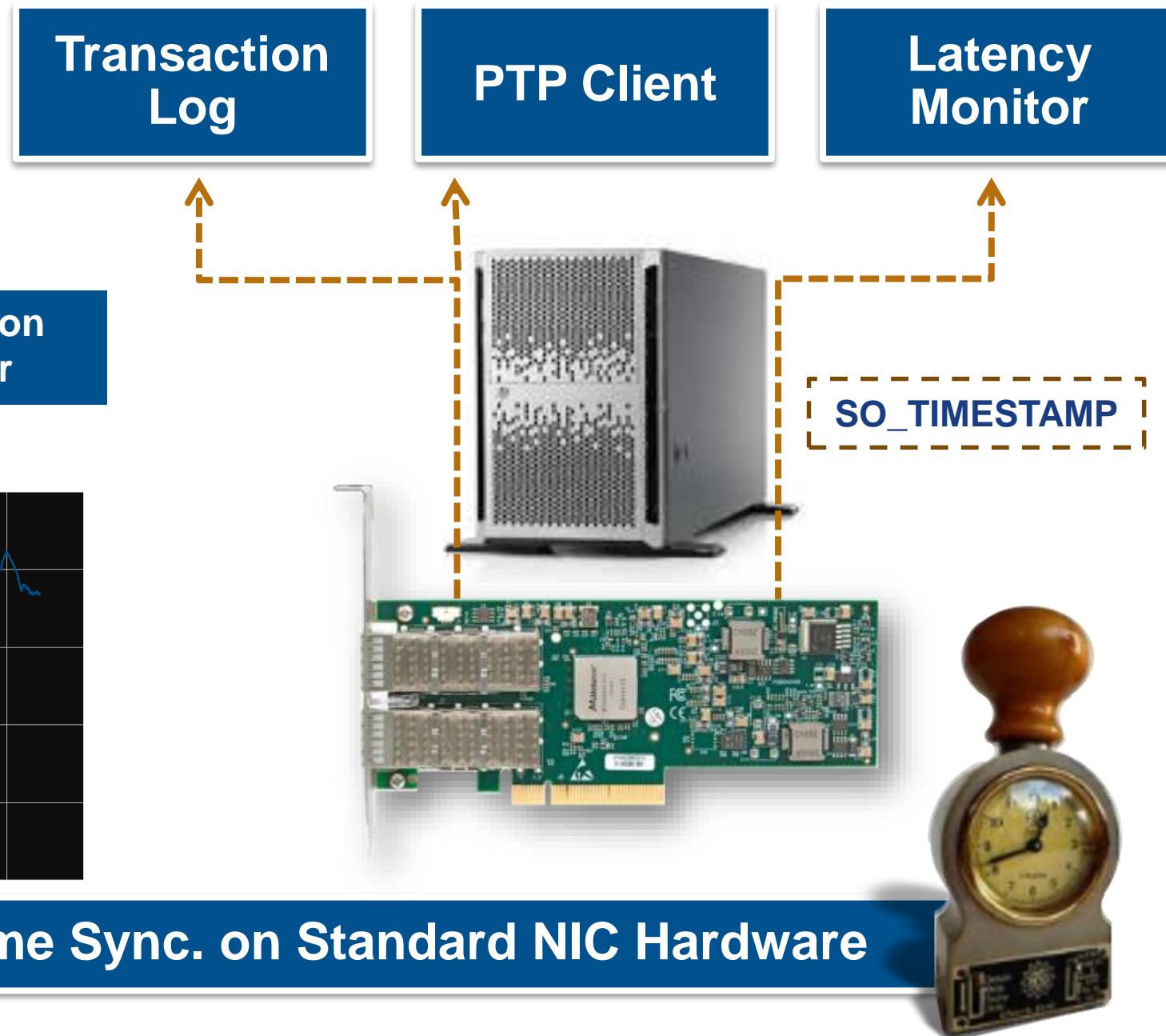
**200 nanosecond accuracy on Linux w/ Timekeeper**



**5 microsecond accuracy on Windows w/ Timekeeper**



**Highly Accurate Time Sync. on Standard NIC Hardware**







Helping you Understand Network Capacity

- Port Buffer Watermarks Statistics
- PCI Bottlenecks

Microburst Support

- 1ms sampling
- 10usec histogram

Diagnostics

- PCI BW & Latency, Loopback test, Per Server Vendor Database

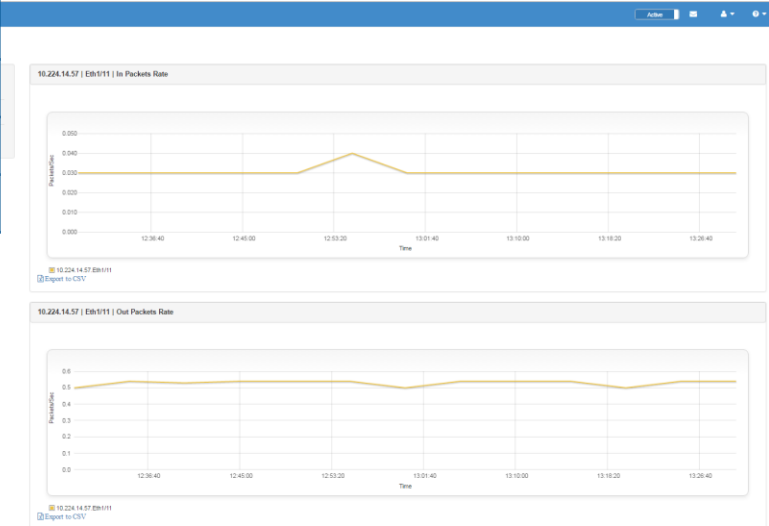
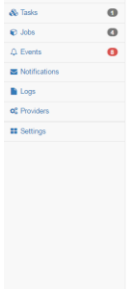
PCI Efficiency Tools

No Performance without Instrumentation

Per Flow Performance Counters

Library and GUI support

Static Analysis	
Driver version	OK
FW version	OK
PCI width	OK
PCI speed	OK
Link speed	OK



*Coming in July:*



- ***Live Webinar: “Latest Advances in Low Latency Programming”***
- ***Featuring: Real Code Examples and NO Marketing Guys***
- ***Tick the Box to Ensure you get an Invitation!***



Thank You