



iWARP: Moving from Benchmarks to Applications

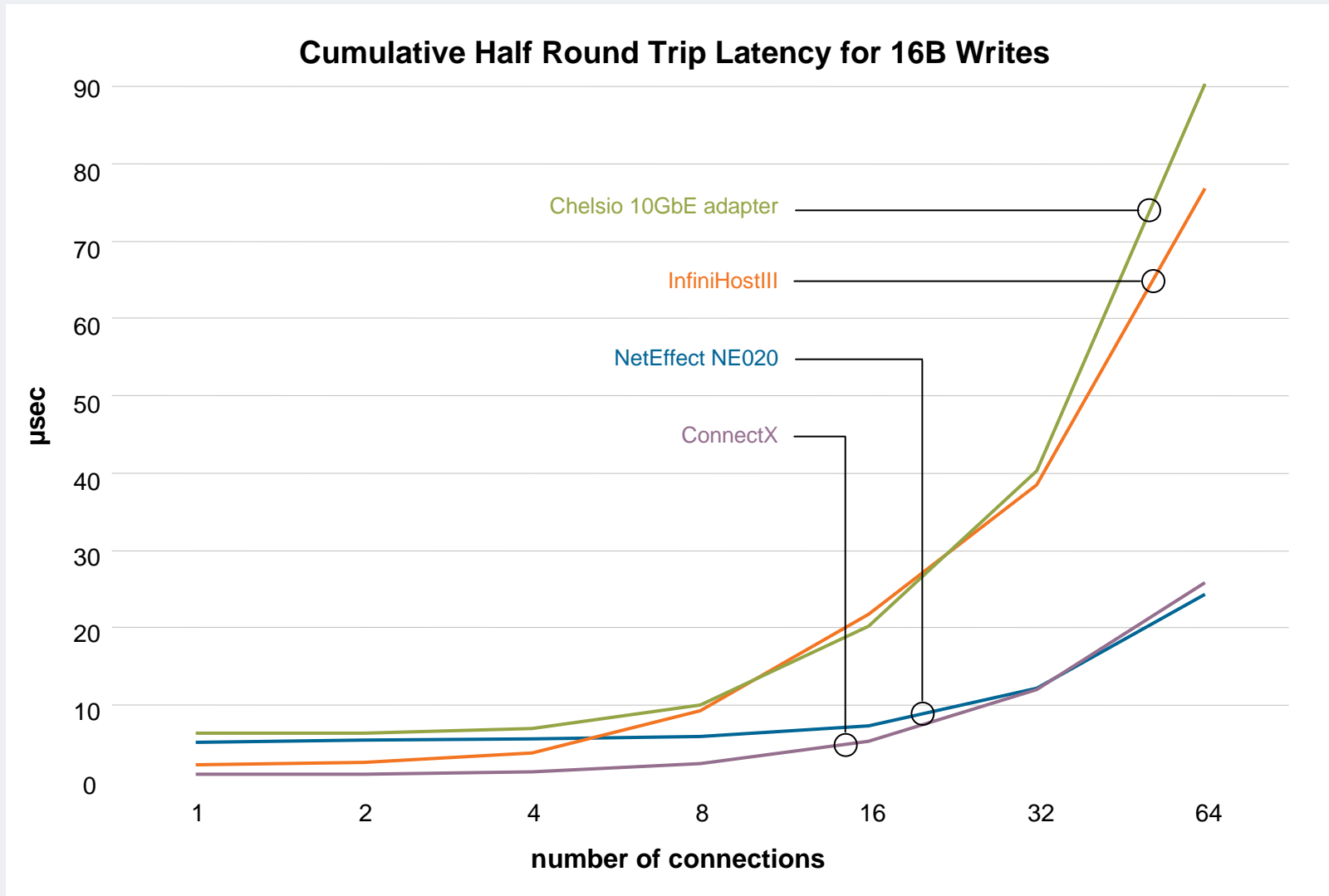
Terry Hulett

VP, Architecture and Hardware Engineering

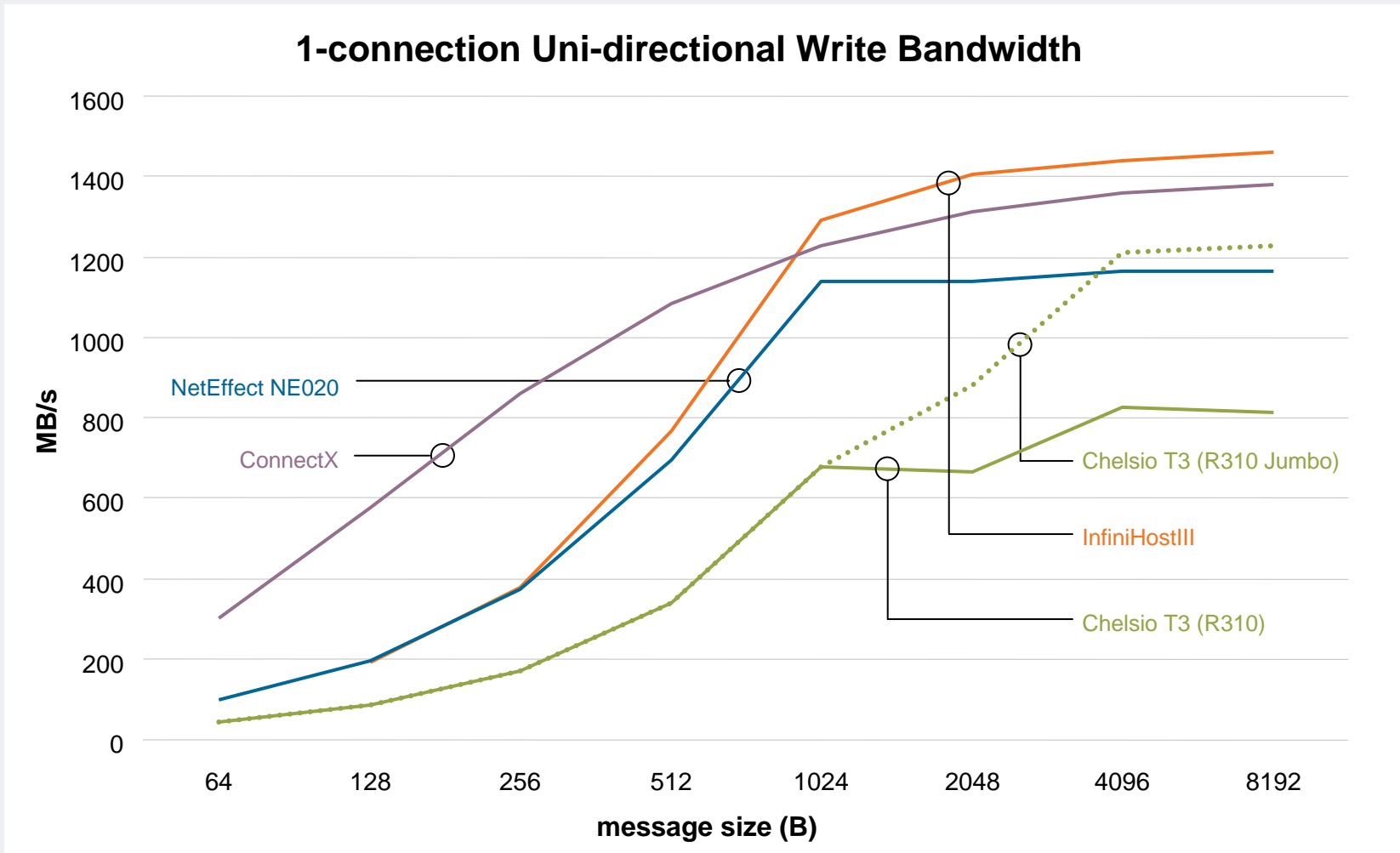
Outline

- Where is iWARP Today?
- Some Proof Points
- Conclusion
- Questions

Latency in Multi-Processor/Multi-Core Systems

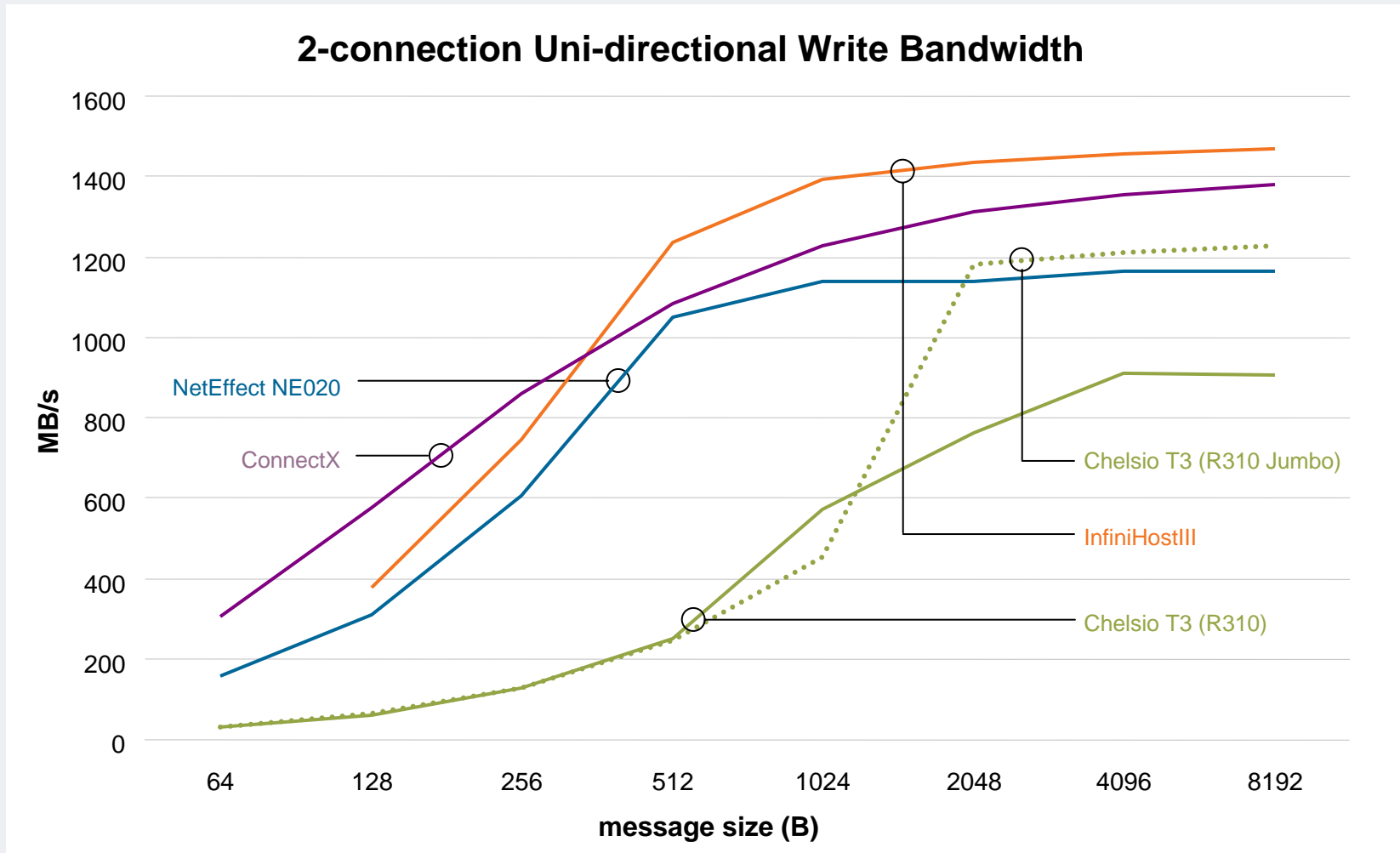


Industry Leading Multiple Connection Throughput



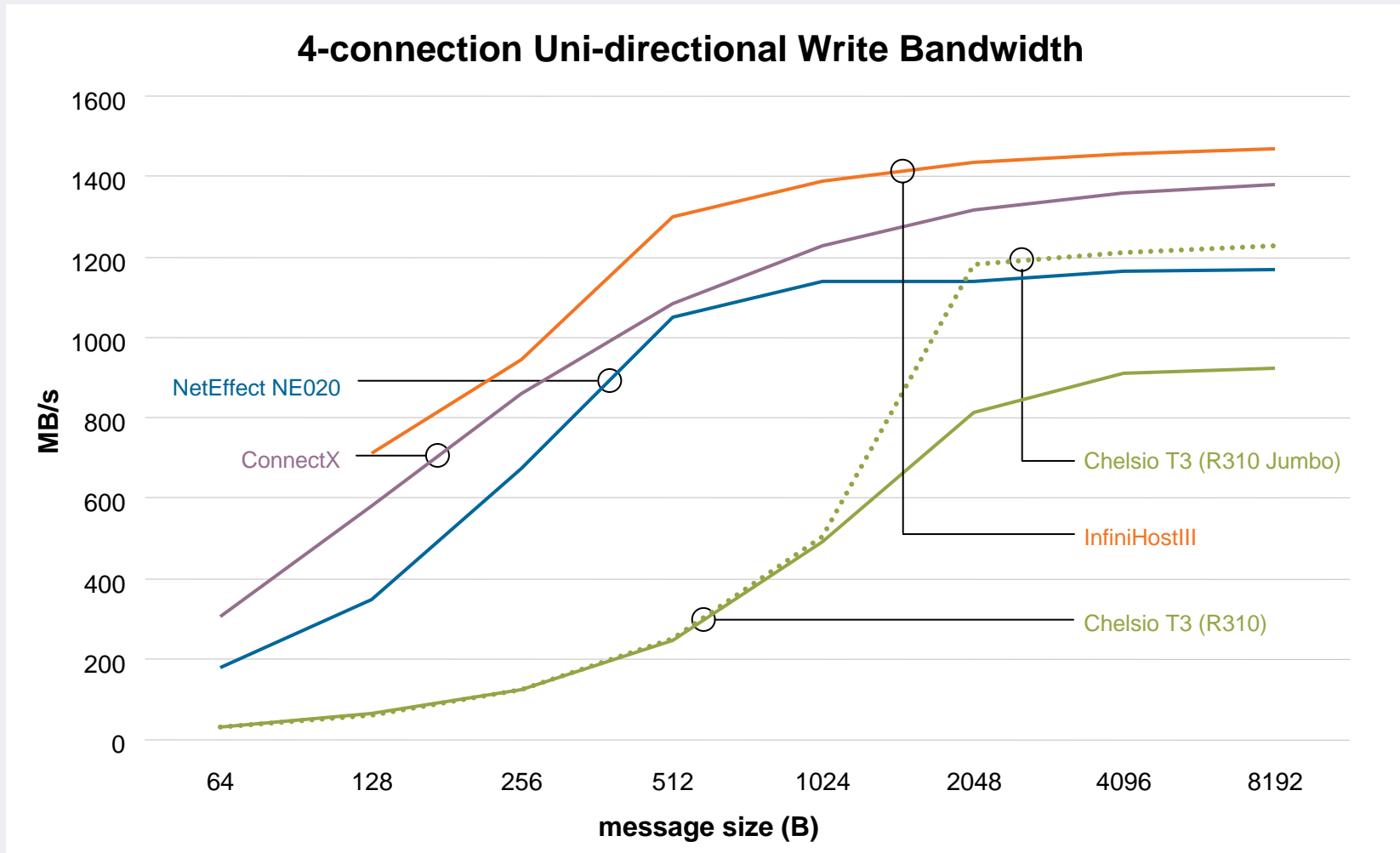
Predominant RDMA Command for: Intel MPI, MVAPICH2, HP MPI, Scali MPI, OpenMPI, MPICH2 and iSER

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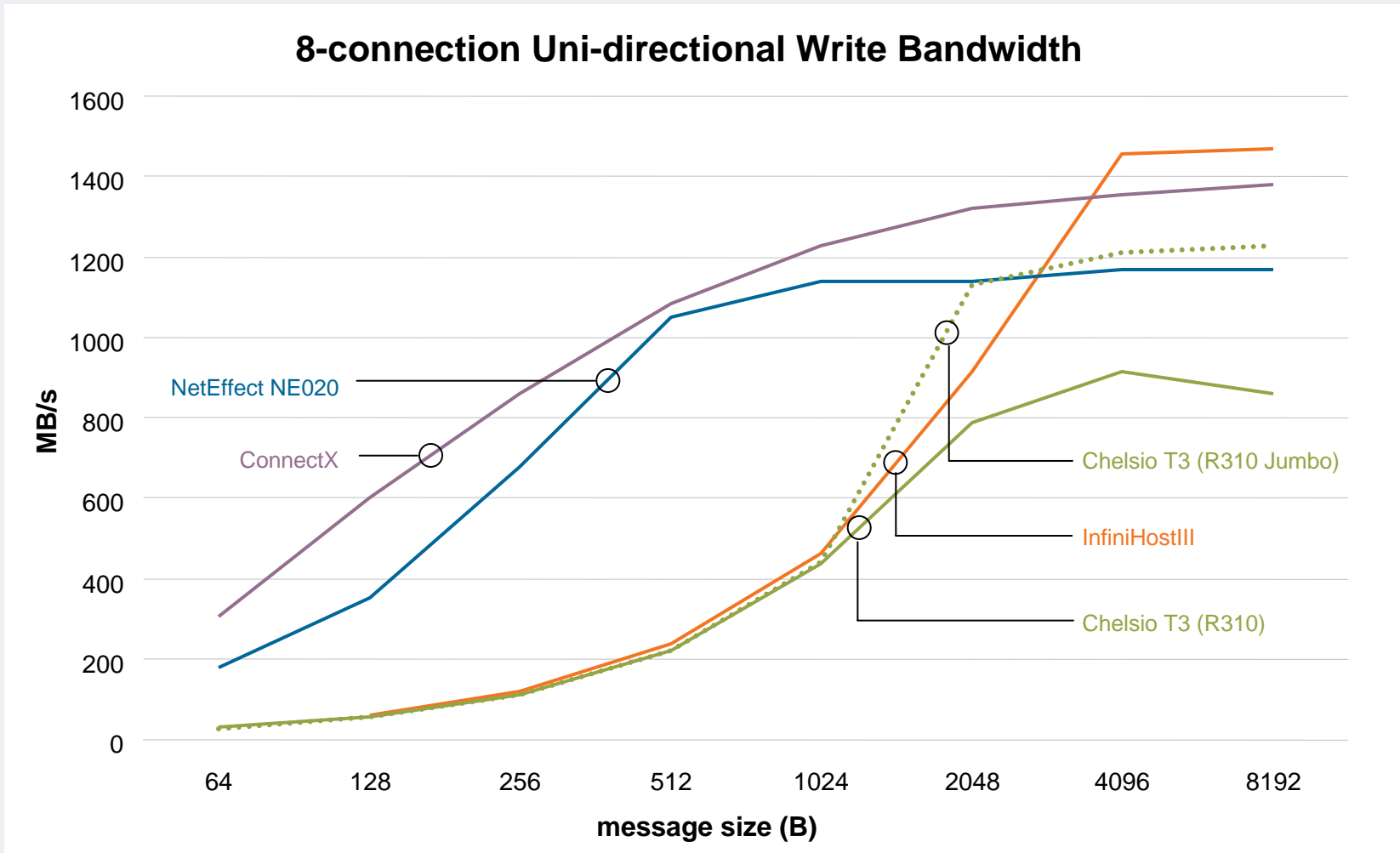
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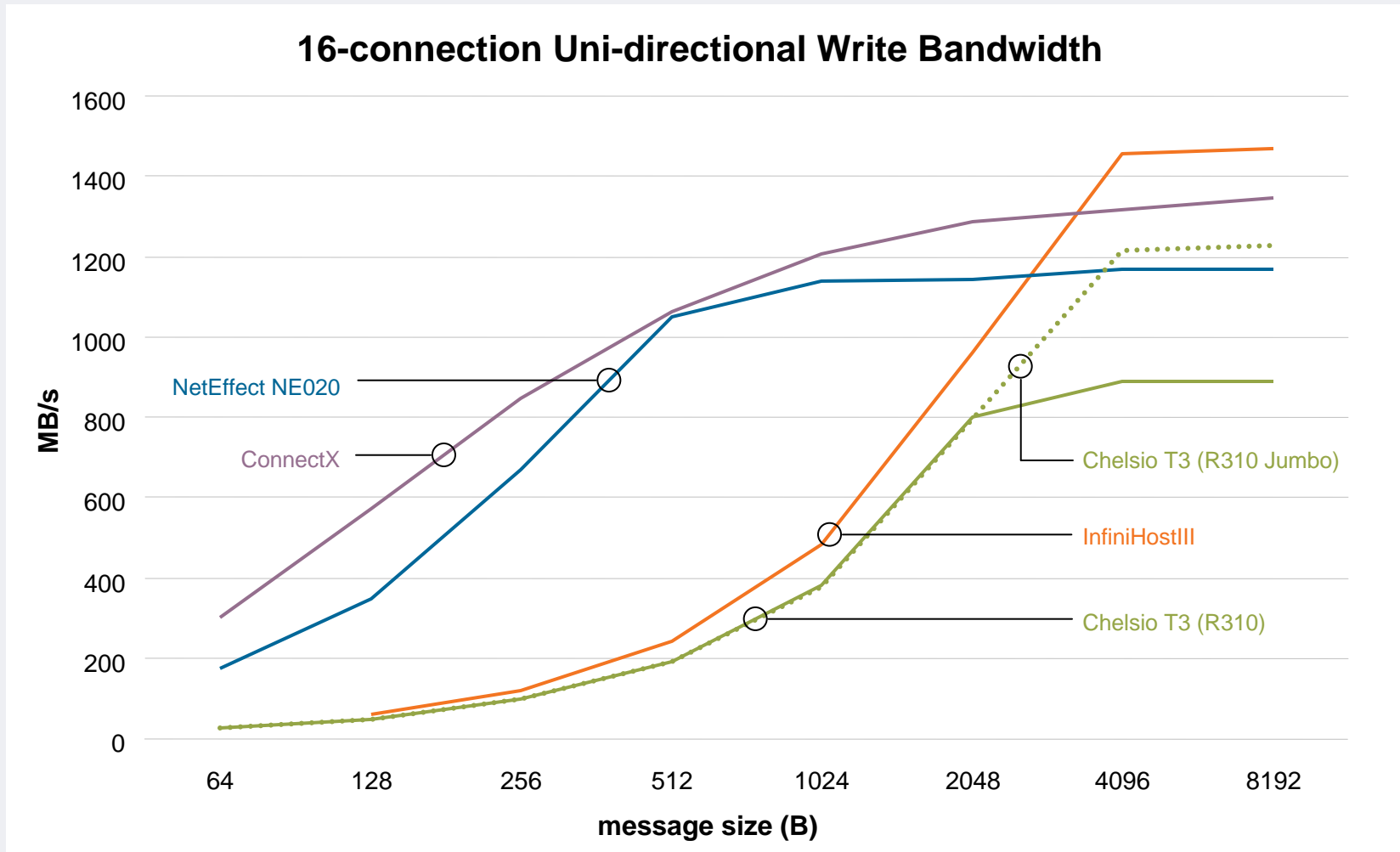
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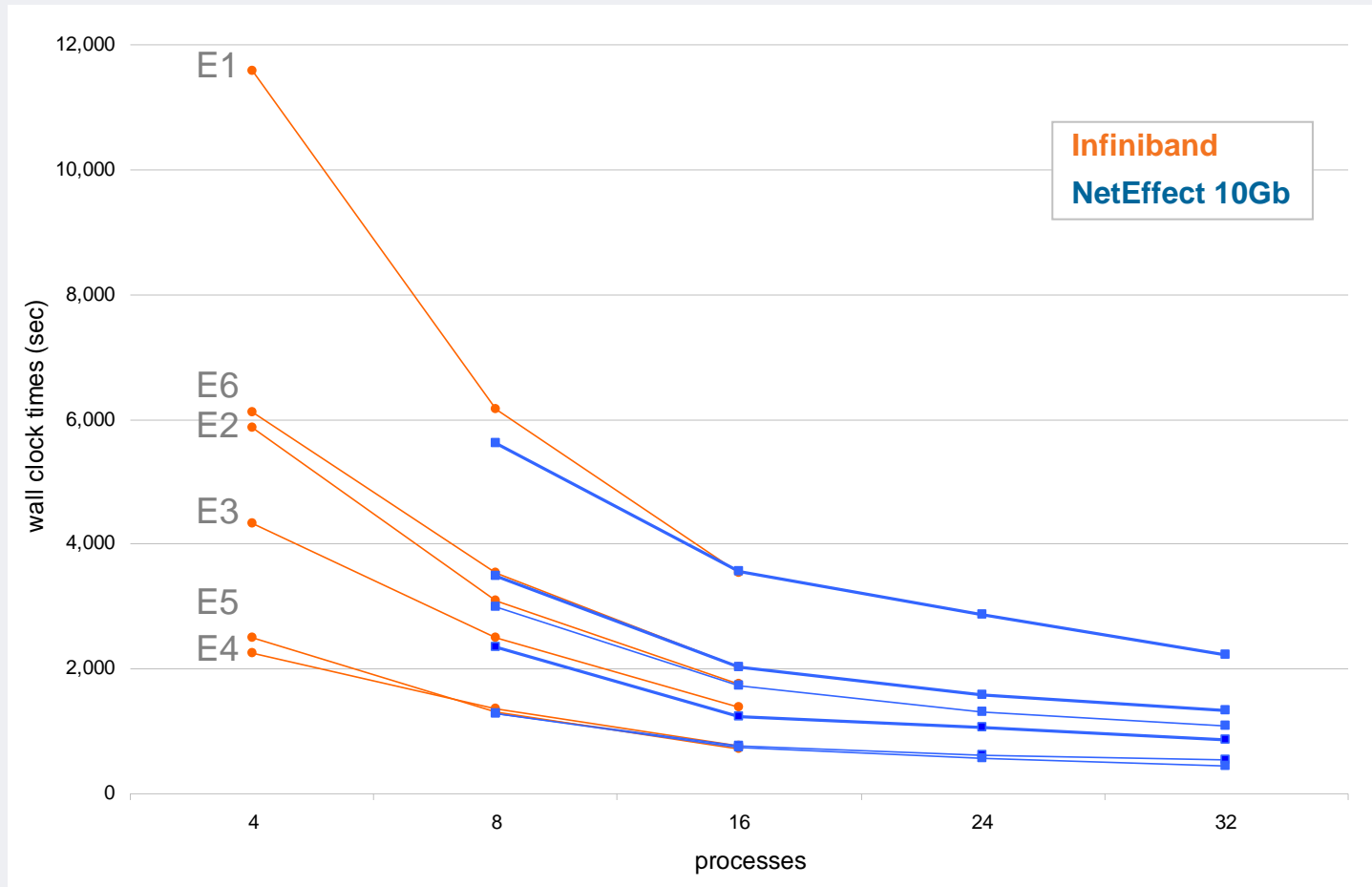


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In Production Applications Now...

10Gb iWARP Ethernet achieves same results as InfiniBand

Abaqus/Explicit: finite element analysis test suite (E1-E6)



In Production Applications Now...

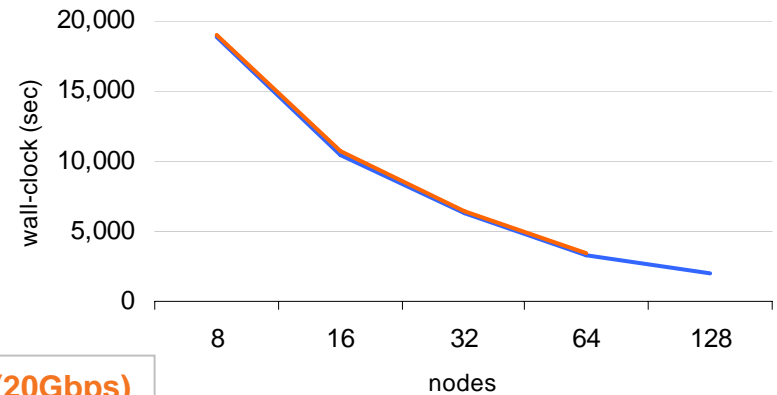
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PAM-CRASH crash simulation

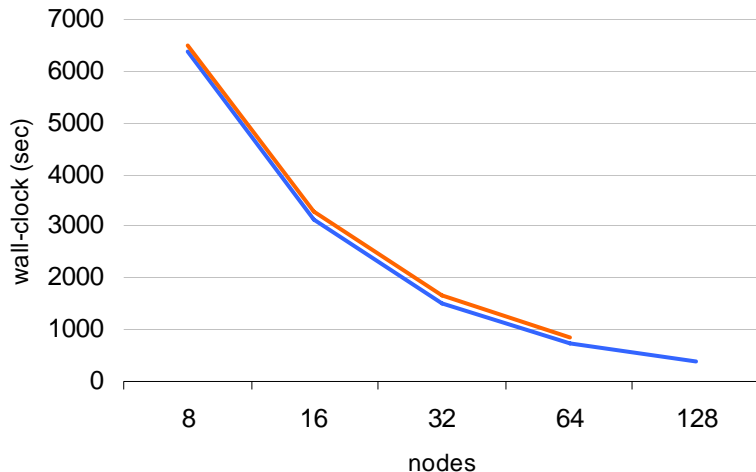
- Unmodified
- Automatically scaled across nodes
- Wall-clock times equal to or better than 20-Gbps InfiniBand

DDR Infiniband (20Gbps)
NetEffect NE020 10GbE

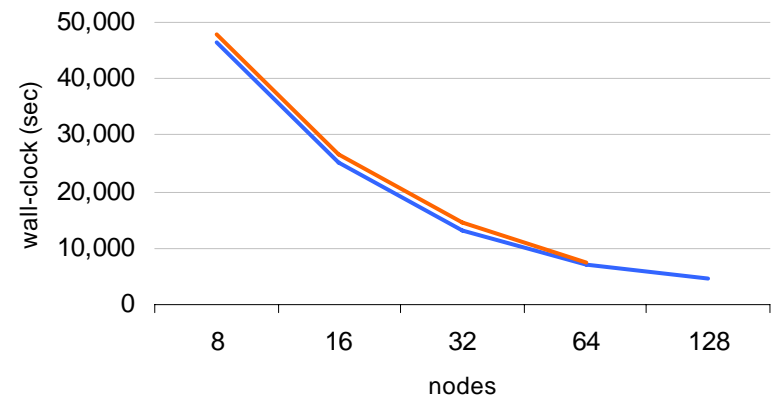
m13 Dataset (100% Frontal Crash)



Neon Simulation



bm1 Dataset (100% Side Impact)



In Production Applications Now...

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Fluent FL5Lx Benchmarks: Computational Fluid Dynamics (CFD)

FL5L1

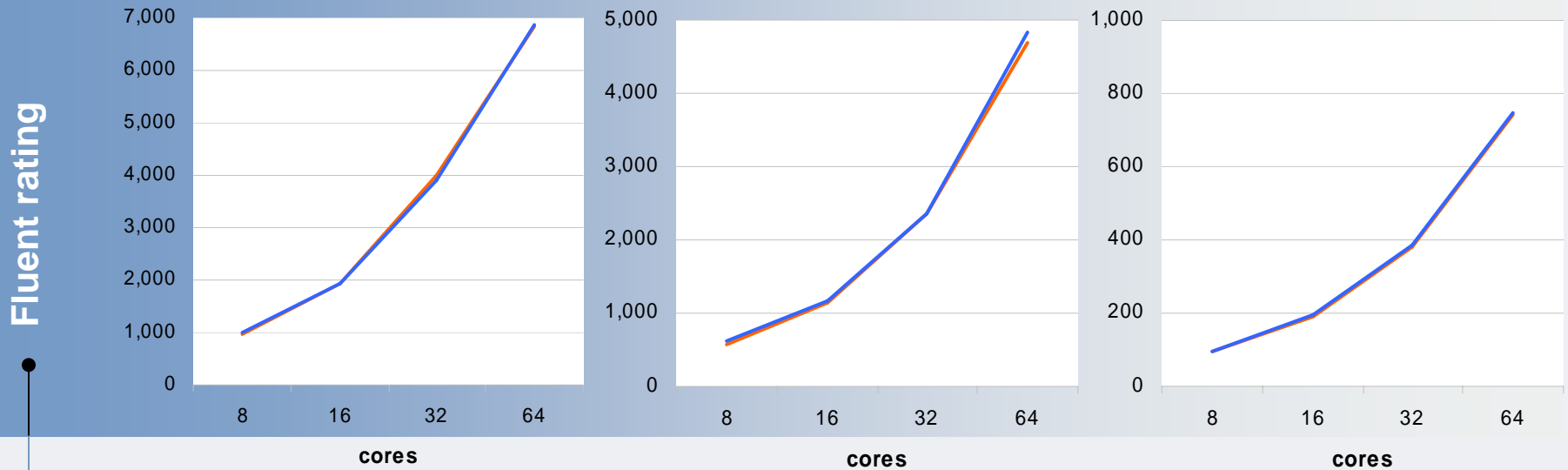
	8	16	32	64
Infiniband	978.8	1938.3	4004.6	6843.6
NE020 10GbE	1008.3	1926.9	3901.4	6861.7

FL5L2

	8	16	32	64
Infiniband	568.1	1145.5	2355.8	4702.0
NE020 10GbE	611.5	1163.1	2359.8	4821.9

FL5L3

	8	16	32	64
Infiniband	96.0	191.2	379.0	742.6
NE020 10GbE		195.3	385.3	784.7

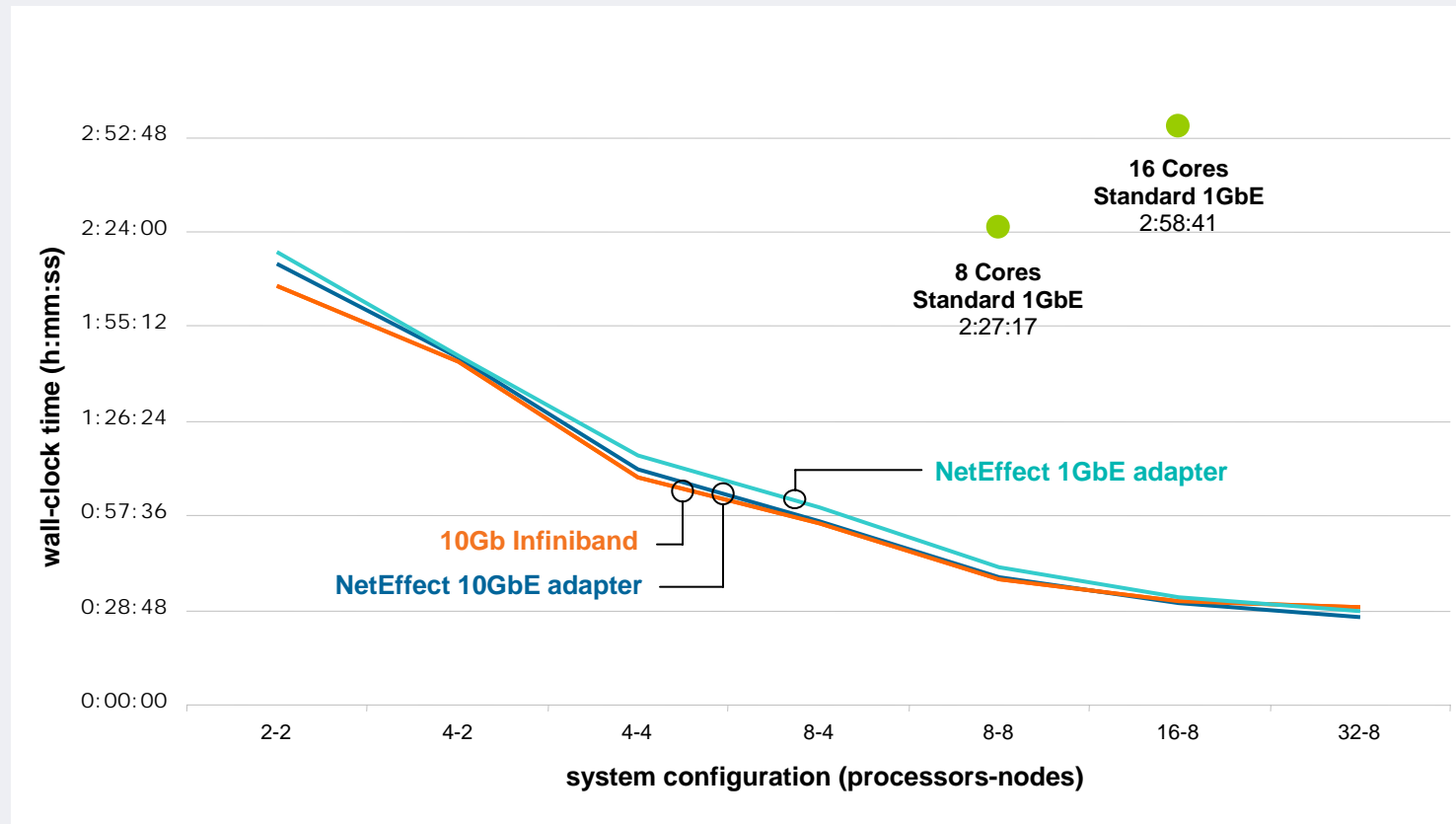


Fluent 'rating': the number of benchmarks that can be run (in sequence) in a 24 hour period. A higher rating means faster performance.

In Production Applications Now...

Even **1Gb** iWARP Ethernet achieves results on par with InfiniBand in some applications

Landmark Nexus reservoir simulation (dominated by latency and message rate)



Conclusion

- We joined forces 2.5 years ago to make the concept of a single RDMA API work on multiple fabrics from multiple vendors and be interoperable
- InfiniBand & Ethernet Working Together
 - Multiple IB Vendors
 - Multiple iWARP Vendors
- It is now a Reality!



iWARP has moved “from benchmarks to applications”



Thank You!

www.neteffect.com