Launch of the RoCE Initiative

Bill Lee and Mike Jochimsen, IBTA MWG Co-Chairs

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InfiniBand Trade Association (IBTA)

Global member organization dedicated to developing, maintaining and furthering the InfiniBand specification

- Architecture definition
  - RDMA software architecture
  - InfiniBand, up to 100Gb/s per port
  - RDMA over Converged Ethernet (RoCE)
- Compliance and interoperability testing of commercial products
- Markets and promotes InfiniBand and RoCE
  - Online, marketing and public relations engagements
  - IBTA-sponsored technical events and resources
- NEW: The RoCE Initiative
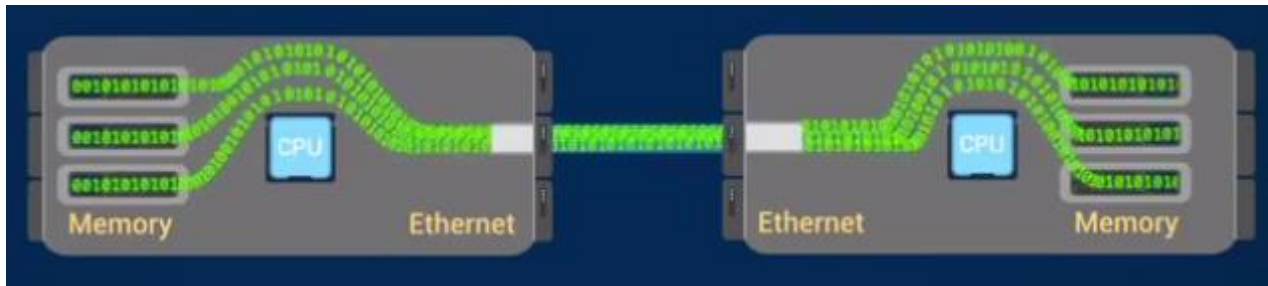
Introducing
the RoCE Initiative

**Providing RDMA over Converged Ethernet
education, reference solutions and resources
to CIOs, data center managers and architects**

What is RDMA?

Remote Direct Memory Access

- Allows data to be transferred from one server to another with much less work being done by the CPU
  - Traditional data movement utilizes TCP/IP, many copies and significant CPU overhead
  - RDMA utilizes hardware offloads to move data faster with less overhead
- Frees the CPU to do the work its meant to do: run applications and process massive amounts of data

Why RDMA?

Essential for evolving enterprise data centers, delivering value to cloud, storage, virtualization and hyper-converged infrastructures

- I/O is central to achieving highest performance
- Efficient computing reduces power, cooling and space requirements
- OS bypass enables fastest access to remote data
- Scalable storage to meet growing demand
- Delivers direct access to data over the WAN

Benefits of RDMA

- Low latency and CPU overhead
- High network utilization
- Efficient data transfer
- Support for message passing, sockets and storage protocols
- Supported by all major operating systems

Why RoCE?

- RDMA transport over Ethernet
  - Efficient, light-weight transport, layered directly over Ethernet
  - Takes advantage of PFC (Priority Flow Control) in DCB Ethernet
  - IBTA standard, supported in OpenFabrics Software and all major operating systems

- Lowest latency in the Ethernet industry
  - 1µs server-to-server RDMA latency
  - Enables faster application response, better server utilization and higher scalability

- Tremendous support momentum by ecosystem
  - Cloud service providers, DB Vendors, Financial ISVs, Server & Storage OEMs
  - Entire Ethernet management ecosystem is available
  - Adopters can upgrade their application performance, while leveraging the investment in their existing infrastructure

RoCE Initiative

Goals:

- To enable CIOs, enterprise data center architects and solutions engineers to achieve improved application performance and data center productivity
- To accelerate the adoption and development of additional RoCE applications

The RoCE Initiative is leading the advancement of the enterprise data center through the development of specifications, benchmarking performance improvements and by delivering education and technical resources:

- – Education program
- – Case studies
- – White papers
- – Training webinars

www.RoCEInitiative.org

RoCE Solutions

During a [presentation at Microsoft Ignite 2015](#), the use of RoCE compared to TCP/IP showcased drastically improved performance.

With RDMA enabled, the SMB3 server achieved:

– Twice the throughput

– Half the latency

– 33 percent less CPU overhead

Summary

- IBTA is committed to advancing its specifications, including RDMA architecture and RoCE

- RDMA moves data between servers' user space without CPU involvement, thereby accelerating application performance

- RoCE allows adopters to gain the benefits of RDMA without needing to replace their Ethernet infrastructure

- The <u>RoCE Initiative</u> will be the leading source for information on RDMA over Ethernet solutions
  - Advance implementation of RoCE in enterprise data centers
  - Deliver training, education and technical resources

Thank You