25 Gb/s Ethernet over a single lane for server interconnect

Call for Interest

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IEEE 802.3 Working Group
San Diego, CA
July 14th, 2014
Overview: 25 Gb/s Ethernet Motivation

• Provide cost optimized server interconnect capability beyond 10G

• Provide a 25Gb/s MAC rate that:
  • Leverages single-lane 25Gb/s physical layer technology developed to support 100GbE
  • Maximize efficiency of server to access switch interconnect

Web-scale data centers and cloud based services are presented as leading applications
What Are We Talking About?

Leading Application Space for 25Gb/s Ethernet

- Optimized interconnect from servers to first-level networking equipment (i.e. ToR, access layer, leaf…)

- A single-lane 25Gb/s Ethernet interface provides the opportunity for optimum cost-performance server interconnect
Why Now?

- Web-scale data centers and cloud based services need
  - Servers with >10GbE capability
  - Cost sensitive for nearer-term deployment

- Industry has recognized the need & solution
  - Switching & PHY silicon under development
  - Formation of 25GbE Consortium targeting cloud-scale networks

- 25Gb/s technology standardized, developed, productized for 100GbE can be leveraged now!
  - There are no 40Gb/s single lane standardization efforts under way

- The Ethernet Ecosystem has been very successful
  - Open and common specifications
  - Ensured Interoperability
  - Security of development investment
Logistics

An overview presentation session will be given to support consensus building:

• Date - Tuesday, July 15th
• Time - 6:30 to 8pm
• Location – Seaport FGH ballroom
• CFI Presentation: [http://www.ieee802.org/3/cfi/request_0714_1.html](http://www.ieee802.org/3/cfi/request_0714_1.html)

Request to form Study Group will occur during closing 802.3 WG Plenary on Thursday
Call for Interest

A Call for Interest in forming a Study Group to study the need for an amendment to the IEEE 802.3 standard to specify 25 Gb/s Ethernet over a single lane for server interconnect applications.

Based on this study, the outputs will be (i) a recommendation to the IEEE 802.3 Working Group if such an amendment is required and (ii) if so, a PAR, 5 Criteria and Objectives in support of a project to develop the amendment.
Thank You
25Gb/s Ethernet: the original CFI request

The use of Top of Rack 4x10Gb/s breakout using 40Gb/s interfaces has become very popular over the last few years in hyper-scale data centers and cloud services providers. As these data centers prepare to transition to 100Gb/s Ethernet, there is an expectation to use the 100Gb/s 4x25Gb/s interface specified in IEEE P802.3bj and IEEE P802.3bm as effectively as is done with the 4x10Gb/s 40Gb/s Ethernet interface.

Efficient and effective data center and cloud architectures would utilize the 25Gb/s technology within the 4x25Gb/s 100Gb/s interface technology and enable breakout to single lane 25Gb/s interfaces. At this time, there is no ability for data centers and cloud services providers to enable this network efficiency without a common specification for 25Gb/s Ethernet.

This Call For Interest is a request for the formation of a study group to 1) explore enhancements that take advantage of interfaces within IEEE P802.3bj and IEEE P802.3bm to provide a single lane 25Gb/s Ethernet specification for server interconnects, and 2) the market requirements supporting the server-TOR application of a 25Gb/s Ethernet interface.