

# Broad Market Potential – Proposed Responses

John D'Ambrosia, Dell  
Pete Anslow, Ciena

IEEE 802.3 400 Gb/s Ethernet Study Group  
Jan 2014 Interim, Indian Wells, CA, USA

# Broad Market Potential

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Each proposed IEEE 802 LMSC standard shall have broad market potential. At a minimum, address the following areas:

- a) Broad sets of applicability.
  - b) Multiple vendors and numerous users.
  - c) **Balanced Costs (LAN versus attached stations) [Removed from IEEE 802 5 Criteria Nov 2012]**
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- Per the IEEE 802.3 Bandwidth Assessment Ad Hoc, bandwidth requirements, on average, for core networking applications are increasing by a factor of 10 every 5 years. The definition of 400 Gb/s Ethernet will address, but is not limited to, these applications: data center, internet exchanges, co-location providers, wireless back haul, service providers, and video-on-demand delivery.
  - There has been wide attendance and participation in the study group by end users, equipment manufacturers and component suppliers. It is anticipated that there will be sufficient participation to effectively complete the standardization process.
  - Prior experience scaling IEEE 802.3 and contributions to the study group indicates the cost distribution between routers, switches, and the infrastructure will remain acceptably balanced for 400 Gb/s Ethernet.
  - Given the topologies of the networks and intended applications, early deployment will be driven by key aggregation & high-bandwidth interconnect points, such as co-location providers, wireless back haul, and service providers. Given anticipated bandwidth growth trends, deployment for data center applications will occur later.

# BACKUP SLIDES

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# Broad Market Potential (1 of 2)

- Broad sets of applications
  - Multiple vendors and numerous users
  - Balanced cost (LAN versus attached stations)
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- **Bandwidth requirements for computing and core networking applications are growing at different rates, which necessitates the definition of two distinct data rates for the next generation of Ethernet networks in order to address these applications:**
  - Servers, high performance computing clusters, blade servers, storage area networks and network attached storage all currently make use of 1G and 10G Ethernet, with significant growth of 10G projected in '07 and '08. I/O bandwidth projections for server and computing applications, including server traffic aggregation, indicate that there will be a significant market potential for a 40 Gb/s Ethernet interface.
  - Core networking applications have demonstrated the need for bandwidth beyond existing capabilities and the projected bandwidth requirements for computing applications. Switching, routing, and aggregation in data centers, internet exchanges and service provider peering points, and high bandwidth applications, such as video on demand and high performance computing environments, have demonstrated the need for a 100 Gb/s Ethernet interface.

# Broad Market Potential (2 of 2)

- Broad sets of applications
  - Multiple vendors and numerous users
  - Balanced cost (LAN versus attached stations)
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- **There has been wide attendance and participation in the study group by end users, equipment manufacturers and component suppliers. It is anticipated that there will be sufficient participation to effectively complete the standardization process.**
  - **Prior experience scaling IEEE 802.3 and contributions to the study group indicates:**
    - 40 Gb/s Ethernet will provide approximately the same cost balance between the LAN and the attached stations as 10 Gb/s Ethernet.
    - The cost distribution between routers, switches, and the infrastructure remains acceptably balanced for 100 Gb/s Ethernet.
  - **Given the topologies of the networks and intended applications, early deployment will be driven by key aggregation & high-bandwidth interconnect points. This is unlike the higher volume end system application typical for 10/100/1000 Mb/s Ethernet, and as such, the initial volumes for 100 Gb/s Ethernet are anticipated to be more modest than the lower speeds. This does not imply a reduction in the need or value of 100 Gb/s Ethernet to address the stated applications.**