



Broad Market Potential

Broad set(s) of applications

Multiple vendors, multiple users

Balanced cost (LAN vs. attached stations)

- **Ethernet has become widely deployed as a preferred backplane solution. Examples include Modular Servers and Enterprise and Telecom Network Equipment. Quantitative presentations have been made to the 802.3 Backplane Ethernet Study Group indicating significant market opportunities for these applications.**
- **Rapid growth of network and internet traffic is driving the need for higher performance over backplanes. Currently, IEEE 802.3 does not address this application with a formal standard.**
- **156 participants attended the Ethernet Over Backplane call-for-interest, representing at least 33 companies, and indicated that they plan to participate in the standardization of Ethernet Over Backplane. This level of commitment indicates that a standard will be developed by a large group of vendors and users.**
- **A standardized Ethernet interface on blades will maintain the balanced cost for backplane applications.**



Compatibility with IEEE Std. 802.3

Conformance with CSMA/CD MAC, PLS

Conformance with 802.2

Conformance with 802

- **The proposed standard will conform to the 802.3 MAC, and therefore will be consistent with 802.1D, 802.1Q, and relevant portions of 802.1f.**
- **As was the case in previous 802.3 standards, new physical layers will be defined.**
- **The proposed standard will conform to the 802.3 MAC Client Interface, which supports 802.2 LLC.**
- **The proposed standard will conform to the 802.1 Architecture, Management and Interworking.**
- **The proposed standard will define a set of systems management objects which are compatible with OSI and SNMP system management standards.**
- **The proposed standard will conform to the requirements of IEEE Std 802-2001.**



Distinct Identity

Substantially different from other 802 and 802.3 specifications

One unique solution for problem

Easy for document reader to select relevant spec.

- **The current 802.3 specification does not explicitly cover backplane transmission. XAUI is for chip-to-chip applications. 10GBASE-CX4 is for box-to-box (cabling) applications. 1000BASE-X has no electrical specification, and 1000BASE-CX is specified for coaxial cable.**
- **The standard will define at most one single lane PHY for 1Gb/s, at most one single lane 10Gb/s PHY, and at most one four-lane 10Gb/s PHY.**
- **The specification will be done in a format consistent with the IEEE document requirements thus making it easy for implementers to understand and design to.**
- **The proposed specification will use copper media similar to other high speed networking technologies (Fibre Channel, IB4X) but does so with the IEEE 802.3 MAC as the over-riding layer which will result in higher compatibility and lower cost for Ethernet systems.**



Technical Feasibility

Demonstrated system feasibility

Proven technology, reasonable testing

Confidence in reliability

- **Ethernet MAC and interfaces are being used in backplane applications today.**
- **Technical presentations, given to the Backplane Ethernet Study Group, have demonstrated the feasibility of using copper backplane topologies at data rates up to 10 Gb/s per lane using available technologies. Other organizations are developing specifications for backplane applications for similar data rates.**
- **The principle of extending higher speeds to copper media has been well established by previous work within 802.3. The Backplane Ethernet work will build on this experience.**
- **Vendors of higher speed components are building reliable products which operate at data rates up to 10 Gb/s per lane on backplanes, and meet worldwide regulatory and operational requirements.**



Economic Feasibility

Cost factors known, reliable data
Reasonable cost for performance
Total installation costs considered

- **The component costs will benefit from cost reduction associated with Moore's Law. Further integration of functionality will reduce cost.**
- **Costs for backplanes based on available materials and components are well known and reasonable.**
- **Ethernet backplane standardization will increase deployment and diversity of supply base to further reduce cost.**
- **Ethernet IP re-use will lower implementation cost.**
- **System design, installation and maintenance costs are minimized by utilizing Ethernet system architecture, management, and software.**