RESG Draft Critters Ad Hoc

January 24, 2005 (7:08pm)

Broad Market Potential

"Residential Ethernet" networks represent a new and very broad application space for Ethernet. The digital networking port on consumer electronics (96 billion USD in 2003) equipment has not yet been decided, and 802.3/Ethernet has a strong possibility of being the dominant, long-term solution of choice if it also provides isochronous services.

At the second RE Study Group meeting, individuals from companies representing component suppliers, equipment vendors and users expressed their support for the project. Ethernet equipment vendors and customers are able to achieve an optimal cost balance between the network infrastructure components and the attached stations.

NOTES: 174 million ports in 2004; 2008 - 458 million; growth rate 21%, 50/50 wireless/wireline (Instat)

Compatibility

As a supplement to IEEE Std 802.3-2004, the proposed project will remain in conformance with the 802 Overview and Architecture with the expected augmentation of the MAC service interface to support timing synchronization and isochronous traffic.

As a supplement to IEEE Std 802.3-2004, the proposed project will remain in conformance with 802.1D, 802.1Q and 802.1f, though extensions to these standards may be proposed as additional work items.

As a supplement to IEEE Std 802.3-2004 the proposed project will use existing MACS* and PHYS in full-duplex mode. (Editor's Note: Ask RMG about PMD)

As a supplement to IEEE Std 802.3-2004, the proposed project will follow the existing format and structure of 802.3 MIB definitions.

Distinct Identity

a) Substantially different from other IEEE 802 standards.
b) One unique solution per problem (not two solutions to a problem).
c) Easy for the document reader to select the relevant specification.

There is no existing 802.3 standard or approved project that provides isochronous delivery with low-latency, low-jitter and guaranteed bandwidth.

The proposed project will be formatted as a supplement to IEEE Std 802.3-2004, making it easy for the document reader to select the RE specification from within 802.3.

Technical Feasibility

a) Demonstrated system feasibility.
b) Proven technology, reasonable testing.
c) Confidence in reliability.

Ethernet systems (comprising interface controllers, bridges, routers, management systems, and other devices) represent the most widely deployed networking technology in history. The proposed project will build on the vast array of Ethernet component and system design experience, and the broad knowledge base of Ethernet network operation.

The proposed project will, to the extent possible, re-use specifications developed by 802.3 and develop new any augmentations in accordance with the rigorous standards of proof applied to 802.3 projects. Access control augmentations will not involve significant added complexity. TDMA* is a well-established and well-understood access method. Time-sensitive services are already present in other common technologies, e.g. IEEE 1394.

The reliability of Ethernet components and systems can be extrapolated in the target environments with a high degree of confidence.

Economic Feasibility

a) Known cost factors, reliable data.
b) Reasonable cost for performance.
c) Consideration of installation costs.

The cost factors for Ethernet components and systems are well known.
Ethernet consistently demonstrates the most attractive cost/performance ratio of
any networking technology, at any operating speed. This fact is well established in
the current networking application space. The goal of this project is to improve
on that cost/performance, due to the significantly higher volumes in the consumer
electronics/residential application space.

Installation costs, as well as maintenance and operations costs, should be reduced
when compared to competing technologies through a combination of simpler, more reliable
configurations and a more optimal system architecture.