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Ethernet in the Last Mile: Options & Opinions

John Wolcott

Kevin Daines

Jonathan Thatcher

IEEE 802.3

Call For Interest: Ethernet in the Last Mile

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Anchoring the Last Mile

Even without extensions to the existing 802.3 standard, Ethernet is the logical choice for the last mile

- **Predominance in the networking space**

- **Cost-performance**

- **Reuse & leverage existing technology**

- **Scalability**

- **No bridging or protocol translation**

…and customers love the fact that it is Ethernet.

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Anchoring the Last Mile…

Ethernet has grown up from a shared media to tomorrow's global interconnect technology

- **Star-wired topology**
  - **Reliable, Available, Serviceable**
  - **Manageable**
  - **Secure**

- **Completes the end-to-end Ethernet (Ethernet Everywhere) picture**

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Bandwidth Demand

 "…consumers will share video over the Internet in the same fashion that they currently share photographs. … With thousands of companies coming up with ideas to fill the broadband pipe, "you ain't seen nothin' yet" in terms of consumer usage."

Michael Parekh, Goldman Sachs

The Race to Build the Broadband Kingdom, September 2, 1999

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Imminent Household Traffic (Mbps)

HDTV Video (1 channel)		**20.000** Mbps
SDTV Video (1 channel)		**5.000** Mbps
Web Surfing		**5.000** Mbps
Games		**2.000** Mbps
Phone Conversation	**+**	**0.064** Mbps
TOTAL		**32.064** Mbps

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If Ethernet works so well as currently defined, why enhance the standard for the Last Mile?

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Enhancing the standard may improve/refine the technology specific to this space, however let's set some minimum criteria for success:

- **Minimum bandwidth requirement: 100Mbps**

- **Protect scalability & future proofing: avoid infrastructure limitations**

- **Avoid shared media technologies: home run connectivity w/ full duplex links**

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Enhancement Possibilities

- **New Single Fiber PMD**
  - **Two wavelengths / Cost optimized**
  - **Bi-directional / Full duplex transceiver**
  - **Media and installation costs could be ~halved**

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Enhancement Possibilities…

- **Extensions to layer 2 tagging to increase supported number of VLANs**
  - **16M is a good number**
  - **Increases maxFrameSize by 4 octets**
  - **Impacts 802.1p & 802.1Q**

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Conclusion

- **Ethernet is the most widely deployed networking technology in the world**

- **Ethernet is the networking technology of choice in the home**

- **Ethernet works in the Last Mile <u>today</u>!**

- **However, World Wide Packets™ would support optimizing Ethernet for the Last Mile**

…But let's do it right!

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