

Invited paper

Fiber to the home: a carrier perspective

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Abstract

Service providers are experiencing growing demand for access bandwidth as standard definition broadcasting continues to evolve to high definition, more people are on line at once and internet becomes the preferred delivery mechanism for entertainment and full multimedia experience. Network architecture and technologies that provide long term solutions to this growing bandwidth needs will be discussed.

Extended Abstract

Service providers are experiencing growing demand for access bandwidth as standard definition broadcasting continues to evolve to high definition, more people are on line at once and internet becomes preferred delivery mechanism for entertainment and full multimedia experience. Market expectation for fixed access bandwidth growth is almost doubling every 2-3 years but customers are resistant to expected cost increases. Services revenue growth is required in addition to continued infrastructure cost savings to balance forecast demand.

Network architecture and technology must be robust, flexible, industry standards based and that doesn't require significant physical infrastructure changes over many years. Use of FTTX based fiber access architecture and technologies are growing rapidly that meet many of the service requirements.

The current generation of FTTP is Broadband Passive Optical Network (BPON) which is capable of 622 Mbps downstream and 155 Mbps upstream to up to 32 homes and businesses has been operational and in-service for many years. The next generation of FTTP technology called Gigabit PON (GPON) is now mature and is being deployed. GPON is capable of 2.4Gbps downstream and 1.2 Gbps upstream. The recently ratified G 984.5 contains options that would add next generation wavelengths that would co-exist with the current GPON architecture. Technologies related to support high channel insertion loss, FEC in access networks, cost effective fiber amplifiers etc. are being developed to meet network performance.

This presentation will examine the industry trends and technology advancements that provide long term solutions to growing bandwidth needs.



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Vishnu Shukla is a principal technology staff member, Network & Technology at Verizon. He has more than 25 years experience in optical network design and development, technology transfer and overall technology planning. His current responsibilities include development of the next generation network architecture, analyzing the current state-of-the-art technology trends and developments and evaluation of its strategic impact on Verizon. Vishnu contributes to the Verizon's participation in multi-disciplined standards concerning leading edge technologies. He holds a PhD from the University of Wales, U.K. and an MBA from Northeastern University, Boston.