

Research article

Ethernet aggregation and core network models for efficient and reliable IPTV services

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ABSTRACT

With the growing interest on wireline network architectures for residential triple-play and business Ethernet services there is a renewed demand for efficient and reliable packet-based transport capabilities between the content providers and the end users. Voice and data traffic carried over a variety of access technologies is collected via technology-specific access networks (e.g., digital subscriber line [xDSL], passive optical network [xPON], and wireless fidelity [WiFi]). Metro and core networks need to aggregate the various user flows from different access network nodes and provide scalable and cost-effective distribution of various flow types (e.g., Internet access, voice, video on demand, and broadcast TV services) to the relevant service access points. Varying quality of service and resiliency requirements for these services are being reflected in a new breed of converged Ethernet and optical network elements with capabilities to interwork the bearer-planes of these two networking technologies seamlessly. Network elements based on Ethernet/Optical converged technology are able to select the most fitting mechanisms from each networking technology to meet the transport requirements for each individual service demand better while providing significantly enhanced implementation and operational efficiencies. This paper discusses network architecture models and network elements addressing these goals.

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