

Latin American Carrier EIG Delivers Multiple Services Over High Speed Fiber

Guatemala-based EIG Provides Advanced Fiber Optic Network Functionality Using Media Conversion and Optical Demarcation Devices From IMC Networks



The worldwide reach of the Internet and advances in network technology have prompted the move to sophisticated, low-cost Ethernet-based infrastructures that deliver increased bandwidth while maintaining network security. In Guatemala, one of IMC Networks' top resellers - EIG (Empresa de Ingenieros Guatemaltecos) - a Telecommunications and Energy company with over 20 years of expertise in design and implementation of data networks - had a client that saw a revenue opportunity in delivering these managed Ethernet services.

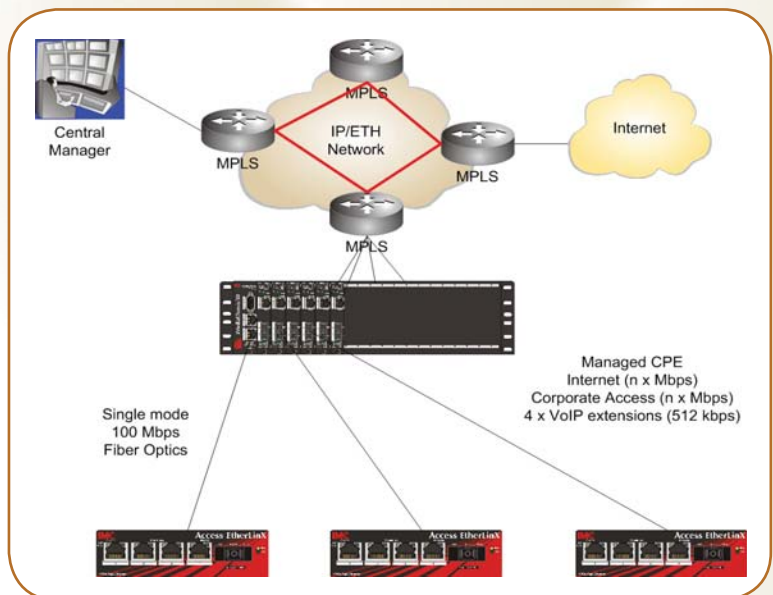
An Incumbent Local Exchange Carrier (ILEC) had installed a MultiProtocol Label Switching (MPLS) Layer2/Layer3 backbone network. A major benefit of MPLS networks is they give network operators a great deal of flexibility to divert and route traffic around link failures, congestion, and bottlenecks. By controlling latency and packet loss, MPLS networks also allow operators to offer differentiated services, with a variety of pricing plans. The challenge became how to maintain the robust network functionality and deliver differentiated services to the client premises - the so-called "network edge".

In order to effectively deliver scalable high speed access to its corporate customers (speeds in excess of 2 Mbps/E1) the client chose to connect via fiber optics. A key requirement was that the access link be able to handle several services while maintaining management across the whole network, especially up to the customer premises equipment (CPE). The hardware had to support IEEE802.1p packet prioritization (Quality of Service) and IEEE802.1q VLAN tagging in order to maintain the service tiers, and the integrity of each customer's network traffic. The need for Fiber-to-the-Premises (FTTx) was obvious, yet the associated security and manageability required special consideration.

EIG has an extensive background in network integration, and after reviewing equipment from multiple vendors, they decided that the best solution for the client would be IMC Networks' hardware: a combination of modular media converters in a rack-mounted chassis at the service provider location, with intelligent, multi-port fiber optic demarcation devices at the customer site.

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A major component of the solution was IMC Network's carrier-class 20-slot DC chassis, the iMediaChassis/20-2DC. The carrier class chassis offers SNMP management capabilities, lowering the provider's overall operating costs. Inside the chassis were installed iMcV-MediaLinX media converter modules, allowing EIG to connect 10 Mbps and 100 Mbps twisted pair network segments in the Central Office (CO) to 100Base-FX duplex or single-strand fiber optic cabling. With a large installed network of Fiber Optic cable in place, the remaining crucial part of the solution involved selecting the appropriate CPE device to terminate the fiber at the customer sites.



CASE STUDY

Case Study

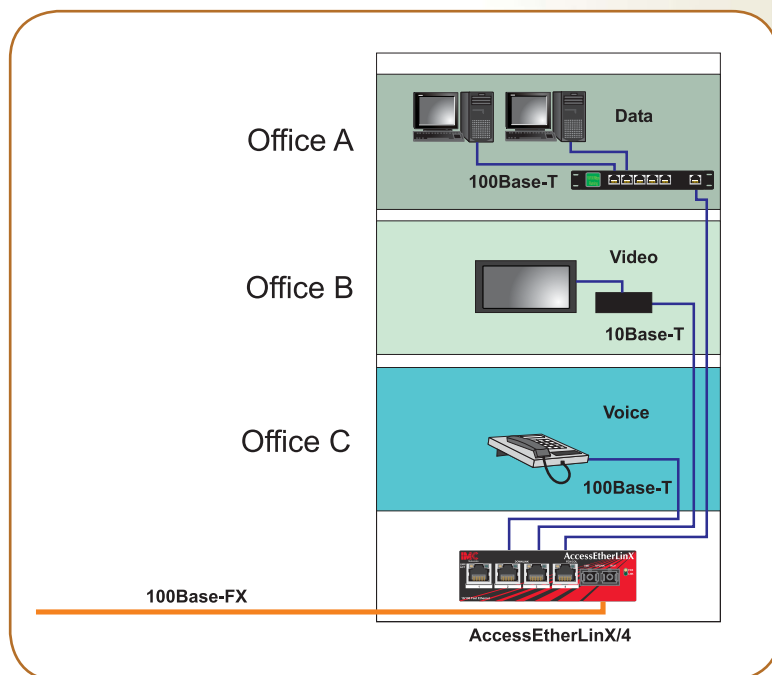
Alfredo Cea, Project Manager for EIG, explains their decision: "We found that IMC's products had a good balance between quality of the products and price. Their products in general comply with all the needed specifications for the clients, which are Telco companies delivering data and voice."

For the critical CPE component, EIG chose IMC Networks' field-proven four port AccessEtherLinX/4 media converter, residing at the customer's network edge, performing an Ethernet conversion from fiber to twisted pair, and offering a clear demarcation point and service hand-off. The multiple ports and VLAN tagging support of the AccessEtherLinX products allowed the ILEC to save cost on access infrastructure by incorporating several services over the same physical link (such as VoIP, web servers and LANs), while keeping all the services separated by different VLAN's within the network itself. The AccessEtherLinX provides all of the features the ILEC required: manageability (through SNMP), rate limiting per downlink port functionality (delivering residential and Business-class service), secure data traffic all the way to the end user CPE, and full compliance with IEEE 802.1p and 802.1q to insure interoperability and standards based functionality.

With support for VLAN tagging and traffic prioritization, each AccessEtherLinX has the option to connect to four different offices and/or types of services. A typical end point deployment is shown below. Several offices in a multi-tenant building are being served by the AccessEtherLinX in the basement. "Triple-play" voice, video and data services are supported.

Once the physical infrastructure was in place, EIG included IMC Network's iView2 software to manage the entire network of iMcV-MediaLinX and AccessEtherLinX media converters seamlessly through SNMP. The iView2 software allowed for a complete map view of the infrastructure as well as an alarm log to help track and troubleshoot network issues from one location, saving valuable time and resources by preventing unnecessary "truck-rolls". Alfredo Cea continues: "Another important reason why we chose IMC is the availability of the free (iView2) SNMP-based graphic management tool that supports all the services that our clients require."

Utilizing IMC Networks' products, EIG was able to address every requirement and specification that the ILEC required for its project, while incorporating ease of management. In addition, the current infrastructure is fully scalable – it can grow as needed while maintaining full functionality and manageability far into the future as more customers subscribe to the ILEC's services.



The diagram to the left illustrates the complete solution offered by EIG. The MPLS routers in the core network connect to an IMC chassis hosting media converter modules. The modules in turn are connected to AccessEtherLinX standalone optical demarcation devices via long haul (single mode) fiber.



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