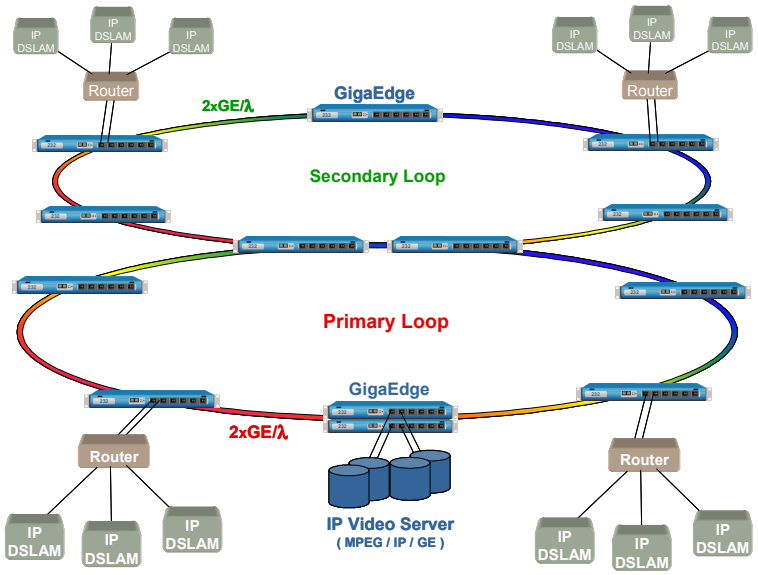
GigaEdge IPTV Backbone Applications

FEATURES AND BENEFITS

- Digital video broadcasting using regenerative TDM and CWDM
- Double the CWDM channel capacity using standard GFP multiplexing of GE transport streams
- Regeneration of CWDM wavelengths supports loss-less drop & continue for video distribution and elimination of dispersion accumulation for large regional networks
- Low cost IPTV backbone networks based on low cost of CWDM bandwidth compared to the high cost of multi-cast routing
- Up to 4,000 standard definition, protected MPEG video channels supported per fiber-pair using low cost CWDM technology with a migration path to DWDM
- Low first-in and incremental cost IPTV networks using small footprint GigaEdge 820 and 232 ADM.
- Distributed or co-located stacking of network elements enables low cost expansion of network capacity to meet increasing customer uptake
- GigaEdge 232 ADMs provide a ubiquitous solution for IP Video Server nodes; Bridging nodes between networks; and IP Video Client nodes.
- GigaEdge 820 ROADMs are best suited to multi-wavelength regeneration for large regional network applications.

Sorrento's GigaEdge IPTV Backbone Networks reflect the simplicity and low cost of time-proven MSO broadcast fiber networks by taking expensive "Big-Iron" multicast routers out of the backbone of regional video distribution networks.

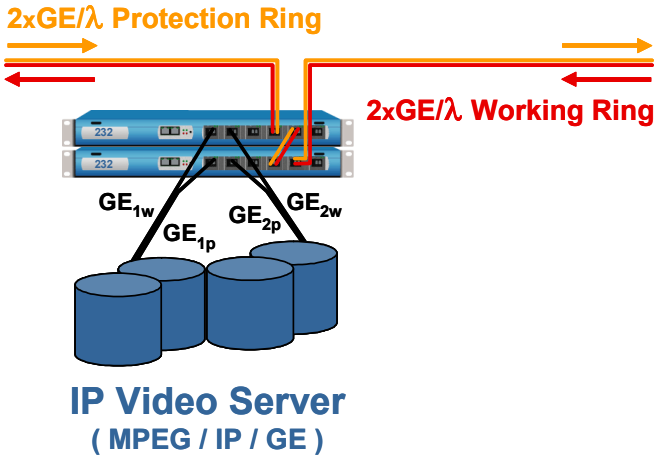
One of the most significant impediments to the accelerated rollout of IPTV networks is cost. The holy grail of IPTV distribution is multi-cast routing—aimed at the most efficient utilization of the network bandwidth. However, the high cost of installing multicast routers at every node in the network must be weighed-up against the decreasing cost of broadcast bandwidth using the latest generation ADM and CWDM technologies.



The GigaEdge 820 and 232 products feature low cost, regenerative CWDM add/drop with loss-less broadcasting of MPEG/IP/GE video channels over regional network distances. Additionally, the GigaEdge 232 multiplexes 2 x GE broadcast channels per CWDM wavelength, thus doubling the network capacity. This is equivalent to 500 Standard Definition MPEG video streams per wavelength or 4,000 MPEG video streams per fiber. When this many video streams can be broadcast at low cost, the need for multicast efficiency is diminished—or at least delayed until there is much greater take-up of the IPTV video services.

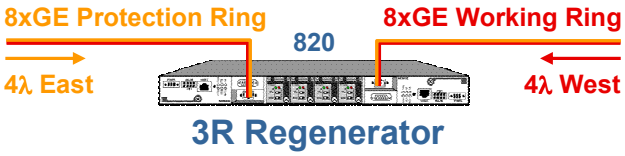
IP Video Server Node

At the IP Video Server Node, two GigaEdge 232 ADMs are configured for client-protection so that their is no single point of failure of the video service. One ADM receives the working streams GE_{1w} and GE_{2w} while the other ADM receives the protection streams GE_{1p} and GE_{2p}. Within each ADM, the two working GE streams are cross-connected to the working ring and the two protection GE streams are cross-connected to the protection ring. By adding CWDM SFPs and GigaEdge 610 filter modules (not shown), up to eight protected GE broadcast transport streams are supported on a single fiber strand.



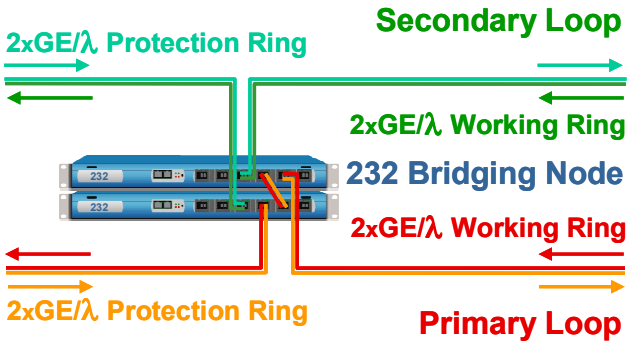
Regenerator Node

Whilst MSO fiber networks employ EDFA amplifiers for extended transmission distances, a GigaEdge IPTV backbone network employs GigaEdge 820 3R Regenerators. These have the advantage that they prevent accumulated dispersion and thus support regional IPTV broadcast networks spanning 100s of miles using low-cost CWDM.



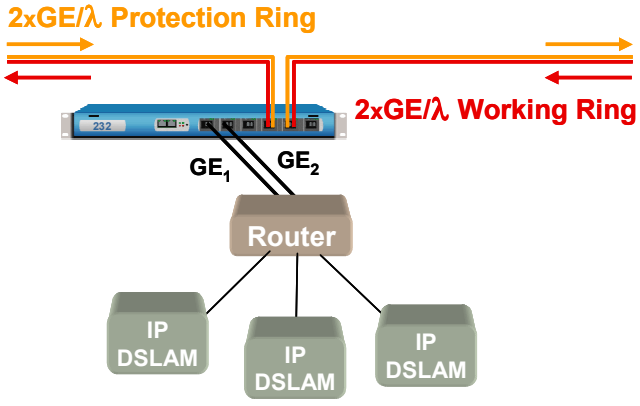
Bridging Node

A pair of GigaEdge 820s or a pair of GigaEdge 232s can be configured as a Bridging Node between two loops in a segmented IPTV network. The 820 option is used when all eight GE streams must be bridged but none are to be dropped. The 232 option is used when both bridging and dropping of GE streams is required at the Bridging Node.



IP Video Client Node

At the IP Video Client Node, the GigaEdge 232 ADM selects the best quality path (working or protection) and drops the associated two GE streams to a nearby Router which connects the customer-selected MPEG/IP video streams to an associated IP-DSLAM. Each 232 drops up to 500 standard definition MPEG/IP video channels. As more channels are required to meet increasing uptake of Video-on-Demand and Near-Video-on-Demand services, then more CWDM wavelengths per fiber and 232 ADMs are added to increase the IPTV Client Node capacity.



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