Tejas Solutions for IPTV

TEJAS® NETWORKS

Future Ready. Today

IPTV

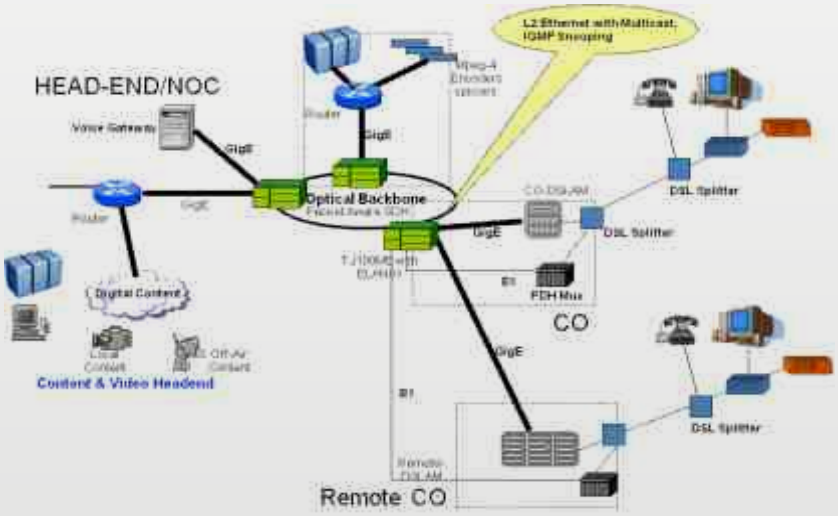
The decreasing ARPUs is a key concern for Telecom Service Providers. One of the ways to arrest this fall and maintain profitability is to roll out new services on the same telecom infrastructure. One of these services is IPTV. This involves delivering digital TV to existing broadband subscribers on the same infrastructure.

IPTV throws up many new challenges which are unique to content distribution. One of them is the inherent broadcast or multicast nature of IPTV traffic. Traditional data communication is point-to-point with a source and destination address. If such a method is used for IPTV, multiple copies of the same traffic would go over the same network from the content server to each subscriber. Thus multicast capability in the transport network is a key requirement. Ethernet with it's inherent multicast capability becomes the technology of choice for such networks.

Another challenge is the bandwidth capacity in access networks. Each digital TV stream requires 2-4 Mbps bandwidth, which means that delivering all the channels would require a few hundred Mbps links to each subscriber. Most of the last mile of current ADSL ,Cable and Ethernet technologies support only 24-100Mbps. This problem is solved by delivering only the channels being viewed by the subscriber at one time. Since only 1 o 2 channels would be currently active, the last mile bandwidth requirement reduces from a few hundred to a few Mbps. However since the subcriber would be switching channels fast, the network has to adapt quickly in order to send a new channel and stop sending the earlier channel. This should happen in tens of milliseconds for a satisfactory user experience.

IPTV technology solves this problem by implementing the IGMP protocol, which allows hosts to dynamically join or leave multicast groups. Each multicast group corresponds to one channel. The IPTV set top boxes generate these IGMP join and leave requests every time the subscriber switches a channel. This approach while being slow (due to the IGMP requests going all the way to the content server before a new channel is streamed), is also not scalable as it soon drowns the content server with these requests.

Tejas solves this problem by implementing IGMP snooping and proxy on it's ELAN series of blades. Every time an IGMP request is passing through the ELAN card, it snoops it and if the channel being requested is already being streamed to this ELAN card (for another subscriber), the ELAN card simply starts streaming it to the new subscriber as well. Thus the channel switching time is drastically reduced. Similarly, since this subscriber has been serviced the IGMP request does not need to go to the content server, and is blocked by the ELAN card. Similarly if multiple requests come from multiple subscribers to the ELAN card, it sends only one IGMP request to the server for that channel. This drastically reduces the load on the server, and one content server can service a lot more subscribers than before, thus reducing the total capex.



Tejas also supports 50ms ring protection through ERPS (Ethernet Ring Protection Switching). Thus if the multicast channels were being streamed through one side of the ring, and there's a fiber cut, ERPS is able to stream the channels through the other side to all the client nodes, thus ensuring a disruption free service.

The IGMP feature can be enabled on ELAN blades through a software license and this enables an existing Broadband network to become IPTV ready overnight. This helps service providers to enhance their revenue streams with very little investment in the transport network.