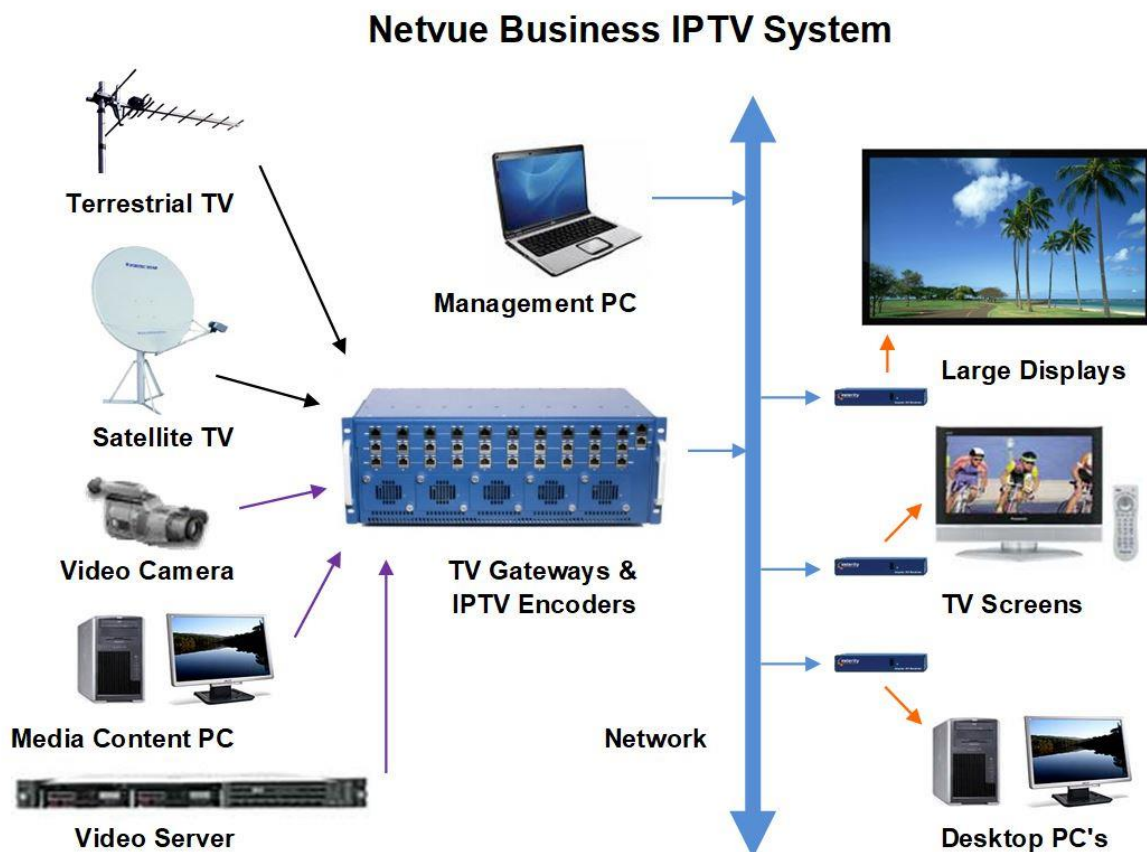# IPTV Technology

IPTV combines TV compression technology and IT data technology to stream TV and video as a continuous flow of data packets on an IT network.

+ Digital TV channels direct from a terrestrial aerial and satellite dish are given IP "wrappers" for transport across the IT data network as IPTV packet streams. They remain in digital format throughout the process.

+ Other sources such as SKY satellite receivers and DVD are MPEG encoded, and they too get IP "wrapped" for output as IPTV streams on the IT network.

+ IPTV Receivers or Digital Signage players convert the IPTV streams back to video and audio for display on TV screens or via projectors.

+ IPTV Player software shows IPTV channels on computer desktops and can offer PVR (personal video recorder) functionality, such as pause and record.

Netvue Business IPTV System

Terrestrial TV
Satellite TV
Video Camera
Media Content PC
Video Server
Management PC
TV Gateways & IPTV Encoders
Network
Large Displays
TV Screens
Desktop PC's

-   The IPTV channel streams are distributed ONLY to the destinations that request a channel, by using **multicast** protocols – see below.

-   A Video On Demand (VOD) server can be added for recording, storage, and on-demand playback of IPTV channels and programmes.

Multicast

IPTV uses multicast to reduce network bandwidth. Multicast protocols ensure that channels are only streamed to users that are actually viewing them.

-   Each channel stream is placed on the network just once, and the packets making up the stream are replicated as necessary by the network switches. This minimizes data overhead on the network. In the diagram below you can see red streams being duplicated by packet replication on switches C and D.

-   To further reduce use of bandwidth in the network, a channel stream is not passed on to network switches that have no end-users viewing the stream. In the diagram below you can see that the blue channel stream never reaches Switch D because there are no viewers of this stream on Switch D.
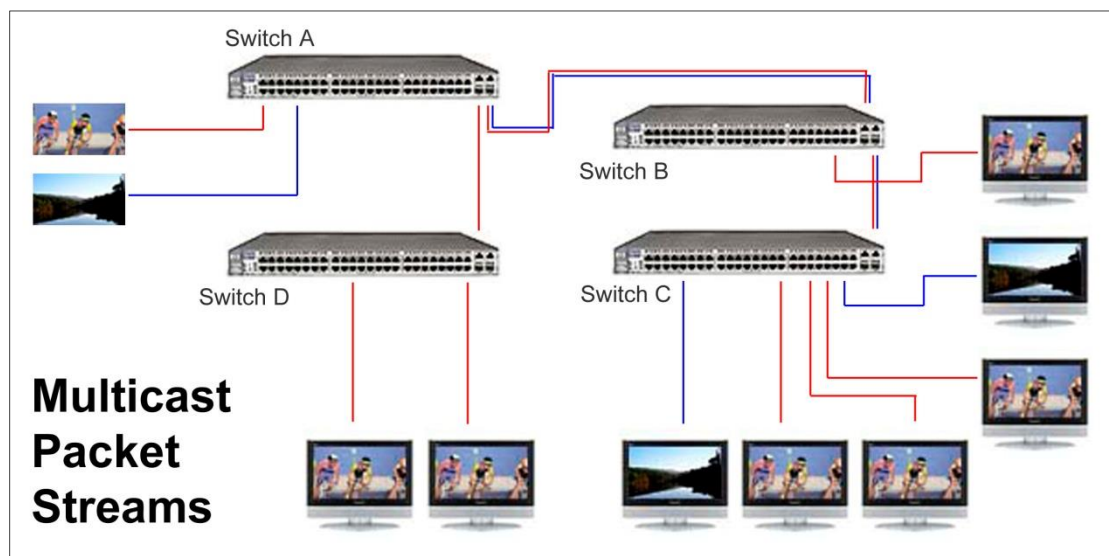
-   IPTV uses two main Multicast protocols:

    IGMP - Internet Group Management Protocol - supports IPTV within individual VLAN's and Subnets

    PIM - Protocol Independent Multicast - for routing IPTV streams between different VLAN's and Subnets.

Multicast technology significantly reduce the network bandwidth needed to support video streaming. It is Multicast that makes IPTV network friendly.

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