



# NETWORKTV

## IPTV FAQ's

### **I have seen references to TVIP, TV over IP, desktop TV, Ethernet TV and TV streaming. Are these the same as IPTV?**

Yes, the basic technology of IPTV is referred to by many different names. Apart from TV streaming, desktop TV, TV over IP and Ethernet TV and LAN TV it is also sometimes referred to as network TV.

### **How will the TV traffic impact on our network?**

All live TV and video channels are multicast across the network so the level of traffic does not increase with the number of viewers. It should be assumed that all channels will be present on the backbone of the network and the amount of traffic generated can be calculated as the number of channels multiplied by the bit rate per channel. For example, if 5 channels are required at a bit rate of 4.0 Mbps, (Megabits per second) the total bandwidth utilized will be 20 Mbps. The bandwidth assigned to each channel is selectable in order to optimize the balance between bit rate and picture quality thereby maximizing the efficiency of network bandwidth utilization. Multicast management protocols ensure that streams which are not required on a particular network segment are not forwarded to that segment. This means for instance, that only one stream is present on the local switched connection to an individual PC running IPTV because only one channel is displayed at a time on that PC.

### **Can we choose which channels to distribute?**

Yes. An IPTV TV solution allows you to choose which channels are distributed as multicasts or unicasts. This means you can select as many channels as you want from the different multiplexes to create a customised channel lineup.

### **Can different employees have different channels enabled?**

Yes. Through a password protected administration system you are able to set who has access to which channels and content.

### **How many of our employees can watch at once?**

As many as you wish for live multicasts.

### **Can we watch IPTV in full screen on a PC?**

Yes. You can adjust the video image to fill your monitor. This is available within the browser UI or via the VLC media player.

## *NetworkTV*

NetworkTV is a complete IPTV solution that helps your enterprise manage and control live and recorded digital video content.

NetworkTV presents a simple-to-use management portal to control IPTV hardware devices across your intranet such as encoders, tuners, streamers and set-top-boxes. It also provides an integral library function to help you organise recordings and pre-recorded content.

If your organization has existing content, it can be uploaded into the centralised NetworkTV library with the facility to add metadata, poster frames and tagging that will ensure searching for videos is a simple task for your users.



## NETWORKTV

tv, video and av on your network

**Will an increase in users affect our network?**

Because the IPTV system uses multicasting to distribute the live video streams you can have as many users connected as you wish and it will not make any difference to the amount of bandwidth used (see above). However, if the system is serving VoD as unicasts, each individual unicast adds incrementally to the bandwidth required. Therefore if 100 users request unicasts with each video being 5 Mbps then the total bandwidth required is  $100 \times 5 = 500\text{Mbps}$ .

**What is Video on Demand?**

IPTV Video On Demand (VOD) describes a system for the storage of video and multimedia material such that it can be accessed on demand by any authorized user from any TV or PC attached to your corporate network. Content on an IPTV VOD system is unlimited – recorded lectures for the education sector, training and reference material for business, movies for the hospitality industry etc. Users select the content they wish to view from the library displayed on their viewing screen. Exactly what an individual user has access to is controlled by the IPTV VOD system administrator. The user has control of playback with facilities to pause, fast forward, and rewind.

**Are there any security issues associated with having IPTV on our network?**

No. An IPTV TV distribution system installed on a LAN is completely secure with connections only between the IPTV equipment and your LAN. It does not depend on external connections.

**Can we have the IPTV user interface customised to our corporate brand?**

The IPTV GUI interface can be customised to your requirements to include your corporate colours and branding.

**Can we view IPTV on our TVs, LCD and Plasma screens as well as on our PCs?**

Yes. An IP Set Top Box receiver connects the TV, LCD or Plasma screen to a data network outlet where you wish to display the IPTV service.

**Is it possible to record streams?**

Yes. We provide software with PVR functionality which allows you to record, pause and playback video streams. It also has a timed recording facility and you can store the recorded content on a SAN/NAS, or other shared network drive for other users to view it at their convenience. See more information under Video On Demand.

**Is it possible to pause live IPTV streams?**

Yes. PVR software allows you to record, pause and playback live TV via your IPTV system.

**How easy is it to add more channels in the future?**

Adding channels is simple. Just add another Tuner or encoder and plug it into a spare port on your network switch.

**Are there any security issues associated with having IPTV on our network?**

No. An IPTV TV distribution system installed on a LAN is completely secure with connections only between the IPTV equipment and your LAN. It does not depend on external connections.

**Can we get the live streams on a mobile device?**

Yes, the NetworkTV system can create HTTP Live Streams (HLS) in either native or a transcoded lower bit rate so that they can be watched on a mobile device such as an iPad, iPhone or Samsung phone. We have a special UI for just the live channels so it is very easy for you to give your users access. The pre-recorded content can also be watched as VoD on the mobile devices.

**Is it possible to create our own in-house channels?**

Yes, the system has a Playlists function that allows you to create a list of your content that can act as your own channel. You can set up as many of these up as you want so you can even create departmental channels that will all play out simultaneously as different channels.

**Can I control NetworkTV from my room control system?**

NetworkTV has a full and open published API so that its functionality can be integrated into any room control system. We have even built some modules for Crestron, AMX and QSC to make easier and quicker for your programmers to handle the integration.

**What is IGMP Querying and IGMP Snooping and why would I need it on my network?**

IGMP is a network layer (Layer 3) protocol used to establish membership in a Multicast group and can register a router to receive specific Multicast traffic. (Refer to RFC 1112 and RFC 2236 for information on IGMP versions 1 and 2.)

Multicast aware switches are slowly making their way into the network cores for businesses and universities that have heavy traffic to move through their networks. Multicast filtering is achieved by dynamic group control management. By default, all Multicast traffic should be blocked until requested by a Multicast group member. (Default behaviour depends on switch manufacturer). The master of the IGMP filter lists is the router or switch that is configured to act as the IGMP Querier. The responsibility of the Querier is to send out IGMP group membership queries on a timed interval, to retrieve IGMP membership reports from active members, and to allow updating of the group membership tables.

A Layer 2 switch supporting IGMP Snooping can passively snoop on IGMP Query, Report, and Leave (IGMP version 2) packets transferred between IP Multicast routers/switches and IP Multicast hosts to determine the IP Multicast group membership. IGMP snooping checks IGMP packets passing through the network, picks out the group registration, and configures Multicasting accordingly.

Without IGMP Querying/Snooping, Multicast traffic is treated in the same manner as a Broadcast transmission, which forwards packets to all ports on the network. With IGMP Querying/Snooping, Multicast traffic is only forwarded to ports that are members of that Multicast group. IGMP Snooping generates no additional network traffic, which significantly reduces the Multicast traffic passing through your switch.

If your network distribution core does not support IGMP Querying/Snooping, the AVN streams will still function as designed but your network may be subjected to high traffic loads and condensed collision domain due to the broadcasting action used by the older switch or hub. If this is the case, you may wish to isolate the streaming nodes within the network so that the streams may be viewed without crossing the normal network traffic along its path.

Otherwise, for a general performance improvement, you may consider upgrading your network core to a switch that is Multicast aware.

**How much latency can I expect from the input of video into an encoder to the decoded output being viewed on my PC, TV or monitor?**

The latency from encode to decode depends on various settings including the encoder hardware, the network configuration and the capability of the decoder device.

Our Visionary Solutions H.264 encoder latency (AVN441, AVN443) is approximately 650 milliseconds. MPEG-2 (AVN200, AVN210, AVN220) ranges from 70 milliseconds up to 280 milliseconds.

Set top box (STB) decoders such as the Amino STB and the NetworkTV STB typically exhibit latency of 100 milliseconds.

**Will sending video in a multicast transmission flood my network with traffic?**

A truly multicast aware system will only allow video data to be transmitted to the ports requesting the data (by use of a hardware or software decoder attached to the network) and will not flood the network. A multicast transmission requires a multicast aware network environment to avoid flooding all ports with the video data being sent. All network hardware (switches, routers, etc.) should be able to detect a multicast destination IP address and forward it appropriately based on IGMP (Internet Group Management Protocol) snooping. IGMP allows a device (PC or hardware decoder) to receive messages and streams addressed to a multicast group, by informing a local router of its membership.