NetworkTV
IPTV System Scope Considerations

This document provides a list of questions that will help to scope the requirement for an IPTV solution.

Simple opening questions to identify if there's an IPTV requirement

1. Do you need to distribute TV channels eg BBC News, CNBC etc?
2. Do you have a Digital Signage System that requires a live video input?
3. Do you use video to disseminate information to staff eg corporate announcements?
4. Do you use video to provide training to staff eg health & safety training, how-to videos?
5. Do you record meetings or video conferences?
6. Do you record lectures or training courses?
7. Do you have existing video content that you would like to be available to staff?

Scope Questions Introduction

The questions below offer a practical step-by-step guide for the sales person when engaging in a discussion about the scope of a client's IPTV/video content management solution. The answers will provide an overall scope of the project by identifying whether there are multicast and/or unicast requirements, what file types you may need to deal with, if and how much storage may be required, and also initiates the discussion regarding integrating digital signage and other uses for IP video. This helps create the narrative of the system as the details are filled out. Please tick the boxes on the right of the questions and fill in as much detail as possible including volumes.

Date:	
Project:	
Dealer Name:	
Dealer Point of Contact:	
End User Point of Contact:	
Designer:	
Quote Number:	

1.) What is the nature of the project (ie what do you want to do)?		
2.) What problems are you trying to solve?		
3.) What types of content do you want to use?	Television Channels (Live Streams)	
	Recorded Content (Record, VoD, Archive, Playlist)	
	Existing Library (VoD, Archive)	
Select File Type:	• MPEG2 TS	
	• MPEG4	
	• H.264	
	• FLV	
	• WMV	
	• MP3	

The video format file type determines where the likely video source is coming from, whether it is capable of being multicast or unicast as well as providing a guide to the likely network capacity that will be utilised.

MPEG2 (TS) – Transport Stream video format used by the broadcasters for TV channels.

MPEG4 H.264 – Includes the H.264 format which improves the compression of video into a much lower bit rate without reducing the quality.

Flash is Adobe's proprietary format, can provide HD quality but only provides unicast capability.

WMV is Microsoft's proprietary version and can handle multicast and unicast but requires a plugin for MPEG. The HD handling version is known as VC1.

MP3 is a digital audio only format.

Create your own:	• TV Channel	
	• Digital Signage	
Other Video Sources:	Cameras, Internet etc	
4.) Volume of Storage Required (Mb/Tb)?		

The amount of storage required will be determined by how long the video's are and the bit rate at which they were encoded. The matrix table below provides some guidance on the amount of storage space required for video's of a specific length at a range of bit rates.

Video Bit Rate (megabits per second)			Mbytes Storage per Minutes		
			1Min	**10 Min**	**60 Min**
0.5Mbps			3.8Mb	38Mb	228Mb
1Mbps			7.5Mb	75Mb	450Mb
2Mbps			15Mb	150Mb	900Mb
4Mbps			30Mb	300Mb	1800Mb
6Mbps			45Mb	450Mb	2700Mb
10Mbps			75Mb	750Mb	4500Mb

5.) Do you need any of the following for a simplified interface to the IPTV Solution (eg AMX, Crestron, Extron etc)?	Initiate a Recording via a touch panel	
	Automatic File Name Creation	
	Manage content to STBs	
What additional features/simplified control do they need - New supported features are often being added		
Additional Notes:		

IPTV Live Streams

Multicast is a less bandwidth intensive technology (eg 10 users x 5Mbps stream = 5Mbps). In the US and parts of Europe (including Sky channels), SATV requires a separate satellite receiver and encoder for each channel. The number of channels and streams will affect the overall network bandwidth. Each TV channel is delivered in a Multiplex (also known as a Frequency or Mux - which is a group of digital TV or radio channels that are mixed together for broadcast) eg. Freeview delivers its channels in 6 multiplexes.

1.) Do you want live Broadcast TV Channels?	
2.) What unencrypted TV channels do you want to view?:	
3.) Are you aware that many of these can be acquired over the air (Freeview or Freesat)?	
4.) Are the channels delivered via DVB-T (free to air Terrestrial TV) and if so how many multiplexes are required?	
5.) Are the channels delivered via DVB-S (free to air Satellite TV) and if so how many multiplexes are required?	
6.) Which encrypted channels? (those TV channels which are scrambled eg Sky, ESPN etc) This determines if encoders or Conditional Access Modules are required - the electronic device that you put a smartcard into)	
7.) Do you want the TV channels in SD or HD or UHD/4K?	
8.) Which of the following do you want the ability to stream and/or record?	• Cameras
	• Digital Signage

	• other Video	
9.) How many sources do you want encoded?		
10.) Do you want these sources in SD or HD or UHD/4K?		
11.) Do you have a preferred Encoder already in use?		
12.) What is it?		
13.) Your Own Channel - (See Your Channel section below)		
14.) Do you need SAP announcements?		
Additional Notes:		

Record

Recording is hard drive intensive and systems can be limited by simultaneous recordings.

1.) What streaming sources would you like to record?	
2.) How many?	
3.) What are the maximum simultaneous record instances that would be occurring?	
4.) Do you want these recordings in SD or HD or UHD/4K?	
5.) What format?	
6.) Do you require continuous recording?	
7.) Do you require scheduled recording?	
8.) Do you require recording from an EPG?	
9.) Do you want to have instant/record now capability?	
10.) Will recording be initiated by the Administrator or users or both?	
Additional Notes:	

Archive/Library

Generally, storage comes in different increments (eg 1, 2, 5, 10, 15Tb and can be RAID (0, 1, 5, 50 etc) for mass storage. VoD has the largest impact on the network because it uses unicast delivery (eg. 10 simultaneous unicast requests/users x 5Mbps stream = 50Mbps).

1.) How much existing content do you have that you would want to upload to the archive?	
2.) Is this existing content in SD or HD or UHD/4K?	
3.) What video format is this content in? (will it need to be transcoded?)	
4.) How much storage is required initially?	
5.) What are the maximum simultaneous VoD instances that would occur?	
6.) What video formats do you plan on storing?	
Additional Notes:	

Your Own Channel

Some systems allow the client to set up their own channel. This is useful way to distribute signage (eg. instead of having 10 signage boxes with the same content, place one box behind a HD encoder and stream that content as their own channel). These may be either multicast or unicast.

1.) Do you want to create your own schedule streams with your recorded content?	
2.) How many?	
Additional Notes:	

Viewers

This will establish the user and bandwidth needs. You cannot stream multicast over the internet. The best scenario is to keep the IP Video inside the local network and use Reflectors or Streamers to deliver content to remote sites or mobile devices.

1.) What do you want to play the IP Video on? PCs or large displays or both? How many?	Large Displays	
	PCs	
2.) How will the PC users access the content?	• LAN	
	• External (VPN)	
	• WiFi	
	• Internet	
3.) Will Mobile Device Support be needed?	Tablets or Phones	
	iOS or Android	
4.) How many will view streaming material?		
5.) How many will use VoD?		
6.) For large displays?	How many?	
7.) Do the large displays require VoD access and if so how many?		
8.) Are the displays Smart TVs and if so what brand and model?		
9.) Will any of the video streams be used by signage displays?	How many?	
10.) Will the streams be sent to a video wall?		
Additional Notes:		

Architecture

IGMP needs to be enabled to reap the benefits of multicast video. IP Video has a direct impact on the network traffic and bandwidth available. After all of these questions have been answered it may be useful to discuss the design and configuration with a systems architect to ensure all aspects of the requirements have been met.

1.) Which format would you prefer the video content to be in?	• MPEG2 TS	
	• MPEG4 H.264	
	• WMV	

| | • Flash | |
| | • Other? | |

The preferred video format may be determined by the devices that the system has to play the video content on. If the client only wants to play TV then MGEG2 is likely to be chosen. If the client wants to play content on PCs then any of the formats are likely to be okay but if the client wants to access the content via tablets/mobile devices then the content format considered will probably be H.264. If delivery to mobile devices is required, the client will then have to consider a video streaming service (hardware or software).

| 2.) The IPTV system will: | Be limited to one building? | |
| | Spread across a campus or multiple sites? | |

Information regarding connectivity:		

3.) What versions of PC's and OS's are targeted?	• PC	
	• MAC	
	• Other	

4.) Do video clients need to be installed on user machines?	

5.) What version of Browser is planned or needed? (Internet Explorer, Google Chrome, Firefox, Pale Moon etc)	

6.) Which content viewers/media players will be used?	• Windows Media	
	• Quicktime	
	• Flash Player	
	• VLC	
	• Other	

7.) How will the client be accessing the user content?	• Through PC standalone web browser	
	• Custom interface (intranet portal)	
	• Set top box	
	• Mobile device	
	• Smart TV	
	• PC media player (eg VLC)	
	• Other	

8.) What is the expected Archive capacity? (ie. in Terabytes (Tb) and numbers of video's)	

| 9.) Are the videos going to be: | • deleted on a regular basis? | |
| | • remain indefinitely? | |

10.) Do you need storage expansion capability?	

| 11.) What type of external storage will be used for the video content? | • System Archive | |

	• SAN	
	• NAS	
12.) Are network ports open to permit communication?		
13.) Will authentication of users be implemented?		
14.) Will this be via NT user credentials or an external management tool (eg LDAP or Active Directory)?		
Additional Notes:		

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