

# The General Benefits of Network Camera Technology

Network Camera Technology (also called IP Camera Technology) can be described as the technology that allows us to view a stream of images, live or recorded, over a computer network or the Internet. For example, Network Camera Technology enables us to view a camera installed in New York from an Internet connected computer located in Canada. The label 'Network Camera Technology' (also IP Camera Technology) derives from the underlying premise that the camera is viewed via an IP network, in which the letters IP stand for Internet Protocol.

IP networks are the most common networks used for data communication and we all use them every day at work and at home by sending and receiving e-mails, using our organizations' computer networks and browsing the Internet. The fact that IP networks already are more or less in every work place and also in many homes, makes it easy and cost-effective to install a network camera in virtually any location. The widespread availability of IP networks around the world and in our everyday life gives every organization or individual that has a camera system requirement the opportunity to implement such as a system at significantly reduced cost.

It is commonly accepted that network camera technology offers the following benefits:

- Remote access to live and recorded images of any location, at any time and from wherever you are
- The possibility to monitor a large number of remote sites from one central location offers huge cost saving potential
- Networked video systems have many automated and advanced features, significantly reducing the time and resources spent on monitoring, managing and maintaining a video system
- These automated and advanced features enable improved security operations to be implemented
- Reduced installation cost by utilizing existing communication networks and reduced cabling requirements

These benefits are discussed in more detail below.

## 1. Remote access

*'Remote access to live and recorded images of any location, at any time and from wherever you are.'* All that is required is that each of the cameras and a PC are connected to a corporate computer network or the Internet. In fact, any cameras could be viewed from any PC with access to the corporate network or the Internet, The cameras can also be viewed by more than one person at the same time.

Instead of having only one camera it is possible to add numerous cameras to each location and also add other locations. As far as the technology is concerned, it does not matter if only one camera is required on only one location or if 20 cameras are required on 10 different geographical locations, scale is not an issue. This 'scalability' often also is mentioned as a key benefit of IP Network technology, as it allows users to start off with the implementation of one or only a small number of cameras on one location initially and gradually build a more comprehensive camera network encompassing larger number of cameras and multiple geographical locations.

Access to live cameras on remote locations reduces the need to travel in many cases and often leads to less travel time and reduced cost as a result.

Using the same technological principles, users also can view recorded video material via a corporate computer network or the Internet. Typically, camera output is recorded on a network connected PC or Digital Video Recorder, which both can be accessed from any PC on the corporate network or the Internet.

Remote access to video recordings makes the distribution of recorded evidence material to the required people a very easy task. Where in the past evidence was held on a video tape or disk that required physical distribution or travel to the location where the evidence was recorded, now video evidence can be distributed via the network, like any other file or document we electronically sent to each other.

With the rise of wireless technologies it has become possible to connect a network camera to a computer network without using any cable, creating even greater flexibility in where a camera can be installed. Also, advanced mobile phones and other mobile handheld devices (e.g. PDAs) that provide Internet access allow users to view live and recorded video from their network cameras while travelling, regardless of where they are.

## **2. Automation reduces resources required**

*Panasonic IP Pro have many automated and advanced features, significantly reducing the time and resources spent on monitoring, managing and maintaining a video system'. It would be huge task to list all the advanced features found in network cameras today. Therefore, only a small number of the most used features are mentioned here.*

**Movement detection** - A number of network cameras have built-in movement detection. Different manufacturers use slightly different detection techniques and have given it slightly different names. Examples of the terminology used are Digital Motion Detection, Activity Detection and Video Motion Detection. In general, a camera can be set to trigger an alarm on the detection of movement and automatically send an alarm notification by e-mail to relevant staff.

**Image buffers** - Most cameras with a motion detection function also feature image buffers. Image buffers contain pictures of the moments just before movement is detected and the alarm is triggered. The 10 or 20 seconds prior to an alarm event often holds crucial information of an incident, which without this feature would not be available.

Automated recording - In addition to its prime function of alarming staff, one of the other main benefits of using motion detection is that it allows the recording of images on alarm trigger only. This way recording takes place only when something is actually happening. It avoids recording and storing hours or days of video material that shows nothing has happened. This makes it much easier to find the relevant video material of incidents that did take place. Using recording on motion detection also reduces the amount of video sent over the network and the amount of video material stored, which, depending on network and storage capacity, both could be an important factor to consider. Whether recording 24/7 or on motion detection, there is no need for video tapes. Video recordings are stored digitally on hard disks and can be automatically deleted after a set period of time, e.g. 30 or 31 days. As such, video recording can be completely automated and requires no human intervention. System management has become much easier, requires much less staffing resources and as a result can be carried out at reduced cost.

Pan, Tilt and Zoom - A number of network cameras have Pan, Tilt and Zoom (PTZ) functionality. This allows users not only to view the camera from a remote location but also to control it. Some cameras can be moved to the left and right and up and down within set limits while others can rotate a full 360° and pan 180°. Network cameras with a Zoom functionality allow users to obtain close up views of certain objects, areas or people. Network cameras with PTZ functionality are a powerful tool to monitor large or sensitive areas from a remote location.

Smart software - A number of network cameras have enhanced processing power and internal memory that allows them to be loaded with so called 'smart' or 'intelligent' software. Examples are number plate recognition, facial recognition and event recognition. An example of the latter would be an individual taking an unusual amount of time to open an entrance door, which the system would recognize as suspicious behavior and therefore would trigger an alarm that could be sent to various people on the network.

Day/night functionality - Some network cameras feature day/night functionality. They provide color images during the day (or in general terms, when there is sufficient light) and automatically switch to black and white images at night (or in general terms, when there is low light). Network cameras with a day/night function are suitable for 24/7 surveillance.

Wireless network cameras - A number of network cameras are so called Wi-Fi compatible and can be installed without the need to use a cable between the camera and a network point. Because there are no cabling considerations wireless network cameras can be installed virtually anywhere.

## **4. Improved security**

*'The automated and advanced features of Panasonic IP Pro enables improved security operations to be implemented'.* System functions such as automated alarm notifications by e-mail, image buffers containing crucial information, automated digital recording, smart software and central / remote control and decision making all can contribute to an improved security operation.

## **5. Lower installation cost**

*'Reduced installation cost by utilizing existing communication networks and reduced cabling requirements'*. Network camera systems, in the majority of cases, require much less cables and cabling work than conventional camera systems. Therefore, the cost of installation usually is much lower, especially for larger camera installations.