

## IP and Video convergence

Following on to the convergence of voice on a data network (the first wave), video represents the second wave of convergence. The convergence of video is driven from/by a number of applications including surveillance, conferencing and training

### **Video surveillance:**

Video surveillance traditionally was achieved using analog cameras (based on normal analog TV standards) connected using coaxial cabling to proprietary VCR and disk based video recorders. These DVR's were based on a "black box" concept with each vendor developing their own hardware and software thus tying the customer down to their specific proprietary platform. In addition the coaxial cabling used created a separate, parallel and incompatible network in addition to the many incompatible parallel networks already existing in most customer environments.

The same drivers of simplification, standardization, flexibility and improved cost efficiencies that drove the development of voice convergence were also responsible for the development of technologies to converge video onto corporate IP based data networks. With traditional analog cameras being replaced with intelligent IP cameras, coaxial cabling with standard Cat 5/6 UTP cabling and proprietary tape and disk based Video Recorders being replaced with software based Network Video Recorders (NVR's) using open industry standard disk storage, the traditional video surveillance industry is being turned on its head and reinvented.

Since it is seldom feasible to do a fork lift migration from analog to IP based solutions, a comprehensive range of migratory technologies have been developed. These technologies allow customers to maximise the return on their investment (ROI) in analog cameras but immediately benefit from the advantages provided by an IP based network and NVR solution.

IP Video surveillance solutions scale cost effectively from small SOHO and SMB solutions up to the largest deployments covering cities such as New York, London, and Johannesburg. This ability to scale up and down is largely driven by more intelligence being built into these smart IP cameras, as well as by the increased processing power and storage capabilities of the new generation of NVR's and disk storage subsystems.

Benefits of IP based Video surveillance over the traditional analog based systems include:

- **Remote access:** With all communication being IP based, live and recorded video can be accessed from anywhere both from within the private corporate network and from outside using the public internet. Using standard IP logical security technologies such as VPN's, firewalls and encrypted remote access the corporate video content can be securely accessed over an inherently insecure Internet.

- **Flexibility:** Cameras can be mixed to achieve specific objectives such as a) using a high resolution/low frame rate camera to monitor people and vehicle movement in a car park or b) a medium resolution/high frame rate camera in a crime monitoring and law enforcement environment. Similarly, the use of IP enables the users to locate the security control/monitoring stations anywhere that the network can be accessed.
- **Image quality:** In contrast to the restriction of being bound to outdated television specifications, IP cameras are available with a range of specifications from normal 640(h) x 480(v) resolution up to multi megapixel resolutions, and with frame rates ranging from low (1 fps) to high (>30fps).
- **Simplification:** By removing the outdated coaxial cabling network and using the already existing IP data network, a significant component traditionally contributing to complexity is completely removed. In the same manner, the use of IP as a communications protocol and industry standard operating systems such as Microsoft Windows Server and various flavours of Linux, leverage already existing skills within the organisation to support the IP video surveillance solution.
- **Intelligent video:** The high degree of intelligence built into IP cameras enables the camera to function independently and act on predefined parameters and logic. For example, movement of a specific size/type of object in a predefined direction across the area in view can be used to trigger an event or series of events such as a visible and/or audible alarms, email/SMS message, file up/download or (un)locking of an access door.
- **Scalability:** By leveraging the power of the data network, the number of IP cameras that can be deployed and the geographic spread of where these IP cameras can be deployed, is almost unlimited. Similarly, clustering and virtualization of the server infrastructure used to host software based Network Video Recorders (NVR's) enable almost unlimited NVR scalability to support the exploding need for more IP cameras.
- **Cost efficiency:** The reduction in complexity and the standardization on skills required, leads to vastly increased economies of scale. Existing ICT support skills are being utilised to a greater extent and industry standard hardware platforms are used to host the NVR's and provide storage, existing buying vendor contracts can be used to drive the cost of the hardware required down.

KSS Technologies (Pty) Ltd specialise in **network architectures** designed to take advantage of **convergence technology**. Convergence of data, voice, fax and video on a single IP network delivers measurable benefits to KSS customers throughout South Africa.

Whether your organisation is small or large, public sector or private sector, you can benefit from **converged network solutions!** Convergence simplifies network architecture, reduces costs and complexity and delivers bottom-line benefits.

Your information and communication technology (ICT) infrastructure can include a mix of IP and traditional technology. KSS has extensive experience in migrating customers to a converged network architecture.

Contact us today and kick start your network convergence strategy!