

Smarter Video Surveillance with NETGEAR®

Abstract and Audience

NETGEAR® Solution Overviews provide high-level solutions to common business IT challenges for end users, Value-Added Resellers (VARs), and IT managers. They give an elementary overview and basic business benefits, and are commonly used during the initial inquiry stage.

Introduction

Video surveillance, or CCTV (closed-circuit television), is a 30-year old industry that is critical for business. Different organizations use video surveillance to protect people's safety, protect valuable assets, or minimize risks associated with criminal activity. One of the biggest trends in surveillance is the accelerating shift to IP from analog. With about 15 million surveillance cameras installed in the United States today, almost 10 percent are now IP based.

In the past, only larger companies could afford IP video surveillance. The proliferation of IP networks and the falling prices on IP video cameras and storage has made video capture and storage over IP networks faster, more reliable, simpler, and affordable; making these solutions an attractive option for many industry sectors, including retail shops, educational institutions, governments, and any business requiring security surveillance.

The Benefits of IP Cameras for Video Surveillance

Secure and Easy Access to Live Video Streams and Recorded Footage

One of the biggest drawbacks to traditional analog CCTV systems was the storage medium. Video footage was recorded on tapes. Tapes were not only bulky and not price effective, but also had limitations on how much footage could be recorded on a single tape. Tapes needed to be frequently changed and as a result companies needed to employ dedicated personnel for this. IP cameras have no such limitations and can continuously record to a network storage device for extended periods of time. Furthermore, the capacity of many network storage devices can be easily expanded by adding additional hard drives on the fly. Recorded video can even be backed up to an offsite location for protection in the event that the local storage device is stolen. Another big advantage of IP cameras is the ability to view live and recorded video streams remotely and securely. Video can now be accessed from anywhere in the world through the Internet. Access permissions to video control consoles and footage can be customized to fit business needs.

Reliable and Easy to Manage

One key advantage of using IP cameras for surveillance is their ability to protect the integrity and availability of recorded surveillance video and images. IP networks integrate many features that prevent data loss, back up mission-critical data, and recover quickly from outages. Video footage recorded by IP cameras are often stored on network attached storage (NAS) devices which have built in drive redundancy and

Key Highlights

- Flexible video access options, for both local and remote access
- PoE (Power over Ethernet) allow cameras to install easily and affordably to the existing IP network, eliminating the need for expensive coaxial and power cabling to cameras
- Video footage is stored on a network storage device or server; viewing footage requires only a computer and a web browser or dedicated software
- Shares a unified communications network with data, voice, and wireless traffic, reducing operations and maintenance costs

data integrity checks, greatly adding to the reliability of recorded video. A network management system can monitor all networked devices—including cameras, switches, wireless access points, and storage devices—and automatically generate alerts or notifications if issues are detected. For example, if an IP camera goes offline, a network management system can immediately alert administrators, who can then—from wherever they are—reassign another camera to cover that area.

Flexible Camera Deployment

Analog cameras are limited in their deployment options, since they must connect directly to a DVR via a cable. In contrast, IP cameras can be deployed anywhere reachable by Ethernet cabling or a wireless access point, expanding deployment options to include longer reaches or even outdoor coverage.

Power over Ethernet (PoE), a feature unavailable in analog video systems, simplifies installation of network cameras/video encoders, reduces installation and maintenance costs, and improves reliability in IP video surveillance systems. PoE enables IP network devices to receive power from a PoE-enabled switch or mid-span through the same standard cable that transmits IP data. You do not need to hire a certified electrician to install separate power lines—a big advantage for network cameras, particularly in difficult-to-reach areas.

IP networks also make it easier to adjust surveillance coverage when needed. You can add, move, or remove cameras without taking other cameras or equipment offline. This simplicity and flexibility further ensures there are no gaps in your recording.

It is important to determine the type of camera each surveillance area needs, as different cameras have different power requirements. The PoE standard supports 15.4W, sufficient for most common network cameras. However, a pan-tilt-zoom (PTZ) camera, which detects motion, turns, and zooms in towards movement, requires 20-30W of power to operate. PTZ cameras need the support of PoE Plus, a new standard which provides up to 30W of power. Many of the latest PoE switches support PoE Plus.

Building a Network Infrastructure for IP Video Surveillance with NETGEAR.

Building an IP surveillance system can be simple and cost-effective. However, there are some technical requirements to consider when installing an IP surveillance system, or transitioning from an existing analog system to a high-functioning IP surveillance system. Considerations include network bandwidth and latency, network features and capacity, wired or wireless, hard disk storage capacity, and application software.

There are many ways to design, deploy, secure, and optimize a network for IP surveillance. Fortunately, NETGEAR makes this a simple task by providing a robust backbone for IP surveillance that is cost effective and easy to install and manage. NETGEAR devices also integrate well with IP cameras from well known vendors such as AXIS or MOBOTIX.

Below is a typical video surveillance environment with IP cameras and NETGEAR infrastructure.

Components:

IP Camera from a vendor such as AXIS or MOBOTIX

NETGEAR PoE Switch – With a standard Ethernet cable, the PoE ports on the switch supply both power and connectivity to the IP cameras. The switch supports network segmentation with VLANs and traffic prioritization with QoS - allowing the network to be optimized for video surveillance.

NETGEAR ReadyNAS® Business Storage – Video is transferred through the network and either directly recorded onto the ReadyNAS unit or recorded by the camera software located on a server to the ReadyNAS. The recorded video can then be backed up to another ReadyNAS unit, whether it's local or offsite.

NETGEAR ReadyNAS Surveillance for Sophisticated Network Video Recording (NVR) – A user-friendly NVR system should combine fast and flexible configuration with easy operation. With a few simple steps for installation, the web-based management leads users to configure, monitor and playback video everywhere. UPnP search, auto camera detection and GUI schedule save setting-up time, while the easy drag and drop camera, auto scan, preset point patrolling, and multiple views offer users a prime monitoring experience.

NETGEAR Wireless Access Points and Wireless Controller – Wireless network cameras will allow video surveillance in scenarios where the environment does not allow cable wiring. The access points allow secured wireless access for these cameras. The wireless controller provides centralized wireless management and ensures that wireless video cameras have the proper bandwidth for uninterrupted video streaming.

NETGEAR ProSecure® UTM – The UTM protects the recorded video and camera/surveillance console logins and passwords from external network threats such as viruses and hackers.

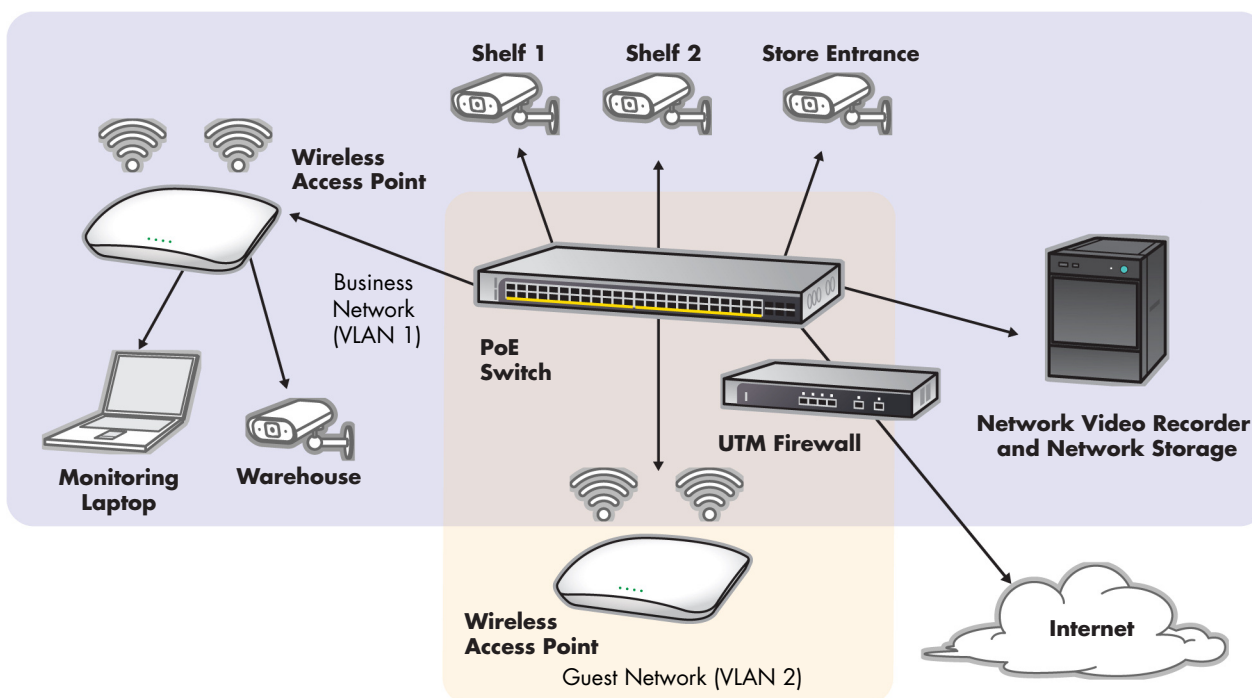


Figure 1: A NETGEAR powered unified IP network for IP video surveillance

Summary

As a result of the many benefits of IP video surveillance including lower TCO, ease of deployment, and remote access, more and more businesses are adopting video surveillance. Organizations that used analog-based CCTV systems in the past are now migrating to complete network-based digital systems. Businesses who could not afford dedicated video surveillance rooms and expensive equipment can now deploy IP cameras for a fraction of the cost of traditional systems and enjoy the extra security and peace of mind that video surveillance brings. NETGEAR provides businesses with a reliable, affordable, and simple IP infrastructure that is the backbone for IP video surveillance.

	Switching	Storage	Security	Wireless	Camera	Video Recorder
Small office/ remote office	ProSafe® PoE Smart Switch	ReadyNAS Desktop Storage	ProSecure UTM Firewall	ProSafe Wireless N Access Point	IP Camera from Axis or Mobotix	ReadyNAS Surveillance
Central office	ProSafe PoE Managed Switch	ReadyNAS Rackmount Storage	ProSafe VPN Firewall + ProSecure STM Security Appliance	ProSafe Wireless N Access Point + ProSafe Wireless Controller	IP Camera from Axis or Mobotix	ReadyNAS Surveillance

Figure 2. Example Video Surveillance Packages

For more details on IP cameras go to:



www.axis.com



www.mobotix.com

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