



a white paper

Affordable Surveillance Solutions for the Home and Office

How NAS Can Provide Simplified Surveillance

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The Problems

Surveillance systems are no longer only the purview of banks, governmental offices, and large enterprises. As the technology becomes more ubiquitous, it finds more applications. SMBs are now finding need of monitoring systems for their own offices and warehouses. Families want more than audio-only baby monitors, nanny-cams, and they need to check on their homes when away.

At first CCTV solutions were the answer to these needs, but installation can be expensive and complex, requiring custom cabling jobs to run coaxial cable to each camera. Such systems are also subject to signal attenuation (degradation) over the length of the cable runs. Such surveillance networks often require the use of an installer to set them up properly, whether such a system utilizes a VCR or a DVR (digital video recorder). In addition to the expense and expertise required to run them, these systems do not always scale well as needs evolve.

SMBs, SOHOs, and families need an affordable surveillance solution that offers reliability and scalability. An NVR (networked video recorder) offers an answer utilizing IP cameras and off the shelf network components. Customers can save money by adding surveillance capabilities into existing home and office networks. As such systems use commodity components, they offer an increased level of future-proofing, and avoid vendor lock-in. The advent of power over Ethernet and wireless cameras further reduces the need for additional cabling.

The Solution

All Synology DiskStations include Surveillance Station, a built-in solution to centralize and simplify NVR administration, helping to maximize the value of the DiskStation.

Surveillance Station simplifies the surveillance network by providing an easy-to-use interface tying together multiple cameras, and even multiple sites, into a single web interface, accessible anywhere. The wizard makes it quick and painless to add more cameras to the system as needs scale up. This helps save money by making it easy to customize the solution based on the situation, rather than working with a one-size-fits-all DVR package.

Surveillance Station sits atop an already mature storage management system to reduce the need for dedicated IT resources. Using email or SMS notifications, both the Surveillance Station and the DiskStation Manager will largely monitor themselves, so that valuable IT resources can be focused on other areas, assured they will be alerted at need. This security increases productivity through minimizing downtime and resource use.

Live View

This is perhaps the most basic and vital of surveillance system functions, allowing the administrator or security personnel to watch one or more cameras in real time. Surveillance Station lets the administrator set the order and layout of cameras, in addition to choosing which is at the fore, giving up-to-date coverage. Live-View is also useful for configuring the camera aim and focus for recording. Live-View allows the user to monitor up to 36 cameras at once.

Pan, Tilt, Zoom

There are many affordable cameras that currently support the ability to control the direction and zoom level from within the web interface. Using simple controls, PTZ (pan, tilt, and zoom) cameras can be adjusted for optimal surveillance coverage. With Surveillance Station, all cameras with this ability can be adjusted from a single, intuitive interface.

Centralized Scalable NVR Solution

Surveillance Station makes it easy to scale up the surveillance area quickly. In addition to the simple wizard to add cameras to a DiskStation, a single DiskStation can aggregate cameras from other Surveillance Stations. This allows the administrator to monitor multiple sites- up to 36 at once through Live-View. From 16 different sites, that allows for a possible combination of up to 320 cameras to choose from.

VS60 for Large-scale Deployments

For large offices and/or campuses, it may be desirable to have a few selected cameras visible in Live View, perhaps at the front desk or at a security station. To answer this need, Synology has released the VS60. The VS60 is a Live View surveillance adjunct



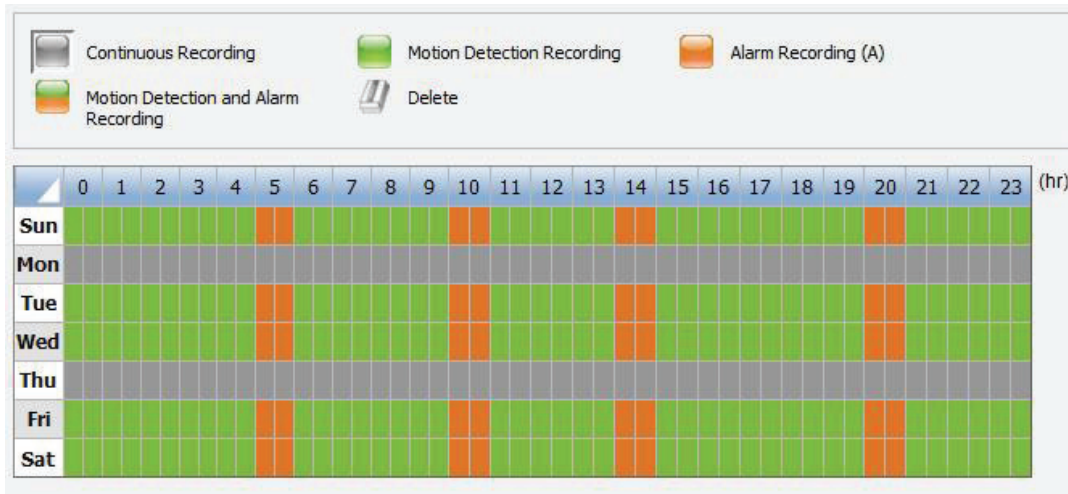
that will take 4 to 6 live feeds from a Surveillance Station.

Unlike traditional PCs for viewing surveillance, the VS60 consumes a scant 5.2 watts. As a dedicated viewer, managers don't need to worry that the security employees are browsing the web instead of minding the feeds. The mouse control lets the viewer choose a camera to view in full screen, or even to take a screen shot saved to a connected USB drive.

Record Only What Matters

Data collection quickly loses utility when the noise-to-signal ratio climbs too high. Surveillance Station takes advantage of recording control features of IP cameras and brings in some features of its own to reduce the collection of useless data.

Many IP cameras support alarm or motion detection. Surveillance Station can take those triggers to start recording (even send email or SMS notifications) only when an event warrants it. For motion detection, the area and level of sensitivity can be set to reduce false positives.



Scheduling is another important part of reducing noise by preventing recording during unneeded hours (for example during office hours). The easy, graphical interface makes it a snap to lay out or adjust the weekly schedule. Different behaviors can even be programmed for different times of day, such as only using Live View during the day, and setting various alarm or motion detection triggers for out of hours.

Save Time with Time Slicing and Smart Scan

Even with scheduled and event recording, reviewing footage will still consume time. Security personnel need a way to scan surveillance footage quickly and efficiently. To answer this need, Synology now offers time slicing to speed scanning of recorded video. Time slicing breaks a recorded event into four streams to be played at once. This allows users to peruse footage quickly to locate the pertinent details.

Smart Search allows the user to set parameter for search (area and sensitivity) and scan a given section of time for a trigger event. This allows for rapid pin-pointing the what and when of an event.

Remote Control

One of the key benefits of Surveillance Station is the ability to monitor and control the surveillance network remotely. Surveillance Station ties together not simply the recording of the various cameras, but the display and control as well. The next logical extension of this critical functionality is the ability to incorporate multiple Surveillance Stations, allowing the administrator to monitor multiple sites from a single master interface.

In the interest of increasing mobility, convenience, and control, Synology has released DS Cam for iOS® and Android platforms. DS Cam allows the administrator to view and control cameras from their smart phone or iPad® using any mobile connection. When coupled with email or SMS notifications, it can help to provide peace of mind while on the go.

Standard Synology Management Tools

Surveillance Station comes in addition to the award-winning DiskStation Manager 3.1, and the host of features upon which Synology has already built their reputation. DiskStation Manager ties together a bevy of useful tools into a single, friendly web GUI. As with Surveillance Station itself, DiskStation Manager works to simplify the administration of the NAS/NVR.

Storage Volume Manager

Even the best laid surveillance strategy has limited utility if it can be brought down with the failure of a single disk. Unlike standard DVR systems, all multi-bay DiskStations offer varying

levels of RAID redundancy to maximize uptime and speed recovery from drive failure. The volume manager offers an elegant interface to create and manage redundant volumes, offering RAID 1, 0+1, 5, 5+ hot spare, and 6. This brings a selection of redundancy to fit any budget.

Storage Scalability

An active surveillance network may need to scale its storage as the network demands increase. Synology DiskStations make it easy to expand the amount of available storage. The first, and perhaps most straightforward, method is referred to as Vertical Expansion. This works replacing disks (one at a time) with larger disks, then expanding the volume to take advantage of the extra space. This method works well when the DiskStation is already using the maximum available number of disks. Synology DiskStations currently support disks up to 2TB in size.

The second supported method is referred to as Horizontal Expansion. This is nothing more complicated than adding more disks to a volume and reshaping the volume to take advantage of the increased space. An example of this would be starting with 3x 2TB hard drives in a DS1511+ in RAID 5. This would yield approximately 4TB of usable storage. Adding 2 more drives of the same size, it is possible to expand the volume to 8TB.

The third method is referred to as Plug and Use Expansion. Selected models (such as the DS1511+ or DS710+) can take advantage of the DX510; a 5 disk expansion unit unique to Synology. The DX510 can add up to 10TB of additional capacity to the DiskStation in just a few clicks. In rack mount configuration, the RS810+ and RS810RP+ will work with the RX410 (a four-disk rack mount expansion) in the same way.

The fourth, and perhaps least obvious, method is System Migration. This works by migrating to a faster and/or bigger system. This would begin by performing a configuration backup (to preserve user and permission information). Next the disks would be placed into the new DiskStation and the Synology Assistant used to reload the firmware. After restoring the configuration backup, the new system would be ready for use with an absolute minimum of downtime.

DiskStation Backup

For external backups, tape drives used to be the norm. With the ubiquity of USB drives, it is

easier than ever to run backups to a dedicated USB drive for secure storage (often rotated out to a fireproof safe or off site). As with other backup methods, the backups can be scheduled during the off hours so that performance is not impacted during peak times.

Another simple backup method is to back up to another DiskStation, either over the internet or across the network. This method has the added advantage that the drives do not require the same level of manual intervention (in the form of changing out drives for storage). Network backups can utilize SSH encryption if necessary for an added level of privacy.

Whichever method is used to back up the DiskStation, the task creation is painless using the wizard in DiskStation Manager 3.1. Either method starts with the same wizard, the difference being that one is a local backup, as opposed to a network backup. Both methods make it easy to remain in control of the backups.

Summary

Surveillance Station is just one more example of Synology continuing to add value to the DiskStation line. In addition to the already rich feature set of the series, users can turn their NAS into a robust NVR solution with an intuitive wizard.

By utilizing the built-in RAID redundancy and event notifications, users can turn their focus to other matters, allowing them to maximize their productivity. SMBs and SOHOs can focus on the business of their business, knowing that their surveillance system will alert them if something requires their attention. Home users can focus on more important matters, secure in the knowledge that they can check in from afar.

Synology offers assurance, standing behind their software and hardware. Should questions arise; users can contact the US-based support team. Should it be necessary, DiskStations are backed by Synology's competitive warranty of 2, 3, or even 5 years.

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