

Title Option 1

DVR vs. NVR

A look at the difference between a DVR and NVR Surveillance System

Title Option 2

Upgrading Your DVR to NVR

A look at the advantages (and possible disadvantages) of moving from a DVR to NVR system

Frank hasn't been sleeping well these days...he's worried about his copy shop. His sales are down, yet the store seems to be busier than ever. And even though he trusts his employees, he can't help but feel that something's wrong. Frank has a camera trained on the register and one on the front door- both hooked up to a 500GB DVR in his office. But now he realizes he needs more cameras in the remote store room...and loading dock...and what about the concession stand in the student lounge...there's no camera there!...there's no camera there!

Frank is stressed. He may be ready for an NVR.

NVRs (Networked Video Recorders) are multi-bay surveillance systems that connect to wireless high-definition cameras – and advanced system compared to the common one, or two-drive analog DVRs that require a direct cable connection from the device to the camera. NAS devices that can now devote part of their attention to surveillance

The Advantages (and Disadvantages) of DVR

DVRs opened the door to relatively long-term surveillance storage, as compared to the obsolete VCR, which had a limit of four recording hours. And while there is an advantage to having a wired connection over a susceptible wireless connection, wired cameras are usually analog, so the strain is on the DVR to transcode the signal to digital, creating a hot, hostile environment for the HDDs within the machine.

DVRs require no Internet connection, and that can be good or bad, depending on your needs. And while you can network DVRs to make them viewable remotely, it takes some doing, whereas with an NVR system, wireless capabilities are inherent.

Most VGA cameras top out at a 640x480 max resolution, while Hi-Definition IP Cameras can record in 1080p and beyond. And finally, one of the biggest factors – storage. Traditional DVR systems usually top out at 4 bays, and can support up to 16 cameras, while NVR systems can be equipped with 8, 12, or 16 bays housing a potential 128TB of footage and supporting 32 to 64 high-definition cameras.

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DVRs opened the door to relatively long-term surveillance storage, as compared to the obsolete VCR, which had a limit of four recording hours. NVRs bust that door wide open by offering high-resolution footage with storage of 128TB and beyond.

Four Factors That Can Effect Surveillance Storage

- **Retention** - A single-drive 2 TB surveillance device can hold about 30 days of surveillance footage before it starts rewriting over data. Expansion to a multiple drive system is desirable to increase retention to 60 or 90 days. Also, four or more drives can support data mirroring (RAID 1) which maintains a duplicate set of data for security redundancy.
- **Number of Cameras** - Simply put, more cameras mean more data to be written. While a two camera system may be ideal for home use, businesses generally need more cameras, and that means more data that needs to be stored. Choosing high-capacity drives that are specially tuned for 24/7 surveillance duty over ordinary drives will pay off in the long run.
- **Resolution** - Security footage requires clear, high-resolution recording for capturing detailed footage accurately. While users can set a low resolution to save recording space, it is disadvantageous during playback, and can result in blurry, pixelated images.
- **Frames Per Second** - Dropped frames can result in critical footage loss. Maintaining a high frame rate is crucial for security systems, and can therefore take up more storage space

The NVR Advantage

An NVR uses wireless cameras, which have the freedom of being repositioned as needed (although most require to be tethered to a power source), and the capability of transcoding and pre-compressing the video signal at the camera itself, instead of the DVR - which transcodes at the DVR level. Best of all, no drilling through walls and expensive patching to run video cables required by a DVR.

All of the compression is being done in the field by the cameras allowing the CPU to only lay down pre-compressed files in an easily searchable format. The NVR can use a conventional computer (meeting certain minimum specifications) and is easily upgradable to provide additional storage or new functionality as features become available. Third-party software plug-ins can now empower file servers, business and home NAS machines to devote part or all of their resources to video surveillance.

Other advantages:

- Supported resolutions 480p, 720p, 1080p, 4K
- Accommodates up to 3500 ips or more on a single server (as opposed to 480 ips on a DVR).
- Cost of installation reduced due to cables not having to be home run to the DVR.
- Support for up to 64 cameras with an 8-bay or more system
- "Mirroring" can be used to duplicate the recording of video streams on additional Hard Drives to minimize the chance of a single point of failure; if one part goes down the other is there as a backup.

Closing Thoughts

Whether you're ready to upgrade to an NVR from your current DVR is certainly dependent on your unique situation and needs. One thing is for sure – if you're just starting out, the NVR is a great place to start that is easily upgradeable and expandable.

Or if you're like our copy shop owner Frank, maybe its time to upgrade from your old DVR system to a shiny, new networked system. The choice as always, is yours.