# Nomad Worldwide is innovative for customers - and with their IP video surveillance solution.



**"It's flexible and scalable, advanced, open, and able to be integrated as part of our entire network business solution. That's what we tested so we would know it works for us. It's not so much designing the system for today, but for the unknown tomorrow."**

**- Chandler Griffin, Chief Technology Officer at Nomad Worldwide LLC**

◆ **The Challenge**

Nomad Worldwide wanted to take advantage of the newest networked digital technology to integrate their total IT solution, using IP video surveillance for more than just security. Monitoring for break-ins, fire, environmental waste procedures, internal theft, and remote round-the-clock production quality control were required in a setup allowing future growth.

◆ **The Solution**

Milestone Systems XProtect Business operates a combination of Axis 2100 cameras with Power Over LAN, all running on Windows 2000. In their network setup they have some Cisco switches (five Catalyst 3508 Gigabit and three Catalyst 3548s) and Cisco routers (a 1700 and a 2600).

◆ **The Benefits**

Nomad has a multi-purpose, robust solution enabling central or remote control of facility monitoring, with the flexible scalability to easily add new cameras anytime.

Just across the Hudson River from New York City lie the headquarters for Nomad Worldwide, a truly innovative printing company. They integrate the creative requirements of the advertising world with expertise in digital technology, producing high-resolution large-format ads for big impact and dominating presence through a range of wall coverings and billboards, construction barricades, transit advertising, and in-store displays. Their customer roster includes The Gap, Old Navy, H & M, Banana Republic, The Loft, Deageo, and Apple Computer.  With international customers like these, Nomad's future looks just as bright as their colorful products.

## Only top-of-the-line technology

Nomad's site in Jersey City is impressive with a huge hall for handling the WallScape ads printed in different materials, and with the dedicated production machines.  The computers for the sophisticated graphics department are worthy of their professional expertise.

Nomad's server room for managing their IT is impeccably organized and run by the energetic Chandler Griffin, who says: "We have over 23 servers and another rack for a full network behind that: there's a lot of data traffic generated.  We'll be hosting our own email, website, and SQL database for public client interaction."

All Nomad's equipment is of the highest quality with the latest technology – critical to their performance and to maintaining their leadership in the marketplace.  This approach extends to their security solution, too.  They have chosen Milestone XProtect Business running Axis network video cameras.

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## Multi-purpose surveillance

Nomad purchased an initial license for 16 cameras, but quickly expanded to 25. They are running on Windows 2000 with a dedicated Dell server and dedicated web just for the security system.  Axis 2100 model cameras complete the current solution, installed at the docking bays for shipping and receiving, at the entrances and exits, reception, and internally throughout the facility in production areas, the graphics studio, and customer service.

In addition to external surveillance for classic security coverage against break-ins, burglary or vandalism, Nomad monitors internally for quality control in production so print managers can follow the printing process.

"One night during a campaign we produced for Apple Computer, I was supposed to stand all night in front of one printer, and after a couple of hours I got pretty bored watching the printer run back and forth!" recalls Griffin. "So I ran upstairs and grabbed an Axis 2100 camera, put it on a tripod in front of the printer, and with our remote control software from XProtect kept an eye on the progress from my office, while doing other things."

Production at Nomad cannot go down – just one hour of down time would mean serious financial loss – so monitoring the progress of the printing machines is a critical need.  Remote access also means that Griffin and other managers have immediate access to real-time recordings – anywhere, anytime.

## Finding the best solution

In the summer of 2002, Griffin started investigating to find the best IP video surveillance on the market. "The things we looked for were in the core engineering.  Can you capture video and do it well? What are the system features and is it compatible with a lot of different cameras?  Does it work on our server?" cites Griffin as some of their criteria.

**"We wanted digital surveillance software and we knew it existed somewhere.  There was a ton of stuff for analog setups but practically nothing for digital, handling 16 cameras or more.  We weren't interested in the quasi-digital solutions that are DOS-based or some CCTV reseller's re-working of an analog setup for the network.  We wanted the right digital software as the backbone for our total network solution.  Now we've got the core functionality with XProtect and all we have to do is draw on that engine."**

From the Milestone website, Griffin found Mumford Associates, the local partner where he could purchase the software and hardware.  "Phillip Mumford assisted us with the recommendations for Power Over LAN, did some other research, and helped us out," Griffin remarks. "Then we sent him the purchase orders."

## The importance of planning

"We did a lot of work testing and planning – and that's the hard part!" Griffin warns. "The integration is the easy part. Honestly, the programming of the sofware is easy, too. The toughest thing is figuring out 'the kit': how to make the cameras communicate with the LAN, how to power that camera when it's remotely installed.  Then on the LAN side: what type of server, how big does the hard drive have to be for your needs? When that space runs out, are you going to go to tape?" Griffin continues. "We have a full gigabit network to support taking all the camera data into one server. We've pre-planned for all 16-64 cameras we might ever need, with boxes pre-wired every 25 feet throughout the building.  This is hardware we've already made an investment in, as well as in the software."

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## Super fast installation after stability testing

When asked how long it took them to install the software, Griffin replies: "About 30 minutes!  Now the software is there and we know we'll add cameras, no problem."

Griffin's administration setup is like a mini-control room with three monitors for controlling the IT management of the entire facility. When the server room is expanded in future, he will set up a monitor wall there for Nomad's total video surveillance control station.

"We tested every feature in the software and are very happy as it stands right now, after what we call our burn-in period. We don't implement any solution in our facility unless the software is stable. With 23 servers, we don't like them to go down - we don't like to have to re-boot them!  The only time our servers get shut down is for us to do work on them."

## Strict requirements from authorities

The Fire Marshall and the Department of Health have strict requirements for Nomad's production site, due to flammable or other hazardous materials used in the printing process.  Griffin describes how the Axis camera monitoring the back door exit also views special drums for discarding chemical waste materials. This surveillance allows them to keep track of how the employees are following environmental waste procedures, which has improved their quality control and management.

**"We had issues with chemical waste management: employees not following the right procedures set forth.  The surveillance helped us figure out how it was being abused and enabled us to resolve that problem," cites Griffin.  "The camera in that location is serving two purposes with the night function of monitoring the back door for intrusion inspection and daytime recording of the barrels for our chemical waste."**

Internal monitoring has also given Nomad the ability to ensure that only employees with proper access are using the equipment in house – and not taking any out of the building either.

"We had an issue with somebody bringing their processor from home and sticking it in our machine here at work to upgrade it.  Then our machine's performance was compromised," he remembers. "At this point, though, the cameras are starting to work as prevention."

## Flexibility with Axis Power Over LAN

"We have the new Axis Power Over LAN solution that actually injects both data and power into the same network cables that run throughout our locations. This saves on cabling and costs. And not needing to run 120 volt house power to the locations for cameras  We can climb around on ladders ourselves, pull a wire, and put in another camera whenever we want. This gives us a lot of flexibility," asserts Griffin.

"We've already got a lot of wire pulled through our building, where we can plug a camera into any location to work immediately," he states. "It's perfect!  Very useful for video conferencing or whatever else we might want to do."

Griffin confirms: "Power Over LAN works flawlessly for us.  Not only do we use it for our security solution, but also for wireless access points that are mounted on the roof for more range.  Every one of our Customer Service people carries a laptop, so they can actually walk out on the floor and look at something in production, with the client on the phone or via emails, while they are doing the quality control.  Each one receives about 400 emails a day from clients, so we're talking the highest efficiency possible here."

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## File storage and tapes for recovery

Regarding Nomad's handling of back-up, Griffin describes how they capture as much as they can to hard drive.  They archive nightly, keeping their recordings in the database that is easily searchable if evidence is needed for any incident, with the JPEG files quickly convertible to AVI for outside authorities.

"We have a tape mechanism for disaster recovery on all of our servers, so if any Operating System crashes, like from fire or something, we can restore our entire facility. This tape array holds 7.6 terrabytes of information, which is a very big library - very fast - and the latest technology," Griffin announces.  There are 30 tapes that hold maximum 250 MB each.

## Full utilization and integration with other systems

"We are using every feature of the Xprotect Business software to the hilt: motion detection on certain cameras, utilizing VPN, scheduling recording from 8 p.m. to 8 a.m. for example, and other cameras recording all day," reports Griffin.

"For even more protection against intrusion, we'll set our alarm system to trigger every camera in the building to start recording full-time, for the lights to go on in the building, etc." he says. "We have a few infra-red cameras, too, and believe it or not, we are providing infra-red light through the Power Over LAN, as well!  We custom-built a little circuit board for our LED arrays that then works with our Power Over LAN system. Very cool!  We're very happy with Axis cameras and only have Axis cameras at this point."

Nomad has budgeted already for getting more cameras as they need them:  "PTZ cameras would be in the next phase of our installation and we are currently investigating which manufacturer's models we think are best.  We've already got infrareds to add with triggered lighting, implemented with clear LEDs that thieves can't see."

Nomad also has installed monitors for their ventilation system which can tie in to their holistic network approach, to be tracked along with all their security, quality control, and procedural recordings.

## Remote access and viewing

**"All of our managers have login capacity to the system to be able to view what's happening on the production floor, and keep on top of what is happening from their homes while they're sitting in their bathrobe on the couch, for example.  Many of us commute into the city, so it's great not having to drive to the office to check on a project's printing progress," illustrates Griffin. "Or I get an alert over the weekend about a smoke alarm in my computer room and can see live recordings from XProtect whether it really is on fire or just a faulty smoke alarm.  If it's a real fire situation, the fire trucks should already be on the way and I'll hop in my car."**

Nomad has round-the-clock shifts and night workers can get sleepy, so web access is ideal for managers.

"With XProtect and its built-in web features, our managers can view what is happening on the production floor or if there's an intrusion from outside during the night.  Every person that needs an alert, gets one," he adds.

In the future, the clients of Nomad Worldwide will also be allowed to log in using Milestone XProtect to check prints for final approval on their campaign projects.  In the finishing process of their print jobs, for example, the cameras can zoom in to check on color quality.  Now that's customer satisfaction – guaranteed!

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For more information see www.nomadww.com, www.mumfordassoc.com, www.axis.com or www.milestonesys.com