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IP Networking is Ready for Your Next Projector



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GET PLUGGED *IP networking is ready for your next projector (OR UNPLUGGED)!*



If there is one constant in life, it's change. Right now, the professional AV industry is undergoing a fundamental shift in the way audio, video, screens, interfaces, and other AV devices are connected and controlled. It's called Internet Protocol (IP) networking, and it will change the way you control and communicate with your projectors forever.

What is IP? Basically, it's a system for transporting packets of data through a network. The most recognizable implementation of IP is on the Internet, where millions of

packets of data are used daily to send text, photos, music, video, and financial transactions from one point to another.

Internet Protocol describes the formal addressing of those data packets and the formats by which they are sent and received. To better understand how IP works, imagine you are sitting next to a huge conveyor belt, where thousands of letters are rolling past at high speed. To your eyes, each letter may appear to be identical.

While you can't move fast enough to grab individual letters,

read their addresses, and send them to the correct destination, a server is definitely up to the task. IP addresses on each individual "envelope" - a series of numbers, like 196.180.0.1 - provide specific information about what's in the envelope (text, video, audio) and where it's supposed to go.

What's more; the receiver of these envelopes (the client) can quickly open and check them, arrange the contents in a particular order, and request another transmission of any missing or damaged data. This process



happens at extremely high speeds, depending on the bandwidth and speed of the connection between the transmitter and receiver.

Thanks to the digital revolution, any type of information can be converted to digital packets. Using a cell phone to send and receive text messages? Want to download music from the Web? Watched any digital television or HDTV lately? All of these systems rely on packets of text, MPEG data, and other file formats.

THE BASICS OF IP

Why would connecting a projector to a network be a good idea? Perhaps the best way to answer this question is to compare analog and digital wiring techniques for an installed projector.

In a typical installation, the specifications might call for a

desktop/installation LCD projector to be mounted in the ceiling, such as Sanyo's new PLC-XT16. The customer would like it to be connected to at least one computer, and DVD player, and a videoconferencing setup. Using analog signal distribution, we'd run a five-wire RGBHV video interface from the computer, plus a two-wire interface from the VC equipment and three wires to the DVD player.



We'll also need a multi-wire RS-232C interface to control all of this equipment, including a preset audio mixer and roll-down projection screen. Without doing anything else, we have now connected over 15 cables (in bundles) to move all of these signals around and control them.

Now, here's how the system would work with IP connectivity. A single low-cost cable connects the projector (or multiple projectors) directly to a "server", or a local area network (LAN). Down that cable, which can be coaxial, fiber, or twisted-pair CAT-5, flows a mixture of control signals. An IP interface located inside the projector or attached to it would rapidly decode the mix of control packets, execute any operation instructions, and provide status updates - all at the

Right:
POA-PN01A

same time.

The end result is the same as if we sent the control signals via traditional analog methods. Yet, we've now cut cable costs significantly. In effect, our LCD installation projector has become a "plug and play" IP device, equipped with a unique IP address and connected to a server (much like a printer or other computer peripherals) as part of a network.

That network could span several buildings, or several miles. It can even be a wireless network using 802.11 protocols. As long as all the connected devices are equipped with IP interfaces, they can talk to each other and communicate with a single projector or even multiple projectors functioning as servers.

Want to move a still image to the projector? Need to find out how many hours are left on the lamp? Would you like the projector to send automatic email alerts? It's all possible with IP connectivity. You can even send a still image captured from your PC to several networked projectors.

BUILDING THE INFRASTRUCTURE

It would seem like moving to IP control for projectors is a great idea. In some ways, we're already seeing an intermediate step in the implementation of 100% all-digital IP networks for electronic displays.

Although it's not a 100% "pure" IP control solution, several interface manufacturers sell CAT-5 transmitters and receivers that will



convert a mix of audio, video, and control signals into a multiplexed RF signal, able to travel over several hundred feet of CAT-5 cable without significant attenuation.

The principle is very similar to the transmission of TV broadcast signals on cable TV systems. All the components of an AV signal (video and audio) are modulated onto radio-frequency carrier waves, with the audio traveling on subcarriers. The CAT-5 cable works, in essence, as a very long transmission line, although signals are greatly attenuated over long distances.

This system uses the same CAT-5 UTP cable as a LAN. But these CAT-5 systems are strictly analog. By adopting a pure IP signal distribution system, your control signals remain 100% digital from source to destination, and can be sent over greater distances.

Plus, you've now gained a greater level of interactivity than with RS-232 interfacing - you can "talk" to any IP device such as your projector and get an instant update on its status, while simultaneously sending control data to that projector. In fact, your projector can even email status updates automatically, if needed.

How fast can these packets be sent? Local area networks can process 100 megabits per second (Mb/s) on Ethernet, and there's also a gigabit (1,000 Mb/s) implementation of Ethernet. Fibre Channel is another fast protocol used to move data at even higher speeds. Still another network format known as Asynchronous Transmission (ATM) can zip packets in excess of 100 Mb/s.

Top:
POA-MD13NET
Bottom:
POA-PN10





MORE THAN 'BELLS AND WHISTLES'

The problem with IP control is that most IP solution providers don't clearly explain its benefits to the pro AV industry. But there is an immediate and practical benefit to networking your projectors together.

Here's why: If you have many projectors installed in one building, or distributed over multiple buildings in a campus environment, then you must deal with the day-to-day problems of projectors not operating correctly (or, usually being operated incorrectly); maintaining lamps and air filters, and extending projector life and conserving power when rooms are not in use.

However, with a projector network, you now have instant two-way communication and control with any and all of the projectors within your LAN. This means you can quickly and easily take care of:

Operator Errors - A presenter calls to report that "the projector isn't working correctly" before a class or presentation. By polling the projector, you discover that it is indeed working correctly, but the wrong signal input has been selected, or the picture has been muted. With an IP connection, you can "talk" to that particular projector and change inputs remotely, solving the problem.

Scheduled Maintenance - It's hard to keep track of lamp life across all of your installed projectors. Why not have each projector simply alert you after a specified number of lamp hours, it's

time for an air filter cleaning, or the projector is ready for a lamp change?

Power conservation - Unfortunately, it's human nature to leave lights and other equipment on when we vacate a room. There's no sense in having your projectors humming away when no one is using them. The good news is; with a network connection, you can poll a projector to see if it is still active and shut it down if no one is using it. You can also automatically schedule power-on and power-down cycles each day that a given conference room or classroom is scheduled to be used.

These features of IP networked projectors are "real world" benefits that have "real world" cost savings attached to them. Think of the time you'd have to waste otherwise having to trek between floors or buildings to make sure equipment is operating correctly, or is shut down when no longer needed.



As you can see, there are several good reasons to "get plugged", and it's easy with Sanyo network interface products and networked projectors. All you need to connect and talk to these projectors is a standard web browser, such as Internet Explorer or Communicator.

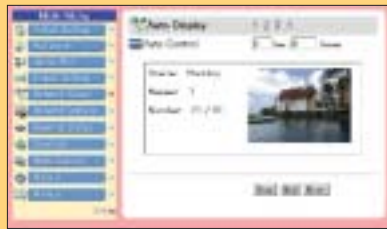
Here's a closer look at the Sanyo IP-ready portfolio:

SANYO NETWORK INTERFACES

Sanyo network projectors and accessories take full advantage of IP technology while retaining a user-

Left: POA-PN02
PJ-Net Plus

Top: POA-WL11
Wireless Imager
module
Bottom:
POA-BOX20



*PJ-Net Organizer
GUI Screens
From Top:
Network View;
Multi Control
Panel; Email
Option; Power
and Status*

friendly interface. Whether you want basic SNMP control and monitoring, or would like to send still images to a projector, Sanyo has several IP interface solutions for you.

PJ-Net Organizer - Sanyo's POA-PN01A PJ-Net Organizer module provides full network operation and control of selected portable Sanyo projector models. PJ-Net Organizer provides many enhanced features, including network control and administration, auto email alerts, projector on/off timer settings, and an RS-232C interface for control of non-IP devices and older projectors.

For selected installation and large-venue Sanyo projectors, there's the POA-MD13NET plug-in card. It fits into an MVP slot and provides all of the functions of PJ-Net Organizer, and it can memorize 45 additional mode settings beyond the five built into each projector. You'll also have a choice of two GUI menus - a 600x400 display for a PC, or a

simple text mode (200x300) for use with a PDA.

And there's even an external IP interface module for XT-series projectors. The POA-PN10 connects through the DVI-I connector on Sanyo XT-series projectors and provides a D-sub 15-pin input jack for a second RGB input, as well as an enhanced user-programmable auto email alert function.

PJ-Net Organizer Plus - The POA-PN02 PJ-Net Organizer Plus module takes selected XP-series Sanyo projectors to the next level. It allows you to move still image files through your network to any so-equipped Sanyo projector. Using its Network Viewer mode, a single image from a PC or server is converted to a compressed JPEG format. This image can then be presented on as many as 100 projectors on a network.

Image Capture mode lets you capture images in real time from a PC or network server, as opposed to converting still images at the PC or server. You can then send these images to as many as 100 different Sanyo projectors on the network.

Wireless Imaging - Sanyo's new POA-WL11 Wireless Imager module offers real-time image capture, file compression, and transmission of still images from a PC to selected Sanyo portable and ultraportable projectors. Or, you can choose from one of several PCs to show still images on a single projector. The Wireless Imager uses the 802.11b wireless LAN standard, and is perfect for peer-to-peer file transfer.

Multi-Card Imager - Selected Sanyo ultraportable projectors can now get "wired" with the POA-BOX20 Multi-Card Imager module. This module enables wired and wireless network image transfer, and also provides network control and diagnostics using included software. Add the POA-WDC20 module for a wired connection, the POA-WLC20 module for wireless IP, or send digital photos directly to these projectors with the POA-CFC20 Compact Flash Card Reader.

Sanyo engineers are currently putting their finishing touches on a new control and administration interface to monitor and control thousands of Sanyo PJ-Net Organizer-networked projectors at a time.

READY TO 'PLUG' WHEN YOU ARE

Sanyo networked projectors, all of which have an ANSI lumens rating of 2000 or higher, take full advantage of IP connectivity, and there are several new models for 2003 that will fit the bill for large venue, classroom, auditorium, conference room, and boardroom installations. Looking for a network capable ultraportable projector? Sanyo's got three of those, too!

The PLC-XU55, PLC-XU50, and PLC-SU50 are new ultraportable LCD projectors that weigh less than seven pounds and are small enough to use just about anywhere. The PLC-XU55 and PLC-XU50 are both XGA (1024x768) models and are rated at 2500 and 2000 lumens respectively, while the PLC-SU50 is an SVGA (800x600) design capable of 2000 lumens brightness.

All three have 1:1.5 zoom lenses and can produce a 100" -diagonal image with throw distances as short as 8.3 feet. DVI-I and monitor out connectors are standard, and each projector can be equipped with the Multi Card Imager interface for remote image transfer and remote monitoring and diagnostics. A Compact Flash card kit is also available for presentations without a PC.

Need something a little brighter? Sanyo's new PLC-XT16 and PLC-XT11 portable/desktop projectors might fit the bill. Both units offer XGA (1024x768) resolution and weigh less than 20



pounds. The PLC-XT16 is rated at 3500 lumens, while the XT11 specs at 2700 lumens.

Sanyo's one-touch interchangeable lens system is standard on each model, and you can choose between optional short-throw zoom LNS-W10 and long-throw LNS-T10 lenses. Power lens shift, focus, and zoom are standard. Both projectors also work with PJ-Net Organizer, Wireless Imager, and Presentation Viewer.

The PLC-XP55/L and PLC-XP50/L add even more brilliance. These XGA-resolution desktop/installation projectors develop 4500 and 3600 lumens on screens as large as 400 diagonal inches. Four lens options are available, ranging from a fixed short-throw model to long and even ultra-long zoom lenses.

Both models will accept PJ-Net Organizer Plus. With its Web Management feature, you can monitor power status, lamp status, input mode, signal condition, lamp-use time, and define your own automatic email alerts. PJ-Net Organizer Plus also lets you send images from PC to projector, captured in real time or loaded from a server or desktop.

For "pure" fixed installation projectors, Sanyo has unveiled the PLC-EF31N/NL and PLC-XF31N/NL. The PLC-EF31N/NL uses three SXGA (1280x1024) 1.8" LCD panels, while the PLC-XF31N/NL employs XGA polysilicon. They are capable of delivering 5800 and 5200 lumens, respectively. ("N" versions come with a lens, while "NL" versions do not.)

Equip either projector with one of ten different lens options, ranging from short to long throws, including three fixed designs for short projection distances and a super-

Top:
PLC-EF31/XF31
Bottom:
PLC-XU50/55/
SU50



long 6:1 - 9:1 model. Both models incorporate Sanyo's Real Color Manager system for precise adjustment of RGB and CMY values, and a wide range of plug-in cards is available, including SDI/HD-SDI interfaces, Faroudja FLI-2300 signal processing, and PJ-Net Organizer.

The popular PLC-XF40 has been upgraded to a new PLC-XF41 chassis. This 7700-lumens XGA (1024x768) installation projector employs four 200W UHP lamps for superior uniformity and reliability. It also features Sanyo's Real Color Manager system, accepts ten different interchangeable lenses, and is network-ready for the optional PJ-Net Organizer.

Need more light on the screen? Sanyo's PLC-XF45 can deliver 10,000 lumens with XGA resolution.



It also employs a four-lamp system for reliable operation, accepts any of nine different lenses, and comes standard with Real Color Manager software. Of course, it's ready to network with PJ-Net Organizer.

Sanyo's new 2003 line-up is topped off with the PLC-UF15 large venue projector. It uses unique UXGA (1600x1200) LCD imaging panels and is rated at 7700 lumens brightness. Stacked, a pair of PLC-UF15s can produce over 15,000 lumens on very large screens.

Real Color Manager is standard, as is a new progressive-scan circuit that converts 480i and 1080i HD

sources to 480p and 1080p, respectively. Of course, the PLC-UF15 is fully compatible with the PJ-Net Organizer, and you can choose from ten lenses and a host of optional signal interface cards, including SDI and HD-SDI.

GET PLUGGED (OR UNPLUGGED) WITH SANYO

One way or another, networking will play an increasingly important role in AV systems integration. Sanyo LCD projectors are but one of many presentation tools that can talk on a network. Videoconferencing and audioconferencing equipment will be similarly integrated, as will flat-screen monitors and audio/video servers using "smart card" technology.

Many of these devices will rely on conventional wired networks with hubs, while others will need nothing more than a simple peer-to-peer wireless hookup. Adoption of IP control and networking will also be driven by the need to maintain more complex AV facilities across multiple floors or buildings while economizing on staff and service calls.

All of the Sanyo projectors featured here are "network-ready", with unique IP addresses and two-way connectivity for remote operation and projector status monitoring. While the process of IP communication might sound complex, Sanyo has designed tools such as PJ-Net Organizer to make the process as transparent and simple as possible, letting you concentrate on your presentations.

In short, Sanyo networked projectors give you a higher level of connectivity and confidence than is possible with conventional analog and "hybrid" signal interfacing systems. IP interfaces work for PCs, servers, hubs, printers, and a host of computer appliances in companies large and small. There's no reason why your projectors can't enjoy the same advantages, and Sanyo is ready to make IP connectivity happen for you! ■

Top:
PLC-XP55/50
Bottom:
PLC-UF15/XF45/41