



What did he say?

Glossary of Industry Terms

4:3. The aspect ratio of conventional television, describing a screen proportion of 4 units wide by 3 units high. 4:3 is associated with standard definition TV and the older, squarer television screens. See also 16:9, Standard Definition, High Definition.

16:9. The aspect ratio of widescreen television, describing a screen proportion of 16 units wide by 9 units high. 16:9 is associated with high definition TV. See also 4:3, Standard Definition, High Definition.

10Base-T. Short for 10 megabits per second baseband Ethernet over twisted pair cabling (10, baseband, twisted pair). This is a slow form of Ethernet transmission in Local Area Networks. See also 100Base-T, 1000Base-T, LAN, Ethernet.

100Base-TX. Short for 100 megabits per second baseband Ethernet over twisted pair cabling (100, baseband, twisted pair). This is a common form of Ethernet transmission in Local Area Networks. See also 10Base-T, 1000Base-T, LAN, Ethernet.

1000Base-T. Short for 1000 megabits per second baseband Ethernet over twisted pair cabling (1000, baseband, twisted pair). This is a very fast form of Ethernet transmission in Local Area Networks. 1000Base-T is also called Gigabit Ethernet, GigE or GE. See also 10Base-T, 100Base-T, LAN, Ethernet.

802.11a/b/g/n. A popular family of wireless networking standards also known as WiFi, 802.11a/b/g/n makes it possible to install IP cameras in parking lots and other locations beyond the reach of Ethernet cables. See also Wireless and WiMax.

Access control. The ability to permit or deny entry. Access control can be as straightforward as a locked door that requires a key or as advanced as a door lock operated by card reader, passcode keypad or fingerprint ID terminal connected to a host computer.

Analog Camera. A conventional surveillance camera without USB or Ethernet connectivity. Analog surveillance cameras typically output analog composite video signals over coaxial cable. See also Analog Surveillance, IP Camera.

Analog Surveillance. A conventional security system that carries analog video signals over coaxial cable. See also IP Surveillance, IP Camera, Analog Camera.

Analog Video Output. In a Sony IP camera, analog video output enables installers to monitor the camera output on a conventional video monitor. It's ideal for pointing the camera, setting the focal length and adjusting for lighting conditions.

Bi-Directional Audio (G.711/726). This feature conveys real-time audio between an IP camera and the central office. This enables an attendant in the central office to have a conversation with a person at the camera location. The system requires microphones in both locations and an amplified speaker at the camera position. The G.711 and G.726 compression standards preserve network bandwidth, enabling telephone-quality audio at very modest bitrates.

CIFS. Short for Common Internet File System, a technology that enables PCs on a network to share files, printers and serial ports. See also NFS.

Compression. Compression is a mathematical process that reduces the required bit rates in digital audio and video transmission and storage. Uncompressed digital video bitrates can be so high as to overwhelm a digital pipeline and quickly bring a digital storage system to its knees. Intelligently applied, compression can deliver pictures of high quality while reducing the bitrate by 95% or more.

For example, monochrome (black-and-white) signals at standard definition resolution can require 720 pixels horizontal x 480 pixels vertical x 8 bits per pixel x 30 frames per second. This equals 82.9 Megabits per second. Color signals typically double the burden to 166 Mbps. Higher resolutions such as XGA or high definition can raise this burden further still.

Compression works by taking out image redundancy. For example, JPEG intra-frame compression takes advantage of the similarity between one pixel of blue sky and the pixel next to it. There is usually no need for both to be fully described. The MPEG-4 and H.264 systems combine this intra-frame with inter-frame compression, which takes advantage of the similarity between one frame of moving pictures and the frame after it. Except for motion, both frames are often nearly identical.

Compression standards enable images to be used across multiple platforms and devices, for example, encoded by an IP camera, transmitted across a network in compressed form and then decoded successfully by a computer in the central office. See also JPEG, JPEG 2000, MPEG4, and H.264.

DEPA. Short for Distributed & Enhanced Processing Architecture, a Sony system that provides Intelligent Object Detection/Intelligent Motion Detection in both the IP cameras and the associated digital recorders/servers. The DEPA platform can be programmed to trigger a wide variety of alerts:

PASSING triggers an alarm when an object crosses an on-screen virtual border.

APPEARANCE/DISAPPEARANCE triggers when an object enters or leaves a virtual area.

CAPACITY alarms when objects in a virtual area exceed a preset number.



LOITERING triggers when an object stays in a virtual area longer than a preset time.

UNATTENDED/REMOVED alarms when an object is left unattended for longer than a preset time or is removed from the scene.

Dual Streaming. The ability of an IP camera to generate two simultaneous streams of images. For example, a camera can generate a stream of high-resolution JPEG still images for monitoring over the Local Area Network (LAN), while providing a more compressed MPEG-4 stream where bandwidth is limited, such as a Wide Area Network (WAN) or Virtual Private Network (VPN).

Dynamic Frame Integration (DFI). This Sony feature provides superb detail while taking advantage of the superior sensitivity of interlaced scanning. For images that don't have motion, DFI uses frame integration -- maximizing sensitivity. For images that do include motion, DFI uses field integration -- minimizing motion blur. You get clear images, even in low light.

Ethernet. The most widespread data networking technology, used nearly everywhere for Local Area networking on twisted pair or fiber optic cables. See also LAN.

FC. Short for Fibre Channel, a high-speed networking technology for shared storage. FC can support throughput of up to 2000 MBps.

Firewall. A physical or logical device that protects a subnet from outside intrusion. A firewall can be deployed as hardware, software or both.

Full Duplex. A communications system between two points that supports simultaneous, two-way transmission. For example, a full duplex telephone connection would enable both parties to speak and be heard simultaneously. See also Half Duplex.

Gateway. The point of entry or exit in a network, a gateway connects two networks with different protocols. For example, the typical home Internet router is a gateway because it connects the Ethernet LAN with the Internet.

H.264. An extension of the MPEG-4 family of compression standards that takes advantage of more recent technology to achieve higher compression "efficiency." In Sony IP cameras, this efficiency delivers comparable quality at lower bitrates compared to previous forms of MPEG-4 compression. However, H.264 is relatively computation-intensive. H.264 is also called MPEG-4 Part 10 or sometimes MPEG-4 AVC (for Advanced Video Coding) or even JVT (for the Joint Video Team that helped develop the standard). See also Compression, MPEG-4.

Half Duplex. A communications system between two points that only allows one-way transmission at any given time. For example, a half duplex telephone connection would only allow one party to speak at a time, requiring the other to wait. See also Full Duplex.

High Definition. A video system with up to six times the detail of standard definition. High definition uses a wide, 16:9 aspect ratio screen and a resolution of either 1920 x 1080 or 1280 x 720. See also Standard Definition, 4:3, 16:9.

High power PoE. An emerging standard of Power over Ethernet (PoE) that will allow powering devices with 24 Watts, appropriate for operating pan/tilt/zoom IP cameras. High power PoE is expected to be standardized as IEEE 802.3at. See also PoE.

HDMI™ cable. Short for High Definition Multimedia Interface cable. This is an increasingly popular home entertainment interconnect that supports high definition digital video, multi-channel digital audio and certain remote control signals. Sony was one of the companies that joined together to create the HDMI standard. HDMI is a trademark of HDMI Licensing LLC.

HTTPS. Short for Hypertext Transport Protocol Secure, a method of protecting network traffic from unauthorized access by means of encryption. See also SSL.

IEEE 802.1X. A security standard useful for limiting access to wireless IP cameras and LANs. The standard uses port-based network authentication.

Intelligence. Because the IP camera includes computing power, it may also include intelligent motion detection software that interprets the camera image data and provides alerts for such events as Presence, Absence or Crossing a Line. See also IP Camera, Analog Camera, Webcam, Bi-Directional Audio, Web Access, Remote Client, Voice Alert, DEPA and Motion Detection In Camera.

Image Cropping. Cutting out unnecessary parts of the image to conserve network bandwidth and storage capacity. Using Megapixel cameras, you can crop the image and still enjoy high resolution. See also Solid PTZ.

IP Address. A unique multi-digit number that identifies every node on the network, including PCs and IP cameras.

IP Camera. A camera and web server integrated on a single chassis. Compared to a webcam, the IP camera is typically a full-function security camera with a robust lens (or a mount for interchangeable lenses), a high-resolution image sensor, and advanced exposure options. The integrated web server is in essence an on-board computer that manages incoming and outgoing data traffic. Compared to analog cameras, IP cameras can offer additional features such as bi-directional audio, local storage on flash media, intelligent motion detection in the camera and more. IP cameras also offer a long list of advantages as part of IP surveillance systems. See also IP Surveillance, Analog Camera, Webcam, Bi-Directional Audio, Web Access, Remote Client, Voice Alert, DEPA and Motion Detection In Camera.

IP Filtering. A set of security rules that discard IP datagrams or permit them to pass. Filtering enables Sony IP cameras to restrict access to selected IP addresses only.



IP Surveillance. A video security system that uses IP cameras instead of analog, data networking instead of coaxial cable and networked servers instead of video monitors and recorders. Just as IP surveillance can "piggyback" a customer's prior investment in data networking, IP surveillance also takes advantage the massive economies of scale in data networking to deliver impressive advantages at modest cost.

- **Simplicity.** In analog surveillance, each camera can require separate connections for power, video output and pan/tilt/zoom remote control. In IP surveillance, a single Ethernet cable can accommodate all this, plus multiple video streams and bi-directional audio.
- **Bi-directional audio.** Audio streams are just another data type, easily handled by the IP network.
- **Powerful centralized control.** One server with one software application can oversee dozens of cameras.
- **Scalability.** Adding additional cameras is easy. There's no need for "home run" wiring of each individual camera back to the central office. Simply plug each new camera into the nearest network switch in an IDF closet. The central server is also open to future upgrades with faster processors, larger disk drives and more.
- **Full remote monitoring & storage.** In analog surveillance, the camera location is closely tied to the monitoring location because coaxial cable run lengths are relatively limited. In IP surveillance, the camera and monitoring locations can be on different continents. Given authorization, any PC on the Internet can have direct access to any camera. So you're not limited to the command station, or even to wired connections. This enables powerful applications. For example, security officers responding to an alarm can check camera images on a handheld PC to ascertain the situation before moving in.
- **Multiple, simultaneous access.** A single Sony IP camera can serve up to 10 or more simultaneous clients.
- **Robust, redundant storage.** IP cameras can store images on optional flash memory cards or in a central location on scalable data storage systems. This central storage can easily be protected against hard disk drive crashes by RAID redundancy and the option of tape backup storage via SCSI connectivity.

iSCSI. Short for Internet SCSI, a popular technology behind Storage Area Networks (SANs). iSCSI enables computers on a network to share storage. Using iSCSI, one computer can access storage that is attached via SCSI to another computer. This extends access over long distances via conventional networking.

JPEG. A file format for still image output from an IP camera. JPEG stands for Joint Photographic Experts Group. Nearly every PC application that accepts images will accept JPEG files. JPEG is also the file format of consumer pocket digital cameras. JPEG compression uses Discrete Cosine Transform (DCT) macro-block technology. At excessively high compression levels, this can result in the visible degradation of "blocky" pictures. See also Compression, MPEG-4, H.264, JPEG 2000.

JPEG 2000. A file format for still image output from an IP camera. JPEG stands for Joint Photographic Experts Group. Compared to the Discrete Cosine Transform (DCT) technology of conventional JPEG images, the wavelet technology of JPEG 2000 can result a smoother image at high compression ratios, without macro-blocking artifacts. See also Compression, JPEG.

LAN. Short for Local Area Network, a computer network that serves a single home, office or other physical location. A customer network that ties together multiple locations is typically designated as a WAN for Wide Area Network. A network that unites physically separate hosts but acts as a single LAN is called a VLAN for Virtual Local Area Network. See also VLAN, WAN.

Light Funnel. Also called "binning," this Sony feature maximizes image quality in low light. In the normal operation of Sony's 1.3 Megapixel cameras, each photosite on the image sensor corresponds to one pixel in the image output. Light Funnel mode combines the output from four adjacent photosites on the image sensor to form a single pixel in the image output. This quadruples the signal strength. Light Funnel mode reduces the image size from 1280 x 960 down to 640 x 480. But this can be a valuable tradeoff in night surveillance. An alternate technique called "slow shutter" can also increase sensitivity in low-light image capture. However, slow shutter renders motion as a blur, making it difficult to tell who is doing what.

Motion Detection In Camera. Selected IP cameras provide the ability not only to capture pictures but also to analyze those images for motion and trigger appropriate alarms. See also Motion Detection In Recorder, DEPA.

Motion Detection In Recorder. The ability of a digital recorder or server to analyze surveillance images for motion and trigger appropriate alarms. See also Motion Detection In Camera and DEPA.

MPEG-4. A family of video compression standards that support a very broad range of bitrates and image sizes. MPEG stands for Motion Picture Experts Group. In IP surveillance, MPEG-4 is associated with low bitrate video. But MPEG-4 is also a key enabling technology behind Sony's high-end HDCAM SR™ recording system at up to 880 Mbits per second. See also Compression, H.264, JPEG 2000.

Network Hub. An Ethernet device that connects multiple network devices. Unlike network switches and routers, hubs typically lack intelligence. See also Network Switch, Network Router.

Network Router. An intelligent Ethernet device that connects multiple logical subnets and directs traffic. In this way, a router defines the boundary of a subnet. A router has more intelligence than a hub or a Layer 2 switch. A router is itself a network node that detects the presence of other routers and can direct traffic according to many considerations, including destination address, least-cost route, least-congested route and packet priority. Routers operate primarily at Layer 3 (Network) in the OSI Reference model and sometimes at Layer 4 (Transport). Routers can also perform Network Address Translation (NAT), which provides



greater flexibility in establishing network addresses on a LAN and in sharing server loads. See also Network Hub, Network Switch.

Network Switch. An intelligent Ethernet device, a network switch connects multiple network segments and typically processes at Layers 1 and 2 (Physical and Data link) in the OSI Reference model. Unlike a network hub, which has no intelligence, a switch evaluates the addresses on packets, and then makes appropriate connections on an internal switching matrix. Layer 3 switches also operate at the Network layer in the OSI Reference model and incorporate some of the intelligence associated with routers. See also Network Hub, Network Router.

NFS. Short for Network File System, a technology that enables PCs on a network to share storage. See also CIFS.

PoE. Short for Power over Ethernet, a system that distributes DC power on Ethernet data cables. PoE is a convenient way to power IP cameras and other remote network devices. Nominal power is 48 Volts DC. PoE is also known as IEEE 802.3af. See also Midspan PoE, High Power PoE.

Port Number. A numerical identifier for a specific activity in host-to-host data communications. These ports are logical, not physical entities. Commonly used port numbers are assigned by an international committee.

QoS. Short for Quality of Service, network rules that resolve contention by providing different quality standards for different applications. QoS generally reflects business priorities. For example, a corporate LAN that carries telephone calls will typically assign a higher priority to the telephone calls than to Internet browsing. Adding IP surveillance to an existing corporate network may require adjusting the QoS rules. The term QoS can also refer to a minimum guaranteed service level on carrier lines such as T-1 or DSL.

RAID. Short for Redundant Array of Independent Disks. A storage system that protects valuable data from hard disk crashes. Because RAID redundancy places data bits on multiple drives, data can survive even if a drive fails. For redundancy, you need RAID level 1 and higher.

Remote client. In an IP surveillance system, a device with a web browser that can access camera images via the Internet. The remote client can be a PC, laptop, handheld computer or mobile phone. Depending on system design, a remote client may be able to log onto the network, see live pictures and even control camera functions such as Pan, Tilt and Zoom. Remote client applications can be extremely powerful. For example, security officers responding to an alarm can check camera images on a handheld PC to ascertain the situation before moving in. See also Web Access.

SAS. Short for Serial Attached SCSI, a method of attaching local storage to a host computer that enables higher transfer speeds than the conventional SCSI interface.

Solid PTZ. A technique whereby an attendant in a central station can enlarge a small, moderate-resolution window that is just part of the camera's total field of view. In this way, the operator can "zoom" into an area of interest, "pan" left and right, or "tilt" up and down while the total field of view remains unchanged. Zooming in also conserves network bandwidth and storage capacity. See also Image Cropping.

SSL. Short for Secure Sockets Layer, a method of protecting network traffic from unauthorized access by means of encryption. SSL is one possible enabling technology behind HTTPS. See also HTTPS.

Standard Definition. A conventional video system that works with older video monitors. Standard definition has a squarish, 4:3 aspect ratio screen and is typically digitized at 720 x 480 pixels. See also High Definition, 4:3, 16:9.

Subnet Mask. A technique for dividing one large network into smaller, more efficient segments. Each subnet is a network segment that is connected on the same link and served by the same network router. The term subnet mask also refers to the IP address routing prefix of a subnet. See also Network Router.

SXGA. Short for Super eXtended Graphics Array, a computer display resolution standard of 1280 x 1024 pixels. See also VGA, XGA, UXGA, WXGA

TCP/IP. Short for Transmission Control Protocol/Internet Protocol, the communications protocols behind the Internet. TCP/IP is also used in Ethernet LAN and Ethernet WAN communications. See also LAN, WAN.

Transparency. This IP camera function enables a distant PC to control a local RS-232C peripheral via the camera. The PC speaks via Ethernet to the camera, which controls the peripheral via RS-232C. From the PC's point of view, the RS-232C peripheral appears to be under direct control, making the camera "transparent."

UDP/IP. Short for User Datagram Protocol/Internet Protocol. This is a data communications protocol that operates on a "best effort" basis. Packets may arrive out of sequence, may be undelivered or duplicated.

UDP Multicasting. Data transmission to multiple, simultaneous destinations, based on the User Datagram Protocol/Internet Protocol (UDP/IP). See also UDP/IP, Unicast.

Unicast. Data transmission to one destination at a time. See also UDP Multicasting.

UXGA. Short for Ultra eXtended Graphics Array, a computer display resolution standard of 1600 x 1200 pixels. See also VGA, XGA, SXGA, WXGA.

VGA. Short for Video Graphics Array, a computer display resolution standard of 640 x 480 pixels. See also XGA, SXGA, UXGA, WXGA.



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Voice Alert. A feature of Sony IP cameras that stores pre-recorded audio clips in the camera. These stored audio files can be played back through active speakers connected to the camera. Voice Alert can be activated by a sensor input or intelligent motion detection. Up to three pre-recorded audio messages can be stored in the camera.

VLAN. Short for Virtual Local Area Network or Virtual LAN, a network that unites physically separate hosts but acts as a single LAN. VLANs are united logically, not physically. See also LAN, WAN.

WAN. Short for Wide Area Network, a data network that crosses city limits and typically incorporates telephone company lines or telephone company switching services. See also LAN, VLAN.

Web Access. The ability of IP surveillance systems to provide live pictures to devices anywhere in the world via the Internet. Depending on the system design, authorized users can log onto the IP surveillance network, see live pictures and even control camera functions such as Pan, Tilt and Zoom. Web access can be performed by virtually any device with a web browser, including a PC, laptop, handheld computer or mobile phone. The device from which a user performs web access is called a remote client. Web access applications can be extremely powerful. For example, security officers responding to an alarm can check camera images on a handheld PC to ascertain the situation before moving in. See also Remote Client.

Webcam. A computer peripheral that can only connect to the Internet via the host computer. Webcams are often confused with IP cameras because both connect to the Internet. However true IP cameras have built-in web servers, and many have sophisticated software features in addition. When in doubt, check the interface. Webcams typically offer only a USB (Universal Serial Bus) interface. IP cameras offer an RJ-45 Ethernet port and/or 802.11a/b/g/n WiFi wireless Ethernet interface.

WiMax. Short for Worldwide Interoperability for Microwave Access, a broadband wireless communications standard. WiMax enables high-speed communication both for corporate networks and for wireless carrier networks. See also Wireless and 802.11a/b/g/n.

Wireless. In IP surveillance, connection methods that make it possible to install cameras in parking lots and other locations beyond the reach of Ethernet cables. Wireless technologies include 802.11 and WiMax. See also 802.11a/b/g/n and WiMax.

WXGA. Short for Wide eXtended Graphics Array, a widescreen computer display resolution standard of 1280 x 800 pixels. WXGA has also been used to describe a resolution of 1366 x 768 pixels, common in home television and public video displays. See also VGA, XGA, SXGA, UXGA.

XGA. Short for eXtended Graphics Array, a computer display resolution standard with options for both 800 x 600 pixels at high color depth or 1024 x 768 pixels at lower color depth. See also VGA, SXGA, UXGA, WXGA.