Sony Puts Microsoft Windows XP in a Hand Held PDA, 2004

Sony Vaio U PC/PDA

Another Big Change for the World of Records Managers, Archivists, and Librarians.

Technology has created digital versions of all types of records and management tools, but handheld PDAs (Personal Digital Assistants) were denied access because they were incompatible with Microsoft XP (eXperience), until now. Now records managers, archivists, librarians, and their clients can do anything digital, from anywhere. They can do it over a wireless, corporate VPN (Virtual Private Network) that provides a secure tunnel through the Internet and fits into the palm of a hand.

First it was the stretch to manage electronic records. Then it was the stretch to see every type of document being created electronically on the computer. Now the stretch is to manage and retrieve all records electronically from the palm of your hand, from anywhere, serving clients anywhere. And, the influence of entertainment is growing as the use of digital tools increases.

Now everything can be recorded, created, received live, delivered, edited, and managed from anywhere. The 1/2 Kg (1 pound) Sony VAIO PC (Video Audio Integrated Operation, Personal Computer) makes this possible. The marrying of Windows XP with a handheld computer makes it possible run any Windows XP based application (which is virtually all applications) anywhere you can hold a computer in your hand. To help bridge the gap between PC and PDA, Sony has added hand printing recognition and a computer resolution (800 by 600 pixels) screen. (1) (2)

Adding a 1 Kg (2 pound) Plus V3-131 projector (3), based on nanoscale torsion bars (4) the first use of nanotechnology (5) in records management, and a battery, provides a large screen, high resolution image for presentation or entertainment with the same freedom of location provided by the Vaio U.

Admittedly, 1/2 Kg (1 pound) is a little large for a PDA, and USD $2,000.00 is a little pricy, but it is in the ballpark for a PDA. It will get smaller, lighter, and less expensive as the components migrate onto a single chip (and as rotating magnetic memory is replaced by solid state memory). Sony's roadmap shows a 4 GigaByte memory stick in 2005. (6) And, a memory stick is much smaller than a magnetic disk drive, even a 2 1/2 inch magnetic disk drive. And, once the PDA is all on one chip, it can shrink to literally any size, including becoming part of virtual reality glasses.

Sony has a very long history of miniaturizing and greatly reducing the price of very complicated devices. (Sony was first with a transistor radio in 1955 and with an integrated circuit radio in 1968.) Actual size of the Vaio U: (6 1/2 x 4 1/4 x 1 inch, 167 × 108 × 26.4 mm) 550 grams, about 1/2 Kg (1 pound). (mm, millimeter) (Kg, kilogram) The Vaio U is about the same size as a one inch high pile of microfiche (A6): (148 x 105 x 25.4 mm).

Why now, Sony

Why a Whitepaper on Sony now?

Sony has staked out its territory as the space in which technology transparently delivers all types of documents (with entertainment being the most prominent popular type) to everyone in their daily life. All document forms have become digital and Sony plans to be the mediator. For document managers, document imaging architects, records managers, librarians, and archivists, Sony sees itself as the equivalent of the last mile in telecommunications. Sony plans to be the way that the digital product, a product of many hands and disciplines, finally reaches the people for whom the product was created.

With WiFi wireless connections, the Vaio U truly delivers documents over the last mile. Documents can be viewed over a fully secure corporate VPN any place WiFi is available, including airports, hotels, and city streets. Wi-Fi (Wireless Fidelity) (7) (An interoperability certification for wireless local area network (LAN) products based on the Institute of Electrical and Electronics Engineers (IEEE) 802.11 standard. (8)

Future of Leadership

Sony has been a leader since it was founded in 1946 by Akio Morita, the fourteenth generation of a family of sake brewers. When Akio Morita died in 1999 (1921-1999, 78), (9) it was not clear that Sony's leadership would go on. Since that time, it has become increasingly certain that it will. The latest proof is the Vaio U. But, that is not all. There are many more. There are several examples below, and there are many more in Sony's history, -- and in Sony's labs today.

Sony, IBM, Televista, and CNN Video On-Demand

Video on demand, where any movie or television episode can be viewed on demand from a Vaio U PC anywhere a high bandwidth wireless connection is available, will be joined by corporate video on demand and corporate video conferencing that conferences-in participants from their current location, anywhere.

CNN (Cable News Network) has put the entire 200 thousand hour CNN video archive backfile online -- for replay or repurposing via video on demand using a system from Sony (PetaSite) and IBM (DB2). (The system design also includes a day-forward addition of 40 thousand hour of video annually.) (10) (11) (12)

Sony's technology produced the PetaSite 1/2 TeraByte (non-compressed storage) SAIT (Super Advanced Information Technology) tapes, with a 30 year shelf life, and a WORM (Write-Once, Read-Many) option (for SOX, Sarbanes Oxley), that the Sony roadmap says will grow to 4 TeraBytes (non-compressed) in their fourth generation, planned for 2009. (13) All this from a company that made its first magnetic tape and tape recorder in 1950.

Using the same techniques, Televista has placed the largest Mexican television video archive online for video on demand access. And, somewhere along the line, corporate use of video games, for training, is included.

Riding the Blu-ray

CDs (Compact Discs) revolutionized music recording. Then came the need to digitize movies. Movies would not fit on CDs (700 MegaBytes), so DVDs (17 GigaBytes, 2 sided, 2 layers per side) were created, with advances in technology along every dimension of technology. Now movies are going to HDTV (High Definition TeleVision) and another leap is needed, to Blue laser DVDs that can store 100 GigaBytes (2 sided, 2 layers per

side) with a possible extension to 200 GigaBytes (2 sided, 4 layers per side).

For blue laser DVDs, Sony has the better technology, and is working hard to have it accepted. Sony is also working hard to avoid a repeat of the BetaMax loss of acceptance, when a superior technology lost out to superior corporate maneuvering which achieved the necessary critical mass of consumer acceptance. (14) (Yes, the technology of digital libraries, archives, and records management is often born of corporate intrigue.)

And, we sometimes forget that the non-floppy 3 1/2 floppy came from Sony. (15) (16)

Sony is out to achieve critical mass for the Blue-ray DVD.

In the Movie Business Now

On September 21, 2004, Sony announced that it would incorporate its Blu-ray technology in the PlayStation2 video game. On September 23, 2004 Sony finalized the purchase of MGM (Metro-Goldwyn-Mayer) Studio assets including the world's largest library of modern films, comprising about 4,000 titles (all to be copied in HDTV on Sony Blu-ray DVDs). Operating units include MGM Pictures, United Artists, MGM Television Entertainment, MGM Networks, MGM Distribution Co., MGM Worldwide Television Distribution, MGM Home Entertainment, MGM On Stage, MGM Consumer Products, MGM Music, MGM Interactive and MGM Direct. In addition, MGM has ownership interests in international TV channels reaching nearly 110 countries. (17)

Sony had earlier purchased the MGM (Metro-Goldwyn-Mayer) studio lot in Culver City, California, (From Kirk Kerkorian (18) where Sony has been learning the movie and television business since 1990.

{Now that Sony Pictures produces the Jeopardy show (19), here is a Jeopardy question: When light was more important than sound, what kind of sound stages were used? Answer: What are glass sound stages? Where is one? Answer: What is behind the Jeopardy sound stage on the Sony Pictures lot?}

True to form, Sony is riding the Blu-ray while others are trying to make a blue light special.

Hollywood Sidebar

DVDs are being driven to a 100 GigaByte (and possibly 200 GigaByte) size by the need for HDTV video in entertainment. Entertainment drives the technology of records management, and Sony, the technology innovator is driven by entertainment.

Sony purchased MGM from Kirk Kerkorian who has now sold MGM three times. Kirk used the money from selling MGM's lot to Sony (1990) to build the MGM Grand Hotel (1993) in Las Vegas.

Kirk was again a little short of cash after buying the Mirage and Bellagio hotels, for USD $6.7 billion, from Steve Wynn (2000) who is using the money to build the USD $2.4 billion Wynn Las Vegas hotel (2005) on the Desert Inn (1950) site where Howard Hughes lived (1966-1970) while making his mark on the Las Vegas Strip. (Howard Hughes made movies and spy satellites (and provided the momentum for DirecTV) and dreamed of being a golf pro.)

Kirk needed the money for a USD $4.7 billion, 8,000 room, development, the CityCenter (2010), on the strip a few blocks south of Steve Wynn's new hotel and the Venetian which is across the street. The Venetian is a 1 million square meter (12 million square foot) hotel (1999) owned by Sheldon G. Adelson who bought the Sands (1952) hotel, which was on the same site, with profits from the Comdex computer show, the largest conference in Las Vegas for several years.

Between Kirk's new hotel and Steve's new hotel is Bugsy Siegel's Flamingo (1946), now up to 3642 rooms (with none of the original hotel left), as recalled by Sony Pictures (TriStar Pictures) movie "Bugsy" (1991). (20)

[Driving our cars keeps us sane, at the cost of many motor vehicle accidents. If we can keep our losses in Las Vegas within the 'having-fun' range, Las Vegas can keep us sane as well, at the cost of some who lose everything.]

Quad HDTV, the Next Jump after HDTV

In 1994 Sony was already using its own HDTV video tape products in its HDTV studio at Sony Pictures in Culver City, California, USA. Sony was also doing non-linear video editing on RAID (Redundant Array of Inexpensive Disks) arrays of magnetic disks.

With Sony's support, George Lucas used a Sony CineAlta HDTV camera to film "Star Wars Episode II: Attack of the Clones." which opened in 2002. (And opened up movie making to the HDTV format.) Having taken HDTV end-to-end, from the filming of Star Wars to digital projecting in theaters (with the Microsoft Media Player software), and the creation of Blu-ray DVDs to distribute the movies in HDTV at retail, Sony was ready for the next phase, the next generation after HDTV, QHDTV (Quad HDTV).

In 2004 Sony worked hard to fill out a complete end-to-end product line for Ultra HDTV or QHDTV. Sony's new 4K SXRD (Silicon X-tal (crystal) Reflective Display) has a resolution of 8.85 megapixels (4096 x 2160) which is four times the resolution of HDTV, (2.1 megapixel or 1920 x 1080 resolution). The reflective display has a contrast ratio of 4000:1. (21) This reflective display is designed for large commercial movie theaters and high end home theater systems.

The vertical resolution of this SXRD display, 2160, is approximately the resolution of the human eye and the horizontal resolution, 4096, is slightly more than the resolution of the eye. Kodak developed 35 millimeter color film over several years. This evolutionary engineering approach (in 100 years of analog photographic film development) produced the analog equivalent (as measured by Kodak research) of 3072 by 2048 pixels (6 megapixels) as found in the maximum 16 base resolution of Kodak's consumer Photo CD. This resolution is further matched to the 4.5 to 7 million cones that detect color in the human eye. (The 91 to 120 million rods are used to detect resolution in black and white.)

The resolution of vision is not a simple thing. There are many aspects to vision. The rods and cones are far from evenly distributed. This leads to the considerable human vision components of eye movement and focusing. In the end, the numbers of the technology of displays are beginning to match the numbers of visual acuity, in a general sort of way, at least for images, if not for text (just yet).

The computer equivalent of QHDTV is 3840 x 2400 9.216 million pixels QUXGAW or (Quad UXGA (Ultra eXtended Graphics Adapter) - Wide) with 16:9 aspect ratio. This is 4 times the computer UXGAW size of 1920 x 1200.

[A note on aspect ratio: In the 1950s, movies had an aspect ratio, of width to height, of 4 to 3 (with 35 mm film), which TV (television) copied. Movies then got wider with Panavision and other formats, to be different than TV. Now television is copying movies again with the 16:9 (16 to 9) aspect ratio of HDTV. This is a kind of a dance around the golden ratio (22) of 1.618…, with the ratio of 4:3 being 1.333… and the ratio of 16:9 being 1.778…]

Sony is readying the next generation (QHDTV) while the current generation (HDTV) is just getting started.

Digital Version of a Steadicam for the Consumer Market

In 2004 Sony introduced the DVD Camcorder model DCR-DVD201 which includes motion sensors to provide digital compensation for camera shake when recording either video or still images. This first use of inertial navigation is for stabilization. When combined with GPS (Global Positioning System) inertial navigation can be used to compensate when a line-of-site is not available to the GPS satellites, so that cameras with both GPS and inertial navigation can be used to annotate pictures with GPS location, date, and time stamps in any location. This image (metadata) stamping can be combined with audio, handwritten, keyboarded, and database linking annotation of photographs. These annotations can be used for constructing a 3D model from stereo photo pairs or for constructing a 360 degree panorama or a viewing sphere from multiple photos. These 3D models can be used to record the as-built plans for buildings, other structures, and earthworks. These 3D as built models can be compared to the 3D models of the buildings, structures, and earthworks created in CAD (Computer Aided Design) systems. These

comparisons can be used to show variances from the planned configurations of the buildings, structures, and earthworks.

Future of Digital Anywhere

Sony has not yet integrated a cell phone (23) or its various digital cameras, video cameras, audio recorders, music players, and DVD/CD players/recorders into the Vaio U. None of these devices is larger than the Vaio U, and delivering one device instead of several has been Sony's direction for many years. A 100 GigaByte 2 1/2 inch magnetic disk drive would provide two days of DVD quality video recording or several hours of HDTV video recording.

Sony memory sticks are now up to 1 GigaByte. For right now, magnetic disks still have more capacity, at a lower price point, than solid state memory devices. But, it is an ongoing race. A few years ago, a 1 GigaByte memory stick would have trumped magnetic disks. Now recordable DVDs are challenging magnetic tape in camcorders. Someday, solid state devices will take over the jobs of DVDs, magnetic disks, and magnetic tape. Before then, the leaders may change places more than once. With one inch magnetic disk drives, it may be that the Vaio U may implement RAID before its memory goes solid state. (24) (25)

Sony, Microsoft, and Intel

With the Vaio U, Sony has bridged the gap that Microsoft could not leap. Microsoft could not make its XP operating system smaller (to use less memory). Microsoft tried to bridge the gap by creating the Windows CE (Consumer Electronics) operating system which Microsoft wrote in XP's image. But, Windows CE was not compatible with XP, so look-alike applications had to be created to run on CE. While the CE applications were look-alike, they were slightly different than their bigger XP siblings. These differences had to be bridged by users, often at inopportune times. Now, Sony has bridged the gap, simplifying Microsoft's efforts to bring a uniform computer platform to every pot: As told by the Microsoft's press release tag line "Founded in 1975, Microsoft (NASDAQ "MSFT") is the worldwide leader in software, services and solutions that help people and businesses realize their full potential.". Microsoft uses the Intel instruction set and Sony married the Intel instruction set and IBM PC architecture to a PDA format hand held device in the Vaio U. (The Vaio U uses an Intel Ultra Low Voltage Pentium M microprocessor.)

History

Sony is adding to the Akio Morita (1921-1999, 78) momentum. IBM is still benefiting from the momentum of Tom Watson Sr. (1874-1956, 82), its chief corporate architect who joined IBM from NCR (1898–1913) in 1914. Tom Watson Jr., his son, (1914-1993, 79) also helped.

Will Bill Gates (1955 -) (October 28, 1955) be providing momentum to Microsoft 50 years after his death? Will Bill Gates live to be 100 in 2055 and be visible in Microsoft until 2105?

The future of the Vaio U, the PDA with XP

While the Vaio U is about USD $2000.00, after the various integrations are complete and the entire package is reduced to one chip, the Vaio U should follow the DVD player into the under USD $100.00 range, perhaps within 10 years. No one needs everything Sony can build into the Vaio U, but like Windows XP, everyone can benefit from XP and the huge price reductions that come from the economies of scale born of ubiquitous homogeneity. Along the road to universality, the Vaio U may also become the Tablet PC that Bill Gates was searching for. (26)

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