

White Paper

The Top-10 Benefits of USB Device Connectivity

by

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10 Applications of USB Device Networking to Improve Personal and Business Operations

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Executive Summary

Today's most clever social scientist could say that what really separates us humans from the animals, even the most intelligent, productive species, is our ability to reason, think, and plan. We've created all kinds of high-tech gadgets to help us keep it all together, to speed communication, and to make life easier. These devices—computers, cell phones, mice, printers, scanners, digital cameras, storage devices, etc.—have all supposedly been created to make the human animal more functional, more productive, more connected in our complex societies.

Ultimately it's not necessarily the type of devices we have, or even how many, but *how* best we use them—even network them to operate and communicate with each other. It could be argued that it's definitely "quality versus quantity" regarding our use of peripheral devices in the increasing multiplicity of devices we work and live with.

This white paper examines USB (Universal Serial Bus) device connectivity and explores the "Top-10" benefits of device interoperability. During this discussion, the following items will be addressed:

- The "Top 10" applications of USB device connectivity.
- The best utilization of USB devices for the benefit of many people in small to large offices and workgroups.
- The key benefits of USB device connectivity that businesses can capitalize on.
- How silex technology america is advancing USB device connectivity technology.

Introduction—USB Connectivity

Most computer devices available today feature USB connectivity to plug into one or two USB sockets on a desktop PC, laptop, or handheld computer. USB connectivity provides an expandable, plug-and-play interface that ensures a standard, low-economy connection for peripheral devices such as multi-function printers, keyboards, mice, joysticks, printers, scanners, digital cameras, storage devices, modems, video conferencing cameras, and numerous other devices.

USB has a maximum bandwidth in its basic form of 12 Mbits/sec (equivalent to 1.5 Mbytes/sec). USB 2.0, widely known as Hi-Speed USB, dramatically increases capacity to 480 Mbits/sec.

With so many USB devices available today, you can easily run out of sockets very quickly. USB hubs provide convenient access to multiple USB devices. However, these devices typically only remain available to a single user. In an office environment of any size, workers using numerous USB devices need a solution that allows for network device sharing among one to many workgroups.

USB Device Networking

Relatively new to networking, a USB device server is designed to provide easy network accessibility or sharing of USB products. USB device servers make it possible for USB peripherals such as multi-function printers, scanners, digital cameras, storage devices, hard drives, printers, electronic whiteboards, Web cameras, etc. to be used and shared by client PCs on a Local Area Network (LAN) or wireless LAN.

Ideal for home office, small office, classroom, or enterprise workgroup use, a USB device server supports both Ethernet and WiFi networks.

The Top 10 Applications of USB Device Networking

silex technology has been helping people customize network configurations with printer connectivity for years. It is from this experience that the company has leveraged its print connectivity experience to develop new USB device connectivity products, and constructed the *Top 10 Applications of USB Device Networking*. Starting with #10:

#10 Print and Copy Shops—Print and copy shops seem to be on every street corner. For the traveling businessperson, these shops can be a lifesaver. There are a lot of different ways travelers can print documents while on the road—taking a notebook computer into a shop and hooking it to a printer, floppy disk, zip disk, and flash pen drives.

Device servers conveniently placed within a professional print shop can give users easy access to multiple storage options regardless of the storage media they use by allowing them to quickly connect their device to the network to print documents.

#9 The Digital Living Room—Filled with consumer electronics, a home's living room has become a game, recreation, computer, and theater room all in one. It really is the collaboration of two industries—computers and consumer electronics. Computer makers are continually capitalizing on technology that extends into devices like televisions and video players.

Home networking products are designed to not only link computers and peripherals, but also connect these devices to home entertainment components, such as the TV, DVD player, Personal Video Recorder (PVR), game console, MP3 player, stereo system, etc., even if the devices are in different rooms. Indeed, the overall goal is to help people enjoy digital music, photos, videos and games on PCs and other systems in and around the home.

Today, one electronic device can replace your TiVo, CD player/recorder, DVD player/recorder and even a gaming console. With a wireless remote and mouse, that same unit is also a complete PC. The TV is now the computer monitor in many configurations, so the PC really has become a digital hub to connect a myriad of home entertainment devices.

The device server extends the multi-media capabilities of the PC and the home network to multiple USB entertainment devices. By connecting a USB device server to the home network, and three devices directly to the device server, then plugging a 5-port hub into the device's remaining USB port, nine USB devices are easily available with a click of the mouse.

#8 The Conference Room—The static conference room featuring only a phone, whiteboard, or easel pad is hardly a hub of activity, learning, and collaboration. Meeting participants need the flexibility to share the room's resources directly in the room and even remotely or wirelessly.

Sharing the functions of an electronic whiteboard with a USB interface, give workers the ability to compare and store meeting notes and even select the best printer to review hard copies. Scanned whiteboard data can be immediately retrieved from a wireless PC.

A wireless USB device server also allows a LCD projector or shared storage device to be controlled wirelessly allowing mobile computer participant to use these devices.

Attaching all conference room USB devices allows all meeting room participants to use the equipment. A simple meeting room can become a dynamic center of interactivity with the LCD projector, electronic whiteboard, MFP or laser printer, and shared storage drive, all networked through a device server.

#7 The Graphic Designer—“Attention to detail with expressive freedom in a tangible, creative working environment” stereotypically describes the office style of a graphic designer or team of designers. These artists need to have their creative tools immediately available at all times.

Surrounding the graphic designer’s workspace, you will most likely find a photo printer, digital camera, internal or external DVD/CD burner, and scanner. A USB device server is a must for device sharing among members of a networked workgroup.

#6 The Backup Plan—Establishing a strong backup strategy is vital in network environments of any size. Many offices may not be able to justify the expense of network attached storage (NAS) devices as part of a back-up plan. A USB device server literally allows an external USB hard drive to become an inexpensive network attached storage device.

Regular back-up schedules can be timed to accommodate multiple network users. And, with the portability that USB storage devices provide, companies have increased flexibility to move information to a different location following a network problem requiring backed up information.

#5 The Printer Pool—The USB device server makes a variety of printers immediately available or shared by everyone on the network. A user can then print documents more suited for a photo printer, or color inkjet rather than only printing to a standard laser printer in an office environment.

Connecting a pool of printers, all in one location, creates a one-stop solution for a variety of printing needs. If certain networked users don’t need or shouldn’t have access to a particular printer in the pool, IP filtering access control functionality can prevent access.

#4 The Mobile Worker—Consider the U.S. Department of Defense’s Land Warrior system for a moment. The Land Warrior concept is a body-worn system that uses USB as its “personal network” and features a master USB controller. The Land Warrior has several subsystems: the weapon, integrated helmet assembly, protective clothing and individual equipment, computer/radio, and software all connected via USB.

Similar to the modern U.S. soldier, today’s road warriors also can access multiple USB devices through a device server. Through mobile tools like laptops, PDAs, handheld reporting devices with modems, and cell phones, workers are able to connect to networked USB devices for shared file or database access, storage, digital photo/video transfer, shared contacts, and printing through a USB device server.

#3 The Home Office Network—Organization is the key in home offices. Users may already be sharing a printer, Internet connection, multiple files, or CD/DVD burner, but what about digital cameras, flash pen drives, MP3s, game consoles, multi-function printers, back-up hard drives, or sewing machines?

Yes, sewing machine! A device server can actually allow sewing enthusiasts or home seamstresses to save patterns on a shared storage drive to be used on an industrial quilting sewing machine attached to the home business network. Both the storage device and sewing machine are connected to the network through a device server permitting anyone on the network to use them.

A home office can share many USB devices with a 4-port USB device server connected to network. USB devices like a MFP printer, DVD burner, flash pen drive, even the USB-enabled sewing machine can be USB-cabled to the device server. To accommodate the sharing of up to nine USB devices, a USB hub can be connected into one of the USB device server ports. A wireless device server allows a USB device to be positioned anywhere in the network.

#2 The Business Network—Workgroups typically utilize many USB peripherals beyond their keyboards and mice. Multi-function printers, scanners, inkjet printers, and external storage drives are typically the next most utilized USB-enabled devices.

Historically each of these devices has been utilized by or connected to a single user or workstation. For example, a marketing team may have one worker or IT administrator responsible for all CD/DVD burning and scanning.

With the networking capabilities of device servers, an entire workgroup can experience increased productivity and convenience of multiple USB device sharing.

#1 Multi Function or All-in-one Printer Connectivity—One of the greatest innovations has to be the combined functionality of multifunctional or all-in-one printers (MFP) that typically combine a copier, printer, scanner, and storage options all in one convenient device. MFP's allow companies—especially small or home businesses—to save cost by providing up to four devices in one.

The problem with MFP devices is that they typically are only available to a single computer terminal—they do not work well attached to a network. With a device server companies can connect an MFP directly to a network for use by all users including the ability to scan, copy, print, and store information.

Summary

There are many different ways to approach the utilization of USB device servers within business. They give system integrators and resellers strong tools to improve their clients productivity, increase add-on sales, and increase their profit line.

Along with its full line of globally renowned print servers, silex technology america has developed some of the first USB device servers available in the U.S. The SX-3700WB wireless and SX-5000U2 USB device servers can literally change the way information and technology is shared in a home, small office, or any network business environment. With numerous USB devices available for a wide variety of applications, silex's device servers can provide the best utilization of USB devices to increase productivity, increase return on investment, lower costs and expenses, and streamline operations.

silex technology america USB Device Server Technology

silex technology america is an expert in USB device-to-device connectivity. Its parent company, silex technology has more than 30 years experience designing, manufacturing and marketing embedded products. silex technology has produced the first USB 2.0 Hi-Speed device server, the SX-5000U2 and the first wireless USB device server, the SX-3700WB.

With silex's device-to-device network connectivity drivers and utilities in its SX-3700WB and SX-5000U2 USB device servers, USB-enabled devices such as printers, multi-function printers, scanners, storage devices or digital cameras are easily converted into shared resources on networks of any size. Enterprise workgroups, home networks, or small branch offices benefit from the convenience of accessing conventional, one-user USB devices and the freedom to share them with co-workers over an existing network.

Overall Features of the SX-5000U2 and SX-3700WB

SX-5000U2—The SX-5000U2 is a four-port USB device-to-device server designed to connect a variety of USB devices directly to a network. Connecting up to nine devices, it is the first USB 2.0 Hi-Speed device server available.

- First USB 2.0 Hi-Speed server to connect USB devices
- USB device resource manager that allows all computer users on the network to use USB printers, multi-function printers, scanners, digital card readers, external storage, electronic whiteboard, thumb drives, or digital cameras
- With a USB hub connected to the SX-5000U2, users can share up to nine USB devices on the network
- Easy USB Flash or Pen Drive configuration
- Windows or Macintosh operating systems
- IPv6 supported—The next generation of TCP/IP is the industry solution to expand the speed of the Internet and the number of IP addresses.
- silex's Web browser administrator manager utilities
- Enhanced security IP filtering
- Features automatic e-mail printing
- Printer status monitoring

SX-3700WB—As the numbers of wireless networks continue to grow due to the low cost and convenience they provide, wireless connectivity products become increasingly important. More than just a wireless device server, the SX-3700WB is the first single-port wireless device-to-device server connecting any networkable USB peripheral to the network. It can also be configured easily with a USB thumb storage drive.

- First wireless USB device server
- MFP USB support
- USB pen or thumb drive wireless setup
- Allows users to connect network-enabled USB device, including printers, multi-function printers, scanners, external storage, and electronic whiteboards, to a Wireless Local Area Network (WLAN) for use by multiple users
- Allows IT managers to save costs of wiring and management while providing the convenience and productivity enhancements of wireless
- Windows or Macintosh operating systems
- IPv6 supported—The next generation of TCP/IP is the industry solution to expand the speed of the Internet and the number of IP addresses.
- silex's Web browser administrator manager utilities
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- Printer status monitoring

Benefits for Business

Enhanced Security—IP Filtering Access Control

With concerns over network security, a device server must feature technology that eliminates the worry that these shared devices are not accessed by unauthorized people on the network. IP filtering can prevent unauthorized access to network USB devices by utilizing specific IP addresses or a range of IP addresses.

Multiple Ports and High-Speed USB 2.0

Multi-port USB device servers featuring USB 2.0 Hi-Speed capability are imperative. USB 2.0 extends performance by up to 40 times over existing USB 1.1 capabilities and broadens the range of peripherals that may be attached to a PC. With a USB hub connected as one of the four USB devices, users may share up to nine USB devices on the network.

Wireless Access

Wireless USB device servers provide added flexibility by allowing a USB device to be placed anywhere in a wireless network.

Automatic e-mail Printing

A USB device server can retrieve e-mail for up to four designated e-mail addresses and print them automatically without a PC. USB device servers can automatically print all e-mail messages, or the user can apply keyword filters to specify the e-mails to be printed. The servers can also send an e-mail message to a user when any error occurs with a printer.

Advanced Automatic Device Discovery and Configuration

Ideally, USB device servers should support the network plug and play capabilities of USB in Windows. The device servers' automatic network printing service discovery and configuration should be available for Mac OS X users, and eliminate the manual configuration of any IP addresses or network setting for a printer.

Easy USB Flash or Pen Drive Configuration

By simply creating a template file with the initial setup parameters on a PC and saving it in a standard USB flash or pen drive, users or network administrators can quickly roll out multiple peripherals quickly and easily. By inserting the USB pen drive into the device server, the setting information will be retrieved in a few seconds.

About silex technology america

silex technology america, Inc. is a subsidiary of silex technology, Inc. (NASDAQ:6679), a 30-year developer of embedded print connectivity products and technologies. silex has become one of the largest global suppliers of print server products over the past 10 years. silex technology america's entrance into the North American market is part of a global expansion of silex technology. silex's leading-edge print servers, device-to-device servers, and fingerprint security devices help businesses improve the way they move data, print, and secure information. For additional information, call (801) 747-0656 or go to www.silexamerica.com or www.silexreseller.com.