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Best Practices for Managing and Enforcing USB Security:

Five Questions You Should Ask About Universal Serial Bus (USB) Security

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Preface

Many companies live in fear of the day when someone steals their sensitive corporate data. That's why companies deploy firewalls, manage wireless connectivity, control network-access privileges and install anti-virus software. But these solutions focus on the front door and can leave the back door wide open to a new kind of security breach. Like Trojan horses, USB and other removable storage devices such as Apple iPods, BlackBerrysTM and Flash drives enter the corporate environment and attach to computing assets without arousing suspicion or triggering security alerts. Characterized by ever-increasing storage capacity, these devices can be used to surreptitiously download larger and larger amounts of sensitive corporate data. As corporations determine the most appropriate method for handling this new threat, there are five questions you need to ask when considering a USB security solution.

Introduction

About a year ago, a security professional conducted an experiment to demonstrate how easy it is to steal corporate data. Disguised as a janitor, he walked into an office with an iPod. In plain sight, he connected the iPod to a corporate computer's USB port and proceeded to download thousands of sensitive documents, executable files and unlicensed software to the iPod, bypassing the normal startup process of the machine with a specialized CD-ROM designed to circumvent traditional security mechanisms. The whole operation took two minutes.

Had the theft been real, those two minutes might have changed the entire course of the company.

Many companies live in fear of the day when someone steals their sensitive corporate data. They know that data theft costs corporations more than $50 billion a year – and that 70 percent of data theft involves downloads to removable storage devices like Flash Media, DVDs and CD-ROMs. Companies realize that data loss could not only generate ugly headlines and put them at a competitive disadvantage, but also place them in legal jeopardy for violating state, local and federal privacy regulations. That's why these companies deploy firewalls, manage wireless connectivity, control network-access privileges and install spam and anti-virus software.

These security solutions are the equivalent of locking the front door, installing extra deadbolts and placing a heavy table behind the door to prevent a burglar from entering. Problem is, companies focused on the front door can leave the back door unlocked, or even wide open. As the janitor-in-disguise demonstrated, removable storage devices like iPods and Flash drives are the fastest-growing corporate security threats. These benign-looking devices can be used to download lots of sensitive corporate data without arousing suspicion or triggering security alerts.

In other words, removable storage devices such as USB drives, CDs, and iPods are becoming the modern-day equivalent of Trojan Horses for corporate data theft.

White Paper

The Rising USB Threat

Two converging trends have recently escalated the data-security threat: the explosion in the number of high-capacity storage devices and the growing mobility of the workforce.

The ever increasing storage capacity of removable devices, coupled with their ever reducing cost makes these devices as commonplace as a set of car keys. Today, the estimated number of devices with external, removable storage in use by consumer is in the billions. Audio devices, MP3 and other media players, for example, are phenomenally popular. Apple's iPod alone has sold more than 25 million units worldwide since its debut, putting gigabytes of storage in the palm of any hand. USB Flash drives and memory cards found in cameras, mobile phones and personal digital assistants (PDAs) can also download gigabytes of information from any PC or laptop without requiring special software. With the new devices on the technology horizon, the threat will continue to escalate.

With more and more employees bringing these kinds of devices to work, potential thieves don't have to hide the portable devices in pockets or purses. They can bring them right out into the open, pretending to be listening to music or downloading pictures while they rob the company blind.

But corporate data theft doesn't always happen inside the four walls of the office. A second emerging trend – the growing mobility of the workforce – means that sensitive corporate data can often be found on laptops and other mobile devices.

Experts say that more than 50 percent of work today happens away from the office. People work from home, from hotels, from coffee shops and airports. Because of this mobility, the majority of the latest corporate data – two-thirds by one estimate – resides on endpoint devices like laptops, tablet PC's and PDAs. The data, in other words, is right there for the taking.

Thieves can gain access to this data in several ways: by surreptitiously connecting USB devices to the devices of distracted users; by stealing laptops altogether; or by gaining access to computer files via wireless eavesdropping.

Recent headlines are filled with chilling examples of security breaches involving endpoint devices. Thieves stole sensitive personal information about 26.5 million U.S. veterans – including social-security numbers and birthdates – after a Veteran's Affairs employee brought the information home on a laptop computer. Fidelity Investments recently disclosed that one of its notebook PCs had been stolen. The laptop contained the personal information of 196,000 current and former Hewlett-Packard employees. Outside a U.S. military base in Bagram, Afghanistan, removable USB storage devices containing sensitive military data were on sale at a bazaar. The data was apparently stolen from offices inside the base by Afghan staff working there.

Most of the publicity about data theft has often involved lost or stolen laptops. USB security breaches haven't garnered as many headlines for one, simple fact: Many companies don't even know when USB breaches happen.

"Senforce enables a more strategic approach to security, by enforcing security policies continuously and enabling response to threats in real-time."

Dennis Heretick,
Department of Justice

White Paper

Five Questions

No wonder, then, that more and more companies are looking for USB security solutions designed specifically to prevent these stealth attacks. But not all security solutions are created equal. When considering a USB security solution, companies should ask five key questions:

- Won't my existing security solutions protect against USB security breaches?
- Can I secure USB ports without hampering the productivity of my employees?
- Can I enforce USB security without overburdening my IT staff?
- What capabilities should I look for in a USB security solution?
- Is the USB solution part of a broader, holistic security approach?

Let's consider these five questions.

Won't my existing security solutions protect against USB security breaches?

Most "old-style" security measures like firewalls are perimeter defenses designed to keep data thieves out, not protect against internal attacks. And most data and identity thefts, say experts, occur inside the enterprise. Firewalls can block ports, but they are not designed to manage file-system transfers.

Most network-access controls won't prevent USB devices from attaching to endpoint devices like PCs, either. In fact, USB downloads are typically not detectable, and they don't usually leave an audit trail.

Unless your security solution includes specific, policy-driven and location-aware protection against unauthorized use of USB ports (more about this later), your company is not protected against the fastest-growing threat to corporate security.

Can I secure USB ports without hampering the productivity of my employees?

The USB ports on endpoint devices are there for a reason: They enable workday productivity. The keyboard and mouse connect via USB ports. Workers also use USB ports to do things like synchronize computing and communications devices, transfer multi-media sales presentations, print documents and back up work.

To control the use of USB ports, companies have two choices. One extreme approach is to pour glue into the ports or otherwise disable them via hardware modifications. While this might help eliminate USB risks, it can also strangle productivity. The other option is to centrally control access to these USB ports via software, using policies that enforce when and where the ports can be assigned one of three states: read-only; read-write; or disabled. Central control of USB states means that employees won't have to be bothered with security options and prompts. Policy-based enforcement will happen transparently, allowing users to do their work safely without jeopardizing security.

"Senforce provides the most complete endpoint security product on the market. We can easily manage security policies including firewall, wireless connectivity and storage device control"

Karen Giesta,
Cambridge Savings Bank

White Paper

Can I enforce USB security without overburdening my IT staff?

IT staffs are already stretched their limits, trying to deploy and manage a growing number of users and devices while struggling to keep networks up and running. A USB security solution should not add to this burden.

There are ostensibly simple USB security solutions available that in reality end up requiring lots of attention from IT staff. For example, software solutions exist today that simply notify the IT staff whenever someone attaches a device to a USB port. However, the thousands of daily alerts that result will require constant monitoring. And by the time a staff member investigates, a thief could be out the door.

Other USB solutions require companies to compile and manage lists of "safe" and approved devices that can attach to USB ports without compromising security. In a typical IT environment characterized by changing users and devices, these lists can be difficult and time-consuming to manage. Security solutions designed to support only devices from a single manufacturer don't take into account the heterogeneous nature of today's IT environments – and they won't afford complete protection.

The kind of USB security solution that will not hamper the productivity of the IT staff will be centrally managed, via a single console, and allow IT staff to control all USB ports and access states using software tools.

What capabilities should I look for in a USB security solution?

An effective, efficient USB security solution will be characterized by the following attributes:

- **Centralized and policy-based** – automated rules that dictate the state of a USB port depending on the user's location and role within the organization – should be the cornerstone of an effective USB security solution. Once granular policies are established, they can be centrally managed and pushed out to individual endpoint devices. A centralized, policy-based approach relies on automation to apply different rules to different users and devices, freeing IT staff to focus on possible breaches rather than administration.
- **Location-aware** – A policy-based solution should allow different rules to be applied to USB ports depending on location. When a laptop or other computing device is in a riskier environment like an airport, polices can be set to restrict all USB connections. When the device is inside the company's walls, read-write access might be permitted. In other locations, like the user's home, read-only access might be applied.
- **Self-defending** – The solution should make it impossible for the end user to defeat the security policy by turning off the policy-enforcement engine. Avoid systems that use prompts to allow users to assign security on their own endpoint devices.
- **File-system-level operations** – Ideally, the removable storage-device security solution should operate at the file-system level to ensure control of all devices (external hard drives, CD/DVD-ROM, other forms of removable storage, etc.) that act as a file system. Meanwhile, the solution should not disable devices like a USB mouse that do not pose a threat.

"We've tested all commercially available firewall products and have run them through our battery of tests - Senforce was the only one left standing. In combination with the Wi-Fi management features and location-based controls, Senforce was the right choice for us."

Ted Shelkey,
Executive Office of
US Attorneys

White Paper

"Air Mobility Command (AMC) needed the ability to exploit the use of wireless networks anywhere. For example, AMC needed to be able to automatically 'turn off' wireless access when connected to the wired network so that our people wouldn't inadvertently be inviting intruders in… Senforce solved AMC's wireless security and control problems, enabling us to save money, improve productivity, and increase security."

Bob Lyons,
US Air Force
Air Mobility Command

- **Auditable and trackable** – The USB security solution should keep track of policy-enforcement actions as well as attempted USB activities and suspected attacks. This kind of tracking is critical for not only tightening up defenses but also complying with data-control and privacy provisions contained in regulations like Sarbanes-Oxley and HIPAA (Healthcare Insurance Portability and Accountability Act). Audit information – such as who transferred information to removable media, how much data was transferred, what files were transferred and what types of devices the information was transferred to – should be accessible to the administrator.

Is the USB solution part of a broader, holistic security approach?

Stand-alone USB solutions don't come close to addressing every kind of endpoint corporate security threat out there – nor are they designed to. That's why you have to make sure that your USB solution is just one component of an integrated, holistic approach to endpoint security.

Look for endpoint security solutions that manage USB security as well as Wi-Fi connectivity, endpoint integrity, removable media access, advanced firewall capability, VPN enforcement, and theft protection.

Wireless or "Wi-Fi" connectivity control is needed to guard against wireless snooping and attacks, whether the user is located inside the company's walls, at home, or in Wi-Fi hotspots. With endpoint integrity checking, policies can require laptops and other computing devices to have the approved anti-virus signatures and up-to-date patches before the device is allowed to communicate with the public Internet and the outside world. Firewalls integrated into the operating systems kernel can protect against network port scans, Internet Protocol (IP) spoofing, denial-of-service and other protocol-based attacks. A holistic solution should allow policies to control the use of removable media devices like thumb drives and writeable CD-ROMs. And the solution should protect sensitive data if a mobile computer is lost or stolen.

For any security solution to be effective, it must be enabled and actually running on the machine. If a user or even some type of malicious code can simply shut off the security solution, you end up with an ineffective defense that doesn't go much beyond good intentions. All the security functionality discussed here should be protected from being disabled or bypassed by users tampering with registry keys, deleting critical files, stopping services/processes or uninstalling the software – even if they have administrative privileges or boot into "safe mode."

Ensure that USB security is part of a broader security solution that can be managed from a central location. Otherwise, you'll be taking a piecemeal approach to endpoint security that will complicate management and make it harder to identify remaining security holes.

White Paper

Introducing Storage-Device Security from Senforce

Senforce has adopted a holistic, comprehensive approach to endpoint security that recognizes the current industry challenges and future technological advances on the horizon. Recognizing the growing threat of USB and removable media attacks, Senforce recently introduced an advanced Storage-Device Security module to its Endpoint Security Suite (ESS). Now, via one easy-to-use management console, companies can manage USB security, firewalls, Virtual Private Networks (VPNs), Wi-Fi connectivity, theft protection and endpoint integrity.

The Senforce ESS Storage-Device Security driver sits in the kernel-level storage stack of endpoint devices, so it can control local optical media (writable CD-ROMs, DVDs) and all attached storage devices (USB thumb drives, floppy drives, Flash memory cards, ZIP drives, SCSI PCMCIA cards and other removable media types). Senforce Storage-Device Security is policy-based, assigning either blocked, non-blocked or read-only states depending on the user, the user's location and other parameters. Administrators control and push out policies, so end users are not involved with selecting security options.

The Senforce Storage-Device Security module not only protects against data theft but also against introduction of harmful files, viruses and other malicious software ("malware"). All USB and other storage-media activities are tracked by Senforce ESS and recorded for auditing purposes.

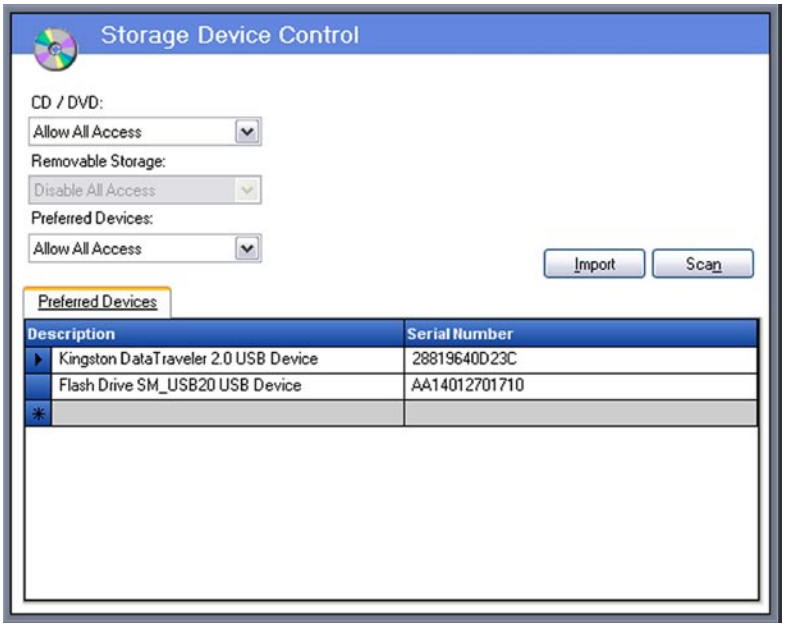


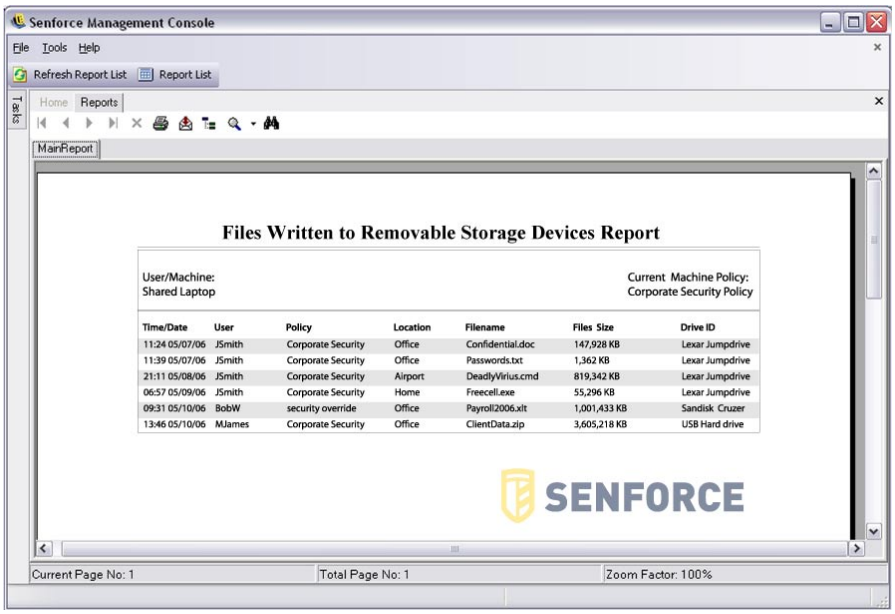
FIGURE 1: Senforce Centrally Managed Storage-Device Security

White Paper

All modules in the Senforce Endpoint Security Suite are based on an architecture that provides a simple, scalable method for creating, distributing, enforcing and monitoring security policies on endpoint devices. Senforce ESS server installation only takes minutes, and security clients can be easily deployed to desktop computers and laptops using self-installing packages that can be downloaded remotely. Using the Senforce ESS management console, administrators can create, copy, edit and delete polices and manage security by users and groups. The Senforce ESS modules also provide automated reporting functions with detailed statistics for corporate auditing and compliance processes. Enterprise-class architecture also provides server failover, and high-availability features ensure that your systems are healthy and functioning twenty-four hours a day/ seven days a week.

Complete audit information is available through customizable Senforce reports (see figure below). These reports give the administrator the information they need to track down problems and fix vulnerabilities.

FIGURE 2:
Storage-Device Security Audit Report



Senforce ESS, now with Storage-Device Security, is the most comprehensive endpoint security solution on the market today. Using our patented technology, you can dramatically reduce the risk of data loss, simplify security management and protect against attacks from the inside and outside – all without hampering the productivity of your company.

White Paper

Detecting the Next Trojan Horses

Many companies do not have the security solutions they need to ensure complete information integrity and data security. Most do not even know that they have a threat. Instead, they approach security in a reactionary manner and they seek a solution once they've actually had a problem. It's not surprising that the issue of USB security hasn't gained more recognition. Frankly, few solutions exist for this pervasive problem.

Senforce believes that companies must manage all corporate information and security policies in a manner that adapts to the current and future innovations of technology. To accomplish this, companies need to be provided with technologies that ensure security through automated and transparent methods, while proactively notifying the organization of security threats in real-time.

These modern-day Trojan Horses are carried by individuals who do not always recognize the cost and risk of the information they are using. The solution to this challenge is to institute economic and flexible software and information-monitoring services that audit, control and prevent security breeches where they occur. Senforce offers repeatable and comprehensive solutions that recognize and address the challenges of endpoint security. Senforce provides a pro-active environment for managing corporate information assets where they live and ensures that information is "entitled" to move between removable media and USB devices. These capabilities are based around manageable and configurable policies that do not interfere with corporate productivity.

What has your company done to protect against USB attacks? If the answer is "very little," than it's time to evaluate endpoint security solutions. Be sure to ask the right questions, including the five questions we've explored here.

Then listen carefully to the answers. At Senforce, our approach to endpoint security will help you make the Next Trojan Horse a relic of ancient history.

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About Senforce Technologies, Inc.

Senforce Technologies is a leader in Endpoint Security Management. Through intelligent policy enforcement, our solution enforces security policies that protect endpoint devices from misuse and malicious access. We provide companies with a centrally managed solution to create, distribute, manage and enforce security policies associated with endpoint security threats, such as, USB devices, removable storage, Bluetooth, wireless, networking, applications and data. Senforce Endpoint Security dynamically enforces security policies dependent on the location threat profile (at the office, on the road or at home). For detailed and up to date information about Senforce Technologies and its solutions, visit www.senforce.com.