

Whitepaper

Technologies used in Ascentive's PC Performance and Security Software

Ascentive's PC Performance and Security Software can speed up your Internet connection, eliminate registry errors, remove Spyware and Adware, and speed up your computer. This document invites you to take a closer look at the technology used to make your computer run like new, including, our Patent Pending Intelligent Optimization Engine that isn't available in any other Internet accelerator.

If your computer runs slow, this white paper will describe what is happening behind the scenes and address the ways our software can make a new PC faster.

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ActiveSpeed: Internet Performance Software

Your download and upload speeds for the Internet are controlled by settings within Windows. These settings designate how much data you can send or receive when using the Internet and transferring files across a network. Even though you are connected on a high speed connection, your computer may not be configured to use that connection. Over time changes to your computer, network, or Internet will cause your settings to become less than optimal. To better understand, we have outlined the process below.

When files are sent to and from your computer, they are broken down into smaller pieces called 'Data Packets' and reassembled on the receiving computer. When they reach the computer they must be reassembled back together in the correct order. One setting that is used in networking is called MTU (Maximum Transmission Units). MTU designates how large the data packets can be. They are first checked against the files that have already been received and

"If the sending and receiving sides of a network conversation both have information about the MTU, the stack can ensure that fragmentation does not occur, thus improving throughput and the users' perception of application performance."

- Microsoft Developer Network¹

if the file is not 'next in line' the computer will put the packet into a holding area called the 'Receive Window' (or RWIN). As additional packets are received, the system continues to try putting them back in order. Files are pulled from the Receive Window or eventually dropped from the system. There is a setting called 'Time to Live' (or TTL) which will determine how long the waiting packets will stay in the Receive Window. If the TTL is set to 128 milliseconds, for example, each packet that ages to 128 milliseconds without being used will be dropped and the system will keep requesting files from the sending computer until it received all packets and the file is put back together.

"A very low MTU size could cause a severe decrease in performance."

- Microsoft*

When packets are sent across the Internet, it is highly unlikely that the computer you are requesting information from/sending information to is at a close distance to you. The further the computer is from you, the more connections there will be along the way. Say

¹ The third party quotes are presented in this paper as general information only; the third party companies do not endorse any of Ascentive's products.

for example you are located in Philadelphia and the computer you are requesting a file from is in California, there is not a line straight from your computer to Los Angeles California. There may be 10 or 11 places along the way that must reroute your file request. Your file may make a stop in Cleveland, Denver, San Paulo, and Santa Monica before it finally reaches the computer in Los Angeles. All of these routers along the way may have different MTU settings. ActiveSpeed uses Path Transmission (or PMTU) settings to determine the maximum packet size that will fit through all of the routers in your path. Think of your data as a convoy of 10 trucks each carrying 10 tons of gravel. If they start heading along their route and run in to a bridge with a 5 ton weight limit, they are going to have to head back, get more trucks, and redistribute the gravel so that each truck can get over the bridge. There may be several bridges along the way, all with different weight limits. PMTU finds out the weight limits of all of these bridges, and sends you out with the correct number of trucks and correct distribution of weight to make it across each bridge on your route, without having to head back to the truck depot to redistribute the weight. On occasion, you may run in to a router that will not send you the information as to what it's MTU is. ActiveSpeed uses the Blackhole Detection function of PMTU to attempt lowering the packet size if packets don't seem to be traversing a particular router. If this is not enabled, your data may not make it past a router that doesn't send back it's MTU data via ICMP.

These functions combined allow ActiveSpeed to get your data from point "A" to point "B" in the most efficient manner, without time consuming data retransmissions.

ActiveSpeed allows even novice computer users to alter these settings without risking damaging their system. ActiveSpeed offers two modes – Intelligent Mode & Quick Optimize.

- **Intelligent Mode** – Automatically tests the system and applies the best setting for the user's environment. When in Intelligent Mode, the system will upload and download a test file to find the speed the system is currently using to obtain a base reading. It will then test the system a total of 5 times by applying different suggested settings and downloading and uploading the same test file. Once all tests are done, ActiveSpeed will then determine which is the best setting for that user.
- **Quick Optimize** – The user manually tries each setting. It is usually recommended that the user finds a web page or file download that they can

use to test between each setting to provide optimal test results. With Quick Optimize it also allows the user to change setting such as MTU and PMTU settings.

It is recommended that every so often users re-optimize their system with ActiveSpeed since any changes to their system, Internet, or network can cause their current settings to no longer be optimal.

PC SpeedScan Pro: PC Performance Software for Registry Repair

PC SpeedScan Pro is a program that scans the entire system looking for missing files & shortcuts. Windows uses shortcuts to quickly locate files on the user's system. One location of these shortcuts is located in the 'System Registry.' The System Registry (or Windows Registry) is a database which stores settings and options for Microsoft Windows operating systems. It contains information and settings for all the hardware, operating system software, most non-operating system software, and per-user settings. If files in the Registry are damaged or missing, Windows will not function properly. Say, for example, there was an entry in the Registry telling Windows to use a certain file when starting Windows that was missing. Windows would have to search the entire system to locate this file.

There are many other locations in your computer where shortcuts are stored, such as in your Start Menu, Search windows, the File Menu of applications. If a user was to select a file that was missing or moved, again, Windows must search the entire drive to locate where the file is currently stored.

Another location is File associations. A File Association associates a file with an application capable with opening that file. For example, your computer may have an association set up so that all files ending in .jpg will open with MS Paint. Using the same example, if MS Paint was removed from the system and the file association was not updated to open with another application, every time you tried to open a .jpg file, Windows would

"When faced with performance hindering registry issues, there [aren't] a whole lot of options to choose from... be sure to get a registry cleaner that actually does the job right and doesn't require a whole lot of user interference."

- Articlebase*

need to search the system to try and find MS Paint before displaying a message that it could not find a program to open the .jpg file with.

"A PC with many applications that has been used for a while can easily have a hundred thousand or more Registry entries."

- PC Magazine*

SpeedScan searches for all shortcuts and file associations on your system and verifies that each shortcut has a program to match it. If any shortcuts are found that do not have a matching file, SpeedScan basically tells Windows to no longer search for that file. With larger hard drives becoming more common in user's systems, it can take a very long time to search the system. Every day users are adding, deleting, and moving files all over the system which causes broken shortcuts. The more missing files/damaged shortcuts, the longer it will take to work with your computer. Missing/damaged shortcuts can also cause errors on your system and things to not function properly.

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PC Scan & Sweep: PC Performance Software for Junk Removal

PC Scan & Sweep is a program that scans the entire system looking for files that clutter up your system which cause slow down in things such as Startup/Shutdown, file searches, virus scans, and pretty much anything that requires your system to do a search for files.

"Your computer can pick up and store temporary files when you're looking at Web pages and even when you're working on files in programs, such as Microsoft Word. Over time, these files will slow your computer's performance."

- Microsoft*

Junk and clutter on your system builds up on a daily basis. Every time you surf the Internet, move files, add or delete files, download and install software, remove software. All of these leave behind traces of the files on your system. Every time you go to a web page, for example, images and text are stored on your system in a process called Caching. Caching is a process where rather than your computer requesting images or files from a web server every time you visit a page, it will download and store a copy of the files on your computer which essentially speeds up how fast frequently visited pages load. The problem with this is that

every web page you visit is stored in cache, even pages you may have only visited one time. Someone who frequently surfs the Internet over time could accumulate thousands or hundreds of thousands of files on their system. When you install

software traces of the install files are also left behind on your system. If you frequently download, install, and/or remove programs from your system, temporary files are left behind, possibly due to sloppy programming or possibly because something happened during the install/uninstall process that caused the system to stop functioning before an application was completely installed or removed.

But I have a huge hard drive and have plenty of free space, why is this a problem? The problem lies with every time your computer needs to search for something. Every time it needs to perform a search for a file or application, it must look through all of the files on your system. Imagine a library with a hundred thousand books and you need to find the book you wish to read amongst all these books. It could take you hours to find the book you want. Computers operate faster than humans, but it is the same concept. Every time your computer must perform a search for a file, your virus scanner runs a scan of your system, a program must run through a list of recently accessed documents; many of which have already been deleted, every time you open a folder, the computer or program must look at every single file on your system. The more files, the longer it will take to search.

PC Scan & Sweep does a complete search of your system and locates all of the junk and clutter on your system such as cached files, cookies, temporary files. It suggests deletion of any files found with temporary file names or found in temporary locations on your system or in your System Registry. By running Scan & Sweep frequently on your system, it is a valuable tool to help keep the unnecessary files on your system to a minimum.

Scan & Sweep also offers a scheduling feature which allows you to set up the software to automatically scan your system.

Spyware Striker Pro: Spyware Removal Software

Spyware Striker is a program that scans the entire system looking for Spyware, Adware, and Malware on your system that can not only be an annoyance, but damaging to you and your system.

What is Spyware, Adware, and Malware?

Spyware is computer software that obtains information from a user's computer without the user's knowledge or consent. *Adware* or advertising-supported software

is any software package which automatically plays, displays, or downloads advertisements to a computer. *Malware* also known as Malicious Software, is software designed to infiltrate or damage a computer system without the owner's informed consent.

"If you notice a sudden increase in the number of times a certain program crashes, or if your computer is slower than normal at performing routine tasks, you may have spyware or other unwanted software on your machine."

- Microsoft*

How does this stuff get on my system?

Usually these programs are installed on the user's system without their knowledge. Mostly by downloading and installing applications from unknown websites or sources. A user can also obtain these just by surfing a web site. Using open flaws that may exist on the user's system or Internet connection, websites can download and install files onto the user's system without them ever knowing. A lot of times these files are also, unfortunately, obtained by downloading and/or installing free software – such as free games or applications, or by installing software obtained from Peer to Peer sites (sites where users connect directly to other users and download software and applications). While these files may seem harmless, the person(s) putting these files out on the Internet may also bundle Spyware, Adware, and/or Malware that when the user installs the downloaded application, it also installs files in the background that the user is not always aware of.

A lot of times what occurs when a user gets one of these files installed on their system, the application begins to wreak havoc on the users system by downloading and installing more and more files. Not only is the user's personal data being sent to parties unknown, in cases where the files download and install additional files, eventually the user's system becomes so unstable that unless caught and repaired in time, the only way to go is a reinstall of Windows to completely wipe everything out and start from scratch.

"Spyware and other unwanted software are not necessarily designed to be efficient. The resources these programs use to track your activities and deliver advertisements can slow down your computer and errors in the software can make your computer crash.

- Microsoft*

Ascentive assures it's users that all of our software is 100% free from these types of

applications. All of our software is thoroughly tested, checked, and scanned along with all of our websites and web servers with up to date protection software to ensure that our customers are not downloading these types of applications. We are also not stating that all free programs downloaded will install these types of applications, but if you do not know who you are downloading from, you are putting yourself at risk. Ascentive's software, for example, is digitally signed so when it is installed, the installer will show that the file was created by Ascentive. Ascentive's digital signature is registered and on file with the issuing agency.

Spyware Striker also offers a scheduling feature which allows you to set up the software to automatically scan your system.

How Does Our Software Make Even a New PC Faster?

From the second you unpack your computer it needs help. Just out-of-the-box your computer is not optimized for the Internet and is not secured against the malicious attacks waiting for it on the Internet. Everything that you do on your computer is relevant to the other. If your computer is running slow, no matter how fast your Internet speed is, web pages and everything else you do on the Internet will be slow. On the flip side, your computer can be running the fastest possible equipment; however, even the fastest processor cannot do anything to make your Internet load faster if your settings are not properly configured.

The speed of uploads and downloads on the Internet is controlled by pre-configured settings within Windows. That would be like every store selling only one size pants and shirt for everyone in the world no matter what their shape and size. Every person's computer, while the same internal setup, is set up in totally different environments. Just because you and someone on the other end of the country have the same exact computer does not take into consideration that your telephone wires are 20 years older than theirs, or their house is right next to the substation of the cable company whereas your house is at the other end of line. Without ActiveSpeed, your system could be set up to download / upload at dial-up settings when you are on a cable connection. And vice-versa, you could be configured for a cable connection when running dial-up. While this may sound great, trying to run 56k worth of data through a 7MB line is just as non-efficient because just like with water pressure, the bigger the line, running less water through it takes longer to get

through the pipe. Run a large amount of water through a smaller pipe and the water starts backing up waiting to get through. ActiveSpeed adjusts the "pipe" so just the right amount gets through.

Out-of-the-box, most computers have no protection against malicious spyware, adware, and malware, not only do these fill up your hard drive with unnecessary junk and clutter which slow down your PC by taking up resources from your processor, hard drive, memory, and other areas, but also open you up to have your personal data stolen from you.

Many of these files, once on your system, run in the background and continue to replicate themselves all over your system. Some replicate so fast that within minutes your system is completely taken over and running at a crawl due to so many files running.

Not only is your out-of-the-box computer subject to all of these threats, every time you go online or install / remove a program your computer starts filling up with junk. One day of web surfing can leave hundreds, if not thousands, of files on your system. Over time those files start taking up space on your system making it harder and harder to find things and causing total slowdown on your system.

- Adding and removing software leaves traces of the installation files or things such as registry entries or shortcuts behind on your PC. These cause your system to slow down as your PC boots up looking for files that no longer exist. Over time the more and more you add and delete from your system, the more files you move around your system, the slower your PC will become. Fixing these issues along the way will save a lot of problems later down the line when your PC may become so slow and sluggish that you may not even be able to run software to fix the issue. Think of it as "preventative maintenance."
 - Recommended Program: PC Speed Scan Pro
- Surfing the Internet, installing games or applications leaves all sorts of junk and clutter on your PC. One day of web surfing can leave hundreds, if not thousands, of junk files such as images and copies of web pages on your system (called caching). Even within a few days your computer can become totally clogged up with junk and clutter. If you are running software such as

Anti-Virus or just doing a simple file search, the more files on your system means the longer a scan can take. Just think if you have 5000 temporary files on your system, these are 5000 extra files your system has to scan through.

- Recommended Program: PC Scan & Sweep
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- Your computer contains settings in the system registry and Windows System files that designate how fast or slow your PC will allow data to enter or leave your PC. These settings are not always “optimal” for the type of Internet or network connection you are using.
 - Recommended Program: ActiveSpeed
 - Surfing the Internet opens up your PC to all of the malicious and harmful things that web sites put out there, such as Adware, Spyware, and Malware. It only takes one site with hidden website code to download a tracking cookie or an adware application onto your PC. Within minutes your PC can be overrun with advertisements and malicious files.
 - Recommended Program: Spyware Striker

Ascentive's Mission Statement

Our mission is simple: To develop easy-to-use software for consumers and businesses for solving everyday PC problems backed by top-notch customer support and service.

For consumers, we have a suite of products that address all sorts of PC needs. By improving system performance, increasing speed, ensuring privacy and eliminating the threat of spyware, **our line of software products are designed to keep PCs running like the day they came out of the box.**

Along with our PC utility software, we have developed **state-of-the-art PC & Internet Monitoring Software** called BeAware. BeAware can be used by both consumers AND businesses. BeAware allows home users, as well as small businesses, corporations, schools, non-profits and government organizations to monitor and record all PC activity. It is hands-down the most comprehensive internet monitoring software solution on the market.

About Us

We are an eclectic and energetic group of software developers, designers, marketers, media mavens, sales superstars and customer service professionals who work together to create innovative software products.

Founded in 1998, Ascentive LLC was the brainchild of Adam Schran and his brother Andrew. Armed with a degree in Computer Science, Adam's dream to develop and market software came to life with the launch of their first product, WebRocket. The rest is history. With a dozen products, Ascentive is a market leader in corporate and consumer software and has received accolades from media organizations like The Wall Street Journal, Newsweek, Forbes, Tech TV and NBC.

Our products and services are used by hundreds of thousands of people and businesses, with registered customers in 55 countries.

Easy-to-use Software by Ascentive

With intuitive and streamlined design, our software can improve your internet speed, speed up your computer and keep your loved-ones safe online.

- Ascentive has proudly served over 500,000 customers.
- Our Software is available in 6 languages including German, French and Italian.
- Ascentive's child protection software, BeAware, has been featured in Forbes, Newsweek and the Wall Street Journal.

4 Patents: 3 Pending, 1 Awarded

One of our patents was awarded "fast-track" review status by USPTO for potential counterterrorism applications. Learn more about our Patents:

- **Internet Speed**

System and Method for Determining Network Configuration Settings that Provide Optimal Network Performance. Learn More:

<http://www.google.com/patents?id=2smDAAAEB&dq=ascentive>

- **Privacy Protection**

Method & System for Screening Remote Site Connections and Filtering Data based on a Community Trust Assessment. Learn More:

<http://www.google.com/patents?id=rEuGAAAEB&dq=ascentive>

System and Method for Network Administration and Local Administration of Privacy Protection Criteria. Learn More:

<http://www.google.com/patents?id=y-CDAAAEB&dq=ascentive>

- **Internet Monitoring Software**

Patent Number 7,502,797

Monitoring and Controlling Activities Performed on a Client Device. Learn

More: <http://www.google.com/patents?id=inKWAAAEB&dq=ascentive>

For more information about Ascentive and our products, please visit our website:

<http://www.ascentive.com/>

Works Cited

Chris Tull. "Optimize your computer for peak performance." *Microsoft*. Microsoft Corporation. 11 March 2009.

<<http://www.microsoft.com/athome/moredone/optimize.mspx>>.

"Path MTU Discovery." *Microsoft Developer Network*. Microsoft Corporation. 2 March 2009. <<http://msdn.microsoft.com/en-us/library/ms817967.aspx>>.

Jason Z Bell. "How Can I Fix Microsoft Windows Registry Problems?." *Articlesbase*. 4 June 2008. ArticlesBase.com. 11 March 2009.

<<http://www.articlesbase.com/computers-articles/how-can-i-fix-microsoft-windows-registry-problems-438315.html>>.

"Recommended TCP/IP settings for WAN links with a MTU size of less than 576." *Microsoft*. 2 June 2008. Microsoft. 11 March 2009.

<<http://support.microsoft.com/kb/900926>>.

"Registry Definition." *PC Magazine*. Ziff Davis Publishing Holdings Inc. 4 March 2009. <http://www.pcmag.com/encyclopedia_term/0%2C2542%2Ct%3DRegistry&i%3D50359%2C00.asp>.

"Signs of spyware: Are you being watched?." *Microsoft*. 23 October 2006. Microsoft Corporation. 11 March 2009.

<<http://www.microsoft.com/protect/computer/spyware/indicators.mspx>>.

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