Network Testing Labs Review

Endpoint Security Performance

McAfee's Internet Security and Total Protection

vs.

Norton's Internet Security and 360 V2

(including 2009 Beta versions)

Barry Nance

September, 2008

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NETWORK TESTING LABS REVIEW

MCAFEE VS. NORTON ENDPOINT SECURITY

WE LOOK AT THE PERFORMANCE OF ENDPOINT SECURITY PRODUCTS – MCAFEE INTERNET SECURITY, MCAFEE TOTAL PROTECTION, NORTON INTERNET SECURITY AND NORTON 360 V2, INCLUDING 2009 BETA VERSIONS.

By Barry Nance

September, 2008

McAfee Internet Security and McAfee Total Protection outperformed the competition in almost every test. McAfee Internet Security and McAfee Total Protection installed more quickly, scanned hard disk files in less time, used less memory and generally proved to present a lower profile and consume fewer resources than Norton's products.

McAfee Internet Security and McAfee Total Protection earn themselves the Network Testing Labs World Class Award for best-performing endpoint security products.

Computers can never be fast enough or have enough memory. Productivity is the holy grail of every computer user, whether for business, home use or video games. Of course, security is also paramount. No one wants a fast computer that spends all its time running trojans, adware or spyware.

Having an endpoint (i.e., client-based, not server-based) security tool that protects you from malware while at the same time remaining unobtrusively in the background is the best of all possible worlds.

Which endpoint security product consumes the fewest resources? When we asked ourselves that question, we had a few preconceived notions but we didn't have any real numbers on which to base a conclusive judgment. So we organized an independent test of four popular endpoint security products to see for ourselves which used the fewest resources.

This report reveals the results of those tests.

In our tests, we decided to evaluate McAfee's Internet Security and Total Protection products against Norton's Internet Security and 360 V2 products. We purchased both vendors' 2008 version retail products from Office Depot, at the prices shown in the following table.

	Retail Price
McAfee Total Protection	$79.99
McAfee Internet Security Suite	$69.99
Norton Internet Security	$69.99
Norton 360 V2	$99.99

Table 1. Reviewed 2008 Products and their Retail Prices

Then, like hundreds of others, we downloaded from the vendors' Web sites the 2009 Beta versions of McAfee Internet Security, McAfee Total Protection and Norton Internet Security.

McAfee Internet Security and McAfee Total Protection emerged from our tests with flying colors. Both products used fewer resources and finished tasks more quickly than the Norton products. McAfee Internet Security and McAfee Total Protection win the Network Testing Labs World Class award for best-performing endpoint security products.

We were highly impressed to find that both the McAfee and Norton 2009 Beta versions exhibited several significant improvements over the 2008 version of each product. For instance, the Norton programmers must've spent a good deal of time optimizing IS 2009's installation process, which takes much less time than the 2008 version's install.

McAfee's programmers have, in their efforts to optimize McAfee IS 2009, reduced the time that IS 2009 takes to load into memory. IS 2009, which is quite frugal in its use of memory, belies the notion that new versions are always larger and more bloated than previous versions.

A word or two about Norton's Safe Web – we noticed Safe Web is a poor, dim shadow of McAfee's Site Advisor. Site Advisor is by far the more mature, capable product.

The neophyte Norton Safe Web only works with Norton IS 2009, while McAfee Site Advisor works with all PC software. Site Advisor is based on McAfee's constant inspection of the Web for malware, but Norton Safe Web appears to rely mainly on feedback from users ("Community Buzz"), which the user is heavily encouraged to sign up for. We feel confident in saying Norton will need years of work to make Safe Web as functional as McAfee Site Advisor is today.

The following table details additional feature differences between McAfee's and Norton's endpoint security products.

	McAfee Total Protection 2009 Beta	Norton 360 v2	McAfee Internet Security 2009 Beta	Norton Internet Security 2009 Beta
Safe Search, Safe Surf	•		•	•
Safe Search, Safe Surf (protected mode and IM Protection)	•			†
Virus and spyware protection	•	•	•	•
System monitors	•		•	†
Behavioral blocking of threats	•		•	•
Firewall – inbound & outbound	•	•	•	•
Personal data protection	•		•	•
Parental Controls	•	†	•	†
Spam protection	•	†	•	•
Anti-phishing	•	•	•	•
Local backup	•	•	•	
Shredder	•		•	
PC health / tune-up	•	•	•	
Network Manager	•		•	•
EasyNetwork	•		•	
Network Monitor	•			
One-click fix	•	•	•	•
Ability to ignore non-critical items	•	•	•	
Automatic updates	•	•	•	•
Subscription service	•	•	•	
Support: chat, email, phone, and virtual technician	•	•	•	†

† through Add-On pack

Table 2. Product Features

While earlier Norton IS versions took considerable time to set up because they downloaded scanner software during installation, the Norton IS 2009 installation process is smarter. Norton apparently bundles the scanner software with IS 2009 and thus avoids the lengthy download during installation.

In our tests, McAfee IS 2009 performed hard drive scans faster than Norton IS 2009, installed quicker, consumed fewer memory and CPU resources and generally did its work of examining files and email messages in a speedier fashion than IS 2009. McAfee Total Protection similarly outpaced Norton 360 V2.

Performance Report Card

Grade scale is A through F, with F = Failing and A = Perfect

Resource usage and scoring (%)	McAfee Internet Security 2009	McAfee Total Protection 2009	Norton Internet Security 2009	Norton 360 V2
CPU (40%)	A –	A –	C	C
Memory (20%)	B	B	C	C
Hard Disk (20%)	A	A	B	C
Network (10%)	A	A	B	D
Video (10%)	A	A	C	C
Overall score	A –	A –	C +	C –

Test bed and methodology

We evaluated each endpoint security product's computing resource usage in a variety of situations and on a variety of platforms.

For these tests, our lab's computing environment consisted of Windows XP and Vista running on three machines. A Dell Latitude D505, with 512 MB RAM, a 1.50 GHz Intel CPU and 30 Gb hard drive ran Windows XP, while Vista ran on both an HP Pavilion DV9000 with Intel Core2 T5300 1.73 GHz, 2,046 MB RAM and 160 Gb hard drive as well as a Dell Optiplex 755 with Intel Core 2 Quad Core 3.16GHz, 4 Gb RAM and 320 GB hard drive.

On all these platforms, we ensured that unnecessary Windows Services, such as Microsoft Indexing, were disabled. We ensured that all platforms used the same video resolution, and we also ensured that each computer had a 100 Mb/sec network connection. We used a 512 kb/sec Frame Relay link to connect to the Internet.

In the performance testing, on each of the three platforms, we measured installation time, system startup time, system shutdown time, time to hibernate, resumption from hibernation time, time to launch Internet Explorer in order to load Download.com's initial Web page, time to open a PowerPoint file, time to open a PDF file, time to open an MP3 file, time to convert WAV files to MP3 format, process count, memory usage at idle, memory usage during hard disk scanning, time to send 250 email notes, time to receive 250 email notes, time to fully scan the hard disk for malware, resource consumption at idle and during a full scan, as reported by PC Mark Vantage, and video frames per second achieved while a security product was idle and while it was scanning the hard disk.

The following table provides more detail on the battery of tests we employed.

No.	Test	Description
1	System startup	Script-measured time until the CPU utilization falls below 10% for 5 seconds
2	System shutdown	Stopwatch-measured time from selecting the shutdown option until the computer's power indicator dims
3	Time to hibernate	Sleep duration plus HiberWrite duration
4	Resume from hibernation	Wake duration plus HiberRead duration
5	HD full scan time (min:sec)	Time to to perform a full scan of the computer's hard disk
6	PC Mark score at idle	Score obtained by running PC Mark Vantage with the computer idling (NOTE: PC Mark only runs on Vista)

No.	Test	Description
7	PC Mark score during scan	Score obtained by running PC Mark Vantage while a full scan of the computer's hard disk was underway (NOTE: PC Mark only runs on Vista)
8	Frames/sec during game	As reported by the FRAPS utility -- game running, but no other activity
9	Frames/sec gaming & scanning	As reported by the FRAPS utility -- game running and full scan of the computer's hard disk underway
10	Launch I E (Download.com)	Script-measured time from Internet Explorer's launching to the moment I E finishes displaying the entire Web page
11	Convert WAV to MP3	Script-measured time Apple's iTunes V6 software took to convert 710 MB of WAV files to 192kbps MP3 format
12	Open PDF file	Script-measured time to open a 3.7 MB Acrobat PDF file
13	Open MP3 file	Script-measured time to open a 1.2 MB MP3 file in Media Player
14	Open PowerPoint file	Script-measured time to open a 2.1 MB PowerPoint presentation file
15	Send 250 email notes	Script-measured time for Outlook script to send 250 50KB messages
16	Receive 250 email notes	Script-measured time for Outlook script to receive the 250 50KB messages
17	Memory usage at idle	Memory - Peak Working Set Maximum amount of working set memory used by the processes
18	Memory usage during scan	Memory - Peak Working Set Maximum amount of working set memory used by the processes
19	Process count	From Task Manager
20	Installation time	Elapsed stopwatch-measured time between the appearance of the installation software's first window and clicking the "finish" button at the end **NOTE:** *For the beta versions, in order to simulate the eventual retail experience, we installed from CD-ROM, included the online time to register a new product and, for realism, used a 512 kb/sec Internet connection.*

Table 3. Battery of Tests

NOTE: Our time measurement scripts were based on the Win32::OLE Perl library

The exact product versions we tested were as follows:

Product	Version
McAfee Total Protection 2008	**8.0.244**
McAfee Internet Security Suite 2008	**8.1.175**
Norton Internet Security 2008	**15.0.0.60**
Norton 360 V2	**2.4.0.4**
McAfee Total Protection 2009	**9.0.286**
McAfee Internet Security 2009	**9.0.286**
Norton Internet Security 2009	**16.0.0.110**

Table 4. Product Versions

In addition, the McAfee component versions were as follows:

McAfee Internet Security 2008	**Version**
Virus Scan	**12.1.110**
Firewall	**9.1.108**
AntiSpam	**9.1.109**
Privacy	**10.1.141**
Easy Network	**2.1.106**
Backup/Restore	**1.2.103**
McAfee Internet Security 2009	**Version**
Virus Scan	**13.0.230**
Firewall	**10.0.209**
AntiSpam	**10.0.185**
Parental Ctls	**11.0.378**
Easy Network	**3.0.154**
Backup/Restore	**3.0.131**

Table 5. McAfee Component Versions

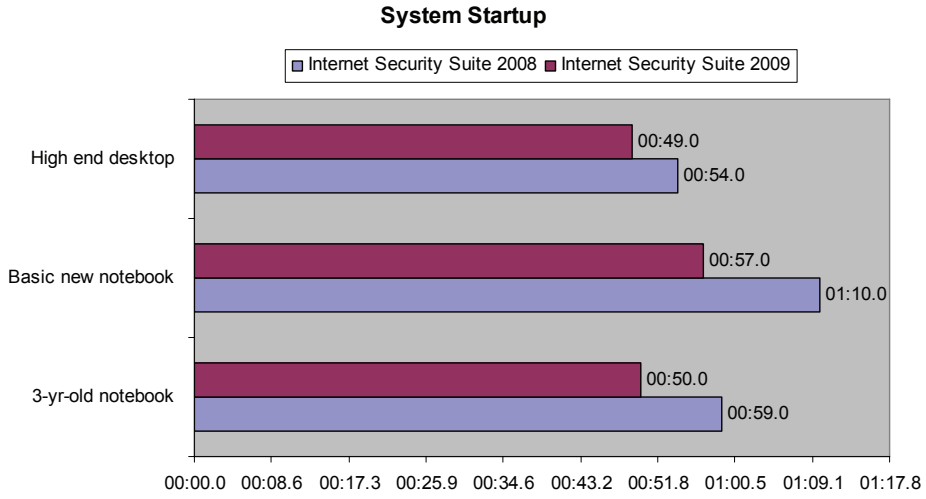
Section I – McAfee Internet Security Suite 2008 vs. McAfee Internet Security 2009

Looking for year-over-year improvements

We first investigated whether McAfee's new Internet Security 2009 is an improvement over the 2008 version with respect to resource consumption and productivity.

Benchmark 1 – Windows Boot Time

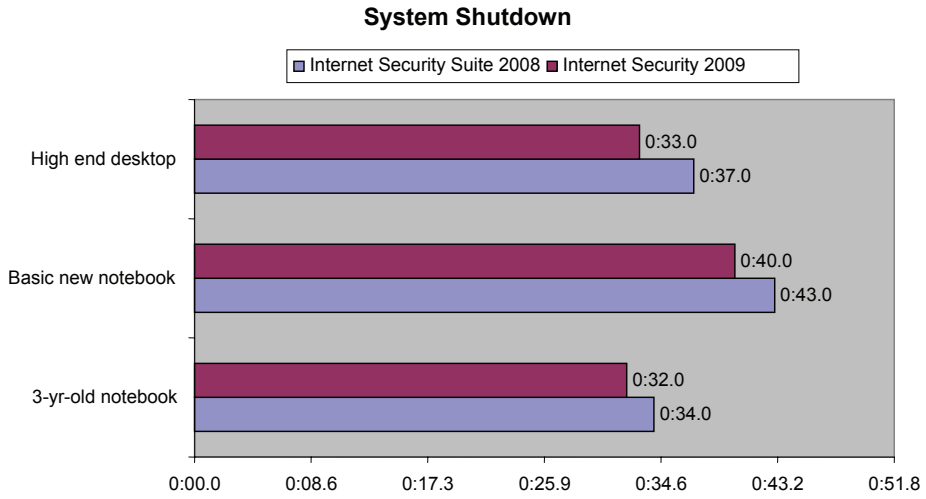
From a productivity standpoint, Windows boot time is an exercise that strains most people's patience. Starting Windows typically happens at least daily and sometimes multiple times a day. IS 2009 loads a little faster than IS 2008.



For reference, "pristine" startup time, with no endpoint security product installed, was 43.4 seconds on the 3-yr-old notebook, 47.2 seconds on the basic new notebook and 39.0 seconds on the high end desktop.

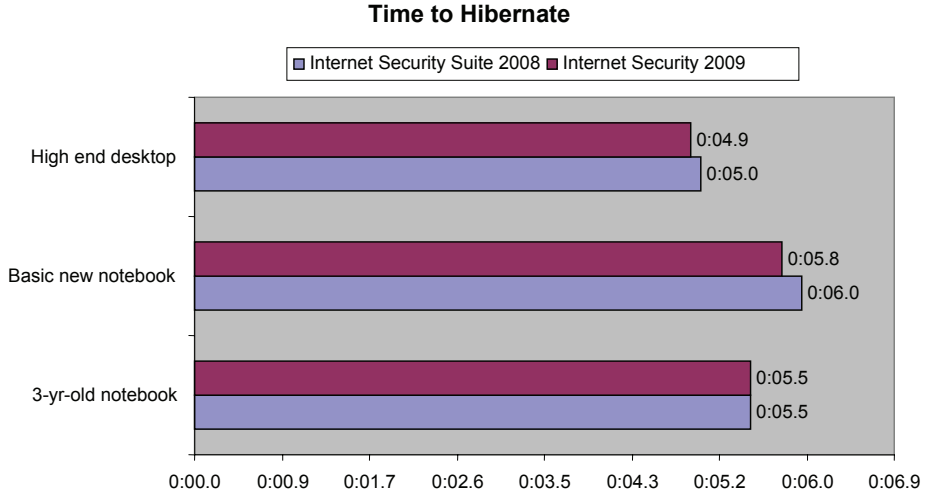
Benchmark 2 – Shutting Down Windows

Similarly, IS 2009 proved itself to be quicker than IS 2008 at removing itself from memory at the end of a Windows session.



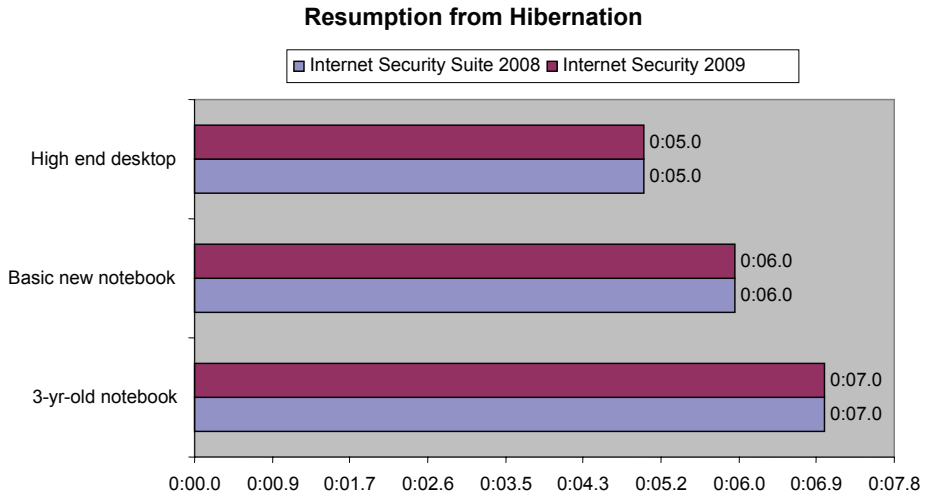
Benchmark 3 – Going to Sleep

Our hibernation tests revealed that the amount of time Windows takes to fall asleep depends only slightly on which software is resident at bedtime. We concluded that Windows itself almost wholly governs time to hibernate.



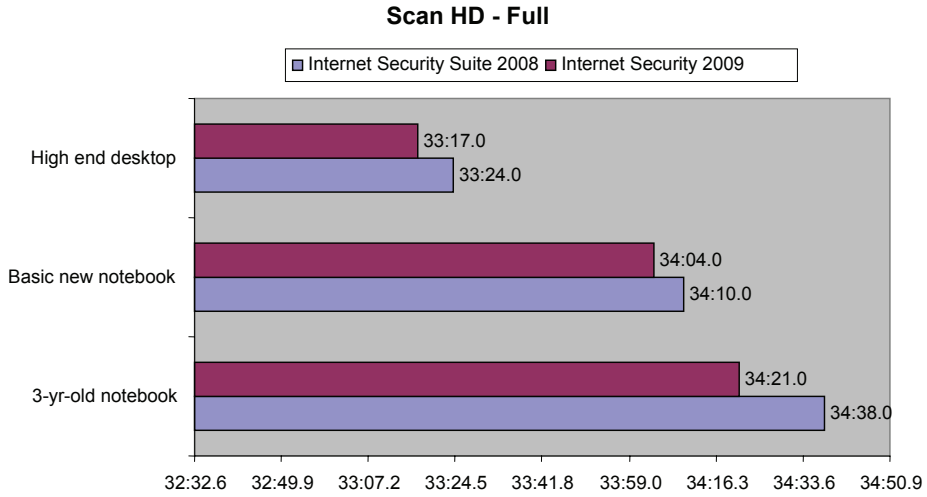
Benchmark 4 – Waking Up

Similarly, awakening Windows appears to depend more on Windows itself and less on which software is resident.



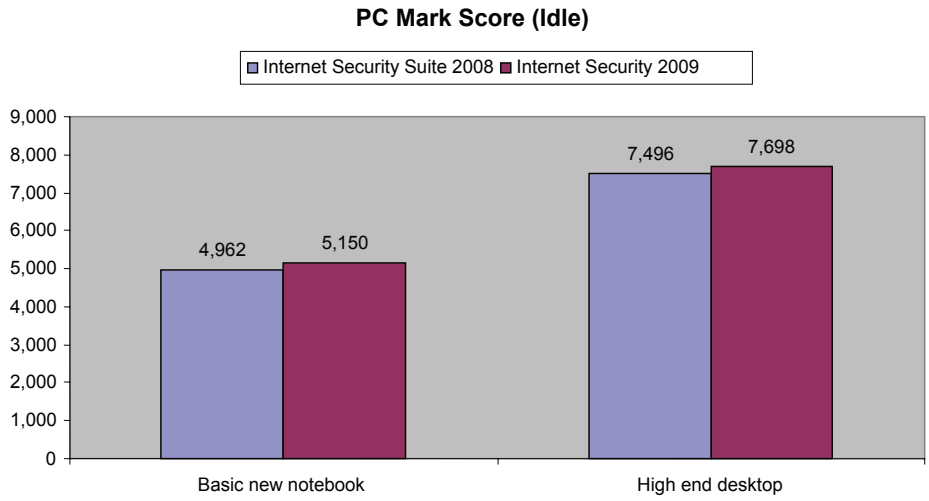
Benchmark 5 – Time to Fully Scan the Hard Disk

This is an important benchmark. IS 2009 can scan a hard disk's files for malware in somewhat less time than IS 2008.



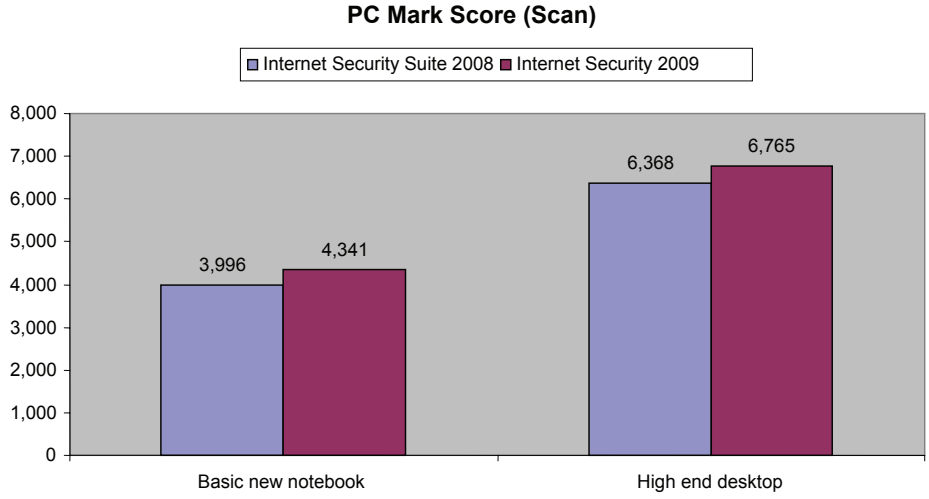
Benchmark 6 – PC Mark (Available Resources) Scores at Idle

PC Mark Vantage is an industry-standard benchmark that reveals the extent to which running software, whether resident or transient, consumes computing resources. Its higher scores prove that IS 2009 is a little more frugal in its use of resources than IS 2008.



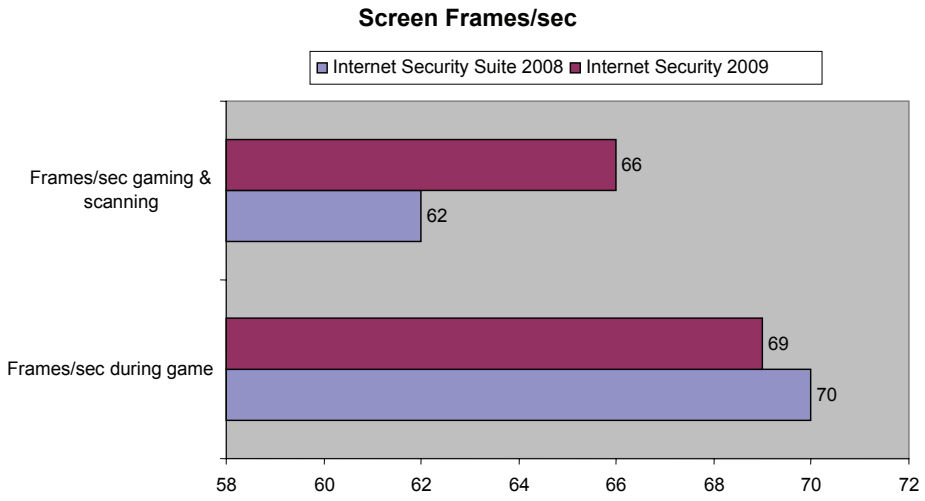
Benchmark 7 – PC Mark (Available Resources) Scores During Scan

The PC Mark Vantage utility shows that IS 2009 leaves more resources free while it scans a hard disk for malware.



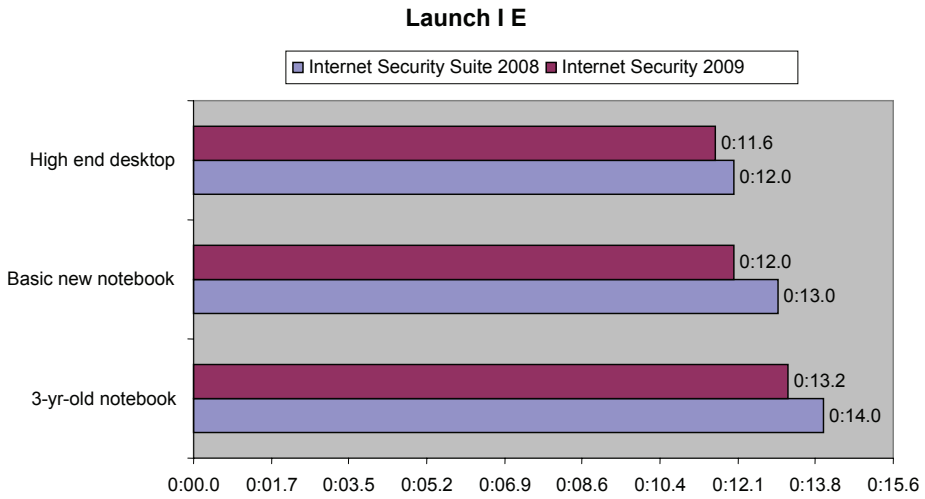
Benchmarks 8 & 9 – Video Game Speed, Gaming; Gaming and Scanning

A gamer knows performance chiefly through the responsiveness of the game. IS 2009's optimizations make quite a difference for this benchmark. Interacting with a game even while security software inspects hard disk files for malware becomes a perfectly feasible option.



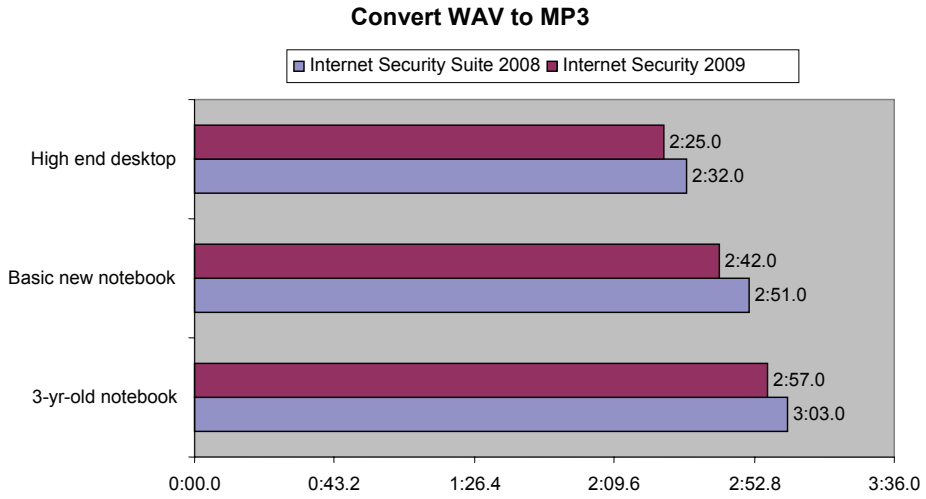
Benchmark 10 – Starting Internet Explorer for download.com

Endpoint security software does a great deal of work when your browser opens a Web page. For instance, it checks the page's URL and IP address, as well as some aspects of the page's contents, against its list of "bad guys." An endpoint security product that does this work quickly and efficiently boosts productivity. IS 2009 shows small but real enhancements over IS 2008 in this area.



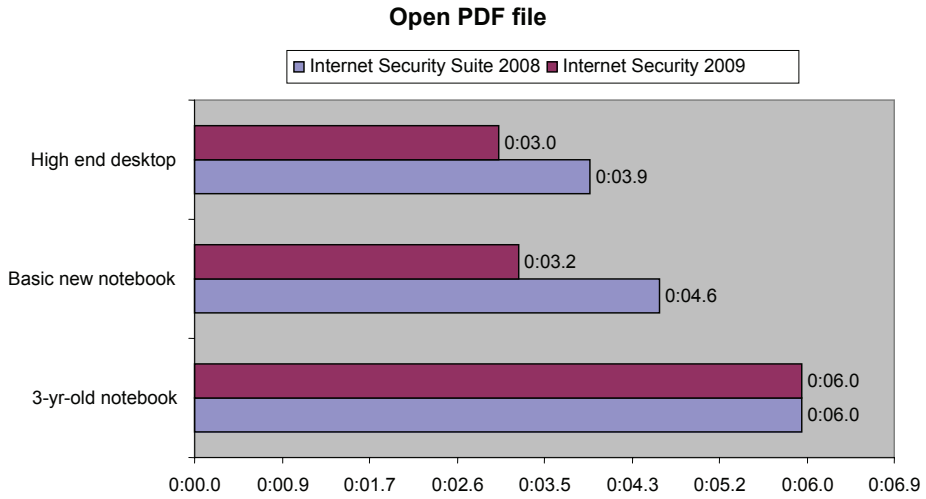
Benchmark 11 – Converting WAV Files to MP3 Using iTunes

IS 2009 has the edge over IS 2008 during iTunes' transformation of WAV files into MP3 files.



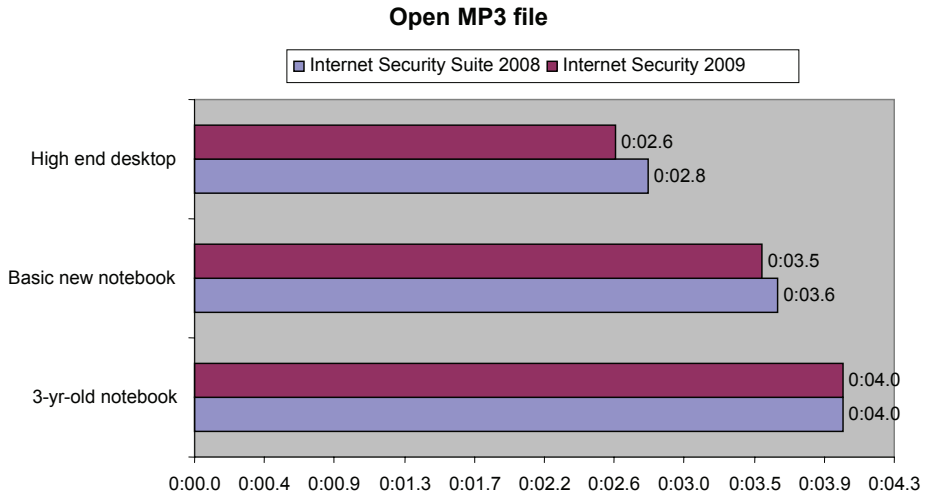
Benchmark 12 – Loading an Adobe Acrobat PDF document

Adobe places a PDF file's internal index at the tail of the file, which means Acrobat has to wait until it reads the entire file before decoding it. Sitting alongside Acrobat, resident security software ensures the PDF file doesn't contain malware. On newer PCs, IS 2009 checks PDF files faster than IS 2008.



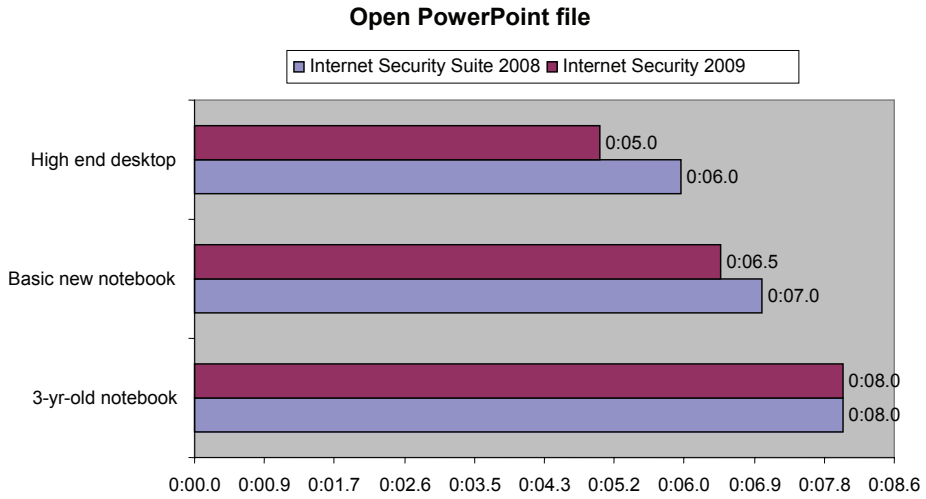
Benchmark 13 – Launching Media Player (MP3 File)

Neither IS 2008 nor IS 2009 have much of an advantage over the other when Media Player begins processing an MP3 file.



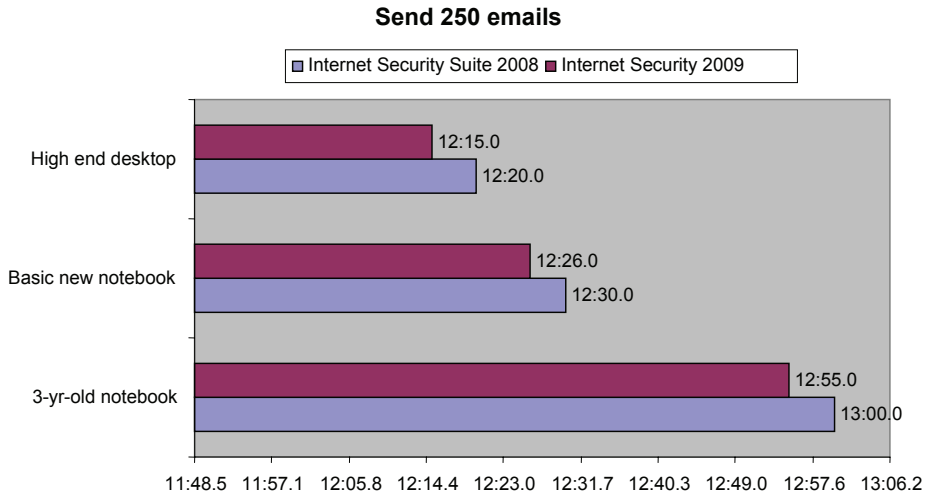
Benchmark 14 – Loading a PowerPoint Presentation

PowerPoint files have a complicated internal format, and your computer exerts considerable effort to decode it. Resident security software must be nimble to avoid delaying the decoding effort. For these files, IS 2009's optimizations show up best on faster PCs.



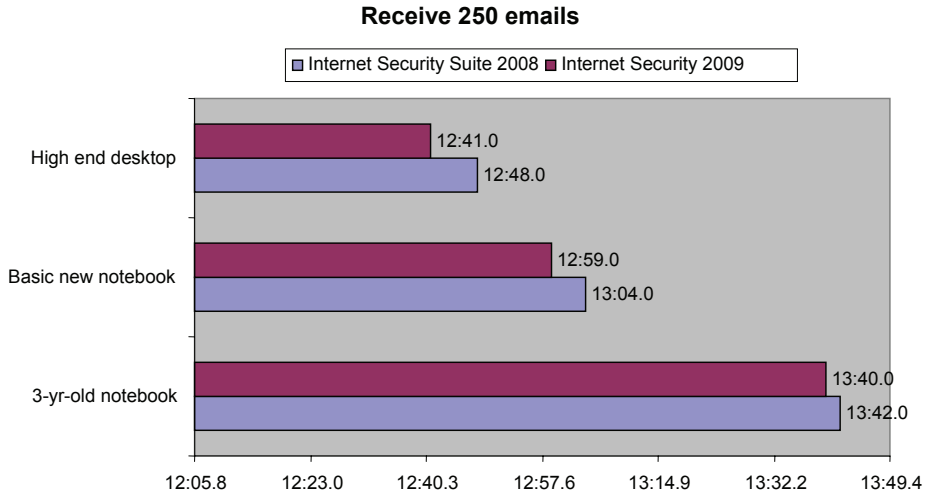
Benchmark 15 – Time for Outlook to Send 250 Emails

IS 2009's optimizations help it to process outgoing email messages somewhat more quickly than IS 2008.



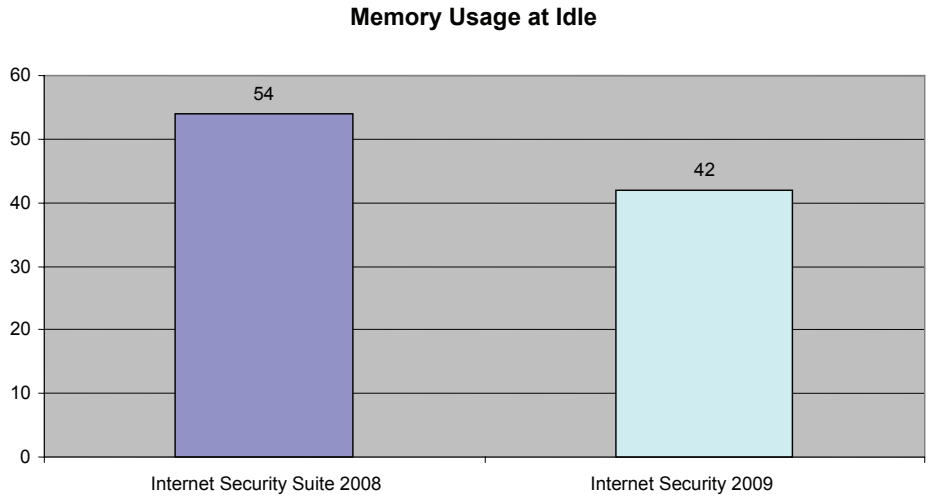
Benchmark 16 – Time for Outlook to Receive 250 Emails

Those same optimizations are the key to IS 2009 examining incoming Outlook messages noticeably faster than IS 2008.



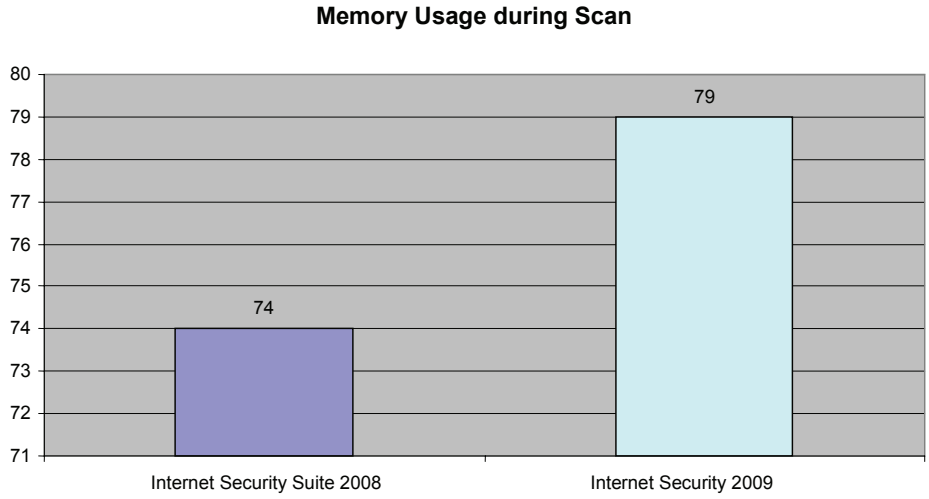
Benchmark 17 – MB of Memory Used When Not Scanning

As it examines files loading from disk or coming across the network, IS 2009 needs less memory than IS 2008 does.



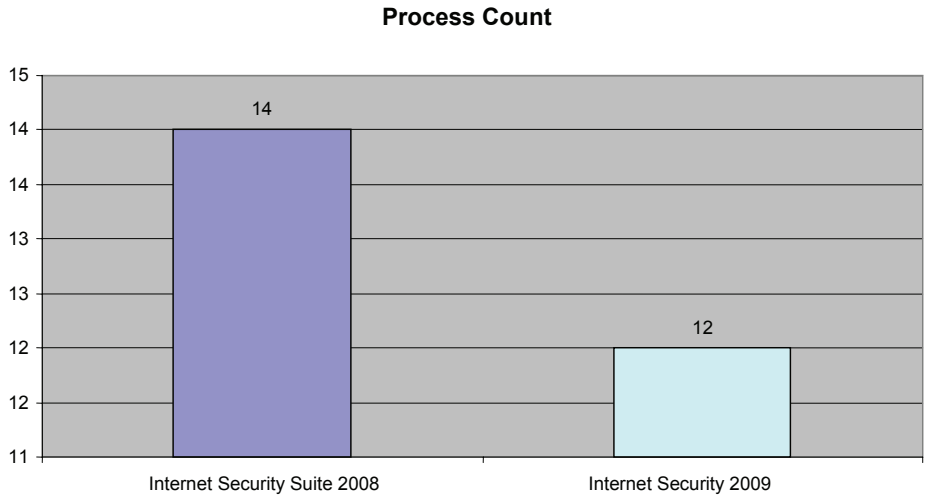
Benchmark 18 – MB of Memory Used While Scanning

Telling IS 2008 or IS 2009 to scan the hard disk's files for malware causes both to blossom in size. IS 2008 uses slightly less memory during the scan.



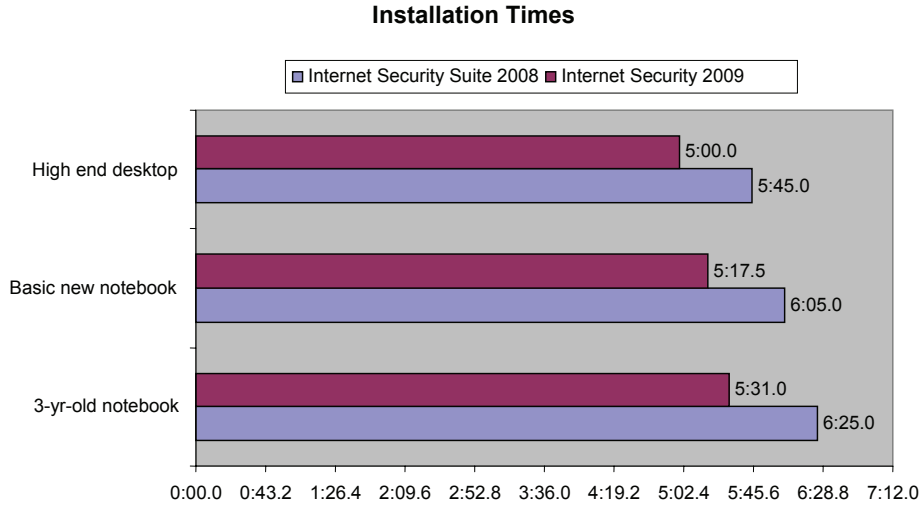
Benchmark 19 – Task Manager Processes

14 individual processes comprise the resident portion of IS 2008, while IS 2009 has two fewer resident processes.



Benchmark 20 – Installing McAfee Internet Security 2008 and 2009

The Beta version of Internet Security 2009 (which we downloaded and then copied to CD-ROM in order to install it in a manner perfectly consistent with the installation of the boxed retail CD-ROM version) takes noticeably less time to install than its 2008 predecessor.



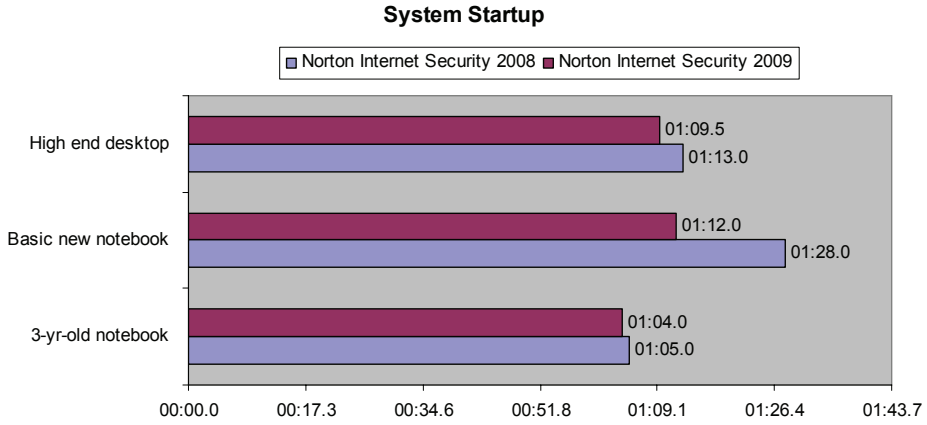
Section II – Norton Internet Security 2008 vs. 2009

Looking for year-over-year improvements

We next investigated the extent to which Norton's new Internet Security 2009 improves resource consumption and productivity over the 2008 version.

Benchmark 1 – Windows Boot Time

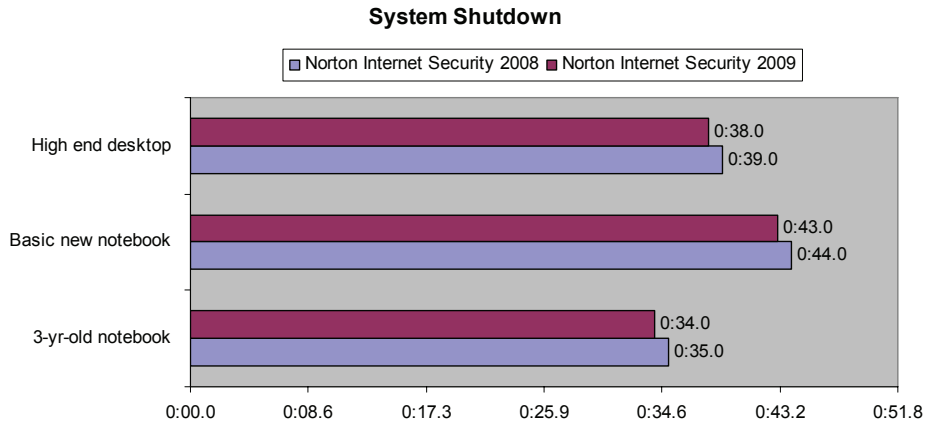
Norton's programmers "tightened up" the IS product's computer code in the new version, resulting in faster load times at system startup.



For reference, "pristine" startup time, with no endpoint security product installed, was 43.4 seconds on the 3-yr-old notebook, 47.2 seconds on the basic new notebook and 39.0 seconds on the high end desktop.

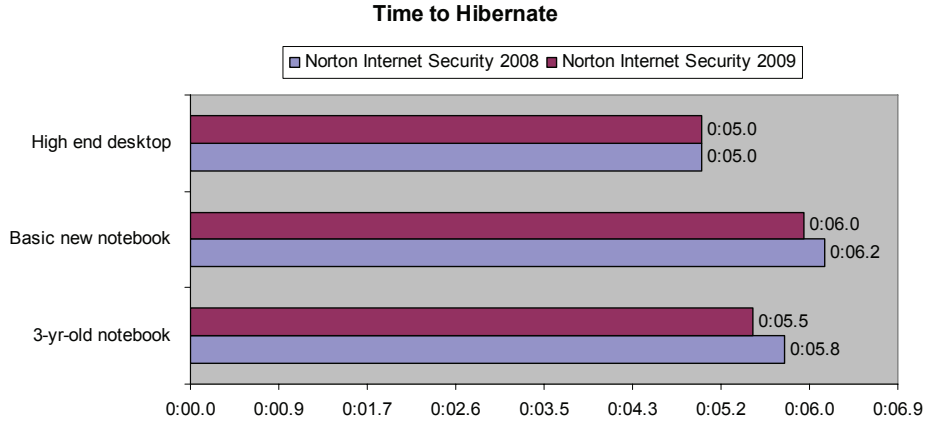
Benchmark 2 – Shutting Down Windows

The new Norton IS 2009 exits memory more quickly than IS 2008 at the end of a Windows session.



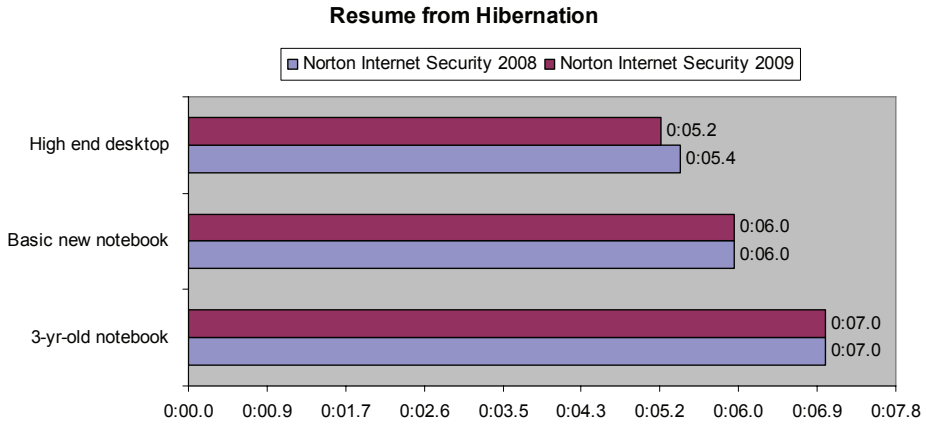
Benchmark 3 – Going to Sleep

Windows hibernation time seems to depend almost exclusively on Windows itself.



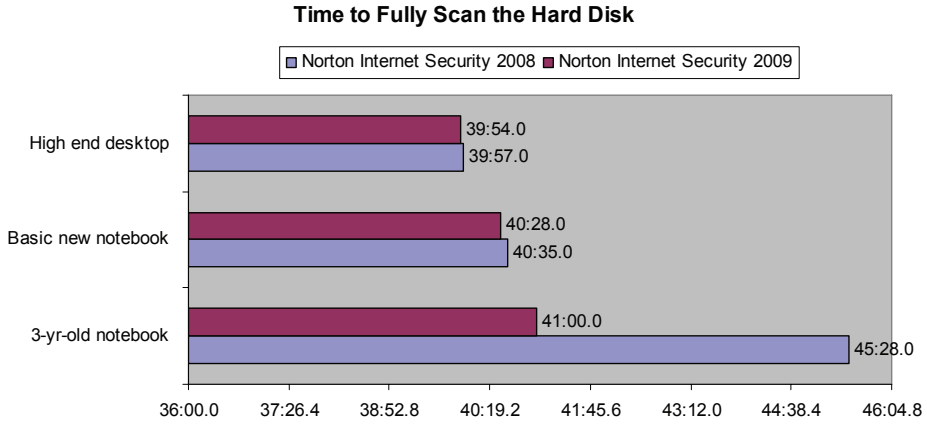
Benchmark 4 – Waking Up

More evidence that awakening Windows depends on Windows itself.



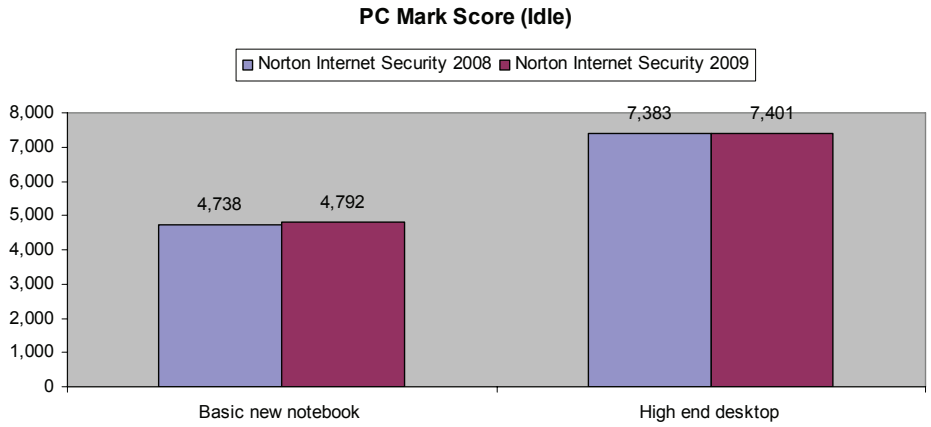
Benchmark 5 – Time to Fully Scan the Hard Disk

Norton IS 2009 improves Norton IS 2008's hard disk scan times.



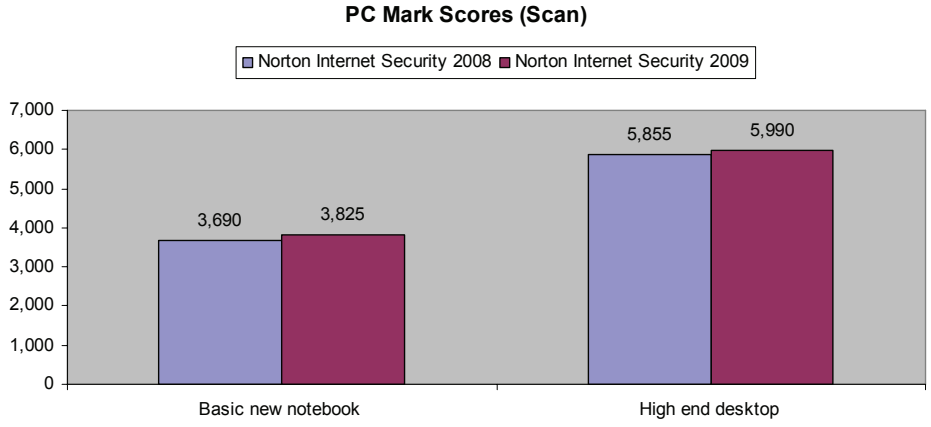
Benchmark 6 – PC Mark (Available Resources) Scores at Idle

PC Mark Vantage, which only runs on Vista, produces roughly the same scores for Norton IS 2009 and Norton IS 2008.



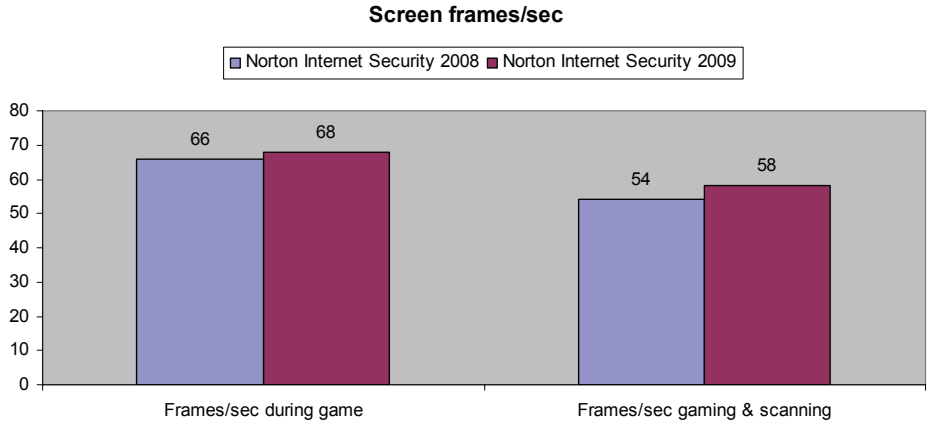
Benchmark 7 – PC Mark (Available Resources) Scores During Scan

PC Mark Vantage reveals a slight difference between Norton IS 2009 and 2008 during hard disk scans for malware.



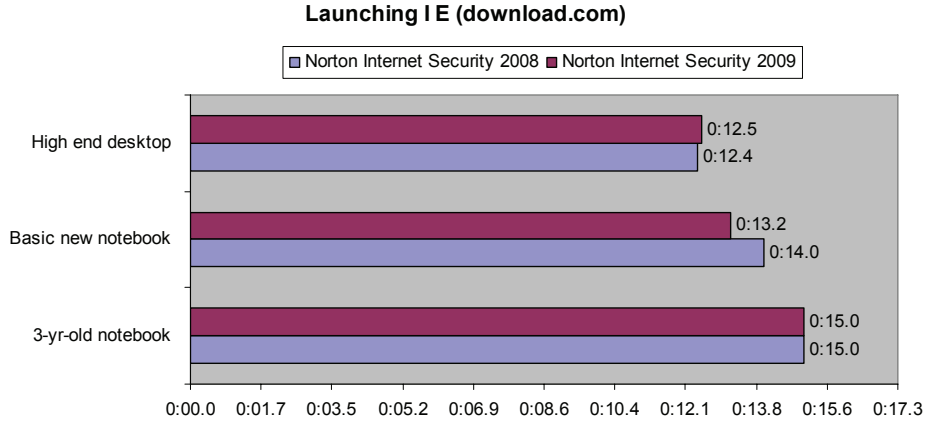
Benchmarks 8 & 9 – Video Game Speed, Gaming; Gaming and Scanning

Gamers will have an almost imperceptible increase in responsiveness with Norton IS 2009 over Norton IS 2008.



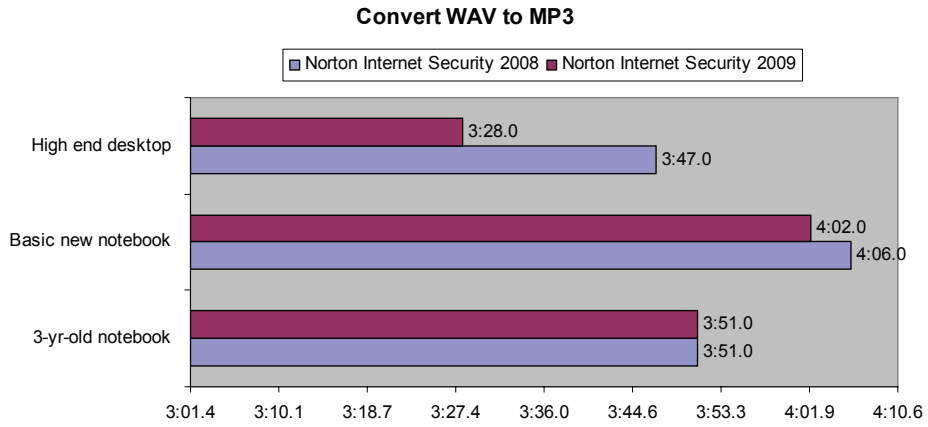
Benchmark 10 – Starting Internet Explorer for download.com

Norton IS 2009 shows a small advantage over Norton IS 2008 when browsing the Web.



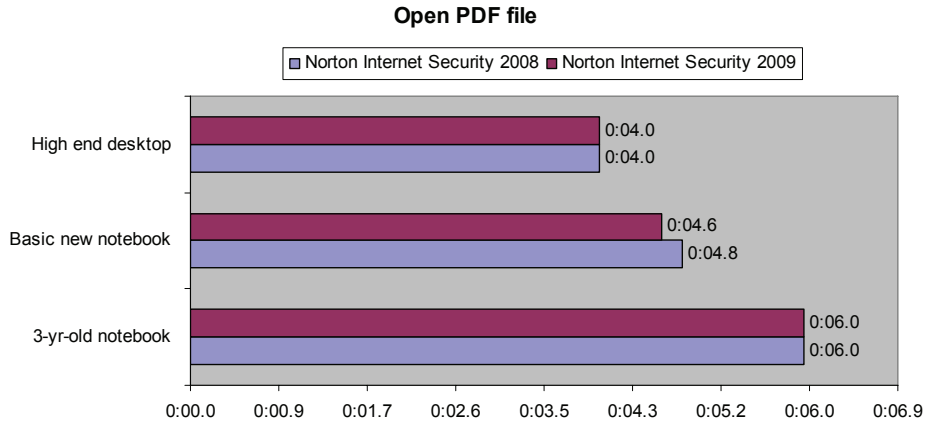
Benchmark 11 – Converting WAV Files to MP3 Using iTunes

Norton IS 2009 is faster than its predecessor when iTunes transforms WAV files into MP3 files.



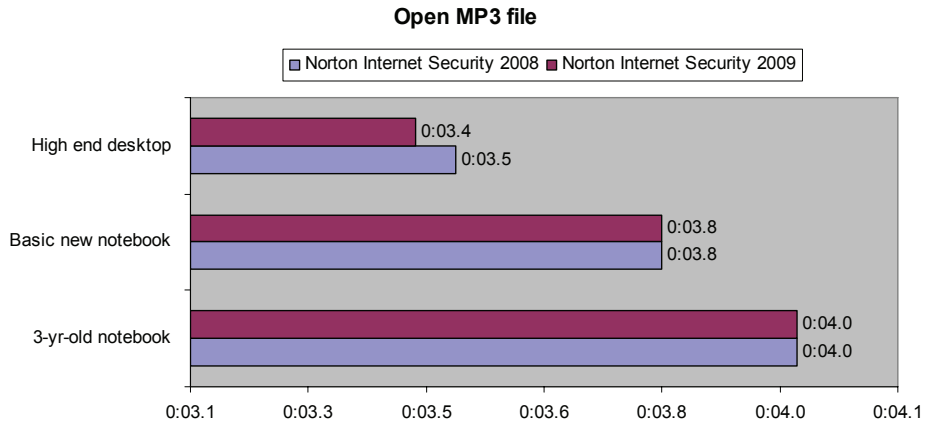
Benchmark 12 – Loading an Adobe Acrobat PDF document

Norton IS 2009 examines PDF files in about the same time as Norton IS 2008.



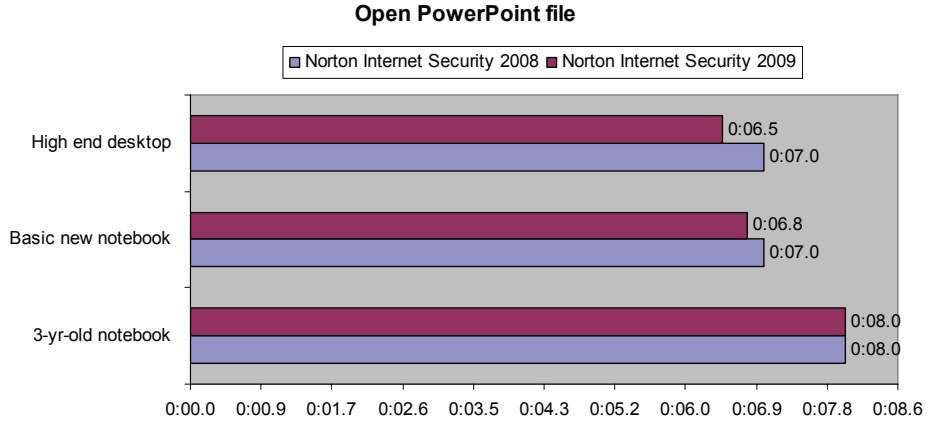
Benchmark 13 – Launching Media Player (MP3 File)

Norton IS 2008 and Norton IS 2009 are about equal when Media Player begins processing an MP3 file.



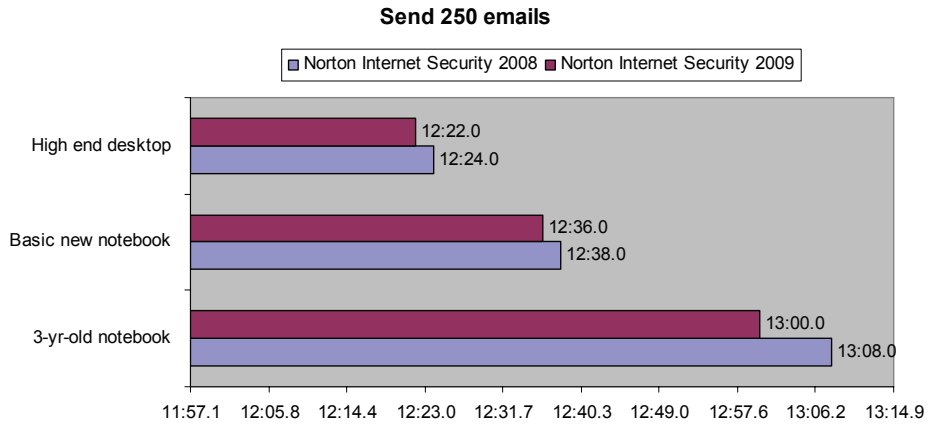
Benchmark 14 – Loading a PowerPoint Presentation

Norton IS 2009 is a bit quicker than Norton IS 2008 when you open a PowerPoint presentation file.



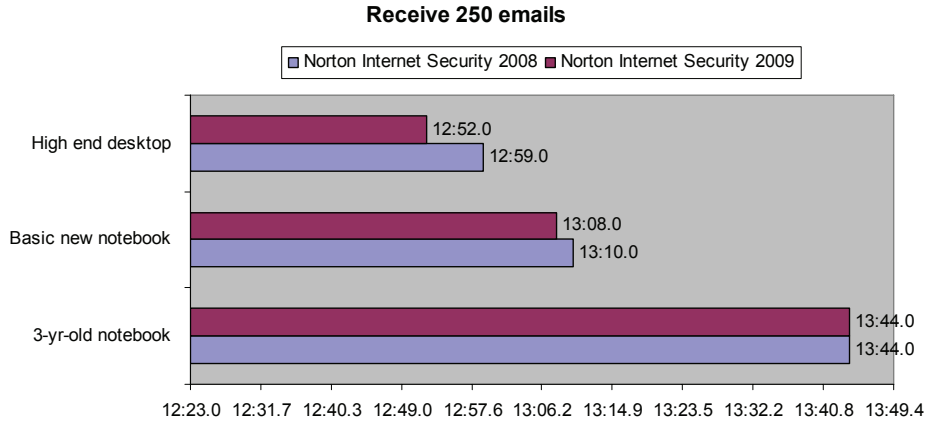
Benchmark 15 – Time for Outlook to Send 250 Emails

Norton IS 2009 can help process outgoing email messages a little faster than Norton IS 2008 can.



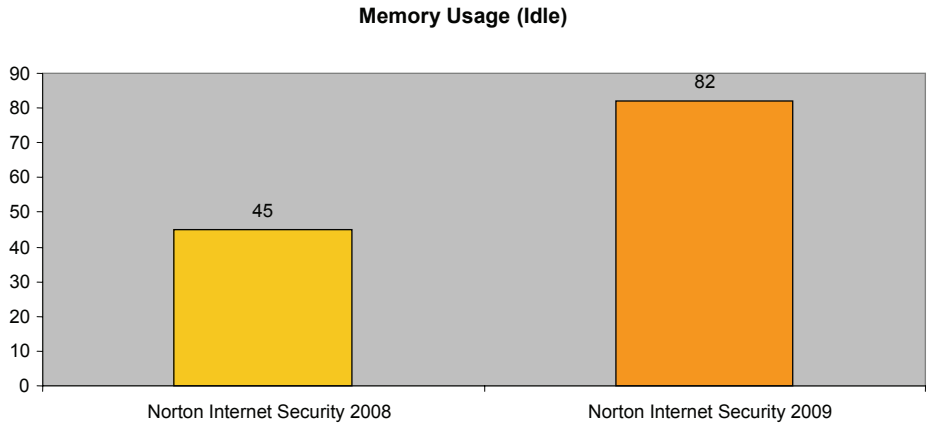
Benchmark 16 – Time for Outlook to Receive 250 Emails

Norton IS 2009 holds an edge over Norton IS 2008 as it examines incoming Outlook messages.



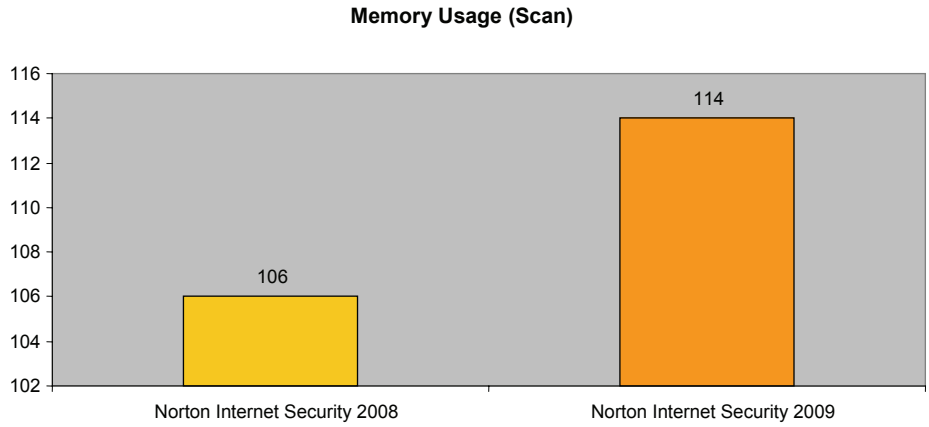
Benchmark 17 – MB of Memory Used When Not Scanning

Norton IS 2009's resident portion is much larger than that of Norton IS 2008.



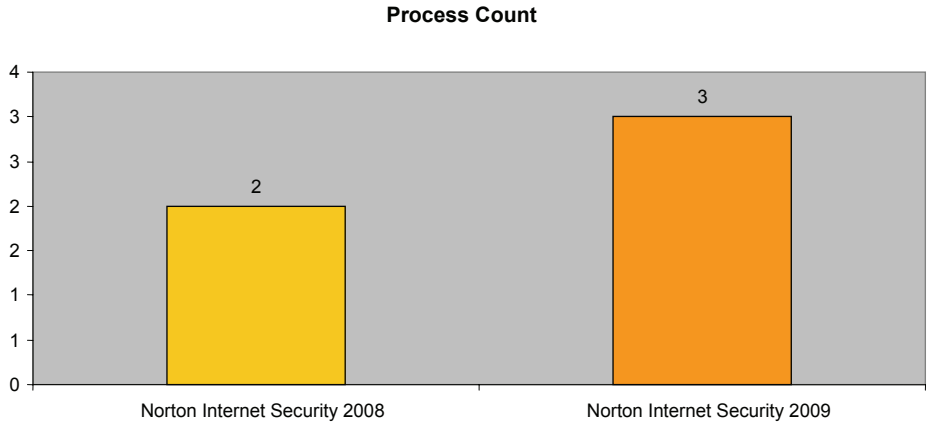
Benchmark 18 – MB of Memory Used While Scanning

Norton IS 2008 used less memory than Norton IS 2009 during a hard disk scan.



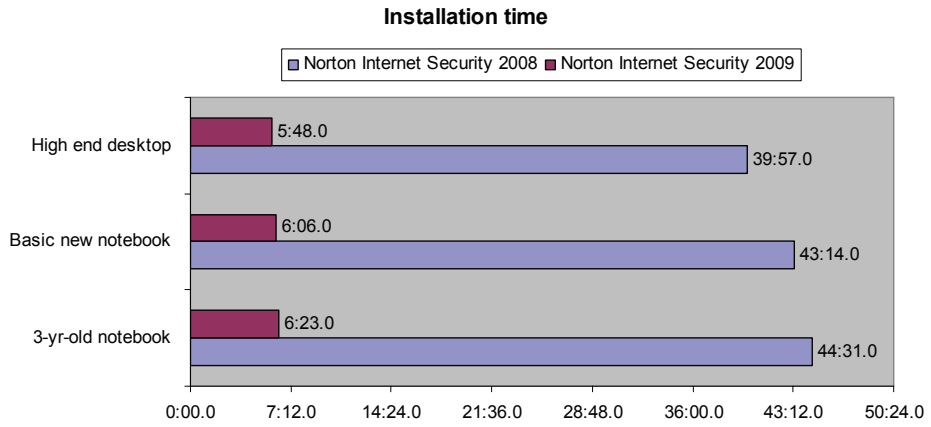
Benchmark 19 – Task Manager Processes

Norton IS 2009 appears to use the same basic software architecture as Norton IS 2008, but it loads one extra resident process into memory.



Benchmark 20 – Installing Norton Internet Security 2008 and 2009

The biggest performance improvement in Norton Internet Security 2009 over Norton IS 2008 is its greatly reduced installation time.

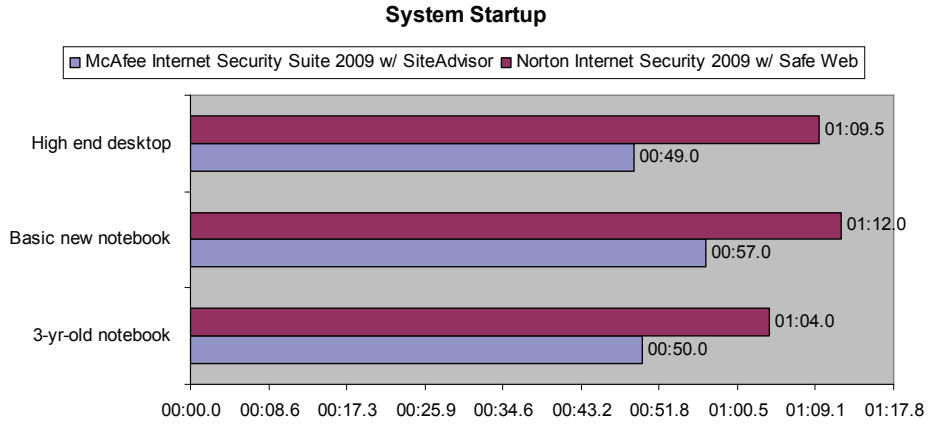


Section III – McAfee Internet Security 2009, with Site Advisor, vs. Norton Internet Security 2009, with Safe Web

The beta versions of McAfee Internet Security 2009 and Norton Internet Security 2009 both show improvement over earlier versions, with McAfee IS 2009 clearly exhibiting the greater performance gains.

Benchmark 1 – Windows Boot Time

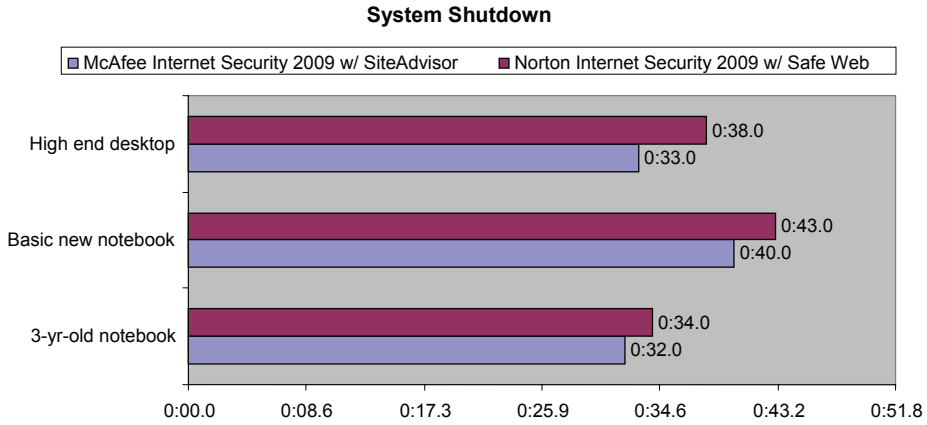
Waiting for Windows to start up is far less tedious with McAfee IS 2009.



For reference, “pristine” startup time, with no endpoint security product installed, was 43.4 seconds on the 3-yr-old notebook, 47.2 seconds on the basic new notebook and 39.0 seconds on the high end desktop.

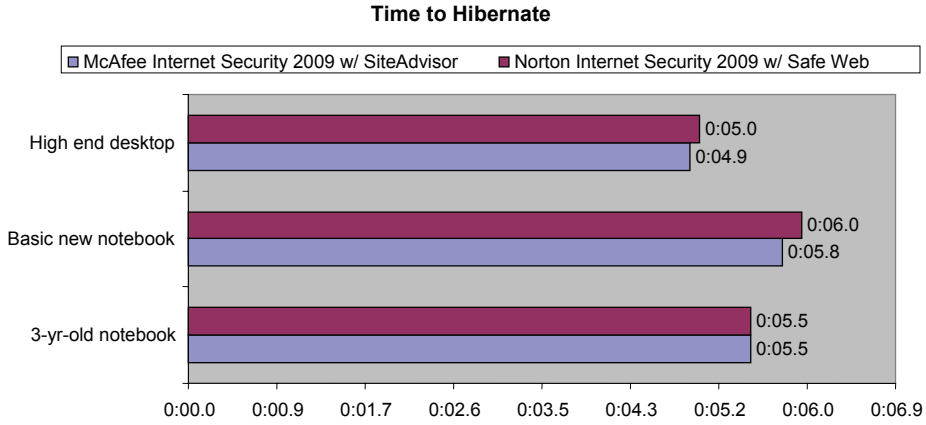
Benchmark 2 – Shutting Down Windows

In our tests, McAfee IS 2009 vacated the premises with somewhat greater speed than Norton IS 2009 when we told Windows to shut down.



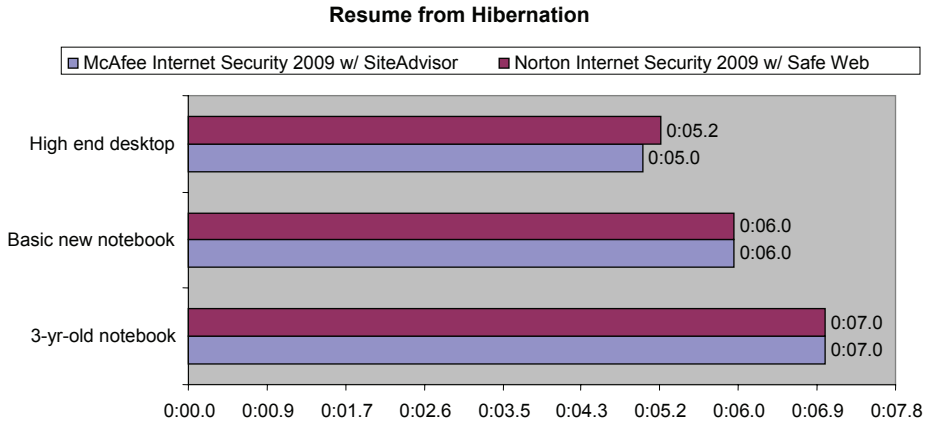
Benchmark 3 – Going to Sleep

The presence of resident software doesn't appear to significantly affect the time Windows takes to begin snoozing.



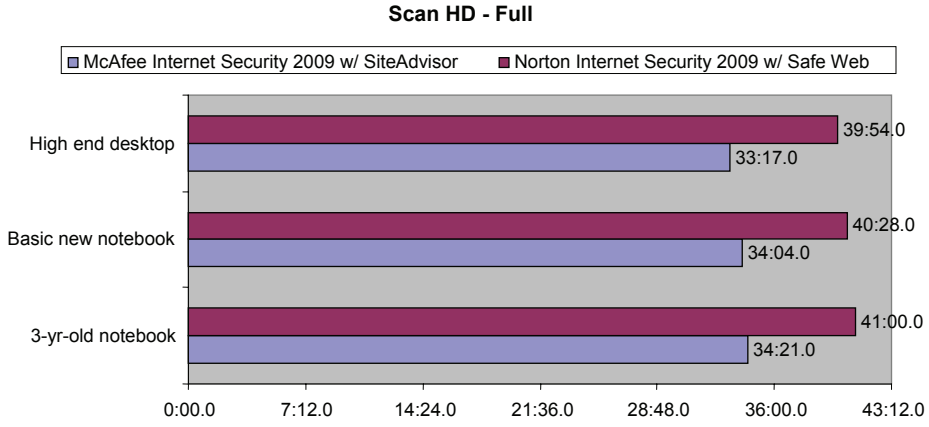
Benchmark 4 – Waking Up

Similarly, the time to revive Windows seems to depend completely on Windows itself.



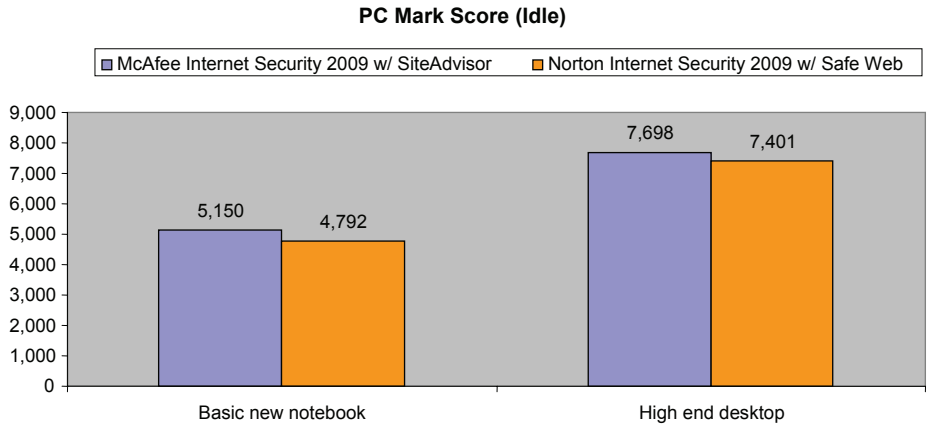
Benchmark 5 – Time to Fully Scan the Hard Disk

You want your computer to be free of malware, but you don't want your security tool to take forever to look for it. McAfee IS 2009's hard drive scanning took less time than Norton IS 2009's by several minutes.



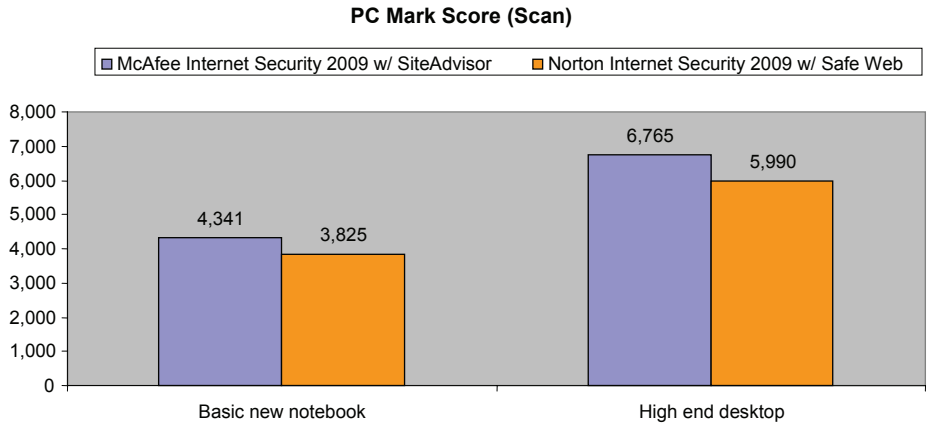
Benchmark 6 – PCMark (Available Resources) Scores at Idle

The higher the PC Mark Vantage score, the more available resources a computer has. At idle, with either security product resident and no applications running (except of course for PC Mark), McAfee IS 2009 was slightly more frugal in its resource consumption than Norton IS 2009.



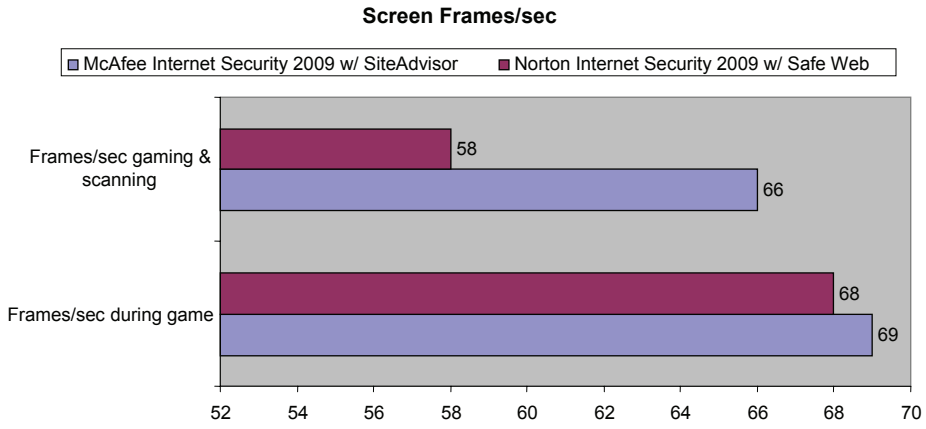
Benchmark 7 – PCMark (Available Resources) Scores During Scan

While each security tool scanned the hard drive for malware, the PC Mark Vantage benchmark revealed that McAfee IS 2009 left more resources available for multi-tasking than did Norton IS 2009.



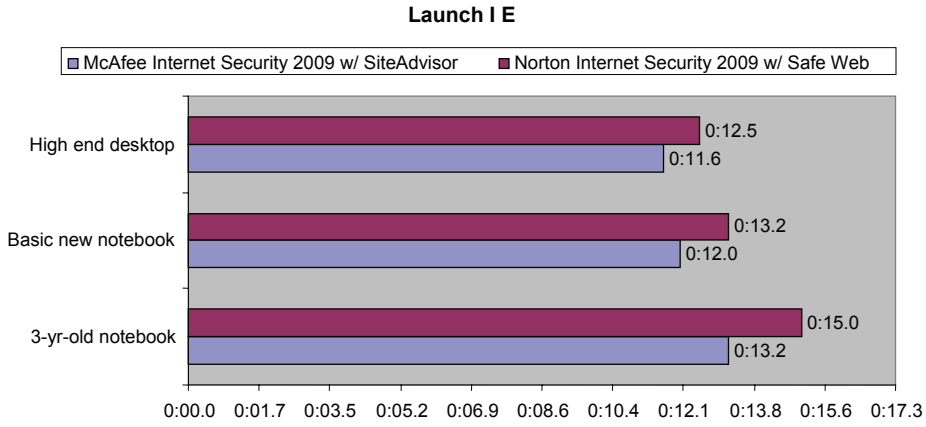
Benchmarks 8 & 9 – Video Game Speed, Gaming; Gaming and Scanning

McAfee IS 2009 produced a more responsive gaming environment than Norton IS 2009, both at idle and during a full scan of the computer's hard drive. With McAfee IS 2009, the video game was able to display screen frames at a visibly greater rate.



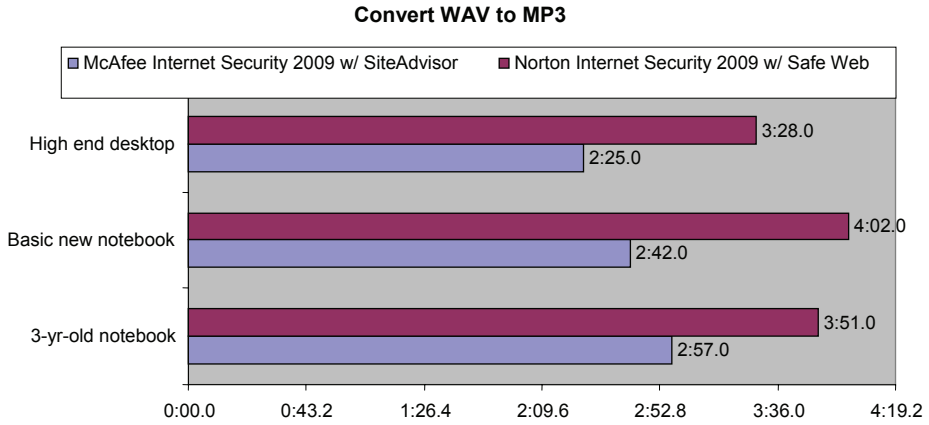
Benchmark 10 – Starting Internet Explorer for download.com

McAfee IS 2009 is perceptibly faster than Norton IS 2009 at ensuring a safe Web surfing environment.



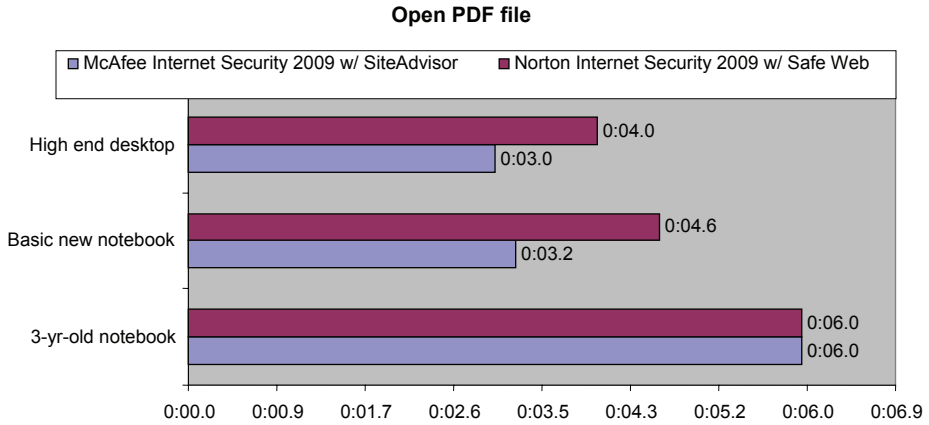
Benchmark 11 – Converting WAV Files to MP3 Using iTunes

McAfee IS 2009 performed markedly better than Norton IS 2009 while we used Apple's iTunes to convert WAV files to MP3 format.



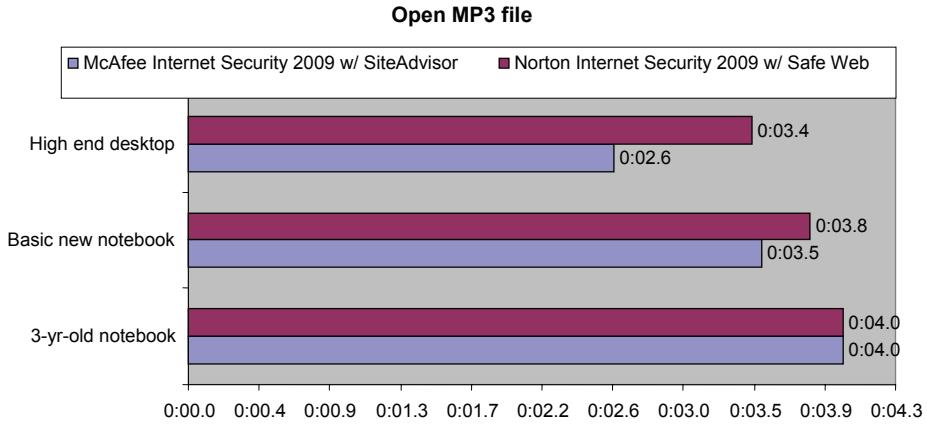
Benchmark 12 – Loading an Adobe Acrobat PDF document

By roughly a full second on the newer computers, McAfee IS 2009 outdistanced Norton IS 2009 when we told Adobe Acrobat to open a PDF file.



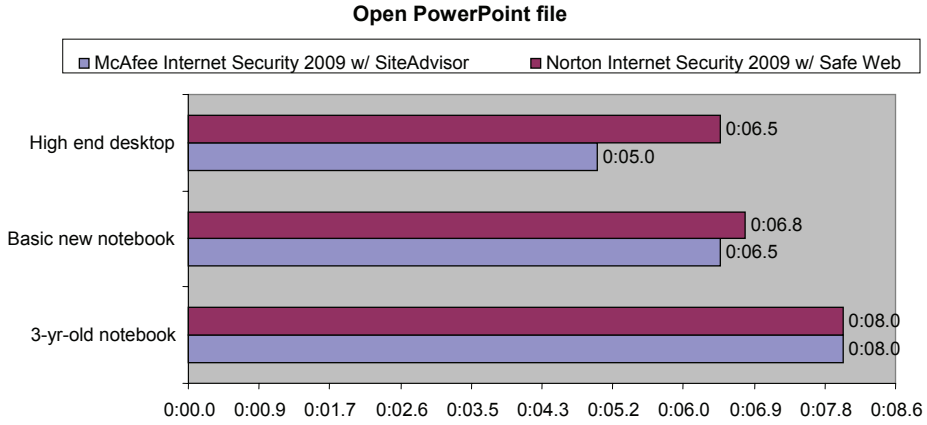
Benchmark 13 – Launching Media Player (MP3 File)

Again, on the newer PCs, McAfee IS 2009 plainly worked with greater alacrity than Norton IS 2009 when we told Windows Media Player to open an MP3 file.



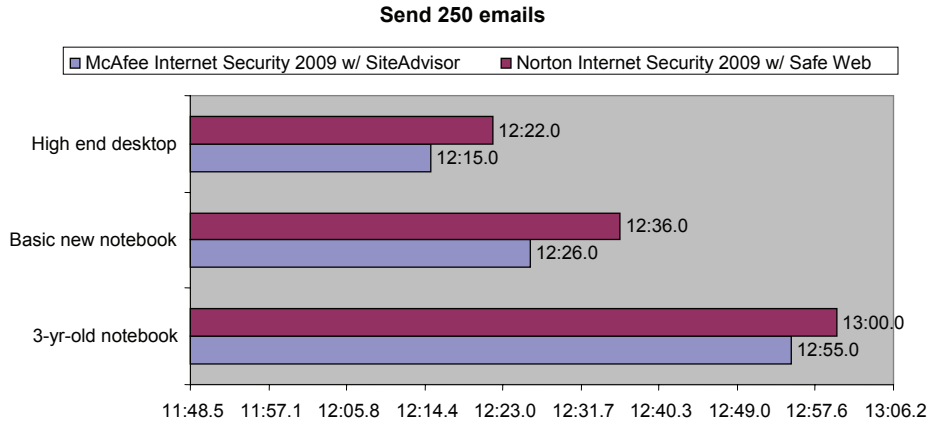
Benchmark 14 – Loading a PowerPoint Presentation

McAfee IS 2009 did its job distinctly quicker than Norton IS 2009 when we opened a PowerPoint presentation file.



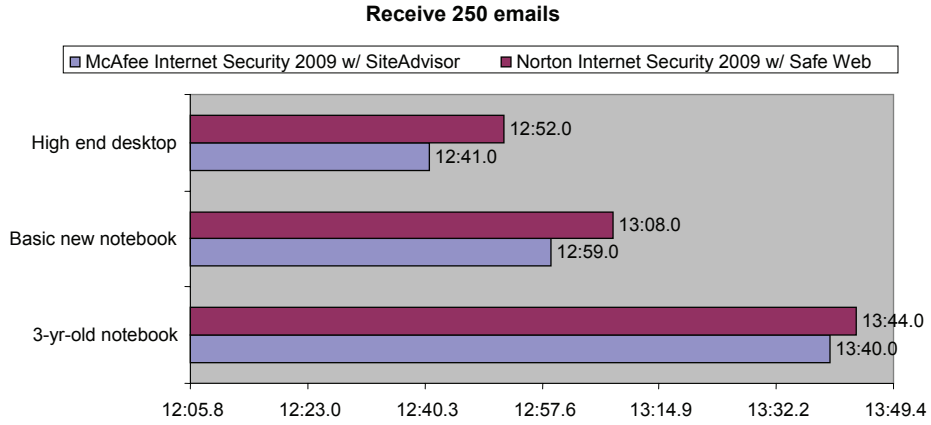
Benchmark 15 – Time for Outlook to Send 250 Emails

McAfee IS 2009 was appreciably faster than Norton IS 2009 when we tested the sending of 250 email messages via Outlook.



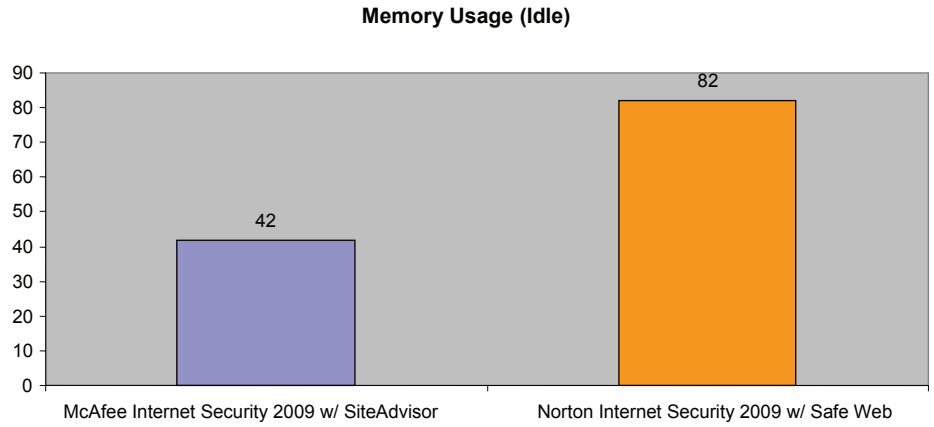
Benchmark 16 – Time for Outlook to Receive 250 Emails

McAfee IS 2009 held a clear performance edge over Norton IS 2009 in our testing when we instructed Outlook to receive those 250 email messages.



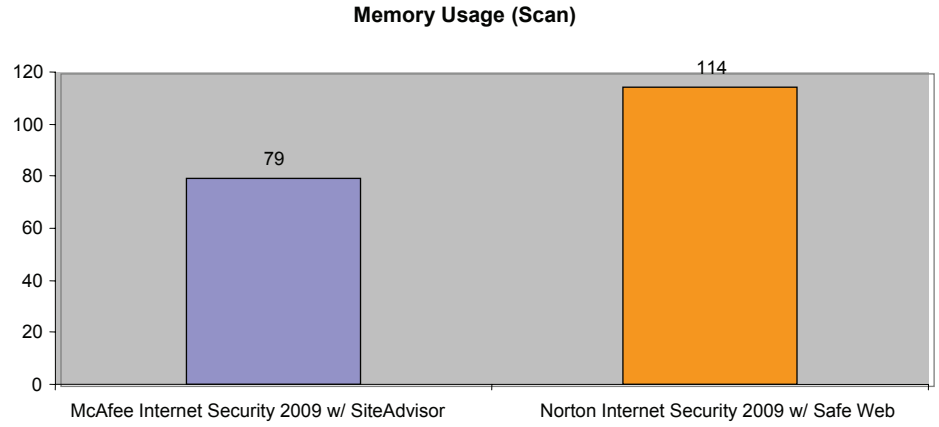
Benchmark 17 – MB of Memory Used When Not Scanning

Computer memory – RAM – is very clearly a finite resource. Norton IS 2009 consumed almost twice as many megabytes of memory at idle as McAfee IS 2009.



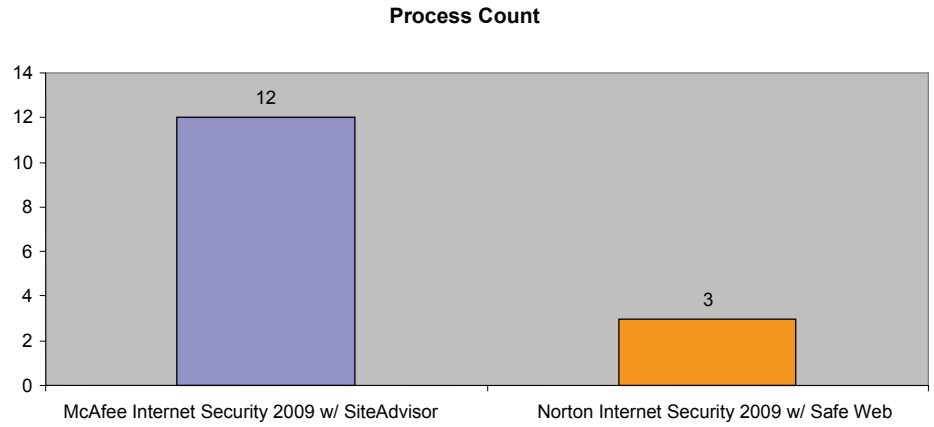
Benchmark 18 – MB of Memory Used While Scanning

During a full look-through-the-hard-drive-for-malware scan operation, Norton IS 2009 used conspicuously more megabytes of memory than did McAfee IS 2009.



Benchmark 19 – Task Manager Processes

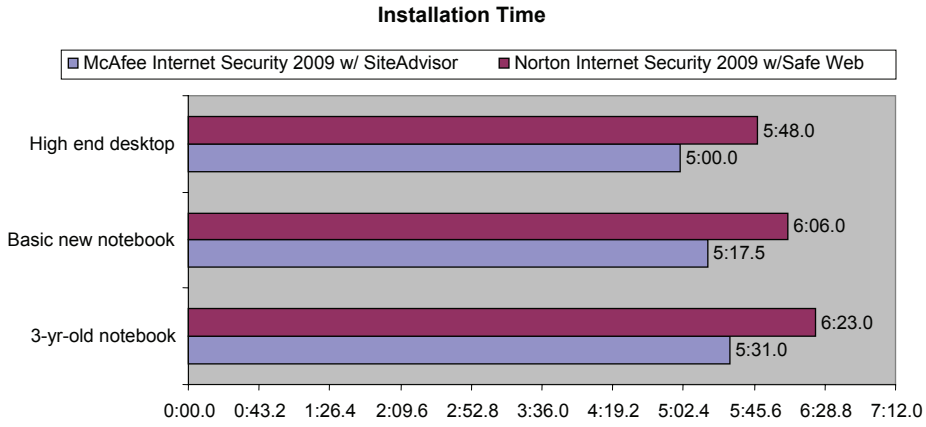
Should the resident portion of an endpoint security product be spread out across several processes or just a few? While this issue arguably has many pros and cons, we feel a greater number of processes implies finer granularity.



Benchmark 20 – Installing McAfee IS 2009 and Norton IS 2009

While earlier Norton IS versions took considerable time to set up because they downloaded scanner software during installation, the Norton IS 2009 installation process is smarter. Norton apparently bundles the scanner software with IS 2009 and thus avoids the lengthy download, thus greatly reducing installation time.

Still, McAfee IS 2009 installs more quickly than Norton IS 2009, as the following chart illustrates.

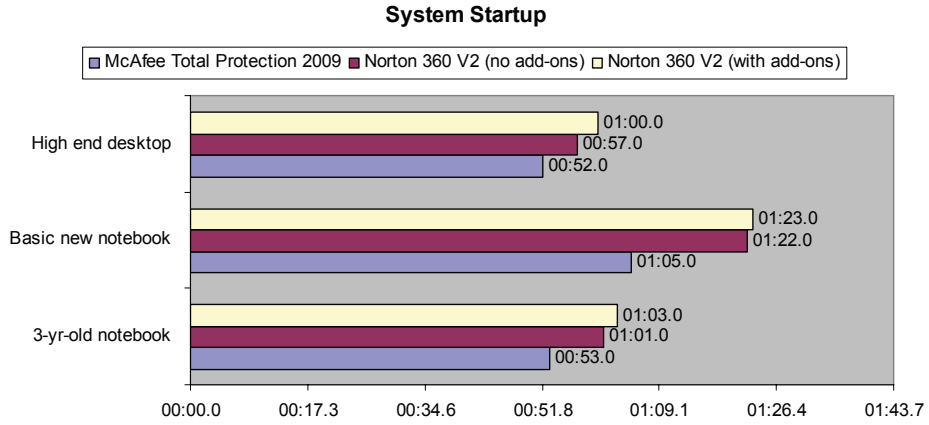


Section IV – McAfee Total Protection 2009, with Site Advisor, vs. Norton 360 V2, with and without add-ons

360 V2 is Norton's flagship (and more expensive) endpoint security product. In our testing, we found that McAfee Total Protection 2009 performs remarkably faster and consumes considerably fewer resources than 360 V2.

Benchmark 1 – Windows Boot Time

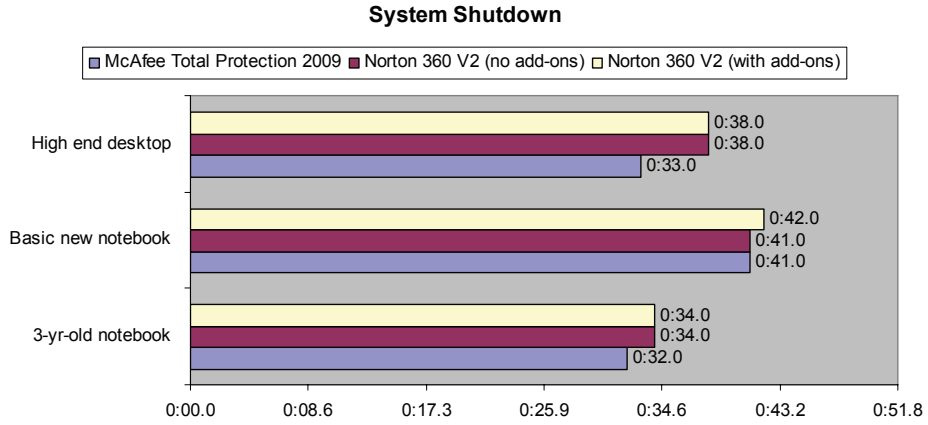
The new version of McAfee Total Protection showed its agility during Windows startup by taking far less time than Norton 360 V2 to load into memory.



For reference, "pristine" startup time, with no endpoint security product installed, was 43.4 seconds on the 3-yr-old notebook, 47.2 seconds on the basic new notebook and 39.0 seconds on the high end desktop.

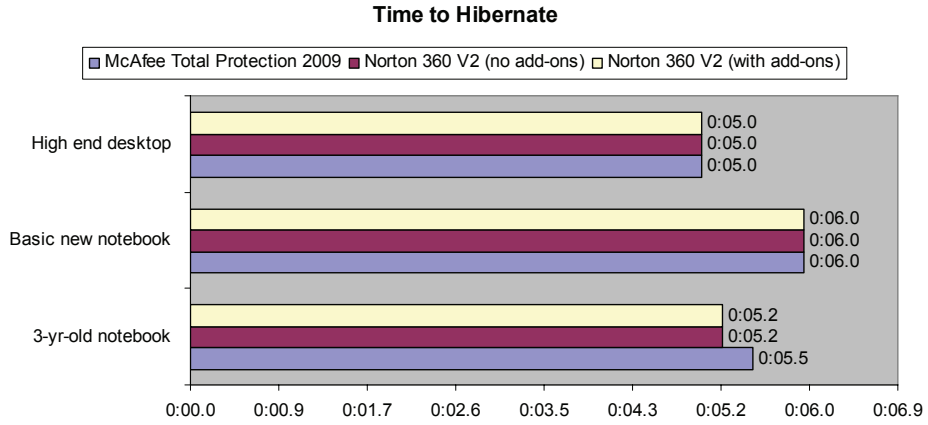
Benchmark 2 – Shutting Down Windows

When McAfee Total Protection is resident, Windows closes up shop more quickly than when Norton 360 V2 is in use.



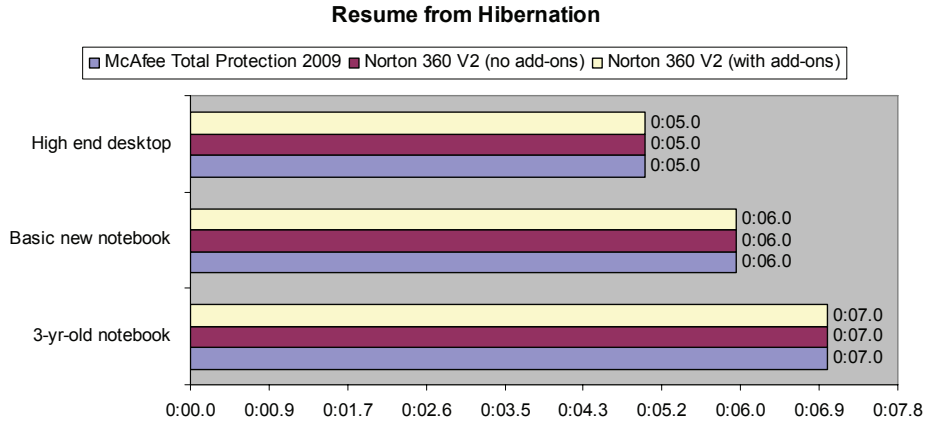
Benchmark 3 – Going to Sleep

Just as our tests of the other products revealed, Windows itself, not the resident endpoint security product, governs the amount of time Windows takes to go into hibernation.



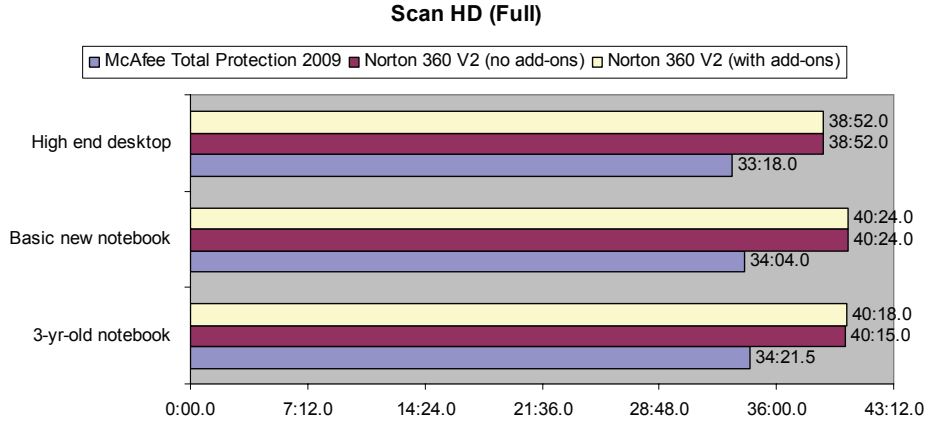
Benchmark 4 – Waking Up

Windows' internal processing alone determines the time needed for the operating system to come out of hibernation.



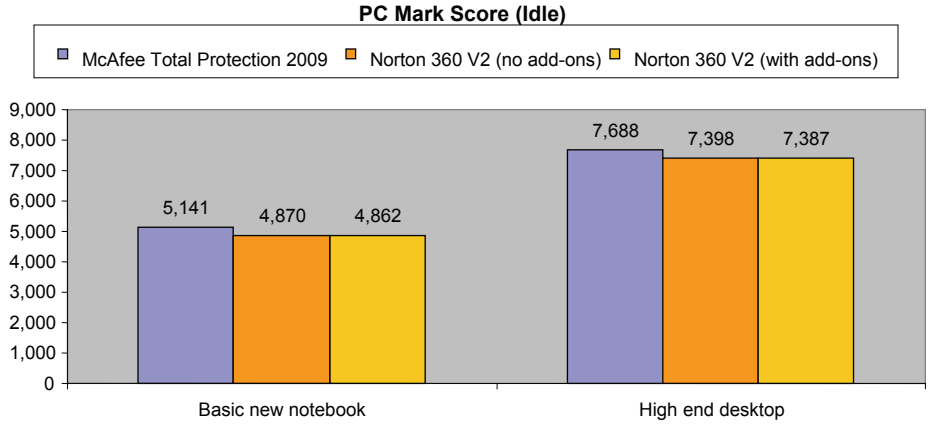
Benchmark 5 – Time to Fully Scan the Hard Disk

McAfee Total Protection completed a full scan of the hard drive long before Norton 360 V2 did.



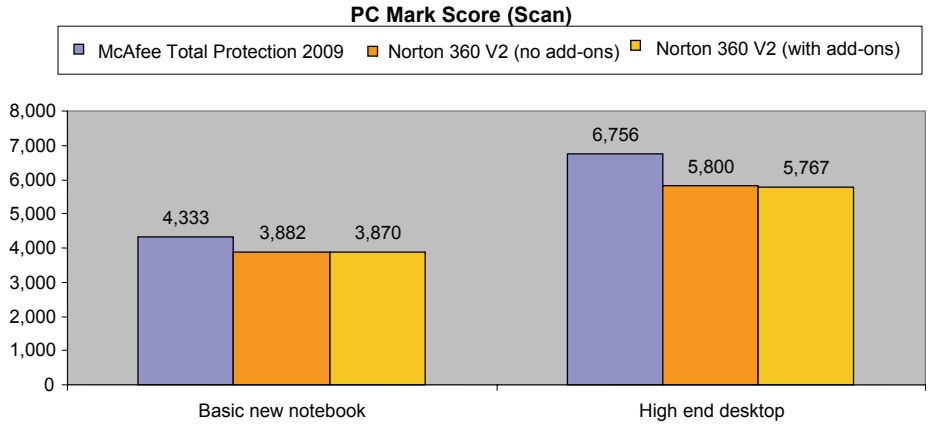
Benchmark 6 – PCMark (Available Resources) Scores at Idle

At idle, with only the PC Mark Vantage benchmark running as an application, McAfee Total Protection used slightly fewer resources than did Norton 360 V2, resulting in the chart you see below.



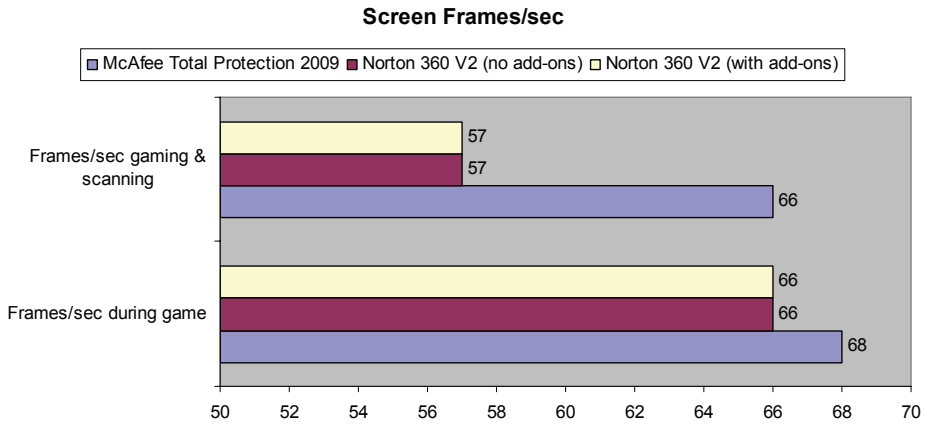
Benchmark 7 – PCMark (Available Resources) Scores During Scan

While scanning the hard drive for malware, McAfee Total Protection was noticeably more economical in its use of computing resources than Norton 360 V2 was.



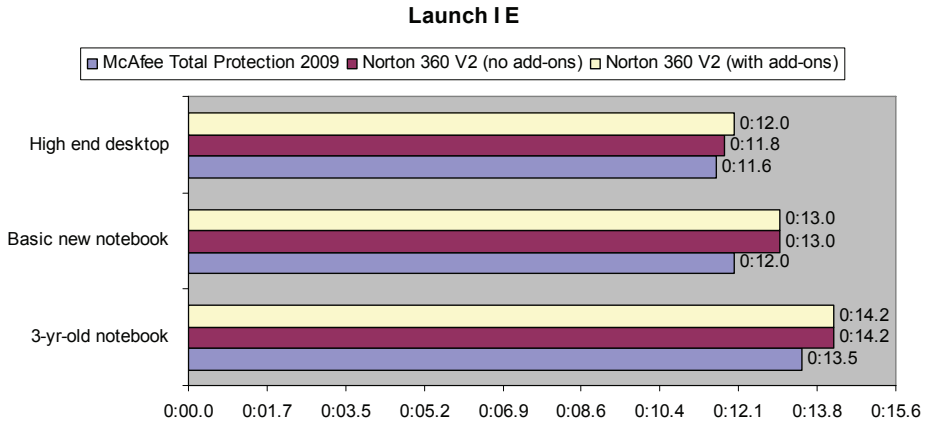
Benchmarks 8 & 9 – Video Game Speed, Gaming; Gaming and Scanning

A small difference between McAfee Total Protection and Norton 360 V2 in video frames displayed per second during game play grew into a much larger difference when we told each endpoint security product to scan the hard drive for malware.



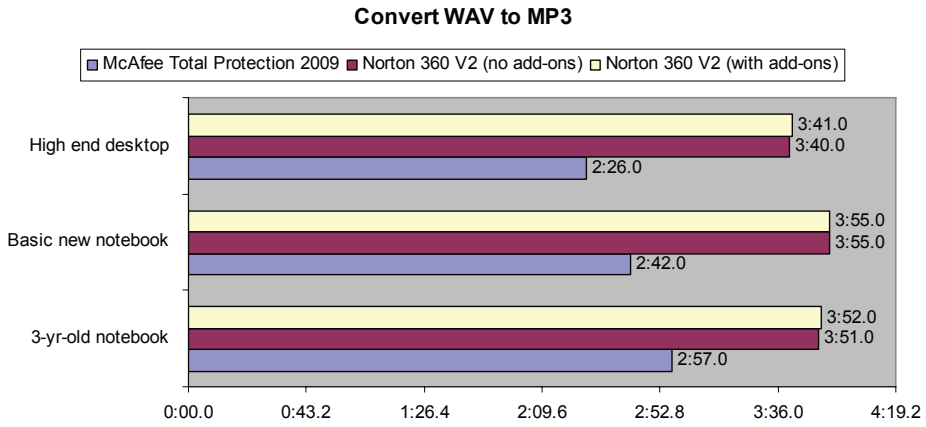
Benchmark 10 – Starting Internet Explorer for download.com

McAfee Total Protection was noticeably faster than Norton 360 V2 while Internet Explorer retrieved and displayed the initial download.com Web page.



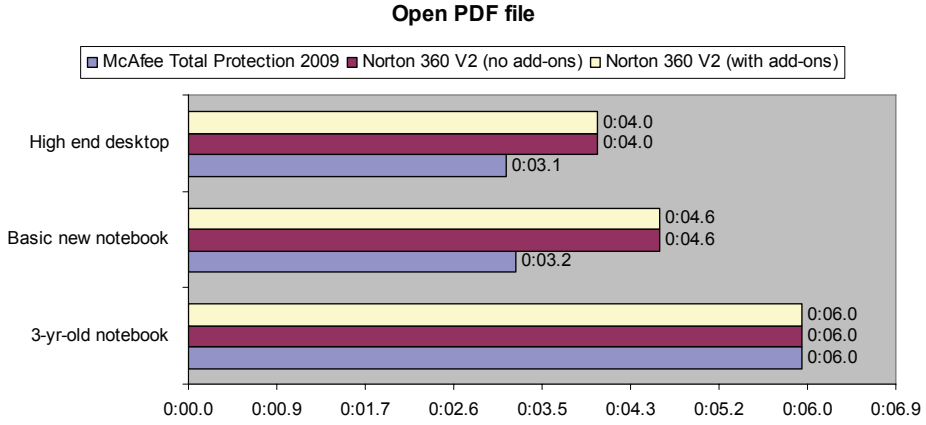
Benchmark 11 – Converting WAV Files to MP3 Using iTunes

McAfee Total Protection's faster processing was manifest as we converted WAV files to MP3 format.



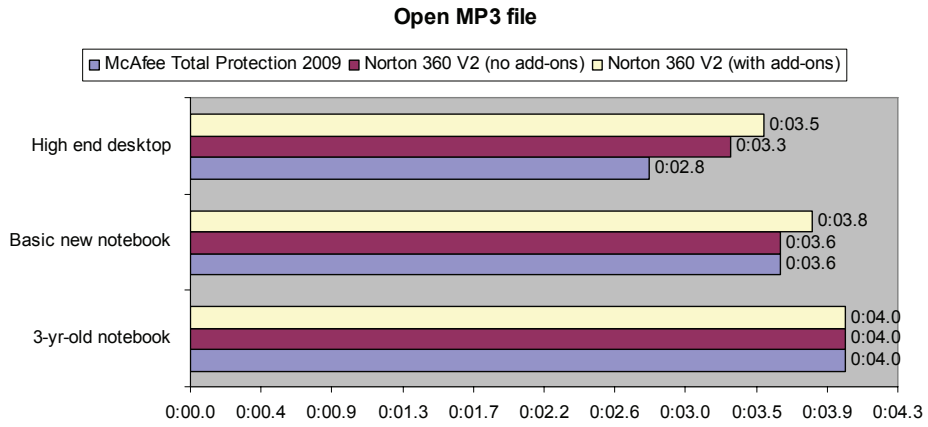
Benchmark 12 – Loading an Adobe Acrobat PDF document

When we opened a PDF file in Adobe Acrobat, McAfee Total Protection also outpaced Norton 360 V2.



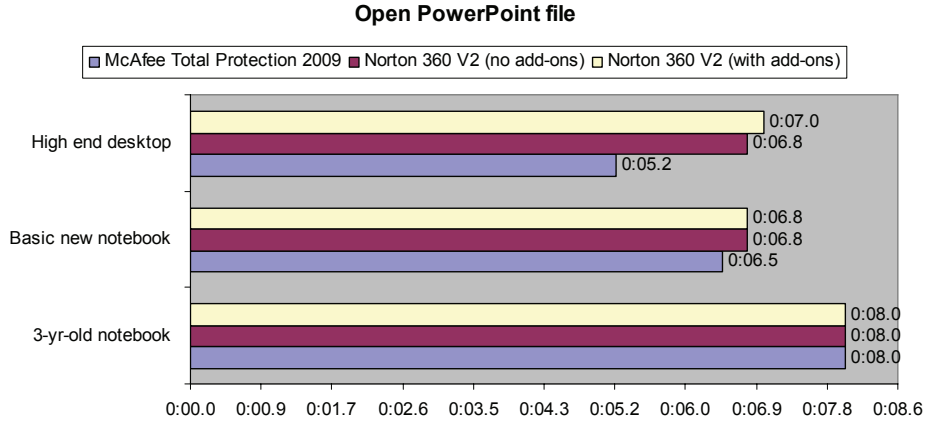
Benchmark 13 – Launching Media Player (MP3 File)

With greater alacrity, McAfee Total Protection outran Norton 360 V2 when we launched Windows Media Player.



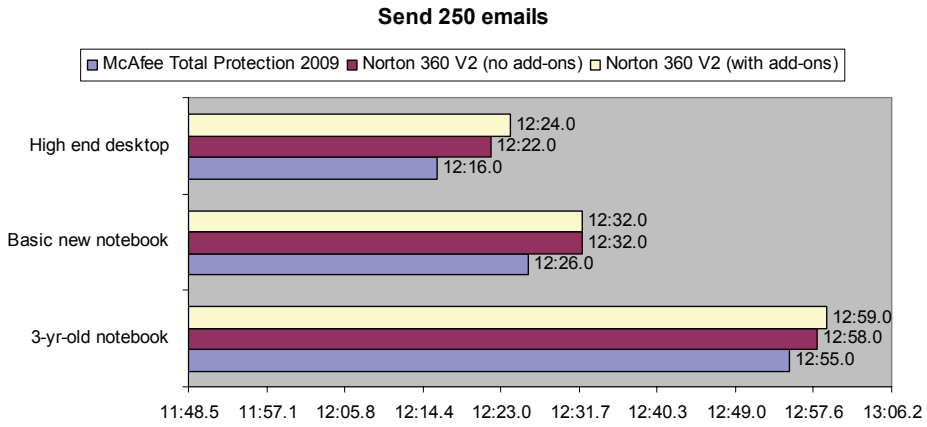
Benchmark 14 – Loading a PowerPoint Presentation

Especially on the Dell Optiplex 755, McAfee Total Protection outprocessed Norton 360 V2 as we loaded a PowerPoint presentation file.



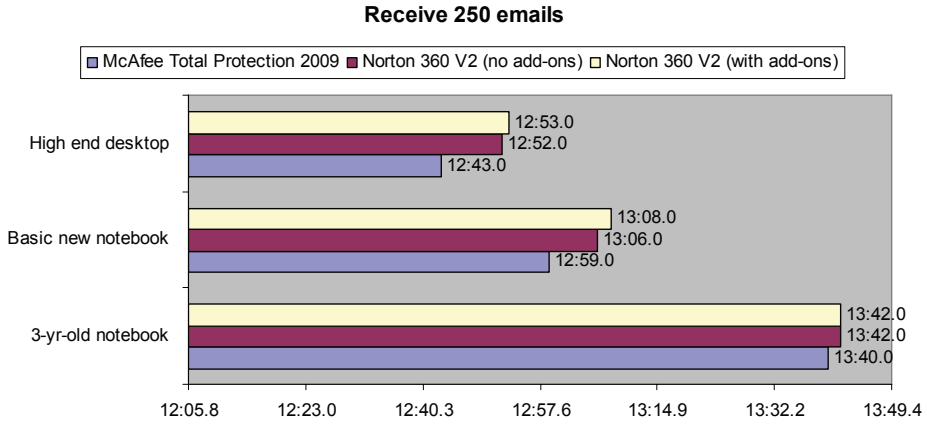
Benchmark 15 – Time for Outlook to Send 250 Emails

McAfee Total Protection did a faster job of maintaining security than Norton 360 V2 did during our Outlook tests in which we sent 250 email messages.



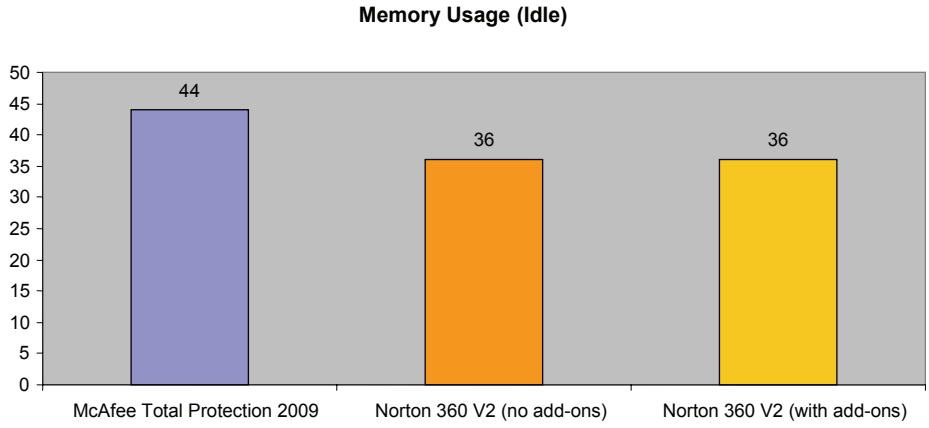
Benchmark 16 – Time for Outlook to Receive 250 Emails

As Outlook retrieved the 250 email messages in our tests, McAfee Total Protection was perceptibly faster than Norton 360 V2.



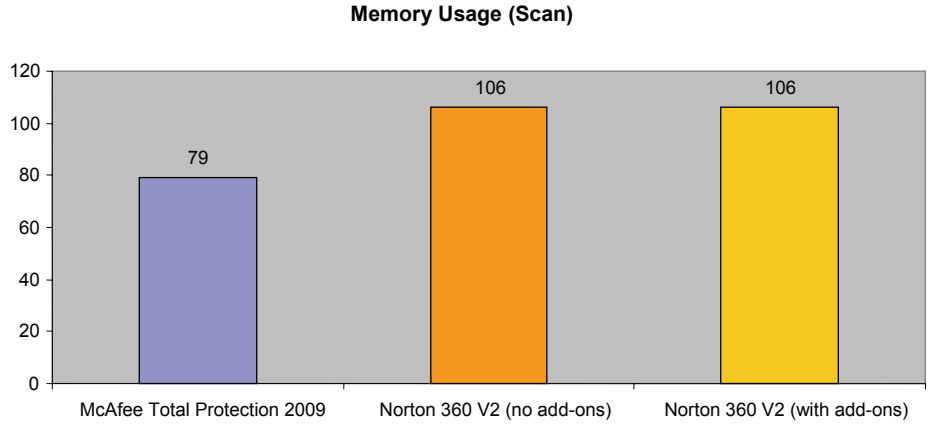
Benchmark 17 – MB of Memory Used When Not Scanning

At idle, with no applications running, McAfee Total Protection exhibited some bloat when compared to the memory usage of Norton 360 V2.



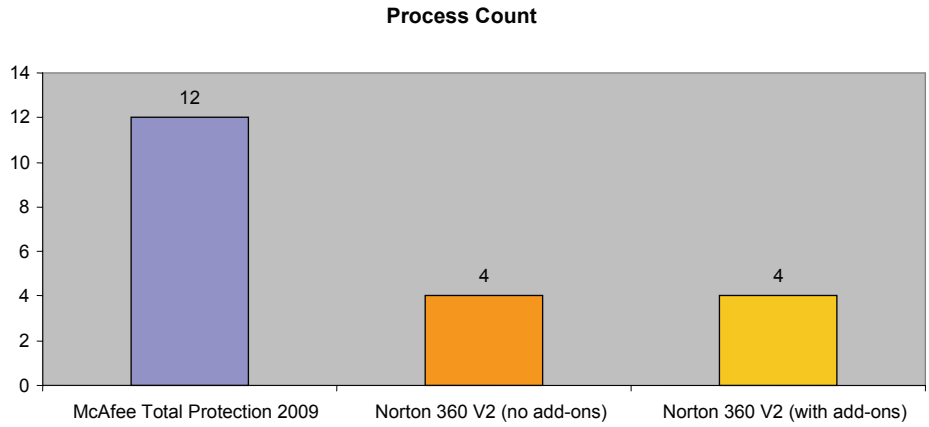
Benchmark 18 – MB of Memory Used While Scanning

During McAfee Total Protection's and Norton 360 V2's scans of the hard drive for malware, 360 V2 required quite a bit more memory than Total Protection.



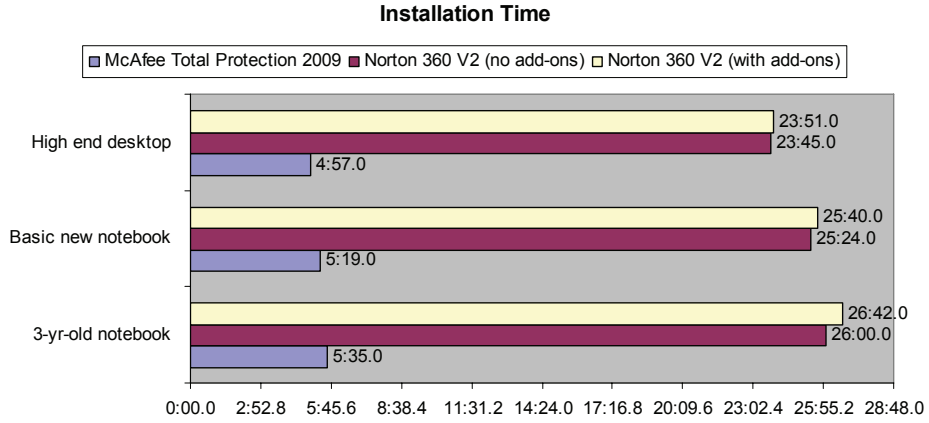
Benchmark 19 – Task Manager Processes

Whether a software designer stuffs all the logic into a few or many Windows processes is a moot point. However, we believe that multiple processes, as exemplified by McAfee Total Protection, imply a finer granularity.



Benchmark 20 – Installing McAfee Total Protection 2009 vs. Norton 360 V2 (with and without add-ons)

360 V2's installation process suffers from a design approach endemic to Norton's products. While McAfee Total Protection and Norton 360 V2 both "call home" during the install, in order to complete the license registration for the products, 360 V2 at installation time additionally downloads a malware scanner that it uses to make sure the target machine is free of malware before proceeding with the setup and configuration of 360 V2's components. Over a 512 kb/sec Frame Relay Internet link, this 360 V2 download took quite a bit of time.



About the author

Barry Nance is a networking expert, magazine columnist, book author and application architect. He has more than 29 years experience with IT technologies, methodologies and products. Over the past dozen years, working on behalf of Network Testing Labs, he has evaluated thousands of hardware and software products for ComputerWorld, BYTE Magazine, Government Computer News, PC Magazine, Network Computing, Network World and many other publications. He's authored thousands of magazine articles as well as popular books such as *Introduction to Networking (4th Edition)*, *Network Programming in C* and *Client/Server LAN Programming*.

He's also designed successful e-commerce Web-based applications, created database and network benchmark tools, written a variety of network diagnostic software utilities and developed a number of special-purpose networking protocols.

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About Network Testing Labs

Network Testing Labs performs independent technology research and product evaluations. Its network laboratory connects myriads of types of computers and virtually every kind of network device in an ever-changing variety of ways. Its authors are networking experts who write clearly and plainly about complex technologies and products.

Network Testing Labs' experts have written hardware and software product reviews, state-of-the-art analyses, feature articles, in-depth technology workshops, cover stories, buyer’s guides and in-depth technology outlooks. Our experts have spoken on a number of topics at Comdex, PC Expo and other venues. In addition, they've created industry standard network benchmark software, database benchmark software and network diagnostic utilities.