Panda Managed Office Protection

SaaS Endpoint Security Solutions Performance Test

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1. Introduction

The following Panda's internal lab System Performance and Impact analysis is based on four SaaS solutions in the market.

Below are the features of the computer used in the tests:

- Intel Pentium 4 Dual Core 3, 4 GHz
- Memory: 1024MB DDR2.
- Windows XP Professional SP2.

In order to keep the environment insolated, during these tests the cumputer has been disconnected from Internet.

Note
Results, has been obtained based on Internal Panda Security analysis and are provided for information purpose only. Any difference in Hardware, Software, version of the tested products or configuration may alter results.

2. Products analyzed

The list of SaaS security solutions tested is:

Vendor	Product Name	Code Name	Product Version	Date Tested
Panda Security	Panda Managed Office Protection	PMOP	5.03	abr-09
F-Secure	Protection Service for Business	F-Secure PSB	8.00	abr-09
McAfee	Total Protection Service	McAfee TPS	4.70	abr-09
Trend Micro	Worry-Free Hosted	Trend Micro WFH	8.911	abr-09

It is important to highlight that all analyses were conducted with the default security policies and profiles (those recommended by the manufacturer).

Bearing this in mind, it is important to note which protection modules are available in the solutions (included or not), and which modules are disabled even if they are available, as this is the way in which the default profile is configured.

Below is a table per product and protection module (active or inactive, available or not available).

Protection modules availability and active	Antimalware protection module				Firewall
	File System	Email	Web	Instant Messaging	
PMOP 5.03	✓	✓	✓	✓	✓
F-Secure PSB 8.00	✓	✓	▬	✗	✓
McAfee TPS 4.70	✓	✓	✗	✗	✓
Trend Micro WFH 8.911	✓	▬	✓	✗	▬

Legend:

✗	Not available
▬	Available but not active
✓	Available and not active

It is necessary to stress that having more protection modules available and active, could consume more system resources and further impact user experience. Therefore, a solution with protection modules that are neither active nor available would be expected to consume fewer resources.

3. Metrics

The metrics used in this report were selected because they provide an indicator of the product's performance in key areas that impact user experience.

Malware detection efficiency was not measured. This report focuses exclusively on the way in which different security solutions affect the computer's resources.

Benchmark 1 – CPU usage

This test consisted of calculating system performance loss once the product was installed. To do so, the PC World WorldBench v5 application was used, which was created by the laboratories of PC World magazine.

The tests carried out by this tool involved running a series of applications (ACDSee, Adobe Photoshop and Premiere, Ahead Nero, Discreet 3ds max, MS Office XP and so on, up to thirteen applications) to then obtain a weighted average of the time used to run. The percentage obtained represented the PC performance loss.

Note that the test to obtain the weighted average was performed three times: the applications were run three times in a row.

The lower the CPU usage, the lower the impact on the computer's normal performance.

Benchmark 2 – Memory usage with MS Office running

It simulated the average computer load of an expert user. To do this, the PC World WorldBench v5 application was used. This application can simulate different workloads, i.e. Office applications, Internet browsing, multimedia applications, etc. As the test was based on corporate work environments, the MS Office workload simulations were selected as the most appropriate.
The workload simulated the use of the most common Office applications: Word, Excel, PowerPoint, Outlook and Access. Simulations included the running of those applications, and common operations such as opening, closing, creating and modifying .doc, .xls and .ppt files, and opening emails. RAM memory usage was measured during the workload simulation.

The lower the memory usage, the lower the impact on the computer's normal performance.

Benchmark 3 – Memory utilization

The amount of RAM used by the product was measured while the machine and product were in an idle state, running in the background. The total RAM usage was calculated. The less RAM used by an application while resident in the background, the lower the system impact.
Idle state measurements were made, as opposed to RAM used while actively scanning, because it is easier to measure the stable idle state and the aim was to see what resources were being used on a permanent basis.

The lower the memory usage, the lower the impact on the computer's normal performance.

Benchmark 4 – Boot time

The time taken for the machine to boot was measured. It is typical for protection applications of this genre to be launched at Windows start-up. This typically adds some amount of time to the boot time for the machine.

The aim was to measure the additional time added to the boot process as a result of installing these solutions. The time was counted from the moment in which the BIOS started to load the operating system, and ended when the CPU threshold was at 0% for at least 5 seconds.
It is important to highlight that occasionally, even if the CPU is not at 0%, clients' experience is not negative, as there are solutions that run with low priority processes or with processes that do not consume so many CPU resources, and allow users to use the computer.

The tool used in this metric was BootTimeTool. The test was carried out several times to obtain four homogeneous results per solution, from which a weighted average was obtained.

The lower the boot time, the lower the impact on the computer's normal performance.

Benchmark 5 – Scan speed

All the solutions tested detect malware by scanning files on the system. Some of them even protect communications protocols: mail, instant messaging, the Web, etc. before malware reaches the file system, while others do not include these functions (see products/modules table).

This test measured the amount of time required to scan a typical set of clean files. The sample set used against all products was 922MB worth of data, with a wide range of files (compressed files, executable files, Office files, etc.).

The lower the scan time, the lower the impact on the computer's normal performance.

Benchmark 6 – IE launch / browsing speed

The time taken to start the user interface of Internet Explorer was taken. This metric indicates how the product impacts the responsiveness of the system. In addition, as it runs several times, its effect on the cache capacity was measured.

The lower the IE launch time, the lower the impact on the computer's normal performance.

4. Test results

Benchmark 1 – CPU usage

CPU utilization	
Product	**Percentage**
PMOP 5.03	1,70%
F-Secure PSB 8.00	2,80%
McAfee TPS 4.70	9,43%
Trend Micro WFH 8.911	12,26%

The lower the CPU usage, the lower the impact on the computer's normal performance.

Benchmark 2 – Memory usage with MS Office running

Memory utilization - MS Office -	
Product	**MB**
Baseline	263 MB
Trend Micro WFH 8.911	333 MB
PMOP 5.03	374 MB
F-Secure PSB 8.00	479 MB
McAfee TPS 4.70	589 MB

The lower the memory usage, the lower the impact on the computer's normal performance.

The memory consumed by the solutions is the difference between the Baseline memory usage (without the product installed) and the memory usage in the same test with the product installed.

Benchmark 3 – Memory utilization

Memory utilization - IDLE -	
Product	**MB**
Baseline	105 MB
Trend Micro WFH 8.911	180 MB
F-Secure PSB 8.00	190 MB
PMOP 5.03	195 MB
McAfee TPS 4.70	241 MB

The lower the memory usage, the lower the impact on the computer's normal performance.

The memory usage consumed by the solutions is the difference between the Baseline memory usage (without the product installed) and the memory usage in the same test with the product installed.

Benchmark 4 – Boot time

Boot time	
Product	**Seconds**
Baseline	39,75 sc
PMOP 5.03	50,25 sc
F-Secure PSB 8.00	70,5 sc
McAfee TPS 4.70	98,75 sc
Trend Micro WFH 8.911	144,5 sc

The lower the boot time, the lower the impact on the computer's normal performance.

Benchmark 5 – Scan speed

File System Scan time	
Product	**Minutes**
F-Secure PSB 8.00	2:03 min
PMOP 5.03	2:19 min
Trend Micro WFH 8.911	2:49 min
McAfee TPS 4.70	3:55 min

The lower the scan time, the lower the impact on the computer's normal performance.

Benchmark 6 – IE launch / browsing speed

IE launch time	
Product	**Seconds**
Baseline	5,53 sc
Trend Micro WFH 8.911	5,55 sc
PMOP 5.03	5,56 sc
F-Secure PSB 8.00	5,6 sc
McAfee TPS 4.70	5,74 sc

The lower the IE launch time, the lower the impact on the computer's normal performance.

5. Classification according to results

The products are classified according to the previous results.

Percentage classification

The percentage classification indicates how each product has behaved in a specific metric, regarding other products.

The percentage classification in each metric, is the result of measuring each product's result against the difference between the best and worst results.

0% is the best result and 100% is the worst.

	CPU utilization	Memory utilization - MS Office -	Memory utilization - IDLE -	Boot time	File System Scan time	IE launch time
PMOP 5.03	0,00%	16,02%	24,59%	0,00%	10,53%	5,26%
F-Secure PSB 8.00	10,42%	57,03%	16,39%	21,48%	0,00%	26,31%
McAfee TPS 4.70	73,20%	100,00%	100,00%	51,45%	100,00%	100,00%
Trend Micro WFH 8.911	100,00%	0,00%	0,00%	100,00%	30,26%	0,00%

The table shows that:

- In the case of CPU usage, Panda Security achieved the best result and Trend Micro the worst. The classification is therefore: 0% for PMOP and 100% for Trend Micro WFH.
- In the case of memory usage in MS Office, Trend Micro achieved the best result and McAfee the worst. The classification is therefore: 0% for Trend Micro WFH and 100% for McAfee TPS.
- In the case of IDLE memory usage, Trend Micro achieved the best result and McAfee the worst. The classification is therefore: 0% for Trend Micro WFH and 100% for McAfee TPS.
- In the case of Boot time, Panda Security achieved the best result and Trend Micro the worst. The classification is therefore: 0% for PMOP and 100% for Trend Micro WFH.
- In the case of the IE launch, Trend Micro achieved the best result and McAfee the worst. The classification is therefore: 0% for Trend Micro WFH and 100% for McAfee TPS.

Partial classification

The partial classification consists on assigning points to each metric (and product) according to the percentage ranks above. Each percentage rank is assigned the following points:

Percentage	Points
100%-80%	●
79%-60%	●●
59%-40%	●●●
39%-20%	●●●●
19%-0%	●●●●●

Results between 0% and 19% (best results) are assigned 5 points. Results between 100% and 80% (worst results) are assigned 1 point.

The partial classification is therefore as follows:

	CPU utilization	Memory utilization - MS Office -	Memory utilization - IDLE -	Boot time	File System Scan speed	IE launch
PMOP 5.03	●●●●●	●●●●●	●●●●	●●●●●	●●●●●	●●●●●
F-Secure PSB 8.00	●●●●●	●●●	●●●●●	●●●●	●●●●●	●●●●
McAfee TPS 4.70	●●	●	●	●●●	●	●
Trend Micro WFH 8.911	●	●●●●●	●●●●●	●	●●●●	●●●●●

General classification

The partial classifications were used to calculate the general average of the products:

	Overall Score
PMOP 5.03	●●●●●
F-Secure PSB 8.00	●●●●
McAfee TPS 4.70	●●
Trend Micro WFH 8.911	●●●●

APPENDIX I: Details of the analyses

The sample used was identical in all cases and contained a mixture of system files and Office files. In total there were 5.697 files whose combined size was 922 MB.

Type	# files	Size
acm	9	839KB
aw	16	1,61MB
ax	29	3,61MB
chm	60	5,11MB
com	22	507KB
cpl	31	6,34MB
dll	2361	497MB
doc	289	91,4MB
drv	17	1,15MB
exe	499	101MB
gif	520	1,32MB
h	18	30,8KB
hlp	83	2,55MB
html	163	687KB
ico	77	111KB
imd	23	14,8MB
ime	34	7,22MB
inf	40	2,03MB
ini	56	5,32MB
jpg	53	1,45MB
js	14	455KB
lex	18	11,8MB
mfl	24	2,80MB
mof	44	8,51MB
msc	15	581KB
nls	77	6,60MB
ocx	17	3,94MB
png	188	2,03MB
ppt	10	5,21MB
py	72	634KB
rtf	20	50MB
scr	16	5,64MB
sys	404	33,2MB
tps	11	1,01MB
txt	39	1,54MB
vbs	21	764KB
vsd	10	4,41MB
wav	11	5,92MB
wmf	185	1,61MB
xls	36	2,52MB
xml	32	266KB
xsl	24	99,8KB
zip	9	27,5MB

APPENDIX II: References

Ref #	Document	Author	Date
1	Measuring Performance in Windows Vista http://www.microsoft.com/whdc/system/sysperf/Vista_perf.mspx	Microsoft	July 13 2007
2	Symantec RFP, Ed 1- 3	**Dora Karali,** Symantec Corporation	8/Aug/2007 - 22/Aug/2007
3	Performance Testing Methodologies 2007 + Symantec test cases	**Global Performance Unit** Symantec Corporation	9/Aug/2007
4	Antivirus & Internet Security Performance Benchmarking	**PassMark Software**	20/Nov/2007

