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UTILITY PATENT APPLICATION TRANSMITTAL <small>(Only for new nonprovisional applications under 37 CFR 1.53(b))</small>	Attorney Docket No.	ARAC-01
	First Inventor	Rozman
	Title	System and Method for Protecting a computer system from Malicious software
	Express Mail Label No.	15-8485314

APPLICATION ELEMENTS <small>See MPEP chapter 600 concerning utility patent application contents.</small>	ADDRESS TO: Commissioner for Patents P.O. Box 1450 Alexandria VA 22313-1450
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1. <input checked="" type="checkbox"/> Fee Transmittal Form (e.g., PTO/SB/17) <small>(Submit an original and a duplicate for fee processing)</small> 2. <input checked="" type="checkbox"/> Applicant claims small entity status. <small>See 37 CFR 1.27.</small> 3. <input checked="" type="checkbox"/> Specification <small>[Total Pages <u>41</u>]</small> <small>(preferred arrangement set forth below)</small> - Descriptive title of the invention - Cross Reference to Related Applications - Statement Regarding Fed sponsored R & D - Reference to sequence listing, a table, or a computer program listing appendix - Background of the Invention - Brief Summary of the Invention - Brief Description of the Drawings (if filed) - Detailed Description - Claim(s) - Abstract of the Disclosure 4. <input checked="" type="checkbox"/> Drawing(s) (35 U.S.C. 113) <small>[Total Sheets <u>11</u>]</small> 5. Oath or Declaration <small>[Total Sheets _____]</small> a. <input checked="" type="checkbox"/> Newly executed (original or copy) b. <input type="checkbox"/> Copy from a prior application (37 CFR 1.63(d)) <small>(for continuation/divisional with Box 18 completed)</small> i. <input type="checkbox"/> DELETION OF INVENTOR(S) <small>Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).</small> 6. <input checked="" type="checkbox"/> Application Data Sheet. See 37 CFR 1.76	7. <input type="checkbox"/> CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix) 8. Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary) a. <input type="checkbox"/> Computer Readable Form (CRF) b. Specification Sequence Listing on: i. <input type="checkbox"/> CD-ROM or CD-R (2 copies); or ii. <input type="checkbox"/> Paper c. <input type="checkbox"/> Statements verifying identity of above copies
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ACCOMPANYING APPLICATION PARTS
9. <input type="checkbox"/> Assignment Papers (cover sheet & document(s)) 10. <input type="checkbox"/> 37 CFR 3.73(b) Statement <input type="checkbox"/> Power of Attorney <small>(when there is an assignee)</small> 11. <input type="checkbox"/> English Translation Document (if applicable) 12. <input checked="" type="checkbox"/> Information Disclosure Statement (IDS)/PTO-1449 <input checked="" type="checkbox"/> Copies of IDS Citations 13. <input type="checkbox"/> Preliminary Amendment 14. <input type="checkbox"/> Return Receipt Postcard (MPEP 503) <small>(Should be specifically itemized)</small> 15. <input type="checkbox"/> Certified Copy of Priority Document(s) <small>(if foreign priority is claimed)</small> 16. <input type="checkbox"/> Nonpublication Request under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent. 17. <input type="checkbox"/> Other:

18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:

Continuation
 Divisional
 Continuation-in-part (CIP)
 of prior application No.: _____

Prior application information: Examiner _____ Art Unit: _____
For CONTINUATION OR DIVISIONAL APPS only; The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

19. CORRESPONDENCE ADDRESS					
<input type="checkbox"/> Customer Number: _____		OR <input checked="" type="checkbox"/> Correspondence address below			
Name	Allen F Rozman				
Address	735 Mockingbird Dr				
City	Murphy	State	Texas	Zip Code	75094
Country	USA	Telephone	972-384-1887	Fax	NA
Name (Print/Type)	Allen F Rozman	Registration No. (Attorney/Agent)	41280		
Signature	<i>AF Rozman</i>	Date	8-7-04		

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FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) **565.00**

Complete if Known

Application Number _____
 Filing Date _____
 First Named Inventor **Rozman**
 Examiner Name _____
 Art Unit _____
 Attorney Docket No. **ARAC-01**

METHOD OF PAYMENT (check all that apply)

Check Credit card Money Order Other None

Deposit Account:
 Deposit Account Number _____
 Deposit Account Name _____

The Director is authorized to: (check all that apply)
 Charge fee(s) indicated below Credit any overpayments
 Charge any additional fee(s) or any underpayment of fee(s)
 Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for <i>ex parte</i> reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(g)	
1806	180	1806	180	Submission of Information Disclosure Stmt	180
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) _____
 *Reduced by Basic Filing Fee Paid

FEE CALCULATION

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1001	770	2001	385	Utility filing fee	385
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) (\$) 385

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

	Total Claims	Extra Claims	Fee from below	Fee Paid
	20	-20** = 0	X	= 0
	3	-3** = 0	X	= 0
				= 0

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1202	18	2202	9	Claims in excess of 20	
1201	86	2201	43	Independent claims in excess of 3	
1203	290	2203	145	Multiple dependent claim, if not paid	
1204	86	2204	43	** Reissue independent claims over original patent	
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent	

SUBTOTAL (2) (\$) 0

**or number previously paid, if greater; For Reissues, see above

SUBTOTAL (3) (\$) 180

SUBMITTED BY (Complete if applicable)

Name (Print/Type)	Allen F Rozman	Registration No. (Attorney/Agent)	41280	Telephone	972-384-1887
Signature	<i>AF Rozman</i>	Date	E-7-04		

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

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PATENT APPLICATION FEE DETERMINATION RECORD					Application or Docket Number ARAC-01		
Substitute for Form PTO-875							
CLAIMS AS FILED – PART I							
(Column 1)		(Column 2)			SMALL ENTITY		
FOR	NUMBER FILED	NUMBER EXTRA			RATE	FEE	
BASIC FEE (37 CFR 1.16(a))		385			\$ 385		
TOTAL CLAIMS (37 CFR 1.16(c))		20	minus 20 =	*	0		
INDEPENDENT CLAIMS (37 CFR 1.16(b))		3	minus 3 =	*	0		
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(d))							
* If the difference in column 1 is less than zero, enter "0" in column 2.							
CLAIMS AS AMENDED – PART II							
(Column 1)		(Column 2)		SMALL ENTITY			
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE	ADDITIONAL FEE	
	Total (37 CFR 1.16(c))	*	Minus	**	=		
	Independent (37 CFR 1.16(b))	*	Minus	***	=		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))						
	TOTAL ADD'L FEE						
(Column 1)		(Column 2)		SMALL ENTITY			
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE	ADDITIONAL FEE	
	Total (37 CFR 1.16(c))	*	Minus	**	=		
	Independent (37 CFR 1.16(b))	*	Minus	***	=		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))						
	TOTAL ADD'L FEE						
(Column 1)		(Column 2)		SMALL ENTITY			
AMENDMENT C	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE	ADDITIONAL FEE	
	Total (37 CFR 1.16(c))	*	Minus	**	=		
	Independent (37 CFR 1.16(b))	*	Minus	***	=		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))						
	TOTAL ADD'L FEE						
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.							

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System and Method for Protecting a Computer System from Malicious Software

TECHNICAL FIELD

[0001] The present invention relates generally to computer hardware and software, and more particularly to a system and method for protecting a computer system from malicious software.

CROSS REFERENCE TO RELATED PATENTS AND APPLICATIONS

[0002] This application is related to the following U.S. patents and applications:

<i>U.S. Patent or PUB Application Number</i>	<i>Title</i>	<i>Inventor(s)</i>
5,826,013	Polymorphic virus detection module.	Nachenberg
5,978,917	Detection and elimination of macro viruses.	Chi
6,735,700	Fast virus scanning using session stamping.	Flint , et al
6,663,000	Validating components of a malware scanner.	Muttik , et al.
6,553,377	System and process for maintaining a plurality of remote security applications using a modular framework in a distributed computing environment.	Eschelbeck , et al.
6,216,112	Method for software distribution and compensation with replenishable advertisements.	Fuller, et al.
4,890,098	Flexible window management on a computer display.	Dawes , et al.
5,555,364	Windowed computer display.	Goldstein
5,666,030	Multiple window generation in computer display.	Parson

5,995,103	Window grouping mechanism for creating, manipulating and displaying windows and window groups on a display screen of a computer system.	Ashe
5,502,808	Video graphics display system with adapter for display management based upon plural memory sources.	Goddard , et al.
5,280,579	Memory mapped interface between host computer and graphics system.	Nye
5,918,039	Method and apparatus for display of windowing application programs on a terminal.	Buswell , et al
6,480,198	Multi-function controller and method for a computer graphics display system.	Kang
6,167,522	Method and apparatus for providing security for servers executing application programs received via a network	Lee , et al.
6,199,181	Method and system for maintaining restricted operating environments for application programs or operating systems.	Rechef , et al.
6,275,938	Security enhancement for untrusted executable code.	Bond , et al.
6,321,337	Method and system for protecting operations of trusted internal networks.	Reshef , et al.
6,351,816	System and method for securing a program's execution in a network environment.	Mueller , et al.
6,546,554	Browser-independent and automatic apparatus and method for receiving, installing and launching applications from a browser on a client computer.	Schmidt , et al.
6,658,573	Protecting resources in a distributed computer system.	Bischof , et al
6,507,904	Executing isolated mode instructions in a secure system running in privilege rings.	Ellison , et al.
6,633,963	Controlling access to multiple memory zones in an isolated execution environment.	Ellison , et al.
6,678,825	Controlling access to multiple isolated memories in an isolated execution environment.	Ellison , et al.

5,751,979	Video hardware for protected, multiprocessing systems.	McCrary
6,581,162	Method for securely creating, storing and using encryption keys in a computer system.	Angelo , et al.
6,134,661	Computer network security device and method.	Topp
6,578,140	Personal computer having a master computer system and in internet computer system and monitoring a condition of said master and internet computer systems	Policard
PUB Application # 20040054588	E-mail software and method and system for distributing advertisements to client devices that have such e-mail software installed thereon.	Jacobs, Paul E., et al.
PUB Application # 20040034794	System and method for comprehensive general generic protection for computers against malicious programs that may steal information and/or cause damages.	Mayer, Yaron ; et al.
PUB Application # 20040006715	System and method for providing security to a remote computer over a network browser interface.	Skrepetos, Nicholas C.
PUB Application # 20030177397	Virus protection in an internet environment.	Samman, Ben
PUB Application # 20030097591	System and method for protecting computer users from web sites hosting computer viruses.	Pham, Khai ; et al.
PUB Application # 20030023857	Malware infection suppression.	Hinchliffe, Alexander James ; et al.
PUB Application # 20020066016	Access control for computers.	Riordan, James
PUB Application # 20020174349	Detecting malicious alteration of stored computer files.	Wolff, Daniel Joseph ; et al.

[0003] The above-listed U.S. Patents and U.S. Patent applications are incorporated by reference as if reproduced herein in their entirety.

BACKGROUND

[0004] The very popular and ubiquitous rise of the 'personal' computer system as an essential business tool and home appliance, together with the exponential growth of the Internet as a means of providing information flows across a wide variety of connected computing devices, has changed the way people live and work. Information in the form of data files and executable software programs regularly flows across the planetary wide system of interconnected computers and data storage devices.

[0005] Popular and ubiquitous computer hardware and software architectures have typically been designed to allow for open interconnection via, for example, the internet, a VPN, a LAN, or a WAN, with information often capable of being freely shared between the interconnected computers. This open interconnection architecture has contributed to the adoption and mainstream usage of these computers and the subsequent interconnection of vast networks of computers. This easy to use system has given rise to the explosive popularity of applications such as email, internet browsing, search engines, interactive gaming, instant messaging, and many, many more.

[0006] Although there are definite benefits to this open interconnection architecture, a lack of security against unwanted incursions into the computers main processing and non-volatile memory space has emerged as a significant problem. An aspect of some current computer architectures that has contributed to the security problem is that by default programs are typically allowed to interact with and/or alter other programs and data files, including critical operating system files, such as the windows registry, for example. Current open interconnection architectures have opened the door to a new class of unwanted malicious software generally known as malware. This malware is capable of infiltrating any computer system which is

connected to a network of interconnected computer systems. Malware is comprised of, but not limited to, classes of software files known as viruses, worms, Trojan horses, browser hijackers, adware, spyware, pop-up windows, data miners, etc. Such malware attacks are capable of stealing data by sending user keystrokes or information stored on a user's computer back to a host, changing data or destroying data on personal computers and/or servers and/or other computerized devices, especially through the Internet. In the least, these items represent a nuisance that interferes with the smooth operation of the computer system, and in the extreme, can lead to the unauthorized disclosure of confidential information stored on the computer system, significant degradation of computer system performance, or the complete collapse of computer system function.

[0007] Malware has recently become much more sophisticated and much more difficult for users to deal with. Once resident on a computer system, many malware programs are designed to protect themselves from deletion. For example, some malware programs comprise a pair of programs running simultaneously, with each program monitoring the other for deletion. If one of the pair of programs is deleted, the other program installs a replacement within milliseconds. In another example, some malware will run as a Windows program with a .dlls extension, which Windows may not allow a user to delete while it is executing. Malware may also reset a user's browser home page, change browser settings, or hijack search requests and direct such requests to another page or search engine. Further, the malware is often designed to defeat the user's attempts to reset the browser settings to their original values. In another example, some malware programs secretly record user input commands (such as keystrokes), then send the information back to a host computer. This type of malware is capable of stealing important user information, such as passwords, credit account numbers, etc.

[0008] Many existing computers rely on a special set of instructions which define an operating system (O/S) in order to provide an interface for computer programs and computer components such as the computer's memory and central processing unit (CPU). Many current operating systems have a multi-tasking capability which allows multiple computer programs to run simultaneously, with each program not having to wait for termination of another in order to execute instructions. Multi-tasking O/S's allow programs to execute simultaneously by allowing programs to share resources with other programs. For example, an operating system running multiple programs executing at the same time allows the programs to share the computer's CPU time. Programs which run on the same system, even if not simultaneously with other programs, share space on the same nonvolatile memory storage medium. Programs which are executing simultaneously are presently able to place binaries and data in the same physical memory at the same time, limited to a certain degree by the O/S restrictions and policy, to the extent that these are properly implemented. Memory segments are shared by programs being serviced by the O/S, in the same manner. O/S resources, such as threads, process tables and memory segments, are shared by programs executing simultaneously as well.

[0009] While allowing programs to share resources has many benefits, there are resulting security related ramifications, particularly regarding malware programs. Security problems include allowing the malware program: to capitalize CPU time, leaving other programs with little or no CPU time; to read, forge, write, delete or otherwise corrupt files created by other programs; to read, forge, write, delete or otherwise corrupt executable files of other programs, including the O/S itself; and to read and write memory locations used by other programs to thus corrupt execution of those programs.

[0010] In the case of a computer connected to the Internet, the computer may run an O/S, with several user applications, together comprising a known and trusted set of programs, concurrently with an Internet browser, possibly requiring the execution of downloaded code, such as Java applets, or EXE/COM executables, with the latter programs possibly containing malware. Many security features and products are being built by software manufacturers and by O/S programmers to prevent malware infiltrations from taking place, and to ensure the correct level of isolation between programs. Among these are architectural solutions such as rings-of-protection in which different trust levels are assigned to memory portions and tasks, paging which includes mapping of logical memory into physical portions or pages, allowing different tasks to have different mapping, with the pages having different trust levels, and segmentation which involves mapping logical memory into logical portions or segments, each segment having its own trust level wherein each task may reference a different set of segments. Since the sharing capabilities using traditional operating systems are extensive, so are the security features. However, the more complex the security mechanism is, the more options a malware practitioner has to bypass the security and to hack or corrupt other programs or the O/S itself, sometimes using these very features that allow sharing and communication between programs to do so.

[0011] Further, regarding malware programs, for virtually every software security mechanism, a malware practitioner has found a way to subvert, or hack around, the security system, allowing a malware program to cause harm to other programs in the shared environment. This includes every operating system and even the Java language, which was designed to create a standard interface, or sandbox, for Internet downloadable programs or applets.

[0012] Major vulnerabilities of existing computer systems lies in the architectures of the computer system and of the operating system itself. A typical multi-tasking O/S environment

includes an O/S kernel loaded in the computer random access memory (RAM) at start-up of the computer. The O/S kernel is a minimal set of instructions which loads and off-loads resources and resource vectors into RAM as called upon by individual programs executing on the computer. Sometimes, when two or more executing programs require the same resource, such as printer output, for example, the O/S kernel leaves the resource loaded in RAM until all programs have finished with that resource. Other resources, such as disk read and write, are left in RAM while the operating system is running because such resources are more often used than others. The inherent problem with existing architectures is that resources, such as RAM, or a hard disk, are shared by programs simultaneously, giving a malware program a conduit to access and corrupt other programs, or the O/S itself through the shared resource. Furthermore, as many application programs are of a general nature, many features are enabled by default or by the O/S, thus in many cases bypassing the O/S security mechanism. Such is the case when a device driver or daemon is run by the O/S in kernel mode, which enables it unrestricted access to many if not all the resources.

[0013] The most common state-of-the-art solutions for preventing malware infiltration are software based, such as blockers, sweepers and firewalls, for example, and hardware based solutions such as router/firewalls. Examples of software designed to counter malware are Norton Systems Works, distributed by the Symantec Corporation, Ad-aware, distributed by the Lavasoft Corporation of Sweeden, Spy Sweeper, distributed by the Webroot Software Corporation, Spyware Guard, distributed by Javacool Software LLC, among others. Currently there are a plethora of freeware, shareware and purchased software programs designed to counter malware by a variety of means. Such anti-malware programs are limited because they can only detect

known malware that has already been identified (usually after the malware has already attacked one or more computers).

[0014] Network firewalls are typically based on packet filtering, which is limited in principle, since the rules determining which packets to accept and which to reject may contain subjective decisions based on trusting known sites or known applications. However, once security is breached for any reason (for example, due to a software or hardware error, a new piece of malware unrecognized by the anti-malware program or firewall, or an intended deception), a malicious application may take over the computer or server or possibly the entire network and create unlimited damages (directly or indirectly by opening the door to additional malicious applications).

[0015] The methods in the prior art are typically comprised of embedded software countermeasures that detect and filter unwanted intrusions in real time, or scan the computer system either at the direction of a user or as a scheduled event. Two problems arise from these methods. In the first instance, a comprehensive scan, detect, and elimination of malware from desired incoming data streams could significantly slow or preclude the interactive nature of many applications such as gaming, messaging, and browsing. In the second instance, newly implemented software screens may be quickly circumvented by malware practitioners who are determined to pass their files through the screen. Newly discovered malware leads to the development of additional screens, which lead to more malware, etc., thus creating an escalating cycle of measure, countermeasure. The basic flaw is that all incoming executable data files must be resident on the computer's main processor to perform their desired function. Once resident on that processor, access may be gained to non-volatile memory and other basic computer system

elements. Malware exploits this key architectural flaw to infiltrate and compromise computer systems.

[0016] The majority of these applications rely upon a scanning engine which searches suspect files for the presence of predetermined malware signatures. These signatures are held in a database which must be constantly updated to reflect the most recently identified malware. Typically, users regularly download replacement databases, either over the Internet, from a received e-mail, or from a CDROM or floppy disc. Users are also expected to update their software engines every so often in order to take advantage of new virus detection techniques (e.g. which may be required when a new strain of malware is detected).

[0017] Many of the aforementioned applications are also not effective against security holes, for example, in browsers or e-mail programs, or in the operating system itself. Security holes in critical applications are discovered quite often, and just keeping up with all the patches is cumbersome. Also, without proper generic protection against, for example, Trojan horses, even VPNs (Virtual Private Networks) and other forms of data encryption, including digital signatures, are not totally safe because information can be stolen before or below the encryption layer. Even personal firewalls are typically limited, because once a program is allowed to access the Internet, there are often few limitations on what files may be accessed and transmitted back to a host.

[0018] A major problem faced by computer users connected to a network is that the network interface program (a browser, for example) is resident on the same processor as the O/S and other trusted programs, and shares space on a common memory storage medium. Even with security designed into the O/S, malware practitioners have demonstrated great skill in circumventing software security measures to create malware capable of corrupting critical files

on the shared memory storage medium. When this happens, users are often faced with a lengthy process of restoring their computer systems to the correct configuration, and often important files are simply lost because no backup exists.

[0019] Therefore, what is needed in the art is a means of isolating the network interface program from the main computer system such that the network interface program does not share a common memory storage area with other trusted programs. The network interface program may be advantageously given access to a separate, protected memory area, while being unable to initiate access to the main computer's memory storage area. With the network interface program constrained in this way, malware programs are rendered unable to automatically corrupt critical system and user files located on the main memory storage area. If a malware infection occurs, a user would be able to completely clean the malware infection from the computer using a variety of methods. A user could simply delete all files contained in the protected memory area, and restore them from an image residing on the main memory area, for example.

[0020] Other discussions of malware, its effects on computer systems, techniques used by malware practitioners to install malware, and techniques for detection and removal, may be found in the published literature, and in some of the patents and applications previously incorporated by reference. Reference to malware may be found in a technical white paper entitled "Spyware, Adware, and Peer-to-Peer Networks: The Hidden Threat to Corporate Security.", by Kevin Townsend, © Pest Patrol Inc. 2003. Pest Patrol is a Carlisle, Pennsylvania based developer of software security tools. Another reference is a technical white paper entitled "Beyond Viruses: Why anti-virus software is no longer enough." by David Stang, PhD, © Pest Patrol Inc. 2002. Yet another reference is "The Web: Threat or Menace?" from "Firewalls and Internet Security: Repelling the Wily Hacker", Second Edition, Addison-Wesley. ISBN 0-201-

63466-X, Copyright 2003. The foregoing references are incorporated by reference as if reproduced herein in their entirety.

SUMMARY OF THE INVENTION

[0021] Embodiments of the present invention achieve technical advantages as a system and method for protecting a computer system from malicious software attacks via a network connection.

[0022] It is an object of the present invention to provide a computer system capable of preventing malware programs from automatically corrupting critical user and system files.

[0023] It is another object of the present invention to confine any malware infection that may occur to a separate, protected part of the computer system.

[0024] It is another object of the present invention to provide a user with an easy and comprehensive method of removing the malware infection, even if the user's anti-malware software is incapable of detecting and/or removing the malware infection.

[0025] It is another object of the present invention to provide a user with an easy and comprehensive method of restoring critical system and user files that may have been corrupted by a malware infection.

[0026] It is another object of the present invention to provide a computer system configured such that attempts by malware to record and report data entry by the computer user via input devices such as keyboards, mouse clicks, microphones, or any other data input devices are effectively blocked.

[0027] It is another object of the present invention to provide a computer system capable of executing instructions in a first logical process, wherein the first logical process is capable of accessing data contained in a first memory space and a second memory space.

[0028] It is another object of the present invention to provide a computer system capable of executing instructions in a second logical process, wherein the second logical process is capable of accessing data contained in the second memory space, the second logical process being further capable of exchanging data across a network of one or more computers.

[0029] It is another object of the present invention to provide a computer system capable of displaying, in a windowed format on a display terminal, data from the first logical process and the second logical process, wherein a video processor is adapted to combine data from the first and second logical processes and transmit the combined data to the display terminal

[0030] It is another object of the present invention to provide a computer system configured such that a malware program downloaded from the network and executing as part of the second logical process is incapable of initiating access to the first memory space.

[0031] It is another object of the present invention to provide a computer system configured such that corrupted data files residing on the second memory space may be restored from an image residing on the first memory space.

[0032] It is another object of the present invention to provide a computer system configured such that data files residing on the second memory space may be automatically deleted when the second logical process is terminated.

[0033] It is another object of the present invention to provide a computer system configured such that the second electronic data processor and the video processor are co-located on a circuit card, the circuit card being communicatively coupled to the first electronic data processor.

[0034] These objects and other advantages are provided by a preferred embodiment of the present invention wherein a computer system comprising a first electronic data processor is

communicatively coupled to a first memory space and to a second memory space, a second electronic data processor is communicatively coupled to the second memory space and to a network interface device, wherein the second electronic data processor is capable of exchanging data across a network of one or more computers via the network interface device, a video processor is adapted to combine video data from the first and second electronic data processors and transmit the combined video data to a display terminal for displaying the combined video data in a windowed format, wherein the computer system is configured such that a malware program downloaded from the network and executing on the second electronic data processor is incapable of initiating access to the first memory space.

[0035] BRIEF DESCRIPTION OF THE DRAWINGS

[0036] For a more complete understanding of the present invention, and the advantages thereof, reference is now made to the following descriptions taken in conjunction with the accompanying drawings, in which:

[0037] Figure 1 illustrates a preferred embodiment of an exemplary computer system according to the principles of the present invention;

[0038] Figure 2 illustrates a preferred embodiment of an exemplary protected process flow according to the principles of the present invention;

[0039] Figure 3 illustrates a preferred embodiment of an exemplary file download process according to the principles of the present invention;

[0040] Figure 4 illustrates a preferred embodiment of an exemplary memory restoration process according to the principles of the present invention;

[0041] Figure 5 illustrates a preferred embodiment of an exemplary automatic memory restoration and cleaning process according to the principles of the present invention;

[0042] Figure 6 illustrates a preferred embodiment of an exemplary interactive network process flow according to the principles of the present invention;

[0043] Figure 7 illustrates a preferred embodiment of an exemplary computer system according to the principles of the present invention;

[0044] Figure 8 illustrates a preferred embodiment of an exemplary computer system according to the principles of the present invention;

[0045] Figure 9 illustrates a preferred embodiment of an exemplary computer system according to the principles of the present invention;

[0046] Figure 10 illustrates a preferred embodiment of an exemplary protected process flow according to the principles of the present invention.

[0047] DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENTS

[0048] The making and using of the presently preferred embodiments are discussed in detail below. It should be appreciated, however, that the present invention provides many applicable inventive concepts that can be embodied in a wide variety of specific contexts. The specific embodiments discussed are merely illustrative of specific ways to make and use the invention, and do not limit the scope of the invention.

[0049] A computer system, constructed in accordance with a preferred embodiment of the present invention, is illustrated in Figure 1. Computer system 100 may represent, for example, a personal computer (PC) system, a server, a portable computer, such as a notebook computer, or any data processing system, a personal digital assistant (PDA), a communication device such as a cell phone, or device that is capable of being connected to a network of one or more computers. System 100 comprises a first processor 120 (P1) communicatively coupled to a first memory and data storage area 110 (M1). P1 100 may comprise, for example, a microprocessor, such as a Pentium ® 4 processor, manufactured by the Intel Corporation, or a Power PC ® processor, manufactured by the IBM Corporation. Other electronic data processors manufactured by other companies, including but not limited to electronic data processors realized in Application Specific Integrated Circuits (ASICs) or in Field Programmable Gate Arrays (FPGAs), are within the spirit and scope of the present invention.

[0050] The first memory and data storage area 110 may comprise both volatile and nonvolatile memory devices, such as DRAMs and hard drives, respectively. Any memory structure and/or device capable of being communicatively coupled to P1 may be advantageously used in the present invention. M1 may be used to store, for example, critical operating system files, user data and applications, interim results of calculations, etc. The many uses of computer

memory are well understood by those skilled in the art, and will not be discussed further here. One may refer to several of the aforementioned patents and applications incorporated by reference, in addition to other references, for a discussion of existing computer architectures and uses of computer memory. Also part of system 100 is user interface 150, which may comprise, for example, a keyboard, mouse or other pointing device, microphone, pen pad, etc. Any device or method capable of inputting commands and/or data from a user 160 to computer system 100 may be used to advantage. A video processor 170 is used to format information for display and transmit the display information to a video display device 180, which is viewed by user 160. Video processor 170 typically includes an associated video memory area, which may be dedicated to the video processor, or shared with other resources. It is understood in the art that the video processor 170 may be part of processor P1 120, in that it may be integrated onto the microprocessor chip. Video processor 170 may also comprise a processor IC located on a video graphics card, which is communicatively coupled to a computer motherboard. Additionally, video processor 170 may comprise circuitry located on the computer motherboard. Further still, functions of video processor 170 may be split between the processor, motherboard, or separate video graphics card.

[0051] It is often desirable to connect computer system 100 to a network of one or more computer devices 195, such as the Internet, a LAN, WAN, VPN, etc. This connection may be accomplished via network interface device 190, which may comprise, for example, a telephone modem, a cable modem, a DSL line, a router, gateway, hub, etc. Any device capable of interfacing with the network 195 may be used, via a wired connection, a wireless connection, or an optical connection, for example. Network interface device 190 may connect to network 195 through one or more additional network interface devices (not shown). For example, network

interface device 190 may comprise a gateway or router, connected to a cable modem, with the cable modem connected to network 195. Of course, other configurations are within the spirit and scope of the present teachings.

[0052] In accordance with a preferred embodiment of the present invention, network 195 is isolated from the first processor 120 and memory 110 by a second processor 140 (P2). Second processor 140 may comprise any electronic data processor, such as the devices previously described as applicable to first processor 120. Communicatively coupled to P2 140 is second memory and data storage area 130 (M2), which may comprise any memory device or devices, such as the devices previously described as applicable to first memory 110.

[0053] The architecture of computer system 100 is designed to be capable of protecting memory 110 from malware initiated intrusions, and preventing malware from initiating unwanted processes on first processor 120. This is accomplished by using second processor 140 to isolate 110 and 120 from network 195. In a preferred embodiment, P2 140 is communicatively coupled to memory storage area M2 130, and may be configured such that P2 140 is incapable of initiating access to memory storage area M1 110. For example, P2 140 may be capable of accessing memory storage area M1 110 with the strict permission of user 160, either through a real time interaction or via stored configuration or commands. Such a configuration may be desirable in a multi-core or multi processor system, where user 160 may wish to use P2 140 in either a protected mode or an unprotected mode, depending on the application. However, user 160 is capable of denying P2 140 the capability of initiating access to memory storage area M1 110 without the user's permission. P1 120 is communicatively coupled to both memory areas M1 110 and M2 130, thereby enabling P1 120 to access data downloaded from the network 195. In the presently described embodiment, any malware that

has intruded the 130-140 system is thus confined to the 130-140 system, and may be configured to be incapable of automatically corrupting data contained on M1 110, or of automatically initiating an unwanted process on P1 120.

[0054] This and other features of the present teachings may be illustrated with reference to the example process flow 200 of Figure 2. Computer user 160 wishes to connect to network 195 via for example, a browser program such as Internet Explorer or Netscape Navigator. Of course, other methods of connecting to network 195 may be used. User 160 inputs commands to open a protected process (e.g. a browser program in this example) at step 210. At step 220, 1st processor 120 instructs 2nd processor 140 to initiate the protected process and open one or more process windows. Second processor 140, in conjunction with memory 130, then interacts with the network 195 via network interface device 190, receiving and transmitting the data necessary to execute the desired protected process, such as browsing the internet or communication via e-mail. Second processor 140 and memory 130 act as a separate computer system, interacting with network 195 while isolating network 195 from the first processor 120 and memory 110. Memory 130 may store critical application and system files required by second processor 140 to execute the desired tasks. Memory 130 also stores data necessary to carry out the desired protected process. In the example of Figure 2, first processor 120 receives user interface data from user 160, and passes user interface data to second processor 140 when the protected process window is selected or active, illustrated at step 230. User interface data, such as keystrokes for example, may be advantageously encrypted by P1 120 before passing the data to P2 140, with network interface device 190 possibly decrypting the data prior to transmitting the data to network 195. Encrypting, for example keystroke data, may disrupt the efforts of spyware programs designed to store user keystrokes for later transmission to a host computer. Second

processor 140 generates video data for the protected process window(s) and passes the video data to video processor 170, for eventual display on video display 180, shown at step 240. Video processor 170 then interleaves the video data from all processes being executed by first processor 120 and second processor 140, at step 250. While there are many applicable methods for displaying video data from multiple sources, one such method was described in U.S. Patent 5,751,979, entitled "Video hardware for protected, multiprocessing systems", previously incorporated by reference.

[0055] In accordance with a preferred embodiment of the present invention, if any malware is downloaded from network 195, it is stored in memory 130, and/or run as a process on second processor 140. In the configuration of computer system 100, any downloaded malware is rendered incapable of self initiating access to memory 110 or first processor 120, because second processor 140 is rendered incapable of initiating access to 110 and 120 without a direct or stored command from user 160. Any malware infection is thus confined. If a malware attack corrupts files and/or disrupts the operation of the 130-140 system, the user may easily shut down the corrupted process and restore the corrupted files from a protected image stored on memory 110, for example.

[0056] In accordance with a preferred embodiment of the present invention, the operating system controlling the 110-120 system may be different from an operating system controlling the protected 130-140 system. Conversely, a common operating system may control both the 110-120 system and the protected 130-140 system.

[0057] A user 160 may find it desirable to transfer files from the protected 130-140 system to the 110-120 system. User 160 may find it necessary, for example, to transfer an attachment from an e-mail message stored on memory 130 to the 110-120 system for further processing,

modification, etc. In this case, the computer system 100 may go through a process whereby a file or other data is transferred from the 130-140 system to the 110-120 system, exemplified by the process 300 illustrated in Figure 3.

[0058] In accordance with a preferred embodiment of the present invention, at step 310, user 160 selects one or more data files to download from network 195. The desired data is downloaded to the 130-140 system at step 320. The user 160 then directs computer system 100 to move the desired file(s) from the 130-140 system to the 110-120 system at step 330. P1 120 may then perform a malware scan on the desired files, either in real time as the data is being transferred, or while the data still resides in M2 130 (step 340). Alternatively, P2 140 may perform the malware scan. At step 350, processor P2 140 (or P1 120) determines if malware has been detected in the desired file(s), and thus P1 120 makes a decision. If no malware is detected, the file(s) are moved or copied onto M2 110 at step 360. If malware is detected, the data file(s) are quarantined on M2 130, and the data file(s), if transferred to M1 100, are erased or quarantined. Once malware is detected, the user 160 may be alerted of the detection (step 370). Either as a result of user input or stored configuration commands, the infected file(s) are deleted, cleaned, or quarantined on M2 130, at step 380.

[0059] The user 160 would of course understand the dangers inherent in transferring downloaded files from the 130-140 system to the 110-120 system. For example, the user's anti-malware software may not be up to date, or may simply be unable to detect certain types of malware. Also, the malware itself may be so new that the user's anti-malware definitions have not been updated as yet. Therefore the user may wish to keep the files on the 130-140 system for some period of time. Consequently, it may be desirable to have resident on the 130-140 system a variety of application software such as readers, thereby allowing the user to examine the files

without risking transferring the files to the 110-120 system. These reader programs, such as Adobe Acrobat Reader, by the Adobe Systems Corporation, or Visio reader, by the Microsoft Corporation, are typically subset application programs of the full featured application programs, and may thus require far less memory space than the full application. Additionally, software companies often distribute the reader programs for free (or a nominal fee), thereby providing advertising for the full featured application in the hopes that it will be eventually purchased by the user. This reader application may be opened and executed on the 130-140 system in a manner similar to the process described in Figure 2. Of course, a user 160 may also load a full application into the 130-140 system, enabling processing and modification of a downloaded file fully in the protected space, without risking a transfer of the file to the 110-120 system.

[0060] In the event the 130-140 system becomes infected with malware, the user 160 may wish to clean the 130-140 system. This cleaning may be accomplished by running an anti-malware application on the 130-140 system. However, if the infection is too severe for the anti-malware software to clean, or if the malware is undetectable by the user's anti-malware software, the user may wish to restore critical system files (or other user data files) for the 130-140 system from a protected image stored on M1 100, for example. It is of course understood that the critical system file image may be restored from another device, such as a removable drive or a CD, for example. The user may however consider it more convenient to restore the critical system files from an image on M1 100.

[0061] In accordance with a preferred embodiment of the present invention, an exemplary process for restoring M2 130 from M1 110 is illustrated by process 400 in Figure 4. At step 410, malware is detected or suspected to be infecting the 130-140 system. The user instructs P1 120 to reload critical system files onto M2 130 from a protected image on M1 110, at step 420.

Depending on the severity of the infection, P1 120 may scan all or part of the data contained on M2 130 for malware, and may scan all processes currently running on P2 140. The scan may be initiated by direct instructions from the user, or by stored configuration commands, for example (step 430). P1 120 may delete all or part of the data contained on M2. P1 120 may also reset P2 140 and/or delete the contents of any RAM communicatively coupled to P2 140 (step 440). Once the 130-140 system has been adequately cleaned, clean critical system files are loaded onto M2 130 from any of the sources previously mentioned, preferably an image stored on M1 110 (step 450). The 130-140 may now be rebooted and/or reinitialized from the clean critical system files. In an extreme case where the malware resists deletion by the operating system, the user may elect to do a low level format on the M1 110 memory in order to ensure that the malware infection has been cleaned.

[0062] In accordance with a preferred embodiment of the present invention, a user 160 may consider it advantageous for the 130-140 system to be automatically reinitialized from clean critical system files when a protected process window is opened. In this way, the new protected process is much less likely to be affected by an infection from a previous protected process session. Of course, a user may have a plurality of protected processes open and running during a protected process session. It may only be necessary to automatically reinitialize from clean critical system files when the first protected process is opened during a session. Subsequent protected processes may not require automatic re-initialization from clean critical system files. An exemplary automatic re-initialization from clean critical system files is illustrated by steps 510, 520 and 530 in Figure 5a. Additionally, processes running on P2 140 may be automatically scanned and compared with an allowed process list, particularly as a protected process is started up. If any process is detected which is not on the allowed list, the user may be alerted that a

possible malware infection has occurred. A user may then choose to scan or clean the system, or inspect the unknown process to determine if the process will be allowed to continue to execute. A user may also update the list of allowed processes from time to time as new, legitimate processes are added, for example, by a browser software update.

[0063] In accordance with a preferred embodiment of the present invention, a user 160 may consider it advantageous for the 130-140 system to be automatically cleaned when a protected process window is closed. In this way, any detected or undetected malware infections are much less likely to affect a future protected process session. It may only be necessary to automatically clean the 130-140 system when the last protected process is closed during a session. An exemplary automatic cleaning process is illustrated by steps 540, 550, 560, 570 and 580 in Figure 5b. The memory M2 130 and processor P2 140 may be automatically scanned for malware infections as the protected process session closes. Infected files may be deleted or quarantined automatically. Additionally, there may be a variety of files that a user may wish to have automatically cleaned or deleted upon closing a protected process session. For example, temporary internet files, cookies, browser plug-ins, etc., may be deleted or scanned for malware automatically. A user may also wish to have websites that contributed to a malware infection noted, and may wish to place the offending websites in a block list, such that the offending websites cannot be accessed in the future without the user specifically authorizing access. As part of the malware scan, the malware scanner may automatically log the offending website(s), and block future access. Also, the P2 140 processor and any associated non-volatile memory may be reset and/or erased as the protected process session is closed. The exemplary automatic cleaning process illustrated in Figure 5b may therefore reduce the risk of a malware infection being carried over to a future protected process session.

[0064] Interactive network processes such as interactive gaming have become very popular in recent years. In current interactive gaming processes, a user may log onto a game host located on network 195, or connect to other computers whose users wish to participate in the game. Computer games, such as Quake 3 Arena, by Id Software Incorporated, or Call of Duty, by Activision Incorporated, are just two examples of the plethora of games available that may be played interactively over a network. The user's computer system typically provides the bulk of the processing power and video graphics generation required to display the often fast moving and richly detailed three dimensional game environments. Information about the current and new state of the game is exchanged between various users' computer systems, often in real time. With this type of process, a relatively modest amount of data is required to be exchanged between users, or a user and the host, with the bulk of the processing, data manipulation, and graphics generation being handled by the user's local machine. However, this open network connection may become a conduit for malware practitioners to exploit, allowing malware to be downloaded onto a user's computer during a gaming session, often without the user being aware of the malware transfer. It would be advantageous, therefore, for a computer system to be much less susceptible to malware attacks during gaming sessions.

[0065] In accordance with a preferred embodiment of the present invention, an exemplary process flow 600, illustrated in Figure 6, allows an interactive network process, such as online gaming, to be carried out on computer system 100. A user initiates an interactive network process via 2nd processor P2 140 (step 610). P2 140 receives interactive network process status data from network connection (step 620). P2 140 informs 1st processor P1 120 that interactive network process status data is available (step 630). P1 120 retrieves interactive network process status data from P2 140 and uses the status data to update the interactive network process and

update video display (step 640). P1 120 then passes the updated interactive network process status data to P2 140 (step 650). P2 140 then sends the updated interactive network process status data to the network via network connection 195 (step 660). The exemplary process 600, or a process functionally equivalent, is carried out continuously as long as the interactive process is running.

[0066] By using exemplary process 600 (or an equivalent), computer system 100 is capable of actively deciding what data to download and use, and what data to discard or scan for malware. The game status data is buffered prior to loading it onto the 110-120 system. The 110-120 system may be advantageously configured to only accept game status information in the proper format, thereby minimizing the chance that a malware practitioner could deceptively load malware onto the 110-120 system.

[0067] Additionally, computer system 100 could be configured such that system 130-140 is powerful enough to process the interactive network process without exchanging information with the 110-120 system. Such a configuration may be more secure, as a conduit between the 110-120 system and the 130-140 system may not be necessarily opened. The 130-140 system may contain all the necessary files to facilitate the interactive network process. Higher end computers, workstations, and servers often contain dual (or more) processors, such as the Mac G5, manufactured by the Apple Computer Corporation, or a single physical processor with a multiple processor core. Often, the processors in these multi-processor machines are of equal or comparable processing power. In such a configuration, one processor may be dedicated to performing functions equivalent to those described for P1 120, with a second processor performing the functions equivalent to those described for P2 140. A computer system 100 employing multiple processors may be advantageously configured such that one of the

processors is dedicated to protected processes only when a network process is active. When a user is not accessing a network, the multiple processors in a computer system may be dedicated to other processes, such as performing complex calculations or simulations, or running complex non-network interactive gaming processes, for example. Alternatively, the computer system 100 may be configured such that the 110-120 system simply transfers required files to the video processor 170 or the 130-140 system at the appropriate time to facilitate the interactive network process. The 110-120 system could be commanded to retrieve and transfer the files at the command of the video processor, or at the command of the 130-140 system, or a combination of both.

[0068] In accordance with embodiments of the present invention, computer system 100 may be configured in a variety of ways, while still remaining within the spirit and scope of the present teachings. One such exemplary embodiment is illustrated in Figure 7. Subsystem 700 of computer system 100 comprises a video processor 770, a second processor 740, and a second memory data storage area 730. The demarcation line illustrated by subsystem 700 may be either physical or logical. For example, subsystem 700 may comprise an add-on card, such as a high end video card, or a video/network card. If configured in this exemplary manner, a user could upgrade an existing computer system to take advantage of the teachings of the present invention. Subsystem 700 may be plugged into the main motherboard of an existing computer, for example. The motherboard connector may be already communicatively coupled to the 110-120 system, thereby facilitating the system upgrade. The network interface device 190 may be connected directly to subsystem 700, or network interface device 190 could be integrated as part of subsystem 700. Memory data storage area 730 may comprise any of the volatile and/or non-volatile memory types previously described, or any combination thereof, or any suitable memory

storage medium, for example. Alternatively, subsystem 700 may be located on the motherboard, as opposed to an add-on card. Further still, portions of subsystem 700, such as video processor 770, and/or second processor 740, for example, may be integrated together with P1 120. It is understood that functions described herein may be configured in a wide variety of ways, without departing from the spirit and scope of the present teachings.

[0069] In accordance with a preferred embodiment of the present invention, an alternate configuration for computer system 100 is illustrated in Figure 8. Subsystem 800 of computer system 100 comprises a video processor 870, a second processor 840, and a second memory data storage area 830. The demarcation line illustrated by subsystem 800 may be either physical or logical. For example, subsystem 800 may comprise an add-on card, such as a high end video card, or a video/network card. If configured in this exemplary manner, a user could upgrade an existing computer system to take advantage of features of the present invention. In the exemplary embodiment of Figure 8, second processor 840 and video processor 870 are integrated together, perhaps on a common integrated circuit. Such a configuration may help to reduce the cost of subsystem 800, and/or improve the performance. Additionally, a circuit designer may find it advantageous to integrate 840 and 870 together to facilitate communication between the functions. It is understood that such an integration of functions may create a device in which an external user may find it difficult to distinguish where the function of 870 ends and the function of 840 begins, and vice versa. Such a device, however, would remain within the spirit and scope of the present teachings.

[0070] In accordance with a preferred embodiment of the present invention, an alternate configuration for computer system 100 is illustrated in Figure 9. Computer system 100 comprises a video processor 970, processor 960, and a memory data storage area 950. Processor

960 may further comprise multiple processor cores, illustrated by 1st processor 920 and 2nd processor 940. It is understood that processor 960 may contain more than 2 processor cores. Microprocessors manufactured with multiple processor cores are becoming common in the industry, and such multi-core processors may be particularly advantageous when used in accordance with the present teachings. Memory data storage area 950 may further comprise 1st memory data storage area 910 and 2nd memory data storage area 930. Memory areas 910 and 930 may comprise, for example, different partitions on a single hard drive, and/or different address ranges in a RAM bank.

[0071] Referring again to Figure 9, the functions carried out by processors 920 and 940 may comprise separate, secure logical processes executing on the same physical processor. For example, a first logical process may comprise executing instructions necessary to carry out the functions of an operating system, or the first logical process may comprise executing instructions necessary to carry out the functions of a first computer program, including but not limited to a word processor. A second logical process may comprise executing instructions necessary to carry out the functions of a web browser program, or may comprise executing instructions necessary to carry out the functions of an instant messenger program, for example. A computer system 100 constructed in accordance with the principles of the present invention would be capable of disallowing a secure logical process, such as the second logical process described above, access to certain memory spaces, and/or disallowing a secure logical process from initiating access to another logical process. For example, the functions carried out by P2 140 (Figure 1) may comprise a secure logical process, which may be configured to be unable to automatically initiate access to either M1 110 or another logical process performing the functions of P1 120. Additionally, memory areas 910 and 930 may comprise separate, isolated memory

zones within a common physical memory space, such as separate partitions within the same hard drive, for example.

[0072] Some malware programs are designed to secretly record user input commands (such as keystrokes, for example), then send the information back to a host computer. This type of malware is capable of stealing important user information, such as passwords, bank account numbers, social security numbers, driver's license numbers, credit account numbers, etc. Theft of such personal information could result in the theft of actual assets (money or securities, etc.) or perhaps used for identity theft, among other malicious intents. Clearly, a computer system capable of ensuring the protection of such sensitive information would be desirable.

[0073] In accordance with an embodiment of the present invention, a computer system is configured such that attempts by malware to record and report data entry by the computer user via input devices such as keyboards, mouse clicks, microphones, or any other data input devices are effectively blocked. Encryption of user input data, such as keystrokes, is an effective means of protecting such data from theft by malware. Specific techniques used for data encryption and decryption are well known in the art, and need not be discussed further here. There are many examples in the art that may be examined to better understand various encryption/decryption techniques and the use of encryption/decryption in computer systems. Among these are U.S. Patents 6,581,162 entitled "Method for securely creating, storing and using encryption keys in a computer system." issued to Angelo , et al., and 6,134,661 entitled "Computer network security device and method." Issued to Topp. The aforementioned patents have been previously incorporated by reference.

[0074] In accordance with the present teachings, a method of operating a computer system involving data encryption is described. In step 1010, a user opens a protected process where

some level of data encryption is desired, for example, the encryption of sensitive user interface data or user files. Other data may be encrypted as desired. At step 1020, processor P1 120 instructs processor P2 140 to initiate a protected process and open a process window. P1 120 encrypts the sensitive data and passes the user interface data to P2 140 when a P2 140 window is selected or active (step 1030). P2 140 generates video data for the P2 140 process window(s) and passes the video data to video processor 170 (step 1040). Video processor 170 decrypts the sensitive data and interleaves the video data from all P1 and P2 processes (step 1050). P2 140 passes the encrypted sensitive data to network interface device 190 (step 1060). Network interface device 190 decrypts the sensitive data and passes the decrypted sensitive data to network 195. Of course, other methods of operating a computer system in which data is encrypted prior to being passed to P2 140, and decrypted after leaving the control of P2 140, are within the spirit and scope of the present teachings.

[0075] In accordance with a preferred embodiment of the present invention, data desired to be protected is encrypted prior to sending the data to processor P2 140, which may be running one or more malware processes. Processor P2 140 does not have visibility to the decryption keys, and is therefore unable to decrypt the data. Data may be decrypted by network interface device 190 prior to forwarding the data on to network 195. Conversely, encrypted data may be sent directly over the network for decryption by another computer system, including, for example, an internet banking host computer. Decryption keys may be passed between P1 120 and network interface device 190 via a communication link 191. Video processor 170 may decrypt the data prior to displaying the data on video display 180, with decryption keys possibly passed between P1 120 and video processor 170 via a communication link 171. Conversely, data may be passed directly to video processor 170 via a communication link 151.

[0076] A user 160 may wish to encrypt just a portion of the data destined for the network, such as passwords, credit card numbers, etc. Conversely, a user may wish to encrypt large blocks of data, such as e-mails or large application files containing sensitive text and/or graphics. Instructions may be passed to network interface device 190 directing 190 to decrypt one or more specific data blocks prior to sending the data blocks to network 195. Conversely, instructions may be passed to network interface device 190 directing 190 to pass one or more specific data blocks to network 195 without decryption.

[0077] While this invention has been described with reference to illustrative embodiments, this description is not intended to be construed in a limiting sense. Various modifications and combinations of the illustrative embodiments, as well as other embodiments of the invention, will be apparent to persons skilled in the art upon reference to the description. It is therefore intended that the appended claims encompass any such modifications or embodiments.

WHAT IS CLAIMED IS:

- 1 1. A method of operating a computer system, comprising the steps of:
 - 2 executing instructions in a first logical process, wherein the first logical process is capable of
 - 3 accessing data contained in a first memory space and a second memory space;
 - 4 executing instructions in a second logical process, wherein the second logical process is
 - 5 capable of accessing data contained in the second memory space, the second logical process
 - 6 being further capable of exchanging data across a network of one or more computers;
 - 7 displaying, in a windowed format on a display terminal, data from the first logical process
 - 8 and the second logical process, wherein a video processor is adapted to combine data from the
 - 9 first and second logical processes and transmit the combined data to the display terminal;
 - 10 wherein the computer system is configured such that a malware program downloaded from
 - 11 the network and executing as part of the second logical process is incapable of initiating access
 - 12 to the first memory space.

- 1 2. The method of claim 1 wherein the first memory space and the second memory space
- 2 comprise separate regions of a common memory space.

- 1 3. The method of claim 1 wherein the second logical process is selected from the group
- 2 consisting of; an electronic mail process, an instant messaging process, an internet browser
- 3 process, an interactive gaming process, a virtual private network (VPN) process, and a reader
- 4 application process.

- 1 4. The method of claim 1 wherein the first logical process is operating on a first electronic data
- 2 processor, and the second logical process is operating on a second electronic data processor.

- 1 5. The method of claim 4 wherein the first and second electronic data processors are part of a
2 multi-core electronic data processor.
- 1 6. The method of claim 1 and further comprising the step of restoring at least one corrupted data
2 file residing on the second memory space from an image residing on the first memory space.
- 1 7. The method of claim 1 and further comprising the step of automatically deleting at least one
2 data file residing on the second memory space when the second logical process is terminated.
- 1 8. The method of claim 1 and further comprising the steps of:
2 encrypting data with the first logical process;
3 transferring the encrypted data from the first logical process to the second logical process;
4 transferring the encrypted data from the second logical process to the network interface
5 device.
- 1 9. The method of claim 8 and further comprising the steps of:
2 decrypting the data with the network interface device;
3 transferring the decrypted data from the network interface device to the network.

1 10. A computer system, comprising:
2 a first electronic data processor communicatively coupled to a first memory space and a
3 second memory space;
4 a second electronic data processor communicatively coupled to the second memory space
5 and to a network interface device, wherein the second electronic data processor is capable of
6 exchanging data across a network of one or more computers via the network interface device;
7 a video processor adapted to combine video data from the first and second electronic data
8 processors and transmit the combined video data to a display terminal for displaying the
9 combined video data in a windowed format;
10 wherein the computer system is configured such that a malware program downloaded from
11 the network and executing on the second electronic data processor is incapable of initiating
12 access to the first memory space.

1 11. The computer system of claim 10 wherein the first memory space and the second
2 memory space comprise separate regions of a common memory space.

1 12. The computer system of claim 10 wherein the first and second electronic data processors
2 are part of a dual processor computer system.

1 13. The computer system of claim 10 wherein the second electronic data processor and the
2 video processor are co-located on a circuit card, the circuit card being communicatively coupled
3 to the first electronic data processor.

1 14. The computer system of claim 10 wherein the computer system is configured such that a
2 malware program downloaded from the network and executing on the second electronic data
3 processor is incapable of initiating the execution of instructions on the first electronic data
4 processor.

1 15. A computer system, comprising:
2 at least one electronic data processor capable of executing instructions;
3 at least a first and second memory space;
4 a video processor;
5 wherein the electronic data processor, first and second memory space, and video
6 processor are configured for performing the steps of:
7 executing instructions in a first logical process, wherein the first logical process is
8 capable of accessing data contained in the first memory space and the second memory space;
9 executing instructions in a second logical process, wherein the second logical process is
10 capable of accessing data contained in the second memory space, the second logical process
11 being further capable of exchanging data across a network of one or more computers;
12 displaying, in a windowed format on a display terminal, data from the first logical
13 process and the second logical process, wherein the video processor is adapted to combine data
14 from the first and second logical processes and transmit the combined data to the display
15 terminal;
16 wherein the computer system is configured such that a malware program downloaded
17 from the network and executing as part of the second logical process is incapable of initiating
18 access to the first memory space.

1 16. The computer system of claim 15 wherein the computer system is further configured such
2 that a malware program downloaded from the network and executing as part of the second
3 logical process is incapable of initiating the execution of instructions as part of the first logical
4 process.

1 17. The computer system of claim 15 and further comprising:
2 at least one network interface device capable of exchanging data with both the second
3 logical process and with the network

1 18. The computer system of claim 17 wherein the network interface device is capable of
2 decrypting data received from the second logical process and transmitting the decrypted data to
3 the network while preventing the second logical process from accessing the decrypted data.

1 19. The computer system of claim 15 wherein the at least one electronic data processor is
2 selected from the group consisting of:
3 a multi-core electronic data processor;
4 dual electronic data processors; and
5 multiple electronic data processors.

1 20. The computer system of claim 15 and further configured for performing the step of:
2 restoring at least one corrupted data file residing on the second memory space from an
3 image residing on the first memory space.

System and Method for Protecting a Computer System from Malicious Software

ABSTRACT

[0078] In a computer system, a first electronic data processor is communicatively coupled to a first memory space and a second memory space. A second electronic data processor is communicatively coupled the second memory space and to a network interface device. The second electronic data processor is capable of exchanging data across a network of one or more computers via the network interface device. A video processor is adapted to combine video data from the first and second electronic data processors and transmit the combined video data to a display terminal for displaying the combined video data in a windowed format. The computer system is configured such that a malware program downloaded from the network and executing on the second electronic data processor is incapable of initiating access to the first memory space.

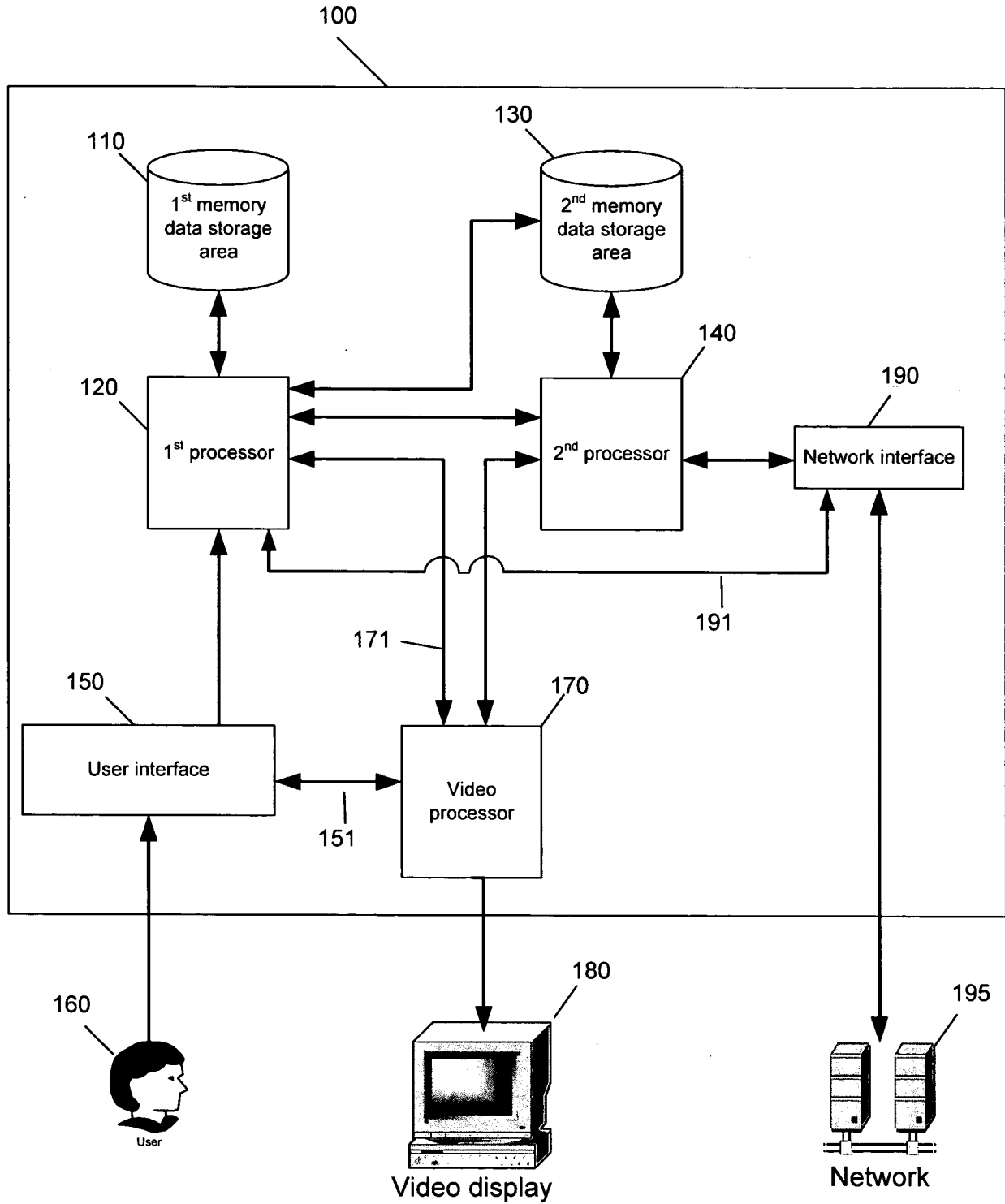


Fig. 1

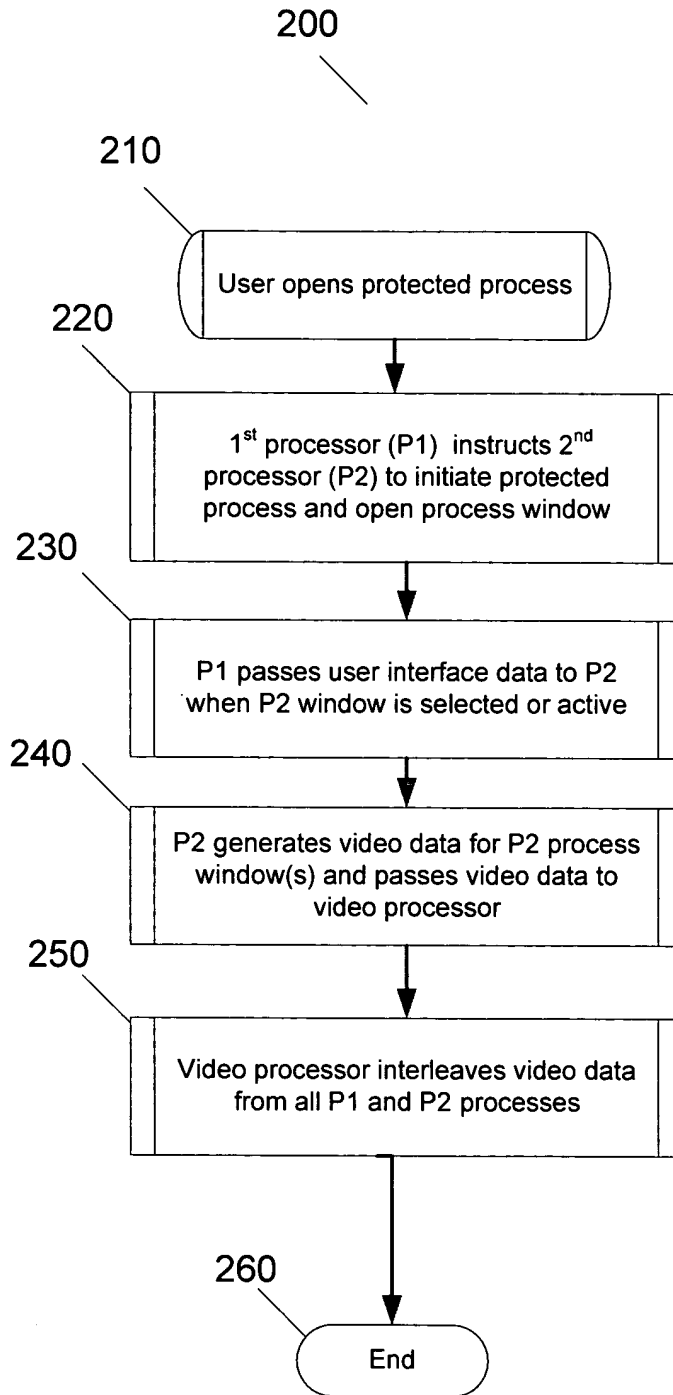


Fig. 2

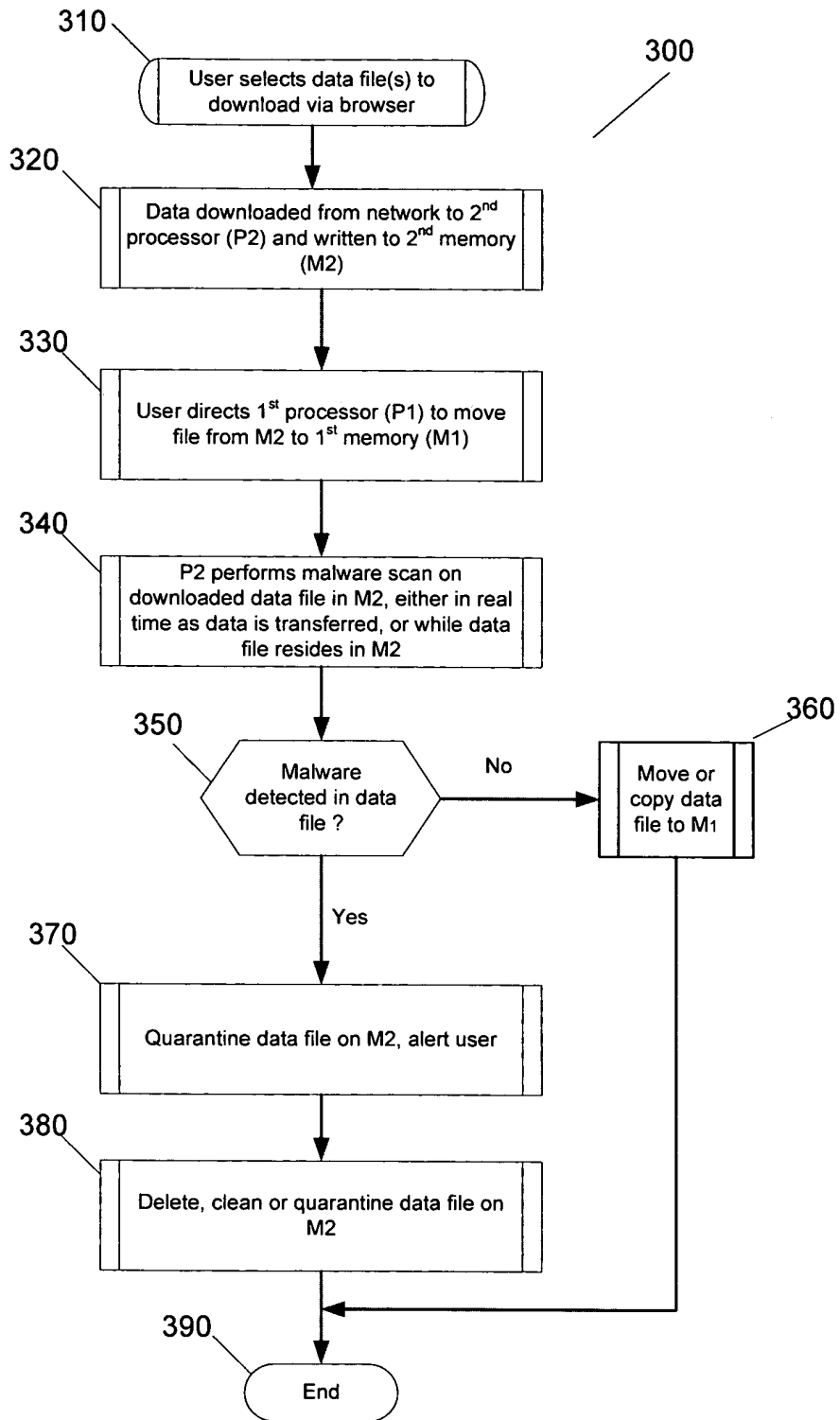


Fig. 3

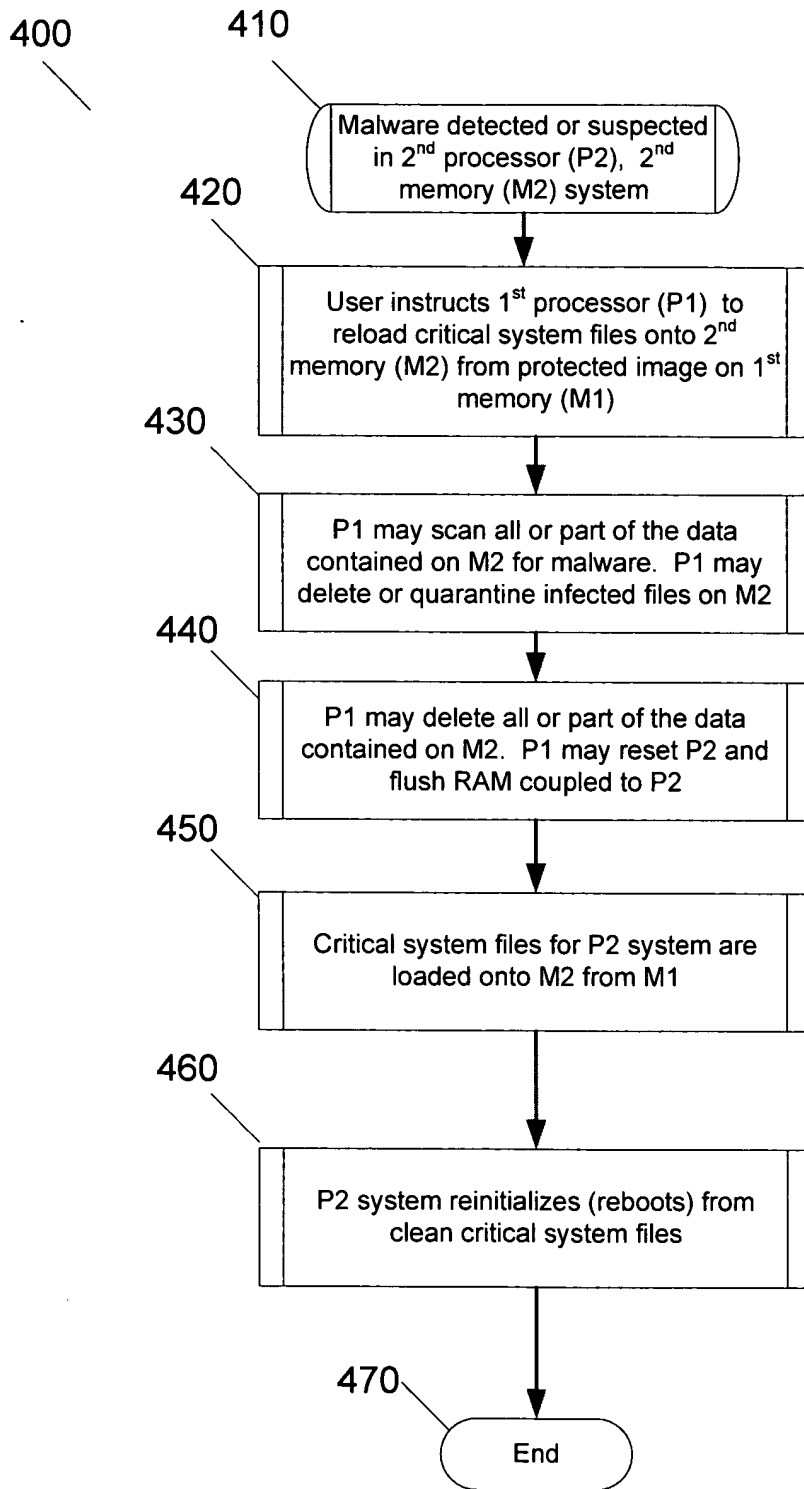


Fig. 4

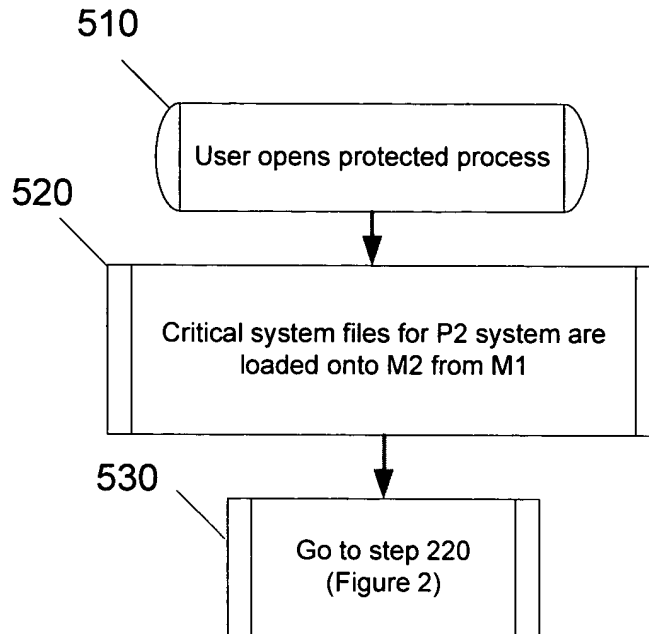


Fig. 5A

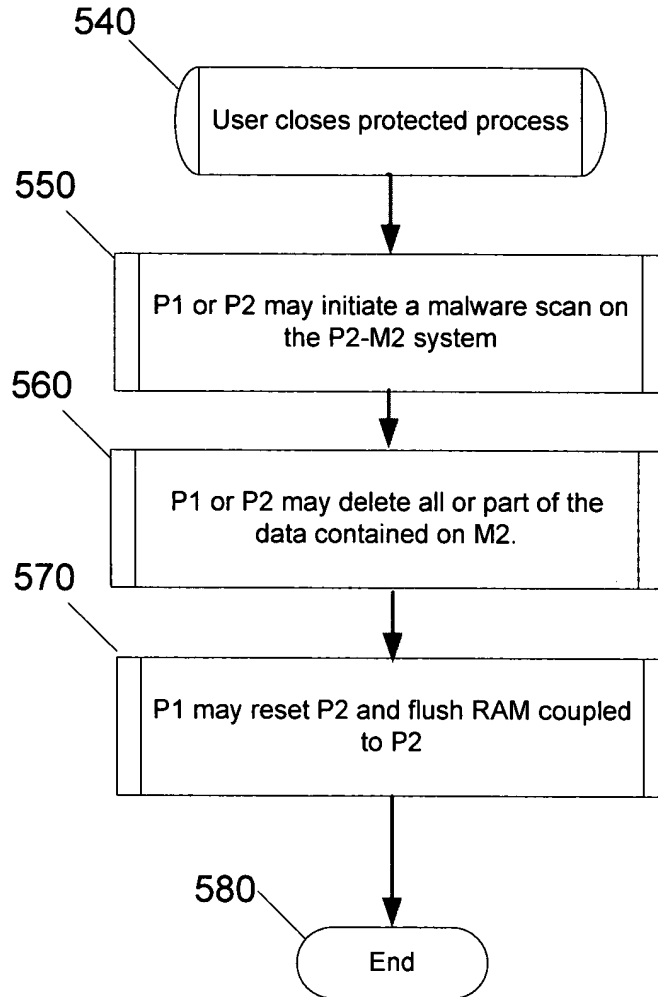


Fig. 5B

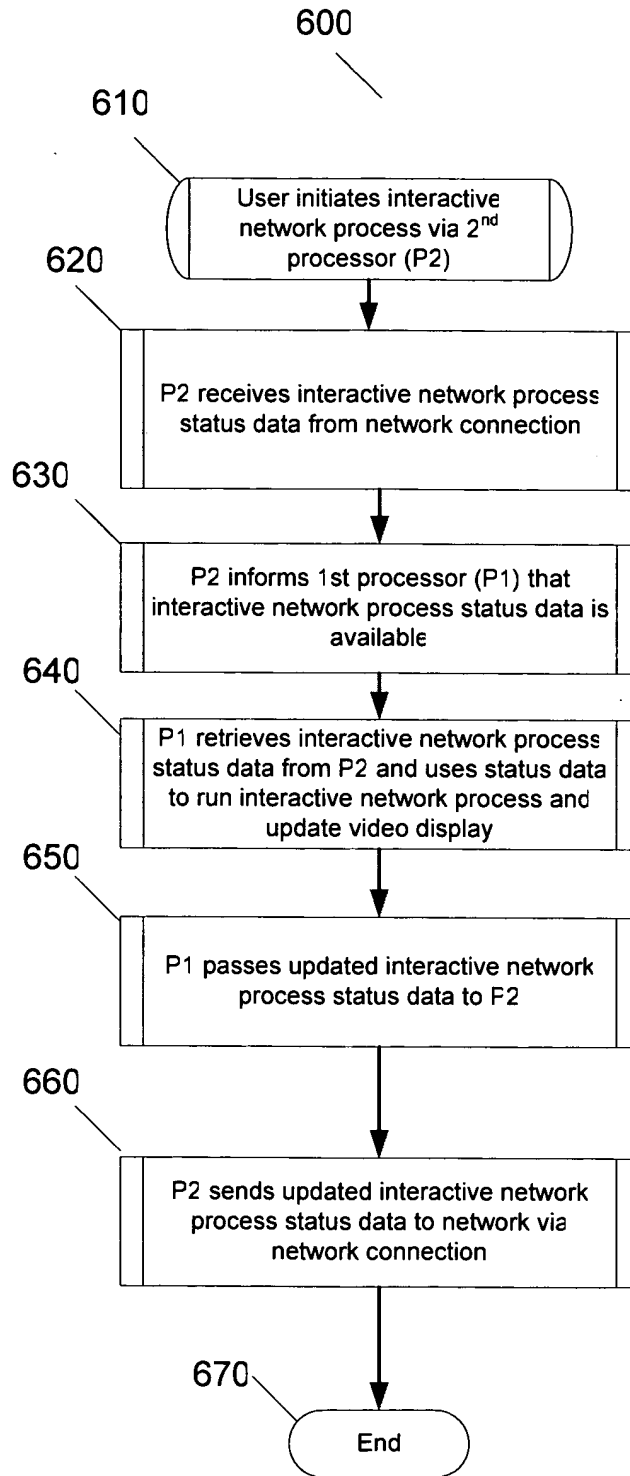


Fig. 6

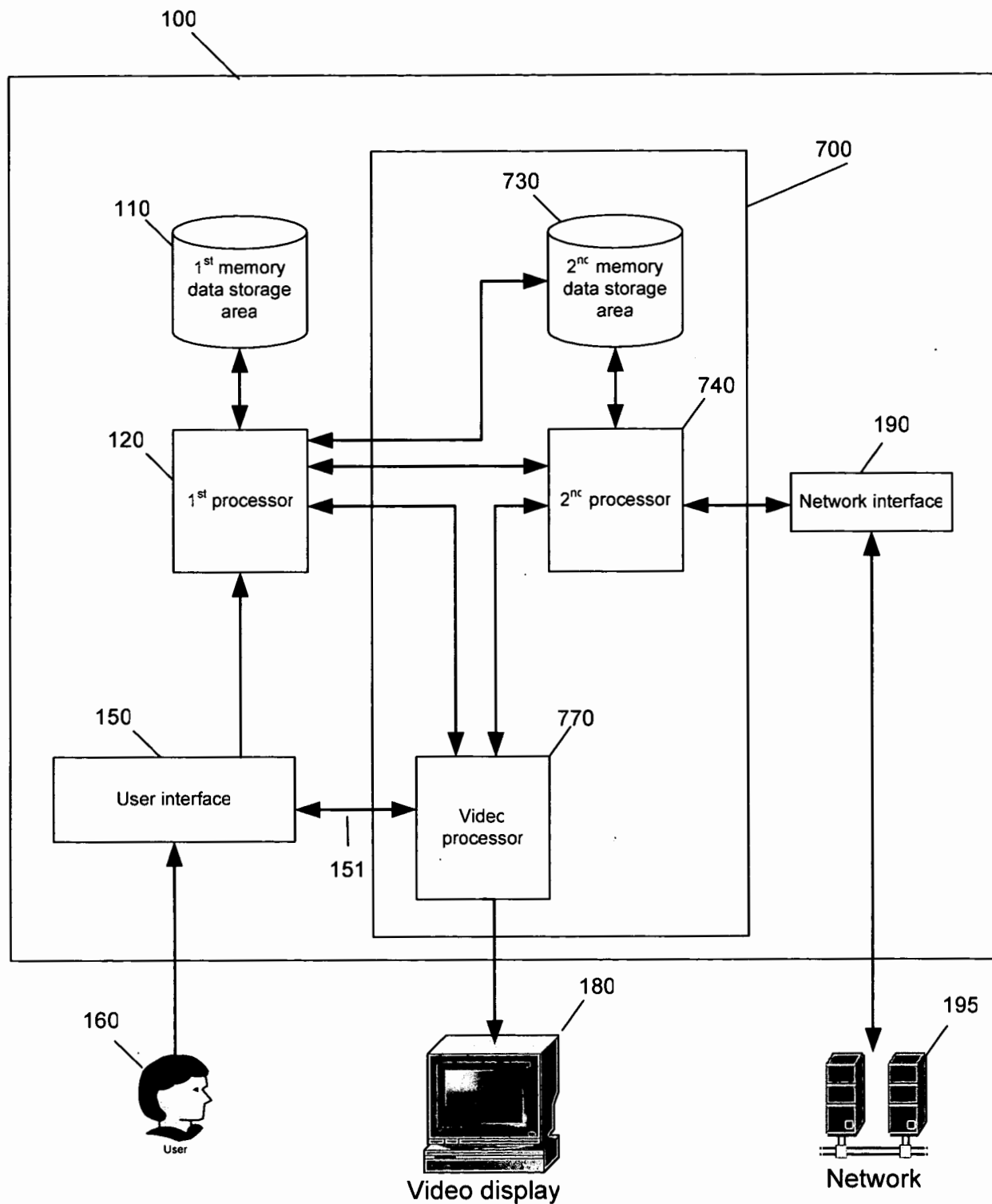


Fig. 7

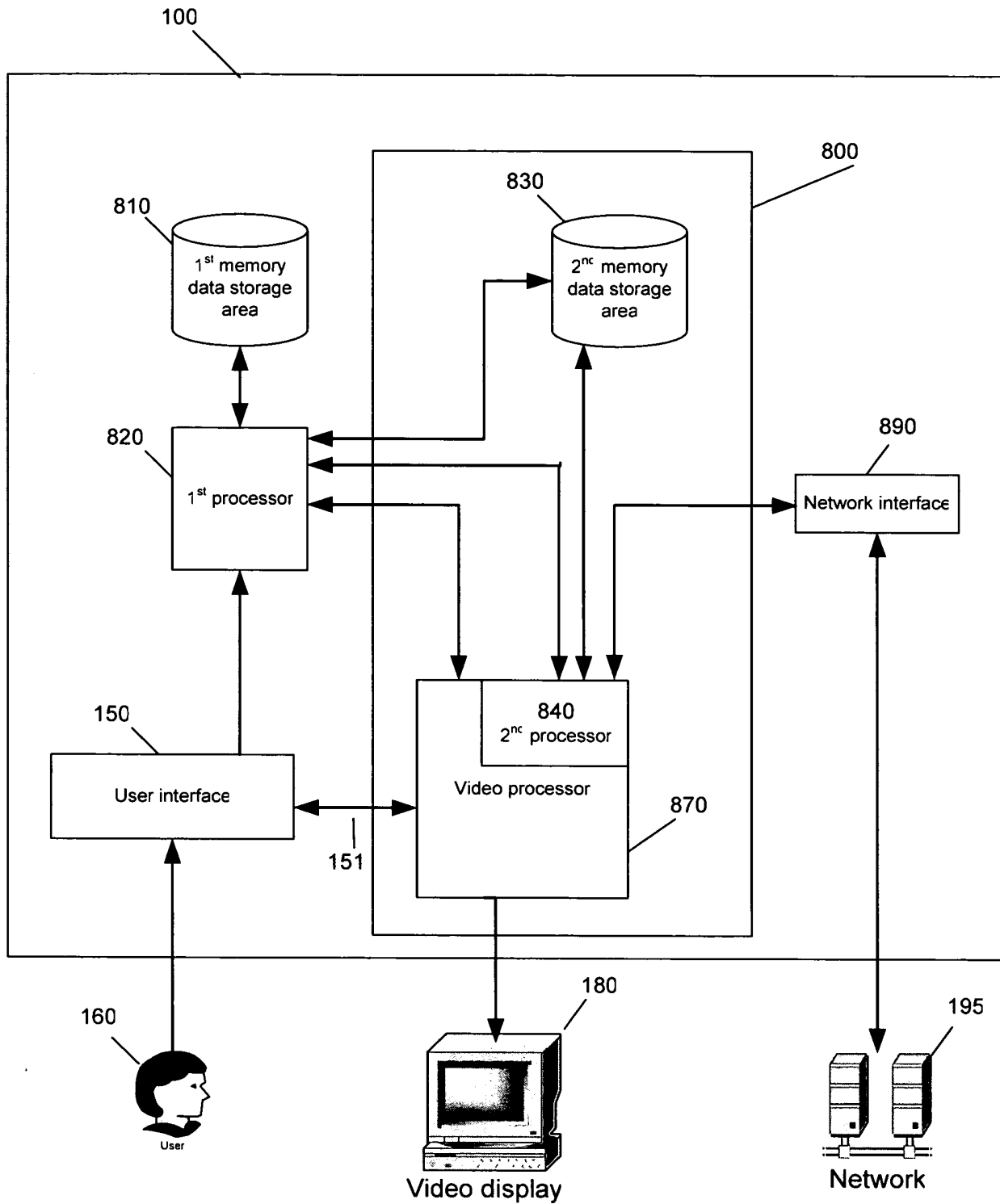


Fig 8

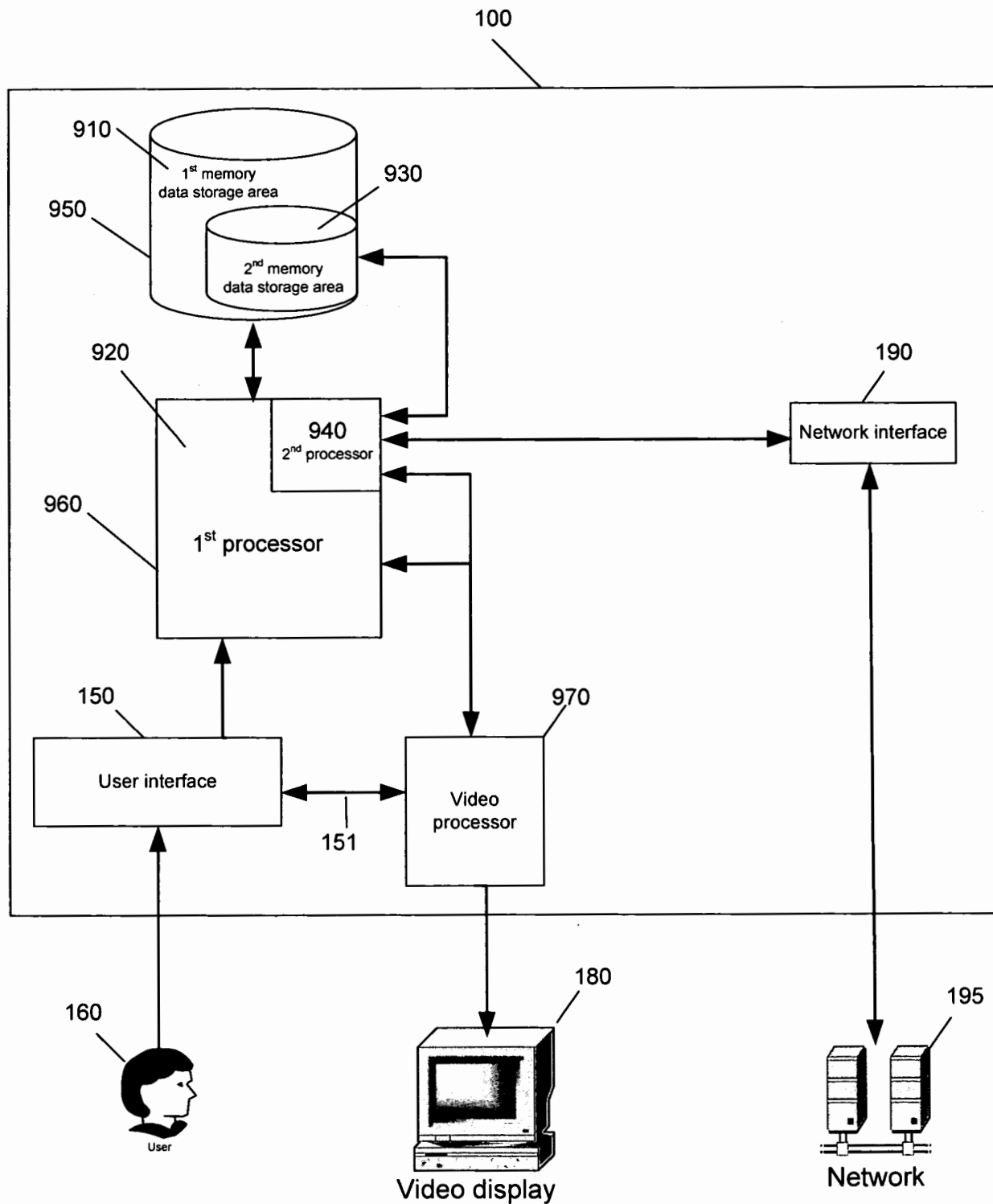


Fig. 9

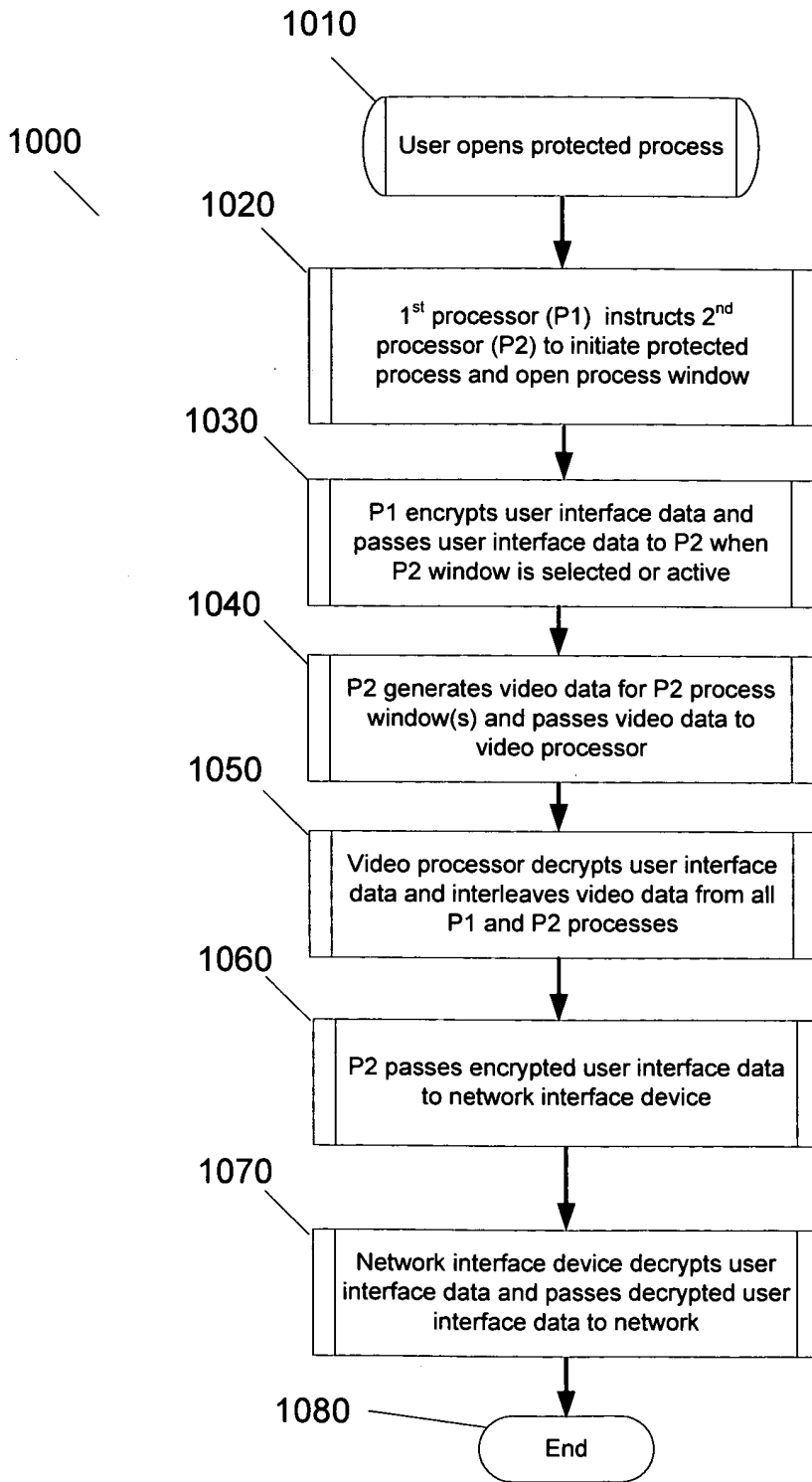


Fig. 10

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**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)****Title of Invention**

As the below named inventor(s), I/we declare that:

This declaration is directed to:

- The attached application, or
- Application No. _____, filed on _____,
- as amended on _____ (if applicable);

I/we believe that I/we am/are the original and first inventor(s) of the subject matter which is claimed and for which a patent is sought;

I/we have reviewed and understand the contents of the above-identified application, including the claims, as amended by any amendment specifically referred to above;

I/we acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me/us to be material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT International filing date of the continuation-in-part application.

All statements made herein of my/own knowledge are true, all statements made herein on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and may jeopardize the validity of the application or any patent issuing thereon.

FULL NAME OF INVENTOR(S)Inventor one: Allen F RozmanSignature:  Citizen of: United States of AmericaInventor two: Alfonso J. CioffiSignature:  Citizen of: United States of America

Inventor three: _____

Signature: _____ Citizen of: _____

Inventor four: _____

Signature: _____ Citizen of: _____

 Additional inventors or a legal representative are being named on _____ additional form(s) attached hereto.

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PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2003

Application or Document Number

ARAC-01

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	20	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	20 minus 20 =	0
INDEPENDENT CLAIMS	3 minus 3 =	0
MULTIPLE DEPENDENT CLAIM PRESENT	<input type="checkbox"/>	

SMALL ENTITY TYPE

OR OTHER THAN SMALL ENTITY

RATE	FEE
BASIC FEE	385 00
X\$ 9=	
X43=	
+145=	
TOTAL	385

RATE	FEE
BASIC FEE	770 00
X\$18=	
X86=	
+290=	
TOTAL	

* If the difference in column 1 is less than zero, enter "0" in column 2

CLAIMS AS AMENDED - PART II

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total	Minus	=
	Independent	Minus	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>			

SMALL ENTITY OR

OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE
X\$ 9=	
X43=	
+145=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
X\$18=	
X86=	
+290=	
TOTAL ADDIT. FEE	

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total	Minus	=
	Independent	Minus	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>			

RATE	ADDITIONAL FEE
X\$ 9=	
X43=	
+145=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
X\$18=	
X86=	
+290=	
TOTAL ADDIT. FEE	

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT C	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total	Minus	=
	Independent	Minus	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>			

RATE	ADDITIONAL FEE
X\$ 9=	
X43=	
+145=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
X\$18=	
X86=	
+290=	
TOTAL ADDIT. FEE	

- * If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 - ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
 - *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
- The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

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PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

08/11/2004 NMEKONEN 00000023 10913609

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PTO-1556
(5/87)

U S Government Printing Office: 2002 - 486-287/80033

Application Data Sheet

Application Information

Application Type:: Regular
 Subject Matter:: Utility
 Suggested Classification:: 713/1
 Suggested Group Art Unit::
 CD-ROM or CD-R? None
 Title:: System and Method for Protecting a Computer System from Malicious Software

Attorney Docket Number:: ARAC-01
 Request for Early Publication?:: No
 Request for Non-Publication?:: No
 Suggested Drawing Figure:: 1
 Total Drawing Sheets:: 10
 Small Entity:: Yes
 Petition included?:: No
 Secrecy Order in Parent Appl.?:: No

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Postal or Zip Code of mailing address:: 75094
Telephone:: (972) 384-1887
E-Mail address:: m3rozman@comcast.net

[This application has no priority claims or assignee data]

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT		Filing Date	
		First Named Inventor	ROZMAN
		Art Unit	
		Examiner Name	
		Attorney Docket Number	ARAC-01
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		Number-Kind Code ² (if known)				
		US-	5,826,013	10-20-1998	NACHENBERG	
		US-	5,978,917	11-02-1999	CHI	
		US-	6,735,700	5-11-2004	FLINT, ET AL.	
		US-	6,663,000	12-16-2003	MUTTIK, et al.	
		US-	6,553,377	4-22-2003	ESCHELBECK, et al.	
		US-	6,216,112	4-10-2001	FULLER, et al.	
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		US-	5,666,030	9-9-1997	PARSON	
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		US-	5,502,808	3-26-1999	GODDARD, et al.	
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		US-	5,918,039	6-29-1999	BUSWELL, et al.	
		US-	6,480,198	11-12-2002	KANG	
		US-	6,167,522	12-26-2000	Lee, et al.	
		US-	6,199,181	3-6-2001	Rechet, et al.	
		US-	6,275,938	8-14-2001	BOND, et al.	
		US-	6,351,816	2-26-2002	MUELLER, et al.	

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		Filing Date			
		First Named Inventor	Rozman		
		Art Unit			
		Examiner Name			
Sheet	2	of	2	Attorney Docket Number	ARAC-01

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		US- 6,456,554	4-8-2003	SCHMIDT, et al.	
		US- 6,658,573	12-2-2003	BISCHOF, et al.	
		US- 6,507,904	1-14-2003	ELLISON, et al.	
		US- 6,633,963	10-14-2003	ELLISON, et al.	
		US- 6,678,825	1-13-2003	ELLISON, et al.	
		US- 5,751,979	5-12-1998	MCCRORY	
		US- 20040054588	3-18-2004	JACOBS, et al.	
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		US- 6,134,661	10-17-2000	TOPP	
		US- 6,578,140	6-10-2003	POLICARD	
		US-			

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	Application Number			
	Filing Date			
	First Named Inventor	Rozman		
	Art Unit			
	Examiner Name			
Sheet	1	of	1	
	Attorney Docket Number		ARAC-01	

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	1	KEVIN TOWNSEND, "SPYWARE, ADWARE, AND PEER TO PEER NETWORKS: THE HIDDEN THREAT TO CORPORATE SECURITY" @PEST PATROL, 2003	
	2	DAVID STANG, PH.D, "BEYOND VIRUSES: WHY ANTI-VIRUS SOFTWARE IS NO LONGER ENOUGH", @PEST PATROL 2002	
	3	"THE WEB: THREAT OR MENACE?" FROM "FIREWALLS AND INTERNET SECURITY: REPELLING THE WILEY HACKER" SECOND EDITION, ADDISON-WESLEY, ISBN 0-201-6344-X, 2003 ©	

Examiner Signature	Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	665	(dual multiple) near (OS operat\$3 near systems) and (remov\$3 delet\$3) with (file program)	US-PGPUB; USPAT	OR	ON	2007/09/13 14:50
L2	1	(dual multiple) near (OS operat\$3 near systems) and (remov\$3 delet\$3) with (file program) with after near (run\$3 ran execut\$3)	US-PGPUB; USPAT	OR	ON	2007/09/13 15:09
L3	17	(dual multiple) near (OS operat\$3 near systems) with encrypt\$3 \	US-PGPUB; USPAT	OR	ON	2007/09/13 15:09
L4	17	(dual multiple) near (OS operat\$3 near systems) with encrypt\$3	US-PGPUB; USPAT	OR	ON	2007/09/13 15:19
L5	36	(dual multiple) near (OS operat\$3 near systems) same encrypt\$3	US-PGPUB; USPAT	OR	ON	2007/09/13 15:19
L6	19	(dual multiple) near (OS operat\$3 near systems) same encrypt\$3 not I4	US-PGPUB; USPAT	OR	ON	2007/09/13 15:23
L7	676	(dual multiple) near (OS operat\$3 near systems) and encrypt\$3 not I5	US-PGPUB; USPAT	OR	ON	2007/09/13 15:33
L8	12	(dual multiple) near (OS operat\$3 near systems) and encrypt\$3 with (inter\$OS inter\$operat\$3 near system inter\$process\$2)	US-PGPUB; USPAT	OR	ON	2007/09/13 15:35
L9	0	(dual multiple) near (OS operat\$3 near systems) and encrypt\$3 with (data information) with first near (OS operat\$3 near system)	US-PGPUB; USPAT	OR	ON	2007/09/13 15:38
L11	1	(dual multiple) near (OS operat\$3 near systems) and encrypt\$3 with first near (OS operat\$3 near system)	US-PGPUB; USPAT	OR	ON	2007/09/13 15:37
L12	9	(US-20040039944-\$).did. or (US-7146640-\$ or US-6996828-\$ or US-6678712-\$ or US-6578140-\$ or US-6385721-\$ or US-7260839-\$ or US-6199181-\$ or US-5673403-\$). did.	US-PGPUB; USPAT	OR	OFF	2007/09/13 15:37
L13	2	12 and encrypt\$3	US-PGPUB; USPAT	OR	ON	2007/09/13 15:37
L14	81	(dual multiple) near (OS operat\$3 near systems) and encrypt\$3 with (OS operat\$3 near system) with (transfer communicat\$3 data)	US-PGPUB; USPAT	OR	ON	2007/09/13 15:39
L15	6	(dual multiple) near (OS operat\$3 near systems) and encrypt\$3 with (OS operat\$3 near system) with (transfer communicat\$3)	US-PGPUB; USPAT	OR	ON	2007/09/13 15:39

EAST Search History

L16	0	731/1.ccls.	US-PGPUB; USPAT	OR	OFF	2007/09/13 16:12
L17	2670	713/1.ccls.	US-PGPUB; USPAT	OR	OFF	2007/09/13 16:12
S1	36	rozman-all\$.in.	US-PGPUB; USPAT	OR	OFF	2007/09/13 09:28
S2	2	cioffi-alf\$.in.	US-PGPUB; USPAT	OR	OFF	2007/09/13 09:29
S3	1	"6289462".pn.	US-PGPUB; USPAT	OR	OFF	2007/09/13 09:32
S4	10	((("7146640") or ("5835695") or ("6578140") or ("20050149933") or ("6892261") or ("6678712") or ("6957286") or ("6996828") or ("20040205755") or ("6697972"))).PN.	US-PGPUB; USPAT	OR	OFF	2007/09/13 09:33
S5	5	("6578140").URPN.	USPAT	OR	OFF	2007/09/13 10:01
S6	1	(dual multiple) near (OS operat\$3 near systems) with (prevent\$3 stop\$4) with (virus trojan malicious malware)	US-PGPUB; USPAT	OR	ON	2007/09/13 10:06
S7	15	("6385721").URPN.	USPAT	OR	OFF	2007/09/13 10:03
S8	8	(dual multiple) near (OS operat\$3 near systems) with (virus trojan malicious malware)	US-PGPUB; USPAT	OR	ON	2007/09/13 13:58
S9	0	("2004/0039944").URPN.	USPAT	OR	OFF	2007/09/13 10:09
S10	35	((("5826013") or ("5978917") or ("6735700") or ("6663000") or ("6553377") or ("6216112") or ("4890098") or ("5555364") or ("5666030") or ("5995103") or ("5502808") or ("5280579") or ("5918039") or ("6480198") or ("6167522") or ("6199181") or ("6275938") or ("6351816") or ("6456554") or ("6658573") or ("6507904") or ("6633963") or ("6678825") or ("5751979") or ("20040054588") or ("20040034794") or ("20040006715") or ("20030177397") or ("20030097591") or ("20030023857") or ("20020066016") or ("20020174349") or ("6581162") or ("6134661") or ("6578140"))).PN.	US-PGPUB; USPAT	OR	OFF	2007/09/13 10:13

EAST Search History

S11	8	(US-20040039944-\$.did. or (US-7146640-\$ or US-6996828-\$ or US-6678712-\$ or US-6578140-\$ or US-6385721-\$ or US-7260839-\$ or US-6199181-\$.did.	US-PGPUB; USPAT	OR	OFF	2007/09/13 10:28
S12	0	S11 and network\$3 near (OS operat\$3 near system)	US-PGPUB; USPAT	OR	ON	2007/09/13 10:29
S13	8565	network\$3 near (OS operat\$3 near system)	US-PGPUB; USPAT	OR	ON	2007/09/13 10:29
S14	2	(dual multiple) near (OS operat\$3 near systems) same (display\$3) with both with (OS\$2 operat\$3 near systems)	US-PGPUB; USPAT	OR	ON	2007/09/13 11:55
S15	67	(dual multiple) near (OS operat\$3 near systems) same (display\$3) with (multiple) with (OS\$2 operat\$3 near systems)	US-PGPUB; USPAT	OR	ON	2007/09/13 11:55
S16	41	("5673403").URPN.	USPAT	OR	OFF	2007/09/13 12:12
S17	4565	(dual multiple) near (OS operat\$3 near systems)	US-PGPUB; USPAT	OR	ON	2007/09/13 14:49
S18	688	multi\$core near (processor cpu)	US-PGPUB; USPAT	OR	ON	2007/09/13 13:59
S19	37	S17 and S18	US-PGPUB; USPAT	OR	ON	2007/09/13 13:59
S20	18	S17 same S18	US-PGPUB; USPAT	OR	ON	2007/09/13 14:00
S21	4	S17 with S18	US-PGPUB; USPAT	OR	ON	2007/09/13 13:59
S22	14	S17 same S18 not S21	US-PGPUB; USPAT	OR	ON	2007/09/13 14:01
S23	19	S19 not S20	US-PGPUB; USPAT	OR	ON	2007/09/13 14:01



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/913,609	08/07/2004	Allen F. Rozman	ARAC-01	5735

7590 09/17/2007
Mr. Allen F. Rozman
735 Mockingbird Dr.
Murphy, TX 75094

EXAMINER

LAFORGIA, CHRISTIAN A

ART UNIT PAPER NUMBER

2131

MAIL DATE DELIVERY MODE

09/17/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



Office Action Summary	Application No. 10/913,609	Applicant(s) ROZMAN ET AL.	
	Examiner Christian La Forgia	Art Unit 2131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 07 August 2004.
- 2a) This action is **FINAL**.
- 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-20 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 07 August 2004 is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 - 1. Certified copies of the priority documents have been received.
 - 2. Certified copies of the priority documents have been received in Application No. _____.
 - 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 8/7/04.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application
- 6) Other: _____

DETAILED ACTION

1. Claims 1-20 have been presented for examination.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 07 August 2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner has considered the information disclosure statement.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, 4, 10, 12-17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,578,140 B1 to Policard, hereinafter Policard, in view of U.S. Patent No. 5,673,403 to Brown et al., hereinafter Brown.

5. As per claims 1, 10, and 15, Policard teaches a method and system of operating a computer system, comprising the steps of:

executing instructions in a first logical process (Figures 3 [block 32], 4 [block 52], column 6, lines 53-58, i.e. a master operating system for running programs), wherein the first logical process is capable of accessing data contained in a first memory space and a second memory space (column 4, lines 61-63, column 7, lines 7-8, i.e. means for exchanging data between operating systems);

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executing instructions in a second logical process (Figures 3 [block 30], 4 [block 34], 5 [block 34]), wherein the second logical process is capable of accessing data contained in the second memory space (column 6, line 67 to column 7, line 7), the second logical process being further capable of exchanging data across a network of one or more computers (Figures 3 [blocks 30, 52] 5 [block 60], column 4, lines 16-21, column 7, lines 17-27, i.e. one system having access to the Internet);

wherein the computer system is configured such that a malware program downloaded from the network and executing as part of the second logical process is incapable of initiating access to the first memory space (column 6, lines 57-59, column 7, lines 23-27, i.e. since internal system has their own operating systems, the e-mail virus would have no effect on the master computer system, segregating the virus from infecting the second processor system).

6. Policard does not teach displaying, in a windowed format on a display terminal, data from the first logical process and the second logical process, wherein a video processor is adapted to combine data from the first and second logical processes and transmit the combined data to the display terminal.

7. Brown teaches displaying, in a windowed format on a display terminal data from two different operating systems to be displayed on a single device (Figures 3, 4, column 2, lines 2-47, column 4, line 55 to column 5, line 28).

8. It would have been obvious to one of ordinary in the art at the time invention was made to display, in a windowed format on a display terminal, data from the first logical process and the second logical process, wherein a video processor is adapted to combine data from the first and second logical processes and transmit the combined data to the display terminal, since Brown

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states at column 5, lines 26-28 that running multiple operating systems on a single display allows a user to run applications written for different operating systems while still being able to interact with these new applications through a familiar interface. See *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007).

9. Regarding claim 3, Policard teaches wherein the second logical process is selected from the group consisting of: an electronic mail process (Figure 3 [block 52], column 6, lines 39-59), an instant messaging process, an internet browser process (column 4, lines 16-21, i.e. one system having Internet access), an interactive gaming process, a virtual private network (VPN) process, and a reader application process.

10. Regarding claim 4, Policard teaches wherein the first logical process is operating on a first electronic data processor (Figures 3 [block 32], 4 [block 52], column 6, lines 53-58), and the second logical process is operating on a second electronic data processor (Figures 3 [block 30], 4 [block 34], 5 [block 34]).

11. Regarding claim 12, Policard teaches wherein the first and second electronic data processors are part of a dual processor computer system (Figure 4 [blocks 34, 52]).

12. Regarding claim 13, Policard teaches wherein the second electronic data processor (Figures 3 [block 30], 4 [block 34], 5 [block 34]) and the video processor are co-located on a circuit card (Figure 4 [element 12], provides for a motherboard that connects the processor and

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the extension slots for the video processor), the circuit card being communicatively coupled to the first electronic data processor (Figure 4 [element 44], column 7, lines 7-9, i.e. an inter-processor bus).

13. Regarding claims 14 and 16, Policard teaches wherein the computer system is configured such that a malware program downloaded from the network and executing on the second electronic data processor is incapable of initiating the execution of instructions on the first electronic data processor (column 6, lines 57-59, column 7, lines 23-27, i.e. since internal system has their own operating systems, the e-mail virus would have no effect on the master computer system, segregating the virus from infecting the second processor system).

14. Regarding claim 17, Policard teaches at least one network interface device capable of exchanging data with both the second logical process and with the network (Figures 4 and 5 [block 50]).

15. Regarding claim 19, Policard teaches wherein the at least one electronic data processor is selected from the group consisting of: a multi-core electronic data processor; dual electronic data processors (Figure 4 [blocks 34, 52]); and multiple electronic data processors (Figure 4 [blocks 34, 52]).

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16. Claims 2, 6, 11, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Policard in view of Brown as applied above, and further in view of U.S. Patent No. 6,996,828 B1 to Kimura et al, hereinafter Kimura.

17. Regarding claims 2 and 11, Policard and Brown do not teach wherein the first memory space and the second memory space comprise separate regions of a common memory space.

18. Kimura teaches where in the first (Figures 1 [block 108], 14 [block 1411]) and second memory space (Figures 1 [block 108'], 14 [1409]) comprise second regions of a common memory space (Figures 1 [block 102], 14 [block 1401]).

19. It would have been obvious to one of ordinary skill in the art at the time the invention was made for the first memory space and the second memory space comprise separate regions of a common memory space, Kimura states at column 5, lines 17-25 that having well-defined, discriminated areas of the memory for the separate operating systems prevents any system failures.

20. Regarding claims 6 and 20, Policard and Brown do not teach restoring at least one corrupted data file residing on the second memory space from an image residing on the first memory space.

21. Kimura teaches an operating system that can monitor a failure of the other operating system and than perform a diagnosis and recovery of the failure of the operating system (column 3, lines 4-10).

22. It would have been obvious to one of ordinary skill in the art at the time the invention was made to restore at least one corrupted data file residing on the second memory space from an

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image residing on the first memory space, since Kimura states at column 3, lines 8-10 that recovering from failure would improve the reliability and the maintenance of the whole computer.

23. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Policard in view of Brown as applied above, and further in view of U.S. Patent Application Publication No. 20058/0240810 A1 to Safford et al., hereinafter Safford.

24. With regards to claim 5, Policard and Brown do not teach wherein the first and second electronic data processors are part of a multi-core electronic data processor.

25. Safford teaches the use of multi-core processors (paragraph 0009).

26. It would have been obvious to one of ordinary skill in the art at the time the invention was made for the first and second electronic data processors to be part of a multi-core electronic data processor, since Safford states at paragraph 0009 that multi-core processors provide additional opportunities for increased processing efficiency.

27. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Policard in view of Brown as applied above, and further in view of U.S. Patent No. 6,507,948 B1 to Curtis et al., hereinafter Curtis.

28. Regarding claim 7, Policard and Brown do not teach automatically deleting at least one data file residing on the second memory space when the second logical process is terminated.

29. Curtis teaches that a file stored in non-volatile memory may be deleted after being executed (column 2, lines 62-67, column 3, lines 31-34).

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30. It would have been obvious to one of ordinary skill in the art at the time the invention was made to automatically delete at least one data file residing on the second memory space when the second logical process is terminated, since Curtis states at column 3, lines 20-22 that deleting the files would help in reversing the changes that occurred to the system as a result of the installation.

31. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Policard in view of Brown as applied above, and further in view of U.S. Patent Application Publication No. 2006/0004667 A1 to Neil, hereinafter Neil.

32. Regarding claim 8, Policard and Brown do not teach encrypting data with the first logical process; transferring the encrypted data from the first logical process to the second logical process; transferring the encrypted data from the second logical process to the network interface device.

33. Neil discloses that a host operating system and a guest operating system can communicate using encrypted signals via the hardware abstraction layer (paragraph 0043).

34. It would have been obvious to one of ordinary skill in the art at the time the invention was made to encrypt data that is intended for web use at a first operating system and transmit that information to the internet operating system, since Neil states at paragraph 0043 that the encrypted communications can be used to verify the operating system. Combining the encrypted inter-OS communications of Neil with Policard and Brown would add the benefit of preserving the data intended for the Internet if a virus or malware corrupted the second OS.

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35. With regards to claims 9 and 18, Policard, Brown, and Neil do not teach decrypting the data with the network interface device; transferring the decrypted data from the network interface device to the network.

36. It would have been obvious to one of ordinary skill in the art to decrypt the information at the network interface and transmit the decrypted data over the network, since Neil states at paragraph 0043 that the encrypted communications can be used to verify the operating system. Combining the encrypted inter-OS communications of Neil with Policard and Brown would add the benefit of preserving the data intended for the Internet if a virus or malware corrupted the second OS.

Conclusion

37. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

38. The following patents are cited to further show the state of the art with respect to dual operating systems that prevent the spread of malware to one of the two operating systems, such as:

United States Patent No. 7,146,640 B2 to Goodman et al., which is cited to show a security system for a personal computer with a secondary operating system.

United States Patent No. 6,678,712 B1 to McLaren et al., which is cited to show executing a program under one of a plurality of mutually exclusive operating environments.

United States Patent No. 6,385,721 B1 to Puckette, which is cited to show preventing a virus in one operating system from infecting another operating system.

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United States Patent Application Publication No. 2004/0039944 A1 to Karasaki, which is cited to show checking for viruses through multiple operating systems.

United States Patent No. 7,260,839 B2 to Karasaki, which is cited to show checking for viruses through multiple operating systems.


39. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian La Forgia whose telephone number is (571) 272-3792.

The examiner can normally be reached on Monday thru Thursday 7-5.

40. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

41. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Christian LaForgia
Patent Examiner
Art Unit 2131



clf

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<p style="text-align: center;">Substitute for form 1449A/PTO</p> <h2 style="text-align: center;">INFORMATION DISCLOSURE STATEMENT BY APPLICANT</h2> <p style="text-align: center;">(Use as many sheets as necessary)</p>	<p style="text-align: center;">Complete if Known</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Application Number</td> <td>10/913,609</td> </tr> <tr> <td>Filing Date</td> <td></td> </tr> <tr> <td>First Named Inventor</td> <td>Rozman</td> </tr> <tr> <td>Art Unit</td> <td></td> </tr> <tr> <td>Examiner Name</td> <td></td> </tr> <tr> <td>Attorney Docket Number</td> <td>ARAC-01</td> </tr> </table>	Application Number	10/913,609	Filing Date		First Named Inventor	Rozman	Art Unit		Examiner Name		Attorney Docket Number	ARAC-01
Application Number	10/913,609												
Filing Date													
First Named Inventor	Rozman												
Art Unit													
Examiner Name													
Attorney Docket Number	ARAC-01												
Sheet <u>1</u> of <u>2</u>													

U. S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
UJ	US-	5,826,013	10-20-1998	NACHENBERG	
UJ	US-	5,978,917	11-02-1999	CHI	
UJ	US-	6,735,700	5-11-2004	FLINT, ET AL.	
UJ	US-	6,663,000	12-16-2003	MUTIK, et al.	
UJ	US-	6,553,377	4-22-2003	ESCHELBECK, et al.	
UJ	US-	6,216,112	4-10-2001	FULLER, et al.	
UJ	US-	6,489,098	12-26-1999	DAWES, et al.	
UJ	US-	5,555,364	9-10-1996	GOLDSTEIN	
UJ	US-	5,666,030	9-9-1997	PARSON	
UJ	US-	5,995,103	11-30-1999	ASHE	
UJ	US-	5,502,808	3-26-1999	GORDON, et al.	
UJ	US-	5,280,579	1-18-1994	NYE	
UJ	US-	5,918,039	6-29-1999	BUSWELL, et al.	
UJ	US-	6,480,198	11-12-2002	KANG	
UJ	US-	6,167,522	12-26-2000	Lee, et al.	
UJ	US-	6,199,181	3-6-2001	Rechet, et al.	
UJ	US-	6,275,938	8-14-2001	BOND, et al.	
UJ	US-	6,351,816	2-26-2002	MUELLER, et al.	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁴
		Country Code ³ Number ⁴ Kind Code ⁵ (if known)				

Examiner Signature	Date Considered	9/13/07
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*EXAMINER Initials if reference considered. Whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Substitute for form 1449A/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		Application Number	10/913,609
		Filing Date	
		First Named Inventor	Rozman
		Art Unit	
		Examiner Name	
(Use as many sheets as necessary)	Attorney Docket Number	ARAC-01	
Sheet <u>2</u>	of <u>2</u>		

U. S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
U7		US- 6,456,554	4-8-2003	SCHMIDT, et al.	
U7		US- 6,658,573	12-2-2003	BISCHOF, et al.	
U7		US- 6,507,904	1-14-2003	ELLISON, et al.	
U7		US- 6,633,963	10-14-2003	ELLISON, et al.	
U7		US- 6,678,825	1-13-2003	ELLISON, et al.	
U7		US- 5,751,979	5-12-1998	MCCRORY	
U7		US- 20040054588	3-18-2004	JACOBS, et al.	
U7		US- 20040034794	2-19-2004	MAYER, YARON, et al.	
U7		US- 20040006715	1-08-2004	SIKREPETOS, NIKHNAS	
U7		US- 20030177397	9-18-2003	SAMMAN, DEN	
U7		US- 20030097591	5-22-2003	PHAN, HAI, et al.	
U7		US- 20030023857	1-30-2003	JAMES, et al.	
U7		US- 20020066016	5-30-2002	RIORDAN, JAMES	
U7		US- 20020174349	11-21-2002	WOLFF, et al.	
U7		US- 6,581,162	6-17-2003	ANGELO, et al.	
U7		US- 6,134,661	10-17-2000	TOPP	
U7		US- 6,578,140	6-10-2003	POLICARDI	
		US-			

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³ Number ⁴ Kind Code ⁵ (if known)				

Examiner Signature		Date Considered	9/13/07
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Substitute for form 1449B/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)				Application Number	101913,609
				Filing Date	
				First Named Inventor	Rozman
				Art Unit	
				Examiner Name	
Sheet	1	of	1	Attorney Docket Number	ARAC-01

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
UJ	1	KEVIN TOWNSEND, "SPYWARE, ADWARE, AND PEER TO PEER NETWORKS: THE HIDDEN THREAT TO CORPORATE SECURITY" @PEST PATROL, 2003	
UJ	2	DAVID STANG, PHD; "BEYOND VIRUSES: WHY ANTI-VIRUS SOFTWARE IS NO LONGER ENOUGH", @PEST PATROL 2002	
UJ	3	"THE WEB: THREAT OR MENACE?" FROM "FIREWALLS AND INTERNET SECURITY: REPELLING THE WILLY HACKER" SECOND EDITION, ADDISON-WESLEY, ISBN 0-201-83446-X, 2003 ©	

Examiner Signature		Date Considered	9/13/07
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Notice of References Cited	Application/Control No. 10/913,609	Applicant(s)/Patent Under Reexamination ROZMAN ET AL.	
	Examiner Christian La Forgia	Art Unit 2131	Page 1 of 1

U.S. PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification	
*	A	US-2005/0240810 A1	10-2005	Safford et al.	714/010
*	B	US-6,507,948 B1	01-2003	Curtis et al.	717/174
*	C	US-2006/0004667 A1	01-2006	Neil, Mike	705/059
*	D	US-5,673,403	09-1997	Brown et al.	715/744
*	E	US-7,146,640 B2	12-2006	Goodman et al.	726/16
*	F	US-6,678,712 B1	01-2004	McLaren et al.	718/100
*	G	US-6,385,721 B1	05-2002	Puckette, Robert B. E.	713/2
*	H	US-2004/0039944 A1	02-2004	Karasaki, Teiji	713/201
*	I	US-7,260,839 B2	08-2007	Karasaki, Teiji	726/11
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N				
	O				
	P				
	Q				
	R				
	S				
	T				

NON-PATENT DOCUMENTS

*	Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U
	V
	W
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
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Bib Data Sheet

CONFIRMATION NO. 5735

SERIAL NUMBER 10/913,609	FILING OR 371(c) DATE 08/07/2004 RULE	CLASS 726	GROUP ART UNIT 2131	ATTORNEY DOCKET NO. ARAC-01
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APPLICANTS
 Allen F. Rozman, Murphy, TX;
 Alfonso J. Cioffi, Murphy, TX;

**** CONTINUING DATA *******
None cfl

**** FOREIGN APPLICATIONS *******
None cfl


IF REQUIRED, FOREIGN FILING LICENSE GRANTED SMALL ENTITY ****
**** 10/14/2004**

Foreign Priority claimed <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	STATE OR COUNTRY TX	SHEETS DRAWING 11	TOTAL CLAIMS 20	INDEPENDENT CLAIMS 3
35 USC 119 (a-d) conditions met <input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> Met after Allowance Verified and Acknowledged Examiner's Signature: <i>[Signature]</i> Initials: <i>[Initials]</i>				

ADDRESS
 Mr. Allen F. Rozman
 735 Mockingbird Dr.
 Murphy, TX 75094

TITLE
 System and method for protecting a computer system from malicious software


FILING FEE RECEIVED 385	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	<input type="checkbox"/> All Fees
		<input type="checkbox"/> 1.16 Fees (Filing)
		<input type="checkbox"/> 1.17 Fees (Processing Ext. of time)
		<input type="checkbox"/> 1.18 Fees (Issue)
		<input type="checkbox"/> Other _____
		<input type="checkbox"/> Credit

Index of Claims 	Application/Control No. 10913609	Applicant(s)/Patent Under Reexamination ROZMAN ET AL.
	Examiner La Forgia, Christian	Art Unit 2131

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claims renumbered in the same order as presented by applicant
 CPA
 T.D.
 R.1.47

CLAIM		DATE									
Final	Original	09/12/2007									
	1	✓									
	2	✓									
	3	✓									
	4	✓									
	5	✓									
	6	✓									
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	17	✓									
	18	✓									
	19	✓									
	20	✓									

Search Notes 	Application/Control No. 10913609	Applicant(s)/Patent Under Reexamination ROZMAN ET AL.
	Examiner La Forgia, Christian	Art Unit 2131

SEARCHED			
Class	Subclass	Date	Examiner
none	none	9/13/07	clf

SEARCH NOTES		
Search Notes	Date	Examiner
East search - see enclosed printout	9/13/07	clf
IEEE search	9/13/07	clf
ACM search	9/13/07	clf
Google search	9/13/07	clf
Inventor search	9/13/07	clf

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Rozman, *et al.* Docket No.: ARAC-01
Serial No: 10/913,609 Art Unit: 2131
Date Filed: August 07, 2004 Examiner: La Forgia, Christian
Title: System and Method for Protecting a Computer System from Malicious Software

Mail Stop: Amendment
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT UNDER 37 CFR §1.111

The following amendments and remarks are presented in response to the Examiner's Office Action mailed September 17, 2007. Please amend the above-referenced application as follows. No new matter has been added.

IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) A method of operating a computer system running an operating system, comprising the steps of:

executing instructions in a first logical process within the operating system, wherein the first logical process is capable of accessing data contained in a first electronic memory space;

executing instructions in a second logical process within the operating system, wherein the second logical process is capable of accessing data contained in a second electronic memory space, the second logical process being further capable of exchanging data across a network of one or more computers;

displaying, in a windowed format on a display terminal, data from the first logical process and the second logical process, wherein a video processor is adapted to combine data from the first and second logical processes and transmit the combined data to the display terminal;

wherein the computer system is configured such that data residing on the first electronic memory space is protected from corruption by a malware process downloaded from the network and executing on the second logical process ~~is incapable of initiating access to both the first logical process and the first electronic memory space.~~

2. (Original) The method of claim 1 wherein the first memory space and the second memory space comprise separate regions of a common memory space.

3. (Original) The method of claim 1 wherein the second logical process is selected from the group consisting of; an electronic mail process, an instant messaging process, an internet browser process, an interactive gaming process, a virtual private network (VPN) process, and a reader application process.
4. (Original) The method of claim 1 wherein the first logical process is operating on a first electronic data processor, and the second logical process is operating on a second electronic data processor.
5. (Original) The method of claim 4 wherein the first and second electronic data processors are part of a multi-core electronic data processor.
6. (Original) The method of claim 1 and further comprising the step of restoring at least one corrupted data file residing on the second memory space from an image residing on the first memory space.
7. (Original) The method of claim 1 and further comprising the step of automatically deleting at least one data file residing on the second memory space when the second logical process is terminated.
8. (Original) The method of claim 1 and further comprising the steps of:
 - encrypting data with the first logical process;
 - transferring the encrypted data from the first logical process to the second logical process;
 - transferring the encrypted data from the second logical process to the network interface device.

9. (Original) The method of claim 8 and further comprising the steps of:
- decrypting the data with the network interface device;
 - transferring the decrypted data from the network interface device to the network.
10. (Currently Amended) A computer system, comprising:
- a first electronic data processor running an operating system and communicatively coupled to a first memory space and a second memory space;
 - a second electronic data processor running the operating system and communicatively coupled to the second memory space and to a network interface device, wherein the second electronic data processor is capable of exchanging data across a network of one or more computers via the network interface device;
 - a video processor adapted to combine video data from the first and second electronic data processors and transmit the combined video data to a display terminal for displaying the combined video data in a windowed format;
 - wherein the computer system is configured such that data residing on the first electronic memory space is protected from corruption by a malware process downloaded from the network and executing on the second logical process ~~is incapable of initiating access to both the first logical process and the first electronic memory space.~~
11. (Original) The computer system of claim 10 wherein the first memory space and the second memory space comprise separate regions of a common memory space.
12. (Original) The computer system of claim 10 wherein the first and second electronic data processors are part of a dual processor computer system.

13. (Original) The computer system of claim 10 wherein the second electronic data processor and the video processor are co-located on a circuit card, the circuit card being communicatively coupled to the first electronic data processor.

14. (Currently Amended) The computer system of claim 10 wherein the computer system is configured such that the first electronic data processor is protected from executing instructions initiated by a malware program downloaded from the network and executing on the second electronic data processor ~~is incapable of initiating the execution of instructions on the first electronic data processor.~~

15. (Currently Amended) A computer system, comprising:

at least one electronic data processor capable of executing instructions;

at least a first and second memory space;

a video processor;

wherein the electronic data processor, first and second memory space, and video processor are configured for performing the steps of:

executing instructions in a first logical process, wherein the first logical process is executing within an operating system and is capable of accessing data contained in the first memory space and the second memory space;

executing instructions in a second logical process, wherein the second logical process is executing within the operating system and is capable of accessing data contained in the second memory space, the second logical process being further capable of exchanging data across a network of one or more computers;

displaying, in a windowed format on a display terminal, data from the first logical

process and the second logical process, wherein the video processor is adapted to combine data from the first and second logical processes and transmit the combined data to the display terminal;

wherein the computer system is configured such that data residing on the first electronic memory space is protected from corruption by a malware process downloaded from the network and executing on the second logical process ~~is incapable of initiating access to both the first logical process and the first electronic memory space.~~

16. (Currently Amended) The computer system of claim 15 wherein the computer system is further configured such that the first logical process is protected from executing instructions initiated by a malware program downloaded from the network and executing as part of the second logical process ~~is incapable of initiating the execution of instructions as part of the first logical process.~~
17. (Original) The computer system of claim 15 and further comprising: at least one network interface device capable of exchanging data with both the second logical process and with the network.
18. (Original) The computer system of claim 17 wherein the network interface device is capable of decrypting data received from the second logical process and transmitting the decrypted data to the network while preventing the second logical process from accessing the decrypted data.

19. (Original) The computer system of claim 15 wherein the at least one electronic data processor is selected from the group consisting of: a multi-core electronic data processor; dual electronic data processors; and multiple electronic data processors.

20. (Original) The computer system of claim 15 and further configured for performing the step of: restoring at least one corrupted data file residing on the second memory space from an image residing on the first memory space.

REMARKS

The Applicants have carefully considered this application in connection with the Examiner's Action and respectfully request reconsideration of this application in view of the foregoing amendments and the following remarks.

The Applicants originally submitted Claims 1-20 in the application. Claims 1, 10, 14, 15, and 16 have been amended herein. Accordingly, Claims 1-20 are currently pending in the application.

I. Rejection of Claims under 35 U.S.C. §103

The Examiner has rejected Claims 1, 3, 4, 10, 12-17 and 19 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,578,140 B1 to Policard, hereinafter Policard, in view of U.S. patent, No. 5,673,403 to Brown et al., hereinafter Brown.

As per claims 1, 10, and 15, the Examiner believes that Policard discloses the instant claimed invention except for displaying, in a windowed format on a display terminal, data from the first logical process and the second logical process, wherein a video processor is adapted to combine data from the first and second logical processes and transmit the combined data to the display terminal. The Examiner asserts that Brown teaches displaying, in a windowed format on a display terminal from two different operating systems to be displayed on a single device.

Policard teaches the use of two divergent or segregated operating systems. Policard or Brown do not disclose, either individually or in combination, a method of operating a computer system running an operating system, comprising the steps of:

executing instructions in a first logical process within the operating system, wherein the first logical process is capable of accessing data contained in a first electronic memory space;

executing instructions in a second logical process within the operating system, wherein the second logical process is capable of accessing data contained in a second electronic memory space, the second logical process being further capable of exchanging data across a network of one or more computers.

The combination of Policard and Brown, therefore, fails to establish a *prima facie* case of obviousness of amended independent Claims 1, 10 and 15, and the claims dependent thereon. In view of the foregoing remarks, therefore, the cited references no longer support the Examiner's rejection of Claims 1, 10 and 15, and the claims dependent thereon, namely, Claims 3 and 4, (which depend from Claim 1), Claims 12-14, (which depend from Claim 10), and Claims 16, 17, and 19, (which depend from Claim 15) under 35 U.S.C. §103(a). In accordance therewith, the Applicant respectfully requests the Examiner withdraw the rejection.

The Examiner has rejected Claims 2, 6, 11 and 20 under 35 U.S.C. §103(a) as being unpatentable over Policard in view of Brown and further in view of U. S. Patent No. 6,996,828 B1 to Kimura et al., hereinafter Kimura.

The combination of references (Policard, Brown and Kimura) fails to teach or suggest all of the elements of amended independent Claims 1, 10 and 15. Regarding Claims 2, 6, 11 and 20, these claims are dependant on the amended independent Claims 1, 10 and 15, and therefore the Applicants now respectfully assert that the claimed invention is not obvious in view of the foregoing references.

The Examiner has rejected Claim 5 under 35 U.S.C. §103(a) as being unpatentable over Policard in view of Brown and further in view of U. S. Patent Application Publication No. 2005/0240810 A1 to Safford et al., hereinafter Safford.

The combination of references (Policard, Brown and Safford) fails to teach or suggest all of the elements of amended independent Claim 1. Regarding Claim 5, this claim is dependant on the amended independent Claim 1, and therefore the Applicants now respectfully assert that the claimed invention is not obvious in view of the foregoing references.

The Examiner has rejected Claim 7 under 35 U.S.C. §103(a) as being unpatentable over Policard in view of Brown and further in view of U. S. Patent No. 6,507,948 B1 to Curtis et al., hereinafter Curtis.

The combination of references (Policard, Brown and Curtis) fails to teach or suggest all of the elements of amended independent Claim 1. Regarding Claim 7, this claim is dependant on the amended independent Claim 1, and therefore the Applicants now respectfully assert that the claimed invention is not obvious in view of the foregoing references.

The Examiner has rejected Claims 8 and 9 under 35 U.S.C. §103(a) as being unpatentable over Policard in view of Brown and further in view of U. S. Patent Application Publication No. 2006/0004667 A1 to Neil et al., hereinafter Neil.

The combination of references (Policard, Brown and Neil) fails to teach or suggest all of the elements of amended independent Claim 1. Regarding Claims 8 and 9, these claims are dependant on the amended independent Claim 1, and therefore the Applicants now respectfully assert that the claimed invention is not obvious in view of the foregoing references.

In accordance therewith, the Applicants respectfully request the Examiner withdraw the rejection.

V. Conclusion

In view of the foregoing amendments and remarks, the Applicants now see all of the claims currently pending in this application to be in condition for allowance and therefore earnestly solicit a Notice of Allowance therefor.

The Applicants request that the Examiner telephone the undersigned inventor of record at (972) 384-1887 if such would further expedite the prosecution of the present application.

Respectfully submitted,

December 17, 2007
Date

/A. F. Rozman/
Allen F. Rozman
Co-Applicant
Registered Patent Agent
Reg. No. 41,280

735 Mockingbird Dr
Murphy, Texas 75094
Tel. 972-384-1887

Electronic Acknowledgement Receipt

EFS ID:	2597169
Application Number:	10913609
International Application Number:	
Confirmation Number:	5735
Title of Invention:	System and method for protecting a computer system from malicious software
First Named Inventor/Applicant Name:	Allen F. Rozman
Correspondence Address:	Mr. Allen F. Rozman - 735 Mockingbird Dr. - Murphy TX 75094 US 9723841887 m3rozman@comcast.com
Filer:	Glenn W. Boisbrun/Dusty Hunt
Filer Authorized By:	Glenn W. Boisbrun
Attorney Docket Number:	ARAC-01
Receipt Date:	17-DEC-2007
Filing Date:	07-AUG-2004
Time Stamp:	10:11:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1		ARAC01_Amendment.pdf	110188 937de485583cccc4be3a9aa0b95160294304ad85d	yes	11

Multipart Description/PDF files in .zip description			
Document Description	Start	End	
Amendment - After Non-Final Rejection	1	1	
Claims	2	7	
Applicant Arguments/Remarks Made in an Amendment	8	11	

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 10/913,609	Filing Date 08/07/2004	<input type="checkbox"/> To be Mailed
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APPLICATION AS FILED – PART I			OTHER THAN SMALL ENTITY				
	(Column 1)	(Column 2)	SMALL ENTITY <input checked="" type="checkbox"/>	OR			
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	OR	RATE (\$)	FEE (\$)
<input type="checkbox"/> BASIC FEE <small>(37 CFR 1.16(a), (b), or (c))</small>	N/A	N/A	N/A			N/A	
<input type="checkbox"/> SEARCH FEE <small>(37 CFR 1.16(k), (l), or (m))</small>	N/A	N/A	N/A			N/A	
<input type="checkbox"/> EXAMINATION FEE <small>(37 CFR 1.16(o), (p), or (q))</small>	N/A	N/A	N/A			N/A	
TOTAL CLAIMS <small>(37 CFR 1.16(i))</small>	minus 20 =	*	X \$ =		OR	X \$ =	
INDEPENDENT CLAIMS <small>(37 CFR 1.16(h))</small>	minus 3 =	*	X \$ =			X \$ =	
<input type="checkbox"/> APPLICATION SIZE FEE <small>(37 CFR 1.16(s))</small>	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
<input type="checkbox"/> MULTIPLE DEPENDENT CLAIM PRESENT <small>(37 CFR 1.16(j))</small>							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II					OTHER THAN SMALL ENTITY				
	(Column 1)	(Column 2)	(Column 3)		SMALL ENTITY	OR			
AMENDMENT	12/17/2007	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)
	Total <small>(37 CFR 1.16(i))</small>	* 20	Minus ** 20	= 0	X \$25 =	0	OR	X \$ =	
	Independent <small>(37 CFR 1.16(h))</small>	* 3	Minus *** 3	= 0	X \$105 =	0	OR	X \$ =	
	<input type="checkbox"/> Application Size Fee <small>(37 CFR 1.16(s))</small>								
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <small>(37 CFR 1.16(j))</small>						OR		
					TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

	(Column 1)	(Column 2)	(Column 3)		SMALL ENTITY	OR			
AMENDMENT	Total <small>(37 CFR 1.16(i))</small>	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)
	*	Minus	**	=	X \$ =		OR	X \$ =	
	Independent <small>(37 CFR 1.16(h))</small>	*	Minus	***	X \$ =		OR	X \$ =	
	<input type="checkbox"/> Application Size Fee <small>(37 CFR 1.16(s))</small>								
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <small>(37 CFR 1.16(j))</small>						OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
 *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

Legal Instrument Examiner:
RUTH M. LLOYD

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/913,609	08/07/2004	Allen F. Rozman	ARAC-01	5735

7590 03/10/2008
 Mr. Allen F. Rozman
 735 Mockingbird Dr.
 Murphy, TX 75094

EXAMINER

LAFORGIA, CHRISTIAN A

ART UNIT	PAPER NUMBER
2139	

MAIL DATE	DELIVERY MODE
03/10/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No. 10/913,609	Applicant(s) ROZMAN ET AL.
Examiner Christian LaForgia	Art Unit 2139

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 17 December 2007.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-20 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 07 August 2004 is/are: a) accepted or b) objected to by the Examiner.
 - Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 - Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 - 1. Certified copies of the priority documents have been received.
 - 2. Certified copies of the priority documents have been received in Application No. _____.
 - 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

DETAILED ACTION

1. The amendment of 17 December 2007 has been noted and made of record.
2. Claims 1-20 have been presented for examination.

Response to Arguments

3. Applicant's arguments with respect to independent claim 1 have been considered but are moot in view of the new grounds of rejection.
4. Applicant's arguments with respect to independent claims 10 and 15, filed on 17 December 2007 have been fully considered but they are not persuasive.
5. The Applicant's arguments with respect to independent claims 10 and 15 seem to imply that the first logical process and the second logical process are executing on a singular operating system. The Examiner disagrees with this interpretation, and believes that the Policard reference providing two processes operating in dual, separate operating systems still reads on the claim limitations of at least claims 10-20. If the Examiner is inferring the Applicant's arguments correctly, than language specifying that there is a single operating system running on a multiprocessor system would help to distinguish the invention of the instant application over at least the Policard reference. Since independent claims 10 and 15 can be interpreted as a multiprocessor system executing multiple operating systems, the rejection of claims 10-20 is maintained.
6. Applicant's arguments with respect to dependent claims 11-14 and 16-20 fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. The Applicant's arguments with respect to the

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dependent claims hinge on the patentability of independent claims 10 and 15. Since the Examiner has shown above how Policard still applies to independent claims 10 and 15, the rejection of dependent claims 11-14 and 16-20 is also maintained.

7. See further rejections set forth below.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,192,477 B1 to Corthell, hereinafter Corthell.

10. As per claim 1, Corthell teaches a method and system of operating a computer system running an operating system, comprising the steps of:

executing instructions in a first logical process within the operating system (Figure 2 [block 204]), wherein the first logical process is capable of accessing data contained in a first memory space and a second memory space (column 4, lines 43-67);

executing instructions in a second logical process within the operating system (Figure 2 [block 206]), wherein the second logical process is capable of accessing data contained in the second memory space (column 4, lines 43-67), the second logical process being further capable of exchanging data across a network of one or more computers (Figure 2 [block 226], column 5, lines 1-13);

displaying, in a windowed format on a display terminal, data from the first logical process and the second logical process, wherein a video processor is adapted to combine data from the first and second logical processes and transmit the combined data to the display terminal (Figure 1 [block 110], column 4, lines 23-42, i.e. a I/O device, such as a video monitor, displaying data from the first and second partitions);

wherein the computer system is configured such that data residing on the first electronic memory space is protected from corruption by a malware program downloaded from the network and executing as part of the second logical process (column 6, lines 18-23).

11. Regarding claim 2, Corthell teaches wherein the first memory space and the second memory space comprise separate regions of a common memory space (column 4, lines 43-38, i.e. partitioning the data space into primary and protected).

12. Regarding claim 3, Corthell teaches wherein the second logical process is selected from the group consisting of: an electronic mail process (column 5, line 7), an instant messaging process, an internet browser process (column 5, line 7), an interactive gaming process, a virtual private network (VPN) process, and a reader application process.

Claim Rejections - 35 USC § 103

13. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

14. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Corthell in view of U.S. Patent No. 6,578,140 B1 to Policard, hereinafter Policard.

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15. Regarding claim 4, Corthell does not teach wherein the first logical process is operating on a first electronic data processor, and the second logical process is operating on a second electronic data processor.

16. teaches wherein the first logical process is operating on a first electronic data processor (Figures 3 [block 32], 4 [block 52], column 6, lines 53-58, i.e. a master operating system for running programs), and the second logical process is operating on a second electronic data processor (Figures 3 [block 30], 4 [block 34], 5 [block 34]).

17. It would have been obvious to one of ordinary skill in the art at the time the invention was made for the first logical process to operate on a first electronic data processor and the second logical process to operate on a second electronic data processor, since Policard states at column 5, lines 22-27 that separating the two processes will protect and preserve the privacy of personal computer users by removing sensitive information from Internet accessible areas of the computer and relegate the impact of malicious virus code to expendable data areas.

18. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Corthell in view of Policard as applied above, and further in view of U.S. Patent Application Publication No. 20058/0240810 A1 to Safford et al., hereinafter Safford.

19. With regards to claim 5, Corthell and Policard do not teach wherein the first and second electronic data processors are part of a multi-core electronic data processor.

20. Safford teaches the use of multi-core processors (paragraph 0009).

21. It would have been obvious to one of ordinary skill in the art at the time the invention was made for the first and second electronic data processors to be part of a multi-core electronic

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data processor, since Safford states at paragraph 0009 that multi-core processors provide additional opportunities for increased processing efficiency.

22. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Corthell in view of U.S. Patent No. 6,996,828 B1 to Kimura et al, hereinafter Kimura.

23. Regarding claim 6, Corthell does not teach restoring at least one corrupted data file residing on the second memory space from an image residing on the first memory space.

24. Kimura teaches an operating system that can monitor a failure of the other operating system and then perform a diagnosis and recovery of the failure of the operating system (column 3, lines 4-10).

25. It would have been obvious to one of ordinary skill in the art at the time the invention was made to restore at least one corrupted data file residing on the second memory space from an image residing on the first memory space, since Kimura states at column 3, lines 8-10 that recovering from failure would improve the reliability and the maintenance of the whole computer.

26. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Corthell in view of U.S. Patent No. 6,507,948 B1 to Curtis et al., hereinafter Curtis.

27. Regarding claim 7, Corthell does not teach automatically deleting at least one data file residing on the second memory space when the second logical process is terminated.

28. Curtis teaches that a file stored in non-volatile memory may be deleted after being executed (column 2, lines 62-67, column 3, lines 31-34).

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29. It would have been obvious to one of ordinary skill in the art at the time the invention was made to automatically delete at least one data file residing on the second memory space when the second logical process is terminated, since Curtis states at column 3, lines 20-22 that deleting the files would help in reversing the changes that occurred to the system as a result of the installation.

30. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Corthell in view of U.S. Patent Application Publication No. 2006/0004667 A1 to Neil, hereinafter Neil.

31. Regarding claim 8, Corthell does not teach encrypting data with the first logical process; transferring the encrypted data from the first logical process to the second logical process; transferring the encrypted data from the second logical process to the network interface device.

32. Neil discloses that a host operating system and a guest operating system can communicate using encrypted signals via the hardware abstraction layer (paragraph 0043).

33. It would have been obvious to one of ordinary skill in the art at the time the invention was made to encrypt data that is intended for web use at a first operating system and transmit that information to the internet operating system, since Neil states at paragraph 0043 that the encrypted communications can be used to verify the operating system. Combining the encrypted inter-OS communications of Neil with Corthell would add the benefit of preserving the data intended for the Internet if a virus or malware corrupted the second OS.

34. With regards to claim 9, Corthell and Neil do not teach decrypting the data with the network interface device; transferring the decrypted data from the network interface device to the

network.

35. It would have been obvious to one of ordinary skill in the art to decrypt the information at the network interface and transmit the decrypted data over the network, since Neil states at paragraph 0043 that the encrypted communications can be used to verify the operating system. Combining the encrypted inter-OS communications of Neil with Corthell would add the benefit of preserving the data intended for the Internet if a virus or malware corrupted the second OS.

36. Claims 10, 12-17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Policard in view of U.S. Patent No. 5,673,403 to Brown et al., hereinafter Brown.

37. As per claims 10 and 15, Policard teaches a method and system of operating a computer system, comprising the steps of:

a first electronic data processor running an operating system (Figures 3 [block 32], 4 [block 52], column 6, lines 53-58, i.e. a master operating system for running programs) and communicatively coupled to a first memory space and a secondary memory space (column 4, lines 61-63, column 7, lines 7-8, i.e. means for exchanging data between operating systems);

a second electronic data processor running the operating system (Figures 3 [block 30], 4 [block 34], 5 [block 34]) and communicatively coupled to the second memory space (column 6, line 67 to column 7, line 7) and to a network interface device, wherein the second electronic data processor is capable of exchanging data across a network of one or more computers via the network interface device (Figures 3 [blocks 30, 52] 5 [block 60], column 4, lines 16-21, column 7, lines 17-27, i.e. one system having access to the Internet);

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wherein the computer system is configured such that data residing on the first electronic memory space is protected from corruption by a malware process downloaded from the network and executing on the second logical process (column 6, lines 57-59, column 7, lines 23-27, i.e. since internal system has their own operating systems, the e-mail virus would have no effect on the master computer system, segregating the virus from infecting the second processor system).

38. Policard does not teach a video processor adapted to combine video data from the first and second data processors and transmit the combined video data to a display terminal for displaying the combined video data in a windowed format.

39. Brown teaches displaying, in a windowed format on a display terminal data from two different operating systems to be displayed on a single device (Figures 3, 4, column 2, lines 2-47, column 4, line 55 to column 5, line 28).

40. It would have been obvious to one of ordinary in the art at the time invention was made to include a video processor adapted to combine video data from the first and second data processors and transmit the combined video data to a display terminal for displaying the combined video data in a windowed format, since Brown states at column 5, lines 26-28 that running multiple operating systems on a single display allows a user to run applications written for different operating systems while still being able to interact with these new applications through a familiar interface. See *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007).

41. Regarding claim 12, Policard teaches wherein the first and second electronic data processors are part of a dual processor computer system (Figure 4 [blocks 34, 52]).

42. Regarding claim 13, Policard teaches wherein the second electronic data processor (Figures 3 [block 30], 4 [block 34], 5 [block 34]) and the video processor are co-located on a circuit card (Figure 4 [element 12], provides for a motherboard that connects the processor and the extension slots for the video processor), the circuit card being communicatively coupled to the first electronic data processor (Figure 4 [element 44], column 7, lines 7-9, i.e. an inter-processor bus).

43. Regarding claims 14 and 16, Policard teaches wherein the computer system is configured such that a malware program downloaded from the network and executing on the second electronic data processor is incapable of initiating the execution of instructions on the first electronic data processor (column 6, lines 57-59, column 7, lines 23-27, i.e. since internal system has their own operating systems, the e-mail virus would have no effect on the master computer system, segregating the virus from infecting the second processor system).

44. Regarding claim 17, Policard teaches at least one network interface device capable of exchanging data with both the second logical process and with the network (Figures 4 and 5 [block 50]).

45. Regarding claim 19, Policard teaches wherein the at least one electronic data processor is selected from the group consisting of: a multi-core electronic data processor; dual electronic data

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processors (Figure 4 [blocks 34, 52]); and multiple electronic data processors (Figure 4 [blocks 34, 52]).

46. Claim 11 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Policard in view of Brown as applied above, and further in view of U.S. Patent No. 6,996,828 B1 to Kimura et al, hereinafter Kimura.

47. Regarding claim 11, Policard and Brown do not teach wherein the first memory space and the second memory space comprise separate regions of a common memory space.

48. Kimura teaches where in the first (Figures 1 [block 108], 14 [block 1411]) and second memory space (Figures 1 [block 108], 14 [1409]) comprise second regions of a common memory space (Figures 1 [block 102], 14 [block 1401]).

49. It would have been obvious to one of ordinary skill in the art at the time the invention was made for the first memory space and the second memory space comprise separate regions of a common memory space, Kimura states at column 5, lines 17-25 that having well-defined, discriminated areas of the memory for the separate operating systems prevents any system failures.

50. Regarding claim 20, Policard and Brown do not teach restoring at least one corrupted data file residing on the second memory space from an image residing on the first memory space.

51. Kimura teaches an operating system that can monitor a failure of the other operating system and then perform a diagnosis and recovery of the failure of the operating system (column 3, lines 4-10).

52. It would have been obvious to one of ordinary skill in the art at the time the invention was made to restore at least one corrupted data file residing on the second memory space from an image residing on the first memory space, since Kimura states at column 3, lines 8-10 that recovering from failure would improve the reliability and the maintenance of the whole computer.

53. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Policard in view of Brown as applied above, and further in view of U.S. Patent Application Publication No. 2006/0004667 A1 to Neil, hereinafter Neil.

54. With regards to claims 9 and 18, Policard, Brown, and Neil do not teach decrypting the data with the network interface device; transferring the decrypted data from the network interface device to the network.

55. It would have been obvious to one of ordinary skill in the art to decrypt the information at the network interface and transmit the decrypted data over the network, since Neil states at paragraph 0043 that the encrypted communications can be used to verify the operating system. Combining the encrypted inter-OS communications of Neil with Policard and Brown would add the benefit of preserving the data intended for the Internet if a virus or malware corrupted the second OS.

Conclusion

56. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

57. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

58. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian LaForgia whose telephone number is (571)272-3792. The examiner can normally be reached on Monday thru Thursday 7-5.

59. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kristine L. Kincaid can be reached on (571) 272-4063. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

60. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/913,609
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Christian LaForgia
Patent Examiner
Art Unit 2139

/C.L.F./

/Matthew Heneghan/
Primary Examiner, Art Unit 2139

Notice of References Cited	Application/Control No. 10/913,609	Applicant(s)/Patent Under Reexamination ROZMAN ET AL.	
	Examiner Christian LaForgia	Art Unit 2139	Page 1 of 1

U.S. PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A US-6,192,477 B1	02-2001	Corthell, David	726/11
	B US-			
	C US-			
	D US-			
	E US-			
	F US-			
	G US-			
	H US-			
	I US-			
	J US-			
	K US-			
	L US-			
	M US-			


FOREIGN PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N				
	O				
	P				
	Q				
	R				
	S				
	T				

NON-PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)				
	U				
	V				
	W				
	X				


*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes 	Application/Control No. 10913609	Applicant(s)/Patent Under Reexamination ROZMAN ET AL.
	Examiner La Forgia, Christian	Art Unit 2131

SEARCHED			
Class	Subclass	Date	Examiner
none	none	9/13/07	clf
none	none	2/19/08	clf

SEARCH NOTES		
Search Notes	Date	Examiner
East search - see enclosed printout	9/13/07	clf
IEEE search	9/13/07	clf
ACM search	9/13/07	clf
Google search	9/13/07	clf
Inventor search	9/13/07	clf
updated East search - see enclosed	2/19/08	clf

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

Index of Claims 	Application/Control No. 10913609	Applicant(s)/Patent Under Reexamination ROZMAN ET AL.
	Examiner La Forgia, Christian	Art Unit 2131

✓	Rejected
=	Allowed

-	Cancelled
÷	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

Claims renumbered in the same order as presented by applicant
 CPA
 T.D.
 R.1.47

CLAIM		DATE							
Final	Original	09/12/2007	02/19/2008						
	1	✓	✓						
	2	✓	✓						
	3	✓	✓						
	4	✓	✓						
	5	✓	✓						
	6	✓	✓						
	7	✓	✓						
	8	✓	✓						
	9	✓	✓						
	10	✓	✓						
	11	✓	✓						
	12	✓	✓						
	13	✓	✓						
	14	✓	✓						
	15	✓	✓						
	16	✓	✓						
	17	✓	✓						
	18	✓	✓						
	19	✓	✓						
	20	✓	✓						

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	36	rozman-all\$.in.	US-PGPUB; USPAT	OR	OFF	2007/09/13 09:28
S2	2	cioffi-alf\$.in.	US-PGPUB; USPAT	OR	OFF	2007/09/13 16:49
S3	1	"6289462".pn.	US-PGPUB; USPAT	OR	OFF	2007/09/13 09:32
S4	10	((("7146640") or ("5835695") or ("6578140") or ("20050149933") or ("6892261") or ("6678712") or ("6957286") or ("6996828") or ("20040205755") or ("6697972")).PN.	US-PGPUB; USPAT	OR	OFF	2007/09/13 09:33
S5	5	("6578140").URPN.	USPAT	OR	OFF	2007/09/13 10:01
S6	1	(dual multiple) near (OS operat\$3 near systems) with (prevent\$3 stop\$4) with (virus trojan malicious malware)	US-PGPUB; USPAT	OR	ON	2007/09/13 10:06
S7	15	("6385721").URPN.	USPAT	OR	OFF	2007/09/13 10:03
S8	8	(dual multiple) near (OS operat\$3 near systems) with (virus trojan malicious malware)	US-PGPUB; USPAT	OR	ON	2007/09/13 13:58
S9	0	("2004/0039944").URPN.	USPAT	OR	OFF	2007/09/13 10:09

S10	35	(("5826013") or ("5978917") or ("6735700") or ("6663000") or ("6553377") or ("6216112") or ("4890098") or ("5555364") or ("5666030") or ("5995103") or ("5502808") or ("5280579") or ("5918039") or ("6480198") or ("6167522") or ("6199181") or ("6275938") or ("6351816") or ("6456554") or ("6658573") or ("6507904") or ("6633963") or ("6678825") or ("5751979") or ("20040054588") or ("20040034794") or ("20040006715") or ("20030177397") or ("20030097591") or ("20030023857") or ("20020066016") or ("20020174349") or ("6581162") or ("6134661") or ("6578140")).PN.	US-PGPUB; USPAT	OR	OFF	2007/09/13 10:13
S11	8	(US-20040039944-\$).did. or (US-7146640-\$ or US-6996828-\$ or US-6678712-\$ or US-6578140-\$ or US-6385721-\$ or US-7260839-\$ or US-6199181-\$).did.	US-PGPUB; USPAT	OR	OFF	2007/09/13 10:28
S12	0	S11 and network\$3 near (OS operat\$3 near system)	US-PGPUB; USPAT	OR	ON	2007/09/13 10:29
S13	8565	network\$3 near (OS operat\$3 near system)	US-PGPUB; USPAT	OR	ON	2007/09/13 10:29

S14	2	(dual multiple) near (OS operat\$3 near systems) same (display\$3) with both with (OS\$2 operat\$3 near systems)	US-PGPUB; USPAT	OR	ON	2007/09/13 11:55
S15	67	(dual multiple) near (OS operat\$3 near systems) same (display\$3) with (multiple) with (OS\$2 operat\$3 near systems)	US-PGPUB; USPAT	OR	ON	2007/09/13 11:55
S16	41	("5673403").URPN.	USPAT	OR	OFF	2007/09/13 12:12
S17	4565	(dual multiple) near (OS operat\$3 near systems)	US-PGPUB; USPAT	OR	ON	2007/09/13 14:49
S18	688	multi\$core near (processor cpu)	US-PGPUB; USPAT	OR	ON	2007/09/13 13:59
S19	37	S17 and S18	US-PGPUB; USPAT	OR	ON	2007/09/13 13:59
S20	18	S17 same S18	US-PGPUB; USPAT	OR	ON	2007/09/13 14:00
S21	4	S17 with S18	US-PGPUB; USPAT	OR	ON	2007/09/13 13:59
S22	14	S17 same S18 not S21	US-PGPUB; USPAT	OR	ON	2007/09/13 14:01
S23	19	S19 not S20	US-PGPUB; USPAT	OR	ON	2007/09/13 14:01
S24	665	(dual multiple) near (OS operat\$3 near systems) and (remov\$3 delet\$3) with (file program)	US-PGPUB; USPAT	OR	ON	2007/09/13 14:50
S25	1	(dual multiple) near (OS operat\$3 near systems) and (remov\$3 delet\$3) with (file program) with after near (run\$3 ran execut\$3)	US-PGPUB; USPAT	OR	ON	2007/09/13 15:09
S26	17	(dual multiple) near (OS operat\$3 near systems) with encrypt\$3 \	US-PGPUB; USPAT	OR	ON	2007/09/13 15:09

S27	17	(dual multiple) near (OS operat\$3 near systems) with encrypt\$3	US-PGPUB; USPAT	OR	ON	2007/09/13 15:19
S28	36	(dual multiple) near (OS operat\$3 near systems) same encrypt\$3	US-PGPUB; USPAT	OR	ON	2007/09/13 15:19
S29	19	(dual multiple) near (OS operat\$3 near systems) same encrypt\$3 not S27	US-PGPUB; USPAT	OR	ON	2007/09/13 15:23
S30	676	(dual multiple) near (OS operat\$3 near systems) and encrypt\$3 not S28	US-PGPUB; USPAT	OR	ON	2007/09/13 15:33
S31	12	(dual multiple) near (OS operat\$3 near systems) and encrypt\$3 with (inter \$OS inter\$operat\$3 near system inter\$process\$2)	US-PGPUB; USPAT	OR	ON	2007/09/13 15:35
S32	0	(dual multiple) near (OS operat\$3 near systems) and encrypt\$3 with (data information) with first near (OS operat\$3 near system)	US-PGPUB; USPAT	OR	ON	2007/09/13 15:38
S33	1	(dual multiple) near (OS operat\$3 near systems) and encrypt\$3 with first near (OS operat\$3 near system)	US-PGPUB; USPAT	OR	ON	2007/09/13 15:37
S34	9	(US-20040039944-\$).did. or (US-7146640-\$ or US-6996828-\$ or US-6678712-\$ or US-6578140-\$ or US-6385721-\$ or US-7260839-\$ or US-6199181-\$ or US-5673403-\$).did.	US-PGPUB; USPAT	OR	OFF	2007/09/13 15:37
S35	2	S34 and encrypt\$3	US-PGPUB; USPAT	OR	ON	2007/09/13 15:37
S36	81	(dual multiple) near (OS operat\$3 near systems) and encrypt\$3 with (OS operat\$3 near system) with (transfer communicat \$3 data)	US-PGPUB; USPAT	OR	ON	2007/09/13 15:39

S37	6	(dual multiple) near (OS operat\$3 near systems) and encrypt\$3 with (OS operat\$3 near system) with (transfer communicat \$3)	US-PGPUB; USPAT	OR	ON	2007/09/13 15:39
S38	0	731/1.ccls.	US-PGPUB; USPAT	OR	OFF	2007/09/13 16:12
S39	2670	713/1.ccls.	US-PGPUB; USPAT	OR	OFF	2007/09/13 16:12
S40	1	"7027872".pn.	US-PGPUB; USPAT	OR	OFF	2007/09/13 16:52
S41	0	"7027872".pn. and IMD with (authenticat\$3 authori \$6 verif\$7 valid\$5)	US-PGPUB; USPAT	OR	OFF	2007/09/13 16:52
S42	1	"7027872".pn. and (authenticat\$3 authori\$6 verif\$7 valid\$5)	US-PGPUB; USPAT	OR	OFF	2007/09/13 17:06
S43	1	"20050022020".pn.	US-PGPUB; USPAT	OR	OFF	2007/09/13 17:06
S44	1	"6192477".pn.	US-PGPUB; USPAT	OR	OFF	2008/02/19 13:13
S45	9	("6192477").URPN.	USPAT	OR	OFF	2008/02/19 13:14

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Rozman, *et al.* Docket No.: ARAC-01
Serial No: 10/913,609 Art Unit: 2131
Date Filed: August 07, 2004 Examiner: La Forgia, Christian
Title: System and Method for Protecting a Computer System from Malicious Software

Mail Stop: Amendment
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT UNDER 37 CFR §1.111

The following amendments and remarks are presented in response to the Examiner's Office Action mailed March 10, 2007. Please amend the above-referenced application as follows. No new matter has been added.

IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) A method of operating a computer system having at least a first and second electronic data processor capable of executing instructions using a common ~~running an~~ operating system, comprising the steps of:

executing instructions in a first logical process within the common operating system using the first electronic data processor, wherein the first logical process is capable of accessing data contained in a first ~~electronic~~ memory space and a second memory space;

executing instructions in a second logical process within the common operating system using the second electronic data processor, wherein the second logical process is capable of accessing data contained in ~~the~~ the second ~~electronic~~ memory space, the second logical process being further capable of exchanging data across a network of one or more computers;

displaying, in a windowed format on a display terminal, data from the first logical process and the second logical process, wherein a video processor is adapted to combine data from the first and second logical processes and transmit the combined data to the display terminal;

wherein the computer system is configured such that the second electronic data processor is operating in a protected mode and data residing on the first ~~electronic~~ memory space is protected from corruption by a malware process downloaded from the network and executing ~~as part of~~ as part of the second logical process.

2. (Original) The method of claim 1 wherein the first memory space and the second memory space comprise separate regions of a common memory space.
3. (Original) The method of claim 1 wherein the second logical process is selected from the group consisting of; an electronic mail process, an instant messaging process, an internet browser process, an interactive gaming process, a virtual private network (VPN) process, and a reader application process.
4. (Currently Amended) The method of claim 1 wherein the first logical process receives user interface data ~~is operating on a first electronic data processor~~, and passes the user interface data to the second logical process ~~is operating on a second electronic data processor~~.
5. (Currently Amended) The method of claim [[4]] 1 wherein the first and second electronic data processors are part of a multi-core electronic data processor.
6. (Original) The method of claim 1 and further comprising the step of restoring at least one corrupted data file residing on the second memory space from an image residing on the first memory space.
7. (Original) The method of claim 1 and further comprising the step of automatically deleting at least one data file residing on the second memory space when the second logical process is terminated.
8. (Original) The method of claim 1 and further comprising the steps of:
 - encrypting data with the first logical process;
 - transferring the encrypted data from the first logical process to the second logical

process;

transferring the encrypted data from the second logical process to the network interface device.

9. (Original) The method of claim 8 and further comprising the steps of:

decrypting the data with the network interface device;

transferring the decrypted data from the network interface device to the network.

10. (Currently Amended) A multi-processor computer system using a common operating system, comprising:

a first electronic data processor ~~running an~~ capable of executing instructions using the common operating system and communicatively coupled to a first memory space and a second memory space;

a second electronic data processor ~~running the~~ capable of executing instructions using the common operating system and communicatively coupled to the second memory space and to a network interface device, wherein the second electronic data processor is capable of exchanging data across a network of one or more computers via the network interface device;

a video processor adapted to combine video data from the first and second electronic data processors and transmit the combined video data to a display terminal for displaying the combined video data in a windowed format;

wherein the computer system is configured such that the second electronic data processor is operating in a protected mode and data residing on the first ~~electronic~~

memory space is protected from corruption by a malware process downloaded from the network and executing on the second ~~logical process~~ electronic data processor.

11. (Original) The computer system of claim 10 wherein the first memory space and the second memory space comprise separate regions of a common memory space.
12. (Original) The computer system of claim 10 wherein the first and second electronic data processors are part of a dual processor computer system.
13. (Original) The computer system of claim 10 wherein the second electronic data processor and the video processor are co-located on a circuit card, the circuit card being communicatively coupled to the first electronic data processor.
14. (Currently Amended) The computer system of claim 10 wherein the computer system is configured such that the first electronic data processor is protected from executing instructions initiated by a malware ~~program~~ process downloaded from the network and executing on the second electronic data processor.
15. (Currently Amended) A multi-processor computer system using a common operating system, comprising:
 - at least a first and second [[one]] electronic data processor capable of executing instructions using the common operating system;
 - at least a first and second memory space;
 - a video processor;
 - wherein the first and second electronic data ~~processor~~processors, first and second

memory space, and video processor are configured for performing the steps of:

executing instructions in a first logical process with the first electronic data processor, wherein the first logical process is executing within the common [[an]] operating system and is capable of accessing data contained in the first memory space and the second memory space;

executing instructions in a second logical process with the second electronic data processor, wherein the second logical process is executing within the common operating system and is capable of accessing data contained in the second memory space, the second logical process being further capable of exchanging data across a network of one or more computers;

displaying, in a windowed format on a display terminal, data from the first logical process and the second logical process, wherein the video processor is adapted to combine data from the first and second logical processes and transmit the combined data to the display terminal;

wherein the computer system is configured such that the second electronic data processor is operating in a protected mode and data residing on the first ~~electronic~~ memory space is protected from corruption by a malware process downloaded from the network and executing [[on]] as part of the second logical process.

16. (Currently Amended) The computer system of claim 15 wherein the computer system is further configured such that the first logical process is protected from executing instructions initiated by a malware ~~program~~ process downloaded from the network and executing as part of the second logical process.

17. (Original) The computer system of claim 15 and further comprising: at least one network interface device capable of exchanging data with both the second logical process and with the network.
18. (Original) The computer system of claim 17 wherein the network interface device is capable of decrypting data received from the second logical process and transmitting the decrypted data to the network while preventing the second logical process from accessing the decrypted data.
19. (Original) The computer system of claim 15 wherein the at least one electronic data processor is selected from the group consisting of: a multi-core electronic data processor; dual electronic data processors; and multiple electronic data processors.
20. (Original) The computer system of claim 15 and further configured for performing the step of: restoring at least one corrupted data file residing on the second memory space from an image residing on the first memory space.

REMARKS

The Applicants have carefully considered this application in connection with the Examiner's Action and respectfully request reconsideration of this application in view of the foregoing amendments and the following remarks.

The Applicants originally submitted Claims 1-20 in the application. Claims 1, 4, 5, 10, 14, 15, and 16 have been amended herein, ones of which have been amended to correct inadvertent errors made in the previous response. Accordingly, Claims 1-20 are currently pending in the application.

I. Response to Arguments

The Examiner stated that “[I]f the Examiner is inferring the Applicant's arguments correctly, than language specifying that there is a single operating system running on a multiprocessor system would help to distinguish the invention of the instant application over at least the Policard reference. Since independent claims 10 and 15 can be interpreted as a multiprocessor system executing multiple operating systems, the rejection of claims 10-20 is maintained.” Applicants appreciate the examiners suggestion, and have amended the independent claims to specify a computer system having at least a first and second electronic data processor capable of executing instructions using a common operating system. Applicants respectfully assert that the amended claims are now patentably distinguishable over at least the Policard reference, as per the Examiner's suggestion.

II. Rejection of Claims under 35 U.S.C. §102

The Examiner has rejected Claims 1, 2, and 3 under 35 U.S.C. §102(b) as being unpatentable over U.S. Patent No. 6,192,477 B 1 to Corthell, hereinafter Corthell.

As per claim 1, the Examiner believes that Corthell discloses the Applicant's claimed invention. Corthell teaches the use of a computer system using a single electronic data processor (Figure 1, [block 102]), utilizing a redirector (Figure 2, [block 214]) and filter (Figure 2, [block 216]) mechanism to protect against attacks by malware. Corthell, therefore, teaches the use of a single electronic data processor that is necessarily executing all instructions, including those related to: (1) the operating system, (2) "unsecure" operations, such as a browser program (column 5, lines 5-8), and (3) a software based redirector and filter mechanism (column 5, lines 65-68). While Corthell does teach partitioning of the memory space into a primary partition (Figure 2, [block 204]) and a protected partition (Figure 2, [block 206]), he does not teach or suggest the partitioning of "secure" and "unsecure" instruction execution onto separate electronic data processors.

In stark contrast, Applicants teach the use of a multi-processor computer having at least a first and second electronic data processor capable of executing instructions using a common operating system. The second electronic data processor is capable of being configured in a protected mode when a network process is active. (Applicants' specification, paragraph 65.) Such a configuration allows for a physical hardware separation or partitioning of instruction execution on physically separate processors (or processor cores), in contrast to Corthell's teaching of executing all instructions on a single electronic data processor. By physically separating the execution of trusted instructions (the operating system running on the first

electronic data processor, for example) from untrusted network process instructions (a Java script downloaded from the internet, for example), a higher level of security may be achieved.

Applicants' invention does not rely on Corthell's teaching of redirector and filter mechanisms to prevent the execution of malicious instructions. Corthell readily acknowledges that the redirector and filter mechanisms are themselves subject to corruption or attack (column 5, lines 65-67) and, therefore, an additional procedure may be required to respond to corruption or attack "by comparison of the operating code that implements the Redirector and Filter with archived code that is write-protected." This "comparison" procedure is therefore not useful in preventing an attack before it happens, rather, the comparison procedure can only detect an attack after it has occurred. Also, Corthell teaches that the comparison procedure could be run as a "background process," before or after a communication, or at a time interval specified by the user. (Column 6, lines 2-12.) Corthell teaches that the comparison procedure must thereby quickly detect an attack on the redirector and filter mechanisms before the malicious (attacking) program has had a chance to corrupt other critical data (including possibly the operating code that implements the comparison procedure and/or the redirector and filter mechanisms). This clearly leaves the system vulnerable to the creators of malicious programs who could exploit the above described vulnerabilities to corrupt the system.

Additionally, Corthell teaches the use of a "tagging," and/or "marking" process to identify data and instructions as trusted (column 5, lines 32-36), which also leads to potential vulnerabilities. Corthell teaches that "[i]nformation, especially instructions, are intercepted and filtered. Suspicious instructions are trapped and the user allowed to authorize execution selectively." (Column 8, lines 40-43.) A security system that relies on a user to selectively authorize the execution of suspicious instructions must naturally assume that the user has

sufficient technical knowledge to determine the difference between malicious and non-malicious instructions. While that assumption may be valid in some cases, many (if not most) personal computer users would likely lack such sophisticated knowledge. Such a security system may not be considered reliable enough for use by novice computer users, thus limiting the utility of such a system.

In contrast, the physical hardware separation or partitioning of instruction execution on physically separate processors (or processor cores), as taught by the Applicants, allows malicious instructions to be executed within the second logical process, using the second electronic data processor operating in a protected mode. If malicious instructions are executed within the second logical process, any data corruption is confined to the second electronic memory space. Critical user data residing on the first electronic memory space is thereby protected from corruption by a malicious (malware) process downloaded from the network and executing on the second logical process. The Applicants' invention therefore does not rely on the detection of a malicious attack after it has occurred. Rather, Applicants' teaching acknowledges that the creators of malicious programs may quickly circumvent software based filters (or screens), thereby rendering any filter (or comparison) based defense mechanism vulnerable to system attack and corruption. (Applicants' specification, paragraph 15.) Applicants' invention teaches "isolating the network interface program from the main computer system such that the network interface program does not share a common memory storage area with other trusted programs. The network interface program may be advantageously given access to a separate, protected memory area, while being unable to initiate access to the main computer's memory storage area. With the network interface program constrained in this way, malware programs are rendered unable to automatically corrupt critical system and user files located on the main memory storage

area.” (Applicants’ specification, paragraph 19.) Applicants’ invention thereby does not rely on the user to have sufficient technical knowledge to determine the difference between malicious and non-malicious instructions.

The selective configuration of a multiple processor (and/or multi-core) system into a protected mode when a network process (for example) is active is an additional feature of the Applicants invention that patentably distinguishes it from the cited references. By allowing the system to be configured into a normal (non-protected) mode, full advantage of a multi-processor system can be achieved while running certain applications, thereby increasing the overall utility of the computer system. (Applicants’ specification, paragraph 51.) Corthell contains no teaching or suggestion of configuring a multiple processor (and/or multi-core) system in this manner.

For reasons cited above, Applicants now respectfully assert that the amended independent claim 1 is patentably distinct from and no longer anticipated by Corthell. In accordance therewith, the Applicant respectfully requests the Examiner withdraw the rejection.

Regarding the dependant claims 2 and 3, Applicants now respectfully assert that the amended independent claim 1 and the claims dependent thereon, are patentably distinct from and no longer anticipated by Corthell. In accordance therewith, the Applicants respectfully requests the Examiner withdraw the rejection.

III. Rejection of Claims under 35 U.S.C. §103

The Examiner has rejected Claim 4 as being unpatentable over Corthell in view of U.S. Patent No. 6,578,140 B1 to Policard, hereinafter Policard. Applicants have incorporated aspects of the original dependant claim 4 into the independent claim 1. Applicants have also amended claim 4, and respectfully assert that the amended independent claim 1 and the claims dependent thereon, are patentably distinct from and no longer anticipated by Corthell.

The Examiner has rejected Claim 5 as being unpatentable over Corthell in view of Policard as applied above, and further in view of U.S. Patent Application Publication No. 2005/02408 A1 to Safford *et al.*, hereinafter Safford. The Examiner asserts that “Safford states at paragraph 0009 that multi-core processors provide additional opportunities for increased processing efficiency.” Safford, however, does not teach or suggest “wherein the computer system is configured such that the second electronic data processor is operating in a protected mode and data residing on the first electronic memory space is protected from corruption by a malware process downloaded from the network and executing on the second logical process,” as stated in the amended independent claim 1. The configuration of one of the cores in a multi-core processor system into a protected mode for the purpose of confining a malware attack is patentably distinct from just obtaining “increased processing efficiency,” as taught by Safford. The combination of references (Corthell, Policard, and Safford) fails to teach or suggest all of the elements of amended independent claim 1 and, therefore, fails to establish a *prima facie* case of obviousness of amended independent claim 1, and the claims dependent thereon. Applicants now respectfully assert that the claimed invention is not obvious in view of the foregoing references and respectfully request the Examiner withdraw the rejection

The Examiner has rejected Claim 6 as being unpatentable over Corthell in view of U.S. Patent No. 6,996,828 B1 to Kimura *et al.*, hereinafter Kimura. Kimura teaches an operating

system that can monitor a failure of the other operating system and then perform a diagnosis and recovery of the failure of the operating system. (Column 3, lines 4-10.) Applicants' have amended claim 1 to specify a computer system having at least a first and second electronic data processor capable of executing instructions using a common operating system. Applicants assert that the limitation of a "common operating system" distinguishes the invention of the instant application over the Corthell and Kimura references. Additionally, the combination of references (Corthell and Kimura) fails to teach or suggest all of the elements of amended independent claim 1 (section II above "Rejection of Claims under 35 U.S.C. §102") and, therefore, fails to establish a *prima facie* case of obviousness of amended independent claim 1, and the claims dependent thereon. Applicants now respectfully assert that the claimed invention is not obvious in view of the foregoing references and request the Examiner withdraw the rejection.

The Examiner has rejected claim 7 under 35 U.S.C. 103(a) as being unpatentable over Corthell in view of U.S. Patent No. 6,507,948 B1 to Curtis *et al.*, hereinafter Curtis. Curtis states at column 3, lines 20-22 that "deleting the files would help in reversing the changes that occurred to the system as a result of the installation." For reasons cited above, Applicants' respectfully assert that the combination of references (Corthell and Curtis) fails to teach or suggest all of the elements of amended independent claim 1 (section II above "Rejection of Claims under 35 U.S.C. §102") and, therefore, fails to establish a *prima facie* case of obviousness of amended independent claim 1, and the claims dependent thereon. Applicants now respectfully assert that the claimed invention is not obvious in view of the foregoing references and request the Examiner withdraw the rejection.

The Examiner has rejected claims 8 and 9 under 35 U.S.C. 103(a) as being unpatentable over Corthell in view of U.S. Patent Application Publication No. 200610004667 A1 to Neil,

hereinafter Neil. The examiner asserts that “[c]ombining the encrypted inter-OS communications of Neil with Corthell would add the benefit of preserving the data intended for the Internet if a virus or malware corrupted the second OS.” Applicants’ amended claim 1 contains elements that patentably distinguish it from the teachings of Corthell and Neil. Applicants assert that the limitation of a “common operating system” distinguishes the invention of the instant application over the Corthell and Neil references. For reasons cited above, Applicants’ respectfully assert that the combination of references (Corthell and Curtis) fails to teach or suggest all of the elements of amended independent claim 1 (section II above “Rejection of Claims under 35 U.S.C. §102”) and, therefore, fails to establish a *prima facie* case of obviousness of amended independent claim 1, and the claims dependent thereon. Applicants now respectfully assert that the claimed invention is not obvious in view of the foregoing references and request the Examiner withdraw the rejection.

The Examiner has rejected claims 10, 12-17, and 19 under 35 U.S.C. 103(a) as being unpatentable over Policard in view of U.S. Patent No. 5,673,403 to Brown *et al.*, hereinafter Brown. Applicants understand the Examiners suggestion regarding independent claims 10 and 15, and have amended the claims to specify a computer system having at least a first and second electronic data processor capable of executing instructions using a common operating system. Additionally, Applicants have incorporated elements of amended independent claim 1 (section II above “Rejection of Claims under 35 U.S.C. §102”) into the amended claims 10 and 15, further patentably distinguishing claims 10 and 15 from the teachings of Policard and Brown.

In particular, the selective configuration of a multiple processor (and/or multi-core) system into a protected mode when a network process (for example) is active is an additional feature of the Applicants invention that patentably distinguishes it from the cited references. By

allowing a user to configure the system into a normal (non-protected) mode, full advantage of a multi-processor system can be achieved while running certain applications, thereby increasing the overall utility of the computer system. (Applicants' specification, paragraph 51.) Policard contains no teaching or suggestion of configuring a multiple processor (and/or multi-core) system in this manner.

Applicants' respectfully assert that the combination of references (Policard and Brown) fails to teach or suggest all of the elements of amended independent claims 10 and 15, and therefore, fails to establish a *prima facie* case of obviousness of amended independent claims 10 and 15, and the claims dependent thereon. Applicants now respectfully assert that the claimed invention is not obvious in view of the foregoing references and request the Examiner withdraw the rejection.

The Examiner has rejected claim 12 under 35 U.S.C. 103(a) as being unpatentable over Policard. As stated above, Policard contains no teaching or suggestion of configuring one of the processors of a multiple processor (and/or multi-core) system into a protected mode, as required in the amended independent claim 10. Policard, therefore, fails to establish a *prima facie* case of obviousness of claim 12. Applicants now respectfully assert that the claimed invention is not obvious in view of the foregoing references and request the Examiner withdraw the rejection.

The Examiner has rejected claim 13 under 35 U.S.C. 103(a) as being unpatentable over Policard. As stated above, Policard contains no teaching or suggestion of configuring the second electronic data processor into a protected mode, as required in the amended independent claim 10. Policard, therefore, fails to establish a *prima facie* case of obviousness of claim 13.

Applicants now respectfully assert that the claimed invention is not obvious in view of the foregoing references and request the Examiner withdraw the rejection.

The Examiner has rejected claims 14 and 16 under 35 U.S.C. 103(a) as being unpatentable over Policard. Applicants respectfully assert that the Examiner has mistakenly cited claims 10 and 15 as originally filed, not the claims 10 and 15 as amended in the Applicants response (mailed on 12/17/2007) to the office action mailed on 9/17/2007 (first office action).

The Examiner asserts that “since internal system has their own operating systems, the e-mail virus would have no effect on the master computer system, segregating the virus from infecting the second processor system.” As stated above, Applicants’ have amended claims 10 and 15 to specify a computer system having at least a first and second electronic data processor capable of executing instructions using a common operating system. Applicants assert that the limitation of a “common operating system” distinguishes the invention of the instant application over the Policard reference. Additionally, Policard contains no teaching or suggestion of configuring the second electronic data processor into a protected mode, as required in the amended independent claims 10 and 15. Policard, therefore, fails to establish a *prima facie* case of obviousness of claims 14 and 16. Applicants now respectfully assert that the claimed invention is not obvious in view of the foregoing references and request the Examiner withdraw the rejection.

The Examiner has rejected claim 17 under 35 U.S.C. 103(a) as being unpatentable over Policard, stating that “Policard teaches at least one network interface device capable of exchanging data with both the second logical process and with the network.” As stated above, Applicants’ have amended claim 15 to specify a computer system having at least a first and

second electronic data processor capable of executing instructions using a common operating system. Applicants assert that the limitation of a “common operating system” distinguishes the invention of the instant application over the Policard reference. Additionally, Policard contains no teaching or suggestion of configuring the second electronic data processor into a protected mode, as required in the amended independent claim 15. Policard, therefore, fails to establish a *prima facie* case of obviousness of claim 17. Applicants now respectfully assert that the claimed invention is not obvious in view of the foregoing references and request the Examiner withdraw the rejection.

The Examiner has rejected claim 19 under 35 U.S.C. 103(a) as being unpatentable over Policard, stating that “Policard teaches wherein the at least one electronic data processor is selected from the group consisting of: a multi-core electronic data processor; dual electronic data processors; and multiple electronic data processors.” Applicants respectfully disagree with the examiners assertion that Policard teaches the use of a multi-core electronic data processor. Additionally, Policard contains no teaching or suggestion of configuring one of the processors (the second electronic data processor) into a protected mode, as required in the amended independent claim 15. Policard, therefore, fails to establish a *prima facie* case of obviousness of claim 19. Applicants now respectfully assert that the claimed invention is not obvious in view of the foregoing references and request the Examiner withdraw the rejection.

The Examiner has rejected claims 11 and 20 under 35 U.S.C. 103(a) as being unpatentable over Policard in view of Brown as applied above, and further in view of U.S. Patent No. 6,996,828 B1 to Kimura *et al.*, hereinafter Kimura.

Regarding claim 11, the examiner states that in Kimura, the “first memory space and the second memory space comprise separate regions of a common memory space, Kimura states at column 5, lines 17-25 that having well-defined, discriminated areas of the memory for the separate operating systems prevents any system failures.” Applicants’ invention is not concerned with preventing failures in a system having separate operating systems, as taught by Kimura. Applicants assert that the limitation of a “common operating system” distinguishes the invention of the instant application over the combination of Policard, Brown, and Kimura. The combination of Policard, Brown, and Kimura, therefore, fails to establish a *prima facie* case of obviousness of claim 11. Applicants now respectfully assert that the claimed invention is not obvious in view of the foregoing references and request the Examiner withdraw the rejection.

Regarding claim 20, the examiner states that “Kimura teaches an operating system that can monitor a failure of the other operating system and than perform a diagnosis and recovery of the failure of the operating system.” Applicants’ invention is not concerned with preventing failures in a system having separate operating systems, as taught by Kimura. Applicants assert that the limitation of a “common operating system” distinguishes the invention of the instant application over the combination of Policard, Brown, and Kimura. The combination of Policard, Brown, and Kimura, therefore, fails to establish a *prima facie* case of obviousness of claim 20. Applicants now respectfully assert that the claimed invention is not obvious in view of the foregoing references and request the Examiner withdraw the rejection.

The Examiner has rejected claim 18 under 35 U.S.C. 103(a) as being unpatentable over Policard in view of Brown as applied above, and further in view of U.S. Patent Application Publication No. 2006/10004667 A1 to Neil, hereinafter Neil. The examiner asserts that “[c]ombining the encrypted inter-OS communications of Neil with Policard and Brown would

add the benefit of preserving the data intended for the Internet if a virus or malware corrupted the second OS.” Applicants’ amended independent claim 15 contains elements that patentably distinguish it from the teachings of Policard, Brown, and Neil. Applicants assert that the limitation of a “common operating system” distinguishes the invention of the instant application over at least the Policard reference. Additionally, Policard contains no teaching or suggestion of configuring the second electronic data processor into a protected mode, as required in the amended independent claim 15. Applicants’ respectfully assert that the combination of references (Policard, Brown, and Neil) fails to teach or suggest all of the elements of amended independent claim 15 (please see arguments cited in section II above “Rejection of Claims under 35 U.S.C. §102”) and, therefore, fails to establish a *prima facie* case of obviousness of amended independent claim 15, and the claims dependent thereon. Applicants now respectfully assert that the claimed invention is not obvious in view of the foregoing references and request the Examiner withdraw the rejection.

V. Conclusion

In view of the foregoing amendments and remarks, the Applicants now see all of the claims currently pending in this application to be in condition for allowance and therefore earnestly solicit a Notice of Allowance therefor.

The Applicants request that the Examiner telephone the undersigned inventor of record at (972) 384-1887 if such would further expedite the prosecution of the present application.

Respectfully submitted,

April 29, 2008
Date

/A. F. Rozman/
Allen F. Rozman
Co-Applicant
Registered Patent Agent
Reg. No. 41,280

735 Mockingbird Dr
Murphy, Texas 75094
Tel. 972-384-1887

Electronic Acknowledgement Receipt

EFS ID:	3227689
Application Number:	10913609
International Application Number:	
Confirmation Number:	5735
Title of Invention:	System and method for protecting a computer system from malicious software
First Named Inventor/Applicant Name:	Allen F. Rozman
Correspondence Address:	Mr. Allen F. Rozman - 735 Mockingbird Dr. - Murphy TX 75094 US 9723841887 m3rozman@comcast.com
Filer:	Glenn W. Boisbrun/Dusty Hunt
Filer Authorized By:	Glenn W. Boisbrun
Attorney Docket Number:	ARAC-01
Receipt Date:	29-APR-2008
Filing Date:	07-AUG-2004
Time Stamp:	17:10:13
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1		ARAC01_Amendment.pdf	139610 a49f36ec37ac2480b513c75f349e0616 a07726cc	yes	21

Multipart Description/PDF files in .zip description			
Document Description	Start	End	
Amendment - After Non-Final Rejection	1	1	
Claims	2	7	
Applicant Arguments/Remarks Made in an Amendment	8	21	

Warnings:

Information:

Total Files Size (in bytes):	139610
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 10/913,609	Filing Date 08/07/2004	<input type="checkbox"/> To be Mailed
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APPLICATION AS FILED – PART I			OTHER THAN SMALL ENTITY				
	(Column 1)	(Column 2)	SMALL ENTITY <input checked="" type="checkbox"/>	OR			
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	OR	RATE (\$)	FEE (\$)
<input type="checkbox"/> BASIC FEE <small>(37 CFR 1.16(a), (b), or (c))</small>	N/A	N/A	N/A			N/A	
<input type="checkbox"/> SEARCH FEE <small>(37 CFR 1.16(k), (l), or (m))</small>	N/A	N/A	N/A			N/A	
<input type="checkbox"/> EXAMINATION FEE <small>(37 CFR 1.16(o), (p), or (q))</small>	N/A	N/A	N/A			N/A	
TOTAL CLAIMS <small>(37 CFR 1.16(i))</small>	minus 20 =	*	X \$ =		OR	X \$ =	
INDEPENDENT CLAIMS <small>(37 CFR 1.16(h))</small>	minus 3 =	*	X \$ =			X \$ =	
<input type="checkbox"/> APPLICATION SIZE FEE <small>(37 CFR 1.16(s))</small>	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
<input type="checkbox"/> MULTIPLE DEPENDENT CLAIM PRESENT <small>(37 CFR 1.16(j))</small>							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II					OTHER THAN SMALL ENTITY				
	(Column 1)	(Column 2)	(Column 3)		SMALL ENTITY	OR			
AMENDMENT	04/29/2008	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)
	Total <small>(37 CFR 1.16(i))</small>	* 20	Minus ** 20	= 0	X \$25 =	0		X \$ =	
	Independent <small>(37 CFR 1.16(h))</small>	* 3	Minus *** 3	= 0	X \$105 =	0		X \$ =	
	<input type="checkbox"/> Application Size Fee <small>(37 CFR 1.16(s))</small>								
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <small>(37 CFR 1.16(j))</small>						OR		
					TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

	(Column 1)	(Column 2)	(Column 3)		SMALL ENTITY	OR			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)
	Total <small>(37 CFR 1.16(i))</small>	*	Minus **	=	X \$ =			X \$ =	
	Independent <small>(37 CFR 1.16(h))</small>	*	Minus ***	=	X \$ =			X \$ =	
	<input type="checkbox"/> Application Size Fee <small>(37 CFR 1.16(s))</small>								
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <small>(37 CFR 1.16(j))</small>						OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
 *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

Legal Instrument Examiner:
 /DEBORAH NASH/

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/913,609	08/07/2004	Allen F. Rozman	ARAC-01	5735

7590 05/20/2008
Mr. Allen F. Rozman
735 Mockingbird Dr.
Murphy, TX 75094

EXAMINER

LAFORGIA, CHRISTIAN A

ART UNIT	PAPER NUMBER
2139	

MAIL DATE	DELIVERY MODE
05/20/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

**Advisory Action
Before the Filing of an Appeal Brief**

Application No. 10/913,609	Applicant(s) ROZMAN ET AL.	
Examiner Christian LaForgia	Art Unit 2139	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 29 April 2008 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) The period for reply expires _____ months from the mailing date of the final rejection.
- b) The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
- Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
- (a) They raise new issues that would require further consideration and/or search (see NOTE below);
- (b) They raise the issue of new matter (see NOTE below);
- (c) They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
- (d) They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: See Continuation Sheet. (See 37 CFR 1.116 and 41.33(a)).

4. The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. Applicant's reply has overcome the following rejection(s): _____.
6. Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. For purposes of appeal, the proposed amendment(s): a) will not be entered, or b) will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
- The status of the claim(s) is (or will be) as follows:
Claim(s) allowed: _____.
Claim(s) objected to: _____.
Claim(s) rejected: 1-20.
Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. The request for reconsideration has been considered but does NOT place the application in condition for allowance because: _____.
12. Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____
13. Other: _____.

/Christian LaForgia/
Primary Examiner, Art Unit 2139

Continuation of 3. NOTE: The Applicant's amendments to independent claims 1, 10, and 15 raise new issues that would require further consideration of the prior art of record, as well as an updated search.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Rozman, *et al.* Docket No.: ARAC-01
Serial No: 10/913,609 Art Unit: 2131
Date Filed: August 07, 2004 Examiner: La Forgia, Christian
Title: System and Method for Protecting a Computer System from Malicious Software

Mail Stop: Amendment
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT UNDER 37 CFR §1.111

The following amendments and remarks are presented in response to the Examiner's Office Action mailed March 10, 2007. Please amend the above-referenced application as follows. No new matter has been added.

DO NOT ENTER: /CLF/

05/17/2008

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Request for Continued Examination (RCE) Transmittal Address to: Mail Stop RCE Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450	Application Number	10/913,609
	Filing Date	08/07/2004
	First Named Inventor	Rozman, <i>et al.</i>
	Art Unit	2139
	Examiner Name	La Forgia, Christian A.
	Attorney Docket Number	ARAC-01

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.

Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. **Submission required under 37 CFR 1.114** Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

- a. Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.
- i. Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ii. Other _____
- b. Enclosed
- i. Amendment/Reply
- ii. Affidavit(s)/Declaration(s)
- iii. Information Disclosure Statement (IDS)
- iv. Other _____

2. **Miscellaneous**

- a. Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)
- b. Other _____

3. **Fees** The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

- a. The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to Deposit Account No. _____. I have enclosed a duplicate copy of this sheet.
- i. RCE fee required under 37 CFR 1.17(e)
- ii. Extension of time fee (37 CFR 1.136 and 1.17)
- iii. Other _____
- b. Check in the amount of \$ _____ enclosed
- c. Payment by credit card (Form PTO-2038 enclosed)

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED**

Signature	<i>AF Rozman</i>	Date	06/10/2008
Name (Print/Type)	Alan F. Rozman	Registration No.	41280

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.

Signature		Date	
Name (Print/Type)			

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Electronic Patent Application Fee Transmittal

Application Number:	10913609			
Filing Date:	07-Aug-2004			
Title of Invention:	System and method for protecting a computer system from malicious software			
First Named Inventor/Applicant Name:	Allen F. Rozman			
Filer:	Glenn W. Boisbrun/Dusty Hunt			
Attorney Docket Number:	ARAC-01			
Filed as Small Entity				
Utility Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Request for continued examination	2801	1	405	405
Total in USD (\$)				405

Electronic Acknowledgement Receipt

EFS ID:	3430297
Application Number:	10913609
International Application Number:	
Confirmation Number:	5735
Title of Invention:	System and method for protecting a computer system from malicious software
First Named Inventor/Applicant Name:	Allen F. Rozman
Correspondence Address:	Mr. Allen F. Rozman - 735 Mockingbird Dr. - Murphy TX 75094 US 9723841887 m3rozman@comcast.com
Filer:	Glenn W. Boisbrun/Dusty Hunt
Filer Authorized By:	Glenn W. Boisbrun
Attorney Docket Number:	ARAC-01
Receipt Date:	10-JUN-2008
Filing Date:	07-AUG-2004
Time Stamp:	13:20:06
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$405

RAM confirmation Number	7580
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	ARAC01_RCE.pdf	77625 e3c7f7601c533ec560c004433407e8d38f2da332b	no	1

Warnings:

This is not a USPTO supplied RCE SB30 form.

Information:

2	Fee Worksheet (PTO-06)	fee-info.pdf	8200 e3c7f7601099d6oda429894b22e3eb0b8479b83a	no	2
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Warnings:

Information:

Total Files Size (in bytes):	85825
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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 10/913,609	Filing Date 08/07/2004	<input type="checkbox"/> To be Mailed
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APPLICATION AS FILED – PART I			OTHER THAN SMALL ENTITY				
	(Column 1)	(Column 2)	SMALL ENTITY <input checked="" type="checkbox"/>	OR			
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)		RATE (\$)	FEE (\$)
<input checked="" type="checkbox"/> BASIC FEE <small>(37 CFR 1.16(a), (b), or (c))</small>	N/A	N/A	N/A	385	OR	N/A	
<input type="checkbox"/> SEARCH FEE <small>(37 CFR 1.16(k), (l), or (m))</small>	N/A	N/A	N/A	N/A		N/A	
<input type="checkbox"/> EXAMINATION FEE <small>(37 CFR 1.16(o), (p), or (q))</small>	N/A	N/A	N/A	N/A		N/A	
TOTAL CLAIMS <small>(37 CFR 1.16(i))</small>	minus 20 =	*	X \$ =			X \$ =	
INDEPENDENT CLAIMS <small>(37 CFR 1.16(h))</small>	minus 3 =	*	X \$ =			X \$ =	
<input type="checkbox"/> APPLICATION SIZE FEE <small>(37 CFR 1.16(s))</small>	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
<input type="checkbox"/> MULTIPLE DEPENDENT CLAIM PRESENT <small>(37 CFR 1.16(j))</small>							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	385		TOTAL	

APPLICATION AS AMENDED – PART II					OTHER THAN SMALL ENTITY				
	(Column 1)	(Column 2)	(Column 3)						
AMENDMENT	DATE	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	06/10/2008								
	Total <small>(37 CFR 1.16(i))</small>	* 20	Minus	** 20	=	0		X \$ =	
	Independent <small>(37 CFR 1.16(h))</small>	* 3	Minus	*** 3	=	0		X \$ =	
	<input type="checkbox"/> Application Size Fee <small>(37 CFR 1.16(s))</small>								
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <small>(37 CFR 1.16(j))</small>								
					TOTAL ADD'L FEE	0		TOTAL ADD'L FEE	

	(Column 1)	(Column 2)	(Column 3)						
AMENDMENT	DATE	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total <small>(37 CFR 1.16(i))</small>	*	Minus	**	=			X \$ =	
	Independent <small>(37 CFR 1.16(h))</small>	*	Minus	***	=			X \$ =	
	<input type="checkbox"/> Application Size Fee <small>(37 CFR 1.16(s))</small>								
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <small>(37 CFR 1.16(j))</small>								
					TOTAL ADD'L FEE			TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
 *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
 The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
 /TAMMY MCBETH BROWN/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
 If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



NOTICE OF ALLOWANCE AND FEE(S) DUE

7590 09/09/2008

Mr. Allen F. Rozman
735 Mockingbird Dr.
Murphy, TX 75094

EXAMINER: LAFORGIA, CHRISTIAN A
ART UNIT: 2139 PAPER NUMBER:
DATE MAILED: 09/09/2008

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.

10/913,609 08/07/2004 Allen F. Rozman ARAC-01 5735

TITLE OF INVENTION: SYSTEM AND METHOD FOR PROTECTING A COMPUTER SYSTEM FROM MALICIOUS SOFTWARE

Table with 7 columns: APPLN. TYPE, SMALL ENTITY, ISSUE FEE DUE, PUBLICATION FEE DUE, PREV. PAID ISSUE FEE, TOTAL FEE(S) DUE, DATE DUE

nonprovisional YES \$720 \$300 \$0 \$1020 12/09/2008

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

7590 09/09/2008

Mr. Allen F. Rozman
 735 Mockingbird Dr.
 Murphy, TX 75094

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/913,609 08/07/2004 Allen F. Rozman ARAC-01 5735

TITLE OF INVENTION: SYSTEM AND METHOD FOR PROTECTING A COMPUTER SYSTEM FROM MALICIOUS SOFTWARE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional YES \$720 \$300 \$0 \$1020 12/09/2008

EXAMINER	ART UNIT	CLASS-SUBCLASS
----------	----------	----------------

LAFORGIA, CHRISTIAN A 2139 726-024000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY AND STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : Individual Corporation or other private group entity Government

4a. The following fee(s) are submitted:

- Issue Fee
- Publication Fee (No small entity discount permitted)
- Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- A check is enclosed.
- Payment by credit card. Form PTO-2038 is attached.
- The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
- b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P. O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
10/913.609 08/07/2004 Allen F. Rozman ARAC-01 5735

7590 09/09/2008
Mr. Allen F. Rozman
735 Mockingbird Dr.
Murphy, TX 75094

Table with 2 columns: EXAMINER, ART UNIT, PAPER NUMBER
EXAMINER: LAFORGIA, CHRISTIAN A
ART UNIT: 2139
PAPER NUMBER: DATE MAILED: 09/09/2008

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 710 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 710 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability

Application No. 10/913,609	Applicant(s) ROZMAN ET AL.	
Examiner Christian LaForgia	Art Unit 2139	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

- 1. This communication is responsive to 10 June 2008.
- 2. The allowed claim(s) is/are 1-20.
- 3. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some* c) None of the:
 - 1. Certified copies of the priority documents have been received.
 - 2. Certified copies of the priority documents have been received in Application No. _____.
 - 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

- 4. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 - 5. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) hereto or 2) to Paper No./Mail Date _____.
 - (b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
- 6. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- 1. Notice of References Cited (PTO-892)
- 2. Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3. Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
- 4. Examiner's Comment Regarding Requirement for Deposit of Biological Material
- 5. Notice of Informal Patent Application
- 6. Interview Summary (PTO-413), Paper No./Mail Date _____.
- 7. Examiner's Amendment/Comment
- 8. Examiner's Statement of Reasons for Allowance
- 9. Other _____.

/Christian LaForgia/
Primary Examiner, Art Unit 2139

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10 June 2008 has been entered.
2. Claims 1-20 have been presented for examination.

Response to Arguments

3. Applicant's arguments, see pages 9-12, filed 10 June 2008, with respect to the prior art rejection of claim 1 have been fully considered and are persuasive. The prior art rejection of independent claim 1 and all its dependents has been withdrawn.
4. Applicant's arguments, see pages 16-17, filed 10 June 2008, with respect to the prior art rejection of claims 10 and 15 have been fully considered and are persuasive. The prior art rejections of independent claims 10 and 15 and all their dependents have been withdrawn.

Allowable Subject Matter

5. Claims 1-20 are allowed.
6. The following is an examiner's statement of reasons for allowance:

As noted above, the Examiner agrees with the Applicant's argument that the prior art does not show a single operating system that executes on multiprocessors such that one processor handles processes from the Internet and other potentially malicious data in order to protect the file system on the other processor.

Art Unit: 2139

7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian LaForgia whose telephone number is (571)272-3792. The examiner can normally be reached on Monday thru Thursday 7-5.

9. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kristine L. Kincaid can be reached on (571) 272-4063. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christian LaForgia/
Primary Examiner, Art Unit 2139

clf

Application/Control Number: 10/913,609
Art Unit: 2139

Page 4

Index of Claims 	Application/Control No. 10913609	Applicant(s)/Patent Under Reexamination ROZMAN ET AL.
	Examiner La Forgia, Christian	Art Unit 2131

✓	Rejected
=	Allowed


-	Cancelled
÷	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected


Claims renumbered in the same order as presented by applicant
 CPA
 T.D.
 R.1.47

CLAIM		DATE							
Final	Original	09/12/2007	02/19/2008	08/18/2008					
	1	✓	✓	=					
	2	✓	✓	=					
	3	✓	✓	=					
	4	✓	✓	=					
	5	✓	✓	=					
	6	✓	✓	=					
	7	✓	✓	=					
	8	✓	✓	=					
	9	✓	✓	=					
	10	✓	✓	=					
	11	✓	✓	=					
	12	✓	✓	=					
	13	✓	✓	=					
	14	✓	✓	=					
	15	✓	✓	=					
	16	✓	✓	=					
	17	✓	✓	=					
	18	✓	✓	=					
	19	✓	✓	=					
	20	✓	✓	=					

Issue Classification 	Application/Control No. 10913609	Applicant(s)/Patent Under Reexamination ROZMAN ET AL.
	Examiner Christian LaForgia	Art Unit 2139

ORIGINAL					INTERNATIONAL CLASSIFICATION											
CLASS		SUBCLASS			CLAIMED					NON-CLAIMED						
726		34			G	0	6	F	1 / 26 (2006.01.01)		G	0	6	F	11 / 30 (2006.01.01)	
CROSS REFERENCE(S)					G	0	6	F	12 / 14 (2006.01.01)		H	0	4	L	9 / 32 (2006.01.01)	
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)															
713	192	193														

NONE (Assistant Examiner) (Date)							Total Claims Allowed: 20		
/Christian LaForgia/ (Primary Examiner)		8/18/08 (Date)					O.G. Print Claim(s) 1		O.G. Print Figure 7

Search Notes 	Application/Control No. 10913609	Applicant(s)/Patent Under Reexamination ROZMAN ET AL.
	Examiner La Forgia, Christian	Art Unit 2131

SEARCHED			
Class	Subclass	Date	Examiner
none	none	9/13/07	clf
none	none	2/19/08	clf
none	none	8/18/08	clf

SEARCH NOTES		
Search Notes	Date	Examiner
East search - see enclosed printout	9/13/07	clf
IEEE search	9/13/07	clf
ACM search	9/13/07	clf
Google search	9/13/07	clf
Inventor search	9/13/07	clf
updated East search - see enclosed	2/19/08	clf
updated EAST search - see enclosed	8/18/08	clf

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
	common near (operat\$3 nears system OS) same protect\$3 near processor	8/18/08	clf
	(common near (operat\$3 nears system OS) and protect\$3 near processor).clm.	8/18/08	clf


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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 www.uspto.gov

BIB DATA SHEET
CONFIRMATION NO. 5735

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.	
10/913,609	08/07/2004	717	2139	ARAC-01	
APPLICANTS Allen F. Rozman, Murphy, TX; Alfonso J. Cioffi, Murphy, TX; ** CONTINUING DATA ***** ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ** 10/14/2004					
Foreign Priority claimed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 35 USC 119(a-d) conditions met <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Verified and /CHRISTIAN A LAFORGIA/ Acknowledged Examiner's Signature	<input type="checkbox"/> Met after Allowance Initials	STATE OR COUNTRY TX	SHEETS DRAWINGS 11	TOTAL CLAIMS 20	INDEPENDENT CLAIMS 3
ADDRESS Mr. Allen F. Rozman 735 Mockingbird Dr. Murphy, TX 75094 UNITED STATES					
TITLE System and method for protecting a computer system from malicious software					
FILING FEE RECEIVED 385	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time) <input type="checkbox"/> 1.18 Fees (Issue) <input type="checkbox"/> Other _____ <input type="checkbox"/> Credit		

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	36	rozman-all\$.in.	US-PGPUB; USPAT	OR	OFF	2007/09/13 09:28
S2	2	cioffi-alf\$.in.	US-PGPUB; USPAT	OR	OFF	2007/09/13 16:49
S3	1	"6289462".pn.	US-PGPUB; USPAT	OR	OFF	2007/09/13 09:32
S4	10	((("7146640") or ("5835695") or ("6578140") or ("20050149933") or ("6892261") or ("6678712") or ("6957286") or ("6996828") or ("20040205755") or ("6697972")).PN.	US-PGPUB; USPAT	OR	OFF	2007/09/13 09:33
S5	5	("6578140").URPN.	USPAT	OR	OFF	2007/09/13 10:01
S6	1	(dual multiple) near (OS operat\$3 near systems) with (prevent\$3 stop\$4) with (virus trojan malicious malware)	US-PGPUB; USPAT	OR	ON	2007/09/13 10:06
S7	15	("6385721").URPN.	USPAT	OR	OFF	2007/09/13 10:03
S8	8	(dual multiple) near (OS operat\$3 near systems) with (virus trojan malicious malware)	US-PGPUB; USPAT	OR	ON	2007/09/13 13:58
S9	0	("2004/0039944").URPN.	USPAT	OR	OFF	2007/09/13 10:09

S10	35	(("5826013") or ("5978917") or ("6735700") or ("6663000") or ("6553377") or ("6216112") or ("4890098") or ("5555364") or ("5666030") or ("5995103") or ("5502808") or ("5280579") or ("5918039") or ("6480198") or ("6167522") or ("6199181") or ("6275938") or ("6351816") or ("6456554") or ("6658573") or ("6507904") or ("6633963") or ("6678825") or ("5751979") or ("20040054588") or ("20040034794") or ("20040006715") or ("20030177397") or ("20030097591") or ("20030023857") or ("20020066016") or ("20020174349") or ("6581162") or ("6134661") or ("6578140")).PN.	US-PGPUB; USPAT	OR	OFF	2007/09/13 10:13
S11	8	(US-20040039944-\$).did. or (US-7146640-\$ or US-6996828-\$ or US-6678712-\$ or US-6578140-\$ or US-6385721-\$ or US-7260839-\$ or US-6199181-\$).did.	US-PGPUB; USPAT	OR	OFF	2007/09/13 10:28
S12	0	S11 and network\$3 near (OS operat\$3 near system)	US-PGPUB; USPAT	OR	ON	2007/09/13 10:29
S13	8565	network\$3 near (OS operat\$3 near system)	US-PGPUB; USPAT	OR	ON	2007/09/13 10:29

S14	2	(dual multiple) near (OS operat\$3 near systems) same (display\$3) with both with (OS\$2 operat\$3 near systems)	US-PGPUB; USPAT	OR	ON	2007/09/13 11:55
S15	67	(dual multiple) near (OS operat\$3 near systems) same (display\$3) with (multiple) with (OS\$2 operat\$3 near systems)	US-PGPUB; USPAT	OR	ON	2007/09/13 11:55
S16	41	("5673403").URPN.	USPAT	OR	OFF	2007/09/13 12:12
S17	4565	(dual multiple) near (OS operat\$3 near systems)	US-PGPUB; USPAT	OR	ON	2007/09/13 14:49
S18	688	multi\$core near (processor cpu)	US-PGPUB; USPAT	OR	ON	2007/09/13 13:59
S19	37	S17 and S18	US-PGPUB; USPAT	OR	ON	2007/09/13 13:59
S20	18	S17 same S18	US-PGPUB; USPAT	OR	ON	2007/09/13 14:00
S21	4	S17 with S18	US-PGPUB; USPAT	OR	ON	2007/09/13 13:59
S22	14	S17 same S18 not S21	US-PGPUB; USPAT	OR	ON	2007/09/13 14:01
S23	19	S19 not S20	US-PGPUB; USPAT	OR	ON	2007/09/13 14:01
S24	665	(dual multiple) near (OS operat\$3 near systems) and (remov\$3 delet\$3) with (file program)	US-PGPUB; USPAT	OR	ON	2007/09/13 14:50
S25	1	(dual multiple) near (OS operat\$3 near systems) and (remov\$3 delet\$3) with (file program) with after near (run\$3 ran execut\$3)	US-PGPUB; USPAT	OR	ON	2007/09/13 15:09
S26	17	(dual multiple) near (OS operat\$3 near systems) with encrypt\$3 \	US-PGPUB; USPAT	OR	ON	2007/09/13 15:09

S27	17	(dual multiple) near (OS operat\$3 near systems) with encrypt\$3	US-PGPUB; USPAT	OR	ON	2007/09/13 15:19
S28	36	(dual multiple) near (OS operat\$3 near systems) same encrypt\$3	US-PGPUB; USPAT	OR	ON	2007/09/13 15:19
S29	19	(dual multiple) near (OS operat\$3 near systems) same encrypt\$3 not S27	US-PGPUB; USPAT	OR	ON	2007/09/13 15:23
S30	676	(dual multiple) near (OS operat\$3 near systems) and encrypt\$3 not S28	US-PGPUB; USPAT	OR	ON	2007/09/13 15:33
S31	12	(dual multiple) near (OS operat\$3 near systems) and encrypt\$3 with (inter \$OS inter\$operat\$3 near system inter\$process\$2)	US-PGPUB; USPAT	OR	ON	2007/09/13 15:35
S32	0	(dual multiple) near (OS operat\$3 near systems) and encrypt\$3 with (data information) with first near (OS operat\$3 near system)	US-PGPUB; USPAT	OR	ON	2007/09/13 15:38
S33	1	(dual multiple) near (OS operat\$3 near systems) and encrypt\$3 with first near (OS operat\$3 near system)	US-PGPUB; USPAT	OR	ON	2007/09/13 15:37
S34	9	(US-20040039944-\$).did. or (US-7146640-\$ or US-6996828-\$ or US-6678712-\$ or US-6578140-\$ or US-6385721-\$ or US-7260839-\$ or US-6199181-\$ or US-5673403-\$).did.	US-PGPUB; USPAT	OR	OFF	2007/09/13 15:37
S35	2	S34 and encrypt\$3	US-PGPUB; USPAT	OR	ON	2007/09/13 15:37
S36	81	(dual multiple) near (OS operat\$3 near systems) and encrypt\$3 with (OS operat\$3 near system) with (transfer communicat \$3 data)	US-PGPUB; USPAT	OR	ON	2007/09/13 15:39

S37	6	(dual multiple) near (OS operat\$3 near systems) and encrypt\$3 with (OS operat\$3 near system) with (transfer communicat \$3)	US-PGPUB; USPAT	OR	ON	2007/09/13 15:39
S38	0	731/1.ccls.	US-PGPUB; USPAT	OR	OFF	2007/09/13 16:12
S39	2670	713/1.ccls.	US-PGPUB; USPAT	OR	OFF	2007/09/13 16:12
S40	1	"7027872".pn.	US-PGPUB; USPAT	OR	OFF	2007/09/13 16:52
S41	0	"7027872".pn. and IMD with (authenticat\$3 authori \$6 verif\$7 valid\$5)	US-PGPUB; USPAT	OR	OFF	2007/09/13 16:52
S42	1	"7027872".pn. and (authenticat\$3 authori\$6 verif\$7 valid\$5)	US-PGPUB; USPAT	OR	OFF	2007/09/13 17:06
S43	1	"20050022020".pn.	US-PGPUB; USPAT	OR	OFF	2007/09/13 17:06
S44	1	"6192477".pn.	US-PGPUB; USPAT	OR	OFF	2008/02/19 13:13
S45	9	("6192477").URPN.	USPAT	OR	OFF	2008/02/19 13:14
S46	9	("6192477").URPN.	USPAT	OR	OFF	2008/06/16 16:15
S47	9	("6192477").URPN.	USPAT	OR	OFF	2008/06/16 16:15
S48	5	("6578140").URPN.	USPAT	OR	OFF	2008/08/18 14:31
S49	63	secure near3 process\$3 same insecure near3 process\$3	US-PGPUB; USPAT	OR	ON	2008/08/18 14:32
S50	1	secure near3 process\$3 same insecure near3 process\$3 with (internet e \$1mail)	US-PGPUB; USPAT	OR	ON	2008/08/18 14:32
S51	0	secure near3 processor and insecure near3 processor with (internet e \$1mail)	US-PGPUB; USPAT	OR	ON	2008/08/18 14:33

S52	9	("6192477").URPN.	USPAT	OR	OFF	2008/08/18 16:04
S53	1	common near (operat\$3 nears system OS) same protect\$3 near processor	US- PGPUB; USPAT	OR	ON	2008/08/18 16:33
S54	36	common near (operat\$3 nears system OS) and protect\$3 near processor	US- PGPUB; USPAT	OR	ON	2008/08/18 16:33
S55	0	(common near (operat\$3 nears system OS) and protect\$3 near processor). clm.	US- PGPUB; USPAT	OR	ON	2008/08/18 16:34

8/18/08 4:47:28 PM

C:\Documents and Settings\claforgia\My Documents\EAST\Workspaces\10913609.wsp

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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Complete if Known	
		Application Number	10/913,609
		Filing Date	
		First Named Inventor	ROZMAN
		Art Unit	
		Examiner Name	
Sheet <u>2</u> of <u>2</u>	Attorney Docket Number	ARAC-01	

Am
 9-25-08

U. S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
UF7		US-6,456,554	4-8-2003	SCHMIDT, et al.	6,546,554
UF7		US-6,658,573	12-2-2003	BICKNF, et al.	
UF7		US-6,507,904	1-14-2003	ELLISON, et al.	
UF7		US-6,633,963	10-14-2003	ELLISON, et al.	
UF7		US-6,678,825	1-13-2003	ELLISON, et al.	1/2004
UF7		US-5,751,979	5-12-1998	MCCRORY	
UF7		US-20040054588	3-18-2004	JACOBS, et al.	
UF7		US-20040034794	2-19-2004	MAYER, YALOW, et al.	
UF7		US-20040006715	1-08-2004	SKREPETOS, NIKHILAS	
UF7		US-20030177397	9-18-2003	SAMMAN, BEN	
UF7		US-20030097591	5-22-2003	PHAN, KAI, et al.	
UF7		US-20030023857	1-30-2003	JAMES, et al.	
UF7		US-20020066016	5-30-2002	RIORDAN, JAMES	
UF7		US-20020174349	11-21-2002	WOLFF, et al.	
UF7		US-6,581,162	6-17-2003	ANGELO, et al.	
UF7		US-6,134,661	10-17-2000	TOPP	
UF7		US-6,578,140	6-10-2003	POLICARD	
		US-			

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³ Number ⁴ Kind Code ⁵ (if known)				

Examiner Signature		Date Considered	9/13/07
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*EXAMINER Initials: Referenced considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Substitute for form 1449A/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		Application Number	16/913,609
		Filing Date	
		First Named Inventor	Rozman
		Art Unit	
		Examiner Name	
Sheet <u>1</u> of <u>2</u>	Attorney Docket Number	ARAC-01	

U. S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
UJ		US-5,826,013	10-20-1998	NACHENBERG	
UJ		US-5,978,917	11-02-1999	CHI	
UJ		US-6,735,700	6-11-2004	FLINT, ET AL.	
UJ		US-6,663,000	12-16-2003	MUTTIK, et al.	
UJ		US-6,553,377	4-22-2003	ESCHELBECK, et al.	
UJ		US-6,216,112	4-10-2001	FULLER, et al.	
UJ		US-6,489,098	12-26-1999	DAWES, et al.	
UJ		US-5,555,364	9-10-1996	GOLDSTEIN	
UJ		US-5,666,030	9-9-1997	PARSON	
UJ		US-5,995,103	11-30-1999	ASHE	
UJ		US-5,502,808	3-26-1999	GODDARD, et al.	3/1996
UJ		US-5,280,579	1-18-1994	NYE	
UJ		US-5,918,039	6-29-1999	BUSWELL, et al.	
UJ		US-6,480,198	11-12-2002	KANG	
UJ		US-6,167,522	12-26-2000	LEE, et al.	
UJ		US-6,199,181	3-6-2001	Rechet, et al.	
UJ		US-6,275,938	8-14-2001	BOND, et al.	
UJ		US-6,351,816	2-26-2002	MUELLER, et al.	

9-25-08

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ² Number ³ Kind Code ⁴ (if known)				

Examiner Signature		Date Considered	9/13/07
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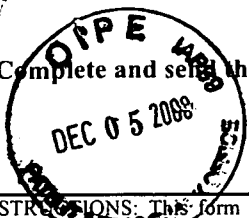
*EXAMINER: Initial reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language translation is attached.

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PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** Mail Stop ISSUE FEE
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 or **Fax** (571)-273-2885



INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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7590 09/09/2008

Mr. Allen F. Rozman
 735 Mockingbird Dr.
 Murphy, TX 75094

Certificate of Mailing or Transmission
 I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

Allen F Rozman	(Depositor's name)
AF Rozman	(Signature)
12-3-08	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/913,609	08/07/2004	Allen F. Rozman	ARAC-01	5735

TITLE OF INVENTION: SYSTEM AND METHOD FOR PROTECTING A COMPUTER SYSTEM FROM MALICIOUS SOFTWARE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$720	\$300	\$0	\$1020	12/09/2008

EXAMINER	ART UNIT	CLASS-SUBCLASS	12/08/2008 SLUANG2	00000005 10913609
LAFORGIA, CHRISTIAN A	2139	726-024000	01 FC:1504	300.00 OP
			02 FC:1506	720.00 OP

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
 Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
 "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list
 (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
 (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
 1 Allen F Rozman
 2 _____
 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)
 PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.
 (A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): Individual Corporation or other private group entity Government

4a. The following fee(s) are submitted:
 Issue Fee
 Publication Fee (No small entity discount permitted)
 Advance Order - # of Copies _____
 4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)
 A check is enclosed.
 Payment by credit card. Form PTO-2038 is attached.
 The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)
 a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature <u>AF Rozman</u>	Date <u>12-3-08</u>
Typed or printed name <u>Allen F Rozman</u>	Registration No. <u>41280</u>

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NOTICE OF ALLOWANCE AND FEE(S) DUE

7590 09/09/2008

Mr. Allen F. Rozman
735 Mockingbird Dr.
Murphy, TX 75094

EXAMINER: LAFORGIA, CHRISTIAN A
ART UNIT: 2139 PAPER NUMBER:
DATE MAILED: 09/09/2008

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.

TITLE OF INVENTION: SYSTEM AND METHOD FOR PROTECTING A COMPUTER SYSTEM FROM MALICIOUS SOFTWARE

Table with 7 columns: APPLN. TYPE, SMALL ENTITY, ISSUE FEE DUE, PUBLICATION FEE DUE, PREV. PAID ISSUE FEE, TOTAL FEE(S) DUE, DATE DUE

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

- A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.
B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

- A. Pay TOTAL FEE(S) DUE shown above, or
B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

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Notice of Fee Due

Date: 12-08-08

Application Number: 10/913,609

A fee is due for the attached document for the reason indicated below. Please check the application for the appropriate authorization to charge a deposit account. If an authorization is present, please charge the appropriate fee*. If an authorization is not present, notify the application of the fee deficiency.

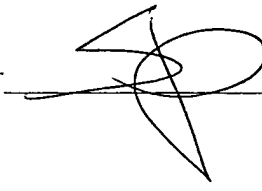
***If the fee due is for any of the filing fees, check for authorization to charge the surcharge. If authorization is present, charge the surcharge for late payment of the filing fees as well.**

- Insufficient payment by check or money order.
- Insufficient funds in deposit account _____ at _____ (time).
- Insufficient payment by credit card.
- Declined credit card.
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Fee code(s) to be applied: 2501 \$755

Amount in holding fee code: 1506 \$720
1622/2622
1999

Total remaining due from applicant: \$35

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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/913,609	08/07/2004	Allen F. Rozman	ARAC-01	5735

7590 12/30/2008
Mr. Allen F. Rozman
735 Mockingbird Dr.
Murphy, TX 75094

EXAMINER

LAFORGIA, CHRISTIAN A

ART UNIT PAPER NUMBER

2139

MAIL DATE DELIVERY MODE

12/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



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Commissioner for Patents
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Mr. Allen F. Rozman
735 Mockingbird Dr.
Murphy TX 75094

Mail Date: 12/30/08

Application Number: 10/913609

NOTICE TO PAY BALANCE OF ISSUE FEE

The issue fee payment filed on 12/05/08 has been received. Although the fee paid in the Notice of Allowance was paid, new patent fees went into effect on October 2, 2008 after the mailing date of the Notice. In accordance with Sections 801 and 803 of the Consolidated Appropriations Act, 2005 (H.R. 4818) "the provisions of this title shall take effect on the date of enactment of this Act. . . the provisions of section 801 shall apply to all patents, whenever granted, and to all patent applications pending on or filed after the effective date." See also, Revision of Patent Fees for Fiscal Year 2009-Final Rule, 73 Fed. Reg. 47534 (Aug. 14, 2008) and Consolidated Security, Disaster Assistance and Continuing Appropriations Act, 2009 (H.R. 2638). Because the issue fee was paid on or after October 2, 2008, the new issue fee was due instead of the amount specified in the Notice of Allowance.

In accordance with 37 CFR 1.18, applicant is given a time period of THREE (3) MONTHS from the mailing date of this notice during which to pay the BALANCE DUE indicated below. The balance due is the difference between the issue fee required on the date that the correct issue fee is paid and the amount that was previously paid. This three-month time period may not be extended. If the balance due is not paid before the expiration of the three-month period, the application will become abandoned (if not issued) or the patent will lapse (if issued) at the termination of the three-month period.

Table with 4 columns: App. Type, Column A Issue Fee Req. (large entity / small entity), Column B Issue Fee PAID, Balance Due. Col. A minus Col. B. Rows include UTILITY or REISSUE, DESIGN, and PLANT.

/ Betty Powell /
Office of Data Management
Office: 703-308-9250x160
Fax: 571-270-9835

A copy of this notice MUST be returned with payment.
CERTIFICATE OF MAILING

1 Applicants should check the current fee schedule posted on the USPTO Internet web site at:
http://www.uspto.gov/main/howtofees.htm before paying the balance due in order to ensure that the correct issue fee is paid. If applicable, fees may also be paid by EFS Web, Credit Card or Deposit Account.

I hereby certify that this notice and the required additional fee are being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to Mail Stop Issue Fee, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date indicated below.

Printed Name: _____ Signature: _____



APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/913,609	01/27/2009	7484247	ARAC-01	5735

7590 01/07/2009
Mr. Allen F. Rozman
735 Mockingbird Dr.
Murphy, TX 75094

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 710 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

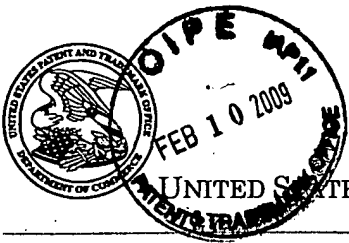
Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Allen F. Rozman, Murphy, TX;
Alfonso J. Cioffi, Murphy, TX;

AFW



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
 United States Patent and Trademark Office
 P.O. Box 1450
 Alexandria, VA 22313-1450
 www.uspto.gov

Mr. Allen F. Rozman
 735 Mockingbird Dr.
 Murphy TX 75094

Mail Date: 12/30/08

02/11/2009 HDEMESS2 00000030 10913609

Application Number: 10/913609

01 FC:2501 755.00 OP

NOTICE TO PAY BALANCE OF ISSUE FEE

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In accordance with 37 CFR 1.18, applicant is given a time period of **THREE (3) MONTHS** from the mailing date of this notice during which to pay the **BALANCE DUE** indicated below. The balance due is the difference between the issue fee required on the date that the correct issue fee is paid and the amount that was previously paid. This three-month time period may not be extended. If the balance due is not paid before the expiration of the three-month period, the application will become abandoned (if not issued) or the patent will lapse (if issued) at the termination of the three-month period.

App. Type	Column A	Column B	Balance Due.
	Issue Fee Req. large entity / small entity	Issue Fee PAID	Col. A minus Col. B
UTILITY or REISSUE	\$1,510.00 / \$755.00	\$ 720.00	\$ 35.00
DESIGN	\$860.00 / \$430.00	\$	\$
PLANT	\$1,190.00 / \$595.00	\$	\$

Adjustment date: 02/11/2009 HDEMESS2
 12/08/2008 SLUANG2 00000005 10913609
 02 FC:1506 -720.00 OP

/ Betty Powell /
 Office of Data Management
 Office: 703-308-9250x160
 Fax: 571-270-9835

A copy of this notice **MUST** be returned with payment.
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¹ Applicants should check the current fee schedule posted on the USPTO Internet web site at: <http://www.uspto.gov/main/howtofees.htm> before paying the balance due in order to ensure that the correct issue fee is paid. If applicable, fees may also be paid by EFS Web, Credit Card or Deposit Account.



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Printed Name: Allen Rozman Signature: AF Rozman