

Solution Brief

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**Stopping Inbound  
and Outbound Threats  
with Juniper Networks  
Content Security**

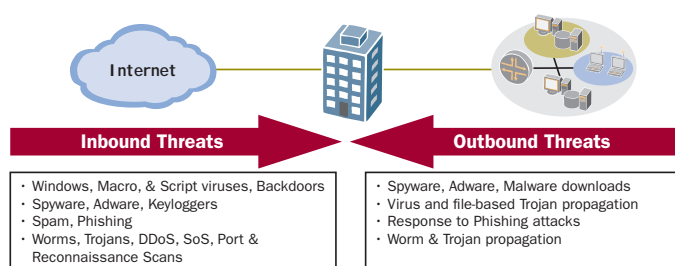
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## Introduction

As the network attack landscape continues to evolve, IT managers can no longer afford to focus solely on protection against a single type of attack and expect their network to remain unaffected. All manner of attacks are pointed squarely at the corporate network. Relatively simple network level attacks have morphed into more complex attacks that use both network and application level components to achieve their malicious goal. With more and more companies providing direct access to the web, end-users are casually surfing to sites that may be known malware download sources, or unknowingly revealing personal or corporate private data (credit cards, passwords, corporate trade secrets, etc) via email scams or hidden background programs that collect and forward data. This means that an IT manager must not only stop attacks at each layer network, application and content, but they also need to stop both inbound and outbound threats.

- Inbound threats are those that originate from outside the corporate network, for example, from an attacker on the Internet who intends to penetrate the corporation's perimeter defenses. These threats include virtually all manner of attacks from worms to viruses to Spyware to Phishing emails.
- Outbound threats are those that originate from someone sitting inside the corporate network, such as an employee sitting in their cube who has a machine that has been unknowingly compromised and is propagating a worm or virus throughout the corporate network. Other examples of outbound attacks are users who respond to Phishing attacks by entering their personal data on a malicious web site, and Spyware sitting on an employee's machine quietly sending sensitive corporate information to some malicious party on the Internet.

Stopping all manner of inbound and outbound attacks, requires a concerted, multi-layered solution to prevent them from inflicting damages on the network, your assets and the end user.



## The Right Tool for the Job

While bi-directional protection is a critical component, it is equally critical to implement solution components that target specific types of attacks. No single solution component will stop the long list of network-level, application-level and content-based attacks. For example, viruses are embedded within files, such as an attachment or an executable. To ensure maximum protection against viruses, IT managers should implement a true, file-based Antivirus (AV) offering that deconstructs the payload, decodes the file or script, evaluates it for potential viruses and then reconstructs it, sending it on its way. Network signature AV solutions look only at a limited amount of data, such as packets or stream, for virus detection, resulting in a false sense of security. Those AV offerings that are solely looking at network streams will not provide adequate protection because they do not have the ability to decode the plethora of files and file formats that ranges from Word documents to Excel spreadsheets to GIF images to zipped files, etc.

To protect the network against application level attacks targeting software vulnerabilities via the network such as most network worms, or the sending of sensitive credit card data from a Spyware infected system, an Intrusion Prevention System (IPS) is the recommended solution. AV and IPS are two complementary solutions protecting against different types of attacks. An IPS should look deep into the application layer traffic to detect attacks. Here too, it is important to choose a solution that does more than merely inspect the packets at the network layer or decodes only a few protocols at Layer 7– the solution should understand and inspect application traffic of all types, fully understand the details of each protocol, and use a combination of methods such as application level stateful inspection, anomaly detection and other heuristics to stop threats.

## Limit Attack Frequency With Access Control

An often overlooked attack protection element is the ability to control access to known malware download sites. By assembling an attack protection solution that incorporates Web filtering to block access to known malicious Web sites, IT managers can reduce the number of malicious downloads that are brought into the network. Another mechanism that can help reduce the number of incoming attacks is to implement a gateway Anti-Spam solution that can act as a preliminary filter by blocking known Spam and Phishing sources.

## The Juniper Networks Solution – Best-in-Class Technology and Partners

To provide protection against inbound and outbound attacks at all levels, Juniper Networks integrates a complete set of best-in-class content security features (commonly referred to as Unified Threat Management (UTM) features) into their line of branch office firewall platforms. By leveraging the development, support and market expertise of many of the leading content security partners, Juniper is able to deliver a set of best-in-class UTM features. Other vendors spread their development resources too thin by trying to develop and maintain every UTM component in-house. While others use open source offerings which tend to be inconsistent in their quality and “catch-rate”. With best-in-class partnerships, customers are assured that their networks will be protected against all manner of attacks.

### Stopping Inbound and Outbound Viruses, Spyware, and Adware Attacks

By integrating a best-in-class gateway antivirus (AV) offering from Kaspersky Lab, Juniper Networks integrated security appliances can protect web traffic, email and web mail from file-based viruses, worms, backdoors, Trojans and malware. Using policy-based management, inbound and outbound traffic can be scanned, thereby protecting the network from attacks originating from outside the network, as well as those that originate from inside the network. Unlike other integrated antivirus solutions that are packet or network signature-based, the Juniper-Kaspersky solution deconstructs the payload and files of all types, evaluating them for potential viruses and then reconstructs them, sending them on their way.

The Juniper-Kaspersky solution detects and protects against over 500,000 viruses, worms, malicious backdoors, dialers, keyboard loggers, password stealers, Trojans and other malicious code. Included in the joint solution is a best-of-class detection of Spyware, Adware and other malware-related programs. Unlike some solutions that will use multiple non-file based scanners to detect different types of malware, the Juniper-Kaspersky solution is based upon one unified comprehensive best-of-breed scanner, database, and update routine to protect against all malicious and malware-related programs.

### Day-Zero Protection Against Application Level Attacks

Tightly integrated into the entire Juniper Networks firewall platforms is the Deep Inspection firewall, a proven, 3rd generation IPS solution that builds on the strengths of Stateful inspection and integrates Stateful signatures and protocol

anomaly detection mechanisms to provide both network and application-level attack protection at the perimeter. Using policy-based management, administrators can pick and choose which protocols to inspect with protocol anomaly detection and/or Stateful signatures, what types of attacks to look for and which action to take if an attack is discovered. Attack coverage can be tailored to specific attack protection requirements using any one of four different Signature Packs<sup>1</sup>:

- Base Signature Pack: Protects Internet-facing protocols and services with a wide range of worm, client-to-server, and server-to-client signatures.
- Server Signature Pack: Detects and blocks external attacks that are targeting server infrastructure
- Client Signature Pack: Stops Trojans, Worms and other malware with an array of “client” oriented attack objects
- Worm Mitigation Signature Pack : Detects client-to-server and server-to-client worms to deliver comprehensive worm coverage against mass, fast-moving Worm outbreaks

### Controlling Access to Known Virus Download sites

To block access to malicious Web sites, Juniper Networks has teamed with SurfControl to provide a Web filtering solution that is seamlessly integrated into the firewall. Using the management GUI, an administrator can assemble an appropriate Web use policy based upon 54 different categories encompassing over 13 million URLs (and growing every day).

### Blocking Common Inbound Spam and Phishing Attacks

Juniper Networks has teamed with Symantec Corporation to leverage its market leading Anti-Spam solution and reputation service for Juniper’s small to medium office platforms to help slow the flood of unwanted email and the potential attacks they carry. Installed on the Juniper Networks FW/VPN gateway, the Anti-Spam engine filters incoming email for known spam and Phishing users to act as a first line of defense. When a known malicious email arrives, it is blocked and/or flagged so that the email server can take an appropriate action.

### Summary

Juniper Networks firewalls include UTM features that are backed by world class solutions partners. When combined with market-leading performance and networking deliver a powerful solution that can protect against inbound and outbound attacks traversing the LAN and/or the WAN.

<sup>1</sup> Only one Signature Pack can be installed at any given time.

# Stopping Inbound and Outbound Threats

Antivirus Specifications (Kaspersky Lab)	
Protocols scanned	SMTP, POP3, Webmail, FTP, IMAP, HTTP
Inbound/outbound protection	Yes/Yes
New virus responsiveness	Average 1.5 hours
Update frequency	Hourly
Number of virus signatures	100,000 +
Archive and Extractor Formats	ACE, ARJ, Alloy, Astrum, BZIP2, BestCrypt, CAB, CABSFX, CHM, Catapult, CaveSFX, CaveSetup, ClickTeam, ClickTeamPro, Commodore, CompiledHLP, CreateInstall, DiskDupe, DiskImage, EGDial, Effect Office, Embedded, Embedded Class, Embedded EXE, Embedded MS Expand, Embedded PowerPoint, Embedded RTF, FlyStudio, GEA, GKWare Setup, GZIP, Gentee, Glue, HA, HXS, HotSoup, Inno, InstFact, Instyler, IntroAdder, LHA, MS Expand, MSO, Momma, MultiBinder, NSIS, NeoBook, PCAcme, PCCrypt, PCInstall, PIMP, PLCreator, PaquetBuilder, Perl2Exe, PerlApp, Presto, ProCarry, RARv 1.4 and above, SEA, SbookBuilder, SetupFactory, SetupSpecialist, SilverKey, SmartGlue, StarDust Installer, Stream 1C, StubbieMan, Sydex, TSE, Tar, TeleDisk, Thin-stall, ViseMan, WinBackup, WiseSFX, ZIP
WIN semi-executable extensions:	pif, Ink, reg, ini (Script.Ini, etc), cla (Java Class), vbs (Visual Basic Script), vbe (Visual Basic Script Encrypted), js (Java Script), jse (Java Script Encrypted), htm, html, htt (HTTP pages), hta - HTA (HTML applications), asp (Active Server Pages), chm - CHM (compressed HTML), pht - PHTML, php - PHP, wsh, wsf, the (.theme)
MS Office extensions	doc, dot, fpm, rtf, xl*, pp*, md*, shs, dwg (Acad2000), msi (MS Installer), otm (Outlook macro), pdf (AcrobatReader), swf (Shockwave-Flash), prj (MapInfo project), jpg, jpeg, emf (Enhanced Windows Metafile), elf
DOS executable extensions:	com, exe, sys, prg, bin, bat, cmd, dpl(Borland's Delphi files), ov*
WIN executable extensions:	dll, scr, cpl, ocx, tsp, drv, vxd, fon 386
Email file extensions	Eml, nws, msg, plg, mbx (Eudora database)
Help file extensions:	hlp
Other file extensions:	sh, pl, xml, itsf, reg, wsf, mime, rar, pk, lha, arj, ace
Integrated Web Filtering Specifications (SurfControl)	
URL database	>13.7 million – growing daily
Pages covered within database	>2.5 Billion
New pages added	>50,000 per week
Number of categories covered	54 including Phishing & Fraud, Spyware, Adult/Sexually Explicit, Alcohol & Tobacco, Criminal Activity, Gambling, Hacking, illegal Drugs, Intolerance & Hate, Tasteless & Offensive, Violence, Weapons
Languages	72
Countries	210

Anti-Spam Specifications (Symantec)	
SPAM list update frequency	The Anti-Spam list is updated twice every hour.
Types of spam covered	Zombies, open proxies, suspect spam
Percentage of WW email used to generate list	Approximately 20-25% of all global email traffic is analyzed to generate the Anti-Spam list.
Number of mechanisms (honeypots etc) used to collect and perform analysis	Anti-Spam list is generated from approximately 3 million honeypots across more than 25 different countries
IPS (Deep Inspection FW) Specifications	
Methods of detection	2 methods of detection: 1. Stateful Signatures 2. Protocol Anomaly (Zero-day coverage)
Worm Protection	Yes
Trojan Protection	Yes
Other Malware Protection	Yes
Reconnaissance Protection	Yes
Client to server and server to client attack protection	Yes
Create custom attack signatures	Yes
Application contexts for signature customization	90+
Stream Signatures for Worm mitigation	Yes – in Worm Mitigation signature pack. Stream256 used in other signature packs.
Number of response options	1. Close: Severs connection and sends RST to client and server 2. Close Server: Severs connection and sends RST to server 3. Close Client: Severs connection and sends RST to client 4. Drop: Severs connection without sending anyone a RST 5. Drop Packet: Drops a particular packet, but does not sever connection 6. Ignore: After detecting an attack signature or anomaly, the NetScreen device makes a log entry and stops checking – or ignores – the remainder of the connection 7. None: No action
Attack notification mechanisms	1. Session Packet Log 2. Session Summary 3. E-mail 4. SNMP 5. Syslog 6. Webtrends
Create and enforce appropriate application usage policies	Yes– For Instant messenger and Peer to Peer applications
Frequency of updates	Monthly and Emergency

	Antivirus*	Anti-Spam	Web filtering (Integrated / Redirect)**	IPS (Deep Inspection / IDP)
ISG 2000	No	Yes	Yes / Yes	Yes / Yes
ISG 1000	No	Yes	Yes / Yes	Yes / Yes
SSG 550	Yes	Yes	Yes / Yes	Yes / No
SSG 520	Yes	Yes	Yes / Yes	Yes / No
SSG 140	Q4 2006	Q4 2006	Q4 2006	Q4 2006
NetScreen-25/50	No	Yes	Yes / Yes	Yes / No
SSG 20	Yes	Yes	Yes / Yes	Yes / No
SSG 5	Yes	Yes	Yes / Yes	Yes / No
NetScreen-5GT	Yes	Yes	Yes / Yes	Yes / No
NetScreen-5GT ADSL	Yes	Yes	Yes / Yes	Yes / No
NetScreen-5GT Wireless	Yes	Yes	Yes / Yes	Yes / No
NetScreen-HSC	Yes	Yes	Yes / Yes	Yes / No

\*Includes Phishing, Spyware, Keylogger and Adware protection \*\*Includes protection against Phishing and spyware sites (outbound)

## About Juniper Networks Content Security Partners

### SurfControl – Integrated and Redirect Web Filtering

With over 60 Global Threat Experts, located in more than 20 countries worldwide, SurfControl provides continuous monitoring and analysis of all Internet-borne threats stemming from Web, e-mail, Instant Messaging and Peer-to-Peer file-sharing. The result is the most powerful protection against today's emerging Internet-borne threats provided by a URL database of over 13 million pages covering over 2.5 billion pages across 54 categories that is continually updated with approximately 50,000 pages per week.

### Websense – Redirect Web Filtering

Websense is a global leader in web security and web filtering software, trusted to protect 24 million employees worldwide. Websense proactively discovers and immediately protects customers against web-based threats such as Spyware, Phishing attacks, viruses and crimeware with maximum protection and minimal effort. With diverse partnerships and integrations, Websense enhances our customers' network and security environments

### Kaspersky Lab – Antivirus (Anti-Spyware, Anti-Adware, Anti-Phishing)

The Kaspersky team of international virus analysts and developers work round-the-clock gathering information,

evaluating new threats and designing new utilities for in-house and customer use. Over a decade of expertise ensures rapid responses to new threats, providing users with virus removal tools and information to pro-actively combat threats. The Kaspersky Lab Virus Lab has one of the largest collections of virus definitions in the world, with over 150,000 definitions and counting. Many of the Kaspersky analysts are acknowledged specialists in the field of computer virology, participating in security conferences and writing for professional publications

### Symantec

Symantec is the world leader in providing solutions to help individuals and enterprises in any industry assure the security, availability, and integrity of their information. Headquartered in Cupertino, Calif., Symantec has operations in more than 40 countries. Symantec Brightmail AntiSpam provides enterprises with an advanced anti-spam and email threat defense system. Deployed at the Internet gateway, this award-winning solution makes email more secure and productive by leveraging multiple effective technologies, globally distributed operations centers, a patented spam detection network, and a real-time filter delivery mechanism.



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