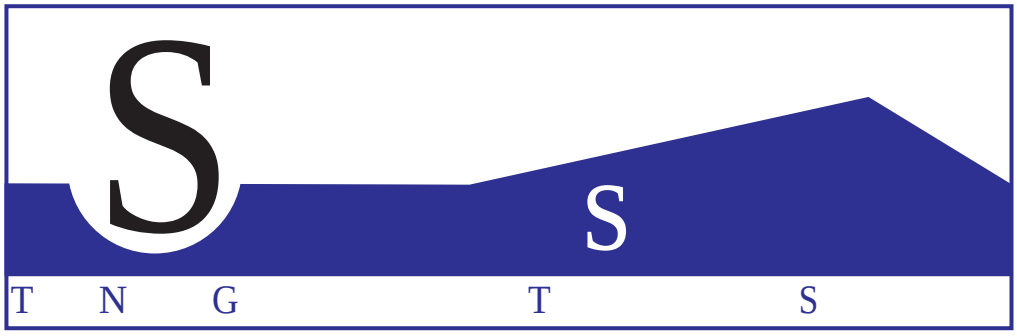
F T C



S S :
T N G T S

A Sta Report by the Federal Trade Commission's
Division of Marketing Practices
November 2007

EXECUTIVE SUMMARY

Spam is one of the most intractable consumer protection problems faced by computer users. For the past decade, the Federal Trade Commission has been steadfast in the fight against fraudulent and deceptive spam. The nature of spam, however, has shifted, and a new generation of malicious spam is on the rise. This shift is marked by a change in both spammers' methods and motives for sending spam.

In the early years, spammers used basic traceable computer scripts to mass market products via email. In tracking the communications path, law enforcement often could find and shut down illegal spamming operations. Spammers soon adopted various methods to conceal their identities, including, for example, "spoofing," which is the use of falsified email headers to disguise the origin of their email messages. Spammers also used creative strategies for obtaining email addresses, including "harvesting" – the automated collection of email addresses from public areas of the Internet. A recent FTC staff study finds that despite spammers' ongoing use of spoofing and harvesting techniques, ISPs' spam filters continue to serve a key role in reducing the amount of spam delivered to consumers' inboxes.[1]

In recent years, however, FTC staff has seen an explosion in another, more insidious

hijacked computers that enables spammers to send large volumes of spam anonymously and remotely. Botnets often are credited with increasing the volume of spam hitting the filters of email and Internet service providers ("ISPs").

FTC staff also has seen a change in the underlying motives for sending spam. This new generation of spam is no longer a mere annoyance to email recipients and a burden to ISPs; often it is a vector for criminal activity.[2] Clicking on a link in a malicious spam message may direct a consumer to a website that could dupe the consumer into divulging personally identifying information, including passwords and financial data. Malicious spam also can infect a consumer's computer with spyware or other types of malware, which can result in slowed computer performance; installation of key-logger software that can record and report a consumer's every keystroke; the spread of computer viruses; and the hijacking of a consumer's computer for use in a botnet.

It is difficult to quantify malicious spam and its effects, and the landscape is constantly changing; however, some sobering statistics about the criminal nature of malicious spam include:

- According to Postini, "more than one million internet protocol (IP) addresses are

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[2] *See e.g.*, Hughes, Day 1 at 29 (stating that spam has become more insidious today with phishing and other attacks); Grasso, Day 1 at 36 (stating that, in his law enforcement experience, he is seeing less spam that is used for advertising purposes, and more spam that is used for phishing or some type of malicious activity); and Stiles, Day 1 at 38 (stating that the nature of email has become more criminal).

The Spam Summit transcripts are available at http://www.ftc.gov/bcp/workshops/spamsummit/index.shtml. References to the transcript are identified by the name of the panelist, followed by the day on which the transcript testimony was provided (i.e., either Day 1 or Day 2 of the Summit), followed by the page number.

enforcement actions as appropriate and renew efforts to work with stakeholders in the anti-spam and anti-phishing communities. Specifically, FTC staff will work with stakeholders to:

- heighten collaboration among criminal law enforcement and industry;
- intensify efforts to deploy technological tools; and
- promote the continued development and dissemination of effective educational materials for consumers and businesses.

This report provides an overview of the FTC's role in the fight against fraudulent spam and phishing, explores key themes that emerged from the Summit, and identifies steps that stakeholders can take to mitigate the harms that result from malicious spam and phishing.

I.

the subject lines of the defendant's emails falsely indicated that a recipient's friend was sending free tickets, and many people who tried to opt out of the promotion continued to receive similar emails for weeks afterward. Under the settlement agreement, the defendant paid a $900,000 civil penalty for violating the CAN-SPAM Act, the largest penalty yet for illegal spam.

Similarly, in 2007, the Commission pursued another company, Adteractive, that used deceptive subject lines in spam to market purportedly "free" products to consumers.[11] In *Adteractive*, the Commission alleged that the companies violated the CAN-SPAM Act by using deceptive subject lines, and violated the FTC Act by failing to clearly and conspicuously

computer will be used.

The Commission's law enforcement cases also address the increasingly global nature of spam. In October 2007, the Commission brought *FTC v. Spear Systems, Inc.*,[14] its first case using tools under the U.S. Safe Web Act ("SAFE WEB"),[15] to stop spammers operating domestically and from Canada and Australia. The Commission alleged that the defendants violated the CAN-SPAM Act by initiating commercial emails that contained false "from" addresses and deceptive subject lines, and failed to provide an opt-out link or physical postal address. In *Spears Systems*, the Commission's authority under SAFE WEB enabled staff to advance the case by obtaining key information from Canadian and Australian authorities.

In addition to pursuing law enforcement actions, the Commission sponsors an innovative multimedia website, OnGuardOnline, designed to educate consumers about basic computer security.[16] The website provides information on several Internet-related topics, including phishing, spyware, and spam. For example, a recent addition to the website includes consumer tips on how to protect one's computer from becoming part of a botnet.[17]

The Commission also conducts research to explore how spam affects consumers and

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[14] *FTC v. Spear Systems, Inc*., Temporary Restraining Order (Oct. 2007), available at http://www.ftc.gov/os/caselist/0723050/index.shtm.

[15] U.S. SAFE WEB Act of 2006, Pub. L. No. 109-455, 120 Stat. 3372.

[16] The FTC developed OnGuardOnline in partnership with several other governmental agencies and many industry participants in the technology sector. The website is branded independently of the FTC so that other organizations may duplicate the information and disseminate it more widely to relevant audiences. Since its launch in 2005 through October 2007, OnGuardOnline has attracted more than 5 million visits.

[17] *See* www.onguardonline.gov and "*Botnets and Hackers and Spam (Oh, My!),*" available at http://onguardonline.gov/botnet.html.

online commerce. These research projects include staff-driven inquiries, such as the "False Claims in Spam Study,"[18] a study of the 100 top electronic retailers' compliance with the opt-out provisions of the CAN-SPAM Act,[19] and a study investigating the efficacy of filters employed by Internet and email service providers (the "Harvesting and Filtering Study").[20] Commission staff also has submitted four reports to Congress pursuant to the CAN-SPAM Act.[21]

In a study concluded in the fall of 2007, Commission staff replicated the work of the 2005 Harvesting and Filtering Study. The 2007 study found that one ISP effectively prevented the delivery of 93 percent of spam, while another ISP successfully blocked 78 percent of the spam.[22] These results suggest that spam-filtering technologies offered by Internet and email

industry-driven technological tools to address the problem of spam. For example, in 2004, the Commission together with the Department of Commerce's National Institute of Standards and Technology ("NIST"), conducted a two-day Email Authentication Summit to spur the development of domain-level email authentication technologies. Over 300 people attended the Summit, including representatives from ISPs, small and large businesses, consumer groups, and technology firms.

Additionally, the Commission has hosted workshops to explore with stakeholders the most effective mechanisms for stopping spam. In 2003, the Commission hosted its Spam Forum workshop, which explored issues concerning unsolicited commercial electronic mail messages and various federal legislative proposals for addressing the spam problem.[23]

II. Spam Summit Overview

In July 2007, FTC staff held its latest workshop, "Spam Summit: The Next Generation of Threats and Solutions," to examine the evolution of spam as a vehicle for malware and phishing, and to develop strategies for mitigating its effects.[24] The Summit convened experts from the business, government, and technology sectors, as well as consumer advocates and academics.

Generally, the data presented at the Summit suggest that while spam has had some ill-effects on consumer trust, consumers continue to use email on a wide scale and increasingly

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[23] See Spam Forum 2003 website, available at http://www.ftc.gov/bcp/workshops/spam/index.shtml.

[24] The report is generally based on the record of the workshop, FTC studies, and published industry data. A copy of the agenda is attached as Appendix B. The Spam Summit transcripts are available at http://www.ftc.gov/bcp/workshops/spamsummit/index.shtml. References to the transcript are identified by the name of the panelist, followed by the day on which the transcript testimony was provided (i.e., either Day 1 or Day 2 of the Summit), followed by the page number.

exercise sophisticated management of their inboxes.[25] For example, one panelist opined that, in a decline from past years, only one in five consumers polled believes that spam is a problem for them.[26] Another panelist reported that two-thirds of computer users employ some type of spam-blocking software, and more computer users employ firewalls.[27] One panelist reported that 71 percent of email users utilize filters provided by their email service provider or employers, up from 65 percent two years ago.[28] Panelists further reported that industry is willing to take a proactive approach to combat spam and phishing on mobile devices and social networking

that emerged from the Summit, and identify the areas in which staff will work with stakeholders to help reduce the harmful effects of malicious spam and phishing.

III. Spam Increasingly is a Vector for Criminal Activity

Panelists reached broad consensus on the underlying criminal nature of malicious spam and discussed strategies for combating malicious spammers.[30]

A. The Majority of Malicious Spam is Sent Using Computers Infected with Malware

Panelists explored the underlying methods that cybercriminals use to distribute malicious spam. Panelists widely agreed that the use of bots is the key method for sending malicious spam,[31] and that bots are responsible for 95 percent of all spam.[32] A 2006 industry report indicates that nearly 12 million computers around the world are now compromised by bots.[33] Some panelists opined that the majority of bots today are located outside the U.S.[34] Panelists also described a growing phenomenon known as "fast flux." With fast flux, infected bot computers serve as proxies or hosts for malicious websites. The IP addresses for these sites are rotated regularly to evade discovery. For example, a phisher can deploy numerous and different

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[30] Some panelists differentiated between commercial, legitimate email and malicious spam. Unlike senders of malicious spam, many senders of commercial, legitimate email seek to comply with CAN-SPAM and often adopt industry-set best practices. *See*, *e.g.*, Hughes, Day 1 at 75-76.

[31] Among applicable statutes, the use of bots can violate federal criminal provisions under the Computer Fraud and Abuse Act (18 U.S.C. §1030).

[32] *See* presentation of "Evolving Methods for Sending Spam and Malware" panel, Day 1, available at http://www.ftc.gov/bcp/workshops/spamsummit/presentations/Evolving-Methods.pdf.

[33] McAfee Virtual Criminology Report: Organised Crime and the Internet (Dec. 2006).

[34] St Sauver, Day 1 at 110; Peterson, Day 1 at 148; Ramasubramanian, Day 1 at 149.

IP addresses for a single phishing campaign, foiling the efforts of ISPs and law enforcement

which are computer scripts that enable an attacker to automatically set up phishing web sites that spoof legitimate sites, also are available for purchase on the Internet.[39] One panelist noted that with a phishing toolkit, a phisher can create a phishing scheme within seconds that is ready to be launched.[40] This panelist noted that the price of such phishing toolkits has plunged significantly.[41] Bot rentals also are easy to obtain. One panelist stated that two jailed spammers — Jeanson James Ancheta and Christopher Maxwell — rented bots for $300 to $700 per hour.[42]

C. Cybercrime Causes Significant Harm

A survey by *Consumer Reports* reveals that viruses, phishing, and spyware resulted in over $7 billion in costs to U.S. consumers in 2007.[43] The survey revealed further that computer infections prompted 850,000 U.S. households to replace their computers.[44] The costs to businesses also are high. One panelist reported that 80 percent of 639 businesses it studied experienced cybercrime-related losses, totaling $130 million.[45] In addition, the Federal Bureau

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[39] "Symantec Internet Security Threat Report Trends for January–June 2007" available at http://eval.symantec.com/mktginfo/enterprise/white_papers/ent-whitepaper_internet_security_threat_report_xii_09_2007.en-us.pdf. According to the report, the top three most widely used phishing toolkits were responsible for 42% of all phishing attacks detected during the reporting period.

[40] Hinrichsen, Day 1 at 167.

[41] *Id.* at 169.

[42] Klein, Day 1 at 156; *See also* Presentation of Andrew Klein, available at http://www.ftc.gov/bcp/workshops/spamsummit/presentations/Malware-Economy.pdf.

[43] Consumer Reports, "2007 State of the Net Survey" available at http://www.consumerreports.org/cro/electronics-computers/computers/internet-and-other-services/net-threats-9-07/state-of-the-net/0709_state_net.htm.

[44] *Id.*

[45] Mularski, Day 2 at 39.

of Investigation ("FBI") has identified over 200 government sites that are compromised and being used to send spam.[46] One panelist noted that these compromised government sites are a concern from a national security perspective.[47]

D. Criminal Law Enforcement Can Play a Major Role

Panelists agreed that criminal law enforcement can and should play a significant role in the fight against malicious spam. One panelist advised that cybercrime is the third investigative priority of the FBI, behind only counter-terrorism and counter intelligence.[48] Currently, the FBI has a combination of 70 significant ongoing investigations that pertain to spam and phishing.[49] The FBI also has a "Slam-Spam Initiative," which brings together over 100 subject matter experts to work with the FBI. This initiative has identified 100 significant spamming

violations, wire fraud, mail fraud, and money laundering.[53] The defendant is alleged to have used botnets and other exploits to ricochet tens of millions of spam messages from the computers of unknowing computer users.[54] In the second case, the *Downey* case, the indictment charged that the defendant was hired by others to commit distributed denial of service ("DDoS") attacks on various competitors of the payor. The defendant is believed to have created the code and herded thousands of bot machines that on a regular basis committed DDoS attacks. The defendant entered a guilty plea in mid-June 2007. In the third case, the *Brewer* case, the defendant is alleged to have used a botnet to infiltrate hospital computers in the Chicago area. The defendant was indicted under 18 USC § 1030 for gaining access to medical information using bots.[55]

On November 29, 2007, the FBI and DOJ announced "Botroast II," which has led to three new indictments, guilty pleas from two previously charged bot operators, and the sentencing of three other cybercriminals, including a pair of men who launched a major phishing scheme targeting a Midwest bank that led to millions of dollars in losses.[56]

Another panelist from the U.S. Postal Inspection Service ("USPIS") identified "Operation Gold Phish" as another example of criminal law enforcement efforts.[57] Under this initiative, USPIS, the International Criminal Police Organization ("Interpol"), and international

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[53] *Id.*

[54] *Id.*

[55] Spivack, Day 2 at 26.

[56] The FBI's press release is available at http://www.fbi.gov/page2/nov07/botnet112907.html.

[57] Crabb, Day 1 at 180.

law enforcement officers from more than a dozen different countries work together to uncover cybercriminals. In one instance, this initiative uncovered "Barracuda," an individual believed to be located outside the U.S., who is alleged to have hawked $300 malware kits that could be bundled with spam to disseminate computer viruses.[58]

Criminal law enforcers on the state level also are playing an active role in the fight against spam. One panelist from the Computer Crimes Unit of the Virginia Attorney General's office described a case against Jeremy Jaynes, who, at the time, was believed to be the eighth

facilitate the exchange of critical information in real time.[61] Through this alliance, the FBI has been able to identify and prosecute some of the most serious cyber criminals, including those who distribute computer viruses, operate large botnets, and perpetrate phishing crimes. Other examples of partnerships between law enforcement and the private sector include Digital Phishnet and InfraGard. Digital Phishnet is a collaborative enforcement operation that unites industry leaders in technology, banking, financial services, and online retail services with law enforcement to combat phishing.[62] InfraGard is an alliance among the FBI, the information technology industry, and academia that has the goal of promoting the FBI's investigative efforts in the cyber arena.[63]

Due to the international nature of many of these threats, collaborative law enforcement efforts on a global scale also are critical. One panelist identified the Council of Europe Convention on Cybercrime as an international convention that aims to provide more tools for cooperation against threats posed by hacking and other computer-related crimes.[64] This panelist also mentioned the London Action Plan,

email message with the IP addresses in the DNS to "authenticate" the domain from which the message was sent.

Domain Keys Identified Mail ("DKIM"), the other authentication technology that is being widely deployed, is a signature-based mechanism for authenticating an email message.[68] One panelist highlighted advancements with DKIM, which include approval by the Internet Engineering Task Force ("IETF") as a standards-tracked protocol.[69] The panelist advised that this means that DKIM has been fully vetted by the IETF.

As authentication technologies continue to be adopted and implemented, ISPs, as part of their filtering and scoring systems, will give authenticated email a positive score and non-authenticated email a negative score. While lack of authentication alone may not prevent delivery of an email message, it will be an additional criterion applied by existing anti-spam filtering policies, making it more likely that non-authenticated messages will be blocked. Following the Summit, FTC staff learned that some ISPs have begun to apply negative scoring to unauthenticated email.[70]

Several trade associations, including the Email Service Provider Coalition ("ESPC"), the Direct Marketing Association ("DMA"), and the Interactive Advertising Bureau ("IAB"), require their members to authenticate their outgoing email. BITS, the technology policy division of the Financial Services Roundtable, has strongly recommended that its members adopt authentication

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[68] Fenton, Day 2 at 89.

[69] *Id.*

[70] Lyris ISP Deliverability Report Card Q2 2007, available at http://www.lyris.com/resources/reports/deliverability_report_Q22007.pdf.

of legitimate email is authenticated using the SenderID protocol, and nearly 12 million domains worldwide are SenderID compliant.[78]

The utility of SenderID appears to be diminished, however, because some senders reportedly misconfigure their SPF records — the lists of authorized email-sending domains published in the DNS. For example, the SenderID specification allows an entity to publish its IP address records with a syntax declaring that anyone can send email from its domains. Records that are misconfigured in this manner offer no protection from spoofing because receiving ISPs have no way of determining whether a sender is actually authorized to send email on behalf of the domain holder.[79] One panelist reported that in a group of 1.5 million non-spamming senders, 27 percent were using SenderID, but 13 percent had misconfigured records.[80] For the SenderID authentication protocol to reach its full potential, the problem of misconfigured SPF records must be addressed by industry.

Like SenderID, DKIM is now being widely deployed. One panelist reported further that there are a variety of vendor email products available that support DKIM, and many more will

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[78] *Id.* Moreover, panelists Spiezle and Fenton agreed that SenderID is compatible with the DKIM standard and that the two standards help to compensate for each other's strengths and weaknesses. Spiezle reported that 50% of all legitimate email worldwide is authenticated, using either SenderID, DKIM, or a combination of the two.

[79] Another concern is that, under the SenderID specification, some email senders fail to include all authorized domains that are used for sending email. An email sent from a server that is not published may be deleted, blocked or junked based on the receiving network or ISP's authentication policies. *See* http://download.microsoft.com/download/1/1/8/1184dafa-f1c6-4cd6-8fa1-0b06abbebd79/sdf_tips.pdf.

[80] Cahill, Day 2 at 106.

soon be available.[81] These products range from ones being intended for small and medium businesses to ones that can be used by large enterprises and service providers.[82] This panelist recognized Google Mail as currently signing its outbound email with DKIM, and mentioned that several financial institutions are leading the way in deploying DKIM because they see a real value in terms of protection of their brands and protection of their domain names.[83] The panelist stated that thus far, the proponents of DKIM - Cisco and Yahoo! - have valid DKIM signatures from over 20,000 domains.[84] Moreover, in October 2007, eBay and PayPal adopted DKIM technology that will enable Yahoo! Mail to block spam and phishing messages that purport to be from these companies.[85]

C. Domain-level Authentication Improves the Effectiveness of Other Anti-spam Technologies

Much of the promise of domain-level email authentication technology lies in how it can vastly improve other anti-spam technologies. For instance, the utility of accreditation and reputation services will increase substantially when domain-level authentication systems are widely deployed. Accreditation services certify that a particular sender uses best practices. Reputation scoring looks at the practices of senders and assigns a reputation score depending on whether the messages sent appear to be spam or legitimate email.

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[81] Fenton, Day 2 at 90.

[82] *Id*.

[83] *Id*.

[84] *Id*. at 91.

[85] Yahoo! Mail Press release (October 4, 2007), available at http://yhoo.client.shareholder.com/press/releasedetail.cfm?ReleaseID=267325.

ISPs' anti-spam filters can incorporate accreditation and reputation scores into their algorithms. Used in conjunction with domain-level authentication, a recipient's ISP could have a fair degree of certainty that an email that purports to be from an accredited sender or a sender thentdcr

signature.[91] Another panelist described a reputation system that focuses on an email privacy seal and a trusted download program.[92] The email privacy seal program certifies the email practices of websites that comply with standards of the program.[93]

Panelists agreed that email authentication and reputation services are useful tools for fighting bots because these tools limit the capabilities of the malefactors. One panelist stated that because spam is sent through bot networks comprised of thousands of computers, receiving networks need to pay attention to inbound email and investigate whether incoming email is authenticated or whether "throttling" would be appropriate.[94] The panelist described throttling as limiting the volume of email on a daily basis that can come into a network if it is not authenticated and has no reputation data.

Finally, one panelist stated that ISPs are in an advantageous position in terms of being able to detect and stop bots before they infect consumers' computers.[95] This panelist specifically stated that AOL, as an owner of an Internet access network that it leases to others, is able to observe a wide array of traffic patterns and to identify when bots attempt to connect from remote-controlled computers to the bots' master DNS servers. The panelist explained that, with this unique vantage point, AOL is able to disconnect bots by interrupting the attempted connections between the bot and the computers that remotely control the bots, thereby

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[91] *Id*.

[92] Landesburg, Day 2 at 123-124.

[93] *Id.*

[94] Spiezle, Day 2 at 133.

[95] Romary, Day 2 at 144.

preempting many bot takeovers.[96]

V. Next Steps

Based on the information provided by Spam Summit panelists, public comments submitted in response to the Spam Summit press release, and the Commission's own research and law enforcement experience, FTC staff proposes the following next steps to combat malicious spam and phishing.

A. Stakeholders Should Heighten Collaboration Among Criminal Law Enforcement, Industry, and Other Stakeholders

The Summit record confirms that criminal authorities are best suited to tackle the problems of malicious spam and phishing. By collaborating with industry and working globally, the efforts of criminal law enforcement can only be heightened. Toward this end, stakeholders should maximize the effectiveness of partnerships among criminal law enforcement, industry, and other stakeholders in the fight against malicious spam, both domestically and abroad. In addition, the FTC will continue to bring civil law enforcement actions as appropriate.

B. Stakeholders Should Intensify Efforts to Deploy Technological Tools

Authentication technologies are critical building blocks for other spam-fighting tools. Stakeholders have made significant strides in the deployment of these technologies. Staff will encourage continued industry-driven efforts to deploy authentication, and, in turn, work with stakeholders to: (1) encourage entities and associations to authenticate outbound email;[97] (2) educate senders about how to properly configure and authenticate their email; (3) urge ISPs to

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[96] *Id.*

[97] For example, FTC staff is encouraged by InfraGard's pledge to help small businesses authenticate their email messages, and looks forward to seeing this program implemented.

further implement negative scoring for non-authenticated email; and (4) urge ISPs that have the ability to detect bot activity to stop bots immediately to prevent unauthorized access to consumers' computers by spammers and phishers.

C. Stakeholders Should Continue to Develop and Disseminate Effective Educational Materials for Consumers and Businesses

Consumer and business education can have a significant impact in the fight against spam and phishing.[98] Because spam is an ever-evolving problem, stakeholders should revitalize efforts

Appendix A

Email Address Harvesting and the Effectiveness of Anti-Spam Filters: A Report by the Federal Trade Commission's Division of Marketing Practices Fall 2007

I. Overview

This report replicates a 2005 study conducted by staff of the Federal Trade Commission ("FTC") to evaluate two aspects of spam in the current Internet environment. First, the study explored the current state of email address harvesting - the automated collection of email addresses from public areas of the Internet. Similar to the 2005 study, the current study found that addresses posted on websites were at risk of being harvested by spammers, but that postings on other website locations, such as chatrooms, message boards, social network sites, and video posting sites were far less likely to be harvested.

Second, the study explored the effectiveness of spam filtering by Internet Service Providers ("ISPs"). As with the 2005 study, the current study showed that the anti-spam filters utilized by two free web-based ISPs effectively blocked the vast majority of spam sent to harvested addresses.[101] The implication of this finding is that ISP spam filtering technologies continue to play an integral role in reducing the amount of spam messages delivered to consumers' inboxes.

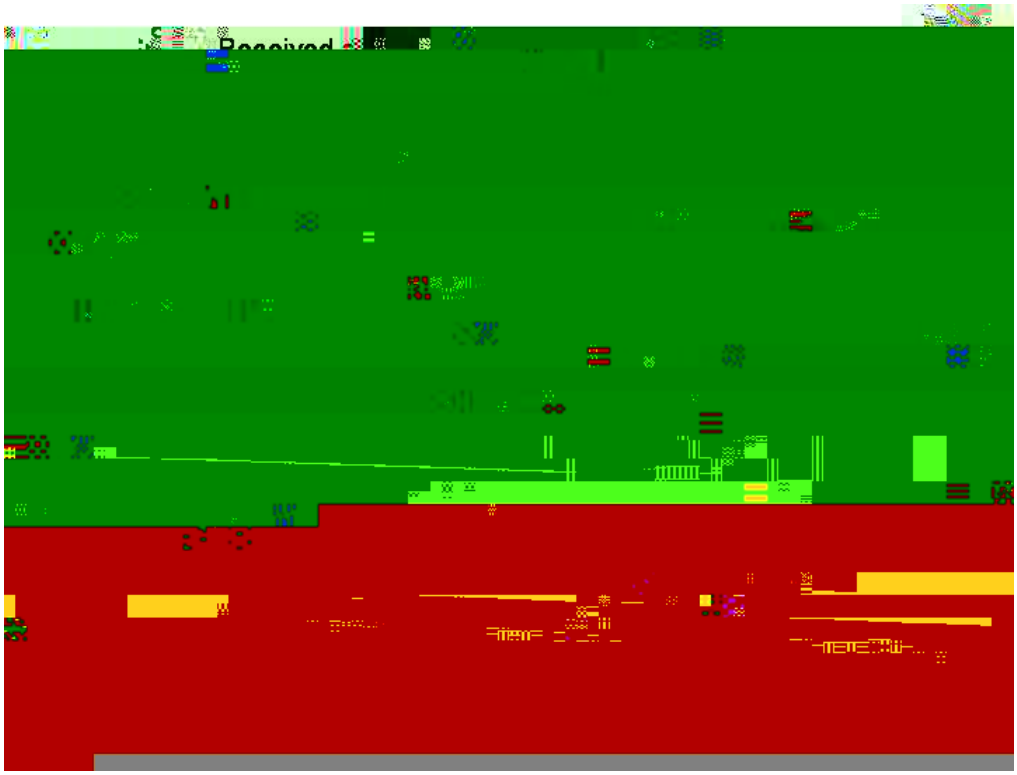
II. Methodology

To measure the prevalence of harvesting and the effectiveness of two major ISPs' anti-spam filters, FTC staff created 150 new undercover email accounts. FTC staff established 50 of

[101] The difference in results at the two ISPs demonstrates that results at different ISPs may not be the same. Thus, results of this study cannot be generalized to other ISPs.

each site the FTC staff had posted a triad of email addresses - one from each of the three groups we had created (Unfiltered ISP, Filtered ISP 1 and Filtered ISP 2) - FTC staff was able to

After five weeks, the results were similar. While the 50 Unfiltered Addresses had received a total of 3,045 spam messages, the 50 addresses at Filtered ISP 1 had received a total of 202 messages, and the 50 addresses at Filtered ISP 2 had received 664 messages.



Thus, at the conclusion of the five week study period, Filtered ISP 1 effectively prevented 93 percent of spam messages from entering its users' inboxes, and Filtered ISP 2 blocked 78 percent of spam messages.

At the conclusion of both the two week and five week study periods, email addresses posted on particular types of Internet locations – such as websites - were far more likely to be harvested than email addresses posted on other types of Internet locations – such as message boards, chat rooms, blogs (and sites requesting comments or input from users) or social-networking websites. Indeed, the vast majority of the spam received was received by the

Unfiltered Addresses posted on website pages. At the conclusion of the two week study period, 86% percent of the total amount of spam messages received at Unfiltered Addresses were from addresses that had been posted on the FTC's website pages, and only 14% percent of the spam messages had been received from addresses posted elsewhere.

Appendix B

Agenda

F T C

July - ,

AGENDA

T N G T S

DAY 1-Wednesday, July 11, 2007

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D P : Earlier findings indicated that most spam was fraudulent, deceptive, and offensive. How has the nature of spam shifted? Is spam now being used for malicious and criminal purposes? Is this spam reaching consumers' inboxes or being filtered by Internet service providers' filtering software?

Moderator: Brian Huseman, Chief of Staff, Federal Trade Commission (FTC)

Panelists: Susannah Fox, Associate Director, Pew Internet & American Life Project
Thomas X. Grasso, Jr., Supervisory Special Agent, Federal Bureau of Investigation (FBI)
J. Trevor Hughes, Executive Director, Email Sender & Provider Coalition (ESPC)
Scott Richter, Chief Executive Officer, Media Breakaway, LLC
Charles E. Stiles, Chairman, Messaging Anti-Abuse Working Group (MAAWG)

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E M S S M : To what extent, if any, have email address harvesting, dictionary attacks, and open proxies been replaced by botnets, zombies, and spam that uses images instead of text as the primary methods of spam distribution?

Moderator: Lawrence Hodapp, Attorney, Division of Marketing Practices, FTC

Panelists: Ben Butler, Director of Network Abuse, GoDaddy.com, Inc.
Patrick Peterson, Vice President, Technology, IronPort Systems
Jon L. Praed, Esq., Partner, Internet Law Group
Suresh Ramasubramanian, Manager, Antispam Operations, Outblaze Limited
Joe St Sauver, Ph.D., Manager, Internet2 Security Programs, Internet2 and the University of Oregon

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U M E : What are the financial incentives for malicious spammers? What is the cost along the email chain to consumers, businesses, internet service providers, and networks?

Moderator: Sheryl L. Drexler, Investigator, Division of Marketing Practices, FTC

Panelists: Gregory Crabb, United States Postal Inspector, United States Postal Inspection Service
Jens W.L. Hinrichsen, Product Marketing Manager, Consumer Solutions, RSA, The Security Division of EMC
Andrew J. Klein, Senior Product Marketing Manager, SonicWALL, Inc.
Heinan Landa, President and Founder, Optimal Networks, Inc.

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Moderator: Sana Coleman Chriss, Attorney and Spam Coordinator, Division of Marketing Practices, FTC

Panelists: Michael Altschul, Senior Vice President and General Counsel, CTIA-The Wireless Association
Dave Champine, Senior Director, Product Marketing, Cloudmark, Inc.
Scott Chasin, Chief Technology Officer, MX Logic
Rick Lane, Vice President Government Affairs, News Corporation
Christopher J. Rouland, Chief Technology Officer, IBM Distinguished Engineer, IBM Internet Security Systems

DAY 2-Thursday, July 12, 2007

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D M S C : What are the investigatory challenges faced by law enforcement as spammers mask their identities and use obfuscatory techniques? What are effective countermeasures?

Moderator: Lois C. Greisman, Associate Director, Division of Marketing Practices, FTC

Panelists: Gene Fishel, Assistant Attorney General and Chief, Computer Crimes Section, Office of the Attorney General of Virginia
Aaron Kornblum, Senior Attorney, Microsoft Corporation
J. Keith Mularski, Special Agent, Federal Bureau of Investigation (FBI)
Robert Shaw, Head, ICT Applications and Cybersecurity Division, International Telecommunication Union (ITU)
Mona Sedky Spivack, Trial Attorney, U.S. Department of Justice - Criminal Division, Computer Crime and Intellectual Property Section (CCIPS)
Hugh Stevenson, Deputy Director, Office of International Affairs, FTC

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K O I : During the FTC's 2004 Email Authentication Summit, co-hosted with the Department of Commerce's National Institute of Standards and Technology, the FTC initiated efforts to spur the development and wide-scale adoption of domain level email authentication. Where does the implementation of email authentication stand? What are other key spam-reducing tools?

Moderator: Sana Coleman Chriss, Attorney and Spam Coordinator, Division of Marketing Practices, FTC

Panelists: Des Cahill, Chief Executive Officer, Habeas, Inc.
Jim Fenton, Distinguished Engineer, Cisco
Richard L. Gingras, Chairman, CEO and CoFounder, Goodmail Systems
Martha K. Landesberg, Director of Policy and Counsel, TRUSTe
Margot Koschier Romary, Senior Manager, Anti-Spam Operations, AOL
Craig Spiezle, Director, Online Safety Strategies and Technologies, Microsoft Corporation

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P C B C : How can we empower consumers and businesses in the fight against spam and malware?

Moderator: Ruth Yodaiken, Attorney, Division of Marketing Practices, FTC

Panelists: Jeffrey Fox, Technology Editor, Consumer Reports
Dave Lewis, Vice President, Market and Product Strategy, StrongMail Systems, Inc.
Miles Libbey, Senior Product Manager, Yahoo! Mail, Yahoo!, Inc.
Linda Sherry, Director, National Priorities, Consumer Action

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I B P B : What can businesses do to distinguish themselves from malicious spammers?

Moderator: Phillip Tumminio, Attorney, Division of Marketing Practices, FTC

Panelists: Matt Blumberg, Founder and CEO, Return Path
Jerry Cerasale, Senior Vice President, Government Affairs, Direct Marketing Association, Inc.
John Ingold, Director, Security and Risk Assessment, BITS
John Mathew, Vice President, Operations, Epsilon
Alastair Tempest, Director General, Federation of European Direct and Interactive Marketing (FEDMA)
Mike Zaneis, Vice President, Public Policy, Interactive Advertising Bureau (IAB)

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D P A

Moderator: Dan Salsburg, Assistant Director, Division of Marketing Practices, FTC

Panelists: Thomas X. Grasso, Jr., Supervisory Special Agent, Federal Bureau of Investigation (FBI)
Miles Libbey, Senior Product Manager, Yahoo! Mail, Yahoo!, Inc.
Brendon Lynch, Director of Privacy Strategy, Trustworthy Computing Group, Microsoft Corporation
Michael O'Reirdan, Distinguished Engineer in National Engineering and Technical Operations, Comcast Corporation
Phyllis A. Schneck, Ph.D., Chairman, Board of Directors, InfraGard National Members Alliance and Vice President, Research Integration, Secure Computing Corp.
Charles E. Stiles, Chairman, Messaging Anti-Abuse Working Group (MAAWG)