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Spam

How It Is Hurting Email and Degrading Life on the Internet

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Summary of Findings

Spam is beginning to undermine the integrity of email and degrade life online.

The huge increase in email spam in recent years is beginning to take its toll on the online world. Some email users say they are using electronic mail less now because of spam. More people are reporting they trust the online environment less. Increasing numbers are saying that they fear they cannot retrieve the emails they need because of the flood of spam. They also worry that their important emails to others are not being read or received because the recipients' filters might screen them out or the emails might get lost in the rising tide of junk filling people's inboxes.

In short, our new data from a national survey suggest that spam is beginning to undermine the integrity of email and to degrade the online experience.

In large numbers, Internet users report that they trust email less and some even use email less because of spam. Why? Users worry that the growing volume of spam is getting in the way of their ability to reliably send and receive email. They complain that it uncontrollably clutters their inboxes and imposes uninvited, deceptive, and often disgustingly offensive messages. Here are the key figures:

- 25% of email users say the ever-increasing volume of spam has reduced their overall use of email; 60% of that group says spam has reduced their email use in a big way.
- 52% of email users say spam has made them less trusting of email in general.
- 70% of email users say spam has made being online unpleasant or annoying.
- 30% of email users are concerned that their filtering devices may block incoming email.
- 23% of email users are concerned that their emails to others may be blocked by filtering devices.
- 75% of email users are bothered that they can't stop the flow of spam.
- 80% of email users are bothered by deceptive or dishonest content of spam.
- 76% of email users are bothered by offensive or obscene content of spam.

For this report, we collected original data from two sources. The first was a national telephone survey of 2,200 adults, including 1,380 Internet users that we conducted during June 2003. The second was a compilation of more than 4,000 first-person narratives about spam that were solicited since September 2002 by the Telecommunications Research & Action Center (TRAC), a national consumer group.

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Email users are evolving defense mechanisms against spam.

Many email users believe they know how to behave in a spam-saturated environment. Most email users are judicious about guarding their email addresses in hopes of avoiding spam. A minority employ their own filters, either in work or personal accounts. Many more say they benefit from employer-installed filters on their work accounts. The most popular way of dealing with spam is to simply click “delete.” Despite their dismay, Internet users keep the issue of spam in perspective. For them, spam takes its place next to life’s other annoyances, like telemarketing calls.

- 73% of email users avoid giving out their email addresses; 69% avoid posting their email addresses on the Web.
- 62% say their employers use filters to block spam from their work email accounts; half of them get no spam at all in those accounts.
- 37% of those who have a personal email account apply their own filters to their email system; 21% of those with filters say less than a tenth of the email they receive is spam.
- 86% of email users report that usually they “immediately click to delete” their incoming spam.
- 59% of email users describe spam as “annoying, but not a big problem”; 27% of email users say spam is a “big problem” for them; 14% say it is no problem at all.

Confusion and contradictory definitions compound the problem of spam.

The capacity of the culture to fully and effectively respond to spam remains hampered in a variety of ways. For all the good intentions of most, there are enough email users who respond to offers in unsolicited email to sustain spam as a viable, lucrative endeavor. Internet users may sometimes just not know what to do and may be fooled into behaviors that actually contribute to keeping spam alive. Email users are rightly perplexed, for example, about the effect of the “remove me” button. Should you click to “remove me” from future mailings, or will this just confirm your existence and earn you a place on more spammers’ lists?

And email users are not entirely clear on just what is spam, an issue that is an absolute stopper for writing effective, enforceable legislation against spam. While Internet users generally agree that spam is “unsolicited commercial email from a sender you don’t know,” there is plenty of room for fuzziness around the edges. Messages with religious, political, or charity-fundraising content is spam to some, but not others. Users also have varying answers about how businesses should interpret their relationship with potential customers. There is not a clear consensus among users about the circumstances under which they are “known” by a seller or “have a relationship with” a firm.

Summary of Findings

- 7% of email users report that they have ordered a product or service that was offered in an unsolicited email, although not all of this is pure “spam.”
- 33% of email users have clicked on a link in unsolicited email to get more information.
- 92% of email users agree that spam is “unsolicited commercial email from a sender they do not know or cannot identify.”
- 92% of email users consider unsolicited messages containing adult content to be spam.
- 89% consider unsolicited email offering investment deals, financial offers, or money-making schemes to be spam.
- 76% consider unsolicited messages containing religious or political information to be spam.
- 32% consider unsolicited commercial email to be spam, *even if it came from a sender with whom they’ve “already done business.”*

Spam’s burden is heavier on personal email accounts than on work email accounts.

Overall estimates of the burden of spam disguise the important differences between the burden of spam in personal email accounts and in work email accounts. The trouble people experience with spam is considerably greater in personal email accounts (generally on open, commercial systems like Hotmail, AOL, Yahoo, etc.) than in work email accounts, most of which exist in a controlled system where filters and other screening mechanisms are designed to protect accounts from spam. While email users receive slightly more email of all kinds in their work accounts than their personal accounts, there is generally a higher proportion of spam in personal accounts. Email users spend much more time dealing with spam in their personal lives than in their work lives.

Personal email accounts

- 54% of personal email users receive 10 or fewer emails on a typical day; 10% handle more than 50.
- 7% of email users get no spam; just under a third says 80% or more of their inbox is spam.
- 40% of email users spend fewer than 5 minutes a day dealing with spam; 12% spend a half hour or more.
- 55% say it is sometimes hard for them to get to the messages they want to read.

Work email accounts

- 44% of work email users receive 10 or fewer emails on a typical day; 11% receive over 50.

Summary of Findings

- 40% of email users get no spam at all; about one in ten say at least 60% of their email on a typical day is spam.
- 40% of email users spend no time at all on spam; 10% spend more than one half hour a day.
- 34% say it is sometimes hard for them to get to the messages they want to read.

Women are more bothered by spam; young people are more tolerant.

- Women are more bothered than men by everything about spam, and in particular, 83% of women are bothered by offensive or obscene content of spam, compared to 68% of men.
- More young people (18–29 years old) than older people are tolerant of spam; 32% of them say spam is “just part of life on the Internet and is not that big of a deal,” compared to 18% of older people.
- 81% of parents who have children under 18 object to the adult content in spam, compared to 72% of non-parents.

Spam: Summary of Findings at a Glance
Spam is beginning to undermine the integrity of email and degrade life online.
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Women are more bothered by spam; young people are more tolerant.
Source: Deborah Fallows. <i>Spam: How It Is Hurting Email and Degrading Life on the Internet</i> . Washington, DC: Pew Internet & American Life Project, October 22, 2003.

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Part 1.

Introduction

Is Spam Killing the Killer App?

Email was the original “killer app” of the Internet, and it remains the most popular online activity. Some 93% of adult American Internet users, about 117 million people, use email. On any given day online, nearly twice as many Internet users will log on to email as will engage in any other online activity, including using search engines, searching for news, and generally browsing to pass the time. People can hardly imagine life without email. It is an indispensable tool for workplace communications; it is glue among friends and families; it preempts face-to-face exchanges; it shrinks the world with its disregard for time and distance.

The figures for email volume are difficult to pin down. A best guess based on available studies is that probably well over 30 billion email messages bounce around the Internet every day. And probably almost half of those messages are junk. The scourge of junk email, or spam, has become so notorious that Federal Trade Commission commissioner Orson Swindle suggested in Congressional hearings in June 2003, that “Spam is about to kill the ‘killer app’ of the Internet.”

In this research, we wanted to look beyond the familiar measures of spam to explore the relationship between Americans and their spam. What do American Internet users know about spam? What kind of a burden does spam impose on them? How do they interact with spam, both preventively and once it arrives in their inboxes? And finally, how do Americans feel about spam?

For this report, we collected original data from two sources. The first was a national telephone survey of 2,200 adults, including 1,380 Internet users that we conducted during June 2003. The second was a compilation of more than 4,000 first-person narratives about spam that were solicited since September 2002 by the Telecommunications Research & Action Center (TRAC), a national consumer group. As part of a campaign to fight unsolicited commercial email, TRAC invited Internet users to submit stories about their personal experiences with spam. Each of the stories appearing in this report speaks not only for itself, but for many, many others who voiced similar sentiments or experiences.

We hope our questions and findings will help explain more about how the culture of spam affects *people*. We especially hope that this new information will provide a sense of realism for the policies, laws, and technology now being crafted to reach the endgame of spam.

Part 1. Introduction

Spam is growing rapidly, and the costs — financial and other — have become very burdensome to individuals and businesses.

The dimensions of spam are mind-boggling. According to one market research firm, the Radicati Group, there are now nearly 15 billion spam messages sent out daily. In June 2003, software filtering company Brightmail measured over 7½ million separate spam attacks launched by spammers, each ranging from 100 to millions of individual emails sent in each attack. Even as Internet users currently feel besieged and beleaguered by their spam, in fact, they only see the tip of the iceberg. It is generally agreed that most spam messages are diverted and never reach the inboxes of users for a variety of reasons. Two of the biggest Internet Service Providers (ISPs), AOL and MSN, both report they block a daily deluge of 2.4 billion spam from reaching the inboxes of their customers. AOL reports that this equals about 67 spam emails per inbox per day, or up to 80% of its incoming email traffic.

Estimates of the financial costs of spam vary wildly. Research firms peg the price per worker at anywhere from \$50 per worker to \$1,400 per year. Others estimate the annual cost to American business to be between \$10 billion and \$87 billion.

Email users feel besieged by spam, but in fact they only see the tip of the iceberg.
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The effects of spam spill over well beyond dollar costs. Legitimate Internet-based concerns that rely on email for marketing or communication feel threatened at being caught up and even ruined by various spam-blocking technologies or proposed anti-spam legislation. Individuals and workers wonder how much to trust their email, fearful that messages from associates, friends, and family might get deleted or filtered out as spam and lost. Futurists worry that creative energy and attention that could be applied to pushing the Internet to its full potential is being drained to fight spam.

The fight to control spam is just beginning, and the task will be enormous.

As spam reaches a critical level of nuisance, anxiety among officials is growing. Legislators, litigators, technologists, and independent groups are working on ways to transform the act of spamming from an easy, unrestricted, lucrative endeavor to one that is more complex, risky, and expensive to execute. Legislators scrambled in the summer of 2003, introducing at least half a dozen anti-spam bills; even as Federal Trade Commission chairman Timothy Muris quickly countered, saying the bills were too soft and would do “little or nothing” to squelch spam.

Litigators acting on behalf of the FTC, a few states, the ISPs, and even individuals have begun to file suits against some of the most notorious spammers. Their task is gargantuan; government and industry legal staffs are swamped by the number of

Part 1. Introduction

complaints they receive and confounded by the maze of forged identities, misguided trails, and hijacked servers they must navigate. Furthermore, prosecuting spammers is its own special nightmare as state laws (and eventually, national laws) are relatively easy to render toothless when spammers can slither across state lines or hop offshore in the blink of an eye.

In technology, anti-spam software development is flourishing and is one of the few currently hot items for venture capital funding. All the major Internet Service Providers fund huge outlays for spam control. Even a basic overhaul of the email system is under consideration as a solution against spam.

The spam wars have initiated new alliances and driven rifts in old ones. In the spring of 2003, crack technologists from across the nation convened at MIT in an unprecedented meeting to start pooling intellectual resources against spam. In April 2003, AOL, Microsoft, and Yahoo partnered to share intelligence for fighting spam. In July 2003, representatives from two usually-sparring players, the direct marketers and the spam-filtering makers, initiated a summit to hammer out common standards for addressing some everyday spam-related problems. Liberal New York Senator Charles Schumer (D) proposed an anti-spam bill with full endorsement of the Christian Coalition. On the other hand, in the summer of 2003, factions within the Direct Marketing Association squabbled over the hotbutton issue of what consumer permissions should be necessary in order for marketers to be allowed to contact potential customers, and even about the basic issue of how to define spam.

We are already paying economic costs to fight spam, and broader social costs will likely follow. The Internet was begun on a foundation of open access, one that spammers are taking mighty advantage of as they launch their free-for-all attacks on Internet users. We should assume that stifling spammers and killing spam will involve some fundamental change to the core of email operations, one that will make email more regulated, more monitored, more closed-door an operation for the rest of us than it is now.

Part 2.

What Is Spam Anyway?

Internet users share a general concept of spam but disagree on many specific points of definition.

Spam is a relatively new phenomenon in American life. The trajectory of its rise is so steep that those addressing the problem are playing catch-up to reach even the first stage – defining spam. In the spring of 2003, the Federal Trade Commission sponsored a three-day forum, comprehensively addressing every issue related to spam from economics to legislation, technology to best practices. The opening morning was dominated by a lively and often heated debate over the definition of spam, but one that failed to reach consensus. What are we actually talking about when we refer to spam?

The essential elements of spam

The debates over definition focused on unraveling the essential elements of spam; they are ultimately the points that legislation and litigation must address to have a chance of being effective. The elements are easy enough to identify: the sender and subject lines, the content of the message, the routing information. But the issues around these elements quickly become muddled: Are the senders who they say they are? Is there a way to contact them? Does that method function? Is the subject line misleading? Is it offensive? Should unsolicited email signal that it is advertising? Is the message legitimate or fraudulent? Is it pornographic? Should all content be treated equally, or is some unsolicited email different from other email? Is anything exempt, like the messages from religious or political or nonprofit groups? Is the routing information legitimate? And further, what right does the sender have to contact you? Did you give permission? Did you give permission to exactly that sender? How? And once you receive emails, should you be able to remove yourself from future mailings? The list of questions goes on.

We found that when Internet users were asked what they consider to be spam, they easily agreed on a basic definition, but become fuzzy about the edges. Some 92% of emailers¹ agree that spam is “unsolicited commercial email from a sender they do not know or cannot identify.” But there is less agreement on other qualifying factors.

Emailers also say that content matters. Some 92% consider unsolicited messages containing adult content to be spam. 89% consider unsolicited investment deals, financial offers, or money-making proposals to be spam. 81% consider unsolicited product or

¹ To clarify a possible ambiguity, the term “emailer” in this report means “email user,” not simply “one who sends email.”

Part 2. What Is Spam Anyway?

service offers to be spam. Beyond that, agreement dropped off; there was less consensus that unsolicited religious content (76%), or political messages (76%), or personal or professional messages from an unknown sender (74%) are spam.

Americans also believe that the relationship between the emailer and the solicitation sender matters. About two-thirds of emailers (65%) do not consider unsolicited commercial email to be spam if it comes from a sender with whom they've already done business; about one-third (32%) do consider it spam. And 11% of the most stalwart insist that unsolicited commercial email be considered spam even if they have given the sender permission to contact them.

UCE — unsolicited commercial email

What Emailers Consider Spam	
Emailers' definition of spam depends on the sender and the subject matter of the message.	
Sender or Subject Matter	% Who consider it Spam
Unsolicited commercial email (UCE) from a sender you don't know	92%
UCE from a political or advocacy group	74
UCE from a non-profit or charity	65
UCE from a sender with whom you've done business	32
UCE from a sender you have given permission to contact you	11
UCE containing Adult content	92
UCE with investment deals, financial offers, moneymaking proposals	89
UCE with product or service offers	81
UCE with software offers	78
UCE with health, beauty, or medical offers	78
Unsolicited email with political messages	76
Unsolicited email with religious information	76
A personal or professional message from one you don't know	74

Source: Pew Internet & American Life Project June 2003 Survey. For items 1 – 5, N= 624. Margin of error is $\pm 4.2\%$. For items 6 – 13, N =648. Margin of error is $\pm 4.1\%$.

These somewhat mixed messages from users – “I have given you permission to contact me, but I still consider this spam” – reflect some of the conundrums of legislative debates on spam. For example, what are the limits of “already done business with” or “had a prior relationship with,” or does any kind of contact between a consumer and retailer open the door to further solicitation? If you bought a TV from a large discount house online, does that mean the same discount house's automotive center can contact you about buying tires? Or if you went in person to buy a stroller from the baby center, does that mean the shop can contact you in the future by email to purchase diapers?

Part 2. What Is Spam Anyway?

Although still largely considered spam, unsolicited messages from senders outside the world of commerce are more likely to be tolerated. “Only” 74% of emailers consider unsolicited messages from political or advocacy groups to be spam; 65% consider unsolicited messages from non-commercial groups, like non-profits or charities, to be spam.

Spam is easy to recognize using a message’s subject line or sender.

Almost 90% of users say they identify spam by looking at the subject line and/or the sender. These can often be a dead giveaway that you have got spam. Spam subject lines often announce solely in caps, or lots of exclamation points, VIAGRA TODAY!!!!!!!. Sometimes nonsense garble is mixed in, or “beach muscle boys tell their secret!.....da wvi cqa uxpia.” And many entice with announcements about being a winner or offering a deal you cannot refuse, “Work At Home; Free Money.”

Similarly, sender lines are sometimes obvious with just plain silly names you would surely recognize if they were your correspondents: SweettalkAmy@Hotmail.com. More unsettling are the spam that arrive when your own email address or that of someone you know has been hijacked and appears as the sender. Writes one emailer in the TRAC sample: “I have been receiving spam mail from myself! Usually it is of a pornographic nature...(I do not) understand this!”

The Federal Trade Commission has collected over 11 million pieces spam forwarded to them by consumers. Officials’ analysis of a random 1,000 pieces showed a high occurrence of fraud and misleading characteristics in precisely these features where most consumers look for authentication of email, the subject and sender lines. One-third of the spam had false sender lines; 22% had false subject lines. They further found that 40% of their sample contained falsity in the messages. And overall, a full 66% of the FTC messages contained falsity in one or another element of the content; the sender line, the subject line, or the message text itself.²

The FTC found that two-thirds of spam contains false or misleading information in the sender line, subject line, or message content.
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Spammers are often clever enough to fool or at least confuse users. While nearly two-thirds (63%) of all emailers say about spam that they “know it right away when they see it,” the rest admit, “it is sometime hard for me to tell spam from other email.” Smart spammers use fraudulent ploys to lure users into opening a message, including subject lines like “Re: your query” or “important information” or sender lines like “customer service.” These efforts drive at least 9% of email users to open their email and look at the contents.

² Available at: <http://www.ftc.gov/reports/spam/030429spamreport.pdf>

Part 2. What Is Spam Anyway?

One of the TRAC respondents wrote: “Just tonight I opened an email which had the message ‘Mail not Delivered’ from the sender MailerDaemon. What I got upon opening it was not my undelivered message...but an unsolicited invitation to a ‘Brutal Rape Website’ with a graphic picture.”

Email users can also become unwitting players in the spam game when their email addresses are hijacked and they appear to be spammers themselves. The results can be costly. Many emailers wrote in about such a tale, including these representative cases in the TRAC survey:

“A spammer forged one of our company domain names in the return address of a (unsolicited commercial email) UCE promoting a Florida holiday package scam. We received hundreds of complaints ranging from polite opt-out requests to vitriolic hate mail as well as complaints to our bandwidth providers. The hate mail and damage to our reputation continued for several weeks and occupied hundreds of man hours.”

“A spammer recently sent out UCE with forged sender information indicating that I sent the mail from a personal email account I maintain. I suffered a deluge (thousands) of bounced emails, death threats, complaints, and removal requests in the short span of time it took me to notice and disable that email account. Consequently, I have been forced to retire the email address from use and all mail to it is now discarded. I am unable to receive legitimate correspondence as a result. I have no reason to believe that I was personally singled out but rather that my address was simply chosen at random by the marketer where the UCE was crafted.”

“Someone sent a mass emailing promoting a porn site and forged the return address to address on my domain. This had four nearly devastating effects: 1. I received over 20,000 returned emails in the course of two months while mass mailing was going on. 2. I received irate and abusive email from some people who believed that our legitimate domain was the source of the mass mailing. 3. I now receive on the order of 100 Klez viruses a day from people who got my email address from the mass mailing. 4. I am now having a much harder time trying to find legitimate email from my customers among all the spam I’m receiving.”

MessageLabs, a company that produces spam filtering software, estimates that 70% of spam is sent via hijacked computers.³

³ Research cited at: <http://www.msnbc.com/news/940853.asp?0cb=-415171549>

Part 3.

The Volume and Burdens of Spam

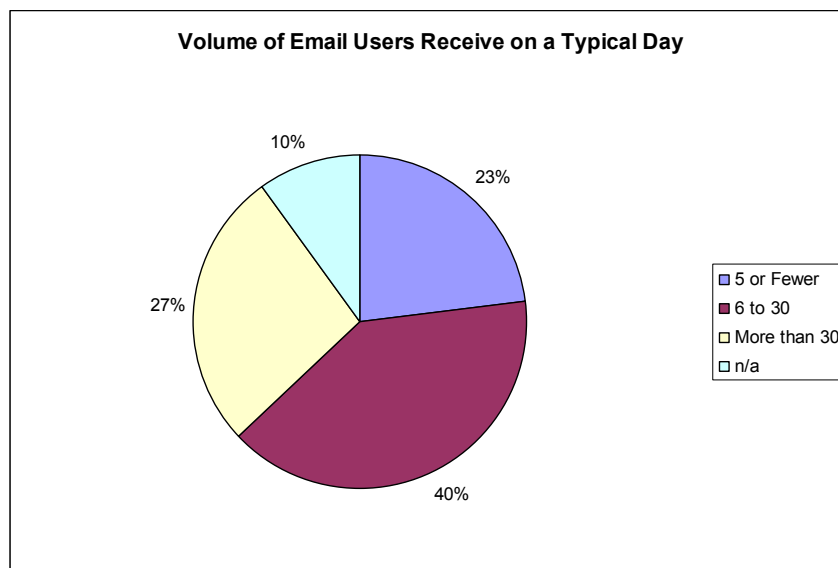
There is no “typical” email user, and there is no “typical” burden of spam.

Spam places a real and uninvited burden on email users. To help assess that burden, we asked emailers how many emails they receive; how much of that incoming email is spam; and how much time they spend dealing with their spam.

About a quarter (23%) of emailers receive 5 or fewer emails a day, balanced by about that same number (27%) who receive more than 30 emails a day. The remaining emailers are fairly well distributed in between.⁴

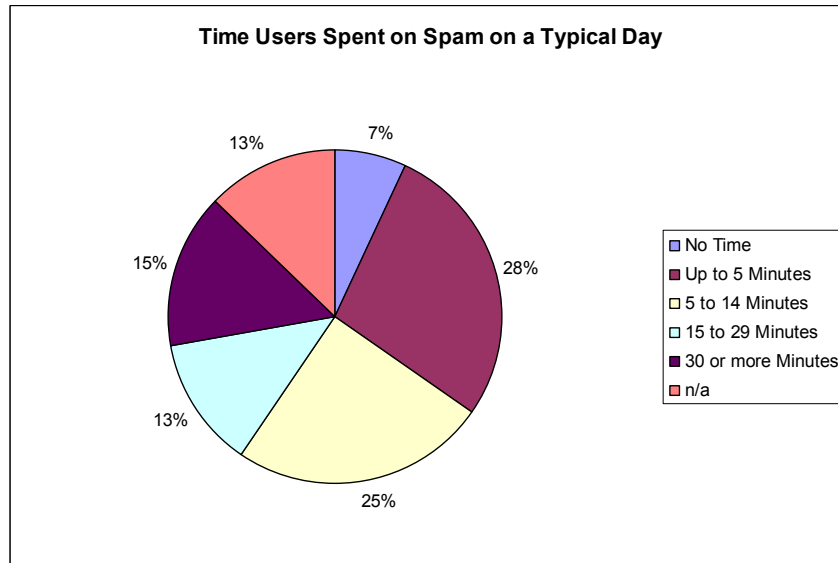
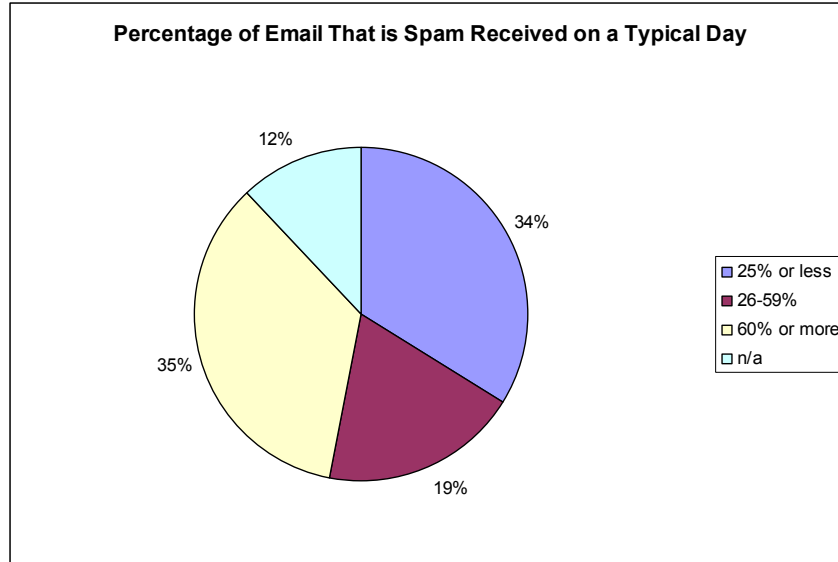
How much of that email is spam? About a third of emailers found 25% or less of their inbox to be spam, another third found 60% or more to be spam, and the remainder lay somewhere in between.

How much time does this spam consume? More than a third of emailers (35%) spend just a few minutes a day on spam. Another 25% spend 5 to 14 minutes. Some 13% spend from a quarter up to a half hour. And 15% spend half an hour or more a day on spam.



⁴ In each of the three pie charts representing Volume of Emails, Percentage of Spam, and Time Spent on Spam, about 10% of respondents appear as n/a. This group consists of emailers who were unable to provide detailed information about their personal and/or work email.

Part 3. The Volume and Burdens of Spam



Spam comprises a relatively constant proportion of email received for every type of user.

We found no systematic correlation between the volume of email and the proportion of spam. That is, spam is a relatively constant proportion of the email most Internet users receive, regardless of their overall volume of email. However, there were exceptions at the polar ends of the scale. Those receiving the very fewest emails (5 or fewer) were most likely to receive no spam at all (16% reported they received no spam, compared to 7% of all users), and those who received the very most email (over 100) were most likely to

Part 3. The Volume and Burdens of Spam

receive the highest percentage of spam (39% reported that more than 80% of their emails were spam, compared to 19% of all users).

We found from the comments of emailers in the TRAC survey that the *perception of the burden of spam* was quite uniform, regardless of the actual numbers involved. That is, people are peeved by spam – whether they get a lot of it or a little.

Here are some typical TRAC responses:

“Every time I try to check my messages, they are loaded with 95% or better pure spam or pornographic offers.... on one of my accounts, I had 1278 messages in one day. Can you imagine how much time it takes to delete that many?”

“I get 20 – 30 emails a day, and out of that at least 12 will be unsolicited email...I am getting ready to cancel the Internet, unless something is done soon.”

And from another, who must be a record holder or an imaginative exaggerator: “I currently receive around 2,000,000 spam messages per month. Yes, really. I archive each of these messages (as I have for the past several years.) That means that I’m currently logging between 400 megabytes and 1 gigabyte of spam each day. It is truly a huge problem.”

But even those who receive a small amount of spam feel violated. One wrote: “I get 3 email spams ****every**** day of the week...I am nearly ready to close down all my email accounts after 8 years on the Internet. Spam has ruined the Internet.”

Spam is more of a problem for people in their personal email accounts than in their work email accounts.

The averages for email volume, percentage of spam, and time spent on spam become much more interesting and revealing when we separate the numbers to compare personal email and work email. In this study, we asked people to report separately about their personal email account and work email accounts. We realize there is some overlap, but we aimed to get respondents to separate as clearly as possible, and the results suggest they were able to do that.

In sheer numbers, spam poses a much more dramatic problem to personal email accounts than it does to work accounts. Overall, personal emailers receive somewhat less email, but a much higher percentage of their inboxes consists of spam. Emailers more often report they find it hard to sort through their personal accounts than their work accounts to reach the mail they want to read, and they spend more time dealing with spam in personal accounts than in work accounts. Doing personal email has become a cumbersome affair. Despite the relative lid on spam in work accounts, however, the consequences there appear more grave.

Part 3. The Volume and Burdens of Spam

Personal email

Emailers process fewer emails in their personal accounts than their work accounts. In personal accounts, just over half of emailers, 54%, receive 10 or fewer emails on a typical day; 27% handle between 11 and 30; 8% from 31- 50; and 10% handle more than 50.

But the proportion of spam in their inboxes is higher in these personal accounts than it is in their work email accounts. In personal accounts, 7% of emailers get no spam; 12% receive up to 10% spam; another 10% get up to a quarter spam; 19% receive between 26% and 59% spam. Just about half (51%) say their inboxes are at least 60% full of spam on a typical day, with the better part of this group saying more than 80% of their inbox is spam.

As for the amount of time people spend dealing with spam in their personal accounts here are the findings: 40% of personal emailers spend fewer than 5 minutes dealing with spam on a typical day; 32% spend from 5 to 14 minutes; 14% spend from 15 to 29 minutes; 12% spend a half hour or more.

We found in personal accounts that, regardless of the volumes of email, spam was distributed pretty evenly throughout the spectrum of heavy, medium, and light email users. And again, more of those who receive fewest emails (fewer than 5 per day) get no spam (15%). The majority of those who get the most emails (more than 50 per day) get at least 80% spam, compared to 30% of all personal email users.

Of course, a clustering of high proportions of spam in the highest-volume inboxes compounds the real and absolute burden of spam in personal email accounts. That is, the higher the volume of your email, the worse the problem in absolute numbers. For example, 80% spam of 100 emails is 80 pieces of spam, while 80% of a moderate emailer is inbox of 20 emails is only 16.

Of all those who receive personal spam, 55% say it is sometimes hard for them to get to the messages they want to read.

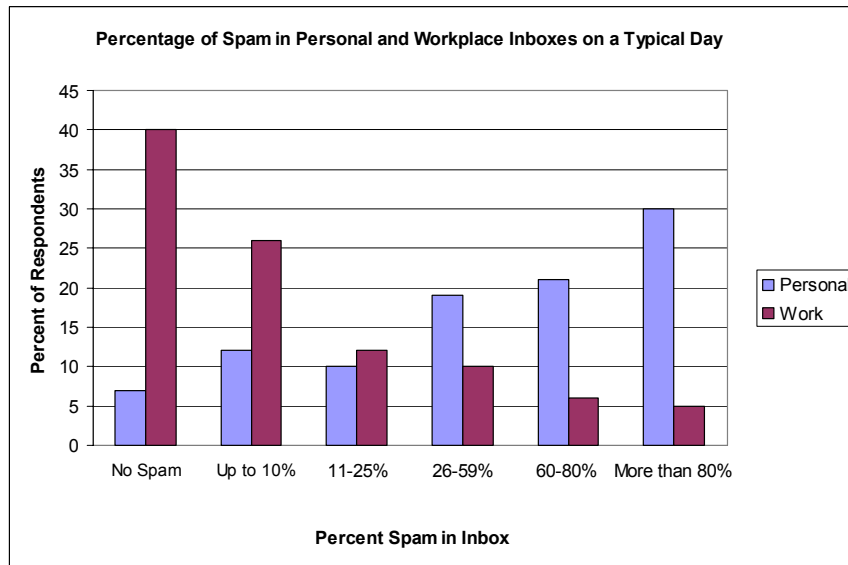
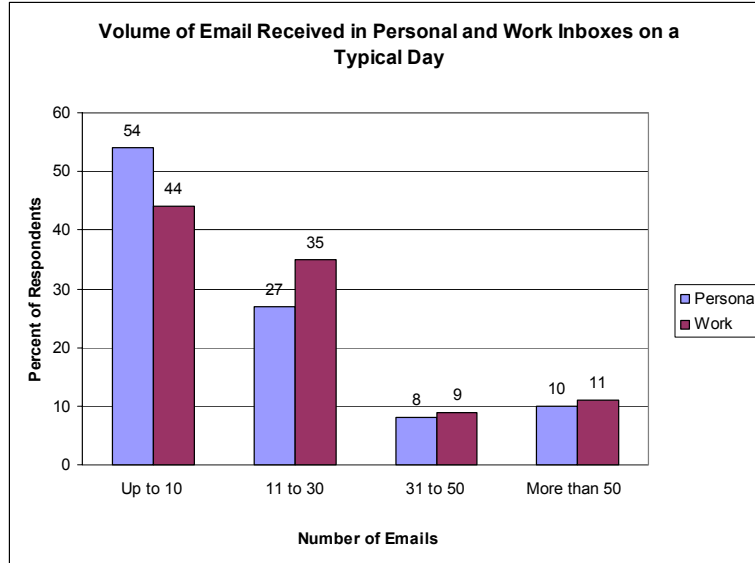
Many of the complaints that people wrote about spam in the TRAC survey pointed to problems of logistics and practicalities. They reported that the volume of spam paralyzed their accounts; it cost them money; and it cost them time. Here are some of their stories:

“On a typical day my (email) account gets 1 to 2 legitimate emails and 150 to 200 spam messages. I have to check it and empty the spam every day, or my account will fill up, preventing me from getting the few messages I really want.”

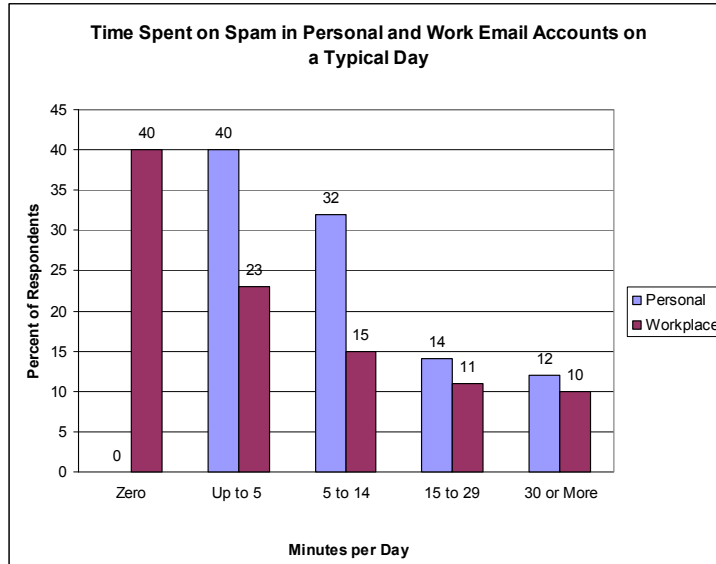
“I cannot afford to subscribe to unlimited online time and instead chose the more economical 5 hours per month for a nominal annual fee. About 3 of those hours per month are spent deleting unsolicited junk email.”

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“My email providers place a cap on the amount of space your account can take up. I get so much spam that I can go on vacation for a week or so, then come back and have my box over its limit solely because of spam. This means I’m potentially missing out on important non-spam emails.”



Part 3. The Volume and Burdens of Spam



Work email

In this study, as in past studies,⁵ we found the volume of email that workers process is quite moderate, although a little bit higher than in personal email accounts. Some 44% of those who have a work email account said they receive 10 or fewer emails on a typical day. Another 35% receive between 11 and 30; 9% between 31 and 50; and 11% receive over 50.

A surprisingly small percentage of spam shows up in work email accounts, much less than in personal accounts: 40% of those who receive email in a work account get no spam at all; another 26% received less than 10% spam; a further 12% get up to 25%. Of the remaining 21%, half received over 60% spam in their accounts.

Work emailers spend relatively little time on spam. Some 40% of work emailers spend no time at all on spam. Another 23% spend just a few minutes a day on spam. Another 15% spend from 5 to 14 minutes; 11% spend from 15 to 29 minutes; and 10% spend a half hour or more a day on spam.

We found once again that regardless of the overall volume of incoming email, spam is rather evenly spread through the inboxes of work emailers; the proportions of spam in the inboxes were similar no matter how much email the respondent usually receives. There are two clusters of exceptions to this: Those who received the lowest volume of email, (5 or fewer), received the least amount of spam (51% of those receiving 5 or fewer emails get no spam). On the other extreme, those getting the most email (over 50 per day) also are more likely to get at least 80% spam.

⁵ See: <http://www.pewInternet.org/reports/toc.asp?Report=79>

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Of those who get spam in their work accounts, 34% say it is sometimes hard for them to get to the messages they want to read.

Why there are differences between home and work

There are several reasons why spam loads in work and personal accounts differ so radically. First, most people's personal email addresses are more vulnerable to spammers' basic methods of finding consumers for a number of reasons: the big Internet Service Providers, which provide tens of millions of people their personal email accounts, are popular targets for those who are building lists of email addresses to spam. Also, people generally behave more cavalierly with their personal screennames than their work screennames, posting them on the Web and using them in more places, thereby making them more likely to be harvested by spammers. And finally, the lines of defense against spam are shored up more strongly in many companies, where email systems are closed and where IT professionals install filters and other protective measures against spam. Consequently, less spam gets through. All these are reasons why spam is more likely to be aimed at and to arrive in personal email inboxes.

In work email accounts, spam numbers alone can belie the heart of the story. While both the volume of spam and the time spent on spam in work email accounts look relatively small, that relative "success" against spam comes at a price. The costs and consequences of spam in the work email accounts are often hidden from the average worker.

The stories TRAC received from email users reveal some of those costs and consequences.

"I am a Lotus Notes Administrator for (a large firm)...I receive on average about 115,000 spam emails per day. There is a three fold problem. The first is the fact that it puts a tremendous strain on our servers, with all the extra email. Secondly, it puts a strain on the size of a user's mailbox, which then impedes their ability to perform their job. Thirdly, the content of those emails may contain offensive materials, which can cause some of our users to lose their jobs."

"I'm responsible for the design and maintenance of the mail system at a 20,000 user ISP in California. After installing spam-detection and filtering software, I've learned that approximately 40% of all emails we receive match the characteristics of spam, and it accounts for 13 – 15% of all network bandwidth consumed by our mailserver. Of the 12,000 regular email users here, 1000 of them receive nothing but spam. These statistics make me very angry."

"I am the technology manager for a commercial collection agency. Spam has become such a huge issue here that I may have to change our published email address as we are now receiving 2000 -3000 spam mails per day. It is costing our company many dollars in system resources and time spent wading through the junk mail to find the legit mail from clients and potential clients."

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“I’m the director of Information Systems for my company. This makes me responsible for our email. We are a small company and very distributed. We rely on our email as the primary means of doing business with our clients. On a daily basis we receive close to four thousand email messages. Of those messages, 60% are spam, which our filters are reading through and eliminating as best they can. Some may think that is good but in reality it’s only removing 60% of the spam we receive. 40% or close to a thousand messages are still getting through to people each day. The combination of bandwidth, hardware, software, and labor is costing us between 100 and 500 dollars a day, every day. Since the first of the year, spam has been getting worse with no end in site. . . . I am at my wits end for what to do.”

“Our business spends about 1 hour per day erasing spam messages. At \$10 per hour (it costs more than that) the annual cost is \$2500 per year. That is not insignificant for a very small business.”

“I am an Avon representative. I went online and placed a bunch of ads trying to get people to email me about selling Avon. Well I keep getting email with the subject “I just read your ad.” I am thinking they are replying and they are not. . . I open my email trying to run my Avon business and most of the time it is full of junk.”

For those on the front lines of fighting spam in the workplace and for those paying the bills, there may be comfort in the results from a 2003 survey by the American Management Association measuring positive and negative effects of email in the workplace. Keeping spam at bay in the workplace does largely preserve and protect the value of email for workers: The good effects of email (transmitting information, communicating with far flung colleagues and customers, time to respond.) were all rated positively by at least 60% of respondents. Fewer than 20% of respondents reacted negatively to any bad effects of email: 19% of workers felt they spent too much time on email; 12% felt they spent too much time on spam, the negative effect of email with the lowest response rate.⁶

⁶ Report available at: http://www.amanet.org/research/pdfs/Email_Policies_Practices.pdf

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How Emailers Interact with Spam

Spam exists because it is profitable, but emailers have defenses they can use.

There are many profiteers in the lucrative spam industry: Email address list builders scavenge and sell lists of email addresses. Software makers and marketers build and sell cheap programs that facilitate numerous illegal spam activities: look for vulnerable, hackable email servers, disguise sender identities, generate random lists of possible email addresses, harvest email addresses from the public Web, to name some. Mailers launch spam attacks against millions of inboxes. Shady Web site hosts provide a buffer or safe haven for questionable Web sites. Marketers sell bogus products and services. Scammers try of all sorts employ fraudulent schemes to trap unwitting emailers. There are certain weak links in this spam chain where Internet users can apply defensive measures.

Emailers use simple measures to avoid spam.

In this survey, we found that users were employing the simplest methods to avoid attracting spam: 73% said simply that they avoid giving out their email addresses. Also, 69% avoid posting their email addresses on the Web, where they risk being “scraped” off by harvesters. About 14% tried to use obscure screennames, so they might be less subject to getting emails generated by computers that spit out logical combinations of names and numbers (e.g. joesmith@isp.com or bettyjanel@isp.com). One creative emailer wrote in the TRAC survey about his attempt to create a screenname that no spammer could find: “I finally took the moniker FlatulentFreddy which finally has stopped the spam from coming my way. Most of it.” And 23% of email users have created separate email addresses for the times they think they might attract spam, not stemming the flow of spam, but at least diverting and isolating it.

Such judicious use of an email address seems worthwhile. The Center for Democracy and Technology (CDT), in a 2003 study⁷ to investigate the reasons people get spam, found that the surest way to attract spam is to post a standard, unobscured email address on a public Web site. Over 97% of the 10,000 incoming spams the CDT collected came to email addresses that had been posted on the Web. In an earlier study, the FTC reported that 86% of email addressed posted to newsgroups or public Web pages received spam.⁸ The CDT reported that more popular Web sites seemed to attract more spam and also offered a morsel of good news: once email addresses were removed from the Web, the volume of incoming spam dropped significantly.

⁷ Available at: <http://www.cdt.org/speech/spam/030319spamreport.pdf>

⁸ Available at: <http://www.ftc.gov/bcp/online/pubs/alerts/spamalrt.pdf>

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However, many an email user who has never posted his email address anywhere on the Web has been surprised to find it there. As an exercise, if you type your screenname, complete with the domain after the @ sign, into a Google search box, you, too may be surprised at where you see your name pop up on the Web.

Filtering helps deflect spam.

While filtering does not eliminate spam, it makes spam more manageable for the user. Use and effectiveness of filters vary a lot between personal and work email. And none of these filtering systems come free; they require time, expertise, and money to install and maintain.

Sixty-two percent of workers say their employers use filters to block spam from their email accounts. These workers get less spam than those whose employers do not use filters. Nearly twice as many workers with employer filters get no spam at all (50% v. 28%) Only 5% of those with filters say that more than 60% of their inbox is spam, compared to 19% of those with no filters.

Workers whose employers use filters have more time to work: Half of those with filters say they spend no time at all on spam, compared to 28% of those without filters who reported spending no time at all dealing with spam. About 8% of those with filters say they spend half an hour a day or more on spam, compared to 12% of those without filters who spend that much time dealing with spam. In addition, of those who receive spam at work, 29% of those whose employers use filters say spam sometimes prevents them from getting to the messages they want to read, compared to 37% of those without filters.

While it is easy to conclude employers should use filters on their employees' email accounts, comments from those in the trenches demonstrate how costly that can be. One correspondent in the TRAC survey wrote: "I am an enterprise systems consultant who is being engaged more and more frequently to provide measures to protect against spam...For my most recent customer, spam accounts for more than 50% of all the email flowing into their systems. A tremendous amount of money is spent both in paying for my services, as well as equipment costs. Considering that the design and implementation of such a system is likely to be a minimum of four weeks of work (~\$5000/wk), and require two moderate powerful servers (~\$4000/ea), that is a cost of \$28,000."

Some 37% of those who have a personal email account apply their own filters to their email system. Of those who filter, 21% receive less than 10% spam, compared to 18% of those without filters. Fully 49% of those with filters receive at least 60% spam in their accounts, compared with 50% of those without filters.

This picture of quite equal volumes of incoming spam, regardless of filter use, could mean two things: Either personal filters are not doing much good *or* filters are effective and those who do employ filters would have received much more spam without them.

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Those who are able to view bounced spam in their junk folders can look to see if their filters are keeping out spam.

For a number of emailers described in the TRAC survey, assessing what it takes them to avoid and deal with spam leads them wonder if it is all worth it.

“I have finally managed spam to a point with which I can deal. . . . First, I always create a new email alias when communicating with an online service. . . . Secondly, I run a program on my mail server which filters out just about all the spam. And, finally, I report spam to uce@ftc.gov and smapcop.org. The down side to this is that it takes too much time for what gets accomplished. I spend time no matter what – either deleting spam, or building and maintaining a defensive system.”

“The email program that I use allows me to set up email filters and prevent junk/adult email from even coming into my email inbox. But, what I have come to notice is that real emails that I need are being sent to my junk email box so I have to sort through it regardless. I found messages from clients and potential clients, my husband, and friends in the junk email.”

Tech workers are among the most annoyed. One writes:

“In my inbox, I receive on average 5 – 10 spams any given hour. I am a Unix administrator, with long ties on the Internet. No existing solution allows me to filter the spam effectively. I use inbox routing tools to get the mail that I expect to come in, but I am still forced to wade through the remnants, to the tune of 100 or more emails per day.”

We heard about one emailer’s clever solution that is a variation on a “white list,” where the user accepts incoming email only from those expressly designated:

“I dread being away from my computer where I read my personal email...when I return I have hundreds of worthless spam...I have given up trying to filter out the spam, and chose to instead filter out all the ‘expected’ or known email sources into folders and leave my inbox to the spam.”

Once spam arrives, most emailers try to counteract it.

What are people doing with the spam they receive? Most of the emailers in this study, 86%, report that usually they “immediately click to delete” their incoming spam. As this is a neutral behavior, something else must be going on to support the growing, lucrative business of spam.

Two-thirds of users have at some point clicked to be removed from a mailing list. This tactic exemplifies some of the confusion surrounding spam that can leave users perplexed

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about what to do. It is generally acknowledged that responsible senders will remove you from a list if you so request. The CDT, in its study about behaviors that attract spam, found that most commercial sites respected their wishes to “opt out” of further commercial email. But the FTC reports that 63% of “remove me” requests were ignored. Others suspect that sending a “remove me” message to a spammer only serves the purpose of confirming to him that he has found a responsive email address, which then earns the responder more spam. The ePrivacy Group, an anti-spam and trusted email technology company, and the Ponemon Institute, an ethics and privacy research institute, conducted a 2003 study about spam, and found that among the 37% of Internet users who never opt out, 40% choose that route because they do not believe the company will honor their request, 38% have found that opting out did not work before, and 9% fear it just confirms their email to spammers.

Email users often worry that clicking to “remove me” from future mailings will only attract more spam.

One emailer described in the TRAC survey his nightmare after trying to remove himself from future mailings:

“It started off slowly then exploded into a major mess. I began clicking on the options to ‘be removed’ from a list or ‘Stop’ receiving emails. Soon the emails went from a few a day to about 25, then 50...my Internet service provider told me the worst thing I could do was to click on those “remove” buttons. But now it is too late, because I currently receive at least 120 spam emails a day.”

And another found similar behavior initiated an even more offensive chain reaction:

“One day I received an email advertising pornographic materials & Websites. There were all of these ‘legal’ clauses at the bottom along with a link to remove my name from their list. I clicked on the link only to be inundated with these emails in the following weeks.”

And yet another respondent wrote:

“About a year ago, I checked out a Web site that sounded fun and was clean and family friendly. I read all their rules and ‘privacy policy’ and decided to join thinking that I could be a part of it without having my email address sold to anyone. But not a week later I started to get around 50 spam emails. Two weeks later I began to receive double emails in the same day from all the spammers...A month later I counted 357 emails a day that were spam...So I investigated and discovered that in their privacy policy that they had a mirror site that did not have the privacy rules and was allowed to sell my address.”

And one emailer lives in his own personal hell:

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“I made the mistake of responding to one particularly voluminous and obnoxious series of spam mails, to demand that I be removed from their mailing list. Because they substituted their header information with mine, I am now forever in an endless loop, receiving the same exact “returned mail” every 30 minutes, 24hours a day, 7 days per week (with the message: “config error: mail loops back to me.)”

Some emailers pursue offers from unsolicited email.

Some emailers are more responsive to spam than others. One-third of emailers have pursued an offer in an unsolicited email by clicking on a link to find further information. If the recipient is expecting satisfaction, the results are usually disappointing: In one anecdotal experiment, an enterprising reporter replied to 75 spam messages by requesting further information. She found over half of the requests were never answered, leading to the suspicion that this was just another way of email address list-building. Some 16% were obvious scams, 11% received bounced backs of “account closed” because of ISP complaints, and 17% appeared to be legitimate products or services for sale. All the porn delivered what it promised.⁹

Further, 7% of emailers report that they have ordered a product or service that was offered in an unsolicited email. Herein lies the problem: While some have suggested that if people simply stopped responding the spam industry would dry up, some bulk emailers claim that even 0.001% positive response rate is a break-even point.¹⁰

In future work, we would like to further explore the 7% conversion rate, for both the kinds of products or services that respondents ordered and the characteristics of the positive responders. This survey didn’t probe the first issue, and with such a low positive response rate (7%), we lacked the sufficient numbers to reliably describe the positive responders.

However, we can make a few comments. First, we are guessing that a good portion of orders were for legitimate products or services, like software or beauty items. This points to the softness in the collective definition of spam, that while “unsolicited” is a commonly accepted factor in the definition of spam, both the relationship with the sender and the nature of the product being promoted affect users’ tolerance for the message. People may be ordering products or services from unsolicited emails, but they are not necessarily considering those messages to be spam. Second, it is likely that some of these 7% of positive responders ordered a product or service quite a while ago, before the issues of spam, scams, Internet marketing, and security and privacy issues were in the limelight as they are in today. And lastly, given the continuing onslaught of spam for

⁹ Reported at: www.wired.com/news/print/0,1294,57613,00.html

¹⁰ Mangalindan, Mylene, “For Bulk E-Mailer, Pestering Millions Offers Path to Profit,” The Wall Street Journal Online. November 13, 2002. p. 1

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bogus health products, for pornography subscriptions, and even for infamous financial scams, we're quite sure that there remains a viable market that makes it worthwhile for spammers to persist.

Emailers' Behavior with Spam	
What emailers do with spam	% respondents
Delete it immediately without opening	86%
Clicked "remove me"	67
Clicked to get more information	33
Reported UCE to email provider	21
Ordered a product or service	7
Reported UCE to consumer or government agency	7
Provided personal info requested in UCE	4
Given money in response to UCE	1

Source: Pew Internet & American Life Project June 2003 Survey. N=1,272. Margin of error is $\pm 2.9\%$.

It is worth noting, too, that 12% of email users say they have responded to an email offer, only to find out later that it was phony or fraudulent.

In the TRAC survey, there were several stories about fraud:

"I was hoping to acquire another major credit card, in spite of poor credit, so when I got a spam that said, 'You have been approved for a major credit card.' I checked into it...An online form said that the fee (one time \$49.95 processing fee) had to be taken from my account right then. So I gave the routing number and account number expecting to open a credit card account. But once they got the money there was no credit card nor was there any refund. It was a 100% scam."

"My husband saw an offer for a free trial for a Web site and took it. They said they needed a checking account to verify his age. He gave them my routing number and account number...Since the free trial, which he 'opted out' of immediately after accepting the trial, they have taken one hundred and eighty dollars out of my account...I had to close my checking account and hope I get a little of my money back."

Some emailers take more aggressive action against spam: A fifth of emailers have reported unwanted email to their service providers. Another 7% — equaling the number of emailers who have purchased as a result of unsolicited email — have taken lengths to report spam to a consumer or government agency. The FTC reports that spam reports to the agency have grown to at least 130,000 a day.

Part 5.

How Email Users Feel About Spam

Most email users find spam annoying, but do not consider it a big problem.

When asked how spam affects life on the Internet, the majority of emailers (59%) describe spam as “annoying, but not a big problem.” On one extreme, 27% of email users say spam is a “big problem” for them, and on the other extreme, 14% say it is “no problem at all.” Some 70% of email users agree that spam has made being online “unpleasant or annoying,” with almost half of those saying it has had a big effect in this regard. Compared to other annoyances, spam ranks right up there with telemarketing calls and pop-up ads; about 40% of Internet users find them all a “very big intrusion on life.” We also found spam is deemed much more intrusive than public cell phone use, door-to-door solicitations, and junk mail delivered by the postal service.

Almost every aspect of spam bothers email users.

What, in particular, annoys emailers about spam? Just about everything, it seems. At least 69% of email users are annoyed at each aspect of spam that we asked about, from the content of the messages to the time devoured by dealing with it, to its intrusive and uncontrollable nature and potential risks. When asked to *prioritize* the factors about spam that bother them most, more users identified the offensive or obscene content of spam (23%) than any other factor, exceeding spam’s uncontrollability (15%), its sometimes deceptive or dishonest content (7%) or the time it takes to deal with spam (6%).

Aspects of Spam that Bother Emailers	
Bothersome aspects of Spam	% Emailers Bothered
Unsolicited nature of spam	84%
Deceptive or dishonest content	80
Potential damage to computer	79
Volume of spam	77
Offensive or obscene content	76
Compromise to privacy	76
Can't stop it	75
Time it takes to deal with it	69

Source: Pew Internet & American Life Project June 2003 Survey. N=1,272. Margin of error is $\pm 2.9\%$.

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Among the *types* of spam that are out there, users were most bothered by pornography (53%), followed by pitches for products and services (14%), and investment deals and financial offers (11%). They are much less bothered by political messages (4%), religious information (3%), and software offers (2%).

Spam leads to a deeper destruction. It is threatening the bedrock quality of email — users’ trust in the integrity of the system.

We were surprised at the extent that our data reflects FTC Commissioner Orson Swindle’s concern that spam is “about to kill the ‘killer app’” — email. While we feel “kill” is too strong an interpretation here, “injure” or “maim” is appropriate. Our findings suggest that spam is eating into issues of trust and integrity that are necessary for a viable, healthy email system.

Half of all emailers (52%) say spam has made them less trusting of email in general, including more than a quarter who say it has had a big effect on them in this regard. For many, this loss of trust translates into a factor of reliability, a key element in any communications system. (Even more — 70% — say spam has made being online unpleasant or annoying.)

There are two agents of blame. One is the filtering software: Some 30% of emailers fear that filtering software may filter out important, desired incoming mail, and 13% say they know this has happened to them. About 23% say they fear their outgoing emails may be blocked by the intended recipients’ filtering software.

The other agent of blame is the user himself. Spam poses an encumbrance that makes many lose trust in their own handling of email. Some 46% of emailers say that spam has made being online more complicated for them (taking the ease out of a technology that promised to make communicating simpler and less time consuming!). A full 29% say they are concerned they might accidentally delete an important email, mistaking it for spam.

The extent of the damage from spam is measurable. One-quarter of emailers say spam has reduced their overall use of email, for most of them in a big way.

Some of the damage likely comes from emailers just being overwhelmed and throwing in the towel, an expression reflected by a number of respondents from the TRAC survey:

“Spam has 100% shut me and my family down. We can no longer deal with downloading 1 hour’s worth of spam and viruses to get a message or two that we are expecting.”

“My time is valuable and I do not have time to filter thru all this unwanted spam. So half the time I just hit select all and delete every email I get. I have gone so far as to tell everyone not to bother

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emailing me...I have gone back to using the phone and no longer email anyone.”

“What started out as a wonderful way to stay in touch with my sister on a daily basis (and support her during her husband’s illness and death) has become a nightmare because of spam! I just arrived home from a one-week vacation to find 1188 messages on my email! I used to look forward to my email, but now I dread opening it as it is so much work because of spam. I get so frustrated I want to cry...”

But some of the damage surely links to the erosion of trust in email expressed by more than half of emailers.

There is a special place in Hell for pornographic spam.

Throughout this study, email users’ reactions to spam containing adult content and pornography have stood out. When asked to identify the type of *content* that bothers users most, once again pornography exceeds all others, by nearly four times more than any runner-up.

People, and especially women and parents, hate it. We found three different measures of this strong feeling. While three-quarters of all email users are bothered by the offensive and obscene content of spam, women are significantly more bothered than men (83% v. 68%) and parents are more bothered than non-parents (81% v. 72%). While 23% of users identify offensive or obscene content of spam as the single most bothersome characteristic of spam, women do so more often than men (29% v. 16%) and parents are much more likely to cite their objections to porn spam as non-parents (30% v. 17%). And finally, among all types of spam, users overwhelmingly identify pornography as the worst offender. Women are more likely than men to say this is the case (63% v. 42%), and parents are more likely to say this than non-parents (59% v. 49%).

Emailers speak for themselves about pornography better than any numbers can. Here are some of the many hundreds of examples in the TRAC survey:

“Imagine the horror of being forced to sign up for numerous accounts in order to complete research directly related to my job, only to be sent unwanted spam relating to such topics as breast augmentation and increasing sexual stamina.. Of course, my employer has strict rules against inappropriate emails, etc. I immediately addressed the problem with our IT department, and they have informed me that there is nothing they can do.”

“Spam has totally affected my household. My children are limited in their use of the computer due to spam. I cannot open my mail when they are even in the room! The computer has gone from a useful tool for homework and interacting with long-distance family members to a major focus of anger. The adults are upset that there is no way to set up a friendly email for our children without added expense and

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the children are fighting over the limited time the adults have to monitor the computer usage.”

“The pornographic images that appear on our computer haunt me. They are images that are not easily forgotten. They are images I have never solicited....”

“My boss sits right next to me three days a week and I take dictation from him, typing right into my computer. He is a very religious man. I check my (email) while he is on the telephone. I cannot tell you how many times I have to quickly delete messages even I am embarrassed to read, let alone have my boss see.”

“I have to use the library’s computer to go online and have to be very careful with what I open. I have somehow ended up on a spam list and receive a lot of emails which contain adult photos...If someone else is offended by this junk and complains about me, I could get in a lot of trouble and possibly lose my rights here at the library.”

“In my spare time, I counsel men who have become addicted to porn and want to be free. Years ago I struggled with this problem myself and am fully aware of what this type of unsolicited garbage is capable of doing to someone on the road to recovery. It is tantamount to offering free liquor to a newly recovering alcoholic.”

“An X-rated spam was sent to my office. I opened it while my boss was walking by and he fired me. I ended up getting my job back after much explanation and proof....”

“A very real problem for myself and for several friends who do day care & deal with children is the porn spam. They not only end up in the inbox of the computer with bad language & pictures, but they ...also embed pictures. I have found child porn pictures that were extremely explicit.”

“I have been getting unsolicited pornographic emails that are totally offensive. I feel violated and powerless in that there is no way to stop them from coming through to my email.”

“I honestly do not know how to deal with the spam epidemic. My strangest story is a porn message that somehow installed a program on my home computer that flashed salacious photos, unbidden, whenever I logged on. It got to the point where I had to turn off my monitor whenever anyone came into the room because I never knew when the program would display another photo!”

”You have no idea of how embarrassing it is for a priest to go ‘online’ to check his email...especially with others around...and find a barrage of pornographic messages on his computer. This happens to me all the time.”

“I am a grade 8 homeroom teacher. About midway through last school year, I started receiving an ever-increasing flow of spam — some of it absolutely inappropriate for a school environment. . I’m receiving from 5 – 10 obscene spams each day, and I have to shoo my students away from my desk every time I check my email –

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which is frequently. Thus, my students are losing out from what used to be ‘quality time’ around my desk.”

“My 12-year-old has his own email address — but I monitor his email before he gets it to make sure I get rid of all the trash. It is absolutely horrible. Email could be such as asset – but instead it has become a cesspool.”

“I received an email to my Internet email address with an innocuous subject ‘Plans Friday?’ and the name of a friend as the sender. I opened this email at my office and discovered a photo that was 1) offensive to me and 2) offensive to the woman walking past my cubicle. She reported me to my supervisor and I was given a sanction for violating anti-porn regulations. One more sanction and I’m fired.”

“Once one of my children inadvertently clicked on a ‘porn’ spam message and later that month I ended up with a \$1000 phone bill from the Bahamas!”

“Every day I receive spam emails with subject headings that indicated the contents concern bestiality, incest, and other horrific matter... My 72-year-old mother-in-law receives similar spam with subject lines that would have made Caligula’s hair stand on end.”

The Federal Trade Commission estimates that 17% of adult content contain auto-downloaded images.

Part 6.

Notable Responses to Spam

Women, parents, young Internet users, and longtime Internet users have particular responses to spam.

A few demographic groups display distinctive behaviors or attitudes toward spam: women hate pornography; parents resent the risks spam presents to their children; younger users have a casual response to spam; veterans of many years' Internet experience are particularly aggressive toward spam. What follows is a look at these different demographic realities.

Women are more bothered than men by spam.

More women than men expressed concern about every bothersome trait of spam we probed in our survey, but a few stood out. Significantly more women than men are bothered by offensive or obscene content of spam (83% v. 68%); by the deceptions and dishonesties in spam (82% v. 77%); by the sense that spam could mean their privacy has been compromised (79% v. 73%); and that spam could damage their computers (81% v. 76%).

How Spam Bothers Women & Men		
Women are more bothered by every kind of spam than men are.		
Bothersome things about Spam	% Women	% Men
Unsolicited nature of spam	85%	83%
Offensive or obscene content	83	68
Deceptive or dishonest content	82	77
Potential damage to computer	81	76
Compromise of privacy	79	73
Volume of spam	78	76
Can't stop it	77	74
Time it takes to deal with spam	71	67

Source: Pew Internet & American Life Project June 2003 Survey. N=1,272. Margin of error is $\pm 2.9\%$.

Although men and women receive about the same volume of email, the same proportions of spam in those emails, and spend about the same amount of time processing the spam, more women than men say the spam gets in their way; women are considerably more

Part 6. Notable Responses to Spam

likely to report that they get so much spam, it often makes it hard to get their real mail, both for work email (41% v. 28%) and for personal email (60% v. 51%).

Women find that spam interferes more with their ability to use email.

When asked to identify the kind of spam that bothers them most, men and women alike name pornographic spam above all others, together nearly four times the runner-up. And significantly, more women cite porn than men do (63% v. 42%).

One woman wrote in the TRAC survey:

“Almost daily I get really nasty spam in my email account... (One) offers a ‘3 for 1’ deal so that I can have access to ‘real police videos’ of sexual assaults. The email promises that I have ‘never seen such cruel action.’ As a rape survivor, this email upsets me greatly.”

Consistent with findings in past research from the Pew Internet & American Life Project that men more likely than women push the edge in trying new Internet technologies and activities, we found here that men tend to do more to try to foil spam. Online men are more likely than online women to have taken precautions against spam: they are more likely to have used separate email addresses for times they are likely to attract spam (28% of men have done this, compared to 19% of women) or to have created email addresses that are more resistant to spamming (18% v. 12%). Women, on the other hand, are more likely to have avoided giving out their email addresses (75% v. 71%). Men are a bit more likely to have applied their own filters (49% v. 45%) against spam.

Men are also more aggressive in acting on spam they receive, both positively and negatively. While women are more likely than men to delete their spam immediately (88% v. 83%), significantly more men than women have clicked on a link inside spam to get more information (37% v. 29%), and have ordered a product or service (9% v. 5%). More men than women have requested to be removed from mailing lists (71% v. 63%).

Young people are more tolerant of spam than older Internet users and less strict in defining spam.

Young and old share concerns about spam, but more young people than older people show tolerance of spam; 32% of those ages 18 – 29 years say spam is “just part of life on the Internet and is not that big of a deal,” compared to 18% of those 30 years old or more. Some 63% of younger Internet users say, “Spam is a real problem on the Internet and more should be done to control it,” compared 73% of older users.

Consistent with this, young people are more likely to have a more conservative definition of spam; they consider more of their impersonal email to be legitimate email, not spam.

Part 6. Notable Responses to Spam

Age Differences for Email Factors that Define Spam		
Young people, under 30 years old, have a more conservative definition of spam than older people; they consider fewer unsolicited emails to be spam.		
Description of Email	Emailers who consider Email Type to be Spam (%)	
	18 – 29 yrs	=/> 30 yrs
UCE from unknown sender	89%	93%
UCE from political or advocacy group	63	78
UCE from non-profit or charity	56	70
UCE from sender with whom you've done business	29	33
Jokes, stories, links, chain letters from known sender	20	29
UCE from sender with permission to contact	10	12
Unsolicited email with political messages	73	77
Unsolicited email with religious information	73	77
Personal or professional email from unknown sender	67	76

Source: Pew Internet & American Life Project June 2003 Survey. For items 1 – 6, N=624. Margin of error is $\pm 4.2\%$. For items 7 – 9, N=648. Margin of error is $\pm 4.1\%$.

More young people are actively interested in the content of spam; significantly more have clicked on a link inside spam to get more information (41% v. 31%). And while young people are no more or less likely than older Internet users to go so far as to order products or services offered by spam, they are more likely to become victims of fraud. A whopping 20% of those under 30 years report that they have responded to an email offer, only to find out later that it was phony or fraudulent, compared to 9% of others.

Young people are more likely to become victims of email fraud.

The biggest concern for young people about spam is the risk that it will do damage to their computers. Some 21% of young people point to this as the trait about spam that bothers them most, compared to 13% of older users. Young people are also significantly more concerned than older people about spam's spillover effects on email's reliability, specifically; that they might lose some of their legitimate email. Significantly more young people are concerned that they might mistakenly misidentify and delete an important email (39% of those under 30 report this, compared to 25% of those 30 and above), that filtering software might block important emails from reaching them (39% v. 27%) or block their emails from reaching others (33% v. 20%).

Parents are very anxious about their children being exposed to inappropriate content through spam.

Parents of children under age 18 who live at home are more likely to object to the adult content in spam than non-parents. Some 81% of parents cite such objections, compared to 72% of non-parents. They have good reason to worry: A recent study by Symantec, an Internet security software company, reports that 80% of children who use email receive inappropriate spam daily. Half of those surveyed say they feel uncomfortable or offended by inappropriate emails. Almost half the kids receiving spam say they have received emails including links to pornographic sites. Some 22% say they have never talked to their parents about spam.¹¹

Parents' stories are graphic and even desperate. One parent reported in the TRAC survey:

“My son, who is not a good speller, was trying to look at the Coke Website about a contest they were having. He accidentally spelled the word Coke wrong and several screens of naked men started popping up all over our computer. He immediately called me over to clear the screen, which took me several minutes to close all the screens that kept popping up. Since then his and my email accounts have been overrun with pornographic spam.”

“Our computer is in a room where our grandchildren also play and when you are checking email this filth just pops up... what you get is not just words but filthy pictures. On more than a few occasions we have had our grandson in our lap reading email from family and without even having an idea when we delete the email the next thing up is a picture that you do not want to see let alone have a child see.”

“I cannot open my email without receiving no less than 70+ emails spamming anything from sex to refinancing mortgages.... Most of the spam is so offensive it makes me sick to my stomach.... You should see how frantic I get trying to get it off the screen, before my children walk in and see this material. I'm so fed up, I have considered just discontinuing using the Internet all together.”

“I had set up 2 email accounts, one for myself and one for my 9-year-old daughter... A couple of months later, the spam (including porno) began coming to Amber's account. There were several a day. She didn't even have to open the mail to see the vulgar words. They were right there when you opened your email account (in the subject line). We finally had to cancel both accounts!”

“I recently set up email accounts for my two stepsons. Almost immediately, one of them began getting a lot of spam, including pornography ads that included pictures. ... My kids need to learn about the Internet, but I don't want them forced to see pornography just to have an email account....”

¹¹ Available at: <http://www.symantec.com/press/2003/n030609a.html>

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Parents are more driven than non-parents to take action against the spam. For instance, parents are more likely than non-parents to report the spam to their email providers (24% v. 19%).

Veteran Internet users are more sophisticated about spam.

Exposure to the Internet leads to awareness of spam. Longtime Internet users, those who have been online at least 6 years, are significantly more likely to have heard or read about spam than anyone else. Some 65% of longest users have heard about spam, compared to 55% of those who have been online 4 – 5 years, 49% who have been online 2–3 years, and 27% of those who have been online for a year or less.

Online longevity probably makes users more likely to recognize spam when they see it, rather than having trouble distinguishing it from their legitimate email. About 67% of those who have been online at least 6 years recognize spam right away, compared to 62% who have been online 4–5 years, 57% of those 2–3 years, and 46% for a year or less.

The longer people are online, the more adept they are at trying to avoid spam: Of those who have been online for at least 6 years, 29% have set up separate accounts to use when they are likely to attract spam, compared to 23% of 4–5 year veterans, 17% of 2–3 year veterans, and 7% of one year or less veterans. Some 74% of veterans of at least 6 years have avoided posting their email addresses on Websites, compared to 72% of 4–5 year veterans, 62% of 2–3 year veterans, and 54% of one year or less veterans. But the longest online veterans do not get less spam than others, possibly because they have been more exposed and vulnerable for their years on the Web. (Only the brand new users on the Web receive less spam.)

With more Internet years under their belts, Internet users grow increasingly intolerant of any kind of email that resembles spam. We asked about the content of various types of unsolicited email messages, from pornography to offers for health and medical content to political and religious messages. In every measure the longer Internet users had been online, the more likely they were to consider every kind of unsolicited message to be spam.

Similarly, Internet users seem to lose patience with spam over time. The longer they have been online, the more likely they are to simply dismiss spam rather than consider its content. Some 91% of 6-year veterans immediately delete their spam, compared to 81% of others. Further, the 6-year online veterans are more likely to ask to be removed from mailing lists than the rest (73% v.63%), report it to their email providers (24% v. 18%), and even report it to consumer or government agencies (10% v. 4%).

Part 7.

When Spam Is a Big Problem

A quarter of Internet users consider spam to be a problem.

While just about every emailer complains about spam, we wanted to see who is *particularly* aggrieved by spam and why. We looked at the 25% of Internet users who, when asked to describe how spam has affected their life on the Internet, answered that it was a problem for them. The remainder of respondents reported that spam was “annoying, but not a big problem” (60%), or “not a problem at all.” Some 15% said that.

We gleaned a few general impressions about the “who” and the “why” of the most aggrieved. The impressions do not portray a single, clean profile for the particularly aggrieved spam hater. Rather, they point to a few factors in one’s Internet life that make it more likely for them to consider spam a big problem and suggest to us a few explanations of why that might be.

Those who consider spam to be a big problem are more savvy and experienced Internet users who have an expansive online life.

A look at the various traits of those most troubled by spam suggests that compared to those who are less troubled by spam, they are a bit more savvy and sophisticated about the Internet and spam, they lead a more experienced and expansive Internet life, and they have a somewhat more extensive presence online.

Those who consider spam a big problem are significantly more aware of spam than others (39% v. 23%). They know how to behave around spam: They avoid behaviors that attract spam such as posting email addresses online (78% v. 67%) and giving out their email address (81% v. 70%), and are more likely to set up email addresses that confound harvesters (19% v. 14%). They use separate email addresses for times they might attract spam (27% v. 22%). And they also do more to deflect spam: some 23% apply their own filters at work to block spam, compared to 16% of those who are less troubled by spam. About 43% apply filters to their personal accounts, compared to 34% of those less troubled. And further, they are more likely to do what they can to fight spam by reporting it to ISPs (32% v. 17%) or to a consumer or government agency (12% v. 5%).

Those who consider spam a big problem do more online: They are more likely to engage in a variety of Internet activities than others: get news, do online banking, download music, and use search engines. They are slightly more likely to have email accounts at

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work (57% v 52%), and have personal email accounts (89% v 83%), and much more likely to have multiple personal email accounts (36% v 26%).

More of those who consider spam a big problem have been online for a long time (51% of them for over 6 years) than those who are annoyed by spam (41% for over 6 years) or find it not a problem at all (31% for over 6 years).

One voice of experience speaks out on the situation:

“I feel bad for the beginners, just learning all the wonderful things about the Internet, the vast knowledge that can be found; and as they begin to go down the road on their quest for knowledge, they too are being stalked and somehow “collected”...I have used the Internet for years, and I have seen the surge of bad-blood rising.”

Why might the savvy and experienced be so troubled by spam? Perhaps because they remember the good old days on the Internet and resent the awkwardness that spam has imposed.

Those who consider spam to be a big problem are burdened by its volume or the time it takes up.

There is a reality behind the complaints of those who say spam is big problem; they are more likely to have some large measure of spam, either in the volume of spam and/or the time it takes to deal with it.

Of those who receive spam at work, 50% of those who consider spam a big problem say they get so much that it is hard to get to the ones they want to read, compared to 27% of the rest. In personal email accounts, 74% of those who consider spam a big problem say they get so much that it is hard to get to the ones they want to read, compared to 48% of the rest.

Of those who consider spam a big problem, 39% receive more than 30 emails a day, compared to 25% who are annoyed by spam, and 12% of those who do not find spam a problem. Further, more of them also say spam constitutes a high proportion of their email. Among those who consider spam a big problem, 48% say more than 60% of their inbox is spam, compared to 33% of those who are annoyed, and 19% of those who do not consider spam a problem.

Those who consider spam a big problem also spend a lot more time on spam. Some 44% say they spend more than 15 minutes a day on spam, compared to 24% of the annoyed and 16% of those not bothered.

These data suggest the obvious: people are more likely to consider spam a big problem when they get lots of it and /or when it takes up a lot of their time.

Those who consider spam to be a big problem consider email to be mission critical.

Spam seems to wreak more havoc and create more worries among those who rely on email for one critical reason or another. Those who consider spam to be a big problem are much more concerned than others about accidentally losing important email. Some 40% of them fear deleting it mistakenly compared to 24% of others. Some 40% of them fear inadvertently filtering it out compared to 27% of others. Their fears are not without reason; 20% of those who consider spam a big problem report that this has happened to them, compared to 14% of others. Another 34% of them are also more concerned that emails they send to others will likewise be mistakenly filtered out compared to 20% of others.

A large number of respondents to TRAC wrote that spam was seriously affecting, even threatening, their livelihood, which relied on a heavy email presence and email correspondence:

“I have been in business since 1994 and I cannot change my email address for business reasons...Currently, I average will over 50 unsolicited junk emails for every legitimate inquiry or comment from my customers. It is easy to overlook contacts from my users in all of the junk. I’m sure that this has cost me business from time to time but I’ll never know because potential customer queries, almost always from people I do not know, are lost in the spam....”

“I rely very heavily on email communication because I am in the IT field. Spam now costs me on average 1 hour per day. At my consulting fee of \$125 per hour, that comes out to more than \$45,000 per year...”

“Since my husband is a participant in a medical study currently, he frequently receives messages from the nurse coordinator concerning his schedule of treatments and appointments. The huge numbers of unsolicited and unwelcome emails increase the danger that we will miss or inadvertently delete one of these vital messages.”

Many Internet users have gone well beyond the gee-whiz reactions to the Internet and have made the Internet and email vital to their lives. Spam can do them great damage.

Those who consider spam to be a big problem often see the cup as half empty.

Those who consider spam to be a big problem tend to view many things in a pessimistic light. They tend to complain more vociferously about the nature of spam and about many other of life’s other annoyances as well

Part 7. When Spam Is a Big Problem

Those who consider spam to be a big problem are more likely to hate just about everything about spam. Significantly more of them are bothered by the following features of spam, compared to any other emailers: the fact that spam is unsolicited bothers 98% of those who consider spam a big problem, compared to 86% of those who are just annoyed, and 49% of those who are not bothered at all. There are similar trends for being bothered by deceptive or dishonest in content (91% v. 80% v. 54%); by the fact that spam can damage your computer (87% v. 79% v. 62%); that their privacy might have been compromised (89% v. 76% v. 53%); that content can be offensive or obscene (86% v. 77% v. 50%); that emailers cannot stop spam, no matter what (92% v. 75% v. 42%).

Those who consider spam a big problem also consider many things to be big intrusions in their lives, including junk mail from the US Postal Service, telemarketing calls, and leafblowers.

This suggests some people show an erosion of tolerance about many things in life, and perhaps spam is just one of them.

Part 8.

The Implications of These Findings

What the survey means to policy makers.

We would like to reiterate a few findings in this Internet user survey that directly speak to some of the issues that legislators, regulators, and technologists are tackling in their fight against spam. As these findings particularly stand out with users, we feel that acknowledging them may help build realistic, relevant, and effective solutions to the problem of spam.

The odious impact of porn

In nearly every measure we tested, pornography soared to the top as the most offensive, objectionable, destructive type of spam. Among TRAC's collection of personal anecdotes about spam, pornographic email was the most frequent and most vilified type of spam addressed. (Many went on to condemn pornography in pop-ups as well as in unsolicited email.) Some noteworthy particulars: Internet users deplore that pornography is so uncontrollable, imposing itself unannounced and explicitly. Women and parents particularly hate pornography. Porn degrades the Internet experience on a very personal level and even makes many Internet users miserable.

So extreme was the reaction to pornography that eliminating it alone among all unsolicited email would go a long way toward softening spam's negative impact on Internet users.

The importance of keeping it simple

Throughout this study, we were struck by Internet users' behavior to go for the simplest, most obvious solutions in their own confrontations with spam. In identifying spam, they looked at the subject and sender lines. In dealing with spam, they clicked "delete." In trying to avoid spam, they would do less rather than more on the Internet. In commentaries about directly confronting spam, it was only the most technologically savvy and bold who would go to any lengths to take advantage of the sophisticated filters available to divert their spam, and even then, many wondered if the time spent on holding spam at bay might be equally well spent by just deleting it.

This points to a potential chasm between the solutions of the well-versed officials and highly experienced technologists, and the behavior of the average emailers, who are after

Part 8. The Implications of These Findings

all just trying to do their email. It suggests that the best solutions will be simple solutions that Internet users can and will employ.

How users would repair the damage

Time and time again in our surveys and reports on the Internet, we have found that trust is the backbone to making the most of the Internet. In largest numbers, Internet users look to Web sites they can trust. Web sites look for ways of conveying trust. Consumers have to trust transactions done on the Web. In the case at hand, emailers need to trust that their email is legitimate and that it is reliably delivered or received. We have seen evidence in this survey that there is an erosion of trust in email. Over half of respondents say they are now less trusting of email in general.

Trust, of course, is difficult to build and excruciatingly easy to destroy. One small but important illustration of this with respect to spam is the case involving the “remove me” option in unsolicited email. Clicking to “remove me” from future mailings from a sender could, in fact, be an effective way of getting yourself off a sender’s list. Most Internet users have trustingly tried this. Many have been burned, suspecting it just confirms their existence as an emailer and attracts more spam to their email account. No one can definitively say what clicking that button really means. The “remove me” function is now confusing and untrustworthy.

Another illustration of the loss of trust in email is that a good portion of users now worry that their email, either coming or going, will get caught up in spam filters or just simply lost in the morass of spam.

So, addressing the problems with spam by technology or legislation is just the beginning of an effective solution. Not only must engineers provide technically sound systems that are easy to use, and not only must legislators and regulators provide well-crafted, airtight laws and regulations that are enforceable, but they both have to convince the Internet users that these solutions will work, will be reliable, and can be trusted.

Internet users, we have seen, want to do the right thing with respect to spam. Repairing the damage from spam should take advantage of this eagerness by making clear to Internet users how they can and should interact with spam.

Methodology

This report is based on the findings of a survey on Americans' use of the Internet, specifically the effects of spam on email use. The results in this report are based on data from telephone interviews conducted by Princeton Survey Research Associates between June 10 and June 24, 2003, among a sample of 2,200 adults, age 18 and older. For results based on the total sample, one can say with 95% confidence that the error attributable to sampling and other random effects is plus or minus 2.2 percentage points. For results based Internet users (n=1,380), the margin of sampling error is plus or minus 2.8 percentage points, and for results based on Email users (n=1272), the margin of error is $\pm 2.9\%$. In addition to sampling error, question wording and practical difficulties in conducting telephone surveys may introduce some error or bias into the findings of opinion polls.

The sample for this survey is a random digit sample of telephone numbers selected from telephone exchanges in the continental United States. The random digit aspect of the sample is used to avoid "listing" bias and provides representation of both listed and unlisted numbers (including not-yet-listed numbers). The design of the sample achieves this representation by random generation of the last two digits of telephone numbers selected on the basis of their area code, telephone exchange, and bank number.

Sample was released for interviewing in replicates, which are representative subsamples of the larger sample. Using replicates to control the release of sample ensures that complete call procedures are followed for the entire sample. It also ensures that the geographic distribution of numbers called is appropriate. As many as 10 attempts were made to contact every sampled telephone number. Calls were staggered over times of day and days of the week to maximize the chance of making contact with potential respondents. Each household received at least one daytime call in an attempt to find someone at home. In each contacted household, interviewers asked to speak with the youngest male currently at home. If no male was available, interviewers asked to speak with the oldest female at home. This systematic respondent selection technique has been shown to produce samples that closely mirror the population in terms of age and gender. The final response rate was 30.8%.

Non-response in telephone interviews produces some known biases in survey-derived estimates because participation tends to vary for different subgroups of the population, and these subgroups are likely to vary also on questions of substantive interest. In order to compensate for these known biases, the sample data are weighted in analysis. The demographic weighting parameters are derived from a special analysis of the most recently available Census Bureau's Current Population Survey (March 2002). This analysis produces population parameters for the demographic characteristics of adults age 18 or older, living in households that contain a telephone. These parameters are then compared with the sample characteristics to construct sample weights. The weights are derived using an iterative technique that simultaneously balances the distribution of all weighting parameters.