Messaging Anti-Abuse Working Group
(MAAWG)

Email Metrics Program:
The Network Operators' Perspective

Report #4 - 3rd and 4th Quarters 2006
(Issued March 2007)

Executive Summary

With this latest Email Metrics Report, the Messaging Anti-Abuse Working Group has organized the data compiled over five quarters into an unbiased tool for estimating the level of abusive messages in the email stream. This fourth report incorporates new data for the last two quarters of 2006, adding the metrics from June through December.

As with previous reports, this data continues to be provided voluntarily and confidentially by Internet Service Providers, network operators and email providers that have come together in MAAWG to work against online abuse. Participating members include Bell Canada, Comcast, Cox Communications, Microsoft Corp., Outblaze Ltd., TDC and TDS Telecom, among others. MAAWG members are under no obligation to supply this information or participate in the metrics reporting program. The data is shared at the discretion of each company and is reported here as aggregated metrics to support the industry's efforts in preventing abuse from reaching individual user mailboxes.

MAAWG has experienced considerable growth in 2006, and as a result, the number of mailboxes included in this report also has increased significantly during the year. The MAAWG Email Metrics Program now provides aggregated data covering almost 500 million mailboxes, an increase of 12% since the last report. With the expanded mailbox coverage and the completion of more than a full year of reporting, we have also added a few general observations to the report.

The MAAWG Email Metrics Program has become an important framework for understanding the extent of abusive emails and for responding to fraudulent and damaging online activity. The organization remains committed to gathering and reporting this unique set of metrics, which are provided directly by our service provider members.

Report #4 - 3rd and 4th Quarter 2006 Results

The statistics reported below are compiled from confidential data provided by participating MAAWG member service operators from Q4 2005 through Q4 2006, adjusted as necessary. The data for Q3 and Q4 2006 shows an increase in the number of mailboxes represented yet a decrease in the overall number of unaltered emails delivered per mailbox. There also were fluctuations in the other metrics.

Reported Metrics	Report #4		Report #3	Report #2	Report #1
	Q4 2006	Q3 2006	Q2 2006	Q1 2006	Q4 2005
Number of Mailboxes Represented	489.222 Million	475.755 Million	435.626 Million	389.674 Million	357.777 Million
Number of Dropped Connections & Block/Tagged Emails	390.650 Billion	492.205 Billion	408.009 Billion	405.844 Billion	361.279 Billion
Number of Unaltered Delivered Emails	127.751 Billion	143.558 Billion	142.485 Billion	102.418 Billion	86.226 Billion

Selected Ratios	Report #4		Report #3	Report #2	Report #1
	Q4 2006	Q3 2006	Q2 2006	Q1 2006	Q4 2005
Number of Dropped Connections And Block/Tagged Emails Per Mailbox	799	1035	937	1041	1010
Number of Dropped Connections And Block/ Tagged Emails Per Unaltered Delivered Email	3.06 or 75.36% abusive email	3.43 or 77.42% abusive email	2.86 or 74.12% abusive email	3.96 or 79.84% abusive email	4.19 or 80.73% abusive email
Number of Unaltered Delivered Email Per Mailbox	261	302	327	263	241

Observations

It is important to understand that the metrics in the MAAWG report do not represent spam, but report the volume of email identified as "abusive." This distinction is significant because the definition of spam can vary greatly from country to country and as used in local legislation.

The percentage of email identified as abusive has been oscillating between 75% and 80%, and the same can be said for the number of unaltered delivered email per mailbox, in roughly an inverse manner. The fluctuation in the metrics, therefore, may be the result of service providers dealing with new schemes introduced by abusers to escape service providers' detection methods, including filters, to keep abusive email from reaching users' inboxes.

Consistent with other reports issued by third-party vendors, MAAWG members confirmed that the summer of 2006 saw the emergence of "stock pump and dump" abusive traffic created by spammers releasing massive volumes of messages at one time. There also seemed to be an increase in abusive image-based emails with spammers converting the body of email messages into a pictorial format to avoid detection by text-based content filters. The metrics reported for Q3 and Q4 2006 may not show a clear time demarcation for these two phenomenon since these events occurred over multiple months and with possibly different effects on various service providers. However, the metrics do reflect the continuing high level of abusive email the industry works to protect from clogging users' inboxes and the need for continued industry cooperation and diligence.

What is Measured?

▪ **Number of Mailboxes Represented** - This is the total current customer mailbox count at the end of the quarter. This metric is reported in million of mailboxes.

- **Number of Dropped Connections and Blocked/Tagged Inbound Emails** – Taken together, dropped connections and blocked/tagged inbound emails are a measure of "abusive emails." The Number of Dropped Connections is the total connections dropped by using RBLs (Real Time Blacklists) and other devices. The Number of Blocked or Tagged Inbound Emails is the total number of emails blocked or tagged by a provider using commonly applied devices such as ASAV (Anti-Spam/Anti-Viral) framework, MTAs (Mail Transfer Agents) and other recipient or message based rules. The sum of three months of dropped connections and blocked or tagged inbound emails is reported in billions. In this report, one dropped connection is equivalent to one blocked or tagged inbound email.

- **Number of Unaltered Delivered Emails** - This is the total number of emails that were not blocked or tagged by the network operator's anti-abuse efforts and were delivered to customers. The sum of three months of delivered emails is reported in billions.

Explanatory Notes:

- **Abusive Emails:** The one thing this report does not attempt to define is "spam." Even though a great deal of time and energy have been devoted to clarifying this term, there is no universally accepted definition. The precise definition of spam differs slightly from jurisdiction to jurisdiction in accordance with local laws. For example, in Europe and Canada, spam is based on an "opt-in" approach, whereas the United States has adopted an "opt out" approach. Nevertheless, most would agree that "spam" can be defined as electronic communications that likely are not wanted or expected by the recipient.

  What is more, in working to reduce spam, the industry has become increasingly focused on the behavior of the sender instead of only looking at the form or content of a message. In this report, therefore, we measure "abusive email," which we believe to be a more accurate term. Abusive emails are communications that seek to exploit the end user.

- **False Positives:** Given the massive volumes of email that transverse the networks everyday, one of the challenges facing ISPs and network operators is how to differentiate between abusive, unwanted emails and legitimate messages sent to a large number of recipients. A "false positive" is the term generally used to describe legitimate messages that have been blocked or tagged by a spam filter or other mechanisms intended to stop abusive email. The issues that arise in the context of accurately defining and accounting for false positives are similar to those associated with defining spam. Therefore, this report does not attempt to account for any "false positives," leaving that assessment to others.

- **ISP and Network Operator Data:** As noted above, this aggregated data has been obtained exclusively from ISPs, network operators and email providers who are members of MAAWG. It does not include information generated separately by anti-abuse solution providers or vendors.

- **Minimum Number of Mailboxes:** This email metrics program is based on a minimum threshold of 100 million mailboxes, as we believe this number is statistically significant.

- **Dropped Connections:** A dropped connection occurs before the number of recipients or emails is known. It is therefore impossible to determine how many abusive emails per dropped connection were prevented from entering the network. Moreover, when a connection is prohibited, i.e. "null routed," there is no connection to count and so these are not factored in the number of reported dropped connections. As a result, a substantial volume of abusive emails are never likely to be counted. However, it is a conservative estimate to say that each dropped connection corresponds to at least one abusive email. This metric, although imprecise in and of itself, gives a sense of the magnitude of abusive emails that are not even penetrating the operator's network.

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