

Messaging, Malware and Mobile Anti-Abuse Working Group

M³AAWG Email Metrics Program: The Network Operators' Perspective

Report #16 – 1st Quarter 2012 through 2nd Quarter 2014
(Issued November 2014)

Executive Summary

This is the sixteenth report in the M³AAWG Email Metrics Program incorporating new data for all of 2012 through the second quarter of 2014, with aggregated metrics from January 2012 through June 2014. For this combined 30-month period, abusive email remained fairly consistent, ranging from about 87.1% to 90.2%. This ongoing high rate of abusive messaging is a reminder that the industry must remain vigilant to disruptive online activities and continue its cooperative efforts to provide users a stable messaging environment.

About the M³AAWG Email Metrics Program

At the request of government and private agencies worldwide, the Messaging, Malware and Mobile Anti-Abuse Working Group (M³AAWG) developed these quarterly reports as a guide to understanding the effectiveness of the industry's efforts in obstructing abusive emails before they reach users. The metrics data reported here is provided voluntarily and confidentially by Internet service providers, network operators and email providers that have come together in M³AAWG to work against online abuse. However, M³AAWG members are under no obligation to supply this information or to participate in this program. The data is shared at the discretion of each company and is reported here as aggregated metrics. While the participating companies may change from time to time, each quarterly M³AAWG reporting segment covers at least 100 million mailboxes.

We are committed to continuing the important work of the M³AAWG Email Metrics Program. The quarterly reports issued through M³AAWG have become a vital industry resource for understanding the extent of abusive emails.

Changes to Reporting in this Update

This report covers more than 400 million mailboxes worldwide. In the past, when the number of mailboxes has changed significantly, we have updated the reported metrics from previous quarters to provide meaningful comparisons.

The email industry operates in a dynamic environment and minor changes are inevitable from quarter to quarter. Overall, to account for these reporting variances, we show the data as percentages with metrics from the last twelve months in each report. Selected data from the earlier quarters also are represented in a separate historical graph. Those interested in the long-term metrics beyond the coverage provided in this report can find the previously published reports with the original data on the M³AAWG website at http://www.m3aawg.org/email_metrics_report.

Report #16 – Q1 2012 through Q2 2014 Results

The statistics reported below are compiled from confidential data provided by participating M³AAWG member service operators for Q1-Q4 2012, Q1-Q4 2013 and Q1-Q2 2014. Previous reports have been adjusted as necessary to provide relatively comparative data. The reporting basis for all quarters covers on average 400 million mailboxes with over 300 billion unaltered emails being delivered.

Selected Ratios for 2012	Report #16 Q1 2012	Report #16 Q2 2012	Report #16 Q3 2012	Report #16 Q4 2012
Dropped Connections & Blocked/Tagged Inbound Emails per Mailbox	5577	6245	6274	6996
Ratio of Dropped Connections & Blocked/Tagged Inbound Emails to Unaltered Delivered Email	7.14 or 87.7% abusive email	7.68 or 88.5% abusive email	7.21 or 87.8% abusive email	7.90 or 88.8% abusive email
Number of Unaltered Delivered Email per Mailbox	782	813	870	885

Selected Ratios for 2013	Report #16 Q1 2013	Report #16 Q2 2013	Report #16 Q3 2013	Report #16 Q4 2013
Dropped Connections & Blocked/Tagged Inbound Emails per Mailbox	7690	6668	6380	5796
Ratio of Dropped Connections & Blocked/Tagged Inbound Emails to Unaltered Delivered Email	8.39 or 89.4% abusive email	8.85 or 89.9% abusive email	8.41 or 89.4% abusive email	6.78 or 87.1% abusive email
Number of Unaltered Delivered Email per Mailbox	916	753	758	855

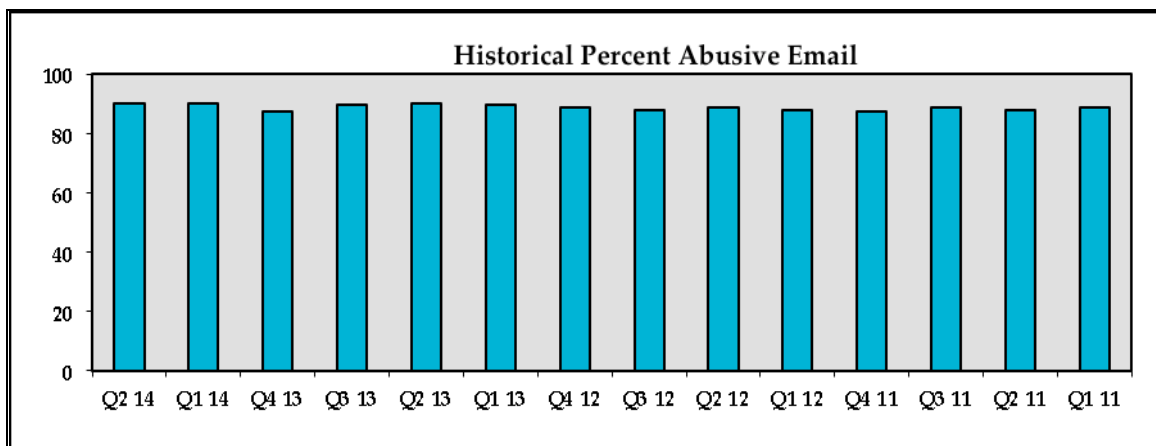
Selected Ratios for Q1 & Q2 2014	Report #16 Q1 2014	Report #16 Q2 2014
Dropped Connections & Blocked/Tagged Inbound Emails per Mailbox	7520	9099
Ratio of Dropped Connections & Blocked/Tagged Inbound Emails to Unaltered Delivered Email	9.05 or 90.1% abusive email	9.22 or 90.2% abusive email
Number of Unaltered Delivered Email per Mailbox	831	987

Observations

It is important to understand that the metrics in the M³AAWG reports 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.

With the addition of this new data from the first quarter 2012 through the second quarter of 2014, the percentage of email identified as abusive has oscillated over the last ten quarters between 87% to 90%. The number of unaltered delivered email per mailbox has fluctuated in roughly the reverse 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 the use of filters to keep abusive email from reaching users’ inboxes.

The metrics continue to reflect the ongoing high level of abusive email the industry works to prevent 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 has 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 M³AAWG. 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.