Q1 Postmastery's Email Delivery Benchmark

distilled from **6 billion** large ESP's email transactions

We enjoy mapping your delivery **performance against performance** from others...

Postmastery proudly presents its first Email Delivery Benchmark. The purpose of this benchmark is to help deliverability specialists map their delivery performance against the performance of others.

Postmastery conducted this research using a representative sample of more than 6 billion email transactions from mainly Email Service providers (ESP's) sent with consent to consumers and businesses between January 2024 and May 2024. The statistics are based on the performance of the top 15 Mailbox Provider (MBP), measured in Northern European regions. Each quarter, Postmastery will share a new benchmark, so the next report will be shared in July 2024.

This report
In the first part of this benchmark you will find the top-15 Key Performance Delivery KPIs per MBP. We then provide more insight into the data distribution of the bounce rate, the deferred percentage and the average delivery time of the top-4 MBP. We continue with an overview of the most common and newly observed SMTP errors (bounces and deferrals) of these top-4 MBP.

In the last part of the benchmark you will find the most important observations and conclusions.

Key performance indicators

MAILBOX PROVIDERS	DELIVERY RATE	BOUNCE RATE	DEFERRED RATE	AVERAGE DELIVERY TIME
GOOGLE	99.30	0.70	0.40	0:05:50
OUTLOOK	99.69	0.33	0.14	0:07:16
YAHOO	99.34	0.66	0.17	0:08:44
OFFICE 365	99.06	0.98	0.23	0:02:07
ICLOUD	99.69	0.31	0.32	0:03:25
SEZNAM	99.96	0.04	0.02	0:00:18
ZIGGO	99.90	0.10	0.93	0:00:55
KPN	99.88	0.12	4.20	0:06:38
PROOFPOINT	98.25	1.75	0.69	0:01:45
MIMECAST	95.59	4.41	29.71	0:03:53
BTINTERNET	98.41	1.70	0.35	0:01:17
NAVER	99.76	0.24	3.15	0:01:03
ECONOMIA	99.96	0.04	2.37	2:29:21
AT&T	99.79	0.21	0.03	0:19:34
BARRACUDA	95.71	4.30	1.61	0:02:54

Note: All metrics in this table are the median values of the sender cohort considered for the Benchmark. Delivery rate is the percentage of messages delivered compared to messages sent. Bounce rate is the percentage of messages that bounced compared to messages sent. Deferred Rate is the percentage of unique delivery attempts compared to messages sent. Average delivery time is the total delivery time divided by the number of messages delivered.
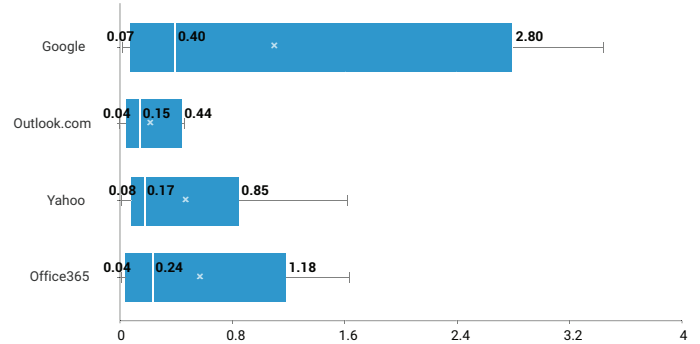
Deepdive into the Key Performance Indicators

Bounce Rate of top-4 MBP
Box and Whisker Bar Chart
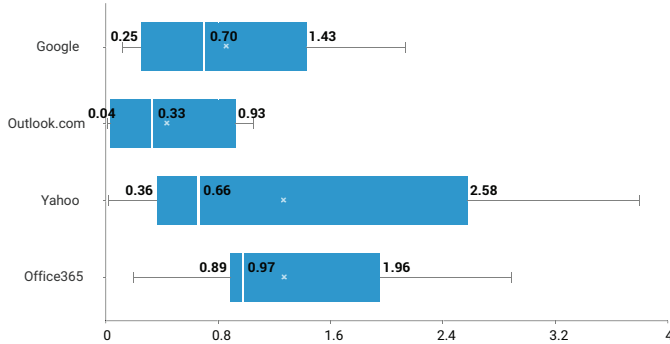
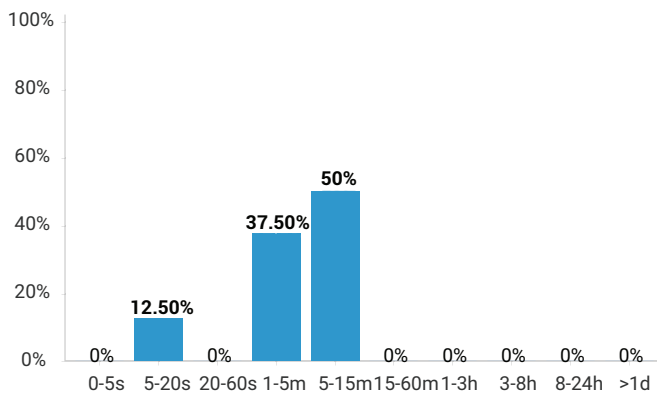## Deferred Rate of top-4 MBP
Box and Whisker Bar Chart

Note: The vertical line inside the box marks the median (second quartile), the cross marks the arithmetic mean (average).
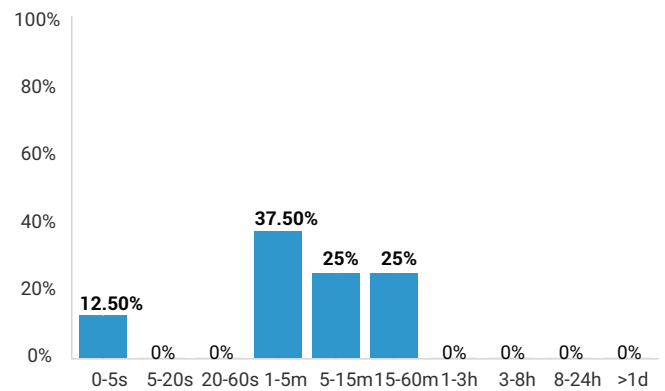
Average Delivery time distribution of top-4 MBP

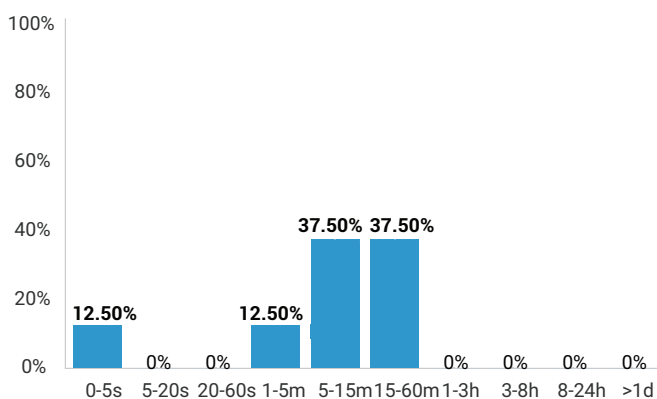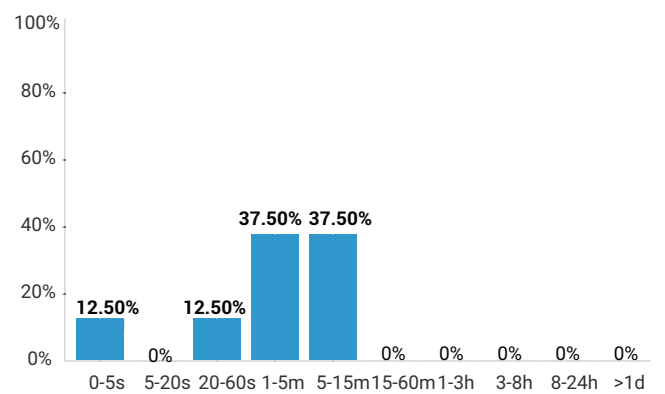Distribution of Average Delivery times by Senders per Delivery time buckets.

Google

Outlook

Yahoo

Office 365

Most frequent Google SMTP Errors

Google Bounces

550 5.7.1 [xx.xx.xx.xx] Gmail has detected that this message is likely unsolicited mail. To reduce the amount of spam sent to Gmail, this message has been blocked. For more information, go to https://support.google.com/mail/?p=UnsolicitedMessageError

550 5.1.1 The email account that you tried to reach does not exist. Please try double-checking the recipient's email address for typos or unnecessary spaces. For more information, go to https://support.google.com/mail/?p=NoSuchUser

552 5.2.2 The recipient's inbox is out of storage space and inactive. Please direct the recipient to https://support.google.com/mail/?p=OverQuotaPerm

550 5.2.1 The email account that you tried to reach is inactive. For more information, go to https://support.google.com/mail/?p=DisabledUser

Google Workspace

550 5.7.1 The user or domain that you are sending to (or from) has a policy that prohibited the mail that you sent. Please contact your domain administrator for further details. For more information, go to https://support.google.com/a/answer/172179

550 5.7.26 Unauthenticated email from domain.com is not accepted due to domain's DMARC policy. Please contact the administrator of domain.com domain if this was a legitimate mail. To learn about the DMARC initiative, go to https://support.google.com/mail/?p=DmarcRejection

550 5.7.1 [xx.xx.xx.xx] Gmail has detected that this message is likely suspicious due to the very low reputation of the sending IP address. To best protect our users from spam, the message has been blocked. For more information, go to https://support.google.com/mail/answer/188131

Google Deferrals

452 4.2.2 The recipient's inbox is out of storage space. Please direct the recipient to https://support.google.com/mail/?p=OverQuotaTemp

NEW

421 4.7.28 Gmail has detected an unusual rate of unsolicited mail originating from your SPF domain domain.com 35]. To protect our users from spam, mail sent from your domain has been temporarily rate limited. For more information, go to https://support.google.com/mail/?p=UnsolicitedRateLimitError to review our Bulk Email Senders Guidelines.

NEW

421 4.7.28 Gmail has detected an unusual rate of unsolicited mail originating from your DKIM domain [36]. To protect our users from spam, mail sent from your domain has been temporarily rate limited. For more information, go to https://support.google.com/mail/?p=UnsolicitedRateLimitError to review our Bulk Email Senders Guidelines.

421 4.7.28 Gmail has detected an unusual rate of unsolicited mail. To protect our users from spam, mail has been temporarily rate limited. For more information, go to https://support.google.com/mail/?p=UnsolicitedRateLimitError to review our Bulk Email Senders Guidelines.

450 4.2.1 The user you are trying to contact is receiving mail at a rate that prevents additional messages from being delivered. Please resend your message at a later time. If the user is able to receive mail at that time, your message will be delivered. For more information, go to https://support.google.com/mail/?p=ReceivingRate

421 4.7.0 [xx.xx.xx.xx] Gmail has detected that this message is suspicious due to the nature of the content and/or the links within. To best protect our users from spam, the message has been blocked. For more information, go to https://support.google.com/mail/answer/188131

421 4.7.0 [xx.xx.xx.xx] Gmail has detected that this message is suspicious due to the very low reputation of the sending domain. To best protect our users from spam, the message has been blocked. For more information, go to https://support.google.com/mail/answer/188131

421 4.7.28 Gmail has detected an unusual rate of unsolicited mail containing one of your URL domains. To protect our users from spam, mail with the URL has been temporarily rate limited. For more information, go to https://support.google.com/mail/?p=UnsolicitedRateLimitError to review our Bulk Email Senders

Google Workspace

421 4.7.0 IP not in whitelist for RCPT domain, closing connection. For more information, go to https://support.google.com/a/answer/60752

NEW

421 4.7.32 Your email has been rate limited because the From: header (RFC5322) in this message isn't aligned with either the authenticated SPF or DKIM organizational domain. To learn more about DMARC alignment, visit https://support.google.com/a?p=dmarc-alignment To learn more about Gmail requirements for bulk senders, visit https://support.google.com/a?p=sender-guidelines.

Most frequent Outlook SMTP Errors

Outlook Bounces

550 5.5.0 Requested action not taken: mailbox unavailable (S2017062302).

550 5.7.1 Unfortunately, messages from [xx.xx.xx.xx] weren't sent. Please contact your Internet service provider since part of their network is on our block list (S3150). You can also refer your provider to http://mail.live.com/mail/troubleshooting. aspx#errors.

550 5.4.1 Recipient address rejected: Access denied.

550 5.7.509 Access denied, sending domain [domain.com] does not pass DMARC verification and has a DMARC policy of reject.

550 5.7.1 Service unavailable, Client host [xx.xx.xx.xx] blocked using Spamhaus. To request removal from this list see https://www.spamhaus.org/query/ip/xx.xx.xx.xx (AS3130).

501 5.1.3 Invalid address alias

NEW

550 5.7.1 Service unavailable, MailFrom domain is listed in Spamhaus. To request removal from this list see https://www.spamhaus.org/query/lookup/ (S8002)

Outlook Deferrals

451 4.7.650 The mail server [xx.xx.xx.xx] has been temporarily rate limited due to IP reputation. For e-mail delivery information, see https://postmaster.live.com (S775)

451 4.3.0 [internal] Sending IP temporarily suspended

451 4.7.651 The mail server [xx.xx.xx.xx] has been temporarily rate limited due to IP reputation. For e-mail delivery information, see https://postmaster.live.com (S844)

451 4.7.652 The mail server [xx.xx.xx.xx] has exceeded the maximum number of connections. (S3115)

451 4.7.0 Temporary server error. Please try again later

451 4.4.28 Message failed to be replicated: Response status code does not indicate success: 512 (Insufficient system resource: (ProcessorTime,PendingCommits)).(Initialized)

451 4.7.500 Server busy. Please try again later from [xx.xx.xx.xx]. (S77714)

421 4.4.1 Connection timed out. Total session duration: 00:10:00.5372638

451 4.4.3 Temporary server error. Please try again later ATTR18

451 4.7.653 The mail server [xx.xx.xx.xx] has exceeded maximum number of messages per connection.

451 4.3.2 Temporary server error. Please try again later ATTR17

450 4.7.3 Organization queue quota exceeded.

452 4.3.1 Insufficient system resources (ProcessorTime)

Most frequent Yahoo SMTP Errors

Yahoo Bounces

552 1 Requested mail action aborted, mailbox not found

554 30 Sorry, your message to xxx@domain.com cannot be delivered. This mailbox is disabled (554.30).
bad connection

554 5.7.9 Message not accepted for policy reasons. See https://postmaster.yahooinc.com/error-codes

554 Message not allowed - [299]

554 Message not accepted due to failed RFC compliance [013]

554 Message not allowed - [PH01] Email not accepted for policy reasons. Please visit https://postmaster.yahooinc.com/error-codes

552 40 Requested mail action aborted

Yahoo Deferrals

421 4.7.0 [TSS04] Messages from xx.xx.xx.xx temporarily deferred due to unexpected volume or user complaints - 4.16.55.1; see https://postmaster.yahooinc.com/error-codes

421 Max message per connection reached, closing transmission channel tnmpmscs

450 User is receiving mail too quickly tnmpmscs

421 [IPTS04] Messages from xx.xx.xx.xx temporarily deferred due to unexpected volume or user complaints - 4.16.55.1; see https://postmaster.yahooinc.com/error-codes

451 atlas-production.v2-mail-prod1-ir2.omega.yahoo.com Resources temporarily unavailable. Please try again later.

451 Message temporarily deferred due to unresolvable RFC.5321 from domain; see https://postmaster.yahooinc.com/error-codes

421 Service not available, closing transmission channel tnmpmscs

552 message size exceeds maximum size tnmpmscs

Most frequent Office365 SMTP Errors

Office365 Bounces

554 5.2.122 The recipient has exceeded their limit for the number of messages they can receive per hour. For more information go to http://go.microsoft.com/fwlink/?LinkId=526653.

550 5.4.1 Recipient address rejected: Access denied.

554 5.2.121 The sender has exceeded the limit for the number of messages they can send to this recipient per hour. For more information go to http://go.microsoft.com/fwlink/?LinkId=526653.

550 5.7.1 Service unavailable, Client host [xx.xx.xx.xx] blocked using Customer Block list

550 5.7.51 TenantInboundAttribution; There is a partner connector configured that matched the message's recipient domain. The connector had either the RestrictDomainsToIPAddresses or RestrictDomainsToCertificate set

550 5.7.1 Service unavailable, Client host [xx.xx.xx.xx] blocked using Spamhaus. To request removal from this list see https://www.spamhaus.org/query/ip/xx.xx.xx.xx

550 5.7.64 TenantAttribution; Relay Access Denied [ValidationStatus of " is EmptyCertificate]

554 5.6.1 Messages of type message/partial are not supported

550 5.5.0 Requested action not taken: mailbox unavailable (S2017062302).

550 5.7.705 Access denied, tenant has exceeded threshold. For more information please go to http://go.microsoft.com/fwlink/?LinkId=526653

501 5.1.8 UTF-8 addresses not supported

554 5.6.211 Invalid MIME Content: Number of MimePart objects (1001) exceeded allowed maximum (1000).

550 5.1.8 Access denied, bad sender

Office365 Deferrals

451 4.7.500 Server busy. Please try again later from [xx.xx.xx.xx]. (S77714)

451 4.4.4 Mail received as unauthenticated, incoming to a recipient domain configured in a hosted tenant which has no mail-enabled subscriptions. ATTR5

451 4.3.2 Temporary server error. Please try again later ATTR2

451 4.7.700 PFA agent busy, please try again.

421 4.3.2 Connection will be dropped due to previous errors on this session. Please address previous errors and try again.

451 4.4.62 Mail sent to the wrong Office 365 region. ATTR35. For more information please go to https://go.microsoft.com/fwlink/?linkid=865268 [ValidationStatus of " is EmptyCertificate]

451 4.4.3 Temporary server error. Please try again later ATTR2

451 4.4.2 Temporary server error. Please try again later ATTR55

452 4.3.1 Insufficient system resources (ProcessorTime)

451 4.7.650 The mail server [xx.xx.xx.xx] has been temporarily rate limited due to IP reputation. For e-mail delivery information, see https://postmaster.live.com (S775)

421 4.3.2 The maximum number of concurrent server connections has exceeded a limit, closing transmission channel

450 4.7.5 General queue quota exceeded.

451 4.7.0 Temporary server error. Please try again later. PRX9 RemoteHost: CWLP123MB5746. ErrorCode 10060
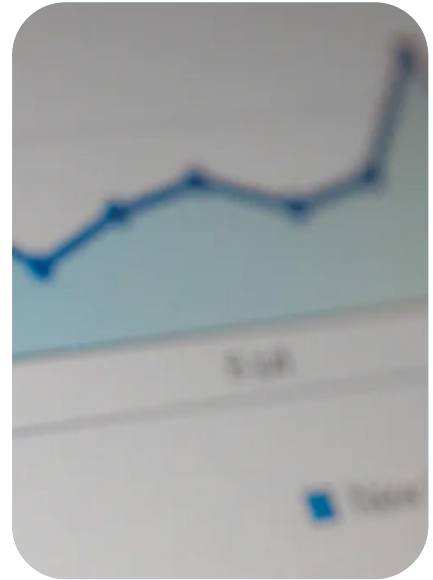
451 4.7.500 Access denied, please try again later. For more information please go to http://go.microsoft.com/fwlink/?LinkId=526653

451 4.4.28 Message failed to be replicated: Response status code does not indicate success: 512 (Insufficient system resource: (ProcessorTime,PendingCommits)).(Initialized)

6
Insights
you don't want
to miss

1. Overall Delivery Performance:

Most email service providers (ESPs) are performing well, with delivery rates exceeding 95% across the board.

Seznam remarkably stands out for almost perfect metrics across the board.

2. Greatest Challenge Area - Bounce Rates:

Mimecast has the highest bounce rate at 4.41%.

3. Deferred Rate Concerns:

It's concerning to see that Mimecast has a deferred rate of a staggering 29.71%.

This means nearly a third of the emails sent are delayed for various reasons, which could affect the delivery time and potentially the email campaign's effectiveness.

4: Average Delivery Time:

The average delivery time varies greatly among providers. Seznam again stands out with an impressive 18-second average delivery time.

On the other end of the spectrum, Economia has an average delivery time of 2 hours and 29 minutes, which is considerably longer.

5: SMTP Errors:

The report gives a great overview the most frequent seen SMTP error for the top 4 MBP.

If you are not seeing these errors, it also helps you to understand that you as a sender do not suffer from these problems; which is a good indication

6: Google new error codes

In the report we added some New Google & Outlook error codes.

Senders should make sure the used email infrastructure is able to handle these new messages also.

In conclusion, this report gives a clear snapshot of the average MBP email delivery performance and with this report senders can map their delivery performance against performance from others; a great baseline for improvement.

Interested in more insights, data or want to be included into the reports? Let us know at: info@postmastery.com