E-mail - not dead yet

• >5.5 billion : number of email accounts
  • (over 1.8 billion Gmail accounts alone)
• >300 billion: number of emails sent/received every day
  • (over 3.4 million per second)
• >120 : number of emails received by office workers per day
• 30 - 75 : percent of mails that are spam
• > 99.9 : percent of SysAdmins, DevOps, and SREs who rely on email for monitoring purposes
Mail User Agent
(e.g., mutt, Mail.app, Outlook)
Mail User Agent
(e.g., mutt, Mail.app, Outlook)

Mail Transfer Agent
(e.g., postfix, sendmail, qmail)
Mail User Agent
(e.g., mutt, Mail.app, Outlook)

Mail Transfer Agent
(e.g., postfix, sendmail, qmail)

Mail Transfer Agent
(e.g., postfix, sendmail, qmail)
Mail User Agent (e.g., mutt, Mail.app, Outlook)

Mail Transfer Agent (e.g., postfix, sendmail, qmail)

Mail Delivery Agent (e.g., procmail)
Mail User Agent (e.g., mutt, Mail.app, Outlook)

Mail Transfer Agent (e.g., postfix, sendmail, qmail)

Access Agent (e.g., POP, IMAP)

Mail Delivery Agent (e.g., procmail)
Mail User Agent (e.g., mutt, Mail.app, Outlook)

Mail Transfer Agent (e.g., postfix, sendmail, qmail)

Mail Delivery Agent (e.g., procmail)

Access Agent (e.g., POP, IMAP)
Mail Transfer Agent (e.g., postfix, sendmail, qmail)

SMTP (RFC 821)

Mail User Agent (e.g., mutt, Mail.app, Outlook)

Access Agent (e.g., POP, IMAP)

Mail Delivery Agent (e.g., procmail)

Access Agent (e.g., POP, IMAP)
Date: Tue, 23 Mar 2021 02:33:19 +0000 (UTC)
From: Jan Schaumann <jschauma@cs615asa.netmeister.org>
To: jschauma@netmeister.org
Subject: SMTP Test

Hello,

SMTP is a _simple_ mail transfer protocol, indeed.

-- Jan
STARTTLS
ENHANCEDSTATUSCODES
8BITMIME
DSN
MAIL FROM: <jschauma@cs615asa.netmeister.org>
250 2.1.0 Ok
RCPT TO: <jschauma@netmeister.org>
250 2.1.5 Ok
DATA
354 End data with <CR><LF>.<CR><LF>
From: Jan Schaumann <jschauma@cs615asa.netmeister.org>
To: jschauma@netmeister.org
Subject: SMTP Test

Hello,

SMTP is a _simple_ mail transfer protocol, indeed.

-Jan
.

250 2.0.0 Ok: queued as EF09F855AB
quit
221 2.0.0 Bye
Connection closed by foreign host.
Summary

Simple Mail Transport Protocol

- TCP port 25, transport is in clear text
- use of DNS MX records for service discovery
- text based protocol with simple dialog structure and return codes
  - HELO/EHLO
  - MAIL FROM
  - RCPT TO
  - DATA
  - 1xx – Command accepted, but no action taken yet.
  - 2xx – Request completed successfully without errors.
  - 3xx – Further information required.
  - 4xx – Temporary failure.
  - 5xx – Fatal error.
Up Next

- Receiving mail, directly and via intermediate systems
- Protecting data in transit via STARTTLS
- Anatomy of an E-mail message
- Authenticity, Spam, and abuse

Recommended exercise: https://stevens.netmeister.org/615/smtp-exercise.html