

# Respondent Contact using Email

Maximizing effectiveness and minimizing errors

Survey Process Forum  
**Learn & Lunch & Learn**

May 1 & 8, 2024

**Gregg Peterson**



## **Thank you!**

Jeff Albrecht  
Marcus Blough  
Meredith House  
Andrew Hupp  
Neda the ITS Postmaster!  
Keith Liebetreu  
Maureen O'Brien

## **Thank you!**

Dave Padot  
Hueichun Peng  
Andrew Piskorowski  
Jim Rodgers  
Ryan Yoder  
Cheng Zhou

# Goals for Email Lunch & Learns

## Part I

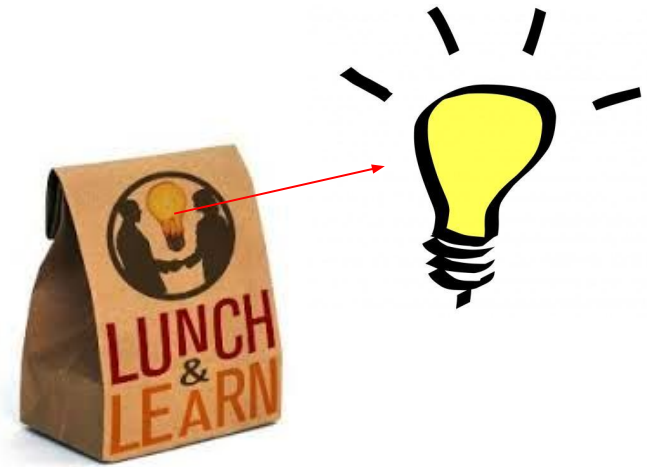
### Learn or review

1. Components of the email process and infrastructure
2. Tools we use at SRO to contact respondents via email
3. Key metrics to measure the success or failure of our email “campaigns.”
4. Review **best practices**, with some references from survey research (and direct marketing) literature

## Part II

### Discuss and share

5. What you or your teams are doing to positively impact the effectiveness of email in our studies
6. Ideas for process, reporting, and system improvements
7. Future research ideas



The genesis of this talk...

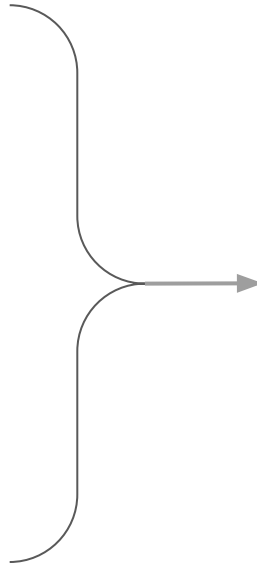
“It's fine to celebrate success but it is more important to heed the lessons of failure.”

— *Bill Gates*

# Email reputation

- **Reputation** refers to the trustworthiness or reliability attributed to an email *sender's* domain (e.g. umich.edu), IP address, or content, by email inbox providers and recipients.
- **Reputation** can be scored but is not standardized. Email service providers and third parties use *unique* criteria which is purposefully opaque and may change over time.

# Contacting potential survey respondents



## New Message

jojo@gmail.com

Do our survey, please!

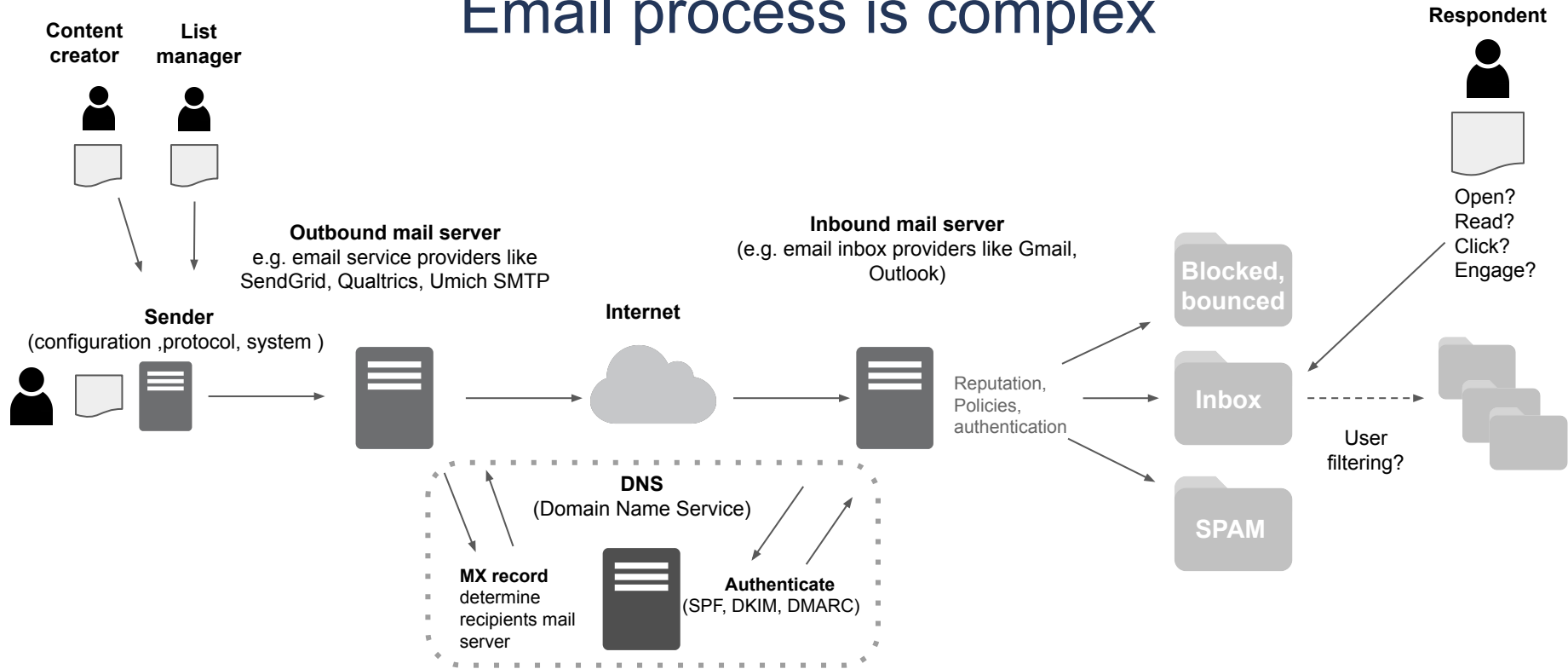
[www.oursurvey.com](http://www.oursurvey.com)

Email seems so easy...

Send



# Email process is complex



# Global email volume estimate: > 350 billion / day in 2024

Radicati Group, Inc.

**Estimate of Worldwide Daily Email Traffic (billions), 2023-2027**

Daily Email Traffic	2023	2024	2025	2026	2027
<b>Total Worldwide Emails</b> Sent/Received Per Day (B)	347.3	361.6	376.4	392.5	408.2
<b>% Growth</b>	4.2%	4.1%	4.1%	4.3%	4.0%

\*\* <https://www.radicati.com/?p=18132>



# E-MAIL IS MAKING US MISERABLE

*In an attempt to work more effectively, we've accidentally deployed an inhumane way to collaborate.*

By Cal Newport

February 26, 2021



*When employees are unhappy, they are more likely to burn out, leading to increased health-care costs and expensive turnover.* Photograph from Adobe Stock

# Email is getting a bad reputation in both the popular and business press

FORBES > LEADERSHIP > LEADERSHIP STRATEGY

## Survey Finds Email Fatigue Could Lead 38% Of Workers To Quit Their Jobs

Edward Segal Senior Contributor @

*I cover crisis-related news, issues and topics.*

# ...and there's more email on the way!



Mailchimp

<https://www.mailchimp.com>

## Design Beautiful Emails - Email Generator

Intuit Mailchimp's Free, Easy-to-Use **Email** Builder Has The Tools To Grow Your Business. Our **Email** Design Tools Make You Look Like a Pro - Even If You're Just Starting Out. No Coding Required. Real-Time Data Reports.



WriteMail.ai

<https://writemail.ai>

## WriteMail.ai: Effortless Email Composition AI Tool for ...

**Generating** replies and crafting new **emails** has never been simpler. With WriteMail.ai at your side, your Gmail inbox becomes a productivity powerhouse. Enjoy AI- ...



Copy.ai

<https://www.copy.ai> » email-marketers

## Automate your email marketing content creation with ease

Our AI **email** writer analyzes your target audience, brand voice, and goals to produce effective subject lines, content, calls-to-action, and more tailored to ...



Flodesk

<https://www.flodesk.com>

## Create emails in 5 minutes - Beautifully designed emails

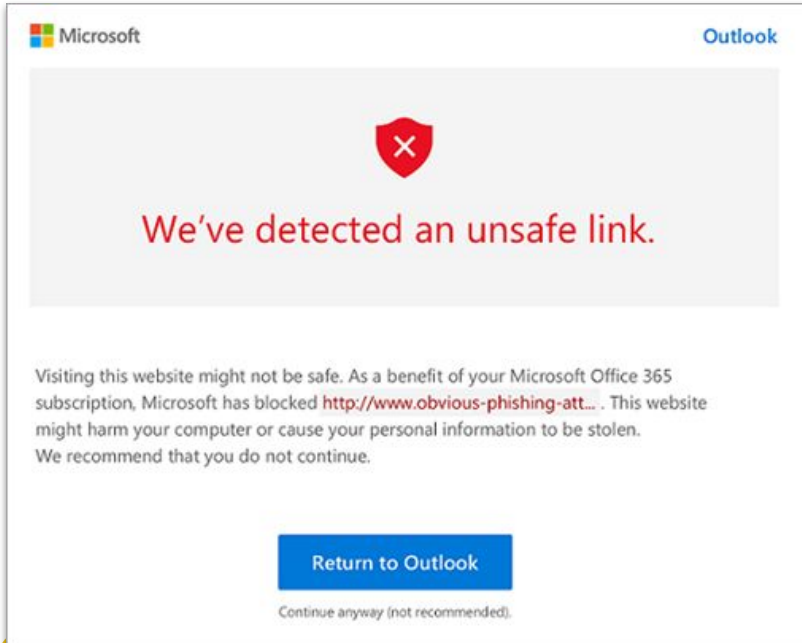
Send stunning **emails** for solopreneurs - no coding or designers required. Try Flodesk free!

### SPIDERLABS BLOG

# The Inevitable Threat: AI-Generated Email Attacks Delivered to Mailboxes

March 19, 2024 | 9 minutes read | Katrina Udquin

# Large email providers are enhancing privacy and security features



## Gmail inbox updates February 2024

**What's changing?**  
Gmail is setting new standards for bulk senders who send 5000 or more messages in a day.

**Authentication**  
At minimum, senders will need either SPF or DKIM. DMARC is recommended.

**Unsubscribes**  
Senders need to provide a one-click unsubscribe and follow through within two days.

**Spam rate**  
"Only send email users want" senders need to monitor their Google Postmaster and must keep spam complaint rates below 0.3%.

## Apple Mail Privacy Protection

A screenshot of an iPhone screen showing the "Mail Privacy Protection" settings. The screen title is "Mail Privacy Protection". Below the title, it says: "Mail Privacy Protection works by hiding your IP address and loading remote content privately in the background, even when you don't open the message. This makes it harder for senders to follow your Mail activity." There is a link "Learn more...". Below this, there are two toggle switches. The first is "Protect Mail activity" with a blue toggle and a checkmark icon; the description below it says "Hide IP Address and privately load all remote content." The second is "Don't protect Mail activity" with a grey toggle and a circle icon; the description below it says "Show IP address and load any remote content directly on your device."

# Email risks and challenges

- ★ The process is **technically and operationally complex**
- ★ **Email is voluminous** (and may have decreasing utility)
- ★ **Technology to prevent spam** is imperfect and opaque

# Goals for Email Lunch & Learns

## Part I

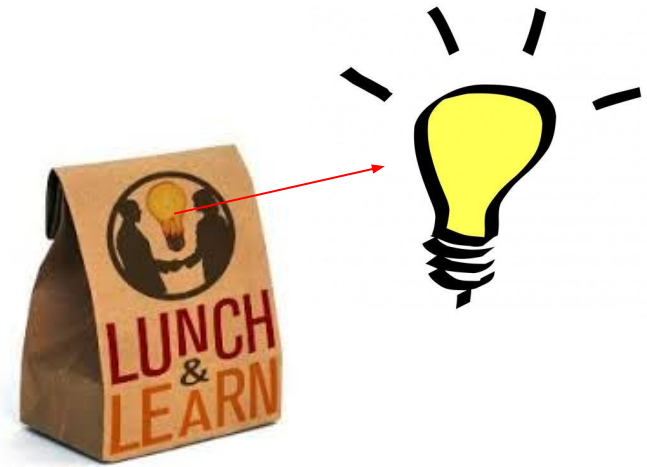
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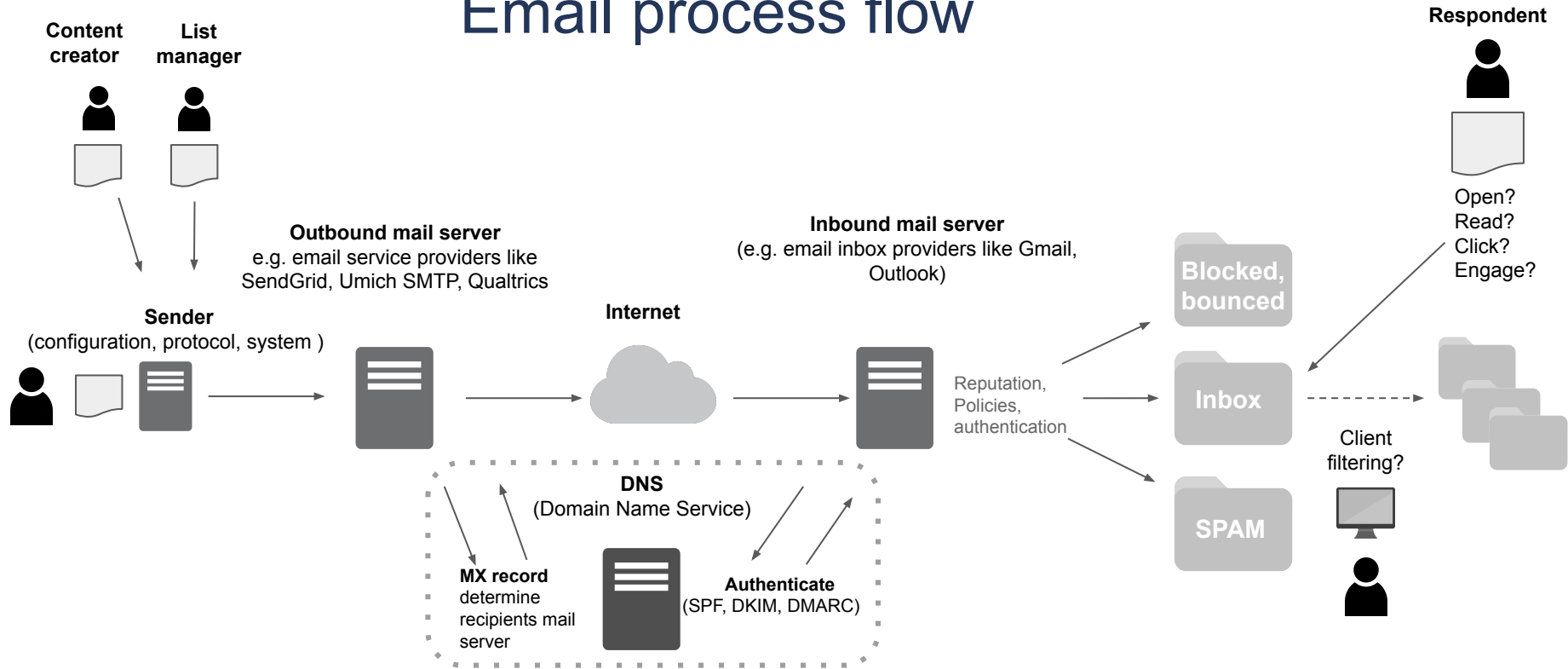
## Part II

### Discuss and share

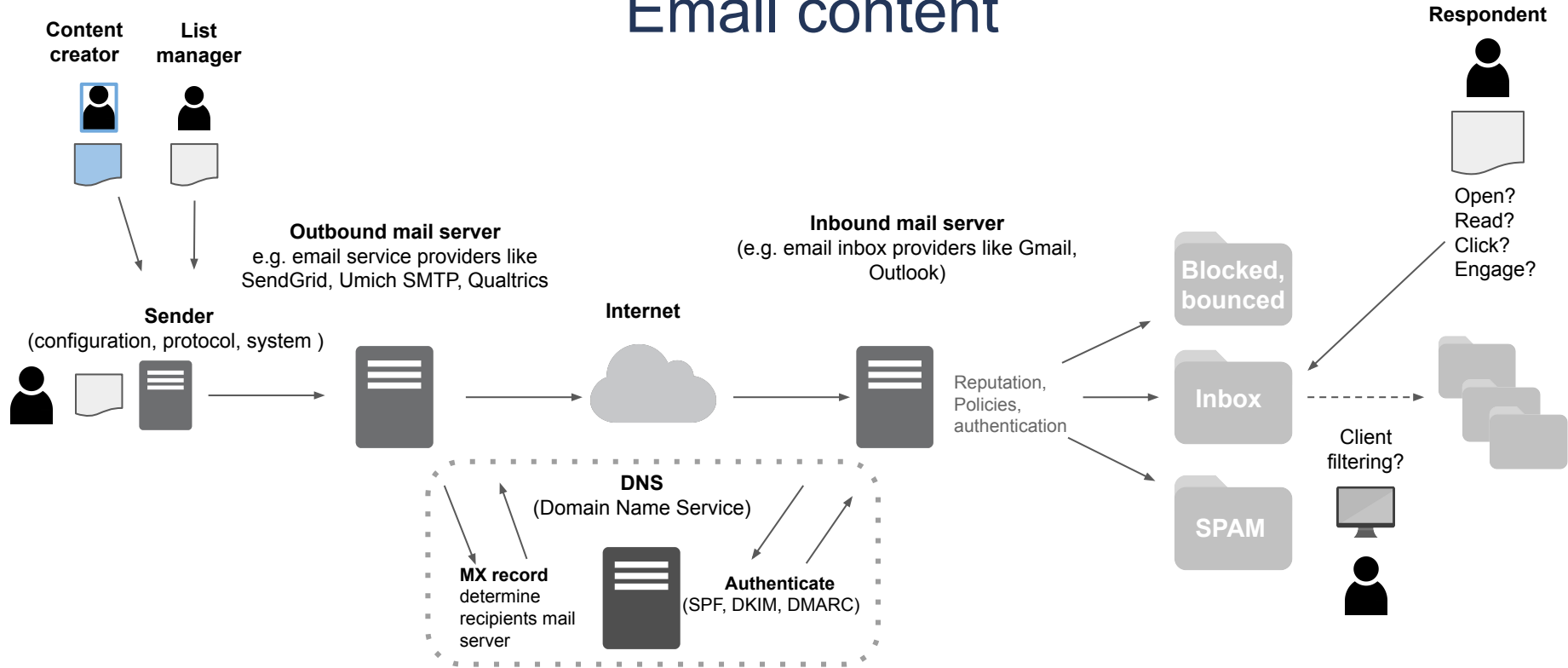
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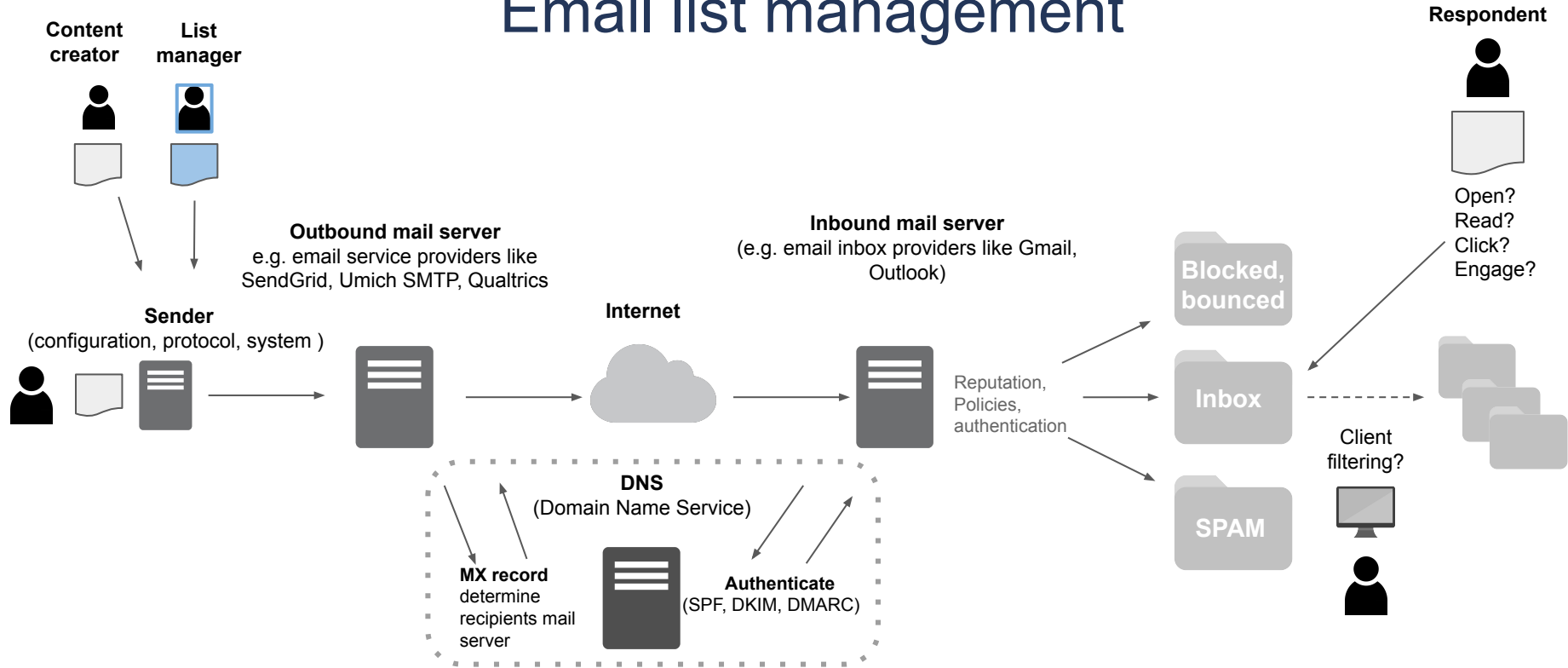
# Email process flow



# Email content

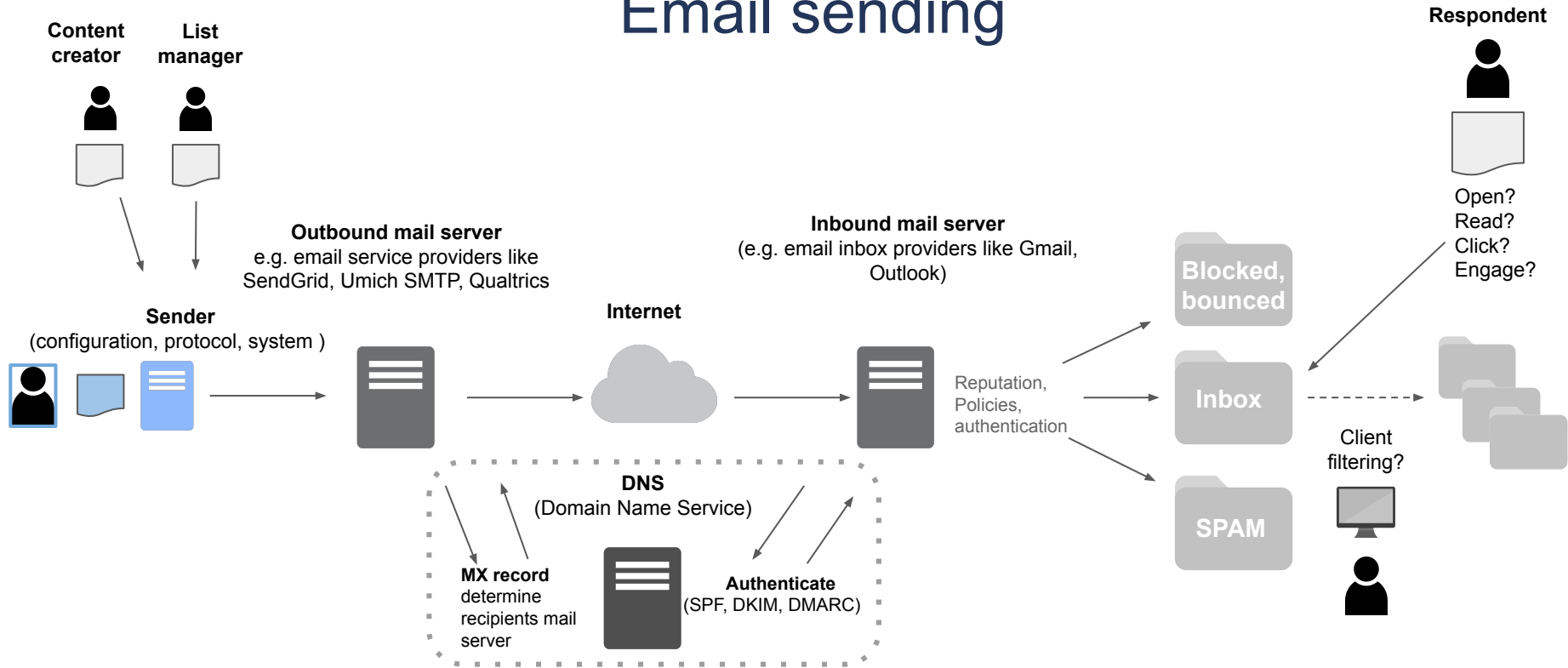


# Email list management

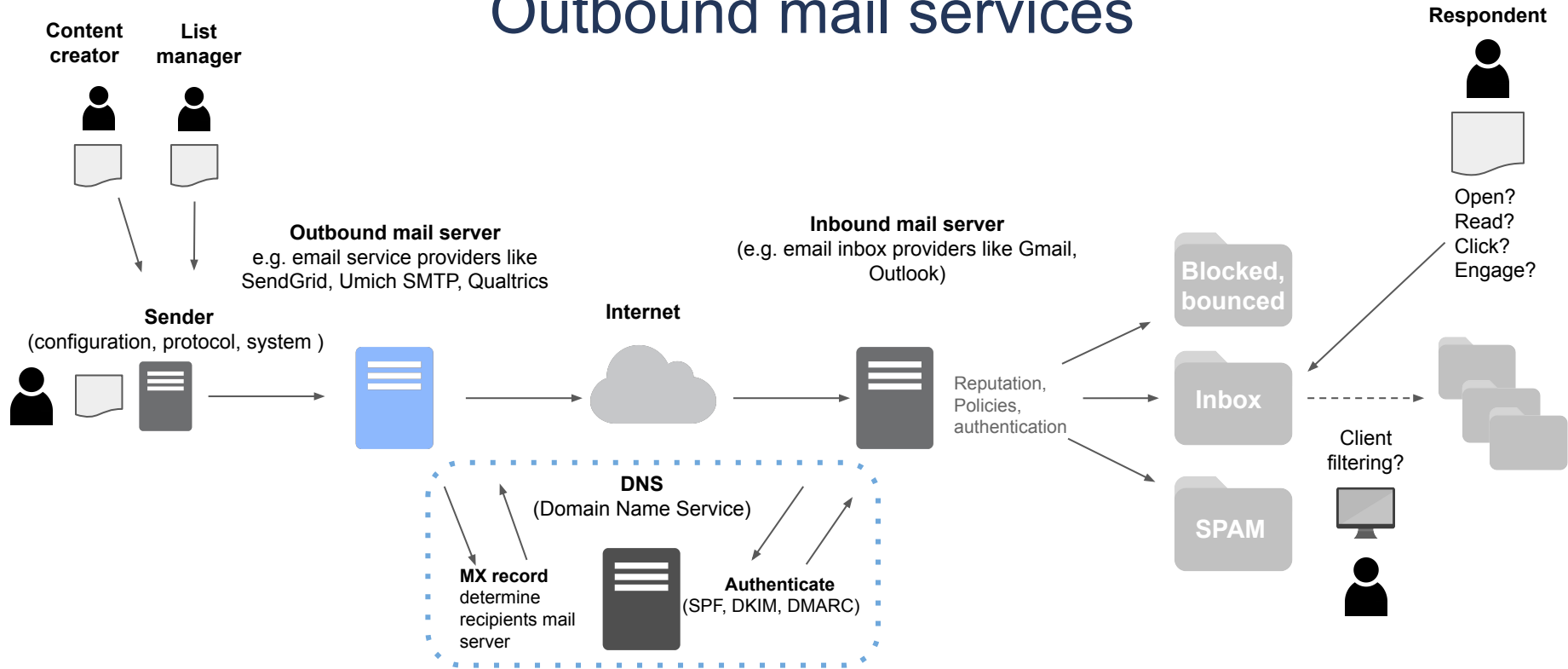




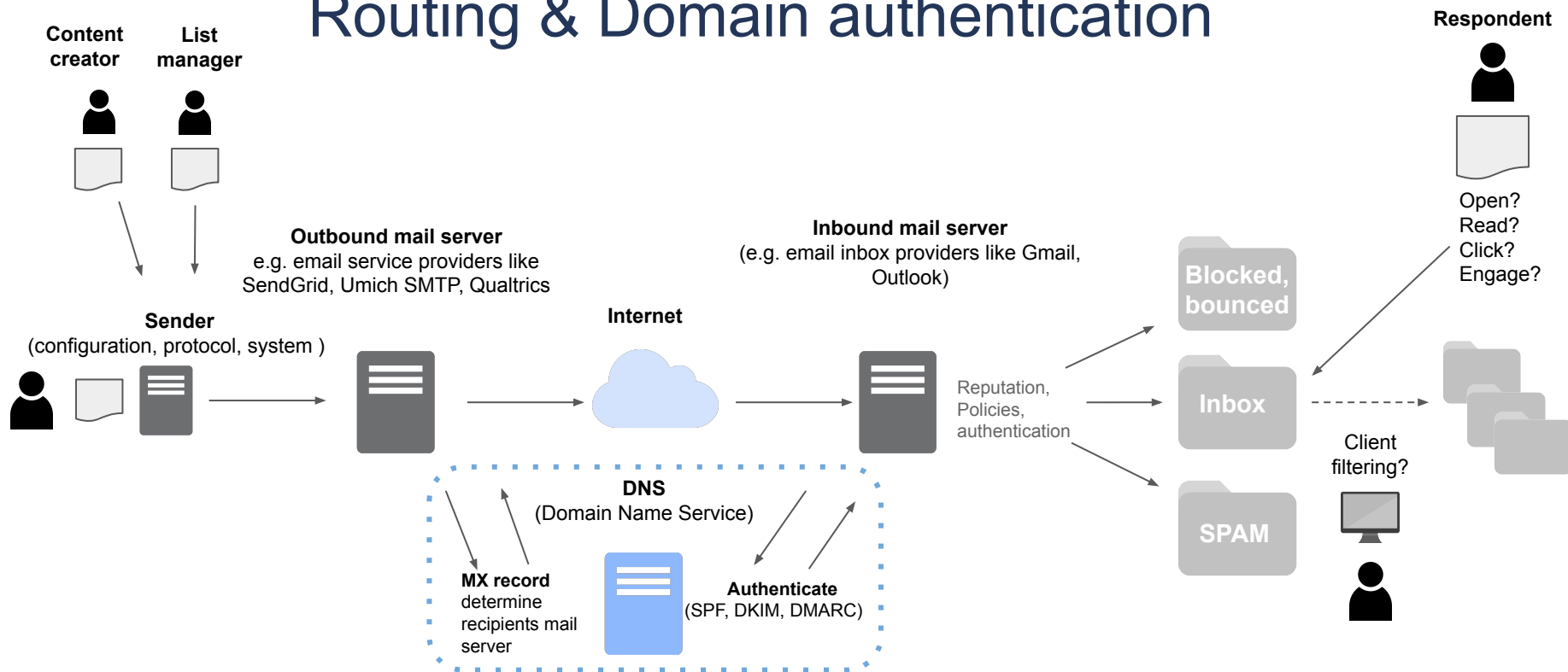
# Email sending



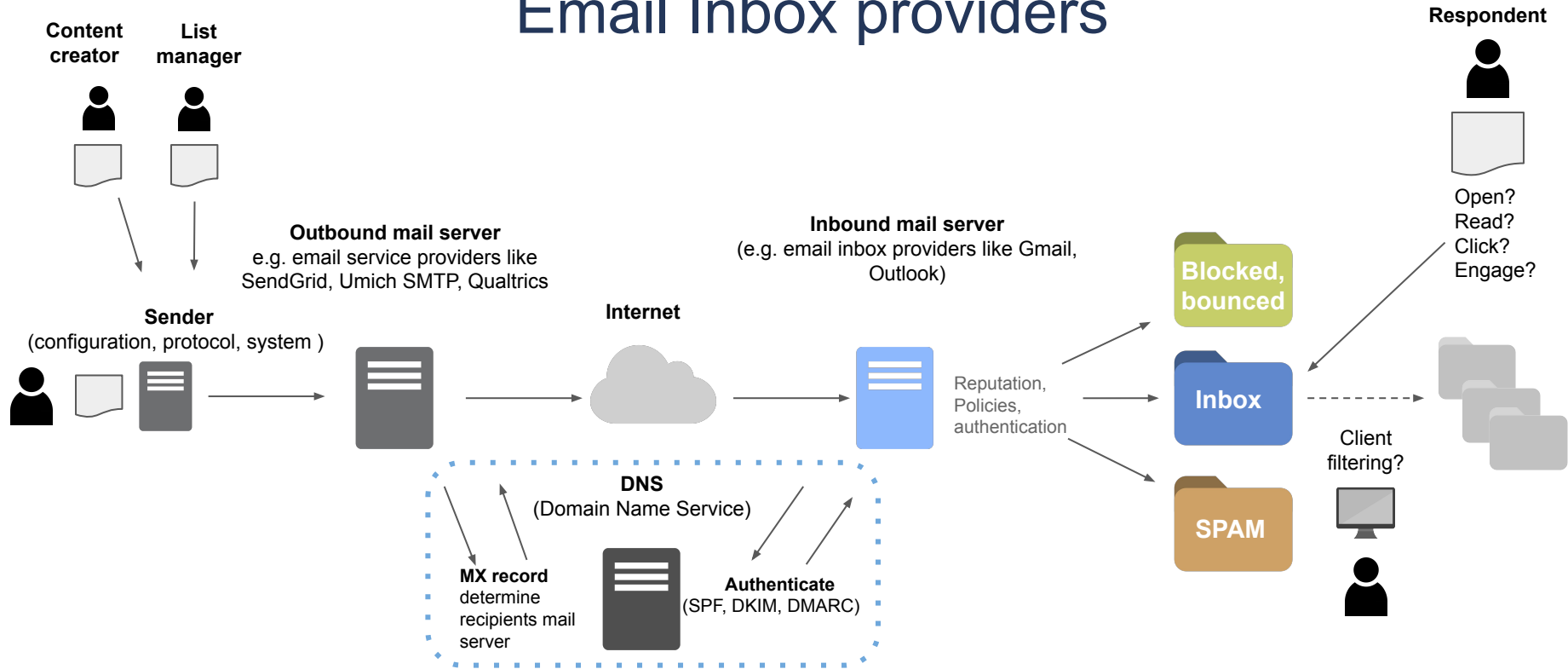
# Outbound mail services



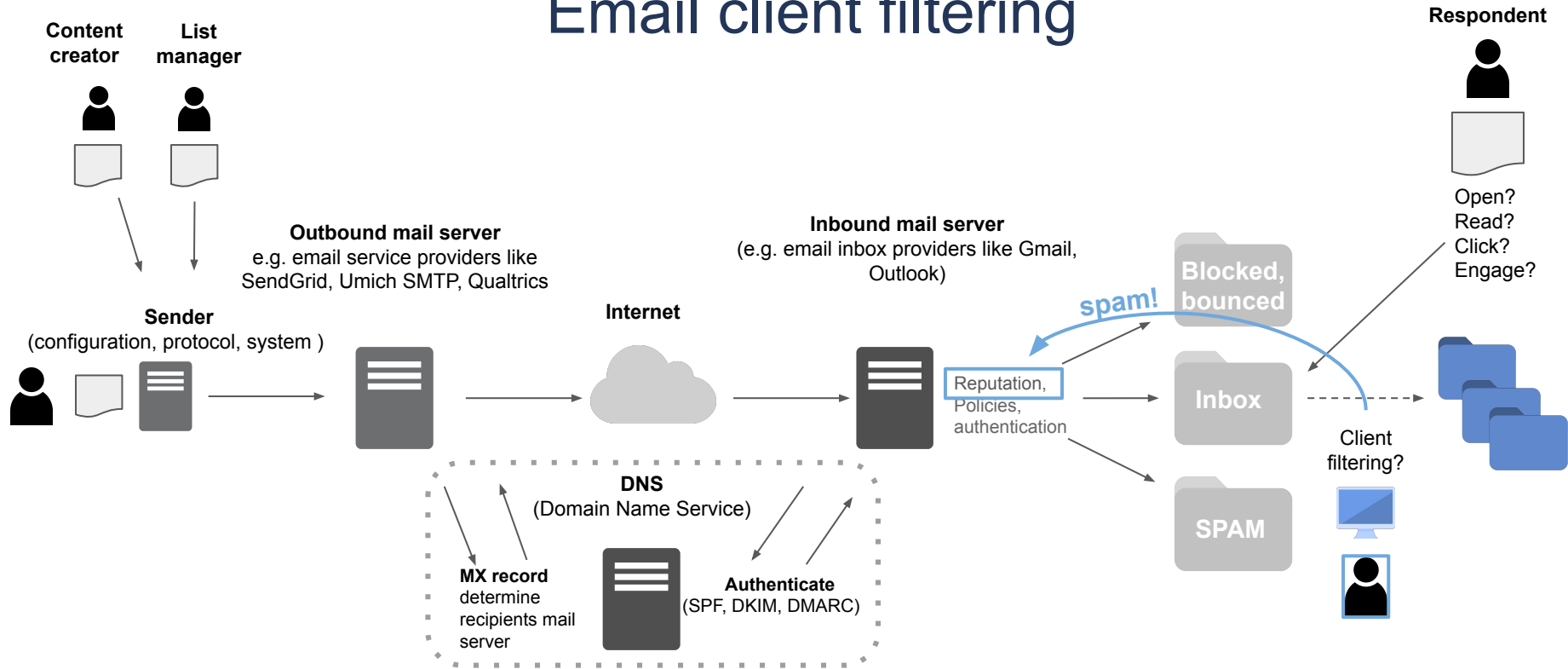
# Routing & Domain authentication



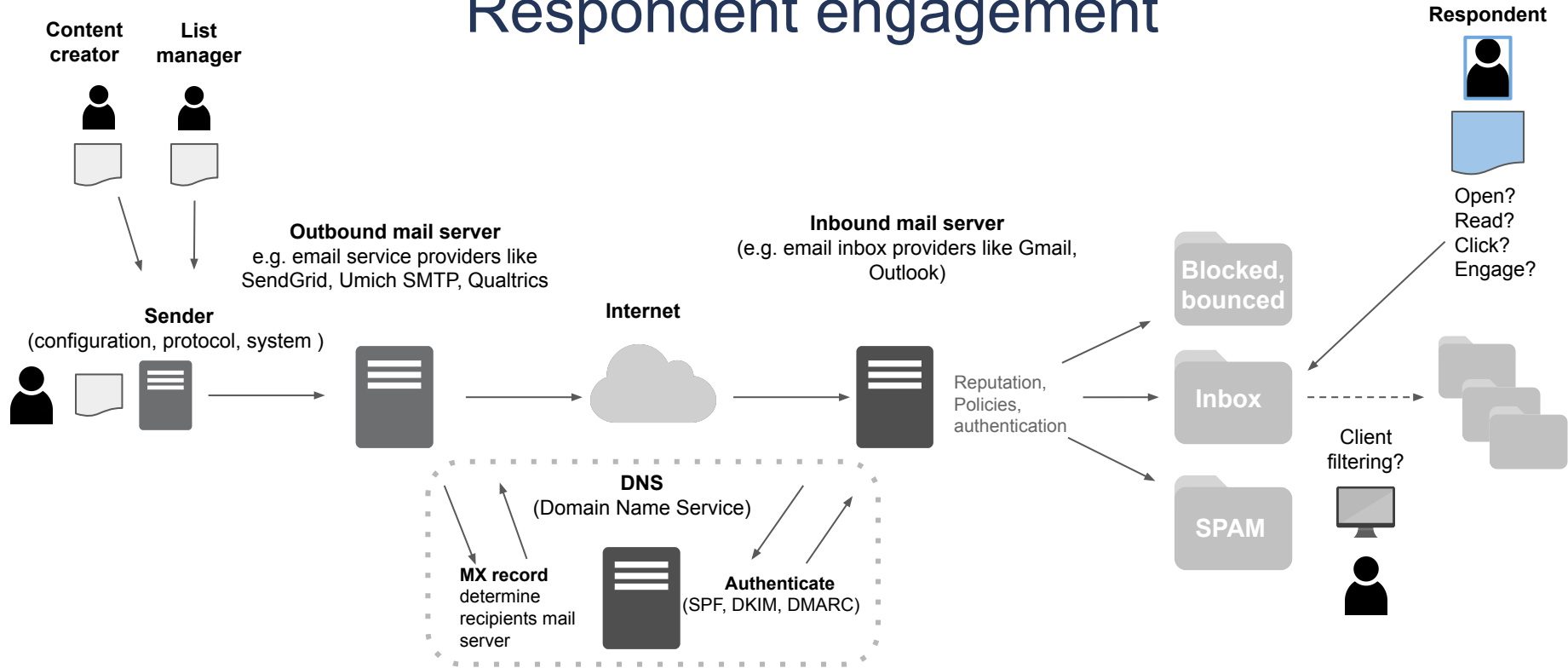
# Email Inbox providers



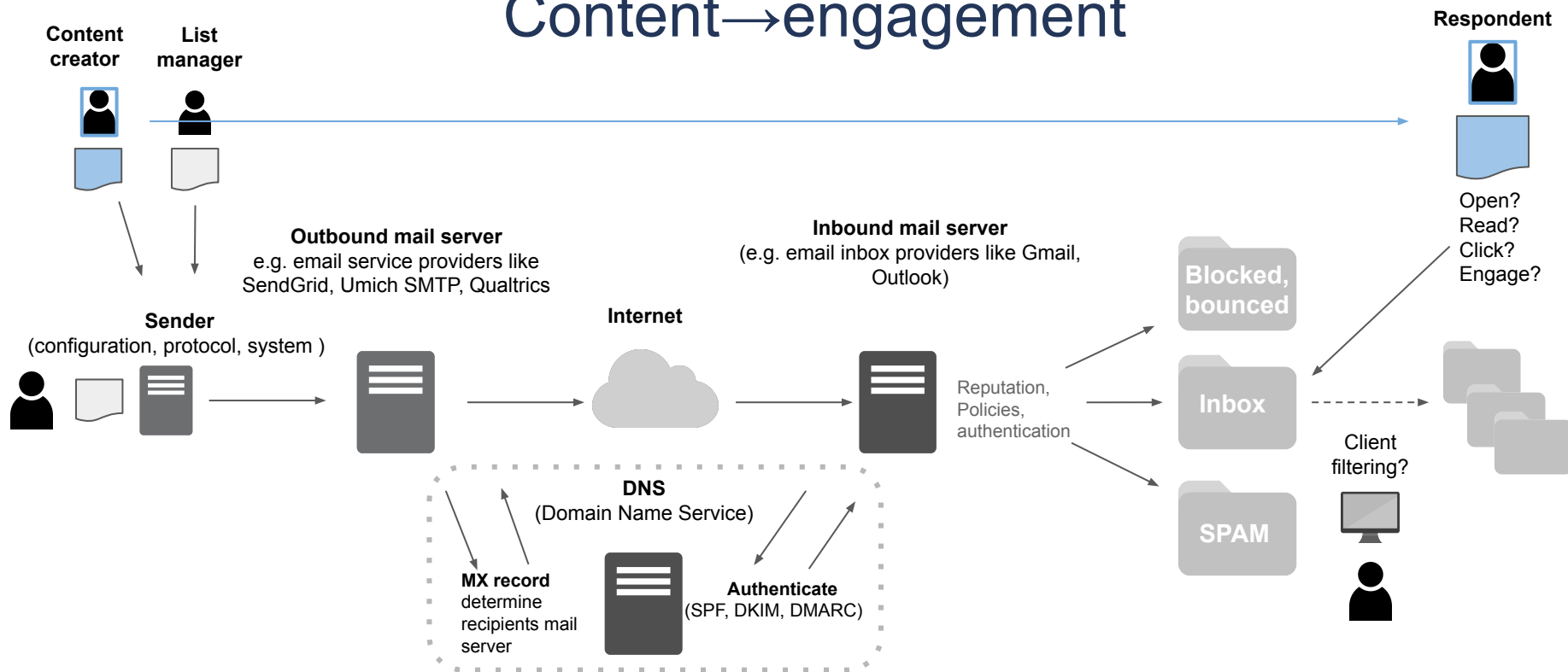
# Email client filtering



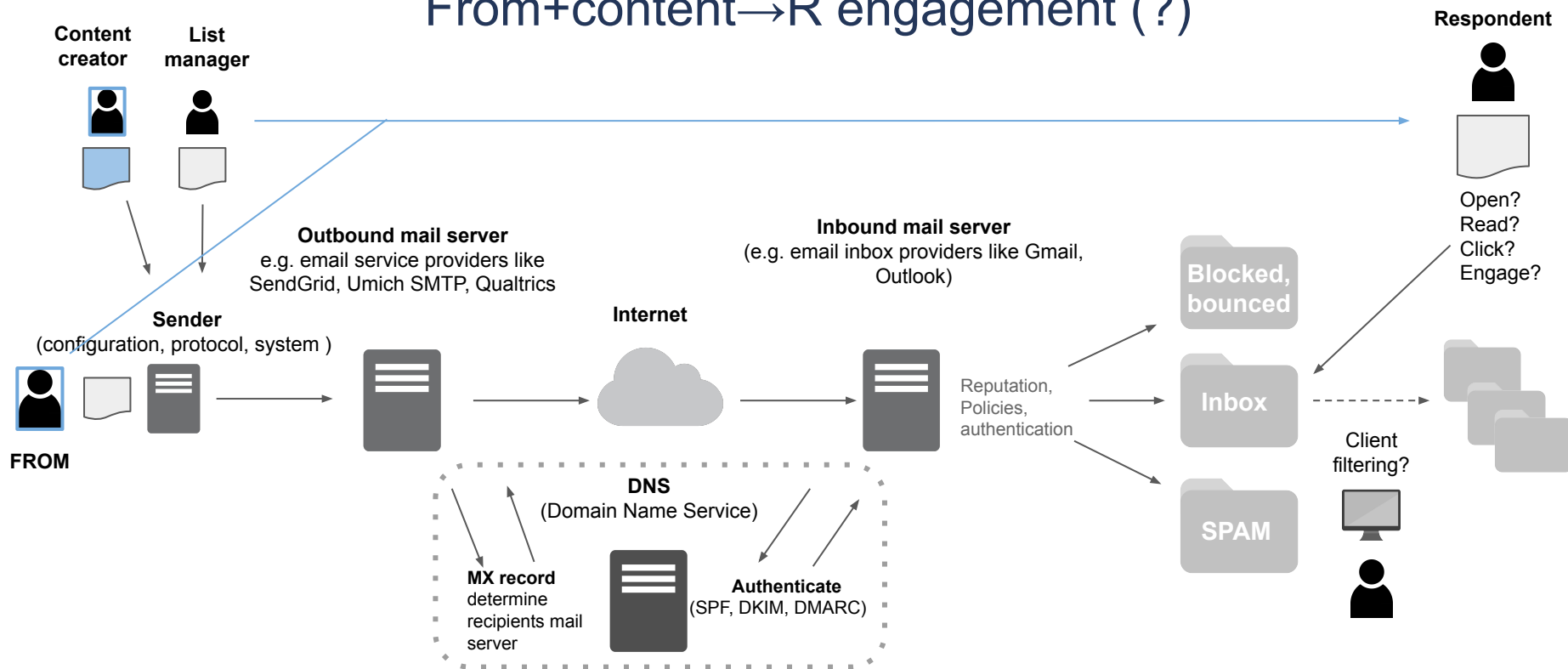
# Respondent engagement



# Content→engagement



# From+content→R engagement (?)





# Content components

- Subject Line
- The **FROM**
- The salutation
- Body elements
  - Text
  - Images
  - Links
- Format and Design
  - Format/location of links
  - Branding / logos
  - HTML vs. plain text
  - Mobile optimized / or not
- Preheader text \*

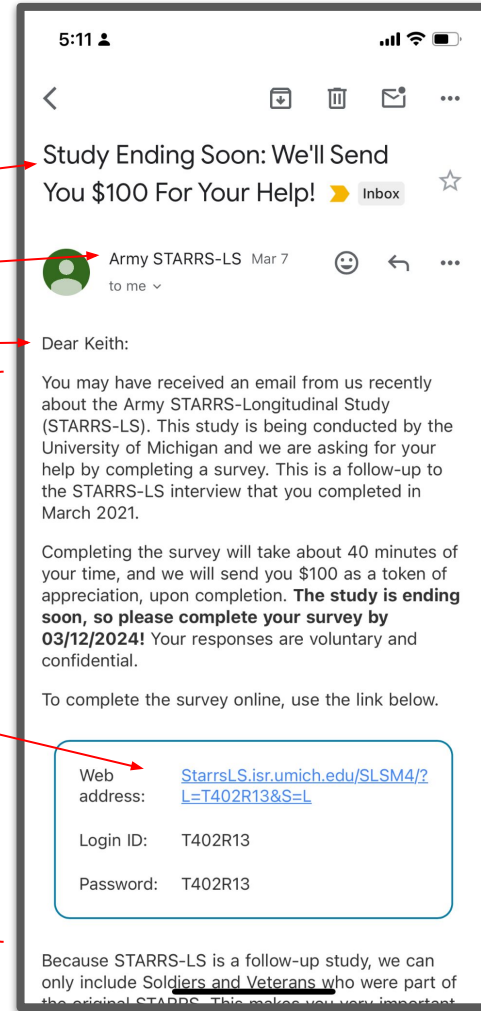
Short, meaningful subject line

Name known to respondent

Personalized

Succinct, clear message

Above the "fold"



# Email not optimized for mobile

Test emails (and not just surveys) on mobile devices as well as desktops



## Qualtrics: Write quality email Content

- Write engaging subject lines. Instead of “We want your opinion on our customer service,” try, “How was your support call with Qualtrics?”
- Avoid using words and phrases commonly used by spammers in either the body text or subject line. Some such words include “free,” “discount,” “opportunity,” “money back,” “incredible,” “targeted,” “offer,”
- Avoid excessive use of caps and punctuation. (e.g., “PLEASE FILL OUT THIS SURVEY!!!”)
- Avoid using bright green or red fonts.
- Avoid phrases like “This isn’t spam!” in the subject heading.

## More words to avoid

Marketing	Sell
Market	Selling
Free	Shop
Bonus	Shopping
Click	Package
Click here	Buy
Advertising	Purchase
Advertise	Mortgage
Ads	Finance
Sales	Refinance
	Free Trial

## Email Subjects planning

### **STARRS-LS:** Communication planning

#### **Email Subjects**

**Receive \$50 For Completing A STARRS-LS Interview**

**We'll Send You [\$Amount] For Your Time**

**We Want to Hear From You!**

**Your STARRS-LS Survey Invitation is Waiting**

**We Want to Hear From You! (Time is Running Out)**

**Your STARRS-LS Survey Invitation is Waiting (The Study is Ending Soon)**

**Request for Your STARRS-LS HIPAA Authorization**

**Follow-Up Request for Your Research Study Form**

#### **Email Reminder**

Invite

Reminder 1, 4, 7

Reminder 2, 5

Reminder 3, 6

Reminder 8

Reminder 9

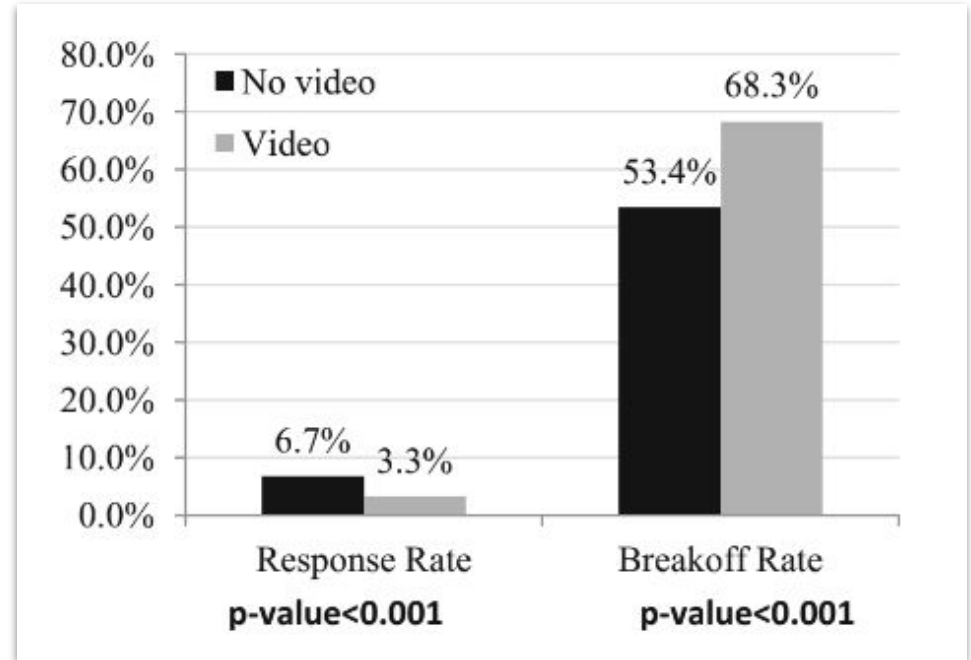
ConsentInviteEmail

ConsentReminderEmail

# Video endorsements in U-M surveys

Videos *encouraging* survey response featuring U-M coaches were included (experimentally) in email non-response follow-ups to U-M Faculty, Staff & Students invited to complete the SCIP survey in 2012, 2014 and 2015.

- Extra links may add confusion
- Possible Security, spam concerns
- Video a distraction from the true “call to action” ?
- Endorser profile may contribute



# General best practices for email content and layout

- Subject and content align with sender (i.e. the From)
- Provide a short, meaningful subject line (3 words is best, according to *marketers*)
- Emoji's in subject lines: effectiveness mixed, use cautiously
- Personalize salutations for invitations and reminders where possible
- Write emails that work well on any device; error on the side of *shorter* messages
- The survey link should be easy to find and above the scroll line (probably)
- Emphasize one, clear “call to action”; *de-emphasize* informational links
- Use images sparingly
- Ideal email file size: < than 102 kb (according to SendGrid)

# Preheader text

- Preheader text can be specified and seen in the inbox, just after the subject line
- When *not* specified, simply shows the first several words from the body of the email

## Gmail inbox - Desktop view

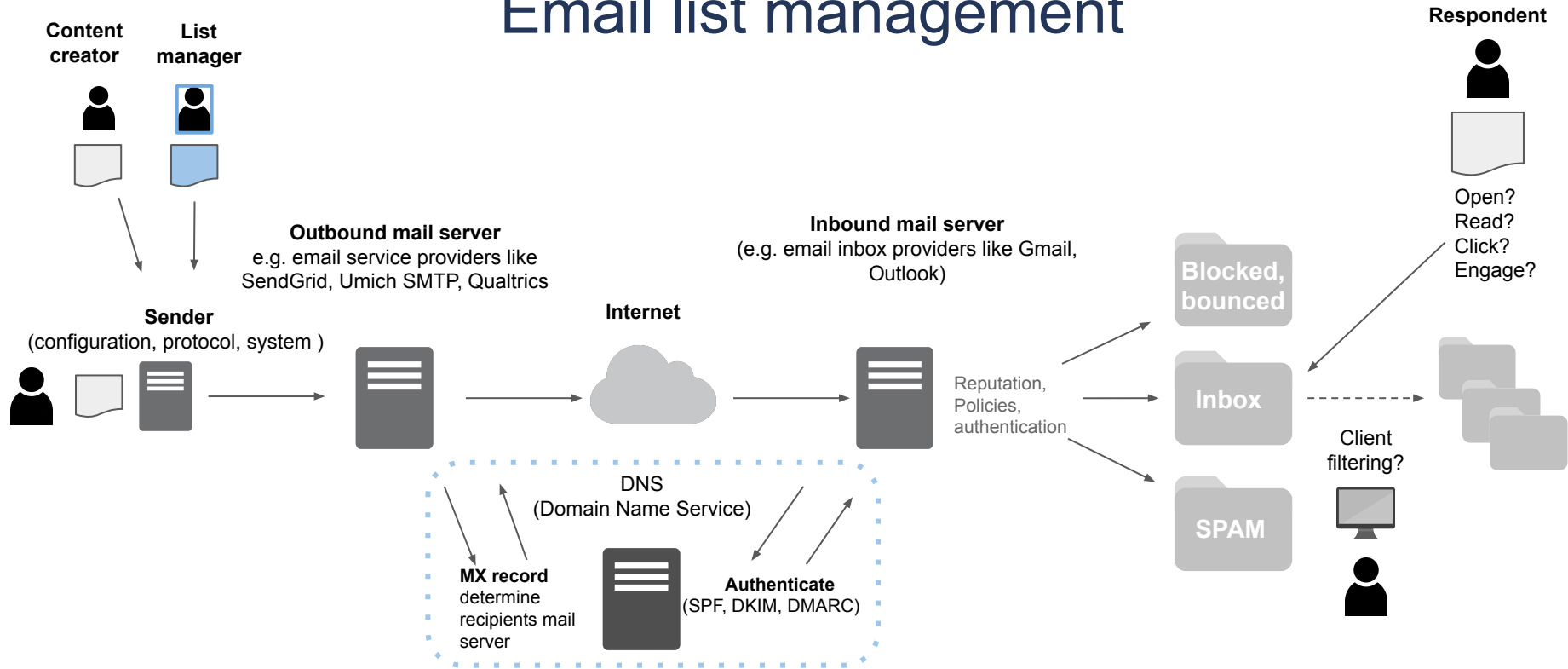


## Gmail inbox - Mobile view



Adding preheader text to email messages using HTML (unproven):  
<https://postmarkapp.com/support/article/1220-adding-preheader-text-to-your-messages>

# Email list management

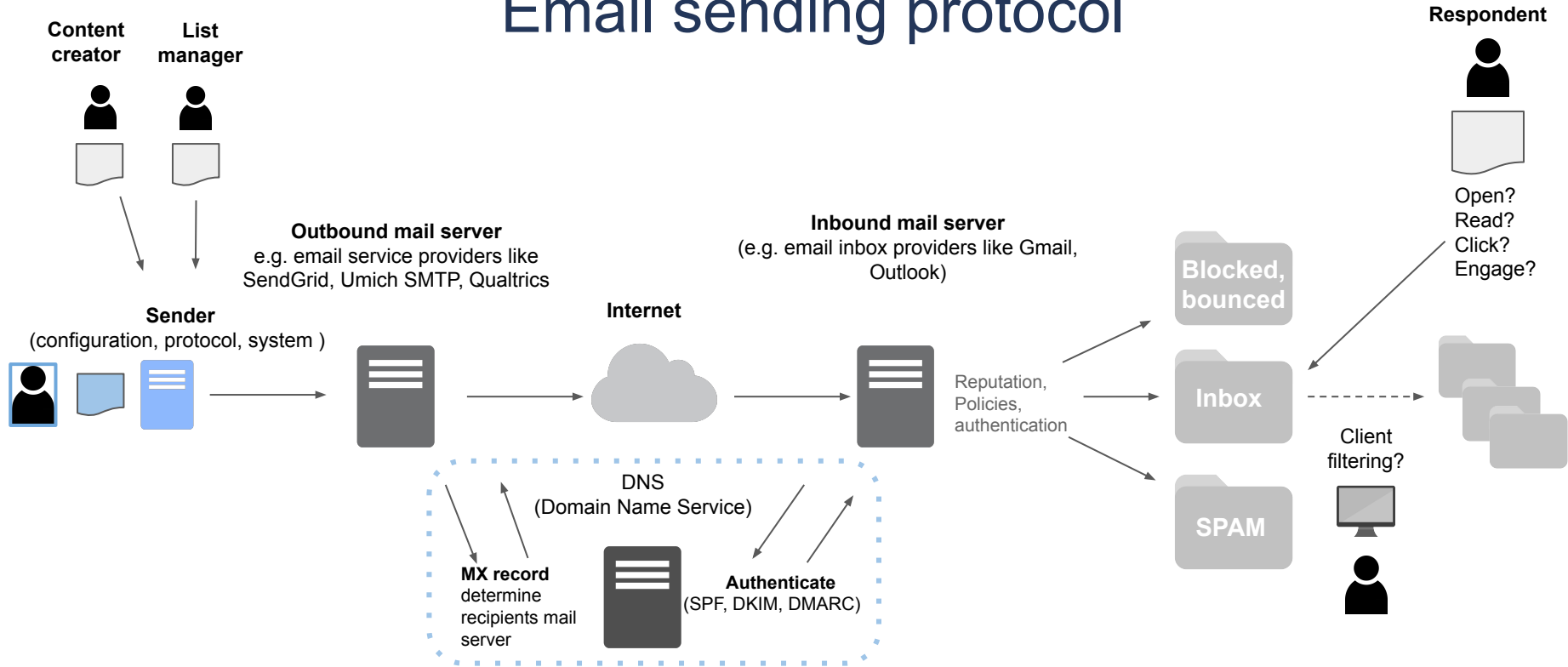




## Poor list management ➡ poor reputation

- Email list *fill* details, like name, must be accurate
  - Proper email syntax: @[domain name].[domain extension]
  - Legit domain extension (or top level domain): e.g. **.com**, **.edu**
  - Known, non-working addresses removed *immediately*
  - Consider removing perpetual non-responders sooner rather than later
- 
- ➔ Consider double-entry for self-completion forms
  - ➔ Email syntax and validation checking built into forms and questionnaires--interviewer administered as well as SAQs

# Email sending protocol



# Email volume and patterns are a reputation “signal”

- **SRO** is a low volume email sender (Umich as a whole is likely not)
  - We send < 10,000 emails per month via **SendGrid** (10x less than their lowest volume price point)
  - Our **ITS SMTP** volume is probably similar, but may be less consistent
  - It is unclear how volume-based rules-of-thumb apply to us, but...
- IP address / domain “warmup” recommended (i.e. slow ramp up of volume)
- IP-based reputation is shared across projects that use the same IP address
- Consistent volume over time is better than spiky volume
- The single SendGrid IP *may* help smooth out volume (but we don’t control it)
- Spreading large batch sends over multiple hours and days is best practice

Are the algorithms used by email service providers to monitor and filter email tuned more for high-volume senders and less sensitive to low-volume senders?

### U-M GPT

“...while high-volume senders are under greater scrutiny due to the potential for abuse, **low-volume senders are not ignored.** **Actions that mimic the behavior of spammers can trigger filtering mechanisms for *any sender*,** while reputable behavior can eventually lead to a more trusted status with email service providers, regardless of the volume of emails sent. The exact tuning of these algorithms can vary...and is proprietary.”

# Does time-of-day or day-of-week email send time matter?

From Callegaro et. al. - “Web Survey Methodology”

- General advice: Time contacts such that recipients are not too busy when they arrive
  - Few published studies (mostly older) report inconsistent findings on best day/time as well as importance; many null findings
  - Knowledge Networks (unpublished) - 561,000 cases: Invitations sent on Sunday and Monday yield highest *next-day* response rates; rates converged after one email reminder, 3 days after the initial invitation
- Unless fast completion is critical, time-of-day/day-of-week doesn't make a significant difference

# Email communication planning

## STARRS-LS:

### Communication templates

#### Email Subjects

Receive \$50 For Completing A STARRS-LS Interview

We'll Send You [\$Amount] For Your Time

We Want to Hear From You!

Your STARRS-LS Survey Invitation is Waiting

We Want to Hear From You! (Time is Running Out)

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Follow-Up Request for Your Research Study Form

#### Email Reminder

Invite

Reminder 1, 4, 7

Reminder 2, 5

Reminder 3, 6

Reminder 8

Reminder 9

ConsentInviteEmail

ConsentReminderEmail

Contact Type	Session Contact Value	
Letter #1 (Invitation)	A	Day 1 Phase 1 (All Groups)
Email #1 (Invitation)	B	Day 8 Phase 2 (All Groups)
Email #2 (Reminder #1)	C	Day 12 Phase 2 (All Groups)
Email #3 (Reminder #2)	D	Day 20 Phase 2 (All Groups)
Email #4 (Reminder #3)	E	Day 24 Phase 3 (All Groups)
Email #5 (Reminder #4)	F	Day 32 Phase 3 (All Groups)
Email #6 (Reminder #5)	G	Day 36 Phase 3 (All Groups)
Email #7 (Reminder #6)	H	Day 44 Phase 3 (All Groups)
Email #8 (Reminder #7)	J	Day 50 Phase 4 (All Groups)
Email #9 (Reminder #8)	K	Day 57 Phase 4 (All Groups)
Email #10 (Reminder #9)	L	Day 65 Phase 4 (All Groups)
Email #11 (Mode Switch)	M	On Demand
Email #12 (Confidentiality)	N	On Demand/Also Letter
Email #13 (Not In Army)	P	On Demand/Also Letter
Email #14 (Study Purpose)	Q	On Demand/Also Letter
Email #15 (Time Burden)	R	On Demand/Also Letter
Email #16 (Too Personal)	S	On Demand/Also Letter
Email #17 (Legitimacy)	T	On Demand/Also Letter
Email #18 (TokenConcern)	U	On Demand/Also Letter
Text Message #1	V	Day 20 Phase 2 (All Groups) - s
Consent Invite Email/Text/Letter	W	Day Post Survey Session
Consent Reminder Email/Text/Letter	X	Day 5 Post-Survey
BrainBank	Y	On Demand - Post survey
Email #21 (ConsentConcern)	Z	OnDemand/Also Letter - sent in forms
Email #22 (HIPAAConcerns)	ZZ	OnDemand/Also Letter - Sent in participation due to HIPAA requ
Text Message #2	AB	Day 67 Phase 4 (All Groups) - s
Ann Arbor	AA	Used when a person in AA need

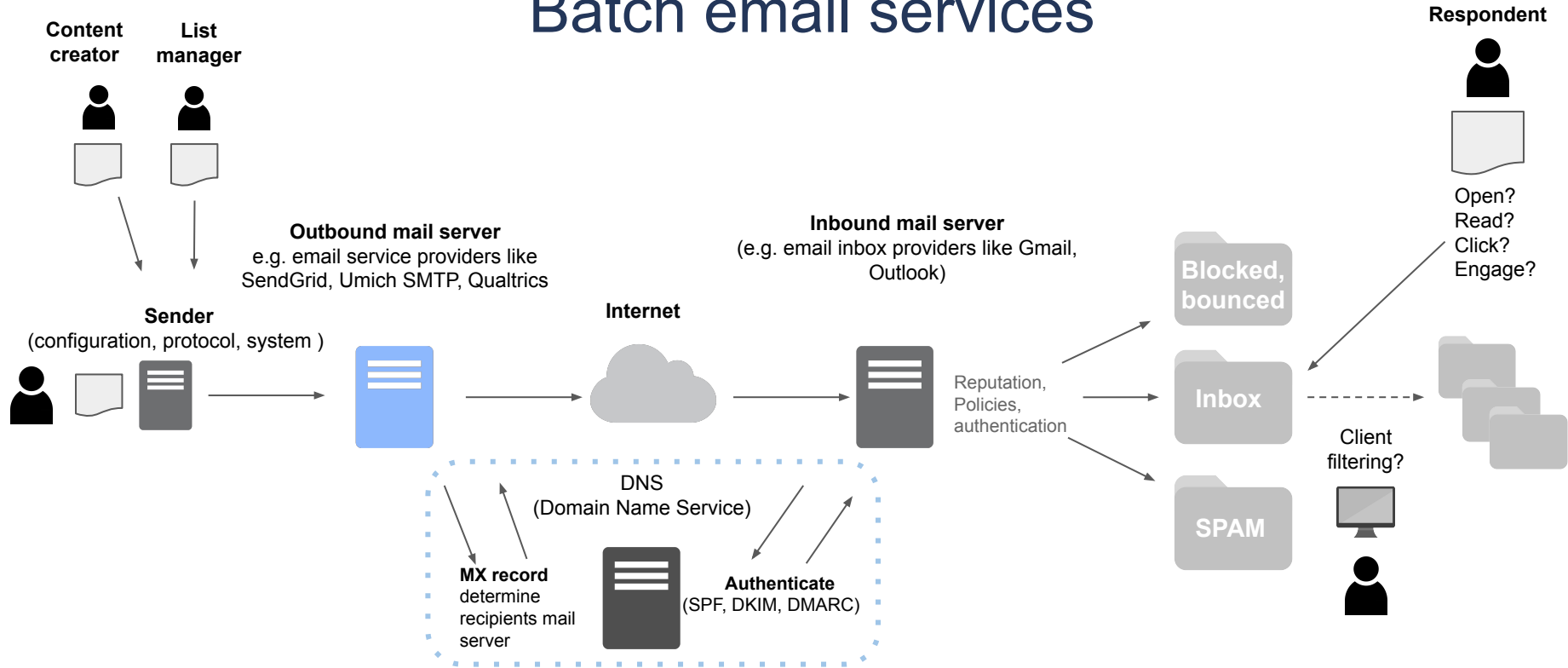
# Automating...

the number, sequence, and time between contacts

Specific guidelines beyond the scope of this presentation, but...

- Too many email contacts may have diminishing returns; and may hurt our reputation
- Rules and automation can ensure that protocol is consistently applied, but...
  - Emails sent via SendGrid, Authenticated SMTP, and Qualtrics can use rules and automation
- **Caution!** Careful code review and testing are critical

# Batch email services





## Batch email services for respondent contact at SRO

- SendGrid
- (Umich ITS) Authenticated SMTP
- Qualtrics mailer
- Gmail (with mail merge)
  - YAMM (Yet Another Mail Merge)
  - Gmail mail merge

# SendGrid



Twilio SendGrid

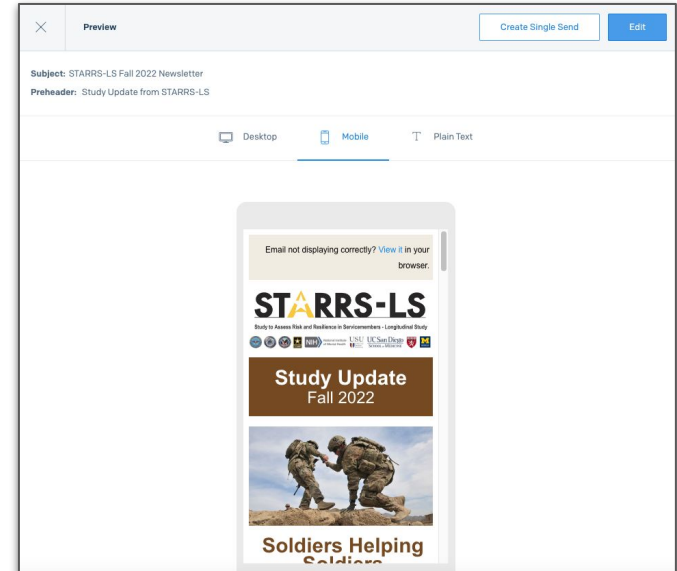
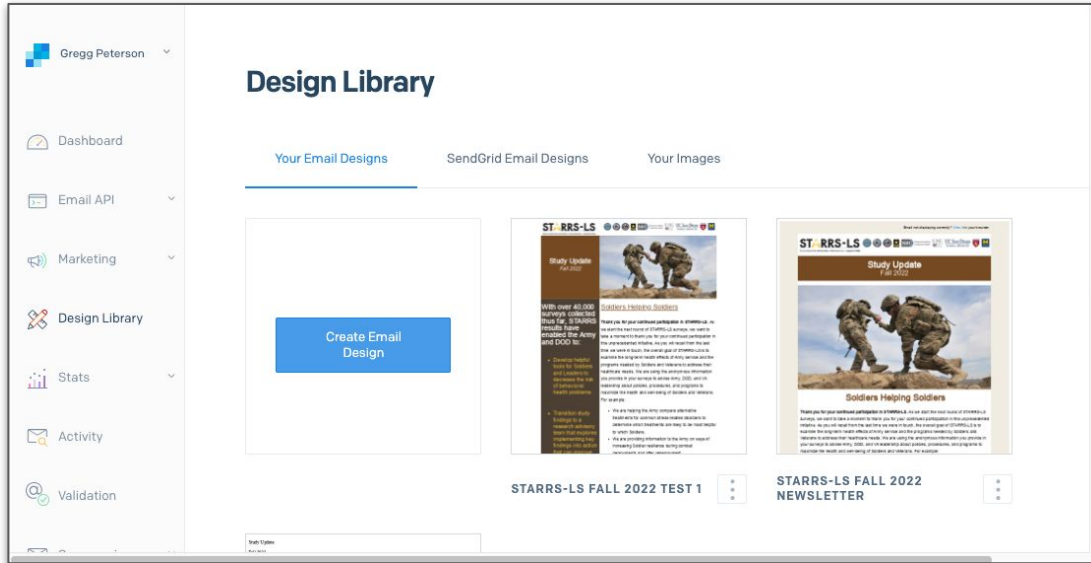
**Get your emails to the inbox—where they belong.**

Send transactional and marketing emails at scale with the platform that offers a 99% deliverability rate. Brands large and small use SendGrid's world-class email tools to deliver 148+ billion emails monthly.

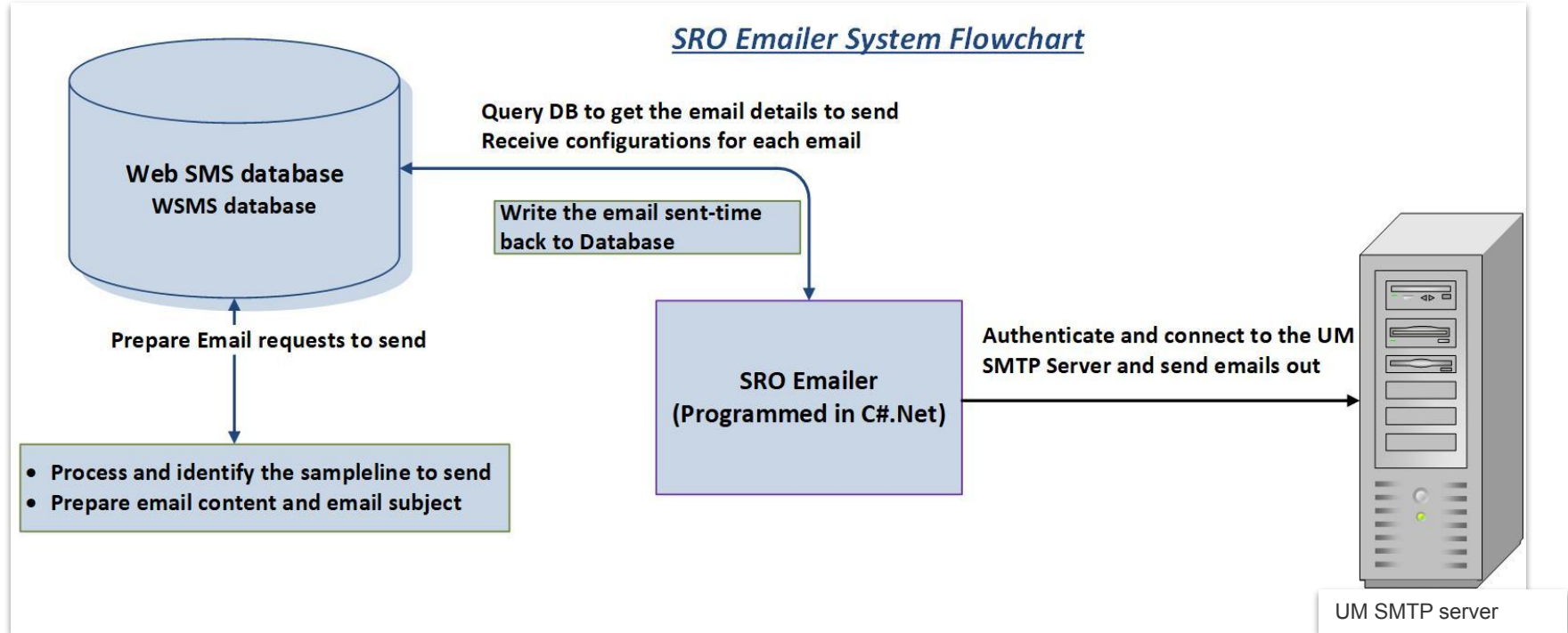
- **MSMS** projects
- Cloud-based SMTP email service provider
  - SRO license: Up to 100,000 emails/mo (far greater than need) for \$89/mo
- Highly scalable (used by many high volume email senders)
- Application Programming Interface (**API**); integration with MSMS
- Event-based webhooks allow for robust reporting (but little used)
- Email template authoring for API-based mail, done *outside* of SendGrid
- Each new project (or wave) is a new “subusr” in SendGrid
  
- Dedicated IP address, shared by all SRO subusrs
- Built-in authentication tools (*requires configuration and testing!*)
- Well-known to large email inbox providers

# SendGrid - Marketing / Design tools

## Mobile preview tools



# SRO EMailer → Umich ITS **Authenticated SMTP**



# SRO EMailer→ Umich ITS **Authenticated SMTP**

- **WebSMS, WSMS** projects
- Server infrastructure managed by ITS, independent of Gmail
- No practical volume limits/day
- Email template authoring handled by TSG (no user interface)
- Custom sending rules can be configured
- Tracking of bounces, no other out-of-the box email reporting

## Key Terminology: **SMTP** (Simple Mail Transfer Protocol)

- A technical protocol (or set of rules) that servers understand about how email is transmitted from client to server or between servers

# Qualtrics mailer



- **Qualtrics** projects
- SMTP servers hosted by Qualtrics
- Umich Qualtrics instance automatically authenticates to **umich.edu**
- DIY Email authoring: “rich content”, custom text piping, mobile optimized, preview/testing
- Scheduled sends
- Email contact list management interface
- Can create embedded email-based surveys
- No practical limits on volume (have sent up 10,000 in a single day)
- Basic email outcome reporting built in

## A few **Best practices** (so far) - thank you Jeff Albrecht

- Test and “allow list” our domain (if possible) when sending in volume to a single domain (important, regardless of email service)
- Qualtrics automatically creates unique links (and surveys) for each “contact source” (i.e. email 1, email 2)
  - If multiple “contact sources,” must integrate with a survey management system
- Set link expiration date (in advanced settings) as far forward as possible to avoid the need to create new (unique) links should data collection extend

# Umich Gmail + YAMM (Yet Another Mail Merge) (Gmail mail merge)

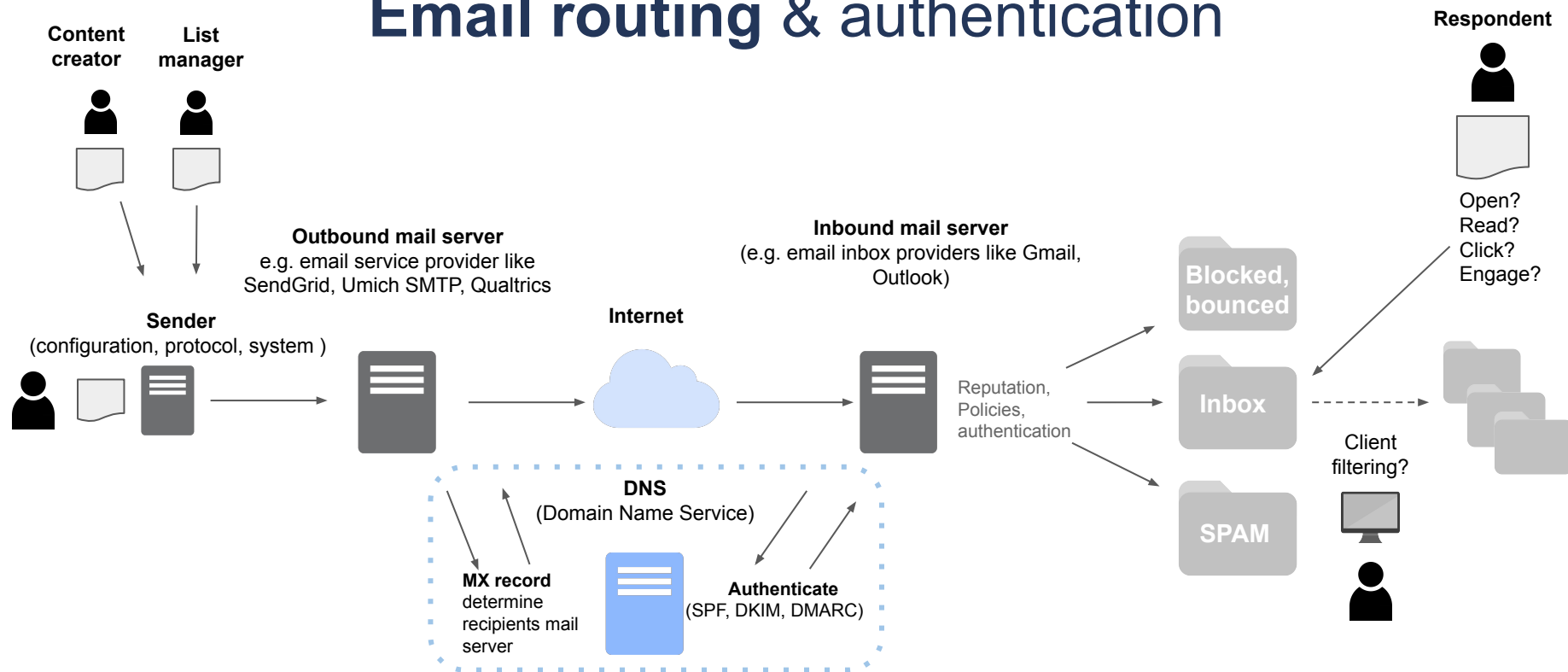


Yet Another M

- Primarily used for SRO Interviewer communications; recently on the University Housing Study with Faculty & Staff
- Uses regular Umich Gmail client and infrastructure
- Extra features for authoring custom templates
- YAMM is an ITS authorized Gmail add-on
- Contact list with emails, names, and other details managed in Sheets
- Real-time tracking of open rates, clicks, replies, and bounces
- Limit on daily email volume per sender (~ 1,000/ day)
- Authentication with Umich.edu domain is a given



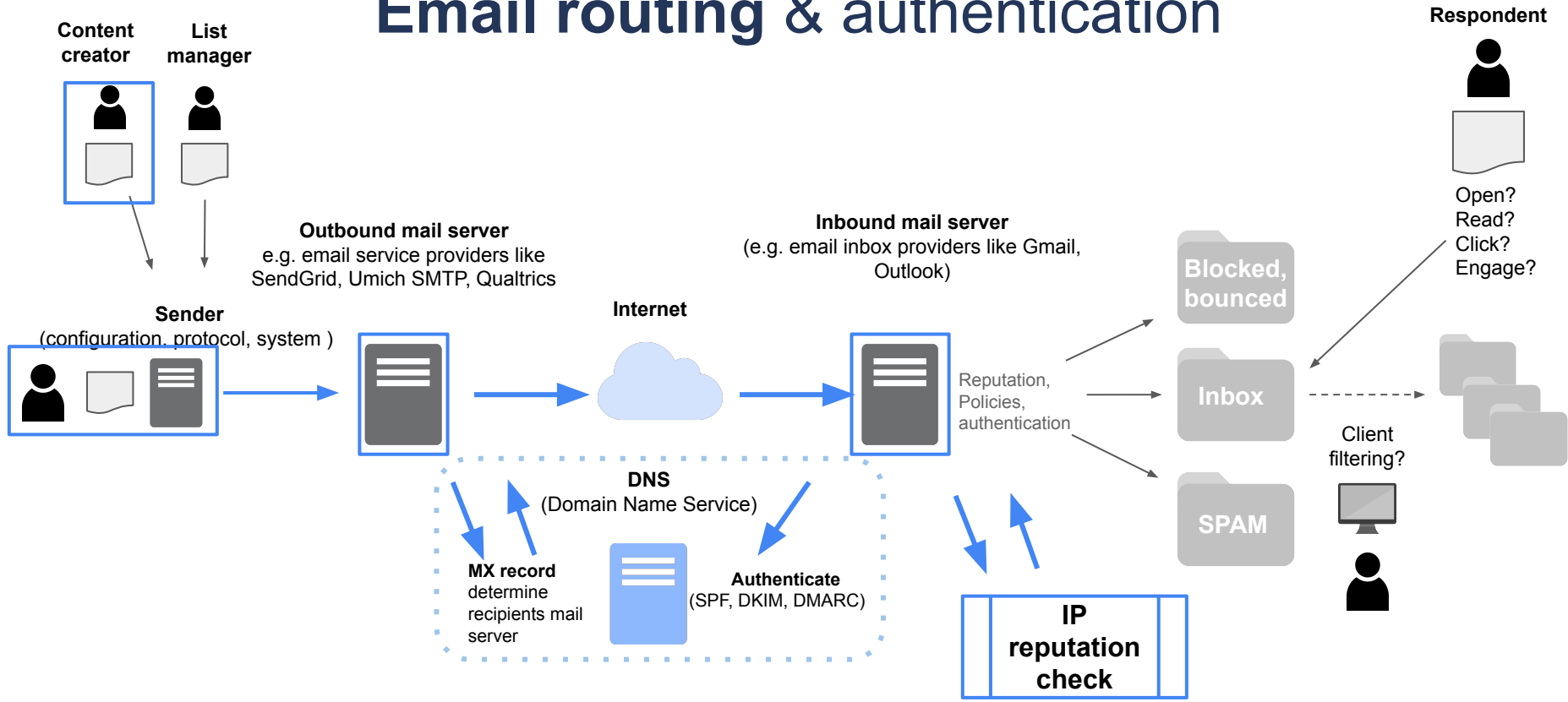
# Email routing & authentication



## Key Terminology: **Domains, DNS, MX record**

- **Domain:** A human-friendly address (like **umich.edu**, or SendGrid.com) used to host websites or an email services.
- **DNS** (Domain Name System): like a phonebook for the internet that translates human-friendly domain names into IP addresses that computers use to identify each other on the network.
- **MX record** (Mail exchange record), A DNS entry which specifies a mail server responsible for accepting email messages on behalf of a recipient's domain.

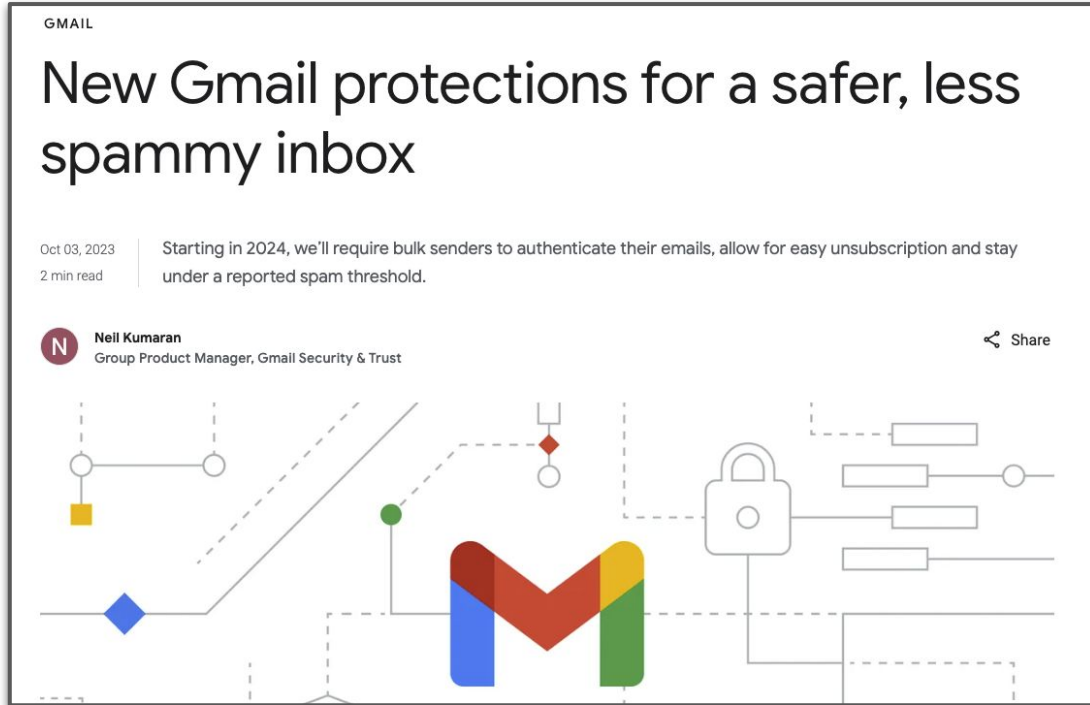
# Email routing & authentication



# Key terminology: Email Authentication

- **Authentication:** Process by which outbound and inbound mail servers learn to trust each other by exchanging information that help makes the **sender** more recognizable and the **receiver** more **trusting** of the content being shared.
  - ❑ **SPF** (Sender Policy Framework) - Allows email domain owners (e.g. the Umich ITS postmaster) to publish IP addresses authorized to send email on their behalf (e.g. the IP address associated with our SendGrid account). Inbound mail servers check this list each time they receive email.
  - ❑ **DKIM** (DomainKeys Identified Mail) - Uses digital signatures and cryptographic keys to verify that an email message was not tampered with during transit, and is thus authentic.
  - ❑ **DMARC** (Domain-based Message Authentication, Reporting, and Conformance) - tells receiving servers what to do with messages that don't pass SPF or DKIM

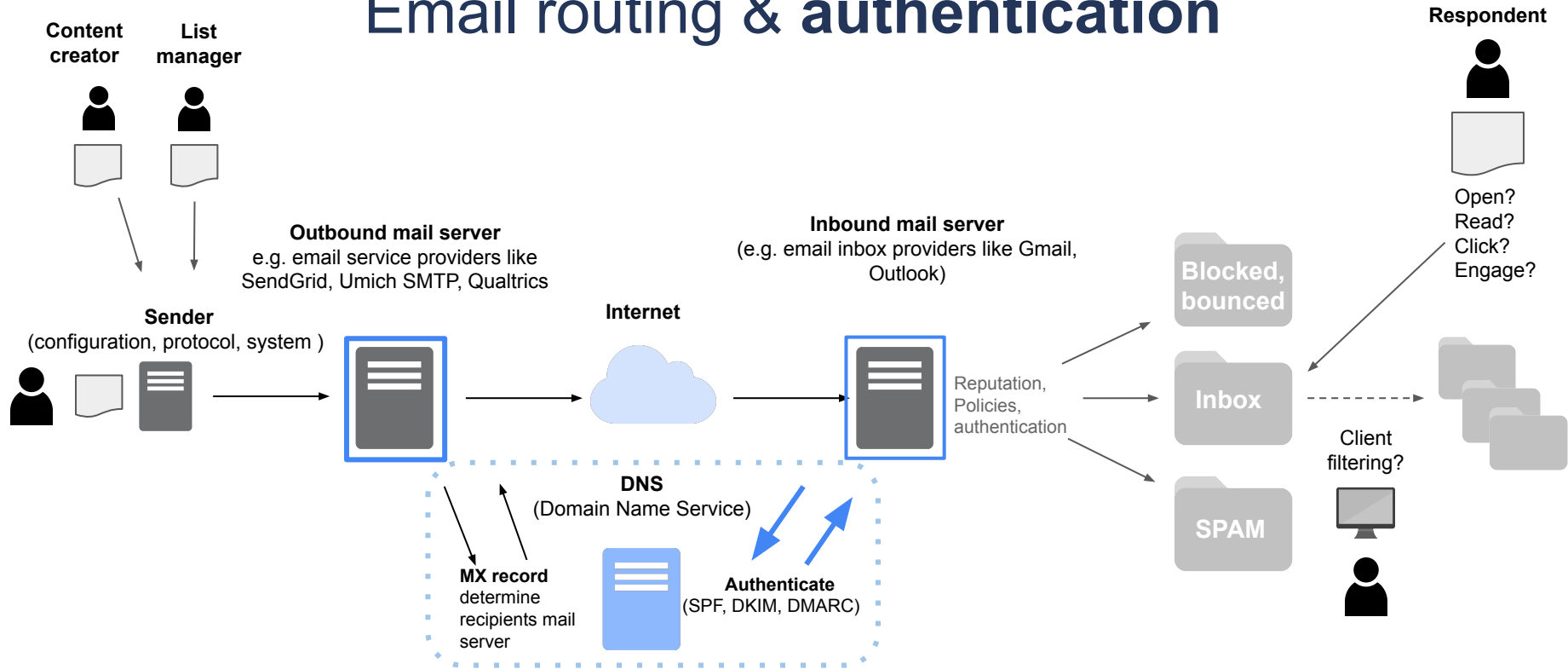
# Authentication is becoming a *requirement*



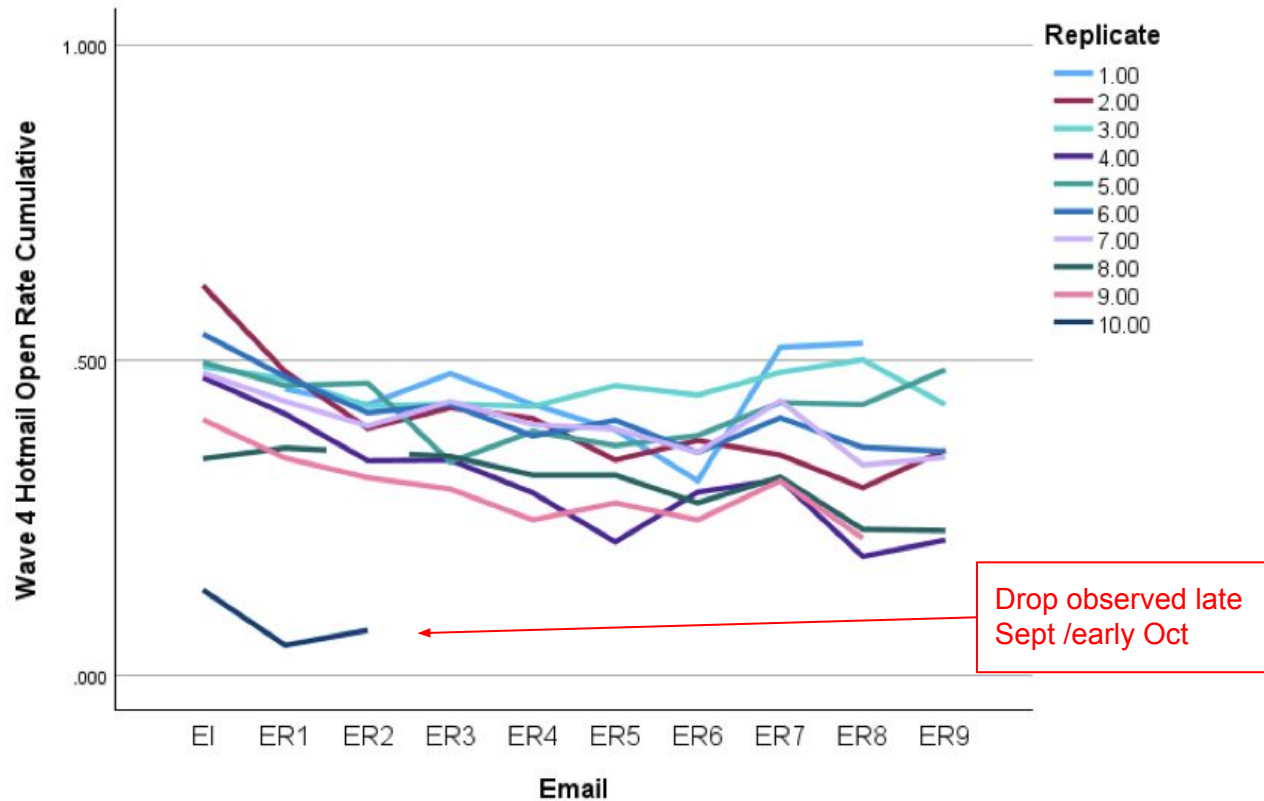
## Bulk Senders must...

- Set up SPF, DKIM and DMARC email authentication for your domain.
- Keep spam rates reported in [Postmaster Tools](#) below 0.30%.
- **Marketing messages** and subscribed messages must support one-click unsubscribe, and include a clearly visible unsubscribe link in the message body.

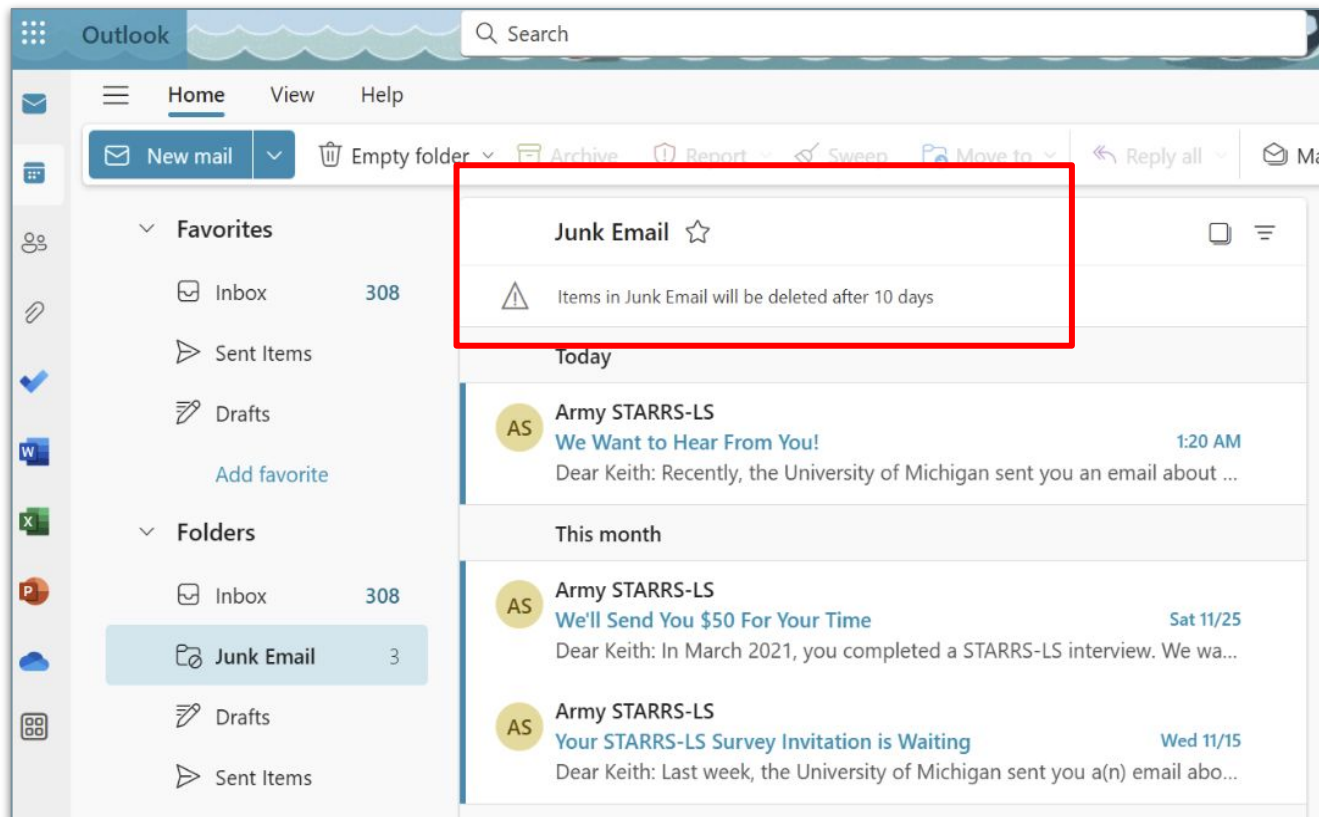
# Email routing & authentication



# Hotmail open rates drop dramatically



**Testing** and reviewing emails sent to **non-University accounts** and **different in-box providers** can be quite useful.





# Authentication working?

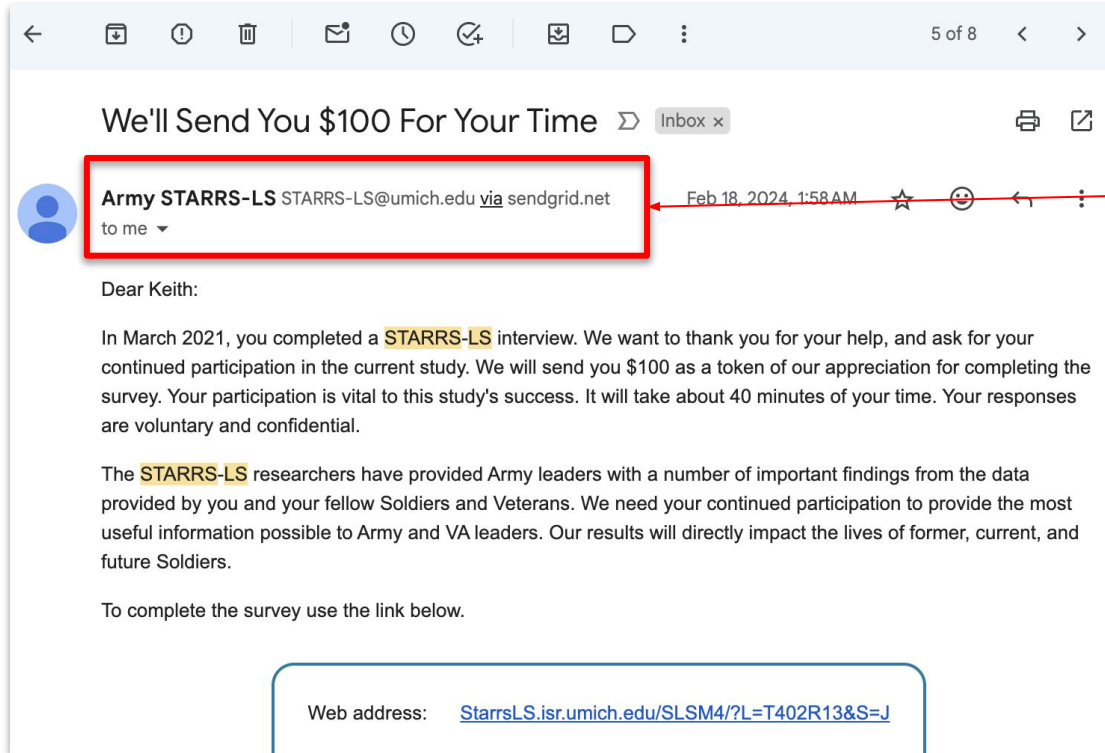
## **Reality**

Info@SendGrid.net → greggjp@umich.edu

## **Respondent perspective**

STARRS-LS@Umich.edu → greggjp@umich.edu

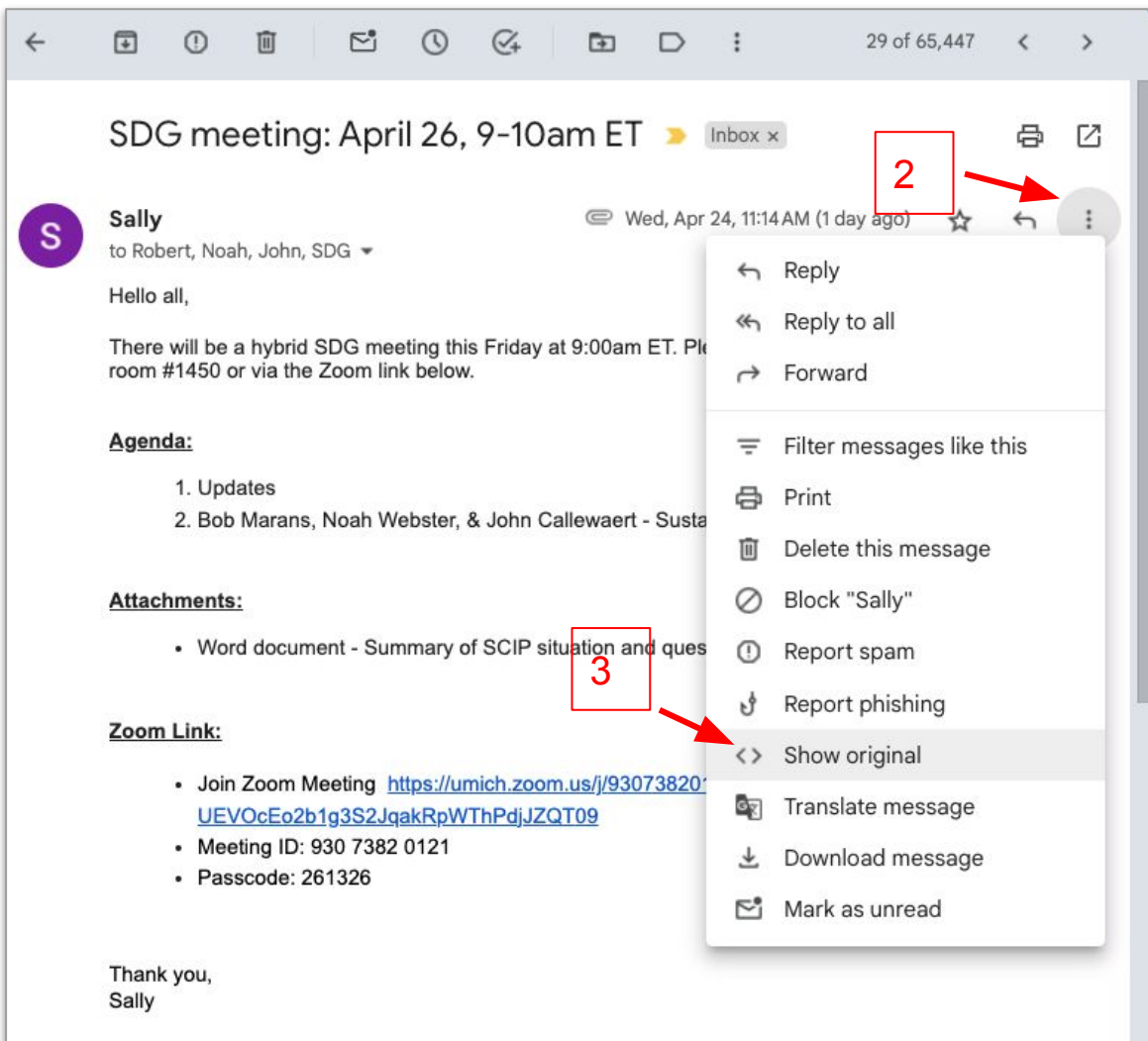
# Testing Gmail sent to a non-University account



“via sendgrid.net”  
is a tell that  
authentication is not  
working as expected

## How to open/view email header details

- 1) Open email
- 2) click 3 dots in the upper right corner of the email
- 3) select <> Show original



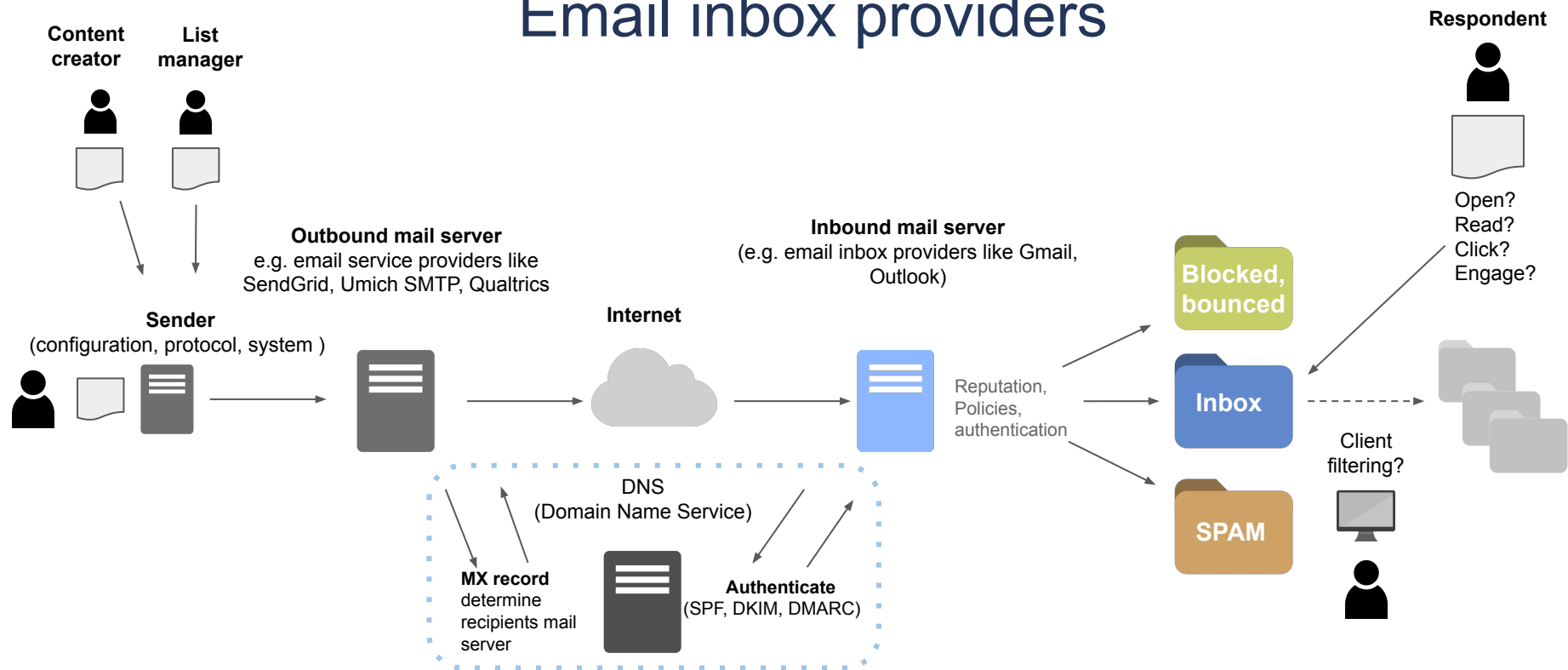
# Email header with DMARC = FAIL

## Original Message

Message ID	<yuex6jfuQTmPFAQsviCNvw@geopod-ismtpd-0>
Created at:	Sun, Feb 18, 2024 at 1:58 AM (Delivered after 0 seconds)
From:	Army STARRS-LS <STARRS-LS@umich.edu>
To:	gpeterzona@gmail.com
Subject:	We'll Send You \$100 For Your Time
SPF:	PASS with IP 167.89.51.123 <a href="#">Learn more</a>
DKIM:	'PASS' with domain sendgrid.net <a href="#">Learn more</a>
DMARC:	'FAIL' <a href="#">Learn more</a>

Delivered-To: gpeterzona@gmail.com  
Received: by 2002:a92:d490:0:b0:365:9f4:db5d with SMTP id p16csp489447ilg;  
Sat, 17 Feb 2024 22:58:16 -0800 (PST)  
X-Google-Smtp-Source: AGHT+IHxJubS92XpVAZuwXnm4LQ+GvPX6yTYW51FD2f0GCX1Kz457aTS9J-  
X-Received: by 2002:a05:622a:1703:b0:42d:e05b:bcf8 with SMTP id h3-  
20020a05622a170300b0042de05bbcf8mr8406236gtk.13.1708239495961;  
Sat, 17 Feb 2024 22:58:15 -0800 (PST)  
ARC-Seal: i=1; a=rsa-sha256; t=1708239495; cv=none;  
d=google.com; s=arc-20160816;  
b=UAsBzRrIJnBr44qF/XuugXEd6Dcc/V0qD7b1df79MZLPwJ7CJkDsg7J3Pj4EuK3EW  
bWfANetUJrvIqwjGoT3AdpVzkMxwakJf5uKxYaach8Rm+P/UcU7tTX9A/AmGmPKyH1g4  
xYnQwIMry+PiYH0nxvXpU3PjmcUuHsk1zrLfP6N32AtPQnc05qj9BcYLCEkWRITMNEr7  
Q7DUYqZkXfpqdLrK3wWq0Bwg4duQYBCKiD7X+9W4uW4H+Dk/HQrlviaZu0CR9qCYDGy0  
zxgnwSD0NGRGYXRk+8id9ALixExvfQWHZLCO3LlsHovk0dQjYIJ2ppoF0iZekcIPR8la  
OVLQ==  
ARC-Message-Signature: i=1; a=rsa-sha256; c=relaxed/relaxed; d=google.com; s=arc-20160816;  
h=to:message-id:subject:mime-version:from:date  
:content-transfer-encoding:dkim-signature;  
bh=MUPKFz2ytBm7vhztRVabIBE3fCNe2+FJo08k2Czo9Nk=;  
fh=5oI3TzsVBprvmkm9p7HWJ49Hw/5ZE4Mm/8XM7r7ZuTkU=;  
b=hVLYsLEmEaU03gyvgvc9bw+QnDom7EzMN73GPBWYHFAdht6zg2z0wx5iBt1RxRw+  
zr6cMq2S5yxzmI1HbgAz0fgHx1wCQjzy04+7IHWf6xwPALYURp80S/YSYN0pRz1Pb00  
mg9AkeON+XQl4nt0AvzwhuuZ7UTI/Y6iewPKMj4ySaBrQql+AKxoVHVP6wTxxpFj0y+  
0ER05hBnAA6fjGN+HD7fr+AaEJ+ULs8NL2JICo07DL07aw2kppIaKExEuA0czHuK7y  
dwPkMhtH6DKmNshvD9o4IP90w9/cZEJ/l8rEwKJNBkpp0FAyFz+MdXtbVPLjYhVcV  
8HKW==  
dara=google.com  
ARC-Authentication-Results: i=1; mx.google.com;  
dkim=pass header.i=@sendgrid.net header.s=smtpapi header.b=tcP2vvvo;  
spf=pass (google.com: domain of bounces+29215615-fa20-gpeterzona@gmail.com@  
167.89.51.123 is permitted sender) smtp.mailfrom="bounces+29215615-fa20-gpeterzona@  
167.89.51.123 as permitted sender" (p=NONE sp=NONE dis=NONE) header.from=umich.edu  
Return-Path: <bounces+29215615-fa20-gpeterzona@gmail.com@sendgrid.net>  
Received: from o1678951x123.outbound-mail.sendgrid.net (o1678951x123.outbound-mail.  
sendgrid.net [167.89.51.123]) by mx.google.com with ESMTPS id k17-20020ac84791000000b0042dfad7df1fsi19616  
for <gpeterzona@gmail.com>  
(version=TLS1\_3 cipher=TLS\_AES\_128\_GCM\_SHA256 bits=128/128);  
Sat, 17 Feb 2024 22:58:15 -0800 (PST)  
Received-SPF: pass (google.com: domain of bounces+29215615-fa20-gpeterzona@gmail.com is permitted sender) smtp.mailfrom="bounces+29215615-fa20-gpeterzona@gmail.com"

# Email inbox providers



# Email inbox providers

- **Google** (Gmail)
- **Microsoft** (Outlook, Hotmail, MSN)
- **Oath** (Yahoo, AOL, Verizon)
- **Apple** (iCloud)
  - **Note:** Apple Mail is just an email client that's available on iOS, iPadOS, and macOS. It works with almost any email service—including Gmail.

# Custom SendGrid Report using data saved in MSMS

STARRS LS rep 14, wave 4

Largest to smallest inbox providers

Gmail is the largest inbox provider; consistently high open rates

.mil domain (mostly) blocks "images"; open rates meaningless

	2/12/24			2/26/24		3/4/24		3/11/24		3/18/24			4/1/24		4/8/24		4/16/24		
	Auth	Delvrd	Open rate	Delvrd	Open rate	Delvrd	Open rate	Delvrd	Open rate	Delvrd	Open	rate	Delvrd	Open rate	Delvrd	Open rate	Delvrd	Open rate	
Gmail.com		550	550	41%	550	78%	551	81%	552	82%	552		83%	553	87%	553	87%	553	88%
Mail.mil		487	487	0%	489	0%	490	0%	490	0%	490		0%	492	0%	492	0%	492	0%
Yahoo.com		211	203	28%	203	62%	203	65%	205	66%	205		67%	206	69%	206	72%	206	73%
Hotmail.com		96	95	3%	95	18%	95	20%	95	26%	95		38%	95	45%	95	53%	95	53%
Army.mil		36	36	6%	40	10%	44	9%	46	9%	46		9%	52	12%	52	12%	52	12%
AOL.com		23	21	33%	21	71%	21	76%	21	76%	21		76%	21	76%	21	76%	21	76%
Live.com		16	16	0%	16	13%	16	13%	16	13%	16		25%	16	25%	16	31%	16	31%
Ymail.com		14	14	29%	14	50%	14	50%	14	50%	14		50%	14	50%	14	50%	14	50%
Outlook.com		12	12	8%	12	8%	12	17%	12	33%	12		58%	13	54%	13	54%	13	54%
MSN.com		8	8	0%	8	0%	8	0%	8	25%	8		25%	8	25%	9	50%	9	50%
iCloud.com		7	7	29%	8	88%	8	88%	8	88%	8		88%	8	88%	8	89%	8	89%
Socom.mil		7	7	0%	7	0%	7	0%	7	0%	7		0%	7	0%	7	0%	7	0%

Apple Privacy Protection subscribers: *all* emails opened to check for concerning content; high open rates meaningless for iCloud respondents

Microsoft inbox open rates recover after fixes to authentication!!

# Factors influencing reputation

## Content

- Open and Click-through rates
- User Engagement
- Spam Complaints
- Quality, relevant content

## Process

- Email Volume Consistency
- Sending Patterns
- Bounce Rates

## Technical configuration


- Email Authentication
- Infrastructure health

## External

- Block lists and Allow lists
- Reputation score (including 3rd party scoring)
- Deny and trust lists



# Gmail insights (according to SendGrid)

- Rarely differs or blocks senders based on “external” (IP or domain) reputation
- Internal reputation algorithm is “best in industry”
- Closely monitors recipient activity / engagement with emails
  - Opens, clicks, forwards, moving messages to primary folder, reporting Spam
- Filters based on improper “Domain alignment” (part of authentication)
- Does not offer a “forensic” feedback loop to diagnose individual emails
- Filters are sensitive to excessive mailing frequency
  - Do not email recipients who have not engaged in more than eight months
- Google has “Postmaster tools” that apparently monitor aggregate spam reports, IP reputation, authentication failures...but only available to the managers of our domain - ITS 

## Microsoft insights (according to SendGrid)

- All SendGrid IPs are pre-registered with Microsoft
- Uses Sender Reputation Data (SRD) to determine if email is expected or wanted
  - SRD complaints come from anonymous “trusted” reporters that carry weight when determining reputation
- Custom Content filter called Smart Screen (can monitor via SNDS)
- Extremely sensitive to old, unengaged addresses
- Smart Network Data Services (SNDS) available to us
- We can submit support tickets to Microsoft if we have delivery issues
- Any (Microsoft) R who has our “From” listed in their address book, auto delivered

## Oath/Yahoo insights (according to SendGrid)

- Yahoo “defers” message at a high rate
  - Small number of spam reports will trigger a deferral
  - Deferrals are short lived
- Yahoo provides domain-based feedback loop (so likely hard for SRO to see)
- Senders with good practices can apply for “bulk sender” status
- Filters and throttles (high volumes) based on IP, Domain, and content reputation
- Relies more heavily on 3rd parties for reputation management services

## 3rd party tools

**Spamhaus Blocklists:** One of the most prominent blocklist services where a sender can look up their IP address or domain to see if they are listed on the Spamhaus blocklists.

- Website: <https://www.spamhaus.org/lookup/>

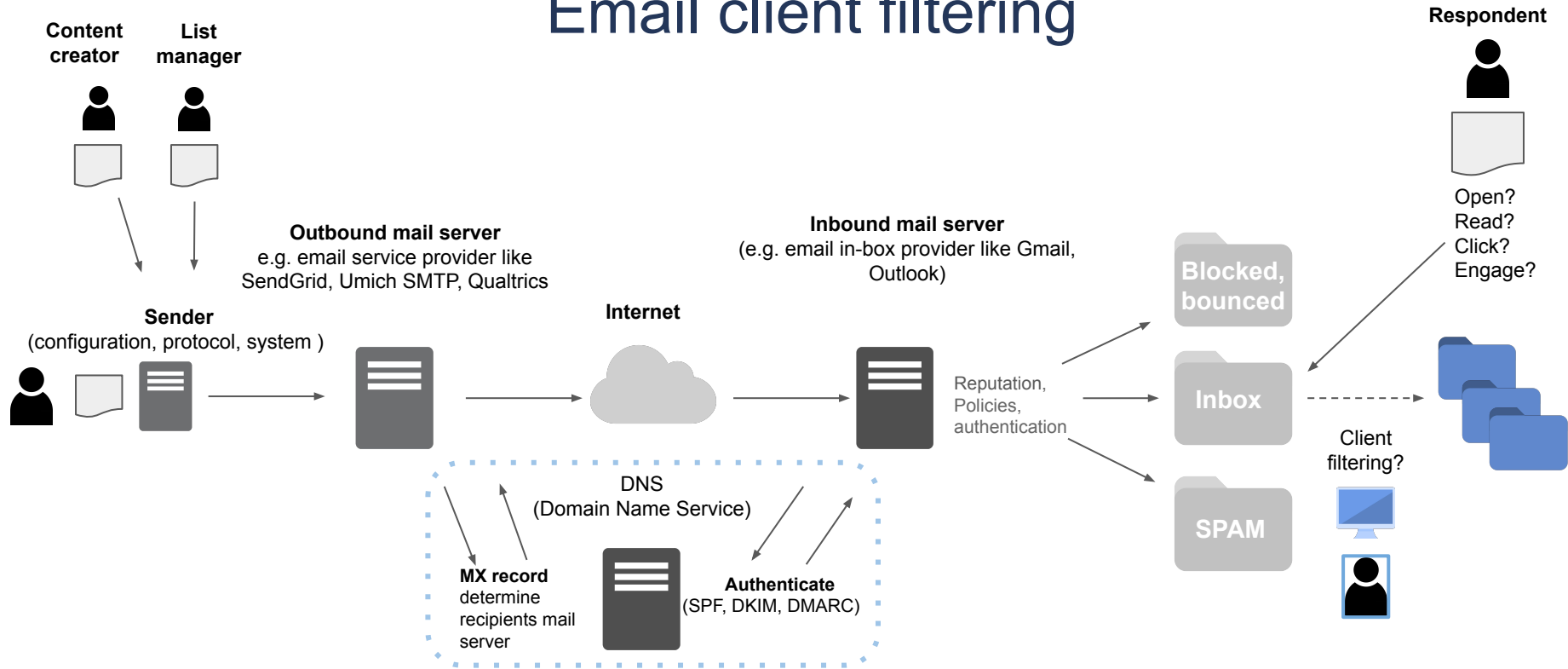
**SpamCop Blocking List:** A service that allows you to check if your IP has been reported for sending spam.

- Website: <https://www.spamcop.net/bl.shtml>

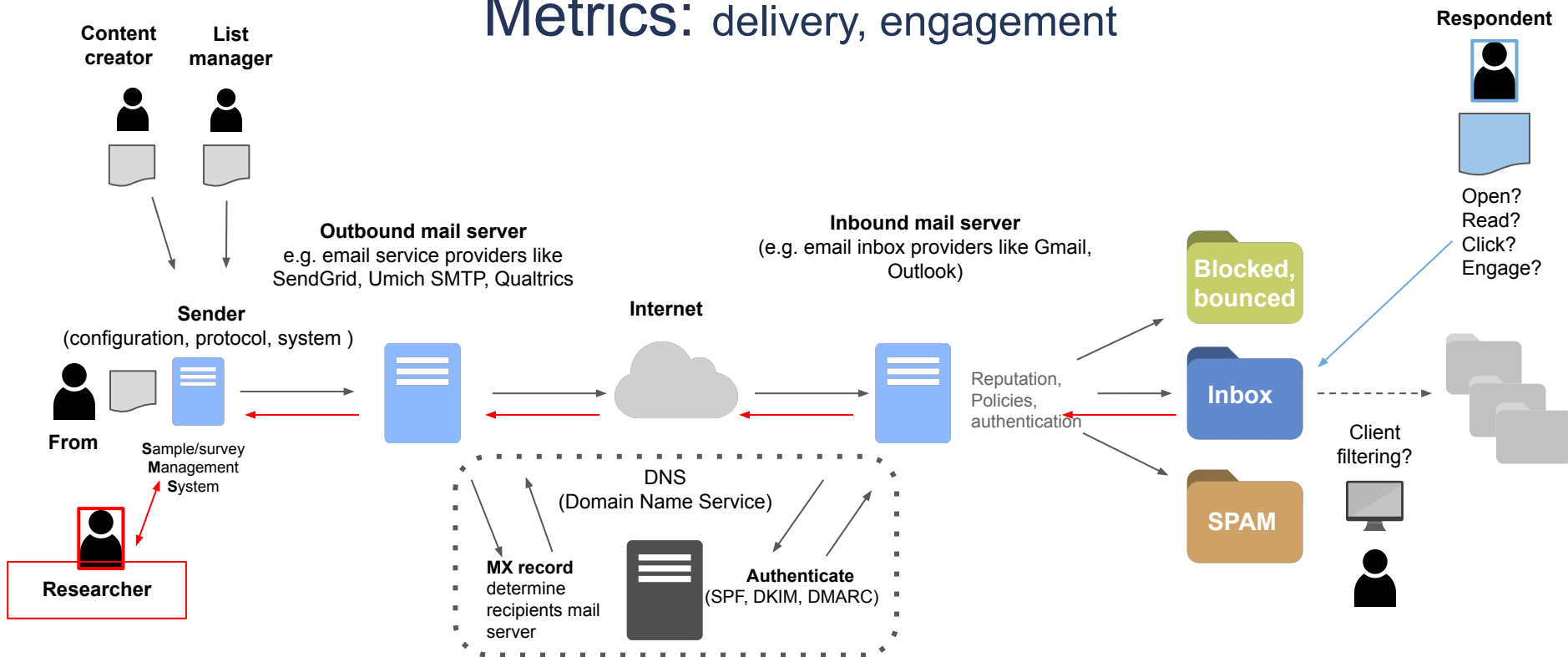
**Sender Score:** Provides a reputation score that assesses the health and credibility of an email sender's IP address.

- Website: <https://www.senderscore.org/>

# Email client filtering



# Metrics: delivery, engagement



# Key Terminology:

## Measuring the success of email on SendGrid

### **Block**

An email that is not accepted by a mailbox provider server because of suspected spam, a virus, or an email that violates a mailbox providers policy

### **Bounce**

- **Soft** - temporarily rejected email do to problems with the recipient's mailbox or server
- **Hard** - permanently rejected email because it's invalid, closed or non-existent

### **Deliverability**

The ability to get emails to an R's Inbox by avoiding a bounce or block

### **Delivery Rate**

Delivered emails / emails sent (authorized)

### **Open**

A count of an opened email. A small, transparent, one-pixel image is inserted at the bottom of all messages. When a recipient's email client loads images, it pulls the image data from SendGrid servers, and registers an Open event.

### **Open Rate**

Emails opened / Delivered emails (not bounced or rejected)

### **Drop**

Not authorize for delivery by SendGrid because recipient address had a previous hard bounce, or the address was on a spam report

# Key Terminology and Metrics not used at SRO

- **Click-Through Rate (CTR):** This measures how many recipients clicked on the links provided within an email. CTR provides insights on content effectiveness.
- **Conversion Rate:** Conversion is the step further of CTR. Here, the recipient not only clicks the mail but also takes the desired action like completing a survey.

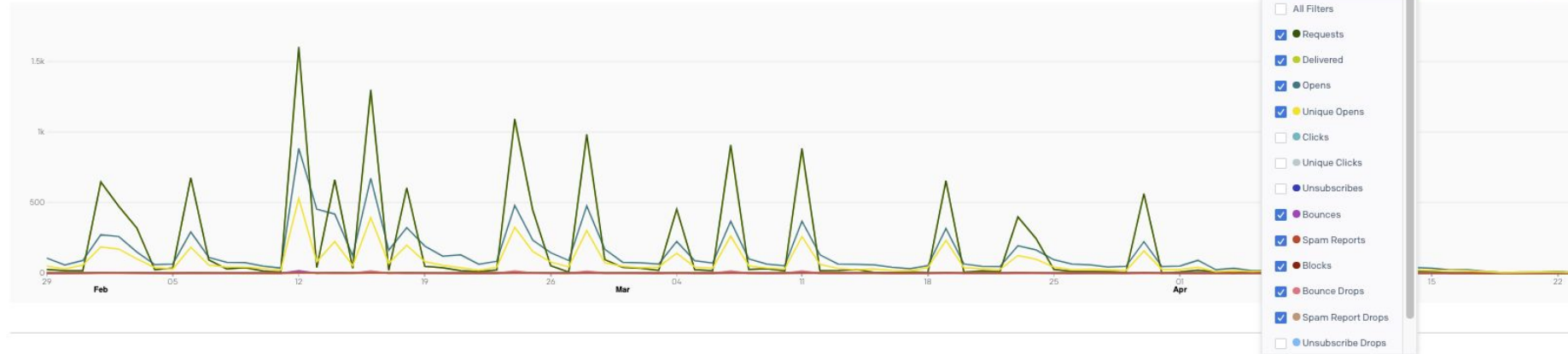


# SendGrid reporting: subusr stats

## Subuser Stats: starlsw4

Select Single Subuser

starlsw4



## Figures

DATE	REQUESTS	DELIVERED	OPENS	UNIQUE OPENS	BOUNCES	SPAM REPORTS	BLOCKS	BOUNCE DROPS	SPAM REPORT DROPS	INVALID EMAILS
2024-03-13	18	17	64	33	0	0	1	0	0	0
2024-03-12	16	16	129	61	0	0	0	0	0	0
2024-03-11	884	862	368	259	0	0	6	15	0	1
2024-03-10	15	15	51	28	0	0	1	0	0	0

# Custom SendGrid Report using data saved in MSMS

STARRS LS rep 14, wave 4

Largest to smallest inbox providers

Gmail is the largest inbox provider; consistently high open rates

.mil domain (mostly) blocks "images"; open rates meaningless

	2/12/24			2/26/24		3/4/24		3/11/24		3/18/24			4/1/24		4/8/24		4/16/24	
	Auth	Delvrd	Open rate	Delvrd	Open rate	Delvrd	Open rate	Delvrd	Open rate	Delvrd	Open	rate	Delvrd	Open rate	Delvrd	Open rate	Delvrd	Open rate
Gmail.com	550	550	41%	550	78%	551	81%	552	82%	552		83%	553	87%	553	87%	553	88%
Mail.mil	487	487	0%	489	0%	490	0%	490	0%	490		0%	492	0%	492	0%	492	0%
Yahoo.com	211	203	28%	203	62%	203	65%	205	66%	205		67%	206	69%	206	72%	206	73%
Hotmail.com	96	95	3%	95	18%	95	20%	95	26%	95		38%	95	45%	95	53%	95	53%
Army.mil	36	36	6%	40	10%	44	9%	46	9%	46		9%	52	12%	52	12%	52	12%
AOL.com	23	21	33%	21	71%	21	76%	21	76%	21		76%	21	76%	21	76%	21	76%
Live.com	16	16	0%	16	13%	16	13%	16	13%	16		25%	16	25%	16	31%	16	31%
Ymail.com	14	14	29%	14	50%	14	50%	14	50%	14		50%	14	50%	14	50%	14	50%
Outlook.com	12	12	8%	12	8%	12	17%	12	33%	12		58%	13	54%	13	54%	13	54%
MSN.com	8	8	0%	8	0%	8	0%	8	25%	8		25%	8	25%	9	50%	9	50%
iCloud.com	7	7	29%	8	88%	8	88%	8	88%	8		88%	8	88%	8	89%	8	89%
Socom.mil	7	7	0%	7	0%	7	0%	7	0%	7		0%	7	0%	7	0%	7	0%

Apple Privacy Protection subscribers: all emails opened to check for concerning content; high open rates meaningless for iCloud respondents

Microsoft inbox open rates recover after fixes to authentication!!

# STARRS LS - weekly email report

Processed, delivered, opened - accumulated

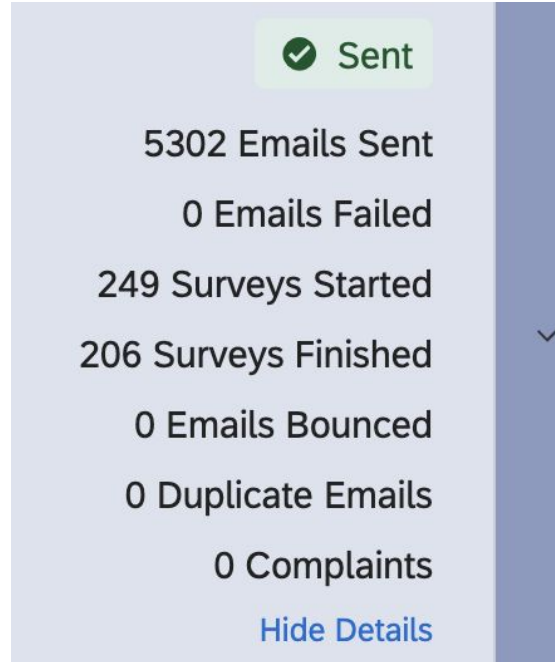
Rep/ Domain	EmailType	Processed Count	Bounce Count	Dropped Count	Delivered Count	Open Count	Open/ Delivered
2	SendInviteEmail	833	15	0	818	610	74.6%
2	SendReminder1Email	1513	46	13	1469	714	48.6%
2	SendReminder2Email	1515	48	32	1471	737	50.1%
2	SendReminder3Email	1515	48	33	1471	751	51.1%
2	SendReminder4Email	1521	49	33	1476	756	51.2%
2	SendReminder5Email	1521	49	34	1476	767	52.0%
2	SendReminder6Email	1526	49	34	1481	776	52.4%
2	SendReminder7Email	1526	49	34	1481	786	53.1%
2	SendReminder8Email	1530	51	34	1483	786	53.0%
2	SendReminder9Email	1532	51	36	1485	790	53.2%
Domain	GMAIL.COM	554	10	8	545	513	94.1%
Domain	MAIL.MIL	502	0	0	502	0	0.0%
Domain	YAHOO.COM	262	26	21	238	161	67.6%
Domain	HOTMAIL.COM	94	1	1	93	57	61.3%
Domain	AOL.COM	22	3	3	19	12	63.2%
Domain	LIVE.COM	14	0	0	14	8	57.1%
Domain	OUTLOOK.COM	10	0	0	10	7	70.0%
Domain	MSN.COM	8	0	0	8	5	62.5%
Domain	SOCOM.MIL	7	0	0	7	1	14.3%
Domain	ARMY.MIL	7	0	0	7	0	0.0%
Domain	YMAIL.COM	6	0	0	6	4	66.7%

?

# Email engagement metrics - SendGrid benchmarks

Data point	Ideal	Caution	Bad
Opens (unique)	$\geq 10\%$	3-9%	<2%
Aggregate Opens	$\geq 20\%$	6-9%	<5%
Bounce	$\leq 0.5\%$	.6-1%	>2%
Block	$\leq 2\%$	3-4%	>5%
Spam Reports	$\leq .08\%$	.09-.1%	>.2%
Clicks (unique)	$\geq 4\%$	2-3%	<1%
Unsubscribe	$\geq 0.3\%$	0.4-0.9%	>0.2%

# Qualtrics basic email reporting



# Other ways to track engagement and email effectiveness

- Consistently measure activity by inbox provider (domain)
- Click tracking?
- Track the relationship between survey starts and specific messages

StarrsLS.isr.umich.edu/SLSM4/?L=T402R13&S=K

Session contact = **K**

**K** = Email #9 (reminder #8) - Day 57, Phase 4 (All Groups)

- Captured in the survey portal / **login page** data when R clicks link
- Can be used in reporting that links survey starts with specific emails

# STARRS-LS: Communication templates

## Email Subjects

Receive \$50 For Completing A STARRS-LS Interview

We'll Send You [\$Amount] For Your Time

We Want to Hear From You!

Your STARRS-LS Survey Invitation is Waiting

We Want to Hear From You! (Time is Running Out)

Your STARRS-LS Survey Invitation is Waiting (The Study is Ending Soon)

Request for Your STARRS-LS HIPAA Authorization

Follow-Up Request for Your Research Study Form

## Email Reminder

Invite

Reminder 1, 4, 7

Reminder 2, 5

Reminder 3, 6

Reminder 8

Reminder 9

ConsentInviteEmail

ConsentReminderEmail

Contact Type	Session Contact Value	
Letter #1 (Invitation)	A	Day 1 Phase 1 (All Groups)
Email #1 (Invitation)	B	Day 8 Phase 2 (All Groups)
Email #2 (Reminder #1)	C	Day 12 Phase 2 (All Groups)
Email #3 (Reminder #2)	D	Day 20 Phase 2 (All Groups)
Email #4 (Reminder #3)	E	Day 24 Phase 3 (All Groups)
Email #5 (Reminder #4)	F	Day 32 Phase 3 (All Groups)
Email #6 (Reminder #5)	G	Day 36 Phase 3 (All Groups)
Email #7 (Reminder #6)	H	Day 44 Phase 3 (All Groups)
Email #8 (Reminder #7)	J	Day 50 Phase 4 (All Groups)
Email #9 (Reminder #8)	K	Day 57 Phase 4 (All Groups)
Email #10 (Reminder #9)	L	Day 65 Phase 4 (All Groups)
Email #11 (Mode Switch)	M	On Demand
Email #12 (Confidentiality)	N	On Demand/Also Letter
Email #13 (Not In Army)	P	On Demand/Also Letter
Email #14 (Study Purpose)	Q	On Demand/Also Letter
Email #15 (Time Burden)	R	On Demand/Also Letter
Email #16 (Too Personal)	S	On Demand/Also Letter
Email #17 (Legitimacy)	T	On Demand/Also Letter
Email #18 (TokenConcern)	U	On Demand/Also Letter
Text Message #1	V	Day 20 Phase 2 (All Groups) - s
Consent Invite Email/Text/Letter	W	Day Post Survey Session
Consent Reminder Email/Text/Letter	X	Day 5 Post-Survey
BrainBank	Y	On Demand - Post survey
Email #21 (ConsentConcern)	Z	OnDemand/Also Letter - sent in forms
Email #22 (HIPAAConcerns)	ZZ	OnDemand/Also Letter - Sent in participation due to HIPAA requ
Text Message #2	AB	Day 67 Phase 4 (All Groups) - s
Ann Arbor	AA	Used when a person in AA need



# IsComplete (0/1)

by **Contact type**/sequence  
by unintended URL redirect (0/1)

~ 26% (n=2,91) of sessions with null contact type (Surveys started from a URL in letter?)

16.4% (n=1,768) of completes came from the first email.

55 sessions began after a the original URL was redirected, likely by .mil domains

F <  
Caution-<http://StarrsLS.isr.umich.edu/SLSM4/?L=P87M81>

		IsComplete Values					
URL redirect	Contact Type	0		1		Grand Total	
		N	% of Col Total	N	% of Col Total	N	% of Col Total
-		43	10%	2,791	25.9%	2,834	25%
	Ann Arbor	10	2%	7	0.1%	17	0%
	CATI	90	20%	642	5.9%	732	7%
	Email #01 (Invitation)	26	6%	1,768	16.4%	1,794	16%
	Email #02 (Reminder #1)	28	6%	1,080	10.0%	1,108	10%
	Email #03 (Reminder #2)	16	4%	474	4.4%	490	4%
	Email #04 (Reminder #3)	16	4%	522	4.8%	538	5%
	Email #05 (Reminder #4)	13	3%	368	3.4%	381	3%
	Email #06 (Reminder #5)	15	3%	296	2.7%	311	3%
	Email #07 (Reminder #6)	14	3%	267	2.5%	281	2%
	Email #08 (Reminder #7)	41	9%	782	7.2%	823	7%
	Email #09 (Reminder #8)	24	5%	334	3.1%	358	3%
	Email #10 (Reminder #9)	53	12%	495	4.6%	548	5%
	Email #11 (Mode Switch)	29	6%	536	5.0%	565	5%
	Email #12 (Confidentiality)			1	0.0%	1	0%
	Text Message #01	10	2%	225	2.1%	235	2%
	Text Message #02	18	4%	152	1.4%	170	2%
Total		446	100%	10,740	99.5%	11,186	100%
-	1 Email #01 (Invitation)			19	0.18%	19	0.17%
	Email #02 (Reminder #1)			9	0.08%	9	0.08%
	Email #03 (Reminder #2)	1	0%	3	0.03%	4	0.04%
	Email #04 (Reminder #3)			5	0.05%	5	0.04%
	Email #05 (Reminder #4)			4	0.04%	4	0.04%
	Email #06 (Reminder #5)			1	0.01%	1	0.01%
	Email #07 (Reminder #6)			3	0.03%	3	0.03%
	Email #08 (Reminder #7)			3	0.03%	3	0.03%
	Email #09 (Reminder #8)			2	0.02%	2	0.02%
	Email #11 (Mode Switch)			1	0.01%	1	0.01%
	Text Message #01			4	0.04%	4	0.04%
1 Total		1	0%	54	0.50%	55	0.49%
Grand Total		447	100%	10,794	100.00%	11,241	100%



# Process data and what we can measure or monitor

- **Email delivery**
  - Sending patterns: volume, sequence, time of day
  - Authentication settings
  - Email hygiene: legitimate, accurate, up-to-date
- **Email opens** (via invisible pixels/ web beacons)
  - Subject lines
  - **From** address
  - Preheader text (bit of text following the subject as seen in most in-boxes)
  - Email send time
  - In-box provider
- **Survey session start** by communication tool
  - Email content
  - Email design, link location, etc.
- **Survey session start** by time of day, day of week, elapsed time from send)
- **Link clicks in email** (click tracking)
  - Email content
  - Email design, link location, etc.

# QUESTIONS

- What are you or your teams are doing to impact the effectiveness of email in the studies you work on?
- What are your Ideas for process, reporting, or system enhancements?
- What additional research or experimentation might be useful for SRO or project teams to consider?

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# Some notes on content

## **Callegero et al (2009) - AAPOR - meta analysis of KN panel surveys**

Completely generic versus study specific invitations -- no impact on participation rates

## **Sappleton & Lourenco - Study pop: business owners, academics**

The results of both studies suggest that the blank subject line is “good bait”, but it does not necessarily “land the fish”. An email invitation sent with a blank subject line does seem to provoke an increased reaction from participants, but that response is not necessarily a positive one. In fact, the blank subject line seemed to prompt several of our recipients to actively refuse to participate in the research.

## **Study at Michigan State - Kaplowitz et al (2011)**

**[no mention of mobile]**

URL at the bottom of an email was better than one at the top for faculty and students (no difference for staff)

More text was better than less for faculty and staff, no diff for students

Subject lines which include an authoritative requester more effective for response rates

## **Brenner et al. (2020) - Consumer Assessment of Healthcare Providers and Systems survey. (2016) - nonprobability**

Findings suggest that respondents prefer informative and straightforward subject lines that reference the purpose and the sponsor of the survey. Brief and uninformative subject lines should be avoided. In the body of the e-mail, respondents prefer messages that expand on the study's purpose and usefulness and extend a guarantee of confidentiality. Messages that encourage participation for the sake of the study's representativeness or accuracy are unpersuasive to potential respondents. Few differences emerged in preferences among demographic subgroups.