



# EMAIL SECURITY ANNUAL REPORT

## 2023-2024

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# Executive Summary

## The Changing Tide of Email Security

Email security constantly evolves, but 2023 felt a bit different. Bad actors got even smarter, building phishing campaigns with generative AI and taking clever advantage of porous cloud services to host malicious content outside the email body where incumbent systems focus. At the same time, the email security talent pool shrank, and the field of next-generation vendors winnowed. Despite the challenges, it was a breakout year for INKY.

INKY will remember 2023 as the year of the Managed Service Provider (MSP). We made developing the tools and resources they need our top priority – because when MSPs have the tools to excel, cybercrime’s world of opportunity gets smaller. We enhanced our existing offerings and added multiple new products to our arsenal.

We encountered many remarkable new and dangerous phishing tactics and developed and deployed sophisticated countermeasures for them more quickly than in any prior year. Cybercriminals are constructing obfuscated, multi-layered phishing campaigns that exploit HTML, CSS, Unicode, and other complicated systems to hide what really lies underneath the surface. These tricks give attackers reliable ways to transit legacy email security systems. By staying ahead of the curve, INKY continued to block the vast majority of malicious emails aimed at our user community.



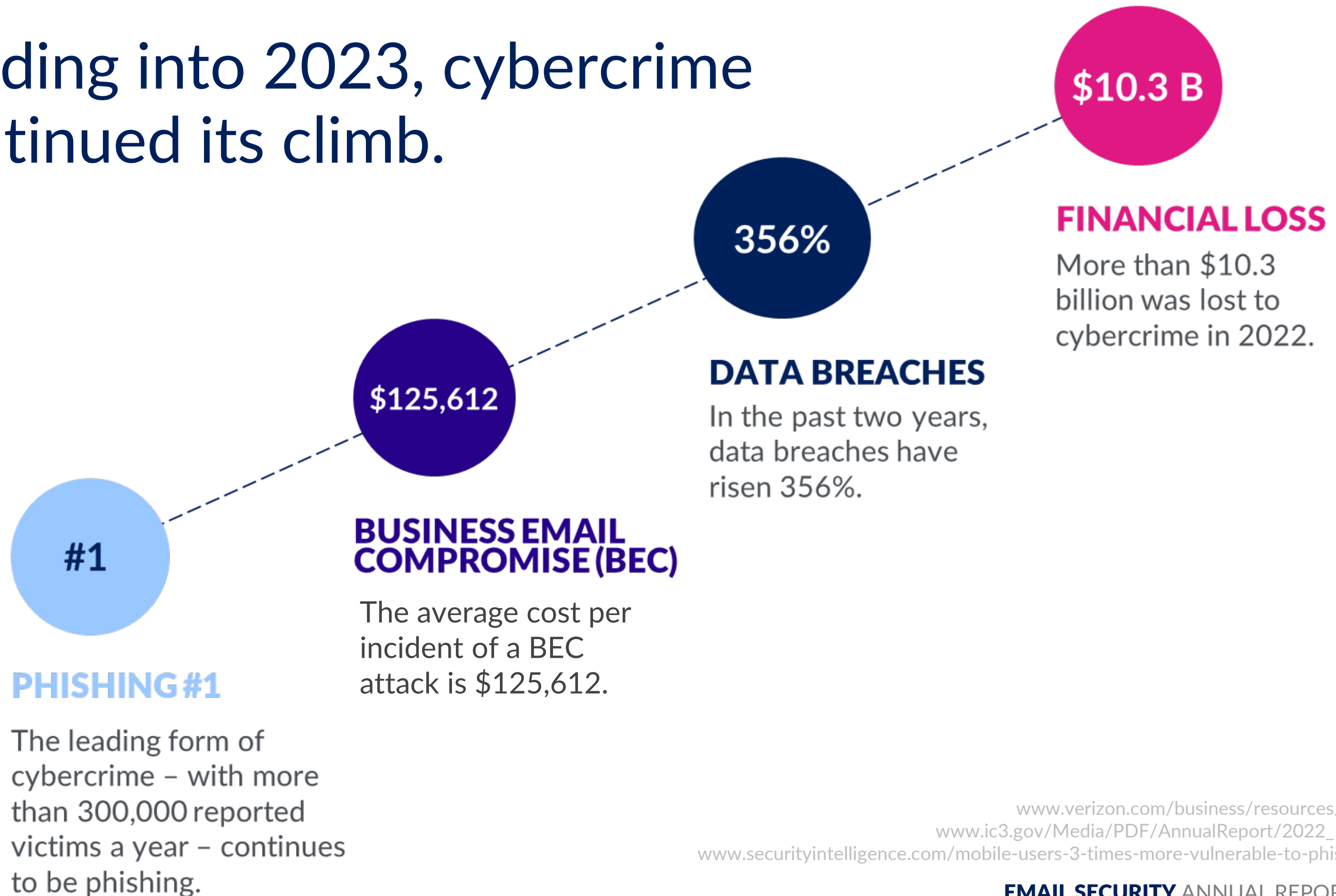
# Executive Summary (continued)

For the industry overall, change took on different forms. Phishing tactics became more sophisticated, incorporating new elements of surprise such as QR Codes (frightening fact: INKY now observes that around 50% of emails containing QR codes are malicious). However, the biggest industry change was the pervasiveness of Large Language Models (LLMs) like ChatGPT. In an instant, the job of every bad actor got easier. With the help of Artificial Intelligence (AI), phishing emails can be written with finesse in mere minutes.

While this sets a frightening stage for many, at INKY, we are better prepared than anyone to lead this new fight. In fact, we mastered AI long before some of these phishers were even old enough to buy their own computers. AI is part of our DNA. So, phishers beware. In 2024, we'll find new ways to use sophisticated machine learning technology so we can continue racking up points for the good guys.

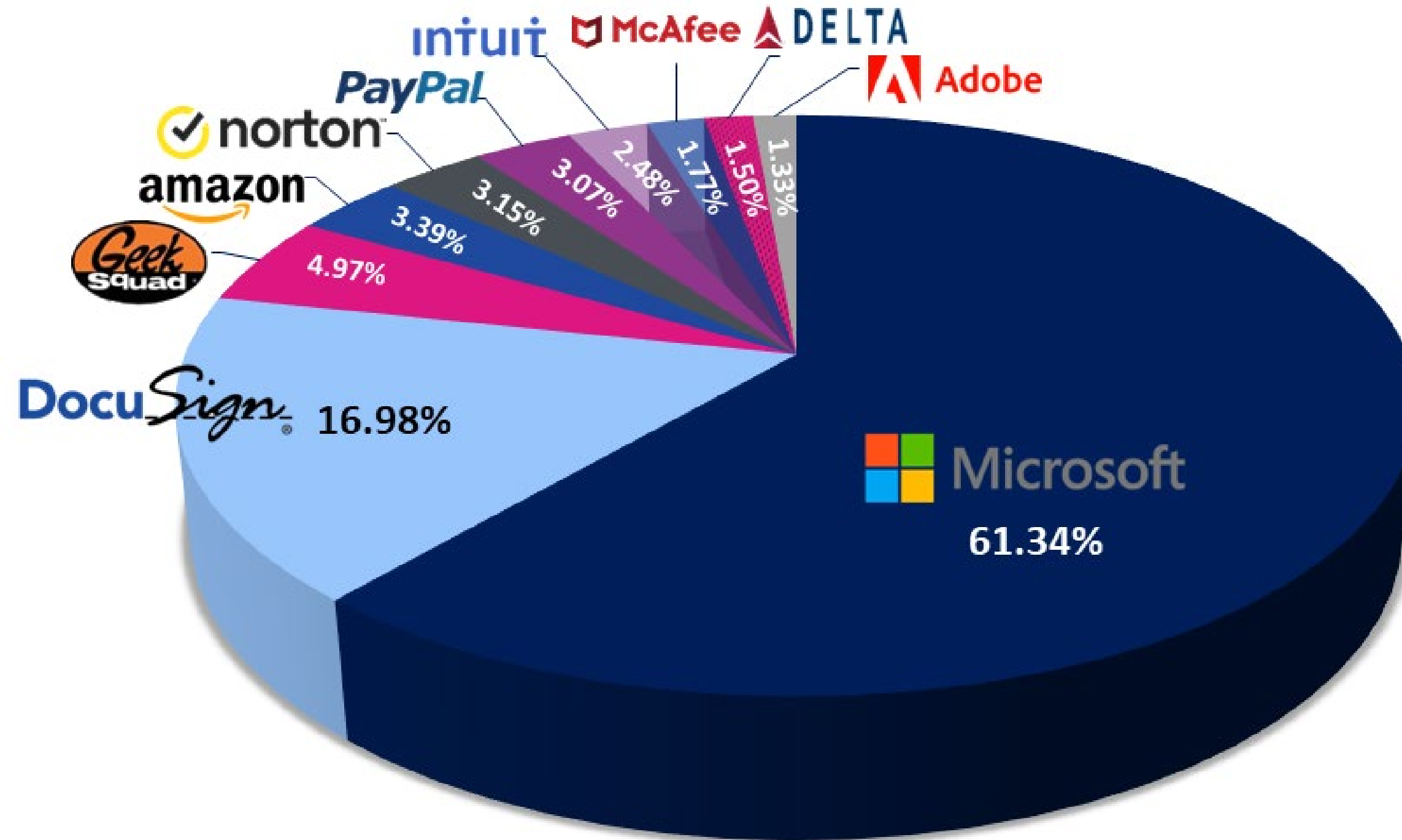
Our hope is that as we continue the story in the pages that follow, you will gain a better grasp of what we are all up against, and what INKY is doing to make a difference.

➤ Leading into 2023, cybercrime continued its climb.



Sources:  
[www.verizon.com/business/resources/reports/dbir/](http://www.verizon.com/business/resources/reports/dbir/)  
[www.ic3.gov/Media/PDF/AnnualReport/2022\\_IC3Report.pdf](http://www.ic3.gov/Media/PDF/AnnualReport/2022_IC3Report.pdf)  
[www.securityintelligence.com/mobile-users-3-times-more-vulnerable-to-phishing-attacks/](http://www.securityintelligence.com/mobile-users-3-times-more-vulnerable-to-phishing-attacks/)

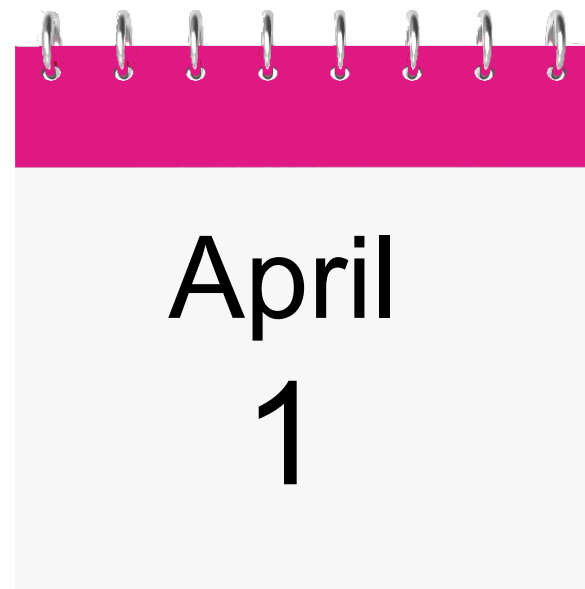
## ➤ Brand impersonation attempts persisted.



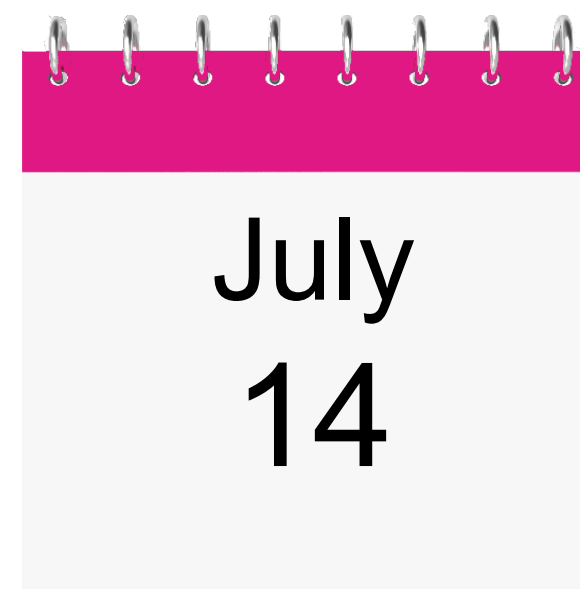
Top 10 Most Phished Brands of 2023

# ➤ The pool of email security vendors became smaller.

While industry mergers and acquisitions slowed in 2023, the market continues to shrink as both established and start-up cybersecurity companies are acquired to help acquiring enterprises better meet market demand. Below are just a few examples.



Cloudflare acquired Area 1 Security in 2022 to boost their Zero Trust security platform.<sup>2</sup>



Cisco acquires privately held Armorblox in hopes that the product would enhance their Security portfolio.<sup>1</sup>



Proofpoint announced that it has reached an agreement to acquire email security company Tessian.<sup>3</sup>



<sup>1</sup>Source: [www.cloudflare.com/press-releases/2022/cloudflare-completes-acquisition-of-area-1-security](https://www.cloudflare.com/press-releases/2022/cloudflare-completes-acquisition-of-area-1-security)

<sup>2</sup>Source: <https://blogs.cisco.com/news/cisco-announces-intent-to-acquire-armorblox>

<sup>3</sup>Source: [www.itpro.com/business/acquisition/proofpoint-announces-acquisition-of-email-security-company-tessian/](https://www.itpro.com/business/acquisition/proofpoint-announces-acquisition-of-email-security-company-tessian/)



# ➤ A New Era of Phishing: Generative AI

*The launch of ChatGPT-4 in March 2023, forever changed the face of phishing.*

## THE BAD GUYS

- High-quality phishing emails can be composed with perfect grammar and English usage.
- AI makes it easy to write code and convert code from one programming language to another.
- Fake customer support chatbots are created with ease.
- Sophisticated malware is designed using no malicious code.
- Phishing attacks can be easily automated.
- Mimicking the tone and voice of an authority in an impersonation attack is simpler .
- Social engineering attacks can be conducted using such tactics as voice cloning.

## THE GOOD GUYS

- By turning the tables, the same AI used by criminals is being engineered to combat them.
- Generative Adversarial Networks (GANs) study new attack patterns and predict new types of attacks.
- Anomaly detection is being enhanced with AI to more effectively flag suspicious behavior.
- AI can help IT teams to more quickly identify legitimate threats.
- INKY Computer Vision Analysis renders each email in the cloud and runs computer vision classifiers on the output to find indications of brands, cloaked text, and more.
- INKY's methods of detecting sender intent and recognizing fraud within messages and linked web sites continues to thwart AI-based attacks.



# ➤ A purposeful shift to impact the future.

As a company, INKY made a strategic change in the way we cater to our customers by putting the majority of our energy toward building a platform specifically for Managed Service Providers (MSPs).

While the security of every customer is of paramount importance, MSPs are on the front lines every day, defending, fixing, and educating multiple organizations at one time, many of whom have yet to invest in their own email security. INKY aims to give them the tools, resources, and support they need to keep email secure.

With the addition of three new products this year, INKY offers a complete email security platform that enables our partners to save time and increase efficiency, while providing the advanced solutions their customers need.



*INKY's platform covers all the email security and compliance solutions our customers need. The ability to partner with one vendor for multiple products boosts efficiency and improves our bottom line.*

**Ivan Burkett**  
Director of IT  
GB Tech

“I truly believe the future of corporate cybersecurity will be written by the MSP community. We want to play a key role in that history.”

-Dave Baggett  
INKY Founder & CEO



# Top Phishing Trends in 2023

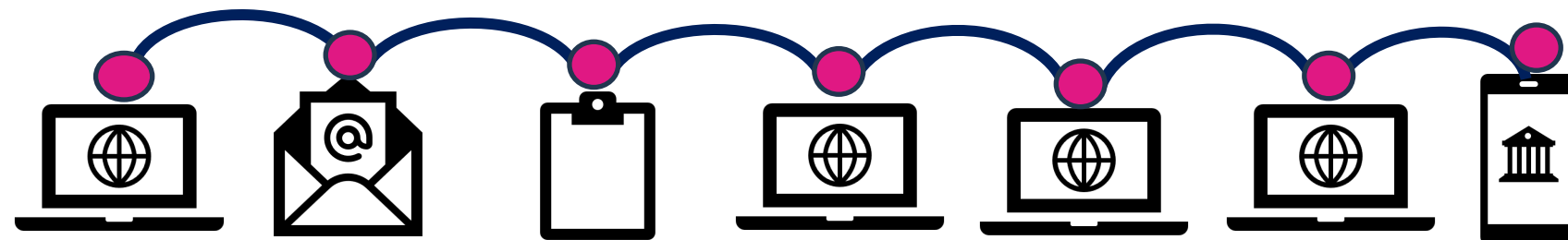
- Multi-step, multi-site campaigns
- Malicious HTML email attachments
- Avoiding detection using LNK files
- Decentralized networks for resilient malicious sites
- Malicious QR codes
- Clever HTML Smuggling Phish kits
- Malicious disk image mirrors drive structure
- Phishing Phone Scam



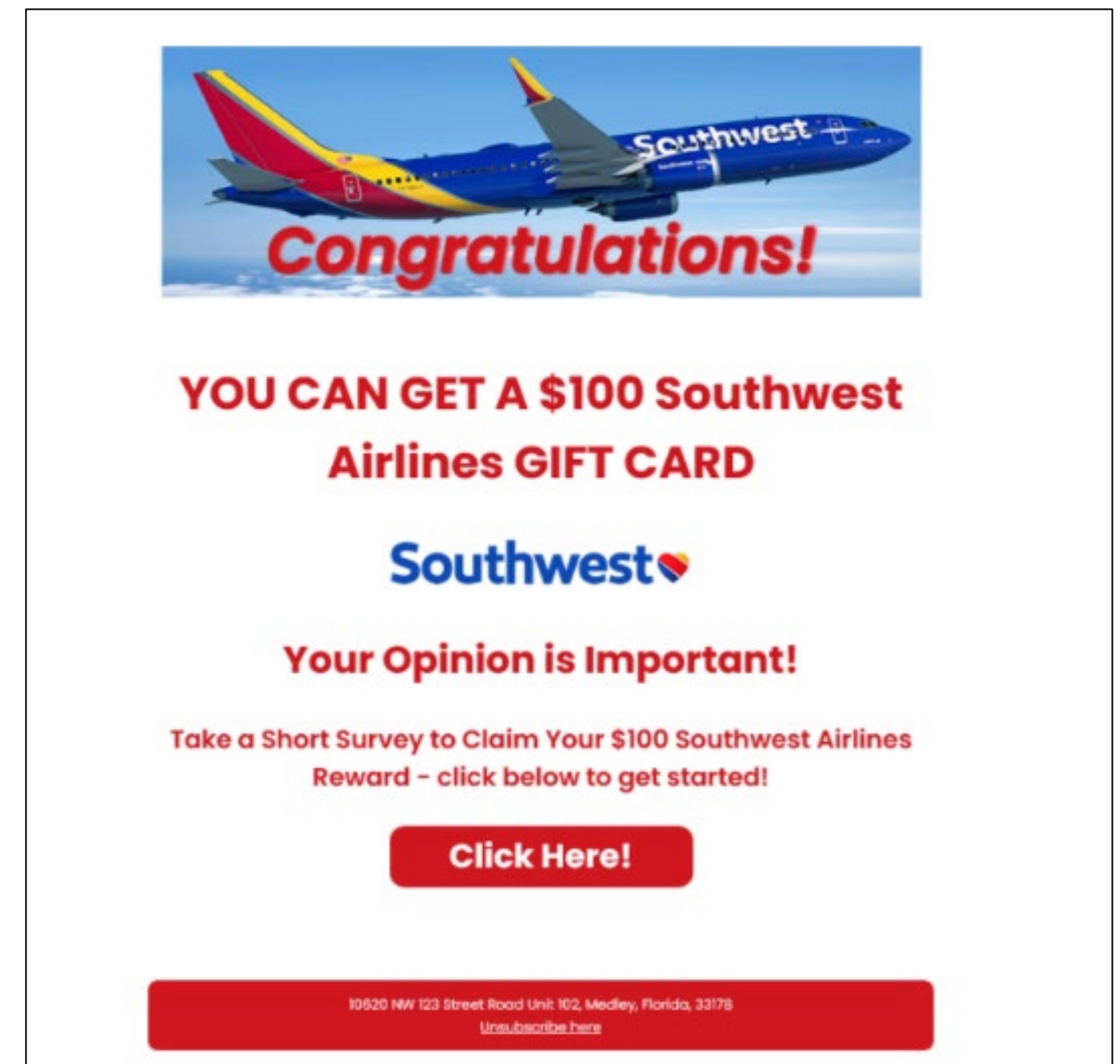
# 1. Well branded, multi-step, multi-site campaigns designed to better convince and deceive.

Early in 2023, INKY began detecting multi-layer phishing scams that seemed to be a sign of the growing complexities to come.

Using newly created domains, phishers offered prizes for completing a survey. After completing the survey, victims were taken to additional fake websites and offered prizes. The phishers even went to the trouble to set up a site for each product, complete with consumer reviews. In exchange for these great prizes, survey-takers only had to pay for shipping and handling.



And therein lies the rub. After multiple twists and turns, past survey questions, disclaimers, product reviews, and more, victims surrendered their credit card information.

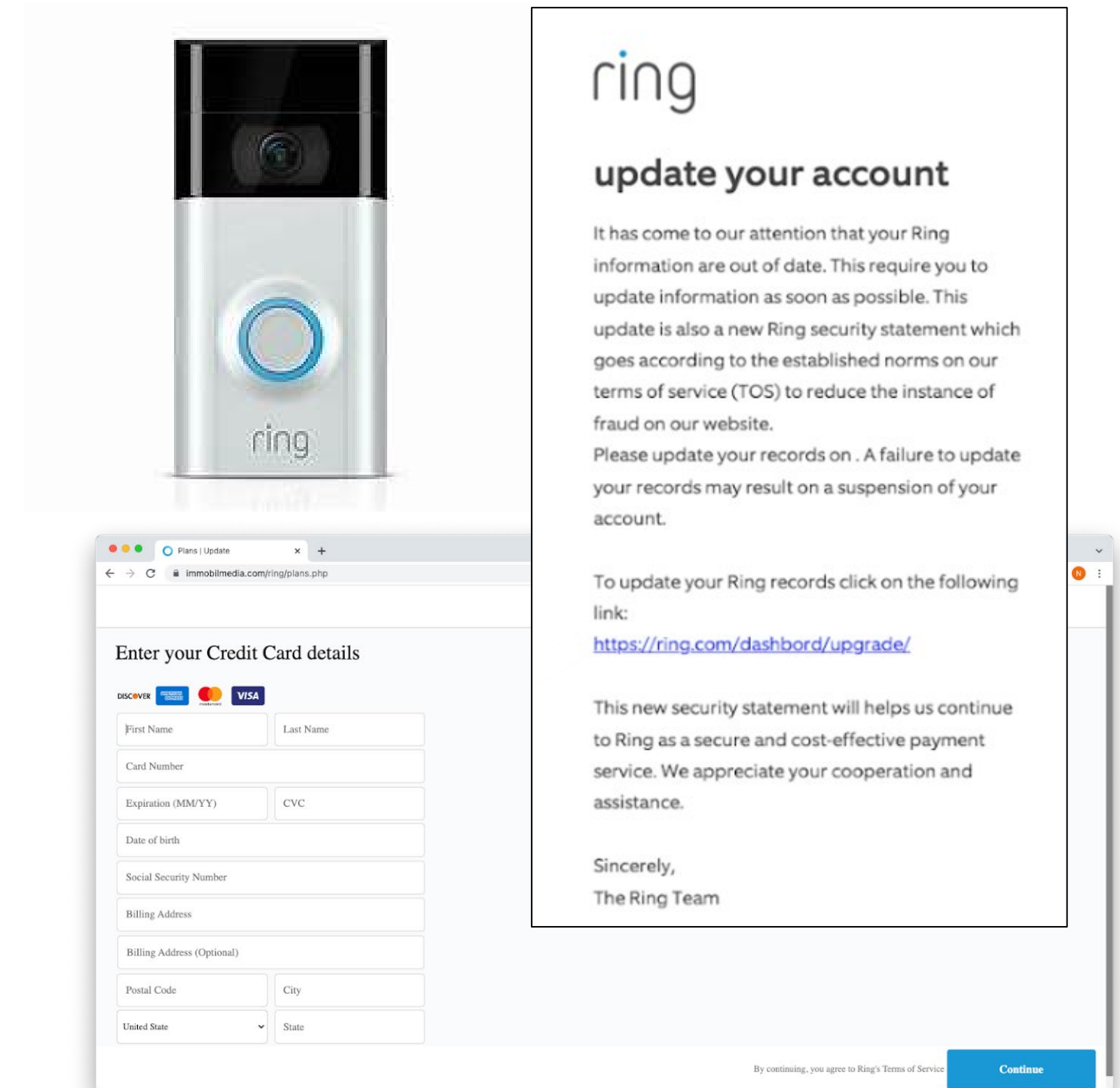


## 2. Malicious HTML email attachments allow phishers to host hijacked websites on the victim's local machine.

Malicious HTML email attachments give phishers a strategic advantage because of their ability to take users to a malicious website that is now hosted on the victim's local machine instead of the internet.

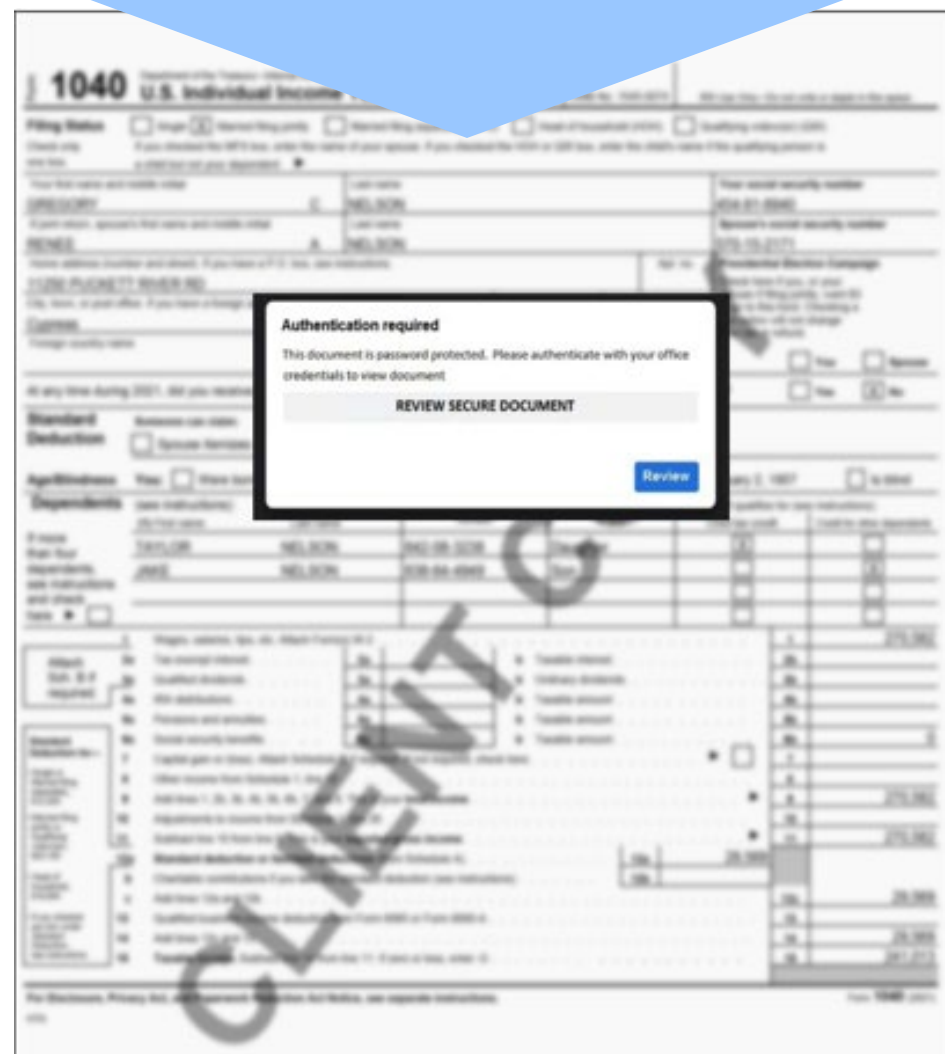
Standard URL reputation checks are avoided, and phishing content can't be detected since nothing is hosted on the internet. In this case, an examination of the HTML and CSS code shows expert use of the same fonts, colors, and logo of the very brand it is trying to impersonate.

In this case, victims believed their Ring account was about to be deactivated and were tricked into providing credit card information and other personal data, including SSN. An account activation notification appears briefly and then the web browser redirects victims to the real Ring website. As for the victim's data, it's now stored on the servers of the hijacked website.



### 3. Using LNK files, attackers avoid detection, gain access to systems, and execute malicious payloads.

What appears to be a secured document is actually a Windows shortcut known as a LNK file.



LNK is a file format used by Windows OS as a shortcut to act as a pointer to open a file, folder, or application. LNK files are based on Shell Link binary file format (file-based shortcuts) which holds information used to access another data object.

What does this mean? A LNK file maliciously execute anything on a victim's computer. For phishers looking for innovative ways to avoid detection (especially after Microsoft started to automatically disable macros in email attachments), LNK files answer the call.

This particular LNK file was used to download and execute Remcos remote access trojan to fully control the victim's computer and collect sensitive information.

Infected machines give attackers the ability to:

- Surveil user behavior with keystroke monitoring, screenshot captures, webcam recordings, and other spyware.
- Deleting, downloading, manipulating, and stealing files.
- Gaining admin privileges and disabling user account control (UAC)
- Installing malware, ransomware, and other viruses.



## 4. Decentralized network file systems and personalization pack a double punch.

Most phishing sites follow a **centralized client-server model** where phishing content is hosted on a legitimate server that was hacked and hijacked by the phisher. Once discovered, it is easy to deactivate the site.

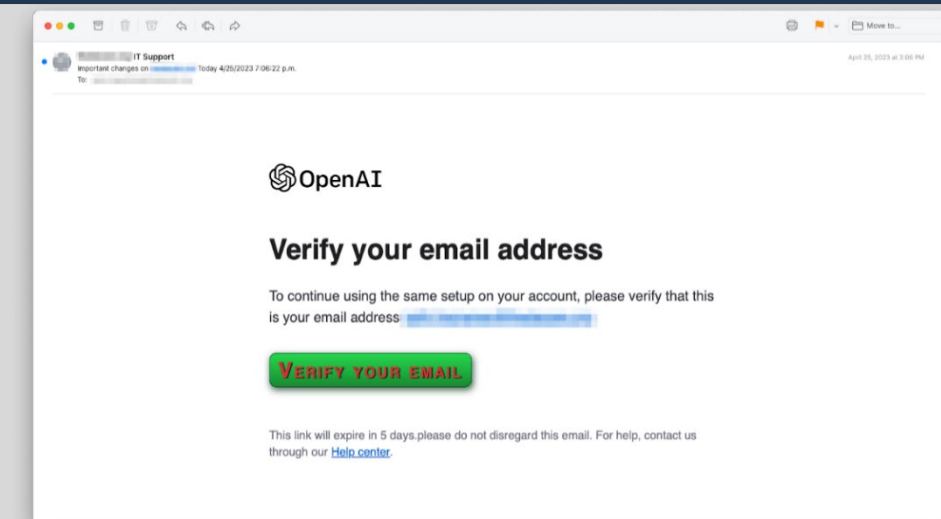
INKY saw a trend of cybercriminals using a **decentralized, peer-to-peer model** that is distributed and hosted amongst multiple nodes in the network. These attacks are resilient to takedowns because the phishing content exists on multiple nodes at the same time, so phishing content is still active even if one node is targeted.

In one example, INKY detected phishing emails containing a malicious link which directed victims to a malicious page hosted on the InterPlanetary File System (IPFS). The IPFS is a decentralized peer-to-peer file sharing network used to store and share data, in a distributed file sharing system.

At the end of the link, you'll find a URL parameter. The magic behind this URL parameter is that it contains the recipient's workplace – as taken from their email address. It takes victims to very convincing malicious website – one that mimics their own.

Hovering over the button reveals a malicious URL with two tricks in store:

`hxxps://bafybeidqi4sn5nfnfxlgasem4gsdmbq6m55iu6gtouom  
dgfwu4fx7ps7oq.ipfs[.]dweb[.]link/login.htm#b@inky.com`



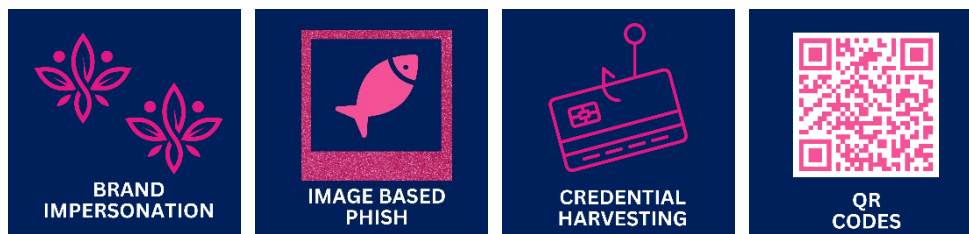
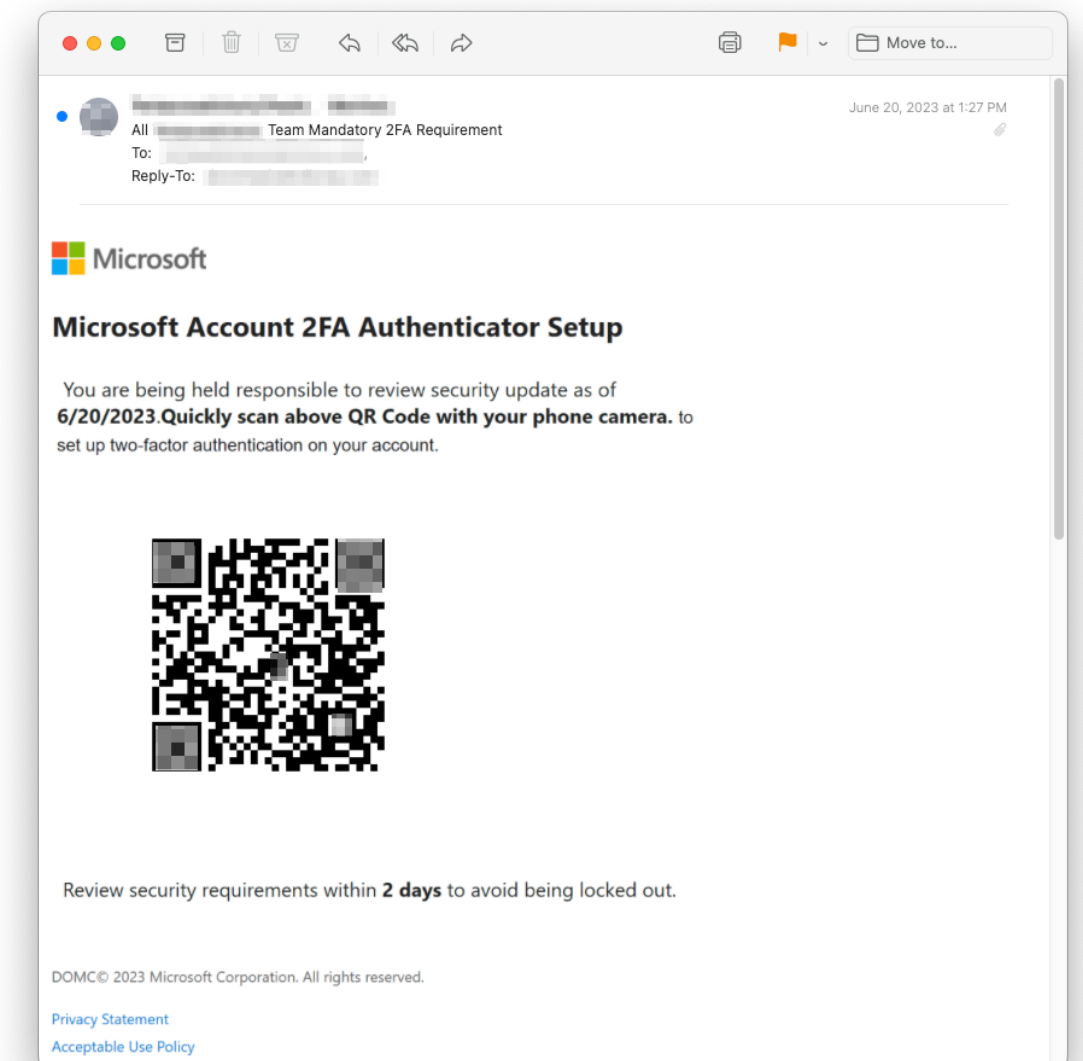
## 5. Malicious QR codes have become the fastest growing phish.

QR codes are popping up everywhere, providing a quick path to information we seek. Once a harmless marketing tool, QR codes are being exploited by cybercriminals for credential harvesting.

Technically, QR stands for quick response because of QR codes' ability to provide information in the snap of a finger. INKY caught thousands upon thousands of these tricky phish in 2023. The QR codes conceal the malicious URL from recipients and security software. As a result, victims scanning the QR code are unknowingly taken to a phishing site so that their credentials can be stolen.

Malicious QR codes are just one part of the puzzle. Without the right email security in place, these dangerous messages would have gone undetected due to another known phishing tactic: image-based textual messages sent as attachments.

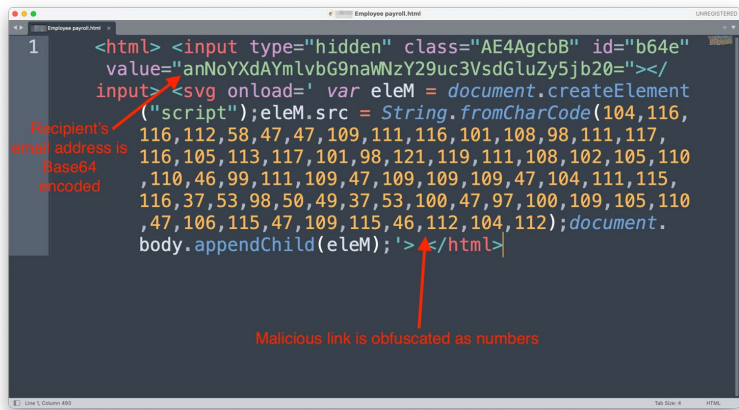
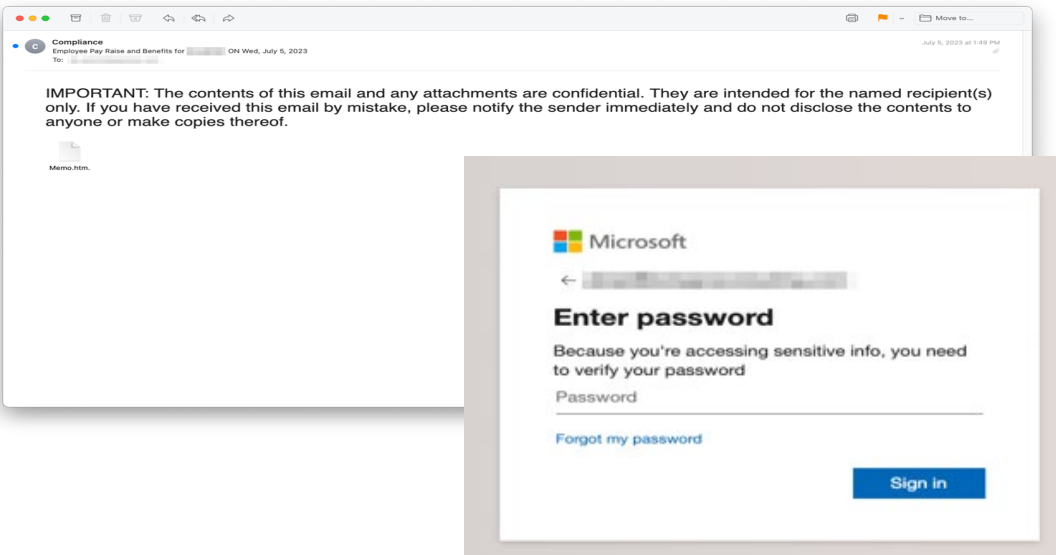
Secure Email Gateways (SEGs) and similar security systems are designed to detect basic textual clues that signal phishing. One way around that is to design an email without text. In this case, the examples above actually contain no text. That's right, no text. Instead, the text is embedded in an image and attached to the phishing email. Fortunately, INKY uses optical character recognition (OCR) that extracts the text from an attached email and uses it in combination with other artificial intelligence algorithms to detect an email as dangerous.



# 6. HTML smuggling made easy with clever phish kits.

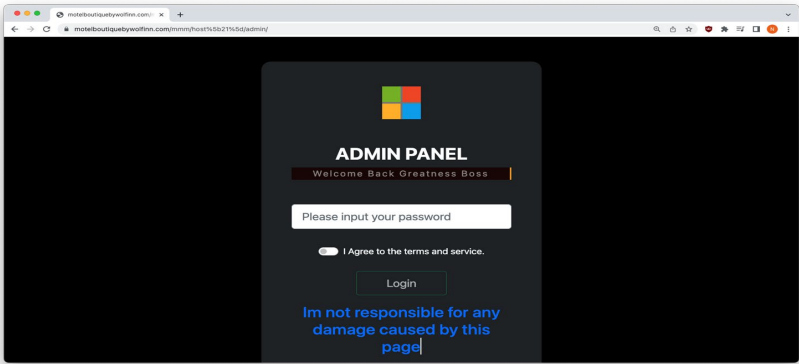
In 2023, INKY uncovered a new phish kit for an HTML smuggling campaign that most email security systems would easily miss. While there were many different forms of this email, all were capable of convincing recipients that their individual company benefits, payroll, or health insurance account required immediate attention. Let us walk you through some of what INKY saw...

- The emails are personalized - parts of the recipient's email address are used in the sender's display name, HTML attachment name, and email subject.
- No text can be found in the email body, except for fake disclaimer in the footer.
- The malicious script is encoded so that email scanners can't analyze the code.
- When opened, the HTML attachment builds credential harvesting form hosted on the recipient's local machine. Signing in will send the login credentials to a third-party server controlled by phishers.



- The source has been obfuscated to avoid detection. This is advantageous for phishers because a recipient's web browser only decodes the malicious script after the phishing email has been delivered and scanned.
- Malicious code gets executed locally behind any firewalls and security defenses.

- A different part of the hijacked site hosts an admin panel that phishers use to login and access stolen credentials stored on the hijacked site's server.





# 7. Malicious disk image mirrors drive structure

Phishers impersonating the brand PepsiCo and pretending to be potential clients, sent phishing emails claiming to be in need of some new suppliers. Recipients are told the details can be found in the attached RFQ (Request for Proposal).

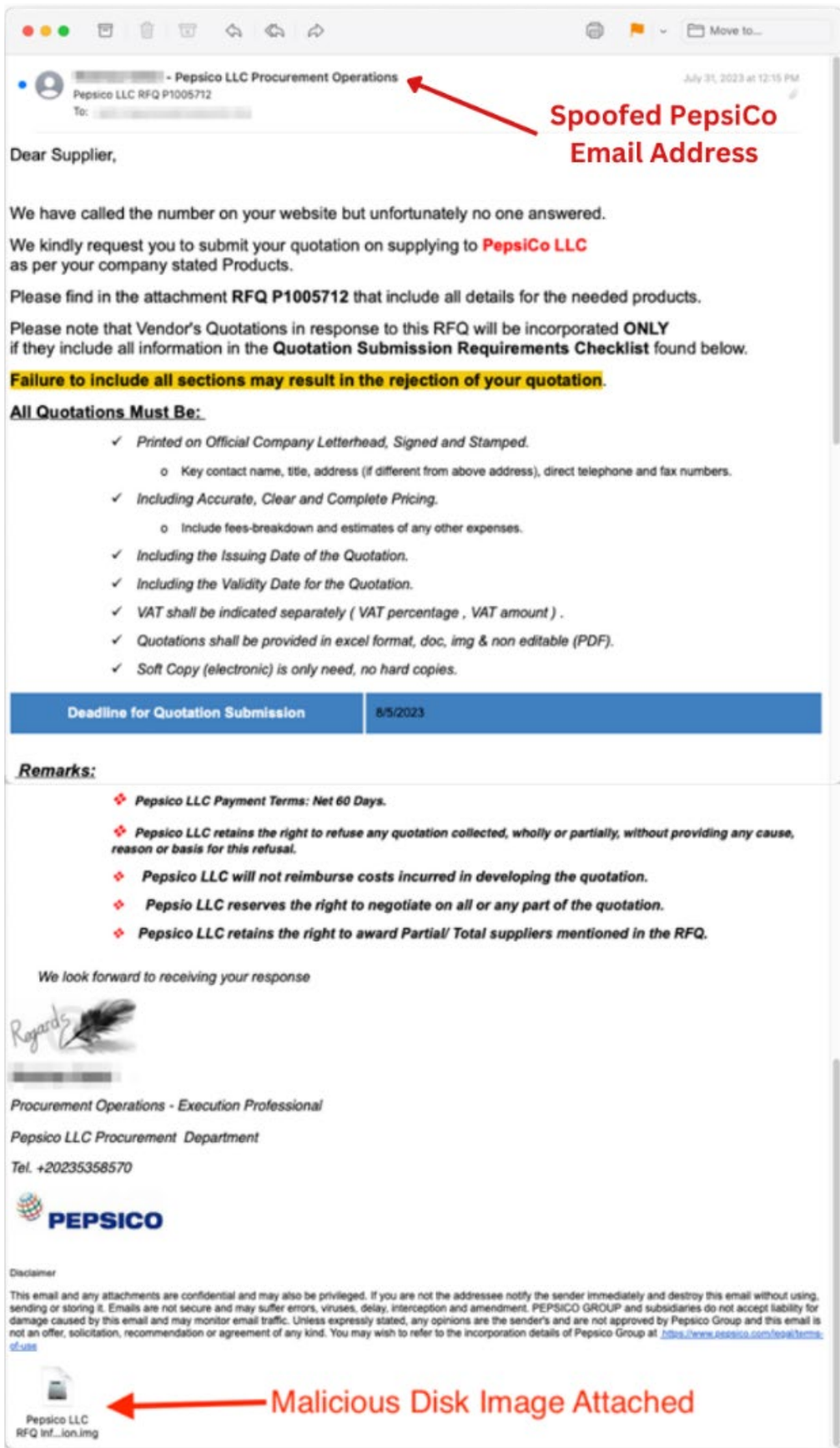
What the would-be victims don't know is that attached to the email is a malicious disk image.

## What is a Malicious Disk Image?

A disk image is a single file that reproduces all the contents and functionality of a hard disk, optical disk, or other storage device. In this case, it is disguised as a RFQ (Request for Quote). One click will infect the victim's computer.

A disk image is a great way to backup hard disks because unlike conventional backup programs, a disk image makes a copy of the structure of the drive, including data, programs, and formatting. A disk image so closely mirrors the actual drive that if your main drive ever fails, you can restore everything from the disk image, including personal preferences and plugins.

The way in which this phishing email was deployed also aids in its success. To evade geographical filters, these emails were sent from several virtual private servers, based in the U.S. and controlled by phishers.



## 8. Phishing phone scams

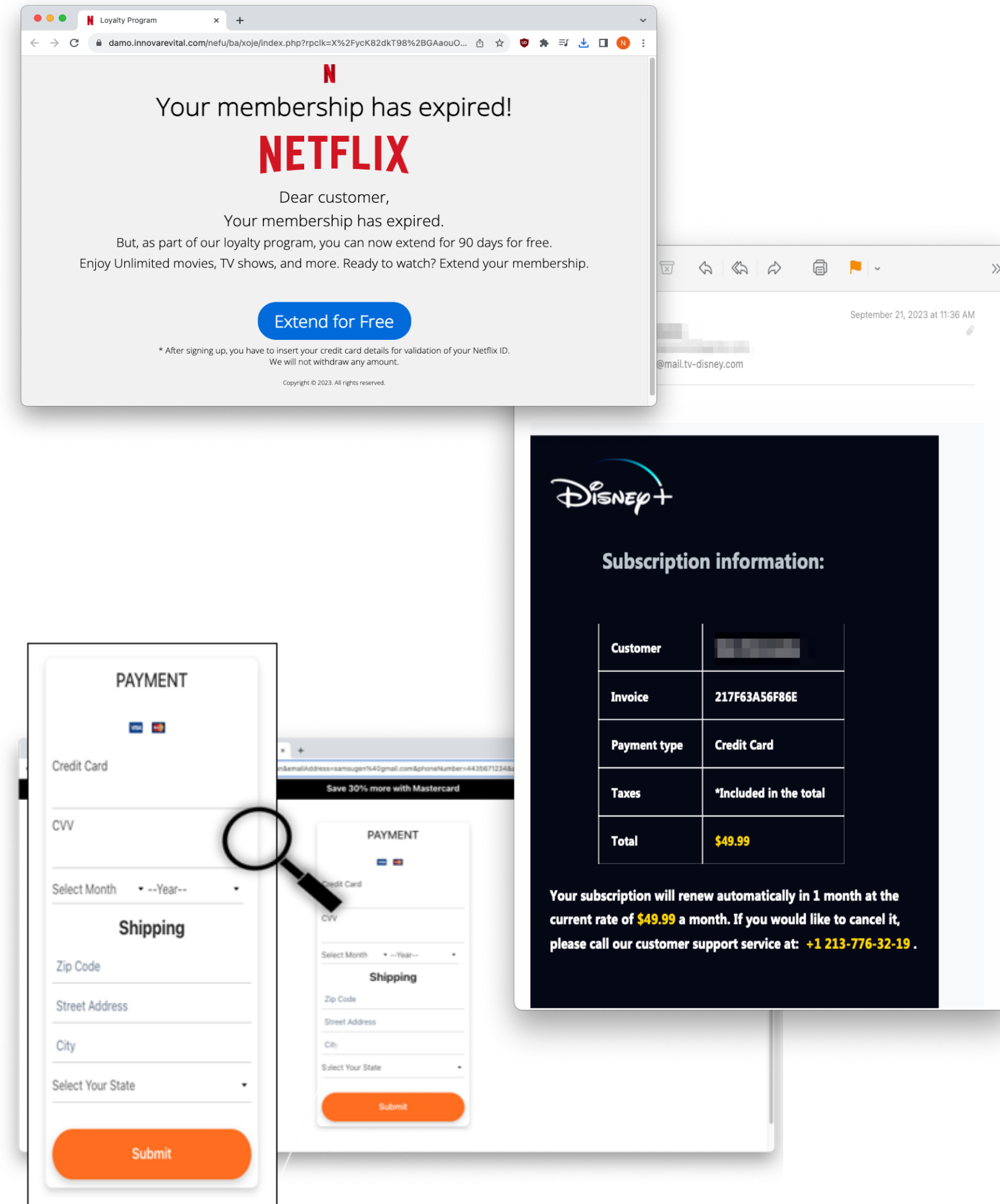
The majority of households have streaming services – 85%, in fact. These consumers depend on their streaming service so much that they are poised to act quickly should issues with their service arise. For cybercriminals, that poses a huge opportunity to harvest credentials.

In 2023 INKY caught a variety of phishing phone scams targeting streaming service users. Phishers impersonated Netflix, Disney+, Paramount, and others started with clever phishing emails, created convincing look-alike-domains (ex. tv-disney[.]com), drafted panic-evoking emails, and provided a phone number in hopes the recipient would call. Some emails threatened automatic renewal at inflated rates while others spoke to a cancelation of services.

The target is persuaded by the message to call the number. At the other end of the line is someone working for the phishers who tries to extract information from the caller. Victims are usually met with one of the following outcomes:

- Bad actors claim they need victims to install remote access tools on their computer to resolve the issue.
- Victims are directed to a malicious site where banking information is requested.
- Victims are asked to buy gift cards to be reimbursed for the phony invoice charges.

What makes this phishing threat successful is that it plays on human emotion and deadlines – both tell-tale signs that caution should be practiced.



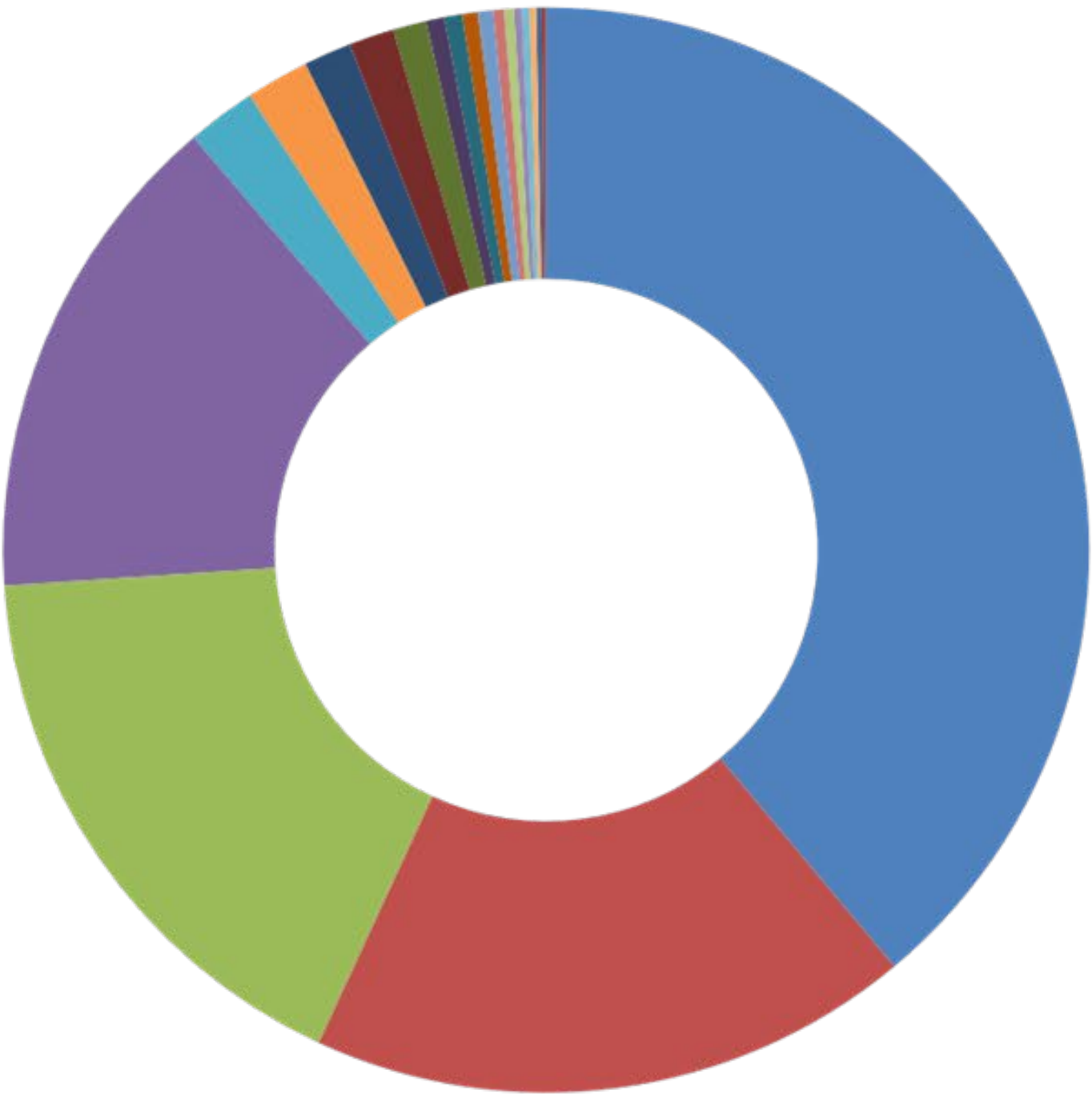
<sup>1</sup>Source: [www.cloudwards.net/streaming-services-statistics/](https://www.cloudwards.net/streaming-services-statistics/)



# ➤ INKY's list of threat categories continued to grow.

## New Threat Categories in 2023

- QR Code
- Blocked Sender Location
- Blocked Top-Level Domain
- Suspicious Sender



38.9%	Spam Content
18.0%	Sensitive Content
17.1%	Reported Spam
14.8%	First-Time Sender
2.1%	Graymail
1.9%	JavaScript Removed
1.4%	Spoofed Internal Sender
1.3%	Phishing Content
1.0%	Misleading Link
0.5%	Confusable Domain
0.5%	Possibly Misconfigured Service
0.5%	Potentially Dangerous Content Removed
0.5%	Reported Phish
0.3%	IP Address URL
0.3%	Protected File
0.2%	Possible Brand Impersonation
0.2%	Potential Sender Forgery
0.2%	Brand Impersonation
0.2%	Spammy Top-Level Domain
0.1%	QR Code



# ➤ Continued Innovation: Building New Models

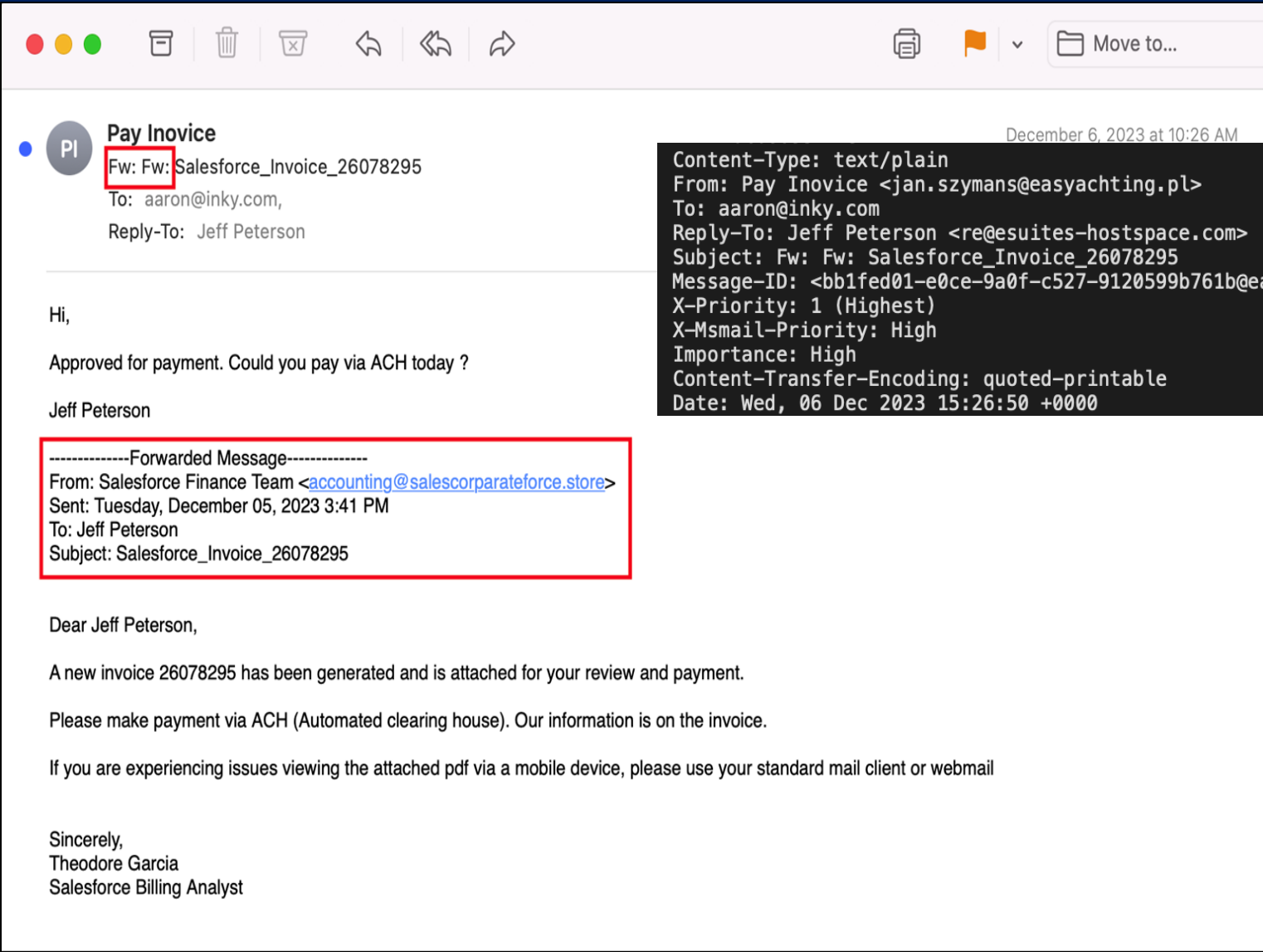
You may have heard that INKY gets smarter every day, and it's true. INKY learns from what she catches, what customers report, and in many cases, what is fed to her. The scientists at INKY are regularly building innovative new models that go deeper than other email security companies can go. We'd like to share an example of a model we refer to as the Fake Conversation Detector.

### Phishing Attempt:

After an account takeover, phishers often use a fake-reply tactic to trick users into thinking they're following up on a previous conversation about an outstanding payment. But what looks like a genuine reply to an earlier message is a message with forged headers.

### INKY Fake Conversation Detector:

INKY's advanced model was built to identify telltale signs of messages that might appear as a normal thread, but underneath the hood it contains tricks to deceive users.



# ➤ Continued Innovation: New Product Development

In 2023, INKY expanded beyond security with compliance and productivity products to enable our partners to provide their customers with the right solutions while simplifying operations that improve their bottom line. We introduced Graymail Protection, Security Awareness Training, and Email Signatures.

## THE COMPLETE EMAIL SECURITY PLATFORM

### EMAIL PROTECTION



INBOUND  
EMAIL PROTECTION



INTERNAL  
EMAIL PROTECTION



ADVANCED ATTACHMENT  
ANALYSIS



GRAYMAIL  
PROTECTION

NEW

2023

### DATA LOSS PREVENTION



OUTBOUND EMAIL  
PROTECTION



EMAIL  
ENCRYPTION


### COMPLIANCE



SECURITY  
AWARENESS TRAINING

NEW

2023



EMAIL  
SIGNATURES

NEW

2023

# New Product: Graymail Protection

## GRAYMAIL

### ► The Trouble With Graymail

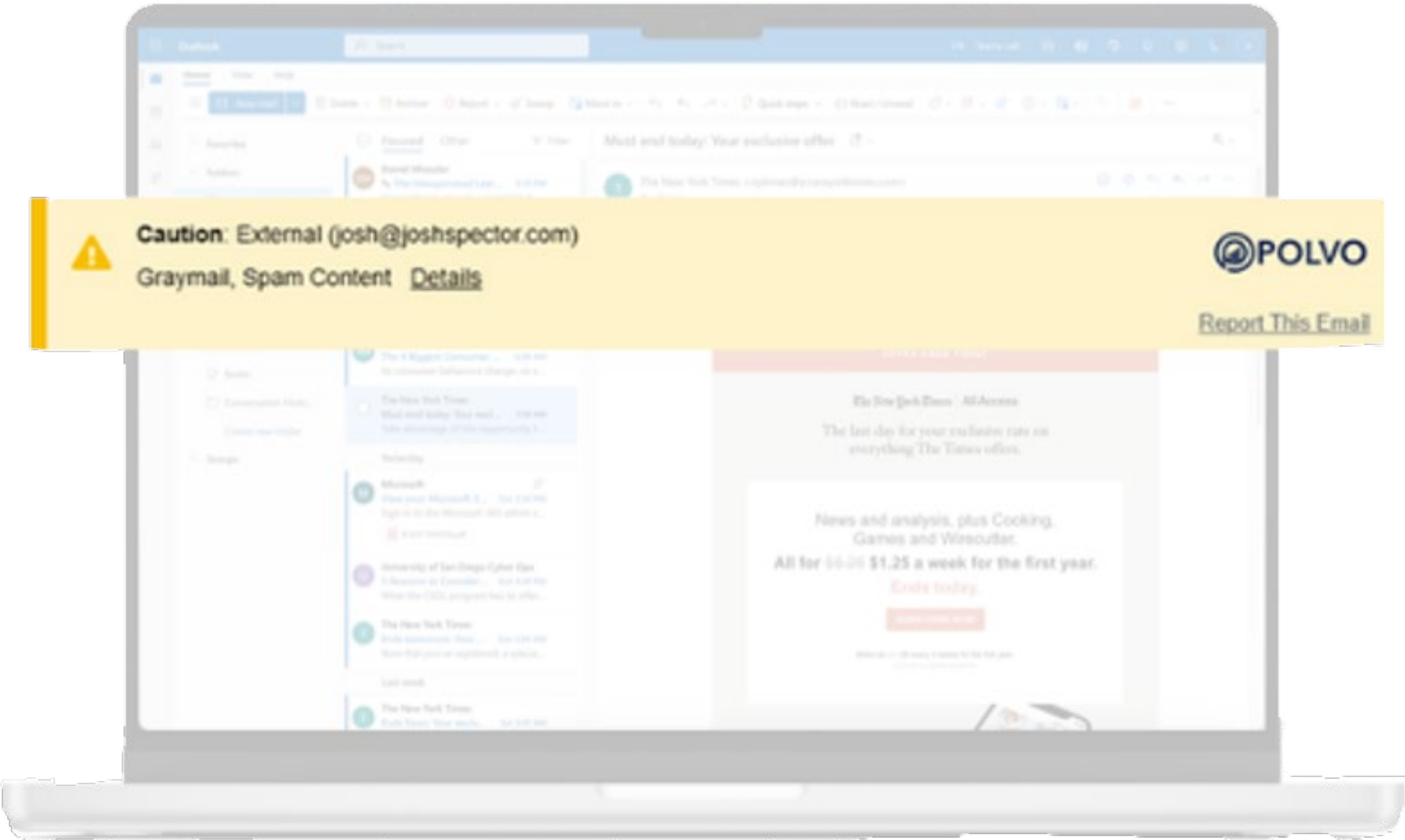
Graymail is a form of bulk email that at some point, you opted to receive. Not all graymail is unwanted, however, the frequency, amount, and timing can be distracting and frustrating.

### ► Hindering Your Company's Productivity

Though some graymail contains information employees need to review at some point, the constant barrage of messages sidetrack employees, impacting productivity and even the caliber of their work.

### ► Immediate and Intuitive Detection

Graymail Protection uses intelligent machine learning algorithms and delivery settings to dynamically detect and remediate graymail.





# New Product: Security Awareness Training

## SECURITY AWARENESS TRAINING

### ► Why It's a Plus

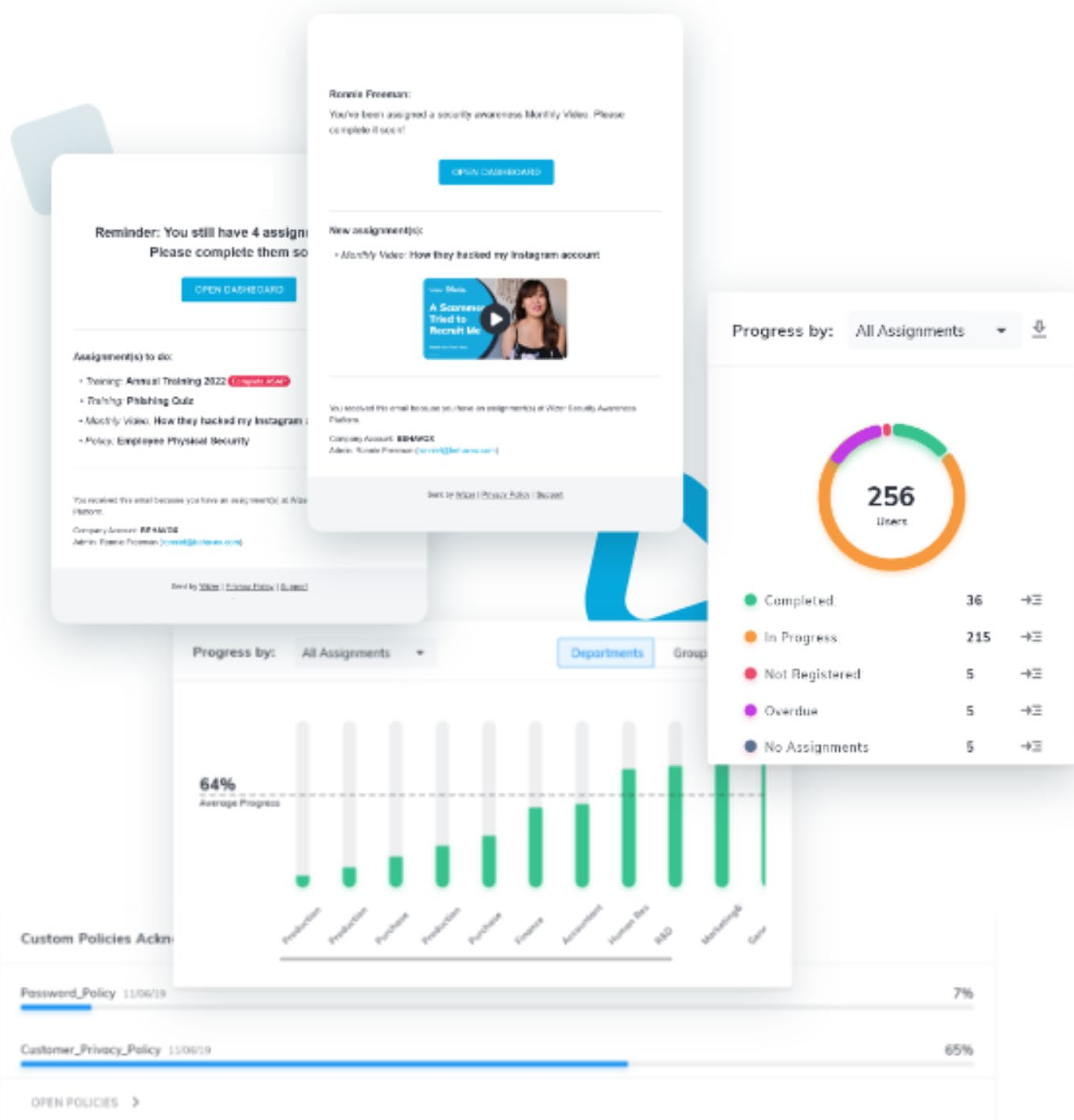
Regular email security training is a great addition to any security stack because it lowers click-thru rates and heightens the awareness and skill levels of all employees. It's also a great way to foster a culture of cybersecurity. When the whole company regularly engages in conversations and activities surrounding email security, safe behavior becomes part of the corporate culture.

### ► What Makes it Effective

Not all email security programs are created equal. However, INKY's Security Awareness Training is attention grabbing and offers the benefit of hands-on learning. Employees benefit from short, memorable videos, real life stories, whiteboard animation and more. Content is continuously updated to keep up with the latest threats.

### ► Automate Your Phishing Simulations

INKY let's you plan your phishing simulation when it's convenient for you. These set and forget campaigns train employees to recognize and report phishing emails.



# New Product: Email Signatures

## EMAIL SIGNATURES

### ➤ Simplify Operations

Combining email security and email signatures into a single service means you'll have fewer vendors to manage, one less stop for your emails to make in the delivery process, and consistent branding on all email communications.

### ➤ Ensure Security & Compliance

Adheres to stringent security protocols, including SOC 2 Type II certification, providing an email security platform customers trust.

### ➤ Implement & Manage with Ease

User-friendly dashboard with flexible options makes it simple for both administrators and users to manage email signatures.



# EMAIL SECURITY PREDICTIONS 2024







# ARTIFICIAL INTELLIGENCE WILL CONTINUE TO COMPLICATE THE WATERS

Artificial Intelligence (AI) will continue to make the attackers' jobs much easier. Language processing tools like ChatGPT will help ensure the quality of the writing will be greatly improved, resulting in higher numbers of victims.

While AI will create problems for many, INKY is well positioned to deal with these challenges.



# MALICIOUS QR CODES WILL BECOME THE FASTEST GROWING PHISHING THREAT

QR Codes came onto the phishing scene with a vengeance in 2023. Phishers can hide malicious codes in the QR Code, fooling victims and many email security systems. In 2023, QR Codes just made the list of our top 20 phish, but they didn't begin infesting the waters until mid year. As a result, we believe QR Code phish will swim straight to the top of the list in 2024.



# THE MSP INDUSTRY WILL EXPAND SIGNIFICANTLY

As Artificial Intelligence makes phishing easier for criminals and readily available for amateur phishers, incidents of phishing will skyrocket. That said, detection rates will be increasingly important and limiting exposures through vendor consolidation will be a big consideration. MSPs who are backed by a comprehensive email security platform will be positioned for greater success.



# CONTACT US

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