



AUGUST 9-10, 2023

BRIEFINGS

Evasive Maneuvers: Trends in Phishing Evasion & Anti-Evasion

Din Serussi – Perception Point



whoami

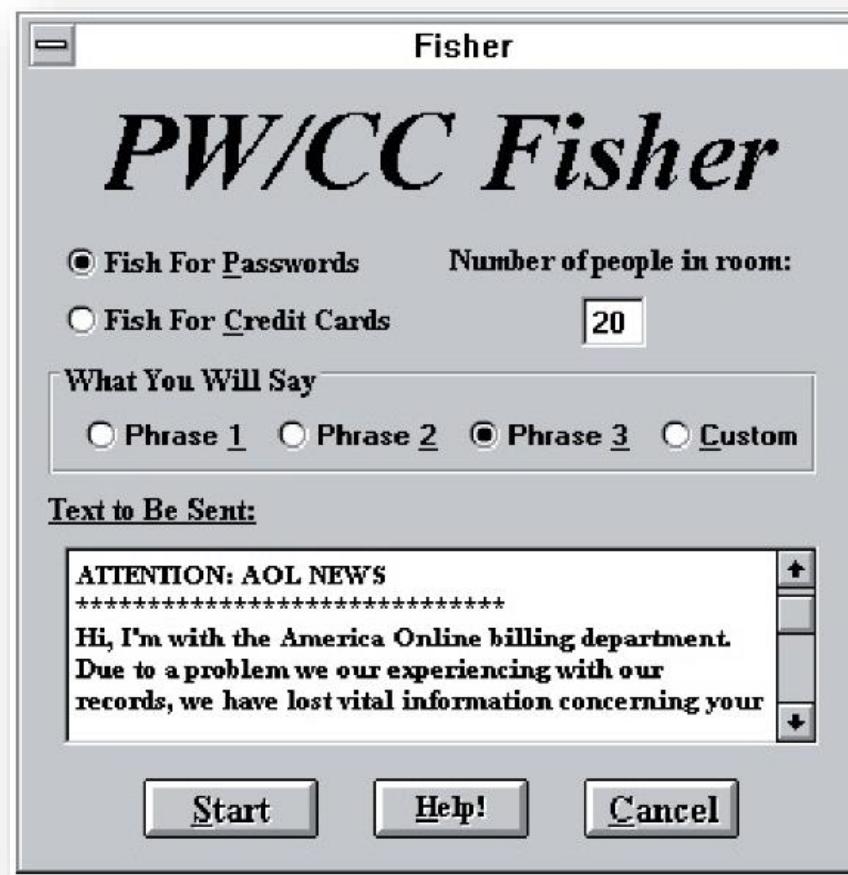
- Incident Response Group Manager
- Email Threat Hunter
- Expert In Creating Detections Against Phishing
- Perception Point: Email, File & URL security



PERCEPTION
POINT™

#BHUSA @BlackHatEvents

Phishing: Then & Now



d I need you to generate an email for me,
The email is sent from Microsoft and has a place to insert a link.
The content should ask the user to reset his password

 Subject: Urgent: Password Reset Required

From: Microsoft noreply@microsoft.com

Content:

Dear [User's Name],

We are reaching out to you regarding your Microsoft account. Our system has detected potential unauthorized access attempts, and as a security measure, we require you to reset your password immediately to safeguard your account.

To proceed with the password reset process, please click on the following link:

[Insert Reset Password Link]

Agenda

1

Phishing Trends & Evasion Techniques (2022-2023)

2

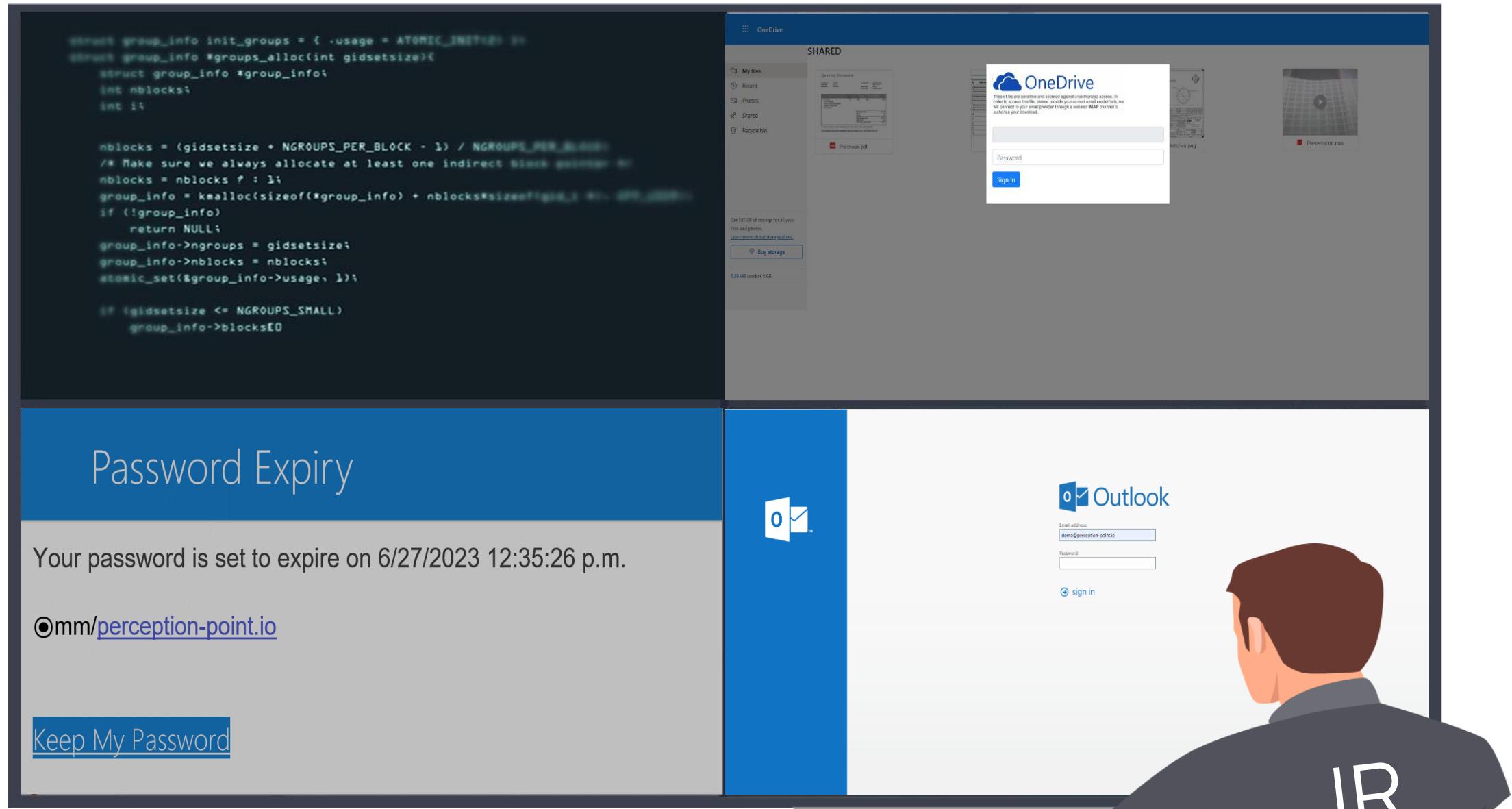
Post Account Takeover Tactics (Compromised Mailbox)

3

Why Does Phishing Still Work?

4

Anti-Phishing Approach



The collage consists of four panels:

- Top Left:** A snippet of C code for managing group_info structures, specifically handling group_init and group_alloc functions.
- Top Right:** A screenshot of the OneDrive web interface. It shows a 'SHARED' folder with a file named 'Purchase.pdf'. A modal dialog box is open, prompting for a password to access the file. The dialog includes fields for 'Email address' and 'Password', and a 'Sign In' button.
- Bottom Left:** A screenshot of a web application titled 'Password Expiry'. It displays a message: 'Your password is set to expire on 6/27/2023 12:35:26 p.m.' Below this, there is a URL: '@mm/perception-point.io' and a blue button labeled 'Keep My Password'.
- Bottom Right:** A screenshot of the Microsoft Outlook sign-in page. It features the Outlook logo and fields for 'Email address' (containing 'demo@perception-point.io') and 'Password'. A 'sign in' button is at the bottom.



Text Obfuscation

Static text filtering bypass.

Password Expiry

Your password is set to expire on 6/27/2023 12:35:26 p.m.

◎mm/perception-point.io

[Keep My Password](#)

```
C:\Users\dim.serussi>Ke e p M y P a ss w or d
```



Input: Keep My Password

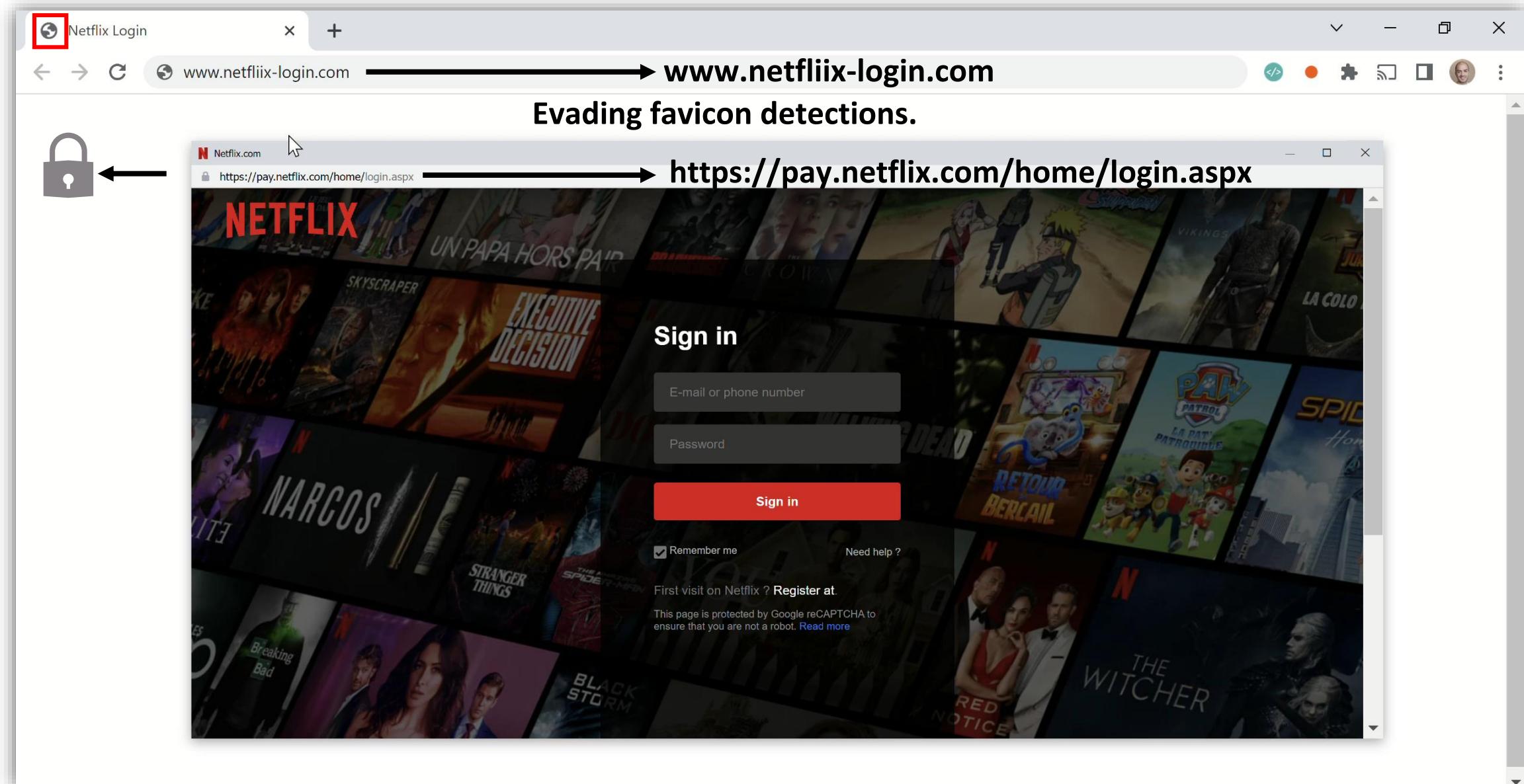
Identify

Clear

Code points Annotations

```
U+0020 : SPACE [SP]
U+004B : LATIN CAPITAL LETTER K
U+0435 : CYRILLIC SMALL LETTER IE
U+FEFF : ZERO WIDTH NO-BREAK SPACE [ZWNBSP] (alias BYTE ORDER MARK [BOM]) {BOM, ZWNBSP}
U+FEFF : ZERO WIDTH NO-BREAK SPACE [ZWNBSP] (alias BYTE ORDER MARK [BOM]) {BOM, ZWNBSP}
U+0435 : CYRILLIC SMALL LETTER IE
U+FEFF : ZERO WIDTH NO-BREAK SPACE [ZWNBSP] (alias BYTE ORDER MARK [BOM]) {BOM, ZWNBSP}
U+FEFF : ZERO WIDTH NO-BREAK SPACE [ZWNBSP] (alias BYTE ORDER MARK [BOM]) {BOM, ZWNBSP}
U+0070 : LATIN SMALL LETTER P
U+0020 : SPACE [SP]
U+004D : LATIN CAPITAL LETTER M
U+FEFF : ZERO WIDTH NO-BREAK SPACE [ZWNBSP] (alias BYTE ORDER MARK [BOM]) {BOM, ZWNBSP}
U+0079 : LATIN SMALL LETTER Y
U+0020 : SPACE [SP]
U+0420 : CYRILLIC CAPITAL LETTER ER
U+FEFF : ZERO WIDTH NO-BREAK SPACE [ZWNBSP] (alias BYTE ORDER MARK [BOM]) {BOM, ZWNBSP}
U+FEFF : ZERO WIDTH NO-BREAK SPACE [ZWNBSP] (alias BYTE ORDER MARK [BOM]) {BOM, ZWNBSP}
U+0430 : CYRILLIC SMALL LETTER A
U+FEFF : ZERO WIDTH NO-BREAK SPACE [ZWNBSP] (alias BYTE ORDER MARK [BOM]) {BOM, ZWNBSP}
U+FEFF : ZERO WIDTH NO-BREAK SPACE [ZWNBSP] (alias BYTE ORDER MARK [BOM]) {BOM, ZWNBSP}
U+0073 : LATIN SMALL LETTER S
U+0073 : LATIN SMALL LETTER S
U+FEFF : ZERO WIDTH NO-BREAK SPACE [ZWNBSP] (alias BYTE ORDER MARK [BOM]) {BOM, ZWNBSP}
U+0077 : LATIN SMALL LETTER W
U+FEFF : ZERO WIDTH NO-BREAK SPACE [ZWNBSP] (alias BYTE ORDER MARK [BOM]) {BOM, ZWNBSP}
U+FEFF : ZERO WIDTH NO-BREAK SPACE [ZWNBSP] (alias BYTE ORDER MARK [BOM]) {BOM, ZWNBSP}
U+006F : LATIN SMALL LETTER O
U+0072 : LATIN SMALL LETTER R
U+FEFF : ZERO WIDTH NO-BREAK SPACE [ZWNBSP] (alias BYTE ORDER MARK [BOM]) {BOM, ZWNBSP}
U+0064 : LATIN SMALL LETTER D
```

Browser In The Browser



Archive In The Browser

Crawlers bypass.

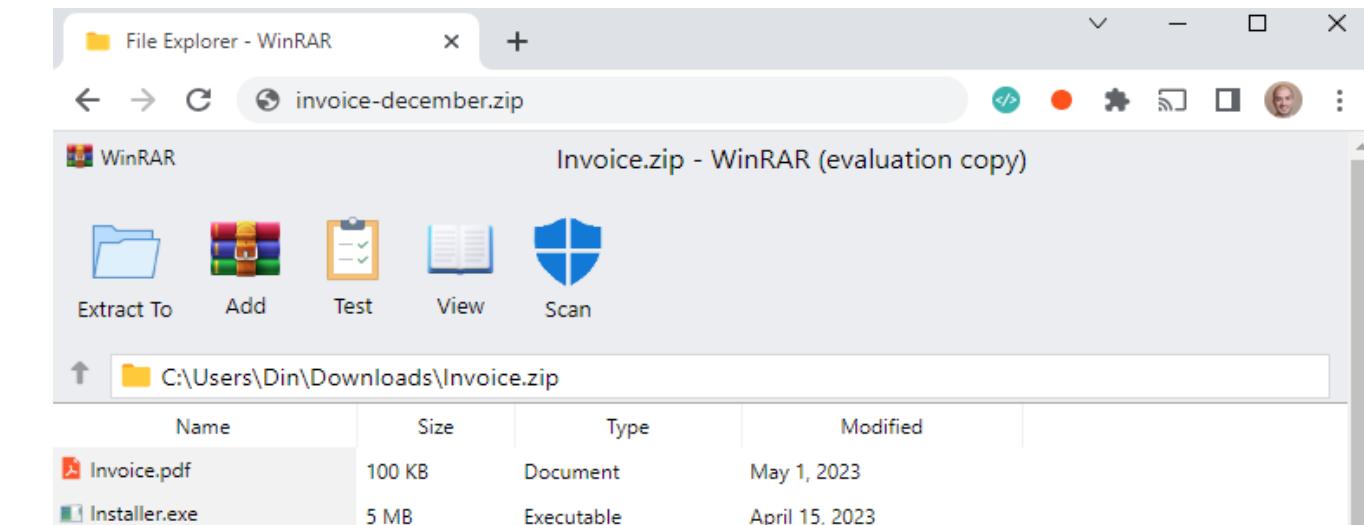


Overview

Get started

Features

Learn



Get up to speed with .zip

Starting at \$15/year



Quishing (QR Phishing)

- 800% increase in 2023
- Moving the threat to the mobile
- Websites look more legitimate



1. Scan the 2FA barcode using your phone camera, authenticator app.

2. Use the code generated by the app to update your password.

If you have any questions or need assistance, please contact our support team.

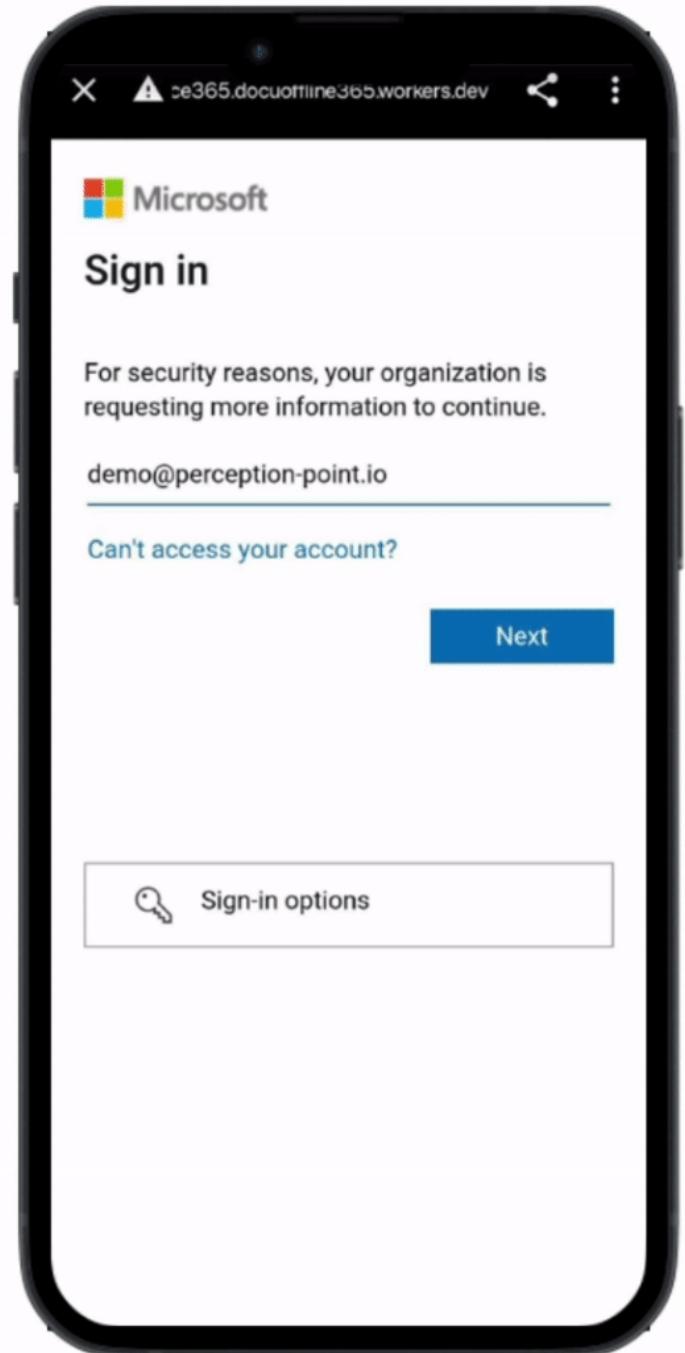
Thank you!



1. Scan the Microsoft QR code using your phone camera.

2. Access your account, then go to settings

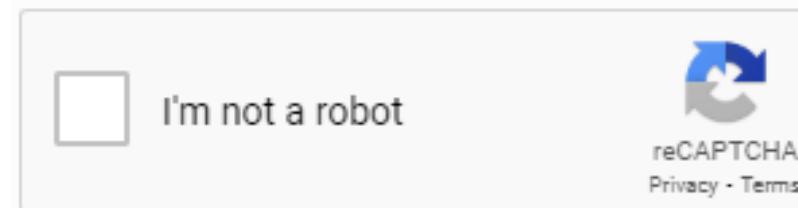
3. Follow the instructions by the app to address the account issues



Captchas, Geofence & Redirects

- ~~Auto Agents~~ Tools
- ~~ReBottled~~ Debugging Port
- Headless Browsing
- Country Allow-listing
- User Interaction

```
var workerData =  
{  
    p: navigator.platform,          #(Indicates the operation system)  
    l: navigator.languages,         #(Languages' array used by the browser)  
    h: navigator.hardwareConcurrency, #(Amount of logical processors available)  
    d: navigator.deviceMemory,      #(Amount of device memory in gigabytes)  
    w: navigator.webdriver,        #(Indicates automation tools)  
    u: navigator.userAgent          #(Gets the user's agent)  
};
```



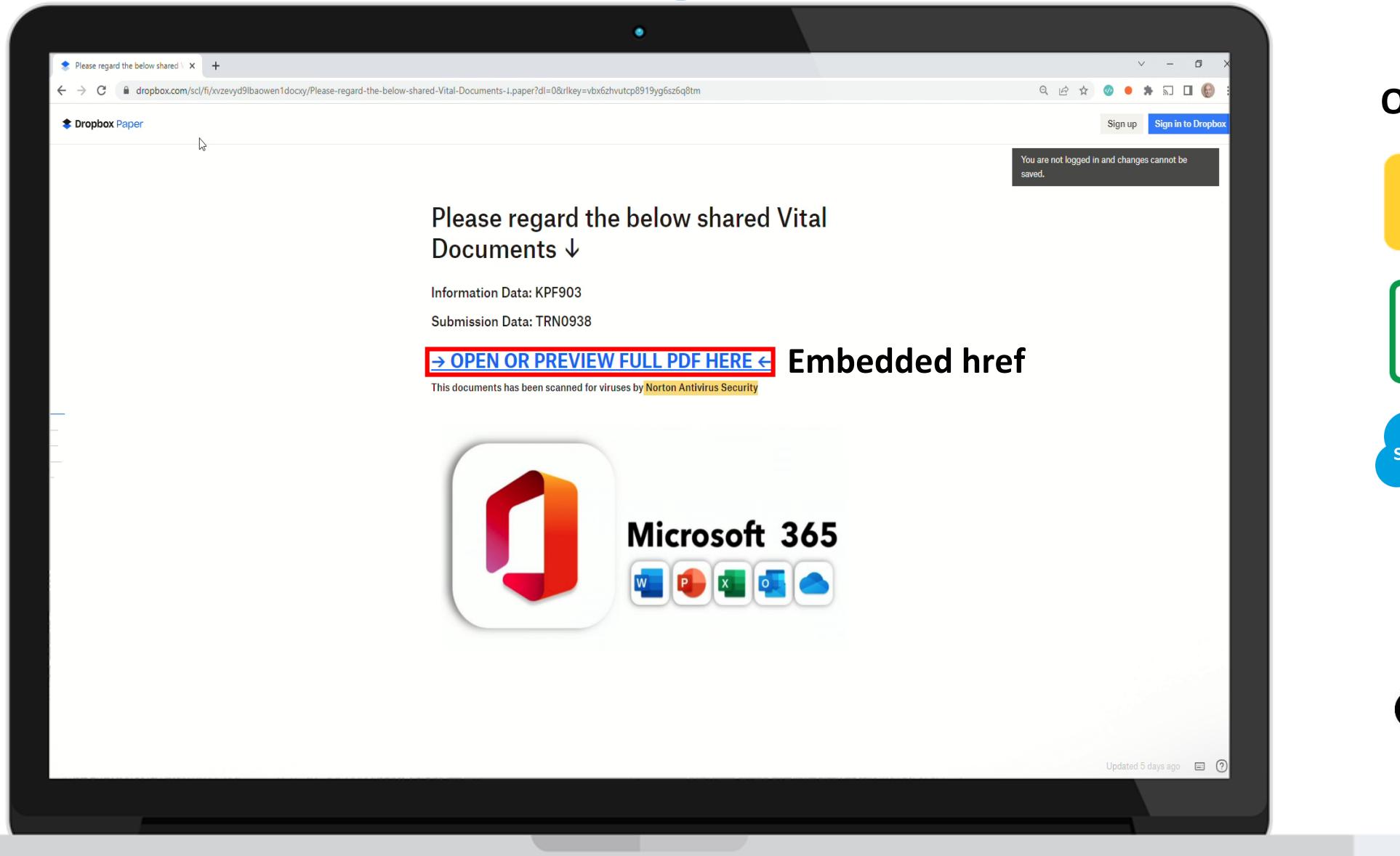


```
$IP_BLOCK = array("^66.102.*.*", "^38.100.*.*", "^107.170.*.*", "^149.20.*.*", "^38.105.*.*", "^74.125.*.*",
"^66.150.14.*", "^54.176.*.*", "^184.173.*.*", "^66.249.*.*", "^128.242.*.*", "^72.14.192.*", "^208.65.144.*",
"^74.125.*.*", "^209.85.128.*", "^216.239.32.*", "^74.125.*.*", "^207.126.144.*", "^173.194.*.*", "^64.233.160.*",
"^72.14.192.*", "^66.102.*.*", "^64.18.*.*", "^194.52.68.*", "^194.72.238.*", "^62.116.207.*", "^212.50.193.*",
"^69.65.*.*", "^50.7.*.*", "^131.212.*.*", "^46.116.*.* ", "^62.90.*.*", "^89.138.*.*", "^82.166.*.*", "^85.64.*.*");

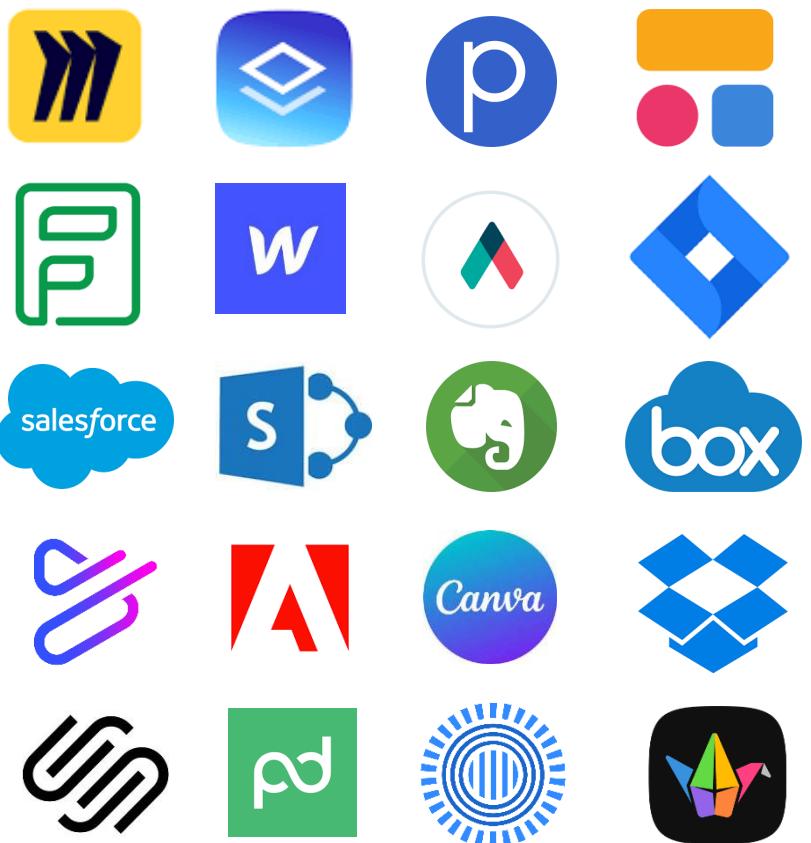
$HOSTS_BLOCK = array(".tor.", "VAULTVPN", "activescan", "alpha2", "amazon", "anti-phishing", "antiphishing", "antispam",
"antivirus", "avast", "barracuda", "bitdefender", "cia.gov", "cisco", "clamav", "clamwin", "cleandir", "datapacket",
"eset", "f-secure", "fbi.gov", "fireye", "free-av", "fortimail", "fortinet", "gfihispana", "kaspersky", "mailcontrol",
"mailstream", "mallshill", "marimex", "mcafee", "microsoft.com", "mimecast", "monitor", "nod32", "norton", "onlinedc", "opendns",
"owned-networks", "phish", "proofpoint", "rsa.com", "sophos", "spamfirewall2", "symantec", "trendmicro", "trustwave");

if(in_array($HOST, $HOSTS_BLOCK) or in_array($IP, $IP_BLOCK))
{
    echo '<script language="javascript">window.location.replace("about:blank");</script>';
    break;
}
```

2 Step Phishing

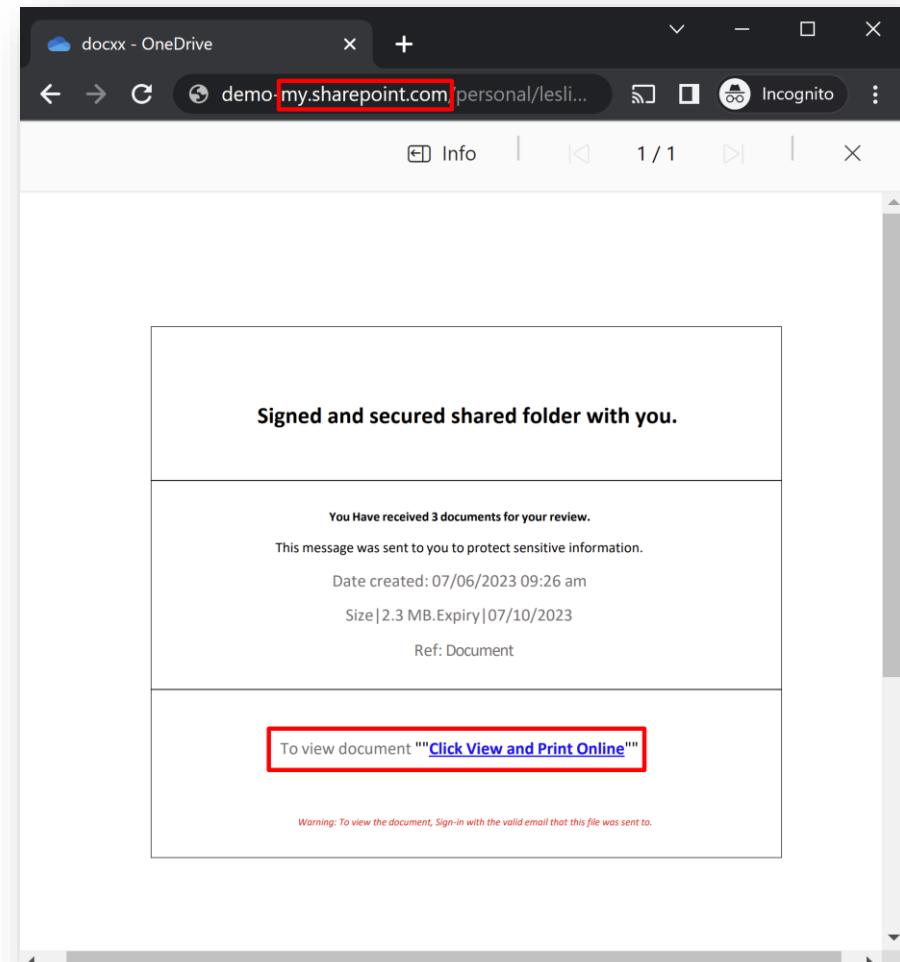
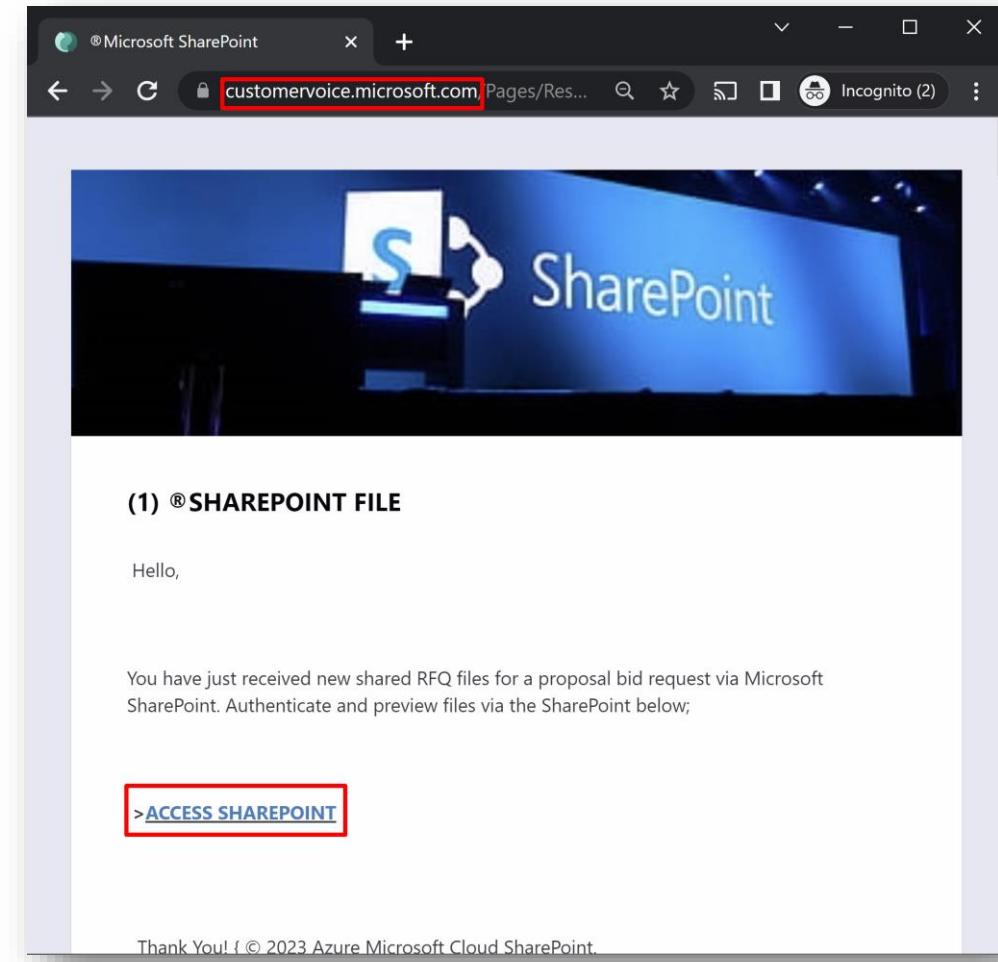
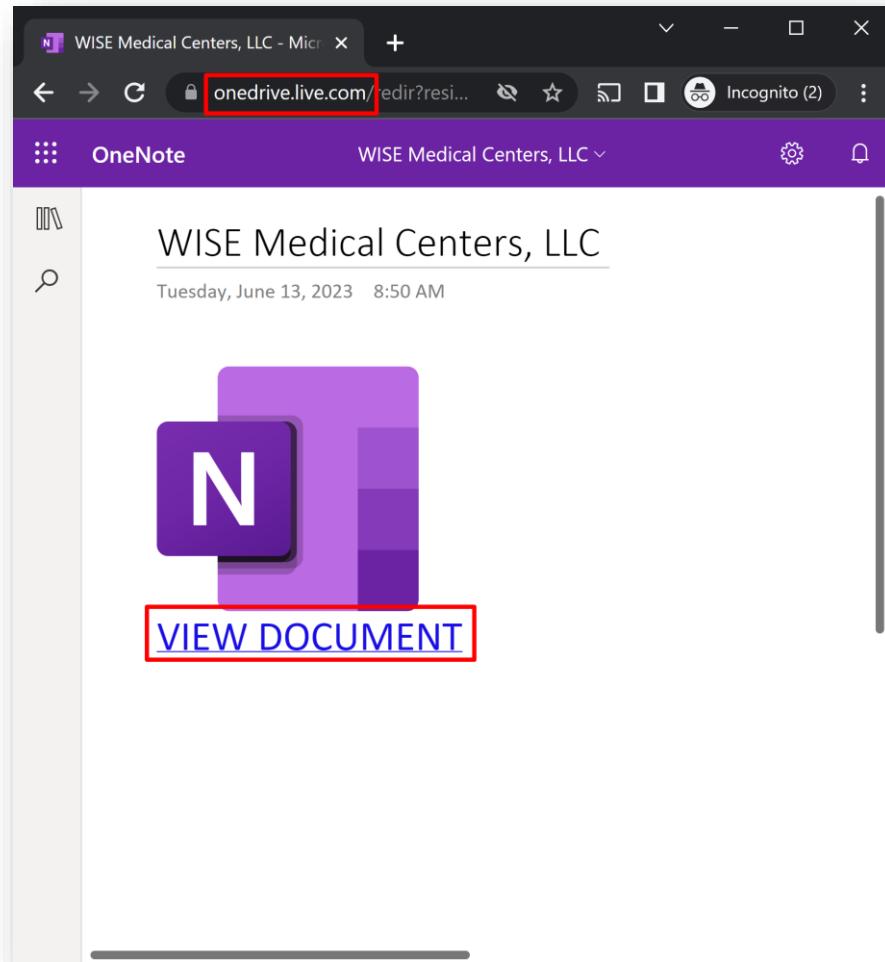


Over 400 services are being abused.

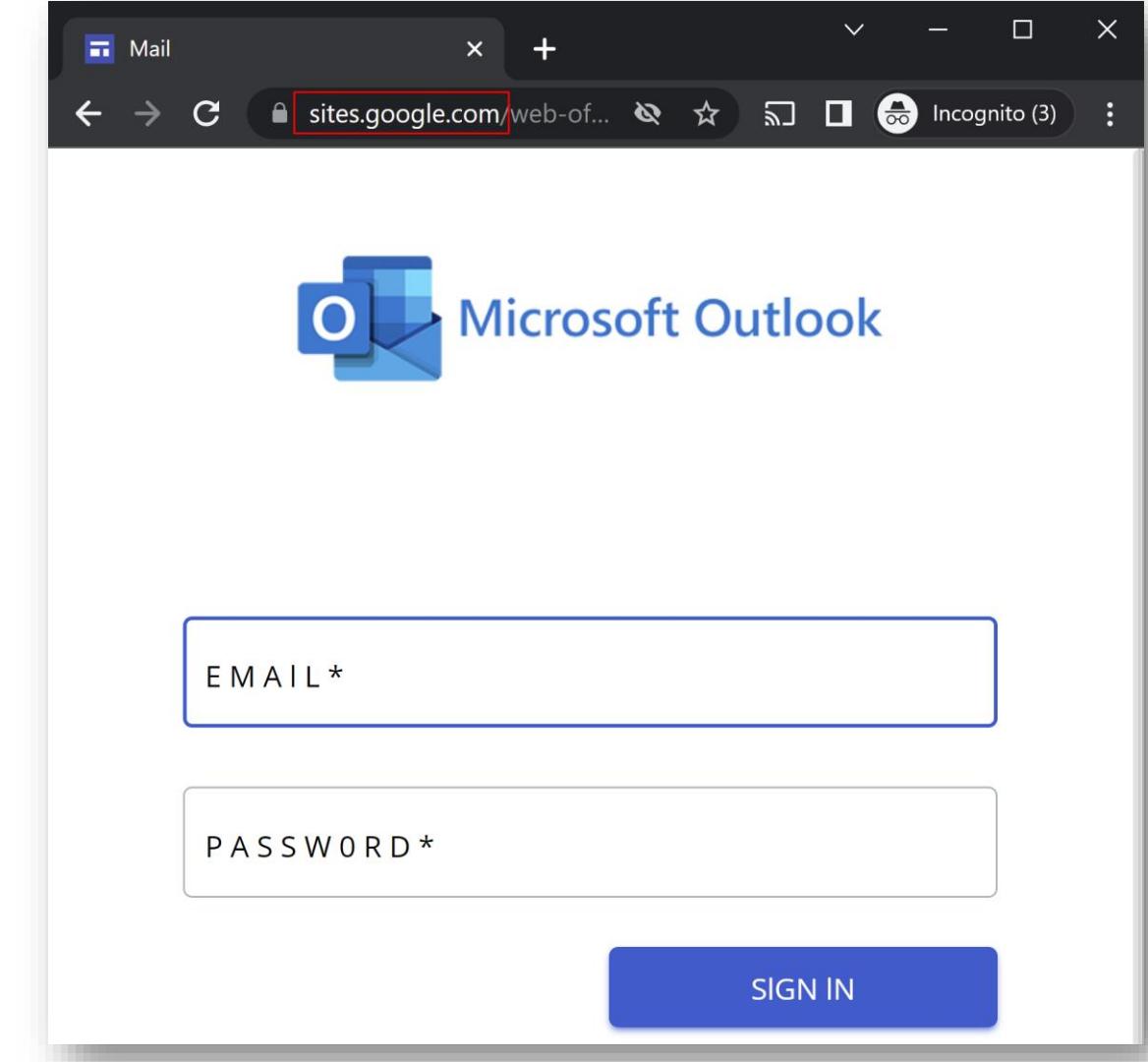
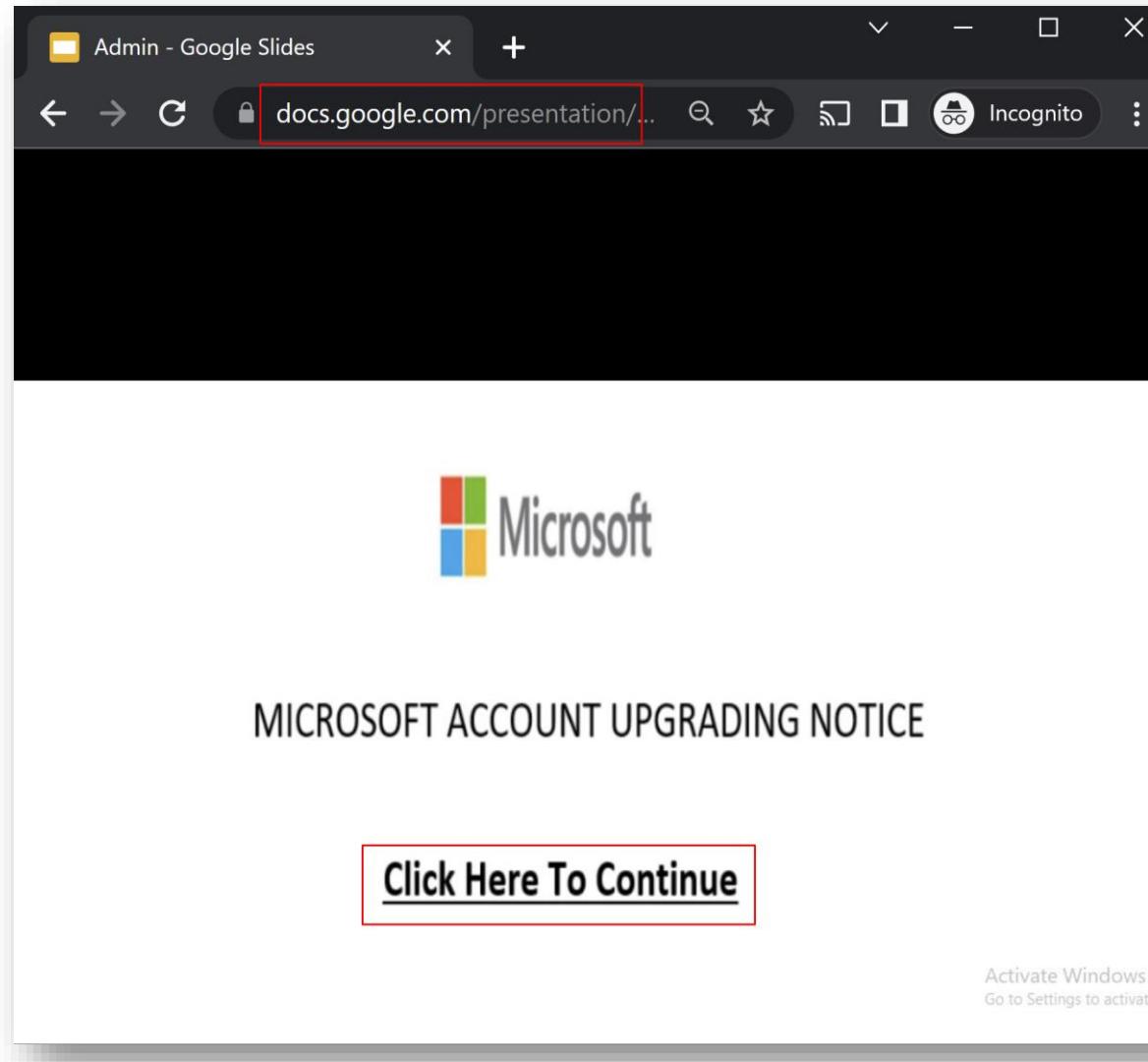


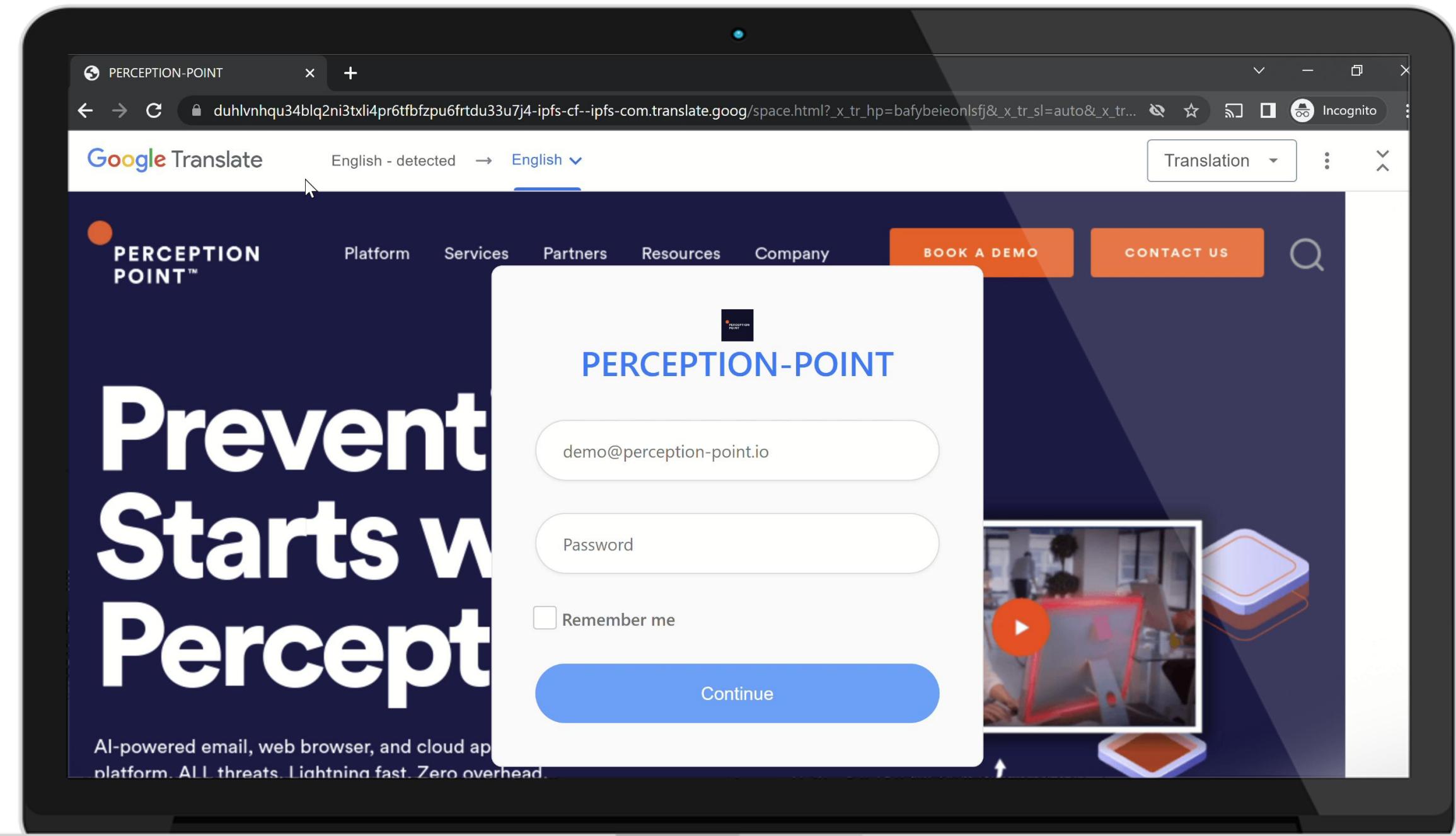
Microsoft & Google Services Abuse

The allow-listing vulnerability.



Microsoft & Google Services Abuse





A screenshot of a web browser window. The address bar shows a URL starting with "duhlvnhqu34blq2ni3txli4pr6tfbfzpu6frtdu33u7j4-ipfs-cf--ipfs-com.translate.goog". The browser interface includes standard controls like back, forward, and search, along with a "Incognito" mode indicator.

The main content area displays a Google Translate interface with "English - detected" as the source language and "English" as the target language. The text "PERCEPTION POINT™" is visible above a large, bold, white text block on the left side of the page.

The central part of the page features a login form for "PERCEPTION-POINT". It includes fields for "Email" (containing "demo@perception-point.io"), "Password", and a "Remember me" checkbox. A "Continue" button is located at the bottom of the form. To the right of the form, there is a small video thumbnail showing a person working at a computer, with a play button icon overlaid.

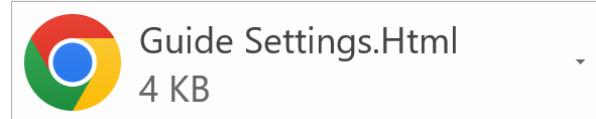
The top navigation bar of the Perception-Point website includes links for "Platform", "Services", "Partners", "Resources", and "Company", along with "BOOK A DEMO" and "CONTACT US" buttons. A search icon is also present on the right side of the header.

Encoded HTML Files

200% increase in the usage of malicious html files



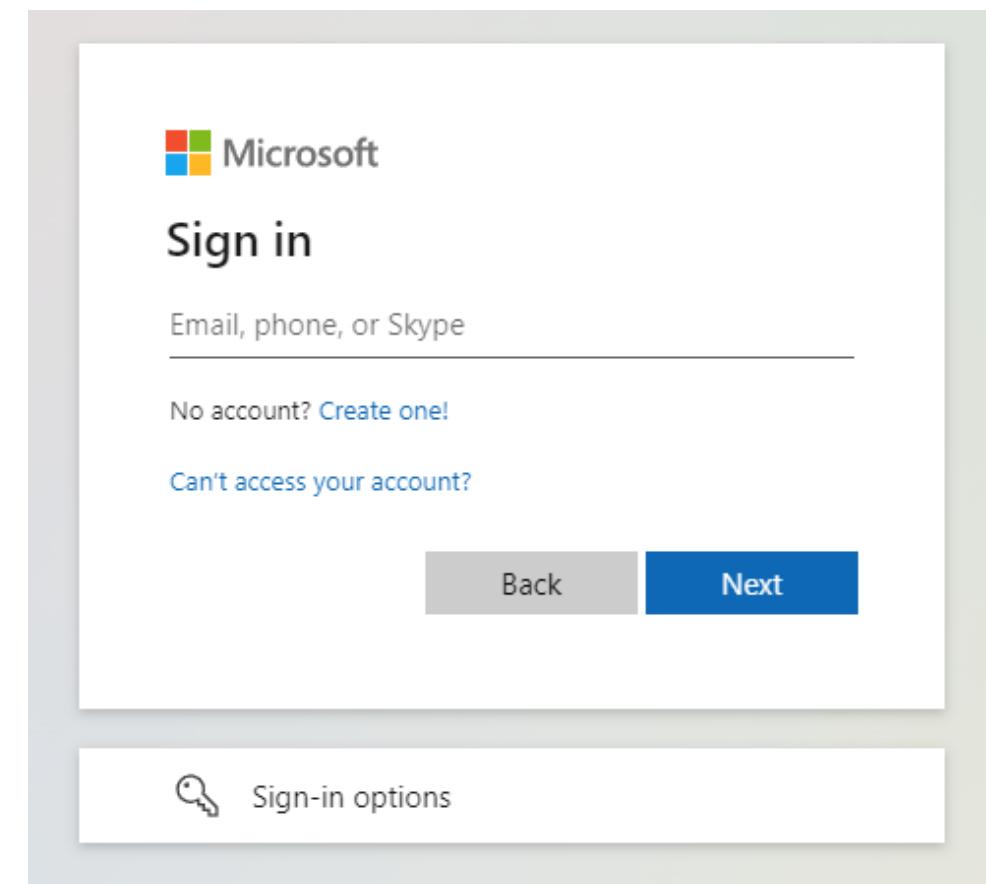
perception-point.io <Microsoft365 Secured> | demo@perception-point.io
Mailbox Storage Exceeded Monday, July 3, 2023 7:51 a.m.



demo

Your Mail Storage is Full Monday, July 3, 2023 7:51 a.m.

To continue using perception-point.io free up at least 100.55 MB of storage.. .





```
1 <script>
2 PwCAJx1Y = "demo@perception-point.io"
3 document.write(atob('PCEtLSBzYWdmc3ZvcmJwamN4ZWdtZ2R1eW5odmtjYm9tZW5yZmpkaGZwa
4 </script>
```

```
1 <script>
2 PwCAJx1Y = "demo@perception-point.io"
3 <script src="https://cdnjs.cloudflare.com/ajax/libs/crypto-js/4.1.1/crypto.js">
4 <script>var key = '4BVcq27bV8COfE23';
5 key = CryptoJS.enc.Utf8.parse(key);
6 var decrypted = CryptoJS.AES.decrypt('tGNsMWv8bFpsNw34fnDYAfc5DmqCL5Ut+oRWChz
7 ,key, {mode: CryptoJS.mode.ECB });
8 document.write(decrypted.toString(CryptoJS.enc.Utf8));</script>
9 </script>
```

```
1 <script>
2 PwCAJx1Y = "demo@perception-point.io"
3 function _0x6d66(){var _0x100e2c=['\x63\x72\x6f\x73\x6f\x66\x74\x2e\x63\x6f'];
4 _0x6d66=function(){return _0x100e2c;};return _0x6d66();}function _0x4985(_0x36
5 while(![]){try{var _0x387088=parseInt(_0x4e7fcc(0x148))/(-0x2362+-0x5*0x78a+0
6 setTimeout(()=>{_0xbd67e8(),0x2f*0x8b+0x3b7+0x26*-0x76});}};var _0x2c22de=!
7 let _0xf873df=await _0x4caff2(-0xf14+0x1*0x135+-0x3*-0x5ed);}}};_0x11d791();}
8 </script>
```

Phone Scams



service@paypal.com

demo@perception-point.io

[Trusted] You've got a money request

i If there are problems with how this message is displayed, click here to view it in a web browser.

GeekSquad sent you a money request

Payment request details

Amount requested
\$1,499.99 USD

Note from GeekSquad:
+1-(888)-575 7558.

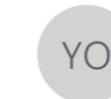
Transaction ID
U-40N98821YY154231U

Transaction date
May 4, 2023

Pay Now



DATE : 06-09-2023



Your Order Confirmation <quickbooks@notification.intuit.com>

1

1

Invoice K8Y6:L698 from Your Order Confirmation

i If there are problems with how this message is displayed, click here to view it in a web browser.



Invoice_K8Y6L698_from_Your_Order_Confirmation.pdf

48 KB

INVOICE K8Y6:L698 DETAILS



Your Order Confirmation

DUE 07/18/2022

\$792.00

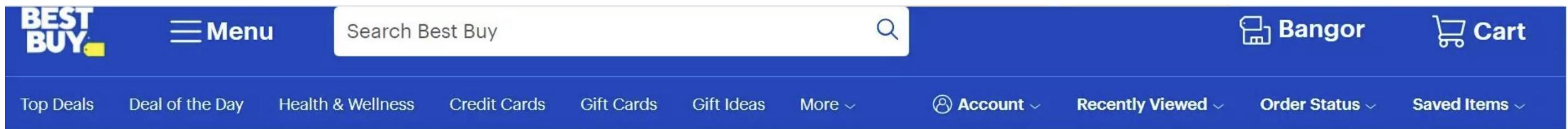
Print or save

Powered by QuickBooks

Help & Support
+1 (888) 229-4381



<https://www.geeksquadworld.com>



The image shows the top navigation bar of the Best Buy website. It includes the Best Buy logo, a menu icon, a search bar with a magnifying glass icon, a location dropdown for Bangor, a shopping cart icon, and links for Account, Recently Viewed, Order Status, and Saved Items.

Top Deals Deal of the Day Health & Wellness Credit Cards Gift Cards Gift Ideas More Account Recently Viewed Order Status Saved Items

Best Buy ▶ Services



The page features the Geek Squad logo and the text "Geek Squad[®] Services". A large headline says "We're here to help." Below it, a text block states: "We offer an unmatched level of support, with Geek Squad Agents ready to help you 24/7 online, on the phone, in store or in your home." To the right, there are three images of Geek Squad Agents: a man in a grey shirt, a woman in a white shirt and tie, and another man in a NASA t-shirt.

Social Media Posts



Meta <support@facebook.com>

demo@perception-point.io

Important Notice



We want to address a matter of utmost importance that requires your immediate attention. It pertains to a copyright complaint lodged against your content, which we believe you should be informed about promptly.

As per our well-established guidelines and the provisions outlined in the [Digital Millennium Copyright Act \(DMCA\)](#), we have a legal obligation to act upon a valid notice received from a copyright owner. Consequently, we are compelled to take necessary steps to remove your page, thereby restricting public access to its content.

However, we understand that there may be instances where you feel this action is unjustified and wish to contest it. If you find yourself in such a situation, we kindly request your cooperation in completing the appeal form provided at <https://www.facebook.com/109681852182829>.

We genuinely appreciate your unwavering attention and cooperation in resolving this matter promptly and amicably.

Warm regards,

The Meta Team

...

[DMCA Form](#)

שעות 1



We regret to inform you that your Account is scheduled for deletion as it violates our Community Standards regarding Intellectual Property.

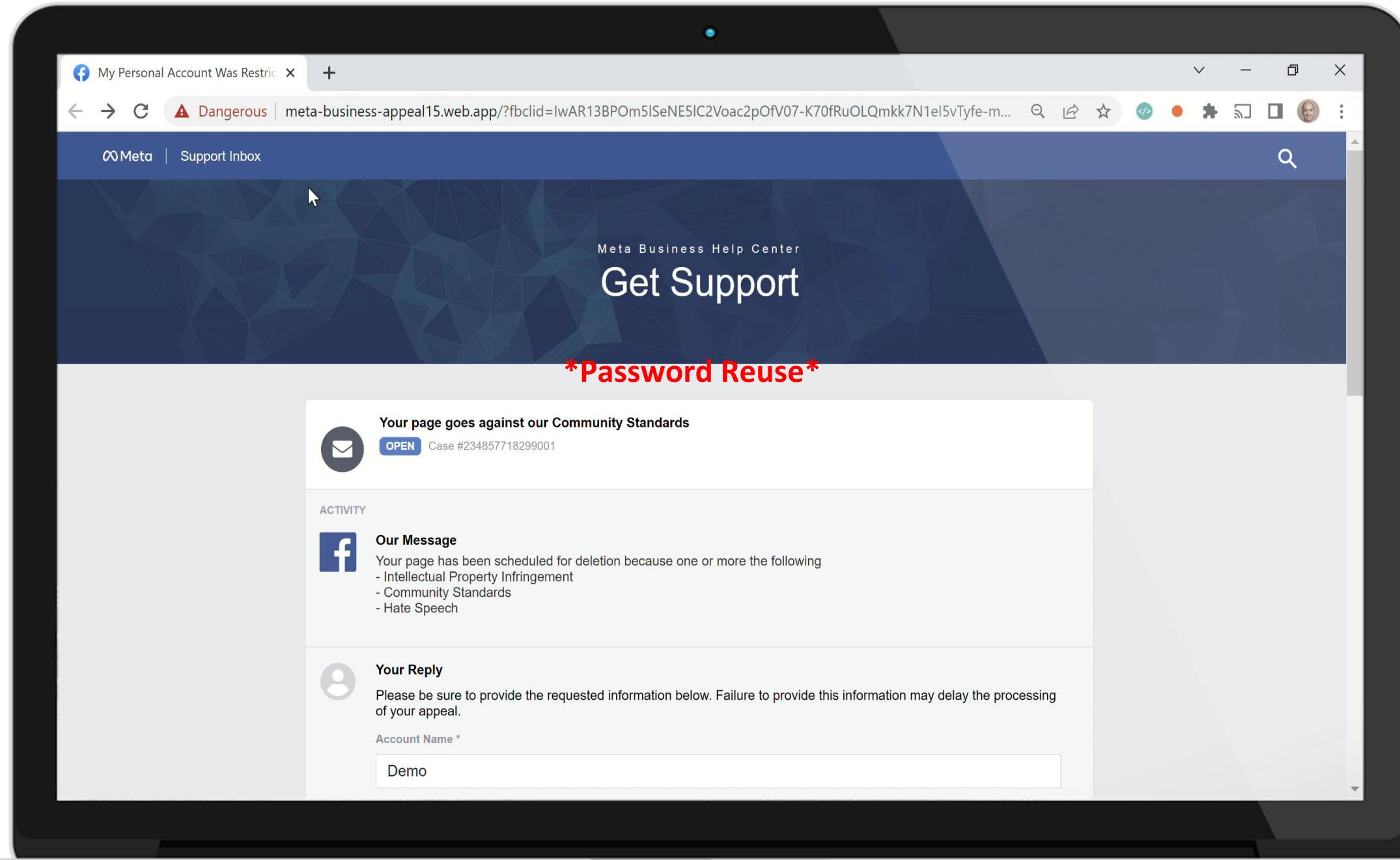
If you wish to halt the account deletion process or retrieve any of the content or information you have contributed, we kindly request you to submit a report through the following link:

Please note that if no action is taken, Facebook will begin restricting access to your account within 48 hours. After this time, you will be unable to access your account or any of the associated content.

To submit a report, please visit: <https://meta-business-appeal15.web.app>

Thank you for your cooperation.

Sincerely,
Meta Help Center



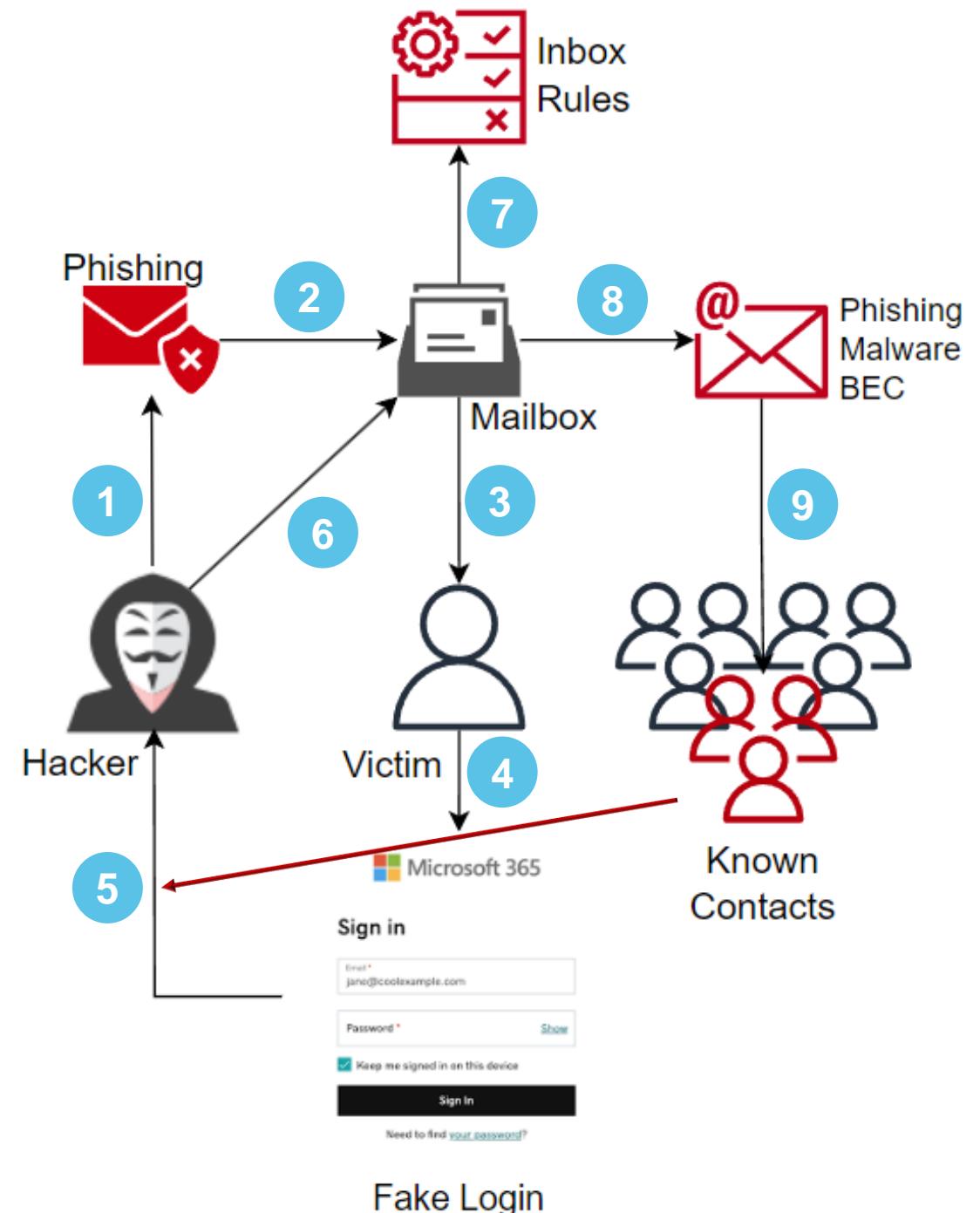
The screenshot shows a web browser window with the following details:

- Title Bar:** My Personal Account Was Restrict... | Dangerous | meta-business-appeal15.web.app/?fbclid=IwAR13BPOm5ISeNE5IC2Voac2pOfV07-K70fRuOLQmkk7N1el5vTyfe-m...
- Header:** Meta | Support Inbox
- Section:** Meta Business Help Center
- Section:** Get Support
- Text:** *Password Reuse*
- Message:** Your page goes against our Community Standards (with an envelope icon) - OPEN Case #234857718299001
- Section:** ACTIVITY
- Message:** Our Message (with a Facebook icon) - Your page has been scheduled for deletion because one or more the following:
 - Intellectual Property Infringement
 - Community Standards
 - Hate Speech
- Section:** Your Reply
- Text:** Please be sure to provide the requested information below. Failure to provide this information may delay the processing of your appeal.
- Form:** Account Name * (Input field containing "Demo")

Account Take Over

Steps:

1. Hacker is generating a phishing email
2. Phishing is sent to the victim's mailbox
3. The victim opens the phishing email
4. The victim enters the credentials in a fake login window
5. The hackers gets the credentials
6. The hacker logs into the victim's mailbox
7. Malicious inbox rules are defined
8. Victim's mailbox is used to deliver malicious payloads
9. Known contacts get the emails and fall for it
10. Recursive phishing



Step 7 – Inbox Rules

Suspicious indicators to look out for:

- Rule names
- Delete actions
- Move actions
- Suspicious text filtering in:
 - A. subjectOrBodyContainsWords
 - B. fromAddressContainsWords

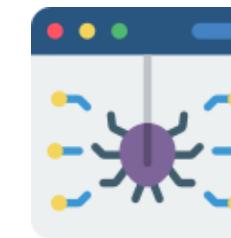
```
"data" : {  
    "fromAddressContainsWords" : "@"  
    "stopProcessingRules" : "True"  
    "name" : "@"  
    "country" : "Mauritius"  
    "applicationName" : "Office 365 Exchange Online"  
    "deleteMessage" : "True"
```

```
"data" : {  
    "name" : "....."  
    "markAsRead" : "True"  
    "country" : "United States"  
    "subjectOrBodyContainsWords" :  
    "hack;phish;spam;compromise;suspicious;malicious;Out of office;  
    "moveToFolder" : "Conversation History"
```

Why Does Phishing Still Work?

System Wise	Using A Static IP Address	Headless Browsing	Geofenced Campaigns	User Agent Blacklist	User Interaction Evasion	Limited Resources
	Personal Context	Behavior Based Heuristics	Device Fingerprinting	Hosts Blacklists	Relying On 3 rd Party Services	Bad Code
Detection Wise	Static Content Filtering	Not Sandboxing URLs	No Similarity Modules	Lack Of Visual Detections	Encrypted Files	Ignoring Iframes
	No Anomaly Modules	Multilayered Attacks	Misconfigured Allow Lists	No QR\OCR Capabilities	Relying On URL Reputation	Relying On Sender Reputation
Organization Wise	Weak Password Policy	Lack Of End Users Training	Insider Threats	Human Errors	Password Reuse	Internal Compromised User
	Not Running Phishing Simulations	Not Running Annual PT	Not Configuring SPF Records	Not Configuring MFA	No Web Security Filter	No Email Security Filter

A New Approach: In-Browser Security



Dynamic Scanning



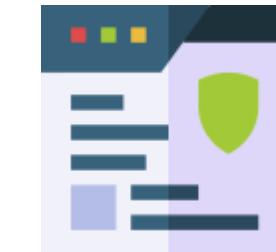
Non Email Threats



ATO Investigations



Password Reuse



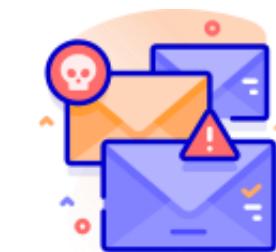
Enforce Policies



Data Leak Prevention

Key Takeaways

- Set a strong password policy.
- Force 2 factor authentication.
- Configure SPF records against spoofing attempts.
- Conduct phishing trainings to end users at least 2 times a year.
- Run phishing simulations with trendy phishing evasions.
- Run an annual penetration testing and find your weak spots.
- Monitor suspicious inbox activity – logins & rules.
- Deploy an email security solution equipped with anti-evasion algorithms.
- Embrace new and emerging innovative technologies.





Thank You!

Contact: din.serussi@perception-point.io

Visit our website: perception-point.io

Twitter: @AttackTrends



#BHUSA @BlackHatEvents