



Social Media, Business Fraud, Phishing

Secrets To A Successful Security Awareness Program

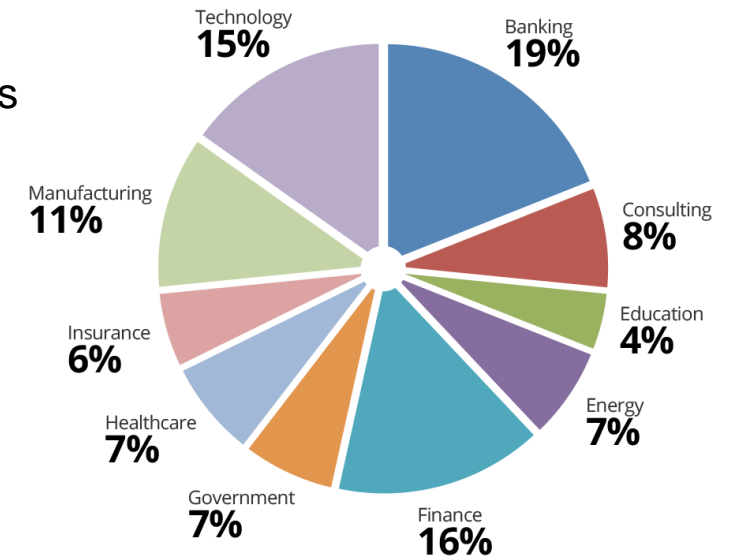


Roger A. Grimes
KnowBe4
Data-Driven Defense Evangelist
e:rogerg@knowbe4.com



KnowBe4, Inc.

- The world's most popular integrated Security Awareness Training and Simulated Phishing platform
- Based in Tampa Bay, Florida, founded in 2010
- CEO & employees are ex-antivirus, IT Security pros
- 200% growth year over year
- We help tens of thousands of organizations manage the problem of social engineering



About Roger



Roger A. Grimes

**Data-Driven Defense Evangelist
KnowBe4, Inc.**

Twitter: @rogeragrimes

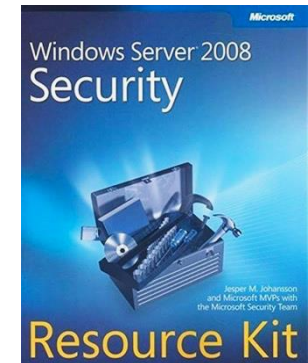
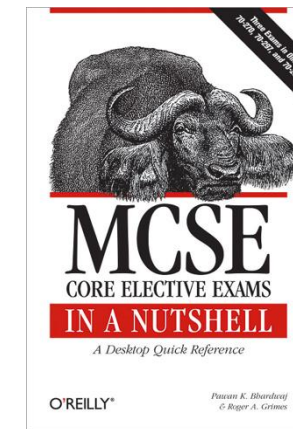
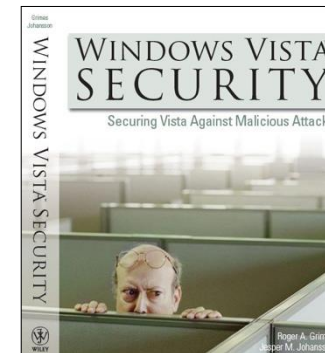
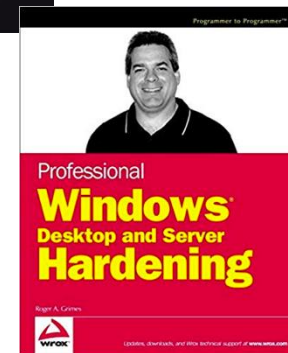
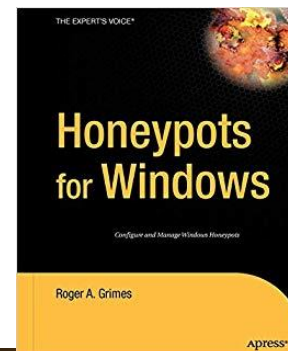
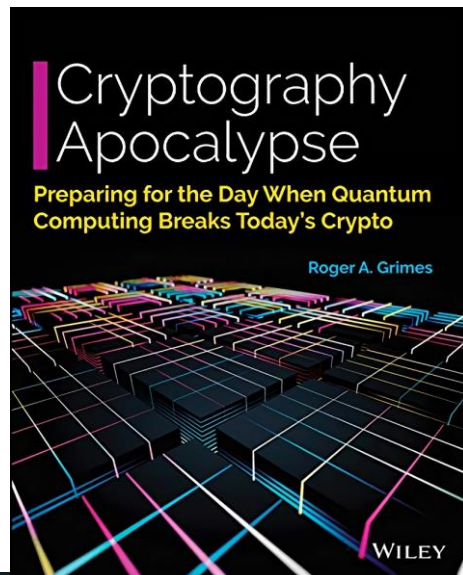
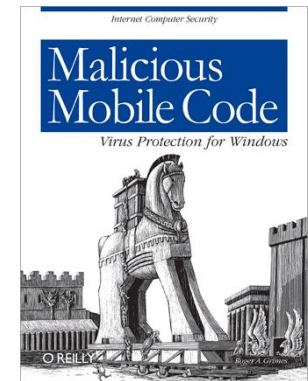
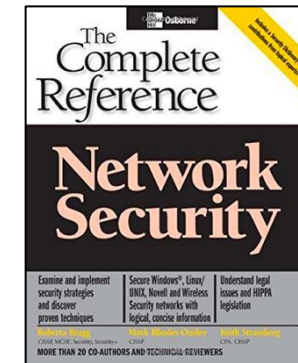
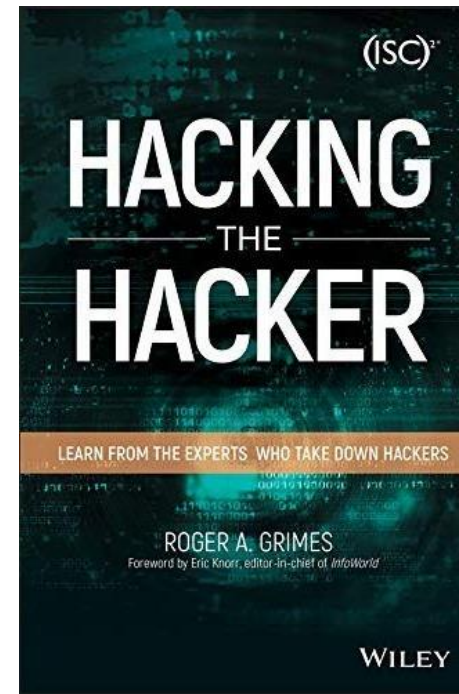
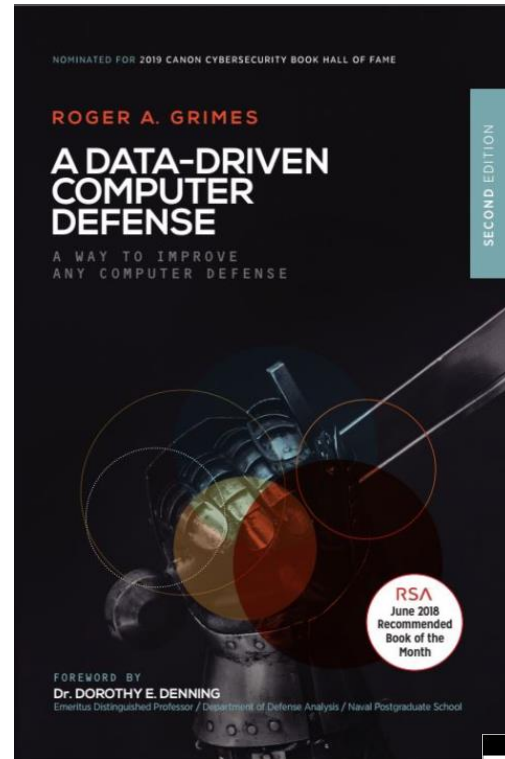
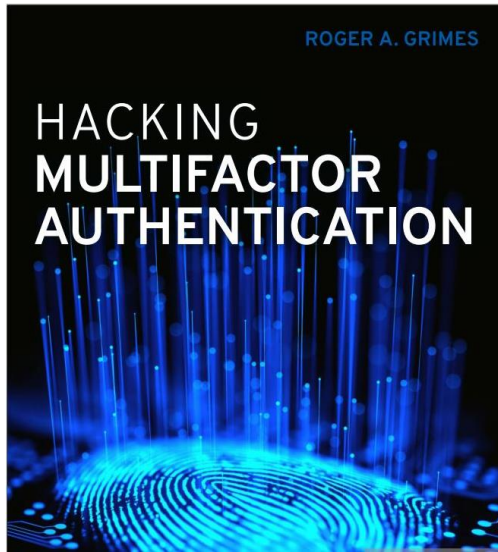
LinkedIn: www.linkedin.com/in/rogeragrimes

- 30 years plus in computer security
- Expertise in host and network security, IdM, crypto, PKI, APT, honeypot, cloud security
- Consultant to world's largest companies and militaries for decades
- Previous worked for Foundstone, McAfee, Microsoft
- Written 12 books and over 1,000 magazine articles
- *InfoWorld* and *CSO* weekly security columnist 2005 - 2019
- Frequently interviewed by magazines (e.g. Newsweek) and radio shows (e.g. NPR's All Things Considered)

Certification exams passed include:

- CPA
- CISSP
- CISM, CISA
- MCSE: Security, MCP, MVP
- CEH, TISCA, Security+, CHFI
- yada, yada

Roger's Books



Agenda

- Phishing Examples
- Defenses

Problem – Overwhelming Numbers

Problem
Definition –

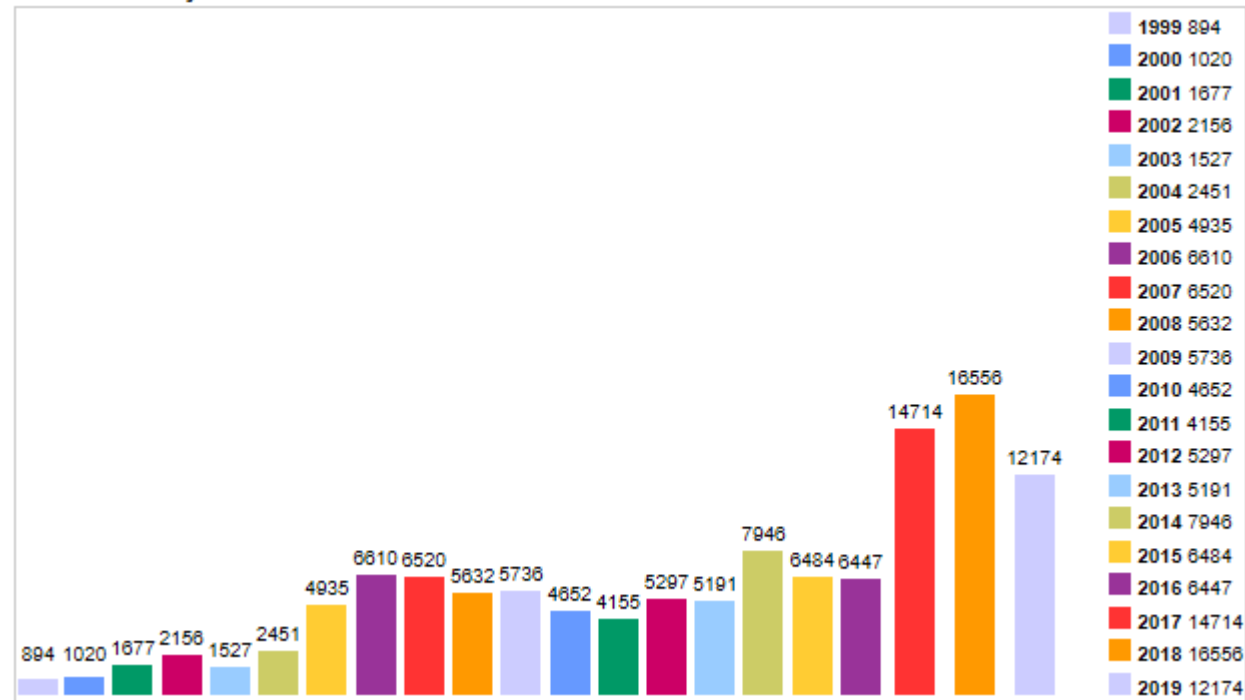
How Did It
Get This
Way?

*And this is just
(known public)
vulnerabilities,
doesn't include
hackers and a
hundred million
malware programs*

Sheer Number of Threats

- Avg: 5K-16K+ new threats/year
- 13-45/day, day after day

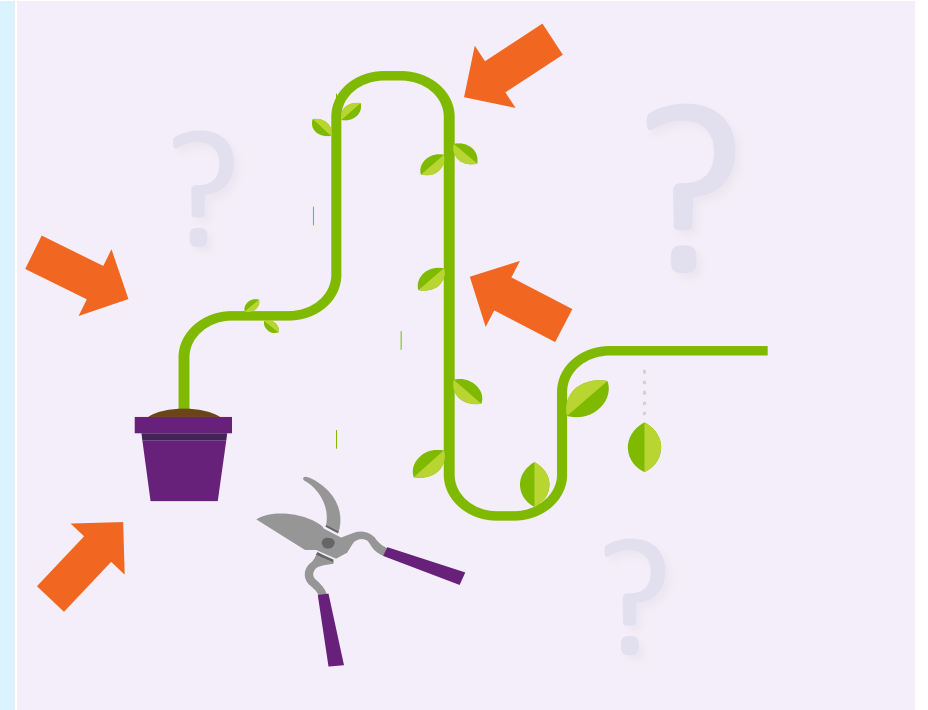
Vulnerabilities By Year



How Hackers and Malware Break In

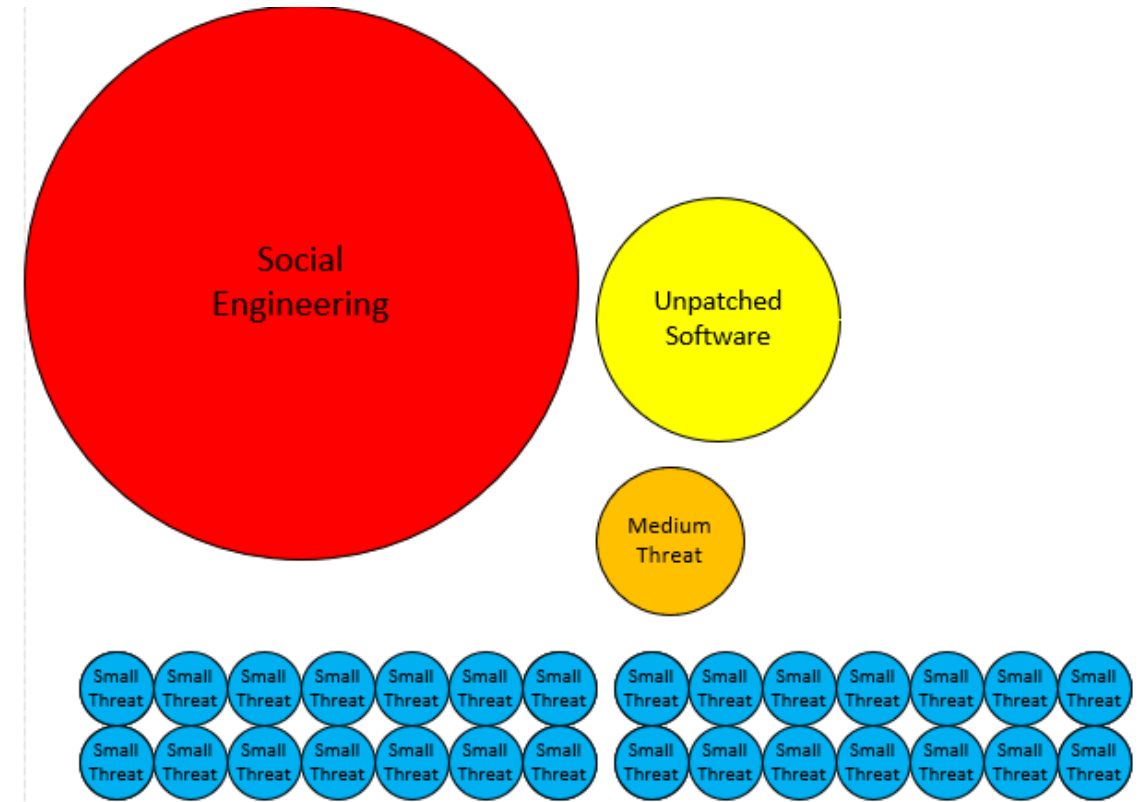
Here Are the 10 Ways:

- Programming Bug
- Social Engineering
- Authentication Attack
- Human Error
- Misconfiguration
- Eavesdropping/MitM
- Data/Network Traffic Malformation
- Insider Attack
- 3rd Party Reliance Issue
- Physical Attack



Biggest Initial Breach Root Causes for Most Companies

- Social Engineering
- Unpatched Software
- But don't trust me,
measure your own risk



Social engineering is responsible for 70% - 90% of all malicious data breaches

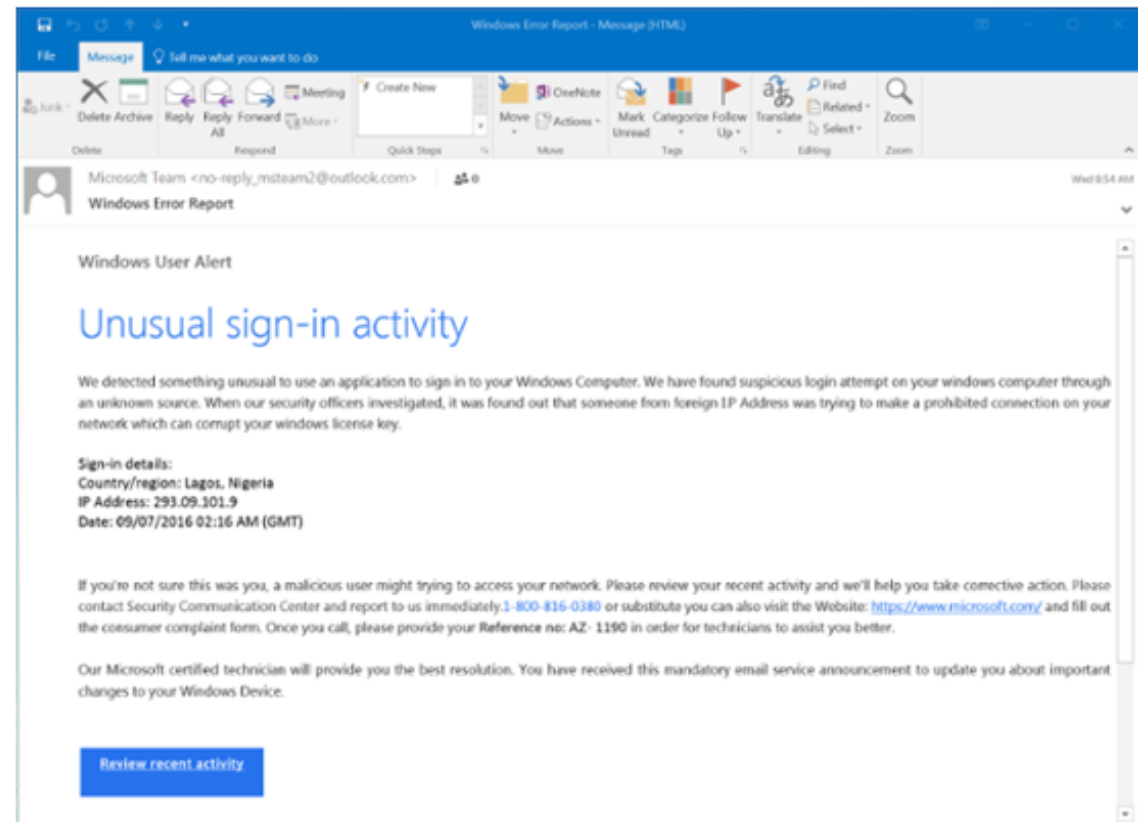
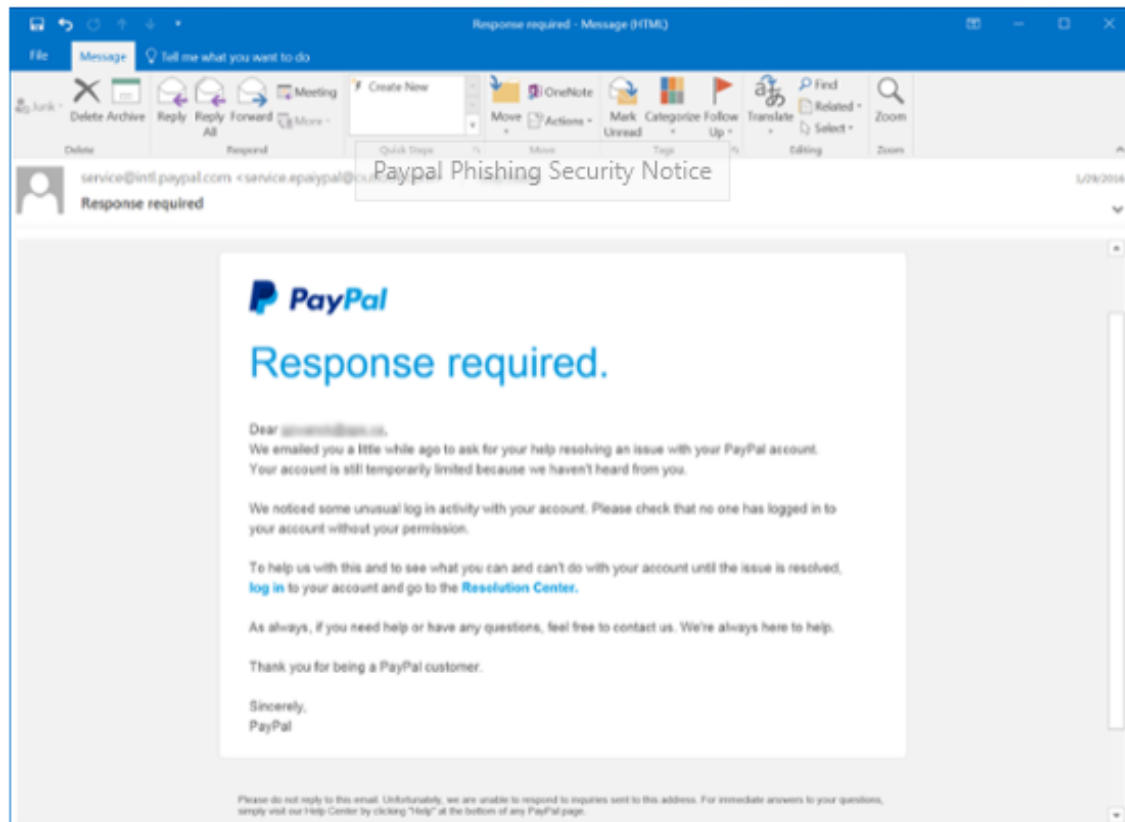
<https://blog.knowbe4.com/70-to-90-of-all-malicious-breaches-are-due-to-social-engineering-and-phishing-attacks>

What is Phishing?

- The process of maliciously masquerading as a trusted entity to acquire unauthorized information or to created a desired action that is contrary to the victim's or their company's self-interests
- Simply put - a “con”, criminal-intent
- Often done using in-person, email, IM, SMS, phone, etc.
- AKA phishing, spearphishing, spamming, vishing, etc.
- Emails/messages/SMS/Voice calls claiming to be from friends, co-workers, popular social web sites, banks, auction sites, or IT administrators are commonly used to lure the unsuspecting public.

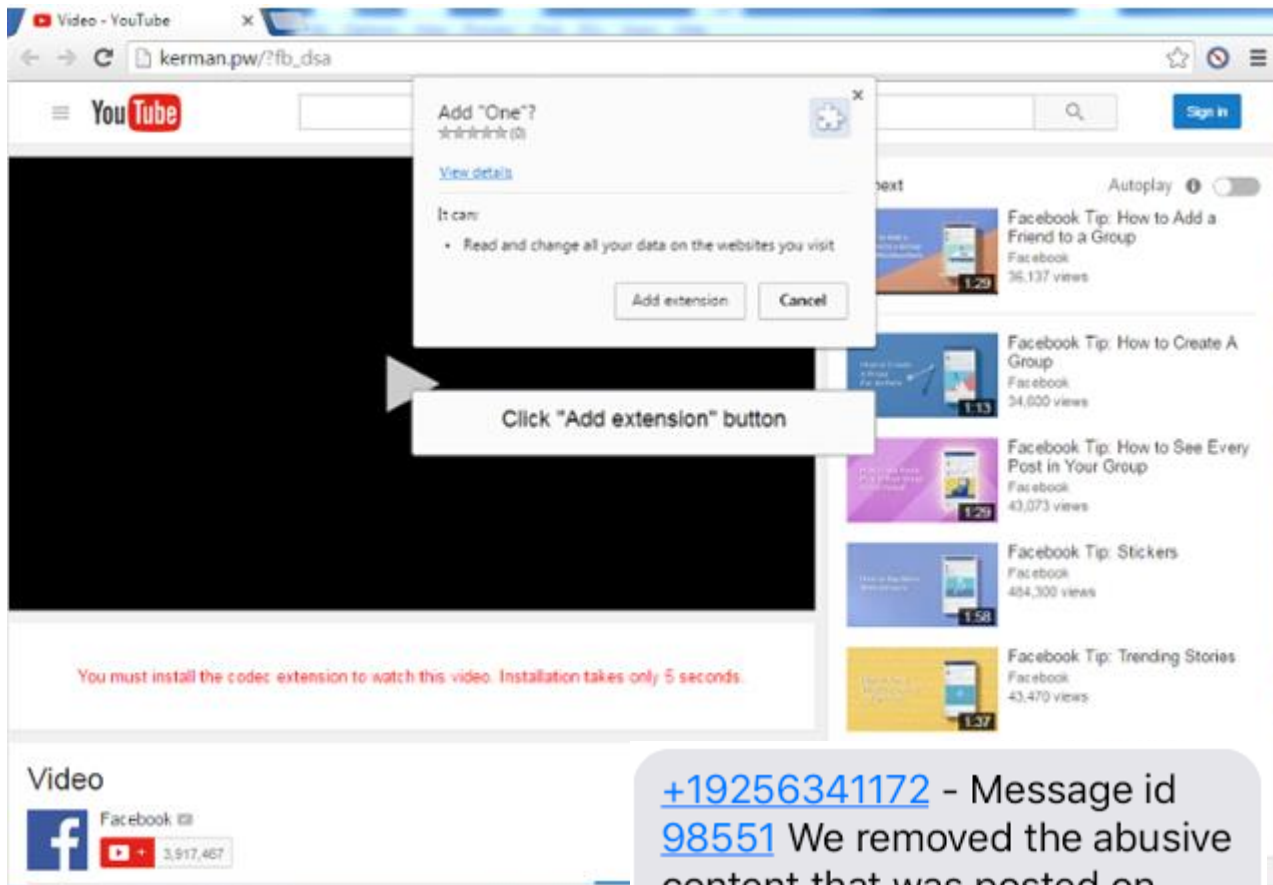
What is Phishing?

Examples

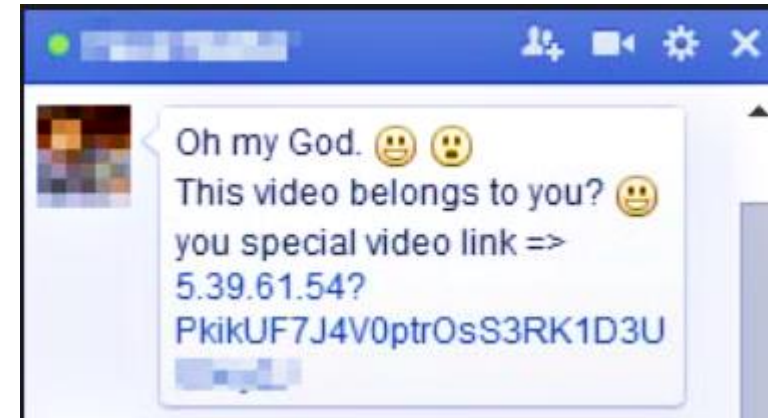


What is Phishing?

Examples



[+19256341172](https://t.me/+19256341172) - Message id [98551](#) We removed the abusive content that was posted on your facebook account, visit:



What is Phishing?

Twitter Example



A screenshot of a tweet from a verified account named 'Elon Musk' (@elonmusk). The tweet text reads: 'I am giving back to the community. All Bitcoin sent to the address below will be sent back doubled! If you send \$1,000, I will send back \$2,000. Only doing this for 30 minutes. bc1qxy2kgdygjrsqtzq2n0yrf2493p83kkfjhx0wlh Fniov!'. Below the tweet, there is a link to a news article: 'Bezos, Musk, Gates, Obama and others target of cryptocurrency hack on Twitter' with the URL 'www.usatoday.com'. The tweet is presented in a light gray box with a small downward arrow in the top right corner.

Elon Musk 
@elonmusk

I am giving back to the community.

All Bitcoin sent to the address below will be sent back doubled! If you send \$1,000, I will send back \$2,000. Only doing this for 30 minutes.

bc1qxy2kgdygjrsqtzq2n0yrf2493p83kkfjhx0wlh

Fniov!

[Bezos, Musk, Gates, Obama and others target of cryptocurrency hack on Twitter](#)
www.usatoday.com

What is Phishing?

Examples


The image displays three examples of phishing attempts:

- Facebook:** A notification titled "facebook" addressed to a "Dear Facebook user,". It claims that a new login system will be implemented for security and offers an "Update" button. The text reads: "In an effort to make your online experience safer and more enjoyable, Facebook will be implementing a new login system that will affect all Facebook users. These changes will offer new features and increased account security. Before you are able to use the new login system, you will be required to update your account. Click [here](#) to update your account online now. If you have any questions, reference our New User Guide. Thanks, The Facebook Team".
- Twitter:** A browser window showing a page titled "Welcome to Twitter Verification" with the URL <https://mobile-authentication.000webhostapp.com/welcome.html>. The page text includes: "Welcome to Twitter Verification" and "What's happening in the world. Twitter can help you connect with them and achieve meaningful results." Below the text is a Twitter logo.
- LinkedIn:** An email notification with the subject "Account suspended!". The body text reads: "Getting... Being verified is more than a cool badge on your profile, it signifies... Get...". The LinkedIn logo is present, followed by the text: "Your LinkedIn account was suspended due to spam messages. To unlock your account open this link www.linkedin.ni.a. Thank you for using LinkedIn! The LinkedIn Team".


What is Phishing?


Fake Invoice Example

Wed 5/22/2019 10:05 AM

 MAERSK <info@onlinealxex.com.pl> (MAERSK via idg.onmicrosoft.com)

Your Shipping Documents.

>  roger_grimes@infoworld.com

 If there are problems with how this message is displayed, click here to view it in a web browser.
The actual sender of this message is different than the normal sender. Click here to learn more.

If you have trouble viewing this email, click [here](#) to view an online version.

**CUSTOMER
ADVISORY**

22nd May 2019

Original Shipping Docs

[[roger_grimes@infoworld.com]]

Kindly find attached below the original shipping docs (Bill of Lading, Invoice, & Packing list) for current shipment made to your port on behalf of our shipping customer.

Your email "roger_grimes@infoworld.com" was stated as the contact email for the consignee.

Download the docs below:
[DOWNLOAD ATTACHMENT](#)

Thank you for your continued partnership with us.

The Maersk team

Nuclear Ransomware

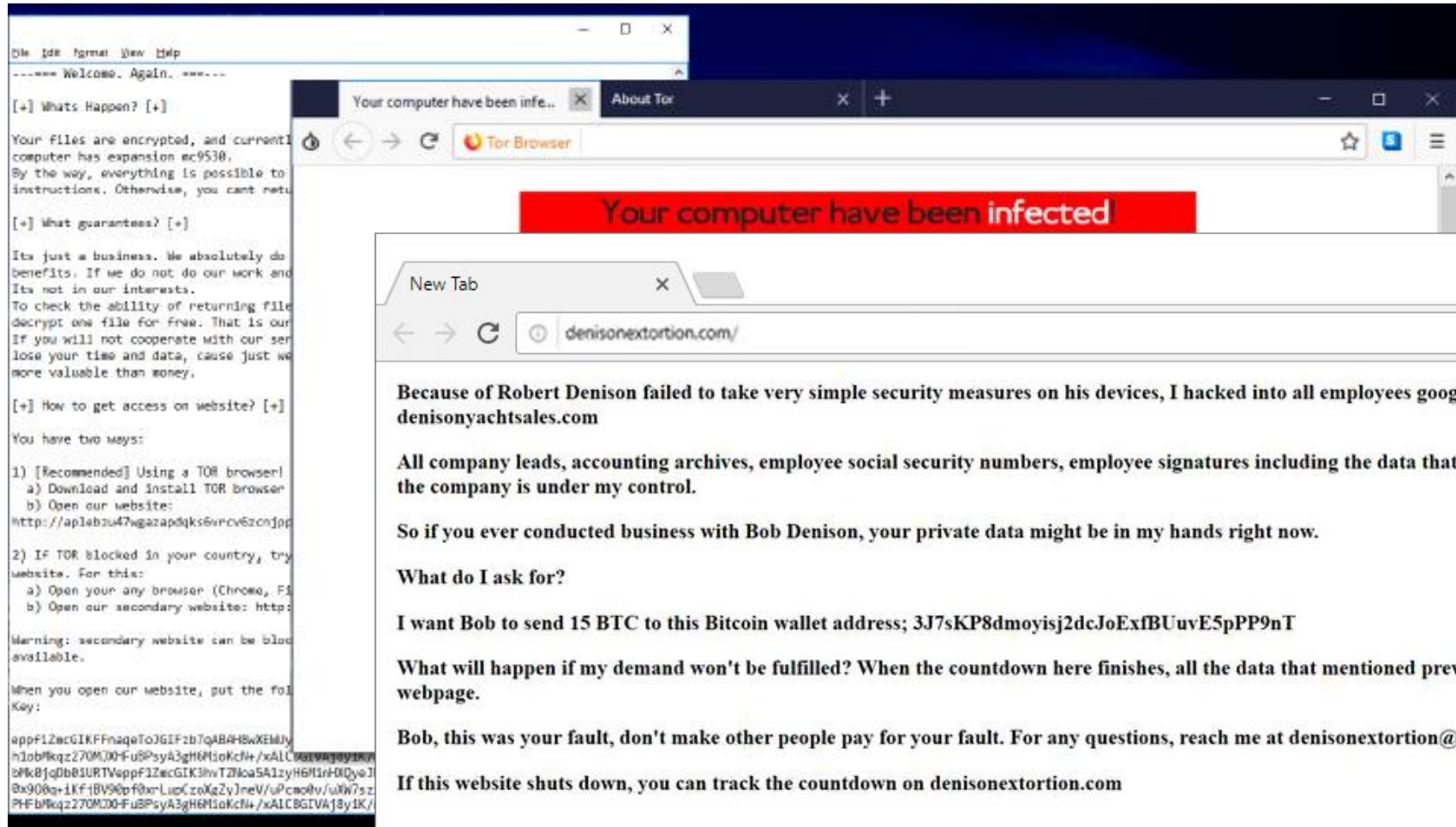
Doesn't Just Encrypt Your Files Anymore

- Steals Intellectual Property/Data
- Steals Credentials
- Threatens Victim's Employees and Customers
- Uses Your Stolen Data to Spear Phish Partners and Customers
- Public Shames you

Good luck having a good backup save you!

<https://info.knowbe4.com/nuclear-ransomware>

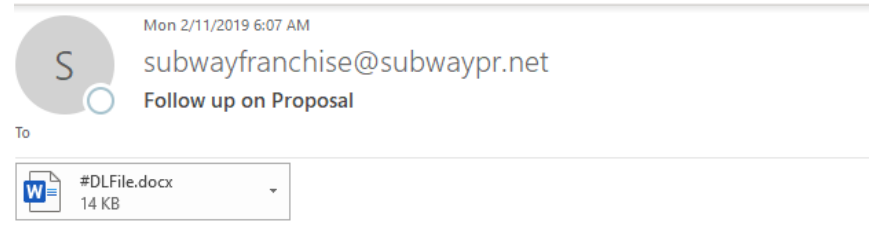
Ransomware Examples



0d 18h 11m 51s

What is Phishing?

Fake Franchise Agreement



Hello,

Please find enclosed a proposal for our new project. Let me know if you would be interested in working on it with us.

PDF won't send on my MAC, So I attached it to our Microsoft Share Point preview the attached Document and follow up at your earliest convenience

Kind regards

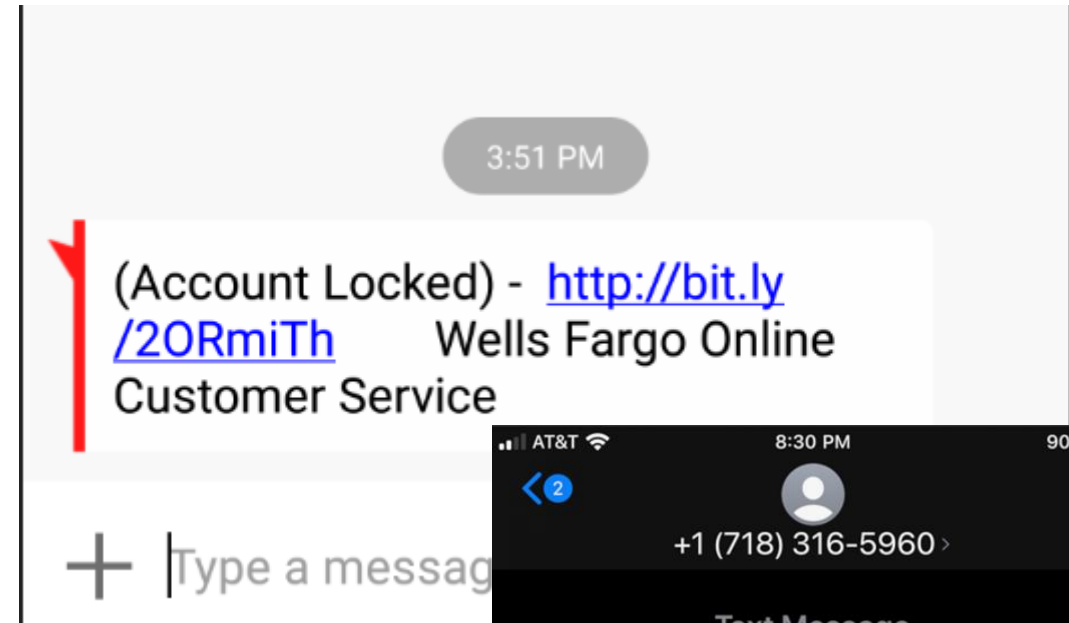
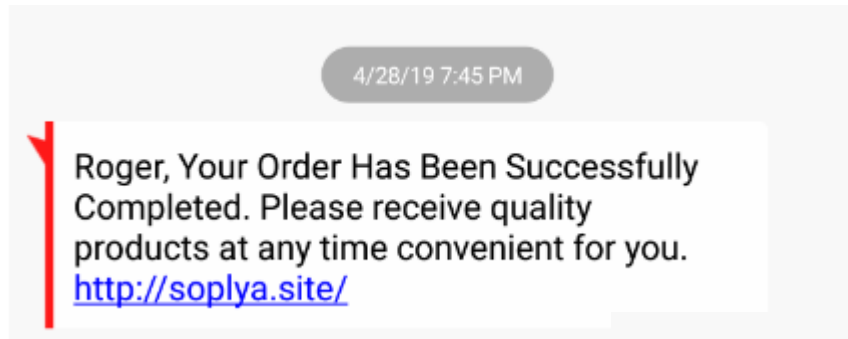
Subway Franchise
Executive Administrator
SubWay
8401 US-50, Lebanon, IL 62254, USA

DISCLAIMER: This message and all attachments are from SubWay and affiliated companies and is privileged, proprietary, and confidential information intended for use of the addressee only. If you are not the intended recipient, you are hereby notified that any disclosure, copying, distribution, or the taking of any action in reliance on the contents of the transmitted information is strictly prohibited. If you received this message in error, we apologize for the inconvenience and request that you immediately notify sender by return e-mail message. Thank You.

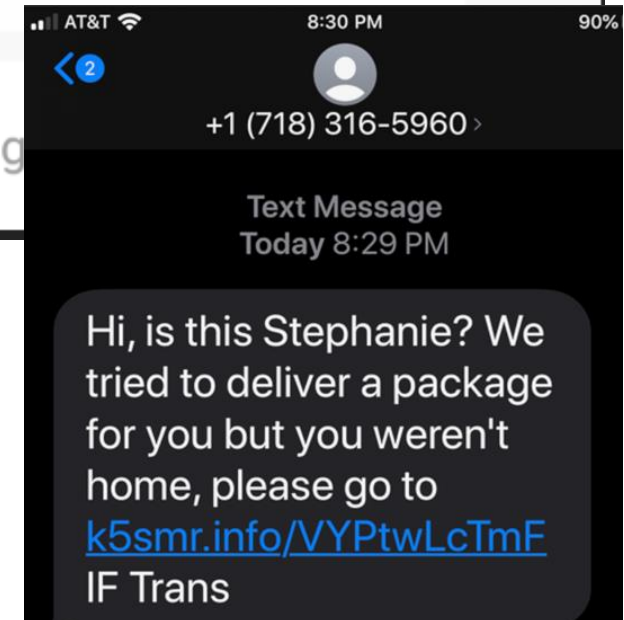
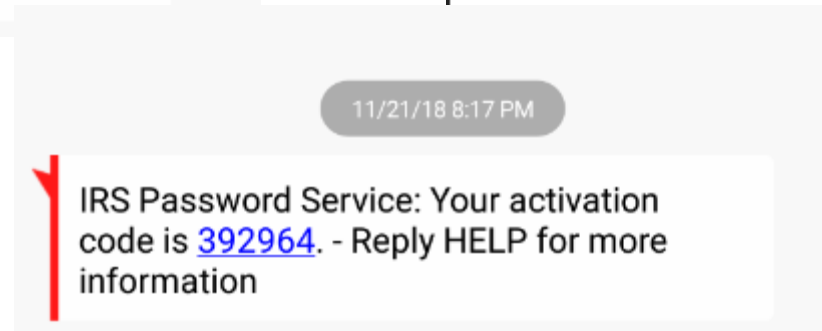
What is Smishing?

Smishing Examples

- Malicious SMS message
- Becoming very common



+19256341172 - Message id 98551 We removed the abusive content that was posted on your facebook account, visit:



What is Vishing?

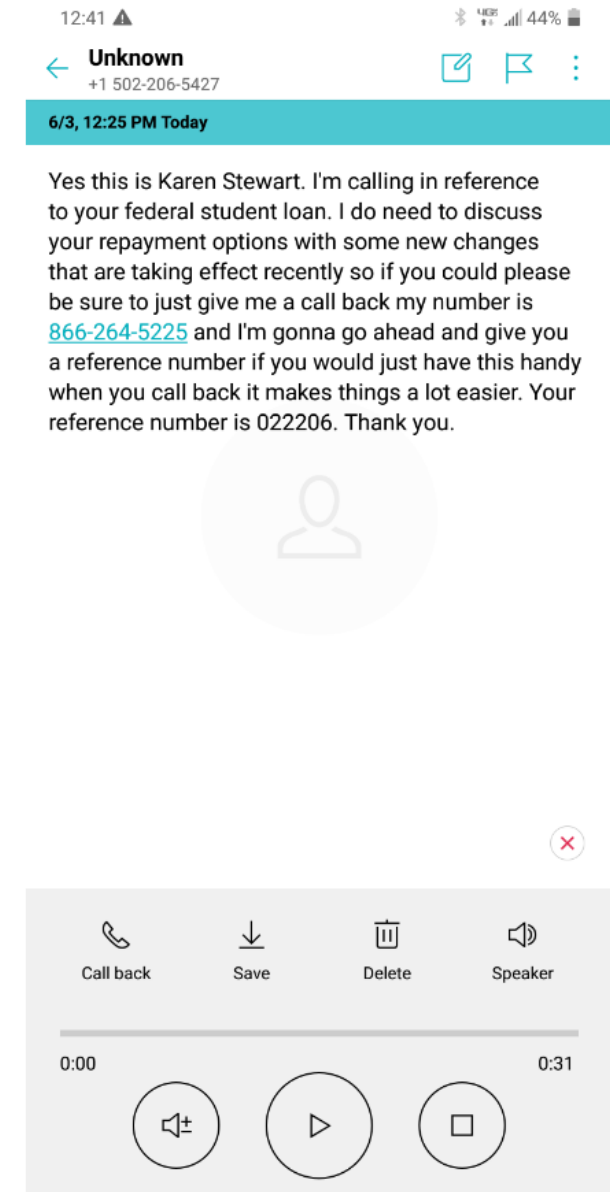
Voice Phone Phishing

- Malicious person calls pretending to be from a trusted company
- Ex: Microsoft Tech Support has detected a virus on your computer
- Ex: Paypal person claims they have detected fraud on your account and need your help to stop quickly stop it
- Often has relevant, correct information about you and your legitimate related account
- Malicious person is often using your help to break into your PC or real account, as you're helping them over the phone

What is Vishing?

Voice Phone Phishing

- Malicious person calls pretending to be from a trusted company
- Becoming much more common



Agenda

- Phishing Examples
- Defenses

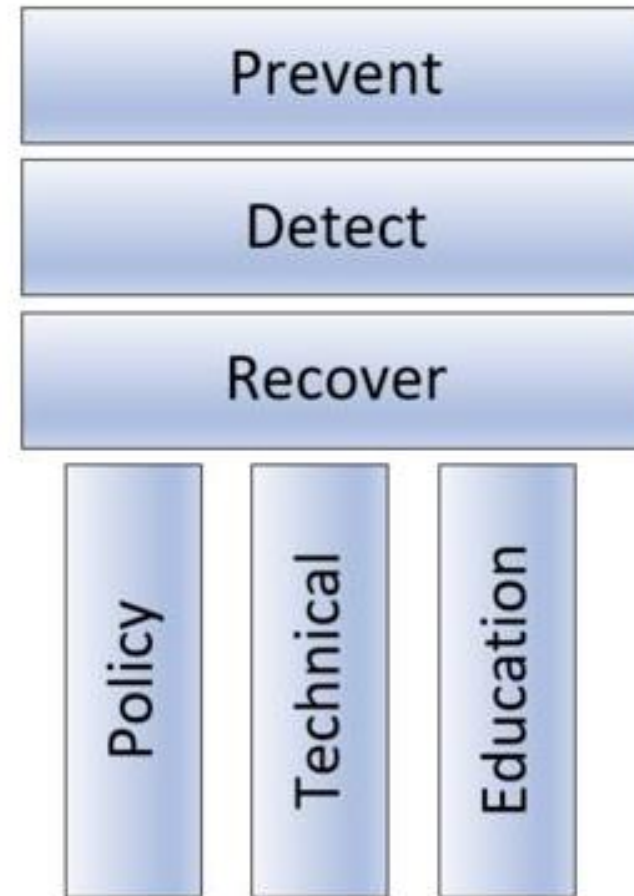
Phishing Cannot Be Beat by Intelligence

- Anyone can fall victim to social engineering
- “Smart people” are just as likely to fall victim to phishing as anyone else
- Scammers use “stressors” to make people bypass their normal skepticism survival skills
- Whether or not someone clicks on a “phish” or falls victim to a fake phone call, has more to do with awareness of digital crime than anything else
- Once people are aware of social engineering, phishing, and all its forms, the less likely they are to fall victim to it

Defending Against Phishing

General Defense Methods

- Policies
- Technical Controls
 - Anti-Malware Software
 - Anti-Spam/Phishing
 - Content Filtering
- Security Awareness Training



<https://blog.knowbe4.com/the-three-pillars-of-the-three-computer-security-pillars>

Organizational Defenses

Ultimate Phishing Guide webinar - <https://info.knowbe4.com/webinar-stay-out-of-the-net>

- **Defense-in-Depth**
- **Anything you can do to stop social engineering and better patch software**
- **Content Filtering**
- **Anti-Spam, Anti-Phish**
- **Email Defenses (e.g. block rogue file attachments, reputation checking, etc.)**
- **SPF, DKIM, DMARC - <https://info.knowbe4.com/dmarc-spf-dkim-webinar>**
- **Anti-Malware**
- **Use MFA - <https://info.knowbe4.com/webinar-12-ways-to-defeat-mfa>**
- **Get Cybersecurity insurance**

Best Defenses

Top 5 Defenses for Most Organizations

(in order of importance)

- **Mitigate Social Engineering**
- **Patch Internet-accessible software**
- **Use non-guessable passwords/multi-factor authentication**
 - Different passwords for every website and service
- **Teach Users How to Spot Rogue URLs**
 - <https://blog.knowbe4.com/top-12-most-common-rogue-url-tricks>
 - <https://info.knowbe4.com/rogue-urls>
- **Least-Permissive Permissions**

What Is the Goal of Security Awareness Training?

The overall goal is to help users make smarter security decisions every day

- To reach this goal you must make security awareness an integral part of your organizational culture that simply becomes reflexive

Training users to know

- How to spot bad things
- How to respond


Personal Defenses

General Personal Defenses

- **Security Awareness Training**
 - Phish Your Employees – monthly or more
 - Training – monthly or more
- **Hover over EVERY URL link and verify before clicking on**
 - Fighting Rogue URL Tricks webinar - <https://www.knowbe4.com/webinar-library>
- **When in doubt, chicken out**, let someone more knowledgeable investigate
- **You investigate** - <https://info.knowbe4.com/phishing-forensics>

Give “Red Flags” Training

Social Engineering Red Flags



FROM

- I don't recognize the sender's email address as someone I **ordinarily communicate with**.
- This email is from **someone outside my organization and it's not related to my job responsibilities**.
- This email was sent from **someone inside the organization** or from a customer, vendor, or partner and is **very unusual or out of character**.
- Is the sender's email address from a **suspicious domain** (like micorsoft-support.com)?
- I **don't know the sender personally** and they **were not vouched for** by someone I trust.
- I **don't have a business relationship** nor any past communications with the sender.
- This is an **unexpected or unusual email** with an **embedded hyperlink or an attachment** from someone I haven't communicated with recently.

TO

- I was cc'd on an email sent to one or more people, but I **don't personally know** the other people it was sent to.
- I received an email that was also sent to an **unusual mix of people**. For instance, it might be sent to a random group of people at my organization whose last names start with the same letter, or a whole list of unrelated addresses.

HYPERLINKS

- I hover my mouse over a hyperlink that's displayed in the email message, but the **link-to address is for a different website**. (This is a **big** red flag.)
- I received an email that only has **long hyperlinks with no further information**, and the rest of the email is completely blank.
- I received an email with a **hyperlink that is a misspelling** of a known web site. For instance, www.bankofamerica.com — the “m” is really two characters — “r” and “n.”

DATE

- Did I receive an email that I normally would get during regular business hours, but it was **sent at an unusual time** like 3 a.m.?

SUBJECT

- Did I get an email with a subject line that is **irrelevant or does not match** the message content?
- Is the email message a reply to something I **never sent or requested**?

ATTACHMENTS

- The sender included an email attachment that I **was not expecting** or that **makes no sense** in relation to the email message. (This sender doesn't ordinarily send me this type of attachment.)
- I see an attachment with a possibly **dangerous file type**. The only file type that is **always safe to click on is a .txt** file.

CONTENT

- Is the sender asking me to click on a link or open an attachment to **avoid a negative consequence** or to **gain something of value**?
- Is the email **out of the ordinary**, or does it have **bad grammar** or **spelling errors**?
- Is the sender asking me to click a link or open up an attachment that **seems odd or illogical**?
- Do I have an **uncomfortable gut feeling** about the sender's request to open an attachment or click a link?
- Is the email asking me to look at a **compromising or embarrassing picture** of myself or someone I know?

<https://blog.knowbe4.com/share-the-red-flags-of-social-engineering-infographic-with-your-employees>

THE RED FLAGS OF ROGUE URLs

Spotting malicious URLs is a bit of an art. The examples represented here are some of the common tricks used by hackers and phishers to fool users to visiting malicious websites. The methods shown here could be used by legitimate services, but if you see one of these "tricks" you need to make sure you're dealing with the organization you think you are.

Look-a-Like Domains

Domain names which **seem** to belong to respected, trusted brands.

Slight Misspellings



Microsoftonline
<v5pz@onmicrosoft.com>

www.llnkedin.com

Brand name in URL, but not real brand domain

ee.microsoft.co.login-update-dec20.info

www.paypal.com.bank/logon?user=johnsmith@gmail.com

ww17.googlechromeupdates.com/

Brand name in email address but doesn't match brand domain



Bank of America
<BankofAmerica@customerloyalty.accounts.com>

Brand name is in URL but not part of the domain name

devopsnw.com/login.microsoftonline.com?userid=johnsmith

URL Domain Name Encoding

<https://%77%77%77%77%6B%6E%6F%77%62%65%63%6F%6D>

Shortened URLs

When clicking on a **shortened URL**, watch out for malicious redirection.

<https://bit.ly/2SnA7Fnm>

Domain Mismatches



Human Services .gov
<Despina.Orrantia6731610@gmx.com>

<https://www.le-blog-qui-assure.com/>

Strange Originating Domains



MAERSK
<info@onlinealxex.com.pl>

Overly Long URLs

URLs with 100 or more characters in order to **obscure the true domain**.

<http://innocentwebsite.com/irs.gov/logon/fasdjkg-sajdkjndfjnbkasldjfbkajsdbfkjbasdf/adsnfjksdngkfdgfgjhfgd/ght.php>

File Attachment is an Image/Link

It looks like a file attachment, but is really an **image file with a malicious URL**.



INV39391.pdf
52 KB

<https://d.pr/free/f/jsaeoc>
Click or tap to follow link.

Open Redirectors

URLs which have hidden links to completely different web sites at the end.

t-info.mail.adobe.com/r/?id=hc347a&p1=evilwebsite.com

KnowBe4

<https://blog.knowbe4.com/top-12-most-common-rogue-url-tricks>

The KnowBe4 Security Awareness Program WORKS



Baseline Testing

Use simulated phishing to baseline assess the Phish-prone™ percentage of your users.

Train Your Users



The world's largest library of security awareness training content; including interactive modules, videos, games, posters and newsletters. Automated training campaigns with scheduled reminder emails.

Phish Your Users



Best-in-class, fully automated simulated phishing attacks, hundreds of templates with unlimited usage, and community phishing templates.

See the Results



Enterprise-strength reporting, showing stats and graphs for both training and phishing, ready for management. Show the great ROI!



Security Awareness Training Program That Works

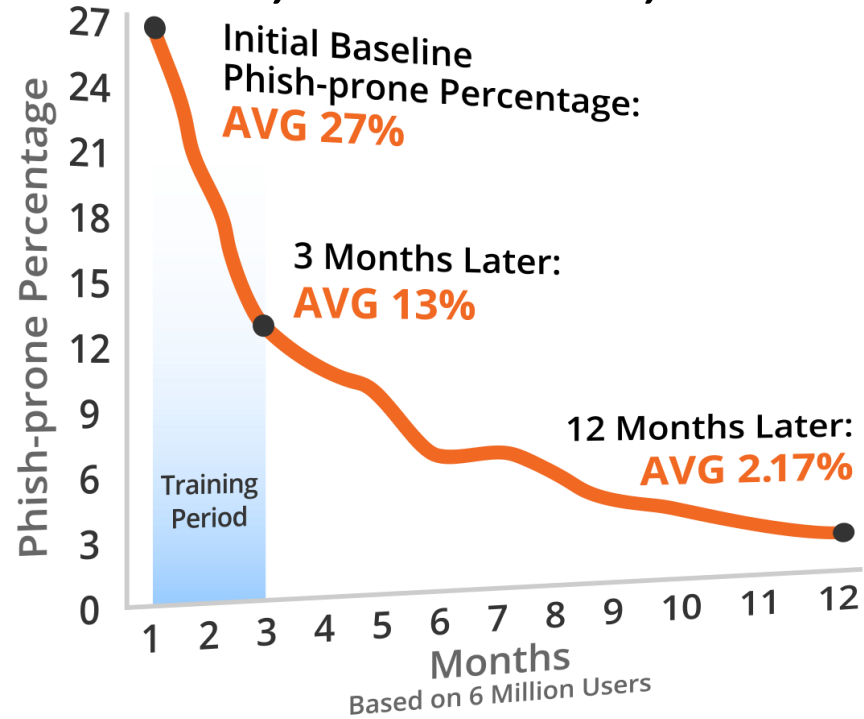
- Drawn from a data set of **over four million users**
- Over **17K organizations**
- **Over 9.1M** Simulated Phishing Campaigns
- Segmented **by industry type** and **organization size**

<https://info.knowbe4.com/phishing-by-industry-benchmarking-report>

Visible Proof the KnowBe4 System Works



Metrics, Videos, Posters, Gamification, and more



Your metrics and reporting help tell your story.

SHALL WE PLAY A GAME?

Consider using gamification and incentives to encourage friendly competition across departments.

Make everything reinforce your point and purpose

Security Awareness Training Cycle

Train Like You're Marketing

- Frequent
- Redundant
- Entertaining

Security Awareness Training Cycle

- When Hired
 - Acceptable Use Policy
 - Longer, Broader Training
- Ongoing
 - Monthly simulated phishing attacks
 - Immediate training when a test is failed
 - Ongoing shorter trainings
- Annual – longer training
- More Training As Needed

Make It Relevant

- Per Group, Per Role
 - You want different training for your executives versus your front-line employees
- Times, Seasons, Events of the Year
 - Different seasons and events generate different types of phishing
- Mix in general topics
- Not just email
- Not just to protect work scenarios only

Give Them Immediate Feedback Training

- Use Social Engineering Indicators Training

KnowBe4
Human error. Conquered.

Oops! You clicked on a phishing email


Please take a minute to review the Social Engineering indicators found in the email you received. Hover over the red flags to see details:

To: katieb@knowbe4.com
From: LinkedIn <[redacted]@linkedin@knowbe4.com>
Reply-to: LinkedIn <linkedin.bxrye@knowbe4.staging.cyberheist.com>
Subject: Join my network on LinkedIn

LinkedIn
Vague explanation of request.

Someone from knowbe4.com has indicated you are a Friend:

I'd like to add you to my professional network on LinkedIn.

 [View invitation from Someone](#)

DID YOU KNOW that LinkedIn can find the answers to your most difficult questions? Post those vexing questions on LinkedIn Answers to tap into the knowledge of the world's foremost business experts.

LinkedIn

This email is not from LinkedIn and the link doesn't take you to the LinkedIn website. Think before you click!

Keep Training Current

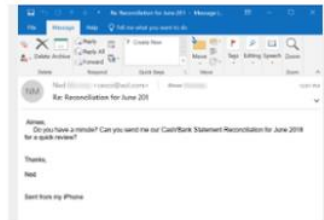
- Scams of the Week



PRODUCTS & SERVICES ▾ FREE TOOLS ▾ PRICING

take reservations?

[Continue Reading](#)



Scam Of The Week: *Another* New CEO Fraud Phishing Wrinkle

Jul 20, 2018 4:08:11 PM By Stu Sjouwerman

So, here's a new CEO Fraud phishing: see these fresh screen shots from emails reported to us through the free KnowBe4 Phish Alert Button. Bad guys spoof the managing partner and CPA and an ...

[Continue Reading](#)



[Scam Of The Week] Amazon Prime Day Is Only 4 days away

Jul 12, 2018 4:35:15 PM By Stu Sjouwerman

It's a prime opportunity for the bad guys to send a raft of phishing attacks. We do have a "Free Amazon Prime Account" template that we just modified to fit a Prime Day-style scam. It's ...

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Scam of The Week: Celebrity Deaths Kate Spade and Anthony Bourdain

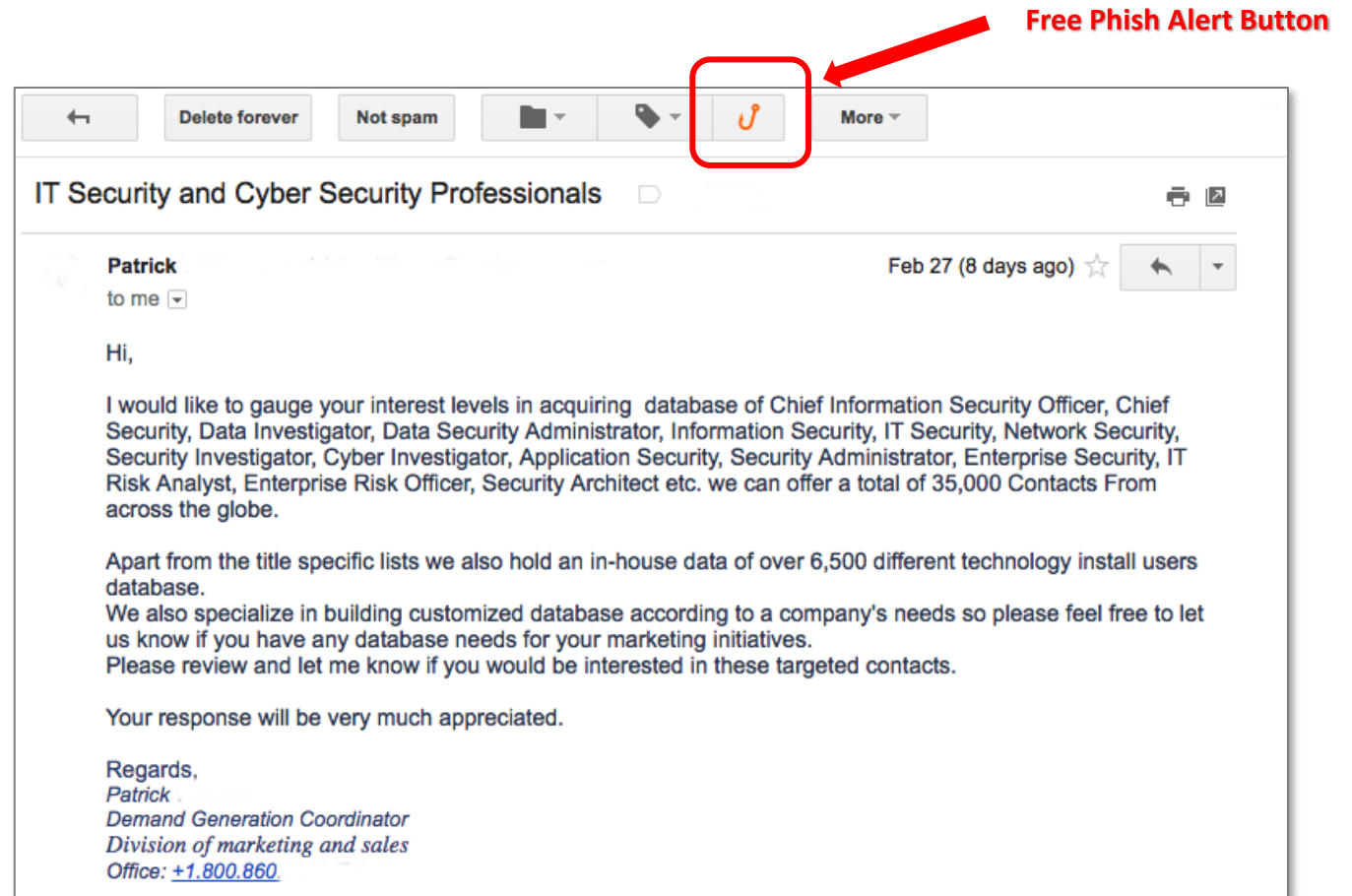
Jun 9, 2018 10:10:56 AM By Stu Sjouwerman

Two celebrities committed suicide this week, and unfortunately that's going to be exploited by lowlife internet criminals in a variety of ways.

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Give Users A Way To Report Attacks

- Give the users a way to provide the suspect email to someone that can review it
- “Train your employees with regard to phishing, and provide them with a quick and easy way to report suspicious emails.” 2017 DBIR



Find Out Where the Weaknesses Are

- Get and Use Good Data

Date Range: Last 6 months

Include Selected Campaigns: All Campaigns

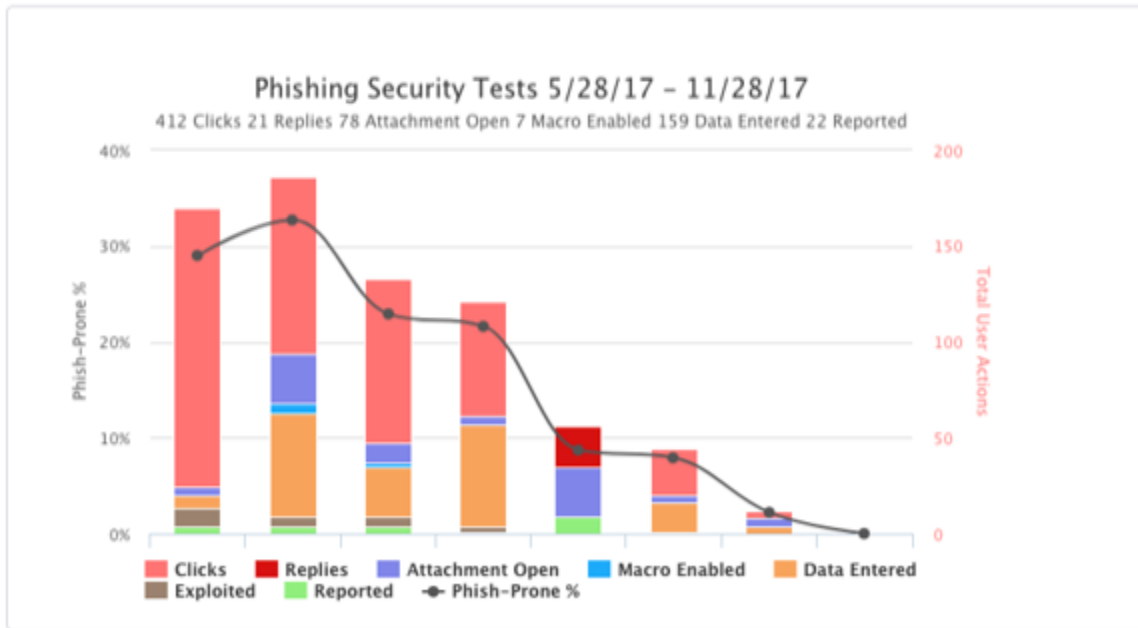
Include Campaigns Sent To: All Users

Compare: Failures

Group Comparison By: -- None --

Include Non-failures

Submit



Date Range: Last 6 months

Include Selected Campaigns: All Campaigns

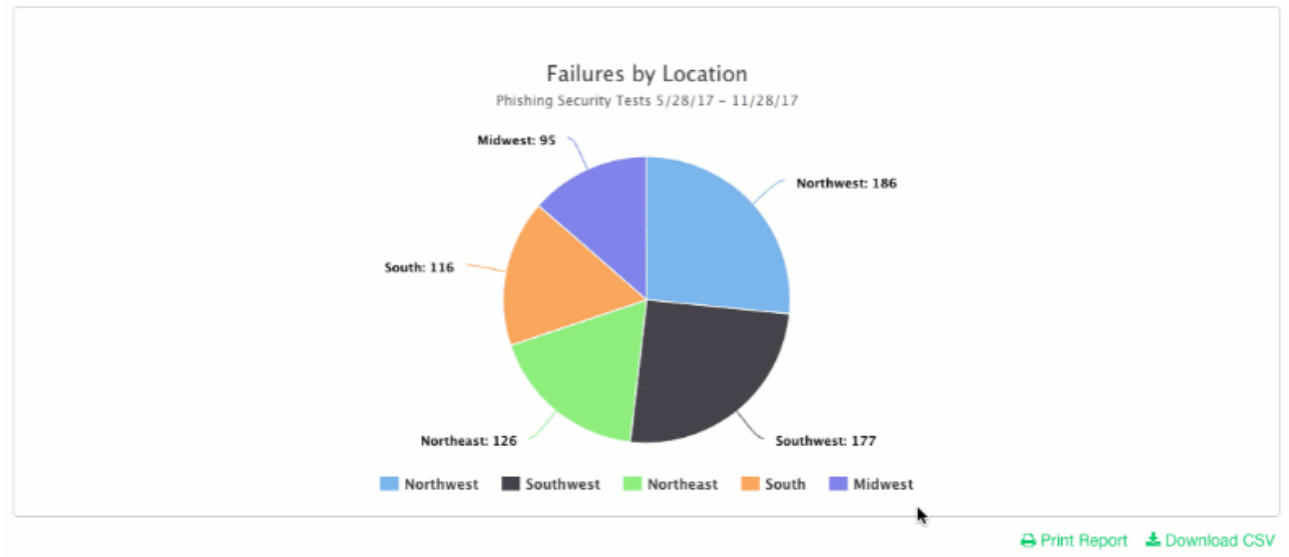
Include Campaigns Sent To: All Users

Compare: Failures

Group Comparison By: Location

Include Non-failures

Submit



Best Practices

- Get senior management approval before conducting any simulated phishing tests
 - Surprises are not good
- Get beginning baseline and ongoing “phish-prone” statistics
- After initial baseline, communicate testing and training strategy to all users
 - It’s a part of the training and changing the culture
- Randomize the phishing times and subjects
 - Avoid sending out every phish test in one big blast
- Do group-, topic-, news-, and season-specific testing mixed in with broad, general categories (e.g. free donuts, etc.)

Resources

Free IT Security Tools



Domain Doppelgänger



Awareness Program Builder



Domain Spoof Tool



Mailserver Security Assessment



Phish Alert



Ransomware Simulator



Weak Password Test



Phishing Security Test



Second Chance



Email Exposure Check Pro



Training Preview

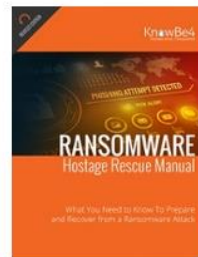


Breached Password Test



12+ Ways to Hack Two-Factor

All multi-factor authentication (MFA) mechanisms can know how to defend against MFA hacks? This whitepa those attacks.



Ransomware Hostage Rescue Manual

Get the most complete Ransomware Manual packed with actionable info that you need to have to prevent infections, and what to do when you are hit with ransomware.



CEO Fraud Prevention Manual

CEO fraud is responsible for over \$3 billion in losses. Don't be next. The CEO Fraud Prevention Manual provides a thorough overview of how executives are compromised, how to prevent such an attack and what to do if you become a victim.

Whitepapers

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Thank You!

Questions?

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