

Cybersecurity & Fraud Protection Webinar

November 2024

Today's hosts



Joseph Scharf

Sr Treasury Management Officer – Government Banking - JPMorgan



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Cybercrime in the headlines 2024

Critical Infrastructure	Chinese hackers target water treat plants, electrical grid and transportation systems ¹ Attacker: State-Backed Hackers	COLORING ST
Everyday Attacks	In 2023 three in four companies were at risk of a material cyberattack: Forecast \$452 billion this year ²	
State Sponsored	New Zealand, UK and Australia among countries targeted by state sponsored cyber espionage ³ <i>Attacker: Likely China</i>	
Preventable Attacks	Legacy test account breach provides gateway to senior leadership accounts ⁴ <i>Attacker: State-Backed Hackers</i>	
Deepfake	Attempt to deceive employee with deepfake audio impersonation of CEO ⁵ <i>Attacker: Unknown</i>	



^{2.} Statista, <u>The impact of cybercrime on companies in the U.S.</u> February 5, 2024

- ^{3.} Los Angeles Times, New Zealand joins the U.S., U.K. in alleging it was targeted by China-backed cyber-espionage, March 26, 2024
- ^{4.} The Associated Press, <u>Microsoft says state-backed Russian hackers accessed emails of senior leadership team members</u>, February 2, 2024
- ^{5.} CyberRisk Alliance, LastPass thwarts attempt to deceive employee with deepfake audio, April 12, 2024

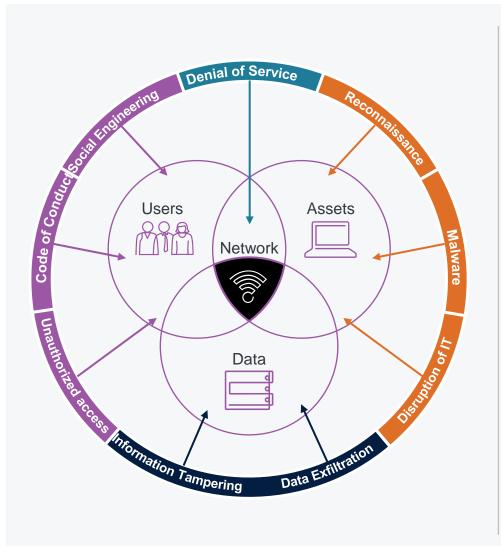


Primary targets & vectors of attack

In 2023, a cyberattack took place every

39 seconds¹

- Cybercriminals target key components that keep your business running. Consider your:
 - Data 0
 - Intellectual Property 0
 - Software and OT Systems 0
 - Money 0
 - People 🌈 0

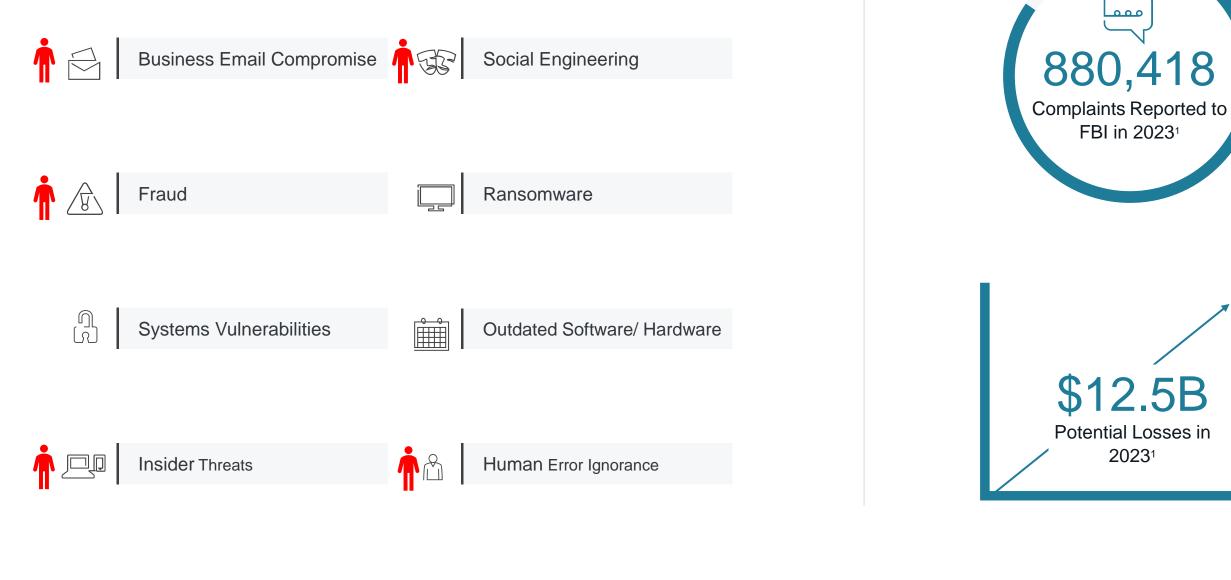




INTEGRITY

Current and emerging threats

Every company, regardless of size or Industry, is at risk to common threats:



1. 2023 FBI IC3 Report

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Current and emerging threats

The attack surface is expanding...



IoT Devices Coming Online by 2030¹

Ransomware and Business Email Compromise continue to drive the bulk of attacks

Cloud attacks are increasingly successful, due to lagging maintenance and misconfiguration



Remote working presents risk, due to misconfigured cloud security measures / insecure home devices

Multifactor Authentication is becoming less secure, due to phone and SMS hacks

Outdate systems

Attacks have shifted to 5th Generation

Attacks on the rise: Operational technology, quantum computing, AI, and IoT

1. Statista: Number of IoT connected devices worldwide 2019-2023, with forecasts to 2030



Who commits fraud?

- Not all fraudsters are the same. Some are criminals or part of criminal organizations that are motivated by money and self-interest
- Some fraudsters are motivated by revenge and a desire to get back for perceived sights
- Other fraud actors are part of nation-states or terrorist groups that conduct attacks to enrich their home country or to harm the victim country
- Other actors may be motivated by the thrill of conducting illegal activity or by seeing what they can get away with



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How "they" do it

Hiding in Plain Sight – Social Engineering

- Job postings and interviews, free lance platforms
- Account take over, hijacking
- Identity theft, new account stolen identity
- Poisoned files like PDFs (resumes, job applications, etc...)
- Business email compromise
- Phishing/SMSishing/Vishing
- Residential proxies, caller ID
- System vulnerabilities, outdated software
- Insider threat
- Human ignorance





^{1.} CrowdStrike 2024 Global Threat Report

Why it matters

Cybercrime impacts national security

- Hostile nations acquire/launder illicit profits fueling weapons programs, more sophisticated attacks and cyber warfare
- Multiple simultaneous critical infrastructure attacks
- Supply chain, essential service disruption
- Defense systems and government network intrusion, theft of secrets
- Political and ideological manipulation



You will have about 62 minutes to secure the intrusion and minimize damage¹

^{1.} CrowdStrike 2024 Global Threat Report

Our commitment

At JPMorgan Chase, we invest in a robust Cybersecurity Program—with a risk management framework to identify, measure and address different cyberthreats.

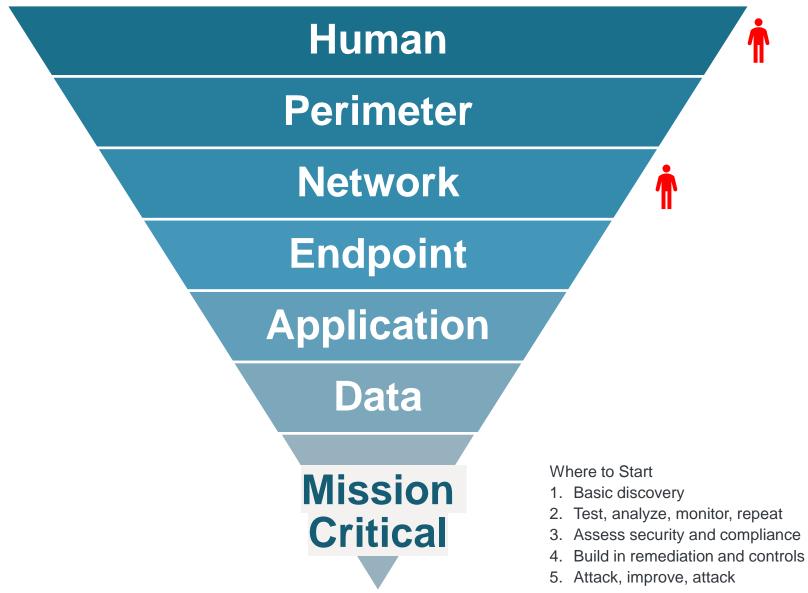
Our top priority is to protect our clients and partners by sharing insights that help **you prevent, detect and respond.**

\$17B	Invested in Technology Annually
60,000+	Global Technology Workforce
2,000+	Artificial Intelligence / Machine Learn
	Follow-the-Sun Operation Model
3,100+	Cyber Investigations Per Year

ning Experts

Defense in-depth

Companies should build and leverage technology to detect fraudulent activity and attacks across high and low value asset types.



Layer 7 (Human): Phishing tests, social engineering training, access management controls

Layer 6 (Perimeter): Physical security, industry intelligence, malware, endpoint security & brand protection

Layer 5 (Network): Unauthorized access, zero trust, API configuration

Layer 4 (Endpoint): Protect network and additional unauthorized access

Layer 3 (Application): Protect applications, Software Development Life Cycle (SDLC) and internal app security

Layer 2 (Data): Security controls, in transit and at rest

Layer 1 (Mission Critical): The organizations most critical data

The Power of Artificial Intelligence

AI can empower business to drive growth in an increasingly competitive business landscape.

Automated Processes

Major Financial Impact...



Added to the global economy annually¹

Opportunities

- Automation and Efficiency
- Data Analysis
- Customization
- Enhanced Security
- Analytics and Forecasting
- Innovation
- Process Optimization

Challenges

Data-Driven Insights

- Data Quality
- Talent Gap
- Ethical Considerations
- Integrating Systems
- Trust
- Cybersecurity
- Cost and ROI
- Data Breaches
 Model Poisoning
 Bias and Discrimination
 Account Takeovers
 Synthetic Identity Fraud
 Insider Threats
 Deepfake Threats



Personalization

Cyber & Fraud Threats

Deepfakes | The dark side of Artificial Intelligence

Improper use of AI and synthetic media pose a threat to national security, law enforcement and the financial domain

Deepfakes are realistic, AI-generated videos, images, audio, and text of events designed to deceive targeted groups or individuals

- Inclination to believe what you see makes them effective in spreading • mis/disinformation
- Low cost of resources needed to produce them raises the likelihood of • successful attacks

In practice, threat actors leverage chatbots and technology developed from large language models to simulate human activity

- **Business Email Compromise** .
- Spear-phishing •
- Fake websites and profiles .
- Ransomware
- Voice clones for imposter scams, extortion and financial fraud •

Example Deepfake Online



Multi-faceted mitigation is critical

- Collaboration between cyber professionals, financial institutions and law enforcement
- Public education, awareness and media literacy
- Regulation ٠
- Detection mechanisms via AL/ML innovation (realtime monitoring, anomaly detection and incident response protocols)

Ransomware

Ransomware Payments Exceed Over \$1 Billion

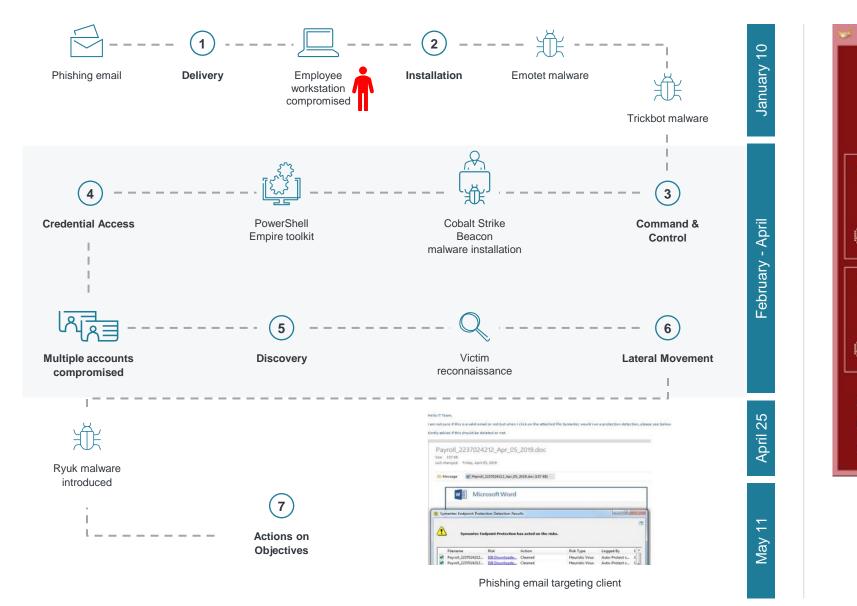
In extorted cryptocurrency payments from victims in 2023¹

- Loss of the ability to run your organization and potential permanent loss of data
- Key considerations:
- How much is the ransom?
- Should I pay ransom?
 - The FBI does not support paying a ransom to a cybercriminal.
 - Payment does not guarantee an organization will regain access to its data.
 - Paying the ransom may embolden cybercriminals to launch more attacks.
 - How do I ensure my company is resilient?



¹ Chainalysis, Ransomware Payments Exceed \$1Billion in 2023, Hitting Record High After 2022 Decline, February 7, 2024

Anatomy of a ransomware attack



What Happened to My Computer? Your important files are encrypted. our decryption service. Payment will be raised on **Can I Recover My Files?** 5/16/2017 00:47:55 not so enough time. Time Left 02:23:57:37 Your files will be lost on How Do I Pav? 5/20/2017 00:47:55 Time Left click <How to buy bitcoins>. 06:23:57:37 bitcoin About bitcoin ACCEPTED HERE How to buy bitcoins? Contact Us Check Payment

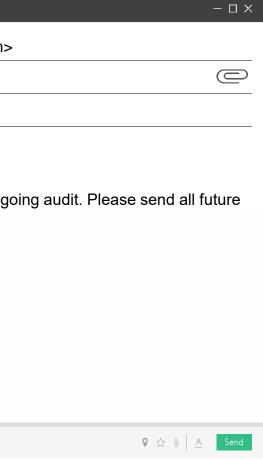


Business email compromise (BEC) & impersonation

- Cybercriminals use executive, business partner and vendor email impersonation to trick you into sending them money or data. Common tactics include:
- Phishing attacks
- Use of compromised email accounts
- Claims a bank account can't be used due to an audit
- Multiple account changes sent to victim during attack
- Use of inbox email forwarding rules to send emails to fraudsters

21,489 Victims reported to the FBI¹ \$2.9B Losses reported to the FBI¹ Fri 4/8/2022 8:34 AM From: Alissa Teal <a.teal@marquettefarm.com> Subject: Urgent - Payment Account Change To: James McKnight **Criminals Register** Hi James. Look-alike Domains We can't use our normal account due to an ongoing audit. Please send all future Good domain: payments to our updated account. marquettefarm.com Routing number: 987654321 **Bad domains:** Account number: 12345678 marquettefarms.com, marquettefram.com, Kindly confirm you made this change. marquettefarm.co, marguettefarm.com, Alissa Teal **Contract Company** marquetefarm.com (123) 456-7890 \vee =

^{2.} 2023 FBI IC3 Report



BEC prevention & response



The Critical Control

- Perform a callback to the person making the request
- Use a phone number retrieved from a system of record to validate requests for payment, change of payment instructions or contact information
- Reject out of band payment processes M



Additional Controls

- **Establish written policies implementing** mandatory callbacks
- Take calls from your bank regarding unusual transactions seriously
- Train employees on internal payment verification policies and BEC threats
- Encourage employee questions and holding a payment if it's suspicious



Response

- Notify your bank immediately
- **Crime Complaint Center**
- as appropriate

These steps are critical to maximize chances for recovery

File a report with the FBI's Internet Contact your local FBI field Office

Notify other law enforcement agencies

Check fraud is on the rise

Whether theft, forging or counterfeiting, check fraud continues to be a problem—and your organization needs to plan for it.





of organizations reported being impacted by check fraud¹

check fraud losses in the Americas represented nearly 80% of global total²

Front-Of-Check Fraud

Altered Checks | Criminals alter the name or payment amount before depositing Counterfeit Checks | Criminals use printers and desktop publishing software to create counterfeit checks

Back-Of-Check Fraud

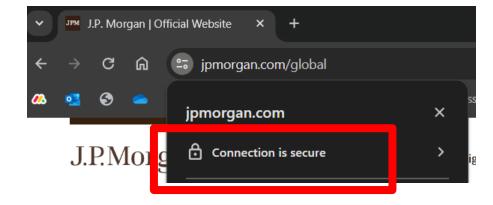
Improper Endorsements | Criminal forges endorsement, or chooses not to endorse at all Mobile Deposit Fraud | Usually perpetrated by the intended recipient, sometimes to double-cash paychecks

¹ 2023 Association for Financial Professionals (AFP) Payments Fraud Survey ² Nasdaq, 2024 Global Financial Crime Report



Protect yourself

- Avoid the dangers of over sharing on social media
- Leverage policies and procedures that restrict employees from divulging personal information that can be used by cybercriminals
- Activate Multi-factor Authentication EVERYWHERE!
- Always review the URL before entering credentials (password managers are good at this).
- Be suspicious of unexpected phone calls
- Do not send personal and financials information via email
- Verify requests to engage with a company using contact info from a known source
- Look for the padlock on websites





Sonya C. Prahbu . 1st

Director of Transactions Services for Commercial Banking

New York, New York



Sonya C. Prahbu

Headed to Chicago for your days to attend the com Leadership Conference. I'll be leading a discussion transaction services and technologies

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Background

Director of Transaction Services at JP Morgan Chase, Comm JPMorgan Chase & Co. is a leading global financial services f operations in more than 60 countries. I lead a great team of 30 world. Together we determine and drive the technology solution Commercial Banking transactions – managing millions and m

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nmercial Banking n on the future of	
nercial Banking firm with assets of \$2.4 trillion and 80 Technologists, located around the ions for all JP Morgan Chase's hillions of dollars every hour !	

Assessing and planning

Prioritize Your Risk, Assets and Threats

- Time is money and cybersecurity is a critical business decision
- Be proactive and vigilant now, to protect your organization's data, finances and business processes. Fortify your defense strategy.
- Define and enforce a cybersecurity policy
 - Key considerations: data loss prevention standards, software updates, social media requirements, encryption and content sharing, employee training, network access, incident reporting process

Measure and Plan

- Set goals and KPIs (e.g., days to patch, meantime to detect and respond, employee training effectiveness)
- Create a playbook
- Remain vigilant

Cyber Budgeting

- Optimize for ROI (e.g., overlapping solutions, update software/hardware)
- How to Budget (e.g., best vs. effective/right size, understand actual vs. perceived threats, reduce attack surface)

57%

breaches led to increased customer prices¹



¹IBM Security: Cost of a Data Breach Report 2023



\$4.45M | Average Cost of a Data Breach Globally¹ **\$9.48M** | Average Cost of a Data Breach in the US¹

Set goals & KPIs

- Days to patch
- Meantime to detect, respond & recover
- Supply chain safety ratings
- Tabletop simulations
- Employee training effectiveness



Create a playbook & remain vigilant

A risk management plan is critical to help your company reduce exposure to cyberthreats.

Include steps to protect, identify, detect, respond and recover from an attack. Continually update, refine and test your defense strategies to combat risks. Identify:

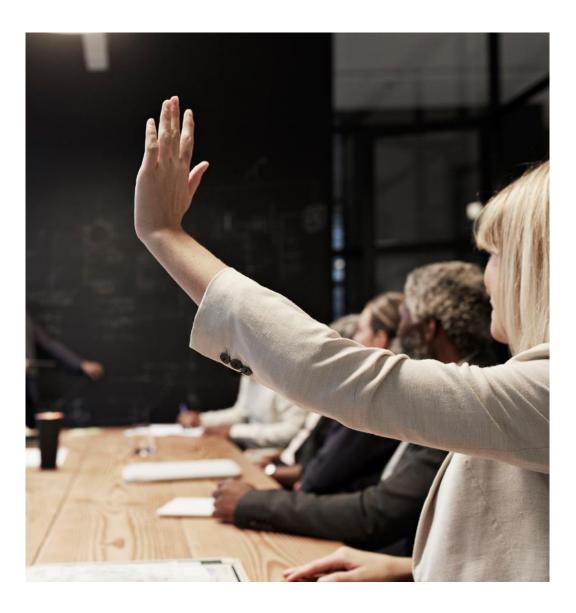
- Stakeholders M
- **Critical Systems** M
- Required Actions and Recovery Processes
- Ways to Make Your Plan Evergreen
 - Consider Tabletops, Trainings and IT Skill Development •

National Security Agency Top Ten Cybersecurity Mitigation Strategies



Q&A | Discussion

Use the **Raise Your Hand** feature to ask a question.



Appendix

- □ <u>Cybersecurity and fraud protection insights</u>
- Phishing
- Phishing indicators
- Payment security & controls
- □ <u>Who are "they"</u> (nation state threat actors)
- □ Counter measures to Nation State cyber attacks
- □ <u>Ransomware chain of custody</u>
- Quantum computing
- □ <u>What to expect when check fraud happens</u>
- □ Prioritize your risk, assets and threats
- Cyber budget
- □ Cyber budget optimization
- □ <u>Define and enforce a cybersecurity policy</u>
- □ Insuring for the worst-case scenario

Cybersecurity and fraud protection insights

- Contact your J.P. Morgan Chase relationship team with questions.
- Visit Commercial Banking Insights and Fraud Solutions for resources to mitigate threats.
- Visit <u>www.ic3.gov</u> for updated PSAs regarding BEC trends and other fraud schemes.
- For immediate assistance regarding electronic fraud matters after 5 p.m. EST
- J.P. Morgan Access®: 866-872-3321
- Chase Connect®: 866-619-3053, Option 1



Does your disaster recovery plan cover ransomware attacks? >

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12 tips for mitigating cyberattacks >

Commercial Banking

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Cybersecurity And Fraud Protection

Protect your organization against ransomware >



Cybersecurity And Fraud Protection

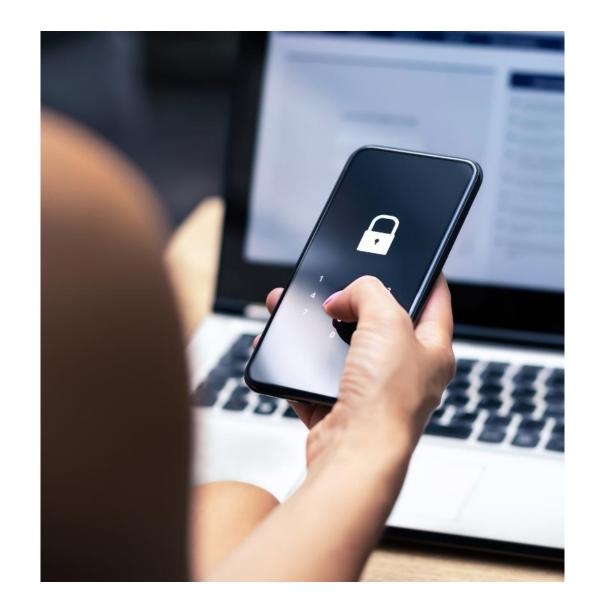
Developing a proactive mindset on ransomware >

Phishing

1298,878

Victims reported to FBI in 2023¹

Practice of sending blanket emails to large groups or targeted emails to individuals as means to commit financial fraud or infect or gain access to systems.



¹ 2023 FBI IC3 Report

Phishing indicators

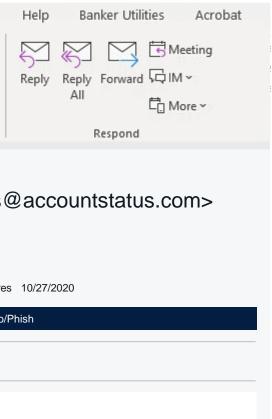
*****\$18,728,550

In losses reported to FBI in 2023¹

- Sender name is vague or generic
- Sender address has a suspicious domain
- Email includes an external banner indicating it's coming from outside the company
- Urgent or authoritative language
- Demands for a quick response
- PDF attachment "View File" button in a link, not a PDF

File Home	e Send / Receive	Folder View	Add-ins
	© Ignore ⊡ Clean Up ~	Report Email	
New New Email Items ~	S Junk ~	Communicat	
New	Delete	JPMC Emai	l Tools
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EXTEERNAL SE Messag Your Invoi Hello, Attached is	ENDER – Review for Phishing	g. Report if suspicious. .pdf (377 KB)	For help visit go

¹ 2023 FBI IC3 Report



at Secure Online

Payment security & controls

User Access

- Know who has access to your banking relationships and accounts; review entitlements regularly
- Set payment limits at account and employee М level based on trends/history
- Establish multiple approval levels based on M various thresholds
- Do not permit multiple users to log in from the M same computer to initiate or release payments
- Use approved templates/verified bank lines М and restrict use of free form payments
- Require multifactor authentication

Verification

 \mathbf{M}

Don't move money based solely on email, text or phone instructions

Perform callbacks for request for payments, changing payment instructions or contact information

Conduct callbacks with the person making \mathbf{M} the request via a phone number from a system of record

Don't used numbers obtained from sources M like email, pop-up messages, texts or voicemail

Never give information to an unexpected or unknown caller

Establish with customers / partners how changes in account information will be \mathbf{M} communicated and validated

Have a process to respond to your financial M institution if they call about unusual payments

Reconciliation

Perform daily reconciliation \mathbf{M}

 \mathbf{M} payments on payment date.

If volume is an issue, perform sampling or set M thresholds such as validating payments over a certain amount

Validate that vendors have received

Who are "they"?

Motivated by political, economic, military or ideological objectives

Nation-State Threat Actor

- People or groups who facilitate
 - Hacking
 - o Sabotage
 - o Theft
 - o Disinformation
- Against
 - o Other nations
 - Organizations
 - o Critical infrastructure



Countermeasures to Nation-State cyber attacks

Multi faceted approach: Government, law enforcement and private sector

- International cooperation and info sharing 1.
- 2. Robust cyber policies
- Enhanced attribution facilitates forensics and appropriate response 3.
- Deterrence establishes consequences and shapes rules of engagement in cyberspace 4.
- 5. Ongoing education and awareness

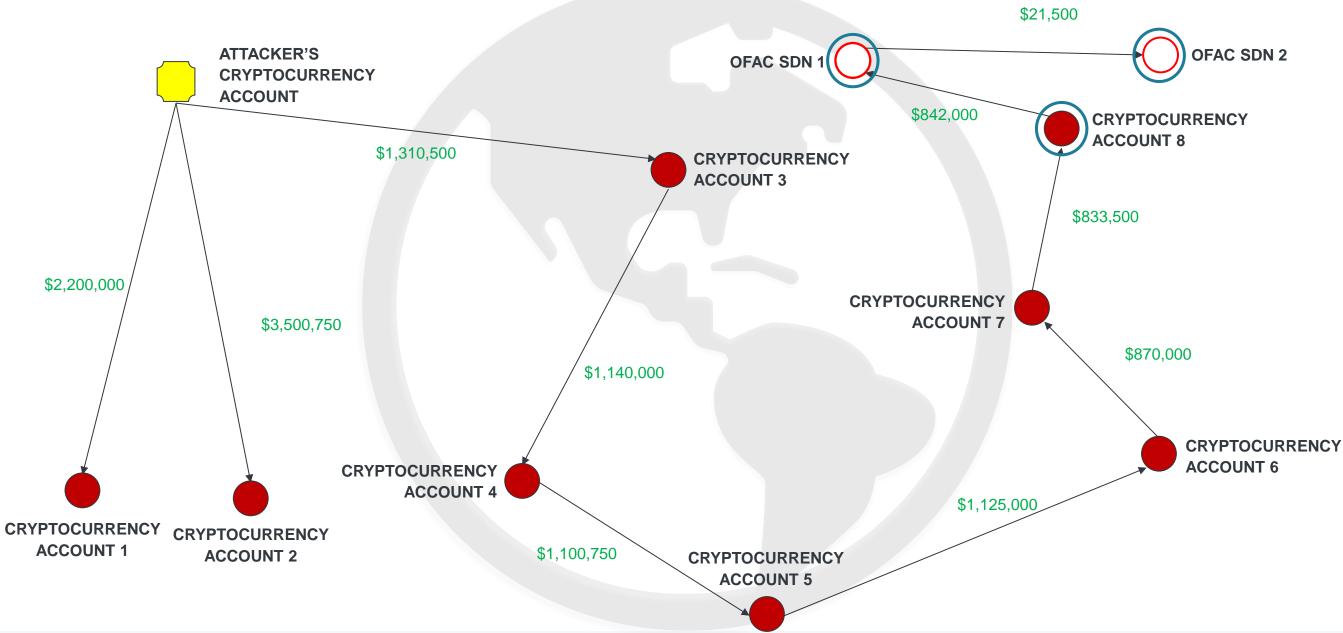






Ransomware chain of custody

Careful orchestration of each stage of attack, from infiltration and encryption to negotiation and receipt of payments while avoiding law enforcement intervention



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Quantum computing

Cutting-edge technology utilizing the principles of quantum mechanics to solve complex problems more efficiently than standard computers.

- Faster problem solving
- Enhanced data analysis
- Breakthroughs in cryptography
- Optimization and resource allocation
- Accelerated drug discovery
- Advanced machine learning

Can also pose threats.

- Encryption vulnerabilities
- Data breaches
- Cryptography
- Authentication and access control
- Digital signatures
- Phishing and social engineering



¹ McKinsey & Company, Quantum Technology Monitor, April 2023

² LiveScience, Quantum computing: Definition, facts & uses, 2022

³ IMB Institute for Business Value, Security in the quantum computing era, 2023

⁴ Quantum Computing Market, Information Technology – Market Research Report, February 2024

Quantum computers are 158 million times faster than the most sophisticated supercomputers²

Leading experts believe quantum computers can crack public-key cryptosystems within a mere 24 hours ³

Expected Growth



Projected quantum computing market value by 20304

C\$1.3T

Potential economic value from quantum computing by 2035¹

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What to expect when check fraud happens

Overview of the resolution process



1 Claim is reported

The client informs the bank and reports a claim

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2 Documentation is provided

The client provides the required documentation to Chase

3 Investigation

Back-of-check fraud

Chase makes a claim on the bank where the check was deposited

- If deposited at a Chase bank, it could take up to 15-20 business days if all the required documents have been provided
- If the bank was not Chase, it could take six months or more
- We reach out to the other banks with the claim; however, they control the response time frame

Mobile Deposit Fraud

Chase makes a claim on remote deposit capture bank

- If deposited at a Chase bank, it could take up to 15-20 business days if all the required documents have been provided
- If the bank was not Chase, it could take up to 30 business days
- We reach out to the other bank with the claim; however, they control the response time frame

Front-of-check fraud or counterfeit

 Internal Chase investigation could take up to 15-20 business days if all the required documents have been provided

Other reasons your claim could be delayed

- The depositing bank could ask for more documentation such as W-9 forms, tax documents, police report, driver's license or a payeesigned affidavit.
- The case could also involve an altered check or dual payees

4 | Resolution

The claim is paid or denied. If there is a request for more information, then you must go back to Step 3.

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Cyber budget

ROI: Monetary +

Non-Monetary

What is Optimization

- Overlapping solutions
- Outdated security configurations (especially in cloud)
- Update software and hardware
- Underspend on critical elements
- Overspend
- Rationalize and deprecate to reduce bloat
- Actual legacy costs, maintenance, plus security
- All data is not created equally
- Well known tools have well known weaknesses



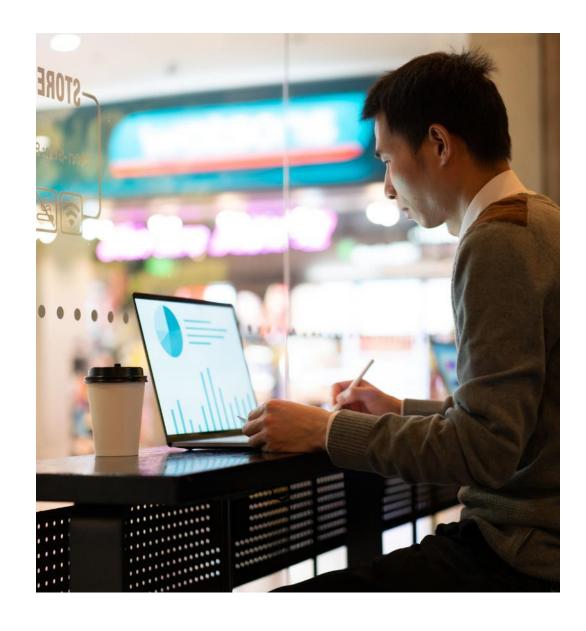
Cyber budget optimization

\$5.13M

Average cost of a ransomware attack, not including the ransom itself

"How to"

- Best vs Effective/Right Size
- CISO and CFO collaboration
- Segmentation Sensitive vs Non sensitive
- Understand actual vs perceived threats
- Learn ALL tool capabilities before purchase
- Reduce attack surface
- Regular risk assessments
- MDR/XDR Active response with alerts
- Develop an ACTIVE Cloud Cyber Strategy



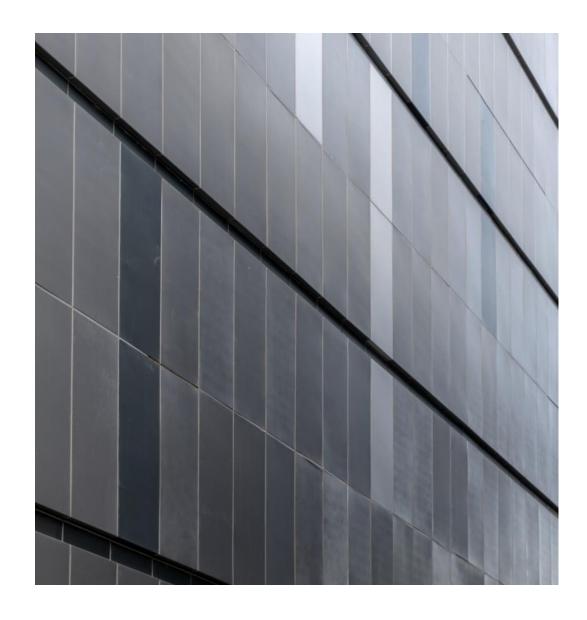
¹IBM Security: Cost of a Data Breach Report 2023



Define and enforce a cybersecurity policy

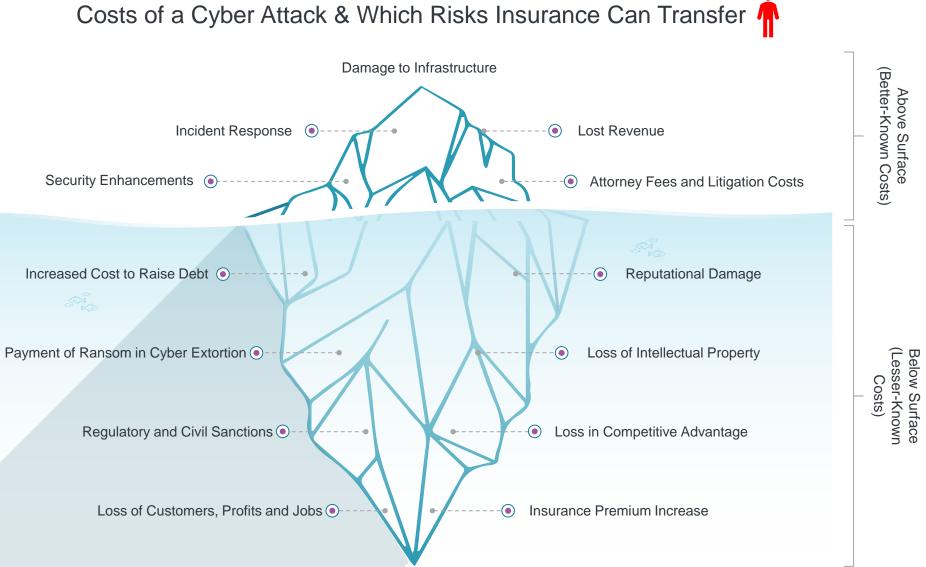
Key Considerations

- Data loss prevention standards
- Software updates
- Social media requirements
- Encryption & content sharing
- Employee training
- Network access
- Incident reporting process



Insuring for the worst-case scenario

Cyber insurance is designed to help an organization mitigate risk exposure, through risk transference, by offsetting costs involved with recovery after a cyber-related security breach.



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