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Cyber Threats; And What To Do About Them

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Cyber Security not just for IT!

- IT
- HR
  - Hiring, onboarding, training,
- Management
  - Continuous review and improvement
- Board Issue
  - Liability for no addressing

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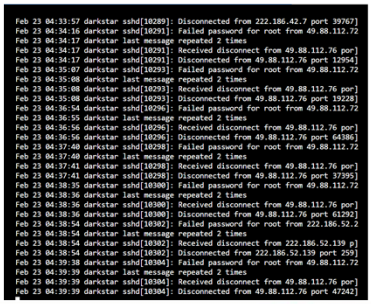
Everyone is a target!



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Part I – Definitions and Threats

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Cyber Definitions

- Threat or Vulnerability
- Event
- Incident
- Breach
- Criminality

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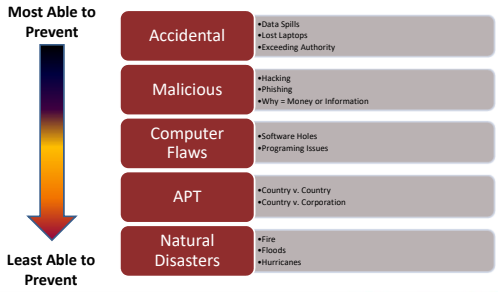
Types of Cyber Threats



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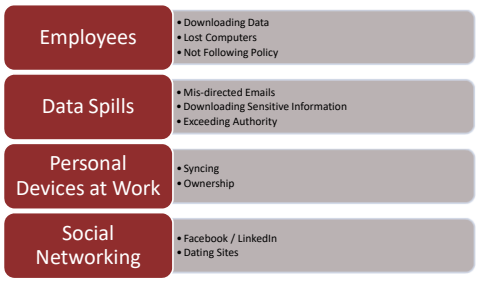
Accidental Cyber Threats Outline



Accidental Threats from Employees

- Downloading
  - Programs
  - Data
- Lost Computers
  - Computers
  - USB Drives
  - Key Fobs / Access Cards
- Policy
  - Circumvention Policy
  - Not Following Policy / Not Aware of Policy
- Passwords

Data Spills

- Definition - the transfer of classified or sensitive information to unaccredited or unauthorized systems, individuals, applications or media. A **spillage** can be from a higher level classification to a lower one
  - Government – UCLAS, CONFIDENTIAL, SECRET, TOP SECRET
  - Private Entities – PUBLIC, SENSITIVE, PRIVATE, CONFIDENTIAL / PROPRIETARY

Personal Devices at Work

- Syncing
- Data Ownership
- Device or Application Management
- Security for device

Employee Threats Prevention Techniques

- **Cyber Security Policies**
- **Create a culture of cyber awareness / security**
- **Talk frequently about cyber security**
- **Make employees part of solution**
  - **Teams of planners - BCDR**
- **Strong password management**
- **Reporting cyber security incidents**
  - **Integrate IT into workforce**
- **Review HR handbook**
- **Make the communication reoccurring!**
- **Don't wait**

Malicious Cyber Threats Outline

Insider Threats	• Disgruntled Workers • Former Employees
Social Techniques	• Changing Trends • Technology Centered
Business Email Compromises	• Type of Man-in-the-Middle • CEO / Vendor / Customer / Attorney
Computer Takeover Schemes	• Ransomware • Malware
Tech Support Scams	• Remote computer access • Study by Microsoft
Identity Theft	• Credit Cards • ATMs

Insider Threats

- Disgruntled Employees
- Ex-employees
- Employees with elevated access
- Remedy
  - Good off-boarding / termination policies

Social Engineering Techniques

Changing Technique

- Con-men with personal interactions
  - Same Goals = Gain Trust & Get Money
- Technology Centered Schemes
  - Computers
  - Email
  - Texting
  - Social Media
- One hacker = many victims
  - Worldwide reach

Infamous Hacker

"The lethal combination is when you exploit both people and technology… it's easier to manipulate people rather than technology.".

Social Engineering Prevention Techniques

Be Wary Of:

1. Unsolicited business schemes
2. Texts / E-mail / US Mail
3. Any "IMMEDIATE" Requests
4. Uninvited Money Managers
5. And Anything!

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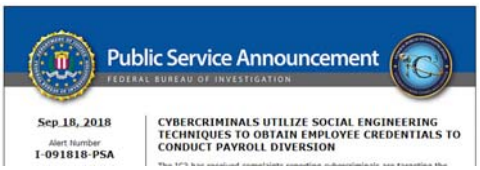
Internet Crime Complaint Center (IC³)



www.ic3.gov

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Business E-mail Compromises

- BEC Definition and Methodology
- Versions of BEC
- Hallmarks of BEC
- Victims and Impact of BEC

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Business E-mail Compromise (BEC)

Definition:

Sophisticated scam targeting businesses working with foreign suppliers and/or businesses that regularly perform wire transfer payments.

How:

Carried out by compromising legitimate business e-mail accounts through social engineering, brute-force, computer intrusions, etc.

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BEC Methodology
Spoofed

- **Spoofed accounts**
  - Adding an additional letter to the user name
    - abcd@yahoo.com => abcdd@yahoo.com
  - Need to be aware of free domains, i.e., Yahoo, G-Mail, AOL, Hotmail
- **Spoofed Domain**
  - Slight variations of the domain abc@0123.com => abc@O123.com

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BEC Methodology
Non-Spoofed

- **"Phishing Perfected"**
- **Hacked accounts**
  - Spear phishing
  - E-mail account login spoof
  - **Things to look for:**
    - E-mails forwarded to trash folder or spam folder
    - E-mails forwarded to actor accounts
    - Edited "rules" for account

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BEC - Hallmarks

- Targets
  - Open source e-mail accounts
  - Accountants, bookkeepers, controllers, etc.
  - CPA firms, law firms

BEC - Hallmarks

- Social engineering, research and information gathering to minimize suspicion
  - Specific to the business being targeted
  - Amount requested
  - Company logos, letterhead, signatures, etc.
  - Coding and phrases (i.e. "Code to admin expenses")

Business Email Compromises

- Coincide with:
  - executive travel
  - close of business day or week
- IP addresses trace back to free domain registrars
- Phishing schemes
- Pressure to act quickly and secretly

Business Impact

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BEC Prevention Techniques

- Multi-Factor Authentication
- Have Written Pre-approved Instructions
  - Back-up Approval Authority
  - No Wire Transfers Over Weekends / Holidays
  - No Wire Transfers Without Original Signature
- Communicate with Bank on Instructions
- Minimize Bank Information in E-mail

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Computer Takeover - Prevention Techniques

- Maintain Daily Backups
- Keep Backups Offsite / Offline
- Keep Virus Definition Up To Date
- Keep your programs up to date
- Educate Employees
- Review Procedures Yearly

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Part II - Financial Risks
The True Cost of Cyber Security

When a Threat Becomes a Breach

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Definitions of "records" under data breach statutes

PII Definitions	Nebraska Neb. Rev. Stat. § 87-301	Iowa Chapter 715C	South Dakota Chapter 22-40
Individual's first name or first initial and last name in combination with			
SSN	Yes	Yes	Yes
Drivers License	Yes	Yes	Yes
Electronic ID or routing code	Yes		
Financial Account w/ password	Yes	Yes	Yes
Unique electronic ID w/ password		Yes	
Biometric Data	Yes	Yes	
State ID	Yes		
Account Number	Yes		
Credit / Debit Card Number	Yes		
Username or Email w/ password	Yes		
Health Information			Yes
Employee ID with password/ code			Yes

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Investigative Costs of Data Breach

- Notification Expenses
- Crisis Management
- Regulatory Investigation Expense
- Data Breach Liability
- Content Liability
- Data Loss & System Damage (or Data Restoration Coverage)
- Business Interruption / Lost Revenue

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Additional Costs of Cyber Breach

- **Direct Financial Costs**
  - Lost profits
  - Software
  - Hardware and systems
  - Information
- **Intangibles**
  - Reputation
  - Personnel
- **Indirect Third-party Liability**
  - Lawsuits, remediation, on-going monitoring
  - Fines and criminal liability

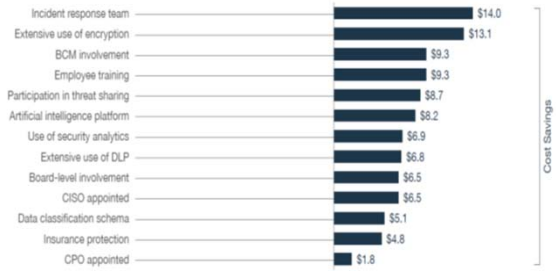
Financial Risks of Cyber Security

- Prevention is always cheaper than remediation
  - Reaction is always more slower / more expensive
  - Investigations
  - Forensics
  - Rebuilding networks
  - Restoring drives
  - Fines and penalties
  - Intangibles
  - Always cheaper to protect what you already have built

Cyber Security Costs - Information

- Study by IBM and Ponemon Institute LLC

Key Security Techniques



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Key Security Techniques

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Nebraska Breach Statistics

Data Description	Total Records	Nebraska Records
Cost per Record (IBM Report)	$ 250.00	$ 250.00
Total Number of Breach Reports	1231	1231
Total Number of Records	5,730,377,134	2,376,143
Total Estimated Cost	$ 1,432,594,283,500.00	$ 2,925,032,033.00
Average Records per Report	4,655,059	1,930
Total Average cost per incident	$ 1,163,764,649.47	$ 482,563.57
2019 Breaches Only	578	578
Victims	118,321,349	326,933
Average Victims	204,708	566
Total Average Response Cost	$ 51,177,054.07	$ 141,407.01
2019 for Nebraska Companies	34	34
Victims	106,767	58,631
Average Victims	3,140	1,724
Total Average Response Cost	$ 785,051.47	$ 431,110.29

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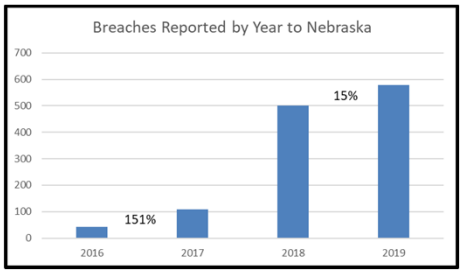
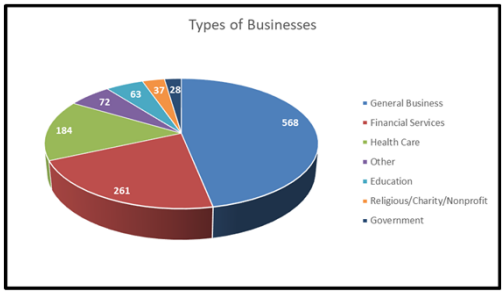
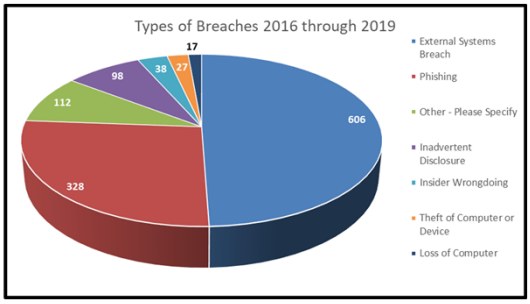
Nebraska Breach Statistics



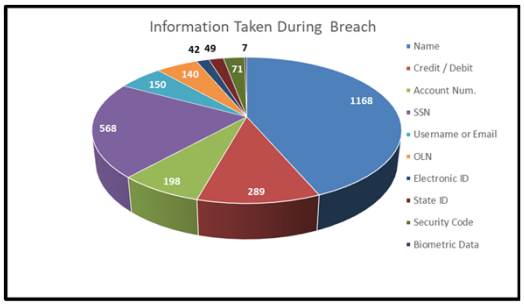
Nebraska Breach Statistics



Nebraska Breach Statistics



Nebraska Breach Statistics



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Summary

- **Prevention Steps**
  - Permanent Plan
    - Create a Cyber Response Plan
      - Board level involvement
    - Create a Cyber Response Team
      - Stakeholder involvement
    - Create HR policies regarding personal tech
      - Practice good policies
    - Create a data map
    - Create a hardware inventory
  - Quarterly
    - Train employees
    - Create a culture of cyber awareness / security
    - Talk frequently about cyber security
    - Reinforce management buy-in
  - Annually
    - Test the plan – table-top
    - Review and Update policies and procedures
    - Update data map
    - Update inventory

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Questions?

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Thank You

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