# Data Security Best Practices

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# Agenda



- Trends
- Update
- Emerging Cyber risk
- Best in Class Controls
  - Separating the Good from the Bad
- Data Security Strategy
- Risk Management
- Cyber Insurance Coverage

# Trends



- Cyber Events of 2014[1]
  - 79,790 confirmed security incidents
  - 2,122 confirmed data breaches

- Security Incident = Any event that compromises the confidentiality, integrity, or availability or an information asset.

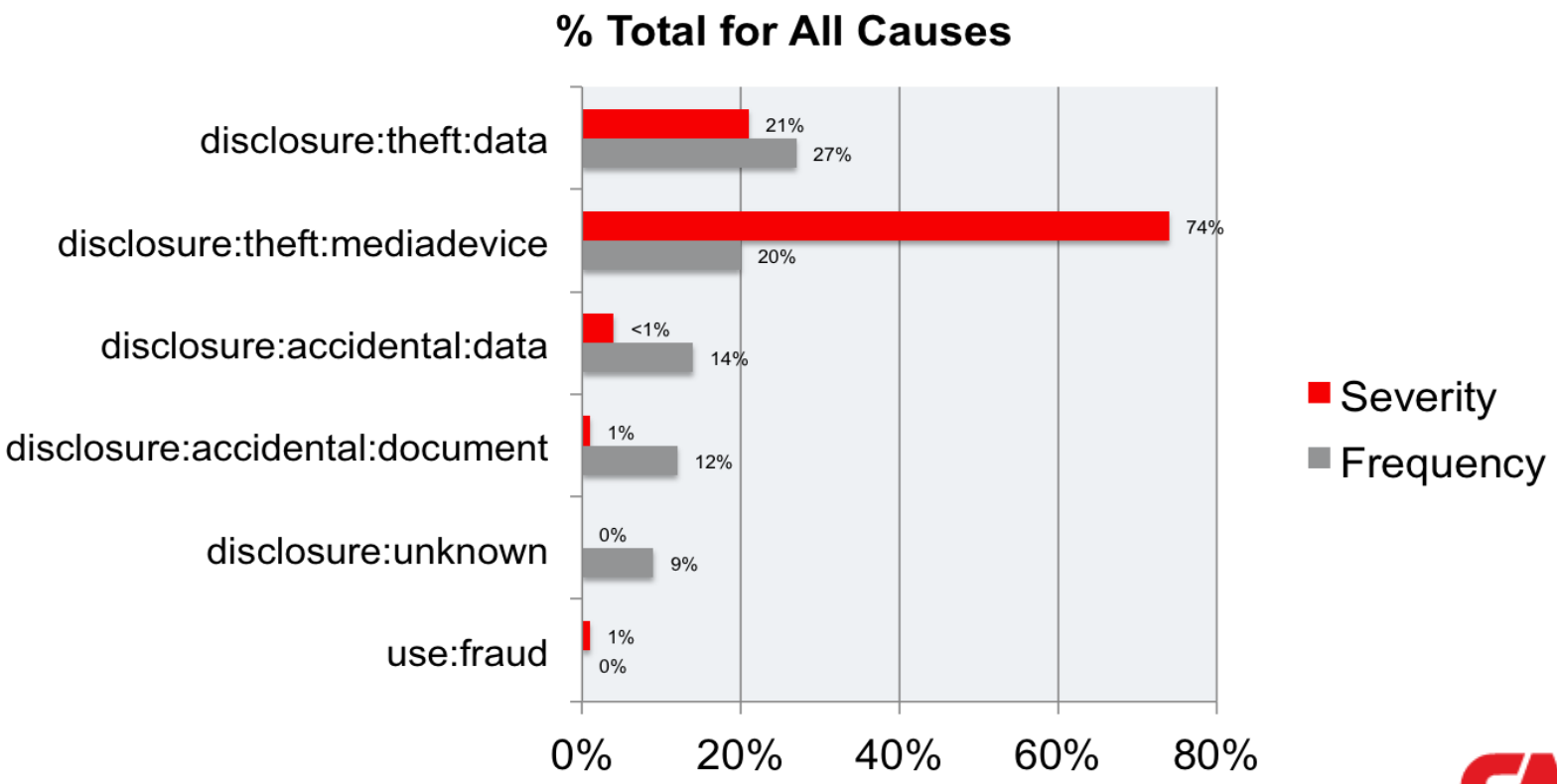
- Data breach = An incident that resulted in confirmed disclosure to an unauthorized party.

1 : *Verizon 2015 Breach Investigations Report. Conducted by Verizon. Publication April 2015*

# Causes



Top causes of Data Breaches – CNA Claim Data (2003-2013)



# Trends



- Top Threats: Phishing
  - 50% of recipients open email and click on link within the first hour
  - Median time-to-first-click: one minute, 22 seconds
  - Campaign of 10 emails have a greater than 90% chance of success

- How to Minimize Phishing
  - Better email filtering
  - Improved detection capabilities
  - Thorough security awareness program

*Statistical data reference: see Verizon 2015 Data Breach Report, page 13*

# Update



- Top Threats: Vulnerabilities
  - 99.9% of vulnerabilities compromised more than a year after first discovered
  - 10 vulnerabilities represent 97% of exploits in 2014
  - More than 7 million exploited vulnerabilities

- How to Minimize Vulnerabilities
  - Patch
  - Remove unnecessary services (web, database, remote administration)
    - Part of the larger “hardening” efforts: http://csrc.nist.gov/publications/nistpubs/800-123/SP800-123.pdf
  - Remove unnecessary information: hiding software version and OS identify: http://www.tecmint.com/apache-security-tips/

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# Emerging areas of risk



- Embedded Devices
  - Heating and Ventilation
  - Medical Devices
  - Personal Fitness Trackers
- Automobiles
  - Current vs future
- Airplanes
- Commonalities?

- Why do “they” do it?
  - Competitive advantage
  - Skip Research and Development
  - Espionage

# Who are the attackers?



- Where do they “lurk”?
  - Deep web
  - Underground market places
  - Utilizing TOR
- Who are they?
  - All walks of life
  - Disgruntled unemployed “coders”
  - Teenagers sitting in mom’s basement
  - Nation state sponsored paramilitary groups
- How do they do it?
  - What you see in TV and the Movies isn’t real
  - Some traditional hacking
  - Social engineering with increasing frequency

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# Cost of an incident



- $154[1] vs. $0.58[4]  Who's right?
- Many factors go into the cost
- "The forecasted average loss for a breach of 1,000 records is between $52,000 and $87,000"[2]
- Forensics – Paid like lawyers

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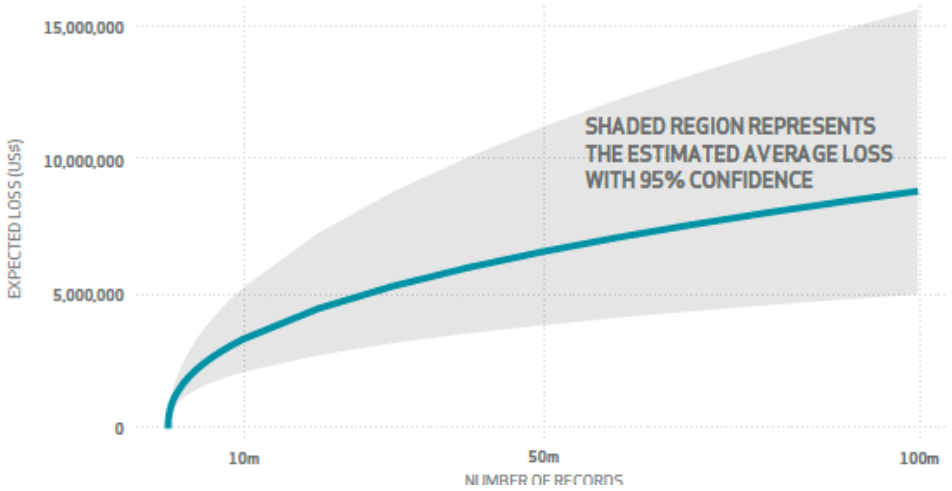


1 ,2 & 3: *Verizon 2015 Breach Investigations Report. Conducted by Verizon. Publication April 2015*
4: *2015 Annual Study: U.S. Cost of a Data Breach*. Sponsored by IBM, Independent Research by Ponemon Institute, LLC. Publication May 2015

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# Best in Class Controls



- Full disk encryption on all laptops, desktops, mobile devices, and external storage
- Segmentation of network – example: Target
- Controls extending to embedded devices
- Documented and tested DR/BC and Incident Response plans
- Formal Data Retention Policy – including secure deletion of data
- Two Factor authentication
- Physical Security
- Robust Cloud/Vendor management system
- Security awareness training
- Understanding the additional controls necessary for PCI and HIPAA
- Conducting annual penetration tests, and remediating issues

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# Separating the Good from the Bad



- **Varies depending on the company size**
- Having a disaster recovery plan that it 5 years old and has never been tested
- Unencrypted laptops – “But we have a policy!”
- Unencrypted credit card data
- “We retain everything forever” as a retention policy
- “But we’re PCI compliant”
- “I’ve outsourced that function so we don’t need to worry about it”
- “That’s on our roadmap for 2016…”
- Who is the most senior person responsible for Information Security?

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# Data Security Strategy



- Don’t reinvent the wheel
  - NIST Cyber Security Framework: http://www.nist.gov/cyberframework/
  - NIST guide to server security: http://csrc.nist.gov/publications/nistpubs/800-123/SP800-123.pdf
  - NIST guide to incident response: http://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-61r2.pdf
  - NIST guide to DR and BC planning: http://csrc.nist.gov/publications/nistpubs/800-34-rev1/sp800-34-rev1_errata-Nov11-2010.pdf
  - Classify data and identify it’s location

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# Risk Management



- Acceptance
  - Active versus Passive
- Avoidance
  - Location of a datacenter
- Mitigation
  - Compensating controls
- Transference
  - Insurance

# What is and isn’t covered?



- Type of Coverage
  - Errors and Omissions
  - Media
  - Network Security
  - Privacy
- First Party vs. Third Party
- Sub-Limits and Deductibles
- Not covered:
  - Future revenue
  - Business Reputation
  - Improvements
  - Intellectual Property

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# Closing thoughts



- Think outside the box
  - Other internet connected devices may present risk to your organization
- Security awareness training of employees is crucial
- Leverage tools from NIST (and others) to create a mature security program
- Have a thorough understanding of what is and isn't' covered by insurance

# Thanks!



Questions?  Comments?