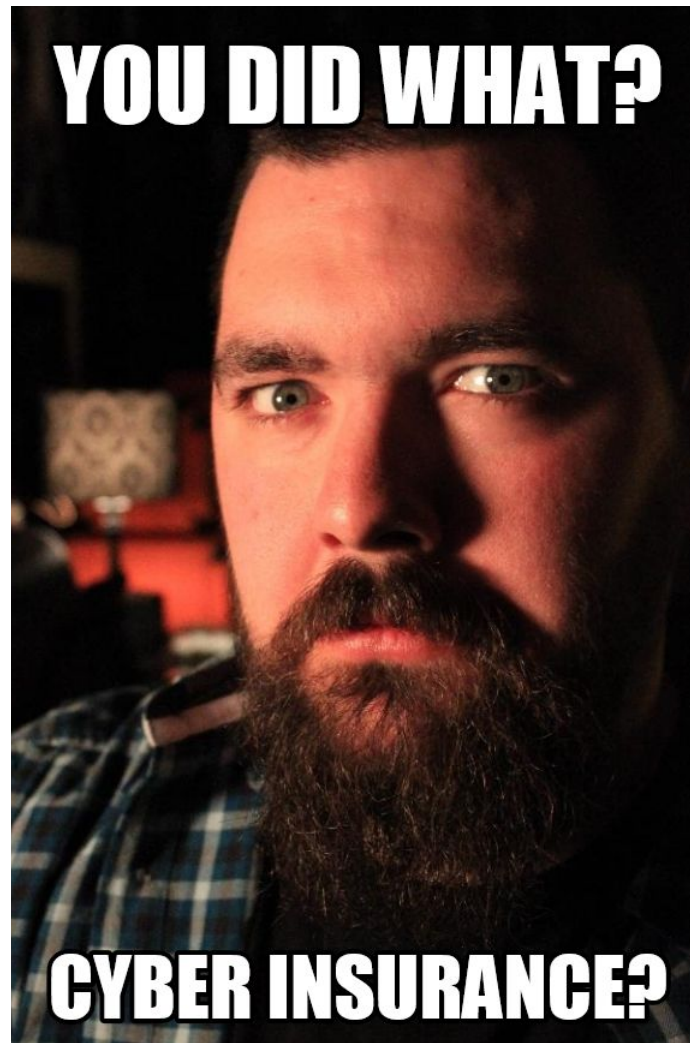


# Snoring Is Optional

*ZZZZZZZZZZZZZZZZ...ZZZZZZZZZZZZZZZZ...ZZZZZZZZZZZZZZZZ*

# The Metrics and Economics of Cyber Insurance For Malware Related Claims

*ZZZZZZZZZZZZZZZZ...ZZZZZZZZZZZZZZZZ...ZZZZZZZZZZZZZZZZ*



**THE SNORING**

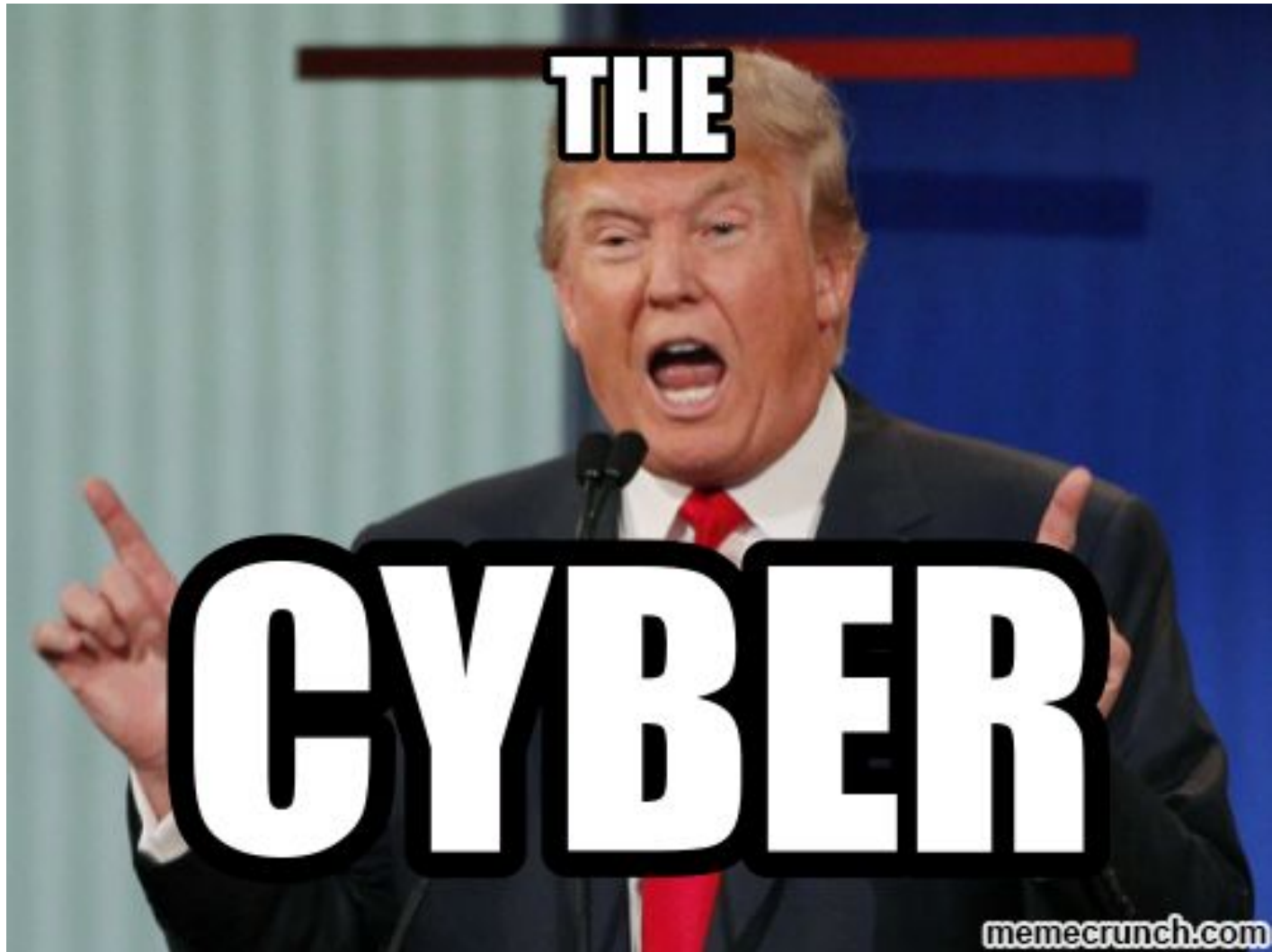
**IS STRONG WITH THIS  
ONE**

# INTRO - Wayne Crowder

- Background - Not insurance
- \$dayjob works with insurance industry
- Not a broker
- Not a lawyer
- Not here to sell
- Not here to influence
- Here to inform and enlighten - zzzzzzzzz





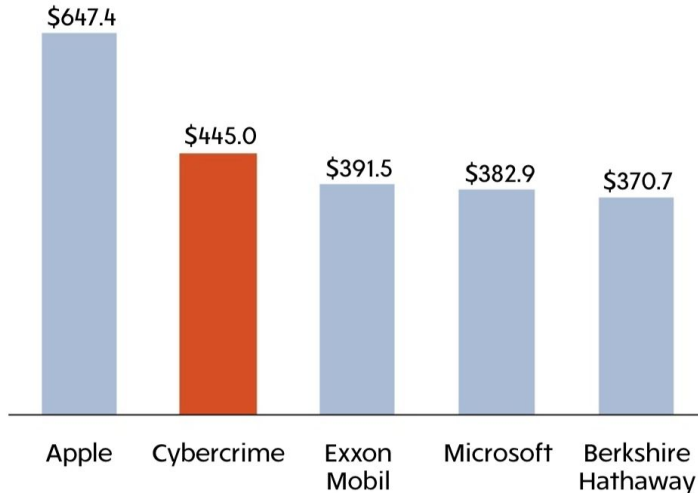


# The Metrics and Economics of Cybercrime or Cyber Events

- Hundreds of billions lost world wide
  - Costs the global economy \$450-\$600 billion a year
  - Projected to reach \$2 T by 2019 or \$6 T by 2021

**If Cybercrime Had Been A U.S. Company In 2014, It Would Have Been The Second-Largest**

**Market Capitalization (\$, Billions)**

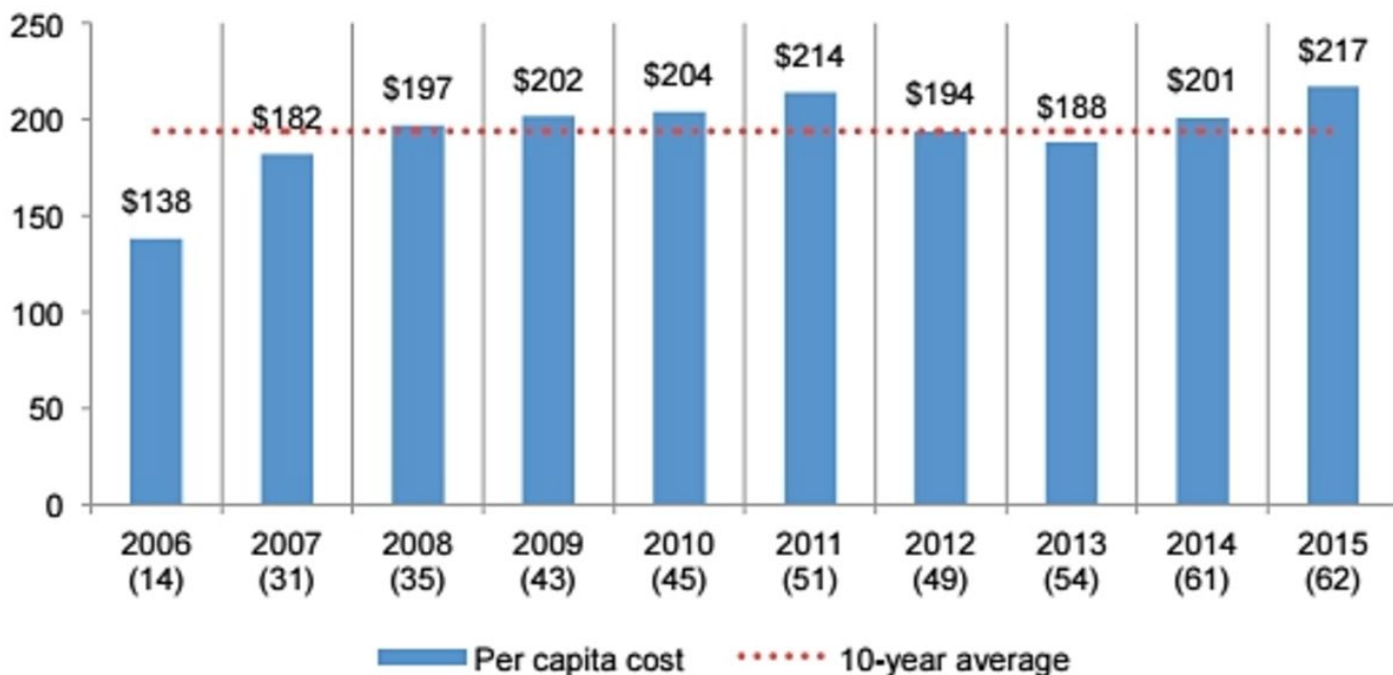


Source: Bloomberg, cybercrime cost from Allianz Cyber Risk Guide



## 2015 Ponemon Breach Report

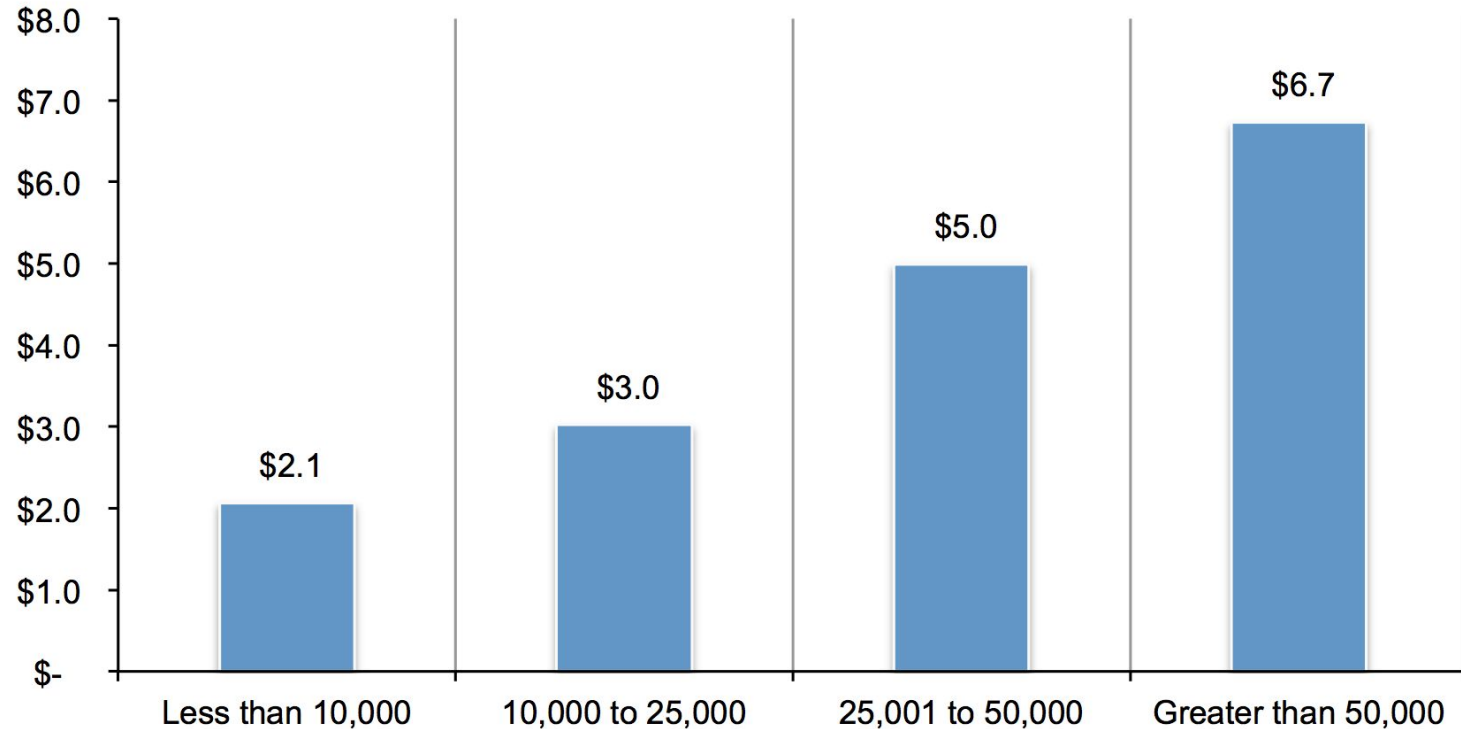
**The average per capita cost of data breach over 10 years**  
Bracketed number defines the benchmark sample size



# Ponemon Report - 2016 Cost of Data Breach Study: Global Analysis

## Total cost by size of the data breach

Consolidated view (n=383), measured in US\$ million



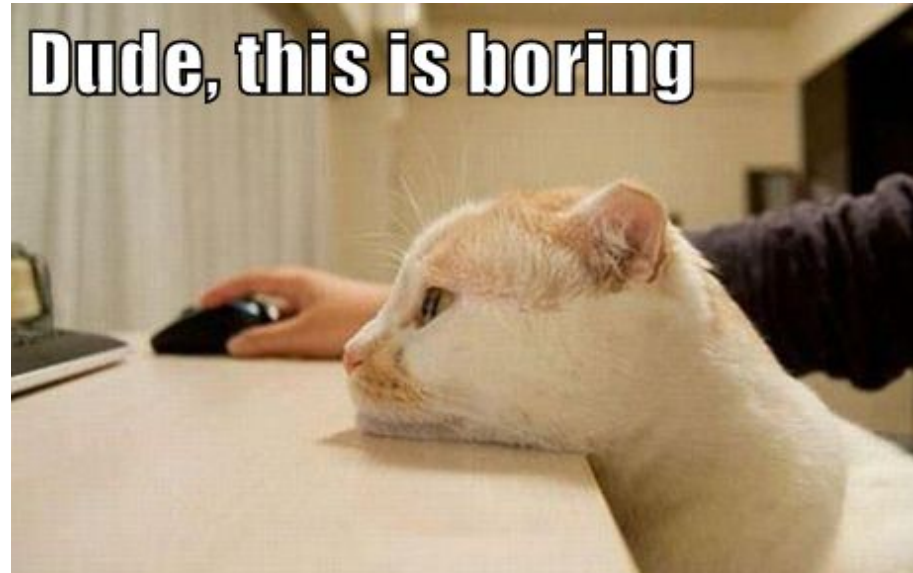


# Insurance Drives Safety & Security

- Construction - Fire, building codes
- Automotive - Seat belts, safety glass
- Medical - Standards, Procedures
- Cyber security will follow this trend

“Globally cyber insurance market could double to \$5 billion in annual premiums by 2018 and reach at least \$7.5 billion by the end of the decade, according to a report by PwC”

- Source: <http://www.reuters.com/article/us-europe-cyber-insurance-idUSKBN0U11NO20151218>



# Cyber Events Covered By Insurance

- Data theft \*
  - PII
  - Bank cards
  - Healthcare records - PHI
  - IP
- Malware
  - Requires due diligence
  - Evaluation of clean environment
- DDOS
- Hacking
- Business interruption
- Phishing attacks & B.E.C
- Cyber extortion - could already have it
- Mistakes



# Cyber Policy 101

- 50-60 carriers - possibly 63
  - Growing each year
- First cyber policy
  - 17 years ago - Dot com era
    - vs 34 years of D&L claims
- Evolving Year After Year
  - The evolution of the cyber insurance policy
    - Risk and Business Income Loss
    - Forensics
    - Laws - state and regulatory
    - Notification - 47 states require
    - ? Infosec services ?
- Cyber policies may be lacking or rough
- Key evolutions in the next 5-10 years
  - Standards & Metrics collection
  - Influence in security \*

The original patent from 1891 for a toilet paper roll shows the correct rolling direction, in case you ever doubted.



# What Makes A Good Policy?

- A Good Policy Covers
  - Legal Damages - Defense & Settlement
  - Regulatory Action - Defense & Settlement
  - Crisis Services
  - PCI Fines
  - Availability
  - Extortion - \* K & R
  - Some bodily injury - Cyber related perils
- Education is key to a good policy
  - Security is not understood by many brokers
- Ladder or Tower - post 9/11
  - Ladder system for coverage - Like a pyramid
    - Many carriers join to cover policy
    - With primary & largest at base
  - Could affect what is not covered



# Goal Of The Cyber Insurance Policy

- Reduce risk
  - Create a cyber policy that fits the org
  - Quality of policy depends on
    - Talent of your broker
    - Your premium
- Coverage
  - All policies are different
- \$\$\$ for Loss
  - Offset potential loss from a cyber incident
    - Not cover the value of data or IP
- Reduce Future Losses or Claims

The cyber world is sort  
of the Wild, Wild  
West, and to some  
degree, we're asked to  
be the sheriff.

Barack Obama

\*Skewed by the broker and the carrier chosen. - It's the Wild West.

# How Cyber Insurance Reduces Economic Risk?

- Insurance is for when good risk management fails
- Allows for recovery from cyber related events
- Budget ROI gap until security controls can be put in place
- Small and mid-sized businesses are hit by 62% of all cyber-attacks
  - 60% of small companies are out of business within six months of a cyber related event
- Coverage for unforeseen cyber issues
  - IoT botnets





**Prepared By**

## Breach Analysis

Total number of records	0
Type of data compromised	Credit Card >
Years of monitoring	1
Company a recognized brand name?	<input checked="" type="checkbox"/>
Likelihood of fraudulent activity?	High >

### Legal Liability/Regulatory Sanctions

Legal Defense & Damages	\$0.00
Regulatory Fines/Penalties	\$0.00
PCI Assessments/Card Reissuance	\$0.00
<b>SUBTOTAL</b>	<b>\$0.00</b>

**Total Cost**  
**\$0.00**

**Prepared For**

## Breach Response Costs

Public Relations Service Firm	\$0.00
Customer Notification Letter	\$0.00
Identity Monitoring	\$0.00
Identity Restoration/ID Theft Insurance	\$0.00
Call Center	\$0.00
<b>SUBTOTAL</b>	<b>\$0.00</b>

## Breach Investigation

Forensics Investigation	\$0.00
Data Breach Legal Guidance	\$0.00
<b>SUBTOTAL</b>	<b>\$0.00</b>

**Cost Per Record**  
**\$0.00**

Disclaimer: This document was created for educational and informational purposes only. It should not be relied upon in making any compliance or insurance related decisions. The data generated by the Breach Calculator does not constitute a promise or guarantee of coverage by AIG

06-10-2015



AMERICORN



# Cyber Insurance & The EU

- Europe has lagged behind the US market
- Decentralized nature makes it tricky
  - Similar to criminal and legal issues
- Unprepared due to legal issues
  - Lack of notification laws complicate things
  - Netherlands disclosure law - 1 Jan 2016
- Things are changing
- New data protection regulation
  - NIS Directive - 6 July 2016
    - Mandatory to report breaches
    - Takes effect May 2018
  - ENISA
    - Published a recent cyber insurance report



European Union Agency for  
Network and Information Security





# Cyber Insurance: Recent Advances, Good Practices and Challenges

# UK Government Report



HM Government



MARSH

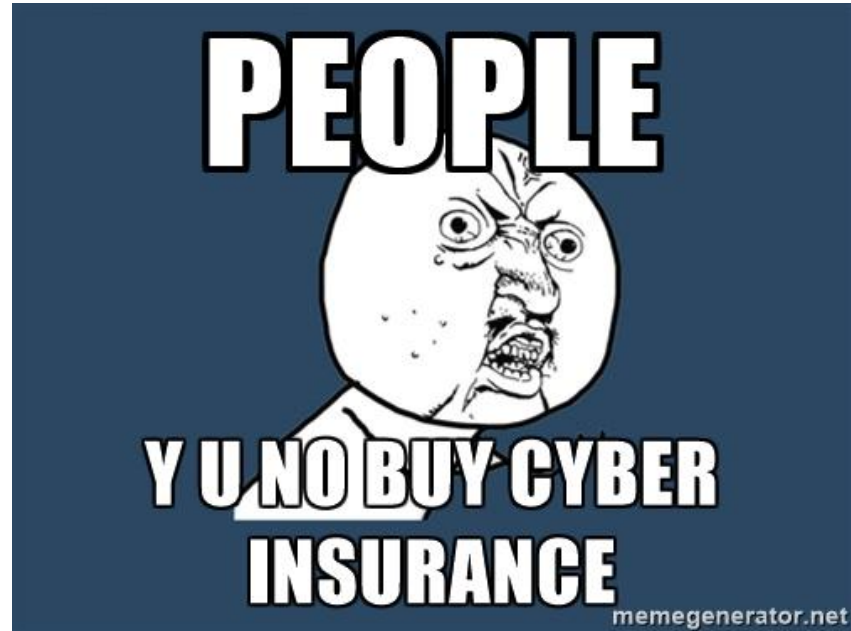
MARCH 2015

## UK CYBER SECURITY

THE ROLE OF INSURANCE IN MANAGING  
AND MITIGATING THE RISK

# Insurance vs. Cash

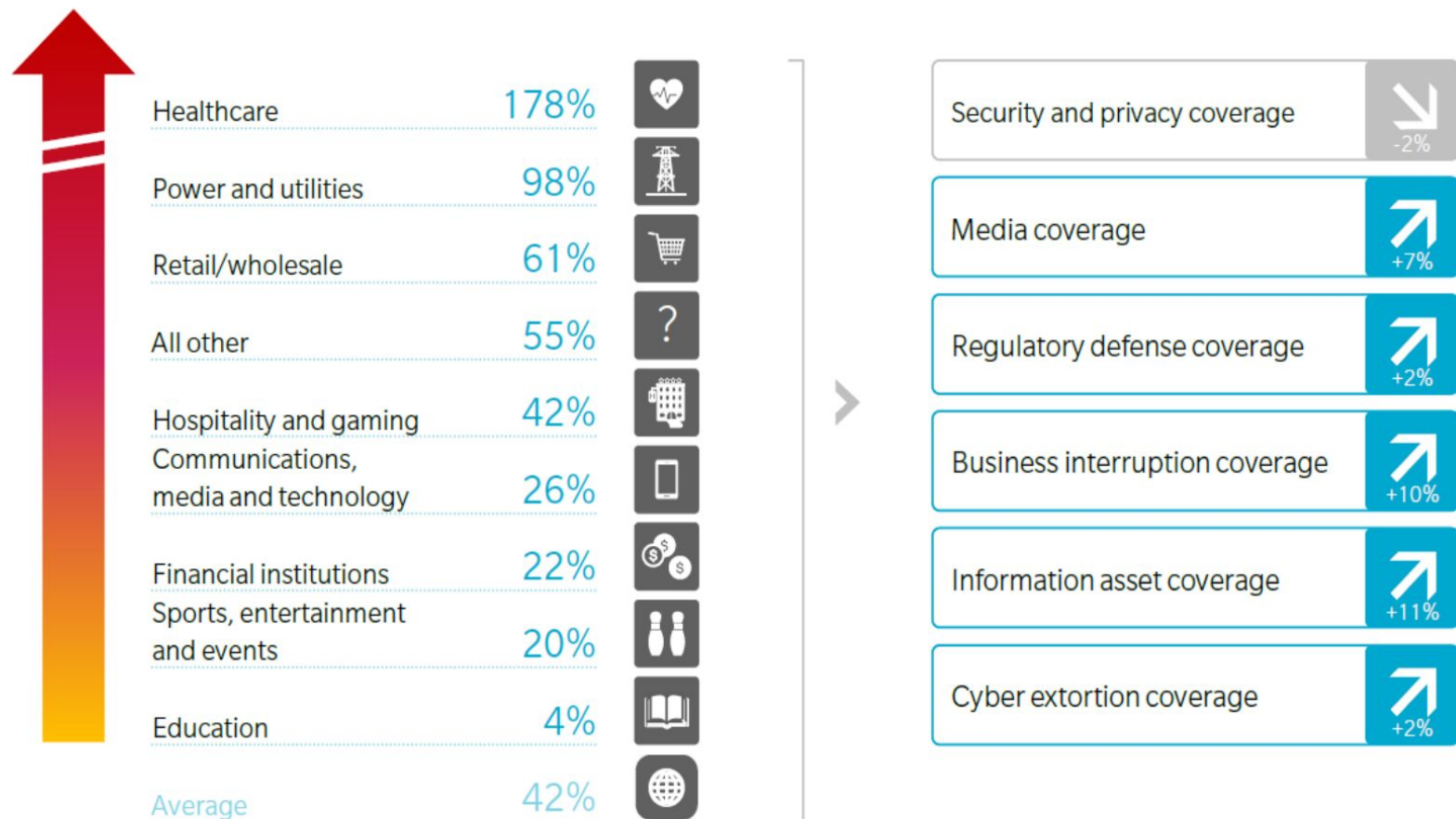
- Is cyber insurance a fit for all situations?
- Self Insurance - CASH positive
  - I am sure you can guess a few..
- Overcome financial loss from an incident
  - Buy insurance
- A cyber policy is meant as a compliment
  - Not a replacement



# Verticals Buying and Renewing Policies

- Entertainment
- Finance
- Healthcare
- Retail
- Legal
- Technology
- Hospitality
- Services
- Government
- Utilities
- Have I missed anyone?

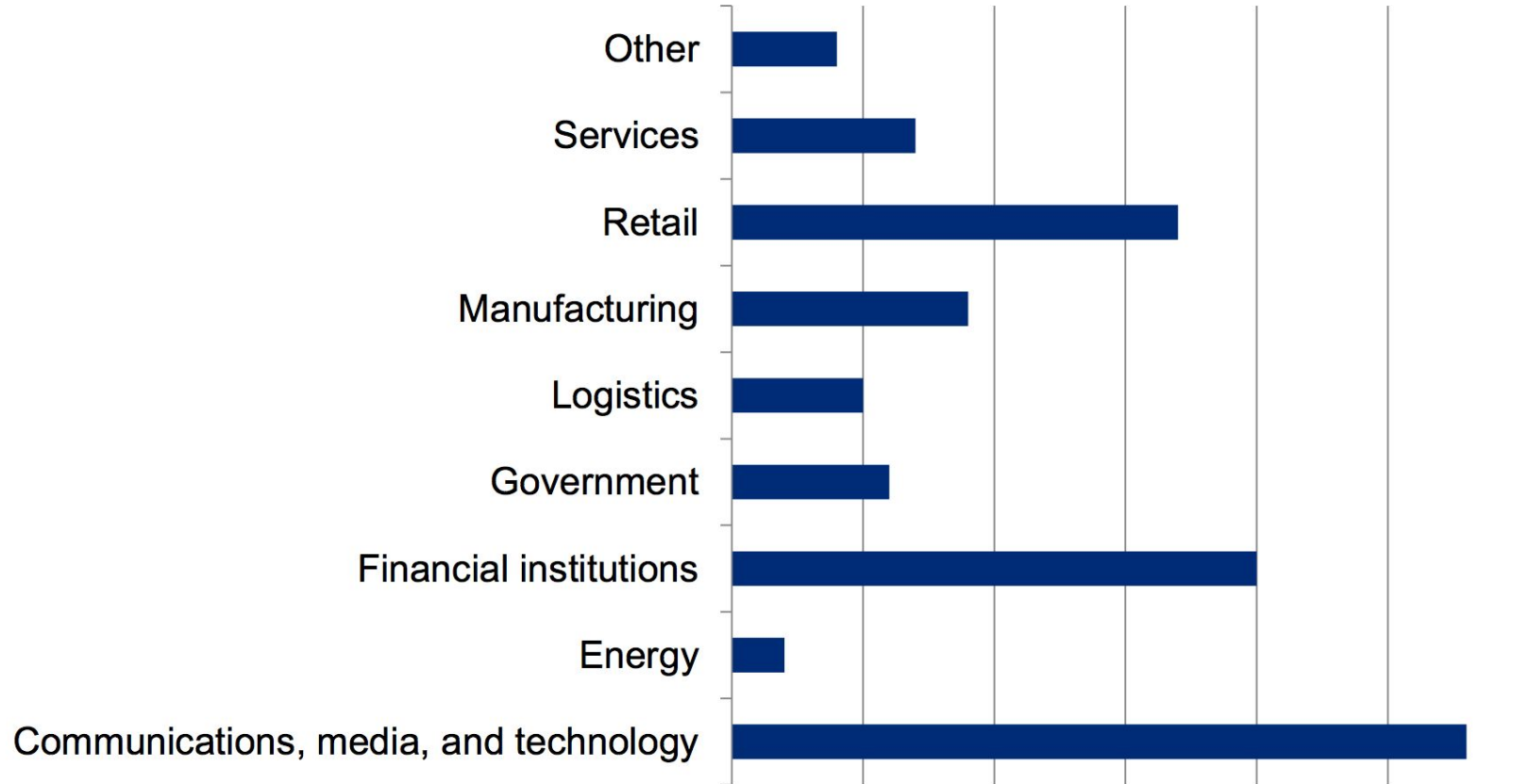




Source: Marsh Global Analytics. Percentage increase in spending by companies with more than USD1 billion in revenues on cyber risk insurance from 2012 to 2014.



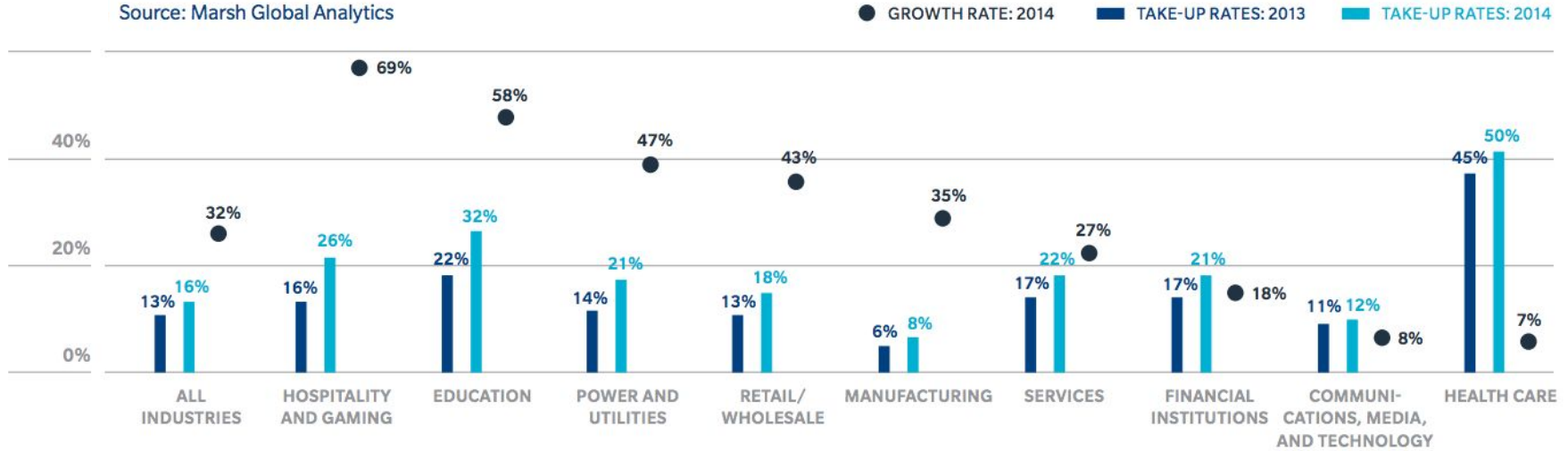
## European purchasing experience, based on August 2015 Marsh cyber benchmark



Source: Marsh Global Analytics. Percentage increase in spending by companies with more than USD1 billion in revenues on cyber risk insurance from 2012 to 2014.

## CYBER INSURANCE TAKE-UP AND GROWTH RATES BY INDUSTRY

Source: Marsh Global Analytics



“The number of Marsh U.S.-based clients purchasing standalone cyber insurance increased 27% in 2015 compared with 2014. That followed a 32% increase of clients purchasing cyber insurance in 2014 over 2013, and a 21% increase from 2012 to 2013. This purchasing is supported by more than 50 carriers from around the world that potentially can provide more than \$500 million in capacity.”

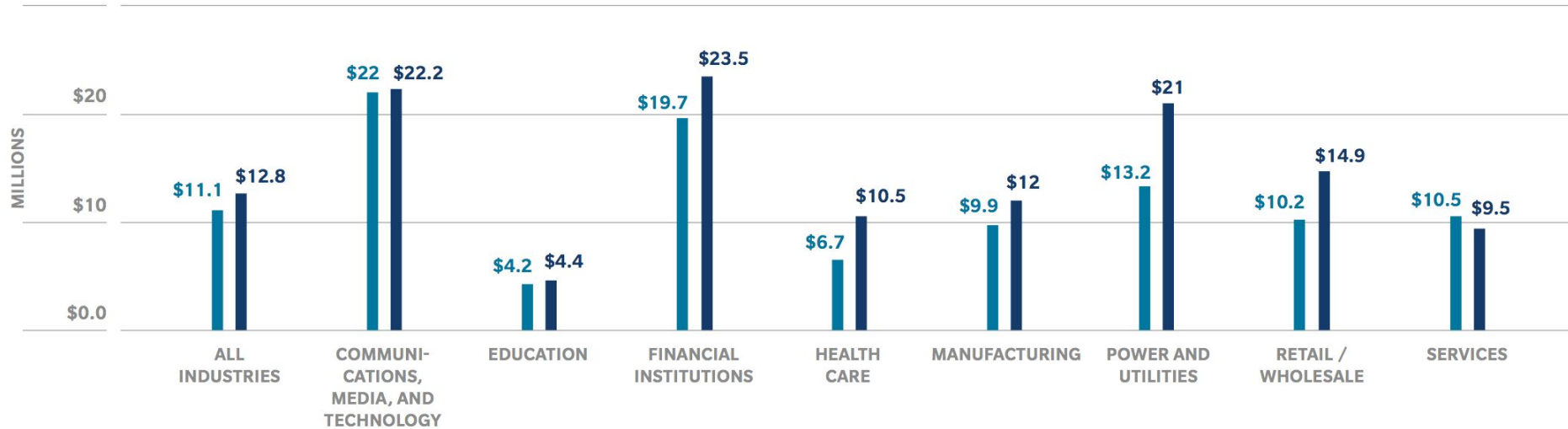


## CYBER LIABILITY TOTAL LIMITS PURCHASED (ALL SIZE COMPANIES)

Source: Marsh Global Analytics

■ AVERAGE 2013 LIMITS

■ AVERAGE 2014 LIMITS



# How The Insurance Industry Is Dealing with Cyber Claims

- Cyber Liability 3.0
  - 1.0 - Liability only
  - 2.0 - Covered Crisis Loss - Notification laws
  - 3.0 - Added services to help companies
  - 4.0 - Metrics with government oversight
  - ? 5.0 - Use infosec partner's services ?
- Avoid loss
- Prevention vs. reaction
  - Blood test - Life Insurance
    - Who forces it
    - Who doesn't
- Do they pay claims?
  - YES!
  - Mostly
  - Known denials



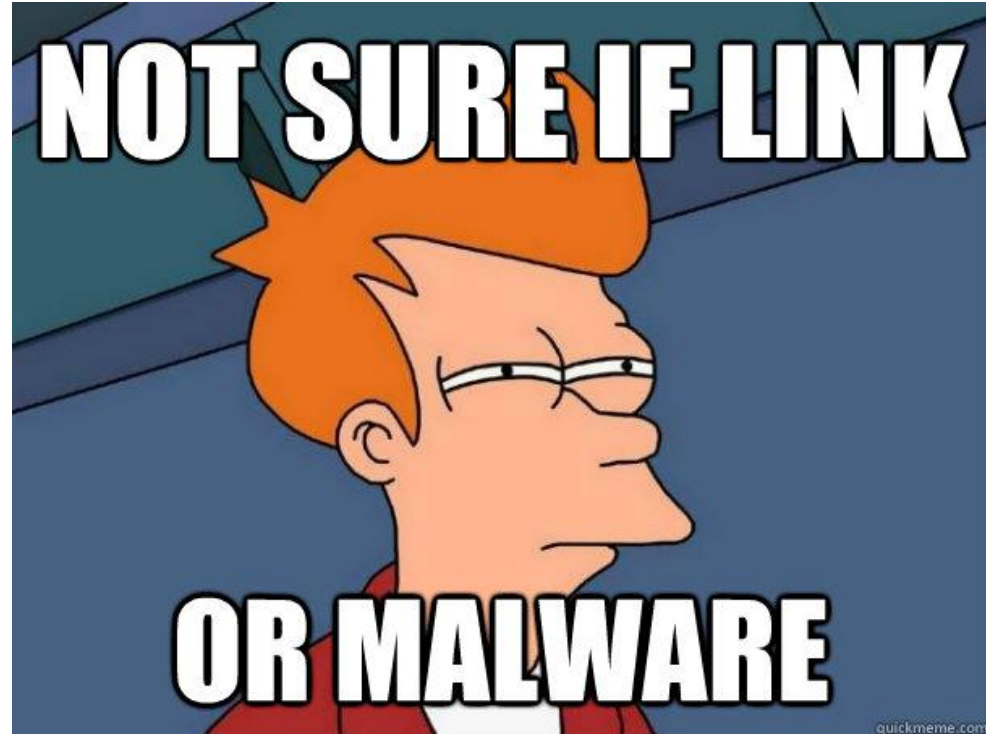
# Examples Of Claims - Only Public Allowed

- Data Breaches
  - Sony
    - 1st breach - settled with carrier
  - Anthem - still in litigation - costs rising
- Ransomware
  - SFMTA MUNI - TBD
  - Hospitals - Claims are being paid
- IP Theft
  - Sony - 2nd breach
    - Only \$60m in coverage
- DDOS
  - Mirai
  - 2017 year of IoT insurance?
- I wish I could say more, but ...



# Malware Impact

- Finance
  - Tesco Bank - UK
- Manufacturing
  - AFGlobal Corp \*
  - ICS
- Entertainment
  - Sony
    - Playstation
    - Entertainment
- Hospitality
  - Trump Hotels x 2
  - Omni Hotels
  - Rosen Hotels
  - Hard Rock Hotel - Las Vegas



# Botnet Impact

- Citadel
  - Target? \*
    - \$90 million covered
    - Almost \$300 million cost to date
    - Forecasted breach-related losses will reach \$1B
- Necurs & Dridex - Ransomware
  - Healthcare
    - Phishing - Spambots
- Mirai
  - Business Interruption
    - DDOS
      - Dyn attack
      - Cost TBD



# Ransomware - Cyber Extortion

- Ransomware - claims up 400%
  - Claims are paid by insurance
  - Most criminals have provided keys after payment
- CryptoLocker
  - In 2014 the FBI estimates \$27m stolen in six months
- Locky - Thousands of infections a day
  - Methodist Hospital
    - 4 BTC or \$1,600
  - Hollywood Presbyterian
    - 40 BTC or \$16,664
- HDD Cryptor
  - SFMTA - MUNI \*
    - 100 BTC or \$73,000





## Claims – This Should Wake You Up!

- Claim statistics

- NetDiligence®
  - Six years of claims data reports
  - 17 different insurance companies
  - 176 cyber claims studied in 2016

- Costs associated with claims

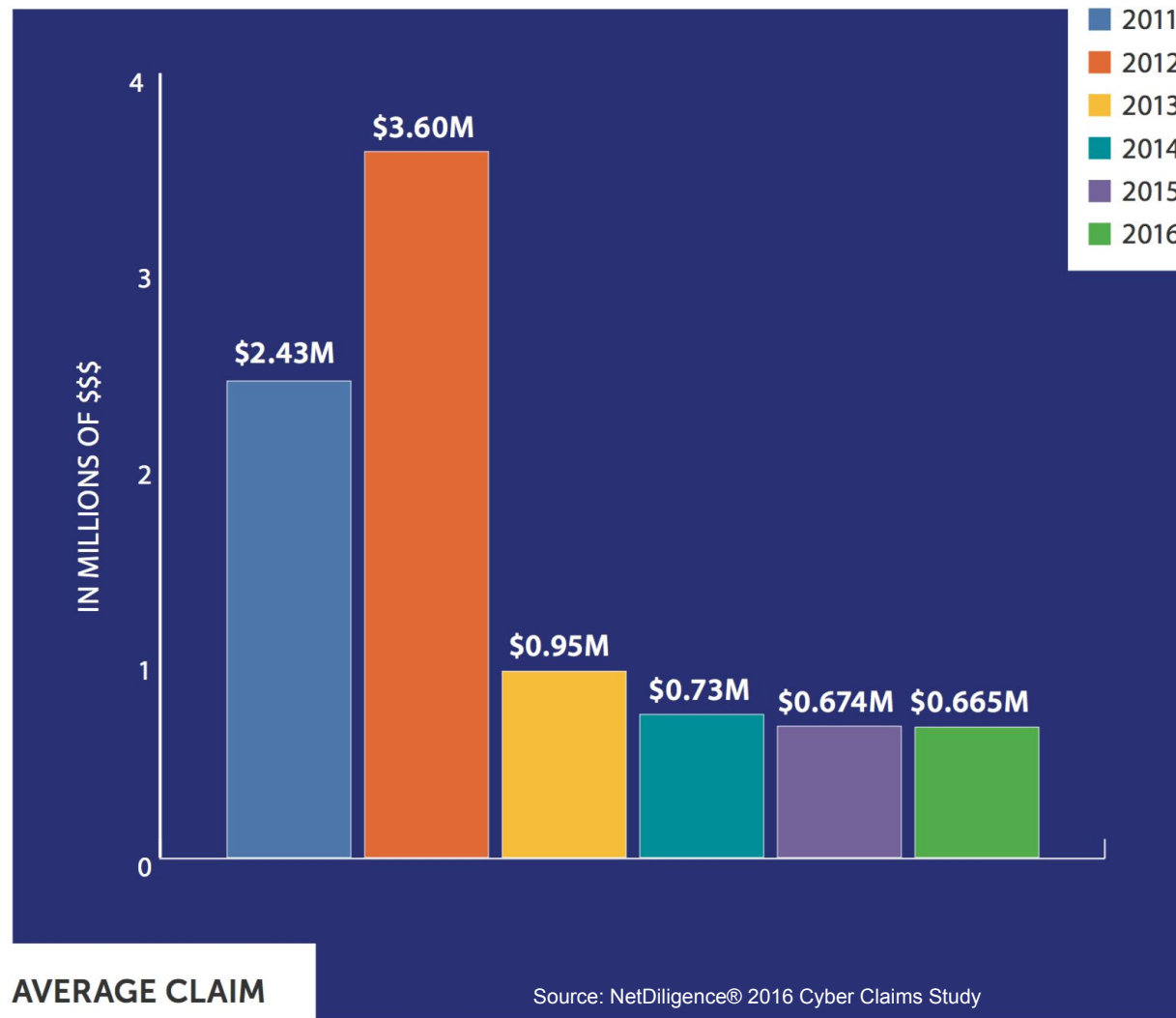
- 1 record (PHI) with a cost of between \$1.5–2.0M
- The smallest breach cost was \$290 while the largest was \$15 million
- Median breach costs ranged from \$5,822 to \$1.6M

- A breakdown of claims

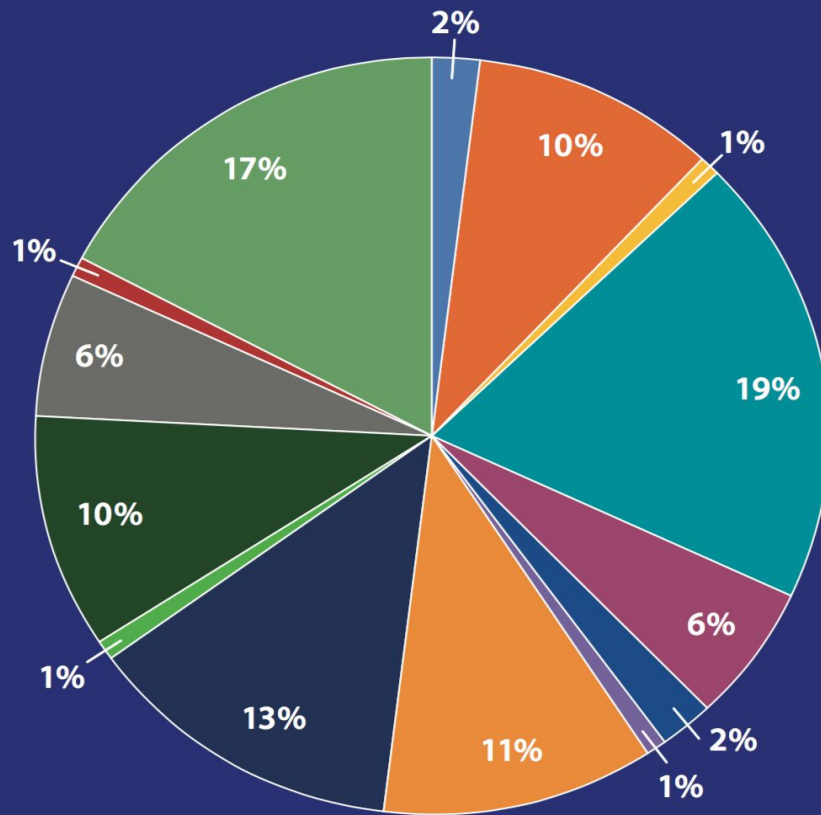
- Wake up - graphs and charts ahead



Source: NetDiligence® 2016 Cyber Claims Study





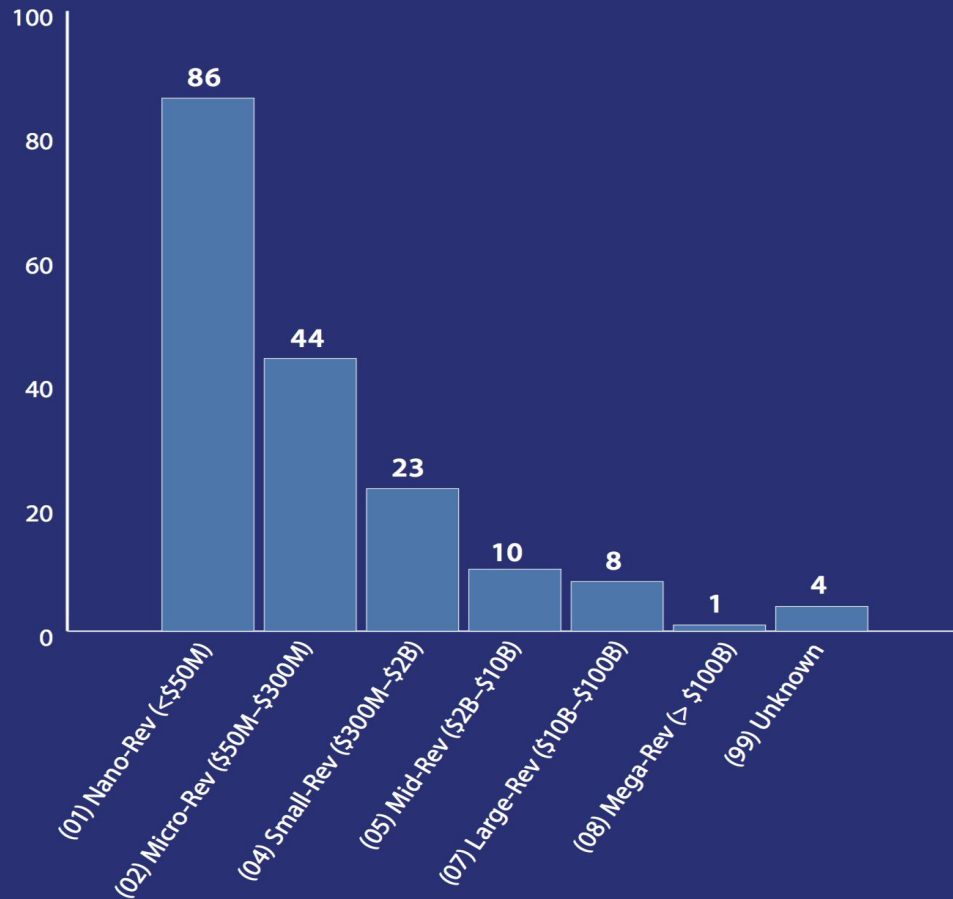


- Entertainment
- Financial Services
- Gaming & Casino
- Healthcare
- Hospitality
- Manufacturing
- Media
- Non-Profit
- Professional Services
- Restaurant
- Retail
- Technology
- Telecommunications
- Other

## PERCENTAGE OF CLAIMS BY BUSINESS SECTOR

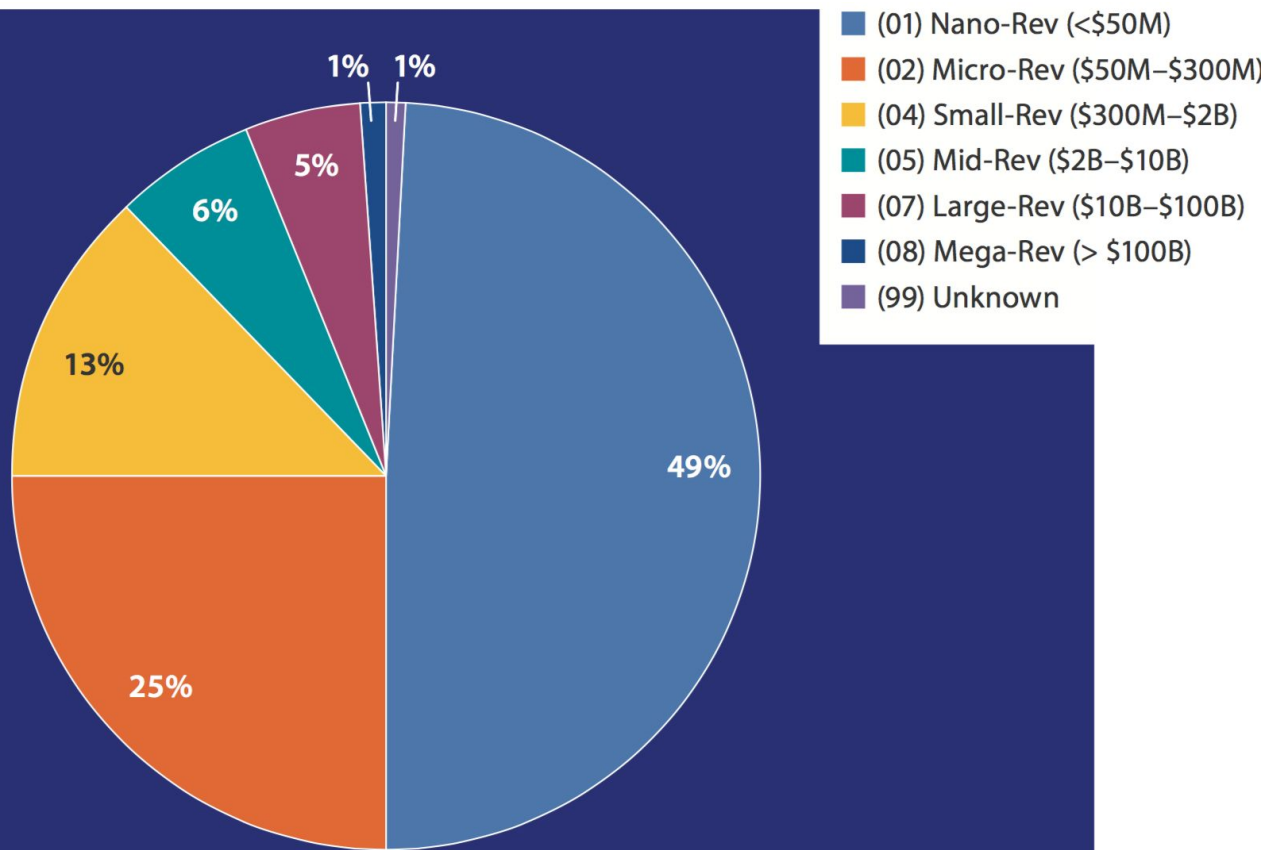
(N = 176)

Source: NetDiligence® 2016 Cyber Claims Study



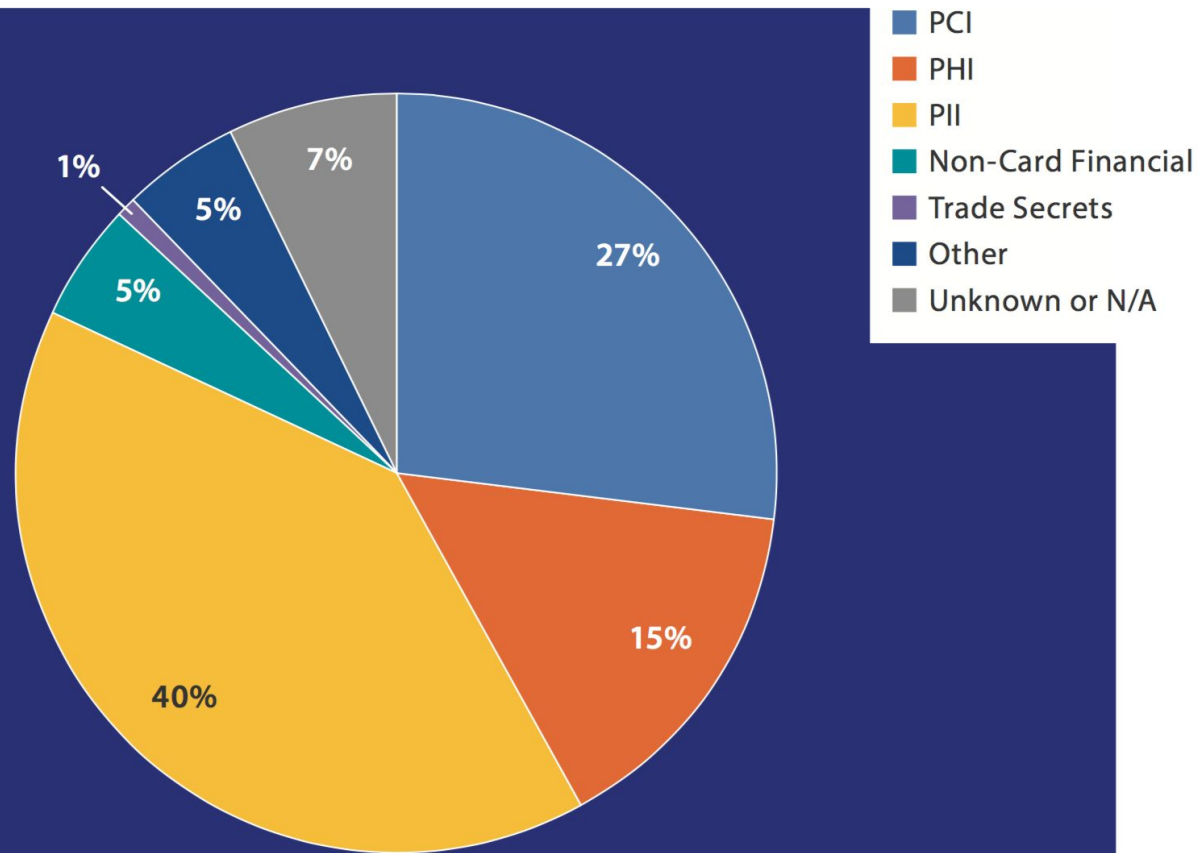
**NUMBER OF CLAIMS BY REVENUE SIZE**  
(N = 176)

Source: NetDiligence® 2016 Cyber Claims Study



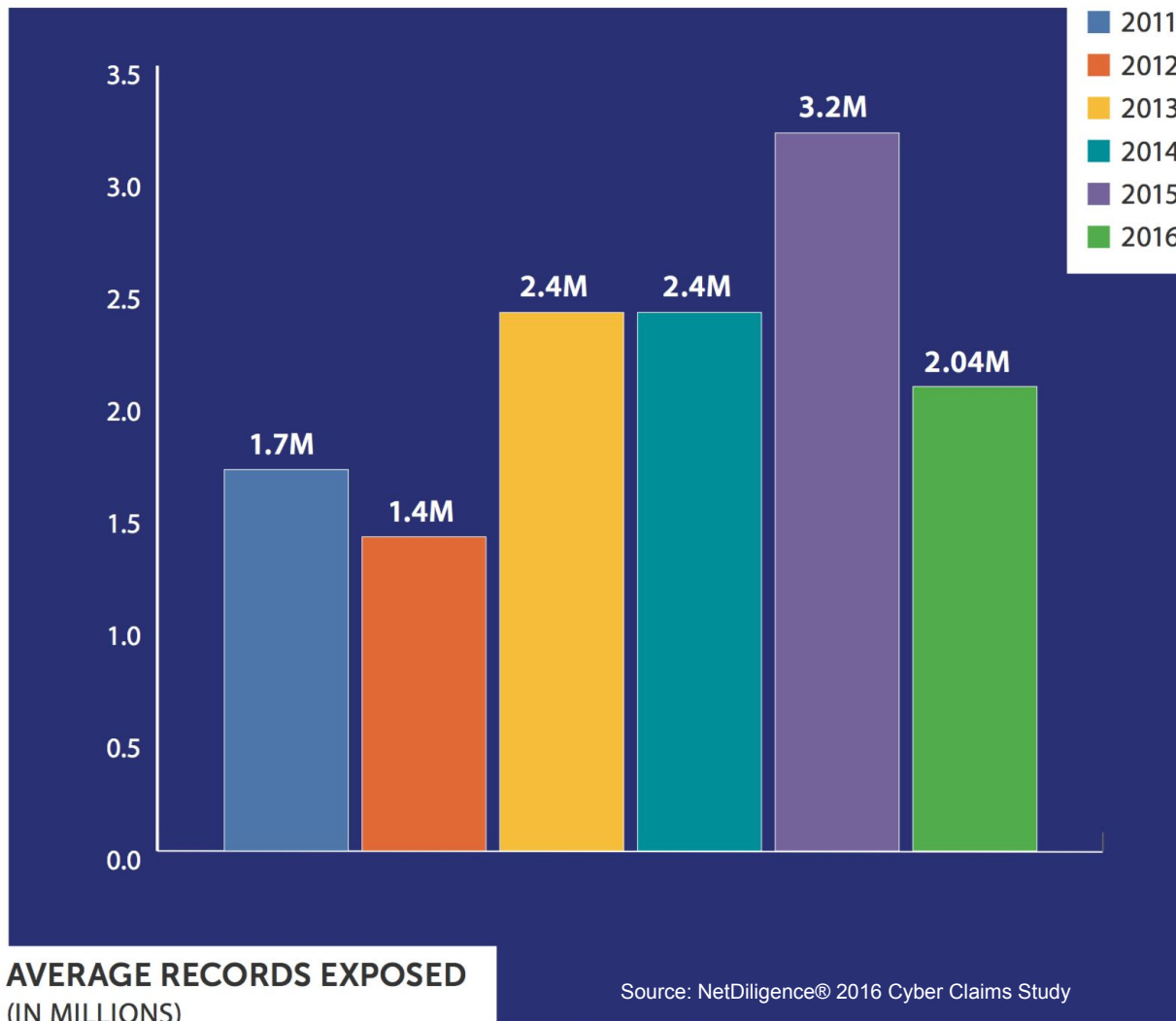
**PERCENTAGE OF CLAIMS BY REVENUE SIZE**  
(N = 176)

Source: NetDiligence® 2016 Cyber Claims Study

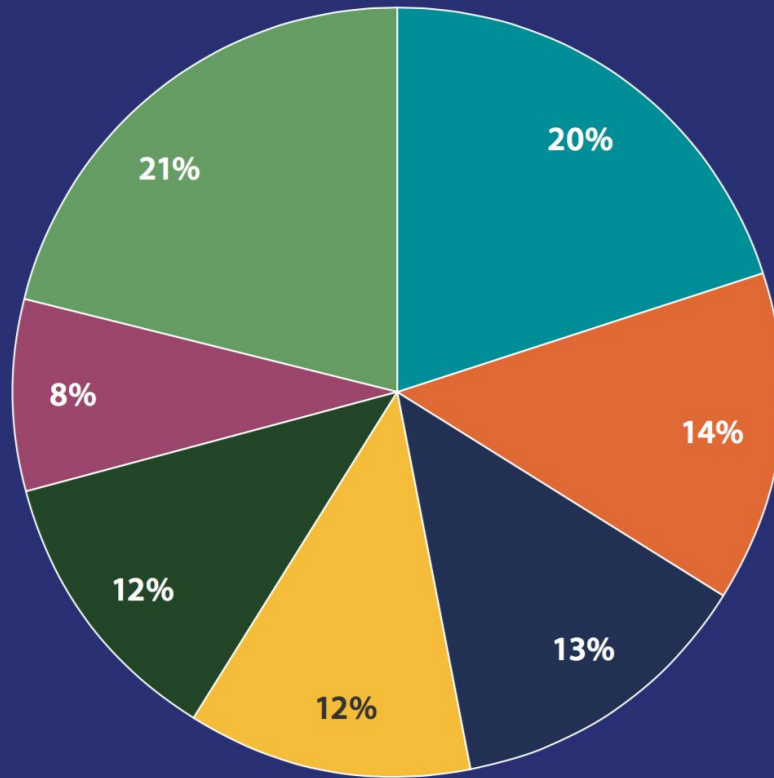


**PERCENTAGE OF CLAIMS BY DATA TYPE**  
(N = 176)

Source: NetDiligence® 2016 Cyber Claims Study



Source: NetDiligence® 2016 Cyber Claims Study



- Healthcare
- Financial Services
- Professional Services
- Non-Profit
- Retail
- Hospitality
- All Other Sectors

**PERCENTAGE OF RECORDS EXPOSED BY BUSINESS SECTOR**

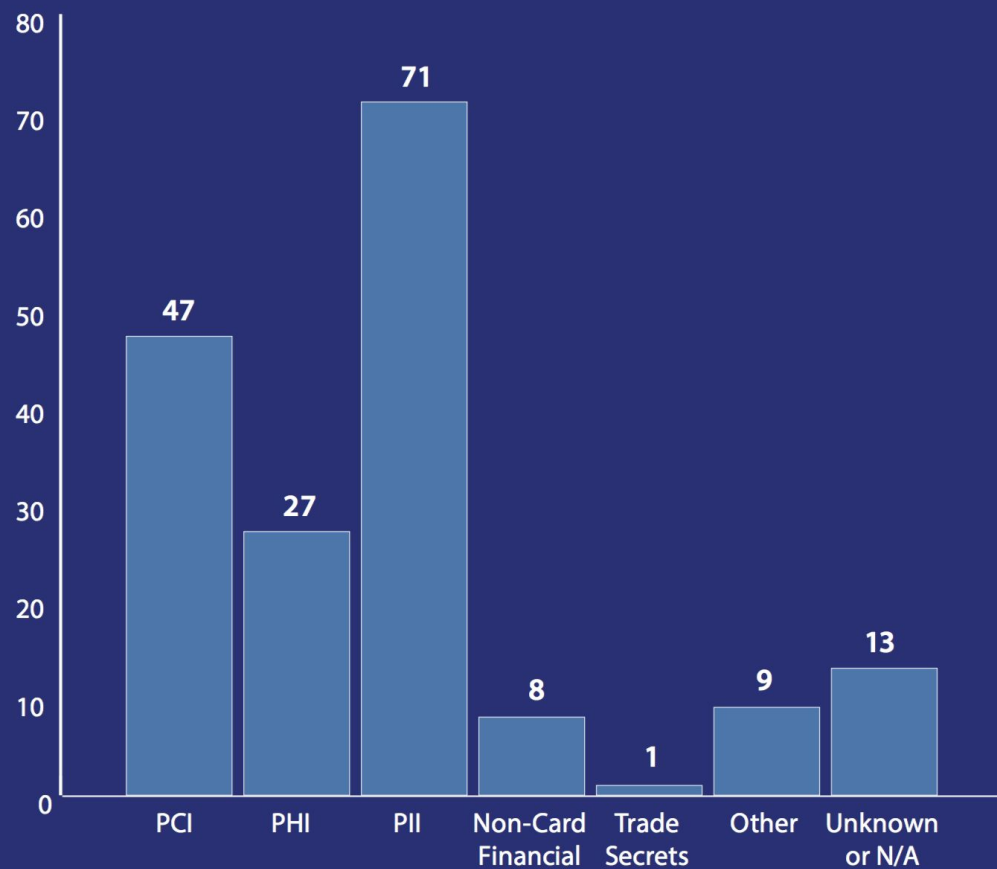
(N = 120)

**WAIT...**



**ARE YOU SNORING?**

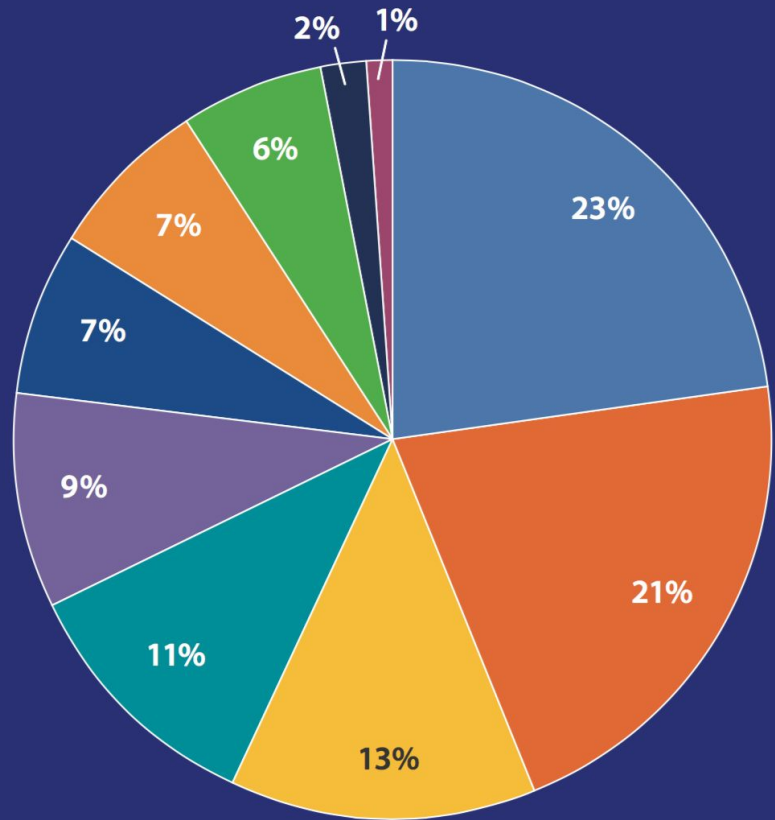
memegenerator.net



**NUMBER OF CLAIMS BY TYPE OF DATA**  
(N = 176)

Source: NetDiligence® 2016 Cyber Claims Study





- Hacker
- Malware/Virus
- Lost/Stolen Laptop/Device
- Other
- Staff Mistake
- Paper Records
- Rogue Employee
- System Glitch
- Theft of Money
- Theft of Hardware

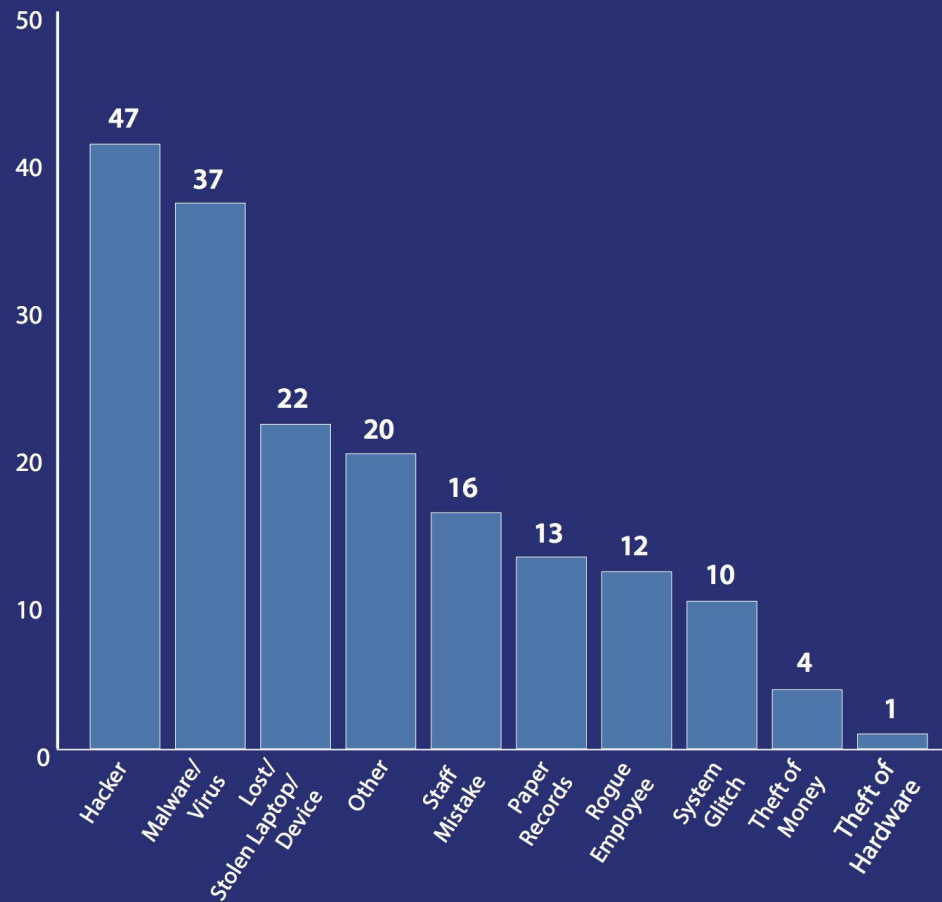
**PERCENTAGE OF CLAIMS BY CAUSE OF LOSS**  
(N = 176)

Source: NetDiligence® 2016 Cyber Claims Study

# Causes Of Loss

- Hackers
  - 23%
- Malware/Virus
  - 21%

44%

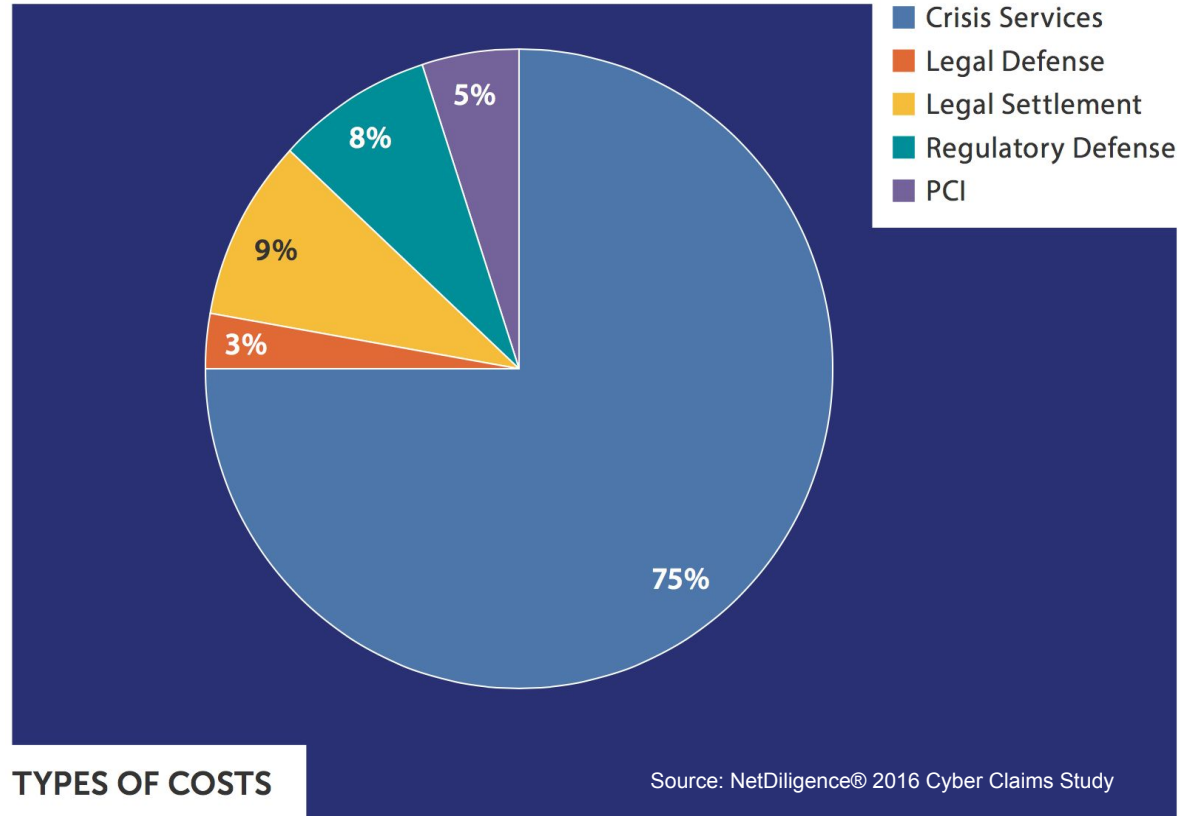


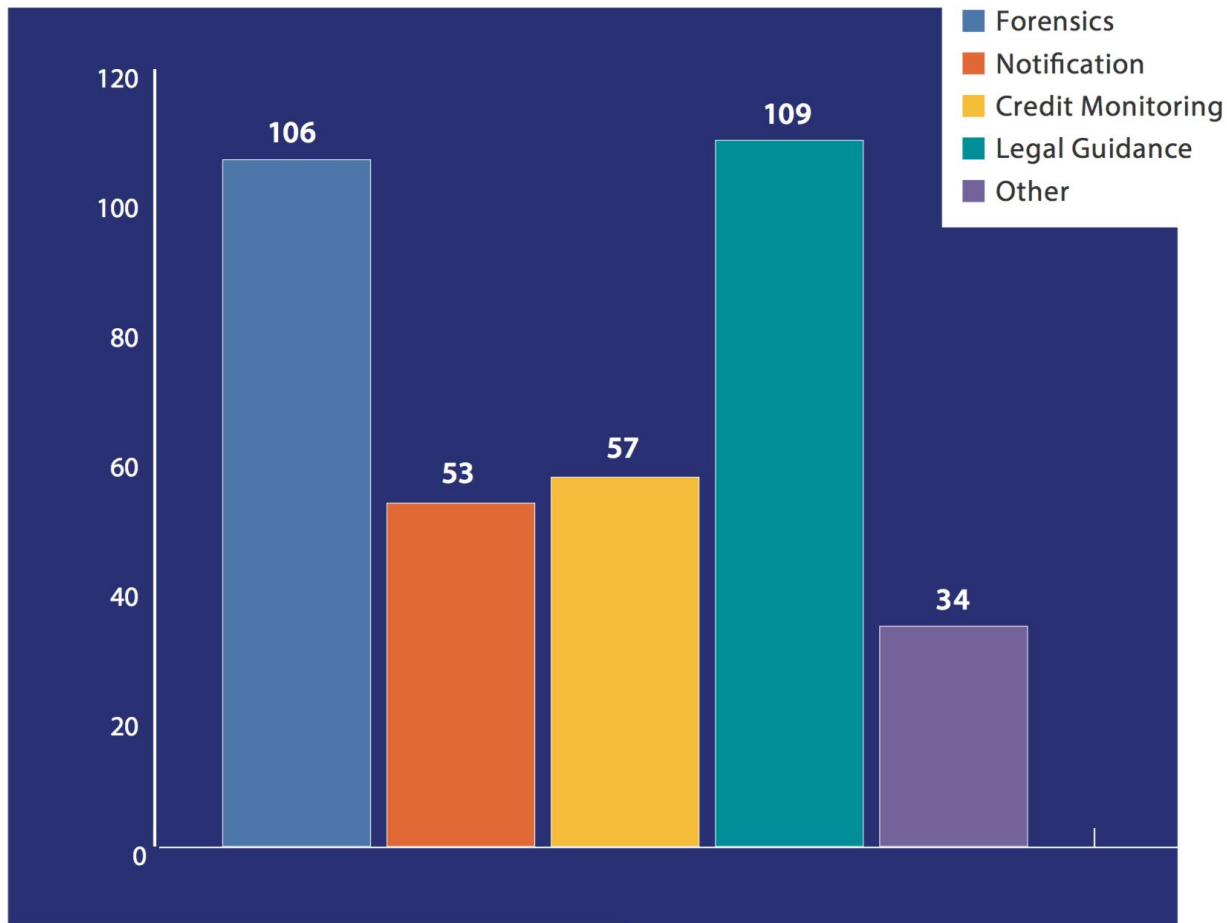
**NUMBER OF CLAIMS BY CAUSE OF LOSS**  
(N = 176)

Source: NetDiligence® 2016 Cyber Claims Study

# Claims By Types of Costs

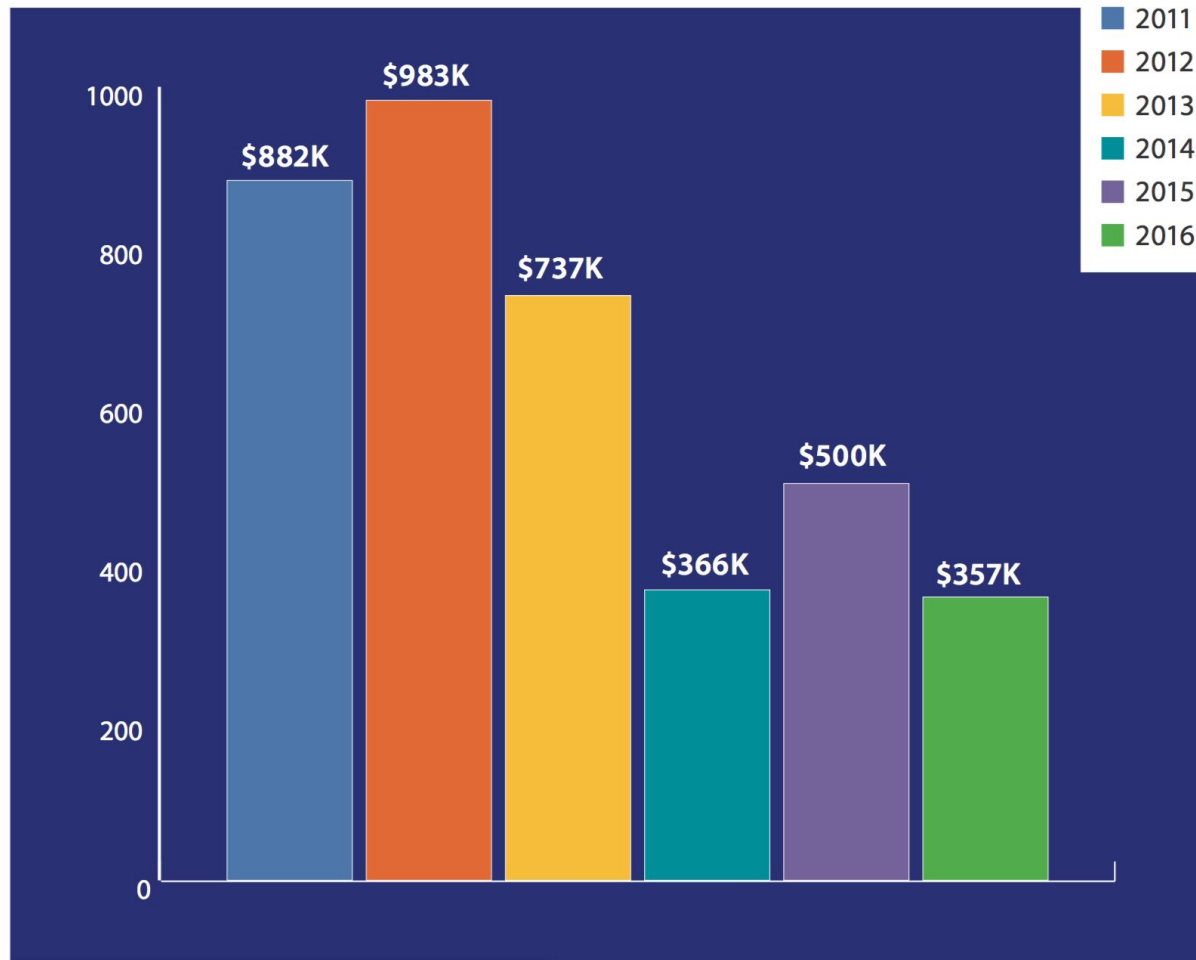
- **Crisis Services \***
  - Forensics
  - Notification
  - Credit/ID monitoring
  - Legal counsel
  - Miscellaneous other
- **Legal Damages**
  - Defense
  - Settlement
- **Regulatory Action**
  - Defense and settlement
- **PCI Fines**





**CLAIMS WITH CRISIS SERVICE COSTS**  
(N = 160)

Source: NetDiligence® 2016 Cyber Claims Study



**AVERAGE CRISIS SERVICE COSTS**

Source: NetDiligence® 2016 Cyber Claims Study

# US Dollar Based Costs

## CRISIS SERVICE COSTS

Service	Claims with Costs	Total	Min	Median	Mean	Max
Forensics	106	18,983,603	1,234	35,450	179,091	2,456,000
Notification	53	8,942,659	58	5,000	168,729	2,000,000
Credit/ID Monitoring	57	15,990,149	298	12,198	280,529	2,900,000
Legal Guidance/Breach Coach®	109	11,012,155	290	28,394	101,029	2,500,000
Public Relations/Other	34	1,843,399	15	6,839	54,218	1,065,000

Source: NetDiligence® 2016 Cyber Claims Study

## TOTAL COSTS (including SIR)

	Cases	Min	Median	Mean	Max
Hacker	41	2,500	210,856	1,863,419	15,000,000
Lost/Stolen Laptop/Device	21	290	55,000	140,784	1,650,000
Malware/Virus	36	1,190	99,380	468,788	3,952,626
Other	20	1,789	14,940	44,447	287,000
Paper Records	11	1,000	12,634	22,987	60,000
Rogue Employee	12	8,914	80,338	1,023,595	11,491,000
Staff Mistake	16	1,234	9,871	133,609	1,603,800
System Glitch	10	1,825	25,878	207,867	779,293
Theft of Hardware	1	110,000	110,000	110,000	110,000
Theft of Money	4	23,755	49,250	94,314	255,000

**Total**

**172**

Source: NetDiligence® 2016 Cyber Claims Study



## 2016 Average Payouts

The average payout for a large company was \$3.04 million, while the average payout in the Financial Services Sector was \$1.3M and in the Healthcare sector was \$726K.

# Not Covered / Denied

- Not covered
  - Value of data or IP
  - Lost sales
  - Brand damage
  - Difficult - State-sponsored espionage
- Not all claims are accepted
  - Sony - GL issue
    - Settled in mediation
  - Cottage Health Network
    - Missing patches...
  - AFGlobal Corp
    - B.E.C dispute - In litigation
  - Many are
- Property
  - Property & General Liability
- Doesn't cover the theft of money
  - That's a crime policy



\* These may all vary depending on your broker and policies

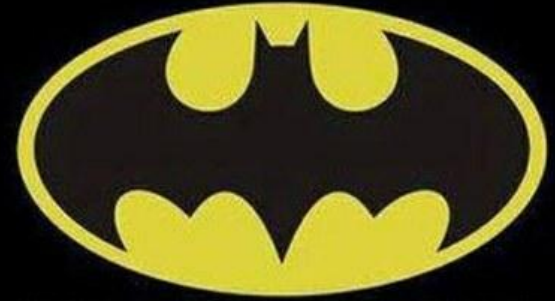
# What Are Insurance Companies Doing To Reduce Risk?

- Focus on prevention
- Cyber security rating of companies – health score
- Security services or the blocking traffic to avoid risk
- Cyber security education and training portals
- Partnering with security companies or services



# Researchers & Malware Analysts Are Superheroes

- Your hard work has a direct effect - **44%**
  - Especially the small to medium business
    - Many are family owned
- It also reduces risk
  - VERY important to insurance companies
- Provides essential services
  - Public Companies
  - Manufacturing
  - Government
  - Healthcare
  - Services
  - Utilities



I'M NOT SAYING  
I'M BATMAN  
I'M JUST SAYING  
NOBODY HAS EVER  
SEEN ME AND  
**BATMAN**  
IN A ROOM  
TOGETHER







CAPTAIN EURO

MARCUS

ERIK

PYTHAGORAS

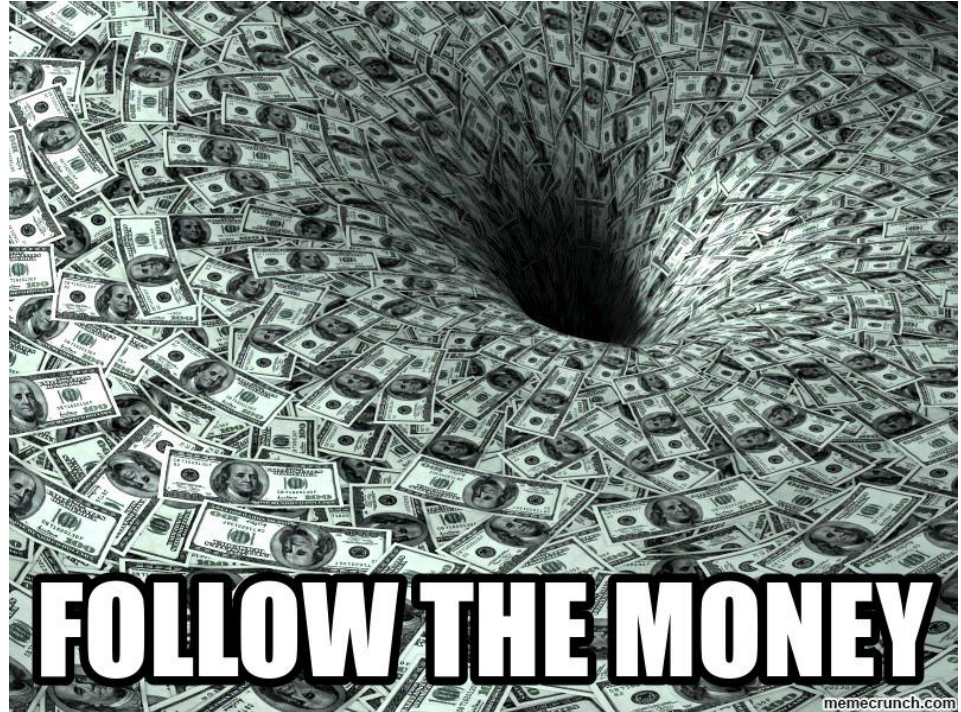
EUROPA

HELEN

LUPO

# So What Does This All Mean?

- Insurance will become more involved with security
- Security companies will become more involved with insurance
- I'll give you an example





# Symantec Says Antivirus Is Dead, World Rolls Eyes

BY MAX EDDY MAY 7, 2014 32 COMMENTS

*Is AV dead? No. Now it's just not the only weapon in your security arsenal.*

156  
SHARES



**Business**

## Insurance companies must start buying security companies

26

Insurers have no idea how to protect the digital realm. So they need to buy those who do



29 Oct 2015 at 01:29, [Mark Pesce](#)



## Strategic Partnerships

### K2 Intelligence

K2 Intelligence can provide customized intelligence that is extremely valuable to organizations as cybercrimes continue to increase in our digital, interconnected world.

[Learn More](#)

### IBM

IBM Security conducts remote scanning for external Web infrastructures to help identify vulnerabilities. This helps prioritize hidden risks to help organizations address them quickly.

[Learn More](#)

### RiskAnalytics

RiskAnalytics provides leading global edge threat intelligence and technology that isolates and shuns IP addresses currently being used by criminals.

[Learn More](#)

### RSA

RSA's Governance, Risk, and Compliance (GRC) industry-leading solution helps organizations assess their cybersecurity risk, leveraging the NIST Cybersecurity Framework.

[Learn More](#)

[Take your free cybersecurity maturity assessment now](#)

### BitSight

BitSight generates security ratings for organizations to measure and monitor their own network and those of third-party vendors.

[Learn More](#)

### Axio Global

Axio Global can provide clients with a holistic picture of their cyber exposure by addressing the full range of potential losses, including data theft, property damage, bodily injury, and operational disruption.

[Learn More](#)

**Learn More About AIG's Cyber Insurance Offerings**



PRODUCTS

SERVICES

SOLUTIONS

SUPPORT CENTER

SECURITY CENTER

PARTNER

 [Solutions](#) / Cyber Insurance

# Cyber Insurance

Measure cyber risk leveraging the power of Symantec's cyber security intelligence and improve resiliency against cyber attacks

Transform Underwriting Process  
and Reduce Portfolio Risk



## **SYMC Cyber Insurance**

@SymantecCI

Symantec Cyber Insurance - Bringing the best of the world's largest [#cybersecurity](#) company to the global [#insurance](#) community.

 [San Francisco, CA](#)

 [symantec.com/solutions/insu...](https://symantec.com/solutions/insurance)

 Joined June 2016





**SYMC Cyber Insurance**

@SymantecCI

 Follow

Symantec @NortonOnline partners with @CoverHound & @ChubbNA to launch a cyber insurance product for SMBs [buff.ly/2dJT8CP](http://buff.ly/2dJT8CP) #SMB #ins



RETWEETS

18

LIKES

20



7:48 AM - 5 Oct 2016

 Chubb NA, CoverHound, Keith Moore and 4 others



 18

 20



## What is CyberPolicy?

CyberPolicy is the most comprehensive cyber protection solution for small businesses. It combines three important components against cyber threats — Cyber Plan, Cybersecurity and Cyber Insurance. [LEARN MORE](#)



### Cyber Plan:

Our Cyber Plan takes you through a simple process of identifying your company's vulnerabilities and then guides you in selecting the proper security and insurance precautions your business needs.

[LEARN MORE](#)



### Cybersecurity:

Partnered with leading cybersecurity companies like Symantec, CyberPolicy provides you the security tools you need to monitor and prevent cyber attacks.

[LEARN MORE](#)



### Cyber Insurance:

We work with trusted insurers to provide you with the coverage you need to adequately insure against known cyber risks. Once the cybersecurity tools are installed, your cyber insurance policy is activated to protect your business. [LEARN MORE](#)

### Our Industry Leading Partners:



CHUBB

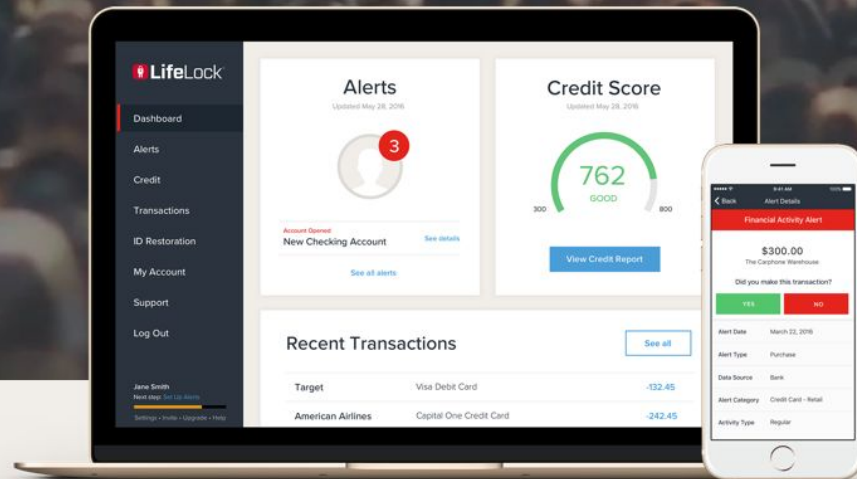


# 1 in 4 people have experienced identity theft.

We don't just alert you to identity theft, we work to fix it.

**START MEMBERSHIP**

Call Us 1-800-416-0599



Alert screens modified for demonstration purposes.

There's more than one piece to your identity.  
LifeLock looks at the whole picture.

# Symantec to Buy LifeLock for \$2.3 Billion to Add ID Security

by **Kiel Porter** and **Beth Jinks**

November 20, 2016 — 10:06 PM EST *Updated on* November 21, 2016 — 2:29 AM EST

- Cybersecurity company said to outbid Permira, TPG, Elliott
- Goldman worked on sale of identity-theft protection company



# Digital Safety?

“With the combination of Norton and LifeLock, we will be able to deliver comprehensive cyber defense for consumers,” Symantec Chief Executive Officer Greg Clark said in the [company] statement. “This acquisition marks the transformation of the consumer security industry from malware protection to the broader category of digital safety for consumers.”

- Symantec wants to build new products that leverage LifeLock’s data analytics to identify emerging cyber threats
- Transformation from malware protection to digital safety

# Crisis Services





**GO BOLDLY, NOT BLINDLY**

Source: <https://us.norton.com/norton-cybersecurity-insights-report-global>

# What does this all mean again?

- You are the work horses and unsung heroes
- Your research and work is pivotal to the evolution of cyber insurance & risk
- Your organization may end up partnering with cyber insurance providers
- One day you could work for, or with an insurance company
- We need some of you to work in the insurance industry to help make it better
- Your company's security plan may include a budget for a cyber insurance policy
  - \$100k on security tools or \$1m in insurance?



**KEEP  
CALM**

**This**

**boring meme  
will end soon**

# Conclusion

- Cyber insurance will continue to influence security & safety of networks
- Education is key for improving policies
- Is a compliment, not a replacement
- Economic impact of cybercrime measurable
  - Mitigation and sharing of indicators is measurable
- The merging of security companies and the insurance industry to reduce risk
  - Management of costs
- It is your future coworker
  - A new tool for the security team?
  - A cyber insurance policy?





# Thank You!



@wacbass