

# Advances in Cyber Risk Modeling in the Latest Release of ARC

**Scott Stransky**  
**Alan Frith**

# Agenda

Cyber Insurance Industry Challenges

Overview of the AIR Probabilistic Cyber Model

Live Demo of ARC (Analytics of Risk from Cyber)

Verisk Synergies and Product Roadmap

Q&A

# Cyber Insurance Industry Challenges

# Cyber Attacks and Causes of Loss Continue to Evolve

recode

TOPICS ▾ WRITERS ▾ PODCASTS ▾ EVENTS



AMAZON CLOUD COMPUTING

## Amazon's massive AWS outage was caused by human error

One incorrect command and the whole internet suffers.

By Jason Del Rey | @DelRey | Mar 2, 2019, 2:20pm EST

f t e SHARE



The New York Times

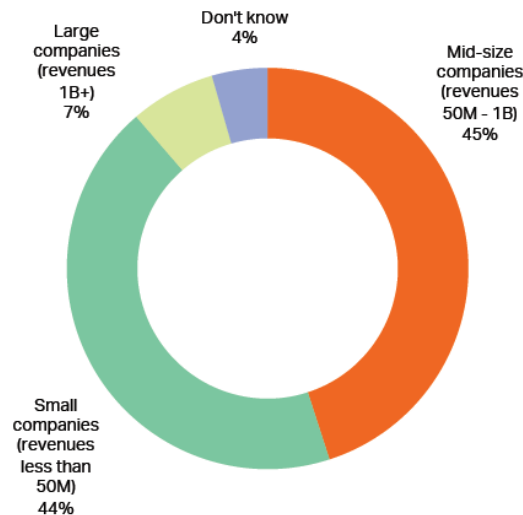
## Facebook Security Breach Exposes Accounts of 50 Million Users



One of the challenges for Facebook's chief executive Mark Zuckerberg is convincing users that the company handles their data responsibly. Josh Edelson/Agence France-Presse — Getty Images

# But It Isn't Just Large Corporations that Are Seeking Cyber Cover

**Q** The majority of our new-to-market buyers of standalone cyber insurance are (including those switching from endorsements):

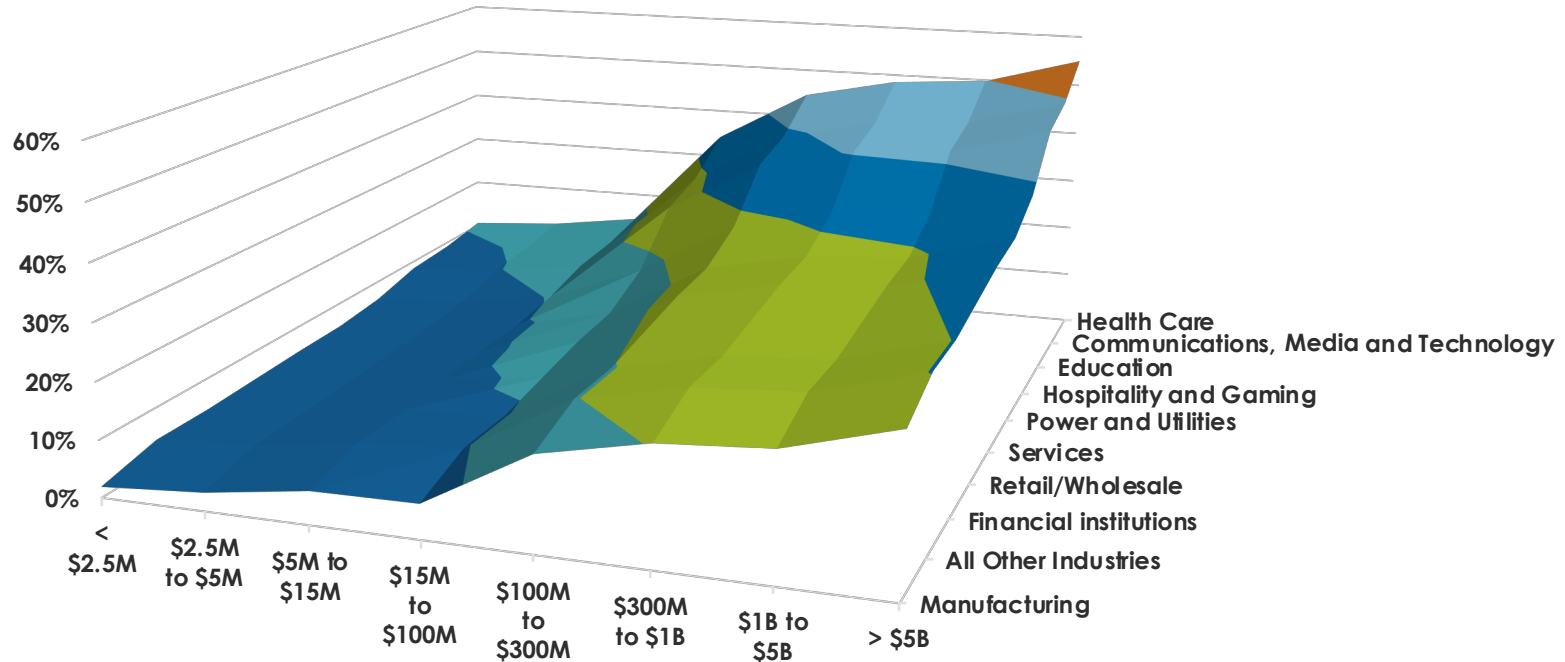


- Furthermore, 76% of existing insureds seek higher coverage and limits

Source: Advisen and Partner Re, 2018

# The Result: Cyber Insurance Take-up Rates Vary Widely Across Industries

## Cyber Insurance Take-up Rates by Industry and Turnover



Source: AIR

■ 0%-10% ■ 10%-20% ■ 20%-30% ■ 30%-40% ■ 40%-50% ■ 50%-60%

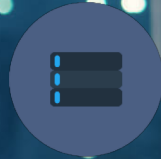
©2018 AIR Worldwide

CONFIDENTIAL

# Cyber Risk Landscape Continues to Evolve



Increased competition in a rapidly growing market



Little or no cyber data → the risk is not well understood



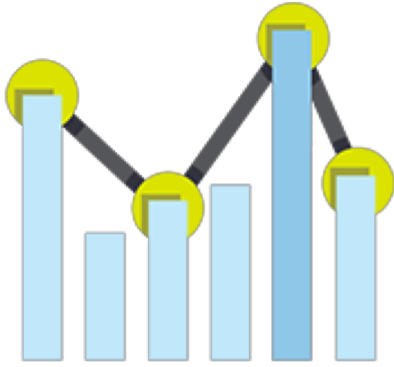
Businesses of all sizes are at risk



GDPR data/privacy regulations

# Overview of the AIR Probabilistic Cyber Model

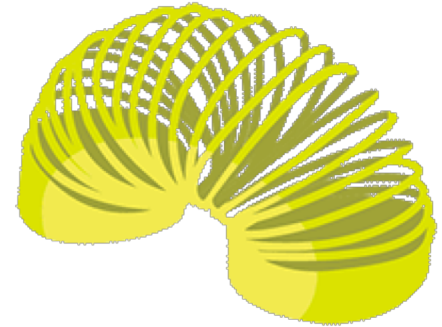
# ARC Enhances Cyber Risk Decision-Making



**Detailed Risk  
Models**



**Global Cyber  
Database**



**Transparency  
& Flexibility**

# Our New Probabilistic Cyber Model Is Now Available in the Latest Release of ARC!

## Security Breach

- Phishing/social engineering scams
- Malware and other computer hacks
- Accidental issues
- Unauthorized data disclosures
- GDPR Impact Assessment

## Cloud Service Provider Downtime

- Business Interruption for >100 cloud providers

## Industry Exposure Database Expansion

- 12.4 Million Records
- 40,000 new international organizations added

## Region-Specific Industry Market Shares

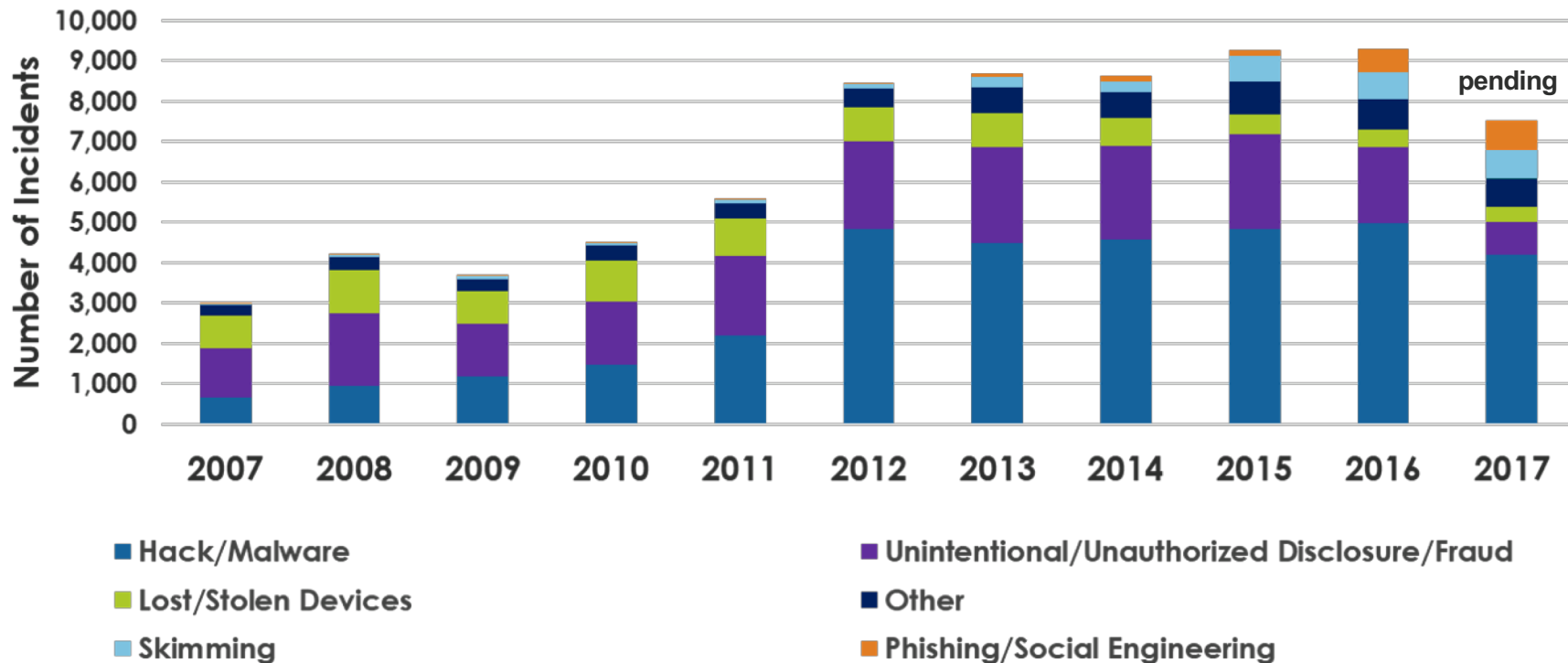
- U.S., Canada, Great Britain, Europe, Japan, Australia, and rest of world (RoW)

# Region-Specific Industry Market Shares

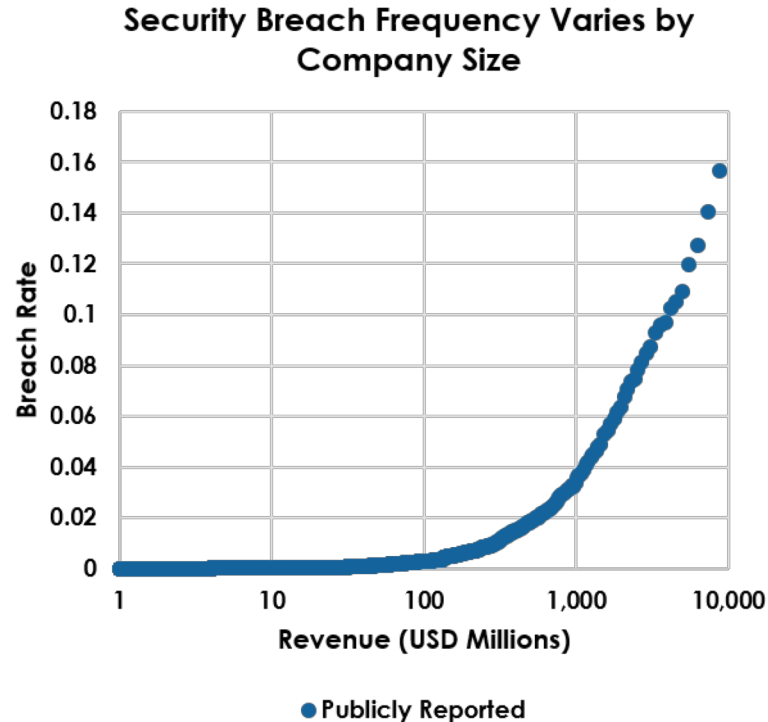


# Data on Wide Range of Security Incidents Available

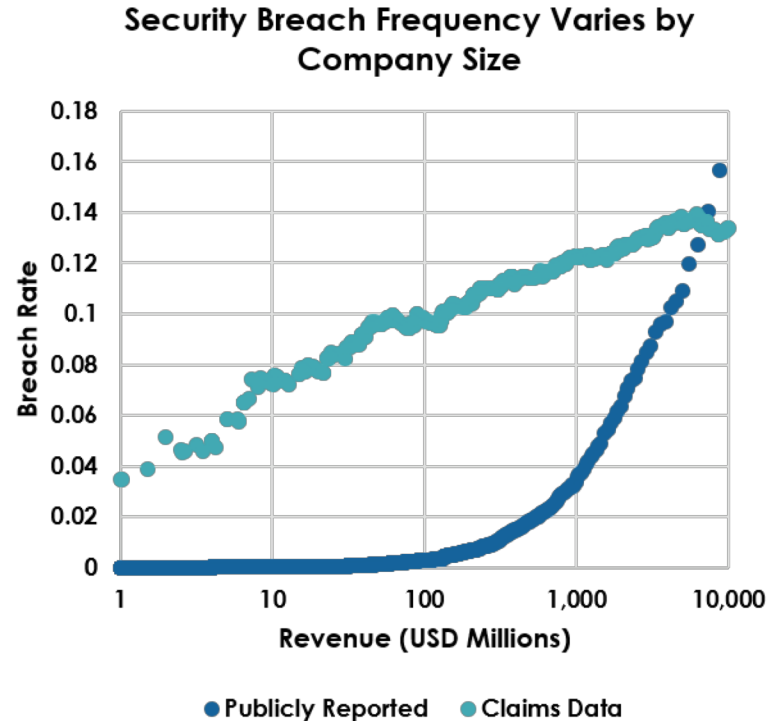
## Security Breach Incidents by Type



# Bias in Reported Data Requires Adjustment Using Claims



# Bias in Reported Data Requires Adjustment Using Claims



# Machine Learning Identifies Drivers of Risk



**Industry**



**Revenue**



**Exploited  
Applications**



**Patching  
Cadence**



**File Sharing**

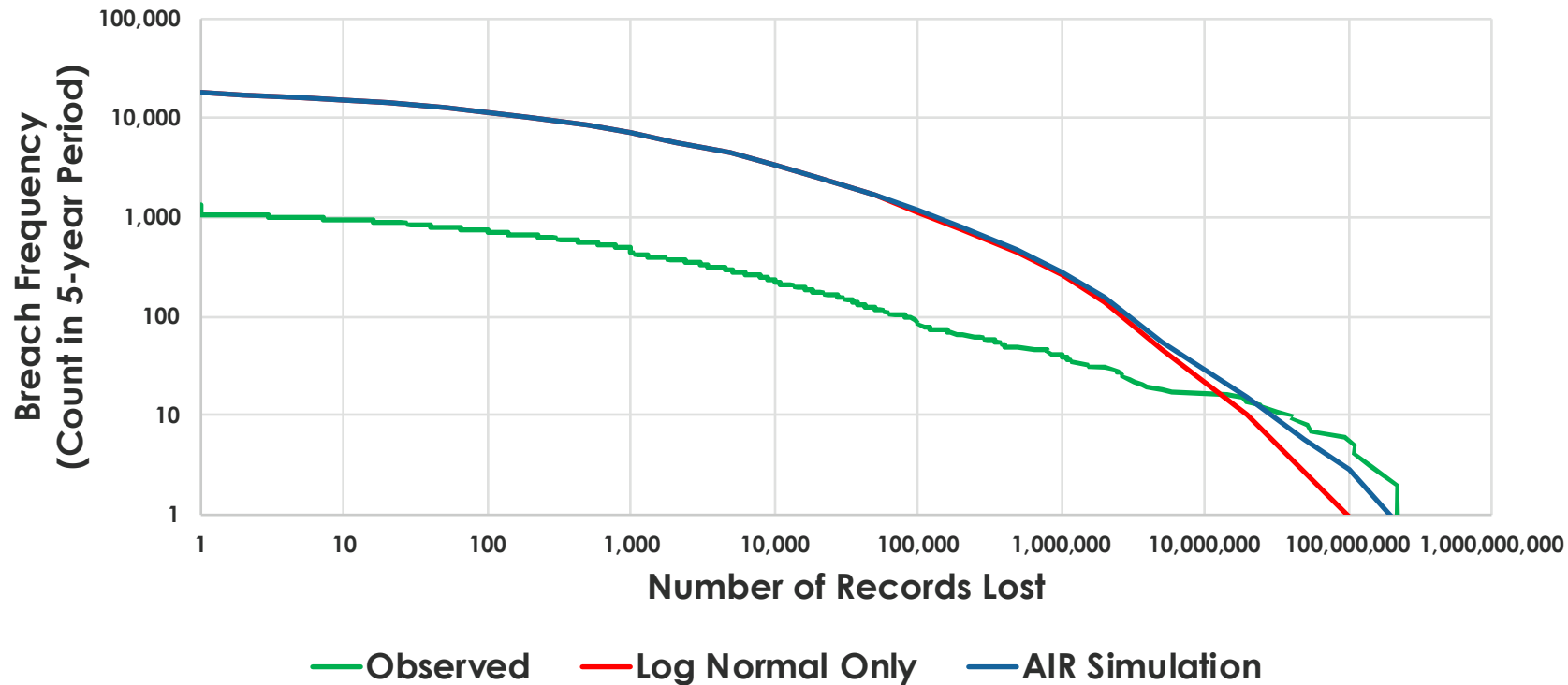


**Botnet  
Infections**

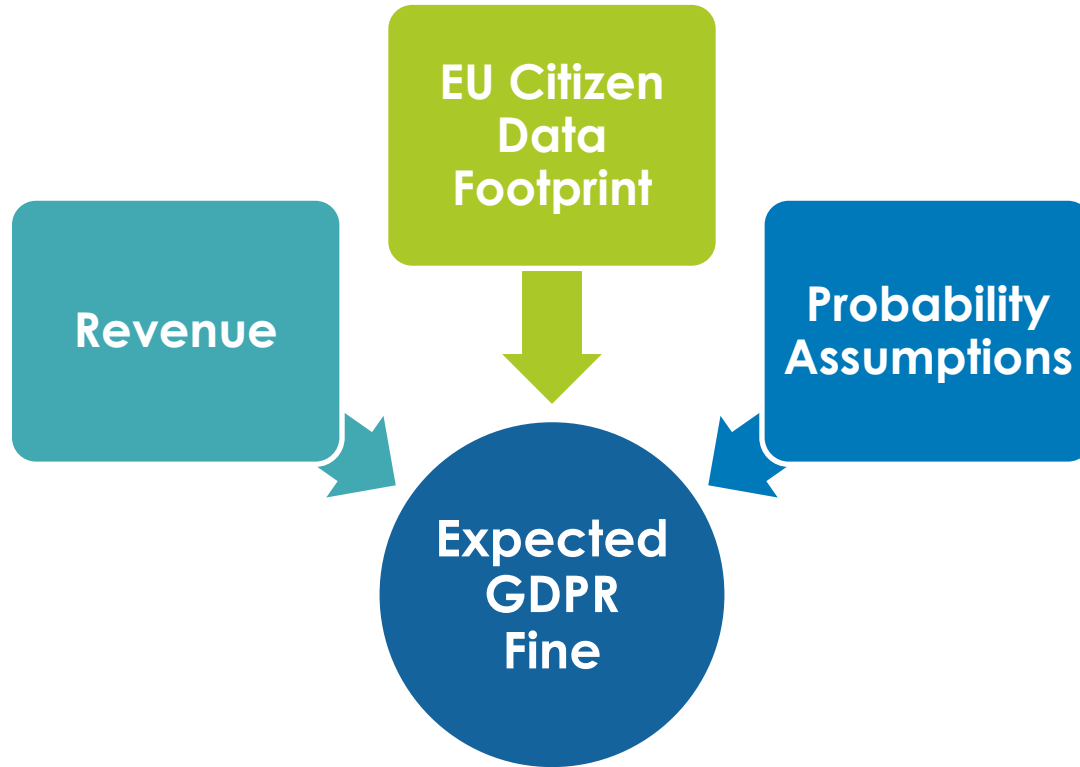


**Spam  
Propagation**

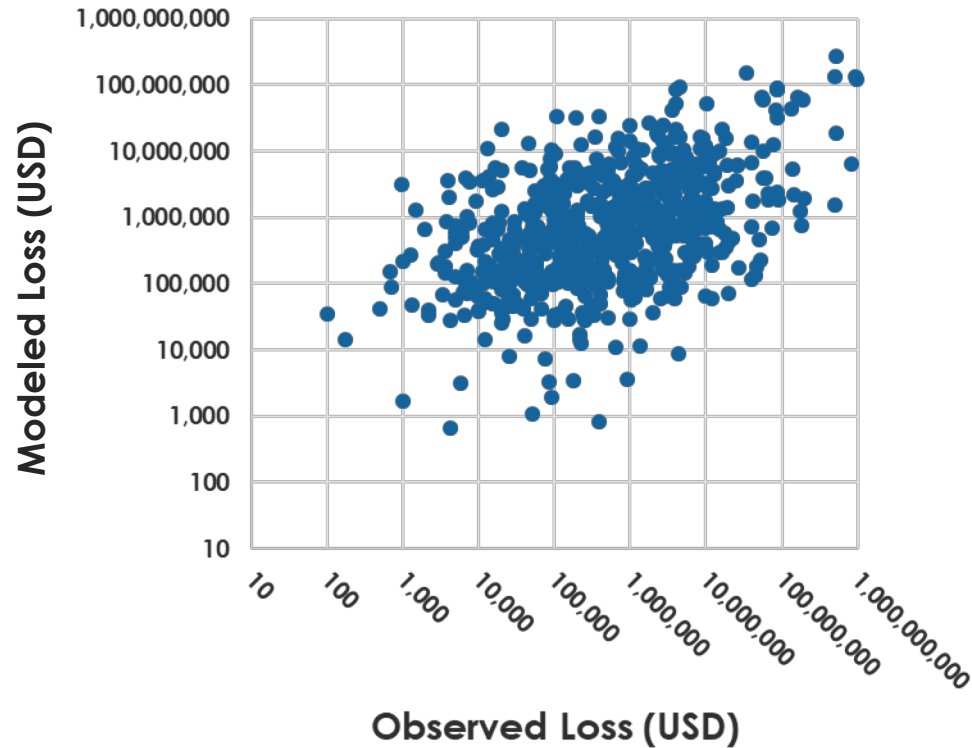
# Breach Severity Is Driven by Number of Records Lost



# GDPR Fines Expected when Security Breaches Occur

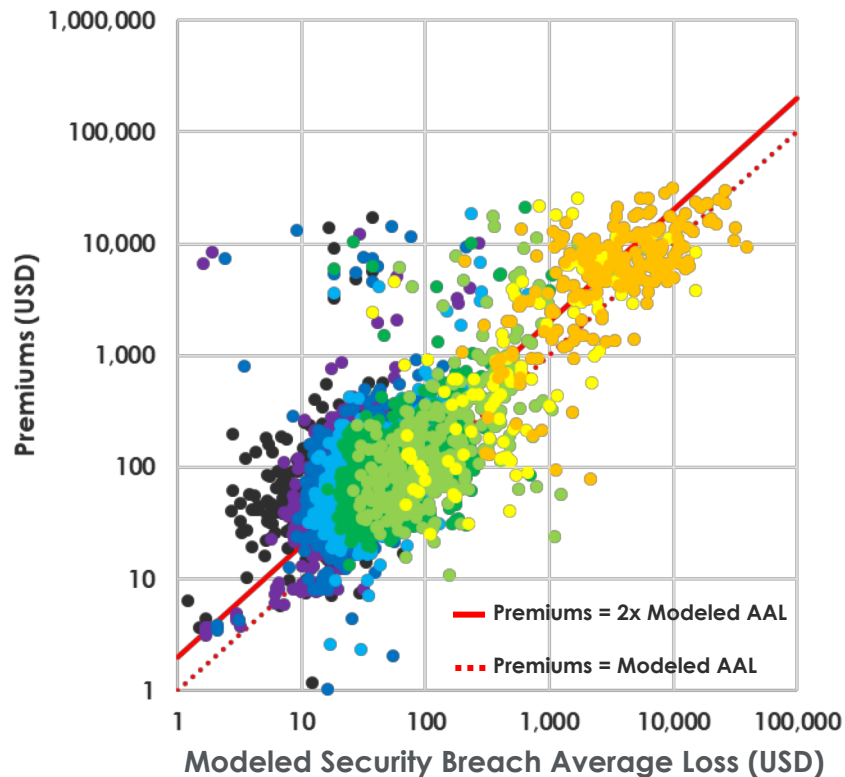


# Sufficient Data Available to Validate Model Output



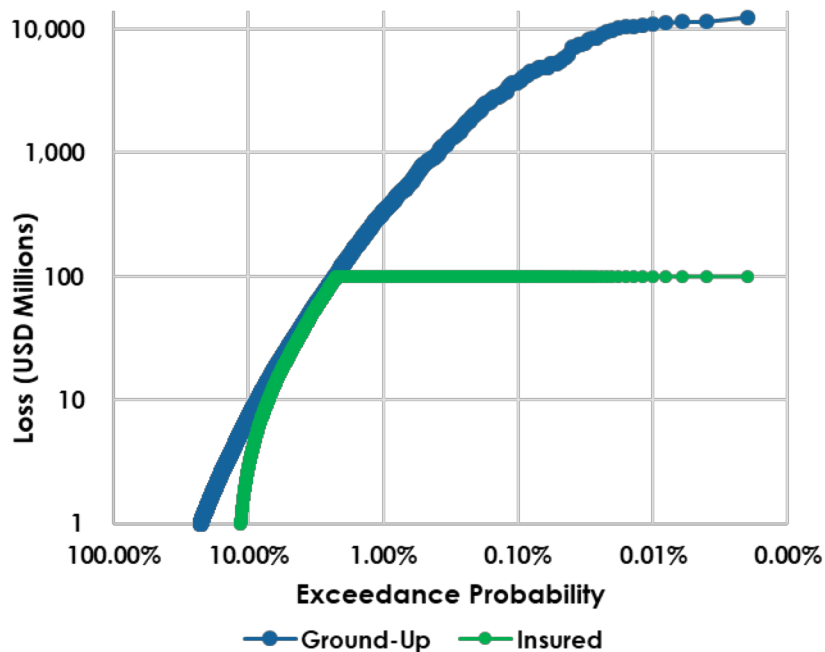
# Cyber Risk Policies Have Been Mispriced

## Comparison of Insurance Pricing vs Model Estimates

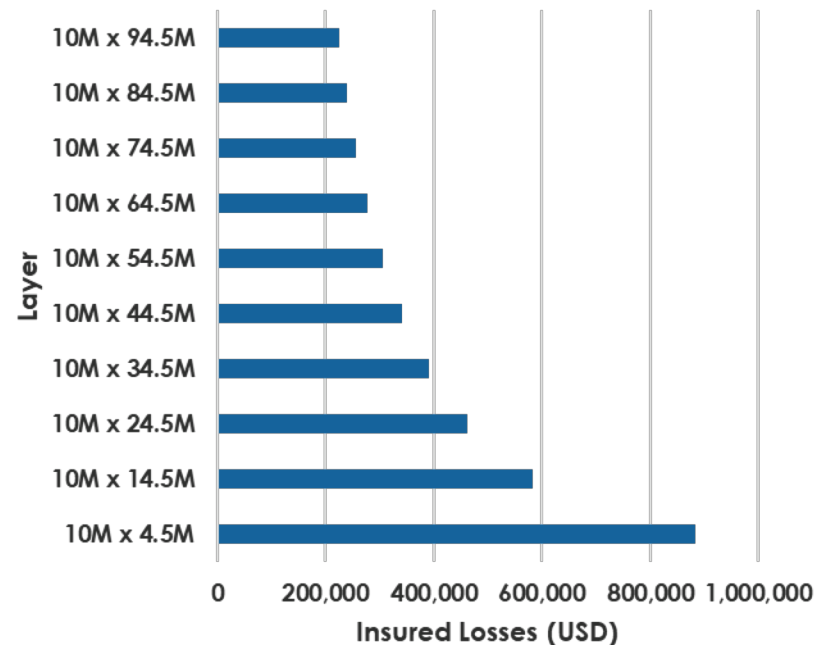


# Most Breaches Result in Total Insured Loss

## EP Curve for Large Retailer



## Large Retailer Notional Layer Losses



# Cloud Providers Can Fail for a Variety of Reasons



**Environmental**



**Accidental**

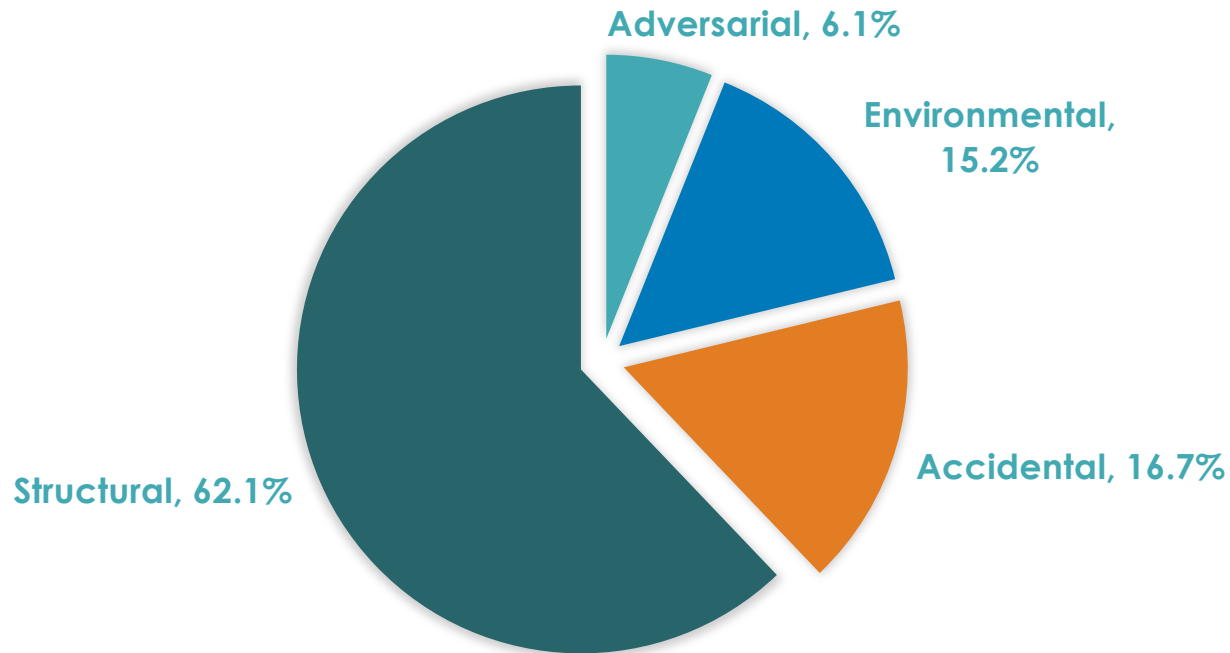


**Adversarial**



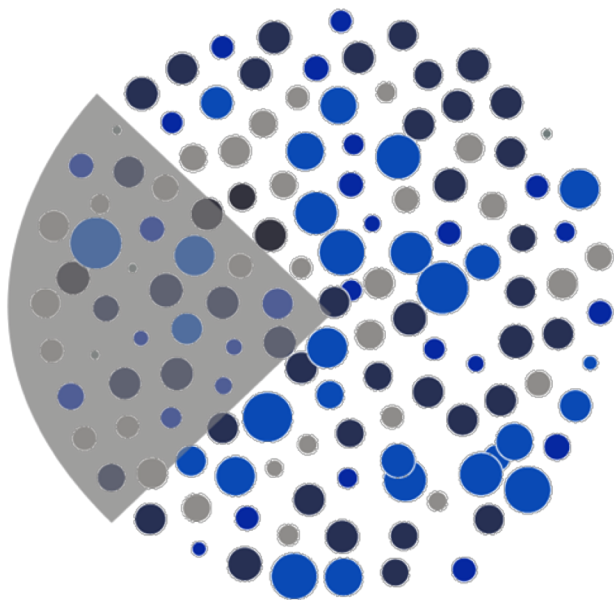
**Structural**

# Cloud Providers Can Fail for a Variety of Reasons



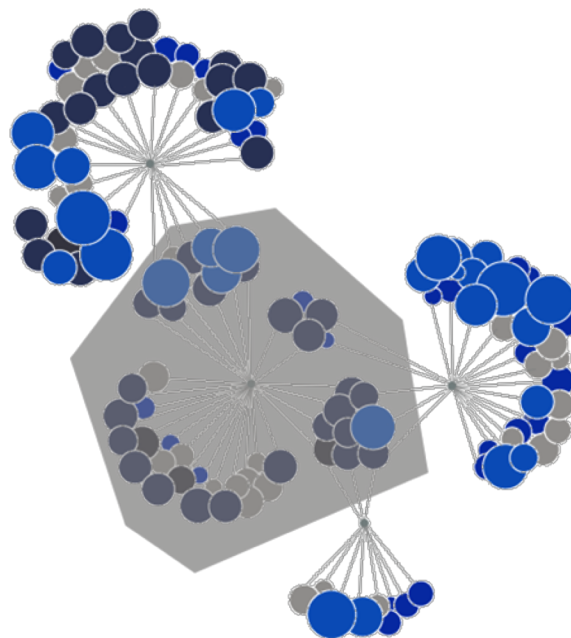
# Robust Risk Management Includes Several Approaches

## Market Share Approach



Cloud Vendor X has 25% Market Share

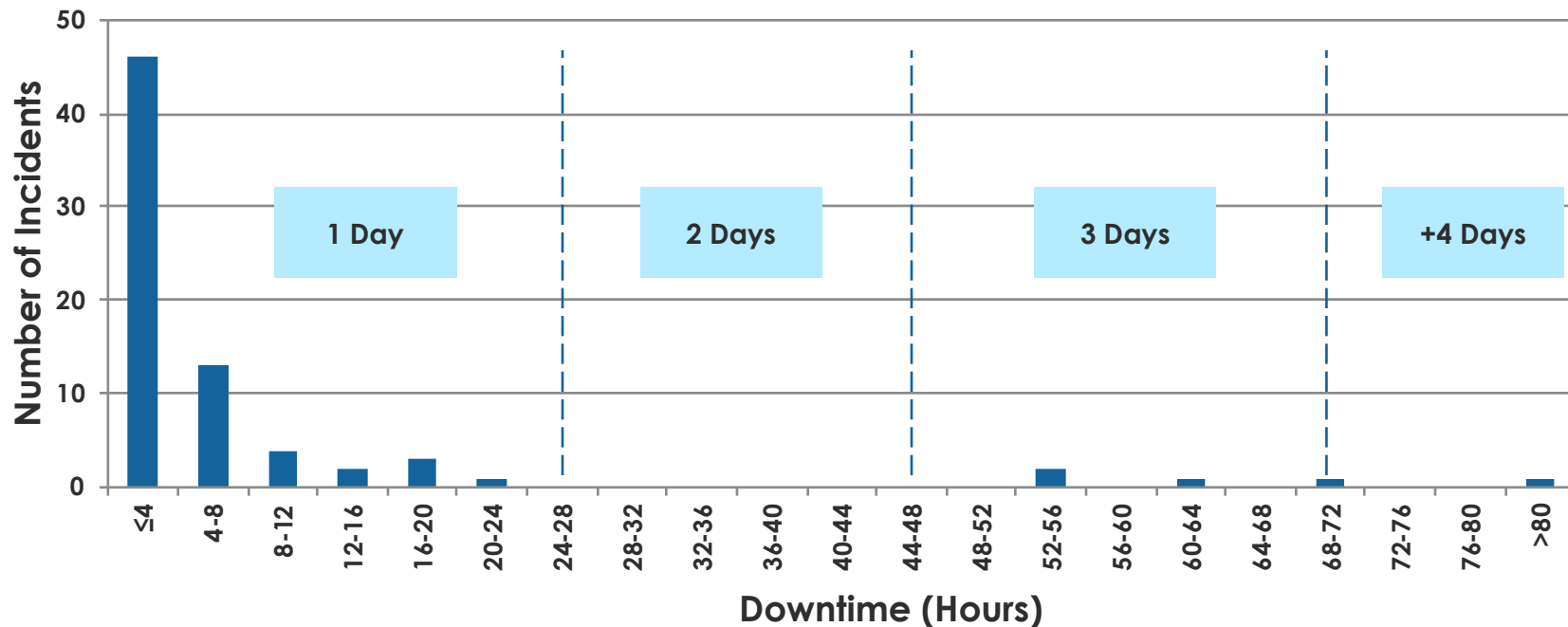
## Detailed Accumulation Approach



Cloud Vendor X is used by these *specific* 33% companies

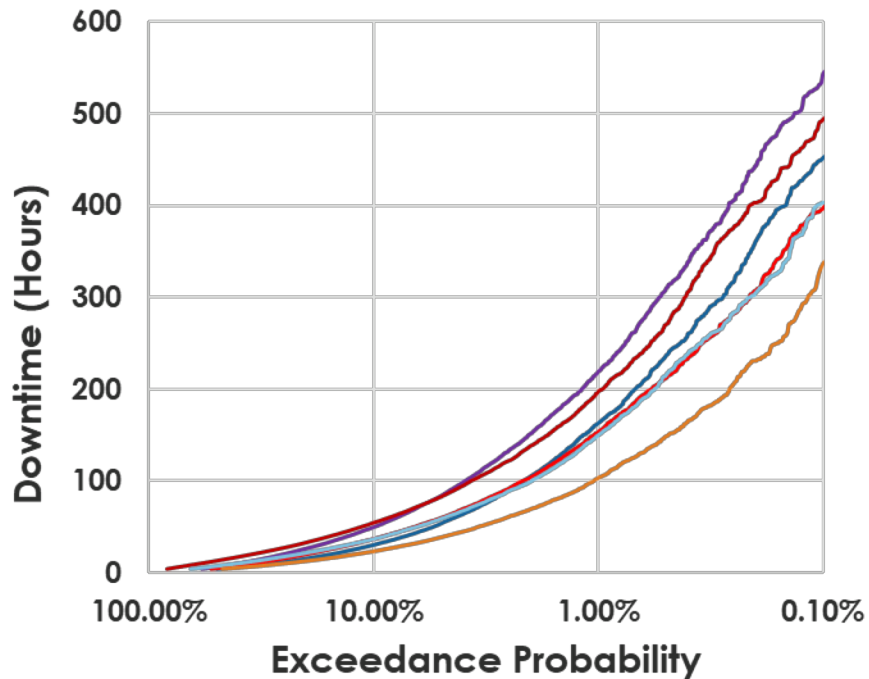
# Data on Cloud Downtime Incidents Available

## Distribution of Cloud Downtime Incidents

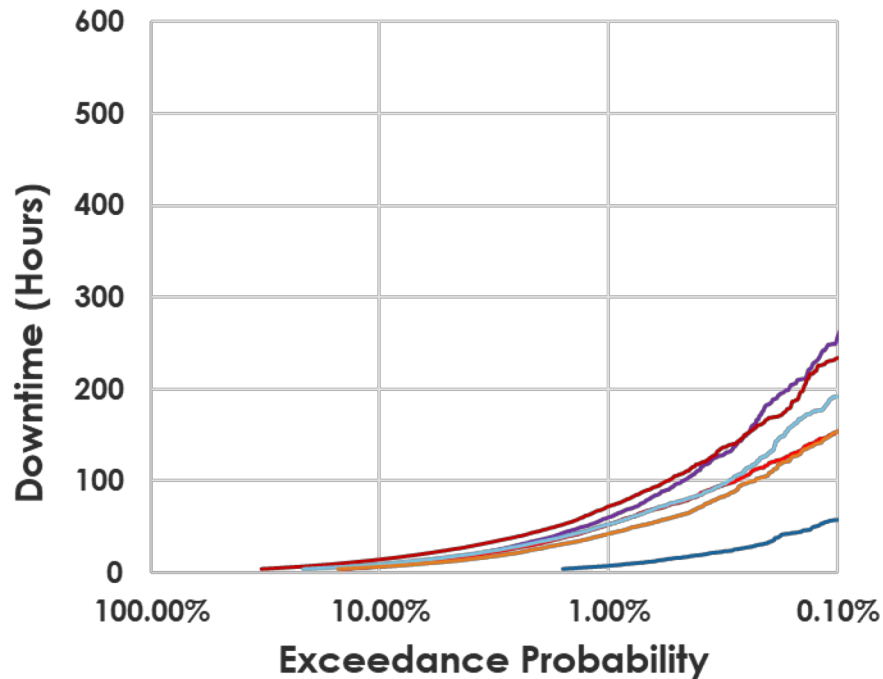


# Not All Cloud Providers Are Equally at Risk

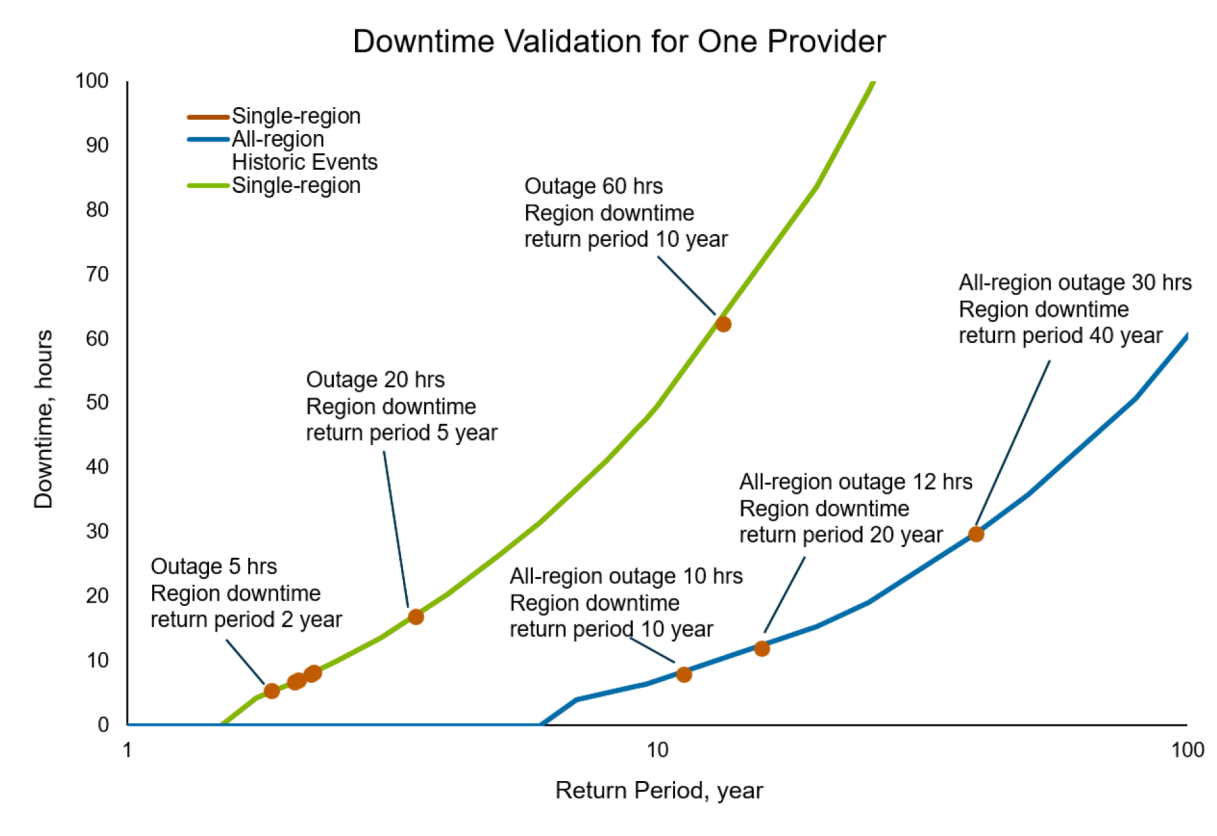
EP Curve: Single Region Incident



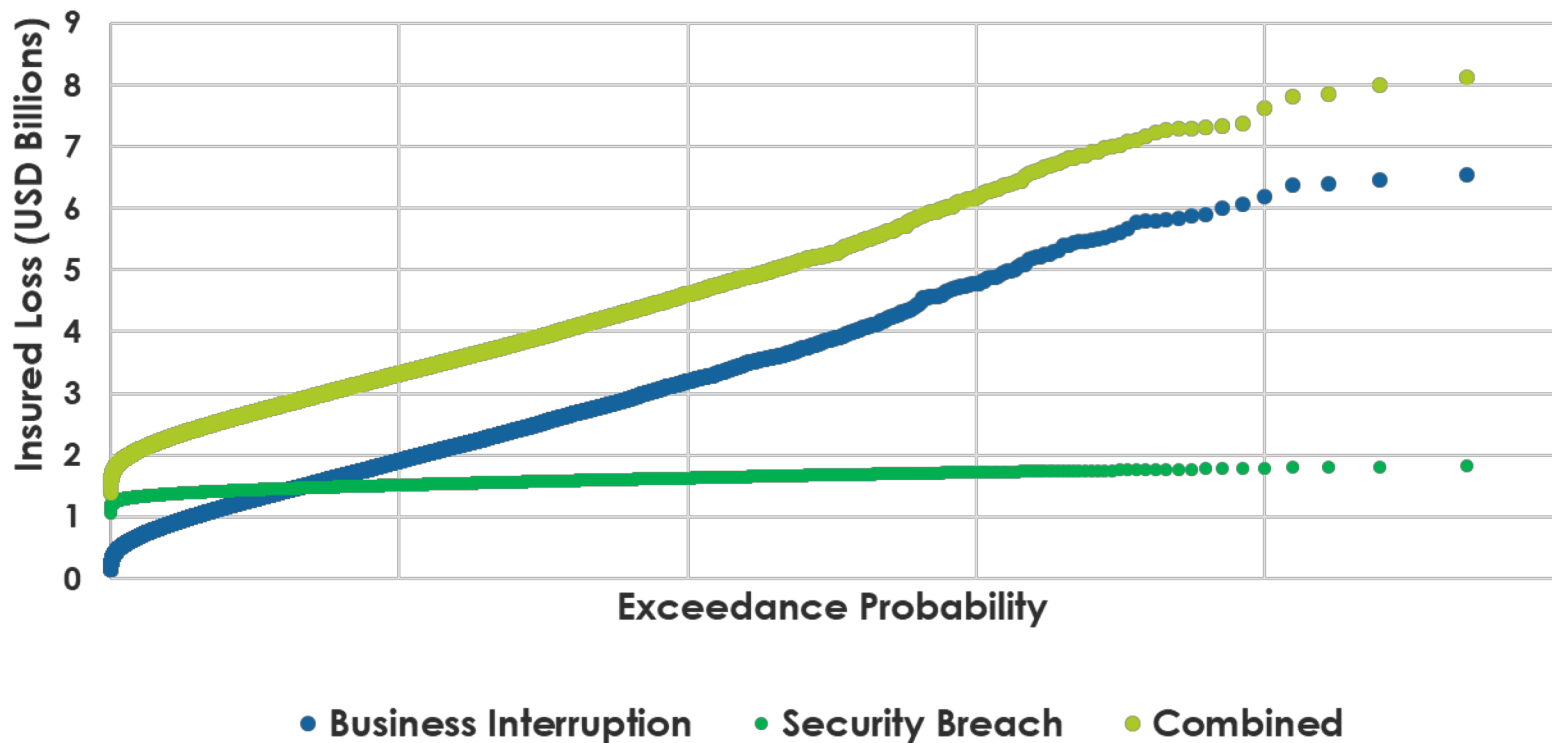
EP Curve: Global Incident



# Downtime Validation for One Cloud Provider



# Cyber Insurers Expected to Lose Billions per Year



# Live Demo of ARC

# Verisk Synergies and Product Roadmap

# Verisk Offers a Holistic View of Cyber Risk



Improve your policy and  
rating solutions



Automate your rating  
updates



Understand the likelihood  
and financial impact of  
cyber incidents



Identify growth  
opportunities



Access estimates of global  
cyber losses

# Access Cyber Data and Analytics via Underwriting Report

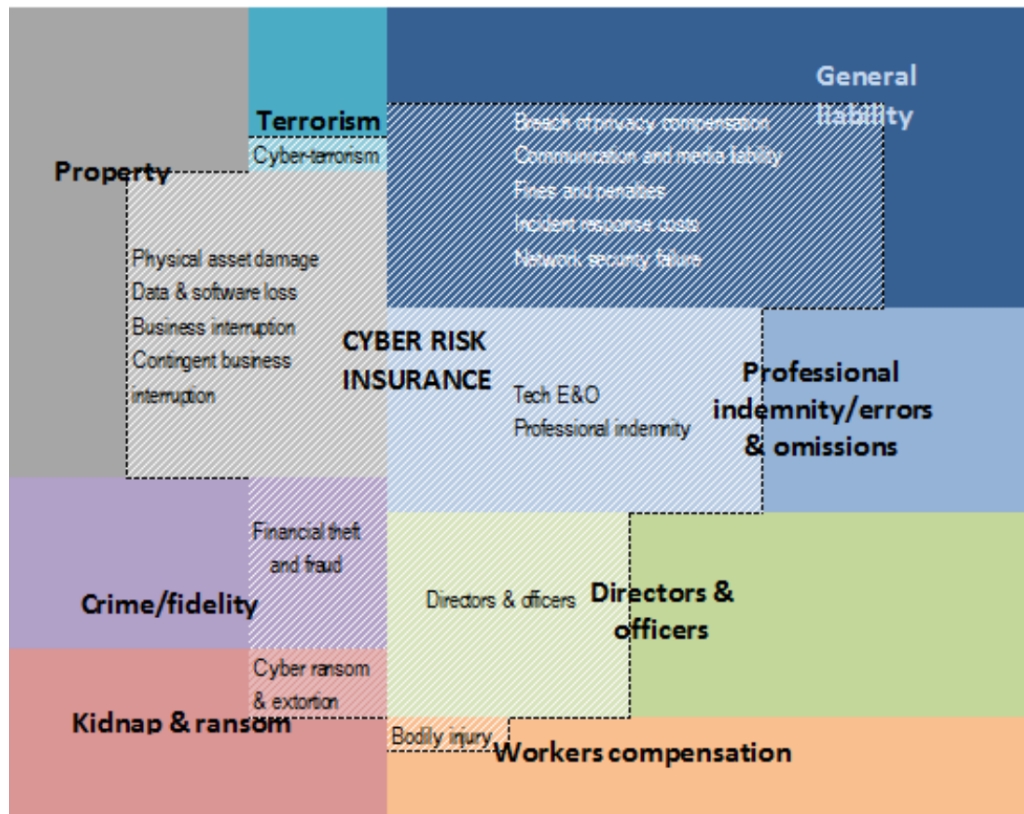
Firmographics

Technographics

Modeling



# Silent Cyber Threat Looms Throughout



Source: OECD

# ARC Supports Cyber Business Growth



Optimize your underwriting strategy



Diversify portfolio with more confidence



Keep up with evolving risk landscape

# Register for the 2019 AIR Cyber-Casualty Conference



**When:** Tuesday, February 12, 2019

**Where:** The Westin New York at Times Square

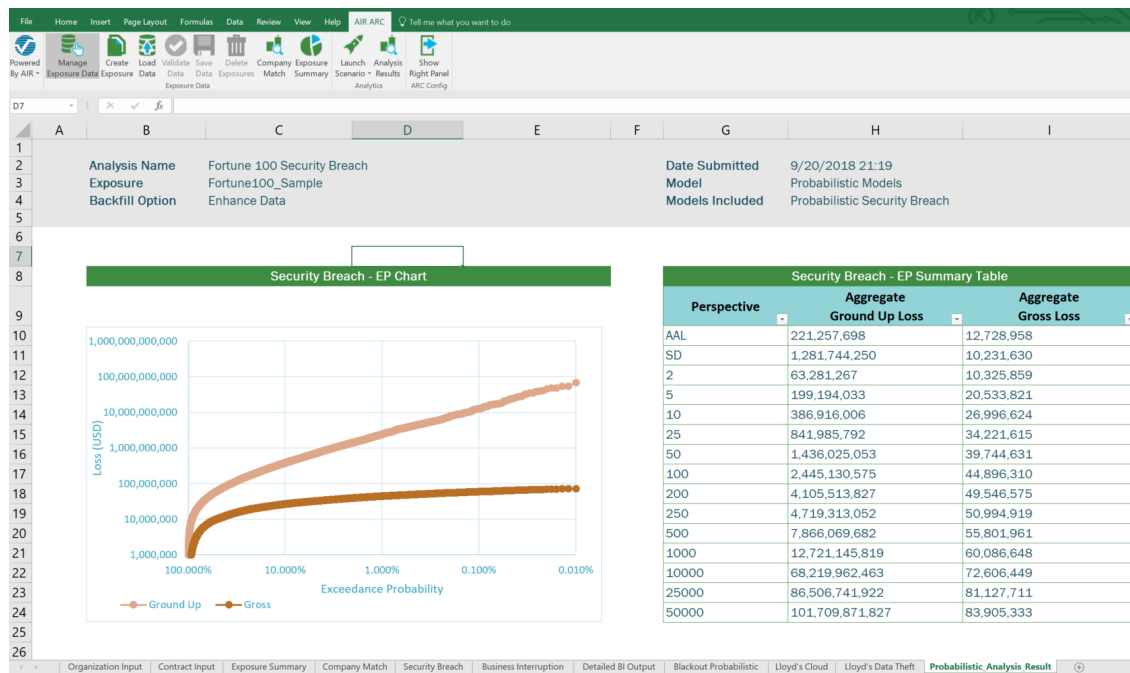
**What:** Thought Leadership, Product Presentations, Breakfast, Lunch and Networking Reception with AIR and Industry Experts

**Pricing:** \$155\*

\*Take advantage of our limited-time offer through November 30:

**Buy 1 registration and get 1 FREE!** <https://airww.co/cybercasualty19>

# Book a 1:1 Demo of ARC and Learn More



<https://airww.co/cyberdemo>

<https://airww.co/cyberanalytics>

# Q&A