Cyber Scenario Modeling and Decision Making

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AIR WORLDWIDE®


CYBER RISK

How Should Cyber Risk Be Managed Today?

1. Determine policies with cyber risk
2. Collect detailed cyber exposure data
3. Analysis of plausible cyber breach scenarios
4. Decision making using modeling insights

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Which policies are exposed to cyber risk ?

Standalone Cyber

Cyber Endorsements

Silent Cyber

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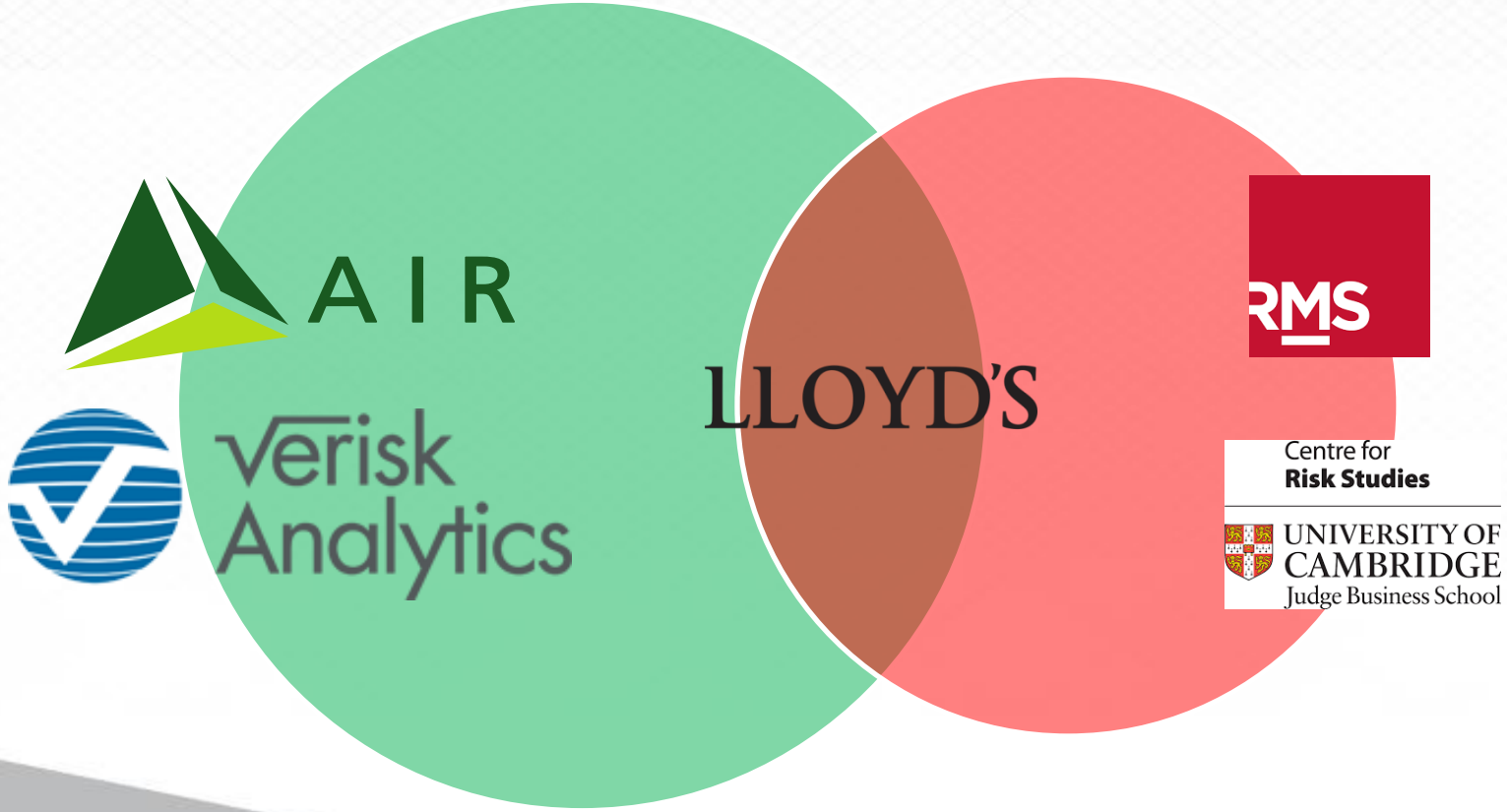
Multiple Cyber Exposure Data Standards Were Released This Year



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Verisk Cyber Exposure Data Standard Offers Several Advantages

- A cross-market, open source cyber exposure data format
- Includes Cyber Exposure Data Preparer's Guide and a Database Framework for collecting cyber exposures
- Freely available on AIR website

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Coverages Can Be Mapped to Match Your Unique Policy Framework

Insurance Coverages

- Security breach expense
- Security breach liability
- Business interruption

- Fines
- Replacement of electronic data
- Website publishing liability
- Programming errors and omissions
- Extortion
- Public relations
- Physical
- …

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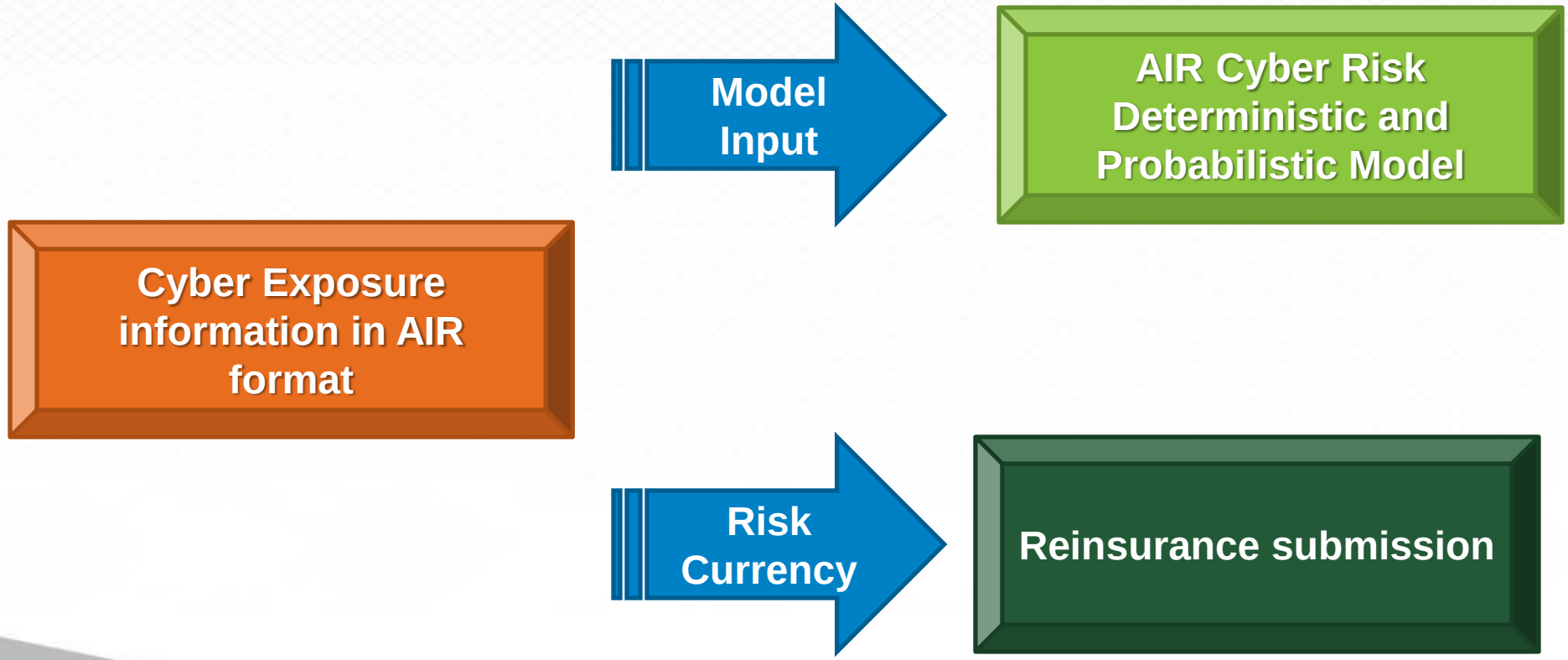
Advantages of Implementing Cyber Data Standard: Risk Quantification and Transfer



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Advantages of Implementing Cyber Data Standard: Scenario Testing

Common Providers

Common Vulnerabilities

Blackout Scenarios

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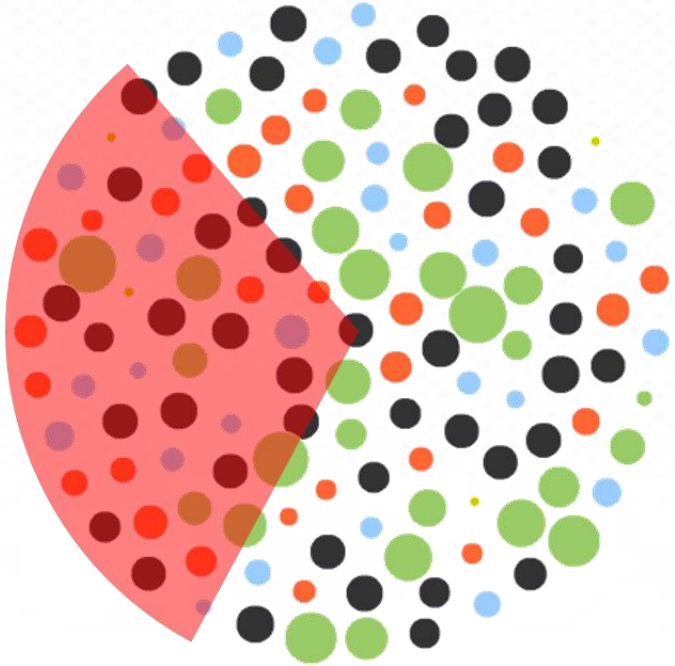
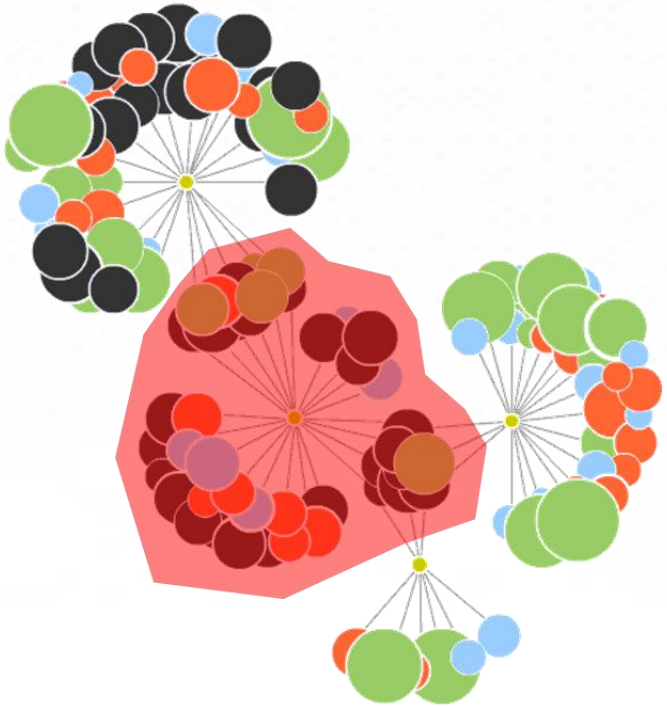
Detailed Accumulation Approach Provides a More Accurate View of the Risk

Market Share Approach



Detailed Accumulation Approach



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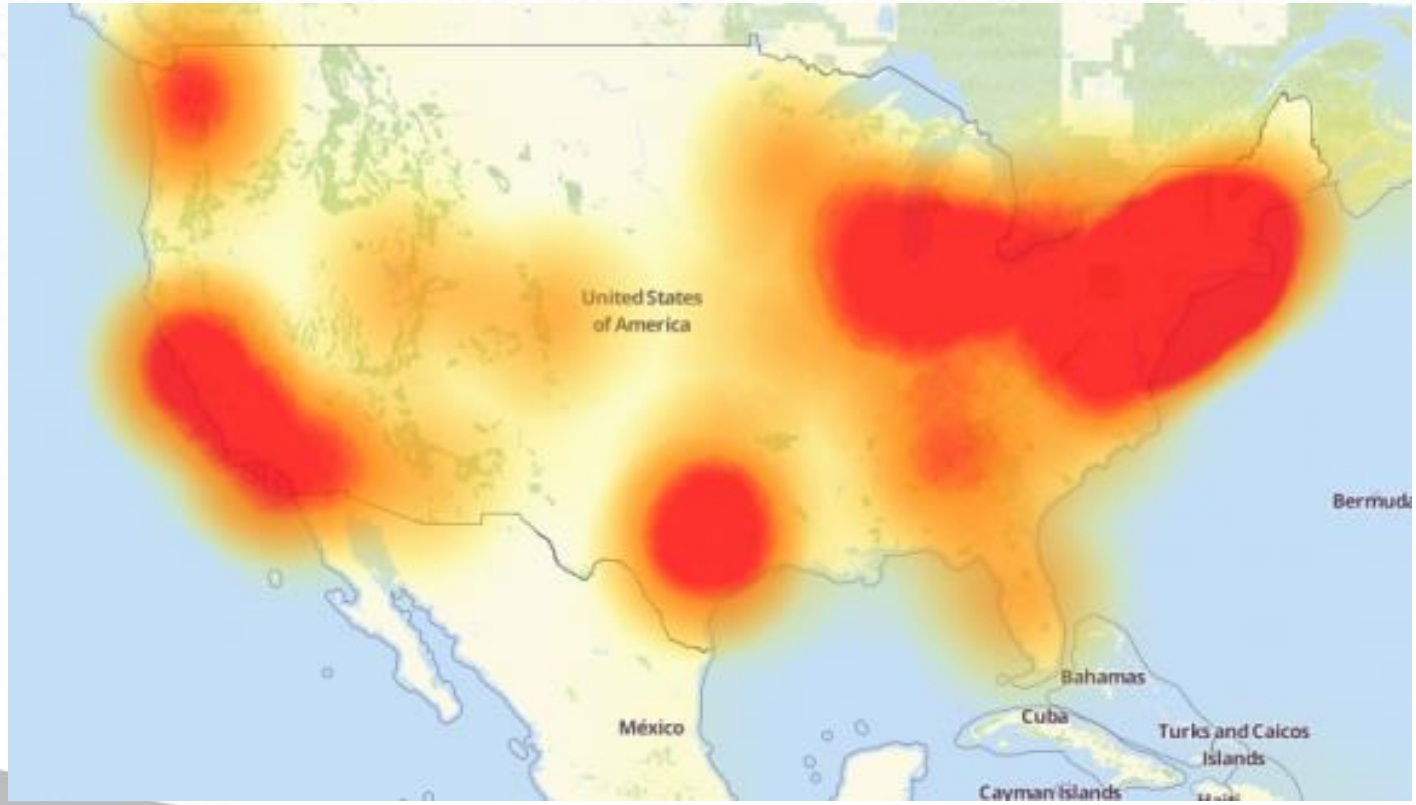
Advantages of Implementing Cyber Data Standard: Real Time Scenario Analysis



A depiction of the outages caused by attacks on Dyn.

Source: Downdetector.com.

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Make Informed Business Decisions with Deterministic Scenario Modeling Output

Reinsurance decisions

Evaluating limits

Accumulation analysis for underwriting and ERM

Potential supplier aggregation

Mitigate the risk

- Investigate cloud vendor vulnerabilities
- Investigate payment vendor vulnerabilities
- Employee training for insureds

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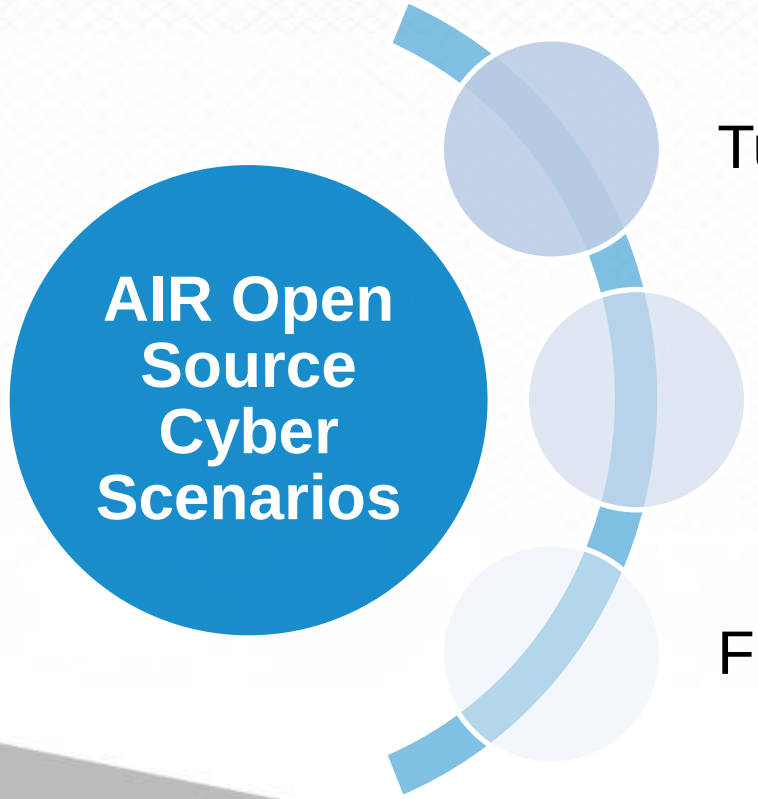
Test Your Portfolio Using AIR Open Source Cyber Scenarios



Turnkey SQL Scripts

Transparent & Flexible Assumptions

Freely available on AIR website

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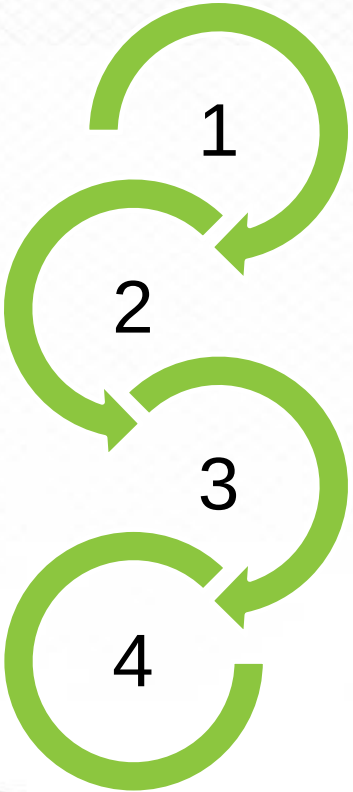
Using AIR's Open Source Cyber Scenarios

AIR

Using AIR's Open Source Cyber Scenarios to Manage Cyber Risk



- Visit AIR website and download scenarios
- Test your book of business against AIR's scenarios
- Identify accumulations of risk and loss potential
- Perform sensitivity studies and refine view of risk

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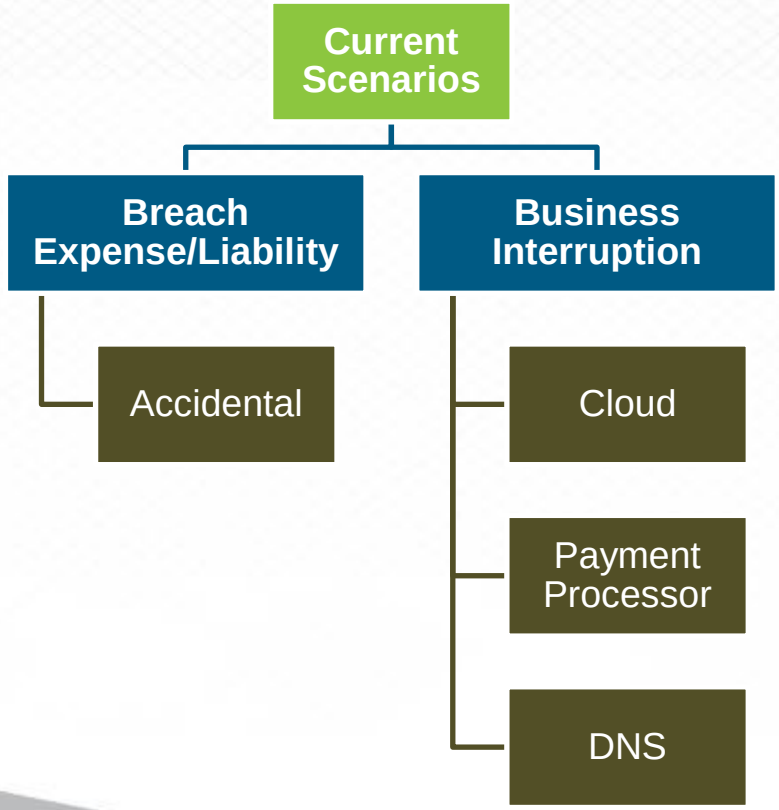
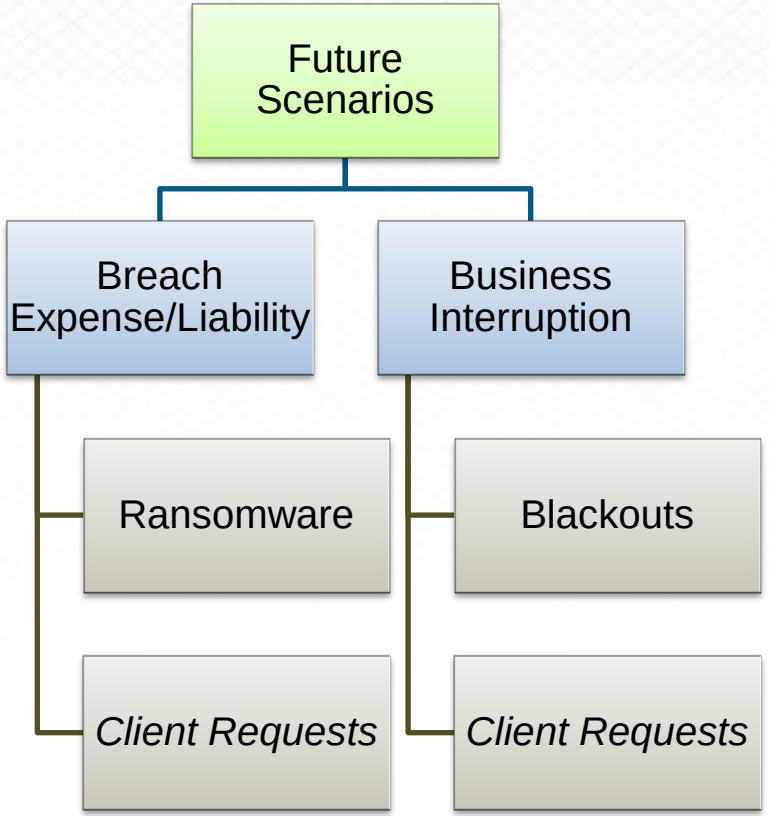
AIR Cyber Scenario Development Roadmap





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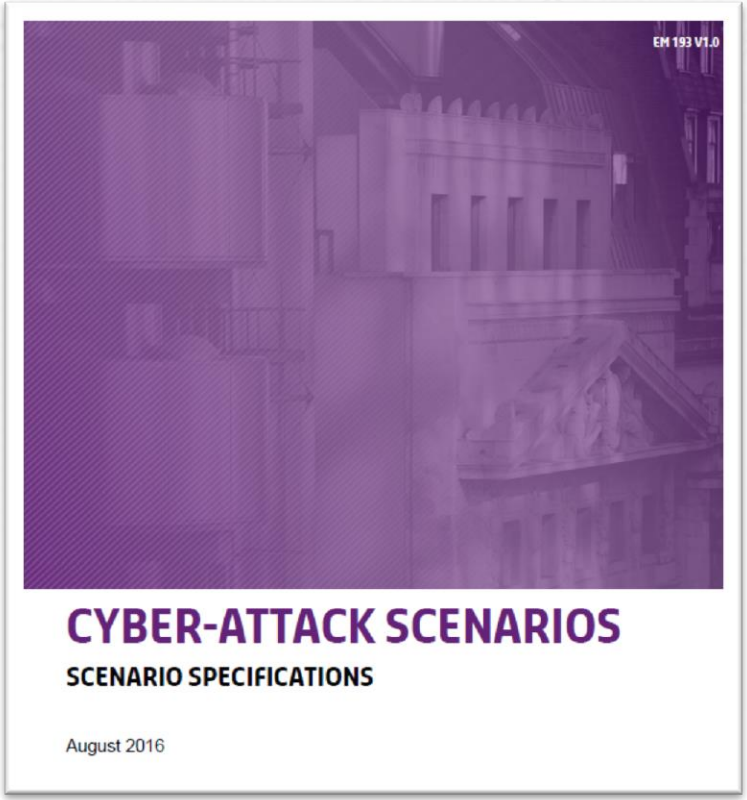
AIR Can Help Clients with Their Lloyd's Scenario Requirements



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AIR Open Source Cyber Scenario Package

Scenario Description

Scenario User's Guide

Scenario SQL Stored Procedure

AIR Cyber Exposure Data Preparer's Guide

Sample Cyber Exposure Dataset

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Familiarize Yourself with Analysis Process and Requirements Using the Sample Exposure Set

~500 companies

Diverse industry type representation

Both SMEs and large businesses

Most fields in data standard filled in

AIR will provide this sample data on our website

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Scenario Modeling Demo

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AIR Cyber Risk Consulting Services are Available

Data Formatting

Data Enhancement

Custom Deterministic Studies

Initial Probabilistic Output

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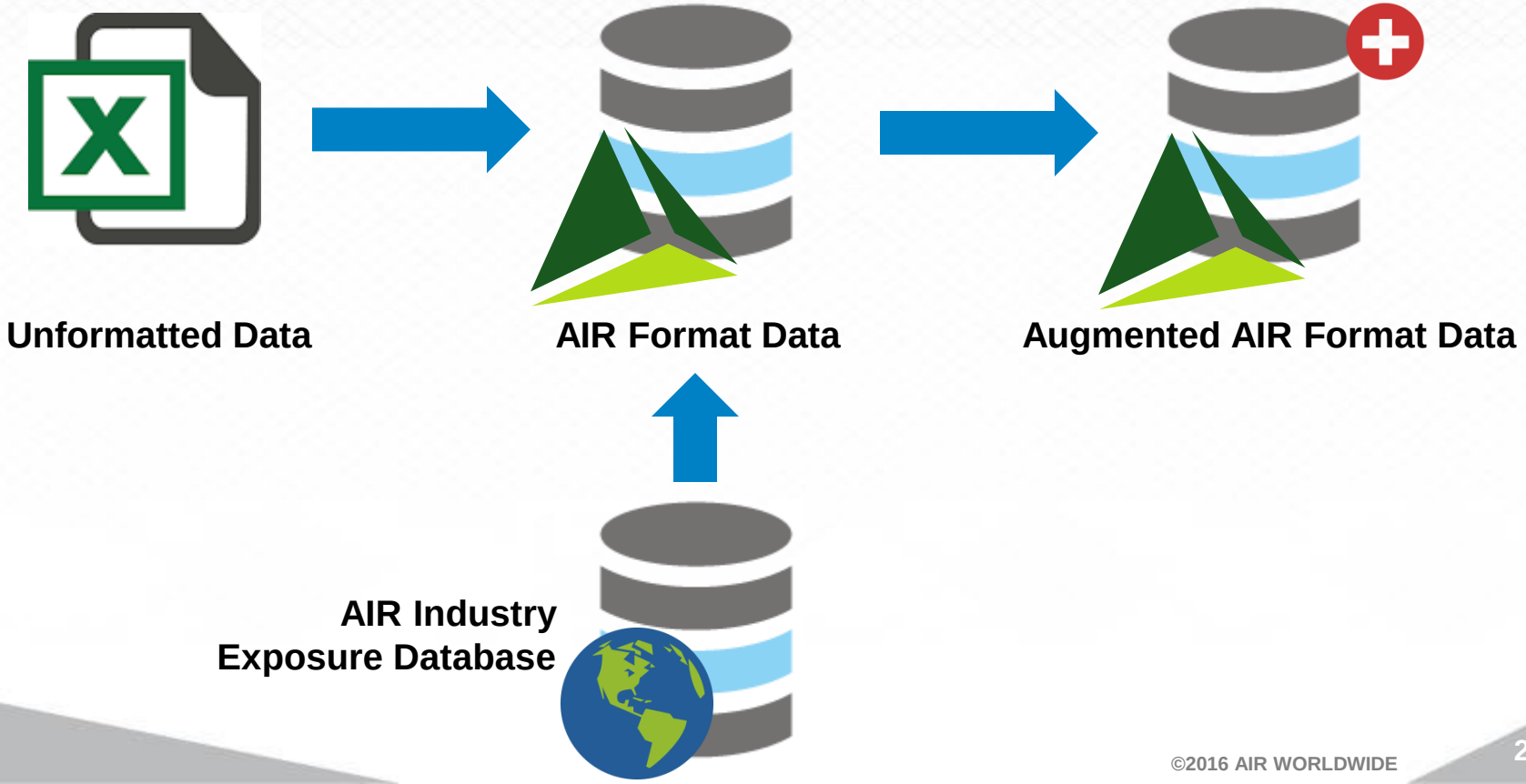
AIR Will Prepare and Augment Your Cyber Exposure Data



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What AIR Can Enhance In The First Scenarios

Scenario	Required Fields than can be enhanced
Cloud Service Provider Breach	• Cloud vendor • Revenue associated with the vendor
Payment Processor Disruption	• Payment processor vendor • Revenue associated with the vendor
Accidental Data Breach	• Employee count • Data record count • Replacement cost per record

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AIR Will Transform Your Data Into Insightful Reports

Augmented AIR Format Data

AIR Scenario Analysis

Detailed Reports

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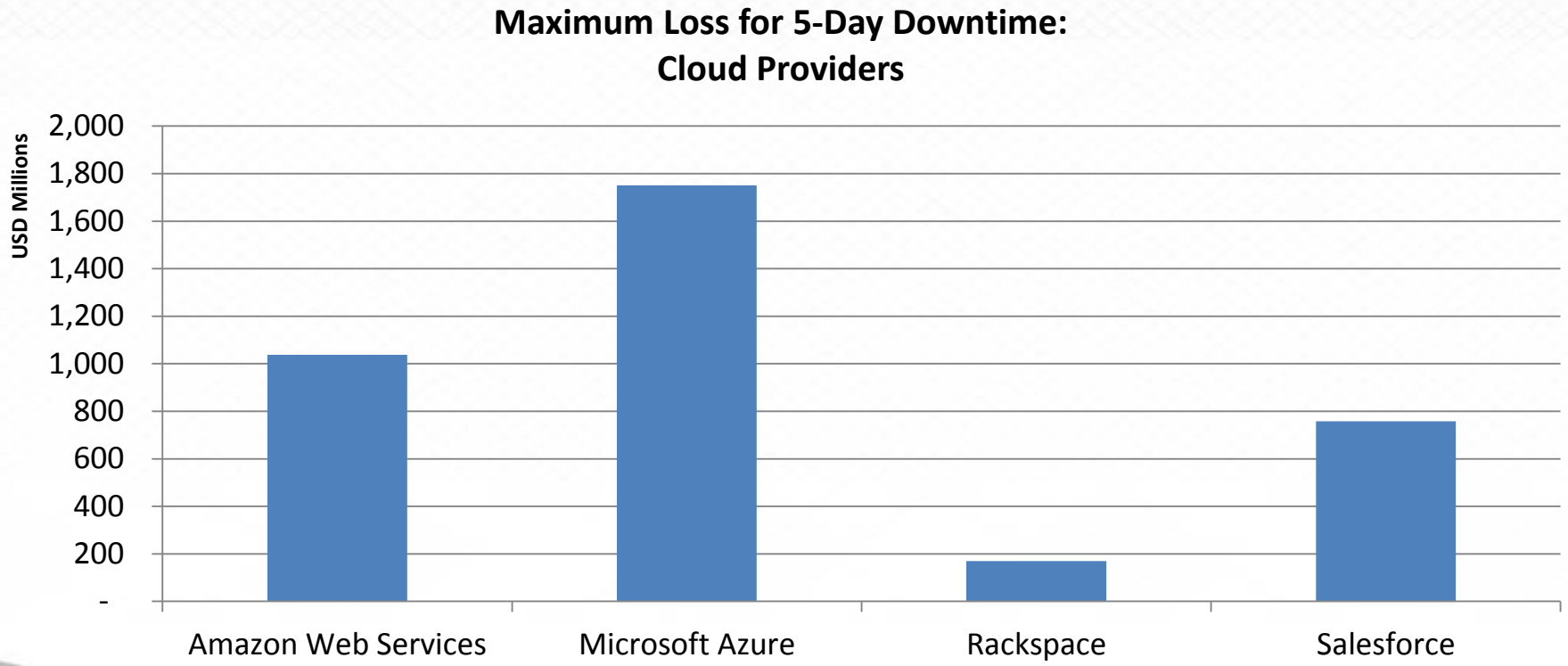
Make Strategic Business Decisions With Scenario Output – Develop Underwriting Guidelines



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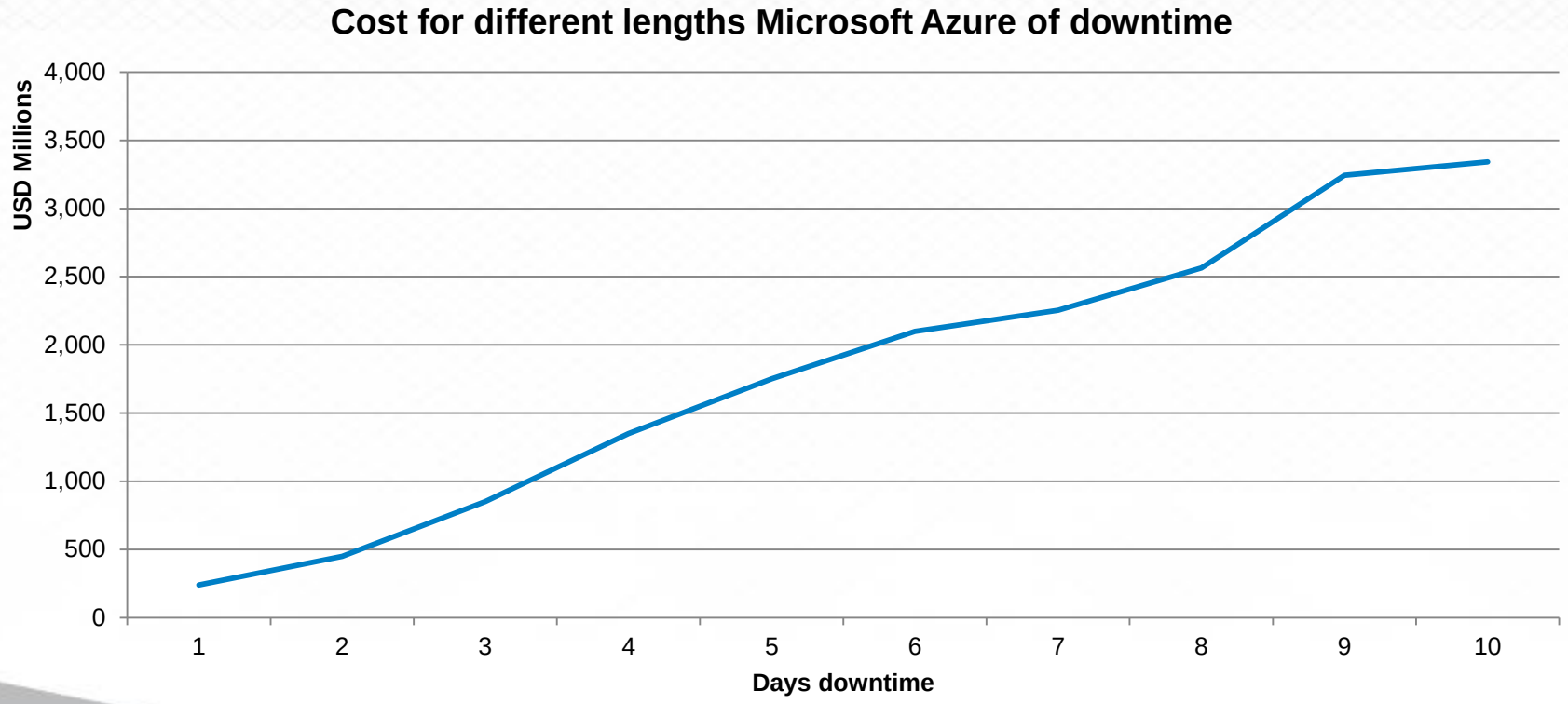
Make Strategic Business Decisions With Scenario Output - Optimize Your Insurance Limits



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Minimum Data to Run Probabilistic Model or Do a Study: Industry, Revenue, and Insurance Information

Industry

Revenue

Insurance Terms

	A	B	C	D	E	F
1	Company	Industry	Revenue	Limit	Deductible	
2	XYZ Corp.	Retail	1000000000	1000000	10000	
3						

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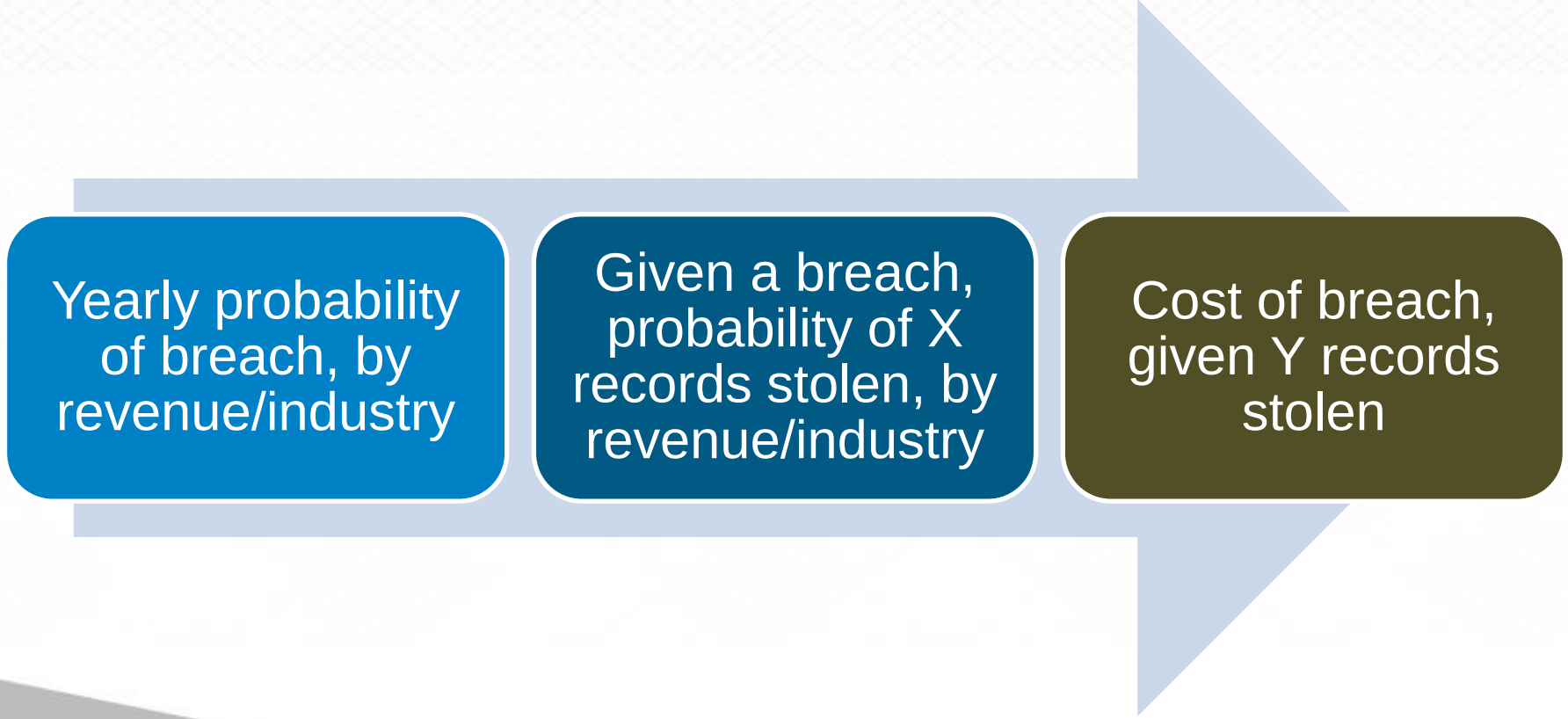
AIR Is Building a Probabilistic Model



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AIR Cyber Model Will Be Released in 2017

AIR WORLDWIDE Cyber Exposure Modeling

Exposure Database : CyberExposure_DB | **Exposure Set :** Cedant1

Exposure Summary

Summary Statistics | Exposed Limits by Layer Size | Layers in Local Currency | Distribution of Limits by Industry | Legal Jurisdiction Contributing to Total Limit | Exposed Limits by Legal Jurisdiction | Exposed Limits by Coverage Type

Compare : ☐ ☑ ☐ ☑ ☐ ☐ ☐

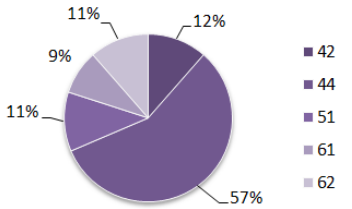
Total Limits by Layer Size

	Number of Layers	Total Occurrence Limit	Participation Limit
Less than/Equal to $5M USD	13	53,200,000	17,676,000
$5M to $10M USD	15	212,240,000	52,458,000
$10M to $25M USD	17	226,433,300	55,000,000
$25M to $50M USD	8	504,860,000	51,515,000
Over $50M USD	7	398,040,000	18,832,000

Distribution of Limits by Industry

Organization	(All)
Jurisdiction	(All)

Row Labels	% of Total Limit
42	11.43%
44	57.14%



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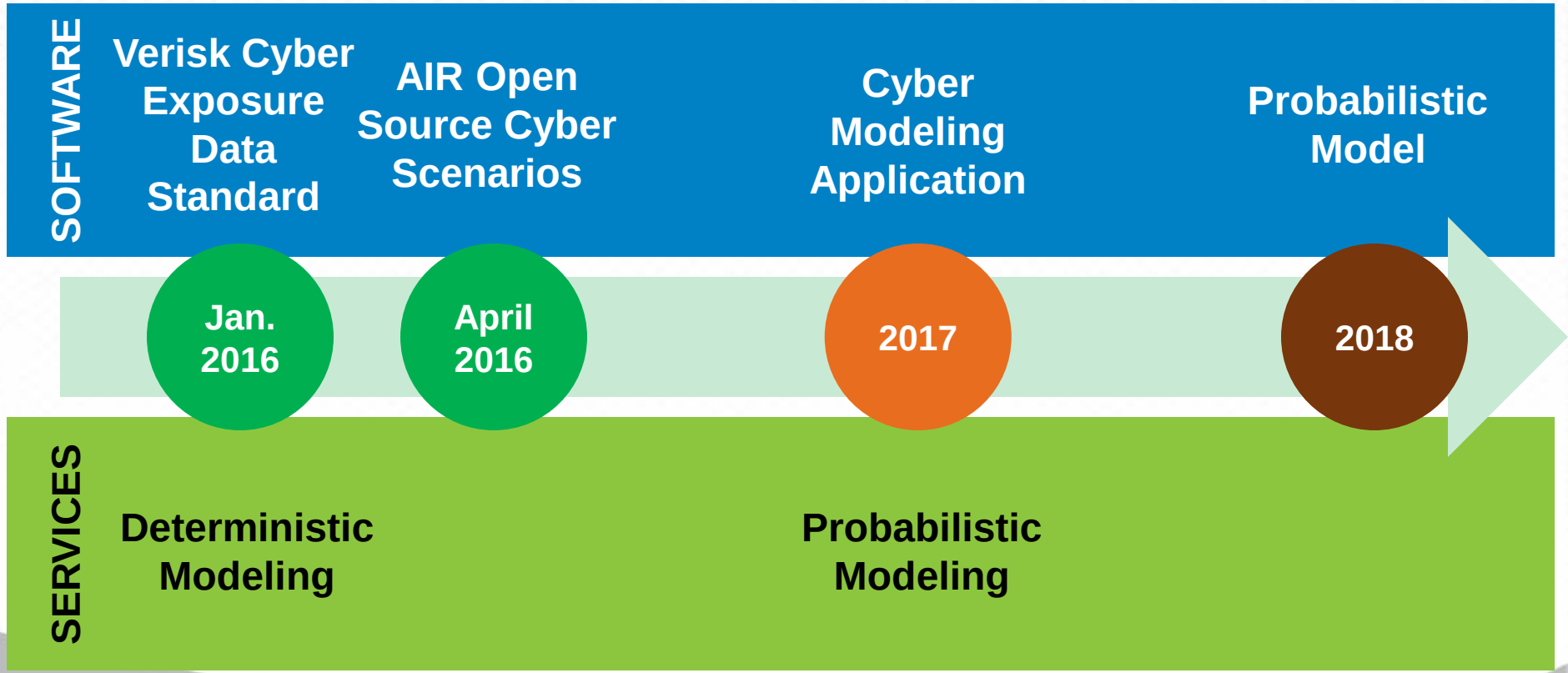
What's Next for AIR Cyber Risk Solutions?



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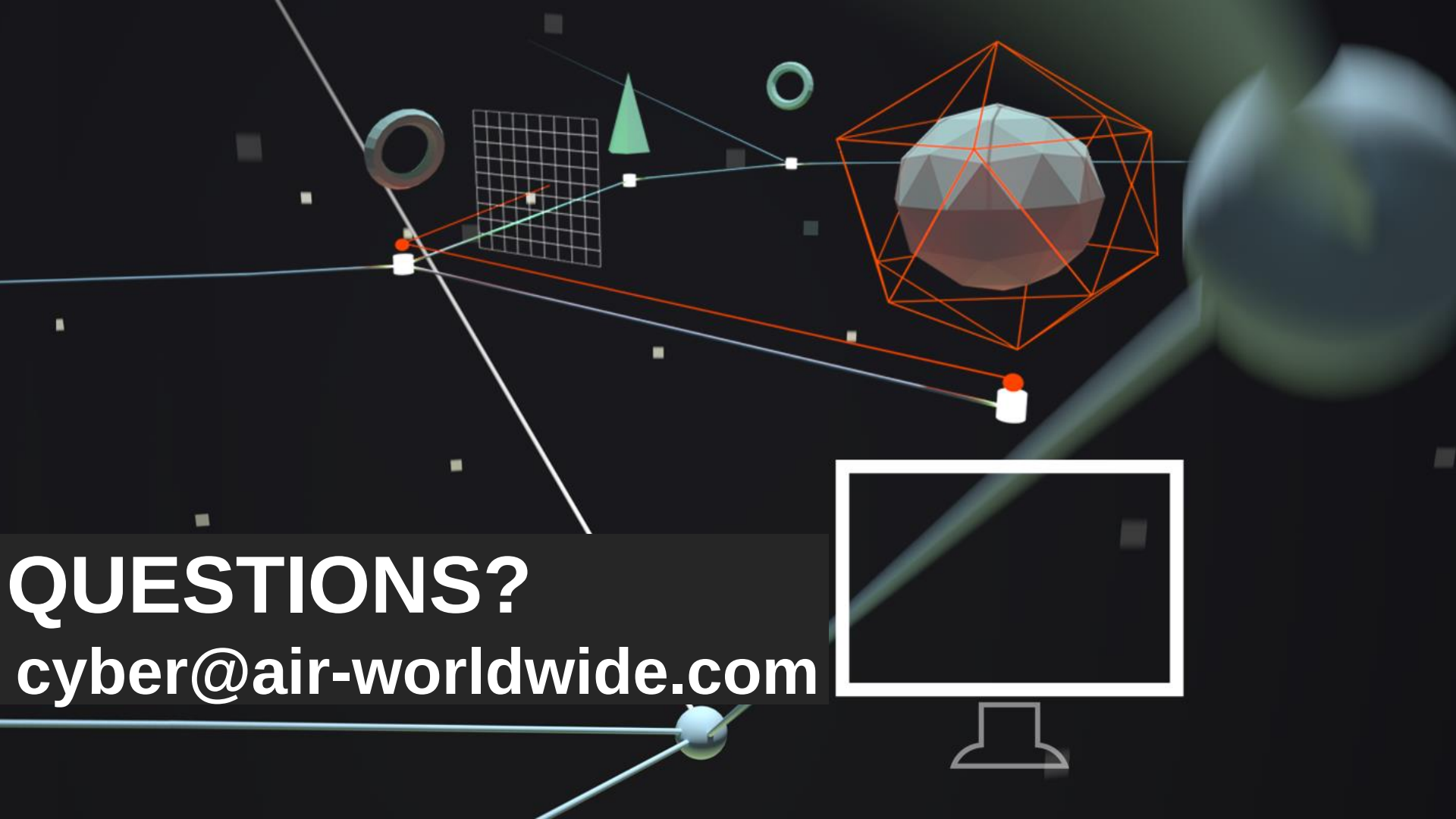
QUESTIONS?
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