



A PHASED APPROACH TO NETWORK CONSENSUS

January 2019

www.atrisktech.com



***AMERICAN
PUBLIC
TRANSPORTATION
ASSOCIATION***

@RISK Technologies operates at the intersection of National Security and Commercial Enterprise.

Our award winning Quorum™ technology delivers Wall Street Capability at Main Street practicality and pricing



The cyber war is here.

The Cyber War is here. Let's fight it like one. Cyber Security is no longer *only* needed by Wall Street companies.



\$6,000,000,000,000

Global costs estimated to be \$6T by 2021, up from \$3T in 2015



GDPR

Similar regulations are anticipated to come to the U.S and add to current regulations.



Corporate Attacks

Target, JPMorgan, Netflix, Home Depot, Marriott and more



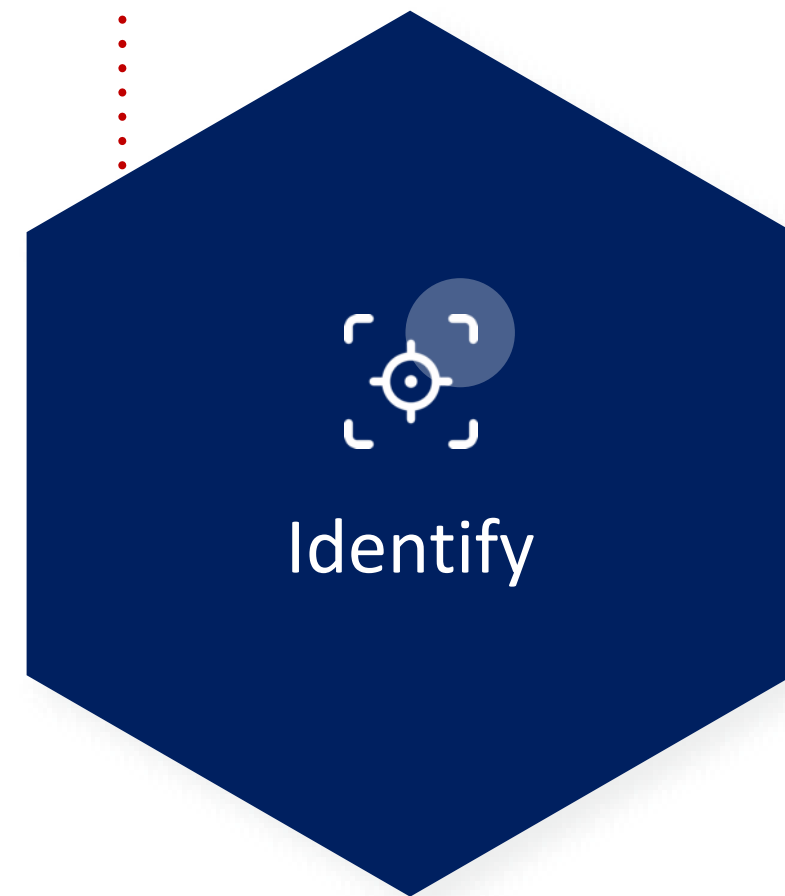
Gov. Attacks

Sony/North Korea Email Breach & alleged Russian attacks on US Election with Nation State actors selling tradecraft to hackers

Here's what happens...

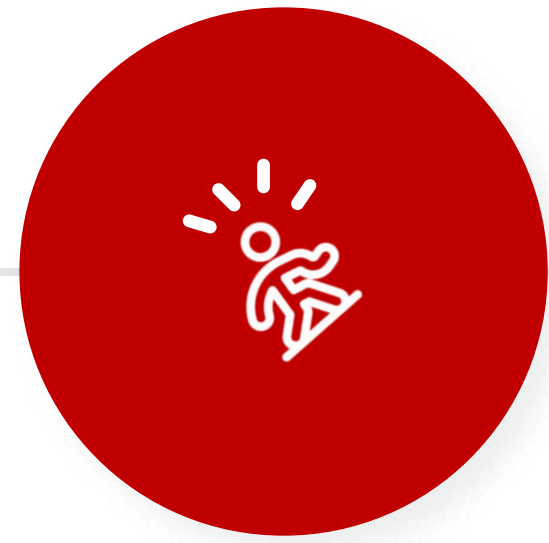


Cyber Security requires companies to:



But they struggle because...





there are many factors pitted against them



Digital Transformation

Business priorities and new technologies reduce focus on security and increase vulnerability.



Increasing Volume

The number of Cyber attacks are increasing dramatically.



Limited Expertise

It's hard to find people with real Cyber experience.



Lack of Measurement

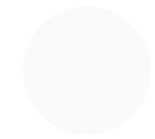
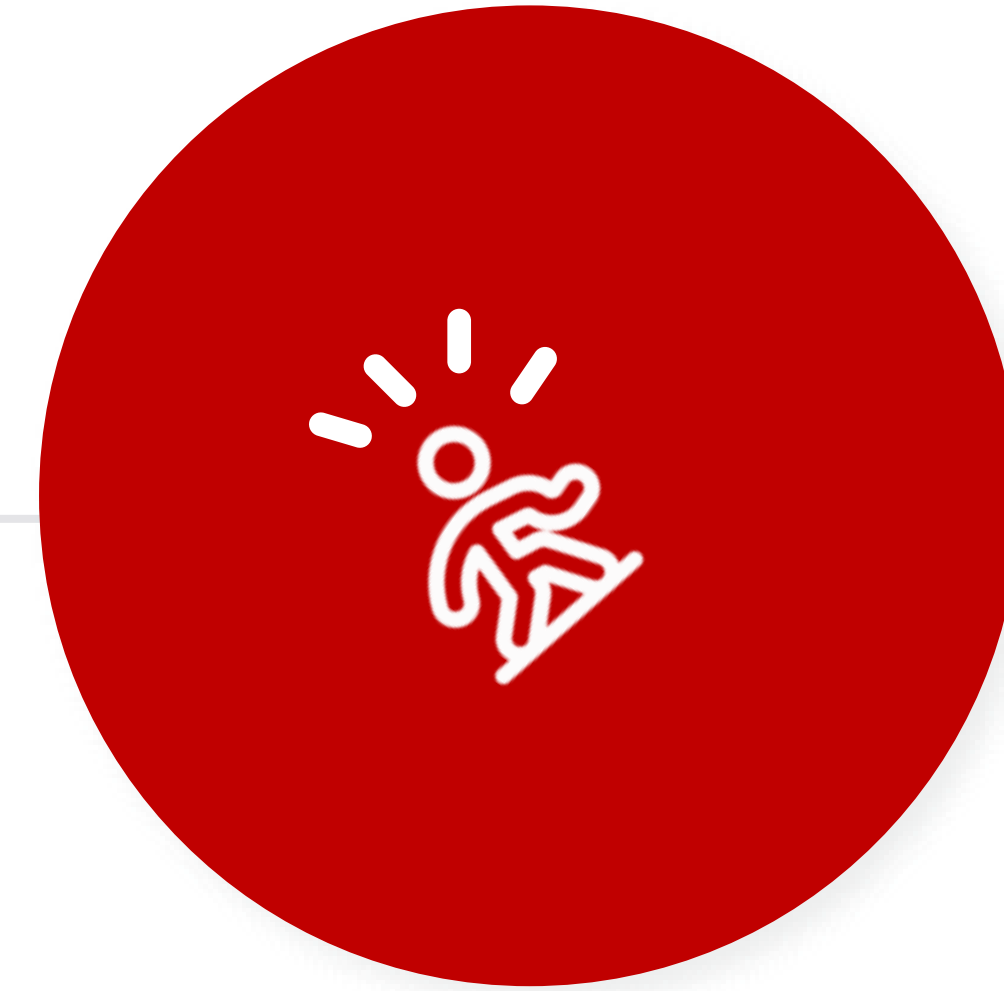
There is no Balanced ScoreCard for Cyber



Competing Budgets

Competing budgets leave Cyber without adequate resources.

Transportation is riddled with recent events



Increasing Volume of attacks

The number of Cyber attacks are increasing dramatically.

Some recent examples:

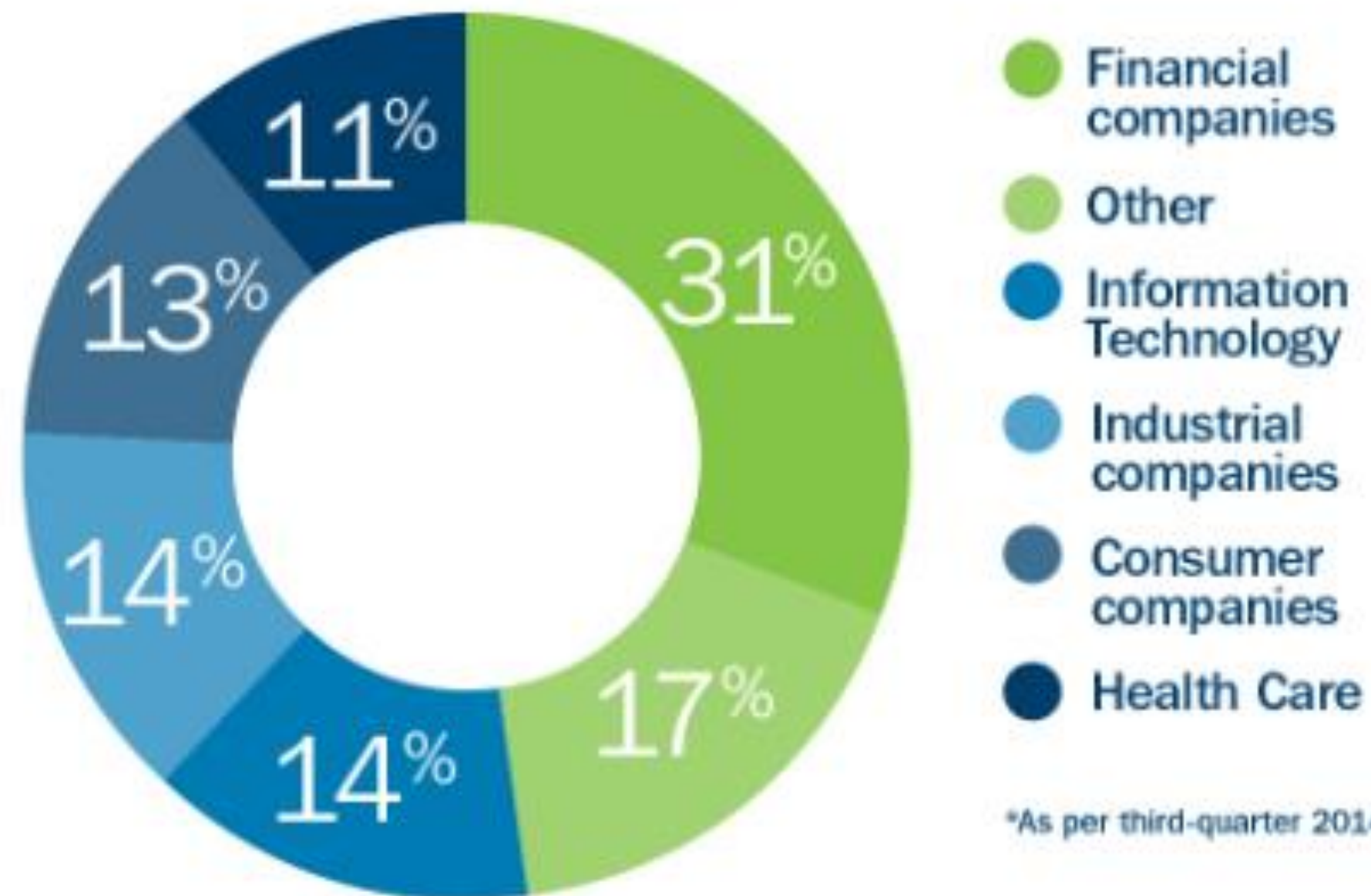
Risk: Average Cost of a Breach

Activity	Cost
Average Detection & Escalation Cost	\$417,700
Average Notification Cost	\$509,237
Average Post Breach Costs apart from Notification Costs	\$1,599,996
Average Lost Business Cost	\$3,324,959
Average Total Organizational Cost	\$5,851,892
Average Number of Records	29,087
Average Cost Per Record	\$201

Source: Ponemon Institute Research Report (www.ponemon.org)

Directors and Officers Liability Insurance

D&O Lawsuits by Sector*



Source: ERM, Inc. "Quarterly D&O Claims Trends: Q3 2014." AdviserRisk.com, Adviser Risk, Oct. 2014. Web. 2 Dec. 2014.

- Recent Cyber Attacks that have been successful have filtered into the D&O space as derivative law suits against directors and officers for breach of duty in these matters.
- At Target, Directors and Officers were hit with Derivative Suits based on a Data Breach
- However, during a similar time period, a federal district court in NJ dismissed with prejudice the derivative suit against the D&O's
- What helped Wyndham prevail was that they held 14 quarterly meetings (both before, during and after the breach) to discuss the cyberattacks and security policies
- @RISK's Solution has this as an application inside of the Quorum Product

Cyber Risk & Liability - 3rd Party Liability

Claims Scenario	Coverage	Coverage Description	Coverage Response
A hacker successfully obtains sensitive personal information from the insured's computer system. As a result, a number of customers bring a claim against the insured for allowing access to their personal information.	Network and Information Security Liability	Coverage for the Liability and legal costs arising from a loss by another due to a breach in network security. Breaches include unauthorized access, transmission of a virus, blocked access, or failure to provide notice of a security breach, where required by law.	Damages and defense costs for covered lawsuits.
A lawsuit is brought against the insured by a competitor alleging that their online marketing content and product branding have been plagiarized and their trademarks infringed upon.	Communications and Media Liability	Provides coverage for claims arising from copyright infringement, plagiarism, defamation, libel, and slander in electronic content, such as websites and email.	Damages and defense costs for covered lawsuits.
An insured with offices nationwide suffers a major data breach involving thousands of customers. As a result, the Attorney General in multiple states bring a regulatory action against the insured.	Regulatory Defense Expenses	Coverage for governmental claims made as a result of network and information security liability or communications and media liability.	Costs for responding to regulatory claims stemming from the data breach.

Cyber Liability- 1st Party reimbursement

Claims Scenario	Coverage	Coverage Description	Coverage Response
An investment adviser's Chief Customer Service Officer has his laptop stolen. The laptop contains over 100,000 customer records, including social security numbers.	Crisis Management Event Expenses	Coverage for public relations services to mitigate negative publicity as a result of cyber liability.	Costs for hiring a public relations firm to restore customer confidence or mitigate negative publicity generated from the incident.
A regional bank stores sensitive customer information in its computer system. This system is compromised when a third party sends a malware program via email to a number of employees. This software intrudes into the system when an employee unwittingly opens the email attachment, allowing the third party access to the system. Contact and credit card information for over 50,000 bank customers is captured out of the system.	Security Breach Remediation and Notification Expense	Provides coverage for: <ul style="list-style-type: none"> • costs incurred to determine whose identity information was accessed, • notification to those individuals of the security breach, • credit monitoring for 365 days, • call center to handle inquiries, and • identity fraud expense reimbursement for those individuals affected by the security breach 	Costs for hiring a Breach Response firm to find and fix the breach, assist with notice requirements and expenses, provide credit monitoring and a call center for impacted individuals, and obtaining an ID Fraud policy for affected victims.
A computer virus totally destroys an insurance company's operating system software and data.	Computer Program and Electronic Data Restoration Expenses	Coverage for expenses incurred to restore data lost from damage to computer systems due to computer virus or unauthorized access.	Costs for repair and restoration of the insured's computer programs and electronic data.

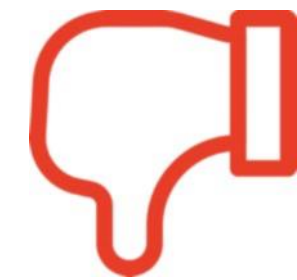
1st Party reimbursement coverages- *continued*

Claims Scenario	Coverage	Coverage Description	Coverage Response
An organized crime ring gains unauthorized access to a community bank's transactional system, obtaining customer account information and authorization codes.	Computer Fraud- Covered by Bond	Coverage for loss of money, securities or other property due to unauthorized access to computer system.	Loss of funds fraudulently obtained from customer bank accounts.
An insurance company received an email that appeared to be from its bank but was not. The insured's employee opened the email, which activated a computer virus called a Trojan horse that read key strokes from their computer. The perpetrator used this means to obtain banking and password information and initiate a fraudulent electronic wire transfer from the insured's bank account.	Funds Transfer Fraud- Covered by Bond	Coverage for loss of money or securities due to fraudulent transfer instructions to a financial institution.	The insured's funds that were fraudulently transferred from its bank account.
A credit union receives a series of notes which threaten to hack into its customer database and disclose all of the contact information to the general public.	E-Commerce Extortion	Coverage for money paid due to threats made regarding an intent to fraudulently transfer funds, destroy data, introduce a virus or attack on computer system, or disclose electronic customer information.	Money or securities paid to the extortion.
A bank's server is infected by a severe virus, and as a result their transactional website is not available to customers for an extended period.	Business Interruption and Additional Expense	Coverage for loss of income, and the extra expense incurred to restore operations, as result of a computer system disruption caused by a virus or other unauthorized computer attack.	The net profit that would have been earned (or net losses that would have been avoided) resulting from the computer system disruption.

but! there are *kinds of* solutions to combat the threat...

Unfortunately
many organizational budgets \$100k or less...

TOTAL!... for all IT Staff and
Services, including Cyber :(



what if...


We could make it **more affordable**

took **less manpower**

achieved **network consensus**

created **actionable insight**

So, how do you do
that?



POST /DataRetrieve HTTP/1.1

Host: 192.168.1.1

Content-Type: application/octet-stream; charset=utf-8

Content-Transfer-Encoding: base64

Content-Length: 6239

<?xml version="1.0"?>

Network Consensus™

Uses corroboration to reduce the noise in the network. Corroboration leverages human cognition to synthesize the weight of evidence.

- A.I. mimics human characteristics by calculating operational centers of gravity
- Centers of gravity (CG) is how systems of an object affect the stability of an object. Physics actually provides methods for how to calculate the CG of different systems of objects.
- A Prussian General Carl Von Clausewitz summarized the relationship between a point of focus; (schwerpunkt) an area of concentrated effort, especially in a military operation to assemblies of battlefield systems.
- Network Consensus™ is the commercial application of proven warfare concept of assemblies of systems. For Cyber we measure how People, Process, Technology, Data, Risk and Compliance systems help or hinder the security of a Network.
- Applying the right capability at the right gap at the right time (schwerpunkt) can turn the tide in a cyber attack or defense.

YOU can measure to see if
your:

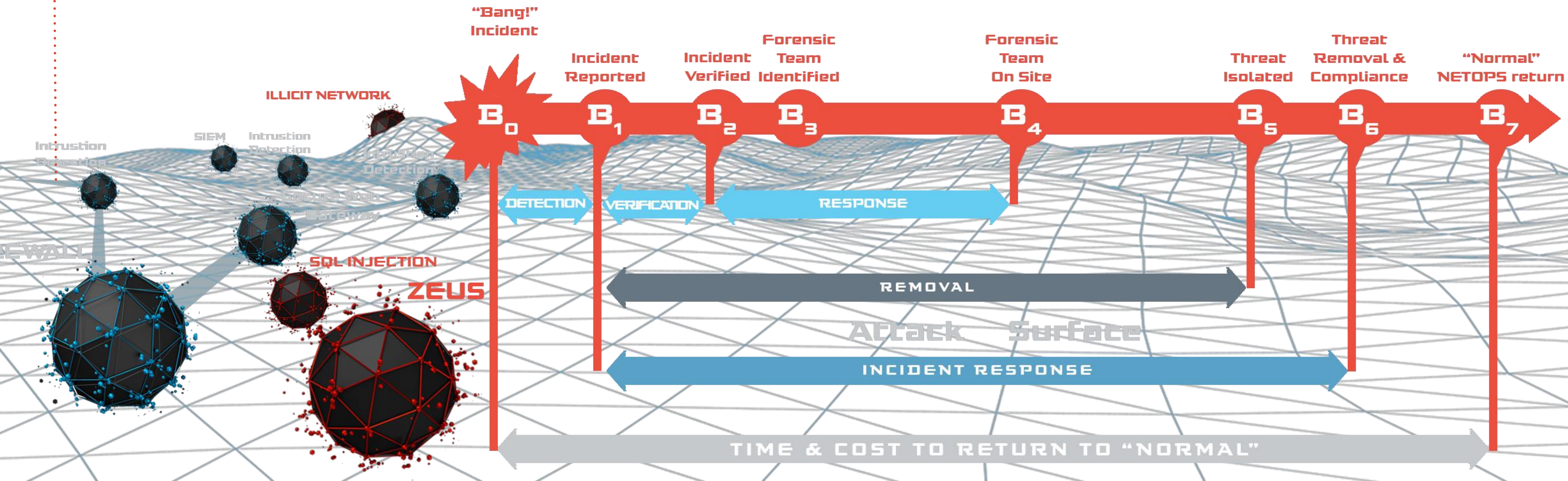
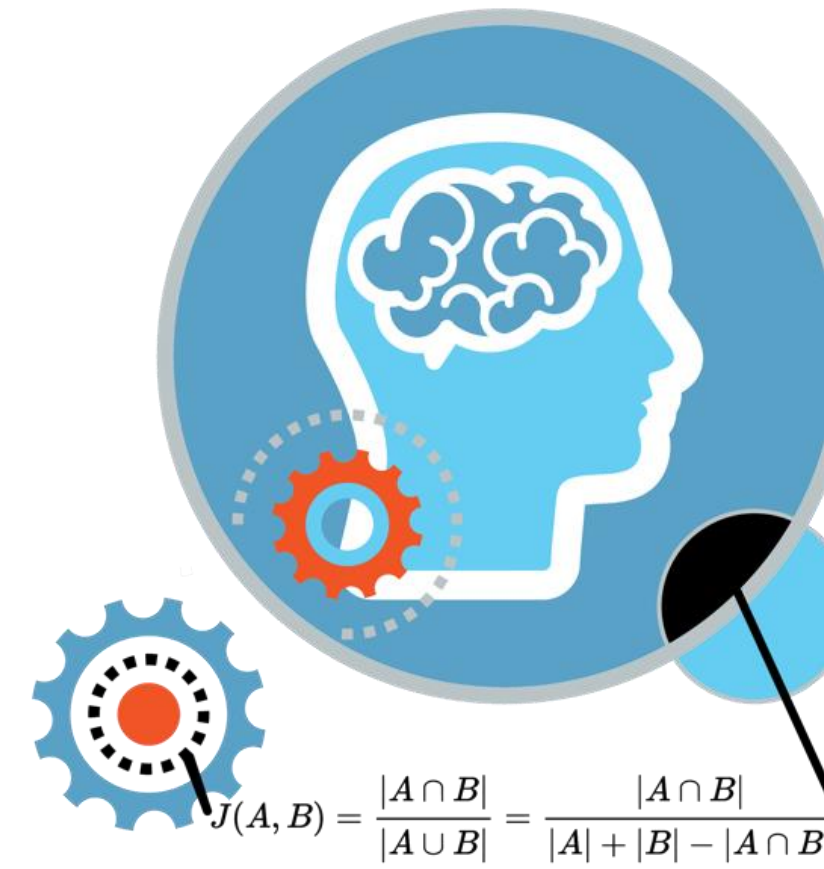


help or hinder your ability to Identify,
Protect, Detect, Respond and Recover
when ...

Network Consensus using a DYI approach:



8 Functions to protect your network from hackers:





08

Daily Probability of Breach Scores are tabulated for Monthly Scorecards that measure the ability to Identify, Protect, Detect, Respond and Recover

Establish Probability and Risk Tolerance by Asset

01



Segment Networks to "book-end" analytics



02

03



Forecast Most Probable Source of Attack By IP Address and Port Using IBM Watson



07

Actionable Analysis bundled with Automated Response is delivered in a Case Management Dashboard or integrated with an ITSM

07

06



Conduct A.I powered DFI using existing cyber tools



05

Orchestrate Raw PCAP with Forecast and Prioritize at the Perimeter using UEBA

04



Crowd Source a "Paul Revere" for Cyber One if By Land Two if by Sea early warning system using Cognitive Library and Edge Analytics of NTBA

01

02

08

03

04

06

05



You can do this: measure to see if your:



help or hinder your ability to Identify, Protect, Detect, Respond and Recover when . . .

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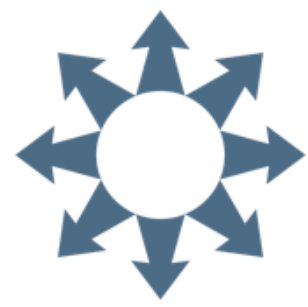
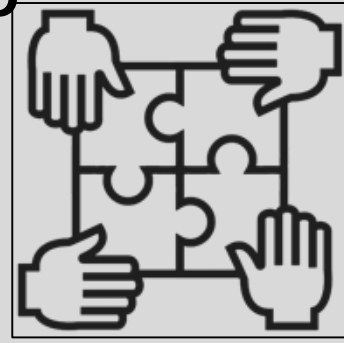
smobrien@atrisktech.com

Thank you!

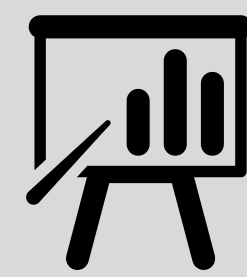


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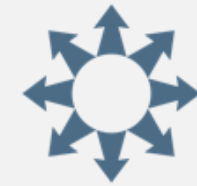


SCALABLE



MEASURABLE
GR C

UX & EXTENSIBLE



COLLABORATIVE & CORROBORATIVE



SECURE CERTIFIED

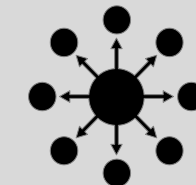


3rd Generation

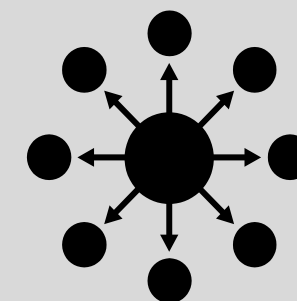


COGNITIVE LIBRARY

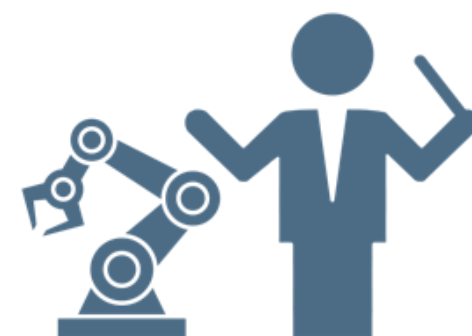
TARGETED PLAYBOOKS



NTBA, UEBA & MACHINE
LEARNING



ORCHESTRATION
& AUTOMATION



THREAT
FORECASTING



ANALYSTS



Life Insurance Actuarial Table

8 National Vital Statistics Reports, Vol. 54, No. 14, April 19, 2006

Table 1. Life table for the total population: United States, 2003

Age	Probability of dying between ages x to x+1	Number surviving to age x	Number dying between ages x to x+1	Person-years lived between ages x to x+1	Total number of person-years lived above age x	Expectation of life at age x
	q_x	l_x	d_x	L_x	T_x	e_x
0-1	0.008865	100,000	887	99,394	7,743,016	77.4
1-2	0.004469	99,313	47	99,290	7,643,622	77.0
2-3	0.003937	99,267	33	99,250	7,544,332	76.0
3-4	0.00254	99,233	25	99,221	7,445,082	75.0
4-5	0.00194	99,208	19	99,199	7,345,861	74.0
5-6	0.00177	99,189	18	99,180	7,246,683	73.1
6-7	0.00160	99,171	16	99,163	7,147,482	72.1
7-8	0.00147	99,156	15	99,148	7,048,319	71.1
8-9	0.00132	99,141	13	99,134	6,949,171	70.1
9-10	0.00117	99,128	12	99,122	6,850,036	69.1
10-11	0.00109	99,116	11	99,111	6,750,914	68.1
11-12	0.00118	99,105	12	99,100	6,651,803	67.1
12-13	0.00157	99,094	16	99,086	6,552,704	66.1
13-14	0.00233	99,078	23	99,067	6,453,618	65.1
14-15	0.00339	99,055	34	99,038	6,354,551	64.2
15-16	0.00460	99,022	46	98,999	6,255,513	63.2
16-17	0.00577	98,976	57	98,947	6,156,514	62.2
17-18	0.00684	98,919	68	98,885	6,057,566	61.2
18-19	0.00769	98,851	76	98,813	5,958,681	60.3
19-20	0.00832	98,775	82	98,734	5,859,868	59.3
20-21	0.00894	98,693	88	98,649	5,761,134	58.4
21-22	0.00954	98,605	94	98,558	5,662,485	57.4
22-23	0.00990	98,511	98	98,462	5,563,928	56.5
23-24	0.00987	98,413	98	98,364	5,465,466	55.5
24-25	0.00982	98,315	97	98,267	5,367,101	54.6
25-26	0.00960	98,219	94	98,171	5,268,835	53.6
26-27	0.00942	98,124	92	98,078	5,170,663	52.7
27-28	0.00936	98,032	92	97,986	5,072,585	51.7
28-29	0.00947	97,940	93	97,894	4,974,509	50.8
29-30	0.00974	97,847	95	97,800	4,876,435	49.8
30-31	0.01008	97,752	98	97,703	4,778,363	48.9
31-32	0.01046	97,654	102	97,601	4,681,293	47.9
32-33	0.01087	97,551	107	97,495	4,585,234	47.0
33-34	0.01132	97,444	113	97,388	4,489,186	46.0
34-35	0.01184	97,331	121	97,271	4,388,715	45.1
35-36	0.01244	97,210	130	97,145	4,281,444	44.1
36-37	0.01313	97,080	140	97,010	4,174,299	43.2
37-38	0.01391	96,940	152	96,864	4,067,289	42.3
38-39	0.01478	96,788	166	96,705	3,960,424	41.3
39-40	0.01574	96,623	181	96,532	3,853,719	40.4
40-41	0.01679	96,442	197	96,343	3,747,187	39.5
41-42	0.01794	96,245	212	96,139	3,640,844	38.6
42-43	0.01919	96,033	229	95,918	3,534,605	37.6
43-44	0.02054	95,803	248	95,679	3,428,478	36.7
44-45	0.02199	95,555	269	95,420	3,322,564	35.8
45-46	0.02354	95,285	292	95,139	3,216,868	34.9
46-47	0.02519	94,993	316	94,836	3,111,392	34.0
47-48	0.02694	94,678	340	94,508	3,006,135	33.1
48-49	0.02879	94,338	364	94,156	2,901,097	32.3
49-50	0.03074	93,974	390	93,779	2,796,270	31.4
50-51	0.03279	93,584	417	93,375	2,691,653	30.5
51-52	0.03494	93,167	447	92,943	2,587,256	29.6
52-53	0.03719	92,719	479	92,480	2,483,079	28.8
53-54	0.03954	92,241	512	91,984	2,379,112	27.9
54-55	0.04199	91,728	548	91,454	2,275,355	27.1
55-56	0.04454	91,181	586	90,888	2,171,808	26.2
56-57	0.04719	90,595	627	90,281	2,068,471	25.4
57-58	0.04994	89,968	674	89,630	1,965,344	24.6
58-59	0.05279	89,293	729	88,929	1,862,427	23.8
59-60	0.05574	88,565	791	88,169	1,759,710	23.0
60-61	0.05879	87,774	863	87,343	1,657,193	22.2
61-62	0.06194	86,911	941	86,441	1,554,876	21.4
62-63	0.06519	85,970	1021	85,480	1,452,659	20.6
63-64	0.06854	84,949	1095	84,402	1,350,542	19.8
64-65	0.07209	83,854	1166	83,271	1,248,525	19.1
65-66	0.07584	82,688	1241	82,068	1,146,608	18.4
66-67	0.07979	81,448	1325	80,785	1,044,791	17.6

Probability of Death: 100%

@RISK Cyber Readiness Data

Cognitive Library - Cyber Readiness - Historical

ID	Created date	Updated date	Organization	Cyber Sum...	Assets Awar...	Assets Risk	Data Uploads	Total Transa...	All Unknown...	Asi
27728	Aug 20th 2018, 14:36	Aug 27th 2018, 21:16	Zahn & Zahn (Hea...	Zahn & Zahn Sum...	4.466666666666666...	62.814230769230...	Zahn and Zahn Co...	190438	2	13
8305	Mar 2nd 2018, 06:06	Mar 25th 2018, 12:29	Bank of Landisbur...	Bank of Landisbur...	30.237037037037...	42.8824204851752	Bank of Landisbur...	2283843	7	21
9456	Mar 5th 2018, 18:09	Mar 25th 2018, 12:30	Bank of Landisbur...	Bank of Landisbur...	30.237037037037...	41.458684210526...	Bank of Landisbur...	2343471	6	21
9194	Mar 2nd 2018, 11:38	Mar 25th 2018, 12:29	Bank of Landisbur...	Bank of Landisbur...	30.237037037037...	41.55892156862...	Bank of Landisbur...	1965437	6	19
8230	Mar 2nd 2018, 06:05	Mar 25th 2018, 12:30	Bank of Landisbur...	Bank of Landisbur...	30.237037037037...	41.55892156862...	Bank of Landisbur...	999133	2	3
9999	Mar 14th 2018, 19:09	Mar 25th 2018, 12:30	Bank of Landisbur...	Bank of Landisbur...	4.8479809976247...	44.646745454545...	Bank of Landisbur...	2277497	16	17
7828	Mar 2nd 2018, 06:05	Mar 25th 2018, 12:26	Bank of Landisbur...	Bank of Landisbur...	30.237037037037...	41.55892156862...	Bank of Landisbur...	2277497	16	17
10519	Mar 22nd 2018, 19:33	Mar 25th 2018, 12:30	Bank of Landisbur...	Bank of Landisbur...	4.8193624557260...	46.898972727272...	Bank of Landisbur...	2986309	18	21
8204	Mar 2nd 2018, 06:05	Mar 25th 2018, 12:31	Bank of Landisbur...	Bank of Landisbur...	30.237037037037...	42.802534391534...	Bank of Landisbur...	1703264	7	21
7707	Mar 2nd 2018, 06:04	Mar 16th 2018, 09:24	Oakwood Worldw...				Oakwood Worldw...			
7798	Mar 2nd 2018, 06:04	Mar 15th 2018, 03:18	The Bank of Heme...		26.548280423280...		Bank of Hemet HQ ...			
7825	Mar 2nd 2018, 06:05	Mar 15th 2018, 03:18	Citizens Northern ...		18.112375827814...	64.670993020939...	Citizens Northern ...	6594644	11	46
7820	Mar 2nd 2018, 06:05	Mar 15th 2018, 03:18	Henderson Brothers		0.018226329706...		Henderson Brother...			
7723	Mar 2nd 2018, 06:04	Mar 15th 2018, 03:18	Kish Bank (Main O...		10.548471943887...		Kish Bank Reedsvil...			
7772	Mar 2nd 2018, 06:04	Mar 16th 2018, 09:25	Northwest Bank (H...		35.861447520184...	60.438742786929...	Northwest Bank W...	45327701	83	656
7770	Mar 2nd 2018, 06:04	Mar 16th 2018, 09:25	Henderson Brothers		0.0168964357767...	10	Henderson Brother...	2045		
7810	Mar 2nd 2018, 06:05	Mar 15th 2018, 03:18	Reliance Bank (He...		7.6959459459459...		Reliance 17th Stre...			
9999	Mar 14th 2018, 19:09	Mar 25th 2018, 12:30	Bank of Landisbur...	Bank of Landisbur...	4.8479809976247...	44.646745454545...	Bank of Landisbur...	2277497	16	17
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7770	Mar 2nd 2018, 06:04	Mar 16th 2018, 09:25	Henderson Brothers		0.0168964357767...	10	Henderson Brother...	2045		
7810	Mar 2nd 2018, 06:05	Mar 15th 2018, 03:18	Reliance Bank (He...		7.6959459459459...		Reliance 17th Stre...			
7828	Mar 2nd 2018, 06:05	Mar 25th 2018, 12:26	Bank of Landisbur...	Bank of Landisbur...	30.237037037037...	41.55892156862...	Bank of Landisbur...	2277497	16	17
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8204	Mar 2nd 2018, 06:05	Mar 25th 2018, 12:31	Bank of Landisbur...	Bank of Landisbur...	30.237037037037...	42.802534391534...	Bank of Landisbur...	1703264	7	21
7707	Mar 2nd 2018, 06:04	Mar 16th 2018, 09:24	Oakwood Worldw...				Oakwood Worldw...			
7798	Mar 2nd 2018, 06:04	Mar 15th 2018, 03:18	The Bank of Heme...		26.548280423280...		Bank of Hemet HQ ...			
7825	Mar 2nd 2018, 06:05	Mar 15th 2018, 03:18	Citizens Northern ...		18.112375827814...	64.670993020939...	Citizens Northern ...	6594644	11	46
7820	Mar 2nd 2018, 06:05	Mar 15th 2018, 03:18	Henderson Brothers		0.018226329706...		Henderson Brother...			
7723	Mar 2nd 2018, 06:04	Mar 15th 2018, 03:18	Kish Bank (Main O...		10.548471943887...		Kish Bank Reedsvil...			
7772	Mar 2nd 2018, 06:04	Mar 16th 2018, 09:25	Northwest Bank (H...		35.861447520184...	60.438742786929...	Northwest Bank W...	45327701	83	656
7770	Mar 2nd 2018, 06:04	Mar 16th 2018, 09:25	Henderson Brothers		0.0168964357767...	10	Henderson Brother...	2045		
7810	Mar 2nd 2018, 06:05	Mar 15th 2018, 03:18	Reliance Bank (He...		7.6959459459459...		Reliance 17th Stre...			

Probability of Breach: 100%



"@RISK is the first cyber solution that allows us to quantify risk in order to price cyber policies accurately. The risk scoring provided by the @RISK Quorum platform functions a cyber actuarial table – the first of its kind.



Managing Risk D&O App in @RISK Quorum Technology



- @RISK has an embedded Collaborative App for “Cybersecurity Committee”
- @RISK supports Quarterly Board of Directors Application that facilitates a discussion (documented in the minutes) relating to cyber risk, cyber security or cyber liability
- @RISK will train board members to establish baseline cyber expertise
- @RISK acts an independent cybersecurity firm to conduct monthly cybersecurity audit (just like an independent accounting firm conducts and signs off on an annual financial audit)
- The Ponemon study validates that @RISK Technologies can help companies to save money:
 - A business continuity Management app can save and has saved \$7.10 per record
 - Embedded Employee training can save and has saved \$8.00 per record
 - Recommending and guiding extensive use of encryption can save and has saved \$12.00 per record
 - A documented Incident response plan with a team can save and has saved \$12.60 per record