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CYBER SECURITY SUMMIT

Why is Collaboration the Future of Cyber Security for Fintech?

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Cyber Security

*Learning something that makes you dumber

- Layered security works but …
  - Are we getting dumber with each layer we add?
- We can't seem to stop consuming sec-tech
  - How many layers can we possibly have?
- There aren't enough good guys to go around
  - More tech means more experts we don't have
- So we must find ways to help the good guys
  - Strength in numbers?

Balancing Limited Cyber Resources

- Marginal returns from enterprise security model
  - Ever-evolving endpoint security and monitoring tech
  - Sifting through a myriad of data and alerts
- This model (like the AV industry) will not scale
  - Severity and number of successful attacks will ↑
  - PwC: detected incidents 38% YoY ↑ 2014 to 2015
  - Verizon: confirmed breaches 55% YoY ↑ 2014 to 2015
- Security teams are at a disadvantage
  - Security teams lack information (to use or share)
  - Need look-back on attacks that have happened and also need to have insight about those in progress

Carbanak

- APT-style phishing-based attack
  - Began in 2013
  - $1B+ over 2 years
- Multiple breaches
  - 100+ banks, 30+ countries
- Failure of existing enterprise security model
  - Bad guys executing well-coordinated attacks

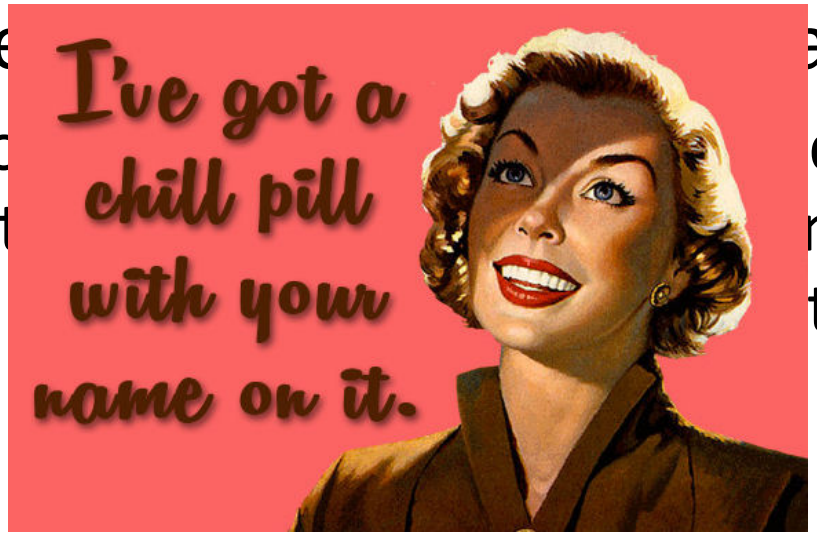
The Opposition is Better Organized

- Bad guys share vulnerability info freely, quickly
  - Good guys dig a hole, bury their heads in the sand
    - Partially driven by legal department anti-trust concerns
- Attacks: spread in hours, undetected for months
  - According to Risk Analytics, 75% of attacks spread from victim zero to victim one within 24 hours*
    - 40% of those (30% of all) spread within the first hour
  - A growing attacker/defender detection deficit
    - Median days threats are present before detection is 205
    - Median days between exploit and remediation is 120

*Verizon 2015 Data Breach Investigation Report (DBIR)

Better Living Through Collaboration

- The practice of taking meds (drugs) to make life more enjoyable:
  - "Wow, Jenny was always so depressed, but now that she takes a bottle of Prozac in the morning and washes it down with vodka, she seems really relaxed and happy." http://urbandictionary .com
- Better cybe aboration
  - The lack c d collaborat nd experts is the bane try



What Do Cybersecurity Teams Need?

- Visibility into incident info from peers
  - May be same attack methods or different
- Ability to effectively exchange information
  - Not dump raw but add qualified, enriched content
- Ability to effectively collaborate
  - Joint problem solving via shared expertise
- Share our experts and share our pain
  - Ability to open the kimono (sharing economy)

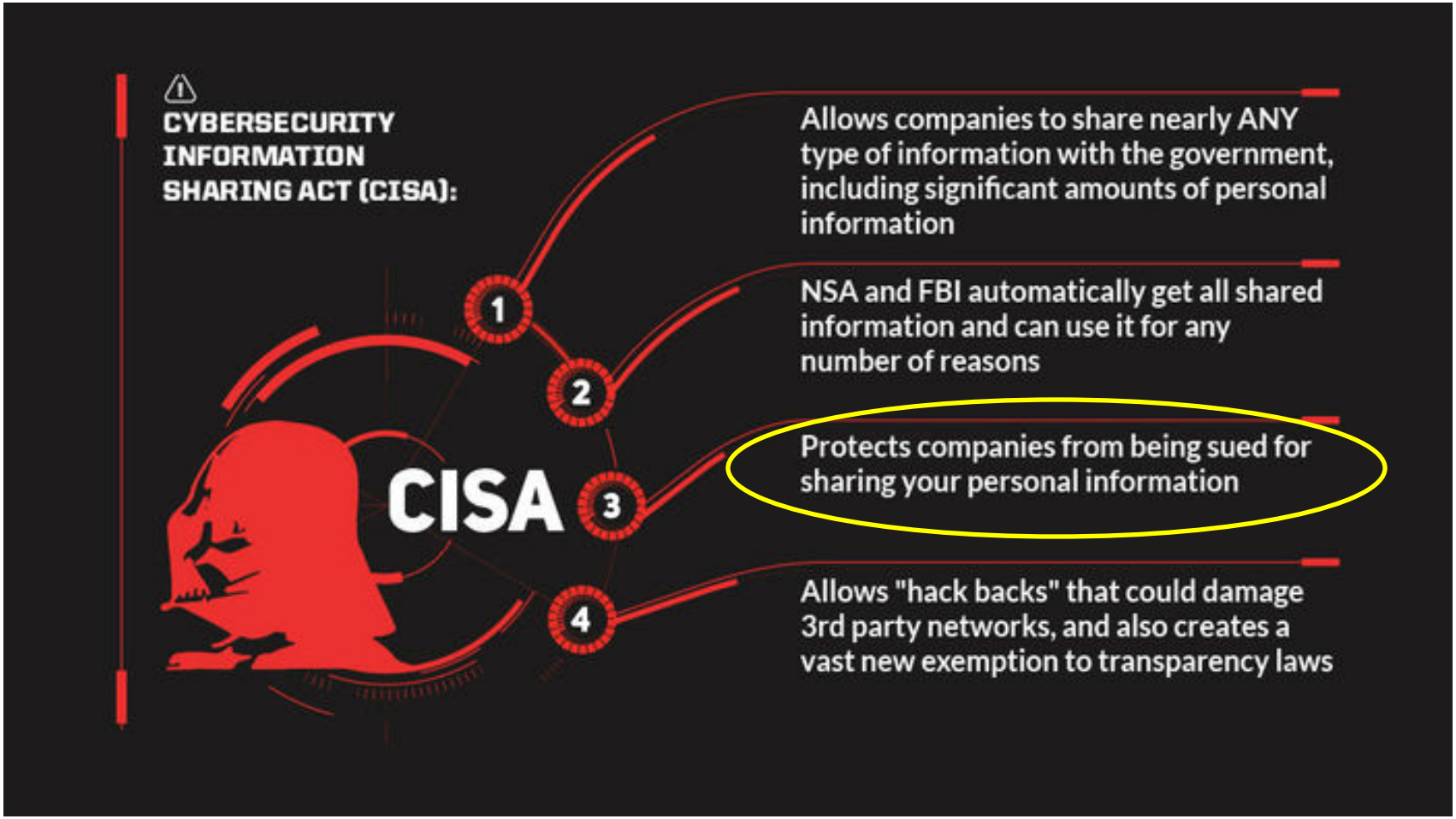
Other Good Guys Who Collaborate

- Counter Terrorism (National + International)
  - U.S. DHS Fusion Centers
    - "A collaborative effort of two or more agencies that provide resources, expertise and information with the goal of maximizing the ability to ***detect, prevent, investigate, and respond*** to criminal and terrorist activity."
- Scientists and Solving Hard Problems
  - Multi-sectoral collaboration to solve HIV/AIDS
  - Manhattan Project during WWII
  - Team of Rival Scientists Come Together to Fight Zika
    - New York Times, 30-Mar-2016

So Why Don't We Share?

- Business risks slow information sharing
  - Legal / Government Concerns
    - Disclosing PII, IP, CCI (liability issues)
    - Anti-trust violations
    - Flagged as "in bed with" the government
  - Market / Financial Risks
    - Brand reputation
    - Cost of disclosing breach
- Some help from safe harbor legislation
  - U.S. Cybersecurity [Information Sharing] Act (12/2015)
    - Removes legal and government concerns **but …**
    - Leaves market and financial risks **and …**

CISA is not Perfect



Overcoming Sharing Limitations

- Without incentives to share quickly
  - Threat data is recycled (has limited value)
  - Relationships are ad-hoc (untrusted)
  - Incident data is outdated (yesterday's news)
- Basic algebraic equation: { VI ↑ → TE↓ }
  - As the value of the info exchanged increases the time to exchange decreases
- We need platforms to support and facilitate the rapid exchange of high-value information
  - Must share incident info of value faster

Many Years of Talk

- Underground Sharing Scene (informal yet seminal)
  - Computer Anti-Virus Research Organization (CARO)
    - Intimate, informal, and thumbing noses at legal
  - Maybe supplanted by the Cyber Threat Alliance (CTA)
    - Suffers from underlying competitive challenges
- U.S. Information Sharing & Analysis Centers
  - FS-ISAC most advanced but limited effectiveness vis-à-vis reducing time (insufficient early warning) and not global
- Attack/Event Threat Intelligence Hub/Repository
  - Bulletin-board like services to consume and post info
  - Primarily for intelligence and research staff
- Threat Intelligence Hype (since about 2013)

Problems with Threat Intelligence

- Info overload – data too raw or generic
  - Threat intel vendors selling unrefined data scraped from web, collected via sensors and honeypots and no sector relevance
- Lack of anonymity
  - How do you contribute while protecting enterprise secrets?
- Unqualified data and sources, no consistent engagement
  - Challenge of garbage-in, garbage-out
- No standards or common exchange infrastructure
  - Challenge of sharing data and extracting meaningful value
- Lack of context or filters
  - Many indicators of compromise but what's relevant to me?
  - Should I worry about a spear-phishing attack on aviation sector?

Clarifying Our Goal

- Enrich cyber incident information while minimizing risk of exposing sensitive info
  - Reduce reputational risk
    - Redaction control
    - Anonymity in sharing
  - Improve detection / incident response speed
    - Incident reports correlated with threat intel feeds
  - Increase sharing of threat / incident info
    - Real-time sharing results in faster detection / response

Building Blocks Needed

- Trust
  - Must establish a way to build a trusted community (or communities) and maintain trust
- Connectivity and Productivity
  - Must incorporate into the workflow and business of cybersecurity (processes) inside the enterprise
- Regulation and Compliance
  - CISA enables sharing of cybersecurity information between companies and government
- Vendor Independence

Human Intelligence in Cyber Security

- Establish a Single Point of Truth
  - Dealing with The "Fog of More" (Tony Sager)
- Digest and correlate information
  - Aggregate into event threads
  - Enrich with related context
- Enable and promote collaboration
  - Bank A wants to know that Bank B is under attack
    - What are the attack details?
    - How can the attack effect Bank A?
    - How can Bank A work to help Bank B solve the problem?

Faster

- FBI Roundtable – not scalable or continuous
  - Not trusted (not auditable or compliant)
  - Disruptive (leave the office for in-person meeting)
  - Typically post-mortem (not real-time)
- Social-Media (Sharing Economy) Engagement
  - Always-on discussions around an event
    - P2P, vetted group, un-vetted groups, public
  - Share structured and unstructured data
    - Complete or redacted
  - Correlated and enriched content, digestible feeds

What's App/Slack for Cyber Security?

- What's App Groups
  - Primarily text with photo/video enrichment
  - Recently added P2P but no group crypto
- Slack: "Team Communication for 21st Century"
  - Open and Private Channels and P2P Messaging
  - Drag/Drop/Share Files
  - Connectivity to Key Apps (like Salesforce) for more complete contextual search, content enrichment

Emerging InfoSharing Ideas

- Create optics around issues and reach a wide audience
  - If “X” gets attacked by Ransomware, who needs to know?
    - Other teams inside the enterprise? Peers at other enterprises?
- Can enterprise security operators (secops) cut their dependence on specific solution or service providers by working together?
- Thanks to CISA, private enterprises (in US) can begin working together on cyber security problems without anti-trust issues
  - But how can you add value to those who share while still including the little guys who may have less to share?
  - What about those outside the US?

Emerging InfoSharing Ideas

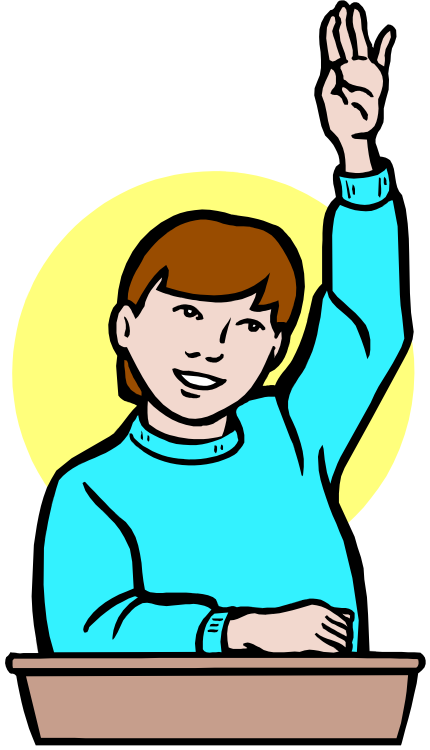
- Need anonymity and privacy protection
  - Mechanisms to protect the enterprise by redacting content (like PII or names) before it is shared
- Digest and correlate events in real time
  - Incident data from both cyber security and other enterprise tools
  - feeds from threat exchanges and open-source reporting
- Must feed into SIEM and workflow managers
- Must present information of value to the collaborator (by role or objective)

Emerging InfoSharing Ideas

- Must enable secops collaborating on an event to look at and work on the same data together
- The power of collaboration requires that many people are engaged in feeding and consuming
- Supplement event data with security infrastructure data to score product impact
  - Vendor performance against specific problems

Sample Vendors

- Early Threat Intelligence Innovators:
  - ThreatConnect (threat intelligence platform)
  - Anomoli (was ThreatStream)
  - ThreatMetrix (cybercrime/fraud)
- Big (vendor-centric consume-and-post clouds):
  - IBM X-Force Exchange
  - Check Point ThreatCloud IntelliStore
  - FireEye / iSight Threat Intelligence
- Emerging Innovators (the watch list):
  - Comilion
  - TruStar



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