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Lessons Learned From 30 Years of Security Awareness Efforts

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Book Signing Wednesday @ 12:30 pm

Come by the Bookstore!

Seminal Hasn't Changed Much...Sigh

1995 USENIX UNIX Security Symposium

- Do not rely upon common internal identifiers
- Implement call-back procedure for information disclosure
- Implement security awareness program
- Identify direct computer support
- Create a security alert system
- Perform social engineering to test security

2018 Social Engineering Webinar

- Be paranoid
- Train client facing staff
- Verify identity with other information
- Implement MFA



How I Became Cynical, and Maybe an Expert



The Bad Awareness









- There are some really screwed up people there
- Despite a couple disasters, there are relatively few significant security problems
- People do accept security procedures when expected to





The Sacred Cow Slaughter House

Social Engineering Doesn't Qualify You as an Awareness Expert

- I know first hand
- Social Engineering is easy
 - Amateurs are easily successful
- Social engineering can determine unique problems, and possibly the scope
- Awareness is more than telling people, "Here are problems; Don't fall for that!"
- Knowing how to break something does NOT mean you know how to fix it
 - It's a completely different science



Corollary: An NLP Course is Not a Substitute for Real Human Elicitation Training



- Good spies seem to have a 6th Sense
- Their lives depend on it
- Intelligence operatives have years of training
- NLP is good background, but not the same
 - Maybe it's usually enough
 - 90% successful with just the nerve
- Give up a password vs Betray country under penalty of torture and death

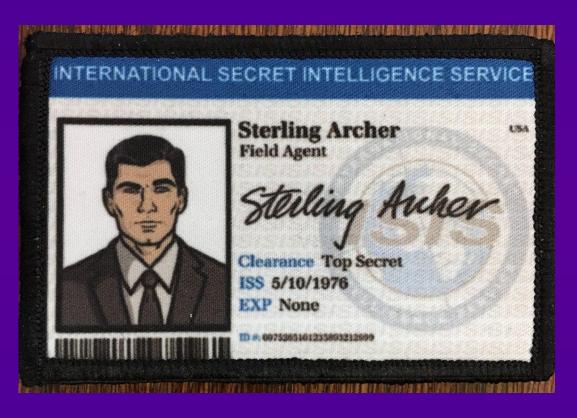


Yes, You Can Patch Stupid

- You better expect users to make mistakes
- Patching is not getting rid of a problem, but implementing a protection
- More later, but...
 - You can prevent attacks from getting to the user
 - Taking decisions away from users
 - Proactively mitigating attacks after the fact



You, NOT the Users, Are the Weakest Link (Behind Every Stupid User is a Stupider Security Professional)



- Users are a part of the system you are there to protect
- If you can't secure a critical part of the system, it's your fault
- Calling the user the weakest link abdicates responsibility
- If the user can ruin your network, IT'S YOUR FAULT!



Users Are NOT the First Line of Defense



- Grandiose terms about users are as bad as disparaging terms
- The users are part of the system
 - They are not a resource to the security team
- They are not the first line of defense
 - You facilitate the attacks getting to them
- They are really not a reliable line of defense



The Human Firewall Sucks

- In the first place, technical firewalls fail miserably
- In the second place, just don't
- A human firewall is even more unreliable than a real one
- Users are again not your resource
- Humans are a part of your system



Yes, You Can Blame the User

- Well, as long as the user should know what to do
- Not following policies and ruining the network/organization should be punished
 - It is literally done with every other business function in an organization
 - Remember the NSA contractors who gave Snowden their passwords
- When you have no enforcement, you have no security program



It Is Literally Called Human RESOURCES





Stop. Think. Connect. Just. Don't. Do. It.



- STC is a popular campaign
- Novices vs Skilled Sociopaths
- It's a losing equation
- Training people to be on the lookout for the Wascally Wabbit

Gamification Does NOT Mean a Game...





Funny ≠ **Effective**



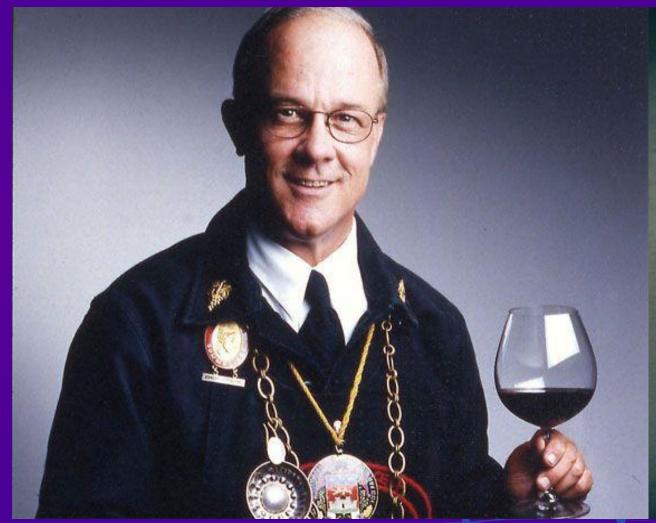


Some Examples

- You lose your weapon, you will do jail!
- You lose your badge, you have to pay \$100 for a replacement
 - It costs RSAC money
 - It prevents badge duplicate badge use
- You don't badge in, you don't get paid
- You email out PII, you will be called into the office
 - Laws require it now
 - It costs companies money



Sommelier Vs Grandma







Awareness Programs Should All Over People





Likability is NOT a Valid Awareness Metric

- Whether or not people like your training is not a valid measure of effectiveness
- There must be motivation to practice the desired behaviors
- It doesn't matter if people know why they're doing something
- It doesn't matter if it's funny
- They just have to do it

Does it change the behavior?



RS/Conference2019 Why Awareness?

Awareness is a Business Function

- Awareness is there to reduce business losses
- If it's just a Check the Box, it doesn't matter
 - You might as well do anything
- The only thing that matters is that you return more investment than the cost of the awareness program





Security efforts get the budgets they deserve, not the budgets that they need

Learn to deserve more!

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Sciences That Don't Seem to Work

The Bro-Science of Awareness

Psychology

- I realize it's counterintuitive
- Psychology is the study of the individual
- Individuals are mostly different
- You can't have a different awareness program for every person
- It helps, but it is too fluffy



Neuro-Linguistic Programming (NLP)

- And generally the science of influence
- Fundamentally, it makes Security behaviors a should
- Influence is about how to manipulate an individual
 - You are trying to create behaviors, not convincing people to take a specific action at a given time
- Can try to incorporate it into awareness
- Fundamentally Hacking ≠ Security



Mental Models Don't Help

- How someone perceives something and makes a decision
- Some studies indicate Mental Models don't help with security
- One study showed that the wrong Mental Model can be the best
 - It doesn't matter what they know, it matters what they do
- Either way, your goal is to create the behavior no matter how each and every person in the company thinks





ABCs of Applied Behavioral Science

Antecedent



Behavior



Consequence

- Antecedent might create up to 20% of behaviors
- Consequences create 80%+ of possible behaviors
- Consequences can be positive, negative, or neutral
- Positive consequences can reinforce bad behaviors and vice versa



ABCs of Awareness

- Awareness creates behaviors
- Behaviors consistently practiced create culture
- Culture creates awareness
- Culture creates behaviors
- Culture is peer pressure
- Peer pressure should be the most effective form of awareness training



Gamification

- When implemented properly
- A reward structure for exhibiting desired behaviors
- For the right environments and roles
- Tactically for specific behaviors
- Business drivers tell you what to reward
- Culture tells you how to reward



Safety Science

- Critical financial motivation
 - Injuries cost a lot of money
- 90% injuries from environment
- 10% from carelessness or ignorance
 - Assuming they know the appropriate behavior
- The last 10% is where awareness comes in



Just About Every Other Business Function

- The CFO would be fired for saying people-related losses are too hard to control
- The COO would be fired for saying that they can't get the employees to do their jobs properly
- McDonald's automates away just about every employee decision



What Should an Awareness Program Look Like?

It's More than Phishing and CBT

- Pervasive
- You are creating a culture
- Any communication tool that will work
 - Speakers
 - Newsletters
 - Coffee cup sleeves
 - Anything



The Two Basics

- Culture
- Business Drivers



The Components of an Awareness Program

- Topics driven by business drivers
- Communications tools driven by culture
- Metrics driven by
 - Business drivers to measure what's important
 - Culture to determine what is easy and available to measure



About Metrics

- Should measure the root behavior
 - Not the symptoms
 - Reports of phishing messages
 - Anti-malware reports
 - Calls to the Help Desk
 - Stopping strangers
- Should be real business practices



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What You Really Need to Do

Create Grandma's House



Culture is the Best Awareness Tool

- When everyone does the right thing everyone will do the right thing
- With or without an awareness program, everyone does what everyone else does



Address Security Like Every Other Business Process

- Remove decision making process from users
- Governance to determine process specifically
- Technology to implement process
 - Eliminate decisions where possible (passwords, MFA)
- Governance defines behavior
 - Specifies how decisions are to be made
- Exception handling



Which One Are You Creating?





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The Big Question

What Are You Trying To Accomplish?

An Aware User or Mitigating User Related Losses?

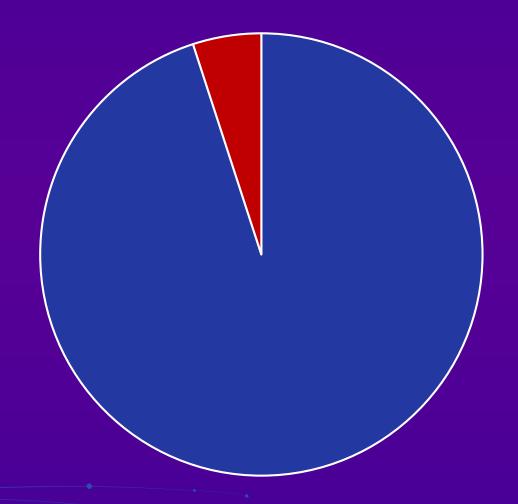
Need a Holistic Approach

- More at Lab tomorrow
- Prevent attacks from reaching user
 - Technology and process
- User decisions are defined
- Technology and process take over to mitigate poor user decision



Awareness is Valuable, But...

- Generally 1 in 20 users will fail
 - That's 50 people for every 1,000
- All it takes is 1
- Risk reduction is critical though
 - Is it better to have 5 in 20 fail?





...You Need to Reduce Need for Awareness

- Take away need for user action
- Take away the need to Think.
- Define decisions
- Force decisions



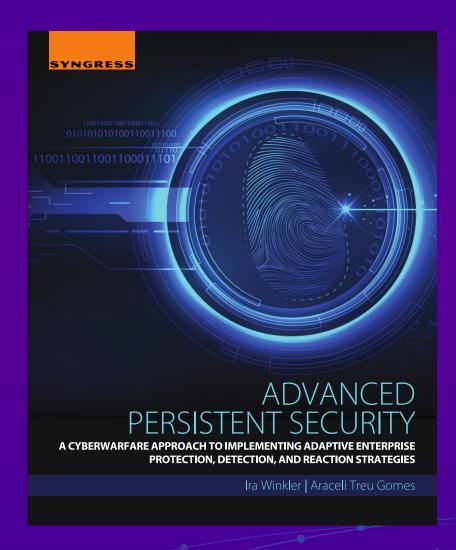
Apply

- Within a week
 - Attend my lab tomorrow
 - Determine what type of awareness you have
 - Determine if you want to change it
- Within 30 days
 - Determine a plan to start migrating
 - Get support to implement plan

- Within a 90 days
 - Create a plan
 - Determine first project to enhance awareness or human security
 - Implement low hanging fruit



The Book, The Myth, The Legend



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For More Information

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