Rethinking the Front Lines

or...

Hacking the Enterprise

Social Engineering Your Company's Culture

Culture Hacking for fun and profit

Streetlight Effect

Problem

- Look at the headlines (um, Twitter timeline!)
- Lost laptops
- Bad passwords
- Password reuse
- We tend to focus on the glamorous attacks
- We're so tools focused we forget the humans
- Security professionals have given up. Sometimes silently, sometimes explicitly

The Debate

- Wait, there's a debate?
- Bruce Schneier's article
  - Analogies to exercise, infectious diseases, driving, washing hands
- Dave Aitel's article
- RSA panel "debate"
- Us vs. Them attitude

What's in a name?

- What is "security awareness training"?
  - My friend's awesome training experience
- What are the goals?
- Nirvana fallacy
- Shift the balance. Small changes can really add up.

Habits

Hint

Bruce Schneier: “If we security engineers do our job right, then users will get their awareness training informally and organically from their colleagues and friends.”

Culture

Twitter Culture

- More new people than old people
- Growing out of the good culture; microcultures
- Keeping the good stuff
- Twitter Core Values
  - “Grow our business in a way that makes us proud”
  - “Innovate through experimentation”

More debates?!

- Culture Eats Strategy For Lunch by Shawn Parr in FastCompany
  - Culture is a balanced blend of human psychology, attitudes, actions, and beliefs that combined create either pleasure or pain, serious momentum or miserable stagnation. A strong culture flourishes with a clear set of values and norms that actively guide the way a company operates.

Other views

- Reply by Venkatesh Rao on his blog
  - But the lesson here isn't that "culture eats strategy for lunch." The lesson is that culture is what allows you to double down on a successful strategy. You still need the noncultural parts of strategy to create an opening. You will not be able to double down on all openings.
- Not hard to find other opinions on the matter

Being Rigorous

- Is training never effective? Or does the material suck? (Or maybe the trainer??)
- How are we measuring effectiveness? (Is anyone *really* measuring?)
- Can we measure culture? Or what would be a good proxy?

Goals

- Find a population to study
- Determine what to study
- Build feedback loop

Choosing the Population

- Lots of work going on, too much to manage all at once
- Segment by department? Geography? Something else?

New Hires

- We selected new hires for a few reasons:
  - They have to show up for their first day of work. I have a captive audience.
  - They are eager and impressionable. They are more likely to do what I say on that day than before they get caught up in their hectic work.
  - Over time they will represent a cross section of the company
  - We can track them during their entire company career

Who Presents?

- Does it matter?
- I do (when I'm not presenting at conferences)
- Signals to new hires that this is important, and I'm willing to make the time to do it
- How to measure the value?

Password Nightmares

- Thank goodness they'll all be gone soon!
- Requirements and enforcements
- Good passwords: Not just a problem for regular users. Security pros too.

#prostyle Strategies

- Common
  - Hard to remember string, modified by something in the site I'm visiting
  - reused "low-value" password
- Not as common
  - xkcd passphrases
  - password managers

Password Managers

- Passwords may be going away, but a bunch are still around
- Create, use, manage strong passwords
- What do *users* really do? Not what security teams hope, assume they do.
- Does anyone teach users to use one? (not Tell)
- It took me a while to get into the swing of using one

Phishing Strategy

- Common phishing strategy:
  - phish employees
  - wait
  - phish them again
  - hope the numbers get smaller
- Anti-bodies!
- Can we do better?

Goals

- Cross correlate: Lost assets, password manager, phishability, and other factors
- Baseline data
- Study subjects over time, not just between two phishing campaigns
- Run multiple campaigns
- Get feedback loops going besides just phishing
- Weave in culture of security

Feedback Loops

Suspicious Events

- Phishing alert mailing list
- We try to answer them all (reward)
- We track:
  - suspicious but harmless
  - real attacks
  - spam
  - training (us)

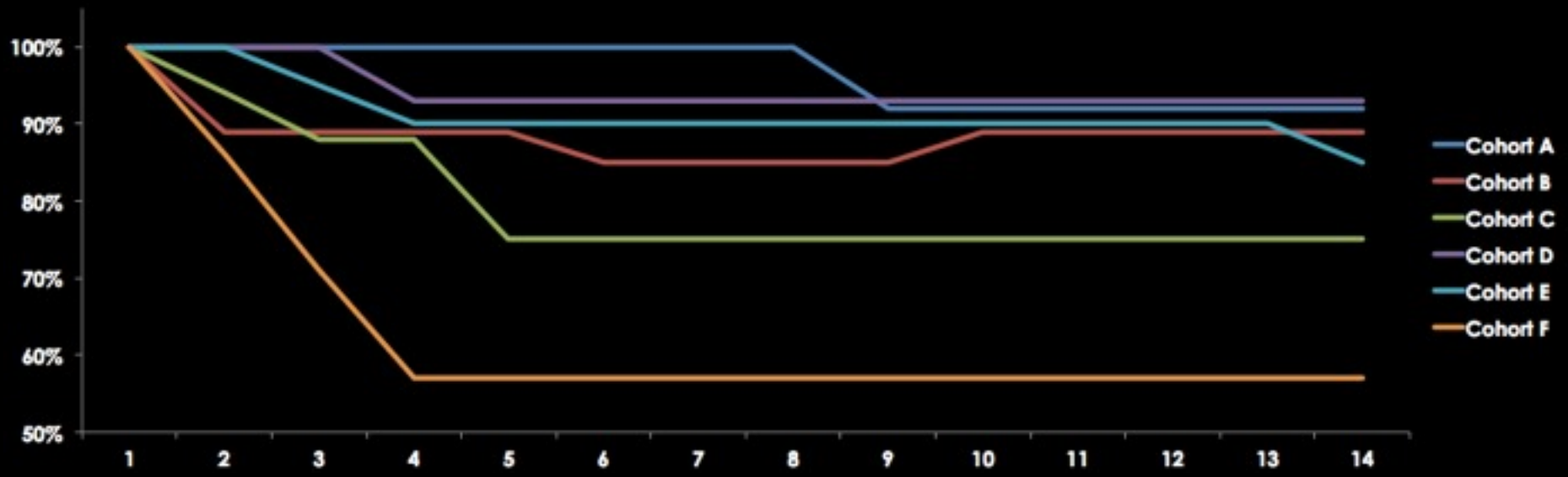
Office Hours

- Come talk about anything (even non-security topics)
- Ask “dumb” questions (that aren’t so dumb after all)
- Building rapport
- Confessions

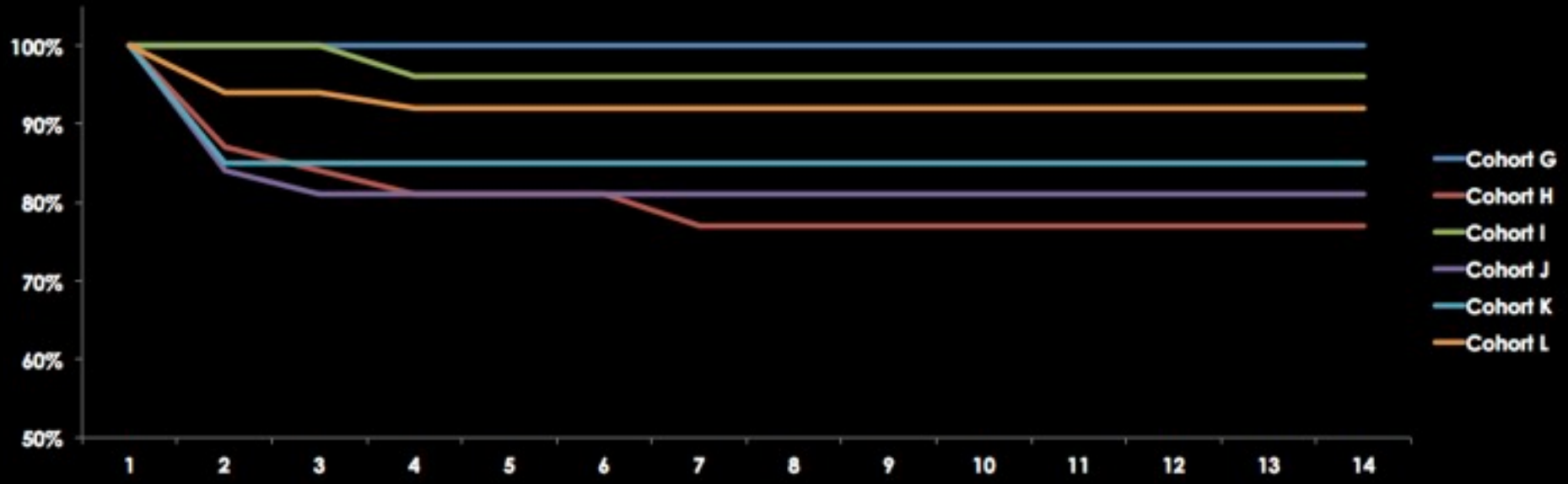
Some Results

Password Vault Usage

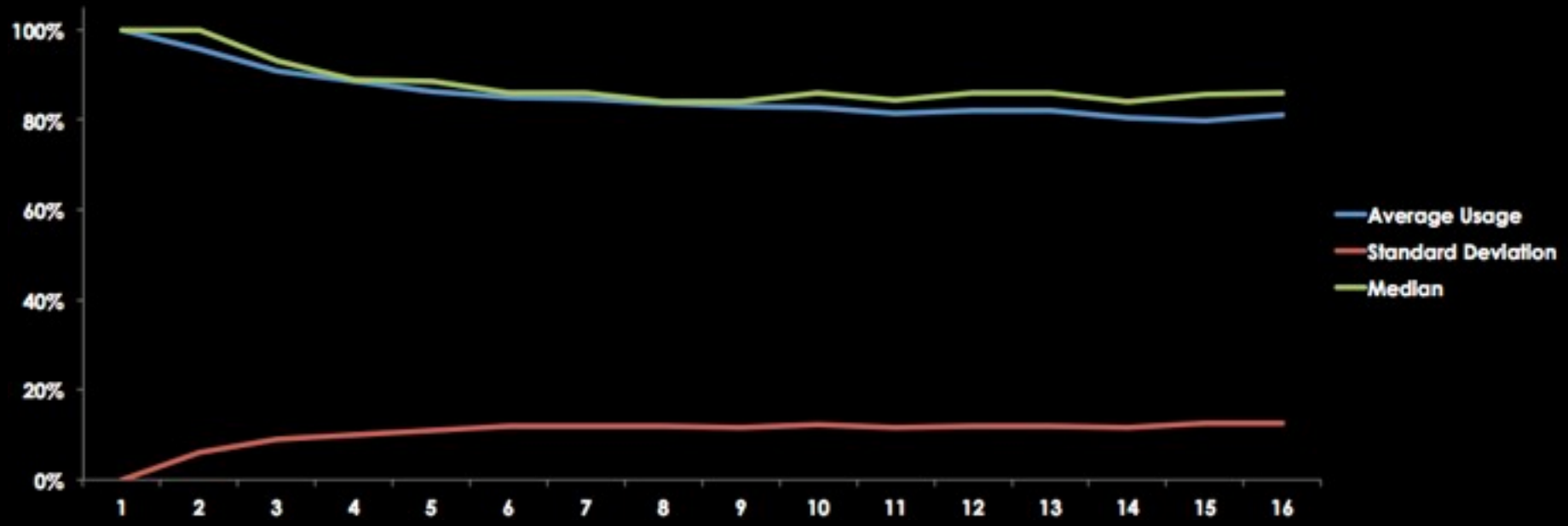
Password Vault - Early in program



Password Vault - Later in program

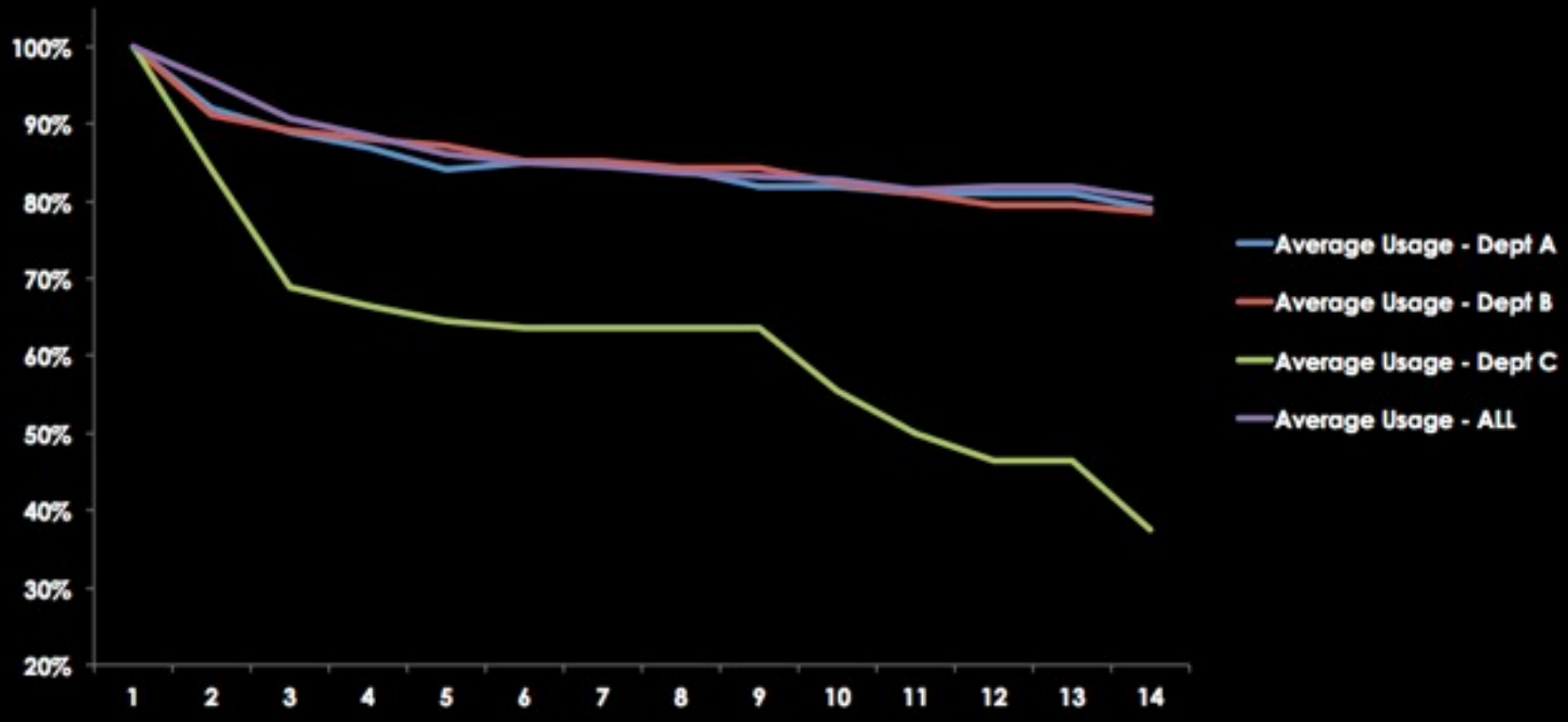


Burnout

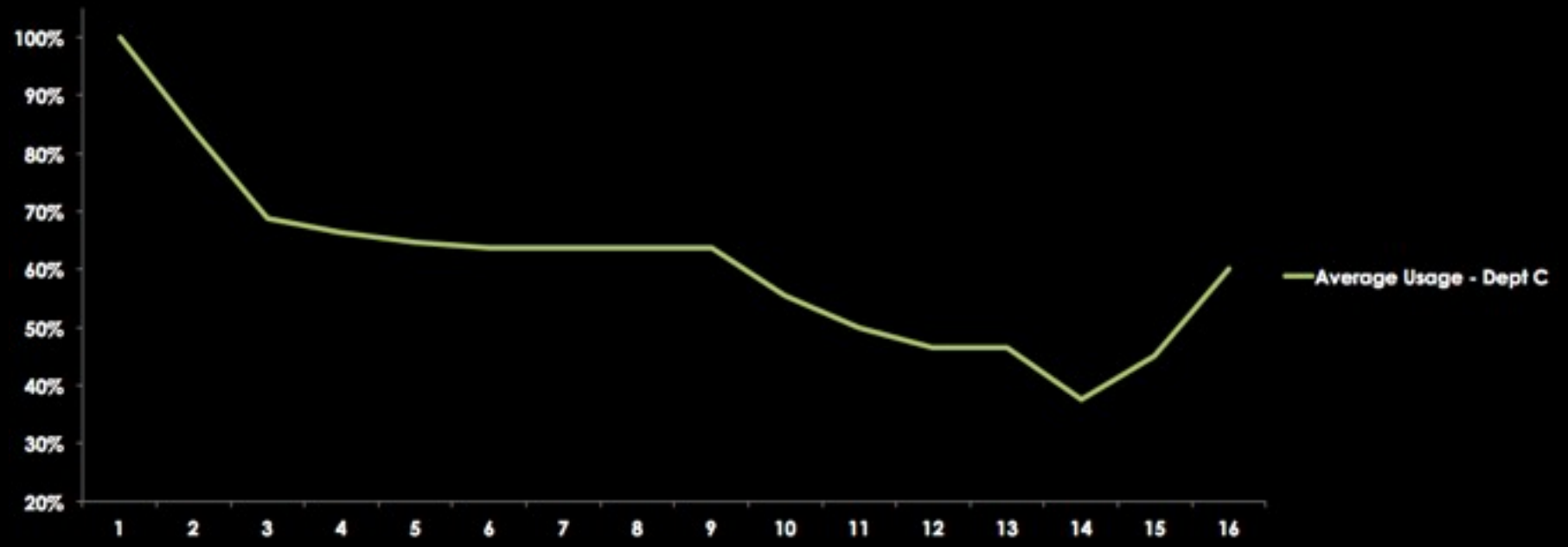


Password Vault - Some burnout in the first few weeks after they start, but if they survive, they become long term users

Password Vault - hot spots



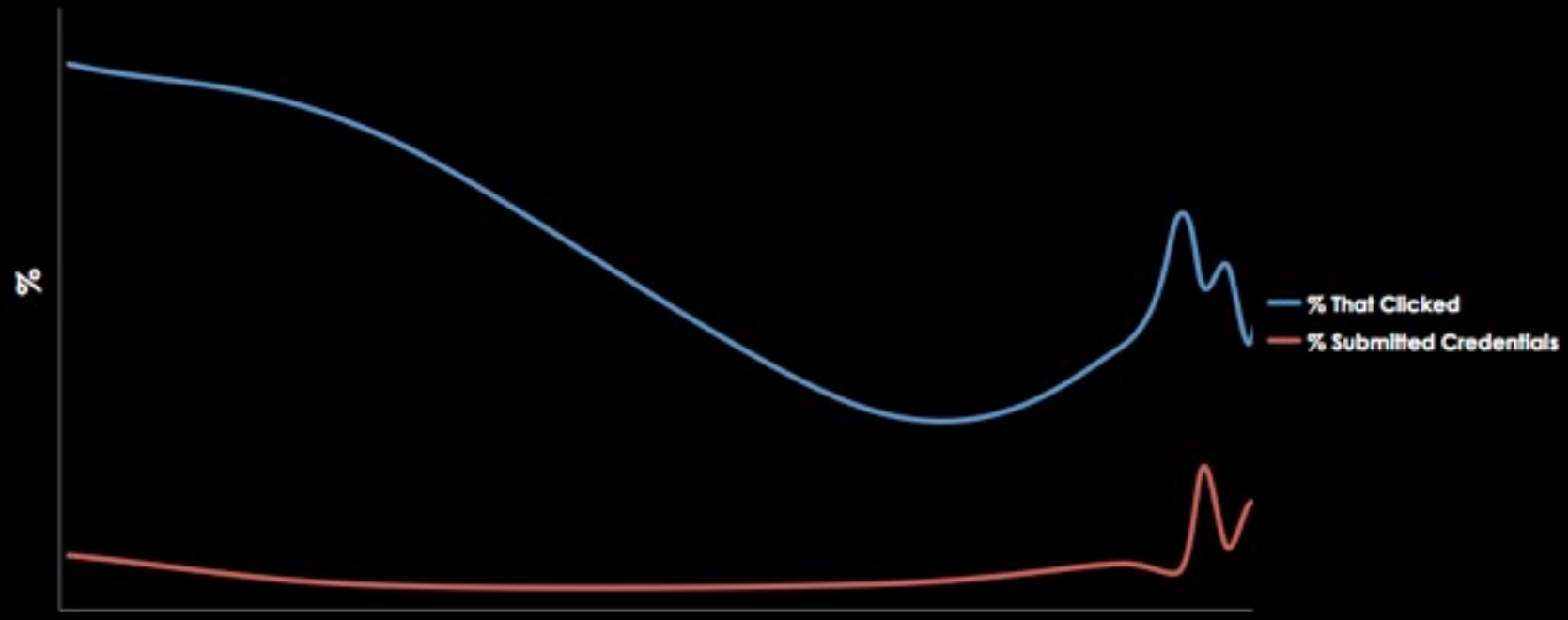
Password Vault - Low adoption rate for Dept C



Lesson: Work to find out what's happening in the field. Uptick is us identifying and doing a breakout training.

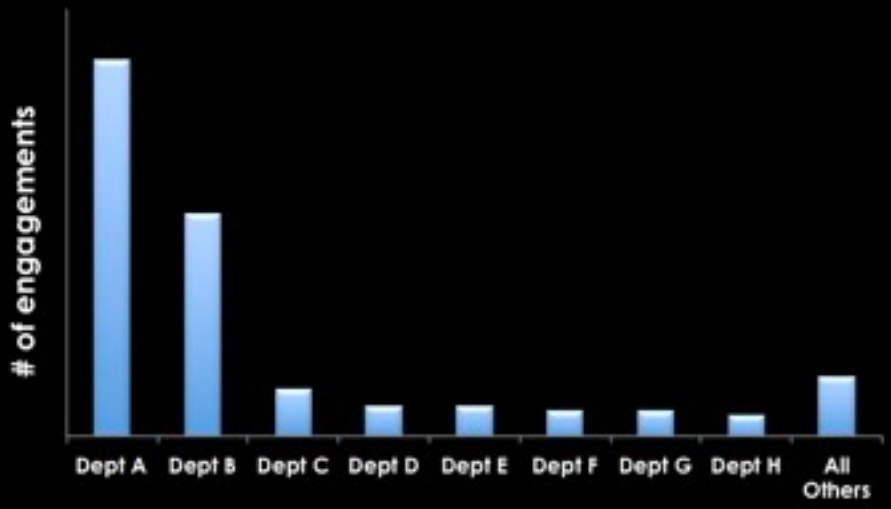
Phishing

Phishing Campaigns

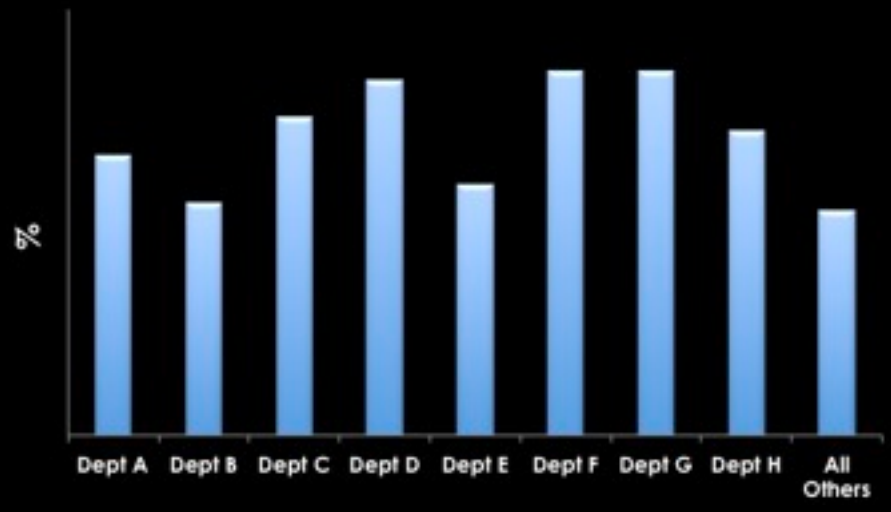


Phishing - ID hot spots

We take the raw numbers, by department, who engaged with the campaign:

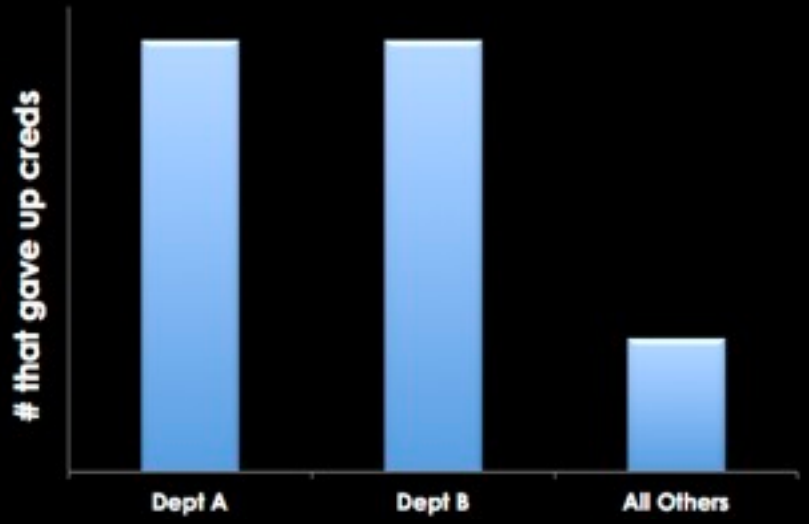


And we learn which departments are most likely to click on phishy links:



Phishing - ID hot spots

We take the raw numbers, by department, who gave up credentials:



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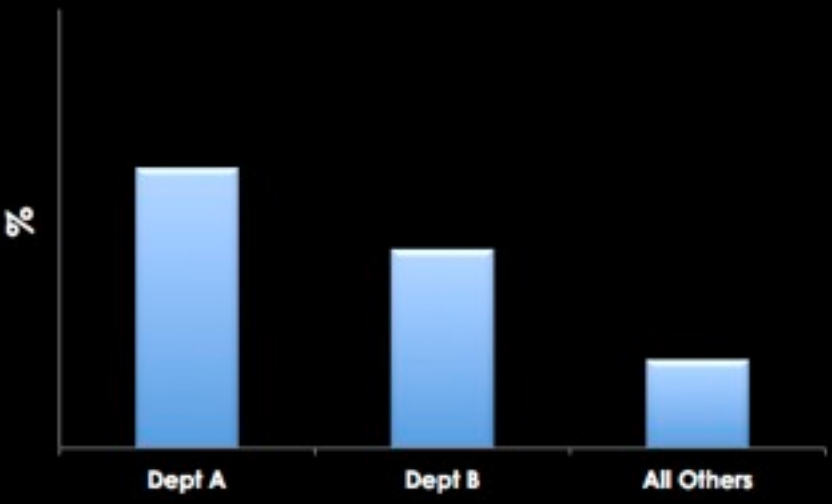
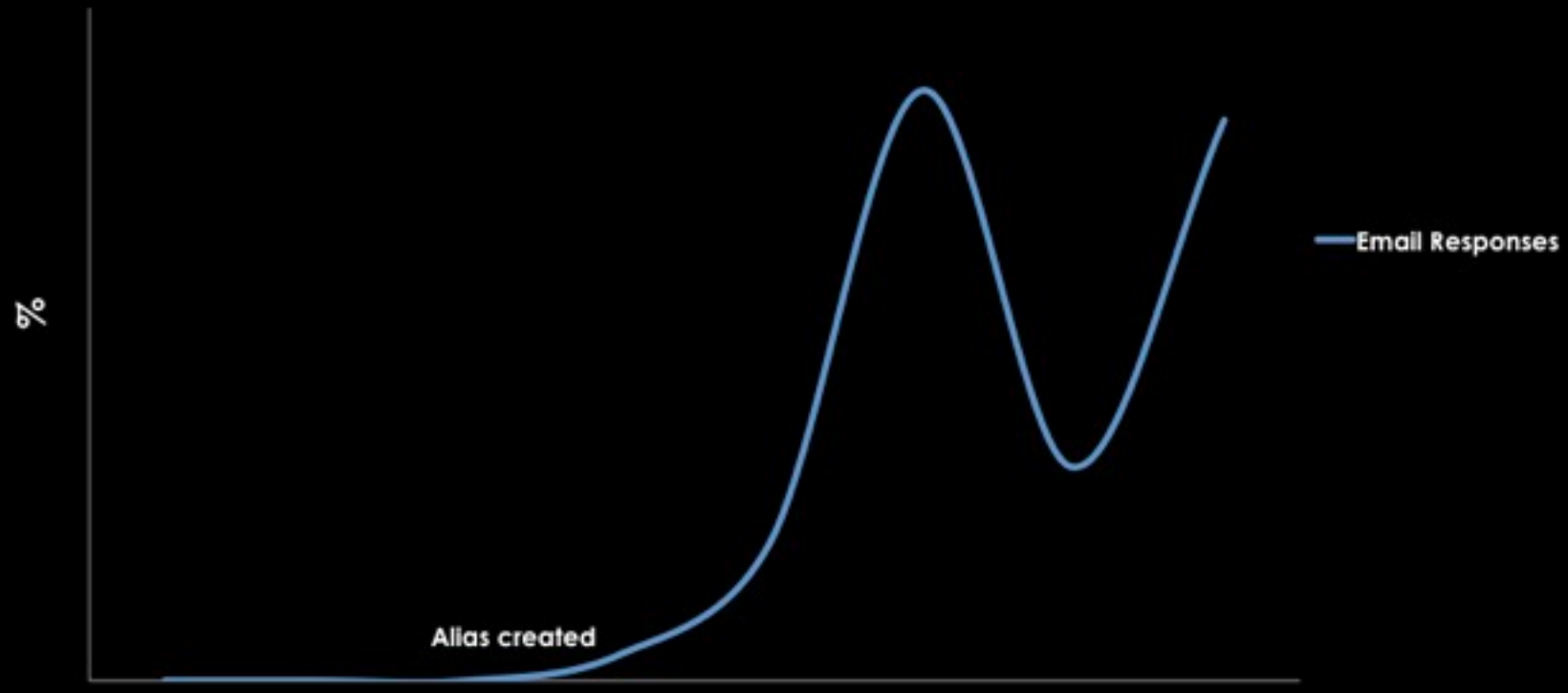


Phishing - Gender Differences

Feedback



We encourage our employees to report phishing attempts, and we track our response rate.

NHO Training Evolution

- Require users to change their passwords during the training session, using a password manager
  - People loved it if they stuck with it
- Solicit information from the new hires about their knowledge of social engineering attacks, phishing, etc.
- More interactive
- Audience management

Areas for more research

- Blink response
- Measuring effectiveness of social engineering video
- More gamification
- Personal/team security scores
- Measuring by other factors like years in industry, first language, other cultural differences.

Lessons

- Track what changed in the NHO classes, slides
- Be careful of telling just one Story based on the Data
- Be prepared to be surprised, and sometimes confused
- Focusing on humans/culture isn't just for pen testing

Conclusion

- Some successes, a lot of *new* questions
- Focus on building Culture, not Training
- Measure, change, repeat. It works!
- Never give up on users. It's never a lost cause until you believe it is.

Look for the problems where they are, not where the light is

Thank You!

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