Why Everyone Is On The Security Team

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Who is Chris Todd?

- Security Consultant with Unisys Canada Inc
  - 10+ years experience in networking and security
  - GIAC Certified Firewall Analyst (GCFW), Incident Handler (GCIH), and Penetration Tester (GPEN)
  - Maintain a PCI DSS compliant environment
  - Provide security audit, vulnerability assessment and penetration testing services internally and externally

- SANS Mentor
  - Currently teaching Security 504: Hacker Techniques, Exploits & Incident Handling

Ready for a ride?

Security fail of the year
Honorable mention

Canadian federal government

- Finance Department and Treasury Board taken offline
- Defence Research and Development Canada another target
- Spear phishing senior Finance Department personnel

State of Texas

- PII of 3.5 million Texans publicly accessible for about a year
- Name, address, Social Security numbers, and possibly dates of birth and drivers license numbers
- Free credit monitoring offered could cost $21 million

Sony

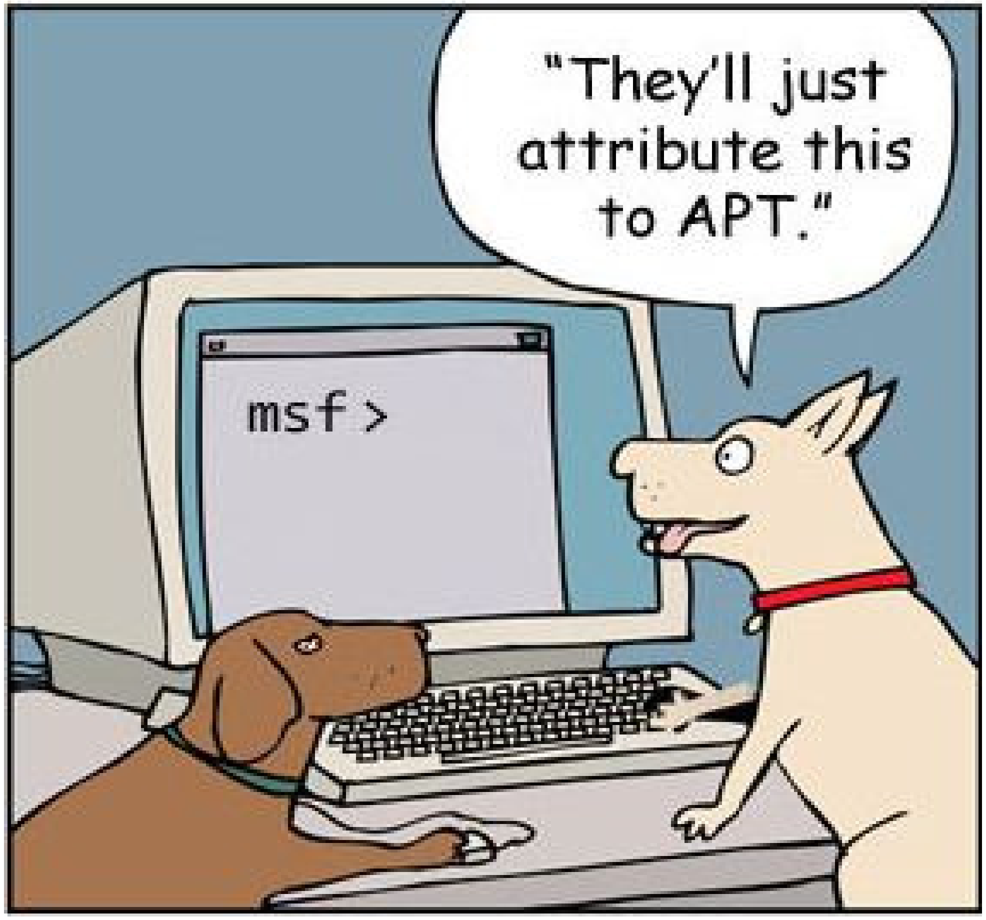
- PII and possibly cc of 77 million users stolen
- Replacement cc about $3 - $5
- Cost to Sony - $1.5 billion

Security fail of the year
Second runner up…

RSA

- Data stolen related to SecurID technology
  - RSA response:
    - *“confident that the information extracted does not enable a successful direct attack on any of our RSA SecurID customers”*
  - That’s great, but...
    - *“this information could potentially be used to reduce the effectiveness of a current two-factor authentication implementation as part of a broader attack.”*
  - 40mil tokens deployed, 250mil mobile software versions
  - Claimed to be Advanced Persistent Threat (APT)
    - i.e. blame it on China

Another security pro’s take on APT



http://blog.zeltser.com/post/4523882852/apt-cartoon-two-dogs

‘Cause APT is too serious to be taken seriously.

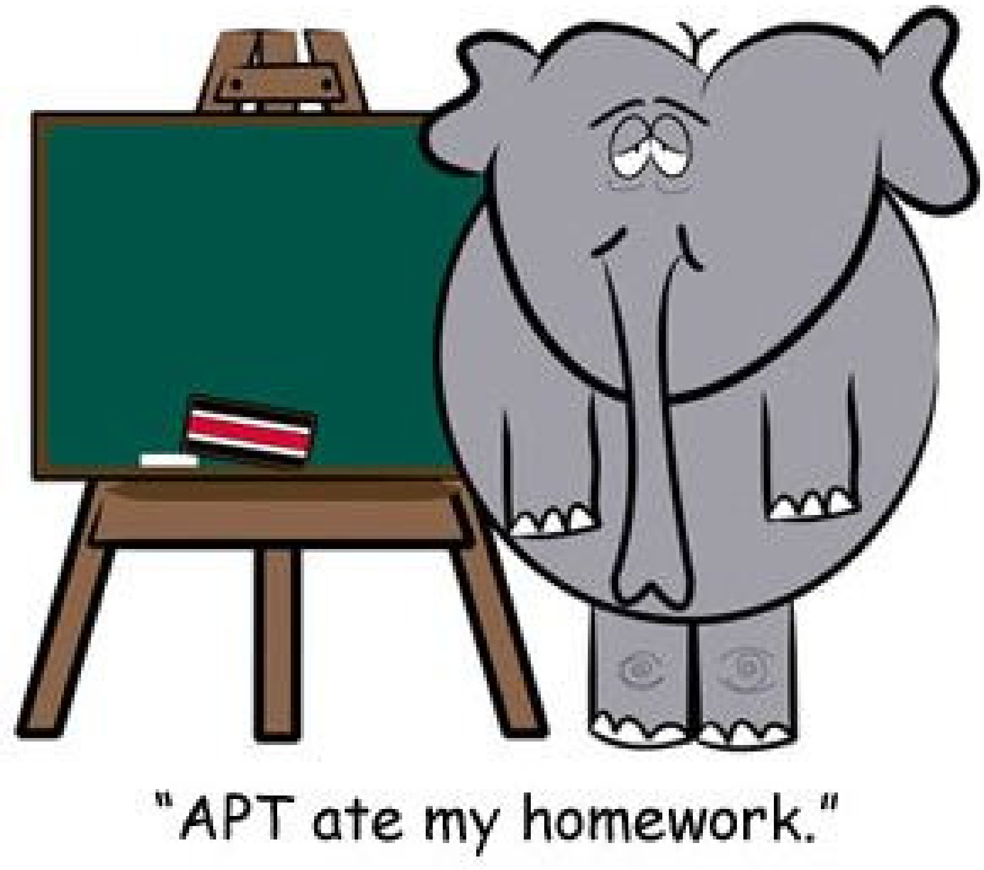
– *Lenny Zeltser*

Security fail of the year
First runner up…

Comodo

- Attacker used a valid username and password to issue nine valid SSL certificates
  - mail.google.com, login.live.com, www.google.com, login.yahoo.com, login.skype.com, addons.mozilla.org
- Calls into question entire SSL infrastructure
  - 1500 CA certificates controlled by 650 organizations (eff.org)
  - You trust all of them!
- Initially blamed on APT, but this time from Iran
  - A lone Iranian hacker took credit for the attack
  - Hacked into InstantSSL.it, an RA for Comodo

The APT scapegoat



http://blog.zeltser.com/post/4599814825/apt-cartoon-sad-elephant

Security fail of the year WINNER! (so far)

HBGary Federal

- A security company that sells its services to various three-letter federal agencies
- Pwned for poking “the Anonymous hive”
  - No APT!
- Anonymous intent on embarrassing them
- Let’s see how everyone is on the security team

Management

- Hbgaryfederal.com used a custom-built CMS
  - Plethora of COTS products benefit from a large user base
  - This decision was the entry point for the attack

- Also share responsibility for other areas of fail
  - Perhaps proper policies and procedures were not in place
  - Perhaps adherence to such was not sufficiently validated
  - Either way, basic security practices were not followed

Management – lessons

- Every application must be viewed as a potential target or entry point into your environment
  - Treat as such from product evaluation to production operation
    - And everywhere in between

- Ensure organization has what it needs to operate securely
  - Policies and procedures
  - Staff training
  - Validation – audit, pen test, etc.

Developers/DBAs

- The custom-built CMS had a gaping SQL injection hole
  - The exact URL was used to break in was: http://www.hbgaryfederal.com/pages.php?pageNav=2&page=27
  - Sample SQL query
    - select [field] from [table] where [variable] = ‘[value]’;
  - The above URL could have been a SQL query something like:
    - select * from pages where pageNav = ‘2’ AND page = ‘27’;
  - One or other or both handled incorrectly by the CMS
    - Attackers grabbed the user database containing usernames, email addresses and password hashes
      - Simple MD5 password hashes, no iterative hashing or salting
      - Bring on the rainbow tables!
      - More on passwords shortly

Developers/DBAs – lessons

- Follow secure coding and database management practices
  - Plenty of guidance in this area – OWASP
  - Take advantage of it

- Ensure everything is coded securely
  - Even if it doesn’t seem important
  - Maybe everything on hbgaryfederal.com was for the public
    - But usernames, email addresses and passwords were not!

Security/test team

- HBGary sells security services
  - Should have had the skills on their security or test team to find SQL injection flaws
- Why wasn’t the SQL injection hole found earlier?
  - Was the security/test team careless and just missed it?
  - Or was the CMS never tested and the work of this third-party never validated?
- Why wasn’t the attack stopped earlier?
  - Took a few weekend hours to execute
  - Targets in various locations
  - Who really has a team that could stop that?

Security/test team – lessons

- Eat your own
- Validate third-party work
- Don’t skip step 1
  - Steps 2-6 of the incident handling process are crucial
    - Identification, containment, eradication, recovery, and lessons learned
  - But they won’t bail you out if you skip step 1
    - Preparation!

Password pop quiz

- True or False
  - Q1 - Your password should be kept short and simple so it's easy to remember.
  - Q2 - That simple password should be used everywhere so you never forget it.

(Please tell me you didn’t answer true!)

- Knowing what SHOULD be done ≠ what IS done
- Case in point, HBGary Federal CEO and COO

CEO and COO

- Passwords cracked for HBGary Federal CEO Aaron Barr COO Ted Vera
- Why?
  - Six lower case letters and two numbers
    - Available in any self-respecting rainbow table
    - FYI, mleafs67 is NOT a strong password
- Result?
  - Same password for email, Twitter, and LinkedIn
  - Vera – ssh access to support.hbgary.com
  - Barr – Google Apps email admin
    - Torrented email of Barr and HBGary CEO Greg Hoglund's email

CEO and COO – lessons

Pretty straight forward:

- Use long, strong passwords
  - >14 characters and complex not likely in rainbow tables
    - Maple-Leafs-'67 is much better
- Don't share them across systems
  - Especially those with different security requirements

System administrators

- support.hbgary.com fail
  - Ted Vera’s password gave external ssh access
  - Privilege escalation flaw provided root access
    - Patch released Nov 2010
    - Rated important, i.e. not critical
    - Typical vendor rating
  - Gigabytes of research and backup data purged
- rootkit.com fail
  - A site owned by HBGary CEO Greg Hoglund
  - Greg’s email used to social engineer sys admin
  - Stole email addresses and MD5 password hashes of registered users

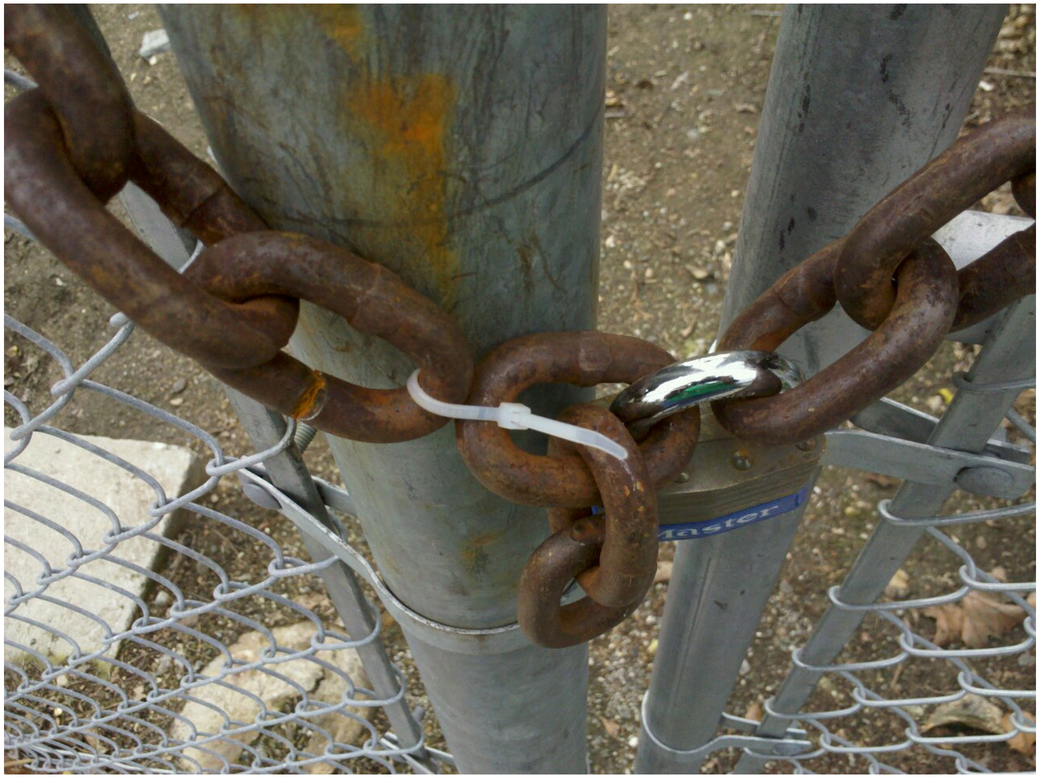
System administrators – lessons

Key term: two-factor

- Remote access
  - Require two-factor authentication
- Password resets
  - Require two-factor verification of requestor
    - Or at least one undisputable factor
- Admin access
  - May have prevented the email compromise
  - Supported in Google Apps since Sep 2010

Fail recap

- Management
- Developers/DBAs
- Security/test team
- CEO and COO
- System Administrators
- Miss anyone?
  - The janitor perhaps?
    - That’s for another day



Don’t be the zip tie!

Fail summary

EPIC FAIL
A fail that overflows fail's integer
and wraps right around and into a win.

Lesson recap

- Everyone must have knowledge of basic security practices
  - But it's not enough.
  - You all passed the pop quiz, right?
    - I'm sure Aaron and Ted would too

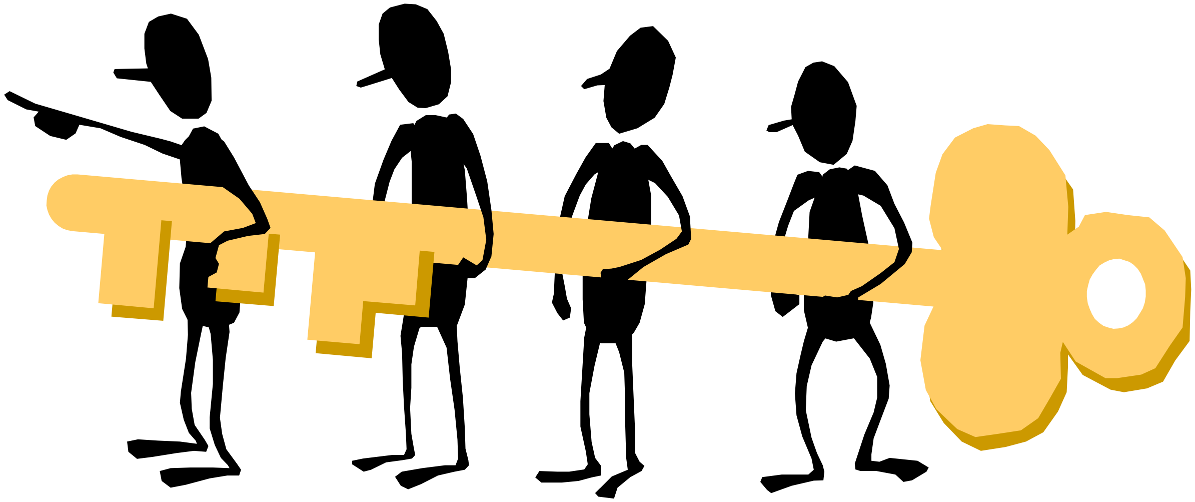
- Everyone needs to understand why what they do really affects an organization’s overall security posture
  - Ask the CMS developers or whoever decided to go with a custom-built CMS in the first place if they believe this

Lesson recap (cont)

- Everyone needs to appreciate that one careless or lazy move on their part can have dire consequences
  - Configuring ssh to use public keys takes about 2 minutes
  - A phone call takes 1
  - Too much to ask of the sys admins?
- Everyone needs to act with the care and rigor of a finely tuned security team
- Everyone needs to appreciate that they play an integral part in securing their organization

Lesson summary

Everyone is on the security team!



And the result

Or if you prefer...

Conclusion

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