Into the Breach: Strategies for Fully-Scoped Security

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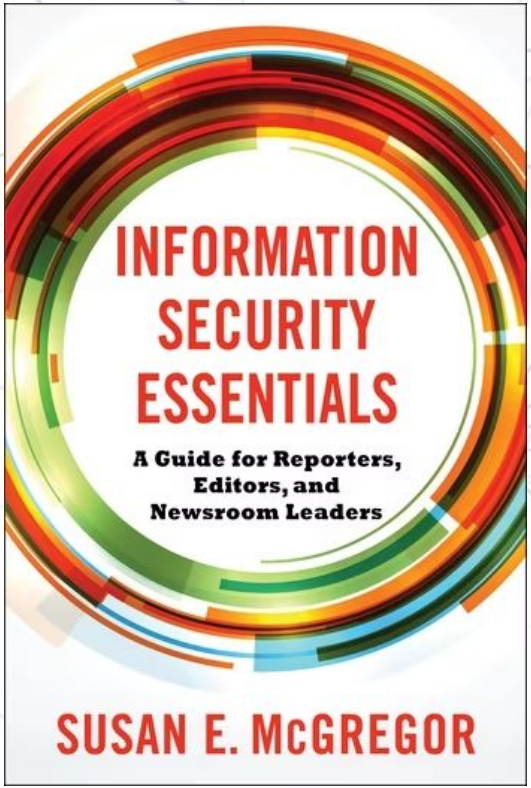
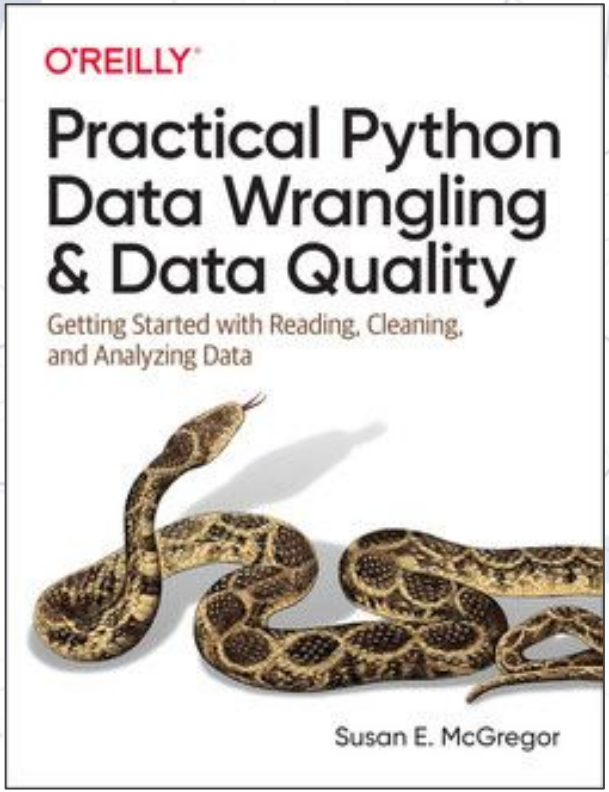
About Me

web development / data science / journalism / security





Information security in development

- Access control/authorization
  - Authentication
  - Encryption
- Data integrity
  - Log forging
  - Data corruption
  - Deletion

Security community: Security is important!

Also security community:

Fortunately, when there *is* an (inevitable) security failure, the security community knows just how to help:

or


NEXT TIME
YOU'LL TAKE SECURITY AWARENESS TRAINING SERIOUSLY
memegenerator.net

WE CAN DO BETTER

What is "fully-scoped" security?

1. Acknowledging that security is about both prevention *and* recovery
2. Recognizing that even if a security failure is not our fault, it's still our problem
3. (Mostly) engaging, rather than blaming, stakeholders

BUT HOW?

Existing security measures: prevention

1. Access control
    - Authentication
    - Roles
2. Encryption
3. Static analysis
4. Secrets management
5. Tech-specific best practices

Fully-scoped security: prevention

Add:

1. Data minimization
2. De-identification
3. Differentially private/synthetic data
4. Offline/cold storage

Fully-scoped security: recovery

Plan ahead for:

1. Notification
2. Assistance/remediation
3. Redress

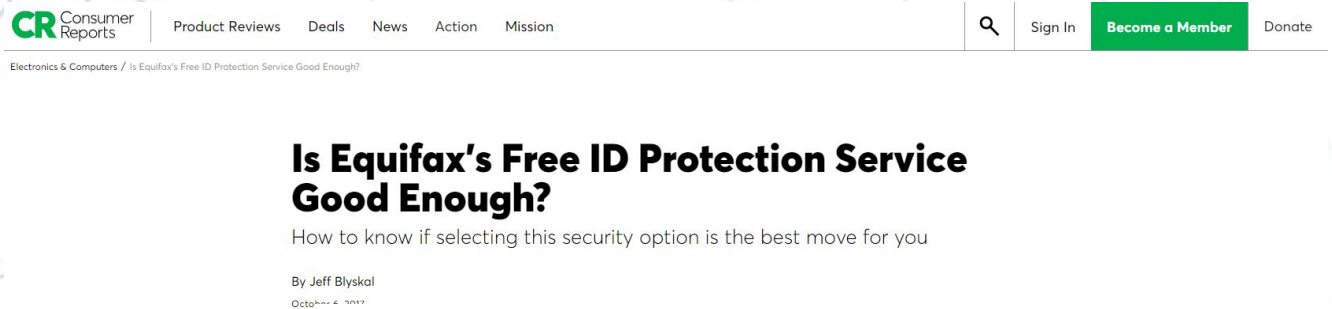
Most importantly: evaluate and test these approaches *in advance!*

THE EQUIFAX BREACH:
A COUNTER-EXAMPLE CASE STUDY

Notification

Equifax's own official channels referred customers to a fake (fortunately white-hat) website. Ensuring that your notification channels can handle the traffic if a major breach happens is essential.

Assistance/remediation

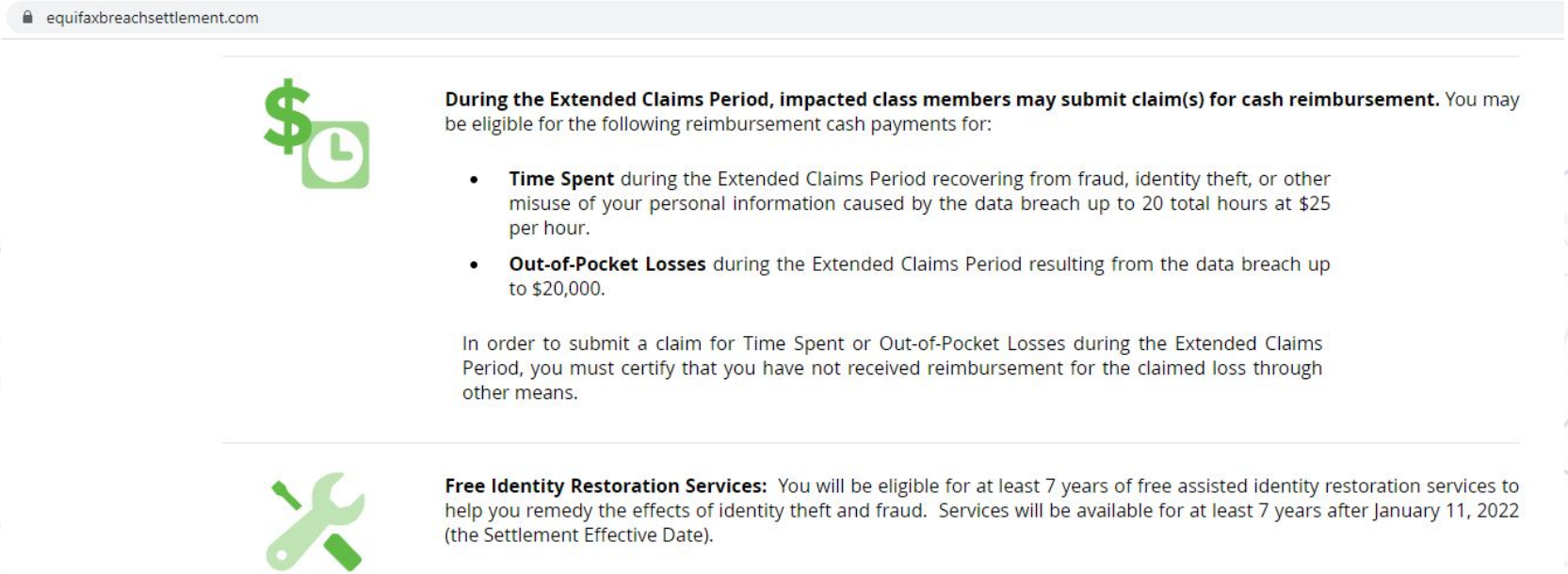


Equifax is offering the 145.5 million people affected by its security breach—as well as anyone else—a free, one-year subscription to TrustedID Premier…be aware that most of them aren't very secure themselves. Access to your identity protection account is commonly protected by a username and password, which can easily be hacked.

"We recommend a credit freeze instead of identity protection because it's cheaper and better," says Anna Laitin, director of financial policy at Consumers Union.

Equifax's assistance and remediation options were themselves lacking basic security measures. Thinking through the impact of a breach on customers and identifying what they might need (even - and especially - if it's not another one of **your** products) is key.

Redress



Different harms require different forms of redress. In some cases, expert assistance might be more important than financial remuneration - but whatever the approach, consider carefully what you require for customers to receive it. Onerous processes may reduce upfront costs, but will do little to restore your reputation with customers, which is often invaluable.

HAS ANYONE DONE THIS RIGHT?

"Over"communication and meaningful action

The Tylenol murders

- In the early 1980s, someone laced Chicago-area Tylenol capsules with cyanide, which killed several people. The company issued a massive recall, offered product exchange and a bounty. They changed both the pill and the packaging to be tamper-resistant.

FireEye and SolarWinds

- The companies made frequent updates and disclosures regarding known vulnerabilities and took ownership for the fallout. They also developed and shared countermeasures that went beyond the direct impact of the breach.

Special thanks to Jess Grider (@m1gd0n@infosec.exchange) for these examples!

Fully-scoped security for developers: what you can do

1. Ask questions! Even (especially) if you think your clients do not know the answer. For example:
    - "How do you want to be able to access this data?"
    - "How often do you want to make an offline backup?"
    - "How often should this be overwritten?"
    - "How do you want to handle data deletion requests?"
2. Make checklists
    - How often to update software/certificates
    - How to audit access, downloads, etc.

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Special thanks: Jess Grider, Angel Venchev

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