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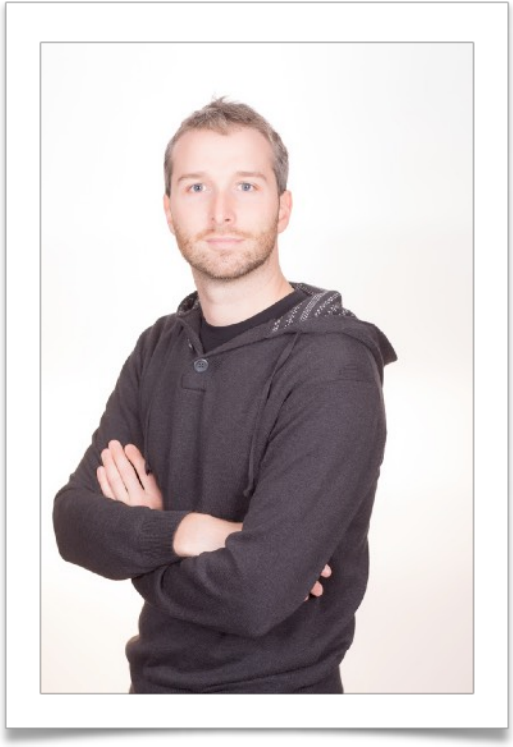
Application Security Recipes for Fast-Paced Environments

About Me

- AppSec since 2004
- Doyensec Co-founder
- Former AppSec Manager (LinkedIn), Director of Security (Addepar), Senior Security Researcher (Matasano), ….
- Warsaw <—> San Francisco



Fast-Paced Environments

For software development

- New code is quickly created and deployed
  - e.g. Startups, Agile SDLC shops, …
- Facebook's "Move Fast and Break Things"

Good Application Security is all about

PEOPLE
PROCESSES
TECHNOLOGY

Good Application Security in **fast-paced environments** is all about

MANY TALENTED PEOPLE
EFFICIENT PROCESSES
STATE-OF-THE-ART TECHNOLOGY

PEOPLE

Security Talent Shortage

- 189,000 LinkedIn members in InfoSec roles
- 10 countries make up 75% of the talent poll
- Employer demand
  - US 4:3
  - Singapore 5:1
  - …
  - Italy 50:1
- https://engineering.linkedin.com/security/exploring-information-security-talent-pool

How many?

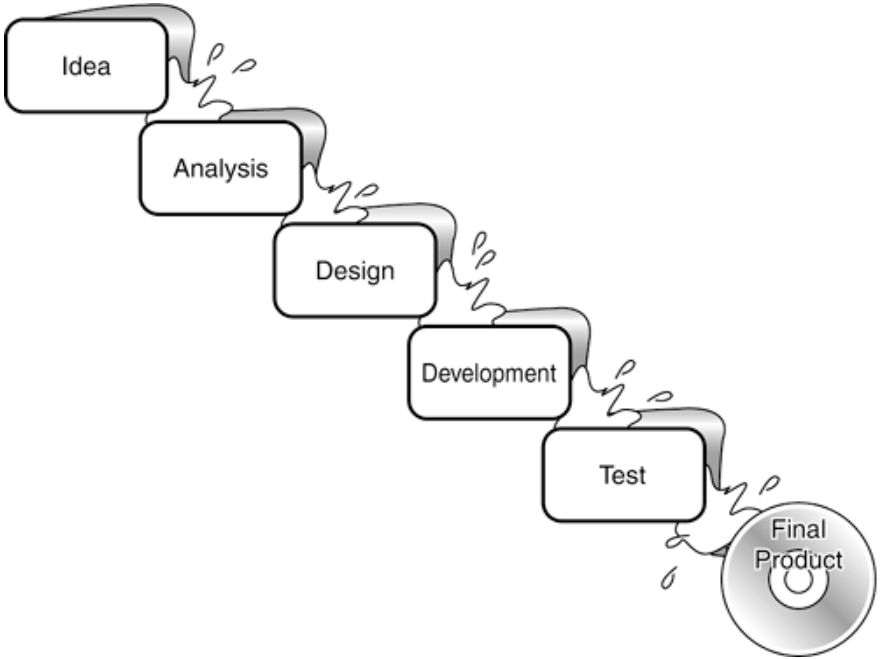
- Rule of 2% works for small companies only
- In practice, you're lucky if you have budget and you can hire 1%

PEOPLE - Take away

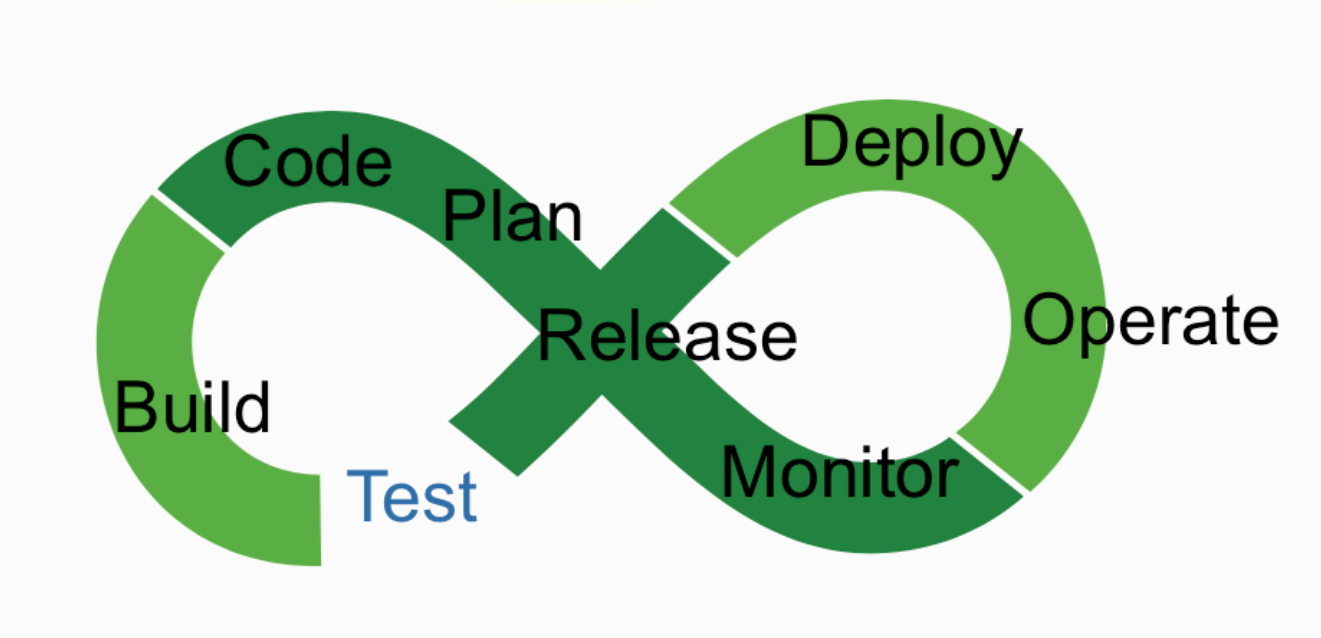
- Talented security professionals are difficult to find, hire, engage and retain
- Schools, universities won't catch up soon
- They’re your most precious asset

PROCESSES

Waterfall

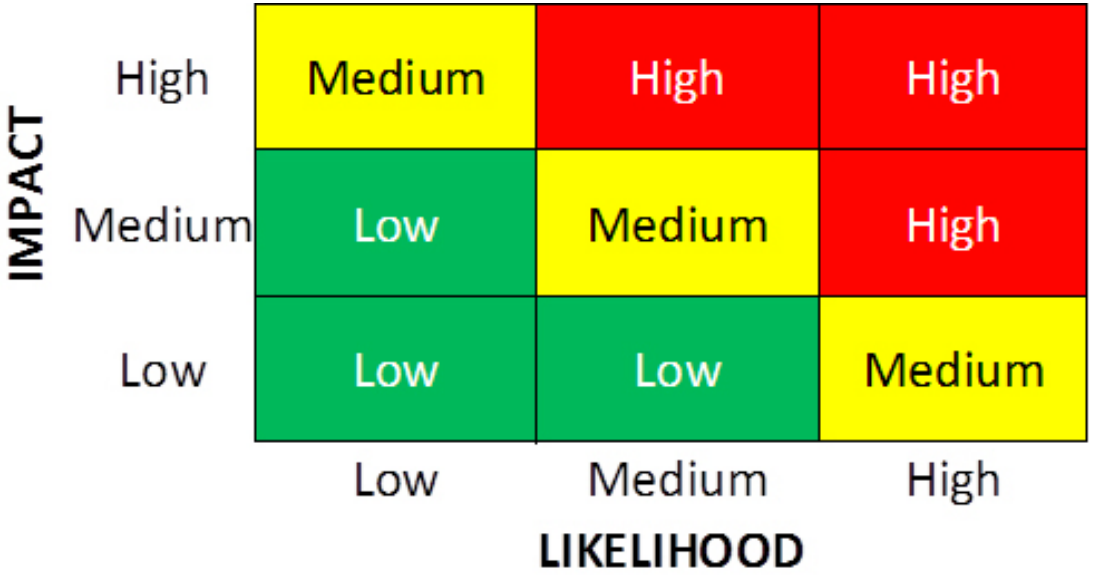


DevOps



Divide et impera

Risk matrix to drive testing effort



Likelihood

- Service exposure
- Software maturity
- Use of modern web frameworks with built-in security mechanisms
- Confidence around your detection mechanisms and incident response

Impact

- Value of protected assets
- Bug classes
  - Focus on game-over bugs only
  - Focus on mitigations
- Prefer code coverage vs attack coverage

Home-field advantage

- Bugs tend to cluster. Spend time doing extra clean-up
- Always combine dynamic testing with source code reviews (*graybox* testing)
- Invest in framework-level protections

Translate security in numbers

- Build your own security metrics
  - # bugs discovered before prod
  - # bugs discovered by external parties
  - # bugs fixed
  - # incidents
  - # bug bounty payouts
  - …
- Include those metrics in your reports to both developers and exec

PROCESSES - Take away

- Releasing more code requires continuous AND focused testing
- Forget the “once-a-year pentest" approach
- Use likelihood and impact to drive your testing effort
- Maximize your home-field advantage
- Share your numbers with the rest of the organization

TECHNOLOGY

True fact

- No security boxes with blinking lights that you can plug-in and walk away from

(Most) security tools are expensive

- Not just talking about $$$
- Evaluating, installing, tuning a security tool take time and resources
- Also, you need knowledgable people to properly install, use and maintain

One step at a time

- Don’t aim at the top from day one
- Instead, improve overtime

- E.g. Fortify SCA vs RepoGuard vs *$grep*

Automation

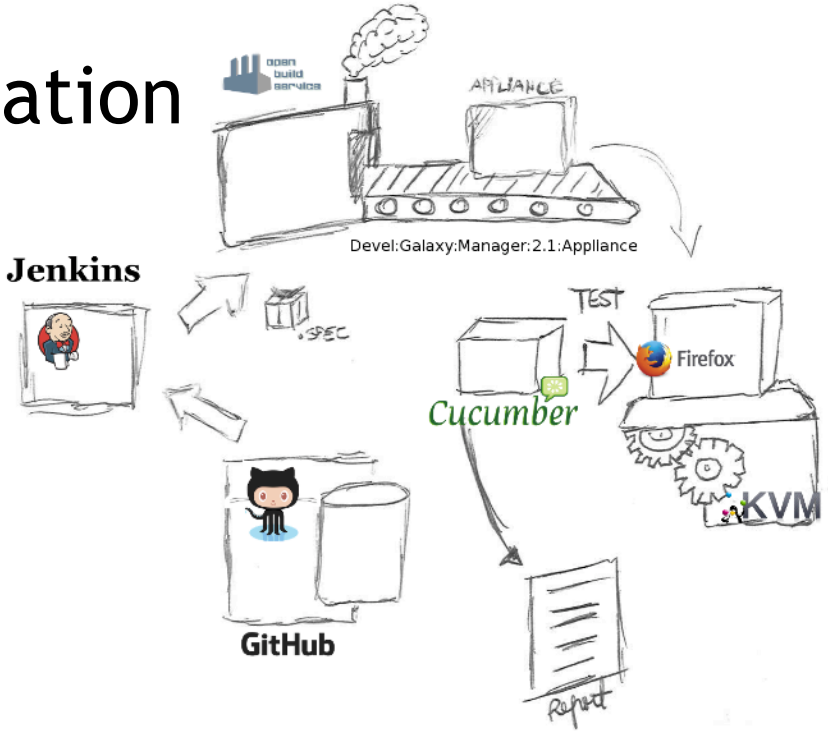
- Take more risk today, and invest in security automation for tomorrow
- “If it can be automated, it should be automated”

A few examples 1/2

- Continuous port-scanning with a $0 solution based on NMAP
  - Add NSE scripts and you get basic vulnerability scanning
- AWS/Azure/<yourFavouriteCloud> APIs for enumeration and services discovery
- SSH key provisioning service for temporary access to servers

A few examples 2/2

- Full web scanning automation



TECHNOLOGY - Take away

- Devote resources to security automation
- Having a big budget won’t necessary solve your security problems
- People and tools are complementary
- If you need to choose, invest in a good security engineer

Thanks!

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Images

- https://thenypost.files.wordpress.com/2014/01/business-woman.jpg?quality=90&strip=all&w=664&h=441&crop=1
- https://qph.ec.quoracdn.net/main-qimg-4a656858b49a971c2464ba7b1ef062f7
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