

M2: Software Security (Lecture 1)

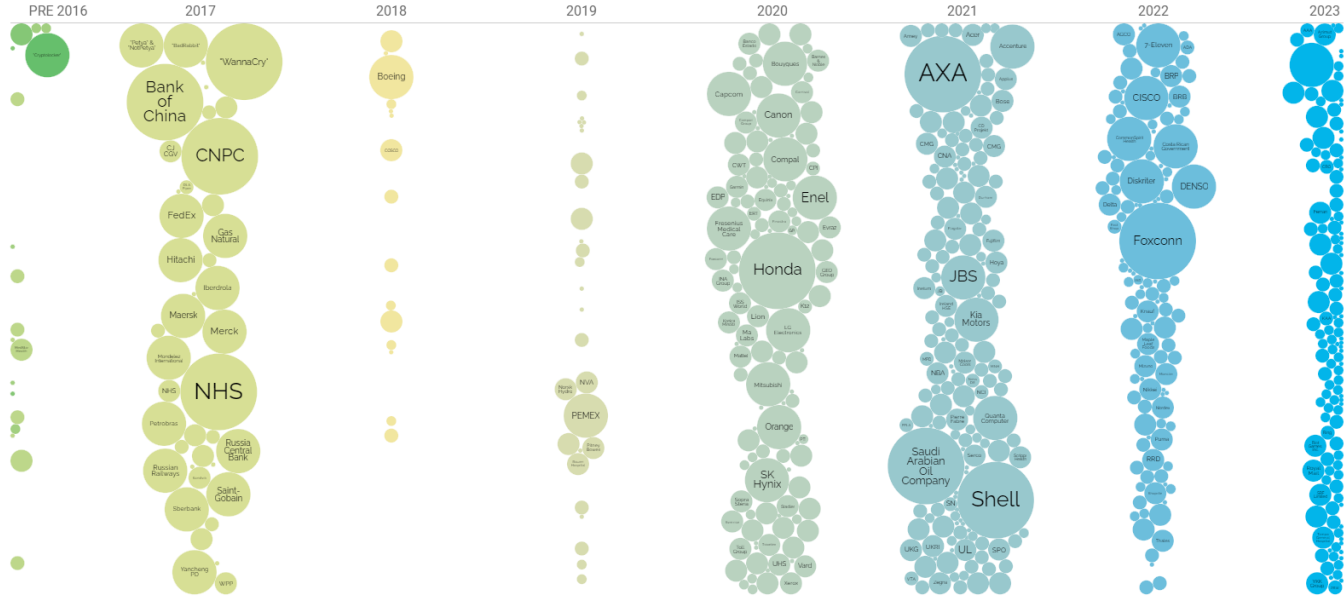
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Security incidents

Ransomware Attacks

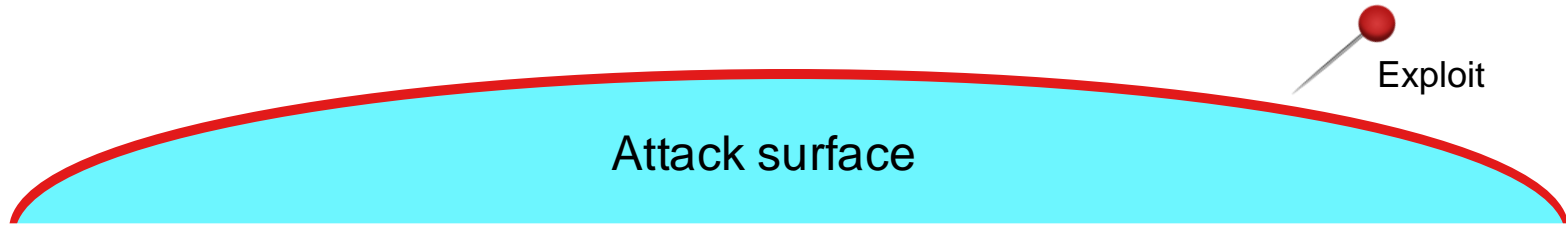
size = size of organisation



Terminology



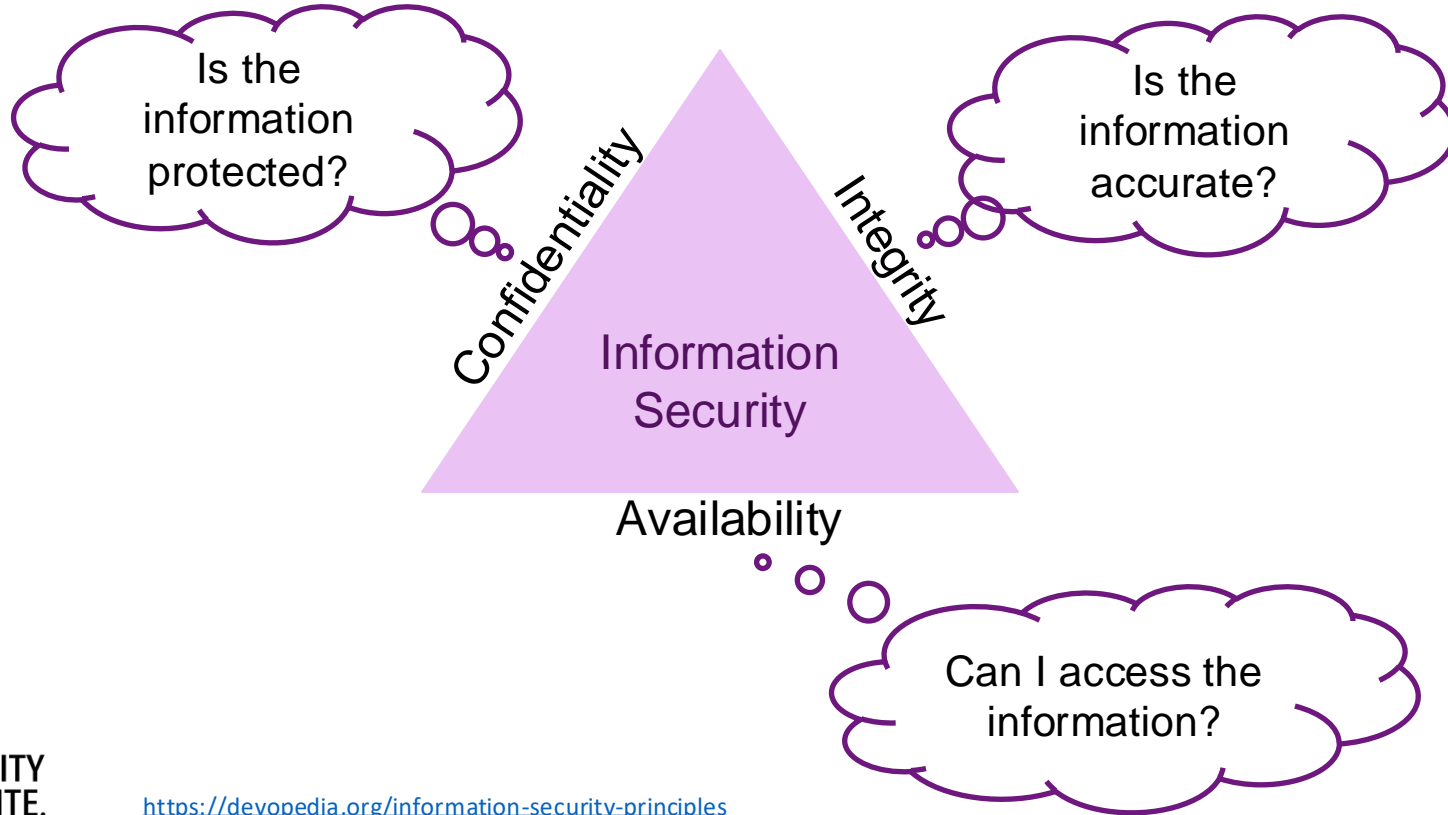
Why is security difficult?



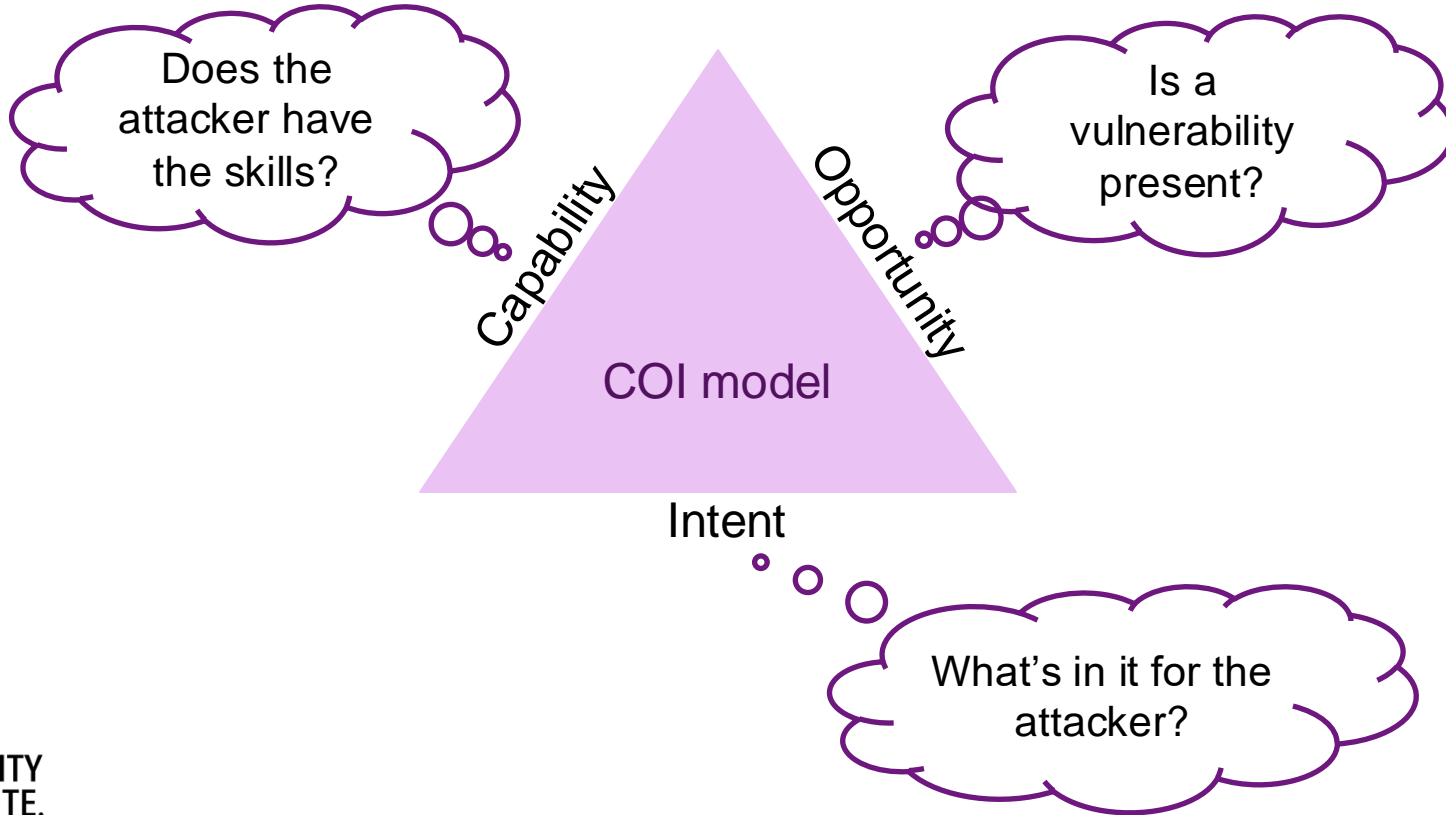
Security is difficult to get right because of complex inter-connected components and dependencies!

Security-by-obscurity rarely works! Follow the KISS principle – Keep it Simple, Stupid!

The Security Triad



Threat modeling



Threat types (STRIDE)

- Spoofing
- Tampering
- Repudiation
- Information Disclosure
- Denial of Service
- Elevation of privilege

Improving security

- Prevention
- Monitoring
- Design

Authentication (Multi-factor)



Knows

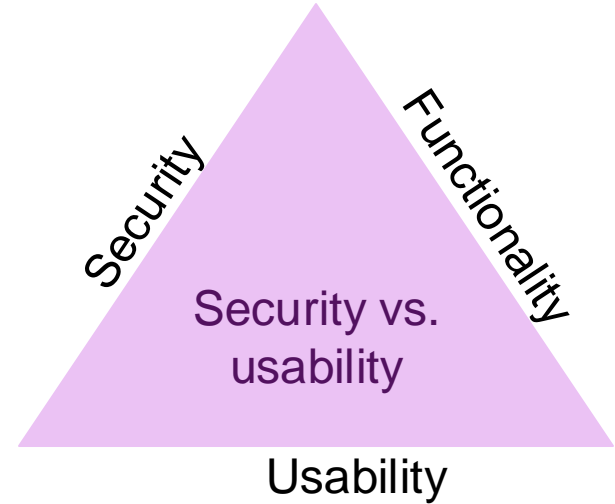
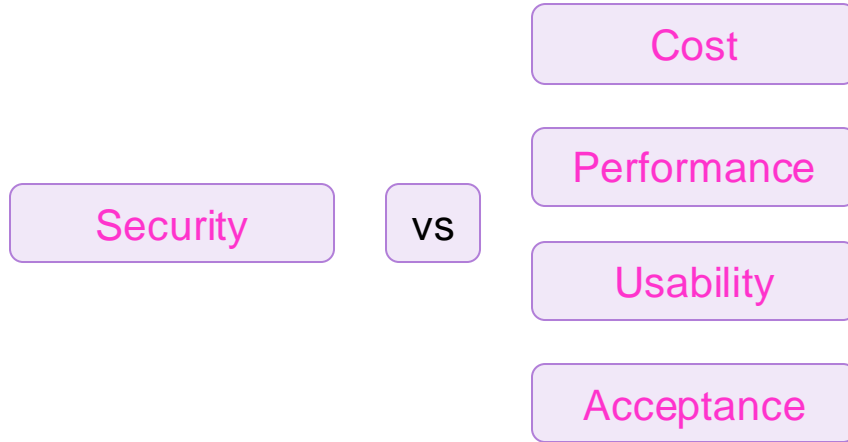


Has



Is

Security vs usability debate



Summary

- Security requires proactively defending against all (known and unknown) attacks
- Threat modelling helps with quantifying threats
- Prevention is better than cure – implement security-by-design & monitoring
- Authentication mechanisms help with access control
- Security needs to be balanced with other requirements to encourage adoption

Questions?