27 NOVEMBER, 2016

Penetration Testing in Financial Institutions

COINS PH.D. STUDENT SEMINAR 2016

OLEKSANDR KAZYMYROV, TECHNICAL TEST ANALYST

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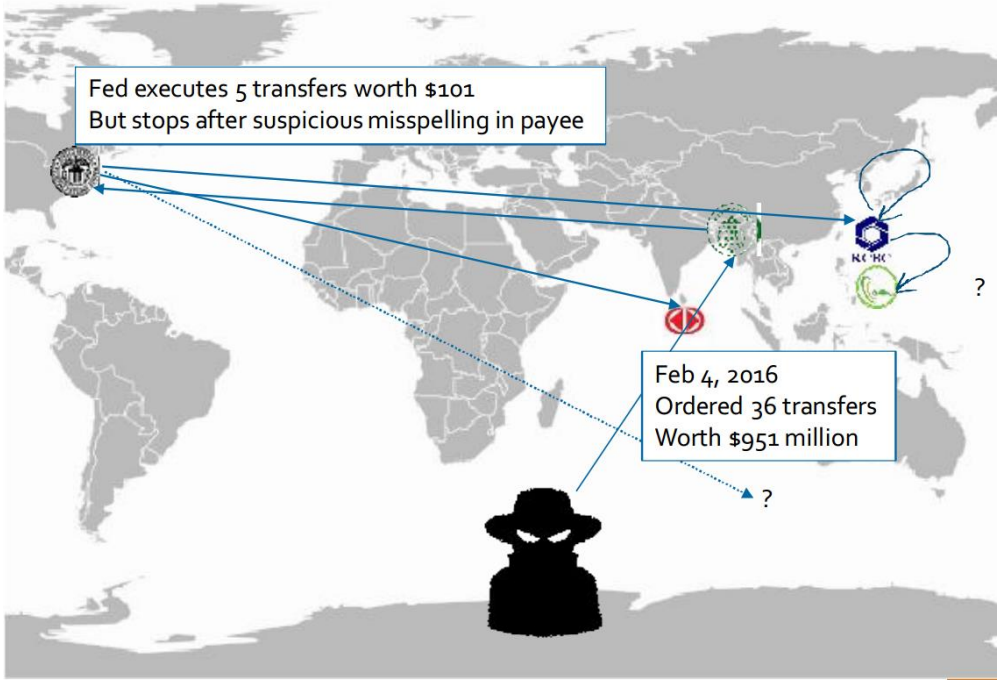
How the SWIFT Hack Went Down and How to Benefit from the Lessons Learned

Agenda of the webinar :

- The sophisticated techniques used during the SWIFT hack, affecting the network, operating system, application and database layer.
- Key strategies and technologies to put in place for attack prevention and proper response.
- How Carbon Black can help you to implement the right level of protection and monitoring for different classes of systems.

Source:
https://www.carbonblack.com/webinars/swift-attack/



Agenda

- Chapter I – Brief Introduction
- Chapter II – What Is Penetration Testing?
- Chapter III – Pentest in Financial Institutions
- Chapter IV – Security Incidents
- Chapter V – Summary

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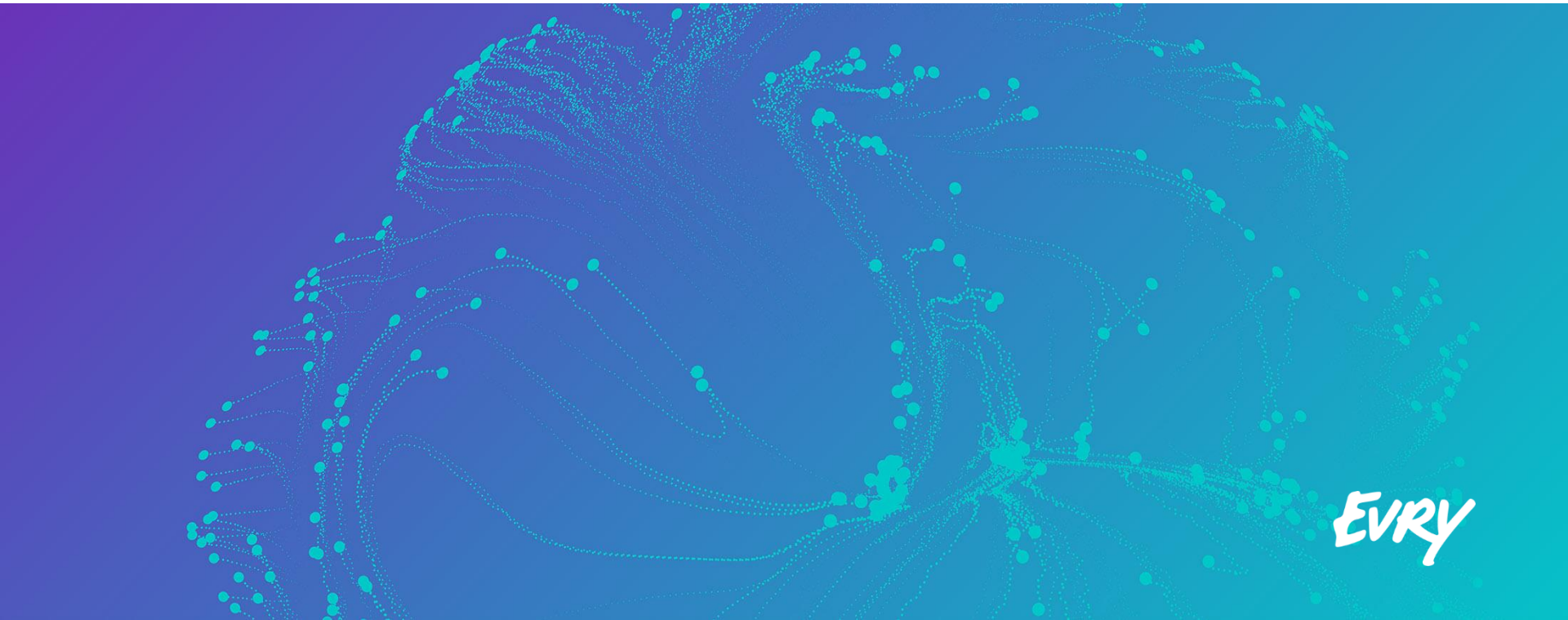
Brief Introduction

CHAPTER I



Who am I?

Education

Candidate of Engineering Sciences in Information Security

KHNURE, Ukraine

Ph.D. in Cryptology

University of Bergen, Norway

Additional

Certificates

- Certified Ethical Hacker
- Certified Encryption Specialist

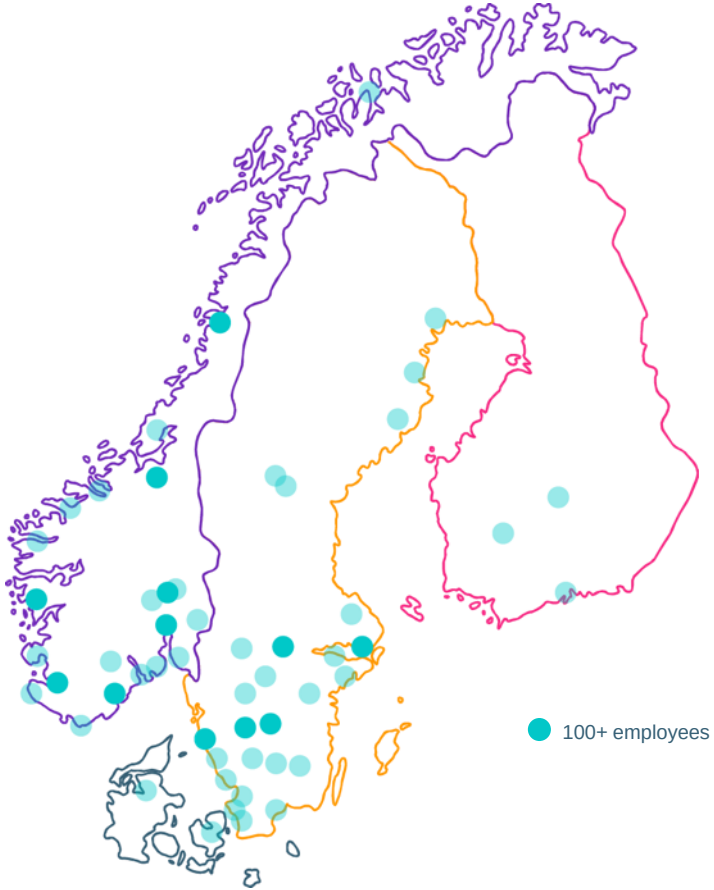
Standards

- DSTU 7624:2014
- DSTU 7564:2014

EVRY
– Nordic Champion

- 50 towns and cities with capacity to deliver
- 11 regional offices with specialist competencies
- 10.000 employees

Women	Age	Universum
26%	39yrs	#4

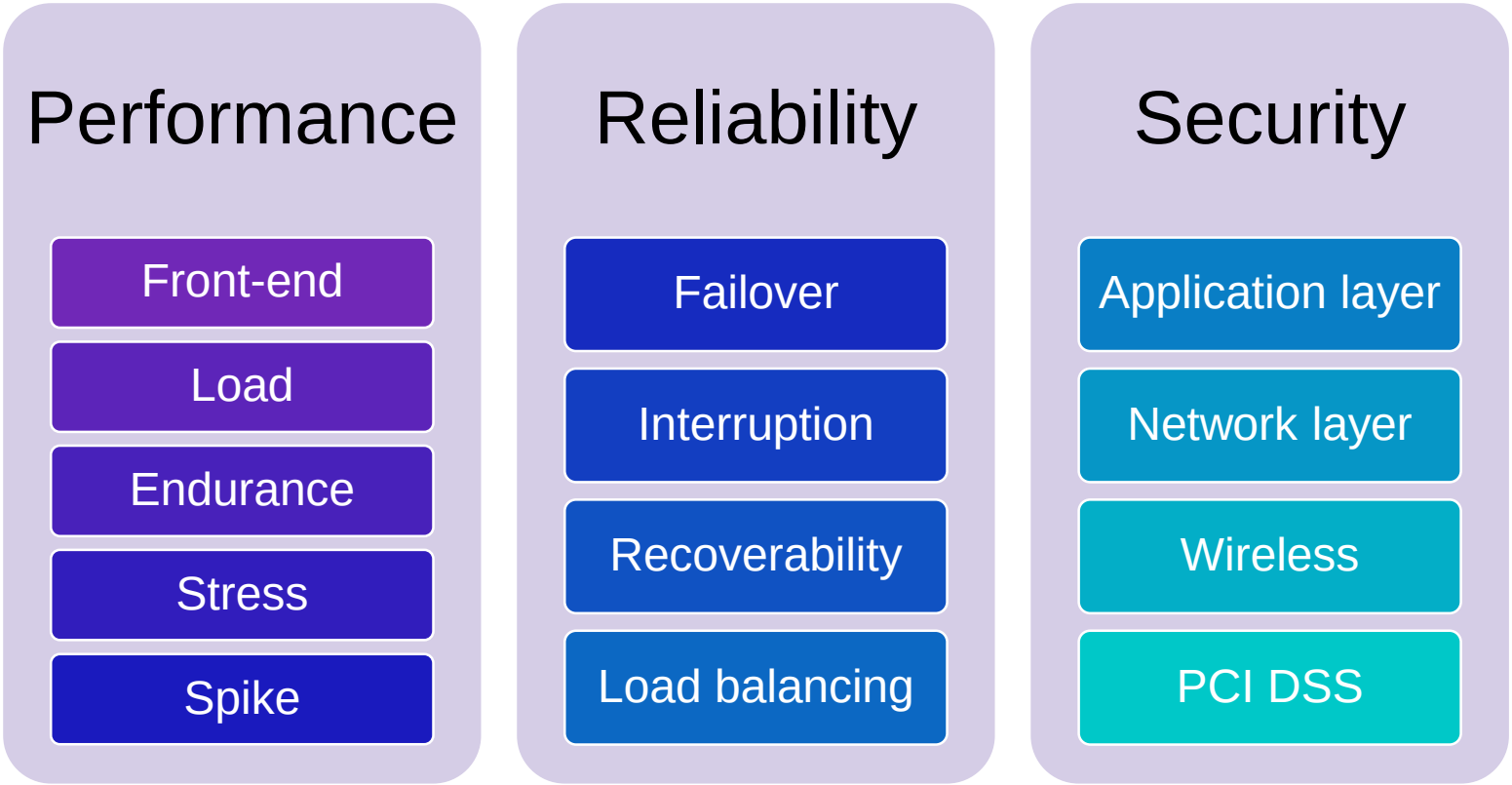


EVRY GROUP - Geographic distribution

Nordics

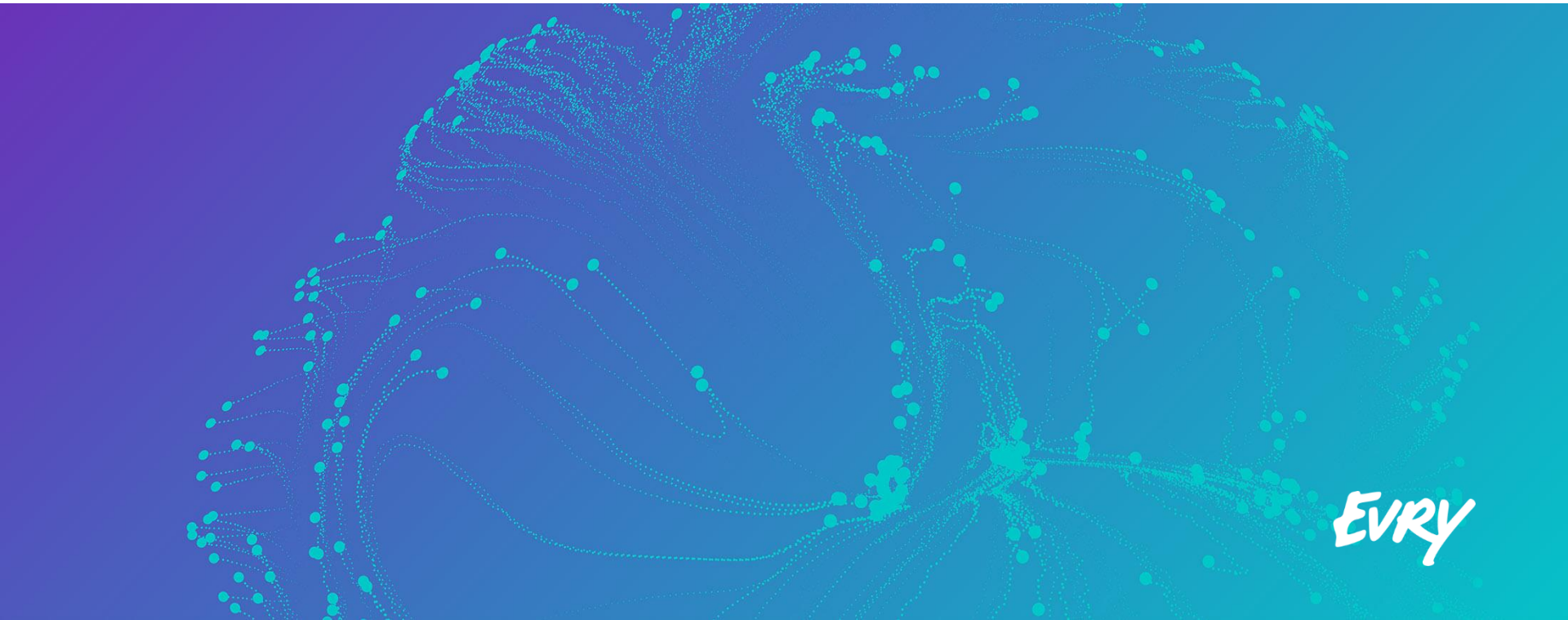
Rest of the World (Global Delivery)

NFT Department



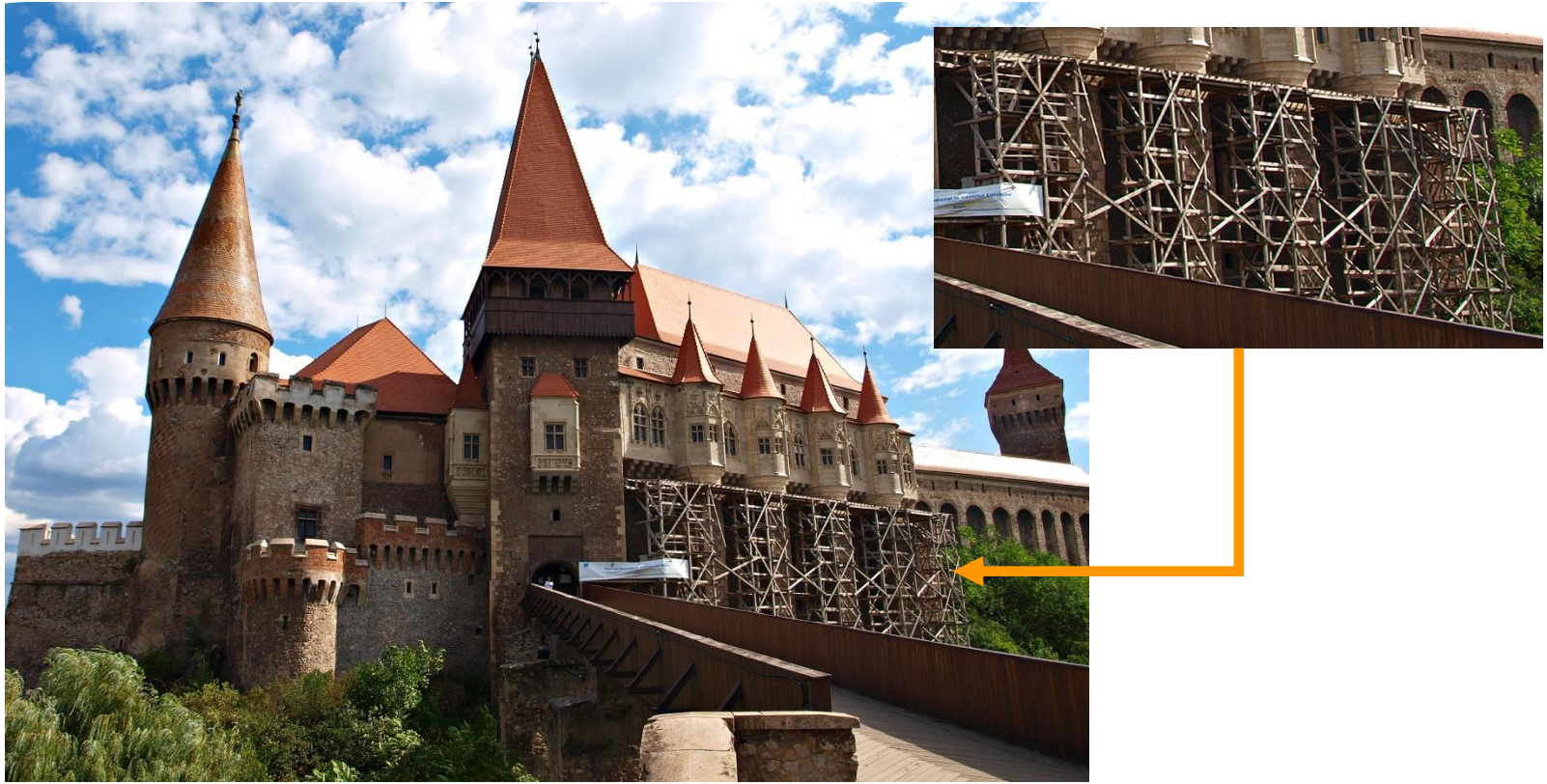
What Is Penetration Testing?

CHAPTER II



Base Definitions

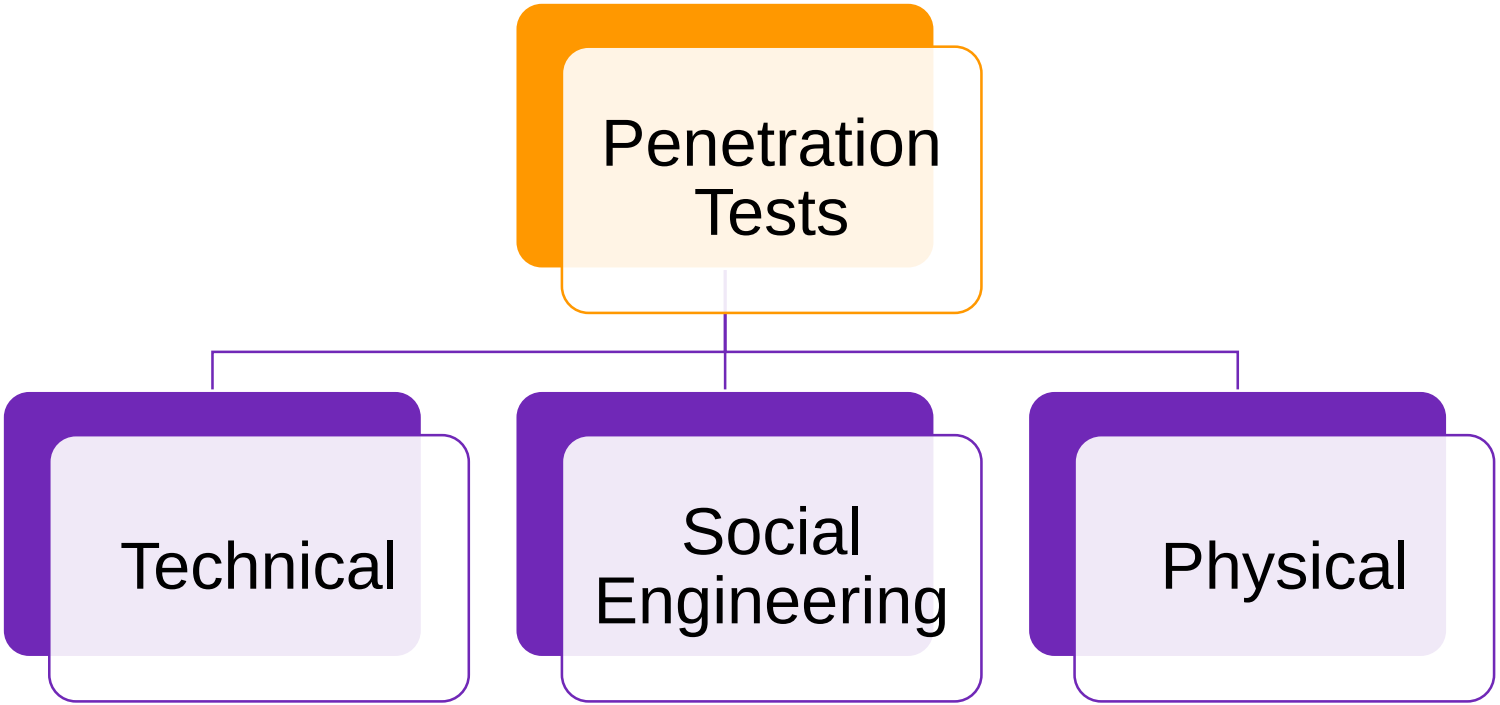
Vulnerability Scanning vs Penetration Testing



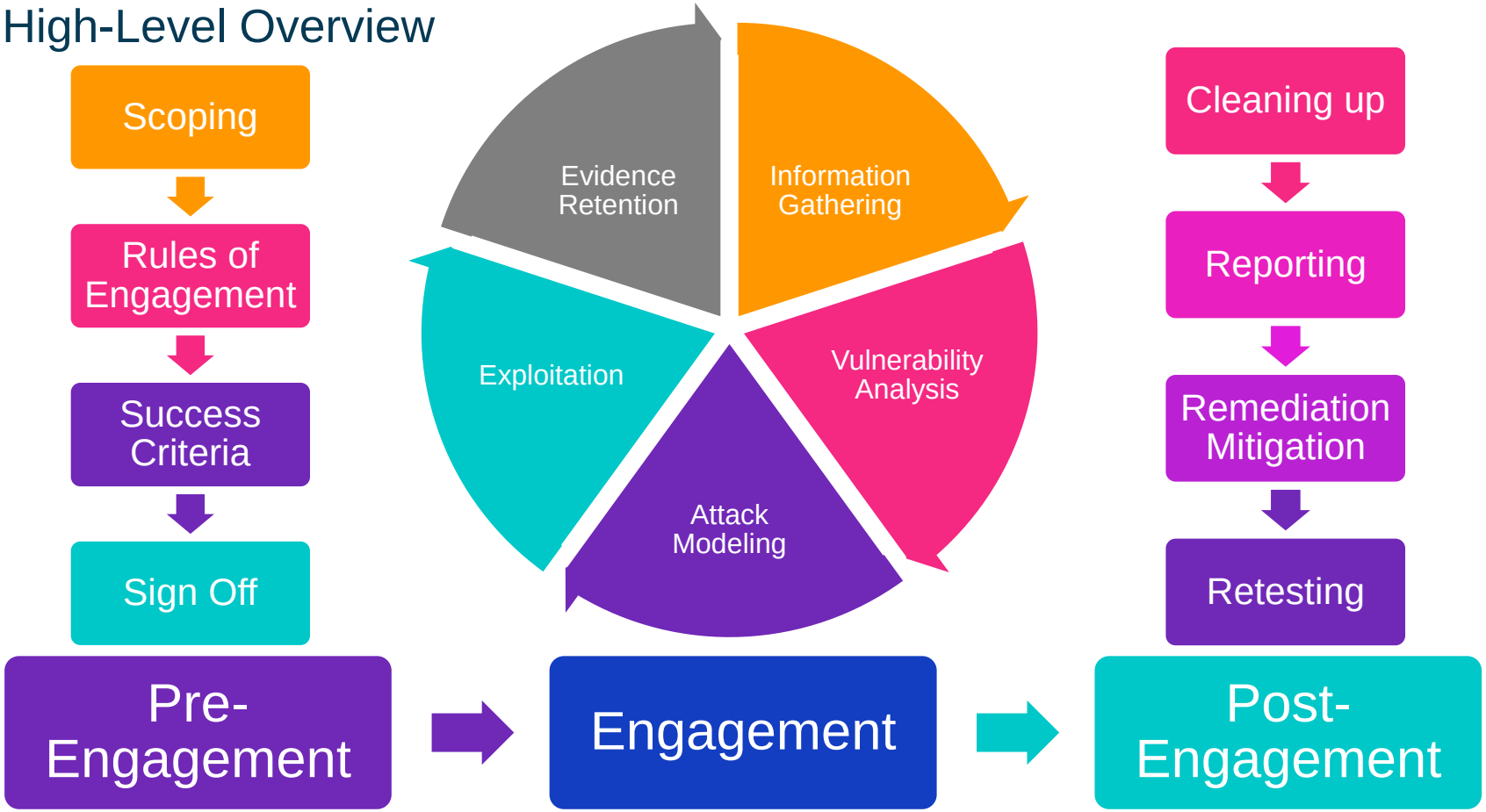
Corvin Castle in Transylvania

Source: https://en.wikipedia.org/wiki/File:Hunyad_Castle_TB1.jpg

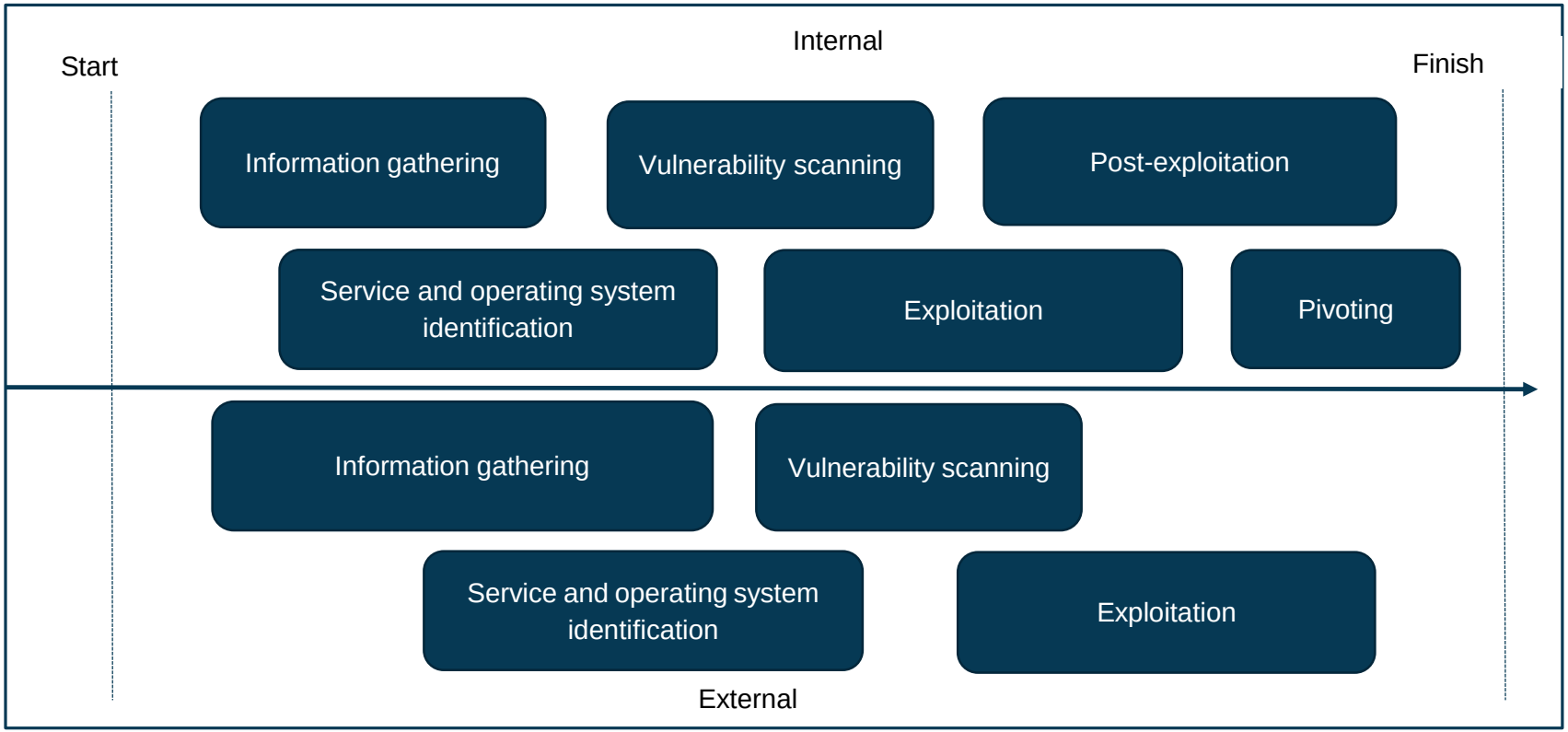
Types of Penetration Tests



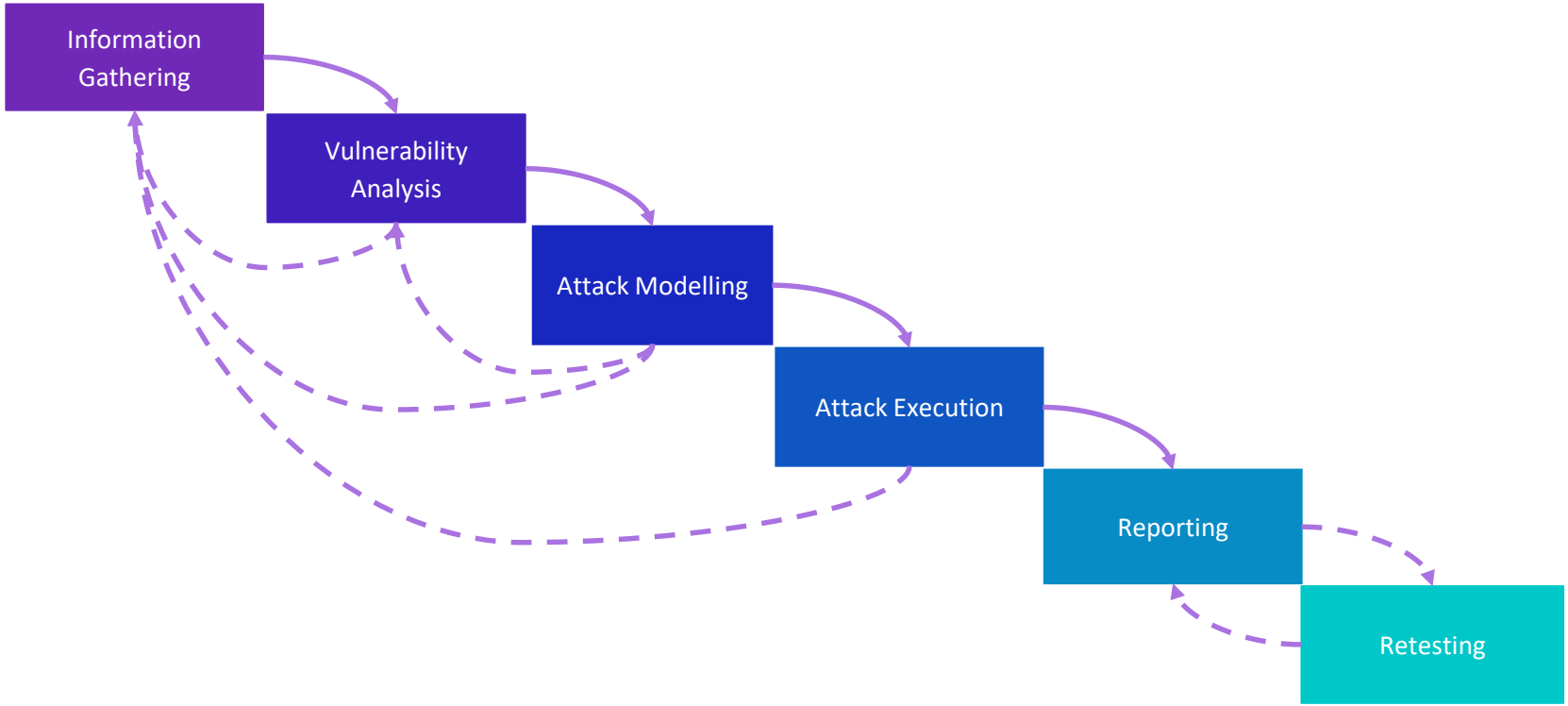
High-Level Overview



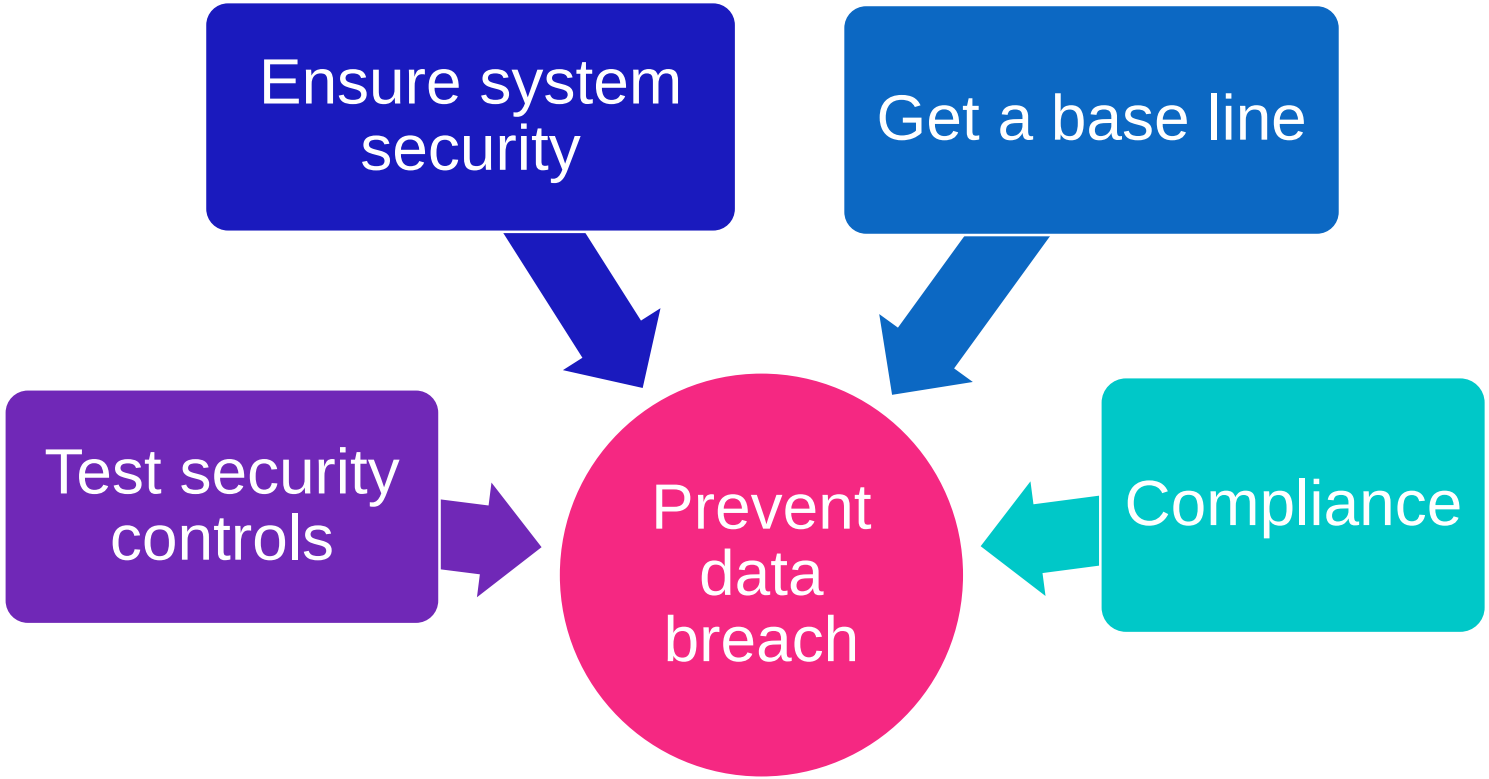
Timeline of a Penetration Test



Workflow of a Penetration Test

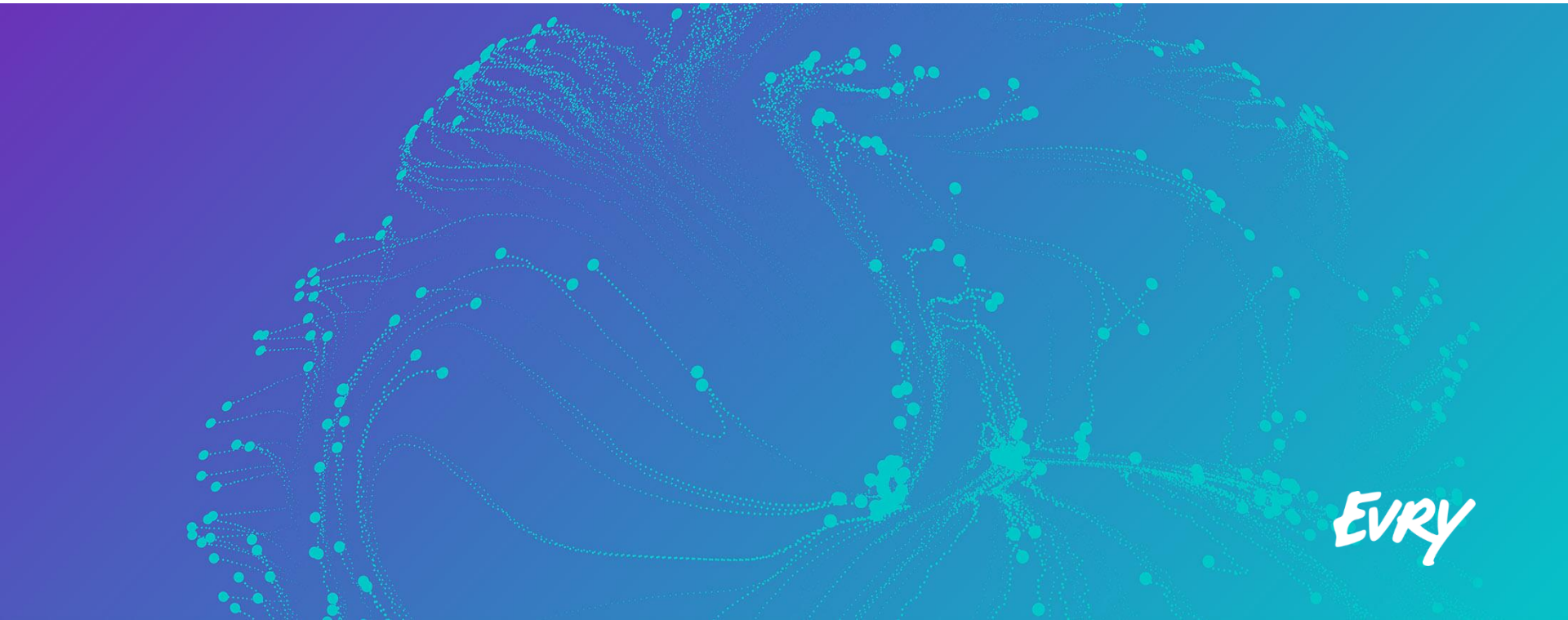


Why conduct a penetration test?



Pentest in Financial Institutions

CHAPTER III

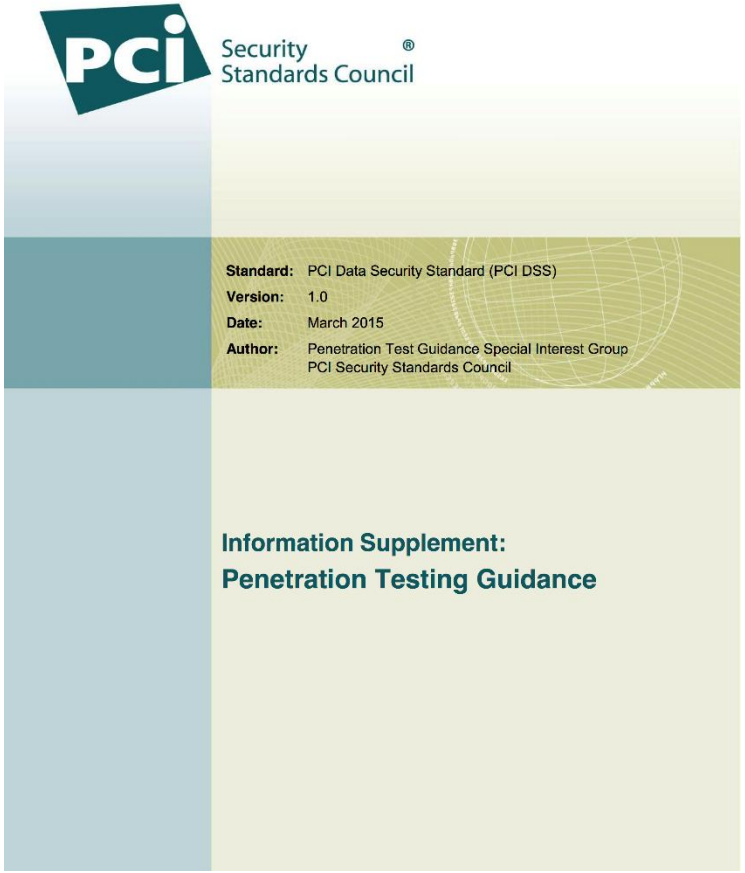


PCI DSS

Payment Card Industry (PCI)
Data Security Standard

Requirements and Security Assessment Procedures

Version 3.2
April 2016



PCI DSS: What? When?

Requirement 11.3.1

- *“Perform external penetration testing at least annually and after any significant infrastructure or application upgrade or modification (such as an operating system upgrade, a sub-network added to the environment, or a web server added to the environment).”*

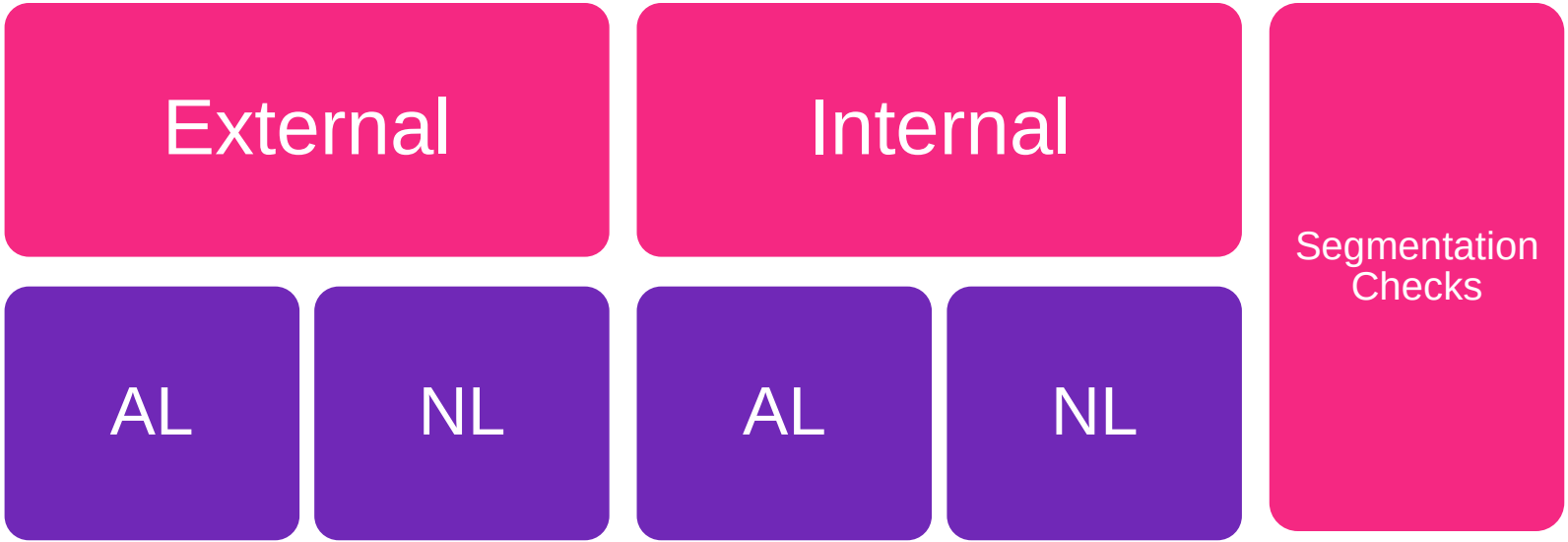
Requirement 11.3.2

- *“Perform internal penetration testing at least annually and after any significant infrastructure or application upgrade or modification (such as an operating system upgrade, a sub-network added to the environment, or a web server added to the environment).”*

Penetration testing Guidance: How?

Penetration Testing Components	Qualifications of a Penetration Tester	Penetration Testing Methodologies	Penetration Testing Reporting Guidelines
• Understanding of the different components that make up a penetration test and how this differs from a vulnerability scan including scope, application and network layer testing, segmentation checks, and social engineering	• Determining the qualifications of a penetration tester, whether internal or external, through their past experience and certifications.	• Detailed information related to the three primary parts of a penetration test: pre-engagement, engagement, and post-engagement.	• Guidance for developing a comprehensive penetration test report that includes the necessary information to document the test as well as a checklist that can be used by the organization or the assessor to verify whether the necessary content is included.

PCI DSS Penetration Testing



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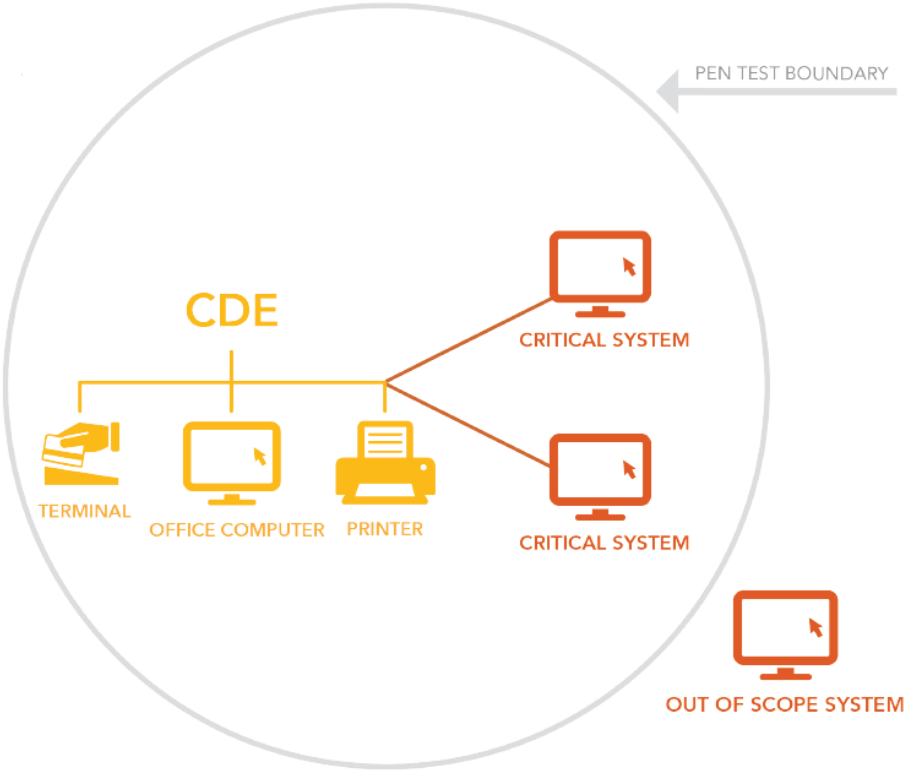
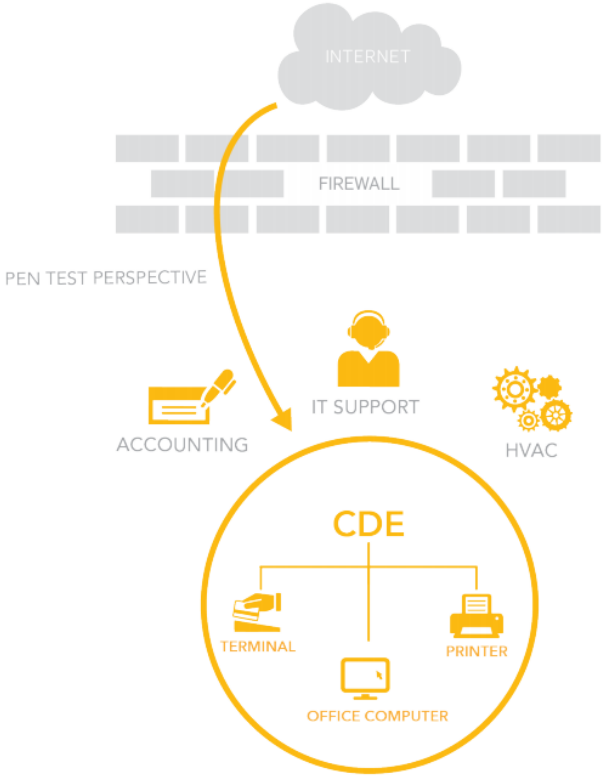
Cardholder Data Environment (CDE)

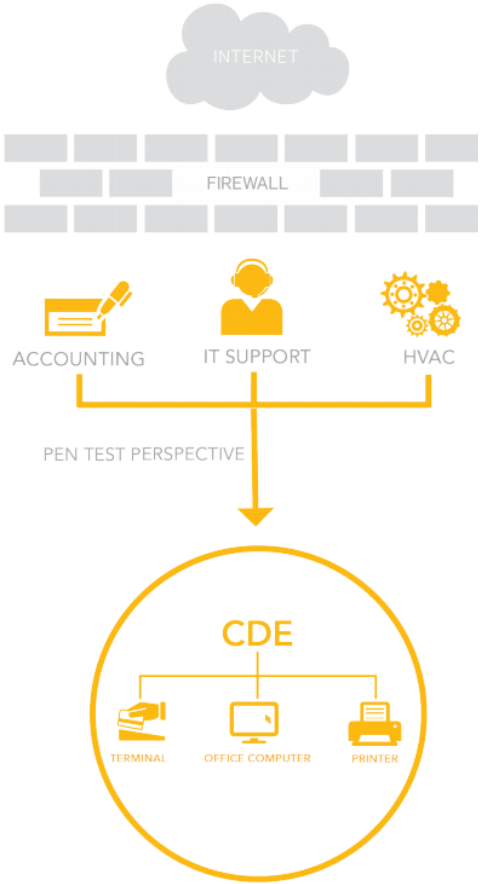


Source: https://www.securitymetrics.com/static/resources/orange/new-penetration-testing-requirements-explained.pdf

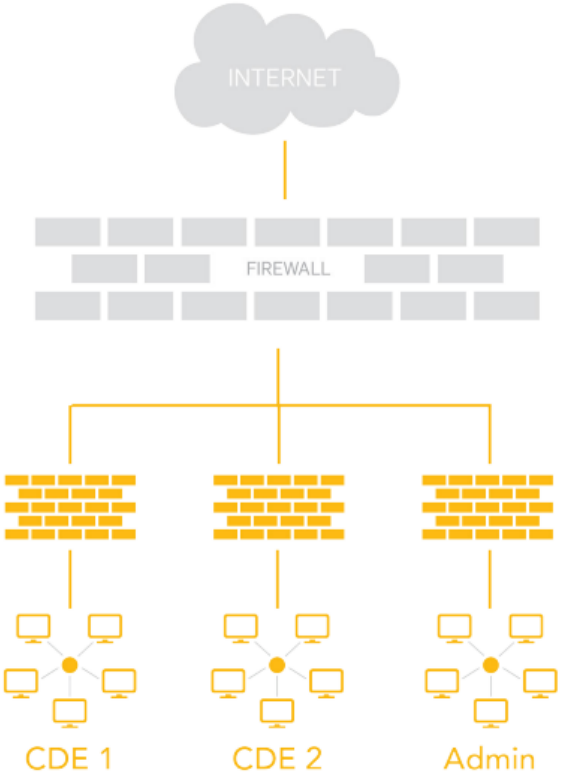
Scope for PCI DSS Pentest



External



Internal

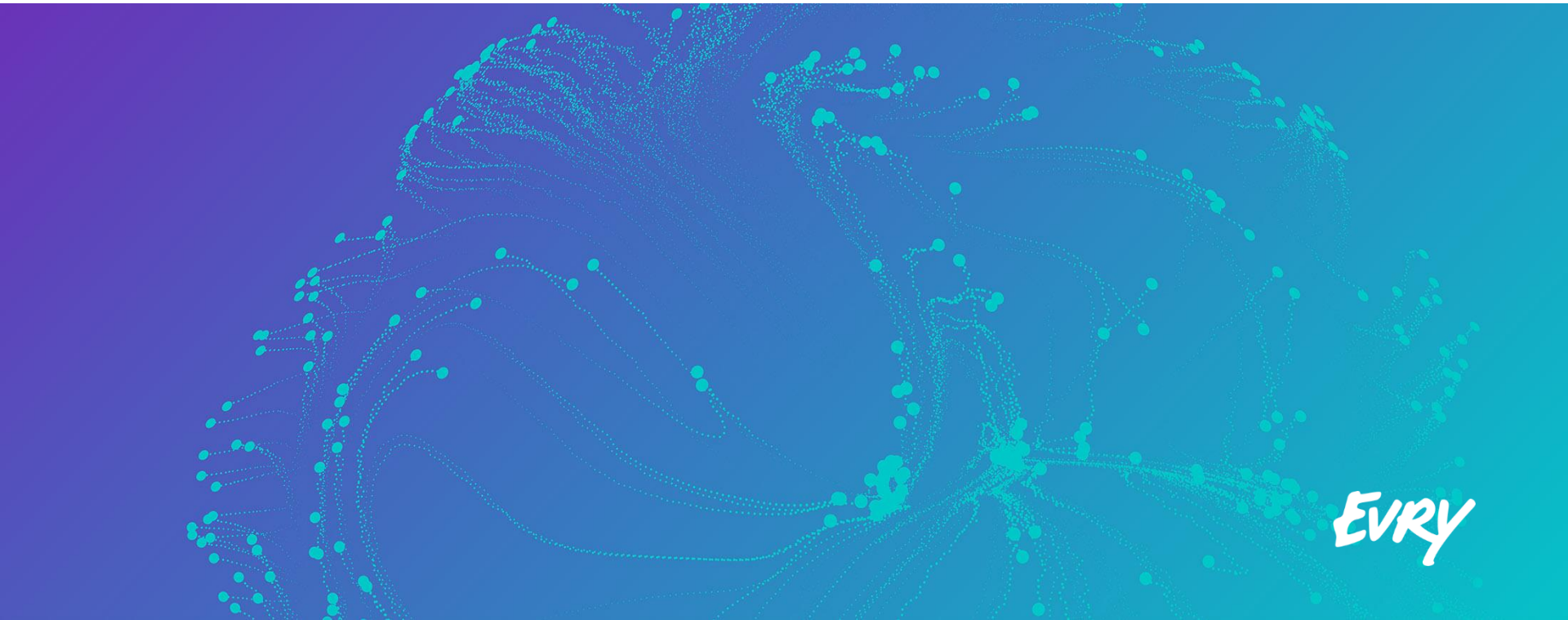


Segmentation

Source: https://www.securitymetrics.com/static/resources/orange/new-penetration-testing-requirements-explained.pdf

Security Incidents

CHAPTER IV



2016 Data Breach Investigations Report

2016 Data Breach Investigations Report

89% of breaches had a financial or espionage motive.

Source: http://www.verizonenterprise.com/resources/reports/rp_DBIR_2016_Report_en_xg.pdf

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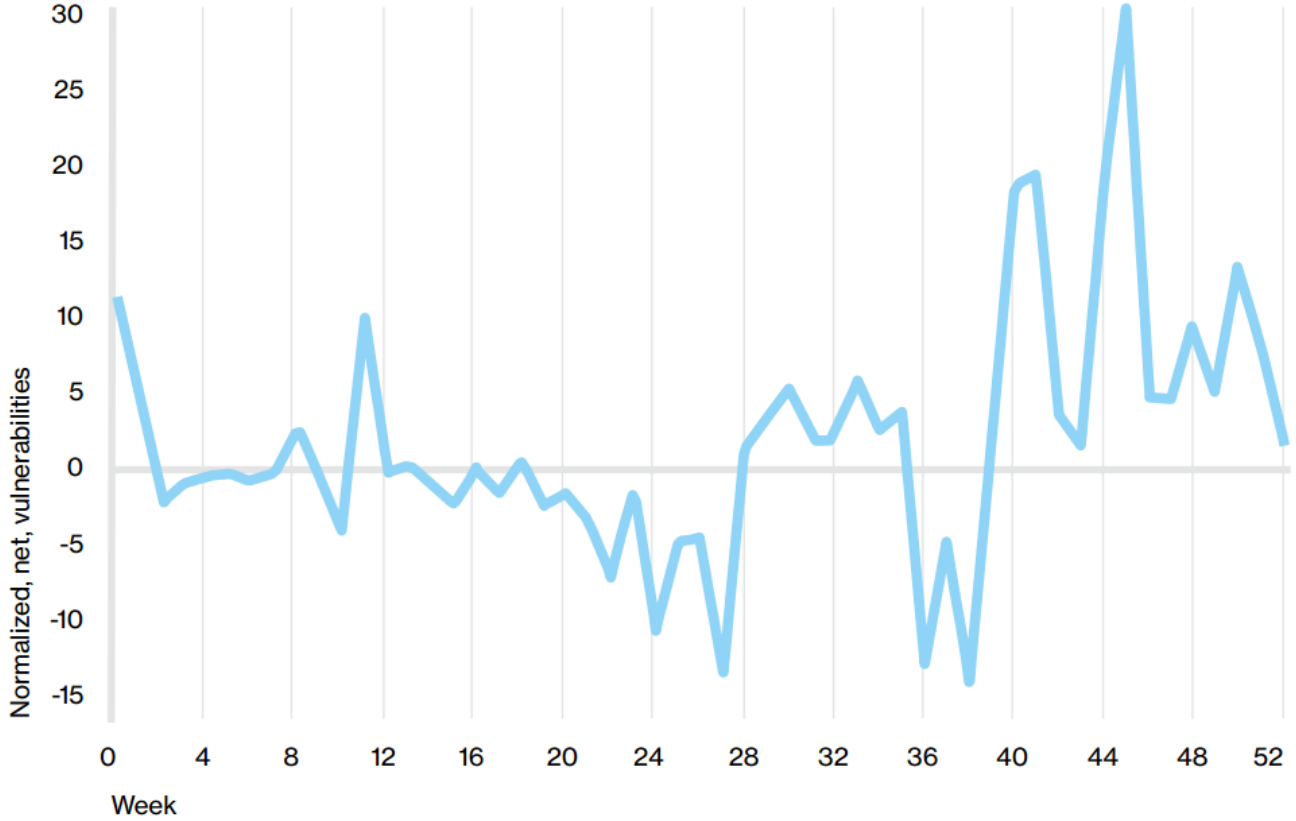

Delta of Number of Vulnerabilities Opened Each Week and Number Closed

Source: http://www.verizonenterprise.com/resources/reports/rp_DBIR_2016_Report_en_xg.pdf

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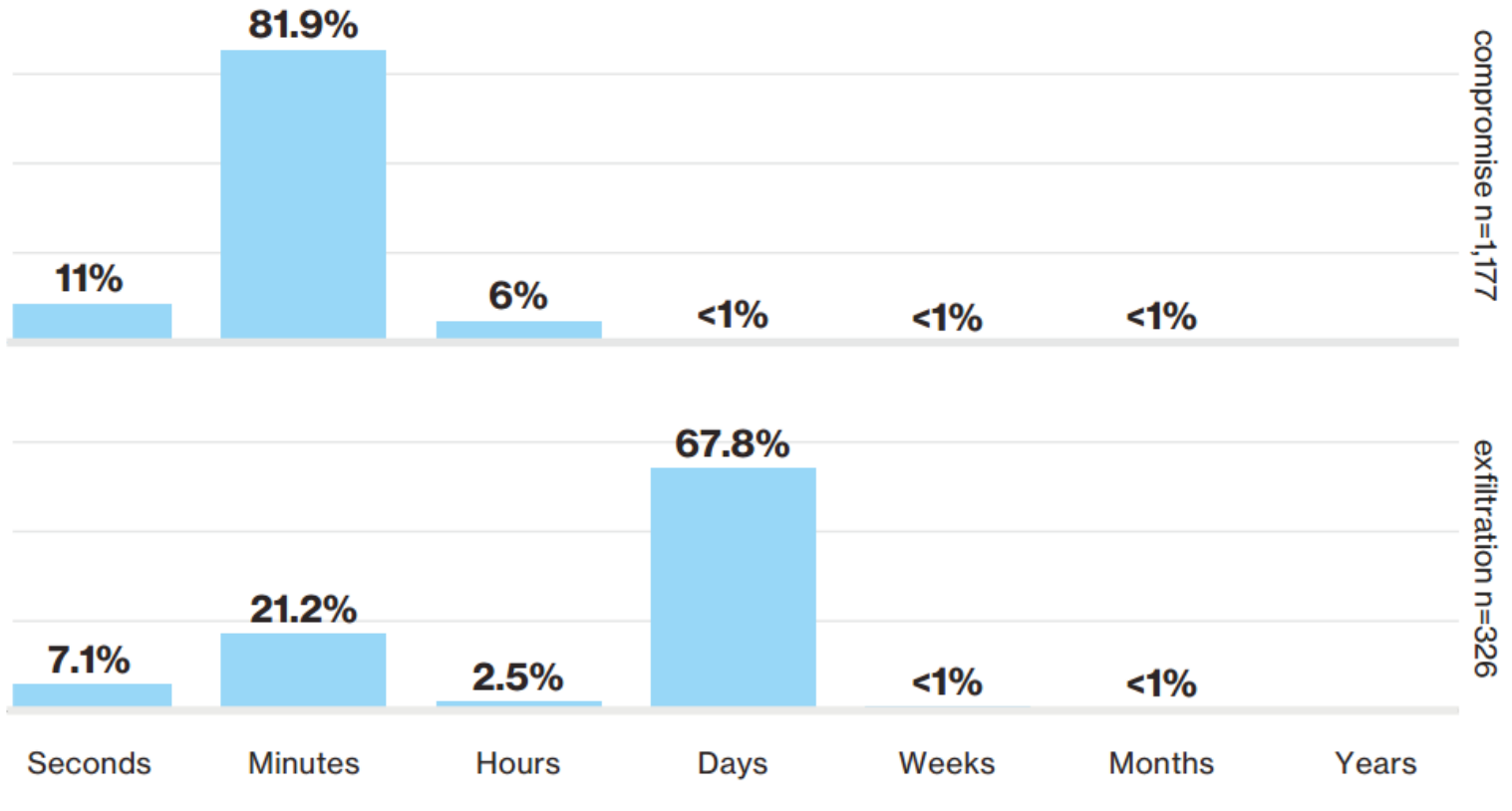
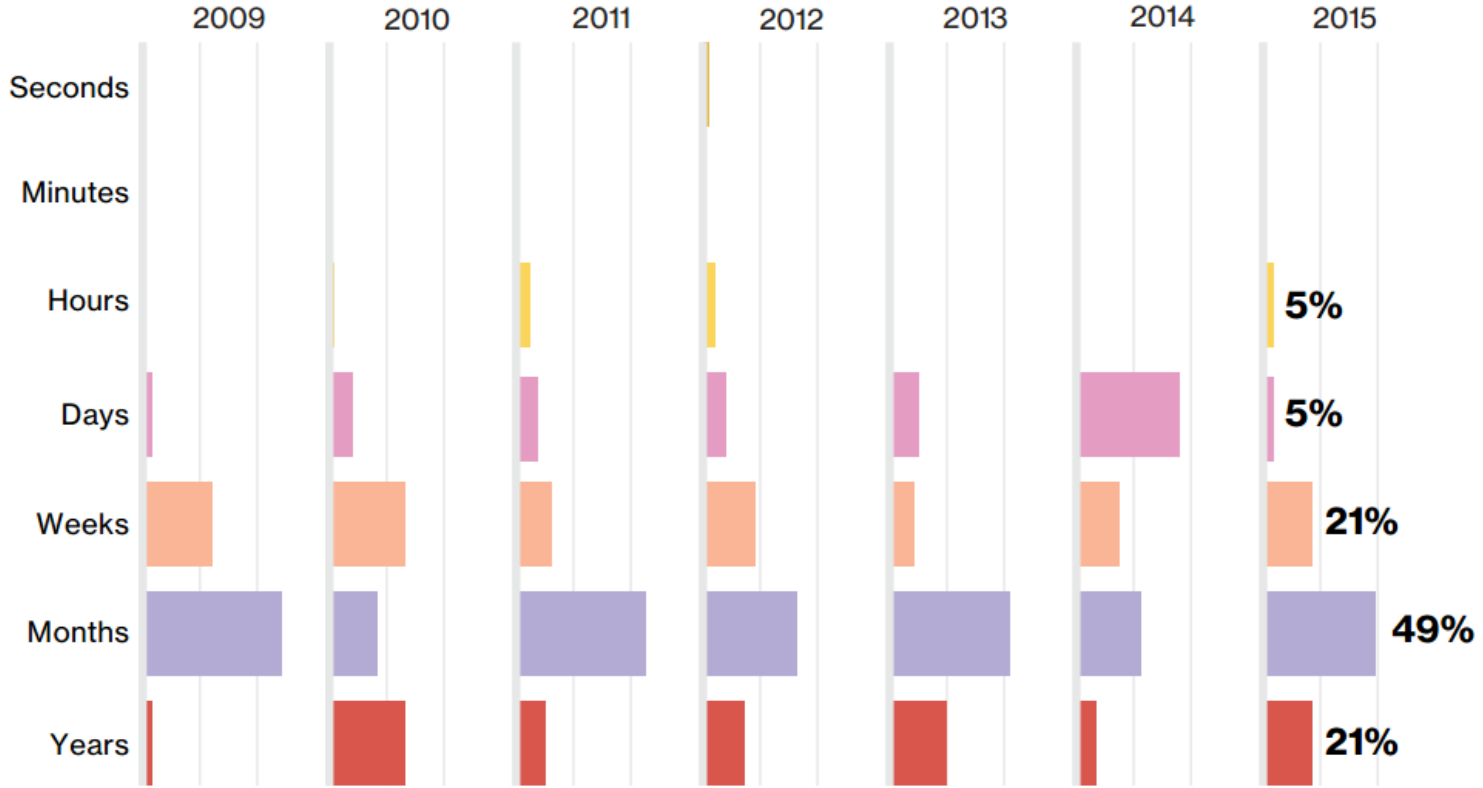
Time to Compromise and Exfiltration



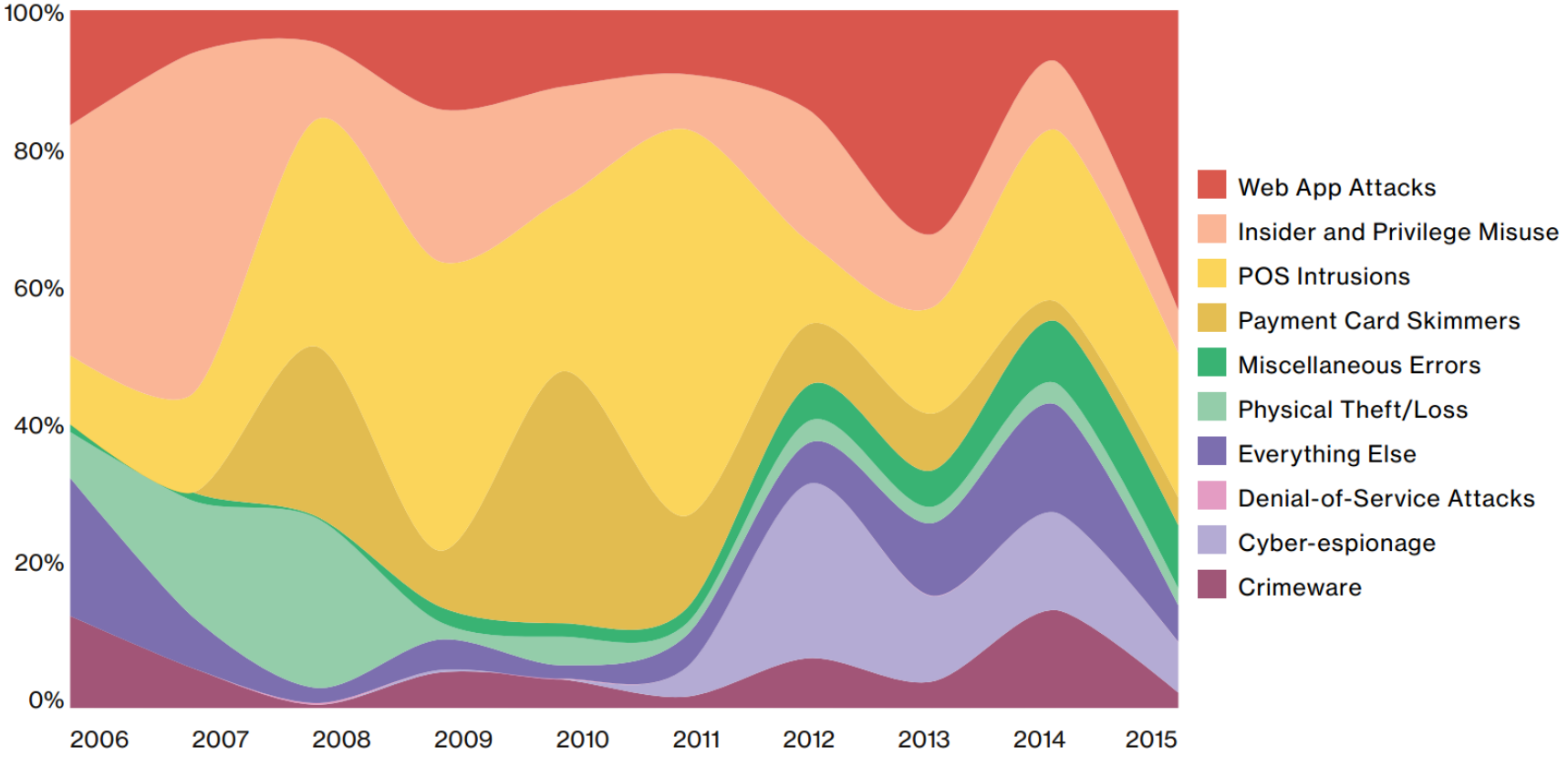
Source: http://www.verizonenterprise.com/resources/reports/rp_DBIR_2016_Report_en_xg.pdf

Discovery Timeline Within Insider and Privilege Misuse Over Time



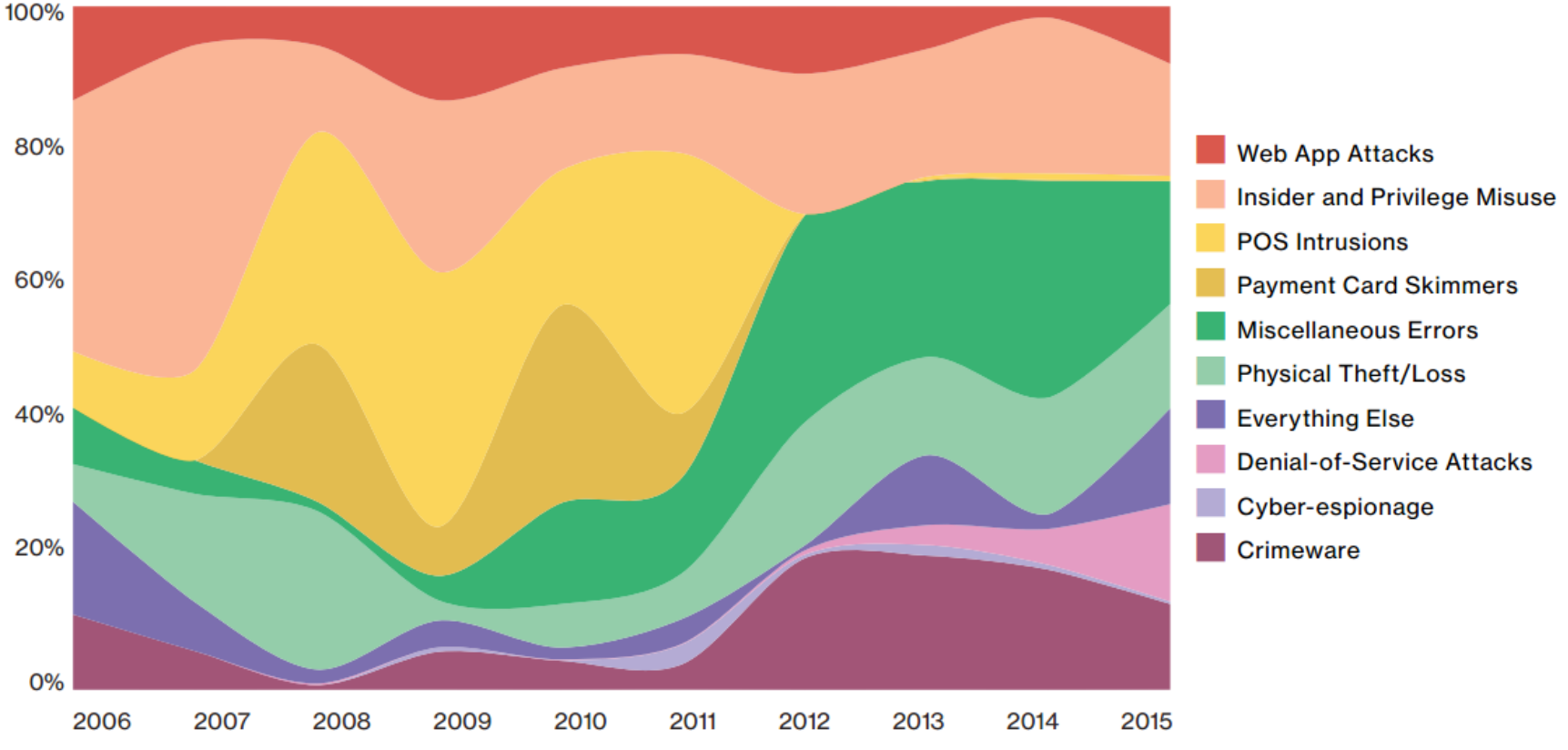
Source: http://www.verizonenterprise.com/resources/reports/rp_DBIR_2016_Report_en_xg.pdf

Frequency of Incident Classification Patterns Over Time Across Confirmed Data Breaches



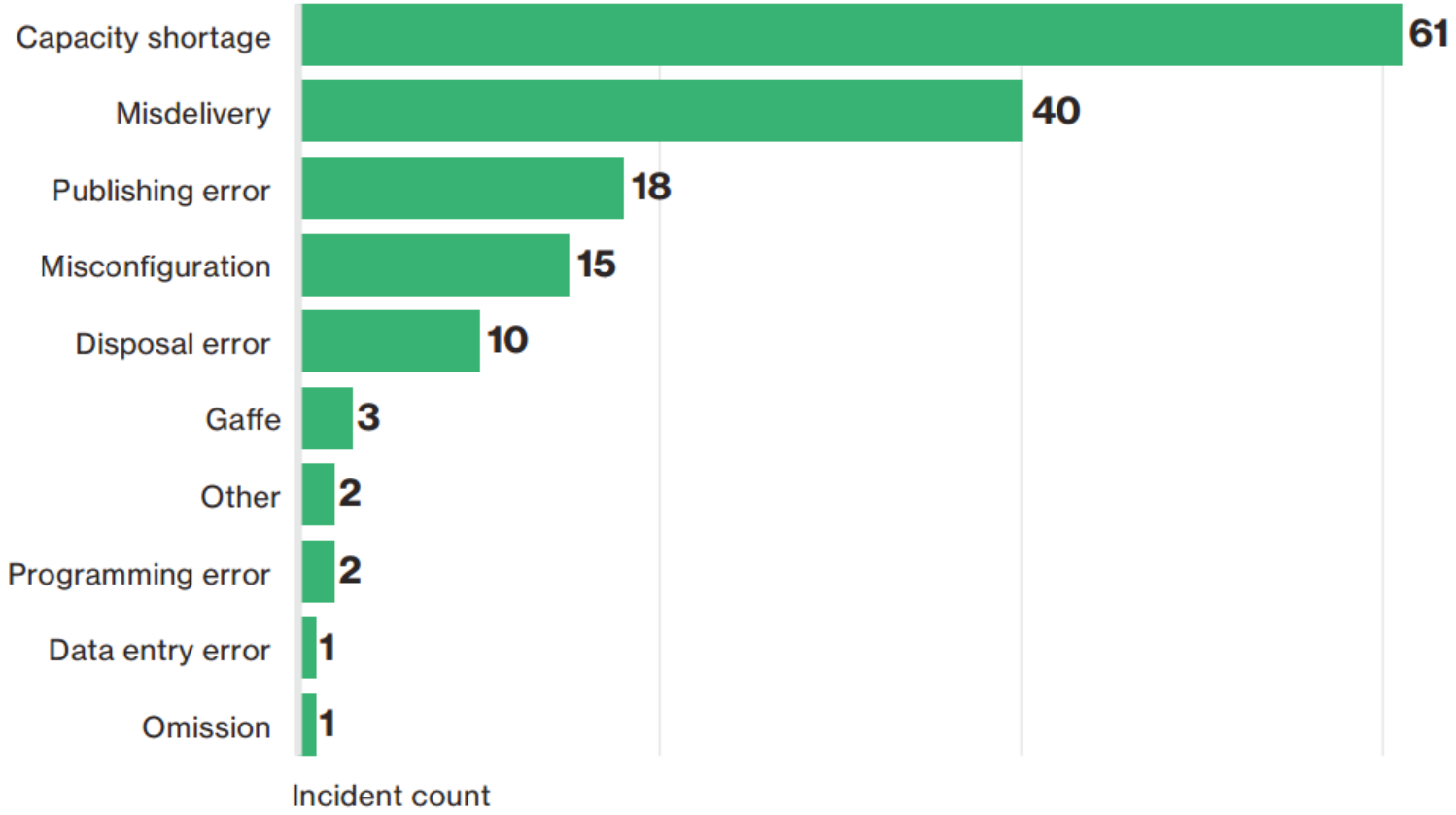
Source: http://www.verizonenterprise.com/resources/reports/rp_DBIR_2016_Report_en_xg.pdf

Frequency of Incident Classification Patterns Over Time Across Security Incidents



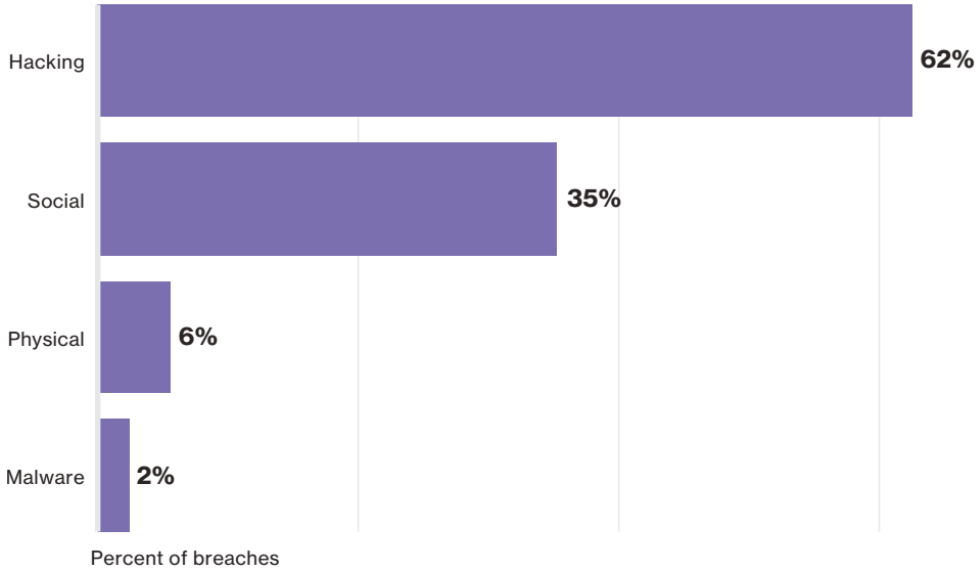
Source: http://www.verizonenterprise.com/resources/reports/rp_DBIR_2016_Report_en_xg.pdf

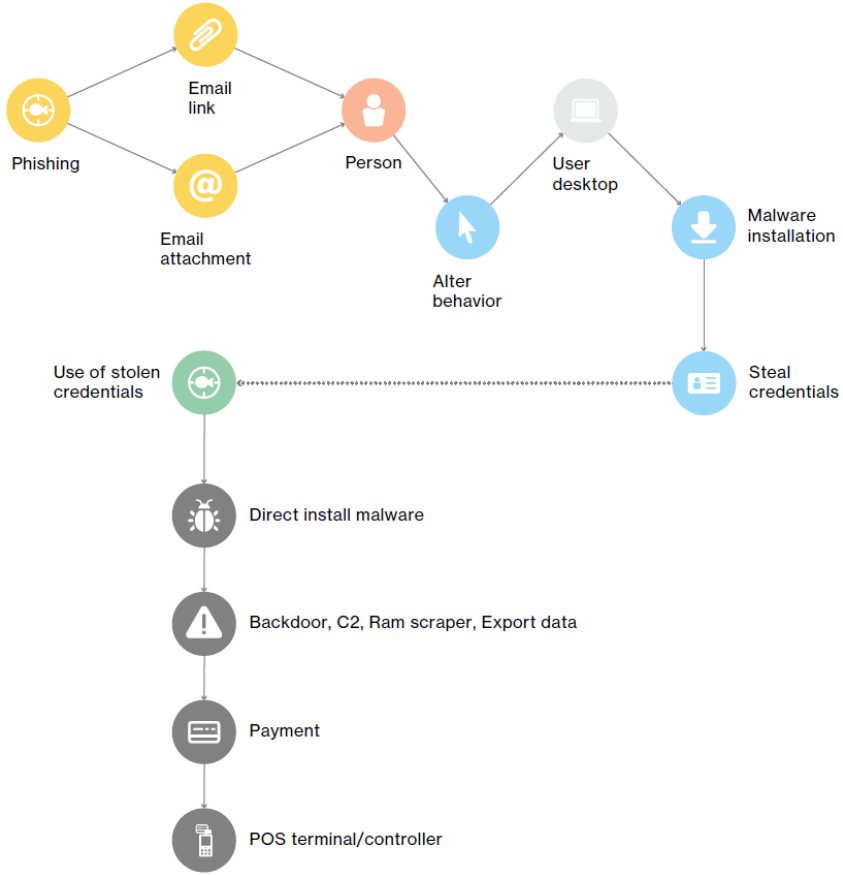
Top 10 Threat Action Varieties Within Miscellaneous Errors, Excluding Public



Source: http://www.verizonenterprise.com/resources/reports/rp_DBIR_2016_Report_en_xg.pdf

Summary





Threat Actions Within Everything Else Breaches

Source: http://www.verizonenterprise.com/resources/reports/rp_DBIR_2016_Report_en_xg.pdf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Digital
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