Software Testing and Cyber Security

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Overview

- Target Breach
- Literature Review
- Security Testing Coverage Matrix
- Conclusion/Next Steps

Target Breach

- December 2013
- 40 Million Customers
- Vendor Portal
- POS Systems

Could Testing Have Helped?

Target Breach and Testing

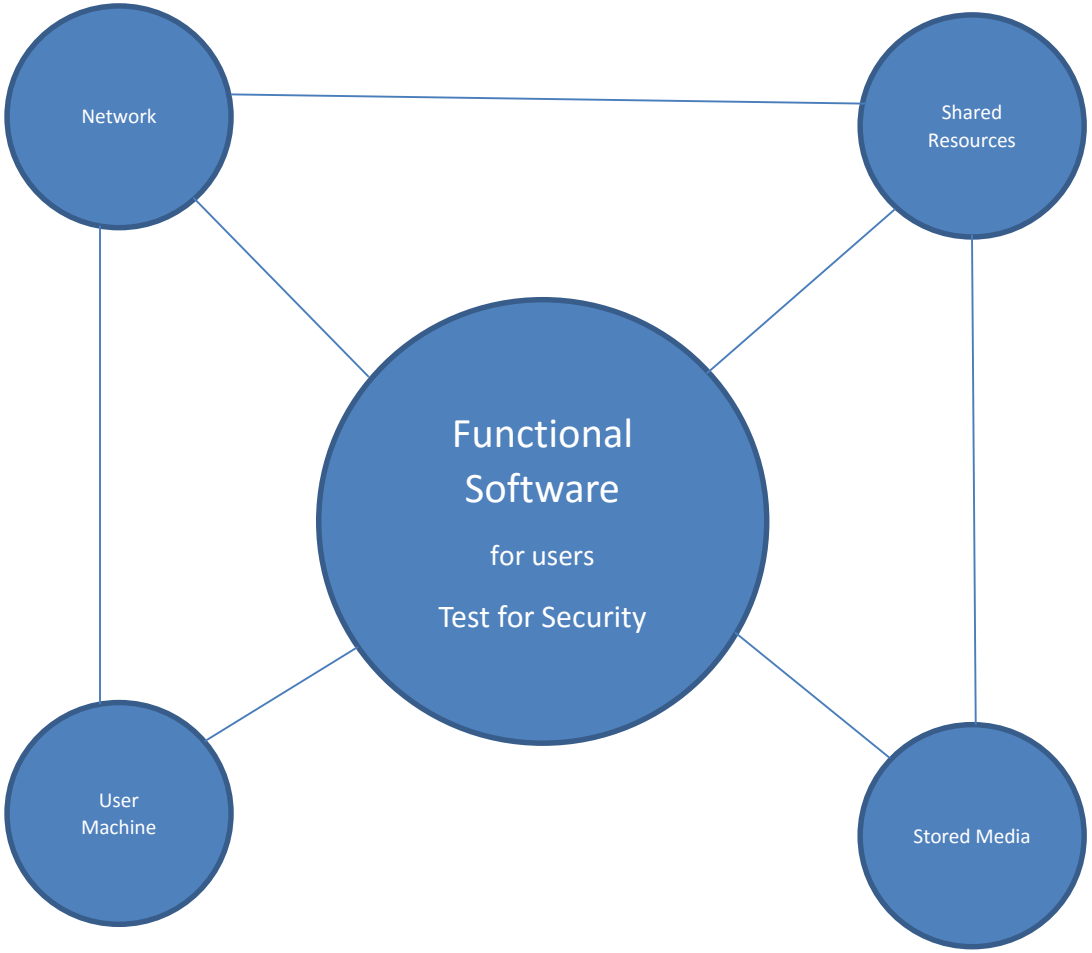
- Vendor Portal
- POS Systems
- Passwords
- Responding to Alerts

Literature Review

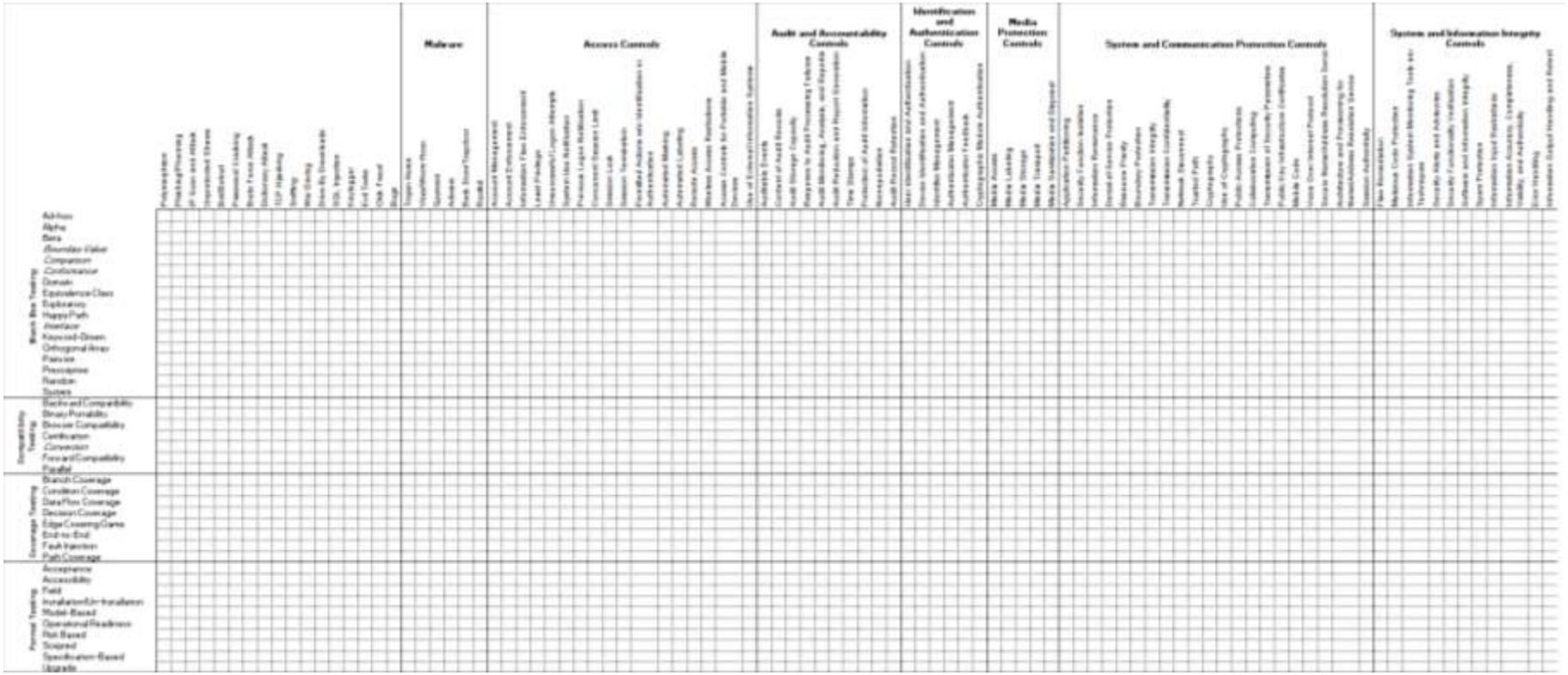
- Best Practices
  - National Institute of Standards and Technology (NIST) Controls
- Security Areas
- Testing Types

Resulted in focus on security and testing matrix for software development and testing regarding the robustness of built-in security defenses

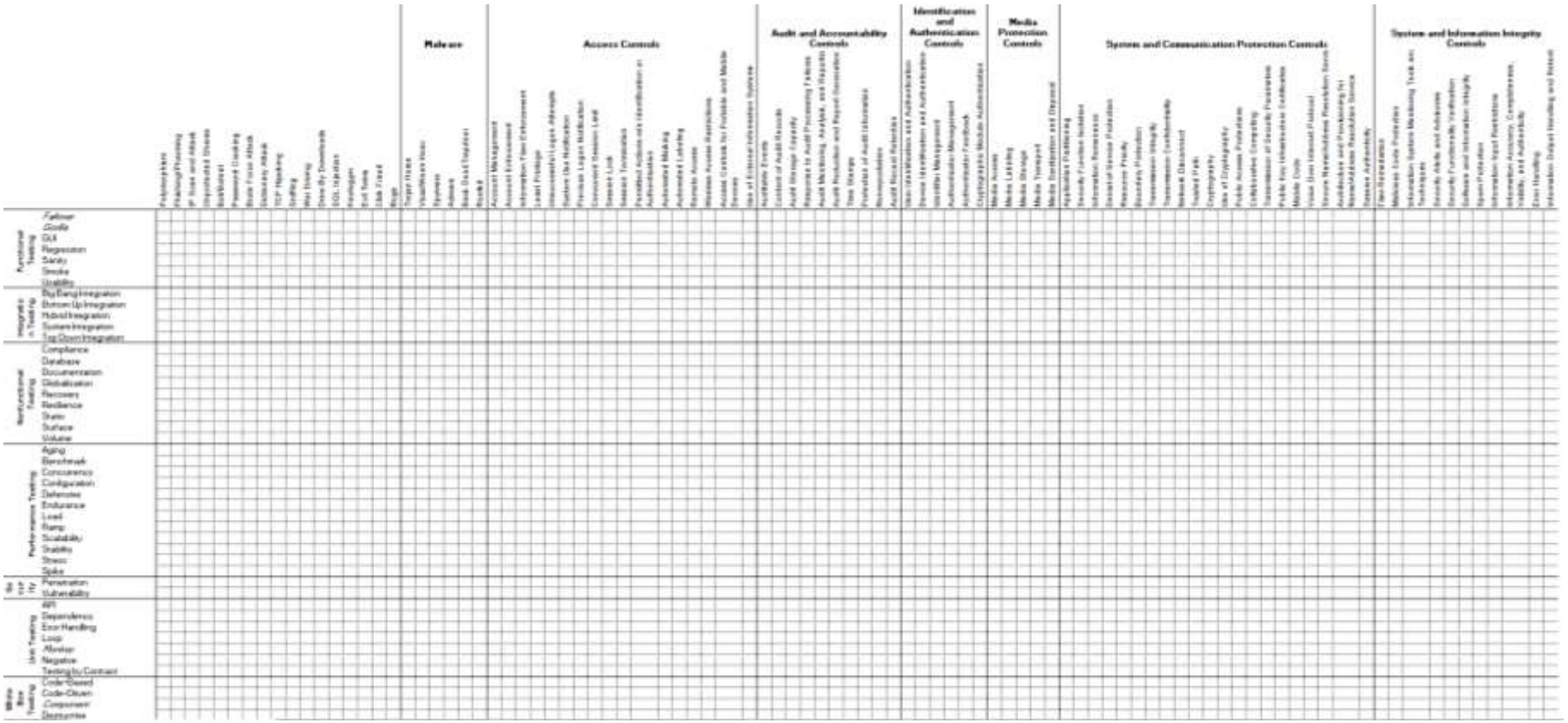
Realm of Potential Security Concerns



Security Testing Coverage Matrix - Detailed



Security Testing Coverage Matrix – Cont'd



Security Testing Coverage Matrix – High Level

	Phishing/Pharming	Bot/Botnet	SQL Injection	Click Fraud	Access Controls	Audit and Accountability Controls	Identification and Authentication Controls	System and Information Integrity Controls
Black Box Testing	✓	✓		✓	✓	✓	✓	✓
Compatibility Testing					✓			
Functional Testing					✓	✓	✓	✓
Integration Testing								
Nonfunctional Testing			✓		✓	✓	✓	✓
Performance Testing							✓	
Security Testing	✓	✓	✓	✓	✓	✓	✓	✓
Operational Readiness testing							✓	
Unit Testing						✓		✓
White Box Testing			✓		✓		✓	
Coverage Testing	✓	✓	✓	✓				✓

Conclusion/Next Steps

- Using the Matrix
- Getting Expert Opinions
- Creating a Matrix for Expanded Security Testing Types Only
- Publishing Our Work