OWASP Application Security Guide for Chief Information Security Officers (CISOs)

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Global Industry Committee
OWASP Foundation

OWASP

CISO Breakfast Meeting, Atlanta
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The OWASP Foundation
http://www.owasp.org

About myself and the life journey that brought me to OWASP

citi

Bridgefex

VISA

COMPUCREDIT

OWASP
The Open Web Application Security Project
http://www.owasp.org

CERBTECH LLC

McAfee

EWA
Electronic Warfare Associates, Inc.

INTERNET SECURITY SYSTEMS

UNIVERSITAS STUDII PADUANI MCCXXII

Alenia

UNIVERSITY OF CALIFORNIA BERKELEY

NASA

NORTHWESTERN POLYTECHNIC UNIVERSITY

STERLING SOFTWARE

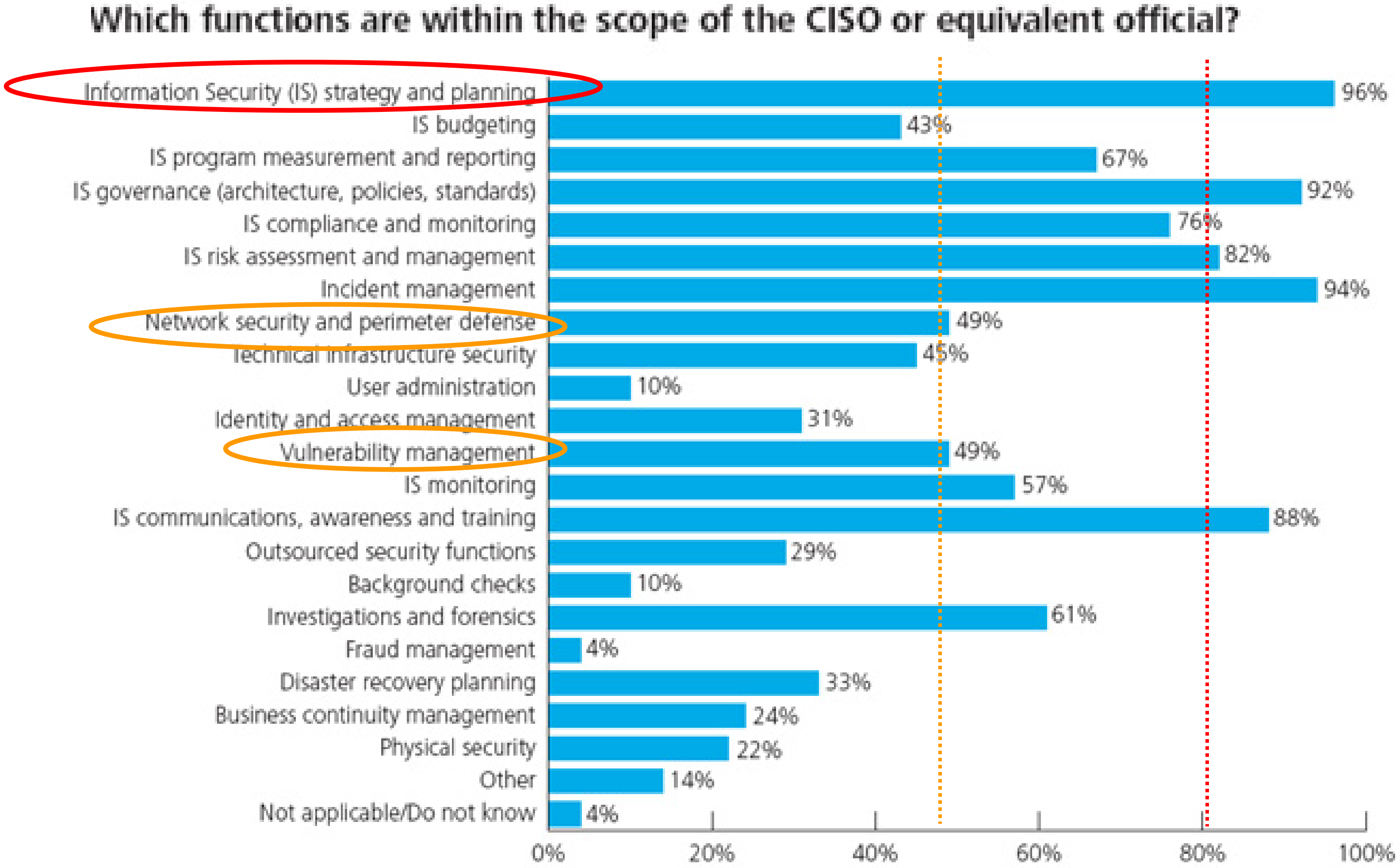
LOCKHEED MARTIN

Why an OWASP Guide For CISOs?

Today’s CISOs are like four star generals

What CISO care for today?

CISOs Surveys

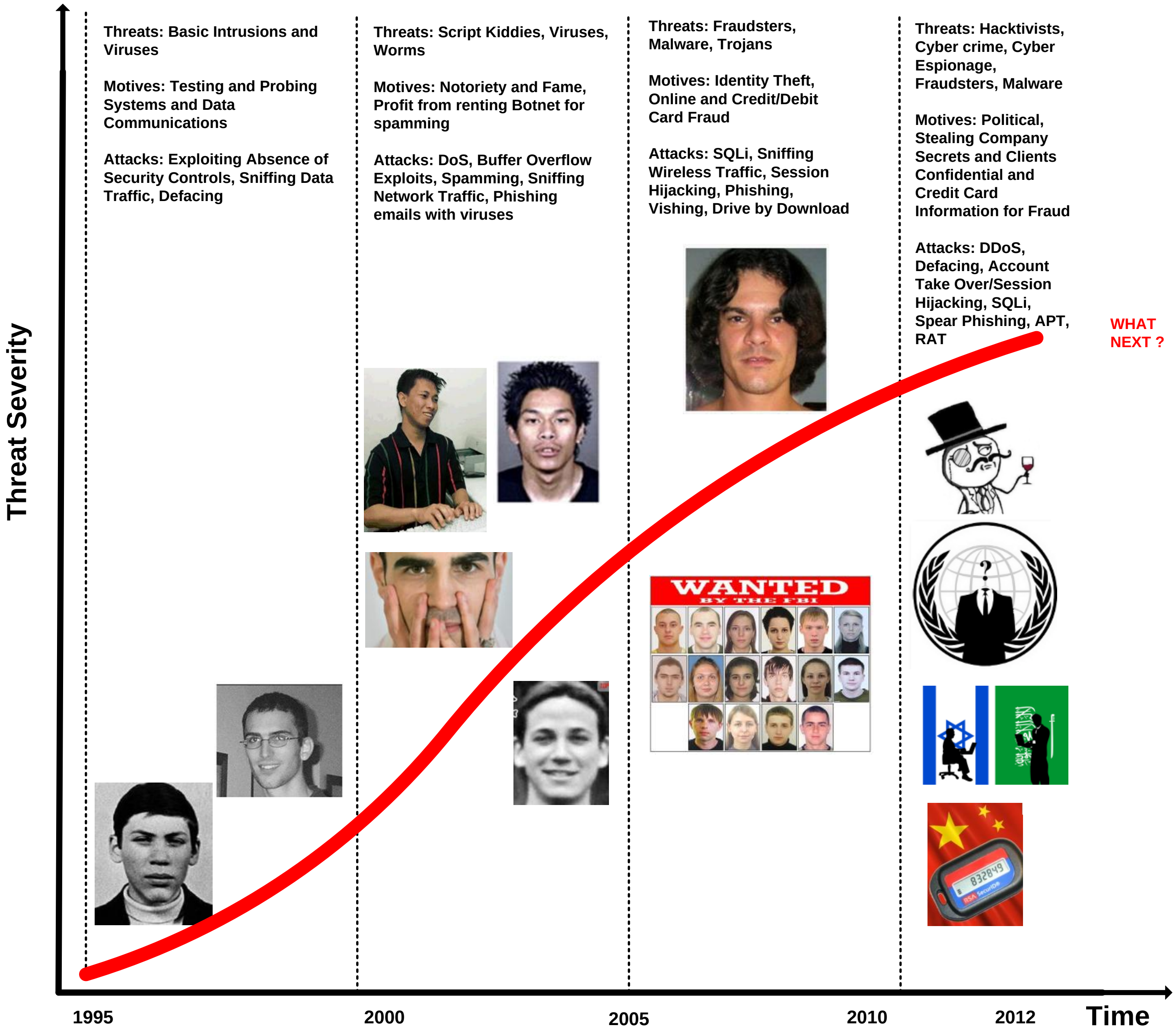


Sources:
Deloitte and the National Association of State CIOs (NASCIO) are sharing the results of a joint Cyber Security Survey, finding that State Chief Information Security Officers (CISOs) in 2010

What CISOs will care of in the future?

Compliance lags behind threats

The Escalation of Cyber Threats



Threats: Basic Intrusions and Viruses

Motives: Testing and Probing Systems and Data Communications

Attacks: Exploiting Absence of Security Controls, Sniffing Data Traffic, Defacing

Threats: Script Kiddies, Viruses, Worms

Motives: Notoriety and Fame, Profit from renting Botnet for spamming

Attacks: DoS, Buffer Overflow Exploits, Spamming, Sniffing Network Traffic, Phishing emails with viruses

Threats: Fraudsters, Malware, Trojans

Motives: Identity Theft, Online and Credit/Debit Card Fraud

Attacks: SQLi, Sniffing Wireless Traffic, Session Hijacking, Phishing, Vishing, Drive by Download

Threats: Hacktivists, Cyber crime, Cyber Espionage, Fraudsters, Malware

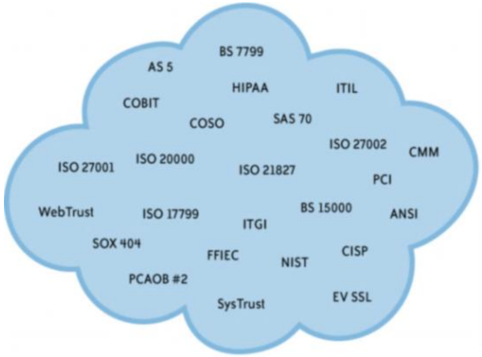
Motives: Political, Stealing Company Secrets and Clients Confidential and Credit Card Information for Fraud

Attacks: DDoS, Defacing, Account Take Over/Session Hijacking, SQLi, Spear Phishing, APT, RAT

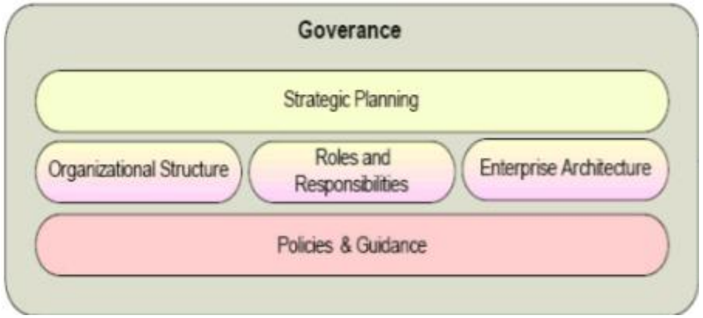
How a CISO Guide Can Help?

OWASP Appsec CISO GUIDE PART I: Guidance Criteria for Application Security Investments

Compliance-Legal



Governance



Goverance

Strategic Planning

Organizational Structure

Roles and Responsibilities

Enterprise Architecture

Policies & Guidance

Audits

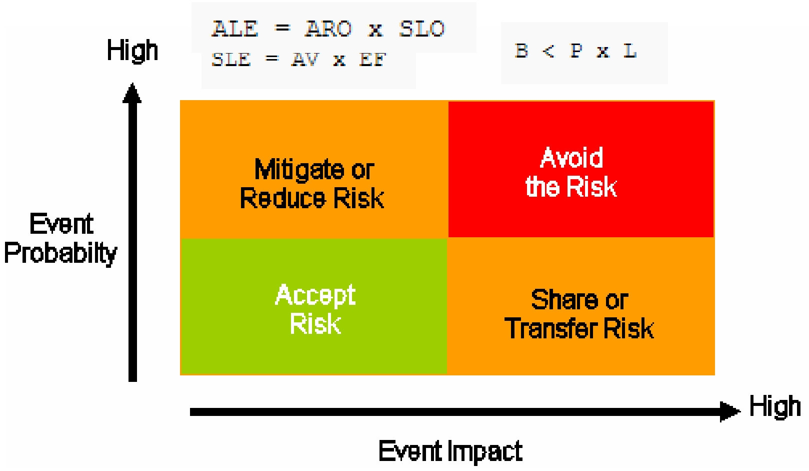
AUDIT REPORT

☑ Audit satisfactory
– verifies compliance with requirements

☐ Non-conformances found

☐ Observations made

Risk Quantification, Costs vs. Benefits of Measures, ROSI



ALE = ARO x SLO

SLE = AV x EF

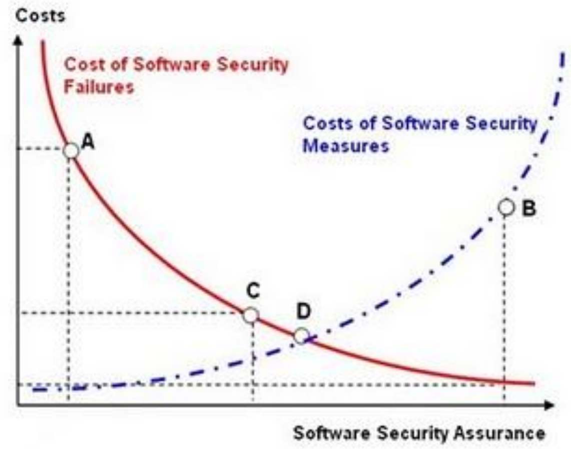
B < P x L

Mitigate or Reduce Risk

Avoid the Risk

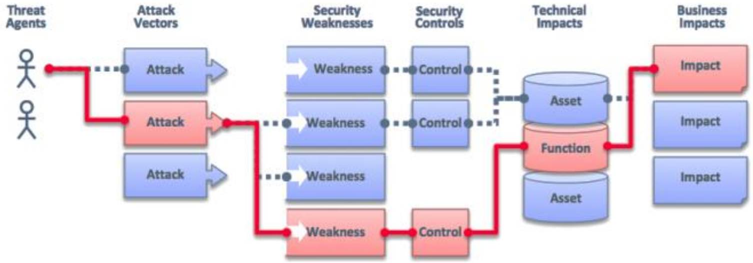
Accept Risk

Share or Transfer Risk

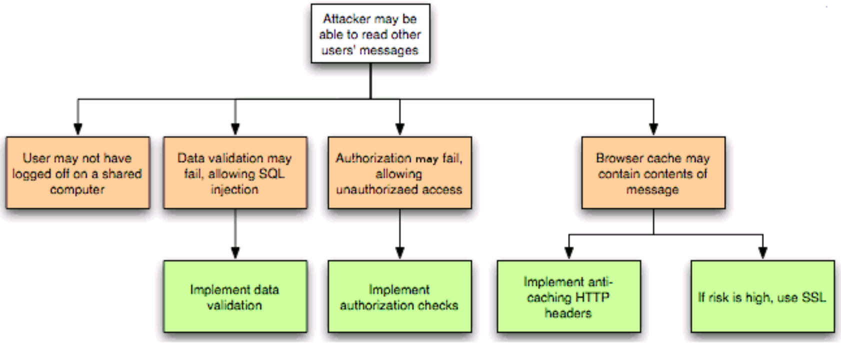


OWASP Appsec CISO GUIDE PART II: Selection of Application Security Measures

Prioritization of Vulnerabilities by Business Impacts



Threat Agent Specific Countermeasures



Attacker may be able to read other users' messages

User may not have logged off on a shared computer

Data validation may fail, allowing SQL injection

Authorization may fail, allowing unauthorizaed access

Browser cache may contain contents of message

Implement data validation

Implement authorization checks

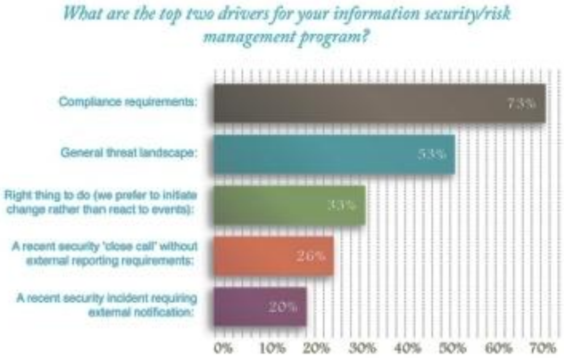
Implement anti-caching HTTP headers

If risk is high, use SSL

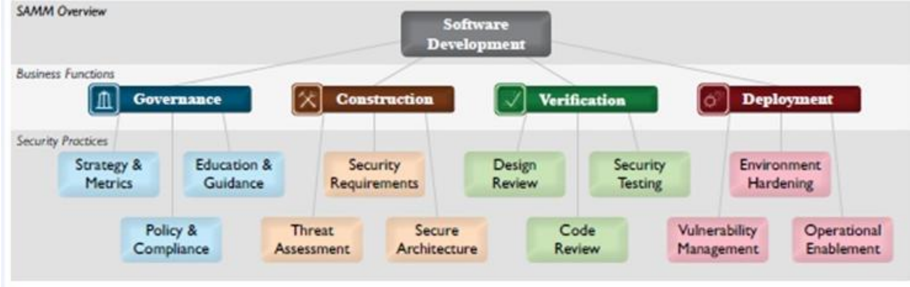
Measures for Securing New Technologies

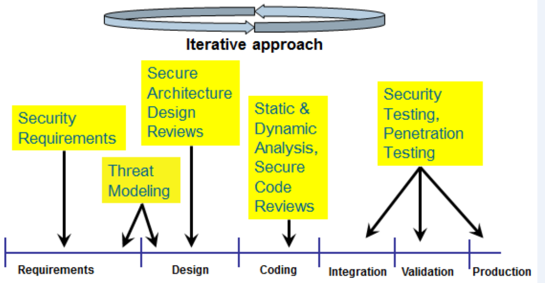
PART III: Strategic Guidance for the Selection of Application Security Processes

Alignment with CISO Role & Functions

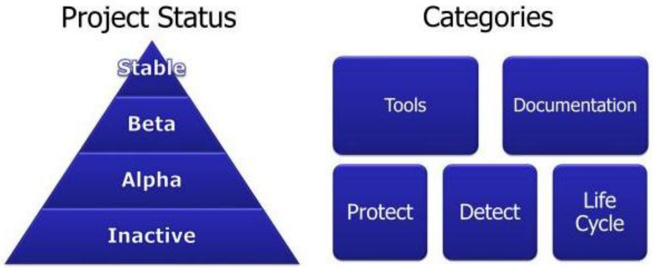


Maturity Models and S-SDLC Processes



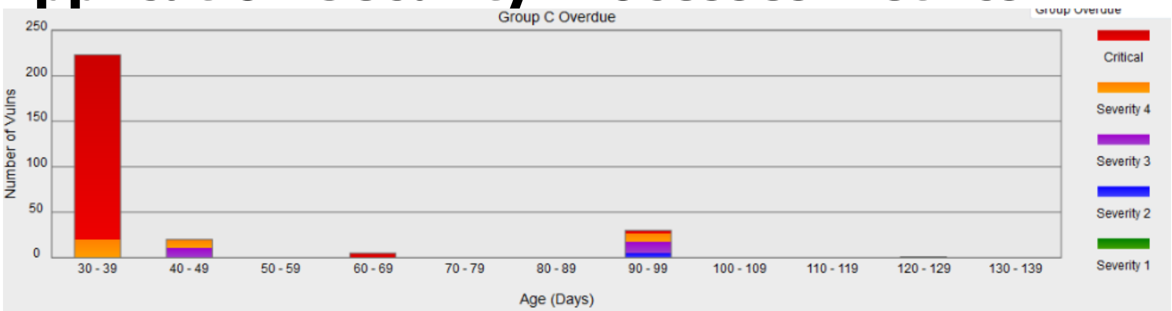

Iterative approach
Security Requirements
Threat Modeling
Secure Architecture Design Reviews
Static & Dynamic Analysis, Secure Code Reviews
Security Testing, Penetration Testing
Requirements
Design
Coding
Integration
Validation
Production

Guidance for choosing OWASP Projects

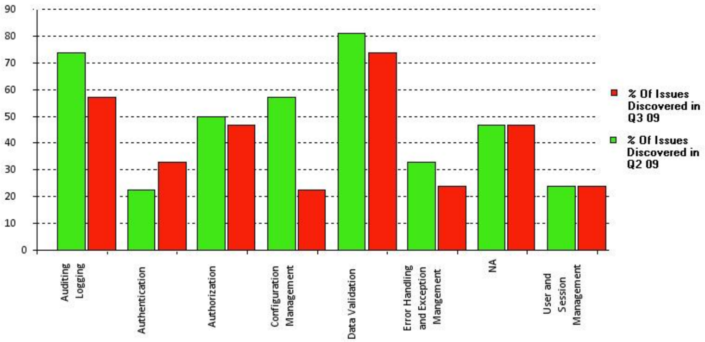


PART IV: Guidance on metrics for managing application security programs

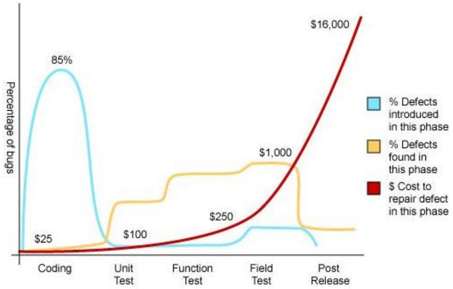
Application Security Processes Metrics



Application Security Issues Risk Metrics



Security in SDLC Issue Management Metrics



How we are creating the guide

The OWASP Application Security Guide For CISOs Four Step Project Plan

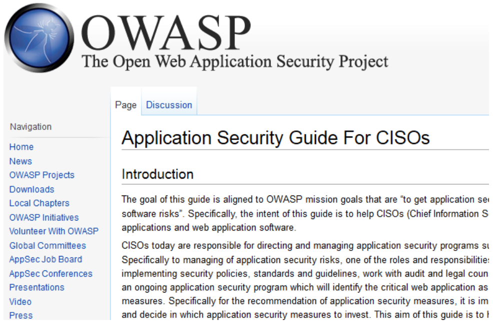
STEP 1: Present OWASP Application Security GUIDE Draft to IS Community

STEP 2: Enroll CISOs to participate to a CISO survey

STEP 3: Gather and analyze the survey

STEP 4: Tailor the guide to the results of the survey and final release status

STEP 4: Present final release



OWASP
The Open Web Application Security Project

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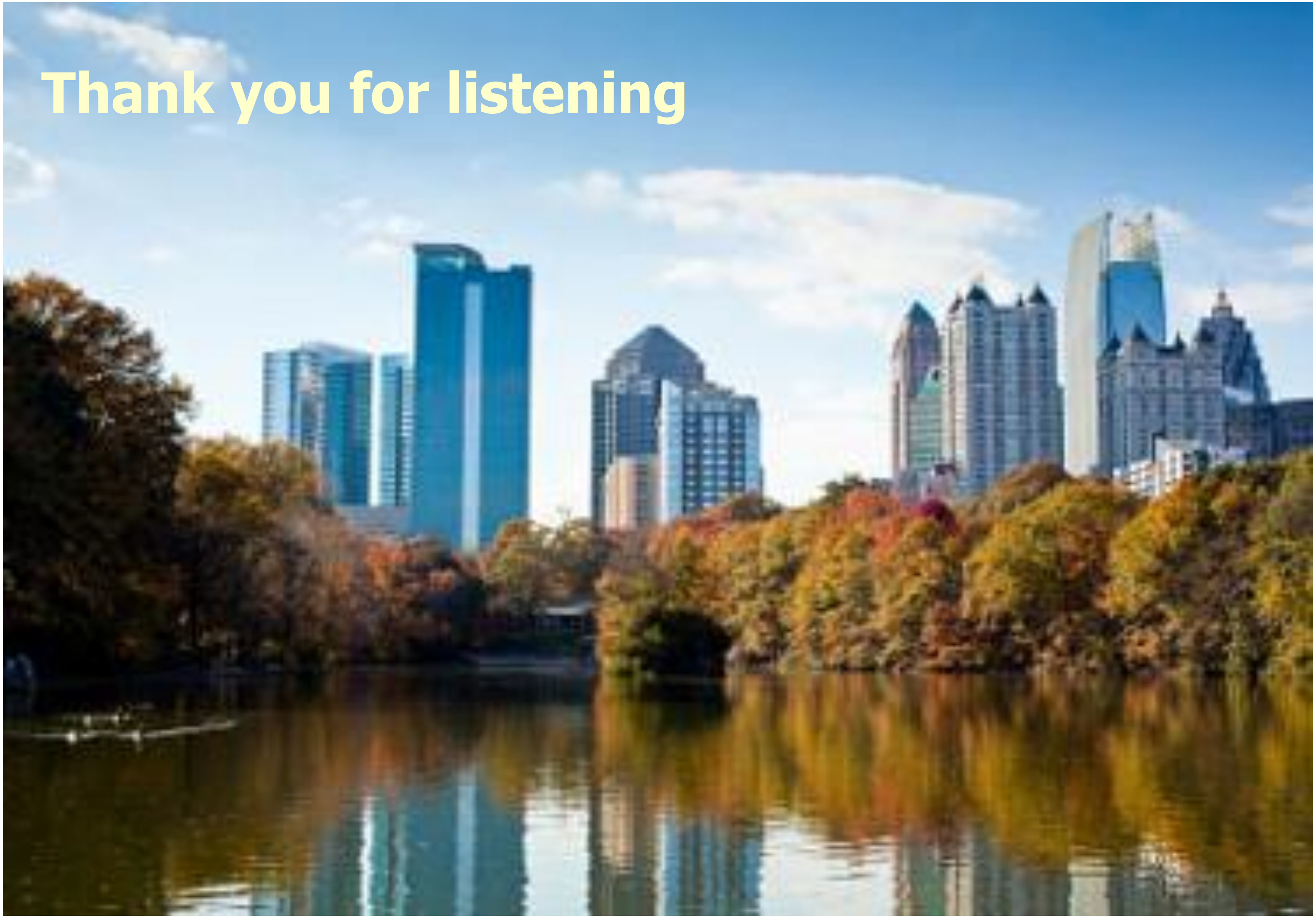
Application Security Guide For CISOs

Introduction

The goal of this guide is aligned to OWASP mission goals that are "to get application se
software risks". Specifically, the intent of this guide is to help CISOs (Chief Information S
applications and web application software.

CISOs today are responsible for directing and managing application security programs su
Specifically to managing of application security risks, one of the roles and responsibilitie
implementing security policies, standards and guidelines, work with audit and legal coun
an ongoing application security program which will identify the critical web application as
measures. Specifically for the recommendation of application security measures, it is im
and decide in which application security measures to invest. This aim of this guide is to I

Thank you for listening



QUESTIONS
ANSWERS

Appendix: Mapping CISO's Responsibilities

CISO RESPONABILITY	DOMAIN	CURRENT OWASP PROJECTS	OWASP CISO GUIDE
Develop and implement policies, standards and guidelines for application security	Standards & Policies	Development Guide - Policy Frameworks CLASP - Identify Global Security Policy SAMM - Policy & Compliance, Code Review- Code Reviews and Compliance, Cloud-10 Regulatory Compliance	✖
Develop implement and manage application security governance processes	Governance	SAMM - Governance	✖
Develop and implement software security development and security testing processes	Security Engineering Processes	Development Guide -All Code Review Guide- All, Secure Code Practices Guide-All, Testing Guide-All, CLASP-All, SAMM-All, Security Tools for Developers-All Application Security Standards-All	✖
Develop, articulate and implement risk management strategy for applications	Risk Strategy	SAMM - Strategy & Metrics	✖
Work with executive management, business managers and internal audit and legal counsel to define application security requirements that can be verified and audited.	Audit & Compliance	Application Security Verification Standard-All, CLASP-Document Security-Relevant Requirements, SAMM-Security requirements, Testing Guide-Security Requirements Test Derivation, Legal-Secure Software Contract Annex	✖
Measure and monitor security and risks of web application assets within the organziation	Risk Metrics & Monitoring	Application Security Metrics Project, CLASP-Define and monitor metrics	✖
Define, identify and assess the inherent security of critical web application assets, assess the threats, vulnerabilities, business impacts and recommend countermeasures/corrective actions	Risk Analysis & Management	OWASP Top Ten Risks, Testing Guide-Threat Risk Modeling Development Guide-Threat Risk Modeling, Code Review Guide-Application Threat Modeling Testing Guide-Threat Risk Modeling	✖
Assess procurement of new web application processes, services, technologies and testing tools	Procurement	Legal project Tools project Contract Annex	✖
Oversees the training on application securty for information security and web application development teams	Security Training	Education Project Training Modules/Conference Videos Application Security FAQ CLASP-Institute security awareness program	✖
Develop, articulate and implement continuity planning/disaster recovery	Business Continuity/ Disaster Recovery	Cloud- Business Continuity and Resiliency	✖
Investigate and analyze suspected security breaches and recommend corrective actions	Incident Response	.NET Incident Response, CLASP-Manage Security Issue Disclosure Process	✖

Appendix: Business Cases Cheat Sheet-Data Breach Incidents 2011-2012 Statistics

1. **Threats Agents**: Majority are hacking and malware
2. **Targets**: 54% of incidents target web applications
3. **Likelihood**: 90% of organizations had at least one data breach over the period of 12 months
4. **Attacks-Vulnerabilities:** SQL injection reigning as the top attack technique, 51% of all vulnerabilities are XSS
5. **Data Breach Impact**: Majority of data lost are user's credentials, emails and personal identifiable information
6. **Business Breach Impact**: The average cost of a data record breached is estimated as $ 222 per record
7. **Incident Response**: Majority of incidents is discovered after weeks/months from the time of initial data compromise

Sources: OSF, DataLossDb.org
Ponemon Institute and Symantec, Research March 2012
Verizon's Investigative data Breach Report 2012
IBM X-Force 2012 Mid Year Trend & Risk Report