Drivers for a Secure Mobile App Development Framework

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Presenter

- Christoff Jacobs
- Software developer
- +18 years software development experience
- Insurance, healthcare, stock trading, vehicle and banking
- Focus on mobile security and software development architecture and best practices
- Current PhD

Agenda

1. Article introduction
2. Presenter
3. Presentation
4. The end

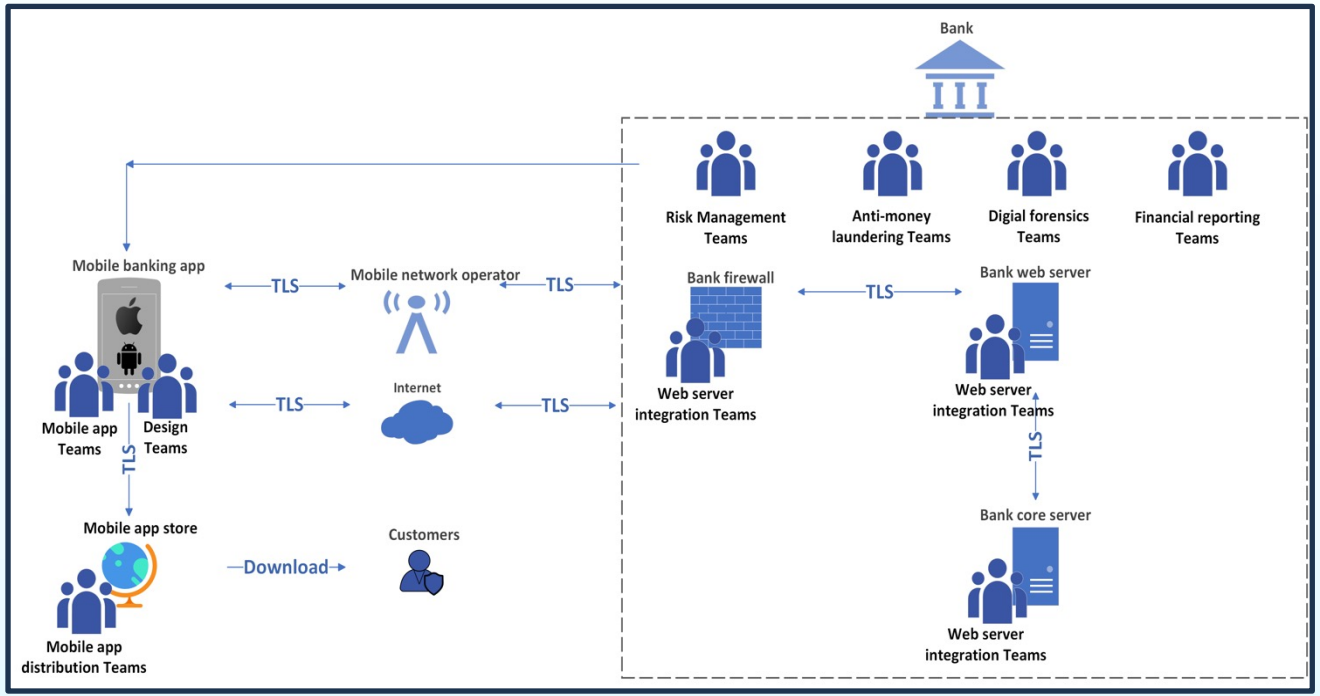
Introduction

- AI generated - Midjourney
- Using mobile, guardian, portal, end of the world

Introduction

- Pandemic implications
- Ubiquitous app deployment
- Trends in cybersecurity threats
- Urgency in security measures
- Methods of authentication
- Absence of standardized approaches
- Friction in software development
- Requisite specialization
- Limitations in existing frameworks
- Imperative for a secure development framework

Mobile app ecosystem (example)



Mobile app ecosystem

- The mobile application ecosystem
- Elevated risk factors
- Elements within the ecosystem
- Critical integration nodes
- Extending beyond user interface
- The centrality of security
- Validation through testing
- Deployment for customer use
- Facilitating network communication
- Exploring alternative approaches

Secure software development for mobile apps

- The lack of mobile application SDLC models
- Predominance of technical emphasis over lifecycle consideration
- Constraints of conventional SDLC methodologies
- Security predicaments within traditional SDLC
- Depletion of secure development frameworks
- Proliferation of generalized frameworks
- Advocacy for a holistic security lifecycle approach

Secure software development for mobile apps

- Recommendations on industry standards
- Myriad security imperatives
- Requisite for a coherent framework

Secure software development for mobile apps

- **NIST**
  - NIST regulatory updates
  - NIST 800-163 framework
  - Application security requirements
  - Customized mobile app security
  - NIST 800-218 SSDF
- **OWASP**
  - OWASP’s significance in advancing mobile app security
  - Emphasis on security aspects
  - Thorough examination and constructive input

Secure software development for mobile apps

- **OWASP**
  - Vulnerability domains defined by MASVS
  - Endorsement by CREST alliance
- **MITRE ATT&CK**
  - MITRE's ATT&CK knowledgebase
  - Platform-specific security topics
  - Enhancing mobile app security expertise
  - Practical examples

Secure software development for mobile apps

- **DEVSECOPS**
  - DevSecOps overview
  - Key DevSecOps practices
  - Challenges in implementation
  - Identification of security drivers
  - Comprehensive approach

Security drivers for a secure software mobile software development framework

- Introduction -> mobile app ecosystem -> standard security frameworks
- Issues still exist in identifying security drivers for a secure mobile software development framework

Security drivers for a secure software mobile software development framework

1. Management of software developers for security
2. A structured security approval strategy for security vendors
3. Integrate security education into secure software development
4. Standardised secure software development practices and coding principles
5. A baseline set of standardised security mechanisms for mobile apps
6. Standardised threat modelling approach

Security drivers for a secure software mobile software development framework

7. Standardise testing schedule

8. Standardised mobile app vetting system for an industry

9. Regulated security reporting and collaboration

Evaluation

TABLE I. COMPARISON OF SECURE DEVELOPMENT FRAMEWORKS AND SECURITY DRIVERS

Security drivers	NIST	OWASP	MITRE	DEVSECOPS
Management of software developers for security				X
A structured security approval strategy	X			
Integrate security education for secure software development	X	X	X	X
Standardised secure software development practices and coding principles		X		
A baseline set of standardised security mechanisms for mobile apps				
Standardised threat modelling approach		X		
Standardise testing schedule	X			X
Standardised mobile app vetting system for an industry		X		
Regulated security reporting and collaboration				

Evaluation

- Customization for specific industries
- Identification of research gap
- Security Driver evaluation
- Robustness of OWASP
- NIST’s contribution
- MITRE ATT&CK's Unique Perspective
- Emphasis on DevSecOps
- Critical insights from framework comparison
- Prospects for future framework development

Conclusion and future work

- Intricacies within the mobile ecosystem
- Dilemmas encountered in security mechanism implementation
- Limitations of current frameworks
- Research contribution and prospects for future endeavors

The end