Security for Mobile Application

COMPUTER SECURTIY

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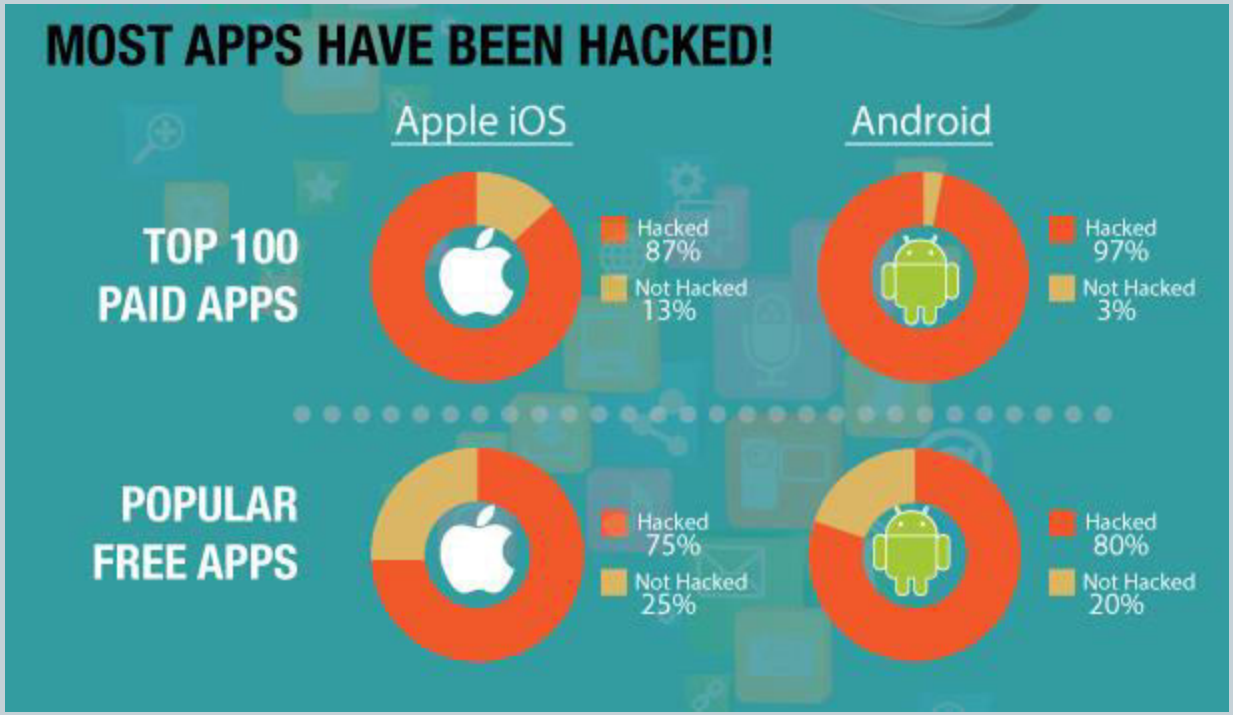
Table of Content

- Introduction
- Mobile Application Security Problems
- Mobile Application Security Services
- Solution for Five Problems

Introduction

- Mobile Applications have been a target
  - Through reverse engineering, repackaging and republishing
- Security for Mobile apps is not a main focus in the industry
- Most of binary code which are the download-able code, aren't protected
- A lot of applications lack security controls.

Introduction



Five Main Problems

- Insecure data storage
- Weak Server side controls
- Unintended data leakage
- Broken Cryptography
- Security Decisions Via Inputs

Insecure data storage

- Users only input id and password once for mobile application
- Some apps store the id and password in text file
- Common for people that use same id and password for others

Weak Server side controls

- People think only an app is accessing the server
- Most mobile apps are designed within the company's network and never interfere with outside world
- The server is weak against any malicious attacks

Unintended data leakage

- Mobile apps tend to gather a lot personal information and are consider “leaky” app
- It is a bad idea in case of more serious app such as healthcare app which is
  - [to track how often a patient experiences a particular symptom of a disease. If the app also contained analytics that reported how often that same section of the application was viewed, it would be possible for someone with analytics access to determine the medical condition of a specific user -- and place the provider in violation of HIPAA compliance.]

Broken Cryptography

- MD5 and SHA1 is proven to be insufficient for modern security
- Organizations develop their own encryption algorithm
- Poor Key management
  - company uses strong encryption system but implements their own key which are vulnerable to attackers

Security Decisions via Inputs

- Mobile app receive data from all sources
- May be vulnerable to the attackers since they can bypass the security using any sort of inputs

Mobile Application Security Service

- OWASP Mobile Security Project
- VeraCode
- Cigital
- Lookout
- Aspect Security

Solutions for the Five Problems

- What is the solution for Insecure data storage?
  - Credentials should be stored in an encrypted environment
  - Backup should be disallowed
- What is the solution for Weak Server side controls?
  - The back-end services should be able to prevent any malicious attacks
  - All APIs should be verified and proper security methods employed to ensure access only to the authorized people

Solutions for the Five Problems

- What is the solution for Unintended data leakage?
  - Caution on choosing analytics providers
  - Need to know what, where, how the data goes
- What is the solution for Broken Cryptography?
  - Use state of the art encryption like AES with 256 bits or SHA-256 for hashing.
  - Or use manual analysis: penetration testing, threat modeling.

Solutions for the Five Problems

- What is the solution for Security Decisions via Untrusted inputs?
  - Any app accepting data from everywhere need to checks all inputs used to build the app
  - Make sure the developers can think through unintended consequences of app design.

Thank You

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