Mobile Software Licensing

Alexey Koren

Alexander Sidorenko

SUAI

Outline

- Project motivation
- State of Art
  - Software distribution
  - Mobile software market
- Mobile area specificity
- Approach to build solution
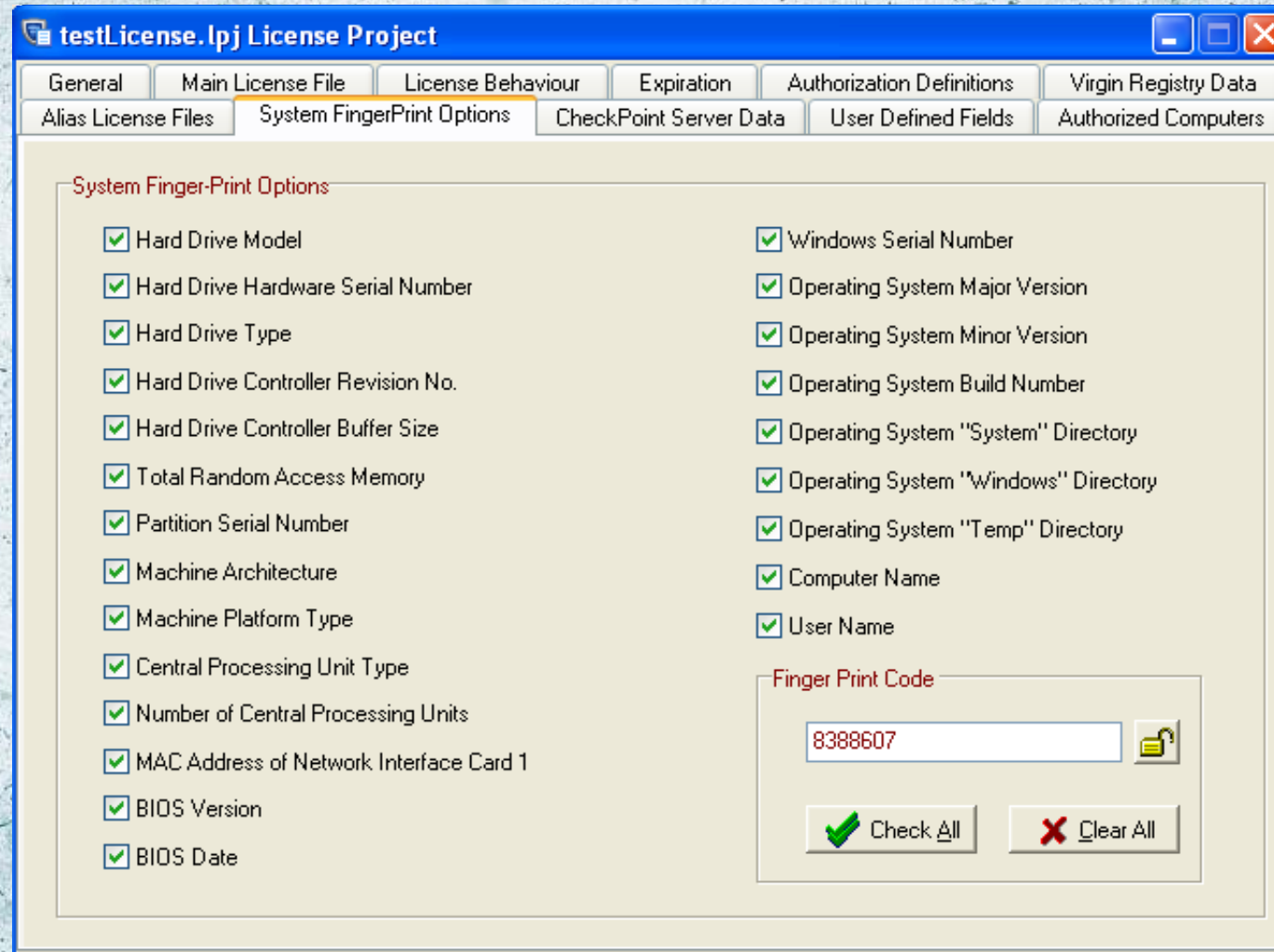- Projects steps
- Bricks to build solution

- **Basic solutions**
  - License agreement
  - Key file / Installation code

- **Advanced solutions**
  - License management
  - Copy protection
  - Watermarking
  - Code protection
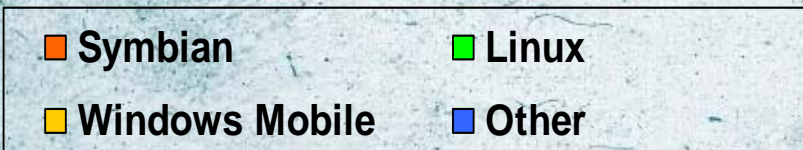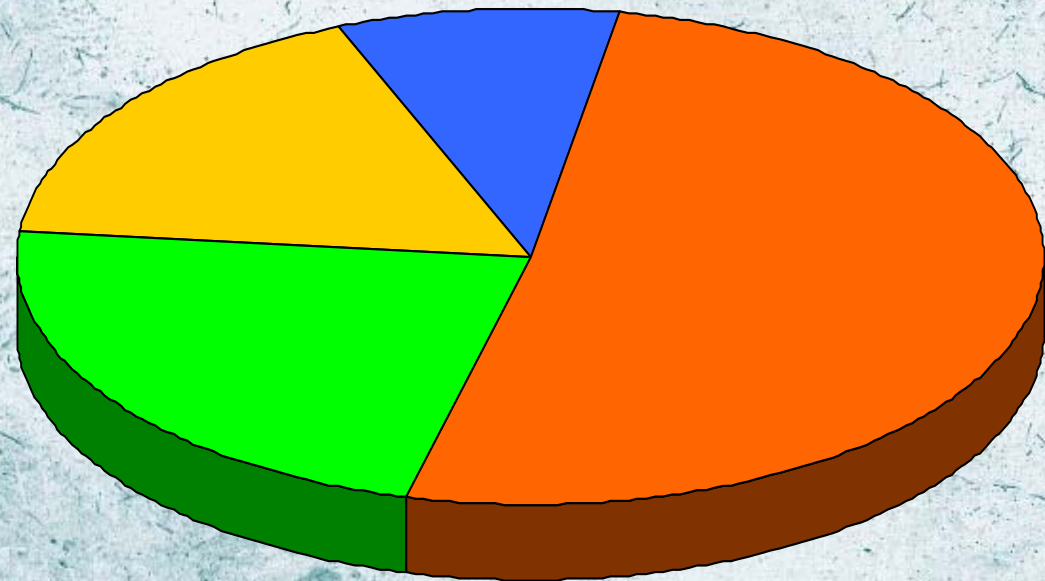
State of Art
Software Distribution Security -II

testLicense.lpj License Project

| General | Main License File | License Behaviour | Expiration | Authorization Definitions | Virgin Registry Data |
| Alias License Files | System FingerPrint Options | CheckPoint Server Data | User Defined Fields | Authorized Computers |

System Finger-Print Options

- ☑ Hard Drive Model
- ☑ Hard Drive Hardware Serial Number
- ☑ Hard Drive Type
- ☑ Hard Drive Controller Revision No.
- ☑ Hard Drive Controller Buffer Size
- ☑ Total Random Access Memory
- ☑ Partition Serial Number
- ☑ Machine Architecture
- ☑ Machine Platform Type
- ☑ Central Processing Unit Type
- ☑ Number of Central Processing Units
- ☑ MAC Address of Network Interface Card 1
- ☑ BIOS Version
- ☑ BIOS Date

- ☑ Windows Serial Number
- ☑ Operating System Major Version
- ☑ Operating System Minor Version
- ☑ Operating System Build Number
- ☑ Operating System "System" Directory
- ☑ Operating System "Windows" Directory
- ☑ Operating System "Temp" Directory
- ☑ Computer Name
- ☑ User Name

Finger Print Code

8388607

✔ Check All   ✘ Clear All

Specificity of Mobile World

- **Devices are pretty encapsulated**
  - Changes are rare
- **Existence of operator**
  - SIM Card
  - Money bag (common account)
- **Always online**
  - OTA delivery
  - Possibility of remote checks

State of Art
Mobile Software Market

- Java ME
- BREW
- Mophun

J2ME

Java

brew.

mophun ™

Legend:
- ■ Symbian
- ■ Linux
- ■ Windows Mobile
- ■ Other

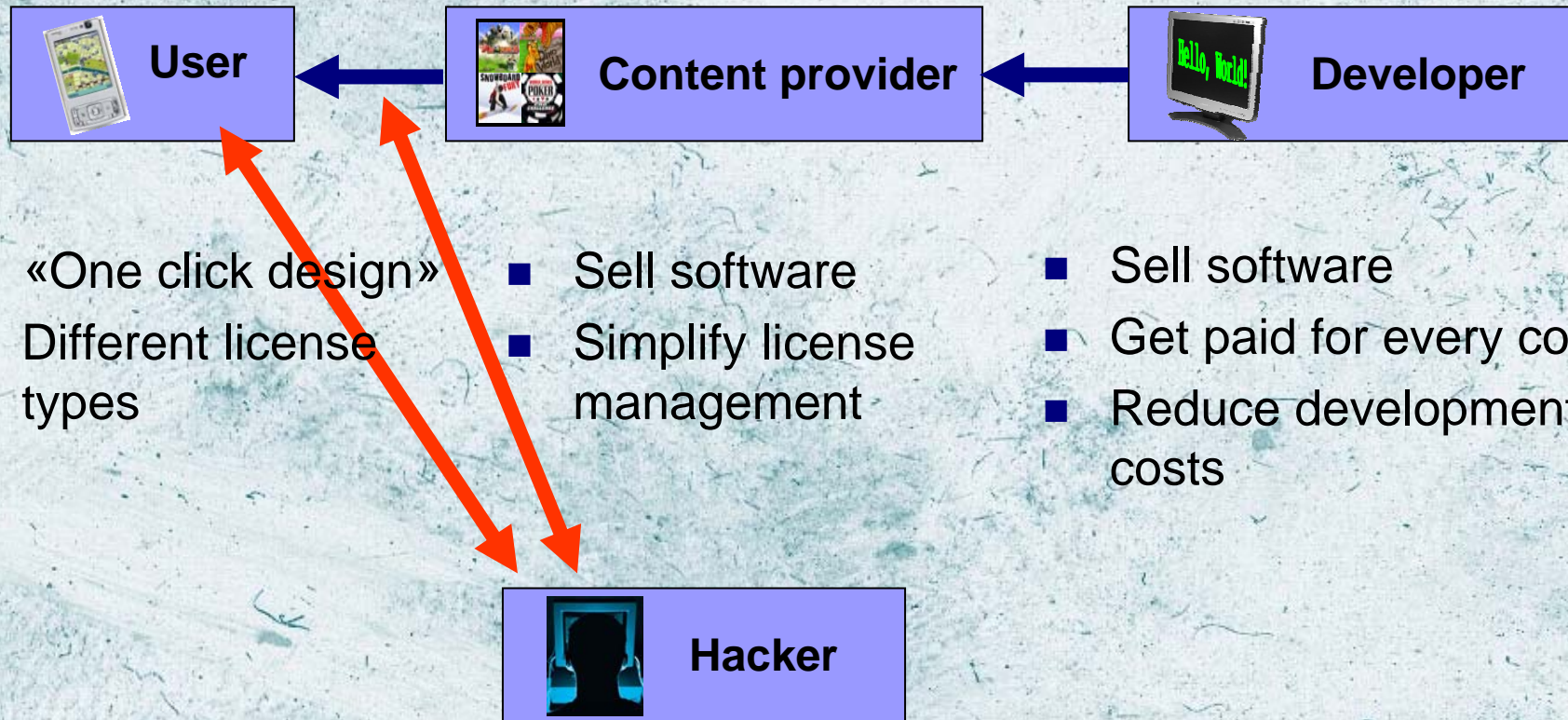# State of Art
Mobile Software Security

- StarForce Mobile
- Software Shield
- Self-made solutions

Nevertheless...
- A huge amount of software is distributing without sufficient security

Software distribution model

User	Content provider	Developer

- «One click design»
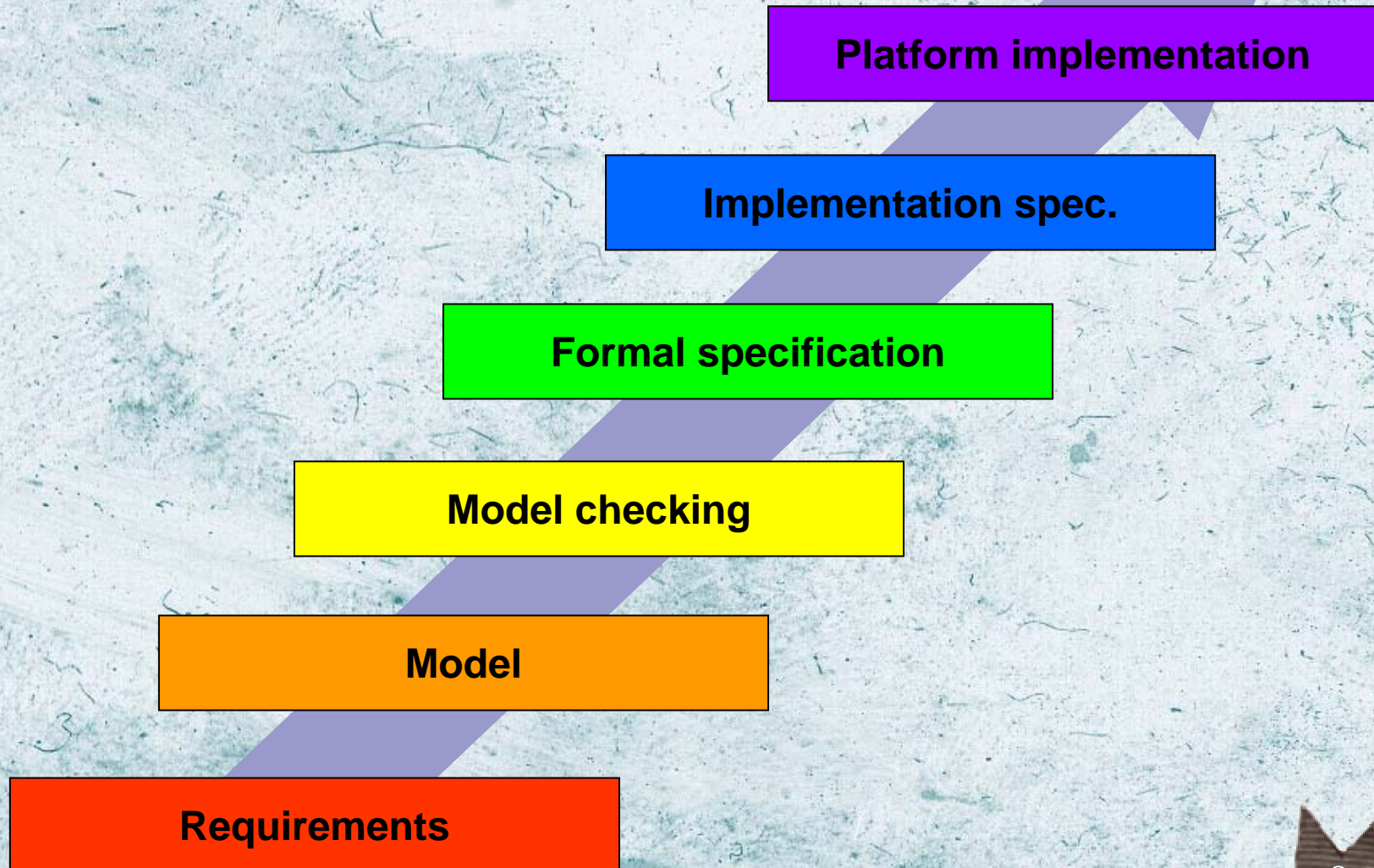- Different license types

- Sell software
- Simplify license management

- Sell software
- Get paid for every copy
- Reduce development costs

Hacker

- Easy to break

Project steps

Platform implementation

Implementation spec.

Formal specification

Model checking

Model

Requirements

Bricks to build composite solution

- **We can express:**
  - ODRL

- **We can protect code:**
  - obfuscators
  - watermarking
  - encryption

- **We can manage:**
  - OMA – DRM
  - JSR 190

- **We can protect user:**
  - signing

- **We can restrict:**
  - fingerprinting

Thank you!

Alexey Koren   alexey.koren@gmail.com

Alexander Sidorenko al.sidorenko@gmail.com