



Vývoj mobilných aplikácií

úvod

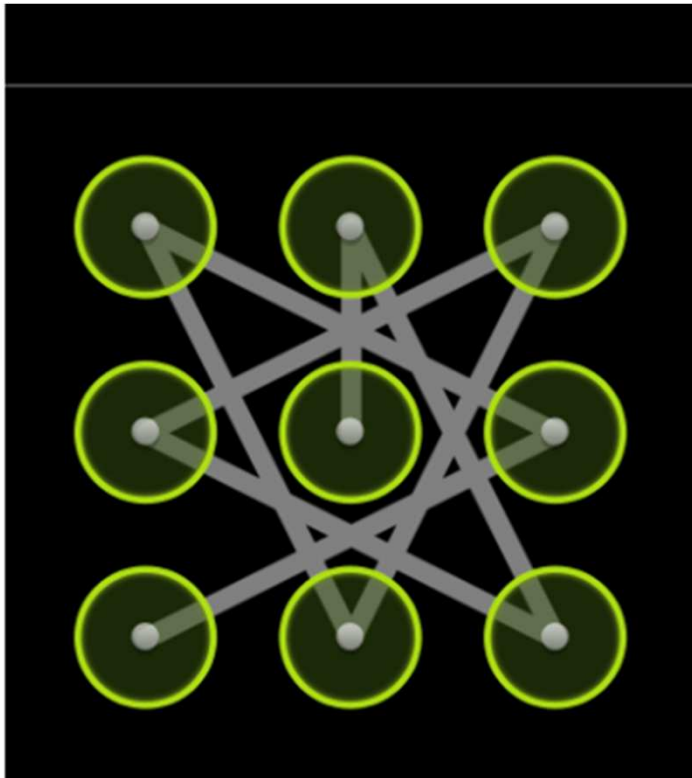
Peter Borovanský
KAI, I-18

borovan 'at' ii.fmph.uniba.sk

<http://dai.fmph.uniba.sk/courses/VMA/android/00MITInventor/>

Prémiovo-orientované vyučovanie

- prihláste sa do [L.I.S.T.](#) (ak ste v ňom nikdy neboli, ozvite sa)
- sledujte L.I.S.T.
- prémie sa budú objavovať








Mobilné OS



<http://www.gotive.com/>

aplikácie na rôznych obmedzených HW platformách pod rôznymi OS:

- **Windows Mobile 5.0, 6** - najrôznejšie pda, hand heldy,... fy. Microsoft
- **Windows CE** – pre embeded systémy, fy. Microsoft
- **Palm OS, webOS** – proprietárny OS pre Palm fy. HP, linux kernel
- **Maemo 5** – debian-like od fy.Nokia
- **Symbian** (S60, S80, S90) – open source OS pre smartphony, fy.Nokia, Samsung, SonyEricsson, Panasonic
- **iOS** – iPhone, iPod (unix-like), fy. Apple,
- **Android** - Google
- **Bada** - Samsung (odpoved' na Android) 
- **BlackBerry OS** 
- **Windows Phone -> Windows 10 Mobile** 
- **Firefox OS** 
- **Ubuntu Touch** 

Vývojové jazyky/nástroje

- Symbian
 - C++, Java ME, Python, ...
- Windows Mobile 6
 - C# (MS Visual Studio)
- iOS
 - Objective-C -> Swift 3/4 (Xcode)
- Android
 - scratch (MIT Inventor)
 - java (Android SDK + plugin pre Eclipse) -> (Android Studio)
 - java (A.I.D.E.)
 - Kotlin (Android Studio 3+)
 - C++ (Android NDK)
- Multi-platform
 - C# (Xamarin iOS, Android, Windows) – fy. MS, Visual Studio 2015
 - Pascal (Delphi XE5 iOS, Android, Windows 10) – fy. Embarcadero
 - JavaScript (React Native)
 - Flutter od Google
- game engine
 - C# (Unity 2D/3D)

iOS - Apple Center kurz

1-AIN-303/15

...

Vývoj a nástroje

(detailnejšie)

■ natívne aplikácie

- Android 
 - Java
 - Kotlin
- iOS 
 - Objective-C
 - Swift



Priamy prístup k všetkým fičúrkam a komponentom OS, aj tým najnovším ...

■ hybridné aplikácie

- Cordova
- ionic



APACHE CORDOVA™



Web-app na báze .html, .css, .js, ktoré púšťame v prostredí WebView=browser/wrapper bez browserových ovládačov

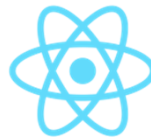
Vývoj a nástroje

(detailnejšie)

■ kompilované aplikácie

■ React Native

- JavaScript
- Facebook
- nekompiluje do natívneho kódu
- obmedzená množina widgets



■ Flutter (Dart framework od Googlu)

- Dart
- Google
- kompilované do ARM C++
- bohatšia množina widgets
- Material design (Quantum Paper)– Google 2014



■ NativeScript

- JavaScript



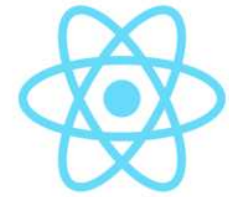
QUANTUM

and the building blocks of a unified interface





Jeden príbeh



Here is a summary of the reasons why Airbnb is dropping React Native:

- **Framework Immaturity**—Since React Native is a new framework ...
- **Dynamically Typed**—JavaScript is, of course, dynamically typed which makes refactoring a “nightmare”
- **Inconsistencies Between iOS and Android**—Although React Native should be consistent across both native platforms, some tiny details are still being worked out, e.g. some differences in JavaScriptCore that runs the darn thing.
- **Three Environment Expertise**—Instead of writing the code once, engineers actually had to maintain three environments: React.js, Android, and iOS.

Aspekty programátora

Code sharing (write once, use everywhere)

- Cordova, ionic
- Flutter (Material Design)
- ReactNative
- Java, Swift



Knowledge sharing (learn once, use everywhere)

- Cordova, ionic, ReactNative (.js), Flutter (Dart)
- Java, Swift



Widget library






- Java, Swift, Cordova, ionic
- Flutter (Dart)
- ReactNative (.js)



<https://www.youtube.com/watch?v=bnYJRYFsrSw&feature=youtu.be>

Aspekty programátora

Eco-system (schopnosť nájsť riešenie/radu/blog na stackoverflow, ...)

- Java, Swift 
- Cordova, ionic (.js) 
- Kotlin 
- ReactNative (.js, React) 
- Flutter (nové ale zlepšuje sa) 

Popularita

- Java, Swift 
- Cordova, ionic, ReactNative, Flutter (pushujú Fbook a Google) 



Trochu (dávnej) histórie

Android, Inc., founded in Palo Alto in Oct 2003 by Andy Rubin, Rich Miner aim to develop:

- "smarter mobile devices that are more aware of its owner's location and preferences"
- an advanced operating system for digital cameras,
founders and early employees, Android Inc. operated secretly, just working on software for mobile phones

Current (!) rivals Symbian and Windows Mobile

(Apple's iPhone had not been released at the time ... 2007).

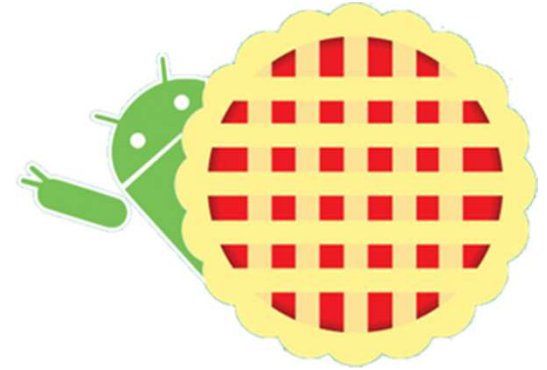
Rubin ran out of money. Steve Perlman (QuickTime, WebTV, later working on iPhone, iPods), a close friend of Rubin, brought him \$10,000 in cash in an envelope and refused a stake in the company.



História sa opakuje z 1997

- <https://youtu.be/WxOp5mBY9IY>

Android a Google

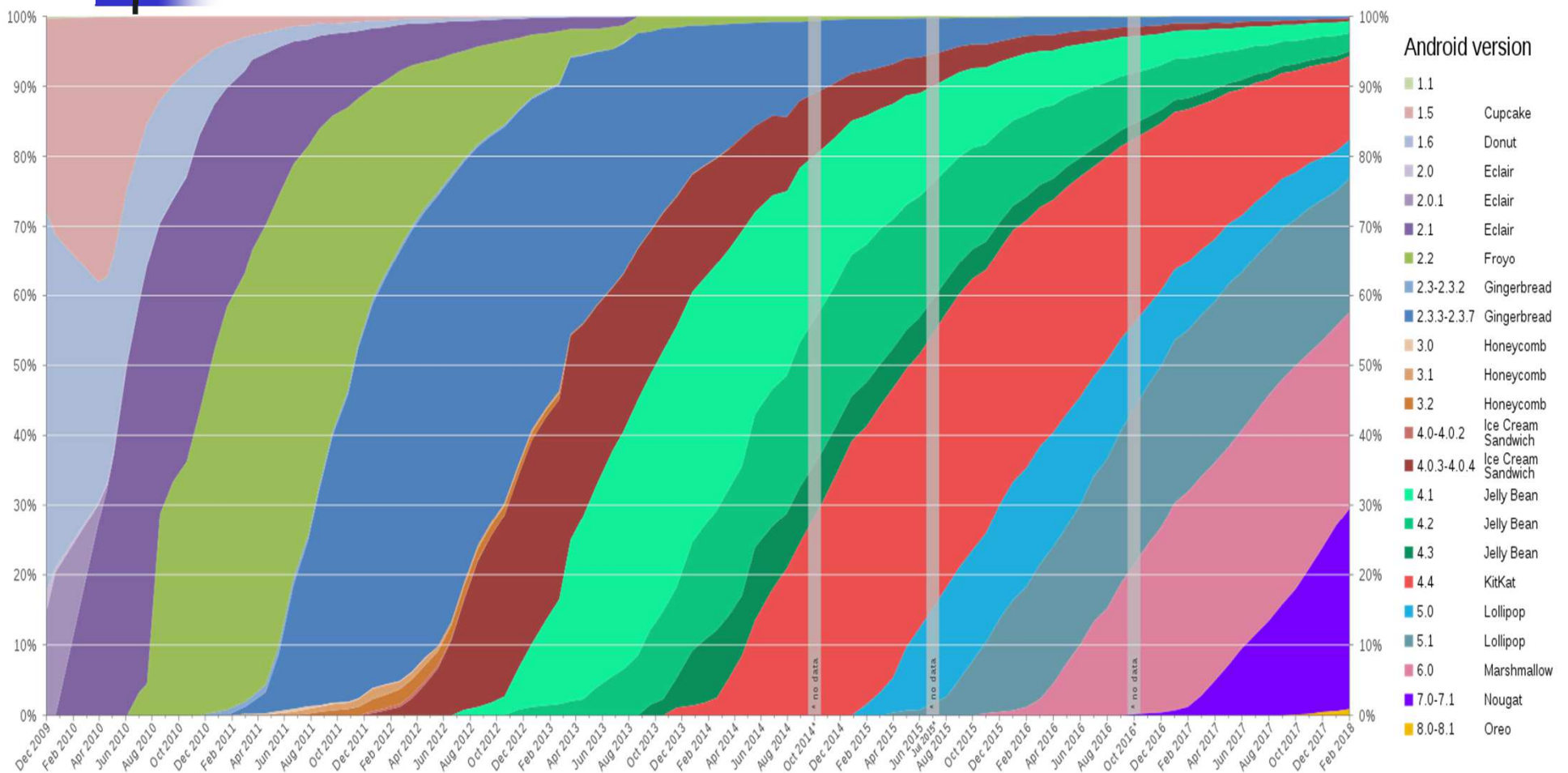


- 2005 Google acquired Android Inc. with Rubin, Miner et al.
- 2007 Open Handset Alliance, a consortium
 - device manufacturers: HTC, Sony and Samsung,
 - wireless carriers: T-Mobile, ...
 - chipset makers: Qualcomm, Texas Instruments,includes Google with a goal to develop open standards for mobile devices
- major release named in alphabetical order after a dessert or sugary treat
 - 2.3 Gingerbread
 - 4.3 *Jelly Bean*, July, 2012,
 - 4.4 KitKat, announced, October, 2013,
 - 5.1 Lollipop, November, 2014,
 - 6.0 Marshmallow, October, 2015,
 - 7.0 Nougat, August, 2016.
 - 8.0 Oreo, August, 2017,
 - 9.0 Pie, Augustt, 2018.

2 Version history by API level

- 2.1 Android 1.0 (API 1)
- 2.2 Android 1.1 (API 2)
- 2.3 Android 1.5 Cupcake (API 3)
- 2.4 Android 1.6 Donut (API 4)
- 2.5 Android 2.0 Eclair (API 5)
 - 2.5.1 Android 2.0.1 Eclair (API 6)
 - 2.5.2 Android 2.1 Eclair (API 7)
- 2.6 Android 2.2 Froyo (API 8)
- 2.7 Android 2.3 Gingerbread (API 9)
 - 2.7.1 Android 2.3.3 Gingerbread (API 10)
- 2.8 Android 3.0 Honeycomb (API 11)
 - 2.8.1 Android 3.1 Honeycomb (API 12)
 - 2.8.2 Android 3.2 Honeycomb (API 13)
- 2.9 Android 4.0 Ice Cream Sandwich (API 14)
 - 2.9.1 Android 4.0.3 Ice Cream Sandwich (API 15)
- 2.10 Android 4.1 Jelly Bean (API 16)
 - 2.10.1 Android 4.2 Jelly Bean (API 17)
 - 2.10.2 Android 4.3 Jelly Bean (API 18)
- 2.11 Android 4.4 KitKat (API 19)
 - 2.11.1 Android 4.4W KitKat, with wearable extensions (API 20)
- 2.12 Android 5.0 Lollipop (API 21)
 - 2.12.1 Android 5.1 Lollipop (API 22)
- 2.13 Android 6.0 Marshmallow (API 23)
- 2.14 Android 7.0 Nougat (API 24)
 - 2.14.1 Android 7.1 Nougat (API 25)
- 2.15 Android 8.0 Oreo (API 26)
 - 2.15.1 Android 8.1 Oreo (API 27)
- 2.16 Android 9.0 Pie (API 28)

Nekupujte hned' nový mobil



<http://en.wikipedia.org/wiki/File:Android-dist-by-dessert.png>

Raspberry Pi 3

Iné (nemobilné) zariadenia

- UK, **Raspberry Pi Foundation**

charity, 2009, to study of basic computer science in schools

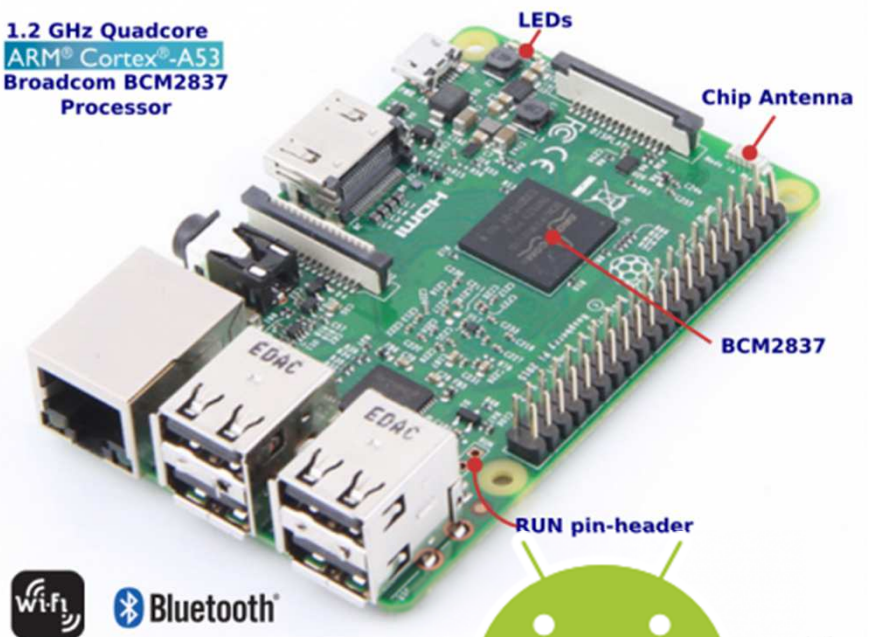
- GPIO - Broadcom BCM2837
- Quadc.ARM 1.2GHz, 64 bit RISC
- 1GB RAM,
- 4x USB, HDMI,
- RJ-45, microSD slot

OS:

- Raspbian (Debian Wheezy)
- Pidora (Fedora Remix)
- OpenELEC (An XBMC Media Centre)
- RaspBMC (An XBMC Media Centre)
- Android PI
- Microsoft Windows 10 !!!

What is New in Raspberry Pi 3 Model B?

1.2 GHz Quadcore
ARM® Cortex®-A53
Broadcom BCM2837
Processor



CuBox Pro

Iné (nemobilné) zariadenia

- Solid Run, Israel (<http://www.solid-run.com/product/cubox-i4pro/>)
- System On Chip i.MX6 Quad Core
- Memory size 2GB/8GB
- GPU GC2000, 3D GPU Type, OpenGL ES1.1,2.0
- HDMI 1080p with CEC 1.4, 3D support
- WiFi 11n BlueTooth
- Ethernet 10/100/1000 Mbps (*)
- eSata II 3Gbps

OS:

Android 4.3 Jelly Bean

Linaro Ubuntu 11.10

Debian Jessie

XBMC image

GeeXboX, LinXBMC, OpenELEC



HummingBoard

Iné (nemobilné) zariadenia

SolidRun and MikroElektronika jointly announce:

An advanced Single Board Computer platform starting at \$49.99

