

Conclusion for «programming mobile devices»

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«Coarse grain» comparison

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Common notions

- Views and graphical constructions
 - ▶ But more difficult on Android (numerous types of devices)
- «widget» (in the X11 signification)
 - ▶ Basics interactions mechanisms available
- Interaction between the OS and the application
 - ▶ Intensive use of call-backs
 - ▶ Different ways to structures such call-backs
 - iOS, protocols
 - Android, Java interfaces

Some incompatible notions

- Intent + Fragments (Android)
- Orientation (iOS)

iOS vs Android — fine comparison (1/4)

	Android	iOS
Language	Java, C, C++, Kotlin?	Objective-C, Swift, C, C++
mai IDE	Eclipse/ADT Android Studio	Xcode (MacOS) AppCode
Devices	Any manufacturer	Apple
Market & distribution	Aptoide / PlayStore	iTune/AppStore
Distribution fees	free to \$25	free (personal, schools), \$99 or \$299 (enterprise)
Security	on the playStore	AppStore + device

iOS vs Android — fine comparison (2/4)

	Android	iOS
ShakeMotion	/	UIResponder
Gesture recogniser	OnGesture Listener	UIGestureRecognizer
File system exploration	FileStream	(NS)FileManager
Orientation	Light persistency	transitionToSize()
Preferences/settings	Preference Manager	(NS)UserDefaults
Notifications (internal)	Intent/ intent filters	NSNotifications
Notifications (user)	Notification Manager	UNNotification
Daemon-like programs	Service	In some situations (e.g. download, music playing)

iOS vs Android — fine comparison (3/4)

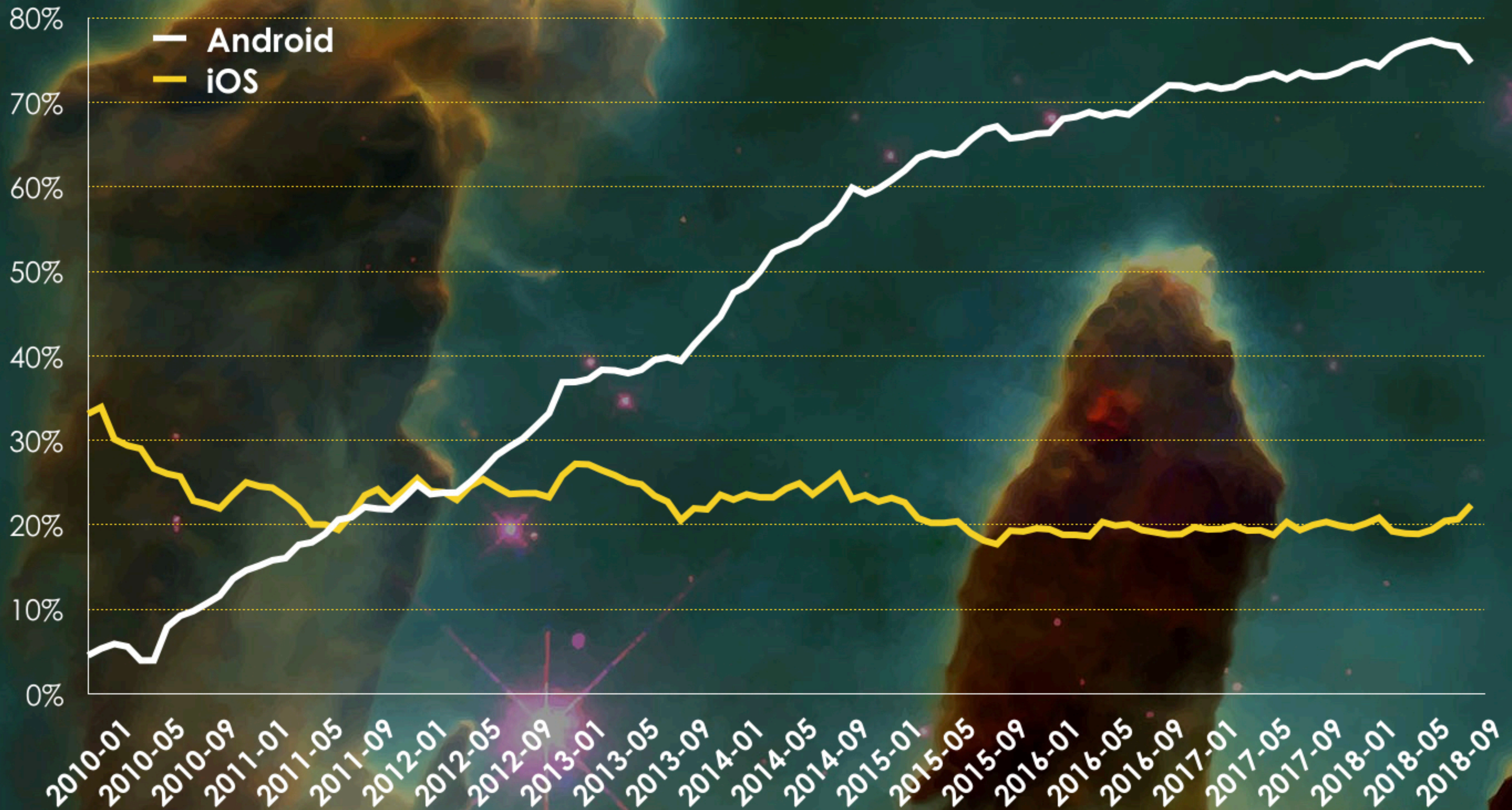
	Android	iOS
Widget (default OS)	AppWidgetsProvider	UIKit / WatchKit / CarPlay
Widget (new)	Anyone can add	Subclassing (rare)
Asynchronous threads	AsyncTask	Dispatch
Threads	Handled by Java	handled by iOS (queues)
Communications between applications	Intents	invocation via an URL (richer now)
SMS handling	Telephony.SMS_RECEIVE	/
Menus	OptionsMenu, NavigationDrawer, PopupMenu, ActionBar	modal presentation, UITabBarController, UINavigationController, UIToolBar
Multilingualism	Res/values	NSLocalizedString, Bundle

iOS vs Android — fine comparison (4/4)

	Android	iOS
XML/JSON handling	DocumentBuilder XMLPullParser	(NS)XMLParser, NSJSONSerialization
Networking	Volley, HttpClient	(NS)URL, (NS)URLRequest, (NS)Session, (NS)URLSessionDataTask
Peer to Peer	« Bonjour » WifiP2manager	« Bonjour »
Maps	Google Map	MKMapView
Advertizing	AdView	iAd
Game frameworks	OpenGL	OpenGL, SceneKit, SpriteKit, Metal
Web integration	WebView, WebClient	WebKit (WKWebView)
Home Screen	Package manager	light version with Today extensions

Market aspects

Android versus iOS (phones + tablets)



Market aspects

Android versus iOS (phones + tablets)



Version propagation

iOS

- over 85% adoption iOS N just before iOS N+1 appears
- Example
 - ▶ September 12, 2018, iOS12 appears
 - ▶ November 30, 2018, about 75% adoption (performance is high)
- For the developer
 - ▶ Provide the current version is important
 - ▶ Usually providing the previous version is good to especially when some threshold is reached (e.g. 64 bits)

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Android

- Adoption of a new OS is much slower
- Example
 - ▶ September 28, 2018: Oreo = 19,2%, Nougat = 29,3%, marshmallow = 21,6%, Lollipop = 18,3%, KitKat = 7,8%
- For the developer
 - ▶ Maintenance over numerous versions is an issue

Version propagation



iOS

over 85% adoption in iOS. N just before iOS 11

Example

- ▶ September 17
- ▶ November 30

For the developer

- ▶ Provide the current version is important
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Apple?

Its easy, they handle both hard & soft



Android

Adoption of

Example

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For the developer

- ▶ Maintenance over numerous versions is an issue




Android?


Harder, only soft handled, main device market is to other manufacturer

Current trends

CarPlay / AndroidAuto

-  Connexion with external sensors/actuators/controls

Watches

-  Activity monitoring, health issues

Voice control

-  No keyboard (watch, hand-free manipulation for drivers)

Home entertainment

-  Intelligent sound systems & TV

AI everywhere (servers & device)

Current trends

CarPlay / AndroidAuto

 Connexion




iOS?



Dedicated framework, Core ML 2

Watches

 Activity monitoring, health issues

Voice control

 No keyboard (voice activation for drivers)



Android?

Neural Networks API

Home e

 Intelligent sound systems & TV

AI everywhere (servers & device)

**Have a nice trip...
...in mobile development**

