

WWDC

World Wide Developer Conference

a.k.a.

Dub Dub

Matteo Gavagnin - [@macteo](#) - <https://macteo.it>

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The main conference hosted yearly by Apple in California in early June.



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I've been there 5 times since twenty twelve and, as Giulio said, I'm the Apple fanboy in residence. I'm 35 days older than the original Macintosh and this is the first one I used: a Macintosh Plus.



I started using a Mac since I was
3, and this is me at 6.
Not really. But it could have been.

Started mobile coding on the original iPhone

- iPhone in 2007.
- No official SDK.
- Objective-C.
- Manual memory management retain/release.

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I've started developing apps for the original iPhone in 2007 when there wasn't even an SDK available. Some talented guys and girls put together an unofficial toolchain.

So we were able to write apps in Objective-C. Compile them to run on the ARM processor in the iPhone.

Memory management was manual so you were supposed to increase and decrease the retain count for each object so it can be deallocated at the right time.



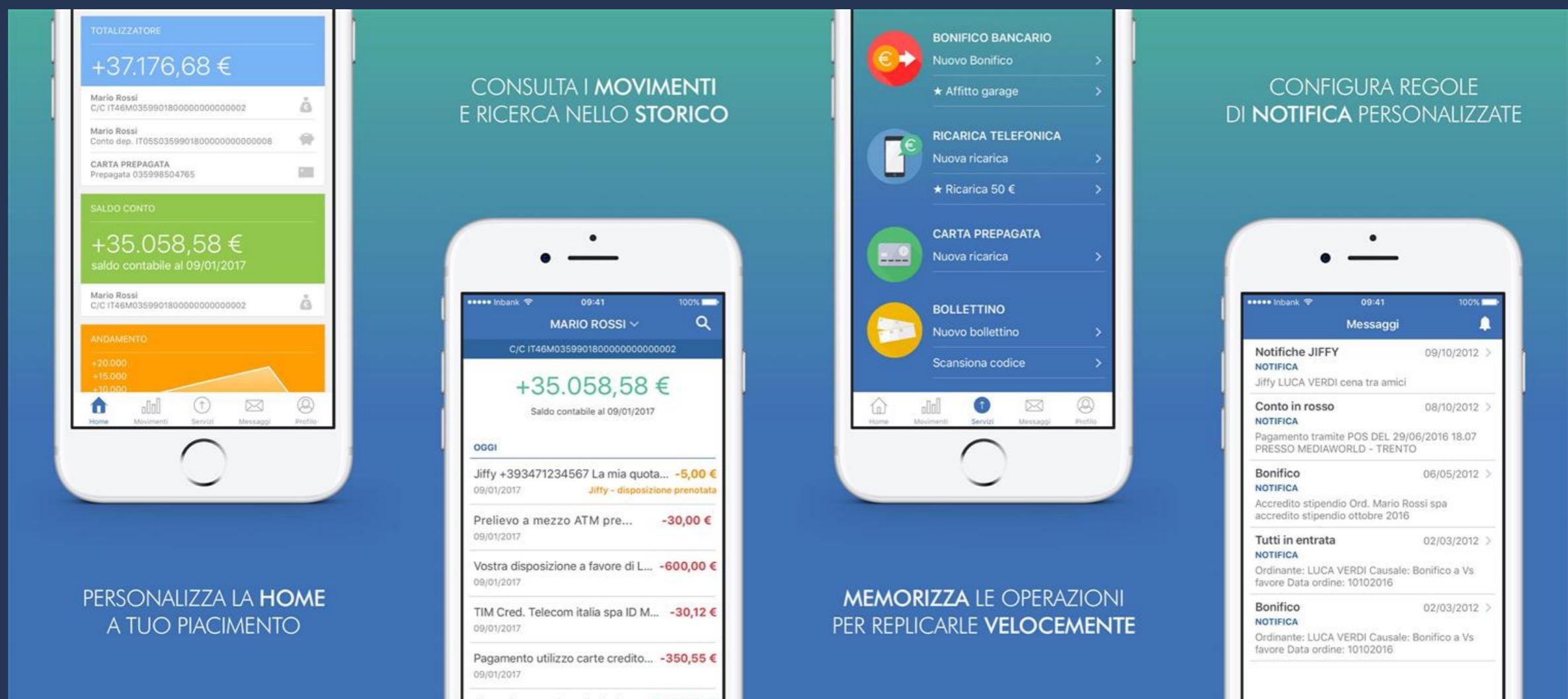
It was rough but there weren't so many iOS developers around, especially in Italy
So I had the opportunity to develop some really interesting apps.
For example the first series of Diabolik comic apps in collaboration with Astorina.
If your eyes are good enough you can also spot an app called *Push my Fart* that didn't have the success it deserved.
The idea was simple: thanks to a new technology at the time, Push notifications, You were able trigger a fart coming from a phone inside the pocket of your friends. Awesome.

MUSE



I started as a developer, but today I manage the mobile team in Dimension. I write less code, probably of higher quality. You may have seen the mobile guide on iPad at MUSE.

Inbank



iOS, Android

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Or the Inbank mobile banking app for both iOS and Android.



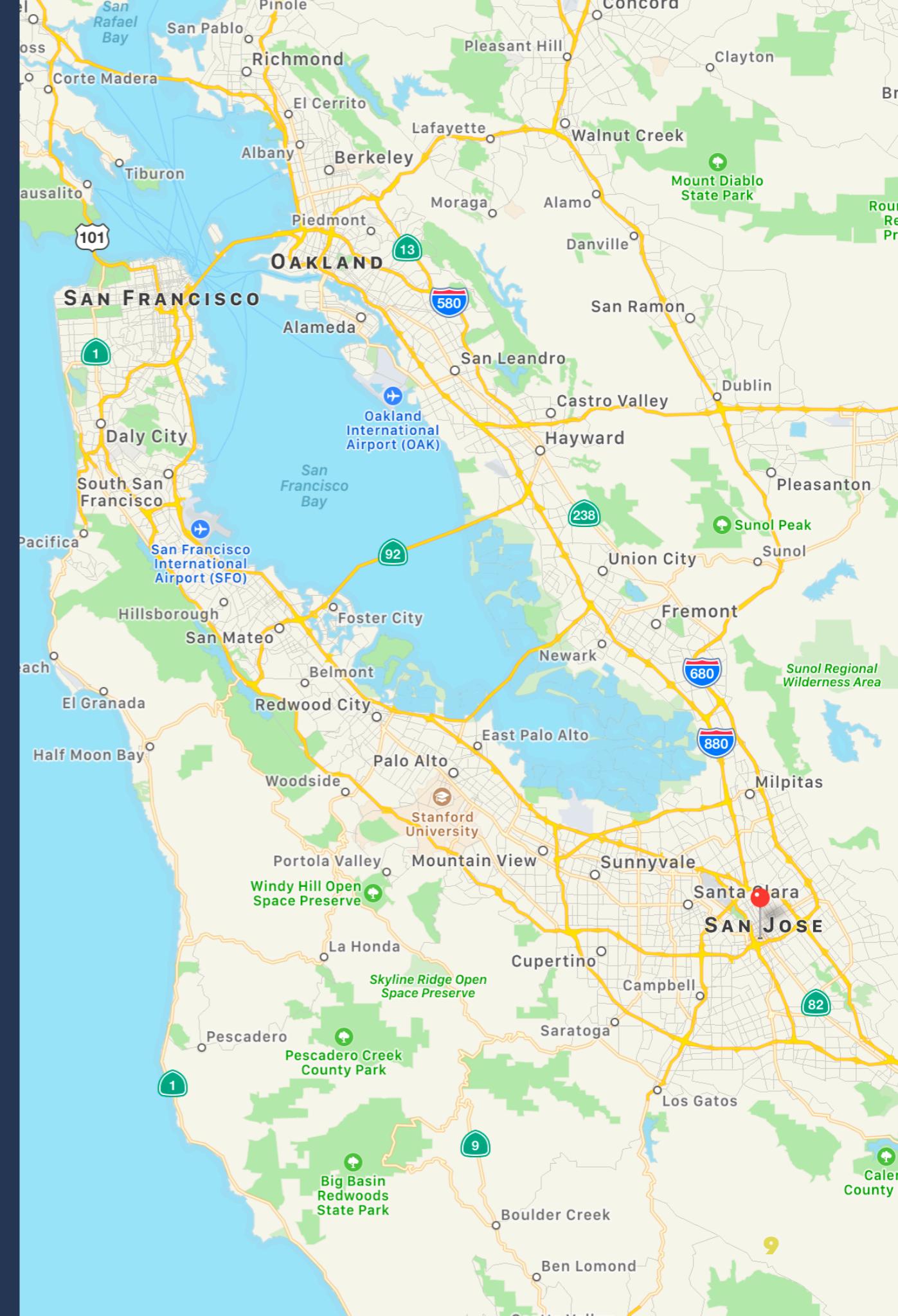
WWDC

But Let's talk about WWDC
53 hundred developers
1 thousand Apple Engineers

San Jose



California



This year the conference was held in San Jose after 14 straight years in San Francisco.



2002

Mac OS 9 funeral

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It has been a come back as
The previous WWDC held in San Jose
happened in 2002 and included the Mac OS 9
funeral with a real coffin on stage.

The Schedule

- Special Events.
- Sessions.
- Labs.

3 ITA

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Filter

All

Monday, 19:00 CET

WWDC 2017 Keynote

19:00–21:00 — Hall 3



Featured
Session 101

WWDC 2

Monday 23:30

Platforms State of the Union

05/06/2017, 23:30 – 06/06/2017, 01:00 — Hall 3



WWDC 2017 Ke
Monday 5 June, 1
Hall 3

Tuesday 01:00

Hands-On Area

01:00–04:00 — Grand Ballroom A

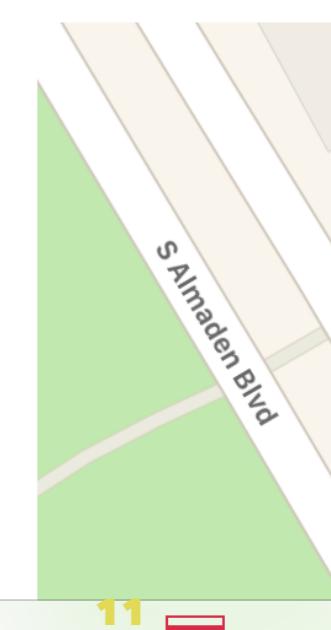
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Leave Feedback

Hall 3



Tuesday 03:00

San Pedro Square

03:00–09:00 — San Pedro Square

Hands-On Area

01:00–04:00 — Grand Ballroom A

Tuesday 18:00

A Conversation with Michelle Obama and Lisa J...



18:00–19:00 — Hall 3

Tuesday 19:00

Core Image Lab

19:00–21:00 — Technology Lab A

Lab

Source Control, Simulator, Testing, and Continuo...

19:00–21:00 — Technology Lab E

Lab

Game Center Lab

19:00–22:00 — Technology Lab F

Lab

Videos

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Schedule

At WWDC there are three type of events:
Special Events, Sessions and Labs.

Keynote



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On Monday morning the Keynote kicks off the theme with commercial announcements. I'm not going to talk about that, but of everything else.

Developers have the *opportunity* to queue outside to grab a better seat.

This year I managed to be in fifth row joining the queue at 6 AM (the keynote kicks off at 10 AM).



panel with

Michelle Obama Lisa Jackson

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On Tuesday we had the pleasure to listen to Michelle Obama talking with Apple's vice president of Environment, Policy and Social Initiatives Lisa Jackson.

^ This and other motivational talks, usually taking place during the lunch break, are not recorded.



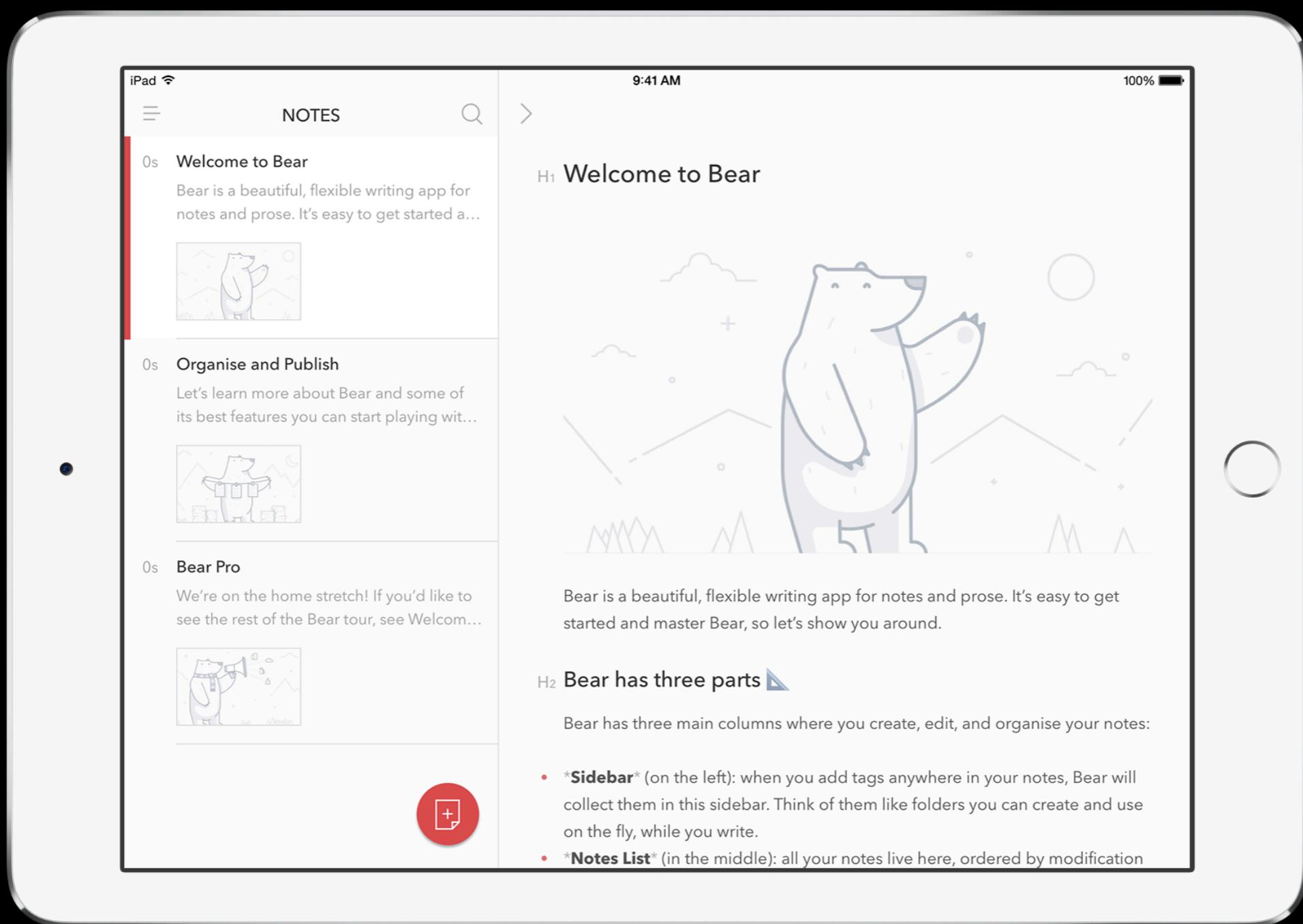
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Another special event, that unfortunately this year happened privately, is the Apple Design Awards - Honoring Outstanding Design and Innovation. Two out of twelve awards went to indie Italian developers that we should be proud of.



Shiny Frog di Matteo Rattotti e C. S.N.C.

Bear



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Bear, an amazing note taking app for iOS and macOS.



Bloop

AirMail 3



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The best mail client available for iOS and macOS.



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Awesome and special guys.
Three on the left are the Bear guys from Parma.
Two on the right are the creators of AirMail from Pisa.
I've spent many hours with them and other fellow developers.



Beer Bash

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The Beer bash
A rock concert on thursday night.
With plenty food and beer,
unfortunately Speck was missing.



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Networking

The bash is one of many occasions that you have to make new connections, talk to like minded people and meet old friends.



Executive Lunch Box

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Worst thing of WWDC: the lunch boxes.
One of this is estimated to cost more
than 50\$.



138 Sessions

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This year there've been 138 sessions,
each one is available in streaming right
now
on website
or using the official WWDC app for iOS
and the unofficial one on macOS

Labs



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Labs: 1000 Apple Engineers rotate during 4 days and are available to Answer you questions Solve your problems Code with you. Every one is special and welcoming. It's the greatest opportunity offered by WWDC.



Scholarships

- 300 STEM¹ students and professors.
- Submit an original Swift Playground.
- 1499.00 € ticket.

¹ Science, Technology, Engineering and Mathematics

If you are member of a STEM institution you were able to submit a Swift Playground and get a 15 hundred euros ticket for free.

So if your are interested in WWDC twenty eighteen 2018 - start planning now.

Contents

Welcome to



San Jose, CA, June 5–9

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Let's talk about what has been announced during WWDC.

iOS

Birdview of everything announced:

[https://mackuba.eu/
2017/07/05/new-stuff-from-
wwdc-2017/](https://mackuba.eu/2017/07/05/new-stuff-from-wwdc-2017/)



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I'm not going to talk about what has been presented during the Keynote, but concentrate on iOS development. If you look for a curated list of what has been announced, have a look at the linked website.

I'm also not going to talk about new features or visual changes on the operating system itself, like the new Lock Screen or Cover Sheet.

Public iOS 11 beta

<https://beta.apple.com/>

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If you are interested in those and you are courageous enough you can install iOS 11 beta today, if your are not a developer you can also apply to the public beta channel.

Platform State of the Union



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The platform state of the union is the most important session: with the overview of the topics that will be touched during the following sessions.

XCode 9

- New source editor.
- Mix and match Swift 3.2 and Swift 4.
- Increased build performances
- New build system.
- GitHub integration.
- Undefined Behavior Sanitizer and the Main Thread API Checker.
- Debug via WiFi or Ethernet.

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New source code editor written in Swift and taken directly from the one used in Swift Playgrounds on iPad. You can also mix swift 3.2 and 4 in the same project. That should ease the conversion process.

40% improved build time thanks to precompiled headers if you mix-and-match with Objective-C.

New opt-in build system written in Swift.

GitHub is now integrated.

New instruments like the Main Thread API Checker that let you add a symbolic breakpoint that will stop the execution if an API, intended to be called only from the main thread, is called from a secondary one.

Alongside USB you can now cut the cord and debug via WiFi. Handy if you need to move around leveraging sensors or maybe you are debugging a workout app. Ethernet is also supported if you develop for the Apple

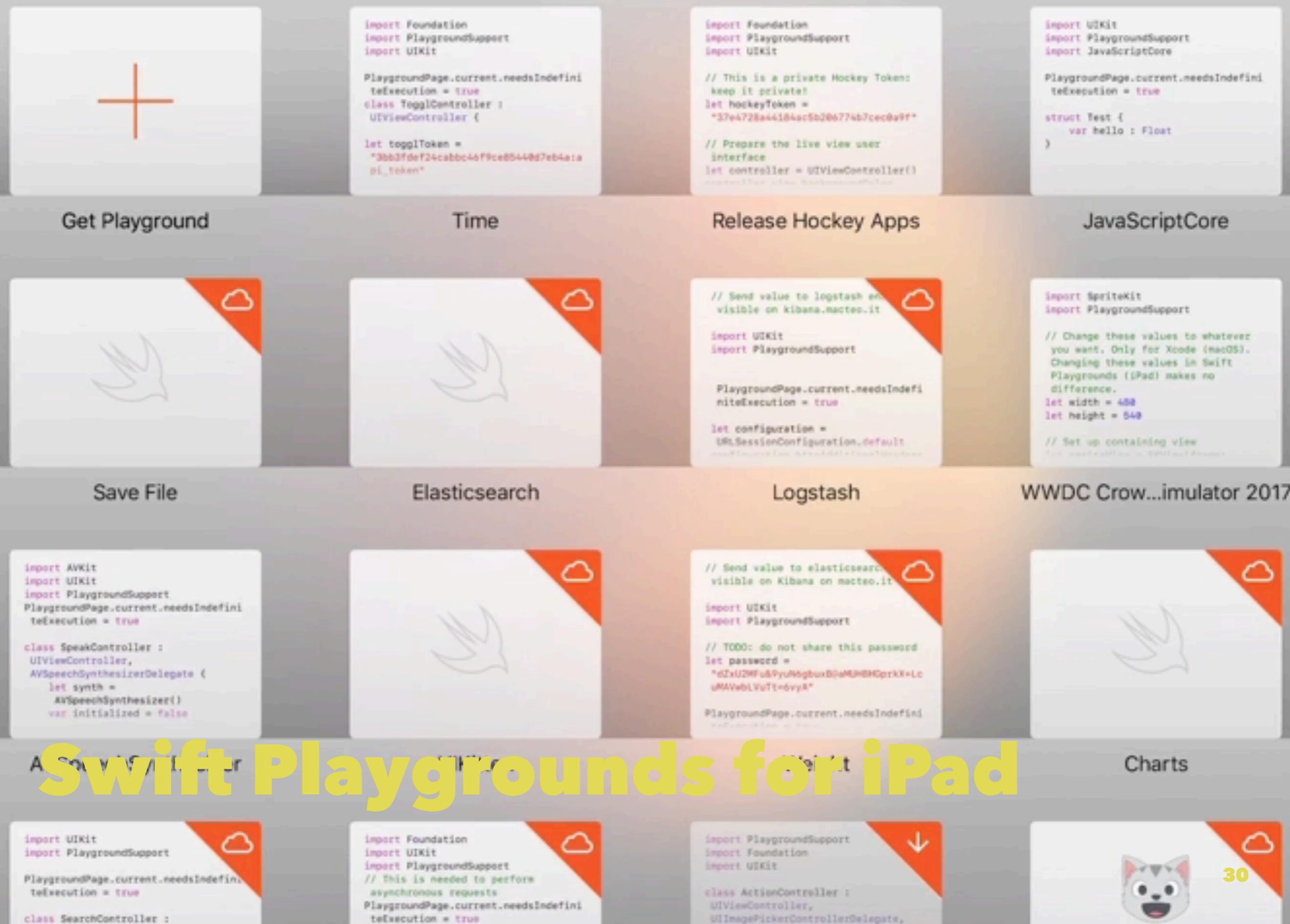
Multiple Simulators



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You can now run multiple instances of the iOS simulator at the same time, useful to test size classes and run tests in parallel.

My Playgrounds



Swift Playgrounds for iPad

Swift Playgrounds for iPad.
Go grab a keyboard and start using it to
make experiments. it's not perfect but it's
fast and enjoyable.
You can concentrate much more without
the burdens of a complete IDE like Xcode.
Ideal for teaching.

Swift 4

It's open source and the evolution process is completely public.

<http://swift.org>

Great Swift Playground with all the new features:

<https://github.com/ole/whats-new-in-swift-4>



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Swift is open source and besides the language itself there are many related tools like the swift package manager, the LLVM compiler, SourceKit, the (in)famous migrator, etc.

The evolution process is open too and we knew what was coming in advance. There's an editable Swift Playground highlighting all the new features.

My best picks are multi lines string literals and the Codable protocol that eliminates the needs of so much boilerplate to map JSON and PLIST (XML) formatted strings to native Swift classes and structs.



Camera, images and videos

- HEVC (H.265)
- HEIF
- Depth of field.



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You probably know that H 265, and well High Efficiency Video Coding is the correct name.

HEIF - High Efficiency Image File Format - is a replacement for JPEG, with better compression and more features, based on HEVC. On supported devices that sport a dual camera system, at the moment only the iPhone 7 Plus, you can obtain informations regarding the depth of field of any taken image. You can now go crazy.

Metal 2

Off-load more work from the CPU

- Metal Heaps.
- Metal Performance Shaders Library.
- Machine learning support.



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With metal 2 the goal was to offload more work from the CPU so Apple introduced three new features Metal Heaps that let you allocate a single memory buffer and then store multiple textures within it. The Metal Performance Shaders Library provides an optimized set of image processing, linear algebra, and other compute operations. Besides the performance improvements Metal 2 is an enabler for other frameworks at a higher stack level like CoreML, ARKit and Vision.

VR

**Steam
Unreal
Unity**



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With Metal 2 on macOS High Sierra, Apple is enabling for the first time VR content development on the Mac.

Steam, Unreal, Unity: all the major players are onboard.

And they've already released private or public betas.

GPU Development Kit

- Australia.
- Austria.
- Belgium.
- Canada.
- Denmark.
- Finland.
- France.
- Germany.
- Hong Kong.
- Ireland.
- 😊
- Japan.
- Luxembourg.
- Netherlands.
- New Zealand.
- Norway.
- Singapore.
- Spain.
- Sweden.
- Switzerland.
- United States.
- United Kingdom.



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Is your mac powerful enough? You need one of the latest iMac.

Apple is offering an external GPU Development Kit if you have a Thunderbolt 3 laptop. Unfortunately it's available in over 20 countries but not Italy.

Core NFC

Ready to Scan



Hold iPhone near [Insert your usage description]

Cancel

Ready to Scan



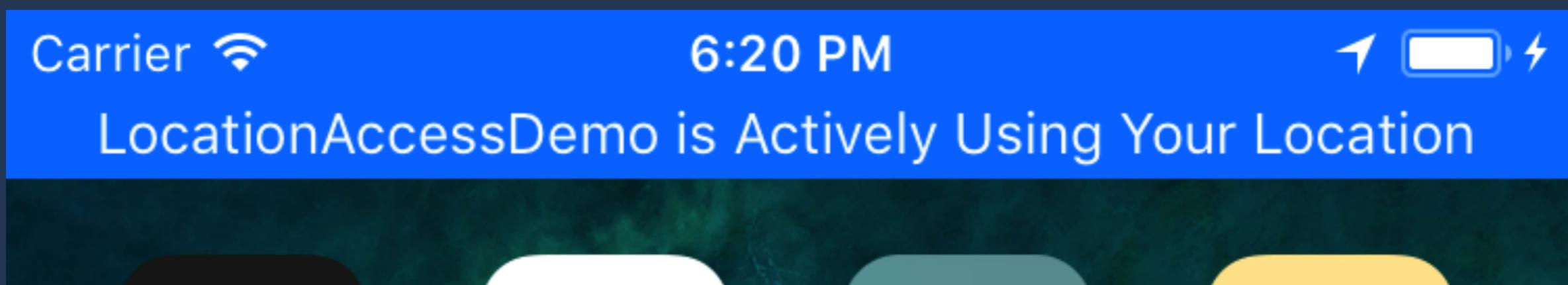
Product Detected

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Apple is opening the NFC antenna access on selected devices.

Now you are now able to read NFC tags, but not write them.

Core Location and Privacy



Policy change:

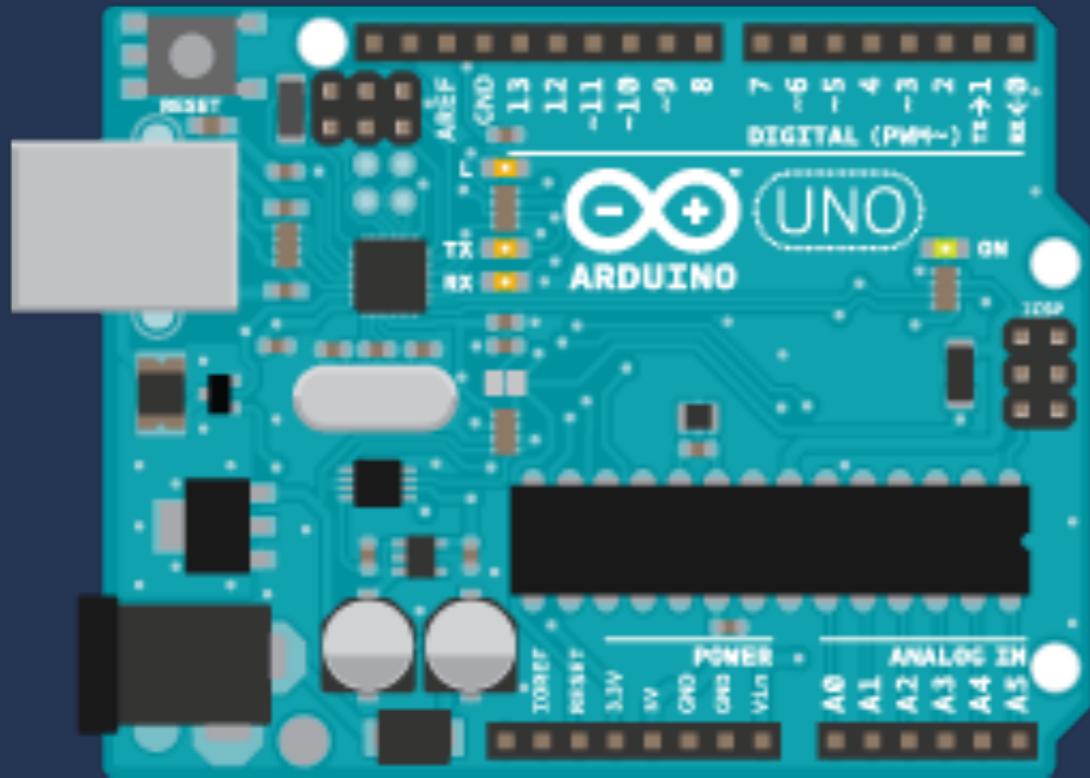
Every app obtaining user's location while on background will trigger the double blue bar.

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Core Location privacy APIs have been overhauled: on iOS 11 every single app accessing the user location while on background will trigger the double blue status bar. It's definitely more clear for the user, but can be annoying if you are ok with it.

HomeKit

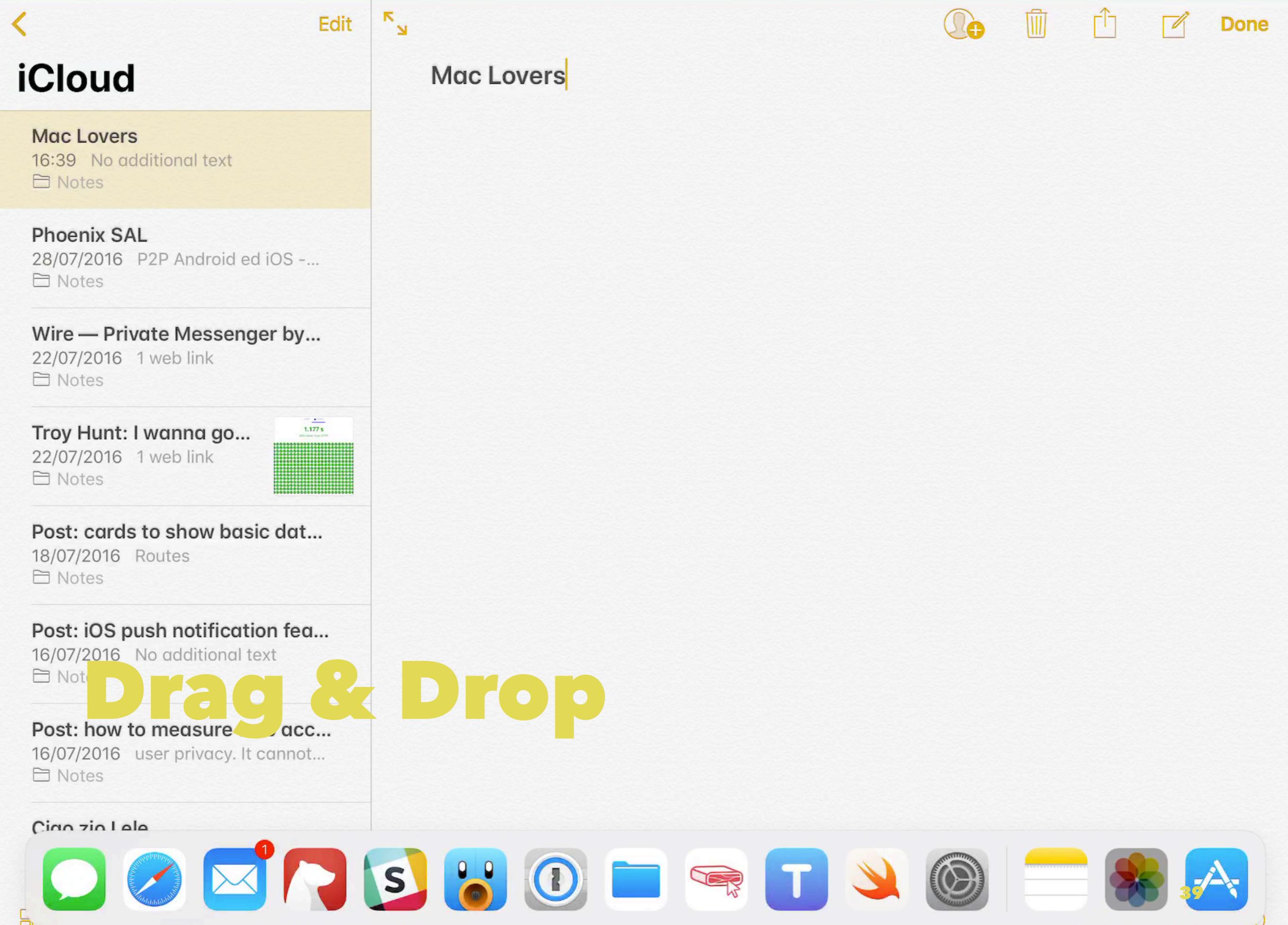
For non commercial products the protocol is now open.



HomeKit

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For non commercial purposes the HomeKit protocol is now open. So you can thinker with your own custom made smart appliances.



This is huge. In my first hand experience Drag&Drop is really a game changer. It let you move informations between two apps while in Split View and much more. There are 4 sessions centered on drag & drop. If you are interested they're worth your time.

PDFKit

Now available on iOS



I've been Sherlocked.

40

I've been Sherlocked as my first really successful product is a framework called FastPdfKit shipped since 2011 that let every iOS developer to easily include PDF documents in any iOS app.

This was possible only because PDFKit wasn't available on iOS before.

That time has passed now. Go and grab PDFKit: it's great.

A close-up of Lightning McQueen's face from the Pixar movie Cars. He has his signature red body, white lightning bolt stripes, and large blue eyes. The word "SPEED" is written in bold, black, outlined letters above his head.

SPEED

I AM SPEED

A dark blue rectangular background. In the center, the word "XCTest" is written in a bold, yellow, sans-serif font.

XCTest

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XCTest is the first party testing suite for Xcode apps. Can be used for User Interface and Functional tests. Many welcome improvements like the ability to run multiple tests at the same time on different instances of the simulator. Also navigating the view tree can be between 3 to 10 times faster.



UIKit

- API to manage taller navigation bars.
- UITableView now has automatic cell height enabled by default.
- Safe areas and layout guides deprecations.

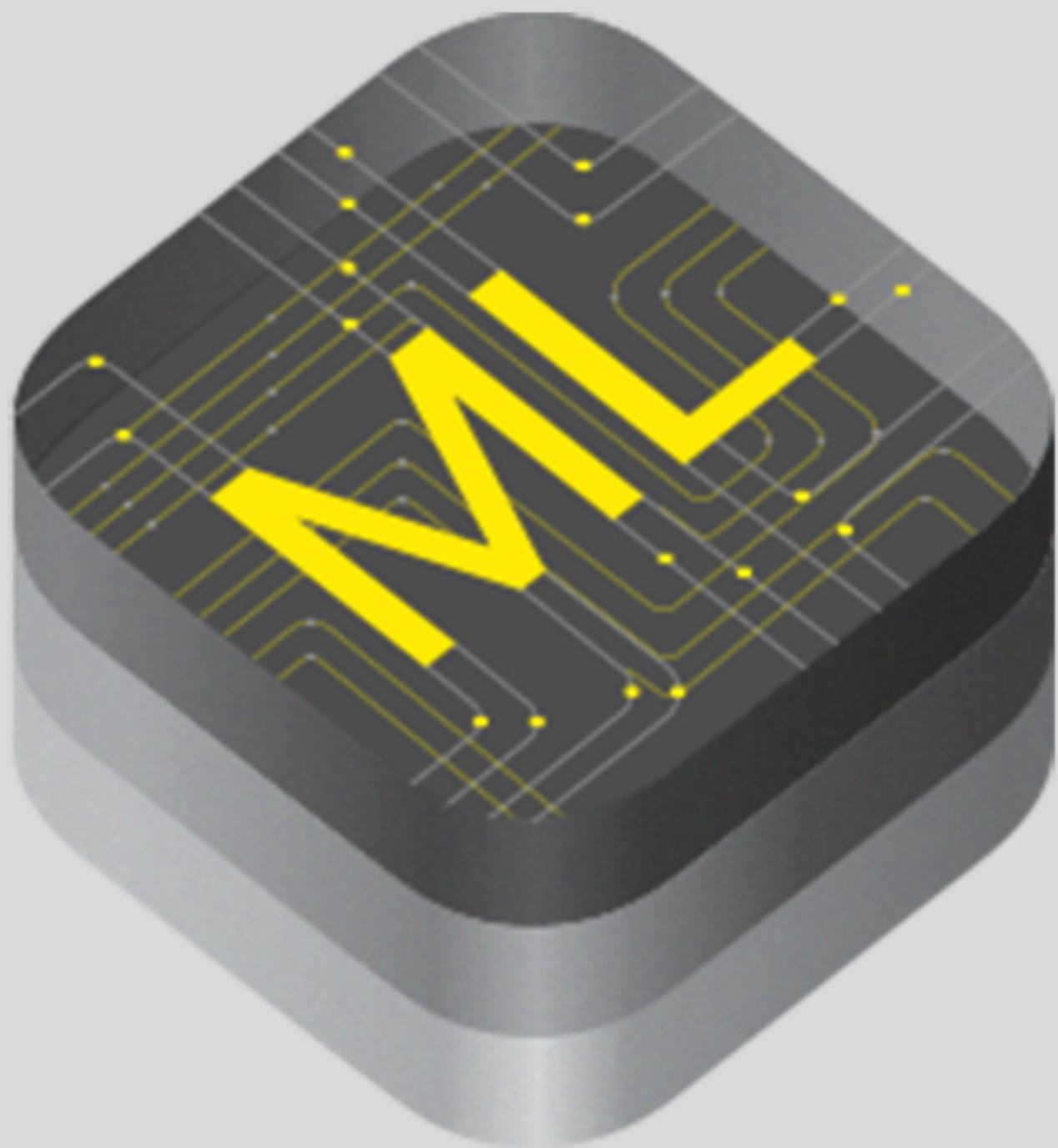
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UIKit, there are new APIs to manage taller navigation bars.
Cell's height is now calculated automatically, but you need to check your autolayout constraints.
Deprecations on layout guides and new safe areas.



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Let's talk about caramel



Core ML

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Not that caramel but Core ML
It's a new framework to let you incorporate pre trained machine learning models in your app



Caffe



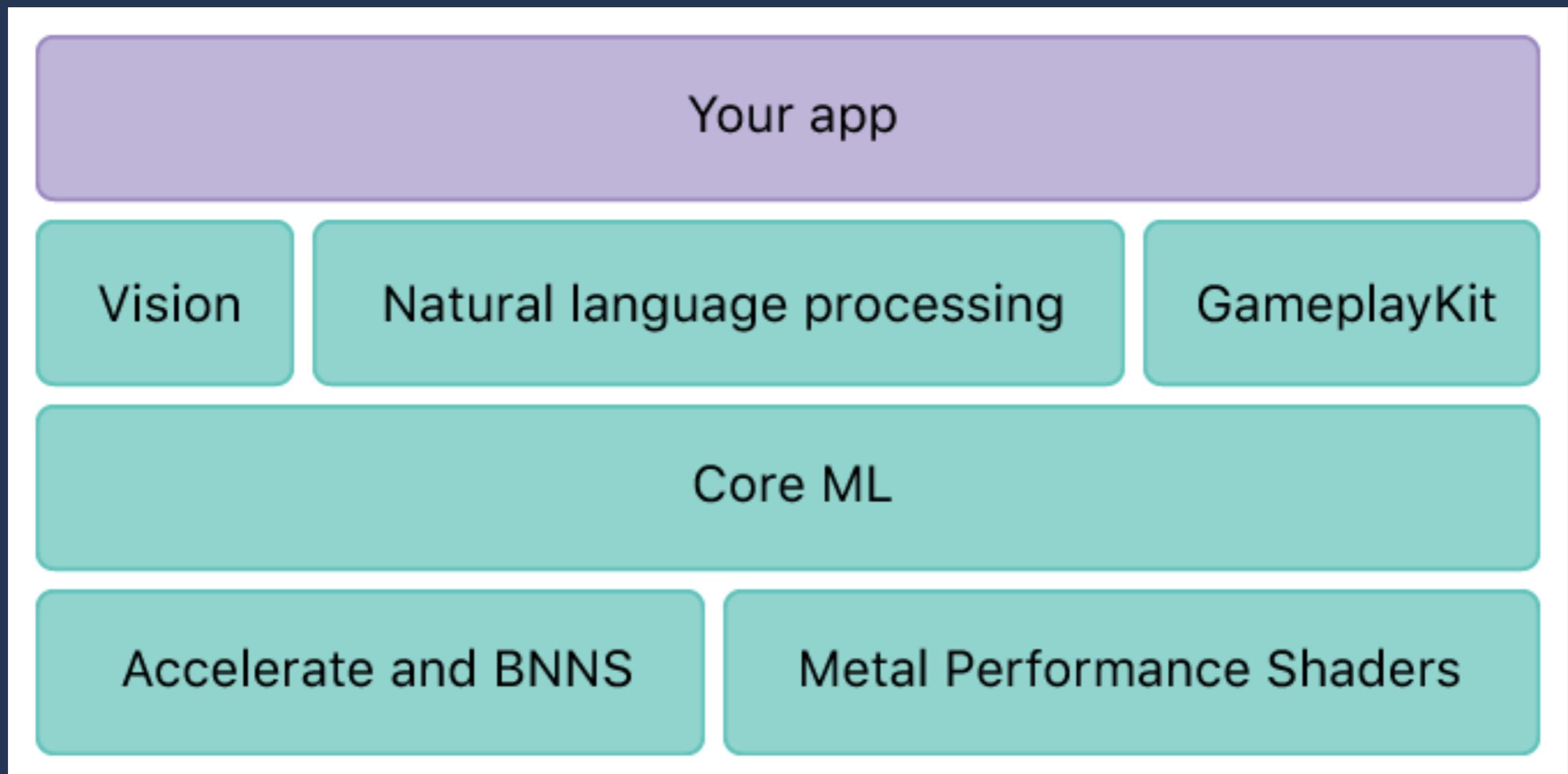
Models

Turi
Caffe
Keras
(TensorFlow)

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Train a model or take a pre trained one.
Convert it with Apple provided conversion tool
in python. Then add it to your iOS app and you
are done.

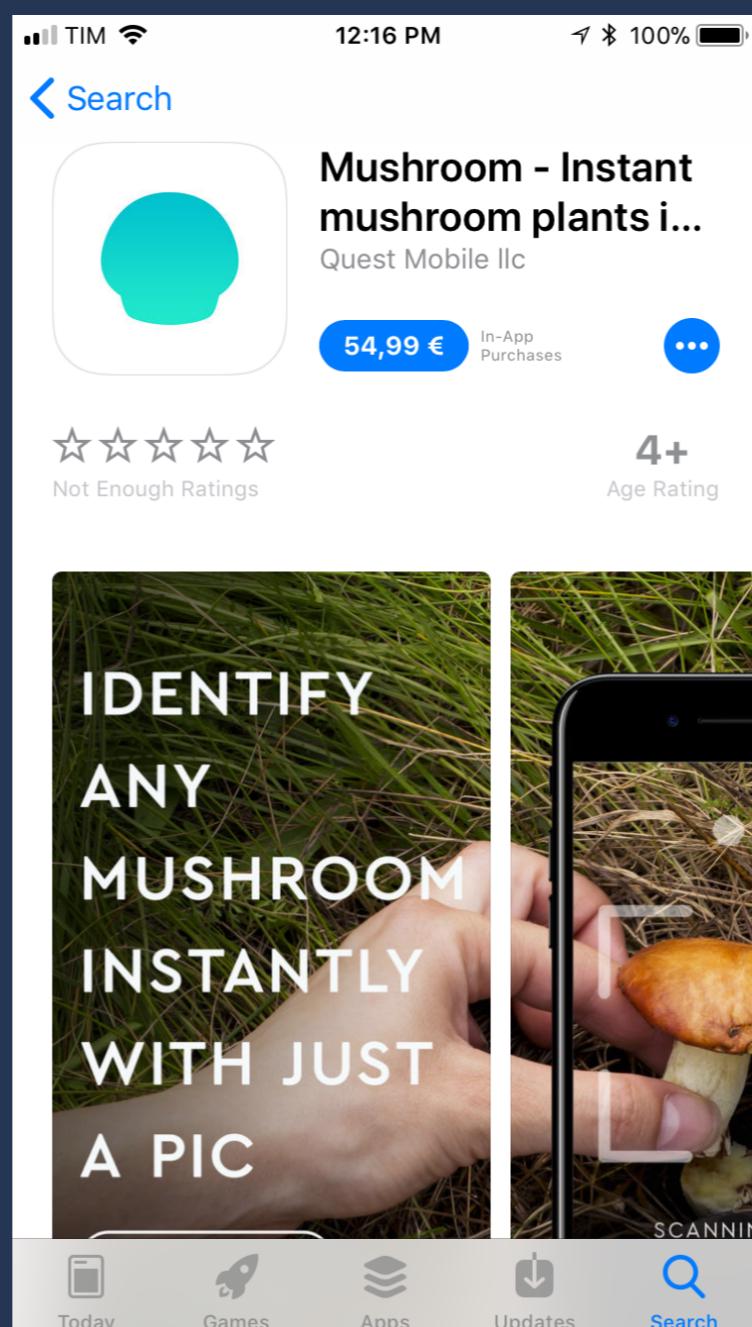
Machine Learning Stack



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Your app can leverage some high level frameworks like Vision, NLP and GameplayKit. Or go deeper directly interacting with Core ML. It will then leverage even lower level framework like Accelerate, Bananas - Basic neural network subroutines for the CPU and Metal for the GPU.

Use your Brain



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Machine Learning is a really powerful tool, that needs to be mastered, but you still need to connect your brain.

This app available today on the App Store let you identify a mushroom just pointing your camera
It's Deadly Dangerous

Vision

- Rectangles.
- Faces.
- Object Tracking.



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Vision is a high level framework that has been improved to detect features in still images and even continuously on frame streams. It can now detect Rectangles Faces with better precision and track objects between frames.



ARKit

- Where is the camera in space?
- Where is it looking?

49

ARKit is a new framework for Augmented Reality. The first thing you need to know is where the camera is in space and where it's looking. Apple is using something they call Visual-inertial odometry. They identify feature points in the world and track them from frame to frame. From that, they are able to back-calculate the location of the camera and create a coordinate system. If that calculation is performed at 60 frames per second, it would take a lot of CPU horsepower. What they do instead is fuse the data from the accelerometer and the gyroscope with that tracking information to reduce the compute load dramatically.

ARKit

- Understand the scene
- Lighting



<http://madewitharkit.com>

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To understand the scene they need to identify planes.

Like the floor and tables.

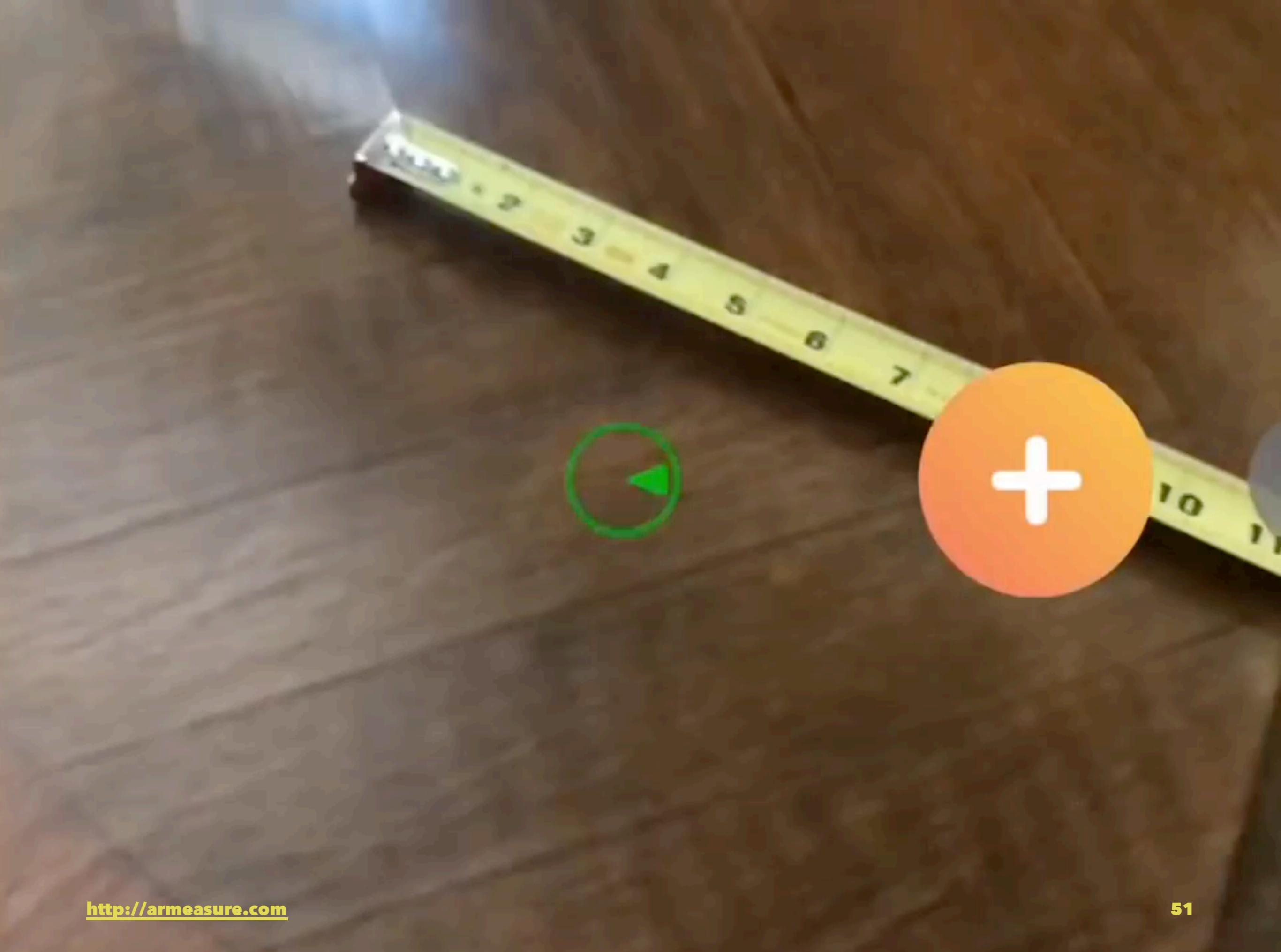
They use those feature points that tracked earlier to identify major planes in the scene.

Then they look for ones that are coplanar, and then we find the extents of those planes to identify edges.

At the moment only horizontal planes are supported.

The final thing you need in order to enable virtual objects to feel right in the scene is to have the lighting be accurate.

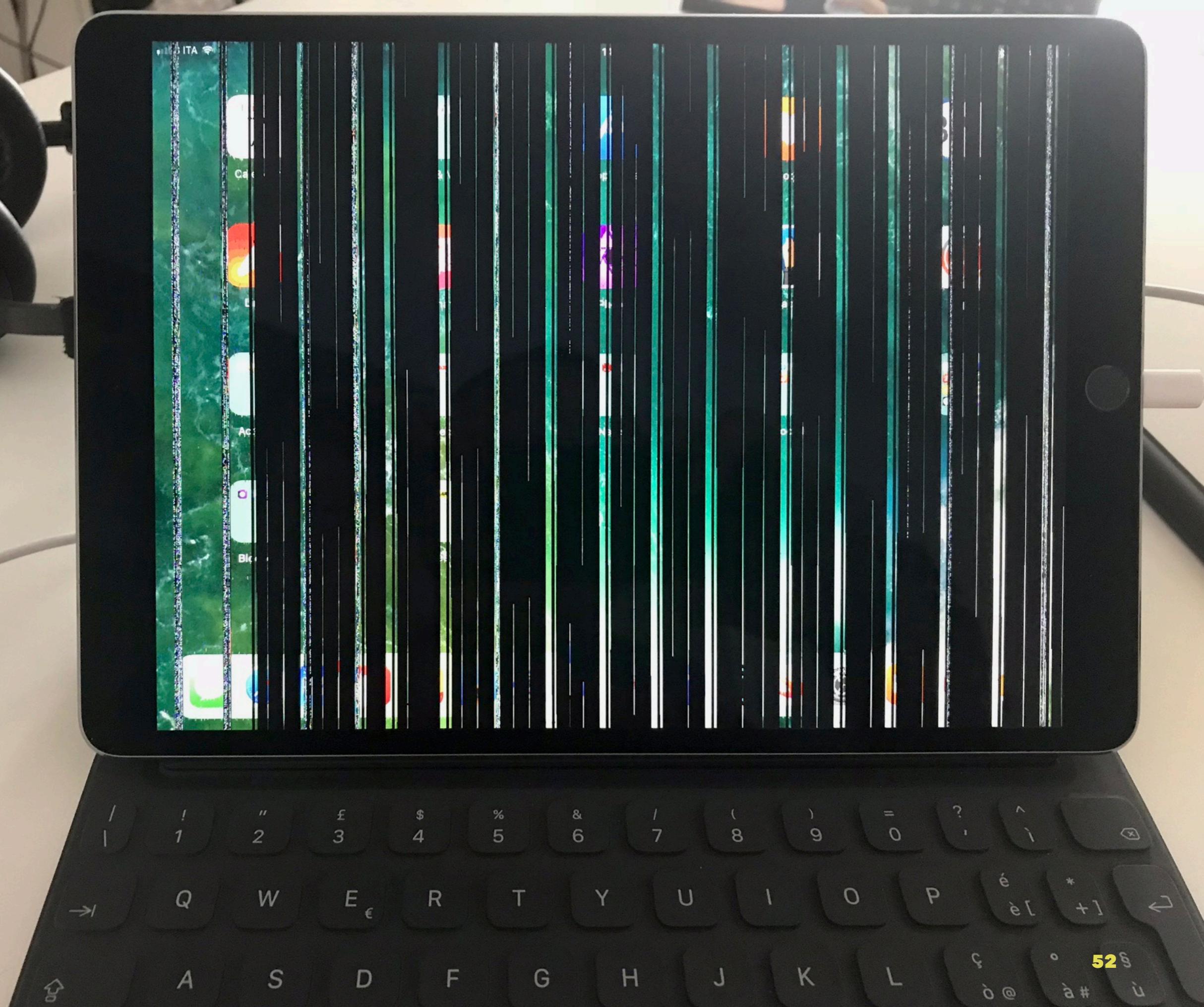
They perform accurate light estimations so that as the scene would darken, you can darken your objects as well.



<http://armeasure.com>

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The precision of ARKit is astounding using only a single camera, here you can see a virtual ruler besides a real one.



I'm done so go and install iOS 11 on your devices. Good luck.

Questions?

Matteo Gavagnin - [@macteo](#) - <https://macteo.it>

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Do you have any question?

Thanks

Thanks