12 Years of iPhone – A Developer's Perspective

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Introduction

The iPhone celebrates its 12th anniversary this year. From a historical point of view, it had a tremendous impact in the industry and the careers of those involved in mobile application software development.

At some point in my career, I was a .NET developer, and then one day I told myself that I wanted to write Objective-C for a living. This is how I started my career in this galaxy. This is how I got here. I could have chosen Windows Mobile. I could have chosen BlackBerry. I chose the iPhone.

I started working on my first iPhone application back in July 2008, and back then everybody, and I mean every single person in the industry around me, told me that I was completely crazy and/or stupid for losing my time with a device nobody would buy. I have not stopped writing iOS applications ever since, even though lately I've been spending quite a bit of time around Android.

The iPhone turned out to be a far, far bigger platform than any of us could ever imagine. In this talk I am going to take you in a trip back in time, to remember frameworks, people, companies, events and projects that have marked our craft in the past decade.

The memories of the iPhone will bring back the birth of the App Store, which was (and to a certain extent still is) one of the most controversial features of the platform; the iPad; the Apple Watch; the rise of the Apple TV; the Mac App Store; the visual changes; the jump from Lucida Grande to Helvetica to San Francisco; and many other events, some funnier than others, that shaped this story. But more than anything, this story will run around the personal story of a man called Steve Jobs.

This is the story of the best-selling electronics consumer product in history, and how it shaped the mobile industry.

2007

On January 1st, AAPL closed at 12.25 USD[1].

I spent Christmas 2006 and New Year 2007, in Madrid, Spain. I got news of the release of the iPhone in the airport of Madrid, ready to go back home, on January 10th, 2007. I told my wife, right there, right then, that if Apple ever released a software development kit for that device, we would be both going to San Francisco to attend WWDC.

Steve Jobs introduced the iPhone in a now legendary sequence, stating that it was three products in one, a mobile phone, a touchscreen iPod, and a breakthrough internet communications device. The device was introduced to the public months before its official introduction to the public, to allow Apple to submit the required paperwork for the FCC, which consists of publicly disclosed documents.

At the end of the presentation, Alan Kay reportedly told Jobs:

> "When the Mac first came out, Newsweek asked me what I (thought) of it. I said: Well, it's the first personal computer worth criticizing. So at the end of the presentation, Steve came up to me and said: Is the iPhone worth criticizing? And I said: Make the screen five inches by eight inches, and you'll rule the world."

After the presentation of the iPhone, James Duncan Davidson took an iconic photo of the iPhone inside a glass screen.

On the other side of the fence, Steve Ballmer just laughed at the iPhone.

In May, Steve Jobs used the term "post-PC device" during his interview with Bill Gates at the D5 conference:

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[1]The stock prices used in this article take into account the various stock splits that Apple has made during its lifetime.

> But then there's an explosion that's starting to happen in what you call post-PC devices, right? You can call the iPod one of them.

– Steve Jobs

What I found most interesting about the iPhone was that it ran a modified version of OS X – which meant that the programming toolkit had to be based on Objective-C, which was by far one of my preferred programming languages. I had started learning Objective-C back in 2002, after I bought an iBook with OS X Jaguar – my first ever version of OS X back then. I wanted to work as an Objective-C developer, I wanted to leave the Windows PC behind and use only Macs at work. This was clearly my chance.

WWDC 2007 happened, and although we all knew that Objective-C was somewhere down there, Steve Jobs famously stated that the only way to create iPhone applications would be using web technologies. We were all wrong. While it was true that Safari on the iPhone was absolutely groundbreaking, I was (and still am) more interested in creating native apps.

Joe Hewitt's released the first iteration of the iUI framework on July 5th 2007, originally called "iphoneav." This was the first mobile web framework targeting the iPhone. Joe was already a superstar at the time, having released Firefox and Firebug and for being later responsible of the early versions of the Facebook application.

The iUI framework was very important because it set the tone for many other similar frameworks that appeared later on, combining semantic HTML with special CSS effects and JavaScript code to create iPhone-like experiences as native applications; many other similar frameworks followed this pattern, such as jQTouch, WebApp.net and later jQuery Mobile, Sencha Touch or even lately Ionic.

The iPhone went on sale on June 29th. It was quite an underpowered machine by current standards: 128 MB RAM, 4 to 16 GB of storage, a 32-bit CPU made by Samsung, underclocked at 412 MHz. No front camera, a 2.0 MP rear camera, and it lacked many, many other things:

> … the iPhone didn't support 3G, it didn't support multitasking, it didn't support 3rd party apps, you couldn't copy or paste text, you couldn't attach arbitrary files to emails, it didn't support MMS, it didn't support Exchange push email, it didn't have a customizable home screen, it didn't support tethering, it hid the filesystem from users, it didn't support editing Office documents, it didn't support voice dialing, and it was almost entirely locked down to hackers and developers.

– The Verge

In July 2007 I opened an account in a young website started the previous year, called Twitter.

Justine Ezarik received a 300-page bill from AT&T in a box, and her video became legend. It was customary before smartphones for mobile network providers to include details of all messages, communications and expenses in their bills, but the amount of communications enabled by iPhone quickly changed the game – much too quickly for AT&T, as a matter of fact.

In a bit more than two months, Apple sold one million iPhones, and Time named it the "invention of the year."

The first "jailbreak" options appeared merely days after the iPhone went on sale; hackers all over the planet, like Erica Sadun, started to install their own native applications on rooted devices. Remember PwnageTool and JailbreakMe, Cydia, and even the first version of Twitterrific?

The success of the iPhone and of these early attempts to hack its core was such that Jobs changed his mind and finally acknowledged, in a press release in October 17th 2007, that Apple would be releasing an SDK for the iPhone the following year.

The waiting time had to do with polishing what would ultimately become the first version of UIKit, including the security features required for developers to sign their applications to enable their installation on any device. In his piece, Steve Jobs mentions the need for tight security in iPhones, given the possibility of viruses, and highlights how Nokia disabled arbitrary code execution in their devices for similar reasons.

The nature of the iPhone – a small, fast computer in your pocket, with access to contextual information about the user, including but not limited to contacts, preferences, location and other data, was a significant shift from traditional desktop platforms, and thereby Apple considered that it required a completely different approach.

Needless to say, after hearing the news, I reserved the tickets and the hotel for San Francisco right away.

In December, AAPL reached 28.30 USD.

In their quarterly statements of 2007, Apple declared having made 24B in revenue selling 52M iPods, 7M Macs and 1.1M iPhones. The iPhone was only available in the USA, UK, Germany and France.

2008

On January 1st, AAPL closed at 19.34 USD.

Apple introduced the first official iPhone SDK in March 6th. As important as the SDK, or even more, was the announcement by Steve Jobs of the approval process of the App Store. This was the first time that Apple announced a developer platform in which there would be a validation process, including a right to veto, in order to release applications. This model was inspired by the

game console industry, in which console makers can veto games if required. This feature led to a huge outcry, most of which has still not faded, but it turned out to be one of the simplest solutions to the problem of malware in mobile devices.

To this day, thanks to the review process, in spite of all the vitriol that it still generates in the developer community, the iOS platform remains virtually free of malware and viruses.

In April the first "Iron Man" movie is released, kickstarting the Marvel Cinematic Universe franchise. In June followed the second film of the franchise, "Hulk."

A code-sharing website called Github started operations in April, aiming to be a better and bigger version of Google Code and based around Git.

In July 2008 I attended my first ever WWDC, in San Francisco. The event sold out in 2 months, the first time this happened in the history of the WWDC.

During the keynote, Steve Jobs said that

> "... in the first 95 days, 250,000 people downloaded the iPhone SDK. 25,000 developers applied, and 4,000 were admitted in the program."

During the same keynote, Scott Forstall delivered the first of his customary demo sessions, with over 10 different companies showing what developers could do using the iPhone SDK. And also, Mobile Me happened, which was, well, not really ready for prime time.

In terms of software, the iPhone SDK lacked lots of things we take for granted today in the platform:

- Interface Builder was a separate application from Xcode 3.
- No Instruments.
- No ARC: `retain`, `release` and `autorelease` were our friends.
- No IBOutletCollection.
- No Storyboards.
- No Auto Layout.
- No Gesture recognizers.
- No Map views.
- No Unit testing (OCUnit / SenTest did not work with iPhone apps back then.)
- No Nitro JavaScript engine.
- No Pull-to-refresh.

But it had one serious bug: a memory leak in `[UIImage imageNamed:]` which drove everybody crazy at some point.

The Barenaked Ladies played in the WWDC Bash, for those who remember.

The iPhone 3G was released to the public during WWDC, July 11, 2008, and this time in many more countries, including Switzerland.

The App Store opened in June 2008 with only 544 apps; it turns out that there were 72 registered rejections.

My wife and I got our first iPhones back from San Francisco: 8 GB iPhone 3G, with pretty much the same specifications as the first iPhone, but with a 3G connectivity and with an integrated GPS. As Steve Jobs said during the WWDC keynote, location-based services was going to be one of the biggest breakthroughs of the new device.

Surely enough, my first iPhone application was a GPS-enabled social networking system, long gone from the App Store since then, but the one that started my career as an iPhone developer.

During those early days, somebody published the 1000 USD "I am Rich" application – and actually sold a few copies, before removing it (or being removed?) from the App Store.

Of course the whole WWDC event was under a fucking NDA until September; this was unfortunate, because it meant that nobody could answer questions about the iPhone SDK in this new website called "Stack Overflow," which started in September 15th.

Precisely on that day, September 15th, the collapse of the investment bank Lehman Brothers, the largest bankruptcy filing in U.S. history, with over \$600 billion in assets, triggers the worst financial crisis in modern history. The bankruptcy triggered a drop in the Dow Jones index of 4.4%, followed by a another of 7% on September 29th.

In October I co-organised the first and last iPhone Conference in Geneva – we even got a cease-and-desist letter from Apple for using the word "iPhone" in the name of the event, and we ended up not having permission to use any pictures of iPhones to promote it.

On November 21st, the first edition of "Beginning iPhone Development" by Jeff LaMarche and Dave Mark goes on sale and becomes an instant hit, the first published book explaining the iPhone SDK.

Groups of developers devoted to the iPhone SDK started appearing all over the planet. In French-speaking Switzerland we had our own, organised by a company called EasyBox from Lausanne. The "Groupe de développeurs iPhone de la Suisse Romande" will forever stay in our memories for almost three years of continuous meetings, and for enabling countless business ventures and anecdotes.

In their quarterly statements of 2008, Apple declared having made 32B in revenue selling 54M iPods, 9M Macs and 11.6M iPhones. Cumulated sales for the iPhone in 2008 amounted to 12.7M units. The iPhone made its biggest debut in more than 70 countries, including Switzerland in July and Poland and Argentina in August.

There were 13'000 apps available in the App Store at the end of the year.

2009

On January 1st, AAPL closed at 12.88 USD.

In January, Joe Hewitt (yes, him again) released Three20, arguably the most important early library of code for iPhone applications. It was wonderful in terms of functionality but quite heavy to integrate in its entirety. It is historically relevant in that it spawned an entire industry of components, fueled by Stack Overflow and Github.

Also in January, Palm introduced WebOS as a contender in the touchscreen smartphone race. In June, the first smartphone using this operating system, the Palm Pre, is released in the USA.

In February, Brian Acton and Jan Koum, both former employees of Yahoo!, incorporate a company named WhatsApp.

That year I quit my job and started my first company, called "akosma software." During this time I wrote iPhone and Android apps, trying to bootstrap my business. I released `nib2objc` a small command line tool that transformed XIB files into its equivalent Objective-C code, and Erica Sadun wrote an article about it in Ars Technica.

In April, PhoneGap, a small project created by a Canadian company named Nitobi, wins the People's Choice Award at O'Reilly Media's 2009 Web 2.0 Conference. PhoneGap was arguably the first cross-platform app development kit targeting iOS and Android, using the native web views of each platform.

WWDC 2009 was the second one for me in June that year. This time it sold out in just one month. During this event, Apple introduced iPhone OS 3 with many features; this version was more a "bug fix and missing features" edition than anything else, adding all the features that all analysts expected from a "serious" smartphone platform. Apple focused its attention on iOS, in detriment of OS X Snow Leopard, famously known to be a "no new features, just stabilization" release.

Among the new features for users:

- Clipboard support
- Turn by turn navigation
- Magnetometer
- Spotlight search
- Push notifications
- Horizontal keyboard
- MMS
- Voice control

And many new frameworks for us developers to play with:

- MapKit.framework
- CoreData.framework

- ExternalAccessory.framework
- GameKit.framework (including the first version of Bluetooth P2P functionality for data and audio)
- MessageUI.framework
- StoreKit.framework

During the event Apple unveiled the iPhone 3GS, the first hardware update since the first iPhone, and the first release to have the "S" (for "Speed") next to its name. Visually identical as the iPhone 3G, it featured a substantial improvement in hardware: 256 MB or RAM, a 600 MHz ARM CPU, a 3 MP rear camera with video capabilities, faster Bluetooth and Wi-Fi, and up to 32 MB of storage.

The iPhone 3GS was officially supported by Apple until February 21, 2014, when iOS 6.1.6 was released, almost 5 years later, and it was still manufactured and sold until September 2012.

The band Cake played during the WWDC Bash in the Yerba Buena Gardens. Phil Schiller hosted the keynote in replacement of Steve Jobs, who had taken a leave of absence at that time. Scott Forstall delighted the audience once again with a long parade of app developers demoing their applications.

I started teaching iPhone development in 2009, as the interest of developers in the platform was growing; of course, Objective-C and its manual memory management turned off way too many developers accustomed to garbage collected runtimes.

In November 2009, Luke Wroblewski published his seminal article "Mobile First" triggering a deep change in the thought process and the design of mobile applications and websites.

In December, Verizon published an ad for the new Droid phone, using a picture uncannily similar to the iconic one taken by James Duncan Davidson in 2007.

In their quarterly statements of 2009, Apple declared having made 36.5B in revenue selling 54M iPods, 10.3M Macs and 20.7M iPhones. Cumulated sales for the iPhone in 2009 amounted to 33.5M units. The iPhone was made available in 13 new countries during that year such as China, South Korea and Saudi Arabia.

There were more than 100'000 apps available in the App Store.

2010

On January 1st, AAPL closed at 27.44 USD.

On January 7th, NBC aired "Planet of the Apps" – a documentary about the app economy, which by now was becoming seriously huge. Oddly enough, the name "Planet of the Apps" will be reused years later… by Apple themselves. But more on that later.

In January Steve Jobs introduced the iPad; it brought a larger screen to a public who thought of it as just a "larger iPod touch. The iPad found a niche as an"intermediate" kind of computer, one that is great for travel, kids and elderly users, and one that stands at the crossroads or rather at the border between technology and liberal arts.

For developers, the release of the iPad brought iPhone OS 3.2, an interim release of the operating system with gesture recognizers and "Universal Apps," that is, apps that showed a different UI for the iPhone or for the iPad, but using the same binary code for both. This reduced the cost of developing apps for this platform, but of course required revisiting the UI architecture of many applications to adapt to this new screen size.

In February Samsung introduced a new mobile platform, called Bada, which would be discontinued three years later.

In April, Hewlett Packard bought Palm and announced plans to release smartphones and tablets using WebOS.

In April Steve Jobs wrote its famous "Thoughts on Flash" piece, in which he explained the technical impossibility for Adobe to include the Flash plugin in mobile systems. History showed that not only he was right about iOS, but also about Android; in neither case Adobe made the Flash plugin a reality.

Apple counterattacked Adobe's, strategy of creating applications using Flash by adding clause 3.3.1 to the iPhone SDK agreement, explicitly forbidding applications written in any other programming language than Objective-C, C or C++ in the App Store.

After substantial backslash and controversy, which included prominent Mac developer Jonathan "Wolf" Rentzsch canceling his C4 developer conference, Apple removed said clause in September.

In April, RIM (the company that made BlackBerry smartphones) bought the company who created the QNX real-time operating system, and announced new smartphone and tablet platforms called BlackBerry 10 and BlackBerry Tablet OS based on it.

Also in April, the third movie of the Marvel Cinematic Universe was released: "Iron Man 2."

In June I went to the USA for my third WWDC in a row; this one sold out in just eight days. In this event, with a very skinny Steve Jobs on stage, iPhone OS became iOS 4 and all of a sudden this operating system became a workhorse for the first time, loaded thousands of new features, some of which never before seen on a mobile operating system.

For developers, iOS 4 was just like Christmas ahead of time:

- A brand-new Xcode 4, integrating Interface Builder into a single application – one that was slightly buggy and very unstable for a long while.

- ARC: Automatic Reference Counting, also known as "the compiler manages your memory;" one of the most important features in the platform today, was unveiled at this WWDC 2010 to a cheering crowd, who could barely believe what Apple was announcing.
- Objective-C blocks: this proposed extension to the C language, already available in OS X, and somewhat similar to C++ lambdas, sparked the birth of new functional APIs all over the Cocoa frameworks.
- Building upon blocks, Grand Central Dispatch (also known as `libdispatch`) was also introduced that year, and brought a new simpler pattern for writing concurrent software.
- Core Text: this new framework, almost imported verbatim from OS X, allowed developers to display text on their applications like never before.
- Multitasking: starting with iOS 4, developers of music, location or voice-over-IP applications could have them running on the background for real. This brought interesting new challenges and possibilities, such as the capability to perform long-running download operations on the background, without fearing the application to be killed in the meantime.
- Support for higher density displays: this was the birth of the `@2x` hack for high-resolution images.
- The new iAd network, allowing developers to include Apple-approved advertising in their applications, which would last until 2016.

New frameworks available for developers:

- CoreMotion.framework
- AssetsLibrary.framework
- CoreTelephony.framework
- CoreText.framework
- EventKit.framework
- EventKitUI.framework
- MobileCoreServices.framework
- QuickLook.framework
- iAd.framework

Of course, iOS 4 brought really cool new features for users:

- FaceTime.
- App folders.
- Retina display.
- Support for iPad.
- Game Center.

And some changes related to multitasking:

- Task completion.
- Local notifications.
- App switching.

In the same event, Apple introduced the new iPhone 4, sporting a design that

would be the iconic "iPhone look" until 2014. This new device was seriously capable, and included the brand-new Retina display, which made pixels disappear from sight forever. The iPhone 4 was my second iPhone.

It had an Apple A4 SOC with a 32-bit ARM CPU at 1 GHz, 512 MB RAM, up to 32 GB of storage, and for the first time, a 0.3 MP front camera capable of video at VGA resolution. The back camera was a 5 MP one, capable of HD video at 30 fps. This device was supported until iOS 7.1.2, released June 30, 2014.

Right after the release of the iPhone 4, Antennagate happened. Steve Jobs had to come out and publicly defend its innovative design in the face of reception problems, triggered or not depending on how users held the device in their hands.

In July, a photographer named Lee Morris did a full fashion photo shoot with an iPhone 3GS. "iPhoneography" was already a thing.

On October 6, 2010, a new iOS app named Instagram was released on the App Store. Also in October Apple registered a trademark for the phrase "There's an app for that."

Some really popular open source libraries back then:

- ASIHTTPRequest
- JSONKit
- InAppSettingsKit

And in other news, the word "App" was declared word of the year, although Steve Jobs used it already in NeXT promotional videos back as early as in 1989.

Microsoft released by the end of the year a new mobile platform competing with Android and iOS, called "Windows Phone."

Android started to seriously take off, and overtook the iPhone in absolute number of activated devices by the end of the year, as Google famously announced 300'000 device activations per day.

In their quarterly statements of 2010, Apple declared having made 65.2B in revenue selling 50M iPods, 13.6M Macs, 40M iPhones and 7.5M iPads. Cumulated sales for the iPhone in 2010 amounted to 73.5M units. The iPhone reached 3 new countries during that year, Vietnam, Armenia and Tunisia.

There were more than 300'000 apps available in the App Store.

2011

On January 1st, AAPL closed at 48.47 USD.

On January 6th, Apple released the Mac App Store to the public, taking inspiration from iOS. The sandboxing requirements for apps released through the Mac App Store blocked many app makers, particularly those producing developer tools, from selling their apps in it.

Mike Lee, a well-known Mac and iOS software developer who had worked at Apple and Delicious Monster, started Appsterdam, an initiative to bring together the best app developers under the idea that "if you want to make movies, go to Hollywood; if you want to make apps, come to Appsterdam."

An obscure patent holder company called Lodsys launched trolling patent claims against many well known developers selling apps in the App Store, such as James Thompson or the The Iconfactory. These claims had a strong impact in the platform, increasing the uncertainty around the App Store. This whole affair faded into obscurity after a few months, and to this day it is unknown what was the solution Apple found to settle these claims.

In April a company named JetBrains released a new IDE for Objective-C, named AppCode, providing for the first time an alternative to Xcode, and putting a refactoring menu never before seen in the hands of iOS developers.

Also in April, the 4th movie of the Marvel Cinematic Universe is released: "Thor." In July comes the 5th: "Captain America: The First Avenger."

In May two entrepreneurs named Wayne Chang and Jeff Seibert started Crashlytics. More or less at the same time, Miguel de Icaza, the founder of the Mono project, announced the creation of a new company called Xamarin.

In June Flickr announced that the iPhone 4 was the most popular camera used in the site.

WWDC 2011 sold out in just 12 hours. I did not attend that one; Apple introduced iOS 5 to developers, with many new features:

- The new Notification Center
- iMessages
- Newsstand
- Reminders
- Twitter integration
- Music application (formerly the "iPod" application)
- Users can use the volume button to take pictures
- Rich text formatting in mail messages
- New basic photo editing features in Photos
- Safari Reader mode
- Siri (only on the iPhone 4S)
- iCloud (replacing Mobile Me)

New frameworks available to developers in iOS 5:

- Accounts.framework
- CoreBluetooth.framework
- CoreImage.framework
- GLKit.framework
- NewsstandKit.framework
- Twitter.framework

The most important (and controversial) feature of iOS 5 for developers was, without any doubt, the introduction of Storyboards. This extension of the classic XIB format included the possibility to define navigation and composition patterns in a visual manner, something never before seen in the platform.

iAd started to lower its minimum amount of advertising contract to $500,000 in February, to $300,000 in July, apparently to bring back some big advertisers who had left the platform.

In August, Hewlett Packard stopped all smartphone and tablet efforts, effectively killing the WebOS platform.

The iPhone 4S was released in October, and it was the first iOS device that did not require tethering to a Mac or PC during setup. It featured a dual core 32-bit Apple A5 SOC, at 1 GHz, with 512 MB of RAM, an 8 MB rear camera capable of HD video at 1080p, and a 0.3 front camera with VGA resolution. For the first time, a 64 GB option for storage was available. It also put an end to the Antennagate controversy. The iPhone 4S was my third iPhone.

Eloy Durán released the first public version of CocoaPods in September 1st and the world of iOS software development changed forever; later on, Orta Therox would take over its development.

In other news, after appearing in the WWDC keynote, Steve Jobs retreated from public life and passed away in October 5th, a week before the release of iOS 5 and the iPhone 4S. His official biography, written by Walter Isaacson, was released shortly thereafter to great controversy.

In October, Adobe puchased Nitobi, the company behind the PhoneGap framework. The code of PhoneGap was donated to the Apache project, and became Apache Cordova.

In their quarterly statements of 2011, Apple declared having made 108.3B in revenue selling 42M iPods, 16.7M Macs, 72M iPhones and 32M iPads. Cumulated sales for the iPhone in 2011 amounted to 146M units. Cumulated sales for the iPad in 2011 amounted to 40M units. All in all, Apple sold more than 185M iPhones and iPads since 2007. The iPhone became available in Bolivia, Slovenia and Trinidad and Tobago.

There were more than 500'000 apps available in the App Store.

2012

On January 1st, AAPL closed at 65.21 USD.

In January Objective-C ranked as "language of the year" in the TIOBE Index. The rise in popularity of the language is arguably due to the interest sparked by the iOS platform.

In February Apple introduced the first iPad with Retina screen, and lowered the price of the minimum contract for iAd to $100,000.

Also in February, Firefox presents the Firefox OS smartphone platform.

In March, Facebook bought Instagram for USD 1 billion.

In April the 6th film of the Marvel Cinematic Universe is released: "The Avengers." It had to be renamed in the UK to avoid confusion with those other Avengers.

In May, Google buyed Motorola Mobility for USD 12.5 billion.

In June I went to my fourth WWDC in San Francisco, which would be my last. It sold out in one hour and 43 minutes. During the Keynote, the first without Steve Jobs on stage, Scott Forstall showed the new features of iOS 6, Apple Maps and Passbook, as well as a tighter integration with Twitter, Facebook and other social networks. Other features brought by iOS 6 were some enhancements for Siri, Shared Photo Streams, iCloud Tabs for Safari and the fact that FaceTime calls could be done through cellular networks at last.

There were other minor enhancements all over the platform, but by far the biggest and most controversial change in iOS 6 is the change from Google Maps to Apple Maps, one that unfortunately had been rushed out; at the time of this writing Apple Maps is still behind Google Maps in features and quality, and its many problems led to major outcry on the press and on social media.

In all likelihood, the debacle caused by Apple Maps was enough to drive Scott Forstall out of the door, and to consolidate the image of Apple as a faulty provider of cloud services, one that started with iTools, .Mac and Mobile Me, and one that sticks to the company five years later[2].

iOS 6 brought a few new frameworks for developers to play with, but it was not a ground-breaking release in terms of changes or additions:

- AdSupport.framework
- MediaToolbox.framework
- PassKit.framework
- Social.framework

The most important new element in the developer toolkit was the introduction of Auto Layout and the `NSLayoutConstraint` class, which found its full raison-d'être a few months later, when the new iPhone featured a new screen size, and user interfaces would have to automatically support the new dimensions while keeping their proportions and usability.

The iPhone 5 was released in October, and it was the first iOS device that had a screen size bigger than the classic 320x480 points that the iPhone supported since its inception. It featured a dual core 32-bit Apple A6 SOC, at 1.3 GHz, with 1 GB of RAM (first device with such an amount,) an 8 MB rear camera

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[2]While reviewing this article, Graham Lee made this observation: "An interesting pattern is that almost everything people complain about from Apple (iCloud, iTunes, the App Store) is from divisions that report to Eddy Cue."

capable of HD video at 1080p, and a 1.2 MP front camera with HD video capabilities. Available in 16, 32 or 64 GB options of storage. It was the first iPhone that supported LTE or "4G" networks.

It is the oldest device still supporting iOS 10.3.1 at the time of this talk, but Apple has already announced that iOS 10.3.2 will not support 32-bit devices any more.

In September, AAPL reached an all-time high of USD 95.30.

In October, after more than a year in preparation, Mattt Thompson released version 1.0 of AFNetworking, certainly one of the most popular iOS open source libraries ever released in the platform.

In October, Apple released the iPad mini, the first model with a screen of 8 by 5 inches, somehow fulfilling Alan Kay wishes of a tablet "worth criticizing."

That same month, the first MacBook Pro with Retina screen became available, and now the `@2x` hack for images was also available in the Mac.

The iPhone 5 and the iPad mini, as well as the late-2012 Retina iPad are the first iOS devices to support the new "Lightning" connector, which replaced the old, venerable 30-pin Apple Dock connector, introduced in 2003 on the 3rd generation iPod. This connector change prompted the whole market to buy new connectors, bumpers, adaptors and accessories of all kinds.

In their quarterly statements of 2012, Apple declared having made 156.5B in revenue selling 35M iPods, 18M Macs, 125M iPhones and 58M iPads. Cumulated sales for the iPhone in 2012 amounted to 271M units. Cumulated sales for the iPad in 2012 amounted to 98M units. All in all, Apple sold more than 369M iPhones and iPads since 2007.

There were more than 700'000 apps available in the App Store at the end of the year.

2013

On January 1st, AAPL closed at 65.07 USD.

Also in January, Objective-C ranked as "language of the year" in the TIOBE Index for the second year in a row. More or less at the same time, Twitter announced the acquisition of Crashlytics for USD 100 million, Twitter's largest purchase at the time.

Since the release of iOS 6 the previous year, the word "Skeuomorphism" invaded the press and social media. The word refers to a design trend to reproduce the look and feel, including textures and shadows, of physical objects in a computer screen, in this case an iOS touchscreen.

The time had come for the first major redesign of iOS in almost 7 years, coupled to the ousting of Scott Forstall and the rise of Jonathan Ive as head of the iOS

design team.

In February Samsung shut off the Bada platform, merging it into the Tizen project, and Xamarin released Xamarin Studio, a set of IDE and frameworks geared towards the creation of cross-platform iOS and Android applications using the C# programming language.

The fate of BlackBerry looked very dim. During the year, Jim Balsillie and Mike Lazaridis, executives from RIM, both sold a large amount of their shares. In January the company launched the BlackBerry 10 operating system, with 70'000 apps available in its store, but this could not help the company reverse its fortunes.

In April the 7th film of the Marvel Cinematic Universe was released: "Iron Man 3." In October came in the 8th: "Thor: The Dark World."

In May Crashlytics added Android support.

WWDC 2013 sold out in just one minute and eleven seconds. iOS 7 was the most important announcement, its biggest release since its inception. A major overhaul in the whole platform, including a complete redesign of the user interface, bringing a whole new idiom and new capabilities never before seen in the platform.

For users, iOS 7 brought a redesign of the notification center, new icons, a flattened design (not always popular), the Control Center for quick access to the flashlight, AirDrop, a new Photos app, iTunes Radio, and a new card-based multitasker. It also brought FaceTime Audio, which turned out to be quite popular but also frowned upon by mobile network operators.

From a developer point of view, what stood out of iOS 7 was that applications could be updated automatically; this has had a dramatic change in the way people consumed applications, and in the way developers released them.

There was a large array of new frameworks available for developers in iOS 7:

- GameController.framework
- JavaScriptCore.framework
- MultipeerConnectivity.framework
- SafariServices.framework
- SpriteKit.framework

All of these including new classes and features:

- The new `NSURLSession` family of classes
- Support for iBeacons
- The new `[NSData base64EncodedStringWithOptions:]` method,
- The new `@import` syntax for importing modules or frameworks
- The `CMStepCounter` class for counting steps
- The `MKGeodesicPolyline` class

- The default hiding of MAC addresses by the operating system for privacy purposes
- The support for reading QR codes through `AVMetadataObjectTypeQRCode`
- Smile detection through `CIFaceFeature`
- Text-to-speech through `AVSpeechUtterance`
- The new Text Kit built upon Core Text
- Dynamic Type

Last but not least, the system font in iOS changed from Helvetica to Helvetica Neue.

iAd lowered its minimum contract to $50 in June. The writing was on the wall.

In August, the first movie about Steve Jobs was released, starring Ashton Kutcher in the lead role. Also in August, a company called Tiny Speck, founded by a certain Stewart Butterfield, starts an internal chat system called Slack. The name stands for "Searchable Log of All Conversation and Knowledge."

Apple introduced two successors to the iPhone crown: first the fast, not-coloured iPhone 5S, featuring for the first time a 64-bit dual core CPU, an Apple A7 SoC coupled with the new Apple M7 motion processor chip. With 1 GB of RAM and storage options up to 64 GB, including for the first time the Touch ID fingerprint sensor, nowadays standard all over the iOS device line, and a step counter sensor. The iPhone 5S was my fourth iPhone.

But I did not get the Gold version. Always Space Black for me, please.

The second successor to the iPhone 5 was the 5C, basically the same model than the 5 but cheaper, and sold in different colors, available in 8, 16 and 32 GB options of storage, with a 32-bit CPU at 1 GHz.

Later that year Apple introduced the first iPad Air, a lighter design for the device which became the standard iPad look and feel still in use today in the Pro version.

By December, 78% of all iOS devices had iOS 7 installed.

In their quarterly statements of 2013, Apple declared having made 171B in revenue selling 26M iPods, 16.5M Macs, 150M iPhones and 71M iPads. Cumulated sales for the iPhone in 2013 amounted to 421M units. Cumulated sales for the iPad in 2013 amounted to 169M units. All in all, Apple sold more than 590M iPhones and iPads since 2007. The iPhone became available in Sri Lanka.

There were more than a million apps in the App Store.

2014

On January 1st, AAPL closed at 71.51 USD.

At the beginning of the year, a rather serious vulnerability was found in iOS 6, still running a substantially large portion of the iOS codebase. This is the

famous `goto fail;` error, causing an error during the SSL handshake, and leading to the possibility of snooping communications from and to iOS devices.

In January, Google sold Motorola Mobility to Lenovo for USD 2.91 billion, two years after having bought it for USD 12.9 billion. The company calls this operation a "success."

In February Apple bought the popular beta-testing platform TestFlight and later turned it into a relatively closed system. It removed Android support, removed support for earlier versions of iOS, applications have to be approved by Apple, there was only limited support from Apple, and only the latest build was available for download. Developers do not care, they are using Crashlytics almost exclusively.

Also in February, Facebook bought WhatsApp for USD 19.3 billion.

In March was released the 9th movie in the Marvel Cinematic Universe: Captain America, The Winter Soldier. In July came the 10th: Guardians of the Galaxy.

Apple started the "lottery ticket system" for WWDC tickets. From now on, developers have to enrol for the opportunity to pay for a ticket, and I applied twice since then, without luck. I guess they know I was there four times before that.

The major announcement at WWDC 2014 was, without any doubt, the release of the Swift programming language to the world. The brainchild of Chris Lattner, the creator of LLVM, Swift was presented as the natural heir and successor of the venerable Objective-C. With much stronger typing, featuring advanced features like generics, lambdas and type inference, the language became an instant hit and a major new driving force to bring new developers to the platform.

Another distinctive feature of the language are the much, much longer compile times, in comparison to Objective-C, naturally relaxed in this aspect.

iOS 8 was a major update, touted as the biggest ever of iOS. iCloud Drive became a real file sharing option, for both the Mac and iOS, and HealthKit and HomeKit opened the door to integrate iOS in new contexts.

There were many new features for developers:

- AVKit.framework
- Accelerate.framework
- AudioToolbox.framework
- CloudKit.framework
- CoreAudioKit.framework
- CoreAuthentication.framework
- HealthKit.framework
- HomeKit.framework
- LocalAuthentication.framework
- Metal.framework
- NetworkExtension.framework

- NotificationCenter.framework
- Photos.framework
- PhotosUI.framework
- PushKit.framework
- SceneKit.framework
- WebKit.framework

iOS 8 can be thought of as the "Extensions" version of iOS, for many different services: third-party keyboards, data sharing, and others; Xcode had all the corresponding templates at hand. Even the Touch ID system was opened for third-party developers!

In July, Apple and IBM signed an unprecedented partnership to develop enterprise applications around iOS. This partnership, still in work today, has led to the deployment of iOS devices in countless companies around the world.

Such new features required a new version of the iPhone, and Apple did not disappoint; the release of the new iPhone 6 and iPhone 6 Plus, both featuring bigger screens (4.7 and 5.5 inches respectively) than their predecessors, were instant hits and proved the usefulness of the Auto Layout capabilities introduced in iOS 6.

They both included an Apple A8 SoC with dual core 64-bit CPUs at 1.4 GHz, up to 128 GB of storage (for the first time ever,) 1 GB of RAM, an 8 MP rear camera capable of 1080 HD video and a 1.2 MP front camera.

During the same presentation, Tim Cook introduced Apple Pay.

However popular as they were, they suffered the "Bendgate" by which users complained that, if left in pockets while they sit on them, the iPhones would bend. Which sounds quite logical when you say it out loud but it made people angry nevertheless.

In September Apple introduced the Apple Watch, opening the door to software developers to create applications for this new device; Apple Watch applications were initially "extensions" built-in inside iOS applications and running in the iPhone itself, but they became later fully-fledged applications in their own right. The Watch would be released the following year.

It took 4 weeks to iOS 8 to reach 50% of all iOS devices; by December it had reached 65%.

In October Steve Ballmer confessed to Charlie Rose his regrets not to have paid more attention to the phone business.

Very silently, Hewlett Packard shuts off the last services related to WebOS in October.

In November, version 0.1 of the Carthage project was published, becoming the first serious alternative to CocoaPods.

In their quarterly statements of 2014, Apple declared having made 183B in revenue selling 14M iPods, 19M Macs, 169M iPhones and 67M iPads. Cumulated sales for the iPhone in 2014 amounted to 590M units. Cumulated sales for the iPad in 2014 amounted to 237M units. All in all, Apple sold more than 827M iPhones and iPads since 2007. The iPhone became available in Serbia and Kosovo.

There were more than 1.3M apps in the App Store.

2015

On January 1st, AAPL closed at 117.16 USD.

The developer world started this new year chanting the carol of Swift, which would become the most loved programming language in the Stack Overflow survey at the end of the year.

Conferences, books, blog posts, podcasts, everybody in the developer community started praising the language, and promptly started rewriting the world in it.

In March a new biography of Steve Jobs was released, "Becoming Steve Jobs" with the support from Tim Cook and other high ranking executives.

In April, the 11th film of the Marvel Cinematic Universe franchise was released: Avengers: Age of Ultron. In June came the 12th, Ant Man.

During WWDC 2015, Chris Lattner showed the second version of the Swift programming language, announcing that it would be made open source by the end of the year. iOS 9 and watchOS 2 are also announced, including enhancements to Siri, Apple Music and other "me too" features inspired from Android and Windows.

All the platforms produced by Apple now feature the same font, San Francisco.

In June Apple released the "Move to iOS" Android application to help users switch their data to the iPhone.

The Apple Watch went on sale, and made Apple the 2nd biggest watch maker in the planet in just a few months.

The new iPhone 6S and 6S Plus bring new standards to the platform: Apple A9 SoC with dual-core 64-bit CPUs at 1.85 GHz, with 2 GB of RAM (for the first time,) storage options up to 128 GB and a 12 MP rear camera capable of 4K video recording. They also feature 3D Touch, the possibility of triggering actions on applications by hard-pressing on the screen. The usefulness of this last feature is still debatable at best.

The iPad Pro was the first major upgrade to the iPad lineup since 2012, and was brought together with the Apple Pencil and the Smart Keyboard, bringing the interaction level of the iPad on par to that of similar laptops, and using a

design and concept that was similar to that of the Microsoft Surface introduced a few years earlier. The iPad Pro featured up to 128 GB of storage, 4 GB of RAM, an Apple A9X Soc with dual-core 64-bit CPU at 2.26 GHz and an 8 MP rear camera. These specs were unprecedented in the platform so far.

A new Apple TV also came out at the end of 2015, featuring an App Store for applications built exclusively for it. Apple TV applications are distributed as part of standard iOS applications, increasing the perceived value of the platform to consumers. This new Apple TV comes bundled with a remote control that seems designed with hatred and which triggers automatically every time you sit on it.

A film adaptation by Aaron Sorkin and directed by Danny Boyle of the biography of Steve Jobs, with Michael Fassbender starring in the title role, was released on October 9th.

Xcode 7 came out and featured a migration assistant to port all of your Swift 1 code to Swift 2. You can call it a migraine assistant if you want.

In October, David Heinemeier Hansson, creator of Ruby on Rails, published a piece about the App Store model, called "Don't base your business on a paid app."

The first releases of the server-side frameworks Perfect, Vapor, Zewo and Kitura are released, showing that there is a market interest in server-side solutions written in Swift. Kitura is produced by IBM as part of their partnership with Apple, and it shows the interest of IBM to use Swift as the next Java. The release of Swift for Linux as part of the open source project makes them immediately available for running in computers running the Linux operating system, even on Raspberry Pi devices.

By December, iOS 9 was installed in 75% of all active iOS devices.

In their quarterly statements of 2015, Apple declared having made 234B in revenue selling 20.5M Macs, 231M iPhones and 54M iPads. Cumulated sales for the iPhone in 2015 amounted to 821M units. Cumulated sales for the iPad in 2015 amounted to 291M units. All in all, Apple sold more than 1.11B iPhones and iPads since 2007.

There were more than 1.8M apps in the App Store.

2016

On January 1st, AAPL closed at 97.34 USD.

In January, Apple announced that the iAd network was going to shut down in June.

In February WhatsApp announced over one billion users, and Microsoft bought Xamarin for a price estimated between 400 and 500 million USD.

In May, Instagram changed its icon.

In March Apple released the iPhone SE as a successor of the 5S, and a new 9.7-inch big iPad Pro as well, including a 4K-capable 12 MP rear camera, and a storage option of up to 256 GB, for the first time in the platform.

Apple celebrated its 40th anniversary in April 1st. Also in April, the 13th film of the Marvel Cinematic Universe was released: Captain America: Civil War. In October came the 14th: Doctor Strange.

Swift 3, Xcode 8 and iOS 10 were all shown in June during WWDC 2016, and released in September together with the new iPhone 7.

For users, iOS 10 allowed for the first time to hide the icons of the stock applications installed by Apple; it had new bubble effects in the iMessage application; a new Home application (fundamental complement for the HomeKit framework;) a new design for Apple Music; Apple Pay support in Safari; a Magnifier; and collaboration features in the Notes application.

For developers, iOS 10 brought new possibilities:

- Customize and interact with notifications
- The possibility to create iMessage apps to be sold through the App Store
- A new Siri framework
- Tighter integration of custom content in Maps
- The new CallKit framework for VoIP applications to integrate with the phone application
- A new speech recognition engine: `SFSpeechRecognizer`
- The True Tone display that dims the screen following the current lightning
- Better search through Core Spotlight and the `CSSearchQuery` class
- `UIPasteboard`, available since iPhone OS 3, now also works for copy-pasting between devices
- New app extensions: Call Directory, Intents, Intents UI, Messages, Notification Content, Notification Service, and Sticker Pack.
- New Photo capture API: `AVCapturePhotoOutput`

Apple Pay was available in many new countries, including Switzerland starting in July.

Also in July Apple announced the sale of the Billionth iPhone, making it the most successful product in modern history all categories combined:

> The following is a list of the best-selling products across several categories:
>
> Car model: VW Beetle 21.5 million Car brand: Toyota Corolla 43 million Music Album: Thriller 70 million Vehicle: Honda Super Cub 87 million Book Title: Lord of the Rings 150 million Toy: Rubik's Cube 350 million Game console: Playstation 382 million Book series: Harry Potter Series 450 million Mobile Phone: iPhone 1 billion The iPhone is not only the best selling mobile phone but also the best

> selling music player, the best selling camera, the best selling video screen and the best selling computer of all time. It is, quite simply, the best selling product of all time.

– Horace Dediu.

The iPhone 7 and iPhone 7 Plus were released in September, with the following specifications: Apple A10 Fusion SoC with quad-core 64-bit CPUs at 2.34 GHz, 2 or 3 GB of RAM, up to 256 GB of storage, a 12 MP rear camera capable of 4K recording and a 7 MP front camera. Of course the most important non-feature of the iPhone 7 was the lack of a headphone jack, which is proof of courage.

Apple released an updated, waterproof version of the Apple Watch.

In September all development in Firefox OS ceases completely.

It took two weeks for iOS 10 to reach 50% of active devices. By December it was installed in 75% of them.

In their quarterly statements of 2016, Apple declared having made 215B in revenue selling 18.5M Macs, 212M iPhones and 45.5M iPads. Cumulated sales for the iPhone in 2016 amounted to 1.03B units. Cumulated sales for the iPad in 2016 amounted to 337.5M units. All in all, Apple sold more than 1.3B iPhones and iPads since 2007.

There were more than 2.1M apps in the App Store at the end of the year, more than a million of them compatible with the iPad.

2017

On January 1st, AAPL closed at 121.35 USD.

I spent Christmas 2016 and New Year 2017 in Madrid, just as I did 10 years earlier. 1 billion iPhones earlier.

On January 10th, Chris Lattner, the creator of Swift and LLVM, left Apple and joined Tesla. Later the same month, Crashlytics announced that they were being purchased by Google.

In March, Apple released the new iteration of the iPhone SE, and then changed the file system of pretty much every iOS, tvOS and watchOS device in the planet (a number counted in billions) and nobody noticed. The new file system is focused on Solid-State Drives and encrypted volumes – that is, the present and the future. Another notable releases so far this year were the iPhone 7 Product RED and the AirPods.

The iPad Pro has today as much RAM as the first iPhone had of SSD storage: 4 GB.

Apple unveiled the trailer for "Planet of the Apps" – a reality show with Jessica Alba, Gwyneth Paltrow and Will.i.am.

Analysts are starting to notice that sales of Apple devices have been slowing down for the past two years, even if there is still room to grow. But the headlines of financial magazines do not talk about the crisis of the independent software maker, suffering from the very structure of the App Store:

> If your goal is just to make money temporarily (which is up to you), then the race to the bottom — with all its attendant risks, and its environmentally corrosive effect — is probably your best bet. You also need to acknowledge that you've marked your work as being essentially worthless, and that it'll be discarded just as quickly. Your most vocal supporters will turn on you the minute you ask for more money (remember the extra levels for Monument Valley?). They simply won't value you enough to even consider paying again, because you've already taught them that your work isn't worth it.

– Matt Gemmell

Apple started a great app crackdown, removing apps that were not available as 64-bit binaries, removing copycat apps and other utilities such as anti virus and spam. For the first time since its inception, the number of apps in the App Store actually decreased.

WWDC 2017 happened in San Jose, instead of San Francisco for the first time since 2003. The lottery system is well in place right now.

Apple unveiled Swift 4 (but no Application Binary Interface,) Xcode 9 (which crashed less often,) iOS 11 (which crashed more often,) watchOS 4, tvOS 11 and macOS 10.13 "High Sierra" (which definitely crashed more often.)

iOS 11 featured the following new features:

- 64-bit only
- ARKit
- Drag & Drop
- CoreML
- Camera Depth API
- Core NFC
- Files.app

Later that year, Apple released three new iPhones, all of them water resistant for the first time:

- The iPhone 8 and 8 Plus;
- And the iPhone X ("ten") which, just as Mac OS X ("ten") got people saying "iPhone eks" all over the place. This was the first full-screen iPhone with the new "Face ID" technology.

Disney released the 15th to 17th films in the Marvel Cinematic Universe franchise: Guardians of the Galaxy, Volume 2, Spider Man: Homecoming and Thor: Ragnarok.

It took two months for iOS 11 to reach 50% of active devices. By December it was installed in 70% of them.

In their quarterly statements of 2017, Apple declared having made 229B in revenue selling 19.2M Macs, 217M iPhones and 43.7M iPads. Cumulated sales for the iPhone in 2016 amounted to 1.25B units. Cumulated sales for the iPad in 2016 amounted to 381M units. All in all, Apple sold more than 1.6B iPhones and iPads since 2007.

There were more than 2M apps in the App Store at the end of the year, half of them compatible with the iPad.

2018 And Beyond

On January 2nd, AAPL closed at 172.26 USD.

Today, the current version of iOS is 11.3.1. iOS 11 is installed in at least 76% of all devices. The oldest supported device at the time of this talk is the iPhone 5S, released in 2013.

This year the Marvel Cinematic Universe released Black Panther, Avengers: Infinity War and Ant Man and the Wasp, the 18th to 20th films of the highest-grossing film franchise of all times.

Swift 5, Xcode 10, iOS 12, macOS 10.14, watchOS 5, & tvOS 12 are all most probably in the horizon, although there will be no fixed Application Binary Interface this year, and WWDC will happen next month in San Jose once again.

To this day, Apple has sold 1.37B iPhones, 403M iPads, for a cumulated total of 1.8B iOS devices (not counting iPod touch, TV and WATCH devices!) Of course not all of these devices are currently in use. As I write this, AAPL hovers at 190 USD.

The iPhone is the most popular product of all time. The most controversial. The most hated. The most loved. The sign of our times. There was a before and after the iPhone.

But what comes next? It is our responsibility, as software developers, to pay attention to the impact that this little device has had in our culture, our politics, our education, our entertainment, and our life. We make the apps for these almost 2 billion devices. We have the responsibility of using that power with care, with ethics, and to ensure that not only we provide fast, performant, beautiful code to our customers; but also, that we actively seek to make this world a better one, if not for us, at least for the next generation.

Thank you so much for your attention.

Slides

Video