

## Chapter 1 : History of the iPhone OS: How Apple iPhone iOS Developed – TechLila

*Apple launched iOS – then called iPhone OS – on June 29, 2007, with the very first iPhone. Since then, the mobile operating system has gone through some major upgrades. But it didn't happen.*

Its graphical user interface was built on top of an object-oriented GUI toolkit using the Objective-C programming language. Throughout the early s, Apple had tried to create a "next-generation" OS to succeed its classic Mac OS through the Taligent , Copland and Gershwin projects, but all of them were eventually abandoned. It is therefore correctly pronounced "ten" in this context. Consumer releases of Mac OS X included more backward compatibility. Mac OS applications could be rewritten to run natively via the Carbon API ; many could also be run directly through the Classic Environment with a reduction in performance. Reviews were variable, with extensive praise for its sophisticated, glossy Aqua interface but criticizing it for sluggish performance. With increasing popularity of the internet, Apple offered additional online services, including the. Mac, MobileMe and most recently iCloud products. It later began selling third-party applications through the Mac App Store. Newer versions of Mac OS X also included modifications to the general interface, moving away from the striped gloss and transparency of the initial versions. Some applications began to use a brushed metal appearance, or non-pinstriped titlebar appearance in version The simultaneous release of two operating systems based on the same frameworks placed tension on Apple, which cited the iPhone as forcing it to delay Mac OS X Mac OS X In two succeeding versions, Lion and Mountain Lion , Apple moved some applications to a highly skeuomorphic style of design inspired by contemporary versions of iOS, at the same time simplifying some elements by making controls such as scroll bars fade out when not in use. A review described the trend in the server products as becoming "cheaper and simpler That year, Apple removed the head of OS X development, Scott Forstall , and design was changed towards a more minimal direction. It also steadily cut the cost of updates from Snow Leopard onwards, before removing upgrade fees altogether from onwards. Please update this article to reflect recent events or newly available information. July In , with the release of macOS Apple has released this family of software as a free and open source operating system named Darwin. He criticized the case insensitivity of file names, a design made worse when Apple extended the file system to support Unicode. As a result, macOS on current Macs must do byte swap when it reads file system data. The Darwin subsystem in macOS is in charge of managing the file system, which includes the Unix permissions layer. In and , two Macworld editors expressed criticism of the permission scheme; Ted Landau called misconfigured permissions "the most common frustration" in macOS, while Rob Griffiths suggested that some users may even have to reset permissions every day, a process which can take up to 15 minutes. For the Apple – Intel transition , it was modified so that developers could build their applications as a universal binary , which provides compatibility with both the Intel-based and PowerPC-based Macintosh lines.

### Chapter 2 : The History of Future Operating Systems: iOS vs. Android | InstantShift

*iOS is a mobile operating system, developed by Apple Inc. for iPhone, iPad, and iPod. iOS apps are released through the iTunes software and, since iOS 5, via over-the-air software updates.*

Follow There are few tribal arguments in the technology world that divide quite so sharply as your choice of smartphone or tablet operating system. The entire system is an uncompromising labour of love that enchants as much as it infuriates, and latest release iOS 9 is bound to divide users ever further. Now accounting for around Further updates included the introduction of the iTunes Music Store, allowing users to purchase music directly onto their phones through a WiFi connection for the first time, and the ability to create their own ringtones. Full support for Microsoft Exchange and the option to wipe your phone in the event of failing to enter your passcode were other new features, the latter being added in a subsequent update. Google Street View was enabled with the 2. With the third incarnation for the new 3GS handset, the cut, copy and paste function finally became commonplace, alongside the long-awaited push notifications for third party apps. Video recording, MMS multimedia messaging service and voice control were also added, and users were given the chance to purchase films, TV shows and audiobooks through iTunes. Spotlight search enabled more comprehensive search through email, contacts, calendar, notes and within music, and the new voice memo function facilitated the recording and storing of audio notes. Purchasing within apps was also introduced, but only within paid-for apps. While not supporting general multitasking, it was made to accommodate the differing resolution of a larger screen than the iPhone, as well as revamping apps specifically for the new platform. Its folder system accommodated the storing of up to 12 similar apps within one mother folder, while multitasking allowed apps to run simultaneously, such as writing an email while listening to Spotify, and navigation apps continuing to track your location in the background. Now integrated into the OS, Siri now communicated with other apps to make calls, check emails and transcribe text. Containing more than new features, iOS 5 heralded the arrival of iOS user messaging system iMessage, Twitter integration across a range of apps and online storage facility iCloud, replacing previous system MobileMe. Siri also received a makeover, featuring restaurant recommendations, the ability to dictate tweets or Facebook statuses and film reviews. The single-swipe control centre feature allowed users to quickly access key settings such as WiFi, Airplane mode, Bluetooth and the newly-introduced torch without having to delve into the Settings menu. Siri was upgraded to both male and female voices, and redesigned to understand French and German. Other changes included a new camera interface with a square photo mode, full multitasking for all apps and new wallpapers. It shipped on the iPhone 6 and iPhone 6 Plus following their launch in September last year, and a beta version of iOS 8. Other features include being able to send audio and video messages by holding down a record button while inside the Messages app, new predictive typing feature QuickType and the new and improved file hosting service iCloud Drive. Slide Over, Split View, and Picture in Picture are the three major new multitasking features for iPad, enabling you to use or watch multiple apps at the same time.

*iOS is the name of the operating system that runs the iPhone, iPod touch, and iPad. It's the core software that comes loaded on all devices to allow them to run and support other apps. The iOS is to the iPhone what Windows is to PCs or Mac OS X is to Macs.*

With the iPhone, Apple set out to turn the phone industry on its head with a product that was not only extremely easy to use, but also more powerful and capable than anything else on the market. The iPhone undeniably ushered in the modern smartphone era, forever changing the way we use and interact with technology. Over the past eight years, iOS has changed and evolved tremendously. As will become quickly evident below, iOS has been defined by consistent iteration. Flash forward to and the iOS landscape is markedly different. There are now more apps available than one can download in a lifetime. Google Maps and YouTube no longer come standard on new iPhones. Needless to say, a lot has changed in the 9 years since Steve Jobs introduced iOS to the world. Though not a new technology, the original iPhone introduced multitouch to the masses and forever changed the way we interact with electronic devices. With iOS 2, Apple introduced its brand new App Store, a digital storefront that allowed anyone with a computer, an idea, and coding skills to put together an app and sell it for a price point of their choosing. While it all seems like common sense now, remember that the quality of mobile apps back in was abysmal, with no room for small-time developers to even participate. If we factor in Europe and China, Apple claims that the total number of App Store related jobs rises to about 4. Remember this old gem? One final tidbit is that iOS 3 increased the number of supported home screen pages from 9 to 16. The update, which was released in June of 2009, was chock full of compelling and exciting new features. Of course, one of flagship features of iOS 4 " and the iPhone 4 " was support for FaceTime video chatting. Note that the dock design in iOS 4 was slightly altered as well. AirPlay was in subsequent upgrades to iOS 4. In addition to a new notification center, iOS 5 saw the birth of iMessage, effectively enabling iPhone users to text via data as opposed to running up needlessly exorbitant texting bills. Other notable iOS 5 features included Twitter integration, wireless syncing capabilities, and at long last, the ability to access the camera from the lock screen. Famously, the rollout of Apple Maps was marked by frustrating bugs, erroneous directions, Salvador Dali inspired satellite photos, and even misplaced landmarks. Still, the release of Apple Maps marked the first time that iOS users could take advantage of turn by turn directions as the iOS version of Google Maps frustratingly did not include that feature. Another notable addition to iOS 6 was a new app called Passbook. Later renamed to Wallet, Passbook was, not too surprisingly, a virtual wallet that let users store airline tickets, coupons, movie tickets, and a few other items. Other notable iOS 6 features included a redesigned App Store, the ability to reply to a call with a text message, a dedicated Podcasts app, panoramic photos, the ability to FaceTime over a cellular connection, and much improved Siri functionality. And seeing as how iOS 6 was released alongside the larger iPhone 6, the number of icons per row was increased from four to five. Looking at the iOS 6 homescreen, you might also have noticed the conspicuous absence of the YouTube app. Where does one even begin? Other new features introduced with iOS 7 included a revamped multitasking pane, the rollout of iTunes Radio, AirDrop, photo filters, burst photo mode, and new camera modes for fast switching between video and various photo modes. As a result, Apple with iOS 8 was able to focus on adding a plethora of new features instead of spending time working on a UI redesign. Other notable features included time-lapse video, the ability to check battery usage by app, a camera timer, and more enhanced Spotlight functionality, iOS 9 Apple came at iOS 9 with an entirely different strategy. Also noteworthy is that the Passbook app was renamed to wallet and given a new icon, an appropriate change given the arrival of Apple Pay, Other new, albeit minor changes to the iOS home screen included a new Music app and a brand new News app.

*With iOS 9 becoming available for download, Rhiannon Williams takes a look at the history of Apple's mobile operating system iOS 6, 7 and 8 user interfaces By Rhiannon Williams.*

Before discussing the evolution of iPhone and the Apple iOS system, it is important to have a good understanding of what is meant by the terms we use. You can get the latest updates for iOS through iTunes. You can expect a new version of iOS to be available free with every launch of a new iPhone. An iOS device can be defined as a mobile device: What is iOS Development? A new iOS version: As examples " iOS 9 came after iOS 8. Such versions are often associated with hardware changes or new hardware products, so iOS 8 was launched alongside the launch of iPhone 6 and iPhone 6 Plus. An update of a version: Such as iOS 9. For example, in 9. Siri support was extended to the Arabic language and many stability and data display issues were sorted. The designation iPhone OS 1 was used until July, 11 when version 1. Also released was the App Store, enabling users to purchase third-party software applications for both the iPhone and the iPod Touch. Support for the iPhone OS 2 ran until when it was withdrawn. The last version was OS 2. A decision was made to switch the name from OS to iOS. OS for main computers: This change was made from June 7, and the iPhone OS 3. It was also the last version that supported upgrades to the original iPhone and iPod Touch. The first major release of the operating system to be named this was referred to as iOS 4 which was released on June 21, Support for the original iPhone and iPod Touch devices was now dropped. These models now have multitasking and home screen wallpaper options available, not available to users of the iPhone 3G or the second generation of iPod touch. This was released in November of and was the operating system used for the iPad 2. As stated above, iOS 4. It was released on October 12, This is the final release that supports 1st generation iPads and 3rd generation iPods Touch. This enables spoken commands to be understood and responded to by a female voice and was introduced with the iPhone 4S. Previous Apple operating systems required a hard wire connection to a PC. In May, , iOS 5. The functionality of Airplay was improved and the options available for an incoming call have been updated. Rather than Accept or Decline, you can now swipe to provide an auto reply message Reply with Message , or to send you a reminder of the call later Remind Me Later. Facetime is enabled over 3G and 4G, and Facebook integration has been improved. The Maps app has been updated to render it more competitive to the Google Maps feature on Android machines. The release again stressed the dropping of support for older mobile products. It has a completely new look, with functional layers that give this version more life than previous iOS versions. The best new features are a matter of personal choice, but here are some that may qualify: It is approaching Spotify functionality " but a long way to go yet! The Notification center now has three screens: Notifications now sync over all your Apple devices. Another innovation on iOS 7 is the new Activation Lock. Thieves are no longer able to activate your phone if you lose it " it is locked until your Apple ID is entered. There are many other new aspects of iOS 7. OS 7 supports iPhone 4 up to v 7. The iPad 2, 5th generation iPod Touch and 1st generation iPad Mini were also supported, though in a limited fashion. Versions stopped at iOS 8. It seemed to start when Apple recognized that owners of multiple Apple devices would prefer it if every device did not ring whenever they got a call. It permits up to six persons to share content and purchases from Apple stores. So any member of your family can download the same app on their own device and use it at no extra cost, Initially, this involves material from the iTunes, iBooks and the App stores purchased using the same credit card. OS 8 also introduced some improvements to Siri to make it more reactive to communication. However, it got many bad reviews from users, many believing it was released too quickly. Nevertheless, it did bring Apple Pay and one or two useful WiFi fixes. The major new version of iOS 8 came with iOS 8. Apple will finally pull the plug on Beats Music in and its users will have to transfer to Apple Music to retain their libraries and playlists. The final version of iOS 8 is iOS 8. Apple Music is now a significant feature of the iOS system, and this release fixes some bugs associated with it. Find My Friends and Find My Phone is preinstalled with this release, and features offered with Maps have been significantly increased and enhanced, and you can export data on an Android device to an iPhone. What else comes with iOS 9? More Siri developments to improve your answers to questions, and

Siri can now answer questions before you even ask them! Not quite to the level that you just have to think them but that will come! You can watch soccer or your favorite TV show while you receive and answer an email. Home Kit offers the ability to control certain electrically operated devices and services from your phone. You can open and close curtains, control lighting and switch other electrical appliances on and off. If you prefer it, these functions can also be voice-controlled using Siri. Home Kit also enables you to set timers, so your water heater and bathroom heating kick in an hour before your alarm goes off. There are many more amazing settings available with Home Kit. If you think you have forgotten to lock your door when you left home you can instruct the locks to close through your iPhone. Considering the complexity of functions offered with this new iOS release, it should be surprising to know that the initial releases of iOS focused on fixing problems with the initial version and improving the functionality of several of its features. This version was released initially on the iPhone SE and the 9. It improves the News feature, and also the Health app, and also introduced Release 9. Night Shift is a new app that adjusts the display color temperature to make it easier to view at night. A new Classroom app enables teachers to offer lesson guidance, set quizzes and tests and display their work using AirPlay and Apple TV. Individual students can be given their own login details for a school iPad. This version enables multiple Apple Watches to be paired to your iPhone. Again focus on fixing general bugs and problems, such as performance and stability issues involving apps hanging up after tapping on links in others apps and on links in Safari. It is intended as an upgrade to the following device generations and later: Which of these are important to you depends on your requirements, but here are some of the changes you will see in this update. You now only have to lift up your device to waken it up and go straight to the Home screen. There is no need to press any buttons to get going and reaching your Home screen. You can now remain in the lock screen to reply to messages and accept invitations. Google has applied AI to various functions, including more sophisticated typing prediction suggestions than are currently available with Quicktype. Apple has fundamentally applied Siri intelligence to a number of other functions, typing prediction being one of them. Another is Photos, where iOS 10 can use AI to link photographs and videos by means of place, time and even the people featured in these. The Phone app is updated to enable voice mail messages to be converted to text. You can then read voicemails if you are busy rather than having to listen to them. One is help you remember where you parked your car if your car comes with CarPlay. Using Apple Maps, your iPhone will remember where you parked the car and give you directions to find it. The only way to find how they work for you is to upgrade to the iOS 10 operating system and play around with it. Its major competition comes from Android e. Samsung and to a lesser extent, Windows, with respect to the management of mobile technology. For now, Apple leads the field and they will continue to do so if the company maintains its progressive development of iOS and becomes more proactive in dealing with problems reported by customers. No doubt it will continue to expand in the continuing struggle between Apple, Samsung and others to hold the 1 position in mobile technology.

### Chapter 5 : History for iOS on the App Store

*The iPhone is now one of the most successful products of all time, and Apple's mobile operating system "aka, iOS" runs on more than a billion devices worldwide.*

New APIs in the Maps application allow developers to build it into software. Developers can now use CoreLocation to make Turn by Turn applications. Support for outbound audio and video streaming. In-app additional payment API for paid applications free apps always remain free. Sign in with iTunes account. Buy service subscriptions or app add-ons. Spotlight Search Saves its last search results and offers options for excluding applications from searches. Partial search for mail, iPod, contacts, events, notes, apps, and web clips. Can now read and write reviews for content on iTunes. Voice memos syncing audio files added to a "Voice Memos" playlist. Backups can now be encrypted and password protected. Tethering over USB and Bluetooth depends on mobile network ability. Full access to iPhone possible while tethered. In Windows iPhone shows up as a standard ethernet connection. Touch screen to hear a description of the item under your finger, then double-tap, drag, or flick to control iPhone. Speaks 21 languages and works with all apps. Zoom, magnifies entire screen on any app up to 5 times normal size. Move left, right, up, and down to view any portion of the screen close-up. White on Black, changes display to white on black instead of the normal black on white, works in any app, and alongside with Zoom and VoiceOver. Mono Audio, if users hearing is limited in one ear, routes both right- and left-channel audio into both earbuds, so you can hear both channels in either ear. Speak Auto-text, works with VoiceOver to automatically speak auto-corrections and auto-capitalisations. Other Device automatically connects and authenticates to Wi-Fi hotspots which need username and password e. Locate Me for the iPod Touch accuracy improved. Now can store apps including native applications. P3, T3 Stopwatch now shows both the total running time and the current lap time in the upper part of the clock app. Right to left support. Numeric battery percentage view. P3 Holding the home button will no longer force quit an unresponsive application. To force quit an application in 3. Then hold down the home button to quit the unresponsive application. Screen captures are no longer numbered separately from photos taken with the camera application; all new images in the camera roll now use a common numbering sequence. Voice Memos Voice memos can be trimmed directly from app.

### Chapter 6 : iOS version history - Wikipedia

*The first operating system was introduced in the early 's, it was called GMOS and was created by General Motors for IBM's machine the Operating systems in the 's were called single-stream batch processing systems because the data was submitted in groups.*

By Brian Voo in Mobile. Updated on November 13, To find out the latest features for iOS 7, stay tuned. It might be a long post as Apple has released a lot of updates since the first-generation iPhone. At the time, features of the iPhone were very limited. However, while other devices were still using resistive touchscreens, Apple revolutionized its iPhone with capacitive touch capabilities, making the whole experience of a smartphone smooth and swift to users. Lusakatimes The capacitive touchscreen made multitouch pinch-and-zoom and smooth scrolling a thing of the future as users experienced it when surfing on the Safari web browser, or zooming and scrolling through pictures on their camera roll. Google Maps was also awesome on the iPhone because of the capacitive touch “zooming in and out quickly had most of us excited back then. At the time, Apple already had a wide customer base on iTunes who bought music for their old school, touch wheel iPods. The release of the App Store in built into the OS meant that users can browse and then download apps directly on the device. Apple also used the iTunes accounts so people would just have to enter their ID and password in order to start purchasing apps with the same credit card they use to purchase music on their computer. The native Google Maps app also had updates with street view, walking and public transport directions. Apple introduced the ability to cut, copy and paste just like how you can do it now, Spotlight search that lets you search for anything system wide, push notifications for 3rd party apps, MMS, voice control, USB and Bluetooth tethering, and the Find My iPhone app. Most of these features introduced then have stayed on the iOS till today. The native camera app also saw an improvement with video recording and the tap-to-focus feature. Apple also introduced the iTunes app where users could easily purchase and watch content on the phone. Lucky for them, iOS 4 was when the multitasking bar was born. With this multitasking feature, apps could work in the background allowing users to switch between apps faster, with its previously saved state intact. Other music apps other than the native music app could also work in the background too. Apple also introduced app folders, custom wallpapers to replace the black background for the homescreen, FaceTime and Retina support for the iPhone 4. Moving from the iPhone 3GS screen to Retina was a big deal as developers had to make apps look good on high-resolution screens. They also introduced a unified Inbox on the native Mail app for users with multiple email accounts, a less cluttered Inbox with threaded emails, the ability to search text on the Messages app and geotagging photos. The iPhone 4 was already a big hit with its Retina display, that together with the features of iOS 5 blew away any competition. Apple marketed Siri as an iPhone 4S feature. It was still a big hit, bringing voice assistance and information to your fingertips instantly, with voice recognition. Remember when notifications used to be a mini window right in your face? Well, Apple also released the Notification Center and the sleek notification bar, giving you the choice to interact with the notification while using an app. The lockscreen also saw improvements with lockscreen notifications where you can quickly swipe the app icon to open the app, and launch the camera app from the lockscreen, like you can do now. Other brand new features that were introduced include: Reminders app that synced with iCal and Outlook and featured location-based reminders, iMessage, Newsstand, Twitter integration and multitasking gestures with a split keyboard on the iPad. Previously, syncing your device to iTunes meant you had to wait for it to finish before being able to use your device again. In iOS 5, Apple got rid of that so users could use the device while syncing. The native camera app also saw an improvement, they added basic editing features and users can use the volume button to snap a picture. There was also the feature of updating iOS over WiFi, alongside Safari Reader, which takes away all the clutter leaving you with just text to read, and rich text-editing on the Mail app. Apple also introduced Passbook, marking entry into the world of digital wallets and payments with a mobile device. New features also include Do Not Disturb mode, Guided Access , panorama photos on the native camera app and Facebook integration allowing users to update status with a button on the notification center.

### Chapter 7 : The (updated) history of Android | Ars Technica

*iOS 4 also saw the introduction of system-wide multitasking support, the ability to put apps into folders, the rollout of iBooks and GameCenter, enhanced search functionality, and last but not.*

Few years ago, the Internet was the exclusive realm of the desktops, any other possibility being totally ignorable. Then the laptops let people know that the portability is a dream come true and the domination of desktops was under siege. Nowadays, the tablet and the smartphones, in addition to fast wireless connections make possible something unimaginable: Yep, you are not unique or strange if you navigate using your phone. The ones involved in online environment must prepare for the future or they will encounter serious issues. In the previous decade, we all waited for the new releases of Windows. Somehow, if you allow me this poetical approach, Windows was for the digital era, as fire was for the primitive period. The competition between Android and iOS is amazing but undoubtedly, the winner is the user that benefits of all the improvements. Behind every new update hides a colossal volume of work. Android First of all, you should know that Android is an operating system that is created especially for touch screen devices. It was an agency created in October by Andy Rubin. Even if the specialists at Android Inc were very talented and famous in their domain, the activity of the agency remained not very accessible to the large public. Meanwhile, Google acquired the company and then appeared the first buzzes about the possibility that the giant company would enter into the smartphone industry. Finally, November 5, will become a cornerstone in the history of Android, it was the day when the beta version was launched. Almost a year later, Android 1. It was a phone with 3. Here are some of the Android 1. Few months later, on 9th February an update was released. Now, the users may save attachments in the messages, have the possibility to hide or show the dialpad. Many of the improvements were not very insignificant, but overall the result was pretty important: Just few months later, on 15th September, the new update version of Android aka Donut was released and the benefits of it were more than convicting surprisingly, the giants in the smartphones industry were happier than the users. Here are the reasons why Donut was so appreciated: The huge success of Android is based on the never-ending desire of the specialists to merely improve the operating system. During a single year, tons of improvements and if you want to be ironic, many mistakes were made. The great news is that in almost a year since releasing, more precisely, on October 26, a new version was offered. The new browser includes support for HTML5 and double tap zoom. It was named Froyo frozen yogurt and it was released on May 20, The Christmas of was a nicer celebration for Android users because Google offered them a new desert on 6 December , called Gingerbread, the 2. A more useful keyboard with improved accuracy; Overall improvements for game developers; Support for multiple cameras on the device; There are other minor changes but the accumulated effect was, in the end, a better user interface. Google decided to offer a special version of Android only for tablets or large screen devices. It was released on 10 May, and brought some interesting improvements. The series of desserts is going on and Android 3. The widgets were redesigned and adapted for large screen-sizes. The third version of Android was constantly updated, we have Android 3. In conclusion, they mobilized and in a relatively short period, released a real improvement of Android: It proved to be a very appreciated version and there are enough reasons to sustain this fact. Ice Cream Sandwich Android 4. Also, there are other significant improvements as: Google Wallet was introduced initially for Nexus 7 ; The Voice search, camera app and overall accessibility were improved; Google Now was introduced and it seems to be a very competitive rival for Siri. Google released Android 4. How will Android look in the next years? Well, taking into account that the developers are still very productive it seems that will bring many improvements and maybe some unexpected surprises. Nor Android or iOS were initially what they are today. However, regardless of the name itself, it is important to remember that it was a poor compared with the actual versions and even with some other operating systems at the respective moments OS and we can hardly believe that such a thing was possible. It suffered a lot of updates across time but there are some facts that simply help you form an idea about how revolutionary Apple ideas were. The first item is represented by the fact that the first iPhone had some apps pre-installed as: I strongly recommend watching the iPhone presentation of Steve Jobs, this is

definitely a must see for everyone in love with technology and even for ones having a keen sense of humor! On September 27, Apple already released iOS 1. Louder speakerphone; A new interface for Calculator; Custom shortcut by double clicking the Home button. Some of these are: In order to help them to create amazing apps, on March 6, Apple offered a SDK Software Development Kit to the developers and it was the beginning of a huge industry that seems to have a huge potential. The good news is that these were corrected; for example, in September the iOS 2. Much more, two months later, on November 21, , iOS 2. On September 9, , Apple released the version 3. It was designated for iPad, so from now on the developers should take into account the huge displays of Apple tablets. Fortunately, some of them were corrected while others are still annoying the users, but overall, the operating system satisfied the majority of the users. A new version is released, in the first stage only for iPhone and iPod Touch. Some key features of new version are:

## Chapter 8 : iOS - Wikipedia

*The Apple specialists weren't still content with the abilities of the operating system and in almost a year from the launch of the second version, they delighted us with a new much improved version. iOS 3, officially released on June 19, , came with a lot of novelties and serious improvements as.*

This was due to accounting rules making the device not a "subscription device" like iPhone or Apple TV, and significant enhancements to the device required payments. SpringBoard iOS 11 running on an iPhone left and on an iPad Pro right The home screen, rendered by SpringBoard , displays application icons and a dock at the bottom where users can pin their most frequently used apps. The home screen appears whenever the user unlocks the device or presses the physical "Home" button whilst in another app. The screen has a status bar across the top to display data, such as time, battery level, and signal strength. The rest of the screen is devoted to the current application. When a passcode is set and a user switches on the device, the passcode must be entered at the Lock Screen before access to the Home screen is granted. In iOS 7 and later, Spotlight is accessed by pulling down anywhere on the home screen except for the top and bottom edges that open Notification Center and Control Center. As with iOS 7 and 8, pulling down on any homescreen will show Spotlight. However, it can also be accessed as it was in iOS 3 – 6. This gives a Spotlight endowed with Siri suggestions, which include app suggestions, contact suggestions and news. Researchers found that users organize icons on their homescreens based on usage-frequency and relatedness of the applications, as well as for reasons of usability and aesthetics. Apple eventually chose Helvetica Neue instead. A title for the folder is automatically selected by the category of applications inside, but the name can also be edited by the user. Each page of a folder can contain up to nine apps, and there can be 15 pages in total, allowing for a total of apps in a single folder. In iOS 5, Apple introduced Notification Center , which allows users to view a history of notifications. The user can tap a notification to open its corresponding app, or clear it. If a user taps a received notification, the application that sent the notification will be opened. Introduced with iOS 8, widgets are now accessible through the Notification Center, defined by 3rd parties. When an app sends a notification while closed, a red badge appears on its icon. This badge tells the user, at a glance, how many notifications that app has sent. Opening the app clears the badge. Accessibility iOS offers various accessibility features to help users with vision and hearing disabilities. One major feature, VoiceOver , provides a voice reading information on the screen, including contextual buttons, icons, links and other user interface elements, and allows the user to navigate the operating system through gestures. Any apps with default controls and developed with a UIKit framework gets VoiceOver functionality built in. Additional customization available for Made for iPhone products include battery tracking and adjustable sound settings for different environments. Building into the core of our products supports a vision of an inclusive world where opportunity and access to information are barrier-free, empowering individuals with disabilities to achieve their goals". Users could, however "jailbreak" their device in order to unofficially multitask. Newsstand – application can download content in the background to be ready for the user [91] External Accessory – application communicates with an external accessory and shares data at regular intervals [91] Bluetooth Accessory – application communicates with a bluetooth accessory and shares data at regular intervals [91] In iOS 7, Apple introduced a new multitasking feature, providing all apps with the ability to perform background updates. Switching applications In iOS 4. A scrollable dock-like interface appears from the bottom, moving the contents of the screen up. Choosing an icon switches to an application. To the far left are icons which function as music controls, a rotation lock, and on iOS 4. With the introduction of iOS 7, double clicking the home button also activates the application switcher. However, unlike previous versions it displays screenshots of open applications on top of the icon and horizontal scrolling allows for browsing through previous apps, and it is possible to close applications by dragging them up, similar to how WebOS handled multiple cards. Now, instead of the home screen appearing at the leftmost of the application switcher, it appears rightmost. In the iPad, the Control Center and app switcher are combined. The app switcher in the iPad can also be accessed by swiping up from the bottom. In the iPhone, the app switcher cannot be accessed if there are no apps in the RAM. Ending tasks In iOS 4. As of

iOS 7, the process has become faster and easier. In iOS 7, instead of holding the icons to close them, they are closed by simply swiping them upwards off the screen. Up to three apps can be cleared at a time compared to one in versions up to iOS 6. The assistant uses voice queries and a natural language user interface to answer questions, make recommendations, and perform actions by delegating requests to a set of Internet services. Returned results are individualized. Originally released as an app for iOS in February , [99] it was acquired by Apple two months later, [ ] [ ] [ ] and then integrated into iPhone 4S at its release in October Game Center Game Center is an online multiplayer "social gaming network" [ ] released by Apple. A preview was released to registered Apple developers in August. However, Game Center is unofficially available on the iPhone 3G via a hack. In , iOS 7 was released with full bit support which includes native bit kernel, libraries, drivers as well as all built-in applications , [ ] after Apple announced that they were switching to bit ARMv8-A processors with the introduction of the Apple A7 chip. Usage share of operating systems iOS is the second most popular mobile operating system in the world, after Android. Sales of iPads in recent years are also behind Android, while, by web use a proxy for all use , iPads using iOS are still most popular. Android accounted for An additional motivation is that it may enable the installation of pirated apps. On some devices, jailbreaking also makes it possible to install alternative operating systems, such as Android and the Linux kernel. Primarily, users jailbreak their devices because of the limitations of iOS. Depending on the method used, the effects of jailbreaking may be permanent or temporary. The exemption allows jailbreaking of iPhones for the sole purpose of allowing legally obtained applications to be added to the iPhone. SIM lock Initially most wireless carriers in the US did not allow iPhone owners to unlock it for use with other carriers. Modern versions of iOS and the iPhone fully support LTE across multiple carriers despite where the phone was originally purchased from. Particularly at issue is the ability for Apple to remotely disable or delete apps at will. The original iPhone OS 1. Below are summaries of the most prominent features. This process is to ensure that no malicious or otherwise unauthorized software can be run on an iOS device. After the Low-Level Bootloader finishes its tasks, it runs the higher level bootloader, known as iBoot. If all goes well, iBoot will then proceed to load the iOS kernel as well as the rest of the operating system. It has its own secure boot process to ensure that it is completely secure. A hardware random number generator is also included as a part of this coprocessor. This identifier is used to create a temporary key that encrypts the memory in this portion of the system. The Secure Enclave also contains an anti-replay counter to prevent brute force attacks. Until recently, these were typically four numerical digits long. However, since unlocking the devices with a fingerprint by using Touch ID has become more widespread, six-digit passcodes are now the default on iOS with the option to switch back to four or use an alphanumeric passcode. Touch ID Touch ID is a fingerprint scanner that is embedded in the home button and can be used to unlock the device, make purchases, and log into applications among other functions. When used, Touch ID only temporarily stores the fingerprint data in encrypted memory in the Secure Enclave, as described above. It involves placing data in randomly selected locations in memory in order to make it harder to predict ways to corrupt the system and create exploits. ASLR makes app bugs more likely to crash the app than to silently overwrite memory, regardless of whether the behavior is accidental or malicious. This allows some portions of the memory to be marked as non-executable, working alongside ASLR to prevent buffer overflow attacks including return-to-libc attacks. When a passcode is utilized on an iOS device, the contents of the device are encrypted. This is done by using a hardware AES implementation that is very efficient because it is placed directly between the flash storage and RAM. This renders all user data on the device cryptographically inaccessible. This continues the chain of trust all the way from the Secure Boot process as mentioned above to the actions of the applications installed on the device by users. Applications are also sandboxed , meaning that they can only modify the data within their individual home directory unless explicitly given permission to do otherwise. For example, they cannot access data that is owned by other user-installed applications on the device. Most of the code in iOS, including third-party applications, run as the "mobile" user which does not have root privileges. This ensures that system files and other iOS system resources remain hidden and inaccessible to user-installed applications. However, developers are free to override this framework and utilize their own methods of communicating over networks. Multi-factor authentication Two-factor authentication is an option in iOS to ensure that even if an

unauthorized person knows an Apple ID and password combination, they cannot gain access to the account. It works by requiring not only the Apple ID and password, but also a verification code that is sent to a device that is already known to be trusted.

## Chapter 9 : The history and evolution of iOS, from the original iPhone to iOS 9 â€“ BGR

*This history of the evolution of iPhone and iOS system shows how Apple has developed and progressed its operating system for its mobile devices. Its major competition comes from Android (e.g. Samsung) and to a lesser extent, Windows, with respect to the management of mobile technology.*

Ron Amadeo Before whimsical candy code names and cross-promotional deals with multinational food corporations , the first public release of Android was labeled "m3-rc20a"â€”"m3" standing for "Milestone 3. It was easily dismissed as "just a BlackBerry clone. The device was built by HTC, and it seems to be the device that was codenamed "Sooner" according to many early Android accounts. But the Sooner was never released to market. According to accounts of the early development days of Android, when Apple finally showed off its revolutionary smartphone in January , Google had to "start over" with Androidâ€”including scrapping the Sooner. At this early stage, it seems like the Android button layout had not been finalized yet. Ron Amadeo There was no configurable home screen or widgets, just a simple dock of icons at the bottom that could be cycled through or tapped on. While touch screen support worked for some features, Milestone 3 was primarily controlled with a five-way d-padâ€”an anachronism that Android still supports to this day. Even this early version of Android could do animations. There was no notification panel yet, either. Notification icons showed up in the status bar shown above as a smiley face , and the only way to open them was to press "up" on the d-pad while on the home screen. When a notification was opened, the status bar expanded slightly, and the text of the notification appeared in a speech bubble. Once you had a notification, there was no manual way to clear itâ€”apps were responsible for clearing their own notifications. App drawer duties were handled by a simple "Applications" folder on the left of the dock. Despite having a significant amount of functions, the Milestone 3 emulator was not very forthcoming with app icons. Oddly, "recent calls" was elevated to a standalone icon. Because this was just an emulator, icons for core smartphone functionality were missing, like alarm, calendar, dialer, calculator, camera, gallery, and settings. Hardware prototypes demoed to the press had many of these , and there was a suite of Google Apps up and running by this point. Ron Amadeo The now-deprecated menu system was up and running in Milestone 3. Hitting the hardware menu button brought up a gray list with a blue gradient highlight, complete with hardware keyboard shortcuts. In the screenshot above, you can see the menu open in the browser. Going to a second level, like the zoom menu, turned the first level of the menu oddly transparent. Surprisingly, multitasking and background applications already worked in Milestone 3. Android was built from the ground up to be a powerful app platform, and ease of app development was one of the driving forces behind its creation. Before Android, Google was already making moves into mobile with WAP sites and J2ME flip phone apps , which made it acutely aware of how difficult mobile development was. Ron Amadeo Despite not having a dialer icon, Milestone 3 emulator was equipped with a way to make phone calls. Entering only numbers and hitting the green phone hardware button would start a phone call, and letters would search contacts. Contacts were not searchable by number, however. Even a direct hit on a phone number would not bring up a contact. Incoming calls were displayed as an almost-full-screen popup with a sweet transparent background. Swapping calls triggered a nice little card shuffle animation. Ron Amadeo Contacts was a stark, black and blue list of names. An always-on XMPP connection has traditionally been at the heart of Android, and that deep integration already started in Milestone 3. The homepage was not Google. It looked like Google. The current thumbnail was in front of the other two, and scrolling through them triggered a swooping animation. Ron Amadeo From the beginning, Google knew maps would be important on mobile, even shipping a Maps client on the Milestone 5 emulator. Hidden behind the menu were options for search, directions, and satellite and traffic layers. The middle screenshot is of the directions UI, where you could even pick a contact address as a start or end address. While there was no proper gallery, on the right is a test view for a gallery, which was hidden in the "API Demos" app. The pictures scrolled left and right, but there was no way to open photos to a full screen view. Ron Amadeo There was also no settings app, but we can look at the original time and date pickers, thanks to the API Demos. While the time picker let you change each digit independently, there was no way to change months or years other than moving the day block out of

the current month and on to the next or previous month. Keep in mind that while this may seem like dinosaur remnants from some forgotten era, this was only released six years ago. We tend to get used to the pace of technology. One last Milestone 3 detail: Google gave Ars Technica a shoutout in the Milestone 3 emulator. This was tagged "m3-rc37a. Listing image by Aurich Lawson.