



# Mobile application testing

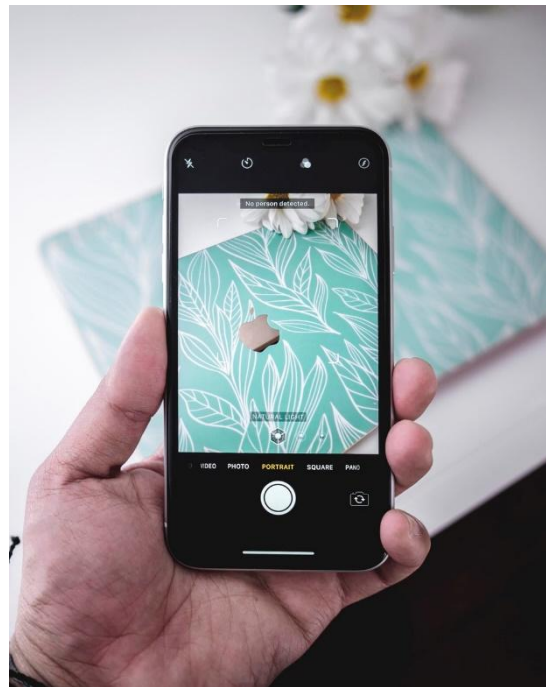
Introduction to iOS

**Bibigul Minassipova**

# AGENDA

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- 1 iOS History
- 2 Stats
- 3 Device park
- 4 iOS Beta Testing
- 5 iOS Architecture & Jailbreak
- 6 Q&A



# What does the “i” in iPhone stand for?



## IOS: WHAT? WHERE? WHEN?

- The first version has been released on June 29, 2007
- Developed by Apple
- Programming language: Objective-C, Swift
- Primary developer tool is XCode



# IOS: WHAT? WHERE? WHEN?

2007. Hello Unknown OS!

- Core iOS UI
- Multi-touch gestures
- Mobile Safari
- iPod
- Visual Voicemail
- Maps
- iTunes Sync
- **Hidden file System**



# IOS: WHAT? WHERE? WHEN?

## 2008. iPhone OS 2 + iTunes

- **App Store** with 500 apps
- Native 3rd-party apps
- Mobile Me
- MS Exchange Support
- iPhone SDK
- 3G





# IOS: WHAT? WHERE? WHEN?

## 2009. iPhone OS 3 + Push Notifications

- Spotlight Search
- New dev APIs
- **Cut, Copy, Paste**
- Voice Control
- MMS
- **Push Notifications**
- USB & Bluetooth tethering
- Landscape keyboard
- **Find My iPhone**
- Video recording



# IOS: WHAT? WHERE? WHEN?

## 2009. iPhone OS 3 + Push Notifications

- **Support for iPad resolution**
- New app views for iPad
- Location based on Apple data
- Bluetooth keyboard support





## IOS: WHAT? WHERE? WHEN?

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**iPhone OS → iOS**

**June 2010**

# IOS: WHAT? WHERE? WHEN?

## 2010. iOS 4. Multitasking

- FaceTime
- **Multitasking**
- Home Screen Folders
- Retina display support
- Unified email Inbox
- + >100 new features



# IOS: WHAT? WHERE? WHEN?

## 2011. iOS 5. Siri

- Siri
- iMessage
- iCloud
- iTunes Wi-Fi sync
- Twitter integration
- Passbook
- Newsstand
- 
- + >200 features
- Separated iOS for iPhone & iPad



# IOS: WHAT? WHERE? WHEN?

## 2012. iOS 6. Stability

- Facebook integration
- Apple Maps
- Siri enhancements
- Do Not Disturb mode
- FaceTime over cellular
- Panorama Photos

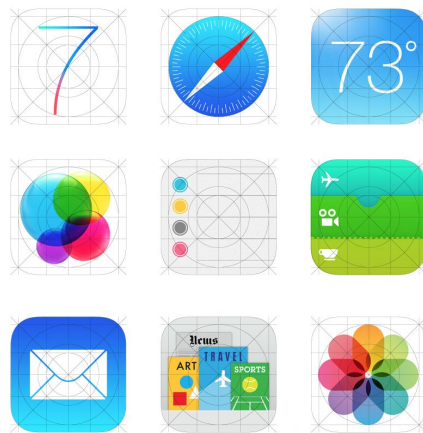
iOS 6



# IOS: WHAT? WHERE? WHEN?

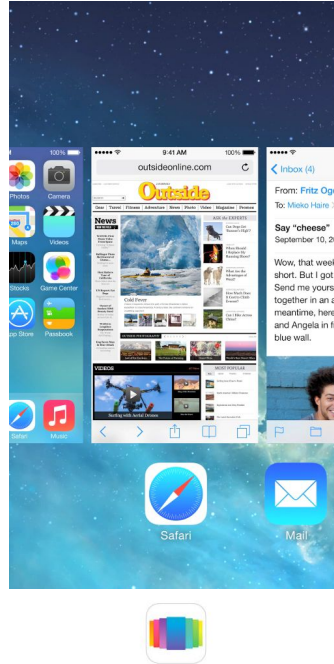
## 2013. iOS 7. Jonathan Ive

- New Design
- Control Center
- Multitasking for all apps
- Notification Center
- Dynamic Font size
- AirDrop
- iTunes Radio

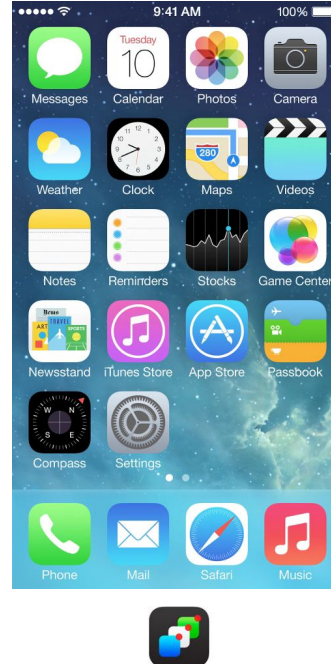


# IOS: WHAT? WHERE? WHEN?

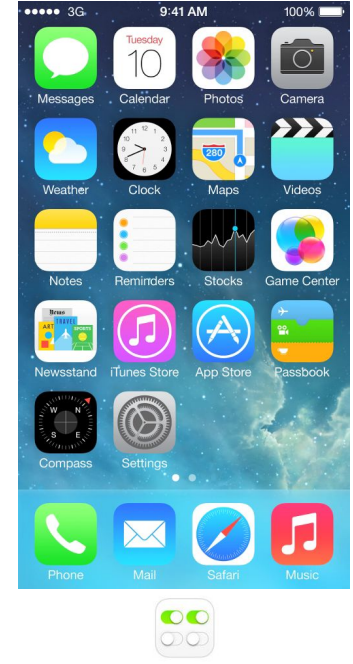
## 2013. iOS 7. Jonathan Ive



Multitasking.



Notification Center.





# IOS: WHAT? WHERE? WHEN?

## 2014. iOS 8. "The Biggest iOS Release Ever"

- Widgets
- Continuity
- Extensibility
- QuickType
- HealthKit
- HomeKit
- iCloud Drive
- Family Sharing
- Keyboards
- Touch ID



The biggest iOS release ever.



QuickType



Family Sharing



iCloud Drive



Health



Continuity



# IOS: WHAT? WHERE? WHEN?

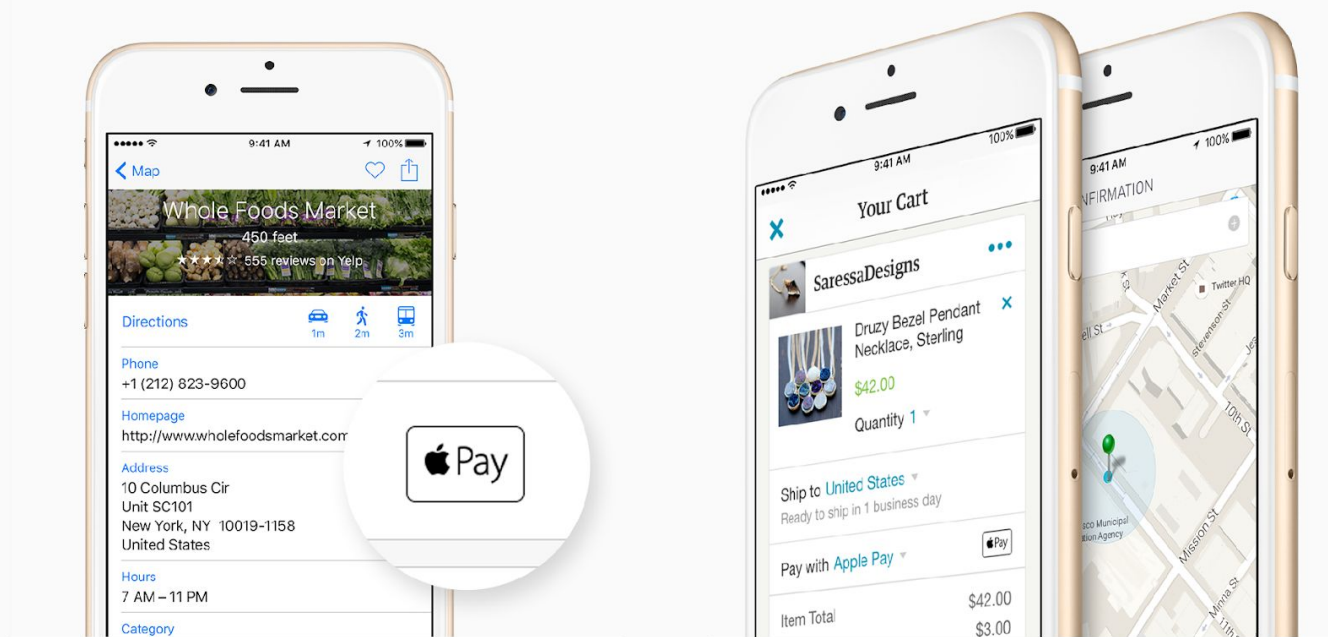
## 2015. iOS 9. Apple Pay

- News
- Notes
- Maps
- **Wallet**
- iCloud Drive
- Quick Type
- **iPad Multitasking:**
  - Slide Over,
  - Split View,
  - Picture in Picture



# IOS: WHAT? WHERE? WHEN?

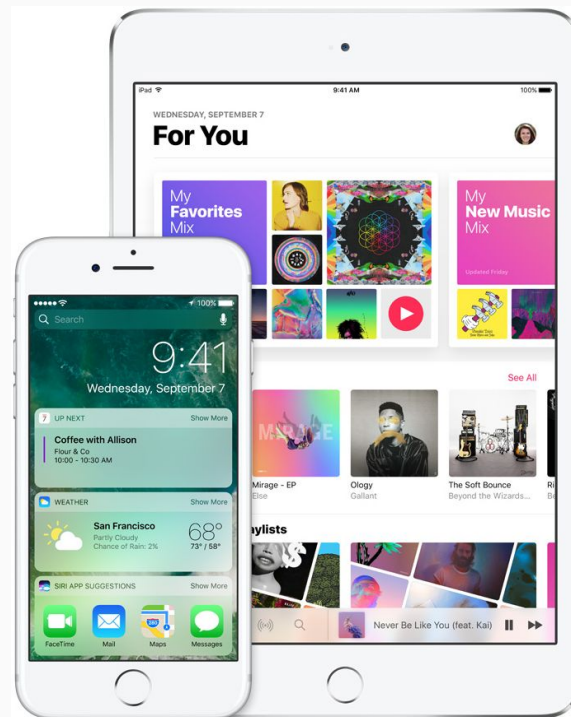
## 2015. iOS 9. Apple Pay



# IOS: WHAT? WHERE? WHEN?

## 2016. iOS 10. Smart home

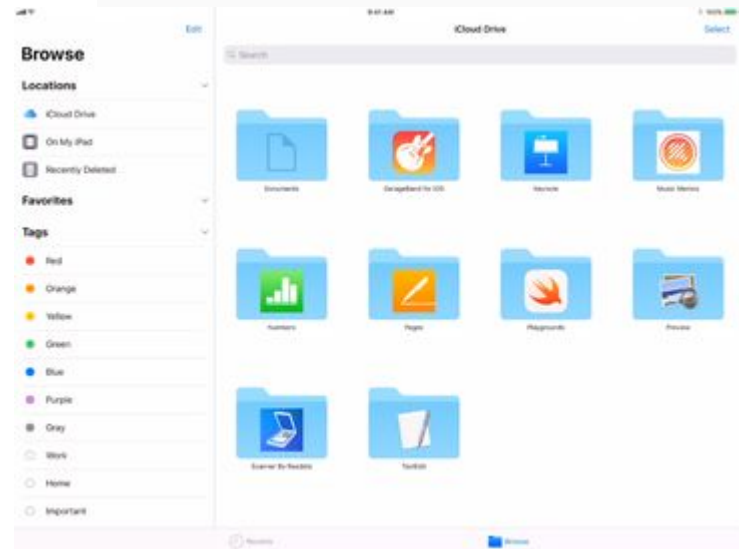
- iMessage
- SiriKit
- New design for Maps
- Memories
- Home app for Smart home
- Apple Pay for sites



# IOS: WHAT? WHERE? WHEN?

## 2017. iOS 11. Finder

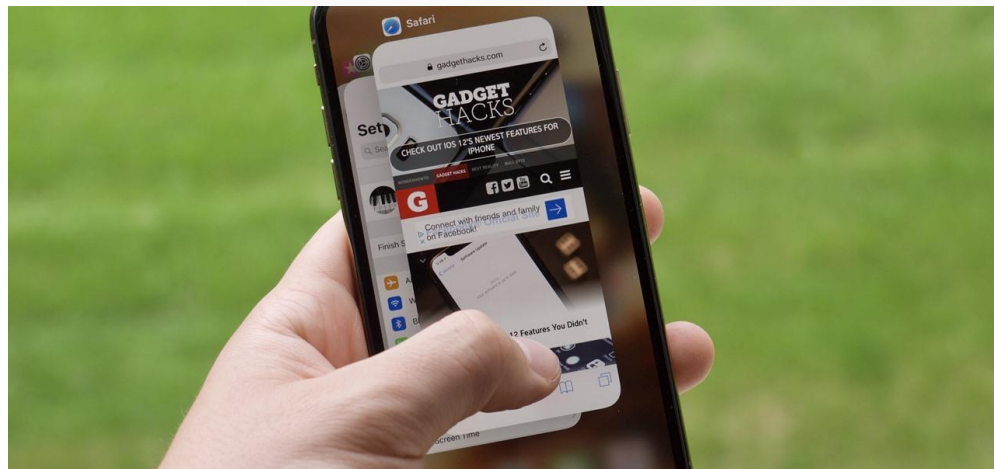
- Messages
- App Store
- Maps
- Photos
- **Files**



# IOS: WHAT? WHERE? WHEN?

## 2018. iOS 12

- Performance
- Screen Time
- Shortcuts
- **App Switcher**





# IOS: WHAT? WHERE? WHEN?

## 2019. iOS 13

- **Dark Mode**
- **Privacy** – location data sharing
- **Siri** - "Neural TTS",
- **Keyboard** - QuickPath
- **Text editing** - gesture
- **Sign in with Apple**
- **Performance** - Face ID
- **Battery lifespan extender**
- **Haptic touch**
- **Maps**
- **Photos**



# IOS: WHAT? WHERE? WHEN?

## 2020. iOS 14

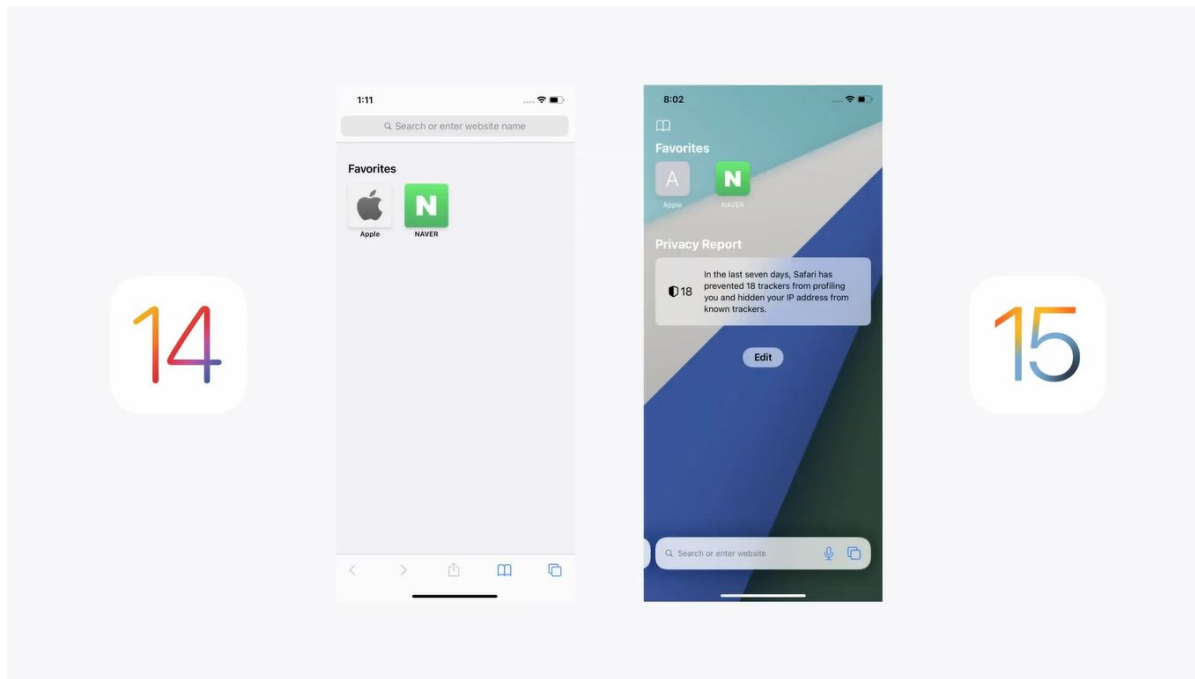
- **App Clips** - instant run of some apps
- **Memoji** – 7 new haircuts, 16 new hats, 3 new stickers, new ages
- **Siri** – now appears in new design without being expanded full screen. Results are shown as push-notifications.
- **Widgets** – new look & add to homescreen including size change
- **Incoming calls** are shown in new small window at the top
- **FaceTime** calls are shown in small window when switching between apps
- **App Tracking transparency tool** – allow / not allow
- **Confidential** – green or orange light at the top of the screen when camera or mic are used



# IOS: WHAT? WHERE? WHEN?

## 2021. iOS 15

Safari got a new look in the iOS 15 update which literally become easy to use with one hand. This one and usage are great for using safari with the speed that eventually improves the UX in the future.



# iOS 15

Safari got a new look in the iOS 15 update which literally become easy to use with one hand. This one and usage are great for using safari with the speed that eventually improves the UX in the future.

- Focus Mode: Filter out notifications based on your current activity
- A fresh new look for notifications
- Improved FaceTime functionality & Shareplay
- Enhanced Maps (more detailed view, 3D, night mode)
- Wallet: Unlock compatible home, hotel, or workplace's door locks
- Lock, unlock or start cars
- Messages: New sharing features for news, photos, and playlists
- Safari: better navigation and search
- Photos: a memories feature where user can group videos and photos from events and change them into a short movie. These movies can be accompanied with tracks from Apple Music



# WHICH IPHONES OR IOS DEVICES WILL BE ABLE TO RUN IOS 15?

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- iPhone SE (1st generation)
- iPhone SE (2nd generation)
- iPod touch (7th generation)
- iPhone 6s
- iPhone 6s Plus
- iPhone 7
- iPhone 7 Plus
- iPhone 8
- iPhone 8 Plus
- iPhone X



- iPhone XS
- iPhone XS Max
- iPhone XR
- iPhone 11
- iPhone 11 Pro
- iPhone 11 Pro Max
- iPhone 12
- iPhone 12 mini
- iPhone 12 Pro
- iPhone 12 Pro Max

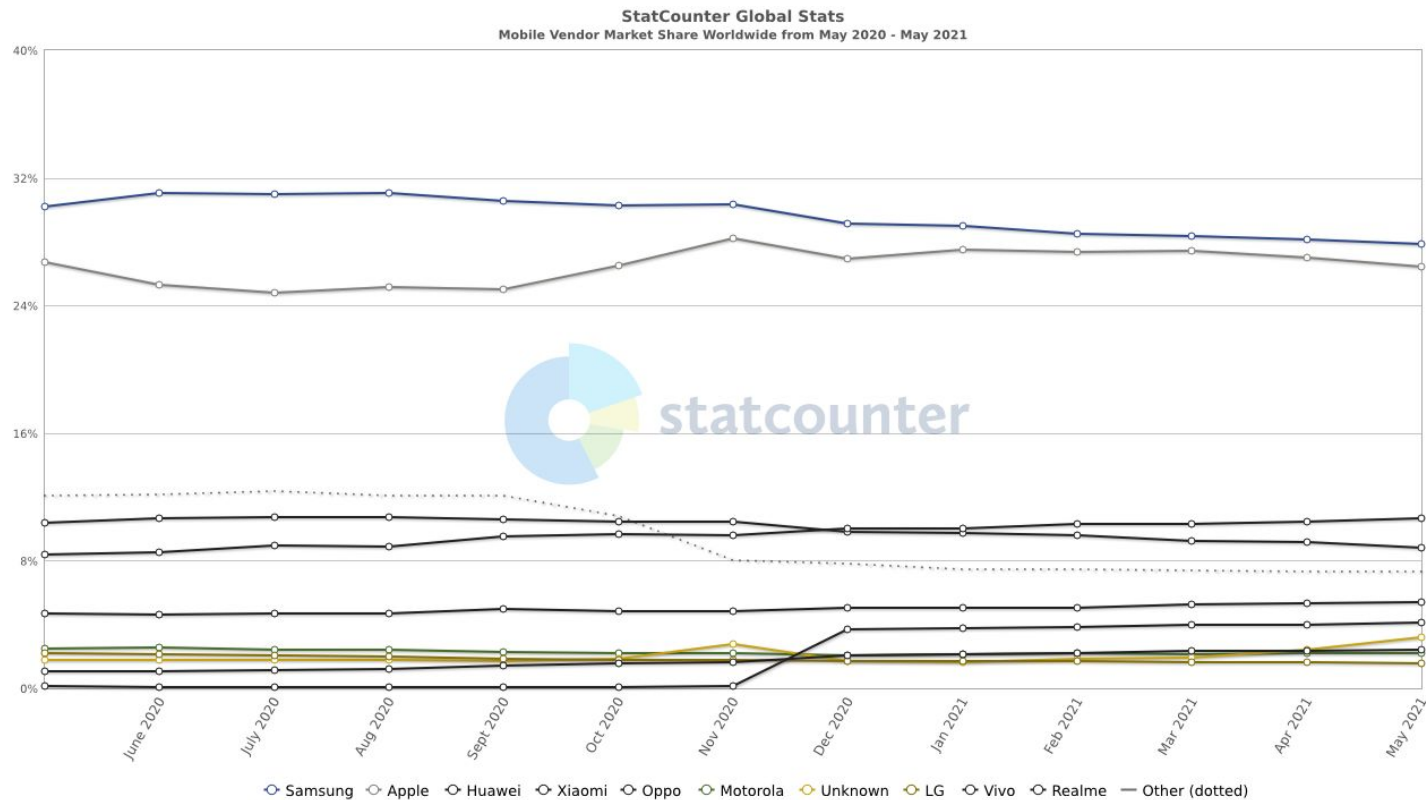
\* More specifically, all devices running iPhone 6s or above will be able to run iOS 15.

- It's impossible to downgrade iOS except cases when data is backed up before downloading a new version
- It's possible to test on unreleased versions (TestFlight, AppCenter, ...)
- By joining Beta Tester program iOS 15 is available for early testing

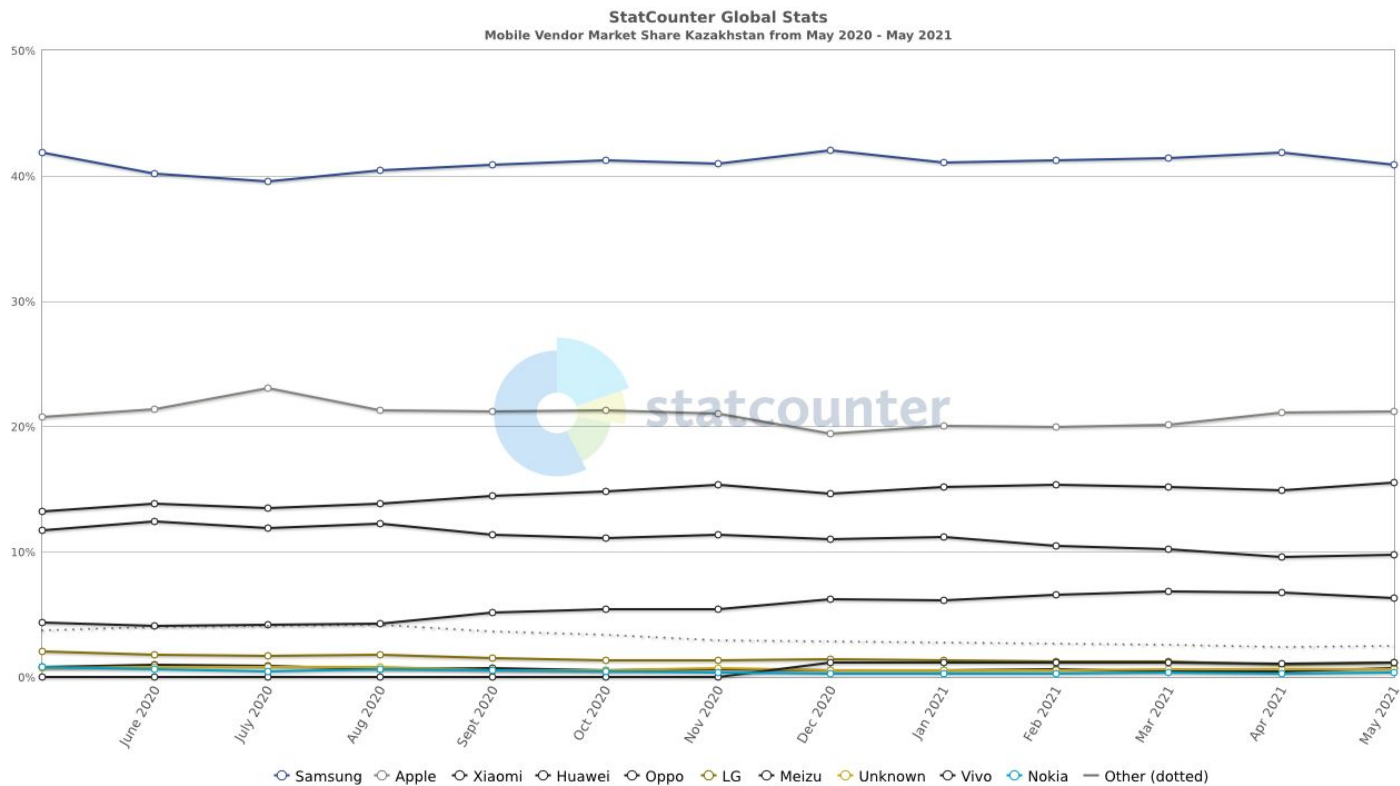




# IOS WORLD STATS:



# IOS KZ STATS:





**statcounter**  
GlobalStats

**iOS 14.4**

62.62%

**iOS 14.5**

12.25%

**iOS 12.5**

4.29%

**iOS 14.2**

2.77%

**iOS 14.3**

2.46%

**iOS 13.6**

1.42%

**Mobile & Tablet iOS Version - May 2021**

# IOS APPLICATIONS AND GAMES

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The Apple iTunes app store gets almost 1000 new application submission each day.

About 1/3<sup>rd</sup> of the total applications in the Apple iTunes app store are free to download.



The paid iOS application charges range from 1.10 to 1.30\$ on an average.

The average price for an iOS game ranges from 0.55 to 0.65\$.

# iPhone Evolution



# DEVICE PARK

## iPhone 4

Year introduced: 2010 (GSM), 2011 (CDMA)



## iPhone 4s

Year introduced: 2011





# DEVICE PARK

## iPhone 5

Year introduced: 2012



## iPhone 5c

Year introduced: 2013

## iPhone 5s

Year introduced: 2013



# DEVICE PARK

## iPhone 6

Year introduced: 2014



## iPhone 6 Plus

Year introduced: 2014



# DEVICE PARK

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## iPhone 6s

Year introduced: 2015



## iPhone 6s Plus

Year introduced: 2015



# DEVICE PARK

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## iPhone 7

Year introduced: 2016



## iPhone 7 Plus

Year introduced: 2016



# DEVICE PARK

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iPhone 8 Plus  
Year introduced: 2017



# DEVICE PARK

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iPhone X

Year introduced: 2017



# DEVICE PARK

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## iPhone XS

Year introduced: 2018



## iPhone XS Max

Year introduced: 2018





# DEVICE PARK

---

iPhone XR

Year introduced: 2018



# DEVICE PARK

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iPhone 11, iPhone 11 Pro, iPhone 11 Pro  
Max

Year introduced: 2019



## DEVICE PARK

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iPhone 12 Mini, iPhone 12, iPhone 12 Pro, iPhone 12 Pro

Max

Year introduced: 2020



# IPHONE 13: IMPRESSIVE 'UPGRADES' AND FEATURES TEASED FOR SEPT LAUNCH



# IPHONE 13: IMPRESSIVE 'UPGRADES' AND FEATURES TEASED FOR SEPT LAUNCH

- The same overall size and shape as the iPhone 12 models, including flat edges
- A relative increase in camera bump size and thickness.
- 512GB of storage at the upper end rather than the 1TB
- A smaller display cutout (notch)
- Camera upgrades - iPhone 13, 13 mini, and 13 Pro will have the same f/1.6, 7-element wide-angle lens as the iPhone 12
- A15 processor, battery, and other specs

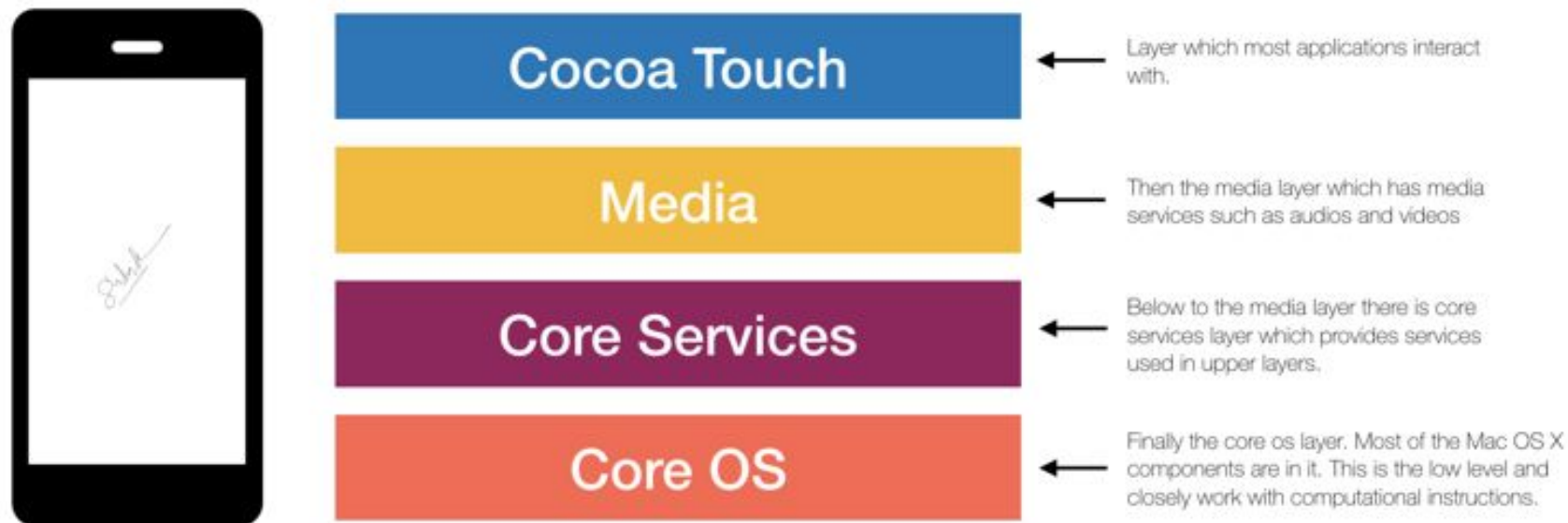


# IPHONE history

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## WHAT IS THE ARCHITECTURE OF IOS?

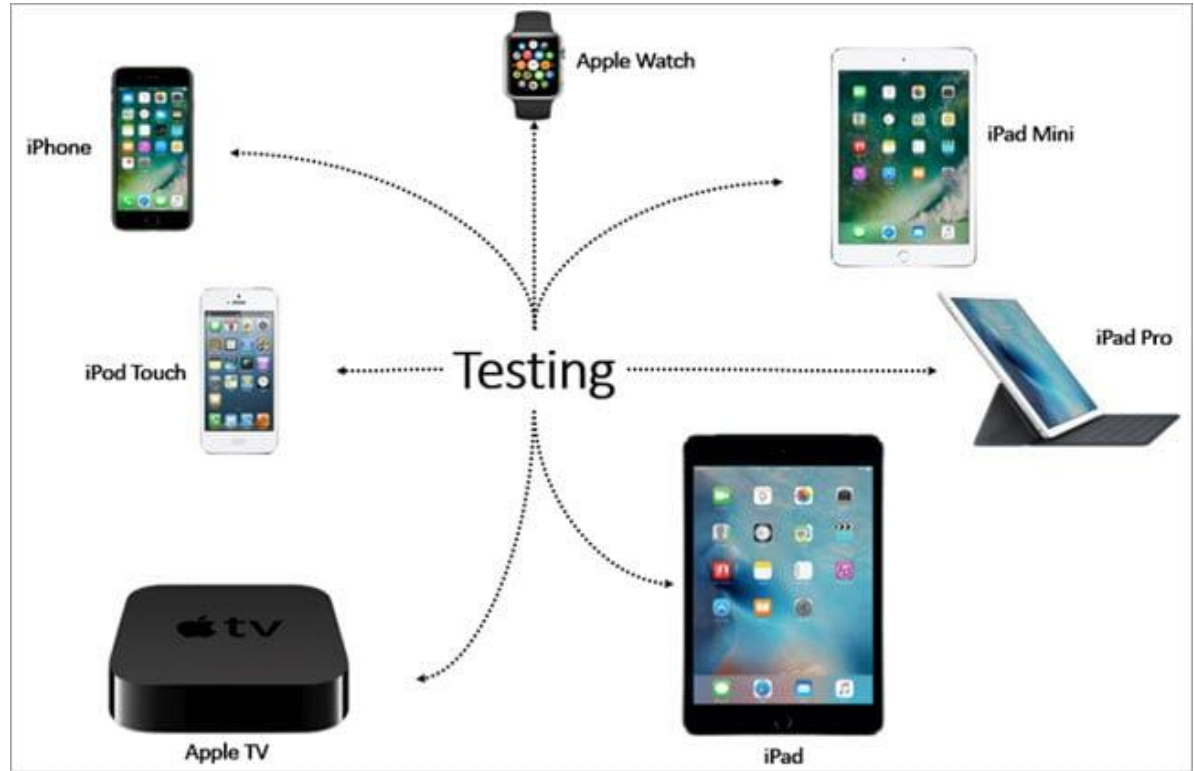




# iOS testing

iOS is only limited to Apple hardware or Apple made devices.

That's indeed a huge relief. However, there are numerous Apple devices and their versions that support iOS. Bottom line is that Apple has a closed system, unlike Android which is an open system. The releases of OS or devices are well planned.



# iOS BETA TESTING

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## WHAT IS IT?

This is a chance for volunteers to download a beta version of the new operating system for their device and test it out.

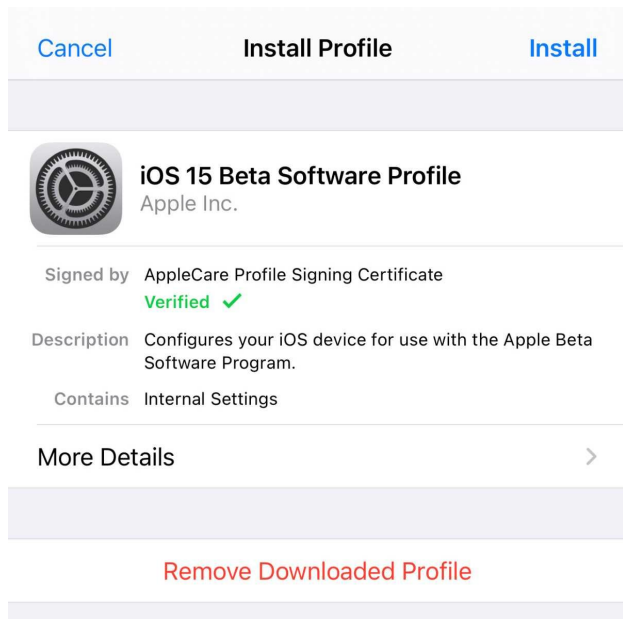
## WHO CAN JOIN?

Anyone with a valid Apple ID (iCloud accounts qualify) who goes to the [Apple Beta Software Program page](#) and signs up.



## Apple Beta Software Program

# iOS BETA TESTING



## **iOS 15 Developer Beta** Apple Inc. 5.37 GB

This beta version of iOS 15 contains bug fixes and improvements.

For more information, visit:

<https://developer.apple.com/go/?id=ios-15-sdk-rn>

This beta version of iOS should only be deployed on devices dedicated for iOS 15 beta software development.

[Learn more...](#)

[Download and Install](#)

Once you have the profile you must enable it by going to *Settings > General > Profile*. Your device will reset to enable the profile. After it has reset with the profile enabled, you can head to *Settings > General > Software Updates* to download the latest beta release.

# IOS JAILBREAK

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Removing barriers manually is called a **jailbreak**. This unlocking process is only possible with special software that **modifies iOS**.



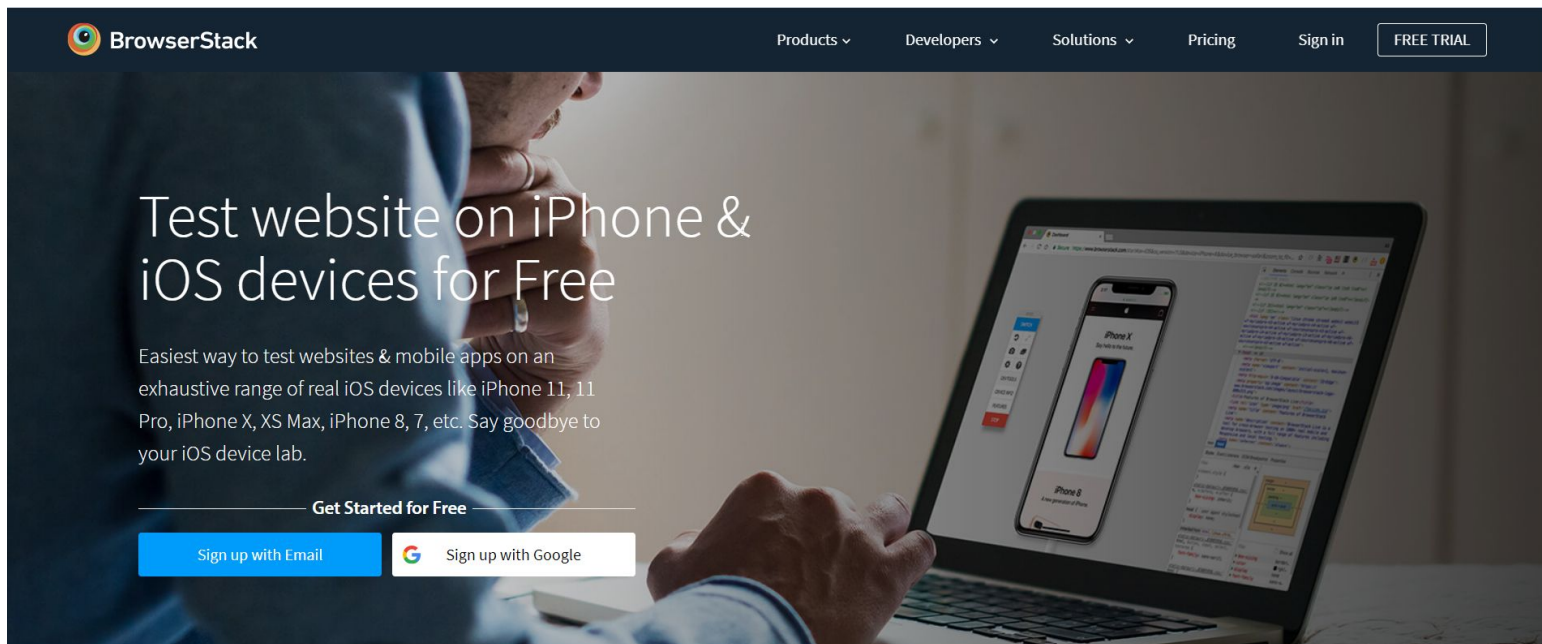
## iOS Jailbreak? Pros and cons

PROS	CONS
Installation and use of <b>third-party apps</b> not available in the App Store	The jailbreak process can <b>damage the system</b> and risks compromising the functionality of iOS
Customization of the <b>appearance</b> (icons, boot animation, etc.)	The system becomes more susceptible to malware and spyware.
Access to <b>hidden</b> iOS system files	The potential for damage by malware and spyware is elevated.
Enable <b>file sharing</b> between iOS and Android devices	<b>Guarantee and warranty claims</b> may become void.
Ability to uninstall <b>manufacturer-specific default apps</b>	You may not be able to upgrade to new iOS versions easily
Overcome the limitation of <b>Bluetooth</b> connections to image transfer only	You may not be able to upgrade to new iOS versions easily

# DON'T HAVE DEVICES FOR IOS TESTING?

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- Your physical device
- Ask in your location (local IT department)
- EPAM Mobile Cloud <https://mobilecloud.epam.com/>
- BrowserStack (one hour free only) <https://www.browserstack.com/>

The image shows the BrowserStack website's hero section. At the top is a dark navigation bar with the BrowserStack logo on the left and links for Products, Developers, Solutions, Pricing, Sign in, and a FREE TRIAL button on the right. The main content area features a large background image of a person's hands interacting with a laptop. The laptop screen displays a web browser with a mobile app interface. Overlaid on the left side of the image is the text 'Test website on iPhone & iOS devices for Free'. Below this, a paragraph explains that it's the easiest way to test websites and mobile apps on a range of real iOS devices like iPhone 11, 11 Pro, iPhone X, XS Max, iPhone 8, 7, etc., and to say goodbye to a physical iOS device lab. A 'Get Started for Free' section contains two buttons: 'Sign up with Email' and 'Sign up with Google'.

**Test website on iPhone & iOS devices for Free**

Easiest way to test websites & mobile apps on an exhaustive range of real iOS devices like iPhone 11, 11 Pro, iPhone X, XS Max, iPhone 8, 7, etc. Say goodbye to your iOS device lab.

**Get Started for Free**

[Sign up with Email](#) [Sign up with Google](#)

• **Latest Devices:** iPhone 11 & iPhone 11 Pro, now available on Real Device Cloud for testing. [Get Started Free](#)



# BROWSERSTACK

BrowserStack announces \$200 million in Series B funding at a \$4 billion valuation [Read more](#)

**BrowserStack** App Live Live Automate App Automate Percy More ▾

Invite my team Plans and pricing Get help ▾





30 mins left on your Free Trial [Buy a plan](#)

**SELECT SOURCE**

- Run your first test with a sample app  
apk/ipa files are ready, select any device
- Upload your App  
Upload your .ipa, .apk, .aab files here. >
- Sync with App Center >
- Install via TestFlight
- Install via Play Store
- Install via App Store  
Available in paid plans

**FREE TRIAL REAL DEVICES** **ANDROID REAL DEVICES** **iOS REAL DEVICES**

Select a real device to start a test

 9 Pixel 3	 14 iPhone 12 Pro
 8 Galaxy Tab S3	 12 iPad Pro 12.9 2018

# BROWSERSTACK

The screenshot displays the BrowserStack web interface. At the top, a navigation bar includes buttons for 'Switch Device', 'Local testing', 'Zoom', 'DevTools', 'Report a bug', 'Settings', and 'Stop Session'. On the left, a sidebar menu lists actions: 'Show Home Screen', 'Install New App', 'Kill/Uninstall', 'Rotate Device', 'Change Location', 'Throttle Network', 'Change Language', and 'iPhone 12 Pro v14.0'. The central area shows a virtual iPhone 12 Pro v14.0 with a home screen featuring various app icons like Files, Find My, Translate, Utilities, BrowserStack, WebBrowser, and Hacker News. On the right, the 'DEVTOOLS' panel is open, showing the 'CONSOLE' tab. The console logs the following messages:

```
Connecting to real Device Cloud
Starting device iPhone 12 Pro v14.0
Downloading app on iPhone 12 Pro v14.0
Installing app on iPhone 12 Pro v14.0
Starting app on iPhone 12 Pro v14.0
Jun 26 17:22:49 HackerNews(AXRuntime)[13706] <Error>
Jun 26 17:22:50 HackerNews(CFNetwork)[13706] <Notice>
Jun 26 17:22:50 HackerNews(CFNetwork)[13706] <Notice>
Jun 26 17:22:51 HackerNews(libnetwork.dylib)[13706]
Jun 26 17:23:30 HackerNews(CoreAnalytics)[13706] <No
```



THANK YOU