

Introducing Android

Part 1

Android Overview

1



Here we take a brief look at Android, exploring its background and main features.



Agenda

- ❑ Origins, Background & Previous Versions
- ❑ Latest Features & New Version
- ❑ Adoption Rates & The Mobile OS War
- ❑ FairPhone



Android Origins

- ❑ 2003 (October) - Android Inc. founded in Palo Alto by Andy Rubin
- ❑ 2005 (August) – Google acquires Android Inc.
- ❑ 2007 (November) – OHA established
(next few slides)
- ❑ 2008 (October 22nd) – 1st Android phone
launched by HTC, the HTC Dream / Mobile G1





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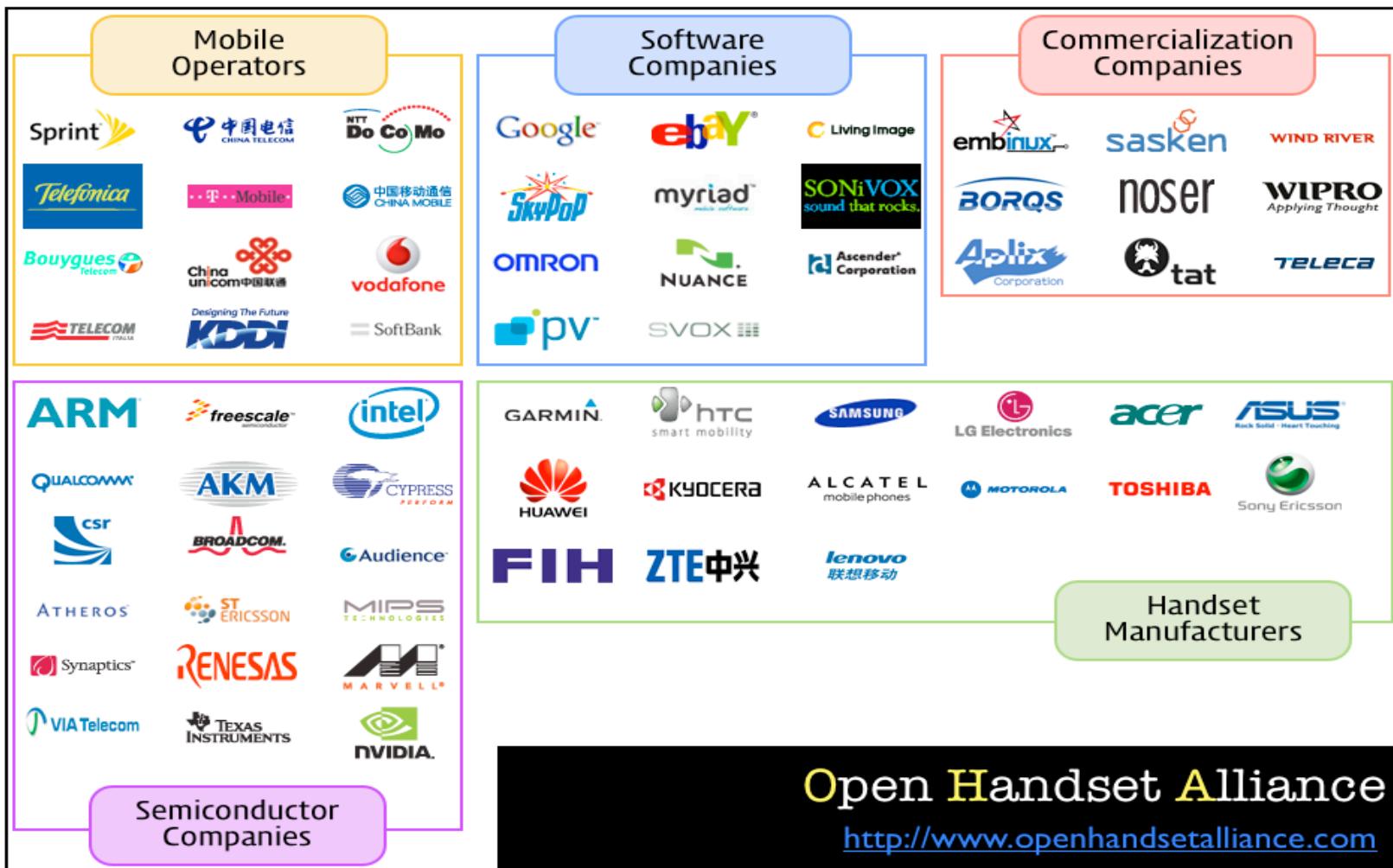




Background – Platform & OHA

- ❑ Android is a comprehensive open source platform designed for mobile devices
- ❑ It is championed by Google and owned by the Open Handset Alliance (80+ companies, next Slide)
- ❑ The goal of the alliance is to “accelerate innovation in mobile and offer consumers a richer, less expensive, and better mobile experience.” (November 2007)







Background – Vs iOS

- ❑ Android, along with iOS, has (and continues to) revolutionise the mobile space.
- ❑ Unlike iOS however, Android is an open platform that separates the hardware from the software that runs on it.
- ❑ This allows for a much larger number of devices to run the same applications and creates a much richer ecosystem for developers and consumers.



ANDROID WEAR

PHONES

TABLETS



ANDROID TV



ANDROID AUTO

Designed for Mobile Devices

- When designing Android, the team looked at which mobile device constraints were likely *not going to change* for the foreseeable future:

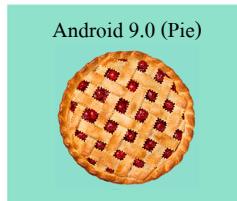
- Battery power*, and *battery performance* is probably not going to get massively better anytime soon
- In general, the small size of mobile devices means that they will always be **limited** in terms of **memory** and **speed**
- However, a device's **screen size**, **resolution**, **chipset** may **vary considerably**

- These constraints have been taken into consideration throughout the platform.





Android Versions so Far *





Android Versions so Far *



ANDROID



{code}kul;
THE GURUKUL FOR CODERS !



Android 10
(API 29)

as of September 3rd 2019



Android Version 10 - Highlights

- ❑ Official Release Date September 3rd 2019
(1st Beta March 13th)
- ❑ For the first time ever, it won't be named after a sweet, treat or dessert
- ❑ Rolled out for Google Pixel range (+ some other OEMs, Huawei, OnePlus, LG, Nokia)
- ❑ Improvements and updates fall into three main categories:
 - ◆ Innovation
 - ◆ Security & Privacy, and
 - ◆ Digital Wellbeing



The Next Version

Android 11

An early look at the next version of Android, for testing, development, and feedback. [Try it today](#) on your Pixel 2, 3, 3a, or 4 device!

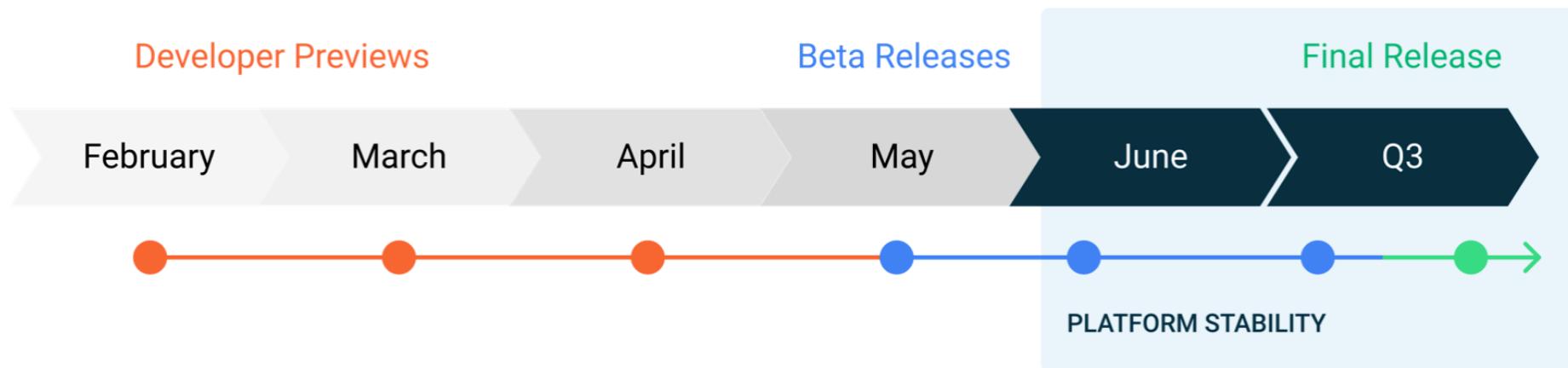
GET STARTED





The Next Version

Timeline, milestones, and updates





Versions – API Level *

- ❑ The Android version number itself partly tells the story of the software platform's major and minor releases. **What is most important is the API level.** Version numbers change all the time, sometimes because the APIs have changed, and other times because of minor bug fixes or performance improvements.
- ❑ As an application developer, you will want to make sure you know which API level your application is targeting in order to run. **That API level will determine which devices can and cannot run your application.**

<https://developer.android.com/about/dashboards>

| Version | Codename | API | Distribution |
|------------------|--------------------|-----|--------------|
| 2.3.3 - 2.3.7 | Gingerbread | 10 | 0.3% |
| 4.0.3 - 4.0.4 | Ice Cream Sandwich | 15 | 0.3% |
| 4.1.x | Jelly Bean | 16 | 1.2% |
| 4.2.x | | 17 | 1.5% |
| 4.3 | | 18 | 0.5% |
| 4.4 | KitKat | 19 | 6.9% |
| 5.0 | Lollipop | 21 | 3.0% |
| 5.1 | | 22 | 11.5% |
| 6.0 | Marshmallow | 23 | 16.9% |
| 7.0 | Nougat | 24 | 11.4% |
| 7.1 | | 25 | 7.8% |
| 8.0 | Oreo | 26 | 12.9% |
| 8.1 | | 27 | 15.4% |
| 9 | Pie | 28 | 10.4% |

*Data collected during a 7-day period ending on May 7, 2019.
Any versions with less than 0.1% distribution are not shown.*



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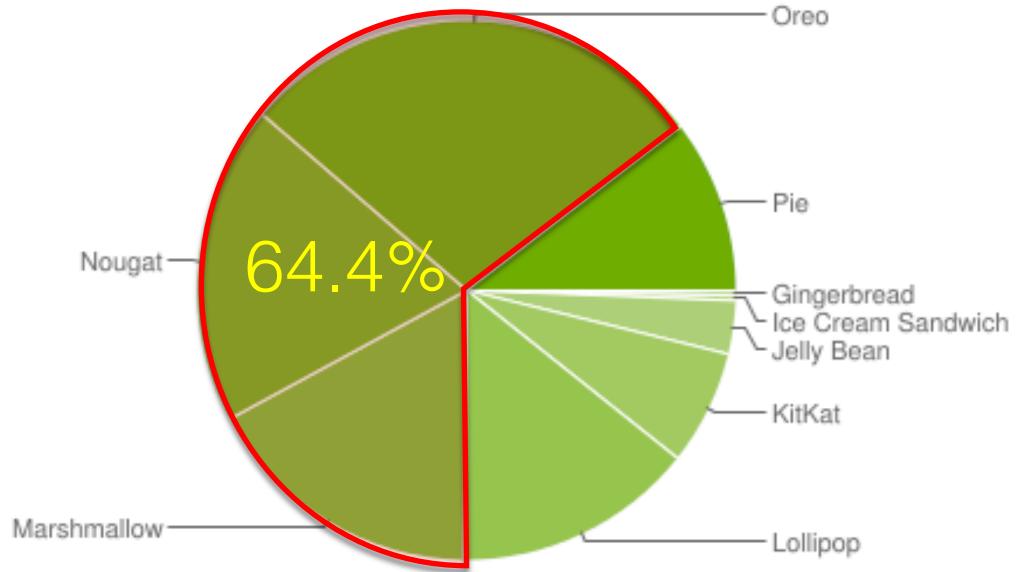
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Versions – Platforms *



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Adoption Rates

- ❑ Android adoption traditionally lags behind Apple's because Apple can make its latest iOS available for all users at once because it makes all the hardware and the software.
- ❑ Android, on the other hand, is much more fragmented. Because Google lets many different hardware makers use its Android software, it can't control when all phones update to the latest software. So, the newest version of Android is always made available for Google's lineup of smartphones and tablets, but it can't release software updates to every single Android phone at once.
- ❑ Smartphone manufacturers often add their own modifications to Android, which means that the update needs to be approved by each individual carrier first.
- ❑ This means that depending on which phone you own, it could take ages to receive the latest software update.
- ❑ Here's some stats:



Adoption Rates (June 4th 2019 WWDC)

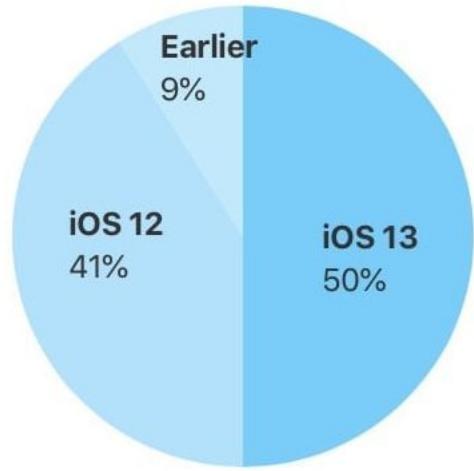
- CEO Tim Cook was keen to point out, Apple's latest numbers are in stark contrast to the latest offering from "those other guys."





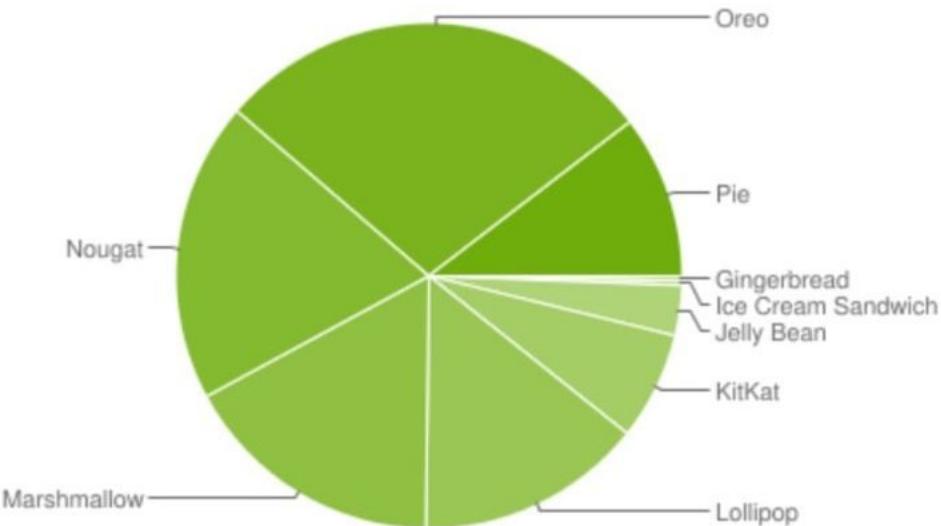
Adoption Rates

50% of all devices use iOS 13.



As measured by the App Store on
October 15, 2019.

?% of all devices use Android 10.



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Why are these figures Important?



Create New Project

Configure Your Project

Name
My Application

Package name
org.wit.myapplication

Save location
/Users/ddrohan/Downloads/MyApplication

Language
Kotlin

Minimum SDK
API 29: Android 10.0 (Q)

i Your app will run on approximately **8.2%** of devices.
[Help me choose](#)

Use legacy android.support libraries ?

Empty Activity

Creates a new empty activity

Cancel Previous Next Finish

Choosing your Min SDK



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Android Platform/API Version Distribution

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| 8.1 Oreo | 27 | 39.5% |
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| 10. Android 10 | 29 | 8.2% |

<https://developer.android.com/about/versions/10>

Android 10

System

- Foldables support
- 5G support
- Gesture navigation
- ART optimizations
- Neural Networks API 1.2
- Thermal API

User Interface

- Smart Reply in notifications
- Dark theme
- Settings panels
- Sharing shortcuts

Camera and media

- Dynamic depth for photos
- Audio playback capture
- New codecs
- Native MIDI API
- Vulkan everywhere
- Directional microphones

Security and privacy

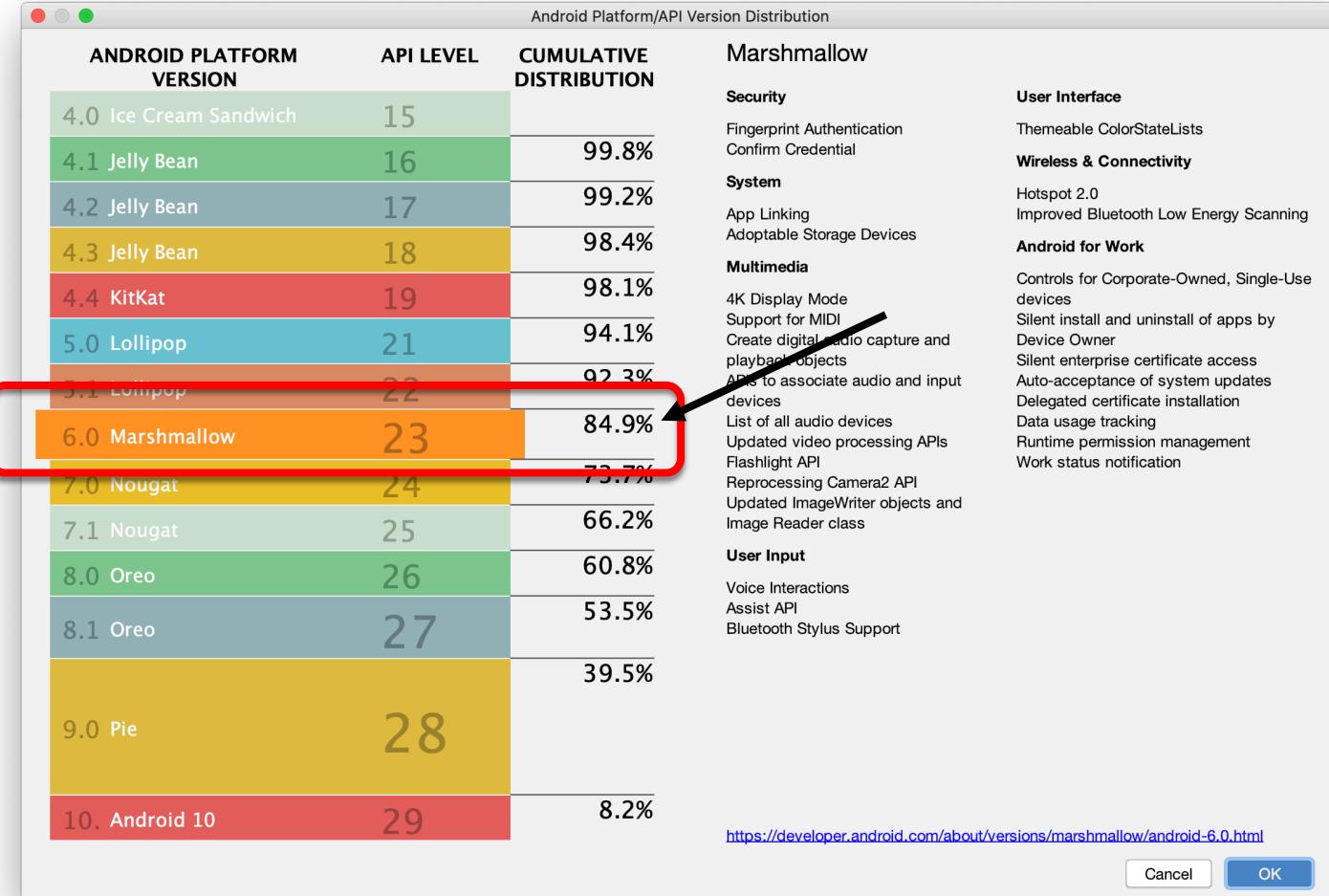
- New location permissions
- Storage encryption
- TLS 1.3 by default
- Platform hardening
- Improved biometrics

Cancel

OK



Android Platform/API Version Distribution

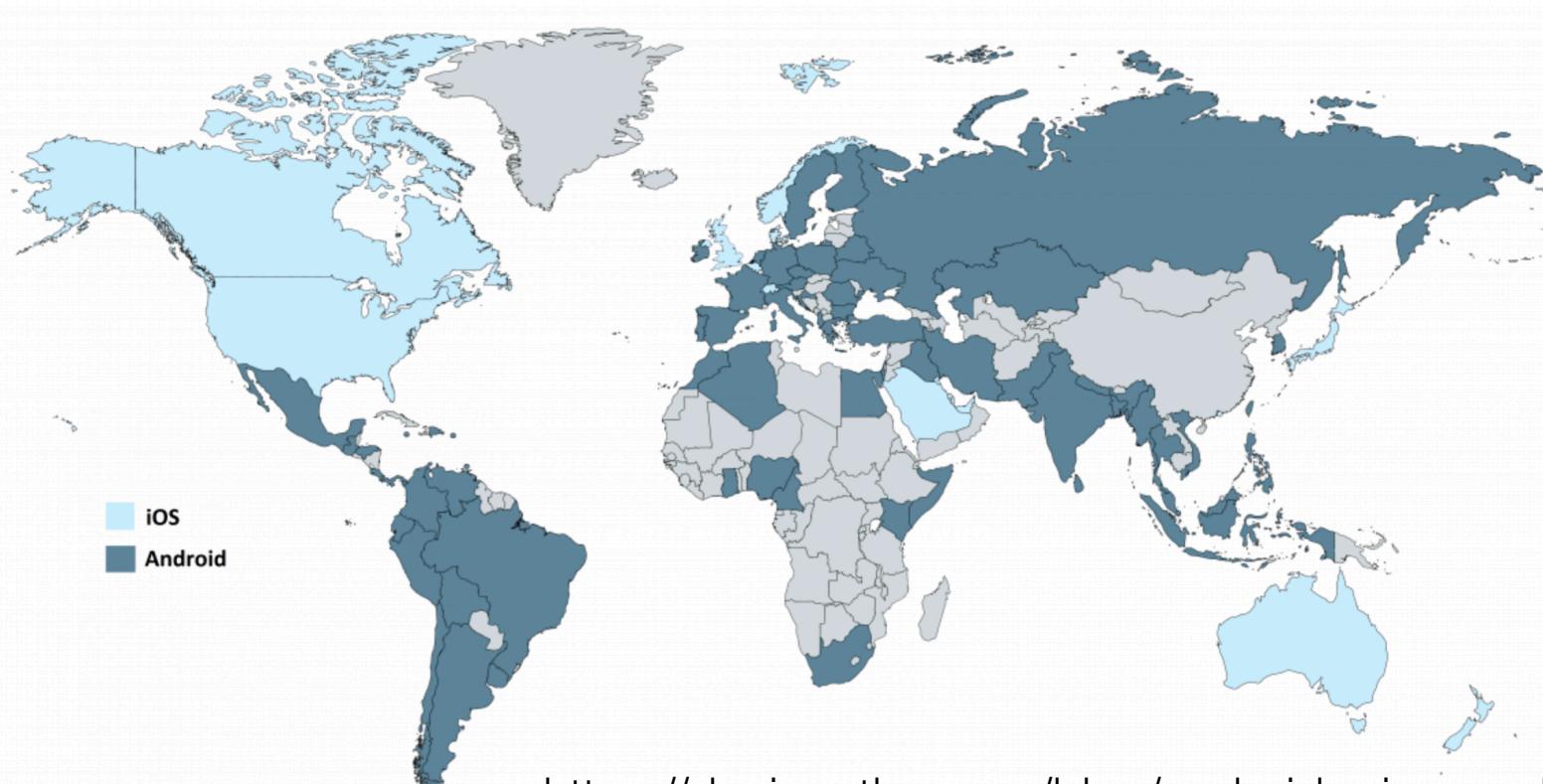




some interesting graphics...



Which Countries Prefer What (Q3 2019)



<https://deviceatlas.com/blog/android-v-ios-market-share>

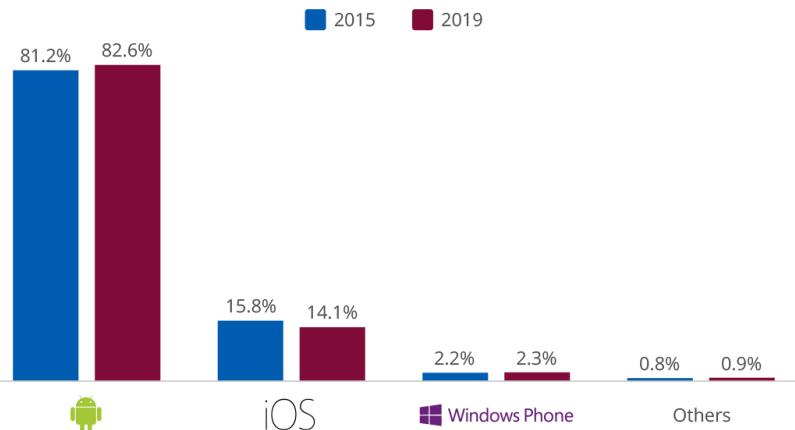


Market Share Vs App Revenue

Tech  Chart of the Day

Smartphone Platform Market Share

Worldwide smartphone operating system market share (% of new device shipments)*

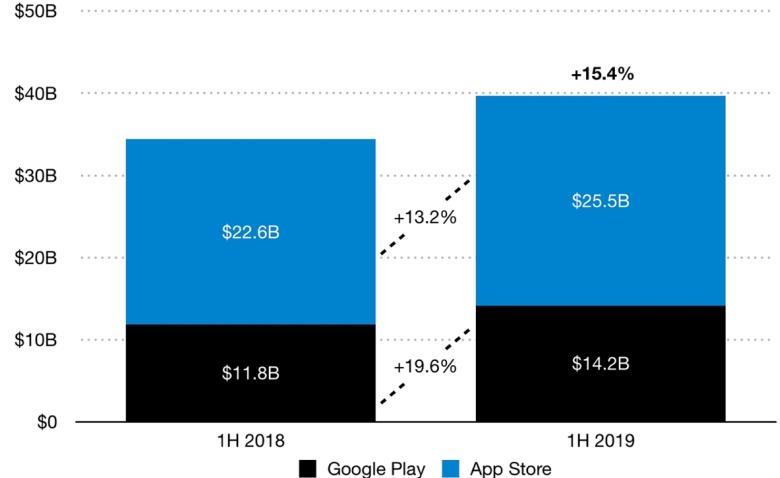


* Forecast

BUSINESS INSIDER

Source: IDC  statista

Worldwide Gross App Revenue - First Half 2019



SensorTower



some very interesting graphics... ☺



2019 This Is What Happens In An Internet Minute





2020 This Is What Happens In An Internet Minute





FairPhone



<https://youtu.be/S0fbZerTUjY>



References

- ❑ Online references
 - <http://developer.android.com/>
 - ◆ By far the most important single reference.

- ❑ <https://www.techadvisor.co.uk/news/google-android/android-10-3689677/>
- ❑ <https://www.zdnet.com/article/android-10-release-date-features-rumors-and-everything-we-know-so-far/>
- ❑ <https://www.statista.com/chart/5930/adoption-of-ios-and-android-versions/>
- ❑ https://www.phonearena.com/news/Apple-iOS-12-adoption-rate-85-percent-Android-comparison_id116546
- ❑ <https://www.express.co.uk/life-style/science-technology/1136137/Android-vs-iOS-Apple-reveals-major-advantage-over-Google>
- ❑ <https://www.androidcentral.com/android-q#theme>
- ❑ <https://www.allaccess.com/merge/archive/31294/infographic-what-happens-in-an-internet-minute>

Thanks.

