BEYOND GOOGLE
&
APPLE DUOPOLY

Roberto A. Foglietta
roberto.foglietta@proton.me
+349.33.30.697 or +49.176.274.75.661

- there are 15 slides for 15 minutes of talk, we are proceeding fast
- the slides contain a lot of text, do not read it now, but listen to the talk
- you can read the text later and ask questions by e-mail or even by phone

COHESION ITALY 21-27 ALTO ADIGE SÜDTIROL
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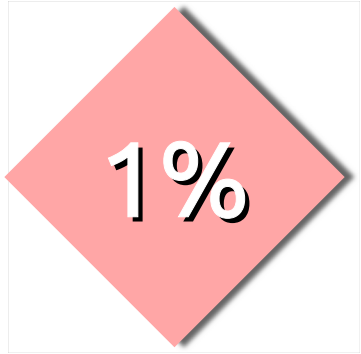
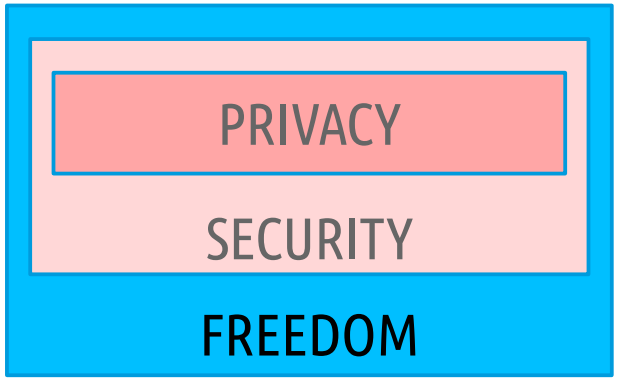
StatsCounter tells us that in May '23, the market share for smartphone OSes is split in this way:

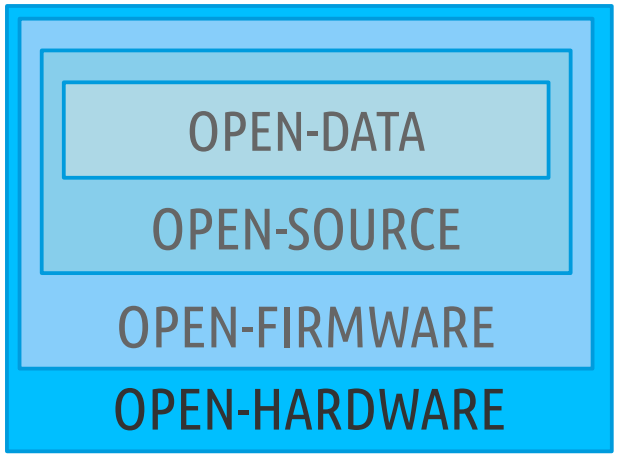
- Android/Google 67.6%
- iOS/Apple 31.6%

Which means the remaining is less than 1%. Today we are speaking about that 1%: available alternatives, future outlook, and, most importantly, why we have to care about that 1%.

Spoiler: because a study by the University of Edinburgh and Trinity College Dublin published in Q4/2021 proves what all we know – our smartphones leak our personal data and meta-data constantly.







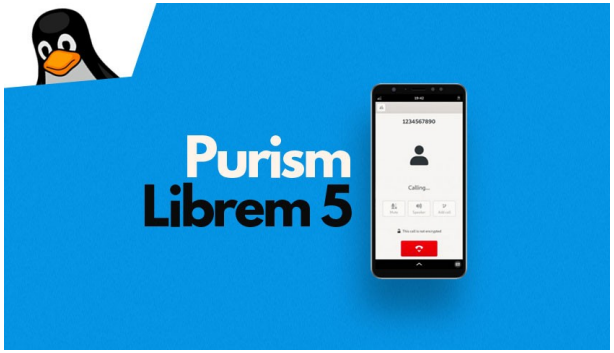
PERCEPTION vs REALITY

People are more worried about their privacy than security.

Technically, privacy can be granted only as much as security is granted, and security can be granted as much as freedom is granted. In the real world, what does FREEDOM entail?

It means a lot of things, including those in the 2nd schema.

For example, a Linux monolithic kernel with all drivers and a GNU root filesystem with a minimal GUI can fit into a 30 MB compressed image, but 55 MB (compressed) of proprietary closed-source firmware is required.



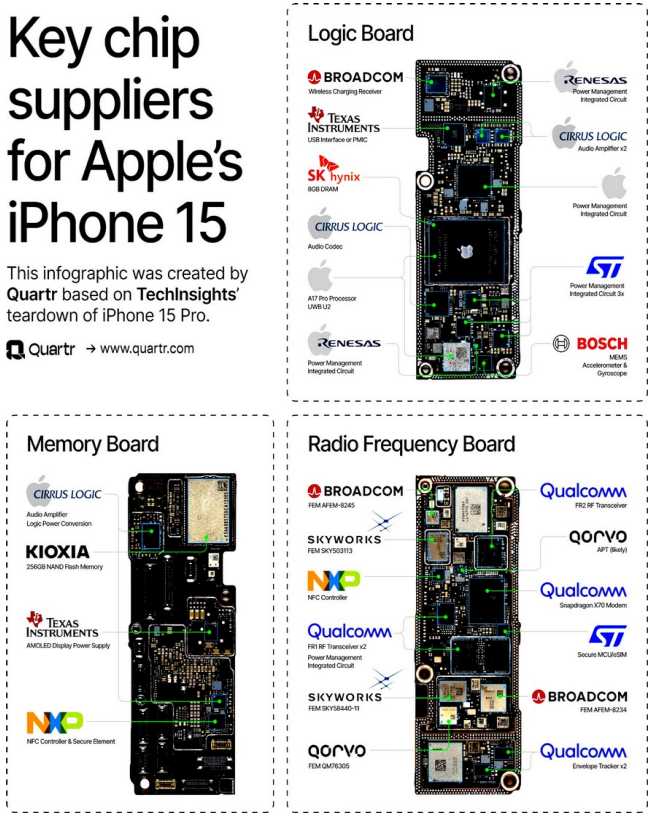
OPEN-HARDWARE
is a HUGE challenge
$$$$ + TIME = begin

WE DO NOT CONTROL ALMOST ANYTHING

We do not control almost anything about the hardware, for which also the development support is not available for free or to private citizens.

Almost all the firmware is closed source, which is about 2:3 of the binary code running below the operative or root system levels.

Mobile devices can collect and exchange data over many networks, potentially also out-of-band, connecting with remote servers or cloud services that are completely out of our control as well.



Even Apple has the control!

APPLE USERS IS A FUN CLUB

Whoever buys Apple does not buy a technology but an experience, and they trust Apple for their data and privacy.

ANDROID IS A PLATFORM

which is under the control of Google, which lets the vendors customise it in particular in terms of hardware choice and GUI, on which they compete but with a high fragmentation.

APPS MARKET IS THE CASH COW

with different degrees for both companies. The cons are about malicious, vulnerable, and poorly developed apps.

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PLEASE DO NOT PUSH, PULL

Due to the complexity of the hardware and firmware, no one can grant full and exclusive control over a mobile device.

Even Apple, which is the company in the best position to protect their customers, cannot fully granting them about it.

FAIR-TRADE & SUSTAINABILITY

Providing hardware that is produced respecting labour rights, human dignity, and ecologically more sustainable.

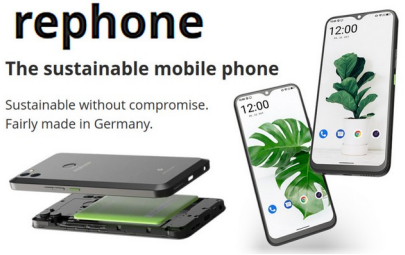
PRIVACY & DE-GOOGLELISATION

Includes the 1st trend above, providing support for refurbished devices, plus adopts the Android Open Source Project, custom privacy settings, and independent app markets.

NON-MILITARY HIGH-SECURITY

While most mobile OSes use the AOSP in combination with Lineage OS, the Ubuntu Touch brings in the PRO/1 support and their cloud services.

FAIR-TRADE & SUSTAINABILITY



High-priced compared to the hardware specifications, but with a long life duration and full repairability. More expensive than a refurbished alternative.

PRIVACY & DE-GOOGLELISATION

Still using Android, and the user experience is dramatically worse without Google apps and cloud services, plus some apps do not work properly or are troubling after an update.

NON-MILITARY HIGH-SECURITY

Limited Android app support or completely absent, in particular, e.g. Graphene OS runs only on Google Pixel smartphones.

CLOUD IS SOMEBODY ELSE COMPUTING

Whatever you might think, a cloud service is always about delegating your data to others. Are small companies more trustworthy than big companies? Possible but not immediate to claim.

Proton

Mail Calendar Drive VPN Pass

murena

Google

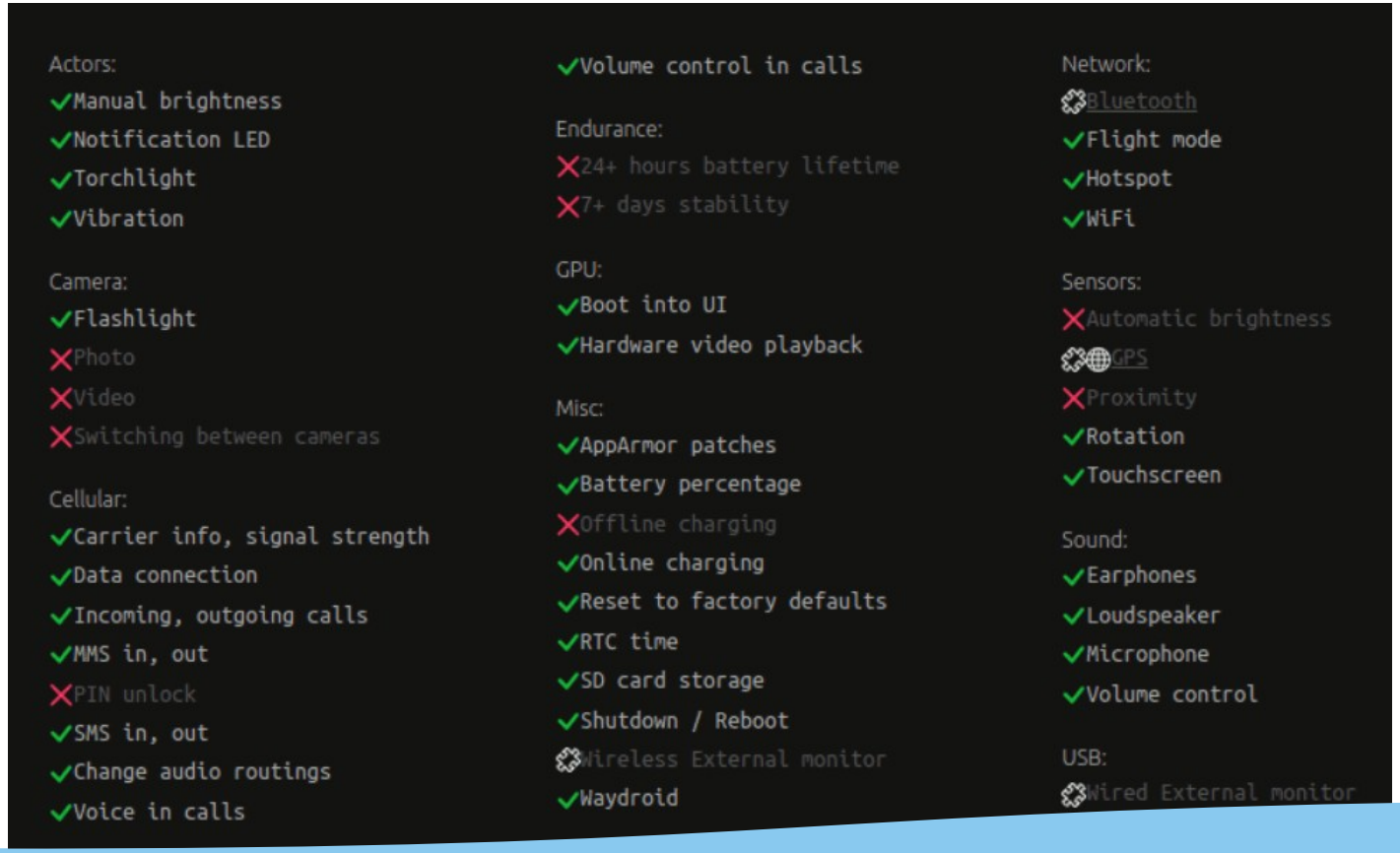
amazon web services™ S3

Microsoft Azure

iCloud

Nextcloud

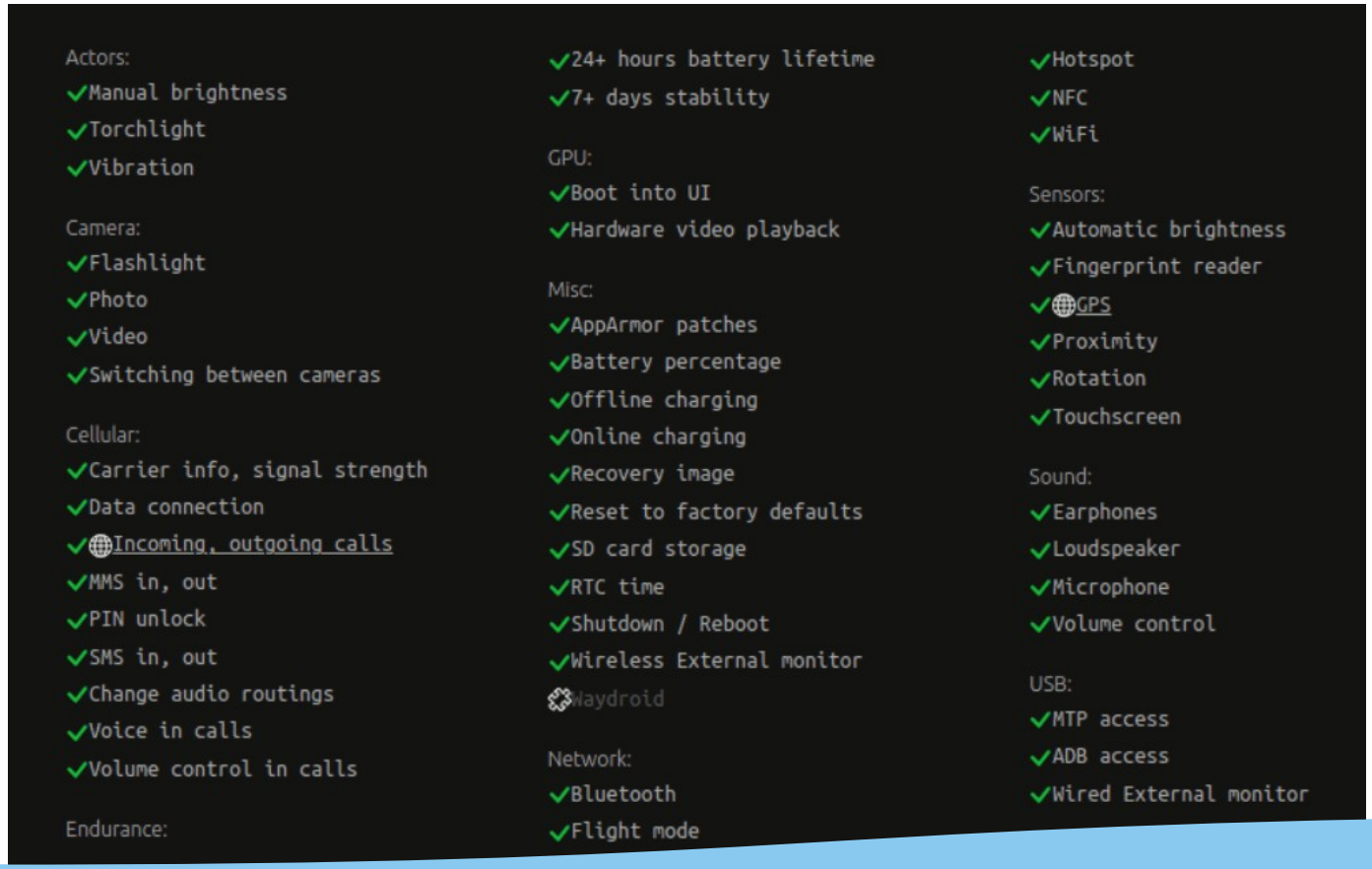
STATE OF THE ART (part. 1)



In that 1%, we can consider Ubuntu Touch as the mobile OS supported by the best organised Linux distribution company, and the Pinephone as the most promising open hardware device.

Unfortunately, despite the good premises, it does not seem like a lucky pairing.

STATE OF THE ART (part. 2)



Actors:
- ✓Manual brightness
- ✓Torchlight
- ✓Vibration

Camera:
- ✓Flashlight
- ✓Photo
- ✓Video
- ✓Switching between cameras

Cellular:
- ✓Carrier info, signal strength
- ✓Data connection
- ✓Incoming, outgoing calls
- ✓MMS in, out
- ✓PIN unlock
- ✓SMS in, out
- ✓Change audio routings
- ✓Voice in calls
- ✓Volume control in calls

Endurance:
- ✓24+ hours battery lifetime
- ✓7+ days stability

GPU:
- ✓Boot into UI
- ✓Hardware video playback

Misc:
- ✓AppArmor patches
- ✓Battery percentage
- ✓Offline charging
- ✓Online charging
- ✓Recovery image
- ✓Reset to factory defaults
- ✓SD card storage
- ✓RTC time
- ✓Shutdown / Reboot
- ✓Wireless External monitor
- Waydroid

Network:
- ✓Bluetooth
- ✓Flight mode
- ✓Hotspot
- ✓NFC
- ✓WiFi

Sensors:
- ✓Automatic brightness
- ✓Fingerprint reader
- ✓GPS
- ✓Proximity
- ✓Rotation
- ✓Touchscreen

Sound:
- ✓Earphones
- ✓Loudspeaker
- ✓Microphone
- ✓Volume control

USB:
- ✓MTP access
- ✓ADB access
- ✓Wired External monitor

Instead, the Fairphone 4 with Ubuntu Touch seems like the perfect combination that we were looking for.

However, VoIP 4G calls and A/GPS are “global issues” both. Which means a feature that does not fully work - for any of the devices - as expected compared with Android.

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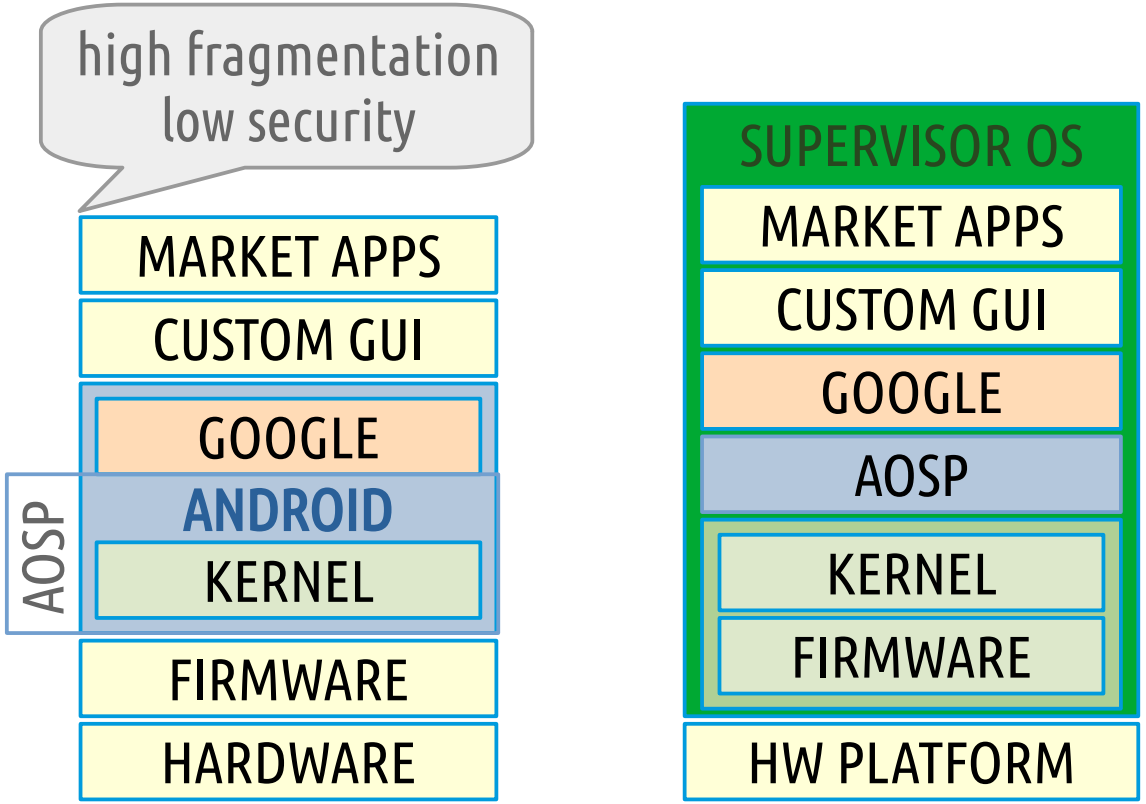
A DUMB-SIMPLE STACK OF COMPONENTS



In the previous two slides, we got a glimpse that the open-ness is not the key to succeeding in this market, but hardware vendor collaboration is more important. The reason is pretty simple: money. The Pine64 project is underfunded and therefore understaffed because of their poor marketing: “we are the good guys, buy from us” instead of “save the planet, buy fair”.

FRAGMENTATION

Android: 4.4, 5.1, 6, 7.1, 8, 9, 10, 11, 12, 13 (amazon.it)
models: 274 (android.fandom.com), 4G/5G available 66 (gsmarena)

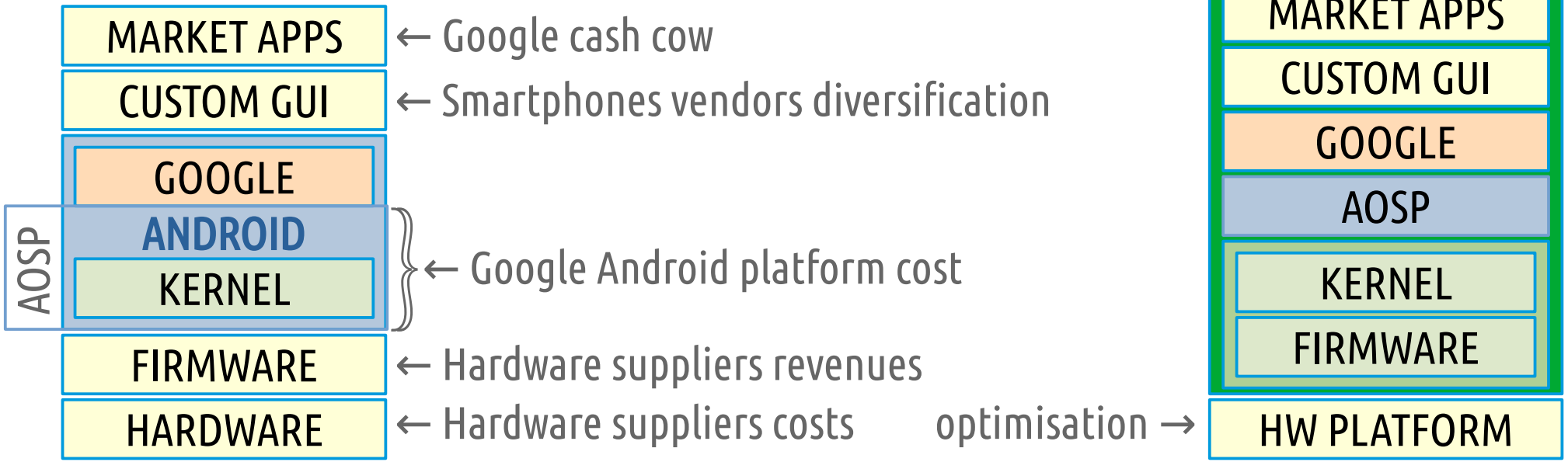
iOS: 15
models: 4G/5G available 17 (gsmarena)

Android: 11, 13
models: 4G/5G available 2 (gsmarena)

Manjaro Linux
models: 4G/5G available 2 (pine64.org)

SOURCES OF COSTS AND REVENUES

The vendors support is essential to bringing more open-ness to the smartphone market, and they can reduce HW fragmentation by adopting an evolutionary model: platform's generation 1, 2, 3, etc.

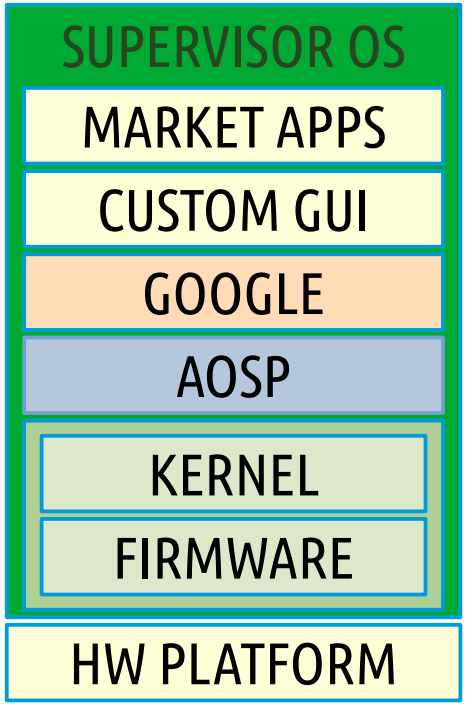


SECURITY AND PRIVACY

Third-party apps constitute the biggest security and privacy threat. A supervising OS can significantly reduce risks and restore end-user privacy in terms of data control.

It can be customised for each HW platform, which means that the HW vendors will be more keen to provide support because they will be able to leverage the whole supervising OS for their revenues and not rely only on their closed-source proprietary firmware.

Google can reduce costs thanks to the AOSP approach. Smartphone vendors will save a lot of money by skipping to sopport a large bounce of old models. Users will appreciate the iPhone's evolutionary approach.



Thanks for your attention

:-)

slides url: **t.ly / zHgAV**

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