

Кирилл Розов, Mobius, Ноябрь 2021

**Мобильной разработки
не будет через 5 лет**

Кирилл Розов

- 👉 Tech PR Менеджер в Surf
- 👉 Блоггер
- 👉 Android & Kotlin GDE
- 👉 Автор и создатель “Android Broadcast”





Android Broadcast

Современные тренды Android
разработки в одном месте

androidbroadcast.dev



@android_broadcast



@androidBroadcast



ВАЖНО!!!

Всё что сегодня я расскажу - мои личные мысли и наблюдения. Они могут случиться, могут и нет. Буду рад вашей обратной связи!

История смартфонов



2000



2003



2003



2004



2006



2006



Июнь 2008



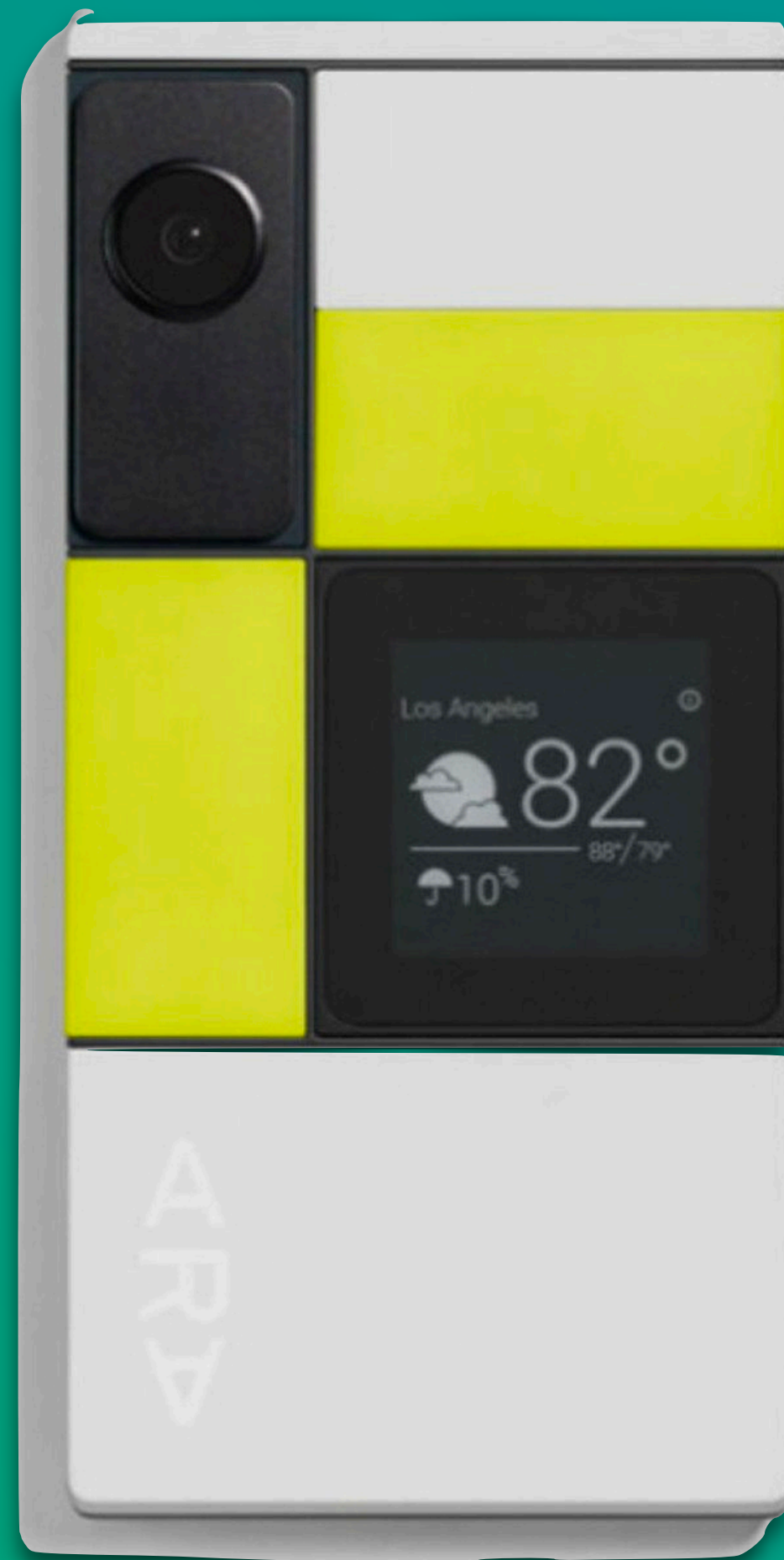
Сентябрь 2008



Октябрь 2008



2013



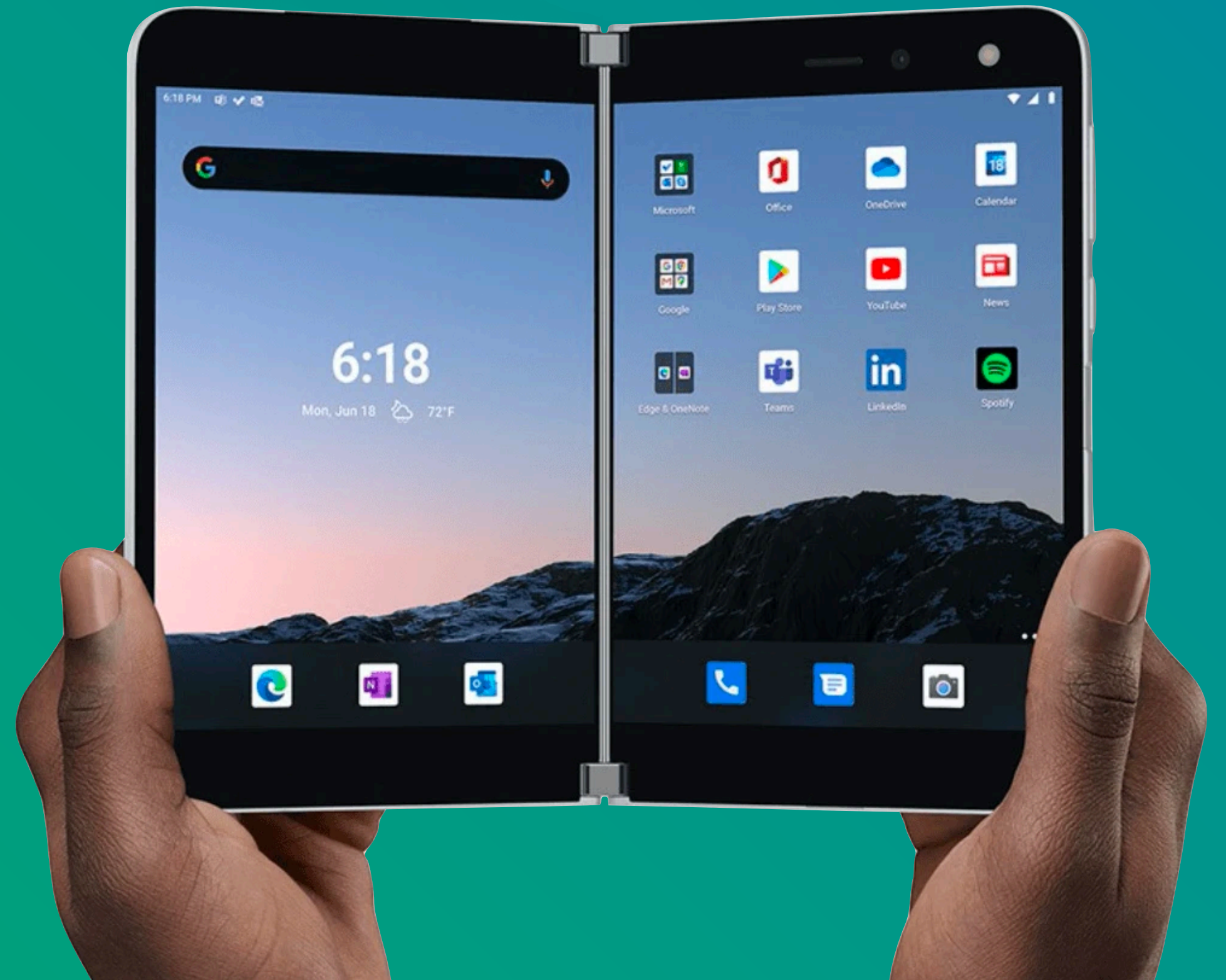
*2011-2016



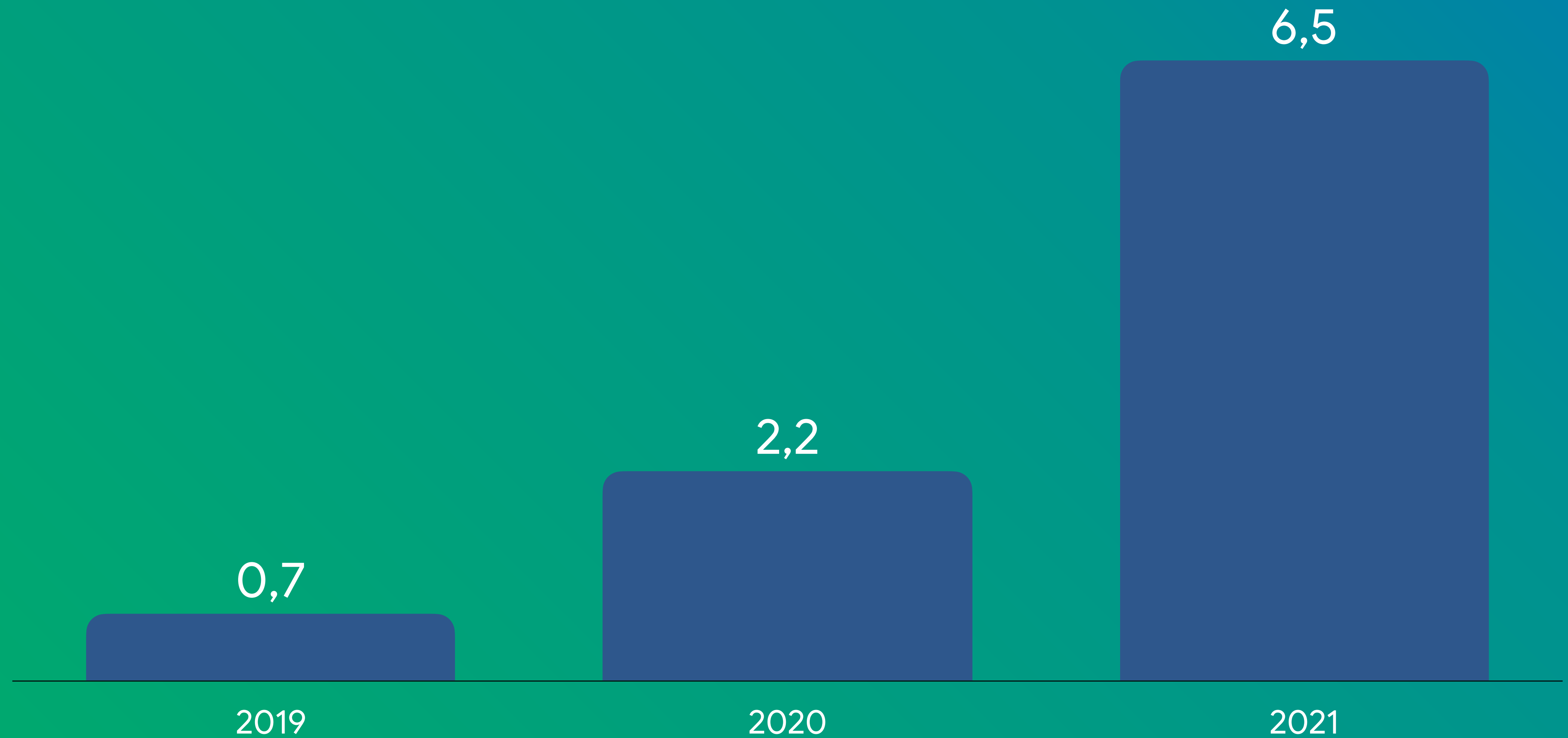
2019

Складные устройства

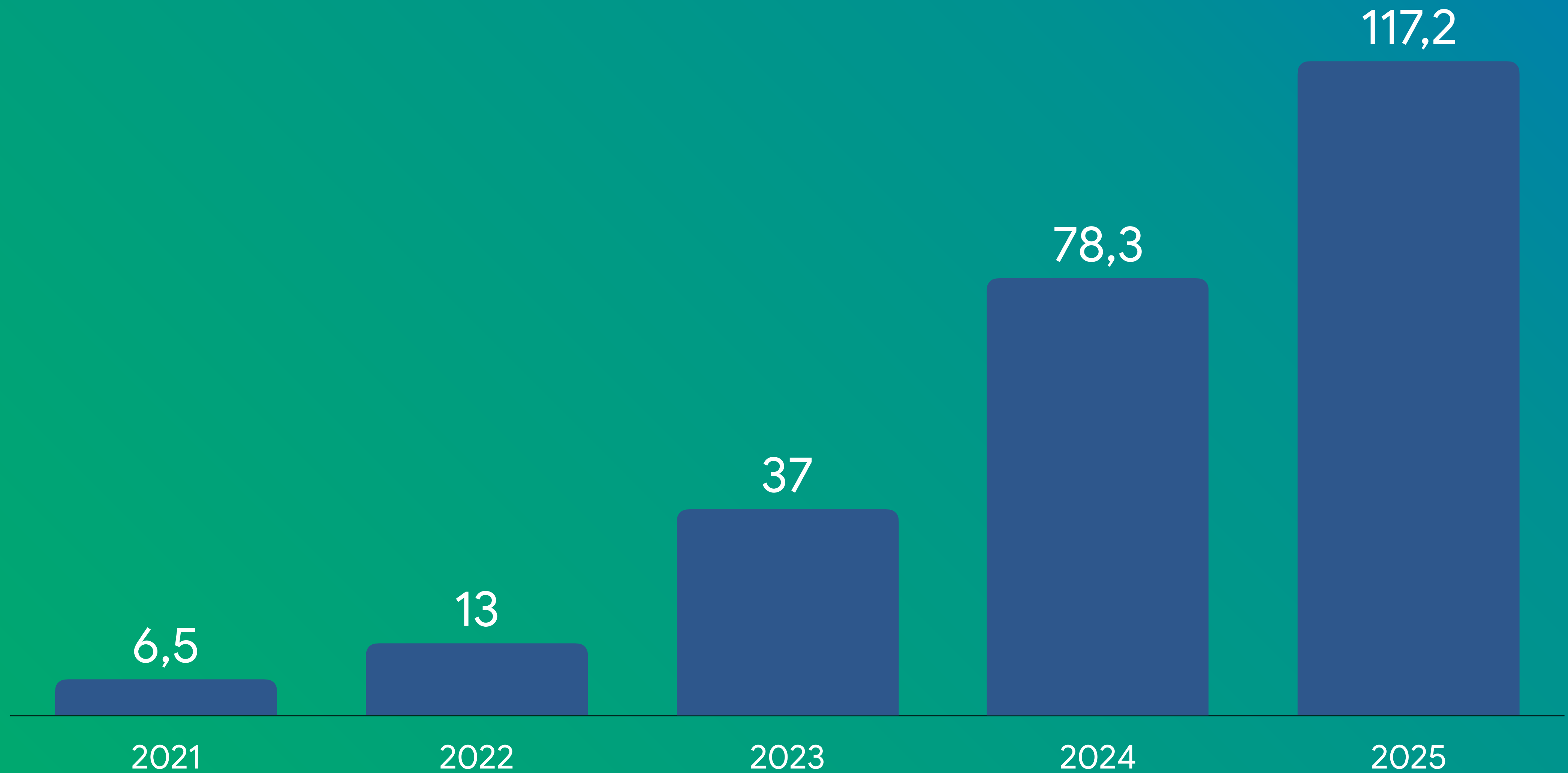




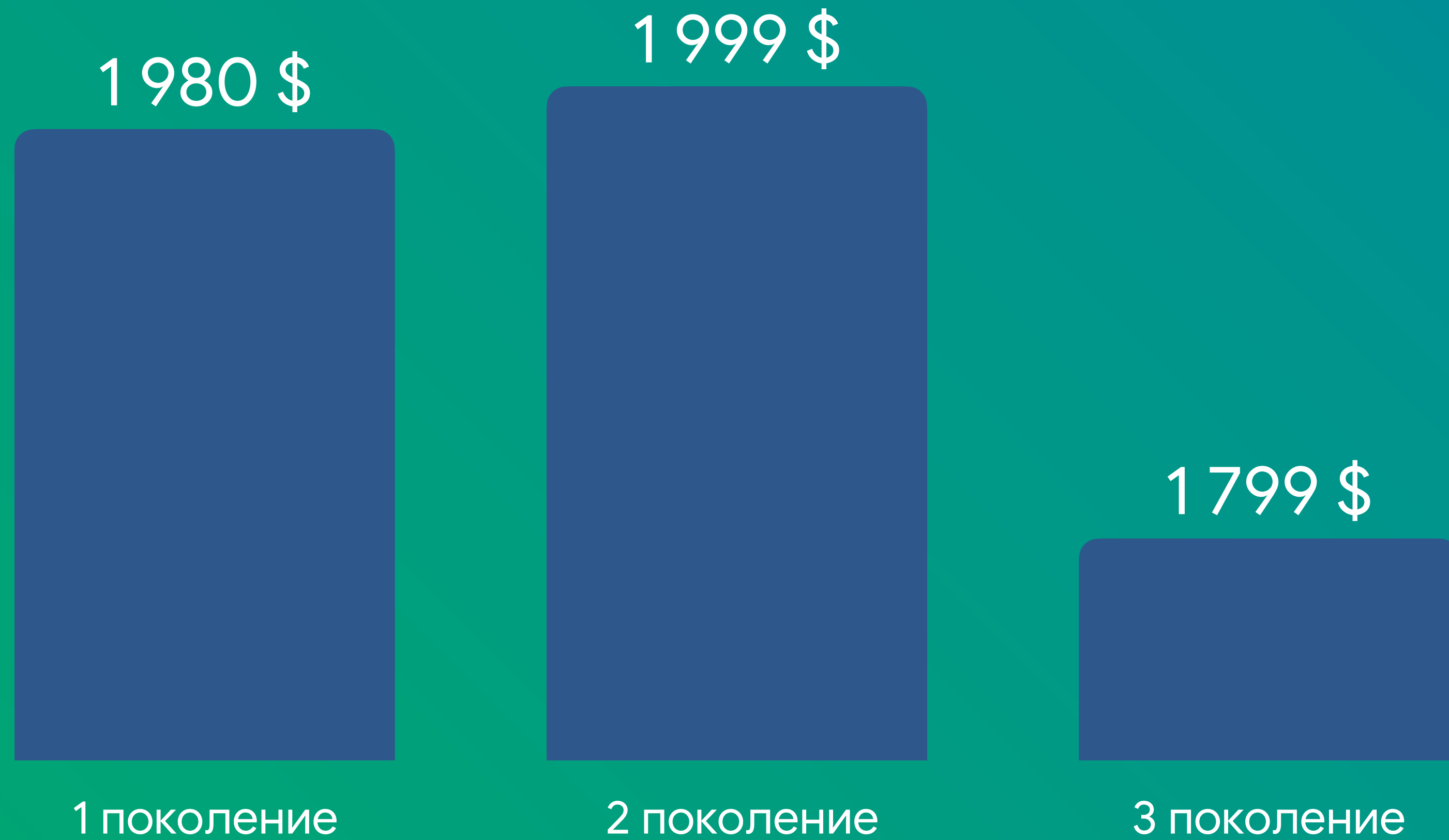
Продажи сгибаемых смартфонов, млн



Продажи сгибаемых смартфонов, млн

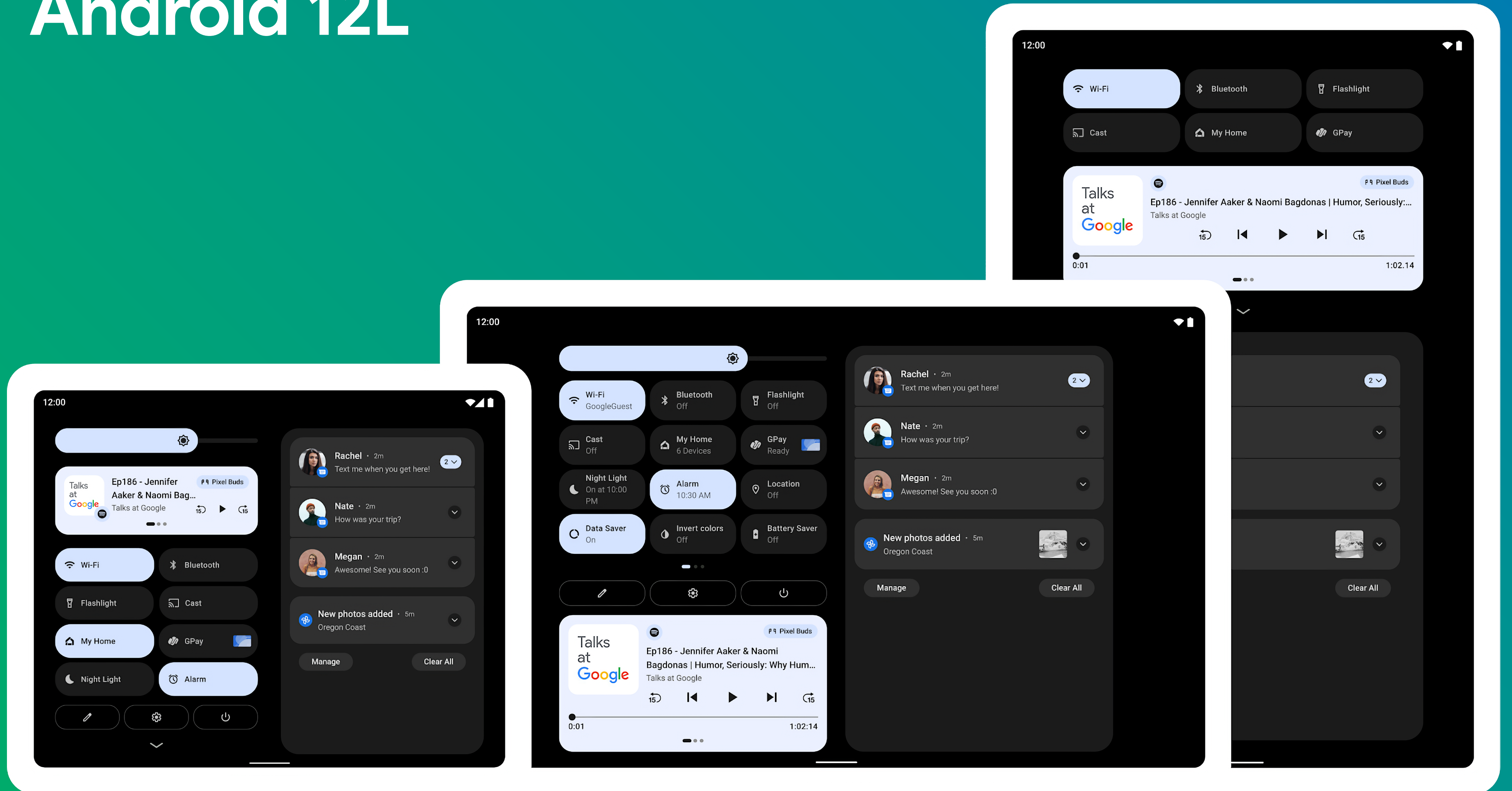


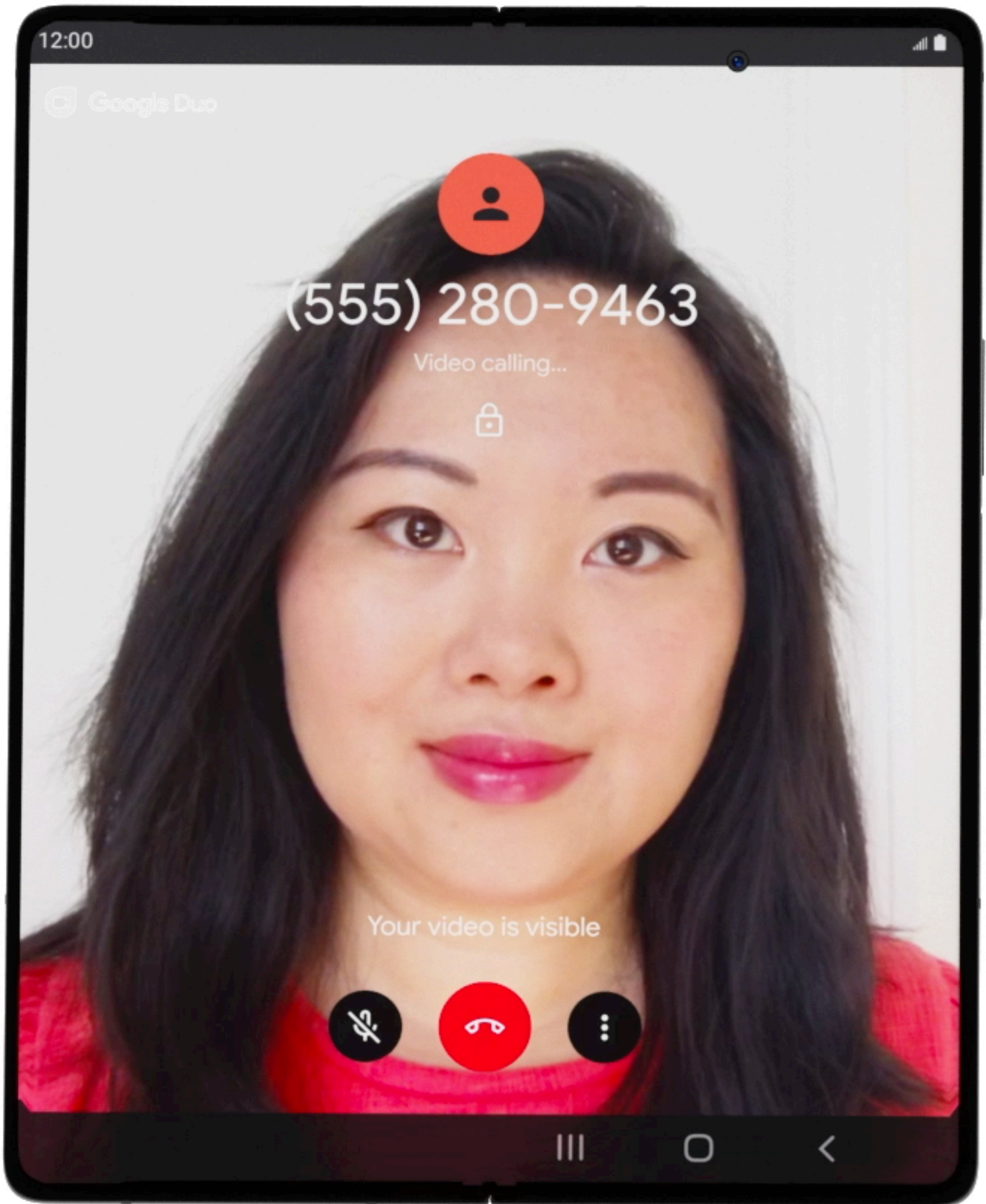
Цена на Galaxy Fold в США





Android 12L

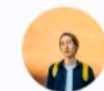




12:00



Search replies

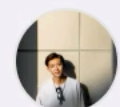


老强
10 min ago



豆花鱼

最近忙吗？昨晚我去了你最爱的那家饭馆，点了他们的特色豆花鱼，吃着吃着就想你了。有空咱们视频？



So Duri
20 min ago



Dinner Club

I think it's time for us to finally try that new noodle shop downtown that doesn't use menus. Anyone el...

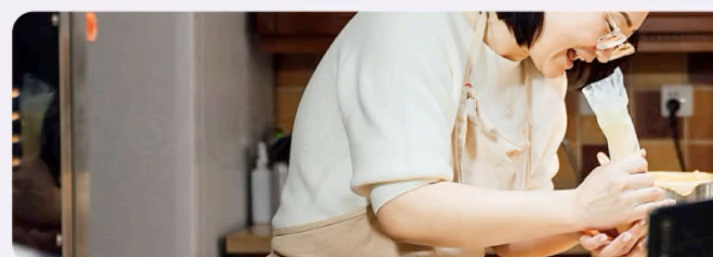


Lily MacDonald
2 hours ago



This food show is made for you

Ping- you'd love this new food show I started watching. It's produced by a Thai drummer who...



Create apps for dual-screen devices

Learn how to create apps for dual-screen devices like Surface Duo.



OVERVIEW

[Introduction to dual-screen devices](#)



GET STARTED

[Get the Surface Duo emulator](#)



CONCEPT

[Introducing Surface Duo](#)

Surface Duo developer documentation

Use these resources to build dual-screen Android and cross-platform apps

Surface Duo overview

- [About Surface Duo](#)
- [Surface Duo Android emulator](#)
- [User experience design](#)
- [Design Kit \(Figma\)](#)

Kotlin & Java

- [Jetpack Window Manager](#)
- [Jetpack Compose](#)
- [Hinge sensor](#)
- [Dual-screen controls library](#)
- [Samples](#)

Flutter

- [Get started](#)
- [MediaQuery](#)
- [TwoPane Widget](#)
- [Samples](#)

React Native

- [Get started](#)
- [DualScreenInfo](#)
- [TwoPaneView](#)
- [Samples](#)

Xamarin

- [Get started](#)
- [DualScreenInfo](#)
- [TwoPaneView](#)
- [Samples](#)

Unity game development

- [Get started](#)
- [DualScreenInfo](#)
- [Samples](#)

Web

- [Overview](#)
- [CSS](#)
- [JavaScript](#)
- [Emulator and device testing](#)
- [Desktop developer tools](#)
- [Samples](#)

Windows

- [Overview](#)
- [TwoPaneView](#)

Облачные устройства



STADIA



5G

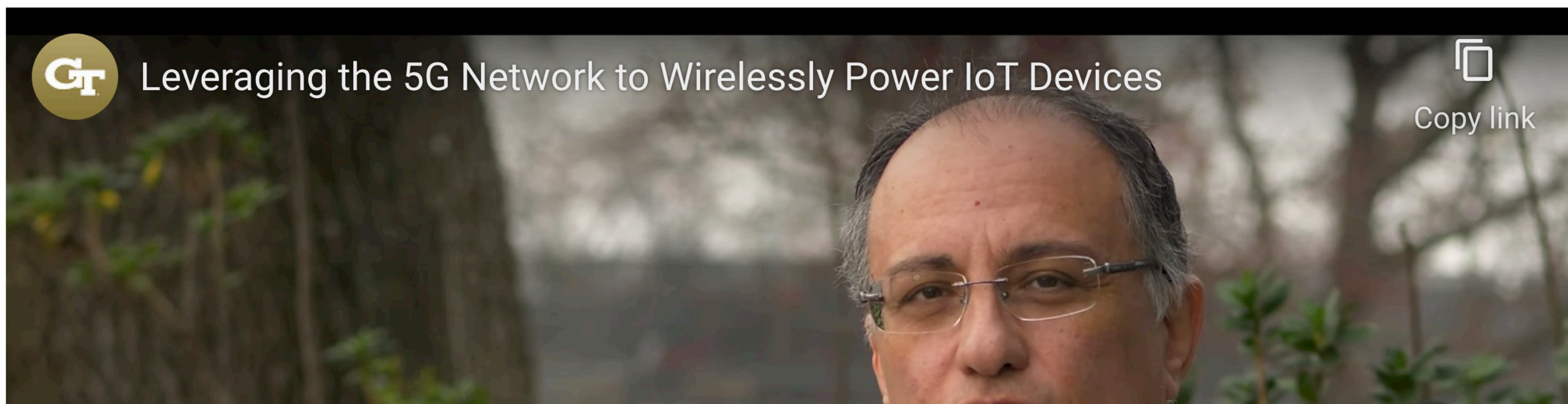


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Leveraging the 5G Network to Wirelessly Power IoT Devices

Researchers at Georgia Tech have uncovered an innovative way to tap into the over-capacity of 5G networks, turning them into “a wireless power grid” for powering Internet of Things (IoT) devices that today need batteries to operate.



Contact

Research News

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Email

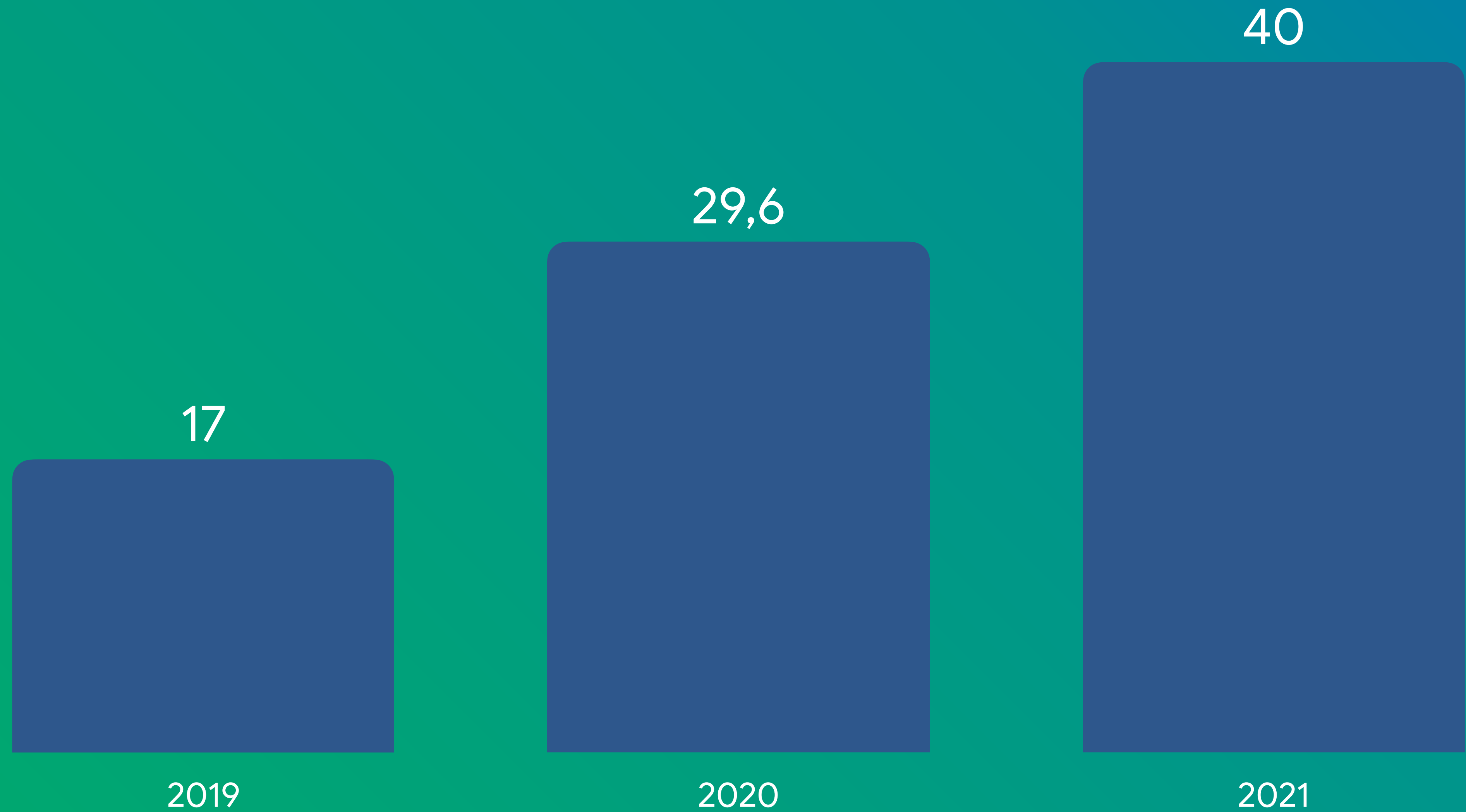
asargent7@gatech.edu



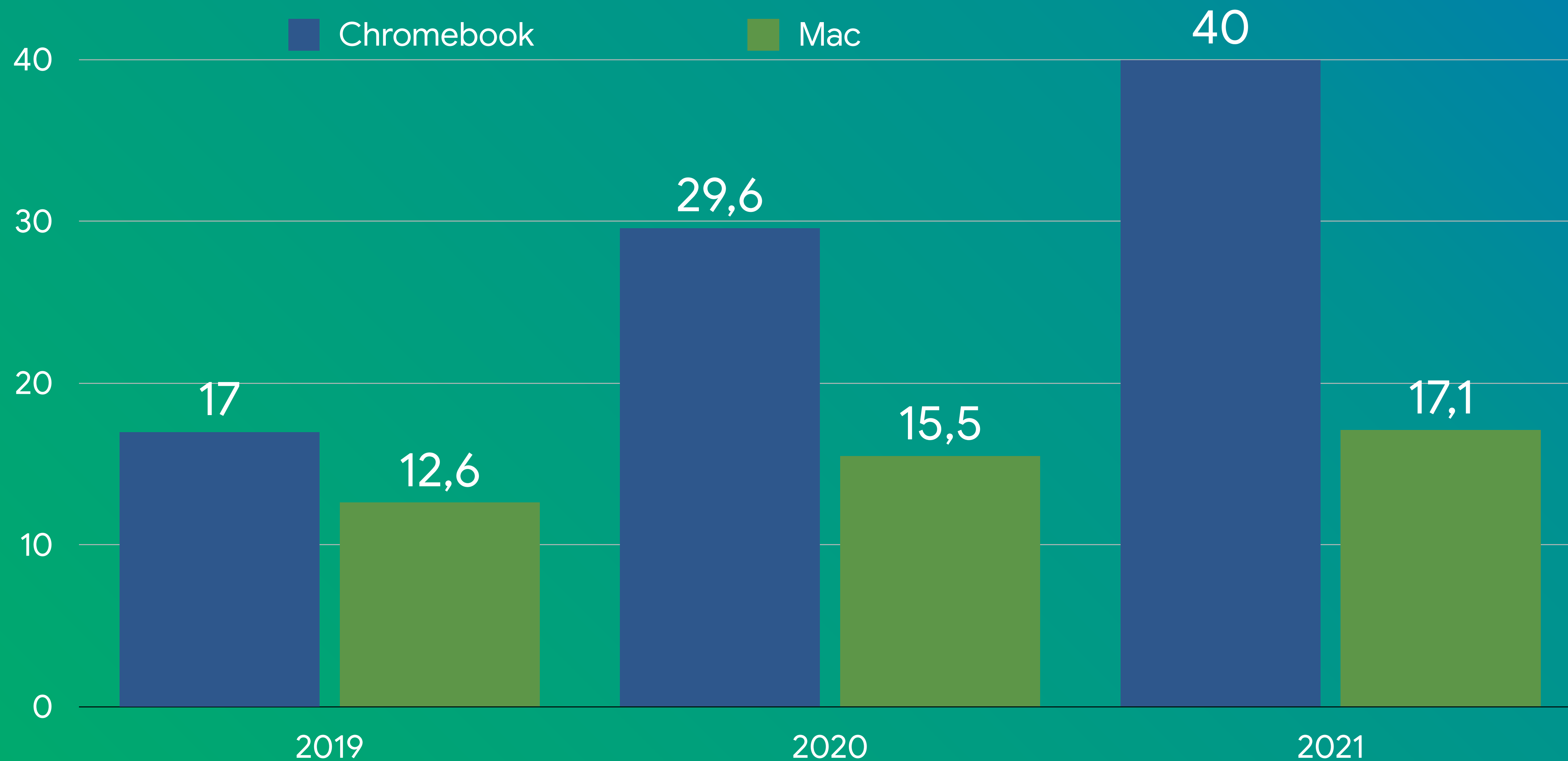
android 

Chromebooks

Продажи Chromebook, млн



Продажи Chromebook vs Mac, млн



DOCUMENTATION

- Overview
- Guides**
- Reference
- Samples
- Design & Quality

- ▶ Android for Cars
- ▶ Android Things
- ▼ Chrome OS devices

- Overview
- Building apps for Chrome OS
- Optimizing Apps for Chrome OS**

- Preparing your development environment
- App Manifest Compatibility for Chromebooks
- Chrome OS Device Support for Apps
- App Rendering Differences on Chromebooks
- Window management
- Input compatibility for Chromebooks
- Adapting Games on Chrome OS
- Smooth animation on Chrome OS

Android Developers > Docs > Guides

Was this helpful?  

Optimize apps for Chrome OS

Android apps have an important role to play in redefining what modern computing looks like on large screens. That said, simply simply running your phone app on a Chromebook won't give your users the best experience. This page details some ways that you can tailor your experience towards laptop and convertible form factors. See our [comprehensive list of tests](#) to learn more about testing your app for compatibility on these devices.

Leverage support for free-form multi-window

The implementation of Android apps on Chrome OS includes basic multi-window support. Instead of always taking up the full screen, Android renders apps on Chrome OS into free-form window containers which is more appropriate for these devices.

Users can resize the window that contains your Android app, as shown in figure 1. To ensure that your free-form windows resize smoothly and are able to display their entire contents to the user, read the

Содержание

[Leverage support for free-form multi-window](#)

Customize the top bar color

Support the keyboard, trackpad, and mouse

Custom cursors

Keyboard shortcuts and navigation

Further enhance user input

Context menus

Drag and drop

Умные очки





Ray-Ban Stories



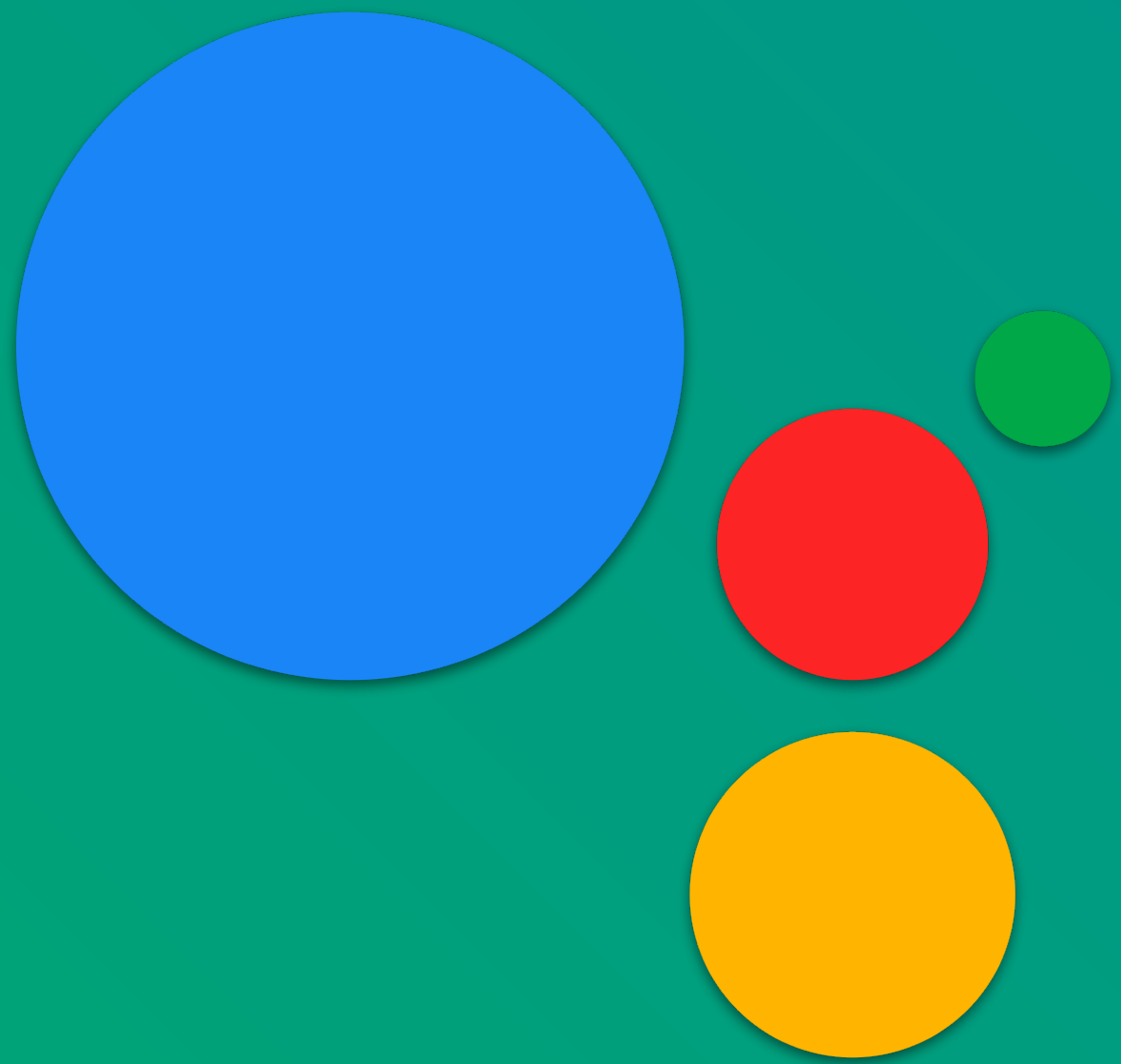
No! You always pay for us. Let me do something nice for a change.

Pay \$28

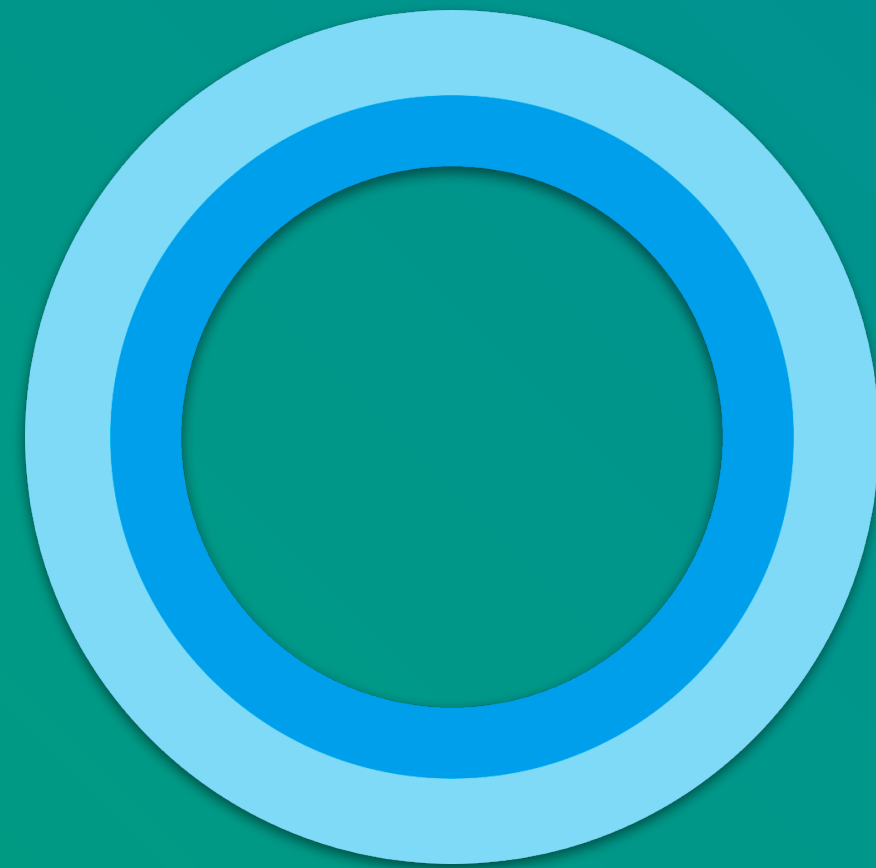
If you invest \$58

Взаимодействие





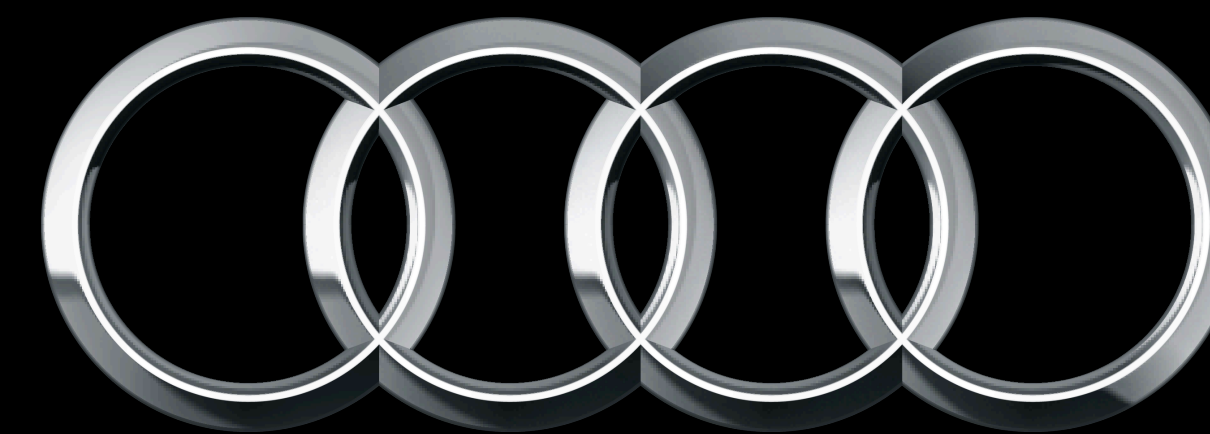
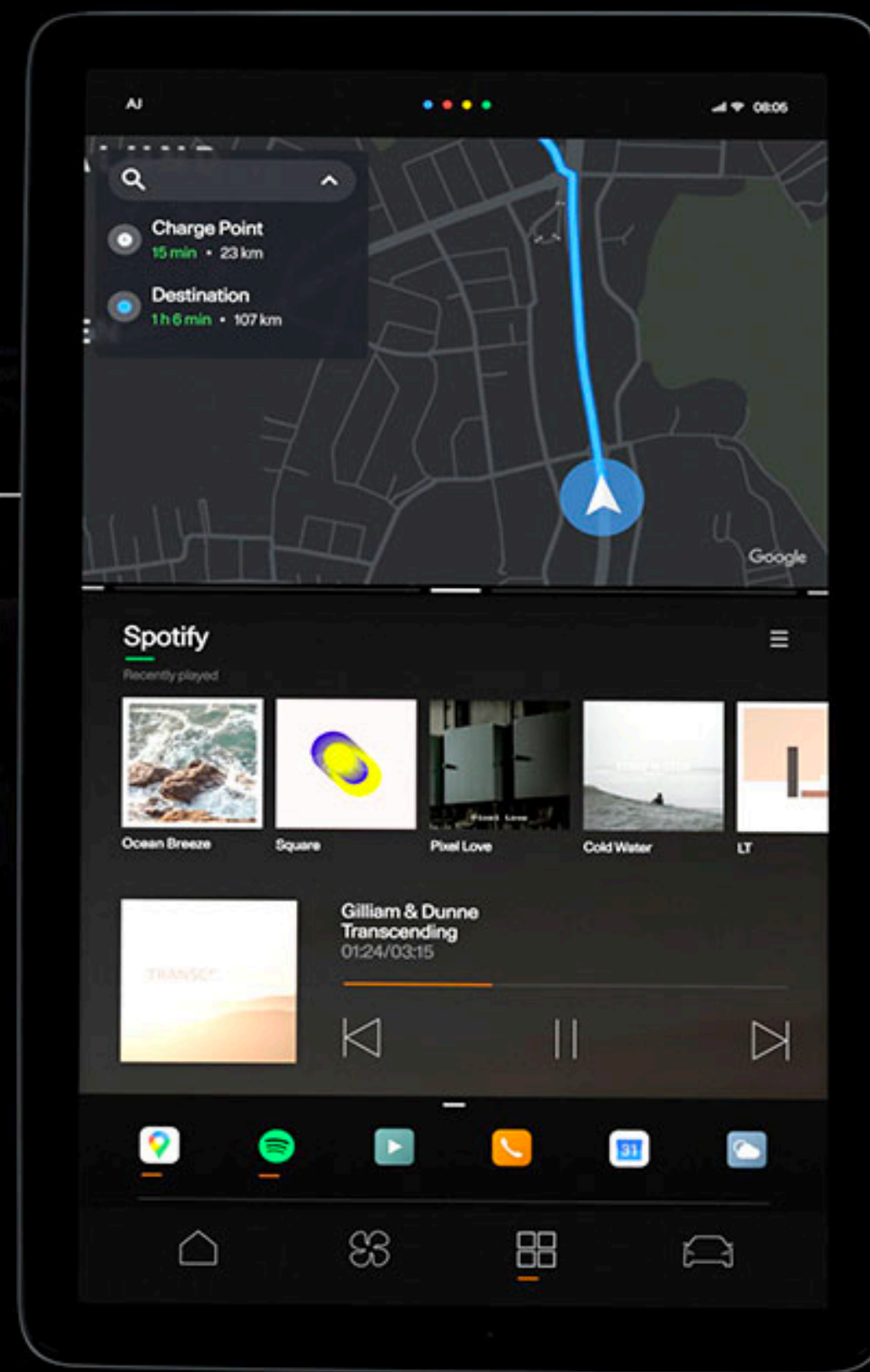
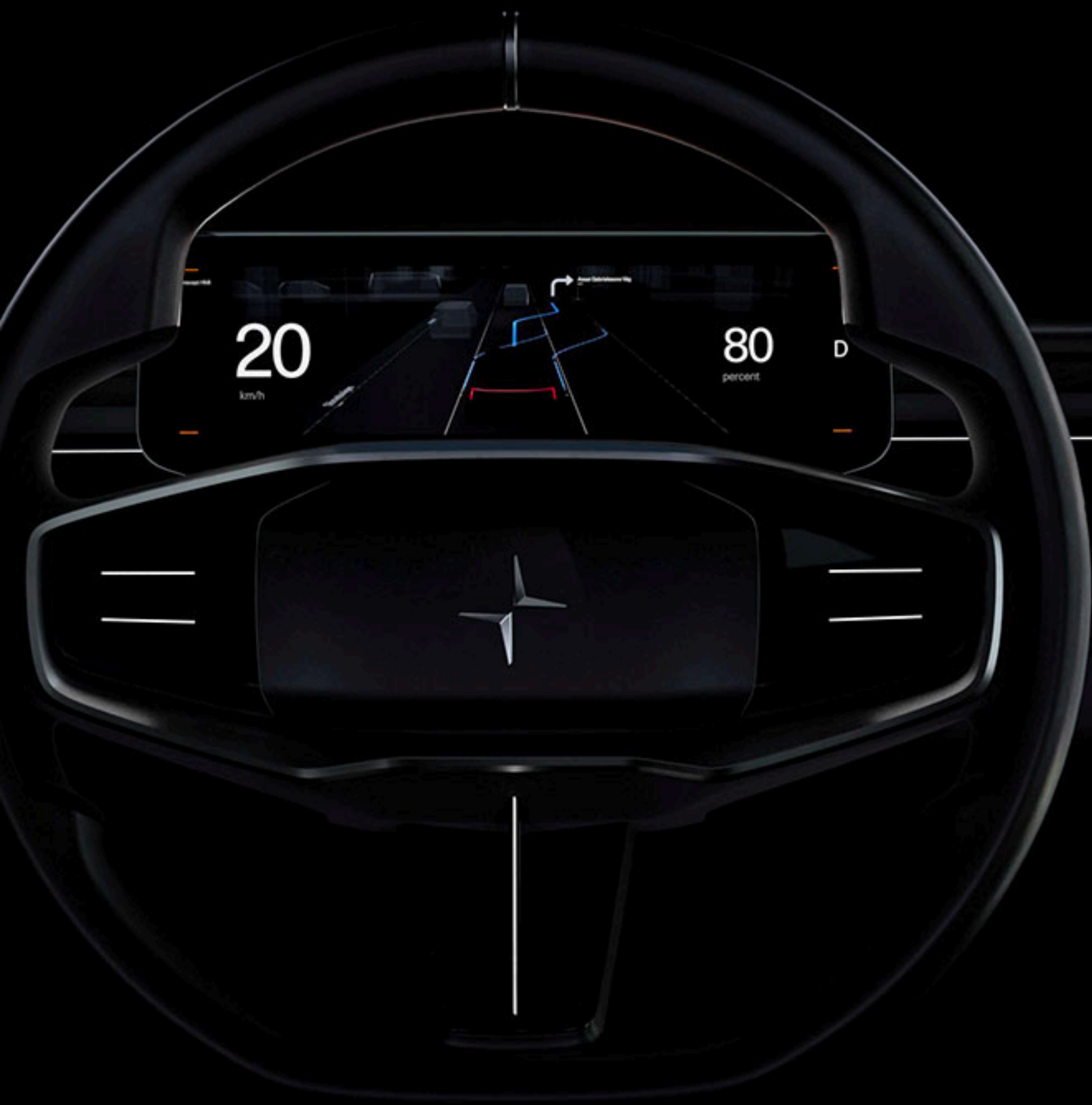
alexa



Bixby

Android Automotive

android auto



Эволюция процессоров

15 billion

transistors

50% faster
CPU
vs. competition

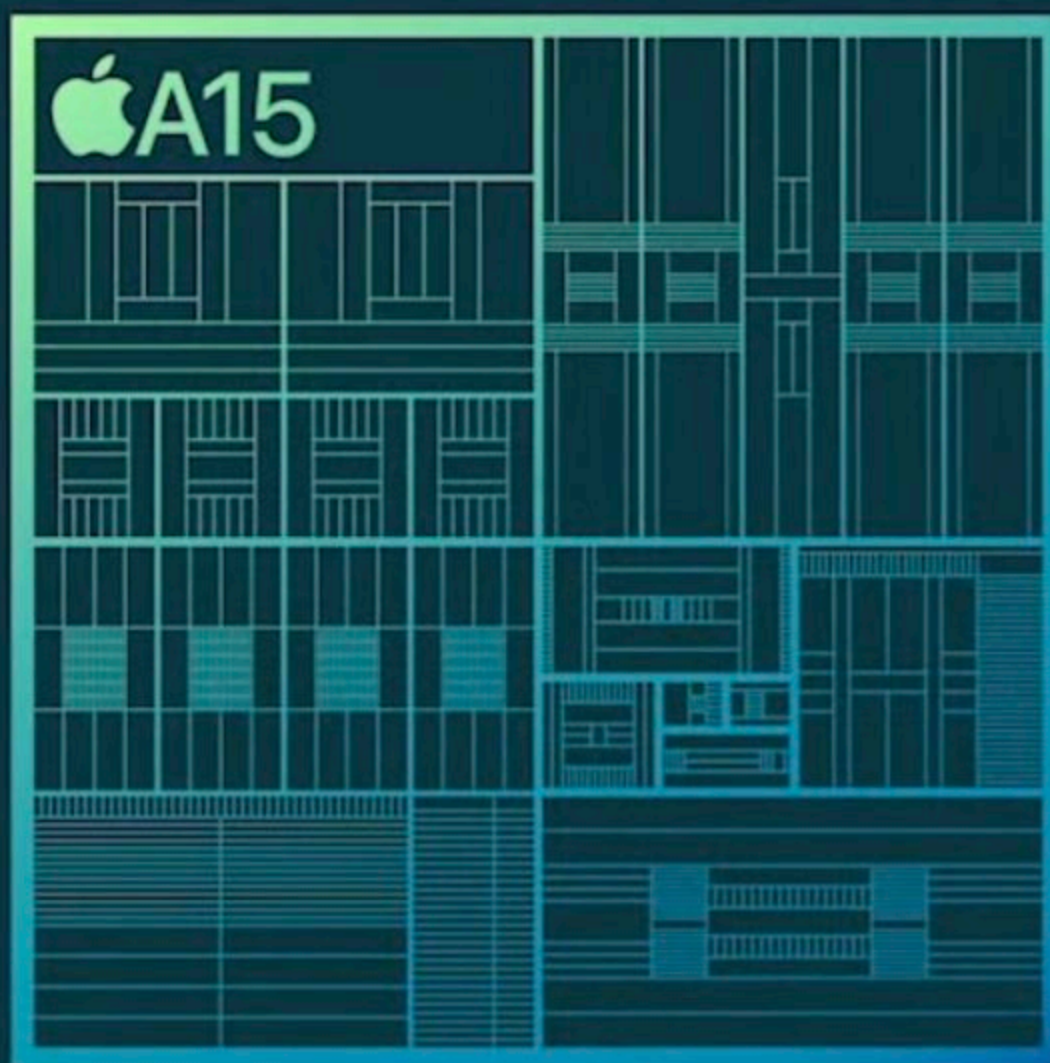
2x

system cache

30% faster
GPU
vs. competition

Faster

NEURAL ENGINE



15.8 trillion

operations
per second



New video encoder



New video decoder



New ISP



New display engine



Wider lossy compression support



Secure Enclave

2nd gen Qualcomm Sensing Hub



Dedicated AI accelerator

First to support Tensorflow Micro

Hexagon 780 Processor



Fused AI Accelerators

- Tensor - 2X performance improvement
- Scalar - 50% performance improvement
- Vector

3X Performance per watt

16x dedicated memory for single application

ms to ns response time change

6th gen Qualcomm AI Engine



26 TOPS

AI Highlights



Qualcomm Neural Processing SDK & AI Model Efficiency Toolkit

New features and improvements

Qualcomm AI Engine direct



Easier and faster access to the entire AI Engine

TVM Opensource



More efficient coding

Industry leading AI use cases



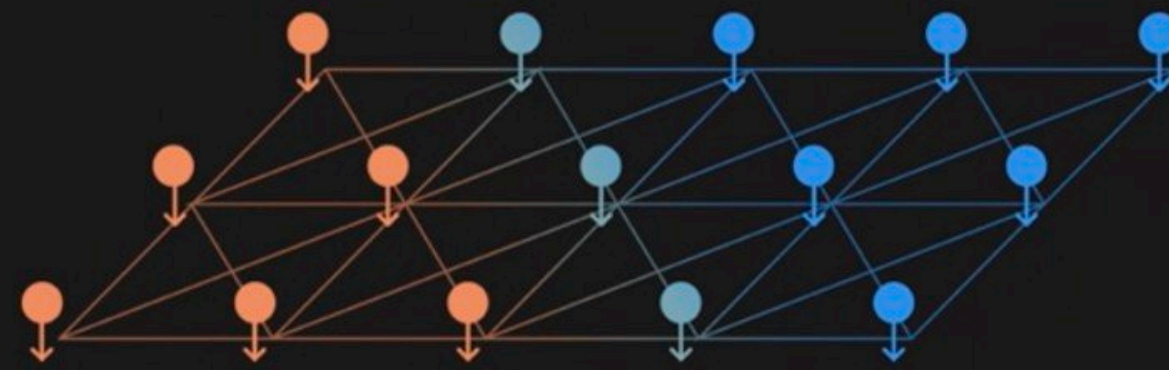
Super movie, HuggingFace Skin condition detection

 **intel**.[®]

AMD



5 nanometer process



Machine learning accelerators

16-core
Neural Engine

11 trillion operations per second



Thunderbolt / USB 4 controller



Media encode and decode engines

16 billion transistors

Apple M1

Up to
8-core GPU

8-core CPU



Advanced image signal processor



Secure Enclave



Unified memory architecture

Industry-leading performance per watt

Up to
16GB
memory



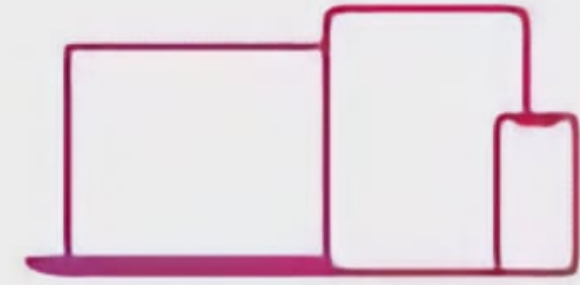
Thunderbolt / USB 4



Advanced
camera ISP



Up to
18 hours
battery life



iPhone and
iPad apps

Up to
3.5x
faster CPU

Up to
2TB
SSD



Touch ID



Wi-Fi 6

macOS Big Sur



Secure
Enclave

Up to
5x
faster graphics

**P3 wide
color**

13.3"
Retina display



Magic Keyboard

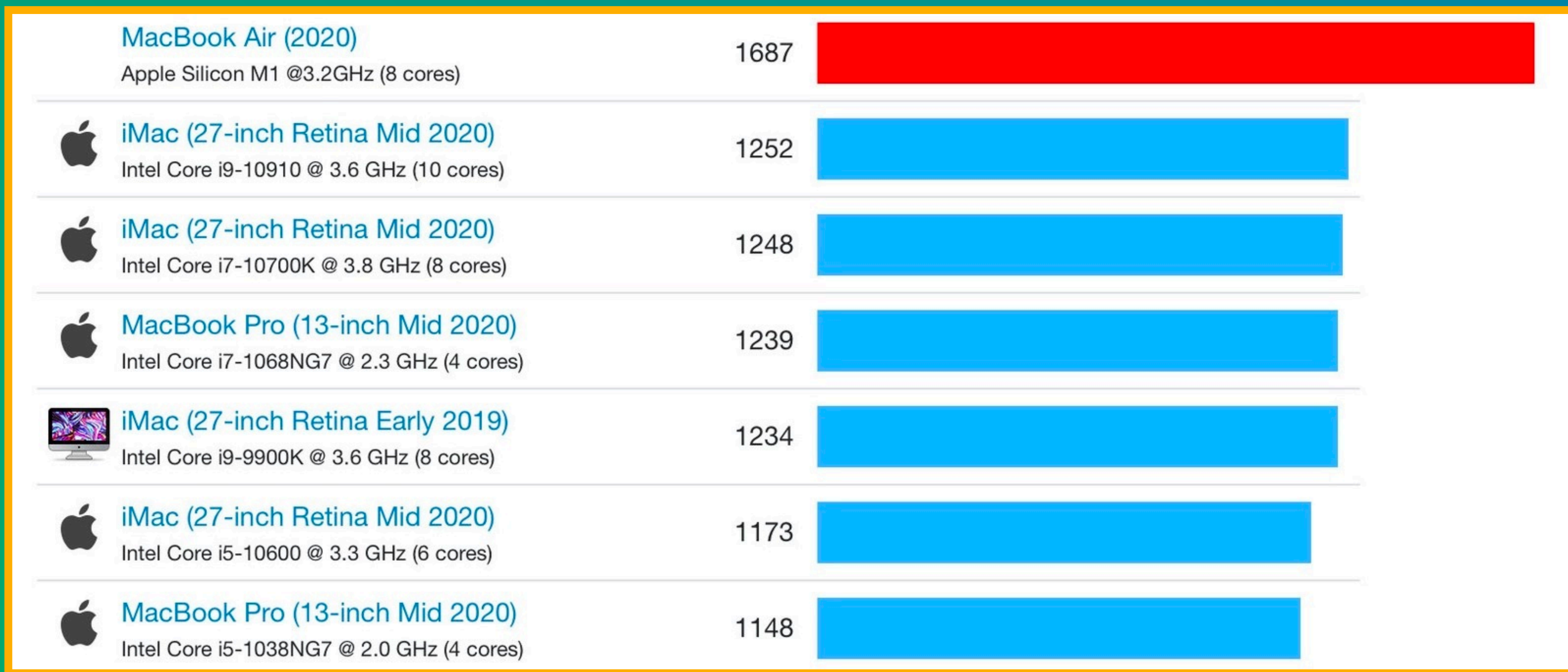
**Silent
design**

Up to
9x
faster machine learning

Up to
2x
faster SSD

Apple M1

Тесты производительности



intel[®] AMD

Apple M1

Qualcomm

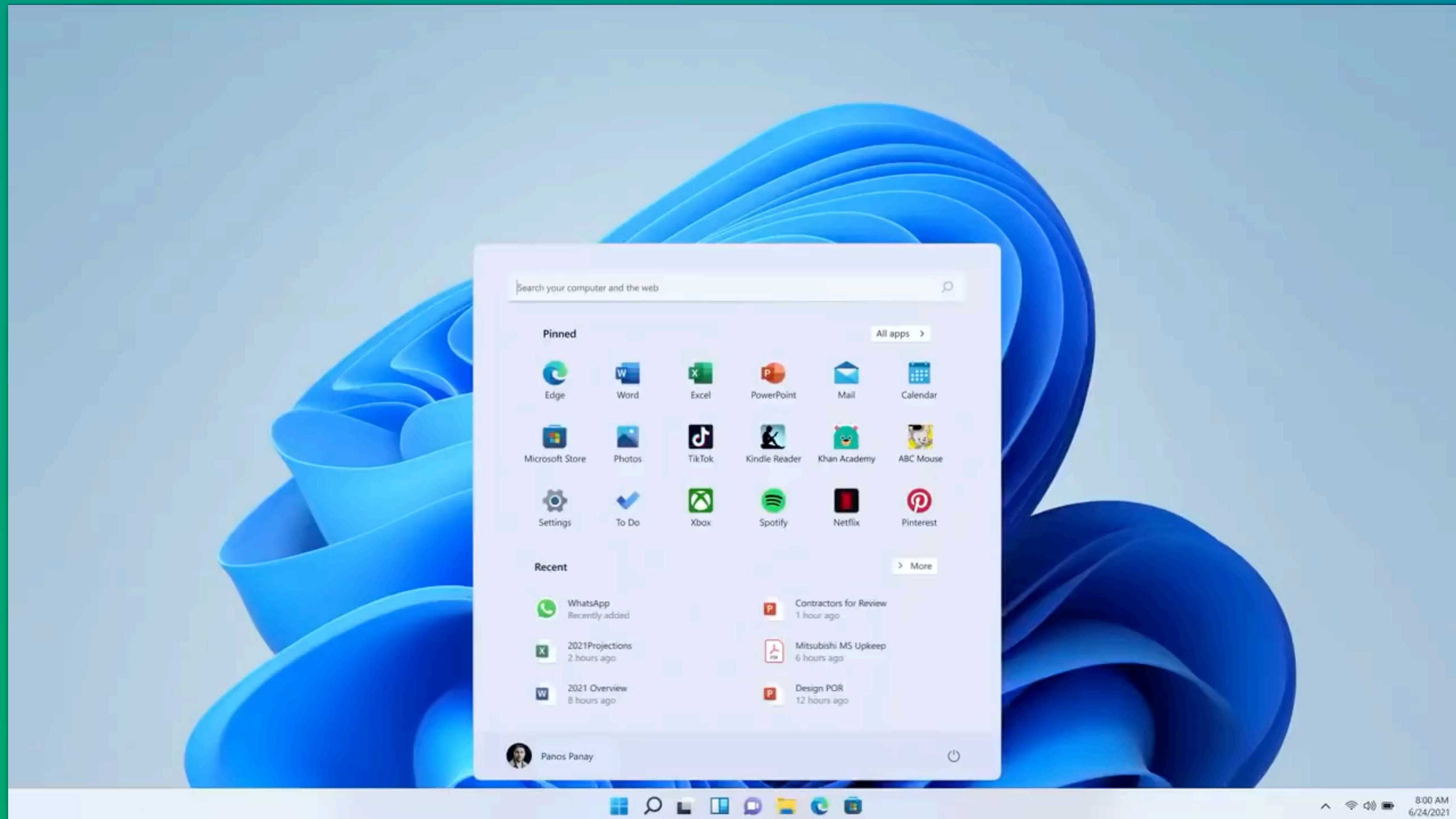


Мобильные приложения на десктопных ОС

iOS/iPadOS приложения на macOS и в AppStore



Windows 11. Поддержка Android

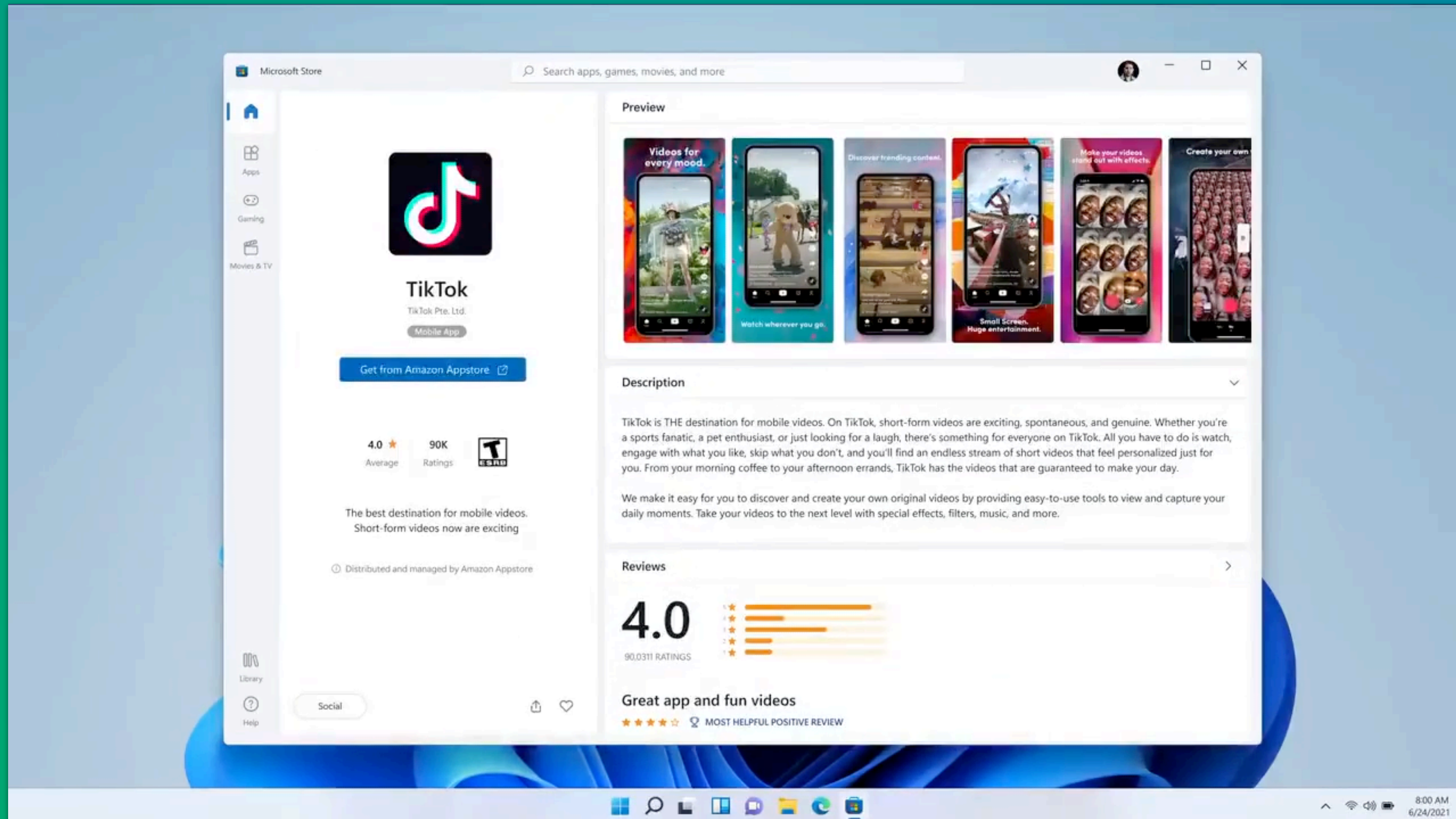


Альтернативные магазины



 EXPLORE IT ON
AppGallery

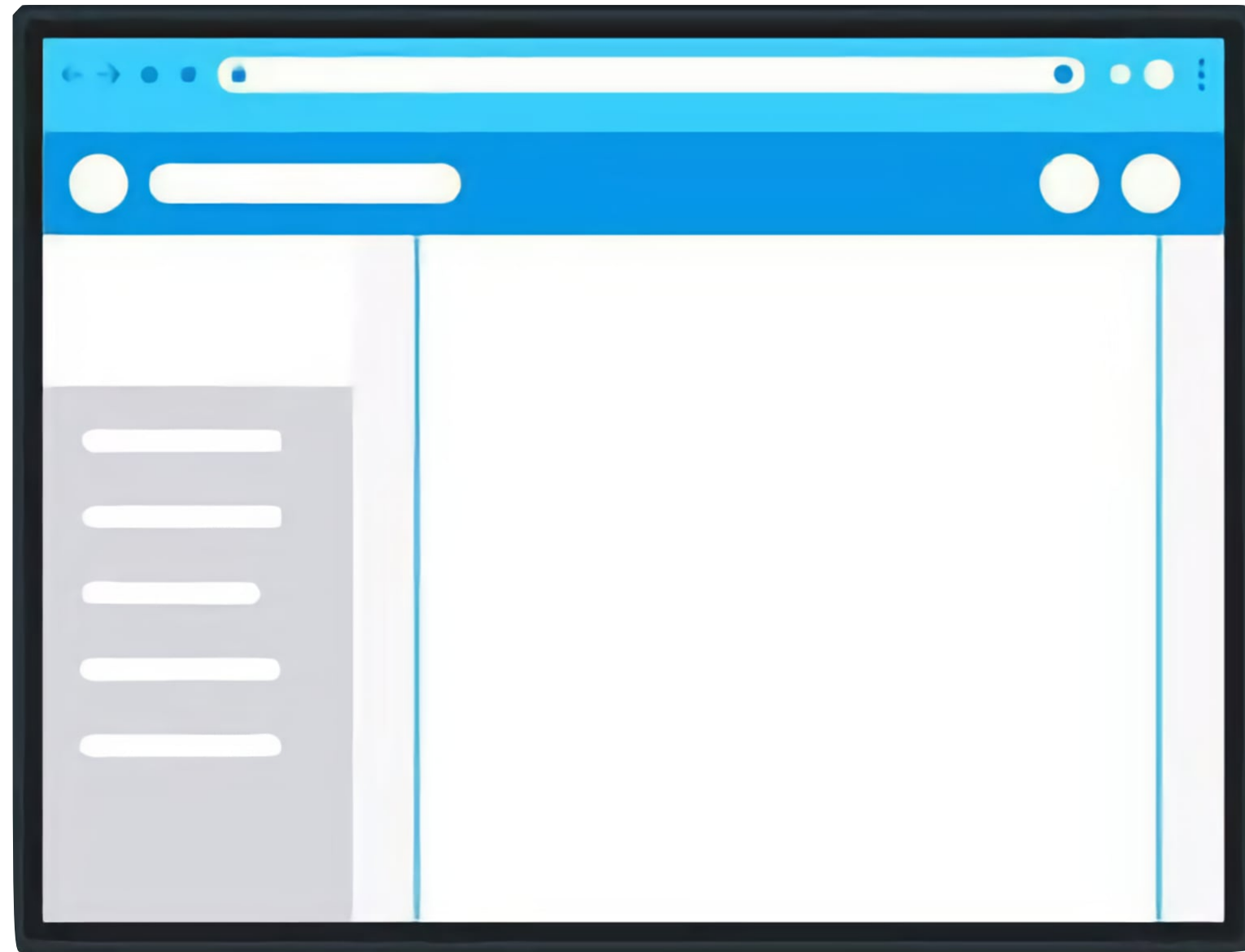
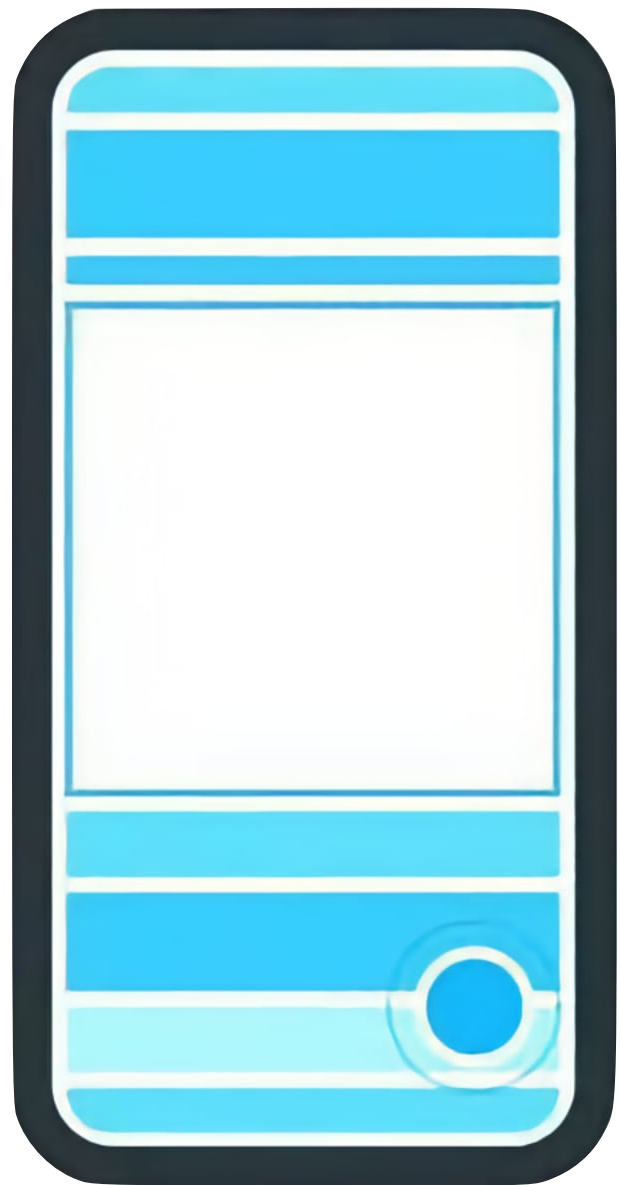
Amazon App Store в Windows Store



Унификация разработки



Flutter





Kotlin



Multiplatform

Mobile



Compose Multiplatform: Beta Released



2026

Заключение. Что будет?

Тренды

- 👉 Переход на ARM в компьютерах
- 👉 Больше собственных чипов от компаний (на основе ARM)
- 👉 Универсальные нативные приложения
- 👉 Поиск следующего популярного формата устройств
- 👉 Развитие альтернатив Google Mobile Services и магазинов приложений
- 👉 Уменьшение стоимости разработки без потерь в качестве

Что будет через 5 лет?

- 👉 Поддержка нескольких мобильных сервисов
- 👉 Смартфоны в текущем виде начнут вымирать
- 👉 Смартопланшеты: складные устройства, несколько экранов, новые форматы
- 👉 Взаимодействие голосом
- 👉 Унификация разработки - Kotlin Multiplatform и Flutter
- 👉 Мобильные приложения сквозь все устройства и платформы: смартфоны, планшеты, складные, десктопы, WEB, очки, носимые устройства



**Встретимся
на Mobius 2026**



СПАСИБО ЗА ВНИМАНИЕ

