

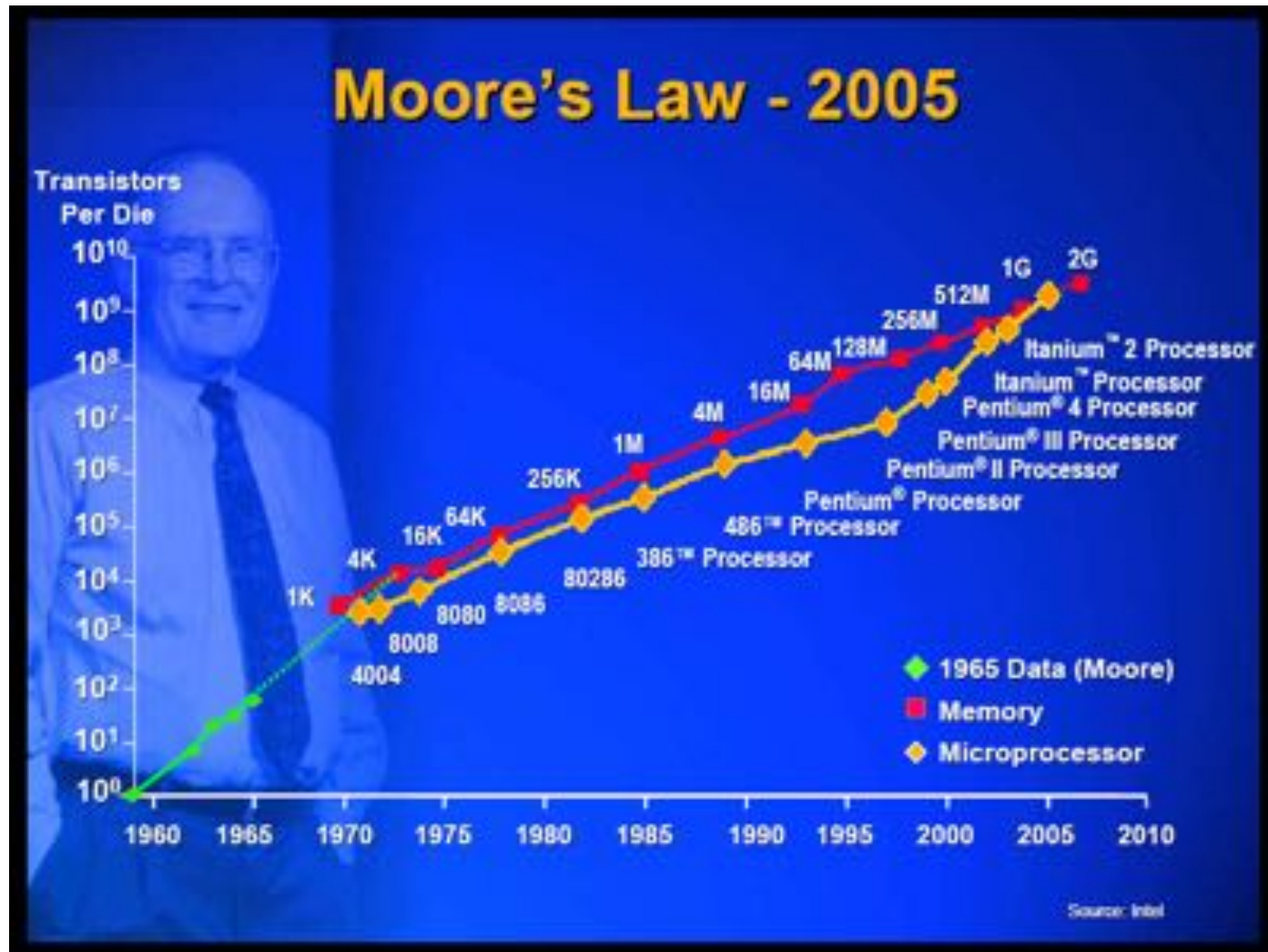
ALCANZANDO LA MAGIA

Por José Ignacio Benedetto





Rápida evolución de la tecnología



Los primeros teléfonos móviles...





Hace mucho tiempo atrás...

- El primer teléfono Android



- HTC Dream
- Android 1.0
- 528 MHz Qualcomm MSM7201A ARM11 processor
- 256 MB ROM, 192 MB RAM
- 320 x 480 px, 180 ppi

Hoy

- Samsung Galaxy S10+



- Android Pie (9.0)
- Dual-Core 2.73 GHz + Dual-Core 2.31 GHz + Quad-Core 1.95 GHz
- 12 GB RAM
- Dynamic AMOLED 522 dpi (3040×1440)
- Hasta 1 TB de memoria interna

Mucho tiempo atrás: 11 años

Arthur C. Clarke

Toda tecnología lo suficientemente
avanzada es indistinguible de la magia.

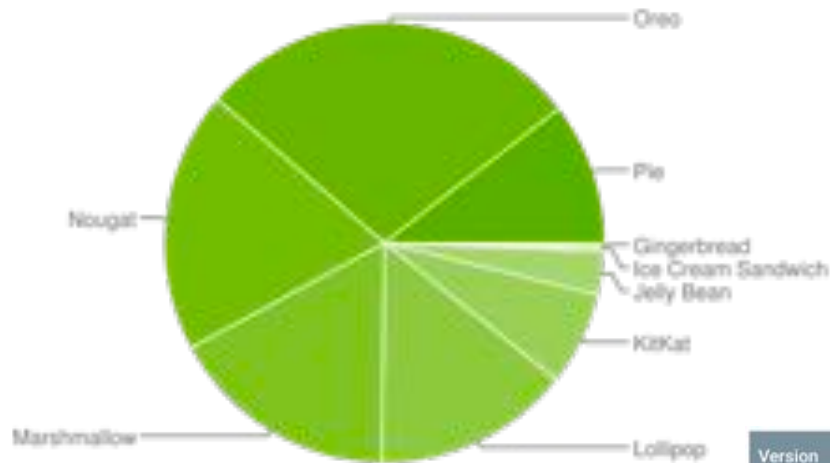
Queremos aplicaciones mágicas



¿Cómo conseguimos esta magia?



El error a evitar



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%

- 99%+ de los dispositivos Android soportan Jelly Bean, entonces: TRABAJEMOS EN JELLY BEAN!



Manos a la obra

- Toma de requisitos (1 semana)
- Diseño de arquitectura (1 semana)
- Prueba de concepto (1 semana)
- Primera iteración (1 mes)
- Segunda iteración (1 mes)
-
- N-ésima iteración
- El desarrollador jefe se enfermó
- El backend no escala bien
- QA muestra que muchas cosas fallan
- $N + 1$ ésima iteración
- ...
- Más problemas
- El mundo me odia...

Listo, por fin terminé





Pensar en el “ahora”



Pensar en el futuro!

Galaxy S10+ (US\$ 769)

Galaxy Note 9 (US\$ 585)

Galaxy Fold (Unreleased)

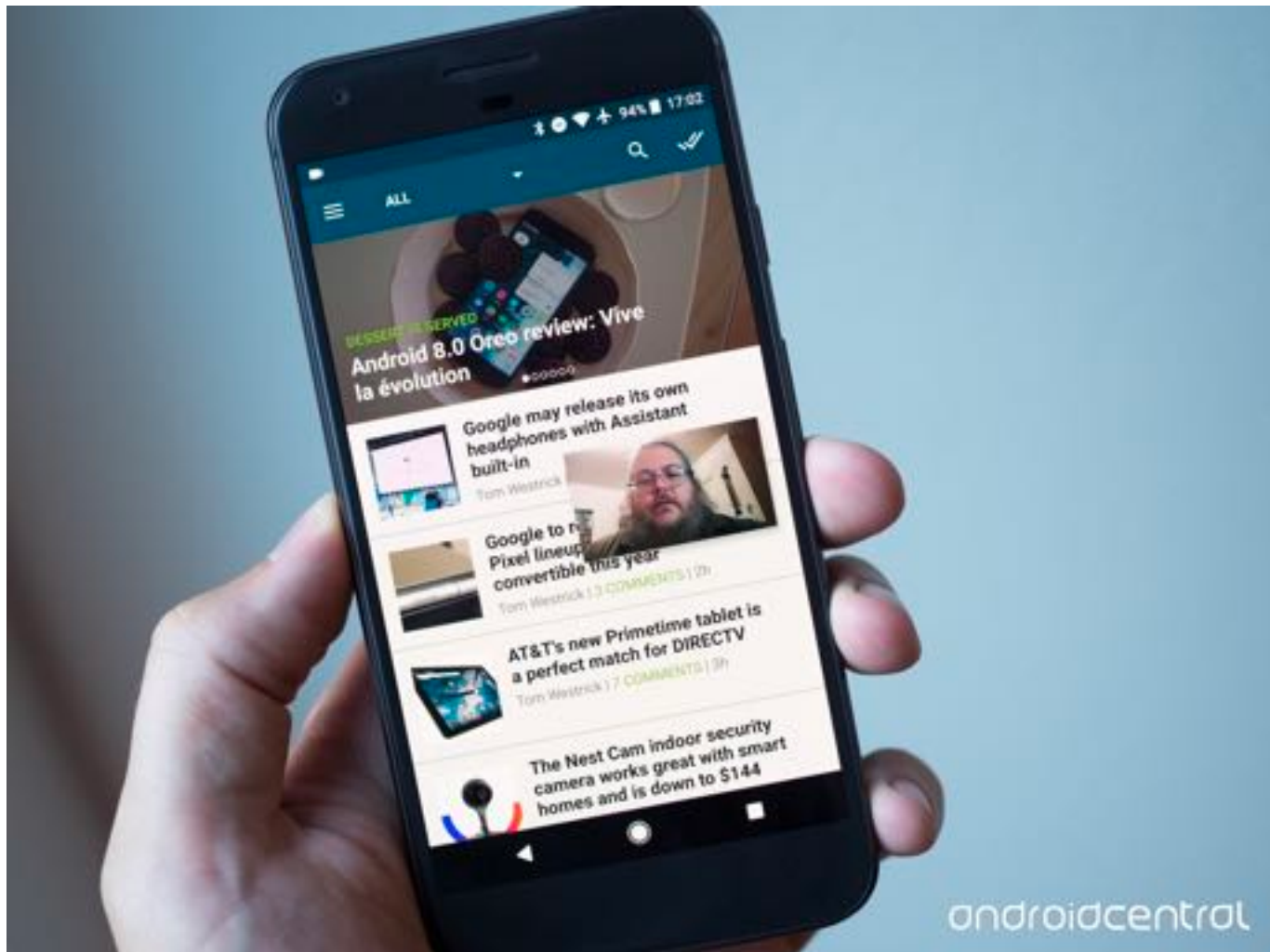


La gente busca ser maravillada

Split Screen



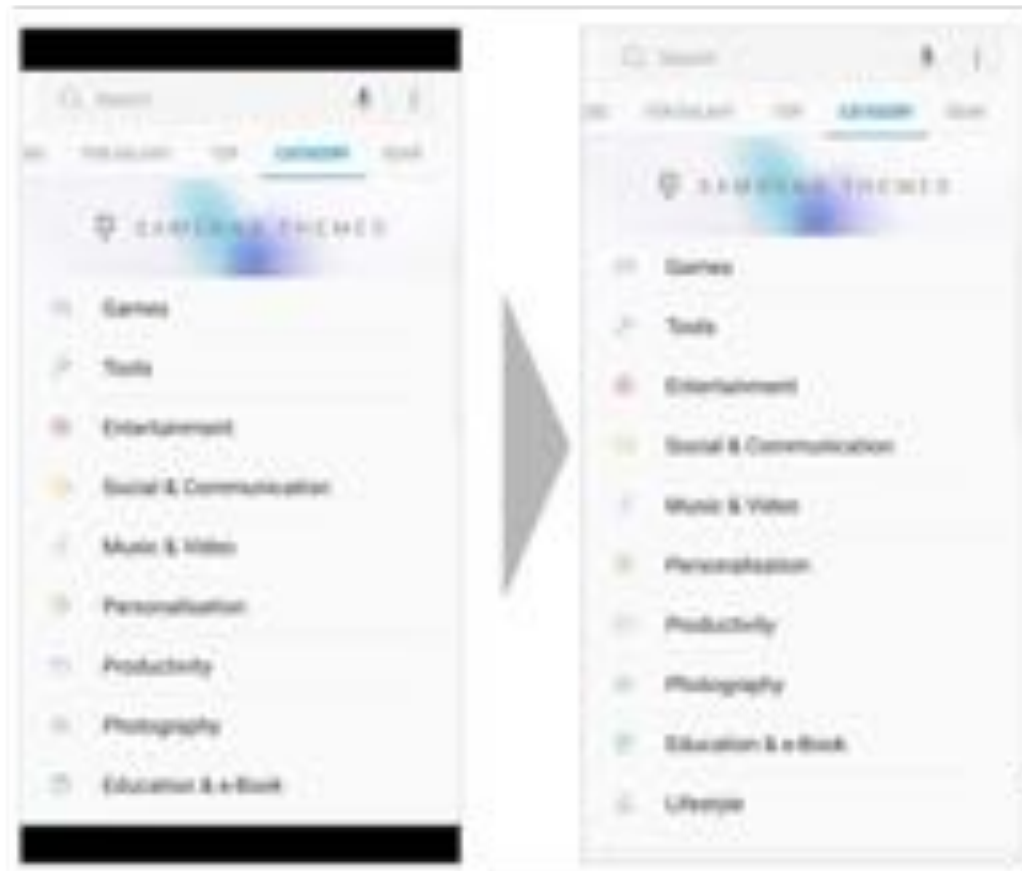
Picture in Picture



Shortcuts



Super Widescreen Support



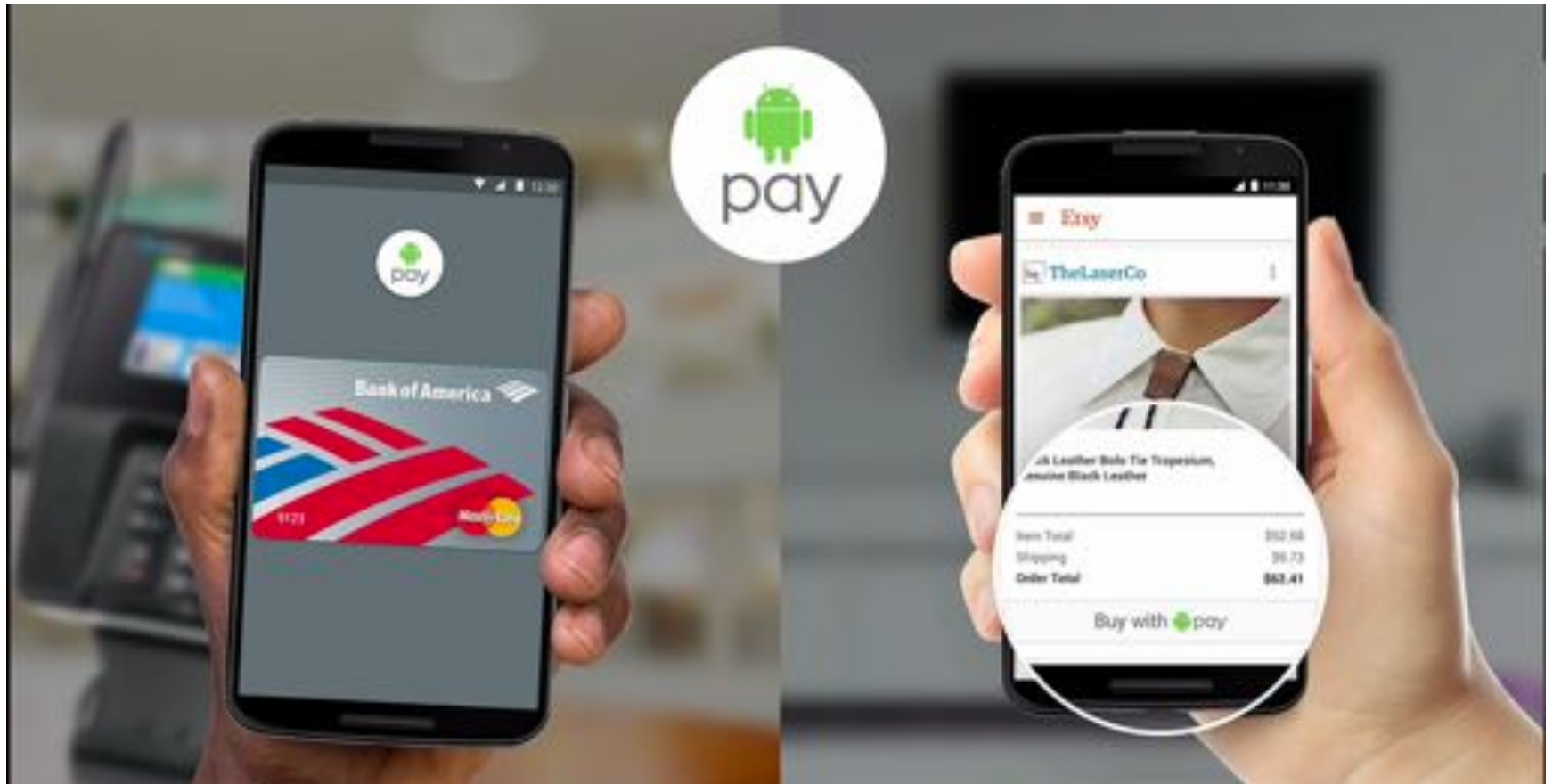
Display Cutout Support



Nuevos Sensores



Android Pay

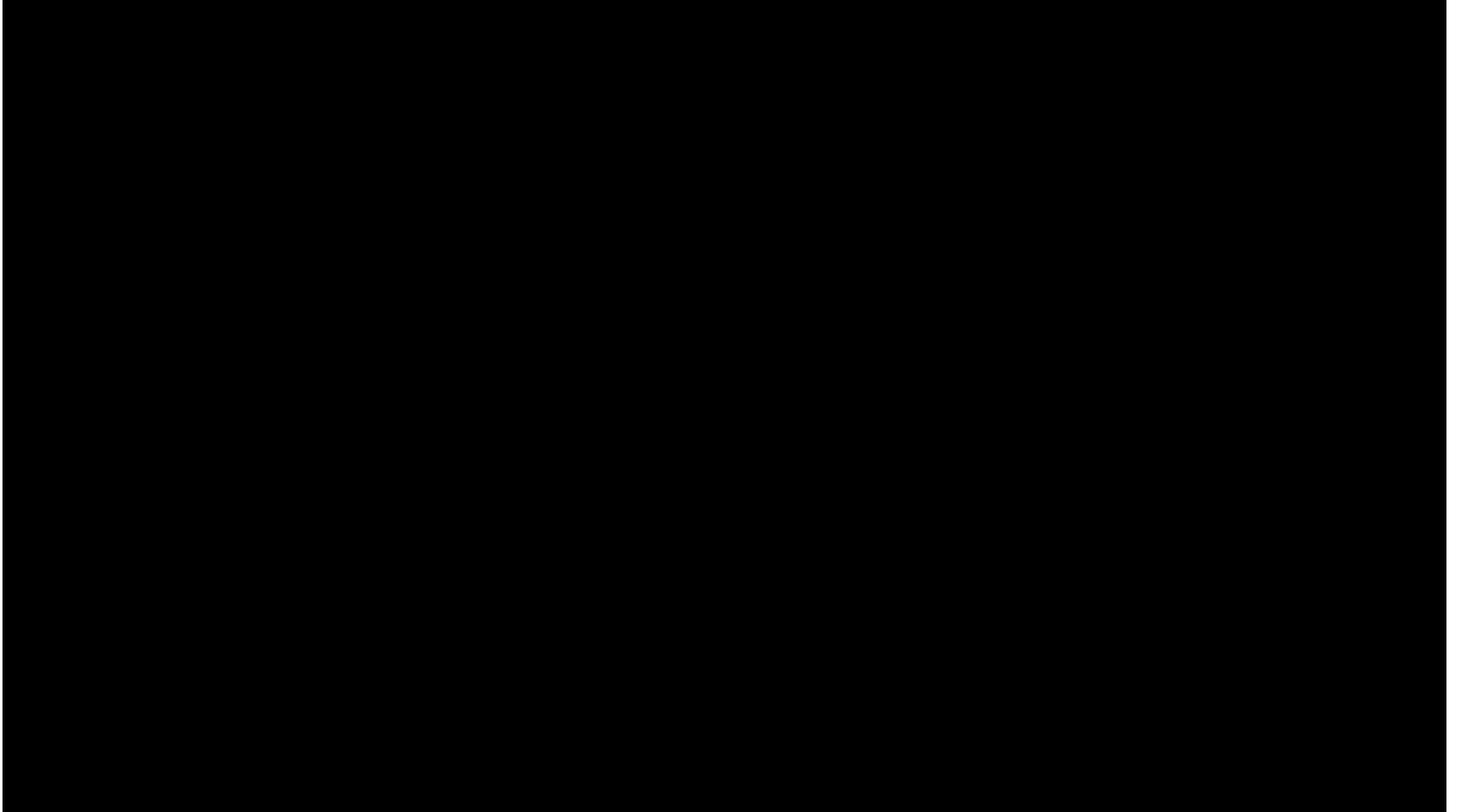


Dynamic Links



Dynamic Links

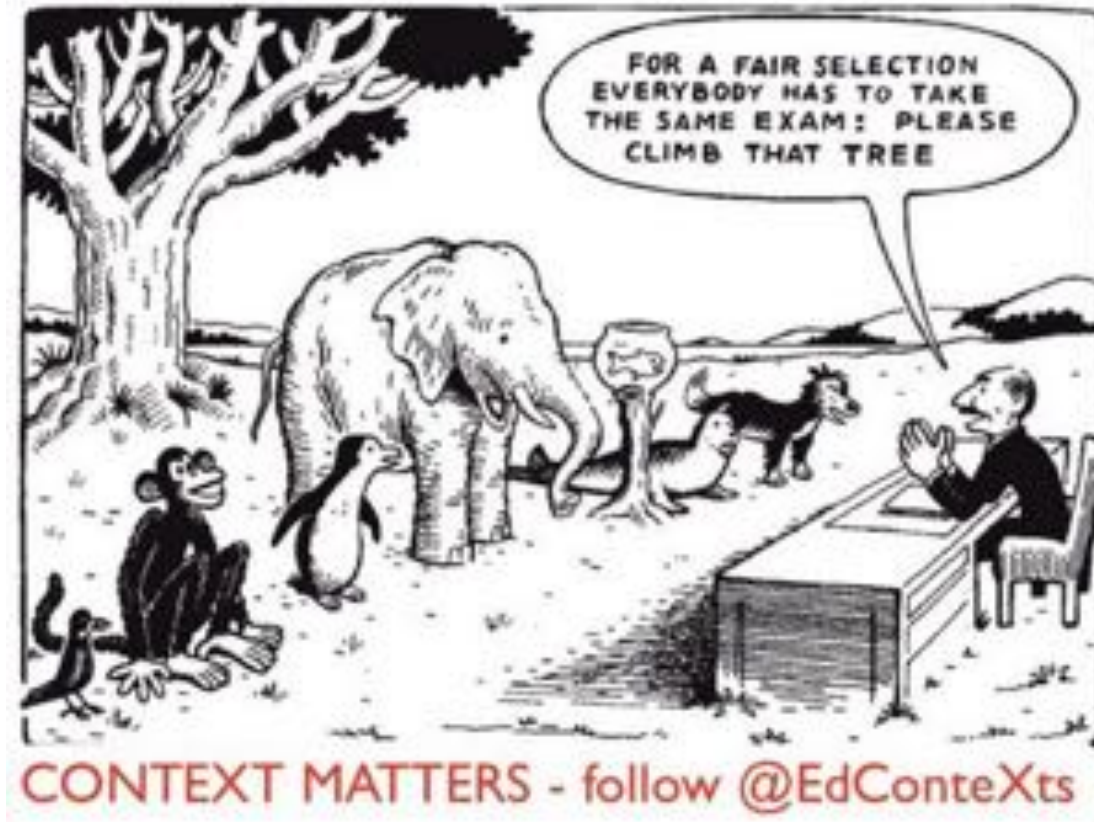
Instant Apps



VR



El contexto no es importante



ES CRÍTICO!

El smartphone es personal




- Conoce mi agenda
- Conoce mis contactos
- Conoce mis gustos
- Conoce mis finanzas
- Conoce mis costumbres
- Conoce mi ubicación
- Conoce mi casa
- Conoce mi trabajo
- Conoce mi horario

NO SE LO PRESTO A NADIE!!!!

Aunque con un par de excepciones: Restricted Profiles



Android for Work



The image shows a black Android smartphone against a green background. The screen displays a 'Work' app drawer with a grid of icons. Each icon has a small red badge with a white 'M' in the bottom right corner. The icons are arranged in three rows:

- Row 1: Work Mail, Work Calend., Work Contac., Work Tasks
- Row 2: Chrome, Play Store, Docs, Sheets
- Row 3: Slides, Box, Salesforce, SAP Fiori

Below the grid, the word 'Work' is centered. Above the grid is a Google search bar. The status bar at the top shows signal strength, Wi-Fi, battery, and the time 5:00.

Android is
ready for work

#AndroidforWork

GPS...



... + Triangulación + Sensores + Networking



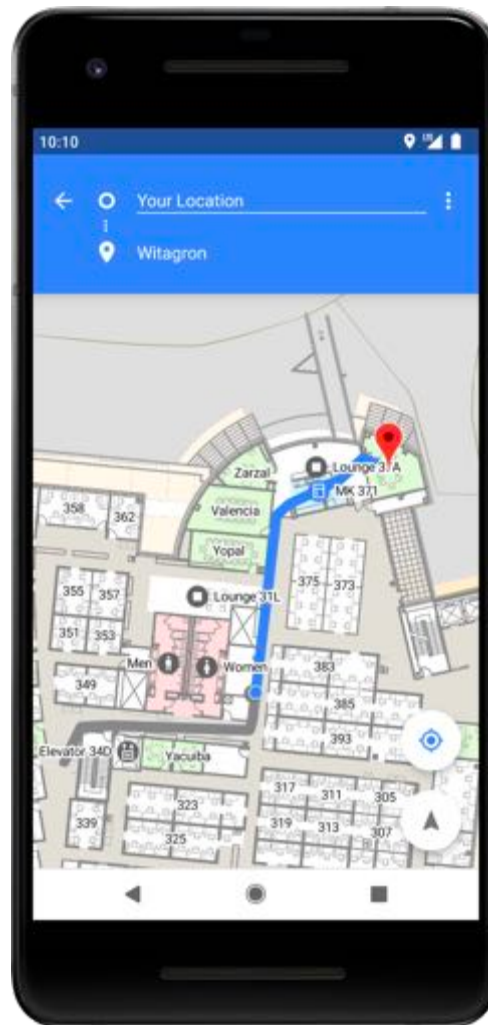
Reconocedor de actividad



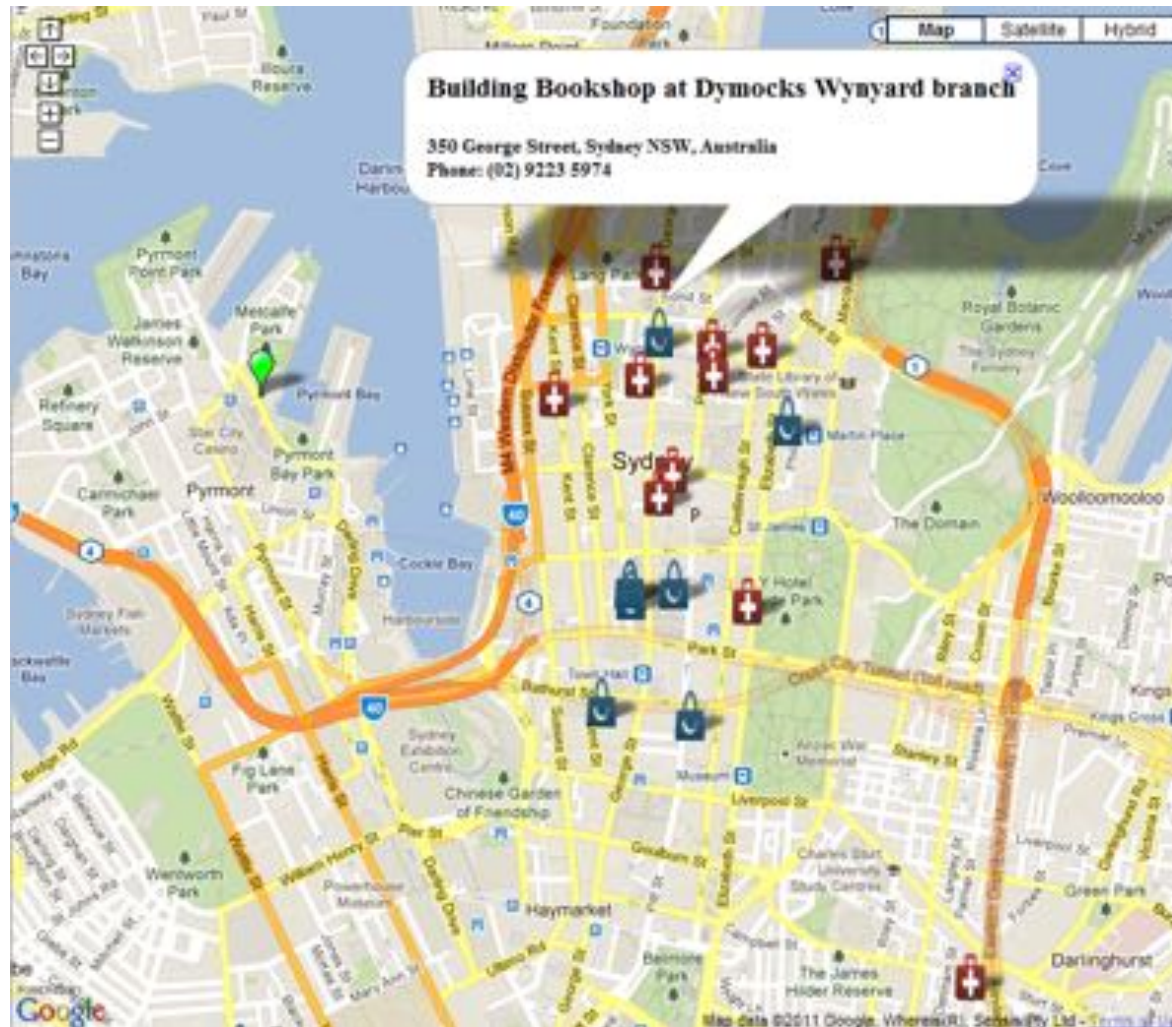
Geofencing



Wi-Fi RTT Indoor Positioning



Places API



BLE Beacons



Awareness API



FENCES

SNAPSHOTS

Google Assistant & Now on Tap






App Actions




Slices

Two-line item
Secondary text


Two-line item
Secondary text









Two-line item
Secondary text

Two-line item
Secondary text






Two-line
Secondary


Two-line
Secondary

Two-line
Secondary


Two-line
Secondary




MON
62°




TUE
65°



WED
68°



THU
64°




FRI
63°

Download in progress


Ring volume

Wi-Fi


GoogleGuest



glasshouse-wifi



springfield



wireless123

[See more](#)

Autofill Framework



Google Play Services

Google Maps



Google Drive



**Local Device
Storage**

*Google Drive Android API
Transparent Sync*

**Google Drive
Storage**

Google Fit



Google In-App Billing

A Button Click (InAppBilling) **\$0.99**

This is a test order, you will not be charged.

Please tap "Continue" to add a payment method and complete your purchase.



CONTINUE

Google Play Game Services

- Achievements
- Leaderboards
- Saved Games
- Multiplayer Sessions
 - Real Time
 - Turn Based
- Events & Quests
- Play Game Analytics



Google +



- Cross-platform single sign on
- OTA installs
- Listas de amigos con sus estados actuales
- Botón “share”
- Botón “+1”

Firestore



Build better apps



Cloud Firestore NEW

Store and sync app data at global scale



ML Kit NEW

Machine learning for mobile developers



Cloud Functions

Run mobile backend code without managing servers



Authentication

Authenticate users simply and securely



Hosting

Deliver web app assets with speed and security



Cloud Storage

Store and serve files at Google scale



Realtime Database

Store and sync app data in milliseconds



Improve app quality



Crashlytics

Prioritize and fix issues with powerful, realtime crash reporting



Performance Monitoring

Gain insight into your app's performance



Test Lab

Test your app on devices hosted by Google



Grow your business



Google Analytics

Get free and unlimited app analytics



Predictions NEW

Define dynamic user groups based on predicted behavior



A/B Testing NEW

Optimize your app experience through experimentation



Cloud Messaging

Send targeted messages and notifications



Remote Config

Modify your app without deploying a new version



Dynamic Links

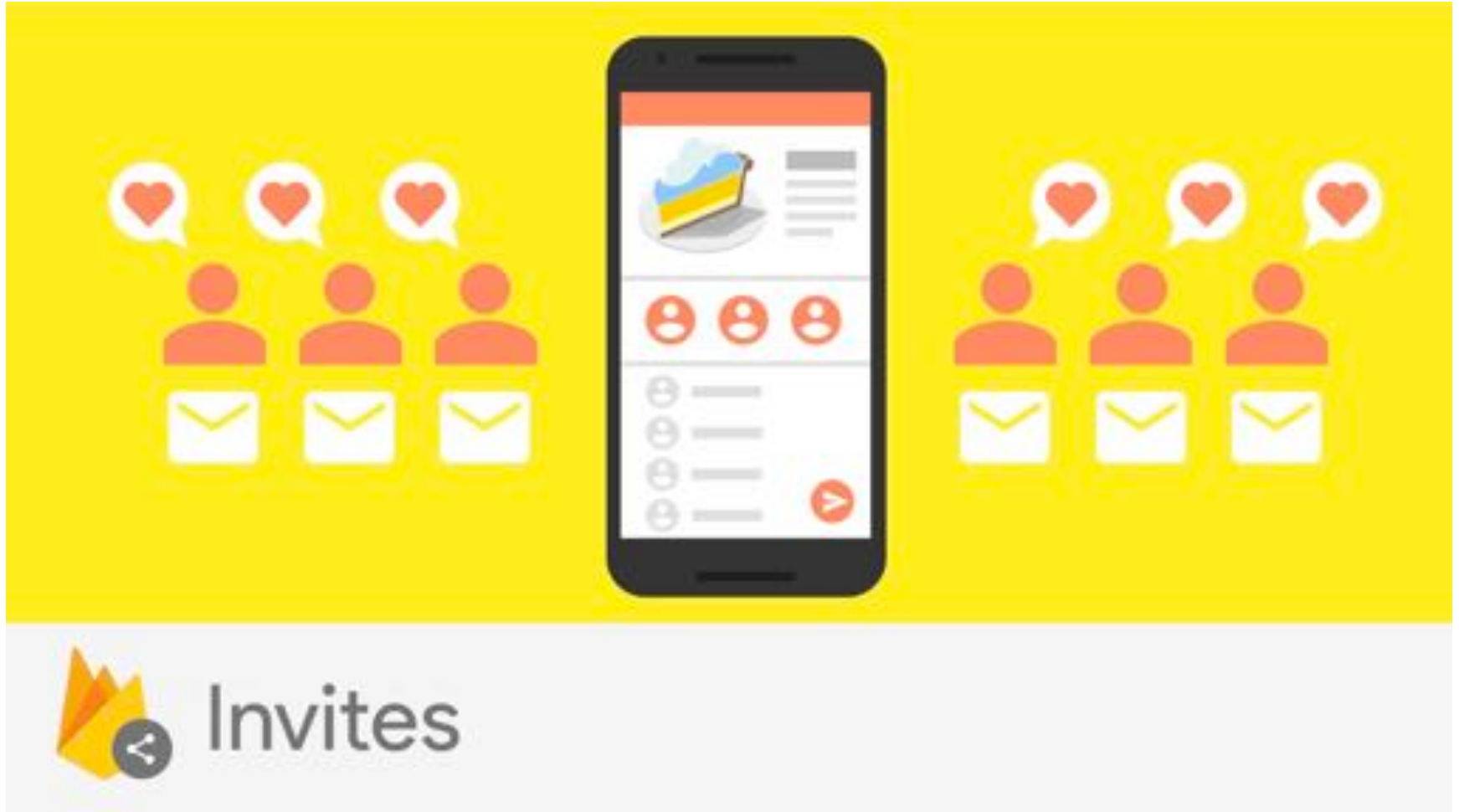
Drive growth by using deep links with attribution



App Indexing

Drive search traffic to your mobile app

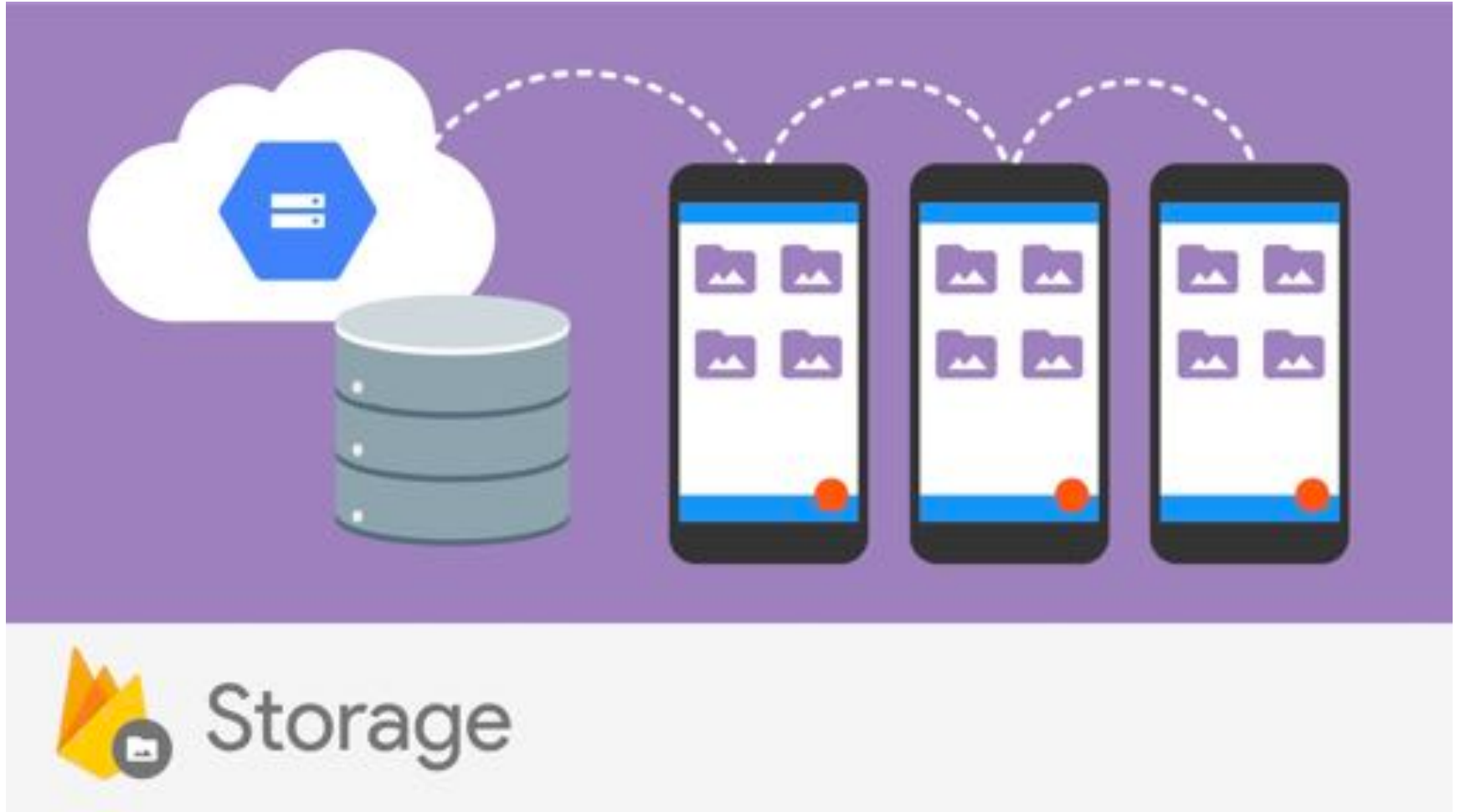
Firestore Invites



Firestore App Indexing



Firestore Storage

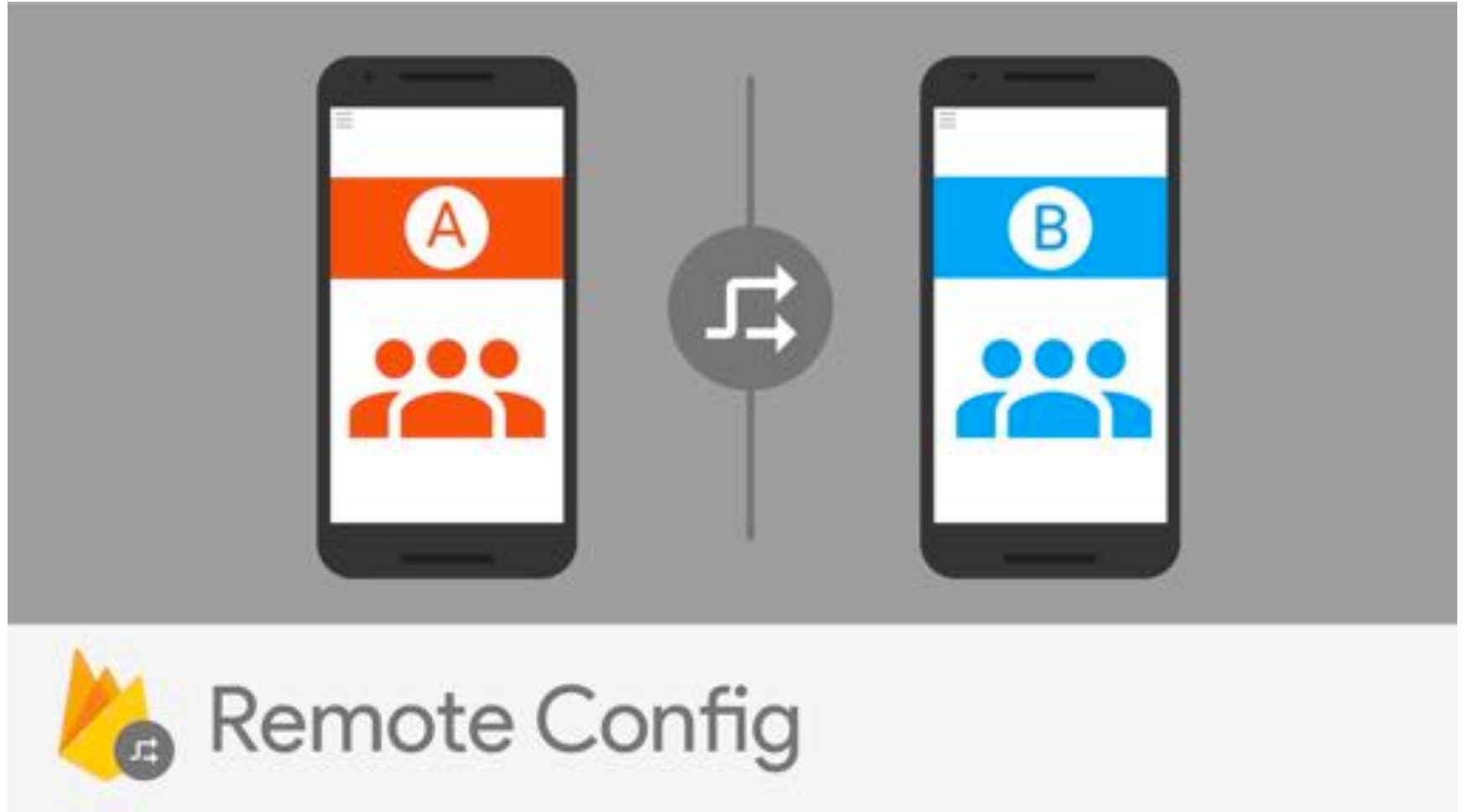


Firebase Analytics



Analytics

Firestore Remote Config



Google Ads



Google Ads

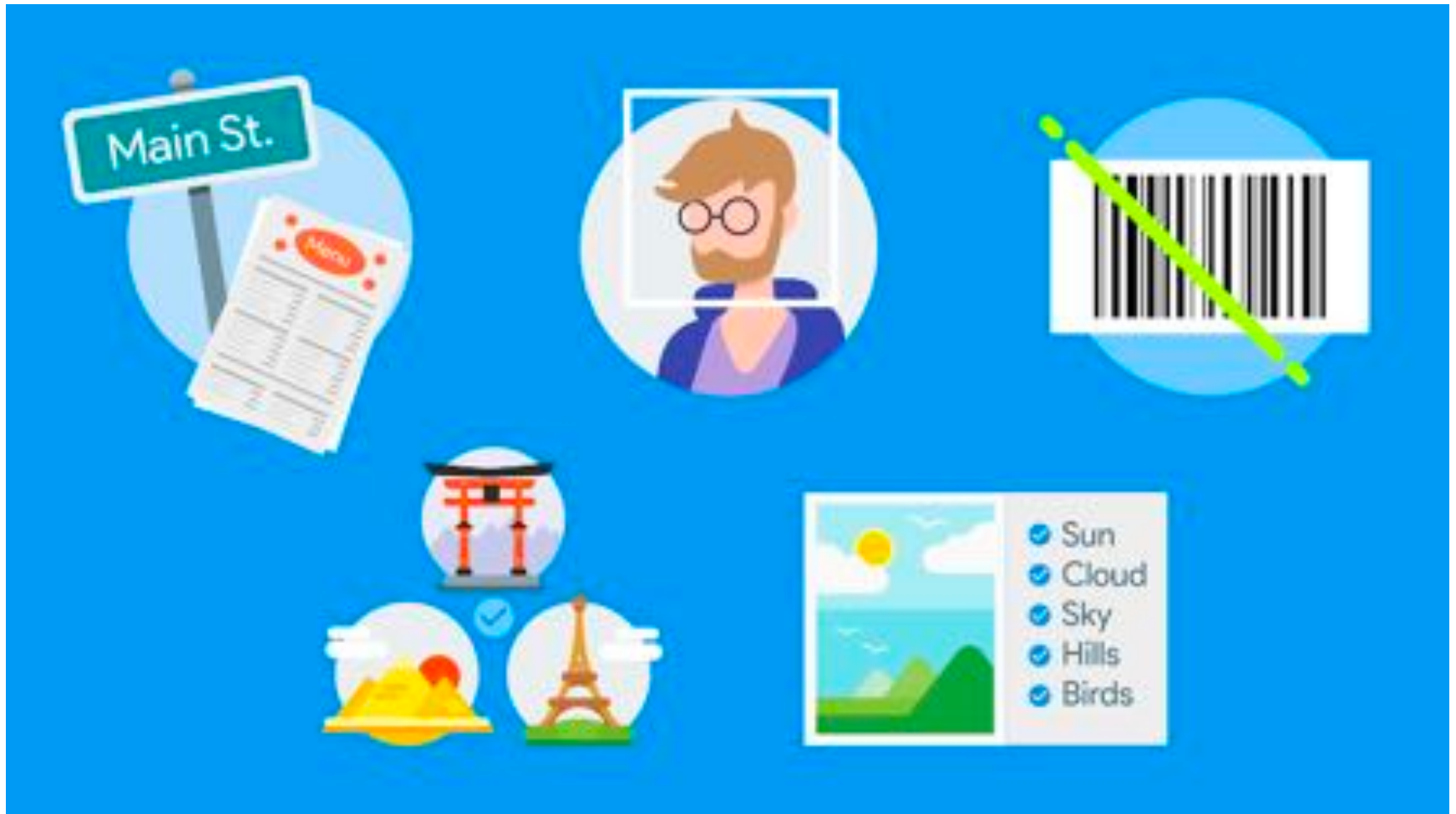
AdMob by Google



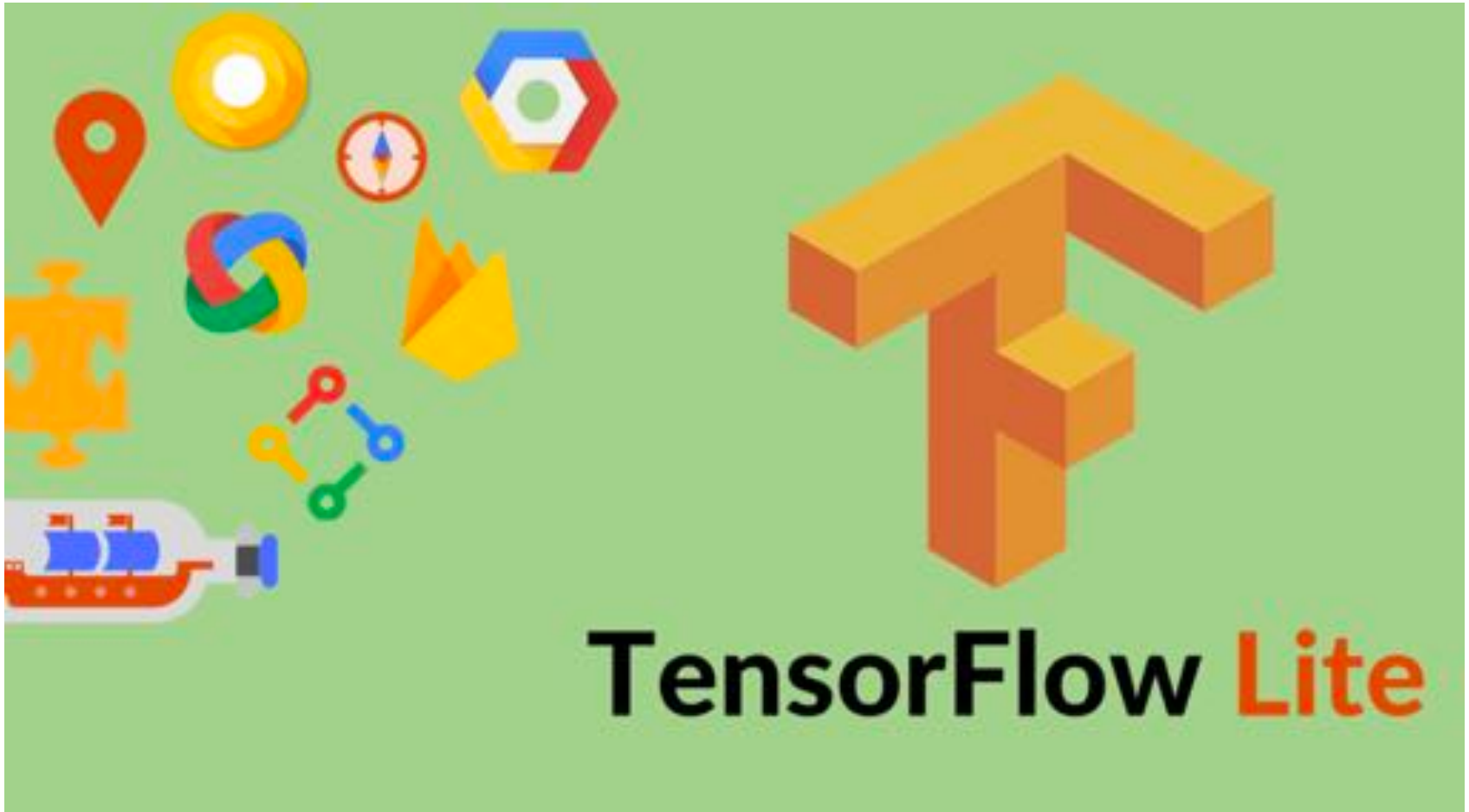
AdMob by Google

Firestore + Machine Learning

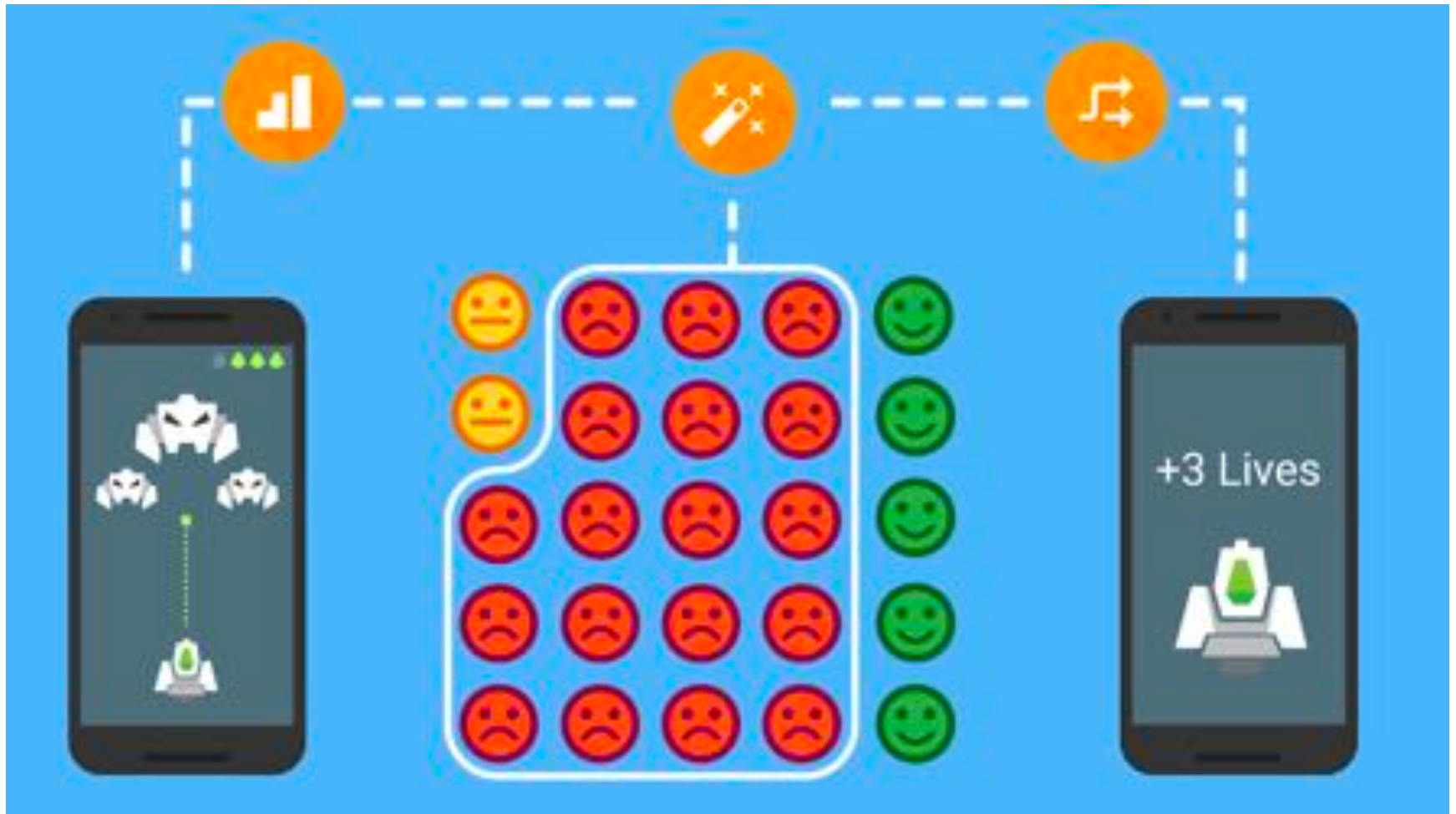
Firestore MLKit



TensorFlow Lite



Firebase Predictions



AutoML Vision Edge



How AutoML works



Privacidad

The Uncanny App Valley



Tips

- Indicarle claramente al usuario el alcance de la aplicación
- Explicar qué datos recopilan y por qué
- Permitir desactivar la recopilación de datos
- Usar hashes cuando sea posible
- Usar Secure Screen si la información en pantalla es sensible

General Data Protection Regulation

- Base legal para procesar datos
 - Consentimiento Informado
- Protección de datos por diseño y por default
- Pseudonymisation / Data Anonymisation
- Derecho de Acceso / Derecho al Olvido
- Contratar a un “Data Protection Officer (DPO)”
- Obligación de reportar robo de datos a la brevedad



Cómo dejar un impacto duradero





- La gente felizmente paga \$5.000 por un café y una torta en Starbucks
- No obstante, se enoja muy fácilmente si una aplicación de \$1.000 no cumple sus elevadas expectativas

Ambiente



Algunos sentidos están fuera de nuestro alcance



O tal vez no...

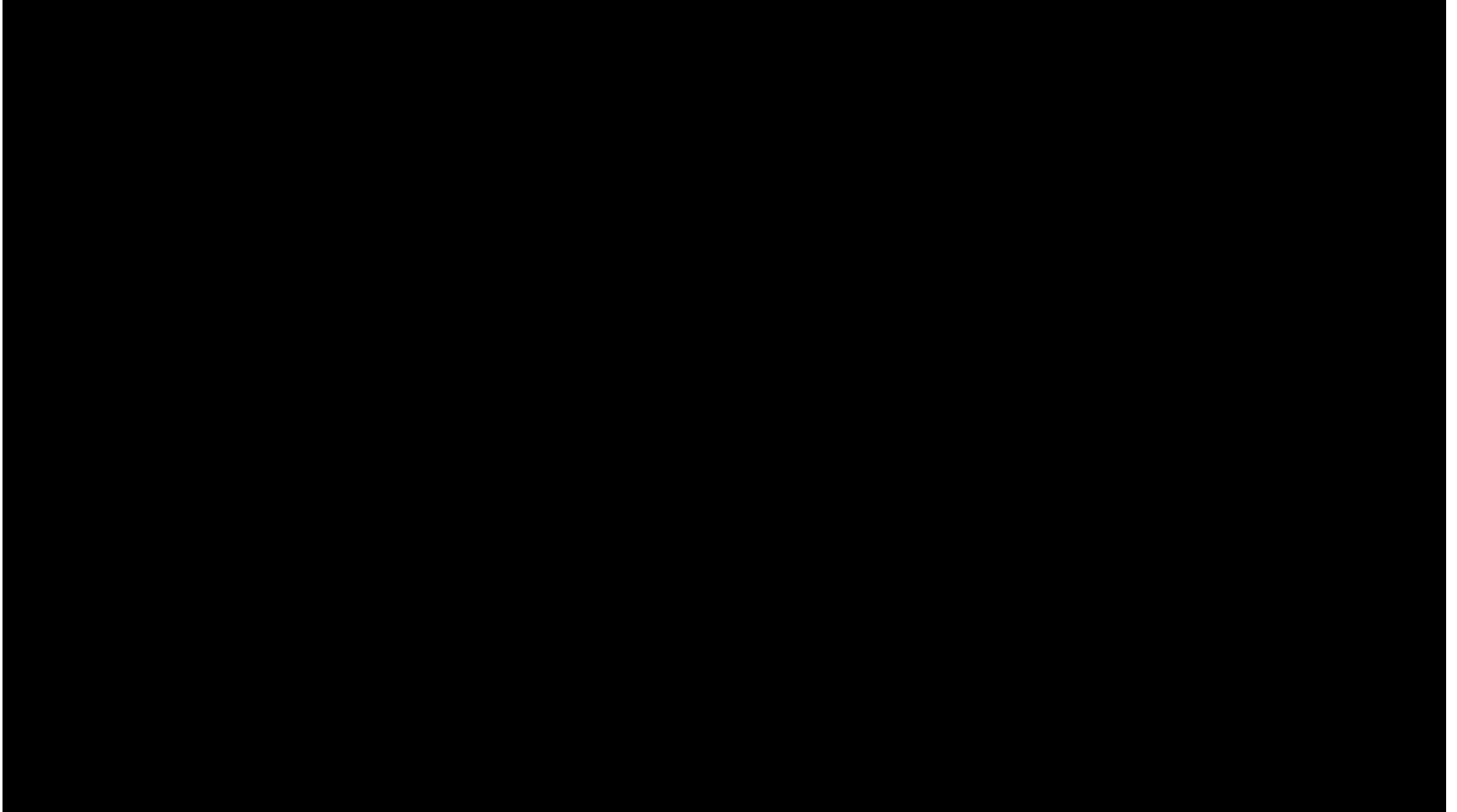


Enfóquemonos en lo menos esotérico

Visión



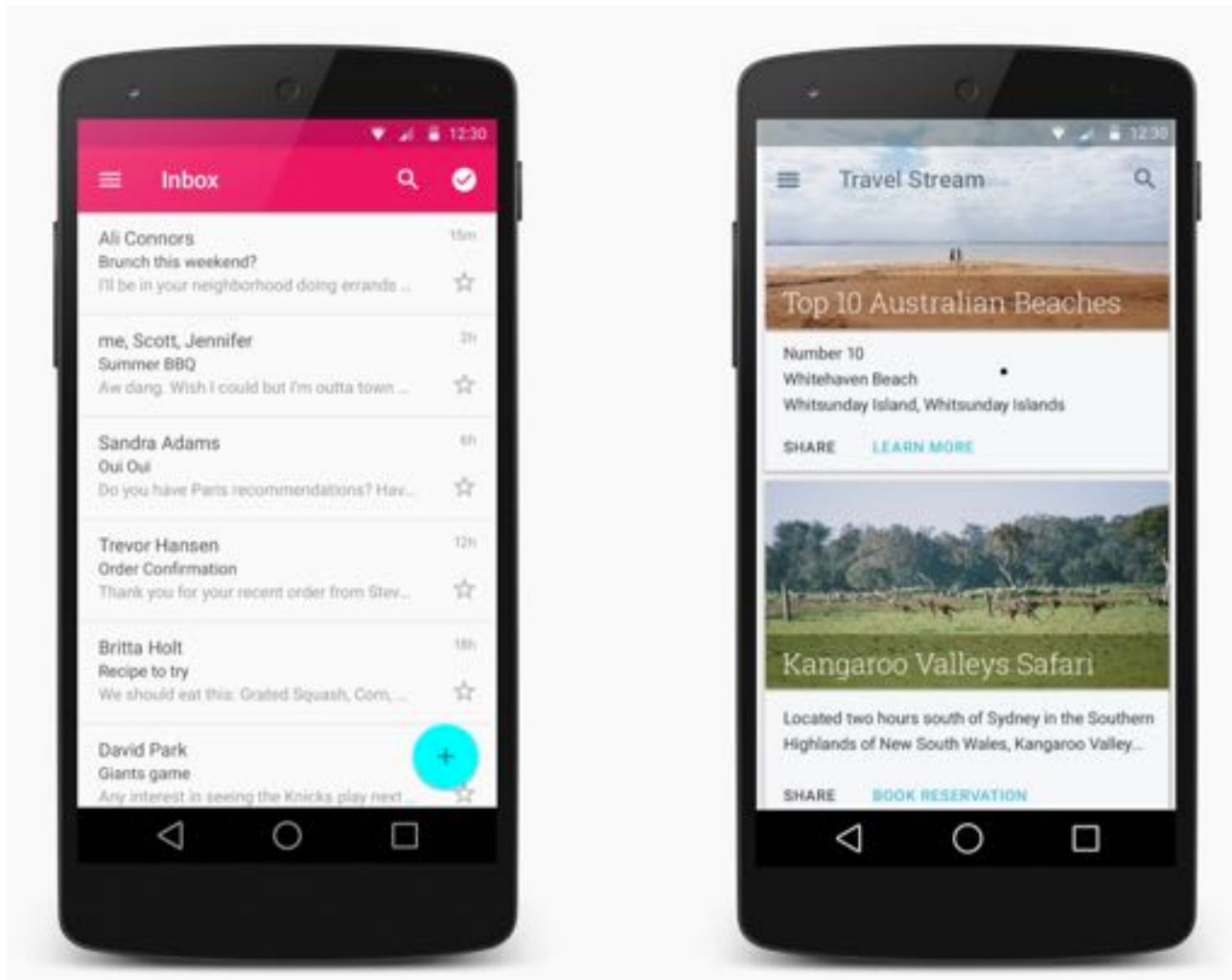
Material Design



Material Design

- Create a visual language that synthesizes classic principles of good design with the innovation and possibility of technology and science.
- Develop a single underlying system that allows for a unified experience across platforms and device sizes. Mobile precepts are fundamental, but touch, voice, mouse, and keyboard are all first-class input methods.

Material Design



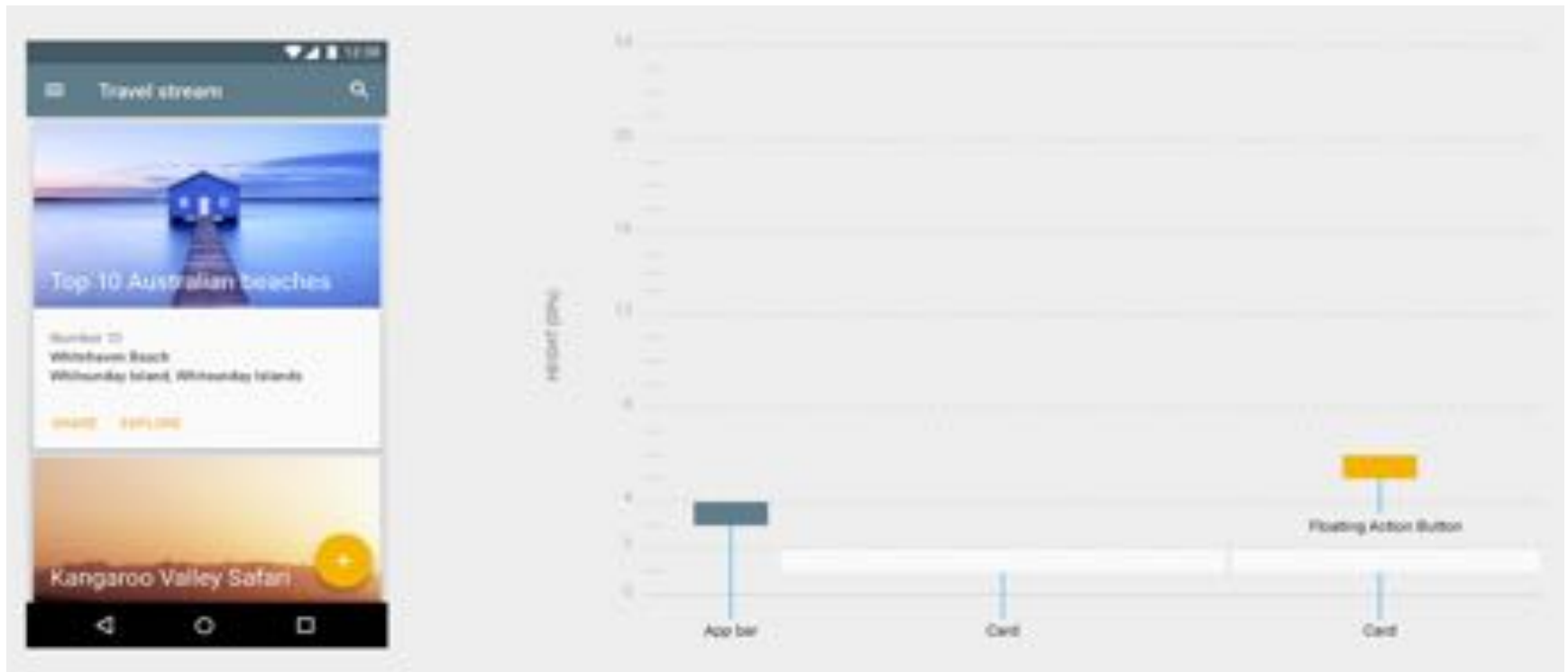
Material Design

- Sombras provistas por el sistema para dar sensación 3D
- Nuevo Touch Feedback: “Ripple Effect”
- Nuevas animaciones: “Reveal Effect”
- Activity Transitions
- Extracción de “Prominent Colors”

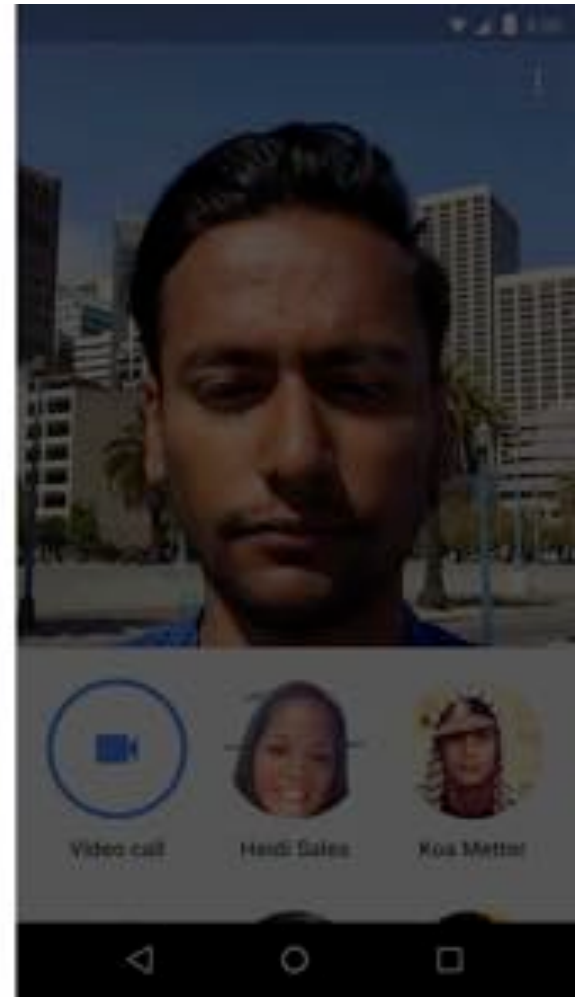
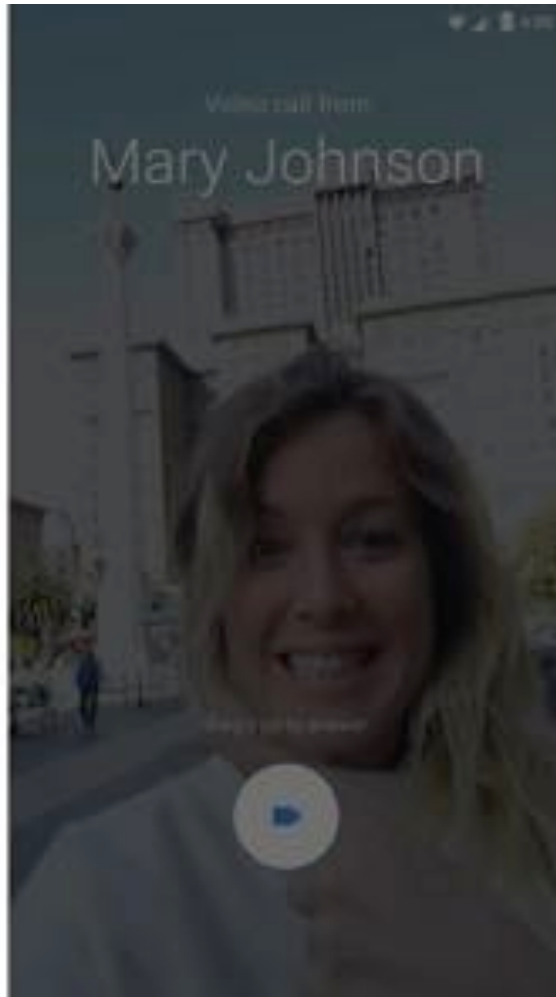
Colores



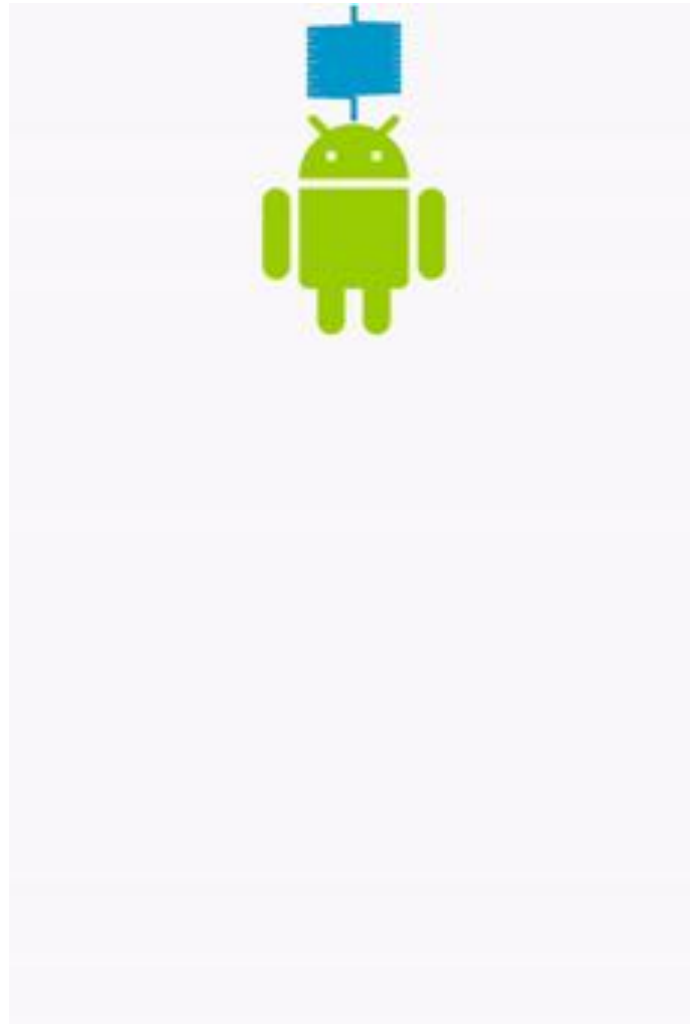
Elevación y Perspectiva



Animaciones y Transiciones



Physics Based Animations



Audición



Text to speech (TTS)



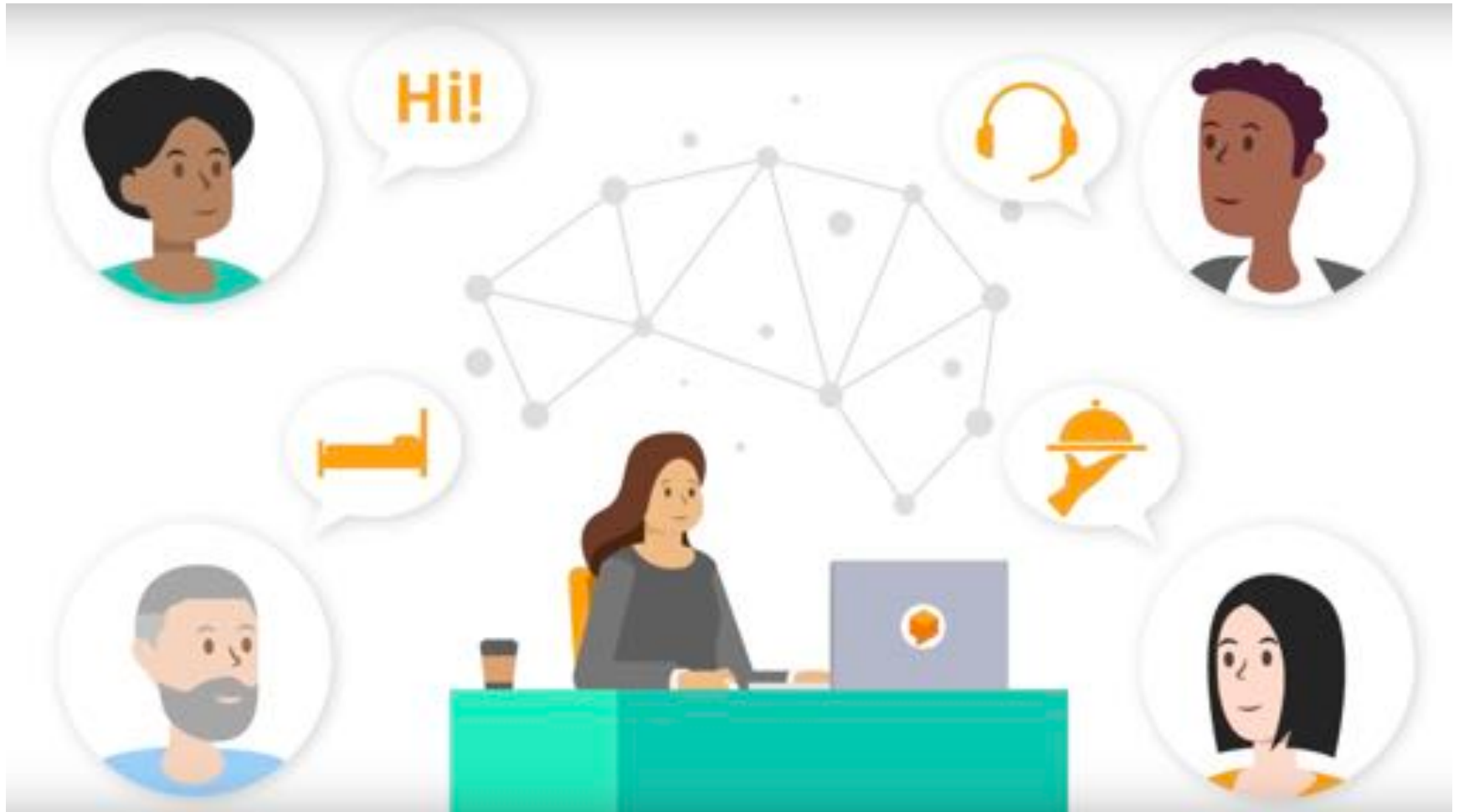
Reconocimiento de voz



Interacciones de Voz



DialogFlow: Conversational Experiences

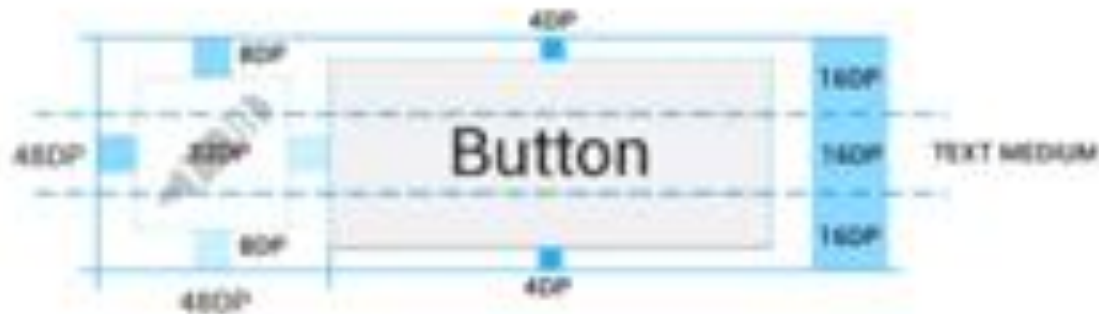


Tacto



Botones grandes

- Toda sección seleccionable debe tener una superficie superior a 9 x 9 mm.
- 48 dip (Android)
- 44 pt (iOS)



Gestos



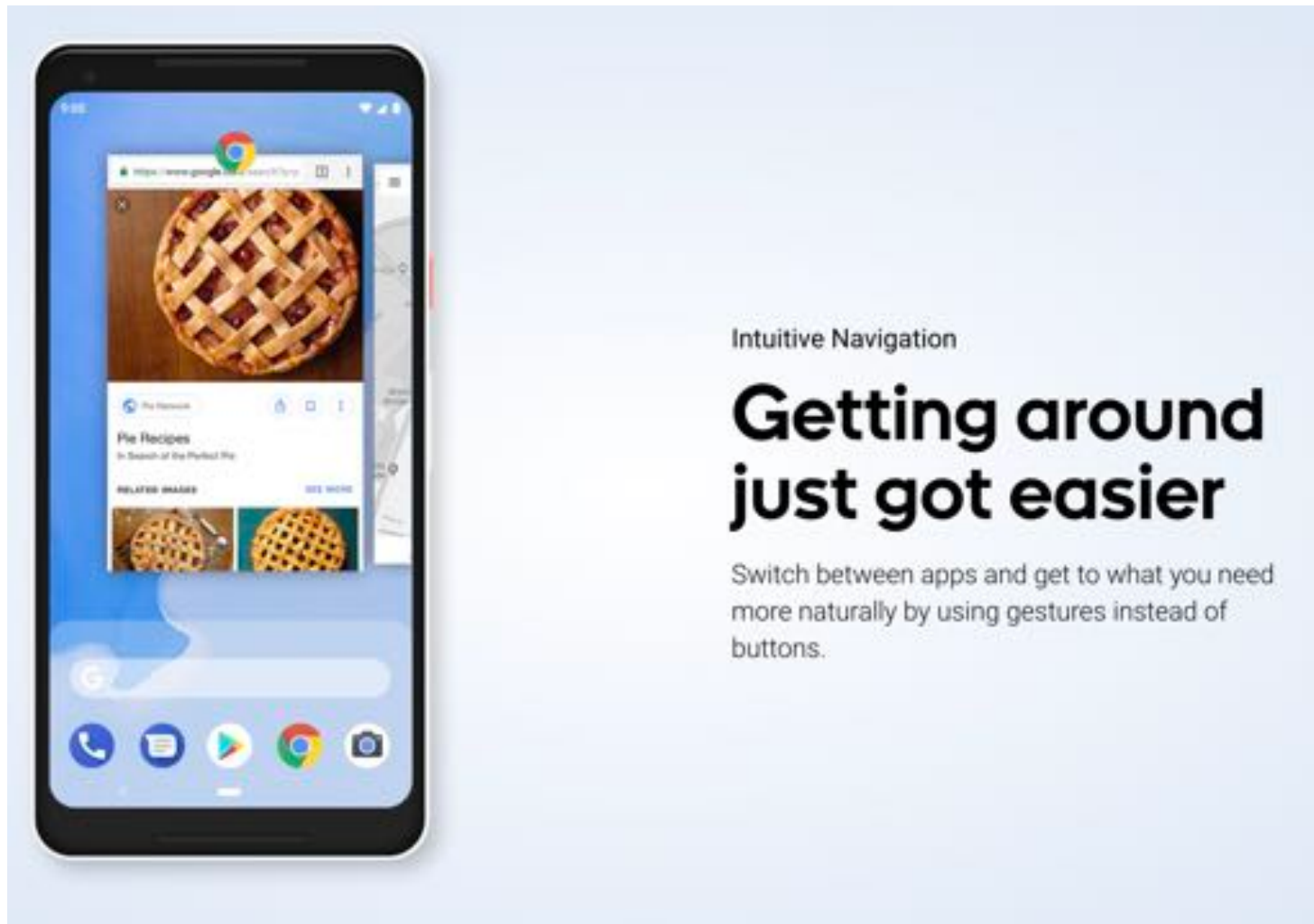
Gestos multitouch



Touch feedback

Normal	REMAINS STATIC
Pressed	ILLUMINATES WITH COLOR
Focused	DRAWS 50% OF THE PRESSED VALUE (OPTIONAL 2DP BORDER FILL AT PRESSED VALUE)
Disabled	DRAWS 30% OF THE NORMAL STATE
Disabled & focused	DRAWS 30% OF THE FOCUSED STATE

Gesture Navigation



Intuitive Navigation

Getting around just got easier

Switch between apps and get to what you need more naturally by using gestures instead of buttons.

Agradecimientos

- Google I/O 2013 - 2018
 - En especial conferencia “Making Apps Work Like Magic” dictada por Reto Meier en 2013
- WWDC 2013 - 2018
 - En especial conferencia “Harnessing iOS to Create Magic in Your Apps” dictada por Filip Krsmanovic en 2013

Invitación

- Quieres aprender a programar en Android o iOS, o mejor aun, investigar acerca de tópicos del estado del arte en móviles?
- Únete a nuestros TPDs e IoPs!
- Abierto a todos los alumnos motivados que hayan aprobado Programación Avanzada







Muchas Gracias!!!

