

Building a scalable mobile application on
Google Cloud Platform

About us



Lukas Masuch

Google+: [+LukasMasuch](#) Twitter: [@lukasmasuch](#)



Henning Muszynski

Google+: [+HenningBalboa](#) Twitter: [@henningmus](#)

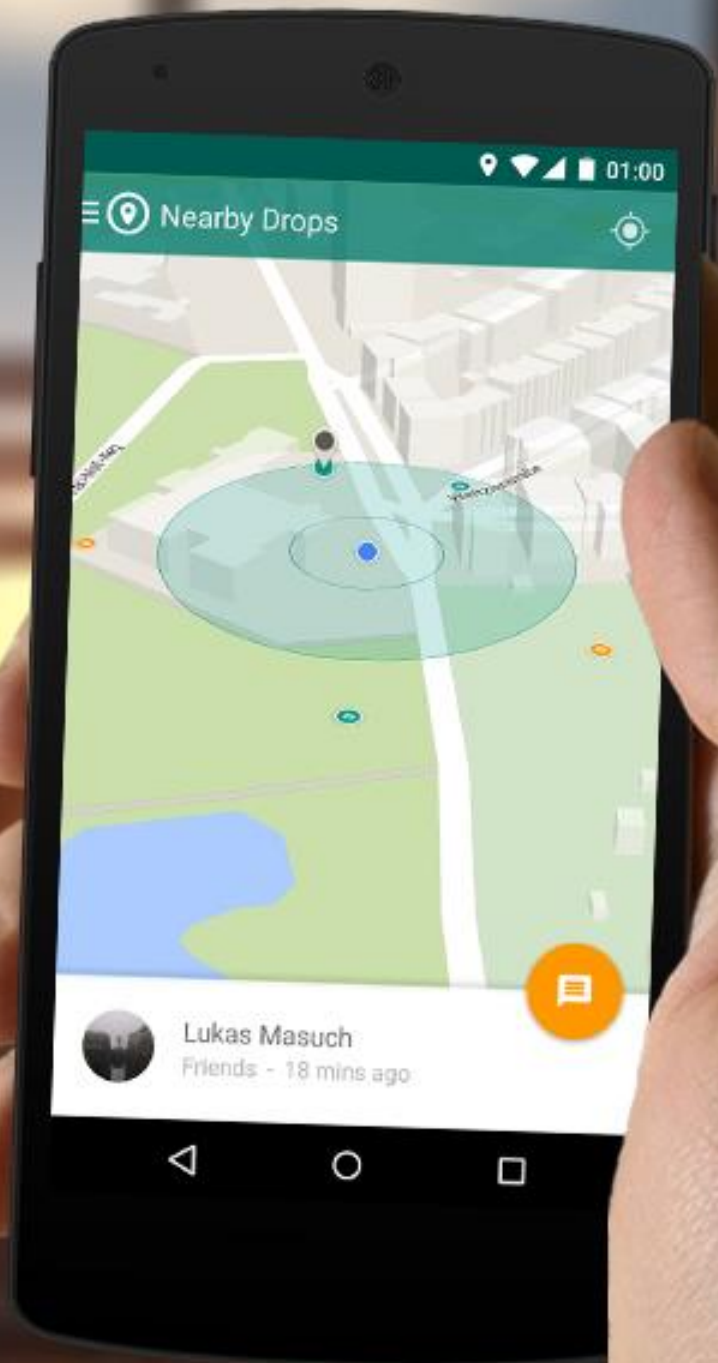


Benjamin R athlein

Google+: [+BenjaminR athlein](#) Twitter: [@B3nRa](#)

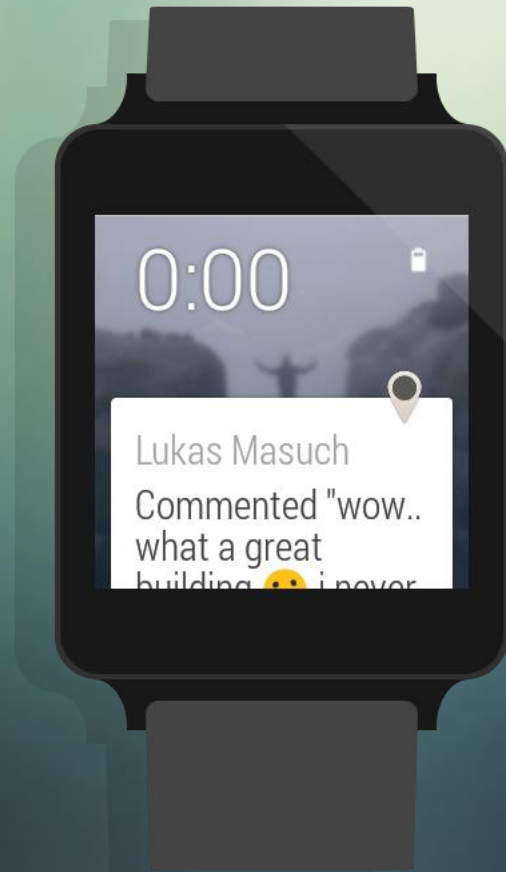
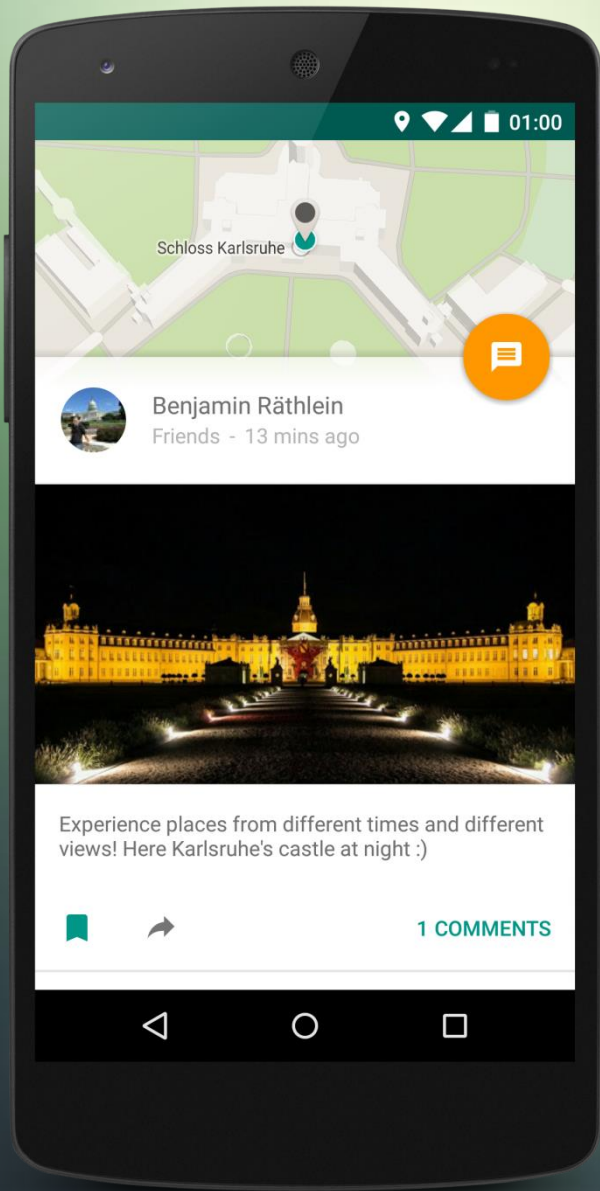
Drop

Make the world around you more social



Nearby Drops

Lukas Masuch
Friends - 18 mins ago



Google Cloud Platform



Cloud Platform – Compute



Compute Engine: Virtual machines hosted on Google's infrastructure - Infrastructure-as-a-Service



App Engine: Deploy your code directly to a fully-managed platform - Platform-as-a-Service



Container Engine: Run Docker container cluster on Google Cloud Platform – Container-as-a-Service

Cloud Platform – Storage Options



Cloud SQL: Full SQL support for an online transaction processing (OLTP) system



Cloud Datastore: Store highly structured objects and query with SQL-like statements



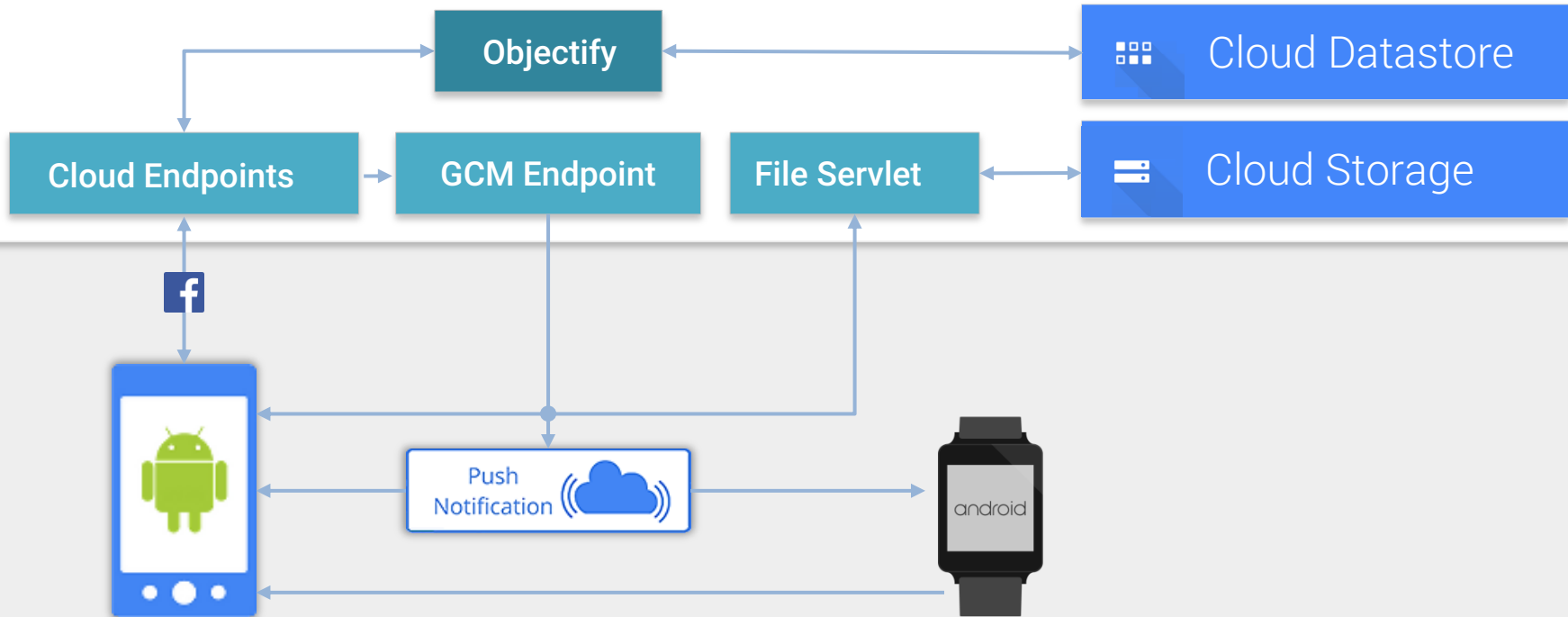
Cloud Storage: Store immutable blobs larger than 10 MB, such as large images or videos



Cloud BigTable: High-performance, extremely scalable NoSQL database, scales to billions of entries



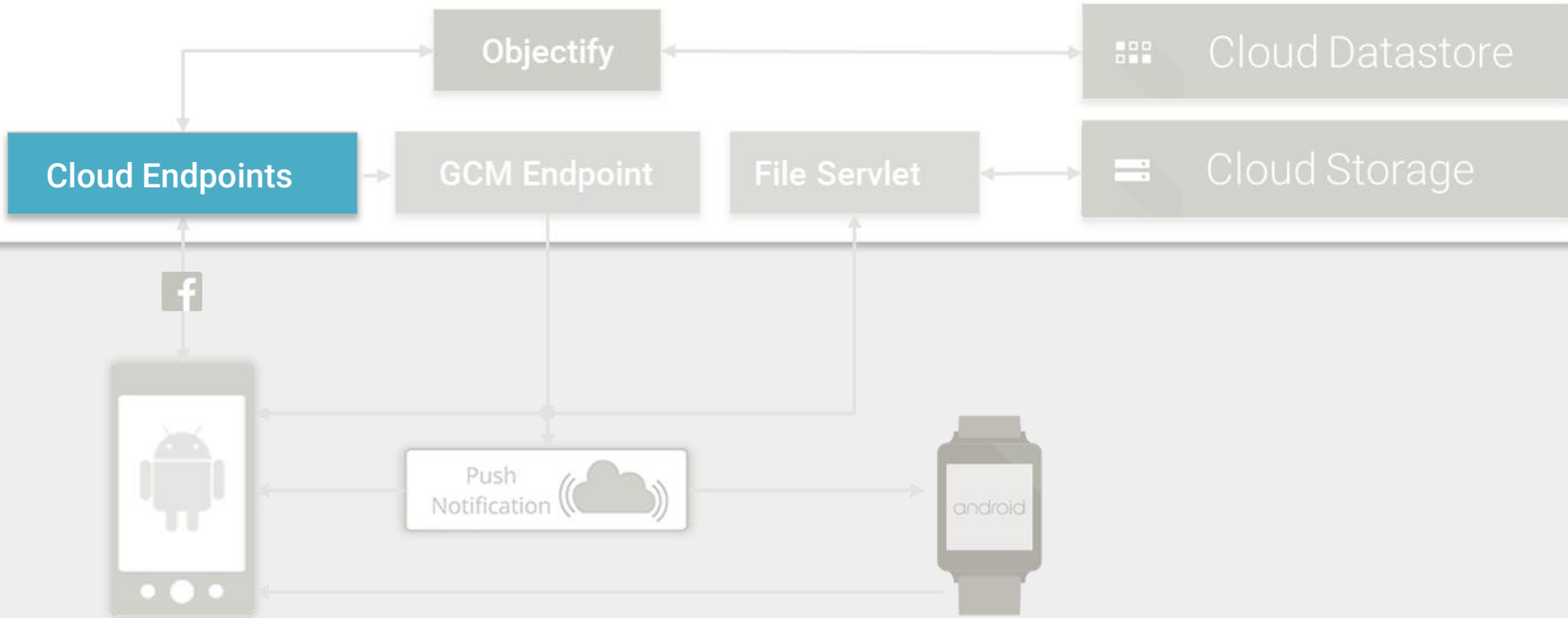
App Engine



Other Dev Tools



App Engine



Other Dev Tools



Cloud Endpoint

REST has never been easier!



Automatically generate client libraries to make wiring up the client to your backend easy.

```
@Api(name="dropEndpoint", version="v0")
public class DropEndpoint {
    @ApiMethod(httpMethod="GET", path="getFile")
    public StringWrapper getImageDownloadUrl(
        @Named("authToken") String authToken,
        @Named("dropId") long dropId) {
        ...
    }
}
```

+ Annotation based

+ Easy declaration of REST methods and services

+ support for local testing



1. Annotate 2. Generate 3. Run everywhere Really ?

Cloud Endpoint - Pitfalls

What we should have known before



Getter / Setter require to be named same as the member variables. Otherwise duplicate methods are generated

1

Endpoint methods allow only one object as parameter

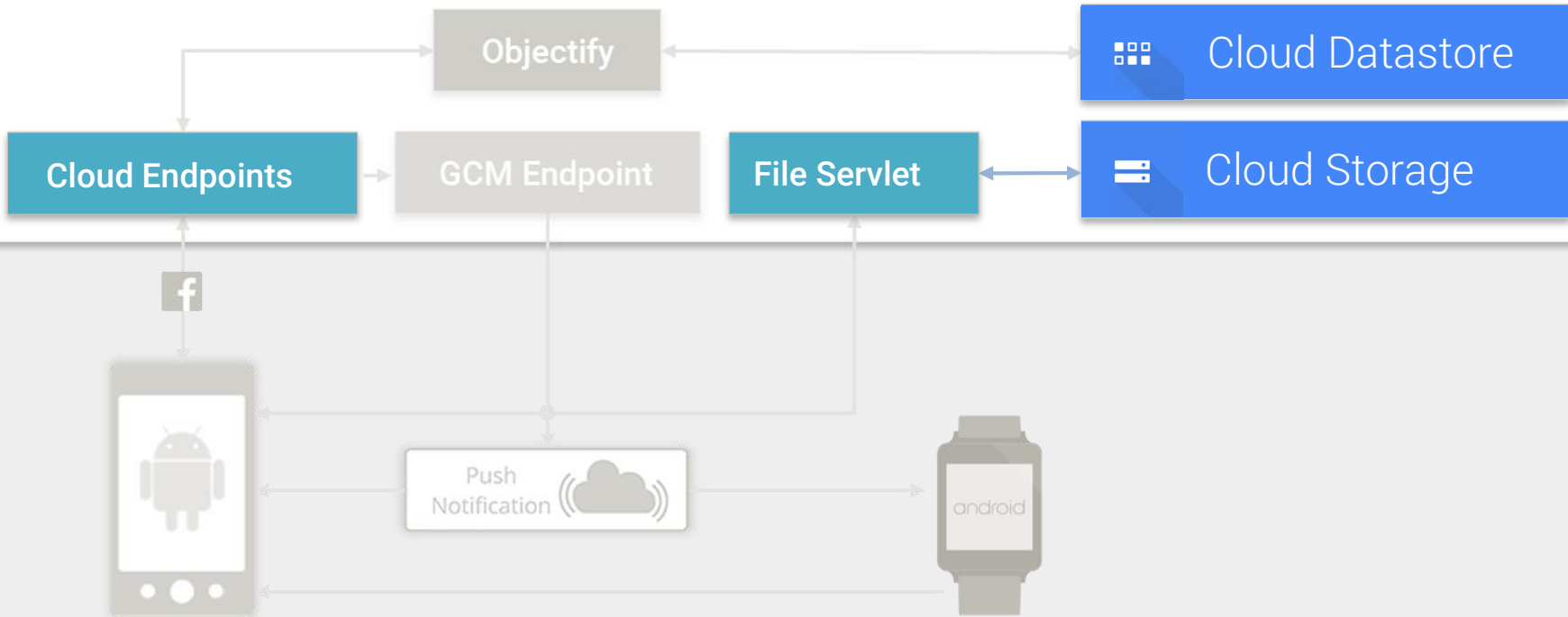
~~int~~

No native data types are returnable. Use Wrappers!

1..2..3

Enums are neither returnable nor allowed as parameters

App Engine

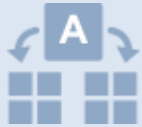


Other Dev Tools



Cloud Datastore & Cloud Storage

Save everything in the cloud!



Datastore: Store all entities
Storage: Store all files



Better database design **vs.** less data operations

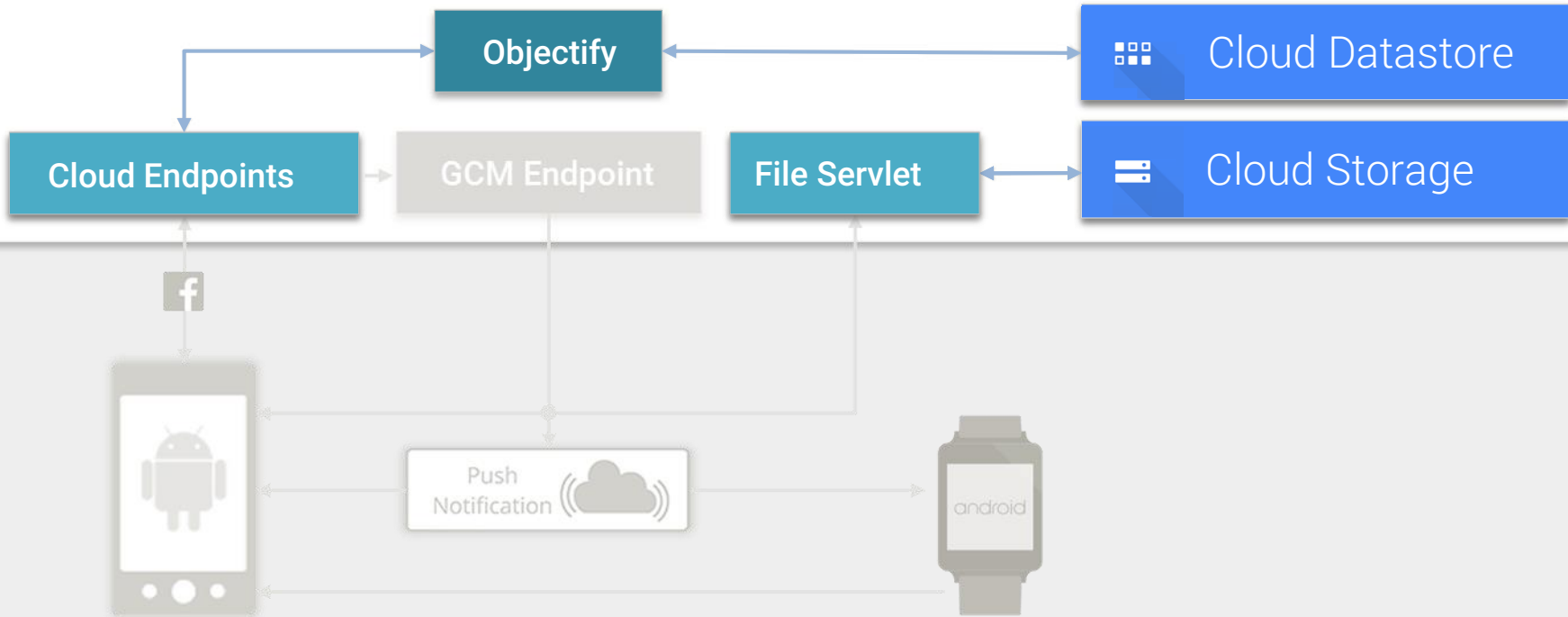


Cloud Storage: Convenient API for Images.
Additional Servlet for Files needed.



Manageable with an easy-to-use Interface on
Google Cloud Console

App Engine

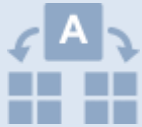


Other Dev Tools



Objectify

The simplest convenient ORM for App Engine datastore



Enables you to store and retrieve your Object directly from Cloud Datastore. It is that simple!

```
@Entity
@Cache
public class EntityDrop {
    @Id
    private Long id;
    @Index
    private double latitude;
    @Index
    private double longitude;
}
```

+ Annotation based

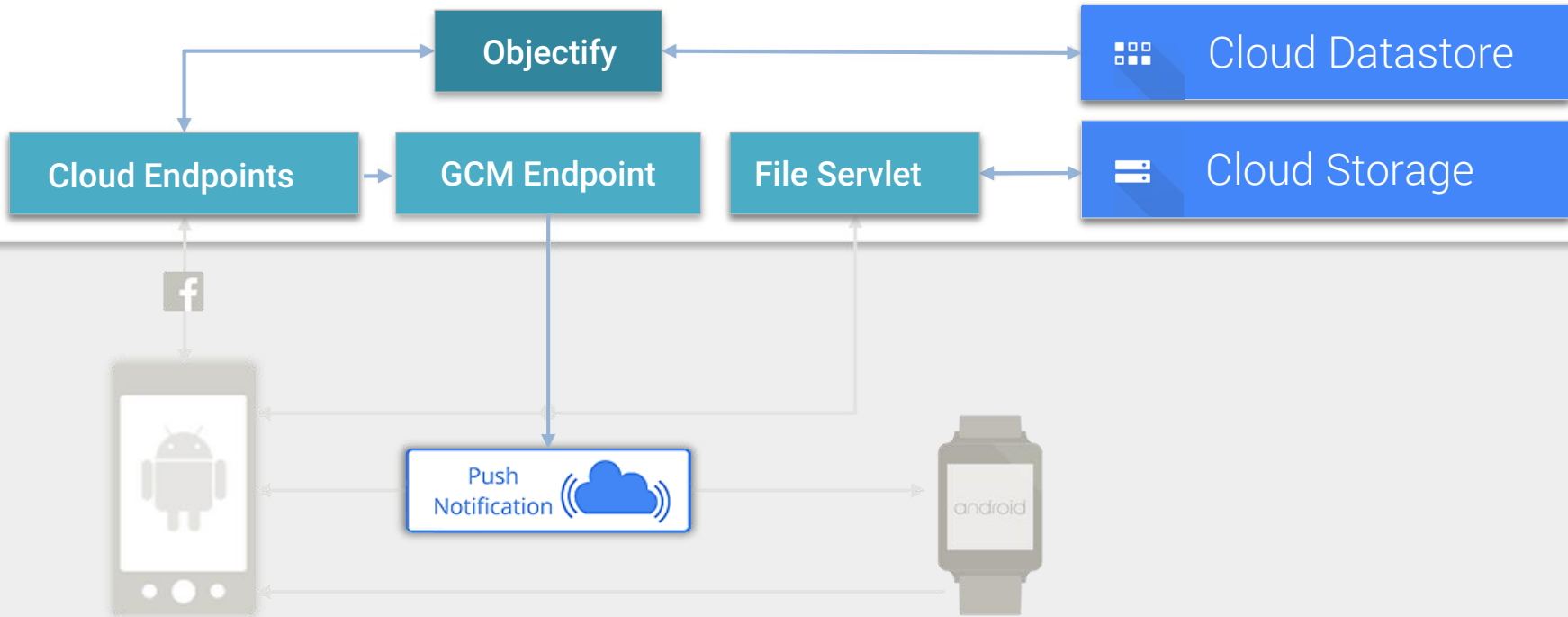
+ Easy caching and indexing

+ Human-friendly query interface



It just works like a charm!

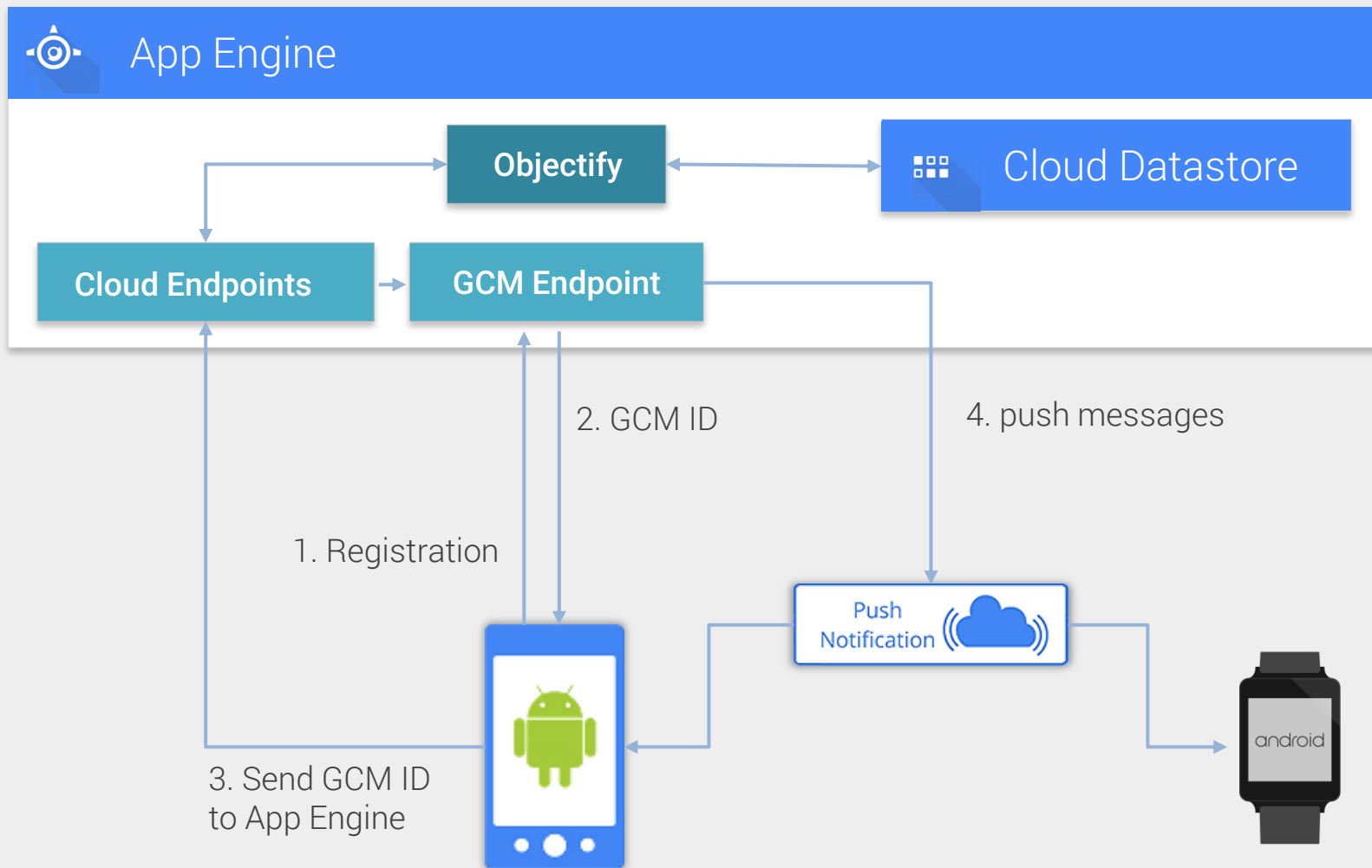
App Engine



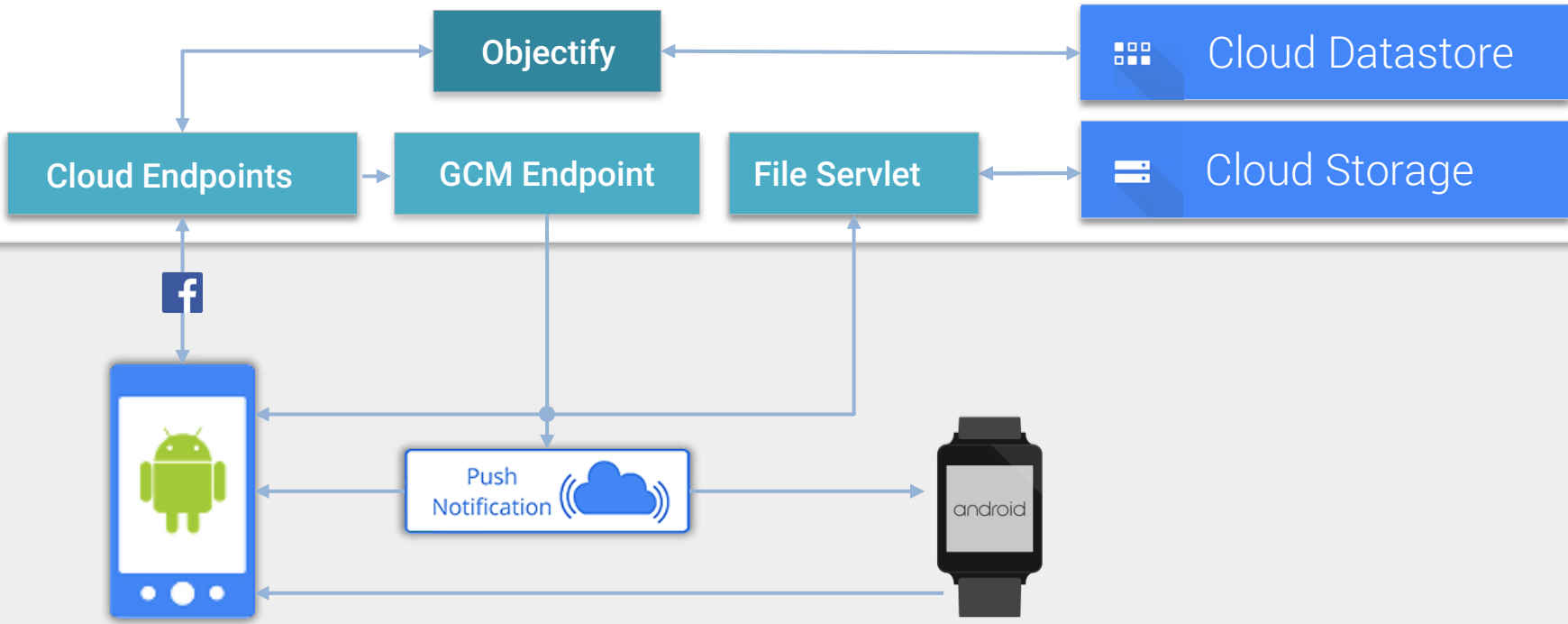
Other Dev Tools



Google Cloud Messaging - Users want to be notified!



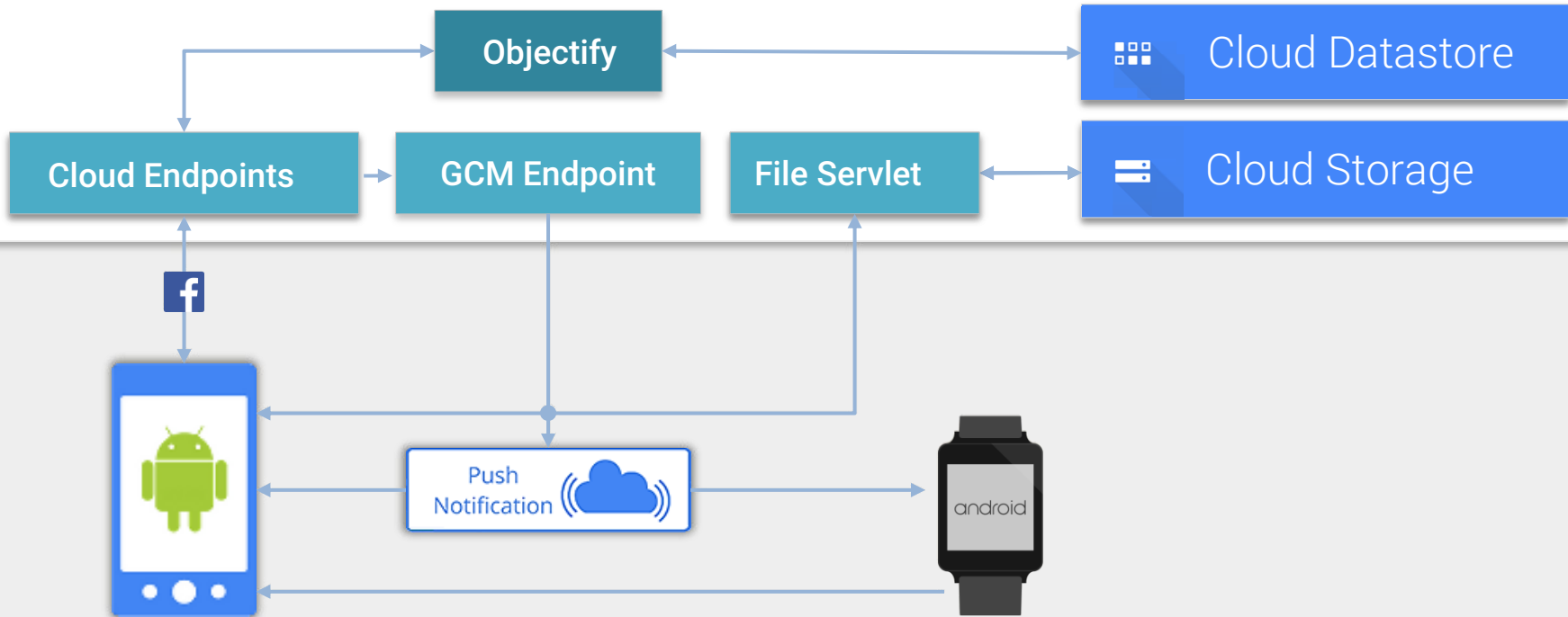
App Engine



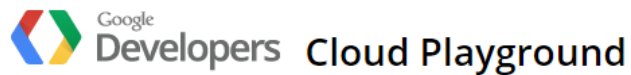
Other Dev Tools



App Engine



Other Dev Tools



Resources & Links



[Github Repository – App Engine Skeleton](#)



[Google Cloud Playground \(Python\)](#)



[Drop - Website](#)



Lukas Masuch

Henning Muszynski

Benjamin Rätthlein