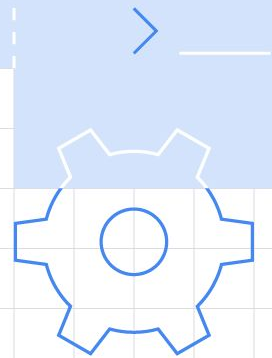
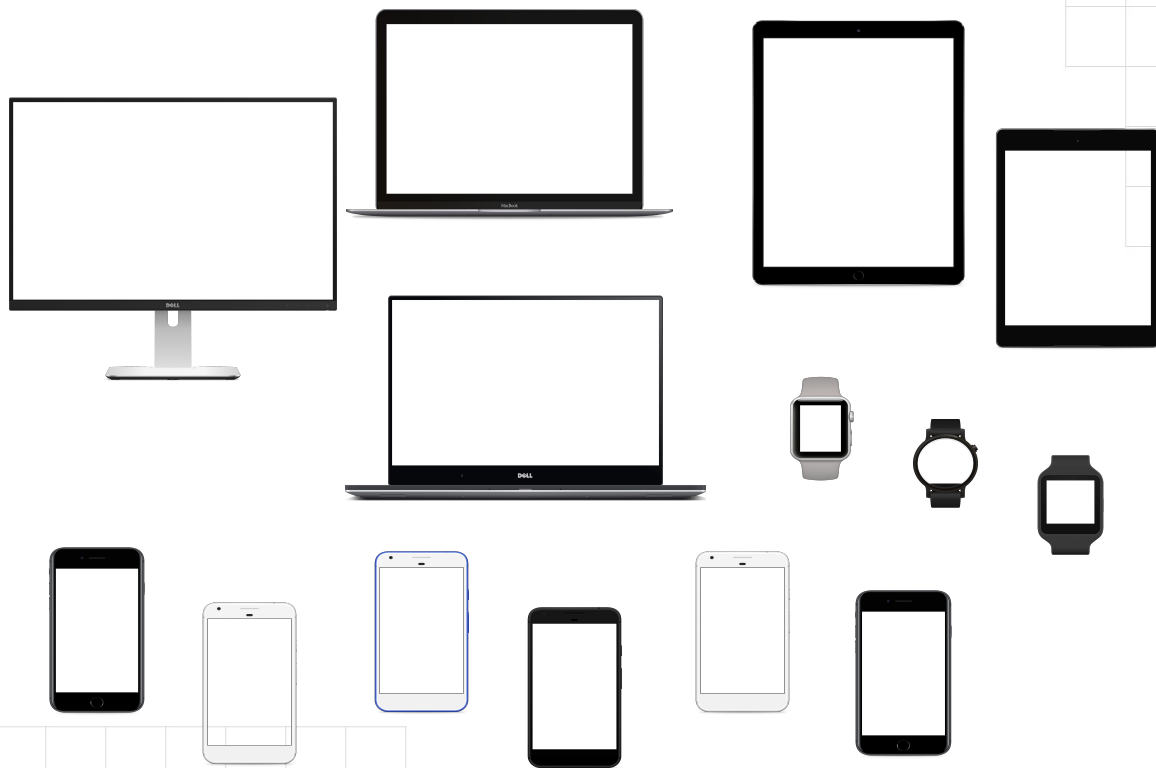


Solution Design 3:

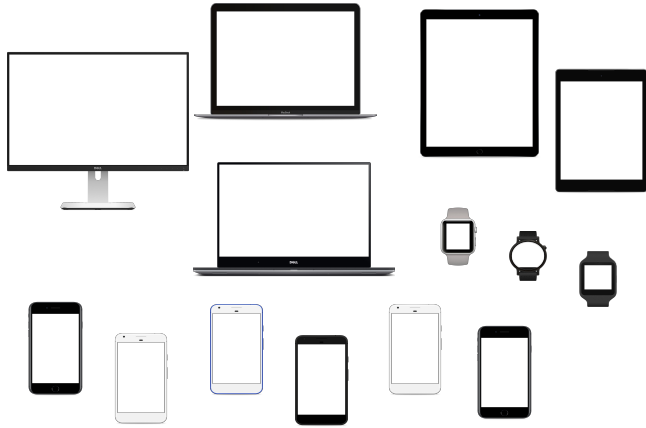
Technical

Architecture





Front-end (client)



Back-end (server)

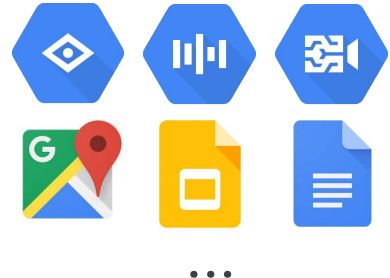
Running Code



Data Storage



Other Services



example:

photo-sharing app

Front-end (client)

Back-end (server)

Running Code

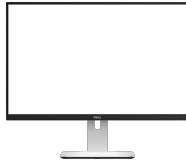
Data Storage

Other Services

example:

photo-sharing app

Front-end (client)



Web

Back-end (server)

Running Code



Cloud
Functions

Data Storage



Firebase
Firestore

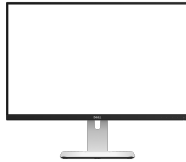


Firebase
Storage

Other Services

example:
photo-sharing app

Front-end (client)



Web

Back-end (server)

Running Code



Cloud
Functions

Data Storage



Firebase
Firestore



Firebase
Storage

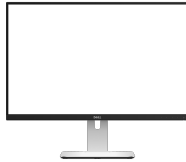
Other Services



Cloud Vision
API

example:
photo-sharing app

Front-end (client)



Web

Back-end (server)

Running Code



App Engine
Standard

w/

Django (Python)
Express.js (Node.js)
Ruby on Rails (Ruby)
Spring (Java)

...

Data Storage



Firebase
Firestore



Firebase
Storage

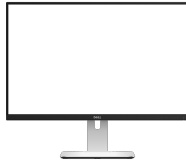
Other Services



Cloud Vision
API

example:
photo-sharing app

Front-end (client)



Web

Back-end (server)

Running Code



App Engine
Flexible

w/

Django (Python)
Express.js (Node.js)
Ruby on Rails (Ruby)
Spring (Java)

...

Data Storage



Firebase
Firestore



Firebase
Storage

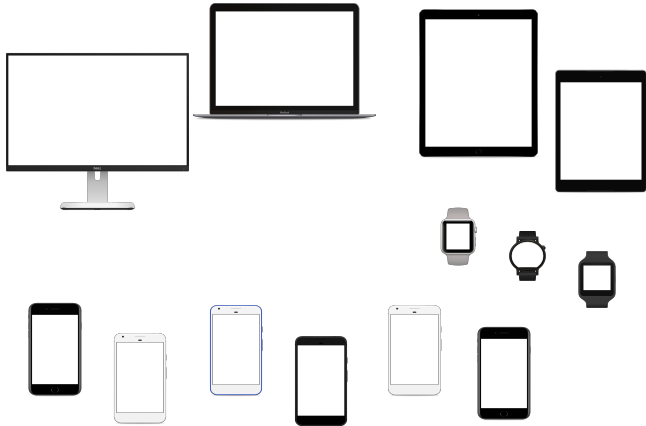
Other Services



Cloud Vision
API

example:
photo-sharing app

Front-end (client)



Back-end (server)

Running Code



App Engine
Flexible

w/

Django (Python)
Express.js (Node.js)
Ruby on Rails (Ruby)
Spring (Java)

...

Data Storage



Firebase
Firestore



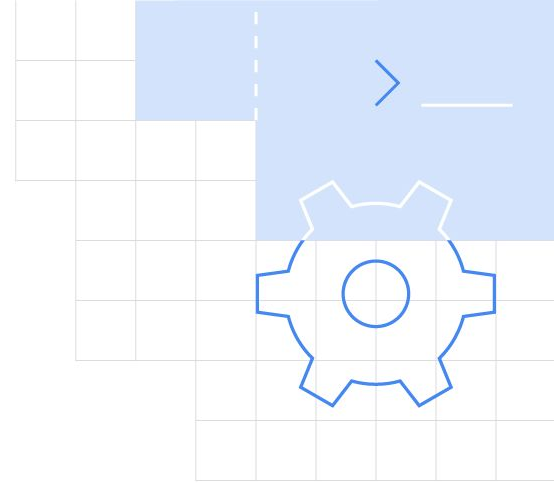
Firebase
Storage

Other Services



Cloud Vision
API

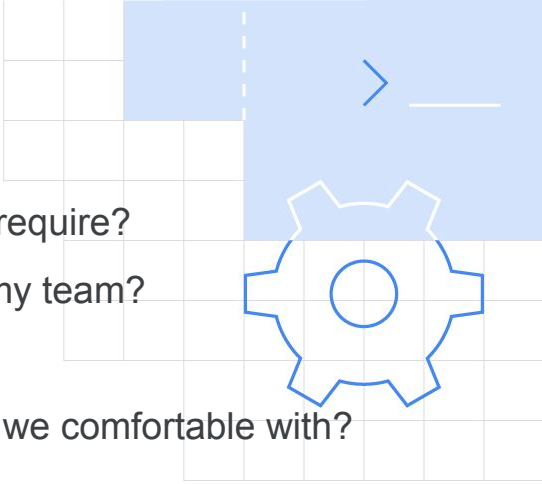
How can we do this?



How can we do this?

- 1) Considerations
- 2) Research
- 3) Design

step 1: **considerations**



What does my application require?
How many people are on my team?
How experienced are we?
What languages / tech are we comfortable with?
What is our budget?
What is our timeline?
How accelerated is our timeline?
How much load does this service have to provide?
What security considerations must we make?
What compliance considerations must we make?
What technologies do we have to integrate with?
...

bit.ly/google-cloud-4-words

step 2: research



Developer Student Clubs

DEVELOPER CHEAT SHEET EXTENDER PACK

Android

Android Wear OS Platform
Android TV Platform
Android Cars Platform
Android Chrome OS Platform
Android Things Platform
Android NDK Platform

Apps for Smart Watches
Apps for TVs
Apps for Automobiles
Apps for Chromebook
Build smart IoT devices
Use C(++) with Android

Flutter

Flutter

Beautiful Cross-Platform Mobile Apps

Tensorflow

Tensorflow
Tensorflow.js
Tensorflow Lite
Tensorflow Extended

develop/train ML models
Tensorflow for browser/Node.js
lightweight tf for mobile/embedded
End-to-end ML Platform

Web

Chrome Devtools
Lighthouse
Workbox
Progressive Web Apps

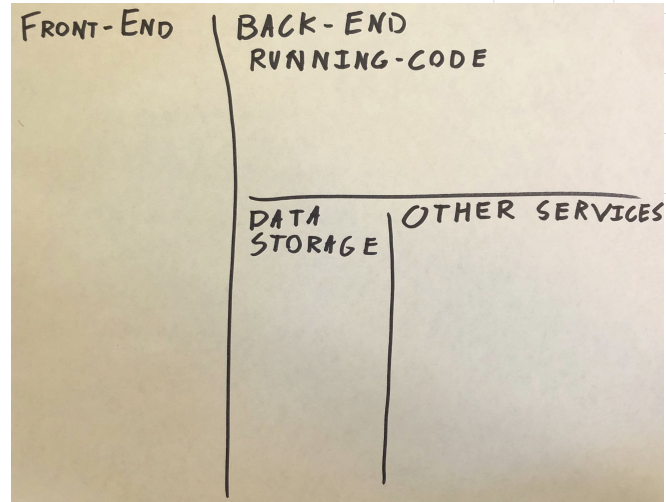
Web developer-tools in Chrome
Easy but comprehensive audits
Add offline supported webapps
Reliable, fast, engaging webapps

Youtube

IFrame Player API
Android Player API
iOS Helper Library
YouTube Player Parameters
YouTube Data API
YouTube Analytics API
YouTube Live Streaming API
YouTube Subscribe Button

Embed Youtube in websites
Embed Youtube in Android
Embed Youtube in iOS
Custom playback experience
Programmatically manage Youtube data
Retrieve Youtube Analytics
Programmatically manage video streams
Enable subscriptions anywhere

step 3: tech design



workshop:

**e-commerce ,
food-delivery,
productivity app,
(insert your idea here)**

Front-end (client)

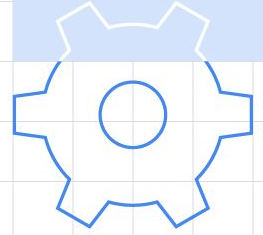
Back-end (server)

Running Code

Data Storage

Other Services

Go!



Q&A

