

URL shortener on Google Cloud

Dennis Bejze

Faculty of Computer Science and Mathematics

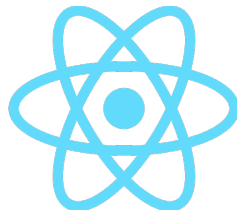
31th May 2022

1. What is a URL shortener?
2. Cloud integration
 - 2.1 Development environment
 - 2.2 Used cloud services
3. Demonstrating the URL shortener
4. Impressions and feedback of using the cloud

- ▶ Its task is to provide a shortened URL for a longer one
- ▶ If the user eventually visits the shorter URL, he or she will be redirected to the webpage of the longer URL
 - ▶ It's like making a kind of alias for a desired URL
 - ▶ Makes it more readable

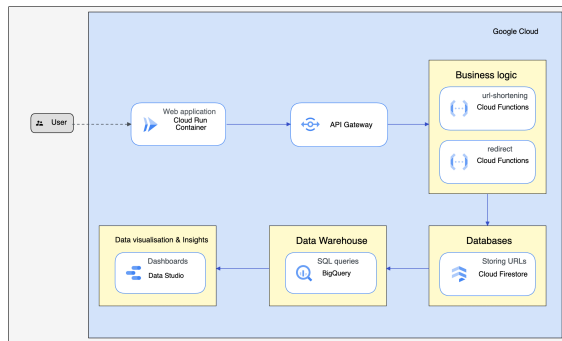
Server-side: Go

Client-side: React with TypeScript



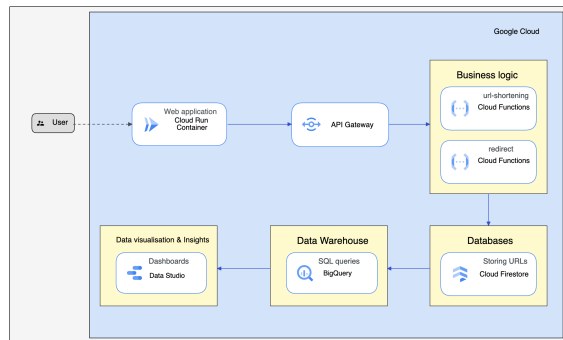
How did the project benefit from the cloud services?

- ▶ Cloud Run (hosts containerized applications)
 - ▶ Web application inside of Docker container (practical, because for such a simple application a whole VM was not necessary)
- ▶ API Gateway (brings together multiple backend services)
 - ▶ Single, clear point of interaction with business logic
 - ▶ Made it easier to design an API with different backend services (flexible)



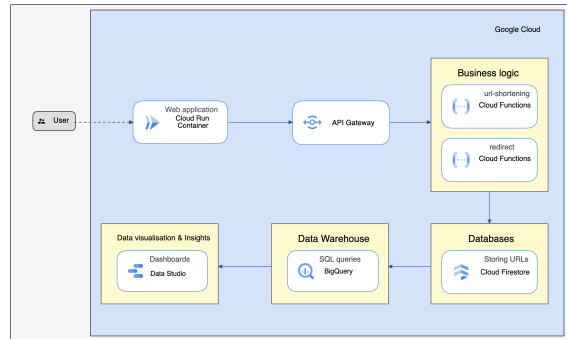
How did the project benefit from the cloud services?

- ▶ **Cloud Functions (simple, single-purpose functions)**
 - ▶ Serverless functions were ideal for the simple logic of shortening and redirecting
- ▶ **Firestore (NoSQL database)**
 - ▶ NoSQL, because the 'tuples', containing a long and the corresponding shorter URL, are just simple objects
 - ▶ Avoided creating unnecessarily complex relations (tables)



How did the project benefit from the cloud services?

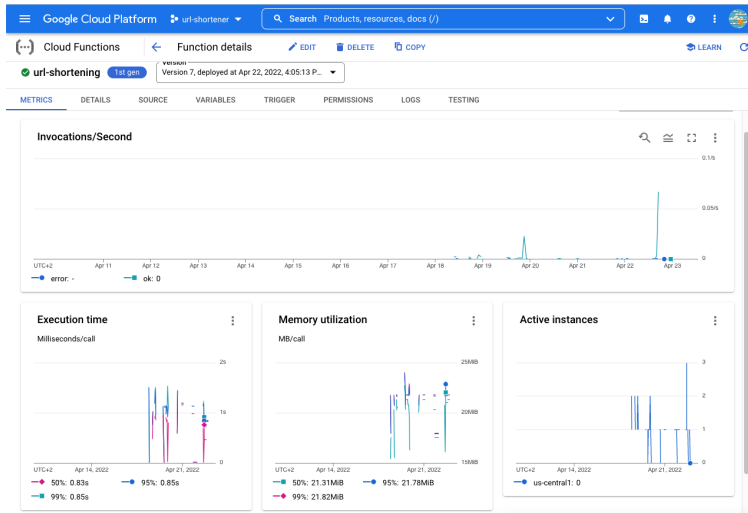
- ▶ **BigQuery (data warehouse)**
 - ▶ Import function made it possible to not go completely without 'traditional' SQL
 - ▶ Convenient to analyze data
- ▶ **Data Studio (Visualization of data)**
 - ▶ Connection can be easily established between BigQuery data source and the diagrams

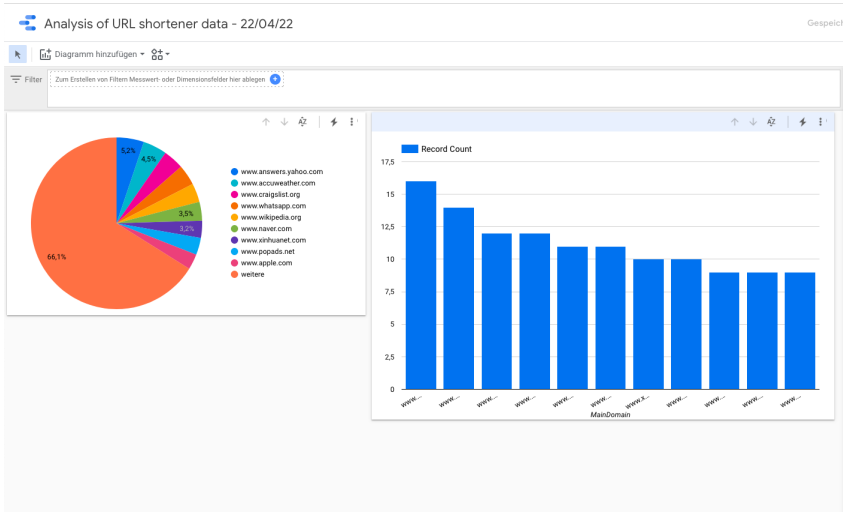


My application can be found at:

<https://shortenyoururl-f7gnpjx2ea-ey.a.run.app/>

Example of one of my cloud service dashboards





First impressions

- ▶ Amazed, how many services Google Cloud were offering
- ▶ Cloud Console was a bit overwhelming in the beginning

Feedback

- ▶ It was pleasant to have such generously designed quotas - learning and prototyping is made convenient for beginners
- ▶ Google Cloud has well written documentation for their different services
 - ▶ Especially the quickstarts were always useful as a starting point

- ▶ Go Logo (n.d.), <https://go.dev/blog/go-brand> [Online; visited on 22/04/22]
- ▶ React Logo (n.d.), <https://commons.wikimedia.org/wiki/File:React-icon.svg> [Online; visited on 22/04/22]