Google Cloud Run...

A mini journey from a hard core kubernetes user to Google Cloud Run
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My past ...

- Java/JVM dev background
- Exposure to AWS (loving it , I won't deny it) - less GCloud
- Started using Kubernetes in **production** almost 4 years ago- 1.4.x

Loving Kubernetes

- I was in love with kubernetes (I still am) because
  - Gave docker a new life and adoption!
  - Indirectly contributed to the wider adoption of what people were calling microservices. You finally had a tool (platform) where you could entertain the idea of splitting code + data into smaller deployables.
  - Felt like the answer to all prayers from developers for
    - Service discovery
    - H. Scaling
    - Ingress Services - LB
    - Power to devs!!!

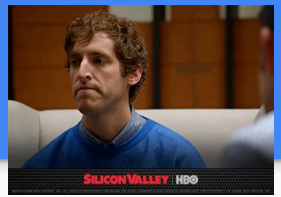
Honeymoon period!

- Through this journey and after the initial honeymoon period you had to deal with
  - Kubernetes complexity
  - Upgrades/Tooling and deployment in the cloud (Aws)
  - Challenges on the application / platform architecture. How do we split services, what are their integration patterns? Is it effective?
  - Challenges on services that had to be lifted to kubernetes. Legacy code and system that were never meant to run in the cloud!
  - Somewhere along the way - this serveless thing came in!!!

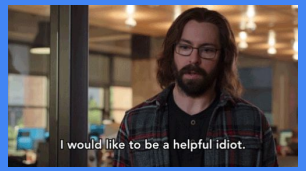
Server-less

- While drinking the kubernetes kool aid + dealing with problems
- New kids on the block -> Serveless All the things!
- Too busy to play with the new kids
- The kubernetes adoption had a lot of work anyway.
- Taking a step back though
  - Serveless really had some interesting ideas and principles
  - It felt that could be a potential wave of change , like kubernetes was!
  - More developer centric - LOVE IT!

Cloud /microservices adoption is iterative and takes time.



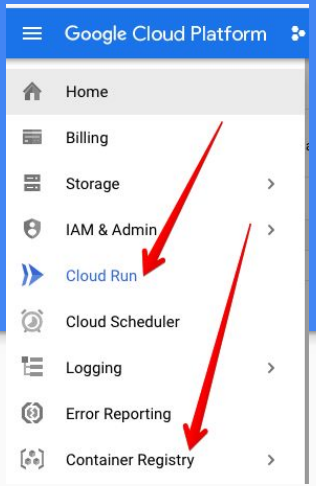
- You can not pivot with 1 step from deploying a monolith on prem to the cloud thinking that you are cool now and u do microservices
- You start by splitting your code (distributed monoliths)
- You lift and shift these highly coupled payloads to a modern platform (e.g kubernetes)
- Then you slowly experience the pain of distributed monoliths and you start thinking about integration patterns and how your platform can be an enabler
- Then you slowly start to chop your services to even smaller artifacts and make the integration more dynamic!
- Iteratively you fight with the increasing complexity of your platform.
- You are forced to adjust and adapt your architecture. Cascading changes across the board.
- You learn to do DevOps (this is devops)



How all this relate to Google Cloud Run?

- Google cloud run is kind of a hybrid proposal from Google cloud.
- What if we you are not ready to jump into serveless?
- What if maintaining and running full blown kubernetes clusters is too much for you?
- What if you don't have so many services but you still want some of the nice things kubernetes offers under the hood e.g scaling)
- What if you have 1 or 2 containerised apps and you still want to deploy them using a public load balancer?

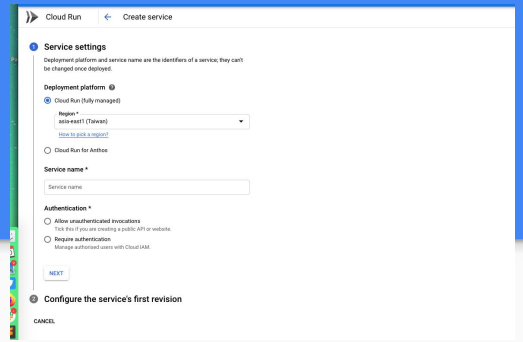
How do I start?



- Google cloud account
- Install google cli
- Create a workspace
- Enable the Google Container Registry for private builds - you can only run payloads from gcr Create 2 service accounts (SA) 1 for Google Cloud Run + 1 for GCR
- Docker-ize your application and push it to the registry

```
docker login -u _json_key --password-stdin https://gcr.io < ${GOOGLE_CONTAINER_REGISTRY_SA}
docker build -t ${GCR_IMAGE}:${BUILD_VERSION} .
docker push ${GCR_IMAGE}:${BUILD_VERSION}
echo Pushed IMAGE: ${GCR_IMAGE}:${BUILD_VERSION}
```

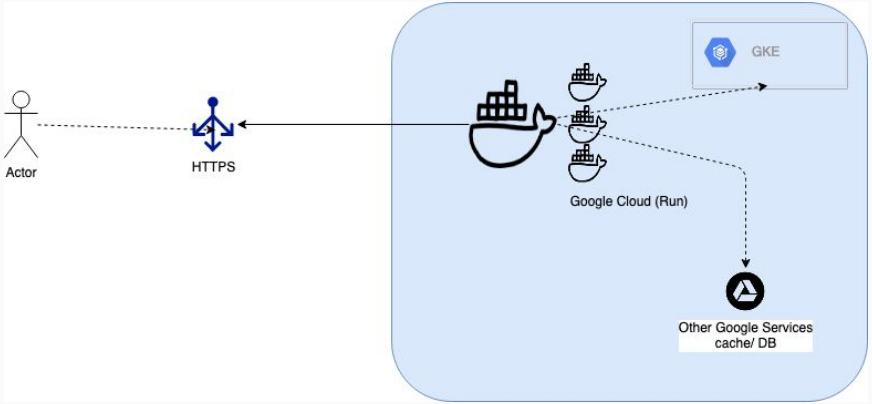
How do I deploy?



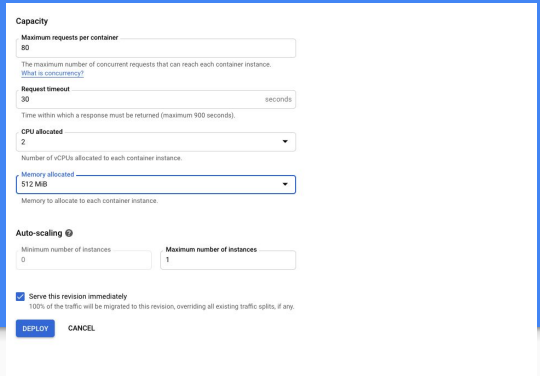
- Easiest way through gcloud cli
- Or you can use the Gcloud web console
- Or you can use terraform : https://www.terraform.io/docs/providers/google/r/cloud_run_service.html

```
deploy:
  stage: deploy
  image: google/cloud-sdk:alpine
  before_script:
    - |
      gcloud --quiet components update
      gcloud auth activate-service-account --key-file ${GOOGLE_CLOUD_RUN_SA} --project {GCLOUD_PROJECT}
      gcloud run deploy $SERVICE_NAME --image ${GCR_IMAGE}:${BUILD_VERSION} --platform=managed --region=europe-west1
```

How does it look like?

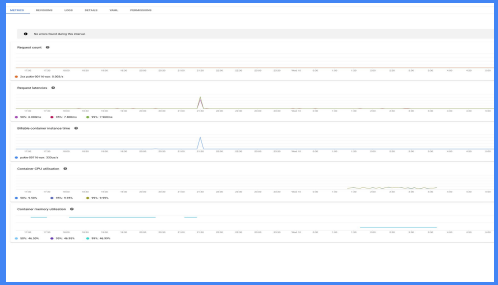


Any limitations?

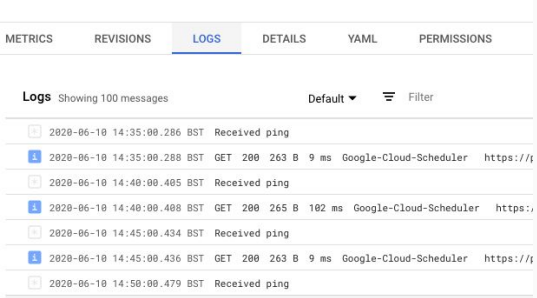


- You need to be able to expose a port and respond to HTTP calls
  - EXPOSE 8080
- Stateless as much as possible
- Your container will `freeze` when there are no incoming requests!
- Be aware of the runtime limitations - currently you can spin containers with resource limits up to 2 CPUs
- Your good old fat java service maybe won't make it !
- You can now - talk to other `services` that are deployed to a kubernetes cluster on the same workspace/network

What do I get?



- Auto scaling based on incoming requests and concurrency
- Metrics and logs!
- Public (or private) load balancer + DNS entry with HTTPS for free!
  - URL: https://javapapo-sample-fadvfa82za-ew.a.run.app



Why should I try it?

- Dead easy way to spin / service a stateless service with a concrete set of dependencies.
- Scalability
- You will be sitting in between a Knative kubernetes cluster and before a Cloud function.
- Food for thought on how potentially you can start thinking about slimmer services - (if you are interested)

Resources

- https://cloud.google.com/run/docs (official documentation)
- https://github.com/ahmetb/cloud-run-faq (very very good- start here!)
- http://javapapo.blogspot.com/2020/04/the-simplest-gitlabci-pipline-for.html
- https://cloud.google.com/run/pricing#cloudrun-pricing

Thanks