# Implementing a Container in 100 lines of go

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# Background and Disclaimer

- Based on a blog post from Julian Friedman (Doctor Julz) – 2016
  - https://www.infoq.com/articles/build-a-container-golang/
  - ex. IBM Bluemix (aka IBM Cloud Foundry)
  - he presented it in the Boeblingen lab around that time
- Adopted for a conference talk by Liz Rice – 2018
  - https://www.youtube.com/watch?v=8fi7uSYlOdc
- Adapted by me to cgroup v2
- To be used in my Cloud Computing lecture

# Goals

- Re-implement a simplified version of "docker run" in go
  - Start a container
  - Gradually implement (some) isolation
  - Implement (some) resource limitation
  - Command line:

    ```
    // Docker original
    docker          run <image> <cmd> <params>

    // Our version
    go run main.go run           <cmd> <params>
    ```

- Make you envious that you did not invent Docker and got all the money

# Isolation - Let's get our hands Dirty

# Namespaces

- Are defining what you see
  - Unix Timesharing System (hostname)
  - Process IDs
  - Mounts
  - Network
  - User IDs
  - Interprocess Communication
  - …

# Resource Limits - Let's get our hands Dirty

# Cgroups

- Are defining what you can use
- Are controlled via a filesystem Interface

- Memory
- CPU
- I/O
- Process Numbers

# Questions