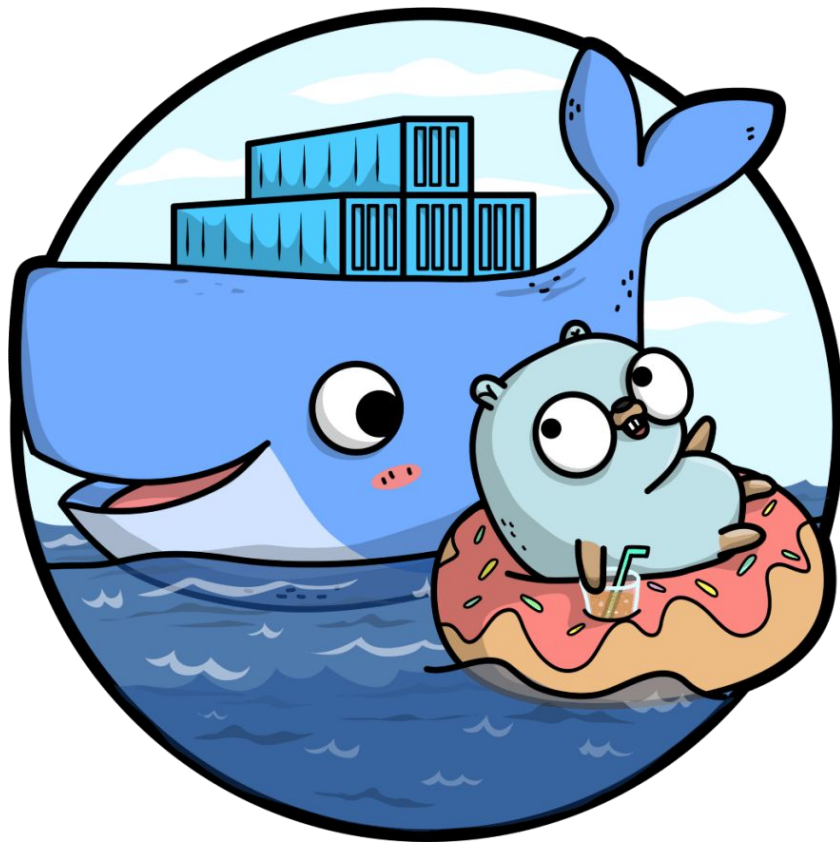


CLOUDRAFT

# Docker 101

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@anjuls



/in/anjul

# About Me



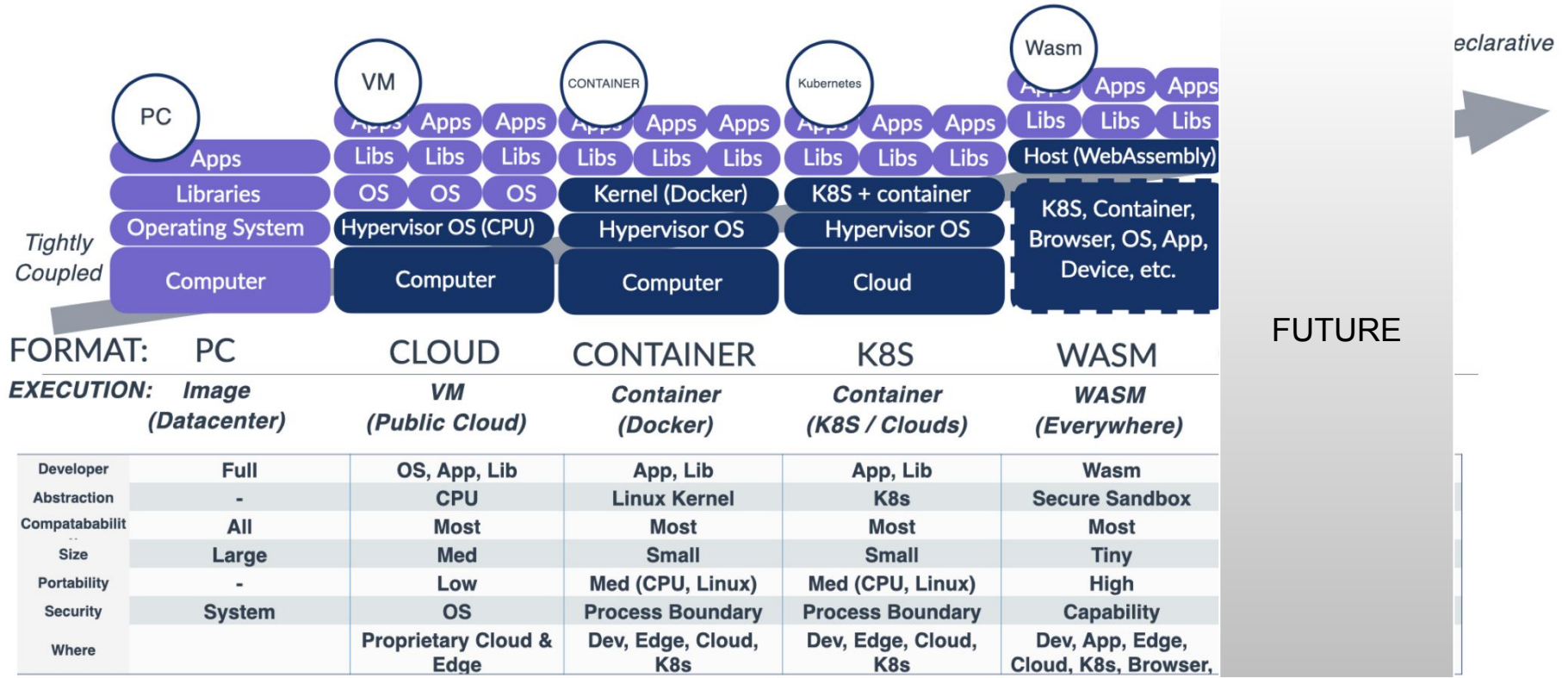
- Founder and CEO, **Cloudraft**
- Organizer - Cloud Native Indore
- Previously worked at Lummo, InfraCloud, and Accenture
- 15 yrs exp. spanning DBA, Tech Arch, Cloud, DevOps, and building Cloud native platforms
- Alumni of SGSITS IT 2008
- Apart from work, I do writing, mentoring and travel
- Connect with me → [linktr.ee/anjulsahu](https://linktr.ee/anjulsahu)
- Cloud Native Weekly - [anjulsahu.substack.com](https://anjulsahu.substack.com)

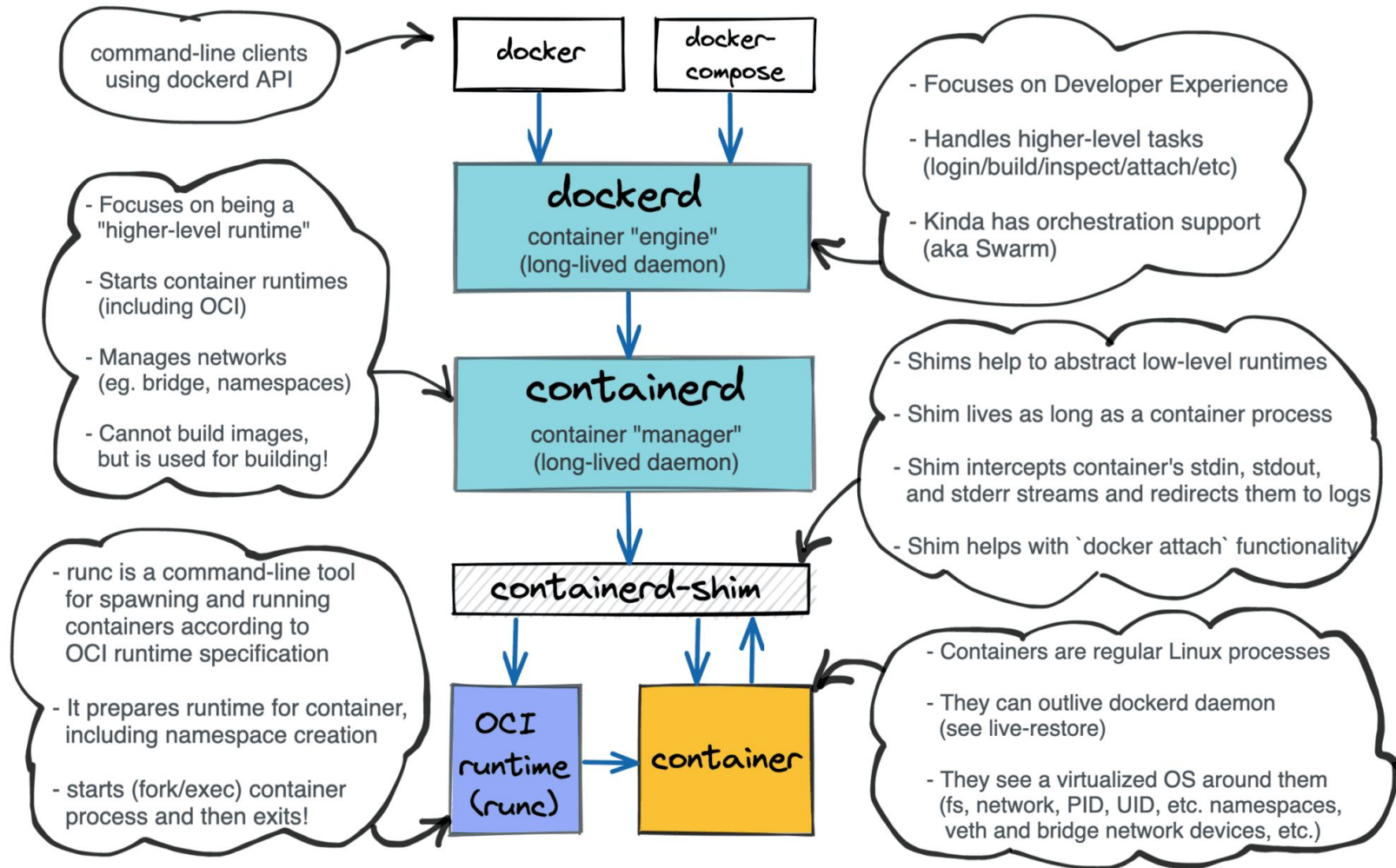


# Agenda

- Evolution from physical servers to containers and beyond
- Container benefits over VM
- Important Concepts - Layers, CoW, Namespaces and Cgroups
- DEMO
- Q&A

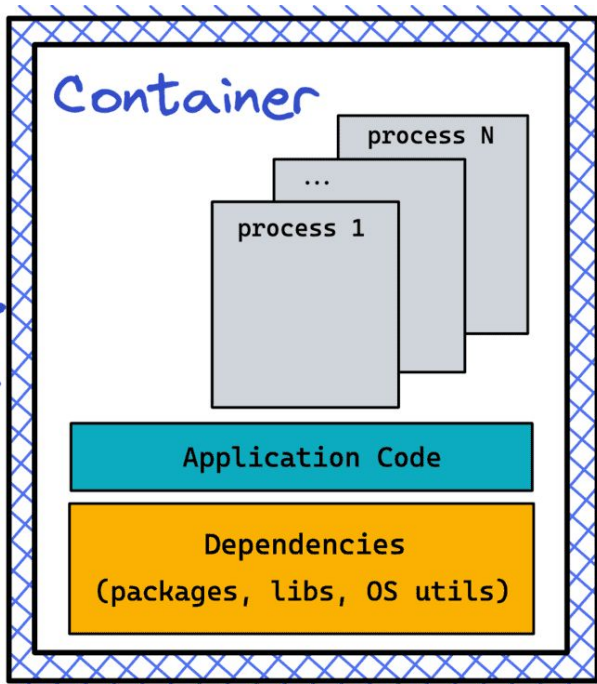
# Evolution of Containers





## Runtime

1. Create
2. Start
3. Get state
4. Kill
5. Delete



Containers  
work the same way on



laptop



server



cloud

with

Docker/Kubernetes/Podman  
etc.

# Container Benefits over VM

- More efficient as we are not copying whole OS again and again to run app
- Portability and immutability
- Faster startup time
- Container image size and resource requirements are lower



# Important Concepts

- Layers
- CoW (Copy on Write) - Copy-on-write is a strategy of sharing and copying files for maximum efficiency. If a file or directory exists in a lower layer within the image, and another layer (including the writable layer) needs read access to it, it just uses the existing file. The first time another layer needs to modify the file (when building the image or running the container), the file is copied into that layer and modified. This minimizes I/O and the size of each of the subsequent layers
- Namespace and cgroups
- REGISTRIES - Docker Hub, Quay.io etc
- OCI - <https://opencontainers.org/posts/blog/2023-07-21-oci-runtime-spec-v1-1/>

# Concepts - Namespaces and Cgroups

- Namespace - process and resource separation
  - PID
  - Mount
  - Network
  - Cgroup
  - IPC
  - Time
  - UTS
  - User
- Cgroups - control groups for resources

# Demo

# Recommended Reading:

- <https://securitylabs.datadoghq.com/articles/container-security-fundamentals-part-2/>
- **Youtube channel - Tech with Nana**
  - **Docker zero to hero**  
<https://www.youtube.com/watch?v=3c-iBn73dDE>
- **Ivan Velichko Blog** - <https://iximiuz.com/en/>
- Container Runtimes - <https://www.cloudfraft.io/blog/container-runtimes>

We are hiring interns (final year preferred):

- DevOps
- Backend  
(Golang/Typescript)
- Business Development

Send your profile to  
[info@clouddraft.io](mailto:info@clouddraft.io)

# Q & A

**Connect with me:**  
**[linktr.ee/anjulsahu](https://linktr.ee/anjulsahu)**