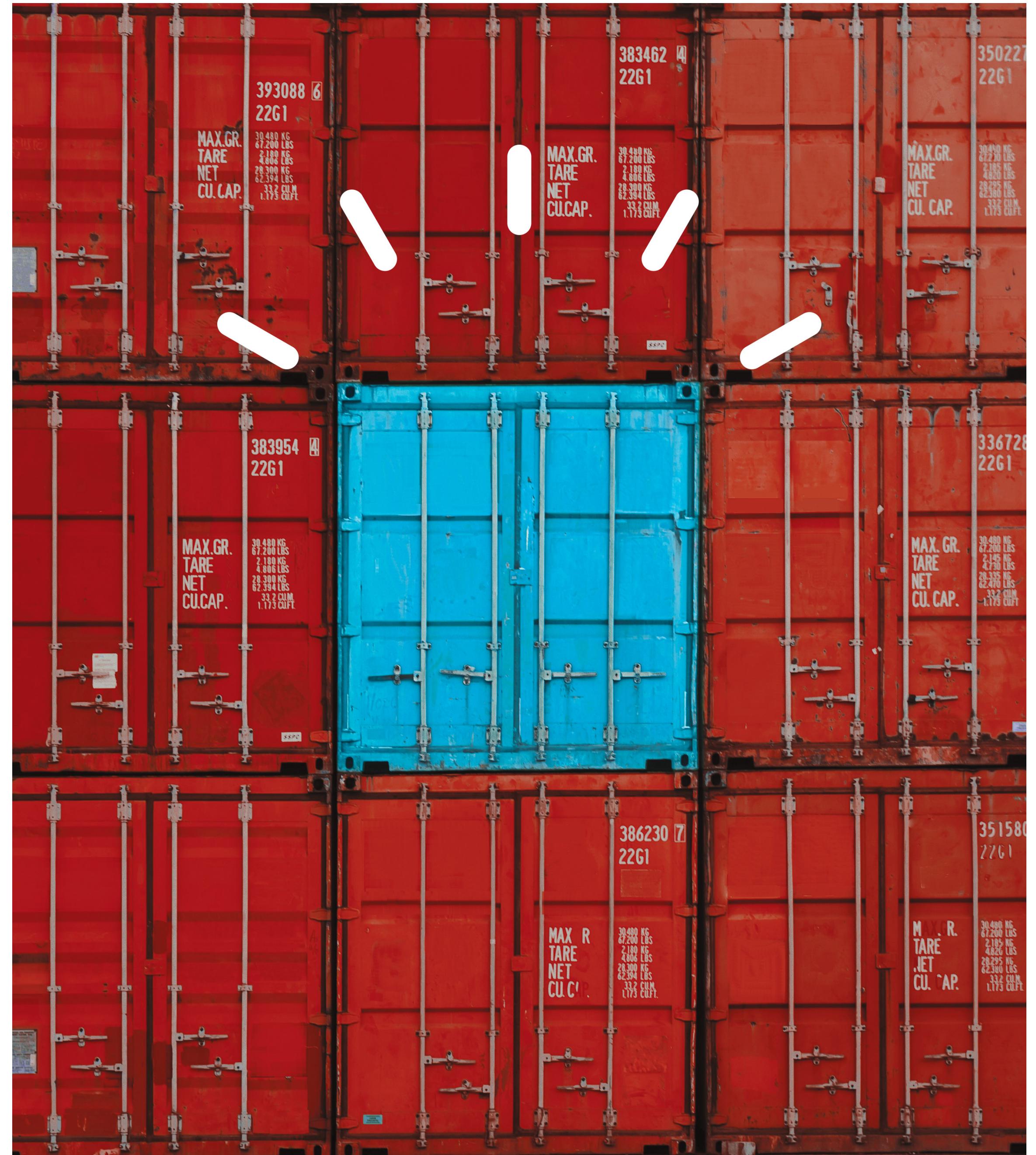


IBM

GRUNDING – IBM Tag 1

Alex Studer
Master@IBM Software Engineer

Alexander L. Schorno
Partner Technical Specialist – Data & AI



Who are we?



Alex Studer

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Agenda

- Einführung IBM inkl. Kurzabriss Engagement an der HSLU
- Einführung in Cloud-Computing
- IBM Cloud onboarding
- Hands-on Einführung in Containerisierung



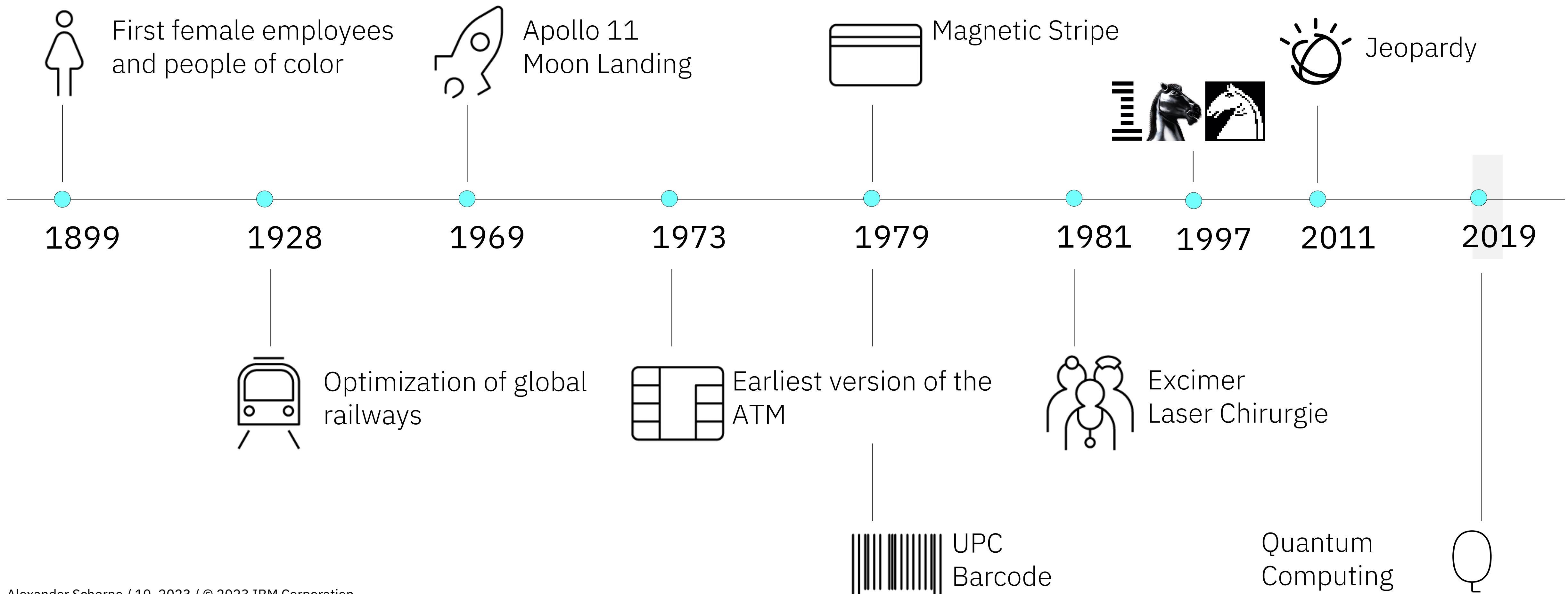
International Business Machines





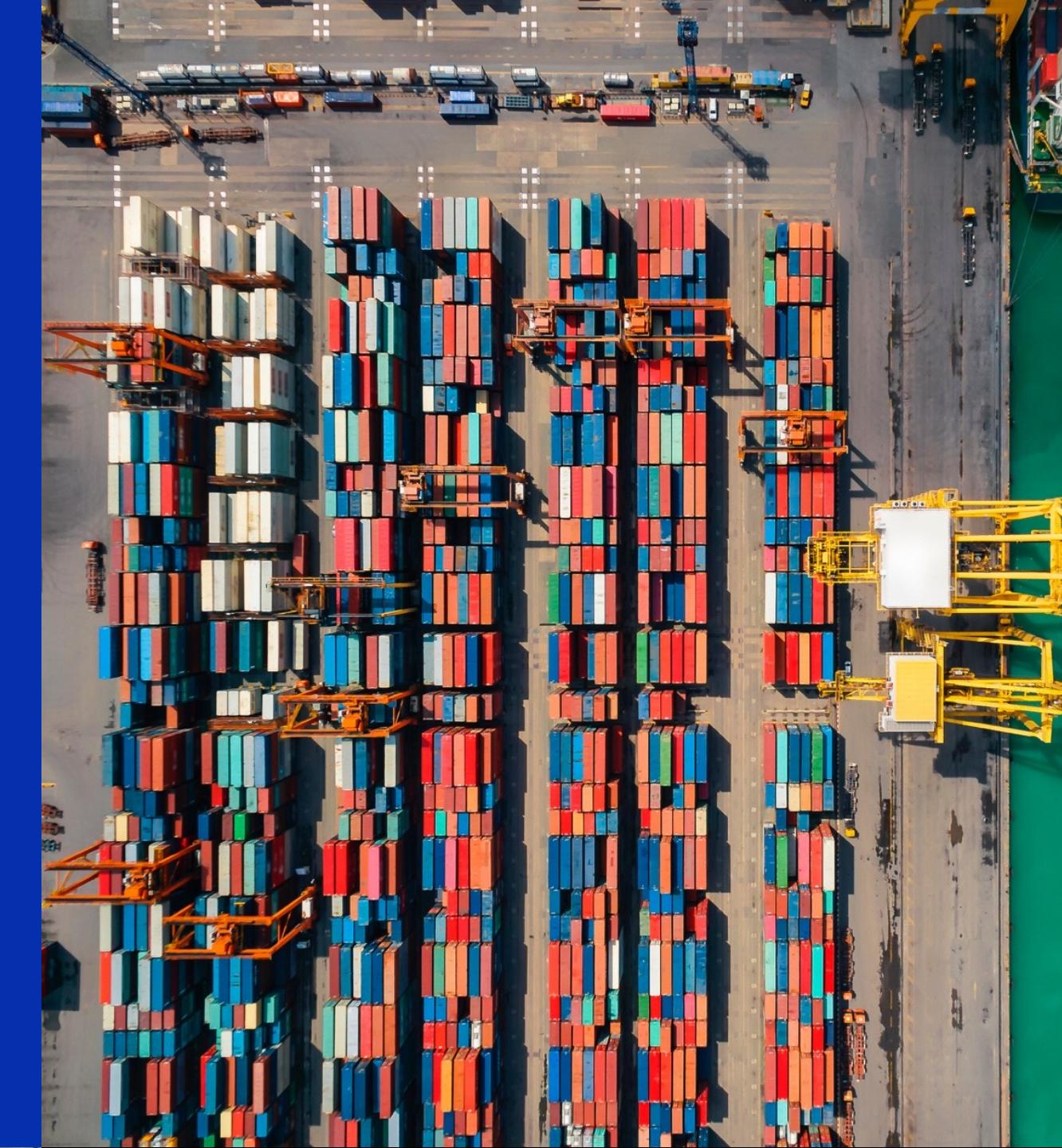
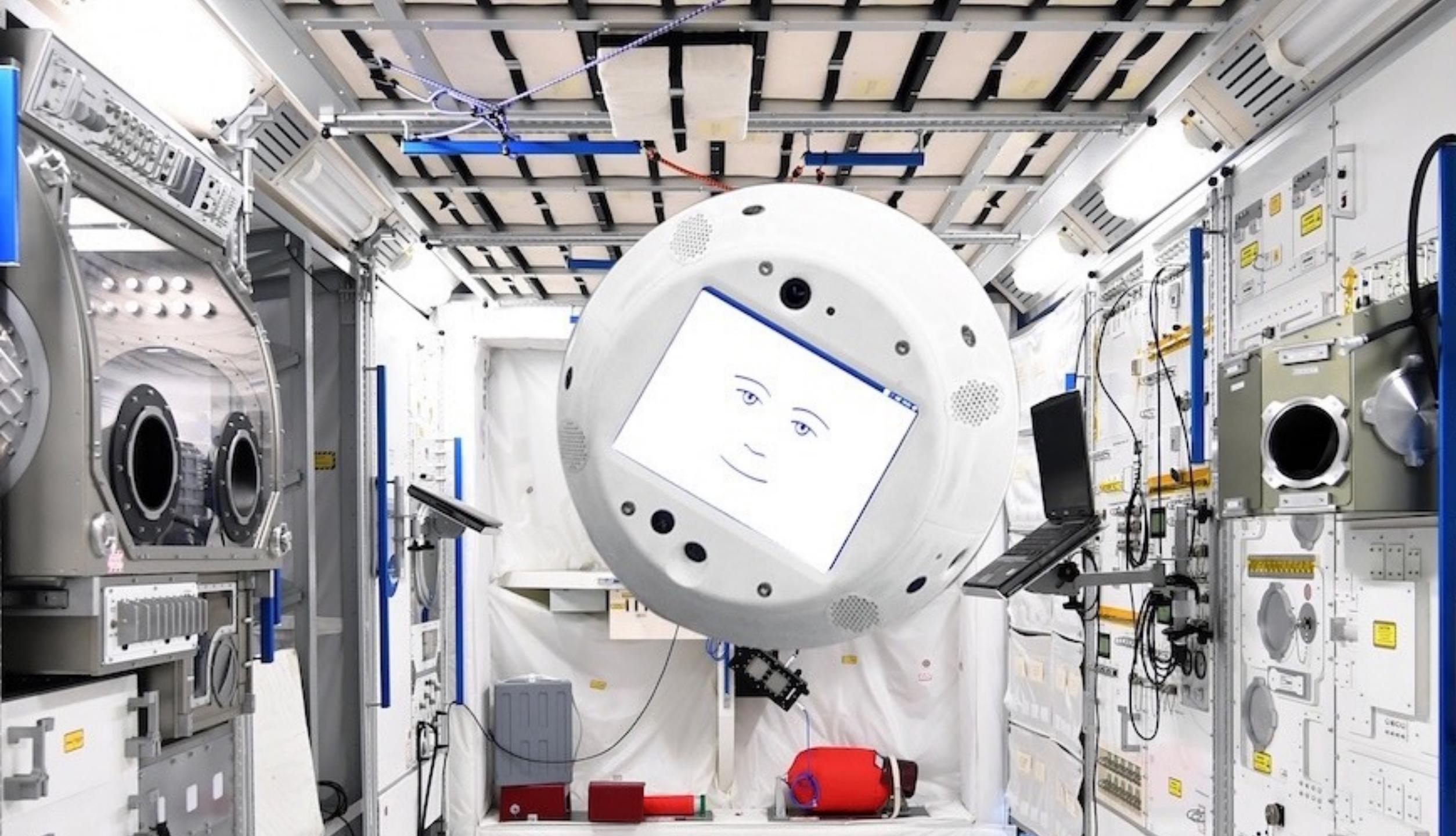
B2B

Over 100 years of contributing to world-changing progress.



Watson Quantum Blockchain Sustainability Consulting Security

...



In summary

IBM accelerates client's journey to long-lasting value, as a catalyst to sustainable digital transformation

Technology

Crucial to address business challenges

AI/ FM

Accelerates enterprise productivity

Digital transformation

Necessitates heterogeneous environments

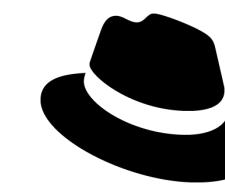
Open-source

Catalyzes innovative outcomes

IBM with Red Hat

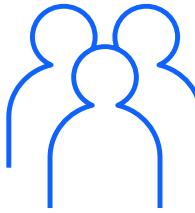
Deliver the new essential platform

(1) Red Hat client data and Fortune 500 list, Jul. 2020; (2) Banks, insurers, telecoms, governments, automotive & healthcare ; (3) IBM Financial Services Cloud



Red Hat

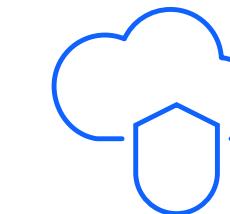
Market leading hybrid platform...more than **94%** Fortune 500 use Red Hat¹



100% of Top 10 companies in major industries² are IBM Consulting clients



More than 50 years of Environmental, Social, and Governance leadership



40% Fortune 500 have IBM Cloud Paks... and 2/3rd utilize IBM Security



90% top 50 banks run on IBM Z... 450+ clients, 115 ISVs on FS Cloud³



Watson
your business.

IBM helps companies, industries and professions to transform in a **cognitive era**.

97%

of the world's largest **banks** use IBM products to run their systems.

80%

of the world's **travel reservations** are processed on IBM systems.

90%

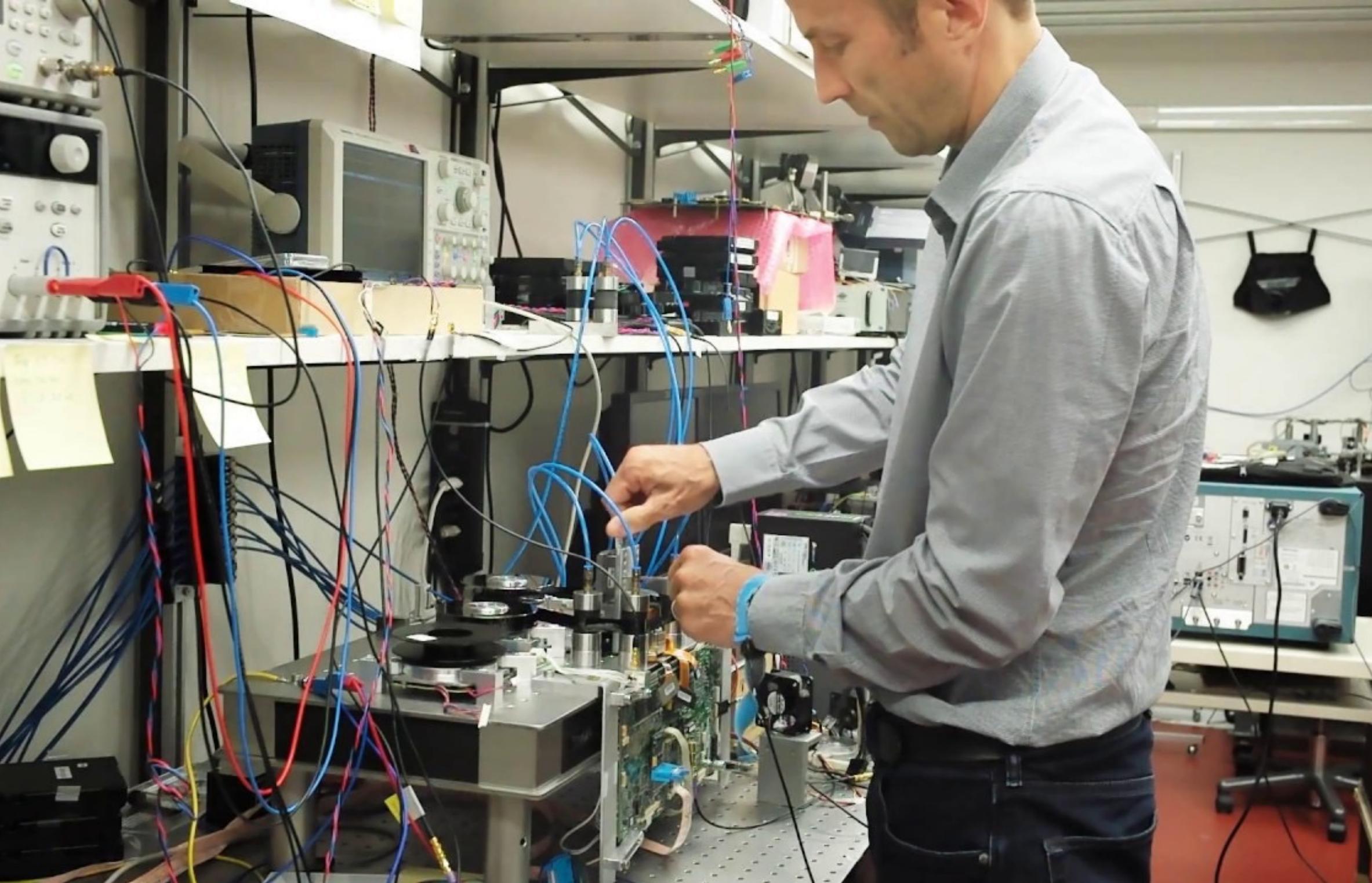
of global **credit card transactions** are processed on IBM mainframes.

80%

of global **retailers** are powered by IBM retail solutions.

6 Nobel Laureates

Over 3,000 researchers and scientists work
in 12 global Research Labs, including one in
Zurich, Switzerland..





IBM Corporation

With revenues of \$ 60.5 billion in 2022, IBM is one of the world's largest providers of information technology (hardware, software and services) and B2B solutions. The company employs around 260,000 people worldwide and operates in [over 175 countries](#).

Corporate

Armonk, New York, US

Headquarters

CEO

Arvind Krishna

Employees 2023

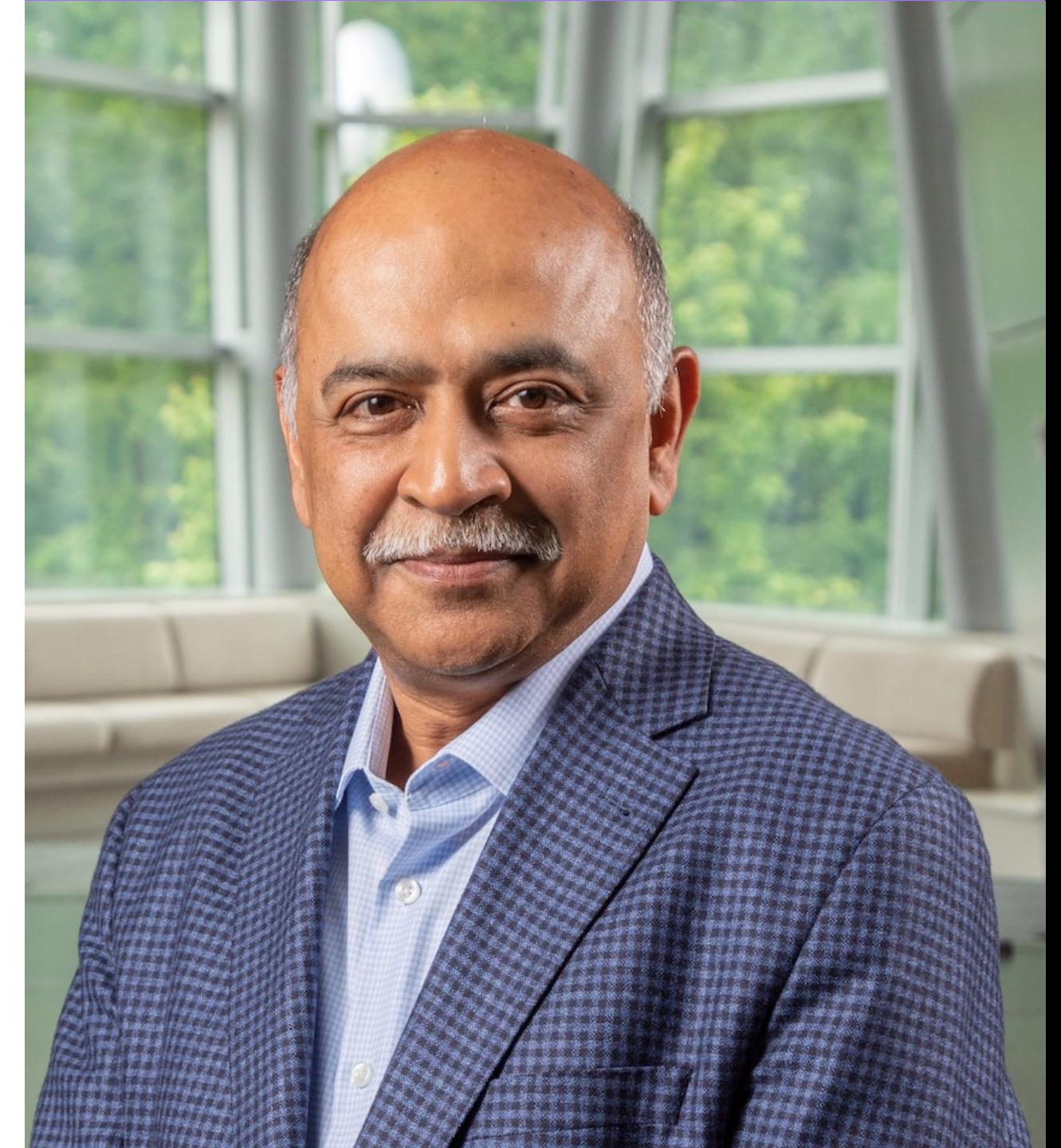
approx. 260,000

Revenues 2022

60.5 billion US-Dollar

Website

ibm.com



Chief Executive Officer
Arvind Krishna



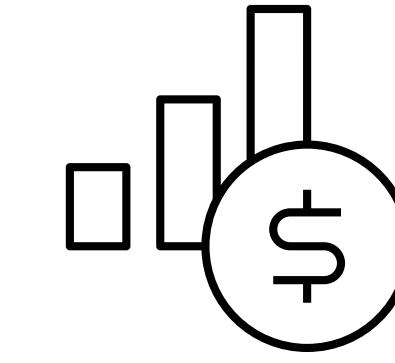
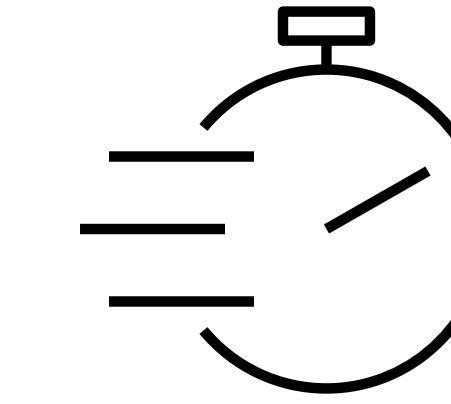
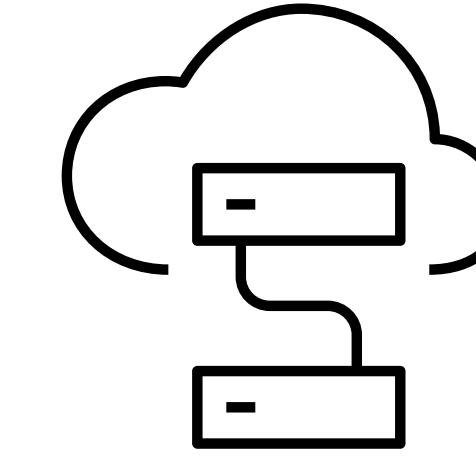
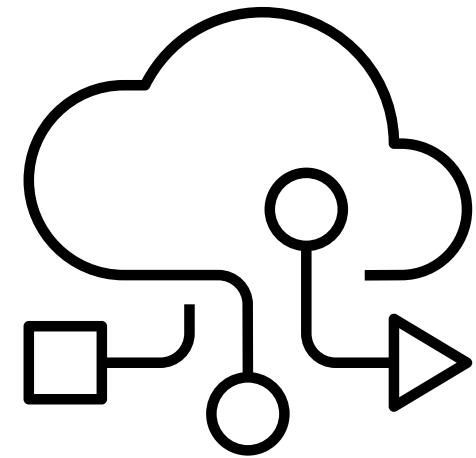
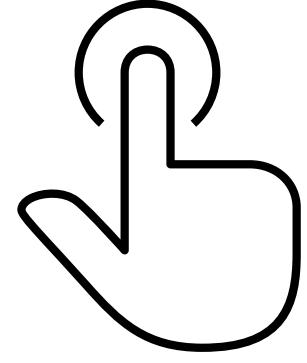
Headquarters
Armonk, New York, US

Cloud Computing

- Was ist Cloud Computing?
- Wo steht die Cloud?
- Wie nutze ich die Cloud?



Was ist Cloud Computing? Eigenschaften



On demand self-service

Man erhält Zugriff auf Cloudressourcen über eine einfache Oberfläche ohne dass es dafür zwischenmenschliche Interaktion benötigt mit dem Anbieter.

Broad Network Access

Cloud Computerressourcen können über standard Netzwerkmechanismen auf verschiedenen Plattformen genutzt werden. Mobiltelefone, Tablets, Labtops, und Workstations.

Resource pooling

Die Computerressourcen des Cloudanbieters sind zu einem Pool von Ressourcen zusammengefasst. Diese physischen und virtuellen Ressourcen können dann dynamisch Konsumenten zugeordnet werden.

Rapid elasticity

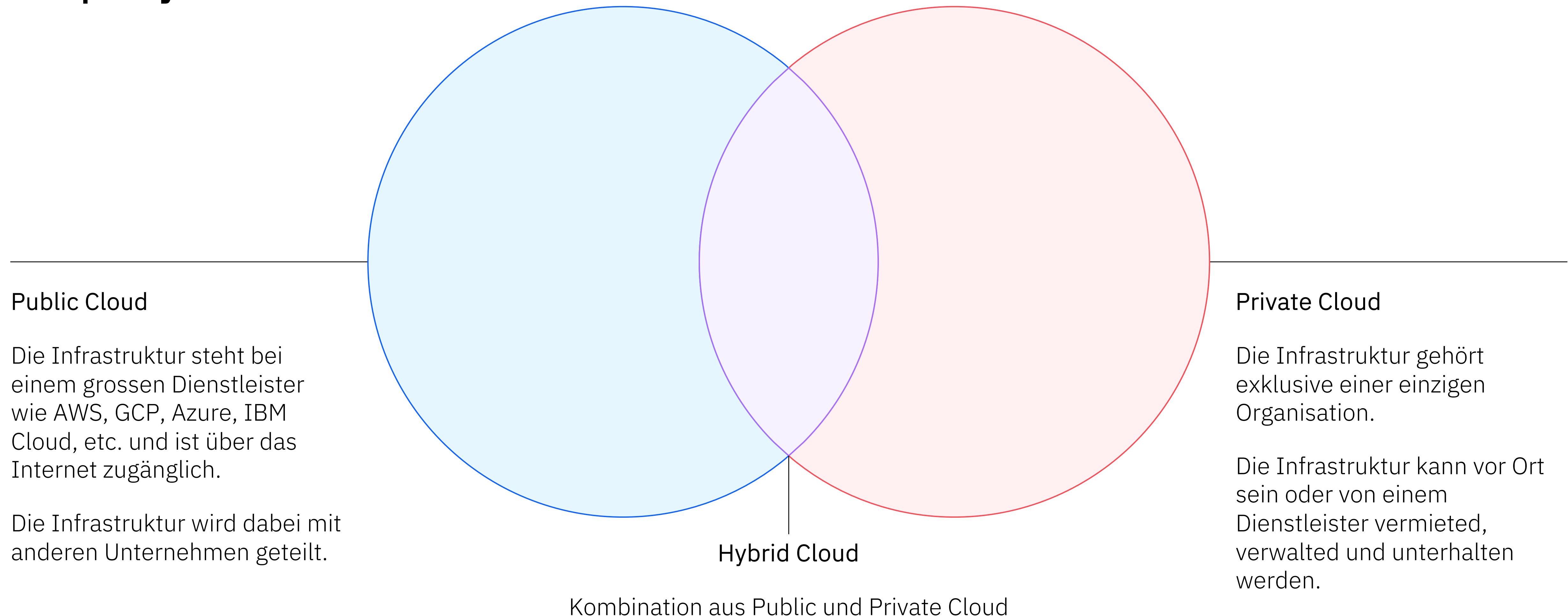
Cloudressourcen können dynamisch zur Verfügung gestellt und wieder freigegeben werden. Dies geschieht automatisiert und kann selbstständig skalieren. Für Konsumenten scheinen dabei die Ressourcen unbegrenzt zu sein und können jederzeit auf seine Bedürfnisse angepasst werden.

Measured Services

Man bezahlt nur was man nutzt oder für die Nutzung reserviert. Die Ressourcennutzung wird überwacht, gemessen und transparent rapportiert basierend auf deren Nutzung.

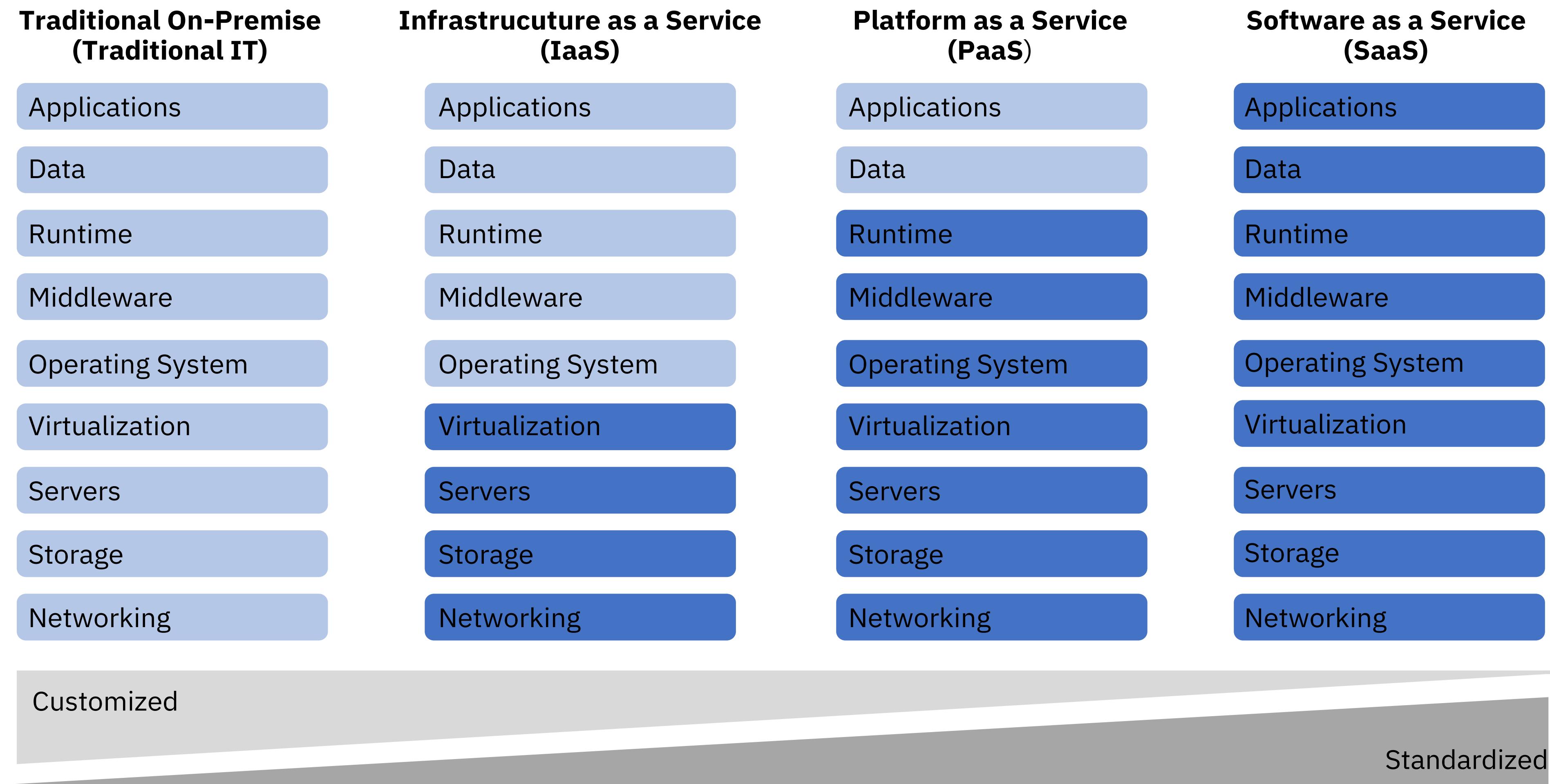
Wo steht die Cloud?

Deployment models



Wie nutze ich die Cloud?

Service models

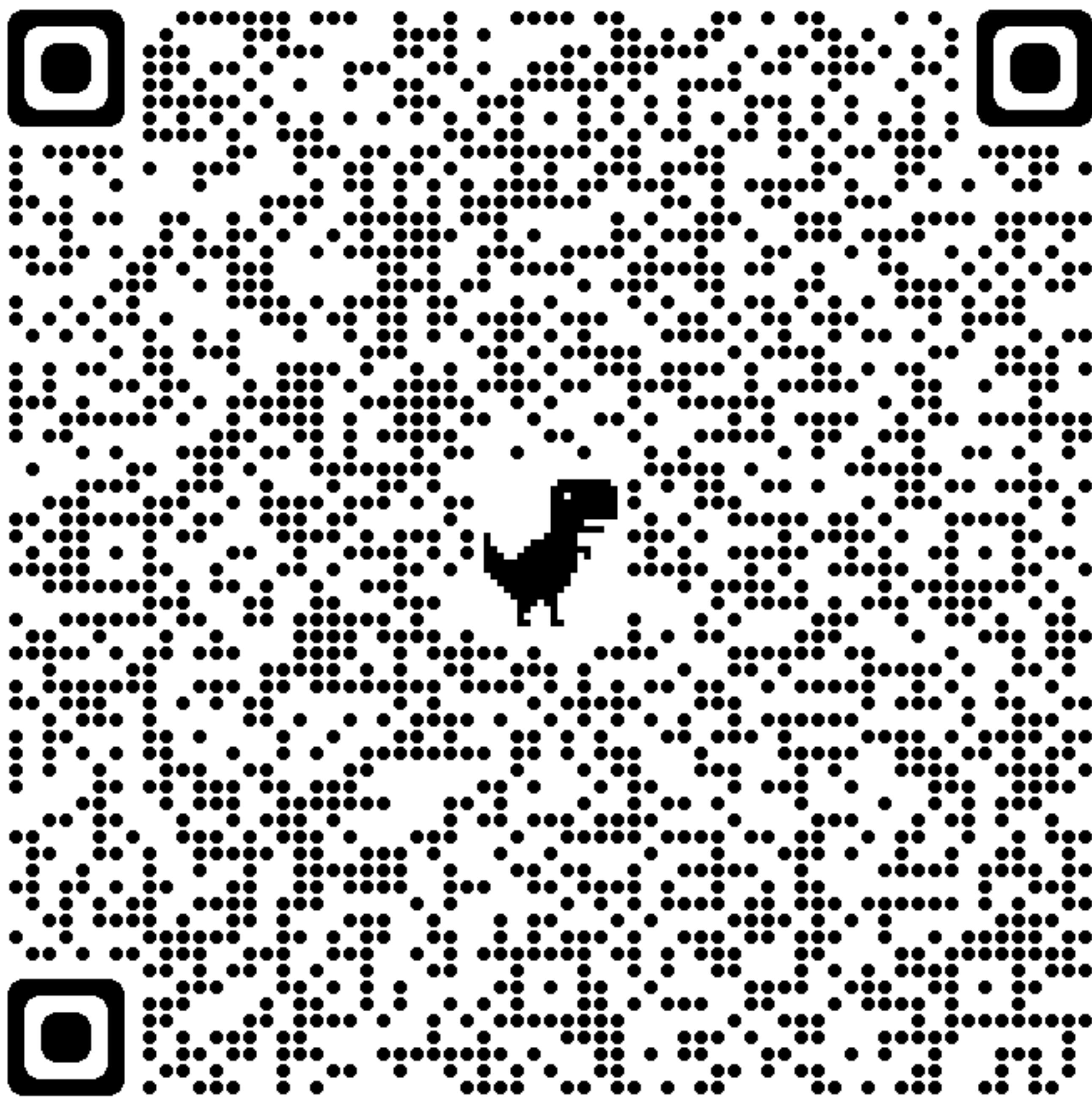


Customized

Standardized

= Owned and managed by the Customer / Client

= Owned and managed by the Service Provider



Log in to IBM

IBMid

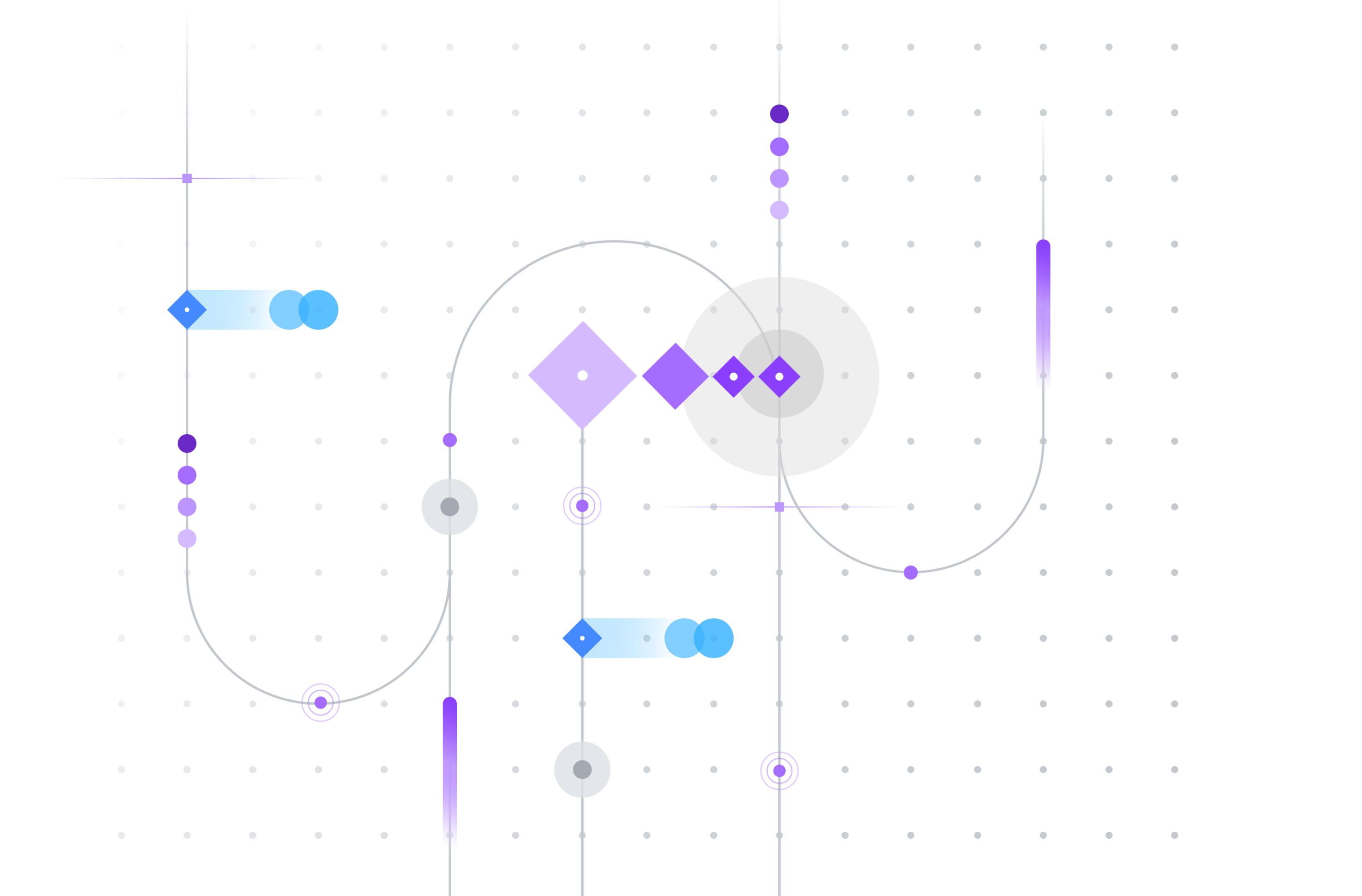
Continue →

Remember me i

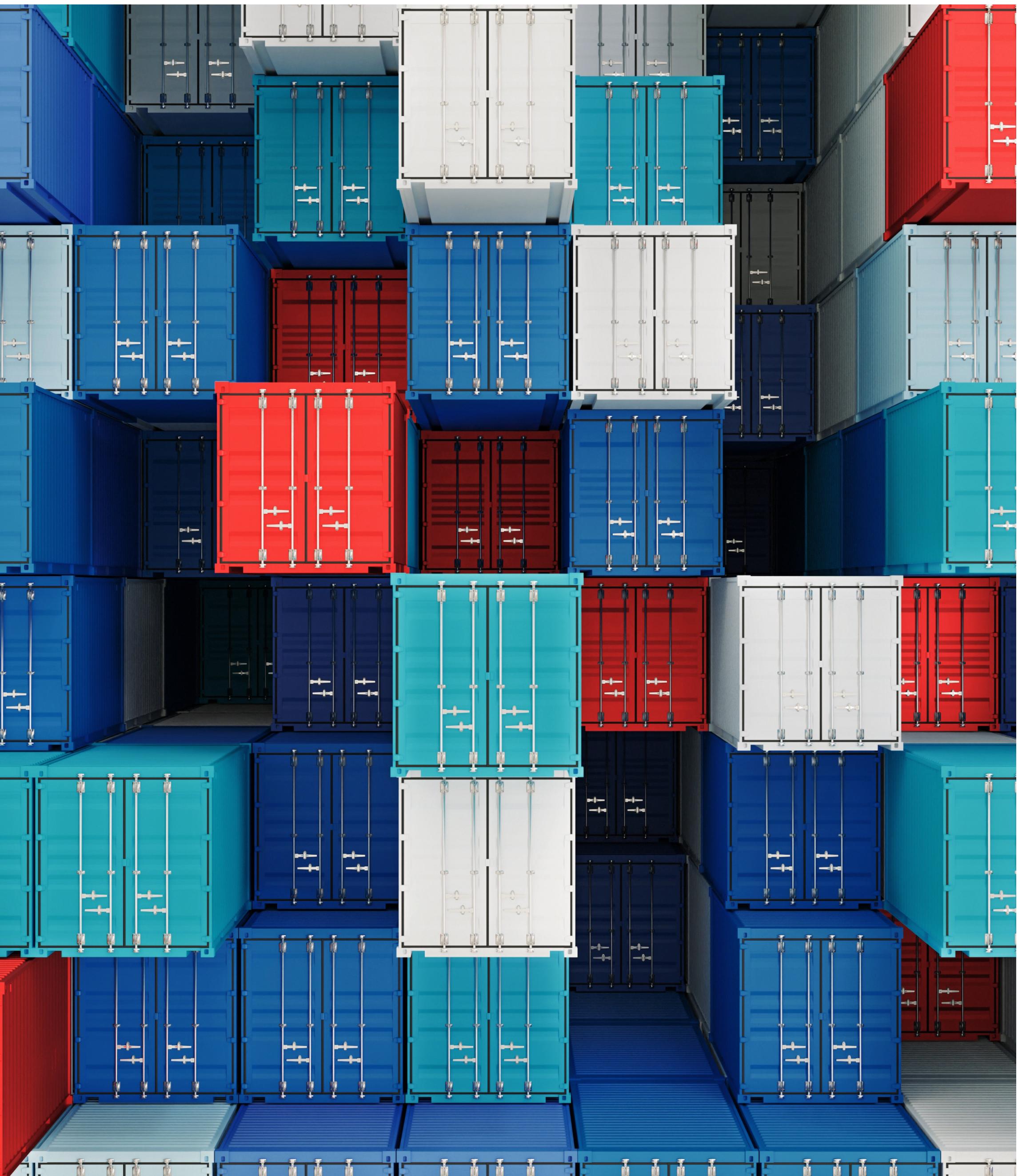
Don't have an account?

Create an IBMid →

Forgot IBMid? [Contact the IBMid help desk](#)

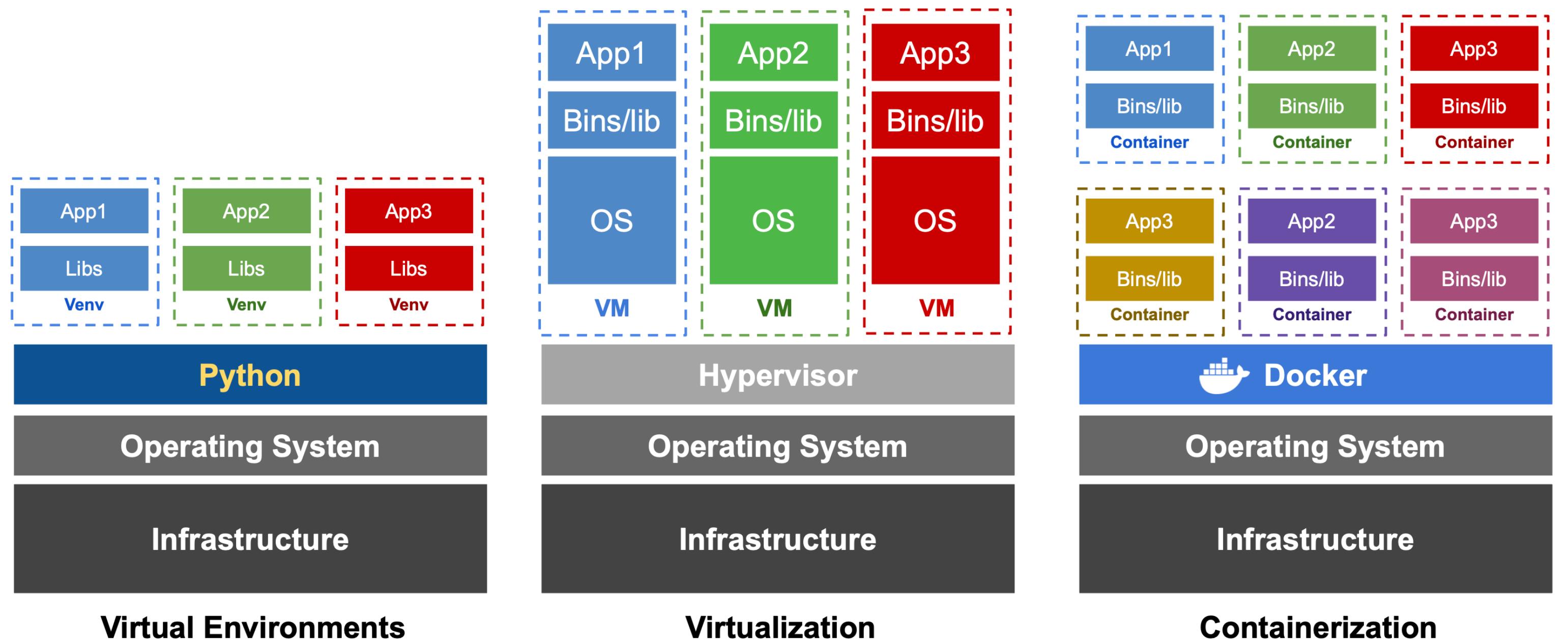
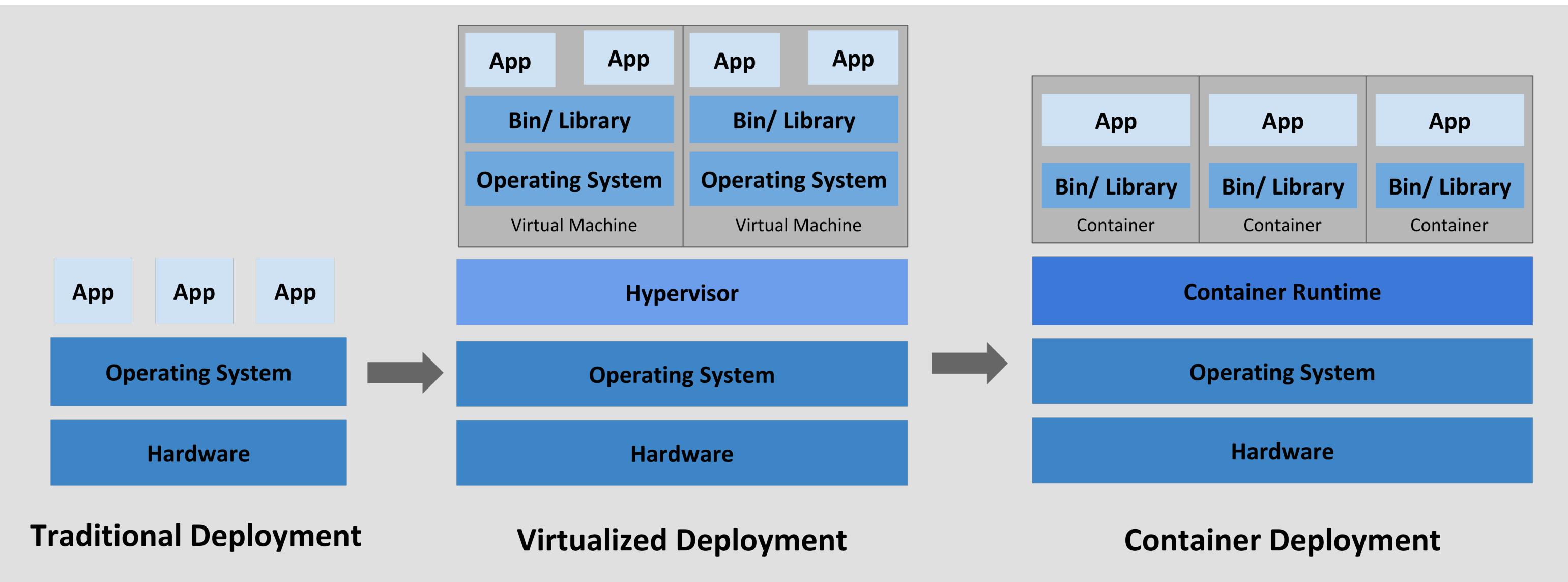


Hands-on Einführung in Containerisierung



Eine kleine Geschichte der Virtualisierung

- 1960s: Time sharing on mainframes
- 1990s/2000s: Wide-spread adoption of hardware virtualization (server virtualization, virtual machines)
- 2008: Release Linux Containers (LXC)
- 2013: Release Docker
- 2017: Release OCI Image Spec



Container Management and Container Orchestration



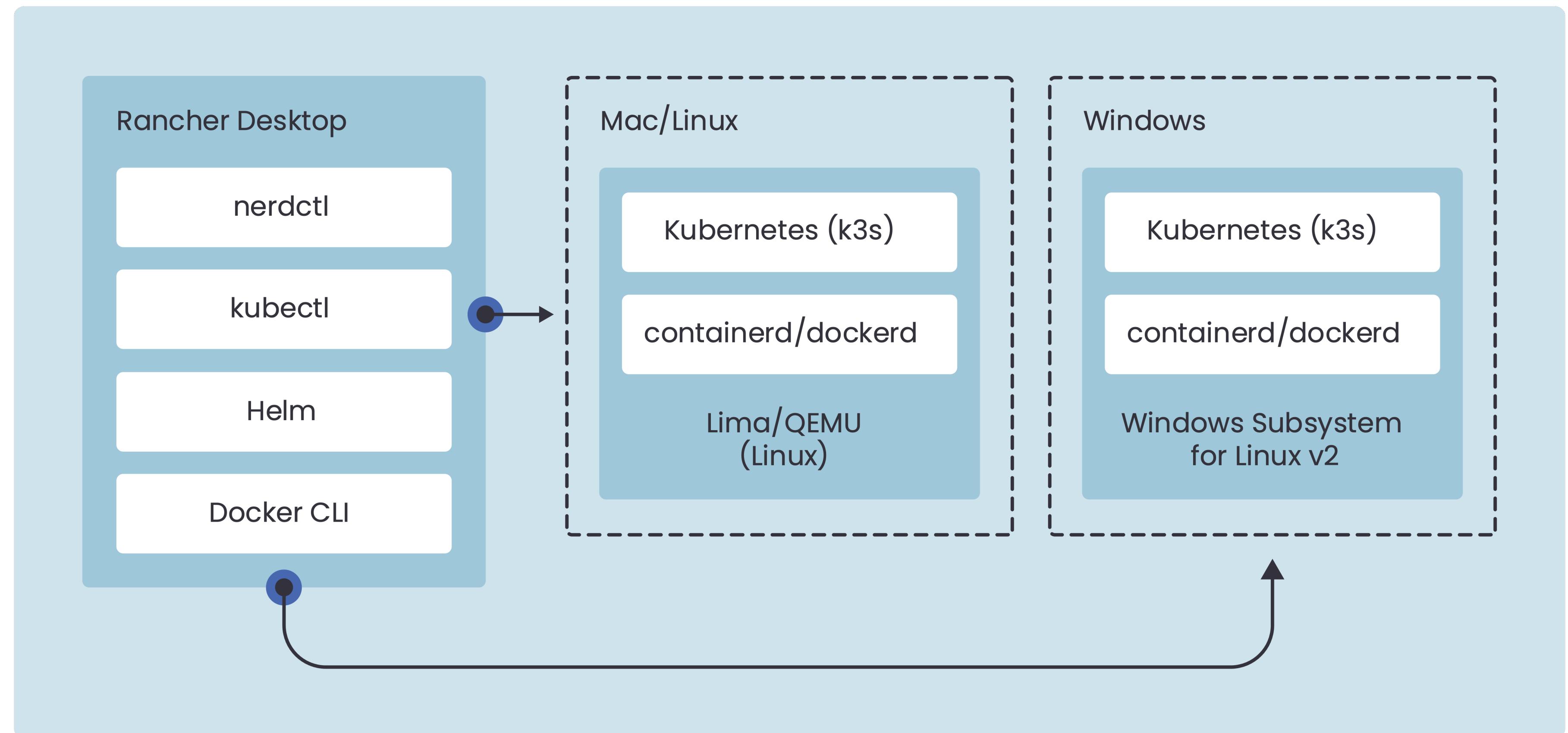
Hands-on Mario Jump and Run



Rancher Desktop



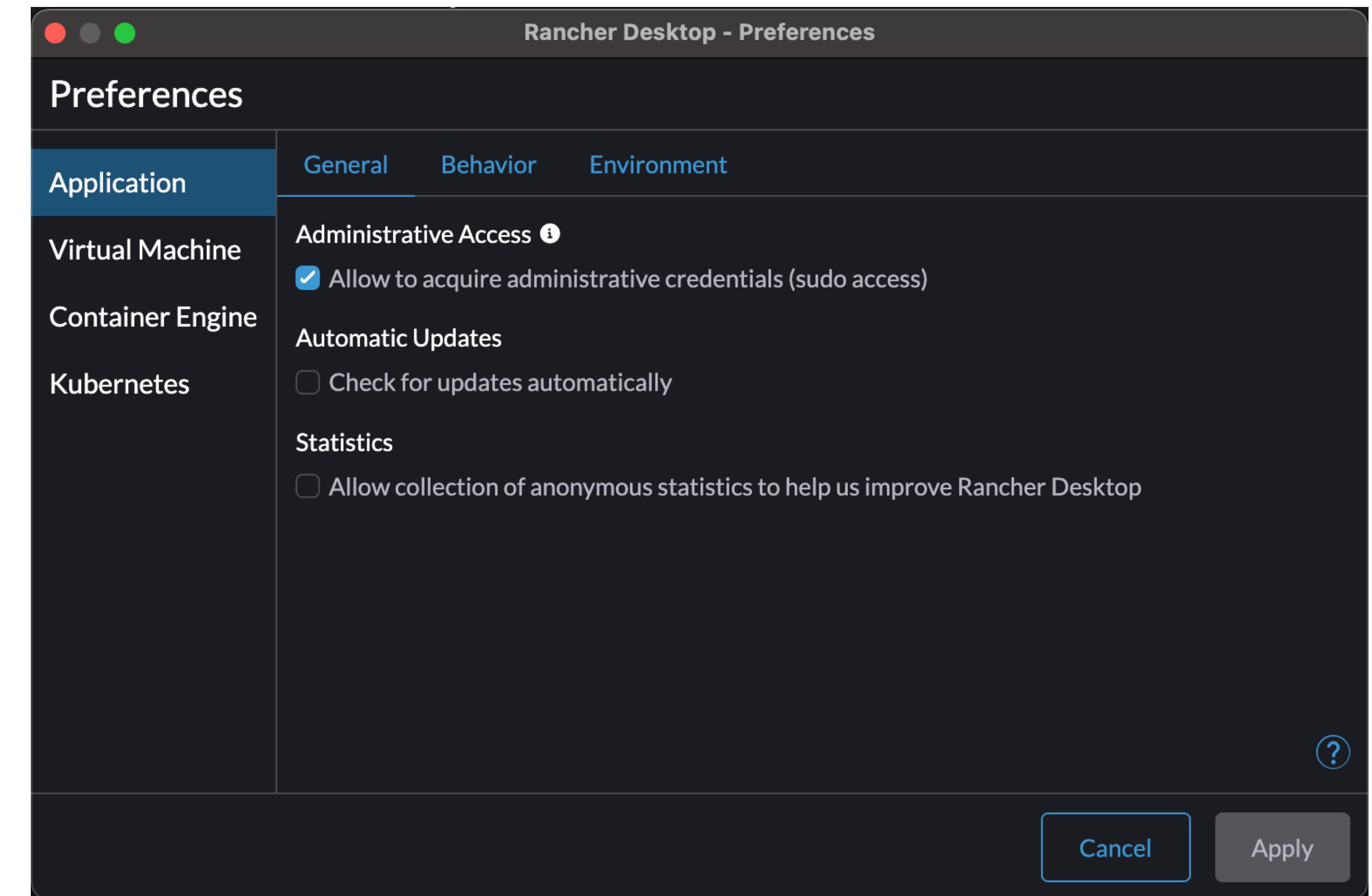
RANCHER DESKTOP



Install Rancher Desktop

Windows & MacOS

- Folge den Installations Anleitung unter:
<https://docs.rancherdesktop.io/getting-started/installation>
- Wähle Container Engine: dockerd (moby)
- Schalte Kubernetes nicht ein; setze kein Häckchen bei «Enable Kubernetes»



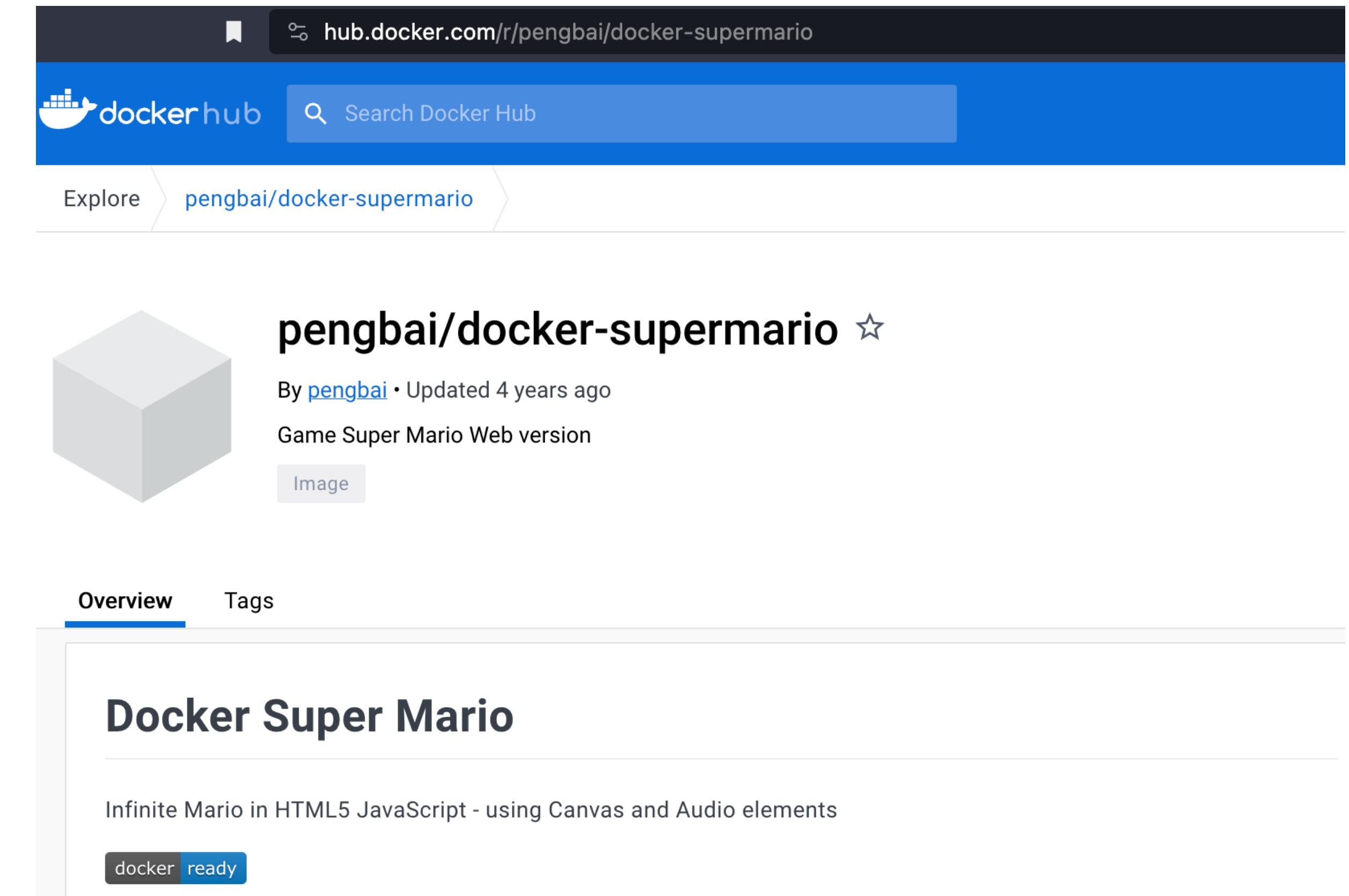
Download Container Image

1. Gehe auf Docker Hub und suche das Container Image ersichtlich auf dem Bild rechts.
2. Wir laden ein Container Image von der Container Registry «DockerHub» herunter. Dazu führe den folgenden Befehl in deiner Shell aus:

```
docker pull <image_name>
```

3. Prüfe ob das Container Image heruntergeladen wurde im GUI unter >>Images oder mit dem Command:

```
docker image ls
```



Run a Container locally

Aufgabe 1:

- Führt die selben Kommandos wie auf dem Bild unten aus.
- Bevor ihr «docker stop» ausführt, unterbricht und öffnet ein Webbrowserfenster
- Gebt folgende URL ein: <http://localhost:8600> und der Spielspass kann losgehen.
- Sobald ihr genug gespielt habt, schliesst das Browserfenster und macht mit docker stop weiter.

Aufgabe 2:

- Findet heraus was die Kommandos genau machen.
Wir lösen am Ende der Stunde gemeinsam auf.
- Der Befehl «help» kann hinter ein Kommando angehängt werden um Information direkt in der Shell zu erhalten. Beispiel

```
docker help
```

```
~ ➔ docker ps
CONTAINER ID   IMAGE      COMMAND      CREATED      STATUS      PORTS      NAMES
~ ➔ docker run -d -p 8600:8080 pengbai/docker-supermario
6d0b96aed14c96711042036bf6959b9f77c2eee363a0679b2f0c88ded38f99b3
~ ➔ docker ps
CONTAINER ID   IMAGE      COMMAND      CREATED      STATUS      PORTS      NAMES
6d0b96aed14c   pengbai/docker-supermario   "catalina.sh run"   4 seconds ago   Up 3 seconds   0.0.0.0:8600→8080/tcp,  :::8600→8080/tcp   gracious_swartz
~ ➔ docker stop gracious_swartz
gracious_swartz
~ ➔ docker ps
CONTAINER ID   IMAGE      COMMAND      CREATED      STATUS      PORTS      NAMES
```

