

Containerized applications and their usage in cloud environment

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Content

Theoretical topics:

- Containers
- Software lifecycle
- Containerized applications
- Cloud technologies
- Application image build process
- Docker image registry overview

Practical topics:

- Usage of containerized applications – Docker
- Usage of containerized applications - Kubernetes
- Playing on Kubernetes playground

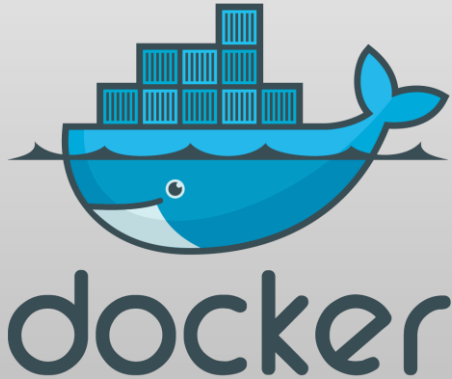
Containers



Similarity between SW containers and ship containers is huge (if we take functional, not transport containers)

Main advantages of containers:

- Isolation
- Reusability
- Ease of installing and using
- Ease of moving



Containers

Container inside:

- Fully equipped
 - Runtime included
- Hi-tech skills needed to build

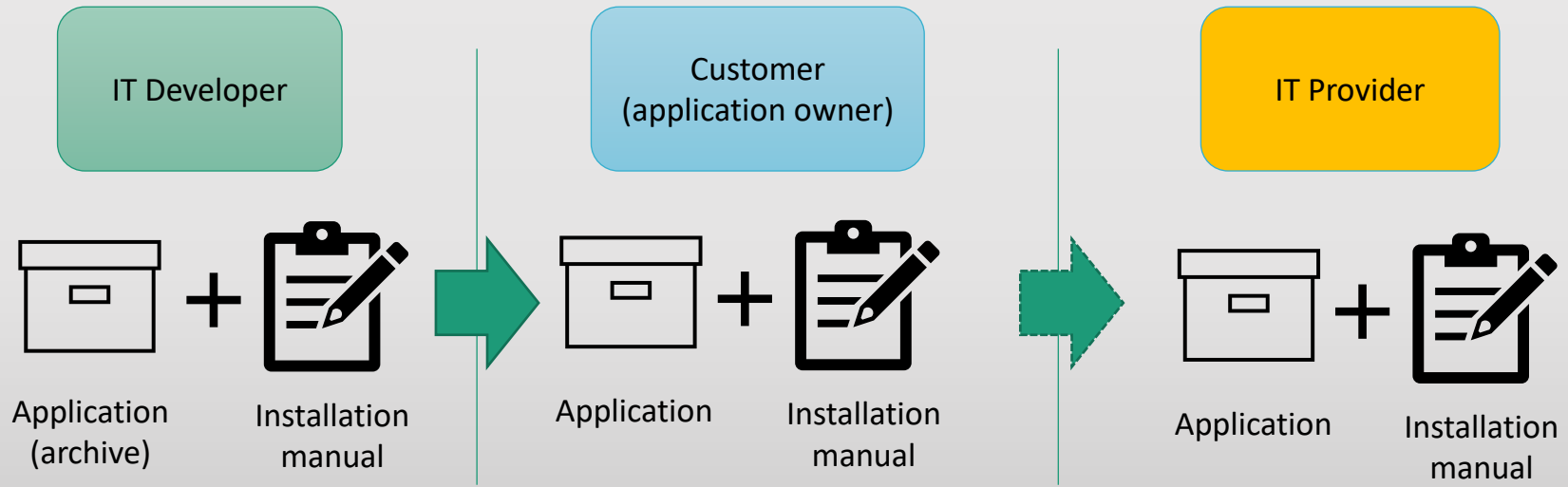


Container outside:

- Right plugs have to be connected to right network
- Environment skills and current container knowledge needed to install



Software lifecycle (development + deployment) traditional way

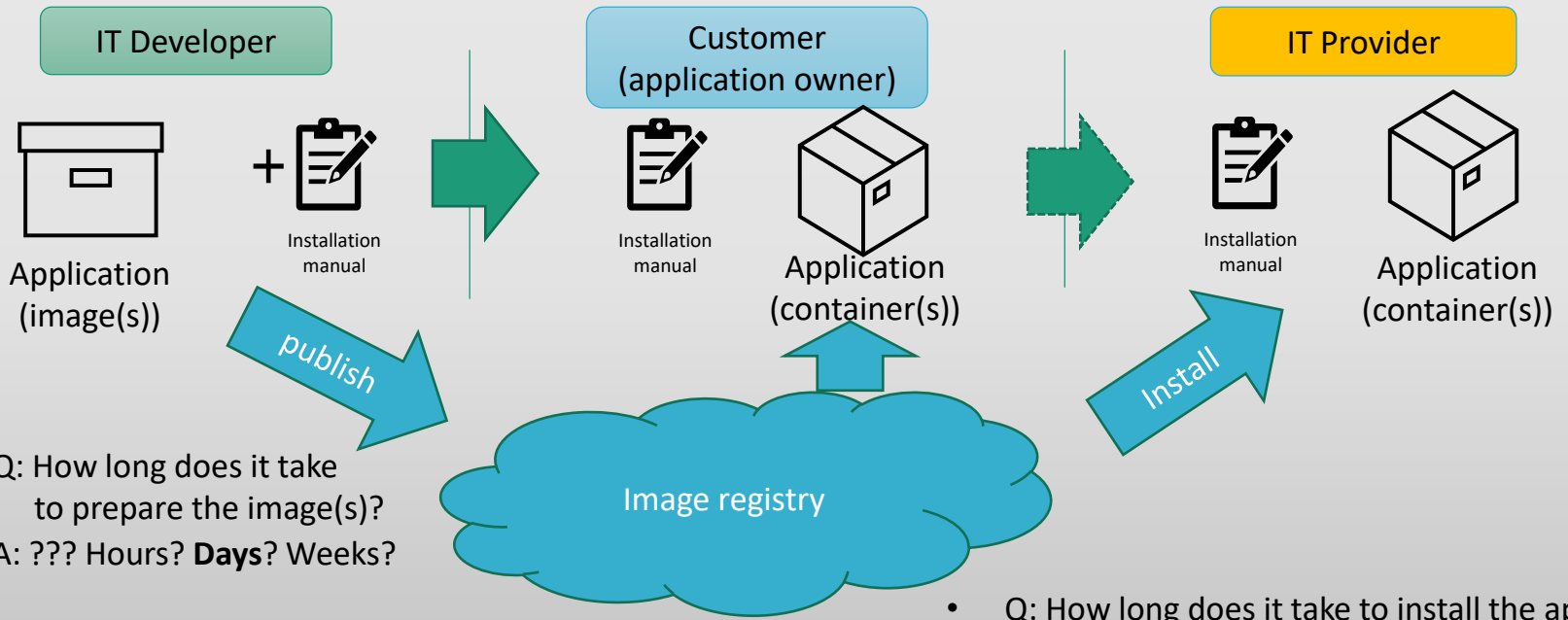


- Q: How big is the installation manual?
- A: Depends on the application and runtime (20 sites)

- Q: How long does it take to install the app?
- A: ??? Hours? **Days?** **Weeks?**



Software lifecycle (development + deployment) containerized way



- Q: How long does it take to prepare the image(s)?
- A: ??? Hours? **Days?** Weeks?
- Q: How big is the installation manual?
- A: Much shorter (5 sites)
- Q: How long does it take to install the app?
- A: ??? **Hours?** Days? Weeks?



Advantages of using containerized applications

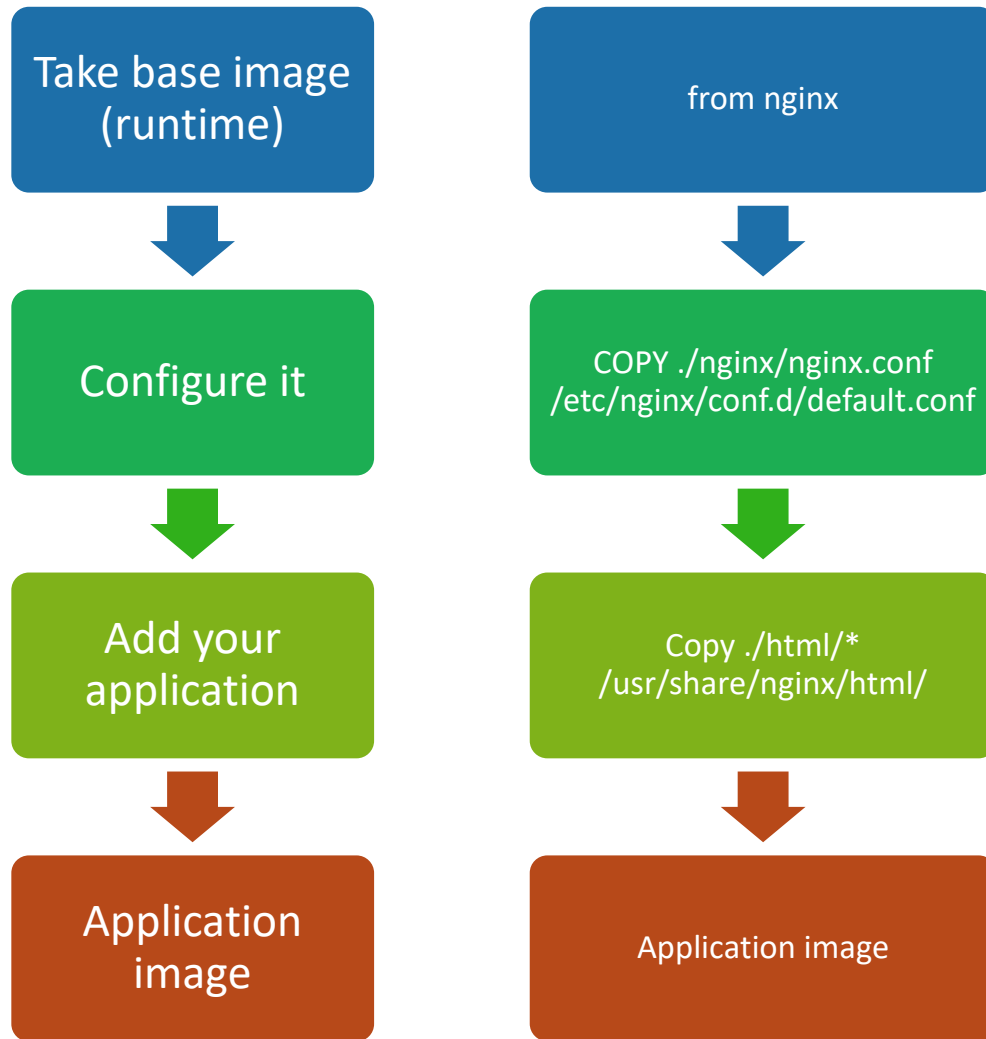
Easy container management on the customer site

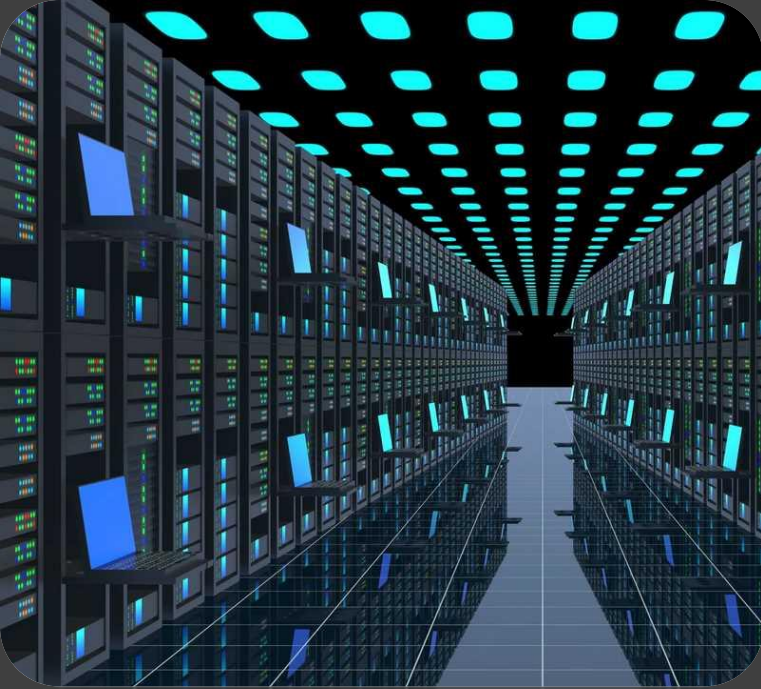
- Installation
 - Configuration
 - Maintaining
 - Scaling
 - Deleting
-
- Main reason is to minimize the need of manual steps in the installation process and during maintenance

Cloud technologies overview

SW lifecycle phase:	Build	Deploy	Run
Docker	X	.	X
Kubernetes		X	X
OpenShift	X	X	X

How application image is built (Dockerfile method)





Cloud HW

Practical showcase #1

Usage of Docker containers as SW
addons

Practical showcase #2

Installing of containerized
application in the Kubernetes
environment

<https://github.com/belkop-ghb/k8s>

Thank you for your attention

Useful links:

<https://okontajneroch.sk/>

<https://12factor.net/>

<https://hub.docker.com>

<https://www.docker.com/>

<https://kubernetes.io/>

<https://www.redhat.com/en/technologies/cloud-computing/openshift>

<https://github.com/belkop-ghb/k8s>

https://careers.ibm.com/job/13417892/it-trainee-remote/?codes=IBM_CareerWebSite