

TEKNOLOGI MULTIMEDIA

Modul 5

CLOUD COMPUTING

Oleh
Dr. Ing. Melvi, S.T., M. T.
Aryanto, S.T., M.T>

Cloud Solution

Developing Apps on Cloud

Agi Rezka Pantry



What is Cloud?

The Changing World of App Development

Cloud Container as a Services

What is Cloud



Server Placement



**Servers Room
On premise Datacenter**



Professional DataCenter

A new approach to the datacenter

Traditional datacenter

- Dedicated infrastructure for each application
- Purpose-built hardware
- Distinct infrastructure and operations teams
- Customized processes and configurations



Servers

Cloud model

- Loosely coupled apps and micro-services
- Industry-standard hardware
- Service-focused DevOps
- Standardized processes and configurations



Services



Choose a platform that lets you focus your task

Cloud Service Model, or component which provided by cloud service provider or commonly called with IaaS-PaaS-SaaS

- **IaaS** – is cloud computing service which provide IT infrastructure, CPU, Memory, storage, bandwidth and others. **User: sysadmin**
- **PaaS** – is cloud computing service which provided platform services, Operating System, database, web server, framework. **User: developer**
- **SaaS** – is cloud computing service as application which customer can directly use, such as email, CRM apps, social media. **User: app user**

Responsibility	On-Prem	IaaS	PaaS	SaaS
Applications	Customer	Customer	Customer	Service Provider
Data	Customer	Customer	Customer	Service Provider
Runtime	Customer	Customer	Service Provider	Service Provider
Middleware	Customer	Customer	Service Provider	Service Provider
O/S	Customer	Customer	Service Provider	Service Provider
Virtualization	Customer	Service Provider	Service Provider	Service Provider
Servers	Customer	Service Provider	Service Provider	Service Provider
Storage	Customer	Service Provider	Service Provider	Service Provider
Networking	Customer	Service Provider	Service Provider	Service Provider

Customer Service Provider

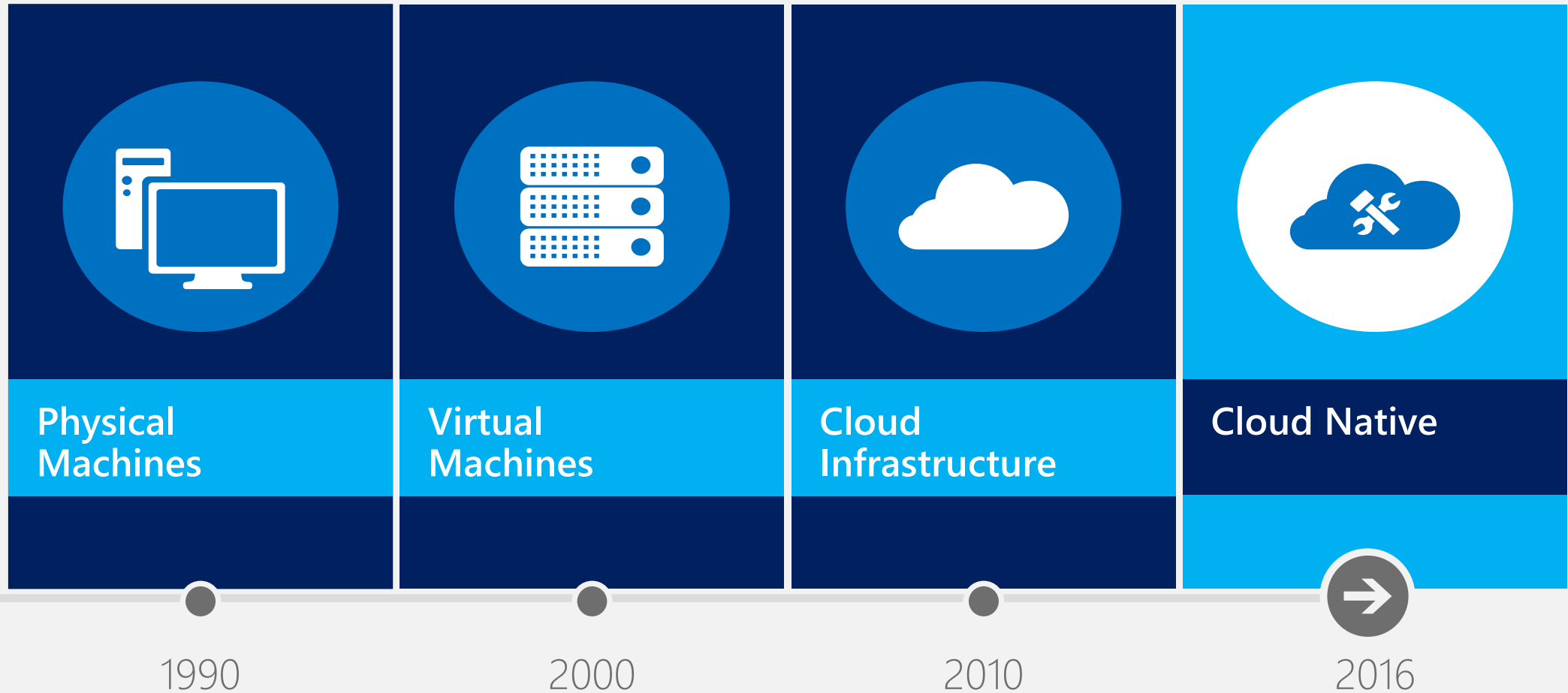
What is Cloud?

The Changing World of App Development

Cloud Container as a Services

The Changing World of App Development

Mainframe
Monolithic
Client/Server
3 Tier
Component
RAD
Distributed
SOAP
SOA
Web
REST
Mobile
Microservices
Containers
Serverless



- Cloud is next generation of Data Center (DC).
- As properly DC which managed by IT organization with all devices, physical server, storage, operating system and applications.

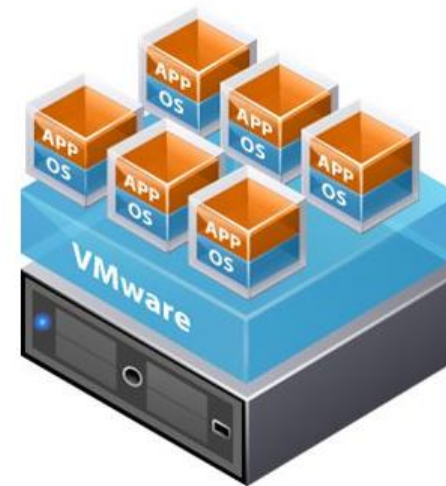
The Machines

- Windows Server
- Linux
- Solaris



Traditional Architecture

VS



Virtual Architecture

- Software only
- VMWare
 - Red Hat Openstack

- Integrated System
- VCE
 - IBM Cloud Server
 - Azure Stack

Application Development Approaches

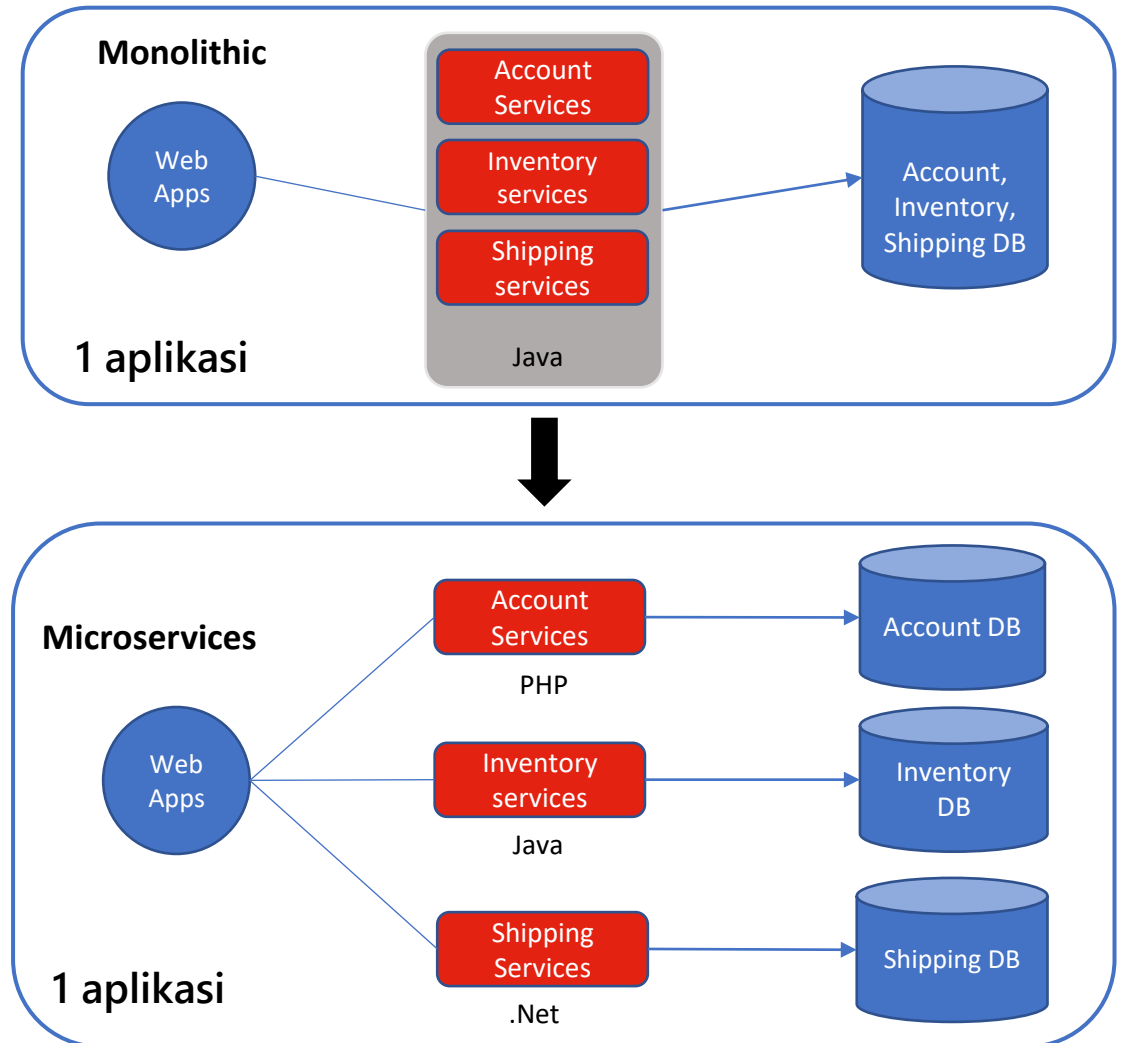
Monolithic to Microservices

Painfulness when using monolithic architecture...

- When the application becomes bigger and many users use it, application performance will get slower.
- When the application should use new technology, it will change overall application architecture.
- If an error occurs in one of the functions, it will affect entire application.

What if we were using microservices architecture...

- Application will become scalable, secure and reliable.
- There are no obstacles in using new technology.
- Each function is independent, if one function down/error it will not affect entire application.



What is Cloud?

The Changing World of App Development

Cloud Container as a Services

Problem
illustration:

Shipping goods

	?	?	?	?
	?	?	?	?
	?	?	?	?
	?	?	?	?
	?	?	?	?
				

Solution:

Intermodal shipping container





Result from adoption container:

- 1 Flexible Deployment
- 2 90% of all cargos now shipped in a standard container
- 3 Reducing shipping cost

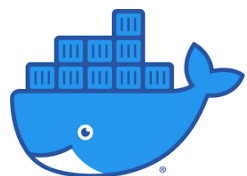
Problem:

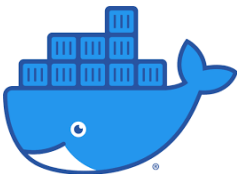
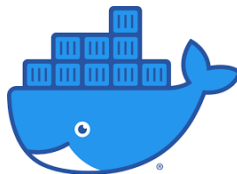
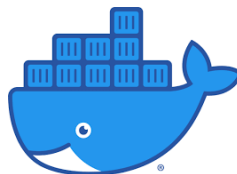
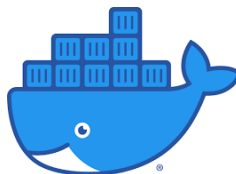
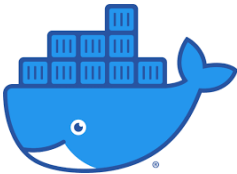
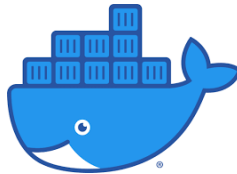
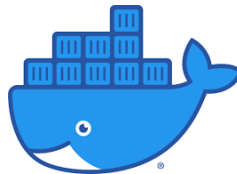
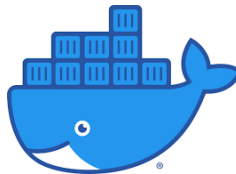
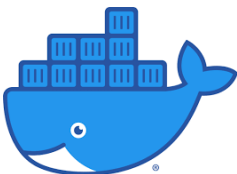
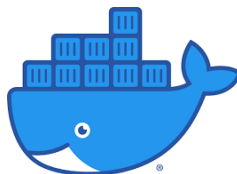
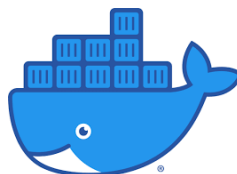
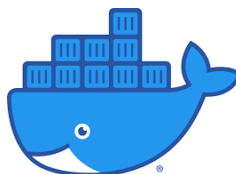
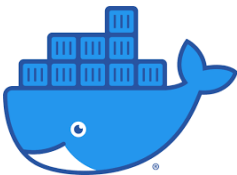
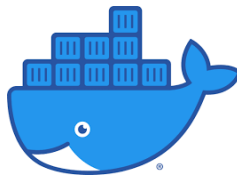
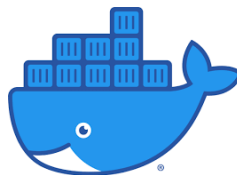
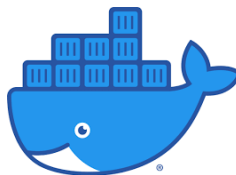
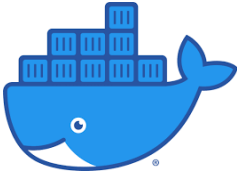
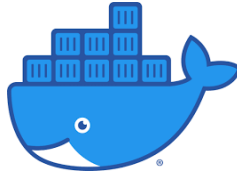
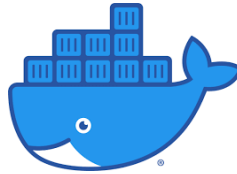
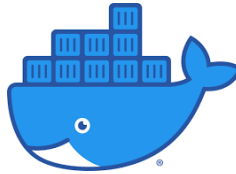
**Shipping
code**

 	?	?	?	?
 	?	?	?	?
 	?	?	?	?
 	?	?	?	?
 	?	?	?	?
				

Solution:

Cloud
Container



Container Ecosystem in Seaport

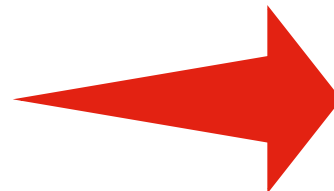
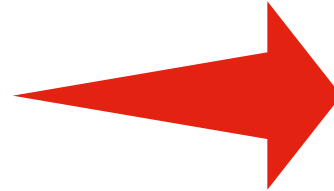
Illustration image



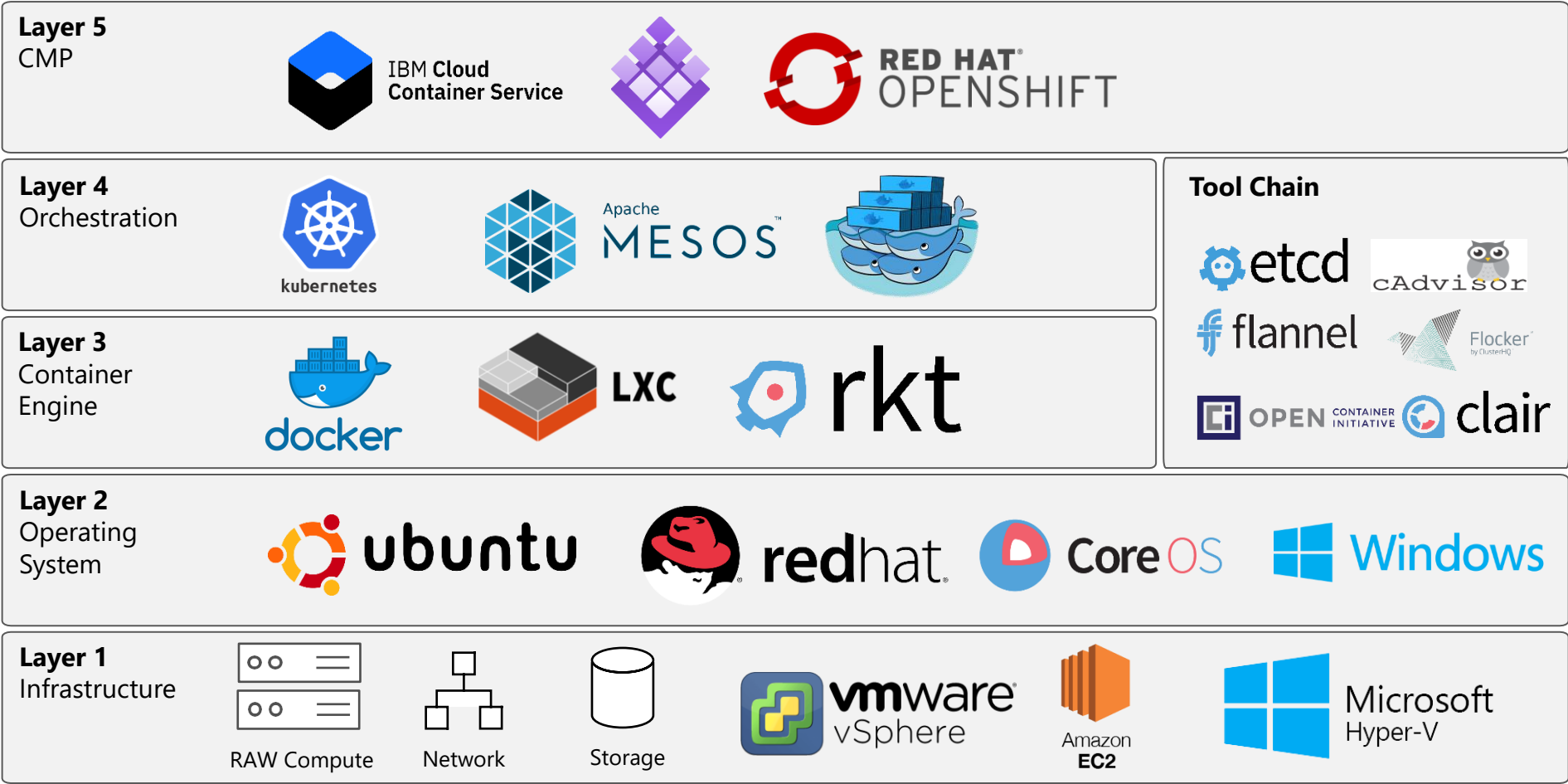
Container crane to manage all container.

All containers are neatly arranged and ready to be shipped.

Container & Orchestration

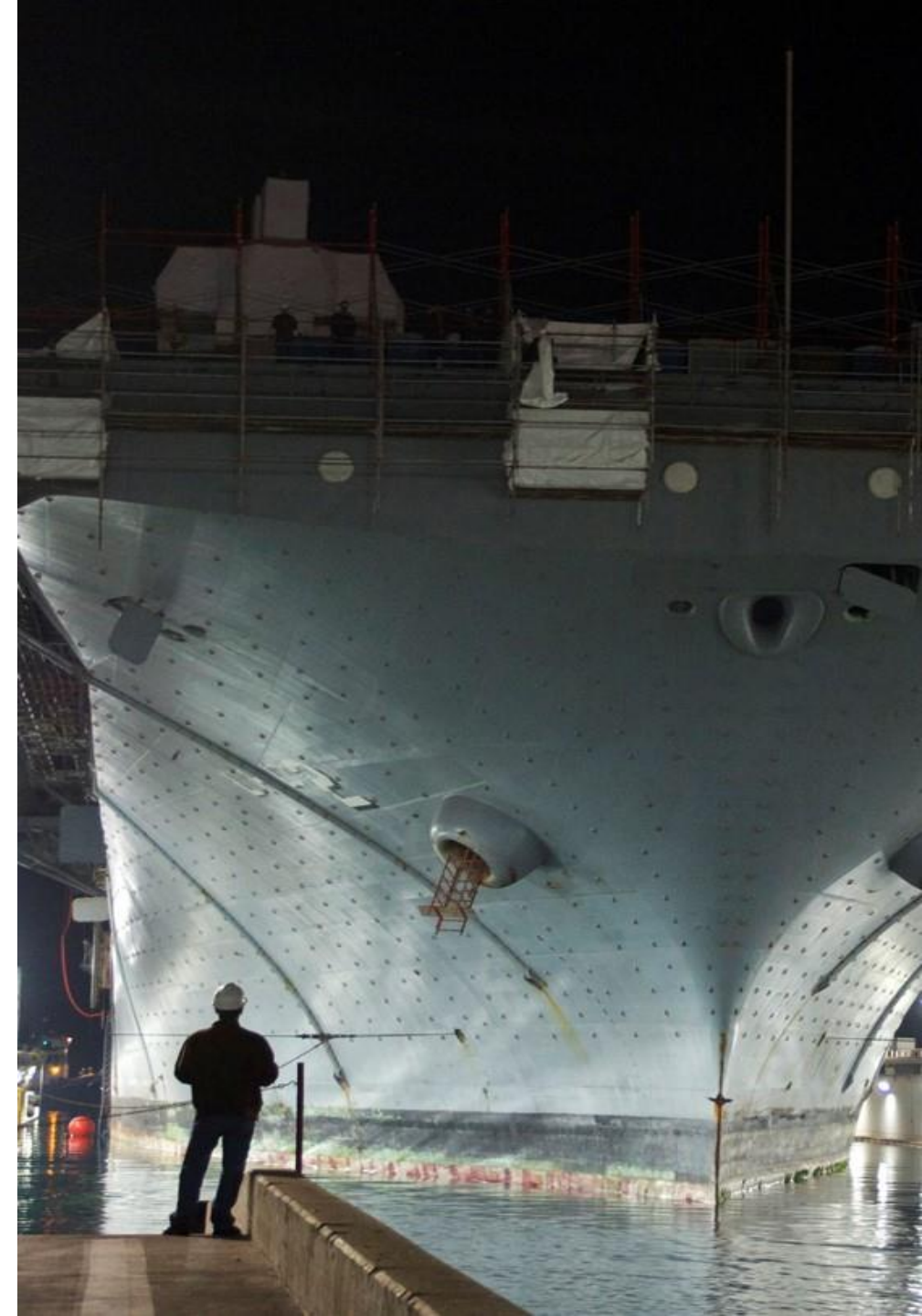


Cloud Container Ecosystem



Result from adoption Cloud Container

- 1 Flexible Deployment
- 2 Much shorter time to market
- 3 Resource usage improved
- 4 Freedom: move containers around
 - Colo to Cloud
 - Cloud to Cloud
 - Cloud to Colo
 - Colo to Colo
 - Etc.



Flexibility using Containerization

Any OS



Linux



Windows

Anywhere

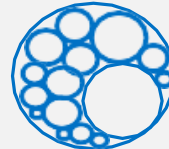


On-premises



Cloud

Any apps



Monolith



Microservices

Any language



Java



.Net



Python

Let's Try Cloud Computing