Container Unikernel

Yet another fast & safe container solution.

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Background

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unikernel

Background

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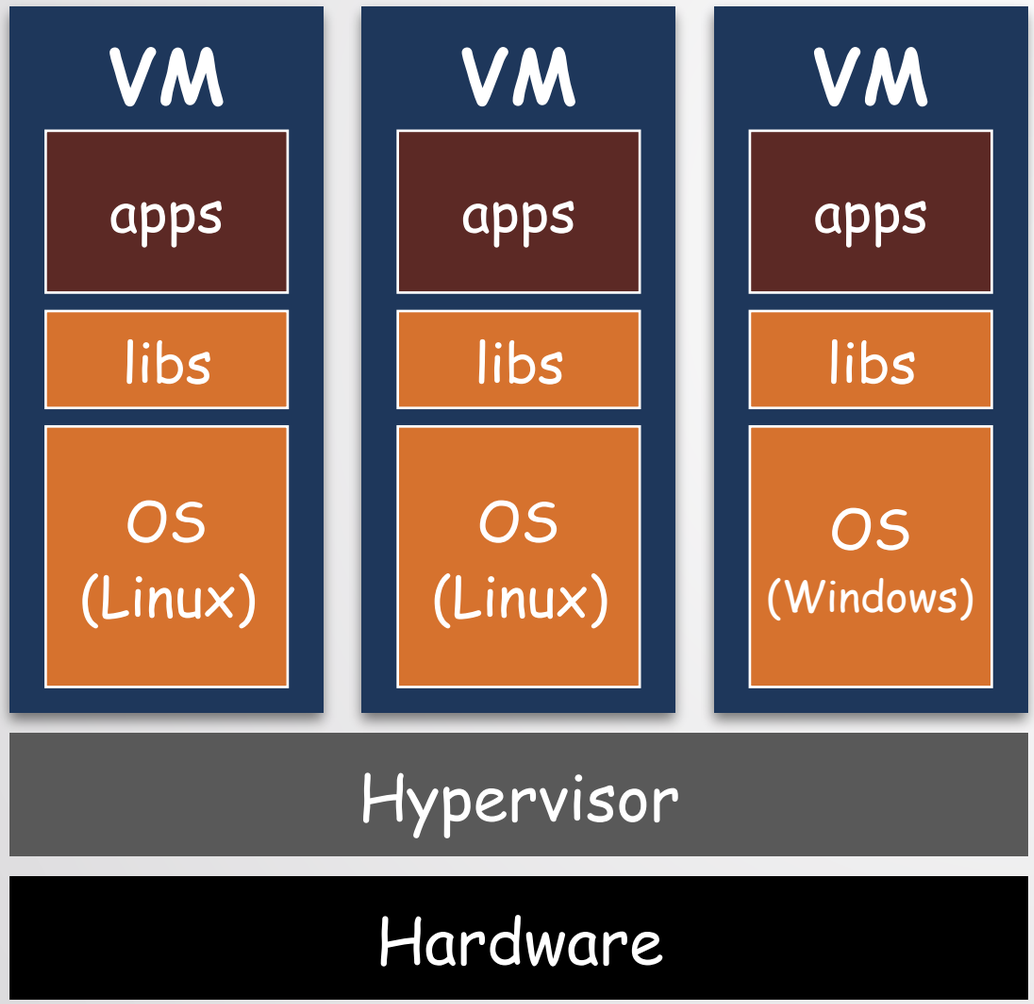
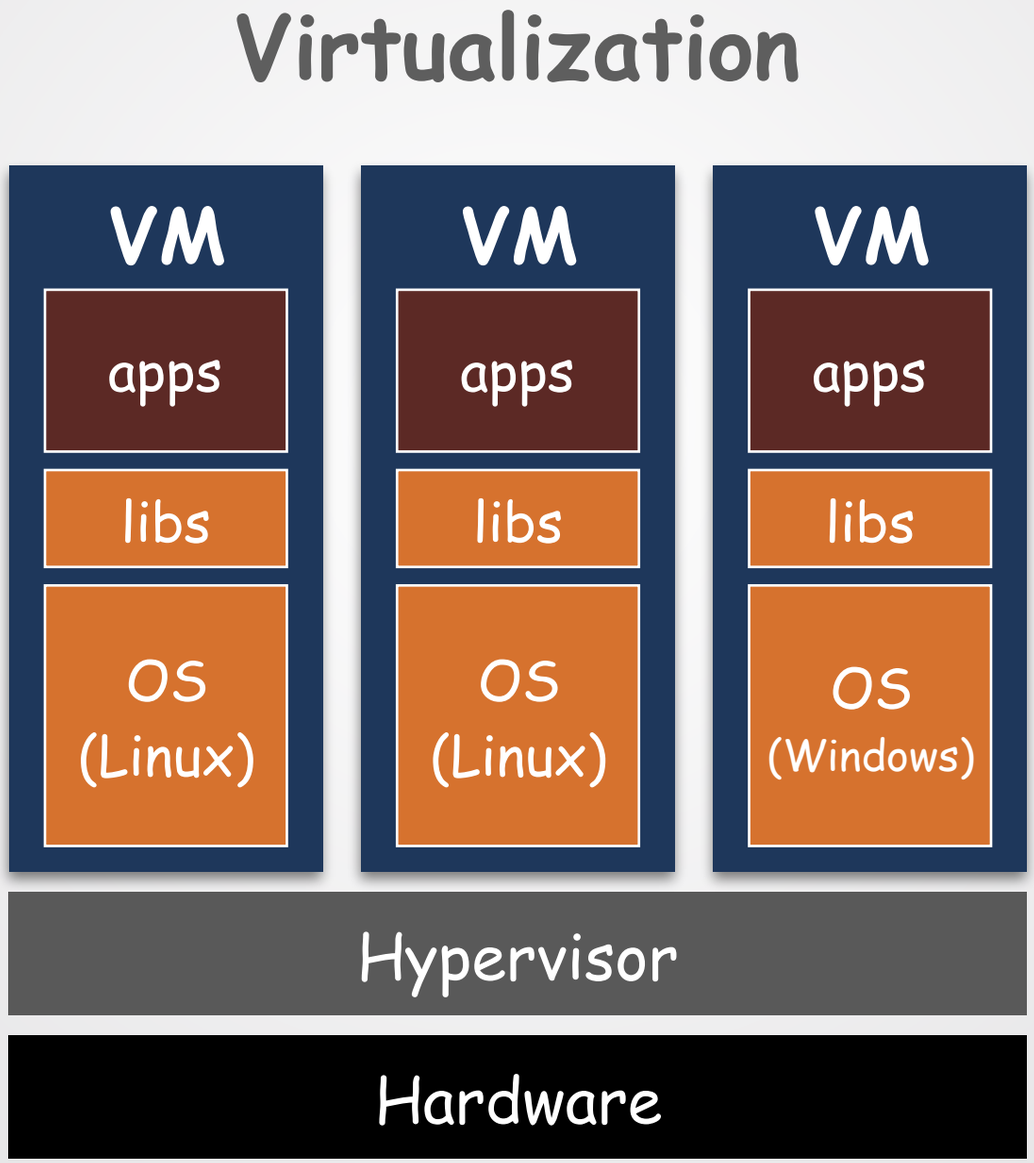
Technology

Virtualization

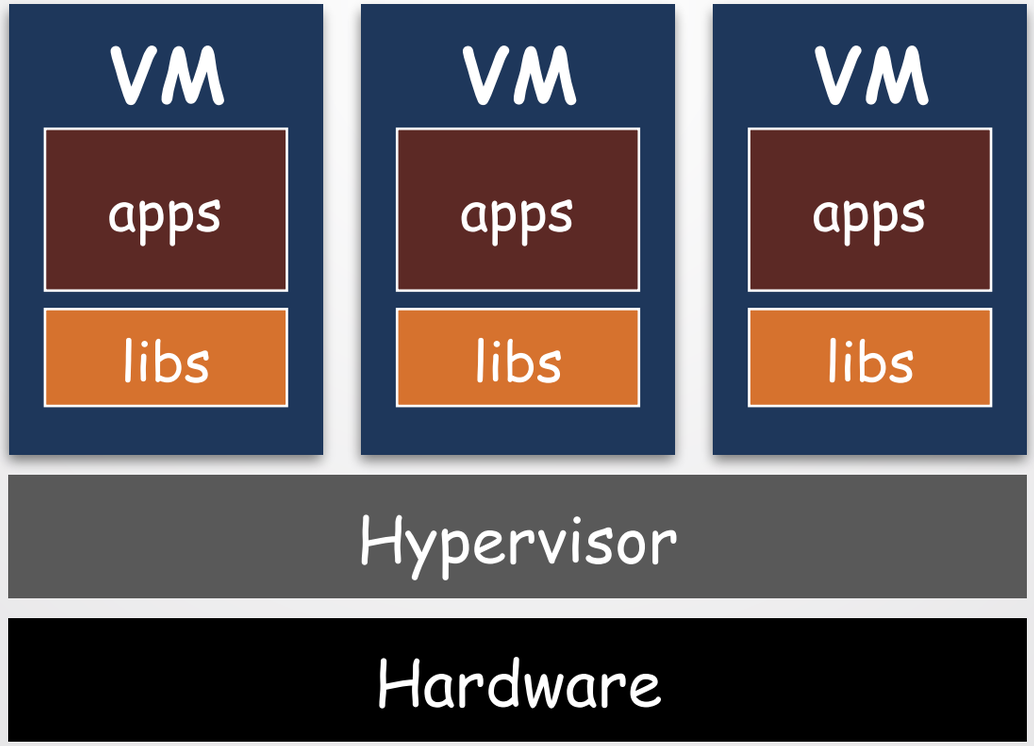


Container

Technology

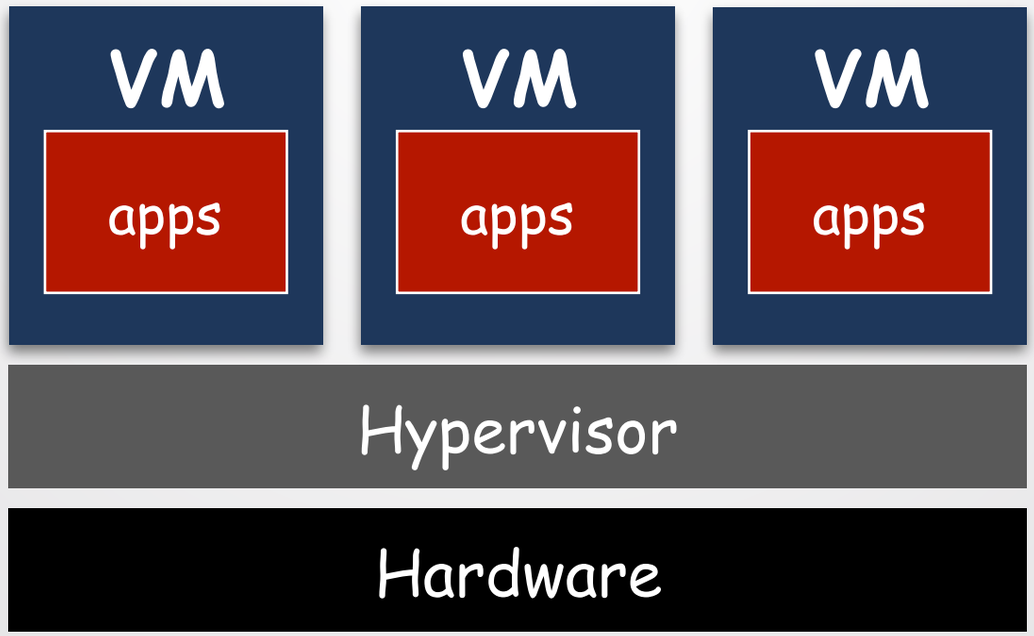

Virtualization
VM
apps
libs
OS
(Linux)
VM
apps
libs
OS
(Linux)
VM
apps
libs
OS
(Windows)
Hypervisor
Hardware

Technology



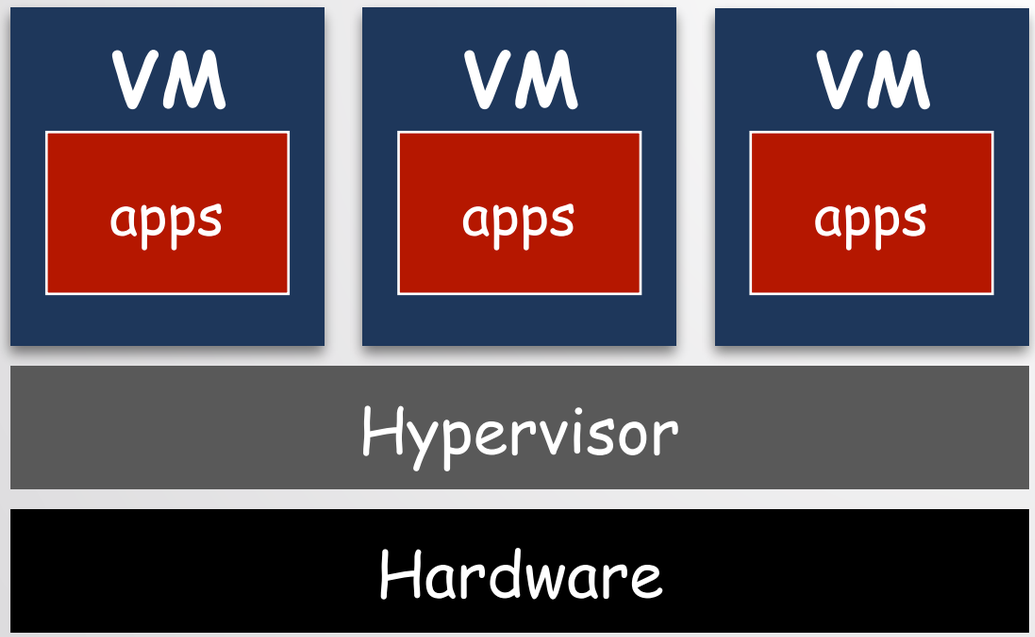
Technology

Unikernel

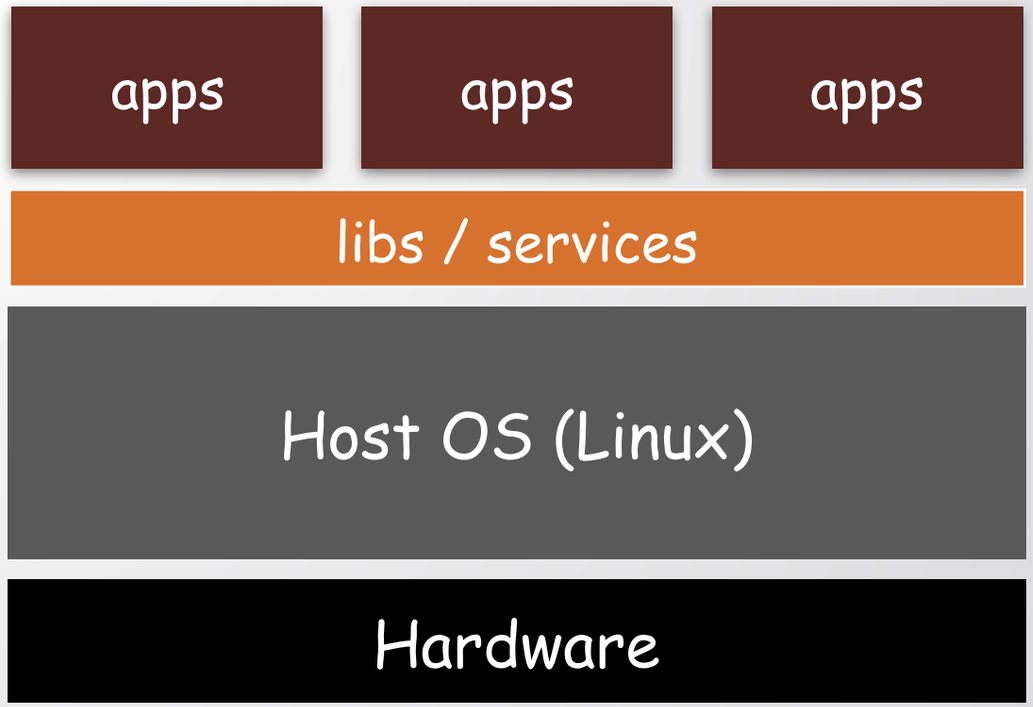


Technology

Unikernel



Container



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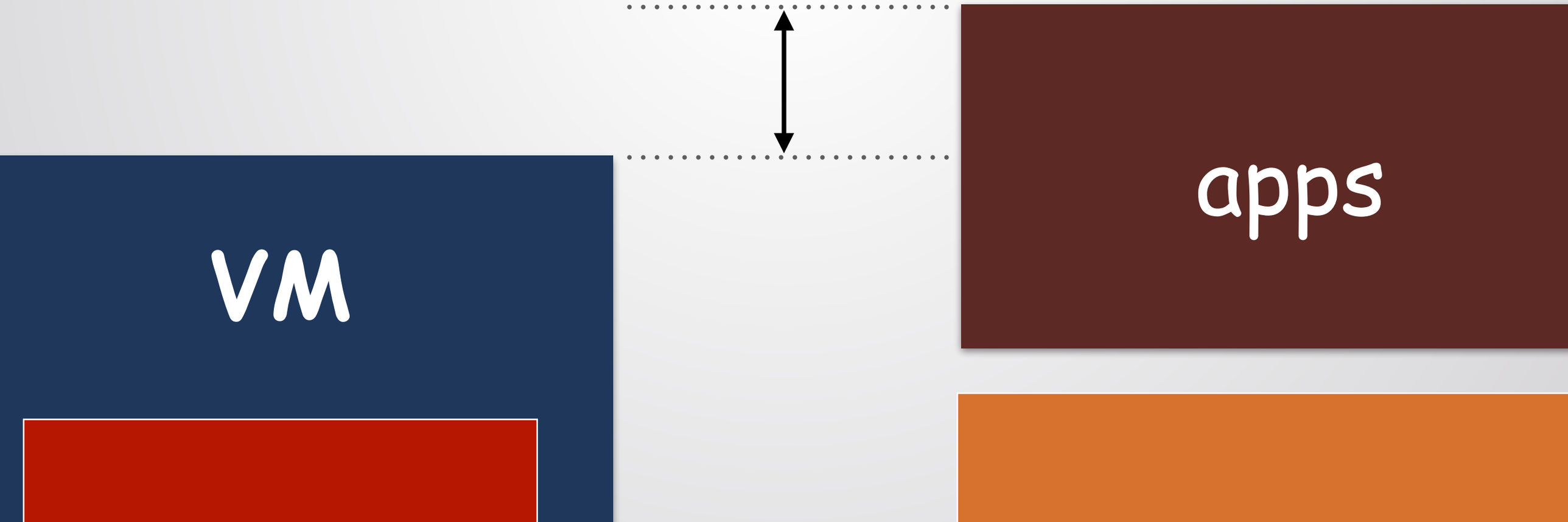
Technology

VM is better than Container?



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VM is better than Container?

SOSP '17, October 28, 2017, Shanghai, China
https://doi.org/10.1145/3132747.3132763

My VM is Lighter (and Safer) than your Container

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ABSTRACT

Containers are in great demand because they are lightweight when compared to virtual machines. On the downside, containers offer weaker isolation than VMs, to the point where people run containers in virtual machines to achieve proper isolation. In this paper, we examine whether there is indeed a strict tradeoff between isolation (VMs) and efficiency (containers). We find that VMs can be as nimble as containers, as long as they are small and the toolstack is fast enough.

We achieve lightweight VMs by using unikernels for specialized applications and with Tinyx, a tool that enables creating tailor-made, trimmed-down Linux virtual machines

CCS CONCEPTS

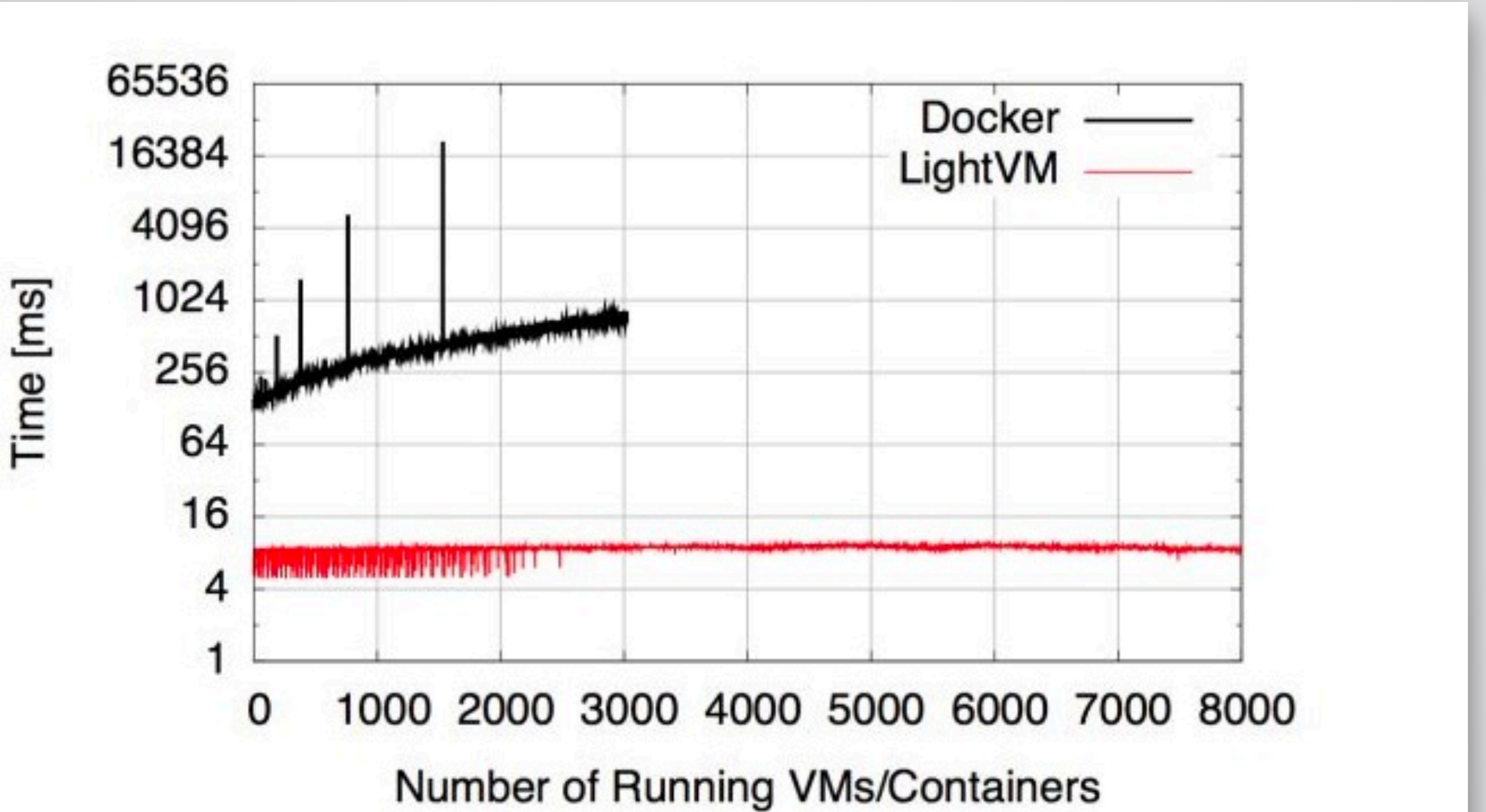
• **Software and its engineering → Virtual machines**; *Operating Systems*;

KEYWORDS

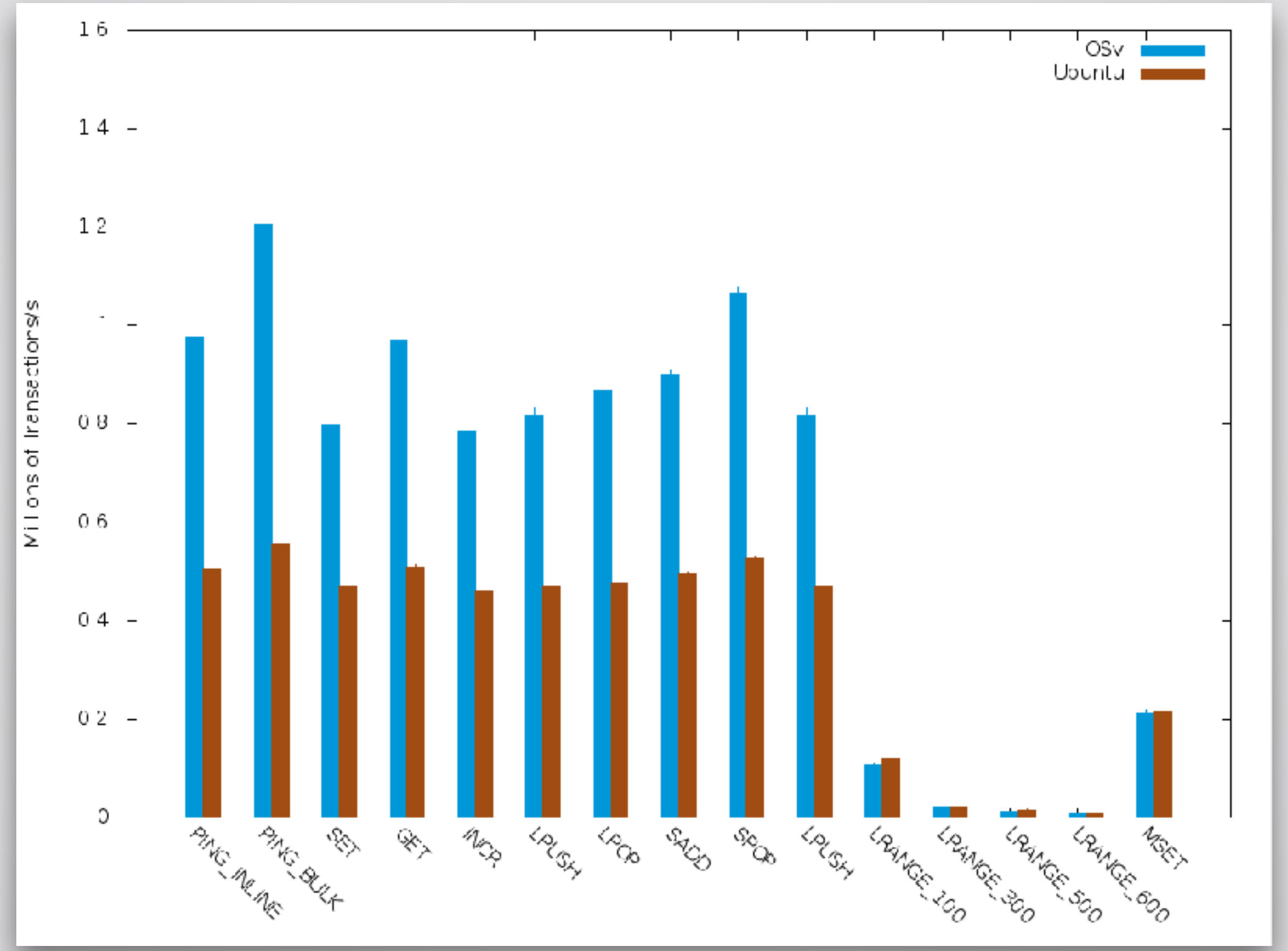
Virtualization, unikernels, specialization, operating systems, Xen, containers, hypervisor, virtual machine.

ACM Reference Format:
Filipe Manco, Costin Lupu, Florian Schmidt, Jose Mendes, Simon Kuenzer, Sumit Sati, Kenichi Yasukata, Costin Raiciu, and Felipe Huici. 2017. My VM is Lighter (and Safer) than your Container. In

VM is better than Container?

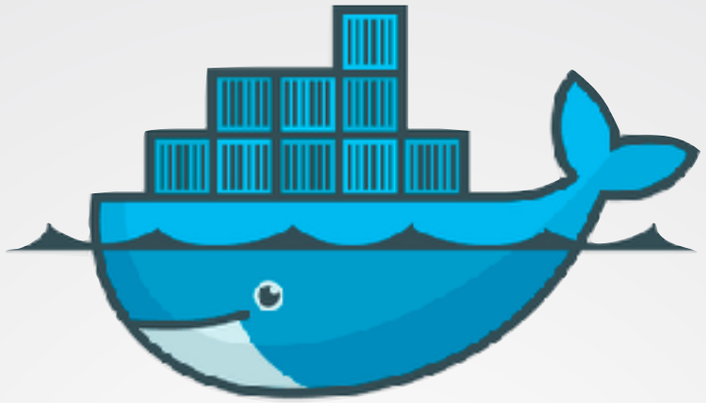


VM is better than Container?



But

But



- 100,000+ apps
- 3,300+ contributors
- 12,000,000,000+ pulls

Docker Compose

Docker Machine

Docker Swarm

Kubernetes

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But

unikernel

Builder	👍	X
Scheduler	👍	X
Orchestration	👍	X
Cluster	👍	X
Hub	👍	X

「这个程序在我的机器上没问题啊」

CUnik

「这个程序看着好有趣，我也想试试」

Getting Started in ??? minutes

「又有人搞了个大新闻」

M鹿M
今天 12:00 来自 vivo X20全面屏手机
大家好，给大家介绍一下，这是我女朋友@关晓彤
QPS
1 day ago
QPS
1 day ago

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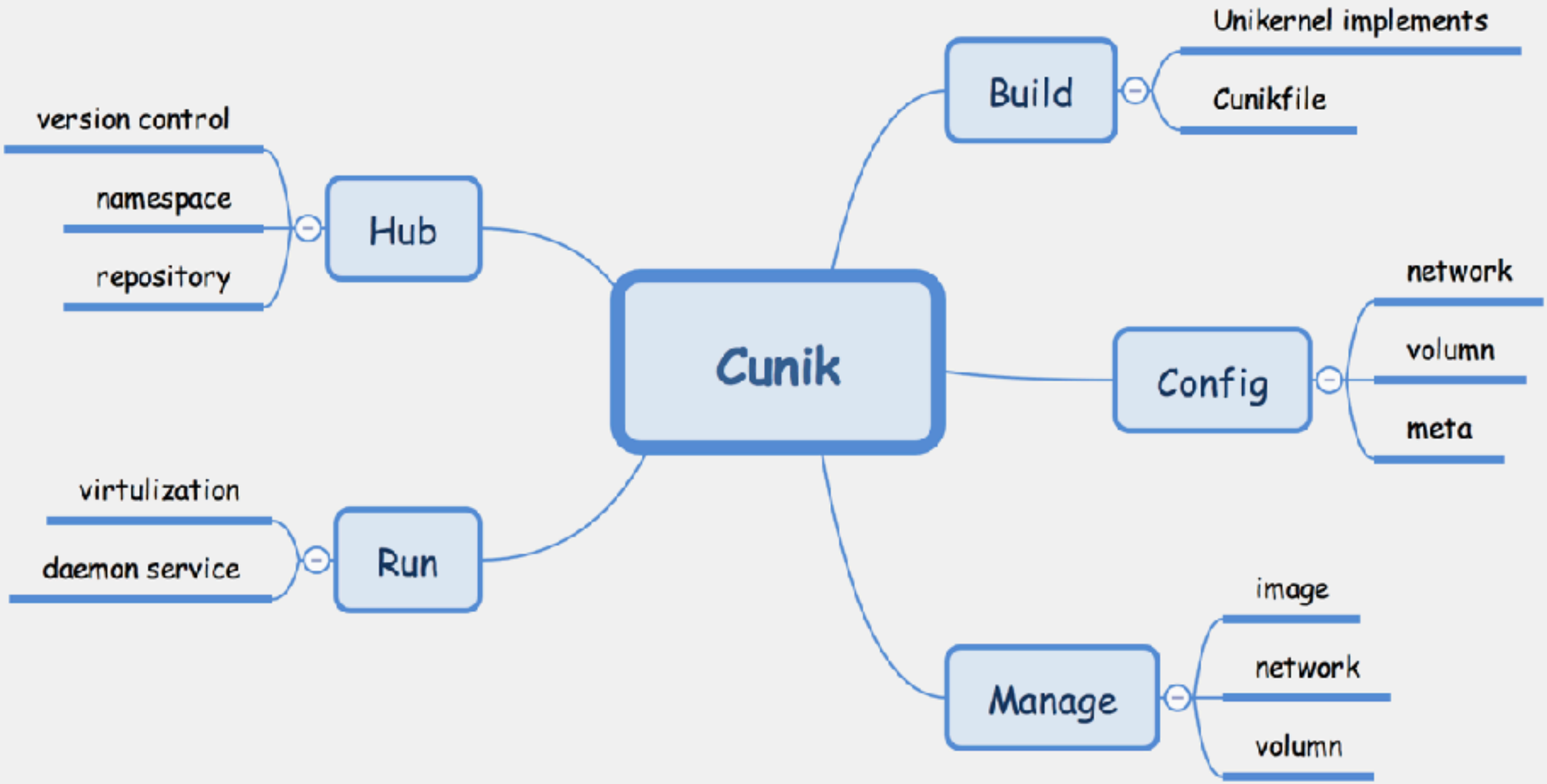
Container Unikernel



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Technology benefits humanity

Thanks!

https://cunik.org

reports & discussions:
https://github.com/OSH-2018/X-Doudou