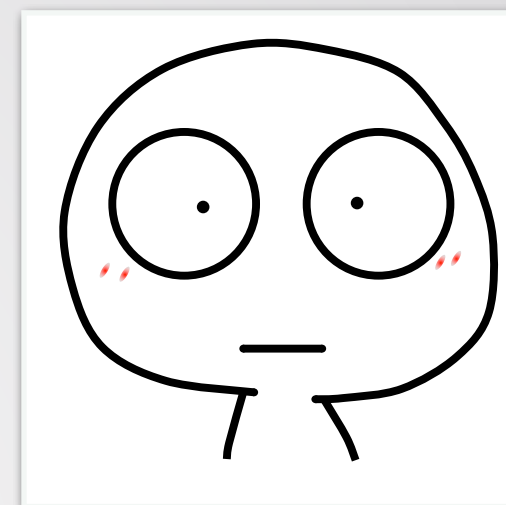


# Container Unikernel

Yet another fast & safe container solution.

# 何纪言

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**OPEN  
SOURCE**

<https://lug.ustc.edu.cn>

<https://github.com/ustclug>

<https://git.ustclug.org>

*ustcmirror-images*

*lug-vpn-web*

*neatdns*

*yuki*

*...*

# Container Unikernel

Yet another fast & safe container solution.

# CUnik

Yet another fast & safe container solution.



Cunik

# Background





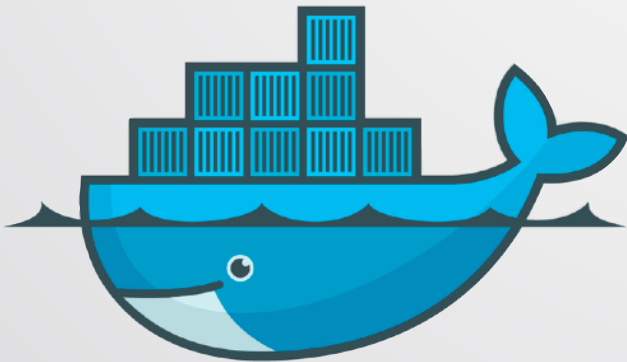


Cunik

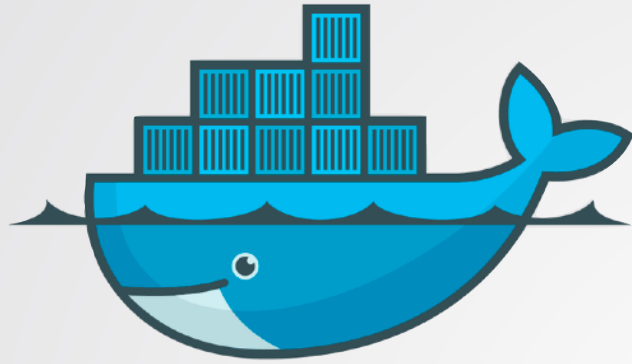




Cunik



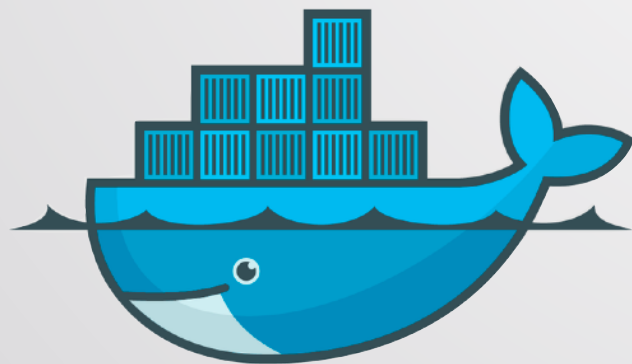
Cunik



unikernel

Cunik

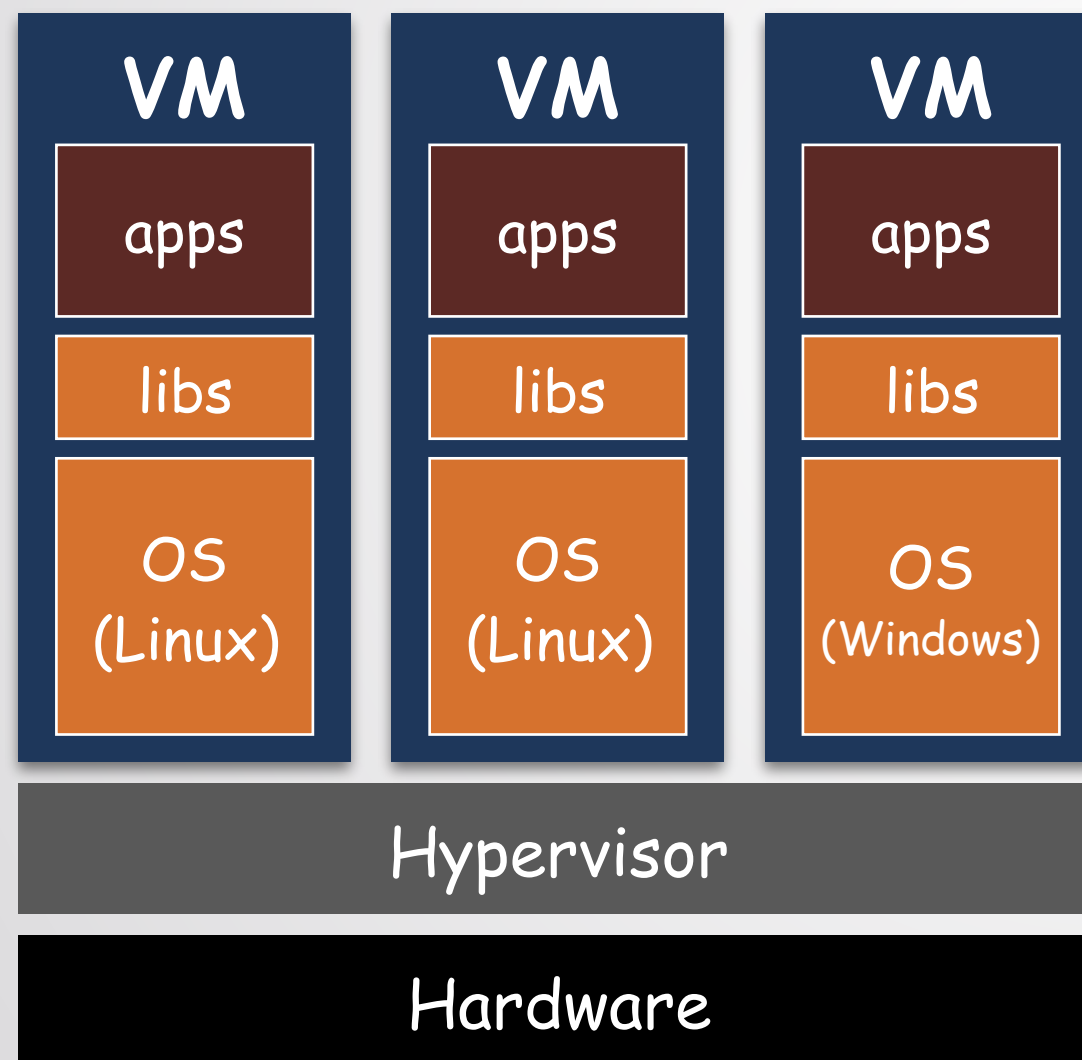
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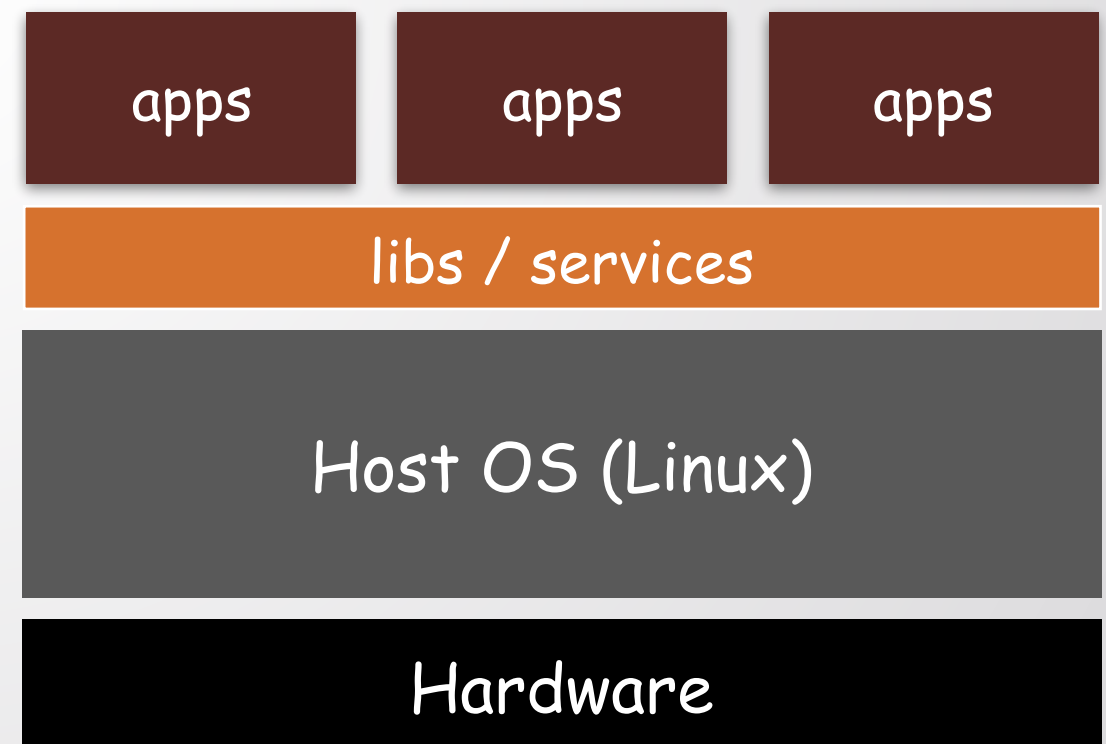
unikernel

# Cunik Technology

## Virtualization



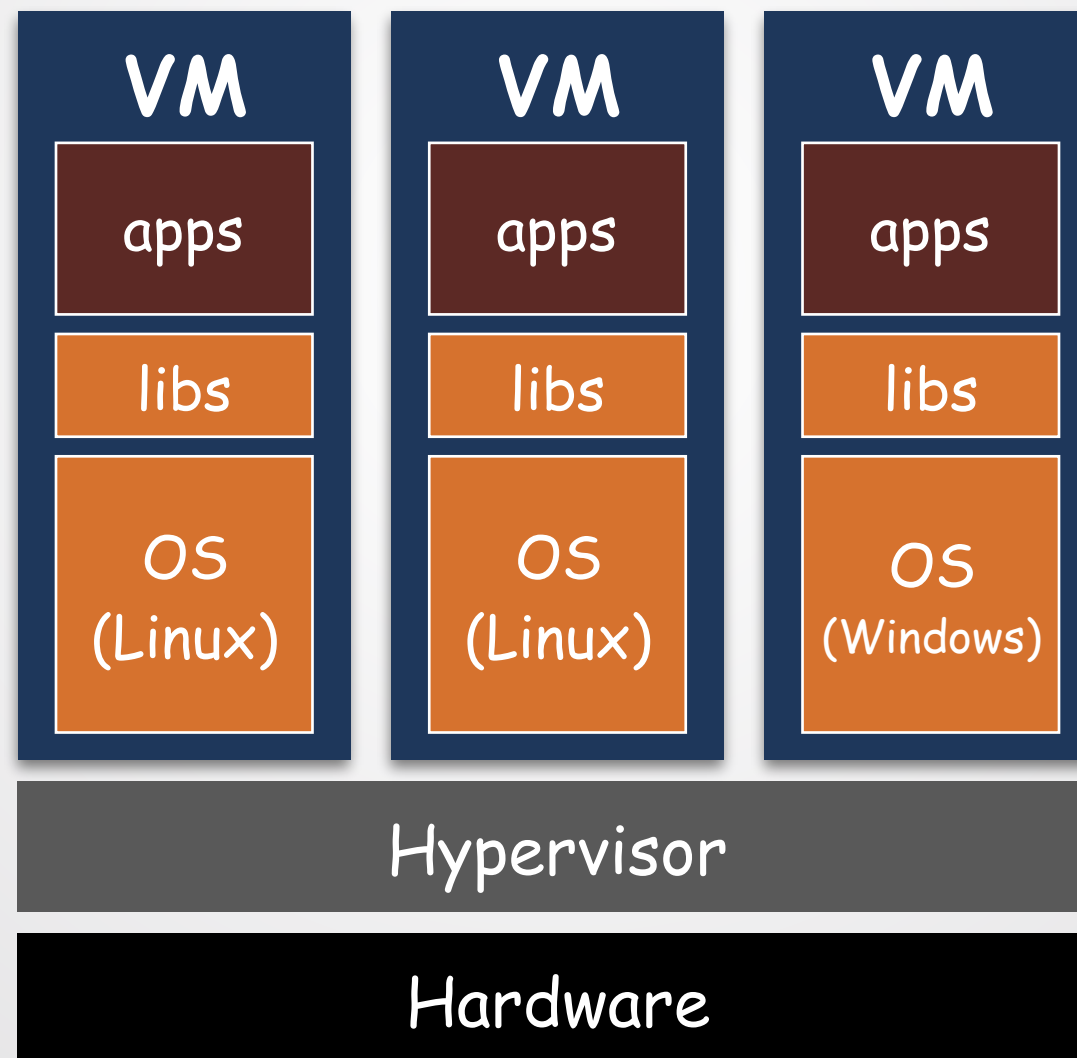
## Container



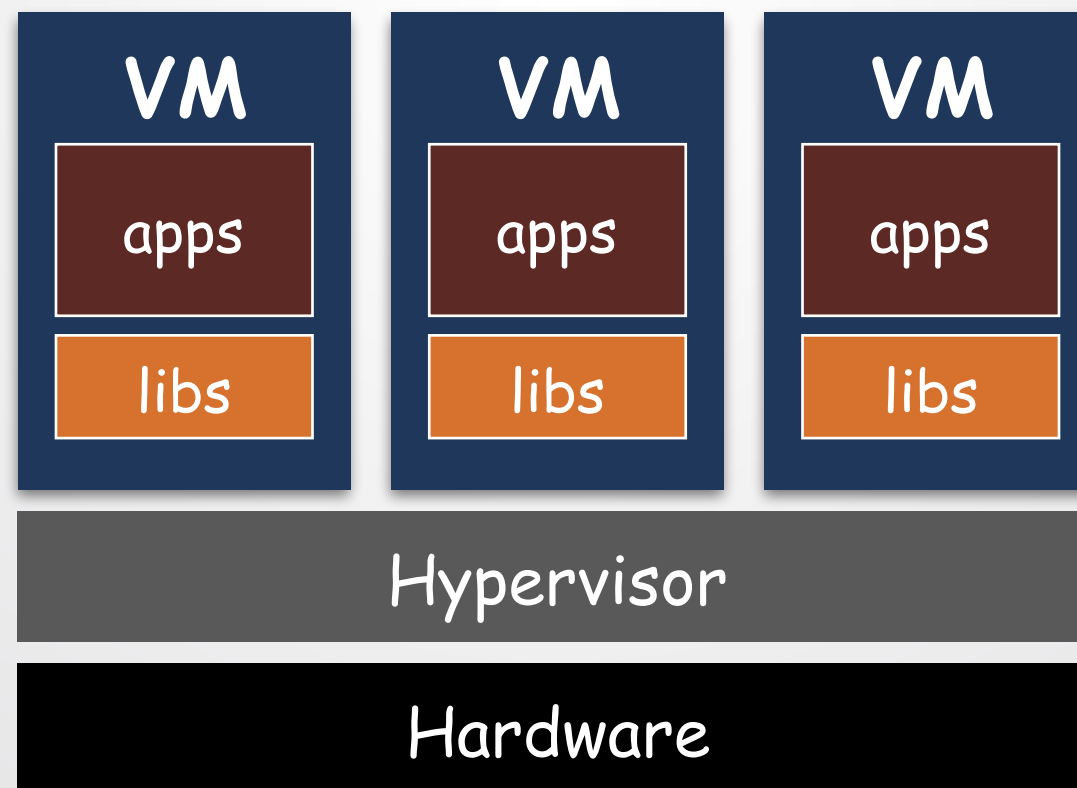


# Cunik Technology

## Virtualization

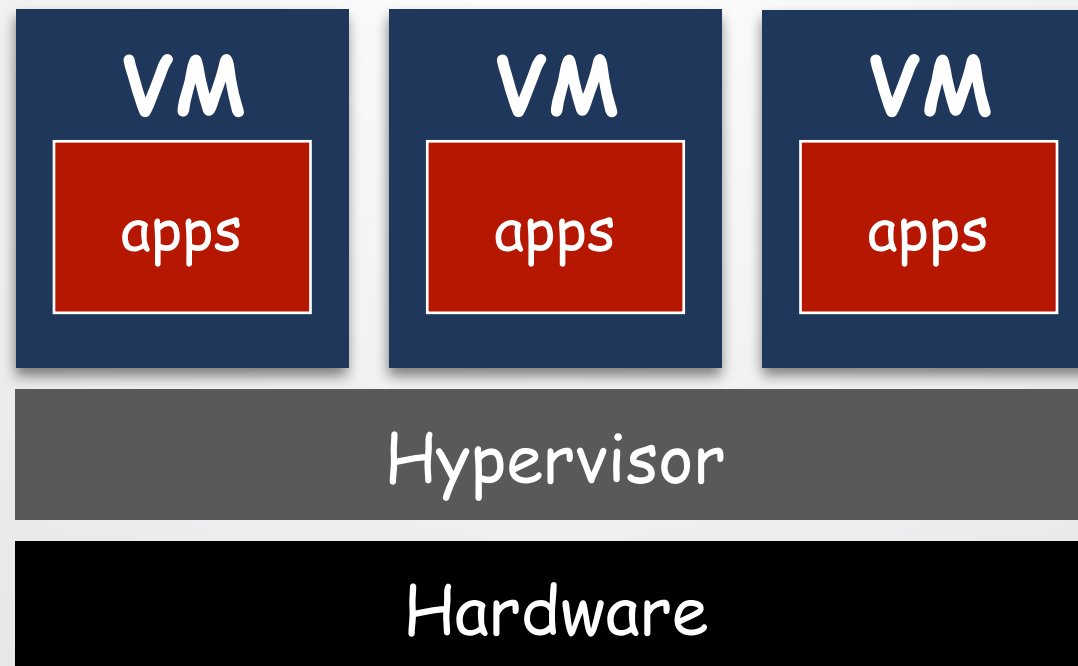
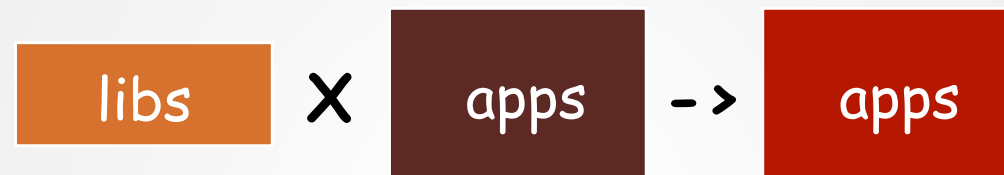


# Cunik Technology



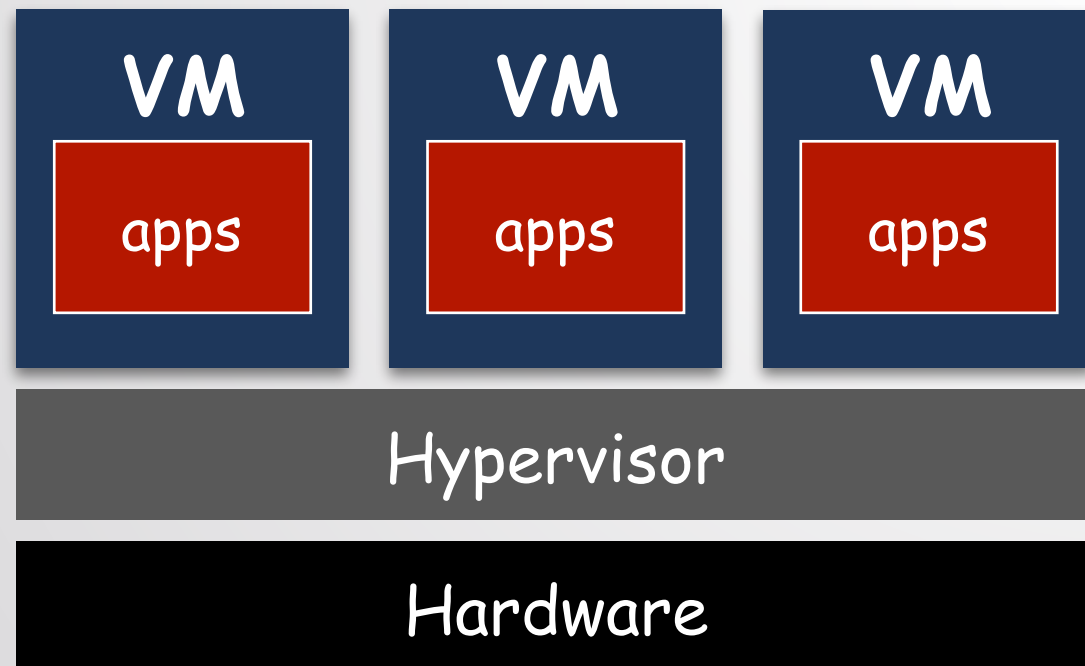
# Cunik Technology

## Unikernel

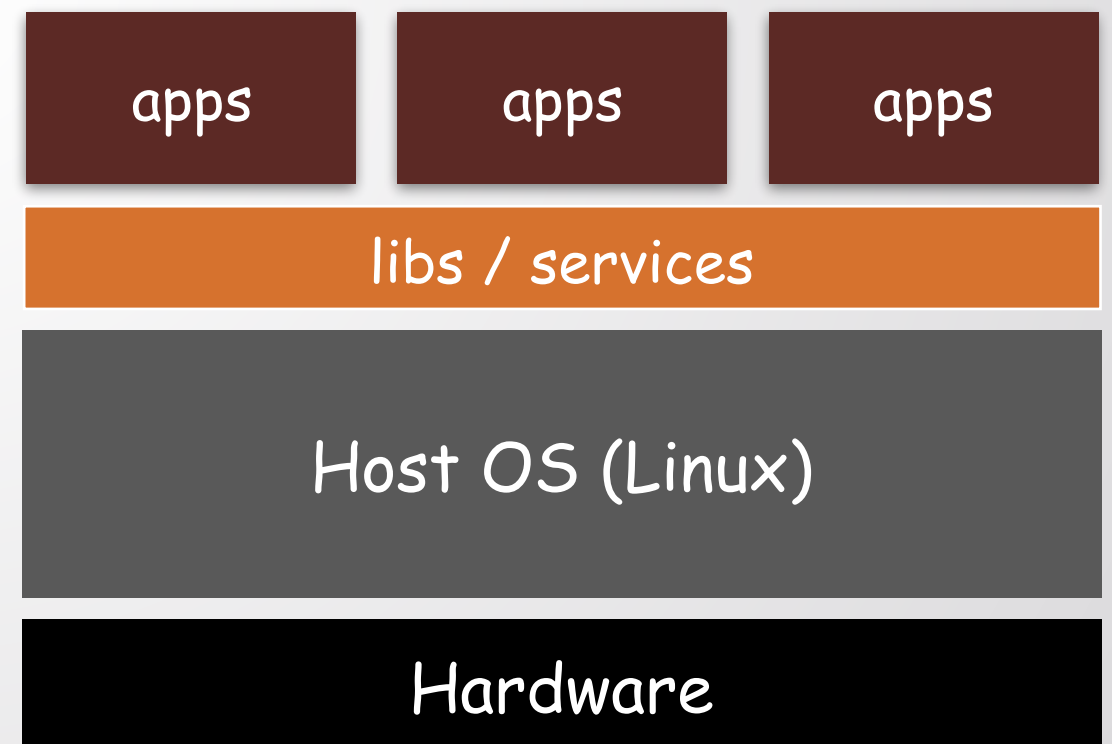


# Cunik Technology

## Unikernel



## Container



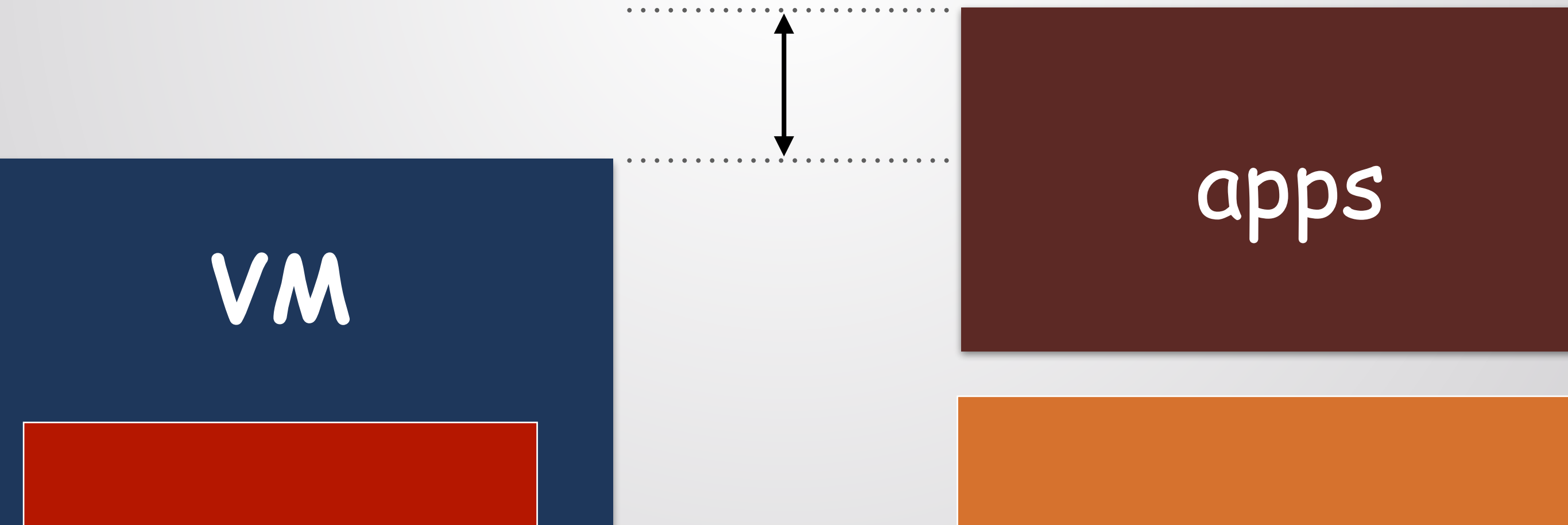


# Cunik Technology

VM

apps

# VM is better than Container?



# 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

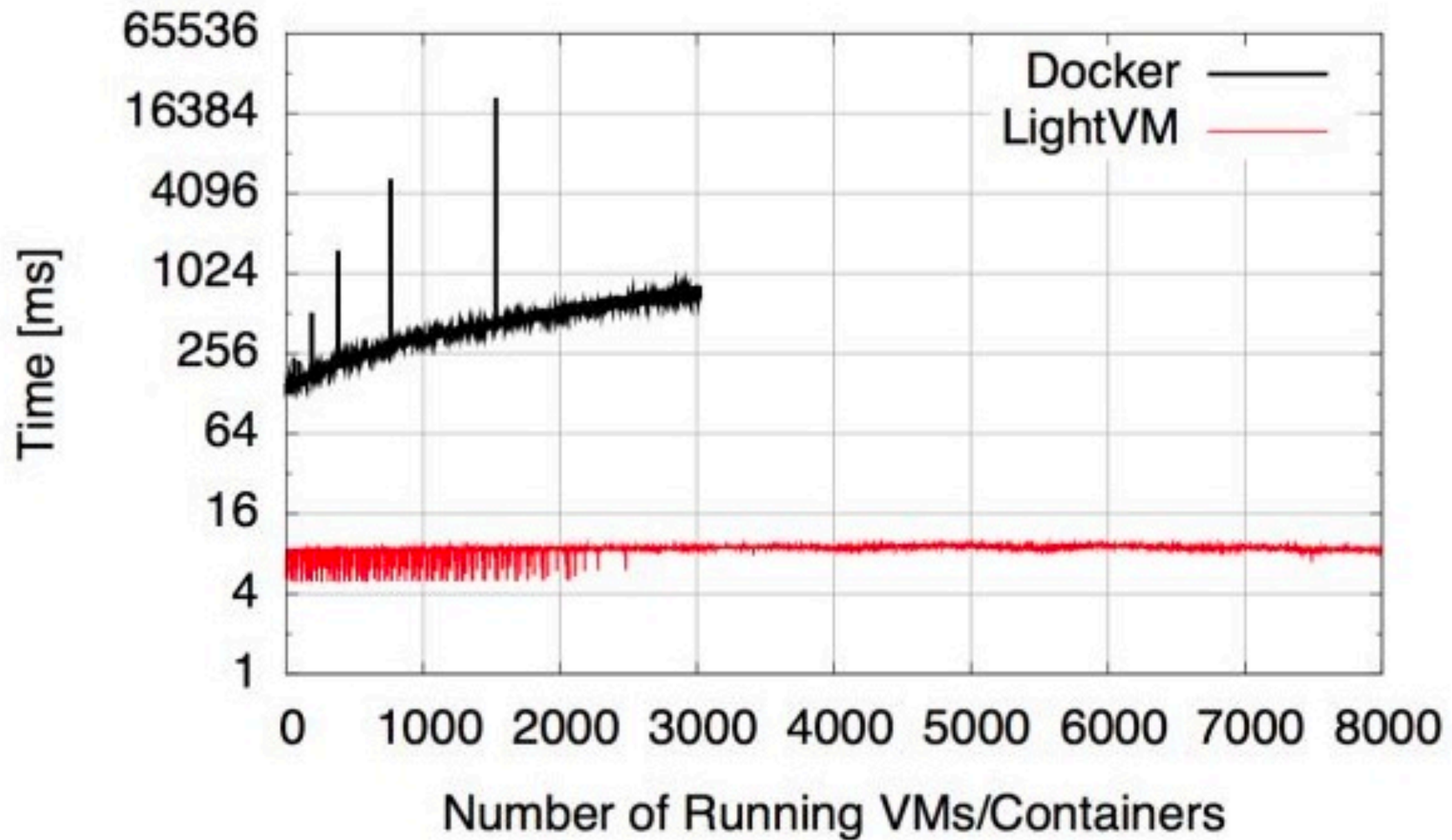
Virtualization, unikernels, specialization, operating systems, Xen, containers, hypervisor, virtual machine.

### 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 *Proceedings of the 2017 ACM SIGOPS Conference on Operating Systems (SOSP '17)*. ACM, New York, NY, 1–16.

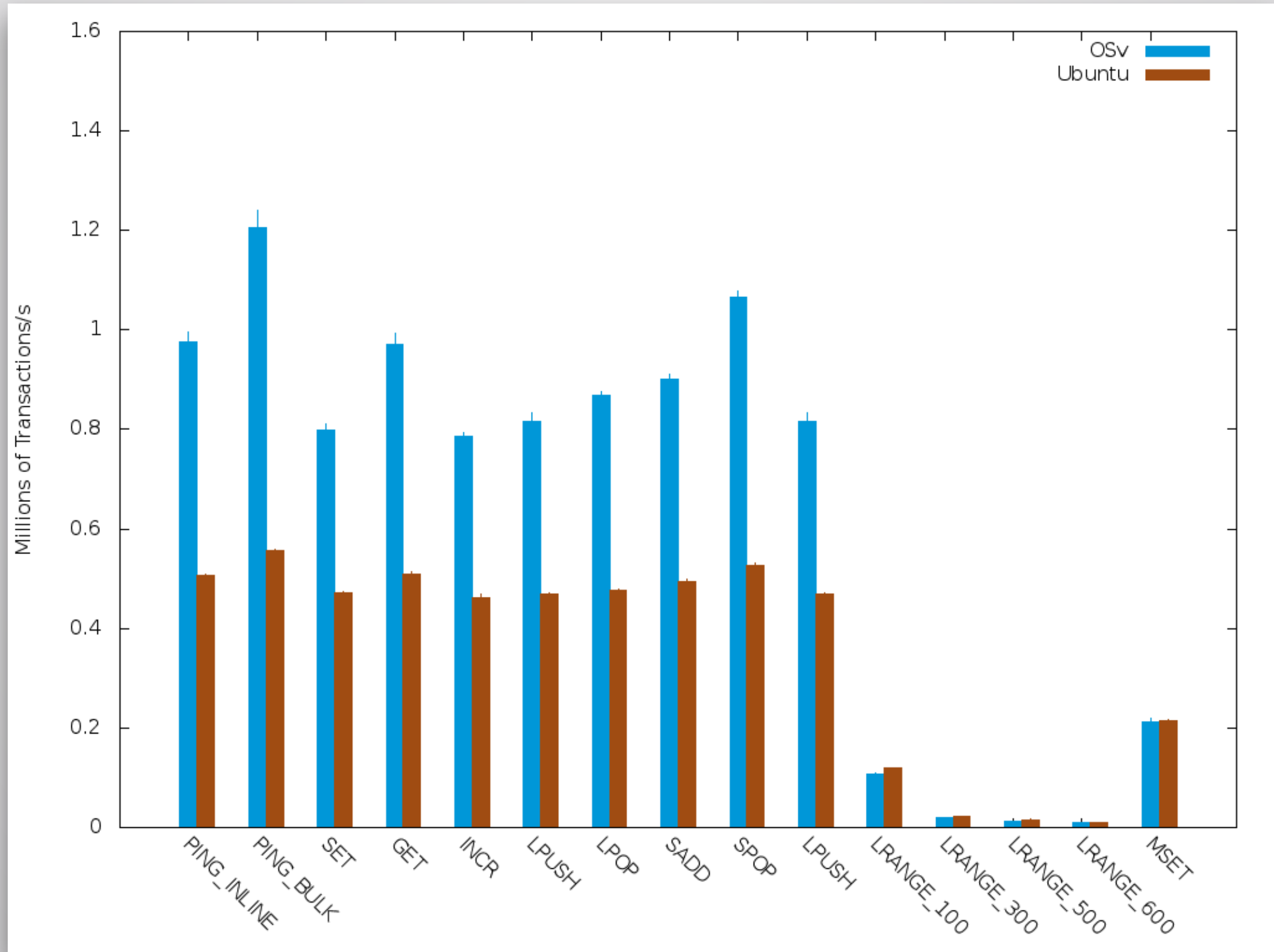
Cunik

# VM is better than Container?





# VM is better than Container?

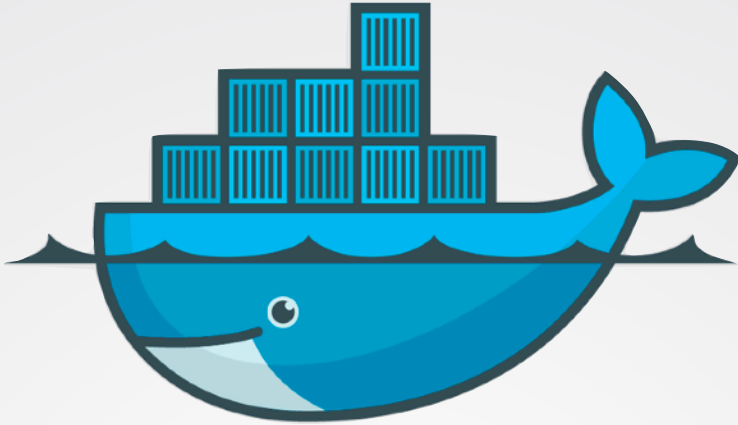


Cunik

But

Cunik

But



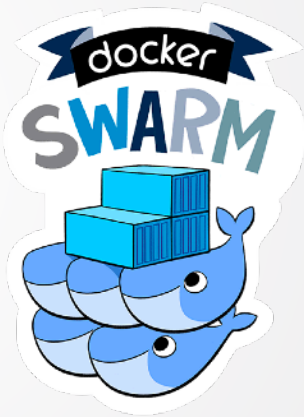
- 📦 100,000+ apps
- 👤 3,300+ contributors
- 📄 12,000,000,000+ pulls



Docker Compose



Docker Machine



Docker Swarm



Kubernetes



Cunik

But



unikernel

Builder	👍	✗
Scheduler	👍	✗
Orchestration	👍	✗
Cluster	👍	✗
Hub	👍	✗



**It works on my machine.**



# Getting started in `T` minutes

Name	T (minutes)
Conda	20
Ruby	20
Python pandas	10
Microsoft .NET	10
SaltStack	10
AWS	10
TypeScript	5
PHP	0.1 (citation needed)

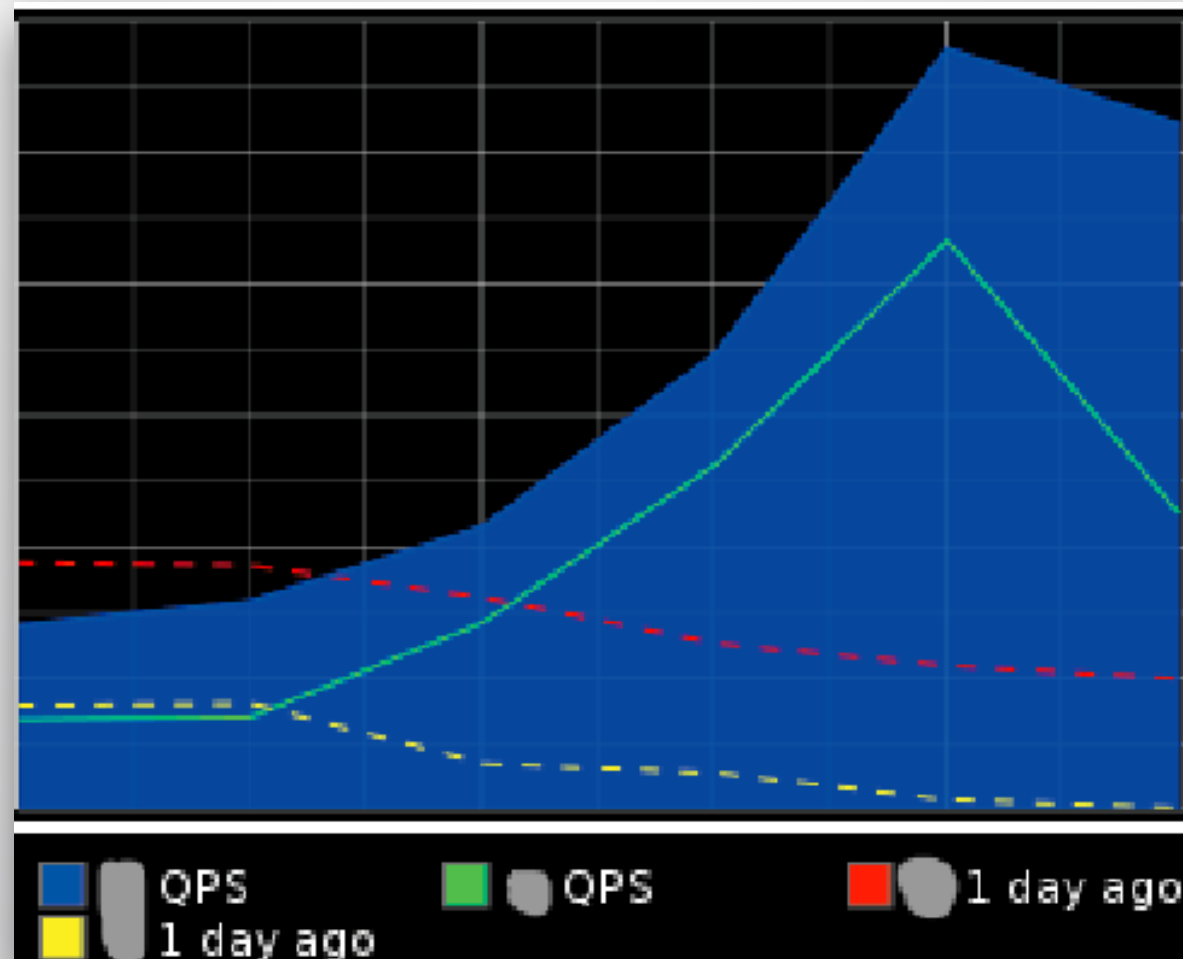
# 搞个大新闻



M鹿M  

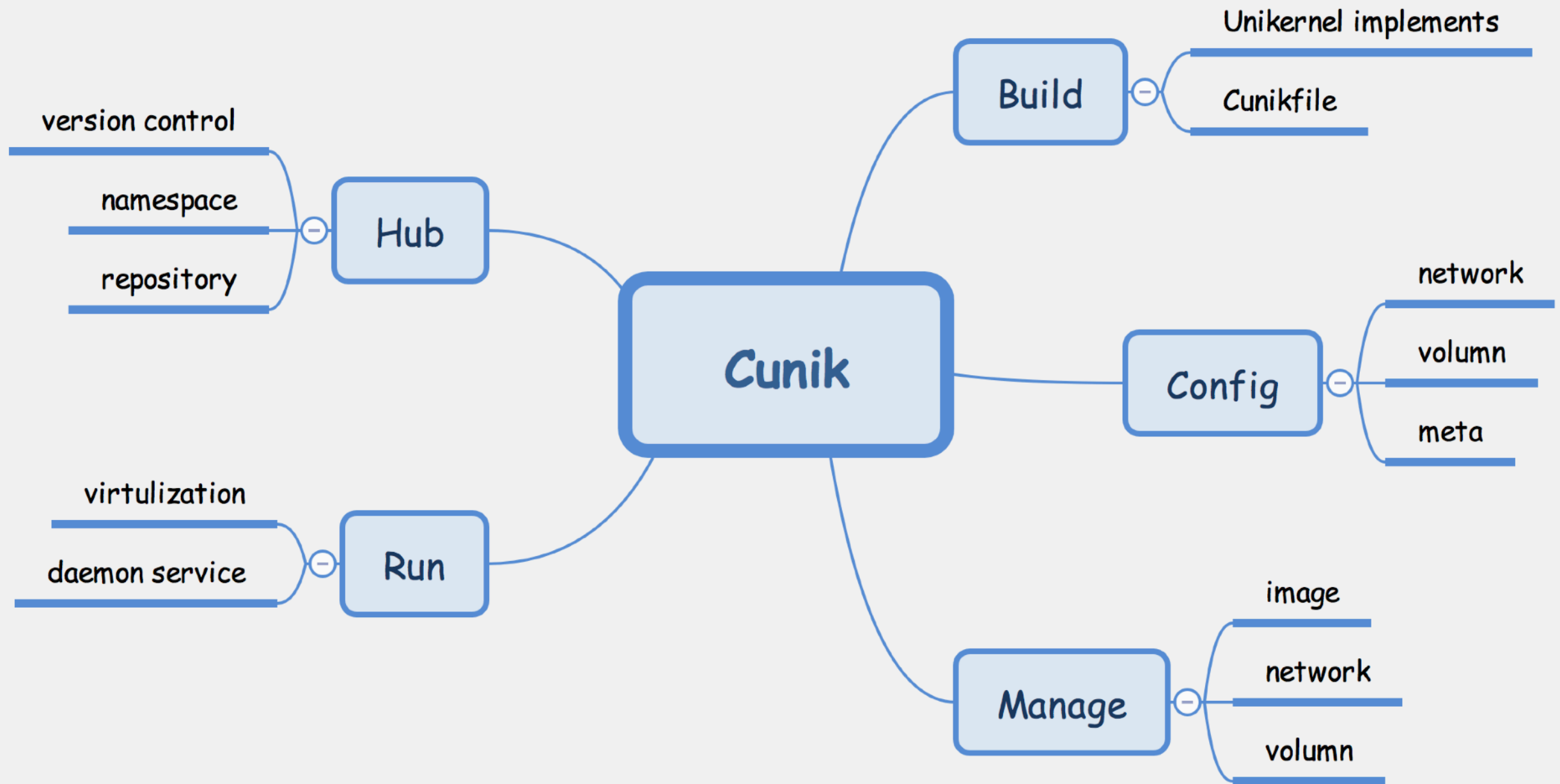
今天 12:00 来自 vivo X20全面屏手机

大家好，给大家介绍一下，这是我女朋友@关晓彤



Cunik

# Container Unikernel



**Technology  
benefits  
humanity**





# Thanks!

<https://cunik.org>

<https://github.com/cunik>