dockerdev

Container Camp 2020

May 22, 2020

a disposable and remote

development environment

based in the cloud and containers

Jorge Marín

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@chipironcin

Hidden slide

Welcome to virtual ContainerCamp 2020 and thanks for coming to my talk 🤩

UTC **Spain (UTC+2)**	**02:30** **04:30**
San Francisco (UTC-8)	19:30
London (UTC+1)	03:30
Moscow (UTC+3)	05:30
New Delhi (UTC+5:30)	08:00
Shanghai (UTC+8)	10:30
Singapore (UTC+8)	10:30
Sydney (UTC+10)	12:30

breathe *no, srsly, breathe*

dockerdev

My name is Jorge, and I am an engineer 👋🏻 🇪🇸

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Poll time - Raise your hands if you...

Poll time - Raise your hands if you…

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(after the talk)

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Never have I ever said…

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Never have I ever said…

It works on my computer

Never have I ever said…

I need this running all weekend

Never have I ever said…

By xkcd

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Never have I ever said…

This file download is taking

FOR - E - VER

Never have I ever said…

Uh oh…

My ~~computer~~ hanged, needs reboot

development environment

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Never have I ever said…

Uh oh…

[insert here any critical and very complicated unix thing]

What if I can move my development environment to the cloud?

What if I can move ~~my~~ several development environment to the cloud?

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Today I am going to talk a bit about

- THE CONCEPT
- Problems it solves
- Problems we found
- Moar features
- $$$
- Future

dockerdev

containers development

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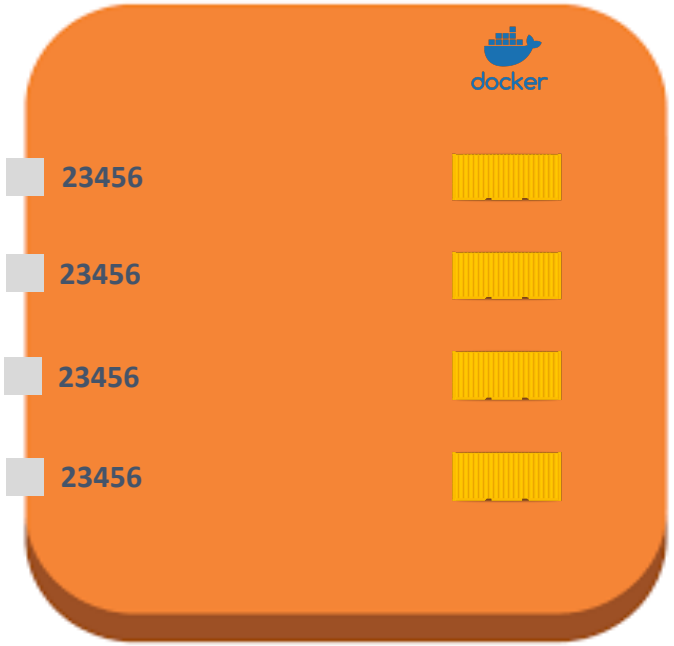
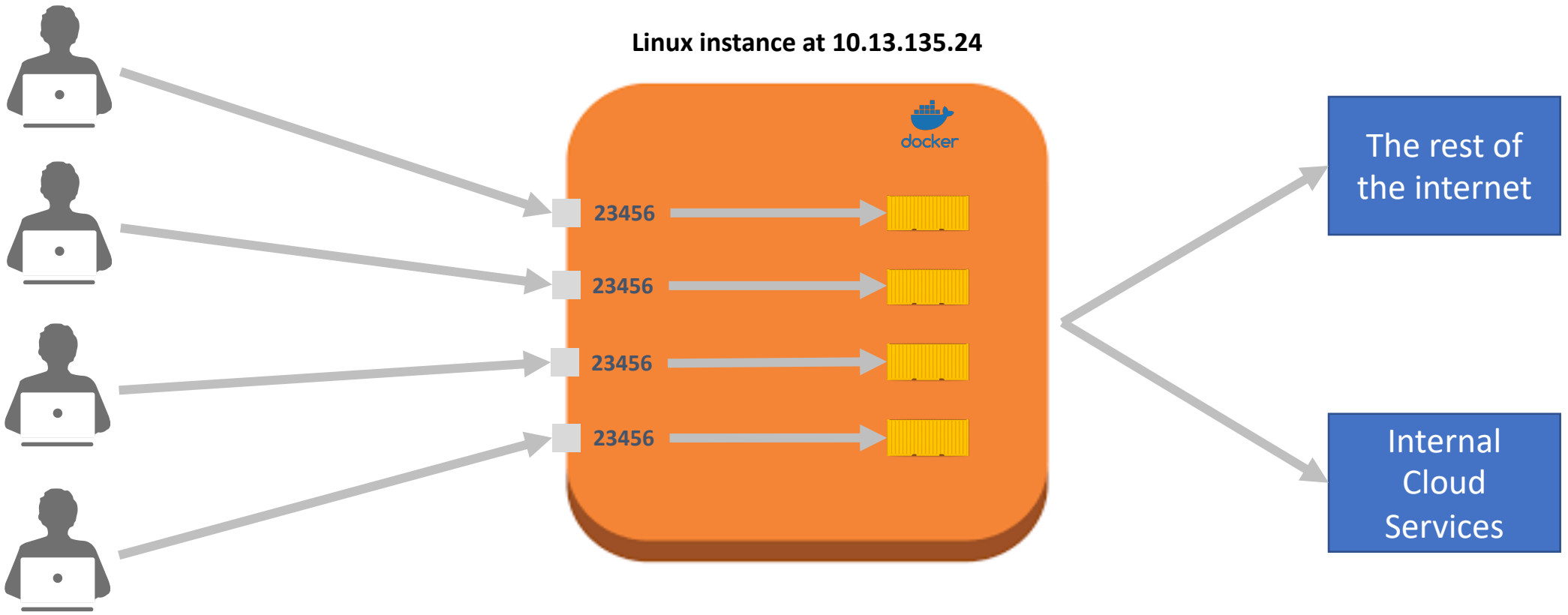
EC2 instance at 10.13.135.24

EC2 instance at 10.13.135.24

EC2 instance at 10.13.135.24

EC2 instance at 10.13.135.24





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History

- Original idea implemented at  back in 2015
  - Compilation of big components like PHP, HHVM, Apache and more

- Infinite loops and wrong configuration hanging your local computer

- Implementation redesigned in 2016
- Currently supporting a whole engineering team of >20 (remote and non-remote)

Problems it solves

It works on my computer

Problems it solves

~~It works on my computer~~

Same environment for everyone ✓

Problems it solves

Environment setup takes almost a week (keys, repos, configuration, VPN)

Problems it solves

~~Environment setup takes almost a week (keys, repos, configuration, VPN)~~

Containerized environment ✓

Problems it solves

My computer got stolen and now the company is in serious risk

Problems it solves

~~My computer got stolen and now the company is in serious risk~~

Data resides in the cloud ✓

Problems it solves

Need more CPU

Need to share some files

Problems it solves

~~Need more CPU~~

~~Need to share some files~~

Shared resources ✓

Problems it solves

Need to be up all weekend
Slow network

Problems it solves

~~Need to be up all weekend~~

~~Slow network~~

Remote environment living in the cloud ✓

Problems it solves

Shit happenz

Problems it solves

~~Shit happenz~~

Disposable container-based environment ✓

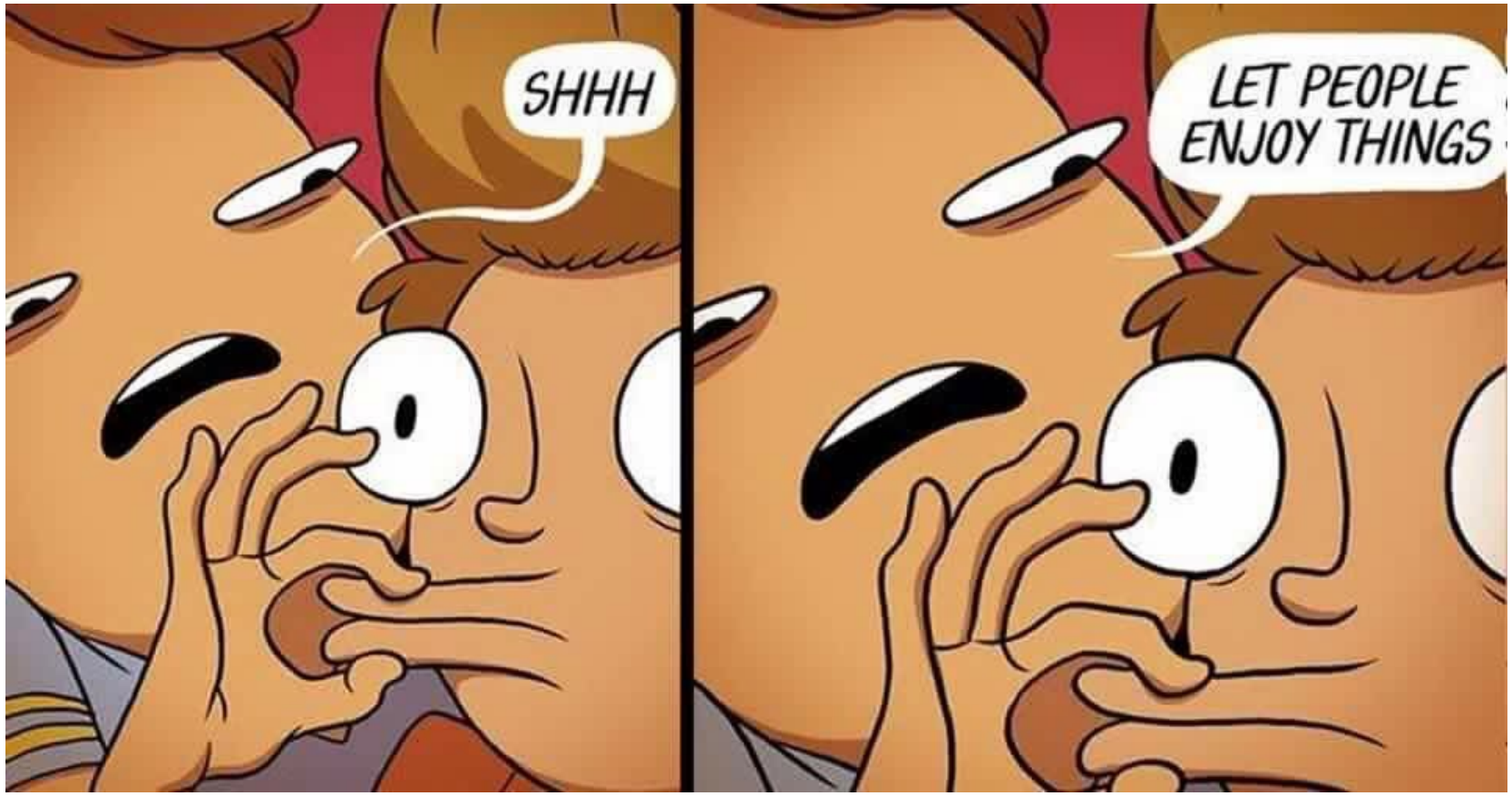
Problems we found

- Random (or not so random) restarts affect everyone
- Sensitive devices mounted on every container:
  - /dev/hpet
  - /dev/xvd*
  - /dev/dm-*
- Updates and patches
- Sharing issues
  - Run out of disk space
  - A single container draining all RAM

But

- If your development environment is a container…
  - you won’t be able to use containers for fast development
- If your development environment is remote and your files are in the cloud…
  - you won’t be able to use a code editor or IDE
- If your development environment is in another machine…
  - how can you trust the machine you are connecting to?

But



Moar features

- DIND
- Edit files locally, build remotely
  - Visual Code RemoteFS
  - Syncthing (https://github.com/syncthing/syncthing)
- Secure access
  - SSH keys
  - Machine fingerprint
- Dockerdev manager tool (start/stop/recreate)

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Cost-wise

Cost-wise

Based solely on my late-night research
DO NOT TAKE IT FOR GRANTED
DO NOT TAKE IT AS FINANCIAL ADVICE

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Cost-wise

- 12 engineers
- 5 years

Cost-wise

- 12 engineers
- 5 years

High end computer

2.9 GHz Intel Core i7, 16 GB
$1800 one time

$360 a year per engineer

Cost-wise

- 12 engineers
- 5 years

---

c5.2xlarge reserved

8vCPU | 16GiB
$180 ($128 if weekends off) a month

$180 a year per engineer
+ $160 a year per engineer ($800 computer)

Cost-wise

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Cost-wise

Cost-wise

Download speed

Cost-wise

Download speed

Same tools

Cost-wise

Download speed

Same tools

Sharing files

Cost-wise

Download speed

Same tools

Sharing files

Same system configuration

Future

- Avoid DIND by connecting to a Docker socket outside your container
  - Separate Docker servers per user
- Auto stop containers and stop instance at nights / during weekends
  - But we need to save state (cri-o)
  - And have a way of not stopping containers with long running tasks
- Kubernetes cluster allowing autoscaling

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Final thoughts

- Thanks to Bitnami (now part of VMWare) for letting me sharing the concept
- Thanks to you all for listening
- Thanks to the amazing organizers and generous sponsors of ContainerCamp

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