

Reproducible build environments:  
mucho más que containers

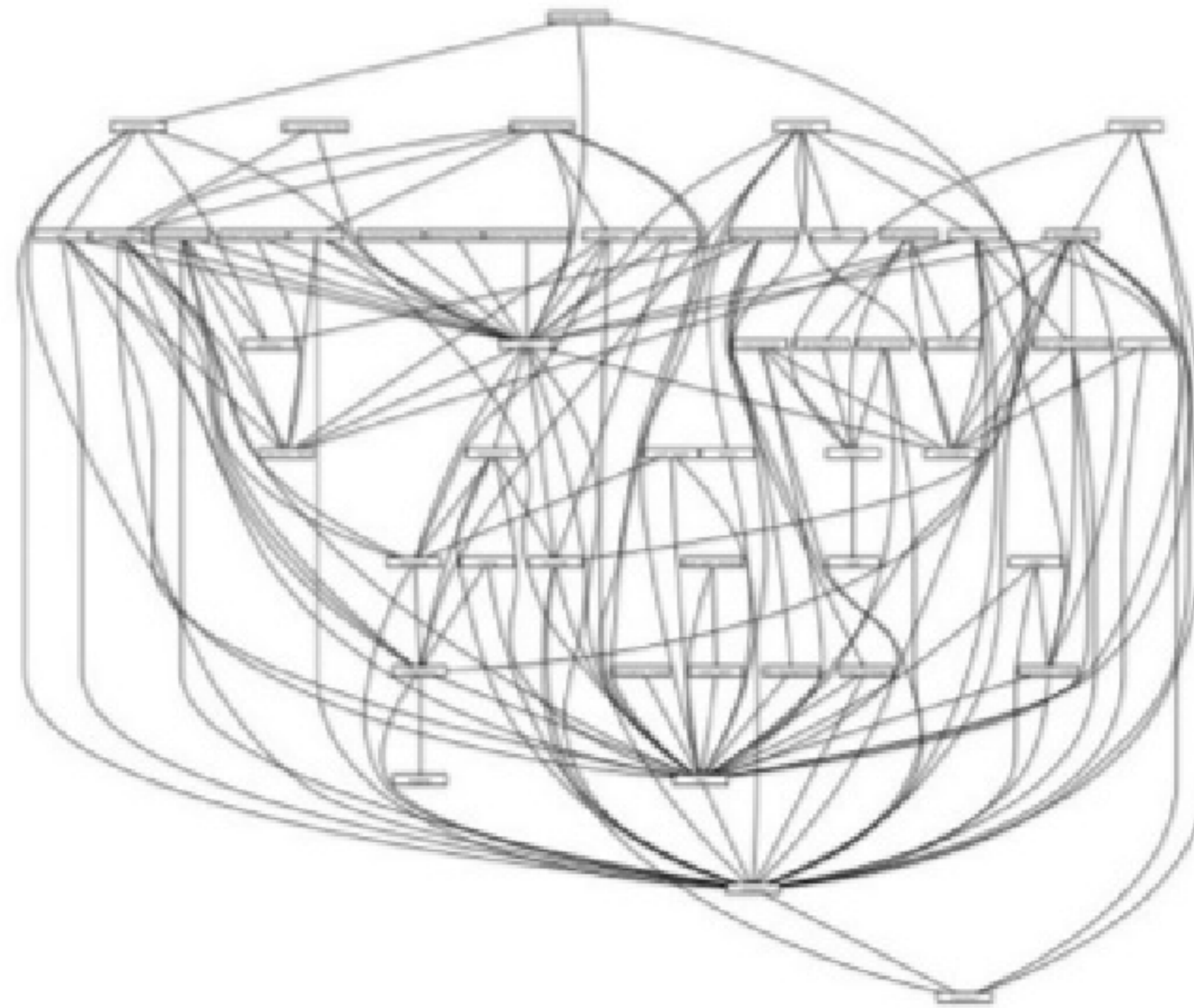
— \\_ ( ツ ) \_ / —

**IT WORKS**  
on my machine

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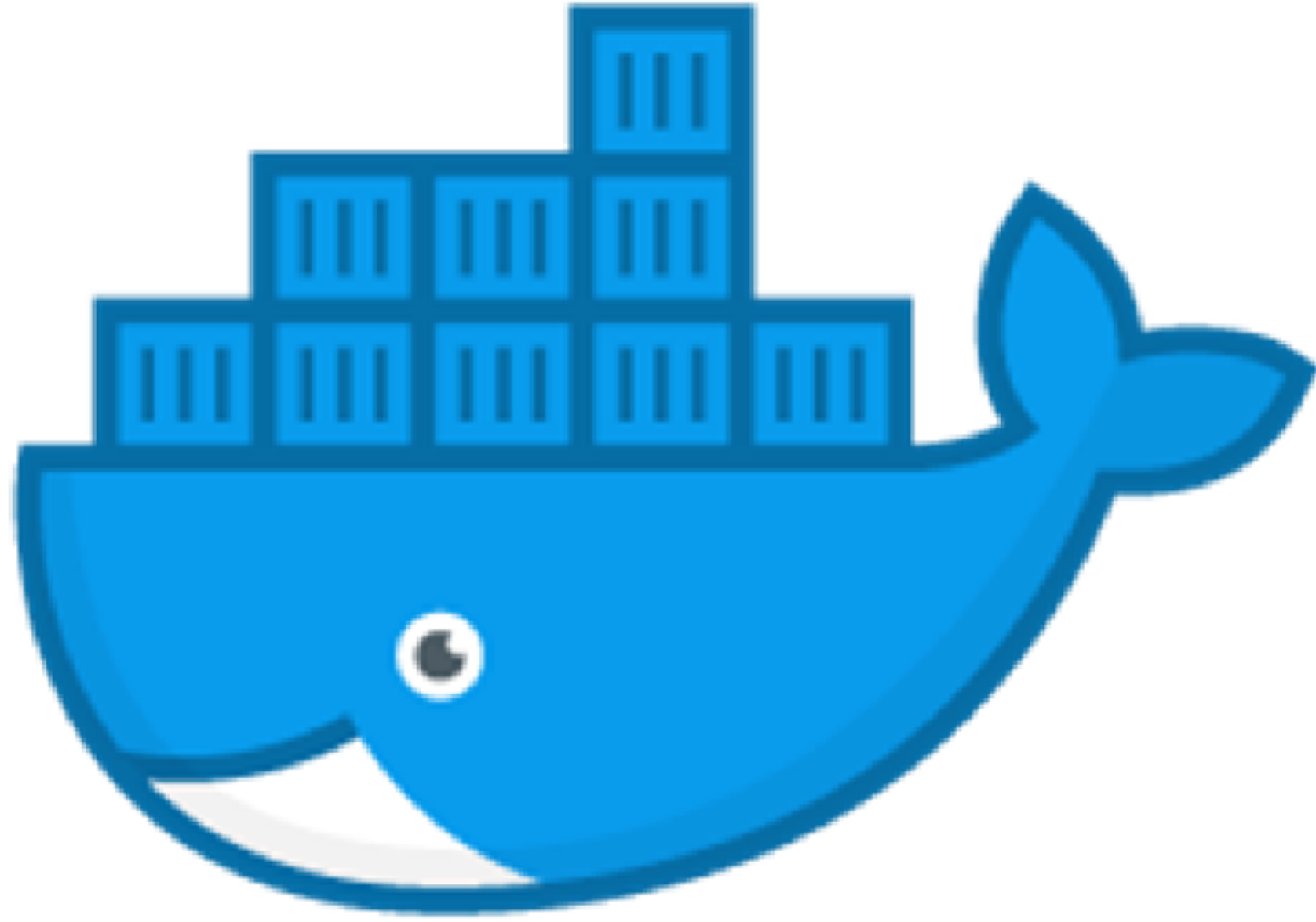
# DEPENDENCY HELL

---



```
[matias@lizarazu:/tmp/sample-project]$ cat requirements.txt
asn1crypto==0.24.0
certifi==2019.6.16
cffi==1.12.3
chardet==3.0.4
cryptography==2.7
idna==2.8
packaging==19.0
pyasn1==0.4.5
pycparser==2.19
pyOpenSSL==19.0.0
pyparsing==2.3.1
PySocks==1.6.8
requests==2.22.0
six==1.12.0
urllib3==1.24.3
virtualenv==16.4.3

[matias@lizarazu:/tmp/sample-project]$
```



docker®

- “chroot on steroids”
- Entorno aislado del sistema host
- Reproducibilidad vía Dockerfiles

```
# DO NOT USE THIS DOCKERFILE AS AN EXAMPLE, IT IS BROKEN
# https://pythonspeed.com/articles/dockerizing-python-is-hard/
FROM python:3

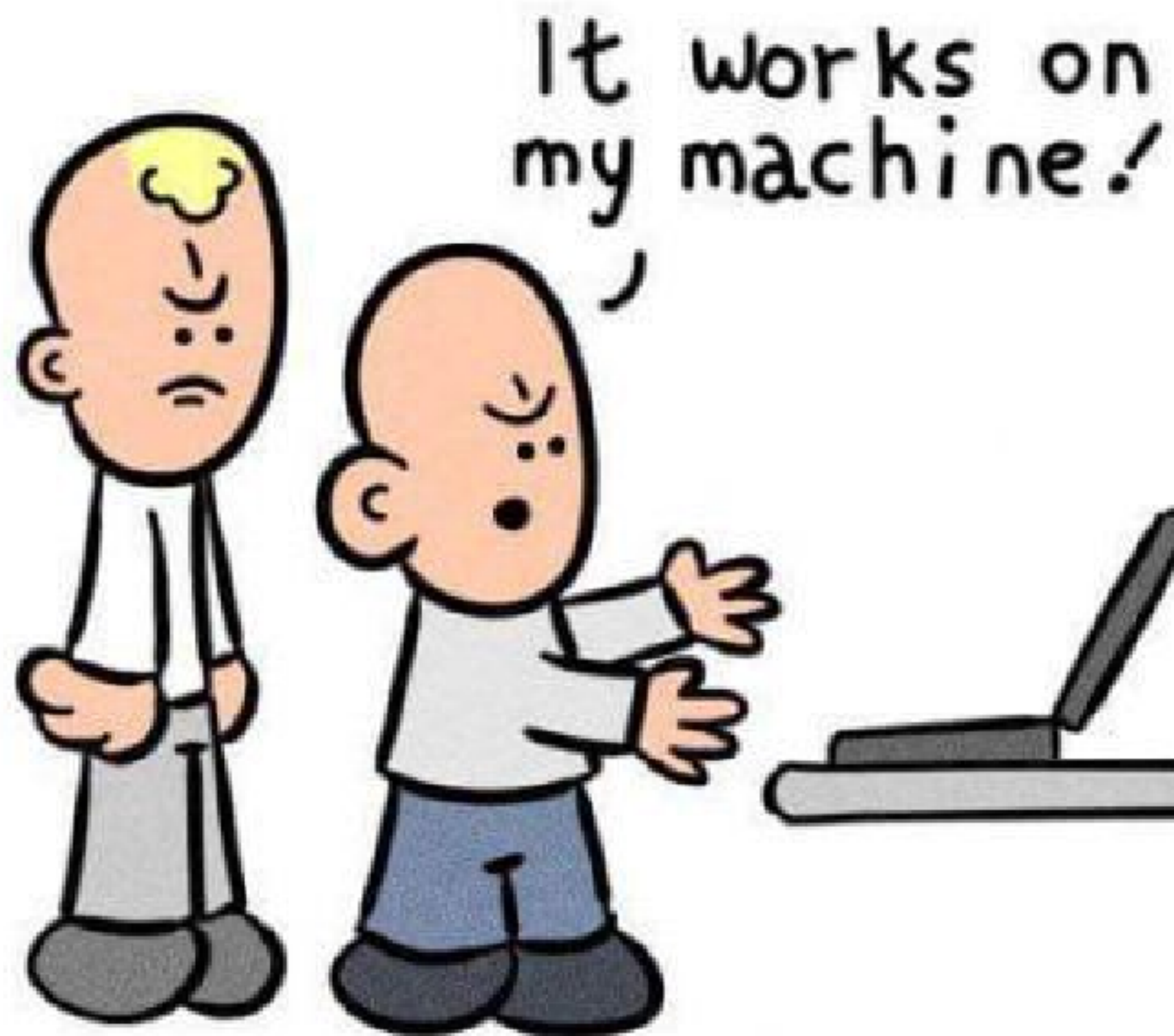
COPY yourscript.py /

RUN pip install flask

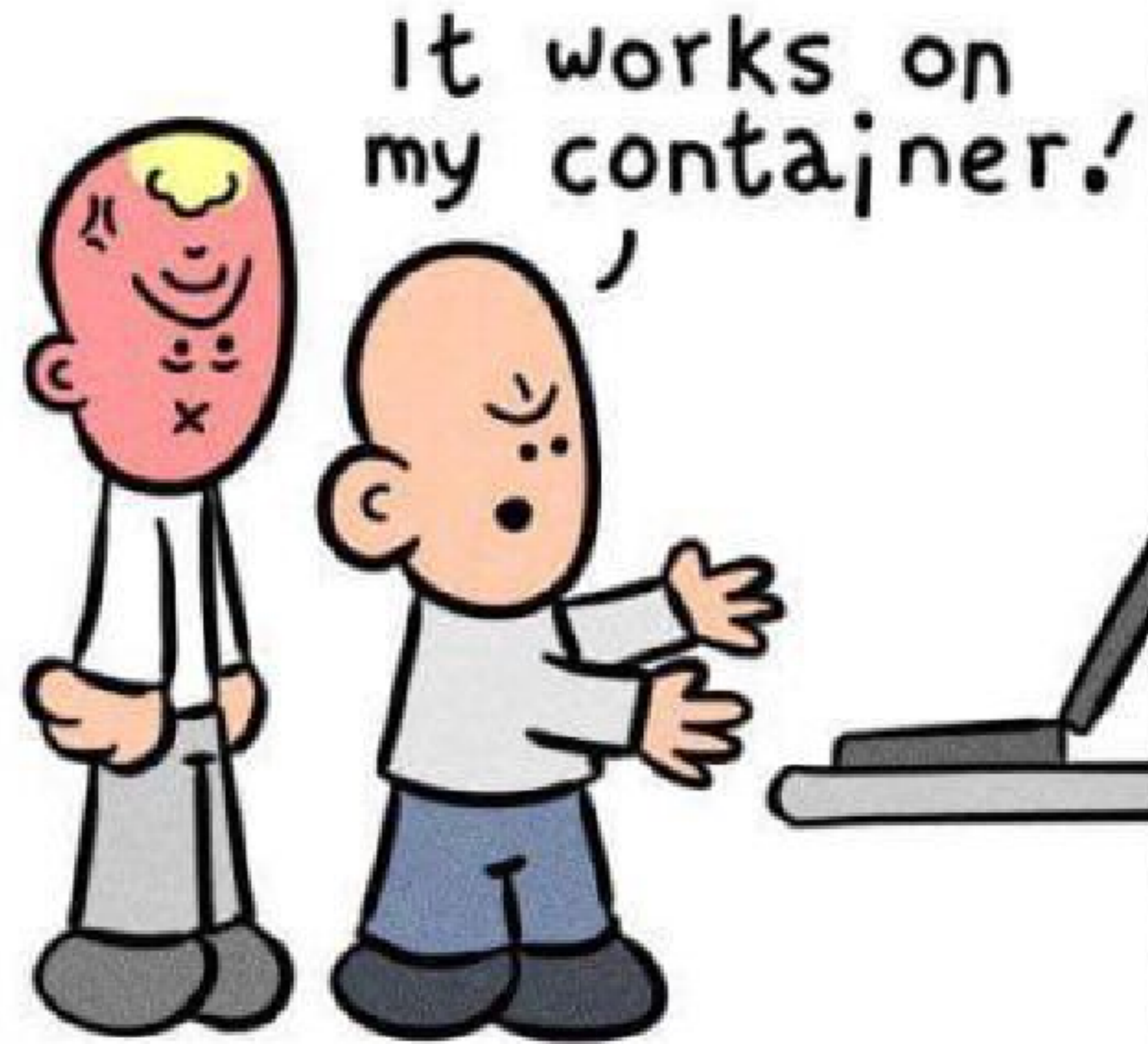
CMD [ "python", "./yourscript.py" ]
```



Before Devops



After Devops





- Reproducibilidad "espacial", no "temporal"
- Difícil de usar para desarrollar
- Generalmente usan binarios de las distros
- Caching difícil (por el modelo de layers)



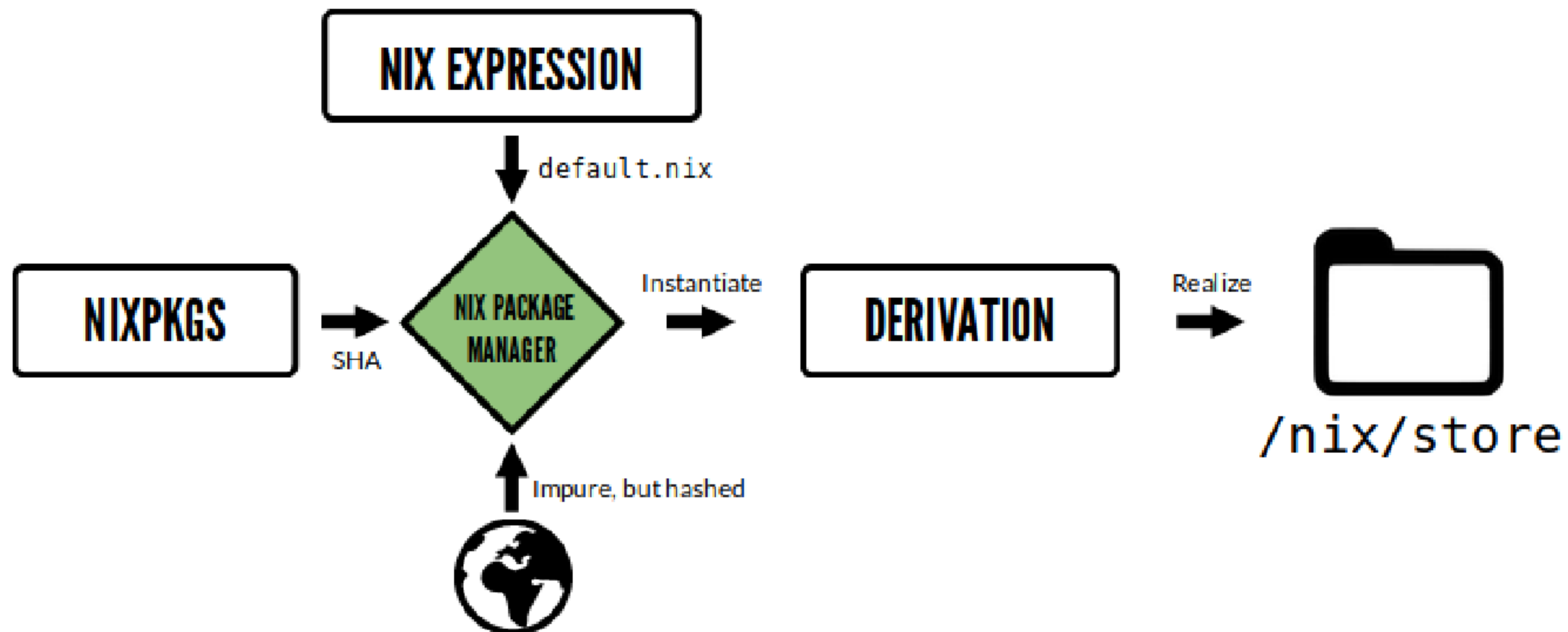




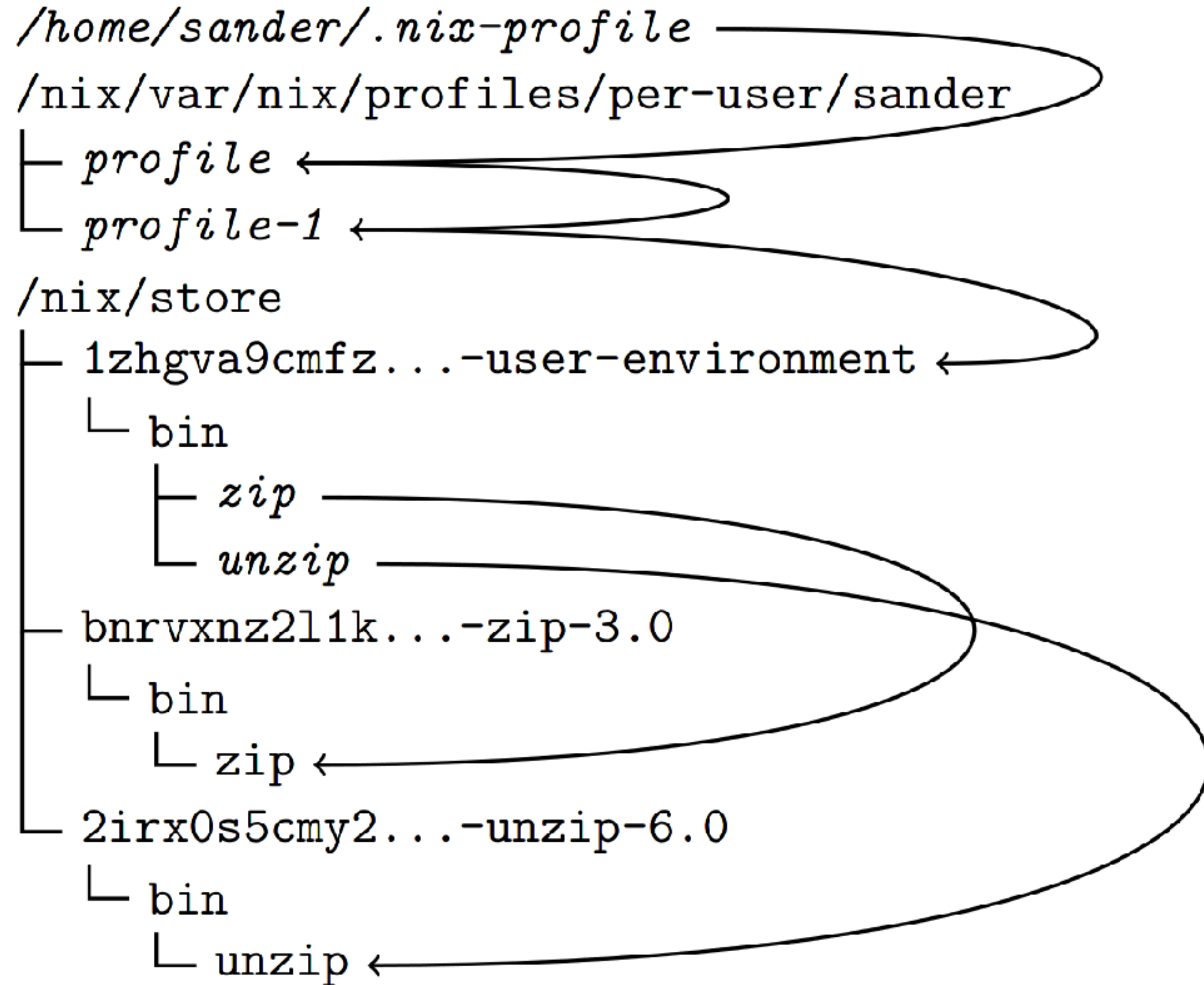
**Nix**



- Build tool y package manager
- Multiplataforma
- Reproducible by design
- “symlinks on steroids”



**HOW DOES NIX WORK?**





```
sh-4.4$ cat shell.nix
```

```
let
  pkgs = import (builtins.fetchGit {
    name = "nixpkgs-unstable";
    url = https://github.com/nixos/nixpkgs/;
    rev = "ac1aeb4fbbeda940792c9c319c89badd36598705";
  }) {};
in
pkgs.mkShell {
  buildInputs = [ pkgs.imagemagick pkgs.xdotool ];
}
```

```
sh-4.4$ ./topdf.sh
./topdf.sh: line 6: convert: command not found
sh-4.4$ nix-shell
```

```
[nix-shell:~/presentacion-nix-nerdear1a]$ ./topdf.sh
PDF saved in ./slides.pdf
```

```
[nix-shell:~/presentacion-nix-nerdear1a]$ █
```

```
4 #! /usr/bin/env nix-shell
3 #! nix-shell -i bash -p xdotool -I nixpkgs=https://github.co
  m/NixOS/nixpkgs/archive/ac1aeb4fbbeda940792c9c319c89badd3659
  8705.tar.gz
2
1 for windowid in $(xdotool search --class sent); do
    xdotool type --window $windowid $*
1 done
```

Nix no es una alternativa a Docker!

Nix no es una alternativa a Docker!  
Pero sí a los Dockerfiles

# Problemas de Nix

# Documentación



Complicado lidiar con malas  
prácticas de packaging

# Conclusiones

## Links útiles

- [nixos.org/nixos/nix-pills/](https://nixos.org/nixos/nix-pills/)
- [nixos.org/{nix,nixpkgs,nixos}/manual/](https://nixos.org/{nix,nixpkgs,nixos}/manual/)
- [guix.gnu.org](https://guix.gnu.org)
- [twitter.com/cript0nauta](https://twitter.com/cript0nauta)
- [bit.ly/ellinkalacharladenix](https://bit.ly/ellinkalacharladenix)

Muchas gracias!

Preguntas?