

# HashiConf Europe



## How a Top European Cloud Provider Migrated to TFE

**Horacio Gonzalez**

**2022-06-22**



OVHcloud



@LostInBrittany



# Who are we?

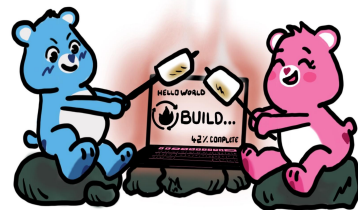
Introducing myself and  
introducing OVHcloud



# Horacio Gonzalez

**@LostInBrittany**

Spaniard lost in  
Brittany, developer,  
dreamer and all-around  
geek



**HashiConf Europe**



# OVHcloud: A global leader



**Web Cloud & Telcom**



**Private Cloud**



**Public Cloud**



**Storage**



**Network & Security**



**35 Data Centers**  
in 12 locations



**34 Points of Presence**  
on a 20 TBPS Bandwidth Network



**2200 Employees**  
worldwide



**115K Private Cloud**  
VMS running



**300K Public Cloud**  
instances running



**380K Physical Servers**  
running in our data centers



**1 Million+ Servers**  
produced since 1999



**1.5 Million Customers**  
across 132 countries



**3.8 Million Websites**  
hosting



**1.5 Billion Euros Invested**  
since 2016



**P.U.E. 1.09**  
Energy efficiency indicator



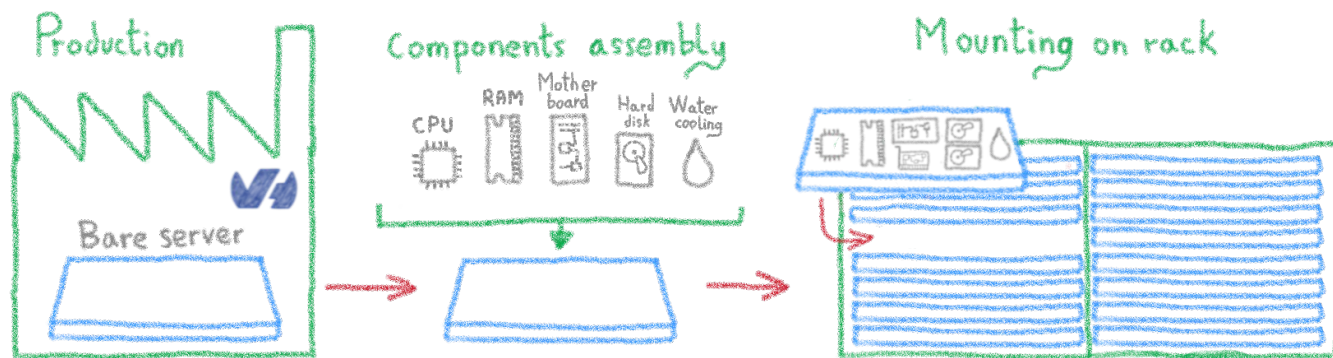
**20+ Years in Business**  
Disrupting since 1999



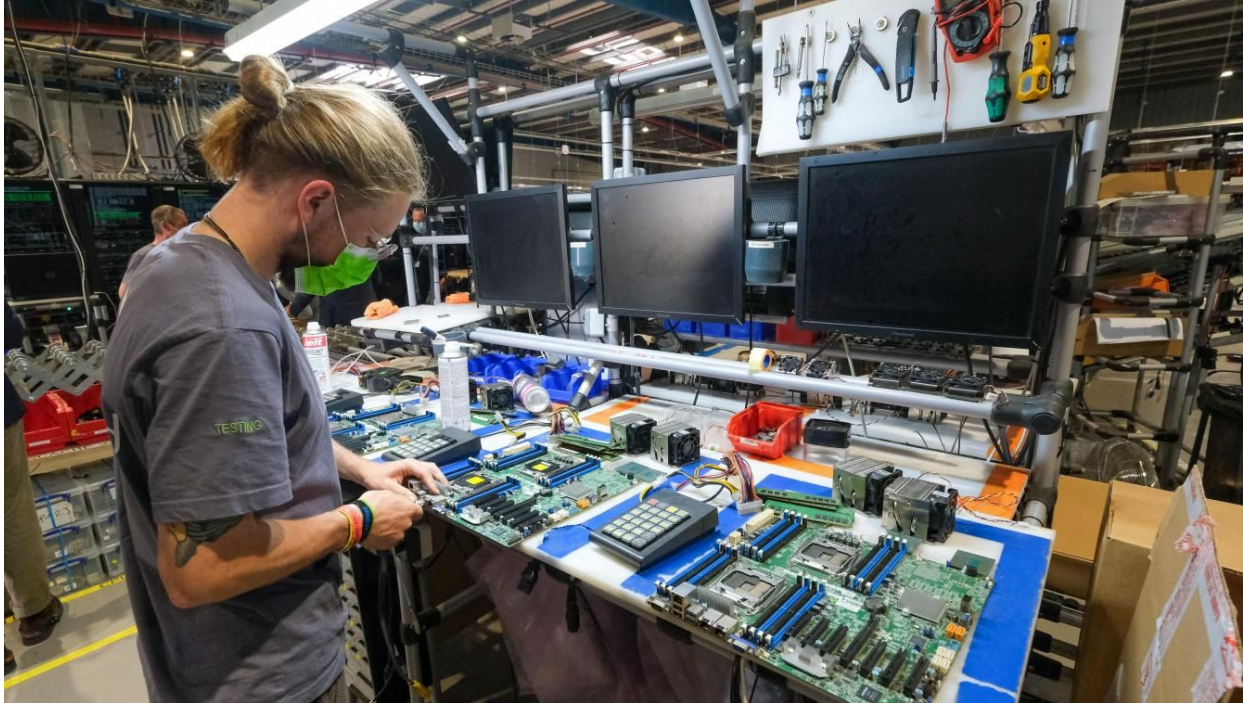


# OVHcloud: an industrial history

## From Roubaix to the World



# OVHcloud began with hardware



We assembly our own bare metal servers

# Looking for maximum efficiency



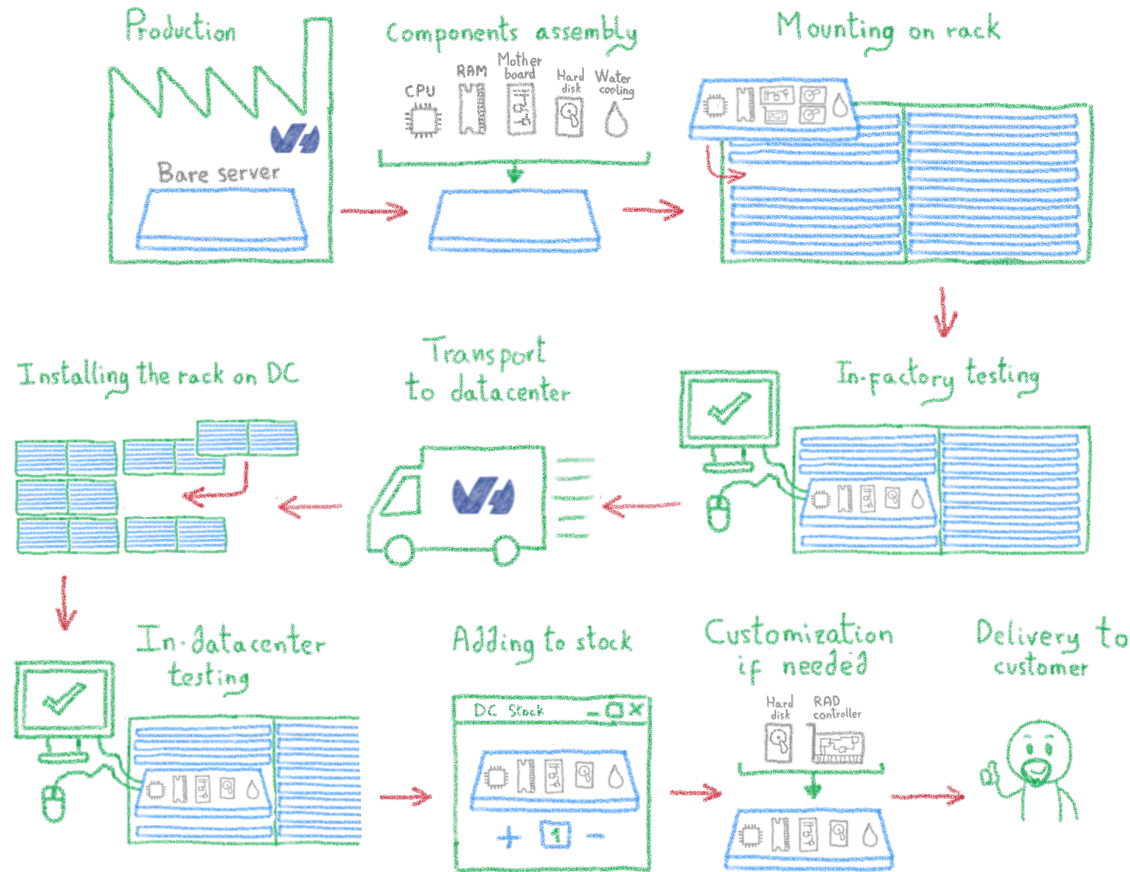
We build our own (horizontal) racks



# From components to datacenters



# We master the industrial value chain





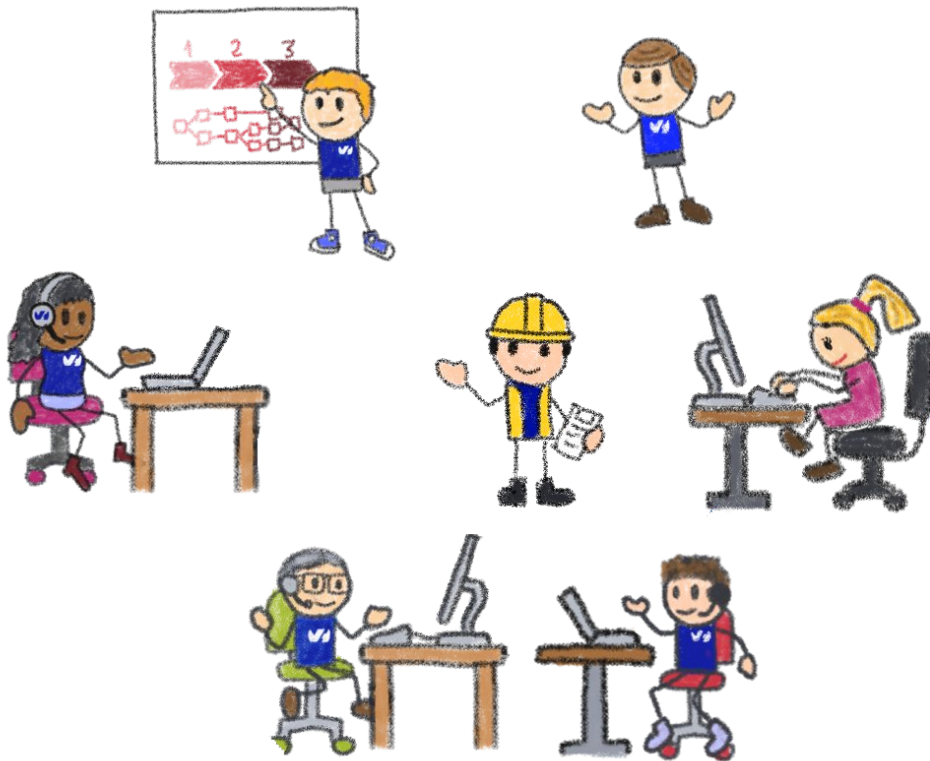
# Wait, why is this relevant?

**This is a talk about Terraform Enterprise, isn't it?**



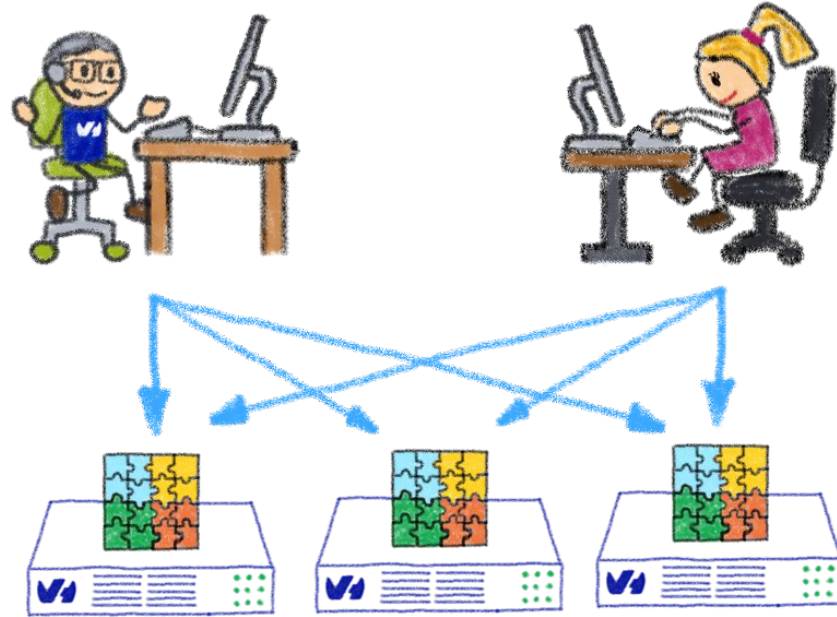


# An industrial culture



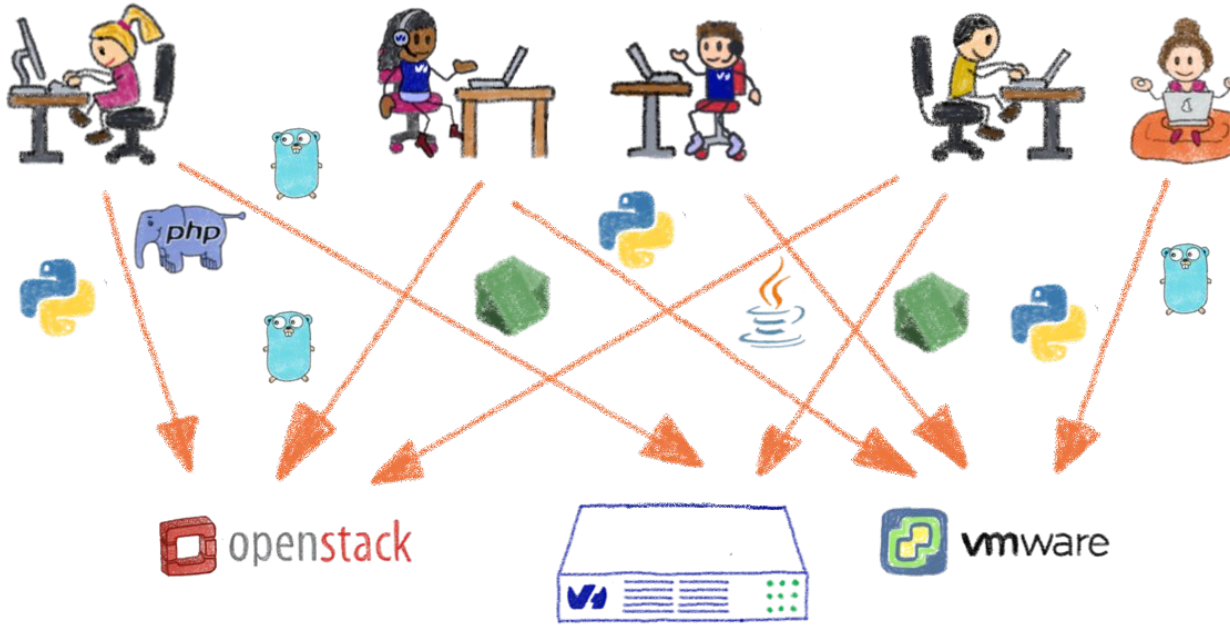
All around the company, from hardware to software

# A strong build it ourselves culture



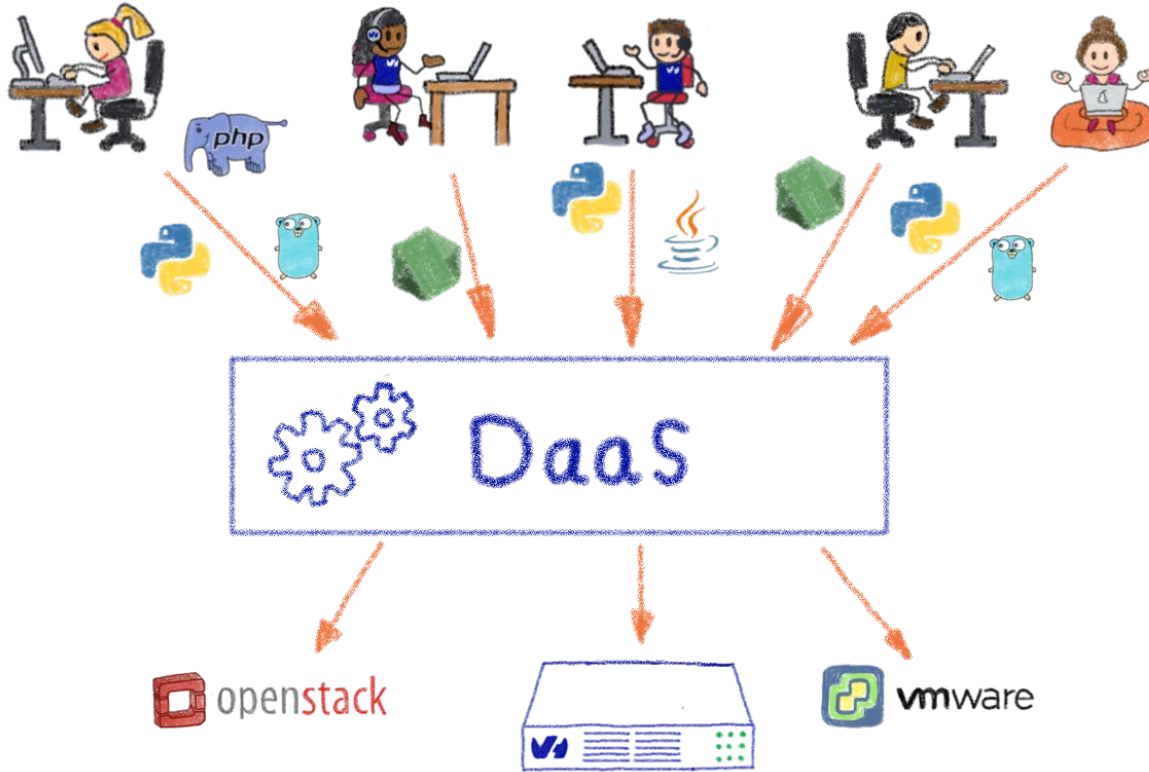
And a deep commitment to Open Source

# Let's travel back to 2014



How can we industrialize deployment ?

# In 2015 we built DaaS



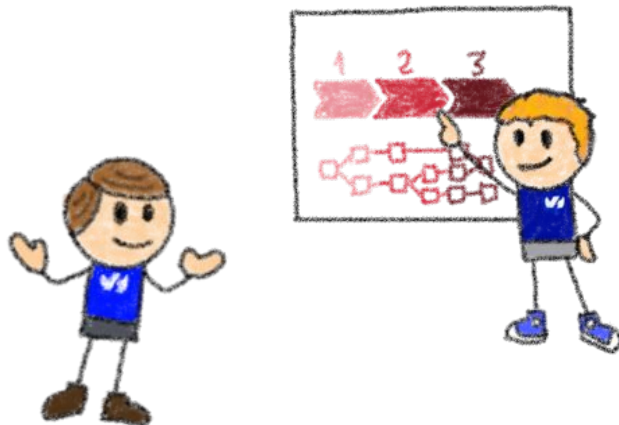
Deployment as a Service

HashiConf Europe

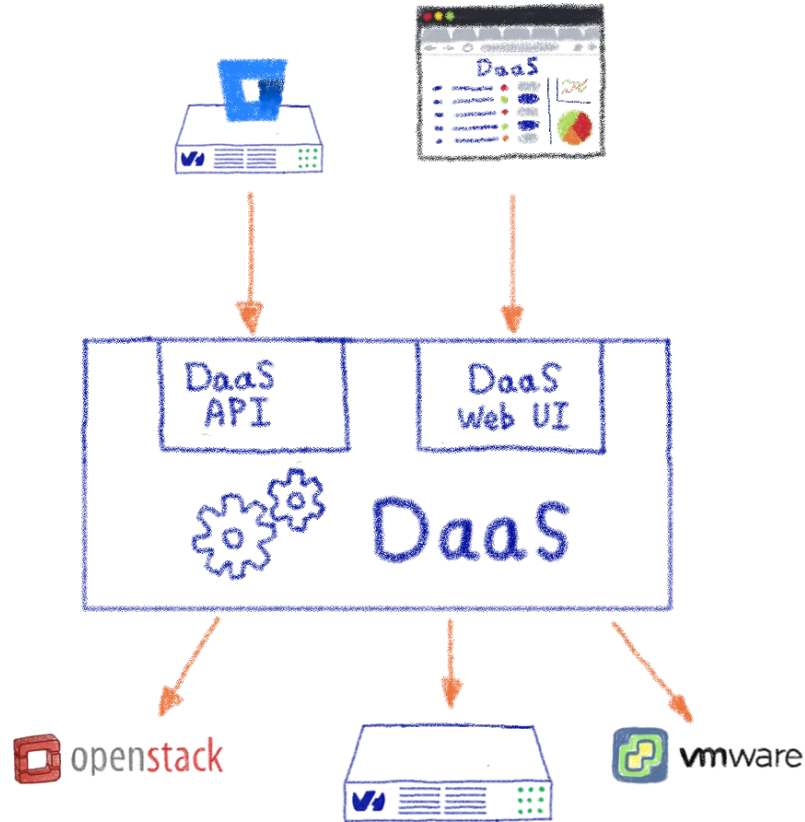


# Rise and fall of DaaS

A four years kingdom



# DaaS: API and web UI entry points

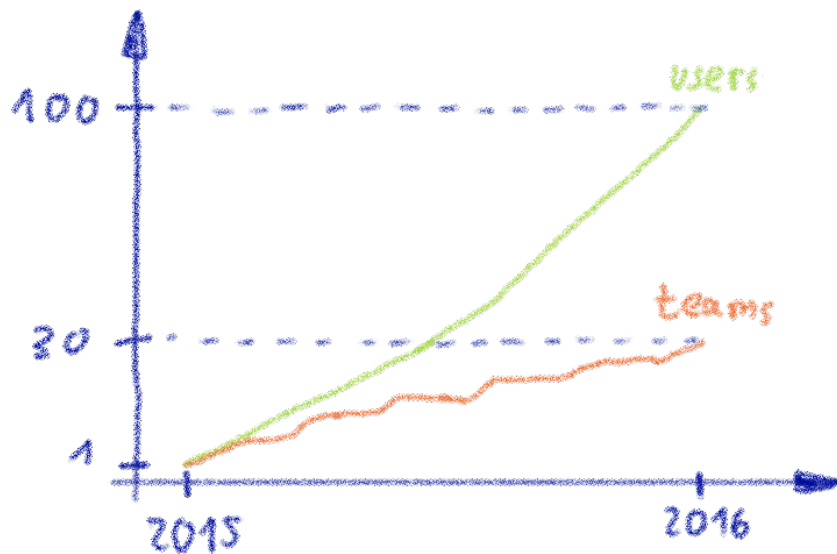


Deploying on

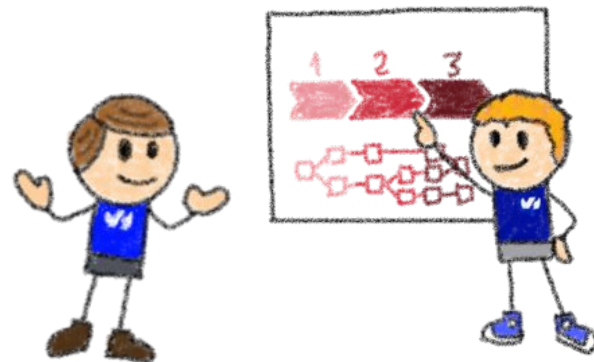
-  openstack
-  vmware
-  bare metal  
using OVHcloud API



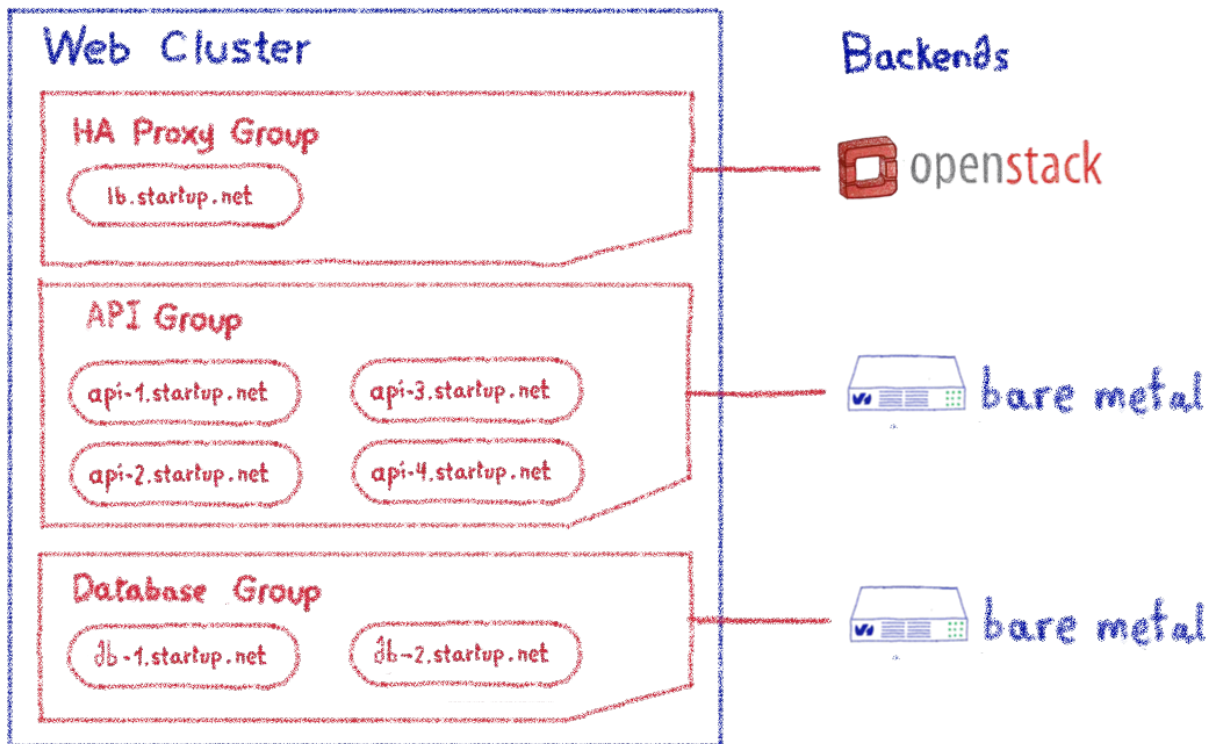
# Hierarchical support



Very quick adoption  
De facto official deployment tool



# DaaS: clusters, groups & backends



# Based on API calls, not IaC



```
POST /cluster/5bc2-49a7/group/db2/scale HTTP/1.1
{
  "delta": 5
}
```

# A small team for a big project



We need this  
new feature!



I stumbled on  
these weird bug...

When will you  
add the backend  
we asked you for?

Have you updated  
the Python lib for  
Python 3?

# 2017 - DaaS creators leave the team



Hey, folks, is anybody there?



# 2019: a new unit arrives, GIS






# Analyse: 3 main problems



- Obsolete code

 python 2 &  python 3

 Angular JS

Obsolete & broken libs

- Complex architecture

Difficult to maintain and modify  
No plugin or extension mechanisms

- Performance & scalability

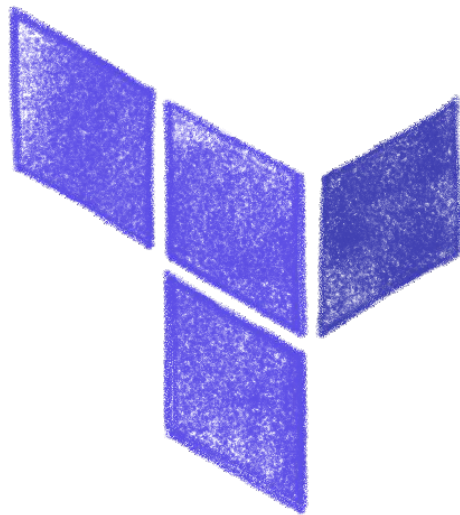
DaaS used on tens of thousands servers

Unmaintained code and missing optimisations



# Looking for a solution

**Terraform to the rescue!**



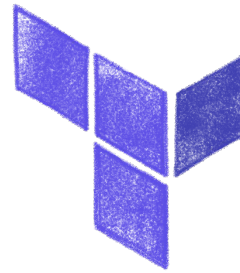
# We can do DaaS V2, can't we?



# What should we do now?



# Enter Terraform



ANYBODY HAS AN IDEA?



TERRAFORM  
OF COURSE



Hmm... TERRAFORM

TERRAFORM!



FOR ME, TERRAFORM



# Better suited for the original goal

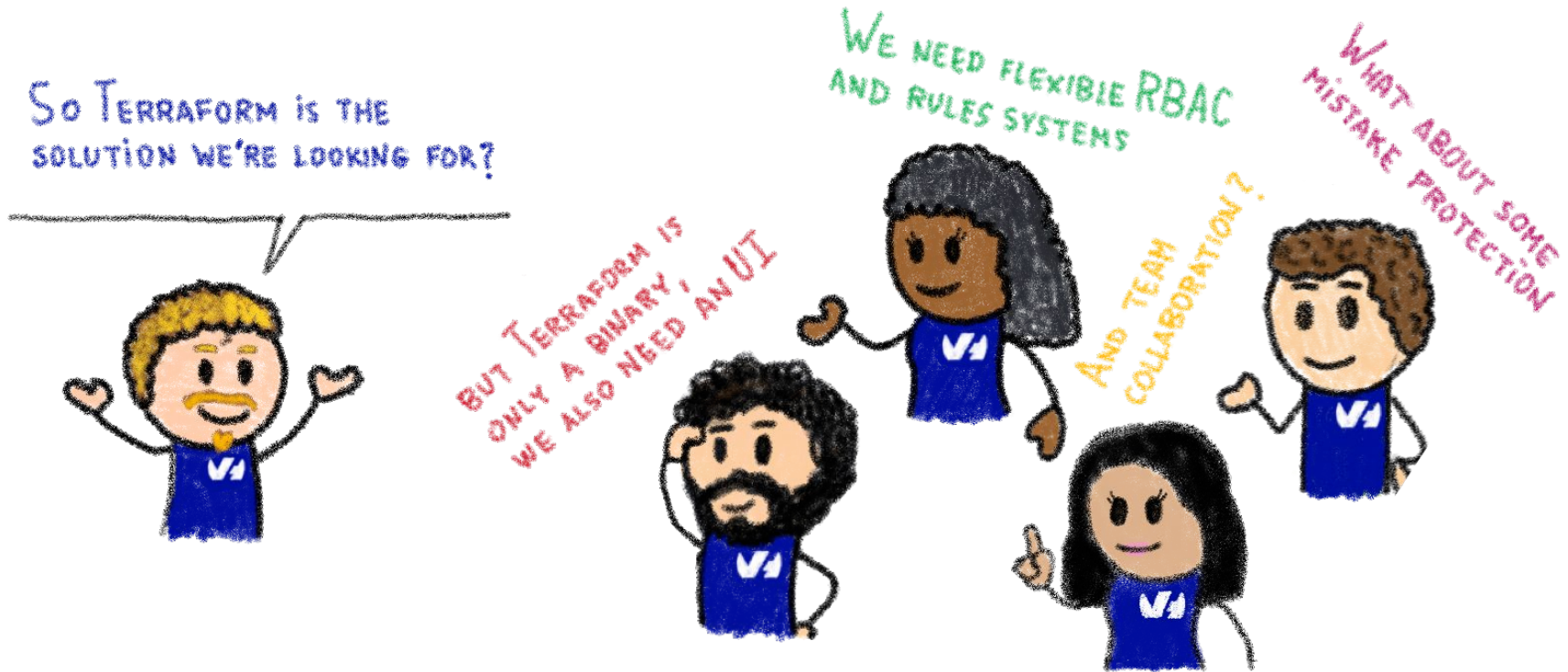


NEED or PROBLEM	DAAS	TERRAFORM
Supporting current & future infrastructure	Only 3 backends bare metal, vmWare & openstack	Hundreds of providers out of the box Easy to create new ones
Extensibility	No plugging or module system	Built on a plugin-based architecture
Managing dependencies	No dependency concept	Handles dependencies between resources
Performance	Limited scalability	Easily scalable using a state per workspace





# But Terraform alone isn't enough



# What about using CDS?



## 🔗 CDS: Continuous Delivery Service

go report A+ -GO reference

CDS is an Enterprise-Grade Continuous Delivery & DevOps Automation Platform written in Go(lang).

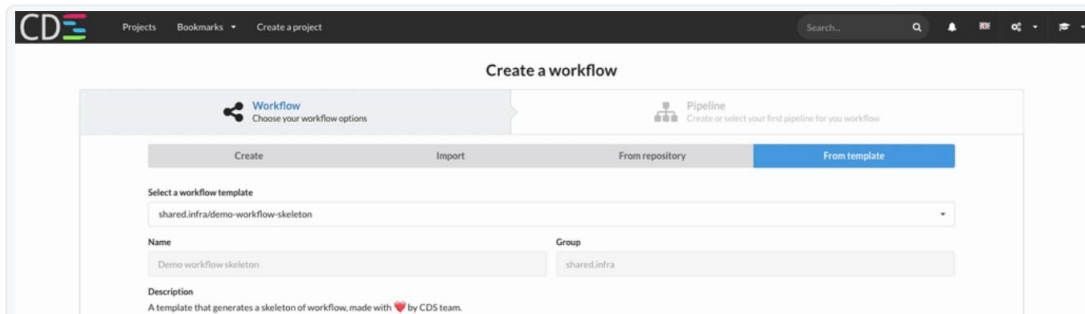
This project is under active development

[Documentation](#)



## 🔗 Intuitive UI

CDS provides an intuitive UI that allows you to build complex workflows, run them and dig into the logs when needed.



WE ALREADY HAVE A  
WORKING CDS CI/CD INFRA...



BUT WE WOULD STILL NEED TO CODE  
LOTS OF INTEGRATION GLUE



# What about Terraform Cloud?



IN THAT CASE, WHAT ABOUT



Terraform Cloud ?

ALL THE POWER OF TERRAFORM,  
THE TOOLING, THE UI...



IT'S A MANAGED SOLUTION.  
WHERE IS IT HOSTED ?

IT IS COMPATIBLE WITH OUR  
DATA PRIVACY AND SOVEREIGNTY  
POLICIES? WHAT...

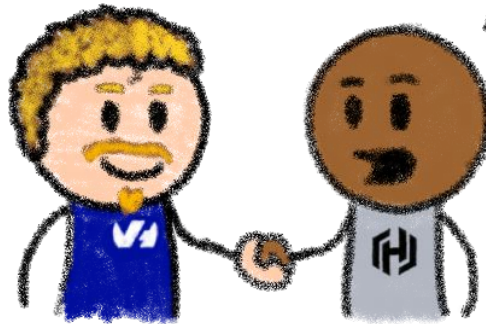


# Discussing with HashiCorp




WE ARE THINKING OF GETTING  
Terraform Cloud BUT  
WE HAVE SOME CONCERNS  
ABOUT THE MANAGED PART...

I UNDERSTAND, LET ME SHOW  
YOU Terraform Enterprise



# Let's do a TFE workshop!



Is  Terraform Enterprise :

- Easy to learn
- Extensible
- Collaborative
- Secure
- Auditable

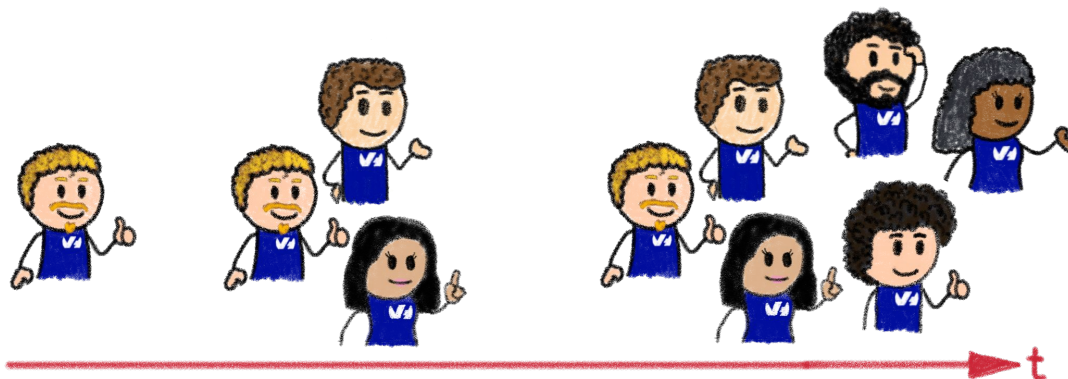




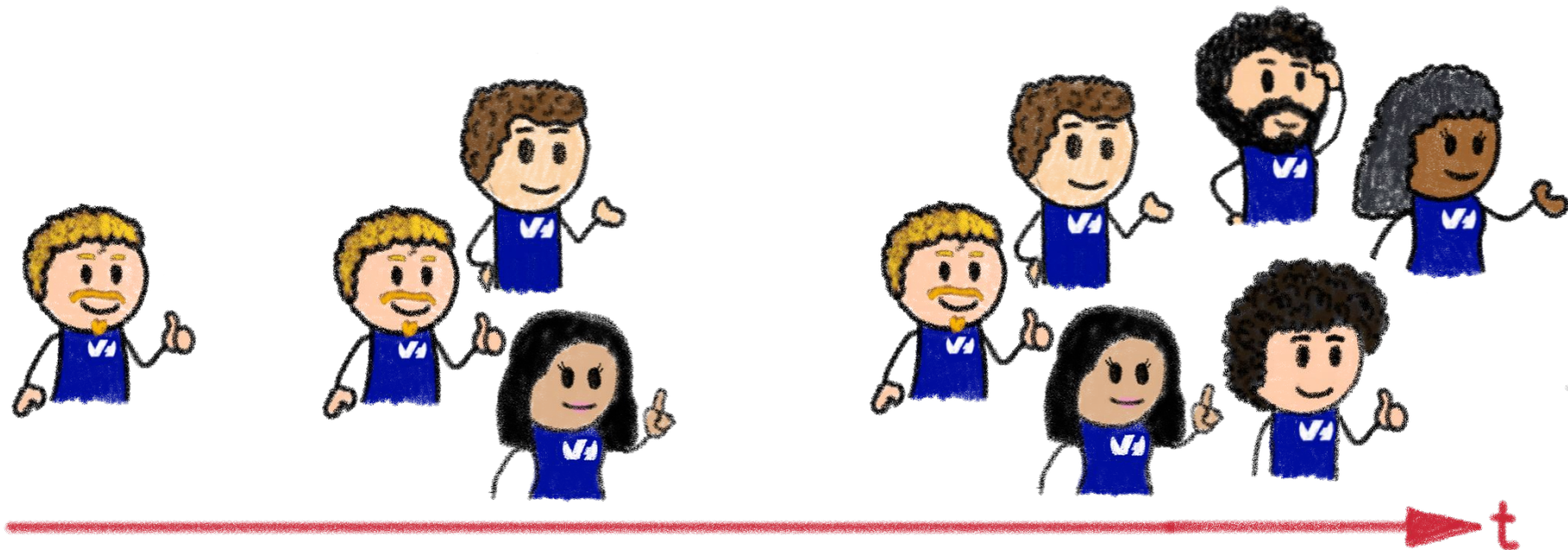


# Terraform Enterprise

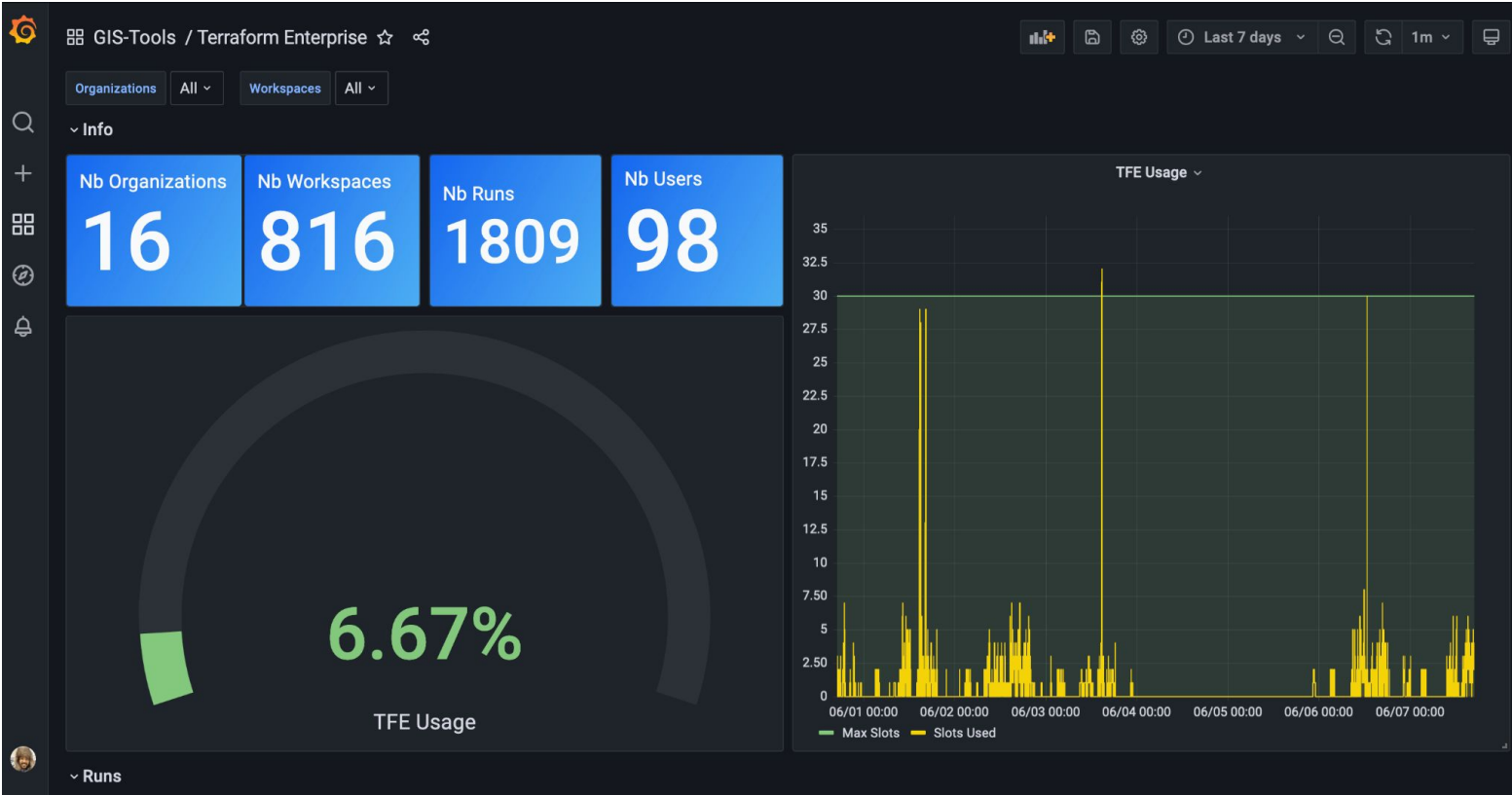
From POC to Prod



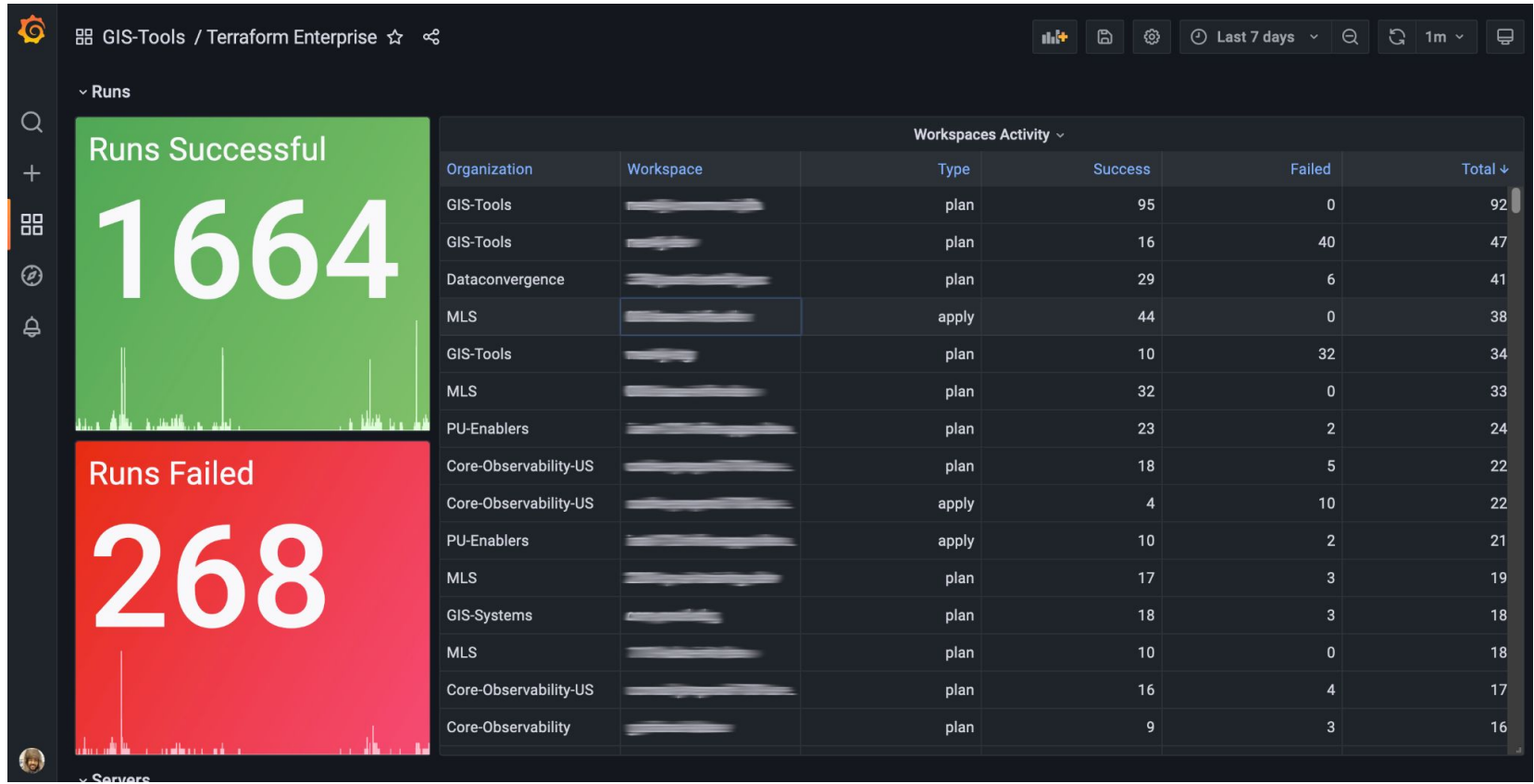
# A structured growth



# Some numbers...



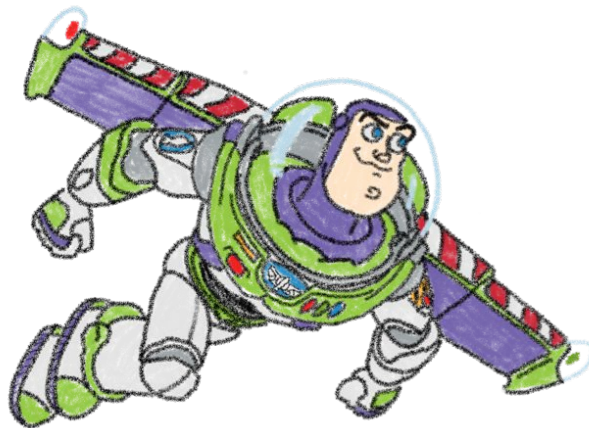
# Extensively used by the teams





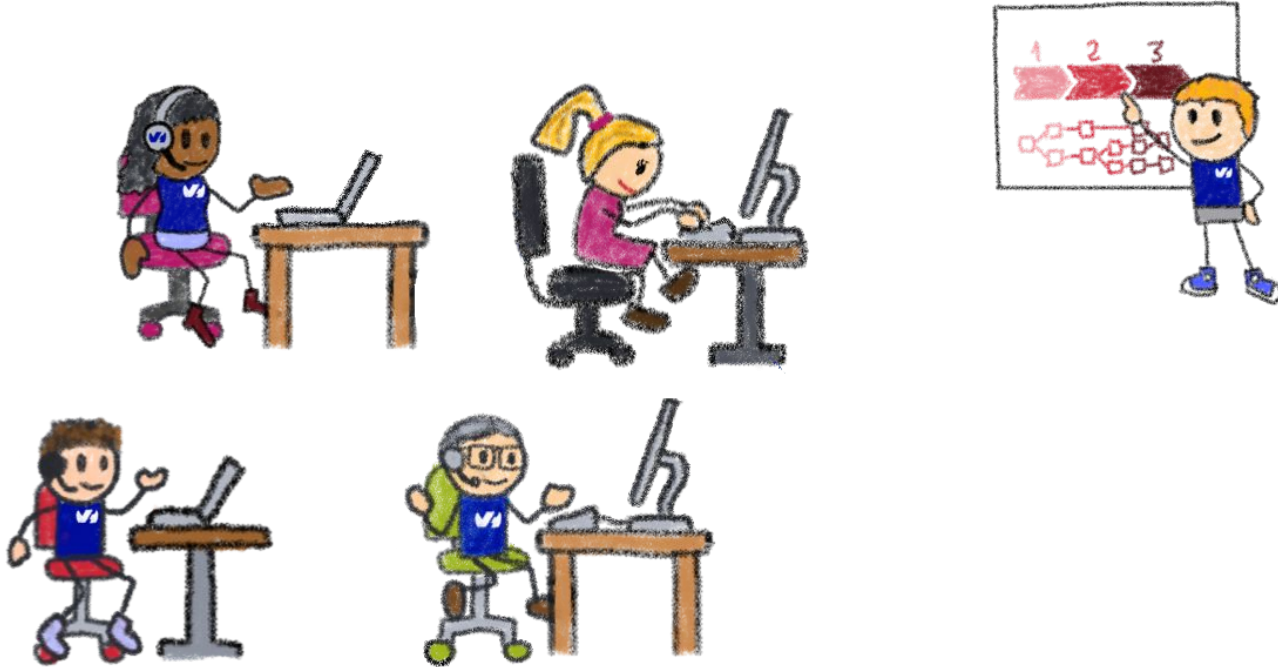
# What's next for us?

Let's continue step by step





# A TFE training during onboarding



And adding more guides

# Developing some tooling



GIS-Tools NC nicolas.crofer

Inventory / webhosting

1 sources

Name	Type	Created at	Updated at	
global	apiv6	2022-05-10 10:47:52	2022-05-13 15:46:29	EDIT

0 selected / 1 total

11 entries (11 assets)

Source	Name	Address	Status	Updated at
global			available	2022-05-13 15:50:35
global			available	2022-05-13 15:50:35
global			available	2022-05-13 15:50:35
global			available	2022-05-13 15:50:35

Actions

NEW SOURCE

REFRESH SOURCES ASSETS

Source filter

SELECT ALL

global

Tag filters

Tag keys

APPLY RESET

To simplify bare metal deployment with our API

# Providers, resources and agents



Encourage product teams  
to build their own resources  
in OVHcloud provider

Create a provider for  
our security infrastructure

Terraform agents  
to absorb big teams' load

To deal more smoothly with our infrastructure



# What do the teams think of it?

**Spoiler: they are quite happy!**



# Teams currently using TFE



- Core Observability
- Core Observability US
- Critical Databases
- Data Convergence
- GIS Network
- GIS Systems
- GIS Tools
- Machine Learning & AI
- PCI
- PU Data
- PU Enablers
- Storage
- VOIP
- Web Cloud Database
- Webhosting





# GIS Systems



- Deploying internal infra
  - VMs with vsphere provider
  - Bare metal with OVHcloud provider
- An environment → a workspace
- Variable & workspace admin via TFF provider
- Integrating with CMDB via API

- 👍 State management & versioning
- 👍 Collaboration: plan review and access
- 👍 Flexible RBAC and by workspace rules
- 👍 TFE-inception: using TFE to manage TFE
- 👎 No provider for some internal resources



# Data Convergence



- Deploying Kubernetes clusters
- A step → A workspace
  - Environment management
  - Openstack VM management
  - Post-install conf with Ansible
  - Kubernetes setup
  - Deploying open-source charts with Helm
  - Deploying DataConvergence apps
- Dependencies managed as data remote state



- 👍 Workspace structure makes collaboration easy
- 👍 Runs and states history
- 👍 Live dashboard to follow runs
- 👎 Remote states unallow to export TF plans
- 👎 No provider for some internal resources

# Webhosting



- Deploying webhosting infra: VMs, bare metal, K8s, vSphere...
- Autoscale via API, manual use by ops

Our target at Webhosting?  
Managing some 20 K  
servers on TFE



- 👍 Easy onboarding and integration
- 👍 HCL language easy
- 👍 Active community, many providers
- 👍 Sentinel adds many possibilities
- 👎 JSON output useless when many resources
- 👎 Too many workspaces needed
- 👎 No provider for some internal resources

