

OVHcloud K8s Team

DevOps & Agility in a Product Team

Horacio Gonzalez

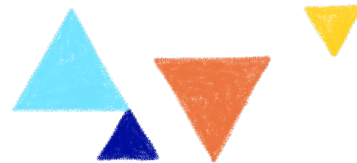
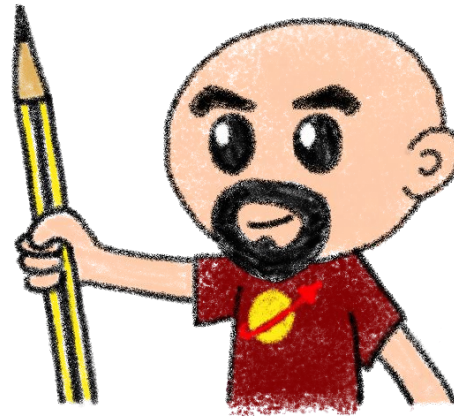
2020-07-09



@LostInBrittany

Who are we?

Introducing myself and
introducing ~~OVH~~ OVHcloud

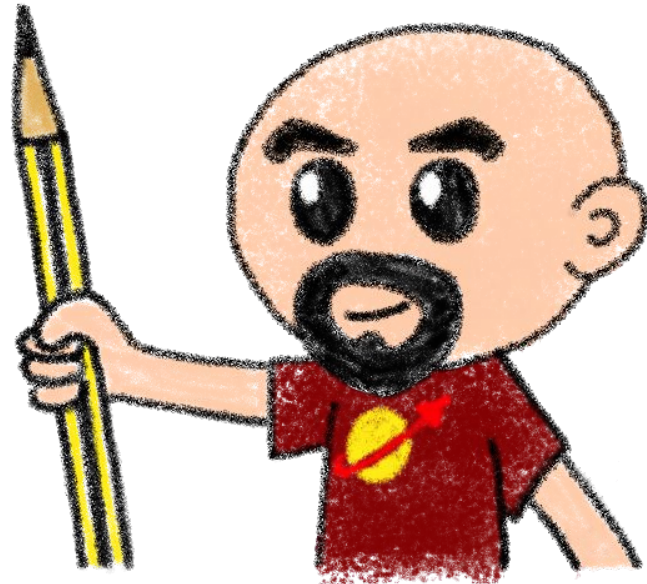


Horacio Gonzalez



@LostInBrittany

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

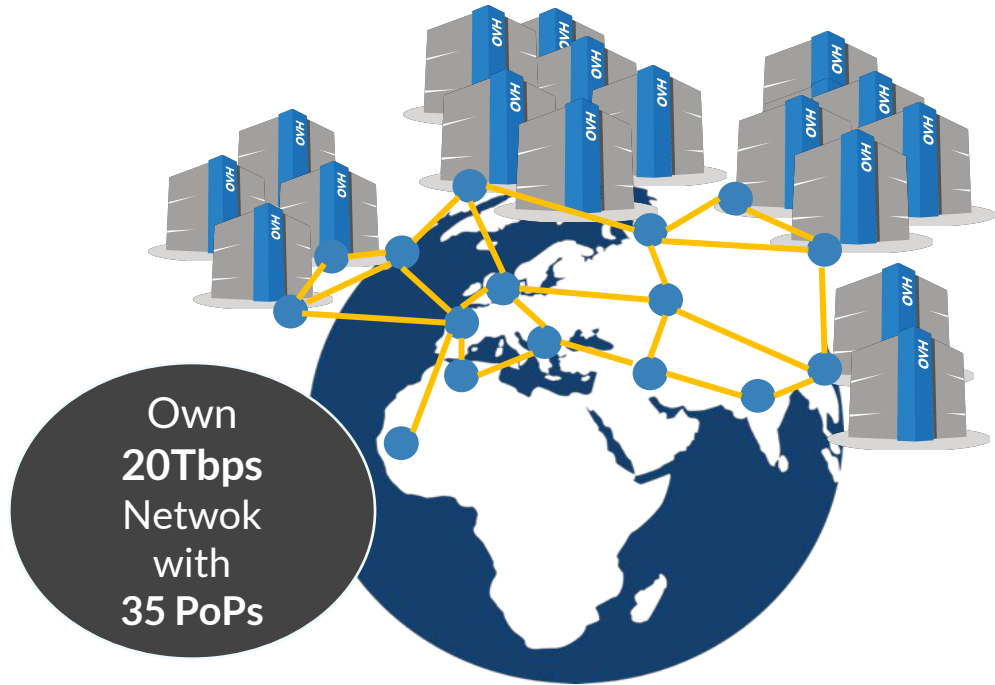
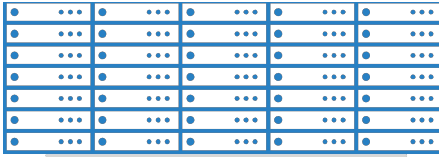


OVHcloud: A Global Leader

200k Private cloud
VMs running



Dedicated IaaS
Europe

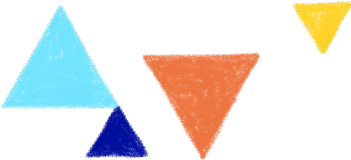


30 Datacenters

Hosting capacity :
1.3M Physical
Servers

360k
Servers already
deployed

> 1.3M Customers in 138 Countries



OVHcloud: 4 Universes of Products



WebCloud

- Domain / Email**
 - Domain names, DNS, SSL, Redirect
 - Email, Open-Xchange, Exchange
 - Collaborative Tools, NextCloud
- PaaS for Web**
 - Mutu, CloudWeb
 - Plesk, CPanel
 - PaaS with Platform.sh
- Virtual servers**
 - VPS, Dedicated Server
- SaaS**
 - Wordpress, Magento, Prestashop
 - CRM, Billing, Payment, Stats
 - MarketPlace
- Support, Managed**
 - Support Basic
 - Support thought Partners
 - Managed services

Baremetal Cloud

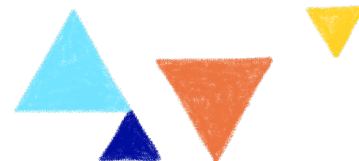
- Standalone, Cluster**
 - General Purpose
 - SuperPlan
 - Game T2 >20e
 - Virtualization T3 >80e
 - Storage T4 >300e
 - Database T5 >600e
 - Bigdata 12KVA /32KVA
 - HCI
 - AI
 - VDI Cloud Game
 - Network
- VPS aaS**
 - pCC DC
 - Virtuozzo Cloud
- Wholesales**
 - IT Integrators, Cloud Storage,
 - CDN, Database, ISV, WebHosting
 - High Intensive CPU/GPU,
- Encrypt**
 - KMS, HSM
 - Encrypt (SGX, Network, Storage)

Public Cloud

- Compute**
 - VM K8S, IA IaaS
 - Baremetal PaaS for DevOps
- Storage**
 - File, Block, Object, Archive
- Databases**
 - SQL, noSQL, Messaging,
 - Dashboard
- Network**
 - IP FO, NAT, LB, VPN, Router,
 - DNS, DHCP, TCP/SSL Offload
- Security**
 - IAM, MFA, Encrypt, KMS
- IA, DL**
 - Standard Tools for AI, AI Studio,
 - IA IaaS, Hosting API AI
- Bigdata, ML, Analytics**
 - Datalake, ML, Dashboard

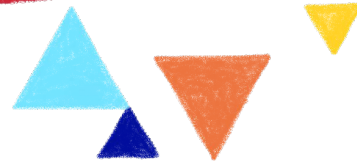
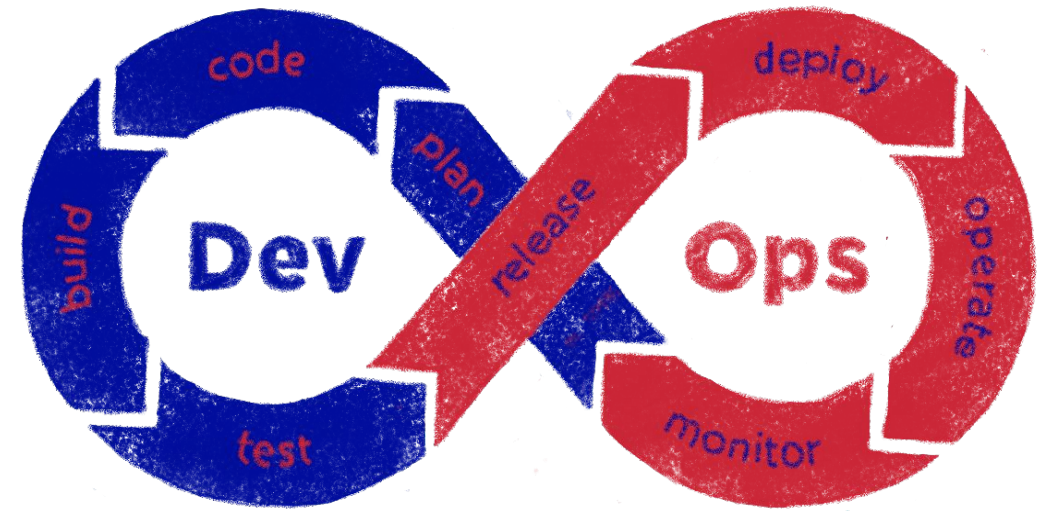
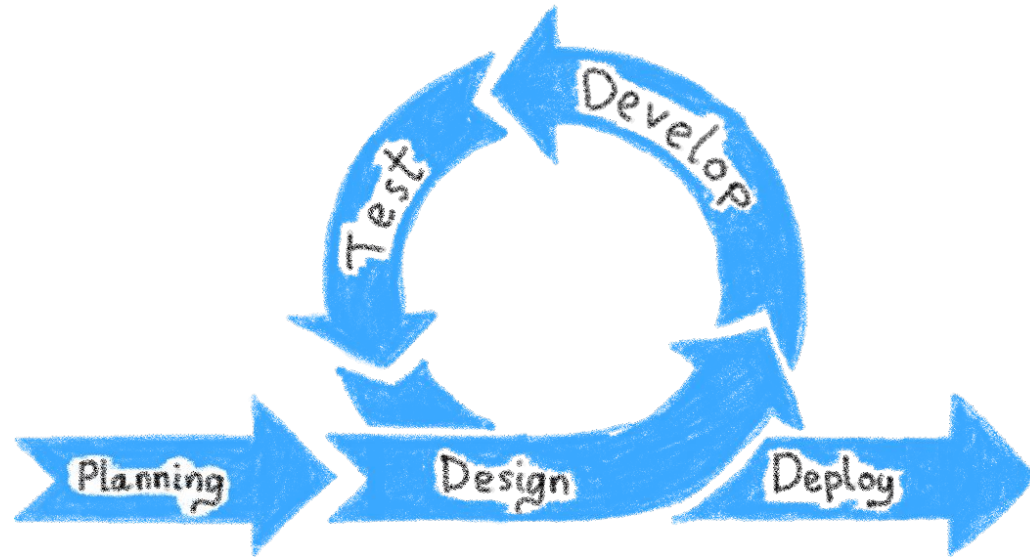
Hosted Private Cloud

- Hosted Private Cloud**
 - VMware**
 - SDDC, vSAN 1AZ / 2AZ
 - vCD, Tanzu, Horizon, DBaaS, DRaaS
 - Nutanix**
 - HCI 1AZ / 2AZ, Databases, DRaaS, VDI
 - OpenStack**
 - IAM, Compute (VM, K8S)
 - Storage, Network, Databases
 - Storage**
 - Ontap Select, Nutanix File
 - OpenIO, MiniIO, CEPH
 - Zerto, Veeam, Atempo
 - AI**
 - ElementAI, HuggingFace,
 - Deepomatic, Systran,
 - EarthCube
 - Bigdata / Analytics / ML**
 - Cloudera over S3, Dataiku,
 - Saagie, Tableau,
 - Hybrid Cloud**
 - vRack Connect, Edge-DC, Private DC
 - Dell, HP, Cisco, OCP, MultiCloud
 - Secured Cloud**
 - GOV, FinTech, Retail, HealtCare



DevOps and Agility at OVHcloud

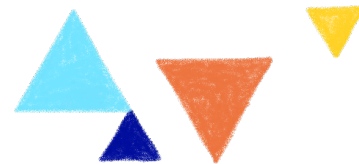
You build it step by step, and you run it



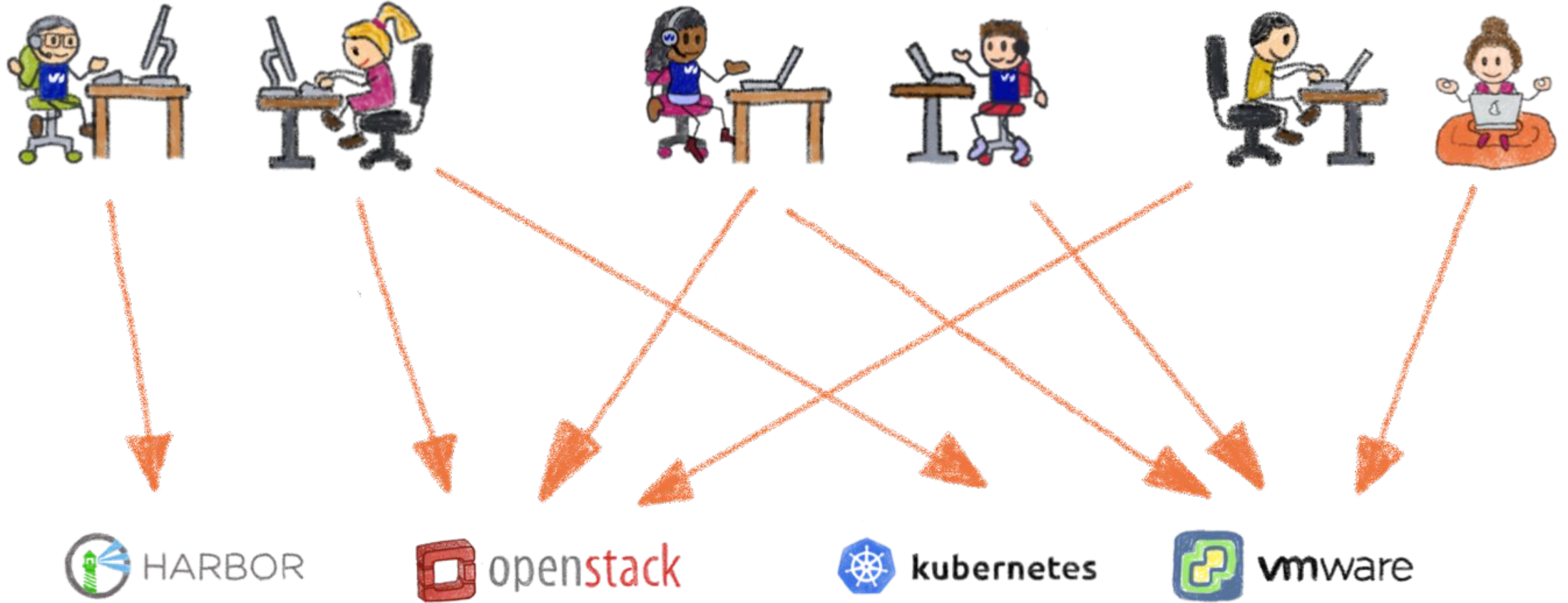
A small fish in a big pond



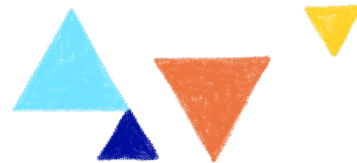
Needs to be adaptable, flexible, quick



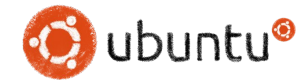
Huge range of products



For a comparatively small technical staff



With a wide variety of technology stacks



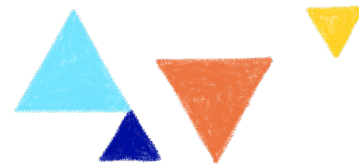
Open source, non open source and self built



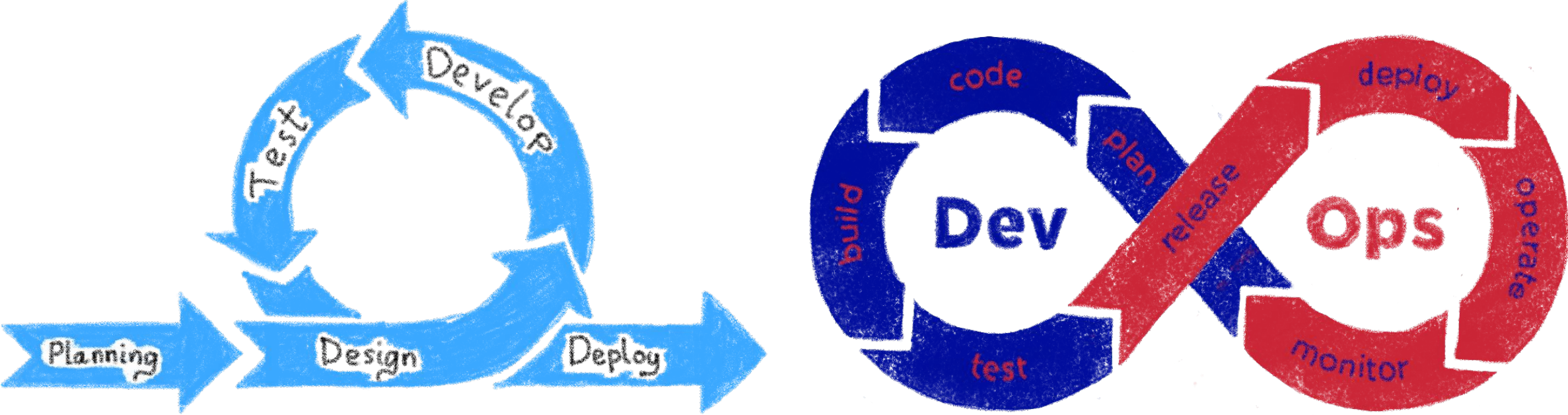
Only a way to keep up



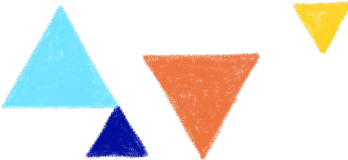
You build it iteratively, you run it



An Agile DevOps approach was natural

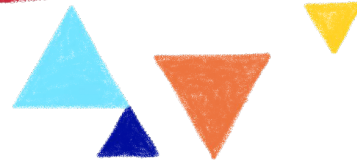
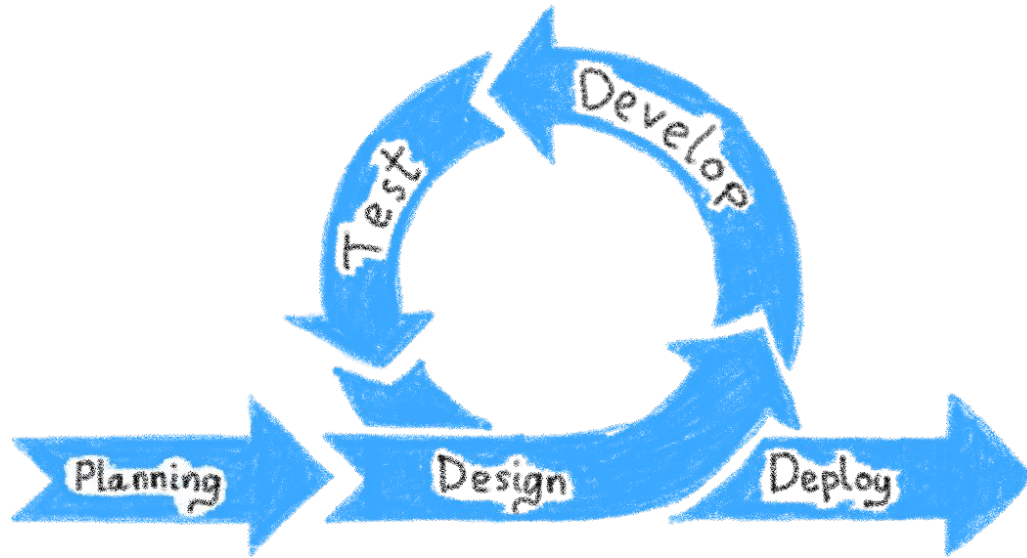


Even if not always fully structured

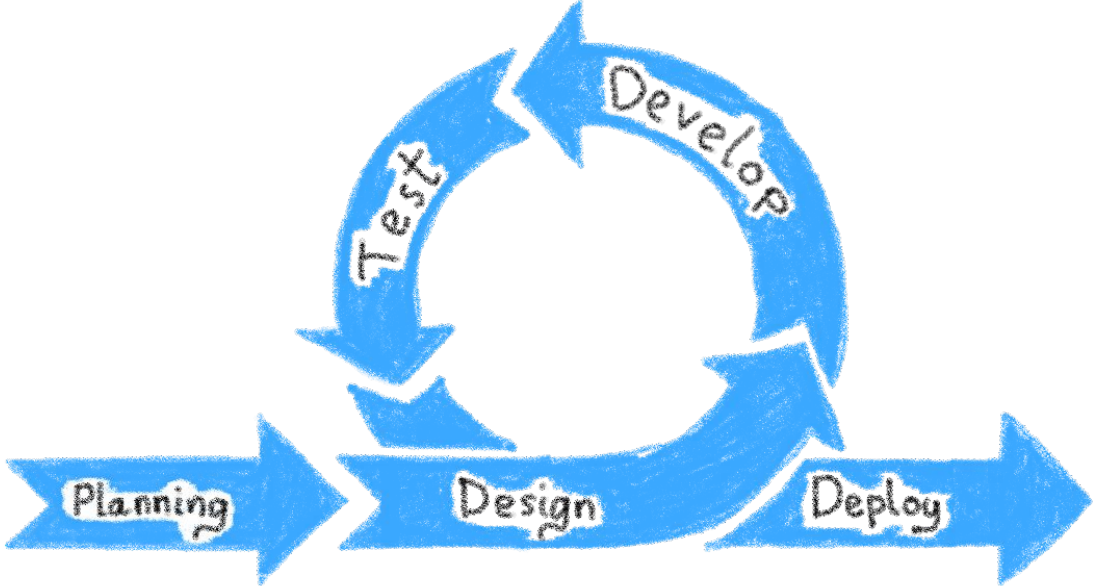
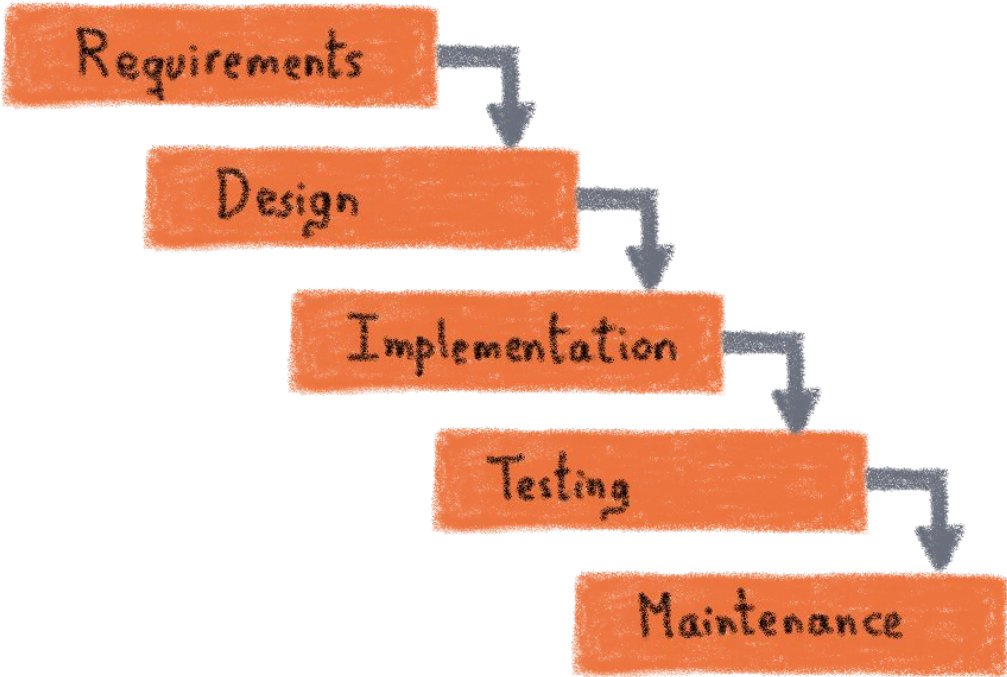


Why do you mix DevOps and Agility?

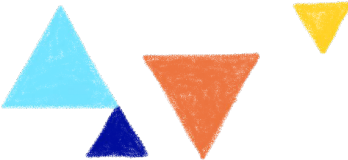
You can have one without the other, can't you?



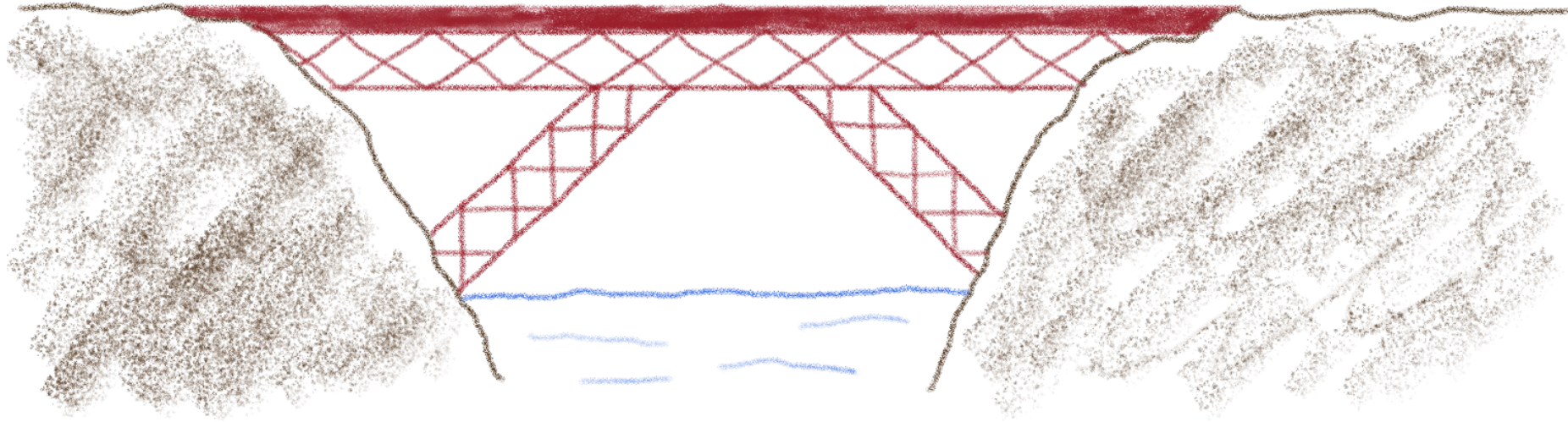
Agile is a response to Waterfall



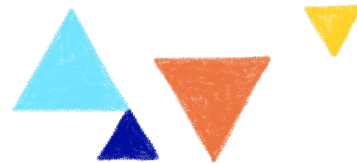
Methodological AND philosophical response



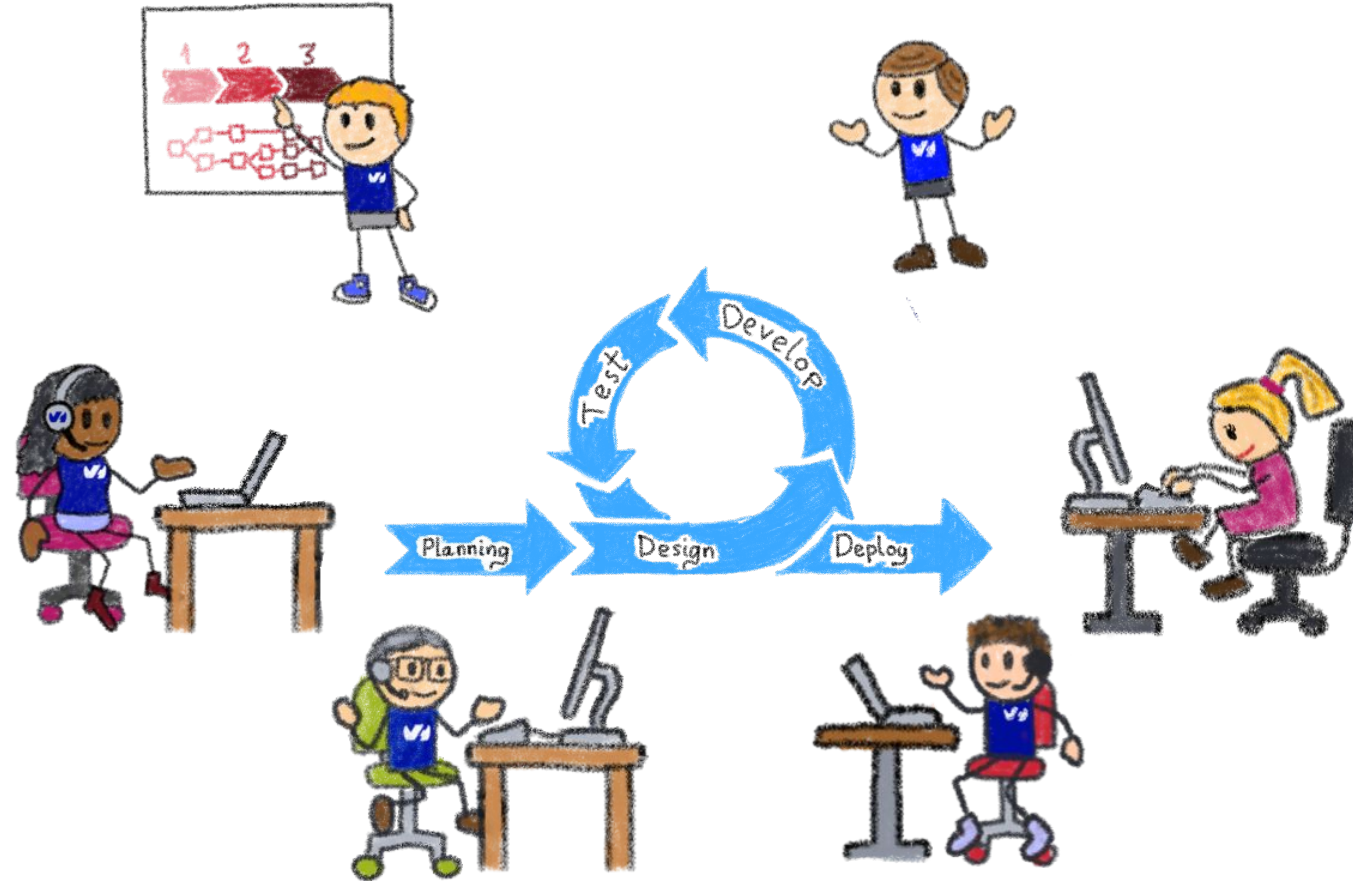
You don't build an app like a bridge



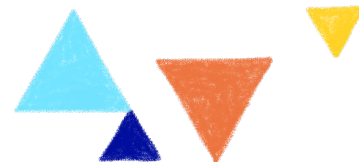
Static vs evolving paradigms



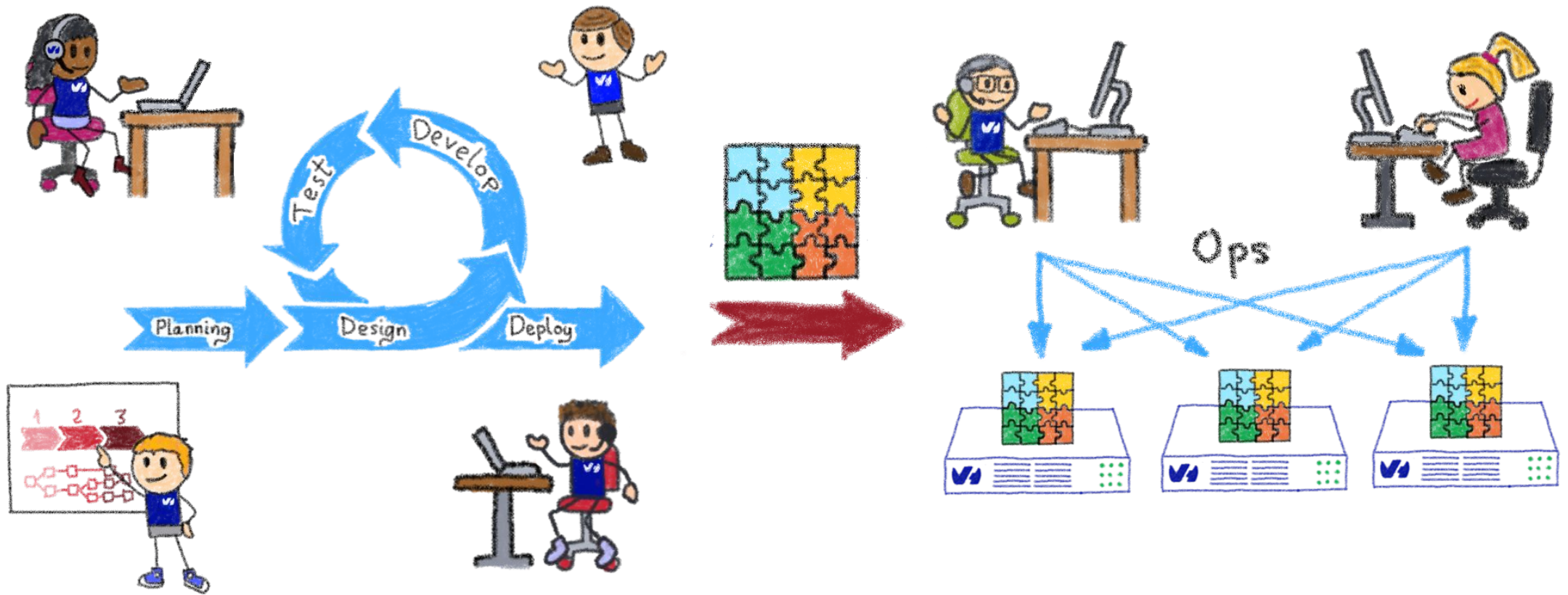
IT is an ever-evolving environment



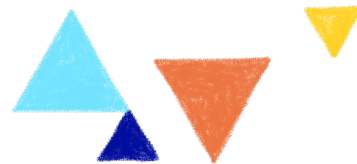
Agility is about speed of embracing change



You could have Agility without DevOps



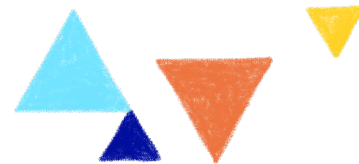
Even if I fail to see why you would want...



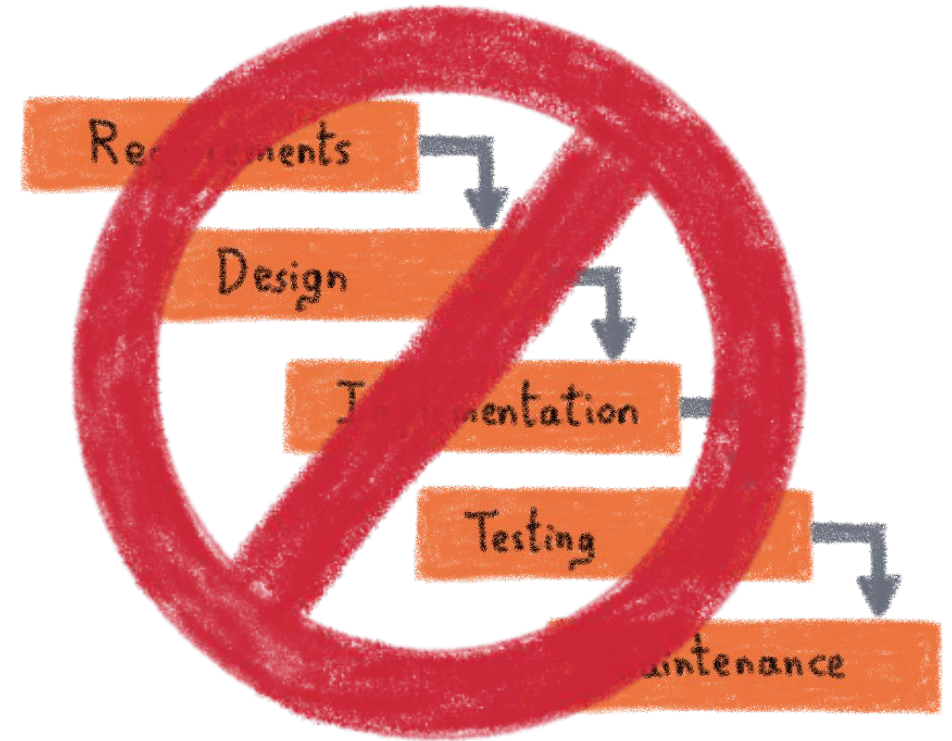
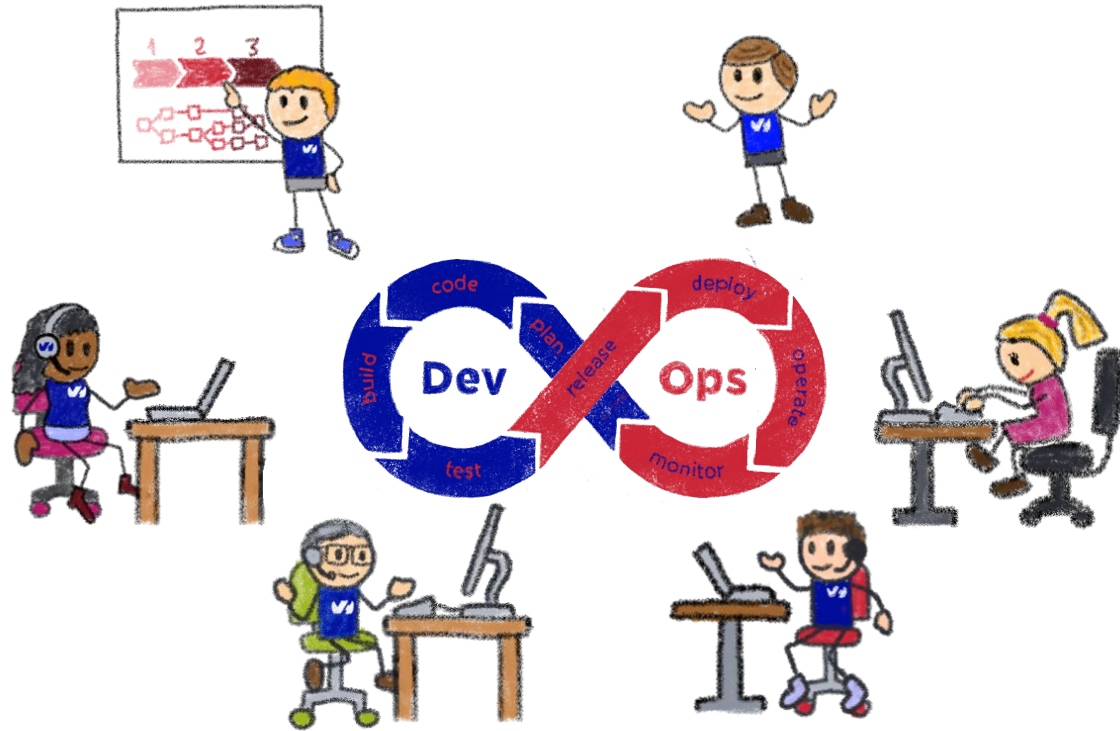
DevOps is a reaction to the wall of confusion



Making the different stakeholders
to work together in sync



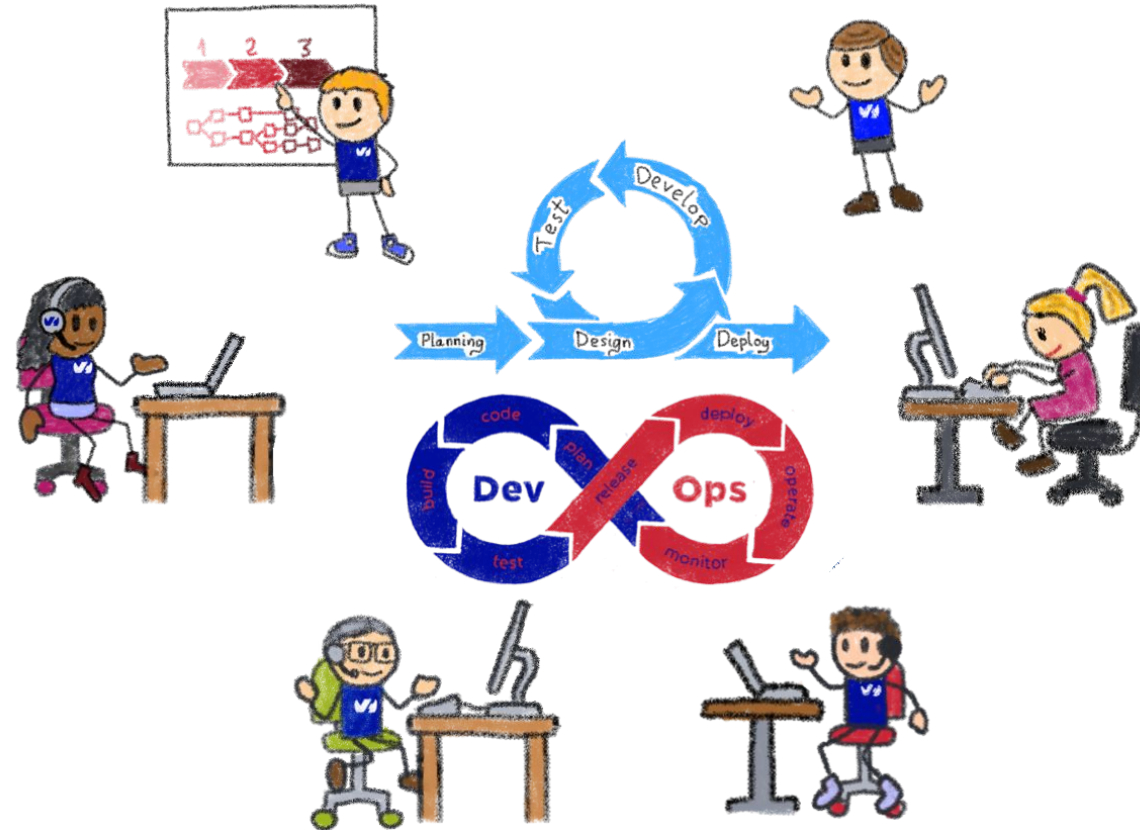
You cannot have DevOps without agility



DevOps is about shorter development sprints, increased focus on testing, increasing automation



DevOps comes with Agility

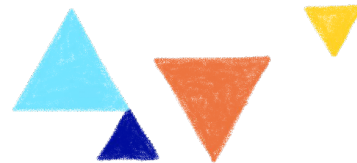
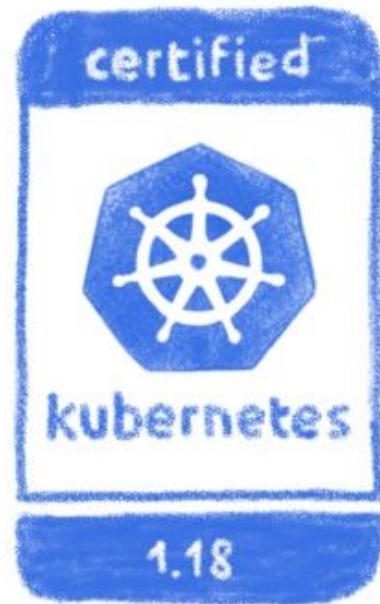


DevOps is an extension of Agile that includes systems and operations

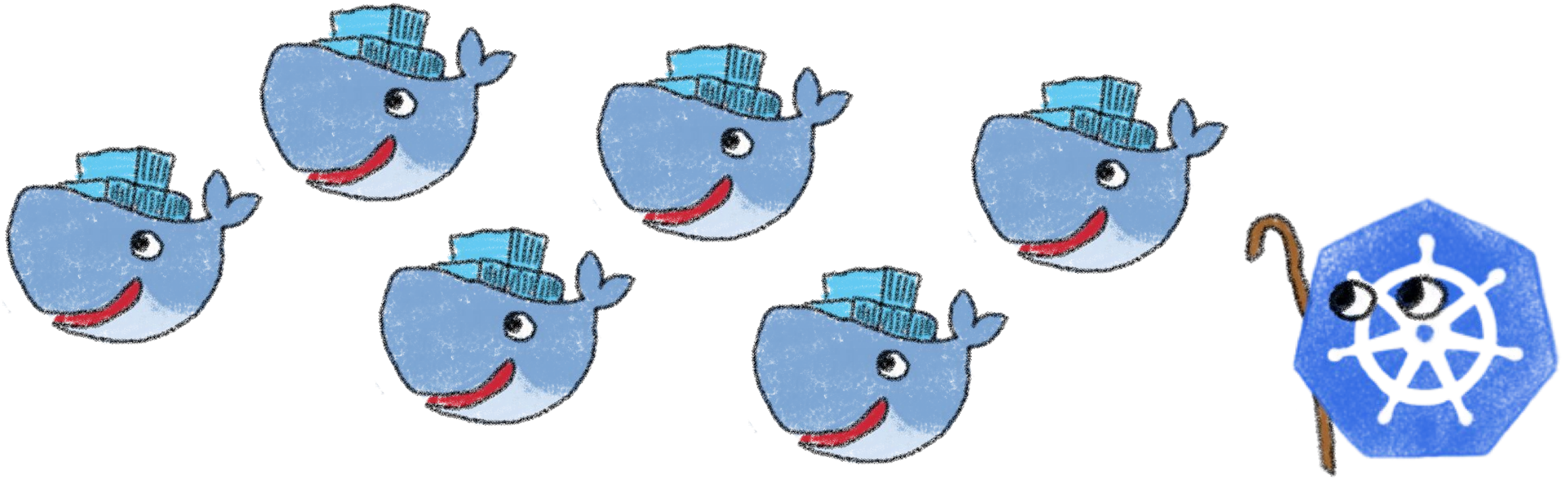


Let's create a new product

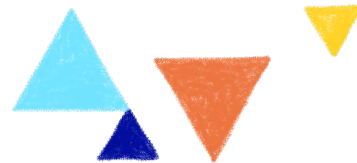
OVHcloud Managed Kubernetes



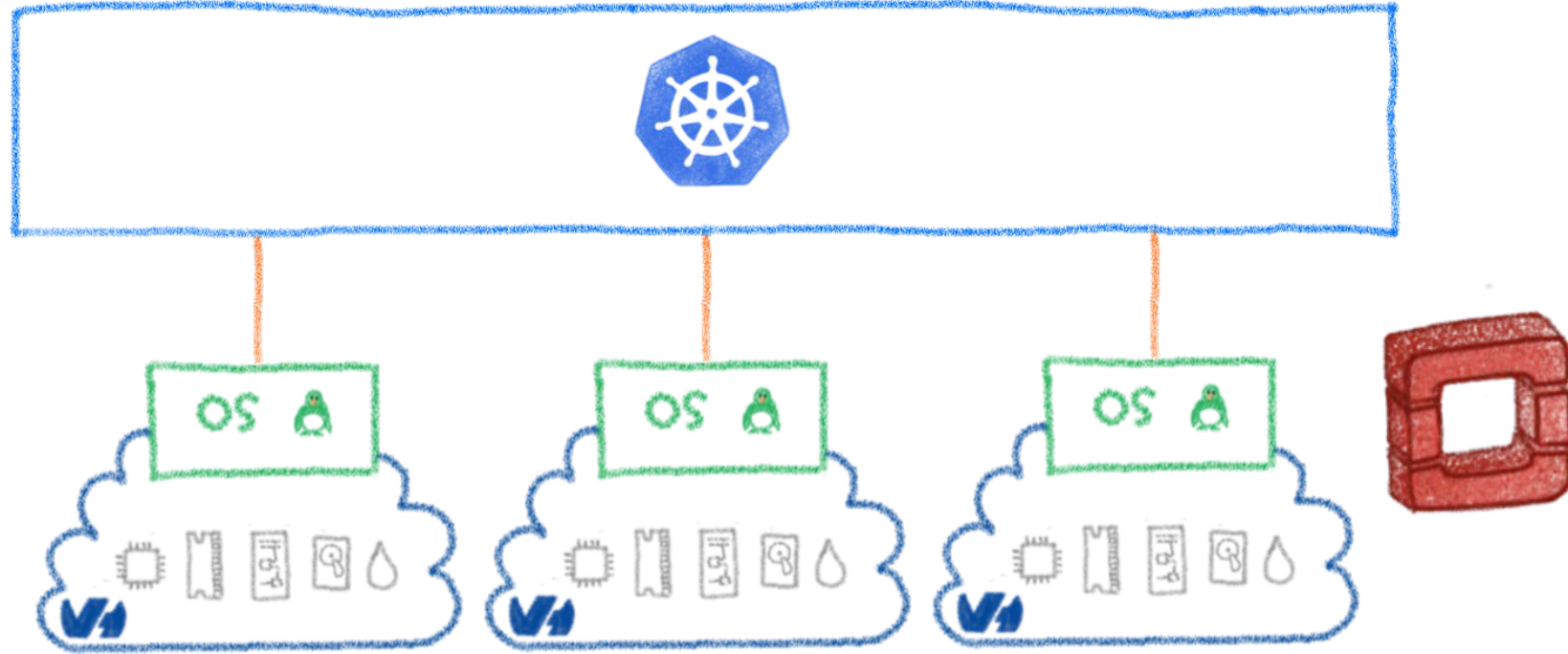
In 2018 we decided to build a product



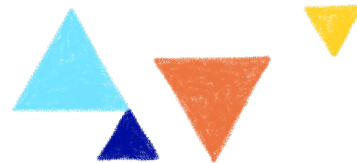
OVHcloud Managed Kubernetes



Build over our Public Cloud



We leverage on our OpenStack expertise

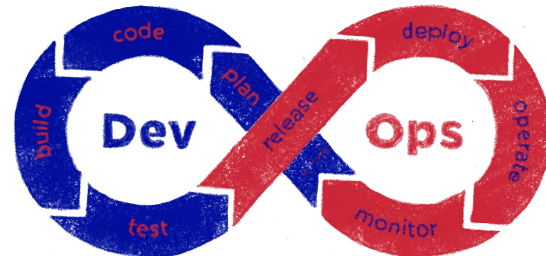
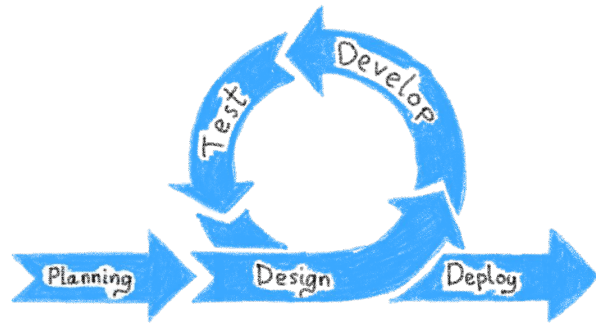


Building a team for the project



A small DevOps team to:

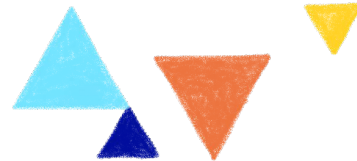
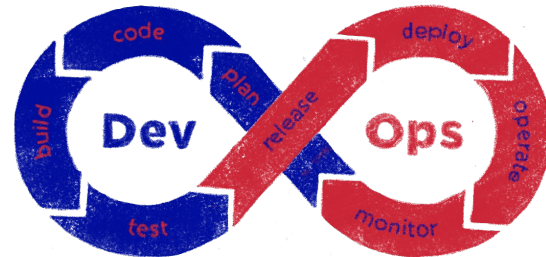
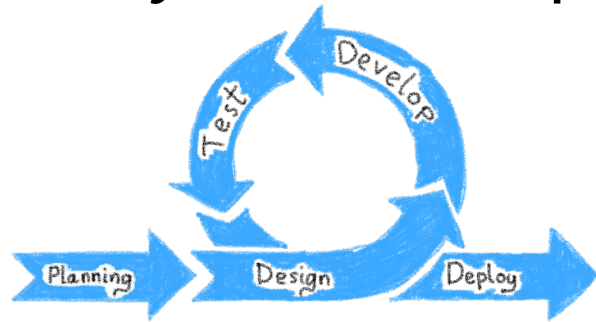
- Bootstrap the project
- Build the product
- Operate it



A balanced mix of skill needed

At the beginning of the project:

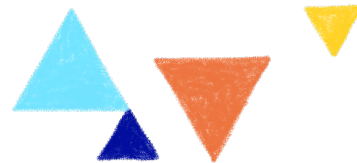
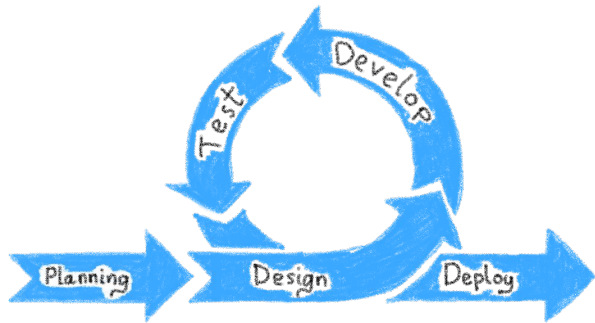
- Architects
- Developers
- Sysadmins/Ops



But a clear objective

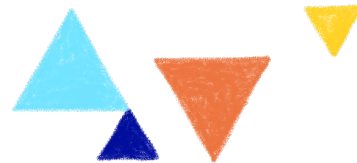


By the end of the projects,
having DevOps



Everybody on call

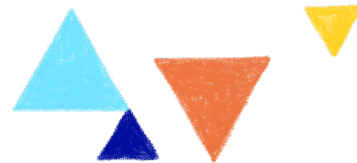
The most direct road from Dev to DevOps



Developers need to be on call



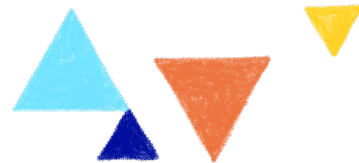
- Engineering is about building **and maintaining** services
- On call should not be life-impacting
- Services are **better** when feedback loops are short



On-call duty needs to be humane

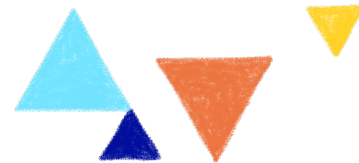
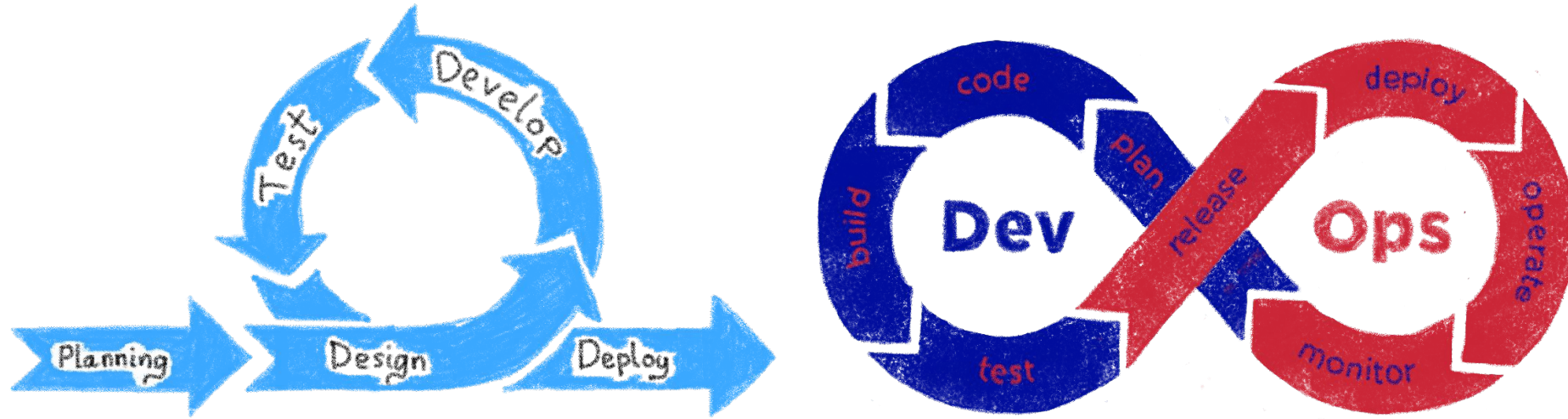


- Paid on-call duty
 - Flat rate per rotation period
 - Call out fee for responding to an alert.
- Enough people in rotation
 - Between 5-10 people
- Flexibility
 - Allowing people to swap on call time
- Curated alerts
 - Not all systems or errors deserve an on-call alert
- A clear escalation policy
 - And level 2/3 on-call duties

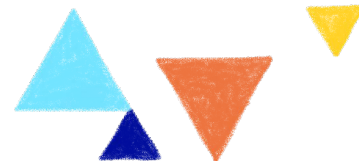
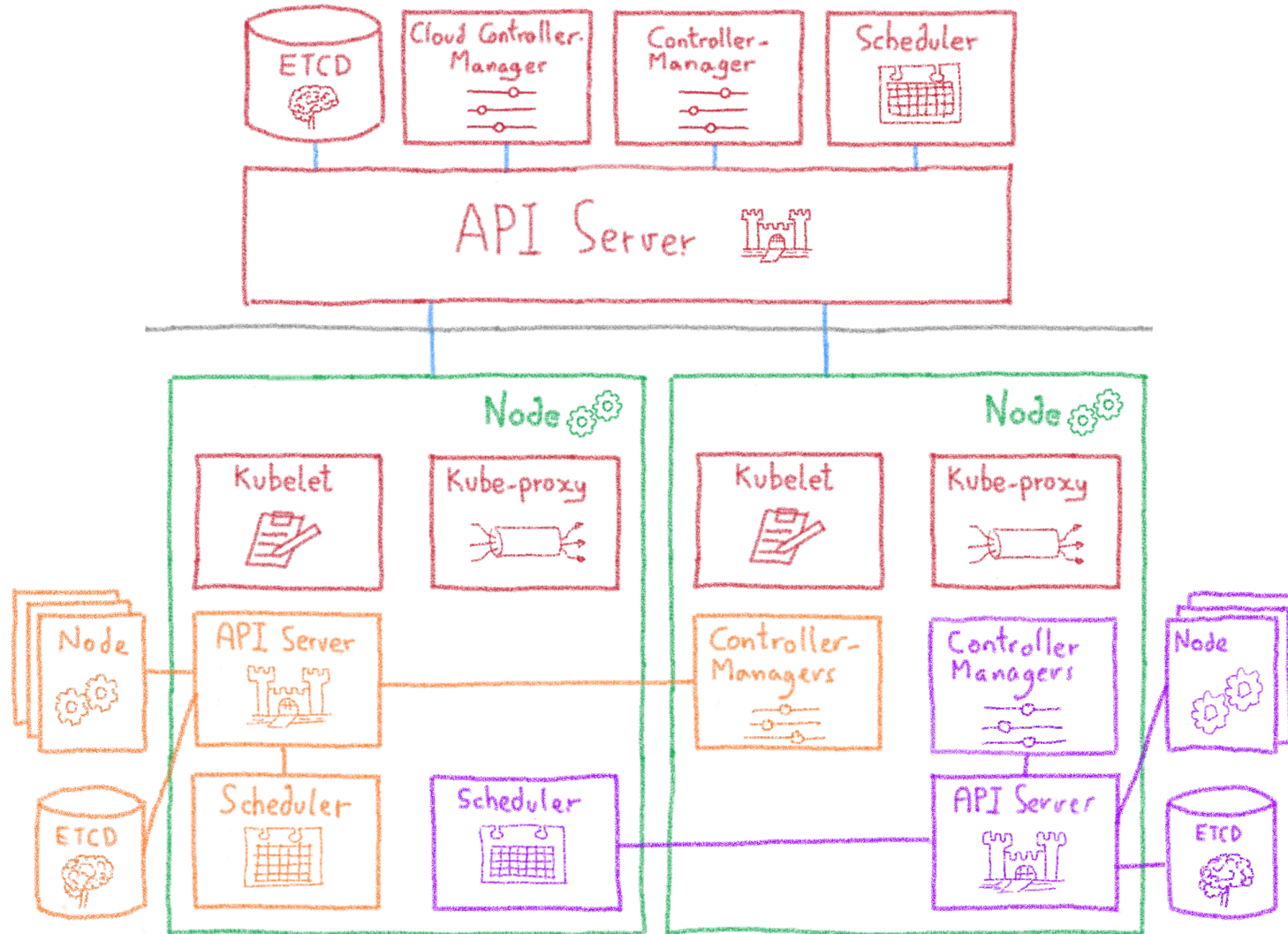


Building it for efficiency

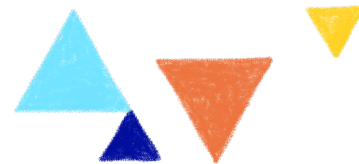
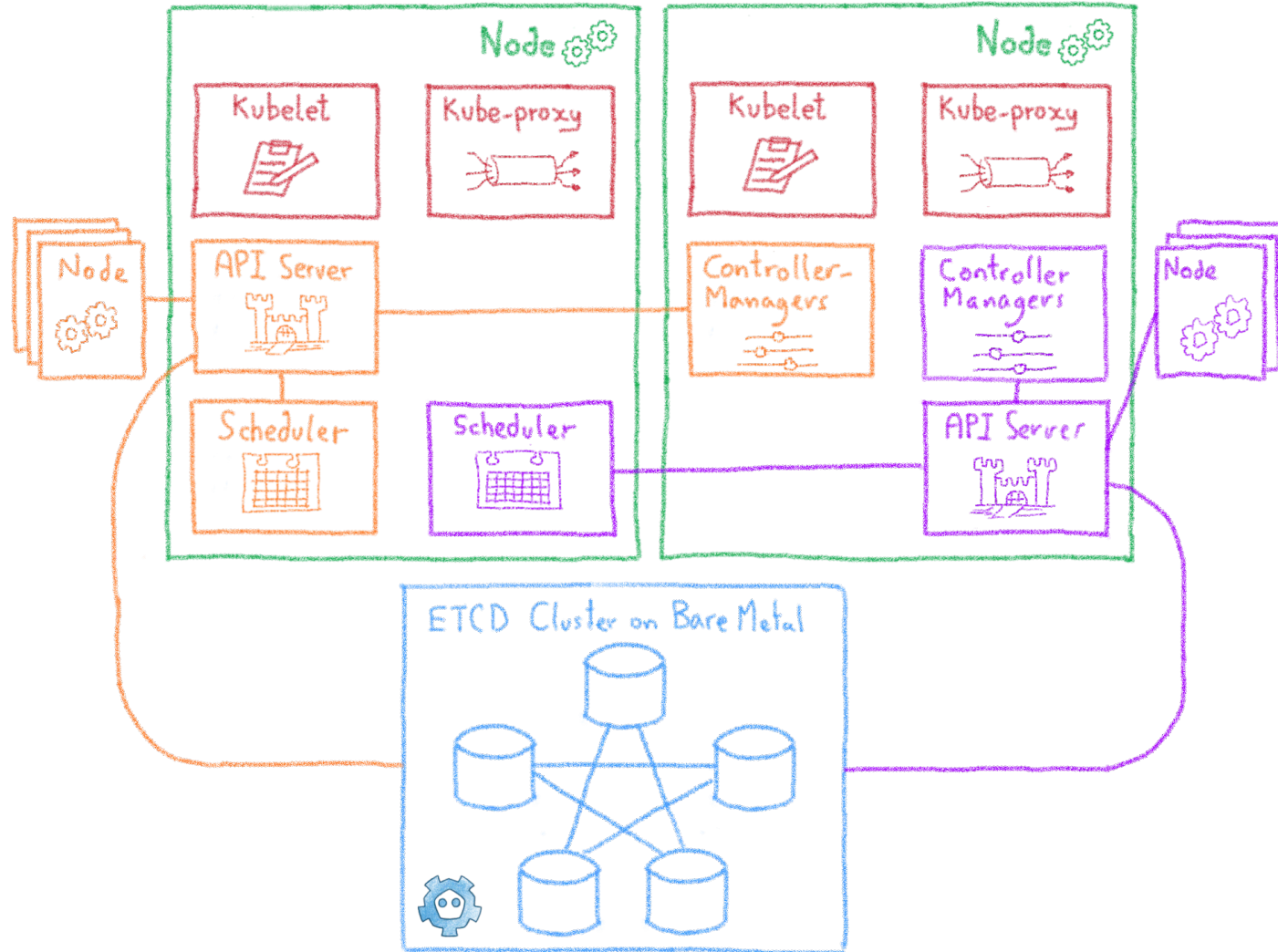
Because we need to facilitate operations



Kubinception: running K8s on K8s

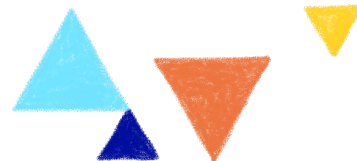
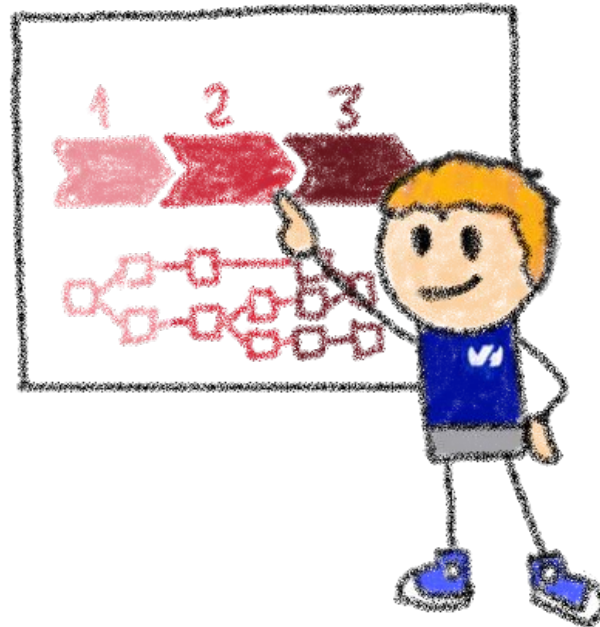


And the ETCD

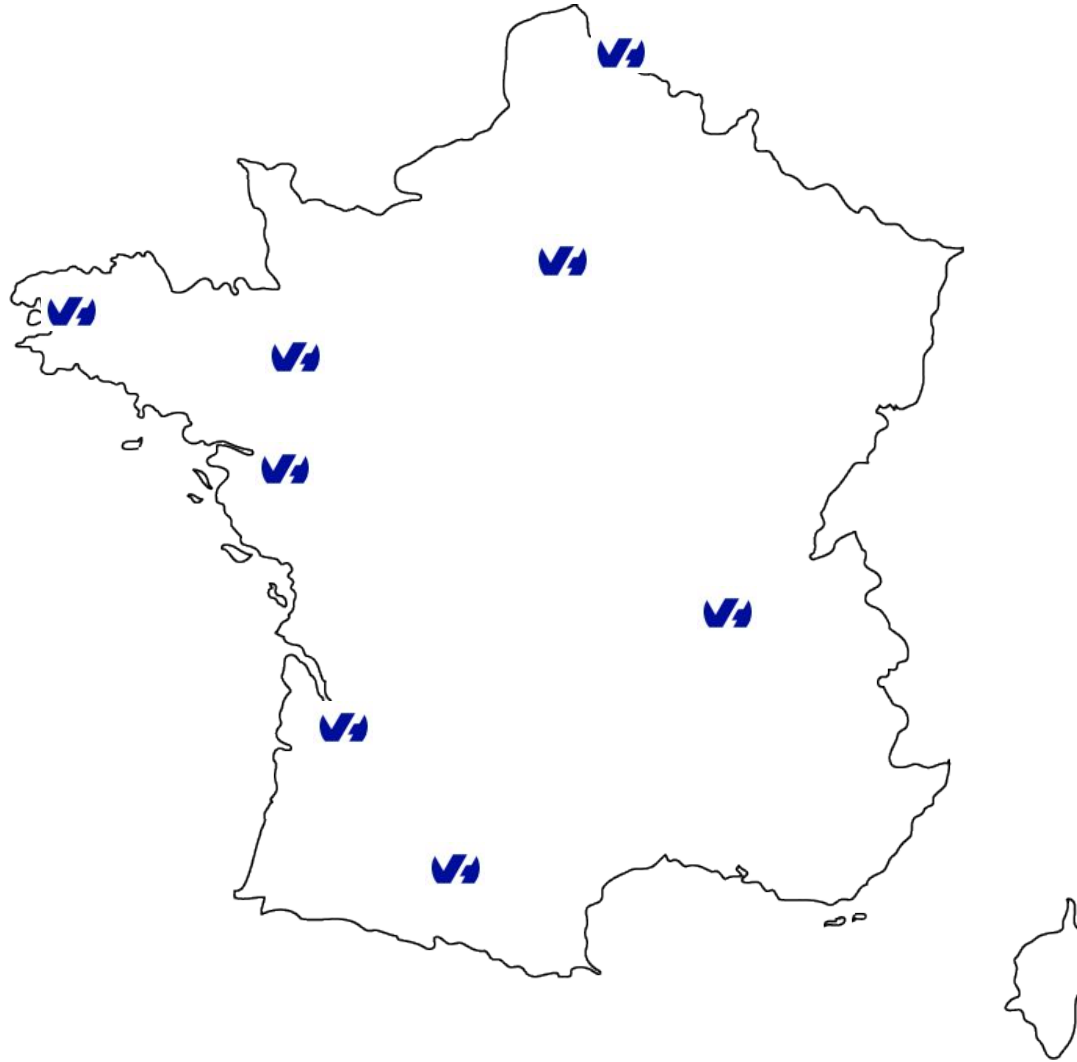


And the agility in all that?

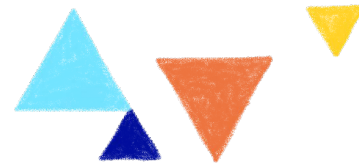
The keystone of the whole project and DevOps approach



DevOps teams all around the country



- Roubaix
- Paris
- Rennes
- Bordeaux
- Toulouse
- Lyon
- Nantes
- Brest



Tools & Methodology



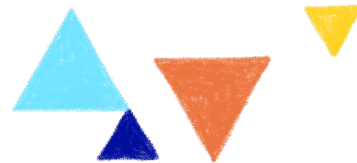
« **SCRUM** »



« **Farmer's Wisdom** »



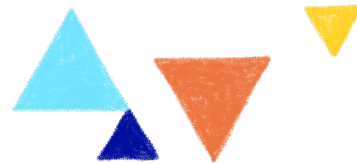
« **KINTSUGI*** »



What do we mean by agility?



agility
backlog
retrospective
grooming
planning
product
obstacle
poker
scrum
planning
master
story
backlog
daily
release
daily
release
sprint
impediment
burndown
sprint
product
retrospective
scrum
product
obstacle
grooming



A team with prejudices about Agility



"Being Agile? This is a trick to justify a **failure** in project management. "

"The Scrum **does not work** for development teams, it is for managers"

"Scrum is only useful **to watch and control us**"

"Scrum? We tested 3 years ago, we quickly understood that **it was not for us...**"



1st step: building trust

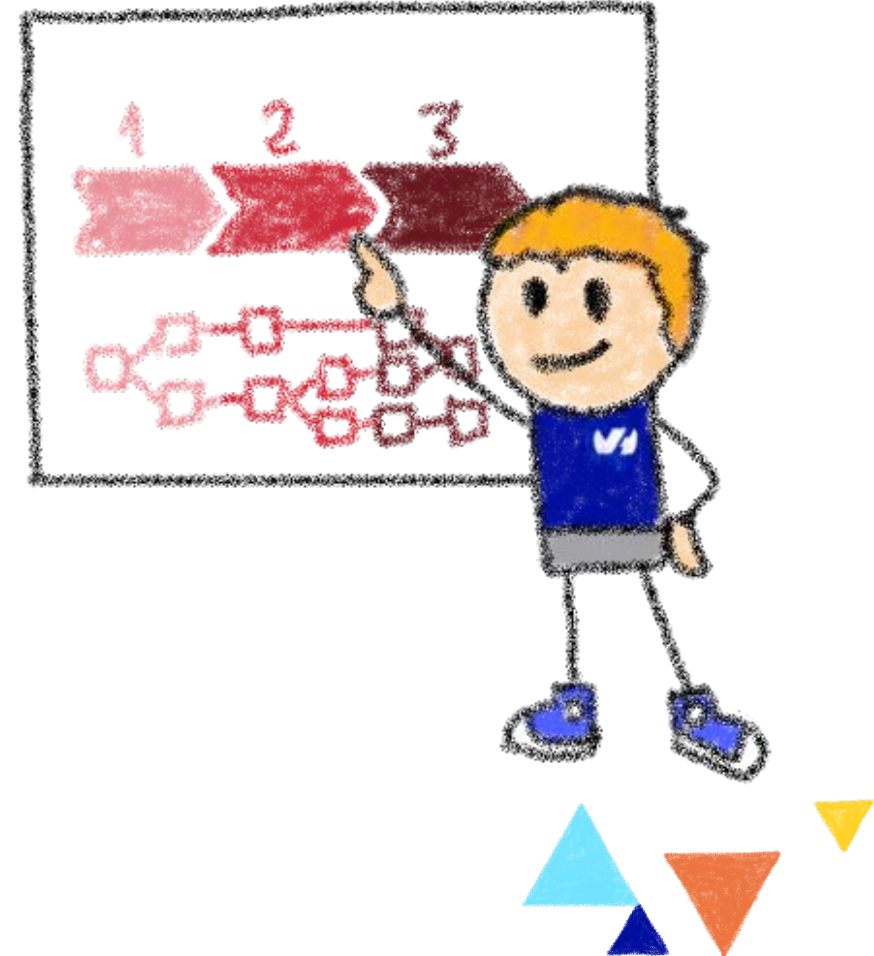


"I'm here to give you *visibility*"

"We will *create value* together"

"Your rhythm will be *respected*"

"We will keep our *commitments*"



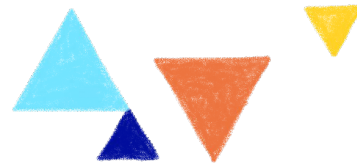
2nd step: team engagements



"We respect the rules of *Scrum*"

"We track our *Impediments*"

"We respect our tickets' *lifecycle*"



3rd step: convince with numbers and metrics!



$$\left(\frac{\sum \text{Story Point}}{\text{team velocity}} \right) \times \text{coef}(\text{secure}) = n\text{Day}$$

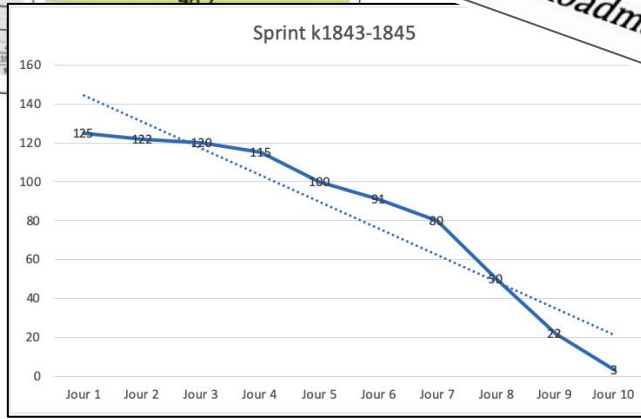
Summary	Epic	Story Point	Done	RAF	%
High Availability	https://projects.dsi.ovh/browse/K8S-699	28	28	0	100%
Observability	https://projects.dsi.ovh/browse/K8S-702	21	21	0	100%
Minor/security Updates reporting	https://projects.dsi.ovh/browse/K8S-697	61	61	0	100%
Clean internal consumption reporting	https://projects.dsi.ovh/browse/K8S-807	4	4	0	100%
Resilience and contact change	https://projects.dsi.ovh/browse/K8S-700	15	15	0	100%
Kubernetes 1.12	https://projects.dsi.ovh/browse/K8S-796	7	7	0	100%
Docs and Basic UX improvements	https://projects.dsi.ovh/browse/K8S-701	13	13	0	100%
Load Balancing, Ingress	https://projects.dsi.ovh/browse/K8S-696	11	11	0	100%
Cluster reset : presene nodes options	https://projects.dsi.ovh/browse/K8S-805	3	3	0	100%
Ux and Gotomarket improvements	https://projects.dsi.ovh/browse/K8S-704	16	16	0	100%
Major version upgrade	https://projects.dsi.ovh/browse/K8S-804	56	56	0	100%
Priority +++	https://projects.dsi.ovh/browse/K8S-943	17	17	0	100%
PCI Self-Healing	https://projects.dsi.ovh/browse/K8S-1072				
Kubernetes multi admin cluster	https://projects.dsi.ovh/browse/K8S-958				
	Total				

Date	TODAY
ETA	DEADLINE

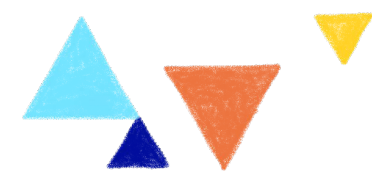


$$\frac{va - vd}{vd} \times 100 = \text{Variation Roadmap}$$

Moyenne de % des sprints	Vélocité moyenne
Kubernetes 72%	Kubernetes 5.7



$$\left(\frac{\text{StoryPointsCompleted}}{\text{DurationSprint}} \right) = \text{Velocity}$$



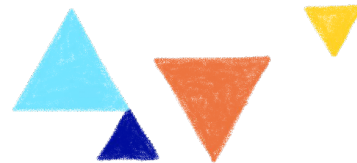
Agility and real life of a DevOps team



"I have a *customer* who came to ask me to solve a problem"

"I am too often *disturbed* to fix bugs!"

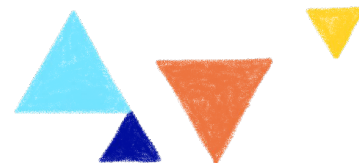
"I didn't have time to finish the ticket, I had to deal with an *emergency*"



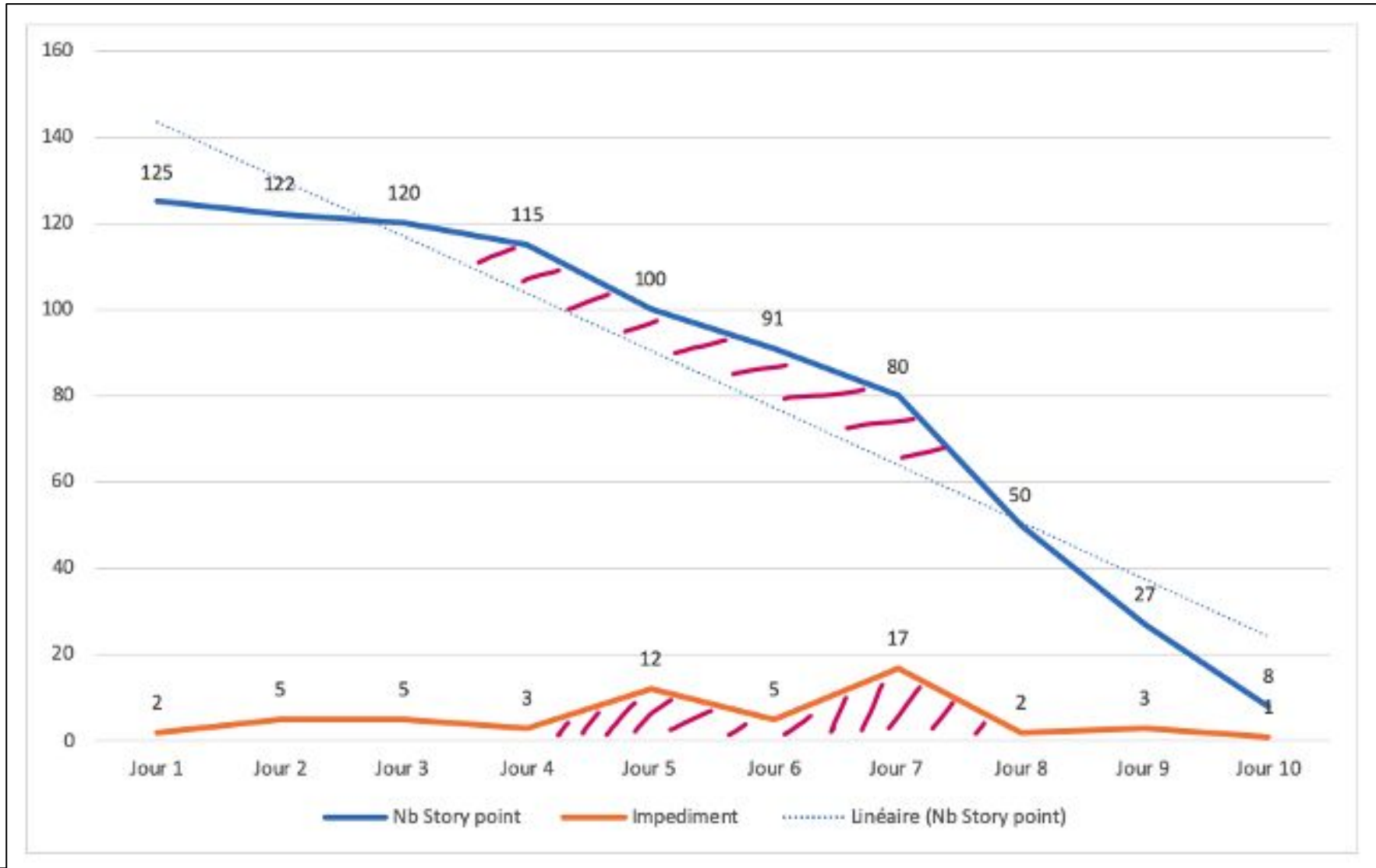
Impediments



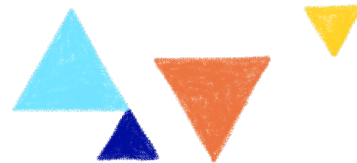
Unexpected tasks asking for immediate attention
and diverting time from scheduled tasks



Tracking burndown and impediments



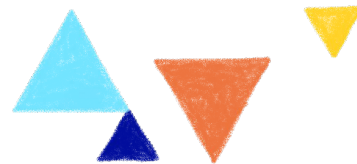
- ✓ *Decision making*
- ✓ *Vision*
- ✓ *Creation of value*
- ✓ *Respect for the rhythm of the team*



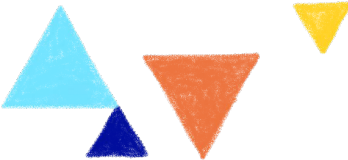
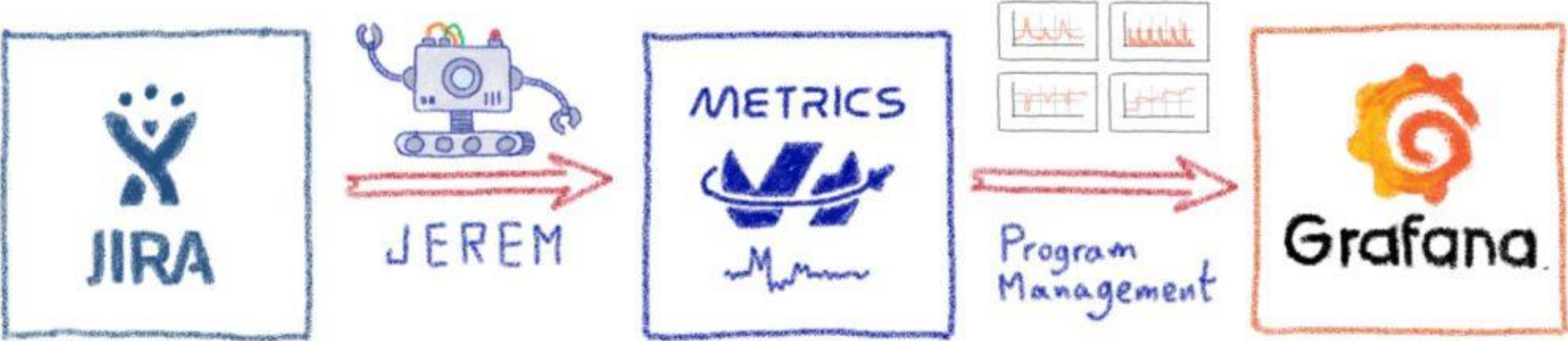
4th step: agile telemetry



 **JIRA** +  **Grafana** = 



Agile telemetry workflow

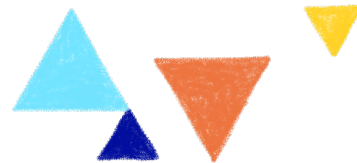


Extracting metrics from Jira



bot.jerem

Language	Golang
JIRA	API Scrapping
Metrics	HTTP POST
DataBase	Warp10



From metrics to visualisation



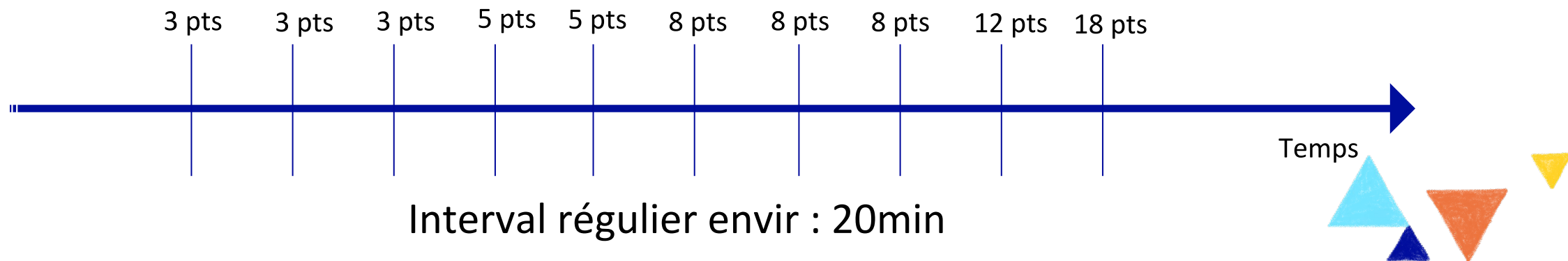
1 Objet

Example :

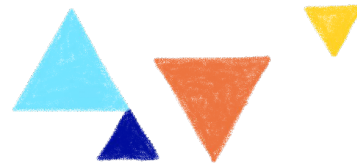
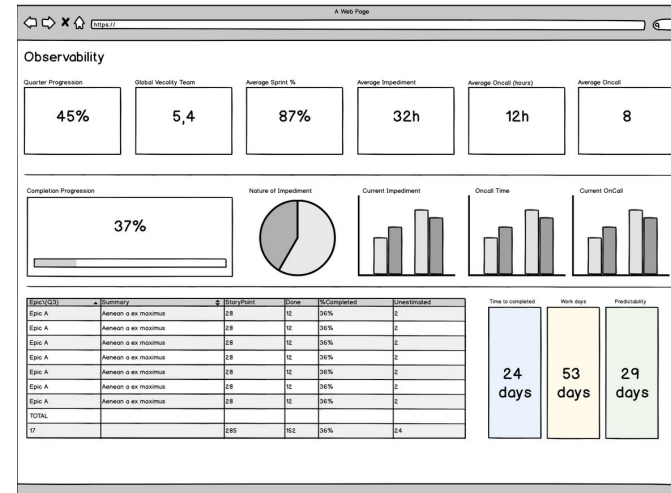
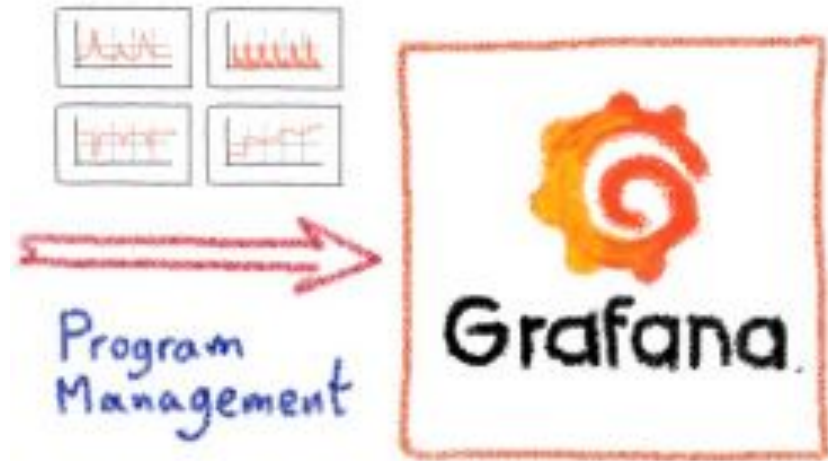
Projet : OB

Epic : Alpha

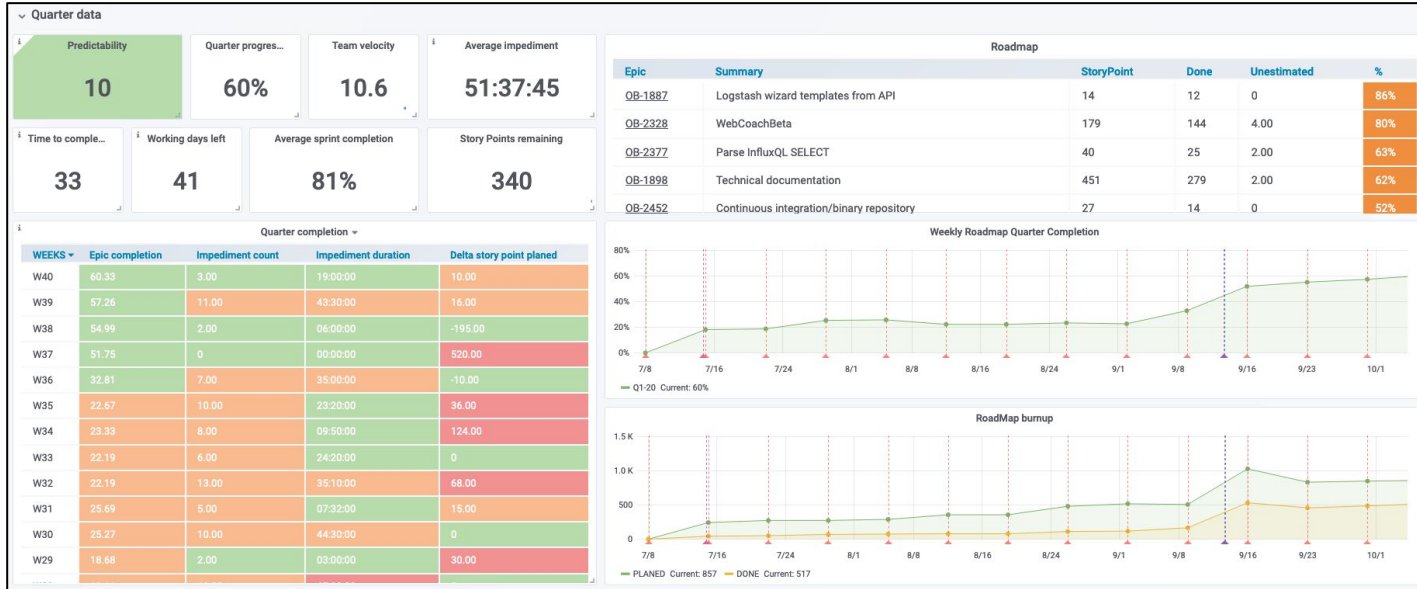
Information : taches DONE



And then to the dashboard



OVHcloud agile telemetry



MACRO

- Top management
- Product Marketing
- Program Manager



MICRO

- Equipe de dev
- Scrum Master
- Technical leader



Last but not least...



"We have *kept our promises*, with a fairly good level of *quality*" - Developer

"We don't apply the method mindlessly, we *adapt it*" Developer

"Product release with good *visibility* and *accuracy*" - Manager

A convinced product team

