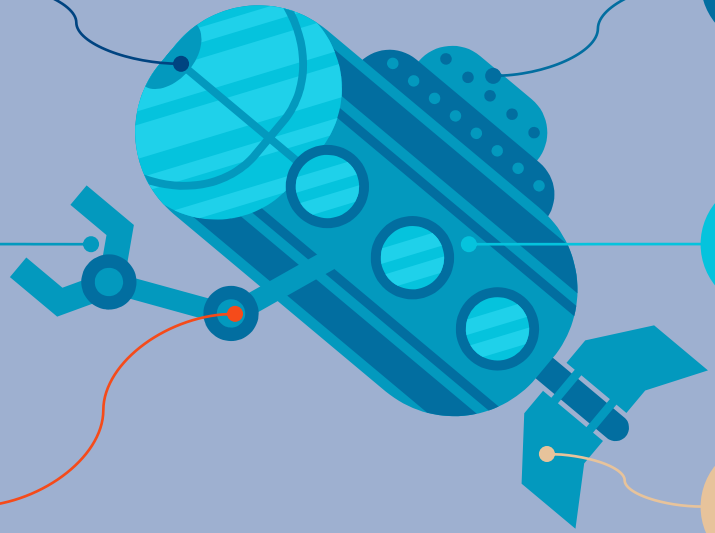
TheDrive

The storage app that will make you travel

Summary



Introduction 01

02 Infrastructure

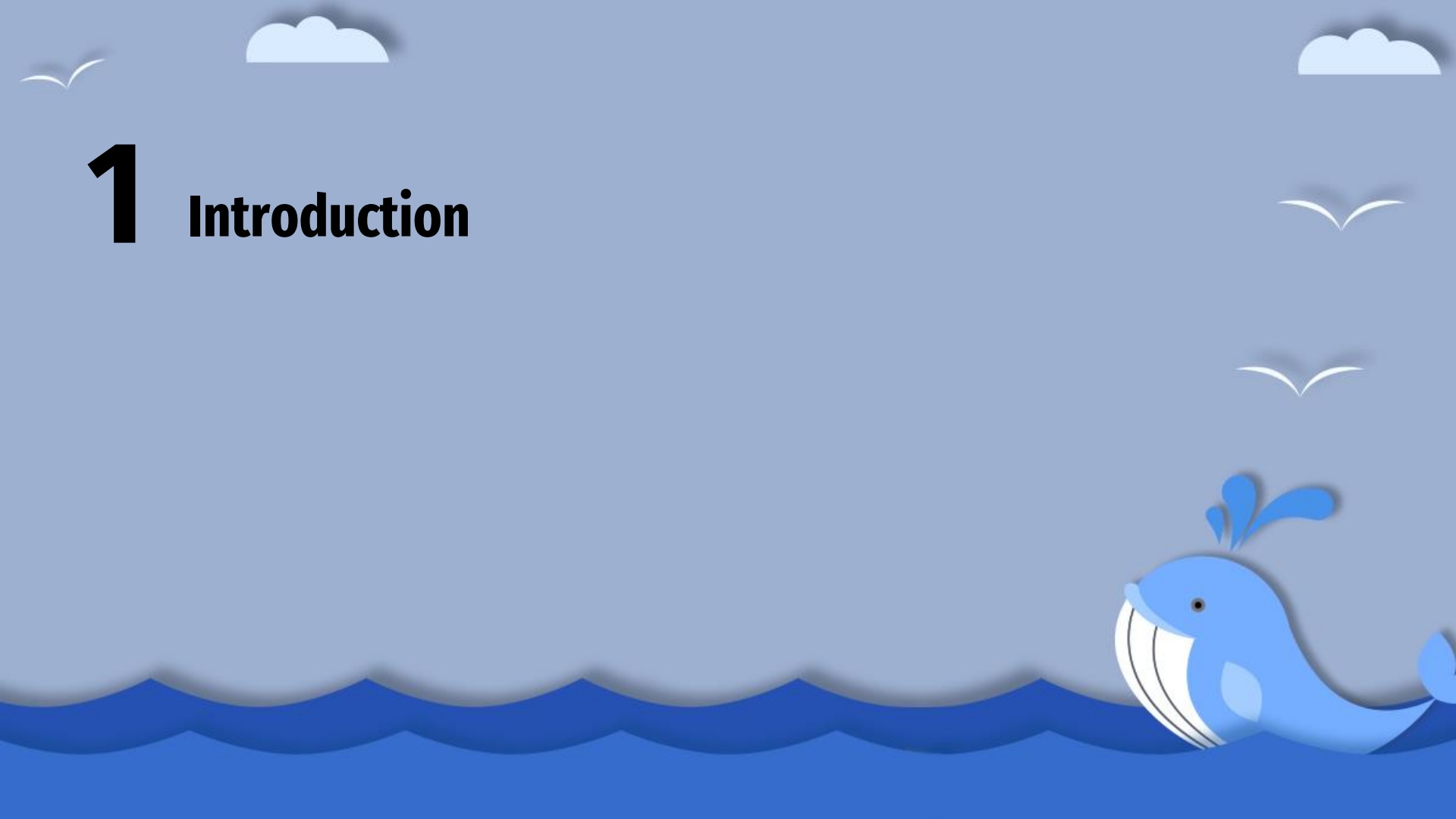
Application 03

04 Monitoring

Validation 05

06 Conclusion

1 Introduction



TheDrive: a startup that will row out competition

01

Free to use

You just need to login

02

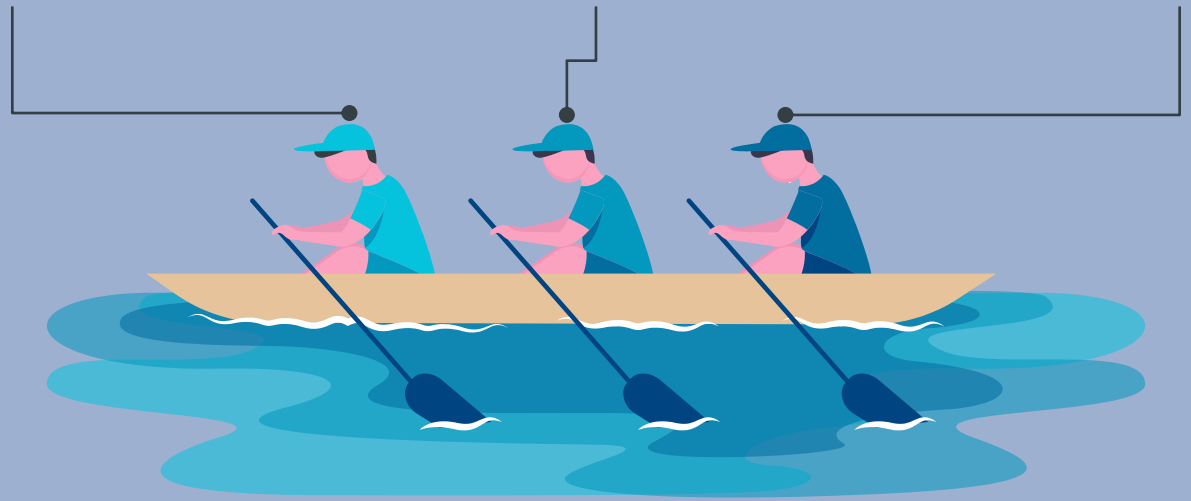
Highly available

Always ready for you baby

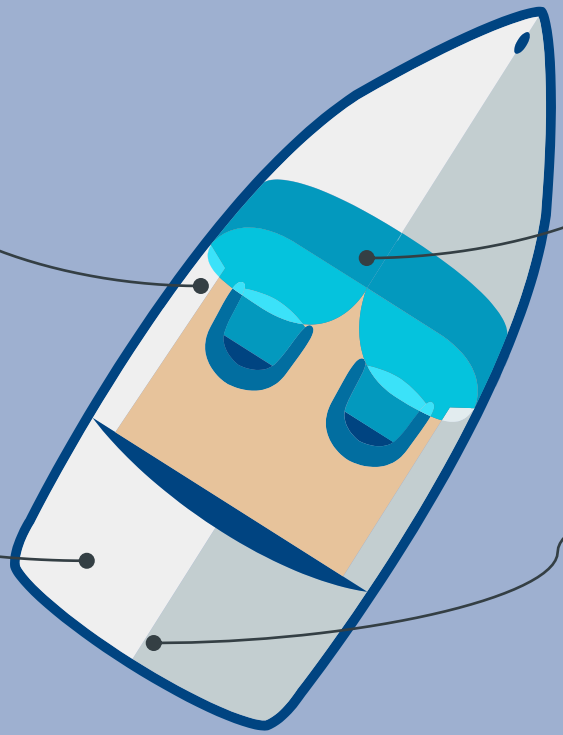
03

Simple interface

Even your dog could use it



Features



Data storage

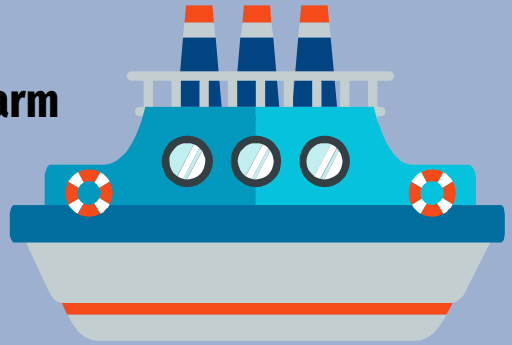
Simple login system

Data safety

Data edition

Educational expectations

Docker swarm project

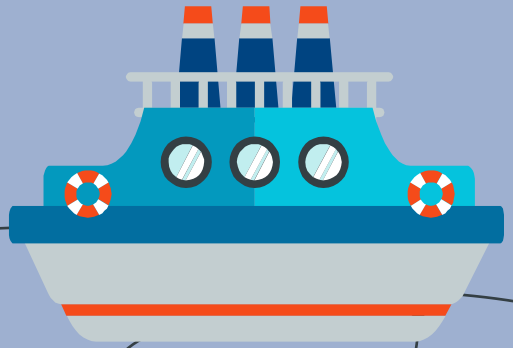


Technologies
Learn to use each component

Organisation
Organise ourselves to work efficiently and respect the deadlines

Communicate
Work as a team to connect all our skills and knowledge

Technologies



01

Glusterfs

02

Nextcloud/Onlyoffice
/MariaDB Galera

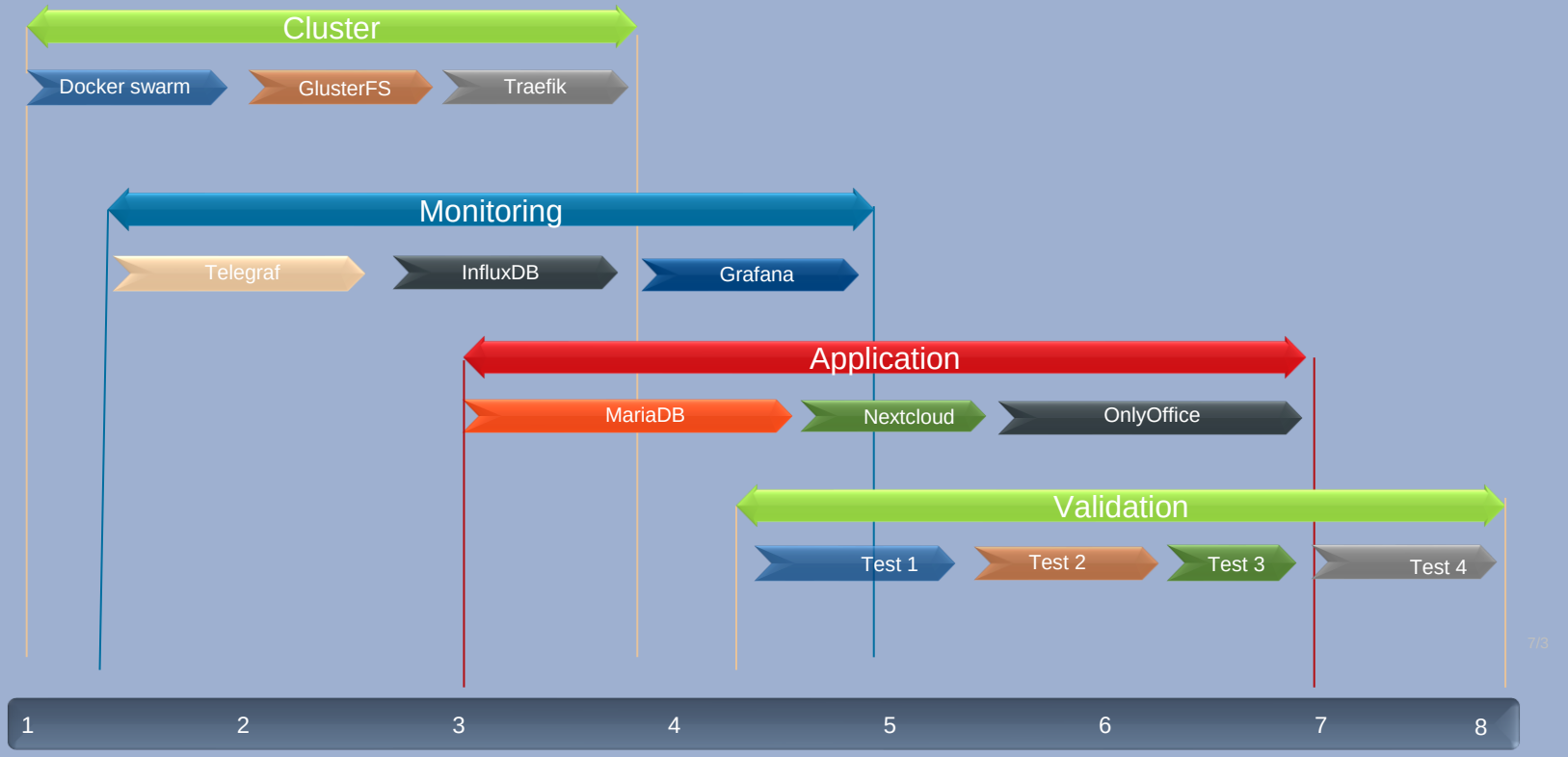
03

Traefik

04

Telegraf/InfluxDB/
Grafana

Planning



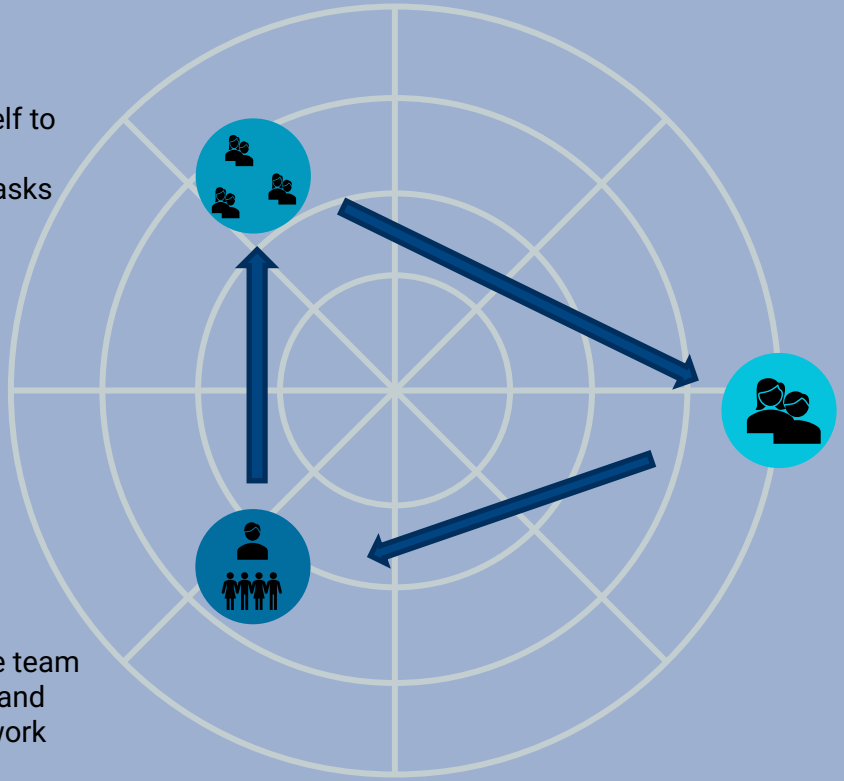
14/02/2022 12h00

18/02/2022 12h00

Organisation

Division

The team divide itself to make groups of 2-3 people to work on tasks



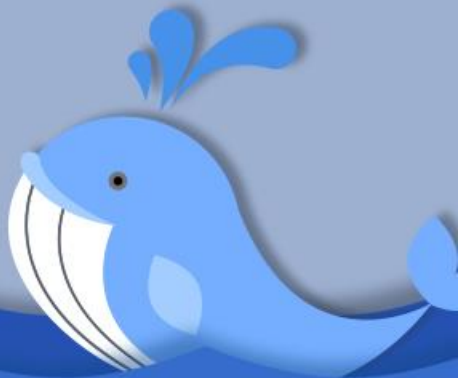
Working

All groups work on their tasks

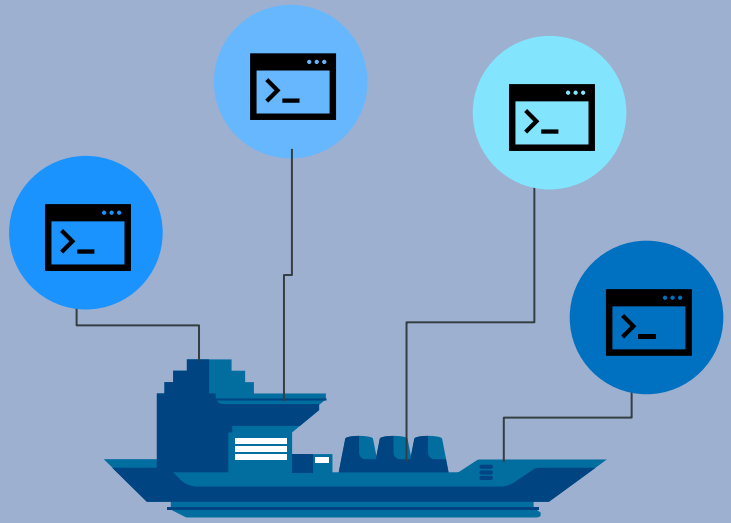
Meetings

Meeting with all the team to make decisions and reports about the work

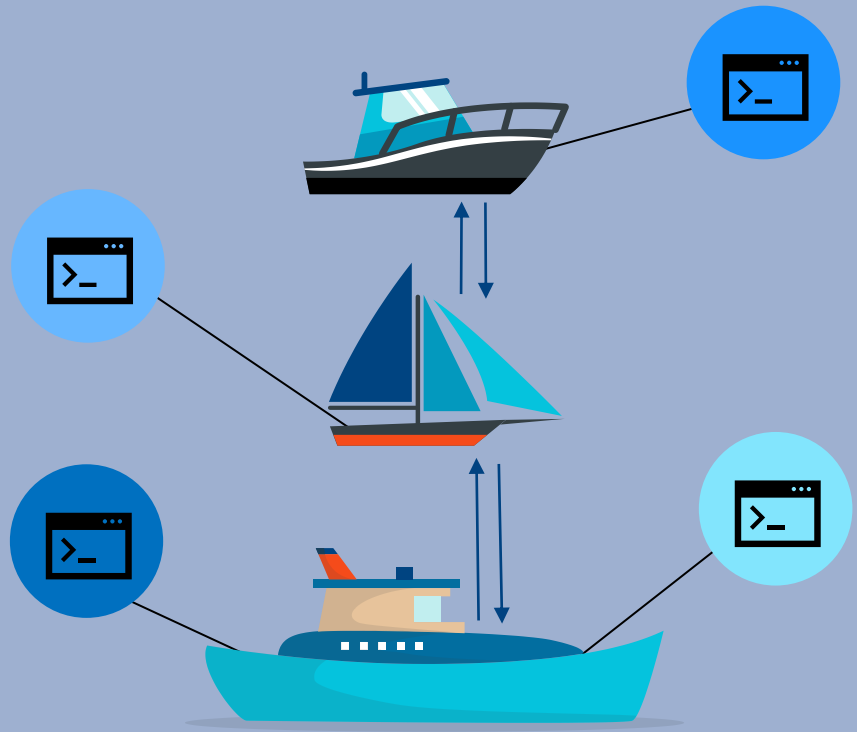
2 Infrastructure



Docker Swarm



Docker Classique

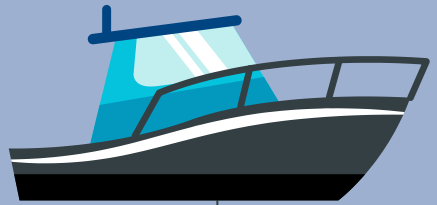


Docker Swarm

Why GlusterFS ?

Node 1

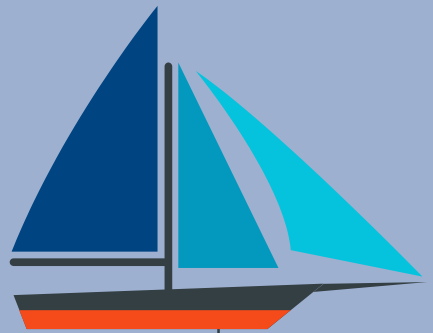
One task
of nextcloud service



Nextcloud

Node 2

One task
of nextcloud service



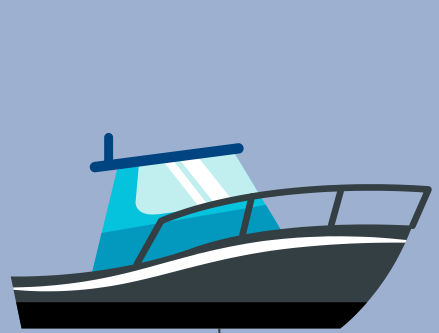
InfluxDB

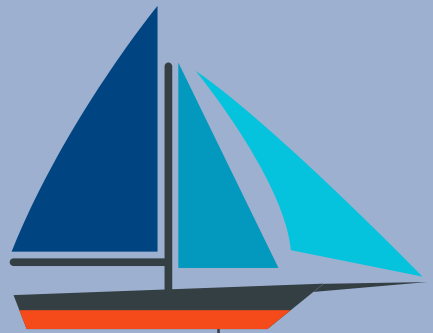
Nextcloud

How GlusterFS work

Node 1
One task
of nextcloud service

Node 2
One task
of nextcloud service





Nextcloud

Nextcloud

InfluxDB

How GlusterFS works

01

Docker plugin

Interface with docker and API call

02

GlusterFS API

Interface between docker plugin and GlusterFS server

03

GlusterFS Server

Organise stored data, communicate with other node

04

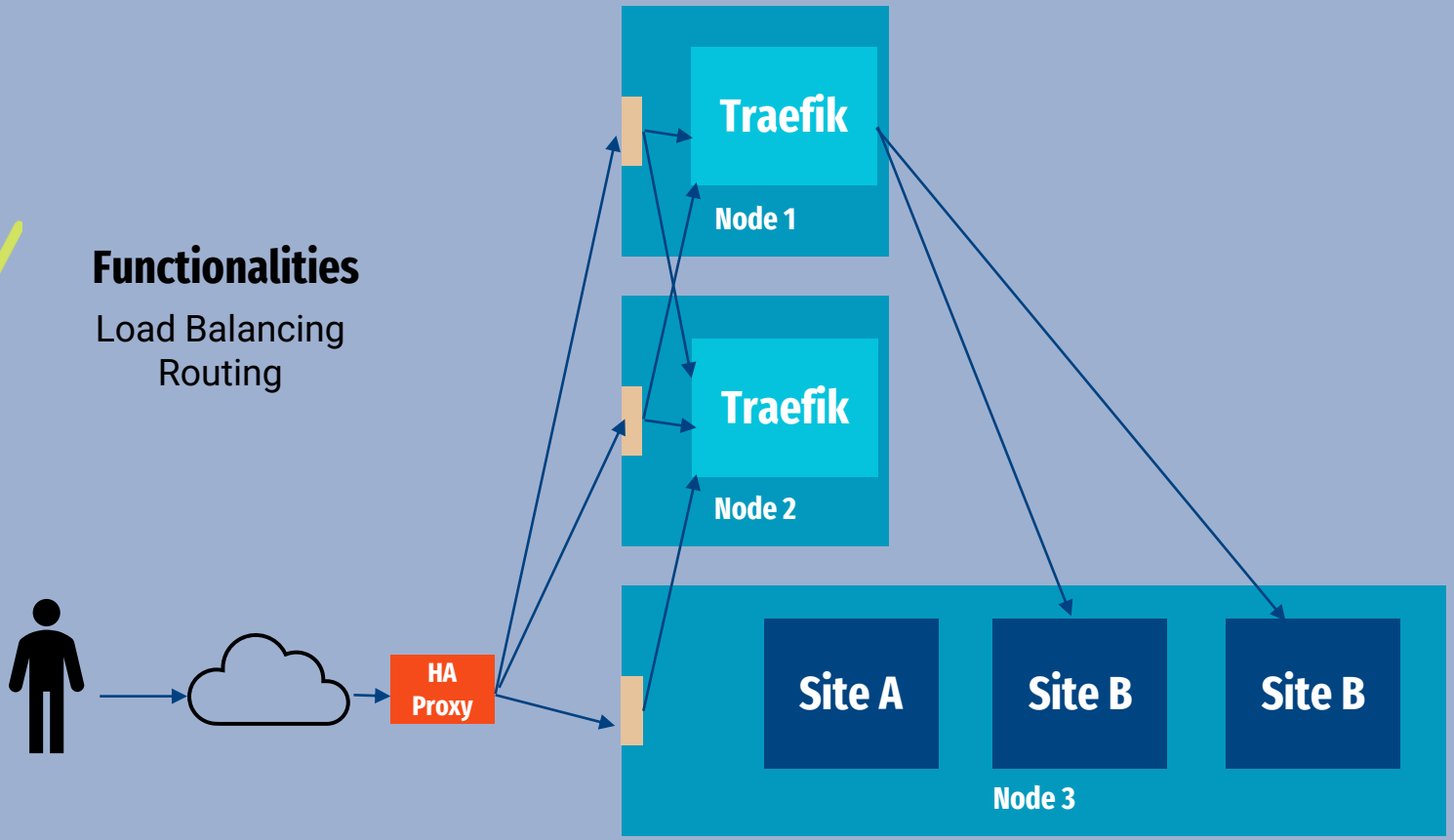
GlusterFS Client

Mount the volume on a node

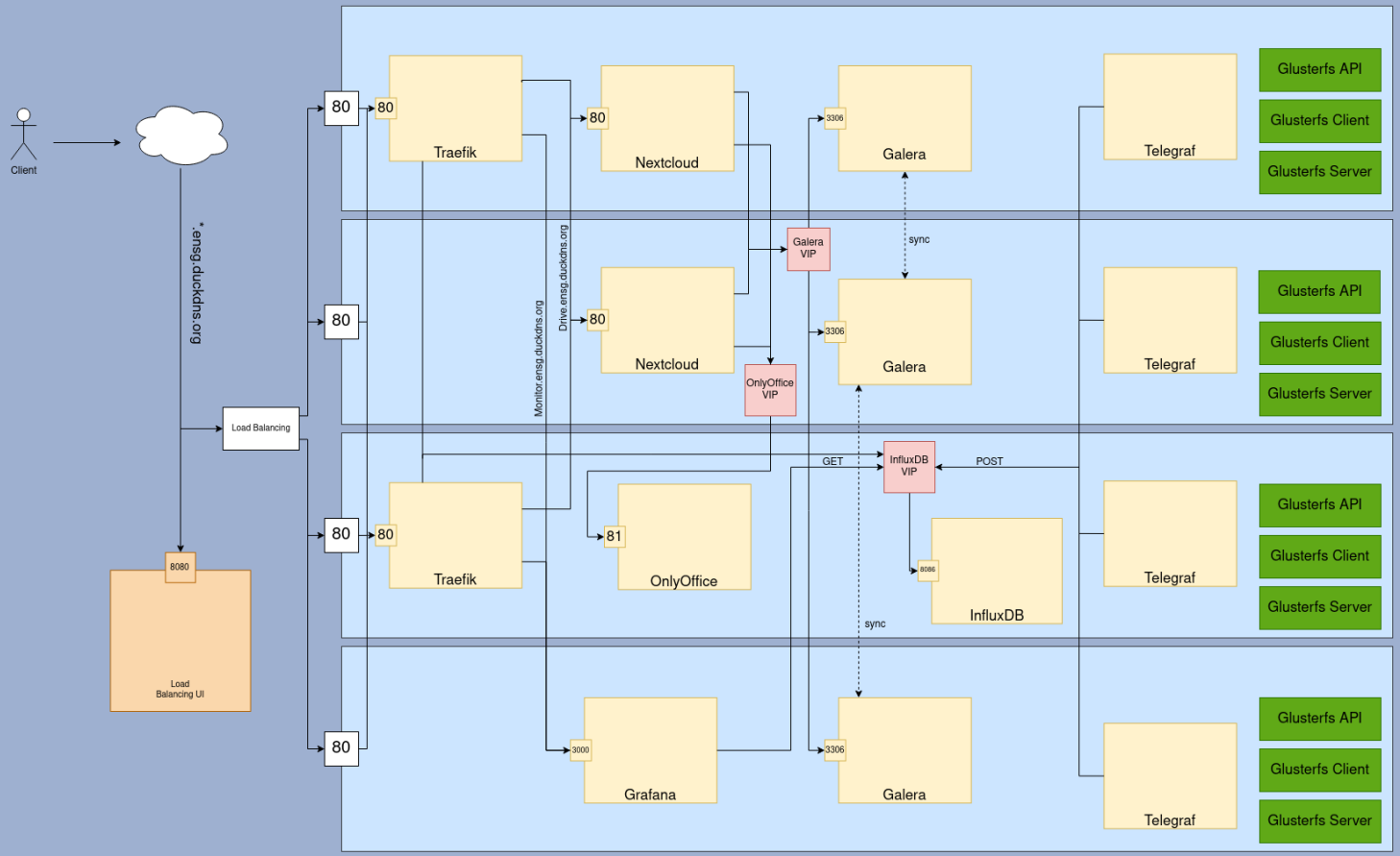
Traefik

Functionalities

Load Balancing
Routing

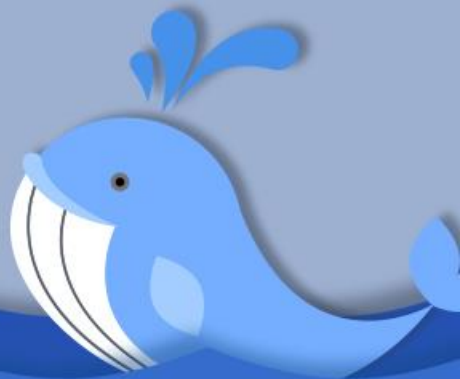


Architecture Diagram



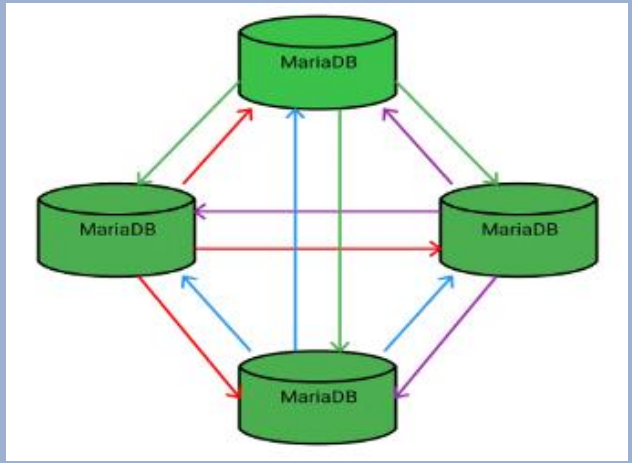
TheDrive : Possible Setup

3 Application



Application

Image used: colinmollenhour/mariadb-galera-swarm



Benefits :

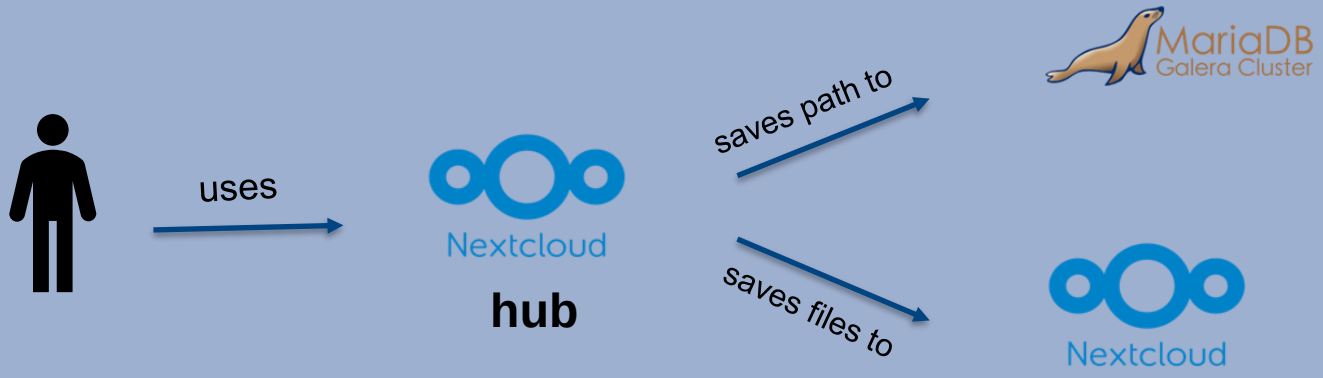
- No replica lag
- No lost transactions
- Read scalability
- Smaller client latencies

Application

Image used: nextcloud:latest

Description :

A safe home for all your data. Access & share your files, calendars, contacts, mail & more from any device, on your terms.



Application

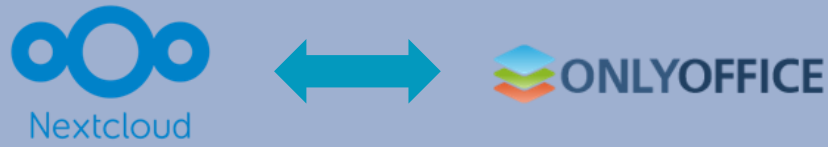


Image used: onlyoffice/documentserver

ONLYOFFICE used in Nextcloud for :

Open, edit and save :

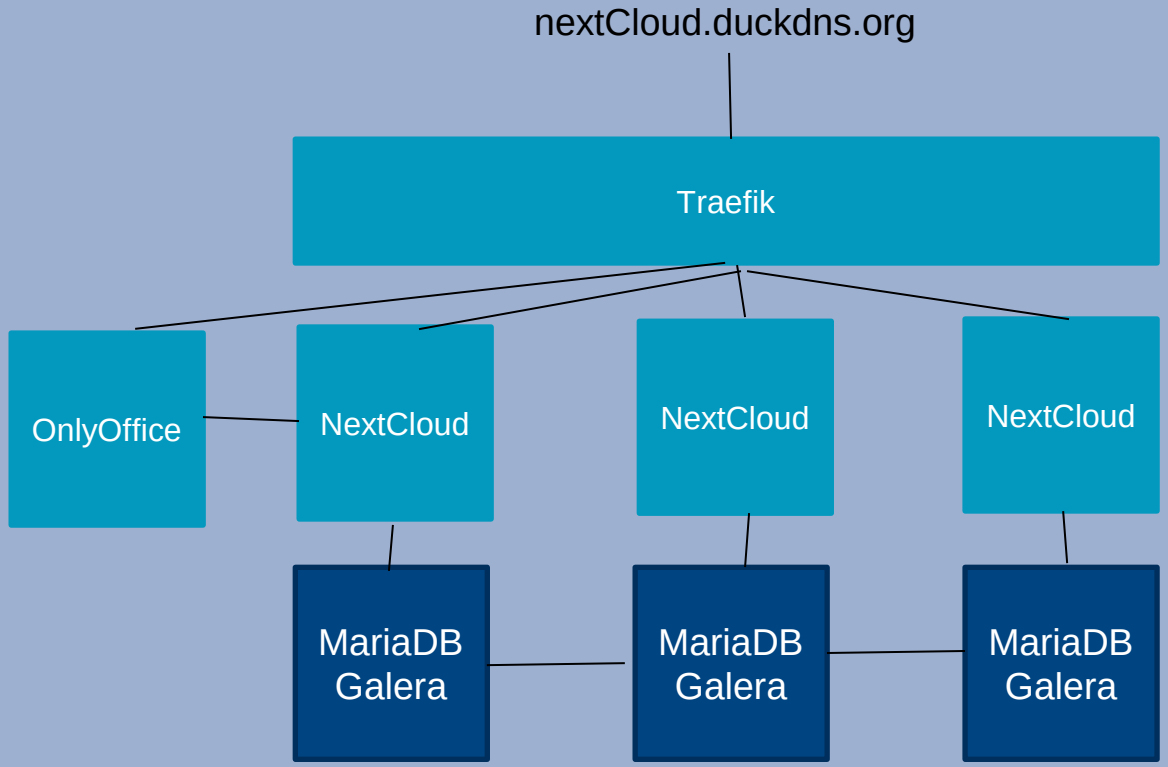
- XLSX, ODS and CSV files
- PPTX and ODP files
- Word, ODT, PDF or HTML files

ONLYOFFICE available as an app and as a service :

- Link between the service and the Nextcloud app through external storage app

- Use of traefik middlewares for the link

Application - Architecture

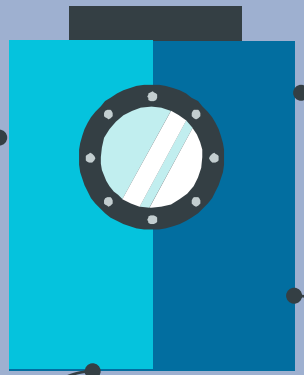


Nextcloud

MariaDB Galera Cluster

4 Monitoring

Why monitoring ?



01

Identify deviance

When an issue occur, monitoring allows us to identify the problem more easily

02

Track operations

When operations are processing we can follow their status and the used resources

03

Follow performance

Know application resources and consumption for efficient scaling

04

Usage analysis

Alerting system that allows admin to adapt system for issue tackling

How do we monitor

01

Telegraf

Plugin server agent that collect metrics from systems (Go)

02

InfluxDB

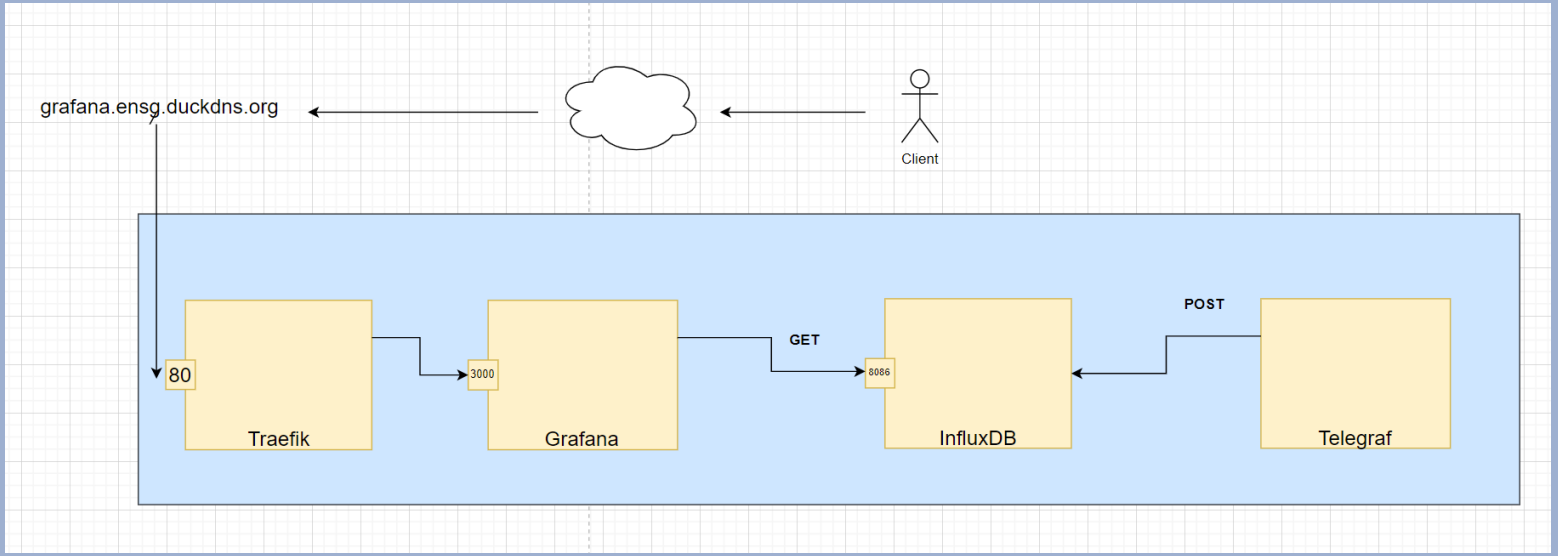
Time series database where we store metrics from Telegraf

03

Grafana

Dashboard realization and alerting tool with data from InfluxDB

Simplified schema architecture



Metrics

Telegraf Metrics Final
Zoom Out
févr. 17, 2022 15:36:56 to févr. 17, 2022 16:36:40
host
ensg-00
interval
1m
uptime
18:54
cpus
4
memory
8.34 GB
total threads
11
load 1
1.6
load 5
0.6
load 15
0.3
Memory used_percent
22%
Disk_used_percent(max point)
24%
Memory
available_percent
load
load1
load5
load15
Network Usage
ens5:OUT
ens5:IN
vethacb8883:IN
docker_gwbridge:IN
vethacb8883:OUT
cpu
usage_idle
usage_iowait
usage_user
usage_system

5 Validation

Benchmark

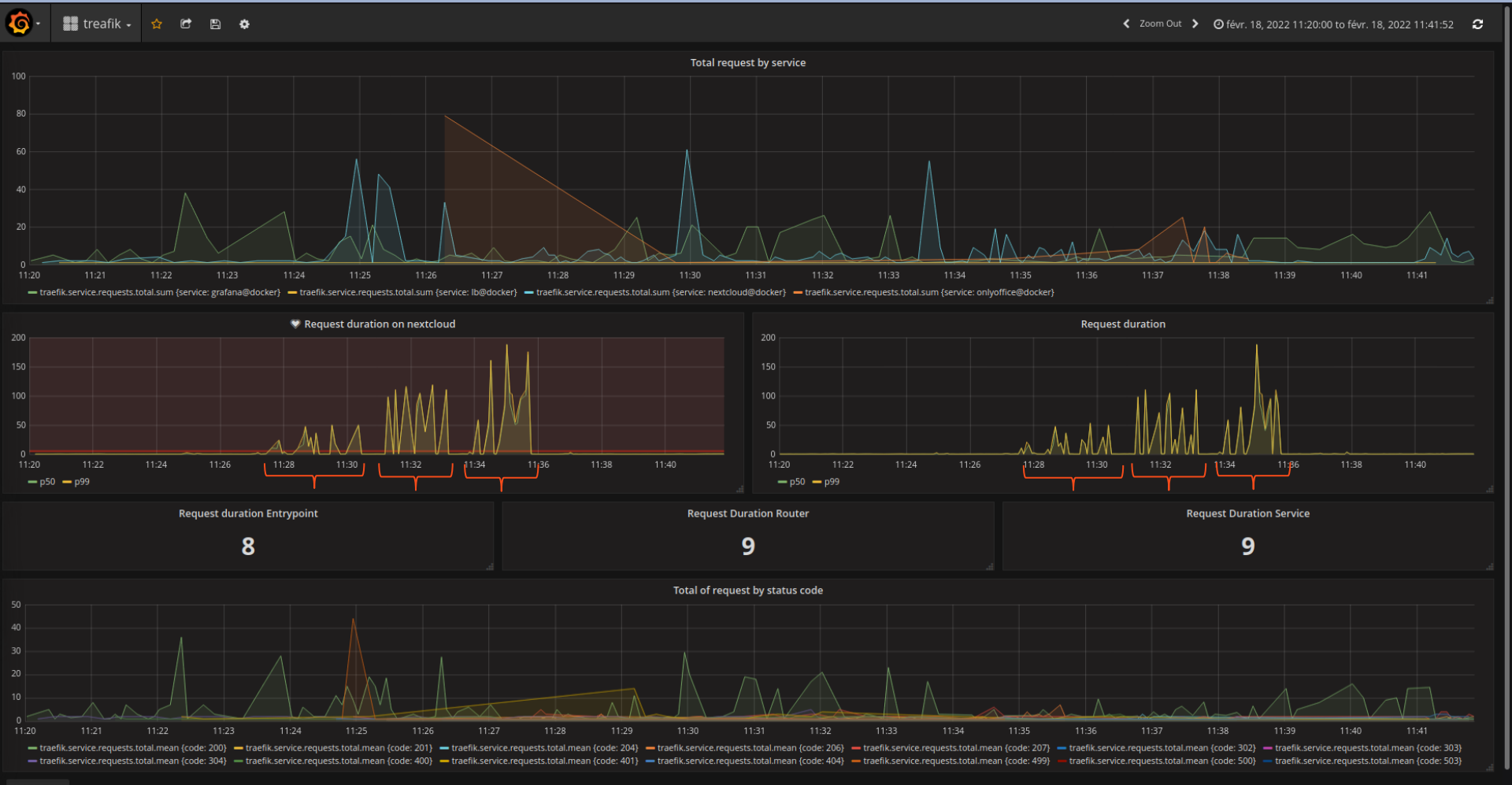
Load tests : file transfer

- Create random data
- Have a certain number of user to upload this data to nextCloud
- Download back data

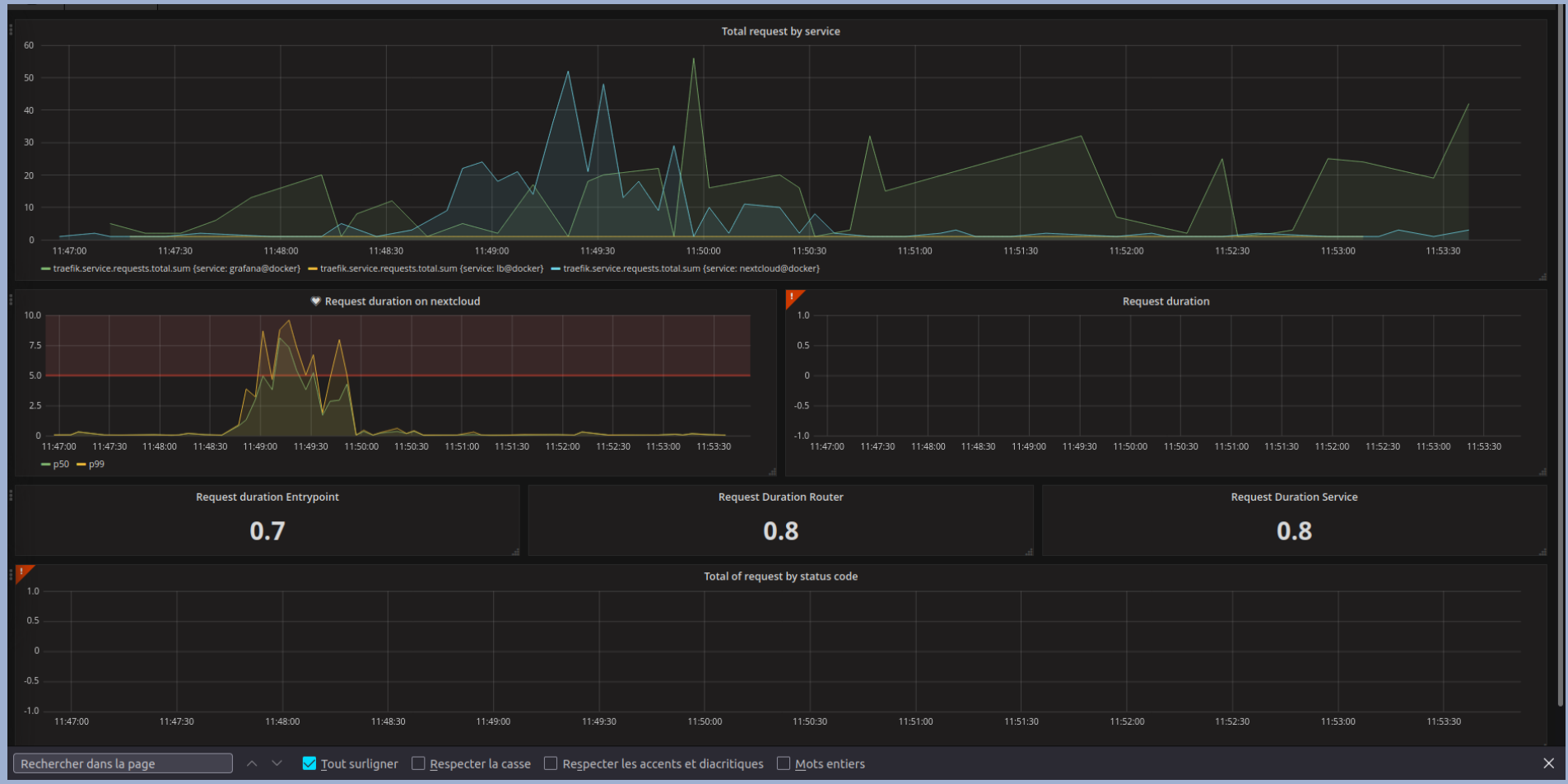
Simulate user activity

- Log in nextcloud
- Creation of .docx file
- Write in the file
- Remove the file
- Log out

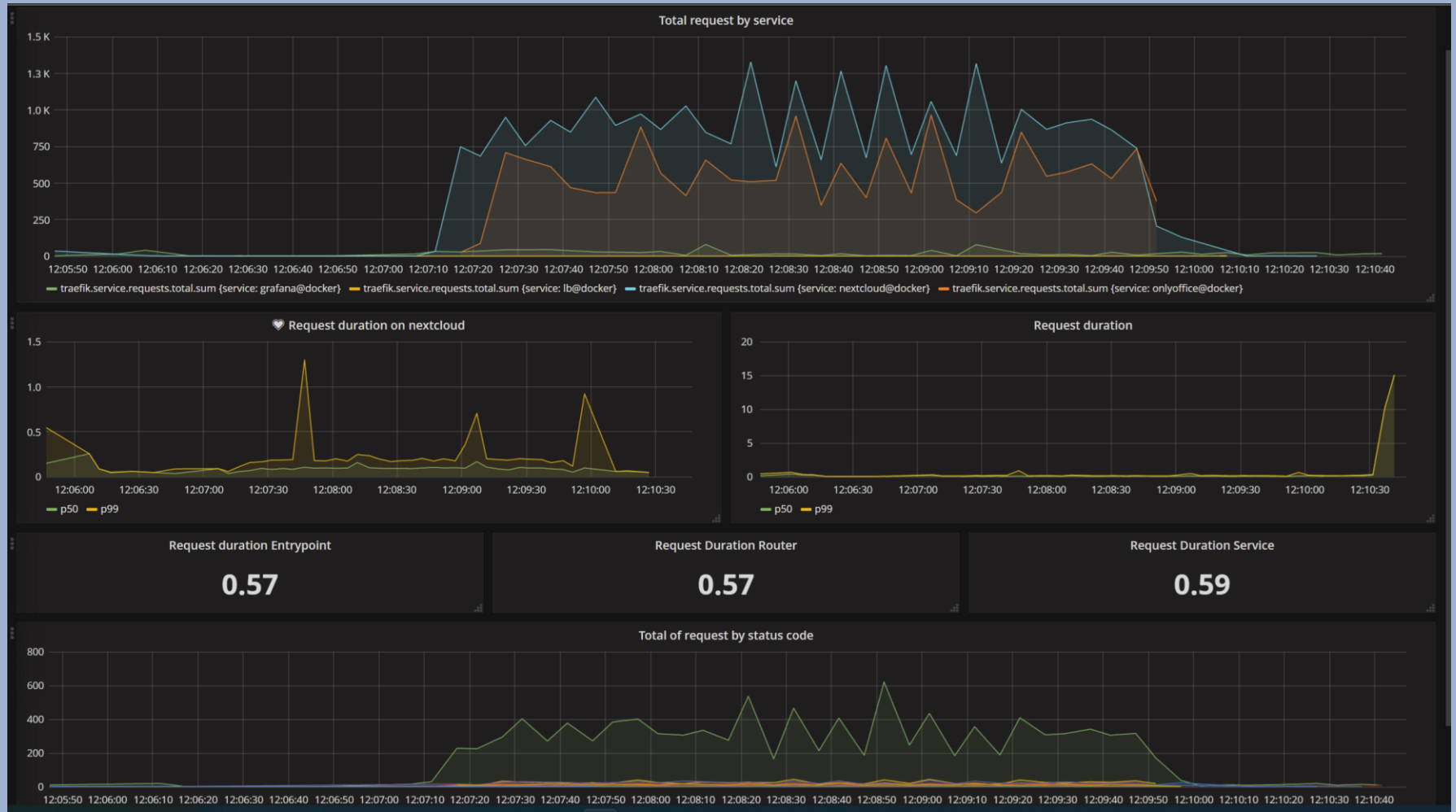
Results: Load Big Data file transfer :



Results: Load Multiple Data for 20 users



Results: Simulate user activity



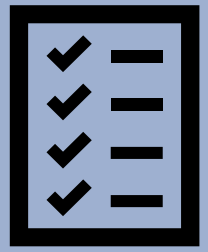
High availability testing

01

Data

Mariadb & Influxdb

- shutdown a container
- time to recreate container
- data persistence



02

Protocole of validation

- shutdown of a node
- time of request
- every services running

Results: Data

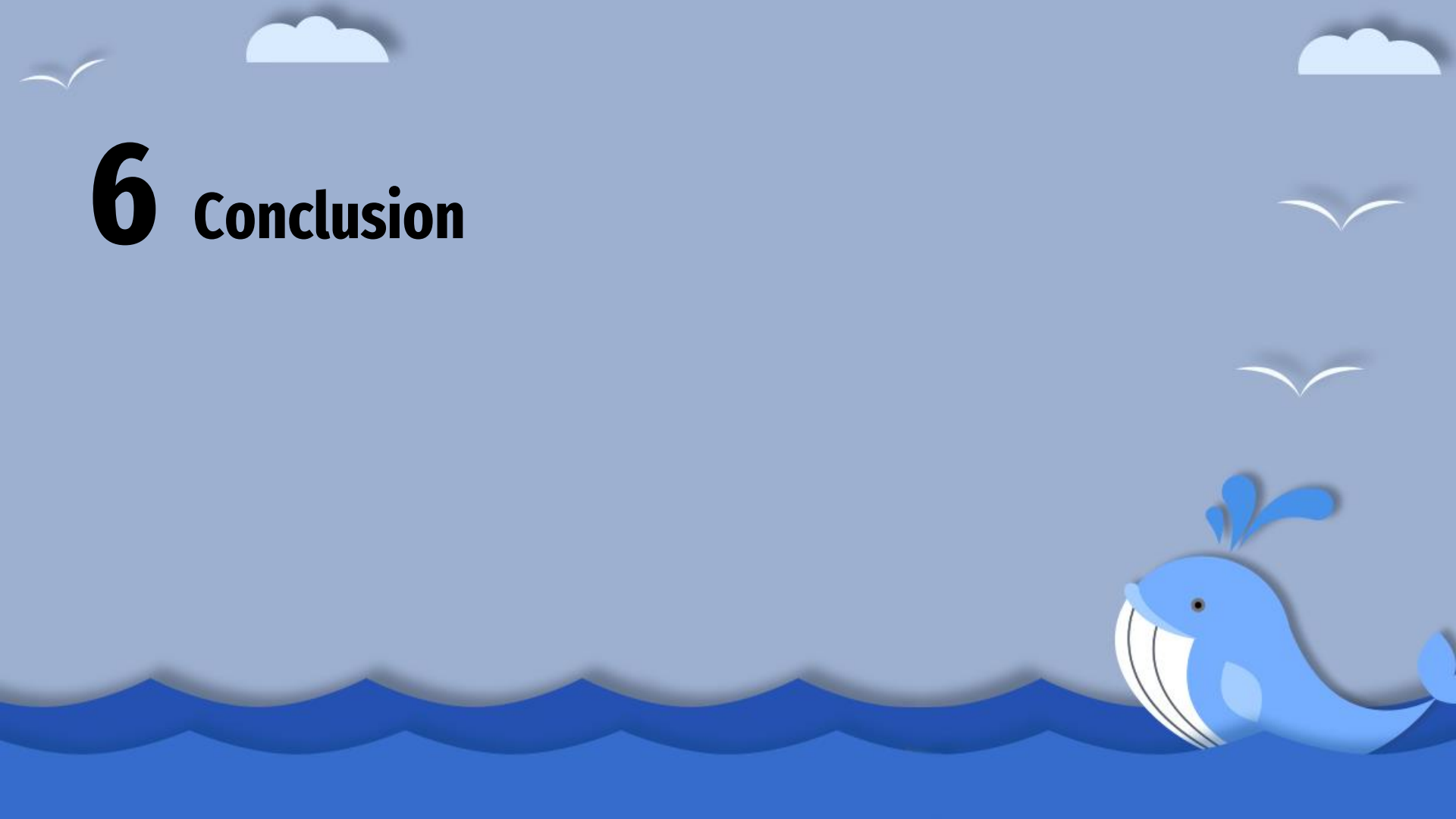
Mariadb & Influxdb

1. Shut down one (or the one) container

time to recreate the container < 5 seconds

2. Control persistence :
   - users presents in mariadb
   - dashboard is full for influxdb in Grafana

6 Conclusion



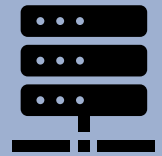
Difficulties and bypass

Ready for deadline

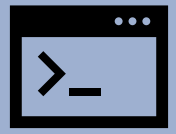
Communication in the team

Estimate the time to do a task

Discover a lot of new technologies



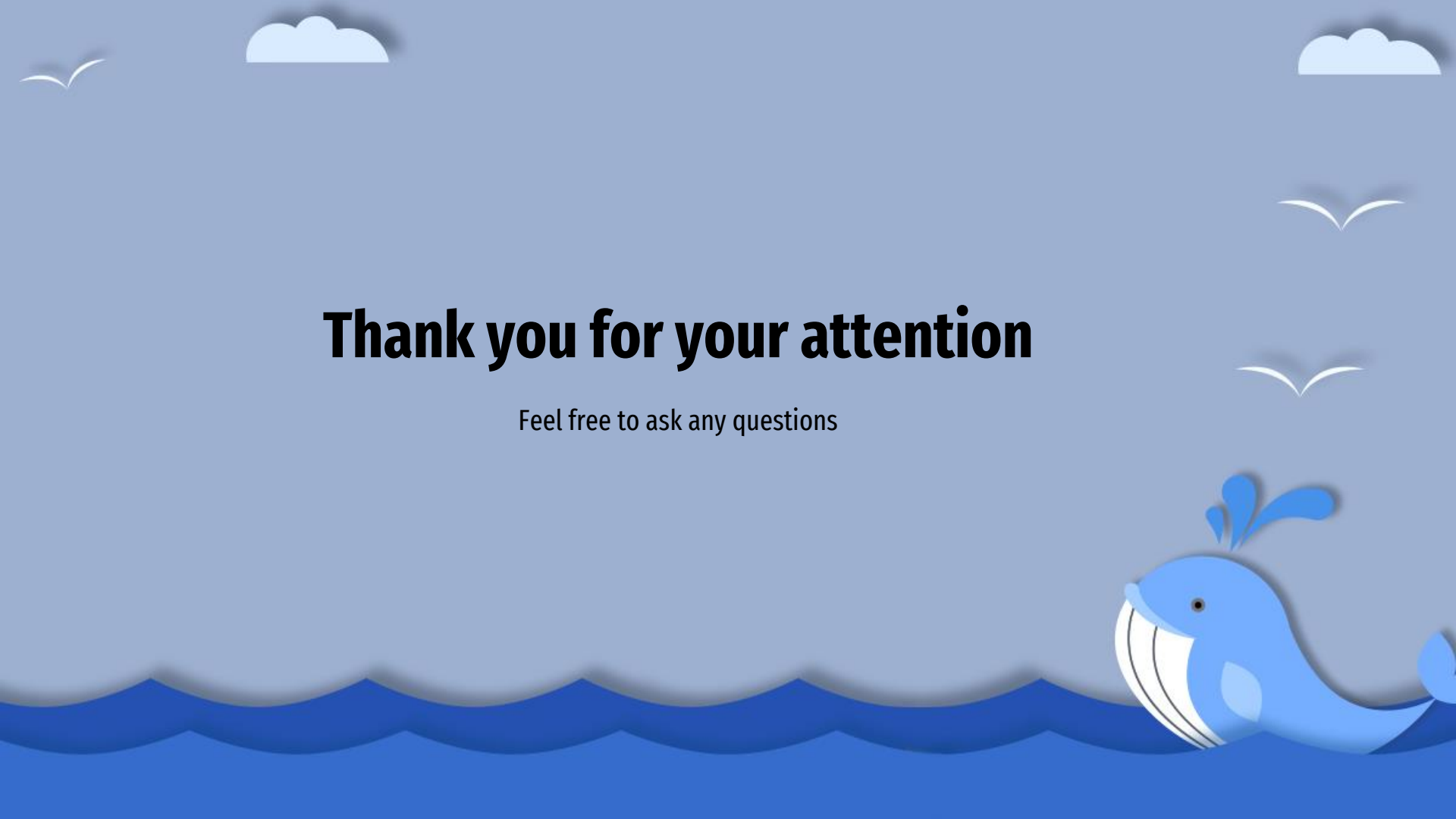
What we learned



New technologies

Communication

The importance of tests

Thank you for your attention

Feel free to ask any questions