VBoard

Web dashboards in 3D and VR

Máster en Ingeniería de Telecomunicación
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Content

Introduction

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Development

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Introduction

/problem_description

Big amount of data

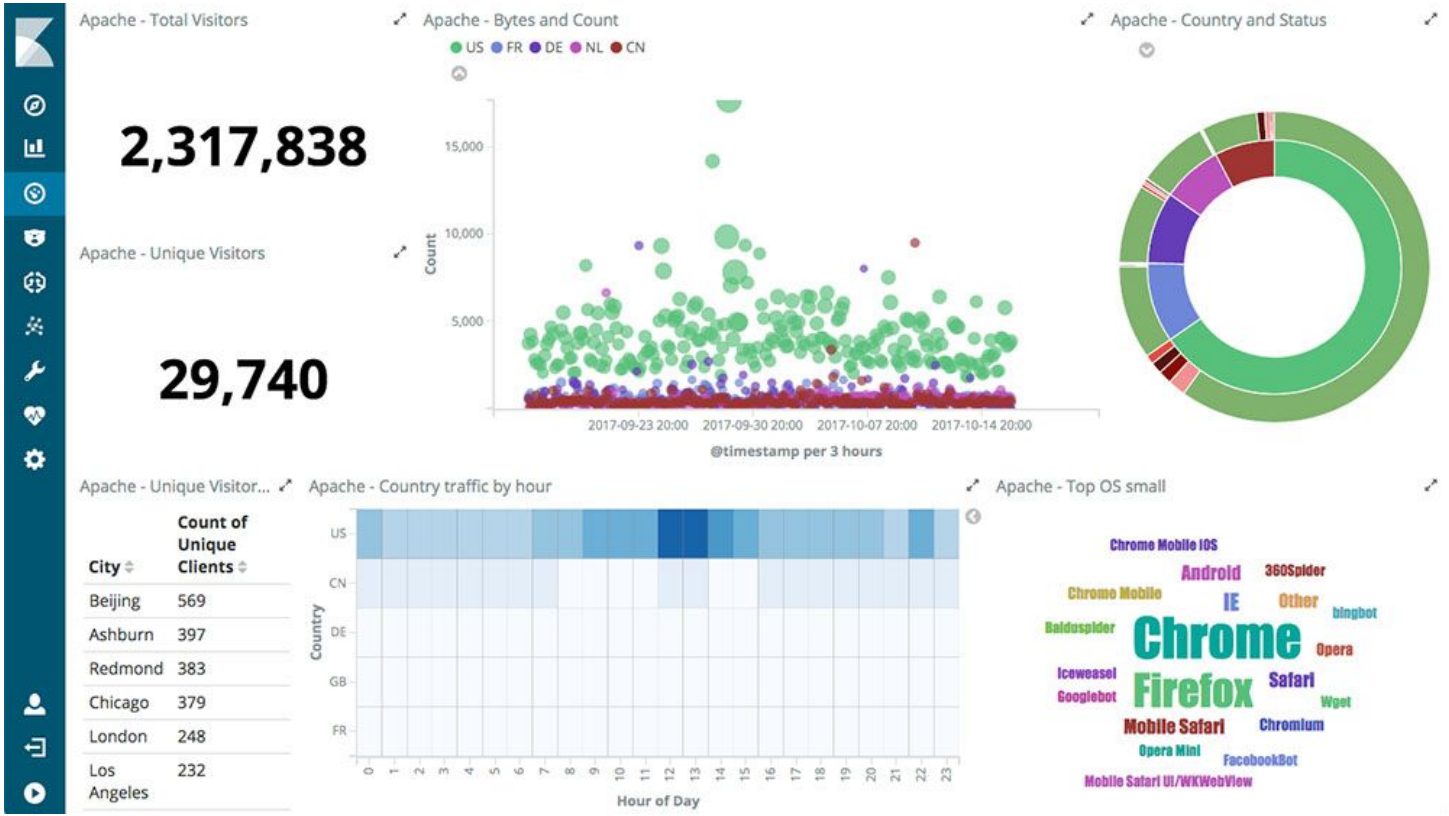
Data visualization

Tools of data visualization

New environments, **3D and Virtual Reality (VR)**

/examples

Kibana

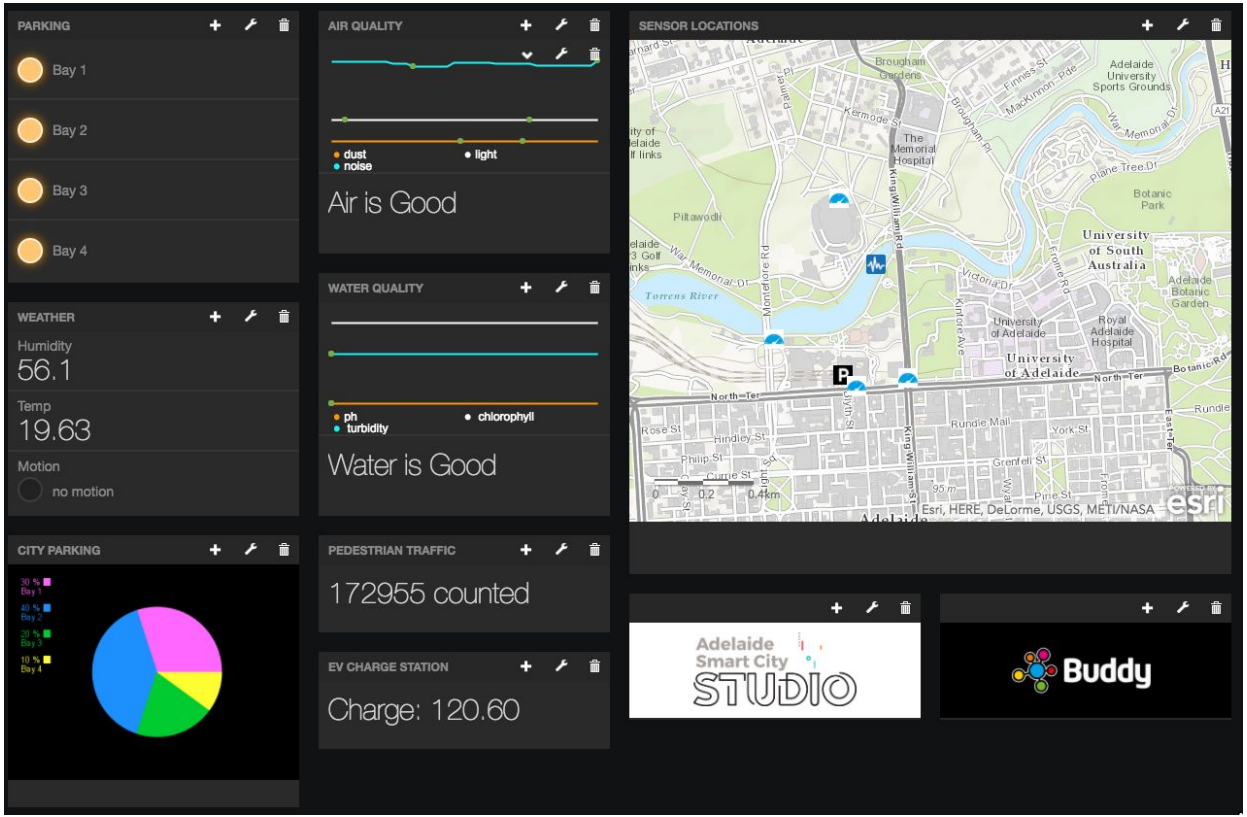


/examples

Grafana

/examples

Freeboard



/objectives

Development of a complex system of data visualization in 3D and VR

Analysis and choice of a visualization library

Analysis and choice of web development framework

APIs search and development

Development of a simple and useful interface

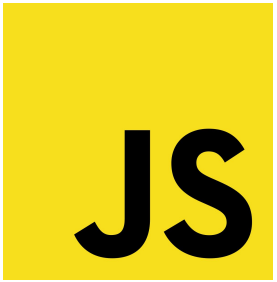
Definition of the platform and index objects in ElasticSearch for its later saving

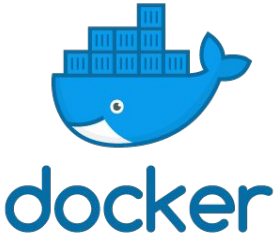
Dashboard view and integration of VR

Creation of Docker image

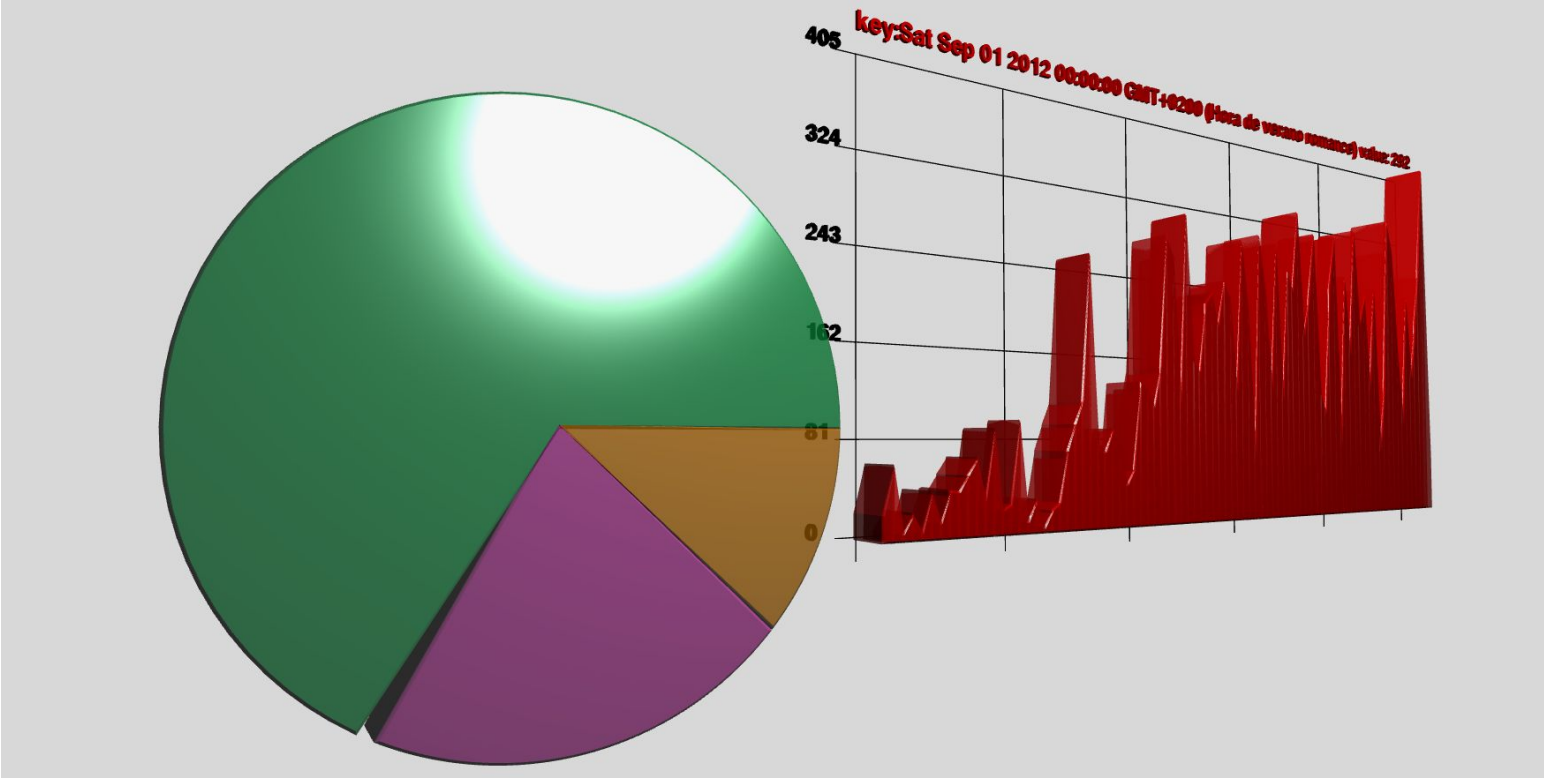
Context

/technologies

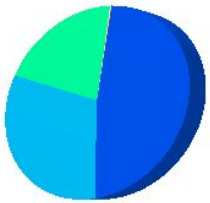


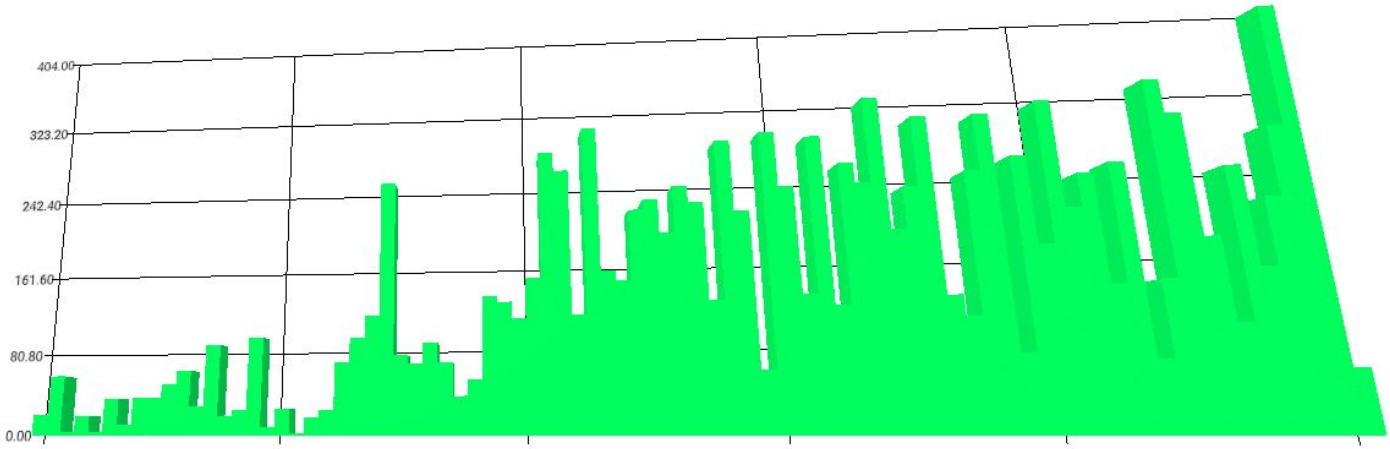


/threeDC


key:Sat Sep 01 2012 00:00:00 GMT+0200 (Hora de verano romance) value: 292
405
324
243
162
81
0

/aframeDC





Development

/iterations

Iteration 0: Investigation and preliminary study

Iteration 1: Define application structure

Iteration 2: First visualizations

Iteration 3: Add VBoard state logic into ElasticSearch

Iteration 4: Define panels

Iteration 5: Dashboards and stand alone mode

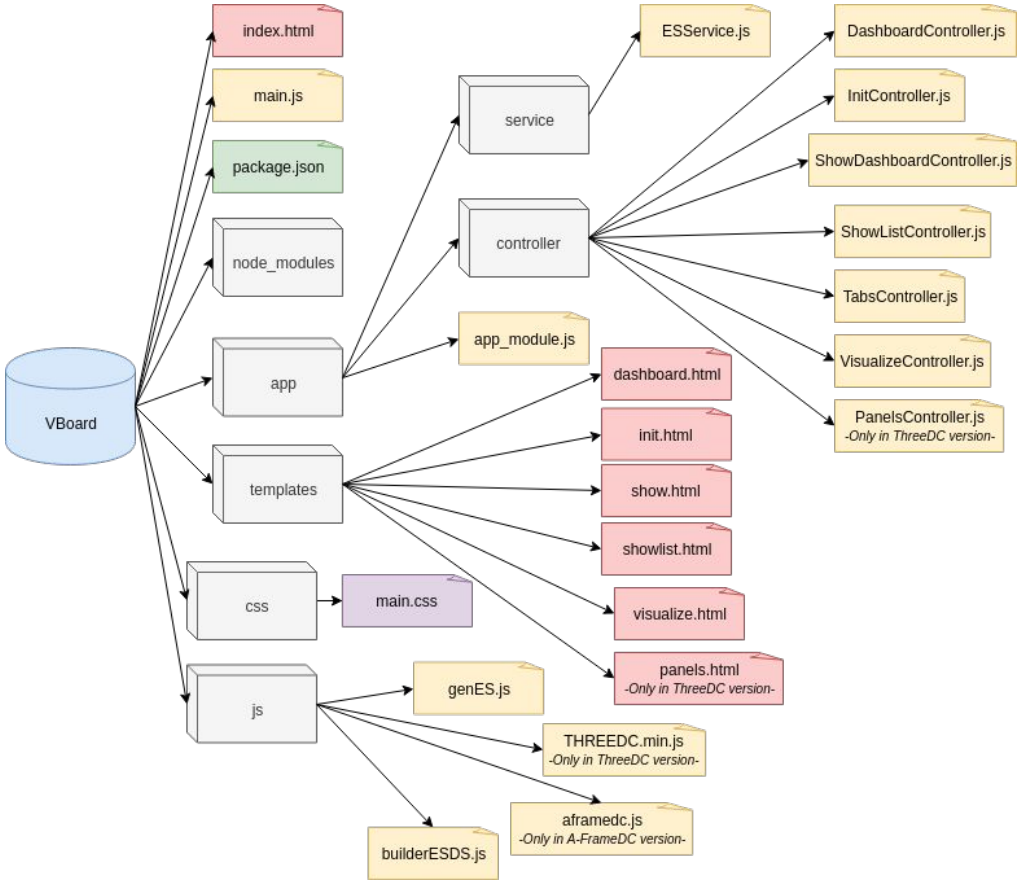
Iteration 6: Integration with A-FrameDC

Iteration 7: Customization and optimization

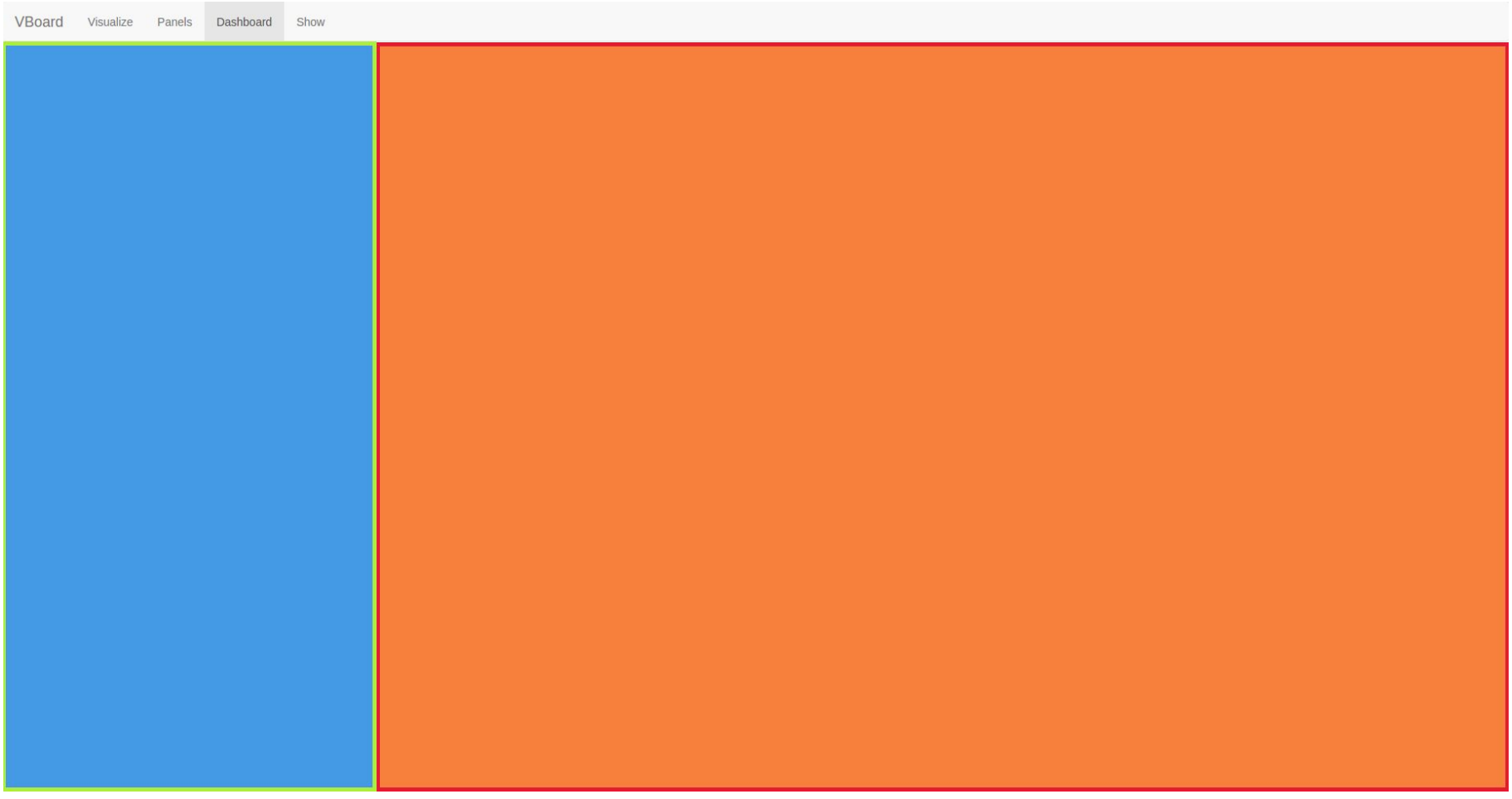
Iteration 8: Dockerize application

Results

/structure


VBoard
index.html
main.js
package.json
node_modules
app
templates
css
main.css
js
genES.js
THREEDC.min.js
-Only in ThreeDC version-
aframedc.js
-Only in A-FrameDC version-
builderESDS.js
service
ESService.js
controller
app_module.js
dashboard.html
init.html
show.html
showlist.html
visualize.html
panels.html
-Only in ThreeDC version-
DashboardController.js
InitController.js
ShowDashboardController.js
ShowListController.js
TabsController.js
VisualizeController.js
PanelsController.js
-Only in ThreeDC version-

/structure

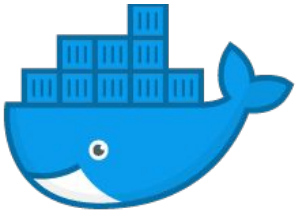


/installation

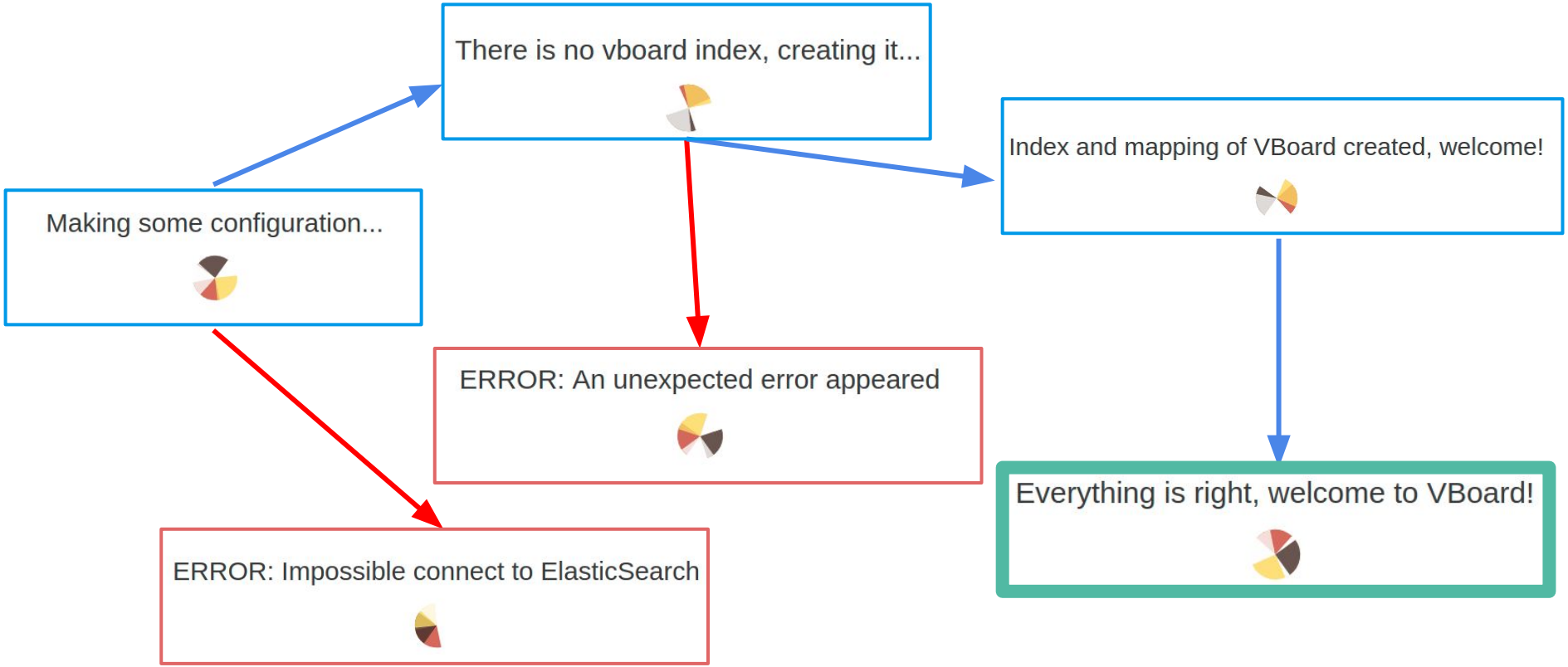
Repository

Releases

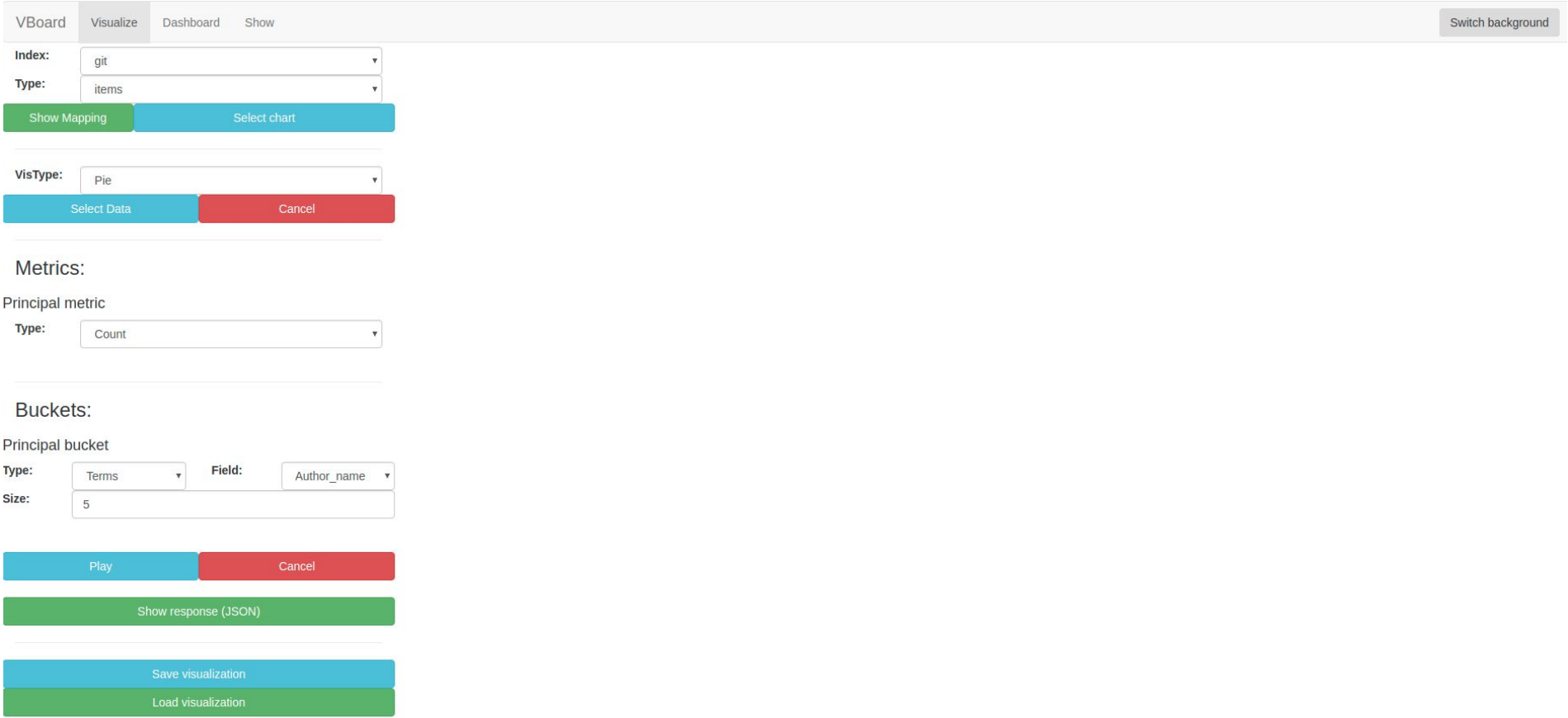
Docker



/init


There is no vboard index, creating it...
Index and mapping of VBoard created, welcome!
Making some configuration...
ERROR: An unexpected error appeared
Everything is right, welcome to VBoard!
ERROR: Impossible connect to ElasticSearch

/visualize


VBoard
Visualize
Dashboard
Show
Switch background
Index:
git
Type:
items
Show Mapping
Select chart
VisType:
Pie
Select Data
Cancel
Metrics:
Principal metric
Type:
Count
Buckets:
Principal bucket
Type:
Terms
Field:
Author_name
Size:
5
Play
Cancel
Show response (JSON)
Save visualization
Load visualization

/visualize

VBoard | Visualize | Dashboard | Show | Switch background

Index: git

Type: items

Show Mapping | Select chart

VisType: Pie

Select Data | Cancel

Metrics:

Principal metric

Type: Count

Buckets:

Principal bucket

Type: Terms **Field:** Author_name

Size: 5

Play | Cancel

Show response (JSON)

Save visualization

Load visualization

/visualize

VBoard | Visualize | Dashboard | Show | Switch background

Index: git

Type: items

Show Mapping | Select chart

VisType: 3D Bars

Select Data | Cancel

Metrics:

Bars height

Type: Count

Buckets:

X-Axis

Type: Terms **Field:** Commit_nam

Size: 5

Z-Axis

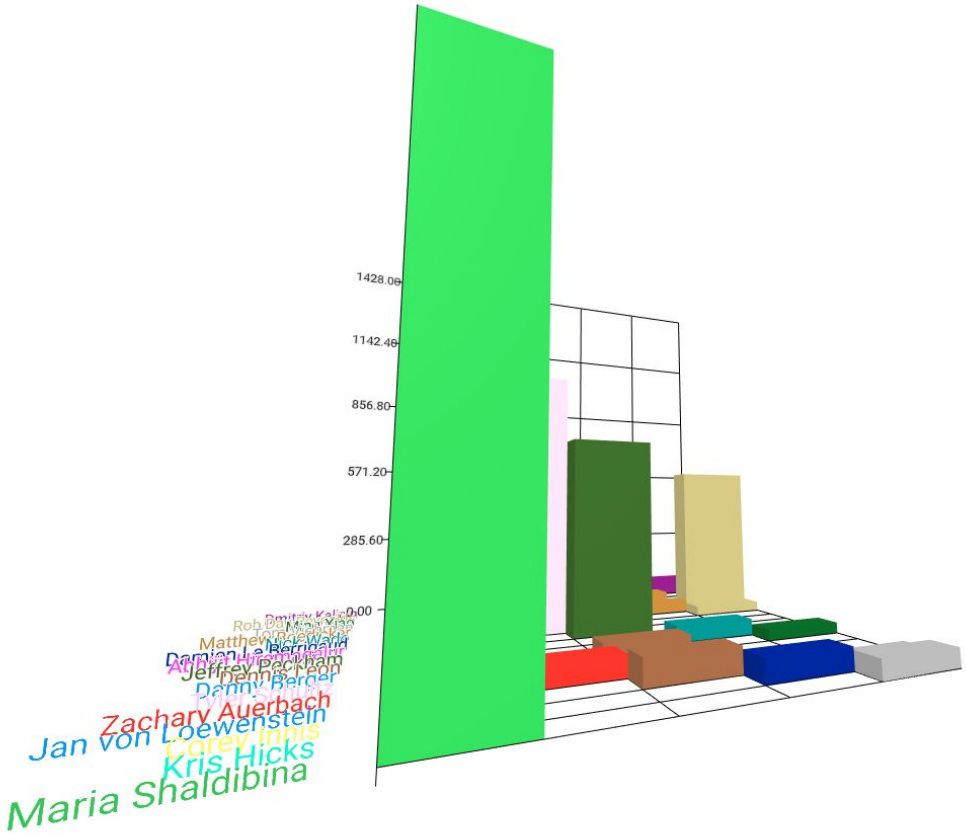
Type: Terms **Field:** Author_name

Size: 5

Play | Cancel

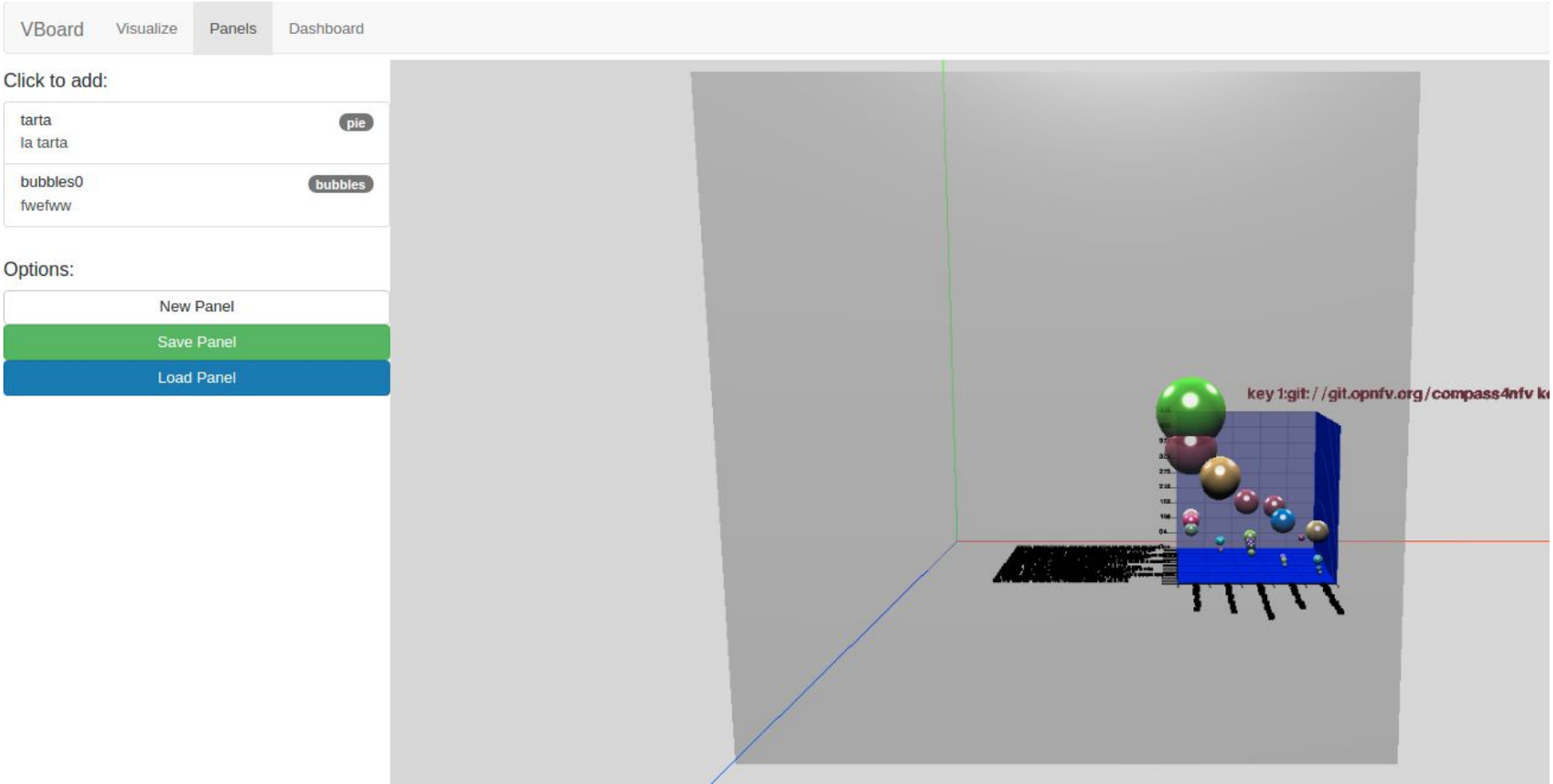
Show response (JSON)

Save visualization

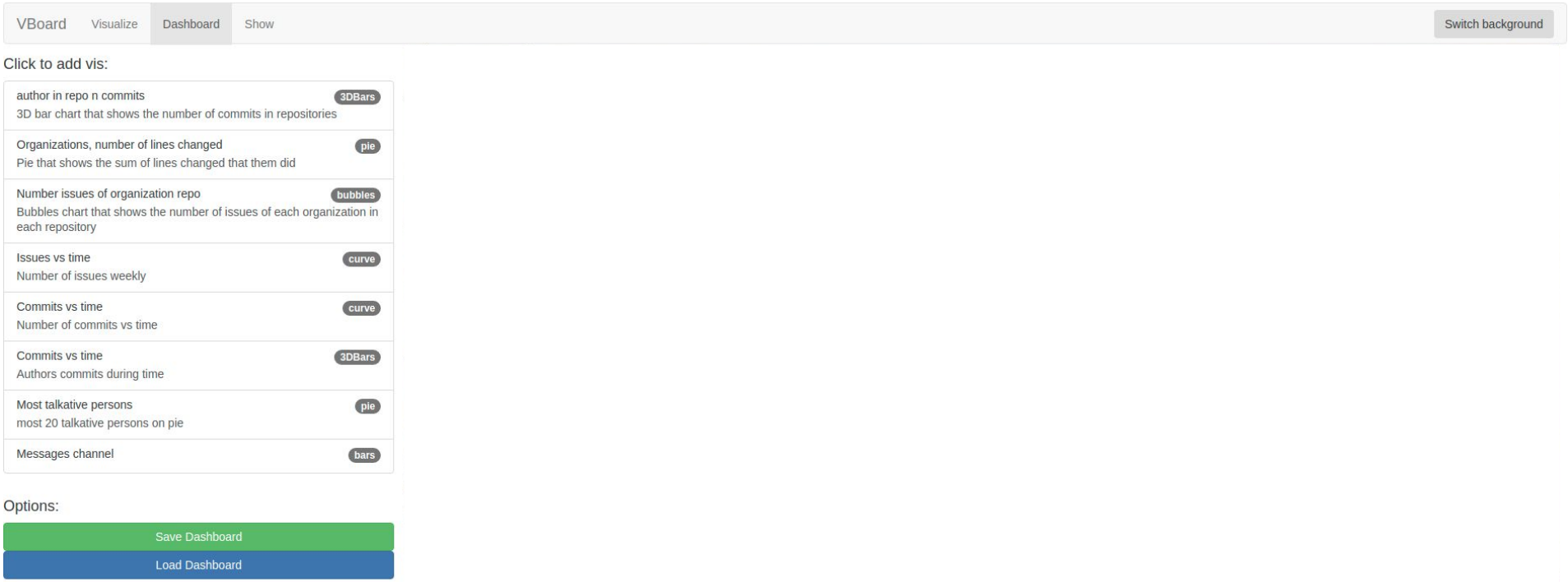


/panels*

** Only available in the ThreeDC version*



/dashboard


VBoard
Visualize
Dashboard
Show
Switch background
Click to add vis:
author in repo n commits
3DBars
3D bar chart that shows the number of commits in repositories
Organizations, number of lines changed
pie
Pie that shows the sum of lines changed that them did
Number issues of organization repo
bubbles
Bubbles chart that shows the number of issues of each organization in each repository
Issues vs time
curve
Number of issues weekly
Commits vs time
curve
Number of commits vs time
Commits vs time
3DBars
Authors commits during time
Most talkative persons
pie
most 20 talkative persons on pie
Messages channel
bars
Options:
Save Dashboard
Load Dashboard

/dashboard

VBoard | Visualize | Dashboard | Show | Switch background

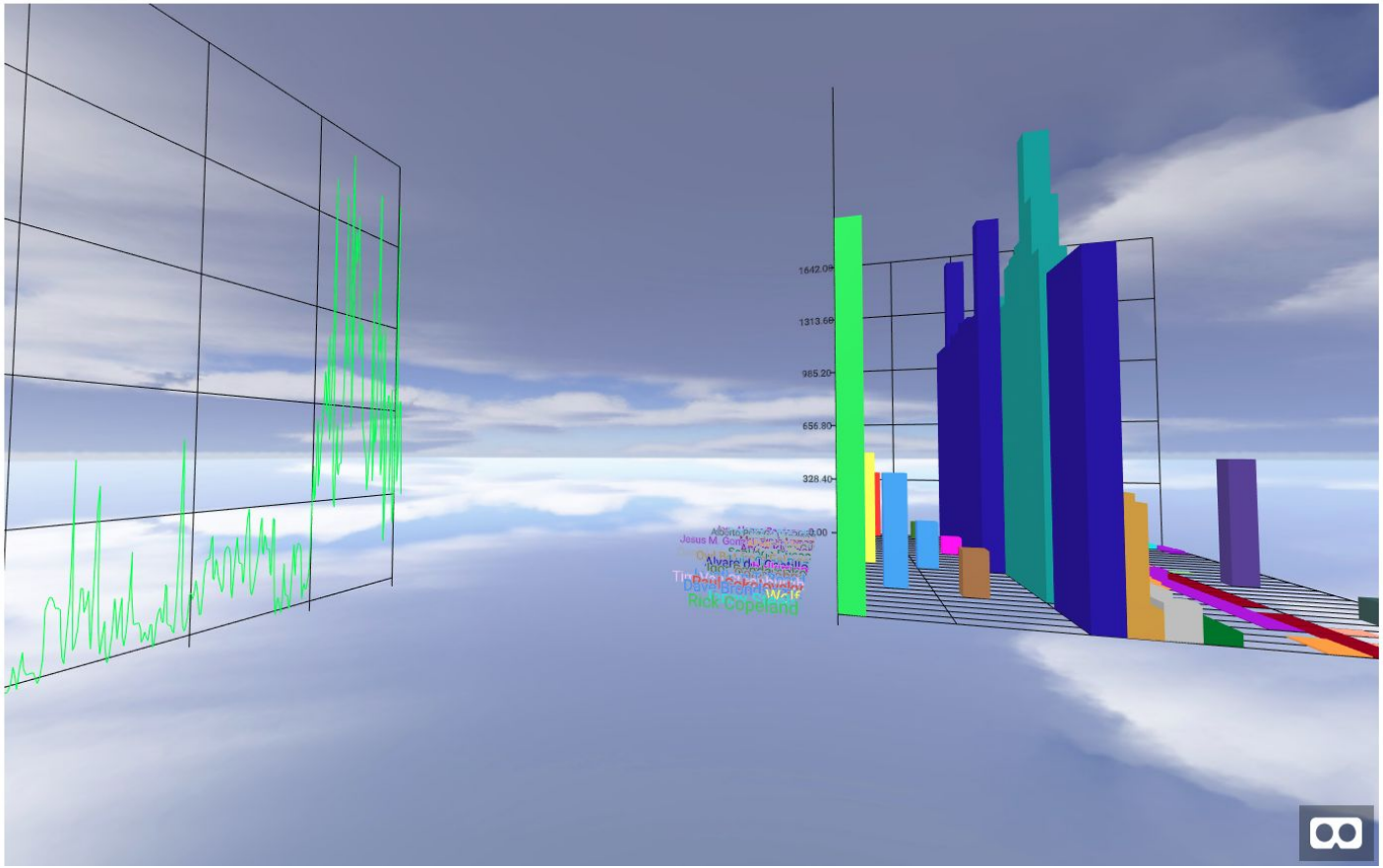
Click to add vis:

- author in repo n commits — 3DBars
  3D bar chart that shows the number of commits in repositories
- Organizations, number of lines changed — pie
  Pie that shows the sum of lines changed that them did
- Number issues of organization repo — bubbles
  Bubbles chart that shows the number of issues of each organization in each repository
- Issues vs time — curve
  Number of issues weekly
- Commits vs time — curve
  Number of commits vs time
- Commits vs time — 3DBars
  Authors commits during time
- Most talkative persons — pie
  most 20 talkative persons on pie
- Messages channel — bars

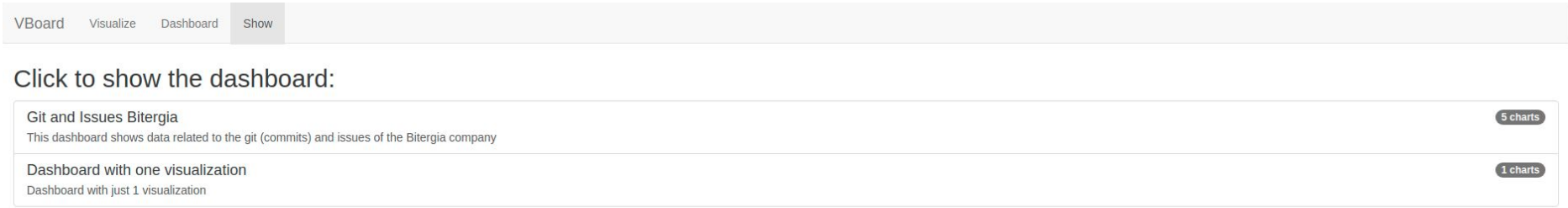
Options:

Save Dashboard

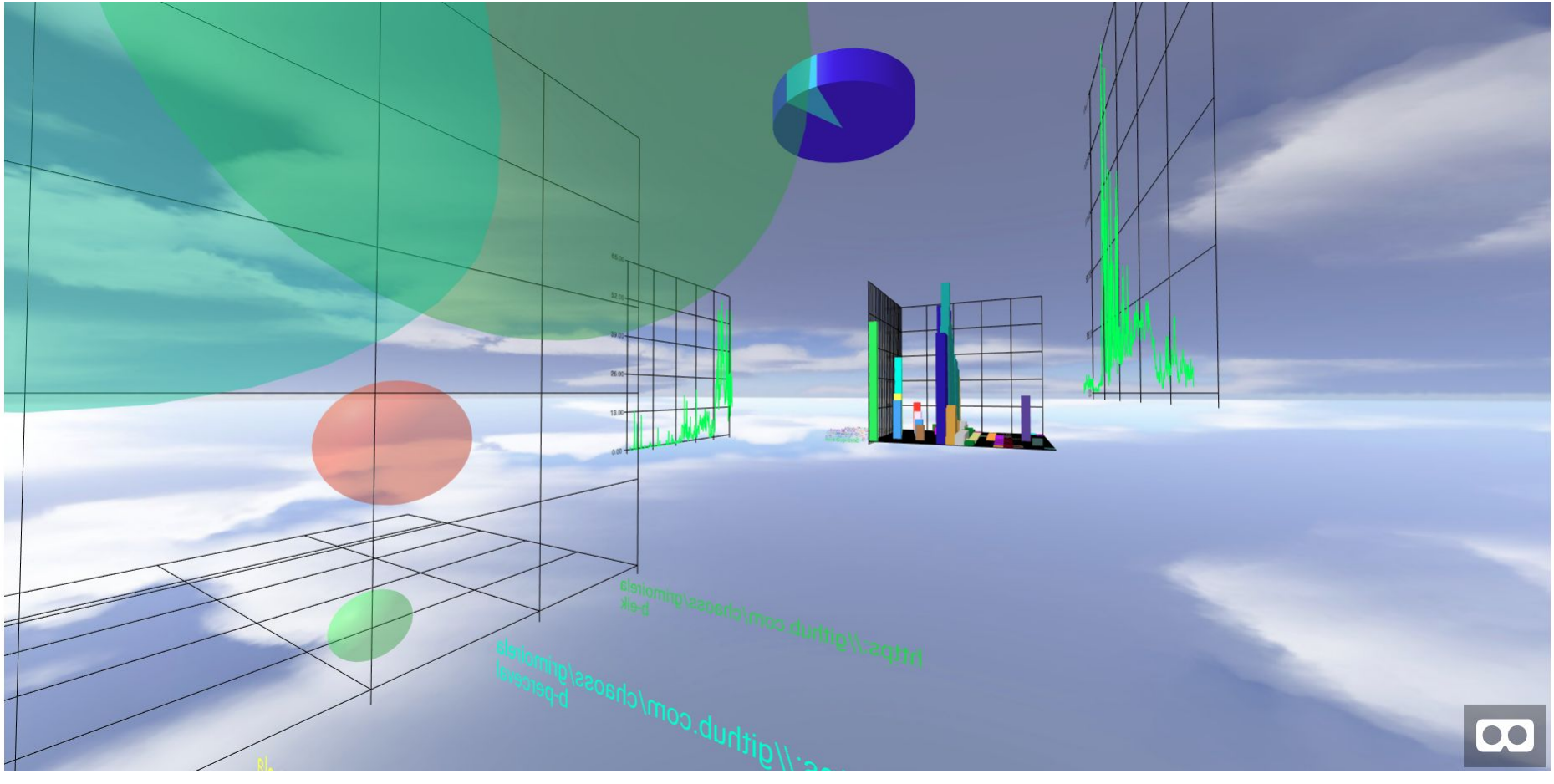
Load Dashboard



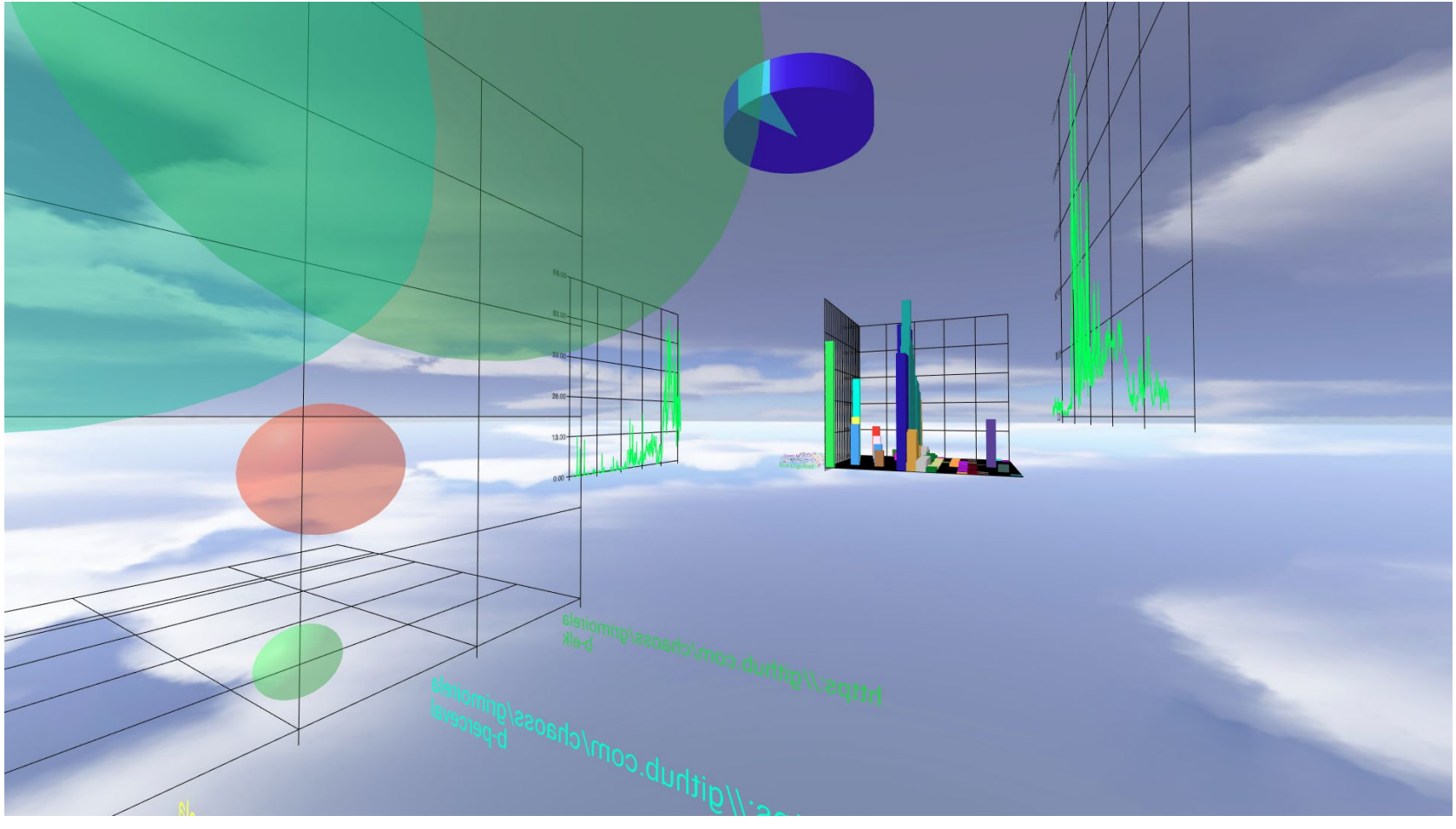
/show


VBoard
Visualize
Dashboard
Show
Click to show the dashboard:
Git and Issues Bitergia
This dashboard shows data related to the git (commits) and issues of the Bitergia company
5 charts
Dashboard with one visualization
Dashboard with just 1 visualization
1 charts

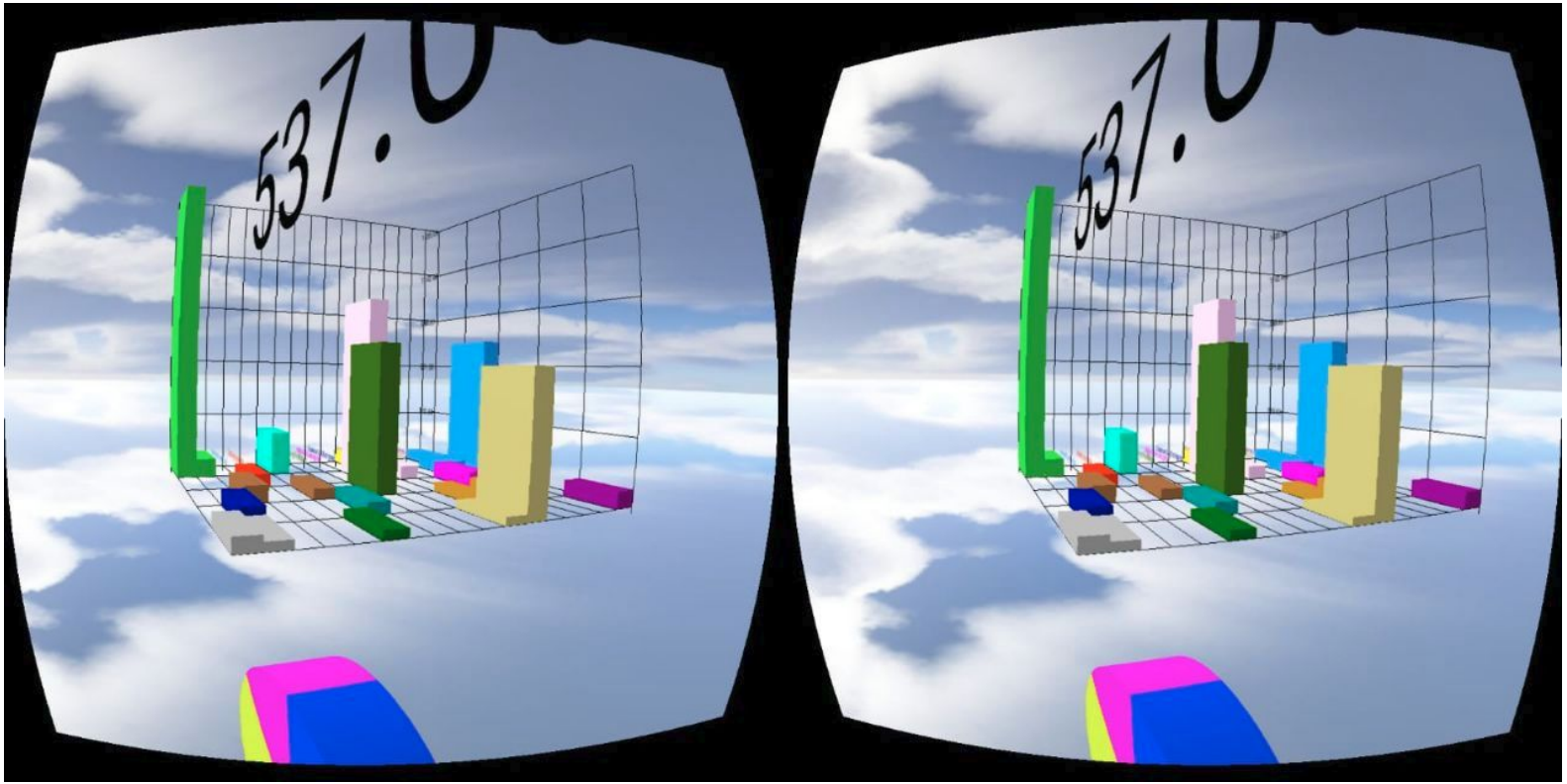
/stand_alone



/full_screen



/VR



** Optimized for smartphones and Oculus Go*

/data

All the carried out tests in the previous section one have been done with a group of data offered by the product owner (the tutor, in this case)**; these data correspond to logs with information of commits of repositories and it has been imported using Elasticdump.**

/hosting

VBoard is hosted on GitHub: https://github.com/dlumbrer/VBoard

GPL-3.0 License

README.md with general information and installation steps

USER_GUIDE.md with the user guide of the application

Docker images on Docker-hub: https://hub.docker.com/r/dlumbrer/vboard/

dlumbrer/vboard:aframedc for the A-FrameDC version

dlumbrer/vboard:threedc for the ThreeDC version

Demo

Conclusions

/lessons_learned

Improve the skill in JavaScript, AngularJS and the use of different libraries.

Improvement of my web development using node.js and npm.

I've improved how to manage and open source project in GitHub using licenses.

Improve of the development of simple interfaces.

Manage of the NoSQL ElasticSearch database.

Use of the Docker functionalities making images and containers of the application.

/future_work

Add more customization options to the dashboard.

Add more the possibility of move and resize the visualizations in a dashboard.

Add more interactivity in the dashboard, like filters. • Add another 3D/VR visualization library.

Develop of a backend that allows users management.

General optimization in order to improve the performance.

Improve the general interface

/pages

Project page

https://dlumbrer.github.io/VBoard/

GitHub Repository

https://github.com/dlumbrer/VBoard

User Guide

https://github.com/dlumbrer/VBoard/blob/master/USER_GUIDE.md

Docker guide deployment

https://github.com/dlumbrer/VBoard/tree/ docker

VBoard docker images

https://hub.docker.com/r/dlumbrer/vboard/tags/

Thank you!