Group Project

Biometric Systems

Valerio Casalino (1916394)[1] Mario Tobia Vendrame (1922290)[1]
Shaahin Sabeti Moghaddam (1917507)[1]

[1]Cybersecurity Master @ Sapienza Università di Roma

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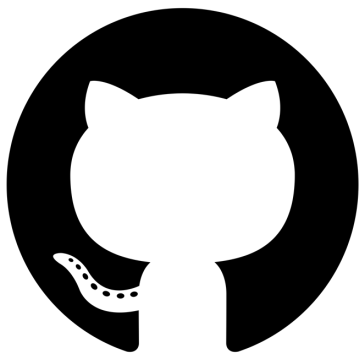
Premise

Before we start, let us say that all of our work, included this own presentation, is open sourced and available on Github:



https://github.com/casalinovalerio/biosys-project

There is also a script to replicate our setup for future projects.

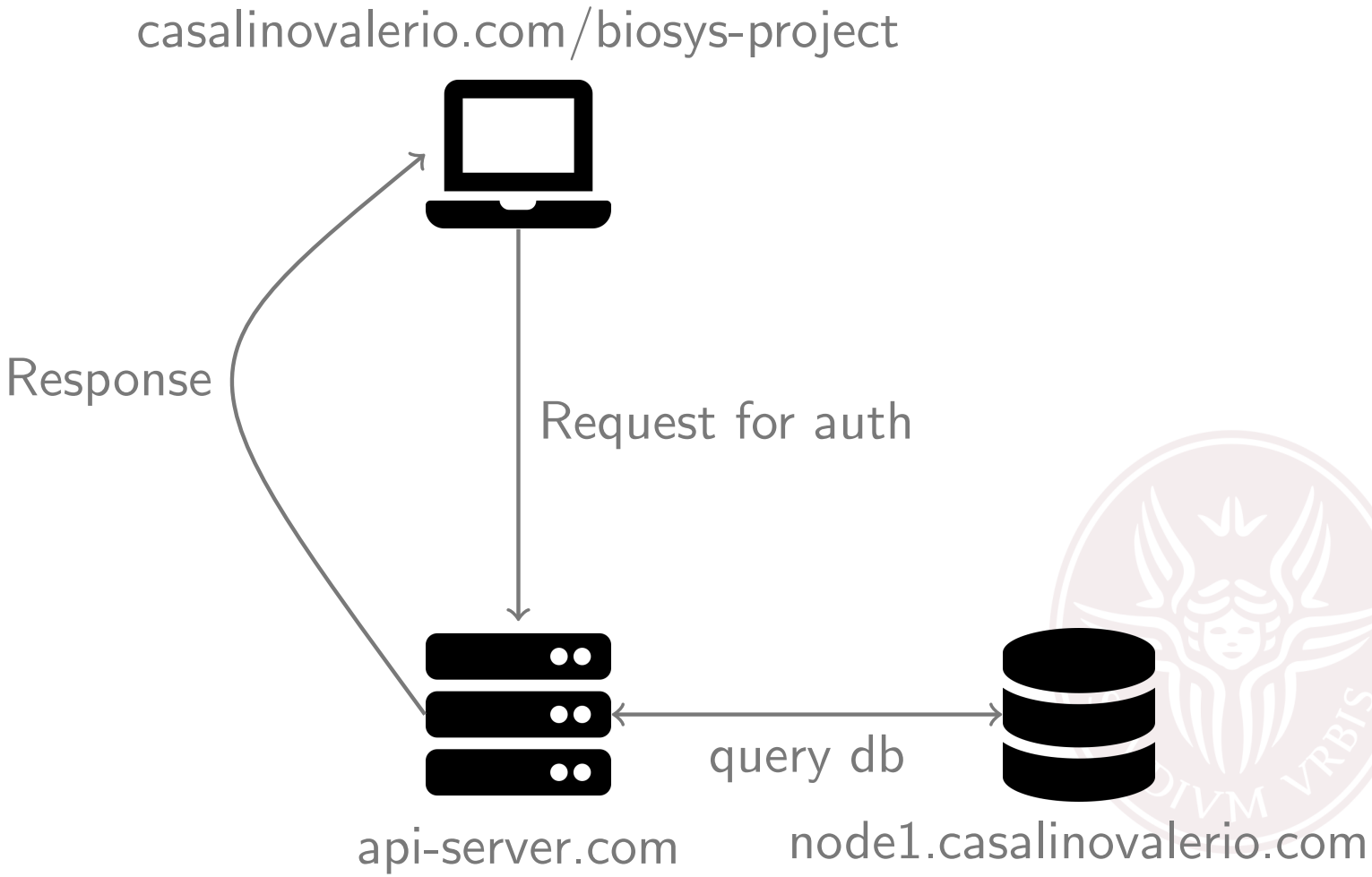
Overview

We wanted a face recognition based authentication application that is simple, yet particular. We deployed our test using:

- A **web interface**[1] that works as a demonstrative placeholder. It gets the face with the camera, makes requests to our API server, which returns only a binary value for the success of the authentication.
- An **API server**[2] that queries the faces database and recognizes faces using the **@ageitgey's tool**[3].
- A **database based on Blockchain**[4] that is an open source wrapper for a blockchain database that can be queried with standard SQL syntax. Implemented on the API server too.

[1] Hosted by Github Pages: https://pages.github.com/
[2] Hosted by Digital Ocean: https://www.digitalocean.com/
[3] Github project here: https://github.com/ageitgey/face_recognition
[4] Implemented by Bigchaindb: https://www.bigchaindb.com/

Overview scheme[5]



[5] Icons are licensed under CC-BY 4.0. https://fontawesome.com/license

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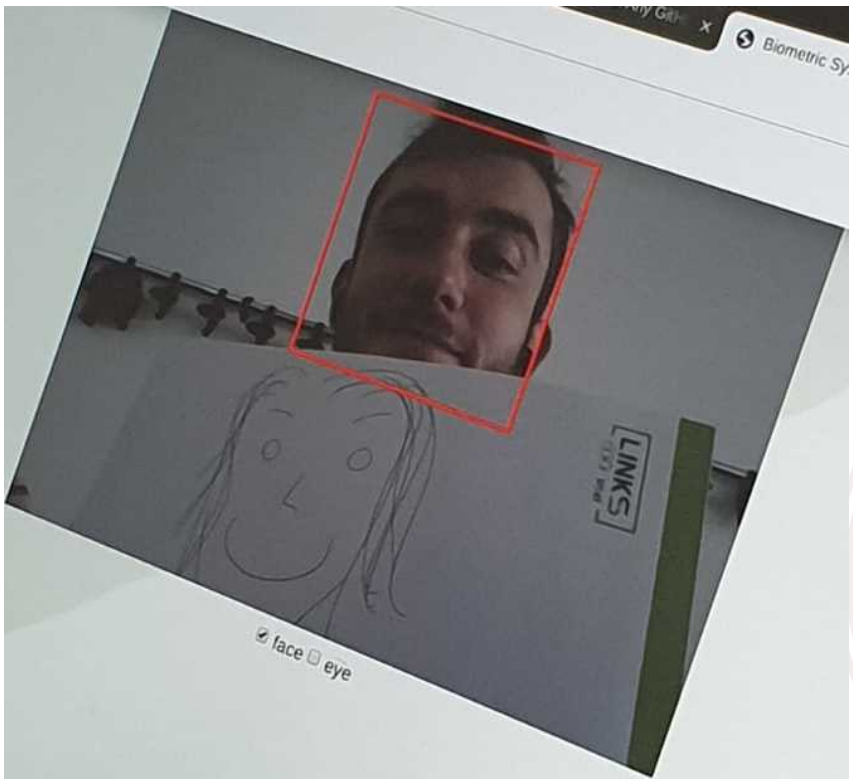
The web Application

Some words on how it is done. opencv, javascript etc...

Does it work?

We actually did some **serious** testing on it. As you can clearly see in the picture below, it works!



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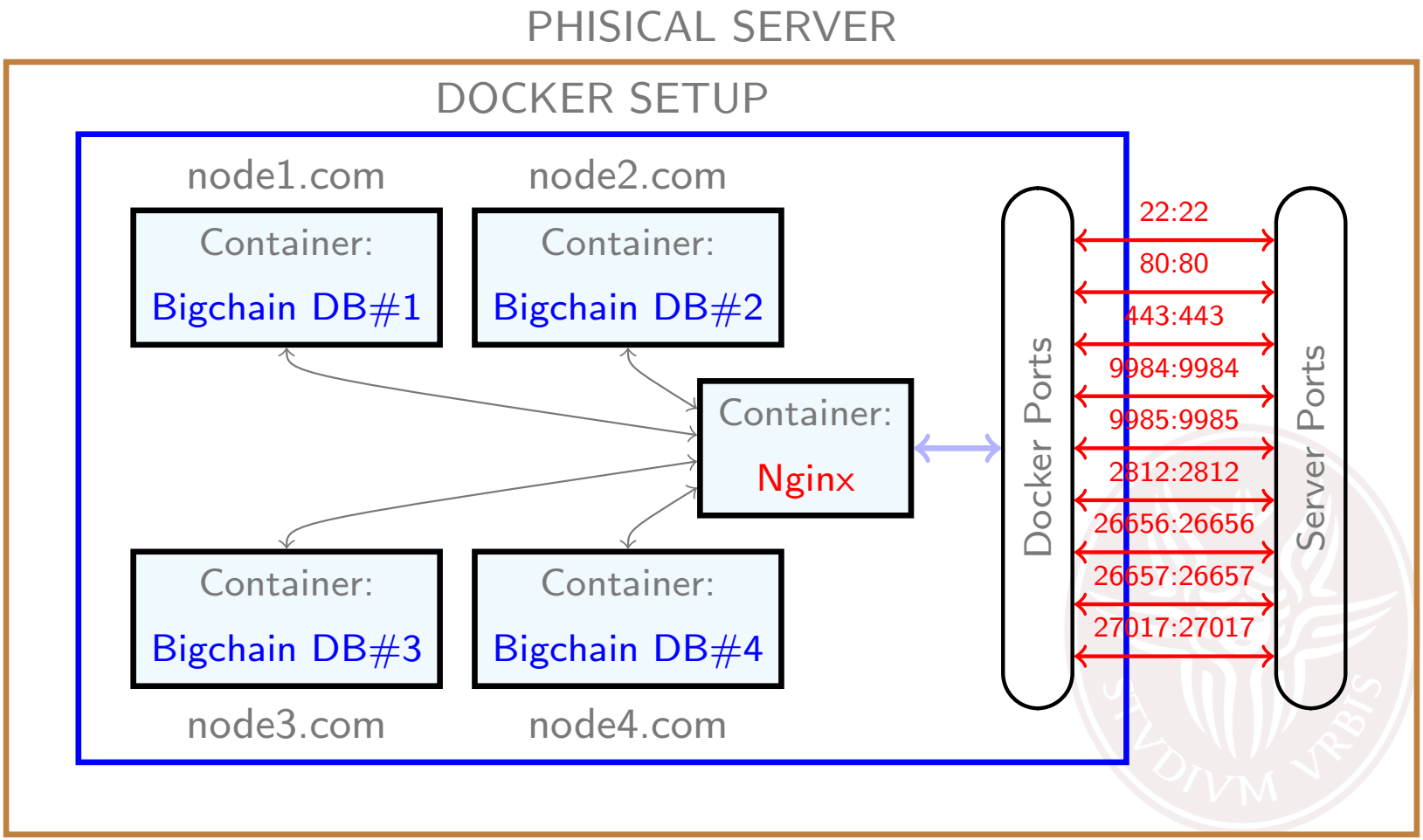
The Block-chain database

As database for new faces, we implemented a **Block-chain**.
We used an open-source implementation of it, called BigchainDB[6].
We also used Docker[7] to deploy 4 containers running the application.

[6] Main page: https://www.bigchaindb.com. Documentation here.
[7] Main page: https://www.docker.com.

Architecture Implementation[8]



[8] This is absolutely not meant for a real deployment!!

How to interact with the DB

We are assuming that we have an enstablished connection set up.

Query data

```
connection.searchAssets('AwesomeAsset')
.then(assets => console.log('Found assets:', assets))
// Read the console to look at the assets
```

Load data (make a transaction)

```
// Create transaction first (txTransferBob)
driver.Transaction.signTransaction(txTransferBob,
alice.privateKey);
conn.postTransactionCommit(txTransferBobSigned);
```

Simple as that...

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Connecting the Web app to API server

This is how we did it:

Connecting the API to the DB

This is how we did it:

Getting the response

This is how we did it:

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How we tested

We tested our solution with a custom script.

Use the script (to edit)

```
./test.sh -d /path/to/test-faces
```

For more info on how the script works, just look at it[9], it is open source!

We let the script run on the same server for the longest time possible, until we could obtain a reasonable evaluation.

[9] Script here: `this-is.temp`

Testing approach

How it performed

Really well, it is a revolutionary project!

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Conclusions

Greetings...

Actual deployment considerations...

Performance considerations...

The Group

This is a great ending message from chilled-capibaras!

This is a real cool catchy phrase!!