Group Project

Biometric Systems

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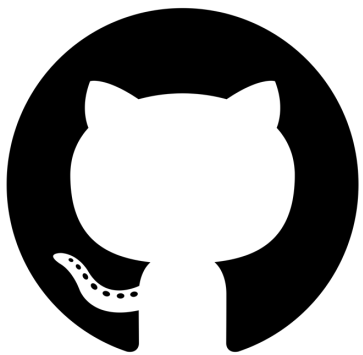
Premise

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.

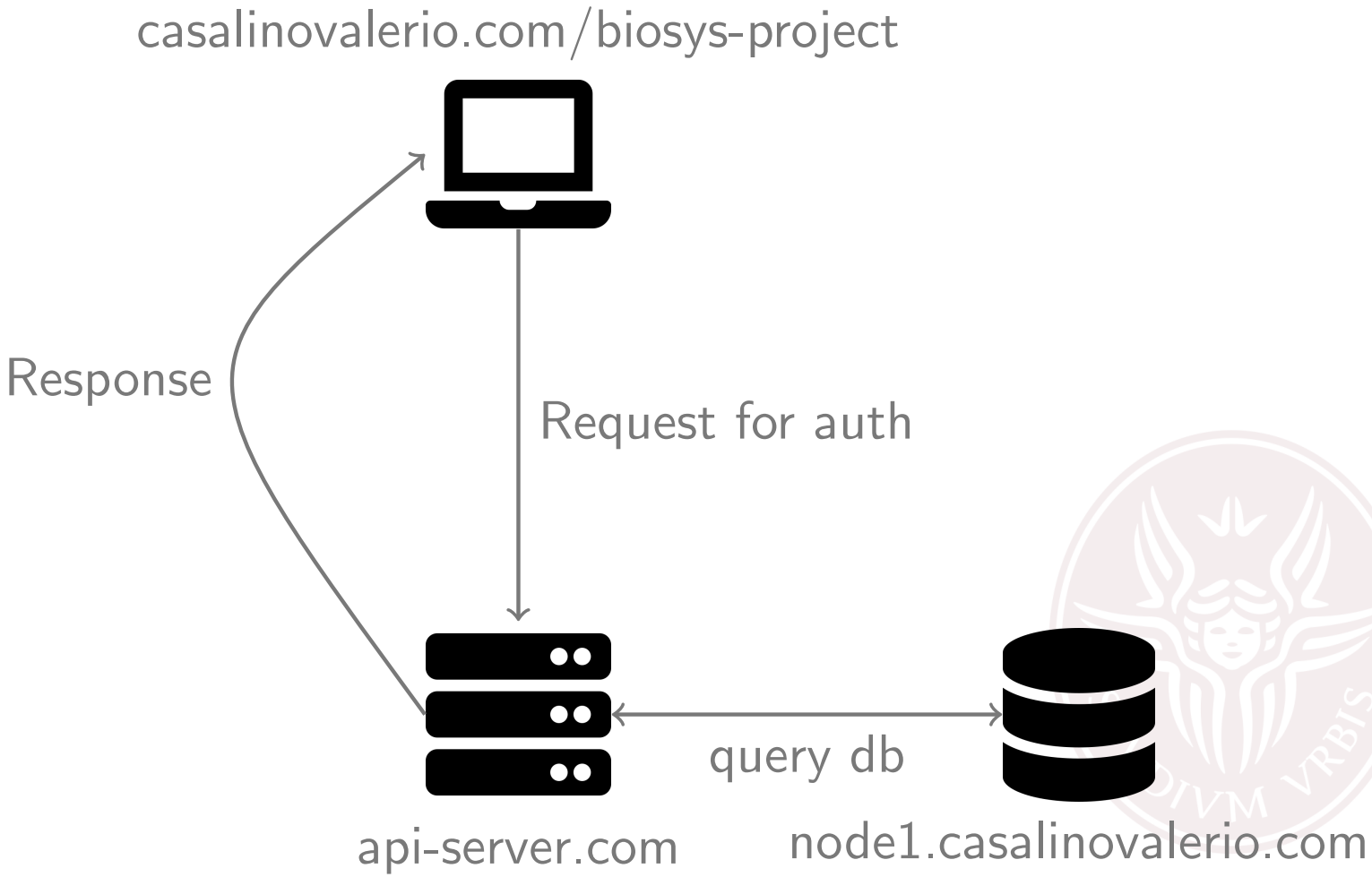
Overview

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 **OpenBR'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.

[1] Hosted by Github Pages: https://pages.github.com/
[2] Hosted by Digital Ocean: https://www.digitalocean.com/
[3] OpenBR tool here: http://openbiometrics.org/
[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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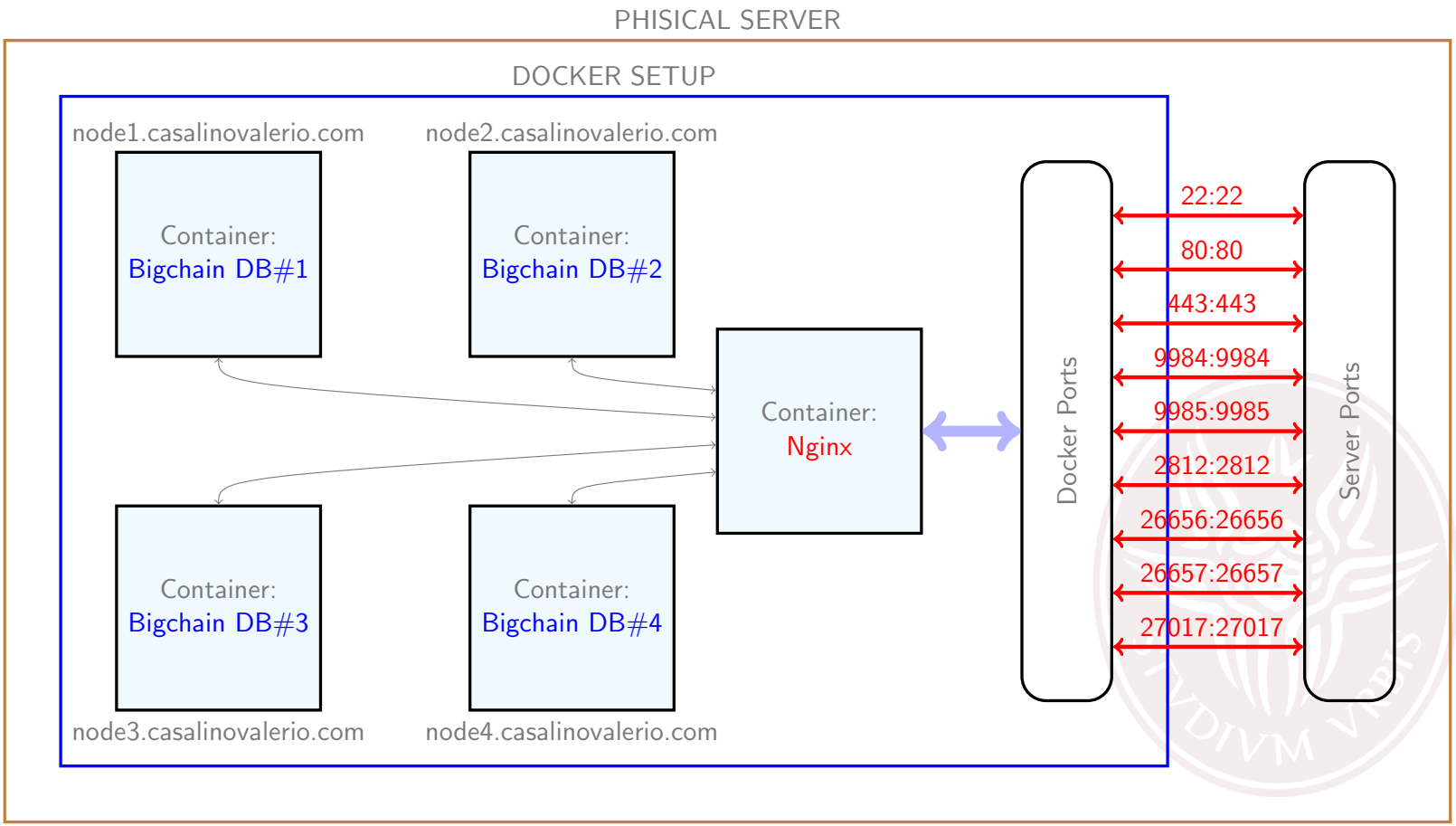
The Block-chain database

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

!!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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