Architecture Diagram: [BioColab]

Overview

BioColab architecture

The BioColab architecture diagram provides a high-level view of the components and relationships of our system. It shows how our different services and systems interact with each other and with all services.

Our Product is based on containerized applications. It can be run on Docker using Docker engine and Kubernetes.

Docker File : It contained the described information about the business logic.

Like:

- What is OS : ubuntu, Centos , Window
- What are the tools:

1. Talk2data https://talk2data.bioturing.com/
    a. BbrowserX + Lens
        i. Single-Cell
        ii. Spatial data analysis
2. BioColab https://colab.bioturing.com/
    a. Notebook
    b. Studies
    c. Apps
    d. Accurate Data
    e. IDE tools
        i. Jupiter lab - allow users to create notebook based on (Python, R and Julie)

ii. R-studio - R user
iii. VS code : Microsoft editing tool for Python, R, golang and Julie

One container would be deployed to one docker which includes all the tools.

We are controlling our product by using licenses.

Talk2data – Nvidia driver GPU device. Cuda - Support CPU.

Flow

The architecture diagram includes the following flow:

- Domain Flow
- SSO Flow

System Requirements

CPU : 16 core

RAM : 64 Gb

HDD : / partition can be 100 GB

Data Volume : 1TB

OS : Any OS. Ubuntu 20.04 and above.

Platform : Docker / Kubernetes

Optional : AWS g5xlarge

Domain name

SSL Certificate. Software supports HTTPS protocol

Token -- receive from Bioturing

SSO auth. either from Bioturing or Company

NOTE : PVC mode should be Retained Mode to avoid data loss.

It should not be Delete mode.

* Resources can be scaled In / Out.

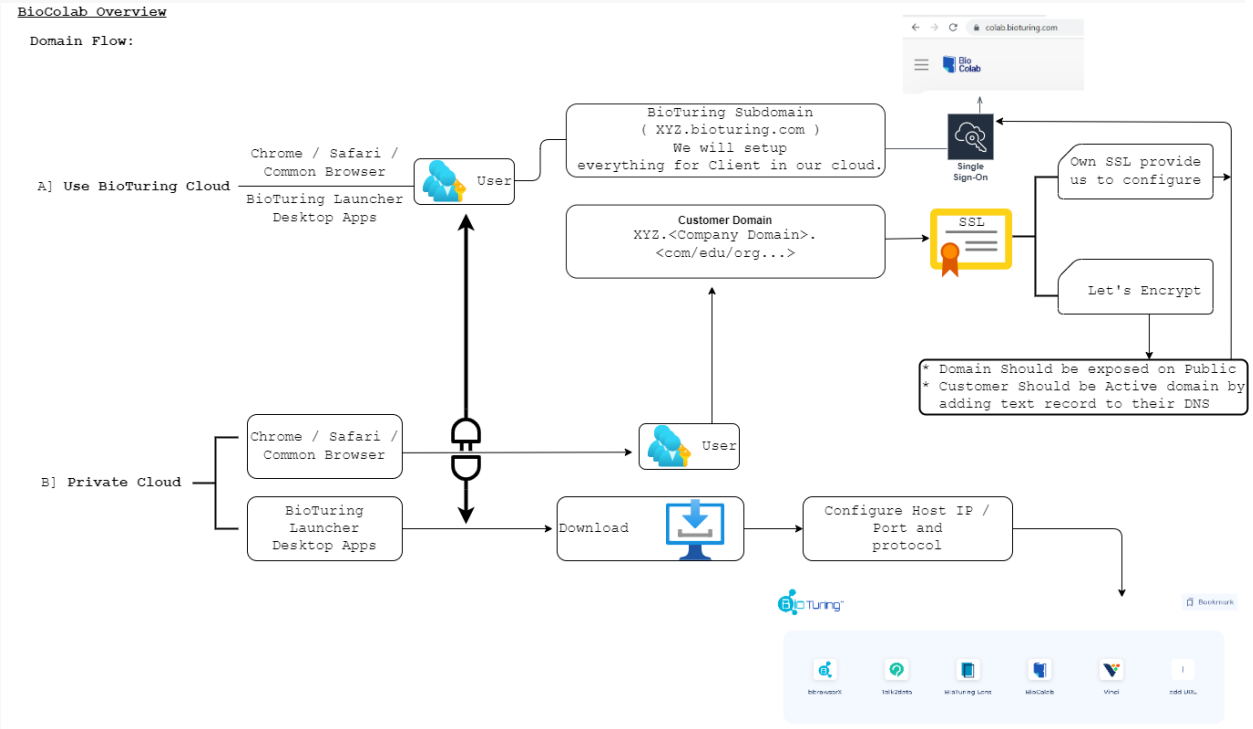
Components

The architecture diagram includes the following components:

- Nginx : port opened 80: , 443:
- Management service.
- Our product services

Details

Our BioCoLab follows Domain and SSO flow to login and use.



Above diagram illustrates that. Our products are supporting all types of Cloud / Hybrid and on-premises data centers. Clients can use our product services via Web URL or Desktop application.

A] Use Bioturing Cloud : All services including product, patching, upgrade, DNS, SSO all setup will be on Bioturing data center. Client / User can use our Web application / Desktop application. Subdomain will be bioturing.com.

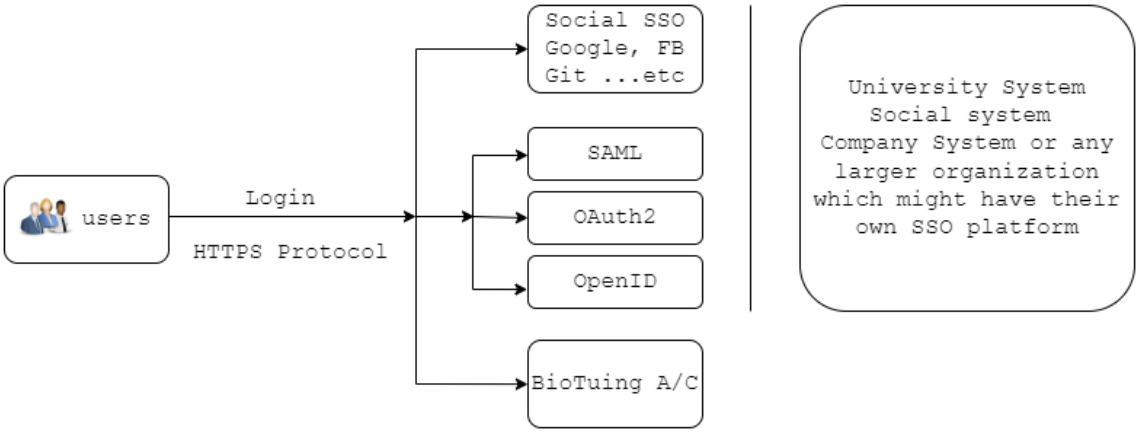
B] Use Private / Public / Hybrid Cloud : In order to access Web Application. Product will install on the Client data center. Users can access our product via a secure domain with single Sign On.

Desktop Application can be downloaded by user and it needs to be configured for Host IP, Port and protocol.

BioColab Overview

Key to use BioColab:
1. License : It will be provided by BioTuring to use our software to the client.
2. SSO auth. : It is necessary to use SSO Auth to login with our software application.

SSO Flow:



Our product only allows users to access via SSO login with HTTPS Protocol. Clients can choose any Idp (Identity Provider) like Okta, Onelogin …. Configure SSO login with our product.

Conclusion

The Biocolab architecture diagram provides a clear understanding of how our system works and the relationships between its components. I