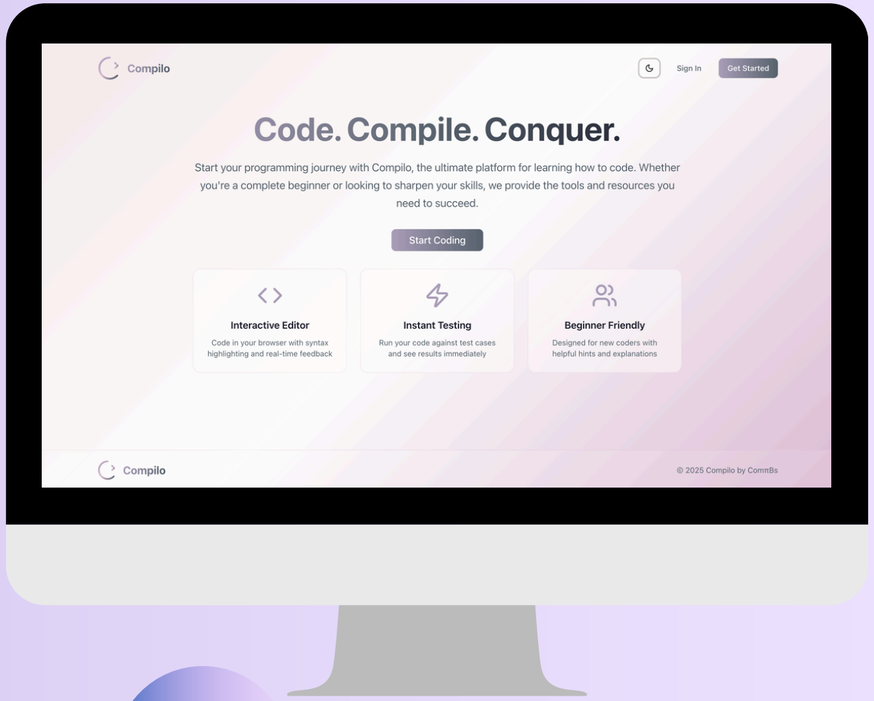
COMPILO

Code.Compile.Conquer

BUILD YOUR SKILL SET

At Compilo, we've built the ultimate platform for learning how to code because we believe programming education should be accessible, engaging, and effective for everyone. Whether you're taking your first steps into the world of coding or you're a developer looking to sharpen your existing skills, we provide all the tools and resources you need to succeed in one comprehensive platform.

START YOUR
CODING JOURNEY

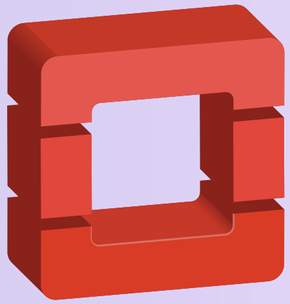


CommBs

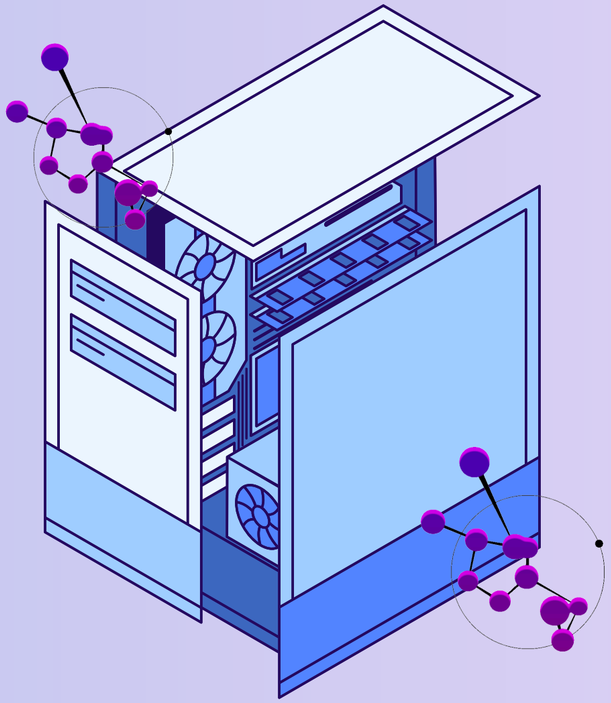
WHERE IS **COMPILO ?**

CLOUD & SERVER

Our service is hosted on a private Openstack cloud. Five instances were used to create a seamless integration. On the other hand our compiler is hosted on a given server located in the Cybersecurity Hub. We configured everything, from the cloud, to the network.



openstack™



NETWORK

- **SWITCH AND ROUTER**

  Shared switch: ports 24 (trunk) and 23 (access)
  Shared router: ports 3001 and 3000

- **SSH**

  Implemented to securely connect to a remote computer.

- **DHCP**

  Neded for the IP address designation.

- **PAT**

  Implemented for IP transalation and port sharing.

WHAT'S BEHIND **COMPILO ?**

C-
COMPILER

CREATION

The compiler includes a lexer, parser, type checker and code generator. It was made taken into consideration the C- syntax provided.

IMPLEMENTATION

Flask is a lightweight Web Server Gateway Interface (WSGI) framework that has become the standard for Python web application development.

SECURITY

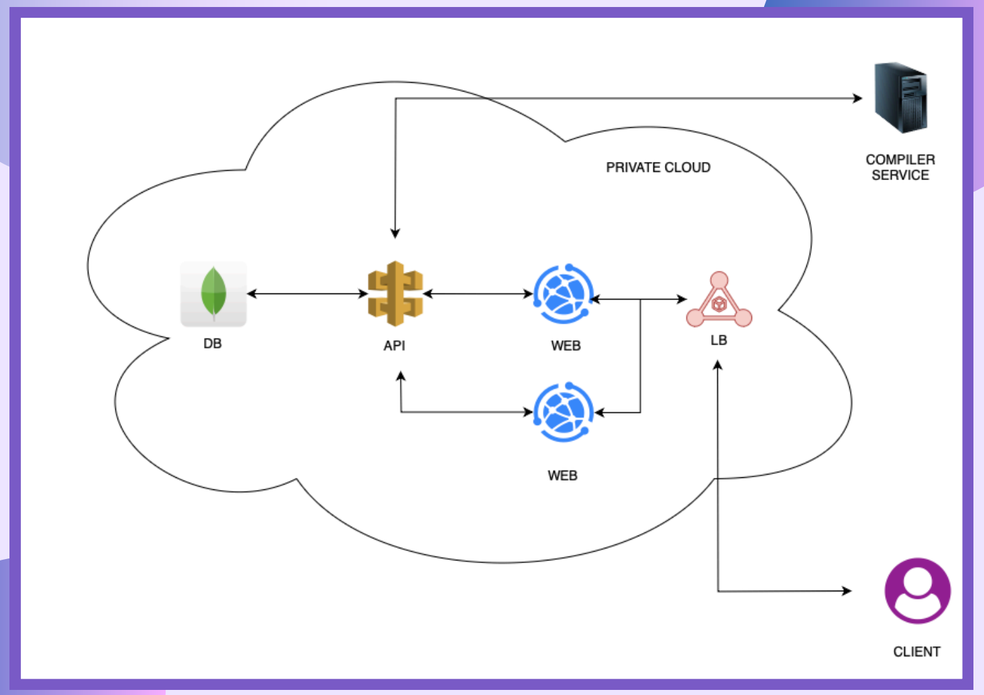
Bubble wrap was implemented to create a sandbox environment with a temporary file system and removing Linux namespaces for the process.

CONTAINER-BASED ARCHITECTURE

Our architecture was designed to be container based. Using docker, we were able to have one container per instance (except for our load balancer).

We have five cloud instances:

- Two front end instances
- One backend instance
- One API instance
- One load balancer instance



Frontend Development

- **Next.js**

  Comprehensive full-stack framework built on React that enables the development of high-performance web applications.

- **User friendly**

  Our UI is user friendly, giving descriptive titles, buttons and easy paths. You can either use Compilo on your PC, tablet or iPhone. Important features such as dark mode were included.

API DEVELOPMENT

- The language excels in multiple implementation scenarios, including command-line interface development, web application creation, DevOps automation, and API construction.
- Created APIs for several functionalities, like getting our problems, past solutions , signing up or loging in.

BACKEND DEVELOPMENT

- **User**

  Stores user data such as usarname, email and password

- **Problems**

  Stores problem related data such description, test cases, difficulty and other

- **Logs**

  Meant to store metadata and information about the problem, to show the user past solutions

Load balancer
NGINX

Functions as a high-performance HTTP web server, reverse proxy, content cache, load balancer, TCP/UDP proxy server, and mail proxy server. It distributes our load between two frontend instances.

Thank You.

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