

Simplifying Student-Teacher Project Management with StudentBox: A Cloud-Based Solution

Bsc (Hons) in Computing in Cloud Computing

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ABSTRACT

StudentBox is a cloud-based platform designed to simplify the deployment of student projects and streamline project management for teachers. Utilizing cloud computing concepts like APIs and automation, StudentBox enables isolated hosting of projects in a complete environment, supporting PHP apps with MySQL. The project features a cross-platform CLI client, and is hostable on AWS or on-premise servers. This study presents the methodology, results, and recommendations for future work to enhance the platform's functionalities and expand its potential use-cases.

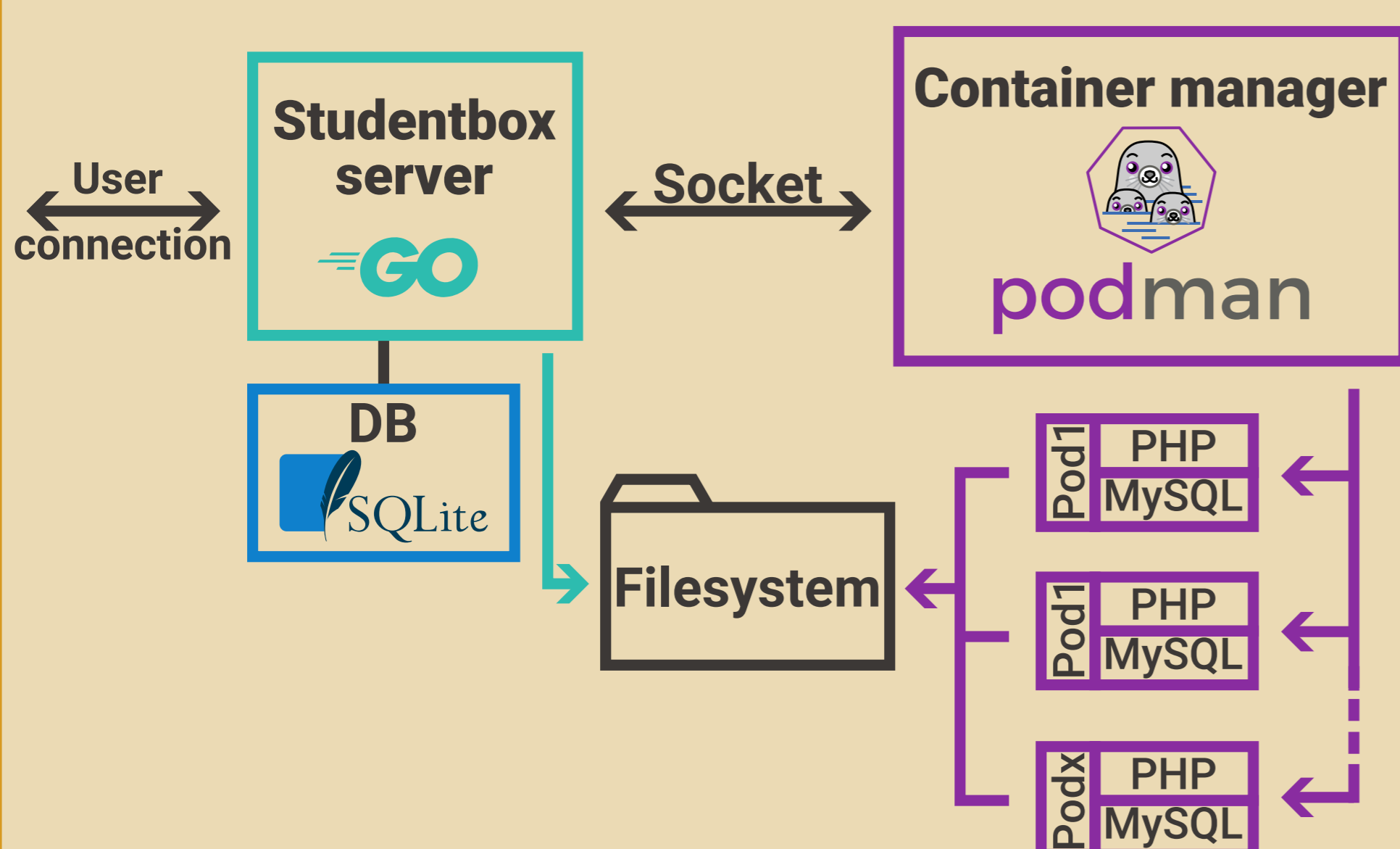
INTRODUCTION

The current academic landscape requires effective management of student projects and efficient communication between students and teachers. The StudentBox project aims at addressing this need by leveraging cloud computing technologies to create an easy-to-use platform that facilitates project deployment and management. This project is undertaken as part of the BSc (Hons) program at Dundalk Institute of Technology, focusing on Cloud Computing.

METHODOLOGY

The project's methodology involved:

1. Research on APIs (JSON, REST, GraphQL, gRPC & Protobuf) and sandboxing processes using container approach.
2. Designing the platform to host projects in isolated environments, supporting PHP apps with MySQL.
3. Developing a CLI client using Golang, that is easy to set up and use by both students and teachers.
4. Ensuring compatibility with AWS and on-premise server hosting



RESULTS

StudentBox provides:

1. An isolated hosting of student projects without impacting other projects or the host system using Podman.
2. A complete environment support for PHP applications with MySQL.
3. A CLI client for seamless deployment and management, compatible with Linux, Mac, and Windows.
4. Hosting flexibility on AWS and on-premise servers.

FUTURE WORK

Recommendations for future work include:

1. Expanding the platform's support for additional programming languages and databases, such as Node.js, MongoDB, and other environments.
2. Enhancing security measures and access controls for user management.
3. Implementing live-reloading capabilities during development.
4. Creating other clients such as web apps or mobile apps to provide monitoring metrics and change code on the go.

CONCLUSIONS

StudentBox is in development to address the challenges of project deployment and management for students and teachers. The platform's design, leveraging cloud computing technologies, aims at providing efficient and secure project hosting and management, striving to meet the requirements of modern educational environments. As the project progresses, it has the potential to significantly improve student-teacher collaboration and streamline project workflows.

FURTHER INFORMATION

For more details about the StudentBox project, please visit: <https://sinux-l5d.github.io/studentbox-doc>.

Alternatively, scan the QR code below to access the project webpage using a smartphone. The project webpage contains additional information and resources not included in this poster.

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