Experiment as a Service

AIM

The aim is to build a platform for creating, authoring and hosting experiments. Though Virtual Labs is happy to leverage the features of LMS - single-sign-on, persistence, uniform UI, the CMS (Content Management System) becomes a bottleneck since content editing is done through Open Edx studio. The tethering of content editing through the studio with the hosting undermines the freedom of using different editors and formats that are more flexible to generate content - read as html - that a browser can interpret.

INTRODUCTION

Virtual Labs platform is a slew of services collaborating with each other while providing a mechanism to author and deliver content of Virtual Labs. Lab Data Service (LDS), Content Server, Resource Generator and Translators make up the core of the platform. Each experiment or a lab has a specification detailing the structure of an experiment and this specification is the glue between authored content and delivered content.

METHODOLOGY

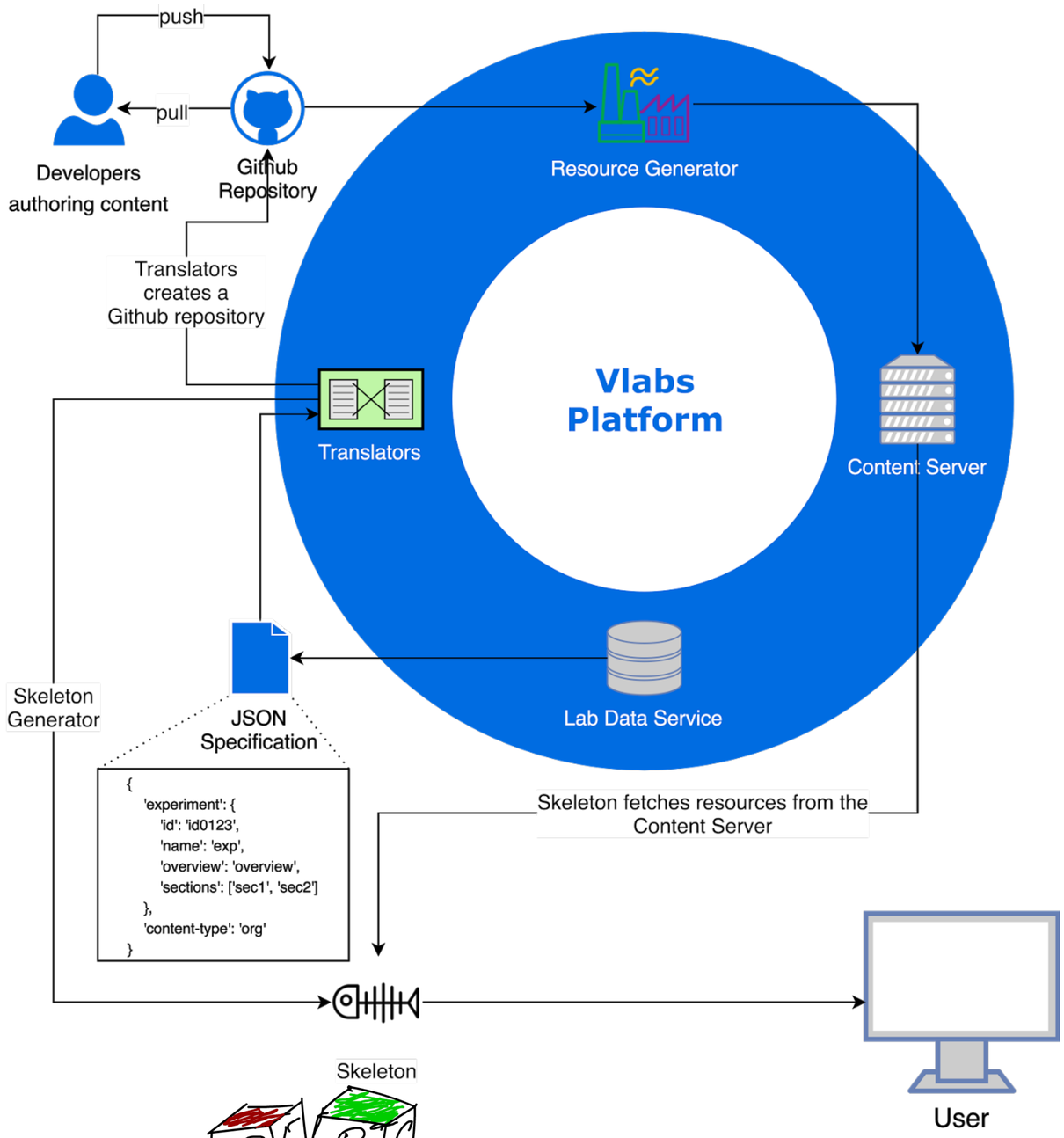
Each experiment has a specification encoded in JSON format which specifies a unique ID along with various sections in the experiment and a simulation. This specification is passed to the **translators**.

Translators is a micro-service which takes in the specification of an experiment as an input and creates a Github repository. When the author of the experiment pushes changes to this repository, a hook notifies the **resource generator**. This service also creates an *experiment.html* that runs from any browser. This is achieved by inserting appropriate hooks to fetch the content from the content server.

Resource Generator is another micro service which first clones the repository, builds it using *literate-tools* to create resources and pushes them to content server. This micro-service takes markup files from the experiment repository in Github and builds them to create resources, i.e., HTML files which can be directly understood by the browser.

Content Server is the micro-service which holds all the resources of an experiment and hosts them on the web so that the *experiment.html* can access them using unique URL for each resource.

Lab Data Service provides the mapping between the Experiments and its resources. This assigns a unique resource ID to each resource.



Developers name: Sounak Pradhan, Aditya Todi