

# Smart Deployer

## Autonomic deployment and configuration of Cassandra through microservice

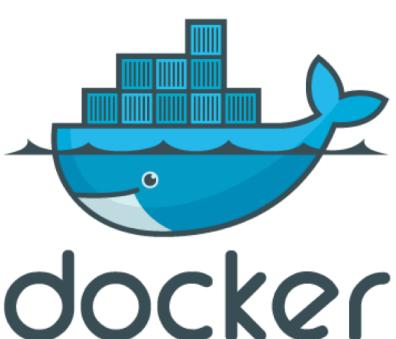
CMPUT401 Winter 2018

Xuan Cao, Yuan Feng, Nick Anic, Zhipeng Chang

### Why this software

Due to the programmability of cloud environments, microservices and finally recent advancements in machine learning algorithms, it is now feasible to enable autonomic management in distributed big data systems in a dependable manner. The proposed smart deployer in this project strives to facilitate the installation and configuration of Cassandra that is one of the most popular NoSQL datastores to manage big data. The ultimate goal of the smart deployer is to deploy Cassandra with acceptable performance in an autonomic manner. This way, the end-users avoid spending non-trivial amount of their time and energy on deployment and configuration the datastore cluster so that they can be focused on their real and core business.

### Technologies



Docker is an ecosystem that facilitates building and deployment applications using kernel-level virtualization. It enables microservices for many platforms, applications and scenarios.

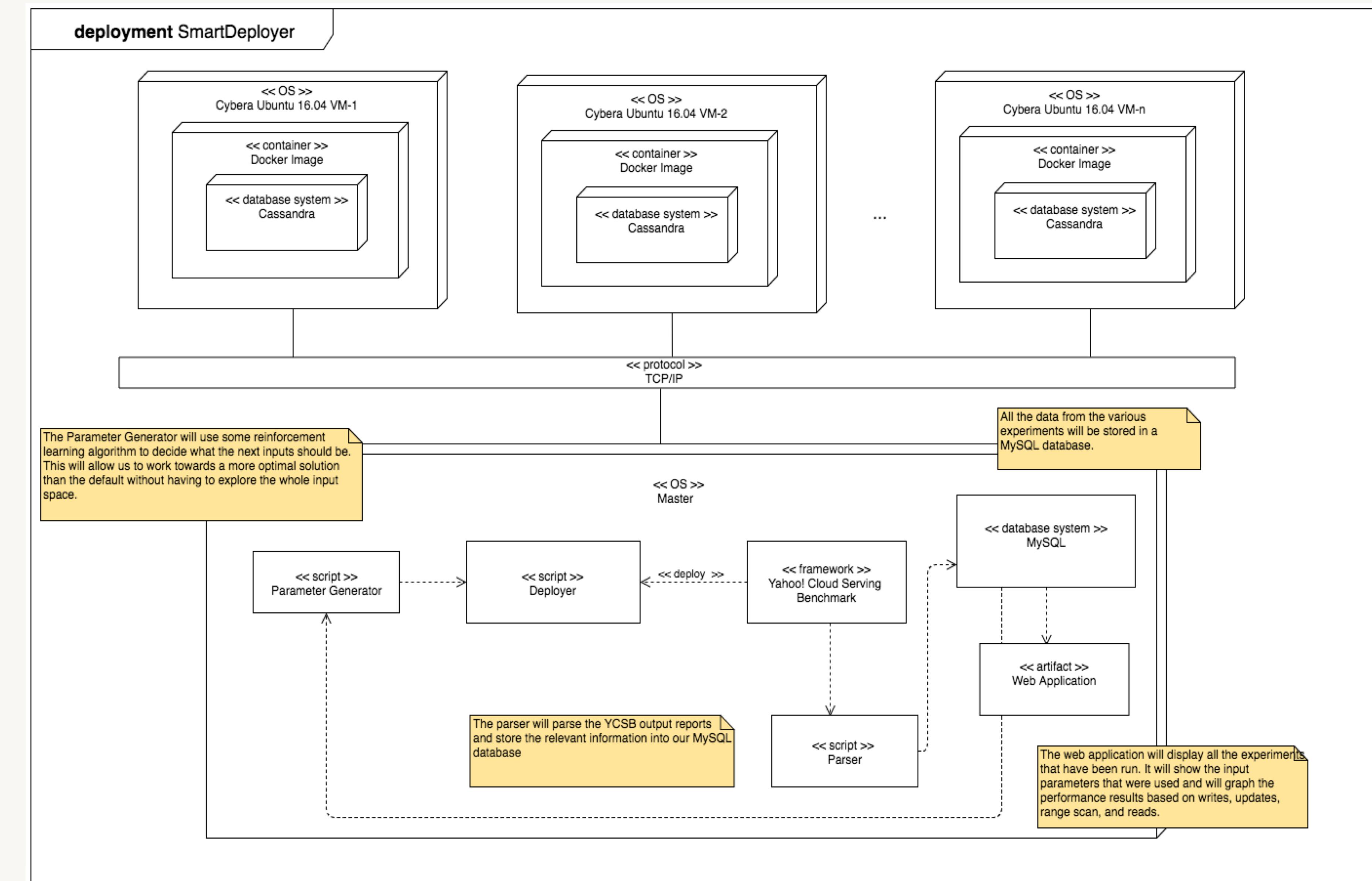


Apache Cassandra is a free and open-source distributed NoSQL database management system designed to handle large amounts of data across many commodity servers, providing high availability with no single point of failure



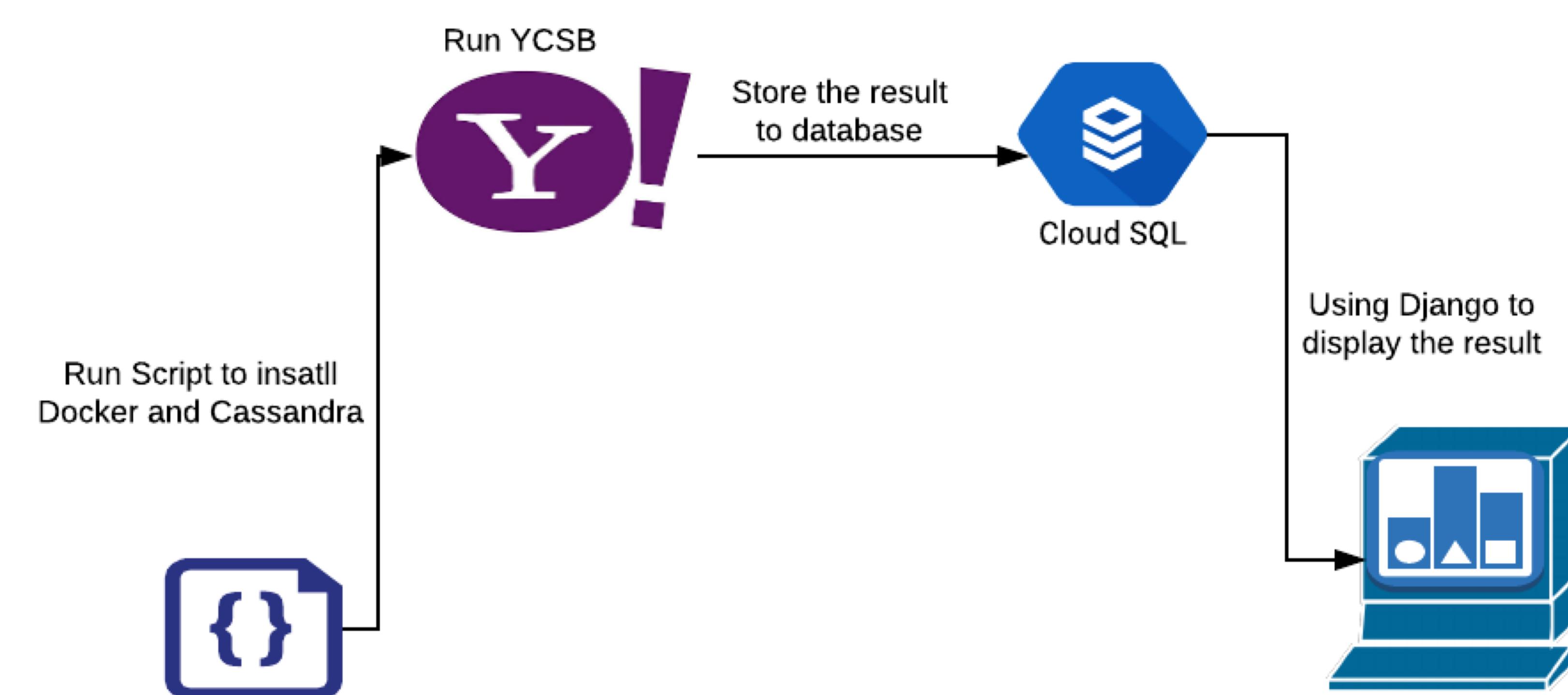
Django is a high-level Python Web framework that encourages rapid development and clean, pragmatic design. Built by experienced developers, it takes care of much of the hassle of Web development, so you can focus on writing your app without needing to reinvent the wheel. It's free and open source.

### Platform Architecture



### Workflow

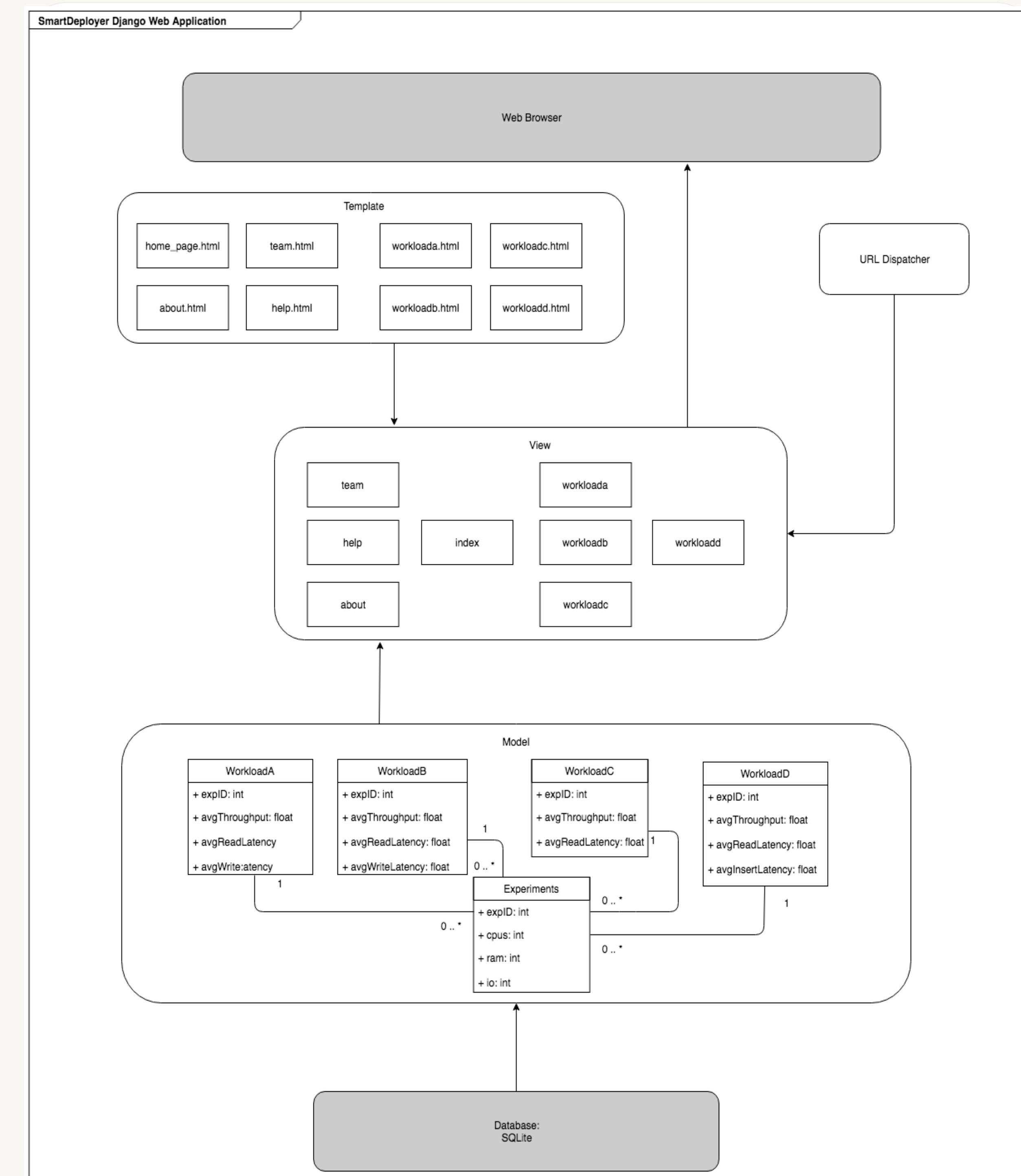
The software mainly contains two parts, first part is to install the tools and the environment such as Docker and Cassandra, then run our YCSB to get the overall performance. After that used Django to display the result of the YCSB.



### Challenges

- Deploying Cassandra through microservices on multiple Swarm VMs is in beta stage and has not been stable by Docker yet.

### Visualization Tool



### Previous Studies

This is a hot topic right now, and there is a lot of research going on in this area but nothing has been significant as of yet.

### Expected outcomes

Design and develop a smart deployer that deploys and configures Cassandra datastore through microservices in such a way that an "acceptable performance" of the cluster will be guaranteed. Mainly used the script to deploy the docker and Cassandra, and Django to display the result on a web.

In the future version, the deployer should be able to generate the parameters for users automatically.