

Project Abstract

With the growth of the internet infrastructure it has become necessary to introduce methods of auto scaling the systems based on requirements. There now exist systems which do not follow the monolith architecture, but rather distribute them into multiple modules / components that will perform a highly focused and completely decoupled task such as Unix Commands ex:- `ls`, While giving out a complete Business Scenario by combining each of these components together. This architecture is known as the micro service architecture. This architecture is on standard deployed onto a system known as the docker. By normal standards, a single microservice will be deployed as a single docker container but it is possible to run multiple microservices in a single container as well. The problem which we had identified with the existing system is that it does not allow the system to be horizontally scalable. That is if the load for a particular docker VM increases, another instance will need to be created on a distributed system to balance out the processing. The current system needs heavy human interaction to manage each of these docker containers to achieve the expected performance of the system , Our proposed system will be to implement a load balancer which would be able to automatically scale the containers while not requiring any human interaction at all and distribute the load among multiple running instances of the containers based on the analysis performed from the data gathered using our system.

Project Goals

The main project goal would be

- Create an automatic load balancer which would distribute the load while also dynamically managing the containers which they are running on thus saving computational power which could be redirected for other purposes.

The Sub goals which need to be attained to complete the main goal are :-

- 1. Analyze the data gathered from the incoming load using web analytic API's [EX:- Google Analytics].**
- 2. The tagging system which will be used for messaging between the microservices will need to be monitored.**
- 3. The Business Scenario based machine learning model needs to be developed which would be able to scale based on the tags introduced onto the microservices.**
- 4. The cloud platform would need to be simulated on the local environment that would be able to simulate a cloud infrastructure as much as possible or other alternatives for demonstrating the project will need to be researched.**