Kubernetes Full Stack Application

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1 Introduction

This Introduction should give an end to end overview to deploy a sample Application with multiple Services and a Databases completely on Kubernetes. The Application generates Random Numbers, saves them with a Timestamp on a database. Displays the new Number on a Frontend and also shows Graphs from previous Random Numbers based on their Producers Id.

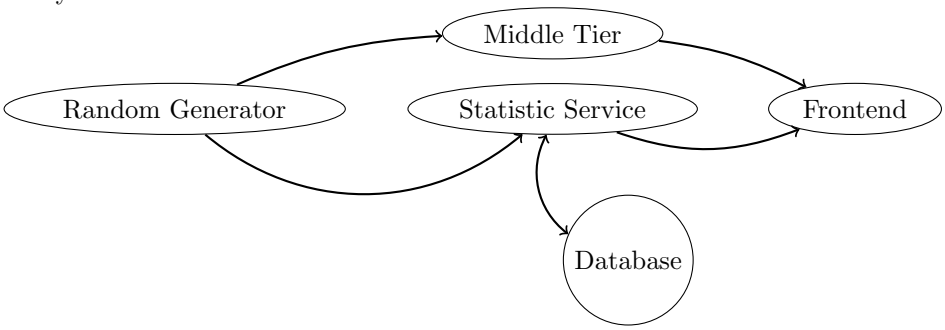
1.1 Technology

Service	**Technology**
Random Number Generator circle	Python Flask
Database to store previous Numbers	Mysql Database
Microservice for requesting new Numbers	Spring Boot Java
Microservice for gathering Statistics	Spring Boot Java
Frontend	Angular with Spring Boot
Routing Server	Nginx
Server OS	Ubuntu Server 18.5.1 LTS

All the Applications are Running inside of an own Docker Container and Managed within a Kubernetes Pod and accessible via a Kubernetes Service where only the Frontend Service is bound to a Node Port.

1.2 Model

The Following Picture should give an overview about the different Services and how they work with each other.



2 Installing Kubernetes

3 Create Services

3.1 Random Generator

The Random Generator will be a verry simple Python App which is always initialized with an unique Id. It will return his id and a new Random Number.

3.2 Middle Tier

3.3 Statistic Service

3.4 Frontend

3.5 Database

4 Deploy Services to Kubernetes