DEPARTMENT OF INFORMATICS

TECHNISCHE UNIVERSITÄT MÜNCHEN

Master's Thesis in Informatics

Model to predict computing resources based on response time of a Function.

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Titel der Abschlussarbeit

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I confirm that this master's thesis in informatics is my own work and I have documented all sources and material used.

Munich, Submission date Muthuraman Chidambaram

Acknowledgments

Abstract

Kurzfassung

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1 Introduction

1.1 Problem:

Cloud users tend to move towards serverless computing as the cloud service provider offers and dynamically manages the allocation of computing resources and allows the developers to focus on business logic exclusively without worrying about preparing the runtime, managing deployment and infrastructure related concerns. That inturn becomes a problem of "reduced transparency", which causes reduced understandability of the underlying system. Causing increase in execution time and cost of a function invocation.

1.2 Objective:

In this work, we are trying to create a model with the metrics, that can predict the resources required for a particular response time. Also the model is designed to predict the number of containers required for a particular function based on the number of function invocation and response time.

1.3 Outline:

Example data table:

Table 1.1: Data Metrics

CPU (Core)	Memory (GB)	Invocations Count	Cold time(s)	Warm time(s)	Response time(s)	Execution time(s)	Function Memory(MB)	Containers Count
2	4	4	5	0	10	15	128	1
2	4	4000	5	0	10	15	256	5
4	4	4	5	0	10	7	128	1
4	4	4000	5	0	10	8	256	5

Data like this are collected and used to create a model that can predict the resource requirements for a particular response time.

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