



University of Bamberg
Distributed Systems Group



Master Thesis

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Topic:

Model Based Pre - Warming to Mitigate the Cold Start of Serverless Function

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1 Introduction

In today's world of cloud computing serverless computing has become quite a phenomenon as it has taken the responsibility of the underlying infrastructure where the applications will run on and the developers can solely focus on the coding aspect. The term serverless has been coined up to portray that the developers do not have to worry about anything related to servers.

As serverless has taken away all the managerial aspects from the developers but unfortunately, it comes with specific challenges. Among them, 'Cold Start' is a potential problem. Cold Start refers to the idea when a serverless function is invoked for the first time or has remained inactive for a long period and needs some time to be prepared for execution ([MSD⁺19], [SA20]) The size of the deployed package and the employed programming languages are a couple of the aspects that have an impact on this issue [MEHW18]

In this thesis paper, I will present an overview of the cold start problem in serverless function in particular. Further, I will analyze possible problems when running applications on serverless computing platforms by programming my own application.

2 Conclusion

This is the last chapter of this thesis [?].

References

- [MEHW18] Johannes Manner, Martin Endreß, Tobias Heckel, and Guido Wirtz. Cold start influencing factors in function as a service. 10 2018.
- [MSD⁺19] Anup Mohan, Harshad Sane, Kshitij Doshi, Saikrishna Edupuganti, Naren Nayak, and Vadim Sukhomlinov. Agile cold starts for scalable serverless. In *Proceedings of the 11th USENIX Conference on Hot Topics in Cloud Computing*, HotCloud’19, page 21, USA, 2019. USENIX Association.
- [SA20] Khondokar Solaiman and Muhammad Abdullah Adnan. Wlec: A not so cold architecture to mitigate cold start problem in serverless computing. 04 2020.

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Bamberg, 04.03.2024

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