

Master's Thesis

Strictly Consistent Configuration Management in Distributed Fog Platforms

Problem & Approach

Fog computing distributes resources over wide areas and to the network edge instead of centralizing them in the cloud. Fog platforms are highly distributed by nature and coordinate through communication in overlay networks on top of the Internet. While eventual consistency is often sufficient for fog applications, the underlying platforms themselves need to reach consensus on some configuration data such as data replication targets or user authorization.

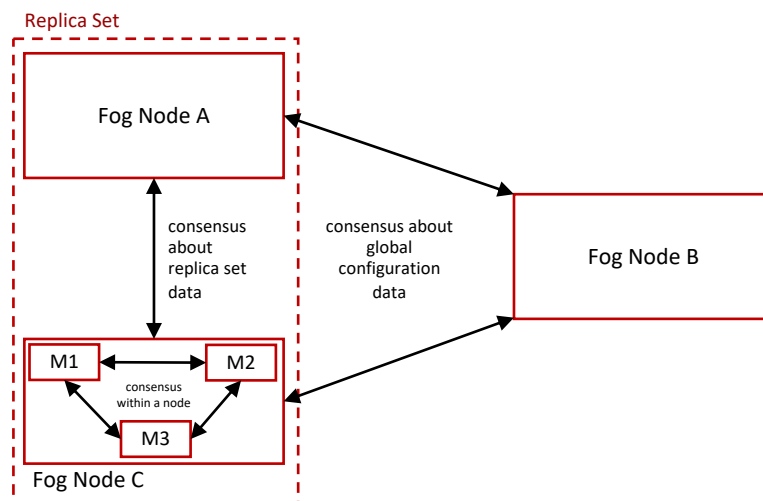


Fig. 1: Distributed Configuration Management requires Consensus among Different Groups of Fog Nodes

Goal of the Thesis

In this thesis, the student shall research, develop, and implement different approaches to configuration management with strict consistency requirements in distributed fog platforms. These approaches should cover centralized, decentralized, and hybrid solutions. Furthermore, the student shall conduct a performance evaluation in the context of the fog storage platform FogStore.

Required Skills:

- Knowledge of Fog computing (or willingness to learn), distributed systems in general and consensus algorithms in particular (required)
- Advanced experience with the Go programming language or comparable systems programming experience (e.g. Java, Kotlin, C++, etc.)

Contact:

Tobias Pfandzelter
tp@mcc.tu-berlin.de

Mobile
Cloud
Computing

EINSTEIN
CENTER
Digital Future