Abstract

Fog computing addresses non-functional requirements such as real-time, latency, location-awareness and platform heterogeneity to overcome the limitations of cloud-based architectures. In this focus group, we want to explore the use of patterns for fog, edge, cloudlets, mist and dew and various other solutions. The goal is to identify a set of patterns that can be used by software architects for the design of efficient fog architectures.

Significance and Relevance of the Topic

Cloud-based architectures have significant advantages over centralized and simple client-server based architectures by addressing synchronization and notification issues. However, the distribution imposes challenges with respect to latency, in particular real-time critical applications. Various architectural styles called fog, cloudlets, edge, mist or dew architectures, aim to improve cloud-based architectures to support real-time critical applications.

We see the opportunity for an architectural pattern for applications across different domains such as virtual reality, augmented reality, autonomous cars, robots and the Internet of Things, where low-latency responses, synchronization of data as well as real-time notifications in distributed environments consisting of heterogeneous platforms have become important design goals.

Expected Outcome & Learning

The outcome of this focus group is a set of appropriate patterns that address non-functional requirements that in the past have led to design trade-offs. Participants will discuss the challenges of distributed systems in terms of fog computing, get an introduction to the idea of fog computing and work on architectures for different use-cases.