LIGHTKONE

Lightweight computation for networks at the edge

@LightKoneH2020

MOTIVATION AND MISSION

The cloud center is becoming a bottleneck due to the ever-increasing volumes of data coming from the rapidly growing edge of the Internet. Edge computing is proposed as an extension to cloud computing aiming at delegating some of the data storage and processing to network edge devices. This brings several advantages like reducing latency, increasing scalability, resilience, autonomy, and security.

An edge network consists of a large set of heterogeneous, loosely coupled computing nodes situated at the logical extreme of a network. This raises several data management challenges to ensure the consistency of the system without impeding availability, despite node and/or network failures. LightKone aims to develop a scientifically sound and industrially validated data model for doing general-purpose computation on edge networks.

THE IDEA AND APPROACH

LightKone adopts a relaxed consistency model that allows edge devices to update and read data asynchronously. This is key to improve the responsiveness and autonomy of edge applications.

MAIN RESULTS

LightKone Reference Architecture (LiRA) for edge computing that provides lateral data sharing along the entire continuum from cloud datacenter to far edge devices.

Software artefacts and components that work together in a coherent way to support a spectrum of edge applications.

A startup that develops synchronization-free mobile applications based on the above technology.

TECHNOLOGY TARGETS

LightKone technology targets a wide range of edge applications. It has been empirically validated on the following diverse set of applications:

Distributed monitoring for community networks (Guifi.net)

Multi-cloud metadata search (Scality)

Multi-master geo-distributed storage (Scality)

Manufacturing No Stop RFID system (Stritzinger)

Precision agriculture (Gluk)

PROJECT INFORMATION

Project Number: 732505

Project Acronym: LightKone

Project Coordinator: Université catholique de Louvain

Execution Period: 01/01/2017 - 31/12/2019

Budget: 3,6M€

10 Partners: 6 Countries (PT, ES, FR, BE, NL, DE)

Programme Type: Research and Innovation Action

Website: www.lightkone.eu

PARTNERS