How Microservices helped modernize an IoT Platform

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Abstract

In order to demonstrate how microservices can help modernize a software offering, we will go through our Trueverit IoT platform roadmap, we will explain the insights behind the move towards microservices and finally we will show the advantages of such a move.

1   The challenge

About 5 years ago, a project called Trueverit had been started up. Its purpose was enabling industrial customers to use, leverage and monetize data coming from their assets. Having this mission in mind an IoT tool was built. As time went by, and as Trueverit was used in production by customers, some issues arose: ease of development and maintenance, scalability, security and flexibility. In order to solve such problems, the company decided to dismantle the monolith and move to a microservices oriented architecture. Going through our roadmap, we will illustrate the evolution of a real IoT platform and how microservices have contributed to improve the product.

2   The "Go-to-microservices" journey

PHASE 1- 2014

When Trueverit was born, the architecture was definitely monolithic. The tool used to have a single Frontend/single machine/single environment per customer. Load balancing was difficult to implement. HA practically non-existent. Software development and maintenance was intricate. That's why, toward 2017, the company started to experiment a more distributed architecture.

PHASE 2- 2017

The first choice has been separating the front-end from the back-end, using the Docker-Compose tools. However, key problems were not solved. Inserting a monolithic application into a container meant

physically turning off some modules to allow others to run. Data persistence problems…persisted. Versioning and scalability could not be easily managed.

PHASE 3- 2020

Finally, the application was completed rewrited. The changes were too binding to keep us on the same architecture and infrastructure. Docker has been confirmed as the containerization system, but differently from the past, we switched to a swarm cluster of instances of microservices.
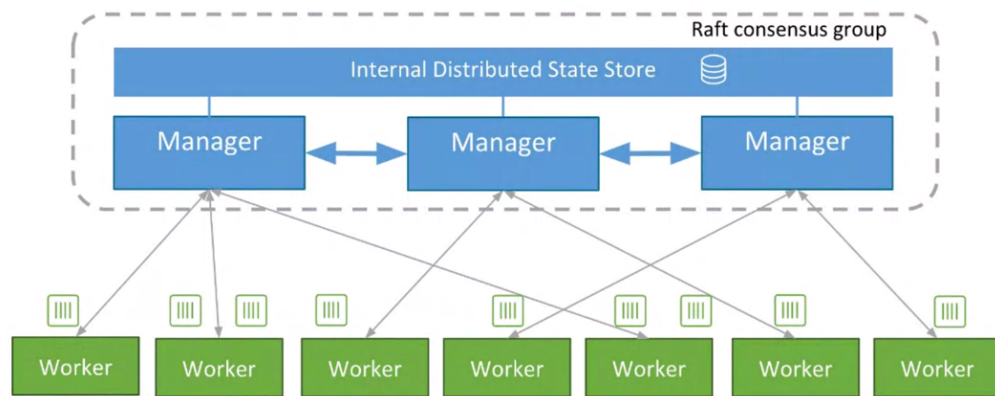
3 The benefits

The software remake was worth the effort, as we could turn Trueverit into a really modern platform for enterprise IoT applications, based on 18 microservices. Scalability, equally distributed workloads, TLS security between Manager and Workers, Image-based versioning, simple management and deployment are only some of the benefits that such strategic change brought to us, in this speech we will go trough all steps that allowed us to switch from a monolithic web-application to a scalable microservice cluster based web-application.