Infrastructures for Cloud Computing and Big Data

Project Work

Distributed Cloud Gaming Pipeline

Implementation of the streaming module

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Abstract

In the past ten years the Gaming industry has more than doubled in revenues, thanks, especially, to the dawn of mobile gaming and the increased connectivity that has enabled multiplayer games to be easily accessible.

Meanwhile, Cloud infrastructures have evolved and permeated most industries, making only natural that the gaming industry would be interested in reaching even more players by providing Gaming as a Service (GaaS). Some of the biggest companies have already implemented this sort of service successfully, such as Google Stadia, PlayStation Now and NVIDIA GeForce Now, thanks to the great resources they have. Still, there are many challenges to be faced to bring good QoS in GaaS while minimizing the resources employed to do so. One of these challenges derives from the fact that the engines used to run games are developed as monolithic entities, therefore they are not able to provide the scalability and flexibility that cloud distribution requires.

The aim of this Project Work is to address the latter problem by researching and implementing (a part of) a serverless alternative to the monolithic architecture, focused on splitting the engine into independent modules. These modules would then be able to be distributed along the whole cloud continuum depending on the required QoS.