

Cloud vs Fog Computing – Scheduling Real-Time Applications

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Abstract— Cloud computing, as a distributed computing model, has been extensively used for the deployment of computationally intensive applications. In order to exploit cloud's full potential, effective scheduling techniques are required to minimize the cost and to provide quality of service. A challenging problem is the scheduling of real-time complex applications, where along with the goal to meeting deadlines, energy conservation has to also be taken into account. Consequently, energy efficient scheduling techniques are required ensuring timeliness. In the last years, there is a rapid increase in the number of Internet of Things applications. Due to the large amount of generated data which need to be transferred between sensors and cloud resources, fog computing appeared as a paradigm beyond cloud computing. Furthermore, in the IoT domain the majority of the applications are real-time with quality of service requirements. Therefore, they should be effectively assigned to resources in both the fog and cloud layers, considering the computational as well as the communication characteristics of each application. In this keynote we will present recent research covering various concepts on scheduling real-time applications in cloud and fog systems and we will provide future trends and directions in the cloud and fog computing research area.

Keywords- cloud computing, fog computing, scheduling, real-time applications, performance

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