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Tools and Technology in Support of Integrated Applications (1)

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EDGE COMPUTING AND ITS APPLICATIONS IN SATELLITES

Abstract

Edge computing is one of the evolving technologies whose concept is to take computing powers from cloud based platforms to the edge devices themselves. Edge devices can be thought as those devices which lie on the end-user side of a cloud platform .

Traditionally edge devices collect data and simply transfer it to the cloud servers. Cloud servers process this data further. However, edge computing stresses on giving more computing power to edge devices ie. Those devices can do processing of data there itself thereby nullifying data transfer time and increasing speed and efficiency .

Satellite is an important domain for evolution of Edge Computing. Currently, our satellites do not have high computing power and can do very limited tasks. However with evolution of embedded systems and internet of things, we can build satellites which can perform way beyond the current capacities.

Some applications of edge computing in satellites are -: 1. Implementing block chain to protect data on satellites. 2. Empowering satellites with AI. 3. Construct data-centres in space with the help of a constellation of satellites. 4. Improve communication reach in remote areas. 5. Intelligent systems for interplanetary missions and many more...

My goal in this paper is to extensively research how edge computing can be applied on satellites, what are the new computer architecture technologies can be implemented and what can be achieved using this.

Each of the above applications requires high amount of computational power which can be achieved using edge computing. If we are able to apply these technologies in satellites, it will completely revolutionize satellite technology.