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ADAPTIVE POSITIONING AND LOCALIZATION FOR SATELLITE ATTITUDE FOR INDUSTRY
4.0 - A SYSTEMATIC REVIEW OF CLOUD COMPUTING PLATFORM

Abstract

As one of the information industry's future development directions, the Internet of Things (IoT) has been widely used. In order to reduce the pressure on the network caused by the long distance between the processing platform and the terminal, cloud computing provides a new paradigm for IoT applications. In many scenarios, the IoT devices are distributed in remote areas or extreme terrain and cannot be accessed directly through the terrestrial network, and data transmission can only be achieved via satellite. However, traditional satellites are highly customized, and on-board resources are designed for specific applications rather than universal computing. Therefore, we propose to transform the traditional satellite into a space cloud computing node. It can dynamically load software in orbit, flexibly share on-board resources, and provide services coordinated with the cloud. Cloud Computing and Cloud Platforms have become an essential resource for businesses, due to their advanced capabilities, performance, and functionalities. Data redundancy, scalability, and security, are among the key features offered by cloud platforms. Location-Based Services (LBS) often exploit cloud platforms to host positioning and localization systems. This paper introduces a systematic review of current positioning platforms for satellite attitude for industry 4.0. We have undertaken a comprehensive analysis of each component of the positioning and localization systems, including techniques, protocols, standards, and cloud services used in the state-of-the-art deployments. Furthermore, this review paper identifies the limitations of existing solutions, outlining shortcomings in areas that are rarely subjected to scrutiny in existing reviews of indoor positioning, such as computing paradigms, privacy, and fault tolerance. We then examine contributions in the areas of efficient computation, interoperability, positioning, and localization.