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BIG DATA WITH CLOUD COMPUTING: AN INSIGHT ON THE COMPUTING ENVIRONMENT, MAPREDUCE, AND PROGRAMMING FRAMEWORKS

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ABSTRACT

The context of data mining and business intelligence, the concept of 'Big Data' has quickly become widespread. This new scenario can be characterized by the problems that cannot be effectively or efficiently addressed by using the standard computer resources that we presently have. These are the difficulties that can be used to define the new scenario. Big Data does not simply refer to the presence of vast amounts of data; rather, it emphasizes the requirement for scalability, or the ability to provide a response within a predetermined amount of time. This point needs to be emphasized. When the scalability term is addressed, it is common practice to think about traditional parallel-type solutions. Examples of these types of solutions are the Message Passing Interface as well as high performance and distributed Database Management Systems. These days, there is a new paradigm that has surpassed the older one in terms of popularity due to the many advantages that the new paradigm provides. Cloud computing is the paradigm in question, and among its primary advantages, we must highlight its elasticity in terms of the use of computing resources and space, its reduced management effort, and its adaptable cost structure. In this post, we present an outline of the concept of Big Data, as well as how the current problem might be addressed using Cloud Computing and its programming frameworks as a perspective. In particular, we concentrate on those systems for large-scale analytics which are based on the MapReduce scheme and Hadoop, which is the open-source implementation of the scheme. We identify many libraries and software projects that have been built to aid practitioners in addressing this new programming style. These libraries and projects can be found here. In contrast to the traditional approaches taken in this area, we additionally investigate both the positive and negative aspects of the MapReduce framework.

Keywords: Big Data, Cloud Computing, Computing Environment, Mapreduce, Programming Frameworks