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Title: The Hype of Emerging Technologies: Big Data as a Service

Abstract:

Technologies comprise more aspects of modern societies day by day. As a result, a great blast of data has been perceived in global scale. Big data impacted many industries ranging from healthcare to transportation, agriculture, forestry, and even government. Big data can provide insights, solutions, and opportunities in all sort of businesses. However, a great number of Big Data projects are facing a big failure. This paper aims to explore various facets of big data and big data as a service, as well as, the reasons and challenges behind the vast amount of failures in big data projects with a focus on origin of these problems.

Keywords: Big Data, Big Data as a Service, BDaaS, Cloud, Analytics.

1. Introduction

The value and benefits of Big Data is no longer unrecognized. According to the most recent GRIT report [1], big data is an important issue in today's marketing research due to the opportunities and challenges it delivers. Traditional "goods-dominant" business approaches are being overridden by services and technologies in the market industry. In Gartner's report 2014, big data was announced as a hype circle of emerging technologies [2]. Furthermore, in regards to a CIO survey [3], 55% of big data projects around the world were not successfully finalised. This paper aims to present an overview of the nature of big data as well as big data services. Additionally, it will discuss why adapting big data as a service is challenging. The rest of this paper is classified as per the following: section 1 provides an overview and better understanding of this paper; Section 2 is dedicated to big data as a service; Section 3 discusses the essential characteristics of big data as a service; Section 4 is about data models, from traditional data models to modern and neo metropolitan data models; Section 5 delves into data knowledge models; Section 6, context driven knowledge models; 7 provides data paradigms; next is section 8 about evolvement of big data; 9 represents choke points; section 10 is the conclusion and in the last section, list of references is provided.

2. Background Study

2.1. The Era of Big Data

Big Data and the Internet of Things together are driving the third industrial revolution in which raw elements are calculated and measured in bites [4]. We are living in an age of Big Data where according to IDC (International Data Corporation) the big data market scale will be 20 billion USD until 2016 and the big data market growth rate will be nearly 25% [5]. Before the broad rise of the

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Internet, data was being accumulated only by employees of companies, but now this has been changed, individual users or even machines and tools are able to generate colossal amounts of their own data per day. This large diverse volume of information is called “Big Data”. Some of the main big data generators are: Sensors, Social networks, Mobile devices, Internet transactions, and service-generated data such as trace logs, Quality-of-Service (QoS) information, service invocation relationship, etc. [6]. Big data is usually described by five characteristics, the “Five V’s”: Volume of data which refers to data size; Velocity, which is the speed of incoming data; Variety, termed as, diverse types of data; Veracity is accuracy of data and finally Value, is the added-value of big data in order to help companies recognize their client’s demands [6]. Big Data cannot be processed with traditional approaches because of their limitations; and to solve this issue, an algorithm called MapReduce has been represented. MapReduce is a data processing model used for large clusters of data [7]. Hadoop is one of the most famous open source frameworks using MapReduce algorithm where data is processed in parallel on distributed datasets across computer clusters. According to IDC [5], world store of data is now counted in zettabytes. That is trillions of gigabytes and 90 percent of this amount has been generated in the last two years. It is very obvious that the traditional approaches are now out of use. Cloud data storage is a new technology, which is beneficial for addressing Big Data storage issues. A cloud database is a cloud platform as a service that allows users to manage, store and retrieve data from the cloud. Services using the Hadoop platform in conjunction with cloud based databases, for the purpose of analysing, managing and storing Big Data, is known as, Big Data as a Service or BDaaS [8]. Figure 1 visualizes a brief overview of the big data revolution.



Figure 1: Big Data Domains

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