

Chapter 64

Big Data Analytics With Service–Oriented Architecture

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ABSTRACT

This chapter focuses on Big Data and its relation with Service-Oriented Architecture. We start with the introduction to Big Data Trends in recent times, how data explosion is not only faced by web and retail networks but also the enterprises. The notorious “V’s” – Variety, volume, velocity and value can cause a lot of trouble. We emphasize on the fact that Big Data is much more than just size, the problem that we face today is neither the amount of data that is created nor its consumption, but the analysis of all those data. In our next step, we describe what service-oriented architecture is and how SOA can efficiently handle the increasingly massive amount of transactions. Next, we focus on the main purpose of SOA here is to meaningfully interoperate, trade, and reuse data between IT systems and trading partners. Using this Big Data scenario, we investigate the integration of Services with new capabilities of Enterprise Architectures and Management. This has had varying success but it remains the dominant mode for data integration as data can be managed with higher flexibility.

INTRODUCTION TO BIG DATA

In financially indeterminate times the consumer as well as the producer is faced with a large number of choices of different kinds, not only do we consider historical information but we also make reasoned choices among alternatives that are statistically desirable. Most of the big business and corporate sectors are now appreciating the use of Big Data helps them to take decision in right time. The term ——big data|| was invented while addressing one of the most prominent problems of handling huge amount of structured or unstructured data which is size. In short the term big data is applies to information that can't be processed with traditional processes or tools. While almost all industries today have access to a high volume of information, it is evident that most of it is sitting in its raw form in an unstructured

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or semi-structured format and hence tends to confuse people whether it is actually useful to keep and analyze or not. In the present business scenario it is found that the access and processing data is going very fast. Big data analytics basically deals with how to turn that nebulous, vast, fast-flowing mass of —Big Data into decidedly valuable acumens, actions and outcomes. A new area of computer science has been developed called data Science which deals with preparation, collection, analysis, virtualization, preservation and management of large volume of collections of information.

A Brief History of Big Data

The ability of prediction utilizing computational strategies goes back to very old age of this earth. The most primitive cases we have of people putting away and dissecting information are the counting sticks known as “tally sticks”. Uganda is thought to be one of the earliest bits of proof of hardware aiding in antiquated information storage. Paleolithic tribal were accustomed to stamping scores into sticks or bones, to record their exchanging action or supplies. They would contrast sticks and indents with do simple computations, empowering them to make expectations, for example, to what extent their sustenance supplies would last. The math device was the initially dedicated gadget built particularly to perform counts in Babylon. (Swetz and Katz, n.d).This particular math device is today’s abacus. The primary libraries additionally showed up around this time, exhibiting the main endeavors at mass information stockpiling. The Antikythera Mechanism, the most punctual found mechanical PC, was created, apparently by Greek researchers. 1663 saw the ascent of measurements in London. John Graunt does the initially recorded examination in factual information investigation. Byrecording data about mortality, he speculated that he can plan an early cautioning framework for the bubonic disease attacking Europe. (Graunt, 1964) In 1865, term “business knowledge” was utilized by Richard Millar Devens as a part of his Encyclopedia of Commercial and Business Anecdotes, (Devens and Miller,1865) depicting how the financier Henry Furnese accomplished preference over contenders by gathering and investigating data significant to his business exercises in an organized way. This is thought to be the principal investigation of a business putting information examination to use for business purposes. In 1880, the US Census Bureau had an issue – it assessed that it will take it 8 years to crunch every one of the information gathered in the 1880 enumeration, and it was anticipated that the information produced by the 1890 statistics will assume control 10 years, which means it won’t be prepared to take a gander at until it is obsolete by the 1900 registration. In 1881 a youthful specialist utilized by the authority – Herman Hollerith – created what came to be known as the Hollerith Tabulating Machine. Utilizing punch cards, he lessened 10 years’ work to three months and accomplished his place in history as the father of present day robotized calculation. The organization he found went ahead to end up known as IBM. A paper title “The Scholar and the Future of the Research Library” was written by Fremont Rider in 1946. In one of the most punctual endeavors to evaluate the measure of data being created, he watched that keeping in mind the end goal to store all the scholarly and well known works of worth being delivered, American libraries would need to twofold their ability like clockwork. This drove him to conjecture that the Yale Library, by 2040, will contain 200 million books spread more than 6,000 miles of racks. In 1965, the US Government arranges the world’s first server farm to store 742 million expense forms and 175 million arrangements of fingerprints on attractive tape. (Lesk, 1997) distributed a paper named “The amount Information is there in the World?”. Inferring that the presence of 12,000 petabytes is “maybe not an outlandish speculation”. He additionally called attention to that even at this early point in its improvement, the web is expanding in size 10-overlap every year. Quite a bit of this information, he calls attention to, will never be seen by

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