Analyzing Big Data Analytics

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Abstract: Big data analytics is the process of examining the data sets to retrieve business information. Big Data is a term used to identify the datasets that whose size is beyond the ability of typical database software tools to store, manage and analyze. Data has become an indispensable part of every economy, industry, organization, business function and individual. So many associations are catching and investigating on big data information that has volume, velocity, variety and comes from an assortment of new sources, including web based social networking also. These sources have strained the capacities of customary social database administration frameworks and generated a large group of new innovations, approaches, and stages. Despite the fact that the business esteem from enormous information is incredible, particularly for online organizations like Google and Face book. In this panel we will try to explore detailed analysis on big data analytics.

Keywords: Big Data, Analytics.

I. INTRODUCTION

Big data is the collection of values and variables related in some sense and differing in some other sense. Today, many organizations are collecting, storing, and analyzing massive amounts of data. This data is commonly referred to as “big data” because of its volume, the velocity with which it arrives, and the variety of forms it takes. In recent years the sizes of databases have increased rapidly. This has lead to a growing interest in the development of tools capable in the automatic extraction of knowledge from data. Data are collected and analyzed to create information suitable for making decisions. Hence data provide a rich resource for knowledge discovery and decision support. A database is an organized collection of data so that it can easily be accessed and managed.

Big data is a new generation of decision support data management. Businesses are recognizing the potential value of this data and are putting the technologies, people, and processes in place to capitalize on the opportunities. A key to deriving value from big data is the use of analytics. Collecting and storing big data creates little value; it is only data infrastructure at this point. Big data and analytics are intertwined, but analytics is not new. Many analytic techniques, such as regression analysis, simulation, and machine learning, have been available for many years. Even the value in analyzing unstructured data such as email and documents has been well understood.

The radical growth of Information technology has led to several complimentary conditions in the industry. One of the most persistent and arguably most present outcomes is the presence of big data. The term big data is a catchphrase was coined to describe the presence of huge amounts of data. The resultant effect of having such a huge amount of data is data analytics. Data analytics is the process of structuring big data. Within big data, there are different patterns and correlations that make it possible for data analytics to make better calculated characterization of the data. This makes data analytics one of the most important parts of information technology.

In this panel, we will first discuss the nature and sources of big data. Next, we look at the big data analytics, and how now a days they are used with big data.

II. ABOUT BIG DATA

From an evolutionary perspective, big data is not new. A major reason for creating data warehouses in the 1990s was to store large amounts of data. Back then, a terabyte was considered big data. Teradata, a leading data warehousing vendor, used to recognize customers when their data warehouses reached a terabyte. Today, Teradata has more than 35 customers with data warehouses over a petabyte in size.

So what is big data? One perspective is that big data is more and different kinds of data than is easily handled by traditional relational database management systems. Some people consider 10 terabytes to be big data, but any numerical definition is likely to change over time as organizations collect, store, and analyze more data. The data may be enterprise specific or general and private or public. Big data are characterized by 3 V's: Volume, Velocity, and Variety.

A. Volume
The size of data now is larger than terabytes and petabytes. The large scale and rise of size makes it difficult to store and analyse using traditional tools.

B. Velocity
Big data should be used to mine large amount of data within a pre defined period of time. The traditional methods of mining may take huge time to mine such a volumes of data.

C. Variety
Big data comes from a variety of sources which includes both structured and unstructured data. Traditional database systems were designed to address smaller volumes of structured and consistent data where as Big
Data is geospatial data, 3D data, audio and video, and unstructured text, including log files and social media. This heterogeneity of unstructured data creates problems for storage, mining and analyzing the data.

III. BIG DATA SOURCES

There are many sources of big data. For example, Social media sources such as Facebook and Twitter generate tremendous amounts of comments and tweets. This data can be captured and analyzed to understand, for example, what people think about new product introductions. Machines, such as smart meters, generate data. These meters continuously stream data about electricity, water, or gas consumption that can be shared with customers and combined with pricing plans to motivate customers to move some of their energy consumption to non-peak hours and another source is every mouse click on a web site can be captured in Web log files and analyzed in order to better understand shoppers’ buying behaviors and to influence their shopping by dynamically recommending products.

IV. BIG DATA ANALYTICS

Big data analytics is the process of examining large data sets to uncover hidden patterns, unknown correlations, market trends, customer preferences and other useful business information. The analytical findings can lead to more effective marketing, new revenue opportunities, better customer service, improved operational efficiency, competitive advantages over organizations and other business benefits.

The primary goal of big data analytics is to help companies make more informed business decisions by enabling data scientists, predictive modelers and other analytics professionals to analyze large volumes of transaction data, as well as other forms of data that may be untapped by conventional business intelligence programs. That could include Web server logs and Internet click stream data, social media content and social network activity reports, text from customer emails and survey responses, mobile-phone call detail records and machine data captured by sensors connected to the Internet of Things.

V. THE BENEFITS OF BIG DATA ANALYTICS

Many companies that use big data analytics have benefited from a number of advantages and have found these of major benefit when making business-oriented decisions.

The primary goal of big data analytics is to aid companies in making more informed business decisions by enabling them to access a large volume of transactional data. This provides them with the opportunity to drive innovation and to make the best possible decisions based on these data results. It also provides them with insight into how satisfied their customers are with their products and service provision. In some cases, due to the knowledge gained from this data, companies have adapted their products, services and marketing in order to reflect their customer’s preferences.

Traditional forms of managing large volumes of data can be expensive. Big data analytics simplifies this process by performing advanced data processing and analysis at high speeds. This makes the process more scalable and flexible for users. Big data tools allow you to analyse the threats that face your company internally. You can ensure that sensitive information, e.g. credit card information, is stored according to company standards.

The real time feature of big data analytics is also an important advantage for companies. Many companies want access to real time data due to big data enables companies to personalize the look and feel of both their content and website in real time to suit customers preferences and needs. For example, in terms of online advertising, a company has the ability to personalize an ad for different viewers depending on their customer personal profiles.

VI. THE REQUIREMENTS FOR BEING SUCCESSFUL WITH BIG DATA ANALYTICS

The requirements for success with big data analytics, such as executive support and sponsorship, are largely the same as with most projects, including big data analytics. Now-adays the requirements for being successful with big data analytics are-

A. A Clear Business Need

It is common knowledge that projects should be business rather than technology driven. They should address a business need, such as solving a problem or seizing an opportunity. While the media attention given to big data has created an awareness of its potential, it has also led some executives to push big data projects without clearly defined goals. Below are opportunities for big data analytics in different industries,

- Automobile insurance – pricing, client risk analysis, fraud detection, faster claims processing
- Telecommunications – analysis of patterns of services across social networks, profitability of
- Customers’ social networks, Manufacturing, distribution, and retail – tracking shelf availability, assessing the impact of
  - Utilities – analysis of smart grid data to determine variable pricing models, smart meters to
  - Forecast energy demand, customized rate plans for customers Gaming – game play analysis to provide feedback to game producers, opportunities for in-game
  - Offers Law enforcement – identifying people linked to known trouble groups, determining the location of individuals and groups.

In many organizations, the initial business case for big data analytics focuses on customer-centric objectives and uses existing and newly accessible
internal sources of data. Big data analytics can be especially helpful for companies that seek to understand customers better, develop meaningful relationships with customers, and improve operations that enhance the customer experience. Whatever the focus, successful big data initiatives should start with a specific or narrowly defined set of objectives rather than a “build it and they will come”.

B. strong, committed sponsorship
Now a day’s strong and committed sponsorship is very important. Without solid sponsorship, it is difficult to succeed with any IT project, and this includes big data analytics projects. If the project is departmental, sponsorship can reside at the departmental level. However, projects that are more strategic and enterprise wide should have senior management support. Recently some IT companies are also study in this topic and they found early stages of big data.

C. Alignment between the Business and IT Strategy
It is important to make sure that big data analytics projects support the business strategy. This is why most projects should be driven by business people rather than IT. In analytics-based organizations, the alignment is especially close. In fact, it may be impossible to separate the business and IT strategies. Without IT as an enabler, the business strategy cannot succeed.
Large online retailers such as Amazon.com and Overstock.com are great examples of analytics-based organizations [Watson, et al., 2009b]. The most visible example of analytics at work is the product recommendations that appear when customers use their web sites. Recommendations are the result of recommendation engines that consider the search terms entered, previous mouse-clicks, market basket analysis of other shoppers’ purchases, the availability and profitability of various products, and what the shopper has considered or purchased in the past. Less visible, but equally important BI applications include reporting, dashboards/scorecards, demand forecasting, pricing, product return analysis, market segmentation analysis, campaign management, and search engine optimization.

D. A Fact-Based Decision-Making Culture
To benefit from big data analytics, decisions must be based on “the facts” (generated by analytics) and there should be constant experimentation to see what works best. Changing the organizational culture associated for how decisions are made can be more challenging than solving technical issues. This was seen in Moneyball, which tells the story of the Oakland Athletics and general manager Billy Beane’s use of analytics to make personnel and other baseball decisions. Beane had to overcome the authority and influence of dissenters with years of baseball experience in order to implement his new analytical approach. Now, every major sporting team relies on analytics for all kinds of decisions, such as when to try a two-point conversion in football.

VII. CONCLUSION
Big data analytics has been one of the most important breakthroughs in the information technology industry. The growth of the data that is being transferred the Information Communication Industry is getting to a point where it is becoming unmanageable. The use of big data analytics and extended storage spaces, like the Cloud has made it easier to manage the amount of data is processed in the internet. However, big data analytics cannot be the solution to all of the different problems are present due to the lack of storage space. Compression should be incorporated in all analytic techniques so that the information that is realized at the end of analytic processing is reduced to a manageable size. Introduction of compression engines and techniques can improve the quality of information that is realized at the end of the analytics process.

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