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A GENERAL SURVEY ON BIG DATA

K. Maheswari[1], S. Sumitha[2], S. Sujitha[3], N. Balaji[4] and S. Gurulingam[5]
[1,2,3,4]Assistant Professor,[5]Principal, Department of CSE, SVCE, Pondicherry University, India.

ABSTRACT: In this paper, we analyze the art sand state of big data [15-20]. We first introduce the public large data background and study related technologies, Computer, data centers, computer things. We focuson the major four stages of value Data chain of data, i.e., data acquisition, datacentre, data analysis and data Storage. Finally we examine many things Representative applications of large data, with company's management, internet content, online networks, collective intelligence, smart grid, and Central applications. This discussion is aimed at providing aoverview and this is the big discussion for readers in this area.

INTRODUCTION

A. Beginning of Big Data

Traditional relational database systems are structured data (weblogs, photos, social updates, Human behavior) is created by the source of the organization, social media, or any other data. The Big Data, which is very large in volume, moves in different variations or at such speeds. This is not a thing; That's an idea or example of large number of extensive data is defined by the growing collection and use. This is partly a marketing term - such as cloud, or green businesses. In recent years, industries have a high interest, and many other government agencies are also interested. The two main mining journals, natural and scientific, and more are special stacks discuss challenges and implications in larger data. Everything in the big data era has exceeded doubts.

Nowadays, big data on internet services service Grow faster. For example, Google data functions Hundreds of PP, Facebook generates recording data 10 pb for a month.

1. Recent developments in information technology (IT) Creating data is very simple. For example, in Average and 72 hrs of video are uploaded to YouTube Every min .So we faced Challenges for Collecting and Coordinating Data's from widely distributed data sources.

2. Cloud computing and the rapid development of the Internet Things (IoT) also encourage growth of data. Cloud Computing providing access to secure sites And channels of data assets. Sensors in the preface of IOT. The world gathers and sends the world Data are stored and processed in the cloud. Such data The size and the mutual relationships are very high IT architecture and infrastructure skills The existing companies, and its real time need.The computing ability is greatly emphasized. There is a problem with increasingly growing data Save and manage such large protocol data With moderate requirements for hardware and software Infrastructure.

B. V's of Big Data

Big data is an abstruse concept. In addition to the data masses,It has some other features Itself and "massive data" or "very large data."

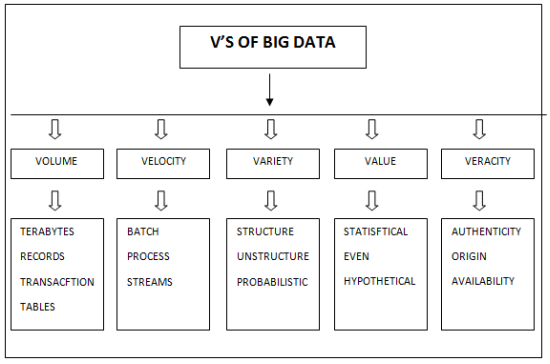

Fig 1: V's of Big Data

(i) Volume

Data step by step by step with different types of MB, PB, YB, ZB, KB, TB data. Data results in large files. The high level of data storage is the main problem. This important problem will be solved by reducing cost savings. Data is expected to increase 50 times in 2020

(ii) Variety

Information and sources are amazingly diverse. These logs come in various configurations and in any way,

structured or configured like audio, log files, text, videos, and some. Classifications are endless, and the system enters the system without being measured

(iii) Velocity

The info is coming soon. Now, there is no time to return 1 minute, so that the large data time is gentle. Some companies are the main challenge of data speed. Data generated by credit card transactions and social media messages and databases on milliseconds.

(iv) Value

It is important V for large data. Important focus for large data is important for businesses to store large amounts of data in the IT infrastructure database.

(v) Veracity

Expansion of the properties of extensive database packages. When managing a high volume, speed, and various data, all of the data is not going to be 100% accurate and confusing. Big information and experimental innovation works with these types of info. The largest amount of data (both structured and configured) is governed by system, admin and management. Structured information is information that is not in a database. Structured data may be verbal data, text, or another format. Text structured data, email messages, word statements, power point presentation, and ankle. In some another arrangement, information films may contain .png images and audio files.

C. Big Data'sValue

McKinsey found out how large data values were created on US Healthcare, after profound research in the European Union Public sector management, US retail sales, global production, And world-specific location data. By The study of five key industries that representing the globe Economics, the McKinsey's report pointing out that large data. A full play can be improved for economic activity Productivity and competitiveness of companies Fields, and consumers to create great benefits. The Major data creation values McKinsey summarizes: Larger data can be used creatively and efficiently Possible value to improve performance and quality US. Medicaid data obtained through data US $ 300 billion, which reduces US spending Retailers who use health and large data for more than 8% Their profits can be increased by more than 60%; There may be large data The government should be used to improve the capacity Operations, and developed economies in Europe EUR can save 100 billion.

McKinsey's report is considered a future the prediction, while evaluating the values of the following actsBigdata. Google was found at that timeThe fever is spread, the entries are frequently searchedIts search engines be different from other normalMethod, and the usage frequencies of inputsThe fever spreads both at both places.Google found 45 entry-level committees the fever erupted and integrated themMust specify the spread of specific mathematical modelsFees of fever and fever are also predictableFrom. Related research results have been published.

In 2008, Microsoft acquired a scientific technology initiative An airline in US Farracks has an air ticket forecast An organization that can predict trends and rising / decreasing limits Flight ticket price The computer is connected Microsoft's Bing Search Engine. In 2012, the organization Passengers will be stored for about $ 50 per ticket, with 75% is higher.Currently, data becomes an important manufacturing factor, The companies are leading, collecting more information Expansion of data volumes Big data Creating values will have a greater and increasing potential Businesses and Consumer.

D. The Evaluation of Big Data

In the past, large data is a big business tool. Larger businesses do not have large amounts of information, but they also have the first place to get the bigger data for those who have the appropriate capital. Big data is still a secret for many people. It is a relatively new term created only in the last part of the last decade. Even if it is still unclear for most people, how big is the data from the very beginning, and why is it so important for most companies? It has to establish a complex and expensive on-campus system to use large data technology. In addition to those expensive hardware, an expert team is responsible for implementing and maintaining the system, making sense of the information. It's not easy, and it's not a small business friend.

All of the big data in the cloud has changed that. It has become a perfect solution for most companies. It does not require infrastructure on any premises, which reduces initial costs. There is no need for data gurus in the group as to what this can do with the cloud company. One of the key elements of the cloud in the cloud is the rapid ascent of large data in the business and technology world. In the cloud, large data can have

a growing amount of information every day. It is very difficult to scale your infrastructure when you receive on-campus setup according to your information needs. For more information you need to install more hardware, or waste space and money with unused hardware, when the data is smaller than the data estimate. There is no problem with the large data in the cloud. Companies can scaled upwards and down to meet their needs, without needy essentials.

Since its inception, Big Data has also emerged in its use. Today, we use this to help reduce the wound in the military, reduce mobility, monitor every move on the floor during a game, help the artists to grow in healthcare and cancer and music. We see that there are no limits. This will change the fundamentally changing tasks. Because that is because there is a lot of progression that comes true. With increased availability and balance, changes only increase.

1. RELATED TECHNOLOGIES

1.1 Relationship between Cloud Computing and Big Data

Cloud computing is closely linked with very Big data. The data is computational-intensive function and meaning A cloud system will save power savings. The main aim of Cloud Computing is to use a larger calculator Saved resources are in dense administration Best Rating Computing by providing large data applications Capacity. Cloud computing [20-27] provides development Large data storage and processing solutions. That's over On the other hand, larger data exposure also accelerates Cloud computing development. Distributed storage Cloud computing based technology is effectively managed Large data; Compatibility with parallel computation Cloud Computing can improve efficiency Big Data Analysis.
The upper level of cloud computing support for large data functionsAnd provides databases and performanceData processing capability. Kissinger, chairman of EMC,Pointed out that large data usage should be basedCloud computing.The growth of large data was driven by rapid growthApplication request and cloud computing have been createdFrom virtualized technologies. So cloud computingNot only does the big data provide prediction and processing,But it is a service system itself. To a certain extent, Improvements in Cloud Computing also improve developmentLarger data, both complement each other.

1.2 Relationship between IoT and Big Data

In IOT model, the largest size networking Sensors are embedded in various devices and computers In the real world. Such sensors are used in various fields Collect various types of data, such as the environment Data, astronomical information, geographical data and logistic data. Mobile devices, general amenities, transportation facilities,and home appliances can be all data acquisition The equipment at IOT is as shown in the picture.
The large amount data generated by IOT has different properties Because compared to different large data Collected data types, the most special features Diversity, variety, structured feature, Noise, and more redundancy. Although current IOT data Not the most important part of large data, by 2030, size Sensors are a trillion and then IOT data According to the forecast, large data is the most important part HP. Intel included large data in a statement.

Currently, IOT data's processing capacity decreased because the collected data it is very urgent to expedite Introduction to introduce large data technologies Development of IOT IOT's many directors feel this There is a large data significance since IoT's success big data and cloud computing effectively on integration. IoT is widely used and will be brought in Many cities in the large data period. IOT has a mandatory need to follow large data Applications, big data development already exists Call back These are widely recognized Both technologies are internal and dependent Growth: On the one hand, IoT is widely used Leads to higher growth of data of both quantity and type, This gives the opportunity for the application and the opportunity to offer Large data development; On the other hand, the application Big Data Technology is also accelerating research for IOT's developments and business models.

2. DATA CENTER

In large data precedents, the data center is only a site Data intensity storage, but undertakes Additional responsibilities like receiving and managing data, data regulation and data values and implementation Functions. Data centers are important except "data""Center." It has a lots of data and regulates and manages. Its main purpose and data according to the development

A better way than a good site resource. Big Data Output brings about the possibilities for sound growth opportunities and data opportunities. Big Data is a growing model, which promotes explosion

development and related software in the data center. The physical information center is in the network that provides essential infrastructure for many infrastructures

1. The large data center should provide a powerful platform Support. The larger data paradigm is even tougher Storage capacity and processing requirements Capacity and network transfer capacity. Data centers need to create data centers with consideration to improve efficiency quickly And under-limited large data processing effectively Price / Performance Ratio. Data Center Provides Infinity with a high number of ankle, a High speed internal network, effectively exhausting heat, And useful backup data. Very powerful, Standard, secure, expandable and redundant data Built in the center, the normal function of large data applications Can be confirmed

2. The development of large data applications accelerates the revolution and innovation of data centers. Many large data applications create their distinctive structures and directly improve data center related storage, network and computing technologies. The calculation of the data center and data center capabilities will greatly increase with the continuous development of the structured and structured data sets and various sources of analysis data. In addition, this is an important issue because the size of the data center is increasingly expanding issue is How to Reduce Functional Costs for Development of Data Centers.

Genetic data and sharp expansion development Cost of life science and biological medicine Data driven science. Guarantee and many others. In Cloud Computing Infrastructure, Amazon AWS, Microsoft is based on Ajayoon and Data Processing Framework MapReduce, Hadoop and Microsoft DryadLINQ Run two parallel bio-medical applications:

(i) Meeting Gene segment;
(ii) Dimensional analysis of the analysis Chemical system.

Later in the application, 166-D databases include 26,000,000 data points. The authors compared the overall performance of the framework Performance, cost, and availability.As they say The authors concluded that studies have a loose patch It was used for research in the electron cloud Parallel programming technology structure The user can provide a convenient interface Reduce services and unnecessary costs.

3. BIG DATA STORAGE SYSTEM FOR MASSIVE DATA

Different storage systems demand large data. The existing large savings technologies are directly connected to the storage and network classified storage and network connected storage and storage area network (SAN).

In DAS, various harddisks are connected directly Servers, and data management server is centered, such as Storage devices are external appliances, each of which I / O takes a certain amount of evidence and manages it Personal application software. For this reason, DAS only A small scale server is appropriate to merge. However, DAS is unlikely due to the lowest scalable Performance, ie when the storage capacity increases the upgradeability and expansions are very limited. Thus, DAS is mainly used for personal computers and small sizes Servers.

Network Storage should use the network to deliver to users With a Union interface for data access and sharing. Networking Special data transmission devices for storage devices, Such as disk queue, typewriter library and other storage mediaSpecial storage software as it is classified

NAS is actually a network's accessory equipment. This is directly connected to a network through the network Change TCP / IP protocols. In NAS, data spreads In file format. Compared to DAS, I / O load The NAS server has been widely reduced from server Access to a storage device indirectly via the network.

From the data storage system setup, DAS, NAS and SAN can be divided into three parts:

(i) Disk Row: This is a basic and basic basis for a storage system Assurance of data storage;
(ii) Link and the network subsystems, which provide a link Or higher disk lines and servers;

4. BIG DATA ANALYSIS

Large data analysis includes mainly analytical methods Traditional data and large data, analysis framework Large data, and software used for mining and analysis big data. Data analysis is final and very important big data value chain for grid, purpose Extract useful values, provide recommendations or results. Potential values are generated by different positions Analysis of

databases in various fields. However, Data analysis is a vast area, which often changes and so much more complicated. In this section, we introduce you Methods, structures and tools for large data analysis.

4.1 Traditional Data Analysis

Traditional data analysis is the use of correct statistics To analyze massive data, pay attention, Update useful data to hide a block of confusing datasets, And in the case of the implicit act of identification, so Increase the data value. Data analysis is huge The guiding role in implementing development projects for a country, Understand the client's demands for business and predict Companies trend in market. Big data analysis can be Data is considered a special kind of analysis technique. Therefore, many traditional data analysis methods may still exist Big data should be used for analysis. Many represent traditional Data analysis methods are analyzed in the following, Many of these are statistics and computer science.

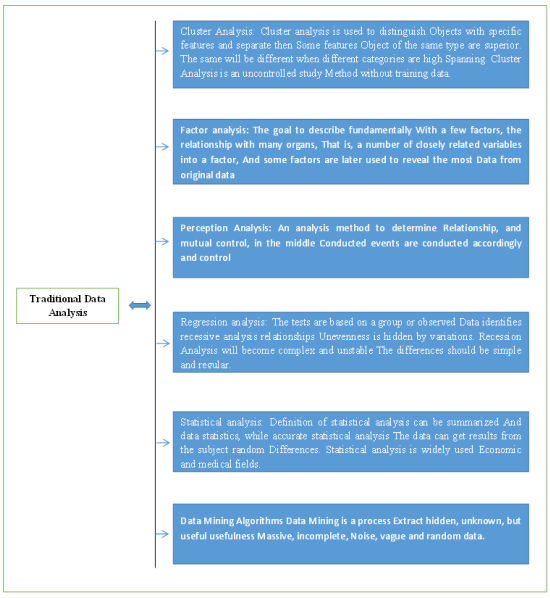

Fig 2: Traditional Data Analysis

4.2 Big Data Analytic Methods

In the dawn of the big data era, people are worried about how much they are concerned Quickly receives important information from massive data Companies and individuals. Currently, Large data main processing methods are shown below

- ✓ Bloom filter
- ✓ Hashing
- ✓ Indexing
- ✓ Triel
- ✓ Parallel computing

4.3 Big Data Analysis Fields

Data analysis research held in six key technical fields, namely,structured data analysis, text Data analysis, multimedia data analysis, web data analysis, mobile data analysis, and Network data analysis. This is not easy because data analysis is a broader look weneed a comprehensive security, we have to pay particular attention. The following data analysis has problems and technologies Discussions.

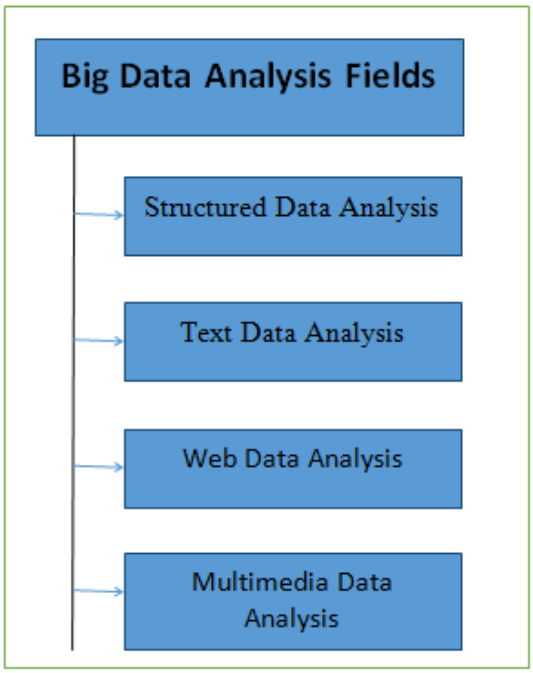

Fig 3: Big Data Analysis Fields

4.4 Structured Data Analysis

Business applications and scientific research can be createdMassive structured data, including administrative and analysisthey rely on mature commercial technologiesRDBMS, Data Warehouse, OLAP and BPM (Business ProcessManagement). Data analysis is essentially basedData mining and statistical analyses were bothwell researched in the last 30 years.

However, data analysis is still more actively in the field of research and new application demands drive new growthMethods. For example, statistics are based on machine learningthere are proper mathematical models and powerful algorithmsAbuse detection and energy control are used. Using data properties, time and spacethe subway takes the hidden intelligence structures at the peakData flow and sensors. Powered by privacye-commerce, e-government, and health careApps, privacy protection data mining is growingResearch industry. In the past ten years, the process has been miningIn the process analysis, especially in a new research fieldWith event data.

4.5 Text Data Analysis

The most common form of data storage in the text, eg, emails, business documents, web pages and social press. Hence, text analysis has business-oriented skills rather than structured data. Generally, text analysis is useful for getting useful information and knowledge from the unconscious text.Texting mining information system and machine learning, statistics, computational linguistics, and internal control in data mining. Most textile mining systems are based on textual expressions and natural language processing, the latter is more important. NLP systems allow analysis, commentary and text creation. Some typical NLP technologies are glossary acquisition, vocabulary emotional disturbance, fragment and probability environmental free grammar. Some NLP-based methods include data extraction, header designs, text summary, classification, clustering, question mark and commenting on text field.

4.6 Web Data Analysis

Web data analysis has evolved in performance research. The intent is to automatically retrieve, take, and analyze the information. Web analysis involves many databases, data restoration, NLP and text mining. Under different parts cut, web data analysis fields can be classified: web content mining, web configuration mining, and web application mining.

The mine includes semi-structured HTML mining Files containing hyperlinks. Supervised learning and classification Hyperlink plays key roles in the mine, e.g., Email, News Group Management, and Web Catalog Maintenance You can conduct website content twice Methods: Information Receipt and Database Mode. Information receiving mainly helps or enhances Information search, or filters according to the information Exemptions or configuration documents. Database System simulation and data integration on the Internet Make complex questions rather than key-based searches Words.

Web Configuration mining includes samples Web connection structures. Here, the structure refers Specific diagrams are attached to one website or many Websites. Samples are based on theoretical frameworks the link is provided with description or with hyperlinks. Such models exhibit similarities and connections they are used to categorize various websites and websites Pages. Make full use of side-rank and lever See web pages about models.Another advantage of crawler is the successful case Models.

4.7 Multimedia Data Analysis

Multimedia data (mainly images, audio and more videos), which is growing at a tremendous speed, understands useful knowledge and semantics analysis. Multimedia data owners and most of these data have simple information. Multimedia analytics research has several sections. Multimedia Aggregation, Multimedia Annotation, Multimedia Coding and Recovery, Multimedia Reference and Multimedia Event Detection, etc. have some recent research priorities.

Adds multimedia annotations to describe the contentsImages and videos in both syntax and semanticsPositions. Such signs, management, abstraction, andmultimedia data retrieval can be easily implemented.Since manual annotation time and labor are serious, Automatic annotation without any human interventionIt is very attractive. Automatic key challengeMultimedia Annotation Material Difference.In spite of high progress, performanceThere are still existing automatic commenting methodsImproved. Currently, many attempts are made in syncExplore manual and automatic multimediaAnnotation.

Describing multimedia indexing and receiving,Storing, and organizing multimedia information and assistanceSee users convenient and quicker and moreResources are usually multimedia indexing andFive Practices for the Rest: Structure Analysis, FeatureExtraction, data processing, classification and annotation, queryAnd receiving. Structural Analysis Division has a purposeIncluding multiple semantic architecture elements, including videoLens range detection, key frame extraction and displaySection, etc. The result of the structureAnalysis, the second process is the extraction of the processMore importantly the features of the main frames include mining,Objects, texts, and movements, these are the foundationsVideo

Indexing and Recovery. Data mining, classification,And use the featured extracted features of the annotationPlace the video contents patterns and planned videosSections like creating video code. When one receivesThe question is, the system uses a unity measurement systemWatch the candidate video. The end result is optimalRelated feedback.

5. CONCLUSION

In this paper, we review the background and arts of Big data. First of all, we are introducing public data like cloud, IoT, data centers. Then we care about the large data value of the four chains of the chain, (i.e.) data acquisition, data collection, data storage and data analysis. These discussions are intended to provide a comprehensive information summary and bigger picture for this amazing reader area.

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