

Big Data : In the Era of Smart Computing – Not only for the need of Industries but also for Individual

“You can have data without information, but you cannot have information without data.” Daniel Keys Moran, computer programmer and science fiction author

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Abstract

BIG DATA is one of the largest using words in Today’s IT Industry As we are driving through the Data. Many technologies Are introducing day by day but some of those makes solutions to the problems now and for the near future also . So the main aim of the big data is to make use of different **and efficient tools to extract the required information from various forms of Data.** BIGDATA, throwing many challenges to Industry like storing, retrieving, maintenance and Security. In the era of Smart computing, Devices and people also generating many types of data that are irreducible. So the main aim of the paper is to introduce the concept of BIG Data, it’s applications and Tools to make efficient use of Data.

1.Introduction

Now a day’s data is growing exponentially from disparate sources like Social media, Internet, mobile phones, Data on Cloud Etc. The need Of BIG DATA has made an importance For Today’s Growth of DATA. There is Enormous Amount of Data is Transferring around the Globe. Typically All the Data which is transferring has to be secured to make the data confidential. DATA can be divided Into Public and Private and One Can Make Private Data to be Confidential. Accessing Data Uses More Methods, Technologies to be implemented On Data for Retrieving Required Information.

The More Data you get The More Methods One Need to implement To Extract the Information. And more Security One Needs to Apply on Data. The Need of Security was needed at the time of analyzing the Data while Extracting the Information. It is still a challenge Associated with Big Data Analysis. As per statistics IT companies Spends more on maintaining and managing the Data. Like many New IT technologies BIGDATA Brings enormous Cost reductions and improves the time to perform the computations.

What Is BIG DATA?

Irrespective of Size of the Enterprise That may be big Or Small Data is Precious And Irreplaceable.

Traditional Data VS Big data

Traditional data	Big data
files	audio
records	video
Stack dumps etc	2D 3D images etc

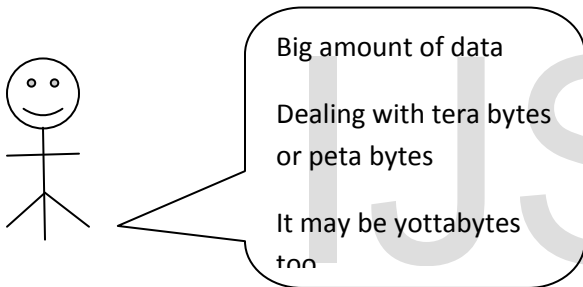
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BIG DATA The word came up in the Decade of 21st Century. The Organizations like Google, eBay, and face book are built around big data From the Beginning. Big Data Which Means Large Amount of data Deals with different types of Data, That are derived From Different Sources. BIG DATA used to describe the collection of data that is bigger in Size and Evolving rapidly with respect Time. Data is so large and complex, so the traditional Data management tools cannot able to store and process the data efficiently.

As per Statistics 500+ terabytes of new data gets inserted into the databases of face book, dialy. This data is generated mainly in the from of photos, video uploads, message exchanges, likes etc.

So we live in a world, which is driven by data.

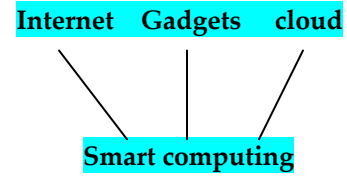


Today's Big Data May be Tomorrow s normal

Now a days maximum companies are Dealing with Digital form of data So it will speed up the process of recognizing and searching the data. Analyzing the digital data can speed the planning process and it reveals the new patterns. The more Data If we Have The more Analytical accuracy, Confidence in Decision making, reducing Cost and time will be Achieved. This will entail a positive Impact on Operational Efficiencies, Innovating new technologies, new services etc.

What Is Smart Computing?

Smart computing



Web, gadgets, cloud are Acting as storing and producing Agents of data in all the ways currently. So they are performing a very good role in case of dealing with the data. Traditional devices cannot deal with big amount of data but the upgraded ones can deal with more amounts of data.

BIG DATA Characteristics:

Volume, Variety, Velocity these are the Charcteristics of Big Data.

From the below Representation the data is growing rapidly from Bits to Yotta bytes.

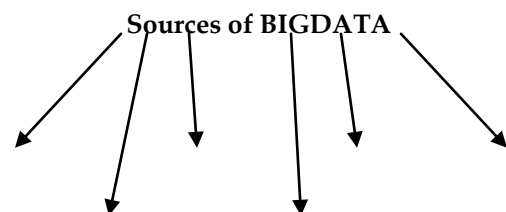
Volume:

The volume refers to the Quantity of the data that will be analyzed and manipulated for retrieving the required outcomes. The data is Expanding from Bits to yottabytes.

Bits → Bytes → kilobyte ← Megabyte → giga byte → Terabyte → petabyte → Exabyte → Zettabyte ← yottabyte

This data is Generated From Multiple Sources of data Is in the from of DOC, XLS, PDF is unstructured Data, Or a video etc.,

Below is the Source Of BIGDATA



Social media Documents Sensor data Apps
Media files archives

Data can be Generated Both From External and Internal Sources. External Sources Like World wide web And Internal Sources Like Data Storage , Archives etc.Data can be stored In The form Of both Internal And External Sources Of Data like Social media , Machine log Data, Sensor data etc.

Velocity:

Do you Remember we Moved from Batch processing systems to real time Applications. So The Time required To Process an application is also decreasing. We are so fast today while dealing with data but The Data Growing Much faster The Amount Of time required to complete a Job also will change exponentially. If you can handle the velocity of data, one can use this big amount of data to make effective business decisions that provide strategic business advantages.

Variety :

Variety Which Deals with More Types of Data Such As video, audio, Archives etc.These Are all come under categories of data Such as Structured, Unstructured and Semi Structured Data. There Are more Characteristics of Big data which are not Necessary to include in Definitional Traits of big data. Below are the More Characteristics of Big Data.

1. Validity: Validity Refers to the Correctness of data. Is the Data Given is Valid or not? The Data which is given for Analysis Should Be Accurate because valid data makes right Decisions.

2. Volatility: Volatility refers to how long data is valid and how long we can store it. Mainly in the real time applications you need to determine that the data is valid or not according to the Current analysis.

3. Variability: Data can be varied as per the periodic Circumstances and inconsistent.

4. Veracity: veracity refers to the abnormalities in data such as noise , up and downs etc. This is one of the Most Challenging things when maintaining the Big data Because oftenly You should be aware of what is happening Around the data.

Challenges in BIG DATA:

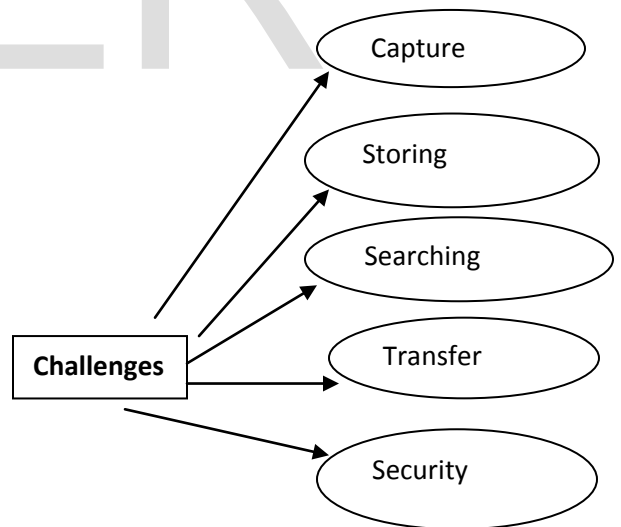
1. Data Today is growing exponentially and Most of the data has been generated today is in the last two three years. The main questions are like “Will all the data that are derived, will be useful for analysis?”

“How can we separate the Information from the Data?”

“Do we have to work with all the data or subset of it?”

2. Cloud Computing is one choice to manage the infrastructure to big data as far as elasticity, Cost efficiency concerned.

3. Data Visualization is becoming so popular; if we think about it so far business visualization experts are needed.



4. Coming to the Social networking Sites now days everyone is sharing and searching personal information by simply Doing Search operation. So privacy of the information should be presented. The information should be divided like public and private. Thus the separate security will be provided for the users who are using the social media. Even companies having more

data not only data but sensitive information should be protected. if A company uses cloud storage The the personal data of that company may open to risks at some points. Powerful Security Algorithms should be implemented for privacy and security of sensitive data and information.

5. For storing a large amount of data requires vast hardware and infrastructure support .If more data is there more hardware support needed. Companies can't afford losing of past data while they don't want to lose their clients. Some times because of some reasons the system malfunctions, we may get the failure of data etc. to avoid like these events the backup should be there to maintain the data.

6. Validity of Data is one of the big Challenges in the Growth of BIG data. Valuable Information should be analyzed from the data. if the data No longer Valid or If it is too late to apply then it leads to incorrect results. So the validity of data is a Characteristic as well as a challenge.

Conclusion:

Big data is a Challenge to industry and research organizations which are working on it. Making the new ways to implement the big data efficiently is the main challenge ahead. The hardware infrastructure plays a vital role in storing the Big data. Thus our Industries are very limited to hardware specifications the need of upgrading is most important. Even though cloud storage is available. Big data system requires massive processing power, Infrastructure, Stable and Complex data configurations made by experts. In order to archive more speed and accuracy the software systems with higher hardware configurations should be implemented.

Future Scope:

The more applications are generating day by day the more amount of data is in the form of structured, unstructured and semi structured format. This data may be from health sector, education, sports marketing etc. Complex information is growing higher every year so streaming Information in real time is a big Challenge. Developing a Solution for Complex and large data is a biggest challenge that organizations and research in this field are continuously implementing new ways to handle the data. Big data is able to produce and manage more amounts of data in future. May be the technologies like Hadoop will play a better role in managing the data. The Future Deserves More Data so we need more technologies and tools for analyzing, tracking and managing, optimizing the data to retrieve information. Not only for the organizations and industries, our personal data is also increasing day by day, thus there is a need of small scale tools for personal use.

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