

Big Data Analytics Issues Based on Challenges in IoT

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ABSTRACT

Big data is an enormous data in size, collection of data that are enormous in size and can grow exponentially with time. It can be in three forms such as structured, unstructured and can be semi structured form. Big data have few characteristics which is v4 such as volume, variety, velocity and variability. Big data is use for better decision making, better viable capability and revised customer service. Big data deals with industries, to deal with the enormous data or amount of information. This paper has a detailed study of big data analytics based on challenges in IoT.

KEYWORDS: Big Data, IoT, Issues

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I. INTRODUCTION

In this digital world, we are producing n numbers of data in every minute. N numbers of data produced in every minute make it challenging to store data, manage data, utilize and analyze the data. Every large organization or business enterprises are struggling to find out the way to make this n number of data useful. Now a day, the rate of data produced is from 40% to 60% per year. Applying data analytics in any business is never so easy because of huge data. To get the best results out of big data analytics for the need of robust big data architecture. Internet has reconstructed global interrelations, the art of business, cultural revolutions and an inconceivable number of person characteristics. Now-a-days, machines are getting in on the act to control countless self-governing gadgets via internet and create IOT. Appliances are now becoming the user of internet, such as humans with the web browsers. Now-a-days, IOT is attracting the attention of recent researchers for most popular opportunities and challenges. It has a crucial economic and collective impact for the future construction of information. In future everything will be connected and controlled logically with big data.

II. Literature review:

Basically, big data is a very complex data in real world system due to the huge data sized. Big data analytics and data science are nowadays becoming the research focal point in Industries. Data science is basically done on big data and knowledge extracted from data. Applications of big data analytics and days science includes data analysis, decision making, machine learning, pattern recognition data warehousing, etc.

“The term big data was identified by John Mashey”, the term big data has been in use since 1990's [1]. In this paper, it will discuss about the simple introduction of big data and discussed about the issue in big data analytics in day to day life. In big data analytics, “issues pertaining on IoT “(internet of things). Internet has reconstructed global interrelations, the art of business, Cultural Revolution and incredible number of personal characteristics [2].

Big data sizes are invariably increasing, the data sizes range from terabyte to petabyte of data in a single data set. Research issue in big data analytics can be classified into various types such as -IoT, cloud computing, bio-inspired computing and quantum computing [2].

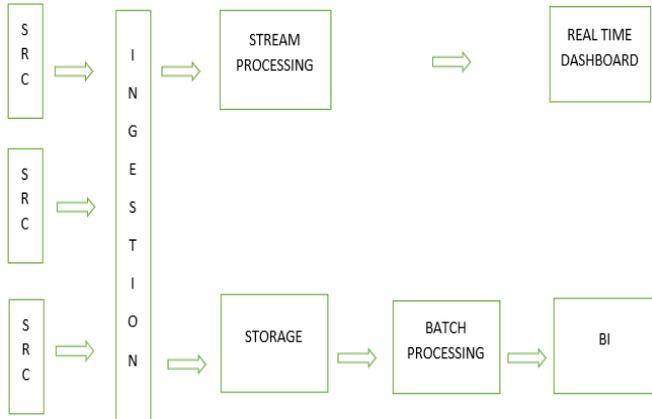
Big data analytics is a method of coherent analysis on a very large dataset [4]. The challenge is done of big data analytics is to auditor real time events with high volume and examine the available volume of data, forecast is done on future based big data using machine learning algorithms and decision-making process using a very large data set which lack big data analytics.

Big data analytics admit the behavior of users and then detect the data aberration, diagnostic analytics of past achievement, and finally detection, intrusion detection and fraud detection on a large dataset [4].

Machines are now controlling countless autonomous gadgets via internet and create IoT. I now a day's attracting the attention of recent researchers for the opportunities and challenges. It is a combination of volume, velocity and variety [5].

Big data for IoT are varies when there are millions of devices which are already interconnected with many devices. Real-time Data analysis and security are other two important challenges for Big Data in IoT [7].

III. Research Methodology: ARCHITECTURE:



Source Layer:

To govern the Big Data architecture, it need big data sources and design of the big data architecture depends heavily on the data sources. In big data analytics, data is coming from various sources and it comes in different formats. It includes relational databases, server and sensors such as IoT devices, third party data providers, etc.

Data Ingestion:

In this layer, big data arrive for numerous sources. This layer takes care to categorize the data which is coming different sources from smooth flow of data into further layers in the architecture. The primary goal is to provide trouble-free transportation of data into further layer of architecture.

Storage Layer:

Storage layer is at the gathering end for big data, where gather data from the various sources and store it in a pertinent manner. According to the requirement of the system this layer can change the format of data.

Analysis Layer:

The goal of any companies is to gain vision from it and thus make data-driven decisions. Empower users to analyze big data because this layer is the crucial layer in big data architecture. To analyze the data, this layer requires multiple tools; to analyze the disorganized data some advanced tools which are needed.

Batch processing:

In big data, architecture need a batch processing system to filter, process data for advanced analytics and to combine the data. Batch processing implicates reading of data from storage layer, process it and then finally write the outputs to the new files.

Real time Processing:

In big data world, processing the data appeared in real- time is the hottest trend nowadays. In big data architecture, must comprise of store real-time data and system to conquer data.

This can be done by absorbing the real-time data by storing the data for processing.

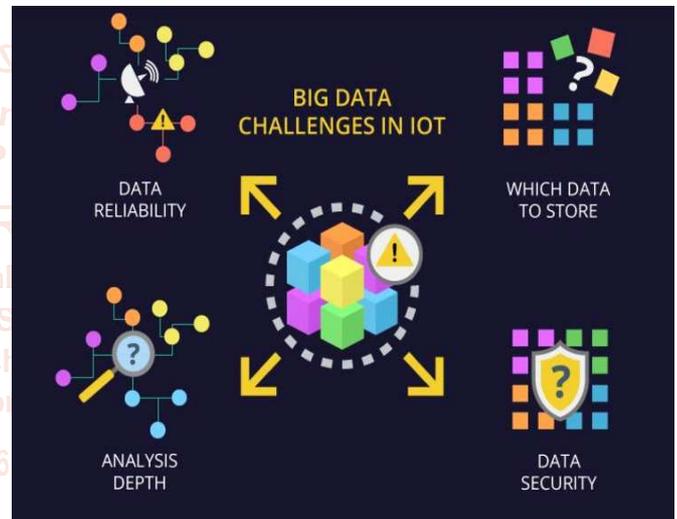
BI Layer:

BI Layer is the final layer, receives the final analysis output and replicates it to the pertinent output system. The whole process includes absorbing multiple sources, repeated data processing and drawing the results into a report or can be a dashboard. The final report id uses for making data-driven decisions.

IV. Big data challenges in IoT:

Social media data are very critical data. the data is increasing day by day. So the biggest challenge is to secure that data and maintain privacy of the people. because nowadays hackers are monitor your data i.e. comments, likes and views that will convert data in such way that you are looking like criminal. Sometimes the peoples will create fake profiles so it is difficult to verify the identity of the people.

Huge volumes of data are totally unworkable and they are processed to get something commercial. Various challenges connected with data collecting, processing and storing in big data challenges in IoT.

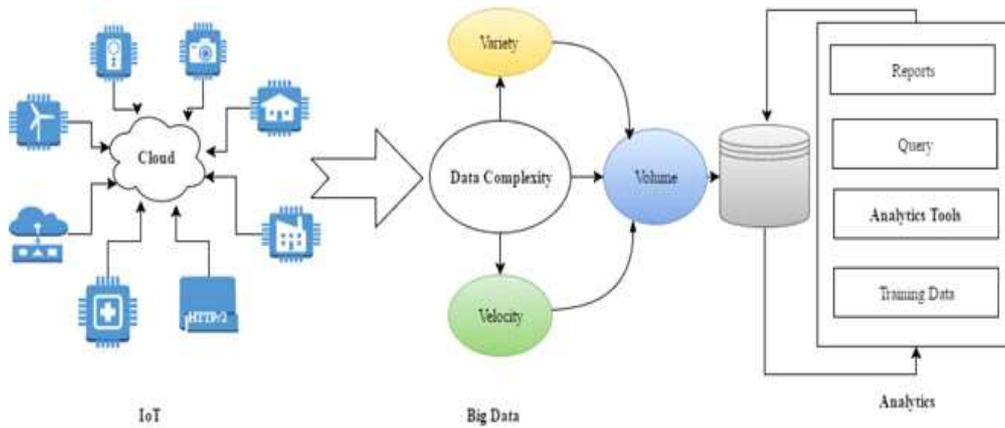


Data reliability: A big data is never 100% accurate, it's more important to be sure about data before analyzing data that the sensors function properly and the quality of the data coming for analysis is reliable.

Which data to store: In these, connected things generate terabytes of data, and it's very difficult task to choose which data to store and which data to drop. Sometime, values of some data are not on the surface, but you may need that data in the future.

Analysis depth: Not all big data is important; another challenge is when it enough to get by quick analysis is and when deeper analysis can bring more value.

Security: Connected things in various sectors can make our life better but at the same time important concerns is about data security. Access to data centers and devices, connect to traffic systems, power plants, factories, steal personal data from telecom operators, such attacks can be performed by cybercriminals. IoT big data is a comparably new phenomenon for security specialists, and the lack of significant experience increases security risks.



Relationship between IoT and big data analytics [3]

V. Issues based on Challenges:

Challenges of big data are very numerous, it become a normal part of doing business but it doesn't mean that it is an easy task to handle big data.

In big data there are many risks n challenge related to data security and data privacy.

There are two important concerns of big data which are privacy n security as it grows by its volume every minute. For privacy n security we require adequate framework that deal with the recent methods to risks of data.

VI. Conclusion:

This paper we can see how growth rate of data production has increased drastically every day. There is an interaction between IoT and big data for analyzing the large amount of data. In this paper, we have also discussed about the methodology of how big data are handle and what are the challenges and issue are there. In this paper we discussed about the privacy and security as it grows by its volume in every minute.

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