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Use Cases of Blockchain with Big Data

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***Abstract*- Big data means data which is stored in massive amount of storage. Big data is high- volume, high-velocity and high-variety of data which is cost effective and help us to take any decision. Block chain is nothing but data which is stored in block and connect that data with each other through the block. Most recent transaction data which is added to block. This is also known as peer in chain. Blockchain which is the trending technology in today's world. In this research paper we are dealing with what are the advantages when big data and blockchain are two big technologies are come into the picture. Basic Introduction of this paper which is explains in Section I. Section II talks about what is big data. Section III tells about What are the issues of Big data analytics. Block chain basic information which is explain in Section IV. Use Cases of Big data with Blockchain which is explain in section V.**

***Keywords*- Big data analytics, Block chain, data, Big data, Use cases, centralized, decentralized, privacy, peer-to-peer.**

I. INTRODUCTION

Collection of basics and figures means data. It can be any format such as text, numerous, alphabet and characters. Growth of the data from bits to yotta bytes. According to the format of the data, which is stored in structured, unstructured and semi-structured way? Big data means data which stored in huge amount. High volume, high velocity and high variety which are the main characteristics of big data.

According to the user requirement data scientists work on that big data and give the appropriate information which is nothing but big data analytics. Big data analytics helps us to take any time based decision. Data which is stored in the form of block and this all data which is connected to each other through the chain it is nothing but blockchain. Main concepts of block chain are consistency of the data, provide security and Decentralize system.

II. BIG DATA

Data can be stored in any format like structured, unstructured and semi-structured. Data create rate increase as year goes. Data is in huge in size so that it's difficult to handle while working with different format of data. It's very challenging while dealing with vast amount of data, when does not confirm actual data structure and identify pattern of that data.

1. Some of the characteristics of big data which are listed below [10]:

1.1 Huge Amount Of Data: In today's world data which is stored from bits to yottabytes.

1.2 Complexity of Data Types and Structures: Data which is stored in any format and data comes from different sources.

1.3 Speed of New Data Creation and Growth: Big data is working on real time data as year goes new data generated and volume increases.

2. Applications of Big Data Analysis:

2.1 Structural Analytics: The name says itself data which is in specific format.

2.2 Text Analytics: It is also known as text mining. In that fetching useful information from large amount of data.

Text is a basic format for storing data. In text analytics, text is related email messages, social media content. Text mining is based on natural language processing (NLP).

2.3 Web Analytics: Extracting the meaning information from the web pages it is nothing but web analytics. It is also called as web mining.

2.4 Multimedia Analytics: In multimedia, there is different types of format data includes such as images, audio and videos. There is lot amount of data which is gathered in through the multimedia. In that analytics extracting useful information from that multimedia data.

2.5 Mobile Analytics: In mobile analytics, there is tremendous amount of data gathering through the RFID and sensors. Using analytics technique acquires useful information from that.

III. ISSUES OF BIG DATA ANALYTICS

Some challenges which are faced by big data Analytics which are listed below:

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1. Privacy: Big data means data which is large in size. Collection of data from many sources like social media. The data centre of big data which is centralized and it stored all information in a one place. So, while user accessing any social site there is no privacy in that.

2. Heterogeneity: Data which is collected in different format such structural, unstructured and semi-structural. It is very difficult task while doing operation on that big data. First data analytics need to clean that data. Before using that does pre-processing on that data.

3. Timeliness: Social network, sensor network and web based services are the sources of collection of data. This is the sites which are used by customer on the daily basis. Small gap in the collecting information from social media it could happen heavy loss. There is time constraint while using any process.

4. Capital: For storing large amount of data there is need of resources like computers and working on that data companies required human's expertise.

IV. BLOCKCHAIN

In the blockchain, data which is stored in the form of block and connection of that data is called chain. In that peer-to-peer connection is establish. There is no centralized system. If any updating in any system and show the results on all system which are connected to that network. All the block has specific number and first block connected to the second block and second block connected to the third block and so on. Blockchain follows some hashing technique for storing data and maintain privacy between them.

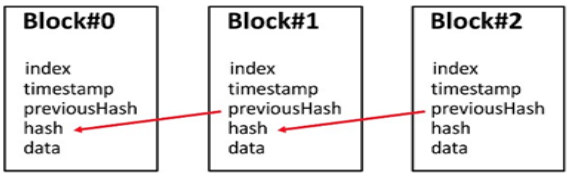

Fig 1. Block Chain Diagram.

From the above diagram Fig1 it shows that there is connection between each block. Block0 hash value which is saving in the Block1 and Block1 hash value which is save in Block2.

Types of blockchain are listed below:

1. Public Blockchain: The name says itself. Public Blockchain means anyone can access any information from block. Another name of public blockchain is permissionless blockchain. For example, bitcoin.

2. Private Blockchain: Accessing the data in limited manner. In that only organizations have rights to change the information from the blockchain no one can change the data of the blockchain. It is also called permissioned blockchain. For example, Hyperledger Fabric

3. Consortium Blockchain: It is a combination of public or private blockchain. It allows only registered person or everyone can access the data.

V. USE CASES OF BLOCK CHAIN WITH BIG DATA

1. Some basic specification while dealing with blockchain in big data [2]:

1.1 Trust: This is used for checking the data integrity
1.2 Preventing Malleolus Activity: algorithm which is a used for transaction.
1.3 Predictive Analysis: according to the data predict what will be outcome.
1.4 Real Time Analysis: Give the output according the current situation of the data.
1.5 Manage Data Sharing: managing the data in the network which helps us for sharing purpose.

2. How blockchain helps in big data?

- Block created network like a structure so we can protect our data from the hacker or Trojans.
- According to storage, data is stored in decentralized manner so there are many systems which are added in the network. We can use this system for storing purpose.
- According to security, decentralization is used in blockchain so in case changing in one system effect on another system. So According to security blockchain is more secure.

3. Use cases of blockchain with big data [13]

3.1 Internet of Things: Many devices which are connected to each other through the network and the usage of devices increases every year which is nothing but Internet of thing (IoT). It is the trending technology in market. This is used for makes our life easier and fast. Some of the applications based on IoT which are listed below: a) Secure smart home systems b) Energy cyber physical system: c) Vehicular Cyber Physical System d) Blockchain in Aviation System e) Blockchain in Aviation System f) Internet of Battle-field Things (IoBT).

3.2 Finance: In many places blockchain technology is used. Finance is nothing but banking. There is huge amount of data (big data) which is stored in to the system. When there is no blockchain comes into the picture that time there is no transparency of the data. Blockchain is used for making transparency of the data. In blockchain data is in distributed format. When any changes do by the user then updates shows in to the all the system which are in the network. In finance, there are some important

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points need to noted cryptocurrency, global payment and Insurance claim & processing.

3.3 Government: Building trustworthy and transparency of the network for that blockchain comes in to the scenario. Blockchain have some policy, features and government officials which are declared by the organization for maintaining trust between the stakeholders and customer. The user can ask the question about quality and reliability of data which is stored in the formed of big data, user can trust that data.

3.4 Cybersecurity: Threat information which are sending to the user so that user can protect the system from the attack. It is the important feature of blockchain. Organization can fix that problem and finding the solution on that.

3.5 Smart Property and Public Value: Value or property which can be anything stored in big amount of data in the system. Value can be money, house, land, automobiles and stock system track of that system. Decentralized system which is used in blockchain in that data is stored in each system which is in that network. In future, any data loss then we can collect it from another system. Some of the application which are listed below: a) Hard Money Lending b) Cars and Phones c) Smart Appliances d) Asset Management.

3.6 Cloud Storage and Provenance: Data which is large in size which is stored on the cloud. Cloud provides security of the data and maintain in the proper way. Cloud data is used in accountability and forensic.

3.7 Intellectual Property: Intellectual property which is used for doing verification and secure operation.

3.8 Food Safety: It is the critical issue while dealing with illness. Blockchain provide more information regarding food safety like food origin, food content, food expired date. Using this information food consumer can take precaution while dealing with food.

3.9 Blockchain Notary: It provides cost- effective and secure manner and transparency of the data. It is in the distributed format with cryptocurrency Third party can access that data.

3.10 Blockchain Health-care: In the big data regarding symptoms and solutions which is stored. It helps to doctor for detect particular data. According symptoms of the diseases doctor can predict what will be diseases according to that doctor provide medicine to the patient. Using the blockchain insurance provide to the patient.

VI. CONCLUSION

In that research paper we are dealing with use cases of blockchain with big data. First learn from this research paper regarding big data analytics, it is nothing but data with high volume, high velocity and high variety of data which are stored together and collect the useful information from that big data. Applications regarding big data analytics which are learned from this paper.

Where we can apply big data analytics? which is learned. Issues while using big data which are learned from this paper like privacy and heterogeneity.Blockchain provide us security, privacy and transparency of the data. Use cases of blockchain with big data which is learned from this paper. Blockchain applied to many of the domain. Internet of things, finance, government, cybersecurity and heath care this are domain where blockchain is mostly used.

REFERENCES

[1] Manisha Valera Department of Computer Engineering, INDUS University, Ahmedabad; Parth Patel Department of Computer Engineering, INDUS University, Ahmedabad; Shruti Chettiar Department of Computer Engineering, INDUS University, Ahmedabad "An Avant-Garde Approach Of Blockchain In Big Data Analytics"

[2] S. Dhanalakshmi, G. Charles Babu "An Examination of Big Data and Blockchain Technology" Houbing Song Embr y-Riddle Aeronautical University, songh4@erau.edu.

[3] Jian Chen Qingdao University Zhihan Lv Qingdao University "Design of Personnel Big Data Management System Based on Design of Personnel Big Data Management System Based on Blockchain."

[4] Mireia giné and miguel antón "How Big Data, AI and Blockchain Are Changing Finance"

[5] Mark van Rijmenam Datafloq "The Convergence of Big Data and Blockchain Disrupting: The Business of Data Analytics"

[6] Institute for Management & Innovation University of Toronto Mississauga, Ontario, Canada "Big Data Analytics and Blockchain Technology: Impact on Future Accounting Practices and Research?"

[7] Hoang Tam Vo IBM Research–Australia; Ashish Kundu IBM Research–Yorktown Heights, USA; Mukesh Mohania IBM Research–Australia" Research Directions in Blockchain Data Management and Analytics"

[8] Guy Zyskind MIT Media Lab Cambridge, Massachusetts Email: guyz@mit.edu; Oz Nathan Tel-Aviv University Tel-Aviv, Israel Email: oznathan@gmail.com; Alex 'Sandy' Pentland MIT Media Lab Cambridge, Massachusetts Email:

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pentland@mit.edu "Decentralizing Privacy: Using Blockchain to Protect Personal Data".

[9] Book Author: Emmanuelle Ganne Book Name:" Can Blockchain revolutionize international trade?"

[10] Book Author: Publish by John Wiley & Sons, Inc. Book Name:" Data Science & Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data"

[11] Ankita S. Tiwarkhede, Prof. Vinit Kakde ME (CSE) Sem, GHRCEM, SGBAU Amravati University, Amravati, India GHRCEM, Amravati, India, SGBAU Amravati University" A Review Paper on Big Data Analytics"

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