Chapter 92
Fast Data vs. Big Data With IoT Streaming Analytics and the Future Applications

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ABSTRACT

Big data depicts information volume – petabytes to exabytes in organized, semi-organized, and un-structured information that can possibly be broken down for data. Fast data are facts streaming into applications and computing environments from hundreds of thousands to millions of endpoints. Fast data is totally different from big data. There is no question that we will continue generating large volumes of data, especially with the wide variety of handheld units and internet-connected devices expected to grow exponentially. Data streaming analytics is vital for disruptive applications. Streaming analytics permits the processing of terabytes of data in memory. This chapter explores fast data and big data with IoT streaming analytics.

INTRODUCTION

Data Is Fast Before It Is Big

Enterprises require an innovation stack that not exclusively is equipped for ingesting and examining fast streams of incoming data,, additionally can enhance live surges of fast data with systematic experiences gathered from big information stores – all as fast data enters the channel. Databases used to deal with

fast data and big data are for the most part assembled into two camps: online investigative preparing frameworks (OLAP), and online value-based handling frameworks (OLTP). How about we take a gander at the contrasts between these two ways to deal with data management.

IoT (Internet of Things) is an advanced automation and analytics system which exploits networking, sensing, big data, and artificial intelligence technology to deliver complete systems for a product or service. These systems allow greater transparency, control, and performance when applied to any industry or system.IoT systems have applications across industries through their unique flexibility and ability to be suitable in any environment. They enhance data collection, automation, operations, and much more through smart devices and powerful enabling technology (BhagyaRaju et al.,(2017).

IoT has become so vital in our daily life and it is going to create a big impact in the near future. For example, solutions can be provided instantly for the traffic flows, reminding about the vehicle maintenance, reduce energy consumption. Monitoring sensors will diagnose pending maintenance issues, and even prioritize maintenance crew schedules for repair equipment. Data analysis systems will help metropolitan and cosmopolitan cities to function easily in terms of traffic management, waste management, pollution control, law enforcement and other major functions efficiently. Considering it to the next level, linked devices can help the people personally like you get an alert from the refrigerator reminding you to shop some vegetables when the vegetable tray is empty, your home security systems enables you to open the door for some guest with help of connected devices(IoT) explained by Kundhavai et al.,(2016).

Since there is a massive growth in number of devices day by day, the amount of data generated would also be enormous. Here is where Big Data and IoT go hand in hand. Big Data manages the enormous amount of data generated using its technologies. The Internet of Things (IoT) and big data are two vital subjects in commercial, industrial, and many other applications.

The name IoT was framed in approximately a decade ago and refers to the world of machines or devices connected to the Internet, by which a large amount of big data is collected, stored and managed. Big data additionally refers to the analysis of this generated data to produce useful results. The main motivating power behind the IoT and big data has been the collection and analysis of data related to consumer activities in order to find out why and what customers buy

NECESSITY OF IOT AND BIG DATA IMPLEMENTATION

IoT will enable big data, big data needs analytics, and analytics will improve processes for more IoT devices. IoT and big data can be used to improve various functions and operations in diverse sectors. Both have extended their capabilities to wide range of areas. Figure 1 shows the areas of big data produced. Some or the other way, data is produced through connected devices.

The important basis behind why to implement IoT and big data are: Analytical monitoring, More Uptime, Lower reject rates, Higher throughput, Enhanced safety, Efficient use of labor, Enable mass customization, Analyze the activities for real-time marketing, Improved situational alertness, Improved quality, Sensor-driven decision analytics, Process optimization, Optimized resource utilization, Instant control and response in complex independent systems.

The above are some possible reasons to implement IoT and Big data. As the requirements of both the technologies go hand in hand, a proper improved system is needed to overcome the challenges they pose. Many companies strive to meet the challenges and take possible steps to overcome them.

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