

Collaborative Discussion 1

Initial Post:

Big data architectures are imperative to process and store data that has a larger volume from a conventional database, to analyse and present data that is unstructured or do all with streams of data in real time (Zoiner Tejada, 2024).

Big data architectures include components such as real time data sources like the Internet of Things (IoT) devices. The close link between Big Data and the Internet of Things is due to Big Data referring to the large amounts of data that is generated and analysed, this data is characterised by six attributes which are volume, velocity, variety, veracity, value, and variability, whereas IoT are the network devices that collect and share the data by being connected to the internet and issues with sensors and software. This close link allows transformative progress on how data is collected, analysed and used currently in business (Bengtsson, 2024).

There are limitations that come with an increase in data volume, although this provides opportunities for improved data analysis, there are challenges when it comes to storing and managing this data as it constantly comes through. The IoT adds to the pool of Big Data by generating new information continually. In order for the constant data to be processed, there are Big Data tools that turn raw data into useful and comprehensible data, this includes machine learning platforms and data management tools. The innovation creates massive opportunities for business to make decisions based on this data to improve their company's business strategies, services and the productivity of operations. The lack of managing this data will cause challenges within business and will result in data overload and missed opportunities to effectively process this data (McCommon, 2023).

References

Bengtsson, J. (2024). *How are Big Data and the Internet of Things connected?* [online] Nexusgroup. Available at: <https://www.nexusgroup.com/how-are-big-data-and-the-internet-of-things-connected/#:~:text=Generates%20a%20variety%20of%20data> [Accessed 24 Aug. 2024].

McCommon, S. (2023). *The Advantages and Disadvantages of IoT in Business - SmartDev.* [online] SMARTDEV. Available at: <https://www.smartdev.com/the-advantages-and-disadvantages-of-iot-in-business/>.

Zoiner Tejada (2024). *Big data architectures - Azure Architecture Center.* [online] learn.microsoft.com. Available at: <https://learn.microsoft.com/en-us/azure/architecture/databases/guide/big-data-architectures>.

Summary Post:

As mentioned in my initial post, the IoT has been implemented in many businesses. An example of this would be the automotive industry, the efficiency of transport has been improved, making provisions for autonomous vehicles. IoT has been integrated into the automotive industry by using gadgets, sensors and cloud computing applications into vehicles in order to create a complex system for advanced vehicle management capabilities (Nodskov, 2022).

A real-life case study example from Volvo cars resonates with the automotive IoT utilisation. The connected Volvo On Call (VOC) service was created in partnership with Telenor Connexion in order to keep customers in touch with their Volvo vehicle constantly through a featuring app. As the technology has advanced with time, there have been innovative ways for customers to keep in touch with their cars, such as remotely pre warming up their cars or the system collecting diagnostic data to suggest service and tune ups for customers. This is advantageous to the customers because the predictive analytics about the vehicle conditions enables operating cost cuts and optimised vehicle safety. In addition, the IoT has also brought benefits to the manufactures, such as improved data collection and analysis, safer industrial standards, efficient manufacturing processes and monitoring of theft (Eriksson, 2016).

As data overload was mentioned in my initial post, there are more limitations to IoT when it comes to implementing it in business. As IoT involves streams of data in real time, it depends on a continuous connectivity to network and power. Any disruptions can impact the performance of IoT devices. In order to avoid this, it is essential for business to invest in a reliable network support and a contingency plan to reduces risks of downtime in the event of connectivity issues. Protecting sensitive data from cyber threats such as data breaches and unauthorised access is essential. This increased security can be implemented by encryption, authentication protocols and regular software updates. Individual data from customers must be handled in a secure way by following privacy regulations. These protective measures are essential, as automotive IoT means consumers will expect to always be connected, so manufacturers need to provide systems that are open, future proof and meet the standards of reliability and security (McCommon, 2023).

References

Eriksson, N.G. (2016). *Volvo: On a Brand New Highway of Connectivity*. [online] Telenor IoT. Available at: <https://iot.telenor.com/iot-case/volvo/>.

McCommon, S. (2023). *The Advantages and Disadvantages of IoT in Business - SmartDev*. [online] SMARTDEV. Available at: <https://www.smartdev.com/the-advantages-and-disadvantages-of-iot-in-business/>.

Nodskov, N. (2022). *How IoT Is Transforming the Automotive Industry* | Onomondo. [online] onomondo.com. Available at: <https://onomondo.com/blog/iot-the-future-of-technology-in-the-automotive-industry/>.