

Paper Review

The paper “When things matter: A survey on data-centric internet of things” focuses on internet data processing and concludes the corresponding comment. To analyze data processing, the essay was divided into 6 parts: The Internet of Things (IOT) Data Taxonomy, Data Streams, Data Storage Models, Search Technology, Complex event processing and Potential IoT application (Qin, 2016). Therefore, this paper will analyze the author's view in data taxonomy, data stream, data storage perspective and conduct with my own understanding.

In the IOT data taxonomy section, the author describes the inherent characteristics of IoT data and divides it into three categories: Data Generation, Data Quality, and Data Interoperability (Qin, 2016). To explain in detail, the author further introduces four features of data generation: Velocity, Scalability, Dynamics and Heterogeneity. In the data quality part, the author explains the importance of data accuracy. In modern days, with the development of cloud computing and big data analytic, the amount of data is increasing exponentially. Software developers not only need to correctly classify data, but it is also essential for programmers to extract information from existing data. In addition, the author conducts data interoperability to explain the data quality. Data interoperability refers to how to effectively combine data from different types of data sources to obtain more convincing data processing results (Qin, 2016). Therefore, to get accurate results, it is important to analyze/extract data from different points of view.

In the data stream and data storage section, similar to what we talked about in class these two weeks, the author divides data storage in two categories: Large-scale storage in distributed environments and Storage on resource-constrained devices. In the Large-scale storage section, which refers to batch processing, the author explained the advantage of traditional data processing. Batch processing refers to directly processing the data set from the persistent storage

device or loading the data set into the memory. Thus, batch processing data stream fully considers the amount of data during the design process and can provide sufficient processing resources. Therefore, it is often used to analyze historical data or pre-existing data. In the resource-constrained devices storage sections the author proposes a column read model (which refers to stream processing), similar to the index in the relational database model, continuous storage of a single column attribute saves time in searching and extracting. Therefore, in a resource-constrained data model, stream processing is very suitable for processing data that must respond to changes over a short period of time.

To conclude, this paper mainly focuses on data processing and introduces solutions to modern data analytics. This is an excellent paper that explains how the potential of data application will Benefit our life.

Honor Code Pledge On my honor, as a University of Colorado Boulder student, I have neither given nor received unauthorized assistance.

Reference

1. Qin, Yongrui & Sheng, Quan & Falkner, Nickolas & Dustdar, Schahram & Wang, Hua & Vasilakos, Athanasios. (2016). When Things Matter: A Survey on Data-Centric Internet of Things. Journal of Network and Computer Applications. 64. 10.1016/j.jnca.2015.12.016.