

Bociat Daniel-Tiberiu

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### 1) What are the main challenges related to data storage in IoT?

The short answer is that there is too much data and little storage capacity.

Small devices have physical constraints that do not allow them to store big datasets. Second, big data exceeds the computational capabilities of traditional algorithms and requires different, statistical-based approaches.

Since the amount of data increases exponentially, the cost of storage does too requiring new methods for storage.

(“Programming for the Internet of Things: Using Windows 10 IoT Core and Azure IoT Suite”, Dawid Borycki)

### 2) What is the difference between structured versus unstructured data?

Structured data has a predetermined format. It is usually organized into records with simple data values (categorical, ordinal, and continuous variables) and stored in databases.

In contrast, unstructured data does not have a predetermined format and is stored in the form of textual documents.

In essence, the structured data is for the computers to process, while the unstructured data is for humans to process and understand.

(“Real-World Data Mining: Applied Business Analytics and Decision Making”, Dursun Delen)

### 3) What is edge computing and why it is beneficial in IoT?

Edge computing (also known as fog computing ) a paradigm championed by some of the biggest IoT technology players, including Cisco, IBM, and Dell—represents a shift in architecture in which intelligence is pushed from the cloud to the edge, localizing certain kinds of analysis and decision-making.

Edge computing is a distributed computing paradigm that brings computation and data storage closer to the sources of data.

It is beneficial to IoT because it enables quicker response times, unencumbered by network latency, as well as reduced traffic, selectively relaying the appropriate data to the cloud.

(“Foundational Elements of an IoT Solution”, Joe Biron and Jonathan Follett)

([https://en.wikipedia.org/wiki/Edge\\_computing](https://en.wikipedia.org/wiki/Edge_computing))

#### 4) What is big data?

Big Data is a combination of structured, in-house operational databases with external databases, with automatically captured and often nonstructured data from social networks, web server logs, banking transactions, content of web pages, financial market data, and so on. All this data, coming from a wide variety of sources is combined into non-normalized data warehouse schema. Big Data is usually characterized by three Vs: volume, velocity, and variety.

**Volume**— Volume refers to the amount at which data flows into an organization.

**Velocity**—Velocity refers to the rate at which data flows into an organization.

**Variety**—Variety of data refers to the mix of different data sources in different formats.

(“Business Analytics with Management Science Models and Methods”, Arben Asllani)