Kaffka

Analogy:

Let's take an instance, you go to the market to buy something and you try to pay with your debit card. The card declines and you get an **instant** message to your phone or an email informing you about the card being declined.

The instant message the person got on their device for the card decline is the magic that Kaffka does. There are 100,000 or many more people that pay around London at the same time who's cards would decline, yet all of them get an instant message about their card being declined. This is how Kaffka works.

Kaffka ensures real-time **processing of data with low latency**. This process is so quick that it happens within splits of seconds. Without Kaffka, queries would be made and then processed and then sent to us. Maybe after a few minutes, but with Kaffka, it happens in the moment, real-time.

Other uses are, live scores of sports matches, flight, train, bus status, and Gold prices. There are many more use cases too, these are just a few of them.

Databases:

There are 3 types of databases:

1. OLTP - CURD, ACID, Vertically Scalable
2. OLAP
3. NoSQL

OLTP - For CRM (*customer relationship manager*) This is relational databases, our usual RDBMS, such as PostgreSQL, MySQL,

OLAP - This is for Data warehousing.

NoSQL - unstructured data.

The Three different types of Data:

1. Structured - SQL with logical rows and columns
2. Semi-structured - stored as .csv, pdf or xml
3. Unstructured - Images, texts, Video, audio

The question arises, why use OLTP instead of OLAP or vice versa. Since they both have mostly the same uses and they are similar in jobs, if not similar we can still do the same jobs on both ends so why use one over the other.

So, the first main thing is, OLAP is **highly scalable**. OLTP is not. This makes OLAP fast and easily accessible and provides low latency.

OLTP is where everything was saved first, all the data. Take an example of OLTP, we have all the transactional data stored in OLTP, storing the history of the customers, their shopping items and their addresses and numbers.

OLAP has the recent data, for quick query purposes with huge data being gathered from all Tesco's across the UK. Later this is all stored in OLAP for history.

NoSQL

In Kaffka - we use **logs**. Logs are created in real-time, they are created at the exact moment and Kaffka uses them to provide real-time information. The logs are saved later on in specific places.

Logs are very important for many things, to see issues, to see who downloaded what. All activities in any place, any action, is recorded as a log.