

How do data stream systems differ from traditional relational databases?

In a traditional database, its operation is triggered by non-continuous events. In a data stream system, data elements arrive on-line and stay only for a limited time period in memory. Consequently, the data stream system has to handle the data elements before the buffer is overwritten by new incoming data elements.

Mention a couple of data stream applications, and explain why a RDBMS would not be able to support them.

For applications such as financial real-time analysis, video streaming, network monitoring, traffic engineering, web logs, and click-streams, input data that comes at a very high rate, so it may be hard for a RDBMS to

- transmit (T) the entire input to the program,
- compute (C) sophisticated functions on large pieces of the input at the rate it is presented, and
- store (S), capture temporarily or archive all of it long term.

Why do you think that exact query processing is very hard to achieve in the context of data streaming?

For achieving exact query, we need to store all data. In data stream application, the amount of data is huge, so it is unlikely to store all of the data since there may be not enough storage device to use.