CLAIMS

1. A method for real-time processing a plurality of continuously-generated data streams transmitted from a relational database and writing outputs derived from the real-time processing to a non-relational database, the method comprising:

identifying categories of the data transmitted from the relational database based on a port that the relational database connects thereto;

setting a communication mode that transmits the data to be synchronous or asynchronous according to the port;

sequentially retrieving each incremental data record based on a primary index;

checking and determining if data schema of the relational database is consistent with that of the non-relational database; if consistent, the data schema of the relational database requires no conversions; otherwise, the data schema of the relational database will be converted into that of the non-relational database; and

writing the data, with the schema being converted or not, into the non-relational database by a way that corresponds to the communication mode.

2. The method for real-time processing a plurality of continuously-generated data streams as claimed in claim 1, wherein, if the communication mode is asynchronous, the data, whether converted or not, is buffered into a memory and subsequently written into the non-relational database on a batch basis when the data in the memory fulfills a predetermined state.

3. A data processing engine for executing the method as claimed in claim 1 or 2 receiving a plurality of continuously-generated data streams transmitted from a relational database and writing outputs derived from the real-time processing to a non-relational database, the engine comprising:

a port identification module, for identifying categories of the data transmitted from the relational database based on a port that the relational database connects thereto;

a communication mode setting module, telecommunicatively coupled to the port identification module, for setting a communication mode that transmits the data to be synchronous or asynchronous according to the port;

a receiving module, telecommunicatively coupled to the communication mode setting module, for sequentially retrieving each incremental data record;

a conversion module, telecommunicatively coupled to the receiving module, for

checking and determining if data schema of the relational database is consistent with that of the non-relational database; if consistent, the data schema of the relational database requires no conversions; otherwise, the data schema of the relational database will be converted into that of the non-relational database; and

an export module, telecommunicatively coupled to the conversion module, for writing the data, with the schema being converted or not, into the non-relational database by a way that corresponds to the communication mode; wherein, if the communication mode is asynchronous, the data, whether converted or not, is buffered into a memory and subsequently written into the non-relational database on a batch basis when the data in the memory fulfills a predetermined state.

4. A system for real-time processing a plurality of continuously-generated data streams transmitted from a relational database and writing output derived from the real-time processing to a non-relational database, comprising:

a first database, comprising a first relational database that transmits a plurality of data streams;

a second database, comprising a second relational database;

a replicator, telecommunicatively coupled to the first database and the second database, real-time replicating copies of data records in the first database and transmits the copies to the second database;

an ETL tool, telecommunicatively coupled to the first database, pre-processing the data records transmitted from the first database;

a data warehouse, telecommunicatively coupled to the ETL tool, storing the data records being pre-processed by the ETL tool;

a data processing engine as claimed in claim 3, telecommunicatively coupled to the second database, receiving and processing the copies of data records from the second database; and

a distributed database, telecommunicatively coupled to the data streams processing engine, comprising a non-relational database for storing outputs derived from the processing the copies of the data records by the data processing engine.

5. The system as claimed in claim 4, further comprising a real-time alert unit telecommunicatively coupled to the distributed database for triggering an alert when a state difference in the distributed database is out of a predetermined boundary.

6. The system as claimed in claim 5, wherein the data records stored in the data warehouse are further processed by a batch analysis and processing tool to obtain

an upper limit and a lower limit, and the real-time alert unit triggers the alert after comparing the state difference to the upper and lower limits.