

All mentioned systems use «bucket» and «object» principles as abstraction above folder and file. In our case, such correspondence will be incorrect, because this cluster system will work only with JSON data format. New project uses «collection» term instead of «bucket» in meaning of list of objects of particular type.

So, creating collection includes submitting not only name, but also data schema («type»). And when creating or updating of new object in that collection is requested, system have to validate object data.

That principle of operation allows to perform application as clustered backend data storage in JSON format with complex of any enterprise business logic which accepts such data format.

Also, system should provide ability to connect any custom database via configuration file, which provide more flexibility comparing to out-of-the-box defined databases from mentioned solutions.

Performers of the system:

- Client. Performs HTTP requests to the system with API-defined methods.

- Cluster administrator. Configures each replica (node shard) before running.

- Database administrator. Configures and provides database requisites to cluster administrator.

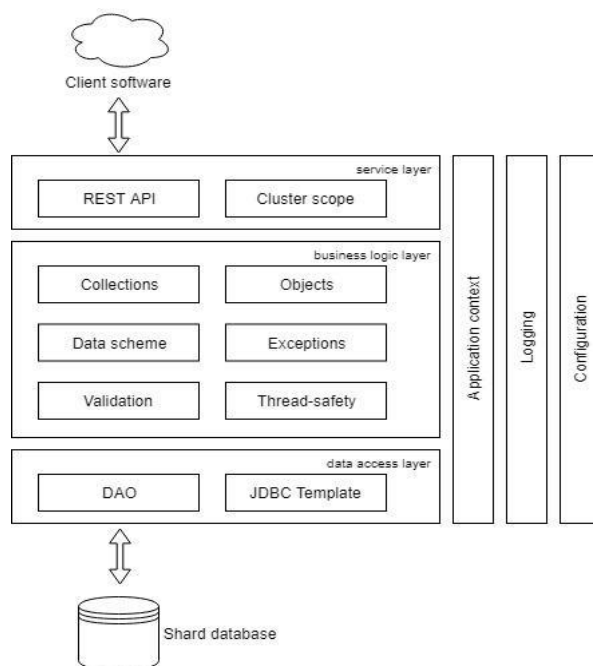
Use cases of each performer are discussed in the report.

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DEVELOPMENT OF THE SYSTEM FOR DATA STORAGE AND REPLICATION ON ENTERPRISE SERVERS

Developed clustered storage is designed in «collection» and «object» concepts. Creating of collection includes submitting not only name, but also data schema. And when creating or updating of new object in that collection is requested, system validates object data. Web application is developed in Java programming language and uses its Standard Edition capabilities for application core and Enterprise Edition which provides servlets and web context. Servlet is a Java class that is used to extend the capabilities of servers that host applications accessed by means of a request-response programming model. The service is created by architectural

style – REST. It means that resource URI corresponds to the functional and HTTP methods.



Picture 1 – Project architecture

Replication is the ability to have independent copies of data for further speeding up and improving the reliability of access to them. At the application startup, a complete list of replicas (shards) with their addresses (host and port) is configured. Node consists of several shards and cluster consists of several nodes. Replication requests are sent only between shards of the same node. Also, when any of the nodes receives a request for data, it interrogates any of its replicas for the presence in cache and return it. If there are none, requested data is fetched from database and returned.

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АНАЛИЗ ПРЕДМЕТНОЙ ОБЛАСТИ ПО АВТОМАТИЗАЦИИ УЧЕТА УСЛУГ ДЛЯ ИП ДЕРУШЕВА С.И.

Организация (ИП Дерушев С.И.) специализируется на оказании услуг продажи и ремонта компьютерного оборудования.

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