the operations are automatically committed in the database only if they are successful, otherwise all the changes are getting rollbacked.

Daniil Nikishyn (Fr. Skorina GSU, Gomel)
Scientific adviser **Viktar Liauchuk**, Ph.D. in technics, associate professor

ARCHITECTURE OF CLUSTER STORAGE DATA SYNCHRONIZATION SYSTEM

Web application is developed in Java programming language, Servlet API 3.0 is used from the Java EE specification.

Representational State Transfer architecture is one of the best and convenient ways to implement the functionality of the web service, therefore this solution was chosen for my application. In this web service, data is stored in the cache and the database as JSON objects. All the requests made to a resource's URI will elicit a response in JSON format. Each request from a service consumer contains all the necessary information for the service to understand the meaning of the request, and all session state data is then returned to the service consumer at the end of each request.

The developed application has predefined create, read, update and delete HTTP methods. HTTP GET is used for retrieving the data; HTTP POST creates new subordinate resource into the collection of resources; HTTP PUT updates existing resource, if resource does not exist then a new resource is created; HTTP DELETE is used to delete resources, identified by the Request-URI.

Every component of the cluster works independently from the others, which can be deployed separately on multiple environments with different operating systems and various set of the hardware. All the components have synchronization mechanism that allow to keep cluster data consistency and guarantees storage data safekeeping. Last recently used cache implementation, designed as a hashmap, gives quick access to the data by keys that is stored in the node. If requested element is not in the cache then the system consumes it from the database. Access level control logging provides fail-safe cluster workflow.