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THE DESIGNING OF CLOUD INFRASTRUCTURE CONSISTING OF GEOGRAPHICALLY DISTRIBUTED DATA CENTERS

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University ITMO (ifmo.ru) is designing the cloud of geographically distributed data centers under centralized administration to control the distributed virtual storage, virtual data links, virtual machines, and data center infrastructure management. Resulted cloud has to be tolerant to hardware and software failures of any type. The integrated set of programs is developed to implement mentioned goals. Each program of the set is relatively independent program agent in form of VM or container which can run on different hardware servers. Any agent might send the request for specific service to another agent with developed protocol. The cloud system of distributed data centers assumes well known functionality. The creation, management, and provision of services with defined SLA: virtual machines, long-term data storage, data links with ability to encrypt the transferred data, and so on. In presented approach most of above functions are implemented in form of program agents. The installation of the system in a number of data centers is implemented with a range of automated deployment steps. Many FOSS components like Openstack, CEPH, SALT, Grafana/Kibana, Zabbix, etc were used as toolkits in this design. The developed cloud is now under heavy testing/modifications.

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