

Pedagogical aspect of cloud computing

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Modern achievements in computer sciences in the area of providing redundancy and protection have led to sharing of data across multiple repositories.

In practice, cloud computing allow to deploy tools which if necessary can be used as storage and scale to service any number of users. The authors provide an overview of pedagogical aspects of using cloud computing in accordance with the posed problems, the type of cloud (public, private or hybrid) and method of access (web interface or, for example, thin client).

Today is actual the complex using of cloud computing in the institutes of higher education, namely for:

- creation and further development of personal training and research environment of student and teacher, organization access it from anywhere at any time, ensuring the automatic distribution of software packages both general and special purposes according to the curriculum, research needs; saving large amounts of personal data, etc.;
- providing centralization and flexible control, minimization the need for maintenance, saving money to purchase new equipment, flexibility in the deployment of new systems etc.;

In determining the objectives of educational and scientific character, whose solution is presupposed to implement with the means of public clouds (YouTube (<http://www.youtube.com>), Blogger (<http://www.blogger.com>) or other services, built on Web 2.0 technologies) should take in account the pedagogical features of their using [4], because educational institutions begin actively use the advantages of ready-made applications, located in the dynamic cloud as a free alternative to the expensive instruments.

Defined in the research process, conducted by the authors, disadvantages of using public clouds, especially security and saving of data and computational resources for users, became the reason for finding solutions by means of hybrid or private clouds.

As the effective using of a wide range of capabilities that are implemented based on modern ICT, particularly in the clouds, associated by modern researchers with the formation of informative competencies [1] of all participants of the educational process, as an experiment in the study of pedagogical possibilities of

using hybrid clouds authors in April 2010 according to the order of the Ministry of Education and Science of Ukraine № 139 from 02.23.2010 made remote monitoring of the level of formed informative competencies of graduates, which encompassed more than 2000 students from all regions of Ukraine.

In this way was established competence approach [2] in the new educational environment (<http://www.testprovider.com>), based on the platform of Microsoft Azure, which is an example of a hybrid cloud and allows: to create a knowledge base of subject area, to conduct testing and training regardless of the location of more than 5000 participants (students, teachers) simultaneously, conduct automated verification of answers, collect operational data on a process of training and testing, to ensure safety and confidentiality of all data, because the data of the portal are duplicated and stored in three large data centers on different continents, that prevents their loss; rapidly increase hardwarepower.

Positive experience of monitoring the level of formation of informative competencies at school-leavers [3] gives authors the grounds to assert the advisability of spreading experiment on the using of cloud computing on the other items of school cycle and disciplines taught in the institutes of higher education. And the obtained results confirm the actuality of the pedagogical aspects of using clouds, identifying key areas of their use to ensure the quality of the educational process under development of information society.

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