

# Modeling Using of Triple H–Avatar Technology in Online Multi–Cloud Platform Lab

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## INTRODUCTION

The modelling with simulation is the general adaptive method of study and develops in information sciences and technology (IS and T). Active participation of end user in a virtual community is a powerful indicator of the person's interests, preferences, beliefs and social context. The scientists use a method of modelling with simulation known as Quantitative Structure-Activity Relationships (QSAR) experimental data for patterns that relate the chemical structure of a drug to its kinase activity (Esposito et al., 2004). QSAR modeling is a research field with over 40 years of history. A number of approaches and methods to support the modeling exist, yet it is difficult to find systems that consider processing QSAR on larger scale. QSAR Workbench is a commercially available web-based system developed (Watson et al., 2012). If a successful QSAR model can be derived from the experimental data then that model can be used to focus a virtual research environment, illustrating the ability to modeling current and possible future problems and solutions for IS and T, and by creating QSAR models for more than one set of results. Although the achieved acceleration in processing was satisfactory, the main problem we encountered was limited scalability of the system. We decided, therefore, to reengineer the approach adopted previously and build a QSAR modeling engine which can be scaled effectively to hundreds of machines (Wood et al., 2011). The main contribution of this article is to report on scalability achieved and experiences gained with designing a system for fast prediction of research activity in the cloud. In particular, we would like to present a scalable workflow enactment system based on modelling using of Triple H-Avatar Technology in online Multi-Cloud Platform Lab. Also, we discuss the key steps that made running our system in the cloud

effective (Mkrttchian et al., 2014). Humanity and the world economy are rapidly moving from an industrial economy to a whole new post-industrial (information) era of development. The information economy is a “third wave” of economic development of mankind. On the rise of the “third wave” in transition from an industrial economy (the “second wave” of economic development of mankind) to the information economy are only a few countries - the leaders of the world economy. Most countries of the world, including Russia, are while “swimming in the waters of the second wave.” We live in an era of change, when everything in the world changes dramatically, politics and economics, culture and social, individual and public relations. Changing the whole way of life of people, so inevitable paradigm is shift in education and researching. The transition from the educational and study paradigm of the industrial society (“Knowledge” paradigm) to the educational and study paradigm of the information society (“activity-based” paradigm) constitute a waiver from the understanding of education with study as a ready knowledge and understanding of the teacher/moderator as a carrier ready-made knowledge. Education and study is understood as a property of the individual, as a means to self-fulfillment in life and as a means of building personal career. If the “Knowledge” paradigm of learning or/and study process centered around the teacher/ moderator, in “activity-based” paradigm of education/study is understood as a field of activity and self-learner and learner/self-study and study centered on involving multiple sources of knowledge and education, including such active source, which is a teacher/moderator. A comparison of the educational paradigms of the industrial and information society on the main components (values, motives, norms, goals, positions of the participants of the educational process, forms and methods, tools, monitoring and evaluation) that

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the educational process in the new socio-economic conditions have significantly changed (Kataev et al., 2013a). In the new paradigm changes everything: the goal of learning and education, its motives, rules, forms, the role of the teacher/moderator, etc. The education/study system needs to meet the challenges that face the modern civilization. One of these challenges is the rapid transition to an information society, post-industrial state. Teachers/Moderators and students/researchers are building their own information and communication space, seeking to better meet the educational, professional and personal demands (Mkrttchian, 2011). Thus, there is “a whole bunch of problems that require new solutions. The Information Science and Technology at the HHH University conceives, offers and implements as an applied science and information technology research, explore new challenges in the field of computer and information science and technology research in educational initiatives. The HHH University fosters the use of technological innovations required to meet the objectives of the study of science and technology, science and research missions, as well as promote the use of new science and information products. In today’s information world, one of the pressing issues is the need for lifelong learning of all actors in society. It would seem that there is a school, college, university, which allow for a fairly good level to form the necessary competence to practice. But, plunging into the work environment, people understand that today knowledge derived from education is not enough, you need to continuously improve these or other jurisdiction (Kataev et al., 2013b). Turning to virtual research, we came to the importance of creating structures that can provide continuous methodical, scientific support and advice to all subjects of the educational activity (students and teachers). Such a structure has become our virtual laboratory that allows you to modeling the entire educational process and to determine the modern and future issues, concepts, trends and solutions (Mkrttchian et al., 2014).

## BACKGROUND

The organization of high-tech production of cross-platform software systems for virtual laboratories based on the innovative modular service-oriented architecture for the creation of interactive learning and

socio-cultural multimedia-rich content and adaptive to various categories of end-users by means of multi-service networks in a heterogeneous environment with reference to different subject areas is one of the actual problems of information science and technology and in the field of research and development of modern. Many on-line learning support and delivering software systems such as WebCT, Blackboard, etc., are used by distance education instructors to develop and deploy online courses. These software systems normally integrate such desired functions as presentation of the course modules, educational tools to facilitate learning, communication support through email, online chat room, group collaboration through discussion pages and whiteboard, course assessment tools for preparing quiz and self-evaluation, and administrative tools to assist the process of management and continuing improvement of the course. However, technological realities and lab hardware requirements/constraints of these software systems present challenges to educators who want to develop online technical courses in the fields of engineering or engineering technology with physical laboratory activities. As part of the literature review found that, as a valid platform is not universal for the development, presentation and support of interactive multimedia-rich applications with advanced integration and social and communication capabilities and collaboration tools of experimental work (virtual labs). Therefore, we decided to provide tools for the organization of joint research, training and practical work of students on a special website - a virtual lab. Our task was to create a high-tech cloud platform for creating networked virtual laboratories with a maximum price and time efficiency with an adaptive system that determines the style of work and user education and adapts to the features of its intellectual property. Using our educational platform Triple H - AVATAR providing networking students will encourage the exchange of knowledge between learners and the formation of dynamic self-learning communities, (Mkrttchian et al., 2012). Ensuring the integration of heterogeneous components of complex information systems, production systems and multimedia services with high interactivity, user-developed communication and adaptation to the context of their use in the implementation of the requirements for reliability, fault tolerance, ergonomics and ubiquity of access without restrictions for the type of software and hardware platform will provide the research intensity of lab Multi-Cloud Platform.



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