TOPICAL QUESTIONS OF IMPLEMENTATION OF INFORMATION SERVICES IN A NETWORK OF UNIVERSITY

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Summary: The basic directions of informatization of establishments of higher education colleges and universities, status of informatization of East-Ukrainian National University named after Volodymyr Dahl and working capacity of information services are considered, actions on introduction of the unified computer-integrated platform for distant learning and automation of job of administrative divisions are offered, importance of wireless networks and VoIP systems for maintenance of competitiveness and improvement of quality of educational services is noted.

Key words: informatization, educational services, distant learning, information network

THE BASIC DIRECTIONS OF INFORMATIZATION

Information network East-Ukrainian National University named after Volodymyr Dahl (in further - university) develops and scaled already over 15 years. The concept of its development bases on the Law of Ukraine "About the National program of informatization", other laws on the information and communications, on decisions of the Cabinet of Ukraine in the field of informatization, branch standards in the field of information technologies, and on the decision of the Academic Council of university.

In the end of 90th years of the politician of the state in scientific and technical branch did not provide attraction in process of informatization of corresponding authorities and coordination of their job that as a result has led to braking of development and material losses. There is no state strategy of performance of the National program of informatization that has transformed informatization into unsystematic and long-term process with not coordinated tactical tasks and the strategic purposes. During last eight years the Concept which is the base document which determines priority directions of informatization, did not change.[1]

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[1] O. V. Gribovsky, I. I. Nikiforova, Information by eyes of auditors about results of the state financial audit "Efficiency of use of money resources of the state budget directed by the Ministry of Education and a science on information and a computerization of general educational and professional educational institutions "The Financial control " № 3 22.06.2007
http://www.dkrs.gov.ua/kru/control/uk/publish/article?art_id=39496&cat_id=39438

The significant role in development of an information society is allocated to State Committee of Informatization. The corresponding decision from March, 26th in 2008 N 272 "About creation of the State Committee of Informatization of Ukraine" has signed the Prime minister of Ukraine. One of the basic tasks of this committee is formation of the National program of informatization and maintenance of its performance. State Committee of Informatization provides realization of a state policy in sphere of State Committee of Informatization, formation and use of national information resources, creations of conditions for development of an information society.[2]

In the State budget of Ukraine for 2009 on informatization of general educational, professional and higher educational institutions and a computerization of professional and higher educational institutions, maintenance of professional and higher educational institutions with modern means of training on naturally mathematical and technological disciplines it is stipulated 1208,3 thousand UAH. These are 2,6 % from total amount of means which are spent by the state for informatization and in 22,4 times less than it is allocated in 2007-2008. It is obvious, that this sum will not suffice on updating of computer techniques of institutions of higher education. These charges basically go on purchase of new computer classes and complexes. As we see, the problem of information in education exists at the state level.

Generalizing long-term experience of introduction of information technologies in university the Academic council in report №10 from 5.25.2007 has determined a status and prospects of informatization. It is marked, that the decision of strategic tasks will lift quality of educational services to a world level, will increase a system effectiveness of management of university, and also will generate uniform information space, including the remote divisions. The basic strategic tasks are formulated: development and introduction of structured automated control system of university, development and introduction of system of distant learning, development and introduction of system study-to-rest, informatization of hostels, and implementation of system of information safety.

Thus an actual problem is the analysis of a status of informatization of university with the purpose of development of complex system decisions on introduction of the newest information services and means of automation.

STATUS AND DIRECTIONS OF DEVELOPMENT
OF A NETWORK INFRASTRUCTURE

Development of a corporate network of university is accompanied not only increase in amount of workplaces (2135 computers, about 85 % are connected to a network), but also implementation of new backbones and granting of new information services. Educational process is provided with 473 computers in 46 computer classes of base university. Stably working engineering and hardware infrastructure is created. The feature is that it consists in a significant difference of terms of implementation of its separate components and in territorial remoteness.

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[2] The law of Ukraine «About the National Program of information», the document 74/98-вр, last edition from 16.10.2001 http://zakon1.rada.gov.ua/cgi-bin/laws/main.cgi?nreg=74%2F98-%E2%F0

Considering dynamics of development of processors, hardware and periphery for last 5 years it is necessary to note, that the hardware of computer classes at university starts to become outdated. It negatively influences image of university as a whole and does not allow using modern software in study. Therefore one of problems generates another: obsolescence of hardware results up to impossibility use of the newest software (or their new versions), falling of productivity of their job, and, as consequence, to negative influence on image. It is impossible to update computers every year, therefore in an information network works and will work the various not unified hardware.

It is necessary to emphasize also insufficient capacity of server systems. Servers are not only in the central part of the network, but also on separate faculties and sub-faculties. On a background of substantial increase of sale of server systems in Ukraine the university not always can update the equipment because the question is not solved yet: what are more important, new computers for users or powerful server systems. Commercial structures have quickly oriented and pay the basic attention to server systems in the form of data-processing centers (DPC).

In 2007 the market of servers in Ukraine has grown on 59% from which 60% of servers work on a platform x86. It is the most widespread platform in Ukraine. Servers in cost from 25 up to 500 thousand dollars have got not only banks, the insurance companies and mobile operators, but also operators of retail networks, the enterprises of metallurgy and the food-processing industry. The university cannot get such systems. The part of Blade Servers (up to 6,7% in 2007, up to 14.1% in 2008) which solve problems of accommodation of servers in DPC, power consumption end thermal emissions. In connection with world crisis, under forecasts IDC sale of server systems will approximately decrease in 1,5 times in 2009-2010.[3]

In the developed countries is already introduced practice of rent of services for data storage and applications of a control system of the enterprise for a long time. For business it reduces cost of the maintenance of an engineering and hardware infrastructure. The contractor responds for functioning DPC, and the company concentrates effort on creation of new information services and their introduction. Creation DPC is perspective for those universities which optimize charges on purchase, adjustment and operation of park of servers with the purpose of support of the information communications and services in educational process and management of an infrastructure. It is obvious, that control of one DPC by several universities is much more cheaply, than to buy and effectively to maintain small DPC independently.

The central part of the network of our university still it is impossible to name a data-processing centre because renewal of working capacity does not meet the requirements, the level of reliability does not respond, significant dependence on the human factor is observed. The basic kinds of information-analytical tasks are not automated yet, development of software for study goes slowly.

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[3] The market of servers in Ukraine: IDC marks growth of a share A-brand and blade-systems, http://www.idc.com/ukraine/about/press/ng/pressRelease-44-UA-ru_RU.jsp;jsessionid=YU0KDQLLBZCC4CQJAFICFFAKBEAUMIWD

NETWORK OF UNIVERSITY SNU-NET, THE BASIC TASKS

The department of information technologies develops and introduces network SNU-NET and also responds for introduction of the concept of information at university. Everyone remote divisions of base university are connected with central by optical fiber. The Council on information of university coordinates job of a department in sphere of development of information services.

By means of SNU-NET all divisions can use following applied services: access to the Internet, e-mail, a site of university and separate structural divisions, the electronic catalogue of library of university, the system IT-ВУЗ, use of visual communication for carrying out of study.

The access to the Internet and e-mail is specified on the first place among popular services of a network. In my opinion, granting to students access to e-mail and the Internet requires attention and the responsibility, and should be accompanied by educational, scientific and social activity of students. In the Ukrainian society we see increase the Internet-activity. In August, 2009 the amount of Internet users in Ukraine has exceeded the 12 338 479.[4] The greatest amount of users (59,38%) is in Kiev and area and in cities with one million inhabitants about 29,52%. Considering, that the majority of information services should be accessible in the Internet network, this question needs to pay the greatest attention.

PROSPECTS OF EXPANSION OF INFORMATION SERVICES

Information filling is a necessary component in modern higher education. Now high requirements are put forward to a skill level of workers on all degrees of management. Presence of modern technologies at educational programs gives to the future experts ample opportunities for reception of the information not only in the professional sphere, but also in all spheres of a life of a modern society.[5]

Programs and systems under corresponding licenses, with the open code, freely distributed are used at university for maintenance of teaching and educational process. The operational system Windows is used on the majority of workplaces.

At the given stage of development of informatization of university the basic tool in the field of study and management is the system IT-ВУЗ which is created with use PHP and MYSQL. The system solves some tasks of automation of educational process and job of functional divisions. But for introduction of complex decisions it is necessary to use more powerful, thought over and scaled tools of development and support.

The uniform environment with a high degree of integration of components is offered by Microsoft in following technological platforms: Microsoft Learning Gateway (MLG)[6], Microsoft Live@edu[7], Learning Network Manager (LNM)[8], Learning

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[4] The amount of users of the Ukrainian Internet in September has ran up for 9,4 %, http://proit.com.ua/news/internet/2009/11/04/165720.html

[5] http://www.microsoft.com/ukraine/education/default.mspx

[6] http://portal.mlg-edu.ru/download/Pages/docs.aspx

[7] http://www.microsoft.com/liveatedu/student-email.aspx?locale=ru-RU&country=RU

[8] http://www.microsoft.com/Rus/Education/lmn.aspx

Essentials (LE) for Microsoft Office[9]. The listed platforms allow organizing delivery of messages, teamwork with documents, tests, calendars and schedules, conducting personal pages, to automate document circulation, to supervise student's progress, effectively to work with materials for educational process, accounting them, to optimize existing university IT-infrastructure, to supervise access and to operate safety, to integrate other decisions. Platforms LNM, Live@edu and LE are free-of-charge. The basic advantage of decisions from Microsoft is integration, preservation of investments, scaling, updating and technical support. At faculty of computer sciences students can use the service Live@edu. The faculty of computer sciences purchases the subscription MSDN AA also.

WIRELESS ACCESS TO NETWORK OF UNIVERSITY

The Cabinet of Ukraine has charged to the Ministry of transport and communication to promote introduction in 2007-2010 of technologies of high-speed data transmission with use of a radio access on all territory of Ukraine, and also to provide creation in 2007-2011 of a network of points of multiple access to global information systems with use broadband technologies. The corresponding assignment contains in the plan of measures approved by Cabinet of Ukraine on performance of the tasks stipulated by the Law of Ukraine "About main principles of development of an information society in Ukraine for 2007-2015"[10]

Wireless networks actively introduce since 2007 in university. Equipment Wi-Fi were installed in eight housings, library and in a hostel for foreign students. It is planned to expand considerably a zone of job of a wireless network in other housings. It is necessary to develop also the technical project and an operating mode of mobile users in the network.

The opportunities of use of own computers of students can partially solve a problem of obsolescence of computer techniques. Many students prefer laptops in comparison with stationary systems so can use them not only in home, but also in university. A netbooks get popularity now. For example, the Ukrainians in 2007 bought netbooks more actively than in 2006 (approximately 700 thousand)[11]. In 2009 such tendencies were not saved, popularity of stationary computers is less than laptops,[12] the total amount of sale of computers has considerably decreased. The total of the Ukrainian users of the mobile Internet on results of the first half-year 2009 has made 5 million people. The majority of them use GPRS-communications. Thus, according to IKS-consulting, more than 800 thousand are users of services of communication 3G.[13]

Introduction of a wireless network is the requirement of time and a question of image. It is a lot of universities actively introduce this service in the networks, but safety issues and regulations of job are not solved yet. Not only universities introduce

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[9] http://www.microsoft.com/Rus/Education/le.aspx
[10] Wireless networks will cover Ukraine, http://itua.info/news/internet/10765.html
[11] Alexander Levshin, IT in Ukraine: What, that and how much, http://itnews.com.ua/analitics/25.html
[12] Personal computers have fallen below laptops, http://itnews.com.ua/analitics/218.html
[13] The number of users of the mobile Internet in Ukraine has ran up 5 million,
    http://podrobnosti.ua/internet/2009/09/01/625828.html

wireless networks, in Ukraine exists more than thousand points of access from different operators.

One of technologies on which many companies have staked, is WIMAX. Profits on expansion WIMAX should grow, it is considered, that this technology will replace cable connections and DSL. Experts consider that during with 2008 on 2013 the amount of subscribers of stationary networks WIMAX will increase twice every year. It will be formed in parallel the market of the equipment of standard IEEE 802.16e. The subsequent progress for 2010-2012 is connected with acceptance of specification IEEE 802.16m.[14]

These facts specify all necessity of development of a wireless network for university, filling of a spectrum of information services and entering of respective alterations for the program of informatization.

VOICE OVER IP SERVICES

Significant economy of money which is spent by university for telecommunication, it is possible to achieve by development and introduction of a VoIP services (Voice over IP). The university consists of base with its campus in Lugansk and the separated divisions which are territorially remote one from another. The project of connection of all divisions on the basis of channels of "Ukrtelecom" is developed and realized. Thus, there are all the bases for introduction VOIP. It is necessary to analyze charges on phone calls and payment of a number pool of city phones and to calculate of introduction of routers and their adjustments with the purpose of a substantiation of expediency of creation of an internal telephone system.

The VoIP system already deployed on the basis of a LAN of faculty of computer sciences. The opportunity of use of servers Yate and Asterisk for service of a telephone system of university is researched. The pro-rectors, deans and teachers of faculties already at the moment actively use Skype for dialogue and in educational process, but bandwidth of networks still has not enough for qualitative transfer of video.

CONCLUSIONS

Certainly, it is impossible to fix processes which occur in a corporate network of university and to liquidate all lacks that are found out. The concept of development which bases on the system approach, modern technologies and complex decisions is necessary. For each problem which is listed further, there are some variants of the decision. Application of dot decisions is inefficient. It reminds liquidation of symptoms of disease instead of complex treatment. It is important to find out the reasons of occurrence of problems which break the general process of informatization of university.

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[14] Intel will enclose the investments into development of network WiMAX,
http://www.mobil.com.ua/content/view/125/2/

Here some system problems: impossibility of the adequate description of a configuration of LANs of structural divisions, high rates of growth of productivity of new systems and moral obsolescence of the existing computer techniques, an insufficient level of automation of structures of management of university, absence of a uniform standard platform and system integration, absence of uniform registration of the user in network, not supervised development of cable and wireless networks in hostels.

It is obvious, that in this question the important role is allocated to the highly skilled staff and sufficient financing. On the other hand increase of material encouragement and a salary will positively affect the decision of problems of informatization due to economic contracts and scientific activity.

Thus, quality of educational services substantially depends on investments into information and network communication services. The basic priority directions are: development of a platform of distant learning, automation of divisions of university, introduction of wireless networks and VoIP system with use of modern systems of data storage on the basis of DPC.

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АКТУАЛЬНЫЕ ВОПРОСЫ ВНЕДРЕНИЯ ИНФОРМАЦИОННЫХ СЕРВИСОВ В СЕТИ УНИВЕРСИТЕТА

Жариков Э.В.

Аннотация. Рассмотрены основные пути информатизации высших учебных заведений, состояние информатизации университета и работоспособность информационных сервисов, предложены мероприятия по внедрению унифицированной интегрированной платформы для дистанционного обучения и автоматизации работы административных подразделений, отмечена важность беспроводных сетей и систем VoIP для обеспечения конкурентоспособности и повышения качества образовательных услуг.

Ключевые слова: информатизация, образовательные услуги, дистанционное обучение, информационная сеть.