

E/M-Learning in IMS Based NGN Environment

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Abstract

In this paper the possibilities for implementation of m-learning and e-learning on the platform of the new generation of the network based on IMS NGN (IP Multimedia Subsystem Next Generation Network) architecture are described. This new platform makes e/m-learning more effective and flexible, as well as provides wide spectrum of multimedia services and applications supporting learning process. Learning is very complex process using several types of learning sources, tools for communication between students/trainees and teachers/tutors, as well as tools for collaborative work. The IMS NGN is an universal platform, which can offer wide range of online services. In this paper the developed new conception of the e/m-learning system based on IMS NGN architecture is described. Within this conception the e/m-learning is implemented in the top of the IMS NGN platform at application layer as new service/application. The role of this service is to manage all necessary processes and connections with other servers and participating devices. The several functions and servers were defined and implemented into this new e/m-learning platform to support all learning management processes and create the flexible access to all learning multimedia resources implemented at IMS NGN application layer for end users (teachers/tutors, students/trainees). The following new elements for IMS platform (servers/functions) were defined: Learning Content Deployment Functions, Lecture Management Function, Lecture Management Desktop, Learning Content web Server, Lesson Voice & Video Server, Lecture Messaging & Presence Server. The block diagram of the e/m-learning platform based on IMS NGN architecture illustrates the positioning of proposed new functions and servers at the application layer of the conceptual model of the IMS NGN architecture. In this way extended IMS NGN architecture creates conditions for the effective and flexible usage not only standard training courses located on the LMS server, but also different types of multimedia applications and multimedia sources like WEB applications, IPTV applications, VoIP multimedia applications, etc. located on the servers at the IMS NGN application layer.