Evolution and Use of a Worldwide E-learning System

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Abstract—**Óbuda University Alba Regia Technical Faculty (and its precedessors) are member of Cisco Networking Academy for 15 years. It is high time to summarise the history of both Cisco Networking Academy and our activity with a lot of experiences. In the above mentioned one and a half decade information and network tecnology evolved in a great extent; this affected not only the teaching material, but the working principles of the academy as well. This paper also tries to find the place of the Academy among the different areas of Distance education and e-learning. Change of its importance in the life of our Faculty and its role in the society will also be analysed.**

I. INTRODUCTION

Cisco Networking Academy, this worldwide e-learning system was launched in October 1997 in the United States. Two years later the first Hungarian Cisco academies were active already.

The first instructor training center of Central Europe was established in Budapest (Óbuda), at Kandó Kálmán Polytechnic, one of the precedessors of Óbuda University. The head of tis training center was dr. Gyula Fehér, associate professor of the Polytechnic.

In the Székesfehérvár Institute of Computer Technology (one of the precedessors of Alba Regia Technical Faculty) a so-called Regional Academy was founded at the end of 1999 within the frame of Cisco Networking Academy system. The first instructors of this academy were László Csapó and dr. Rezső Nagy (both associate professors). The main contact person of the academy was dr. Rezső Nagy. Regional Academy was an intermediate level between Training Center and Local Academy. Instructors of local academies studied in the regional academies.
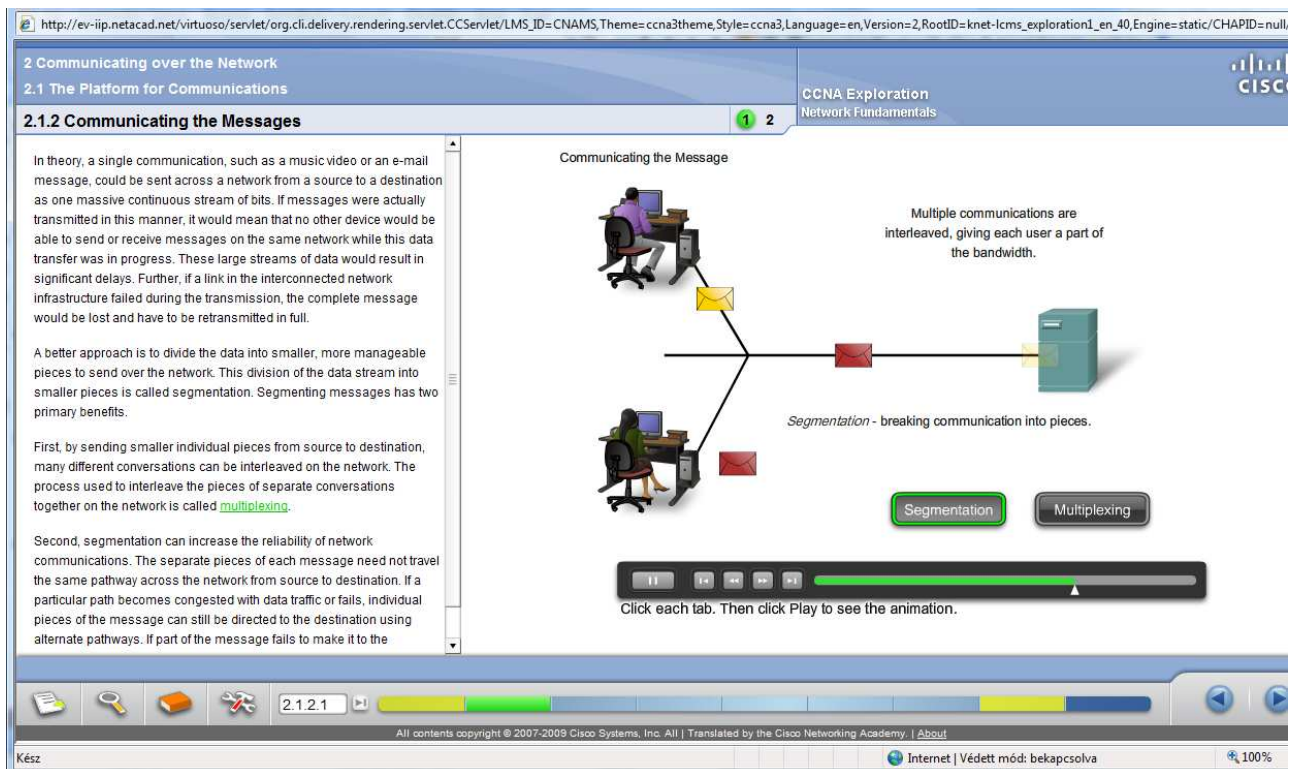

Figure 1.　　Example page of the e-learning material used in 2010. (contains an animation) [3]

II. PLACE OF THE ACADEMY AMONG THE DIFFERENT AREAS OF DISTANCE EDUCATION

Cisco Networking Academy can be regarded as a version of distance e-learning systems.

It extensively uses ICT (Information and Communications Technology) in the delivery of education (teaching materials, assessment facilities, administration and communication as well. Specifically, Cisco Networking Academy works with local instructors, who use the central teaching material and central assessment system together with such local hardware resources as active and passive network components.

An example page of the e-learning material can be seen on Fig. 1.

Nevertheless, local instructors can supplement and customize teaching materials and assessement requirements in a certain extent.

Cisco Networking Academy makes frequently significant advances .

III. EVOLUTION OF CISCO NETWORKING ACADEMY CURRICULUM AND TECHNOLOGY

A. *Evolution of the curriculum contents*

Networking technology advances very quickly, books and online materials will be out of date in a few years. The one and a half decade old Cisco Networking Academy introduced this year the fifth version of its curriculum.

In Óbuda University Alba Regia Technical Faculty and its precedessors we started the first CCNA class in the year 2000, and we collected experiences in using versions 2, 3, 4 and 5 of Cisco Networking Academy e-learning material.

All these versions were excellent, they followed step-by step the advances in networking technology.

Examples for the most important new features of the recent versions:

- Detailed description of wireless networks
- Description of switched networks
- Characteristics of cloud-based networks
- Detailed presentation of virtual LANs
- Detailed presentation of IP v.6 protocol
- More detailed description of broadband solutions
- More detailed presentation of network monitoring and troubleshooting

B. *Evolution of the Administration and Assessment*

Every teacher, instructor knows that making really good test questions and answers is extremely difficult. Cisco Academy questions are excellent, but of course not perfect.

A typical (and good) test page can be seen on Fig. 2.

Figure 2.   Example test page used in 2010. [3]

Cisco Networking Academy recognized, that assessment done only by remote tests evaluated by programs gives not a proper view of the student's knowledge. Instructors are encouraged for making oral and written examinations where students should explain important ideas and connections. Custom scores mean the results of these locally made and evaluated examinations (see Fig. 3.).
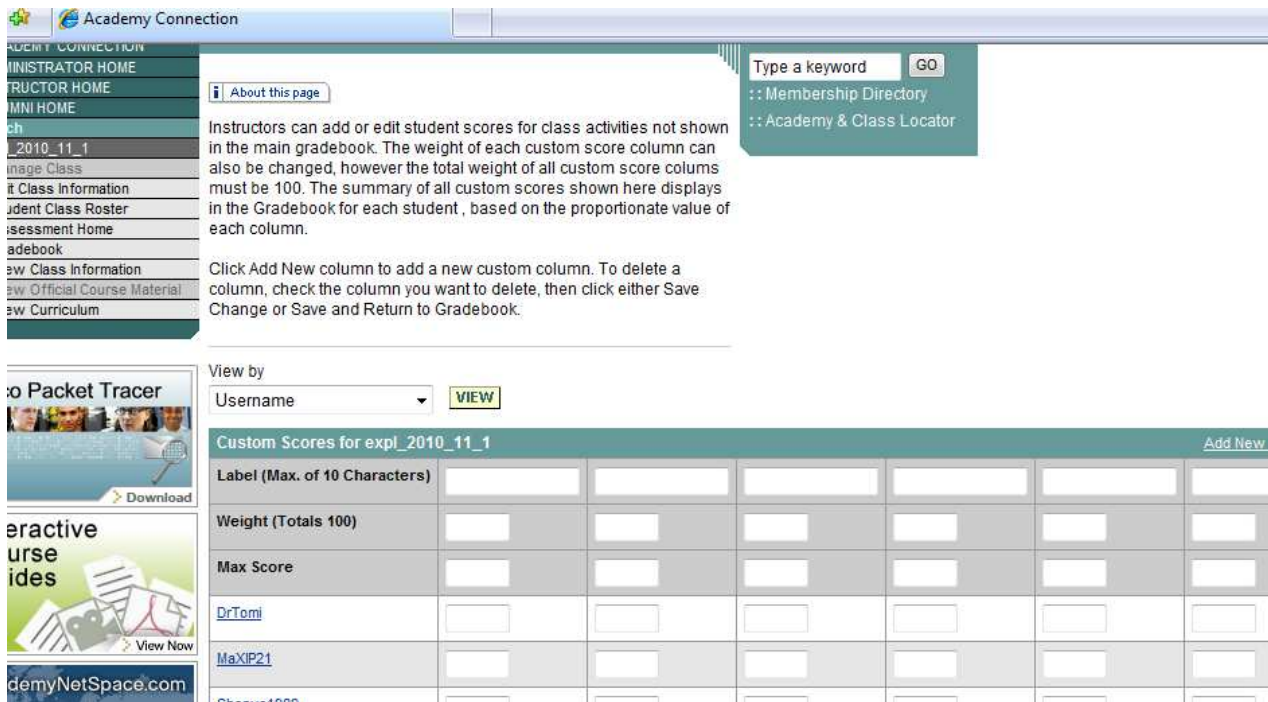

Figure 3. Page for "custom scores" used in 2010. [3]

The latest version of the administration interface allows more freedom to the instructor in registering students to the different courses. In such a way turning to the new curriculum can be more flexible (see Fig. 4.).
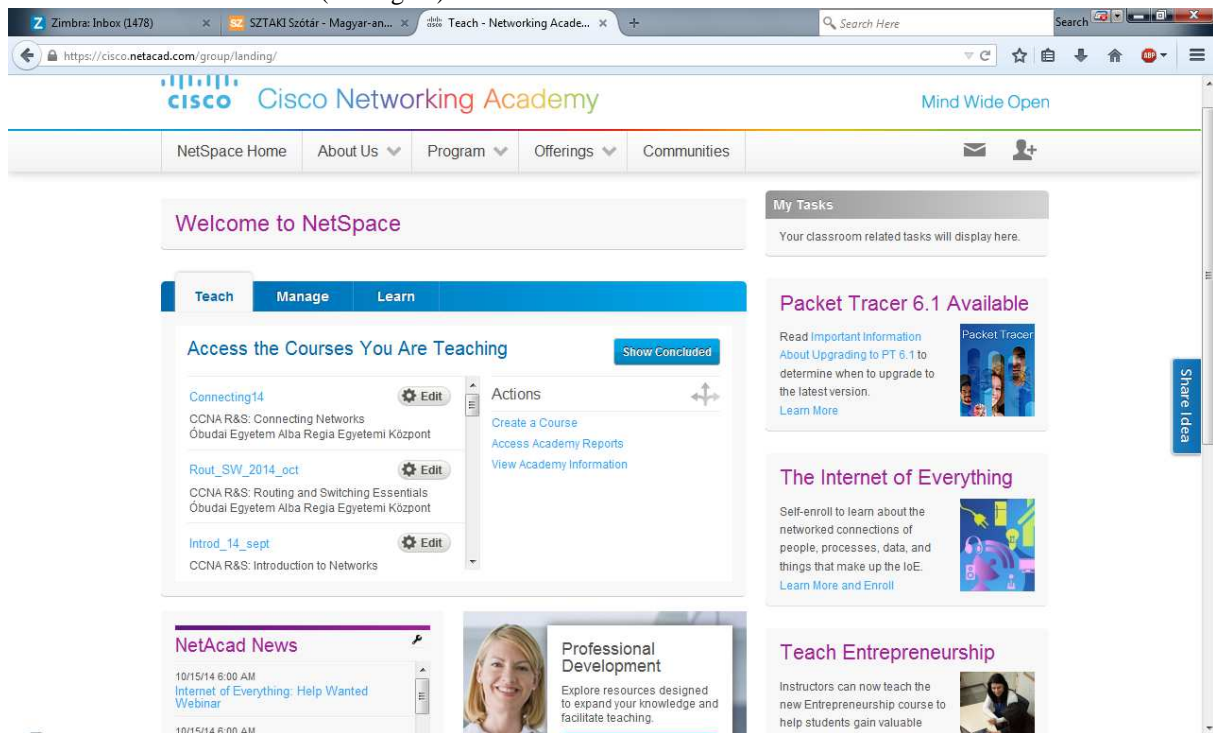

Figure 4. Administration interface used in 2014. [4]

C. *Evolution of the Academy Technology*

In the course of the years a lot of technological advances were made in the operation of Cisco Networking Academy. According to my opinion the following changes were the most important:

- Introduction and further development of Packet Tracer network simulation software. It makes possible, that all the students can do most of the practices in the same time. In the first years it was a hard task to mak a schedule for the practices, because only one or two students can work on the real hardware.
- Implementation of Cisco Networking Academy using cloud environment. Since then I have not encountered any serious problem in accessing the academy.
- Central automatic evaluation of Packet Tracer assessments. Without this feature evaluation of Packet Tracer assessments would be the most time consuming task for the instructors.

IV. ROLE OF THE ACADEMY IN THE LIFE OF OUR FACULTY

After the foundation of our Regional Academy we got the starting equipment for teaching free of charge (in the value of about 3 millon HUF). Later on, we bought further equipments using money coming from different tender competitions.

Figure 5.   Practice in Alba Regia Technical Faculty
(picture taken by Mariann Garainé)

Cisco materials, made by a lot of leading experts, using much resources are very useful for our instructors as well, in keeping up with the quick development in different areas of network technology.

Since the beginning our Regional Academy trained more then 20 instructors for 10 local academies in

- Székesfehérvár
- Veszprém
- Dombóvár
- Keszthely
- Mór
- Kisbér
- Zalaegerszeg.

In the first years Cisco Networking Academy was very popular among the students of our institute. We often started two parallel classes, and after all we had to reject several applicants.

Later on, when Cisco Networking Academy spreaded in secondary schools, several students arrived to us after completion of the CCNA Discovery, and only some of them could undertake the expenses of another Academy training. Unfortunately at that time our trainings were not free of charge already.

Nowadays we can start only one class in a year, and we have pay a regular fee to HTTP Foundation, which coordinates the Hungarian Cisco Academies.

After all, Cisco Networking Academy plays an important role in the life of our faculty. We teach always the newest material (in the moment version 5.) that is knowledges given are maximally up to date. And what is more, at the same time our Academy provides a course of technical English, because we teach the English version of the material.

V. SUMMARY OF MAIN STATEMENTS

- Precedessor of Alba Regia Technical Faculty founded one of the first Cisco Academies
- Cisco Networking Academy is a distance e-learning system
- Cisco Networking Academy follows the quick evolution of networking technology
- Cisco Networking Academy itself also evolves in operation technology
- Despite certain problems Cisco Networking Academy plays a very important role in the life of Alba Regia Technical Faculty

REFERENCES

The paper contains no direct quotations from the references below. I took figures from [3] and [4].

[1] Tanenbaum: Számítógép-hálózatok (Panem, 2004.)
[2] Tanenbaum-Wetherall: Számítógép-hálózatok (Panem, 2013.)
[3] http://cisco.ketacad.net (seen: October, 2010.)
[4] http://cisco.netacad.com (seen:October, 2014.)