

Enhancing Cisco NetAcad Student Learning Experience with an Integrated Learning Platform

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Abstract: The paper presents the integrated eLearning platform run by the Cisco academy at the University of Bucharest. The platform significantly adds to the functionality of the Networking Academy platform, for an improved student learning experience and better student retention rates.

Keywords: learning platform; productivity; student experience; management; retention; online; satisfaction.

I. INTRODUCTION

The Credis Academy has been part of the Netacad Program for 12 years starting with 1999 as a local academy, and also becoming a regional academy starting in the year 2000. Managing more than 11 geographically dispersed local academies as well as offering Cisco's entire curricula to more than 2500 students only with the help of the NetAcad site had become a time consuming activity that needed to be re-engineered.

We started the process in 2006, developing in-house a course delivery platform coupled with an Enterprise Resource Planning (ERP) system [1], which is currently in use to manage over 2500 students spread over the entire country.

Our course delivery platform and ERP is currently integrated with NetAcad, NetLab, Webex, Google Apps, Project Management tools and social services like Twitter and Facebook.

This paper presents the solutions adopted in order to be able to scale up while maintaining a high degree of student satisfaction and achieving our motto: 'best learning experience'.

The paper starts by justifying the need of the platform and then presents the three main parts of it. After that we have presented the achieved results and some of the future developments of the platform.

II. REASONS FOR AN ADDITIONAL PLATFORM

The official NetAcad website is the command center for the daily management activities of Cisco academies. This system is used to coordinate student activities and part of the instructor activities. However, the site does not seem to have been designed to manage a large number of returning students. We believe that is the reason why we encountered increasing difficulties dealing with the following issues:

- It is impossible to know the class history for a particular student,
- It is impossible to send custom e-mails to all students in one particular class,
- There is no scheduling/viewing system for practical hand-on activities,
- There is no tracking system for student's progress through practical activities,
- The user enrollment process is relatively difficult (manually/by username),
- It is difficult to contact students, which have no public profile.

Working with thousands of students has prompted us to implement a management system that would enable to overcome these problems. As a result, we designed and implemented our own online learning platform for the Cisco academy, to be used in conjunction with the NetAcad website. With the years this platform has become the central point of command for the entire academy, accommodating additional educational programs, like the Microsoft IT Academy, Adobe Training Center, Linux Professional Institute and Cisco Entrepreneur Institute.

Our learning platform is divided in three views: student experience, instructor experience and finance module. The student experience module is an implementation of our vision of fully flexible student services in the learning process. The instructor experience module is designed like an ERP, aiming to ease the work of academy instructors and administrative staff.

All the financial aspects of running the academy are integrated within the platform, in order to increase the productivity of the employees while considerably reducing the time a student needs for administrative purposes (registration details, accounts, invoices, etc.).

The platform is well integrated with the academy's public website, Facebook and Twitter accounts, giving us the opportunity to easily communicate with our student community.

III. STUDENT EXPERIENCE MODULE

The student experience module is a GUI with a left-hand side main menu and a content area, which is, in turn, divided into two tabs: general news and personal relevant information (Figure 1).

A. Main Menu

The left-hand side main menu gives students access to the following options:

- Course materials (“Curriculum” tab): access the course materials online,
- Student profile – update current contact information,
- Discussion forum- discuss with instructors and peers,
- Activity report– this is an area where students can see their own learning history throughout their entire period as students of our academy. The history shows courses taken, class dates and instructor contacts for each course.
- Legal agreement– every student must agree with the legal agreement setting on NetAcad as well as Credis policies on course completion, attendance, etc. The document clearly states out the rights and obligations of both student and academy.
- Support– this link gives students access to an online ticketing system. Student’s requirements and complaints are registered and sent to the helpdesk. If the problem exceeds the helpdesk attributions, instructors and then the manager are contacted. During this period, students are constantly given feedback on the status of their tickets.
- Social networks tab– this tab allows students to follow the academy on social networks like Facebook, Twitter and YouTube. We also send out newsletters and an RSS feed.
- Netacad login– this area allows the student to beam directly to the Netacad website, upon password confirmation.

B. General News Area

The general news area is centrally located in the upper part of the browser content window. This area contains all the news regarding the academy’s activity, including job offers, internship offers, new courses, sweepstakes, events, etc.

C. Personal Information

The personal information area displays information relevant to each student given their own learning context: all the classes that one is registered for, name and contact data for the corresponding instructor, etc.

Students can see the course’s instructor led activities and their scheduling, can make reservations for such activities, and can access deeper information of such activities, including lab topics or lab prerequisites.

Every class has an associated study plan, class rules, additional learning materials and certification information. All courses are displayed as part of a career path graph.

D. Certification Area

In the certification area students have access to information regarding the possible certifications that the course opens the way to and are shown a certification path

that helps them better understand and manage their learning process in relation to their goals.

IV. INSTRUCTOR EXPERIENCE MODULE

The instructor experience on our learning platform is, obviously, different from the students. Instructors’ main menu contains the following tabs:

- Instructor home (Figure 2),
- Instructor profile,
- Study materials,
- Classes,
- Accounts,
- Activities,
- Online courses,
- Feedback,
- Forum,
- Legal agreement,
- Inventory,

We will only concentrate our presentation on the academic aspects: the instructor experience module is a result of our need to also manage a large number of instructors that are geographically dispersed (we currently have over 80 instructors around the country), while keeping the highest level of quality possible, both in order to comply with Cisco’s Quality Assurance Plan (QAP) and to keep our good name with students.

In effect, the instructor experience module acts as an academic Customer Relationship Management (CRM) [2] system, giving academy staff the tools to manage students and their learning process.

Instructors and academy staff also have access to their own profiles just as students do, in order to update contact data, review their legal agreements (different than the ones signed by students), etc.

The news area and the NetAcad login are also available in the instructor experience module.

A. Scheduling Area

The main difference in the schedule area comes from the possibility of instructors to schedule new activities. When accessing this area, instructors see the entire schedule of activities grouped by location, classrooms, instructors and subjects. This way, any instructor scheduling new activities can only announce a lab in a free time slot.

Instructors schedule lab activities for a long time in advance, in order to book classroom timeslots, but have an option not to publish these activities to students. In this respect, the tool is used for classroom provisioning.

Only at the time of publishing of such a lab activity to the student experience module, do students receive emails asking them to register and confirm their participation.

Another use of this tool is to give management a good overview of the activities in the academy and the physical presence of instructors in the office.

B. Study Materials Area

The study materials area is used to give students access to a local copy of the curricula. We do that because we can increase the speed of access to the curricula like that.

In addition to the official curricula, instructors have the opportunity to publish materials that are relevant to the course in general or just to a particular class, thus customizing students' learning experience (Figure 3).

Also in this area, Cisco Press books [3] are recommended for further study. Starting with 2010, we have a partnership with Pearson Education Reseller for Romania and we are offering our students the opportunity to buy Cisco Press books with a discount to market price.

We believe that blending the Cisco Press titles with the learning materials increases the value of our learning proposition to our students.

V. FINANCIAL MODULE

The financial module is only available to academy staff and acts as a back-end of the application. This area uses the same database with the front-end (student and instructor experience modules), allowing for invoices to be easily and quickly issued to students, for tracking of students' financial status, to calculate instructor's wages based on a revenue sharing scheme, etc.

We are the academy with one of the largest number of instructors worldwide. These instructors are geographically spread across the entire country. We offer them the entire infrastructure to be able to offer Cisco curricula to their students. As a result, we use a revenue sharing model with most of our instructors and we use the financial area of the application to automatically calculate obligations, to generate all accounting and legal documents needed and to keep records of our activity.

We run a cash flow management system, where we record all our activity in our system, in order to be able to quickly have reports, find out the financial standing of the academy, the results of promotional campaigns, and numerous other data-analyses.

VI. RESULTS ACHIEVED WITH THE IMPLEMENTATION OF THIS PLATFORM

With the constant development of our learning platform we have achieved several important improvements of our activities:

A. Improved student experience

The philosophy behind eLearning and the NetAcad curricula is that students should be able to learn anytime, anywhere, at any pace. This flexibility was not possible with the practical, hands-on lab activities. We have taken one step forward with the implementation of the scheduling system.

Instructors schedule labs repeatedly, at different hours and in different days, including weekends. With this approach, students are given a wide choice of options for their participation in the mandatory lab activities, being able to manage their learning schedule according to their needs.

Furthermore, at the end of each lab, instructors confirm the actual presence of the registered students. This way, we

can easily track student participation and performance in the practical activities.

We can demonstrate a relatively high degree of customer retention, with one third of students in each year being "returning" students (that is students that have been our students in the previous year too).

TABLE I. STUDENT RETENTION RATES

Year	Returning students	New Students	Total / year	Retention Rate
2008	490	1109	1599	31%
2009	682	1537	2219	31%
2010	849	1676	2525	34%

Retention Rate is calculated as the number of Returning students divided by the Total number of Students per each year.

We also believe that the improved user experience has translated into higher number of students registering for continuation of their studies. There is drop off rate between CCNA 1 and 4, with numbers constantly decreasing with each new course, but we also can show increasing numbers and percentages in this area:

TABLE II. STUDENT PROMOTION RATES

	2008		2009		2010	
	#	%	#	%	#	%
CCNA 1	369		525		473	
CCNA 4	61	17%	78	15%	91	19%

Number of students registered in CCNA 1 courses and CCNA 4 course, and the percentages thereof.

B. Improved student management

By duplicating the classes in the NetAcad website in our own platform and database we are now able to easily and automatically extract any kind of information about student participation and involvement in the program.

For example, during 2010 we have had a number of over 6000 activities scheduled. For these activities we have clear information about students that have registered and students that have actually attended. This is useful to generate track reports of students in their interaction with the academy. This feat is impossible to achieve with the NetAcad site.

At any time during a course we can tell how the activities are progressing, the attendance rates, etc. This allows us to keep track of all the numerous instructors spread throughout the country and be able to ensure quality in the learning process.

Using the NetAcad site we were not able to register students into classes, but the other way around. We had to create a class and then search for the students that we needed to register in that particular class. With growing numbers of students, this operation became cumbersome and time consuming. In the present, we can select students and enroll them in whatever class they have required, automatically sending the full-HTML emails with relevant information.

C. Improved Financial Management

With the integration of the financial module, the time students spent dealing with the front-desk has significantly

decreased. In the present, we easily know the entire student history both from an academic view point and from the financial one.

Furthermore, classes are treated as projects in the financial module, allowing us to easily create all the reports and legal documents that support our revenue sharing model with the instructors.

D. Improved Reporting

Using our own database allows us to easily create any number of statistics that we need, empowering us with the tools for data analysis.

Using our own database we were able to create a map of the city of Bucharest related to the geographical distribution of our students, allowing us to identify the areas of the city where we need to increase our marketing efforts.

Another good example of useful reports is the “customer loyalty report”, which has shown us the students that have followed the most courses with our academy, and we were able to recognize their participation, thank them for their trust, and invite them to become ambassadors of our academy. Getting feedback from the persons that know us most is a very important achievement.

VII. FUTURE DEVELOPMENT OF THE PLATFORM

At the time of writing of this paper we are working on integrating new social web technologies in our platform. We want to implement the OpenID [4] standard to allow students to register for classes using their social network or web accounts (Facebook, Google, Yahoo or any OpenID provider) in order to ease students’ interaction with our platform.

We are also testing different wiki solutions in order to implement a collaborative knowledge base that would add value both to our students and to our instructor all over the country.

We intend to take one additional step in the blending of Cisco Press books with the study materials. In the present, we are showing relevant Cisco Press titles in the study materials area. Students are directed to the website pages describing the book and they can place orders.

However this is not an actual online shop, but only an online order placement system. We intend to fully integrate an online book shop on our platform.

In this respect, we are close to finishing the process of adding the possibility for students to register and pay online for our courses, in a desire to constantly keep improving our overall offer, aiming to provide a fully satisfactory learning experience.

VIII. CONCLUSIONS

Although this is an academic and not-for profit environment we found that our processes need to be designed the business way. That is why we have developed business specific tools and have customized them for our academic activity.

Direct results are a significant improvement of work relationships, due to the fact that everyone's responsibilities are clearly defined together with the expectations for each employee.

Furthermore, productivity tools enable us and our instructors to concentrate on increasing the quality of our students' learning experience in order to obtain even higher degrees of student satisfaction, retention and graduation as a direct measure of teaching/learning success.

We aim that our students will speak about the Credis learning experience as the ‘best learning experience’, which is why we need to be constantly developing and testing new ideas and technologies, especially more collaborative ones using Web 2.0 tools like Facebook, Twitter, blogs, and wiki’s.

REFERENCES

- [1] http://en.wikipedia.org/wiki/Enterprise_resource_planning [retrieved March 14, 2010]
- [2] http://en.wikipedia.org/wiki/Customer_relationship_management [retrieved March 15, 2010]
- [3] <http://www.ciscopress.com/index.asp> [retrieved March 16, 2010]
- [4] <http://openid.net/> [retrieved March 15, 2010]



Welcome sileanubogdan Logout
 Retype your password in order to login to Netacad:

- [Student Home](#)
- [My Profile](#)
- [Curriculum](#)
- [Forum](#)
- [Activity Report](#)
- [Contact](#)
- [Legal Agreement](#)
- [Suport Academie](#)

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Your current classes

CCNA2_No1_Marti_19.00-21.00_2010 - CCNA2 Exploration (01/11/2010 - 15/03/2011)		Instructor: BOGDAN (bogdan.sileanu@credis.ro)
Practical activities - Click below on the laboratory's title to view its description and prerequisites		
Lab.1 - Introducere in rutare, rutare statica si dinamica	on 19.02.2008 from 13:00 to 15:00	Completed
Lab.2 - Rutare classful, protocoale Distance Vector - RIPv1		Not available yet
Lab.3 - Rutare Classless CIDR, VLSM - RIPv2		Not available yet
Lab.4 - Protocolul de rutare EIGRP		Not available yet
Lab.5 - Protocoale de rutare link-state - OSPF		Make reservation
Lab.6 - Routing challenge lab		Make reservation
Proba Practica		Not available yet
Examen Final		Not available yet
Online Exams		
Study Plan Rules Course Materials Study materials Certifications		

Figure 1. Student Experience Home Page.



Welcome sorinbogricianu Logout
 Retype your password in order to login to Netacad:

- ACADEMY | ERP | Tasks |
- [Instructor Home](#)
 - [My profile](#)
 - [Study materials](#)
 - [Classes](#)
 - [Accounts](#)
 - [Activities](#)
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Current activities

Monday - 24/01/2011		Help Desk	Instructor
Schedule			
Kogalniceanu	There is no schedule to display.		There is no schedule to display.
Razoare	There is no schedule to display.		There is no schedule to display.
Laboratories			
Kogalniceanu	There are no laboratories.		
Razoare	IT: PC Hardware&Software LICEE Lab.2 - Instalare si Administrare Windows Razoare Sala C	Elena Neacsu	09:00 - 11:00 (10 / 12)
	CCNA1 Exploration Lab.2 - Transport and Network layers Razoare Sala B	BOGDAN SILEANU	15:00 - 17:00 (0 / 18)

Figure 2. Instructor Experience – Home Page

Learning materials list - 1 to 10 of 68

edit delete 1 add new

<< < > >>

Show all records Show filter

<input type="checkbox"/>	Course	Name	Link	File	Intensiv		
<input type="checkbox"/>	CCNA 1	Chapter 1 ppt presentation	http://80.96.49.249/credis/Materials/CCNA1/s1_ch1.ppt		0	edit	delete
<input type="checkbox"/>	CCNA 1	Chapter 2 ppt presentation	http://80.96.49.249/credis/Materials/CCNA1/s1_ch2.ppt		0	edit	delete
<input type="checkbox"/>	CCNA 1	Chapter 3 ppt presentation	http://80.96.49.249/credis/Materials/CCNA1/s1_ch3.ppt		0	edit	delete
<input type="checkbox"/>	CCNA 1	Chapter 4 ppt presentation	http://80.96.49.249/credis/Materials/CCNA1/s1_ch4.ppt		0	edit	delete
<input type="checkbox"/>	CCNA 1	Chapter 6 ppt presentation	http://80.96.49.249/credis/Materials/CCNA1/s1_ch6.ppt		0	edit	delete
<input type="checkbox"/>	CCNA 1	Chapter 7 ppt presentation	http://80.96.49.249/credis/Materials/CCNA1/s1_ch7.ppt		0	edit	delete
<input type="checkbox"/>	CCNA 1	Cisco prep center	http://forums.cisco.com/eforum/servlet/PrepCenter?page=main		0	edit	delete
<input type="checkbox"/>	CCNA 1	Packet Magazine 3rd Quarter 2006	http://80.96.49.249/credis/Materials/packet20063.pdf		0	edit	delete
<input type="checkbox"/>	CCNA 1	test			0	edit	delete
<input type="checkbox"/>	CCNA 1	program FWL			0	edit	delete

<< < > >>

edit delete 1 add new

Figure 3. Learning materials added for a CCNA 1 class.