

## Automated Internet Sign-On at Boston College

TECHNOLOGY PLAYS AN IMPORTANT ROLE AT BOSTON COLLEGE, AND THE DEPARTMENT OF TECHNOLOGY PLANNING & INTEGRATION (TPI) IS RESPONSIBLE FOR MANAGING THE UNIVERSITY'S INFRASTRUCTURE INFORMATION SYSTEMS AND SERVICES. TPI IS ASSISTING PROJECT DELTA, A UNIVERSITY-WIDE REENGINEERING EFFORT IN GUIDING THE UNIVERSITY THROUGH THE ADOPTION AND DEPLOYMENT OF 21ST CENTURY NETWORK COMPUTING AS A MEANS TO DELIVER PROMPT, PERSONAL SERVICE AND INFORMATION TO ALL BOSTON COLLEGE CONSTITUENTS.

Boston College is working with American Internet Corporation (AIC), a part of Cisco Systems, Inc. since October 5, 1998, and its Network Registrar Internet Protocol (IP) infrastructure technology to ensure that students, employees, and guests have reliable, managed Internet access.

"The Internet is clearly a foundation technology for colleges and universities today, and American Internet helps us provide all our users with fast, easy, and managed Internet activation from virtually anywhere on the Boston College campus," said Thomas Hickman, technical support programmer, Boston College TPI group.

### Thousands of IP Addresses Activated in Three Days

Boston College became an Internet site in 1988, and today the university is at the forefront of providing Internet access and communications services in higher education.

"Boston College is outpacing many colleges in the area of Internet access," said Hickman. "Where most schools are installing data on a

pay-per-service basis, we chose to put a data drop at every pillow in the residence halls to offer all our students free Internet access. All universities face enormous competition

for students, and our ability to provide leading-edge communications services, including Internet, cable, and voice, adds to students' quality of life and is a competitive advantage for us."

But offering comprehensive communications services in a college setting presents challenges. Unlike companies that have steady fluctuation in Internet access over the course of a year, Boston College experiences virtually all of its students coming online at once during the first weekend in September.

### Plug-and-Play IP Address Activation

Activating student IP addresses had been a painstaking, manual process. In fall 1995, Boston College started to map out a plug-and-play solution to automate the activation process that would work well on their 10,000 node, flat-IP network. At the time, IP addresses for all PCs

#### EXECUTIVE SUMMARY

**CUSTOMER**—Boston College ([www.bc.edu](http://www.bc.edu)) is a coeducational university located in Chestnut Hill, Massachusetts, with 8,500 undergraduates and 4,000 graduate students from every state and many countries.

Founded in 1863, Boston College is one of the oldest Jesuit-affiliated universities in the United States. Boston College confers more than 3,500 degrees annually through its eleven schools and colleges, and offers Bachelor's degrees in 50 fields of study.

**INDUSTRY**—Higher education.

**PROBLEM**—Streamline activation procedure for student IP address activation.

**FACTORS**—Thousands of students attaching their PCs to the network simultaneously over three-day weekend. Users have varying degrees of technical ability.

**SOLUTION**—Boston College installed Network Registrar in August 1997 and implemented a fully automated, Web-based IP address activation system.

**BENEFITS**—EagleNet Activation System flawlessly activated thousands of students during the first weekend in September. Boston College can activate a system and configure its IP address in three-to-four minutes—a process that previously required three-to-four days. Help desk calls for activation assistance decreased roughly 60 percent.

on the network for Boston College's three classes of users—students, employees, and guests—were assigned and configured manually. To replicate this process for each student would have been too time consuming.

The university wanted a new solution—dubbed the EagleNet Activation System—where the user community would not need to know a router address, DNS server address, or any other configuration information, and the university would have a highly secure, easy-to-maintain IP network. This plug-and-play design would also have to grant network access through automatic registration and authentication.

In January 1997, Boston College started a vendor search to find a partner to help make the EagleNet Activation System a reality. Boston College selected the Network Registrar solution from American Internet, the industry's only second-generation DNS server that manages the creation, delivery, and storage of IP addresses.

“We felt that AIC's open environment and approach to using DHCP as a means to grant network access rather than restrict access best matched the information and networking goals of Boston College,” said Hickman. “Network Registrar possesses very strong configuration and infrastructure functionality, which can be customized to meet our unique activation needs.”

Boston College began working with Network Registrar in April 1997, running it on a Windows NT-based Pentium Pro server with 128-MB RAM and a single 4-GB hard disk. Boston College wrote several CGI scripts that request registration information from the user over the Web site and a client-server application that integrates Network Registrar with the university's Web site. The end result to the user is automated configuration of the IP address and true plug-and-play networking.

### **IP Activation Which Took 3 Days Now Done in 3 Minutes**

According to Hickman, the Network Registrar-powered activation process is virtually foolproof. Students no longer have to run special applications to determine their Ethernet hardware addresses. All they do is run a Web browser, enter their user name and personal identification number (PIN), and click a few buttons. Thanks to Network Registrar, EagleNet Activation does the rest.

Now when a PC gets connected, computers that are “unknown” to the Boston College network receive a temporary address. These unknown computers can only reach a predefined Web page. Once there, the owner of the computer provides a user name and PIN in order to activate. When the computer is restarted, it gets a “real” address and has full Internet access.

The Boston College activation system went live in August 1997, and in the first 30 days, more than 1800 new computers were activated without any visible disruption of service. Today, Network Registrar manages in excess of 6400 leases. Network Registrar enabled Boston College to add as many new computers to its IP network in one month as it did in the entire previous semester. The activation process, which took three-to-four business days in 1995, now takes three-to-four minutes, without requiring any IT intervention. In fact, since implementing Network Registrar, calls to Boston College's help desk for activation assistance decreased roughly 60 percent from the previous year.

In addition, Network Registrar runs Boston College's DNS server, and according to Hickman, look-ups have never been faster.

“Partnering with American Internet allowed us to use our in-house resources more wisely to customize Network Registrar for our specific requirements,” Hickman said. “Network Registrar is managing the address records and lease information for 10,000 nodes, which is one of the most critical services on our network. If it doesn't work, nothing else will, and Network Registrar does this flawlessly. With Network Registrar, we are able to implement an easy-to-use Web-based Internet addressing solution that automates routine tasks, greatly reduces help desk calls, and provides enhanced customer service.”



Corporate Headquarters  
Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
<http://www.cisco.com>  
Tel: 408 526-4000  
800 553-NETS (6387)  
Fax: 408 526-4100

European Headquarters  
Cisco Systems Europe s.a.r.l.  
Parc Evolic, Batiment L1/L2  
16 Avenue du Quebec  
Villebon, BP 706  
91961 Courtaboeuf Cedex  
France  
<http://www-europe.cisco.com>  
Tel: 33 1 69 18 61 00  
Fax: 33 1 69 28 83 26

Americas  
Headquarters  
Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
<http://www.cisco.com>  
Tel: 408 526-7660  
Fax: 408 527-0883

Asia Headquarters  
Nihon Cisco Systems K.K.  
Fuji Building, 9th Floor  
3-2-3 Marunouchi  
Chiyoda-ku, Tokyo 100  
Japan  
<http://www.cisco.com>  
Tel: 81 3 5219 6250  
Fax: 81 3 5219 6001

Cisco Systems has more than 200 offices in the following countries. Addresses, phone numbers, and fax numbers are listed on the

**Cisco Connection Online Web site at <http://www.cisco.com/offices>.**

Argentina • Australia • Austria • Belgium • Brazil • Canada • Chile • China • Colombia • Costa Rica • Croatia • Czech Republic • Denmark • Dubai, UAE  
Finland • France • Germany • Greece • Hong Kong • Hungary • India • Indonesia • Ireland • Israel • Italy • Japan • Korea • Luxembourg • Malaysia  
Mexico • The Netherlands • New Zealand • Norway • Peru • Philippines • Poland • Portugal • Puerto Rico • Romania • Russia • Saudi Arabia • Singapore  
Slovakia • Slovenia • South Africa • Spain • Sweden • Switzerland • Taiwan • Thailand • Turkey • Ukraine • United Kingdom • United States • Venezuela