

Impact in the United States

2011

Partnering with the United States to Educate America's Workforce

A sustained economic recovery requires a skilled and well-trained workforce. To reach their full potential as a vital resource for the United States, graduates now need to acquire problem-solving and critical-thinking skills, in addition to specific job-related expertise.

As organizations become increasingly reliant on innovative workers and intelligent networks, Cisco® Networking Academy® is helping the nation prepare for stable, high-paying jobs by teaching the skills that employers need.

A Leader in Education Innovation

Cisco Networking Academy is a transformative, technology education program that prepares college- and career-ready students for the 21st century with curricula that builds information communications technology (ICT) and networking knowledge and skills.

Networking Academy is recognized worldwide as a leader in education innovation and e-learning. The courseware is developed by Cisco and delivered through public and private education organizations.

Curricula include instructor-led course content, online learning and skills assessments, hands-on labs, and innovative simulation and gaming technology. Core courses include IT Essentials, CCNA® (Cisco Certified Networking Associate) Discovery, CCNA Exploration, and CCNA Security. Students may then enroll in the more advanced CCNP® (Cisco Certified Networking Professional) courses.

Successful completion of the course work helps prepare Networking Academy students to take exams and earn ICT certifications that are valued by employers in diverse global industries and public-sector organizations. Courses also prepare students to pursue further education or apply these skills in their own businesses.

As of October 31, 2010, approximately 167,000 students were being taught by 4214 instructors in 2388 academies across the United States and Canada. Rapid growth over the past decade has demonstrated the program's success and versatility with its geographic reach, the diversity of students, the number and variety of

One million students engaged this year in 165 countries makes Cisco Networking Academy one of the world's largest classrooms. Since its inception in 1997, more than 3.75 million students have been enrolled, attending courses offered at local high schools, community colleges, universities, and nontraditional settings.

Cisco uses the network to connect students and instructors, and to partner with over 10,000 education institutions, while delivering 1 million online assessments per month, around the world.

Networking Academy cultivates partnerships with a broad range of education, government, NGOs and private organizations to advance education.

Cisco is the worldwide leader in networking for the internet, delivering innovations that change how we work, live, play and learn.



partners, the breadth and relevance of curricula, and its ability to keep pace with technical and pedagogical advances. Course content is consistent, providing students everywhere the same knowledge, skills development, and assessments.

Unique to Networking Academy is a focus on instructor professional development, and the creation of communities of support for both instructors and students. Instructors receive training prior to teaching their first class. They also have many professional development opportunities throughout the year, and access to peer communities where they can collaborate and share best practices online and in person. Students become part of a global network that helps them to troubleshoot coursework and prepare for exams, while also providing mentors and encouragement to one another.

National Education Standards for a 21st Century Workforce

There is a growing concern on the part of government, foundations, and business organizations about the ability of our future workforce not only to enable economic recovery, but also meet the challenges of global economic competition. Several efforts are under way to help schools identify requirements for more rigorous studies that will improve math and science test scores, develop career-ready skills, and stimulate student interest in science, technology, engineering, and mathematics (STEM). Some of these efforts include:

- The education initiative and funding opportunities announced from the Obama administration to increase STEM literacy, teaching quality, and expansion of education and career opportunities to under-represented groups like women and minorities.
- The Common Core Standards, introduced as a state-led effort from the National Governors Association and Council of Chief State School Officers, to establish mathematics and language arts standards that define the knowledge and skills students need for success in college and careers.
- The Partnership for 21st Century Skills definitions of core subjects and 21st century themes representing the knowledge, skills and expertise that students should master to succeed in work and life.

The emphasis on technology is a common theme in all of the efforts to establish education standards. With our increasingly Internet-centric world, most careers in this century will require a strong understanding of how to take full advantage of technology-enabled communications and business processes. Educators want to use technology in their classrooms to better engage students, develop skills, and extend the learning experience. In addition, a workforce that is well-schooled in ICT and engineering can help spur innovation across many industries, which in turn opens up additional business opportunities to fuel productivity and economic growth. ICT investments are expected to play a major role in generating stable, high-paying jobs and boosting the nation's GDP.

“Now is the time to build a firmer, stronger foundation for growth that will not only withstand future economic storms, but one that helps us thrive and compete in a global economy. It’s time to reform [education] to provide Americans of all ages a chance to learn the skills and knowledge necessary to compete for the jobs of the future.” –President Barack Obama, January 2011

Networking Academy combines an emphasis on education standards and the skills that will be required in future job markets. Networking knowledge will be especially important in critical areas such as green technologies, healthcare, smart energy grids, and the push toward universal broadband deployment. The educational infrastructure at Networking Academy helps to ensure that the program's curricula will evolve to deliver technology knowledge and skills that can meet future learning requirements.



State-of-the-Art Learning Environment

The instructional approach at Networking Academy encourages student engagement, enhancing the student's ability to synthesize learning and apply it in other contexts. Four skill areas identified by education researchers as critical for 21st century workers have been integrated into the course content:

- **Problem solving and decision making:** Students practice and test their knowledge by configuring and troubleshooting networks using hands-on labs and simulation software.
- **Creative and critical thinking:** Students understand the how and why of networking by combining hands-on learning with conceptual and analytical exercises.
- **Collaboration, communication and negotiation:** Students acquire individual and teamwork skills as they perform lab exercises and engage in business scenarios through gaming, all of which prepares them for the job world.
- **Intellectual curiosity and information handling:** Students develop the ability to locate, select, structure and evaluate information. Real-world case studies give students the opportunity to develop cutting-edge problem-solving techniques.

Spotlight on Community Colleges

A unique feature of these institutions is their link to business and industry, and hence their integration into economic development. Community colleges are working to align their curricula, certifications and degrees with new ICT jobs through Networking Academy implementations. In the United States, 50% of all community colleges offer Networking Academy courses.

According to researchers, students today are faced with high tuition costs, a weak economy, and increased competition for admission to four-year colleges. They are more likely than at any other point in history to attend community college. Community colleges are also an invaluable resource for adults seeking to acquire new skills that are needed by employers. As a result, community colleges have experienced a spike in enrollment. And in October 2010, the White House convened the first Summit on Community Colleges to highlight the critical role they play in developing the nation's workforce, and in meeting President Obama's goal to lead the world with the highest proportion of college graduates by 2020.

As an example of how these institutions are responding to the challenge, Cuyahoga Community College instructor, Hamid Abdollahian, creates awareness around the increasing need for ICT and networking skills in the workplace and for Cuyahoga as a path for graduates to obtain those jobs. In his role as director of the Cisco Regional Academy at Cuyahoga, he contributes articles to print and online publications, and speaks on campus, about the knowledge and skills obtained through Networking Academy courses. Hamid includes facts from the Ohio Department of Jobs & Family Services, which recently reported on the fastest growing positions in the Cleveland metropolitan area: an expected increase of 4000 jobs in computer and mathematical occupations, including network systems and data communication analysts, which will be the jobs with the highest growth between 2006 and 2016. Hamid says, "Students are often surprised by the number of specializations within the networking field, and the number of industries and types of companies looking for this expertise. I spread the word that only 20% of 490 million legacy phone systems have been converted to voice over IP. I talk about the tremendous need for wireless network and storage network specialists, as well as network security experts to prevent cyber-attacks." The networking field is constantly evolving, and Networking Academy courses reflect those changes by incorporating real-world customer challenges. "This ensures that our students have access to the industry's best training and certification, and that our graduates can compete for higher-paying technology jobs. Anything we can do to help our local economy by preparing its workforce is priority #1 for us."

Another example is the partnership of two community colleges with the Colorado Department of Corrections (CDOC) to establish the first Cisco Networking Academy in a U.S. prison. Academy instructors from Arapahoe Community College and Pueblo Community College contributed to the CDOC vision of opening doors of opportunity within prison walls. Now, offenders at the Denver Women’s Correctional Facility can learn and practice ICT and networking skills, using Networking Academy’s hands-on curricula, and move towards successful re-entry into society. Many are experiencing successful learning for the first time and are gaining a new sense of confidence in their ability. Within the first month, students were discussing complex technology concepts with assurance. The instructors and CDOC also partner with the business community to have professional women in ICT careers visit the facility to talk with the students. According to Carl Wotowis, Assistant Director of the Offenders Program, “Our students know the odds are against them out in the community, but they are willing to give it everything they can. I think the biggest surprise for all of us is how much they support each other. They are pioneers, and the camaraderie among them is remarkable and inspiring. They have a sense that they may not only change their own lives, but the lives of other women in prison.”

The Data Behind the Demand

Table 1. Projection of selected ICT occupations in the United States¹

U.S. Occupation Projections	Employment		Change		Average Annual Openings	Occupational Employment as of May 2009 ²
	2008	2018	#	%		
Computer Support Specialists	565,700	643,700	78,000	14.0	23,460	540,560
Computer Systems Analysts	532,200	640,300	108,100	20.0	22,280	512,720
Network and Computer Systems Administrators	339,500	418,400	78,900	23.0	13,550	338,890
Network Systems and Data Communications Analysts	292,000	447,800	155,800	53.0	20,830	226,080
Computer and Information Systems Managers	293,000	342,500	49,500	17.0	9,710	287,210

¹ Source: U.S. DOL, Bureau of Labor Statistics, October 2010, bls.gov/oco/oco2003

² Source: U.S. DOL, Bureau of Labor Statistics, State Occupational Employment and Wage Estimates, May 2009, stat.bls.gov/oes/current/oesrcst

The Impact in the United States

The partnership between Cisco Networking Academy and the United States has touched the lives of 962,338 students and generated an estimated contribution value of \$410,517,899 to education across the country. Tables 2 and 3 provide information on the state’s current academies, curricula, and education levels.

Table 2. Cisco Networking Academy in the United States¹

Students	148,293
Female students	14%
Distinct cumulative students	962,338
Instructors	3,710

Academies				2,168
Education level (students/academies at more than one education level are counted proportionately)	Secondary Schools	Community Colleges	Universities	Other ²
Students	37%	50%	11%	2%
Academies	60%	31%	7%	2%
Curricula³ (students/academies that take/teach multiple curricula are counted more than once)	ITE	CCNA 1, 2	CCNA 3, 4	Advanced Technologies / Other ⁴
Students	32%	67%	20%	4%
Academies	53%	72%	51%	15%
In-kind contribution value⁵ (estimated cumulative value to academies including donations and discounts)				\$410,517,899

¹ Source: Quarterly Metrics, October 2010

² Includes community-based organizations, middle schools, military, nontraditional educational settings, and post-graduate institutions

³ Source: MRE report 4415P51, November 2010

⁴ Includes CCNA Security, CCNP, Security, Wireless, IP Telephony, Java, UNIX and Panduit Network Infrastructure Essentials (PNIE)

⁵ Source: MRE report 4483, November 2010

Table 3. Active academies in the United States¹

Active academies are defined as those that have taught a class with at least three distinct student assessments or adopted a new curriculum within the last 12 months.

Number of Districts	With Networking Academies	Without Networking Academies	% Penetration
436	427	9	98%

¹ Source: Congressional_Report_November 2010

National Student and Community Impact Stories

Adopt-an-Academy Program: Chicago Public Schools

The Adopt-an-Academy Program in Chicago evolved from a long-time partnership between Cisco Networking Academy and Panduit Corporation to provide technology education to build the ICT workforce. Panduit, with world headquarters in the Chicago area, wanted to expand its Corporate Social Responsibility (CSR) impact, emulating Cisco's globally recognized CSR commitment to giving back through significant investment in education and community development. By tapping into local employee bases, the companies joined forces to build an engagement framework which would help cultivate the future ICT talent pool, while making a difference in the local community.



Since 2009, mentors from Cisco and Panduit have worked with Networking Academy students in Chicago to provide real-world career exploration and exposure to state-of-the-art technology. The goal is to broaden awareness among young people by connecting them to industry professionals and inspire them to pursue an ICT/Networking career. In addition to providing mentors, Panduit also gives 9 annual scholarships of \$1500 each to post-secondary academy students, to encourage them to continue their technology education. Adopted schools have included Chicago Public Schools, Jones College Prep, ASPIRA, Robert Morris University, Moraine Valley Community College, and DeVry University.

Debra Huttenberg, Panduit VP of U.S. Sales and academy mentor, says, "The Adopt-an-Academy program is an opportunity for us to ensure the continuation and growth of our industry. It helps drive

innovative thinking and energy to our business, while exposing students to ICT professionals who can provide coaching, guidance and the benefit of their experience.”

As part of the focused initiative, students participate in a series of collaborative educational and social experiences that enhance academic performance and expand their understanding of ICT careers. In the Cisco Networking Academy courses, students learn how to design, build and manage networks through theoretical and lab-based learning. The Adopt-an-Academy program adds a practical component to their skills development through exposure to industry professionals and real-world scenarios. Mentors provide tutoring and coaching on career goals, resume workshops, and job interview techniques. In addition, students are invited to participate in job shadowing activities and hands-on technical demonstrations, which provide opportunities to learn about cutting-edge ICT/networking technology, including Cisco unified communications, security, mobility, digital signage, and TelePresence.



The impact the Adopt-an-Academy program is reflected in one particular student, Todd Escalona, a graduate of the Cisco Networking Academy at Robert Morris University. As a mentee, Todd participated in various career and networking events hosted by Cisco and Panduit. His mentors encouraged him to interview for one of the coveted positions in the Cisco ASE (Associated Systems Engineer) program, an intensive year-long field training program that develops apprentices into professionals.

“As a mentee, I was able to develop the confidence I needed to pursue my ICT career goals,” says Todd. “My mentors provided me with invaluable advice and encouragement. The experience was great!”

Another important outcome of the Adopt-an-Academy engagement is seen at the Chicago Public Schools administrative level. By engaging district-level decision makers in Adopt-an-Academy events, and demonstrating the collaborative investment being made in the community, Cisco was able to influence the district on a much needed technology upgrade.



Adopt-an-Academy is a powerful example of a public-private partnership (between education and business) that supports the community by leveraging financial and in-kind resources to establish a long-term engagement strategy, which allows organizations to build a pipeline of future talent for their company. The program in Chicago now serves as a model for other partners to engage with schools at the local level to address their workforce needs while serving as good corporate citizens. Cisco Networking Academy and Panduit continue to evolve the program, opening doors for diverse students through technology education across the nation.



From SkillsUSA to WorldSkills International

Academy student at Florida Atlantic University wins SkillsUSA, and will compete in WorldSkills 2011.

SkillsUSA is a national partnership of students, teachers and industry, working together to help ensure that America has a skilled workforce. SkillsUSA chapters help students preparing for careers in technical, skilled trades, and service occupations. It also provides high-quality educational experiences for students in leadership, teamwork, citizenship and character development. It builds and reinforces self-confidence, productive work attitudes and communications skills. It emphasizes total quality at work—high ethical standards, superior work skills, life-long education, and pride in the dignity of work. SkillsUSA also promotes understanding of the free-enterprise system and involvement in community service.

Matthew Vicari, a graduate of South Tech Education Center and a current student at Florida Atlantic University, won the IT/PC Networking section of the SkillsUSA Championships in 2009. Matt is pursuing a degree in computer science, and consults with the campus ICT support team.

As the highest scorer (he was the high school gold medalist), he was selected to represent the United States in London at the 41st annual WorldSkills International competition in 2011. Matthew will compete as a member of the U.S. World Team, which has 22 members under the age of 23.

Every two years, hundreds of young people from 53 member countries compete in the prestigious WorldSkills competition. Member countries include: Japan, Germany, Saudi Arabia, Thailand, Canada, Australia, Brazil and many others. Considered “the best of the best,” these contestants compete for four days in 45 occupational skill areas, including ICT, manufacturing, transportation, construction and services. Participants compete before the public in contests that are run and judged by industry representatives using demanding international standards. Many competitor countries invest time and money to prepare their teams for WorldSkills.



This year in London, more than 1,000 competitors will test their skills. Approximately 5000 international experts, delegates and judges will gather from around the world, and 3,000 volunteers will be recruited to assist in the event. A total of 150,000 student and public spectators will attend.

Over its 60-year history, WorldSkills International (formerly known as the "Skill Olympics") has come to symbolize the pinnacle of excellence in professional training. It provides a unique means of exchange and comparison of world-class competency standards in the industrial trades and service sectors of the global economy. The continued growth of WorldSkills attests to the fact that traditional trade and craft skills, along with newer technology multi-skilled occupations, make an essential contribution to economic and social well being everywhere.

“I want to compete in the WorldSkills competition because I enjoy the challenge, and I want to see how I well I perform compared to other competitors in my field,” said Matthew. Matthew's career goal is to work for Cisco, Google or Microsoft, and some day start his own ICT business.

One Economy and Cisco Networking Academy Partner for Wide Scale Impact

One Economy is a global nonprofit whose mission is to connect underserved communities with information that can improve their lives. The organization brings broadband access and online resources to low-income households. It also immerses teenagers and young adults in technology through the Digital Connectors program, which was launched in the U.S. in 2001. To date, more than 1,200 students, ages 14 to 21, have become “Digital Connectors,” and given more than 42,000 hours of service to their communities.



One Economy has accomplished this through strong public-private partnerships. One of these long-standing partnerships is with Cisco. This partnership is focused on bringing Internet access to subsidized housing, and building an award-winning information portal for low-income families.

Now Cisco and One Economy are working together to engage young people in schools across the United States through the Digital Connectors program and Cisco[®] Networking Academy.[®] This endeavor focuses on improving socioeconomic conditions by increasing access to education and career opportunities. It is the perfect marriage of two missions.

Headquartered in Washington D.C., One Economy's vice president of Social Innovations, Karla Ballard, says:

“[The integration of the Networking Academy curriculum is] a defining moment in our ability to involve young people in Digital Connectors. Cisco has taken the impact of our program to a whole new level. We can bring our program into the school setting and meet



students where they are. We can help kids and young adults train for and find first-rate jobs utilizing technology in all kinds of fields.”

The scale of the collaboration matches the ambitions of One Economy’s vision for global information accessibility for the isolated and underserved. During the first year of this program, One Economy estimates they will be able to set up 100 new Networking Academy programs in schools across the United States.

When the idea for this program was conceived back in 2009, the team from One Economy reached out to Robert Meyers, a Networking Academy instructor at the West Virginia University (WVU) Office of Information Technology. Bob is also assistant director for the Cisco Networking Academy Training Center, which provides regional academy instructor training and support. “We were impressed by the quality of the academy courses that Bob had developed at WVU,” says Karla.



After months of planning, One Economy unveiled the new 130–170 hours of coursework covering several modules: a leadership development track, media literacy track, a financial literacy course, the Cisco IT Essentials course, and a final project that gives students many choices for exercising their creativity, knowledge and leadership skills.

IT Essentials covers the fundamentals of PC technology, networking and security. Digital Connectors students who take the course will learn to assemble a computer system, install software, and troubleshoot systems. Hands-on labs will help students develop critical thinking and problem-solving skills.

Teachers make the vision a reality. Creating the leaders of tomorrow first requires creating a leadership training team. To open 100 academies meant that One Economy had to recruit, train, and certify over 100 instructors. Training and salaries are paid for as part of a grant from the Broadband Opportunity Coalition. The instructors come from all walks of life — engineers, community college and university teachers, and people with an interest in technology and teaching who were looking for part-time jobs.

Chris McInnis, manager of Technical Training for Digital Connectors, is in charge of the ambitious training program, which uses a blended learning environment that combines hands-on labs, webinars and online coursework. Chris says:

“For some of the instructors, this is a refresh opportunity. For others, this is their first intensive networking instruction. Many of the teachers in the program have already expressed an interest in additional courses and obtaining their Cisco CCNA® and Cisco CCNP® certifications. On the way to inspiring the students, our program is also inspiring teachers. That has been an unexpected and very exciting bonus.”

Digital Connectors students from low-income areas will start taking courses in Summer 2011. The students receive a stipend while they are studying, and track their attendance with an electronic timesheet. Course completion, while a significant achievement for these young people, is not the only goal. The Connectors Club, a private social networking and information portal created by One Economy, is expanding to allow students to log course success and volunteer hours, write blogs, post resumes and portfolios, and upload community and journalism videos that they have created with the Flip™ video camcorders donated by Cisco.



“Through the Connectors Club portal, we envision that students will not just be tracking their coursework and volunteer time in the community, they will also be building a portfolio for future job searches,” says Karla. “We will structure the portal so that prospective employers can post jobs for



graduates, and review student resumes and portfolios. We hope to break new ground in the way students build multimedia portfolios even before they tackle a competitive job market.”

Karla Ballard sums up the value of the endeavor this way:

“We wanted to greatly enhance the workforce development impact of our program. The Cisco Networking Academy curriculum allows us to take Digital Connectors students to that next level, by delivering education and training that prepares our students for high-paying, competitive jobs. It is the most exciting evolution of the Digital Connectors vision. This is going to change so many lives in such an extraordinary way.”

Learn More

For additional information, impact stories, how you can get involved, and contacts in your area, visit our website: www.cisco.com/web/learning/netacad/us-can

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