Partnering for America’s Networked Future

A sustained economic recovery requires a skilled and well-trained workforce. Graduates who have acquired problem-solving and critical-thinking skills, in addition to specific job-related expertise, will be a crucial human resource for the United States in the years ahead. As organizations become increasingly reliant on knowledge workers and intelligent networks, Cisco® Networking Academy® is helping the nation prepare for sustainable, high-paying jobs by teaching the skills employers need.

A Leader in Education Innovation
Cisco Networking Academy is a transformative, public-private education initiative, preparing today’s students for 21st century opportunities via curricula that build knowledge and skills in information communications technology (ICT).

After successfully completing the coursework, Networking Academy students are prepared to earn ICT certifications that are valued by employers in diverse industries and public-sector organizations. Courses also prepare students to pursue further education or apply these skills in their own businesses.

Networking Academy is recognized worldwide as a leader in education innovation and e-learning. The curricula include instructor-led course content, online learning and skills assessments, hands-on labs, and innovative simulation technology.

Core courses include IT Essentials, Cisco CCNA® Discovery, CCNA Exploration, and CCNA Security. Students may then enroll in the more advanced Cisco CCNP® courses.

As of October 31, 2009, approximately 155,571 students were enrolled in 2,425 academies in the United States and Canada. Rapid growth over the past decade has demonstrated the program’s versatility in geographic reach, diversity of students, number and variety of partners, breadth and relevance of curriculum, and ability to keep pace with technical and pedagogical advances. Course content is consistent, providing students everywhere with the same knowledge and skill development.

The 21st Century Workforce
Strengthening instruction for science, technology, engineering, and mathematics (STEM) is a prerequisite to developing a well-trained, 21st century workforce. The Obama administration has announced an education initiative aimed at increasing STEM literacy and critical thinking, improving the quality of STEM teaching, and expanding STEM education and career opportunities with a focus on under-represented groups like women and minorities.

Educators have placed considerable emphasis on the science and math components of the STEM curricula. But technology and engineering are equally vital. In particular, ICT investments are expected to play a major role in generating stable, high-paying jobs and boosting the nation's GDP. 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.
“Reaffirming and strengthening America's role as the world's engine of scientific
discovery and technological innovation is essential to meeting the challenges of this
century. That's why I am committed to making the improvement of STEM education
over the next decade a national priority.” —President Barack Obama, 11/23/09

Networking Academy puts an emphasis on understanding what skills 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. Networking Academy utilizes an education infrastructure that ensures curricula will evolve to meet STEM and 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 teamwork and career-ready skills as they perform lab exercises and engage in business scenarios.

- **Intellectual curiosity and information handling:** Coursework helps students develop the ability to find, 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 linkage with 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, more than 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. As a result, community colleges have experienced a spike in enrollment. In July 2009, the Obama administration proposed a $12 billion plan called the American Graduation Initiative, aimed at supporting community colleges by funding job training and retraining programs.

As an example of how these institutions are responding to the challenge, Moraine Valley Community College in the Chicago area is leading the Center for System Security and Information Assurance (CSSIA), a consortium of seven academic institutions in five states, dedicated to developing and evaluating cyber-security curricula, and offering training programs to community college and university faculty, secondary school faculty, and students across the region. A Cisco Networking Academy training center was established at Moraine in 1998, and academy courses are an integral part of the curricula. CSSIA has developed nine undergraduate courses, nine graduate courses, and a variety of workshops that can be used as models by other institutions.
The Data Behind the Demand

Table 1. Projection of Select ICT Occupations in the United States

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>Employment Change</th>
<th>Average Annual Openings</th>
<th>Occupational Employment as of May 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2006</td>
<td>2016</td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>Computer Support Specialists</td>
<td>552,000</td>
<td>624,000</td>
<td>71,000</td>
<td>21.9</td>
</tr>
<tr>
<td>Computer Systems Analysts</td>
<td>504,000</td>
<td>650,000</td>
<td>146,000</td>
<td>29</td>
</tr>
<tr>
<td>Network and Computer Systems</td>
<td>309,000</td>
<td>393,000</td>
<td>83,000</td>
<td>27</td>
</tr>
<tr>
<td>Administrators</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network Systems and Data Communications Analysts</td>
<td>262,000</td>
<td>402,000</td>
<td>140,000</td>
<td>53.4</td>
</tr>
<tr>
<td>Computer and Information Systems</td>
<td>264,000</td>
<td>307,000</td>
<td>43,000</td>
<td>16.4</td>
</tr>
<tr>
<td>Administrators</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>


The Impact in the United States

The partnership between Cisco Networking Academy and the United States has touched the lives of 593,785 students and generated an estimated contribution valued at $332,741,863 to education in the nation.

Table 2. Cisco Networking Academy in the United States

| Students (includes American Samoa, Guam, US DoDEA, and US DoD dependents schools) | 137,538 |
| Female students | 15% |
| Distinct cumulative students (having successfully completed at least one course) | 593,785 |
| Academies | 2,181 |
| Instructors | 3,652 |

<table>
<thead>
<tr>
<th>Education Level (students/academies at more than one ed level are distributed proportionately)</th>
<th>Secondary Schools</th>
<th>Community Colleges</th>
<th>Universities</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>41%</td>
<td>47%</td>
<td>10%</td>
<td>2%</td>
</tr>
<tr>
<td>Academies</td>
<td>60%</td>
<td>31%</td>
<td>7%</td>
<td>2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Currícula (students/academies that take/teach multiple currícula are counted more than once)</th>
<th>ITE</th>
<th>CCNA 1, 2</th>
<th>CCNA 3, 4</th>
<th>Advanced Technologies/Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>33%</td>
<td>66%</td>
<td>19%</td>
<td>5%</td>
</tr>
<tr>
<td>Academies</td>
<td>48%</td>
<td>75%</td>
<td>52%</td>
<td>19%</td>
</tr>
</tbody>
</table>

| Contribution value (estimated cumulative value to academies, including donations and discounts) | $332,741,863 |

1 Source: MRE FULL Package of Quarterly Metrics_10.31.09_v1.xls

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

3 Source: MRE reports 4075_MASTER P51_v2 with Country Totals.xlsx (includes Guam and American Samoa)


5 Source: MRE report MASTER IN-KIND CONTRIBUTION for USCAN as of 10.31.09_v1.xlsx
### Table 3. Active Academies in United States Congressional Districts

Active academies are those that have taught a class with at least 3 distinct student assessments, or adopted a new curriculum, within the last 12 months.

<table>
<thead>
<tr>
<th>Number of Districts</th>
<th>With Networking Academies</th>
<th>Without Networking Academies</th>
<th>% Penetration</th>
</tr>
</thead>
<tbody>
<tr>
<td>436</td>
<td>426</td>
<td>10</td>
<td>98%</td>
</tr>
</tbody>
</table>

Source: MRE/Academy Connection, U.S. Congressional District Database Date: Oct 31, 2009

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### Models of Practice/Case Studies

#### MIAMI-DADE OFFERS SUMMER HIGH SCHOOL APPRENTICESHIP

**Cisco Academy Apprenticeship Program**

Miami-Dade County Public Schools (M-DCPS) offers an annual summer apprenticeship program for high school students enrolled in Cisco Networking Academy courses. The apprenticeship program provides students with a rare opportunity to combine classroom theory, practical hands-on training, and "real world" customer support experience, all in preparation for the demands of today's competitive workforce.

Inspired by M-DCPS core values of citizenship, cooperation, and responsibility, the Cisco Academy Apprentice Program (CAAP) offers an inside view of ICT and networking to two participants from each of its 17 Networking Academy schools each summer.

**CAAP Apprentices Provide District Support**

CAAP students work in the M-DCPS Infrastructure & Systems Support (ISS) group, which is part of the Information Technology Services (ITS) department. M-DCPS is one of the largest school districts in the nation. ITS serves nearly 400 school sites and is open seven days a week, 24 hours a day, to meet the district's needs.

ITS provides overall leadership for the operation and enhancement of the district's information systems, and evaluates the impact of new projects, including suggesting changes to systems and procedures already in place. It also provides an interface between information systems tools and the educational and administrative personnel who utilize them. ITS is guided by the recommendations, evaluations, and endorsements provided by advisory groups.

**Program History and Development**

CAAP was initially developed in 1999 as a summer skills program for students from Miami Lake Educational Center. As it evolved into a countywide annual apprenticeship program, its developers obtained guidelines from the National Academy Foundation ([www.naf.org](http://www.naf.org)).

**Application Process**

The application process is managed by Davion Crumel, CAAP Director and ITS Network Analyst. Davion visits each Networking Academy school to provide an overview of the apprenticeship program. He sets up individual interviews with nominated students—typically juniors currently taking Cisco CCNA courses. Some seniors return to the program for a second summer and participate as mentors.
Curricula

CAAP students participate in a three-phase structured learning project:

PHASE 1: technology curricula and employability skills
- soft skills: transition from classroom to workforce
  - teamwork, communication, resume writing, interviewing
  - understanding the goals and vision of an organization
- technology curricula: ITS engineers and guest speakers

PHASE 2: hands-on experiential learning (field deployment)
- paired with ITS supervisors and staff to support up to 60 schools and district offices per team
- matching technical terminology to end user knowledge
- tasks range from helping sync a principal’s Blackberry to setting up an entire school network

PHASE 3: project development and final presentation
- teams develop a plan for a school network built from scratch—construction, equipment, costs, etc.
- plan must incorporate suggestions to improve existing school networks they had worked with
- presentations are given to principals, administrators, engineers, and Cisco channel partners (for prizes)

“One of the great things about CAAP is that it pulls students out of their individual classrooms into a new environment,” says Davion. “Here they are in close contact with other students, instructors and engineers—solving problems together and expanding their network.”

Impact

- Since inception, over 100 M-DCPS students have participated; 50+ are now employed with M-DCPS
- 2 participants actually manage their own departments within ITS
- 9% of ISS staff came through CAAP

Cisco Networking Academy prepares its students for CAAP by providing a solid foundation in infrastructure support, including the ability to recognize issues and provide creative solutions. Networking Academy students know how to increase efficiency and success for any organization that utilizes ICT and networking.

CAAP’s ultimate focus is on student transition from school to the workplace and higher education. M-DCPS initially hires CAAP graduates part-time while they pursue a degree from a community college, trade school or university. M-DCPS encourages lifelong learning and advanced degrees for its instructors and staff.

Jerry Jerome, a previous CAAP student, and now M-DCPS Exchange Support Specialist, says: “The benefits of going through CAAP are countless! I can honestly say that this program was the stepping stone to my career. Everything in the program helped develop and fine-tune the abilities I acquired through Cisco Networking Academy, and allowed me to translate that into my job functions here. It’s really an invaluable asset to any student looking to begin their career, to be able to see the result of their hard work put into action.”

CISCO NETWORKING ACADEMY STUDENTS NETWORK NATIONAL CONFERENCE

Walled Lake Schools, Oakland County, Michigan
Central High School’s Networking Academy students experienced a rare opportunity for real-world ICT experience in a high-profile setting. They provided networking services at the League for Innovation national conference at Cobo Arena in Detroit on October 11–14, 2009.
Networking Academy students assisted ICT professionals with the setup of over 600 computers—running cables, loading software, imaging desktops, and configuring switches.

Jenny Griffith, career technical education coordinator at Walled Lake Schools, said: "It's a rare occasion when high school students have the skills to perform this kind of network setup. This could only be possible in a district like Walled Lake, where emphasis is placed on a diverse curriculum, preparing students for high-wage, high-skilled, high-demand jobs."

Cisco course instructor Dan Carruthers said:

“I am really excited that our students had the chance to work with other networking professionals. This opportunity is what we like to call a ‘21st century learning experience,’ and is a perfect example of how our students typically collaborate with industry professionals. It's these skills that future employers will be looking for from our graduates."

The League for Innovation conference regularly attracts close to 2,500 community, technical, and four-year college and university senior and mid-level administrators, faculty, and professional staff, in addition to a significant number of corporate and educational leaders. Students participating in the League networking project also utilized their “ICT staff” badges to attend conference sessions.

Learn More
For additional information, impact stories, and Cisco Networking Academy contacts in your area, visit our website: www.cisco.com/go/netacad/us-can