

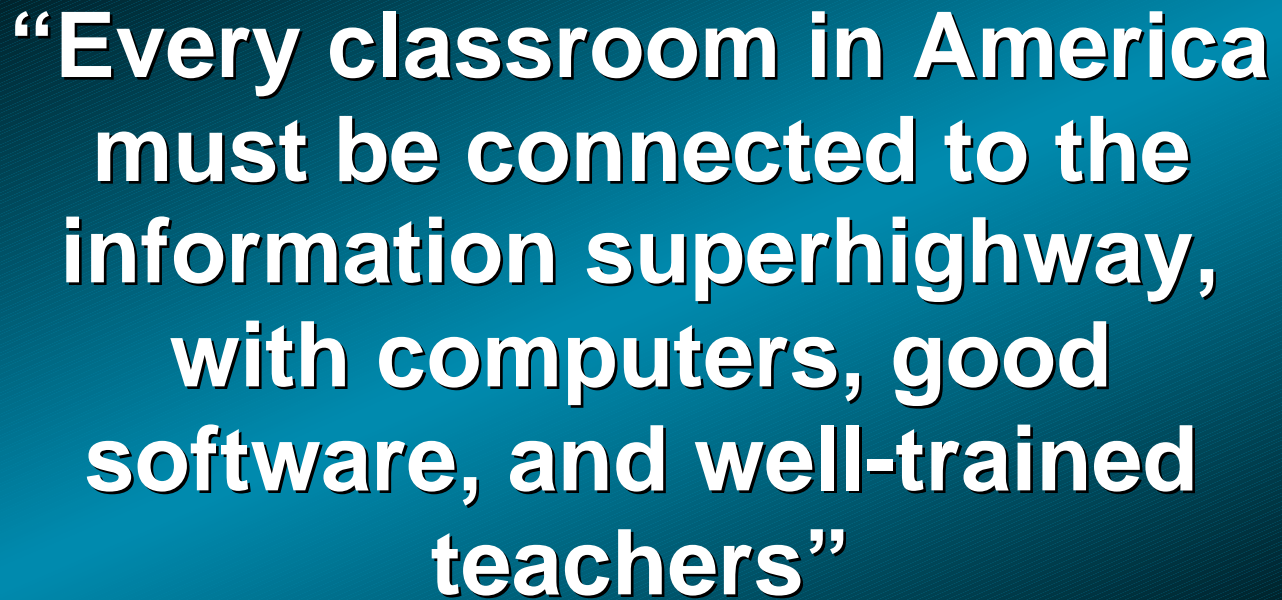


Cisco Networking Academies





K-12 Technology and Education: A National Priority



**“Every classroom in America
must be connected to the
information superhighway,
with computers, good
software, and well-trained
teachers”**

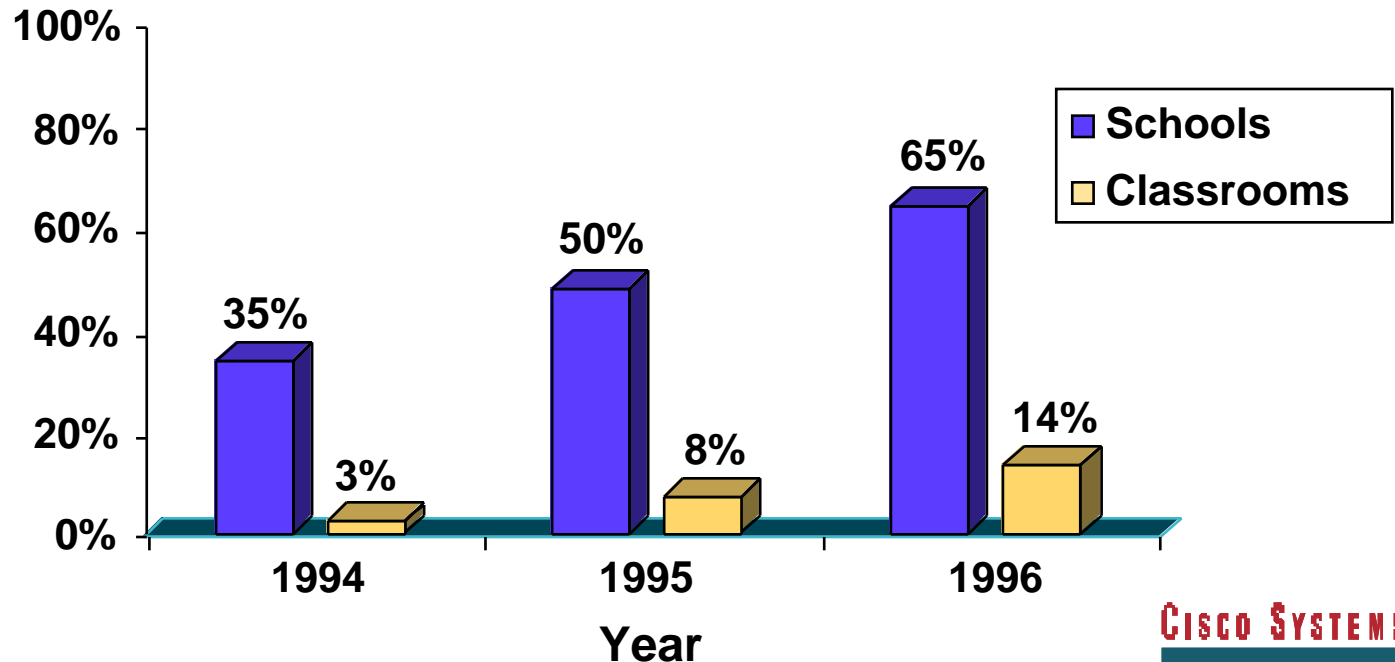
**President Clinton
1996 State of the Union Address**





Most Classrooms Lack Internet Access

Percent of Public Schools and Classroom with Internet Access

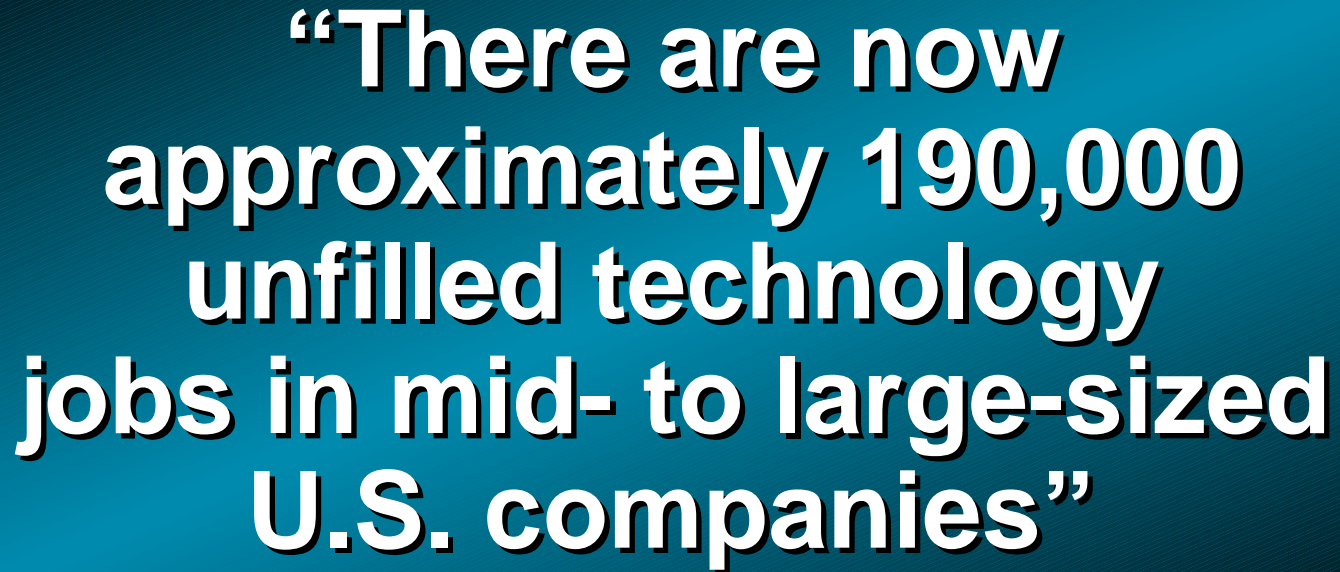


Source: USDOE, 1996





Help Wanted!

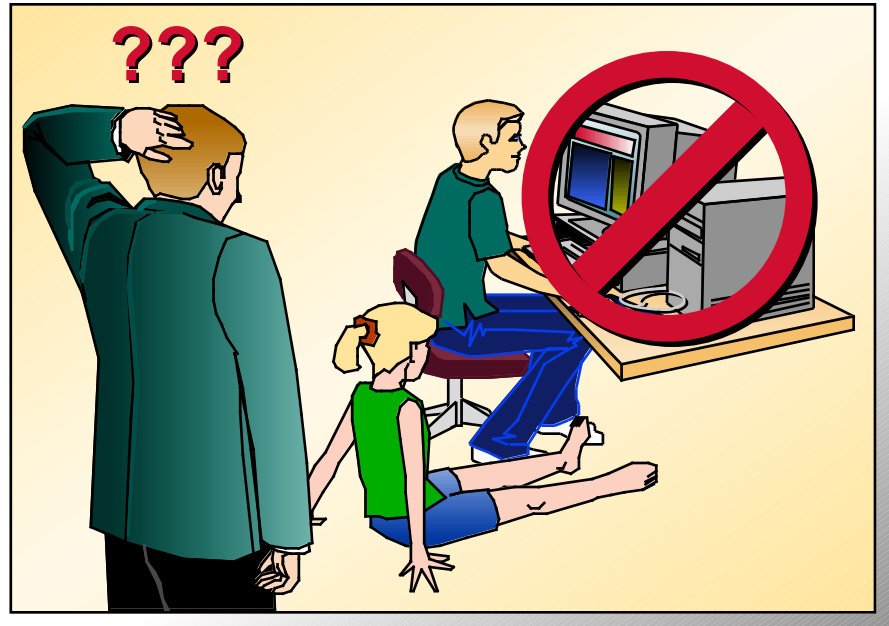


**“There are now
approximately 190,000
unfilled technology
jobs in mid- to large-sized
U.S. companies”**

**Information Technology Association of
America Web Site, Citing their 2/97 Study
“Help Wanted: the IT Workforce Gap at the
Dawn of a New Century”**

Problem Statement—Summary

- Schools don't have resources or time to design, build, and maintain networks
- Students are not receiving exposure to the benefits of networked technology
- The resulting shortage of skilled Information Technology workers is limiting corporate growth



Cisco Networking Academies

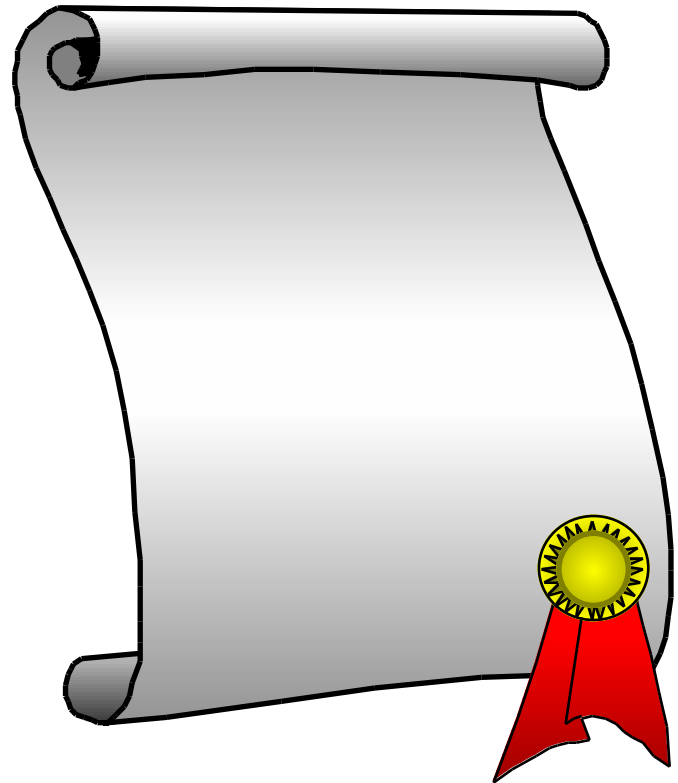
- A program that trains and certifies students to design, build, and maintain networks
- A partnership between Cisco and schools, government, and industry





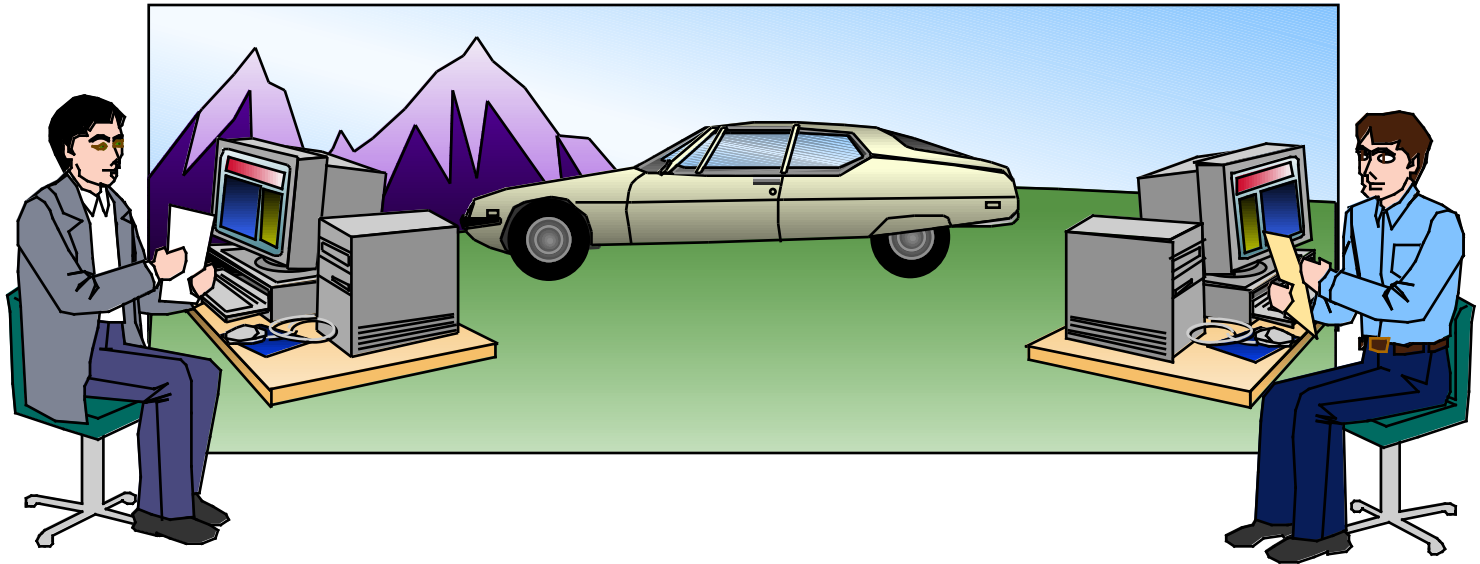
Partnership Benefits

- ***Students*** get skills leading to employment opportunities in computer networking fields
- ***Schools*** get important new networking curricula and resources to help maintain their internal networks
- ***Corporations*** get trained and certified IT professionals
- ***The government*** gets support for its school-to-career and technology-in-the-classroom initiatives



“The Shop of the 21st Century”

- “Auto Shop” and similar classes taught vocational skills in the 20th century
- Vocational skills for the 21st century revolve around computer and networking technologies





How Does the Program Work?

Academy Provides:

- Teacher
- Space
- Internet access



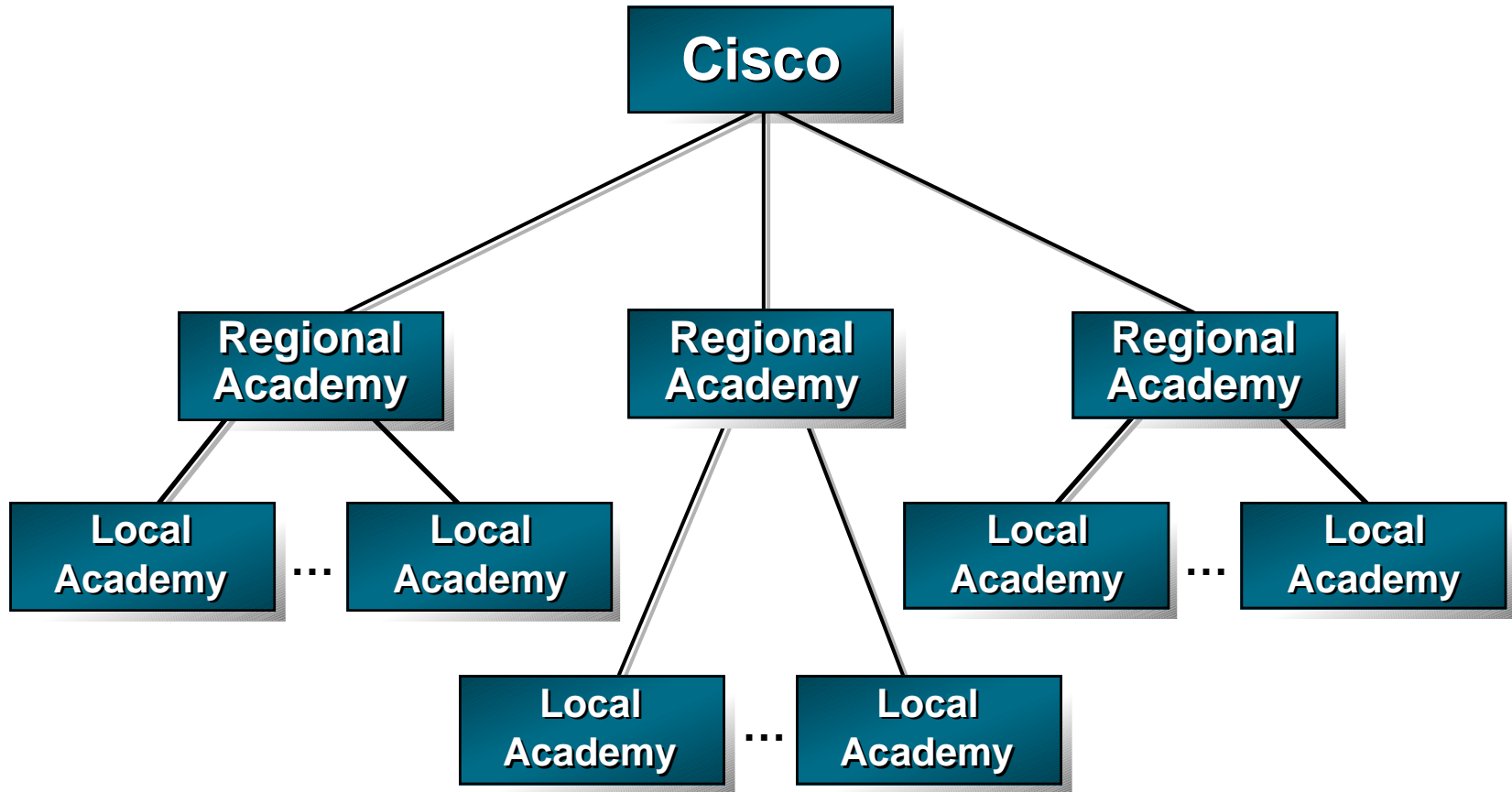
Cisco Provides:

- Curriculum
- Teacher training
- Virtual community
- Equipment
- Support



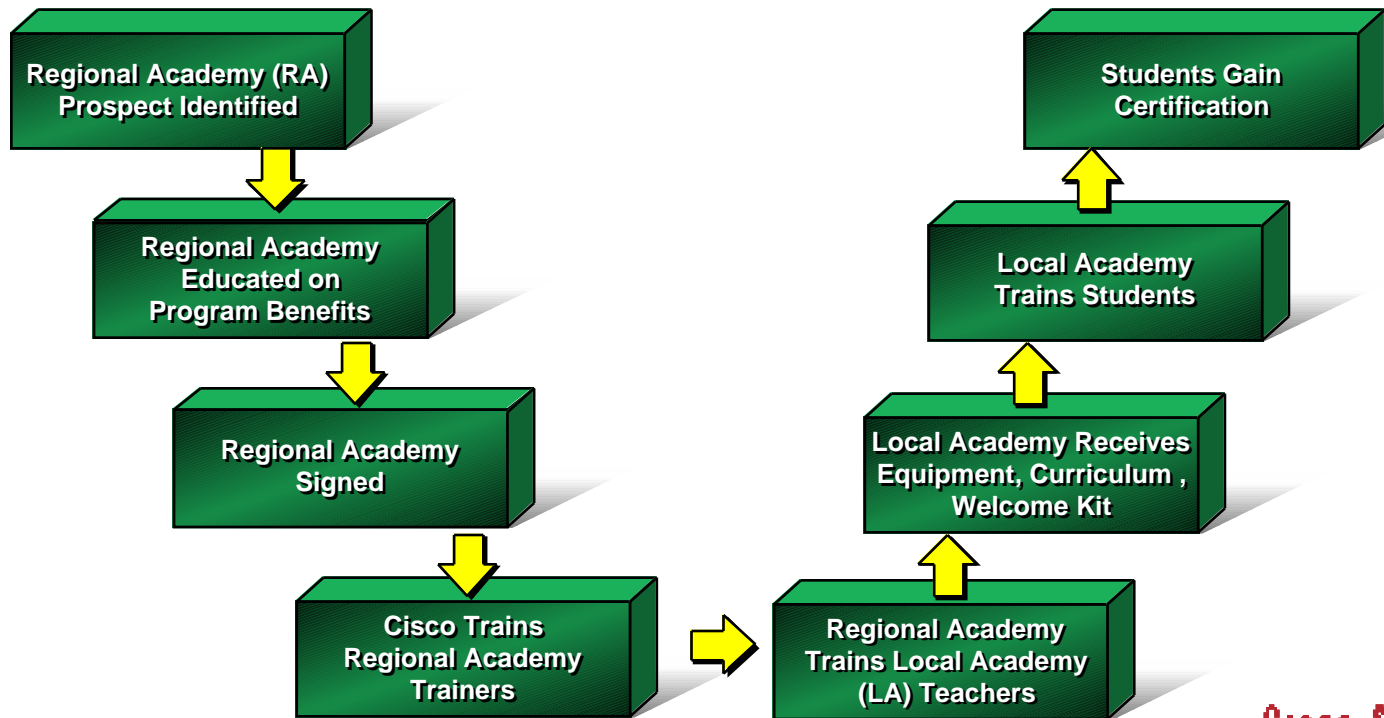


Program Hierarchy



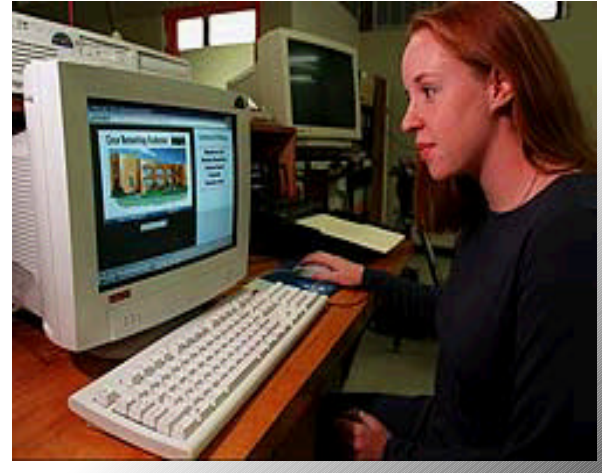
Cisco Networking Academies

Implementation Overview



Cisco Networking Academies Curriculum

- 4 semesters, 70 hours each
- Targets high school and college students
- Pedagogically sound
- Learn by doing
- Multimedia instruction
- Cisco Certified Networking Associate exam



Katie Wright, a 16-year-old junior at New Hanover High School in Wilmington, N.C., logs on to Cisco System's Networking Academy. Photo by Rick McKay/AA-S.



First Semester Curriculum

Networking Fundamentals

- **OSI model and industry standards**
- **Network topologies**
- **IP addressing, including subnet masks**
- **Networking components**
- **Basic network design**





Second Semester Curriculum

Routing Theory and Router Technologies

- **Beginning router configurations**
- **Routed and routing protocols**
- **Introduction to LAN switching**





Third Semester Curriculum

Advanced Routing and Switching

- **Advanced router configurations**
- **LAN switching**
- **Network management**
- **Advanced network design**





Fourth Semester Curriculum

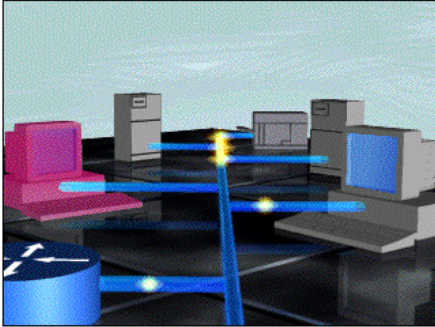
Project Based Learning

- **Advanced network design projects**
- **Advanced network management projects**



Samples of Curriculum

File Edit View Go Bookmarks Options Directory Window Help



What types of network traffic problems is a bridge incapable of solving?

Bridges work best where traffic from one segment of a network to other segments is not too great. However, when traffic between network segments becomes too heavy, the bridge can become a bottleneck and actually slow down communication.

There is another potential problem with using a bridge. Bridges always spread and multiply a special kind of data packet. These data packets occur when a device on a network wants to reach another device on the network, but does not know the destination address of the device. When this occurs, frequently the source sends out what is called a **broadcast**. As its name implies, a broadcast is sent out to all devices on a network. Since every device on the network has to pay attention to such broadcasts, bridges always forward them to each and every segment connected to them. If too many broadcasts are sent out over the network in such instances, a **broadcast storm** can result. If a broadcast storm occurs, it can cause network time-outs. In such situations, traffic on the network slows down and

Broadcast - Data packet that will be sent to all nodes on a network. Broadcasts are identified by a broadcast address.

Back Forward Index Goals Menu

Samples of Curriculum

File Edit View Go Bookmarks Options Directory Window Help

Location: <http://dev.aries.net/beta4/exams/10lesson/10exam-f.html>

Router

Network A: A1, A2, A3, A4, A5

Network B: B5, B4, B3, B2, B1

Network C: C1, C2, C3, C4

Network D: D1, D2, D3, D4

Use this graphic to answer questions #14 and #15.

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Exam 10

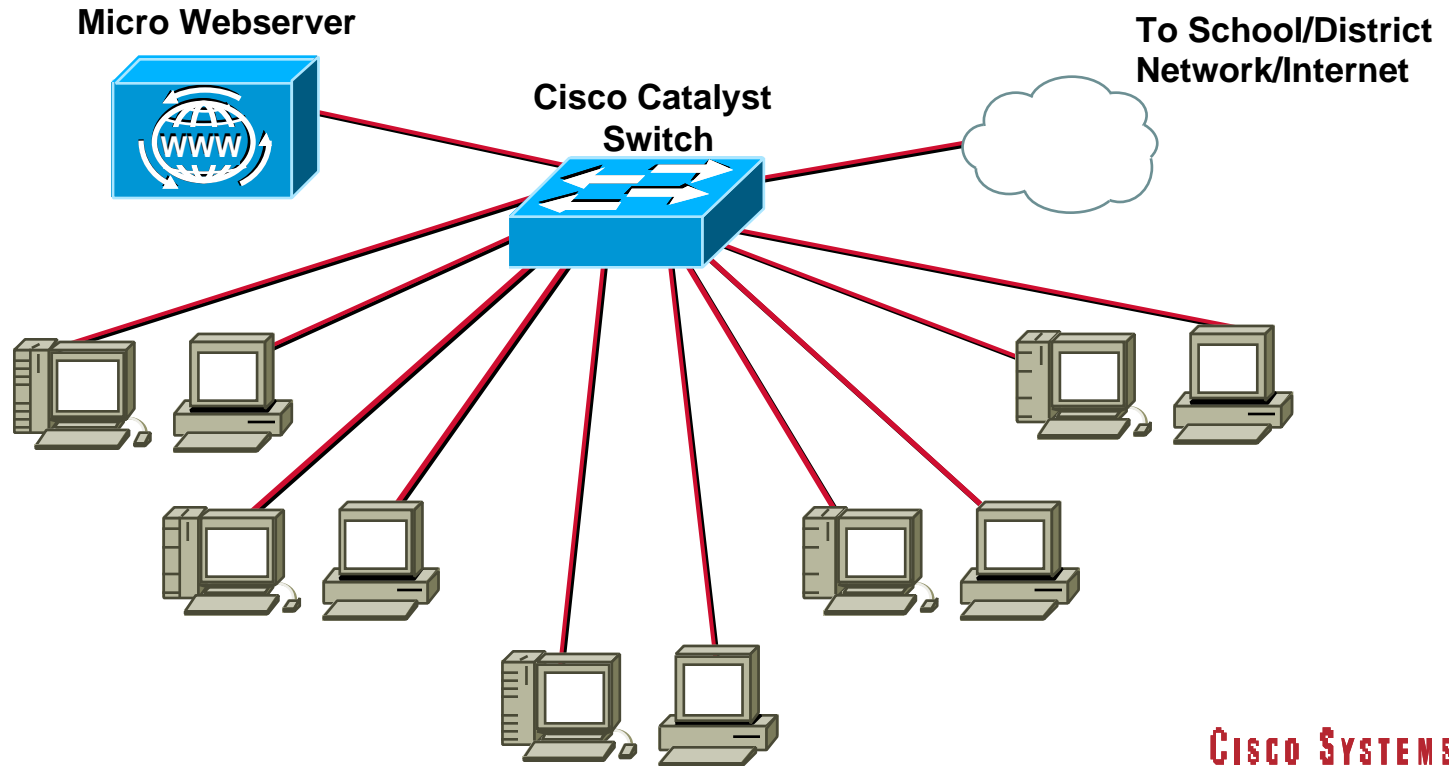
15. In this graphic, how many IP addresses does the router have?

- A. 1
- B. 15
- C. 4

Back Menu Forward

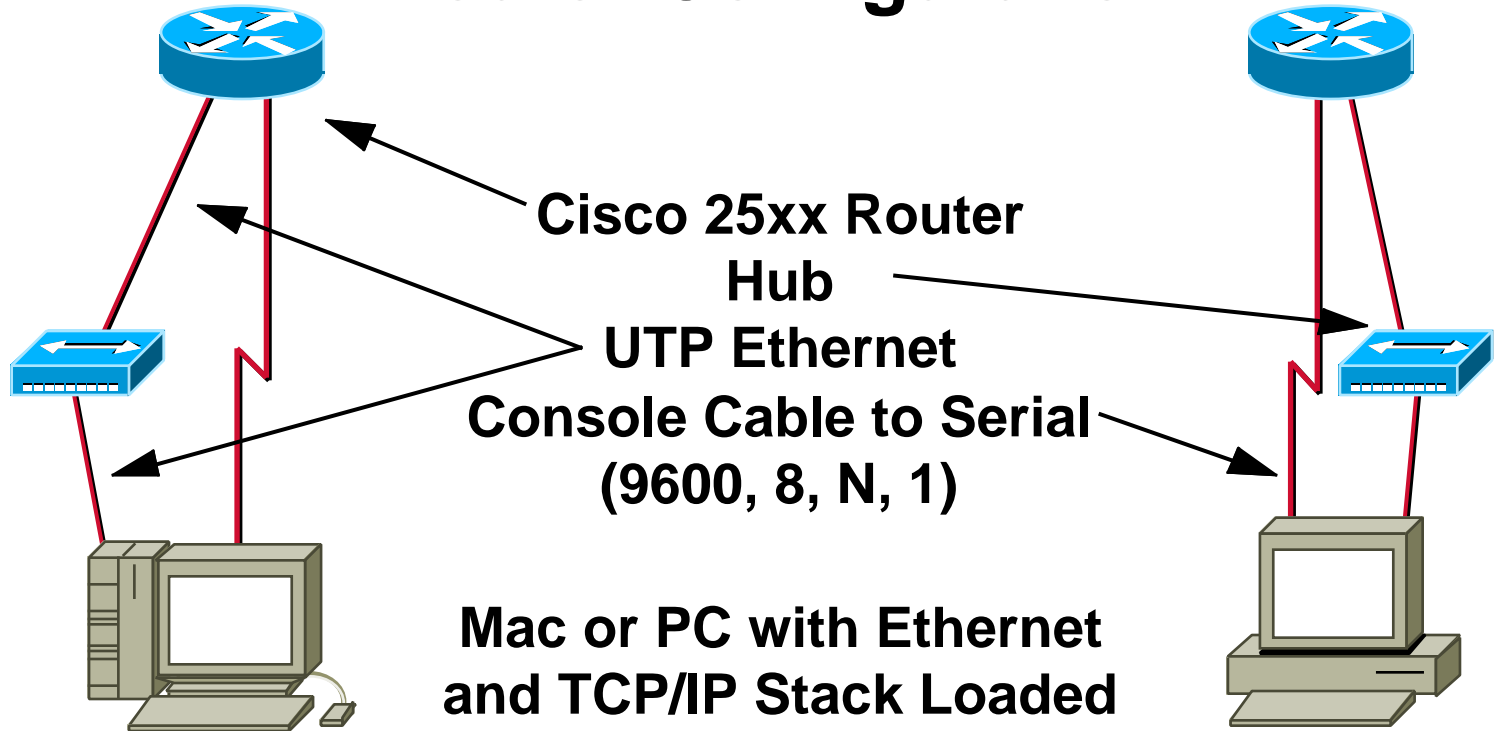
Academies Lab Configurations

Curriculum Delivery



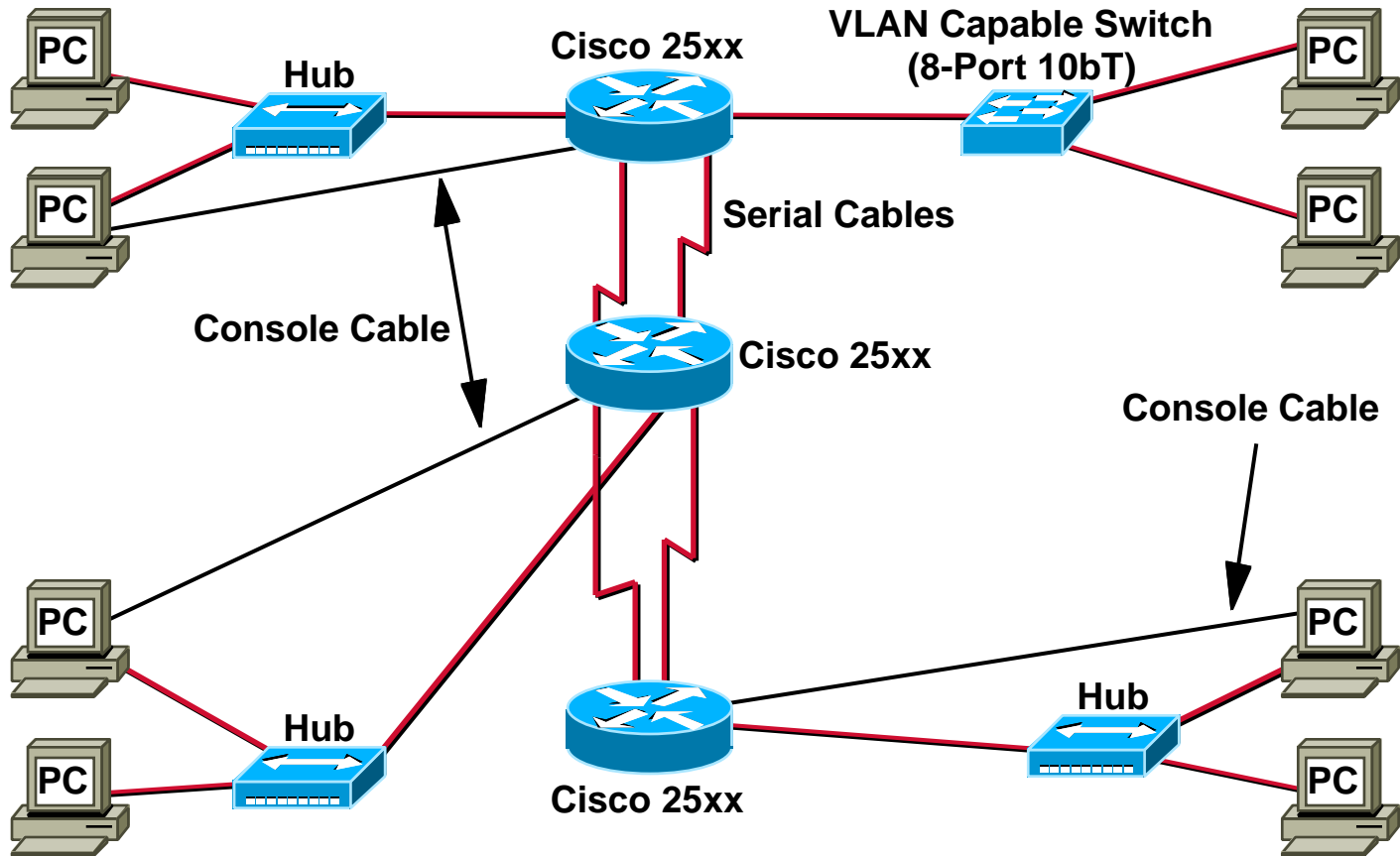
Academies Lab Configurations

Router Configuration



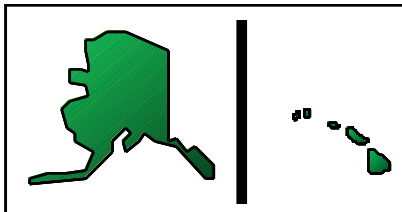
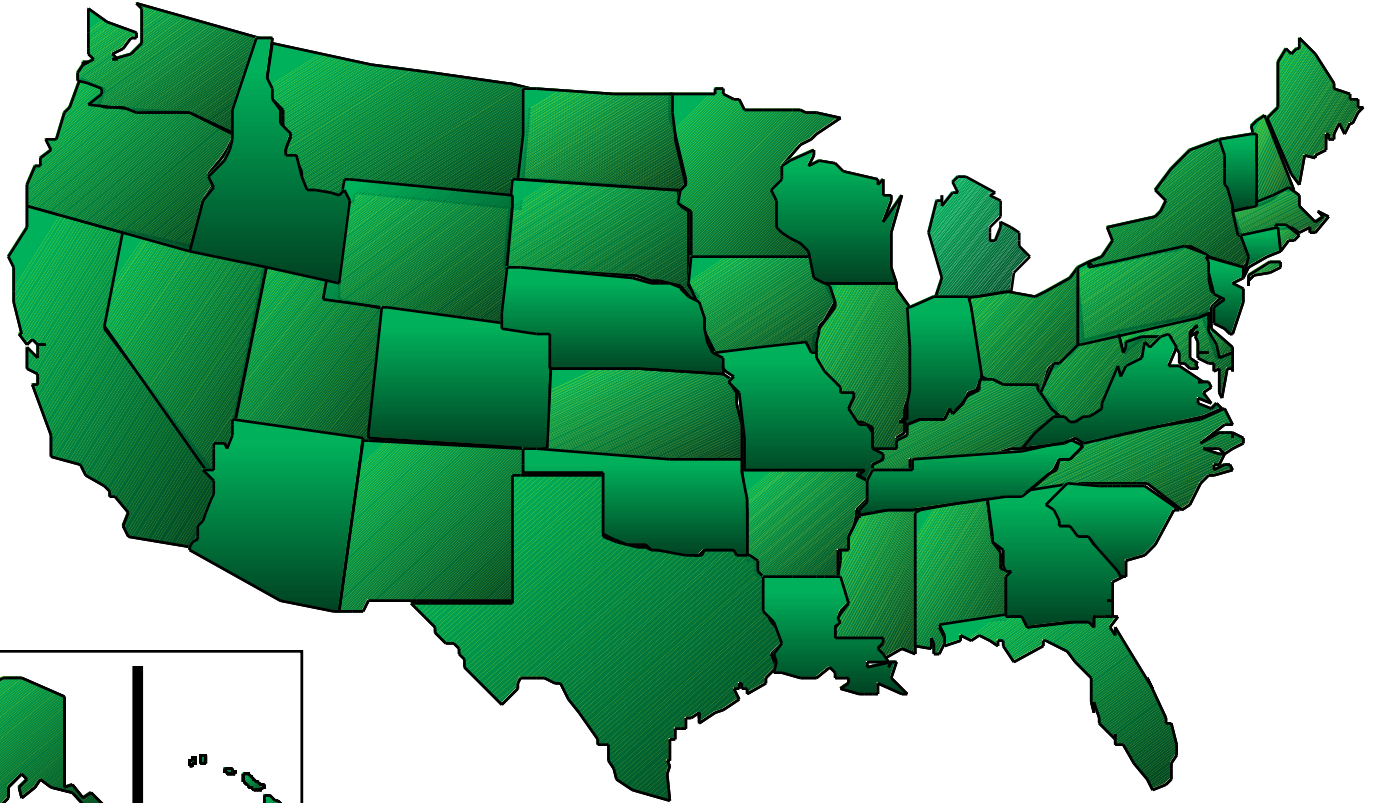
Academies Lab Configurations

Development Lab





Networking Academies: Sweeping the Country!



What Are Students Saying?

- **“... you learn more, because you encounter problems and have to work through them to figure out the solution. It’s also more fun.”**
- **“The lessons aren’t based on homework or tests so much. We do more hands-on work.”**
- **“Anything that you can learn about computers and about technology is always going to be useful.”**



What Are Teachers Saying?

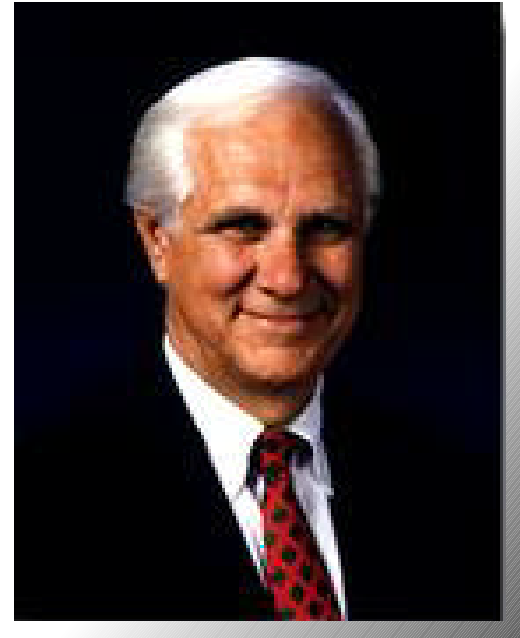
- **“Energy level by these students is so high I cannot find words to describe the feelings”**
- **“All the teachers are excited about the possibilities and committed to making it happen... Monday we had to tell (the students) to leave at 5!”**
- **“I am very excited about the program, the trainees, and the possibilities at the local academies... I can't wait to share more with everyone!”**



What Are School Officials Saying?

“Cisco Systems has gone the extra mile in joining with Los Angeles County Schools to prepare our students to compete in the 21st Century. Through this relationship, thousands of our students will leave high school capable of entering the technical workforce.”

**Dr. Donald Ingwerson
Superintendent,
Los Angeles County School District**



What Is Dept. of Education Saying?

“The Networking Academies program is in tune with the President’s initiatives on educational technology and in the best spirit of public-private partnership... This new program will provide badly needed network support and trained students.”



Linda Roberts
Director of the Office of Educational Technology
US Department of Education

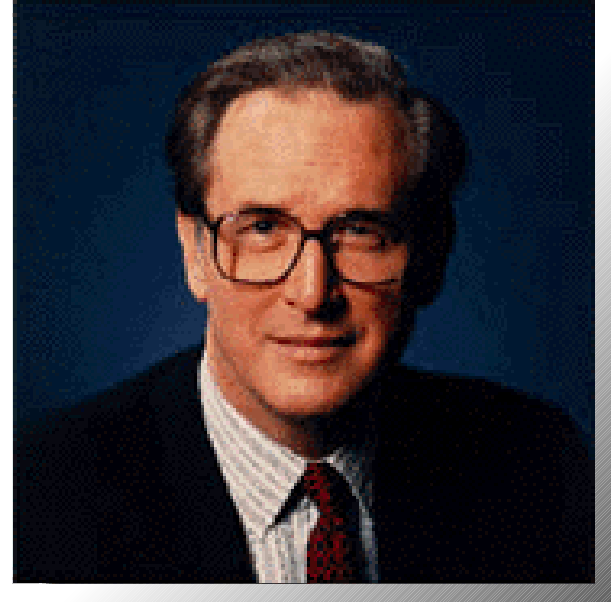




What Are Senators Saying?

“By equipping our young people with skills they’ll need to compete in the next century, Cisco’s Networking Academies program is helping to prepare a new generation for a new set of challenges.”

Senator Jay Rockefeller (D-WV)





What Is Industry Saying?

“Cisco’s program is just what the doctor ordered... We’re very supportive of Cisco’s new Networking Academies program and eagerly await its graduates.”

**Marvin Bailey
Vice President,
State Technology Programs
Ameritech, Inc.**



The Media Responds

<http://www.cisco.com/edu/academies/news.html>



CyberTimes



IDG News Service

San Francisco Chronicle

NBC Daytona, FL

Cox News Service

PBS Computer Chronicles




The Bottom Line...

- **Students get jobs**
- **Schools get resources and curriculum**
- **Corporations get IT employees**
- **Government gets a public/private sector partnership**





Interested? <http://www.cisco.com/edu>



Location: <http://www.cisco.com/edu/academies/>

What's New? What's Cool? Destinations Net Search People Software

SOLUTIONS CORPORATE PRODUCTS SUPPORT SEMINARS PARTNERS

Cisco Networking Academies CISCO SYSTEMS

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- Overview
- News
- Academy of the Month
- Start an Academy!

Through an innovative partnership with school districts across the U.S., Cisco Systems is preparing students for the demands and enormous opportunities of the information economy while creating a qualified talent pool for building and maintaining education networks.

