The Face of IT

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Cisco Networking Academy Program

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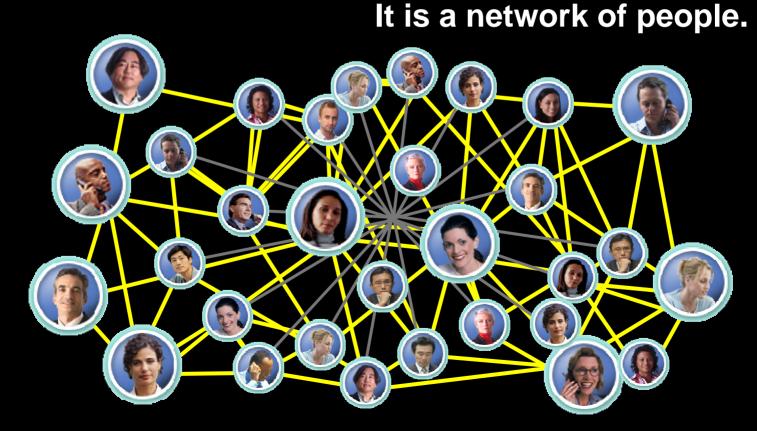
Some Definitions

- **information assurance**: Information operations (IO) that protect and defend information and information systems by ensuring their availability, integrity, authentication, confidentiality, and non-repudiation. This includes providing for restoration of information systems by incorporating protection, detection, and reaction capabilities.

- **Information security** means protecting information and information systems from unauthorized access, use, disclosure, disruption, modification, or destruction.[1] The terms **information security**, computer security and information assurance are frequently used interchangeably. These fields are interrelated and share the common goals of protecting the confidentiality, integrity and availability of information; however, there are some subtle differences between them.

- **Information technology**: a term that encompasses all forms of technology used to create, store, exchange and utilize information in its various forms including business data, conversations, still images, motion pictures and multimedia presentations.

What does the IT Industry Look Like?

Welcome to the Human Network

The Internet Is Not a Network of Computers,

It is a network of people.

Networks and People

The Internet Is Empowering

Billions of people to communicate and collaborate using all forms of human expression—data, voice, video—without regard to location, whether at work, at home, at school or on the road.

| TV | Blogs | Gaming | Social Networking | Music |

Technology Forecasts

Technology Forecasts

Where We Thought We Would Be Today!

- "By the turn of this century, we will live in a paperless society"

  Roger Smith, Chairman of General Motors, 1986

- "Atomic batteries will be commonplace long before 1980"

  David Sarnoff, Chairman of the Radio Corporation of America, 1955

- "Someday computers will weigh no more than 1.5 tons"

  Popular Mechanics, 1949

- "The actual building of roads devoted to motor cars is not for the near future"

  Harper's Weekly, 1902
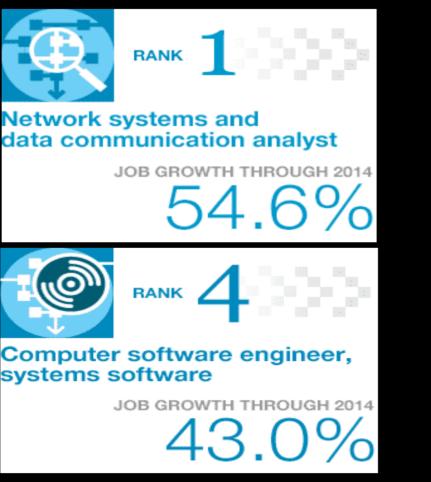
More Opportunities for IT Professionals

- Computer systems design and related services

    One of the 25 fastest growing industries in the United States
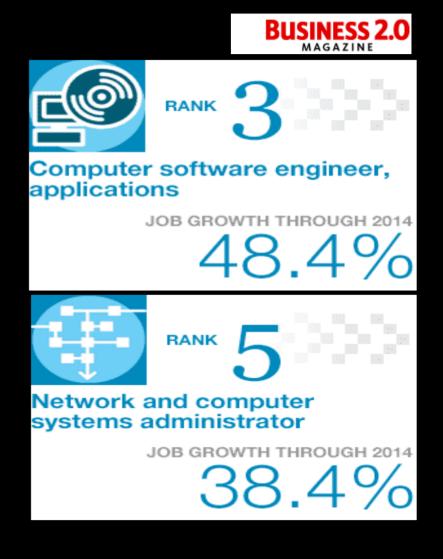
- The computer industry is expected to add 453,000 jobs between 2004 and 2014

- Fastest growth is expected among computer specialists

- The number of incoming U.S. undergrads planning to major in computer science dropped 60% from 2000 to 2004

Projected Growth by IT Job Category

RANK 1

Network systems and data communication analyst

JOB GROWTH THROUGH 2014

54.6%

RANK 3

Computer software engineer, applications

JOB GROWTH THROUGH 2014

48.4%

RANK 4

Computer software engineer, systems software

JOB GROWTH THROUGH 2014

43.0%

RANK 5

Network and computer systems administrator

JOB GROWTH THROUGH 2014

38.4%

CNNMoney.com – Top Ten Jobs

IT Occupational Data
Selected IT-Related Occupations in Maryland

	Employment		Employment Change		Avg Annual Openings	Occupational Employment as of May 2005*
	2002	2012	Numeric	Percent		
Computer Support Specialists	10,770	13,940	3,170	29	450	12,500
Computer Systems Analysts	20,180	25,020	4,840	24	710	20,780
Network and Computer Systems Administrators	6,440	8,910	2,470	38	320	7,660
Network Systems and Data Communications Analysts	6,030	9,380	3,350	55	410	6,030
Computer and Information Systems Managers	8,430	11,400	2,970	35	450	7,460

Sources:
• Bureau of Labor Statistics, referencing State Occupational Projections
• ^Department of Labor, Bureau of Labor Statistics, May 2005 State Occupational Employment and Wage Estimates (by state)

Defining the Skill Set Within each Job Category in the IT Networking Pathway

IT Support	Implementation & Maintenance	Generalist	Design	Specialty (Security, VoIP)
Maintenance and **troubleshooting** of: Networks	Install & deploy new networks	Design LAN/WAN systems	Design LAN/WAN systems, including:	Advanced networking tasks specific to area of specialty
Servers Operating Systems Hardware Software	Monitor and maintain network operations	Install & deploy new networks	Translate user requirements into network requirements	Work as part of a team
Effectively question users to identify problem	Troubleshoot network systems	Monitor and maintain network operations	Given a legacy network, develop a design to incorporate new devices	Effectively communicate with users
Work with frustrated users	Implement/monitor network security	Troubleshoot network systems		
Prioritize problems	Server/domain management	Design, implement, and monitor network security		
Communicate with users (inperson and remote) about status and resolution	Work as part of a team	Server/domain management	Work as part of a team	
	Effectively communicate with users	Design, implement, and monitor communications systems	Effectively communicate with users	CCNP and CCNA
		Work as part of a team	Articulate benefits of network to business	CCNP v5.0
		Effectively communicate with users		CCNA v4.0
		Prioritize projects		IT Essentials
		Work independently		

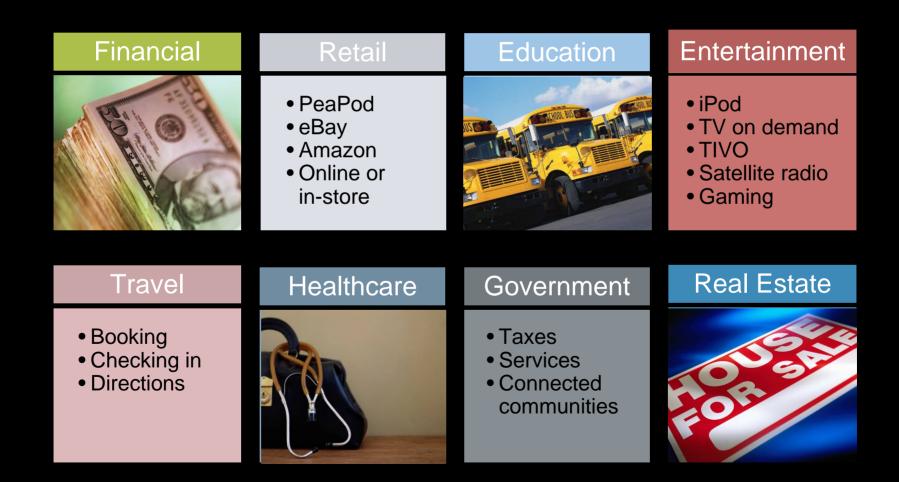# Hiring Challenges in IT/Networking Employees

- What do employers identify as challenging skills to find in networking employees?

- Technical Skills

    45% of employers identify comprehensive knowledgebase

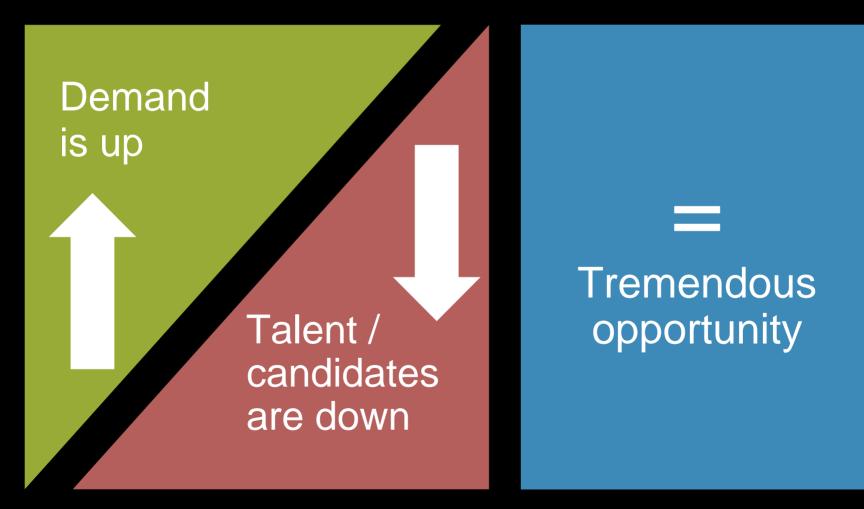   44% of employers identify advanced networking skills

- Soft Skills

    47% of employers identify communication skills

    43% of employers identify reliability

The Network is the Platform That Enables Life's Experiences

Financial

Retail

- PeaPod
- eBay
- Amazon
- Online or in-store

Education

Entertainment

- iPod
- TV on demand
- TIVO
- Satellite radio
- Gaming

Travel

- Booking
- Checking in
- Directions

Healthcare

Government

- Taxes
- Services
- Connected communities

Real Estate

What Does This Mean for Us?

Demand
is up

↑

Talent /
candidates
are down

↓

=

Tremendous
opportunity

Hitting us at home in Maryland….

*Today, Maryland faces unemployment rates at 4.5%, an aging technology workforce, and the relocation of 100,000 jobs to the region, most of which will be in engineering and IT. **The storm is no longer looming; it is upon us.***

Time has effectively run out for employers who are scrambling to hire employees from among the declining pool of graduates in IT and related technology fields.

***Too many students in Maryland and across the U.S. still have the false impression that there are no jobs in these fields.** New enrollments in computer science departments have dropped by 46 percent since 2001. However, to prosper in the more mature IT world, executives and colleges need to revitalize the image and development path so that talent will be available to support its increasingly critical responsibility."*
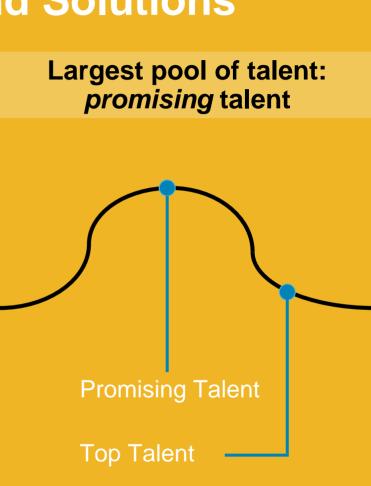
Workforce Challenges and Solutions

Workforce Challenges

- Intense competition for top talent

- Business growth limited by talent availability

Workforce Solutions

- Must expand talent pool

- Look for strategies to ensure strong technical and applied skills among promising talent

- Focus on segmented labor market

Largest pool of talent: *promising* talent

Promising Talent

Top Talent

School to Career Connection

Where do go from here?
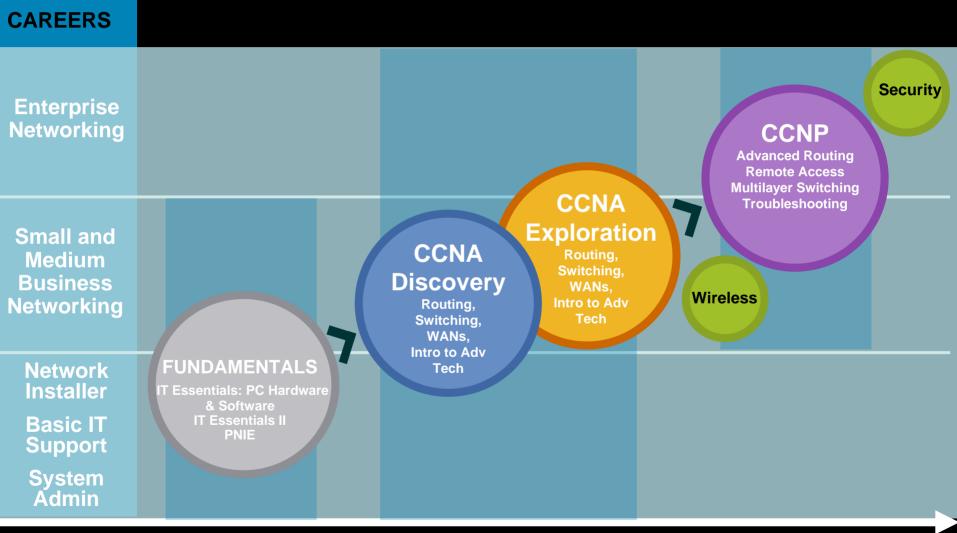
- Help Students/Parents be educated consumers

    IT industry is not dead

- Break down the myth of 'geeks'

- Encourage parents/students to consider the IT courses in High School CTE programs

    Can help give students a competitive advantage for college

    Remember: IT is not just programming

- Become more aware yourself of the IT programs with articulation to post secondary

Networking Academy Program "2.0" Portfolio – 18 Courses

CAREERS

Enterprise Networking

Small and Medium Business Networking

Network Installer

Basic IT Support

System Admin

FUNDAMENTALS
IT Essentials: PC Hardware & Software
IT Essentials II
PNIE

CCNA Discovery
Routing, Switching, WANs, Intro to Adv Tech

CCNA Exploration
Routing, Switching, WANs, Intro to Adv Tech

CCNP
Advanced Routing
Remote Access
Multilayer Switching
Troubleshooting

Security

Wireless

Student Networking Knowledge and Skills

Cisco Academy Networking Course Offerings

CCNA Discovery	CCNA Exploration	CCNA Discovery
Networking for Home and Small Businesses	Networking Fundamentals	Networking for Home and Small Businesses
Working at a Small-to-Medium Business or ISP	Routing Protocols and Concepts	Working at a Small-to-Medium Business or ISP
CCENT Certification (optional)		CCENT Certification (optional)
Introducing Routing and Switching in the Enterprise	LAN Switching and Wireless	CCNA Exploration
		Routing Protocols and Concepts
Designing and Supporting Computer Networks	Accessing the WAN	LAN Switching and Wireless
		Accessing the WAN

CCNA Certification

CCNA Discovery Course Outline

Ch	Networking for Home and Small Businesses	Working at a Small-to-Medium Business or ISP	Introducing Routing and Switching in the Enterprise (Preliminary)	Designing and Supporting Computer Networks (Preliminary)
1	Personal Computer Hardware	The Internet and Its Uses	Networking in the Enterprise	Concepts of Network Design
2	Operating Systems	Help Desk	Enterprise Network Infrastructure	Gathering Information from Clients
3	Connecting to the Network	Planning a Network Upgrade	Addressing in an Enterprise Network	Impact of Various Applications on a Network Design
4	Connecting to the Internet Through an ISP	Planning the Addressing Structure	Routing in an Enterprise Network	IP Address Design Considerations
5	Network Addressing	Configuring Network Devices	Implementing WAN Links	Creating the Network Design
6	Network Services	Routing	Switching in an Enterprise Network	Building and Testing a Prototype Network
7	Wireless Technologies	ISP Services	Filtering Traffic Using Access Control Lists	Selecting Equipment and Planning for Installation
8	Basic Security	ISP Responsibility	Troubleshooting an Enterprise Network	Upgrading and Integrating an Existing Network
9	Troubleshooting Your Network			

Conclusion

Profile of a Security Specialist from BCPS

- In six years, beginning at the age of 13, Nick Romanowski went from developing and managing his own PC company to being a global network security administrator.

- In 2005, Nick completed the Cisco® Networking Academy® Program at Sollers Point Technical High School in Baltimore, Maryland

- At 16, during his senior year of high school, Nick was granted a security clearance to work on classified projects for the National Security Administration (NSA).

- At 19 and working full-time in Annapolis, Maryland, as a global network security administrator, Nick plans to take advantage of the full scholarship from his employer

In Conclusion

- Information Technology is not going away

- IT workforce is at an all time high

- Dot.com is now mainstream

- High School IT courses give students a competitive advantage for careers/study in InfoSec

Educating the Architects of the Networked Economy.

Cisco Networking Academy