Lesson 4: Network Management Careers

At A Glance



There are examples of several individuals and the career paths they have taken over their careers. Often times, people end up in careers that they never dreamed of entering. The examples given are all successful individuals. All of these people have several traits in common. The most important characteristic a person can have, regardless of his or her chosen career path, is self-confidence—a belief that you can achieve anything you put your mind to. Imagination and dreams, personal interests and desires, not necessarily how much money you make, are where you will find the career that will make you happy in life.

What You Will Learn

After completing this lesson, you will be able to:

- Articulate a personal career path based on your interests
- Develop an appreciation of your personal self-worth
- Demonstrate the need to be a life-long learner
- Demonstrate an awareness of the importance of first impressions on an interview



Student Notes:

The Future

Soon you will be completing a phase of your formal education. What are your goals for the future? What are your plans? Further formal education, work, relax, travel...? What about the rest of your life?

When your grandparents went to work after their formal education, they expected to stay at one company until retirement age. They did not anticipate the need to acquire new job skills. The workplace did not change very much during their lives, new skills and training programs were not required, and competition for jobs local. Today, that is not the case. We live in a world that is changing so rapidly we cannot predict what the future workplace will be like; nor can we predict what specific job skills will be necessary.

Currently, seven or more job changes in a lifetime are average. Competition is now global. So, how do you prepare for the future when you have no idea what skills will be required or what the potential career choices might be? How do you prepare yourself for competition in a worldwide market?

Often times, students think they should know exactly what they want to do with the rest of their lives. They think something is wrong if they are not sure of their career path. This is quite normal. It is entirely possible you took the Nortel NetKnowledge course because you planned to join the workplace as a network specialist only to discover that you have no interest in a networking career. Don't be concerned if you aren't sure what you want to do, you can might try several different fields that interest you before you find your niche. What are important to know are your interests and the skills, abilities, and assets you possess. In addition, it is important to have the ability to adapt to a variety of situations and be willing to be a life-long learner, open to new ideas. In that way as the job market changes during your lifetime, you will be prepared.

The most important job skill a person can possess is self-confidence and a belief in oneself. If you believe you can do something, you can. If you believe you can't, you will not be able to achieve your goal. Hard work and perseverance generally pay off.



Career Paths

Career paths do not always take the turns we expect. One student went to college to become a landscape designer. That student is now a computer specialist. In order to enter the new field, that student was willing to adapt, and retrain himself.

A scientist at Bell Labs joined the army after high school, worked as a carpenter, and then worked in an office delivering mail and running errands. When the company he was working for offered classes in computers, he took advantage of that opportunity and discovered he loved working with computers! He liked working with computers so much that he went back to school 10 years after high school and eventually earned a graduate degree in Engineering Science, while working full-time. He took advantage of opportunities that came his way and is now doing what he loves.

A multilingual text-to-speech specialist planned to become a writer and majored in literature. She did not consider her education wasted because she did not become a writer. She believed that a broad background gives a person a better perspective for all fields. Her philosophy is to look at life positively and to always be willing to learn something new because you never know what you might do in the future.

A physicist knew from the time that he was young that he wanted to become a scientist. He loved to discover how things worked, he was curious about everything around him. Eventually, he received his Ph.D. in physics and is now a researcher.

A top executive became a mother and discovered that the job she most wanted to do was to stay at home with her child. She used all of the same skills bringing up her family as she did as a CEO.

Another person rang a cash register, worked at an ice cream store, went to school to become a secretary, and didn't like the job. She returned to school not knowing what she wanted to become. She took a geology course and discovered she loved science and went on to become a science teacher. Now, she writes books about networking, about which she taught herself.

A retired gentleman decided to pursue a hobby and choose woodworking because he enjoyed working with his hands. He is now in high demand for handcrafted furniture. When interviewed, all of these individuals talk about collaborating with others, teamwork, and building on what others before them accomplished. All had mentors who helped them along the way. They have a positive attitude and outlook on life and love what they do for a living. All have the ability to communicate their ideas and believe that they can achieve any dream they have.

Each one of the careers mentioned use networking. The geologist determines the size of an earthquake in Turkey based on computer printouts transmitted to the other side of the world. The carpenter uses a home computer to keep track of his orders and has a wireless telephone for communication while on the road. The facts that you have learned during your NetKnowledge courses will always be part of your expertise. More importantly, you learned teamwork, record keeping, research, writing, collaboration, and problem-solving skills, and much more. All of these skills will help you in any endeavor you choose. Always have high expectations for yourself, believe in yourself, and you will attain any goal you choose.

Check Your Understanding

- ♦ List some of the common traits of the individuals described in this lesson.
- Pick a career that you think you want to pursue and list all of the ways that networking is used in this field.
- ♦ List your hobbies and interests. To which career fields might you apply these skills?
- List your positive qualities. How can you use these qualities to achieve your professional goals?
- ♦ List positive qualities that other people have said you have. Are any of them the same as the ones you listed above?



Job Qualifications

We are beginning what most people believe is the Age of Technology. That means that you need to be technically competent in order to succeed in most careers. As you know technology is changing faster than people ever thought possible. In order to succeed in the 20th century, you know that must be a life-long learner. What else do you need to be successful in your career?

You already possess many traits that will make you successful. If you do not possess these characteristics, you can develop them. Following is a list of qualities managers look for when hiring and/or promoting people.

- Reliability
- Listening skills
- Negotiation expertise
- Strong work ethic
- Ability to get along with colleagues/authority figures
- Excellent communication skills, including reading, writing, and verbal
- Organizational skills
- Ability to follow though
- Positive attitude
- Leadership qualities
- Professional demeanor
- Good personal hygiene
- Good attendance
- Promptness
- Excellent Time management skills
- Ability to accept and give constructive criticism
- Ability to follow directions

Many people make the discovery that they do not want to pursue a particular career only after they have entered that field. One way to prevent that from happening is to research your career choice before you start. There are several ways to accomplish this goal. You can interview people about a typical workday, job shadow, take on an internship, or go to a school that offers co-ops. You can research careers over the Internet, read about them in books, take aptitude tests, work for a temporary agency, or take an evening class. There are many ways to determine whether you might enjoy a particular career.

Check Your Understanding

- ♦ List as many products that to your knowledge didn't exist twenty years ago.
- If you owned your own company, what are the qualities you would look for in a potential employee. Explain why they are important to you.
- Why do you think it is important to research a job and company before going on an interview?
- Do you think it is useful to job shadow? Why/why not?

Finding Employment

In the careers' lesson in *Internetworking Fundamentals* you learned about several networking careers, the importance of resumes, portfolios, cover letters, and interviews. You practiced your interviewing techniques and updated your portfolios. You are ready to start job hunting. If you are still in school and are not yet looking for employment, you might consider internships and co-op positions if possible. How do you go about finding the jobs that you are prepared to pursue?

- Go to the co-op placement office and submit an application.
- Attend career fairs advertised in the newspaper and elsewhere.
- Search the Internet for on-line job listings. They places such as www.monster.com, www.job-hunt.org/jobs, www.tech.monster.com, or others.
- Read advertisements in newspapers, magazines, and professional journals.
- Network. Let people know you are looking. Don't be shy, you are not asking someone to give you a job, you are asking for an introduction.
- Go to a recruiter.



Interviewing

In *Internetworking Fundamentals*, you learned how to prepare yourself and your credentials for an interview. It is important to keep in mind that the interviewee looks for certain negative behaviors during interviews. Listed below are qualities seen in interviews that cause employers not to consider the individual for the available position.

- Sloppy appearance
- Sarcasm
- Limp handshake
- Late to the interview
- Defensive
- Aggressive
- Poor communication skills
- No professional career goals
- Immature
- Not knowledgeable about company
- Disapproving of others
- Lack of eye contact
- Lack of energy
- Evasive
- Too much emphasis on money
- Extremely nervous
- Not confident
- Unwillingness to start at the bottom

Check Your Understanding

- How do you think you should dress for an interview?
- List several ways to find employment.

Try It Out

Materials Needed:

- Help wanted ads for networking
- Internet connection



Network Career Inventory and Update

Part 1

Research job openings for networking and communications professionals.

Explore the Internet to see if you can find job openings for networking and communications professionals. Use these sites as starting points:

http://www.snellingsearch.com/jobis.html

http://www.bell-atl.com/jobpost/avail.htm

http://www.looksmart.com/eus1/eus65300/eus71314/eus76271/eus216934/r?isp=zl&comefrom=izl-catmatch

Make notes on jobs that interest you. Look at the qualifications for those jobs to determine the education and experience required to get them.

Part 2

Write a job advertisement for a current Network career position

Using a word processor, and your knowledge of networking, write a job advertisement for a career position that might appear on the Internet. What would be the starting salary for the job?

Print the job advertisement out and post it a career bulletin board in your classroom.

Part 3

Prepare a personal development plan and write a resume.

Select one of the job advertisements, written by another student, that interests you. Research the knowledge, skills, education, experience, and abilities required for the position. If you were to apply for that position, which choices would you be making now to get there? Develop a career development plan that would give you the skills and experience you need to apply for the job.

Assuming that you followed the career development plan you just developed, update your resume and write an application for the job you have selected. Give it to the student who wrote the advertisement. Then make sure it gets to your teacher so you can place it in your portfolio.



Rubric: Suggested Evaluation Criteria and Weightings:

Criteria	%	Your Score
Researched job openings for networking and communications professionals	20	
Prepare a personal development plan and update your a resume	35	
Write a job advertisement for a current Network career position	35	
Materials placed in portfolio	10	
Other		
TOTAL	100	

Stretch Yourself

Materials Needed:

- RFP
- Internet connection
- Spreadsheet software (optional)
- Calculator (optional)



Network Cost Benefit Analysis

This activity is similar to the network management and control design activities undertaken by network designers as they plan and specify their networks.

Part 1

Your task is to design a Network Management and Control Center, the Millennium Network Control Center. The Control Center's role is to assure nonstop operation of the campus network, which is capable of diagnosing and troubleshooting problems in the network at the six other sites.

From your knowledge of Network Troubleshooting, the Optivity and Sniffer Software, and other tools, what is needed to manage this network?

Make a draft list of the things (hardware and software) you think you will need.

Part 2

In this section of the activity, you will determine network control and management tools to be used in the network. You will create an estimate for the cost of the selected tools.

- 1. Get together with a small group of your classmates and compare your notes on the equipment needed.
- 2. When you come up with a list of necessary components to which you all agree, break the list down so each person has one or two items.
- 3. Use the Internet to research competitive market prices for the management and control hardware and software. Two good Web sites to use are www.shopper.com and www.cdwg.com.
- 4. Put your list of items together in a word processing document for inclusion in your RFP portfolio.



Part 3

In this section of the activity, you will specify Server Hardware and Operating Software to manage and operate the Millennium Network.

The Network RFP specifies that the following are needed:

- Network operating systems licenses
- Network File Server Compaq 7000 or equivalent 1 GB RAM with 750 GB of RAID Storage
- Network Web Server Compaq 3000 or equivalent 512 MB RAM 50 GB Storage
- Network Mail Server Compaq 3000 or equivalent 512 MB RAM 50 GB Storage
- Network Firewall and Proxy Server Compaq 3000 or equivalent 512 MB RAM – 50 GB Storage
- Network Management Control Server Compaq 1850 or equivalent 256 MB RAM – 36 GB Storage
- Racks, cables, and miscellaneous equipment
- Network management tools and software
- 1. For each of these items, get competitive market prices. Make sure the prices you get are for systems configured with the correct amount of memory and storage space.
- 2. When you calculate the number of workstations to plan for the Network Operating System licenses, use the total of all users at all sites, with the growth factor included.
- 3. Select the operating system that gives you the best deal. Note that this price does not require you to include any application software for the network (word processing, spreadsheet, presentation, etc.) If you want to include an optional price for this you can.

Part 4

In this section of the activity, you will consolidate the results of your calculations into a concise set of costs. Prepare documentation for submission in your Network RFP Proposal.

Put your price proposals for the Network Management and Control Center, and the Network Servers into a combined format similar to the prices you prepared for the telecommunications and hardware in an earlier activity.

Make a list of any items you think will be required for the network, but were not requested. Discuss this list with your class.

You have now completed the last section of the RFP Proposal. Your teacher will give you instructions on presenting it to the class and the final paperwork required to submit the entire proposal.



Rubric: Suggested Evaluation Criteria and Weightings:

Criteria	%	Your Score
Determine network control and management tools to be used in network	15	
Estimate for the cost of the selected tools	15	
Specification of Server Hardware and Operating Software to manage and operate the Millennium Network	10	
Preparation of concise set of costs	22	
Documentation prepared for submission into Network RFP Proposal	18	
Materials entered into portfolio	10	
RFP Proposal/Presentation	10	
Other		
TOTAL	100	

Rubric: Suggested Evaluation Criteria and Weightings:

Criteria	%	Your Score
Completed RFP Proposal and Presentation	100	
TOTAL	100	

Network Wizards

Materials Needed:

- Research materials for ethics in networking
- Internet connection
- Presentation Evaluation Form



Ethics in Networking

In this activity, you will prepare a report and make a presentation to the class on ethical issues in networking.

Issues may include, but not be limited to:

- Privacy in a Network World
- Free Speech Issues
- Copyright, Ownership, and Intellectual Property Rights
- Viruses, Hacking, and Network Security
- Who owns the Internet? Who is responsible for it?
- Software Licensing and Theft
- Theft of Network Services It's just bits and bytes
- Pornography and the Internet
- Taxes and the Internet



Part 1: Find Ethical Questions in Networking

In this section of the activity, you will understand the wide range of ethical issues which face Network Designers and Managers

How do network designers and managers make the ethical decisions they are confronted with every day? Start your research on the Internet with these sites:

Electronic Frontier Foundation - http://www.eff.org/

Computer Citizenship - http://pixel.cs.vt.edu/edu/fis/ethics.html

Networking Ethics - http://www.nordu.net/archive/ethicsN.html

<u>High School Network Ethics -</u>

http://www.grossmont.k12.ca.us/ethics/ethics.html

Spend a few minutes with your class discussing what ethics are and why they are important. Try to figure out how you will know an ethical issue when you see one.

Explore the Internet to see if you can find other sources that will keep YOU informed on the ethical issues of interest to network professionals. Find at least 5 online resources.

Use these resources to create a list of the 7 most important ethical issues that you think face networking professionals today.

Share and compare your lists with others in the class.

Put together a class list of the top Ethical issues.

Part 2: Select One Ethical Issue and Research it in Depth

In this section of the activity, you will select a specific ethical issue and study it in depth

From the class list of important ethical issues in networking, each student will select a topic of particular interest to them

You will spend at least one hour researching the Ethical issue of your choice to understand the issue fully.

You will prepare a presentation on your Ethical issue that answers these questions, and other relevant questions you may pose:

What are the technology related ethical questions involved?

What are the choices, options, or competing points of view?

Why is this an important ethical issue?

Who is potentially hurt by this issue? How are they hurt?

What is the impact of this ethical issue on Networking Organizations?

What if Network Professionals were to completely ignore this Ethical issue?

How does this Ethical issue affect the general public, if at all?

Part 3: Present and Explain Your Ethical Issue

In this section of the activity, you will present and explain your Ethical issue to your classmates and discuss its implications

Each student will make a 15 minute presentation to the class. Class members will be expected to ask thought provoking and probing questions of the presenter.

At the end of the presentations, the class will vote on the three most important Ethical issues they feel will most affect the short term future of Networking and the two Ethical Issue which will affect the way we use networks over the long term.



Rubric: Suggested Evaluation Criteria and Weightings:

Criteria	%	Your Score
Understand the wide range of critical ethical issues that face Network Designers and Managers	20	
Identify specific issues of interest and study them in depth	30	
Present and explain the crucial ethical issues to your classmates and discuss their implications	50	
Other		
TOTAL	100	

Summary

Lesson 4: Network Management Careers

In this lesson, you learned to do the following:

- Articulate a personal career path based on your interests
- Develop an appreciation of your personal self-worth
- Demonstrate the need to be a life-long learner
- Demonstrate an awareness of the importance of first impressions on an interview



Review Questions

Lesson 4: Network Management Careers

Write a two-page letter to yourself that lists your positive qualities and expresses your dreams and expectations for your future. When you write this letter, assume that you have enough time and money to go to any school you choose, or to take any training you choose.

Include in the letter the things you hope to do to make your life, and the lives of those around you, better.

This letter is for your personal use. For credit, show your instructor the letter to indicate that you completed the assignment. Let him or her read it only if you wish. Save this letter in a sealed envelope and pick a time in the not near future when you want to read about your dreams and positive qualities.

Scoring

Criteria	%	Your Score
Check Your Understanding		
Articulate a personal career path based on your interests.	25	
Develop an appreciation of your personal selfworth.	25	
Demonstrate the need to be a life-long learner.	25	
Demonstrate an awareness of the importance of first impressions on an interview.	25	
TOTAL	100	
Try It Out:	100	
Stretch Yourself:	100	
Network Wizards:	100	
Review	100	
FINAL TOTAL	500	



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Resources

National Science Teachers Association. (1999). Science Teacher, November, 1999, Vol.66 No. 8, Arlington, Virginia.