Computers

Network and Computer Systems Administrators

Network and Computer Systems Administrators design, install, configure and support an organization's computer systems. They are responsible for Local Area Networks (LANs), Wide Area Networks (WANs), network segments, Internet systems, and intranet systems. They work in a variety of environments, including large corporations, small businesses, and government organizations. They install and maintain network hardware and software like email applications and virus protection. Network and computer systems administrators diagnose problems, replace defective components and monitor networks to ensure their availability to users. They often work with routers, switches, hubs, and other networking equipment and are sometimes responsible for setting up companies' printer servers.

Network and computer systems administrators are responsible for maintaining system efficiency. They ensure that the design of an organization's computer system allows all of the components, including computers, the network, and software, to work properly together. Administrators also troubleshoot problems reported by users and monitor systems to guard against cybercrime. Many network and computer systems administrators supervise other information technology specialists in the planning, coordination and implementation of network security measures. Apart from analyzing and solving system problems, they sometimes perform data backups and disaster recovery operations. A large part of their job entails keeping abreast of evolving technology in order to recommend changes to improve systems and determine the hardware or software requirements related to such changes. Some network and computer systems administrators specialize in areas such as computer security or protecting systems and data from cyber attacks.

Network and computer systems administrators normally work about 40 hours a week in well-lighted, comfortable offices or computer laboratories. In addition, some of these workers may be required to be "on call" outside of normal business hours in order to resolve system failures, technical emergencies or other problems. Network and Computer Systems Administrators are increasingly able to perform their duties from remote locations, reducing or eliminating the need to travel to the customer's workplace.

Education/Training

How to Obtain:

Network Systems and Data Communications Analyst positions will sometimes only require a 2-year degree or certificate. However, more advanced positions require completion of a four year bachelor's degree program (BA/BS), generally in a computer related field.

Employers in a technical or scientific environment look for applicants who have a degree in a technical field, such as computer science, information science, applied mathematics, engineering, or the physical sciences. For jobs in a business environment, employers often seek applicants with a degree in a business-related field such as management information systems (MIS). A Master's Degree (MA/MS), in one of these fields may be necessary for some more complex jobs or for career advancement (completion time is generally 2 years).

Some employers require specific certifications which are generally offered by product vendors or specialized certification organizations. Major companies offering certifications include Microsoft, CompTIA, SUN, and Cisco.

- Microsoft: Microsoft Certified Systems Administrator (MCSA) - This certification requires a candidate to take and pass four exams.
- SUN: Sun Certified Solaris Associate (SCSAS) - This certification requires a candidate to take and pass one exam.
- Cisco: Cisco Certified Entry Networking Technician (CCENT) - This certification requires a candidate to take and pass one exam.

Each certification has different requirements and areas in which they test a candidate's knowledge. CompTIA's A+ Certification for example requires that a candidate to take:

- The 'essentials' examination, and
- The 'practical application' exam.

The 'Essentials' exam measures the necessary competencies of an entry-level IT professional:

- With a recommended 500 hours of hands-on experience in the lab or field.
- Tests for technical understanding of computer technology
- Knowledge of networking and security
- The communication skills and professionalism required of IT professionals

The CompTIA A+ 'Practical' exam is an extension of the knowledge and skills identified in CompTIA A+ Essentials, with more of a "hands-on" orientation focused on scenarios in which troubleshooting and tools must be applied to resolve problems.

The ICCP offers the Certified Computing Professional (CCP) designation. To earn this certification, a candidate must:

- Pass the core exam and
- Pass two specialty exams.

Examples of specialty exams include:

- Information Systems - CORE
- IS/IT Management
- Microcomputing and Networks
- Systems Security
- Data and Information Quality
- Data Management

More Information on Certification:

- ICCP Certified Computing Professionals (CCP): http://www.iccp.org/iccpnew/ccp.html
- Microsoft Certified Systems Administrator (MCSA): http://www.microsoft.com/learning/en/us/certification/mcsa.aspx
- Microsoft Certified Technology Specialist (MCTS): http://www.microsoft.com/learning/en/us/certification/mcts.aspx#tab2
- CompTIA A+ Certification: http://www.comptia.org/certifications/listed/a.aspx
- Sun Certified Solaris Associate (SCSAS): http://education.oracle.com/pls/web_prod-plq-dad/db_pages.getpage?page_id=327
- Cisco Certified Entry Networking Technician (CCENT): http://www.cisco.com/web/learning/le3/le2/le45/learning_certification_level_home.html

Average Costs:

Tuition and fees for a master's degree earned at a public university in the following areas average per year* as follows: Computer science, information science, applied mathematics, engineering: $12,800; Physical Sciences: $10,200; Management information systems: $11,400; Business Administration (MBA): $16,000. Completion time is generally two years.

Total Cost of Certification Exams, not including the cost of exam study aids:

- Microsoft Certified Systems Administrator (MCSA): $500
- Microsoft Certified Technology Specialist (MCTS): $125 per application or program

- CompTIA A+ Certification: $168
- Sun Certified Solaris Associate (SCSAS): $300
- ICCP Certified Computing Professional (CCP): $855
- Cisco Certified Entry Networking Technician (CCENT): $125

*Note: This figure does not include federal, state, or university financial aid resources such as grants, fellowships, scholarships or work study. It also does not include vocational rehabilitation or other state resources available specifically to people with disabilities. Out-of-pocket expense may be significantly less.