



## **Network Engineer**

Network engineers understand how procedure and equipment go hand-in-hand. As a network engineer, you'll set up wireless networks, manage routers and sniff out the problems within the network. Networking is closely tied to security, and network engineers are often responsible for securing routers, programming firewalls and detecting intrusions.

### **Responsibilities**

Network engineers are asked to configure, diagnose, test, maintain and install network solutions and technologies. You'll be asked at least some of the time to apply networking concepts to create sophisticated network topologies and to diagnose and test highly complex networks.

### **Aptitude**

A network engineer must be able to analyze a problem methodically while exercising creativity and curiosity to solve it. Working well with others is also an important trait, as many projects are done in teams.

### **On the job, successful network engineers:**

- Configure, install and maintain complex network devices, including cloud-based resources.
- Identify security implications and issues and work with security professionals.
- Understand networking equipment, including switches, routers and voice networking systems.
- Identify and report attacks.
- Configure encryption for end to end security.
- Understand security-related concepts, including access control and perimeter security.
- Stay up to date on IPv4, IPv6, routing and wireless networking.
- Master the ticketing system used to document tasks, problems, customers, procedures and resolutions.
- Support mobile device communication technologies.
- Keep track of billing, while looking out for new business opportunities.
- Assist engineering efforts with new and existing projects.

- Act as a point of escalation for all mobile switching center and network operating center personnel, before and after the sale.
- Rotate within an on-call schedule.
- Follow defined procedures and escalation paths for service delivery with regard to an event driven environment.
- Provide complete ownership of any vendor or manufacturer issues impacting service delivery or customer experience worldwide. This responsibility begins with the initial investigation and identification process, and continues through final resolution.

<p><b>BEGINNER</b> 0 - 2 YEARS</p> <p>\$45,000 - \$65,000</p>	<p><b>INTERMEDIATE</b> 3 - 5 YEARS</p> <p>\$75,000 - \$95,000</p>	<p><b>EXPERT</b> 6+ YEARS</p> <p>\$110,000 - \$150,000</p>
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### **Salaries**

Salaries for network engineers range from \$45,000 to \$150,000, depending on the level of expertise and geographic location. People living in London, Manhattan or San Francisco will have significantly higher salaries than those living in less-populous regions.

### **Educational Paths**

For a comprehensive introduction to networking engineering, earn a four-year degree in:

- Information Technology
- Information Systems
- Computer Science
- Engineering

### **Direct Paths**

Dive into the field through certifications and specialized training. Here are some popular certification and training programs for each level of a network engineer's career.

#### *Beginner*

- CompTIA Network+ Certification
- CompTIA Security+ Certification
- Cisco Certified Network Associate Certification
- Microsoft MCSE

### *Intermediate*

Cisco Certified Network Professional Certification  
Rackspace Certified Technician Certification  
CompTIA Security+ Certification  
Juniper Networks Design Professional Certification

### *Expert*

CompTIA Authorized Security Practitioner  
Cisco Certified Internetwork Expert Certification, with specializations in unified communications, security and voice.  
Cloud Certified Professional Certification  
Cloud Security Alliance Certificate of Cloud Security  
Information Technology Infrastructure Library (ITIL) Training, including ITIL Service Capability

### **Career Flexibility**

Choosing networking engineering as a career can lead to lots of outcomes. Here are a variety of jobs you may be qualified for throughout your career:

- IT Manager
- Engineering Manager
- Senior Engineer
- Manager, Information Systems
- Director, Information Systems
- Chief Information Officer

### **Social Skills**

It's not all technical — a successful network engineer needs to be able to work well with others and:

- Possess strong critical thinking and analytical skills.
- Communicate technical concepts to a non-technical audience, and vice versa.
- Work well in a group, and openly share knowledge.
- Exude self-confidence, which translates well with customers, partners and colleagues.
- Demonstrate agility to execute, focus on results, adapt quickly to changes.
- Show self-motivation and proactivity.
- Practice self-discipline and possess a strong work ethic.
- Take ownership and deliver on promises.
- Communicate and collaborate well.
- Commit to principles and ethical actions.

## Technical Skills

*A beginner with zero to two years of experience will be expected to:*

- Handle systems and network engineering, including the OSI layers. This may include LAN, WAN and networking knowledge.
- Troubleshoot the network while handling design and implementation.
- Network hardware configuration and performance tuning.
- Understand Cisco routing and switching.
- Learn and exhibit a thorough and sufficient understanding of our customer's infrastructures and topology.
- Possess a mechanical aptitude and working knowledge of computers and other electronic hardware.
- Solve and repair technical problems with customers and technicians through effective verbal and written communication.
- Identify security threats.
- Understand encryption.
- Identify specific perimeter and internal security controls, such as firewalls, intrusion detection, content filtering, and malware control (e.g., antivirus, rootkits).

*An intermediate with three to five years of experience will be expected to:*

- Understand wireless networking inclusive of controller and access point configuration.
- Know Cisco, IPSwitch, Brocade, Juniper, Aruba and HP.
- Understand or learn applications like What's Up Gold, Heat and Microsoft Office.
- Understand or learn to use tools like TeamViewer, Cisco AnyConnect, Cisco Webex, CLI and PuTTY.

*An expert with six or more years of experience will be expected to:*

- Hold specialized certifications in unified communications, security, collaboration, routers and switches, and wireless technologies.
- Administer and troubleshoot Unified Call Manager.
- Understand Unity voicemail, intelligent contact management call center systems, IVR CVP and supporting infrastructures, including CTI integration to switching platforms, dialers, call recorders and desktop platforms.
- Create, implement and support ICM and CVP call routing scripts and required reports.
- Follow detailed work plans provided from tier-three engineering.
- Hold experience in the administration and support of Cisco's UC portfolio.
- Understand CVP scripting and call control.
- Understand call center supporting applications such as ticketing systems.
- Secure systems by using vendor and third-party software.
- Manage multiple teams to implement security measures and best practices.