

NETWORK ENGINEER

DEFINITION

Under direction, performs a variety of highly complex and specialized activities involved in the planning, set-up, installation, configuration, operation, maintenance and repair of Office and school district Local Area Network (LAN), Wide Area Network (WAN), internet and other network and cloud systems and related services, equipment, hardware, software and applications; administers, analyzes and ensures proper use, connectivity, security and operation of Office network systems; and performs related work as required.

SUPERVISION RECEIVED AND EXERCISED

Receives direction from assigned supervisory or management personnel. Exercises no direct supervision over staff.

CLASS CHARACTERISTICS

This journey-level professional classification is responsible for design, implementation, and maintenance of Office and school district LAN, WAN, internet, and other network and cloud systems and related services. Positions at this level exercise judgment and initiative in their assigned tasks, receive only occasional instruction or assistance as new or unusual situations arise and are fully aware of the operating procedures and policies of the work unit.

EXAMPLES OF TYPICAL JOB FUNCTIONS (Illustrative Only)

Management reserves the right to add, modify, change, or rescind the work assignments of different positions and to make reasonable accommodations so that qualified employees can perform the essential functions of the job.

- Performs a variety of highly complex and specialized technical activities in the planning, set-up, installation, configuration, operation, maintenance and repair of Office and school district LAN, WAN, internet, and other network systems including WIFI networks and related services, equipment, hardware, software and applications; establishes and maintains related timelines and priorities.
- Prepares and develop network maps, diagrams, drawings, spreadsheets and other documents; estimates equipment lifecycles, hardware, time and cost requirements for network projects; contacts vendors and contractors to request pricing and product information.
- Establishes and maintains internet provider addresses, subnets, vlans, domains, passwords, internet connectivity, firewalls and designated programs and systems; ensures proper installation of hardware to ensure proper operation.
- Monitors and analyzes network performance to ensure smooth and efficient operation and identify problems, anomalies, and security issues; monitors, controls and ensures proper network usage, security, traffic, operations, resources allocation, bandwidth, and connectivity.
- Provides for the effective and efficient storage, retrieval, customization and archiving of data on

servers and cloud solutions; troubleshoots and resolves network and server-related database problems and malfunctions; ensures data integrity; prepares, maintains, and replaces back-up data files; monitors available system disk space; moves, compresses and deletes files as needed.

- Inspects, troubleshoots, and diagnoses network system, server, hardware and application malfunctions to ensure smooth running of network systems; resolves connectivity and other network problems and malfunctions; administers, configures, monitors and maintains network system servers and security.
- Provides technical support for systems operations; performs diagnostic tests; compiles, organizes, and analyzes data to troubleshoot systems problems; analyzes and resolves problems with systems hardware and associated applications, networks and servers; works with team members to ensure timely response to problem calls.
- Compiles and analyzes a variety of information and data related to network system use; utilizes related technology tools; prepares and maintains a variety of records, reports and files related to network utilization, traffic patterns, connectivity, passwords, data ports, IPs, hardware and software configurations, technical support, vendors, back-ups and assigned activities.
- Provides input, coordination, and guidelines for projects; identifies scope of work and objectives; facilitates the resolution of complex project problems by meeting with stakeholders, vendors and other technical staff to identify problems and potential solutions; ensures projects are planned and delivered according to customer specifications and needs.
- Provides technical assistance and user support to staff, school districts, outside agencies and others concerning Office or school district networks; responds to inquiries and provides detailed and technical information as appropriate concerning network equipment, hardware, software, security, connectivity, configuration, malfunctions, applications, practices, techniques and procedures.
- Communicates with staff and various outside agencies to exchange information and coordinate activities; contacts and collaborates with vendors in resolving network problems, issues and malfunctions; documents service tickets in a timely manner to provide sufficient information to communicate the problem, how it was remediated, and suggested actions to prevent recurrence as appropriate.
- Reviews completed network projects for accuracy, completeness and compliance with established standards, requirements, and procedures.
- Stays abreast of current trends and developments in network engineering; evaluates and recommends new technologies.
- Observes and complies with all Office and mandated safety rules, regulations, and protocols.
- Performs related duties as required.

QUALIFICATIONS

Education and Experience:

Any combination of training and experience that would provide the required knowledge, skills, and abilities is qualifying. A typical way to obtain the required qualifications would be:

- Equivalent to a bachelor's degree from an accredited college or university with major coursework in computer science or related field; and
- Five (5) years of increasingly responsible experience involving network planning, set-up, installation, modification, maintenance, and repair.

Licenses and Certifications:

This position may require employees to travel locally, and specifically, employees must be able get themselves to different locations during their workday. Employees will be responsible for ensuring that they can timely move between locations during their workday either via driving themselves with a valid driver's license or using other modes of transportation, including a ride hailing service, taking a taxi, carpooling, bicycling, etc.

Knowledge of:

- Practices, procedures, and techniques involved in the planning, installation, configuration, operation, modification, maintenance and repair of LAN, WAN, VPN, internet, cloud and other network systems., including high availability, redundancy, and fault tolerance.
- Networking standards, requirements, layout, and infrastructure related to educational organizations.
- Network security principles, including encryption, multi-factor authentication, access controls, and security protocols.
- Network communication systems, protocols, and applications.
- Firewall technologies, network level intrusion detection/prevention systems (IDS/IPS), their deployment strategies, and operationalization.
- Network monitoring and management tools for performance analysis, fault detection, and network visibility.
- Cloud networking solutions and the secure implementation of cloud-to-cloud or cloud-to-multi-cloud.
- Security compliance frameworks and industry standards and how they relate to network architecture and design.
- Materials, methods, and tools used in the operation, installation, and repair of networks.
- Applicable types of cabling systems, servers, routers, and other related equipment.
- Installation, maintenance and repair of network hardware, software, and peripheral equipment.
- Cybersecurity, disaster recovery, and business continuity best practices.
- Principles and practices of developing and maintaining technical documentation, files, and records.
- Applicable federal, state, and local laws, codes, and ordinances relevant to the area of responsibility.
- Techniques for providing a high level of customer service by effectively dealing with the public, vendors, contractors, and Office staff.
- The structure and content of the English language, including the meaning and spelling of words, rules of composition, and grammar.
- Modern equipment and communication tools used for business functions and program, project, and task coordination, including computers and software programs relevant to work performed.

Ability to:

- Configure enterprise network equipment including but not limited to routers, switches, firewalls, wireless controllers, wireless access points, and other networking equipment and software.
- Analyze intricate network issues, isolate root causes, and implement effective solutions.
- Incorporate advanced troubleshooting techniques, including packet analysis, protocol debugging, and simulation tools.
- Manage network projects, including planning, execution, and coordination of tasks and resources.

- Identify performance bottlenecks and implement optimization strategies for enhanced network efficiency and network capacity planning, QoS implementation, and traffic shaping.
- Effectively coordinate vendor, partner, and/or onsite support, implementing necessary changes while ensuring alignment with existing network configurations.
- Follow change management procedures for network configurations and updates.
- Establish and maintain logs, records, lists, and files regarding network procedures, and policies.
- Prepare clear and concise reports, correspondence, and other written materials.
- Respond to and effectively prioritize a high volume of phone calls and other requests for service.
- Understand, interpret, and apply all pertinent laws, codes, regulations, policies and procedures, and standards relevant to work performed.
- Use tact, initiative, prudence, and independent judgment within general policy and procedural guidelines.
- Independently organize work, set priorities, meet critical deadlines, and follow-up on assignments.
- Communicate clearly and concisely, both orally and in writing, using appropriate English grammar and syntax.
- Establish, maintain, and foster positive and effective working relationships with those contacted in the course of work.
- Effectively use computer systems, software applications relevant to work performed, and modern business equipment to perform a variety of work tasks.

PHYSICAL DEMANDS

Must possess mobility to work in a standard office setting and use standard office equipment, including a computer; to operate a motor vehicle and visit various SMCOE sites; vision to read printed materials and a computer screen; and hearing and speech to communicate in person and over the telephone. This is primarily a sedentary office classification although standing in work areas and walking between work areas may be required. Finger dexterity is needed to access, enter, and retrieve data using a computer keyboard or calculator and to operate standard office equipment. Positions in this classification occasionally bend, stoop, kneel, reach, push, and pull drawers open and closed to retrieve and file information. Employees must possess the ability to lift, carry, push, and pull materials and objects up to 50 pounds.

ENVIRONMENTAL CONDITIONS

Employees work in an office environment with moderate noise levels, controlled temperature conditions, and no direct exposure to hazardous physical substances. Employees may interact with upset staff and/or public and private representatives in interpreting and enforcing divisional policies and procedures.