

SANTA CLARA COUNTY OFFICE OF EDUCATION

CLASS TITLE: NETWORK ENGINEER

BASIC FUNCTION:

Under the direction of an assigned manager, plans, designs, configures, implements, evaluates, tests, and troubleshoots wired and wireless Local Area Networks (LAN), Wide Area Networks (WAN), telecommunications, data communications and network security systems, software-defined network systems, upstream and downstream ISP connections and networks of moderate to advanced complexity and difficulty to meet the needs of the County Office of Education and school districts; provide escalated network and administrative technical support for users; participate in project design and management, public relations, research and problem-solving activities.

REPRESENTATIVE DUTIES:

ESSENTIAL DUTIES:

Designs, installs, configures, and monitors network devices including switches, routers, optical equipment, firewalls, wireless controllers, network security appliances and associated enterprise network applications.

Designs, installs, configures, and monitors network infrastructure and performance between both downstream and upstream Internet Service Provider (WAN) connections.

Designs, installs, configures, and monitors advanced optical (layer 1) networks leveraging advanced dense wave division multiplexing (DWDM) technologies.

Designs, installs, configures, and monitors advanced wireless networks leveraging advanced Citizens Broadband Radio Service (CBRS) technologies.

Designs, installs, configures, and monitors network infrastructure and performance for campus, branch, datacenter, and co-location sites.

Designs, implements, and maintains complex systems for secure delivery of digital information; plans, configures and installs secure access connections to County Office servers and provide secure access for onsite and remote mobile workers and devices.

Designs network infrastructures and manage specific network design projects to support current and future network and computing connectivity and bandwidth requirements of internal and external systems and applications.

Designs, implements, and routinely assess options for network diversity to support and ensure the resiliency of network-connected systems and services.

Designs, implements, and reviews network segmentation strategies to ensure the isolation of network areas required for network security and management.

Designs, implements, and documents network migration strategies and processes for both internal and external projects and requirements minimizing connectivity disruptions for both systems and users.

Anticipates key growth areas and bandwidth requirements for internal and external customers and systems to ensure all network capacity planning accounts for current and future needs.

Collaborates with application owners across teams, departments, and organizations to develop network design strategies, accounting for support and bandwidth growth needs.

Analyzes and resolves escalated tier 2 and tier 3 problems between LAN/WAN, SAN, servers, desktop computers, and enterprise applications; works with network and security system vendors to ensure optimal efficiency in network operations.

Provides work direction, training, and guidance to other technical support staff; oversee the work of outside contract workers on construction of network design projects.

Collaborates with, coordinates with, or assists other technical team members in network-related tasks to support inter-team and inter-departmental projects and initiatives.

Prepares cost analysis of proposed and existing network services; recommend contractual changes, service providers and cost control measures; participates in the development of feasibility studies and cost-effectiveness studies for new network and security infrastructure and associated enterprise applications.

Provides technical support for network operations; performs diagnostic tests; compiles, organizes, and analyzes data to troubleshoot network problems; analyzes and resolves connectivity problems with network infrastructure and network-security systems and associated enterprise applications, LAN/WAN, SAN, servers; works with support team members to assure timely response to problem calls.

Provides recommendations and support for the development of technical policies and strategies for network system design and scaling, augmenting hosted services and broadening network support capacities.

Ensures all enterprise network components are updated, secure, and conform to availability and resiliency requirements and are accounted for in designing for growth.

Plans and oversees multiple network projects to completion; 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; assures projects are planned and delivered according to customer needs.

Coordinates service calls and schedules appointments between service providers and users experiencing problems and ensure satisfactory resolution.

Manages user passwords and profiles related to network infrastructure and network security systems; conducts routine audits of security procedures.

Maintains and operates network monitoring and diagnostic software and equipment for capacity planning and preventative maintenance.

Receives and reviews equipment installation requests from users, ensure completeness, and contact users regarding discrepancies.

Trains users and customers in the proper use and operation of LAN/WAN systems and related equipment; trains and assists administrative support staff in department-specific software application and hardware.

Prepares and updates operation documentation and guides; prepares documentation for the placement of equipment; maintains and monitors equipment inventory lists; maintains accurate records, logs, and files related to assigned LAN, WAN, and equipment inventory activities, servicing, operations, and functions; writes articles, newsletters, and technical documentation; prepares network diagrams, flow charts, graphic presentations, and narrative reports to recommend improvements or resolve problems.

Repairs or facilitates the repair of network equipment and other associated systems as needed.

Maintains current knowledge of emerging technologies and research in information technology; conducts research; assists with developing policies and strategic plans for the use and support of emerging technologies and assess the impact on current practices.

OTHER DUTIES:

Performs related duties as assigned.

KNOWLEDGE AND ABILITIES:

KNOWLEDGE OF:

LAN/WAN network and security protocols – TCP/IP, Quality of Service (QoS), OSPF, BGP, IPsec, 802.1x, RADIUS, SNMP.

Network Operating Systems – Cisco IOS, Cisco NX-OS, Aruba OS, Aruba-CX, PAN-OS.

Firewall technologies – Cisco ASA, Palo Alto Networks, other next-generation firewalls.

Wireless Systems – Cisco, Meraki, Aruba.

Citizens Broadband Radio Service Wireless Systems.

Optical (Layer 1) Systems – Ekinops, ADVA, Cisco NCS.

Network Security Applications – Cisco ISE, Aruba Clearpass, other NAC technologies.

Software Defined Network technologies – Cisco SDA, VMware NSX, SDN.

Analytical, research and problem-solving methods; network analysis and project management procedures and techniques.

Telecommunications network design.

Project management concepts, procedures, and tools, including Microsoft Project.

State and Federal laws and regulations relating network and network security systems.

Information systems and network terminology and telecommunications policies, procedures, and vendors.

Installation of data/voice communication networks, telephone systems, and related software and hardware.

Desktop computer hardware and software.

Current trends, techniques, and general principles in enterprise technology.

Proper telephone etiquette and public relations skills.

Proper English usage, grammar, punctuation, and vocabulary.

ABILITY TO:

Apply specialized knowledge in LAN/WAN, telecommunications systems, data communications, servers, hardware, and software systems.

Identify and isolate network or network-related systems problems through the performance of diagnostics and determine appropriate action for resolution.

Establish and maintain logs, records, lists, fact sheets, and files regarding specialized transactions, procedures, and policies.

Prepare user guides and a variety of statistical and narrative reports.

Work various shifts with minimal supervision to meet user and customer needs.

Determine network and network security systems, software programs, and materials to meet user and customer requests and project requirements.

Operate a variety of computer peripheral equipment including desktop and laptop computers as well as associated software.

Anticipate network-related issues and develop effective strategies to mitigate problems before they arise or worsen.

Perform numerical calculations accurately.

Plan, organize, and prioritize assigned tasks and functions efficiently in stressful situations.

Coordinate and monitor networking activities with outside service providers/agencies.

Train users and customers in the proper and secure implementation of network equipment and infrastructure.

Establish and maintain effective work relationships with those contacted in the performance of required duties.

Communicate effectively orally and in writing.

EDUCATION AND EXPERIENCE:

Any combination equivalent to: bachelor's degree in computer science, information systems or related field and five years of increasingly responsible experience in network analysis and administration including the design, implementation and maintenance of LAN/WAN servers and telecommunications system operations.

LICENSES AND OTHER REQUIREMENTS:

Demonstrate proficiency in the requirements for the following certifications:

CISCO CCNP

CISSP

Palo Alto Network PCNSE

Aruba Networks ACMP

Valid California driver's license.

WORKING CONDITIONS:

ENVIRONMENT:

Indoor and occasional outdoor working environment.

Evening or variable hours.
Driving a vehicle to conduct work.

PHYSICAL DEMANDS:

Hearing and speaking to exchange information and make presentations.
Dexterity of hands and fingers to operate computer keyboard.
Seeing to perform assigned activities.
Sitting for extended periods of time.
Bending at the waist, kneeling, or crouching.

Approved by the Personnel Commission: January 8, 2014
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Marisa Perry
Director – HR/Classified Personnel Services

Date: 07/14/21