SANTA CRUZ COUNTY OFFICE OF EDUCATION

NETWORK AND SYSTEMS ARCHITECT

<u>DEFINITION</u>
Under the limited direction of the Chief Technology Officer, the Network and Systems Architect is a highly technical position responsible for architecting, engineering, planning, designing, configuring, implementing, evaluating, supervising, testing, and debugging Local Area Networks (LAN), Wide Area Networks (WAN), telecommunications, data communications and messaging systems, desktop computers, server and network operating systems, and IP telephone systems of high complexity and difficulty to meet the needs of the County Office of Education (COE), school districts, and all students, staff and guests of Santa Cruz County schools. This position involves managing and overseeing the allocation of resources for the entire technology infrastructure department as well as cross-departmental technical planning and security. This is the senior line of all infrastructure technology positions, also responsible for providing support to financial data communications, providing network and administrative technical support for users, participating in project design and management, public relations, research, problem-solving, and assisting in setting strategy for all infrastructure activities.

<u>SUPERVISION EXERCISED</u>
May exercise technical and functional supervision over lower-level staff.

<u>EXAMPLES OF IMPORTANT AND ESSENTIAL DUTIES</u>
Perform a variety of highly complex and specialized activities involved in the planning, installing, configuring, and monitoring network cabling and devices including switches, routers, firewalls, storage devices and storage area networks (SANs), network attached storage (NAS), desktop and laptop computers, servers, peripherals and associated software.

Oversee, plan, liaise and direct efforts in ensuring all aspects of Internet Services to school districts are secure and maintained.

Coordinate, plan, implement, and maintain complex systems for delivery of digital information; plan, implement and maintain technical support systems to meet the requirements of internal departments.

Develop and coordinate network designs and manage specific network design projects to support current and future network and computing infrastructure needs.

Design, implement and routinely test system backup and disaster recovery strategies based upon established Santa Cruz County Office of Education policies and industry best practices.

Coordinate and perform advanced security configurations of Cisco and other routers, RADIUS servers, and firewalls, and monitor usage to ensure security of data and access privileges.

Recommend, coordinate and design cybersecurity practices to share with internal and external partners.

EXAMPLES OF IMPORTANT AND ESSENTIAL DUTIES (CONTINUED)

Analyze and resolve problems between LAN/WAN, SAN, NAS, servers, desktop computers, and desktop applications.

Perform risk assessment of information systems while continuously researching and analyzing the effects of updates to software, firmware, and hardware with regards to uptime, security, and interoperability of computer and network systems.

Develop training materials for lower-level staff on complex configurations.

Partner with network equipment providers to ensure optimal efficiency in network operations including major key external partner executives, government officials, and statewide leaders in IT and in education; prepare cost analysis of proposed and existing network services; recommend contractual changes, service providers and cost control measures; participate in the development of feasibility studies and cost-effectiveness studies for new computer applications and operating systems.

Collaborate with application owners across teams, departments and organizations to develop system design strategies accounting for support and growth needs including district executives.

Lead security efforts in partnership with Santa Cruz COE's Maintenance and Operations department in regards to the networking of security cameras, access control doors, thermostats and uninterruptible power supply devices.

Lead security efforts in partnership with Santa Cruz COE's Audio Visual team in regards to the networking of complex conferencing technologies and video/audio systems.

Serve as point of escalation and direct the work of or provide guidance to other technical support staff; oversee the work of outside contract workers on construction of network design projects.

Plan and oversee multiple network projects to completion; identify scope of work and objectives; facilitate the resolution of complex project problems by meeting with stakeholders, vendors and other technical staff to identify problems and potential solutions; assure projects are planned and delivered according to customer needs.

Provide technical support for network operations; perform diagnostic tests; compile, organize, and analyze data to troubleshoot network problems to inform and refine policy and directional change in regards to network infrastructure, systems, and security of both.

Manage user passwords and profiles; conduct routine audits of security procedures.

Administer Google Workspace system and its integration with existing directory services.

Maintain and operate network and server monitoring and diagnostic software and equipment for capacity planning and preventative maintenance.

EXAMPLES OF IMPORTANT AND ESSENTIAL DUTIES (CONTINUED)

Receive and review equipment installation requests from users, ensure completeness, and contact users regarding discrepancies.

Explain operational and installation procedures to users and train users in the proper use and operation of LAN/WAN systems and related equipment; prepare and update operation documentation and guides.

Prepare documentation for the placement of equipment; maintain and monitor equipment inventory lists; maintain accurate records, logs, and files related to assigned LAN, WAN, and equipment inventory activities, servicing, operations, and functions; write articles, newsletters, and technical documentation; prepare network diagrams, flow charts, graphic presentations, and narrative reports to recommend improvements or resolve problems.

Repair computers, printers and other peripherals as needed.

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

Lead conversations with manufacturer Technical Assistance Centers (TAC).

Work nights and/or weekends for maintenance and emergency situations as needed.

Drive a vehicle to various sites to conduct work.

Participate in available and recommended professional development in order to meet new standards.

Perform related duties and responsibilities as assigned.

JOB RELATED AND ESSENTIAL QUALIFICATIONS

Knowledge of:
Hypervisors, including VMware ESXi, Hyper-V, vCenter, vOperations and associated applications.

Server operating systems, including Microsoft Server, UNIX and Linux.

Server hardware platforms, including Cisco UCS, Lenovo, Dell, and Fujitsu.

Storage systems, including Datrium, Dell and NetApp.

Firewall solutions, Enterprise applications, including Microsoft Active Directory, Microsoft SQL Server, DNS, and LDAP directory services.

Messaging systems, including Google Workspace, Zoom and associated applications.

Knowledge of (continued):
Cloud and hosted services, including Amazon Web Services and associated services.

Backup, data replication and Disaster Recovery systems.

Techniques for database performance monitoring and tuning, indexing, security, recovery, and data integrity.

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

State and Federal laws and regulations particularly as related to data systems privacy, telecommunications and networks.

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

Desktop computer hardware and software.

Cyber security and firewall concepts and best practices.

LAN/WAN technologies; including, TCP/IP, Quality of Service (QoS), wireless LANs, Cisco IOS, and Voice Over IP (VoIP) Network security principles including firewall placement and configuration and VPN implementation. Networking as it pertains to server and storage infrastructures.

Telecommunications network design.

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

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

Proper telephone etiquette and public relations skills.

Proper English usage, grammar, punctuation, and vocabulary.

Skill and Ability to:
Apply specialized knowledge to LAN/WAN networks, firewalls, telecommunications systems, data communications, servers, hardware and software systems.

Identify and isolate systems or network related 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.

Skill and Ability to (continued):
Determine systems, servers, applications, and materials to meet user and customer requests and project requirements.

Diagnose database problems; tune databases for optimum performance.

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

Work with little to no supervision to meet organization needs.

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

Anticipate systems-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 telecommunications networking activities with outside service providers/agencies.

Train users in the proper use and application of network equipment, software, systems applications and end-user applications.

Work closely with vendors to identify infrastructure needs and negotiate costs associated with upgrades.

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

Communicate effectively orally and in writing.

Function as a sole authority and make decisions around broad technology frameworks and practices.

Be courteous and maintain a neat and clean appearance, and demeanor at all times.

EDUCATION AND EXPERIENCE
Any combination equivalent to experience and training that would provide the required knowledge, skills, and abilities would be qualifying. A typical way to obtain the knowledge, skills, and abilities would be:

Education
Completion of a BA/BS degree or post-secondary training in information technologies or a closely related field.

Experience

Four to five years of increasingly responsible experience providing system support with personal computers and servers. Extensive knowledge of VMWare, Microsoft Server, Cisco IOS, UNIX, and FreeBSD.

License or Certificate

Possession of, or ability to obtain, a valid California driver's license and appropriate vehicle operation insurance.

Cisco Certified Network Associate or Cisco Certified Network Professional certification required in lieu of a BA/BS.

Aruba Certified Mobility Associate or Aruba Certified Mobility Professional certification desired. Microsoft Certified Solutions Expert certification desired.

Google Workspace Administrator Certification desired.

Qualification Requirements:

To perform a job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed in the job description are representative of the knowledge, skills, and abilities required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

SPECIAL REQUIREMENTS

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. Essential duties require the following physical skills and work environment:

While performing the duties of this job, the employee is regularly required to sit, stand, and move about the work area; use hands or handle, fingers, and feel objects, tools, or controls; and talk or hear. The employee may occasionally lift and/or move objects up to 50 pounds. Specific vision abilities required by the job include close vision and depth perception.

Perform duties in hard-to-reach locations at school sites including closets, underground, rooftops.

Work seamlessly in a high volume data center with constant fans and HVAC units blowing.

The physical demands described above are representative of those that must be met by an employee to successfully perform the essential functions of this job.

Approval Date: November, 2020
Revised: June 20, 2023 (Previous Title: Network and Systems Administrator)