

KERN COUNTY SUPERINTENDENT OF SCHOOLS
REVISED/APPROVED JANUARY 2025
RANGE: 58.5
CLASSIFIED
CODE: 2, 7

LEAD NETWORK SYSTEMS ENGINEER

DEFINITION

Under general direction, the Lead Network Systems Engineer will lead design efforts of the enterprise network and networks that provide internet services to school districts and agencies in the client base, as well as systems that support those networks ensure system efficiency and integrity, by assisting with creation of department standards and procedures, and research and support for new technologies used in the network environment.

EXAMPLES OF DUTIES

Lead the design of network solutions for KCSOS and districts that provide high availability, reliability, and security consistent with expectations and service level agreements;

design, implement, and support the interconnectivity of LAN/WAN networks and connections to infrastructure components such as network for centralized storage and video transmission;

lead efforts in troubleshooting network issues and assume engineering responsibility for restoration of services;

develop and provide inventory documentation to assist in maintaining support, updating, and life-cycle management of network devices including budget planning for network-related expenses;

administration of common network services such as DNS, DHCP, HTTP/S, SNMP, and other TCP/IP services;

ensure proper backup and recovery of network device configurations;

create and update maps and documentation of network systems, locations, paths, and access;

utilize help desk software for ticket and project functions, maintain network devices and their relationships within the CMDB, and change management including review, impact analysis, and approvals;

lead tool selection and processes for network configuration management, monitoring and alerting, and standardize network and device configurations;

monitor network performance and recommend, implement and document process/procedure improvements that will enhance performance and reduce costs;

setup, monitor, and maintain servers on Linux and Windows utilizing hypervisors;

assist with efforts in troubleshooting technology infrastructure and security issues;

lead the creation and maintain the integrity of network spaces for security elevated systems, and administration of accounts and authentication methods for elevated access to technology systems;

assist with design and implementation of secure remote access to resources such as web-based, cloud-based, and VPN;

assist to configure and maintain network security appliances and services such as firewalls, IDS/IPS, and NAC;

conduct incident response for network-related issues including remediation and root cause analysis, and conduct risk assessments regarding network-related systems;

available for after-hours and weekend work as required to minimize user impact for projects and tasks, as well as troubleshoot and resolution of technical issues;

lead regular discussions regarding process improvement for technology needs as well as the needs of other departments and customers including emerging technologies and concerns;

maintain cleanliness of technology spaces and ensure proper procedures and standards are applied in those spaces;

serve as a mentor, and provide technical training and guidance to others on network-related projects and issues, customer service, and business operations;

create dashboards and reports for leadership regarding network-related metrics as instructed;

communicate with appropriate organization, department, and district contacts regarding planned and unplanned service impacts;

assist with managing and assigning support tickets to ensure staff is being utilized efficiently to achieve high level of both quality and quantity of work;

perform other related technology engineering duties as assigned;

QUALIFICATIONS

Knowledge of:

Designing and implementing Local Area Networks (LAN) and Wide Area Networks (WAN) using switching and routing technologies, including VLAN configuration, inter-VLAN routing, and Layer 2/3;

routing protocols such as BGP, OSPF, EIGRP, and MPLS;

high-availability network architecture including configuration for aggregation, redundancy, and failover mechanisms;

network performance tuning, including bandwidth management, load balancing, and latency reduction
wireless networking technologies, including Wi-Fi standards (802.11a/b/g/n/ac/ax) and wireless security protocols;

firewall configuration and management of NGFW appliances such as Palo Alto, Cisco, and Fortinet;

network automation tools and frameworks such as Ansible, Puppet, or Chef;

Windows Server and Linux, operating systems and distributions, hypervisors, and storage network systems;

Ability to:

Communicate effectively in public, in conference, and in written materials;

work at various locations and be able and equipped to communicate as necessary with supervisor regarding whereabouts and task updates;

maintain the knowledge and ability to provide coverage for other engineers for brief periods as required;

stay current on industry trends, emerging technologies, and best practices in network engineering;
maintain knowledge of applicable funding sources and the rules and procedures to utilize them;
develop and maintain cooperative relationships with department, organization, and district leaders;
prepare and present network administration training sessions to lay and professional audiences;
delegate tasks when directed, follow-up with coworkers, and communicate expectations;
maintain excellent organizational skills and the ability analyze, troubleshoot, and apply critical thinking skills in high-pressure situations;
follow department policies, procedures, and standards both technical and behavioral;
maintain a professional appearance and communicate effectively both verbally and in writing;
communication, and punctuality.

lift 50 pounds, climb ladders, stoop, bend, kneel, squat, crawl, stand for long periods of time, and see and hear sufficiently to safely perform the duties listed above.

Experience:

Combined seven (7) years experience in an engineer role designing and implementing large and complex networks using enterprise-level routers, switches, and wireless technology;

including design and operating experience with Linux systems, Windows Server, virtualized server environments, and SAN storage;

systems management or MIS background with some project management experience is preferred.

Education:

Graduation from a four-year (4) college or university with a Bachelor's degree in computer science required.

Equivalent experience in an applied setting regarding the above technology can be substituted for Bachelor's degree requirements.

Conditions of employment:

Some positions may require proof of privately owned automobile insurance and possession of a valid California Motor Vehicle operator's license which must be maintained for the duration of the assignment.

Fingerprint clearance by both the Federal Bureau of Investigation and the California Department of Justice is a condition of appointment after all other required job conditions have been met.

Must present verification of completion of Child Abuse Mandated Reporter training or obtain verification within six (6) weeks of hire and annually thereafter, as required by the California Child Abuse and Neglect Reporting Act.

This position has a probationary period of six months or 130 days, whichever is longer.

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