

SENIOR DESIGN NETWORK ENGINEER

DEFINITION

Manages, implements, and plans advanced networking infrastructure system designs throughout the District, including all aspects of data, voice, and video.

TYPICAL DUTIES

Manages the design, optimization, and implementation of Network Services, such as Quality of Service (QoS), Voice over IP, WAN Optimization, and traffic engineering.

Diagnoses and resolves complex internetworking problems on the IP core with a focus on wide area edge routing, data throughput, and performance issues.

Coordinates and manages all network related projects to ensure integration into existing enterprise network architecture.

Acts as a Tier 3/4 technical escalation point for lower-level engineers and technicians.

Defines and presents technical proposals to improve and optimize network infrastructure.

Leads and oversees analysis of capacity and traffic optimization efforts.

Develops solutions and manages internet protocol telephony (IPT) deployment.

Develops and gathers technical requirements for monitoring, alerting, collecting, reporting, developing, and implementing proactive solutions to solve problems and creates efficiencies based upon data analysis.

Designs District-wide infrastructure to support the delivery of IT services to all locations.

Oversees the District-wide standard configurations.

Conducts periodic assessments of existing configuration and recommends adjustments to achieve better efficiency.

Develops technical project requirements, SOW, and cost estimates and RFP requirements for procurement purposes.

Analyzes performance and capacity capabilities of the local area networks (LAN), Wireless LANs, wide area networks (WAN), metropolitan area network (MAN), and circuits.

Evaluates new products and technologies, performs network problem resolution, and assists in the development and documentation of technical standards and interface applications.

Assesses system-wide infrastructure for protocol compatibility and system tuning and makes recommendations for improvement.

Acts as the project leader on enterprise-wide assignments for the implementation of emerging or new District-level technologies.

Performs related duties as assigned.

DISTINGUISHING CHARACTERISTICS AMONG RELATED CLASSES

A Senior Design Network Engineer supervises and manages a team of Design Network Engineers to drive continuous improvements and growth in network technologies, internet routing, and virtual private networks.

A Strategic Planning Systems Engineer is responsible for managing and overseeing all systems planning and implementation throughout the District.

The Design Network Engineer (DNE) supervises lower-level technicians and contractors assisting in planning, managing, and implementing current and emerging technologies from an enterprise level.

SUPERVISION

General direction is received from the Senior Director, Information Technology. General supervision is exercised over Design Network Engineers and lower-level technical staff.

CLASS QUALIFICATIONS

Knowledge of:

Critical IP technologies including OSPF, BGP, MPLS VPN, MP-BGP, QoS, multicast, and DWDM, IPSEC, GRE Tunnel, HSRP, DHCP, ARP, DNS, SNMP, WAN Optimization, and IPv4 and IPv6 dual stack architecture, implementation, best practices, and transition techniques

Data Center network architecture and technologies including Cisco Nexus and Catalyst switches, VPC, 802.1q VLAN Trunking, Spanning-tree, and F5 Load Balancers

VoIP architecture and technologies including Cisco Unified Communications Manager, Unity Voice Messaging, and Presence

Enterprise network management platforms and analysis tools for wired and wireless technologies

Principles of LAN/WAN/Wireless LAN/Converged/multimedia network design, integration, traffic engineering, network security, administration, encryption technologies, software, and applications

Video compression Technology (H.264, MPEG-2, MPEG-4 AVC), digital video broadcast technologies, set-top-box technologies, web-based client/server applications, and interactive or enhanced television

Design of large enterprise IT service management systems and content distribution network WAN bandwidth optimization networking components

Large complex enterprise wireless infrastructure and technology including IEEE 802.1x authentication, mobility, captive portal, and BYOD

Cabling topology of the District communication systems

Federal, State, and Local mandates, rules, and regulations

Project management methodologies

Ability to:

Design and implement Alcatel, Avaya, Aruba, Cisco, HP, F5, and other manufacturers' equipment including communication managers, messaging servers, firewalls, routers, and switches

Perform root cause and trend analysis

Resolve complex network problems, failures, and performance issues

Provide design enhancements to existing networks and develop new network capabilities

Work well under pressure and manage multiple large projects simultaneously

Produce and maintain documentation of complex network implementations

Formulate and express ideas clearly and effectively orally and in writing

Ability to conduct assessment and document large complex enterprise network

Transcribe project technical requirements into system designs

Perform sizing and capacity assessments

Complete performance analytics

Perform root cause analysis, forecasting, and trend analysis

Set priorities and successfully complete tasks in a timely manner

Analyze and interpret materials and problems involving rules, procedures, documentation, and related matters

Maintain effective relationships with District personnel and representatives of manufacturers and other organizations
Motivate and lead employees

Special Physical Requirement:

Ability to safely lift and carry tools and materials weighing up to 50 pounds

ENTRANCE QUALIFICATIONS

Education:

Graduation from a recognized college or university with a bachelor's degree, preferably in computer science, information systems, electrical engineering, data communications, network engineering, telecommunications management, or a related field. Qualifying experience in addition to that required may be substituted on a year-for-year basis provided that the requirement of a high school diploma or equivalent is met.

Experience:

Six years of direct experience designing, engineering, and/or configuring telephony or network systems, at least three years of multimedia networking, engineering, installation, configuration, or ongoing maintenance is preferable. Two years of the aforementioned experience must have been in a lead capacity.

Special:

A valid driver's license to legally operate a motor vehicle in California.

Use of an automobile.

A Cisco Certified Network Professional (CCNP) (Enterprise, Data Center, Security, Service Provider or Collaboration) certification is required and must be kept valid during the term of employment.

An additional Cisco Certified Network Professional (CCNP) (Enterprise, Data Center, Security, Service Provider or Collaboration) certification is preferred.

A Cisco Certified Internetwork Expert (CCIE) (Enterprise Infrastructure, Enterprise Wireless, Data Center, Security, Service Provider or Collaboration) certification, Aruba Certified Professional level or equivalent certification; are highly preferred.

SPECIAL NOTES

Employees in this class may be subject to call at any hour.

This class description is not a complete statement of essential functions, responsibilities, or requirements. Entrance requirements are representative of the minimum level of knowledge, skill, and /or abilities. To the extent permitted by law, management retains the discretion to add or change typical duties of a position at any time, as long as such addition or change is reasonably related to existing duties.

Revised
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JAP