

**CITY OF CARLSBAD
CLASS SPECIFICATION**

JOB SERIES: **NETWORK ASSOCIATE
NETWORK ENGINEER
SENIOR NETWORK ENGINEER**

DEPARTMENT: **INFORMATION TECHNOLOGY**

DISTINGUISHING FEATURES AND SUMMARY DESCRIPTION:

The primary purpose of positions in this job series is to use experience and expertise to resolve technical problems and design new solutions relating to servers, networking and infrastructure.

The Network Associate is the entry level in the Network Engineer job series. The Network Associate is responsible to perform routine network maintenance. Positions at this level are not expected to function with the same amount of program knowledge as the Network Engineer. **The Network Engineer** is the journey level of the Network Engineer series. The Network Engineer develops, configures, deploys and maintains the enterprise network server systems to avoid interruptions in network services. Network Engineers assigned to the telecommunications network are responsible for the management of the city's enterprise voice network, voice mail system and cabling projects. Network Engineers may lead the work of less experienced team members or project teams. **The Senior Network Engineer** is the senior level of the network engineer job family. The Senior Network Engineer is differentiated from the Network Engineer because of their primary role of overseeing and ensuring smooth operation and reliability and access to the entire enterprise system and networks. This position takes an end-to-end view of all systems and the network with a strong eye towards system integration and security. A secondary role of the Senior Network Engineer may be to supervise the work of Network Engineers. The Senior Network Engineer may be staffed alternatively by a **Senior Security Engineer** primarily assigned to system engineering efforts to define future architecture views and the strategies to realize them. The definition of future architecture views includes mapping business strategies to technology strategies, mapping business needs to the IT infrastructure, and recommending architectural and security standards. The Senior Security Engineer may supervise the work of Network Engineers.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

The following duties are typical for this job series and include the following. Incumbents may not perform all of the listed duties and/or may be required to perform additional duties from those listed below to meet the city's business needs and changing operating practices and overall technological trends. Other duties may be required and assigned.

Network Associate:

- Performs routine network maintenance i.e. network servers, routers and switches.
- Creates new users and associated file access rights.
- Identifies and resolves computer and network problems.
- Performs a variety of duties in the monitoring, installation, testing, configuration and troubleshooting of hardware and software and system or application upgrades.

- Installs cabling and wiring for systems, telecommunication systems and peripheral equipment.
- Conducts repairs and maintains preventative maintenance schedules for application, network and access services.
- Conducts troubleshooting on assigned user rights, file access, security settings, server and server communication, and enterprise print systems.
- Conducts system and database backups as necessary; files backup tapes and maintains tape library.
- Provides assistance to information systems staff in the evaluation, selection, acquisition and implementation of computer hardware and software.
- Monitors antivirus definition updates for servers/desktops.
- Provides technical training to end users.

Network Engineer:

Includes all duties listed in the Network Associate in addition to:

- Maintains network, file and print server(s) and network infrastructure for the city.
- Maintains network service on Inter and Intranet, manages and maintains assigned directory infrastructure, group policies, protocols and account management within defined ranges.
- Performs testing, applies patches and writes code to enable network systems integration.
- Plans, configures and maintains network and file and print server(s) and network infrastructure for the city.
- Builds and maintains citywide data storage.
- Designs and implements Local Area Network and Wide Area Network projects and coordinates outside vendors or agencies as needed.
- Integrates and maps business needs and strategies of internal and external customers and maps into technology infrastructure and solutions.
- Designs and maps assigned areas to navigate the Information Technology Roadmap(s).
- Manages and maintains server OS patches and upgrades, including virtualized environments.
- Analyzes system and network security risks and secure access; current posture; network stability and usage.
- Plans and builds Disaster Recovery replication practices.
- Acquires system products and makes preparations for implementation and integration.
- Supervises and/or assist in cabling, including installation and design of cable/fiber installs inside city buildings.
- Monitors and maintains email systems.
- Provides project support on server/application projects.
- Makes recommendations on software and hardware upgrades, capacity requirements and creation of virtual environments.
- Conducts request for proposals, purchasing of hardware and software supplies and negotiate with vendors.
- Leads and manages technology vendors in the scope of assigned work for the City of Carlsbad.
- Leads and or participates and contributes on projects of moderate scope relating to server maintenance, backup maintenance and/or audio visual system maintenance.
- Recommends and assists in establishing technology user policies and procedures.
- Makes recommendations for budget planning.

**Telecommunications Responsibilities:
Typically assigned at the Network Engineer level**

- Manages administrates voice network for the enterprise.
- Manages and administrates voice mail system.
- Manages and administrates cabling projects.
- Configures and manages wide area communication devices.
- Coordinates installation, maintenance and troubleshooting of wide area communication lines.
- Researches, analyzes, acquires and maintains voice and data communication lines and circuits.
- Provides technical guidance to ensure installed phone systems, voice mail and data communications are reliable and current.

**Public Safety Systems Responsibilities:
Typically assigned at the Network Engineer level**

- Performs analytical duties in the development, operation, administration, and support of the city's public safety information systems including the Computer Aided Dispatch (CAD) System for E9-1-1.
- Supports operations of the Mobile Dispatch Terminals in police vehicles and Geographic Information Systems images for fire vehicles.
- Works with client systems administrators on Police and Fire Departments on laptop hardware and software.
- Works with regional and state consortiums to study and/or implement safety related technology.

**Senior Network Engineer:
Includes all duties listed in the Network Engineer in addition to:**

- Performs the role of lead or supervisor; assigns work; distributes workload; authorizes timesheets; approves vacation requests and assists in recruitment and evaluation processes.
- Plans and integrates technology to meet milestones and timelines and management of highly visible and complex projects.
- Ensures the health and reliability of city's computer networks, system access, operation and security.
- Plans resource allocation and develops work plans for the Information Technology Department.
- Manages multiple and simultaneous complex technology projects.
- Participates and contributes in the strategic plan for the city's enterprise system.
- Supervises and/or resolves escalated types of complex network, system limitation and access problems for all enterprise systems.
- Manages new services, business solutions, service delivery and or migration to new systems.
- Enforces Information Technology standards.

Senior Network Security Engineer:

Staffed at the Senior Network Engineer level with focus on network security and the same requirements as Senior Network Engineer.

- Manage multiple enterprise projects of a complex nature with significant impact to the organization.
- Ensures secure local and remote access to enterprise computing systems and information.
- Monitors network(s), LAN, WAN, devices, device logs, utilization and availability.
- Monitors firewall availability and utilization.
- Analyzes information collected from monitoring system and network security risks and current posture as well as network stability and usage.
- Review Information Technology Departments policies and deliver recommendations based on current and future needs. Industry best practices and national cyber security alerts.
- Designs and implements scalable solutions with security, manageability and reliability as the cornerstone to every project.
- Resolves customer issues that are escalated for all enterprise systems and support all other Information Technology staff, projects, issues and systems as challenges arise.

JOB SERIES KNOWLEDGE AND ABILITIES

Network Associate:

- Knowledge of Microsoft Windows Operating Systems.
- Knowledge of general E-mail and other collaboration technologies.
- Basic knowledge of infrastructure device installation, configuration and maintenance (i.e. firewalls, routers, switches).
- Knowledge of network servers, storage systems and maintenance.
- Knowledge of network connectivity.
- Knowledge of computer network operations limited to moderate scope.
- Ability to learn and utilize general networking protocols.
- Ability to troubleshoot end user network access.
- Ability to perform basic purchasing.
- Ability to work independently with occasional supervision.

Network Engineer:

Knowledge and abilities required of the Network Associate in addition to:

- Knowledge of infrastructure device installation, configuration and maintenance (i.e. firewalls, routers, switches).
- Working knowledge of batch scripting.
- Knowledge of Cisco networking.
- Ability to implement backup technologies.
- Ability to design, plan and manage virtualization environments.
- Knowledge of Microsoft clustering.
- Ability to utilize RAID configurations.
- Knowledge of directories, group policies, file systems, domains and protocols.
- Knowledge of network security issues.

Senior Network Engineer/Security Engineer:

Includes knowledge and abilities of the Network Engineer in addition to:

- Knowledge of principles and practices of management and supervision.
- Broad knowledge of multiple technologies, servers, storage and security at the enterprise level.
- Deep working knowledge of network and information security principles and practices.
- Strong background and abilities in project management.
- Strong background and abilities in contract management.
- Expertise in Local and Wide Area Networks.
- Ability to perform file auditing.
- Ability to implement file transfer protocols.
- Ability to maintain a high degree of accuracy.
- Ability to track project or other schedules.
- Ability to build and maintain servers.
- Ability to supervise Email.
- Ability to establish network and system recovery practices.
- Ability to implement storage practices and policies.
- Knowledge of user-id account management.
- Ability to execute senior level project management.
- Ability to make complex business based decisions.
- Ability to create and evaluate system proposals.
- Ability to articulate cost-benefit solutions.

JOB SERIES EXPERIENCE AND EDUCATION**Network Associate:**

Requires an AA degree and a minimum of 2 years experience with an enterprise system of the same or greater scope and complexity.

Network Engineer:

Experience and Education requirements of the Network Associate in addition to:

Bachelor's Degree in Management Information Systems, Computer Science, Information Technology or a related discipline, or equivalent experience/combined education, with 5 years of professional experience.

Senior Network Engineer/Senior Network Security Engineer:

Experience and Education requirements of the Network Engineer in addition to:

7 years of professional experience or equivalent. Three years of supervisory experience or demonstrated ability to lead complex projects with important impacts.

JOB SERIES ESSENTIAL FUNCTIONS:

The conditions below are representative of those that must be met by an employee to successfully perform the essential functions of the job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential job functions.

Language Ability:

- Requires ability to compare, count, differentiate, measure and/or sort, assemble, copy, record and transcribe data and information. Must be able to classify, compute, tabulate, and categorize data. Must be able to advise and provide interpretation to others on how to apply policies, procedures, and standards to specific situations. Needs to be able to use a variety of descriptive data and information such as: a variety of plans; resolutions; maps; reports; computer software operating manuals; procedures; guidelines; and routine correspondence.
- Must be able to communicate orally and in writing, clearly and concisely and in a non-technical manner with city personnel at all levels; consultants; vendors; and the general public.
- Needs the ability to read, analyze, and interpret general business periodicals, professional journals, technical procedures, or governmental regulations. Must be able to write reports, business correspondence, and procedure manuals. Needs to effectively present information and respond to questions from groups of managers, clients, and the general public.

Mathematical Ability:

Knows how to apply mathematics, including basic algebraic, plane geometric and trigonometric formulas. Must be able to demonstrate ability to calculate percentages, fractions, decimals, volumes, ratios, and spatial relationships. Needs to be able to interpret basic, descriptive statistical reports.

Judgment and Situational Reasoning Ability:

Must be able to use functional reasoning and apply rational judgment when performing diversified work activities. Needs to be able to analyze data and information using established criteria in order to determine consequences and identify and select alternatives.

Physical Requirements:

- Needs to be able to operate equipment and machinery with some requiring rapid adjustments such as a computer keyboard and terminal, digitizer, plotter, blue line printers, photocopier, calculator, drafting instruments, and engineer and architect scale. Must be able to coordinate eyes, hands, feet and limbs in performing skilled movements such as rapid keyboard use. Needs to be able to recognize and identify degrees of similarities or differences between characteristics of colors, textures, and forms associated with job-related objects, materials, and tasks.
- Essential and marginal functions may require maintaining physical condition necessary for sitting for prolonged periods of time. Must be able to exert light physical effort, typically involving lifting, carrying, pushing and pulling of up to 30 pounds. Tasks may involve extended periods of time at a keyboard or workstation. Needs to be able to perform

frequent downward flexion of neck, side-to-side turning of the neck, fine finger dexterity and grasp to manipulate the keyboard, telephone, writing instruments, papers, books, manuals, and reports.

- Job entails occasional walking, standing, bending, stooping, climbing, reaching at and above shoulders and twisting at the waist. On an infrequent basis, the incumbent must be able to squat and kneel.
- Work may involve occasional outdoor fieldwork.
- Overtime and attending meetings outside regular work hours may be required. Work environment is professional and both team and autonomy oriented. This position is impacted by urgent time deadlines due to various reporting and filing requirements. This position is impacted by urgent time deadlines due to various reporting and filing requirements. Positions in Public Safety involve support of a 24/7/365 days environment and/or duties to support the Safety Department or city emergency operations.
- There is some repetitiveness in program coding, a need for extreme accuracy, and paying attention to detail. Additionally, there is a need to be able to shift attention before tasks are completed to be able to balance user demands, telephone and other interruptions.
- Must be able to drive and maintain a California Class C Driver's license or ability to arrange transportation for fieldwork or visits to other city facilities when necessary.

This classification specification does not constitute an employment agreement between the employer and employee and is subject to change by the city and the needs of the city and requirements of the job change.

The City of Carlsbad is an Equal Opportunity Employer. In compliance with the Americans with Disabilities act, the city will provide reasonable accommodation to qualified individuals with disabilities and encourages both current and prospective employees to discuss potential accommodations with the employer.

DATE APPROVED: Aug. 5, 2008