CLASS TITLE: SENIOR NETWORK ENGINEER

CHARACTERISTICS OF THE CLASS

Under direction, responsible for the implementation and maintenance of network services software and the analysis of network performance, and performs related duties as required.

This class is assigned to the City's Engineering Information Technology Job Family which consists of engineers and developers responsible for designing, building, testing, deploying, and supporting IT products and solutions.

ESSENTIAL DUTIES

This class is distinguished from the entry-level by the amount of discretion exercised necessary to manage technical network projects, issues, and resolutions as well as the complexity and size of the systems or networks supported. Positions must possess a significant level of specialized technical and functional expertise beyond that expected at the entry level; require highly specialized knowledge, abilities and skills and experience and often exercise independent judgement in the performance of their duties. The senior level also has greater latitude in determining work methods and assignments; greater authority over assignments and decisions required to complete the work than the lower-level classification; and works on complex enterprise-wide network projects. The senior level also requires the following advanced competencies: initiative and network technology knowledge; and the following intermediate competencies: customer service, problem solving, systems thinking, and strategic technology planning.

- Leads major network projects to support capacity growth, upgrades and new features, and integration
- Plans and designs the network infrastructure and enterprise network solutions
- Creates innovative strategies and solutions for sustainable outcomes
- Configures and maintains physical and logical network components
- Works on the most complex network tasks, projects or support issues that involve the highest level of risk, or impact departmental and/or citywide performance
- Leads the innovation, design, and selection of new technologies in support of business and IT network engineering initiatives and priorities
- Works on highest priority business-critical network projects/tasks
- Strategizes, designs, and manages the operation of the platform
- Provides support for network issues that come through the Service Desk
- Makes recommendations and influences long-term planning
- Participates in workstream planning process including inception, technical design, development, testing and delivery of network solutions
- Develops work plans or reviews and approves other work plan timelines
- Manages workflows to meet timeframes
- Manages and plans for service demand forecasts
- Participates in the development of business cases to support IT projects
- Influences the design of innovative solutions using new technologies

- Directs the design and development of innovative network solutions
- Identifies and evaluates inefficiencies and recommends optimal solutions
- Reviews proposed designs at key milestones and makes recommendations as needed
- Ensures the conceptual completeness of the technical solution
- Leads, creates, and collaborates with cross-functional teams to produce, build, and design documents that can be implemented
- Determines requirements impact on existing architecture, work processes, and systems
- Designs and supports inter-network analysis including the physical and logical configuration documentation, and traffic management
- Collaborates in the overall implementation of cloud networking solutions
- Evaluates and certifies unified communications hardware and software
- Designs and implements network security
- Explains to non-SMEs how the proposed solution will support their requirements
- Certifies the functionality of components and services and ensures deployment meets the business customers' expectations
- Drives and oversees the implementation of solutions
- Assesses network performance to ensure that it meets the present and future needs

NOTE: *The list of essential duties is not intended to be inclusive; there may be other duties that are essential to particular positions within the class.*

MINIMUM QUALIFICATIONS

Education, Training, and Experience

- Graduation from an accredited college or university with a Bachelor's degree in Computer Science, Information Systems, or directly related field plus three (3) years of work experience in IT networking or migrating and/or extending on-premises networks to the cloud, or an equivalent combination of education, training, and experience.

Licensure, Certification, or Other Qualifications

- Preferred: Cisco CCNA, CCNP, and/or CCIE certification(s)

WORKING CONDITIONS

- General office environment

EQUIPMENT

- Standard office equipment (e.g., phone, printer, copier, computers, mobile devices)
- Standard productivity suites (e.g., Microsoft Office Suite, OpenOffice, Google Workspace)

PHYSICAL REQUIREMENTS

- No specific requirements

KNOWLEDGE, SKILLS, ABILITIES, AND OTHER WORK REQUIREMENTS

Knowledge

Comprehensive knowledge of:

- *cloud technologies (e.g., such as Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and other emerging technologies)
- *design and implementation of enterprise network solutions
- *computer network infrastructure and network technologies
- *application transport and network infrastructure protocols

Considerable knowledge of:

- *industry-leading practices in technical administration of on-premises/virtualization and cloud solutions
- *application transport and network infrastructure protocols

Moderate knowledge of:

- *network project management

Knowledge of applicable City and department policies, procedures, rules, and regulations

Other knowledge as required for successful performance in the Network Engineer class

Skills

- ACTIVE LEARNING - Understand the implications of new information for both current and future problem-solving and decision-making
- ACTIVE LISTENING - Give full attention to what other people are saying, take time to understand the points being made, ask questions as appropriate, and not interrupt at inappropriate times
- CRITICAL THINKING - Use logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems
- COMPLEX PROBLEM SOLVING - Identify complex problems and review related information to develop and evaluate options and implement solutions
- TIME MANAGEMENT - Manage one's own time or the time of others
- COORDINATION WITH OTHERS - Adjust actions in relation to others' actions
- JUDGEMENT AND DECISION MAKING - Consider the relative costs and benefits of potential actions to choose the most appropriate one
- SYSTEMS ANALYSIS - Determine how a system should work and how changes in conditions, operations, and the environment will affect outcomes

Abilities

- COMPREHEND ORAL INFORMATION - Listen to and understand information and ideas presented through spoken words and sentences
- SPEAK - Communicate information and ideas in speaking so others will understand
- COMPREHEND WRITTEN INFORMATION - Read and understand information and ideas presented in writing
- WRITE - Communicate information and ideas in writing so others will understand
- CONCENTRATE - Concentrate on a task over a period of time without being distracted
- RECOGNIZE PROBLEMS - Tell when something is wrong or is likely to go wrong
- REASON TO SOLVE PROBLEMS - Apply general rules to specific problems to produce answers that make sense

- COME UP WITH IDEAS - Come up with a number of ideas about a topic

- MAKE SENSE OF INFORMATION - Quickly make sense of, combine, and organize information into meaningful patterns

- REACH CONCLUSIONS - Combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events)

Additional Competency Requirements

- COMMUNICATION FOR RESULTS – Writes, speaks and presents effectively. Explains the immediate context of the situation, asks questions with follow-ups and solicits advice prior to taking action. Develops presentations to influence others by using graphics, visuals or slides that display information clearly. Listens and asks questions to understand other people's viewpoints.

- GROWTH MINDSET – Takes ownership of personal growth. Identifies knowledge gaps. Asks questions of subject matter experts and seeks help when needed. Keeps abreast of information, developments and best practices within a field of expertise (e.g., by reading, interacting with others or attending learning events).

- INITIATIVE – Volunteers to undertake tasks that stretch his or her capability. Identifies who can provide support and procures their input. Identifies problems and acts to prevent and solve them.

- OWNERSHIP AND COMMITMENT – Volunteers to undertake tasks that stretch his or her capability. Checks the scope of responsibilities of self and others. Monitors day-to-day performance and takes corrective action when needed to ensure desired performance is achieved. Identifies problems and acts to prevent and solve them. Identifies who can provide support and procures their input.

- ANALYTICAL THINKING – Undertakes a process of information and data collection and analysis for integration purposes. Identifies and makes sets of information and determines their relationships. Makes logical deductions from data. Identifies a solution for resolving the problem.

- CREATIVITY – Participates in problem-solving discussions and suggests ideas as opportunities arise. Accepts that new ways of doing things can improve individual and team results.

- CUSTOMER SERVICE – Takes extra steps and demonstrates creativity to meet others' needs. Asks questions and conducts investigations in order to understand customers' specific needs and provides prompt, attentive service. Tests and inspects outputs, and applies quality checks prior to work submission. Understands customer's expectations and takes initiatives to meet and exceed them. Monitors progress and updates customer and management as to status. Educates customers on the ways to use products and services. Quickly and effectively solves customer problems. Develops trust and credibility with the customer.

- PROBLEM SOLVING – Issues are often challenging and require analysis to understand and resolve. Applies problem-solving methodologies to diagnose and solve operational and interpersonal problems. Determines the potential causes of the problem and devises testing methodologies for validation. Shows empathy and objectivity toward individuals involved in the issue. Analyzes multiple alternatives, risks and benefits for a range of potential solutions. Recommends resource requirements and collaborates with impacted stakeholders.

- SYSTEMS THINKING – Researches the critical and underlying relationships between primary business, technology and systems platforms. Devises approaches that integrate system components.

- STRATEGIC TECHNOLOGY PLANNING – Supports research related to functional architectures and technology needs for a significant work area. Provides input to strategic

technology planning. Identifies and analyzes unit's strengths and weaknesses and proposes options for investment in, and ongoing maintenance of, a function or work process.

- NETWORK TECHNOLOGY KNOWLEDGE – Integrates information from multiple sources into the design and development of network systems. Takes a lead role in assessing the optimum ways to develop and design networks in response to medium-term business needs. Applies the latest technologies and recommends the technical solution, required capital expenditure, component purchasing and contracting resources for setting up, enhancing and maintaining effective cross-functional networks.

Other competencies as required for successful performance in the lower-level series.

All employees of the City of Chicago must demonstrate commitment to and compliance with applicable state and federal laws, and City ordinances and rules; the City's Ethics standards; and other City policies and procedures.

The City of Chicago will consider equivalent foreign degrees, accreditations, and credentials in evaluating qualifications.

* May be required at entry.

City of Chicago
Department of Human Resources
March, 2023