

Network Architect

SUMMARY/PURPOSE

To understand the business requirements with advanced professional work researching and analyzing emerging technologies to design, support, implement and maintain the integrity, scalability, and stability of the City LAN/WAN data and telecommunications network systems. This involves architecting multiple secure networks to operate efficiently across the organization, managing the installation, monitoring, maintenance, support, and optimization of all network hardware, software, and communication links; as well as the mentoring and training peers as required. This classification also participates in the planning and implementation of policies and procedures to ensure system provisioning and maintenance that is consistent with the City's goals, industry best practices, and regulatory requirements.

DISTINGUISHING FEATURES OF THE CLASS

Employees at the architect level are distinguished from Network Administrators by their level of technical expertise and long-range impact of the assigned duties. Network Architect work includes directing technical planning and design activities, including validation and verification of network strategies, cost analysis, risk assessment, and compatibility. The Network Architect may serve as a technical expert and be called upon to research and resolve issues escalated by other technology support groups, as well as recommend long-term strategic decisions to City technology. Positions at this level exercise more independent discretion and judgment in matters related to work.

SUPERVISION RECEIVED

The supervisor makes assignments by defining objectives, priorities, and deadlines and assists incumbents with unusual situations which do not have clear precedents. Incumbents plan and carry out the successive steps and handle problems and deviations in the work assignment in accordance with instructions, policies, previous training, or accepted practices in the occupation.

SUPERVISION GIVEN

Does not have direct supervisory responsibility but does have significant oversight of employees or projects that require delegation and direction over the work of others.

ESSENTIAL DUTIES AND RESPONSIBILITIES

1. Perform network architecture and design to include all City of Duluth enterprise networked systems, network fiber interconnect, and other network operations.
2. Lead advanced technical project teams and contractors, with engineering emphasis on routing/switching, system buildouts, and systems security and reliability. Plan, assign, direct, and coordinate work efforts by developing project plans, timetables, and staff requirements.
3. Review and evaluate performance data to ensure sufficient network resources are available in support of current requirements; develop strategies for identifying and increasing resources when necessary.
4. Provide long-range strategic planning for new and innovative networking technologies, including research and development of alternative architectures, new infrastructure framework, and engineering strategy while monitoring the impact of technological developments.
5. Formulate and define next generation infrastructure for the City's data networks, in support of the applications and security systems that support the City's business mission, information technology functions and services.
6. Develop criteria and oversee design and development of prototypical lab environments for the purpose of providing testing and training platforms of new networking technologies by network, systems, and operations staff.
7. Aid in the development, implementation, and maintenance of policies, procedures, and associated training plans for network administration and usage.

8. Interact, negotiate, and build positive relationships with vendors, outsourcers, and contractors to secure network products and services.
9. Ensure network connectivity of all systems, workstations, telephony equipment, SCADA, traffic signals, vehicle technology operations, City surveillance solutions, and other network devices.
10. Manage all network hardware and equipment, including routers, switches, wireless controllers, firewalls, and UPSs.
11. Recommend, schedule, and perform network improvements, upgrades, and repairs to include network improvement equipment on water towers, streetlights, cell towers, roofs, bridges and within construction sites in all weather conditions.
12. Participate in managing all network security solutions.
13. Act as an IT infrastructure team lead including the training and mentorship of Network Administrators.
14. Be an effective team member by exhibiting self-motivation, supporting other employees in handling tasks, interacting effectively and respectfully with others, showing a desire to contribute to the team effort, accepting assignments willingly, and completing tasks within agreed upon timelines.
15. Coordinate with various City departments and other government agencies to develop methods of sharing resources, minimizing duplication, and simplifying procedures.
16. Provide training on new or modified procedures and policies to all affected parties.
17. In collaboration with the supervisor, organize and direct the work activities project teams, and determine work priorities, assignments, and work schedules.
18. Establish and maintain positive working relationships with the supervisor and employees by maintaining two-way communication, producing consistent results, advocating for the team when appropriate, and offering expertise to improve processes, systems, and the organization.
19. Other duties may be assigned.

JOB REQUIREMENTS

To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed are representative of the knowledge, skills, and abilities required.

1. Education & Experience Requirements
 - A. Graduation from an accredited technical school or college/university with a degree in the field of computer science, management information systems, or related discipline and five (5) years of progressively responsible, verifiable experience in technology system support, including at least two (2) years of full-time experience in network design, implementation, and maintenance; OR
 - B. Eight (8) years of full-time, verifiable experience in network design, implementation, and maintenance; OR
 - C. A combination of verifiable education and experience equaling eight (8) years which demonstrates possession of the knowledge, skills, and abilities required for this position.
2. License Requirements
 - A. Possess and maintain a valid Minnesota Class D driver's license or privilege.
3. Knowledge Requirements
 - A. Extensive hands-on technical knowledge of network systems, protocols, and standards such as TCP/IP, OSPF, 802.1x, SIP, etc.
 - B. Strong knowledge of network management, performance, security and analysis tools.
 - C. Extensive hardware, software, and network connection troubleshooting knowledge.

- D. Extensive knowledge of firewalls, intrusion detection systems, and other network security measures.
 - E. Knowledge of applicable government data privacy practices laws, CJIS Security, and PCI compliancy requirements.
 - F. Knowledge of the organization's goals and objectives.
 - G. Knowledge of problem-solving and conflict-resolution techniques.
 - H. Knowledge of applicable safety requirements.
 - I. Knowledge of, or the ability to learn, City policies and procedures.
 - J. Knowledge of federal, state, and local laws, statutes, regulations, codes, and standards related to the area of responsibility.
 - K. Knowledge of effective leadership and personnel practices.
4. Skill Requirements
- A. Skill at installing/configuring firewalls, switches, routers, bridges, and other networking infrastructure.
 - B. Skill at working in a multi-site switched and routed environment.
 - C. Skill with LAN, WAN, WLAN, and WWAN design and implementation.
 - D. Skill with network capacity planning, network security principles, and general network management best practices.
 - E. Skill and experience with network capacity planning, network security principles, and general network management best practices.
 - F. Skill at leading in a team-oriented, collaborative environment.
 - G. Skill in the operation of office equipment including, but not limited to, general computer systems, job required software applications, the internet, and modern office equipment.
 - H. Skill in managing one's own time and the time of others.
 - I. Skill in completing assignments accurately and with attention to detail.
 - J. Skill in using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.
5. Ability Requirements
- A. Ability to conduct research into networking issues and products.
 - B. Ability to analyze and problem-solve complicated network trouble.
 - C. Ability to effectively prioritize and execute tasks in a high-pressure environment.
 - D. Ability to present ideas in business-friendly and user-friendly language.
 - E. Ability to provide excellent customer service.
 - F. Ability to design, oversee, monitor, and maintain network operations, including high-availability and resilient network architectures.
 - G. Ability to evaluate and make recommendations on network-related hardware and application software packages.
 - H. Ability to effectively communicate on a one-to-one basis and with groups to obtain or provide information related to user needs.
 - I. Ability to be self-motivated and a strong team leader while prioritizing and executing tasks in a high-pressure environment.
 - J. Ability to plan, direct, assign, supervise and evaluate project teams and task forces.

- K. Ability to create and maintain a positive working environment that welcomes diversity, ensures cooperation, and promotes respect by sharing expertise with team members, fostering safe work practices, and developing trusting work relationships.
- L. Ability to communicate effectively both orally and in writing.
- M. Ability to recognize, analyze, and solve a variety of problems.
- N. Ability to organize and prioritize work while meeting multiple deadlines.
- O. Ability to handle difficult and stressful situations with professional composure.
- P. Ability to work successfully as a member of a team and independently with minimal supervision.
- Q. Ability to train and lead others.
- R. Ability to interpret and apply laws, contracts, regulations, policies, and procedures.
- S. Ability to enforce safety rules and regulations.
- T. Ability to maintain confidential information.
- U. Ability to demonstrate dependability, responsibility, and consistency in job performance.
- V. Ability to attend work as scheduled and/or required.
- W. Ability to be available for standby and/or callback.

Physical Demands

The work requires some physical exertion such as long periods of standing; walking over rough, uneven, or rocky surfaces; recurring bending, crouching, stooping, stretching, reaching, or similar activities; recurring lifting of moderately heavy items such as record boxes. The work may require specific, but common, physical characteristics and abilities such as above.

Work Environment

The work environment involves high risks with exposure to potentially dangerous situations or unusual environmental stress requiring a range of safety and other precautions (e.g., working at great heights under extreme outdoor weather conditions, or in similar situations in which conditions cannot be controlled).

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