

SYSTEMS ARCHITECT

DEFINITION

Depending on assignment, to perform a variety of high-level professional, technical, and analytical duties that involves the design, development, testing, implementation, administration, troubleshooting and support of new and existing small and large scale systems and infrastructure. Positions will be assigned a functional area. Periodically employees may be temporarily assigned duties of other functional areas or rotated based on operational needs.

DISTINGUISHING CHARACTERISTICS

The Systems Architect is the advanced journey level in the Information Technology Analyst, Business Systems Analyst and Database Analyst class series. Positions at this level are distinguished from other classes within the series by the provision of the highest level of business and technical expertise and knowledge in the performance of duties. Incumbents are the recognized experts in their field including the design and architect of information technology solutions, technical project management and by the advanced level of knowledge and experience required. Positions do not provide technical and functional supervision on a day-to-day basis but rather on a project basis.

SUPERVISION RECEIVED AND EXERCISED

Receives general direction from an Information Technology Program Manager.

Exercises technical and functional supervision over professional and technical personnel for assigned projects.

EXAMPLES OF ESSENTIAL DUTIES - Duties may include, but are not limited to, the following:

All Functional Areas:

Plan and manage complex information technology projects including directing project teams, developing schedules, project plans, proposals, budgets and status reports applying cost benefit methodologies to monitor progress and success and managing projects to completion.

Develop and participate in the development of Requests for Proposal, Quote, or Information; participate in the selection and oversight of vendors and consultants.

Participate in strategic planning efforts with respect to improve information technology service delivery.

Stay abreast of relevant business and technology trends, internal and external to City in order to evaluate new/future information system capabilities.

Develop and promote standardization and best practices; develop architecture and governance;

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prepare and maintain procedures to ensure consistent work processes.

Lead and manage complex projects involving multiple City departments.

Coordinate and remediate trouble tickets escalated to Tier 2 support from other IT staff.

Prepare technical and administrative reports; review, prepare, and update internal system documentation and end user training instructional materials; conduct cross-training, and end user training on group or individual basis as needed; develop policies and procedures.

Participate in budget preparation and administration for assigned projects.

Build and maintain positive working relationships with co-workers, other City employees, vendors, other public agencies and the public using principles of good customer service.

Perform related duties as assigned.

Applications Functional Area:

Perform difficult and complex work related to application development and administration, including backup and recovery planning, and implementation, integration, performance monitoring, data analysis, modifying and upgrading existing solutions, creating and modifying applications utilizing HTML, JavaScript, PowerShell, JSON and Cognos, and managing user access and system permissions.

Oversee and participate in the planning, design, configuration, security, documentation, implementation, testing, monitoring, and management of technology application and infrastructure initiatives.

Provide day-to-day administration of applications and/or infrastructure; and monitor/troubleshoot application and/or infrastructure problems; oversee disaster recovery processes and coordinate activities among IT teams and/or staff.

Analyze complex data and information trends to support system capacity/performance planning or diagnose issues related to assigned systems; compile and prepare reports and documentation on analysis findings.

Coordinate the design, development and implementation process with cross-functional teams including programmers, network, database and server to implement design specifications and coordinate integration across multiple platforms and technologies.

Design, develop, oversee, and implement application and integration architecture; coordinate functional, operational, and technical activities and determine scope of work and any limitations.

Perform installation and configuration duties and related data migration, conversion, testing, maintenance and extraction work; implement and maintain databases, database tables and database objects; develop database scripts as needed for assigned systems.

Partner with City departments to lead system design, business process design, and business solution activities to provide solutions and integrations that meet business needs; evaluate necessary technical infrastructure for the development of new systems and application integration technologies and system requirements.

Communications Functional Area:

Manage radio tower site maintenance and support per basic preventative maintenance schedule and as environmental issues occur; plan and implement upgrades or changes to tower site facilities and technologies.

Provide project management services to increase system features expand radio coverage, enhance system resiliency and meet FCC rule changes and comply with new FCC mandates for telephony, physical security, and radio projects in order to meet current and in anticipation of future needs.

Design, implement, and maintain voice communications network infrastructure; develop cabling plans and hardware specifications for changes and updates to the citywide voice communications network.

Analyze, procure, and coordinate data and voice antenna systems for new Police and Fire vehicles.

Assist with identification of new systems, make recommendations, document and communicate accordingly as vehicle and/or radio service needs change.

Provide complex interoperability support including system use agreements, mutual aid agreements, encryption agreements, system ID assignments, encryption key coordination, system change coordination, letters of concurrence; develop incident-driven ICS communication plans and build regional relationships.

Database/GIS Administration Functional Area:

Perform the most difficult and complex work related to database management and administration including backup and recovery planning and implementation, integrations, overseeing disk capacity of server and database infrastructure, and monitoring performance of assigned databases and servers, modifying and upgrading existing databases, creating and modifying query language scripts, and managing complex geospatial systems.

Design and implement database infrastructure architecture; work as part of a project team to coordinate database and data warehouse development activities and determine scope of work and limitations. Develop, implement and administer the City's Enterprise GIS databases and web application platforms.

Provide advanced level support for GIS related solutions.

Lead the design and implementation of GIS integrations and interfaces between Enterprise GIS platforms and other City systems.

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Oversee design and implementation of data backup and recovery plans; ensure backup are timely and complete.

Lead system design, business process design, and business solution activities and provide technical advice to staff and other departments.

Coordinate and install, configure, and implement a variety of databases; respond to inquiries, updates, and integration of data requests; perform data modeling, capacity planning, and performance management tasks such as database indexing, query optimization, and auditing.

Lead and perform complex data analytics to extract information for the implementation of business intelligence solutions including mining/querying data, creation and maintenance of business intelligence platform, producing reports and creation of dashboards.

Oversee efforts for integrating different products so they work properly together, and ensure data integrations and data transfers between systems are performed in a secure fashion using managed data transfer software.

Determine and enforce technical and security standards related to various databases; specify users and user access levels; develop processes and best practices in order to maintain the integrity of data.

Coordinate assigned functions with and provide support to other departments, other jurisdictions and agencies, and the general public; conduct user training on group or individual basis as needed; advise and train information systems personnel on database matters.

Partner with City departments and provide database solutions to meet business needs; integrate database solutions with other City enterprise solutions.

Install, configure, and setup, and administer a variety of Geographic Information System spatial databases; respond to inquiries, updates, and integration of data requests.

Produce data layers, maps, tables, or reports, using spatial analysis procedures or Geographic Information Systems (GIS) technology, equipment, or systems; perform integrated or computerized Geographic Information Systems (GIS) analyses to address business needs.

Determine and enforce technical and security standards related to GIS databases; develop processes and best practices in order to maintain the integrity of data.

Coordinate with regional agencies to ensure that regional GIS data and processes produce acceptable outcomes for the city and the region.

Network Functional Area:

Perform the most difficult and complex work related to design, development, testing, implementation, troubleshooting, security, and maintenance of complex LAN and WLAN network server systems, telecommunications infrastructure, and radio infrastructure.

Analyze and solve complex operating problems; make system modifications as necessary; elicit

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technology requirements, evaluate and make recommendations to improve network security and technology systems.

Lead change efforts to configure security controls across multiple protection systems and IT infrastructure in accordance with policy, standards, and procedures; respond to and remediate security incidents occurring on desktops or servers, in the cloud, or within a specific system.

Design, implement, maintain and troubleshoot complex data center network infrastructure; develop cabling plans and hardware specifications for changes and updates to the citywide network.

Provide advanced level support for the design, implementation, maintenance, and troubleshooting of email infrastructure on-premises and in the cloud; serve as subject matter expert for electronic messaging, and confidential litigation/eDiscovery requests, and electronic messaging security.

Serve as subject matter expert in the maintenance and support directory and authentication services, email and collaboration services and application service provision.

Design, implement, maintain, and troubleshoot cloud-based infrastructure and security.

Planning Functional Area:

Perform difficult and complex work related to application development and administration, including backup and recovery planning, and implementation, integration, performance monitoring, data analysis, modifying and upgrading existing solutions, creating and modifying applications utilizing HTML, JavaScript, PowerShell, JSON and Cognos, and managing user access and system permissions.

Provide strategic direction and leadership in the research, evaluation, design, engineering and delivery of advanced end user computing technology solutions and applications.

Partner with City departments to lead system design, business process design, and business solution activities to provide solutions and integrations that meet business needs; evaluate necessary technical infrastructure for the development of new systems and application integration technologies and system requirements.

Perform document control and business process workflows including the identification of requirements, development of basic workflows, or work on advanced processes, and ongoing front-end support of users of the workflows.

Provide expertise in collaboration platform development, including user interface experience, automated report generation, and automation with other collaborative applications using programming languages such as PowerShell, JSON and Cognos.

Server/Storage Functional Area:

Design, build, configure, install, monitor and support the physical and virtual server environment, including cloud infrastructure, virtual platforms, operating systems, and security.

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Design, configure, manage and monitor highly scalable physical and virtual storage environment, including multiple Storage Area Network and Network Attached Storage solutions.

Oversee efforts to plan, implement, maintain, and monitor data center changes for environmental, physical, and power systems; plan and implement power, network, and racking solutions for technology equipment.

Partner with IT divisions and City departments to lead system design and to provide technology infrastructure solutions that meet business needs; evaluate current and proposed technical infrastructure for the development of new systems and application integration technologies that are reliable, efficient, secure, and meet requirements.

Design, configure, manage and monitor data backup environment, including off-site disaster Recovery, Backup Libraries, and File Recovery utilizing multiple vendor solutions; regularly test backup files to check for data errors.

Install, configure, test and update server operating systems and related server-class software and monitoring systems for citywide server computing platforms, including cloud infrastructure.

Provide infrastructure support for the most complex enterprise applications, including meeting with business and application owners to define technology requirements prior to project implementation.

Analyze both raw and processed security alert and event data to identify potential security incidents, threats, mitigations, and vulnerabilities.

Provide leadership to remediate all security incidents occurring on clients, servers, in the cloud, or within a system including email.

MINIMUM QUALIFICATIONS

Knowledge of:

All Functional Areas:

Computer operating systems, local area networks, data communications software and hardware and network technology and environment.

Principles and practices of complex operating system design, analysis, and documentation.

System licensing, auditing and compliance.

Advanced project management methodologies.

Principles and practices of customer service.

Applications Functional Area:

Software development life cycle.

Standards and methods related to computerized data systems and analysis use.

Advanced use of web tools, including but not limited to, html, xml, IIS.

Written documentation methods related to highly complex technical work.

Communications Functional Area:

Principles and practices of complex radio and phone system architecture and programming.

RF Radio Systems including conventional, trunking, simulcast and voting system technologies as well as various frequency spectrum including VHF and 800MHz.

Radio principles including wavelength, power, effective radiated power, decibels, voltage standing wave ratio, grounding, transmit, and receive.

Transmission, broadcasting, switching, control, and operation of telecommunications and radio systems.

Design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.

Advanced information technology security concepts for communications.

Network fundamentals including software-defined networking.

Application troubleshooting in server-client environment.

Servers, server operations and operating systems.

Fundamentals of Uninterruptable Power Systems design and maintenance.

Phone system architecture and programming fundamentals.

Electrical wiring and basic electronics.

Cable plant wiring including fiber, copper and punch blocks.

Incident command system principles, structure and communication-related roles and forms.

FCC spectrum allocation, policies, regulations and FCC license requirements.

Principles and techniques of various data communication systems, computer logic and mathematics.

Data center architecture.

Database/GIS Administration Functional Area:

Principles and practices of complex GIS database design, implementation, integration, operation and maintenance for a variety of uses and applications.

Principles and practices of ESRI, ArcGIS Desktop, ArcGIS Enterprise including ArcGis Server, ArcGIS Enterprise Portal/Server, ArcGIS Data Store, and ArcGIS Web Adaptor.

GIS theory and concepts.

Enterprise GIS databases, feature datasets and classes, relationship classes, topologies, and raster catalogs.

Relational database management systems.

Extract, transform, and load (ETL) methodologies.

Database backup plans, logs, monitoring and data recovery.

Database security roles, permissions and data transfer security.

Local area networks, operating systems and network terminology.

Database architectural principles.

Methods of database performance tuning, database management, and database auditing.

Relational Database theory, design rules and development practices including data modeling, data flow, entity relationship analysis, and database recovery techniques.

Principles and techniques of SQL, scripting, report writing, programming, electronic data processing, and application documentation.

Network Functional Area:

Principles and practices of complex network and server infrastructure related analysis and design.

Principles and practices of security and maintenance.

Various operating systems include Microsoft Windows, Linux, iOS, Cisco IOS XE and Cisco NX-OS.

Servers, server operations and operating systems.

Principles and practices of data communications, data center architecture, UPS design and

maintenance, and environmental design and monitoring.

Networking protocols, services and concepts, including, but not limited to, TCP/IP, HTTP, HTTPS, SSH, SNMP, FTP, TFTP, BGP, OSPF, HSRP, STP, VLANs, subnetting and the OSI model.

Network monitoring tools and techniques used to perform troubleshooting including packet capture and protocol analysis tools.

IEEE 802.11/Wi-Fi standards, technologies, tools, and signal analysis.

Principles and practices of authenticating users and devices including Active Directory and Public Key Infrastructure.

Techniques, equipment, and diagnostic software used in the assembly, troubleshooting and repair of server and network infrastructure.

Methods of application integration in a heterogeneous environment.

Methods for designing, integrating and managing complex infrastructure solutions,

Design techniques, tools and principles involved in production of precision technical plans, blueprints, drawings and model.

Planning Functional Area:

Advanced use of web tools, including but not limited to, HTML, Javascript, CSS (Cascading Style Sheets), Content Management Systems (CMS), and Customer Relationship Management (CRM) systems.

User interface (UI) design for business systems or applications, maximizing usability and the user experience, on a variety of devices.

Mobile-Friendly and Responsive Design principles and programming.

Server/Storage Functional Area:

Principles and practices of complex operating system design, analysis and documentation, server and storage infrastructure.

Windows and Linux operating systems.

File storage technologies, file structures, and file systems.

Storage hardware buildup, maintenance, and troubleshooting.

Servers, server operations and operating systems.

Principles and practices of complex data communications, data center architecture, UPS design and maintenance, and environmental design and monitoring.

Principles and practices of authenticating users and devices including Active Directory and Public Key Infrastructure.

Methods for application troubleshooting in server-client environment.

Methods for application integration within a heterogeneous environment.

Electrical wiring and basic electronics.

Principles and techniques of various Internet and data communication systems, computer logic and mathematics.

Internet security practices and standards.

Ability to:

All Functional Areas:

On a continuous basis, know and understand all aspects of the job. Intermittently analyze work papers, reports and special projects; identify and interpret technical and numerical information; observe and problem solve operational and technical policy and procedures.

On a continuous basis, sit at desk for long periods of time. Intermittently twist to reach equipment surrounding desk; perform simple grasping and fine manipulation; intermittently climb stairs and/or ladders to rooftops and walk rooftops perimeter; use telephone, and write or use a keyboard to communicate through written means; and lift or carry weight of 50 pounds or less.

Manage multiple projects concurrently.

Analyze, design, integrate, program, and manage highly technical and complex computer programs.

Analyze and develop logical solutions and alternatives to complex problems.

Develop scope of work for consultants and manage the consultant services procurement process.

Prepare a variety of reports and maintain accurate records and files.

Review project concept papers and project proposals and provide input for proposed technology projects.

Plan and support processes and adhere to best practices.

Maintain confidentiality as necessary.

Work weekends and evenings as required.

Communicate clearly and concisely, both orally and in writing.

Establish and maintain effective working relationships with those contacted in the course of work.

Applications Functional Area:

Oversee and participate in complex projects involving the implementation of analysis, design, programming, testing, procurement, installation, troubleshooting, enhancement and maintenance of business applications systems and databases.

Develop necessary programming and application documentation for business systems and applications.

Communications Functional Area:

Oversee and participate in complex projects involving the support of the City's telephony, physical security, and radio infrastructure.

Analyze, design, program, install and maintain highly technical and complex communication systems.

Analyze, diagnose, program, upgrade, maintain, and troubleshoot complex telephone, radio, and video/camera systems.

Database/GIS Administration Functional Area:

Oversee and participate in complex projects involving the implementation, review and performance of the more complex database platform administration tasks.

Integrate and update complex databases.

Network Functional Area:

Oversee and participate in complex projects involving the analysis, diagnosis, maintenance, and troubleshooting of complex network and server infrastructure.

Use network monitoring tools and techniques used to perform troubleshooting including packet capture and protocol analysis tools.

Planning Functional Area:

Organize and participate in complex duties involving the implementation of best practices related to the implementation of information technology initiatives, and business systems

applications.

Map, troubleshoot, and optimize interfaces of business systems and applications, as needed.

Test systems to execute features and integrations for business systems and applications; develop test scripts as needed.

Server/Storage Functional Area:

Oversee and participate in complex projects involving the City's operating systems, enterprise storage, servers, security, datacenter hardware, software and systems infrastructure.

Perform complex analysis, diagnosing, maintenance, and troubleshooting of operating systems, enterprise storage, and servers.

Design, implement, maintain and troubleshoot physical and virtual server infrastructure both on-premises and in the cloud, endpoint protection platform, and file server infrastructure.

Experience and Training

Experience:

Two years of responsible experience performing duties similar to that of a Business Systems Analyst II, Database Analyst II or Information Technology Analyst II with the City of Roseville.

AND

Training:

A Bachelor's degree from an accredited college or university, preferably with major course work in computer science, information systems, business management, business information systems, or a related field.

License or Certificate

Possession of a valid California driver's license by date of appointment.