IDENTIFICATION

Department	Position Title	
Finance	Enterprise Network Architect	
Position Number	**Community**	**Division/Region**
15-11505	Yellowknife	Technology Service Centre (TSC)

PURPOSE OF THE POSITION

The purpose of the Enterprise Network Architect position is to develop a strategic and coordinated approach to network architecture design across the Government of the Northwest Territories to maximize network investment and performance. The position is responsible for planning and monitoring network growth and recommending network initiatives, as well as managing associated risk in the areas of network security and capacity. The incumbent develops relationships and negotiates with Contractors and third-party Technical Support providers to ensure Government of the Northwest Territories systems receive prompt and expert assistance in the event of network issues. The position provides oversight for the implementation, analysis, and support of the Government of the Northwest Territories network to ensure a robust, reliable and secure infrastructure is available to facilitate high speed data/voice communication networks used throughout the NWT by Government of the Northwest Territories departments, boards, agencies and schools.

Services are provided in accordance with a framework of operating procedures and guidelines established within the Technology Service Centre, and with standards developed by the Office of the Chief Information Officer or by a GNWT Standards Committee.

SCOPE

Located in Yellowknife this position reports to the Director of the Technology Service Centre (TSC).

The Government of the Northwest Territories (GNWT) Digital Communications Network (DCN) carries all the government data network traffic (internal to the Territories and external internet) to 33 communities throughout the Northwest Territories (NWT). The network

continues to grow in complexity and there is increased demand and visibility for a high-performance network to deliver GNWT strategic priorities. The GNWT network

contracts total approximately $7.3 million annually and the network must be available 24 hour a day, 7 days a week.

The Enterprise Network Architect establishes network architecture direction for the GNWT and makes decisions about network design, infrastructure and services. The position is the primary technical network advisor to the Director and works closely with the Director and senior department managers to ensure the GNWT network meets business requirements. At this level, the incumbent provides advice on architectural and technical standards and ensures that network infrastructure is designed, tested, tuned, implemented and maintained within architectural and technical specifications, supported by industry best practices and sound decision making. The incumbent must also take a long-term view of enterprise-wide IT directions; in this capacity the incumbent must assess the possible future role of emerging network technologies.

The position will interface with internal TSC staff and project teams, GNWT department teams and external Contractors and IT specialists. The position provides consultative expertise and obtains concurrence to GNWT architectural direction. This position will be required to work with the Office of the Chief Information Officer (OCIO) to understand and ensure the effective integration of federally funded, and potentially federally regulated, network initiatives.

RESPONSIBILITIES

1. **Leads the strategic design of the GNWT network architecture and the provision of architectural oversight for network requirements and standards.**
   - Design advanced network architectures to support solutions for various services including video, voice and internet products.
   - Collaborate with internal TSC technical staff and external technical expertise to define an integrated architecture for all technology elements such as servers, networks, desktop computers, security and software.
   - Design and develop the corporate firewall, which provides secure application gateways for corporate web servers, Internet e-mail, Internet access and remote access (VPN).
   - Monitor effectiveness of key architecture components of the infrastructure throughout their life cycle, and lead activities related to improving overall availability and cohesiveness of these components.
   - Provide ongoing capacity planning and augmentation to the network as required to ensure smooth operation.
   - Standardize and test new IP networking technologies including the creation of design standards.
   - Maintain and develop engineering best practices and standards.

- Provide Team Leadership for the end-to-end design, integration, implementation, and documentation of complex voice and/or data networks.

2. **Build a strong rapport with a broad range of network stakeholders, including TSC colleagues, GNWT departments, boards and agencies, Contractors and third-party Technical Support providers. While this position has no direct reports, it has the authority to assign network tasks to TSC network staff.**
   - Provide technical leadership, motivate and mentor TSC network staff on a regular basis by articulating the network strategic direction and directing their efforts to build new solutions and learn new hardware and software; facilitate technical training sessions as required.
   - Provide ongoing technical consultative support to TSC Business Relationship Managers and departmental Clients and assist with setting realistic expectations for network solutions.
   - Constantly communicate and obtain concurrence from departmental Clients, TSC network staff, third party contractors, and other GNWT stakeholders to GNWT strategic direction and technical design, to ensure a consistent and manageable network for all parties.
   - Collaborate with departmental Clients and through education and negotiation, ensure Client business requirements are met without compromising GNWT network standards and security.
   - Build rapport and negotiate with Contractors and third-party Technical Support providers on a weekly basis, within and outside of the Northwest Territories, to ensure GNWT network issues receive the same level of attention and priority to meet 24/7 availability, despite a small NWT population.
   - Network across GNWT information systems groups; collaborate with the Chief Information Officer for network policy and security; partner with departmental applications teams to ensure their applications interface successfully with GNWT network, using diplomatic persuasion when required.
   - Provide authoritative (Tier 3-highest) technical support for highly complex network issues and lead lessons learned activities where appropriate.
   - Remain current with latest network technologies via distance learning and attending technical conferences, since the life cycle of network technology/equipment is 2-5 years; most professional development opportunities are out of territory and often out of country due to specialized expertise.

3. **Provides a high level of technical expertise and innovation as network solutions are unique and must be adapted to the specific organization/GNWT.**
   - Continually re-assess current network technology and research new technologies for applicability, functionality, and viability to changing GNWT business needs.

- Understand the capabilities of terrestrial, microwave and satellite technologies which are all required for data networking throughout the NWT.
- Document a network architecture to support these new technology directions, with support from GNWT teams and external service providers and vendors.
- Assess functional (GNWT) requirements, prepare analysis and create network specifications.
- Perform systems modeling, performance modeling, integration planning and technology and component selection.
- Perform technical and financial calculations related to possible architectural enhancements.
- Work with TSC, external Consultants and other departmental specialists to create requests for network proposals (RFPs); evaluate RFP responses and participate on projects as the Enterprise Network Architect.

4. **In cooperation with the Enterprise Risk Manager, the Enterprise Network Architect is responsible for ensuring that network security policies and procedures are implemented.**
   - Understand the requirement to incorporate security into the network architecture, and work with other staff and TSC clients to integrate security requirements with the network infrastructure.
   - Collaborate with the Chief Security Officer within the Office of the Chief Information Officer to ensure network architecture design and implementation reflects current GNWT security policies.
   - Understand and communicate the high-level risks and potential impacts of end-user devices (e.g. GNWT network interfaces with Client application equipment) and raise security and safety issues to appropriate Client and GNWT Chief Security Officer contacts; be sensitive to department pressures to meet their strategic goals.
   - Contribute to decisions on the tools, technology and services needed to manage security devices and the security of network infrastructure.
   - Facilitate communications and training programs to ensure that all network staff are fully aware of and understand action plans for the implementation of security policy.

5. **Identify network reporting tools and analyze results.**
   - Research and recommend appropriate network management tools for the DCN and Internet and facilitate their purchase by GNWT.
   - Configure network reporting tools and understand their application relative to other network tools to create a comprehensive suite of GNWT DCN and internet analytics.
   - Experiment with different hypotheses about network traffic and produce reports to validate these hypotheses for problem solving and future use.
   - Train TSC network staff on the production and analysis of network reports, providing leadership for interpretation where required.

- Remain current on evolving network reporting tools capabilities and plan for upgrades to existing tools based on required functionality and budget considerations.

6. **Participate in the Information Technology Infrastructure Library (ITIL) processes that support client service objectives. ITIL is a discipline for applying industry best practices to an IT infrastructure and support organization.**
   - Be cognizant of all ITIL processes in use in the TSC, and for incorporating information derived from these processes into decisions about the network architecture.
   - Contribute primarily to, or make use of, the following processes:
     - Network Capacity Management.
     - Network Availability Management.
     - IT Service Continuity Management.
     - Network Configuration Management.
     - Network Financial Management for IT Services.

WORKING CONDITIONS

Physical Demands

No unusual demands.

Environmental Conditions

No unusual demands.

Sensory Demands

No unusual demands.

Mental Demands

No unusual demands.

KNOWLEDGE, SKILLS AND ABILITIES

- Skilled in the areas of network architectural design, strategic technology planning, security, implementing routed networks.
- Knowledge of Cisco, Nortel and Juniper routers and routing protocols such as (OSPF, BGP, RIP, PIM).
- Understanding of MPEG-2 video and digital video transport systems.
- Knowledge of VoIP technologies and protocols.
- Knowledge of TCP/IP networks, TCP/IP applications and IP address planning.
- Knowledge of existing and emerging technologies and how to manage the implementation of new technologies into existing business and operational practices.

- Knowledge of generally accepted IT security issues, concerns and solutions.
- Knowledge of systems architecture and an ability to design complex systems taking advantage of existing and emerging technologies.
- Ability to analyze financial aspects of various architectures, within the context of the GNWT geographical realities.
- Ability to conduct business analysis and match business requirements to network infrastructure capabilities.
- Ability to plan, implement, evaluate and continually monitor network architecture with the participation of a variety of stakeholders.
- Ability to identify patterns or connections between situations that are not obviously related, and to identify key or underlying issues in complex situations using creative, conceptual or inductive reasoning.
- Ability to improve effectiveness or promote change by doing new things or designing new technologies through innovation.
- Ability to understand long-term strategies and policies and goals, to link one's behaviors and actions to these, and to create strategies and policies to achieve long term goals.
- Ability to obtain agreement from disparate user groups having conflicting goals, priorities and viewpoints.
- Negotiating skills and exceptional interpersonal skills to develop and maintain effective and lasting working relationships with senior managers and staff from other departments in situations that are often problem-oriented or confrontational.
- Ability to persuade, convince or influence others in order to have a specific impact or effect or a course of action that he or she wants the others to adopt.
- Display initiative and take calculated risks - An ability to work both as a team member and independently make decisions, recognizing the risk/reward of major decisions and be able to defend these decisions.
- Ability to interact effectively with other individuals and groups through accurate and attentive listening, understanding and responding appropriately and effectively when working with individuals and groups.
- Ability to work within a long-term perspective in addressing client's problems. This may include trading off immediate costs for the sake of the long- term relationship and benefits.
- Ability to commit to actively upholding and consistently practicing personal diversity, inclusion, and cultural awareness, as well as safety and sensitivity approaches in the workplace.

Typically, the above qualifications would be attained by:

A bachelor's degree in computer science and 3 years of relevant experience.

Equivalent combinations of education and experience will be considered.

ADDITIONAL REQUIREMENTS

Certifications in architectural design, strategic technology planning, security, business and systems analysis would be considered assets.

Position Security (check one)

- ☒ No criminal records check required.
- ☐ Position of Trust – criminal records check required.
- ☐ Highly sensitive position – requires verification of identity and a criminal records check.

French language (check one if applicable)

- ☐ French required (must identify required level below)
    Level required for this Designated Position is:
        ORAL EXPRESSION AND COMPREHENSION
            Basic (B) ☐   Intermediate (I) ☐   Advanced (A) ☐
        READING COMPREHENSION:
            Basic (B) ☐   Intermediate (I) ☐   Advanced (A) ☐
        WRITING SKILLS:
            Basic (B) ☐   Intermediate (I) ☐   Advanced (A) ☐
- ☐ French preferred

Indigenous language: Select language

- ☐ Required
- ☐ Preferred