

LAN Administrator Occupation Profile

Prepared for the Northern Alberta
Labour Market Information Clearinghouse

September 1995



Labour Market Information Clearinghouse

Research Methods

In order to determine the labour market factors for the occupation of Local Area Network Administrators, the Clearinghouse conducted a phone survey of computer users, hardware/software vendors and consultants in the north. The survey gathered current information on the extent of computerization in the north and the extent of LAN utilization. Information was also collected on the role of and demand for LAN Administrators.

Contact was made with representatives from different sectors, sizes of organizations and geographic areas. Approximately 30 respondents' insights are compiled into this report. They provide current information about computer use, developments related to networks and required skills for computer operators.

Description of Occupation

There is no National Occupation Classification listing for LAN Administrator. Related occupations include Information Systems Consultant, Systems Analyst, Computer Technologist, and Computer Operator.

LAN Administrators are the network operators who have varying levels of expertise and who work on systems with different levels of complexity. They are employees who are involved with some combination of design, installation, operation and maintenance tasks related to local area networks for medium and large organizations in a variety of industries. In smaller scale organizations the LAN administration task is in addition to other computer related duties. Employees doing the duties of a LAN Administrators may be called something else, for example, Systems Analyst or Computer Operations Manager.

NOC code: 1122, 2162 & 2163, 2241, 1421

Training Requirements

These depend on the actual duties required of the Network Administrator. According to Advanced Education & Career Development's Occupational Profiles, the minimum requirement for a Computer Operator is secondary school completion; further college or computer training is usually required. A Systems Analyst is expected to complete a university degree or college diploma program in computers and requires specific additional training for networks. An Information Systems Consultant requires a university degree or college diploma; a graduate degree is desirable and extensive experience and additional specialized network training are usually required.

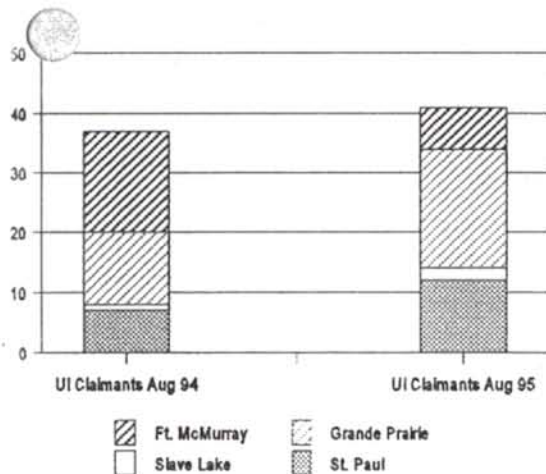
The appropriate combination of training and experience for a LAN Administrator is related to the size and complexity of the network they are expected to operate. Hardware and technical skills, in addition to software knowledge, are necessary to work with networks. "Industrial" training is what one respondent called the combination of theoretical training and familiarity with current industry standards in hardware and software. These skills are required even for the installation of small networks and more specialized technical skills are required for larger networks.

Current Demand

Almost every large organization in the north has a large scale computer network. This is a network with at least twenty and up to hundreds of computers usually linked in an extensive "client server" or "file server" structure. These networks require on-site employees with the required expertise. Typically, between four and twenty-four people are required to run a large scale network, this includes those who administer peripheral sites. Employers of operators for large networks in the north include Syncrude, DMI, Regional Health Authorities, The City of Grande Prairie, and Government of Alberta offices.

Medium scale networks have ten to twenty computers linked to "file servers." Users of these networks are less likely to have a specific employee working solely on network operations. These firms tend to rely on computer consultants, usually the ones that originally installed the network. Often an employee can administer the day to day functions of the network in addition to their other duties. Organizations that utilize medium scale networks include some Municipal offices, and the Peace Regional Library System.

Small scale users typically have two to five computers linked in a "peer to peer" network to allow the sharing of computer resources. Organizations with networks of this size generally rely on the skills of a current employee. This person maintains the network, often in addition to their regular tasks. These users also call on the services of computer consultants, primarily for assistance with technical matters and troubleshooting. Examples of small scale network users are Manning Diversified Industries and the MacKenzie Municipal Services Association.



Two respondents stated that they are currently looking for employees to carry out the duties of a LAN Administrator. The users require high level network operation skills qualified operators must have extensive training and experience.

Unemployment Insurance claims tend to rise when demand for an occupation declines. Northern UI data for August 1995 indicates an increase of 11% in the number of people in related occupations who have made claims, compared to August 1994. However, sub-regional variation occurred during the same period. Ft. McMurray had a 59% decrease in the number of claimants while Grande Prairie had a 66% increase. Employers seeking workers place job orders with the Canada Employment Centres. Ten job orders have been posted in the north for related occupation for the year to date. The same time period in 1994 had four. 70% of this years posted orders have were in Ft. McMurray.

Major Trends

Average monthly UI claimant data for 1993 and 1994 indicates an overall decline in claimants for related occupations in the north. This implies an increase in employment.

New network software means daily system operations are less complex. Therefore, medium scale users can contract out for the more technical network administrator functions. A consultant visits the

site for periodic maintenance and emergency service. Recent governmental reorganizations have tended to follow this pattern.

Some large scale networks are designed to be monitored by a remote operator in a distant city, thereby reducing on-site computer staffing requirements. Scheduled periodic maintenance and emergency service can be provided by a local consultant, if necessary.

Distributed networks, that is, separate LAN sites linked to a central hub are seen as a solution for organizations that operate over large areas. Such a system requires special skills on the part of a LAN Administrator. An example of this can be found in the Regional Health Authorities.

Major Influences

There is a continued shift toward networking computers in all organizations. Network administration requires more extensive skills than other computer operator positions. A network's size is the primary determinant of the required operational skills. Large and medium sized networks require specialized training in network software.

As networks of all sizes become more prevalent, more people will be required to administer them. This involves staff positions in the large organizations, computer consulting for medium and small users or the formal addition of the task to a computer operator's other duties in a small organization.

New developments in network software for PCs means smaller users can develop two to five unit LANs in their organizations. This task requires enhanced operational and technical training.

Network administration consultants are bringing expertise into small and medium scale organizations as required. This minimizes on-site computer administrator skill requirements.

Technical hardware training is required for the installation and maintenance of networks and so is considered an asset by all network users.

Existing Training

High level network training is currently provided by universities and institutes of technology.

Training for the occupation occurs to a substantial extent in the private sector. Trainers approved by system software developers (ie. Novell, Microsoft, Banyan) provide most of the training for installers and operators of large and medium sized networks. This training tends to be expensive to obtain and is only available in major centres.

Local computer consultants who install networks also train most small network users and some medium scale users as well.

Technical training is primarily provided by the institutes of technology. Network software developers also require technical training to certify operators for systems that use their software.

Future Demand for New Training

Computer networking will continue to develop in the north. This will offer more occupational opportunities related to network administration in a variety of organizations. New skills will be required by people wanting to work in related occupations.

Most organizations in the north that require large networks already have them and so demand for training in this area are largely unchanged. (Eg. Syncrude)

Medium scale users in the north that are updating their computer systems or consolidating administrative computer operations need training to operate their new systems. They require an upgrade of existing operators' technical and administrative skills. (Eg. some Regional Health Authorities)

Installation of "peer to peer" networks in organizations that have only a few computers is a potential area for training. The required skills are familiarity with software operation and specific technical knowledge. Agricultural processing entrepreneurs are a specific example of where this potential demand can be found.

Computer consultants will be in demand by network users of all sizes who need expertise to develop, maintain and repair their computer systems. The skills needed to work on all but the smallest networks are extensive.

Implications for New Training

There is some retraining required as LANs are developed. Current operators as well as clerical staff need enhanced daily usage training rather than technical skill development.

Training computer operators to work with medium and large scale networks requires a high level of expertise. Respondents indicate that, in the north, most individuals qualified to teach network training are already employed as network managers.

It may be difficult to find a sufficiently large number of people interested in taking on such a high level of training when the opportunities for placement are not widely known.

Technical hardware skills are required to install any size of network. A high level of expertise is needed to install and maintain medium and large scale networks. There is a higher demand for training in day to day network administration skills than the more rigorous technical training.

Training for Windows software-based peer to peer networks could be associated with small business/entrepreneurial training programs. This is because most potential small network users may not be aware of the possibility or value of installing a LAN.

Local freelance computer consultants provide expertise, technical assistance and network training to most small scale users and approximately half of the medium scale users in the north. They consider training to be directly related to their installation, troubleshooting and technical involvement. Computer consultants play an even more significant role in smaller and more isolated areas.