

Distributed Support: A Case Study

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University of Saskatchewan

17,200 undergraduates
1,500 graduate students
1,134 faculty
1,524 staff

Computing Centre supports academics (1,134),
library (174) and administration (1,524).
Staff: 59 FTEs; 1 part time

Abstract

As the need for specialized support personnel increases, the trend towards decentralized User Support Services on University campuses also increases. If managed poorly, waste may result as several individuals can work independently to solve the same problem. Duplication of effort can be even more pronounced when clients are uncertain of where to seek assistance and are separated from their support mechanism by physical limitations such as distance.

The University of Saskatchewan consists of 14 colleges and has a student population of 18,500 with 2,600 faculty and staff. A large portion of the computer support is handled by a centralized department: Computing Services. Because of the number and diversity of disciplines at the University of Saskatchewan, many campus departments hire their own computer support personnel. This has solved some customer support problems but new ones have arisen.

To some degree, the distribution of services resulted by default, rather than by a specific goal. Support services to some departments were handled by their local support personnel who presented immediate and accurate solutions problems. However, when local support personnel terminated their employment, support became the responsibility of Computing Services. Computing Services personnel then had to quickly learn the hardware and software configurations used in the various departments.

Frequently there had been little communication between the local and central support personnel. Today, this problem has been alleviated by providing open and more clearly defined channels for communication between most University computer support personnel.

This paper details some of the difficulties encountered during the decentralization of support services and how these problems were (or are in the process of being) resolved. Emphasis will be placed on the advantages and disadvantages of decentralized support to both the client and to the computing centre. Also discussed will be the reasons why even if an institution is not considering distribution of services, a plan for the eventual distribution is not only beneficial, but essential.

Introduction

The University Of Saskatchewan

The University of Saskatchewan is located in Saskatoon, Saskatchewan in Canada and was established by the Provincial Legislature in 1907. It has grown from a student population of 70 in one college to its present enrolment of 19,000 students in 14 colleges. Specialties include such diverse fields as Music, Engineering, Education, Art, and Veterinary Medicine. In order to work effectively, it can be argued that computing support personnel should have a background in computing and also extensive general knowledge in a particular area of expertise shared by their clients. For instance, someone

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with a general knowledge of computers and music may be able to better support music applications.

Computing Services

For many years computer support at the University was divided into two groups: Academic Computing Services and Administrative Systems. Each group was responsible for specific types of support. Administrative Systems provided support for the administrative computer users: the Business Office, the Personnel Office, the Registrar's Office, and the office support staff. Rarely did they deal with faculty members. The Academic Computing group worked primarily with faculty, and had only minor dealings with administrative personnel.

In 1985, both groups were amalgamated and became known as Computing Services. Staff from both groups were combined and distributed among 7 smaller groups according to job duties. The seven groups that exist today are: Administrative Applications, Office Applications, Systems Programming, Operations, Instructional and Research Applications, User Support and Training, and Computer Networks. Each group has clearly defined duties, and is responsible for specific hardware and/or software support. Because of its size, Computing Services has substantial influence and provides the campus with a computing outlook as we enter the 1990's.

The mainframe computers platform used at the University of Saskatchewan is comprised of Digital Equipment Corporation VAX's running VMS configured into two clusters. In addition, there are a growing number of microcomputers and Unix workstations in all campus departments. The campus is networked using an Ethernet backbone and most of the campus has access to this network. Several labs and many campus departments have formed their own local area networks. The operating systems used in these networks include DOS, OS/2, and MacIntosh. Many (but not all) of the microcomputers at the University are connected to the campus backbone.

Distributed Support: The Early Years

Prior to the microcomputer revolution, most University personnel, to whom computing was available, used mainframe computing. Faculty tended to use specific software, and Administration tended to use different software. Since computing was still in its infancy at the campus, only a limited number of software packages were available. At that time, Academic Computing and Administrative Systems personnel were well versed in the software and hardware used by their clients. Also, as the campus network was still reaching only a handful of departments, the configuration used in these departments was well known to the University computer support staff.

The Move To Decentralized Support

With the advent of microcomputers, it became easy for faculty and staff in all departments to obtain some form of computing power. As the number of computers increased, Computing Services personnel were not necessarily made aware of, or even given access to, all the hardware and software on campus. It was no longer possible to have detailed knowledge of how each department used their computer equipment. As there was no central body overseeing equipment purchases a wide assortment of hardware and software had found their way to the campus. Frequently Computing Services staff was asked to resolve problems arising from the need to share information between departments whose computing strategies were not readily compatible: transferring data from DataManager on a VICTOR microcomputer to Oracle on a Unix workstation, for example.

If Computing Services could not respond quickly to the problems arising in the various departments, who would do it? The answer for many departments was a local expert — either a staff member who showed some interest, or a computer professional hired by the department. This was ideal from the department's viewpoint. On site, was an individual who knew the inner workings of the department and was familiar with its hardware and software. Because of this knowledge could be solved relatively easily. From Computing Services point of view, there were some pros and some cons. It was very helpful to Computing Services staff to have an individual on-site who was not only knowledgeable about computers, but also knowledgeable about the detailed workings within the department. Because customer support was being provided by local experts, more time was available to Computing Services staff for other projects. However, the hardware and software used in that department was often foreign to Computing Services staff.

To a large extent decentralization of support services was driven by the decentralization of computing. As the microcomputer revolution took hold in many departments, the departments felt the need to connect these microcomputers together in order to access common services such as common software, electronic mail, and printing. When the networks were installed many departments required the services of a network administrator to ensure optimal working conditions for the network and to perform basic network operations such as account maintenance and backups. The network administrator, in addition to performing these duties, was often called upon by the departments for software and hardware support.

The Difficulties

Problems arose by not having the decentralized support person keep in close contact with Computing Services. Lack of communication meant the decentralized support person often was unaware of the directions being taken by

campus computing. Improper, from Computing Services point of view, recommendations for hardware and software were made. For example, Novell is not a network strategy currently being supported by Computing Services, yet there have been instances of departments installing Novell networks, and then looking to Computing Services for assistance when problems arose.

When decentralized staff members terminated employment with their units, Computing Services became responsible for providing support until a suitable replacement was found. Difficulties included supporting products of which Computing Services staff had limited knowledge. In many departments with decentralized support inadequate records were kept. Documentation which outlined the computer configuration in the department was often non-existent.

Distributed Support: Management's Response

As senior management became aware of the problems, plans for their eventual resolution were formulated.

The feeling was that although decentralization of support was a reasonable goal, care had to be taken to prevent the production of several small Computing Services departments. There was the danger that each department might find solutions to fit its needs, but not necessarily the goals of the institution.

To prevent all computer support personnel from working in isolation it was recommended that, as much as possible, decentralized support personnel a) keep in close communication with Computing Services and/or b) report directly to Computing Services personnel. In the latter case, the individual was physically situated in the decentralized department, but was responsible to a Computing Services staff member.

Microcomputer recommendations were also documented and distributed widely throughout the campus. These recommendations outlined suggested hardware configurations and described the types of support available, from Computing Services, for both hardware and software. Campus personnel were not limited only to the hardware described, but were free to purchase equipment they felt best suited their needs. There were made aware of what features should be considered when purchasing any type of computer equipment so that it would fit well in the campus network.

In an effort to limit the types of hardware purchased by the various departments it was decided that a computer store would be opened on campus. This store would make quality hardware available to the campus community at significantly reduced prices. Once again, the equipment available at the campus store was not limited only to that recommended by Computing Services, but also equipment

that would be of interest to the University population. The store did, however, did take care to stock the equipment recommended by Computing Services. It was suggested to departments that, if possible, purchase equipment from that store as most of it had been evaluated by Computing Services and fit into their computing strategy.

The campus bookstore began supplying supported software to the campus. Although a wide variety of software was available, care was taken to stock the software supported by Computing Services.

Distributed Support: Issues

Several problems must be addressed before decentralizing support. These include:

Who Supports What?

Due to the ever changing computer industry and financial considerations, it is impossible to support all types of hardware and software platforms. It is necessary to determine what software and hardware will be supported. It is also necessary to determine to what level this support will be given. For example, if the campus word processing strategy is to support Product X, what will be Computing Services' response when someone asks for support with Product Y? Will they be helped? Will there be a limit as to how much time will be spent on solving the problem? Will documentation be provided? Is it important that the clients are made aware of these support limits? The answer to the last question is YES! The clients must be notified what will be supported and what level of support will be provided. It is unethical to withhold information which is necessary for clients to make informed decisions about purchasing computer equipment. Naturally, if they are not informed as to what is supported and what is not, they may choose to purchase something that is unsupported. It is only in the best interest of Computing Services as it not only fosters a good relationship between Computing Services and its clients but there is some control over what hardware and software are used on the campus.

Who Supports Whom?

When decentralizing support, human factors play a more predominant role than in centralized support. Because decentralized support personnel do not have offices in the computer centre, there is the danger that they will feel isolated from the main policy making body. These persons must perceive themselves to be part of the support team. They should be the first line of defense for problems arising in a department. Otherwise, they may feel that their authority is being undermined by the central support group.

At the University of Saskatchewan, if clients from a locally supported department request assistance with a

problem, they are always helped. If necessary, the decentralized support person is brought into the conversations. The decentralized support personnel are notified of the outcome of any problems. This allows the local support representative to be aware of any problems that are arising in the department so that appropriate actions can be taken. The client is always number one. If the customer does not want his/her due to personality conflicts or some other reason, their identity revealed to the local support personnel, the wishes of the client are upheld.

When computers must be down for scheduled maintenance or upgrades, the needs of the departments are taken into account. Computing Services provides as much notification as possible to the decentralized support personnel. When new software is to be added, in addition to having it tested by Computing Services, it is also tested by distributed support personnel. This makes everyone feel they are part of the decision making team.

What About Overlap Between Centralized And Decentralized Support?

There will be some overlap between the responsibilities of decentralized and centralized support personnel. This is not necessarily bad. At the University of Saskatchewan there is, in most cases, at least one individual within Computing Services who is knowledgeable about the decentralized unit. Of course, the person in Computing Services is not as knowledgeable about a specific department as the local support person. However, if the department support person is unavailable, there is always someone in the centralized unit who can take care of a problem or situation with relative ease.

What About Staff Turnover And Can We Talk?

All organizations must face staff turnover. The policies of Computing Services should, as much as possible, be adhered to by the decentralized supporters. If this is not possible, the configurations must be well documented and someone in the central area should act as a liaison with the decentralized supporters.

If a department suddenly finds itself without support, it requests assistance from Computing Services. If Computing Services' guidelines hardware and software have not followed, Computing Services staff will be entering a situation for which they may not be prepared. Also, support may require a significant time investment on the part of Computing Services staff to learn what has transpired in the department. In an effort to prevent this, the decentralized staff in many departments are supervised by Computing Services staff. They are very aware of Computing Services policies and guidelines and every effort is taken to ensure that these policies and guidelines are followed. Decentralized support personnel must also be required to maintain records outlining the type of

support provided. Documentation regarding the computer configuration and uses must be made available to Computing Services staff when required.

In departments where there is no official computer support personnel, Computing Services staff tries to maintain a close relationship with a local expert. This includes providing this person with information without it being requested and inviting them to assist in hardware and software evaluations. Because of this, whenever the department is considering any changes, Computing Services is often notified and brought into the decision making process at an early stage. As always, the local experts are informed of any changes to Computing Services policies.

Can We Afford Decentralized Support?

Financial constraints may prevent the distribution of support services. In this time of economic restraint many resources are stretched to the limit and computing support is no exception. At the University of Saskatchewan, the departments provide salaries for their local support representatives. In addition, the support person is physically located in their premises. Departments provide office facilities, and required hardware and software. Computing Services provides the supervision of the individual.

In cases where departments cannot finance a full time support person, many have opted for half time support personnel and rely on Computing Services the other half time. Other options include several departments pooling their resources to acquire the services of a full time staff member.

Can We Afford To Not Decentralize Support?

Computing Services receives many benefits from having a decentralized support individual. When problems arise in a particular area, Computing Services staff can rely on the on-site support person to relay information. The on-site staff member is usually the first line of defence for the department and usually solves many of the questions posed. If he cannot solve the problem, there is no hesitation in contacting the central body. The individual in Computing Services, can then begin to solve the problem confident that the on-site person has checked the "common" causes of problems such as poor wiring, printers turned on and on-line, etc. Since there is an individual on-site, the problem can often be resolved without having Computing Services staff spend time travelling between buildings unnecessarily.

If a group on campus is dissatisfied with a piece of hardware or software, the support personnel in the department are often the first to be notified. An advantage of nurturing a good relationship between Computing

Services and the departments is that this support person informs Computing Services about this dissatisfaction so that appropriate measures can be taken.

Special interest is given to local experts as well. They are often asked if they would like to assist in solving a problem that may be occurring in their department. It is our hope that these individuals become more confident about computers, and also begin to ask "what if" and "how to" questions of Computing Services staff. By having staff ask these "what if" questions, many departments have found new methods to accomplish daily tasks thereby increasing the efficiency of the department.

One of the problems in producing local experts is that often they take on too great a support role in addition to retaining all of their previous duties. Personnel officers must be made aware of the changing job descriptions and the person in question must be compensated for these changes.

Distributed Support: Today And Tomorrow

Of the fourteen colleges at the University of Saskatchewan today, 9 currently have some form of local computer support personnel. Of these 9, the support representatives for 7 are supervised through the Department of Computing Services. The other 2, although not supervised directly, keep in close contact with the department, and are made aware of the Department of Computing Services goals and objectives. There is currently a move towards obtaining local support personnel for other departments as well. Of the three major administrative units, two currently have the services of at least one full-time support person.

We have found the move to decentralized support is a win-win proposition. Computing Services has benefited in many ways including faster response to user problems as they are more aware of the computer configurations in most departments on campus. There is also more control over the hardware and software used on the campus and, as a result, Computing Services personnel are knowledgeable of the software used in clients' department.

The department units are very pleased with their support personnel. They have a local expert who can provide fast solutions to customer problems and is actually located within the department and is therefore knowledgeable of the applications used within that department.

An essential factor in the decentralization of support services, is that the Computing Centre and the client must keep in close communication at all times. Each should know, to some extent, the problems and situations faced by the other. The University of Saskatchewan can still go further in this area. Perhaps by arranging special workshops and educational seminars for local support person-

nel, the departments can begin to take on an even larger support role.

The campus community should be made aware of Computing Services' policies and their input in establishing these policies must be encouraged. If this is not done, there is the danger of Computing Services being viewed as a "bunch of hackers" who make decisions without consultations. For this reason, although Computing Services does recommend software and hardware to the campus, departments are permitted to purchase whichever equipment best suits their needs. This has made for a very productive relationship between the campus and Computing Services.

From the experience at the University of Saskatchewan, the campus community will continue to push for decentralized support. This may take the form of a local support representative, or the grooming of an existing staff member to become a local expert. Whatever form this support takes, Computing Services must be prepared to work cooperatively with the departments to provide the best possible support to the institution.