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Author

Franz, J.

Publication Date

1979-07-01

0 0 3 0 3 4 3 3 9 3 1

UC-32
LBL-9485 c.1



Lawrence Berkeley Laboratory

UNIVERSITY OF CALIFORNIA, BERKELEY

Engineering & Technical Services Division

To be presented at the ACM SIGUCC User Services Conference,
VII, Los Angeles, CA, September 30 - October 3, 1979

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Joan Franz

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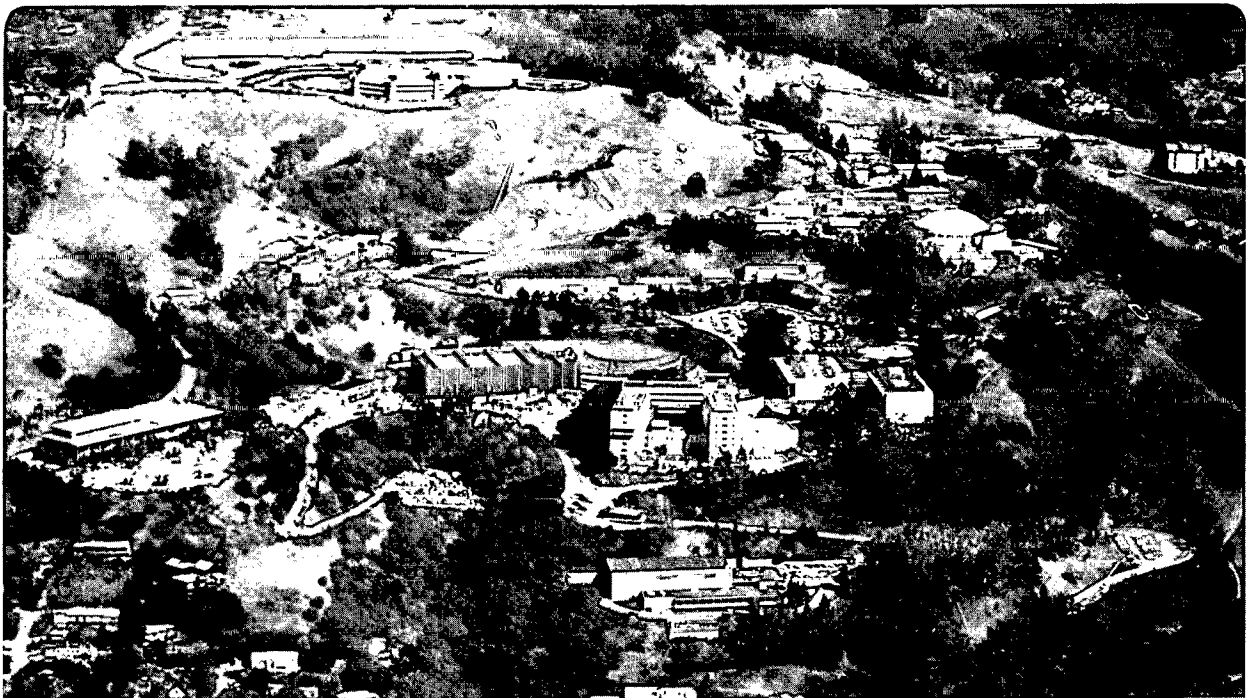
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Prepared for the U. S. Department of Energy
under Contract W-7405-ENG-48

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PLANNING FOR FUTURE USER SERVICES*

by

Joan Franz
Manager of User Services
Lawrence Berkeley Laboratory
University of California
Berkeley, California 94720
(415) 486-6204

Abstract

The purpose of this paper is to explore the changes that will occur within User Services as the nature of computing changes and affects changes in institutions. In the past, most institutions have had one major computer center which supplied the bulk of the computer power and all related services and activities. Currently we are seeing a shift away from this concept. We are seeing computers springing up all over. So how is this affecting the computer centers? Should the computer center continue to compete with these other centers or should it offer something else? A possible scenario is that the services and programming, including user services, will split off from the computer center and become a central unit within the institution, offering technical support for the central computer center and the satellites on an institution-wide basis. This paper will look at

the various ingredients affecting computing and will try to predict what the future might look like for User Service organizations.

Introduction

There are a few themes running through the computer field today. As hardware costs continue to drop we see various effects on the institutions. One such effect is the shift away from centralized computing. This is going to require some reorganization of the departments within an institution. Even with decentralized computing there should still be some functions that remain within a central unit. Some of these functions are services. As departments acquire computing power there should be some central body which gives technical advice for acquisition and which later supplies technical support in using the computers. Since initial acquisitions should be carefully guided, the management of various departments should be in communication with the upper management of the institution about their plans to acquire hardware. Before computers proliferate there should be some cohesive planning and policy so that chaos does not reign. A continuing problem in the field of computing is 'reinventing the wheel'. One way to guard against this is maintaining some central body which provides information and standards (a side benefit of reducing duplication is that it will help reduce costs). So now we see that the role of the computer center is changing. How does this affect User Services?

* This work was supported by the U.S. Department of Energy under contract No. W-7405-ENG-48.

The Institution

At the same time that hardware costs are decreasing, software costs are increasing. With inflation continuing, more emphasis is being placed on the need for increased productivity, and reduction of operating costs. This adds another ingredient to the pot. At the same time that everyone can afford to go out and buy some micro or mini, they discover that 'peopleware' costs are increasing. So how to do cheap computing? One way is to have a central facility that is conversant with a variety of operating systems and software and that provides a consulting service, documentation, and training on these subjects. Perhaps this central facility might also provide some sort of hardware support. With more emphasis on standards and 'off-the-shelf' software, and more of a central clearing house for these wares, various small groups and departments could afford to do some dedicated computing. These groups might want to have a person or two on hand for local changes and programming to fit their specific needs; if they kept to a fairly standard general set-up, they could call on the central service unit for initial training and ongoing advice. Or an institution could even form a programming pool and provide programming support to be farmed out to various groups and departments. So there is an evolving need for a central body to provide technical support and services.

An institution should have one central unit that concerns itself with most of the computing activities at the institution. Since this is a pretty big order, this unit must be the highest unit in the institution. For example, at LBL, a Department of Energy laboratory, the highest unit is a division (divisions are then divided into departments and departments are divided into groups). Therefore, at LBL, this central unit could be a division because it needs to be able to function on a Laboratory-wide level and be equally accessible to all divisions.

Also, it is important that direct channels of communication exist between the central unit and the upper management of the institution, so that more focus is placed on integrating computers into the various departments within the institution. In order to reduce duplication and to promote communication and sharing, this unit would be responsible for setting policy for computer related activities, or at least implementing these policies, if there were an institution-wide board to define policy. This unit would therefore supply services to the main computer center and all the satellites. Regardless of who owned any given computer, as long

as they were orchestrated, the basic services could be supplied to the various computer users within the institution. So now, on paper, we have moved the main support services to this central unit. Consequently the old central computer center is just another satellite in some sense because it also provides some kind of computing power appropriate to what it can do best (maybe provide mass storage?). But the services and support are an institution-wide body which can best serve the entire institution. Incidentally, where the main computer center ends up organizationally is not germane to this paper. What we are considering here is services.

The New Central Unit

Now that we have this new central unit, we should give it a name. For convenience let's call it Computing Services and Support (CSS). If we call CSS a 'division' then we next need to define what departments make up this 'division'. The first one is the old User Services. Different institutions have slight different functions filled by User Services. We need not worry about specifics here; just the general idea. So we might define this new User Services to be made up of communication support, technical support, and education. Communications might include such things as newsletters, surveys, user groups, hot news, help files, and suggestion boxes. Technical support might include demand consulting and referral consulting. It could also include software evaluation. Education might include user manuals and other technical documents, short courses, new user training, and technical staff education. Some things we would not include within the future User Services are accounting, applications libraries, hardware evaluation, and contract programming. These can best be offered by other departments within the division. In fact, another department might be hardware support. And another might be a programming pool that supplies programming support. The hardware support department could provide advice on hardware evaluation and acquisition, hardware installation and repair. The programming department could provide contract programmers for hire. Perhaps they could also supply system generations, mathematical libraries and applications libraries (software). Other types of technical support that might be of interest on an institution-wide basis are management information systems, and performance measurement services.

The Future User Services

We now have defined a 'new' department within a 'new' division. Who does this department supply services to, and what are these services?

In order to define who receives services we need to look at our hypothetical institution in more detail. In the future, there will certainly be many unaccounted micros on site. There will also be some small pockets of computing which do not come under the purview of this new central unit (CSS). For example, if the site had need for a secure system, then this ultra-sensitive data should be processed in a stand-alone system, removed from the main network of the institution. Or perhaps there would be some small dedicated computing systems that were designed to do a very specific task. Such systems would be independent and, in general, unconcerned with central issues. The bulk of the computing personnel, which would desire services from the CSS, would be those satellites and the main center which were doing general purpose computing and following the standards and guidelines defined either by CSS or an institution-wide policy board. These computers may or may not be hooked up to some local network. Probably most of them would be hooked up to a local network in order to share resources. But there would be some satellites which, while they were not hooked up to the local network, would nevertheless benefit from central guidance and policy and share expertise and information.

We should look at the local network briefly. As mentioned above, it would not contain any ultra-sensitive data. But security would be a central concern in the design phase, so that logon permission would only be given to users who had passed a series of checkpoints at the login level. Another aspect of the network would be some central accounting scheme that charged for resources used within the network. Other than that, accounting would be handled separately by the satellites and the center. Machines that might be on this network are small general purpose front-ends, large number crunchers, mass storage devices, etc.

What kind of users would this future User Services be servicing? In the example I have been using, the center and satellites would be supplying general purpose scientific computing. By and large, the users would be scientists and technicians. But it could also include non-scientific users, text-processor users, and clerical people. As the concept of 'the computer as a tool' grows, some of these end users will be far less knowledgeable than their present day counterparts. Consequently, more than ever before, end users will need training, support, and, in some cases, handholding. They will need and expect documentation of this new 'tool'. The scientists, on the other hand, are technically competent but, in general, will want to get on with their research and leave the details of these tools to someone else. In fact, they will

probably feel that they don't want to manage computer personnel (by hiring their own) since there are groups in the institution that are in the 'computer business' and that is where the expertise should be managed and made available to them when needed. So, in the future, there will be just as much, if not more, demand for 'user services'. The difference might be, though, that the users might be using a variety of computers and systems and that these computers might be owned by some group other than the main center.

So now that we know who the users are, let's look in detail at the services to be supplied. As mentioned above, one area of support for users which the future User Services will provide is communications. For example, there will still be a need for a newsletter. In the past, a newsletter described changes occurring at 'the computer center'. In the future, since there would be a main center and many satellites, the main purpose of communication support within User Services would be to issue news of central importance. The purpose of this centrally issued newsletter would be to provide schedules of classes for users and user group meetings. The newsletter would also contain announcements of new documents, suggestion box dialogue, and surveys. Information therein would support communication on an institution-wide basis. Communications support personnel within User Services could provide help in scheduling and organizing user group meetings. They could also prepare and administer surveys, suggestion boxes for users, notices, and news.

In the area of technical support there might be demand consulting and referral consulting. There might also be a great need for this central body to provide software evaluation. It would be most inefficient in both time and costs for each small center to program its own systems. There will probably be more interest in standard operating systems and 'off-the-shelf' software in the future, because that is a way to reduce duplicative effort and thereby decrease personnel costs. Consequently, a valuable service that future user services groups could offer would be a software evaluation and referral service. This would include an appraisal by User Services personnel of some small number of general purpose operating systems. User Services personnel would be expected, as part of their job, to stay abreast of hardware and software developments and to be able to advise users on which software would fit their specific needs. After this initial contact, there would be an ongoing user need for demand consulting, whereby users would be able to seek aid on the broader aspects of their system, or on general programming or FORTRAN practices.

In addition, the functions the consultants now perform will still be needed in the future (e.g., demand consulting), but in the future, the job will probably require knowledge on more varieties of software, and ability to consult on different systems. This is already the case, to a certain extent. Quite often a center will have more than one type of hardware and operating system, and consultants are expected to answer questions on these different types of operating systems.

The third area of support covered by future User Services would be educational support. This includes documentation and training. In the future, if there is more emphasis on standards and off-the-shelf software, then there will be less need for User Services personnel to create documents to describe local non-standard systems. But there will be a need to organize and coordinate vendor supplied documentation for local consumption, as well as a need to evaluate it and choose what is best if there is more than one version available. Or in the case of some very popular operating systems (a current example is UNIX), the consultants might be involved in a cooperative effort, beyond the institution, to produce and share documentation.

Clearly, the need for a technical library would grow. This library would not be a replacement for the main library of an institution, but rather would be more of a clearing house for selling user manuals and documents on the software being used by any of the institution's computing facilities. This library would be a clearing house for all of the users. It could supply both user manuals and vendor-made audio visuals that could be used as a supplement to a training program effort in User Services. In fact, future training by User Services should rely more heavily on multi-media as a complement and as a backup to classes and training done by the consultants. In this future User Services, where a large number of users in the institution will be served, audio-visuals, either locally done or vendor supplied, could fairly easily provide introductory information to a large number of users. This training could also be expanded to include new technical staff and operators.

Conclusion

As the costs of personnel, and thus the costs for services, increase, and even as hardware costs decrease, we need to change our tactics to fight the battle against escalating charges for computer use. And, as more and more small computers are acquired within any given institution, we need to orchestrate the acquisition and use of these computers. One way to combat both of these problems is to delocalize

the technical services offered through the old main computer center, and make them available on an institution-wide basis. This would help deal with the current problem of increased acquisition of computers by various divisions within an organization. If a service unit were made available for the purpose of setting policy and providing guidance, computers would be acquired with direction and support from people who are computer 'experts'. Such a move would also solve a problem currently facing the main computer center, i.e., the need to compete financially with satellites that are springing up because cheap computing power is available. The computer center has a large overhead due to excessive services that it offers. As personnel costs continue to increase, these very necessary services will become too burdensome for the center to pay for out of its operating budget. If the services became an institutionally centralized unit, costs could eventually be spread out more evenly over the institution. And, in the next few years, as the growth of computer satellites continues, and as these satellites make use of the services available to them, the costs for these services will actually go down because the duplication of effort in many areas of computer usage will be dramatically reduced. For example, if two separate groups within an institution buy computer z with operating system x and they both go to the central unit for initial guidance in learning about the system and hardware, and buy documentation for it, then they will each only need a small amount of local effort to keep their system running. Consequently, this will be the cheapest way for the satellites to operate, and yet have access to superior services.

The challenge for the future is with the people who provide the services now. It will be necessary for us to continue to enhance our expertise by staying abreast of hardware and software developments, and to earn this 'new' position of guiding both the users we serve, and the management of our institutions.

This report was done with support from the Department of Energy. Any conclusions or opinions expressed in this report represent solely those of the author(s) and not necessarily those of The Regents of the University of California, the Lawrence Berkeley Laboratory or the Department of Energy.

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TECHNICAL INFORMATION DEPARTMENT
LAWRENCE BERKELEY LABORATORY
UNIVERSITY OF CALIFORNIA
BERKELEY, CALIFORNIA 94720