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COPING WITH ADMINISTRATIVE PROBLEMS IN RESOURCE SHARING

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In an address to the nation on October 8, 1974, President Ford said, "Share everything you can, and a little bit more." *BK*

I want to begin by telling you some of the history of the Mathematics and Computing Department at the Lawrence Berkeley Laboratory; how we got into the resource sharing business and what the status is today. Then I will touch on some of the administrative problems that resource sharing has brought to our attention. Finally, I will describe an area of resource sharing that I believe needs some attention and then make a suggestion to you. *Concerning that problem.*

The Mathematics and Computing Department at Berkeley grew over the years with the increasing requirements for computing generated mainly by research in high energy physics. During fiscal year 1971 the two Control *DATA* 6600's that were installed became saturated and the Laboratory acquired a Control Data 7600 computer. Our A-54 justification for the 7600 included a proposal to provide computer time to other high energy physics groups as suggested in the HEPAP report on computer requirements needed to support physics research. During fiscal year 1972, the situation began to change. Support for high energy physics dwindled and the utilization of the computers began to fall off. We found that although we

did require the power of the CDC 7600, we had excess capacity. That was not a very pleasant situation to be in since our center operates on a strict cost recovery basis.

Requests for computer time began to come in and Berkeley was really in the resource sharing business. Today the center is supplying computer services to hundreds of outside customers made up of federal agencies and their cost type contractors. This past fiscal year approximately 70% of the work load came from outside the Laboratory.

Now let's turn to some problems. One of the first problems we encountered was that of hardware acquisition. Customers that are located close to the Laboratory simply come up and use the computer services just like the on-site users. However, those located farther away want remote batch facilities. We have the communications controller, but one must have controller interfaces, modems and the remote batch terminals. If these same customers bought services from a commercial supplier, these hardware items would be supplied and the cost included in the charge for computer time. No problem. We have no way to offer such a complete package because we have no equipment money and are not permitted to lease equipment and recover the costs. The result is that each customer makes his own arrangements. I am sure that you are aware of the problems associated with communication lines and the telephone company. I think we found that to be simply a learning process.

Our next big problem came from our users. First the inside users became paranoid. They decided that we were paying too much attention to the outside users and that they were losing control of the center. We keep reassuring them and pointing out that the outside customers are keeping the computer recharge rate down for everyone.

Resulting in a cost savings to the Federal Govt of some 10 million

Next we had problems with the outside users who pointed out that they had no say in the operation and it was difficult for them to operate from their remote sites. We looked into these areas and several actions were taken. We invited one outside user to sit on the Computer Advisory Committee and two of them to be non-voting observers at the Committee meetings. We encouraged the outside customers to form a users organization and helped them get started. We also formed a Users Services Group within our department. This group is our day to day interface with the outside world. They provide professional programming consultants. They produce most of the documentation including how to use the Computer Center, what services are available and how to establish an account number. In addition we provide an expeditor service to help remote users with operational problems.

*All solved
problems.*

Now let me turn to a problem for which we have found no solution. It is a problem that results from approaching computer saturation. Although we are constantly asked, we have never given an outside customer a guarantee of continued service. This causes some of our current users to be nervous and some potential customers to be reluctant. They must make an initial investment in order to use our services and then if they are forced off -- they face more conversion costs unless they can obtain services on similar equipment. Meanwhile, we cannot now justify additional capacity based on the needs of our Laboratory. And furthermore, there seems to be no practical way to acquire equipment based on the requirements of outside users. The success of our sharing program has clearly demonstrated the need for computer centers that are supported from more than one source. I am told that we are

the only computer center in the country successfully engaged in a federal sharing program of such magnitude. *last FY (10 mill savings) total to date ~2.7 mill which exceeds by far the capital investment of hardware.*

We did discover that Public Law 89-306, known as the Brooks Bill, charges the General Services Administration with the solution to this problem. However, practical considerations seem to render this approach ineffective.

My point is, that as far as federal government wide resource sharing is concerned -- no one is coping with the administrative problems.

Now some will say -- that's not our mission -- and I suppose they are legally correct. But it is also true that the AEC and its contractors have led the way in the development and effective use of computing machines. The AEC has people who know how to solve the administrative problems associated with the appropriation of federal funds. The AEC is now part of a new agency, with a broader field of interest. If I understand it correctly we still have these two resources. So let me conclude with the following: There exists a need and we have the talents; hence, I suggest that it is our obligation to propose methods by which the federal government can cope with its resource sharing problems.