In the spring of 1995, the central information technology (IT) division at Rice University began to implement a distributed model for computing support. The approach decentralized customer support into the academic divisions and involved matrixed teams from across the IT division, the library, and existing departmental staff. This article addresses the management aspects of the transition to distributed support, focusing on the implementation process, changes that were required in migrating from a strong centralized organization to a distributed model, and the challenges encountered in the implementation.

Prior to 1995, Rice University’s information technology (IT) organization used a centralized model to support the computing needs of our 6,000 users. Over the last several years, we had distributed one consultant into each academic division, but our focus was still on using central services to support the University community.

Under the centralized model, the faculty felt they were not being adequately served. The rotation of staff through the central help desk resulted in a lack of continuity; faculty wanted computing help through one contact. Few faculty would attend centrally sponsored short computing courses, but they nonetheless needed and wanted training. They had minimal direct contact with the second-tier support who configured and maintained their systems. Faculty held a perception that the technology organization was overstaffed, yet support issues were not being resolved, leading to questions of competence.

Several departments chose to fund their own computer support staff from research grants.

In 1993, funding was discontinued for a major infrastructure support grant in the computer science department. When a chargeback model was evaluated, the labor costs were substantial, and the group approached IT for supple-
mental funding. In the spring of 1994, we folded their systems support staff into the IT organization. University funds that supported these staff were pooled into the IT budget to help offset the cost. At the same time, top IT management established the distributed teams support model to respond to faculty support issues.

**Distributed Teams Support Model**

Under the distributed teams support model, information technology staff and reference librarians are assigned to matrixed support teams and dedicated to specific academic divisions. Each divisional dean appoints a faculty advisor to set priorities for resource allocation within that division. An information technology director is assigned to each team to resolve escalated issues and facilitate communication. The model can be viewed from three perspectives—the division, the team, and IT.

*Division Perspective.* The academic division provides space for the team and a faculty advisor. The faculty know their support staff by name and face, have easy access to team members, and set priorities for their division through the faculty advisor.

*Team Perspective.* The teams know their customers and provide day-to-day and long-term project support. Dedicated consultants provide one-on-one or small-group training and front-line user support. Reference librarians provide reference service and training, and system administrators provide first- and second-level support. Second-level staff from the core team are designated to support each divisional team and may be contacted directly. The team leader facilitates the team’s work—coordinating dispatch of problems and escalating issues to management.

*IT Perspective.* IT facilitates a campuswide view of technology and architecture and maintains a central view of budget and staff. The “core” team represents second-level technical support for team members in the field. We provide central services that include e-mail, news, networking, consulting and training for students, support for the campus computing labs, volume purchases, and site licensing. We also implement projects with a campuswide view, such as operating system transitions, software standardization, security, and classroom technology.

**Implementation**

Implementation of distributed support began with building the teams. It resulted in some major changes in our help desk and training areas, and required a different communications style. For the management team, implementation brought challenges in staffing, team relations, supervision, and using technology to our advantage.

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**Table 1: Distributed support teams**

<table>
<thead>
<tr>
<th>Division</th>
<th>Faculty</th>
<th>Distributed Team</th>
<th>Other Rice Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Micro</td>
<td>UNIX</td>
</tr>
<tr>
<td>Architecture</td>
<td>23</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Engineering</td>
<td>187</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Humanities</td>
<td>195</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Business School</td>
<td>57</td>
<td>0.2*</td>
<td>1</td>
</tr>
<tr>
<td>Music</td>
<td>49</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Natural Sciences</td>
<td>158</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>87</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Administration</td>
<td></td>
<td>4.6</td>
<td></td>
</tr>
<tr>
<td>Continuing Studies</td>
<td></td>
<td>0.2*</td>
<td></td>
</tr>
<tr>
<td>Owlnet Labs (Students)</td>
<td>4.5</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>21</strong></td>
<td><strong>10</strong></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

* = contract support

This table can be compared to staff remaining in the core team (Table 2). Notice that about half the staff were distributed to the field.
Building the teams

To build the support teams, the IT directors examined the number of faculty in each division, their computing sophistication, and the installed base of computers. We then collectively reviewed the staff for technical depth, interpersonal skills, maturity and judgment, ability to work with minimal supervision, and leadership capabilities. The resulting distribution is shown in Table 1.

After the roster was created, each director discussed the distributed team concept and specific team assignments with their staff. Reaction ranged from enthusiasm to skepticism that the project could work. Several staff chose to leave the University rather than participate.

Changes

Given the redeployment of staff, we had to rethink our business in several areas. We needed to retool the help desk, transform our training program, and create new communications paths.

Many help desks

Under the new model, we distributed the central help desk into the divisions. Consultants who formerly worked on the help desk were deployed on the divisional teams and took that function with them. Each team decided how to run their helpline and utilized various approaches; for example, the Social Science hotline rings on all team-member phones, whereas Humanities designates one team member to receive and dispatch calls.

Support for students is provided from the central help desk and the consulting station at the library’s reference desk. Additional student consulting is provided in each major microcomputing lab. These help desks are staffed by students and are managed by a staff consultant from the core team.

We still support a central helpline, but users now get a phone menu that enables them to select their divisional team or the student help desk. Faculty and staff are referred to their support teams. Calls for student help ring at the help desk and at the consulting station in the library.

Training goes to the divisions

Given that we deployed two-thirds of the training staff into the teams, we needed some creative approaches to handle the training load. First, we relied on the teams to provide “just in time” one-on-one training for the faculty and staff. For topics of broader scope like Web building, we worked with the teams to set up a monthly training schedule in which our training coordinator delivers classes in divisional space. To teach evening courses and to help with special training projects like Web camp, we relied on our student trainers.

We also tried to be proactive in anticipating needs. For example, we knew that wiring the residential colleges in summer 1995 would create a demand for training the next fall, so our student trainers were ready to teach classes when the wiring was completed.1

Intensive communication

When staff are distributed over the campus, the need for communication intensifies. Good relationships between management and the staff enabled a smooth transition to the new support model, but we needed to rethink our information flow for the long term. Our approach included traditional methods such as electronic mail, listserv lists, and the problem-tracking system. However, we needed to facilitate timely one-on-one contact, so we issued beepers to support staff and management and created an e-mail paging service.

Challenges

Migration to a new support model presented several challenges to the management team in the areas of staffing, team relations, supervision, and using technology to our advantage.

We really do more with less

Allocating half of the staff to divisional teams means that fewer staff are available to deal with crises or new projects. This translates into a need for better planning among the teams and management. For example, our help desk is staffed primarily by students. During midterms and finals, however, students focus on their studies and are not available to work consulting shifts. Students still need consulting help, so we rely on staff in the divisions to work the desk.

The distributed approach also mandates flexibility in dealing with assignments. When

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team members are on vacation or sick leave, other staff adjust their schedules to help deal with the shortfall. In divisions where problem loads become too high, a “SWAT team” from the core is assigned to help on a temporary basis.

**Working through the rough edges**

User Services staff are hired based on a combination of interpersonal and technical skills. Until recently, other parts of the IT organization based their hiring decisions primarily on technical skills. When some of these “backroom” staff were assigned to teams, we had to help them rework their interaction styles.

Some of these “rough edges” appeared during the 360-degree team evaluations and the selection of team leaders.2 In the team evaluations, several staff did not want to deal with confrontation and give peers a poor review; this was also the case with several of the faculty. We view team leaders as facilitators, not bosses, and finding the right match of leadership and interpersonal skills was a challenge on a few teams. In the short term, several staff are in an uncomfortable position. Over the longer term, we are hiring staff who can work with our customers and with each other.

**From a distance**

Several divisions were concerned about supervision of deployed staff. Given that staff work all over the campus, how can you monitor their performance? How do you handle discipline problems?

Our solution to performance monitoring was to put a renewed emphasis on the use of our problem-tracking system and hold staff accountable for their problem load. We upgraded our problem-tracking system, developed log sheets, and distributed summary reports to the entire IT organization and the faculty advisors. Team members want to get credit for the work they do, faculty want to understand how they spend their time, and the staff know that we need to document the load to justify additional resources. However, staff sometimes get too busy to enter data, which leads to questions about accuracy of the load portrayed, and some staff who work at high capacity are concerned about whether the numbers reflect their load.

Completing a discipline procedure for a team member is an exercise in cooperation with the customer. While a total variance in problem load from the rest of the staff can signal a problem long before the customer complains, problems dealing with team dynamics can be more subtle. Once a procedure is initiated, management must rely on the customer and team leader to help with monitoring, which can raise questions about objectivity and secondhand information.

**Using technology**

As we distributed our staff, several questions arose about using technology to help us cope with the load. For example:

1. Our problem-tracking system captures twice the information that it used to—data from the central help desk and data from the divisional teams. What can these data tell us? What are the trends in our divisions? Who is working or just not recording data? For example, the FY96 problem load for Computer Science surpassed that of the rest of the Engineering division, which helped us justify another position for the division.

2. As we wired the dorm rooms for cable TV and Ethernet in summer 1995, we realized that we could use the cable network as another way to train students. This year, we will pilot internally developed and commercial training videos. Will this program reduce our need to offer central classes for the students?

3. An interest in telecommuting resulted in an ISDN pilot project. The project was successful and is being expanded to accommodate additional users. How will management need to structure jobs and communication for this program to succeed? How will the telecommuting model affect the distributed teams?

4. We are installing video conferencing capabilities in a new classroom in the library and recently acquired several Mac-based video conferencing packages to test among the staff. How will video conferencing enhance our team interactions? How will it help facilitate distance learning opportunities?

**Progress Report**

To date, the distributed model has been an outstanding success. Faculty are regularly giving management positive feedback. Here are some recent insights related to the implementation of our distributed support model.

1. When the support model was first implemented, some of the reference librarians participated, but most did not move into or work from the team space. The New University Librarian has made Library Public Services a primary focus. As part of a restructuring, reference librarians will dramatically increase their participation in teams to increase their visibility with the faculty. They are also beginning to use the problem-tracking system to track reference questions.

2 A 360-degree evaluation process involves polling all the segments of the community that a staff member serves for their input. For IT staff, the reviewers include faculty and staff customers in their divisions, peers on their divisional team, peers in the rest of the IT organization who support them, and management. Reviewers complete a short seven-question “check-off” survey that is tallied and appended to the staff member’s Rice evaluation form.
2. While the staff have remained distributed, we continue to retain central control over the budgets. IT management is exploring compensation models with the University’s human resources office.

3. For staff evaluations, we employed a 360-degree process to get feedback from our customers on individual staff members and the teams. We polled selected faculty and staff in each division. User comments were overwhelmingly favorable and helped us justify new positions for this fiscal year.

4. After two recent comprehensive surveys, faculty were tired of yet one more broad service survey. However, when selected faculty were asked to complete a five-question survey for specific team member evaluation, they were very supportive and returned most forms.

5. The observable problem-tracking loads in Engineering and Natural Sciences helped us justify three new positions this year.

6. We are still working on research-support funding issues such as providing consistent base-level service versus addressing special needs.

7. A year after implementation, the beepers and e-mail have worked to facilitate communication. However, the field staff sometimes feel isolated from the organization, and important information does not always get communicated between the central and divisional teams. We are exploring ways to promote “proximity communication,” i.e., team-building and technical meetings with food provided.

We have been using matrixed teams for over five years. Our current support model adds one more level to the matrix. Given the success of the program to date, we will continue to evaluate ways to grow the model and put more staff into the field.

Related work:

Flowers, Kay, and Andrea Martin. “Enhancing User Services through Collaboration at Rice University.” CAUSE/EFFECT, Fall 1994, 19-25. This article is available electronically at http://www.cause.org/information-resources/ir-library/text/cem9435.txt or by sending e-mail to search@cause.org containing the message: get CEM9435

Martin, Andrea, and Vicky Dean. “Back to the Future: A Management Perspective on Distributed Support.” In Realizing the Potential of Information Resources: Information, Technology, and Services, Proceedings of the 1995 CAUSE Annual Conference (Boulder, Colo.: CAUSE, 1996), 4-3-1 to 4-3-9. This paper is available electronically at http://www.cause.org/information-resources/ir-library/text/cnc9527.txt or by sending e-mail to search@cause.org containing the message: get CNC9527