DORMNET SUPPORT AT PRINCETON UNIVERSITY

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ABSTRACT

Princeton University's residential network, Dormnet, was expanded to include all undergraduate dormitory rooms in the Fall of 1993. At that time, there was not a Dormnet-specific support structure in place. In the four years since that time, Princeton's CIT department has met the growing demand for Dormnet support, increasing the scope of its support network each year. Significant changes in support since the completion of the network include the addition of a full-time Dormnet Coordinator, better software installation instructions, and a team of trained students who visit student rooms to resolve problems. To minimize installation problems, CIT offers a "Dormnet-ready" service, which includes installation and configuration of network software on new computers.

This fall ('97), we are planning two new services. During evenings of the first week of classes, a team of trained student consultants will travel door-to-door, offering help in configuring students' computers. This coming year ('97-'98), our department is also piloting a Residential Dormnet Consultant program. We hope that these new services will result in happier customers, a lighter load for the Help Desk, and great PR for CIT.

HISTORY AND SUMMARY OF DORMNET AT PRINCETON

Dormnet at Princeton was begun as a pilot project in one dormitory during the 1986-87 academic year. From that year until 1992-93, there were between 20 and 300 subscribers (of up to 2000 eligible students). In the 1993-94 academic year, Dormnet was expanded to all undergraduate dormitories, or about 4200 students. Subscription rates rose quickly from about 25% that year to about 70% of undergraduate students during the 1996-97 academic year.

Dormnet service currently consists of port-per-pillow 10 Mbit/s Ethernet network connections in every undergraduate and many graduate dormitories, as well as some off-campus residence houses. Each dormitory is connected to the network backbone with a high-capacity fiber-optic cable. Students have access to the internet, campus servers of all sorts, and public laser printers. The current fee for Dormnet in the 1997-98 school year is $100 (up from $75 the previous year).

Dormnet Coordinator

As Dormnet exploded from 167 subscribers in 1992-93 to 1049 in 1993-94 and 1772 the following year (of about 4200 eligible students), it became clear that the work of coordinating the diverse aspects of providing Dormnet service was a full-time job. CIT hired a Dormnet Coordinator in late Spring 1995. This person is responsible for determining policy, deciding on software sets, making sure the installers and documentation are written, and dealing with the various exigencies that arise on a daily basis.

FRONT-END POLICIES AND SERVICES

CIT has a number of policies and services that make later support either unnecessary or much easier. We believe that these policies and services make computing easier and less frustrating for students. Many of the services are offered free of charge, as a sort of "service investment" on CIT's part, with the idea that it would cost us more and be more difficult to provide the services later.

Policy: Minimum hardware and software standards

In an attempt to help students purchase computers that will be able to function on the campus network for four years, CIT sets strict minimum standards for new Dormnet subscriptions. These standards describe computers that are much more advanced than the minimum computer configuration that could technically function on the network. Refer to the web site listed at the end of the paper for this year's minimum standards.

Service: Dormnet-Ready software installation

A large percentage of students buy their computers through CIT's Microcomputer Distribution Center (MDC). All computer back-to-school bundles bought through the MDC come with a "Dormnet-Ready" option, which almost all students choose. Dormnet-ready installation is performed by CIT staff in August, before the students arrive on campus. The staff configure the networking software on the computers and install a standard set of programs for internet access. Each program is configured to contain the student's e-mail address and Princeton server addresses in the appropriate settings boxes. When the students arrive on campus, they can pick up their computers, take them home, and plug them into the network. No further configuration is necessary.

This service involves a significant time investment in August, but it saves considerable consulting time during the busy September period, when students would be attempting to install software themselves.

Service: Fee-waived software installation

CIT provides a service similar to Dormnet-ready configuration during a one-month period after things slow down a bit in late September and October. Students can bring their computers to CIT and drop them off for a complete installation of networking and internet software. This service is provided free of charge during the one-month period.

Pilot Service: Dormnet SWAT Team

The two services described previously involve students coming to us to drop off their computers, or at least to pick them up. This fall, we are going to turn the tables,

dropping in on one-fifth of the freshmen and sophomores each night during the first week of classes. This effort, which we have dubbed the "Dormnet SWAT Team," will consist of 15 to 20 students and full-time staff visiting student rooms, making sure that all of the students' computers are configured properly. Since we have never tried in-room service of this magnitude, we do not know what impact it will have. We expect that this short-term, proactive service will be effective in reducing calls to the Help Desk and reducing students' frustration with getting their computers onto the network.

SUPPORT SERVICES

No matter how much effort we put into setting computers up right the first time and making the instructions as clear as possible, we are always subject to Murphy's Law. In a population of over 3000 Dormnet subscribers, something is bound to go wrong occasionally. In most cases, the Help Desk is able to fix the problems. Sometimes, however, we have to bring out the big guns, hence:

Dormnet Field Support

The backbone of customer support for Dormnet is a team of 15 Dormnet Field Support consultants. These experienced students provide in-room support for students when they are unable to resolve their problems by reading the documentation or contacting the Help Desk.

Dormnet Field Support began as a volunteer program (read: no funds) in the first big year of Dormnet (1993-94) and was first funded under the auspices of the Help Desk in 1994-95. There have been three keys to making Dormnet Field Support work at Princeton.

1. Contact tracking

By far the most important component of Dormnet Field Support, contact tracking has taken many forms since the beginning of DFS. We experimented with database programs, including Now Contact and Filemaker Pro. Both programs fit our needs reasonably well, but they were isolated from the support that the rest of CIT was providing. They also required duplication of important information, such as room and phone numbers of student customers. The primary disadvantage of these programs was a lack of consultant access due to cross-platform and server limitations. For these reasons, the database was maintained by one full-time staff member who

corresponded via e-mail with the DFS consultants. This system did not scale very well.

In February of 1996, CIT began to use a call tracking/knowledge database product in its Help Desk, with the eventual goal of expanding call tracking to every part of CIT that supports customers. It has proven to be a very useful program for tracking customer problems. The call tracking system provides the following advantages, among others:

- Cross-platform accessibility, including native Windows, telnet, and X-Windows clients (X emulation required for Mac OS) allows access to the call tracking system from computers throughout the campus, including computers in student consultants' dorm rooms.

- All CIT staff, including Help Desk staff, can directly access all customer incidents. This allows anyone within CIT to check on the status of any customer's incident. It is easy for management to check up on consultant activity.

2. Student Management

Although it is still evolving, student management is becoming an important part of Dormnet Field Support's scaling up. In 1996-97, there were 15 student consultants, including three student managers. These managers, except during the extremely busy first six weeks of the school year, do not receive any incidents directly. In exchange, they are expected to check up on the activity of the other consultants, making sure that they respond in a timely manner to their customers' problems. In addition, student consultants are encouraged to contact any of the managers for assistance with difficult problems. Often, a consultant and a manager will make an appointment to visit a student customer's room together. This approach allows managers to solve difficult problems while simultaneously teaching less-experienced consultants new troubleshooting tricks.

3. Front-line Dormnet support at the Help Desk

Customers generally cannot contact the Dormnet Field Support consultants directly. They are instructed in all documentation to contact the Help Desk first. The Help Desk's consultants receive training in a wide variety of areas, including Dormnet configuration and troubleshooting. Well over 90% of Dormnet problems are resolved by the Help Desk, either over the telephone or through its walk-in service. This high resolution rate on the Help Desk's part obviates the need for an unmanageably large DFS consultant team.

Only the peskiest of Dormnet problems are referred to Dormnet Field Support. These problems usually have solutions that would be difficult or unwise to implement over the telephone, such as Registry editing, re-installation of hardware components, and re-installation of Windows. Possible hardware problems, such as disabled network connections, are troubleshot on-site by DFS consultants, which saves CIT's Hardware Support group time and money.

Pilot Service: Residential Dormnet Consultants

This academic year, we are implementing a pilot Residential Dormnet Consultant (RDC) program in one dormitory (about 400 students), similar to the live-in Resnet consultant programs at other schools. The three RDCs will be an integral part of the existing DFS team, but with a few key differences. They will have a very visible presence in their dorm, whereas the current DFS consultants can be reached only by trying to solve your problem through the Help Desk first. While students will still be encouraged to call the Help Desk, one RDC will be available by appointment for a few hours each evening.

The official goals of the RDC program are to improve support for students and to increase the satisfaction of these students with CIT's service. We are also hoping that the program will provide a more positive image of CIT among students, and we assume that there will be unforeseen benefits to the program. We know that there will be pitfalls along the way, but we hope that with good communication among the RDC/DFS team, we will be able to resolve problems quickly and effectively.

CONCLUSIONS

As with any aspect of computing support, it is not possible for us to be satisfied with our current level of Dormnet support. Many students are not using computers as much as they would like to, for a number of reasons. Through continued innovation and learning, we hope to improve our support for students on Dormnet while turning the students into more effective computer users.

Web pages for further reference

- Dormnet at Princeton:
  http://www.princeton.edu/dormnet

- Princeton CIT Help Desk:
  http://www.helpdesk.princeton.edu