

How Long Can We Keep Doing More With Less?

Christopher Jones
School of Architecture and Allied Arts
5249 University of Oregon
Eugene, OR 97403
541-346-2094
jonesey@uoregon.edu

ABSTRACT

As demands on information technology staff increase year after year, a few of us have been fortunate enough to experience much-needed expansion of our information technology staff and associated resources. Most of us in university and college information technology services, however, find ourselves forced to do more with a constant or decreasing budget.

My group currently supports twice as many computers as it did four years ago and offers a wider variety of services and better quality service, all with fewer staff. How are we managing to do this? What have been the keys to our success, and where are future opportunities and challenges? Can these productivity increases continue forever?

This paper and presentation detail ways in which a small staff of information technology professionals can improve and increase service with constant or decreasing resources, including:

- Establishment and enforcement of support policies
- Automation or elimination of repetitive tasks
- Better support through problem prevention
- Merging of resources with other departments or programs
- Trading work with your customers
- Remote administration
- Sharing ideas with and stealing ideas from colleagues around the world

I am optimistic. Although it always seems as if we have reached the limit of what we can support, a look back will make it clear that while we have always thought this, we have always found ways to improve and increase support. To continue along a path of increased productivity, however, it is imperative that we share information about best practices in information technology support.

Categories and Subject Descriptors

K.3 COMPUTERS AND EDUCATION

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee.

SIGUCCS '04, October 10-13, 2004, Baltimore, Maryland, USA.
Copyright 2004 ACM 1-58113-869-5/04/0010...\$5.00.

General Terms

Management, Economics, Human Factors

Keywords

Customer support, productivity, automation

1. INTRODUCTION

“Do more with less.” How long have we been living this creed? A few of us have been fortunate enough to witness much-needed expansion of our information technology staff and associated resources. Most of us in university and college information technology services, however, find ourselves forced to do more with a constant or decreasing budget. At the very least, most of us are charged with providing more service without concomitant budget increases. We sometimes grumble a bit or say that it can’t be done, but we often manage to make it work. How have we done it? Can it continue indefinitely?

This paper explores some of the ways in which university and college information technology support professionals have provided and can continue to provide more service to their customers without increasing staffing levels or having to sustain long working hours that will lead to burnout.

All of you are doing some of these things. Some of you, impressively enough, are doing all of them, at least to some extent. No matter how much you improve efficiency, however, there are always a few more tweaks you can make to your systems to save you time, effort, and frustration.

Along with each recommendation, I have included a specific example from recent support experiences in my own department.

2. SUSTAIN HEROIC EFFORT

I include this option as a warning. Because of the ups and downs of the academic cycle, we are all called upon to supply heroic effort at some point during the year. It is possible to connect and configure four thousand student computers in a week. It is possible to put in fifty or sixty hours for a week or two doing a regular shift and then interviewing new student employees in the evening. We know, though, that we can’t sustain this effort week after week and month after month. We will burn out; we will experience declines in productivity, happiness, and perhaps sanity. SIGUCCS 1997 author and presenter Diane Jung-Gribble put it best in the title of her paper: “Heroic effort is not a sustainable model.”

Heroic effort means doing more in more time but without more resources. That is not what this paper is about.

3. ESTABLISH AND ENFORCE SUPPORT POLICIES

Create and define levels of support for hardware, software, and services. Figure out what hardware, software, and technology services you are able to support with your current staff's level of knowledge, experience, and aptitude. There are a variety of models for defining support levels; explore the web sites of your counterparts at other schools to see how they do it.

I suggest starting with the creation of three categories of support. For clarity, I call mine Fully supported, We'll do our best, and Alternative offered. You might call them Tier 1, Tier 2, and Tier 3 to make your services sound more professional, but I offer the labels above for the sake of clarity. You may even be able to get away with the honest label "Unsupported."

Fully supported products services are those that you recommend, the ones that you prefer to support. A typical support operation might tell its customers that it will fully support Apple and Dell hardware only, Microsoft Office for office applications, Outlook/Entourage for e-mail, and Internet Explorer for web browsing. Alternative products to those listed above would fall into one of the other two support categories.

Sometimes it is simply not possible to say "no," and it is almost never the answer your customer wants to hear. Your management may be under pressure to provide support for every technology under the sun. In these cases, determine alternatives to products and services that you do not want to or are unable to support. Having a clear alternative for your customers is important. Once you figure out what your customers really want to do, you can steer them in positive directions that will be effective for them and more easily supported by your staff. For some products, you may decide that you'll do your best to support it, but you'll reserve the right to send the customer to the software manufacturer or other resources for help with advanced problems or features.

When categorizing supported products and services, make sure you consider the full range of support requests that you receive. What models of printers/scanners/digital cameras/removable media drives/PDAs will you support, and at which level? Since computer labs often have a wide variety of software installed, meet with your lab manager to go through his or her software list. Distribute that list into your support levels, then put direct competitors to those applications in your "Alternative offered" category.

Here's a specific example: your customers need to edit web pages and upload them to the server. You may decide to provide full support for Macromedia Dreamweaver. You could then put Adobe GoLive in your "Alternative offered" category, with Dreamweaver as the fully supported alternative.

4. AUTOMATE REPETITIVE TASKS

Lab managers know this story well. Upgrading, installing, or refreshing a lab of 20 or 30 computers can require the lab manager to run through the same set of 20 or 30 steps on each computer. Any system that the lab manager can put in place to reduce the time it takes to keep lab computers happy is time that can be spent improving operations and expanding service.

Automation is not just for lab managers, though. Do you have a geeky programmer in your employ? Are you making full use of

that person's talents to automate even the simplest of tasks? One script can change your life.

Here's a specific example: every academic term, I create about a dozen course folders on my file server for use by individual courses. To create each folder, I have to set up a user name and give that user a password, set up a course folder with the proper permissions, and send a customized e-mail to the course instructor explaining how students in the course can access the folder. Setting up each of these course folders takes about ten focused, uninterrupted minutes, and I make a mistake somewhere in the process on at least one folder per term. If I had a script that required minimal interaction and performed all of the above tasks, I could save myself about eight hours a year and decrease my error rate. Eight hours a year might not sound like much, but it would mean just one script freeing up the equivalent of one whole working day each year for more productive tasks. As an added bonus, I would smile to myself every time it saved me ten minutes; how much is that worth?

5. PREVENT PROBLEMS

Most of us have problems and questions that come up repeatedly, day after day, month after month, even year after year. Often, we resign ourselves to spending a certain amount of our time solving the same problem over and over again for our customers. It doesn't have to be this way. Talk to your colleagues in other departments or at other schools about how their support organization addresses the same problem. Sometimes, to your amazement, you'll get the unhelpful response that they have never had anyone pour a carbonated beverage into a computer keyboard, something that happens in your lab twice a week. More often, however, someone out there has had the exact same problem and figured out an elegant solution that prevents it from happening while not disrupting the customer's pleasant experience.

Here's an example: the Blaster worm. In August of 2003, many of my faculty and staff computers were taken out of service by the Blaster worm and its unpleasant spawn. My computing support staff probably spent about 60 person-hours cleaning computers over the course of a couple weeks doing the computing equivalent of sticking our fingers into leaky dikes. In the course of researching a related problem, I discovered that it is possible to set up a Group Policy in your Windows domain that forces the installation of critical security updates. I had previously set up and deployed Norton Anti-Virus Corporate Edition, which allows me to check the status of virus protection on all of my computers from a central console and prevents individual computers' virus definition subscriptions from expiring. With the combination of these two tools, the incidence of viruses and security problems on faculty and staff computers in my care is negligible, especially in comparison to student-owned computers in the same departments.

6. MERGE RESOURCES WITH OTHER GROUPS

Is your group or department duplicating services that another group on campus provides as well or better? If so, consider merging resources with that group. You will probably have to invest some time and care in a migration of your customers from your service to that provided by the other group or to a new, combined service, but the time investment should pay off in the long run.

Here's a specific example: three years ago, I spent the summer migrating e-mail accounts, e-mail mailing lists, and web sites from a Linux server housed in my department to the central Computing Center's server. The Computing Center (CC) was providing a more reliable, frequently backed up web and e-mail server at no charge to me or my customers, so I decided to use their server instead of duplicating the services it was providing. I eliminated a potential security and data loss problem and ended up with one fewer computer to replace on a regular basis, saving me time, money, and worry. I am still the support contact for my customers' use of the CC's server, so there was no additional workload for the CC except for the one-time careful migration of files, web sites, and e-mail addresses.

7. TRADE WORK WITH YOUR CUSTOMERS

Many of us are asked to help customers walk through tricky technology tasks. These tasks are usually very easy for you to perform, but they are above the technology skill level of most of your customers. Take a look at your operations to see if there are ways that you can make it easier for your customers to perform these tricky tasks. If you make it easy enough for your customers to perform tasks that they normally ask you for help with, at least some of them will help themselves, saving you some time.

To get you thinking, here are a few tasks that are above many of my customers' skill levels: checking and fixing Unix account quotas, setting up a vacation message, setting up a TCP/IP printer, creating a .forward file. Your customers are almost never computer experts. They should not have to know how to perform these esoteric tasks. All they want to do in each of the above cases is store files, send friendly replies to e-mail while they are on vacation, print, and automatically forward mail. Those are reasonable services to demand; your task is to figure out how to help your customers provide those services for themselves. Setting up and maintaining self-service tools takes some work on the front end, but the payoff for you is avoidance of routine tasks and happier, more empowered customers.

If you can set up an easy way for your customers to perform tasks that normally require some hand-holding, do it. The second-best approach is to take the time to write up clear, consistent, step-by-step instructions; some people will follow them. If you have an indulgent customer, ask him or her to test your instructions to see if they actually work; you may be using vocabulary that is unfamiliar or assuming important knowledge that your customers do not have.

Here's a specific example: in the past two years, my university's Computing Center has set up web pages that allow customers to change their Unix account passwords, set e-mail forwarding, and check their quota. Before the web pages were set up, customers had to use telnet or ssh to log in to their accounts and perform these tasks. The difficulty of the unfamiliar Unix environment caused most customers to either call for help or avoid the services altogether.

8. TAKE CONTROL – REMOTE CONTROL

There is an abundance of remote control software on the market, including VNC, Timbuktu Pro, PCAnywhere, LapLink Gold,

Apple Remote Desktop, and Windows XP's built-in Remote Desktop feature. Many of you are already using this software to control your servers remotely, and a few of you are using it on customer computers. It is especially useful for screen control and viewing when the computer and the computer support staff are located across campus, or even farther away. If your customers are nervous about it, they don't have to let you have full mouse and keyboard control. Often, especially in phone support, simply being able to see the customer's screen can save minutes of difficult conversation that is frustrating for both parties.

One step down from remote control is simple file sharing. Having network access to customers' hard drives without leaving your desk means that you can delete that corrupted Preferences file, install software, clean up temporary files, or save the day by finding that very important lost spreadsheet, all from the comfort of your office.

Remote control is not a substitute for building personal relationships with your customers, but it can help in a tight spot, when someone needs something done quickly, or when a complicated procedure is necessary but difficult or risky to communicate over the phone.

Security is an issue. You'll have to judge the level of security you need based on your own environment.

Here's a specific example: we do not use remote control software on our customers' computers, though it would be helpful for a few remote locations. We have VNC installed on all of our servers, and it is very useful. I can't count the number of times I have remotely controlled a server from the comfort of my living room, avoiding a wet bike trip through the rain to the office. One caveat: be very careful if you choose to restart a server from a remote location. If the server doesn't come back up as expected, you're in for a journey, a headache, or both.

9. SHARE AND STEAL

If you come up with a great idea, or if you solve a problem that has been stumping everyone, take a few minutes to make it public. Post it on a list that has a public web archive. Put up a simple web page. Make sure the right key words are in your message, and Google should take care of the rest. If you can save your colleagues time, they will be more disposed to do the same for you. I have received a number of e-mail messages from people thanking me for detailed summary postings I made to lists once I had found the solution to a pesky problem. I have included a few web addresses for useful e-mail lists in the References section of this paper [1-7].

Your university paid a lot to send you to this conference. Go home with something tangible that will translate directly into financial savings, better service, or both. Maybe you heard about a new software product that could save you ten hours a month or save each of your customers an hour a week. How much is that worth? Most people at this conference will be happy to send you their scripts, their pages of tips and tricks, and information about their favorite time-saving tools. We all work for non-profit institutions, so we don't have to worry about giving away important secrets that will help our competition crush us in the marketplace.

Here's a specific example: at last year's SIGUCCS User Services conference, I gave a presentation about a pilot project my

department was doing with KeyServer, a product that coordinates sharing of software licenses among computers. To my amazement, some of the members of the audience had never even heard of this fundamental piece of lab management software. I was able to share a basic idea with these people that allowed them to go back to their schools and save themselves large amounts of money, time, and effort.

10. CONCLUSION

There's good news and bad news. The bad news first: we will have to do more with less for the foreseeable future. The good news is that it is achievable without resorting to endless months of long hours, stress, and burnout. Look back at the past few years. How many times have you thought there was just no way you could provide more service to your customers without an increase in staff? How many times have you improved or increased service without increasing your staff? For most of us, increased productivity is an ongoing effort, one that technology makes possible, sometimes amazing, and sometimes even easy.

Ask your customers about their repetitive or time-consuming tasks. They may not know how technology staff could make their lives easier, but you may recognize an obvious candidate for a script, a database, a template, some simple education, or some other way to leverage the power and speed of technology to help your customers be more productive and have more fun.

There is always room for improvement. Sometimes we are too close to the problem to see a good solution. Change your

environment to get a new perspective. Step back, literally. Take a long lunch with people you never talk to, or with your own staff. Go to conferences with like-minded colleagues who think. Read poetry. Walk around the block. Ask for constructive feedback from your customers, or from that one student employee who is always pushing you to do more.

Not only are you able to do more with less, you're probably going to have to, so get to it.

11. REFERENCES

- [1] A classic example of sharing: workarounds for poorly designed Mac OS X applications, at least for public lab deployment:
<<http://www.macos.utah.edu/Documentation/Crappyapps/crappyapps.html>>
- [2] Labmgr: <<http://listserv.uark.edu/archives/labmgr.html>>
- [3] Maclabmgr list:
<<http://www.lists.apple.com/mailman/listinfo/maclabmanager>>
- [4] Mac-Mgrs list: <<http://www.mac-mgrs.org/>>
- [5] ResNet-L: <<http://listserv.nd.edu/archives/resnet-l.html>>
- [6] SIGUCCS Conferences: <<http://www.acm.org/siguccs/>>
- [7] SIGUCCS-L:
<<http://www.listserv.umd.edu/archives/siguccs.html>>