Apple Technical White Paper

Supporting Mac Users: The Self-Support Model

Updated October 4, 2011

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Introduction

This white paper explores some methods IT departments that manage, support, secure, and control Mac computers can use to reduce costs while increasing user satisfaction with IT staff, policies, and processes.

More and more IT departments in large organizations are investigating innovative approaches that give users the ability to support themselves—a method that also gives users a greater sense of ownership in the technology they use every day. As they do this, organizations can reduce IT costs.

This approach isn't right for every organization. Nor is it necessary to implement all aspects of this approach to increase user satisfaction and reduce costs. The goal of this white paper is to provide ideas for organizations looking to empower users and, in many cases, significantly reduce costs. This white paper acknowledges that with every offering, it's important to strike a balance so that users who prefer a self-service approach and users who prefer a centralized IT support approach are both satisfied.

User Empowerment

Some of the common questions IT managers and staff in larger organizations are asking include:

- What if IT removes most, if not all, automated restrictions and controls on users' computers?
- What if the primary decision makers for the day-to-day operations of a computer are the people who spend most of their time using that computer?
- What if users are expected to understand the basics of their systems and be responsible for their operation, just like they may be responsible for their personal vehicle, house, and computer?

Over the past few years, the growth of the Internet and Internet-related technologies have brought a new focus on self-support. Web portals have taken the place of phone support centers. Automated systems have supplemented human interaction. In the face of budget pressures and with a workforce more accustomed to this behavior, many IT departments have begun considering the self-service approach.

A completely self-service approach may not be a viable option for all organizations, since there can be serious trade-offs with functionality, security, user satisfaction, and efficiency. Some organizations might be required by law to operate their computer systems with specific policies or standards. Other organizations might have a culture or business model that's not well served by permitting increased user flexibility.

However, a number of organizations are implementing self-service elements. Sometimes this is through a concerted effort on the part of IT departments to put more responsibility into users' hands. Other times, it's the result of user dissatisfaction with existing support resources. A self-

service approach can be a powerful way to empower users while lowering costs.

Software Installation and Updates

A frequent IT task is application and patch provisioning. Software is frequently updated, and it's often best to ensure users have the latest software. Keeping users on the same major versions of applications can significantly reduce confusion and improve interoperability among business units.

As IT systems become more intricate, it's easier to consider a more complex solution that makes things simpler at the same time: A sophisticated self-service option for deploying software. Allowing users to select their unique software load takes the work away from the IT department and promotes more efficient use of software.

User Installation

At a basic level, self-service software distribution allows users to go to a web page and download software. Users need administrator accounts on their systems for many application installations, which does involve risk, but no IT administrators need to touch the computer, and no third-party software is required.

It's simple to create a license key distribution method at the same time, which allows users to get their own license key for a particular piece of software without a laborious purchasing process. Done well and with some policing, this can eliminate the need for site licenses when only a fraction of the users actually use a particular application. There's no easy way to reclaim licenses if they're not actively in use. You can eliminate the licenses in a site-wide deployment that would never have been used by requiring the user to request a license, even if only via a web-based form.

This model closely resembles what users do on their home systems, so it's usually easy for them to understand. Most application vendors have made the installation process simple, so little IT assistance is required. However, some applications, often custom-developed applications, may require some work before inexperienced users can easily do the installation on their own.

The Mac App Store

Organizations also can use the Mac App Store for user self-service options. Users can easily download free software. An organization can reimburse users for paid apps or distribute gift codes to download required software. Purchases from the Mac App Store can be redownloaded at no cost and may be useable on more than one system, depending on the organization.

Automated Installation

A number of client management suites now offer self-service portals. Many of these look and feel similar to iTunes. Users can "subscribe" to an application just by selecting a checkbox. A local management agent on the user's computer then installs the application for the user, so the user doesn't

need elevated privileges. Users provide credentials to ensure that only applications appropriate to their jobs or positions are installed.

After the user installs the application, one fewer license for the app is available, and IT can automatically track on which systems that application is installed. This becomes a powerful tool when patching is required. All known instances of an application can be automatically updated throughout the organization when patches are available, or users can be alerted and then given the option to update their software when a new version is available.

If a system is lost or damaged, the user's applications can be easily distributed to a new computer. This is similar to how Apple treats applications purchased for the iPhone and iPod touch in the App Store. Once users have purchased an application, they're notified of updates. Plus, users can redownload that application—to a new iPhone, for example—without buying it again. A lost phone can be replaced and quickly restored (minus any personal data, which has other methods of being backed up and restored) with almost no work on the part of the user.

You can also reclaim licenses. Many management suites offer application usage reports so IT departments can monitor the actual use time of an application. IT departments can then generate a regular report showing how often an application is used during any period of time. You can then pull applications that aren't being actively from the system and reclaim the license. This provides for precise reporting and perfect provisioning with no expenses for unused licenses.

Using a management agent also allows for some applications to be mandatory. This means users wouldn't have to make any decisions, and apps download automatically when the management agent first connects to the network. It's easy to create a short list of applications, such as office suites or antivirus software, that you may require.

Other Installation

It's not just applications that users can access through a self-service portal. You can also distribute corporate templates, common personnel documents, and software updates this way.

Users can employ self-service approaches to add printers or virtual private network (VPN) configurations, or even light IT tasks such as checking disk integrity. All of these can be done from a well-provisioned portal.

System Provisioning

Although applications make up the majority of the software load, they're not the only things that need to be on a new computer. Depending on the level of security required and the complexity of other aspects of the master image used in deploying new systems, you may need to add, edit, or remove operating system files and configuration settings. If you're using a management agent, you'll also have to get the agent onto the computer.

A self-service approach to provisioning systems eliminates IT's role in providing users with their systems. After all, it takes a lot of time for an IT

administrator to unpack a system, image it, and then repack and ship that system to the final destination.

Zero-Touch Model: Option 1

One approach to avoid initial system provisioning is to use the automated imaging capability that most hardware vendors and resellers provide. But a more streamlined approach is to just have the vendor install the management agent you'd like to use on your systems, and ship the system directly to the user, who can turn on the system and connect it to a network. After it's connected, the management agent can "phone home," apply all the critical patches the organization wants, and then provision the user account. This keeps the process fully automated but also ensures a baseline of functionality and assists the user.

Zero-Touch Model: Option 2

Another way to use the zero-touch model is to have the user acquire the system and then, as the only user with an administrator account on the system, install the required agents and other software to boot-strap the system into the corporate environment.

This could entail just installing the management agent from a publicly accessible website (although the VPN likely won't work until some basic provisioning has been done) or via an installation DVD shipped to the user with the system purchase.

It's even possible to avoid giving the user an administrator account by using a custom boot DVD to provision the management agent and then a basic user account.

Customer Self-Help (Tier 0 Support)

A significant factor in reducing support costs in a self-service model is improving and promoting self-help (or Tier 0) support options. These allow users to support themselves before seeking IT help. Better self-help means a more significant reduction on the later tiers of support.

A basic Tier 0 offering can be as simple as a mailing list. This can give users a way to both ask questions and to participate in answering those questions. An archive of the mailing list then becomes the seed for institutional knowledge in the organization.

Web-based offerings such as wikis and forums are also very effective Tier 0 support tools. Allowing users to give immediate feedback and constantly revise the materials keeps the documentation timely and relevant. It also allows IT departments to post notices and detailed information for users when needed.

You can coordinate screencasts and podcasts of specific activities with an online help desk solution. When filing a support ticket, users can first see educational tools and materials to solve the problem themselves. Done effectively, over half of all help desk tickets can be closed out before they're even submitted.

Community Relationship Managers

With proper planning and execution, you can create a Tier 0 support offering that grows on its own. Initial materials are required, but once enough users turn to the support offering, community relationship managers (CRMs) can be established. A CRM can be an IT employee whose role is to guide users and occasionally organize content. However, some organizations let users become CRMs. These employees aren't members of the IT staff, but are interested in helping other users. Such people can improve the overall support offering by providing real-world experience and personal interaction. They're also more often seen as peers instead of a separate team or department in the way IT staff can be seen in large organizations.

Effectively using CRMs who aren't IT employees requires promoting their development and successes. This can be as simple as giving them star ratings on the self-help forum, or something more substantial like public awards or incentives (such as updating a CRM's computer more often than normal).

Using CRMs isn't cost free. These users will have other duties that may not be done if they're helping users with IT issues on internal support sites. This cost, however, is hard to calculate—if it exists. Salaried workers' productivity is typically valued in terms of work produced, not hours worked. Therefore, CRMs won't necessarily produce less. Instead, many CRMs may find helping others to be motivating or interesting enough to accomplish their regular work in addition to supporting others, though they'll likely be further motivated by recognition or awards.

Backup

A robust application portal and a management agent can help with reinstalling applications and other system-level packages, but they won't back up user data. Depending on your backup service level agreements (SLAs), this may not be an issue. It's common for IT departments to offer no local backups and require users to manually store important information on network shared drives that are then backed up. A self-service model can greatly enhance backup with little to no impact on budgets.

Bring Your Own Backup

Most operating systems have some basic user backup. Apple offers Time Machine, an app that allows users to back up all their files, including system files and applications if desired, to an external hard drive. Users can restore files themselves and even do a basic system recovery if required. This protects against most common cases of data loss, although it doesn't provide for an offsite backup unless users are especially diligent about rotating backup drives.

The biggest danger with this method is the user may never know if the system is working until it's too late. If you use a management agent on a system, you can configure it to regularly check the backups. Such a configuration can ensure that the backup system is functional and creating new backups on a regular basis.

Commercial Backups

Commercial backup offerings now include online backup (as Software as a Service, or SaaS). For a relatively minor cost per year, users get a backup agent that pushes files to the provider's servers in the cloud. Users can still initiate their own restore process and have full control over what they're backing up.

This setup satisfies any offsite backup requirement at minimal cost. Although it's impossible to perform a basic backup or restore process this way, the important user information can be protected with no involvement by the IT department.

In most cases, the backup in the cloud can be encrypted, so you don't have to worry about storing sensitive data offsite with another company.

Internal Backups

Many vendors offer solutions that allow an IT department to host its own backup server in a data center. Users still have the same experience, including doing their own restoring. The organization maintains the back-end storage and, in return, you can increase backup quotas as needed.

This method is more complex but may be less costly. However, the primary benefit is the closer control over the backed-up data. For the most part, the user experience is the same regardless of whether the backup is kept internally or externally.

Security

A self-service model isn't necessarily an insecure model. You can use full disk encryption, antivirus software, and other methods to maintain security. The goal is to make their installation and use as easy as possible for users.

For most security functions, the ideal configuration is unnoticed by the user. Individual needs will vary, even within an organization, since users might need differing levels of protection.

Encryption

Using secure protocols, such as HTTPS and SSL VPNs, easily creates layers of security for data in motion. Users who do online banking may already be familiar with these protocols.

Data at rest requires a bit more preparation but is mostly unseen by the user when done right. FileVault is, the Apple app that encrypts all of a user's data, and even full-disk encryption solutions like PGP, Checkpoint, or WinMagic are seen only when a system is booting. They're otherwise running in the background while still securing data in case a portable computer is lost or stolen.

Hardware Support

With preparation of both application delivery and user backup solutions, hardware repair can become fairly simple. As long as users can get back to the application portal (or install the management client) on the same computer or a replacement, they can completely replicate their

environment from the last time they backed up. With that in mind, hardware support becomes a question of user convenience and desired SLAs.

A central location may have enough employees to consider operating a service depot. Apple offers a variety of support programs that allow customers to conduct warranty repairs on their own systems, including the option to stockpile parts. Organizations can maintain loaner pools of hardware so that users have an immediate replacement and can continue working while their computers are repaired.

A more hands-off approach is to use an authorized repair center or reseller. Users can also call to get a repair. A number of onsite service offerings are also available.

Infrastructure Reduction

A self-service portal can further reduce traditional IT infrastructure. If a user can add and remove applications with a management agent, even without an administrator account, what other services can you reduce? The first one to go is typically directory services.

Directory Services

In most corporations, the only user who will ever use a portable computer is the user to whom the computer has been assigned. Any materials from other users will always be delivered through an intermediary. A user will get files via email, a file share, or removable media. When the user does get the file, the user is the de facto owner of the file, so what's the point of providing authentication and identification services to the portable computer?

Portable computers are an easy place to reduce directory services, which can significantly reduce the demand on back-end services so that organizations can better use servers and other infrastructure. Desktop computers don't work as well with this approach because multiple users may work on them—and they're most likely hardwired into the network anyway.

Wireless Authentication

Another way to reduce infrastructure is with wireless authentication. Most portable computers are licensed for VPN access and wireless access at the same time, so the services overlap. At the same time, wireless authentication can be a difficult IT task because of competing vendors and standards.

Some organizations have seen this overlap and removed the wireless authentication. They follow a "coffee shop" model and allow wireless access but treat the wireless network as untrusted. The organizations then require portable computer users to use the VPN, similar to when they're on their home network (or any public network), to access internal resources.

Funding

A major component of the success of a self-service model is keeping the users interested in IT. Users who care about the functionality of their system will take better care of it, update it with software patches as appropriate, and generally use the system more responsibly.

Some users will take on this responsibility when organizations give them more trust. However, a more powerful method is to give users ownership of the computers.

Hardware Allowance

Giving users significant flexibility in choosing a system may be cost prohibitive, but organizations can give users a fixed allowance for hardware. The actual amount will vary, but it's usually enough to choose from a range of possible systems.

Employees might be provided with the allowance:

- As an amount that they're permitted to spend on a corporate purchase card
- As a choice from a set of systems, with or without costs charged to the individual or department
- As "IT flex dollars" that they get to purchase equipment
- As a cash stipend paid either all at once or over an extended period

Some companies still consider the computers a corporate asset, while others see them as a personal asset required as part of the job. In this situation, employees might buy a computer from a set of approved choices, paying for any overage out of their own pocket, or have total flexibility.

In return, the user gets to keep the computer after a fixed period of time—typically the same as the organization's normal computer refresh period. The merging of work and personal life in this model is designed to encourage users to be more creative and flexible in their work habits. Plus, users have direct ownership of their daily-use system and will likely take better care of it. Concerns about inappropriate or illegal material on the computer used for work are usually addressed with HR personnel policies rather than with IT enforcement.

Owned by User

An allowance in the employee's control is a very different approach for some organizations. A user-owned system is no longer under centralized control. Users might have non-work-related materials on their systems. In normal cases, having these materials on a work-owned system could be grounds for dismissal. However, if the user owns the computer, such materials must not only be permitted, but fully expected.

Reducing Support Costs

An organization can save money with a social self-support model. The primary savings will come from reducing the amount of institutional support a typical user needs. It's not uncommon for an organization to see a

50 percent reduction in help-desk tickets for users using Apple systems in a self-service environment.

The reduction in help-desk tickets allows IT personnel to spend more time being proactive about support instead of just answering the phone. IT departments using this model can focus on creating more self-help materials and other Tier 0 resources instead of reacting to user problems.

However, this model may conflict with support agreements your organization might have, especially fixed-price per-month support contracts that have no provision for savings based on reduced need.

Capital Expenditures vs. Operating Expenses

Depending on accounting regulations, moving from a company-supplied system to one that users purchase for themselves may move the expense from a capital expense to an operating expense. Depending on an organization's strategy and business situation, some may choose to switch from the typical capital depreciation approach to using operating expenses via an employee allowance.

User Satisfaction

Although a precise cost may not be measurable, users who choose a self-service environment and get the tools to succeed in that environment typically report a much higher satisfaction with both their computers and the support that they receive. When implemented properly, it's typical to find very high user satisfaction scores in these environments.

User Productivity

Organizations that have implemented this approach report that their users spend less time fixing issues than they would if they were waiting for IT departments to respond to their needs. Users get better service because they're not constrained by the normal support hours. Also, since most employees who choose this setup are already likely to tinker with technology, this model acknowledges and uses that desire to benefit the organization.

Putting It All Together: A Sample Scenario

You don't need to implement all the elements outlined in this white paper to see significant improvements in costs or employee satisfaction. However, to illustrate how all these elements come together, here's a sample scenario of what an organization might see when a new employee joins:

The new employee joins the organization and gets a computer acquisition budget. The employee is directed to a website where a variety of systems are offered. All the computers are notebooks, but some are more powerful than others. Some have longer battery life, and others are more lightweight. The employee picks a system and provides a personal credit card if the price of the system is over the allotted budget.

The computer is shipped overnight direct to the employee's desk with no special build or operating system. The employee gets a one-page instruction sheet that tells how to log on to the SSL VPN with a user name

and password. The system uses either a public Internet connection or the wide-open wireless network in the office.

Once connected with the VPN, the employee looks over a number of applications from an internal application store and chooses the applications that fit the employee's role. Self-help videos and screencasts walk the employee through configuring email and calendar clients. The employee picks from a collection of local printers with the help of a variety of automated systems.

As a last resort, the employee has the toll-free number for the basic help desk. However, it operates only between 10:00 a.m. and 4:00 p.m. on weekdays.

If a problem does arise, a variety of self-help forums and email lists are available for configuration issues. These resources have a collection of volunteer assistants that ensure the information is timely and correct. For hardware problems, the employee works directly through the reseller or manufacturer or uses the onsite repair depot run by a third party.

When not working, the employee is encouraged to put personal pictures and multimedia projects on the computer. The employee can back up personal data, in addition to work files, to an online backup service that allows for self-service retrieval.

At the end of three years, the employee keeps the old computer for personal use or recycles it for a small reimbursement amount. A new IT procurement budget is given to the employee, and the cycle starts all over again.

Conclusion

Organizations can save significantly with just a few of the ideas in this white paper. You must carefully create a self-service environment that's a good fit for both your users and your organization, and it's important to remember that not all these approaches work every organization.

For the greatest return, involve users early in this process and understand what will best address their needs. With every offering, balance the needs of users who might prefer a self-service approach and those who might prefer a centralized IT support approach.

Apple offers a number of solutions to facilitate self-service models, including initial setup for new systems, the Mac App Store, and the ability for organizations to maintain central repair depots or outsource repair services. For more information, contact your Apple account team or Apple Authorized Reseller.

10-12-2011