The Joy of Computing

Recipes for a 5-Star Library

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Getting Started

Every public library wants to "stir up" the interest of its community members by continually building and improving its services, particularly in the area of technology. So it's only natural (and logical) that a library would expand its wired patron computer services to include wireless Internet access for its patrons and staff.

Welcome to *The Joy of Computing — Recipes for a 5-Star Library*. In this Cookbook, you'll find all the ingredients you need to install a secure wireless network that can make it quick and easy for library patrons to find and use a wide range of information services. It also covers the issues of print management, as well as the key considerations for implementing and maintaining a sound laptop checkout program.

The primary purpose of this first section of the Cookbook is to give you a little taste of the topics covered. It also discusses the ways in which it can be used.

TOPICS COVERED:

- About This Cookbook

- How to Use the Cookbook

- An Introduction to the MaintainIT Project

About This Cookbook

This Cookbook is based on the ideas and feedback from librarian "chefs" throughout the country. Our chefs in residence are serving up their best ideas about wireless access for creating and maintaining a safe, wireless network that can enhance your library's value and operational efficiencies.

The Cookbook is divided into the following core sections:

- **Getting Started** discusses the ways this Cookbook can assist you in supporting wireless access in your library.

- **Meal Plan 1: Self-Service Internet Access: Setting Up a Wireless Network** covers the fundamentals of wireless networking, as well as some of the critical factors you need to consider before you start offering wireless access to patrons.

- **Meal Plan 2: Food for Thought: How to Avoid and Fix Wireless Networking Problems** discusses wireless access-point placement and wireless speed considerations. It also offers suggestions for increasing your library wireless network coverage and includes pointers on how to deal with other devices that are interfering with your wireless signal.

- **Meal Plan 3: The Four Seasons or Flo's Diner: How Much Help Should You Provide Laptop Patrons?** Focuses on laptop patron assistance and library wireless service. It takes a closer look at what's reasonable and feasible … and what's not.

- **Meal Plan 4: No Shirt, No Shoes, No Service! Wireless Acceptable Use Policies** highlights the "ins and outs" of using a wireless Acceptable Use Policy (AUP). It is intended to help you decide on the content needed in your AUP. It also covers the questions of Internet filtering on laptops and limiting wireless usage to only those with library cards.

- **Meal Plan 5: "We're Booked Through January:" PC Reservation/Time Management Software** goes over three different approaches to reserving computers and enforcing time limits: no system at all, a sign-up sheet or a software solution. It also provides a comprehensive list of features and criteria to consider should you decide to buy PC Reservation/Time Management software.

- **Meal Plan 6: Print Management** discusses the tricky issue of whether or not you should charge for printing. It also walks through three approaches to print monitoring and collecting printing fees. Printing from laptops and the criteria to consider if you decide to buy print management software are also covered.

- **Meal Plan 7: Laptop Checkout Programs** includes tips and recommendations for implementing a laptop checkout program. A growing number of libraries are using laptops as public computers. Laptops free up space, allow teens to settle in to a comfy space with a computer and, in general, offer more flexibility to all computer users. This section showcases the concerns over which libraries have deliberated when crafting a laptop checkout plan and includes their thoughts on securing, maintaining and filtering laptops for check out.

- **Appendix** includes helpful resources and samples for implementing a wireless network in your library.

WHO IS THE COOKBOOK FOR?

This Cookbook is for any library interested in learning about wireless, PC Reservation, print management and laptop checkout plans from the perspective and experiences of other libraries. It is geared toward the wireless access implementation needs of small to medium-sized libraries that:

- Are located in a community population of 10,000 to 25,000.

- Have access to technical assistance through county and/or regional or state agencies.

- Have an operational budget over $200,000 annually.

You should read this Cookbook if:

- You've heard about wireless or wi-fi and you'd like to know more before implementing it. As with all technology, there are a variety of questions to answer before you embark on implementation. This book will help you determine which solutions are worth considering for your particular situation.

- You're deliberating leaving behind the paper sign-up sheets and adding a PC Reservation system to your library, or you'd like to learn how other libraries maximize non-software-based solutions. You'll learn what questions to ask, where to look for answers and how other libraries are facing this challenge.

WHY THIS COOKBOOK WAS CREATED

We've gathered the many different challenges that libraries face when it comes to implementing new technologies such as wireless access. Typical issues and questions include:

- **Technical Concerns**—How difficult is it to set up and use a reliable wireless connection?

- **Budget**—Do you have enough money to support wireless access?

- **Staff Involvement**—What can be done to minimize staff time when it comes to helping patrons troubleshoot wireless issues?

- **Laptop Usage**—Should you craft a laptop checkout plan?

- **Security**—What are the privacy needs of your patrons and security of your existing network?

Also, when asked about the most challenging aspects of public computers, "printing" is the word heard most often. Sadly, this Cookbook can't offer a panacea for printer jams, but what it can do is discuss such issues as whether or not to charge for printing, what software is out there and, for those of you offering wireless access at your library, how to permit printing from patron laptops.

In response to these challenges, CompuMentor and the library community have developed this latest Cookbook.

WHAT YOU WILL BE ABLE TO DO WITH THE COOKBOOK

- Assess your library patrons' wireless needs and plan a secure wireless network.

- Improve your wireless bandwidth and minimize wireless interference.

- Determine how to appropriately implement library wireless service.

- Consider the pros and cons of offering a 24/7 wireless connection.

- Write and enforce a suitable wireless Acceptable Use Policy (AUP).

- Use a PC Reservation method and time limit option that works for your library and patrons.

- Better monitor printing and collection of fees.

- Implement a laptop checkout program.

How to Use the Cookbook

You can use this Cookbook in a number of different ways. If you are new to overseeing a patron computing environment, you should begin here and work your way through each section in turn. If you are more experienced but want certain information on a particular topic, you can go directly to the relevant section and review that material.

COOKBOOK CONVENTIONS

This Cookbook includes two sidebars that contain extra information and useful references.

	Notes from a Chef provides real-life examples and supporting quotes from library staff involved in sustaining patron computing services across the country.
	Other Tasty Recipes points you to related subject matter covered in this Cookbook or in other resources.

An Introduction to the MaintainIT Project

BACKGROUND

The MaintainIT Project is an effort of CompuMentor, home to TechSoup, a nonprofit serving fellow nonprofits and public libraries with technology information, resources and project donations. Funded by a three-year grant from the Bill & Melinda Gates Foundation U.S. Libraries Initiative, the MaintainIT Project (*http://www.maintainitproject.org*) focuses on proliferation and adoption of best practices for maintaining patron computers at libraries in the 18 states that receive hardware upgrade grants from the foundation. The ultimate goals of the MaintainIT Project are to increase the number of libraries with functioning, regularly maintained patron computing services and to strengthen their capacity for ongoing self-support of patron computing at both the individual library and regional library system levels.

The MaintainIT Project goals are rooted in the belief that public libraries can build on tremendous existing resources to create a rich body of technical knowledge. It involves getting the right people together, giving them the opportunity to share their learnings and communicating the results in the most relevant and usable format.

THE BILL & MELINDA GATES FOUNDATION U.S. LIBRARIES INITIATIVE

Since the late 1990s, the Bill & Melinda Gates Foundation U.S. Libraries Initiative has partnered with U.S. public libraries in their efforts to make patron computing available to all library users. To this end, the foundation's U.S. Libraries Initiative has given grants to over 11,000 libraries, resulting in installation of over 47,000 computer "packages," including suites of software (e.g., Internet, productivity, children's and educational material), training for librarians and long-term technical assistance. Today, the Bill & Melinda Gates Foundation U.S. Libraries Initiative continues to support public libraries and provide access to information technology that can improve health, educational and economic opportunities. The foundation also helps public libraries access the necessary tools to regularly upgrade their computers and receive the training and technical assistance they need. *http://www.gatesfoundation.org/UnitedStates/USLibraryProgram/default.htm*

COMPUMENTOR PROGRAMS

CompuMentor conducts a range of major programs on the national, international and local level. It powers the nonprofit technology Web site TechSoup.org (*http://www.techsoup.org*) and its distribution service for donated and discounted technology products, TechSoup Stock (*http://www.techsoup.org/stock*). It also collaborates with local and regional partners to bring technology implementation and support to nonprofit organization through the Healthy & Secure Computing program (*http://www.techsoup.org/toolkits/hsc*).

Self-Service Internet Access: Setting Up a Wireless Network

Ever since you started offering high-speed Internet access, your "restaurant" has been overflowing with customers. The wait for a table is sometimes over an hour. In a real restaurant, you'd hire more staff and find a bigger building with more seating space. However, in a world of shrinking budgets, librarian-chefs need to think about the most affordable options. So maybe it's time to serve up cafeteria-style Internet access, where the patrons just help themselves. In other words, you offer wireless Internet access, and your patrons use their own laptops rather than the library's public computers. Patrons who own a laptop or another wireless device often prefer to use their own equipment. Those who don't have a laptop tend to benefit as well because of the shorter wait times for desktop computers.

This section covers the fundamentals of setting up a wireless network for your library patrons. In it, you'll find some of the critical factors you need to consider before you dive into the world of wireless networking.

TOPICS TO BE COVERED:

- What Is a Wireless Network?

- Why Offer a Wireless Network to Your Patrons?

- Information Security in a Wireless World

- Creating Separate Wireless Networks for Greater Security

What Is a Wireless Network?

A wireless network is similar to a wired network, but instead of using cables, it communicates using radio frequency signals. There are dozens of different flavors of wireless networking: Cell phones, satellites and radios all communicate wirelessly. However, in this book, the term "wireless networking" refers to a technique for interconnecting computers wirelessly at the building level. This kind of wireless network is sometimes referred to as wi-fi, an 802.11 network or a "wireless local access network (LAN)" or "WLAN." These networks have a radius of 300 feet under ideal circumstances. Throughout this book, the terms "wireless network" and WLAN will be used.

At a minimum, there are three pieces to a wireless network:

- First, there's the **wireless access point** (discussed in more detail later in this section). The center of a wireless network acts like the hub, or switch, of your wired network, though it also has many of the features of a standard router. On one side, it connects to the Internet, usually through a standard Ethernet cable, and on the other side, it broadcasts a wireless signal

- Also, there are "**wireless devices**." These are the computers and gadgets that use the access point in order to hook into your network and your Internet connection. The first wireless device that comes to mind for most people is a laptop computer. However, there are hundreds of gadgets that can access wireless networks these days. Library patrons use cell phones, smartphones, personal digital assistants (PDAs), personal gaming devices (like Playstation) and more to connect themselves to wireless networks. Through the rest of this book, "laptop" will be used as shorthand for all of the wireless devices out there.

- Each wireless device has a **wireless network adapter**—a specific piece of hardware that connects a computer to a WLAN. Wireless adapters come in all shapes and sizes. Some adapters are built into the computer. Others need to be purchased separately and then plugged into the Universal Serial Bus (USB) port or PC Card port.

A Basic Wireless Network
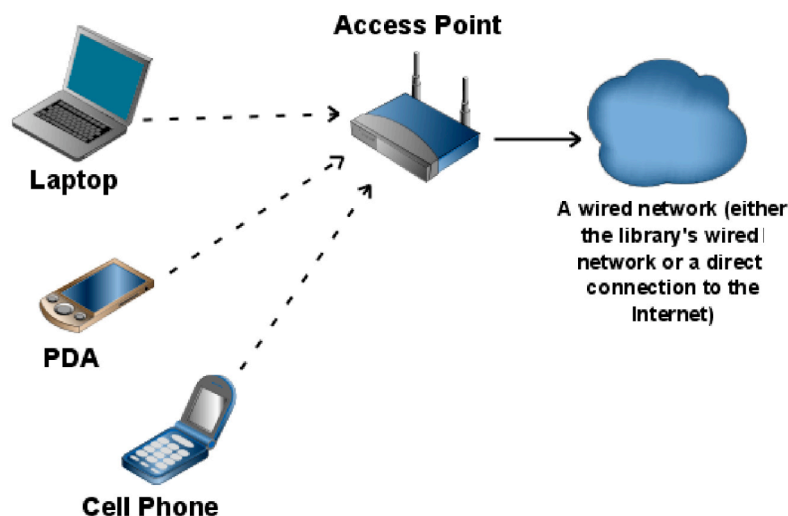
Why Offer a Wireless Network to Your Patrons?

The obvious answer is that patrons are asking for wireless access. It's convenient for them because they frequently carry their documents and personal information around on their laptops and handheld devices. When using the Internet on their laptops, they don't have to make any configuration changes or copy any files. They can just connect and start working. Furthermore, they don't have to wait in line and use the computer in 30- or 60-minute chunks, as they do when they're using the library's wired computers. Also, patrons without laptops benefit because the lines for the public computers are shorter.

According to a recent article in eWeek, 2007 will be the first year that major PC manufacturers make more money from laptop computer sales than they do from desktop sales[1]. Also, wireless is now available in 54.2 percent of all public library branches[2], so patrons are beginning to expect it, especially those who know how cheap and easy it is to set up an access point.

Notes from a Chef

The Why Behind Wireless

"Patrons love it. One teenager walked into one of our libraries the first day they got wireless and literally screamed, 'This is the happiest day of my life!' I love that story, because I've been really worried about that kid ever since, but he was really thrilled to think that that was available. And of course, visitors and tourists love it."

Linda Lord
Maine State Library, ME (reporting a story from Inese Gruber, Windham Public Library, ME)

"We upgraded our bandwidth and with the package we saved enough money to add the wi-fi. Weird, huh! But, that and patrons "hounding" us to get with the act, is how we came about getting the wireless Internet. I love having wireless; it has made life easier with bandwidth not being such a bugaboo. Nice technical term!"

Annie Adamson
Caldwell Public Library, Caldwell, ID

MEAT AND POTATOES: YOUR WIRELESS NETWORK

You can get started with wireless networking for somewhere between $50 and $80 if you don't need any advanced features. Thousands of libraries today are using this most basic of wireless recipes. Linksys, DLink, Buffalo, NetGear and dozens of other companies sell low-cost access points for use in homes and small businesses, and they're a perfect fit for many libraries. Before setting up an access point and making it available to the public, you have to make some decisions with regards to security and acceptable use policies. (For security, see the rest of this Meal Plan. For acceptable use policies, refer to Meal Plan 4.)

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[1] Ferguson, Scott, "Will the Notebook Market Hit a Tipping Point in '07?" *http://www.eweek.com/article2/0,1895,2074603,00.asp*, accessed on October 24, 2007.
[2] American Library Association, "Libraries Connect Communities: Public Library Funding and Technology Access Study" *http://www.ala.org/ala/ors/publiclibraryfundingtechnologyaccessstudy/section1.pdf*, accessed on October 24, 2007.

Overall, the learning curve for installing and configuring an access point is fairly minimal. Here's what you'll need:

- A computer (either laptop or desktop) with a Web browser

- An Ethernet cable

- A network port (i.e., a connection to your wired network)

- An electrical outlet

The instructions that come with your access point will have more specific setup information. You may need to get some information from your Internet service provider (ISP) or your network administrator, if you have one. During this process, you should print a copy of the main configuration page(s) for your access point. Also write down the access point's username and the password you assign. Be sure to store these in a secure location.

Finally, write down the access point's networking information. Access points usually have two sets of networking numbers. On the wired side, the access point has an Internet Protocol (IP) address that it uses to communicate with the other devices in your library or with your ISP, if it's connected directly to the Internet. Chances are this IP address is assigned dynamically. On the wireless side, the access point will have a static IP address that you assign (the access point will suggest a number, usually in the 192.168.x.x range). At the same time, again on the wireless side, the access point will probably act as a Dynamic Host Configuration Protocol (DHCP) server, handing out IP addresses to all the laptops in the library. For more information on all these networking terms, see the glossary or check out the "Networking Basics" section in "Other Tasty Recipes" at the end of this chapter.

Before you offer wireless access to the public, you should also ask: Does offering wireless violate the terms of the contract you signed with your ISP? Some ISPs place limits on how you use a high-speed connection, especially if you're leasing that connection. If this is the case, you may need to renegotiate your contract or find another ISP.

IF YOUR NETWORK NEEDS A BOUNCER, USE A WIRELESS GATEWAY

An access point is OK when you only have a few wireless patrons every day, but when you have dozens of laptop users in the library every hour, things could get a little rowdy. If this describes your situation, you might need to purchase a bouncer for your wireless network. A wireless gateway gives you the muscle you need to keep your wireless users in line.

Wireless gateways add functionality to your wireless network. If a few patrons are hogging all your wireless bandwidth, a gateway can help set limits on the amount that any one person can download. If you want to brag to your board about how much patrons love the new wireless network, a gateway can help you generate usage reports. Bear in mind that *a wireless gateway is usually something you must buy* in addition to your wireless access point. It doesn't replace your access point. Wireless gateways start at $150, but they can run more than $1,000. Also, they vary in their functionality, so be sure to do some investigation before you buy. In general, wireless gateways have a steeper learning curve than access points.

E-RATE

Also, keep in mind as you're shopping for wireless equipment and services that some of these costs may be eligible for E-rate discounts. If you decide to buy a second Internet connection for your wireless network, that may be eligible for discounts, too (for more on obtaining a second Internet connection, see "Creating Separate Wireless Networks" on page 14 of this Meal Plan section). E-rate is a complex program, so contact your sate library's E-rate coordinator for more advice on getting started.

Also, check out "Other Tasty Recipes" at the end of this chapter for other E-rate resources. Appendix G in this cookbook provides a more detailed look at E-rate reimbursements and associated rules.

Notes from a Chef

A Bandwidth Debate

"The debate is as libraries we try to provide free services to accommodate people, but in our instance the bandwidth is an issue. If people are sitting outside taking our bandwidth, we're getting no benefit for what we're paying for and it's affecting what we do. At this point, we're struggling with that whole issue of where to go forward with strengthening and getting more bandwidth, especially in so many diverse locations. I finally decided that I really think we need to ask patrons to have a card so that we're at least getting the benefit of the statistic and it's inside. I know Philadelphia has the city going to a wi-fi zone, and other libraries are looking back and forth on that. Generally, our attitude is what we can do to accommodate, we try to do; but for smaller library systems like ours, the bandwidth is going to be an issue. I also think that it's going to be an issue of what can we afford."

Connie Barrington
Imperial County Free Library, CA

HIRING A CATERER: WORKING WITH A HOTSPOT PROVIDER

You're not the first person who's heard the words "public wireless network" and felt overwhelmed. You're already preparing 10 other meals, the eggs are burning and the soufflé is falling. The time has come to call in a caterer and outsource this particular course on your library's menu. In the wireless world, these caterers are known as *hotspot providers*. A hotspot is any publicly available wireless network that is available by intent[3]. Hotspot providers generally do any or all of the following functions:

- Do all the tech support.

- Supply the equipment.

- Help with the marketing.

- Provide a Web-based management console that you can use to monitor and control your hotspot. Perhaps most importantly from a librarian's perspective, many hotspot providers will handle all of your patrons' tech support questions. Asking your circulation and reference staff to handle dozens of laptop connection problems

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[3] PC Magazine, "Setting Up Your Own Hotspot," *http://www.pcmag.com/article2/0,1895,1905455,00.asp*, accessed on August 27, 2007.

every day impacts their ability to perform all their other crucial librarian tasks. Hotspot providers usually charge between $300 and $500 for initial setup and installation. In addition, they then charge you a monthly service fee.

Wireless Access Outsourcing

"We outsource our public wireless access. When I first got to Scottsdale Public Library in 2003, the network administrator was starting a pilot project with a homegrown wireless system. It was great because we could finally provide the free wireless access the public had been asking for. But it wound up taking a big toll on the front-line staff because people were coming up and asking them to troubleshoot their laptops. Not only did the staff not have time (troubleshooting access issues on an unfamiliar computer can be very time consuming), a lot of them didn't have the technical knowledge to do it. This put the front line staff in the position of not being able to deliver good customer service.

That's when we ran across Ethostream, a company whose primary business is providing wireless access for hotels. The best thing about them is that they provide you an 800 number to give directly to your customers. So, we have a little bookmark that we hand out with basic configuration information and the number to call if they have problems.

Generally people don't have to do any configuration; they just open up their browser and are online as soon as they accept Ethostream's acceptable use policy. Should they have any problems, they can call the 800 number and talk with an Ethostream help desk technician who will help them work through their configuration issues. Since most everyone who has a laptop also has a cell phone, it's a great solution."

Aimee Fifarek
Scottsdale Public Library

Most small and mid-sized libraries can get by with a commercial hotspot provider for the services they need. However, there are a few features that you can only get by partnering with your Integrated Library System (ILS) vendor (ILS refers to your online catalog). In most cases, these extra features are probably not worth the additional trouble and expense. However, if you want your wireless gateway to connect to your patron database, you should talk with your ILS vendor.

For more information on setting up a wireless hotspot, either on your own or in collaboration with a provider, see the "Hotspot Providers" resource links under "Other Tasty Recipes" at the end of this Meal Plan.

Information Security in a Wireless World

As with so many things in IT, security is a matter of balance and trade-offs. The most secure option for any computer or networking device is to shut it off and lock it in a bank vault. Of course, at that point, it's not very accessible or usable. So in the following two sections, bear in mind that you have to strike the right balance between security on the one hand and accessibility/usability on the other hand. The wireless network has to be relatively user-friendly for your patrons, but it also has to be user-friendly for you and your staff in terms of the amount of time it takes you to administer and maintain the equipment. However, if your network is too open and too insecure, in the long run, no one will be able to access it, because it'll be down for repairs all the time. At every step along the way, you'll need to think about how each decision affects your network's security and how it affects your network's accessibility.

PROTECTING YOUR LIBRARY

An open wireless network can pose a risk to your library if it is not secured properly. Here's how to minimize problems:

- **First, change the administrative password on your wireless access point or wireless router!** Most name-brand access points come with a fairly simple, well-known default username and password. Therefore, anyone with a laptop who knows the default admin password could drive by your building, connect to your access point, take it over and lock you out. You could reclaim control by restarting the access point and clearing all settings, but you'd have to reconfigure it. However, anyone who's used the access point in the meantime has had their security compromised.

- Be sure to document your password in a secure place, so that only those people who need access to it can get it when needed.

PROTECTING YOUR PATRONS' PRIVACY

As a very discreet and exclusive establishment, you'd like to ensure that every customer in your restaurant has a private room and a private entrance. Unfortunately, in terms of time and money, it's almost as difficult to make a wireless connection totally private for every patron as it would be to make a restaurant satisfy everyone's needs. Most libraries don't consider it their responsibility to protect the data and privacy of patrons who are using their free wireless access. However, if you'd like some more information on this subject, see this article on TechSoup concerning encryption, virtual private networks (VPNs) and other steps laptop users can take to protect themselves.
http://www.techsoup.org/learningcenter/internet/page6044.cfm?cg=searchterms&sg=encryption

Creating Separate Wireless Networks for Greater Security

As another security measure, you should seriously consider separating your wireless network from your staff computers, your Web server, your ILS and other sensitive machines containing patron records or financial information. Remember: When patrons connect to your wireless access point, their laptops could have almost anything installed. A laptop might be crawling with every known worm and virus, or it could have dozens of hacking utilities that can bring down your network. Prevention beats cure every time. However, there are a few complex decisions you have to make before you divide your network.

First, you may need to think about your overall network design. How will your workstations, servers and other devices connect with each other, and what sorts of barriers will you put between different segments of your network? This is a complex decision with many possibilities. It also has implications for how you spend your technology budget. If you design your network poorly, you may end up spending money on expensive equipment that you don't really need. Try to find a networking consultant to help with this decision. Your state library or your regional library consortium may have this sort of expertise on staff. If not, they can probably refer you to someone who does. Or, your local school system or county government may have a knowledgeable person available. Also, some ILS vendors provide this kind of consultation for a fee.

For the purposes of this section, we'll assume that you've thought about your network design and now you're just wondering how wireless fits into it. What are the various techniques you could use to make sure that the laptops don't have too much communication with the other computers in your library?

Libraries have lots of options when it comes to dividing their network. Here are three basic design approaches to creating network segments.

Option A: A lot of libraries just throw the laptops to the wolves, in a manner of speaking. In other words, they place the access point outside of the library's firewall and plug it directly into the router, the cable modem or the Digital Subscriber Line (DSL) modem (see the diagram below). The presumption here is that laptop users connect to unsecured access points all the time in coffee shops and hotels, so they're already prepared for the worst.

Laptops Outside the Library's Firewall
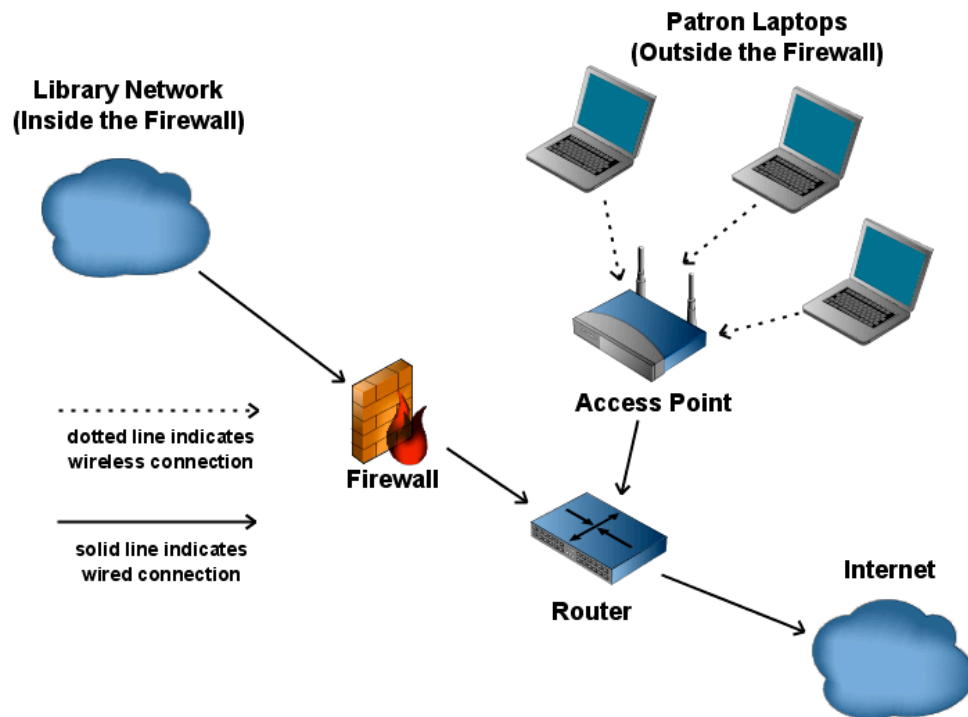
Option B: A variation on the Option A approach is used by the Missoula, Montana Public Library[4] and other libraries. Instead of putting the access point somewhere on their existing network, they've purchased a second Internet connection specifically for wireless users. This is as segregated and secure as you can get without moving laptop users into another building. With this approach, laptop users in your library can cause problems for other laptop users, but they cannot infect the library-owned equipment. Not only do you get extra security benefits from this approach, but you also ensure that laptop users won't hog the bandwidth on your primary connection and slow down your wired public computers and staff computers. At first, this approach may seem more expensive, since you're paying for a second Internet connection month in and month out. However, in the long run, it may save you money on expensive networking equipment and maintenance. A single virus or worm let loose on the library's wired network can take you and your staff days or weeks to clean up.

If you haven't already hit up your cable or phone company for a free Internet connection, now might be the time to try. Some cable and phone companies are *required* to offer free high-speed Internet to schools and libraries according to the terms of their local franchising agreements. However, many cable companies will offer free connections to schools and libraries, regardless of whether or not they're required to do so. For more information on how to ask your cable company for a free connection, see *http://www.ciconline.org/get-cable* and *http://www.ciconline.org/locator*.

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[4] Semmelroth, Jim, "Wireless Success: Missoula (MT) Public Library," *http://www.webjunction.org/do/DisplayContent?id=10998,* accessed August 13, 2007.

The diagram below may give you a better sense of what your network will look like if you take the Option B approach. Bear in mind that the exact type of equipment and high-speed Internet connection may be different in your situation.

One Network for Library-Owned Equipment and Another for Patron Laptops

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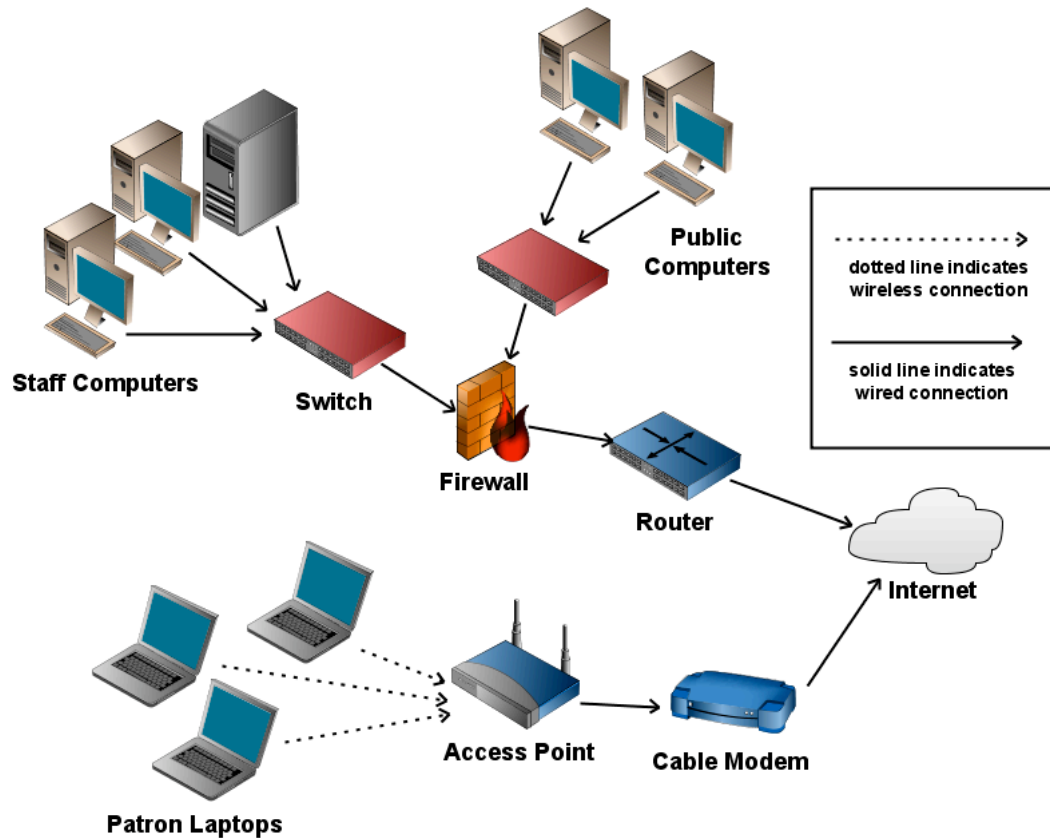
Making the Right Connection with Free Cable Access

"Some of the local cable companies are actually donating some lines to the library. I know over in east Tennessee, I've got several of the cable companies that are providing free cable access to libraries that want to get a second line, or just a second static IP address to provide wireless. To me, it makes really good sense, because you're not only saving your bandwidth, you're also eliminating security concerns from curious folks sniffing across your network for information that you don't want them to get."

    Brad Leek
    Tennessee State Library

Option C: Some libraries are concerned about tossing their laptop users out into the open Internet, so they decide to bring them back inside the firewall. However, with this option, you still have to provide some sort of separation between your patron laptops and your staff computers. There are many ways to accomplish this.

Most organizations would rely on a firewall in this situation. A firewall is a system designed to prevent unauthorized access to or from a private network. A firewall can be a hardware device, a piece of software or a combination of both. If you have an existing firewall with a spare port, you can plug your access point into that. If not, you may have to buy an additional firewall. Bear in mind that firewalls are expensive and they often have a steep learning curve. If you don't have the requisite expertise on staff already, you'll need to contract with a networking/security expert to help you purchase and configure your firewall.

Another advanced solution, which would also require advice and assistance from a networking expert, was implemented by the Fort Collins Public Library (Zhao). For more information about their Virtual Local Area Network (VLAN), go to *http://www.webjunction.org/do/PrinterFriendlyContent?id=12368*.

The diagram below only works if you own a firewall with several ports or if you own more than one firewall. If you only have two or three ports available on your firewall, you may need to put the staff computers and the servers on the same network segment. Or you may want to consider option A or B above.

Laptops Inside the Library's Firewall
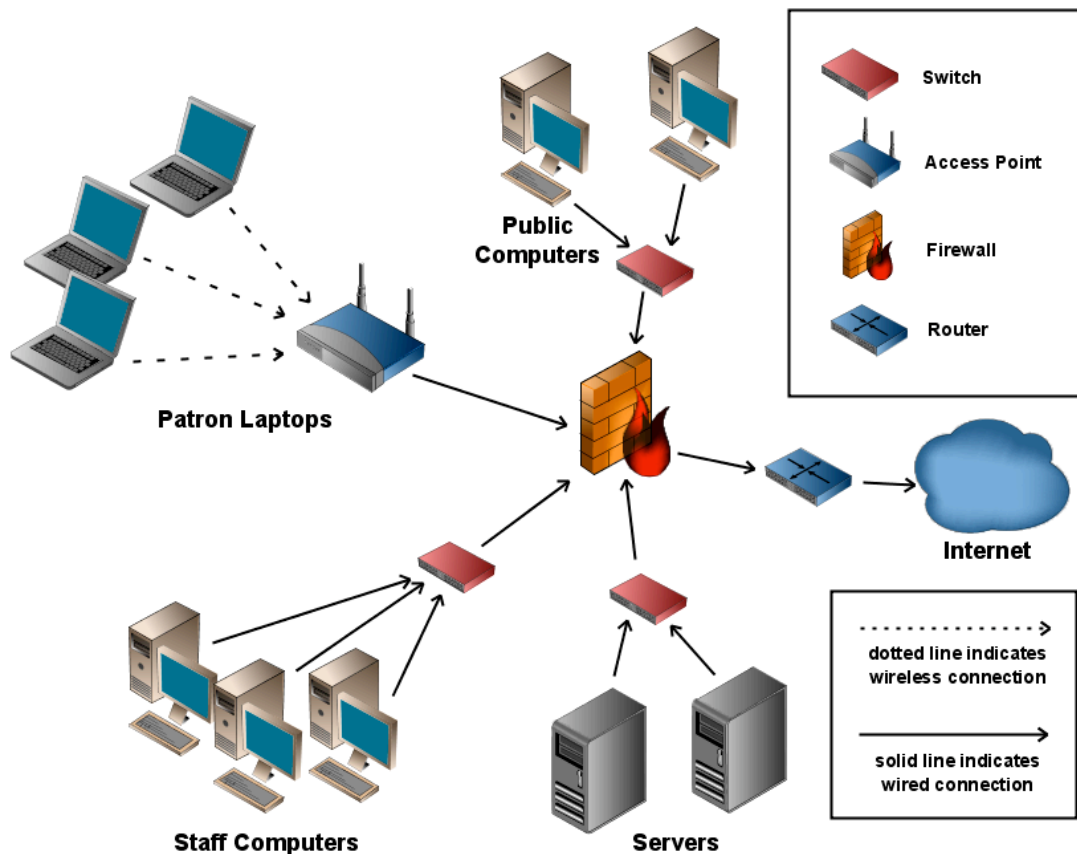
Wired for Protection

"The wireless network is on a totally different network — actually, two different networks — because every wireless access point that we have is divided into two areas, the public and the private. Both of those are on separate networks from the public terminal network. Now, the user never knows that. I mean, it still gets them to the Internet, it still gets them to the same services that they're trying to get to, they just don't realize that they're on totally different networks."
Jim Buston
Auburn Public Library, Auburn, AL

Wireless Options Comparison

Sorting through the variations of this approach can be confusing. You might want to talk to an experienced network consultant first.

The chart below is an overview of the options discussed

SOLUTION	WHY?	COST	TIME AND LABOR
Access point	Basic wireless connectivity	$50 to $80	One to two hours
Wireless gateway	Increased control over your wireless network	$500 to $1500	Variable, depending on what features you want, but gateways are more difficult to configure than a regular access point
Hotspot provider	Ease of maintenance	$500 to $1000 startup cost and $50 per month	Depends on your package, but providers often perform all setup and troubleshooting for you and your patrons
A second Internet connection	Improved security	$25 to $50 per month	One to two hours
A firewall with separate VLANs	Improved security	$500 to $1500	Variable, but firewalls are complex devices, and you may need outside help to configure it properly

Networking Basics

■ Networking Basics
WebJunction
A series of short articles on basic networking principles.
http://www.webjunction.org/do/Navigation?category=519

E-Rate

■ E-rate basics
A quick overview of E-rate concepts and terminology.
http://www.kelloggllc.com/erate/primer_06.pdf

■ Schools and Libraries Program – USAC
The official E-rate Web site for schools and libraries.
http://www.usac.org/sl

Computer Security

■ Secure Computing: The Key Ingredients
TechSoup
An overview of the most important security software and strategies to protect your computers and patrons from harm.
http://www.techsoup.org/learningcenter/software/page5500.cfm?cg=searchterms&sg=security

■ *Firewalls and You*
TechSoup
An in-depth look at firewalls: what they are and how to defend your technology with them.
http://www.techsoup.org/learningcenter/networks/page4818.cfm?cg=searchterms&sg=firewalls

■ *Keeping Software Up to Date on Public Access Computers*
WebJunction
A discussion of the importance of software updates and a handy table to guide your updating of some popular software titles.
http://webjunction.org/do/DisplayContent?id=11946

Hotspots

■ Wireless Hotspot Information Page
Paris-Bourbon County Library, Kentucky
http://www.bourbonlibrary.org/wireless.htm

■ Setting Up Your Own Hotspot
PC Magazine
http://www.pcmag.com/article2/0,1895,1883666,00.asp

- *Small Business Guide to Building Your Own Hotspot*
  JiWire
  Though this article comes from an advertising company and is aimed at small business owners, it's a comprehensive comparison of several hotspot products, providers and considerations for those thinking about building hotspots.
  http://www.jiwire.com/small-business-guide-to-building-your-own-hotspot-why-be-a-hotspot.htm

- Wireless Networks Connect Libraries to a Mobile Society
  Library Technology Reports
  An article with some information about partnering with an ILS to set up a hotspot.
  http://www.librarytechnology.org/ltg-displaytext.pl?RC=11183

- Information Technology and Libraries (ITAL) published by LITA (Library and Information Technology Association) has a good article on setting up a wi-fi hotspot using entirely open-source software. Feher, Jim and Tyler Sondag. "Open Source Wi-fi Hotspot Implementation." **Information Technology and Libraries** (*ITAL*) (ISSN 0730-9295). v.26, no. 2, June 2007. pages 35 -43.

Hotspot Providers

- Surf and Sip
  This provider's page on their Internet-Café-In-A-Box wireless networking product.
  http://www.surfandsip.com/ps_local

- Ethostream
  Includes descriptions of EthoStream's four hotspot packages, including details about their library solutions.
  http://www.ethostream.com/solutions.php

- Public IP
  The home page for a free public hotspot based on Linux.
  http://www.publicip.net

- *Sputnik Express*
  A description of this vendor's solution for free hotspots (free for your patrons, but your library will have to pay a monthly fee).
  http://www.sputnik.com/products/snet/sputniknet_express.html

- Less Networks
  http://www.lessnetworks.com/index.php

Separating Your Wireless Network from Your Wired Network

- *Planning and Implementing a Library Network Split*
  WebJunction
  A detailed look at some strategies for separating your public computer networks to protect your administrative and staff computer networks.
  http://webjunction.org/do/DisplayContent?id=12368

- A More Technical Look at a Strategy for Separating Your Public Computer Networks from Your Administrative and Staff Computers.
WebJunction
Wireless Success: Missoula (MT) Public Library
http://webjunction.org/do/DisplayContent?id=10998

Other Resources

- Blog and Wireless Technology Information Archive of Bill Drew, Tompkins Cortland Community College Library in New York.
 Wireless Libraries
http://wirelesslibraries.blogspot.com

Wireless

- *Maine Learning Technology Initiative* –
"The Maine Learning Technology Initiative (MLTI) is a statewide program intended to "transform Maine into the premier state for utilizing technology in kindergarten to grade 12 education in order to prepare students for a future economy that will rely heavily on technology and innovation." (Task Force on Maine's Learning Technology Endowment, 2001, p. vi)."
http://www.maine.gov/infonet/wireless/support/index.htm
http://www.maine.gov/mlti/about/index.htm

Personal VPNs and Staying Safe When You're Using a Hotspot

- Five Tips for Secure Wireless Web Surfing
TechSoup
Information you can offer patrons who want to protect themselves and their computers
http://www.techsoup.org/learningcenter/connections/page5998.cfm

- *Hotspot Shield*
AnchorFree
Free software that encrypts and protects data transmission over wireless and wired networks. Based on virtual private networking technology, described in the TechSoup article above.
http://www.anchorfree.com/hotspot-shield

Wireless Encryption and Authentication (WPA-2)

- *Wireless Security for a Small Library: One Library's Solution*
WebJunction
How the Blackfalds Public Library in Alberta gives patrons a choice of open or protected wireless networks. Includes an illustration of their network.
http://webjunction.org/do/DisplayContent?id=10992

Fast Food — Meal Plan 1 Summary

- At a minimum, there are three pieces to a wireless network: a wireless access point, wireless devices and the wireless network adapter.

- If you don't need advanced features, you can get started with wireless networking for somewhere between $50 and $80.

- Linksys, DLink, Buffalo, NetGear and dozens of companies sell low-cost access points for homes and small businesses, but they're also a perfect fit for many libraries.

- Remember, some of the costs for wireless equipment may be eligible for E-rate program discounts. A second Internet connection for your wireless network may also be eligible.

MENU 1 CHECKLIST

❑ Set download limits for users.

❑ Use a hotspot provider to do any or all of the following functions:

- Tech support

- Supply equipment

- Marketing assistance

- Web-based management console to monitor/control your hotspot

- Answer patron questions

❑ To protect your library in a wireless network environment:

- Change the administrative password on your wireless access point or wireless router!

- Be sure to document the password in a secure place, so people who need access to it can get it.

❑ As a security measure, separate your staff computers, your Web server, your ILS and other sensitive machines containing patron records or financial information

❑ Try asking the cable or phone company for a free Internet connection. They may do it!

❑ Go to *http://www.usac.org/sl/tools/eligible-services-list.aspx* to see whether the specific wireless products and services you are interested in are eligible to receive E-rate program discounts.

Food for Thought: How to Avoid and Fix Wireless Networking Problems

Your waiters keep crashing into each other, the hostess can't find the reservations book and you've run out of eggs and milk. You have management issues and workflow problems. Just like a restaurant, a wireless network requires careful planning and supervision.

Are you 20 feet away from your access point, but your laptop can't connect? Is your wireless network slow? These are just a few of the issues addressed in Meal Plan 2. This section discusses wireless access point placement and wireless speed considerations. It also offers suggested actions for increasing your library's wireless network coverage and includes pointers on how to deal with other devices that are interfering with your wireless signal.

TOPICS TO BE COVERED:

- Access Point Placement

- Site Surveying

- Improving Your Wireless Bandwidth

- Minimizing Wireless Interference

Access Point Placement

In a small library, you might be able to plug in your access point behind the circulation desk and call it good. However, in larger buildings, finding the right place for your wireless equipment requires planning. First, you should keep the equipment away from curious or sticky fingers. Mounting your access point on the ceiling or high up on a wall will usually accomplish this. An elevated location also has the benefit of extending the range of the wireless signal.

Keep in mind that when you're planning your wireless network, the access point itself isn't wireless. It always has at least one wire attached to it. It needs power and a way to somehow hook into your wired network. It would make perfect sense to assume that your access point needs to be near both a power outlet and a data port (aka a network port or an Ethernet port). However, if you have to put an access point in a space that lacks power outlets or data ports, there are two new technologies that can help. You still need one or the other, but you don't need both.

- **Power Over Ethernet (PoE)** delivers electricity to a device over the Ethernet cable, so this technology may make it easier to put your access point on the ceiling or high up on the wall.

- **Powerline Networking (aka Powerline Communication)** should be considered when there is a power outlet but no Ethernet port. It can transmit high-speed data across the power wires in your building. In other words, using this technology means you won't need an Ethernet port near your access point.

Also, think about where patrons will use their laptops and make sure that the signal from your access point reaches all or most of those places. An access point signal will usually extend for about 300 feet in ideal circumstances. However, it's impossible to say for certain how good the signal will be in your particular building with your specific brand of access point. Certain materials, such as concrete, books and metal, can weaken or distort a wireless signal, so the range of your signal depends very much on the design and construction of your building.

Notes from a Chef

Getting Wired for Wireless

"For the public side, it was just the case of going around and basically duct-taping boxes to the wall trying to get a signal. We got a couple of quotes in, and I went up to a library up in Henderson and had a look at their setup. We ended up going with a G standard box because I think we were being quoted for B and I wanted to get something that would help us out maybe later on down the road with the network infrastructure if we wanted to stream stuff down locally, so we got that in."

Terry Caudle
Madisonville Public Library, KY

Notes from a Chef

Running Interference

"If there's metal between the walls, or if it's two story — we've got three-inch concrete floors sitting on a corrugated metal slab — you are going to have interference with wireless signals, The height of the stacks and the water content in the books are going to interfere also."

Brad Leek
Tennessee State Library

Site Surveying

You can roughly measure the strength of your signal by carrying a laptop around your library and seeing how many "bars" you get. On a Windows XP machine, you'll see one to five bars in the lower-right corner of the desktop, and more bars indicates a stronger signal. To get a more precise wireless signal measurement, you'll have to download special software or buy a device specifically designed for this task. NetStumbler software is free, and there are numerous other programs to help with this process, also known as a site survey (see "Other Tasty Recipes" in this section for links).

Putting your access point in an elevated location away from the library shelves may help to maximize the range of your signal. Also, you can buy a wireless repeater. This device will receive a wireless signal and then retransmit and amplify that signal (i.e., "repeat"), which could effectively double the size of your wireless network. However, a repeater will also cause your wireless network to slow down somewhat. There are several brands of repeaters on the market to choose from, or you can configure a regular access point to act as repeater.

Instead of using repeaters, you can also just set up a second access point in remote areas of the building.

Notes from a Chef

Maximizing Coverage with Wireless Repeaters

"We've got repeaters in our headquarters branch and in our two large branches, and we basically just have it set up to auto exchange information. If a person turns their laptop on downstairs they should see it, just like you would in Starbucks, you'll see, 'Hey, you've got this wireless connection available. You can click on it and connect.' "
  Michael Fettes
  Alachua County Library District, FL

Notes from a Chef

Two Locations … Two Access Points

"We have two access points. One on the main floor. One in the children's library, which seems to cover everything okay. And it seems to work fairly well."
  Jerry Carbone
  Brooks Memorial Library, Brattleboro, VT

Improving Your Wireless Bandwidth

In most home and small office environments, one wireless access point is all you need. This is because in every network, the segment that matters the most is the slowest segment, also known as the bottleneck. For example, in the diagram below:

- Imagine that a laptop user (A) wants a page off of a Web server on the Internet (C).

- If the speed between the laptop and the access point (A to B) is 10 megabits per second (Mbps), but the speed between the access point and the Web server (B to C) is only 1 Mbps, buying a second access point won't make any difference. **The Internet connection is the bottleneck.**

- If, however, you have 15 or 20 wireless patrons using your wireless signal at the same time, the bandwidth available to any one patron could shrink considerably. In other words, **your wireless access point is now the bottleneck**. If laptop users start complaining and your wireless access feels a lot slower than your wired access, you may need to invest in a second access point.

| Laptop | Access Point | The Internet | Web Server |
| A | B | | C |
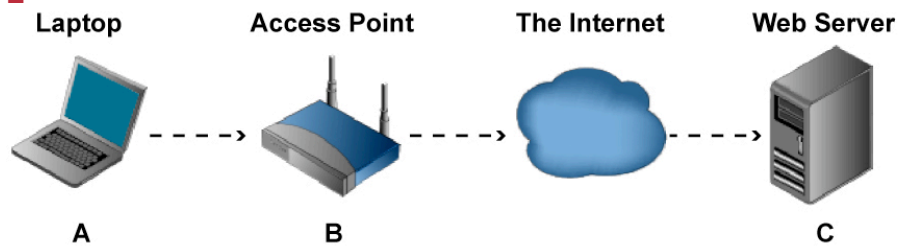
🎓 **Notes from a Chef**

Wireless Bandwidth

"In our library, he told me that 10 to 15 computers work nicely and the network won't be bogged down."

Annie Adamson
Caldwell Public Library, Caldwell, ID

Minimizing Wireless Interference

Today's wireless equipment usually operates in the 2.4 megahertz (MHz)-frequency of the electromagnetic spectrum. Unfortunately, there are several other common devices that use this same frequency. For instance, cordless phones, microwaves and garage door openers operate in the 2.4-MHz frequency. Cordless phones are especially troublesome, since they're so prevalent. Try to keep your access point away from these devices. Also, you can try switching to a different wireless channel, a process described in "Power Over Ethernet," the first link under "Other Tasty Recipes" in this section.

If you address the following questions, you'll be in good shape:

- Is your access point physically secure? Or will it walk away the first time you're not looking?

- Can your access point get power and also hook into your wired network? Or will you have to string cables and extension cords all over the building?

- Can laptop users connect to your access point from all the major study areas in your library?

- As more and more laptop users visit the library, is your wireless connection slowing down to a crawl at certain times of the day?

- Could other devices be interfering with the signal from your access point?

OTHER TASTY RECIPES

Power Over Ethernet (PoE)

- Power Over Ethernet
  Wikipedia
  This entry provides an overview of this method of supplying networking equipment with power using the same networking cables that carry data.
  http://en.wikipedia.org/wiki/Power_over_ethernet

- PowerLine Networking
  PowerLine Products
  One company's offerings of devices that send data through the traditional power lines in a building.
  http://www.powerlinenetworking.co.uk/content/view/39/51

- *Improving the Range and Performance of Your Wireless Network:*
  Microsoft.com
  Ten Tips for Improving Your Wireless Network
  A summary of steps you can take to improve the wireless signal in your library.
  http://www.microsoft.com/athome/moredone/wirelesstips.mspx

Wireless Site Surveys

- Six Steps to a Wireless Site Survey
  ComputerWorld
  This article summarizes the procedure for surveying the lay of the land to prepare for a wireless network.
  http://www.computerworld.com/action/article.do?command=viewArticleBasic&articleId=9004641

- *Introduction to NetStumbler*
  Wi-fi Planet
  A discussion of NetStumbler, one of the wireless network diagnostic tools mentioned in the above *ComputerWorld* article.
  http://www.wi-fiplanet.com/tutorials/article.php/3589131

- *Survey Your Network for Wireless Internet Access*
  WebJunction
  WebJunction's list of considerations and site-surveying steps for those preparing to install a wireless network.
  http://www.webjunction.org/do/DisplayContent?id=11031

Wireless Interference

- *MetaGeek Wi-Spy 2.4-GHz Spectrum Analyzer*
  JiWire
  If you're having real trouble with interference and you can't pinpoint the source of the problem, consider purchasing a Wi-Spy Spectrum Analyzer.
  http://www.jiwire.com/metageek-wi-spy-product-overview.htm

Fast Food — Meal Plan 2 Summary

■ Finding the right place for your wireless equipment, especially in larger buildings, requires planning.

■ Certain materials (e.g., concrete, books and metal) can weaken or distort a wireless signal, so your signal range depends on your building design and construction.

■ If laptop users start complaining and your wireless access feels a lot slower than your wired access, you may need to invest in a second access point.

MENU 2 CHECKLIST

❑ To maximize the wireless signal range, try mounting your access point in an elevated location (away from library shelves), or buy a wireless repeater.

❑ If you have to put an access point in a space that lacks power outlets or data ports, consider these two technologies:

   – Power Over Ethernet (PoE)

   – Powerline Networking (aka Powerline Communication)

❑ Make sure that the signal from your access point reaches all or most of the places where laptops are used.

❑ For a more precise wireless signal measurement, download special software or buy a device designed for this task.

❑ To effectively double the size of your wireless network, use a wireless repeater that will receive a wireless signal, retransmit and amplify it.

❑ Keep your access point away from common wireless devices, such as cordless phones, microwaves and garage door openers, which also operate in the 2.4-MHz frequency.

❑ To minimize wireless interference, consider these questions:

   – Is your access point physically secure?

   – Can your access point get power and also hook into your wired network?

   – Can laptop users connect to your access point from all the major library study areas?

   – As laptop users in your library increase, is your wireless connection slowing down at certain times of the day?

   – Could other devices be interfering with your access point signal?

The Four Seasons or Flo's Diner: How Much Help Should You Provide Laptop Patrons?

You've decided to allow wireless access in your library. Now you have to decide what type of service to provide. Is this a full-service restaurant, where every customer request is satisfied immediately? "Yes, sir! Right away, sir! More bread for table 15!" Or will you provide the food and let patrons serve themselves? Will every staff person in the library become a highly polished, highly skilled wireless waiter (or waitress)? Keep in mind: Your tips come in the form of smiles and warm fuzzies, so you may be better off setting up the Flo's Diner of wireless hotspots rather than the Four Seasons.

This section deals with the subject of laptop patron assistance and library wireless service. It takes a closer look at what's reasonable and feasible … and what's not.

TOPICS TO BE COVERED:

- A Help Desk for Patron Laptops?

- All-Night Diners—Providing Network Access After Hours

A Help Desk for Patron Laptops?

Most laptop owners know how to configure their wireless adapter and hook into your network without much trouble. But the less knowledgeable patrons may eat up a lot of your precious time if you decide to help them with their laptops. Why? Because each laptop has a slightly different personality. Today's wide array of operating systems and brands of wireless adapters mean that no two laptops are exactly alike. For librarians who work with wireless on a regular basis, it's not too hard to navigate these differences. But librarians with less experience may be reluctant to act as wireless troubleshooters. Furthermore, from a liability standpoint, it's not wise to monkey with someone else's expensive computer. If you do need to touch someone's laptop, be sure to get their explicit permission, preferably in written form. Or, better yet, provide the directions to the patron while they do the actual work. You should also ask the patron to save any valuable data before you start troubleshooting.

A lot of libraries choose to help patrons in spite of the difficulties mentioned above. Others make it clear in their wireless AUP that laptop users are completely on their own. Some libraries go a third route. They partner with hotspot providers and pay them to provide telephone support for patrons with laptops.

Notes from a Chef

To Troubleshoot or Not Troubleshoot Patron Computers?

"So the public is bringing in their laptops, and most of them really do know what they're doing. But there are some that aren't sure how to hook up to your wireless network and we're not allowed to touch them. And that's frustrating for the public. But if we were to do something and then they came back later and said, 'You messed up my computer,' then we'd be liable."
    Shaw Simonsen
    Barnesville Library, Barnesville, MN

Occasionally, certain wireless adapters are just incompatible with certain access points, and nothing you or the laptop owner does will fix that. For $30 or $40 you can buy a wireless adapter and let patrons check it out. If you buy an adapter made by the same company that produced your access point, you shouldn't have any compatibility problems. However, there's a slim possibility that the adapter could damage the patron's laptop, so use your best judgment. If you decide to go in this direction, ask the laptop owner to sign a waiver.

Notes from a Chef

On-the-Spot Logon Support for Patrons

"We have these cute little coasters, and we have them all over the building area. And all they have to do is follow the directions on the coaster to log on."
    Annie Adamson
    Caldwell Public Library, Caldwell, ID

All-Night Diners – Providing Network Access After Hours

The kitchen's closed, but the customers won't go away! Will you provide a vending machine or a drive-through window for the night owls and the early birds? Should you leave your wireless network on after all the staff has gone home? Is it dangerous or costly to let patrons sit in your parking lot and surf the Web?

Thousands of libraries with wireless just leave the connection on 24/7. It's easy to do, cheap and provides an extra service to community members, especially those who can't afford a high-speed connection. However, think carefully before you leave your access point on all the time. Most ISPs charge you a flat rate per month, regardless of how much you upload or download. However, this isn't universally true, so be sure to double-check. You may wind up paying extra if your patrons spend all night downloading huge files on your network. If this is the case, you might want to find another ISP. Also, as discussed earlier, there could be clauses in your ISP service agreement about who can use your Internet connection and how they can use it. Be sure to read through it carefully.

Notes from a Chef

A 24/7 Connection

"In fact, people can get on it if we're closed. They just pull up in the parking lot or they sit on the steps"

Carolyn Paradise
Casco Public Library

If you decide to leave your wireless connection on all night, consider how you'll publicize your AUP (see Meal Plan 4 for additional information on Acceptable Use Policies). The only surefire way to be certain that patrons outside the library building have read and accepted your wireless policy is to use a splash page that appears immediately when patrons using your wireless connection open their Web browser. The best way to create a splash page for your network is to use a wireless gateway or partner with a hotspot provider. You can usually configure these splash pages so that patrons are forced to click somewhere indicating that they've accepted the terms of your wireless policy. Also, if you put a password on your wireless network and change it daily, patrons won't be able to use the Internet at night, unless they've been to the library during the day.

If you decide to turn your connection off at night, most wireless gateways can be configured to turn off and on automatically, but for the most part, simple access points lack this feature.

Notes from a Chef

When the Library Closes … So Does the Wireless Access

The Brattleboro Public Library has a wireless connection where anyone can access it outside the building, and they report, "We haven't heard of any problems. The router can be configured to close down after the library closes. We have it doing that."

Jerry Carbone
Brattleboro Public Library

MOOD AND AMBIENCE – MAKING YOUR LIBRARY COMFORTABLE FOR COMPUTER USERS

When you let patrons use computers in your libraries, you need to consider layout, furniture, lighting and space. The questions to consider are a bit different when it comes to desktop computers and laptop computers.

- What sort of furniture do you need for computer users?

- How much space should you set aside for each desktop computer in the library?

- What sorts of chairs and desks are best suited to desktop computers?

- How do you estimate the number of laptop users you'll have in the library on an average day, and what sorts of furniture and space needs will they have?

- What sort of lighting is best suited to computer use?

- Should you make all or some of your workstations accessible for people with disabilities, and how do you go about doing that?

Answering these questions is beyond the scope of this book; however, for a list of useful resources, please refer to "Other Tasty Recipes" at the end of this section.

Notes from a Chef

Wireless Printing

We're looking into getting a wireless printer because when we get new computers, my director wants them to be wireless so we don't have to worry about paying for somebody to come in and figure out how to get new wiring to the middle of the floor. Right now, they're in an alcove. So they're either against the wall or very near one. So wiring's not that big of a problem. But if we're able to move them out in the middle of the main floor — what we call the main reading room — then wiring might be an issue. We do have the wireless network, so I think it would — in the end — be cheaper to do that instead of paying money to put wiring on the floor. They wouldn't be laptops. They would be the sturdier desktop PCs with the big monitors, but they would be wireless-enabled. They'd actually be on a wireless network. So we're exploring the wireless printing that way. As far as people coming in now, they can't print from the wireless.
  Valerie Stroylis
  Lake Blackshear Regional Library, GA

Notes from a Chef

Printer Information Sheets and Aids

"We found out how to add a new printer to the computer from our Internet Services Department. And one library printed up this information sheet for patrons on how to add and connect to a printer wirelessly. Last night at dog training class — this is an advantage of small towns — one of the people attending the class also has a show on the radio about Apple Computers. He's coming by this afternoon to explain to me what I need to know to tell people with Apple Computers on how to add a printer." (To see the instructions a patron created, see Appendix G).
  Eliza Wingate
  Mendocino County Library, CA

WHAT CAN PATRONS DO ON YOUR WIRELESS NETWORK?

Anytime two programs want to communicate with each other over the Internet, they need to agree on which "port" they plan to use. A port is a number (usually determined by conventions or standards) that networked devices use to establish a temporary connection on a network. For example, when a Web browser, such as Internet Explorer or Firefox, requests a page from a Web server, the browser software and the server software will use port 80 and/or port 443. Routers and firewalls can usually be configured to block particular ports, and many libraries choose to block all ports on their wireless network, except for ports 80 and 443. This simplified configuration makes your network more secure and easier to maintain.

However, some patrons may ask you why they can't play World of Warcraft (a popular online game) or why they can't download new email to their email program (e.g., Outlook or Thunderbird). Well, you could go into an explanation of ports, routers and firewalls, but it'll be much easier if you've included language in your wireless AUP about what types of software can access the wireless network. For more information about Acceptable Use Policies, see the next chapter. For more information about ports, massive multiplayer online games and desktop email, check out the "Online Gaming" resources located in "Other Tasty Recipes" at the end of this section.

Notes from a Chef

Same-Service Expectations for Public PC and Wireless

"Since it's going to be a part of our library network, our plan is to offer it with all the features that we offer on our public-use PCs. They will authenticate, they'll sign on when they enter the library to get into the network and it will give them access to printing, let's see, so that means the expectation is they'll get the same services on wireless that we offer to our other public-use PCs."

> *Deborah Janzen*
> *Fresno Public Library, CA*

OTHER TASTY RECIPES

Network Access

- *Anchorage Daily News*
  Palmer Man's Computer Forays May Bring Charges
  As the story indicates, it's a good idea to let the police and any night-time janitors know that you'll be leaving your wireless on. Otherwise, they might get spooked by the folks spending so much time in your parking lot!
  http://www.adn.com/news/alaska/story/8679625p-8574795c.html

Space Planning and Furniture

- *WebJunction's Focus on Space Planning for Libraries*
  WebJunction
  A detailed look at some space-planning strategies, as well as many links to other resources and real-library examples
  http://webjunction.org/do/DisplayContent?id=12748

- *Library Space Planning Guide*
  WebJunction
  The Connecticut State Library's comprehensive, step-by-step guide to help you plan your library's lay of the land (requires Adobe Acrobat Reader
  http://www.adobe.com/downloads).
  http://webjunction.org/do/DisplayContent?id=6181

- *Public Library Space Needs: A Planning Outline*
  Wisconsin Department of Public Instruction
  This Wisconsin educational resource's detailed guidelines for planning space.
  http://dpi.wi.gov/pld/plspace.html

- *Planning Documentation*
  Libris Design
  Libris Design provides software to help with and training on library planning. This page on their site links to an array of articles on planning.
  http://www.librisdesign.org/docs/index.html

Accessibility

- *Accessibility Resources*
  AbilityNet
  This assistive technology advocacy group's site contains a wealth of information about tools and techniques to help you make technology more accessible.
  http://www.abilitynet.org.uk

- *Increasing the Accessibility of Public Computers*
  TechSoup
  The goal of this paper is to help libraries and other public access computing facilities develop, plan for and/or expand the accessibility of their public access computers to patrons with disabilities.
  http://www.techsoup.org/learningcenter/access/page5373.cfm

- Equal Access: Universal Design of Computer Labs
  University of Washington
  A checklist of things you can do to make a computer lab more accessible.
  http://www.washington.edu/doit/Brochures/Technology/comp.access.html

Gaming in Libraries

■ *Multiplayer/Online Games*
TechSoup
This articles defines a port, a multiplayer online game, a browser-based game and a few other networking terms. The article also considers the effect of these services on your library's security and bandwidth
http://www.techsoup.org/learningcenter/internet/page6759.cfm?cg=searchterms&sg=online game

■ *A Quick Guide to Gaming in Libraries*
iLibrarian
Links to resources related to gaming in libraries.
http://oedb.org/blogs/ilibrarian/2007/a-quick-guide-to-gaming-in-libraries

■ *Success Stories, Tips and Other Information About Library Gaming Programs*
Library Success: A Best Practices Wiki
This Web site's community-created content on gaming. Read, then share your experience with gaming in your library on this wiki. (What's a wiki? Take a look: *http://en.wikipedia.org/wiki/Wiki*)
http://www.libsuccess.org/index.php?title=Gaming

■ *Game On: Games in Libraries*
"Game On strives to keep librarians up to date on gaming with convenient one-stop shopping for all your gaming news and information."
http://libgaming.blogspot.com

Fast Food — Meal Plan 3 Summary

■ Certain wireless adapters are incompatible with certain access points. For $30 or $40 you can buy a wireless adapter and let patrons check it out. Should you opt to offer wireless adapters for checkout, be sure to ask the laptop owner to sign a waiver indicating you are not responsible for any possible damage to the laptop.

■ If you decide to leave your wireless connection on all night, consider how you'll publicize your AUP.

■ If you decide to turn your connection off at night, most wireless gateways can be configured to turn off and on automatically; however, for the most part, simple access points lack this feature.

MENU 3 CHECKLIST
❑ Consider allowing all browser-based services (any service that runs in a Web browser over port 80 or port 443), unless those services violate any obscenity and criminal behavior rules.

❑ To make sure that patrons outside the library building have read and accepted your wireless policy, use a splash page:
   – Use a wireless gateway or partner with a hotspot provider to create the splash page.
   – Configure your splash page so that patrons are forced to click somewhere indicating that they've accepted the terms of your wireless policy.

❑ If you need to touch someone's laptop while assisting with a problem, get their permission, preferably in written form. Better yet, provide directions to the patron while he or she does the actual work.
❑ Always ask the patron to save any valuable data before you start troubleshooting.
❑ Put a password on your wireless network and change it daily, so patrons won't be able to use the Internet at night unless they've been to the library during the day.

No Shirt, No Shoes, No Service!
Wireless Acceptable Use Policies

Do patrons and their laptops need to meet certain standards of dress, behavior and decorum in order to get seated at your wireless restaurant? If so, you'll need to think about writing a wireless Acceptable Use Policy (AUP). If you already have an AUP for your wired public computers, you can use this as the basis for your wireless policy.

As you make decisions about what level of service to offer wireless patrons and what types of Internet access to allow, you are really making decisions that need to be written into your AUP. This section highlights the "ins and outs" of using a wireless AUP. It covers such questions as:

■ What sort of language should I put into my wireless AUP in relation to obscenity?

■ Should I use a content filter on my wireless connection?

■ Should I limit wireless use to patrons with a library card?

TOPICS TO BE COVERED:

■ Why Write an Acceptable Use Policy?

■ Obscene Materials and Patron Laptops

■ Internet Filtering and Patron Laptops

■ Wireless for Everyone, or Just Folks with Library Cards?

Why Write an Acceptable Use Policy?

When patrons disagree with your decisions, they're often more willing to accept your judgment if you can refer to a policy that is already in place. Also, your co-workers need something to look at so that they can make quick, fair and consistent decisions. But it's not enough to just articulate the rules. You also have to think about how you'll enforce them and make sure that any consequences are part of the written policy. Then you have to make sure that your AUP is readily available to the public. As mentioned earlier in Meal Plan 2, if you have a wireless gateway, or if you partner with a hotspot provider, you can force your wireless users to accept your AUP before they start using your Internet connection.

Some sections of your wireless AUP are no-brainers. Patrons can't use your Internet connection to commit any sort of illegal activity. They can't hack into other computers, can't threaten or harass other people and they can't commit fraud. You should also make sure to include some language in your wireless access policy to indicate that you're not responsible if a patron loses data or has their laptop damaged in any way while using the wireless connection.

Notes from a Chef

Free Software for an AUP

"We'd like to put more wireless in some of the other libraries because we do have a big tourist population up here. A lot of times people come up and want to be able to just use their machine in the library. So a big thing — a big push — is putting wireless in the library. Some of the libraries have put it in and use a product called — well, it's a Linux version. It's called m0n0wall [http://m0n0.ch/wall] and it populates that Accepted Use Policy page for them in order to go on the Internet. By using that, we can kind of keep that traffic a little bit off of our main network. It's just a free software that's out there, takes about 15 minutes to set up at the most and you just use an old computer with two network interface cards (NICs) in it. It brings up the acceptable use page. A lot of times, when you go to hotels they have that. So we did something similar. And you can use it if you only want to let them on for so long. It'll time them out. But we don't do that. We just want them to say that they understand we're not liable if they get viruses on their machine or that kind of thing."

Jean Montgomery
Superiorland Cooperative, MI

Obscene Materials and Patron Laptops

It's much tougher to make decisions about obscenity and filtering on patron laptops. Most libraries have made it clear that browsing obscene material in the library is forbidden. Definitely include some language to this effect in your AUP. These clauses about obscenity and graphic content may be even more important when laptops are involved. You can put privacy screens on the wired public computers, or place them all in a part of the library where they're hard to see, but once in a while a patron might open his laptop in the middle of the library and surf to a hardcore sight, oblivious to the fact that other patrons are nearby. Usually, this isn't a problem, but when you're writing policies, you should hope for the best and prepare for the worst. Look at other libraries' policies, and look at the local, state and federal statutes that relate to obscenity. But how do you enforce this policy? Do you need to filter? As described in the quote below, a lot of libraries rely on the terms of their AUP. If patrons consistently violate the obscenity clause, they'll be denied computer and Internet access or they'll be kicked out of the library altogether.

Notes from a Chef

Policies and Protecting the Public

"The patron access policy — this is one reason we don't filter. We base our policies on the Arkansas Obscenity Laws and so anything that you can't show in public you can't show in a library, and that tends to work. The first time you're caught, you get booted out for the day; the second time for a week, and the third time for a month, and if you get booted out for a month, they have to come see me before they can get back in a library. That sounds rough, but in effect in the seven years we've implemented this policy, I've talked to four people. South Arkansas is a conservative area, so it tends to kind of police itself."

Kim Paterson
Southeast Arkansas Library System

An assortment of libraries' wireless Acceptable Use Policies are included in the "Other Tasty Recipes" at the end of this section. You can also find two complete versions of an Acceptable Use Policy in Appendix A of this book, plus a checklist you can use when developing your library policy.

Internet Filtering on Patron Laptops?

A lot of libraries filter their wired public computers because they receive federal E-rate money for their Internet access, and they need to be compliant with the Children's Internet Protection Act (CIPA). Fortunately, it appears that CIPA regulations don't apply to patron-owned laptops. In other words, although the CIPA law and the associated regulations are a bit vague on this point, hundreds of libraries have offered unfiltered wireless access, and none of them have been reprimanded or punished by Universal Services Administrative Company (USAC) or the Federal Communications Commission (FCC) — the two agencies responsible for E-rate and CIPA. For more information about E-rate and CIPA and how these rules apply to laptops, see this article in "Other Tasty Recipes" at the end of this section.

Keep in mind that it is harder to filter a patron laptop than it is to filter a wired computer that you own and control. Most content filtering requires that you alter the proxy settings on the filtered computer. If you don't know about the proxy settings or how to change them, don't worry about that for now. The most important point to understand is that since you don't own the patron's laptop, you can't change the proxy settings. Instead, you'll have to intercept all the wireless traffic after it has left the laptop and redirect it to a content filter. The machine that handles the interception and redirection is known as a wireless gateway, as described in Meal Plan 2. If you must filter patron-owned laptops, a wireless gateway is one more expense and one more item that you have to set up and maintain. However, as mentioned in Meal Plan 2, many hotspot providers offer some sort of content filtering.

Notes from a Chef

The Need for Laptop Filtering — A Real Concern

"We're getting more and more laptops. And I guess the one concern with that is that we have filters on the public access computers to try and filter out some of the porn and so on. Kids are beginning to come in with laptops, and you really can't see what they're doing. So I can see it may cause some problems "

Teresa Newton
Lawrence County Public Library, Lawrenceburg, TN

Notes from a Chef

Filtering Laptops … Even in the Parking Lot

"We have unsecured but filtered wireless access available all over the library and even extending into the parking lots of the bigger library. Initially we had issues with wireless access in the parking lot — laptop users sometimes would come at night and use the access for downloading porn in the parking lot. We had to have police come in! We solved this by turning on the filters on wireless access. We use a wireless software called Microsoft I–filter. It is easy to use, has frequent upgrades, is inexpensive and we can set to filter differently for adults and kids (HTML files, media, graphics, text, sites, etc.). Unfiltered access can be had only on some public access computers (PACs) by request."

Phil Hollister, IT Manager Mohave County Library District in an interview
with Mala Muralidharan,
Arizona State Library Archives and Public Records

Wireless for Everyone, or Just Folks with Library Cards?

Some libraries require that patrons show their library card before receiving the wireless password. Other libraries set up their wireless network so that patrons have to enter their library card number and personal identification number (PIN) before getting onto the Internet. Usually, you need to work with your ILS vendor to implement this solution. But is this really necessary or desirable? Aside from a few tourists, most of your wireless users probably have library cards, so you're not saving much bandwidth this way. Also, letting tourists and visitors use your library's wireless is good for the community and the local economy and libraries in general. A lot of travelers have come to depend on libraries for Internet access, and they really appreciate it when they can use their laptops. If you have a lot of tourists in town and your Internet connection is really slow, consider buying a faster connection. And put out a donation box during the tourist season or year round, along with a notice explaining how expensive your Internet connection is.

Notes from a Chef

Everyone Loves Wireless

"I've had a lot of comments from people who have come in here who are really surprised that we have wireless available. And they're from other places, and they're passing through or a couple of them were students and didn't believe we had wireless. People have told me they were surprised that we would have wireless access, but it's such an easy thing to give to people."

Barbara Stewart
Capitan Public Library, Capitan, NM

OTHER TASTY RECIPES

Wireless Acceptable Use Policy Samples

- George F. Johnson Memorial Library
  http://www.st-charles.lib.il.us/contact/wireless/wireless.htm

- Morton Grove Public Library
  http://www.webrary.org/Inside/polwifi.html

- Austin Public Library
  http://malford.ci.austin.tx.us/library/wireless.htm

- *N. Texas Regional Library System*
  http://ntrls.org/policies/WiFIPolicies.pdf

- *CIPA and E-rate*
  CIPA: Key Issues for Decision Makers
  WebJunction
  An analysis of CIPA and how it may affect your content-filtering policies and the laptops your patrons bring to your library.
  http://webjunction.org/do/DisplayContent?id=990

Fast Food — Meal Plan 4 Summary

■ Patrons that disagree with restrictions are often more willing to accept your judgment if you can refer to an AUP. It also helps your library staff make quick, fair and consistent decisions.

■ AUP enforcement is important. You need to make sure you include any consequences as part of the written policy.

■ If you have a wireless gateway, or if you partner with a hotspot provider, you can force your wireless users to accept your AUP before they start using your Internet connection.

■ It is harder to filter a patron laptop than a wired computer that you own. Most content filtering requires that you alter the proxy settings on the filtered computer.

■ Some libraries require that patrons show their library card or enter their library card number and PIN before getting onto the Internet. Usually, you need to work with your ILS vendor to implement this solution.

MENU 4 CHECKLIST

❑ Make sure your library has an AUP in place that is readily available to the public.

❑ Make it clear to patrons that browsing obscene material in the library is forbidden. Definitely include some language to this effect in your AUP.

❑ Include language in your AUP to indicate that you're not responsible if a patron loses data or has their laptop damaged while using the wireless connection.

❑ If you must filter patron-owned laptops, use a wireless gateway, or, if applicable, find out if your hotspot provider offers content filtering.

❑ Consider the pros and cons of just offering wireless to users with library cards.

❑ If you have a lot of tourists in town and your Internet connection is really slow, consider:

– Buying a faster connection.

– Putting a donation box during the tourist season or year round, along with a notice explaining how expensive your Internet connection is.

"We're Booked Through January:"
PC Reservation/Time Management Software

You run the best place in town. Everyone wants to eat there, especially during the dinner rush. You need to keep turnover brisk, but you don't want to offend your customers and push them out the door before they're finished eating. So how are you going to manage demand for computing resources when you've got lines three people deep waiting for the next workstation? How do you ensure fair and equal access for everyone while still allowing patrons the time they need to complete their work? If someone just needs to check their email, will you have quick access stations with shorter time limits?

In this section, you'll find three different approaches to reserving computers and enforcing time limits: no system at all, a sign-up sheet or a software solution. Also included is a comprehensive list of features and criteria to consider should you decide to buy PC Reservation software.

TOPICS TO BE COVERED:

- Computer Reservations and Time Limit Options

- What to Look for When Buying PC Reservation/Time Management Software

Computer Reservations and Time Limit Options

FIRST COME, FIRST SERVE: NO TIME LIMITS

If your library is blessed with abundant resources, you can let patrons use your computers for as long as they like. If all your computers are in use, patrons simply have to wait until someone else leaves. If you choose this option, you should probably set aside one or more machines as "quick-use" stations, especially if your card catalog is automated. The time limit on this type of computer is usually 10 or 15 minutes, which ensures constant turnover. Fifteen minutes is long enough for most folks to check their e-mail, do a quick Google search or search your online catalog. Frequently, these quick-use stations don't have chairs to encourage patrons to do their work quickly. Some libraries have both quick-use stations and "catalog-only" kiosks.

Notes from a Chef

Setting and Sticking to Time Limits

"We just tell them it's an hour and remind them if they forget how long they've been on. We occasionally get a teenager in who doesn't quite like to follow the rules, but generally speaking, everybody's good about getting off when their time is up. [Time management systems] are pretty expensive, and we're not sure we need to spend the money on that unless we're really having a big problem, which we aren't usually."

Barbara Stewart
Capitan Public Library, Capitan, NM

A HOME-GROWN SYSTEM: SIGN-IN SHEETS

If you have just a handful of public access computers and they're all in one location, it makes sense to use an informal sign-in sheet or an Excel spreadsheet to keep track of patron computer usage. Modoc County Library has implemented a time-management system that's similar to the process of checking out a book, a solution that didn't require expensive software. When a library patron wishes to use one of the computers, he or she must visit the front desk and sign up for a time slot. A library staff member then "checks out" the computer and hands the user a slip, which is due back in one hour (*http://maintainitproject.org/librarytips*). With either of these solutions, you'll need to decide:

- Whether you take reservations over the phone.

- How far in advance someone can reserve a computer.

- How many hours a week they can reserve.

Notes from a Chef

Flexible Hours

"You know, I really have the most agreeable bunch of people. I don't have timing software on my computers. I have an hour limit, but if I'm not busy, if I don't have a lot of people waiting, or if someone is filing for unemployment, or filing their taxes, or doing something of that nature, all they do is tell me what they need to do, and I give them two, three hours to do it. We are 55 miles from the nearest Kinko's, which is 110 miles round trip for somebody to go and access another public computer."

Kristen Freeman
Humboldt County Library, CA

Notes from a Chef

Equitable Access for All

"Right now we have little pieces of paper floating around, and then somebody comes in and they want a computer, and you've got to kind of look through all your pieces of paper and say, 'Well, now, what time does person X get off of their computer? They've had an hour and now I've got somebody who's waiting or I've got two somebodys or three somebodys or four somebodys.' And I'm just juggling these pieces of paper or a list or whatever you'd want to call it. Wherever you have a limited resource and a high demand, you've got to be sure you're providing as equitable an access to the resource as possible, and the way we do it now is with a limit of one hour per person per day, unless they're doing homework, and then they get two hours. It's just a lot of paper shuffling when you're trying to just make sure that everybody's gotten their time [who] needs to get their time and you also are trying to serve the other people who are sitting around waiting, so it's hard to keep everybody happy sometimes."

Sara Paulk
Fitzgerald-Ben Hill County Library, GA

PC RESERVATION/TIME MANAGEMENT SOFTWARE

There are several competing vendors in this market, and PC Reservation software is often expensive, so put some thought and effort into this decision. In the long run, Reservation software can save you and your staff thousands of hours of tedious and frustrating work. Moreover, a surly patron can ignore or backtalk a librarian who's trying to get her off of a computer at the end of her session, but she can't ignore software that automatically logs her off after an hour.

PC Reservation

"We have a person from Auburn University, and I was telling him we needed some kind of a time management program, but we didn't want to spend a great deal of money and have a ton of features, like most of the commercial products that are out there. So he's been working with us for about two years designing and refining a time management program so that it does just what we need to do, and that's a help. It's called LibShield. He has sold that to a good many libraries, in Alabama, especially. So we were kind of his testing ground.

We decided we wanted our patrons to have a library card to be able to use the computer. Of course, we do have some guests coming in, so we ask for picture ID and we give them a guest number. But when a patron wants to use the computers for the first time, we put their name and their library card number, or the last six digits, into a database, and then when they sit down at a computer, they type in those numbers and press Enter and a timer begins. They're into the computer, and they can do everything they want to do. After an hour, it will go back to the original screen, but they can put their number in again if we're not busy. On our end, we're able to see how many minutes they have been on the computer. So once all the computers get full and we've got a few people waiting, we can go to the people who have been on the longest and give them five more minutes so they can finish up and get off, and then we put a new person on. So it's a way of being fair."

  Dianne Ballantine
  Auburn Public Library, Auburn, AL

No Reservations About Reservation Software

"Reference staff used to say that they felt more like waiters and waitresses than librarians when having to manage the public access computers and take reservations. PC Reservation frees them up to have really meaningful interactions with the customers."

  Aimee Fifarek
  Scottsdale Public Library, Scottsdale, AZ

"Well, of course they are never going to be happy unless they could get on there at 8 o'clock in the morning and still be on when we leave — just to be frank and honest with you — but we have not had any complaints. Before, we had to tell them, 'Now, It's time to get off,' and they resented us saying 'Your time is up,' but when that comes up on the computer and says your time is expiring, they don't question it. They just get up and leave, and it's wonderful. We don't make enemies that way."

  Betty Worley
  Sequatchie County Public Library, Dunlap, TN

Notes from a Chef

Tracking Time and Usage with EnvisionWare

"I know in Anderson, in the beginning, before they received EnvisionWare, their patrons would have to come and sign up on a piece of paper and put down the time when they were going to log onto the computer. And then it did take a lot of manual work by the staff to ensure that the computers were being used for their regular allotted amount of time. [Using EnvisionWare] they can't get onto another computer and get another hour out of it. The system tracks through their library card. Everybody needs to have a library card or a guest pass to log on. So it's enforced a little more."

Kari Piazza
Shasta Public Library, CA

Notes from a Chef

A Timeout for Timers

"The town IT person was here today, and I had decided to ask him to remove the timers (Fortress). Patrons are just too irritated when the computers start counting down their time and are outraged when they get 'timed-out.' They never seemed to notice the clock (in red) or the messages, and then leave fuming that they've lost all their work. We'll see how many online public access catalog (OPAC) sitters we have and if they gracefully relinquish their access upon request."

Anonymous commenter on http://www.maintainitproject.org/blog

PC Reservation and Timing Approach Comparison

SOLUTION	COST	TIME AND LABOR
No Time Limits Sign-in Sheets	$0	Variable, but you may spend a lot of time explaining to patrons why they have to wait so long for a computer.
Home-Grown System (i.e., a sign-in sheet)	$0	Your staff has to take all the reservations and has to enforce the time limits.
PC Reservation/Time Management Software	$500 to $2000	Depends on your setup, but with the right configuration, you can almost eliminate the time your staff spends managing reservations and time limits, but be mindful of training requirements for your staff.

What to Look for When You're Buying PC Reservation/Time Management Software

The following list considers some of the major features offered by PC Reservation/Time Management software vendors. When you're out shopping, be sure to ask about the specific features that you want to implement and test them out, if possible.

Time limits and usage tracking — If you have lots of computers in different rooms within a single building or across different buildings, do you want to enforce a daily or weekly time limit across all your machines in all locations? Using a paper sign-in sheet or a shared spreadsheet means you'll be relying on your librarians to ensure that every patron has equal access to your public computers. A patron hoping to get around your time limits can move from one department or franchise to another, or simply wait until another librarian is on the desk. Having a centralized reservation system with usage tracking allows you to set daily or weekly limits on patrons' computer use at the branch level or the system level.

Pre-booking and self-reservation — Most reservation systems have pre-booking and self-reservation functionality. In other words, patrons can sign themselves up for time on the library's computers. These systems usually have a Web interface, so someone can reserve a slot from home or anywhere else with an Internet connection. Of course, librarians can also sign in patrons who walk up to the circulation desk without a reservation. It's not uncommon for larger libraries to dedicate one or two workstations to self-reservation so that someone who's already in the library can reserve a spot without taking up staff time.

Patron authentication — By far, the easiest way to implement time limits and pre-booking is to tie your PC reservation system into your existing database of patron records. This way, patrons use their existing library card number and PIN to reserve time slots on the computer and sign in to the workstation. Talk to both your ILS vendor and your PC Reservation software vendor to make sure that integration works smoothly between the two systems, and ask about how much assistance each one will provide if something goes wrong. Usually, compatibility requires that both systems use the same communication protocol (e.g., SIP2 or NCIP).

Notes from a Chef

Patron Authentication at Its Best

"Our library cards are authenticated, so someone could walk up if they have a library card and reserve a computer. There's very little staff intervention. We do have some temporary passes for people if they're just passing through and don't have a card."

Greta Lehnerz
Natrona County Public Library, Casper, WY

Reporting features — Can you easily create reports for yourself, library administrators, trustees and the public? Keeping records of computer usage and presenting the charts and graphs to local funding agencies is a great way to advocate on behalf of your library and make the case for increased technology budgets.

Different reservation policies for different computers — Although many libraries enforce a single reservation policy across all of their public access computers, others prefer to suit the policy to the purpose of the computer. For instance, on standard Internet access computers, patrons can reserve one-hour blocks. However, the library may designate a few workstations for research only or for resume building and job searching. On these PCs, patrons can reserve two-hour blocks. On the other hand, there may be some walk-up/quick-use computers with 15-minute limits. Generally, patrons can't reserve these machines in advance. When all of the computers in the library are reserved, the turnover at these quick-use stations is much faster than at other stations.

Can patrons continue to use the computer when no one is waiting? Some inexpensive reservation systems log a patron out of their session when their time is up, regardless of whether another person is waiting for that machine. Or they enforce daily or weekly limits, regardless of whether there are free computers available. Does your system look ahead and allow patrons to continue their work when the computer hasn't been reserved? Also, if someone signs up for a computer at four o'clock, will your software look at the reservations during the three to four o'clock time block and find a machine that isn't being used? If your system can do this, it allows patrons to keep working past the end of their session.

Does the system give patrons time to save their work before logging them off? A good feature to look for is the ability to set a 10- to 15-minute warning before the system automatically blocks access. This way, the patron knows that the session is coming to an end and can save their work onto a Flash drive or other device and not risk losing it.

Notes from a Chef

Why It's Nice to Have a Little Warning

"I have it set for 60 minutes, and that's our normal setting. After that 60 minutes, the machine automatically logs off. Every now and then we kind of have that frustrated patron, and I'm really sorry to say there's no way I can go in and add more minutes to that machine before it logs off. We have had a few frustrated patrons that were right in the middle of doing something and, you know, lost it."

   Annie Adamson
   Caldwell Public Library, Caldwell, ID

How long will you hold a reserved computer? If patrons are waiting in line for the next available machine and there's an empty seat because someone else didn't show up, they may get a bit restless. Some libraries will hold a computer for 10 or 15 minutes, after which, the machine is freed up for someone else. How does the system you're looking at handle this situation?

Does the software allow you to penalize patrons who consistently fail to arrive for their assigned slots? Usually, the punishment consists of a loss of reservation or computer use privileges for a designated period of time. As with all punitive measures, you should consider carefully the benefits versus the risk of alienating patrons.

Bundling — Buying all your patron management software from one vendor may cost less in the long run and allow for greater integration between different components. In other words, many vendors will bundle PC Reservation/Time Management software, print management software, computer lockdown tools and disk protection utilities.

Hardware and Operating System Requirements — What types of computing resources will your PC Reservation system require? Do you need to buy a new server, or can you run the software on one of your existing machines? Does the software run on Windows, Mac OS, Unix/Linux or all of these?

Setup and Configuration — Do you need to install software on every public computer in the library? How much tweaking and configuration will you need to do on each PC? How much support will you get from your vendor?

OTHER TASTY RECIPES

Sample Reservation Policies

- PC Reservation Process:
  Deschutes, OR Public Library
  http://www.dpls.lib.or.us/reserveapc.asp

- Computer Reservations FAQ
  South Portland, ME Public Library:
  www.southportlandlibrary.com/files/CybraryN%20FAQ%20306.doc

- Reservation information
  Lodi Public Library (CA)
  http://www.lodi.gov/library/services/reserve.html

Vendors of Reservation and Timing Software

- Userful's Pre-Book:
  http://userful.com/products/pre-book

- CybraryN Solutions:
  http://www.cybraryn.com

- Fortres' Time Limit Manager:
  http://www.fortresgrand.com/products/tlm/tlm.htm

- Pharos' Sign Up:
  http://www.pharos.com/Public_Library/Computer_Reservation.html

- EnvisionWare's PC Reservation:
  http://www.envisionware.com/en/pc_reservation

- Patron Computer Software Comparison Chart, Pgs 41-43
  MaintainIT Project
  "Joy of Computing" Cookbook 1
  http://maintainitproject.org/cookbooks

Open-Source Reservation/Timing Packages

As with all open-source products, make sure you have the staff expertise to install and maintain the system, since in many cases, you'll receive no official technical support.

- Cybera:
  http://cybera.sourceforge.net/site/co/hPage.html

- ISM:
  http://www.grpl.org/ism

Other Resources:

- PC Reservation and Print Management Software
  ALA Technotes
  This article provides a general overview of computer reservation and print management systems.
  http://www.ala.org/ala/pla/plapubs/technotes/pcreservation.cfm

- Library Stories and Tips (see Tip #3)
  MaintainIT Project
  A low-tech solution for patrons to "check out" time on public computers.
  http://maintainitproject.org/librarytips

Fast Food — Meal Plan 5 Summary

■ If your library uses the first come, first serve method (i.e., no time limits), your staff's time and labor is variable, but you may end up spending a lot of time explaining to patrons why they have to wait so long for a computer.

■ If you use a home-grown system (i.e., a sign-in sheet), it is up to your staff to take all the reservations and enforce the time limits.

■ PC Reservation/Time Management software can — in the long run — save you and your staff thousands of hours of tedious and frustrating work.

MENU 4 CHECKLIST

❑ If you let patrons use your computers for as long as they like, set aside one or more machines as "quick-use" stations. The time limit is usually 10 or 15 minutes.

❑ If you have just a handful of public computers in one location, use an informal sign-in sheet or an Excel spreadsheet to keep track of patron computer usage.

❑ If you have the financial resources, consider using PC Reservation/Time Management software.

❑ When shopping for PC Reservation/Time Management software, look for these major features:

–   Time limits and usage tracking

–   Pre-booking and self-reservation

–   Patron authentication

–   Reporting features

–   Different reservation policies for different computers

–   Can patrons continue to use the computer when no one is waiting?

–   How long will you hold a reserved computer?

–   Does the software allow you to penalize patrons who consistently fail to arrive for their assigned slots?

–   Bundling

–   Hardware and operating system requirements

–   Setup and configuration

Print Management

Restaurants always have to decide what costs to put on the bill and what costs to hide. For instance, most restaurants don't charge for bread and water, and they don't itemize the customer's share of the electricity or the heat. Also, the amount of the tip is left to the customer's discretion. In different ways, libraries face the same decisions. Do we charge for interlibrary loan? Do we charge overdue fines? And more to the point of this section, do we charge patrons for printing? If so, how much will you charge per page? How do you collect the money?

This section discusses the tricky issue of whether or not you should charge for printing. It also walks through three approaches to print monitoring and collecting printing fees. Also covered are printing from laptops and the criteria to consider if you decide to buy print management software.

TOPICS TO BE COVERED:

- To Charge or Not to Charge

- Print Management Software

- Do You Want to Let Patrons Print from Their Laptops?

To Charge or Not to Charge

Deciding whether or not you should charge for printing and other services starts with the age-old library dilemma of cost recovery versus equal access. In these days of tight budgets, every dime matters; however, when it comes to charging for services, are we subtly discriminating against disadvantaged patrons? Furthermore, is it really cost effective to charge for printing? Paper and ink cartridges are expensive, especially if you have a color printer, but the cost of collecting all those dimes and quarters is also significant. You either have to pay for expensive printing stations (see below for more information), or you have to increase the workload on your staff as they collect the money for each print job and deliver the pages to each patron.

FORMAL VS. INFORMAL PRINT MONITORING

If you have no restrictions at all, a patron could accidentally print *War and Peace* ten times and waste several reams of paper. To discourage this type of mistake, a lot of libraries put the "Print Preview" button on the Web browser toolbar and remove the "Print" button. When patrons see the Print Preview screen, they'll realize how many pages they're about to waste. This is easy to do with Public Web Browser *(http://www.teamsoftwaresolutions.com*). However, it may take a lot of research and hacking to accomplish this in other browsers such as Firefox, Internet Explorer 6 (IE6) or IE7.

If you decide you don't want to monitor and charge, you can still ask patrons to observe an informal, unenforced limit on the number of pages they print each day. Posting this limit prominently might remind patrons that paper and ink cost money. Even more subtle would be a donation box set right next to the printer with a suggested contribution per page.

Notes from a Chef

Printing Software Efficiencies

"We also have a very nice PC Reservation software. And we've been using that in most of our locations for a good three years now. And also, we've been using print recovery software. For us, that happens to be provided by the same vendor, which is ITeam Access. And I just got this installed about a month ago, maybe two months ago, in the largest library. And they said, 'Wow, I wish we'd done this before. We've recouped our money and actually made some, and we've only had this one month.' So that was really nice to hear them say that."

Rhonda Hawley
Polk County Cooperative, FL

Dollars and Sense

"Our goal is to become a money-less library, so what we did is put donation boxes attached to the wall, and through the system a patron agrees to two things: that they will pay-for-print and that they will follow our Internet access policy at the library. Then they can get into the system, and all of that's done electronically. We charge 10 cents per page and it says what their charge is. When they press Print it will say 'You are about to print four pages. Your charge will be 40 cents.' This is all in the DiscoverStation software. They know that they have to put that in the pay-for-print box and that we do not give change. So nine out of ten people usually will go ahead and give us 50 cents or a dollar, and we're actually making more money with donations than we did when we were using staff time or trying to put it on their library account through the DiscoverStation systems."

Phyllis Reed
Ruidoso Town Public Library, NM

The Pay-Before-You-Print Approach

"The patron comes to the reference desk and lets us know what machine they're on. And they pay for their copies and we print them. This program has saved us tons of money because before we would have people print, let's say, 60 to 80 pages and only want two pages and didn't want the rest. And what do we do with that? And the printer was out in the public area. People could open the drawers. They could do whatever they wanted."

Annie Adamson
Caldwell Public Library, Caldwell, ID

HOW MUCH SHOULD YOU CHARGE PER PAGE?

There's no simple answer to this question. You first have to decide what costs you're trying to recover: Paper? Ink and toner cartridges? The printers themselves? The cost of print management software? The time that your staff puts into maintaining the printers and helping patrons? Most libraries aim to recover the cost of paper and toner cartridges and possibly the costs of the printers as well.

- It's not too hard to figure out the cost of one piece of paper. If 500 sheets costs you $8, then each sheet costs roughly one and a half cents.

- Toner cartridges are usually rated in terms of how many pages they can print. If your black-and-white cartridge costs $150 and it prints 12,000 pages, then the ink for a single page is costing you roughly one and a half cents.

- At the low end, you might charge $.03 to $.04 per page. On the high end, $.10 per black and white page is probably the most you should charge.

SIMPLE PRINT MONITORING

The simplest method for watching the printer and charging for copies is to simply place the printer behind the circulation desk and hold a patron's print job hostage until they walk up and pay the ransom. However, with this technique, you have no way of knowing which patron sent the document. If reams and reams start shooting out of the printer, you have to turn off the printer and stroll through the library until you figure out who sent it. You then have to cancel the rest of the print job from the printer itself or from the public computer.

Print Management Software

If you have more than a handful of computers, you might look into print management and print server software. If you want the simplest of print servers, you can use some of the functionality built into Windows. However, there are also several more advanced software packages designed specifically for print monitoring. Some things to consider when you start shopping:

- Will the print release station be managed by staff, or will it be managed by the patrons themselves?

- **If patrons release the print jobs themselves, will you buy some sort of a vending machine to collect the money?** This approach is obviously easier on your staff, but vending stations are a significant investment. They can cost anywhere from several hundred to several thousand dollars.

- **What sorts of payment will the vending machine accept? Coins? Bills? Credit cards?** If you have lots of printers and copiers spread throughout the library, you might look into a vend-a-card solution (also known as a debit card solution). Patrons put money on a debit card, and they can then use this card at any printer or copier in the library.

- **Does it integrate with your ILS?** It may be possible to allow patrons to use their library card as a debit card if the print management system can talk with your ILS patron database. That way, they have one less card to keep track of.

- Can you configure your system so that patrons can add money to their account using a credit card and a Web form, and is this a feature you want?

- **Does the print management software come as part of a bundle?** Vendors such as EnvisionWare, Pharos and CybraryN often sell print management software as part of a package along with PC Reservation software, remote management software and other modules. This type of integration can sometimes offer added features, convenience and cost savings.

- Can you use an existing computer as the print release station, or do you need to buy a special piece of equipment from your vendor?

- Do you need to install software on every machine?

- **Can you set different prices for different printers?** You might charge $.04 per black and white page and $.20 per color page.

- Can you give patrons a certain number of free pages per day or per print job?

- Will it be easy for patrons to identify their print job when they get to the print release station?

Do You Want to Let Patrons Print from Their Laptops?

Some libraries have decided that patrons just won't be able to print directly from their laptops. They can save to a floppy or a USB drive, wait in line for a wired computer and print from there. However, if you have enough money for an extra printer, below are three options for making it available to laptop users. In most cases, though, your patrons will have to download and install a driver or other printer software. Be sure to make instructions available.

Buy a network printer — If you have a network printer (i.e., one that hooks directly into your network via an Ethernet cable), you can plug it into one of the local area network (LAN) ports on your access point. Or, if the printer is too far away from the access point, you may be able to find a wireless adapter for that printer.

Use an existing computer as a print server — To do this, attach your printer to an old computer via the USB port (or the parallel port, if your printer is old). Then attach the computer to your access point with an Ethernet cable.

Wireless print servers — Instead of using an existing computer as your print server, you can buy a dedicated print server for $60 to $100. For more information on these devices, see the articles in the "Other Tasty Recipes" section.

OTHER TASTY RECIPES

Vendors of Print Management Software:

- LPT:One
  EnvisionWare
  http://www.envisionware.com/en/lpt_one

- Uniprint
  Pharos
  http://pharos.com/Higher_Education/Uniprint.html

- Ninja Printing System (Open-Source)
  Columbia University
  http://www.columbia.edu/acis/dev/projects/ninja/

- Patron Computer Software Comparison Chart
  MaintainIT Project
  "Joy of Computing: A Cookbook for Small and Rural Libraries"
  http://maintainitproject.org/cookbooks. Pgs 41-43

Articles on Print Management

- Fee or Free? Printing from Public Workstations in the Library
  Computers in Libraries
  An in-depth discussion of the costs of printing and the overhead of charging patrons fees for printing.
  http://home.sou.edu/~vidmar/articles/cilprint.htm

- PC Reservation/Time Management and Print Management Software
  ALA Technotes
  This article provides a general overview of computer reservation and print management systems.
  http://www.ala.org/ala/pla/plapubs/technotes/pcreservation.cfm

Wireless Print Servers:

- *Setting Up a Print Server for Your Wireless Home Network*
  Dummies.com
  A step-by-step guide to configuring a computer and printer so that others can share the printer too. Adapted from the book *Wireless Home Networking for Dummies*
  http://www.dummies.com/WileyCDA/DummiesArticle/id-1910.html

- Wireless Laptop Printer Connection
  WebJunction
  From the WebJunction discussion forums, a short exchange of messages on wireless printing.
  http://www.webjunction.org/forums/thread.jspa?threadID=3828&tstart=0

Fast Food — Meal Plan 6 Summary

■ The decision as to whether or not to charge for printing and other services starts with the age-old library dilemma of cost recovery versus equal access.

■ At the low end, you might charge $.03 to $.04 per page. On the high end, $.10 per black and white page is probably the most you should charge.

■ If you have more than a handful of computers, you might look into print management and print server software.

■ For the simplest of print servers, you can use functionality built into Windows. There are also more advanced software packages designed for print monitoring.

<table>
<tr><td>MENU 4 CHECKLIST</td></tr>
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❑ To control excessive printing and wasting pages, put the "Print Preview" button on the Web browser toolbar and remove the "Print" button.

❑ If you are asking patrons to observe an informal, unenforced limit on page printing:

– Post the limit in a prominent spot.

– Set a donation box next to the printer with a suggested contribution per page.

❑ Before you shop for print management and print server software, consider these questions:

– Will the print release station be managed by staff or by the patrons?

– If patrons release the print jobs, do you need vending machines to collect the money?

– What sorts of payment will the vending machine accept?

– Does the system integrate with your ILS?

– Can your system be configured so that patrons can add money to their account using a credit card and a Web form?

– Does the print management software come as part of a bundle?

– Can you use an existing computer as the print release station, or do you need to buy a special piece of equipment from your vendor?

– Do you need to install software on every machine?

– Can you set different prices for different printers (color versus black and white)?

– Can you give patrons a certain number of free pages per day or per print job?

– Will patrons be able to easily identify their print job at the print release station?

❑ If you can afford an extra printer for a laptop, consider buying a network printer, using an existing computer as a print server or buying a dedicated wireless print server.

Laptop Checkout Programs

Laptops for checkout? But we just spent thousands on all these desktop computers for the public, and now they want laptops! What can you do on a laptop that you can't do on a regular PC? Well, several things. Patrons can't install their own software on your desktop computers, but with the right setup, you can give patrons free reign on your checkout laptops. Also, laptops are great for group work. Five or six students can reserve one of your meeting rooms and take a laptop in there to work together on a project. Finally, laptops are mobile, allowing patrons to move around among your different departments and collections. If you've run out of space and can't provide any more stationary computers for the public to use, laptops might be the way to go.

This section of the Cookbook lays out some tips and recommendations for those libraries that are planning to implement a laptop checkout program. The primary focus here is in checkout laptop safeguards, as well as laptop and filtering considerations.

TOPICS TO BE COVERED:

- Laptop Security

- Laptop Maintenance

- Buying Your Laptops

- Do You Need to Filter Your Checkout Laptops?

- Check Out This Real, Working Laptop Checkout Program

Laptop Security?

So … what about laptop security? What's to keep someone from checking out a laptop and walking away, never to be heard from again? What if a patron drops it? Here are some actions you can take to secure your laptop:

- **Picture ID** — Hold their driver's license or another photo ID until they return the laptop.

- **A checkout form** — Ask your patrons to sign a form indicating that they won't take the laptop out of the library and what their responsibility is should they damage it somehow.

- **Accidental damage protection** — For an extra charge, most hardware companies will repair or replace your laptop should it get damaged.

- **Serial numbers** — Engrave the serial number into the laptop and then keep track of those numbers.

- **RFID or security tags** — Tag the laptops in several places

- **TattleTape** — Put some "tattle tape" or "tamper strips" over the security tag, over the hard drive bay, over the battery, over the memory bay and elsewhere, so you don't get a laptop back and find out later that it's missing a key component.

- **"LoJack for laptops"** —LoJack is a product that tracks your computer. When a laptop with this product is lost or stolen, it begins to "dial home" every time it's connected to the Internet. Computrace, who makes the product, will alert the police and provide them with the information they need to recover the laptop. To see if this product will work with your systems, go to:
  http://www.absolute.com/laptop-security-solutions.asp.

- **Your staff** — Make sure that staff at the front desk know what to check for when the patron returns the laptop. They should look for all the major pieces before returning the patron's photo ID.

Notes from a Chef

Security Tags as a Safeguard

"All the systems are security engraved in numerous places, and all serial numbers are kept in our database. To stop them from walking out of the door, I have placed visible and not so visible security tags on them that will trigger the alarm system when they are taken out of the building. We do not allow patrons to take them outside. The laptop bags also have two or three security tags in them, so if someone does try to steal one, they would have to find at least six or seven tags to get over all the security!"

Terry Caudle
Madisonville Public Library, TN

No Insecurities About Security

"We are very lucky here; this is the kind of place where people don't lock their houses or their cars, and so security is not an issue here. We do check them out to people. If they have a library card, we check them out to them; if they don't, we still let them use them, but they give us their driver's license or something — we hold onto it. And we have never had one walk out the door, and we would all be flabbergasted if it happened here."

    Laura Tretter
    San Juan Island Library, WA

The Lowdown on LoJack

"Among other things, I was told by several excellent sources to get LoJack for Computers, sold by many computer vendors (Computrace is its real name). I guarantee it will seem affordable the first time they recover a $2,000 laptop! The 'we can't afford it' line doesn't wash with me — when I worked to develop a laptop checkout program, I struck a couple of the laptops from the plan in order to afford things like Computrace, a locking case, extra cords, etc."

    Karen Schneider, Research and Development Consultant,
    College Center for Library Automation, Tallahassee, FL

Laptops on the Loose

"Some of the things that we're hoping to do in the future is to get laptops that people would be able to check out and use within the library, especially for our Teen Services. That would be something that we would want to do so that they would be able to use those computers in a different area, away from the regular public access computers, and then to hopefully be able to allow some gaming events, some contests and that kind of thing."

    Chris Beyerl
    Redwood Falls Public Library, MN

Tracking Laptops for Home Use

"We check out laptops within the library, but have plans in the near future to check them out for home use. We plan on installing a built-in GPS tracking system to track where the laptop is — in case people don't bring it back. I know it seems like a problem, but currently people have DVDs and books issued out that are worth almost that much! Again, installing Deep Freeze will prevent virus retention, and we understand that even though wireless is in-built only those who have Internet access at home will benefit. Students can always use it to do their assignments using PowerPoint or Word or Publisher, etc., which are all pre-loaded."

Buying Your Laptops

Before you begin shopping for new computers, you have to decide on the overall purpose of these laptops. Will patrons be using these laptops for gaming? Will they be editing graphics and videos? Or will they be checking them out to do research, word processing and recreational Web surfing? Any graphics-intensive activities will require more memory (RAM) and a higher-quality graphics card. Microsoft's latest operating system, Windows Vista, also requires more memory and more graphics power than Windows XP. If you look around, you can still buy new computers with Windows XP (or Linux, for that matter), which might allow you to save on the laptop itself. Remember, you can buy Windows Vista, Windows XP and other Microsoft software from TechSoup.org *(http://www.techsoup.org)* at steep discounts. For more advice on buying laptops, see "Other Tasty Recipes" at the end of this chapter.

Notes from a Chef

Buying Laptops and Warranties

"One of our libraries had a Library Services and Technology Act (LSTA) grant to buy laptops for a computer lab and chose the Dell Latitude 630. The tech guys wanted me to get the four-year gold warranty, but that adds $184 to each unit. Since we had budgeted for 20 laptops, it looked like we would need an additional $3,680. My advice was to buy an extra laptop (actually even three for that price!) instead of a gold warranty. These are sturdy and if one does break down, the regular Dell warranty covers a replacement or gets the repaired laptop back in two weeks. In the meanwhile, the extra laptop (or three) will come in handy".

Malavika Muralidharan
Arizona State Library Archives and Public Records

Laptop Maintenance

So who's gonna fix the laptop when it comes back with a new operating system, ten pieces of gaming software and an inappropriate screensaver? You can't send it back to IT every time that happens.

DeepFreeze, CleanSlate, Windows SteadyState and other hard drive protection or lockdown utilities are one way to go. See Meal Plan 2 in the first *The Joy of Computing: A Cookbook for Small and Rural Libraries* for more information regarding locking down your computer *(http://maintainitproject.org/node/74).*

In contrast, the Alachua County Library District went in another direction, as discussed below.

Notes from a Chef

Patron Portioning

"One of our network technicians, Kelley Stewart, tested a different approach. Using a bootable Flash drive, disk-imaging software and drive partitions, he created an image of the partition used by patrons, copied it to a hidden partition on the hard drive and wrote a script to refresh the patron partition after every checkout. To ensure non-technical staff would not have problems with refreshing the partition, he automated the process. When a patron returns a laptop, staff plug a Flash drive into any USB port and power up the laptop, the laptop boots from the USB port, then a script takes the image from the hidden partition, rewrites the patron partition (takes three to four minutes), then ends by displaying the imaging software completion screen. At this point, staff can power off the laptop and place it in a secure storage container for recharge or check it out to another patron. This method met all our requirements and puts a high-demand resource back in service very quickly."

> *Michael Fettes*
> *Alachua County Library District*

Do You Need to Filter Your Checkout Laptops?

If your library falls under the purview of the CIPA act (i.e., you receive E-rate money in the Internet Access category), you probably need to filter any laptops that you make available for checkout. This may sound odd, since in Chapter 7 we said that CIPA doesn't require you filter patron laptops. The distinction, as made clear in this article (*http://webjunction.org/do/DisplayContent?id=990*) has to do with who owns the equipment. If the library owns the laptop and makes it available for checkout, it must be filtered.

OTHER TASTY RECIPES

Advice on Buying a Laptop

- A Quick Guide to Buying a Laptop
  Yahoo!
  An easy visual guide to some of the major factors to consider when you buy a laptop.
  http://tech.yahoo.com/qg/quick-guide-to-laptops/laptops;_ylt=AlQe.kPAECP6Hvsdp3WFeC9SLZA5

- How to Buy a Laptop
  PC World
  A more in-depth look at the features available to laptop buyers and advice about how to choose between them.
  http://www.pcworld.com/article/id,125647-page,1/article.html

- Tech Purchasing Advice
  WebJunction
  General advice on buying computer hardware
  http://www.webjunction.org/do/DisplayContent?id=10230

Check Out This Real, Working Laptop Checkout Program

For another take on Alachua County Library District's experience with checking out laptops, read this article *http://maintainitproject.org/files/Micheal%20Fettes.pdf.* In Appendices B and C, you'll also find the list that Alachua staff uses when they're checking out and checking in the laptops. In Appendix D, we've also included a copy of the form that Alachua patrons have to sign when borrowing a laptop.

Fast Food — Meal Plan 7 Summary

- A laptop checkout program requires security measures to prevent the possibility of theft or damage.

- If your library falls under the purview of the CIPA act (i.e., you receive E-rate money in the Internet Access category), you probably need to filter any laptops you make available for checkout.

MENU 4 CHECKLIST

❑ If laptops are available for checkout, consider any of the following security actions:

- Hold their driver's license or photo ID until laptop is returned.

- Ask your patrons to sign a checkout form that clearly spells out their responsibilities.

- Look into the purchase of accidental damage protection for laptop repair/replacement.

- Engrave the serial number into the laptop.

- Place security tags on the laptops in several places.

- Put some "tamper strips" over the security tags.

- Use "LoJack for laptops."

- Train your staff to check the laptop when the patron returns it and to look for all major pieces before returning the patron's photo ID.

❑ Lock down your laptop computers using DeepFreeze, CleanSlate, Windows SteadyState and other hard drive protection or lockdown utilities.

Appendix A:
Library Wireless Policies

Marin County Free Library Wireless Policy*

The Marin County Free Library provides wireless access to its network for public Internet use.

In accordance with the American Library Association *Library Bill of Rights*, the Marin County Free Library provides unrestricted access to the Internet at every Library site, including through its wireless networks, where available.

Library patrons are cautioned that the Library is a public area, which must be shared by Library users of all ages, backgrounds and sensibilities. Individuals are asked to consider this and to respect others when accessing information and images.

Wireless network users will not be able to use FTP (file transfer protocol), file share or outgoing SMTP (simple mail transfer protocol) on the wireless network.

Library patrons may not use the Library's wireless network to transmit or receive illegal (including harmful or obscene) or disruptive material. Library patrons are expected to respect intellectual property rights by making only authorized copies of copyrighted or licensed software or data residing on the Internet.

Violation of the Library's Wireless Policy or abuse of networking equipment may result in the denial of access to the wireless network in all MCFL branches.

Library staff may not be available to assist patrons using the wireless network. Please consult the reference librarian for information on available computer classes.

Wireless network users will not be able to use the Library's printers to print documents. To print, a patron must log onto one of our public use computers.

WARNING: The Library is not liable for the consequences of wireless network use in any way, including the transmission of computer viruses, loss of data or email or any harm resulting from the use of an unsecured server.

* Approved by the Board of Supervisors July 27, 2004

Other policies affecting patron use of the Library and Library materials include: the *(1) Public Use Computer Policy; (2) Public Use Computer Policy FAQ* (further explains and clarifies the policy); *(3) Guidelines for Library Use; (4) Library Bill of Rights* (and associated interpretive documents); and (5) the Marin County Board of Supervisor's Resolution No. 2003-44 on the USA Patriot Act, which was passed on May 6, 2003.

Thomas Branigan Memorial Library Wireless Access Policy

A. Purpose

The City of Las Cruces provides free unfiltered wireless access in the Library for the public to use with their personal notebooks, laptops and other mobile devices. These access points are unsecured, unfiltered and may be accessible only during normal library hours. Use of this service inside the Library is governed by Thomas Branigan Memorial Library policies.

B. Policy Statement

Any person connecting to wireless Internet access within Thomas Branigan Memorial Library must abide by the following guidelines:

1. Wireless connections are not secure. Cautious and informed wireless users should not transmit personal information (credit card numbers, passwords and any other sensitive information) while using any wireless "hot spot." Please take appropriate precautions when using this service.

2. All wireless users should have up-to-date virus protection on their laptops or other wireless devices. The library is not responsible for any information that is compromised, or for any damage caused to hardware or software due to security issues.

3. All wireless users must use battery-powered electronic devices. Use of the Library's electrical outlets is prohibited.

4. Wireless users requiring sound must use headphones so as to not disturb others.

5. Library printers are not available via the wireless connection.

6. Library staff can provide general handouts for connecting your device to the wireless network. Staff will not troubleshoot problems related to your wireless device or assist in making changes to your device's network settings and/or hardware configuration. The Library does not guarantee that your device will work with the wireless access.

7. Responsible, ethical use of this resource includes the following:
   - Accessing educational, informational and legal recreational resources.
   - Respecting the privacy of others by not:
     – Attempting to modify or gain access to files, passwords or data belonging to others;
     – Introducing viruses;
     – Seeking unauthorized access to any computer system, or damaging or altering software components of any network or database.

C. Applicability

This policy applies to all persons within Thomas Branigan Memorial Library connecting to the Internet via the city wireless access point.

D. Disclaimer

Use of the wireless network is entirely at the risk of the user. The library disclaims any and all liability for loss of confidential information or damages resulting from that loss, or any and all damages resulting from use of the wireless network.

E. Responsibility

It is the responsibility of all persons using wireless Internet access to be familiar with this policy. It is further the responsibility of all Library staff to adhere to the policy as stated above.

Appendix B:
Laptop Checkout Procedure from Alachua County Library District

Laptop Checkout Procedure

- Laptops will not be loaned to patrons with incomplete or Internet-only library cards.

- Adult services will maintain custody of the laptops and check them out at HQ.

- Recommend branches submit written procedure for their locations.

- Patrons using a laptop will be required to surrender a picture ID (returned after check in and physical check of the equipment) and to fill out a Laptop Checkout Form.

- Laptops will be set to auto restore by using a USB drive or by pressing a function key at startup.

- Physical checks of the laptop and associated equipment will be required after each patron use:

  - Power adapter and cords
  - Batteries
  - Drives
  - Memory

- Automated Services will seal drive bay and memory access plates with tamper-proof strips. If any discrepancy is noted, immediately call Automated Services 334-3998. **(Do not check out the laptop if it has been tampered with, and retain the Laptop Checkout Form.)**

- Automated Services will provide laptop cases for storage.

- Laptops should be in a secure area (locked, if possible) when not in use. *(We purchased secure laptop storage carts from Dell for this).*

Appendix C:
More Information About the Alachua County Library District Laptop Checkout Program

1. The laptops are all Dell Latitude model D820s.

2. All the patron checkout laptops have the same barcode on their RFID chip, 32054057012220. This is not for checking out the laptops, only for identification as an asset in the SIRSI system.

3. There is a tamper-indicating sticker on the top (monitor side) of each laptop. If someone peels the ACLD sticker off the workstation, it will show OPENED (see example in Automated Services).

4. No separate keyboard, mouse or headphones are provided with the laptops.

5. Speakers are in the body of the laptops. For noise control, branches/departments may want to provide headphones (as with the Internet PCs).

6. Each laptop is labeled with the branch it belongs to and a number on the left side of the case and the PC ID on the right.

7. The laptops are covered by an **accidental damage** insurance policy. Patrons should be held responsible for shipping and handling costs ($50.00).

8. On the bottom of the case are:
   - An Alachua County property tag
   - An RFID tag (with ACLD overlay)
   - A tamper strip over the hard drive bay
   - A tamper strip over the memory module bay
   - The Microsoft Windows XP Professional product key sticker
   - The Dell Service tag and serial number stickers

9. Things to look for at check in:
   - No physical damage to the laptop (particularly the LCD screen)
   - Battery in place
   - Tamper strips undisturbed
   - RFID tag in place
   - DVD drive in place (may be able to lock this later)
   - Placeholders in card slots (lower-left side of laptop)
   - Wi-fi switch positioned toward the front of the laptop

10. Checkout recommendations:
    - No checkout to those with "No Address" profiles
    - Retain a picture ID while the patron uses a laptop
    - Have the patron sign a "responsibility sheet"
    - If the laptop is not returned (decide on timeframe), call the police and report the theft

Appendix D:
Laptop Checkout Form for
Alachua County Library District

LAPTOP CHECKOUT FORM

Laptops will not be loaned to patrons with incomplete or Internet-only library cards.

I understand that by borrowing a laptop computer from the Alachua County Library District that I am responsible for the computer and all accessories. I will reimburse the Library District for any damages if the laptop or any software installed thereon is damaged, lost or stolen while checked out to me.

I understand that laptop loans are for in-facility use only and cannot be removed from the building.

I agree that I will not alter any settings or configurations on the laptop.

I understand that the loan period for borrowing a laptop is _____. I also understand that laptops must be returned to library staff at least 30 minutes prior to library closing, even if this does not allow me to use the entire _____ loan period.

I understand that when the loan period has elapsed I must return the laptop to a staff member at the _____ desk. Until the laptop has been placed in the hands of a library staff member and checked in, it is my responsibility. Otherwise, my laptop privileges will be revoked and I may be barred from using library facilities.

I agree to provide a picture ID to be held by library staff until the laptop has been placed in the hands of a library staff member and checked in. At that time my picture ID will be returned.

I understand that the library will not be held responsible for any damage or loss of data or media due to any cause while using a library computer.

I understand that library wireless connections are not secure, and I will take appropriate caution with personal information while using library computers.

By signing this document, I verify I have read and understand the Laptop Loan agreement and the Laptop Loan policy of the Alachua County Library District.

Name _____

Library Card # _____

Please print

Signature _____

Date _____

Appendix E:
Checklist for Wireless Access Policy

Use this "Quick Look" checklist to make sure you're covering your bases when it comes to crafting a wireless policy for your library.

First, look at your existing Internet (Computer) Use Policy. Do you need to add anything to it relating to use of the wireless? You may decide that it covers your situation. However, do keep in mind the following possible additions:

■ **Network Security:** If you're providing a fairly open network, consider a disclaimer about the possibility of radio signals (wireless) being intercepted. This is more specific to wireless than the equally useful disclaimers in your Internet policy about how the "library is not responsible for lost data due to network failure" and "beware of viruses" and "be careful about transmitting your personal information on an open network."

■ **Network Availability:** WLANs can be flaky, and patron laptops can be even more so. Note that they may lose signal at random and the library takes no responsibility for lost data, etc.

■ **Limitations on Use:** Time limits, bandwidth limits, no FTP, no telnet, no streaming content. Do you offer printing? Web-based email only (no SMTP server)?

■ **Personal Equipment Security:** Warn patrons that the library is not responsible for **stolen** equipment, lost data due to their equipment failure, etc.

■ **Filtering:** Note if the wireless access is filtered, especially if the in-house is not, or is only partially filtered (filter by patron choice only, for instance). You may want to quote any law (CIPA) relating to this in brief.

■ **Support:** Will your library staff provide help with patron laptops? Can they provide help with determining if there is a signal present (i.e., if the APs are working)? If you don't want staff touching patron laptops due to liability, say so.

Getting it done:

■ **Staff:** Make sure your staff are kept in the loop about any wireless initiatives, in particular about what they'll be expected to offer in the way of support for patrons. This sounds silly, but wireless initiatives can happen so quickly that staff may not have time to become aware of all the issues involved, especially what patrons will ask them.

■ **Promotion:** How will you notify users of the policy? Do they have to sign off on it before they can use your system? Will you print it out and post it? Put it on your Web site? Use a captive portal or similar product to force users to agree to the policy?

■ **Policy Approval:** *Any* policy should be run by your board or advising committee, and preferably your university or city attorney, to be sure the language is appropriate both for liability and also in line with your existing policies.

Adapted with permission from: *Wireless Networking: A How-To-Do-It Manual for Librarians by Louise Alcorn and Maryellen Mott Allen. New York: Neal-Schuman Publishers, 2006.*

Appendix F:
Setting Up Your Laptop to Print Wirelessly at the Willits Library, Mendocino County Library

1. Click Start, go to **Control Panel** or **Printers** and **Faxes** (**OR Printers & Other Hardware**).

2. Click **Add Printer**. This will open up a wizard. Click Next.

3. Select **Local Printer** and make sure the checkbox (Automatically detect and install my Plug and Play printer) is **NOT** selected. Click Next.

4. Select **Create a new port** and in the drop-down menu, select **Standard TCP/IP Port**. Click Next.

5. The screen, "Welcome to the Add Standard TCP/IP Printer Port Wizard," should appear. Click Next.

6. In the "Printer Name or IP Address" field, type "192.168.1.155" (NO quotation marks). (You may be asked to click Next at this point.)

7. Select "HP" in the printer manufacturer box, and scroll down to and select HP LaserJet 4050 PCL6 (if this is not on your list, choose HP LaserJet 4050 PCL instead).

8. Your computer will now *probably* automatically install the driver for this printer. Just let it or click **OK** if it asks.

9. If asked, choose **Do Not Share This Printer**.

10. If asked to "Print a test page?", select **No**.

Appendix G:
Some General E-Rate Rules for Eligible Products and Services

If you apply for E-rate reimbursements, be sure to check the Eligible Services List at *http://www.usac.org/sl/tools/eligible-services-list.aspx* before you order products or services. Sometimes a particular hub or router is eligible, while a similar product, but a different make and model, is not. E-rate does not fund redundancies — for example, if you need only one server and buy the second server as a backup or "fallback," E-rate will not fund it.

The eligible services list provides guidance regarding what products and services may be able to receive reimbursements. It is organized by category of service and revised and updated each year in advance of the application window.

Here are some general E-rate rules to consider by funding category.

■ **Telecommunication** — USAC funds various types of services. Examples: T-1, Centrex, Local and Long Distance Telephone Service, Cellular Service and Paging Service, but NOT end-user equipment, such as telephone sets.

■ **Internet** — USAC funds the basic conduit access to the Internet or services that are an integral component part of basic conduit access. Examples: T-1, DSL, DS-3, wireless service, email server, Web hosting services, but NOT content or design and development of the Web site.

■ **Internal Connections** — USAC funds components at the applicant site that are necessary to transport information to the school or library. Examples: Access points, routers, switches, hubs, wiring, PBXs and codecs, but NOT the end-user equipment, such as telephones (including IP telephones) or laptops.

■ **Basic Maintenance of Internal Connections** — USAC funds basic maintenance of the internal connections to ensure the necessary and continued operation of eligible internal connection components at eligible locations. Examples: Repair and upkeep of eligible hardware, wire and cable maintenance, but NOT the end-user support, such as a student calling a help desk for technical assistance.

■ **LANs and WANs** — A LAN is considered Internal Connections and is funded beginning with the highest poverty level areas. WAN is not considered Internal Connections because it runs from the demarcation point at school or library to a point outside.

■ **WAN network facilities may only be leased, not owned, by applicants.** See the *WAN Fact Sheet* for detailed information at *http://www.universalservice.org/sl/applicants/step06/wide-area-network-fact-sheet.aspx*

Appendix H:
Getting to Know Your Ingredients —
A Wireless Glossary

Several of these definitions were adapted from *http://www.webopedia.com* and *http://www.about.com.*

■ **Dynamic Host Configuration Protocol (DHCP)** — DHCP allows one device (a server, a router, an access point or any other computer with the right software installed) to provide IP addresses on demand to other devices on the network. DHCP can save you a lot of time and energy because you don't have to manually assign an IP address to each new computer on your network.

■ **Firewall** — A firewall is a system designed to prevent unauthorized access to or from a private network. A firewall can be a hardware device, a piece of software or a combination of both.

■ **Hotspot** — A wireless access point or area for connecting to the Internet

• Hotspot Providers — A company that can offer wireless tech support, supply the equipment, help with the marketing, and provide a Web-based management console that can be used to monitor and control a hotspot.

■ **IP Address** — An IP address is the logical address of a network adapter, and it uniquely identifies each computer on a network. An IP address can be private; for use on a local, internal network or it can be public for use on the Internet. IP addresses can be determined statically (assigned to a computer by a system administrator) or dynamically (assigned by another device on the network). Each IP address consists of four numbers (known as octets) separated by periods. Each of these four numbers ranges from 1 to 255. For example, 192.168.1.1 is a commonly used private IP address.

■ **Internet Service Provider (ISP)** — The organization, often a cable company or phone company, that provides and maintains your Internet connection.

■ **Network Segment** — A segment is a specially configured subset of a larger network. The boundaries of a network segment are established by devices such as routers, switches, gateways and firewalls.

■ **Port** — 1) On computer and telecommunication devices, a *port* (noun) is generally a specific place for being physically connected to some other device, usually with a socket and plug of some kind. 2) A port is a number (usually determined by conventions or standards) that software programs use to establish a temporary connection with each other over a network. It's the way a client program specifies a particular server program on a computer in a network.

- **Router —** A router is a device (or, in some cases, software on a computer) that determines the most efficient way to move network traffic on to its final destination. A router usually sits on the edge of an organization's local network and acts as the gateway between that local network and the Internet.

- **Secure Set Identifier (SSID) —** All access points have an SSID, which is the name that the access point broadcasts. A laptop with a wireless adapter can detect the SSID and displays it to the laptop user. The user can then double-click the SSID to connect to the access point. This is important when there are multiple access points in the area.

- **Switch —** A switch is a hardware device that lets multiple computers on the same network segment communicate with one another by forwarding network traffic to the right computer. Switches usually have 12, 16 or 24 ports, and each computer connects to one of these ports with an Ethernet cable.

- **Virtual Local Area Network (VLAN) —** A group of host systems that have a common set of requirements. They communicate as if attached to the same wire, regardless of their physical location. A VLAN allows for end stations to be grouped together even if they are not located in the same LAN. VLAN reconfiguration can be done through software instead of physically relocating devices.

- **Wireless Access Point** — The center of a wireless network that acts like the hub or switch of your wired network, though it also has many of the features of a standard router. On one side it connects to the Internet, usually through a standard Ethernet cable, and on the other side it broadcasts a wireless signal.

- **Wireless Adapters —** Come in a dozen different shapes and sizes, but they all serve the same purpose of allowing a computer to connect to an access point or a wireless router. Wireless adapters are built into most laptops these days, but if your computer doesn't have one, you can buy a small one that plugs into your USB port for $30 or $40.

- **Wireless Devices —** Computers and gadgets that use the access point in order to hook into your network and Internet connection.

- **Wireless Gateways —** Appliances that add functionality to your wireless network. In particular, they allow for more advanced types of authentication, reporting and bandwidth control. Some gateways sometimes come with wireless built in, but usually you have to purchase the access point separately and attach it to the gateway.

- **Wireless Networks —** Similar to wired networks, but instead of using cables, wireless networks communicate using radio frequency signals. Wireless equipment can be used to create a small network with a radius of roughly 300 feet or a large network that enables communication over long distances.

- **Wireless Network Adapter —** A specific piece of hardware that connects a computer to a WLAN. Wireless adapters come in all shapes and sizes. Some adapters are built into the computer. Others need to be purchased separately and then plugged into the USB port or PC Card port.

- **Wireless Routers** — Combine the features of an access point and the features of a cable modem or DSL modem. You're generally very limited as to where you can place a wireless router, since it needs to be near your cable or DSL connection.

We need your help!

We couldn't have created the Cookbook without the help of *many* libraries, and now we're asking YOU to make it even better. Please take a few minutes to complete this anonymous survey. We'd love to hear your thoughts. Thank you.

If you prefer to share your thoughts online, please go to www.maintainitproject.org/cookbooks and click on the survey link.

1. Is the cookbook useful for your library?

☐   Yes
 Which information was most useful? _____

☐   No
Please tell us why:

_____

_____

2. Which sections of the Cookbook did you read? (Please check all that apply):

☐   Meal Plan 1 : Setting up a wireless network
☐   Meal Plan 2: Avoiding and fixing wireless networking problems
☐   Meal Plan 3: Providing help to laptop patrons
☐   Meal Plan 4: Wireless acceptable use policies
☐   Meal Plan 5: PC reservations/time management
☐   Meal Plan 6: Print management
☐   Meal Plan 7: Laptop checkout programs

3 How well does the cookbook help your library to:

      Please rank each selection with one of the following:
      1= Not at All
      2= Somewhat
      3= Very well
      4= Totally

a. Plan or better understand your wireless network.

b. Address or avoid a potential problem with your wireless network.

c. Address an issue about allotting time on public computers.

d. Help with print management.

e. Consider a laptop checkout program for your library.

4. Did you use any of the resource in the "Other Tasty Recipes" sections?

☐   yes

Were they helpful? __Yes __No

☐   no

Please suggest any other resources we should include:

_____
_____
_____
_____

5. What is the approximate population served by your library?

☐   < 10,000
☐   10-24,999
☐   25-50,000
☐   51 – 99,999
☐   >100,000

2. What best describes your role(s) with regard to public computers. Please check all that apply:

☐   Help patrons use public computers
☐   Responsible for maintaining public computers at my location
☐   Responsible for maintaining public computers at several locations
☐   Librarian/library staff
☐   IT professional

3. How many public computers are does your library have?

☐   1-5
☐   6-10
☐   11-14
☐   15-20
☐   21+

OPTIONAL: Did the Cookbook help your library make a decision or influence an action to help maintain your computers? Please tell us about it. Please also consider sharing your experiences. We'd love to add your name to the long list of Cookbook contributors. Take a moment to share your contact information, below.

Name: _____

Title: _____

Email: _____

Library: _____

Phone: _____

Please send this form to:
MaintainIT Project of TechSoup
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San Francisco, CA 94107

Or get in touch directly with us: maintainit@techsoup.org

Thanks!