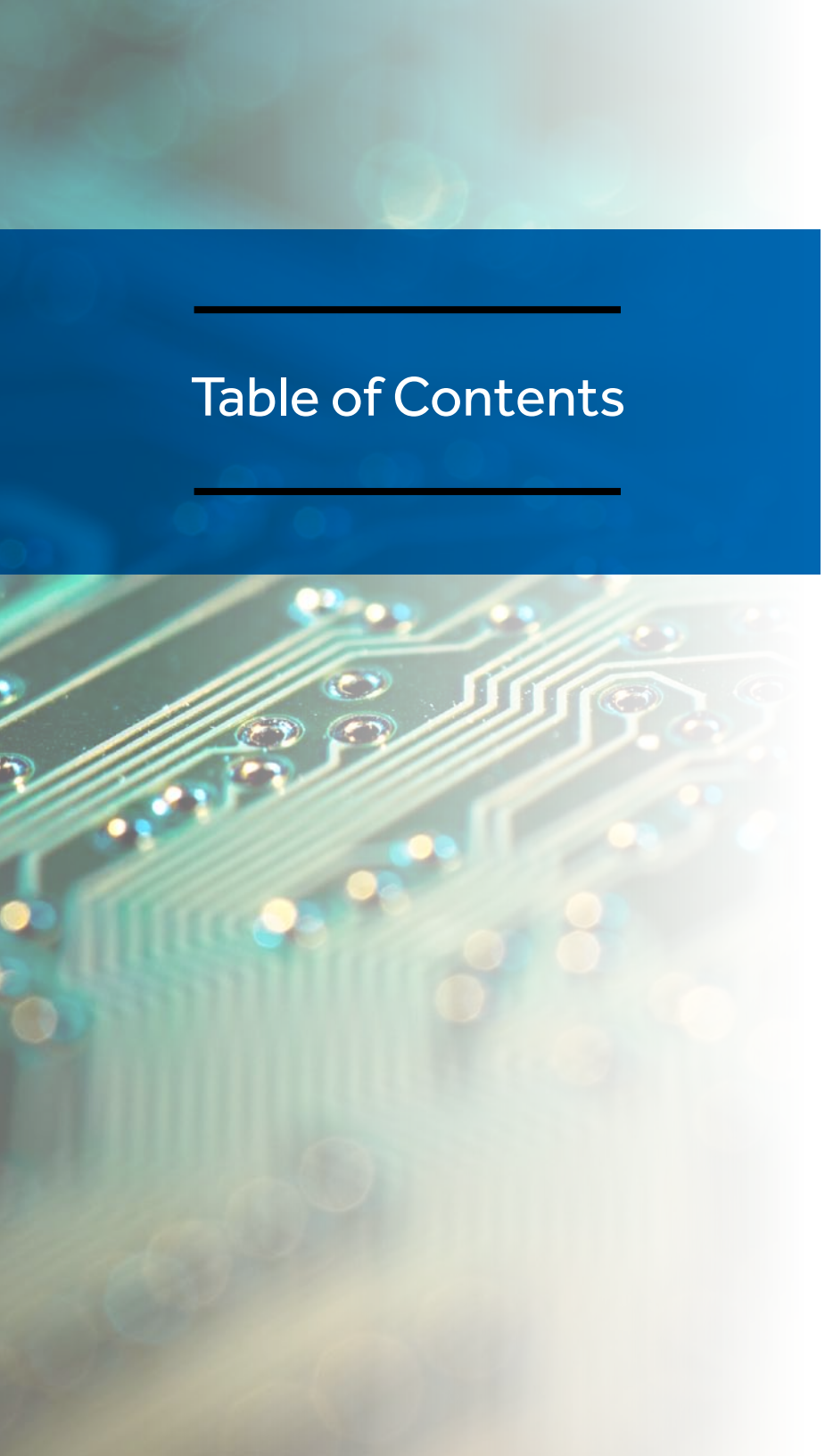
Small Business Guide to Internet Services

COMMON SENSE, STRAIGHTFORWARD ADVICE & INFORMATION

Courtesy your friends at Sparklight Business

Sparklight™ Business



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Welcome

LET'S TAKE THE MYSTERY OUT OF TECHNOLOGY

For starters...this *Guide* is not an advertisement.

It's not about us. Not a single word.

It's just our best advice for the typical small business owner wrestling with how to make good business decisions.

When it comes to internet services and related technology... an ongoing expense for every business...how can you be sure you're getting exactly what you need and the most value for your dollar?

The *Guide* contains ten short articles written to help you: evaluate what your business needs, compare service providers, understand what you're paying for, protect the security of your data and plan for the future.

You might not want or need to read all ten articles. But we're confident you'll find at least a couple worth your time.

Your friends at *Sparklight Business.*

GETTING STARTED

Chapter 1

Figuring Out What You Need

HOW TO CHOOSE THE RIGHT BUSINESS INTERNET SERVICE

Choosing the best internet service for your small or medium-sized business basically comes down to one measurement – speed.

When Internet Service Providers (ISPs) use the term "speed" they are really referring to bandwidth, which governs the amount of data your internet connection can transfer between two computers in one second. For example, 50 Mbps is 50 megabits per second.

If your internet connection is 50 Mbps, you have the capacity to achieve that level of performance. However, your actual internet speed can be limited by other variables, such as your server, computer network or Wi-Fi connection.

The other factors that can affect your speed are the number of employees using the internet at the same time – and the amount of data they are sending or receiving. If the amount of data being transferred exceeds your bandwidth at any given time, it will require more time to transfer. This will decrease your actual speed.

What Speed Do You Need?

So, what speed (or bandwidth) does your business need? It basically depends on how many people you have and how they are using the internet.

15 – 30 Mbps

If your business consists of one or two employees that use typical internet functions throughout the day, then you can get by with an economical internet connection, around 15 Mbps. This level of performance will allow for web browsing, video streaming and some light-duty cloud-based applications.

30 – 100 Mbps:

If your business includes 3 to 10 users and devices, you're going to need more speed. Depending on how internet-intensive your staff and services are, you will want from 30 Mbps to 100 Mbps. This higher capacity will enable more extensive internet usage, larger file sharing, smoother streaming and greater online interaction. With these faster speeds, your company can comfortably handle more functions, such as robust cloud applications, multiple Wi-Fi devices, credit card processing and frequent online backups.

100 Mbps or More:

If you have more than 10 users and devices, you should probably support at least 100 Mbps. But no matter how many employees you have, if the internet is critical to your business success, you'll want as much speed as you can get. If your business involves the heavy use of cloud-based applications, video or music streaming, video conferencing, online collaboration, internet-based telephone services, large graphic files, or frequent online backup, you should probably consider 100 Mbps or more. Similarly, if your business supports e-commerce, multiple locations, or a mobile workforce, you will probably want the highest speed connection you can afford. The highest bandwidths can improve speed, productivity and reliability, and provide your company with a real competitive edge.

Factor in The Future

Another important consideration is the future. If your business is growing, you will need more internet bandwidth to maintain your current speeds. Also, as we move into the future, more and more business functions are moving to the internet. For example, the rapidly expanding "Internet of Things" already provides an enormous volume of valuable information and automates processes that lead to better management, smarter marketing, more efficient production, faster fulfillment and improved customer service. To take full advantage of these innovations, you will need greater speed.

GETTING STARTED

Chapter 2

Comparing Internet Service Providers

KNOW YOUR INTERNET OPTIONS: DSL, CABLE, FIBER AND SATELLITE

There's only one internet, but there are several ways you can connect to it. And that connection can make all the difference when it comes to the productivity and profit of your business.

For small or medium-sized businesses, the four most popular internet options are: DSL, Cable, Fiber and Satellite. Other choices are available – such as Dial-Up and Wireless – but they tend to be too costly or too slow for the needs of today's businesses.

The Pros and Cons of Internet Connections

DSL Internet

DSL or Digital Subscriber Line is offered by telephone companies and uses the telephone lines already installed in your business. Though more affordable than other options, DSL is slower than cable or fiber. Advertised speeds for DSL range between 6 Mbps to 40 Mbps but the actual speed can be less, depending on the distance between your business and the phone company facilities. Also upload speeds are much lower than download speeds with DSL.

HOW DOES DSL COMPARE?

Pros

- Easy installation
- More affordable than other services

Cons

- Slower speeds than fiber and cable
- Upload speeds are much slower than download speeds

Cable Internet

Cable internet comes from a cable company and uses the same circular coaxial cable used for cable television. Because these cables offer a higher bandwidth, they can achieve faster speeds than DSL and satellite. Speeds can vary by market, but top end cable speeds typically range from 100 Mbps to 500 Mbps. Although these speeds won't be affected by distance, the connection may be shared by other nearby business and residential subscribers – which may affect the speed.

HOW DOES CABLE COMPARE?

Pros

- Faster than DSL, satellite and wireless
- Widely accessible across the US

Cons

- Usually slower than fiber
- Can lag during peak usage times

Fiber Internet

Fiber or fiber-optic internet converts data into light then sends it through glass fibers about the thickness of a human hair. Offering speeds up to 10 Gbps, fiber is the fastest internet connection you can buy. Unlike DSL, fiber speeds can be maintained across very long distances between the service provider and your business. Fiber is also considered to be the most reliable and secure option. Though fiber has become widely available, especially in larger metro areas, many areas are still not served by fiber internet. Costs will vary depending if you opt for Dedicated Internet Access or a shared fiber connection, but in general fiber is a more expensive internet option.

HOW DOES FIBER COMPARE?

Pros

- The fastest internet service on the market
- Symmetrical upload and download speeds

Cons

- More expensive than other services
- Not available in all areas

Satellite Internet

Satellite internet provides a connection via a satellite orbiting the Earth. Because the signal must travel a long distance from earth to the satellite and back again, speeds are generally slower than other options – usually no more than 18 Mbps. The key advantage to satellite internet is its availability almost everywhere in the United States. This makes it a good solution when there are no other service providers available. However, with satellite internet weather conditions can often interrupt or impair service.

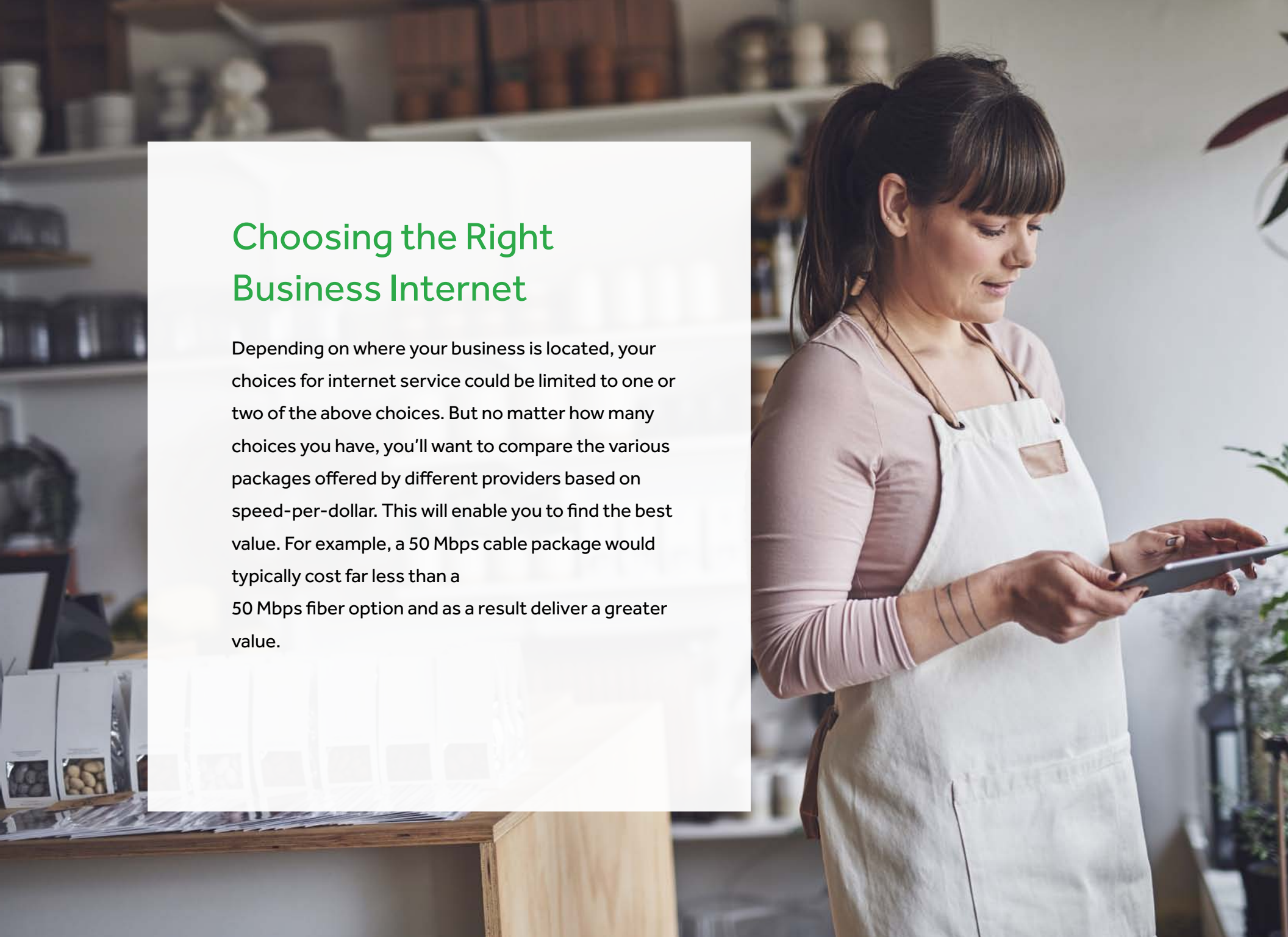
HOW DOES SATELLITE COMPARE?

Pros

- Relatively easy to install (requires a satellite dish)
- Available everywhere in the US

Cons

- Slow internet speeds
- At the mercy of weather conditions



Choosing the Right Business Internet

Depending on where your business is located, your choices for internet service could be limited to one or two of the above choices. But no matter how many choices you have, you'll want to compare the various packages offered by different providers based on speed-per-dollar. This will enable you to find the best value. For example, a 50 Mbps cable package would typically cost far less than a 50 Mbps fiber option and as a result deliver a greater value.

GETTING STARTED

Chapter 3

What Are the Real Costs of Business Internet Service?

UNDERSTAND WHAT YOU'RE PAYING FOR – SPEED, INSTALLATION, EQUIPMENT AND SERVICE

When comparing internet service for your small or medium-sized business, the main consideration is speed. How much bandwidth will your business need to operate efficiently and competitively, today and in the future? As you would expect, regardless of the type of internet (DSL, cable, fiber or satellite), higher speeds come with a higher cost. But if you only consider speed-per-dollar, you might not get the value you bargained for. Usually, there are other costs involved, including installation, equipment and service.

Speed

Speed is the number one factor in the price of internet service. The faster the speed, the higher the price. Overall, this holds true for all types of service: DSL, Cable, Fiber and Satellite. That's why it's important to know and purchase just the speed you need.

Consider, too, how other factors can affect your price – promotional offers, bundling and long-term contracts. Take these into consideration when comparing costs. Just keep in mind an introductory price will eventually expire. And the price you lock in with a long-term contract may not be competitive years from now.

Try comparing the stand-alone, non-special pricing of various internet services. You'll get a good idea of what your long-term experience and cost will be.

Equipment

Some Internet Service Providers (ISPs) will include the equipment for free or have already included the fee in the monthly cost. However, most ISPs will charge a one-time fee for the equipment or add an equipment rental fee to your monthly bill. This cost can include equipment such as modems, routers, satellite dish, inside wiring, additional outlets and a host of other specialized equipment needed to bring service to your location. When the cost of this equipment is added to the advertised monthly fee, it can substantially change the actual value of the service.

Installation and Activation

If your business has the expertise to install your own internet service, there may be no charge for installation. Most customers, however, will require a technician to install equipment and activate service. In most instances you may incur little more than a standard installation and activation fee, around $50. But make sure you know, because it depends on your location, whether service needs to be established for your building and what's being installed. You don't want to get surprised with installation charges in the hundreds or thousands of dollars.

Service

In most instances, if there is a problem with your service or wiring, your ISP will provide for repair or replacement at no charge. But not in every instance. Protection plans usually involve an additional fee, especially if they provide access to third-party wiring consultants and repair technicians. Another type of service fee involves data usage. Some business internet plans come with a monthly data allotment. If your business goes over the monthly limit, you may incur additional charges – or be asked to upgrade to a more expensive plan.

Choosing the Right Business Internet

Depending on where your business is located, your choices for internet service could be as few as one company or as many as 50. While speed-per-dollar is the most important way to compare the various internet options, there can be other charges as well. To find the real value, you should read beyond the advertised price and specifically ask about all other fees and costs.

TECHNOLOGY BASICS

Chapter 4

Modems & Routers – Should You Rent or Buy?

CONSIDER COST, PERFORMANCE AND CONVENIENCE

Whether you buy it or rent it, you will need a modem for your business broadband internet connection. And if you want Wi-Fi access to your internet, you will need a router, too – or a combined modem-router. If you're tech savvy, you may find some advantages in buying this equipment, rather than renting it from your internet service provider. But what exactly are the pros and cons? Should you buy or rent?

Why You Should Buy

There are two major reasons to buy your internet modem and router instead of renting: lower costs and better performance.

Internet Service Providers (ISPs) typically charge from $10 to $15 per month to lease an all-in-one modem and router. So, in the first year alone, you will pay about $120 to $180 for a modem-router combo. However, you can buy your own modem-and-router combo for under $100. Even a high-end modem and router purchased separately will cost under $200.

This means, if you buy your own modem and router, you will save about $120 to $180 per year, after the first year. What's more, most tech experts recommend a separate modem and router over a combination unit, because the stand-alone routers offer more features and better performance. So, if internet performance is important to your business, you may find not only cost but also performance advantages in buying.

Why You Should Rent

The main reason you might want to rent your internet modem and router is convenience.

- With a rented modem and router, you never have to worry about compatibility or replacing the unit yourself.
- If the rented unit stops working, the ISP should replace it for free.
- When the rented unit becomes obsolete, you can usually upgrade for no additional charge.

Also, if you anticipate changing your internet connection in the near future, it may be easier to rent the modem until you make the change. The type of modem you need for DSL, cable and fiber connections are not interchangeable. Similarly, if you add internet phone to your services, you'll need a modem that has a phone port, and this type of modem is usually provided by the ISP for free.

Tips for Buying Your Modem

While routers are universal and will work with any type of internet connection, modems are not. For this reason, you need to make sure your modem is compatible with your internet connection. Most ISPs have a list of approved modems on their website.

When choosing your internet modem, you obviously want a device that can handle your current bandwidth needs. But you should also consider your bandwidth needs as your business grows or its dependence on the internet expands.

If you rent, your ISP will keep your modem up to date. If you buy, keep in mind it's generally a good idea to invest in a modem that can handle your potential bandwidth needs of the future.

TECHNOLOGY BASICS

Chapter 5

What is a Static IP? Do You Need One for Your Business?

HINT: WEB SERVERS AND EMAIL SERVERS MUST MAINTAIN STATIC IPS

While setting up your office network, you may have stumbled upon two different types of IP addresses: static and dynamic. Once assigned to a device, a static IP remains constant, allowing other devices to identify it upon connection. There's a monthly charge for a static IP, and only certain types of businesses need them. For most companies, a dynamic IP is fine.

What Is an IP Address?

Each device on a network has a unique Internet Protocol (IP) address. Just as buildings have street addresses, an IP allows devices to locate and identity one another.

Dynamic IP vs Static IP

Dynamic IPs are assigned by the network to the device upon connection, and the device receives a new dynamic IP address every time it connects. The network maintains a pool of available addresses and essentially rolls a dice to determine which address to assign at any given time.

In contrast, when a device is assigned a static IP address, that address is there to stay. Web servers and mail servers must maintain static IPs in order to provide users with access when connecting from the internet.

How Do I Get a Static IP?

When you sign up for internet service, you have the option to forego static IPs and go with the default dynamic IP system. You can also choose to have one static IP for a specific server, or multiple static IPs for multiple servers. Your internet service provider will show you how many static IPs you can choose when you register for service. If you do choose to have one or more static IPs, they will be assigned to your devices upon installation and activation of your internet service. Some internet service providers may require you to use your own router to set up multiple static IPs for your business.

Do I Need a Static IP?

Most businesses operate smoothly using only dynamic IP addresses. The type of IP address assigned to your device will not affect basic internet services such as email, video conferencing, streaming, and browsing. However, certain situations may require that your devices have a static IP:

- You run a private web server or email server that requires users to connect from the network.
- You use devices that can only connect to your network through its IP address. These devices may fail to connect or will need to be reconfigured if the target device's IP changes.
- You use remote networking services such as VPN to connect to computers off-site.

If you're still unsure about whether your business needs static or dynamic IPs, contact your local ISP or IT professional. Most internet providers allow you to add or remove static IPs from your account at any time, so there's little risk in assigning a couple to your servers. As your company evolves, you will get a clearer picture of your static and dynamic IP needs.

TECHNOLOGY BASICS

Chapter 6

Why Your Small Business Needs a Server-Based LAN

BENEFITS TAILOR MADE FOR SMALL BUSINESS

If your business operates multiple computers, there are important reasons you should connect them through a Local Area Network or LAN. With a server-based LAN, businesses of all sizes can leverage the combined power of all their computers and networked resources to improve productivity, security, management and more.

Most new computers include the software needed to set up a simple LAN that will support file and printer sharing. To realize the full benefits of a LAN, however, you will need to add a centralized computer called a server to manage and optimize the network. Along with shared access to all networked devices, a server-based LAN gives all your computers access to centralized data, applications and secured internal networks. A server-based LAN has several benefits that are tailor made for small business.

Top 5 Advantages of a Server-Based LAN

1 **Shared Resources and Remote Access**

The ability to share resources among all your computers is the primary reason for setting up a server-based LAN. With a server-based LAN your employees can share access to software, files, high-speed internet – and devices such as printers, scanners and back-up devices. This can substantially lower your operating costs. Your workers can also work from home or remotely and access files on your server whenever they want.

2 **Better Performance and Reliability**

LAN servers are usually optimized for better performance, which is particularly useful for Web servers and email servers. When optimized servers are used for file or database servers, they can increase the availability and speed of applications and data. At the same time, a server-based LAN maintains redundant hardware and software, so if a single computer fails, it won't disrupt your operations. All of this means greater productivity.

3 Easier Management

It's much easier to manage multiple computers from a single platform than it is to manage each of them individually. Also, your IT administrator can remotely troubleshoot problems on computers across the network rather than doing it in person.

4 Added Security

LAN servers have built-in security features, like firewalls, that improve the security for online access. At the same time, a LAN server lets you control which users have access to what data based on their need. These features can prevent unauthorized data access and accidental data corruption. With a LAN server, you can install and update antivirus software on a network-wide basis; you can also perform regular network-wide backups. In addition, all of your backups can be saved to an off-site location. This adds a second dimension of data security to your business in the event of cyber-attack, equipment failure or carelessness.

5 Robust, Real-Time Business Information

With a server-based LAN, customer service reps have instant access to all the relevant customer and product information. At the same time, data that management needs to make informed decisions – including incoming orders, sales figures or inventory levels – can be immediately accessed when it's stored on a LAN. This gives management both real-time insight and a big picture view of their business, leading to more effective and intelligent decisions.

A Server-Based LAN Will Serve Your Business Well

Setting up a server-based LAN does involve some expense, but you don't have to be a technical expert. A good place to start is with your internet service provider. Most offer networking expertise and services to help you set up your LAN. They may also offer technical support and troubleshooting.

Most LANs will provide a substantial ROI through in increased productivity, shared resources, improved security, easier management and smarter decisions. What's more, as your company grows, the value and importance of your LAN will grow even more.

SECURITY

Chapter 7

Top Tips for Protecting Your Business from Cyber Threats

8 EASY WAYS TO ENHANCE YOUR DIGITAL SECURITY

You may think your business is too small for hackers to target. But the fact is, almost two-thirds of cyber-attacks are now directed at small to medium-sized businesses. And the damages can be devastating. In recovery expenses alone, these breaches can cost thousands of dollars. And that doesn't account for loss of valuable data, damage to computer equipment, loss of income due to system shut down, privacy lawsuits and more.

While no protection measures are 100% effective, there are steps you can take to reduce the risk of cyber-attacks to your business. Here are some of the best ways to protect your business, quickly and economically. You will want to research all of these measures in more depth, but this list will point you in the right direction.

1 Encrypt Your Data

Most operating systems come standard with a function to encrypt your files without slowing down your drive. Essentially, the encryption tool creates another set of passwords for your data, so even if a hacker accesses your network or cloud, they still need these passwords to obtain your data.

2 Use Strong Passwords

To create a strong password, experts advise that you include a combination of: upper-case letters, lower-case letters, numbers, blank spaces and special characters. Also make your passwords at least ten characters long, the longer the better. An even better solution is to use a password manager. This is an online app that automatically creates hack-proof passwords for you.

3 Add a Firewall

Firewalls can be hardware or software. A firewall secures your system by controlling web traffic coming in and out of your business based on predetermined security rules. A firewall should be standard security equipment on any business computer or network.

4 Install Antivirus Protection

Antivirus or anti-malware applications are designed to prevent, detect and remove malicious software, including viruses, Trojan horses, spyware, adware and ransomware. Some antivirus apps also protect against other cyber-threats including infected URLs, spam, phishing attacks, social engineering and denial-of-service attacks.

5 Upgrade Programs Regularly

The most popular applications and operating systems from companies like Google, Microsoft and Apple are always improving their level of security. By continually updating your programs to the latest versions, you will have the most secure computer system possible. Almost all "updates" are security updates and should be downloaded upon the first onscreen notice.

6 Secure Your Equipment

Most cyber-attacks occur when physical electronic equipment is stolen. To prevent this, make sure your office computers are physically locked down. Smartphones can also hold a wealth of company data, and they are easily lost or stolen. To protect against this, you should use encryption software, password-protection and even "remote wiping" for your company smartphones.

7 Backup Regularly

Today, many cyber-attacks are designed to disable your system or erase all your data. For this reason, it's wise to have a backup source for all your information. An automatic system for frequent backups to an outside hard drive or the cloud is easy to use and well worth the cost.

8 Educate Your Employees

Employees can play a key role in preventing cyber-attacks. It's a good idea to establish a company policy about cyber-security and internet practices, including how to keep information safe, what websites are prohibited – and especially what type emails and attachments should not be opened.

You've worked hard to start and build your small business. Protect it with these easy but essential steps against cyber threats.

SECURITY

Chapter 8

Small Business Wi-Fi – Easy Steps to a Secure Connection

HOW TO SECURE YOUR SMALL BUSINESS WI-FI

Wi-Fi has become an essential tool for productivity in businesses of all sizes. At the same time, Wi-Fi has become an important feature to many customers as well. But while Wi-Fi enables your business with the power of connectivity, it can also expose your business to the threat of cyber-attacks. And these cyber-attacks could severely impair your operations or even shut down your business completely. For this reason, securing your Wi-Fi network needs to be a top priority.

Top Tips for Securing Your Small Business Wi-Fi

1 **Start with a Business-Grade Wi-Fi Router.**

Consumer routers are notoriously easy to hack. The first step to securing your Wi-Fi is upgrading to a commercial router that supports the current wireless networking standard IEEE 802.11ac, along with all the security and functionality your business will need.

2 **Secure Your Routers and Ports.**

You don't want unauthorized people accessing your routers or Ethernet ports. If hackers access your router, they can override all your security by simply hitting the reset button. If hackers have access to an Ethernet port, they can add their own access point or AP to your network. The best solution is to lock up your routers and disable any exposed ports.

3 **Use WPA2 or WPA3 Security Protocol.**

You will probably have a choice of security protocols for your Wi-Fi network. The current standards for Wi-Fi Protected Access (WPA) are WPA2 and WPA3. The most recent version, WPA3 was introduced in January 2018 and includes individualized encryption for each user, which is highly recommended.

4 **Choose a Unique SSID Name and Password.**

The default Service Set Identified (SSID) name and password of a Wi-Fi network is easily cracked by hackers. Choose a discreet name for your Wi-Fi network to make it harder for hackers to find. Also choose strong passwords and change them periodically.

5 **Disable the Remote Login.**

If your Wi-Fi network allows for wireless login, you will want to disable it. Even though it's convenient for you to manage your network remotely, it's also convenient for hackers to breech your network remotely. With this feature disabled, only users who are physically connected to your router through an Ethernet cable can access the admin features.

6 **Set Up Private and Public Access.** If you're providing Wi-Fi to your customers or guests, set up a separate access point or router for their use. The public will have convenient access to the internet, but they will not have access to your business-critical network and information. Your employees can access your network using a different set of passwords and security measures.

While no Wi-Fi network is ever completely safe, follow these tips to better secure your Wi-Fi network.

MANAGEMENT

Chapter 9

Trouble-shooting for a Slow Internet Connection

6 QUICK FIXES FOR THE BUSY BUSINESS OWNER

Your business productivity and success probably relies heavily on the internet. It may even be a mission-critical part of your operation. So, if your internet connection develops a problem, or fails to deliver the speeds you need, you need to fix it – and you need to fix it fast. Below are six troubleshooting tips that any small business staff without IT expertise can use to improve a slow internet connection quickly.

1 Know Your Speeds

First, visit your internet provider's website and find out what speeds your plan is supposed to deliver. Then visit Speedtest.net and run a test of your actual internet speed. If the speeds match up, there's no problem with your network, your devices or the connection. The problem is you have a slow internet plan. The simple solution is to upgrade your plan to higher speeds.

2 Check Your Hardware

Before you do anything else, reset your modem and router by turning them off and on again, and see if that fixes the problem. If not, check the other computers on your network to see if their internet connection is also slow. If only one computer is slow, the computer is the problem. If all the computers are slow, it's most likely the router or modem. You may need to adjust the settings, check the connections or buy a new device.

3 Avoid Signal Interference

Signal interference on your Wi-Fi can cause your internet connection to perform poorly. To avoid this interference, you can try repositioning the router closer to your devices or away from physical obstacles, like walls and floors. Your signal may also be affected by other Wi-Fi devices in neighboring buildings, or other wireless appliances nearby, such as cordless phones, microwaves, baby monitors or garage door openers. You can also try changing your wireless channel.

4 Run Anti-Virus Software

Viruses, spyware and malware are malicious programs that can secretly infect your computer while you're surfing the Web. If your network is infected, a virus can generate network traffic without your knowledge – and that will slow down your internet speed. Make sure your anti-virus software is up-to-date and running to identify and remove any viruses from your network. If you don't have anti-virus software, get some immediately! There are plenty of free and subscription-based programs that can detect, remove and prevent these viruses.

5 Stop Programs That Hog Bandwidth

It's not always a virus that hogs bandwidth. Many popular and productive applications consume more than their share of network resources – for example, games, video and music streaming and file sharing. Try quitting or pausing some of these programs. Also, check for programs that are running undetected in the background. Computers often download necessary updates in the background. You can configure your computer to schedule these downloads when you're not using your network.

6 Call Your Internet Provider

If your troubleshooting efforts do not fix your lagging internet connection, call your internet service provider (ISP). The problem could be on their end. Also, your provider's technical support can walk you through other troubleshooting procedures. It may be something simple that you can do from your location, like switching your directory server setting, called a DNS. Or you may need a service tech to visit your location.

One last thought. If your internet provider cannot fix the problem, or your internet performance is inadequate even after the fix, you should consider upgrading to a faster internet plan or possibly a different internet provider.

MANAGEMENT

Chapter 10

Knowing When You Need to Upgrade

IT'S NOT A MATTER OF IF BUT WHEN

The internet enables powerful business applications, provides a wealth of information, connects you to a worldwide market – and improves communications with customers, co-workers and suppliers.

For those reasons and more, it makes sense to employ the fastest internet connection that adds to your bottom line. While an economical internet connection can lower your expenses, it can cost you a lot more in workplace inefficiency, wasted time, poor connectivity and lost opportunity. On the other hand, you don't want to waste money on expensive internet speeds that you just don't need or cannot use.

When Do You Need More Speed?

So, how do you know when it's time to upgrade your current internet speed?

You could simply wait for complaints. When your staff starts to complain about slow downloads and uploads, buffering, email glitches, timed out online programs and error messages, you know you need more speed. Of course, by that time, your business may have already lost significant productivity and profit.

The better option is foresight. Along with your regular business planning, you should try to anticipate your internet usage. To do this, you need a good understanding of your current internet use. There are programs available (some of them free) that can monitor and report your actual internet usage. You can also buy high-end routers that will track bandwidth consumption by network device. Yet another option is to estimate your internet speed usage based on typical speed requirements of internet activities (see chart below).

How to Estimate Your Speed Needs

To estimate your current internet speed requirement during peak usage, refer to the chart below and follow these steps:

1. Consider a time when your business makes the most use of the internet.
2. List all the internet activities that might occur simultaneously at that time.
3. Multiply the speed required for each activity by the number of employees doing that activity at that time. (For example, Basic Web Browsing requires 1 Mbps. So, four employees would require 4 Mbps.)
4. Add all the bandwidth requirements for that time of peak usage.

ACTIVITY	MBPS
Basic Web Browsing:	1
Email and Instant Messaging:	1
Social Media:	1
Streaming Online Radio:	1
VoIP Calls (Voice over Internet Protocol):	3
Data Sharing:	4
Online Gaming:	4
Video Conferencing:	4
Video Conferencing (HD):	6
Media Sharing:	10
File Downloading:	10
File Downloading (Large):	50
Streaming Video:	4
Streaming Video (HD):	8
Streaming Video (Ultra HD 4K):	25
Cloud Computing:	2
Cloud Storage:	25
Telecommuting:	8
Web Hosting and eCommerce:	500

If the total speed required for a peak-usage period adds up to more bandwidth than your current internet plan provides, or is close to your limit, you should probably upgrade your plan.

Even if you only experience an occasional slow period now, the number of slow internet periods is likely to increase. As your business grows, so will your use of the internet.

Factor in The Future

When anticipating your future needs, consider how your business may evolve to require more internet speed. Your business may add more employees. Your employees may send and receive larger files, join video conferences, or access more cloud-based applications. Your employees may start working from home or use more tablets and smartphones. Your business may require more frequent off-site data back-up.

To handle all those activities, and take advantage of emerging internet tools and technology, you will need greater speed. It's not a matter of if you will need to upgrade, it's just a matter of when.

Your Digital World

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Business

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