

# *The Insider's Guide to* **Fiber Connectivity**





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# INTRODUCTION

Fast and reliable Internet connectivity is a critical component of contemporary business communications. An upgrade to fiber-optic Internet connectivity can deliver both gains in productivity and reliability for your company. Aberdeen Group research has found that an hour of Internet downtime costs companies an average of \$6,900, due to lost productivity and revenue. Slow Internet can also add up significantly over time.

With an upgrade to fiber Internet, you could experience gains in customer and employee satisfaction, and gain the ability to transform your company's use of technology and business processes. Fiber Internet is currently a competitive advantage. As business adoption of fiber increases, it may become a necessity.

Many businesses are surprised to discover that fiber is both less expensive and easier to install than previously believed. In this guide, you will learn the benefits of fiber for business, what to expect from installation, and how to select the right fiber vendor for your needs.





## CHAPTER ONE

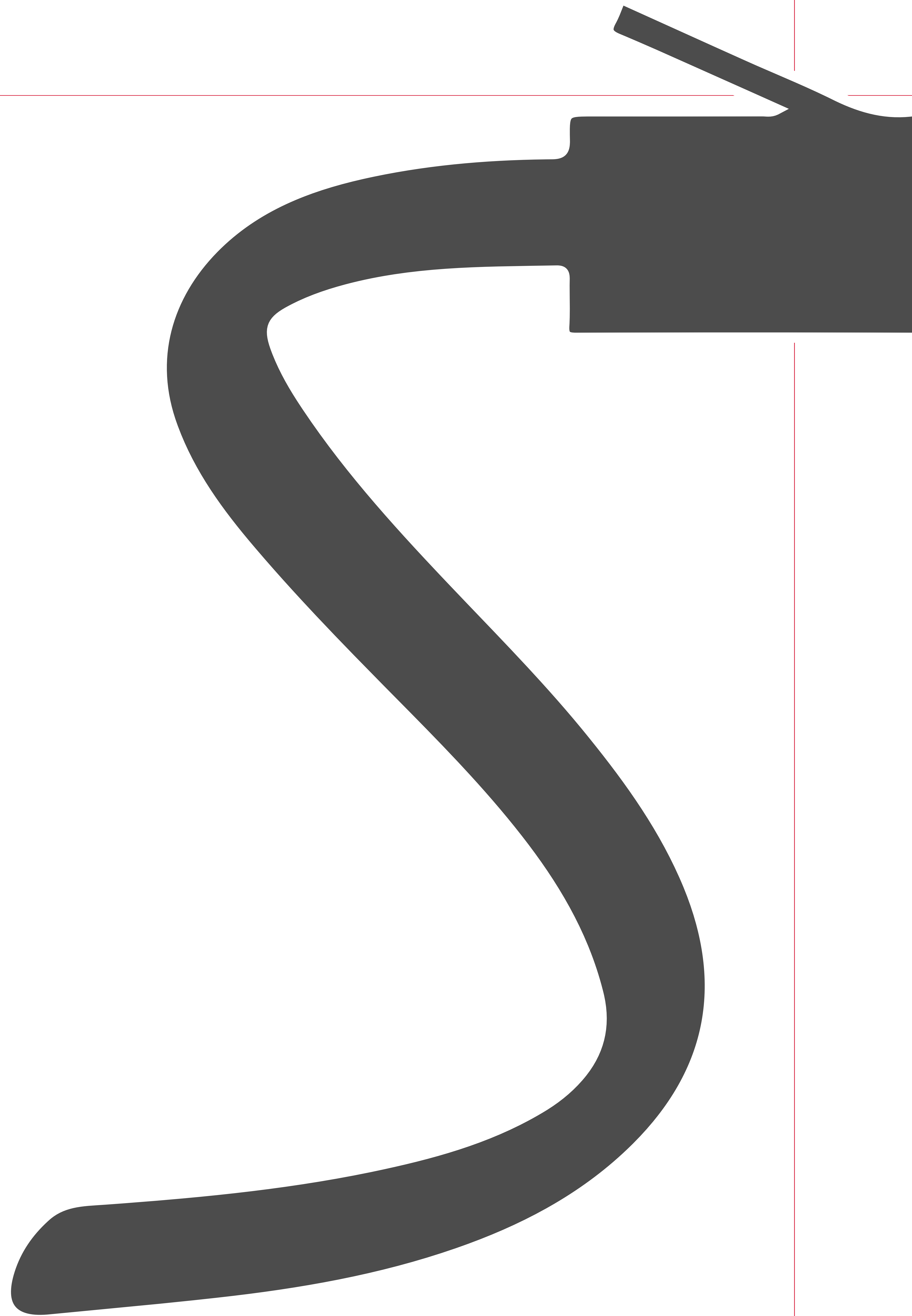
# The Business Benefits of Fiber- Optic Internet Connectivity

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# The Business Benefits of Fiber-Optic Internet Connectivity

Your business can benefit significantly from an upgrade to fiber. The increasing popularity of fiber-optic Internet has lowered the costs of business installations. The closer your business is located in proximity to existing fiber lines, the lower cost there is to upgrade. If your business is considering an upgrade to Voice-over-IP (VoIP) telephony or other high-bandwidth business communications technologies, fiber can offer significant benefits. These can include:



## **No Data Bottlenecks**

If your business has a high demand for data transmission via copper cabling Internet technology, data bottlenecks are a necessity. As your business grows and scales, your need for bandwidth can quickly outpace the availability of your copper cabling technology. With fiber-optic Internet, your business can scale its bandwidth availability in accordance with your needs, up to 100 Gbps of dedicated bandwidth.

## **Minimal Latency**

Latency is the concept of noticeable Internet slow-down in response to high bandwidth demands. The lower latency of fiber means that information packets are sent that much more quickly and reliably over the network, allowing your team to work through cloud-based applications and mobile devices without interruption.

## **Improved Reliability**

Fiber technology is delivered via glass, which is more reliable as a data conduit than copper. On fiber, you will escape many of the risks of disconnect and downtime associated with copper-based Internet services. Fiber is impervious to electromagnetic interference, moisture, weather conditions, and other factors that can cause reliability issues with copper Internet.



## Decreased Costs

While fiber is currently more expensive than copper Internet in the short term, your total lifetime costs of ownership are likely to be lower. Fiber is less expensive to maintain, has minimal reliability issues, and requires less networking hardware acquisitions.

## Information Security

Fiber does not radiate signals that can be intercepted by would-be hackers. Fiber lines cannot be tapped. While fiber Internet is just one aspect of comprehensive information security protection, it's an important one.



# How Does Fiber-Optic Internet Stack up to High-speed Broadband?

When businesses upgrade to fiber from business-class, high-speed broadband Internet, the difference is noticeable. While your staff may feel that your existing Internet connection is sufficient, fiber offers drastic improvement. Fiber-optic Internet connectivity can yield the following benefits over high-speed broadband Internet:





## **Bandwidth**

Copper wire Internet infrastructure and TDM technology are not capable of providing unlimited bandwidth because they were originally designed for transmitting voice call. Switching to Internet bandwidth delivered over fiber can offer significant gains in bandwidth potential.

## **Equal upload and download speeds**

Customers of leading fiber-optic Internet vendors can transmit data at speeds up to 1 gigabit per second, or even higher, in some instances. The federal definition of broadband service requires 25 Mbps uploads and 3 Mbps for downloads as of January 2015. With fiber, you will never have to “wait” for things to upload or download.

## **Distance**

Fiber technology is designed to carry signals over long distances with minimal signal degradation. While most businesses do not require extremely long-distance fiber-optic Internet networks, your signal will not degrade over distance as it does with copper cable technology.



## **Security**

Intercepting signals transmitted through copper cable Internet technologies is relatively straightforward, and can be performed by tapping lines. In contrast, fiber technology cannot be tapped or interfered with unless the fibers are physically cut, which is relatively rare.

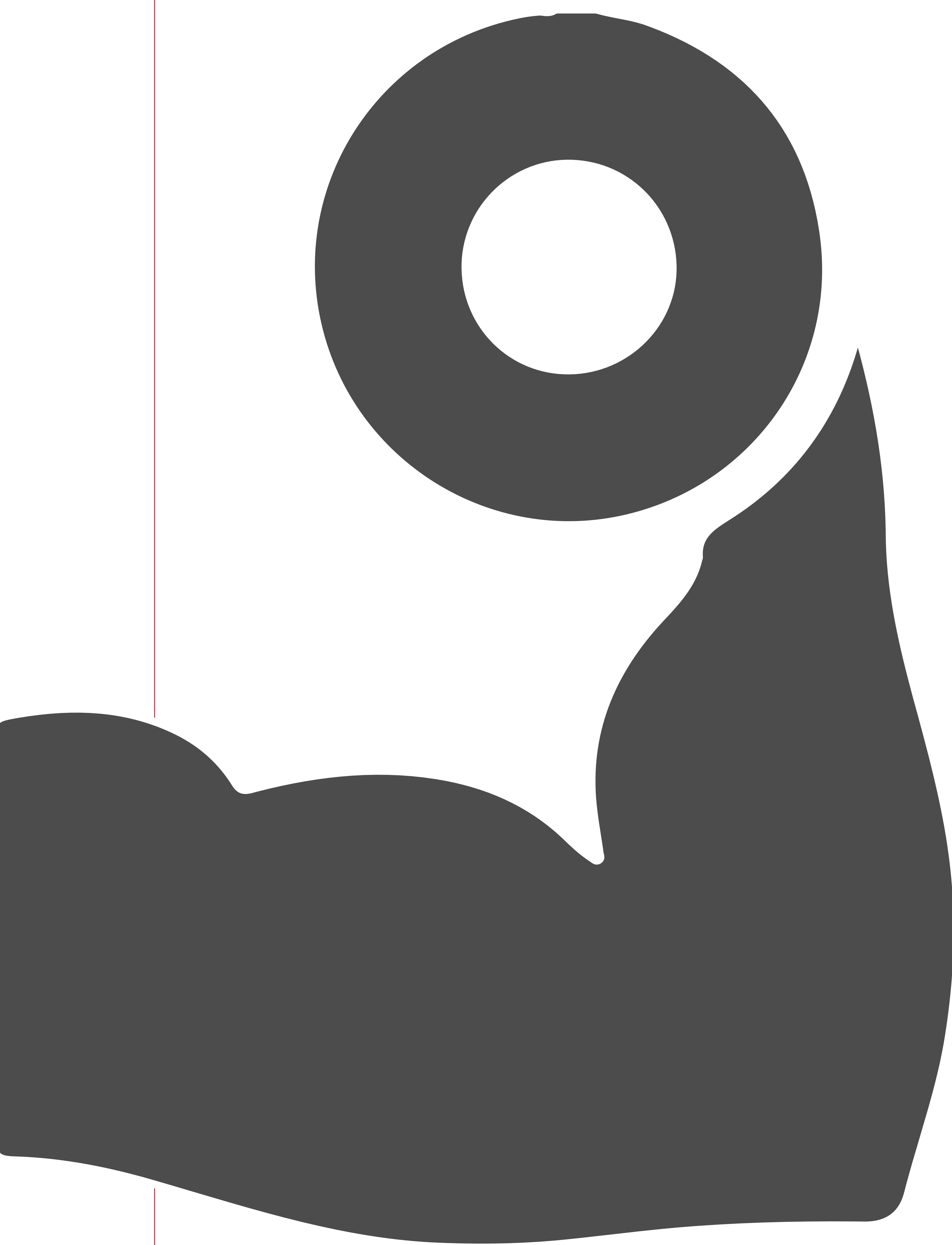
## **Reliability**

Temperature fluctuations, severe weather conditions, and moisture can all cause copper cable Internet to experience periods of downtime. You can also experience reliability concerns due to interference from electronic or radio signals. Fiber is far more resistant to inclement weather, moisture, and interference.

## **Cable size**

Fiber cables are much smaller and lighter-weight than their copper counterparts, which can reduce the space required for installation through building conduits or in your telecommunications room.





### **Lower total cost output**

Fiber cables are less susceptible to weather or moisture conditions, human interference, or inadvertent damage. As a result, the total lifetime cost of owning fiber can be lower than copper due to the minimal need for replacement.

### **Strength of cables**

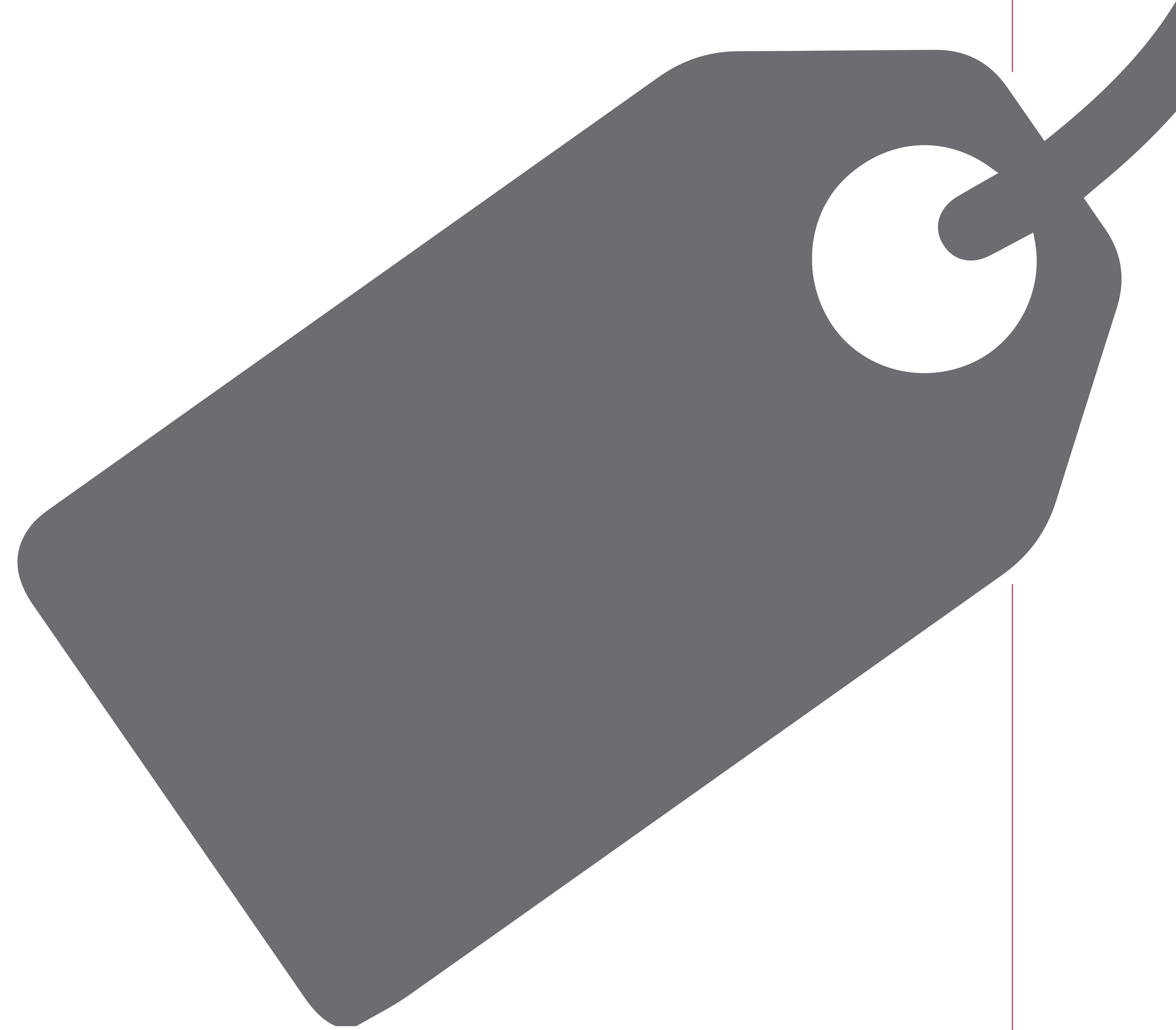
Copper cables can typically only withstand about 25 pounds of pressure before being damaged. In contrast, fiber can withstand 100-200 pounds of pressure. The chance of inadvertently damaging fiber cables during routine operations in your telecommunications room is far lower with fiber technology.



# Planning for the Costs of Fiber

The benefits of fiber-optic Internet connectivity have become crucial to seamless business communications. For clients considering a first-time installation of fiber Internet, the price could be far lower than you expect. The cost of installation can vary significantly from business to business. Ultimately, your price tag will depend on a number of factors, including your company's proximity to fiber Internet lines, your building, and the size of your workspace.

The price of your installation will depend on:





**Proximity:** The single biggest component of individual fiber installation pricing is your proximity to existing fiber lines. If your building is located next to a fiber ring, your costs will be far lower than if you are several blocks away from the closest fiber line.

**Existing building conduits:** While fiber-optic cables are smaller than copper Internet cables, your building must have sufficient conduits to connect to cable lines.

**Physical obstacles to fiber installation:** Your fiber installation may not be able to take the most direct path if there are significant obstacles, such as a freeway, historical sites, or large buildings in the way. Obstacles that necessitate indirect fiber connections can raise the cost of installation.

**Necessary approval processes:** Your geographic location may require you to obtain a varying number of permits. The cost and approval processes required for permitting can vary significantly depending on local jurisdiction. Also, certain locations require permits from multiple jurisdictions.

**Telecommunications space:** For the fastest and most seamless installation of fiber possible, your business should have dedicated telecommunications space that technicians can access.



**Existing power resources:** In your telecommunications room, you will need sufficient power resources for supporting your fiber-optic Internet connectivity post-installation. Depending on your business continuity planning and needs, you may choose to add an on-site generator in case you lose utility power.

**Potential fiber paths:** Many businesses elect to install two separate lines of fiber Internet, to provide a backup source in case the first line is damaged.

**Building size:** Extremely large workspaces can complicate the setup of a fiber-optic Internet network, and add to the total costs.

While many clients are surprised at the affordability of an initial fiber-optic Internet installation, the wide array of factors that can affect individual business's costs require assessment for an accurate price estimate. By understanding the various factors that could potentially complicate your installation, you can gain the ability to understand a potential price quote.





# What is the ROI of a Fiber Optic Internet Installation?

In addition to productivity gains for your company's employees, business owners can anticipate other types of return on investment (ROI). Fiber-optic Internet can have a positive impact on real estate values for building owners and landlords. In 2015, research by the Fiber to the Home Council Americas cited a fiber connection can add, on average, 3.1% percent of a property's value. Buildings that support 1Gb/s or higher speed can increase property value an average of 4.9%.

For building owners and landlords, fiber connectivity can be a powerful marketing tool for attracting and retaining business tenants. Having access to lit fiber for telecommunications service is considered by tenants to be more important than transit, major roads, and highways or even being located near major institutions.

In addition, the lifetime total cost output (TCO) of fiber-optic is also lower than copper cable Internet. Fiber cables are inherently sturdier than copper, and less likely to be damaged by inclement weather or human-related accidents. After you pay for a fiber-installation, you can anticipate lower lifetime costs of owning and maintaining your connectivity.



## CHAPTER TWO

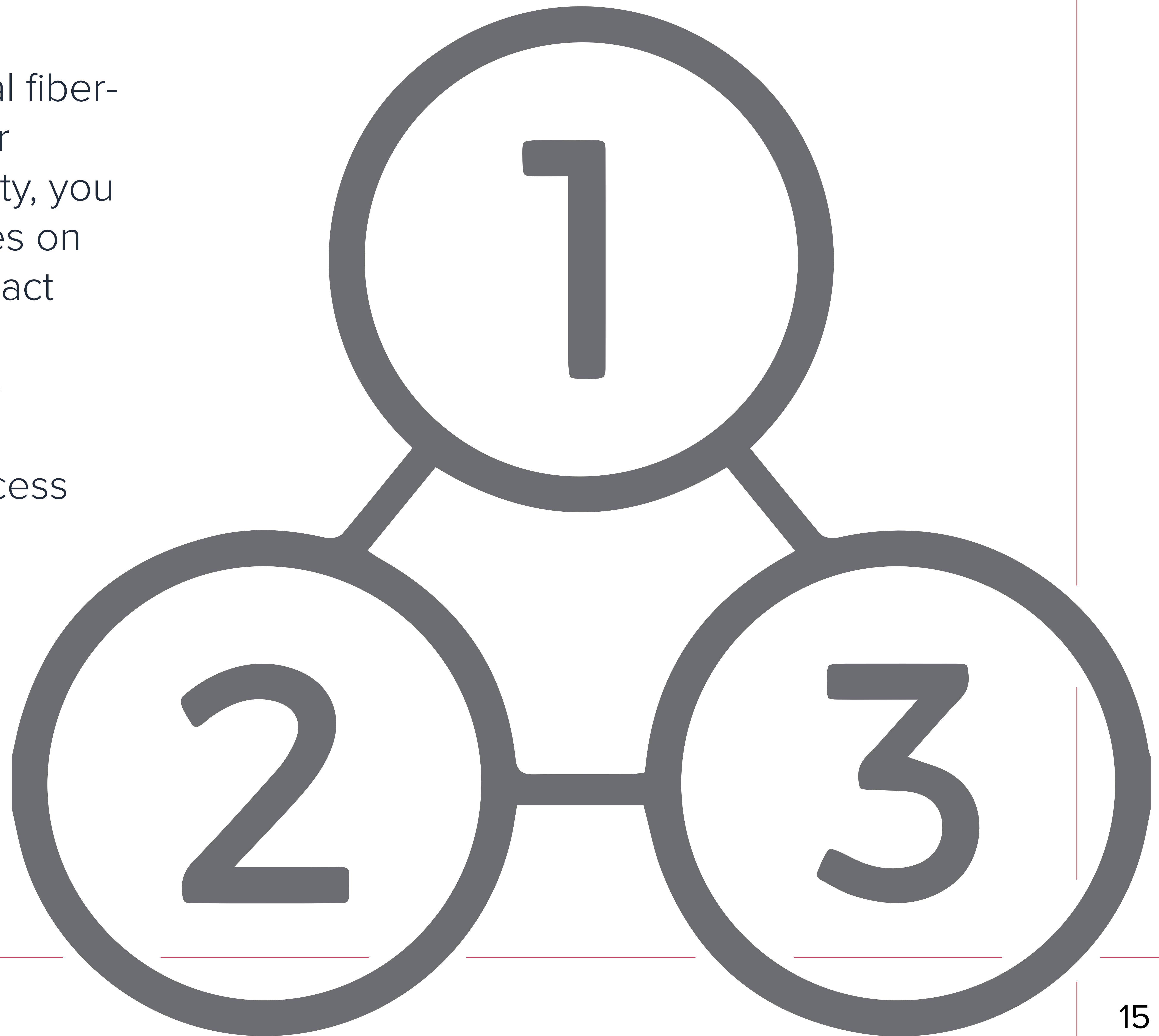
# What to Expect from the Fiber Installation Process

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# What to Expect from the Fiber Installation Process

After interviewing potential fiber-optic Internet providers for business in your community, you can begin obtaining quotes on installation. After the contract is signed, your business can anticipate a multi-step installation process. With some variations, your process is likely to resemble the following:





## **Obtain a Preliminary Assessment**

Before signing a contract with a prospective fiber Internet vendor, your vendor will perform a preliminary assessment of the costs of installation based on the following factors:

- Telecommunications space
- Building conduits
- Power resources
- Building layout

These factors will be considered in conjunction with your company's proximity to existing fiber lines and obstacles. After the assessment, your vendor should be able to provide detailed information on individual pricing and an overview of permits required for execution. If you choose to accept the verbal assessment and begin obtaining permits, an on-site visit is performed.

## **Survey**

Your vendor's technicians will perform an on-site visit prior to installation to assess your telecommunications space, power resources, and building layout in-person to anticipate any obstacles for installation. Depending on the size of your building and your vendor's policy, you may be asked to provide building layout plans before the on-site survey.



## **Detailed Installation Plan**

After the on-site survey is completed, your vendor's technicians can draft a detailed installation plan and schedule your on-site installation.

## **Landlord Approval**

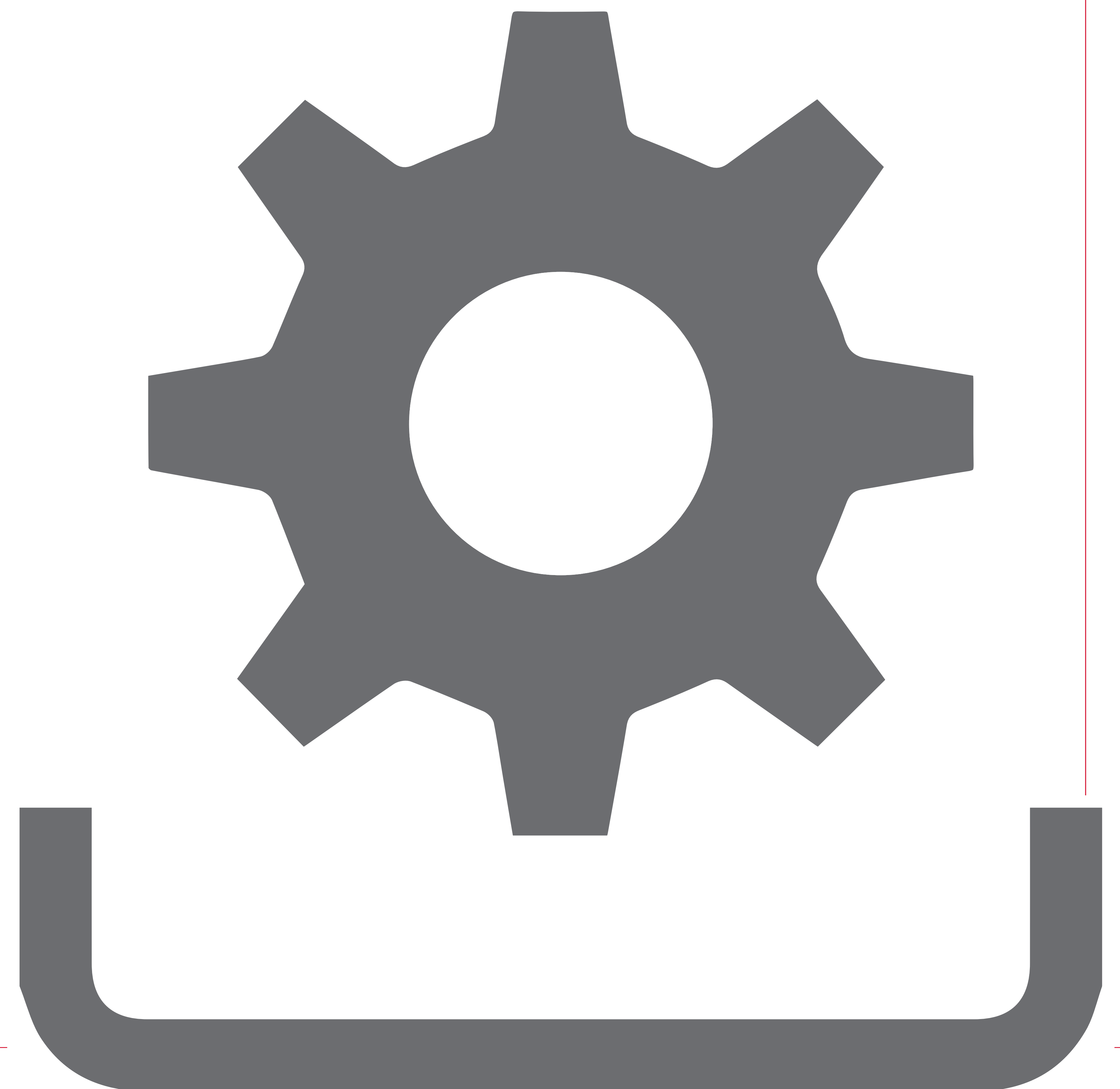
If your business does not own its building, you will be required to obtain formal approvals and signatures on the installation plan from your landlord or commercial property management company.

## **Execute Access Approvals**

If your business operates out of a multi-tenant building, you will need to obtain approval for technician access on the specified installation date from property management.

## **Fiber Installation**

After landlord and tenant approval is obtained, and all necessary permits are acquired, your vendor will perform an on-site installation during the date and time included in the original installation plan.





# What is Required for Installation?

On the day (or week) of installation, your vendor's technicians will take action to connect your building and create a fiber network. This process typically will encompass the following technical aspects:

## **1. Install a Circuit**

Connecting your building will require a cable to be pulled (aerial installation or through existing underground conduits) or core drilled into the building. The cable will have inside of it many fiber strands to be used for your service.

## **2. Terminate the Circuit into the Telco Room**

Depending on the layout of your building, the circuit will typically terminate in the main telephone room of your building.

## **3. Extend Fiber to the Mid-floor Telco Closet**

The fiber circuit will be extended from the main telecommunications room into the designated telecommunications closet, which is often located on a mid-level floor.



#### **4. Install Equipment in the Telco Closet**

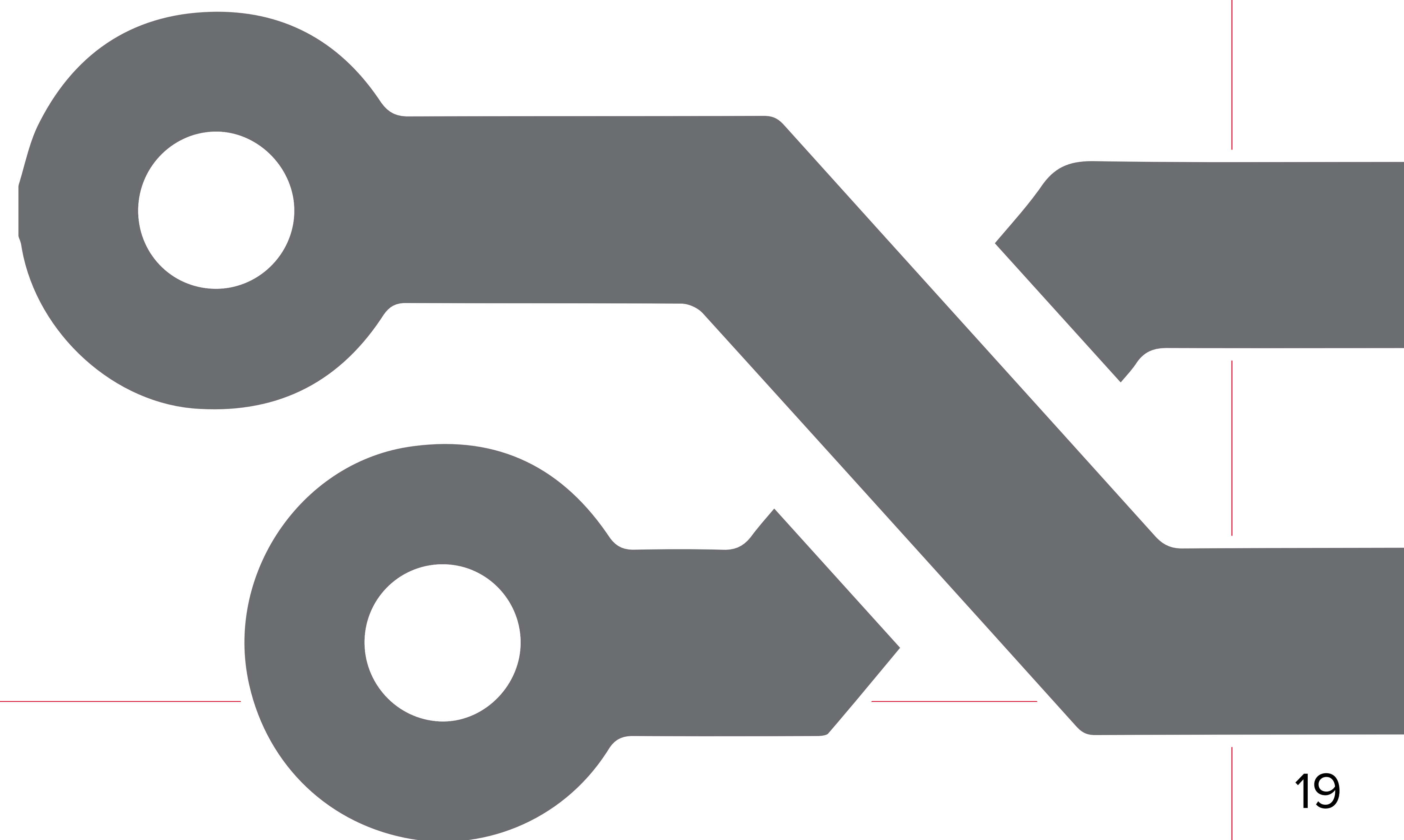
The technicians will install a small amount of equipment in a cabinet in your telecommunications closet. A fiber patch panel, a network switch, and UPS support tenant connectivity to the fiber circuit.

#### **5. Connect Power Resources**

A 20 amp/115 volt power circuit will act as the power source for your new fiber Internet network. If your building has an emergency generator, these power resources will be connected to your backup power supply.

#### **6. Extend Fiber Service to Tenants**

Tenants who elect to receive service are connected to the switch either by fiber or copper laterals that extend to the tenant's suite.





# What Happens on Installation Day?

Disruption to your business should be minimal on the day of installation, provided you select a vendor with appropriate attention to planning and surveying before installation.

## **1. Fiber is Brought into the Building**

Using existing conduits, your building will be connected to the nearest fiber line. If no conduit is available, construction will be necessary to create a conduit.

## **2. Fiber is Extended**

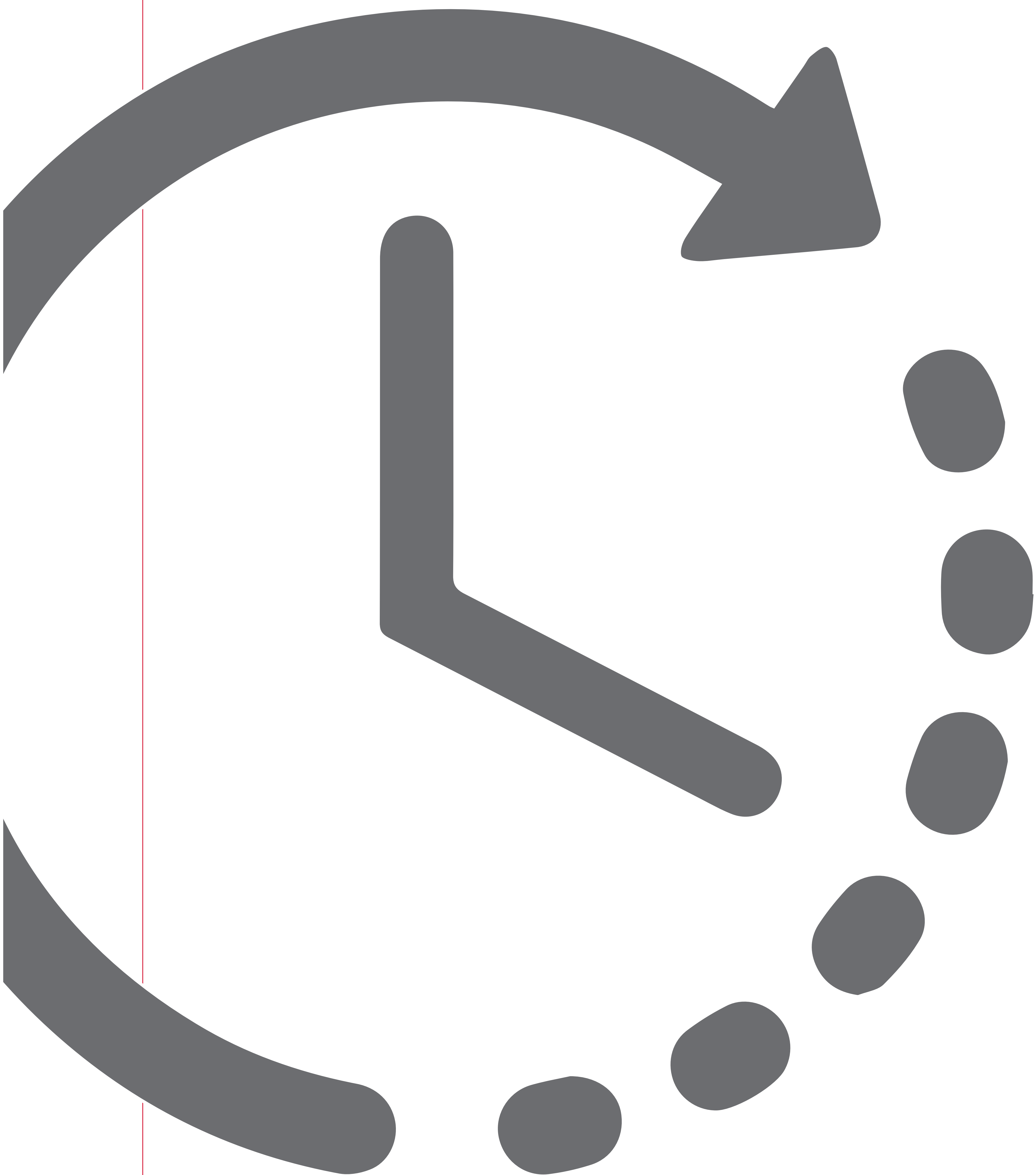
Once inside the building, fiber can be extended along existing paths for cables. Alternatively, a new conduit can be created to run fiber to the main telecommunications room.

After the conduit is created to the main telecommunications room, cables are typically extended up the risers to a mid-floor telco room.

## **3. Cabinet Installation**

To house the minimal amount of equipment required to support on-site fiber optic Internet connectivity, your vendor will typically attach a cabinet to the plywood or surface of your telecommunications room or closet.





## What Happens on Installation Day?

It is important for prospective clients to note that the length of “installation day” can vary significantly. If your company has sufficient power, conduits, and telecommunication resources, your installation could be completed in a single day, in as little as 8 hours of work or fewer.

However, if your building requires construction to create sufficient conduits, telecommunications space, or power resources, your installation day may be extended. Depending on the scope of your building’s construction requirements, the process could take several weeks to complete.



## CHAPTER THREE

# Best Practices for First-Time Business Fiber Users

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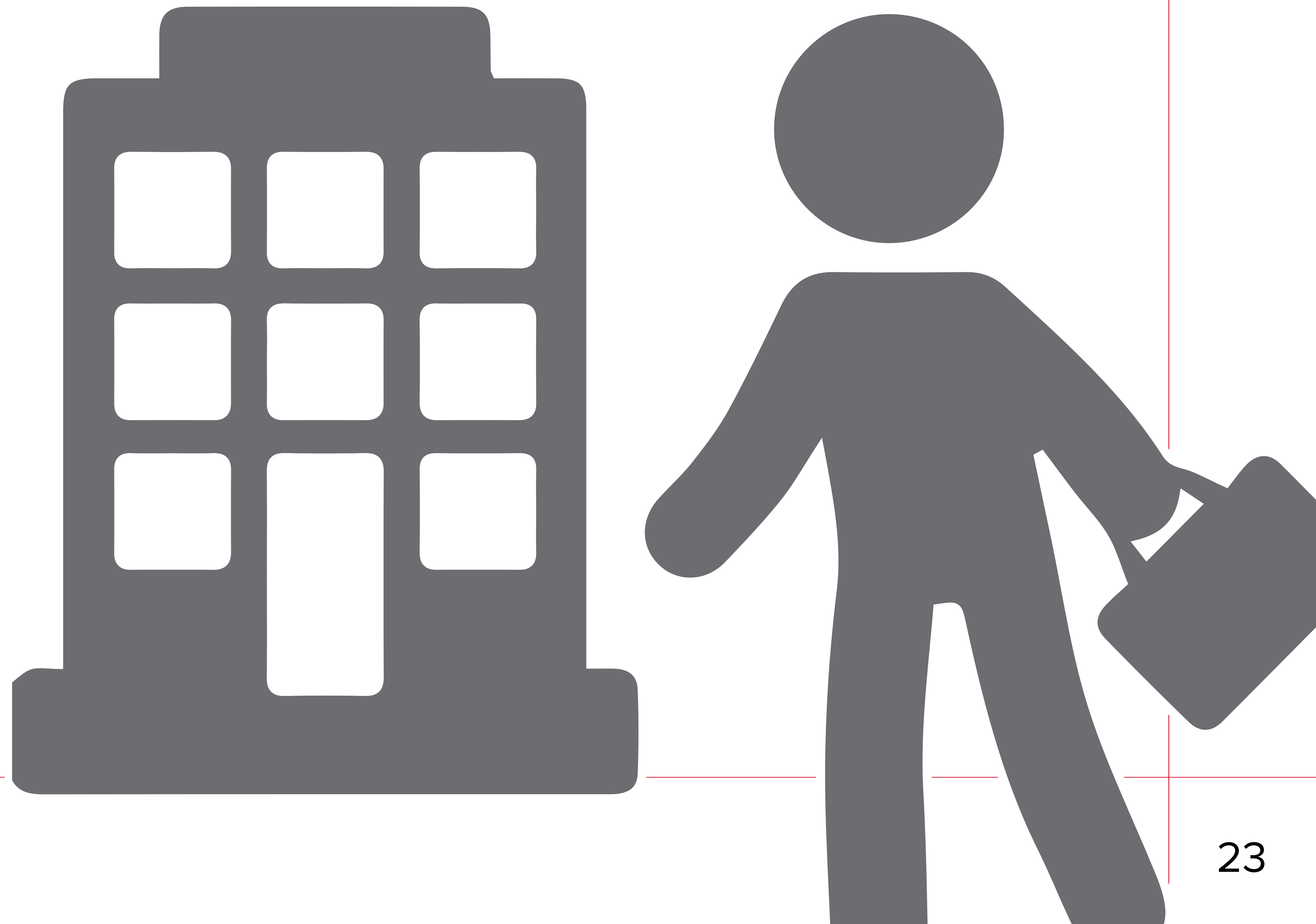
[atlantech.net](http://atlantech.net)



# Best Practices for First-Time Business Fiber Users

A fiber-optic Internet vendor is a crucial part of your company's business communications strategy. Selecting the right vendor will allow you to use the power of fiber to its full advantage, and scale your company's growth. From streamlining your business communications tools to increasing your adoption of the cloud, your potential for improvement with fiber is virtually unlimited.

To ensure your experience with fiber is as positive as possible, you should take the following factors into account:





## **Sufficient bandwidth**

Business-class fiber is not one-size-fits-all. Depending on your organization's unique needs, you may choose between 5 Mbps and 100 Gbps of dedicated bandwidth.

Your vendor should be able to assist you in documenting your business requirements and existing network traffic to understand how much bandwidth is needed. Mobile devices, voice-over-IP (VoIP) telephony, large file transmission, and video conferencing can all increase the bandwidth needed to power your business.

## **Information Security**

Information security encompasses both security risk mitigation and business continuity planning. By selecting a vendor that can assist you in mitigating risks and improving your data reliability, you can increase your organization's information security practice with an upgrade to fiber.

## **Upload and Download Speeds**

Upgrades to fiber can allow your business to gain access to equal upload and download speeds, which can streamline your transmission of data to cloud-based applications and hosting environments.



When selecting and interviewing a fiber-optic Internet vendor in your area, you should take the following factors into account:

### **Installation Timelines**

Chances are, your business is eager to begin benefiting from fiber-optic Internet as soon as possible. When interviewing vendors, you may choose to inquire about potential installation timelines. Some vendors are unavailable to start the process of fiber installation, including verbal assessment, for 30-60 days. This can lead to months of delay before you are able to switch from broadband Internet to fiber.

### **Troubleshooting Response**

If your business experiences issues with your fiber-optic Internet connectivity, will your vendor be available to provide on-site assistance as needed? Inquire about your vendor's track record of timely troubleshooting response, and consider checking client references to corroborate their commitment to customer service.





## **Customer Support**

Your business requires continual access to data in order to provide adequate customer service. Even if your business isn't a 24/7/365 organization, you should hire a vendor that provides after-hours, expert customer support. If your Internet goes down at 6 pm on a Friday, you shouldn't have to wait until Monday morning to speak with a highly-trained expert on reaching a resolution.

## **Expertise and Experience**

Business communications technology is a complex, rapidly evolving field. To take full advantage of available technologies, you should select a vendor with decades of experience, in order to benefit from expert recommendations and potential cost savings.

## **Consider Bundling**

If your business is also considering upgrading your data hosting and voice communications, it may be worthwhile to select a unified business communications vendor. A provider who offers cost-savings deals on bundling communications services can allow you to save significant amounts of money on technology.



## CHAPTER FOUR

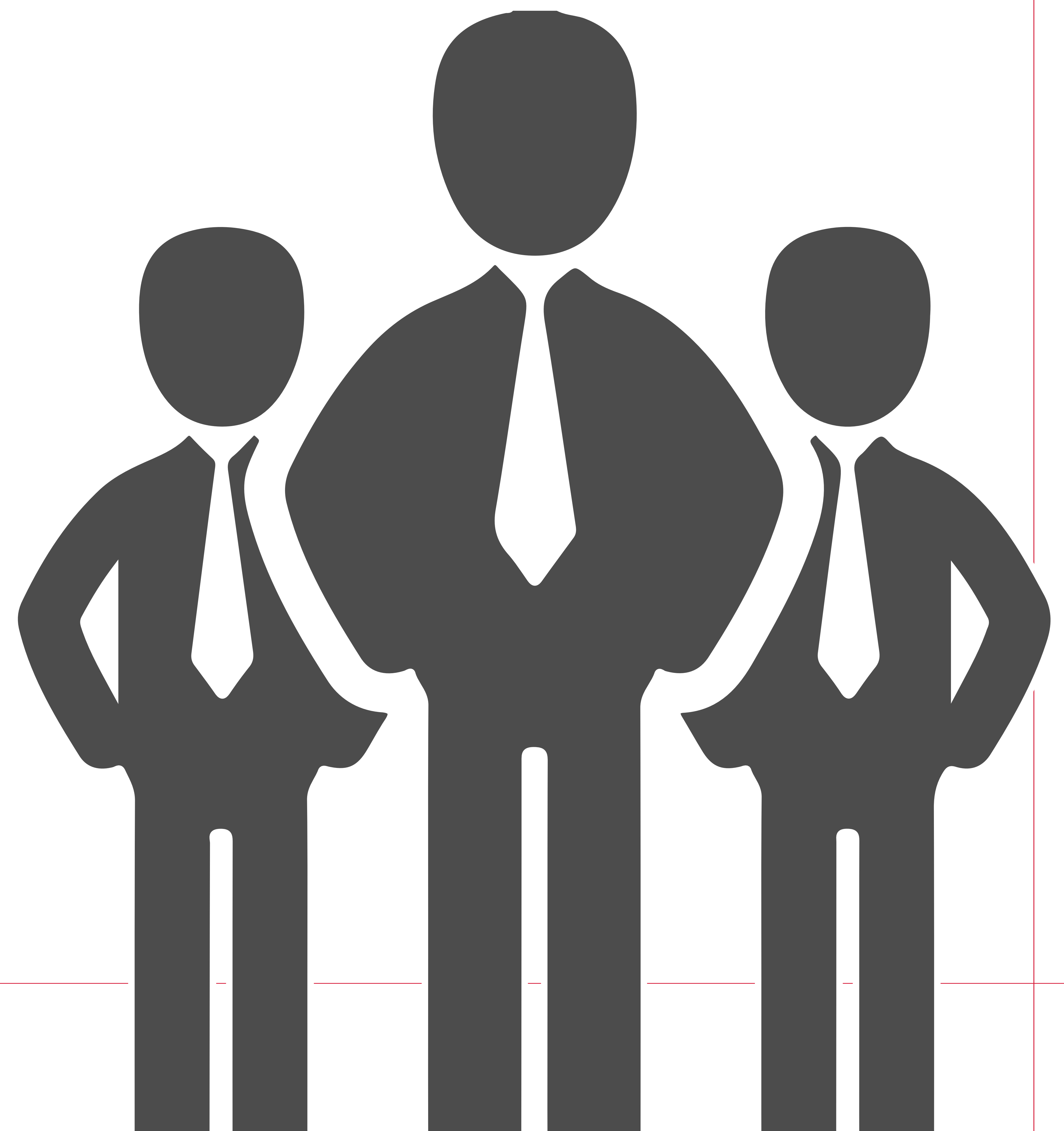
# How Do I Proceed with Fiber- Optic Internet Connectivity for My Business?

4



# How Do I Proceed with Fiber-Optic Internet Connectivity for My Business?

If you are seriously considering an upgrade to fiber-optic Internet for your business, Atlantech Online can help. We offer on-staff experts with years' of experience in business communications. Prospective clients of Atlantech can anticipate the following steps to proceed with obtaining fiber Internet:





## **Contact Atlantech Online**

Our staff experts can provide a free verbal assessment of the costs of an upgrade to fiber.

## **On-Site Survey**

After a verbal assessment, Atlantech technicians will schedule an on-site survey of your building's conduits, layout, and telecommunications spaces.

## **Formal Installation Plan**

You will be provided with a formal installation plan, which can be submitted to your landlord for approval. You may also need to obtain access agreements from building tenants.

## **Work Begins**

Depending on the scope of your installation plan, work required to connect your building to fiber can take between one day and several weeks to complete.

## **Marketing Efforts**

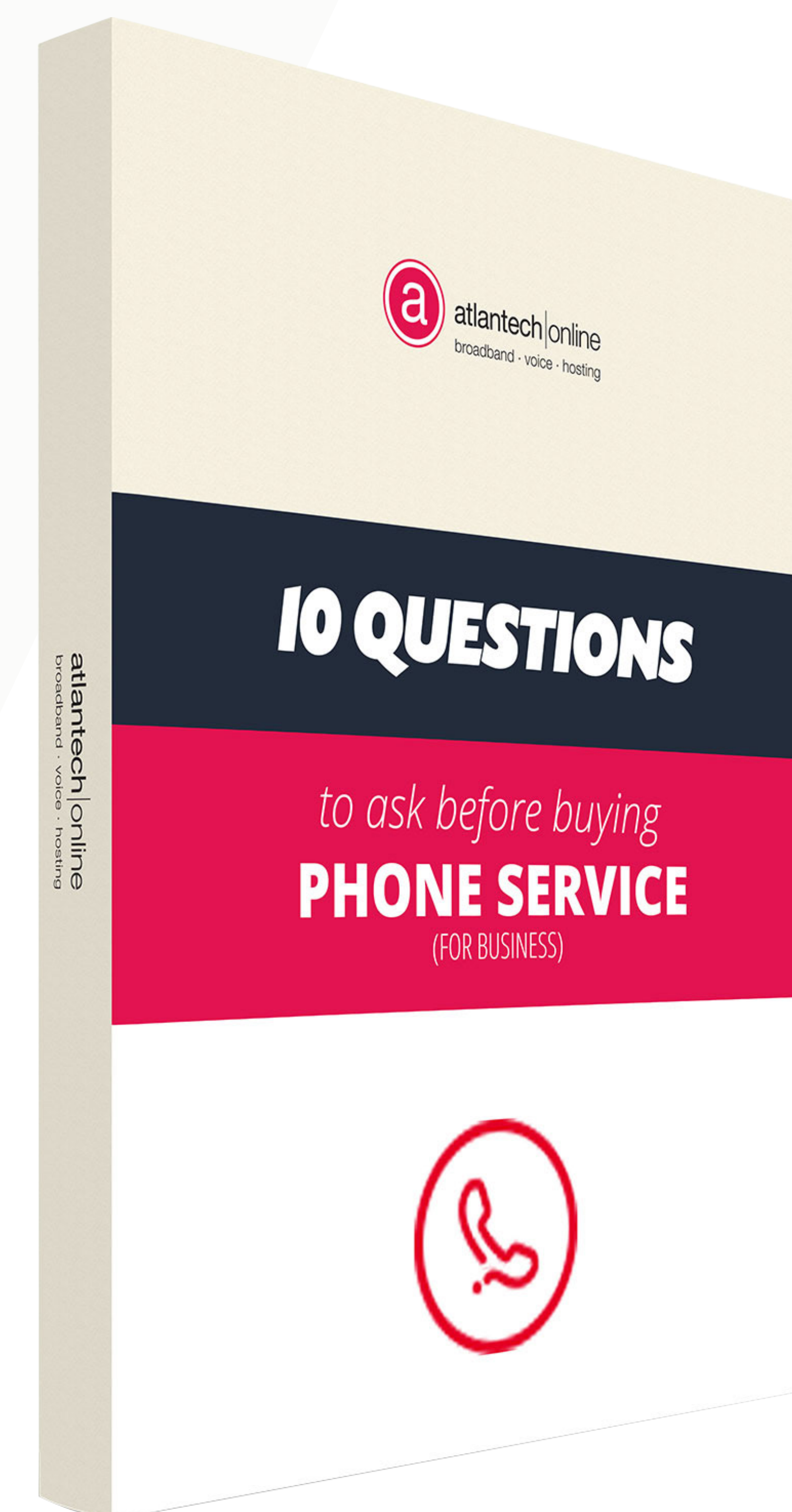
If you are a landlord, Atlantech Online can provide information on fiber to perform internal marketing efforts to your current and prospective tenants.





To receive a free, no-obligations verbal assessment, contact an Atlantech Online representative today for detailed pricing information and insight on business-class fiber Internet.

**Request a Callback**



## Download our Free Guide

Before you make a decision on a phone service provider, there are a few things you need to know. It's important to ask the right questions so you can be sure you're getting what you pay for.

**Download Now**