

# Application

Satellite TV | Voice & HSD | Home Security | Fiber FAQ

RESIDENTIAL



COMMERCIAL



APPLICATION



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DSI Technologies **DSI NATIONWIDE** offers installation services for satellite television, voice communications, home security and high speed internet. New technologies continue to expand, and fiber leads the way.

## Satellite television

High Definition is one of the hottest sellers to hit the electronics market in decades. It's no surprise that a reliable hi-def signal is one of the first things prospective buyers want in a new home. And with today's technology, cable is **already having trouble keeping up**. Fiber to the Home provides a solid framework for today's technology... and tomorrow's expansion. After all, 3D television isn't far away.

DSI Technologies can create central installations for multiple dwelling units and housing allotments, both residential and commercial, which are network-agnostic in terms of provider. Own the network and take control of your profits!

## Voice communications & High Speed Internet

Voice Over Internet Protocol (Voiceover IP) telephones. They're not just cheaper, they're better. Following the advent of internet phone, huge per-minute long distance charges are now just a story for the grandkids. And buyers expect solid voice delivery

since the phone is such an integral part of daily life and home safety.

## Home Security

Obviously, the fundamental purpose of a home is to shelter its occupants and to provide safety from external threats. Expanding technology has created a boom market for security providers, who know that the reliability of a system is only as good as its weakest link.

## DSI Technologies: Common Questions about Fiber

Q: What is bandwidth?

A: In simplest terms, bandwidth is the ability of a network to carry information. The more bandwidth a network has the more information it can in a given amount of time.

Q: How much bandwidth or information do we need?

A: A standard-definition television signal requires a bandwidth of about 2 bps – two million bits (zeros and ones) per second. HDTV requires as little as 4 Mbps if the image is rather static – a person being interviewed, for instance. But fast action, such as some sporting events, requires more – as much as 8 Mbps, even with new compression technology such as MPEG4.

Q: What about data?

A: Bandwidth requirements are exploding for many kinds of data. Most new digital cameras create images that contain 2 to 15 megabytes. At the upload speeds generally available to people using a cable modem or DSL, it takes well over a minute to transmit a 10-megabyte picture. That is, 10 megabytes = 80 megabits, which at 1 megabit per second (Mbps) equals 80 seconds. It normally takes even longer because the network sends extra bits to help route the network and to provide security. At dialup would take at least 20 minutes.

Q: Copper has been around a long time. What makes fiber so superior?

A: Optical fiber is unique, in that it can carry a high-bandwidth signal enormous distances. Copper can support high bandwidth, 20 Mbps or more – but only for a few

hundred yards. The longer the distance the signal travels on copper, the lower the bandwidth.

Fiber uses laser light to carry the signal. Under most circumstances, the signal can travel 15 miles (more than 25 kilometers) without degrading enough to keep it from being received.

What's more, the equipment necessary to send the light signals keeps getting better. So equipping an existing fiber network with newer electronics and with lasers that pulse light faster, or lasers using different wavelengths of light, can vastly increase the available bandwidth without changing the fiber itself. That's why fiber networks are said to be "future proof."

Q: That sounds like magic. But isn't fiber too new to trust?

A: Fiber has actually been used in communications networks for more than 30 years. But until 2002, it was rarely used to deliver a signal directly to a home. Instead, it was – and is – relied upon to carry communications traffic from city to city or country to country. Almost every country on Earth has some fiber, delivering services reliably and inexpensively.

In fact, if you have a cable modem, with broadband supplied by your cable operator, or if you have DSL, which converts your phone line into a data pipeline, you are already using fiber. The fiber carries the signal close enough to your home so that copper can carry it the rest of the way. But this approach requires expensive, hard-to-maintain electronics where the fiber meets the copper. The available bandwidth is far less than an all-fiber network. And these halfway approaches do not allow symmetrical bandwidth – existing cable and DSL systems can download much faster than they can upload information.

Q: Isn't that good enough?

A: That depends on what you want to use your bandwidth for. If all you want is to send simple text emails or receive an occasional photo of your grandchildren, the bandwidth provided by today's cable modems and DSL lines is good enough. But as soon as that photo becomes a video, you'll need more. And what about an adult monitoring an elderly parent?

Q: How close to the home does fiber come in DSL and cable systems, and why does that matter?

A: When you are using copper there is a marked relationship between the

distance and the available bandwidth. The latest version of DSL is called VDSL2. It can carry a signal of more than 200 Mbps, but only for about 750 feet... after which performance begins to fall off markedly. At a distance of 1,500 feet, it can carry a signal of only 100 Mbps. Over a distance of a mile, performance drops to only about 30 Mbps. And that's the theoretical limit under laboratory conditions... in practical application, the real bandwidth is significantly less.

Q: Some telephone companies have been promising fiber to the home for a decade or more... but until recently there hasn't been any. Isn't that because the technology is difficult to master?

A: No, but until recently it was more expensive than other solutions that offer far less bandwidth, such as cable TV's DOCSIS and the phone companies' own DSL. Those older technologies were "good enough" until recently. But in the past few years, content that was expected, such as HDTV, and content that was not predicted, such as peer-to-peer video, have simply outrun the ability of these older technologies to handle the bandwidth needed.

Now big cable companies advertise "unlimited" bandwidth. But in the fine print of their contracts with consumers, they reserve the right to shut off service when a customer uses an unspecified amount of bandwidth service in each month – 100 to 200 gigabytes. Some customers already use that amount of bandwidth for remote storage of their irreplaceable data files, videos, and images. A 100 GB hard drive is considered small today inside a home computer. Without FTTH, the cable companies can't deliver that much bandwidth to everybody.

[DSI Technologies on Forbes.com](#)

[The Fundamentals of Fiber to the Home \(FTTH\)](#)

[Bandwidth: The Inevitable Growth of Demand](#)

[3 Reasons to go with fiber](#)

[Builders & Developers: your starter guide to FTTH](#)

[Municipal installations](#)

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