



# CONVERGED SERVICES

CONSULT • CONNECT • CONTROL

## General Questions

### **Q. What is fiber to the home?**

A. Fiber to the home (FTTH) delivers Internet, television, telephone and other communication signals over optical fiber from the operator's switching equipment all the way to your home. It replaces old copper infrastructure such as telephone wires and coaxial cable. Fiber to the home is a relatively new and fast growing medium providing consumers lightning-fast Internet, more robust video, better voice and a variety of options for home security and remote control. More than seven million American homes are connected directly to fiber networks, and the number is growing daily. Virtually all new gated communities rely on fiber networks and many older communities, including our neighbors, are installing fiber today.

### **Q. What is optical fiber?**

A. Optical fiber is a hair-thin strand of glass, specially designed to trap and transmit light pulses. Unlike copper cable, fiber uses light instead of electricity to carry digital information. It's uniquely capable of carrying high bandwidth signals over long distances without loss of quality, and unlike traditional cable, it's just as fast in both directions – upload and download. Although copper can deliver high bandwidth, its signal begins to degrade after a few hundred yards. Optical fiber has been used to carry core communication traffic between cities and countries for more than 35 years. Now it's available directly to your home.

### **Q: What's the big deal about fiber? Why is it better than what I have today?**

A: Let's begin with the main difference between a Fiber-to-the-Home (FTTH) network and traditional methods for delivering Internet, cable TV and phone service. Under FTTH, each home has its OWN dedicated fiber connection. It's NOT shared with neighbors like most existing cable networks. The more demands you and your family put on the network with computers, smart TVs, tablets, phones and videogames, the worse shared networks behave. Increased use of the Internet to deliver TV shows and movies through services like Netflix, Amazon Prime and other nontraditional providers is increasing our bandwidth requirements exponentially. Existing copper-based, shared networks like ours, developed for one-way TV in the 1980s, simply can't meet 21<sup>st</sup> century demands. With a FTTH installation, you'll receive your dedicated bandwidth no matter what the time of day, or day of week. Neighbors signing on to the Internet won't impact your service at all.

### **Q. Why is fiber optic cable now being connected directly to homes?**

A. Advances in technology mean the blazing speed and capacity of fiber are no longer reserved for big corporations and data centers. While cable modems generally provide download speeds of 50 to 75 megabits per second (mbps) and much slower upload speeds, our fiber network will allow transmission at 150 mbps simultaneously in each direction. Basic speeds will double to 250 mbps per second after five years, and speeds up to 1 gigabyte per second are available for a reasonable additional cost. Further, while cable and DSL providers are struggling to squeeze small increments of higher bandwidth out of their technologies, ongoing improvements in fiber optic equipment are constantly increasing



# CONVERGED SERVICES

CONSULT • CONNECT • CONTROL

available bandwidth without having to change the fiber. That's why fiber networks are said to be "future proof." New technology will only make them better.

**Q. How many homes are connected to FTTH networks?**

A. Fiber to the home networks are now available to nearly one-fifth of North American households, with more than seven million of them connected and receiving Internet, voice and/or television service via FTTH.

**Q. Why do we need all that bandwidth? Aren't cable and DSL systems good enough for what most people want to do?**

A. Not for long. This is the age of video over Internet. Increasingly, consumers are using their Internet connections to view television programs from content providers like Netflix, Hulu and Amazon, in addition to an ever increasing variety of websites that provide video in some form for news, education or entertainment. Since YouTube began the revolution, video has increased to 60 percent of Internet traffic: it's now the Internet's leading application. Just one high definition movie takes up as much bandwidth as 35,000 web pages.

Meanwhile, more companies are offering software as a "service." That means you subscribe to applications on the Net rather than install them on your own computer. These "cloud computing" applications are now available for word processing, emailing, automated remote file backup, and a host of business and personal services. All of these applications – and many others we haven't dreamed of yet – will require more bandwidth than we generally have today, even from "broadband" providers. It remains to be seen how much longer cable modems, which use copper in the last-mile to your home, will keep pace when Internet giant Cisco predicts that traffic will grow at a compound annual growth rate of 34 percent in the years to come.

**Q. Is a 100% fiber network really necessary?**

A. There's no reason to believe that innovation in Internet applications and service demands will ever slow down – in fact, all signs point toward their acceleration. There is no other technology – including broadband wireless – that will be able to deliver the bandwidth we need far into the future.

**Q. Is fiber to the home more expensive than cable modem systems or DSL?**

A. Our surveys have shown that FTTH subscribers pay approximately the same for their Internet, voice and video services as customers of DSL and cable providers. In fact, FTTH subscribers actually pay less per megabit of bandwidth. In addition, surveys of broadband consumers conducted by Consumer Reports magazine and by the FTTH Council have shown that subscribers of FTTH services have higher satisfaction rates than customers of slower broadband services.

**Q. I've heard that wireless technologies like Wi-Fi and WiMAX can deliver the same kind of service as fiber to the home without having to go through the trouble of installing new wires into homes. Is this true?**



# CONVERGED SERVICES

CONSULT • CONNECT • CONTROL

A. No. Wireless broadband is subject to spectrum availability – the cost of which limits the bandwidth, and hence the applications it can provide. Wireless Internet technologies cannot deliver high definition television – and, in fact, they have trouble delivering standard television. And HDTV is only one of the many high-broadband applications now being developed for our broadband future. Wireless will always be a useful mobile application – but its main job will be to carry a signal from a portable PC, phone or tablet to a much faster fiber optic network.

## **Q. What about satellite? Most people have that choice, don't they?**

A. Satellite offers video, of course, but it cannot offer robust broadband Internet service because the subscriber can only download the signal. Upload is normally provided through the subscriber's telephone lines, which limit upload transmission speeds. Still, our residents will be able to choose a satellite service in addition to our fiber network.

## **Q. How does the U.S. compare internationally in terms of fiber to the home?**

A. South Korea, Hong Kong, and Japan – and increasingly China – are the world leaders in the percentage of households that receive broadband services over FTTH. According to the official global rankings compiled by the three global FTTH Councils (North America, Europe and Asia-Pacific), 53 percent of homes in South Korea are wired with FTTH, followed by Japan at 35% and Hong Kong at 34%. After a recent FTTH deployment initiative, the United Arab Emirates now have more than a third of their households connected to FTTH networks. The United States ranks 11th among countries with a 7.5% penetration rate for FTTH, but we're among the leaders in annual growth of FTTH penetration.

## **Q: I've heard people say I'll need something called an ONT. What's that?**

A: An Optical Network Terminal, commonly referred to as an ONT, is a device that converts the fiber-optic light signals to copper-based/electrical signals. With the light input to the ONT, the three outputs are RJ45 Ethernet for the primary computer location or set top TV boxes that require Ethernet; RJ11 output for telephone outlets and coaxial cable for TV signals. The ONT is part of your fiber network service.

## **Q: Where will the ONT be installed in my home?**

A: Typically, the ONT is installed either on the outside of the house or in a laundry room, garage or utility area.

## **Q: Does the ONT need a power source?**

A: Yes, the ONT is plugged into an outlet using a standard 110V/AC plug.

## **Q: Will wires be run along the walls?**

A: Installations are customized and whenever possible, cabling will be run inside the walls. The BBCA's Advanced Technology committee and our Broadband Consultant, CSI, will work with our selected provider on design architecture to ensure minimally invasive installation wherever possible.

## **Q: How do I select additional services and programming packages?**



# CONVERGED SERVICES

CONSULT • CONNECT • CONTROL

A: Additional services and programming beyond those in the master agreement will be available on a retail basis at discounted rates. These include telephone and home security services, as well as additional premium TV channels. A schedule will be posted as soon as negotiations are finalized and a contract is signed.