

## Getting Broadband

### What is broadband?

Broadband or high-speed Internet access allows users to access the Internet and Internet-related services at significantly higher speeds than those available through "dial-up" services. Broadband speeds vary significantly depending on the technology and level of service ordered. Broadband services for residential consumers typically provide faster downstream speeds (from the Internet to your computer) than upstream speeds (from your computer to the Internet).

### How does it work?

Broadband allows users to access information via the Internet using one of several high-speed transmission technologies. Transmission is digital, meaning that text, images, and sound are all transmitted as "bits" of data. The transmission technologies that make broadband possible move these bits much more quickly than traditional telephone or wireless connections, including traditional dial-up Internet access connections.

### What are its advantages?

- Broadband is an important tool for expanding educational and economic opportunities for consumers in remote locations.
- Broadband allows you to take advantage of services not available or not convenient to use with a dial-up Internet connection, such as Voice over Internet Protocol (VoIP), an alternative to traditional voice telephone service.
- Broadband makes "telemedicine" possible: patients in rural areas can confer online with medical specialists in more urban areas and share information and test results very quickly.
- Broadband helps you efficiently access and use many reference and cultural resources via the Internet.
- You also need broadband to best take advantage of many distance learning opportunities, like online college or university courses, and continuing or senior education programs.
- Broadband allows you to shop online more quickly and efficiently.

### What types are available?

Broadband can be provided over different platforms:

- Digital Subscriber Line (DSL)
- Cable Modem
- Fiber
- Wireless
- Satellite

The broadband technology you choose will depend on a number of factors. These include how broadband Internet access is packaged with other services (like voice telephone and home entertainment), price and service availability.

## Digital subscriber line (DSL)

DSL is a wireline transmission technology that transmits data faster over traditional copper telephone lines already installed to homes and businesses.

The following are types of DSL transmission technologies:

- Asymmetrical Digital Subscriber Line (ADSL) – used primarily by residential customers. ADSL typically provides faster speed in the downstream direction than the upstream direction. ADSL allows faster downstream data transmission over the same line used to provide voice service, without disrupting regular telephone calls on that line.
- Symmetrical Digital Subscriber Line (SDSL) – used typically by businesses for services such as video conferencing. Downstream and upstream traffic speeds are equal. Faster forms of SDSL, include High-data-rate Digital Subscriber Line (HDSL) and Very High-data-rate Digital Subscriber Line (VDSL).

## Cable modem

Cable modem service enables cable operators to provide broadband using the same coaxial cables that deliver pictures and sound to your TV set, though you can still watch cable TV while using a cable modem service. Transmission speeds vary depending on the type of cable modem, cable network and traffic load. Speeds are comparable to or exceed typical residential DSL.

## Fiber

Fiber optic technology converts to light electrical signals carrying data and sends the light through transparent glass fibers about the diameter of a human hair. Fiber transmits data at speeds far exceeding current DSL or cable modem speeds. The actual speed you experience, however, will vary depending upon a variety of factors, such as how close to your computer the service provider brings the fiber and how the service provider configures the service. The same fiber providing your broadband can also simultaneously deliver voice (VoIP) and video services, including video-on-demand.

## Wireless

Wireless fidelity (WiFi) connects end-user devices to the a local Internet service via short-range wireless technology. WiFi allows users to move WiFi-enabled devices around within their homes or businesses. WiFi is also widely available in many public "hotspots."

Fixed wireless technologies using longer range directional equipment can provide broadband service in remote or sparsely populated areas where other types of broadband would be too costly to provide.

Mobile wireless broadband services are also widely available from mobile broadband service providers. Mobile wireless broadband service is typically slower than either wired or fixed wireless alternatives.

## Satellite

Satellite broadband, another form of wireless broadband, is useful for serving remote or sparsely populated areas. Downstream and upstream speeds for satellite broadband depend on several factors, including the provider and service package purchased, the consumer's line of sight to the orbiting satellite, and the weather. Satellite service can be disrupted in extreme weather conditions. Speeds may be slower than DSL and cable modem, but the download speed is still much faster than the download speed with dial-up Internet access.



For satellite broadband service, a user must have:

- a two or three foot dish or base station – the most costly item
- a satellite Internet modem
- a clear line of sight to the provider's satellite

### Getting broadband in your area

- Contact your local library and see if it has applied for the federal E-rate program, which subsidizes broadband to libraries and schools.
- Contact local government officials and ask what they can do to attract broadband service providers to your area. It is typically expensive to extend a broadband network to a new area. Your county or municipality may be able to offer a broadband provider video franchise rights, making building out a broadband network more attractive to potential providers.
- Talk with your state government or state public service commission to see what is being done or can be done to get broadband to your area. For contact information for your state public service commission, go to [www.naruc.org/commissions.cfm](http://www.naruc.org/commissions.cfm).

### Filing a complaint

If you experience a problem with your broadband service, first try to resolve it with your provider. If you cannot resolve the problem directly, you have multiple options for filing a complaint with the FCC:

- File a complaint online at <https://consumercomplaints.fcc.gov>
- By phone: 1-888-CALL-FCC (1-888-225-5322); TTY: 1-888-TELL-FCC (1-888-835-5322)
- By mail (please include your name, address, contact information and as much detail about your complaint as possible):

Federal Communications Commission  
Consumer and Governmental Affairs Bureau  
Consumer Inquiries and Complaints Division  
445 12th Street, S.W.  
Washington, DC 20554

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