

Rural Louisiana

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In This Issue: Rural Internet Initiatives

Emery, South Dakota has a population of 439. Yet, Andrew Fluth, a 18-year old senior, is taking advanced placement calculus from his small school in Emery with a teacher located 250 miles away.

How is this possible? Andrew is using e-learning technology provided by the South Dakota Network. He talks to his calculus teacher through a sound sensitive camera and television. A laptop computer transmits the signal through a high-speed connection to Andrew's teacher, who helps him out with a particularly hard calculus problem.

Rural communities are taking advantage of the new information technologies to bring educational and health resources closer to home. And the federal government and private corporations are helping make this a reality.

However, all this new applications require faster Internet connections. In the first section of this Newsletter, we present an overview of the main types of Internet connections available. Further-on, we discuss how rural communities can take advantage this new technology for health, education, and government initiatives.

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Making the Connection

In 1994, most home and business users of the Internet connected by phone line, at a rate of 14.4 kbps (kilobits per second). Today, users have a wealth of options. Dial-up connections still exist, but have been eclipsed by faster broadband and wireless alternatives. We have outlined the primary means of connection in rural areas, and some of the pros and cons.

Dial-up connections

Dial-up modems use your phone line to connect your computer to your Internet provider. Dial-up connections range in speed from 14.4 kbps to 56.0 kbps. At these speeds you can check e-mail, send and receive text files, and look at websites that are not cluttered with graphics and ads.

Pros: Usually inexpensive; available anywhere you have a phone line.

Cons: Slow connection; ties up your phone line.

Broadband Connections: DSL, Cable, Wireless, and Satellite

The Internet has changed a great deal in 10 years. Today it is possible to send and receive videos and music over the internet, websites have become more graphically rich, and real-time videoconferencing is commonplace. All of these uses require much higher rates

of speed of transmission than is possible using a phone line. "Broadband" is the general term used to describe faster Internet connections. There are actually several kinds of broadband connections: DSL, cable, satellite, and wireless. All are much faster than dial-up. Broadband usually ranges from 256 kbps to 1.5 mbps (megabits per second; 1 mbps = 1000 kbps) and are available at speeds as high as 10 mbps. The individual types of broadband connections are as follows:

Digital Subscriber Line (DSL)

DSL connections come through your phone line. In contrast to dial-up, DSL is always connected and does not block phone calls while you use the Internet. DSL speed varies according to the Internet Service Provider (ISP). DSL requires a modem that serves as an intermediary between your phone line and computer.

Pros: Faster, always connected. does not block phone calls

Cons: More expensive than dial-up, not available everywhere.

Cable Internet

Cable companies such as Cox Communications and Comcast offer Internet services. Unlike DSL, however, the Internet

connection comes through the same type of coaxial cable that you plug into your television. Connections speeds are similar to DSL

Pros: Fast connection; always connected.

Cons: More expensive than dial-up. Only available in areas that have cable television.

Satellite Internet

In rural areas, Satellite Internet services are sometimes the only option for high-speed Internet. The cost of installation and Internet services, as might be expected, is sky high. For instance, satellite Internet

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Elizabeth Higgins, Director
Center for Rural Development

P.O. Box 3188
Louisiana Tech University
Ruston, LA 71272
Phone: 318-257-2919
FAX: 318-257-4153
E-mail: ehiggins@latech.edu

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Making the Connection - Continued

provider DirecWay (<http://www.direcway.com/>) charges an upfront fee of \$599.98 for equipment and installation, while most DSL companies will include installation and equipment free of charge as long as you commit to keep the plan for at least a year. In addition, the download and upload rates for satellite are different.

Pros: Available in remote areas.

Cons: Very expensive. The connection might not work in cloudy weather.

Wireless (Wi-Fi)

Wireless networks are the future of the internet. Wi-Fi (wireless fidelity) is the set of standards that regulate the technology behind wireless communications. Commercial wireless networks are commonly found in Internet cafes and airports. Free wireless networks in some cities, communities, and universities are available to the general public. To take advantage of a wireless network, a wireless card has to be attached to your computer. The wireless card enables the system to search for available wireless networks and connect to the Internet.

Wireless networks are less secure because the radio signals can be intercepted by a third-party. If the information is not encrypted

and the wireless connection is not secure, a malicious user could tap into a wireless connection and collect personal information and passwords.

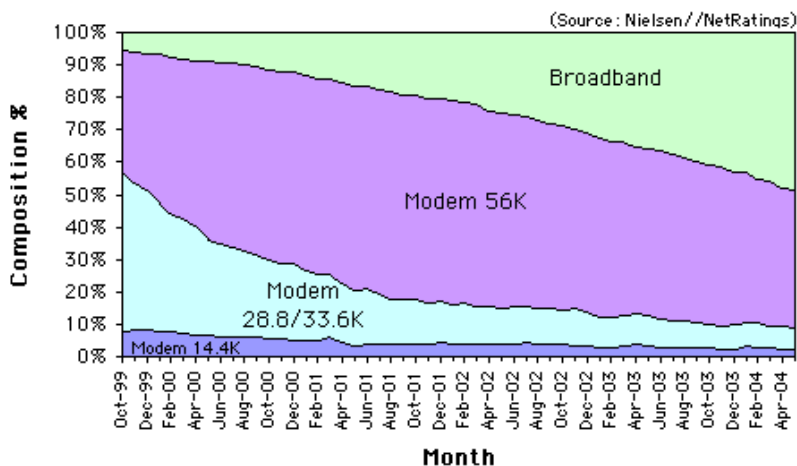
Pros: Flexible - computers are not physically connected, Increasingly available and probably will be the most commonly available type of broadband connection in rural areas.

Cons: Issues with security, weak signals can slow down the connection.

In the Future

The technology for internet connectivity continues to change and evolve rapidly. There are new technologies, and improved wireless technologies being developed which should make broadband internet as pervasive as electricity in rural America in a few years. For example, the technology currently exists to send broadband internet through existing electrical lines - anyone "on the grid" could also have broadband internet available.

Web Connection Speed Trends - Home (US)



Internet users in US homes are increasingly switching to broadband. By 2004, about 50% of the home users in the US had a broadband connection. Since the trend is expected to continue, many websites are now offering audio and video feeds, and other bandwidth-heavy content which require a high-speed connection.

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E-Government Initiatives

E-Government -the use of electronic resources for the delivery of public services is now a reality at the national, state, and increasingly the local level in the US.

A comprehensive government website can help residents access the latest news, ordinances, and departments' information for their village, town, or city. Time-consuming activities such as paying utility bills, and even voting can now be done online.

The usefulness of government websites, however, is clearly limited by the percentage of residents with access to an Internet connection. Therefore, e-government initiatives usually include plans to increase the connectivity of the constituents. Connect Kentucky, a non-profit organization of technology-minded businesses, local governments, and universities in Kentucky, is an example of such a state initiative.

In a not-so-distant future, public wireless access will be commonplace. A wireless connection umbrella for an entire city could further reduce the paperwork needed for clerical activities. Building inspectors would be able to fill their reports using digital assistants and police officers could download videos of street crimes and mugshots to their car computers.

Resources

Connect Kentucky
<http://www.connectkentucky.org/>

Connect Kentucky, a non-profit organization formed by the alliances of technology-minded business, local government, and universities in Kentucky,

FirstGov.gov: the U.S. Government's Official Web Portal
<http://www.firstgov.gov/>

FirstGov.gov is the U.S. government's official web portal to all federal, state and local government web resources and services.

The E-Governance Institute
<http://www.andromeda.rutgers.edu/~egovinst/Website/>

Research, data analysis, and implications of e-government practices

Bringing E-Government to Rural Louisiana: The Center for Rural Development's Small Community Website Project

In the summer of 2005, the Center for Rural Development assisted rural communities and non profits in Lincoln, Union, Bienville, Claiborne, and Jackson Parish Louisiana develop, implement, and maintain websites.

The Center maintains a website about the project where information is provided about the participants in the project, as well as information about developing a website, and free website templates.

<http://www.latech.edu/tech/rural/website project>

The Village of Choudrant -one of the project's participants- used its website to post a comprehensive database of ordinances and information about their public services. Choudrant also advertised events such as the Southern Living Idea House exhibition, which took place in Choudrant past fall.

Visit Chourdant's official website at:
<http://www.choudrant.org/>

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Telemedicine, Telehealth, and E-Health

Families residing in rural communities usually do not have access to specialized health care services. Seeking such care involves traveling to the nearest city, losing wages for the day, and delays on receiving treatment. Through the use of telemedicine technologies, a patient can get a diagnosis from an specialist without having to leave town.

In a typical telemedicine consultation, a nurse guides a patient to a designated clinic room. There, the patient interacts with the specialist miles away through a video call made on a private secure line. The patient can see the specialist on a TV screen. The doctor, in turn, is able to examine the patient as though it were in the same room by receiving information from a otoscope, stethoscope, a general exam camera, and a document camera (for x-rays), which is transmitted through a high-speed connection.

Telemedicine is the use of audio, video, and other telecommunications technologies to transmit information relevant to the diagnosis and treatment of medical conditions, to provide treatment to patients, or to aid health care personnel at distant sites, such as rural communities.

Although telehealth and telemedicine are sometimes used interchangeably, telehealth

is broader in scope. Telehealth encompasses the use of electronic communications networks for the transmission of information and data focused on health promotion, disease prevention, diagnosis, consultation, education, therapy, and public health.

Information technology and the Internet are an effective medium to transfer medical information and provide services such as online diagnosis and long distance education.

Local universities are now implementing telehealth and telemedicine programs to aid rural communities. The University of Arkansas for Medical Sciences (UAMS) uses high-speed Internet to offer video consultations to 50 sites around the state of Arkansas, primarily in rural hospitals and clinics. Most of the consultations deal with high-risk pregnancies. UAMS also offers long-distance education seminars to health providers in rural areas using state-of-the-art videoconferencing. The Mid-South Telehealth Consortium, led by the University of Tennessee Health Science Center, conducts telehealth consultations in rural areas using a network of hospitals connected via secure, dedicated T1 lines running across the state of Tennessee.

There are several grant and financing opportunities for telehealth. The Office for the

Advancement of Telehealth (OAT), established by the Health Resources and Services Administration, serves as a leader in telehealth and offers grant opportunities for telehealth projects. In 2004, the OAT awarded \$27.4 million in grants to 54 telehealth/telemedicine projects. Rural health care providers can get discounts on telecommunications services and Internet access through the Universal Service Administrative Company, which administers the Universal Service fund.

Resources

Office for the Advancement of Telehealth

<http://telehealth.hrsa.gov/>

Rural Assistance Center::
Information Guides ::
Telehealth

http://www.raconline.org/info_guides/telehealth/

Universal Service
Administrative Company -
Rural Health Care
<http://www.rhc.universalservice.org/>

The Universal Service Administrative Company offers discounts for telecommunication services and Internet access to rural health care providers.

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Telemedicine, Telehealth, and E-health - continued

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TelehealthNet
<http://telehealth.net/>

News, books, links and resources for telehealth and telemedicine

HealthWeb: Telemedicine
<http://www.lib.uiowa.edu/hw/telemed/>

Maintained by the University of Iowa, HealthWeb offers up-to-date information and resources for Telemedicine.

USDA Rural Development's Telecommunications Programs - Distance Learning Telemedicine
<http://www.usda.gov/rus/telecom/dlt/dlt.htm>

In 2005, USDA Rural Development awarded \$20.8 million in grants to Distant Learning and Telemedicine programs.

Rural Hospital Program - University of Arkansas for Medical Sciences
<http://rhp.uams.edu/>

The home page of the University of Arkansas' Rural Hospital Program

Mid-South Telehealth Consortium
<http://www.utmem.edu/telemedicine/>

Hosted by the University of Tennessee, Health Science Center, the Mid-South Telehealth Consortium is a state-wide network of hospitals in Tennessee



Books:

Norris, A. C. (2002). Essentials of Telemedicine and Telecare. West Sussex, England; New York: John Wiley & Sons, Ltd. ISBN 0-47-153151-0.

Maheu, Marlene M.; Whitten, Pamela; & Allen, Ace (2001). E-Health, Telehealth, and Telemedicine: A Guide to Start-up and Success. San Francisco: Jossey Bass. ISBN 0-78-794420-3.

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Distance Learning

After Katrina and Rita, thousands of high-school students were displaced. To aid these students, the Louisiana Department of Education in partnership with The Louisiana School for Math, Science, and the Arts offers core high school courses through The Louisiana Virtual School. Thanks to e-learning, displaced students will be able to graduate on time.

Information Technology has revolutionized the concept of distance learning. Live video feeds allow instructors to interact with students in remote locations. Students use the Internet to attend classes online. Homework, quizzes, and tests can be assigned and completed online. The grading process can be automated, giving students immediate feedback. Online universities and learning centers offer continuing education programs and degrees.

E-learning (electronic learning) resources can help students having trouble with standardized exams, such as those required by the No Child Left Behind act. Test preparation software such as Brainchild's WebAchiever can help students pass their reading tests and can generate useful statistics about the school's overall performance.

The equipment needed to take advantage of distance e-learning depends on the level of interactivity required. For the simplest kinds of online

courses, a computer with an Internet connection will do. However, if the online course allows you to speak with, or see your instructor, a broadband connection is required. The Digital Dakota Network uses VTEL equipment, which sends signals from a sound-sensitive video camera and a television through the Internet using a laptop computer.

Grants for distance learning initiatives are available through the Cooperative State Research, Education, and Extension Service's Information Technology Education program. The CSREES's Information Technology program directs funding to assist citizens in rural communities in acquiring computer and telecommunications knowledge skills. Corporations, such as Microsoft, support learning programs involving information technology through grants and software donations.

Resources

A Louisiana Virtual School
<http://www.louisianavirtualschool.net/>

Standards-based high school courses delivered by Louisiana teachers through the Louisiana Virtual School.

About.com - Distance Learning
<http://distancelearn.about.com/>

A comprehensive reference for distance learning topics and

resources

U.S. News: E-Learning Guide
<http://www.usnews.com/usnews/edu/elearning/elhome.htm>

Recent articles about e-learning and comprehensive information on accredited online schools

Digital Dakota Network Home Page
<http://www.ddnnet.net/>

The distance learning program in the state of South Dakota

The RGK Foundation
<http://www.rgkfoundation.org/guidelines.php>

The RGK offers grants in the areas of education, community, and medicine/health, with primary interests on education.

USDA Rural Development's Telecommunications Programs - Distance Learning Telemedicine
<http://www.usda.gov/rus/telecom/dlt/dlt.htm>

In 2005, USDA Rural Development awarded \$20.8 million in grants to Distant Learning and Telemedicine programs.

This link is also included in the Telemedicine section.

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Louisiana Tech Center for Rural Development
P.O. Box 3188
Louisiana Tech University
Ruston, LA 71272

Announcements:

List your event with us! The Center for Rural Development has updated its website. Changes include a new calendar of events of interest to rural community development practitioners and rural leaders. See www.latech.edu/tech/rural and click on calendar. You may request that your organization's event be included on the calendar.

Do you need a website? The Center has developed website templates that can be used by towns, organizations and others. The designs include instructions for modification and samples of the design in action. See www.latech.edu/tech/rural/website project for more information.