Southeast Ohio Regional Report on Ohio's Readiness for Global Electronic Commerce
May 2000

e com-ohio

Southeastern Region

OMEGA
OHIO MID-EASTERN GOVERNMENTS ASSOCIATION

OVRDC

Buckeye Hills - Hocking Valley
Regional Development District
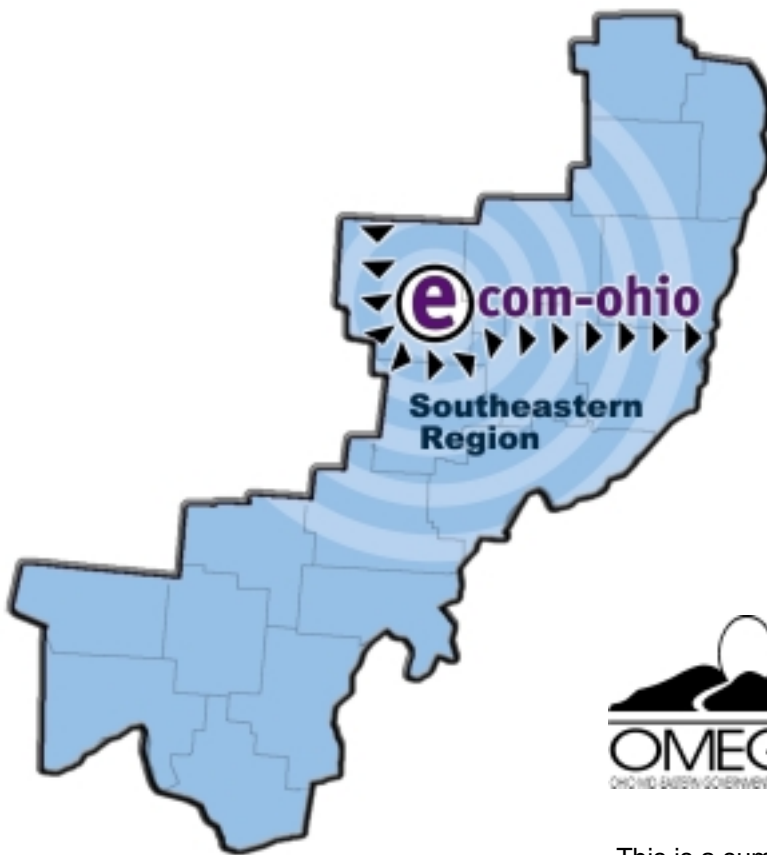
This is a summary report. For more detailed information please visit
www.ecom-ohio.org.

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Statewide Steering Committee

We wish to thank the members of the ECom-Ohio Steering Committee, whose untiring efforts have brought ECom-Ohio to fruition.

Ready, Set, Go!

Action! must be our watchword as the information revolution powerfully transforms our economy and society.   But is Ohio ready to compete in the new information economy? This report answers that question and more. It documents ECom-Ohio's landmark public-private leadership effort to measure Ohio's readiness for global electronic commerce. The project has collected data in 22 key indicators that measure our state's performance against a comprehensive set of national benchmarks (www.cspp.org).

The Internet and growth of e-commerce as a way of doing business has thrust Ohio's industrial base into a time of turbulent change. Network traffic doubles every six months and forecasts show that business-to-business e-commerce will be a major driver of our state's economy in the next decade, generating new entrepreneurial ventures, sources of wealth and jobs. As industry experts recently observed:

> *"Business-to-business trade isn't growing up in high-tech centers like Silicon Valley; it's developing in industrial hubs like Cleveland and Detroit. As B2B trade expands, there will be a flight of talent and venture capital money to support these efforts, leaving the coasts feeling a bit of a frost — while middle America experiences the Internet boom in 2001."*
>
> *- - Forrester Research, February, 2000*

We firmly believe that Ohio—a leader in the first industrial revolution—has the potential to be a leader in the ECom revolution in which we are participating today. Thriving in this time of change will challenge all of Ohio's firms and institutions. The report you hold identifies a course of action and the direction we must take to remain competitive. Turn the page to see how you can get involved within your home, firm, educational institution, or government unit to move our state forward in the new economy.

Roderick G. W. Chu
Chancellor, Ohio Board of Regents

Lars Nyberg
Chairman and CEO, NCR Corporation
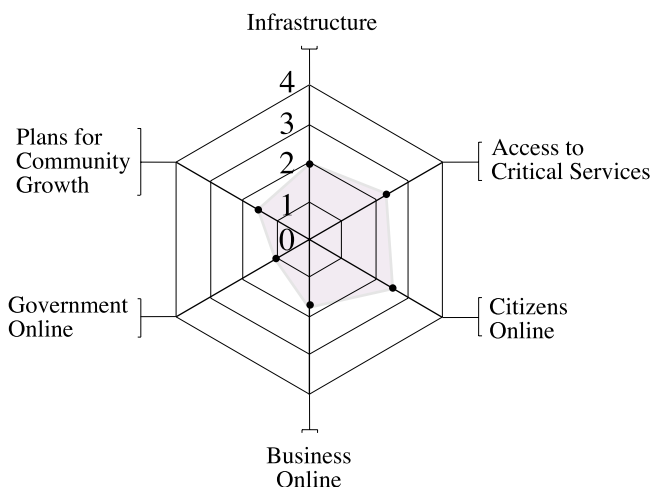
Southeast Ohio's Electronic Commerce Readiness

Infrastructure Capabilities

Components of E-Commerce

Southeast Ohio has a limited information infrastructure with almost no redundancy. Access to the Internet is an issue in many areas with low population density. The region's limited service and pricing options are a barrier to more businesses and citizens going online. Even with an increased demand for Internet services in Southeast Ohio, this low-density market may not provide adequate returns on private investment to enhance infrastructure, broaden access technology choices and assure the region's future competitiveness and growth.

Infrastructure: The communication networks that connect users to the Internet.

Access: The choices available by which users can connect to the public data network at the level they demand or need.

Usage: The extent to which business, government, and household users utilize the access available to them.

Optimal Infrastructure, Access and Usage • Estimated Infrastructure • Estimated Access • Estimated Household Usage • Estimated Government Usage • Estimated Business Usage
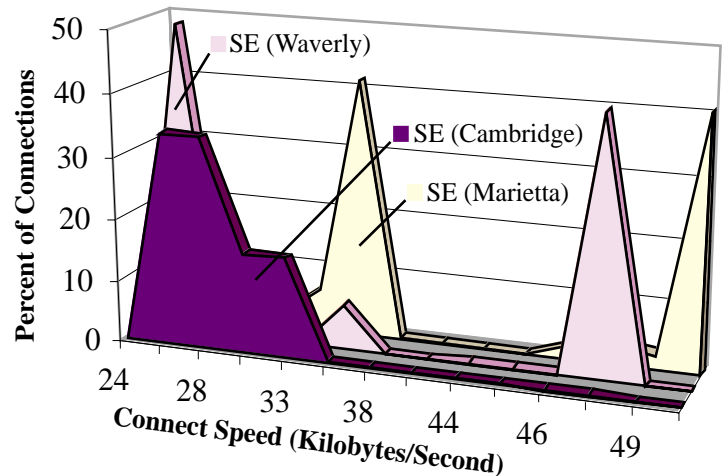
Available Local Backbone

There is limited Internet backbone infrastructure throughout Southeast Ohio. Connections at 1.5 Mbps (T-1) speeds are available in most urban areas of the region serving 9.4% of business users. Integrated Services Digital Network (ISDN) lines are used by 6.3% of these businesses but the cost of these options is often prohibitive in rural areas of Southeast Ohio. At a time when OC12 or larger connections to the Internet backbone are common throughout the state, 45 Mbps lines are the largest backbone lines leaving this region. Most of this connectivity is provided through OARnet (Ohio Academic Research Network) to Ohio University, Shawnee State University and other area educational institutions. Wireless access to the Internet is not widely available.

Columbus (9,000 Mbps)
Athens (90 Mbps)
Piketon (90 Mbps)
Network Backbone

Ability to Meet Demand

Connection attempts from the Southeast Ohio region typically do not experience tremendous disruptions; 90% of all connection attempts are successful. However, dialup connections are not robust enough to support high band-width applications. Network slowdowns occur during peak hours, but rarely deny access. Sixty percent of Southeast Ohioans report interruptions in service at least once a month. Infrastructure in this area of the state is not sufficient to support above average levels of data traffic.

Southeast Ohio Dial-up Connect Speeds

Legend:
- SE (Waverly)
- SE (Cambridge)
- SE (Marietta)

Y-axis: Percent of Connections (0, 10, 20, 30, 40, 50)
X-axis: Connect Speed (Kilobytes/Second) — 24, 28, 33, 38, 44, 46, 49

Key Findings

The power of Internet technology to transform this region has not been unleashed. Low population densities throughout the region do not spawn adequate data traffic to drive the development of high bandwidth capacity. Web-enabled applications, such as e-commerce, distance learning, and video-conferencing are critical to the region's economic future, but cannot be supported on the current infrastructure.

Action Agenda

- Create economic development tools to boost network capacity to assure network infrastructure stays ahead of demand.

- Support market-led, targeted incentives for providers to extend quality service to rural regions.

# Access to Critical Services

Range of Services

Dialup access at 56 K is available throughout Southeast Ohio to residents and small businesses. T-1s are available in certain areas of the region and service 9% of the businesses. ISDN lines are used by 6.3% of the businesses. The overwhelming majority of household and business users access the Internet using narrowband dialup options. Only a limited range of payment and service options are available to businesses throughout the region. Rural areas are served solely by dialup service; businesses requiring higher bandwidth service have been required to install the connectivity at their own expense.

Affordability

For residents and small businesses, flat dialup service options are available universally. Selected service options based on usage are available on a limited basis from selected Internet Service Providers (ISPs). Forty-one percent of the households and 69% of the businesses in Southeast Ohio know of alternate service packages available. Large businesses have access to limited pricing options for high bandwidth service.

Quality of Service

Dialup and higher bandwidth service setup times are nominal, and statewide, most accounts are active within 7-10 days. Eighty-four percent of the users in business and at home consider transmission speeds adequate for current levels of usage. Even though more than 69% of the residents and businesses report disruptions in service at least once a month, 88% of Southeast Ohio citizens rank service response as satisfactory.

Southeast Ohio File Transfer Time by Size
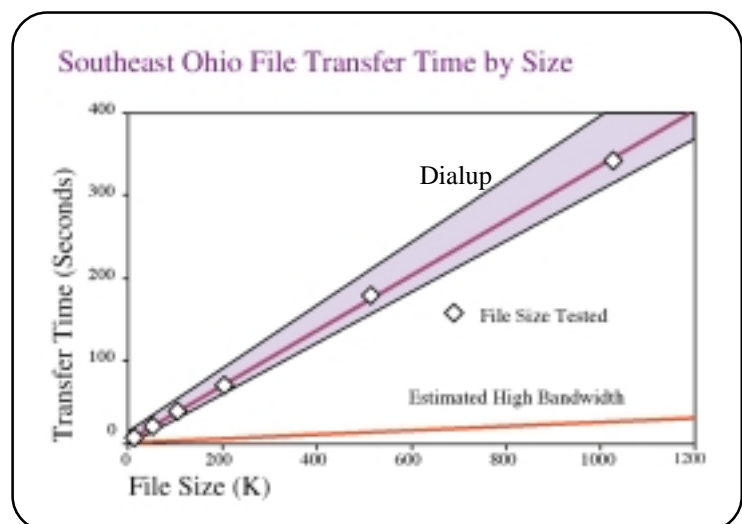
Competition

For data services, a limited range of technologies and providers are available throughout the region. The Southeast Ohio region has a small ISP market with only limited service options available. Most areas have around five ISPs from which to choose. Competing high bandwidth services, such as Digital Subscriber Lines (DSL) and cable, have not been deployed.

Southeast Ohio Customer Usage by Type of ISP

- National 29%
- Local 58%
- 13% AOL
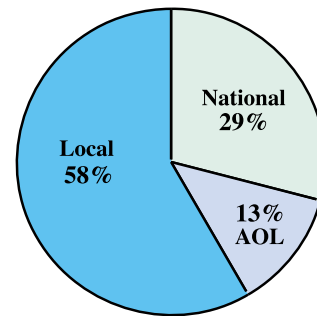
Key Findings

Southeast Ohio has limited access options. Broadband alternatives are expensive and only sparsely dispersed throughout the region. Access options are dominated by local dialup services.

Action Agenda

- Support statewide legislative and regulatory efforts to broaden technology and service choices available to rural consumers.

- Provide discounted Internet access service to small businesses through chamber and trade associations.

Business Online

Domains

Ohio's domain growth rate significantly increased during the last six months of 1999, making it the twelfth highest state in terms of newly registered domains. However, the number of domains in the Southeast region decreased by 50% in 1999. Since January, the number of domains has remained constant. The Southeast Ohio Region lags behind state and national averages for new domain name registration.

Southeast Ohio Domains
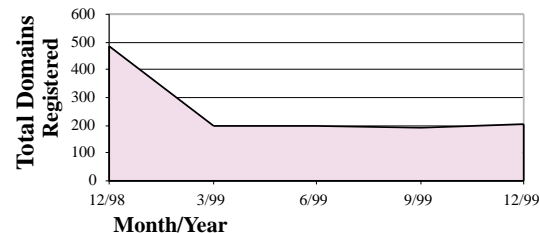
0.47
domains per
thousand population

Source: Network Solutions Inc.

Websites

About 21% of all Southeast Ohio businesses are online and 8% have websites. Southeast Ohio businesses lag behind national averages in terms of website usage, although a strong contributing factor may be the large number of businesses with less then 100 employees in the region. Among the Ohio businesses with more than 100 employees, website usage is substantially higher at 66%. Very few businesses are using tracking or push technology to retain customers. While there are companies with websites that demonstrate latest best practices in web usage, these are not widely used.

Business use of technology . . .
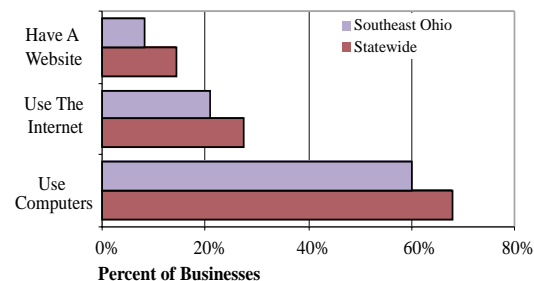
. . . varies with the number of employees

Statewide Technology Use by Number of Employees
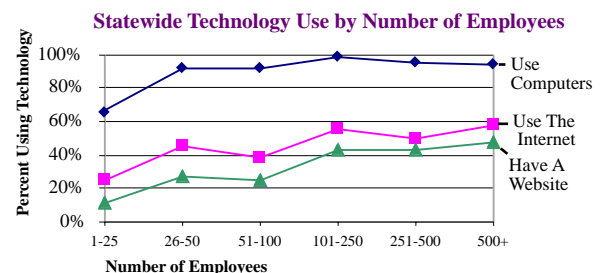
Market Development & Business-to-Business Transactions

Eight percent of Southeast Ohio businesses have a website. Of those, 82% cite competitive pressure and attracting new customers as primary reasons for creating a web presence. There are few significant business-to-business electronic transactions since there is a low concentration of businesses in the region with strongly linked supply chain management systems, such as automotive Original Equipment Manufacturers (OEMs) and logistics and distribution. Twenty-one percent of Southeast Ohio businesses use the Internet and six percent of them use Electronic Data Interchange (EDI) with suppliers or customers.

Southeast Ohio Business Websites

Lehman's Hardware:
www.lehmans.com
Longaberger:
www.longaberger.com
Frog Net:
www.frognet.net

Local Area Networks (LANs) are used in 28% of Southeast Ohio businesses. Even though many businesses are networked, only 9% rely on e-mail as their primary form of business communication. Only 48% of businesses in Southeast Ohio have more than half of their employees using computers.

28% businesses have a LAN

14% businesses have a WAN

Key Findings

Businesses in the Southeast region do not use aggressive websites for marketing or selling. The large number of crafts and trades in the region suggest a potential to use Internet marketing and sales to boost the region's economy.

Action Agenda

- Provide regional support for statewide incentives to help offset initial business costs of hardware and software needed to compete in the digital economy.

- Hold an e-commerce retreat for area businesses and government organizations.

- Use chamber and business outreach to the community to stress the critical need to build an online presence and master e-commerce skills.

Citizens Online

Internet Access at Home and at Work

The Southeast Ohio region is slightly below the national average in terms of computer ownership and Internet usage. Thirty-one percent of Southeast Ohio citizens own a computer; 27% of Southeast households indicate that they go online weekly. Nineteen percent of Southeast Ohio citizens cite lack of access as a barrier to getting on the Internet.

Southeast Ohio Internet Usage by Location

51% — Home
23% — Work
5% — School
21% — Someplace Else
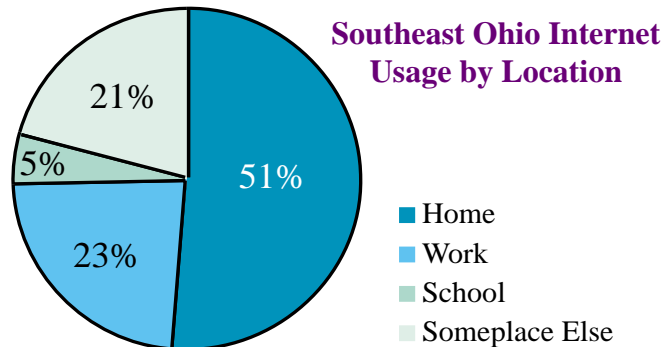
Schools

While over 90% of the schools in Southeast Ohio are wired, many lack adequate updated hardware or facilities for effective educational use. Fourteen percent of the schools in this region offer distance learning, the highest percentage in the state. Eighty percent of the schools in Southeast Ohio offer staff and teachers Internet training either on or off site but there is a perceived lack of computer skills mastery and full integration into curriculum offerings.
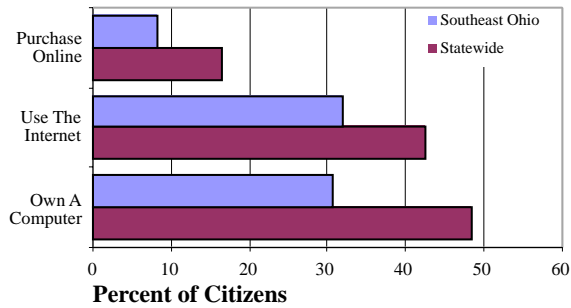
Libraries

Through the Ohio Public Library Information Network (OPLIN), libraries in Ohio boast an outstanding array of network services and public access to information, databases and resources. In Southeast Ohio, the local libraries are well interconnected. Sixty-one library buildings have access to the Internet with 225 workstations providing public access to Internet resources, data, web-based e-mail applications, and other hardware and software training services. Although libraries offer a good public access point, the distance from many homes to the library is a limiting factor to providing broad levels of citizen access and participation in this region.
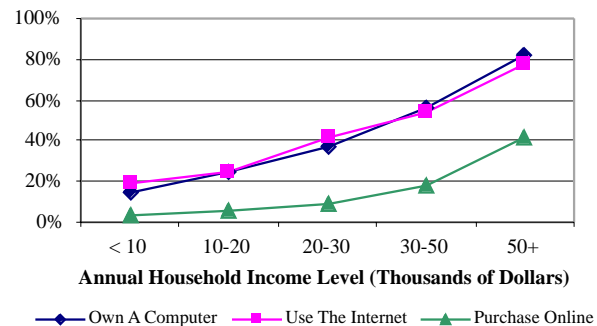
OPLIN

Household Internet use . . .

. . . varies by income

Household Internet use bar chart comparing Southeast Ohio and Statewide across Purchase Online, Use The Internet, and Own A Computer. X-axis: Percent of Citizens (0–60).

Statewide Technology Use by Income

Line chart of Own A Computer, Use The Internet, and Purchase Online by Annual Household Income Level (Thousands of Dollars): < 10, 10-20, 20-30, 30-50, 50+.

Key Findings

Southeast Ohio has lower than average citizen participation on the Internet compared to other regions in Ohio. Those citizens who have computers are aggressively using the Internet. Public access through schools, community centers and libraries is adequate in the county seats but the region's rural areas suffer from lack of broadband service and public points of access.

Action Agenda

- Promote after-hour use of existing computer facilities in schools as public training sites.

- To boost computer literacy, train teachers extensively in computer skills and use curriculum to actively share that knowledge with students.

Community Planning

New Communities Created

Southeast Ohio has not yet invested in a strong economic development presence on the Internet. There are few portals providing online access to community resources, schedules, or events other than the SouthEastern Regional Freenet (SEORF).

**Southeast Ohio
Websites of Interest**

ACEnet:
    www.acenetworks.org
SouthEastern Ohio Regional Freenet:
    www.seorf.ohiou.edu
Perry County Wellness Online:
    www.seorf.ohiou.edu/~xx143

Employment Opportunities and Skills

Some of the local employment and one-stop training centers provide job search and resume posting services. Local centers participate in OhioWORKS, the statewide job and resume posting service.

Ohio WORKS!.com

The number one site for
Ohio employers and job seekers

www.ohioworks.com

Planning

Regional development districts have run programs to attract local businesses to the Internet with limited success. Some communities are actively seeking out alternatives to current access options. Few technology planning efforts exist and they are not well integrated across the region.

Government Websites

Few government units are online. Of those cities online, there are few government resources, downloadable forms or other self-service options for citizens. No local government unit provides procurement online. The City of Athens has developed a strong web presence and is committed to broad penetration of web-based technologies to encourage public participation and improve citizen services.

Southeast Ohio Government Websites of Interest

City of Athens:
    www.ci.athens.oh.us
Marietta Police Department:
    www.frognet.net/mariettapd

Key Findings

The Southeast region has some localized community technology planning efforts. A regional planning effort should leverage the networks already created by SEORF and others. Given the isolated, rural nature of this region, there will be major cost savings and service benefits to making an aggressive effort to put local government units online.

Action Agenda

- Hold an e-commerce retreat for area organizations involved in e-commerce planning.

- Develop vertical government portals to share costs of hosting and maintaining web-enabled citizen services.

- Develop a regionwide technology planning effort.

Glossary of Terms

Access—The technology choices available by which users can connect to the public data network at the level they demand or need (dialup, cable, DSL, ISDN, wireless, etc.)

Bandwidth—The capacity of a transmission channel to move data among locations.

Cable modem—A device that enables a personal computer to be connected to a local cable TV line and receive and send data.

Dialup access—Refers to connecting to the Internet via a modem and standard telephone line.

Domain name—The unique name that identifies an Internet site and its address.

DS3 (Digital Signal 3)—A standard digital transmission rate of approximately 45 Mbps.

DSL (Digital Subscriber Line)—A technology which enables the ordinary copper component of telephone lines to carry data at rates much higher than ISDN.

E–commerce (Electronic commerce)— Commercial and non-commercial transactions facilitated through the use of networked technologies.

Gbps (Gigabits per second)—A measurement of the rate of speed at which data is transferred (e.g., 1 Gbps equals 1 billion bits per second).

Infrastructure—The communication networks that connect users to the Internet.

Internet—The collection of interconnected networks that use the IP protocols.

ISDN (Integrated Services Digital Network)—A service that allows for higher data transmission speeds and is capable of handling at least two services over one line simultaneously (i.e., voice and fax or voice and data).

ISP (Internet Service Provider)—A company or organization that provides users with connectivity to the Internet.

Kbps (Kilobits per second)—The rate of speed at which data is transferred (e.g., 1 Kbps equals 1,000 bits per second).

LAN (Local Area Network)—A network of interconnected workstations that share the resources of a single processor or server within a relatively small geographic area, such as an office.

Mbps (Megabits per second)—A measurement of the rate of speed at which data is transferred (e.g. 1 Mbps equals 1 million bits per second).

OC3 (Optical Carrier level-3)—An optical fiber line that supports digital signal transmissions at 3 times the base rate of 51.84 Mbps or approximately 155 Mbps.

OC12 (Optical Carrier level-12)—An optical fiber line that supports digital signal transmissions at 12 times the base rate of 51.84 Mbps or approximately 560 Mbps.

OC48 (Optical Carrier level-48)—An optical fiber line that supports digital signal transmissions at 48 times the base rate of 51.84 Mbps or approximately 2.5 Gbps.

OC192 (Optical Carrier level-192)—An optical fiber line that supports digital signal transmissions at 192 times the base rate of 51.84 Mbps or approximately 9.7 Gbps.

T1—A commonly used line for Internet connectivity that supports digital transmissions at 1.5 Mbps.

Usage—The extent to which business, government and household users utilize the Internet access and infrastructure available to them.

WAN (Wide Area Network)—A geographically dispersed telecommunications network.

Wireless access—A communications system in which radio-frequency or infrared waves carry a signal through the air, rather than along a wire.

xDSL (Digital Subscriber Lines)—One of many variations of DSL, the most common of which is ADSL, asymmetric digital subscriber line service.

Southeast Regional Workteam Members

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