

# Strong Networks Grow Distance Learning

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## INTRODUCTION

This article presents a snapshot of one state's experience with connectivity from the early 1980s to the present and illustrates how distance learning has utilized that infrastructure to grow to serve more than 100,000 Ohioans.

In early 1980s, most of Ohio's telecommunications traffic traveled on dial-up connections. Ohio's history of formidable statewide networking began in 1987, when CompuServe and OARnet (Ohio Academic Resources Network) were among few regional networks in existence. Through various mergers and acquisitions, CompuServe became Worldcom, AOL, MCI-Worldcom, and, finally, Verizon. OARnet became the Third Frontier Network (TFN) in 2004 and now is referred to as OSCnet and Broadband Ohio Network (BON).

OARnet was created in 1987 by the Ohio Board of Regents to provide statewide connectivity to resources at the Ohio Supercomputer Center (OSC). In later years, the network extended support to the 89 member institutions of the Ohio Library and Information Network (OhioLINK), and the 83 colleges and universities of the Ohio Learning Network (OLN), a consortium offering blended, online, and distance education. OLN provides faculty development, infrastructure support via Collaborative Learning Environments (CLE), and various student support services and grants.

## HISTORICAL UNDERSTANDING OF DISTANCE LEARNING AND NETWORKING IN OHIO

Broadly speaking, there have been three distinct network variations in the state – OSCnet, which caters to education, research and innovation; the State of Ohio's Office of Information Technology network and many of its departmental components; and private sector

networks developed by various telecommunications and cable operators.

At OARnet's 1987 inception, Ohio's higher education network backbone consisted of fourteen 56Kbps circuits from various parts of the state connecting back into Columbus. Since 2000, exponential demands for the bandwidth with predictable time-of-provisioning and somewhat predictable cost became an important factor for growth in education and research. These demands drove OARnet to consider the substantial, long-term investment in a statewide, fiber-optic infrastructure that resulted in the November 2004 launch of the Third Frontier Network (now OSCnet). Today, the OSCnet backbone consists of 1,850 miles of optical fiber, with a current capacity of OC-48 (2.5Gbps). Upgrades are underway to increase the backbone capacity to OC-192 (10Gbps) over the next 24 months.

Ohio's colleges and universities, K-12 schools, public broadcasting stations, and university hospitals and their partners are current OSCnet stakeholders. OSCnet provides commodity Internet service to its members, procuring these services at six different points of presence in the state from Tier-1 Internet service providers.

The Ohio Board of Regents created OLN in 1999 to build a catalog of distance education, provide faculty with tools and resources to teach at a distance, and to create efficiencies through shared services, including course management systems. By 2002, 67 degrees and certificates were listed in the *OhioLearns!* catalog, and, today, 211 degrees and certificates appear. Some of that growth was funded by grants from the Ohio Learning Network. Ohio is rich in number and diversity of colleges and universities with 14 state universities with a total of 25 regional campuses, 23 community and technical colleges and 60+ independent institutions. Within the context of its mission, each Ohio institution will continue to choose how, when, where and why to provide e-learning to a clientele increasingly hungry for new and different ways to enhance learning.

OLN has funded 175 Learning Communities of faculty, and staff and students exploring improvements in teaching and learning using various technologies, from hand-held devices to Second Life worlds to topics such as portfolios and the future of distance education.

OLN provides statewide collaborative licenses for CLEs and tutoring, thus saving member institutions thousands of dollars. OLN also supports a statewide Blackboard hosting service provided by the University of Cincinnati.

## OHIO'S CONNECTIVITY LEADS THE NATION

In July 2007, Governor Ted Strickland issued an executive order instructing all state agencies, boards, and commissions to begin migration of their networks to the OSCnet backbone under a consolidated Broadband Ohio plan. Three awards from the Federal Communica-

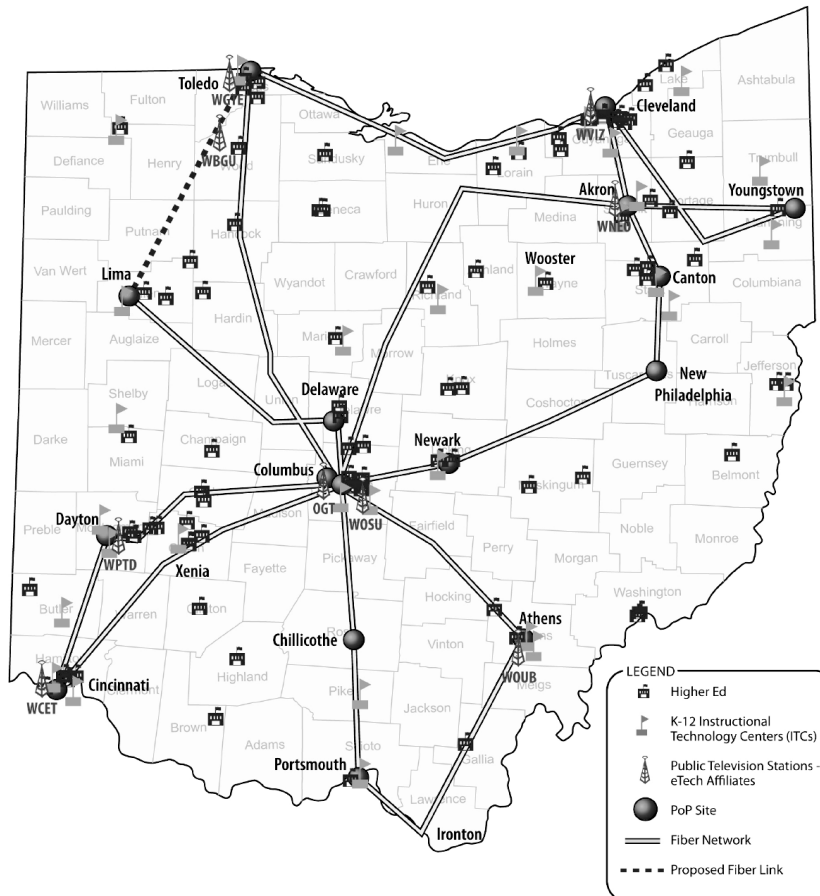
tions Commission's November 2007 Rural Health Care Pilot Program will enable use of the OSCnet backbone for statewide telehealth network initiatives, providing high-speed connections to healthcare facilities in nearly half of Ohio's 88 counties.

OSCnet also acts as a Regional Optical Network (RON) for the state's higher education community. OSCnet's footprint extends into Michigan, Illinois, Pennsylvania and West Virginia through various partnerships, collaborations and peering. Nationally, OSCnet connects to leading research and education networks, such as Internet2. These connections provide all its statewide stakeholders with connections to hundreds of research universities and other K-20 networks across the country.

## Multifaceted Networks

End-users (consumers) often perceive voice, video, and data as flowing seamlessly over a pipe between mul-

*Figure 1. Ohio's connectivity*



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