



OARnet

An **OH·TECH** Consortium Member

oar.net

2,240+
miles
of high-speed
network backbone

\$8
million
savings to Ohio
education

\$47+
million
savings through
virtualization
program

300+
campuses
of college,
university &
branch partners

700+
schools
in public
K-12 sector

OARnet: Delivering Ohio's technology-based solutions

Community-driven and collaboratively focused, the Ohio Academic Resources Network (OARnet) delivers technology-based solutions to Ohio's education, health care, public broadcasting and government organizations affordably and efficiently. OARnet's communities participate in its shared services programs because of the benefits and value-added services they receive.

As a founding member of the Ohio Technology Consortium, a division of the Ohio Department of Higher Education, OARnet provides Ohioans access to a comprehensive technology infrastructure unmatched in any other state.

Our Driving Principles

- Increase access to affordable broadband service.
- Reduce technology costs via aggregate purchasing.
- Maximize shared-service opportunities.

OARnet Services

OARnet delivers high-speed solutions throughout Ohio by way of its 100-gigabit-per-second backbone. Transport service connects eligible members to other OARnet sites, resources offered by providers, such as the Ohio Supercomputer Center and OhioLINK, as well as services, such as Voice-over-IP, business continuity and high-speed data transfers.

OARnet strives to provide exceptional service and develop shared programs that reduce the cost of technology through aggregate purchasing. Value-added services include 24/7 support, Domain Name System (DNS), emergency web hosting and Quality of Service prioritization.

Internet

OARnet's new fee structure for OARnet members in fiscal year 2017 will reduce internet rates and align user tiers with current usage and demand, with the addition of a 10-gigabit tier. OARnet aggregates many

upstream internet providers and connectivity to public internet exchange points to optimize internet costs while maintaining the highest standard of reliability.

IntraOhio Content Subscription

As part of the new fee structure in FY2017, OARnet will debut a new shared subscription service for IntraOhio, offering streaming services at \$1 per Mb, resulting in a savings between 50 to 84 percent per Mb from the previous year. This service will move content items off Internet1, providing customers with more bandwidth for every dollar spent and positioning our clients to be better able to meet the ever-increasing demand for bandwidth. OARnet will work with each institution to determine the correct IntraOhio content subscription needed.

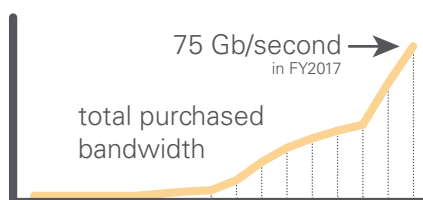
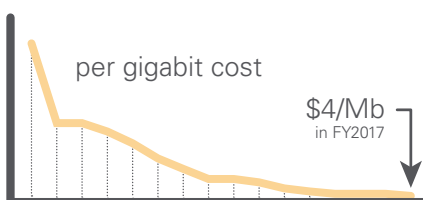
Internet2

OARnet is Ohio's Internet2 Connector, fostering collaboration possibilities for researchers among institutions including seeking funding sources for research, such as the National Science Foundation. Aggregate purchase of Internet2 reduces the cost of connector fees, eliminating the need for schools to purchase individual connections. The Internet2 backbone is transitioning to MPLS and moving away from Openflow to support domain science. OARnet has two 100 Gbps connections, one in Cleveland and one in Cincinnati.

Virtualization

Virtualization allows IT departments to create a virtual environment at the workstation, server or data-center level. Virtualization technology can reduce the number of physical servers or computers needed while maintaining performance levels. OARnet's aggregate purchase of VMware results in license cost reduction of 25 percent and maintenance reduction of 35 percent. An expansion of VMware products now includes Airwatch and vCloud Air for on-demand storage and servers.

Price & Provisioning



► Economies of scale have allowed OARnet's internet pricing to decrease 98.7 percent since 2002, while aggregated subscriptions have increased more than 18,735 percent over the same period.

NG911

Next Generation 911 takes emergency response operations from analog to digital, providing faster, more reliable services when communities need it most. OARnet, under the auspices of the Ohio 911 Program Office within the Department of Administrative Services, is expanding a two-phase pilot program trial to bring Ohio counties on NG911 to improve emergency communications and mapping. Phase one is pre-ESInet and is currently underway.

Gateway Service

OARnet recently added a client portal protected by two-factor authentication, enabling clients to self-administer their contacts and provide easy access to statistics on their use of OARnet services. OARnet will use the self-administered contacts to keep a client's organization up to date with important maintenance and outage communications.

Security - DDoS

OARnet offers proactive DDoS static filters and policies upon request from clients as well as real-time Border Gateway Protocol-signaled black hole route service to mitigate these attacks.

Data Center Services

OARnet supports an array of co-location options, designed to support the recommendations of the Ohio Task Force on Affordability & Efficiency in Higher Education, as well as to meet the needs of our clients for geographical diversity. OARnet provides cost-effective connections back to organizations via OARnet's high-speed network. Other options of co-location, depending on the site, may include: space, cabinets and power.

Return on Investment

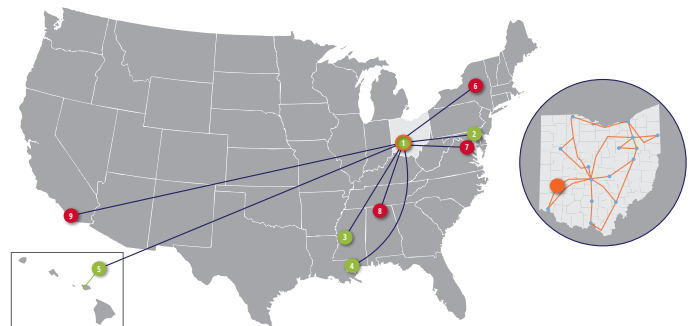
Through OARnet's flagship shared service, the network and its expansion into other shared services, OARnet promotes community and economic development by expanding access to affordable technology. Consider the following ROIs:

- **\$514,069**
total dollar savings for all clients in FY2015
- **\$240,000**
savings for K-12 schools in the past year
- **30 percent**
increase in bandwidth across the state of Ohio

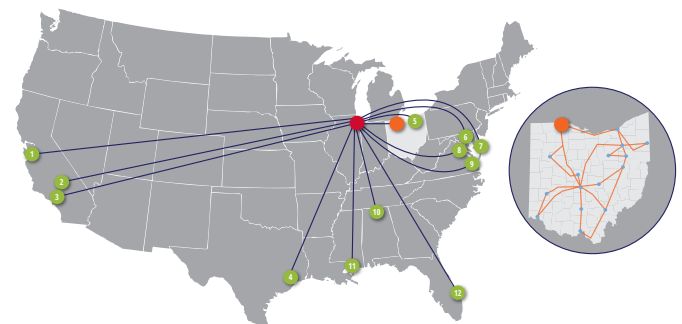
"I think the relationship that we have with the personnel at OARnet is critically important. I feel like they're a part of our team."

— Terry Herman, Chief Information Officer, Zane State College

OARnet & DREN | Peering

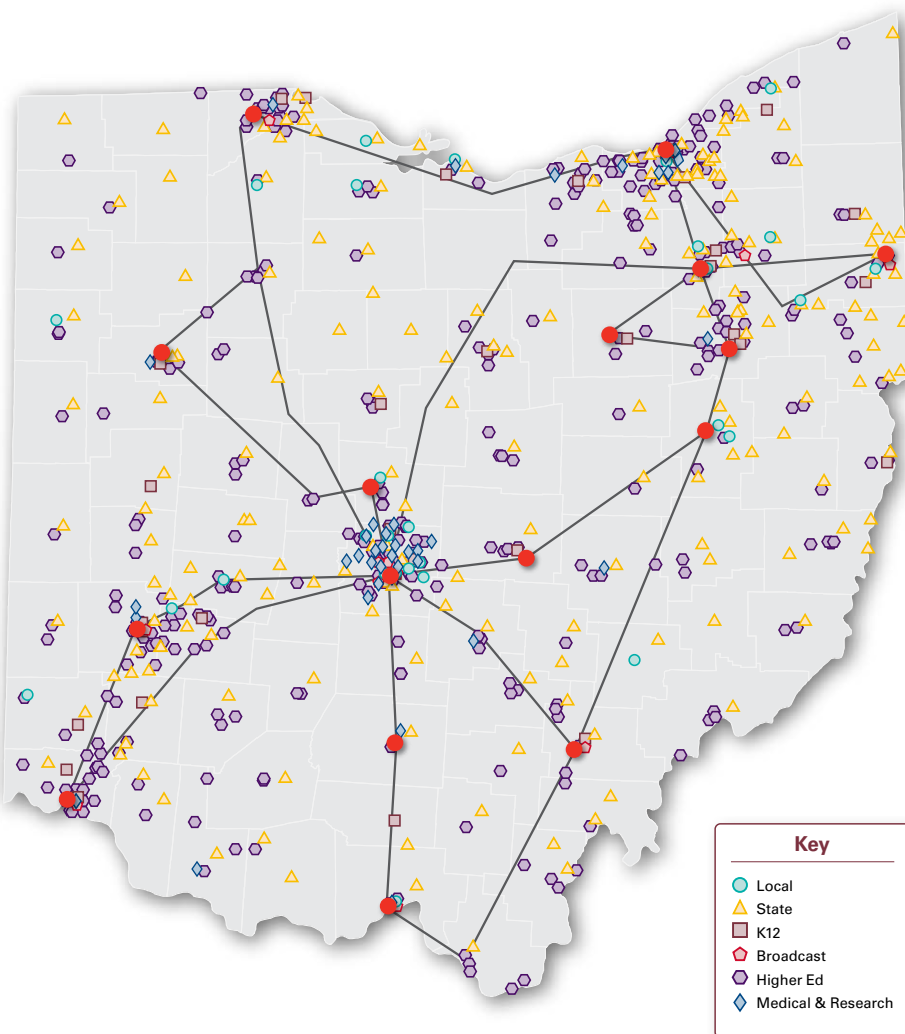


OARnet & NASA | Peering



- NASA Glenn Research Center and Wright-Patterson Air Force Base/Defense and Research Engineering Network (DREN) have 10 Gig connections to the OARnet backbone. These connections provide Ohio researchers direct access to NASA and DREN sites across the United States and facilitate research collaborations.

OARnet 100 Gigabit/second network backbone with connected partners



26
K-12 Schools

6 Large Urbans
19 Information
Technology Centers



91
Higher Education
+ 143 Remote Sites



65
Healthcare Facilities
9 Institutions
56 Sites



6
Research Facilities



15
Broadcast Stations
Broadcast Educational
Media Commission (BEMC)



35
Local Entities
(Cities, Counties, Libraries,
County Emergency
Departments, Public Entities)



543
State of Ohio
Agency Sites

Contact Us

OARnet, 1224 Kinnear Rd, Columbus, OH 43212 | ph: (614) 292-9248 | oar.net

Paul Schopis
Interim Executive Director &
Chief Technology Officer
(614) 292-1956 | pschopis@oar.net

Gary Goettel
Network Operations Manager
(614) 247-2563 | ggoettel@oar.net

Denis Walsh
Chief Relationship Officer
(614) 292-9037 | dwalsh@oar.net

Letha Butcher
Senior Business Relationship Manager
for Government & K-12
(614) 292-9545 | lbutcher@oar.net

Mark Fullmer
Network Architect
(614) 292-8165 | maf@oar.net

Ann Zimmerman
Senior Business Relationship Manager
for Higher Education
(614) 292-9022 | annz@oar.net



twitter.com/oar.net



facebook.com/oar.net



youtube.com/oar.net



linkedin.com/company/oar.net

oar.net

OH·TECH

Ohio Technology Consortium
A Division of the Ohio Department of Higher Education