The
MOREnet
Impact

MISSION

MOREnet serves our member organizations as a trusted partner. We explore and provide technology solutions that enable innovation and opportunity, creating a higher quality of life for all Missourians.

VISION

MOREnet will actively research emerging technologies and drive the innovative application of connectivity and information technology for the benefit of our consortium members and those whom they serve.

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MESSAGE FROM OUR EXECUTIVE DIRECTOR

As we reflect on the most recent collective results of our continuing collaboration with our members, we cannot help but be reminded of the impetus that created MOREnet back in the early nineties; to be better connected.

While not officially coined or spoken thirty three-some years ago, this phrase succinctly captures where we started when we set out to connect together thirteen institutions of higher education through this thing called the Internet and a state network. It remains our commitment to each member still today. This fundamental sentiment is demonstrated in all we do and all we aspire to do next.

The impact and results of being better connected are both visible and tangible as we ensure our statewide network remains reliable and strong, our outreach is broadened, our events and trainings are targeted to support your goals, and our expertise and service offerings continue to advance. At the heart of our efforts, our goal is to instill confidence among all our members; confidence with and through the use of technology and confidence that MOREnet and our entire team of experts are right beside you and ready when needed. It's what sets our incredible team apart from the rest and we don't take it lightly; we truly are here for our members and because of our members.

Enjoy the pages ahead as we recall just a few of the many ways you inspired us to create impact through partnership and collaboration. Whether helping to find greater value in existing solutions and maximizing your current technologies, helping to expand and secure your networks, convening key experts and curating content to guide us all to safely embrace artificial intelligence opportunities in the classroom and beyond, engaging students to excite new careers and learning paths or assisting you onsite to complement your local resources, we remain committed to supporting and serving you. We have so much more in the works for the coming year and cannot wait to share new opportunities and solutions with you.

On behalf of each and every MOREnet staff member, thank you for your continued membership and for the trust you place in our team of experts each and every day. We remain excited about the future of your consortium and look forward to continuing to help you and your teams create meaningful impact. We are proud to help you be better connected in many ways.

With appreciation,

Natasha Angell
Executive Director
MOREnet

NOTE FROM OUR COUNCIL CHAIR

I began my career in the early 1990s as a school librarian, and I recall a huge satellite dish sitting outside the library door where I would dial in something like G1, channel four for a (hopefully) interesting and educational program that one of the teachers might use. It was a giant leap forward in technology, but very clunky and sometimes irritating. To activate my circulation software each morning, I had to type code at the command prompt up in the corner of the dark screen (yes, I'm that old!). The introduction of Windows certainly made everything more user friendly but without a good Internet connection, it didn't matter a lot.

I remember going to training sessions explaining how dial-up worked, although at the time I couldn't understand exactly what we were dialing into! Email was Eudora, provided by the state, and I was not a fan, but we were moving forward!

In the late 1990s, I became a public library director, and things really changed! I was introduced more fully to MOREnet, and I realized very quickly that Missouri was on the forefront of something huge. We moved quickly from dial-up to faster speeds, and we began to see the power of the Internet in assisting our patrons. It also made our own jobs so much easier. I remember hearing one time that a T-1 line could connect an entire college campus, and I was in awe of it. Soon, we had one of our own, and it boggled my mind.

It still does. Everything MOREnet does boggles my mind on a daily basis. From faster and faster fiber connections to cybersecurity to routers and firewalls, MOREnet offers great customer service across the board. I feel like they have been my constant companions for most of my career now, making me look great and making my library look state-of-the-art and far ahead of our competition in other states.

I have completely enjoyed my time on the MOREnet Council, and especially my tenure as the chairperson. I encourage each of you to take advantage of all the amazing resources that are available to you with your MOREnet membership, and never hesitate to reach out to this amazing team of professionals if you have any questions or concerns. Here's to a great future!
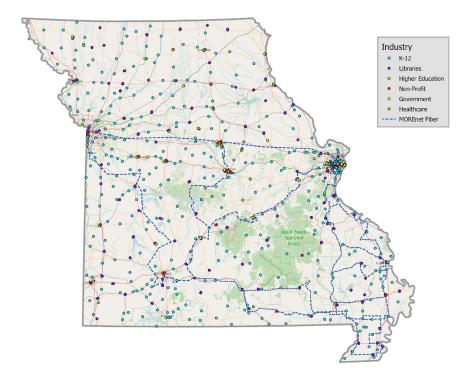
Carrie Cline, Library Director
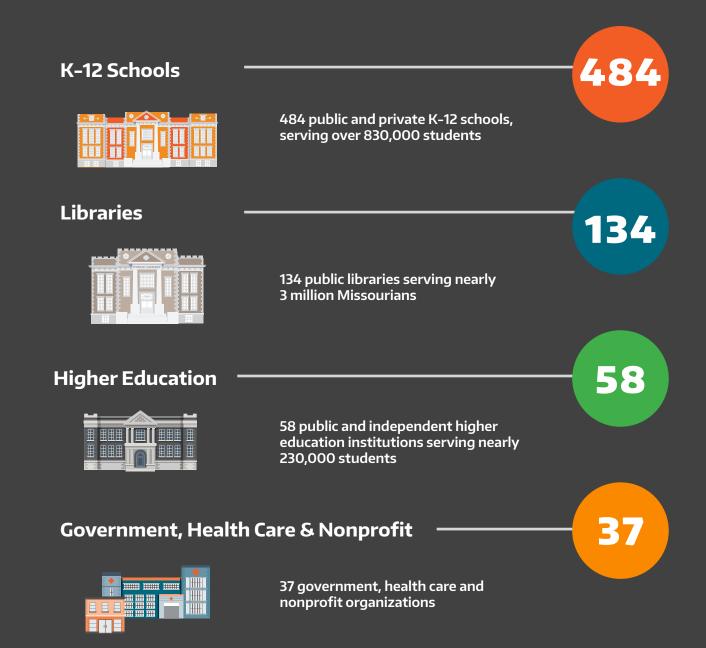Neosho Newton County Library
MOREnet Chair, 2024

WHO WE ARE

The Missouri Research and Education Network (MOREnet) provides Internet connectivity, technical services, resources and support, as well as technical training to more than 700 of Missouri's public sector entities, including K-12 schools, colleges and universities, public libraries, health care, government and nonprofit organizations. MOREnet was one of the nation's first research and education networks, and we have been leading the way in technology and organizational collaboration since 1991. The idea for the network originated from the desire for 13 public higher education institutions to link together and connect to the Internet.

Still today, the MOREnet network, the foundational infrastructure that connects our anchor institutions to the Internet, is our core line of business. Our robust and secure statewide fiber backbone and network access is routinely enhanced to ensure our connected members can perform all digital activities seamlessly and easily scale their programs knowing that network capacity is always available.

Beyond the network, our consortium members rely on us for so much more than connectivity. As the only nonprofit technology partner that exists because of and for our members in Missouri, the focus of our consortium remains the empowerment of academia and the public good to stay relevant in a changing marketplace. As technology and connectivity have become integrated into our day-to-day operations, MOREnet continues to provide more than just a reliable connection; we research and provide tools and services that increase security, reduce management and administrative efforts and maximize access and usability of technology.

K-12 Schools

484

484 public and private K-12 schools, serving over 830,000 students

Libraries

134

134 public libraries serving nearly 3 million Missourians

Higher Education

58

58 public and independent higher education institutions serving nearly 230,000 students

Government, Health Care & Nonprofit

37

37 government, health care and nonprofit organizations

Of our 713 members, 454 unique organizations have 597 Internet connections into the MOREnet network. Those connections have an aggregate member bandwidth capacity is 501.1 Gigabits per second (Gbps) and are growing each year.

In addition, we manage 29 enterprise connections. This is a premium offering that enables our members to accommodate more users, devices and data, without compromising performance at many of our larger organizations. Each of our member groups (higher education, K-12, public libraries, government, nonprofit and health care) are represented with enterprise connectivity, with higher education accounting for the largest combined capacity. Enterprise connections offer the ability to efficiently scale network resources as organizations grow and technology needs expand.

BE BETTER
CONNECTED

Reliable & High Speed Connections

Our MOREnet connections are more reliable and higher speeds than any that are otherwise available in our service areas. MOREnet staff are always quick to respond to tickets and proactive to reach out about new services and hardware that are available to us.

Emily Slama
Pulaski County Library
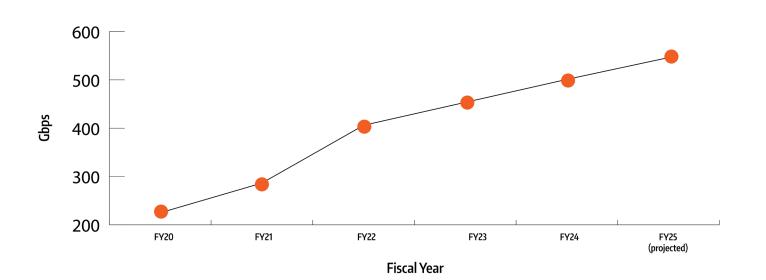
THROUGH
THE INTERNET

BANDWIDTH GROWTH AND MEMBER CONNECTIONS

Our statewide fiber backbone and network access effectively supports the broadband speeds and high-quality performance that Missouri community anchor institutions need to ensure a fast, reliable and secure connection. This critical infrastructure is powering our nation's most important work in research, academia and workforce development.

Technical support staff that our members know and trust work alongside them to ensure that their top-tier connection meets the organization's growing needs. Our experts are based right here in Missouri and have a deep understanding of the unique and important ways they utilize this connection.

It's no surprise that as our society is more connected to technology, our member bandwidth continues to grow. This year, our total capacity increased by 10.5%; the year prior, bandwidth grew by 11.7%. Currently, our aggregate connected member capacity is 501.1 Gbps, and we expect this trend to continue into the next year.

Increased our bandwidth capacity by

10.5%

Aggregate Connected Member Capacity

Gbps

600

500

400

300

200

FY20   FY21   FY22   FY23   FY24   FY25 (projected)

Fiscal Year

VALUE OF A MOREnet CONNECTION

Network Performance

- Low latency and multiple Tier 1 Internet providers creating resilient connections and increasing redundancy.
- Consistent and forward-looking backbone network equipment updates to ensure performance and anticipate aggregate member connectivity demand.
- Symmetrical upload and download speeds and a full committed information rate, ensuring the connection is robust and reliable.

Cybersecurity Protection

- Distributed Denial of Service (DDoS) mitigation and scrubbing to protect member networks from malicious attacks.
- Good Net Neighbor blocks traffic to well-known ports to protect member networks against viruses and malicious attacks.
- Cybersecurity support to navigate and respond to security incidents, as well as, training and best practices to help prevent future incidents.
- Negotiated discounts for members on for-fee cybersecurity solutions, vetted by our experts.

Network Tools and Monitoring

Real-time and historical usage statistics for member connections

Connection architecture consultation

Technical experts for collaboration and guidance

Opt-in alert notifications via SMS and/or email

MOREnet Connections Are a Part of Mission-Driven Science Network

MOREnet is interconnected with Internet2, the U.S. National Research and Education Network. This gives our members access to:

- An advanced high-speed network architecture, enabling research and collaboration.
- Direct access to major cloud providers through Internet2 Cloud Connect.
- Internet2's Community Anchor Program (CAP), which provides free resources for K-12 schools and libraries.
- Engagement with an active community that accelerates research discovery, advances global education and improves the delivery of public services.

3,600
routemiles of fiber across the state

Kansas City

Columbia

St. Louis

Springfield

● MOREnet Point of Presence

— MOREnet Fiber

MEMBERS FIRST, A UNIQUE ADVANTAGE:

E-Rate is a federal program designed to provide telecommunications discounts to qualified schools and public libraries. It is regulated by the Federal Communications Commission (FCC) and administered by the Universal Service Administrative Company (USAC). The Missouri State E-rate Coordinator is a MOREnet employee and a highly regarded training and support resource by all eligible schools and libraries in Missouri. Since 1998, MOREnet has filed for E-rate reimbursement for Internet connectivity on behalf of our connected members. The best part? Members receive the E-rate discount up-front and right away, even before the reimbursement is distributed to MOREnet. In 2024, MOREnet filed for E-rate on behalf of 413 MOREnet consortium members. Those members have 543 unique Internet service locations connected to the MOREnet network.

5-YR REIMBURSEMENT
Fiscal years 2019-2024
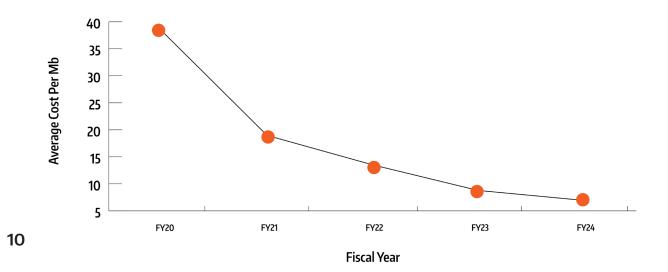
K-12: $17,543,612

Library: $5,646,672

The total E-rate funding over the 5-year period is dropping due to the reduced cost of connections, thus less funding. The average discount percentage is dropping, as that is tied to free and reduced lunch count. Since the pandemic, many districts are providing meals without requiring parents to file for food assistance.

AVG. E-RATE DISCOUNT
Fiscal year 2024

K-12: 76.1%

Library: 74.19%
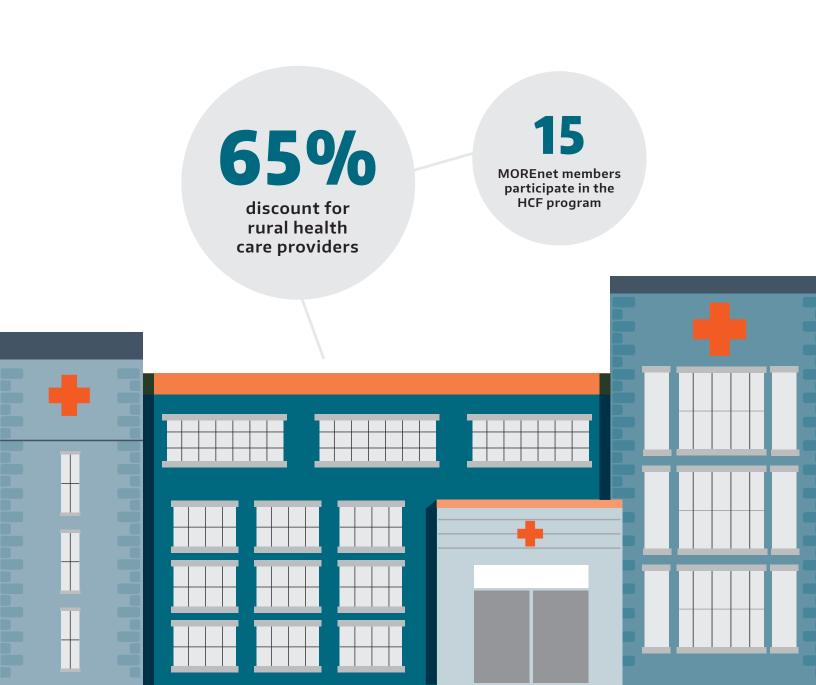
Average vendor circuit cost per megabit invoiced to members over the past 5 years

HEALTHCARE CONNECT FUND PROGRAM

The Universal Service Fund also distributes the Healthcare Connect Fund (HCF) under the direction of the Federal Communications Commission (FCC). MOREnet files for HCF reimbursement on behalf of our eligible members. This program provides a 65% discount on eligible broadband connectivity expenses for rural health care providers with the goal of closing the digital divide through affordable and accessible Internet services.

MOREnet has 15 members, utilizing 21 Internet service locations, that participate in the HCF Program. Of those, 14 are universities and one is strictly a health care provider.

65%
discount for
rural health
care providers

15
MOREnet members
participate in the
HCF program

TODAY'S NONPROFIT RESEARCH AND EDUCATION NETWORKS

Critical Infrastructure Powering Our Nation's Most Important Work

HIGHER-ED

RESEARCH CENTERS

K-12

LIBRARIES

COMMUNITY NON-PROFITS

Our nation's purpose-built Research & Education Networks (RENs) provide ultra-high-speed connectivity and specialized services that increase access to academic opportunities, further scientific discovery, and foster collaboration.

INDIGENOUS COMMUNITIES

GOVERNMENT

HEALTHCARE

PUBLIC SAFETY

CULTURAL INSTITUTIONS

The Nation's RENs Provide Their Users With:

The Fastest, Most Advanced Network Services and Applications - Powering big data sharing across states, the country, and the globe.

• Offer secure, resilient, high-capacity, high-performance networks that spark innovative collaboration and opportunities.

• Create resilient connections for enhanced end-user continuity through geographic and provider-diverse networks.

• Optimize advanced cloud services for demanding applications, network security, and research.

• Strategically manage network traffic with peering and caching partners resulting in the most cost-effective and optimized network performance path for end-users.

• Interconnect with the U.S. National Research and Education Network, Internet2, as well as other federal agency mission-driven science networks so that a member connection to a single REN links end-users to the national and global research and education network fabric.

Powerful Partnerships - Driving innovation amongst academic, research, governmental, and commercial partners.

• Leverage our unique position in state broadband landscapes to forge strategic relationships with a variety of industry and other partners.

• Promote a "to-and-through" community anchor institution strategy with strategic partners to deliver economical internet connectivity to unserved and underserved areas.

• Facilitate vibrant member communities of practice that are founded on common interest uses for REN technology solutions.

• Offer operational transparency through member-directed governance model.

• Minimize costs and maximize benefits across end-users through economies of scale and shared cost recovery models.

Highly Secure Network Infrastructure - Protecting our users' most valuable data assets and discoveries.

• Bolster individual end-user cybersecurity operational protections as well as response and mitigation strategies by facilitating REN Security Communities of Practice.

• Augment user institution security resources to identify network threats and vulnerabilities by monitoring active threats from information sharing and analysis centers.

• Provide next-generation firewall services and robust disaster recovery solutions.

• Adopt the Mutually Agreed Norms for Routing Security (MANRS) – a global initiative that provides crucial fixes to reduce the most common network routing threats.

• Offer incident response assistance and incident escalation services.

MOREnet is proud to be one of the 43 Research and Education Networks that are part of The Quilt, a national coalition of nonprofit research and educational networks in the U.S.. All are dedicated to collaborating, developing, deploying and operating advanced cyberinfrastructure that enables innovation in research and education. Learn more at thequilt.net.

100% OF MORENET MEMBERS NOW FIBER CONNECTED

Ballard R-II, a rural school district in western Missouri, celebrated a monumental leap forward as fiber Internet connectivity arrived last summer, connecting its faculty, staff and students to a new world of high-speed data transmission for the first time.

The school district, a member of the MOREnet consortium, had been relying on limited Internet access due to its rural location. MOREnet previously helped Ballard obtain a 100 Megabit per second (Mbps) wireless connection, and although this enabled Ballard to maintain Internet access, the school's digital opportunities remained constrained as wireless connections are subject to weather variables and limited transmission speeds.
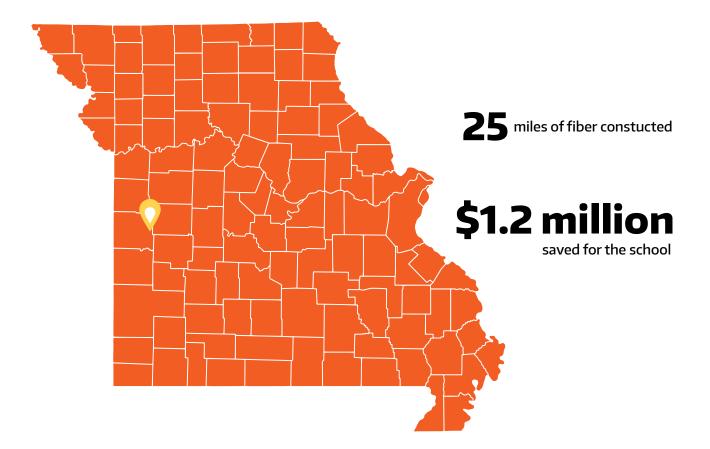
"When a class of 15 were on their devices at the same time, the whole school would get bogged down. We could definitely feel the slowdown", said Derrick Hartley, Ballard R-II superintendent. MOREnet's mission is to champion the technology needs of its consortium members, and as it's done many times over the years, bring broadband connectivity to places that it's never been before. The project of bringing fiber to this area of Bates County took a collaborative approach between MOREnet, the Missouri Connect and Learn Initiative and local vendors. Together we overcame many obstacles, including fiber optic supply chain shortages, to serve Ballard.

"A major Internet provider said they would try to bring us Internet last year, and midway through the project they called and said it was going to cost more, to the tune of $1.2 million. We couldn't do that", shared Superintendent Hartley.

However, with the hard work of MOREnet engineers and Bluebird Network, the school's MOREnet connection installation was completed prior to the June 30 deadline and was able to maintain the approved E-rate special construction funding, which combined with a State of Missouri match, resulted in no cost to the member. Even though the town of Ballard is less than an hour away from the Kansas City Metropolitan area, the project required constructing over 25 miles of fiber to usher in a new era of convenience and broadband connectivity for Ballard R-II.

This exciting connection is also notable, as Ballard was the final MOREnet connected member site to move to fiber, which means 100% of MOREnet's nearly 600 connected members are now on a fiber Internet connection enabling seamless opportunities for bandwidth growth.

 "This school does not have any cellular service within 8 miles of the building. Only 50% of residents have access to Internet, and for those that do, the affordability of Internet is a major concern", stated Hartley. Because of this connection, it is much more likely that other providers will now be able

25 miles of fiber constucted

$1.2 million
saved for the school

to install Internet, confirmed Debbie Warren of Bluebird Network. Superintendent Hartley said that in the past, Ballard school educators have not been able to easily access digital technologies, and online textbooks presented a true challenge. "I can only think of this [connection] as a positive, there are no negative aspects," stated Hartley.

With this transformative infrastructure in place, students and educators can now embrace endless learning possibilities. The district can readily tap into a wealth of educational resources included with their MOREnet membership, collaborate with experts from around the globe and engage in immersive virtual learning experiences. Ballard students will no longer be limited by their rural surroundings and have been granted a passport to knowledge that knows no boundaries.

"I can only think of this [connection] as a positive, there are no negative aspects."

-Derrick Hartley

BE BETTER CONNECTED

Amazing Staff

I am a new director (first year) with no prior experience. I have contacted MOREnet on multiple occasions and had new equipment installed (router). Your company and your staff are amazing! Not only did each area that I have contacted walk me through step by step of each individual process but they were able to explain it in a way that I understood. I would have been lost without your help and appreciate all you do to keep our services protected.

Christy Allen
Putnam County Library

MOREnet

TO
TECHNOLOGY RESOURCES

FIVE-STAR CUSTOMER SUPPORT

Technical support is available with all our services, as well as part of our Full and Basic Membership Service Packages. **In FY24, we handled 3,334 help desk cases**, with the most questions coming in regarding Domain Name Services, cybersecurity, Internet connectivity and firewalls. For every third time our help desk is contacted, the member receives a survey and is asked to rank the experience based on six key metrics: timeliness, subject matter knowledge, communication, customer service, solution effectiveness and time to resolution. Based on the surveys that were returned after closed cases, every category had a satisfaction rating of at least 96%.

"Hands down the best K-12 support ever!"

Bill Lewis
East Carter R-II

99% Timeliness

99% Subject Matter Knowledge

98% Communication

98% Customer Service

98% Solution Effectiveness

96% Time to Resolution

CYBERSECURITY: A PRIORITY

Our cybersecurity team provides guidance and support for multiple layers of security to keep our members' networks running at peak capacity. This multi-layered approach includes threat monitoring and incident support, along with cybersecurity consulting, discounted solutions, training and alerts. Our cybersecurity experts share best practices, brief guides to useful security tools and security-related news through our blog and security list serv.

We have a portfolio of services uniquely positioned to help community anchor institutions meet the challenges of today's cyber-centric environments.

Tools to secure the connection:

Some tools are available directly through MOREnet and our experts, others are consortium discounts or partnership opportunities. However, members can rely on us for the following cybersecurity safeguards:

- Threat detection and incident response
- Malware and phishing protection
- Content filtering
- Professional development- in-person, virtual courses as well as email alerts and news
- Phishing simulation and training for end users
- Endpoint Detection Response solutions
- On-site review of potential vulnerabilities and mitigation options

1,179 receive weekly updates through the list serv

Weekly blog posts on more.net

UNDERSTANDING HOW AND WHAT STUDENT DATA LIVES IN THE CLOUD

Since 2015, over a thousand student privacy bills have been introduced in all 50 states combined, with 146 passing into law. Understanding that student data privacy is a continual concern for academia, MOREnet formed two strategic partnerships to assist our members with this critical effort.

Our partnership with the Student Data Privacy Consortium (SDPC) established the Missouri Student Privacy Alliance (MOSPA) in 2020, a service included as part of our Membership Service Package. This agreement allows access to SDPC tools and resources, which includes a searchable database of national and state privacy agreements and training. MOSPA members also have access to the Missouri National Data Privacy Agreement to provide uniformity in agreements with vendors throughout the state. As of print date (September 2024), there were 127 Missouri K-12 schools taking advantage of MOSPA.

Knowing there was still much apprehension about doing everything feasible to protect student data, our cybersecurity experts continued to research and vet options for our members. They collaborated with The Education Cooperative (TEC) to provide school districts with a for-fee service that provides administrative and legal support required to negotiate privacy terms with software vendors. TEC's Data Privacy Agreement (DPA) service includes streamlined processing of the National Data Privacy Agreement (NDPA), making it easier to establish contracts with vendors whose applications access student data. TEC also assists schools in negotiating terms with these vendors to ensure strong student data privacy protections, this includes basic legal services related to the agreements, providing peace of mind for Missouri schools. Through TEC, MOREnet member schools gain access to a collection of over 1,800 data privacy agreements with various vendors, saving efforts versus originating and negotiating each vendor agreement individually. As of press time (September 2024), 39 Missouri schools are subscribed to MOREnet's TEC DPA service.

Impact of joining MOSPA

Join a community of stakeholders with similar needs	Gain access to the Resource Registry and the NDPA	Leverage partnerships to cut down on repeated processes	Ensure you are following student data privacy best practices	Stay aware of projects with real-world impact on privacy

REAL PROGRAM
Impact of Technology in Public Libraries

The Remote Electronic Access for Libraries (REAL) program is a state-funded initiative that enables the Missouri State Library (MOSL) to partner with MOREnet to provide libraries with the necessary resources to offer electronic information, such as online resources of credible, citable databases. This program helps libraries expand their digital services, making it easier for people across the state to access information close to home. The funding comes through a state appropriation in House Bill 12, ensuring that even smaller, rural libraries receive connectivity and technology support so they can offer modern, digital resources within their communities.

ONLINE RESOURCES

MOREnet member organizations have access to EBSCO Explora, EBSCO ebooks, LearningExpress Library, including Resume and Cover Builder and Computer Skills Center, HeritageQuest as well as resources on teen health and digital and financial literacy from Rosen.

We have a one-stop resource at search.more.net for members to sort an A-Z database of all the resources, as well as promotional materials, online training and curriculum resources. Members tell us they use these databases in a variety of ways.

· Research with reputable, citable sources
· Increase scores for standardized tests
· Support state and national curriculum standards, particularly with STEM and Computer Science
· Identify materials by Lexile reading level
· Encourage wellness by utilizing physical, mental and financial fitness resources

Online Resources Database	TOTAL*
EBSCO Searches	220,376,076
Heritage Quest Searches	570,114
Learning Express Libraries Tests	37,202
Rosen Digital Searches	9,508

*Total searches in FY24 by MOREnet members

College Prep Resources

Study Tools, Practice Tests, Financial Support, and more

Digital Skill Resources

Tools to navigate today's digital landscape

Wellness Resources

Take a deep breath, ask for help, and get answers.

EMPOWERING MISSOURI LIBRARIES WITH NORTHSTAR DIGITAL LITERACY

The Ozark Regional Library (ORL) was one of the first to take advantage of the opportunity of using Northstar Digital Literacy thanks to a partnership between MOSL, REAL and MOREnet. They recognized a critical gap between the technology needs of their patrons and the digital skills of their part-time staff and had been looking for a solution that would not only enhance the capabilities of their staff, but also streamline training across their small, rural system.

Northstar's modules cover a wide range of essential digital skills, including basic computer operations, Internet use and essential software applications like Word, Excel and PowerPoint. The platform also addresses technology's role in daily life, offering modules on social media, information literacy, career search skills, telehealth access, K-12 distance learning and managing one's digital footprint. The assessments, which are interactive and taken online, allow users to demonstrate their proficiency in these areas while providing feedback on areas needing improvement.

ORL quickly saw the potential of Northstar as a comprehensive tool designed to improve digital skills across various domains and adopted it as a three-phase project to address their technology gap. The first phase involved using Northstar as part of a professional training exercise, where all staff members were required to complete assessments from each module. This approach ensured that the library's immediate need for improved digital literacy among staff was met.

The second phase focused on identifying proctors based on these assessments. These proctors were tasked with leading promotional efforts and providing instruction for in-house use across all library branches. By empowering select staff members to become Northstar experts, ORL could efficiently expand the platform's reach throughout their system.

Currently, ORL is in the final phase of their Northstar integration, incorporating the platform into programming and outreach efforts to extend its benefits to the wider community. ORL's commitment to digital literacy programming has already yielded meaningful results, particularly in enhancing

the technology skills of their part-time staff. The self-guided format of Northstar, combined with tailored follow-up training and easy access to progress reports, has been particularly well-received by staff; even the IT team has gained valuable insights through the program.

Looking ahead, ORL plans to increase promotion of Northstar and deepen its integration into their digital literacy and equity programming and outreach. The library anticipates that this will lead to broader community impacts, such as reduced recidivism through incorporation into local reentry programs, decreased loneliness among seniors by improving communication technology skills and better outcomes related to career advancement for patrons earning Northstar certifications.

With Northstar Online Learning, the community can access resources such as explanations, demonstration videos, and interactive practice exercises. This flexibility allows users to build their skills independently or in a classroom setting, making it an invaluable resource for both staff development and patron education.

ORL's experience with Northstar exemplifies how community anchor institutions like libraries can leverage digital literacy tools to empower both their staff and the patrons they serve. By integrating Northstar into their operations, ORL is not only addressing the immediate technology needs of their patrons but also paving the way for long-term community-wide benefits.
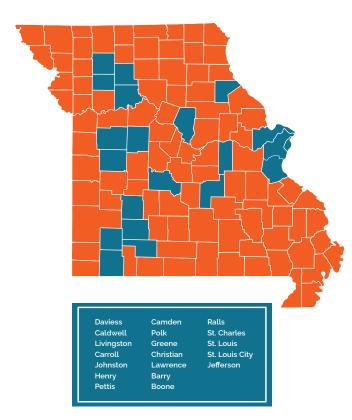
GETTING STARTED WITH TECHNOLOGY: DIGITAL NAVIGATOR FACILITATOR TRAINING

Spearheaded by our MOREnet training team, we created a complete curriculum to train digital facilitators. Knowing that more and more areas of Missouri will soon have access to greater connectivity and broadband services, we wanted to ensure our members are ready to support their communities to embrace their new digital opportunities. With libraries, community colleges and nonprofit organizations in mind, MOREnet Technology Integration Specialists provided training and a leave-behind tool kit to empower our members to reach underserved populations with resources to utilize technology in their everyday lives.

The turn-key facilitator guide included lesson plans, complete instructor notes, a detailed slide deck, handouts for the end user, template press releases and social media graphics. In addition, each facilitator was given access to the digital course in the Canvas Learning Management System to receive updates in real time.

Over the course of a year, we trained 89 facilitators in 21 counties. To find a facilitator near you, or to access the 13 modules and materials, visit digitalequity.missouri.org.

Counties with Trained Facilitators

Daviess	Camden	Ralls
Caldwell	Polk	St. Charles
Livingston	Greene	St. Louis
Carroll	Christian	St. Louis City
Johnston	Lawrence	Jefferson
Henry	Barry	
Pettis	Boone	

Turn-Key Facilitator Guide

Teacher Guides and End-User Handouts

Promotional Materials

Detailed slide decks

REVOLUTIONIZING LIBRARIES: A
REAL INVESTMENT SUCCESS STORY

Every day, libraries serve their communities by providing an Internet connection that grants patrons access to a wealth of information that can be found across the world wide web. More than just information, however, patrons use that same connection to access personal health and financial data, government forms and information or to conduct business. One challenge that library systems face is how to protect patron and organizational data, manage bandwidth and access usage statistics in a user-friendly manner. Nearly one-hundred REAL participating libraries in the state of Missouri are now using new network and security solutions to improve their bandwidth and protect their locations from data breaches and cybersecurity attacks thanks to an investment through the REAL program and a partnership between MOREnet and Fortinet, a cybersecurity industry leader.

The Challenge Facing Missouri Libraries

In areas of rural Missouri, there are very few technological consultants available to help libraries build safe and effective networks. Frequently, it has been up to the library director or volunteer staff to manage and secure Internet infrastructure. Additionally, smaller communities face digital equity issues; numerous library patrons and community members rely heavily on libraries for an Internet connection. Beginning in 2022, the Missouri State Library designated REAL program funding to specifically aid in the improvement of library technology. MOREnet was tasked with identifying the greatest technological deficits of Missouri libraries, and it quickly became apparent that libraries needed updated switches, access points and firewalls to safely provide connectivity for their patrons. "Many of the library systems did not have an adequate firewall, if any firewall at all, and their networks were very vulnerable", noted Adam Boley, a network engineer and supervisor of the MOREnet local area network team.

Revitalising a Missouri Library Riddled with Connectivity Issues

One such library system in Texas County "was a poster child for this funding", shared Janet Fraley, library board member. Located in rural southern Missouri, the system was plagued by slow connection bandwidth and minimal malware protection. Texas County was one of the first local providers of Internet twenty years prior, however, "Over the years, things were just cobbled together",

explained Fraley. Users were able to access unsafe and illegal content across their four branches, which triggered DMCA notices to the library system.   Due to the high volume of unmanaged traffic and many modifications over the years, the connection was riddled with problems. Although Texas County Library knew they needed help, funding was an issue. Library leadership learned about REAL funding and immediately jumped at the opportunity. Fraley stated, "We qualified for $44,000 in funding, which was more money than we ever would have been able to come up with on our own." MOREnet technical expert and network engineer Alex Gray visited the library and completed a full network assessment, recommending a series of repairs and solutions to fix Texas County's network challenges. After the items were ordered and delivered, MOREnet engineers returned to the library to install and configure the new solutions, which included access points, switches and firewalls, along with MOREnet and Fortinet management for five years. "We are so thankful for the network assessment and installation. We, being so rural, could not find someone to install our products. We didn't even know who to ask", said board member Fraley. The Texas County library patrons are now able to access the Internet easily and safely. Businesses utilize the library connection to conduct business, and the four-branch system has had no complaints from patrons, who log on through a secure sign-in system. Library director Louise Beasley appreciates that she can easily access the user statistics and see what is happening at each of the different branches' connections. Even more so, Beasley appreciates the support from MOREnet, stating that "…they are just right there with us."

Transforming Library Network Quality and Control

Salem Public Library shared similar struggles, confirmed library director Kate McBride. The library, built in an old bank with many building additions and modifications over time, had an ineffective firewall and network configuration. MOREnet network engineers Josh Noble and Alex Gray helped to install the new access points, switches and a firewall. The library staff did not understand how the Salem network was pieced together, and it took multiple trips from MOREnet experts to inspect and fix the issues. "The tremendous thing that this REAL Funding did for Salem was give us control of the Internet. Before this, only one third-party vendor knew how to access the info on the firewall, access points or switches. Before Josh and Alex, we only knew how to open the closet where they were located. Because of MOREnet, we know more and feel more in control." Not only did these REAL-funded improvements give Salem Library control and visibility, but they created a drastic improvement to the network itself. "We are now confident that our services are not substandard" shared McBride.
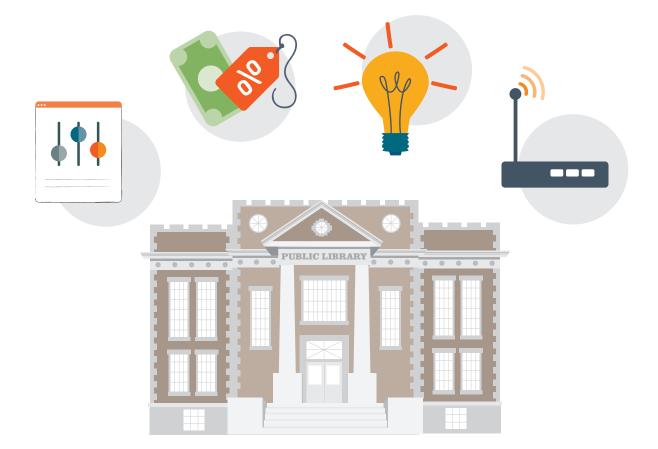
Streamlining Management Across Vast Rural Networks

Another common challenge for rural library systems are multiple branches spread across a large geographical area. One of those systems, Ozark Regional Library, has four branches spanning over two counties. This made management difficult for the head of technical services, John Jones, as he

or a member of his team would need to drive more than an hour between branches if there were any issues or concerns. "It's so helpful to have the singular platform. I can log into any of the routers remotely", said Jones. Reynolds County Library Director, Megan Bishop shared similar struggles with distance. "We are an eighty-six-mile round trip drive between branches. This new technology has made my job easier. I am able to access and share the information I need from one location", said Bishop. "Working with Dave Kessler of MOREnet was easy. What we had worked, but we needed better, and that is what we got."
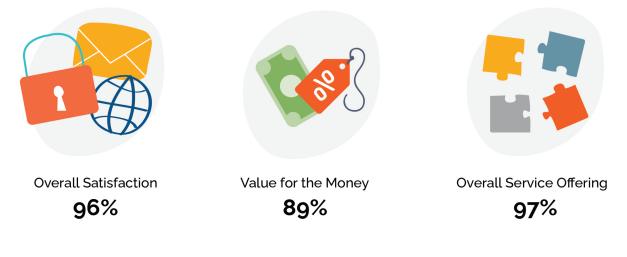
Empowering Missouri Libraries: The Ongoing Commitment of MOREnet's Local Area Network Team

MOREnet's Local Area Network team will continue to work with Missouri's REAL participating libraries that qualify for these upgrades as long as possible. "Ideally we keep it going as long as the budget allows", shared Adam Boley. "Right now, the money is here and it is a great value for our library members. We are using an RFP for Fortinet to provide better security and filtering, all managed through one common interface", said Boley. "Our goal is to empower the libraries, if they want that", he continued. Kate McBride believes that the goal of empowering libraries is being attained, as she noted, "I find the entire process empowering, our staff understands more about our technology than we did before because MOREnet took the time to explain what was needed, why we needed it and where it was going. We feel more confident when we explain our system to our patrons. It's wonderful to know we have MOREnet just a call or email away."
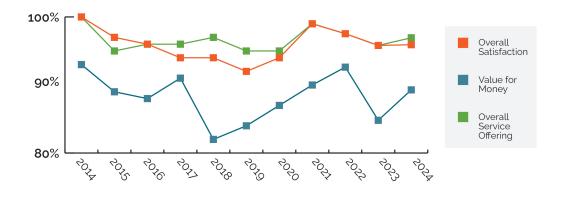
ANNUAL MEMBER SATISFACTION
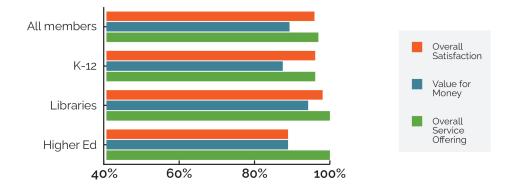
Each year, we send our member satisfaction survey to approximately 1,200 key contacts. Over the past 5 years, our response rate has been between 16-18%, which is a typical response rate for satisfaction surveys across various industries.

Overall Satisfaction
96%

Value for the Money
89%

Overall Service Offering
97%

Member Satisfaction Trends Over 10 Years

Legend:
- Overall Satisfaction
- Value for Money
- Overall Service Offering

Member Satisfaction by Member Group

Groups: All members, K-12, Libraries, Higher Ed

Legend:
- Overall Satisfaction
- Value for Money
- Overall Service Offering

Satisfaction Ratings for Services and Experience

Membership Service Package

(based on a 5 point scale)

Of the 11 competencies we
asked members to evaluate,
each one scored at least a 4.38,
with the top 3 being:
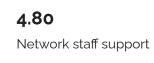
4.77
Responsiveness

4.77
Competency of staff

4.70
Accessibility of staff

Network Connectivity Fee

(based on a 5 point scale)
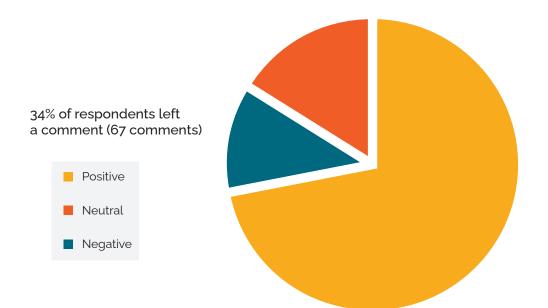
Of the 12 services included with
a MOREnet connection,
each one scored at least a 4.22,
with the top 3 being:

4.80
Network staff support

4.71
Network performance

4.69
Network reliability

Annual Member Satisfaction Comments

34% of respondents left
a comment (67 comments)

- Positive
- Neutral
- Negative

BE BETTER CONNECTED

Staff is extremely helpful

I have been very pleased with MOREnet. Everyone that I talk to is extremely helpful and more than willing to spend the extra time to guide me through the process of the project I am working on. My life is definitely easier knowing I have a trusted source to contact.

Justin Johnson
Liberal R-II

TO THE COMMUNITY

MOREnet PROFESSIONAL DEVELOPMENT

Over the last fiscal year, our team provided professional development to 2,198 people. Included in that statistic are 1,133 educators from 297 unique school districts who received training focused on computer science standards through a partnership with the Missouri Department of Elementary and Secondary Education (DESE).

DESE COMPUTER SCIENCE PARTNERSHIP

We are proud to support Missouri educators and their efforts to implement the Missouri Computer Science Standards. Over the past four years, MOREnet has collaborated with DESE to deliver the most up-to-date, relevant and convenient training through both synchronous and asynchronous options. Most recently, this included new face-to-face and online classes around coding, cybersecurity digital literacy, physical computing and Artificial Intelligence (AI) in the classroom, which became the most popular offering through the partnership.

The variety of sessions we offered allowed time for educators to collaborate during half or full-day sessions each month. In addition to training for educators, we offered a hands-on learning experience for Missouri high school students through the Annual Missouri High School Cybersecurity Challenge.

AI COURSES

AI is changing the way we learn and work, and true to our mission of researching and embracing technology, we have developed a series of resources for members who have questions about or are ready to embrace Artificial Intelligence. In 2024, we launched four courses:
- **Introduction to AI:** understanding principles and functionality
- **AI Tools for Teachers:** applications and strategies to engage and support diverse student needs
- **AI in the Classroom:** introducing AI concepts and coding to students
- **Tips for Improving AI Results:** understanding different results with different prompts

Moving forward with this popular topic, we have created a listserve specifically for educators using AI, as well as a monthly virtual town hall for educators to share experiences and resources.

CYBERSECURITY CHALLENGE

There continues to be a shortage of cybersecurity professionals in our communities. According to cyberseek.org, there are nearly 10,000 cybersecurity job openings in Missouri alone. To do our part to address the cybersecurity talent shortage, in 2019 we created the Missouri High School Cybersecurity Challenge to provide students the opportunity to explore the field of computer science and encourage them to explore careers in cybersecurity or other STEM related fields. The challenge is a two-round event designed for students to work in groups of three to address and solve a variety of cybersecurity concepts.

Round one is an online event that tests students' problem-solving skills, research abilities and understanding of cybersecurity concepts. It consists of a set of challenges and puzzles for the students to explore and solve. The top 10 teams at the end of this event advance to the in-person finals where students use real-world security tools in a virtual environment made up of Windows machines, Linux machines and servers. The challenges are designed by CYBER.ORG, a nonprofit cybersecurity workforce development organization. The real-world challenges immersed students into a virtual networked environment full of Easter eggs, puzzle files and live devices where they were challenged to find, solve and access, respectively.

In 2024, 65 teams totaling 181 high school students participated in the event. Since the start of this challenge in 2019, we have impacted 667 students with this event.

"We are proud to bring this event to schools from across the state; exciting interest and exposing students to a potential career in computer science is the first step in filling the talent gap," remarked Natasha Angell, MOREnet's executive director at the 2024 awards ceremony.

2024 Winners

First Place

Summit Technology Academy
Lee's Summit

Second Place

Timberland High School
Wentzville

Third Place

Timberland High School
Wentzville

Over the past 5 challenges

45 districts have competed

667 total high school students have participated

MOREnet SIGNATURE EVENTS

MOREnet hosts several professional development events throughout the year. The two that have become our flagship events are the Annual Conference in the fall and the Technical Training Summit in the early spring.

Our Annual Conference is an opportunity for educators and technology professionals to spend a few days bridging the gap between theory and practice in the ever-evolving world of technology.

Members count on this conference to connect, collaborate, and learn from industry experts as well as their peers. Our 2023 Columbia-based event offered just that, providing a platform to share best practices, explore industry trends, and delve into the latest advancements. In addition to ample opportunity to network, industry leaders spoke about Artificial Intelligence policy and cybersecurity best practices and a newly established knowledge transfer session for new technical directors to learn from more seasoned professionals was well-received.

> "The last keynote was my favorite! Vendors felt tuned into needs, not just selling! Trivia night was fun. MOREnet staff were available and friendly, as always."
>
> **Conference Attendee**

To ensure that attendees could maximize their conference experience, MOREnet staff were on hand to answer questions and provide support. In the evenings, networking events offered a chance for participants to relax, socialize, and connect with like-minded individuals.
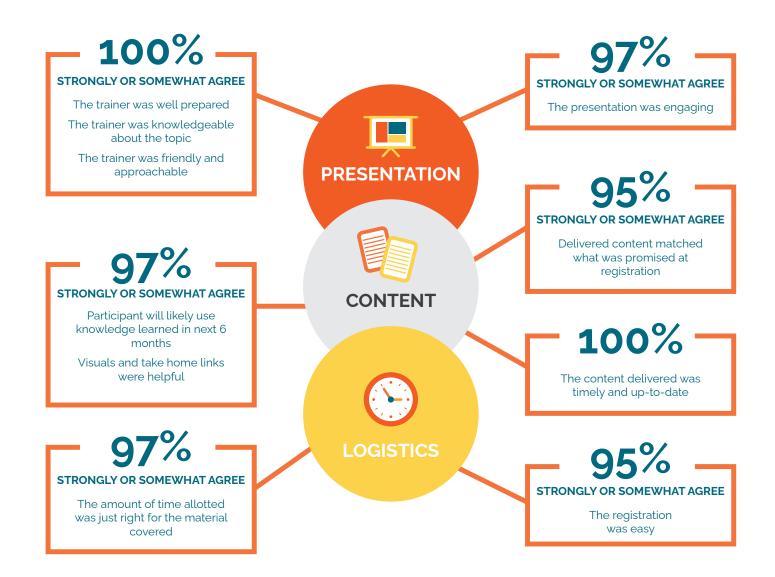
The conference drew a crowd of 368 total attendees. With 113 presenters, 133 sessions over four days, 34 sponsors, and a sold-out exhibit hall, there was something for everyone.

The Technical Training Summit is held in February of each year and is a great contrast and complement to our much shorter, high-level conference sessions. This year, 112 attendees participated in a broad array of deep-dive sessions. The most popular breakout sessions included:

- The Browser Security Paradox
- FortiGate Hardening and Best Practices
- Simplify SOC Operations with Security Fabric Analytics
- The Cyber Threat Landscape

Our annual Technical Training Summit is typically divided into tracks. This year there were three tracks: cybersecurity, networking and systems administration. Each session in those tracks was designed for our most technical audience, allowing them an opportunity to have hands-on experience with concepts. Attendees were asked to rank speakers, location and the date. The average satisfaction score for the event was a 4.42 on a 5-point scale.

TRAINING SATISFACTION

PRESENTATION

100%
STRONGLY OR SOMEWHAT AGREE

The trainer was well prepared

The trainer was knowledgeable about the topic

The trainer was friendly and approachable

97%
STRONGLY OR SOMEWHAT AGREE

The presentation was engaging

CONTENT

97%
STRONGLY OR SOMEWHAT AGREE

Participant will likely use knowledge learned in next 6 months

Visuals and take home links were helpful

95%
STRONGLY OR SOMEWHAT AGREE

Delivered content matched what was promised at registration

100%

The content delivered was timely and up-to-date

LOGISTICS

97%
STRONGLY OR SOMEWHAT AGREE

The amount of time allotted was just right for the material covered

95%
STRONGLY OR SOMEWHAT AGREE

The registration was easy

THE BOTTOM LINE

98%
SOMEWHAT OR EXTREMELY LIKELY
to recommend this training to a friend or colleague

HIGHER EDUCATION WORKING GROUPS

We are proud to foster connections between technology leaders in the higher education community. A standing collaborative committee organized by MOREnet is the Missouri Higher Education Information Technology (MoHEIT) Consortium. MoHEIT consists of CIOs and other technology decision makers from higher education institutions across the state. Events feature guest speakers and group discussion over a variety of topics such as challenges and opportunities, strategic direction, management of information technology systems and technological aspects of products and services. The group meets quarterly and has recently covered topics such as cybersecurity best practices, GLBA insights, finding the best value for industry solutions and AI trends in Higher Education. Guest speakers have included government leaders, industry partners and experts in cloud computing.

In addition to the MoHEIT working group, we have been the ongoing convener for the Computational Infusion for Missouri Undergraduate Science and Engineering (CIMUSE) team. For the last three years, this team has been working with Primarily Undergraduate Institutions (PUIs) in the state to collaborate on National Science Foundation (NSF) grant opportunities. What started out as a planning grant administered by MOREnet now includes a high-performance computing cluster as well as annual collaboration meetings, tours and poster sessions.

The follow on grant from the NSF created CIMUSE, a collaborative composed of Missouri Western, Southeast Missouri State University, Truman State University and Webster University supported by MOREnet and the University of Missouri Research Support Services team. The funding was used to install a high-performance computing cluster that allows users to process large quantities of data and perform highly complex calculations much faster than a typical desktop or laptop computer. The 20 nodes in the cluster are housed at the University of Missouri-Columbia. Students and faculty will be able to use the computing power for research and educational exercises. Our goal is to replicate the project nationwide.

Another component of the grant is to offer students the opportunity to study and participate in high-performance computing projects. Selected students will receive funding to attend a summer 2025 workshop, bringing the lessons to their peers as student leaders, possibly as teaching assistants.
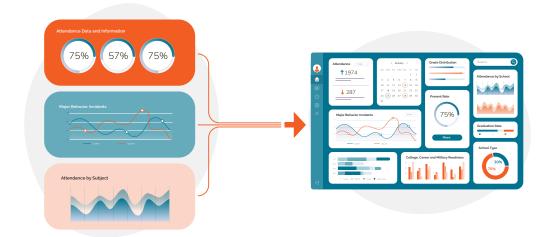
MOREnet STREAMLINES DATA INTEGRATION FOR K-12 SCHOOLS

As part of our mission to explore and provide technology solutions to enable innovation and opportunity, in late 2022 we were awarded a second Ed-Fi project grant from the Michael and Susan Dell Foundation. This funding was intended to develop a sustainable model for ingesting and sharing student equity data for Missouri's K-12 schools. The goal is to provide educators, counselors and school administrators with real-time, actionable data to improve student outcomes.

The grant builds upon our previous Ed-Fi grant project focused on students' college, career and military readiness data visualization work and aims to address the critical need for equitable educational opportunities. By providing administrators and educators with a consistent and comprehensive view of student data, including demographic, academic and environmental factors, we hope to empower schools to make data-driven decisions that support all students.

One constant in technology is change. After launching the grant project in 2023, our solution provider announced a revised statement of direction for their data platform, which was the basis for our project's data storage, analytics and reporting. Despite this unanticipated setback, our team persevered. Over the last year we have identified new solutions to not only ensure the project's success, but also to expand the initial scope. Our team of technical experts is excited to be working with a member school district to develop a specialized data interoperability pilot program that will benefit students with disabilities. By collaborating with this district, we anticipate the creation of a sustainable data integration and visualization model that can be replicated in other parts of the state.

Our continued work to enable data interoperability for our members aligns with the growing emphasis on educational equity. By providing schools with the tools and resources they need to identify and address disparities in student outcomes and leveraging technology to help improve those outcomes, MOREnet is making a positive impact on the lives of our Missouri students and their families.
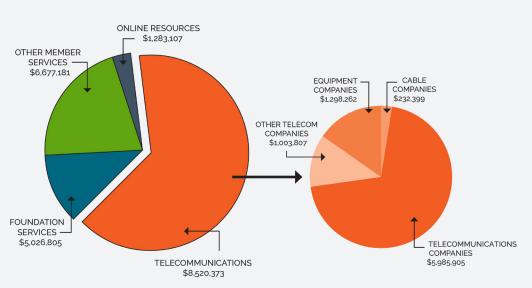
FINANCIAL SNAPSHOT

Revenues

K-12	$8,739,991
Higher Education	$1,739,365
Affiliates	$1,425,102
Libraries	$530,277
State Contracts - HB12 & Other	$3,109,486
Federal E-rate & RHC Reimbursements	$3,960,251
Other Fees and Miscellaneous	$2,073,203
Sponsorship Revenue	$70,605
Revenue Transfers	$270,247
Total Revenue	**$21,918,528**

Expenses

Network Related Expense	$2,733,160
Connection Expense	$5,788,147
Membership Service Expenses	$3,395,209
Salaries and Benefits	$8,375,271
Operating Expenses	$1,215,679
Total Expense	**$21,507,466**

FY24 Expenditures

ONLINE RESOURCES $1,283,107

OTHER MEMBER SERVICES $6,677,181

FOUNDATION SERVICES $5,026,805

TELECOMMUNICATIONS $8,520,373

EQUIPMENT COMPANIES $1,298,262

CABLE COMPANIES $232,399

OTHER TELECOM COMPANIES $1,003,807

TELECOMMUNICATIONS COMPANIES $5,985,905

PARTNERSHIPS WITH MANY PROVIDERS DOING BUSINESS IN MISSOURI

With the goal of designing our statewide fiber network to support the unique need of academia, public and research institutions, we partner with private Internet service providers to bring high-capacity connections to community anchor institutions. We leverage our existing network and technical expertise to enable partnerships that ultimately benefit the community. Together, we ensure the fast, reliable Internet needed for education, research and community service is operating at peak efficiency, also enabling the vendor's commercial network to extend the reach of their services into more rural or underserved areas.

Every member's Internet connection we manage is secured in strict compliance with the University of Missouri's public procurement process. Because all circuits are acquired through public bidding processes, companies compete, resulting in lower costs for our members.

MOREnet Expenditures to Telecommunications Companies

Verizon	$1,203	Telia	$77,769
CenturyLink Communications LLC	$1,957	United Services	$87,972
Orchard Farm Telephone Co	$9,946	Spectrum	$90,181
Rolla Municipal Utilities	$11,352	Mark Twain Rural Telephone	$94,333
Midwest Fiber	$17,241	Socket	$96,535
Callaway Electric	$23,885	Empire District	$101,149
Chariton Valley Communication	$31,342	City Utilities of Springfield	$106,315
Fiber Platform	$32,802	Sho Me Tech	$660,456
CoMO Communications	$45,370	Level 3	$785,807
Windstream	$60,732	AT&T	$1,444,547
Charter Services	$74,965	MO Network Alliance LLC	$2,052,773
K PowerNet	$77,271	**Expenditures to Telephone Companies**	**$5,985,905**

2024 MOREnet Council Member Representatives

The MOREnet Council has representation from the member communities we serve. They direct and oversee planning and budgeting for the MOREnet infrastructure, including the technical support required for the future growth and success of programs.

Organization Type	Name
Higher Education	Andy White, Mineral Area College **Jeff Schneider, College of the Ozarks (2024 Vice Chair)** Rick DeCaro, Logan University
Libraries	**Carrie Cline, Neosho Newton County Library (2024 Chair)** Sue Lightfoot-Horine, Livingston County Library Christa Van Herreweghe, Kirkwood Public LIbrary
Public K-12 Schools	Michelle Brenner, Branson School District Doug Austin, Special School District Tony Arbisi, Belton School District
Sponsors	Robin Westphal, Missouri State Library Janet Caruthers, Missouri State Library (Alternate) Samantha Dickey, Missouri Dept. of Higher Education David Hewkin, Missouri Dept. of Higher Education (Alternate) Camden Daily, Missouri Dept. of Elementary and Secondary Education John Laurent, Missouri Office of Administration, IT Services Kevin McCarthy, Missouri Office of Administration, IT Services (Alternate) Ben Canlas, University of Missouri System Brandon Hough, University of Missouri System (Alternate) Natasha Angell, MOREnet Lynn Burgan, MOREnet (Alternate)

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MOREnet
Be better connected.