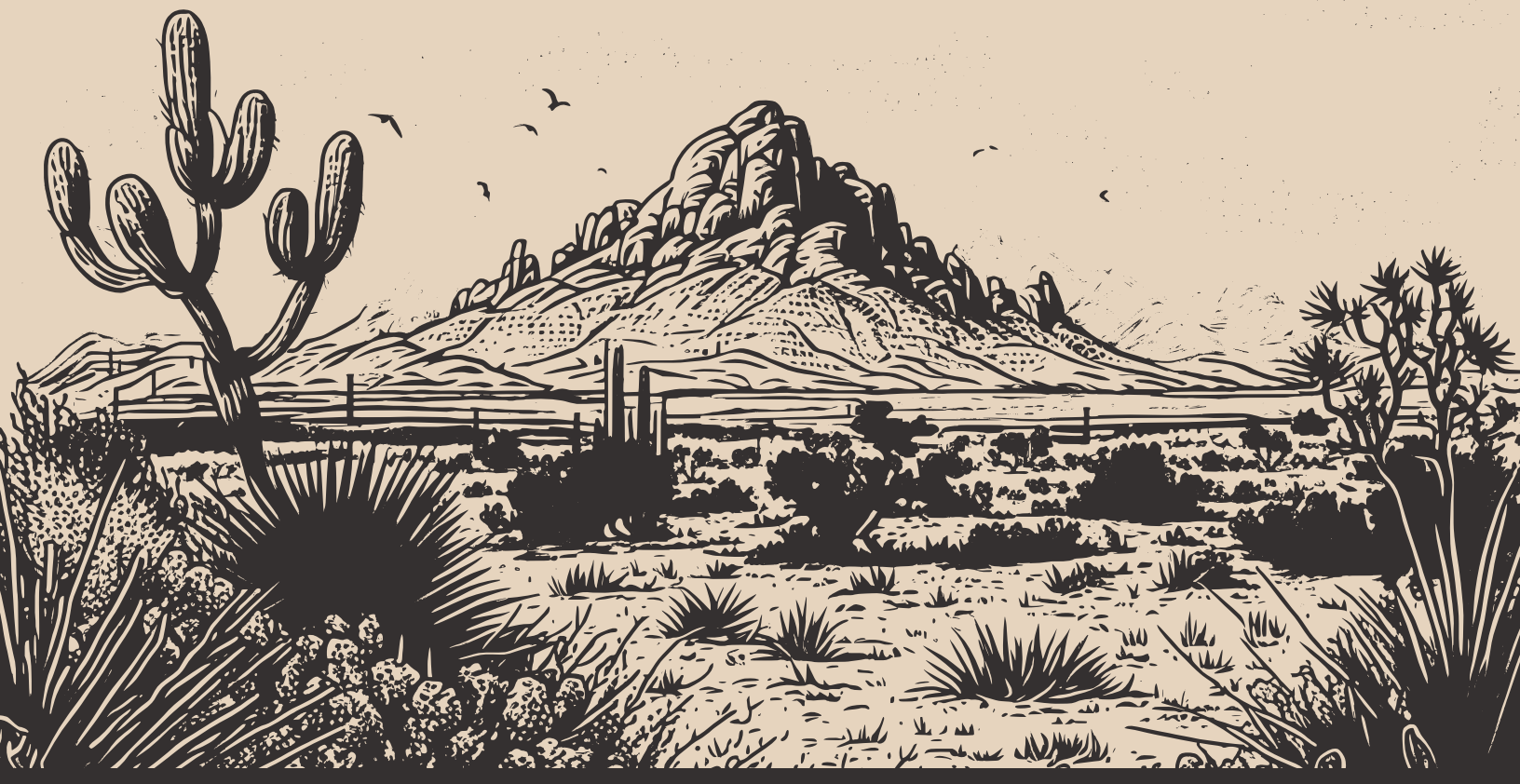
LEARN
LONESTAR EDUCATION AND RESEARCH NETWORK

2023 Annual Report



A TRUSTED PARTNER IN TEXAS SINCE 2005

ON THE COVER

"I hold the designation of 'partner' in high regard - it's not easily obtainable. A partner is someone that has earned my trust and puts our success over their bottom line. LEARN is a truly good partner, they have a servant spirit and care about meeting the needs of their community."

- Bob Hartland
Associate Vice President for Information Technology Infrastructure, Baylor University

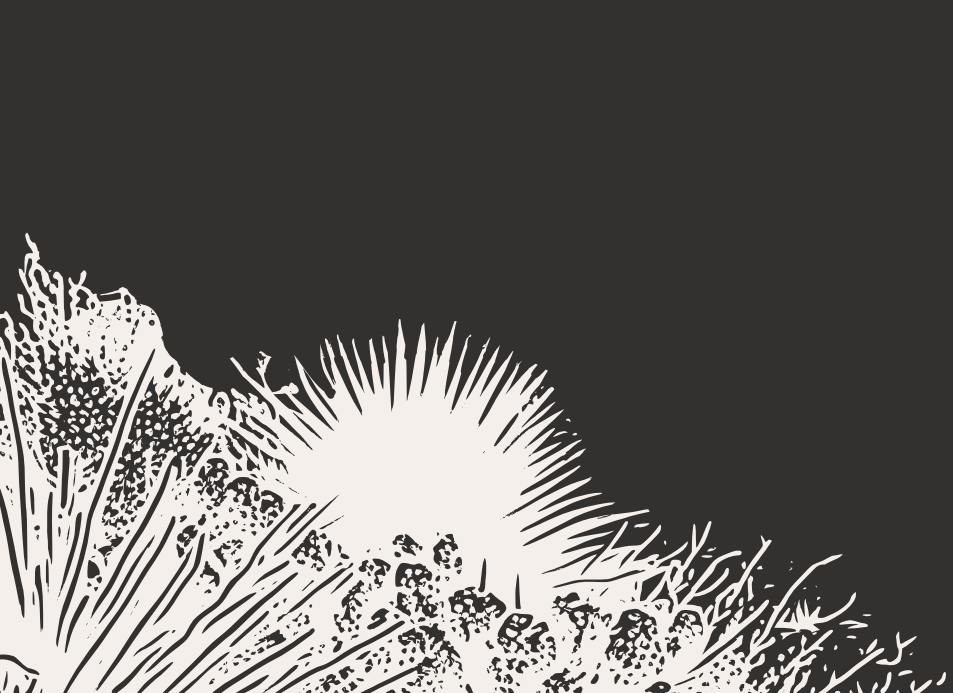


TABLE OF CONTENTS

INTRODUCTION · 1

LEARN Network Topology 2
LEARN Mission & Vision 3
2023 Executive Committee 4
Letter from the Chair 5
Letter from the President & CEO 5

OVERVIEW & HISTORY · 6

Who is LEARN? 7
A Brief History of LEARN 8
Organization & Governance 10
Network Infrastructure 11
Network Services 11
Infrastructure Performance 12
Membership 13
Member Organizations 13

ACTIVITIES & ACCOMPLISHMENTS · 14

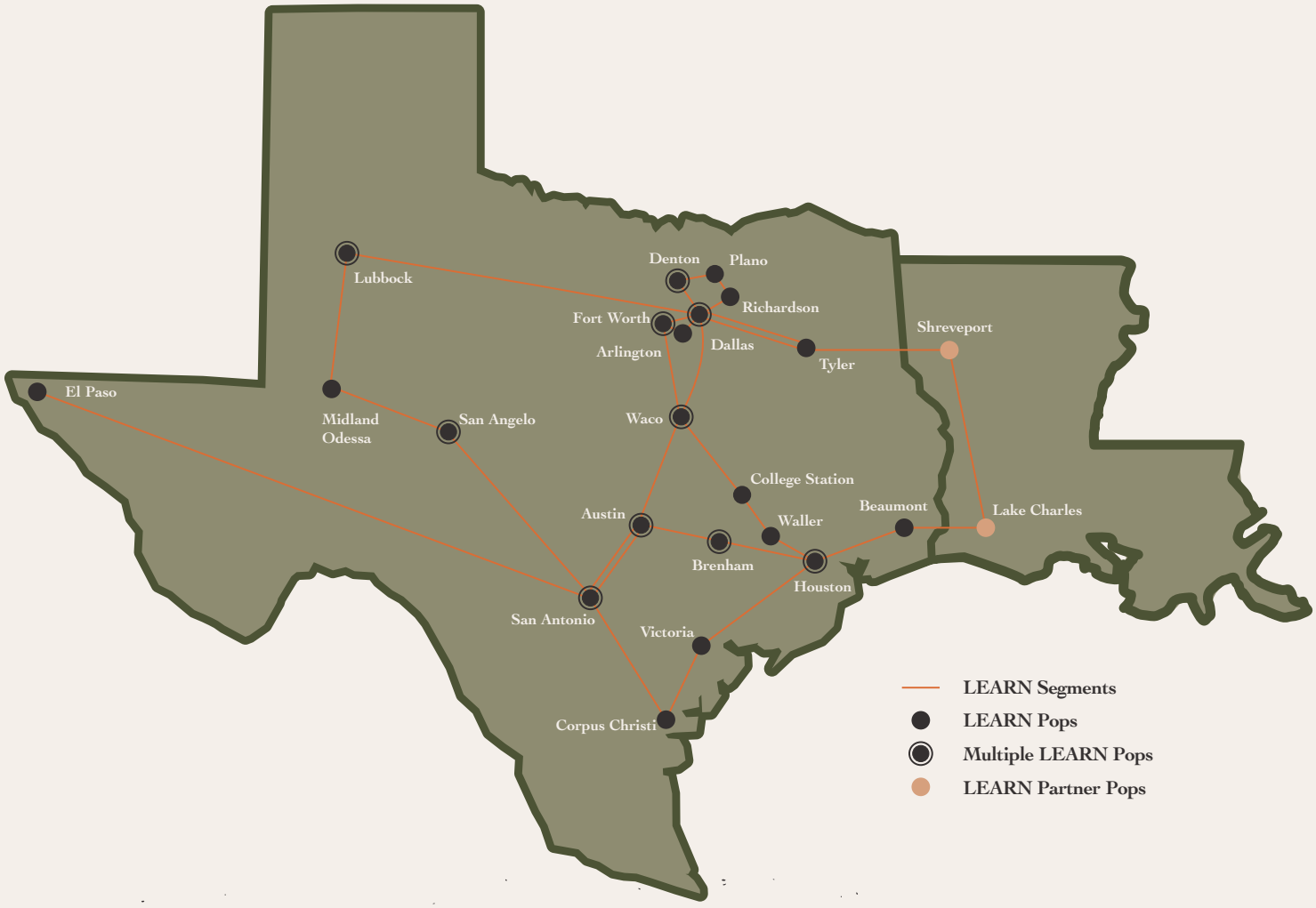
Increasing Capacity and Capabilities on a Statewide Scale 15
The Beaumont Loop: Neighboring State Networks Partner to Transform Southeast Connectivity 18
Cloud Access Empowers Texas Institutions 22
Leading the Way: LEARN's Journey Through Its First NSF Award 25
The Power of Connectivity: LEARN's Partnership with Community Colleges 29
Empowering LEARN Affiliates Through Innovative Solutions 34

APPENDICES · 37

Board of Directors 37
LEARN Staff 39
Story Contributors 41
Affiliated Organizations 42
Retired Board Members Highlight and Thank You 45

P. O. Box 16920 · Lubbock, TX 79490
806.743.7878
info@tx-learn.net · tx-learn.net

LEARN NETWORK TOPOLOGY



LEARN MISSION & VISION

In 2023, the Governance and Participation (G&P) Committee carefully reviewed LEARN's Mission and Vision statements to ensure they properly reflected the dynamic nature of the organization. The G&P Committee's insights were invaluable in shaping LEARN's future direction and establishing objectives for the organization moving forward. We are excited to present LEARN's updated Vision & Mission.

MISSION

LEARN will be the premier connector of the technology community for member institutions in Texas.

VISION

LEARN is to be the preferred partner for research and education networks and shared services within the research, education, healthcare, and public service communities in Texas.

2023 EXECUTIVE COMMITTEE

CHAIR
Kendra Ketchum
University of Texas
at San Antonio
utsa.edu

CHAIR ELECT
Frank Feagans
University of Texas
at Dallas
utdallas.edu

PAST CHAIR
Michael Hites
Southern Methodist University
smu.edu

SECRETARY
Mark Stone
Texas A&M University System
tamus.edu

FINANCE COMMITTEE CHAIR
Doug Fox
Angelo State University
angelo.edu

GOVERNANCE & PARTICIPATION
COMMITTEE CHAIR
Dan Schmiedt
Texas A&M University
tamu.edu

OPERATIONS & SERVICES
COMMITTEE CHAIR
Bob Hartland
Baylor University
baylor.edu

*PRESIDENT & CEO &
TREASURER
Kerry Mobley
LEARN
tx-learn.net

*Kerry Mobley appointed April 2024

LETTERS FROM THE CHAIR & LEARN CEO

Kendra Ketchum
University of Texas
at San Antonio

I have had the privilege of serving as the Board Chair during a pivotal yet exciting year for LEARN. In 2023, our organization underwent a transformative shift marked by a change in leadership. LEARN responded with agility and foresight, embracing change as an opportunity for growth. The outcome was a renewed commitment to our members and a focus on a network that promotes collaboration and facilitates connectivity to local, statewide, and national network services.

This Annual Report highlights the achievements of LEARN and its commitment to progress and innovate. This is an exciting period of growth and transformation for LEARN as we explore the opportunities that are part of the multi-year, multi-faceted next generation that will further mature and strengthen our organization.

I am optimistic about what lies ahead for LEARN and those we serve. I want to thank my fellow Board Members for their trust and unwavering dedication this year, and on behalf of the entire Board of Directors, I want to acknowledge the LEARN Staff for their resilience and hard work in 2023. I look forward to continuing our work and am eager to see what we can accomplish in 2024!

Kerry Mobley
Lonestar Education and
Research Network

When reading through this report, I noticed a recurring theme of partnerships and collaboration. We achieved success in many areas of the organization with a focus on continuity, team well-being, and new opportunities.

The year started with a review of LEARN's mission and a few small but impactful updates that better reflect the growth we have experienced as an organization.

LEARN will be the premier connector of the technology community for member institutions in Texas.

In 2023, the team successfully onboarded eight new Directors. We also introduced the Board Member Mentor Program, where we paired four newcomers with seasoned mentors to help facilitate their integration into LEARN and set them up for success in their new role.

The technical team at LEARN spent most of 2023 analyzing and evaluating a new hardware solution for LEARN's first-ever packet platform refresh. The team developed and vetted many proposals, which led to new opportunities and service offerings for LEARN members.

The team continued to support our partners in the national research and education community by volunteering for leadership roles and participating through their involvement in The Quilt, SuperComputing23, the National Science Foundation, and Internet2.

We still have much to accomplish and several significant initiatives to move forward in the next year, but the continued support of this community is both constant and humbling. We look forward to the new year with renewed focus and much excitement for what is to come for LEARN.

Thank you to LEARN's members, Directors, friends, and partners who continue to support and build up our community.

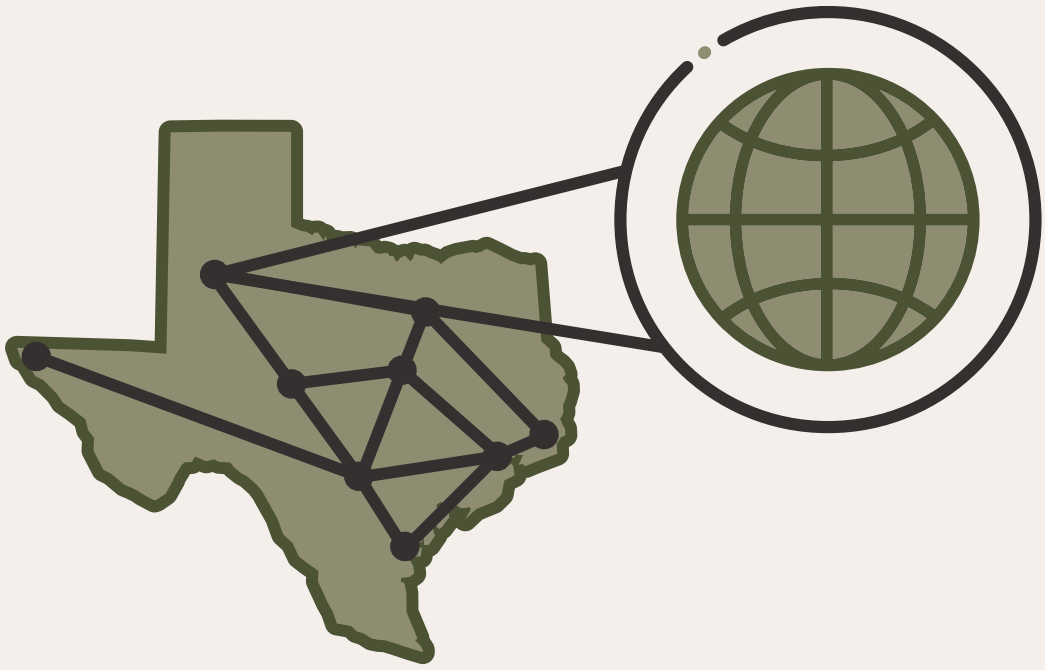
OVERVIEW & HISTORY

LEARN
LONESTAR EDUCATION AND RESEARCH NETWORK

WHO IS LEARN?

Lonestar Education and Research Network (LEARN) is a 501(c)(3) non-profit organization that connects members to statewide resources through high-performance networking services to support their research, education, healthcare, and public service missions. As a leading member of the national community, LEARN connects Texas to global research and educational networks, enabling cutting-edge research that is increasingly reliant on high-volume electronic data sharing.

LEARN links its 43 members and over 270 affiliated organizations to statewide resources through high-performance optical and IP networks.



A BRIEF HISTORY OF LEARN

Since inception, LEARN has grown its membership and services, connecting hundreds of thousands of higher education and Texas public school students. Over 270 organizations rely on LEARN for vital connectivity to local, statewide, national, and international network services.

2003

Meetings with research universities and health science centers in Texas began.

The Texas Legislature endorsed the concept by proposing an initial investment of $7.5 million to construct an optical network for Texas. LEARN collaborated with the offices of the Governor, Lieutenant Governor, Speaker of the House, and the Department of Information Resources (DIR) to explore the possibility of a Texas Enterprise Fund (TEF) grant.

The emerging organization recognized the need for a legal framework and utilized the existing Houston-based Texas GigaPOP as the 501(c)(3) structure for the new statewide organization.

270+
Organizations

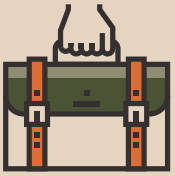
171
counties

That's about
67%
of the counties in Texas

2004

The inaugural Board Meeting was held on the campus of Southern Methodist University in Dallas. The organization appointed a 30-member Board of Directors, officially establishing Lonestar Education and Research Network (LEARN).

2005



The Governor of Texas signed the TEF grant, providing $7.28 million in funding for the optical network project. LEARN now had the necessary organizational, political, and financial means to commence the deployment of the optical network for Texas.

LEARN received the initial capital funds to acquire the resources for a "triangle" backbone connecting Dallas, College Station, Houston, San Antonio, and Austin with additional connections to El Paso, Lubbock, Denton, Tyler/Longview, Beaumont, Galveston, and Corpus Christi.

$7.28
MILLION
FUNDED

ORGANIZATION & GOVERNANCE

LEARN's Board of Directors governs the overall affairs of the corporation, with committees providing guidance on specific operational and policy issues. Standing committees include Executive, Finance, Governance and Participation, Operations and Services, and Audit.

The Executive Committee has delegated authority to work closely with LEARN leadership to manage and oversee business affairs throughout the year.

LEARN's day-to-day business operations are managed by the President and CEO, who is elected by the Board of Directors to lead the organization, represent LEARN at the state and national levels, and oversee professional, technical, and administrative staff operations.

LEARN STAFF

PRESIDENT & CEO

The Executive Committee is comprised of board-elected Officers, including the President & CEO, Chair, Chair-Elect, Past Chair, Treasurer, and Secretary. Officers are selected from the Board of Directors except for the LEARN President & CEO and the Treasurer. The Executive Committee also includes committee chairs from Finance, Governance and Participation, and Operations and Services.

BOARD OF DIRECTORS

EXECUTIVE COMMITTEE

FINANCE COMMITTEE

GOVERNANCE & PARTICIPATION COMMITTEE

OPERATIONS & SERVICES COMMITTEE

AUDIT COMMITTEE

The Technical Advisory Group (TAG) consists of technical experts from each member institution appointed by their respective LEARN Board Member. TAG Members elect a Chair annually, who, along with other TAG members, advises the Board and LEARN Staff on LEARN's architecture, operations, and services.

TECHNICAL ADVISORY GROUP

2023 TAG CHAIR
Jorge Caballero
Texas Tech University Health Sciences Center El Paso
ttuhscep.edu

NETWORK INFRASTRUCTURE

LEARN's extensive 3,200-mile network connects more than 270 direct or affiliated organizations throughout the State of Texas. This network utilizes dense wavelength division multiplexing (DWDM) optical technology, providing the capability to transport multiple high-capacity signals over a shared optical fiber using different color wavelengths of laser light. DWDM technology is scalable and allows LEARN to leverage its initial investment in optical fiber and expand capacity cost-effectively. LEARN currently has 38 DWDM on-ramps within Texas.

The statewide network depends on private sector agreements for extended access to optical dark fiber or leases for wavelength capacity. Through indefeasible right-to-use (IRU) agreements for dark fiber, LEARN provides the infrastructure to "light" the fiber and adds additional capacity as needed. In wavelength capacity agreements, the service provider supplies both the infrastructure and bandwidth according to the specified terms and conditions.

By deploying LEARN-owned high-performance routers at its 29 strategically located Points of Presence (POPs), LEARN enables its members and affiliates to bridge the last mile with their network connections. In most cases, LEARN's network segments are protected through rings that ensure continued network operation in case of a fiber cut or other disruption.

Several members and the Texas Education Telecommunications Network (TETN) operate their own networks overlaying on LEARN, which in turn are linked into LEARN's statewide fiber and packet infrastructures at LEARN POPs. LEARN collaborates closely with these organizations to ensure that high-performance networking is available at the lowest cost, most reliable, and highest performance level possible.

NETWORK SERVICES

LEARN's services are designed and provisioned based on members' needs through collaboration with LEARN staff.

Network services are funded by the members who consume the services at rates determined by the Board of Directors, ensuring that LEARN's state-of-the-art network remains up-to-date and meets all current and future requirements.

- Blended and Resilient Commodity Internet
- Cloud Connect (Direct Layer 2 path to Amazon Web Services (AWS), Azure, Google Cloud Platform (GCP), Oracle Cloud)
- Direct Peering and Caching Service
- Cross-Connect and Colocation
- Dedicated Transport
- Distributed Denial of Service (DDoS) Mitigation
- Local Switching
- Managed Services (Border Router, Optical Network)
- Multiprotocol Label Switching (MPLS) Transport
- National Research and Education Networks (NREN)
- Professional Services
- Session Initiation Protocol (SIP)
- Unmetered Network Services (UNS)

The Board and Staff are committed to ensuring LEARN remains the trusted and preferred partner for network services within the State of Texas. There is a broad consensus among LEARN members that the organization has a distinct role in the state, offering highly reliable, cost-effective network services to various sectors, including higher education, K-12, research institutions, healthcare, city and county governments, libraries and museums, not-for-profits, and public service entities.

LEARN is listed as a telecommunication/internet service provider with the Universal Service Administrative Company (USAC). As a USAC telecommunications/internet service provider, LEARN's school, library, and rural health members receive significant discounts through the Universal Services Fund.

INFRASTRUCTURE PERFORMANCE

LEARN operates a reliable, state-of-the-art, fiber-based optical and IP network throughout Texas. This network utilizes "carrier grade" optical and packet switching technology to deliver high-speed bandwidth between LEARN members in Texas cities and smaller communities.

The LEARN Network Operations Center (NOC) offers 24x7x365 network monitoring, alarm management, and customer communications. This NOC employs automated tools and systems to monitor and resolve issues. Tickets can be initiated by NOC or technical staff at member organizations via email or phone. NOC personnel handle opening tickets, triaging issues, coordinating third-party providers, and notifying LEARN engineers for remediation and resolution.

A critical component of LEARN's network reliability toolset is a comprehensive database of hardware assets, network configuration, circuits, and other strategically important data essential to LEARN's overall strategy of continuously improving its growing network's operational performance and efficiency. This database contains information such as the physical location, acquisition date, service records, contract expiration dates, projected replacement cycle, etc. It serves as the primary data source for our automation initiative to ensure accurate and efficient network configurations.

The majority of LEARN's network is designed to provide network rings to ensure connectivity. In the event of an infrastructure failure, the network automatically reconfigures itself to utilize the other leg of the ring to maintain connectivity. This redundancy is crucial for network performance; however, network segment failures can still occur. To mitigate downtime, LEARN has spare infrastructure deployed throughout the network to ensure minimal disruption whenever possible.

LEARN's goal is 100% reliability on all services offered. As such, LEARN will continue to improve its technology, tools, staff training, and cooperation with its members/partners and network staff to provide a highly efficient network for the State of Texas.

MEMBERSHIP

As a full or affiliate member, LEARN provides access to benefits tailored to specifically meet your organization's needs, such as consortium buying contracts and discounts, access to professional engineering staff, and 24x7x365 support from our Network Operations Center (NOC). Additionally, members enjoy the advantage of connecting to our private, over-provisioned, and under-subscribed statewide network, ensuring reliable and high-performance connectivity.

Full members benefit from an appointment to the Board of Directors with voting rights. Additionally, membership grants access to the LEARN community, cultivating connections with technology leaders across the State of Texas and providing professional development and technical training opportunities. Through committee participation, members gain insight into LEARN's operations, governance, and finance.

MEMBER ORGANIZATIONS

Angelo State University
Baylor College of Medicine
Baylor University
Blinn College
Collin College
Dallas College
Lamar University
National Oceanic and Atmospheric Administration (NOAA)
Parker University
Prairie View A&M University
Rice University
Sam Houston State University
South Plains College
Southern Methodist University
Tarrant County College District
Texas A&M Health Science Center
Texas A&M University
Texas A&M University - Corpus Christi
Texas A&M University System
Texas Christian University
Texas Education Telecommunications Network (TETN)
Texas State University
Texas Tech University
Texas Tech University Health Sciences Center
Texas Tech University Health Sciences Center El Paso
Texas Tech University System
Texas Woman's University
Trinity University
University of Houston System
University of North Texas System
University of Texas at Arlington
University of Texas at Austin
University of Texas at Dallas
University of Texas at El Paso
University of Texas at San Antonio
University of Texas Health Science Center at Houston
University of Texas Health Science Center at San Antonio
University of Texas Health Science Center at Tyler
University of Texas MD Anderson Cancer Center
University of Texas Medical Branch
University of Texas Rio Grande Valley
University of Texas Southwestern Medical Center
University of Texas System

Interested in joining LEARN? We are here to help!
For more information, email info@tx-learn.net

ACTIVITIES & ACCOMPLISHMENTS

LEARN
LONESTAR EDUCATION AND RESEARCH NETWORK

INCREASING CAPACITY & CAPABILITIES ON A STATEWIDE SCALE

By Therese Perlowski

With an incredibly diverse spectrum of institutions, LEARN supports the unique needs of its members regardless of size. As a result, LEARN brings next generation infrastructure to institutions that previously thought such opportunities were out of reach. "LEARN's partnership provides benefits that smaller schools like ours never would have imagined," shared Jon Allen, Associate Vice President, Chief Information Officer & Chief Information Security Officer at Baylor University. "Just the idea that I can get fiber access down to Texas A&M [University] and to my racks at their data center, that would have been unheard of without LEARN. The cost of leasing fiber 100 miles to College Station would be impossible."

LEARN also collaborates with the NSF Award #2019136, CC* CIRA: Building Research Innovation at Community Colleges (BRICCs) team at Texas A&M University, which aims to create a cohesive Cyberinfrastructure (CI) framework that will improve research and educational capacity at community colleges nationwide.

Finally, LEARN supports the NSF Award # 2019135 CC* Team: Texas Education and Research Cybertraining Center (TERCC) project at the University of Texas at Dallas, which creates new career paths in research facilitation, broadens CI access for research

"LEARN's partnership provides benefits that smaller schools like ours never would have imagined"

- Jon Allen
Associate Vice President, Chief Information Officer & Chief Information Security Officer at Baylor University

Beyond creating previously unimaginable infrastructure opportunities, LEARN leverages grants from the National Science Foundation (NSF) to create collaboration and innovation opportunities for smaller institutions to have a big impact.

NSF Award #2126248, CC* Regional: LEARN Extending & Accelerating Participation in Science (Texas LEAPS), focuses on bringing regional network connectivity to smaller campuses in Texas (Texarkana College, Trinity Valley Community College, and Texas Lutheran University) and aims to create a model that can be replicated on a national scale to provide these smaller institutions advanced networking services, connectivity, training to effectively leverage the technologies, and access to a community of practice.

and education and engages and trains students from underrepresented groups. Not only does LEARN's investment in these projects demonstrate its commitment to supporting its member institutions, it illustrates LEARN's commitment to building best practices that can be replicated to support similar institutions on a national scale.

While collaboration itself breeds innovation and learning, LEARN also holds regular technical workshops for its members to keep pace with ever-evolving technologies. These free educational workshops cover topics from cybersecurity and incident response to cloud infrastructure strategies which build individual institutions' technical capacity. "We've had an overwhelmingly positive response to our technical workshops. Surveys consistently reflect high satisfaction and value from participants," noted Austin Gamble, LEARN Member Outreach & Engagement Director.

Ultimately, LEARN exemplifies how research and education networks can be trusted partners. "I hold the designation of 'partner' in high regard–it's not easily obtainable. A partner is someone that has earned my trust and puts our success over their bottom line. LEARN is a truly good partner, they have a servant spirit and care about meeting the needs of their community," emphasized Bob Hartland, Associate Vice President for Information Technology Infrastructure at Baylor University.

As the educational and technical landscape continues to evolve, members turn to LEARN as a trusted leader to guide them forward. "What has changed is the rate at which technology is expanding — needing greater bandwidth, greater capacities, greater speed. Everyone is always connected. How does that impact our future? What does it look like in 5 years? That's the piece that we have to be thinking about to make sure that our partners are looking forward to the future, and we know we can trust that LEARN will be at the forefront of whatever is next," shared Jon Allen.

THE BEAUMONT LOOP: NEIGHBORING STATE NETWORKS PARTNER TO TRANSFORM SOUTHEAST CONNECTIVITY

By Therese Perlowski

Bringing network resilience to Southeast Texas wasn't easy. It took multiple years and a long-term partnership with a neighboring state's Research and Education Network to bring connectivity to the region. LEARN's Southeast Texas members were struggling to manage redundancy, particularly between Dallas, Tyler, Houston, and Beaumont, and LEARN was committed to finding a solution.

SEARCHING FOR A SOLUTION

After an extensive examination of current fiber assets in the region, LEARN ruled out the currently available paths as inviable or fiscally irresponsible. However, LEARN's neighbor network, the Louisiana Optical Network Infrastructure (LONI), did have a clearly accessible path.

Looking to explore a potential collaboration, retired LEARN President & CEO Mike Philips reached out to his longtime neighbors and colleagues. "Being next-door neighbors, LEARN and LONI have always had a good relationship, and we'd talked about partnering for years and years when this opportunity presented itself," described Gary Mumphrey, LONI's Chief Technology Officer. The idea that eventually became the Beaumont Loop Project offered a creative way to resolve regional connectivity issues for LEARN while also offering LONI an opportunity to connect through Dallas and access prime internet and peering services for their members. "It was a challenge for [LEARN] to support universities in these areas, in this case Lamar University in Beaumont, Texas. Lamar just happened to be the end of their line of infrastructure, and it left that university vulnerable and really didn't sit well with LEARN and their service objectives. At the same time, it presented an opportunity for us to connect to Dallas and access internet and peering services," explained Lonnie Leger, LONI's Executive Director.

A PROGRESSIVE PARTNERSHIP

Formalizing the collaboration was just the beginning of what became a complex, multi-year project. To create the new route, LONI had to first get Louisiana fiber to Beaumont, including a three-mile build in Louisiana through Lake Charles. The additional fiber being brought into Texas from Louisiana allowed network traffic out of Beaumont to move north to Dallas or alternately to LONI's Internet2 connection in Baton Rouge, Louisiana, with the eventual goal of shifting the fiber protection routing through Shreveport and Tyler, creating redundancy for both the Beaumont and Tyler spurs.

The project saw many challenges which needed to be overcome; from logistics to staffing, financing, and even equipment. With both organizations managing different finances and stakeholder priorities, it took time to coordinate staff and equipment resources to achieve the final build. Leger explained, "The biggest challenge throughout the project was the logistics. Getting the timing right to commit staff, dollars, and time through a state system while managing the fiber and a new transport network modernization at the same time was time-consuming. It would have been a much quicker endeavor if all those weren't hitting at the exact same time." The second phase of the project, bridging the gap from Tyler to Shreveport, proved to be an even more difficult task, "It was a lot less troublesome to go from Beaumont to Lake Charles than it was to go from Tyler to Shreveport. The fiber was there, but it's old fiber. In several instances, the quality of fiber was lower, and the distances were greater than initially anticipated, so we had to overcome some substantial engineering and equipment challenges before we could get it working," commented Byron Hicks, Network Services Director at LEARN.

ENGINEERING COMMUNITY BENEFITS

LEARN Engineers played a pivotal role in supporting the project to completion. From supporting fiber and equipment testing to weekly meetings over the last few years, a significant amount of time and talent was put toward making the loop a reality. Hicks explained, "Our team helped LONI Engineers with testing fiber from Tyler to Longview and Longview to Shreveport. We also helped with equipment installs and investigating any troubleshooting with issues that came up." While much of the work was clearly demarcated and happened independently, LEARN stepped up with an important vendor to facilitate logistics and access, "At times, LEARN acted as our advocate to provide access to testing, results, and so forth," added Leger.

As a result of the individual and collaborative efforts of LEARN and LONI, the Beaumont Loop Project yielded many benefits, some planned and some unexpected. LEARN is now able to offer protection to the Tyler and Beaumont spurs. Hicks shared, "It's great for our stakeholders. Outages can happen, and these areas are not exactly connection-rich, so protection is important. We've even had outages on some of those paths that were unnoticed by our members, because of the protection, which is really the ultimate goal."

LONI is also realizing benefits from the project. "LEARN is helping us get to Dallas, which is a major national market for content providers like Facebook, Google, Netflix, and we don't have that opportunity in Louisiana. Now we can take advantage of more opportunities for peering, and we're getting a direct routed path to those networks," explained Mumphrey. The LEARN team continues to be responsive as any new hurdles arise.

"The LEARN staff has really been a big help. They're always really responsive and willing to help if there's a piece of our equipment that needs to be touched so we don't have to send somebody all the way across Louisiana and into Texas to do some of that work. They've been a good neighbor, and a good partner."

- Gary Mumphrey
Chief Technology Officer, LONI

EXPANDING IMPACT

Beyond these expected benefits and results, one unexpected evolution that grew out of the project was the creation of the Midsouth U.S. Internet Exchange (MUS-IX), which provides increased internet connectivity, bandwidth, and content peering to participating members LEARN in Texas, OneNet in Oklahoma, ARE-ON in Arkansas and LONI in Louisiana. The goal of MUS-IX is to maximize the mutual efforts of the regional partners to create a centralized collaboration hub that reduces costs, enhances services, and coordinates participation in national research and education initiatives. From an agreement between two partners, the Beaumont Loop Project's impact has expanded to an entire multi-state region. "This project evolved beyond our original aspirations; we weren't even thinking about MUS-IX years ago. It just shows that collaborations shouldn't stop with just the original idea; you limit your capacity if you think like that. There's so much more to leverage. That's what I'm most proud of, how we multiplied the benefit from the seed of the idea," emphasized Leger.

This collaboration provides a model for other research and education networks nationwide by highlighting what is possible. Both LEARN and LONI encourage other research and education networks (RENs) to embrace the idea of working together. "Don't hesitate–not to take advantage–but to strike up a conversation when you believe that you're in need," Mumphrey advised. "Partner with your neighboring states. Have these conversations to talk about how we can share resources, share connectivity, and share ideas." Even without a clear idea of the outcome, sharing with your fellow colleagues can be invaluable. By reaching out years ago on what started as a simple logistical goal, the beneficial impacts of a strong partnership between neighbors have multiplied exponentially. While the Beaumont Loop Project is completed, LEARN and LONI plan to continue working together to maximize connectivity and resources for their communities. "We've multiplied our outcome on this project, it started from humble beginnings with simple objectives that grew into something even greater and more beneficial than we imagined," articulated Leger.

"Partner with your neighboring states. Have these conversations to talk about how we can share resources, share connectivity, and share ideas."

– Gary Mumphrey
Chief Technology Officer, LONI

CLOUD ACCESS EMPOWERS TEXAS INSTITUTIONS

By Therese Perlowski

The commercial cloud enables all types of research and education institutions to support their communities and IT infrastructure at a previously inconceivable scale. The demand for the transformative speed, capacity, reliability, and security that cloud access offers continues to grow, and LEARN helps members find tailored solutions to maximize their benefits. Jon Allen, Associate Vice President, Chief Information Officer & Chief Information Security Officer at Baylor University, commented, "We're being challenged, and it's exciting because we're not sitting in a space of stagnation – we're sitting in a space of opportunity. LEARN is well-positioned to rise up and help us meet the needs in our communities."

"We're being challenged, and it's exciting because we're not sitting in a space of stagnation – we're sitting in a space of opportunity."

- Jon Allen
Associate Vice President, Chief Information Officer
& Chief Information Security Officer, Baylor University

One of the most significant benefits the cloud offers is speed. "If you need to spin up a service immediately, you can do that in the cloud in a matter of hours versus if I have to buy on-premises equipment. Especially with the supply chain being what it has been, [that] could take 6 to 9 months to get new servers," shared Byron Hicks, LEARN Network Services Director. LEARN members' cloud access means they can spin up services and get access to resources a lot faster.

The cloud can also transform something as simple as storage. "If you're a small organization and don't really have much data center space, it makes a lot of sense to just rely on the cloud and be done with it. It saves you having to buy room and cooling, raised floors and power and make sure you've got redundant power. If you use cloud services and connect through LEARN, that takes care of a lot for you—you know someone else is taking care of the rack space and power and cooling and making sure that they've got good redundancy and resiliency built in," explained Hicks. Whether it is solely for speed, capacity, reliability, or a more complex goal like providing virtual desktop environments or creating secure enclaves for researchers, leveraging cloud services offers a myriad of opportunities.

LEARN's partnership with Internet2 enables any eligible member to access Cloud Connect services and connect to the Internet2 national infrastructure. Cloud Connect offers direct access to Amazon's AWS Direct Connect, Google Cloud Platform Partner Interconnect, Microsoft Azure ExpressRoute and Oracle Fast Connect. "They can connect to Dallas, Chicago, Sunnyvale, Ashburn—any of the big hubs where these cloud services reside—and connect directly to the particular cloud service through the Internet2 infrastructure and LEARN," noted Hicks.

LEARN's direct connections allow for an Infrastructure as a Service (IaaS) experience for member organizations, where the connection can be used to extend computing infrastructure and allow services to run on the cloud. Whether it's moving a system from an on-site data center to a cloud environment, providing research cloud-based compute and storage capabilities, or setting up a virtual private network (VPN), the Internet2 partnership allows eligible organizations to provision a Layer 2 or Layer 3 connection through LEARN's and Internet2's network. "It's a great opportunity to take advantage of these cloud services that already exist and take advantage of the fact that Internet2 is connected in more than one location and not charging distance charges, so if you want to do your main data center

services in Microsoft Azure in Dallas but you want to do backups in Chicago for geographic redundancy, there's no additional charge, and LEARN can facilitate that kind of connectivity. It makes it a lot easier, and it's definitely a lot less expensive. Anyone who has set it up continues to see the benefit in it," shared Hicks.

Nurturing continued expertise and awareness of cloud infrastructure, LEARN hosted a hands-on cloud-focused technical workshop in June 2023. Attended by members of the Board of Directors and a Technical Advisory Group, largely made up of Network and Systems Engineers from member institutions, the meeting was a mix of K-12, colleges, and small and large higher ed institutions. Led by Naomi Alterman, Technical Education Specialist and Data Science Fellow at the University of Washington eScience Institute, the workshop supported learning about best practices for cost effective computation, data storage, security and network isolation by guiding participants through building proof-of-concept computing clusters on both Amazon AWS and Microsoft Azure.

"The workshop was meant to be an opportunity to do this in a classroom environment with an instructor that was knowledgeable. It gave everyone the opportunity to talk to somebody who was an expert on how to use cloud services and understand how it applies to their organization," shared Hicks. Participants were able to create their own computing environments and also gain experience using JupyterHub, Docker, and Kubernetes. The workshop is just one way LEARN demonstrates its continued focus on supporting its members via education. "LEARN is providing education and facilitating connectivity. We are not brokering any cloud services. We're not doing anything other than providing support and, of course, bandwidth," added Hicks.

Looking to the future, it is clear that cloud infrastructure and campus networks will only continue to grow and advance. LEARN plays a pivotal role in supporting its members to be at the forefront of leveraging these technologies through technical support and community education. "That's what LEARN brings to us—my networking leadership can sit down and have really good conversations with folks from other institutions and see what everyone is dealing with and thinking about. We can have conversations about what we should do in this space, what's next, what challenges we can expect. LEARN enables partnerships and shows how institutions on this very competitive landscape can benefit from collaborating for the greater benefit of all," shared Allen. "We can trust LEARN will continue to foster this culture as we move forward."

LEADING THE WAY: LEARN'S JOURNEY THROUGH ITS FIRST NSF AWARD

By Reana Teichman

Over the past few years, LEARN has been proud to work on the National Science Foundation (NSF) Campus Cyberinfrastructure (CC*) Award # 19-25553, "Accelerating Research and Education at Small Colleges in Texas via an Advanced Networking Ecosystem Using a Virtual LEARN Science DMZ." In a first for LEARN as a lead organization, this grant brought together six diverse colleges and universities across Texas, including South Plains College (SPC), McLennan Community College (MCC), Midland College (MC), South Texas College (STC), St. Mary's University (StMU), and Trinity University (TU). Collectively, these institutions serve approximately 54,000 students in the Lone Star State.

This project concentrated on enhancing the network infrastructure on these campuses to expand the research capabilities for students and faculty. LEARN provided support through training and on-campus events to ensure the impact was substantial and sustainable for the participating institutions. As the grant concluded in September 2023, LEARN celebrated the achievement of all 26 required deliverables, which highlighted the level of collaboration and commitment of the LEARN team. Despite unavoidable challenges, like the COVID-19 pandemic and high turnover, the team adapted, stayed focused, and worked with campuses to maintain the momentum of the grant, logging over 215 hours to grant activities. "The LEARN staff played a vital role in helping us obtain and sustain the grant. The support and assistance provided throughout was greatly appreciated," recognized Ben Lim, Chief Information Officer at Trinity University and LEARN Board Member.

ADVANCING NETWORK INFRASTRUCTURE

The positive impact of the advanced network infrastructure became apparent almost instantly. With the upgrades supporting speeds of up to 1 gigabit per second, participating campuses experienced a notable boost in connectivity. "The increased reliability and clear bandwidth were noticed immediately by the SPC faculty and staff," shared Dr. Van Howell, Associate Dean of Information Services at South Plains College and LEARN Board Member. Howell recalled hearing comments that the "network is the best it has ever been."

At McLennan Community College (MCC), the network upgrades played a vital role in helping address the digital divide in its student population. According to Mario Leal, the Chief Information and Technology Officer at MCC, about 10% of their students do not have access to the internet or devices at home and stressed the importance of a stable connection on campus.

> "Access to the internet is critical in higher education. Being able to have students research and access the things they need is so important."
>
> - Mario Leal
> Chief Information and Technology Officer
> McLennan Community College

Curtis White, Vice President of Information Services at St. Mary's University, shared how the grant strengthened the university's core infrastructure by providing uninterrupted service through an alternate pathway for traffic. Previously reliant solely on another vendor for stability, White noted that St. Mary's University had "always seen the need to have redundancy in that link, and we just could not pull that off, not at the capacity to keep the campus operating." This redundancy proved invaluable during a 75-hour outage caused by a fiber cut, where the grant-supported solution maintained continuity by switching traffic to the LEARN network. "It was seamless with the border gateway protocol [BGP]


CAFE


INTERNET: WELCOME TO
GAME THEORY


P1
Self-Assembly of Core-Substituted Naphthalene-Diimide based Palladium (II) and Platinum (II) Macrocycles
Abstract
Introduction
Results
Synthesis
Self-Assembly
Molecular Modeling
Methods
Future Work
Acknowledgement

the LEARN Engineers helped us install and get up and running. Things just cut right on over. It was just wonderfully well executed," shared White.

The grant also allocated resources for installing an intelligent network switch and tools like perfSONAR to enhance and monitor network performance. In addition, LEARN set up a Globus platform and designed, managed, and maintained the Data Transfer Node (DTN) and Science DMZ infrastructure across all campuses to support large data transfers and boost research capabilities. Leal credits these improvements for "increasing the ability for education institutions to research together and share information…allowing direct access to peers and four-year institutions."

TECHNICAL TRAINING

One key aspect of the grant's success was the ongoing training that ensured the institutions' technical staff, faculty, and researchers could fully harness the power of the enhanced network infrastructure and utilize the systems effectively. "As with all initiatives, the most important lesson is to ensure the users of the systems are involved, committed, and find value in the usage," shared Lim.

To achieve this, LEARN placed a strong emphasis on providing technical education to campus faculty through monthly training sessions. Additionally, LEARN facilitated two virtual training sessions led by Globus professionals focusing on utilizing the data transfer and management service. For Lim, these training sessions were a way to develop faculty and broaden Trinity University's reach. "Trinity has always been research-focused, even though we are considered a national liberal arts institution," shared Lim.

> "We support our students in their research as well as the faculty. The grant has allowed our faculty to deepen their expertise, test new areas of knowledge, and help our students develop the skill of learning, which is an important identity for Trinity."
>
> - Ben Lim
>
> Chief Information Officer, Trinity University

COMMUNITY OF PRACTICE

Beyond the infrastructure and training, LEARN provided opportunities for colleagues across various regions of Texas to come together, connect, and share their distinct perspectives. These collaborations helped to cultivate a broader sense of community and promote knowledge-sharing among the participating institutions. Many grant participants joined the monthly Technical Advisory Group (TAG) calls and attended technical workshops held during the in-person Board Meetings. These opportunities allowed individuals to connect with LEARN's Board of Directors, TAG Members, and fellow grant participants representing over 40 higher education organizations across the state, including multiple R1 and R2 institutions. The supportive atmosphere of LEARN and its members helps to strengthen relationships and contributes to the advancement of research and education in Texas.

Campus engagements were another important benefit for the campuses. LEARN facilitated 70 outreach activities throughout the life of this grant, including 7 bi-annual training events, 28 technology-specific meetings, 14 faculty-specific meetings, and 21 events tailored to meet the diverse needs of the campuses. Events such as the "Annual Summer Research Symposium" at St. Mary's University and "Spooky Science Fest" at South Plains College not only provided enriching educational experiences but also served as valuable networking opportunities for both faculty and students. Additionally, LEARN partnered with the Engagement and Performance Operations Center (EPOC) to organize in-person Deep Dives with IT staff, faculty, and researchers from almost all participating campuses, allowing for meaningful collaboration and shared purpose opportunities.

LOOKING TOWARDS THE FUTURE

As LEARN reflects on the outcomes of this grant, there is a sense of accomplishment and an appreciation for the experience. The impact not only continues at the participating institutions, but the involvement also deepens LEARN's knowledge and expertise of the grant process and the needs and challenges smaller institutions encounter in this area.

THE POWER OF CONNECTIVITY: LEARN'S PARTNERSHIP WITH COMMUNITY COLLEGES

By Reana Teichman

Community colleges have long been a foundational piece of the educational ecosystem in Texas. These colleges provide accessible and affordable opportunities for students to advance their knowledge and skills, and, for many, they are conduits to two- and four-year institutions. According to preliminary enrollment data released by the Texas Higher Education Coordinating Board for the fall of 2023, there were more than 676,000 students enrolled in community colleges, representing a 3.64% increase from 2022. With rising enrollments, partnered with newly passed legislative support, community colleges are well-positioned to experience an ongoing period of growth across the state.

LEARN is an invaluable partner for community colleges in supporting their efforts to ensure all students have access to education, research opportunities, and training experiences regardless of size or location.

DALLAS COLLEGE

Jim Parker, former Chief Information Officer (CIO) of Dallas College, recognized the importance of the partnership between community colleges and research and education networks like LEARN.

With a private sector and defense background, Jim's entry into higher education began when he was recruited as the CIO for the North Carolina Community College System. According to Parker, North Carolina made significant investments in the state's research and education network (REN) to ensure every educational institution had access to vital infrastructure. When he joined Dallas College, he recognized opportunities to improve his organization's technology infrastructure. Knowing first-hand the value of collaborating with a REN, he reached out to LEARN as a partner on several initiatives.

One project that took priority this year was establishing a connection to the Workforce Center at Redbird, a facility in a previously underserved area in South Dallas. "We needed to get that up and running," explained Parker. "We really needed reliable broadband...there was no internet connection. I can give people a hotspot, and they can't do anything anyway because the cell tower coverage is so bad." LEARN worked quickly to provide a 1G circuit connection, significantly improving the Redbird site's internet connectivity.

Neil Middleton, Senior Project Manager at LEARN, commended the LEARN Engineers, who worked efficiently and effectively to install the equipment and set up the testing. "The coordination has been very smooth. The team at Dallas College has been very supportive and worked with us every step of the way," added Middleton. The success of the collaboration represents LEARN and Dallas College's commitment to ubiquitous access to reliable broadband connectivity for all students.

Beyond the infrastructure and technology, LEARN connects Dallas College to members from different regions of Texas and offers opportunities for engagement and collaboration. "I've enjoyed meeting colleagues and hearing their stories. I'm new to Texas, so coming to the Board Meetings and talking with everyone is exposing you to folks who come from all over the state," added Parker. These valuable interactions and a strong community of practice provide unique perspectives that enhance the partnership's potential.

TARRANT COUNTY COLLEGE DISTRICT

Tarrant County College District (TCCD) is one of Texas's largest community colleges, with campuses in Fort Worth, Arlington, and Hurst. By leveraging LEARN resources, TCCD has enhanced its capacity to deliver services to its educational community quickly and efficiently. "Having LEARN as our primary provider at our five major campus locations has accelerated our ability to deliver services to our students, faculty, and staff," shared Richard Sullivan, District Director of IT Infrastructure at Tarrant County College District.

What sets LEARN apart is the deep sense of partnership it fosters, which extends far beyond the typical vendor-client relationship. "The key differentiator is that [LEARN] truly is more of a partnership than merely purchasing commodity internet services from your local carrier," said Sullivan. "It seems LEARN is always looking at how to improve the services being delivered." Sullivan stated that TCCD is still in the early phases of exploring the innovative solutions that are possible with LEARN's resources and services but recognizes the pivotal role LEARN played in assisting the district to adapt to meet regulatory requirements. "One key issue we had was to provide an effective and efficient e911 solution in compliance with Kari's Law or Ray Baum Act," Sullivan explained. "Adding our SIP services to the already in-place LEARN connections, migrating to Microsoft Teams Voice, and using the services from Intrado – we were able to meet the guidelines and the deadlines for being fully compliant."

LEARN's connection with affiliated networks like Internet2 further enhances its member offerings and enables eligible members to access cloud services. Sullivan shared, "Tarrant County College is a large user of Microsoft products and services. From Azure to Microsoft Teams Voice, we need to have as short a path to the Microsoft environment as possible. With LEARN, we can use Microsoft's Azure ExpressRoute to expedite our connections to our Microsoft Azure/Virtual Environments."

As community colleges evolve and expand their offerings, Tarrant County College District remains committed to adjusting to the constantly changing landscape of higher education. "As a community college, our current charter isn't in the realm of research or connecting/collaborating with other colleges or universities at that level," Sullivan acknowledged. "There is no telling what the next ten years will bring concerning those areas…but by partnering with LEARN and being an Internet2 affiliate, we have positioned ourselves for that future."

SOUTH PLAINS COLLEGE

The partnership between South Plains College (SPC) and LEARN began in 2019 when it became part of the National Science Foundation (NSF) Campus Cyberinfrastructure (CC*) Grant, Accelerating Research and Education at Small Colleges in Texas via an Advanced Networking Ecosystem Using a Virtual LEARN Science DMZ (Award #19-25553). With the resources and support delivered by LEARN through the grant, SPC extended connectivity with the construction of fiber from their Levelland

"SPC utilized the LEARN connection to support research in STEAM fields. Our students have participated in statewide and national STEM competitions, earning recognition for their work achievements."

- Dr. Van Howell

Associate Dean of Information Services
South Plains College

campus to the Metro Tower in Lubbock. "The primary goals and objectives of the NSF Grant were to connect SPC to LEARN and to utilize this connection to support teaching and learning on campus," said Dr. Van Howell, Associate Dean of Information Services at South Plains College and LEARN Board Member.

The grant also provided students and faculty access to critical data and collaborative tools that had a significant impact on the college's education and research capabilities. "At the outset, we had access to the Science DMZ, Peering and Caching, and Internet2," reflected Howell. These services are powerful catalysts for change and support the possibility of expanding research initiatives. Howell shared, "SPC utilized the LEARN connection to support research in STEAM fields. Our students have participated in statewide and national STEM competitions, earning recognition for their work achievements." An example of this was the STEM SPC Poster Symposium in October, which showcased the research conducted by the Plains Bridges to the Baccalaureate (PBB) Program scholars during their summer research program at Texas Tech University.

The partnership with LEARN has also enabled South Plains College, as both a member and grant participant, to have access to other educational institutions and research organizations within the LEARN network. This opens doors to collaborative projects, facilitates knowledge-sharing, and provides access to a broader range of resources. "Through my affiliation with LEARN and the Board, I have been able to foster relationships with collaborative research programs that will eventually benefit SPC students," said Howell.

LEARN promotes a sense of community and positions SPC as an active and engaged contributor to the larger educational and research community. One initiative is the NSF Award #2019136, CC* CIRA: Building Research Innovation at Community Colleges (BRICCs) program, which has allowed SPC to begin the creation of a new workforce development program in High Performance Computing (HPC) administration. "While this program is still in the planning phase, it has the potential to bring opportunities to SPC and other community colleges in Texas as well as fill a need at research facilities across the state," described Howell.

BLINN COLLEGE

Celebrating its 140th year of service, Blinn College has progressed from the first county-owned public junior college in Texas to a multi-campus institution serving over 17,000 students. Blinn College first became associated with LEARN in 2006 when they initiated network services to connect their two largest campuses. Since then, this collaboration has evolved. "It has grown over the years to increase capacity, improve redundancy and add additional services including internet and transporting SIP telephony directly to the provider," noted Michael Welch, Dean of Academic Technology Services at Blinn College and LEARN Board Member.

"All of our projects have been noteworthy by providing a service at the time of need and building upon each other to ensure we deliver first-class service to the college district," shared Welch. This proactive approach has led to several successful initiatives and a state of readiness for the future needs of Blinn College. "From the initial purchase of the IRU fibers, the backup path in Brenham, moving to the unmetered service, adding SIP transport, and improving redundancy again with the BGP implementation, they have all worked together to lay a solid foundation to build additional services upon," Welch affirmed.

LEARN has become a valuable partner in Blinn College's pursuit of excellence in education by helping to meet the evolving needs of the institution, offering unmatched bandwidth capabilities, and engaging in strategic projects. One key aspect of the partnership is LEARN's bandwidth capacity, ensuring that Blinn does not need to worry about network performance. "Bandwidth has never had to be a concern. We have always been able to scale up the speeds before demand saturated a connection without any major re-architecting or delays," shared Welch. This scalability has enabled Blinn College to maintain two in-sync data centers and provide excellent internet service even in the City of Brenham's semi-rural location.

Welch touched on the other reasons community colleges and other educational and research institutions in Texas may see value in having LEARN as a strategic partner.

"The high-speed low latency network is great for accessing the networked resources coming from anywhere. Having quick, reliable access to cloud providers allows everything to run optimally as we become more dependent on these services."

- Michael Welch
Dean of Academic Technology Services
Blinn College

"Esports, in particular, benefits from the low latency connections to the gaming servers along with access to cloud infrastructure providers to build and maintain redundant systems and any cloud-based applications using a lot of files, large files, or is video-intensive," concluded Welch.

As educational institutions rely increasingly on technology to support students, staff, and communities in accessing the resources they need, the partnerships, collaborations, and services available through LEARN become more critical. Welch shared, "LEARN is well positioned to understand the needs of educational institutions and is able to bring the connections and services to meet those needs quickly and efficiently."

EMPOWERING LEARN AFFILIATES THROUGH INNOVATIVE SOLUTIONS

By Reana Teichman

LEARN supports over 270 organizations through its Affiliate Membership, each varying in size and location and playing a unique role in their communities. Affiliates have access to LEARN's infrastructure and expertise to enhance their internet connectivity, enable collaborative research efforts, and support the needs of their communities.

CITY OF WACO, TEXAS

LEARN's commitment to providing reliable services extends beyond educational institutions to communities across Texas. Located in central Texas, between Dallas and Austin, the City of Waco is home to around 144,000 residents and boasts the presence of three higher education institutions within its city limits.

As the region's needs continue to evolve, the city's administration is determined to keep the momentum going. "We are trying to continue the growth in Waco. We are investing as much as we can in infrastructure around IT and pushing the envelope on smart city technologies," said Mike Searight, Chief Information Officer at the City of Waco. "If you don't have the network to support that, it is an issue," shared Searight, recognizing the importance of having a strong and dependable network to advance the City's initiatives.

In early 2023, the City of Waco looked to LEARN to assist with the IT infrastructure necessary to ensure its educational and community services remain accessible, reliable, and sustainable as the city grows.

"The LEARN network is something I have always believed in because of the basic features that LEARN delivers, like network peering and DDoS protection. All the little things LEARN does well, matter."

- Mike Searight
Chief Information Officer, City of Waco

LEARN Engineers worked with the City's Information Technology team to design and deploy services that could meet the city's goals and vision while addressing the needs of the significant leap forward for the city's technological landscape by installing a 10G Multiprotocol Label Switching (MPLS) port. The partnership also saw the expansion of connectivity options for the City, including the setup of multiple internet providers to ensure redundancy and reliability.

In addition to networking services, LEARN provides support and training to help its members utilize resources they may not be familiar with, e.g., a new router. "I think part of the value that [City of Waco] saw is that we will take the time to help train their people on the equipment," shared David Nichols, Network Engineer at LEARN, who helped arrange hands-on training to security analysts at the City of Waco. "The knowledge transfer has been invaluable," noted Searight.

By leveraging LEARN's expertise and resources, the City of Waco is well-positioned to enhance connectivity, deliver services, and empower its residents and institutions. "Everything we do is for our residents, and for our community. Our main focus is to be a high-performing city government," shared Searight.

ST. MARY'S UNIVERSITY

In a time when digital threats have become alarmingly common, educational institutions recognize the importance of strengthening their defenses to protect sensitive data and maintain operational integrity. This awareness led St. Mary's University (StMU) to proactively engage LEARN three years ago to help implement a new cybersecurity solution for its campus.

Curtis White, Vice President of Information Services at St. Mary's University, shared that StMU was the first higher education institution customer of their current cybersecurity vendor. "[The vendor] had worked with the Department of Defense (DoD) and government contractors, but the traffic that you see on a college campus is much different than what

you would see in the DoD sector. So, they were very excited to bring us on," said White.

Byron Hicks, Network Services Director at LEARN, recalled how this project required a tailored solution due to the cybersecurity company needing all traffic destined for StMU to pass through its service first. "This presented a bit of a technical challenge, but we were able to come up with a solution to satisfy this requirement effectively," Hicks explained.

Leveraging their years of experience and expertise in network design, the LEARN engineers worked closely with St. Mary's and the cyber security company to customize a solution that not only met the service's requirements but did so in a streamlined and cost-effective manner. Since the cybersecurity company and LEARN both had a presence in Dallas, LEARN was able to establish one connection, which saved valuable time and resources for everyone involved.

"LEARN is a big reason St. Mary's University has a leading-edge internet security solution," commented Joseph Longo, former Chief Technology and Information Security Officer at St. Mary's University.

LEARN Engineers understand solutions will not always be standard or universally applicable, and remain committed to partnering with LEARN Members and vendors to find the most efficient solution. "I think that highlights one of LEARN's strengths…we are flexible. We are open to doing some things that are maybe outside the 'normal' way to support our members," shared Hicks.

BOARD OF DIRECTORS

DOUG FOX
Associate Vice President, Information Technology and Chief Information Officer
Angelo State University

VACANT
Baylor College of Medicine

BOB HARTLAND
Associate Vice President, IT Infrastructure
Baylor University

MICHAEL WELCH
Dean, Academic Technology Services
Blinn College

DAVID STEPHENS
Chief Information Officer
Collin College

JIM PARKER*
Chief Information Officer
Dallas College

PATRICK STEWART
Chief Information Officer
Lamar University

ANN KEANE
N-Wave Business Manager
National Oceanic and Atmospheric Administration

TREVOR JONES
Chief Information Officer
Parker University

TONY MOORE
Chief Information Officer
Prairie View A&M University

JASON GLIM
Director, Network Services & Data Center Operations
Rice University

MICHAEL DEWEY
Chief Technology Officer
Sam Houston State University

JAMES (VAN) HOWELL
Associate Dean of Information Services
South Plains College

MICHAEL HITES
Chief Information Officer
Southern Methodist University

RICHARD SULLIVAN
District Director of IT Infrastructure
Tarrant County College District

VACANT
Texas A&M Health Science Center

DAN SCHMIEDT
Associate Vice President, Enterprise Network Services
Texas A&M University

DAVID RAMCHARAN
Associate Vice President and Chief Information Officer
Texas A&M University - Corpus Christi

MARK STONE
Chief Information Officer
Texas A&M University System

BRYAN LUCAS
Chief Technology Officer
Texas Christian University

LEA CASTILLO
Director
Texas Education Telecommunications Network (TETN)

MATT HALL
Vice President for Information Technology and Chief Information Officer
Texas State University

*Jim Parker appointed 2022 - 2024
Prakash Paul, Deputy Chief Information Officer at Dallas College appointed 2024

SAM SEGRAN
Vice President for IT and Chief Information Officer
Texas Tech University

VINCE FELL
Vice President, Information Technology and Chief Information Officer
Texas Tech University Health Sciences Center

GERARDO (JERRY) RODRIGUEZ
Associate Vice President, Information Technology and Chief Information Officer
Texas Tech University Health Sciences Center El Paso

KEITH HALMAN
Chief Information Officer
Texas Tech University System

VACANT
Texas Woman's University

BEN LIM
Chief Information Officer
Trinity University

DENNIS FOUTY
Senior Associate Vice President/Vice Chancellor and Chief Information Officer
University of Houston System

JUAN SERRANO
Vice Chancellor and Chief Information Officer
University of North Texas System

DEEPIKA CHALEMELA
Chief Information Officer
University of Texas at Arlington

JENNIFER SCHOPF
Director of Networking Partnerships for Texas Advanced Computing Center
University of Texas at Austin

FRANK FEAGANS
Vice President, Information Technology and Chief Information Officer
University of Texas at Dallas

LUIS HERNANDEZ
Vice President for Information Resources
University of Texas at El Paso

KENDRA KETCHUM
Vice President, Information Management and Technology
University of Texas at San Antonio

TONY MURRY
Executive Director, IT Infrastructure
University of Texas Health Science Center at Houston

YEMAN COLLIER
Vice President and Chief Information Officer
University of Texas Health Science Center at San Antonio

JOHN YODER
Vice President of Technology and Chief Information Officer
University of Texas Health Science Center at Tyler

VACANT
University of Texas MD Anderson Cancer Center

GEORGE GADDIE
Vice President and Chief Information Officer
University of Texas Medical Branch at Galveston

JEFF GRAHAM
Chief Information Officer
University of Texas Rio Grande Valley

RUSSELL POOLE
Vice President for Information Resources and Chief Information Officer
University of Texas Southwestern Medical Center at Dallas

BRYAN ROESSLET
Chief Technology Officer
University of Texas System

LEARN STAFF

LEADERSHIP TEAM

KERRY MOBLEY
President & Chief Executive Officer & Treasurer

DEEDEE CONWAY
Interim Chief Financial Officer

TODD HORKMAN
Chief Technology Officer

AMY SCHULTZ
Chief Relationship & Engagement Officer

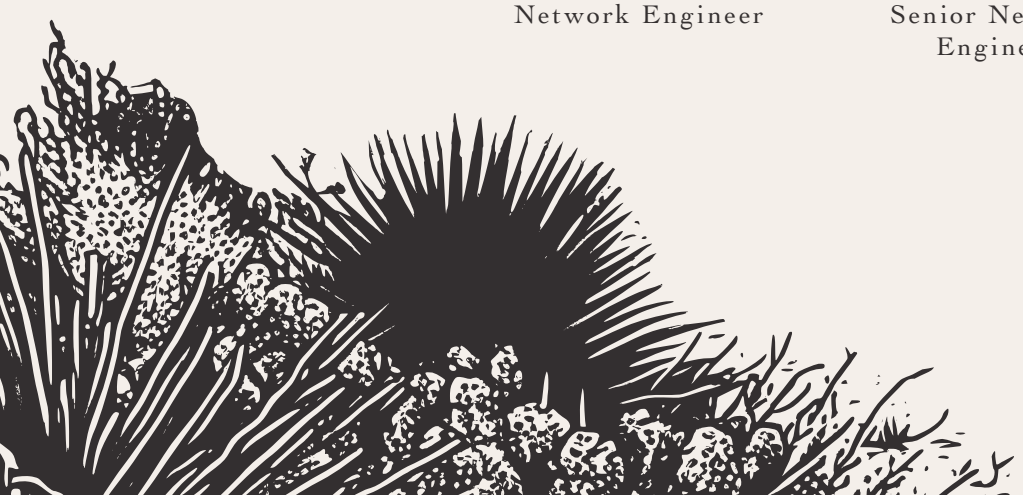
STAFF AND INTERNS

IVAN AMIGO
Network Engineer

SKYLAR CLARK-FERNANDEZ
Network Engineer

JOSEPH CRANMORE
Senior Network Engineer

AUSTIN GAMBLE
Member Outreach & Engagement Director



SAL GHANI
Systems Engineer

BYRON HICKS
Network Services Director

JASON JACKSON
Intern

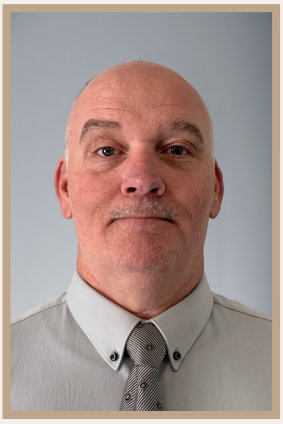
EPA MATSANGAISE
Network Engineer

ISABEL MEZA
Accounting Manager

NEIL MIDDLETON
Senior Project Manager

DAVID NICHOLS
Network Engineer

CHRIS OTT
Senior Systems Engineer



JOHN SIMMONS
Project Manager

JEFF SKYM
Network Engineer

REANA TEICHMAN
Administrative Services Manager

RYAN WATTS
Controller

STORY CONTRIBUTORS

JON ALLEN

DEEDEE CONWAY

AUSTIN GAMBLE

BOB HARTLAND

BYRON HICKS

TODD HORKMAN

VAN HOWELL

MARIO LEAL

LONNIE LEGER

JOSEPH LONGO

NEIL MIDDLETON

KERRY MOBLEY

GARY MUMPHREY

DAVID NICHOLS

JAMES PARKER

THERESE PERLOWSKI

AMY SCHULTZ

MIKE SEARIGHT

RICHARD SULLIVAN

REANA TEICHMAN

MICHAEL WELCH

CURTIS WHITE

Design by Amanda Buccola
www.amandabuccola.com

AFFILIATED ORGANIZATIONS

4-YEAR HIGHER ED: PRIVATE

St. Mary's University

Texas Lutheran University

University of Mary Hardin-Baylor

4-YEAR HIGHER ED: PUBLIC

Stephen F. Austin State University

Sul Ross State University

Sul Ross State University Rio Grande College

Tarleton State University

Texas A&M Galveston

Texas A&M International University

Texas A&M Kingsville

Texas A&M University Central Texas

Texas A&M University Commerce

Texas A&M University San Antonio

Texas A&M University Texarkana

University of Houston Downtown

University of Houston Victoria

University of Houston-Clear Lake

University of North Texas

University of North Texas at Dallas

University of Texas at Tyler

University of Texas Permian Basin

West Texas A&M University

CITY/COUNTY

City of Austin

City of Bryan

City of San Angelo

City of Waco

Travis County

COMMUNITY COLLEGE

Austin Community College

Brazosport College

Del Mar College

Galveston College

Hill College

Houston Community College System

Kilgore College

Lamar Institute of Technology

Lamar State College - Orange

Lamar State College - Port Arthur

McLennan Community College

Midland College

Paris Junior College

South Texas College

Texarkana College

Trinity Valley Community College

Victoria College

Wharton County Junior College

HEALTHCARE

Citizens Medical Center

Guadalupe Valley Hospital

Houston Methodist Hospital

Parkland Memorial Hospital

Texas Children's Hospital

University Medical Center

University of North Texas Health Science Center

K–12

Albany ISD

Alief ISD

Angleton ISD

Anson ISD

Aspermont

Austin ISD

Austwell-Tivoli ISD

Baird ISD

Bangs ISD

Bartlett ISD

Blackwell CISD

Blanco ISD

Blanket ISD

Bob Hope Charter School 1

Boling ISD

Brady ISD

Breckenridge ISD

Brenham ISD

Bronte ISD

Brookeland ISD

Brookesmith ISD

Brownwood ISD

Buna ISD

Burkeville ISD

Cherokee ISD

Chester ISD

Christoval ISD

Cisco ISD

Clyde CISD

Coleman ISD

Colmesneil ISD

Colorado ISD

Comanche ISD

Comfort ISD

Comstock ISD

Crockett County CCSD

Cross Plains ISD

Cypress-Fairbanks ISD

Dallas ISD

DeLeon ISD

Denton ISD

AFFILIATED ORGANIZATIONS

K–12

Devers ISD

Deweyville ISD

Dime Box ISD

Doss CCSD

Early ISD

Eastland ISD

Eden ISD

Ehrhart School

Eula ISD

Flatonia ISD

Fort Worth ISD

Giddings ISD

Gonzales ISD

Gorman ISD

Granger ISD

Grape Creek ISD

Gustine ISD

Hamlin ISD

Hardin-Jefferson ISD

Harper ISD

Haskell CISD

Hawley

Hermleigh ISD

Highland ISD

Ira ISD

Irion County ISD

Jarrell ISD

Jim Ned CISD

Katy ISD

Keller ISD

Kirbyville CISD

Kountze ISD

La Grange ISD

Lake Travis ISD

Lexington ISD

Liberty ISD

Little Cypress-Mauriceville ISD

Lockhart ISD

Loraine ISD

Lueders-Avoca ISD

Luling ISD

Lumberton ISD

Mason ISD

May ISD

Menard ISD

Merkel ISD

Meyersville ISD

Miles ISD

Moran ISD

Nederland ISD

New Braunfels ISD

Nueces Canyon CISD

Nursery ISD

Odyssey Academy

Olfen ISD

Orangefield ISD

Paint Creek

Paint Rock ISD

Panther Creek CISD

Port Arthur ISD

Prairie Lea ISD

Ranger ISD

Region 3 Education Service Center (ESC3)

Region 5 Education Service Center (ESC5)

Region 6 Education Service Center (ESC6)

Region 13 Education Service Center (ESC13)

Region 14 Education Service Center (ESC14)

Region 15 Education Service Center (ESC15)

Richland Springs ISD

Rising Star ISD

Robert Lee ISD

Roby CISD

Rochelle ISD

Rockdale ISD

Rocksprings ISD

Roscoe Collegiate ISD

Rotan ISD

Round Rock ISD

Round-Top Carmine ISD

Rule ISD

Runge ISD

San Saba ISD

Santa Anna ISD

Schleicher County ISD

Schulenburg ISD

Shiner ISD

Sidney ISD

Snyder ISD

Sonora ISD

Spurger ISD

Stamford ISD

Sterling City ISD

SUPERNet

Sweet Home ISD

Sweetwater ISD

Texas Leadership Charter Academy

Texas School for the Blind

AFFILIATED ORGANIZATIONS

The Raven School (Gulf Coast Trade Center)

Thorndale ISD

Thrall ISD

Trent ISD

Veribest ISD

Victoria ISD

Vidor ISD

Vysehrad ISD

Waelder ISD

Wall ISD

Warren ISD

Water Valley ISD

West Orange Cove CISD

Westbrook ISD

Wimberley ISD

Woodville ISD

Wylie ISD

Yorktown ISD

Zephyr ISD

LIBRARY

Alexander Memorial Library

Allen Memorial Public Library

Cochran County Love Memorial Library

Duncanville Public Library

Fairfield Library Association

Grapeland Public Library

Jacksonville Public Library

Lee-Bardwell Public Library

Upshur County Public Library

Wharton County Library

OTHER

Department of Information Resources (DIR)

Houston Museum of Natural Science

Lower Colorado River Authority (LCRA)

Metropolitan Transit Authority of Harris County [METRO]

Texas AgriLife Extension Service

Texas AgriLife Research

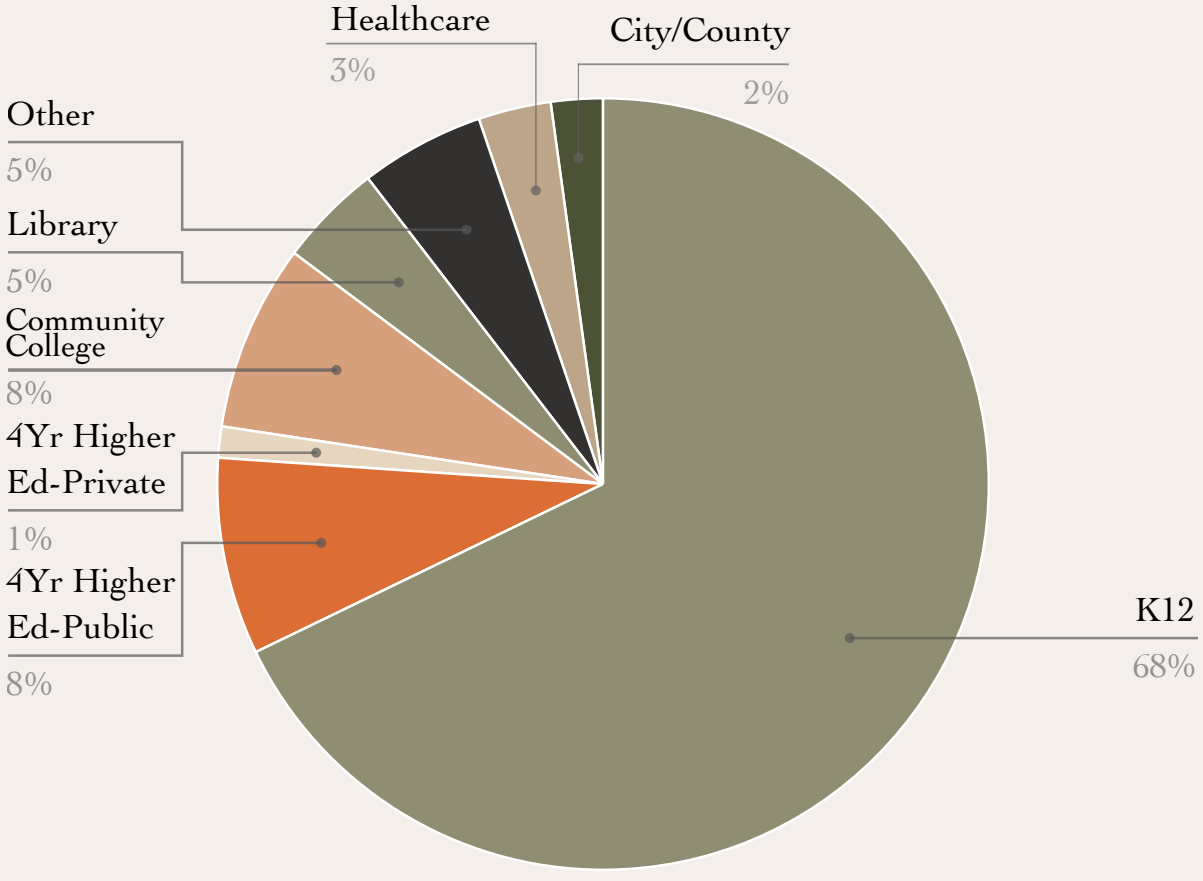
Texas Engineering Experiment Station

Texas Engineering Extension Service

Texas State Library and Archives Commission

Texas Transportation Institute

Texas Veterinary Diagnostic Lab



RETIRED BOARD MEMBERS HIGHLIGHT AND THANK YOU

SAM SEGRAN

TEXAS TECH UNIVERSITY

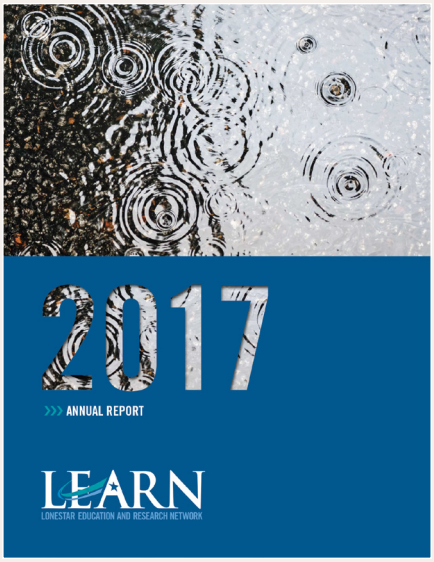
2005 – 2023

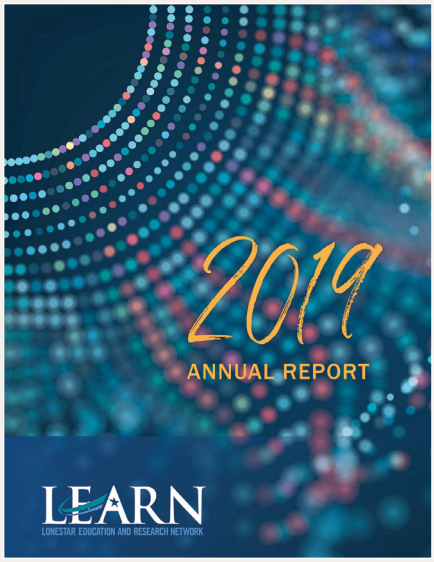
Congratulations to Sam Segran on his retirement! Sam has been a Board Member of LEARN since 2005 and part of the Inaugural Board of Directors. Sam held key leadership positions, including Governance & Participation Chair, Chair-Elect, Chair, and Past-Chair on the Board's Executive Committee.

Sam's dedication and leadership have made a lasting impact. We are grateful for his years of support, guidance, and devoted service to LEARN.

Thank you, Sam, for your contributions!

- LEARN Team





LEARN
LONESTAR EDUCATION AND RESEARCH NETWORK

P. O. Box 16920 · Lubbock, TX 79490 · 806.743.7878
info@tx-learn.net · tx-learn.net