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3 Rivers Communications 702 Communications **A&N Electric Cooperative** Access Energy Cooperative **Access Point Inc.** ACD.Net Inc. **Adams Electric Cooperative (IL)** Adams Electric Cooperative, Inc. (PA) **Adams REC, Inc.** Adams-Columbia Electric Co-op **Agralite Electric Cooperative** Alaska Power & Telephone **Alfalfa Electric Cooperative, Inc.** Alger-Delta Co-op Electric Association **Alhambra-Grantfork Telephone Company** All West Communications **Allamakee-Clayton Electric Co-op, Inc.** ALLO Communications LLC **Alma Telephone Company** Alpine Communications **Alteva** American Samoa Telecommunications Authority **Amherst Telephone Company** Arctic Slope Telephone Assn Coop **Ark Valley Electric Co-op Association** Arkansas Telephone Company **Arkwest Communications Inc.** Arrowhead Electric Co-op, Inc. **Arthur Mutual Telephone Company** Ashley-Chicot Electric Co-op, Inc. **Atchison-Holt Electric Cooperative** Austin Utilities **Ayersville Telephone Company** Baldwin County EMC **Baldwin LightStream** Ballard Rural Telephone **Bandera Electric Co-op, Inc.** Bandwidth CLEC **BARConnects LLC** Barron Electric Cooperative **Barrow Utilities & Electric Co-op** Bartholomew County REMC **Bartlett Electric Co-op, Inc.** Barton County Electric Co-op **Bascom Mutual Telephone Company** Base Utilities Incorporated **Basin Electric Power Co-op, Inc.** Bayfield Electric Co-op, Inc. **BayRing Communications** Beartooth Electric Co-operative, Inc. **Beaver Creek Cooperative Telephone Company** Bedford Rural Electric Cooperative, Inc. **Beehive Telephone Company** BEK Communications **Belmont Light** Beltrami Electric Cooperative **Ben Lomand Rural Telephone Cooperative** BENCO Electric Cooperative **Benton PUD** Benton Rural Electric Association **Berkeley Electric Co-op, Inc.** Big Bend Electric Co-op, Inc. **Big Country Electric Cooperative** Big Flat Electric Cooperative, Inc. **Big Horn County Electric Co-op** Blachly-Lane Cooperative Electric Association **Black Hills Electric Cooperative, Inc.** Black River Electric Cooperative **Block Island Power Company** Bloomer Telephone Company **Bluestem Electric Co-op, Inc.** Bon Homme Yankton Electric Association **Boone Electric Co-op** Boone REMC **Borough of Butler** Bowling Green Municipal Utilities **Brazoria Telephone Company** Bright.Net **Bristol Bay Telephone Cooperative** Brown County REA **Brown-Atchison Electric Co-op Association** Bruce Telecom **Bruce Telephone Company** Brunswick EMC **BTC Broadband** Bulloch Telephone Cooperative **Burke-Divide Electric Cooperative, Inc.** Butler County REC **Butler REC, Inc. (OH)** Butler RECA Inc. (KS) **Butte Electric Cooperative** C&T Enterprises, Inc. **C.M.S. Electric Co-op, Inc.** C.R.S.T. Telephone Authority **Cairo Public Utility Company** Calaveras Telephone Company **Callaway Electric Cooperative** Cam Wal Electric Cooperative, Inc. **Campti-Pleasant Hill Telephone Co.** Canadian Valley Electric Co-op **Canadian Valley Telephone** Capital Electric Cooperative, Inc. **Carbon Power & Light, Inc.** CarolinaConnect Cooperative **Carroll Electric Cooperative, Inc.** Carroll White REMC **Cass County Electric Co-op, Inc.** Cavalier REC, Inc. **Central Arkansas Telephone Cooperative** Central Electric Cooperative (OK) **Central Electric Cooperative (SD)** Central Electric Cooperative, Inc. (OR) **Central Electric Cooperative, Inc. (PA)** Central Electric Power Co-op (MO) **Central Lincoln PUD** Central Missouri Electric Co-op, Inc. **Central Montana Electric Power Co-op** Central New Mexico Electric Co-op **Central Power Electric Cooperative, Inc.** Central Texas Electric Cooperative, Inc. **Central Valley Electric Cooperative, Inc.** Central Wisconsin Electric Cooperative **Charles Mix Electric Association, Inc.** Cherryland Electric Cooperative **Cherry-Todd Electric Co-op, Inc.** Chippewa Valley Electric Co-op **Choctaw Electric Cooperative, Inc.** Choptank Electric Cooperative, Inc. **Cimarron Electric Cooperative** Citizens Electric Company **Citizens Telephone Company** City of Greenfield **City of Palo Alto** CityWest Cable & Telephone Corp. **Claiborne Electric Cooperative, Inc.** Clallam County, Public Utility District No. 1 **Clark County REMC** Clark Electric Cooperative (WI) **Clark Energy Cooperative, Inc. (KY)** Clarke Electric Cooperative, Inc. (IA) **Clatskanie People's Utility District** Claverack Rural Electric Cooperative, Inc. **Clay County Electric Cooperative Corp.** Clear Lake Telephone Company **Clearwater Power Company** Clinton County Electric Cooperative, Inc. **Cloverland Electric Cooperative** Coastal Electric Cooperative, Inc. **Cobb EMC** Cochrane Telecom Services **Codington-Clark Electric Co-op** Coles-Moultrie Electric Cooperative **Colorado Powerline Inc.** Colorado Valley Telephone Cooperative **Columbia Basin Electric Co-op** Columbia Rural Electric Association **Columbus Electric Cooperative, Inc.** Community Electric Cooperative **Community Water System** Co-Mo Electric Cooperative, Inc. **ComSouth Telecommunications** ComTech Solutions, LLC **Concho Valley Electric Co-op, Inc.** Connexus Energy **Consolidated Electric Co-op (MO)** Consolidated Electric Cooperative, Inc. (OH) **Consolidated Telcom** Consumers Energy **Consumers Power, Inc.** Continental Divide Electric Co-op **Cookson Hills Electric Co-op, Inc.** Coon Valley Farmers Telephone Company **Co-operative Synergies Inc.** Copper Valley Electric Association, Inc. **Copper Valley Telephone Cooperative Inc.** Corn Belt Energy Corporation **Cotton Electric Cooperative, Inc.** Crawford Electric Co-op, Inc. **Craw-Kan Telephone Cooperative** Crosslake Communications **Crow Wing Co-op Power & Light Co.** Cumberland Electric Membership Corporation **Cumberland Valley Electric, Inc.** Cuming County PPD **Custer Telephone Cooperative Inc.** Dakota Central Telecommunications **Dakota Energy Cooperative, Inc.** Dakota Valley Electric Cooperative **Darien Telephone Company** Darke REC, Inc. **Daviess-Martin County REMC** Dawson PPD **Deaf Smith Electric Cooperative, Inc.** Decatur County REMC (IN) **Decatur Utilities (AL)** Delaware County Electric Cooperative, Inc. (NY) **Delaware Electric Cooperative, Inc. (DE)** Delhi Telephone Company **Delta-Montrose Electric Association** Dickey Rural Telephone Cooperative **DirectLink** Dixie Electric Power Association (UT) **Dixie Power (MS)** Doniphan Electric Co-op Association, Inc. **Douglas County, Public Utility District No. 1** Douglas Electric Cooperative **DS&O Electric Cooperative Inc.** Dubois REC, Inc. **Dunn Energy Co-op** Duo County Telecom **Easley Combined Utilities** East Central Energy **East Central Oklahoma Electric Cooperative, Inc.** East River Electric Power Cooperative, Inc. **East-Central Iowa Rural Electric Cooperative** Eastern Illini Electric Cooperative, Inc. **Eastern Iowa Light & Power Cooperative** Eastern Maine Electric Cooperative, Inc. **Eastern Slope Rural Telephone** Eau Claire Energy Cooperative **Edgecombe-Martin County EMC** Egyptian Electric Cooperative Association **Electrical District #2** Elk River Municipal Utilities **Elmhurst Mutual Power & Light Co.** Emerald People's Utility District **Emery Telcom** Endeavor Communications **EnerStar Electric Cooperative** ETEX Telephone Cooperative **F&B Communications Inc.** Fannin County Electric Cooperative, Inc. **Farmers Electric Co-op, Inc. (IA)** Farmers Electric Co-op, Inc. (TX) **Farmers Mutual Cooperative Telephone** Farmers Mutual Telephone (OH) **Farmers Mutual Telephone Company (ID)** Farmers Mutual Telephone Company (MN) **Farmers Telecommunications Cooperative, Inc. (AL)** Fayette Electric Co-op, Inc. **Fayetteville Public Utilities** Federated Telephone Cooperative **Fergus Electric Co-op, Inc.** Firelands Electric Cooperative, Inc. **First Electric Cooperative Corporation** Five Area Telephone Cooperative, Inc. **Flathead Electric Cooperative, Inc.** Flint Hills RECA, Inc. **Florida Keys Electric Co-op Association** Foothills Rural Telephone Cooperative **Fort Belknap Electric Co-op, Inc.** Fort Jennings Telephone Company **Franklin County, Public Utility District No. 1** Franklin Rural Electric Cooperative **Freeborn-Mower Co-op Services** FreeState Electric Cooperative **Frontier Power Company** Fulton County REMC **Gaffney Board of Public Works** Garkane Energy Cooperative, Inc. **Garland Light & Power Co.** Gascosage Electric Cooperative **Gearheart Communications** Germantown Telephone Company, Inc. **Glacier Electric Cooperative** Glades Electric Cooperative, Inc. **Glandorf Telephone Company** Golden West Telecommunications **Goldenwest Electric Cooperative, Inc.** Goodhue County Co-op Electric Association **Grand Electric Cooperative, Inc.** Grand Haven Board of Light & Power **Grand Valley Power** Granite Telecommunications LLC **Grantsburg Telcom** Grays Harbor County, Public Utility Dist No. 1 **Grayson Collin Communications** Grayson-Collin Electric Co-op, Inc. **Great Lakes Energy Co-op** Great Plains Communications **Great River Energy** GreatWave Broadband Services **Greeneville Light & Power System** Greenwood Commissioners of Public Works **Griggs County Telephone Company** Guadalupe Valley Electric Cooperative **Guernsey-Muskingum Electric Co-Op, Inc.** Gunnison County Electric Association **Guthrie County REC** Hamilton County Electric Cooperative Association (TX) **Hamilton County Telephone Cooperative (IL)** Hannibal Board of Public Works **Hardy Telecommunications, Inc.** Harmon Electric Association, Inc. **Harmony Telephone Company** Harney Electric Co-op, Inc. **Harriman Utility Board** Harrison County REC **Harrison Rural Electrification Association Inc.** Harrisonville Telephone Company **Hart Telephone Company** Hayneville Fiber Transport **Haywood EMC** H-D Electric Cooperative, Inc. **Heartland Power Cooperative** Heartland Rural Electric Cooperative, Inc. **Heber Light & Power** Hendricks Power Cooperative **Henry County REMC** Hiawatha Broadband Communications Inc. **High West Energy, Inc.** HILCO Electric Cooperative **Hill Country Telephone Cooperative** Hill County Electric Cooperative, Inc. **Hillsboro Telephone Company** Holmes-Wayne Electric Cooperative, Inc. **Holy Cross Energy** Home Telephone Co. **HomeWorks Tri-County Electric Cooperative, Inc.** Hood River Electric Cooperative **Hope Water & Light** Howard Electric Co-op **Howell-Oregon Electric Co-op, Inc.** Huxley Communications Cooperative **Idaho County Light & Power Co-op** Indian Electric Cooperative, Inc. **Indiana Fiber Network** Inland Cellular LLC **Inland Power & Light Co.** Inland Telephone Company **Innovative Energy Alliance** Inside Passage Electric Cooperative **InterBel Telephone Cooperative** Inter-Community Telephone Company **Intercounty Electric Cooperative Association** Iowa Lakes Electric Cooperative **Itasca-Mantrap Co-op Electrical Association** Jackson County REMC **Jackson Electric Co-op (WI)** Jackson Electric Membership Corp. (GA) **Jackson Energy Cooperative (KY)** Jackson Purchase Energy Corp. **Jaguar Communications** Jasper County REMC **Jefferson County PUD** Jewett City Department of Public Utilities **Johnson City Energy Authority** Johnson County REMC **K.C. Electric Association, Inc.** Kalida Telephone Company **Kalona Cooperative Technology Company** Kandiyohi Power Cooperative **Karnes Electric Co-op, Inc.** Kauai Island Utility Cooperative **Kay Electric Cooperative** KEM Electric Cooperative, Inc. **Kenergy Corporation** Kennebec Telephone Company **Kerrville PUB** KMTelecom **Kodiak Electric Association, Inc.** Kootenai Electric Co-op, Inc. **La Plata Electric Association, Inc.** Laclede Electric Cooperative **Lacreek Electric Association, Inc.** Lake Country Power **Lake Region Electric Association, Inc. (SD)** Lake Region Electric Cooperative (MN) **Lake Region Electric Cooperative, Inc. (OK)** Lakefield Telephone Company **Lamar County Electric Cooperative Association** Lamb County Electric Co-op, Inc. **Lane Electric Cooperative** Lane-Scott Electric Cooperative, Inc. **Laurens Commission of Public Works** LaValle Telephone Cooperative **Lawrenceburg Utility Systems** Lea County Electric Co-op, Inc. **Lebanon Utilities** Lee County Electric Co-op, Inc. **Lemonweir Valley Telephone Company** Liberty Communications **Licking Valley Rural Electric Cooperative** Lighthouse Electric Cooperative, Inc. **Ligonier Telephone Company** Lincoln County Power District #1 **Lincoln Electric Cooperative, Inc.** Lincoln Telephone Company **Linn County REC** Lismore Cooperative Telephone Company **Littleton Water & Light** Logan County Electric Cooperative **Logan Telephone Cooperative Inc.** Lorain-Medina REC, Inc. **Lost River Electric Co-op, Inc.** Lower Valley Energy **Lower Yellowstone Rural Electric Cooperative** Lumbee River EMC **Lyntegar Electric Cooperative, Inc.** Lyon-Coffey Electric Cooperative, Inc. **Lyon-Lincoln Electric Co-op, Inc.** Macon Electric Co-op **Madison Telephone Company**


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Broadband fiber being pulled in by contractors for Co-Mo Connect, a subsidiary of NISC Member Co-Mo Electric Cooperative.

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years of

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Tesla charging station energized by SEMO Electric Cooperative in Miner, Missouri.

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THE POWER OF POSSIBILITY

50 years of Innovation and Member Service

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Morning meeting of Operations staff at SEMO Electric Cooperative in Missouri.

A lineman from Co-Mo Electric Cooperative in Tipton, Missouri, works on an electric line beside a neighboring cell tower.

THE POWER OF POSSIBILITY

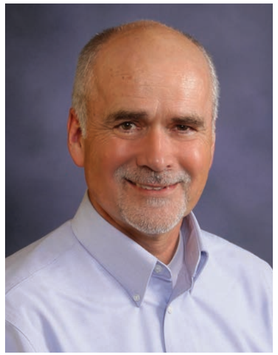
FOREWORD

50 years of **Innovation** and **Member Service**

It is said that "necessity is the mother of invention," and this phrase in so many ways describes the beginning and history of NISC. I think often of the original group of Board Directors who understood that for electric and telecommunication systems across the country to deliver on their mission, they needed to embrace technology with the promise of greater efficiencies and better services for their members and customers.

While it was impossible for those Board Directors in the 1960s to fully foresee the impact technology would have on their industries, they believed in the power of the cooperative business model. And so, the story of NISC – a story of determination, of what it means to be a technology trailblazer and pioneer – began in the most unlikely of places: St. Louis, Missouri, and Mandan, North Dakota. While many technology startups call Silicon Valley home, it is fitting that our technology startup began in the heartland of America and has remained here.

As we celebrate our 50th Anniversary, we marvel at the wisdom of those original Directors, and gratefully acknowledge our present and past Board Directors and our Member systems who have collaborated with us to build NISC and accomplish what many said could not be done. We also humbly acknowledge the many employees who have devoted their entire careers to serving our Members and their colleagues here at NISC.



This milestone provides us a moment to take a brief pause and revisit what has come before. But it's just a brief pause, as we maintain our focus on the future and are excited about the challenges and opportunities it brings. We look forward to continuing to collaborate and work with you to build this technology cooperative and to do all we can to help your organization thrive through changes and deliver quality services.

We hope you enjoy this book as much as we have enjoyed reliving the experiences to capture the story. And we trust the story will stir within you a quiet confidence that, together, we will successfully tackle the future.

Take good care,

Vern

Substation at sunrise. Photo courtesy of Jason Brinkmann.

THE POWER
OF POSSIBILITY

CHAPTER ONE

50 years of NISC
Innovation and Member Service

Power to the People

At dinnertime on the North Dakota prairie, sunset blooms across the big sky, casting a pink and orange glow through the clouds and on the grassy hills and waves of grain. Farmers returning from the fields and workers commuting home are settling in for the evening. They open and close the refrigerator, turn on the oven, switch on lights, check their email. Televisions flicker through their living room windows.

Imperceptibly, in some homes, the water heater shuts off to save energy and the heat pump cycles to a different setting. Early evening is a peak time of power usage, and Verendrye Electric Cooperative in Velva, North Dakota, discounts its charges to customers who allow certain appliances to be cycled off remotely. By lowering the peak, Verendrye creates a more efficient electric grid — which prevents overloaded transformers and delays the need for expensive upgrades or additional power plants.

Keeping the lights on and the world connected is a lot more complicated today than it was when power and telephone lines first stretched across North Dakota and other vast reaches of rural America. But at the same time, everything is more seamless and efficient, thanks to a half-century of technological advances.

Our modern conveniences evolved from decades of innovation, but no one guaranteed the benefits would be spread equally. In the early days of computing, rural cooperatives found a way to stay on the front edge of the information age by pooling their resources. Verendrye was one of four forward-thinking electric and telephone cooperatives that pioneered the first regional data processing center in 1966, which became North Central Data Cooperative in 1968. In 1967, a dozen electric cooperatives formed another regional

A 1964 demonstration of data processing technology, using teletypewriters to store data on punched paper tape.

center called Central Area Data Processing Corporation, and based it in St. Louis. Their mission was to serve co-ops in 14 states.

Those two co-ops merged in 2000 to create National Information Solutions Cooperative (NISC) and gave the nation's electric and telecommunications cooperatives – as well as other utilities, public power districts and independent telecoms – access to technology tools that are truly empowering. Customers are smarter consumers. Utilities are swifter and leaner. If the lights go out, they come back on more quickly. With a few clicks on a keyboard or taps on a tablet, information arrives at the fingertips of people even in remote locations.

> "Every year or every few years, there was a major leapfrog of technology and software. We embraced that. We asked for things we thought were good for everybody."
>
> **– JOHN WESTBY**
> **VERENDRYE ELECTRIC COOPERATIVE**

For 50 years, NISC Members have defined the technology solutions they want and need, and NISC has answered their call. "Every year or every few years, there was a major leapfrog of technology and software. We embraced that," says John Westby, Engineering and Operations Manager, who has been at Verendrye since 1977. "We asked for things we thought were good for everybody."

The role of NISC, today and always, is to figure out how to say yes. New smartphone apps? Better billing options? Different ways to use data? Smoother software integration and functionality? NISC's products reflect the constant effort to respond to – and even anticipate – Members' needs.

"It is easier to create the future than to predict the future," says NISC CEO Vern Dosch, echoing Abraham Lincoln's quote, "The best way to predict your future is to create it." That quest – the dedication of Member-Owners and employees to help shape the electric and telecom industries through technology – is the story of NISC.

Over 14 million people rely on NISC. When they check their energy usage on a SmartHub® app on their cell phones or call to switch their internet and television bundle, they are barely aware of the technology that supports their choices. But NISC never stops thinking about them.

In fact, while the evolution of NISC closely tracks the rise of the information age, its focus from its earliest days has been on ordinary people. People who want access to the latest tools to make their lives better. People who come together, in that quintessentially American way, to solve their common problems.

A consumer served by Decatur County REMC, in Greensburg, Indiana, checks her meter usage through the NISC mobile app, SmartHub.

NISC is a cooperative, which means that it is owned by its customers. In this unique business model, instead of trying to maximize profit for investors or shareholders, NISC works for its Members. Cooperatives are guided by a set of principles that create a kind of economic democracy. Members contribute a per-customer fee to support the enterprise, and they have equal voting rights in setting policies or making decisions.

NISC serves over 800 utility and telecom Members in all 50 states, American Samoa, Palau and Canada, which range in size from 437 customers to almost 300,000. Each Member can participate in advisory committees, request changes in software, learn from one another and NISC staff at the annual Member Information Conference, hear updates and plans at the Annual Membership Meeting and provide input into NISC's product direction. Each year, NISC returns 21 percent or more of its net margin — what other companies would consider profit — to its Members. (From 2014 to 2017, that figure reached 30 percent.)

SHARED VALUES

Empowerment

HOW CAN WE HELP?

The rain began falling Saturday evening, August 18, 2007, a deluge of historic proportions that descended from a stalled thunderstorm over southeastern Minnesota. As much as two inches poured on the town of Rushford each hour, swamping roads and breaching levees on Root River. At 5 a.m., Kaye Bernard's phone rang.

"Kaye, we have a problem," CEO Brian Krambeer told his Chief Operating Officer of Tri-County Electric Cooperative. (After a merger, it is now called MiEnergy Cooperative.)

"I'll be right down," Bernard said, springing out of bed.

"Well, that's the problem," he said. "We don't have an office anymore."

They drove as close as they could to their facility and saw linemen in duck boats, retrieving tools from the warehouse. Water submerged the cooperative's basement and rose three feet high on the main floor. Twenty-five vehicles were engulfed in water — cars, bucket trucks, pickup trucks.

While linemen took trucks from outlying warehouses and began a herculean effort to restore power — leaving behind disastrous flooding in their own homes — Bernard and Krambeer moved to high ground where they could receive cell service. One of their first phone calls was to NISC.

The story of NISC's response illustrates the cooperative's core value of empowerment — the support for employees to make decisions in the best interests of Members. NISC's other core values — integrity, relationships, innovation, teamwork and personal development — played a role as well.

In Mandan, North Dakota, Mike Weber, today Sr. Manager in Member Support, had just turned on the Weather Channel as he fixed waffles for his family's Sunday breakfast. He saw a report about the major storm and thought of the co-op on the river. A few minutes later, his phone rang.

Tri-County needed his help. Bringing electricity back online required more than trucks and linemen. To locate and repair outages, Tri-County needed customer records and outage maps — computer databases from servers that were submerged in water and mud. By Sunday afternoon, Weber and Doug Remboldt, NISC Vice President of Member Support, had grabbed 10 servers, 10 computers and wiring switches from the NISC office to rebuild the Tri-County system. They didn't wait for permission or even think about the cost. They were more concerned about the people of Rushford living without electricity amid one of the region's worst-ever natural disasters.

Weber and Remboldt drove almost eight hours to Rushford, passing homes with mud flowing out the front door and streets warped by the flood-waters. They brought Tri-County back online by Monday evening. On Friday, the co-op was able to cut payroll checks for the folks who had worked so hard to restore power to the town.

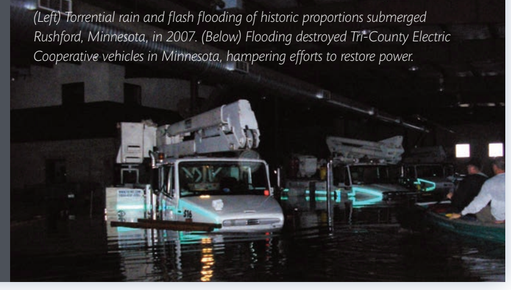
"It was amazing," says Bernard. "They really stood up and helped us recover very, very quickly."

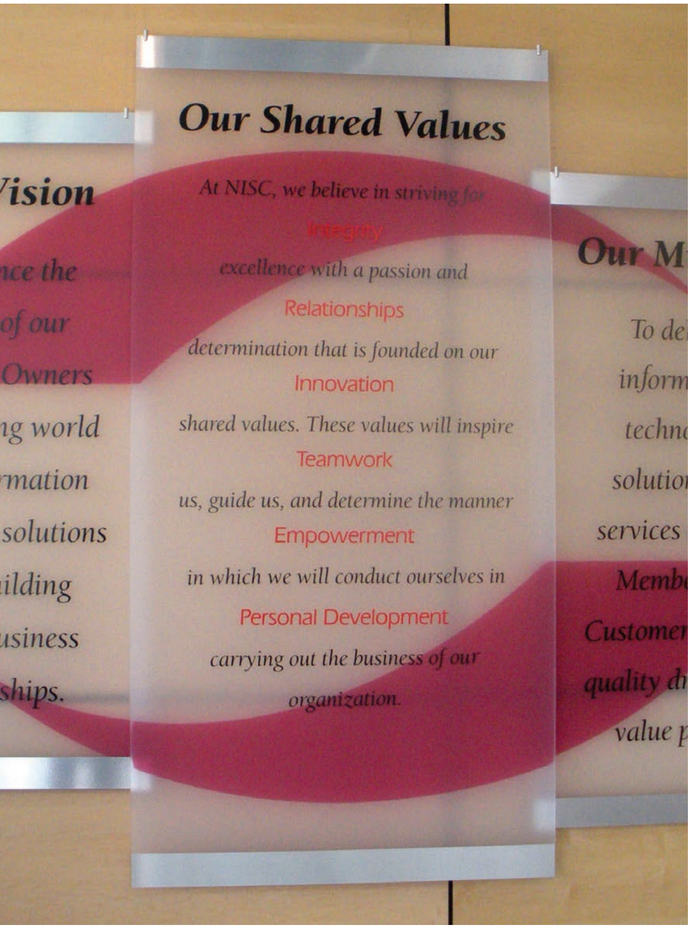
Today, NISC offers a Disaster Recovery service, which provides encrypted data that is backed up nightly and can be accessed remotely by as many as 10 users at a time. NISC employees are still ready and willing to go the extra mile — as Weber and Remboldt did when they played rock-paper-scissors to see who would take the sofa and who would sleep on the floor in Rushford to protect the computers in an unlocked trailer.

They came home at the end of the week, pleased they were able to help in a difficult situation but aware that Tri-County and the town of Rushford still had a huge cleanup ahead of them.

"The work that our Members do is important, meaningful work," says Remboldt. "It's providing a quality-of-life service. We just helped in any way we possibly could."

(Left) Torrential rain and flash flooding of historic proportions submerged Rushford, Minnesota, in 2007. (Below) Flooding destroyed Tri-County Electric Cooperative vehicles in Minnesota, hampering efforts to restore power.





"The world's changing, and we've had to change with it. It's becoming more technology driven," says Don Crabbe, President and CEO of First Electric Cooperative Corporation in Jacksonville, Arkansas, and a former NISC Board member. "NISC is willing and able to help us do that."

Devotion to Members permeates NISC. From the moment they are hired, NISC employees understand that this environment is not the typical corporate culture. "I usually say I work for the Members and report to my supervisors," says Rob Kimpling, a Sr. Technical Systems Engineer.

While some companies encourage a competitive environment, NISC builds camaraderie around a shared goal. "There's a lot of 'we' here and very little 'me,'" says Brian VerDouw, Professional Services Team Lead. "It really feels like a family. Everyone plays a role to find a common solution for Members."

This cooperative model underlies NISC's success. While other software vendors want to create products they can sell to as many different types of users as possible, NISC designs its software to meet specific needs. Integrity, relationships, innovation, teamwork, empowerment and personal development – those shared values form the framework of NISC's interaction with customers and employees.

The cooperative model is an age-old concept. The first

> "I usually say I work for the Members and report to my supervisors."
>
> **– ROB KIMPLING**
> **NATIONAL INFORMATION SOLUTIONS COOPERATIVE**

> "The world's changing, and we've had to change with it. It's becoming more technology driven. NISC is willing and able to help us do that."
>
> **– DON CRABBE**
> **FIRST ELECTRIC COOPERATIVE CORPORATION**

American cooperative – a fire insurance company – was founded by Benjamin Franklin.

But the cooperative model also provides a gateway to the future. In the twentieth century, leaders in rural America saw the power of working together to overcome obstacles. Years before the invention of the first computer, they set the stage for a cooperative path to progress.

In the 1930s, amid the Great Depression and the devastating effects of the Dust Bowl, the rural-urban divide in America was greater than ever. Thomas Edison lit up Manhattan in 1882 and turned it into the city that never sleeps, but 50 years later, 90 percent of rural Americans were still using wood stoves, kerosene lamps and hand pumps for their wells.

As part of his New Deal, President Franklin Roosevelt created the Rural Electrification Administration (REA) in 1935, which offered 30-year loans to cooperative ventures. Sebastian Dosch – grandfather of Vern Dosch, the current CEO of NISC – went door to door to collect $5 from each household in Emmons County, North Dakota, as an investment. The big utility companies didn't want to string miles of line to connect just a few houses; instead the communities were going to have to do it themselves through a cooperative.

Having electricity to pump water and move grain made the family farm financially viable and literally changed life for the Dosches – and for others across rural America. "[Grandpa] talked about when they first placed that yard pole on the farm," says Vern Dosch. "He talked about that first night, being able to read under a light rather than a kerosene lamp."

Throughout the country electric cooperatives wanted a unified voice and representation in Washington, D.C., and in 1942 formed the National Rural Electric Cooperative Association.

Reliable telephone service took even longer to reach the less populous regions of the country, where they were all but ignored by the Bell telephone companies. In 1953, 60 percent of farm homes had no telephone. Some farm communities set up their own party-line systems with a switchboard in someone's home, but others in rural areas had to travel to a country store to use a public telephone. Over time, the lines deteriorated, and callers had to shout to be heard through buzzing, humming or weak connections.

Once again, communities turned to the cooperative model for a solution. Farmers founded telephone co-ops or mutuals, which secured low-interest federal loans to build systems. In 1954, eight rural phone systems formed the National

Precomputer bill calculation on a comptograph, or large adding machine.

Telephone Cooperative Association, which lobbied for federal support for a telephone infrastructure.

When electricity came, rural Americans quickly learned the value of a kilowatt-hour. They kept track of how much energy they used — especially since they often read their own meters and figured out their own bills. Customers of Verendrye, for example, paid a minimum of $3.50 plus 7 cents tax for 40 kilowatt-hours per month, and many of them used electricity sparingly to

continued on page 12

FOUNDERS FACED CHALLENGES THE COOPERATIVE WAY

Whatever the problem, it can be solved by people coming together to support each other. The founders of NISC's predecessor organizations believed in the cooperative way and lived that creed, inspiring rural communities to invest in themselves and each other.

"If we work together in mutual understanding for the common good, then we need have no doubts or fears of the future," J.K. Smith, a Kentucky cooperative leader and one of the founders of Central Area Data Processing Corporation, said in a 1970 speech.

Leland "Chub" Ulmer of Mandan, North Dakota, saw co-op work as neighbor helping neighbor. "Growing up, I learned compassion. I wanted to help others and not sit on the sidelines," he told a reporter with the *Mandan Pioneer*.

By 1963, American businesses were gaining efficiencies from computers, and rural cooperatives didn't want to be left behind. Basin Electric Power Cooperative in Bismarck, which generated power for rural distribution co-ops, offered the services of its comptroller, Arnold Ketterling. Ulmer worked with Ketterling to establish the Electronic Data Processing division of the North Dakota Association of Rural Electric and Telephone Cooperatives, the first of its kind in the country.

Ulmer had a larger-than-life persona. When he returned from service in World War II, where he earned a Purple Heart and Bronze Star for his bravery, Ulmer opened Mandan's first drive-in restaurant. His slogan: "Ulmer's Kitchen — Seats 10,000, 20 at a time!"

He became a lawyer and turned his passion toward cooperatives, finding others just as dedicated, including Leon Birdsall, a farmer who was an incorporator of Basin Electric and director of Verendrye Electric Cooperative in Velva, North Dakota; George Cornog of KEM Electric; Clarence Welander, Chairman of the statewide association; George Jackson from BEK Telephone Mutual Aid Corporation in Steele; Ransom Knutson from Consolidated Telephone Cooperative in Dickinson and Tom Henderson from Nemont Telephone Cooperative in Scobey.

"They had no motive of self-wealth or anything to come from this. They just did it because it was the thing to do," recounted Ralph Birdsall, Leon's nephew, who later also became a director at Verendrye, in a tribute to his uncle.

The North Dakota statewide spun off EDP as North Central Data Cooperative, and the NCDC Board honored the founders' "tireless and pioneering efforts."

Meanwhile, in Kentucky, J.K. Smith similarly kept to the cooperative way. He was only 21 when he became General Manager of Fleming-Mason Rural Electric Coop and brought electricity to eastern Kentucky.

In the 1960s, Smith founded and led the Kentucky statewide, and when the co-ops had trouble borrowing money, he led a process to help create the National Rural Utilities Cooperative Finance Corporation (CFC). He even brought used electrical equipment to Ecuador and set up a rural electric cooperative there.

In 1966, he looked to ERMCO, an organization of the statewide associations of Kentucky, Arkansas, and Wisconsin, to organize a regional data processing center for the central United States. The vision of a "total management information center" would succeed only if the resources of many Members could be harnessed. "Expensive computers must be kept busy if we are to realize all possible benefits," he said.

A year later, Central Area Data Processing incorporated in St. Louis to serve 14 states. Cooperatively, they had entered the computer age. Smith's legacy extends into the high-tech era of NISC today. "You have to anticipate the future. You have to be ahead of it," Smith once said. "Start with people — it's a people program."

Pioneers in data processing in North Dakota review mainframe information. Left to right: Ed Grange, Holy Cross Electric; George Donaldson, Sheridan Electric; Ransom Knutson, Consolidated Telephone; Maynard Christensen, Dakota Co-op Telephone and Charles Gelsinger, 3 Rivers Telephone.

Becky Ivester, a SEMO Electric Cooperative Field Technician, records meter information using NISC's iVUE AppSuite™.

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stay within that limit. (That wouldn't come close to powering even one day's use for an average refrigerator today.)

Lillian C. De Krey, a Verendrye employee, took the customers' money and copied the meter readings onto file cards. If she needed to do any significant calculations, she used a hand-cranked adding machine. People who didn't come by to pay their bill or mail it in saw their name in the "doghouse" section of the monthly newsletter, which was printed on a mimeograph machine and mailed to homes.

Clearly, this system wasn't sustainable, even for a small cooperative. Large utilities, banks and other businesses already were using technology to take the place of labor-intensive manual accounting and billing. Some cooperatives began installing automated adding machines or rudimentary data processing, but the future lay with computers.

On April 2, 1965, *Time* magazine's cover featured a drawing of a humanoid computer with a banner heralding "The Computer in Society." In July 1966, the *Saturday Review* magazine declared that computers were ushering in a turning point in human history. A mainframe then cost $300,000 or more (about $1.8 million in today's dollars – an investment far beyond the capacity of most rural electric and telephone cooperatives), plus required the expertise of a programmer – also difficult to find.

The path was obvious to leaders of the co-ops. They would need to band together. Clyde Ellis, General Manager of the National Rural Electric Cooperative Association (NRECA) and a man so committed to spreading power across America that he became known as Mr. Rural Electrification, exhorted co-ops to move collectively into the computer age.

"Involvement. This is our key to the future," Ellis said at a conference of the Rural Electrification Administration. "As I see it, you, as rural electric leaders, must take this key of involvement and use it to help bring our 1,000 rural electric systems into this marvelous future unfolding before us."

As he spoke, in September 1966, the North Dakota statewide associations serving rural electric and telephone cooperatives had already set up Electronic Data Processing (EDP) as a shared data processing center, charging Members in several states 11.5 cents per customer to handle billing and record keeping. In St. Louis in 1967, co-op leaders from Kentucky, Arkansas and Wisconsin began to plan for a shared data processing center, then expanded their effort to include 14 states in a venture that became Central Area Data Processing Corporation. The NRECA actively encouraged the creation of other regional data processing centers as well and worked to bring common systems design, programming and a plan for the centers to evolve to being "total management information centers."

"Throughout history we have looked at a problem and found a cooperative solution to it," says Martin Lowery, NRECA's Executive Vice President for External Affairs.

This forward march into the modern era sounds like destiny. But the electric and telephone co-ops were moving out of their comfort zone into a world with its own language, protocols, hardware – and risks.

Arnold Ketterling, Manager of EDP, proved that data processing could make cooperatives more efficient. Unfortunately, it wasn't yet financially viable. When EDP transferred its assets and debts to the newly formed North Central Data Cooperative (NCDC) in May 1968, NCDC inherited 39 Members in nine states with approximately 103,000 accounts. The mainframe cost $6,000 to $7,000 a month – more than all the NCDC staff salaries combined – and the costs outweighed revenue.

"The cash position of NCDC is causing serious problems and demands prompt attention to prevent serious consequences," a finance report to the Board stated. By March 1969, NCDC had raised its per-customer rate to 25 cents and considered expanding its applications to include payroll, inventory, work orders, pole surveys, load flow analysis and other operational and accounting needs.

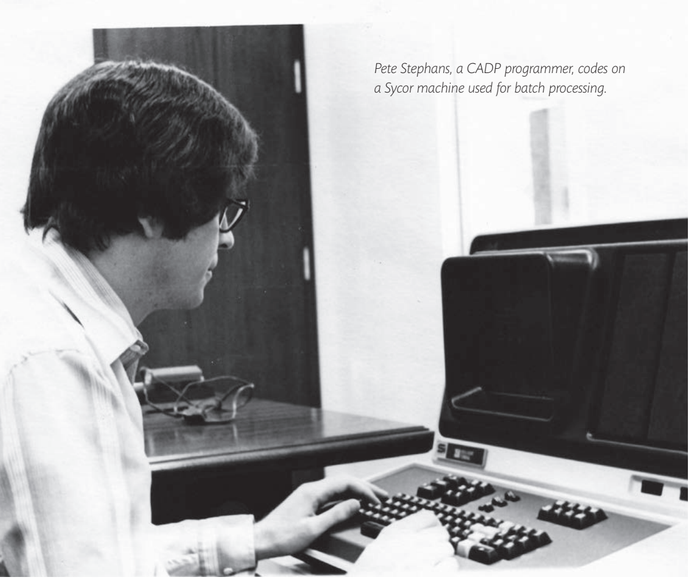
NCDC's founders knew it was vital for this fledgling enterprise to succeed. "The regional computer is the modern tool that makes for better service to all cooperatives, both large and small, and we have served the man at the end of the line much fairer and more efficiently," Board President Clarence Welander said at the company's first Annual Meeting. "This is a modern tool that is here to stay."

On June 6, 1967, about 800 miles away down the winding Missouri River, 48 people from 10 states met in the Chase

Arnold Ketterling, Manager of the Electronic Data Processing division of the North Dakota statewide, helped establish NCDC.

Park Plaza, a majestic, art deco–style hotel in midtown St. Louis. They agreed to move forward independently from their state electric cooperative associations, proceeding with a $25,000 feasibility study NRECA had completed that would help define their "total management information center."

About two months later, they formed Central Area Data Processing Corporation, charging Members $1 per customer account as a start-up fee. Ten cents of that was nonrefundable, and 90 cents represented a five-year loan, to be paid back with 3 percent interest. They hoped to raise $200,000. Jim Lockley, a pioneer in data processing, moved



Pete Stephans, a CADP programmer, codes on a Sycor machine used for batch processing.

from EDP to take the helm at CADP. Larry Estal, who retired in 2014 after 45 years with CADP and NISC, recalls Lockley as "a gentleman who could motivate people even when you felt 'there is no way in the world we can do this.'"

February 14, 1964, on "The Twilight Zone," a popular futuristic television show: A programmer arrives to fix a computer that is spewing paper tape. After making it run again, he begins to converse with "Agnes," asking for advice about his love life – until he discovers that the computer has fallen in love with him.

June 1, 1968, in a new building on a hill outside Mandan, North Dakota: A computer operator places a deck of punch cards into the Burroughs mainframe, loads reels of paper tape and waits hours for it to run. If it becomes hung up or the paper tape tears, the operator tries to fix it without a late-night call to the programmer, who's on call 24/7.

Real life is not nearly as romantic as the cinematic version. Early mainframes took up an entire room, with a processor, console operations and tape drives. They held about 20,000 bytes of memory – compared to 32 billion bytes in the base version of an iPhone 7. They generated enough heat to warm a small building, needed continual cooling and required operators to monitor the input and output around the clock.

Throughout the workday, clerks at Member offices typed billing information into a teletypewriter machine, which created punched paper tape used to transmit meter readings, payments and other billing information through a phone line. At a predetermined time, the clerk dialed into the data processing center and transmitted data at about 100 words a minute.

A teleprinter received the information and produced punched paper tape as well as a printed readout. An operator then fed the tape through the computer. The mainframe clicked and lights blinked as it calculated bills, checked for delinquencies and updated customer accounts. The billing information was stored on magnetic tape, and postcard bills were shipped back to the Members, often by bus, for mailing.

With each new Member, a programmer wrote new computer code on paper. A keypunch operator keyed it onto

OPTIMISM POWERED GROWTH AT CADP AND NCDC

A Million Live in '75. When CADP General Manager Jim Lockley set a goal of adding enough Members to reach 1 million metered customers, he captured the sense of optimism and teamwork that would catapult the co-op into the future.

It became a sort of rallying cry. By growing steadily, CADP could upgrade and add services while keeping per-Member costs low. CADP purchased a new Univac 90/60 mainframe in 1975 and was constructing its own building in St. Peters, a suburb of St. Louis.

"There was a persistent move to fulfill the initial objective of a total management information system," Board member Mike McBride said in a CADP retrospective. "The move to do that was a relentless, never-ending struggle. One of the keys to CADP's success was the passion to grow."

A similar focus on growth propelled NCDC, although it was smaller in size. On its fifth anniversary in 1973, NCDC ordered a new Burroughs B-1728 mainframe, placing the co-op "on the ground floor of the latest technology available," Manager Ben Reem reported at the Annual Meeting. The next year, NCDC recorded a positive net margin and returned to Members its first capital credit refund (the Members' share of the net margin).

Technically, the regional data processing centers were collaborators, not competitors, working by way of a gentlemen's agreement on which states each would serve. But the need for growth caused some friction. In 1972, NCDC learned that CADP had drafted a proposal for data processing services for a co-op in Iowa.

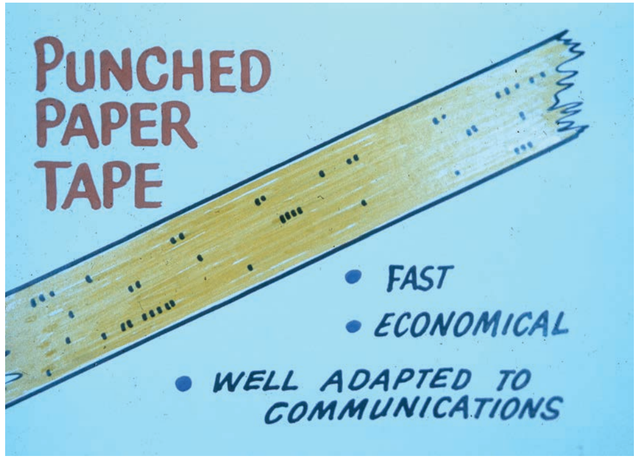
The NCDC Board of Directors sent a letter to the CADP General Manager and Board noting that Iowa was in NCDC's service territory. "With all of the forces which have arisen along the line to deter the success of the Regional Center concept, we cannot afford to be put into a position of distrust and competition amongst each other," they wrote.

Through a lawyer, CADP said it "certainly has no intention of doing anything to weaken any other center." Such limits would violate antitrust law, the lawyer said. While CADP wouldn't solicit co-ops in other regions, it wouldn't deny them service, either.

NCDC and CADP continued to collaborate – and to compete. CADP did not reach "a million live in '75," instead attaining that milestone two years later in 1977. And by 2017, NISC served more than 800 Members representing over 14 million end customers, adding more than 1 million customer accounts in 2016 alone.

"I don't think there's ever been a time in the almost 43 years I've been [at CADP and NISC] that I wasn't optimistic about the company," says Industry Consultant Linda Bass.

Like all mainframes in the 1960s to 1980s, the Sperry Univac 90/60 processor was large but held limited memory.



Punched paper tape captured the data that Member sites transmitted via phone line to NCDC or CADP. It could then be processed by the mainframe and stored on magnetic tape.

cards, which ran through the mainframe. A single program could have as many as 320 cards, which had to be kept in perfect sequence.

CADP's first programmer, Terry Tuttle, moved to Washington, D.C., and worked alongside NRECA staff, including John Mathews, to design and write billing code. Mathews would later work for CADP as a programmer and then field coordinator, eventually serving as General Manager from 1977 to 1980.

Even with the help of NRECA, CADP programmers spent a year and a half writing the code for their first customer, Shelby Rural Electric Cooperative Corporation in Shelbyville, Kentucky. Tuttle, Larry Estal and fellow programmers worked 12-hour days, seven days a week, for months. When the time finally came to run the billing, they manually checked some calculations to make sure the bills were accurate.

"It was pretty exciting to see those first bills roll out," says Estal. "We had a little celebration and all went home for some sleep."

Adjusting to the new technology wasn't easy for Members, either. The first conversions were slow and labor-intensive. Shelby's first bills arrived two or three days late. If the paper tape tore as it was processing, a CADP computer operator called someone from the Member site at home to come into the office and resend the information. If the computer code wasn't working properly, a programmer would try to fix it with a "fat finger," making changes directly on the mainframe.

To complete telephone bill calculations, NCDC received magnetic tape from regional Bell companies, detailing monthly long-distance charges – another potential cause of delays. Each time electric rates changed, NCDC and CADP needed to write new code. The energy crisis of the 1970s sent programmers into overtime, as oil prices rose 350 percent in 1973 alone.

"We owe our friends in rural America a lot for their patience in the process," says Estal.

In 1965, Gordon Moore, co-founder of Intel, made a prediction that became known as Moore's Law: The number of transistors that fit on a silicon chip would double every two years. In other words, computing power would rise exponentially as costs declined.

He proved to be right. Computers became much more powerful and less expensive, but keeping up with advances required new investments. A year after incorporating, NCDC

NCDC's mainframe ran bill calculations throughout the night.

upgraded to a newer Burroughs mainframe and added a microfilming service for Member records. Co-ops could buy a new terminal to connect to the mainframe and transmit data more quickly.

CADP upgraded to a new mainframe in 1970, one with 10 times more memory than its initial IBM 360. A year later, some Member sites began using Sycor terminals to transmit data, giving them some modest computing power (with cassette tapes or 8-inch floppy disk drives, which were a big improvement over paper tape). Struggling to finance the upgrades, CADP reached out to the National Rural Utilities Cooperative Finance Corporation (CFC), a cooperative lender spearheaded by CADP incorporator J.K. Smith.

"I never did question [if CADP] would make it, but it was also more difficult than I think we thought it would be," Lloyd McCormick, a CADP founder and Board member, recalled years later.

NCDC also faced challenges. In 1978, a group of employees, unhappy about a lack of raises, promotions and computer upgrades, took steps toward forming a union. Twenty-nine of the 40 employees signed and sent a letter to the Board of Directors and all Members demanding the resignation of the general manager, and they walked out indicating they'd resign if their demands weren't met. One later rescinded his signature and came back to work, but the Board stood by the general manager and accepted the notice as the resignation of the others. The remaining 11 managers and employees worked 12-hour shifts to keep things going.

"Naturally, the Members were nervous and didn't know if we would survive, and neither did we," says Duaine Ternes, who retired in 2013 as a Sr. Industry Consultant after 42 years with NCDC and NISC. "That would have been a perfect time for [Members] to leave. They didn't. They stuck with us."

Eight months later, the Board named a new General Manager, Ray Clouse, then NCDC Services Representative. Some employees eventually reapplied for their jobs and were rehired. NCDC rebuilt its staff and moved forward.

Across the country, early information technology companies were like shape-shifters – merging, diversifying, collapsing, re-creating. How did NISC's predecessor companies withstand the volatility? They could always count on the loyalty of their Members.

NCDC spent more than a decade in space it rented in Mandan from the North Dakota associations of rural electric and telephone cooperatives (known as "statewides"). It desperately needed to expand, so in 1982, General Manager Ray Clouse went hat in hand to Washington, D.C., to ask for a loan from the REA.

> "It was pretty exciting to see those first bills roll out. We had a little celebration and all went home for some sleep."
>
> 
>
> **– LARRY ESTAL**
> **NATIONAL INFORMATION SOLUTIONS COOPERATIVE**

REA loans typically supported distribution co-ops, not data processing centers. But instead of saying no, the REA administrators told Clouse he would need to receive a 10-year contract for IT services from *every* Member. Amid the near-constant transformation in computing, it was unimaginable that any customer would sign a contract guaranteeing that they would not change their technology vendor for 10 years.

"It was a challenge, but it was a challenge that I really liked to take on," says Clouse, a former programmer who, as it turns out, was also a born salesman. "There was nothing I enjoyed more at that time in my life than to go into the co-ops and convince them."

Ransom Knutson, a founding director of Consolidated Telephone and an incorporator of NCDC, was by his side when Clouse returned to Washington with the contracts – plus 10 extra from new Members. "We had everybody. We had electric. We had telephone. We had all of them," says Clouse, still relishing the memory of the surprised reaction he received.

Today's rural electric and telecom managers can't imagine a time when electric and telephone lines bypassed rural America or when technology for their billing, accounting and engineering functions wasn't readily available. But today, Members of NISC know that they can receive better service from one of their own than they can from a huge software company that sells off-the-shelf products. Loyal electric and telephone cooperatives shaped the early history of NCDC and CADP. Now, joined by power utility districts, municipals,

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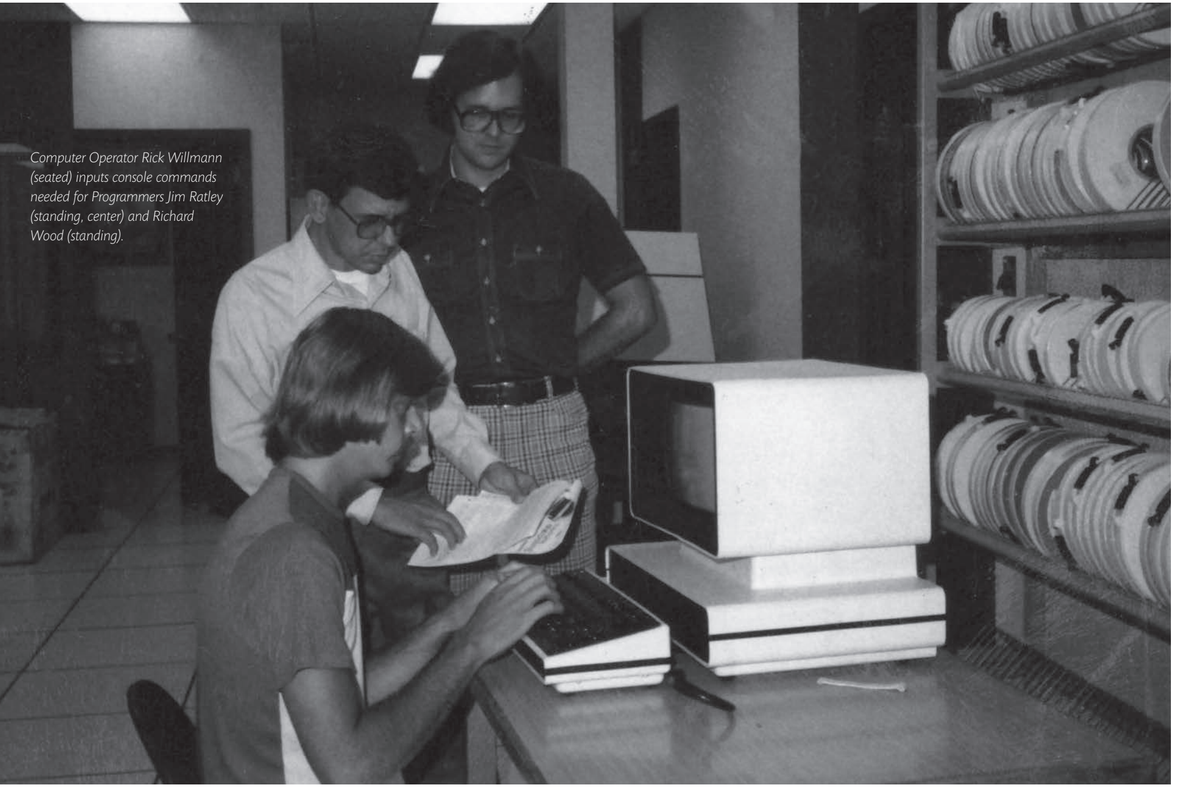
In a turning point for NCDC, Ray Clouse, NCDC Services Representative and then General Manager from 1979 to 1992, received 10-year commitments from Members, which enabled him to secure REA loan funds in 1982.



Computer Operator Rick Willmann (seated) inputs console commands needed for Programmers Jim Ratley (standing, center) and Richard Wood (standing).

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independent telecom companies and others, they continue to influence the trajectory of NISC.

Member-owners "steer our own ship," says Bruce Carlson, who retired in 2016 after 22 years as General Manager of Verendrye. "That's why we love the cooperative model."

WIRED DIFFERENTLY FOR SERVANT LEADERSHIP

In a nook of the NISC Lake Saint Louis office, employees can pull a book from a shelf, sink into a soft chair and reflect on how to build a successful business, with advice from inspiring leaders: *Good to Great. In Search of Excellence. The Speed of Trust. The Seven Pillars of Servant Leadership.*

NISC has a unique story of service and success, and in 2015, the company added its own edition to the shelves. *Wired Differently*, written by CEO Vern Dosch with retired General Counsel Wally Goulet and Tracy Finneman, tells about a cooperative culture that defies the stereotypes of the often-cutthroat technology industry. Dosch describes it as "a sugar-free chronicle of NISC's highs and lows and a perspective on how a business, a leadership model and a workplace culture produce positive results in a competitive IT marketplace."

In many ways, *Wired Differently* describes a business built on a paradox — a nonprofit, cooperative company committed to "servant leadership."

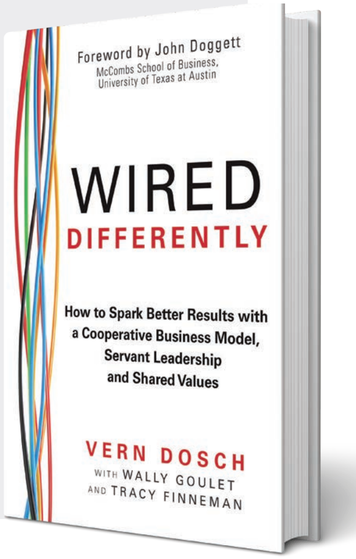
"When you say 'servant leadership,' it sounds like an oxymoron," says Goulet. "Leadership is usually top down." But NISC is proving that the concept can work. "We believe in serving our Members, and we're very collaborative as a management group," he says.

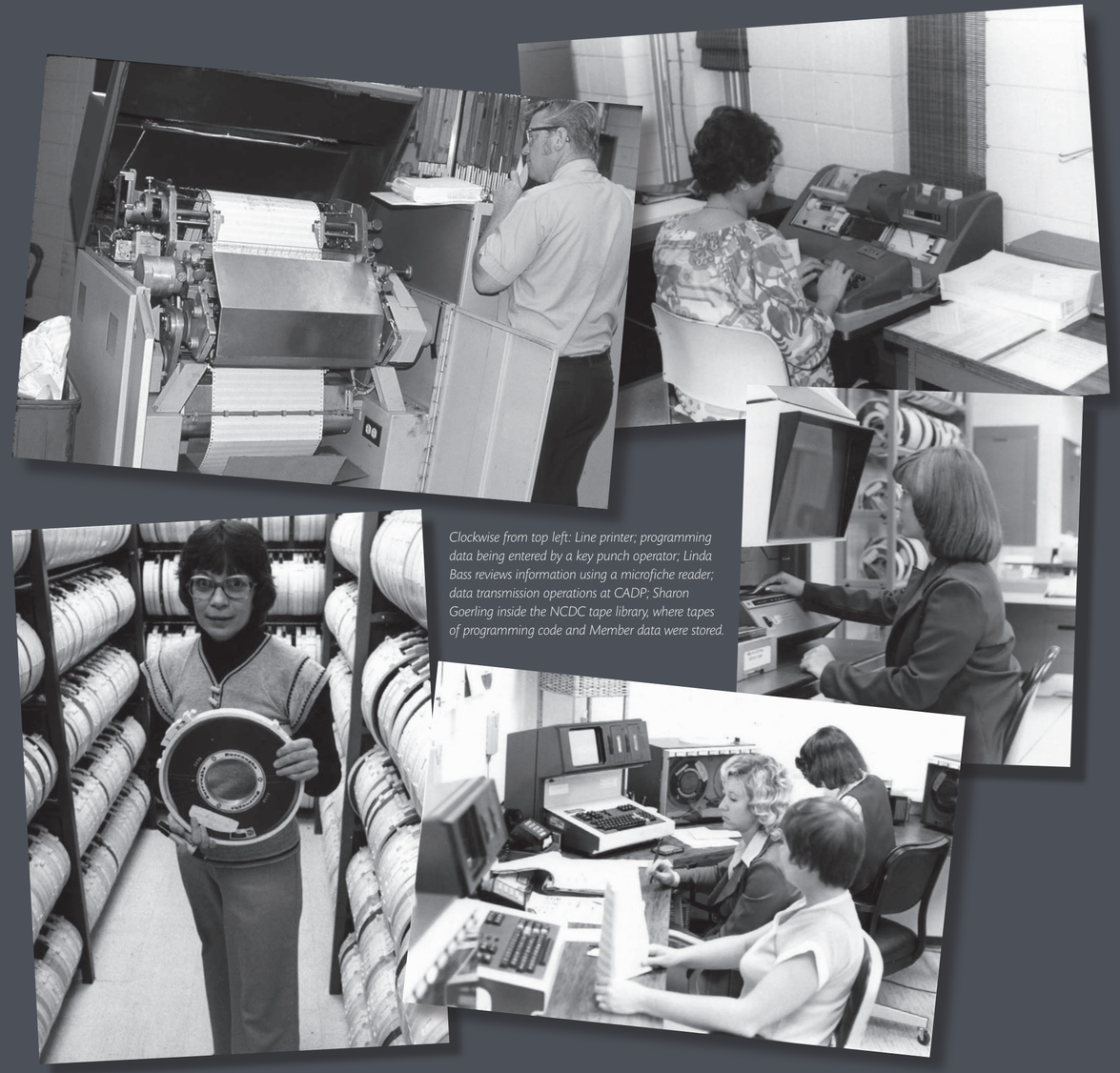
Important moments in its history illustrate elements of the cooperative model and servant leadership. For example, NISC formed in 2000 when two competitors merged. The company defended a Member in a lawsuit even though its contracts explicitly protected NISC from liability. Its Board declined a lucrative takeover offer. In each case, NISC's leaders chose service to Members over short-term financial gain.

By explaining the business philosophy at the heart of NISC, *Wired Differently* helps preserve the company's culture. The book drew from blog postings Dosch wrote to employees in which he used anecdotes to explain NISC's values and principles. Close to 10,000 copies have been distributed, including 5,600 sold in print, e-book or audiobook formats. All book sales go to the NISC Benevolence Committee, an employee-administered program to assist employees in need.

Wired Differently inspired a capstone course called Practical Business Applications of Servant Leadership in the Gary Tharaldson School of Business at the University of Mary in Bismarck, North Dakota. Dosch, Finneman and NISC leaders shared the cooperative principles and best practices.

"Their message was just phenomenal," says Kevin Fishbeck, Professor of Information Technology, who coordinated the capstone course, a required, advanced-level seminar that links theory to practice. Students learned about a management style that empowers employees to do their best for their customers. And the students were surprised to know about the national IT company across the river. "They didn't know this was happening in Mandan, North Dakota," Fishbeck says.





Clockwise from top left: Line printer; programming data being entered by a key punch operator; Linda Bass reviews information using a microfiche reader; data transmission operations at CADP; Sharon Goerling inside the NCDC tape library, where tapes of programming code and Member data were stored.

In the 1970s, Mike Jankowski and Jane Robon work in computer operations in CADP mainframe computer room.

TECHNOLOGY | THEN AND NOW

COMPUTER PROCESSING

then — mainframe era

Two forms of processing methods were available: batch processing – transmissions occurred at a prescheduled time each day, and online processing – mainframe was accessed for inquiring and transmitting data throughout the day. Required special rooms to support air conditioning and air purity needs. Featured raised floors for underlying cables.

1967-1998

then — in-house systems

Introduced minicomputer systems, essentially small mainframes, at Member sites, enabling Members to perform most of the day-to-day processing functions.

1980s-2003

now — servers, virtual machines, cloud

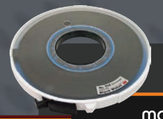
Members choose between an on-premise installation, using either physical or virtual servers, or an Application as a Service Provider (ASP) configuration, where the server resides at NISC.

Servers are replaced on 3 to 4-year cycles to take advantage of changing technology. Hardware is a fraction of the IT costs versus historically being the highest expense.

Virtual machines allow sites to use a virtual infrastructure to host multiple environments, allowing for flexibility in assigning resources, moving resources and allowing redundancy. Virtual configurations reduce the need to manage multiple servers.

The NISC Cooperative Cloud contains over 360 billion data points and supports the Meter Data Management System, SmartHub, AppSuite, iVUE Connect, Mosaic and additional needs.

MEMORY & DISK



then — mainframe era

Early mainframes held as little as 24K of memory. Last mainframe upgrade included 48MB of memory costing $45,650 – and that was used memory!

1967-1998

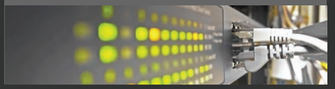
then — in-house systems

Average-sized configuration – 4GB of memory, 108GB of disk storage.

1980s-2003

now — servers, virtual machines, cloud

An average-sized Member's server includes 32GB of memory and 1.2TB of disk storage.



PROGRAMMING & DEVELOPMENT

then

Written code submitted to a keypunch operator who "punched" the code on cards which then comprised the program.

Into the late 1970s, terminals were shared among several programmers and only used when ready to enter their code. Code was then printed on line printers with green bar paper and reviewed for possible syntax or other errors before submitting for processing.

now

A range of development tools depending on an application's or system's requirements and the device or technology on which it will be used. Laptops and remote connect capabilities enable developers to code and troubleshoot wherever – and whenever – they need.

SOFTWARE

then

Focused on "back office" functions, primarily consumer billing.

Added payroll, material inventory, accounts payable and other systems to support accounting functions.

By the late 1980s, released early versions of mapping and outage software.

Legacy solutions included Customer Care and Billing – Utility, Customer Care and Billing – Telecom, Accounting and Business Solutions, Outage, Mapping, Staking Sheet, E-Bill and CABs.

now

iVUE, first released in 2003 and included 6 million lines of code, offered a complete enterprise solution on a single technical platform beginning in 2008. Today, it encompasses over 25 million lines of code.

Entered "app" market in 2011 with SmartHub, initially for pairing with the NISC Meter Data Management System and allowing end consumer checking of usage. Advances in online payment options helped expand SmartHub functionality to support a multitude of end consumer needs.

Further expanded into smartphone and tablet options with AppSuite, first meeting engineering needs in the field and then later extended to other enterprise needs.

There are more than 20 solutions available today.

DATA ENTRY

then — at member sites

Used terminals for entering data and later to inquire the mainframe.

Displayed green alphanumeric and a few special characters on a black screen.

One model used for many years displayed up to 9 lines of 64 characters and weighed from 85 to 107 lbs. Used either cassette tapes or 8-inch floppy disks.

In the 1970s, one terminal, printer and modem cost approximately $12,500.

now — at member sites

Advanced processing at the end user level, graphical displays and other options for entering and interactively working with data.

Desktop PCs, virtual machines, laptops, tablets and smartphones used.

INFORMATION, PAYMENTS & TIME ENTRY

then — at member sites

Utility – Obtained readings through "self-read" meter cards mailed to the rural electric. In the 1980s, interfaced hand-held meter reading devices. Meter readers read "routes" of meters and transferred readings.

Telecom – Received call detail records via magnetic tapes mailed or data transfer using modems. Data transfer could take many hours.

Received payments through mail, drive-up windows and front counters. Added bank draft options in the 1980s.

Submitted handwritten time sheets to Payroll staff for entering.

now — at member sites

Utility – Gather meter readings up to every five minutes through smart meters.

Utility – Store smart meter data in NISC Meter Data Management System in the Cooperative Cloud, providing detailed information for analysis, system planning and end consumer information.

Receive cash, check and credit card payments through website, smartphone, phone call, bank draft, kiosks, locations accepting MoneyGram or Fidelity Express and in-person.

Enter time in Employee Self-Serve or AppSuite.

Doug Remboldt helps a Member with implementation and software functionality at their site in the early 1990s.

THE POWER
OF POSSIBILITY

CHAPTER TWO

50 years of Innovation and Member Service

A Partnership Built on Trust

Hundreds of pages of paper need scanning at Great Plains Communications in Blair, Nebraska. The repetitive action saves minutes that add up to hours, turning slips that could easily be misplaced into electronic images attached to customer accounts. A simple click retrieves every bill or notice or service order. No more searching manually through file drawers. NISC's Document Vault™ software enables a seamless, paperless process.

But just as waiting 30 seconds to load a webpage can seem like an eternity, setting up each scan feels cumbersome, says Nick Johnson, Great Plains Systems Engineer. Check stubs take up a half-page. Some bills or purchase orders have a front and back. Employees in different departments must repeat the same steps to set up the templates for their scanners.

Johnson couldn't help but think that a tweak to the software would make the process quicker. He would never have reached out to Microsoft or Apple or any other software company about a minor annoyance, but NISC is different. He sees NISC as a partner, in the truest sense of the word.

"As soon as I start implementation, I always tell them [Members], if there's something you find in the software that doesn't meet your needs, and you think it would be better for other Members too, you can bring it to my attention for an enhancement request," says NISC Professional Services Consultant Michelle Gangl.

Taking Gangl's words to heart, Johnson suggested a way to create scanning templates that could easily be shared among employees and across departments. Gangl presented the idea to a Change Review Committee, a group of programmers and subject matter experts on Document Vault, and they agreed. A few months later, a software update provided group

Member Advisory Meetings are just one way that Members provide input into the design of NISC products.

> "We're just the caretaker of their ideas. It's our job to put their ideas into software."
>
> **– DAN WILBANKS**
> **NATIONAL INFORMATION SOLUTIONS COOPERATIVE**

templates in Document Vault – a feature that is now available to every Member.

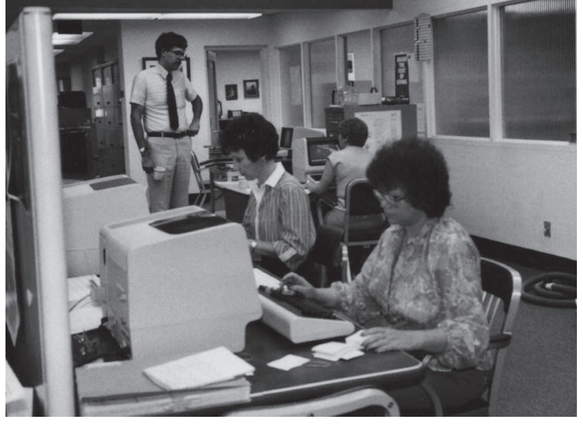
"We're just one little percentage of their [Member base], but we have been heard," says Johnson. "It keeps us believing in the product that we are working with day in and day out."

In the cooperative model, decisions are based on what works best for Members, who are all equal co-owners. A scanning template may seem insignificant next to paradigm-shifting innovations such as mobile applications and cloud-based computing, but the same concept applies: NISC is guided by the quest to meet Members' needs, whatever they are.

Sometimes the input is formal, such as at an Advisory Committee meeting. Other times, it comes up in a conversation between a Member and an NISC employee. No matter how it originates, that connection between the end-user and the technology team produces solutions that work, says Dan Wilbanks, Chief Operating Officer and Vice President of Research, Development and Quality.

"We're just the caretaker of their ideas," he says. "It's our job to put their ideas into software." Traditional software companies keep their ideas secret until they are ready to release a product. "That's not the way we do things," says Wilbanks. "We involve Members and show them software early and often."

That interaction has shaped the evolution of NISC. The commitment to serving Members led to the biggest moment in its history – the merger of two technology companies into one stronger enterprise that was ready and able to innovate.



Left: Marty Nester (standing) of CADP provides assistance to Eastern Illinois Power Cooperative (EIPC) staff on the first implementation of the CAPS system.

Right: Dave Fricke oversees the conversion to CAPS at Eastern Illinois Power Cooperative (now Eastern Illini Electric Cooperative). General Manager of EIPC and a Board member of CADP, he later worked for NISC and retired in 2013 as Manager of Engineering and Operations.

A green cursor blinks — glowing, rhythmic, impatient. Hold down Ctrl-Alt and a function button to switch screens. Tab, tab. Type in a customer payment. Hit Enter. And repeat.

The Sycor 350 terminal looks like a boxy, oversized personal computer. In 1977, it represented an advance in computing, but like other terminals of its time, it offered very limited functions.

In 1983, the year Apple released the Lisa computer and Microsoft launched its Word software, CADP took its own leap forward with the new Cooperative Attached Processing System (CAPS). When Eastern Illinois Power Cooperative (EIPC) in Paxton became the first beta site, CEO and General Manager Dave Fricke knew there would be some bumpy patches, but he was eager to gain in-house capability. For the first time, with data housed on minicomputers, the co-op could look up customer payment history and print reports. EIPC (which is now Eastern Illini Electric Cooperative) even began printing its own bills, which gave the co-op more flexibility to make last-minute changes before the bills were sent.

With the new technology, EIPC became more responsive to customers — but the advantages came almost as a surprise. "We couldn't envision how technology would really help that much. We couldn't appreciate what we didn't have until we had it," says Fricke.

"It's kind of like having a TV set now without having a remote. When you had to go to the TV to change the channel, you didn't know a remote would make your life easier. You didn't know what benefits could come down the road," he says.

At the same time, CADP wanted to improve the communications between the data processing center and the Member sites that wanted to stay in an online environment. Pre-internet communication in the 1980s was slow and expensive. CADP provided dedicated landlines, but the burdensome costs had to be passed on to Members.

SHARED VALUES

Integrity

A LAWSUIT AND A QUESTION: WHAT IS THE RIGHT THING?

Ken Sugden, then General Manager of Flathead Electric Cooperative, still remembers when the registered letter arrived like a stray bullet, a shocking and potentially destructive missive. Sent from a Chicago law firm to Flathead in Kalispell, Montana, in October 2005, the letter claimed patent infringement related to electronic billing.

Emergis Technologies, a Canadian firm, wanted a fee of upward of $250,000 *annually* for a license to allow Flathead customers to pay their utility bills online. It claimed a patent on "electronic invoice presentment and payment" — or the process used to transmit payments electronically. NISC had developed and provided the e-billing software, but the user — Flathead Electric — was the one on the hook for any patent infringement. NISC's contract made the situation even clearer: A disclaimer protected the company from any potential liability associated with the software.

This wasn't a random event. Emergis had a strategy of monetizing its e-billing patent and targeted utilities around the country, including five other NISC Members. Even hiring a patent lawyer to research and defend the case was unbelievably costly, so the threat — followed quickly by patent infringement lawsuits — felt like an ultimatum.

"For an electric co-op — holy smoke, we don't want to spend millions of dollars defending this thing," says Sugden, who has since retired from Flathead.

The co-op's lawyer suggested contacting NISC CEO Vern Dosch to see if other Members had received a similar letter and might join forces. Dosch conferred with NISC General Counsel Wally Goulet and then with the NISC Board of Directors.

The patent-related legal issues were complex, but NISC's most important underlying value was simple: Have integrity. Do the right thing, always. Although NISC had no legal responsibility, Dosch brought a proposal to the Board to take over the patent infringement case.

"We have to protect our Members," he said. "Let's put up one legal defense against this. Let's not have our Members trying to win this battle by themselves."

The Board unanimously agreed.

Sugden, who just thought NISC might coordinate co-ops facing a similar threat, was relieved. "It was above and beyond what we hoped when we first called them," he says. "They just literally took the whole thing over."

NISC stood behind its product and protected its Members — at a substantial price. The company joined a consortium of other utilities fighting Emergis, but legal fees still accrued at a rate as high as $40,000 in a month. Patent attorneys produced a 100-page report that concluded there was no patent infringement. Yet even prevailing in a successful lawsuit could top a million dollars in legal fees.

NISC wanted a resolution that would protect its entire Membership, and so it reached a settlement with Emergis that provided a license for perpetual use. In a different case, a federal court eventually ruled that the Emergis patent didn't cover e-billing systems processed through third-party providers.

Today, technology has moved far beyond the electronic billing platform of 2005. What remains are the core values that underlie NISC's business decisions and relationships. "You're not going to find anybody [else] who will stand up like NISC did," Sugden says.

Shown are some of the resources and technology used in the 1960s through early 1990s.

In 1986, CADP became one of the first corporations to launch a nationwide two-way satellite communications network – even before Walmart, Chrysler and other giants adopted the technology. CADP's subsidiary, Rural America Communications Inc., installed dishes at 120 Member offices, allowing them to transmit data faster and more reliably than with the phone lines. The satellite network was expected to save an estimated $240,000 to $320,000 a year in communications costs for CADP and its Members.

"We had technology that rivaled anybody else around us," marvels Randy Goeke, whose co-op, T.I.P. Rural Electric Cooperative in Brooklyn, Iowa, was an early adopter. He retired in 2017 as Assistant General Manager at T.I.P.

Internally, CADP could make investments in cutting-edge technology because of a decision by General Manager Gary Hobson and the Board of Directors, shortly after Hobson arrived in 1980, to increase rates by 5 cents on each customer account served by Members. Those investments supported more advanced tools that would allow Members to respond to their customers more efficiently.

"CADP Members look to their data processing organization to shelter them from the costly pitfalls and sometimes intimidating technological changes of the computer industry," said Delbert Smith, who was Board President of CADP and became the first Board Chairman of NISC. "CADP looks to its Members for advice, direction and ideas, so we can supply them with the computer services they need to run their organizations efficiently and effectively."

Texas Electric Cooperatives' Data Center, which was already using a version of CAPS, merged with CADP in 1988, bringing 12 new Members. CADP began installing minicomputers –

At an NRECA convention, CADP proudly displays the use of PCs and the advent of graphics on screens.

faster and more powerful than the early versions of personal computers — in Members' offices, giving them greater capabilities, and moved forward with additional offerings: an outage management system, mapping software and a redesigned CAPS.

Some Members embraced the changes, but others felt overwhelmed. "There always has been, and probably always will be, Members who want us to slow down and those who want us to deliver more and faster," Hobson said.

The computer revolution swept through North Dakota with just as much force as in St. Louis. NCDC upgraded its equipment numerous times, finally settling on two more powerful Burroughs 6800 mainframes. By 1991, the NCDC Board decided to launch the development of Horizon, a new software offering that could be run in-house at a Member site or online and used by both electric and telecom sites.

Denise Barth, Customer Service Supervisor at Consolidated Telephone Cooperative in Dickinson, North Dakota, remembers the long hours that led to close friendships with NCDC employees as they converted the co-op's account data to the new program. In addition to telephone services, Consolidated had just begun offering internet and television — each through a different company — and NCDC set up the separate billing systems. For a month, the co-op ran Horizon along with the older software to make sure the billing worked properly.

Even as technology changed, one thing did not: Consolidated consistently volunteered to be among the first to use new products. They worked through some glitches but appreciated the payoff: the chance to shape the software.

"If it's not working for us, we can give our opinions and they can change it," Barth says.

Keeping up with the information age posed an ongoing challenge, but NCDC's telephone co-ops had even more pressing matters. A tectonic shift had jolted their industry. A major antitrust settlement led to the breakup of AT&T, and on January 1, 1984, AT&T turned over its local calling service to regional Bell companies. Long-distance became a competitive business, altering the dynamic for local phone companies such as NISC Member telecoms.

AT&T previously paid a flat rate to local phone companies for the last phone link to their customers. Now, under deregulation, long-distance carriers needed a new

When *American Idol* became a TV sensation in 2002, customers raced to their phones to call in their votes for their favorite singers — creating a noticeable increase in call volume for Member telecoms.

Mark Momerak discusses NCDC's Horizon solution with a Telecom user at an NTCA convention. Momerak is now an NISC Product Line Manager.

way to pay for that connection. The National Exchange Carrier Association determined what to include in this new charge, called Carrier Access Billing (CABs), and formulated a rate.

While uncertainties lingered, NCDC set to work on new software to enable this billing. "It was a brand-new product, created from scratch. We had our challenges in writing the software," recalls Bruce Walth, who became known as "Mr. CABs" — the go-to person for Members with questions about the complicated process. Walth retired in 2016 after 37 years with NISC.

With competition, long-distance calls became less expensive and more frequent — and telecoms made money on each one. When *American Idol* became a TV sensation in 2002, customers raced to their phones to call in their votes for their favorite singers — creating a noticeable increase in call volume for Member telecoms.

"As long as their customers kept making more long-distance calls and receiving more calls, their CABs went up," says Ryan Larson, NISC's Sr. Product Line Manager for Telecom Operations. "At some times you would have Members receiving 75 percent of their company revenues through CABs."

Through an order issued in November 2011, the Federal Communications Commission began reducing CABs payments. But by then, many telecoms had installed fiber lines and expanded services, opening up new opportunities for revenue. The rural telecoms also benefited from the Universal Service Fund, a fee on every phone bill to equalize service across the country.

NCDC brought telecoms together in the mid-1980s to form NCRPC, National Central Regional Processing Center, a for-profit entity that contracted with AT&T to provide long-distance billing on NCDC Telecom Member bills. A key agreement signed with AT&T for the billing is signed in 1992 by NCRPC Board Members and AT&T representatives. Seated left (then clockwise), NCRPC Board Members: Howard "Bud" Johnston, Ron Brothen, Wayne Livermont, Fred Dohrmann, Bob Gens; NCDC General Manager Ray Clouse, and two AT&T representatives.

Each leap of technology unveils a world that is more connected, more fluid, more global. But each major shift makes previous products obsolete, like a butterfly shucking off its cocoon.

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HELPING TELECOM CO-OPS THRIVE AMID DEREGULATION

In 1996, the telecom world was turned upside down. The Telecommunications Act injected competition into what had been a highly regulated industry. That created new opportunities — and new challenges — for rural telecoms in broadband, telephone and television.

Like other regional Bell companies, U S WEST favored the lucrative metropolitan markets and had little interest in investing in rural areas. It was a familiar story — and rural telecoms played their usual role of stepping up to fill the gap.

Paul Bunyan Communications is based in Bemidji, Minnesota, but it served the rural area around the town like a donut. CEO and General Manager Gary Johnson saw firsthand how little effort U S WEST put into upgrading its lines. With deregulation, the co-op, with only 8,000 members, decided to enter the town of 12,000.

Gary Johnson, CEO and General Manager of Paul Bunyan Communications in Bemidji, Minnesota.

"With the Telecom Act, we now had an opportunity, so we took it and overbuilt Bemidji with our own network, up to every house," says Johnson, who also serves on the NISC Board. "Financially, it was a great move to grow the company. But what's been most fun to watch and what's most striking is how it changed us culturally in how we think and how we operate."

Paul Bunyan continued to expand and built a fiber optic infrastructure that provides superfast gigabit internet speed throughout its service area. It offers PBTV Everywhere — Paul Bunyan television on tablets, smartphones or computers — as well as whole-home DVR.

NISC software has been critical as Paul Bunyan forges ahead with new technology. For example, if a customer wants to add a specialty network and watch a show that evening, NISC's SwitchTalk²® allows customer service representatives to make the change swiftly and easily.

Many other cooperatives gained new territory when U S WEST (which was purchased by Qwest Communications International, which was then bought by CenturyLink) decided to pull out of rural towns and put their networks up for sale in the wake of deregulation. Some co-ops doubled or tripled in size virtually overnight, and the U S WEST customer data needed to be quickly converted to the co-op's billing system.

"We were working nights and weekends," recalls Tom Materi, Manager of Telecom Support, who was with NCDC at the time. "The data we were receiving from U S WEST wasn't necessarily clean."

Paul Bunyan now serves about 33,000 customers over 5,000 square miles.

"As we've grown and pushed down new avenues, NISC has been very responsive to adding features — some at our request and some before we asked," says Johnson. "They've been very good at keeping up with the changes in our industry."

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The first personal computers emerged in the 1970s as hobbyists' toys, but by 1984, PCs were outselling mainframes. In 1990, a British computer scientist created the World Wide Web, and in 1992, University of Illinois students and researchers designed the first widely used web browser. Within a few years, in 1995, 18 million Americans were online, where they could witness the launch of Amazon, Yahoo!, eBay and Microsoft's Internet Explorer™ and the creation of Java™ programming, which allowed for motion, not just static text, on the internet.

It was an exciting time to be an information technology company – as long as you weren't left behind by the transformational changes. NCDC and CADP tried to keep costs down for their Members, but they faced pressure to adapt to the new advances. "[Members] were always frustrated that we weren't able to move faster in terms of our development, but we just didn't have the resources. We were operating with a very small margin," says Vern Dosch, who was then General Manager of NCDC.

Meanwhile, when telecoms provided new services, they needed updated software for billing, and electric utilities were beginning to look at additional services. Both CADP and NCDC began developing an e-billing product, enabling customers to pay their bills online before that service was available from the large investor-owned utilities.

"All these nuances and changes to the [telecommunications] industry were straining the software's limits. It was stressing out what that billing software would do for us," recalls Paul Freude, retired CEO and General Manager of Paul Bunyan Communications in Bemidji, Minnesota, who served on the NCDC Board and later became the first Chairman of the NISC Board to come from a telecom.

Vern Dosch, NCDC General Manager, and Gary Hobson, CADP General Manager, sign consolidation documents in 2000, creating NISC.

By 1998, Dosch and Hobson both realized that the path forward would require more money and manpower to re-create software on a new programming platform. John Doggett, a management expert at the University of Texas Austin, and Steve Collier, an engineer and consultant in the utility industry, conducted strategic planning sessions for CADP and issued a warning: Software giant Oracle was prepared to enter the utility arena.

Three regional data processing cooperatives – CADP, NCDC and Southeastern Data Cooperative (SEDC) – needed to achieve economies of scale if they were going to meet the accelerating requirements of Members, according to Doggett.

As if underscoring their similar plight, in the fall of 1998, Dosch and Hobson found themselves seated next to each other at a National Rural Utilities Cooperative Finance Corporation meeting in Springfield, Illinois. The topic of the regional conference: How co-ops should work together for the common good.

They hardly knew each other, so they began with small talk. But when Hobson learned that Dosch's flight was cancelled because of bad weather, he offered to drive him to St. Louis where he could catch another one.

Bruce Walth, who worked for NISC for 37 years, became known as "Mr. CABs" because of his expertise with the complex telecommunications billing.

Y2K AND BEYOND, NISC STANDS THE TEST OF TIME

On December 31, 1999, groups of employees of NCDC and CADP gathered in conference rooms with cold cuts and soda and waited for the earth to move. The dawn of the new millennium carried some cause for concern.

For years, computer experts had fretted about massive amounts of legacy software code that needed updating from the two-digit method of recording dates. Without a change, the computers would interpret 00 as 1900 instead of 2000 — a backward lurch that could confound systems.

For the soon-to-be-merged companies of NISC, the moment known globally as Y2K was a high-profile exercise of their adaptability. Just as NISC does today, they constantly upgraded software to respond to regulatory and operational changes in the telecom and electric utility industries.

(Left to right) CADP staff Mark Meadows, Don Hilgert and others wait to respond to Member support needs at Y2K as the new millennium approaches.

The march of time brought the first true test of their respective updated systems on September 9, 1999. Some tech watchers worried that computers would interpret the date 9/9/99 as the end of a file, which was a shut-down sequence in some older programs. But September passed without an issue.

Meanwhile, utilities assured their customers that the electric grid and telecommunications systems would still function after midnight of the millennium, and their billing would stay on track. NCDC, CADP and their Members literally set their computer clocks ahead to test and show that the software was Y2K ready.

The mood in St. Louis and Mandan was more celebratory than worried on New Year's Eve. Midnight passed uneventfully in Australia, Japan and other Pacific Rim countries. It came and went in Europe with only minor glitches.

Companies on the East Coast also fared well. Then employees toasted the New Year in St. Louis and Mandan and waited until the end of Y2K's time zone advance with what Principal Software Engineer Kelley Kunnanz recalls as "a lot of hype and a lot of fizzle." They were ready to answer calls from Members with problems — but the phones never rang.

"It was pretty much uneventful, just the way it was supposed to be," says Sr. Manager of Professional Services Keith Horntvedt.

Other time-related problems have occurred since then, with much less notice. In 2015 and 2016, the atomic clock and the earth's rotation became slightly out of sync. NISC provided software updates and guidance, and once again the world moved uneventfully into the future.

> "Literally, both of us [NCDC and CADP] were going to be rewriting code at the same time, which made no sense."
>
> **– VERN DOSCH**
> **NATIONAL INFORMATION SOLUTIONS COOPERATIVE**

In that two-hour drive, stalwart competitors became collaborators. Hobson opened up first, mentioning that CADP was preparing to do a major rewrite.

"That was really important competitive news for me, to know that our major competitor was going to be rewriting their software," says Dosch, who recalls being taken aback by Hobson's openness.

But instead of thinking about how to exploit this new information, Dosch offered a similar concession: NCDC needed new software, too. "Literally, both of us were going to be rewriting code at the same time, which made no sense," he says.

Dosch flew home and discussions continued. As a first step toward collaboration, the two General Managers met in a Renaissance Hotel near the St. Louis airport, signed nondisclosure agreements — and showed each other their software. They continued to talk by phone, building a sense of trust.

"While we were competitors, we really had the same goals in mind. Vern and I were true co-op people," says Hobson. "We wanted to do what was best for our Members."

Initially, conversations included SEDC. But those soon faltered, and the three co-ops mutually agreed that SEDC would remain independent. It simply didn't feel like a good match to those involved. SEDC wanted to pursue its own business opportunities, and the culture at SEDC didn't fit as well with NCDC and CADP.

Reaching a commitment between the two General Managers was pivotal, but other obstacles remained. Board members of each organization needed to agree. Some of those Board members would lose their positions in the inevitable downsizing to create a Board that represented both organizations. But the Board recognized that the new company would be stronger, with the capability to create more powerful software at a better price. Dosch and Hobson hit the road to discuss the consolidation at regional Member meetings, and they regularly updated their Board members.

"The communication and explanation by Vern and Gary of what we wanted to accomplish by this process gave a sense of comfort to the Board that this is what we needed to be doing," says Joe Harris, retired General Manager of Kay Electric in Blackwell, Oklahoma. Harris served on the CADP Board at the time of the merger and later on the NISC Board, including as its Chairman from 2004 to 2006.

The Board would need to shrink, so the CADP and NCDC Boards agreed to a transition process in which some Board members would become part of an advisory group and would cycle out of their positions within three years.

"Many times these mergers and acquisitions are tangled up in the governance," says Dosch. "Here, our Board was

While the official merger date of CADP and NCDC into NISC wasn't until July 1, 2000, staff from the two organizations merged their efforts at the NRECA Tech Expo in March 2000 in Orlando, Florida.

making really substantial personal sacrifices to make sure this went forward. So that was really a motivator for us."

The Boards voted unanimously in favor of the merger, and in March 2000, the Member vote was nearly unanimous. Of 392 Members that voted, 387 voted yes and five said no. The merger became official on July 1, 2000 – marking the start of a new era.

The name – National Information Solutions Cooperative – perfectly described the new company's mission. The regional approach was officially over. Upon consolidation, the new cooperative would serve 430 Members in 46 states, resulting in over 5 million electric meters or telephone subscribers. The new name also underscored its underlying cooperative principles.

"We might not have grasped all that was going to come down the pike, but putting things in play that made this happen was certainly a smart move," says Mickey Miller, President and CEO of Nolin Rural Electric Cooperative Corporation in Elizabethtown, Kentucky, one of CADP's founding co-ops.

Hobson and Dosch worked out their method of sharing leadership. Hobson became CEO of NISC, and Dosch was the Chief Operating Officer. In 2002, Hobson would retire, creating the opportunity for Dosch to lead the newly merged organization if the Board chose to offer him the position.

With that gracious plan, Hobson and Dosch demonstrated servant leadership – placing a priority on what was best for Members and employees rather than on their personal prestige and power. In so doing, they created a model for cooperation among managers and employees.

CADP and NCDC software developers took pride in their respective products, which functioned on two different operating systems with different features. Daily phone calls began, as employees gradually learned more about each other's work. "We were in constant communication even days after it was announced," recalls Doug Wilmes, Team Lead of Professional Services, who was at CADP before the merger.

Hobson promised there would be no immediate postmerger layoffs. He wore the NISC logo – and made it clear to his CADP colleagues that they should shove their CADP gear to the back of the closet. But the swiftest path to a unified vision for NISC came through the employee-based Shared Values Committee.

Michelle Ward, now Luecal, then–Vice President of People Services, gathered six employees from the Missouri office and six from North Dakota. She began with flip charts. The first one had some ground rules: Everybody has a turn. Disagree respectfully. Focus on the positive. Focus on the company good.

To get to know each other, Luecal paired up employees and asked them to interview each other and report back to the group. That was just the beginning of a kind of soul-searching that continued through three days of meetings. Why do you work for the company? Why do you stay? How would you describe the organization? What do Members expect of it?

Luecal presented the shared values of some other companies and gave examples of words that could represent a company's values. The committee began ranking their choices. It was surprisingly easy to arrive at the top one: Integrity. The other five came soon after: relationships, innovation, teamwork, empowerment, personal development.

"What do we want to accomplish with these shared values?" Luecal asked.

"It means we have to do the right thing," answered Bonnie Haupt, a member of the group and now a Sr. Software Specialist.

"Is there anything you want to add to that?" Luecal prompted.

"Always?" added Haupt.

Do the right thing, always. That became the most important underlying value for NISC. Employees who come to NISC from other companies are often surprised to discover that the values aren't just words on a wall plaque. They are integrated into performance standards and reflected in decisions, large and small.

"In the cooperative model, these shared values are not a check on the profit margin," as they might be at another tech company, says Software Specialist Matthew Leidholm. "They are a reminder that we're here for our Members."

Mid-morning on an unseasonably warm fall day, the cubicles that make up the Blue Team are quiet except for the staccato tapping of computer keys. NISC Support Specialist Bryan Drilling sees the scrolling bar across the top of his screen turn from green to yellow. A call is coming in from Nikki Wilson at Trico Electric Cooperative in Marana, Arizona. He quickly

GARY HOBSON: KEEPER OF THE FAITH IN THE COOPERATIVE WAY

Gary Hobson, the first CEO of NISC, embodies the cooperative spirit. Collaborative, supportive, committed to his Member-Owners and his employees, he is a true believer who has spent his entire career in the cooperative world.

"I've always said co-op organizations are more like a religion than they are a company," he says, reflecting on his years of service. "It's just something that you believe in, that you feel."

Hobson was fresh out of Oklahoma State University with a degree in management in 1966 when he began working for a rural electric co-op. When he arrived, the co-op was still using an addressograph, a hand-fed machine that printed the bills. It became one of the first Members of the new Central Area Data Processing (CADP).

The dawn of technology brought unimagined efficiencies for co-ops — and the promise of a dynamic future. Hobson was there from the beginning. "I've actually seen or used every piece of software [from the early days of] CADP," says Hobson.

He rose to General Manager at a second Oklahoma co-op, then moved to Arkansas to work for the National Rural Utilities Cooperative Finance Corporation (CFC), a lending arm for electric co-ops. When CADP needed a leader who would bring its finances into order, Carl Williams, a CADP Board member and General Manager of First Electric Cooperative in Jacksonville, Arkansas, recruited Hobson.

In the summer of 1980, Hobson came into the office in suburban St. Louis and saw a building divided into pods. "The executive pod had double mahogany doors that were always closed, and they were between the rest of the organization and the executives," he recalls.

Hobson asked a maintenance worker to remove the doors. "Within a matter of months, every department manager was in his department and not in the executive pod," says Hobson. That was the start of a new culture at CADP.

"His main objective was to do whatever it took to serve the Membership," says Delbert Smith, a former Board President of CADP and the first Board Chairman of NISC. "He really had no [drive for] personal gain. He was dedicated completely to the cooperative principle of providing data processing services for the Members."

Under Hobson's leadership, CADP helped Members stay on the front edge of technology, from new software and in-house computers in the 1980s to a PC-based mapping system and e-billing in the 1990s. Hobson was particularly proud of CADP's early entry into bidirectional satellite communications with Members, which lowered costs and reduced the time it took to transmit data to and from Members.

CADP helped found the National Rural Telecommunications Cooperative (NRTC) — in conjunction with the National Rural Electric Cooperative Association, CFC and several rural utilities. Hobson served as NRTC's first Board President. NRTC's goal was to provide telecommunications guidance and resources for electric cooperatives. The originating directors of NRTC saw the coming of new telecommunications and IT services that when integrated would help rural electric operations, and NRTC would help them do so.

Hobson also oversaw the expansion of CADP's offices, strong growth in Membership, and solid financial results. But as the new millennium approached and computing changed dramatically, Hobson looked for guidance to ensure Members would continue to control their own technological future.

He listened to the advice of John Doggett, a management expert at the University of Texas Austin, and Steve Collier, an engineer and consultant in the utility industry, who advocated for the merger of regional data processing centers. When NISC formed in 2000, Hobson agreed to take the helm and lead the organization through its difficult transition — and then retire in 2002.

Doggett was surprised and impressed by Hobson's selfless decision and commitment to sharing leadership. "There seemed to be a true partnership [between Hobson and his successor, Vern Dosch," says Doggett. "That decision was absolutely crucial for the ability of the organization to make this transition successfully."

As it turns out, Hobson wasn't ready to fully retire from working with cooperatives, assisting them in two additional ways. Through NRECA, he serves as an executive recruiter helping facilitate management searches for rural electrics. And, after overseeing the construction of a new $18 million NISC headquarters building in Lake Saint Louis, Missouri, he launched a new career in facility consulting. As Chairman of Cooperative Building Solutions today, he's in his element — helping cooperatives.

After "retiring" from NISC, Gary Hobson started Cooperative Building Solutions, which has overseen the construction of more than 40 rural electric office facilities since 2009.

MAKING A CONNECTION: CELL SERVICE IN RURAL AMERICA

If you look at a map of cell phone coverage, you'll see a big white blotch in the middle of Idaho. There's no service in the remote mountainous area — but you can receive a 4G connection along the Salmon River in central Idaho, thanks to Custer Telephone Cooperative in Challis.

Telecommunications cooperatives and other independent telecom companies bring much-needed connections to rural America, and NISC has provided the technology partnership to make it happen. For Custer, the cellular story began in 1998.

"Nobody wanted to provide it here because they couldn't find an economic model that would work," says Dennis Thornock, CEO and General Manager. "We were a cooperative so we wanted to provide the service [to meet members' needs], but not necessarily make a lot of money on it."

Thornock looked into the status of the cellular spectrum, the frequencies available for cell phone communication, and challenged the spectrum owner at the Federal Communications Commission because it had never been built out. Custer gained control of the spectrum, partnered with a national cellular carrier and began building cell towers. Fewer than 1,000 area residents purchase Custer's cell service, but the co-op also provides service to thousands of visitors who come to explore the nearby wilderness.

To enable the new cell service, NISC created software to track and measure the calls, texts and data. NISC also helped streamline the process of producing FCC reports.

"They were adaptive, nimble and did what they could to make it affordable for a wireless model," says Thornock.

Nemont Telephone in Scobey, Montana, acquired cellular spectrum in the mid-1990s, and today, with more than 100 cell towers and other sites, it provides connectivity in its territory of 12,000 square miles in northeast Montana. Cell service helps enable "precision agriculture," which could include wireless cameras in calving barns and GPS devices on farm equipment, says CEO Mike Kilgore.

"There's no Sprint, there's no T-Mobile [here]," says Kilgore. "Those folks are not building out towers like we have in rural America, and they never have."

Nemont partners with Verizon to offer 4G service and with NISC to enable the billing and other back-office infrastructure. Unlike the megacorporations that long ignored rural areas, Nemont and NISC share the mission of putting the Member-Customer first.

"The reason your Verizon phone works here is not because of Verizon but because of this little co-op that thought it could," says Kilgore.

Nemont Telephone in Scobey, Montana, provides a mobile store to serve remote areas of their service territory.

picks it up: "CC&B Blue Team support. This is Bryan Drilling. What can I do for you today?"

Wilson was trying to run refund checks for customers who had installed solar panels on their roofs and sold the power back to the grid — a payment called a "net metering refund" — when she hit a problem. The refunds appeared in the Customer Care and Billing software but not in the accounting ledger. The numbers had to match for Wilson to move forward and issue checks.

Drilling's job, like that of the other Blue Team members, is to take all types of support calls about the Customer Care and Billing solutions from a group of 45 Members. The Blue Team launched in February 2016 as a pilot project to enhance Member relationships. The goal is to provide a personalized approach to serving Members, where support specialists understand the Members' specific business practices and needs.

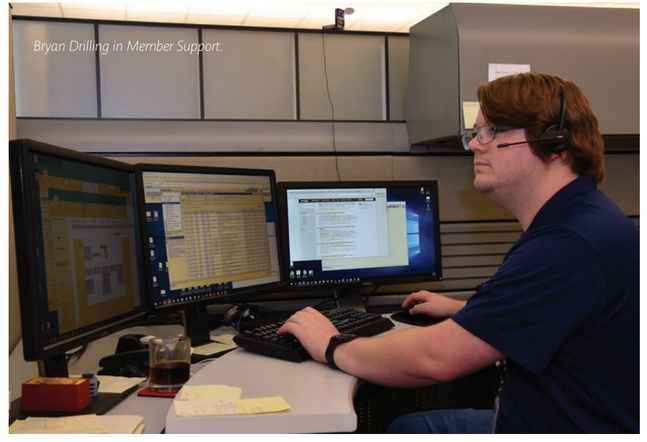
When Members call, "They're talking to somebody who is a partner," says Char Bono, Manager of Utility Support, where the Blue Team concept was being piloted. Rather than specializing in specific areas of the software, individuals specialize in helping specific Members. A rainbow of other teams will follow that method as well.

Drilling logs into Wilson's system remotely and locates the error message. A programmer will need to make the fix. He creates a tracking page to make it easier to follow up on the issue and assigns the case to the programming group. Soon Lead Software Engineer Tami Peine figures out the problem and advises Drilling.

Drilling walks Wilson through the change she needs to make, and Peine starts the process to update the software. Shortly after, Wilson is able to issue the net metering checks.

Wilson, Supervisor of Information Processing at Trico, calls Drilling her "go-to guy." She appreciates the partnership with NISC, and it's a partnership she feels confident will continue into the future. "I know who I'm going to contact anytime there's any issue at all," says Wilson.

As part of the Blue Team, Drilling gains a new perspective on the workflow of NISC's Members — which improves his ability to provide support. "We have a better picture of what they're trying to do [with the software]," he says. "You really build a relationship with the person on the other end of the phone."



Bryan Drilling in Member Support.

Member Support & Training

Beginning with the initial implementation of an NISC product, NISC staff help Members learn software functionality, maximize their use of solutions and take advantage of new features as they're released. Through in-person training, workshops and a catalog of nearly 2,000 online training resources, Members can build their knowledge as well as call on NISC Member Support professionals. NISC surveys Members on a regular basis on the quality of support to ensure Members' needs and expectations are met.

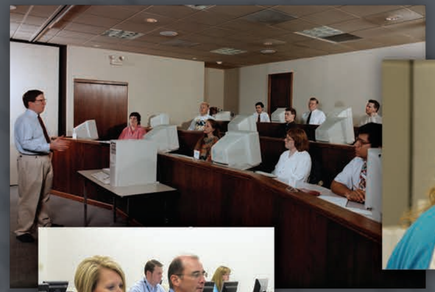




















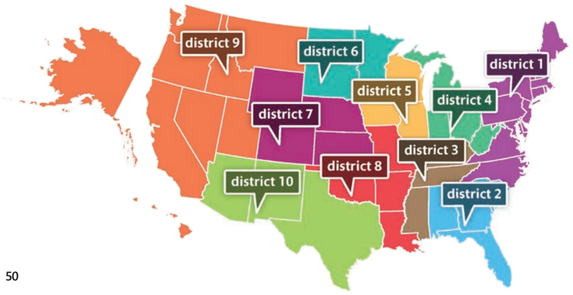

NISC Board Directors – Past and Present

Overseeing NISC is a board of 14 Directors representing and advocating for the interests of NISC's Utility and Telecom Members. Utility Directors are nominated by NISC Members in their district, elected by all Utility Members and serve three-year terms. Communication Directors are nominated and elected at large by all Telecom Members. To be elected to NISC's Board, candidates must be a Chief Executive Officer, General Manager or Director of an NISC Member.

Special appreciation to these individuals who have served and helped NISC achieve this milestone of 50 years.

	BOARD SERVICE
Larry Adams	CADP, NISC
Herman Antle	CADP
Marv Athey	CADP, NISC
Chet Aubin	CADP, NISC
C.W. Ausborn	NCDC
A. Dean Austin	NCDC
Larry Austin	CADP, NISC
Robert Axmaker	NCDC
Thomas Barker Jr.	CADP
Harry Barnes	NISC
Clarence Beck	CADP
William Bledsoe	NCDC
Lester Blomberg	NCDC
Mark Bonner Jr.	CADP
Ted Brewer	CADP
Vernon Brinkley	CADP, NISC
Ron Brothen	NCDC, NISC
John Browning	CADP
A.C. Burrows	CADP
Shirley Cairns	NISC
Larry Carlson	NCDC, NISC
B. Maynard Christensen	NCDC
Jeff Churchwell	NISC
Lee Roy Cole	CADP
Bill Comings	NCDC

Districts indicate Energy Director districts. In addition, four Directors from Telecom Member sites serve on the Board as at-large districts.



James Cox	CADP
Duane Cummings	NCDC
Howard Cummins	CADP
Kenneth Dahms	NCDC
John Davenport	CADP
Wallace Dillon	CADP
Fred Dohrmann	NCDC, NISC
George Donaldson	NCDC
Duane Duba	NCDC
Bill Duncan	CADP
Randy Ethridge	CADP
W. C. Farris	NCDC
Joseph Fellin	CADP
Paul Freude	NCDC, NISC
David Fricke	CADP
Duane Gackle	NCDC, NISC
Charles Gelsinger	NCDC
Robert Gens	NCDC
Dale Gibbs	CADP
Robert Goldenstein	NCDC
Edward Grange	NCDC
Harry Grube	CADP
Ron Hale	CADP
P.R. Hall Jr.	CADP
Robert Hansen	NCDC
Joe Harris	CADP, NISC
Ed Hasnerl	CADP
Merlin Haugestuen	NCDC
Ken Hazelwood	CADP
Andrew Headland	NCDC
T.J. Henderson	NCDC
Harold Hermann	NCDC
Lawrence Hinz	NISC
Orville Hochgraber	NCDC
Dean Hodges	CADP
Charles Holcomb	CADP
H. Dale Hooker	CADP
Glen Hootman	CADP
Maynard Horntvedt	NCDC
Kelly Hutchens	CADP
Jack Hutchinson	CADP
George Jackson	NCDC
Gary Johnson	NISC
Howard "Bud" Johnson	NCDC, NISC
Wayne Johnson	CADP
Noel Jones	CADP
Vernon Jutila	NCDC
James Kiley	CADP
Bruce King	CADP, NISC
George King	NCDC
Jack Kirkpatrick	CADP
Larry Knegendorf	NCDC, NISC
Ransom Knutson	NCDC
Michael Krause	CADP
Dale Kuhn	CADP

Sue Johnston, Executive Support Specialist, assists NISC Board Directors.

The NISC Board of Directors was the first to use NISC's Meeting Agenda app, CalltoOrder®, in 2012. The app runs on an iPad, providing a paperless agenda and the ability to access supplementary materials, highlight text and make notations, search and perform other tasks. As of 2017, over 475 organizations use CalltoOrder®.

Vernon Kvernum	NCDC
Leland Leatherman	CADP
Darin LaCoursiere	NISC
Czar Langston	CADP
Paul Lenaburg	CADP
Al Lenerville	NCDC
George Letellier	NCDC
Wayne Livermont	NCDC
Robert Loth	NISC
Glenn Luther	CADP
Bob Mace	NCDC
Jim Mangum	CADP, NISC
Wayne Martian	NISC
Hal Maynard	CADP
John M. McBride	CADP
Dan McClendon	CADP, NISC
Lyle McCormick	CADP
Herbert Meschke	NCDC
Michael "Mickey" Miller	CADP, NISC
Perry Miller	CADP
S.J. Miller	NCDC
Leon Mocek	CADP
Thomas Moore	NCDC
A.D. Mueller	CADP
Curtis Nash	CADP
Richard Newland	NCDC
Dan O'Brien	CADP, NISC
A.N. Omtvedt	NCDC
Harry Oswald	CADP
Charles Overman	CADP
James Pauley	CADP
Robert Pflager	NCDC, NISC
Frank Podolak	NCDC
M.K. Presswood	CADP
Clyde Ramsey	CADP
Jerry Reinhard	NCDC
Jim Richards	NCDC
Loren Richards	NCDC
Jim Riddle	CADP
Robert L. Roberts	CADP
Clyde Rodolph Jr.	CADP
Charles Ross	CADP
Reginal Rudolph	NISC
Charles Russell	CADP, NISC
Wayne Russell	CADP
Thorval Sautter	NCDC
Ron Salyer	NISC
G.L. Scaggs	CADP
Leroy Schecher	NCDC
Robert Schuster	CADP
James Scott	CADP
Larry Scott	CADP
Richard Seger	CADP
Don Severson	CADP
Ernest Shearer	CADP
Delbert Smith	CADP, NISC
Gentry Smith	CADP
J.K. Smith	CADP
John Smith	CADP, NISC
James Somrak	CADP
Norwood Speight	CADP
Fred Stone	CADP
Kenneth Stone	CADP
Dennis Tachick	CADP
Clem Tharp	CADP
Kirk Trede	NISC
Carl Turner	NCDC
Robert Vander Pluym	CADP
James Vann	CADP
Gary Voigt	CADP
Anton "Jerry" Wall	NCDC
William S. Wall	NCDC
David Weaklend	CADP, NISC
Clarence Welander	NCDC
John Wheeler	NCDC
W.D. Whelche	NCDC
C. Wayne Whitaker	CADP, NISC
Carl Williams	CADP
Jerry Williams	CADP, NISC
Lonnie Williams	NCDC
W. Chester Wingard	CADP
Don Wood	CADP
Donald Wozniak	CADP, NISC
Darold Wulfekoetter	CADP
Roger Yoder	CADP, NISC
Jack Young	CADP, NISC
Howard Zahller	NCDC
Marion Zink	CADP

In 2001, the NISC Board of Directors, along with CEO Gary Hobson (right) and COO Vern Dosch (left), break ground at the Mandan, North Dakota, campus for a facility expansion.

Jessica Stanphill (standing) and Tina Grimes of Peace River Electric Cooperative in Wauchula, Florida, coordinate as the co-op prepared to "Go Live" in 2015 with NISC's iVUE.

THE POWER
OF POSSIBILITY

CHAPTER THREE

50 years of Innovation and Member Service

A Cooperative Spirit

Count down: 21 days, 3 hours, 56 minutes, 18 seconds. "Go Live Day" looms for Peace River Electric Cooperative in Wauchula, which stretches nearly from coast to coast across south-central Florida, spanning citrus groves and retirement communities. With its conversion to iVUE®, Peace River is now rid of its last manual system and gains the efficiencies of integrated tech solutions.

But change is challenging, especially if it involves moving data on almost 40,000 customer accounts. In contrast to the blastoffs that occur at Cape Canaveral to the east, Peace River is aiming for a quiet glide into the future.

"The clock is ticking away, and 'go live' is three weeks and four days out," Louise Blackman, Vice President of Member Services and Business Technology, writes in a blog post. "We are counting down the weeks and days and many times wishing we could stop the clock for a bit."

And yet, so much has already been accomplished. Ryan Wolfrum, an NISC Customer Care and Billing Project Manager, spent a week training the Peace River billing staff and oversaw the validation of the bill printing. The new bill design, courtesy of NISC Sr. Support Analyst John Robertson, provides better information to customers about their energy usage and costs. Rex Moorman, an NISC Professional Services Industry Consultant, trained employees on how to switch from paper service orders to the Work Management system. When the Accounting and Business Solutions went live, crews shifted from paper timesheets to an electronic version.

While the workdays are still long, everything remains on track for that magical moment. On a Tuesday in late September 2015, the legacy system is scaled down, leaving only the ability to look up customer information but not to input new data.

Members learn about the CADP Engineering System in the mid-1990s.

Tracy Liley, an NISC Software Engineer, loads the converted data ahead of schedule – allowing extra time to test the Customer Care and Billing system. To convert the last open service orders, Peace River employees spend the weekend entering them into iVUE. Go Live Day dawns on Monday, October 5. NISC employees arrive at Peace River's branch offices, and Wolfrum and a support team work at headquarters. At 8 a.m., the phones begin to ring with routine customer calls. Member service representatives answer customer questions, cashiers take payments and field workers access service orders on their new laptops. Some glitches arise, but the NISC team resolves them easily.

By day two, Peace River begins processing bills. By the next week, everything is back to the regular schedule – a new routine, made more efficient with iVUE.

This process is more than the implementation of new software, says Blackman. It is the evolution of an important new relationship. Every year, NISC adds about 30 to 50 new Members. While NISC devotes millions of dollars to developing and supporting new products, the company also makes an incalculable investment in people – its employees, its Members, and even the end users, the electric or telecom customers.

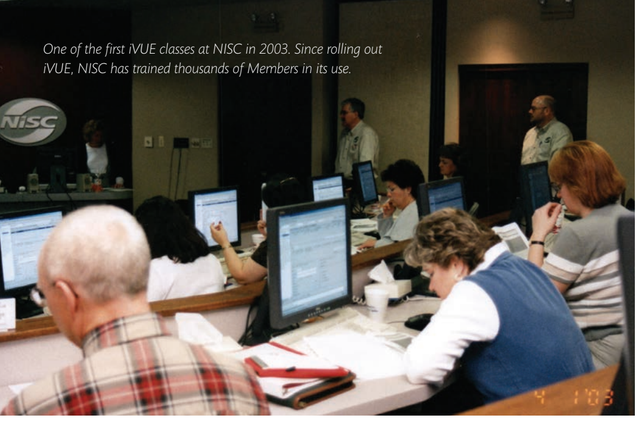
"The values NISC has are the same values we have at Peace River – always doing the right thing," says Blackman. "Anybody can provide software, but not everybody provides the trust, the integrity that NISC does."

Go Live Day occurs as many as 50 times a year, and each one is a microcosm of NISC's core values: Relationships built through implementation and Member training. Innovation in products. Teamwork that smooths out the edges, as employees support each other and the Members. Commitment to making things right, no matter what challenges arise.

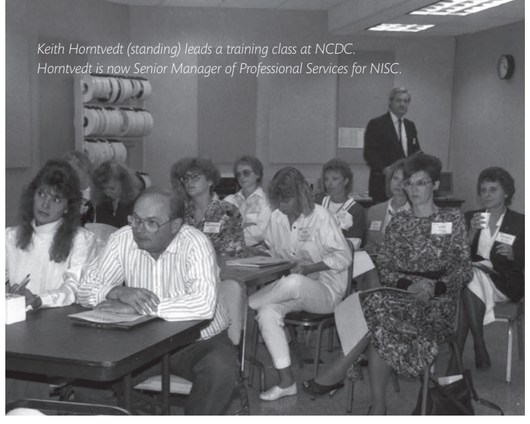
Rex Moorman, one of the NISC Professional Services Industry Consultants who worked with Peace River on their implementation, has helped dozens of Members convert to iVUE since the very first iVUE implementation in 2003. He never takes an implementation for granted.

"I always go on site, and there's a certain amount of fear in me: am I going to meet these Members' expectations?" he says. "With iVUE, we normally can exceed their expectations. That's gratifying."

> "I always go on site, and there's a certain amount of fear in me: am I going to meet these Members' expectations? With iVUE, we normally can exceed their expectations. That's gratifying."
>
> **– REX MOORMAN**
> **NATIONAL INFORMATION SOLUTIONS COOPERATIVE**



One of the first iVUE classes at NISC in 2003. Since rolling out iVUE, NISC has trained thousands of Members in its use.



Keith Horntvedt (standing) leads a training class at NCDC. Horntvedt is now Senior Manager of Professional Services for NISC.

The software, iVUE, stands the test of time as a platform flexible enough to adapt to changing needs. It works for small Members and large ones. It enables new billing options as electric utilities offer prepaid options and telecoms promote bundled services. It integrates with new products to make operations more efficient.

None of that was assured when the iVUE software development began. Today's successful implementations are the legacy of critical decisions made in the earliest days following the merger, when NISC's path forward was far from clear. How can you best create graphically-based and user-friendly software that will last into the future? How can you finance a total rewrite while staving off competitors who will try to woo away your customers?

CEO Gary Hobson and then-COO Vern Dosch placed their faith in the patience and loyalty of Members and the dedication of employees.

"Both NCDC and CADP had such great technical people who were very passionate about what they did and how they did it," says Hobson.

SHARED VALUES

Personal Development

SUPERVISORS COACH EMPLOYEES ON THEIR PATH

John Alls was two weeks shy of his 18th birthday when he came to work for CADP on the overnight shift of mailroom services. He loaded paper and envelopes into trays, made sure the machines were properly inserting the bills and arranged the mailings in postal trays. For Alls, it was a foot in the door of the place he wanted to be.

"I was willing to work in an entry-level position in hopes that someday I could move up into something more technical," he says.

Today, Alls is a Team Lead for Member Support, managing the rollout of NISC's latest signature product, iVUE Connect®. In 19 years at NISC, he has worked in various roles, including as a Support Analyst and a Product Manager.

His story illustrates NISC's commitment to help employees reach their professional goals — to its shared value of personal development. As Alls explains, "If you work hard and you're willing to do the right thing, they always make sure there's an opportunity for growth."

John Alls, at an employee celebration in 1999, and later at the 2016 Member Information Conference, is an example of NISC's commitment to career-long continuing personal development.

NISC promotes professional development through "lattice moves," or opportunities to move throughout the organization either in a promotion or laterally to a comparable position in a different division or team. In an annual Employee Learning Quarter, education sessions focus on enhancing knowledge of Member operations, NISC solutions or other key areas. The company supports employees in many other ways, including mentoring and free access to external training resources, such as Lynda.com.

NISC's tuition reimbursement program helps make advanced education more affordable for employees. In July 2017, the leadership team asked the Board to raise the lifetime maximum from $16,000 to $20,000 to take into account higher tuition costs. The Board responded by raising it even higher — to $25,000. That move shows the Board's strong support for NISC employees, says Kari Reichert, Vice President for People Services. "They recognize that people are our best investment," she says.

Alls exemplifies an employee who was eager to learn — and who sought new opportunities. When he finished his mailroom night shift at 7 a.m., he would sit alongside employees on the customer support team and listen to their phone calls. He watched how they put service to Members at the forefront.

Soon, a position opened up; he applied and joined the support team. Eventually, he was training new employees and speaking at Member Information Conferences. He had more promotions, becoming a Product Manager and then returning to Member support as a Team Lead of 11 people.

He values the mentors he had along the way, and now he pays it forward. Alls meets at least once a month with each of the employees on his team to support them in their career goals. "When tasks come along, I try to make sure each one of them has an opportunity to tackle an important project, to let them grow, let them stretch themselves a little bit," he says.

In this culture, employees flourish — and so does NISC.

Hobson hired a consultant to help shape the path of the newly merged NISC. The fastest way forward, the consultant advised, would be to purchase software from a third-party vendor and customize it to fit NISC and its Members' needs.

"When we talked about doing it ourselves, he [the consultant] basically said it was impossible. Don't even try," recalls Jim Rapp, a Sr. Manager of Research and Development.

NISC's software developers pushed back. They wanted to make it their own.

"If we went on almost any other path, we would have been inheriting a big block of base code from someone else. That creates its own challenges," says Rapp. "We were never really comfortable with that."

Discussions continued for months in strategy sessions, conference calls and impassioned conversations as employees from both locations came together to hash out the pros and cons of different approaches to developing new software.

At lunch at the Broiler Steakhouse in St. Peters, a suburb of St. Louis, Hobson and Dosch sat across from Dan Wilbanks, Vice President for Research, Development and Quality, and grilled him: Can we do this? How can we do this? What will it take?

"Yes, we can do it," Wilbanks said definitively.

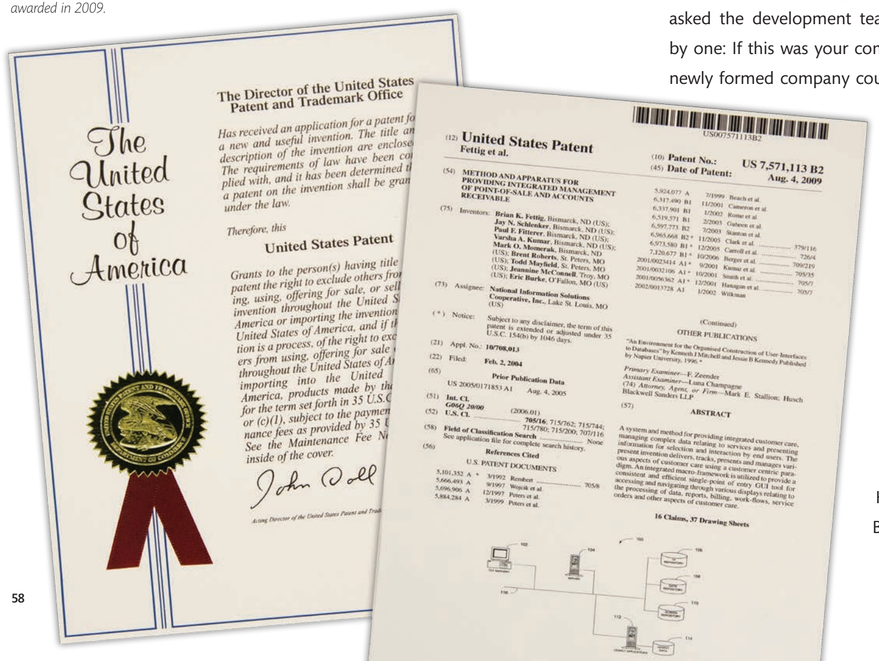
Finally, in a meeting room in the Missouri office, Hobson asked the development team to state their opinions, one by one: If this was your company, what would you do? The newly formed company could work to improve the existing software products. It could buy and customize third-party software with greater functionality. Or it could build new software.

A consensus emerged: a belief in the abilities of the in-house developers and in the deep relationships with Members. NISC would build on the framework of their current software – CAPS for the Customer Care and Billing platform, and Horizon for Accounting and Business solutions. NISC developers would rewrite the software in the new Java language in an endeavor known as Project Discovery. The name evoked the Lewis and Clark "Corps of Discovery" expedition, which began near St. Louis and traveled up the Missouri River, where the Mandan tribe helped them survive their first winter. The Board unanimously approved the plan in 2001, launching the software development that became iVUE.

"Once we made the decision to write iVUE with the latest technology at the time, we truly became a software development company," says Brent Roberts, a Sr. Manager of Research and Development. "That was a monumental decision. It became a part of our culture, constantly staying on top of technology."

Project Discovery began with a leap of faith. NISC didn't have the deep cash reserves it needed to fund the rewrite, estimated at $10 million. The company secured a $6 million line of credit from the National Rural Utilities Cooperative Finance Corporation but never used it. Instead, Members voluntarily loaned money for the NISC metamorphosis – totaling more than $8 million – the ultimate sign of trust in the cooperative way. Basin Electric Power Cooperative showed its support for the new venture by lending $1 million.

NISC's patent for the iVUE Point of Sale and Accounts Receivable integration was awarded in 2009.


The United States of America

The Director of the United States Patent and Trademark Office

Has received an application for a patent fo
a new and useful invention. The title an
description of the invention are enclose
The requirements of law have been co
plied with, and it has been determined th
a patent on the invention shall be gran
under the law.

Therefore, this

United States Patent

Grants to the person(s) having title
patent the right to exclude others fro
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invention throughout the United S
America or importing the invention
United States of America, and if th
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inside of the cover.

John Doll

Acting Director of the United States Patent and Trad

US007571113B2

(12) United States Patent
Fettig et al.

(10) Patent No.: US 7,571,113 B2
(45) Date of Patent: Aug. 4, 2009

(54) METHOD AND APPARATUS FOR PROVIDING INTEGRATED MANAGEMENT OF POINT-OF-SALE AND ACCOUNTS RECEIVABLE

(75) Inventors: Brian K. Fettig, Bismarck, ND (US); Jay N. Schlenker, Bismarck, ND (US); Paul F. Fitterer, Bismarck, ND (US); Varsha A. Kumar, Bismarck, ND (US); Mark O. Schomerak, Bismarck, ND (US); Brent Roberts, St. Peters, MO (US); Todd Mayfield, St. Peters, MO (US); Jeannine McConnell, Troy, MO (US); Eric Burke, O'Fallon, MO (US)

(73) Assignee: National Information Solutions Cooperative, Inc., Lake St. Louis, MO (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1046 days.

(21) Appl. No.: 10/708,013

(22) Filed: Feb. 2, 2004

(65) Prior Publication Data

US 2005/0171853 A1 Aug. 4, 2005

(51) Int. Cl.
G06Q 20/00 (2006.01)

(52) U.S. Cl. 705/16; 715/762; 715/744; 715/780; 715/200, 707/116

(58) Field of Classification Search ..... None
See application file for complete search history.

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Primary Examiner—F. Zeender
Assistant Examiner—Lana Champagne
(74) Attorney, Agent, or Firm—Mark E. Stallion; Husch Blackwell Sanders LLP

(57) ABSTRACT

A system and method for providing integrated customer care, managing complex data relating to services and presenting information for selection and interaction by end users. The present invention delivers, tracks, presents and manages various aspects of customer care using a customer centric paradigm. An integrated macro-framework is utilized to provide a consistent and efficient single-point of entry GUI tool for accessing and navigating through various displays relating to the processing of data, reports, billing, work-flows, service orders and other aspects of customer care.

16 Claims, 37 Drawing Sheets

Dan Wilbanks introduces iVUE at the 2003 Member Information Conference. Wilbanks was instrumental in the development of the code that would be at the heart of the newly formed NISC.

"Our Members provided the seed money," says Dosch. "We knew we couldn't disappoint them."

CADP and NCDC employees were now on the same team — but they hardly knew each other. In addition to software developers, the designers included people involved in software implementation, Member support and quality assurance. To help them bond, Wilbanks took the team to the St. Louis Zoo and to the famous Gateway Arch, a memorial to Thomas Jefferson and westward expansion that soars 63 stories above the Mississippi River.

Each leg of the arch was built from triangular sections, tapering as it grew higher. If the engineers or builders were off even a little, the two legs would not have met in the middle. And with workers perched at great heights with no nets, the insurance company projected that as many as 13 men would die in the effort.

Gazing at this marvel of design and construction, Deb Burke, then Utility Implementations Team Lead and now Manager of Professional Services, leaned over to Wilbanks and asked, tongue in cheek, "So how many do you have in *your* project plan that are going to die?"

As planned, the two legs of the Gateway Arch joined in the middle, and no one died. Likewise, the iVUE team came together and worked through their differences.

Not that it was always easy. When the team conducted a gap analysis of the customer care and billing (and later, accounting) software, it sounded to some like criticism of the legacy product. They spent two days hashing out what the search box and results should look like. They spent hours debating how a column should be labeled or whether a decimal point should be fixed or entered each time by an end user.

WALKING FOR WELLNESS BUILDS 'HEALTH CHAMPIONS'

Employees walk the halls at NISC. They stride past conference rooms named after famous inventors, they pad quietly beside cubicles and patter down the stairs. They reach the outermost offices then simply loop back again with a brisk sense of purpose.

They might be thinking about a line of code or a Member call or a new sales prospect. But chances are they have another number in mind, as well: 5,000 steps.

Hit that daily number on your NISC-provided FitBit and you can gain extra wellness points. Attain 10,000 or 15,000 steps and receive even more points. Earn enough points in a year and you receive extra dollars in a Health Savings Account. Just one long loop through the hallways in Mandan or Lake Saint Louis equals a half-mile. A few of those laps will put you well on your way to your goal.

A focus on wellness has brought NISC national recognition. In 2015, a national health analytics firm ranked NISC No. 78 out of the nation's 100 healthiest workplaces. In 2016, the American Diabetes Association named NISC a Health Champion, and the American Heart Association gave NISC gold-level recognition as a Fit Friendly workplace. In 2015 and 2016, the *St. Louis Business Journal* honored NISC as one of five Healthiest Employers in the region.

Promoting wellness has many benefits. It boosts health, reduces stress and brings a vibrant energy and even competitive spirit to the offices. Employees can work out in a fitness room during lunch, check out a bicycle, join an exercise class or hold a walking meeting on the outdoor trails. NISC sponsors annual health fairs and health screenings, with cholesterol checks, mammograms and flu shots.

An employee-run Wellness Committee hosts nutritionists and other experts at lunch-and-learn events and rallies employees to join group activities. (The quest to win an NISC Ping-Pong tournament can become pretty fierce — and, after all, Ping-Pong is an Olympic sport.)

About two-thirds of NISC employees completed health screenings in 2016, and almost 90 percent participated in some type of wellness activity. More than one-third reached platinum, the highest level of earning wellness points.

But the greatest reward accrues to the employees. Joe Cordeal, a 35-year-old Requirements Analyst, always considered himself to be fairly healthy — although he hadn't been to a doctor in years. He went to an NISC health screening and realized that being overweight was a serious health risk. He began tracking the food he ate, visited a gym for the first time ever and started working with a personal trainer. He lost 80 pounds.

"It's kind of a wake-up call," says Cordeal. "I was inspired by the focus on wellness at NISC."

Today, Cordeal serves on the Wellness Committee to create programs that will similarly motivate his co-workers to seek a healthier lifestyle.

Employees can track wellness efforts (such as those shown by NISC VPs here) through a website and can receive additional contributions to their Health Savings Account.

Ultimately, the disagreements dissolved in the wake of pressure to release a product. "If we had waited for perfection, it probably never would have left the building," says Professional Services Industry Consultant Rex Moorman, who worked on the iVUE development team.

No one was prouder than Hobson and Dosch of how the employees came together. "There's a story behind every single employee in this building, in some fashion or another, of how they contributed to the success of the organization," says Hobson.

Wilbanks and his team solicited from employees suggested names for the new software. It was an integrated view – a melding of different products into one streamlined system. That became known as iVUE. The new software entered beta testing amid a burst of optimism.

Early iVUE screen design, like this Point of Sale screen, provided a contemporary look and feel for the time.

While developers wrangled over the software design, support and implementation staff asked Members to weigh in: What information should be at the top of the screen? What should be at the bottom? Member Advisory Committees (MACs) became a key way of gaining feedback, and they continue to be a conduit for gathering input on software enhancements and development. Today, seven MACs, focusing on different products or industries, meet as often as six times a year.

NISC also sent out updates to Members to keep them engaged with Project Discovery. In September 2003, just as the first Member was preparing to go live with iVUE in a few weeks, NISC held its first joint Member Information Conference (MIC) in St. Louis, rather than having separate conferences in North Dakota and Missouri. Telecom Members met in one hotel and electric Members in another; they came together for general sessions.

Marty Nester-Peavy planned the first Member conference for CADP in 1975, so she understood the power of bringing Members together. In that first event, CADP initially planned to hold the conference in the restaurant and lounge of a St. Louis hotel, but to accommodate the enthusiastic response, they moved to a larger hotel with meeting rooms – and held a second, even larger gathering the next week.

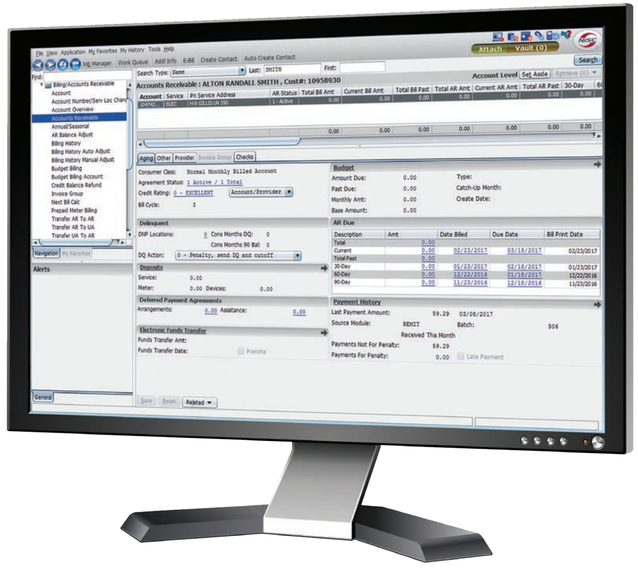
"We began, even at that very first meeting, listening to all of the Members and what they told us they needed," she says.

"They could say, 'We know this is what [the software] does now, but we need it to do *this*.'"

Just before Nester-Peavy retired in 2003, a prototype of the new iVUE software was ready for her and other NISC staff to share with Members so that they could try it out. Reactions varied widely. Some were uncomfortable with change. Others wanted it "as fast as you could give it to them," Nester-Peavy says.

The Board pushed Dosch and the NISC staff to make the new software ready as quickly as possible. The lull of a rewrite can be deadly to a tech company. But "cooperation among cooperatives" is one of the core cooperative principles, so the Members were patient.

"A first-class product – that's what we were more concerned about than anything else," says Delbert Smith, retired General Manager of Lamb County Electric Cooperative in Littlefield, Texas, and first Chairman of the NISC Board.



(Above) iVUE's screen design today features a sleek look. (Below) Members test drive iVUE at the 2003 MIC, before its initial release at Central Indiana Power, now NineStar Connect.

November 2003. The time had come. NISC employees had practically been living at Central Indiana Power (now called NineStar Connect) in Greenfield, Indiana, which would be the first Member to move from CAPS to iVUE, NISC's new software. So many details needed attention – cleaning up the data, practicing with the new screens, learning about new features, making sure all the co-op's rates were included in the software. Customer service reps ran the bill calculations on the current system and then repeated it on iVUE, to make sure data was accurate and in sync.

If they ran into a glitch, NISC programmers went to work on a fix. Central Indiana knew they were shaping not only

their day-to-day workflow, but the functionality for other NISC Members, too.

"It was a pretty exciting challenge," says Debbie Roberts, who was in customer billing at Central Indiana at the time. "You had to really stop and think what we really wanted to see and what would be beneficial to everybody."

Implementers today are the picture of calm confidence, born of experience. But in 2003, they were adjusting to the new software, too, which remained a work in progress.

"We were still dealing with learning things about the iVUE software that had to be enhanced and capturing the things that weren't working the way we wanted them," says Keith Horntvedt, Sr. Manager of Professional Services.

Dan Wilbanks joined the team on site for Go Live Day. Years of intense effort culminated in this moment. The morning calls came in, and with a little coaching, the customer service reps navigated their new screens.

"The last day we were on site, we had cake and party hats and kind of celebrated a little bit," recalls Rex Moorman of the NISC staff.

But of course, that was just the beginning. In April 2004, Capital Electric Cooperative in Bismarck became the first site to move from Horizon, the NCDC legacy system, to iVUE. Along with the usual travails of converting data to be accessible to the new software, Capital Electric needed to cope with gaps, differences between the Horizon system and iVUE. For example, Horizon had an interface between utility billing and the general ledger; iVUE didn't yet have that capability. Some of the data had to be entered manually. (Programmers updated iVUE frequently in that first year, and enhancements continued at a regular pace.)

The Capital Electric implementation had a theme – "One bite at a time." Deb Burke's father, a cartoonist, drew a picture of an elephant with a bite taken out, which became their logo. They would persevere and overcome challenges little by little.

As at Central Indiana, on Go Live Day, the first calls came in with a team from NISC standing by to help. Weeks of training and months of preparation paid off. By the afternoon break, it was clear that everything was working – and the co-op and NISC employees celebrated with a cake with the logo, on elephant plates.

"It was a big sense of relief and accomplishment," says Shelley Ness, who was a Billing Supervisor at Capital Electric and is now a Support Specialist at NISC.

Another moment of anxiety came when it was time to process Capital's first bills on iVUE. The font size had changed, and there were some issues in the bill printing. Michelle Ward, now Luecal, who was then Vice President for People Services at NISC, along with Burke and other NISC employees came to the rescue, manually stuffing bills into envelopes to make sure they were mailed on time.

"I always knew NISC was there for us, no matter what happened," Ness says.

It took years to roll out the new software, as Telecom

GO BIG: BRIAN WOLF'S LEGACY LIVES ON

We have to be able to change our tires going 60 miles an hour. If we can't do that, we're likely to fall into a ditch.

As in one of his favorite sayings, Brian Wolf was someone who could metaphorically change tires while zooming down the highway – an agile leader comfortable with constant change, a Chief Operating Officer who steered his company toward best practices, a family man full of corny but meaningful expressions. He liked to say, "Go big or go home," and he exemplified that mantra with his passion, his larger-than-life persona and his impact on NISC.

Wolf died in 2008 at the age of 46 after a battle with lung cancer, but his legacy lives on at NISC through the project management practices he brought to NISC and his emphasis on professional development of employees.

For example, Wolf encouraged training all supervisors in coaching skills, an approach patterned after Ken Blanchard's "situational leadership," a leadership style that supports the needs of individuals and teams. In recognition of his passion for learning, NISC's training program is now called the Brian Wolf National IT Learning Center.

"He was a champion for the employee and the value of growing the employee to better serve the Member," says Pat Shafer, who worked for Wolf and helped establish the learning center. She is now an NISC Sr. Consultant for Organizational Development.

His focus on project management led to integrated products. Implementing software at new Member sites could be difficult and time-consuming, but he added structure to the process. Employees trained as project managers would plan, execute and monitor the work, bringing together people from different departments as necessary. He organized a team to define service excellence, creating standards for customer support.

That culture lives on at NISC. "When Brian Wolf came, that's really when things changed," says Doug Wilmes, Team Lead of Professional Services. "We saw a better way to do things."

Before coming to NISC in 2004, Wolf worked for Basin Electric Power Cooperative in Bismarck and as the first Chief Information Officer for the state of Montana. He threw himself into his work at NISC and its commitment to servant leadership. To take on his role at NISC, he moved his family from North Dakota to Missouri.

"He only wanted to help [CEO] Vern [Dosch] make this a great company," says his wife, Kathy, who works in scheduling for NISC's Automated Mailroom Services (AMS).

A nonsmoker, Wolf rarely missed a day at the office and worked up until a week before his death. Even when he was gaunt and weak from his chemotherapy treatments, Wolf insisted on presenting before the Member Information Conference.

Today, a bench near the walking path on the Lake Saint Louis campus memorializes him. But his true legacy is reflected in his impact on individuals as well as operations at NISC.

The late Brian Wolf, NISC COO from 2004 to 2008, brought project management practices to NISC, paving the way for staff to achieve a 100 percent completion rate on new Member implementations. Wolf was committed to situational leadership that supported the needs of individuals and teams.

Rural electric leaders sought to bring computerization to their organizations through a concept of regional data processing centers throughout the country. The National Rural Electric Cooperative Association (NRECA) conducted feasibility studies and closely worked with the centers on systems design and programming in the late 1960s and early 1970s. Today, NISC and NRECA continue to share ideas on advancing technology in the rural electric program. Jo Ann Emerson (left, with Vern Dosch), then NRECA CEO, visited NISC's Missouri office in 2015.

"The work that you do, the creativity and innovation that you bring to your jobs each and every day, ends up making a difference in the lives of people all over this country, and so I want to thank you for that."

– JO ANN EMERSON
NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION

Members moved from Horizon to iVUE and later as NISC introduced the Accounting and Business Solutions (ABS) functionality. Each version posed distinct challenges. The ABS software relied on Horizon as a platform, so the implementation was a bigger adjustment for former CAPS users.

Kris Pegors, a Team Lead for Member Support, recalls a race against time when software was ready to be released. "We had 12 of us in a room in the basement of Building C [in Mandan], mass-testing software to release it," she says.

NISC continued to support Horizon and CAPS as Members gradually converted to iVUE. Some were at first reluctant to make the change; others anxiously awaited their turn. The last Member with a legacy system switched to iVUE in 2012.

Developers continuously update iVUE to keep pace with changing Member needs. While the original iVUE software contained 6 million lines of code, today that has grown to

over 25 million lines of code. Use of the software continues to grow. In 2017, iVUE Accounting and Business Solutions hit a milestone with its installation at the 700th Member site. Annually, ABS software calculates over 1 million paychecks, tracking an annual payroll of over $2.5 billion for 41,000 employees at NISC Member sites.

And every year, about 50 more utilities or telecoms choose NISC's ABS product over offerings from prominent software companies such as Oracle. Members have driven the ABS success by shaping the functionality that is tailored for utilities and telecoms, says Ed Wolff, Vice President for Professional Services. "They have helped us provide a product that is literally beating [companies that are considered] 'the world's best,'" he says.

In 2016, NISC Members converged on the cavernous America's Center convention complex in downtown St. Louis for the Member Information Conference (MIC), where they could test

SHARED VALUES

Relationships

A BROKEN SERVER IS NO MATCH FOR THE BOND WITH MEMBERS

Technology moves at a dizzying pace, but for SEI Communications in Dillsboro, Indiana, it rests on a firm and lasting bedrock of relationships. When the cooperative brought fiber optic internet to southeastern Indiana, putting the region on par with its urban counterparts, it kept its priority on serving its loyal members and valuing its longtime employees.

That focus on relationships underlies the connection between SEI and NISC. SEI first came to NISC in 2010 seeking to replace an "antiquated" carrier access billing product. Then SEI expanded into other products. Since NISC was a cooperative, "We felt that type of relationship would be a good fit with our company," says General Manager Tony Clark.

The strong commitment to relationships proved to be a lifesaver on a Friday morning in August 2016, when SEI suddenly experienced a problem with one of its servers. NISC was able to investigate the issue remotely and determined that it was a malfunction in the hardware. Even more alarming, through an oversight, the service agreement on the Dell server had lapsed.

While the server was down, customer service representatives took orders manually. They had no access to customer records. Initially, Dell promised to have the server running by Tuesday. Mike Weber, then Technical Services Implementations and Support Manager, and his team began working with Dell, relying on their own long-standing business relationship.

Dell agreed to rush the parts to Dillsboro and send a repair technician on Saturday. Weber called SEI's IT supervisor at 1 a.m. to tell him about the plans. "I know I woke him up, but I knew it was worth it," says Weber.

By Monday morning, the server was up and running — and covered retroactively by a renewed service agreement.

The episode confirmed Clark's decision to shift to NISC. "We thrive on customer service and making sure our members come first with new products and services we offer. NISC does the same," he says. "They take care of their Members."

It meant a long day for Mike Weber, but a satisfying one. "Going forward, they know they're with the right partners, and that's what's important," he says.

NISC launched iVUE at the 2003 Member Information Conference, along with the adopted tagline, "The Vision to See. The Power to Do." Members test drive the CIS (Customer Information System-Utility) and SIS (Subscriber Information System-Telecom) and NISC staff member John Lewis (standing) presents details on iVUE.

out prototypes of new software and learn about new features in the products they use every day. More than 2,500 people attended over the two weeks — record-breaking attendance — and about 30 percent of the sessions were led by Members sharing their experiences and advice with their peers.

The 2016 MIC, titled "Beyond Tomorrow," promised a peek at the future. It also offered a chance for many longtime Members to reflect on the journey and marvel at how far NISC had come. In his opening remarks, CEO Vern Dosch spoke about management consultant Jim Collins and his book *Good to Great: Why Some Companies Make the Leap...and Others Don't*.

Collins talks about the "flywheel effect," in which decisions and actions build on each other to create positive energy and progress. That is what has happened at NISC since the merger, Dosch said.

"You can just feel the momentum. That's what we're feeling. We're feeling this flywheel and it's moving faster and faster," he said. "And many of you remember when we started this process that flywheel wasn't moving very fast, and we all had to put our shoulders to the flywheel to start it moving. And now it's spinning."

Courage and conviction in the ability to create a new generation of software products. Loyalty and trust on the part of Members to wait for those solutions. Those are the factors that pushed NISC toward success. The momentum — the growth in Members, revenue and margin — "is a testament to the cooperative business model," said Dosch.

NISC'S HEART: THE BENEVOLENCE COMMITTEE TAKES CARE OF 'FAMILY'

At first, when Shanon Bogren's 18-year-old son, Jamison, became bone-tired — drifting off in class, dozing during the day, sleeping so soundly she could hardly wake him — she thought it was just a consequence of too many late nights. Then she thought of all the typical ailments that cause fatigue, such as anemia or mononucleosis.

After a CT scan, the doctor came into the room and said, "I don't really know how to tell you this, but your son has a very large brain tumor in the middle of his head." Thus began a hellish and terrifying period of chemotherapy, brain surgeries, proton radiation and after-effects — a time Bogren, an NISC Professional Services Consultant, and her family were able to endure because of the emotional and financial support of the NISC employees through the Benevolence Committee.

The Benevolence Committee provides support to employees ranging from personalized gifts for new parents to assistance for employees facing unexpected financial hardships. Employees elect the members of the committee from each of NISC's four offices — Mandan, North Dakota; Lake Saint Louis, Missouri; Cedar Rapids, Iowa; and Shawano, Wisconsin. Employees can donate directly from their paychecks, and NISC matches all donations. Proceeds from the book *Wired Differently* also go to the Benevolence Fund. The recipients are confidential.

"We don't have any guidelines about how much we can give out for a request. We have the freedom as a committee to make those decisions," says Justin West, a Team Lead for Development and Co-Chair of the Benevolence Committee. West received help when his 2-year-old son was diagnosed with a brain tumor in 2012.

Bogren traveled with her son to the Mayo Clinic in Rochester, Minnesota. He was in a coma for two weeks after his surgery, then suffered a stroke and seizures. She took family leave, and when it ran out, she worked part-time from his hospital room. As Jamison was relearning how to walk and talk, his neurosurgeon and pediatric oncologist gave him his high school diploma in the hospital. The Bogrens were later told that Jamison's Mayo physicians gave him a 5 percent chance of surviving.

The Benevolence Committee helped cover expenses of living in Rochester so that Bogren could care for her son without draining her life savings.

"I know that if I hadn't been working for NISC, I wouldn't have had a job to come back to," she says. "My manager, my team lead and even [CEO] Vern [Dosch] said right from the start, 'We have your back.' Those were the exact words they used."

Today, Bogren's son is a full-time college student. He still has some impairments but he is thriving. Bogren is back at work full-time — and she serves on the Benevolence Committee, giving back to others. She is humbled by her experience and committed to paying it forward.

"We're taking care of our family," she says. "That's what it comes down to."

Shanon Bogren and her son Jamison enjoy the Colorado mountains in August 2017 while in Denver for Jamison to participate in 10 days of intense brain rehab.

The Member Information Conference moved to a one-week format in 2017. Over 2,300 rural electric and telecom staff were welcomed by NISC CEO Vern Dosch in the opening session at America's Center in St. Louis.

NISC Facilities

Lake Saint Louis, MO

CADP moved from leased office space in University City, Missouri, to a newly built facility in St. Peters, Missouri, in 1976 and expanded to a second building, 1.5 miles away, in 1998. The NISC Lake Saint Louis office opened in May 2005, consolidating Missouri staff into one facility. Today, over 540 employees work at the Missouri location.

Mandan, ND

Facilities were leased from the North Dakota Association of Rural Electric Cooperatives until 1984 when NCDC built its own headquarters facility on land adjacent to the statewide. The facility was expanded in 1996 and 2002, and a separate building was constructed for Capturis – then Utility Bill Pay – in 2009.

Cedar Rapids, IA

Shortly after NISC acquired Quintrex Data Systems in Cedar Rapids, Iowa, staff moved to an updated facility. The building, 50% solar-powered, is LEED (Leadership in Energy and Environmental Design) gold certified. Today, 52 employees work in the 12,000 square-foot space.

Shawano, WI

Computer Systems LLC (CSLLC) relocated in downtown Shawano several times before moving to its current location in November 1999. Today, 19 employees work in the NISC Shawano, Wisconsin, office.

New Construction

Lake Saint Louis | AMS Expansion

In 2016, a 44,000 square-foot expansion provided additional work spaces and doubled facility space for Automated Mailroom Services. With the expansion, the Lake Saint Louis campus covers 179,000 square feet.

Mandan | Administration Building Expansion

A 33,000 square-foot addition in 2016 provided a new lobby, kitchen and lunchroom, boardroom, conference rooms and work space facilities. With the expansion, the Mandan campus is 130,000 square feet. Today, over 420 employees work on the campus.

NineStar Connect Lineman Eric Truitt in 2017.

THE POWER OF POSSIBILITY

CHAPTER FOUR

50 years of Innovation and Member Service

An Enterprise of Excellence

John Jones just moved into 123 Main Street, and he wants electric service, internet and television. As Angie Freeman, a Customer Service Representative at NineStar Connect in Greenfield, Indiana, settles in front of the computer screen, she wonders how complicated it will be to complete a new service order for Jones.

Will he need to pay a deposit? Will he understand the difference between a basic bundle and the premium version? Will it be easy to schedule his installation? Or will John Jones need to call back to make this happen?

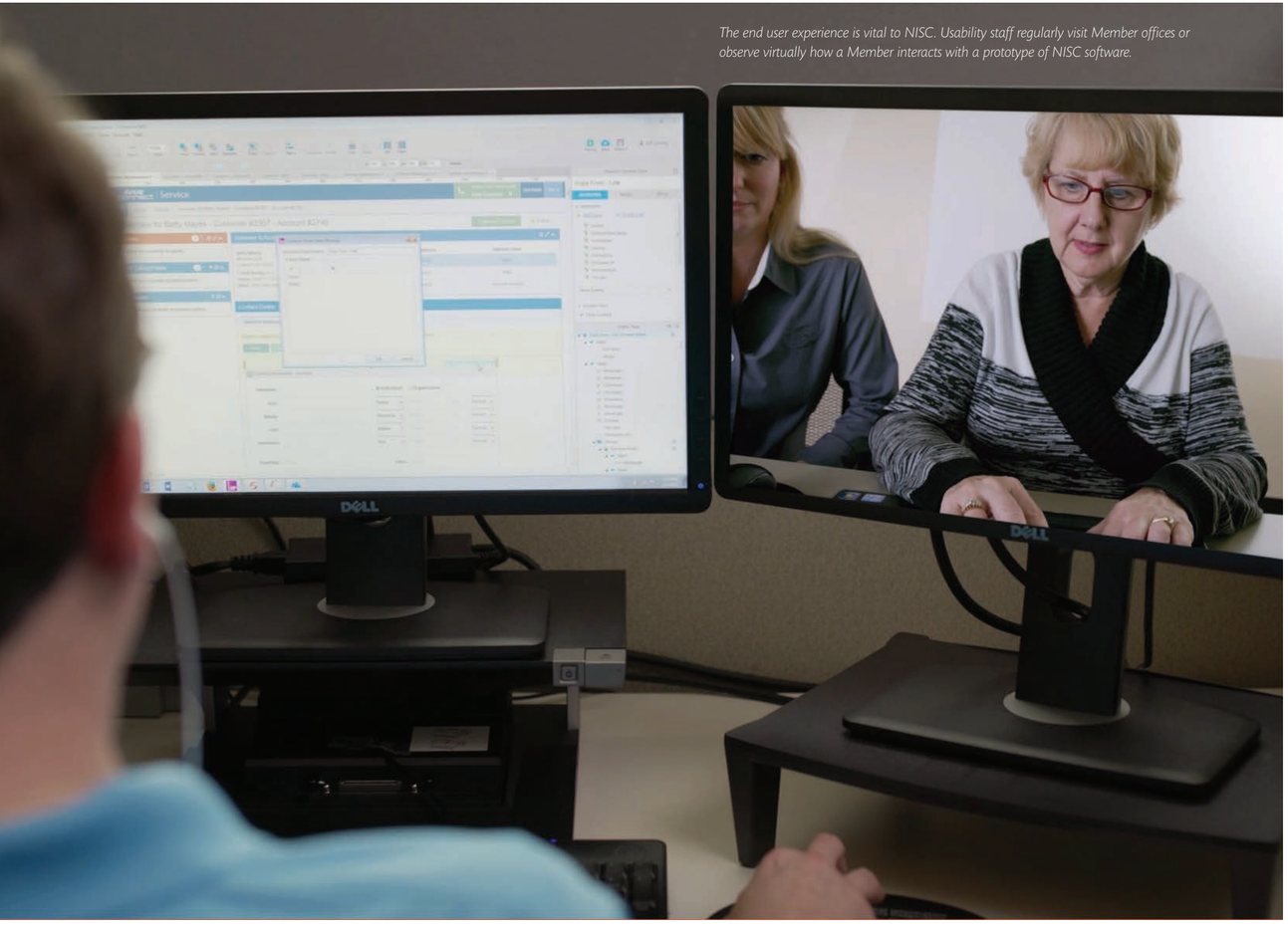
Freeman looks at the sky-blue bars on the screen and its clickable tabs, as the cursor hovers in the white space beyond John Jones' name. Laura Matthews, User Experience Manager at NISC, is sitting by Freeman's side to gauge how she responds. John Jones is a fictitious customer, but this exercise will help shape the future of customer service at NineStar and hundreds of other Member offices.

Freeman is helping to evaluate a prototype of some new customer care and billing functions in iVUE Connect, NISC's new cloud-based software. iVUE Connect is accessible on tablets and mobile devices, providing the ultimate flexibility.

Matthews asks Freeman how she feels about the current system she uses. "What are your biggest frustrations?"

"All the different screens to find the answers I need," Freeman says. "I can't access one place to access everything."

Matthews prompts Freeman to click Start Service Order on the prototype. A screen appears with simple boxes that can be used to set up electric, internet and television service. Multiple service options are becoming more common as NISC Members enter new realms. NineStar is a case in point – the 2011 merger of an electric and a telecom co-op.



The end user experience is vital to NISC. Usability staff regularly visit Member offices or observe virtually how a Member interacts with a prototype of NISC software.

Today, Freeman's cubicle is plastered with papers describing the bundles and specialty television viewing choices. With the iVUE Connect prototype screen, she can click a check box on the packages that might interest her customer and instantly see a side-by-side comparison. When she adds a service, it updates the total cost, so she can tell the customer how much the bill would be with premium channels or without.

"This would be huge in saving time with a new customer," says Freeman.

The hour-long exercise of scrolling through an imaginary order seems simple, intuitive, uneventful. But it actually represents NISC's commitment to ensuring Members help drive the design of NISC solutions.

What does a programmer just a couple of years out of college know about how a lineman maintains the electric grid? What does a software developer know about the questions a customer will ask about bill payments? Yet their job is to take the real-life experiences of Members and translate them into the technical infrastructure of code.

Matthews and her Usability Team give vital Member feedback. They began the development process for iVUE Connect by observing customer service representatives. They put on headsets to listen in on calls. They videotaped users of the iVUE software. They took notes on the exact steps required to complete a task, such as signing up a customer for prepaid billing. They counted the number of clicks it took to perform a task in iVUE and made sure iVUE Connect used fewer clicks.

They want the software to be intuitive. If the customer service rep becomes confused and has no idea how to navigate the screen to access some information, that's a "red light" that sends the Usability Team back to tweak the prototype. Matthews reminds the software developers, "You can't code it until we make sure it's right."

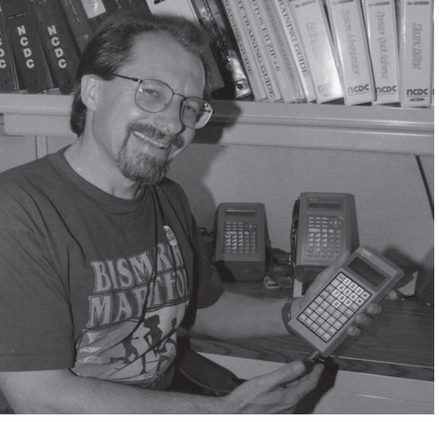
This approach steeps the software in day-to-day reality. While many customer service reps remember the challenges of adjusting to iVUE, they hardly skip a beat with the transition to iVUE Connect.

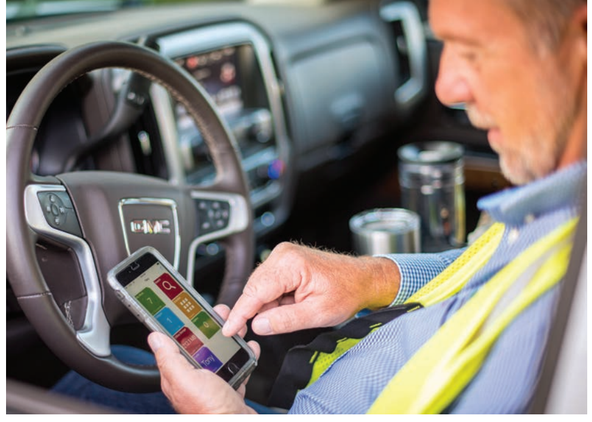
"iVUE Connect was put out in a live environment with three five-minute training videos, and they just used it," says Matthews of beta-testing sites. "It was an amazing accomplishment."

When Members marvel at the natural flow of the redesigned software, John Alls, a Team Lead for Member Support, gives the credit to them. "It does this because utilities like you took the time to sit with us and tell us what you do and why you do it," he says. "That partnership makes a big difference."

NISC's offices are a mix of Midwestern practicality and the collaborative spaces you would expect from a tech company. In rows of cubicles, employees may look out at a vista of prairie or suburb. In other areas, conference and "innovation" rooms offer wall-to-wall whiteboards or laptop projections.

Employees see poster-sized photographs as they walk along a corridor: a lineman carries equipment to a truck, a customer service representative awaits a call at her desk,





Far left: NCDC's Mike Hamkens displays a meter reading device first used in the late 1980s. The data was transferred to the Member's files for processing. By 2017, iVUE AppSuite (adjacent photo) was in use at nearly 500 Member sites.

telecom technicians use NISC's mobile iVUE AppSuite™ product in the field.

None of the people in these photographs work for NISC. But NISC works for them.

"As we're walking down the halls and through the different buildings, and we see those pictures, it is always top of mind for us why we do what we do and who it is we serve," says Dosch.

Most of NISC's employees have never worked for an electric utility or telecom, so the 2017 Employee Learning Quarter, a series of employee education modules, focused on the Members' perspective.

Don Franklund, Co-General Manager of Innovative Energy Alliance, an NISC Member site, came to the first session to help employees understand just how vital their jobs are to Members. A former lineman, Franklund now co-manages four electric co-ops in southwestern North Dakota.

NISC's products are "enterprise-wide," and that means they touch every facet of the Member's organization, from customer billing to payroll to operations or outage management, in the case of electric utilities. Franklund described linemen trekking out at 2 a.m. in the middle of a blizzard with a laptop or a tablet, or a lineman checking the software to determine if a line is open and whether it is safe to close two switches together.

"The guy who's out there working on the line is depending upon your product," says Franklund. "You are as vital to every distribution co-op out there as the pickup is that takes the guys to the outage."

Keeping that lineman safe requires fluid communication. NISC's products are integrated to feel like a single piece of software. Or, as Michaela Addison, a Sr. Software Sales Specialist, titled her explanatory session at the 2016 Member Information Conference, "NISC Enterprise: Like Star Trek, But Better."

Information flows like the starship gliding through the galaxy. "Enter the data one time, and it passes through as it needs to," Addison explained.

continued on page 84

SHARED VALUES

Teamwork

STAND-UP PEOPLE: COLLABORATING TO ENHANCE SOFTWARE

In bright red and blue marker, diagrams of workflow and electric grids sprawl across third-floor windows that face the NISC headquarters front drive in Lake Saint Louis. The glass panes seem to be an appropriate place for notations of spontaneous brainstorming. NISC developers literally see the world through a constant process of innovation, collaboration and problem-solving.

At 8:30 each morning, while workers in nearby office buildings are just pouring their morning coffee, the NISC team specializing in mapping systems gathers in a small conference room. "Stand-up" meetings like this one have the feel of a huddle — although no one actually stands. Held throughout the organization, they provide a valuable opportunity to discuss ideas and gain feedback from co-workers.

On one Friday morning, the mapping systems team regroups after a visit to an electric cooperative in Illinois the previous day. They climbed into a lineman's truck, saw the physical layout of the system that appears on NISC's MapWise™ product and walked through a substation. The lineman explained how he uses MapWise to manage work orders and respond to problem spots.

"If we understand what our users do on a daily basis, we can write better software," says Programming Team Lead Doug Huttegger.

Justin Burd, an NISC developer who works on an iOS product that runs on iPads and iPhones, and Andrew Schrader, another developer, who maintains the Android version, use their "stand-up" time to stay in sync so that updates flow to both formats. Erik Verduin, a recent recruit, looks for feedback on an error message triggered by his code. And the team tackles issues with third-party software products that impact their work.

Regular releases of software, including monthly updates to the mobile product AppSuite, respond to Members' needs. But code changes can cause unexpected issues, and today Huttegger raises an alert. "Did you see we had a series of crashes yesterday? We're going to need to look at that pretty quickly," he says. Occasionally, the developers send out a "hot fix" to keep the software running smoothly.

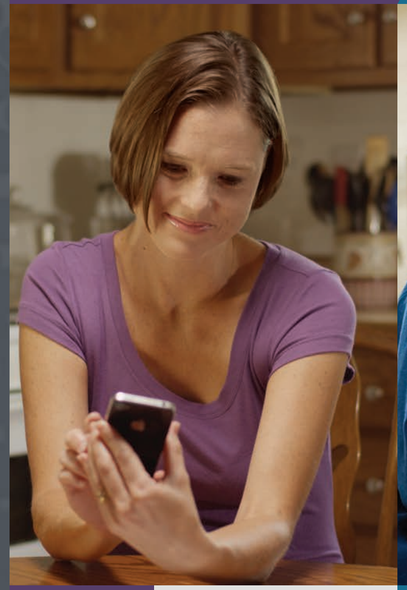
As the meeting nears its close, the conversation turns to the future. An increasing number of Members provide both electric and telecom services. Some offer water, sewer, trash or gas. The mapping software now has separate workflows for each service, but NISC will soon move toward an integrated system — everything on one map.

That is an important conversation, says Huttegger. Too big for a stand-up meeting, it will form the basis for a Joint Application Development session that includes utility and telecom Members.

NISC Research and Development staff (left to right) John Ferlisi, Patrick O'Brien and Paul Blessing review an issue on a tablet.

Enterprise Integration

Consumer initiates service request



1

smart hub

Service order automatically created and work order created

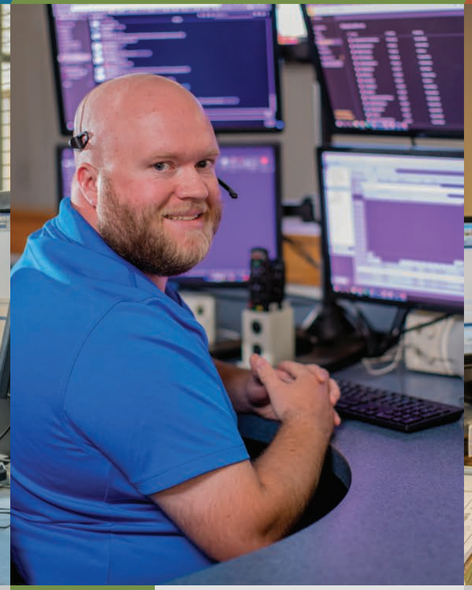
2

iVUE connect

Customer Care

Accounting

Operations notified, field staff scheduled and staking performed



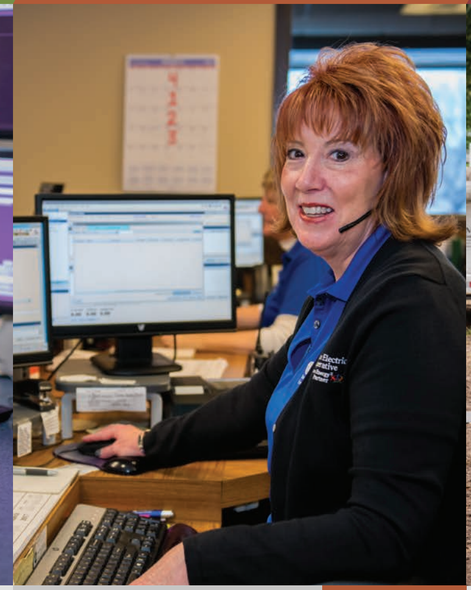
3

NISC SmartTrack

MAPWise

Mobile WorkForce

Miscellaneous Receivable invoice generated and paid



smart hub

Customer Care

Accounting

4

Installation completed and photo collected

iVUE AppSuite

Document VAULT

iVUE Document Imaging and Storage Solutions

5

Service order and work order closed; system additions incorporated into map

MAPWise

Customer Care

Accounting

6

(Above) A lineman from Adams Electric Cooperative in Pennsylvania doesn't let a little winter weather deter him. (Right) When processing meter exchanges in the field, Perry Wilson of NineStar Connect accesses iVUE Mobile WorkForce via a laptop.

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She showed a colorful flowchart involving integrated NISC software solutions. It begins with a customer's SmartHub request to install a security light at his barn. Seamlessly, automatic alerts keep the task on track as the request moves from the customer service representative who needs to create a service order and take payment to the engineer who needs to map the pole and finally to the field operator who installs the pole and light. Employees in the field use AppSuite on an iPad to manage their service orders and even to take a photo of the finished job.

In a storm, that quick movement of information saves precious time. The Outage Management System flows through AppSuite – a far cry from the days when linemen carried thick map books in their trucks and utilities stuck pins in a wall map to mark the outages. Dispatchers wrote customer information on sticky notes that they attached to the map, and they sorted outage information on index cards. In the 1990s, utilities moved to mapping software on PCs and laptops.

ANNUAL MEETING APP: A TRULY MEMBER-DRIVEN IDEA

At 8 a.m. when the doors opened for the Annual Meeting of Cumberland Electric Membership Cooperative in Clarksville, Tennessee, a line formed pretty quickly. At the check-in table, it took a few minutes to verify the membership status of each member and to determine who could vote in Board elections. The co-op of about 90,000 members typically attracts about 800 to 1,000 members to the meeting, which features a breakfast buffet and informational exhibits.

The bottleneck around registration occurred just once a year; this was not an issue for the day-to-day operations of the cooperative. But still, Jeff Bryant, who was Supervisor of Information Systems and General Accounting, knew technology could make the process more efficient.

Bryant brought up the issue at the Large Utility Member Advisory Committee and encouraged NISC staff to add software that could pull the necessary information from customer accounts. The Annual Meeting app turned out to be better than Bryant had imagined. Instead of using laptops at the meetings, which are held at different public schools within the service territory, Cumberland switched to iPads.

The lines are gone because the iPad registration is quick and easy. "They put the functionality in a mobile app," says Bryant, who retired in 2016.

Other large Members were interested in the app, which has become a popular way to handle Annual Meeting registration. It can be used to verify a quorum and to select random door prize winners. The Annual Meeting app is just one example of how Members – large and small – shape NISC products.

"Our Advisory Committees work very closely with us to help identify enhancements to our products, or in this case, whole new functionality that helps them succeed," says Doug Remboldt, Vice President of Member Support. "The Annual Meeting app was a need identified by our Members and Advisory Committees, and it's now in the field."

Bryant was pleased that the app solved his problem – and helped other Members. "They took the idea and made sure it would work for a lot of folks," he says.

Callaway Electric Cooperative in Fulton, Missouri, registers members at their Annual Meeting in February 2016 using the NISC Annual Meeting app. Running on iPads, the app streamlines large meeting functionality, handling everything from registration to door prizes. Photo courtesy of Callaway.

NISC's graphics-based, user-friendly Outage Management System actually predates iVUE. Soon after the merger, developers wrote the software in the Java programming language as a kind of proof of concept to show how it would reshape the Member experience. But the release of AppSuite in 2012, with a unique mobile platform, was a real game-changer.

"We're one of only a few [companies] that can truly claim to have a world-class enterprise solution that enables a smarter grid and a smarter utility," says David Bonnett, Vice President of Product Management.

Thanks to the technology upgrades, average outage times have declined from about two and one-half hours to an hour, says Chet Aubin, CEO of Johnson County REMC in Franklin, Indiana, and a former Board member of CADP and NISC. "There are times we go out and restore a customer's power and they don't even know they've been off," he says.

Telecom Members have gained great efficiencies as well. As they added new services, such as broadband options and television programming bundles, they needed an easy way to make changes. SwitchTalk[2], released in 2011, enabled customer service representatives to connect or disconnect services without sending a service technician to visit the customer's home or office.

Now, customers who want to add a special channel to watch a movie or sporting event can order and pay for the change through SmartHub. NISC also tackled the complexities of incorporating a wide range of technologies, including high-definition television and cellular – and the demand for convenience remains strong.

"The customer is going to have control of what they want and don't want, and they're going to access it from their wireless device or tablet," says Dennis Thornock, CEO and General Manager of Custer Telephone Cooperative in Challis, Idaho. "They're going to connect and buy services without even talking to anyone at the provider level."

Some of the smallest rural utilities in the United States have better technology tools at their fingertips than huge investor-owned utilities. That has been possible because of the steady growth of NISC – the sharing of the investment in research and development among a large group of Members.

EVERY QUESTION HAS AN ANSWER IN THE NISC COMMUNITY

Think of a place where you can share the latest company news, congratulate a co-worker who just had a baby, give some tips to a Member and connect with the latest training on a new product. This is a virtual spot – you don't have to leave your desk and hang around the office coffeepot. The NISC Community is just a few clicks away.

In 2009 NISC launched the Community as a way to share information and build connections. It has since become an indispensable tool for employees and Members, with about 26,000 registered users.

In a section of the Community dedicated for Member use and information, Members can pose questions, read about NISC products, prepare for software updates and access online training stored in Pathways, NISC's learning portal. NISC employees monitor the Member site so that they can respond to questions.

When trouble shooting / problem solving, our field personnel are learning more about the powerful features in AppSuite. Another feature that would be extremely helpful would be the ability to view outage history. Is this on the AppSuite road map?

A stream of other Members agreed they wanted to be able to see outage history when looking at a customer account. NISC Engineering Support Team Lead Leslie Boyd gathered more details and use case information from Members, and a few months later, Tracy Langston, a Product Line Manager, announced that the next monthly update of AppSuite would include that feature.

Does anyone have a brochure or a nicely designed info sheet to hand out to customers with step-by-step instructions on how to use SmartHub?

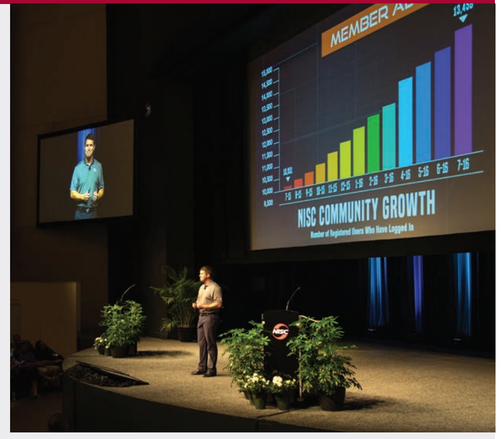
A Member posted a file that their organization used as a trifold brochure inserted into bills.

Do you wish that your customers could port their numbers in without calling into the office? Now they can. SmartHub Order Management now has the ability to process Port-In Connect orders. If this interests you, please reach out to shom-support@nisc.co-op and we can help guide you through a few steps to get this up and running at your company.

Catherine Kvindlog, an NISC Professional Services Specialist, had answered the question even before Members thought to ask.

On the employee side of the Community, Vern Dosch provides blogs with updates about company strategy, encouragement to address challenges and gratitude for successes. In the "NISC Minute," Jasper Schneider, Vice President, Member and Industry, interviews employees and spotlights different aspects of the company to provide an "insider's" look. For example, he gave a quick walk-through of the NISC Annual Meeting and traveled to Cedar Rapids, Iowa, to familiarize other employees with that location.

The NISC Community continues to evolve, providing intuitive navigation and easy access to the most common features. "We're continually trying to improve and make it easier for people to access the information they need as soon as they log in," says Tammy Eck, Enterprise Community Specialist.



Since its release in 2009, the NISC Community continues to grow in use and content, as explained by Jasper Schneider, VP Member and Industry, at the 2016 Member Information Conference. As of 2018, the Community hosted over 26,000 registered users who can post queries, receive answers, access training material, read blogs and more.

NISC Members form a disparate group, spanning the United States and beyond, ranging from sparsely populated mountainsides and valleys to bustling small cities to expanding suburbs. NISC designs products with their varying needs in mind, says Harry Barnes, NISC Board Chairman and a Board Director for 3 Rivers Communications Cooperative in Fairfield, Montana.

"That diversity of customers helps us develop a better, more effective product line and make meaningful changes that could potentially affect all of our customer-owners," he says. "That enables us to continue to grow because we offer a more complete package."

With the addition of new products and new Members, NISC becomes stronger. NISC has not increased rates to Member co-ops since 2009 – while margins have grown.

Over the years, NISC took advantage of opportunities to benefit Members. In 2002, a subsidiary, iGEAR, began providing products imprinted or embroidered with logos to Members and other companies, including shirts, fire-retardant gear and caps. In 2015, it became an LLC, and the following year, iGEAR became an authorized distributor of Under Armour products, adding to a stable of top manufacturers such as Adidas and Nike.

"We call it 'quality products at cooperative pricing,'" says NISC Chief Financial Officer Tracy Porter.

In a wing of the Mandan office, iGEAR runs a commercial embroidery operation that generates $3.5 million in revenue a year. "If this was a standalone business, this would be big," says Porter.

But not nearly as big as Capturis, another NISC subsidiary that pays the multiple monthly utility bills for large, multisite corporations and helps them manage their energy consumption. Founded as Utility Bill Pay in 2000, Capturis now brings in about $9 million in annual revenue.

Those ventures ultimately boost the margin that funds research and development, keeping NISC on the leading edge of technology. As CEO Vern Dosch likes to say, "There is no mission without margin." He's humbled by NISC's success and the ability to return 30 percent of its overall margin to Members, payments known as capital credits, from 2014 through 2017.

"Every year for the last five years I've been able to say, 'This is our best year ever,'" says Porter. "I hope I can continue to do that for the next five years."

EMPLOYEES SCORE NISC AS 'BEST IN CLASS'

Ping-Pong tournaments. Red Letter Day celebrations of success. All-night gaming. The folks at NISC know how to have a good time – but don't let that fool you. That's not why the company has been named a "Best Place to Work in IT" by *Computerworld* magazine for 15 of the last 16 years.

Something much bigger keeps employees engaged and loyal. It is the corporate culture that revolves around shared values, the message of "servant leadership" from Vern Dosch and the leadership team and the practices that back that up.

Employees share in NISC's success, earning incentive bonuses of up to 3 percent of total wages, based upon the company's financial performance. NISC pays 100 percent of health insurance premiums and contributes annually to Health Savings Accounts that employees can use to pay for prescriptions or other out-of-pocket costs. They also can earn up to $1,000 for referring successful new hires.

Just as importantly, NISC makes good on its commitment to teamwork by sharing information about its operations. At quarterly employee meetings, the leadership team talks about budgets and financial results, strategic plans and business prospects, hiring and employee initiatives.

NISC tracks "Pulse" surveys of organizational effectiveness and other key metrics and strives to perform better than the "best in class" of all employers using the survey tools. In 2017, for the first time, NISC asked employees if they would like to still be working at the company three years from now. The answer was a strong "yes" – a positive score of 4.43 on a scale of 5.0, higher than the "best-in-class" average of 4.38. Employee satisfaction in working for the organization can be seen in its low turnover rate of 3.1 percent.

That parallels the findings of the *Computerworld* survey, which showed a turnover rate among NISC's programming and technical staff of just 7 percent, below the overall turnover of 8.7 percent of the 100 best workplaces. *Computerworld* highlighted NISC's "collaborative team environment" and "sense of camaraderie."

NISC has garnered other accolades for its workplace culture. It was named a 2017 top workplace by the *St. Louis Post-Dispatch* and the Bismarck-Mandan Young Professionals Network, and in 2016 it was hailed as one of the 50 top places to work in the Northern Plains states by *Prairie Business* magazine.

Dosch personally meets with every new employee to welcome them to the organization, letting them know how important it is that they have joined the NISC family.

"We are so grateful that you have chosen NISC to come to work and to be a part of our organization and the history and future of our organization," he says in an introduction to their orientation. "When I think about the important life decisions that all of us make, no doubt deciding where to go to work is one of the most important and impactful decisions you will make.

"We want you to feel comfortable and we want you to know the rest of the story of NISC, of how we became the organization we are today and the dreams and the visions that we have of the future. Today you are a part of that future, you are a part of those dreams."

NISC's culture – the employee experience – is rated highly by virtually any metric or survey, and much of that is amplified through TAG (The Activities Group) team and other internal groups that arrange monthly meet-ups, charity walks, community service days, social events and other activities.

Formerly known as Utility Bill Pay, NISC subsidiary Capturis provides utility bill payment and processing services for large multistate companies. (Below) David Aichele, Director of Capturis Operations and Development, shares plans with customers in 2017 at the annual Capturis Customer Information Conference.

Capturis
an NISC company

NISC's success hasn't gone unnoticed by the outside world. In fact, in 2006, a large corporation saw NISC as a perfect complement to its portfolio of businesses and made an astonishing proposal: Here's a blank check. Write in the number that it would take to buy NISC.

But at a cooperative, there are no investors to be enticed by the promise of unimagined wealth. The company is owned by its customers – and they care more about the quality and consistency of the products and services than a short-term windfall.

"Instead of NISC developing and supporting solutions for our business model, we would be subject to what a commercial company pushed to us, along with no input into the economic impacts it could have on the Members," says Joe Harris, retired General Manager of Kay Electric in Blackwell, Oklahoma, who was Chairman of the NISC Board at the time.

The Board turned the offer down.

In its strategic plan, NISC seeks to be a market leader and to grow its business for the benefit of Members. One example of progress toward that goal: the acquisition of telecom software companies in Shawano, Wisconsin, and Cedar Rapids, Iowa. Computer Systems LLC in Shawano had 34 employees and provided IT services to 54 telecommunications companies in 12 states when NISC purchased it in 2010. In 2011, NISC acquired Quintrex Data Systems Corp. in Cedar Rapids, Iowa, which served about 60 companies in 20 states and employed about 70 individuals.

These were not "takeovers." NISC didn't carry the cutthroat attitude often displayed in the technology world. Instead, the new employees and Members were welcomed into the

iGEAR
an NISC company

Swisher Electric Cooperative staff (top left) sport Co-op Strong T-shirts created and sold by iGEAR to benefit relief efforts for Hurricanes Harvey and Irma. Over $40,000 was raised through T-shirt sales. A wide range of apparel can be embroidered or screen printed by iGEAR, housed in the NISC Mandan, North Dakota, office.

> "Vern had a way about him of putting you at ease. The concept of servant leadership was introduced at that meeting. He talked about earning our trust. That was good to hear."
>
> – GRANT EVERS
> NATIONAL INFORMATION SOLUTIONS COOPERATIVE

fold. Grant Evers, a Manager of Research and Development, remembers when Dosch and several NISC vice presidents visited the Cedar Rapids office soon after the acquisition was announced.

"Vern had a way about him of putting you at ease," he says. "The concept of servant leadership was introduced at that meeting. He talked about earning our trust. That was good to hear."

Cedar Rapids and Shawano employees learned about the "shared values," but what mattered most was seeing them in action. For example, the original transition plan called for Quintrex operations to blend into NISC within 18 to 24 months. But the Quintrex employees had much less generous benefits. To equalize that, NISC took on the added expense of onboarding the employees more quickly.

"They just did it because it was the right thing to do," says Evers. "That said to me, 'They're really willing to take care of us as employees.' They treated us like part of the family."

It's a quiet day at Sawnee Electric Cooperative in Cumming, Georgia, as Dan Wilbanks, Todd Eisenhauer and Keith Jones of NISC walk into the control center. Dispatch Specialist Mark Ridley sits before a bank of screens, managing crews that are upgrading transformers and performing routine maintenance as their part of the grid that serves 170,000 customers.

Nothing much is happening, and that's the point. NISC established a special project nicknamed BT2016, or Block-and-Tackle 2016, to reinforce and actively demonstrate its commitment to personalized Member service. Having grown to over 800 Members, NISC wants to ensure that the close relationships it has developed with Members remain strong.

Four of the five monitors on Ridley's desk display NISC software – productivity tools such as SmartTrack® and Mobile WorkForce. One screen shows a list of scheduled tasks. On another, color-coded circles, squares and triangles track employees as they move from job to job. If an outage occurs, Ridley can quickly spot who is closest to the site.

Green and yellow blotches drift across a weather radar map of northeast Georgia showing that rain showers will stick around for a few more hours. In a major storm, this room comes alive as dispatchers use the outage

TOP BILLING: AMS PRINTS MILLIONS OF BILLS – AND KEEPS TRACK OF EACH ONE

Huge rolls of paper wind through the printer at 420 feet per minute, a process that emblazons images, stamps perforated lines, trims edges, cuts pages and stacks the sheets in one continuous, cacophonous stream. In a mere 90 seconds, a tray fills with 1,800 sheets.

Nearby, a red light flickers on inserting machines. Each blink reflects a camera shot of a bar code, capturing the electronic signal that contains specific instructions for each bill. Jane Doe has three businesses? The machine blows air to open an envelope and then shoots in three bills, along with a newsletter and a return envelope for Jane Doe's accounts.

NISC's Automated Mailroom Services (AMS) runs 24 hours a day, at a speed of 100,000 images an hour. By the end of the month, 20 million images translate into trays of mail that total $3 million in postage. On some peak days of the month, AMS fills a 53-foot trailer with mail. AMS buys ink by the pallet and paper rolls arrive by the tractor-trailer load. And the new state-of-the-art printers, which were installed in 2015, allow for growth as AMS steadily adds new customers.

This is a far cry from the days when utilities and telecoms sent out their bills on postcards. Each morning, a production team reviews the bills processed the night before and makes sure all the information is in order for the day's work. AMS employees write the software that controls the machines, design the bills and inserts, schedule the production and communicate with customers. (In addition to Member bills, AMS prints capital credit checks and some statements for outside customers.)

AMS keeps an electronic footprint of each image, and with ActivTrace mail-tracking software developed by NISC, AMS and its customers can follow the mailing path of each bill after it goes to the post office in downtown St. Louis. As an additional service, AMS can track return envelopes, so Members can anticipate how many payments they may receive on a given day.

"Our goal is to make [mail services] affordable, streamlined and efficient and to deliver the best possible service to our customers that we can," says Rick Willmann, Sr. Manager of AMS and Facilities.

(Top) Matt Carney operates one of five inserters in Automated Mailroom Services (AMS), which can insert up to 10 sheets into 26,000 envelopes per hour. (Above) Senior AMS Manager Rick Willmann, left, shows a roll-fed printer to Jasper Schneider, VP Member and Industry.

management software and other tools to maneuver crews as efficiently as possible.

"How do we make it easy?" asks Eisenhauer, NISC's Vice President for Strategy and Operations Solutions, pointing to a screen. "How do we sync those crews [to respond to outages and service orders]?"

Marty McPherson, a former lineman who is head of Sawnee dispatch, suggests the outage management software should include service orders, such as removal of a fallen tree. In a storm, the same crew restores power and cuts away obstructions.

Sawnee executives add more items to a wish list as they brainstorm in a conference room: more mobile applications, new ways to track resources during a mass outage, better use of the millions of data points generated by smart meters. Eisenhauer; Wilbanks, NISC's Vice President of Research, Development and Quality; and Jones, an NISC Regional Business Manager, take notes.

"We can't be successful unless you make us successful," says Sawnee CEO Michael Goodroe.

"We understand both sides of that equation," Wilbanks responds, letting Goodroe know that NISC's success depends on its Members as well.

VERN DOSCH: DRIVEN BY A PASSION TO SERVE

When Vern Dosch went to work for NCDC in 1986, his father thought he was making a big mistake. He had a good, stable job at Basin Electric Power Cooperative in Bismarck, but would take a pay cut to go to a company that was struggling financially.

The move was hard to explain. "I just felt that this was where I was supposed to be," says Dosch. He respected the people he knew at NCDC, so when Manager Ray Clouse called with an offer, he said yes.

"I saw how hard they worked and how passionate they were about their work. The thought of working with them was exciting and invigorating for me," Dosch recalls.

Thirty-one years later, it's clear that Dosch's decision was fortuitous — not just for him, but for NCDC and NISC. Since Dosch became CEO in 2002, NISC has doubled in size to more than 800 Members and from about 500 employees to 1,100. Gross revenue has grown from $73 million to $193 million.

Computerworld magazine has named NISC one of the nation's best workplaces in IT every year except one (in 2003) since Dosch became CEO. Help Desk Institute ranks NISC in its Elite 50 for customer satisfaction related to its customer support. The job-searching website Glassdoor indicates 94 percent of NISC employees and former employees who posted reviews anonymously said they approve of the CEO.

His belief in servant leadership and the cooperative principles shape the culture of the company he leads. Even as NISC has grown, employees still receive personal, handwritten notes or phone calls congratulating them on a work anniversary, the birth of a baby or other personal milestones. They are signed, simply, "Vern." He asks employees to call him by his first name.

While he can't meet personally with each employee, Dosch speaks to them through audio or video blogs and expresses his gratitude for their work. "Do the right thing always" is the mantra he emphasizes in leadership summits and employee meetings, and that is his personal touchstone.

His message resonates most strongly through his actions. At buffet luncheons or service award banquets that honor employees, Dosch insists on eating last. He regularly gives credit for successes to NISC's vice presidents, employees and Members. He's committed to keeping an open door and an open mind to new ideas.

Marcella Holden, Billing Supervisor with Triangle Telephone and Hill County Electric cooperatives in Havre, Montana, was once waiting to board a flight to the Member Information Conference when she found herself standing next to Dosch at the Minneapolis airport. "What's your seat?" he asked her. Then he surprised her by offering her his first-class seat, awarded by the airline due to his extensive flight miles, for the trip to St. Louis.

"He is an exceptionally bright, tough, disciplined and humble CEO. And that's a rare combination," says John Doggett, a business consultant and Senior Lecturer in Global Entrepreneurship, Management and Sustainability at the University of Texas Austin McComb School of Business.

Dosch's career moves were far from smooth sailing, so to speak. On a hot August day in 1992, serving then as NCDC Office Manager, Dosch was headed home from a software demonstration in Holyoke, Colorado, with some other NCDC employees. The Cessna was overweight, and as it took off, one engine failed. The plane didn't have enough power to gain altitude.

The pilot crash-landed in a cornfield, mowing down the 8-foot-tall corn like a combine. Luckily, everyone was safe — however, they needed to hop on a tractor to make it out of the field, and then managed to rent a used van from a local car dealer. They drove back to Mandan, arriving the next morning just in time for Dosch's interview with the NCDC Board for the CEO position. Dosch was a bit rattled, but he won Board approval.

Dosch drove 175 miles to the tiny North Dakota town of Golva, in the middle of ranches and prairie near the Montana border, to personally interview Ray Clouse for NISC's 50th anniversary celebration. He thanked Clouse for his role in creating a strong foundation for NCDC and NISC — and for his mentorship.

"Thank you for taking a chance on a guy who was wet behind the ears," Dosch said.

"But he knew where he was going," Clouse replied.

Vern Dosch meets with new employees at the NISC Lake Saint Louis office in 2017. Under Dosch's leadership, NISC has consistently been named one of Computerworld's Best Places to Work in IT in America, an achievement he credits to the Board of Directors, the cooperative business model, the leadership team and the employees themselves.

Marketing

Logo Evolution

NORTH DAKOTA ASSOCIATION OF RURAL ELECTRIC COOPERATIVES

edp division

CENTRAL AREA DATA PROCESSING CORPORATION

North Central Data Cooperative

Central Area DATA PROCESSING CORPORATION

NCDC

CADP

NCDC NiSC CADP

NiSC® National Information Solutions Cooperative

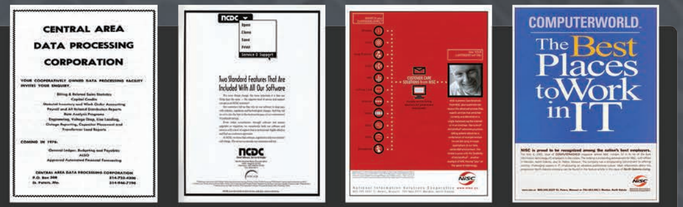
NiSC

News & Advertising

Printed and mailed newsletters gave way to online newsletters in 2005. NISC's first newsletter, INFOLink, was replaced by TeleUpdate (Telecom Members) and The Wire (Utility Members) and is delivered quarterly via email and the NISC Community. NISC advertising has evolved to full color, Member-focused ads, with digital advertising supplementing the overall strategy. In recent years, NISC ads have been recognized with awards by *RE Magazine* from the National Rural Electric Cooperative Association.

Newsletters

Advertising



Internet & Video

Video Production

Stories shared by NISC Members, and in some cases their consumers, on how they use NISC's solutions to overcome a business challenge or meet a need are central to helping other Members understand NISC's value to an organization. Videos are shared on NISC's YouTube channel, at meetings and on the NISC Community and website. Each year, NISC communications staff visits Member sites to interview them and highlight how technology and NISC solutions help them daily.

Social Media

Originally launched as a way to promote NISC to prospective employees in 2008, NISC's social media presence has since grown tremendously, creating an avenue to connect and engage with Members, employees and communities around the country on a variety of topics, from culture, industry trends and Member news to natural disasters, community events and calls to action. NISC is currently active on Facebook, Twitter, YouTube, Google+, LinkedIn, Flickr and Instagram.

Web Design

As technology has progressed, having a presence on the web has become increasingly important. CADP and NCDC websites were introduced in 1996. In 2005, NISC adopted the address nisc.coop to reflect its cooperative roots. The website continues to evolve today with the growth of NISC and its expanded solutions featuring videos, product information and news and reflecting web trends with a focus not only on user experience, but user engagement.

An employee at Co-Mo Electric Cooperative helps NISC in 2012 pilot test Google Glass™, an innovation released by Google to only select development teams.

THE POWER
OF POSSIBILITY

CHAPTER FIVE

50 years of Innovation and Member Service

A Spirit of Innovation

Buzzing like an oversized hummingbird, the white drone flies above the treetops and across the ravine, hovering at each electric pole long enough to snap a picture. The lineman who sent the drone on its mission stands beside another pole and puts on goggles.

Looking through the Microsoft HoloLens is like having all the information from his laptop come to life before his eyes. He sees the pole code, its inspection history and the configuration of the pole top assembly. This pole is in good condition, but when the drone buzzes back and lands at his feet, he downloads photos of storm damage in the ravine. As he climbs into the truck, the lineman dictates a text and heads to his next site.

Back at the office, customer service representatives taking phone calls anticipate their customers' needs even before they begin talking. Predictive software uses account history and outage records to analyze the likely reason for their call. Other customers don't call at all. They make payments and send messages on their smartphones through SmartHub.

Increasingly, their appliances will be "smart," too, and customers will be able to turn their thermostats up or down remotely or start their laundry or dishwasher when they see that, due to demand pricing, the cost of electricity is a bit lower.

Augmented reality, unmanned aerial vehicles, autonomous vehicles, LIDAR (pulsed laser) sensors, voice recognition, predictive modeling, the "internet of things" – what was once science fiction is now next-generation technology. NISC's developers evaluate the innovations and imagine their possibilities.

Members are increasingly turning to drones — such as this one being operated by Co-Mo Electric Cooperative in central Missouri — to improve the ability to perform inspections of lines and towers.

SHARED VALUES

Innovation

TURNING THE LIGHTS BACK ON

On February 26, 2013, thousands of Missourians woke to cold darkness. Heavy, wet snow had fallen throughout the night before, as much as 12 inches weighing down roofs, power lines and tree limbs, piling on top of snow left from a storm just the week before. Even snow plows were slipping off roads. "Just walking was hard, that snow was so heavy and deep," a lineman later recalled.

Winter Storm Rocky hit Co-Mo Electric Cooperative, based in Tipton, Missouri, particularly hard. At the peak, more than 17,000 customers had no power, representing more than half of Co-Mo's meters. The cooperative spirit came to the forefront as co-ops in less affected areas offered their help. But the storm also underscored how technological innovations benefit the customer at the end of the line.

Just months after the first iPad was released in 2010, NISC began working on mobile applications for workers in the field. AppSuite provides an array of mobile tools, including GPS, mapping software and vehicle tracking, as well as time entry, expense reporting and other functions. SmartTrack, another solution, gives dispatchers a color-coded schedule of tasks they assign. Mobile WorkForce provides an electronic version of service orders and, for telecoms, trouble tickets.

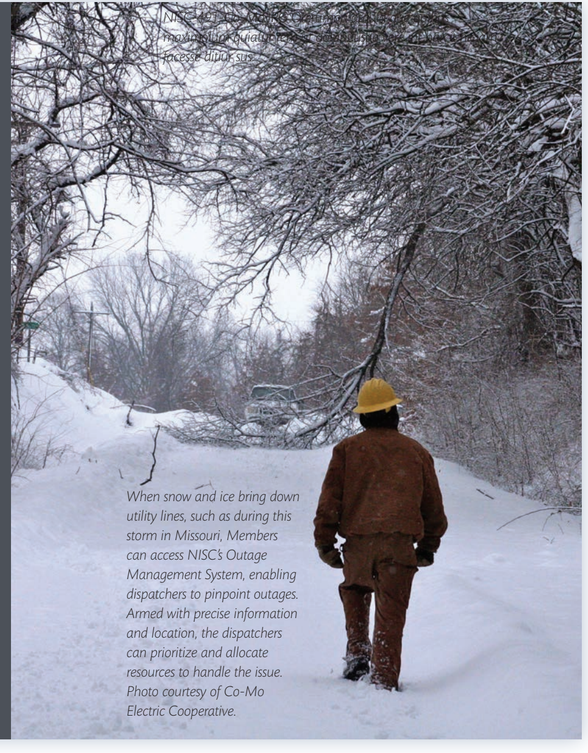
"Co-Mo was able to leverage that technology to its fullest to restore power quickly to their members," says Todd Eisenhauer, NISC Vice President for Strategy and Operations Solutions.

As the magnitude of the storm became apparent, about 120 extra workers arrived from 19 other co-ops, ready to navigate still-treacherous roads, clear fallen limbs and trees and restore lines. On monitors in the control center, red dots appeared on the Outage Management System, alerting dispatchers at Co-Mo to outages even before residents called in. The dispatchers set the priorities and relayed crew assignments to restore power most efficiently.

Being able to hand iPads to out-of-town workers enabled them to find the locations even without knowledge of local roads. Dispatchers tracked the trucks — and even brought the workers hot-cooked meals as a respite.

Co-Mo also used the technology to update customers on Facebook with the number of outages remaining. The communication was reassuring. "If you know the exact number [of outages], your Members feel like you know what's going on," said Communications Manager John Agliata. "'We know about you and we knew about your outage.'"

When the work was done, Co-Mo pinged their smart meters to ensure that power had been restored — using an electronic signal picked up by the meters. Co-Mo CEO and General Manager Ken Johnson estimates the co-op saved at least one full day because of the technology, which meant happier customers and lower labor costs. "We were able to send people home much sooner than we otherwise would have," he says.



When snow and ice bring down utility lines, such as during this storm in Missouri, Members can access NISC's Outage Management System, enabling dispatchers to pinpoint outages. Armed with precise information and location, the dispatchers can prioritize and allocate resources to handle the issue. Photo courtesy of Co-Mo Electric Cooperative.

"We expect our developers to be creative, to look for another way around [a problem]," says Patrick O'Brien, Manager of Research and Development.

Rural communities may have been among the last to gain the power of electrification, cell service or broadband, but NISC's tools now put them ahead of the curve. NISC doesn't wait for Members to ask them to solve problems. New products are designed to make Members smarter, faster and leaner.

"We now are in a position to be proactive, to anticipate what the technology needs are beyond tomorrow and to have the solutions before our Members even realize they need them," says Jasper Schneider, Vice President, Member and Industry.

If you're a tech company, innovation isn't a strategy. It's a necessity. For NISC, the quest for cutting-edge technology fuels a greater mission: NISC's drive to serve its Members. That contrasts with tech companies that seek dominant market share and maximum revenue.

Why does the cooperative model produce a different result? The answer is perhaps best illustrated by the story of a past collaboration between NISC and Google.

In 2009, NISC entered into a partnership with the philanthropic arm of Google, known as Google.org, to provide up-to-date energy usage information to electric Members' customers. NISC had recently released its Meter Data Management System to help Members handle data from hourly readings provided from Advanced Metering Infrastructure (AMI) or smart meters as part of building a smarter electric grid.

Through Google's PowerMeter software, the idea was to provide a way to share real-time electricity usage with end consumers. Google estimated that energy- and cost-conscious customers would then reduce their usage by 5 to 10 percent.

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the **Member Information Conference**

Held each September, the Member Information Conference (MIC) continues to feature general and breakout sessions to enable Members to learn about NISC solutions and upcoming enhancements. Major new innovations are often first announced and highlighted at each year's conference. Today, Members also present sessions sharing their experiences and best practices. A Partner Pavilion featuring exhibitors, as well as NISC demonstrations, user experience testing and networking opportunities, was added in 2013. MICFest, an evening of entertainment, provides a variety of fun activities and food. In 2017, over 2,300 individuals attended MIC.

NOW

THEN

First held in 1975 and known as the Fall Seminars, the Member Information Conference (MIC) provided general sessions, breakout sessions and facility tours, giving Members an opportunity to learn more about software products and operations. A banquet with entertainment highlighted the conference. When CADP and NCDC merged in 2000, both were holding a conference in the fall and repeated the content, so Members could stagger staff attendance. For three years, the conference was held in North Dakota and Missouri, focusing on legacy products. In 2003 with the release of iVUE, NISC consolidated the conferences in Missouri.

through the years

Staff from rural electrics and affiliated organizations around the country attended the NISC 2010 Gridposium, a conference focused on helping Members understand the need for and role of the Meter Data Management System with the advent of smart meters. Held at Washington University in St. Louis, Gridposium was attended by approximately 175 individuals.

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At the time, NISC Members served about 5 million customers with smart meters. Even that small amount of energy conservation could reduce carbon emissions in roughly the same magnitude as all hybrid vehicles, about 3 million, then on the nation's roadways.

"The end consumer has more power than anything we can construct [in renewable energy] to make a difference," says Doug Remboldt, Vice President of Member Support.

The NISC Meter Data Management System™ already had a "usage and bill analysis" tool as part of its e-billing feature, but NISC Members were excited about the Google app's functionality. In keeping with the mission to fulfill the needs and desires of Members, NISC collaborated with a competitor. A former astronaut and Google exec even attended the 2009 Member Information Conference to show off a prototype, and Google began to sign up NISC Members.

Eighteen months later, executives from Google sat down with NISC CEO Vern Dosch and confessed that they hadn't understood the complexities of the utility industry. They were pulling the plug on Google PowerMeter.

"All of our Members who had signed up for this Google relationship were left stranded," Dosch says.

Or, they would have been stranded, except NISC had continued to develop its own product, SmartHub, as NISC's Research and Development staff detected early signs that Google might not be able to deliver a solution.

"Our big concern was they didn't seem to understand the market. We talked with them about how they were handling specific use cases, such as meter exchanges and locations with multiple meters. They seemed surprised by the complications," recalls Brent Roberts, a Sr. Manager of Research and Development.

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> **NATIONAL INFORMATION SOLUTIONS COOPERATIVE**

Dosch adds, "Our Members dropped off Google PowerMeter and migrated over to SmartHub, and today, SmartHub is in over 400 of our Member sites serving nearly 4 million consumers around the country. Google PowerMeter from the great, powerful Google – they just were never able to be successful."

Minnesota Valley Electric Cooperative in Jordan, Minnesota, was one of the first utilities in the world to receive the Google

MOSAIC: A NEW WAY OF LOOKING AT DATA

There's a spirit of friendly competition at Mid-Rivers Communications in Circle, Montana. Everyone on the sales team knows who is racking up the best numbers and how many customers have upgraded to the Big Sky Bundle or the Hometown Bundle of services. But what makes the information most powerful — and motivating — are the easy-to-read trends and frequent updates, processed through one of NISC's newest products, iVUE Mosaic.

Continuous and current information provides a measure of transparency, says Mike Gross, Mid-Rivers Director of Sales and Marketing. "We want every employee to know what our goals are," he says. "Every employee helps us obtain these goals, and they should be shared with everyone."

Mosaic is cloud-based software that makes it easy to turn data into charts, graphs and other visualizations. NISC Members can select from a library of NISC-created visualizations or create their own dashboards of key performance indicators, looking for trends and setting goals.

An electric utility can track how long it takes to restore power after an outage. Telecoms can monitor their trouble reports or service orders.

"Our goal with Mosaic is to simplify [data analytics] so that any user looking at data can build and create their own visualizations," says John Weber, an NISC Product Line Manager.

NISC convened focus groups in November 2015 to determine what features Members wanted, what types of data they wanted to analyze and how they would like to see it presented.

Gross pushed for something extra from Mosaic — data to be as current as possible. He didn't want to look at the results of the past month or week, or even by the day. The telecommunications industry is incredibly competitive, and customers in rural communities expect and want the same high-speed internet that is as good as or better than what is available in urban areas.

Gross plans to use Mosaic to make day-to-day decisions. For example, Mid-Rivers offers internet service in a unique product. With Wide Open Wi-Fi, customers pay $19.95 for unlimited speed and 20 cents per gigabyte of data. Customers can monitor their usage and cost through SmartHub, and Mid-Rivers can track the purchase of the internet plan and the patterns of data usage through iVUE Mosaic.

Mid-Rivers can use Mosaic results to coordinate their technicians as they close service orders and customers make new service requests. With a territory of about 30,000 square miles — larger than the state of West Virginia — efficiency is vital. "We can be more agile," says Gross.

PowerMeter app. Two weeks before they were due to launch, General Manager Ryan Hentges learned Google was pulling out. NISC's Meter Data Management System and later SmartHub provided the backstop.

"It was just another example of the cooperative value of long-term investments in our Members and not just being here for the short term," Hentges says.

Mike Tirpak, then President and CEO of Northwestern Rural Electric Cooperative Association in Cambridge Springs, Pennsylvania, was one of the first at his co-op to use SmartHub. His first thought: Why is my energy usage suddenly so high?

When he came home, he began looking around and discovered that a pipe had come loose in the drainage area near his garage. His sump pump was running nonstop, churning water but not removing it. He reattached the pipe and literally watched his energy usage go down.

"At district meetings, some members told me they had figured out problems they had with water wells, heating systems and other things because of the [SmartHub] data," he says.

Tirpak retired in 2014 and moved to Florida. He asked Duke Energy if he could monitor his hourly usage, and they told him that the service wasn't available.

"We had better technology in northwest Pennsylvania than they have down here for electric utilities," he says. "NISC Members don't know how special they really are."

Imagine the amount of data it takes to create individual usage charts for millions of customers on SmartHub. Some

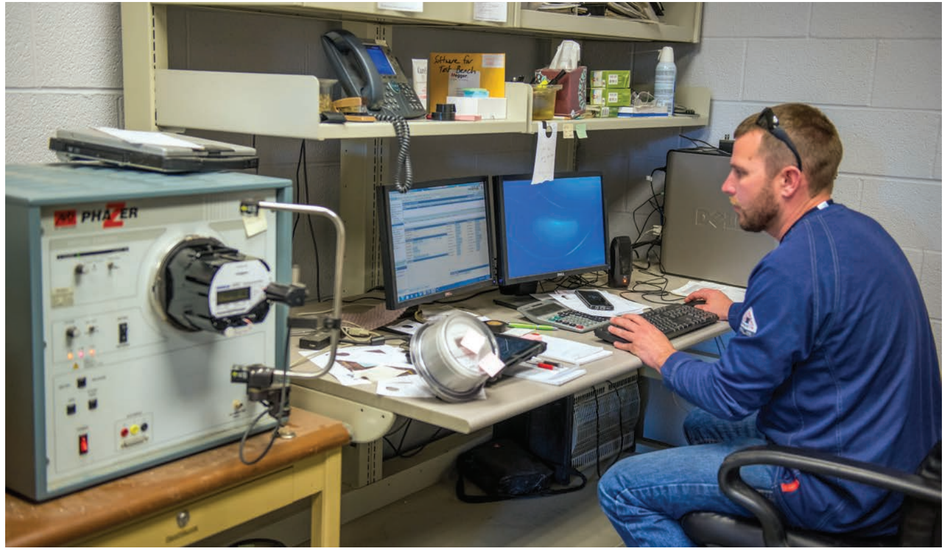
Field Operations staff at Rural Electric Convenience Cooperative in central Illinois use tablets to track work, log notes, capture photos and perform other tasks using iVUE AppSuite.

smart meters provide readings every 15 minutes. In 2011, NISC created the Cooperative Cloud® to securely store the growing magnitude of data. The Cooperative Cloud now contains more than 360 billion data points. Encrypted and stored on servers at Basin Electric Power Cooperative in Bismarck, the data security remains under NISC's control while the cloud-based technology enables rapid number-crunching.

The wealth of data amassed on the Cloud gives utilities a powerful new way to analyze the operations of their electrical grid, says Todd Eisenhauer, Vice President for Strategy and Operations Solutions. "They can see problems that were hidden in the past, when they looked at usage over a month."

Here's how it works: Minnesota Valley monitors the energy usage at a substation and compares the data readings to a "virtual meter" of all the residential and business meters served by that substation. The real-time calculation shows how much energy was lost in the distribution. With that information, the electric utility can look for ways to reduce the energy loss and create a more efficient grid.

Consumers can influence the electric grid by conserving at the right times. In its "Beat the Peak Energy Challenge," modeled after a similar program at NISC Member Delaware Electric Cooperative in Greenwood, Delaware, Minnesota Valley customers competed to use as little energy as possible



Scott Gusé of Boone Electric Cooperative, Missouri's first electric co-op, was at the forefront of the utility's efforts to switch from traditional meters to smart meters.

Todd Eisenhauer, Vice President for Strategy and Operations Solutions, speaking about software developed by NISC partner Electrical Distribution Design (EDD). "These tools are helping our Members solve problems they've never been able to work on before," he said. Below, left and right: NISC staff collaborate on requirements and design for innovations.

from 5 to 9 p.m. daily. Individuals could win a $100 credit on their bills, and teams representing churches, schools and charitable organizations could win $7,500.

Meter Data Management enables NISC Members to manage the load on transformers. Algorithms in the Outage Management System predict where outages occur. Utilities can even catch power theft by detecting meters that have large gaps in usage, a possible indication that someone is bypassing the meter.

Behind that business intelligence lies secure, cloud-based software developed by NISC. In 2016, NISC announced a partnership and investment in Electrical Distribution Design (EDD), a Virginia-based company with software that gives utilities greater capabilities to analyze very large data sets and run accurate simulations of their systems.

For example, EDD software can reveal a fault on the line and, by analyzing possible scenarios, provide an optimal reconfiguration to prevent outages.

"These tools are helping our Members solve problems they've never been able to work on before," says Eisenhauer.

iVUE Mosaic, an NISC product released in 2017, produces graphs, charts, maps and other visualizations, transforming complex data into a format that reveals trends, problems and potential solutions.

This granular look at energy data helps utilities keep up with transformations in the energy market. Hentges, the General Manager at Minnesota Valley, envisions a day when utilities can identify the type of energy used by a customer: oil, natural gas, coal, wind or solar. The customer could pay variable rates based on the changing costs of the energy source and could make special requests, such as renewables-only.

By providing new ways to analyze usage and more flexibility in billing, NISC puts utilities in a better competitive position, he says.

"Our industry is continuing to change at a faster and faster pace," says Hentges. "We need to be agile as forces around us are changing."

When Gary Johnson, CEO and General Manager of Paul Bunyan Communications, is at work in Bemidji, Minnesota, he can keep an eye on his front door at home. If someone tries to punch in the code of the door lock, an alert appears on his smartphone and a camera gives him an image of the person standing on his doorstep.

With the live feed from a fully wired smart home, Johnson and other Paul Bunyan customers can check whether they remembered to close the garage door, adjust their thermostats or make sure the home is secure even if they're thousands of miles away on vacation.

Broadband has revolutionized the telecom industry just as smart meters have transformed electric utilities. With the internet of things, customers can ask Alexa (Amazon's intelligent personal assistant) to change the television channel, lower the thermostat, turn on the lights or start the dishwasher.

The need for connectivity goes much deeper into rural life: lifesaving telemedicine, online learning, Wi-Fi-enabled farm equipment, telecommuting, Skyping, Googling, streaming, gaming. Broadband is a lifeline – but one not extended everywhere in the country. Only 61 percent of rural Americans have

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PROTECTING AGAINST CYBERATTACKS

Email Server Migration Failure. The subject line of the email was a bit confusing – but if it comes from an IT department, that's to be expected, right? The email purportedly came from IT@nisc.co-op, which advised that the IT department "encountered an error with several email accounts." But it reassuringly added, "We attempted to resolve this problem and believe we have fixed it. If your email has been working just fine, please let us know by going to this secure website and validate your email is working."

Busted! If you clicked on that link, there was a pop-up message saying you fell for a simulated phishing attack. If it had been real, your computer could have been compromised. The telltale clue: IT@nisc.co-op is a fake email address.

Simulated phishing emails provide an opportunity for NISC's cybersecurity team to educate employees. They are just one part of an extensive strategy for protecting NISC's network and Member and employee data. NISC also provides a product called Cybersecurity Services™ to help Members protect the nation's electric grid and telecom system.

Employee education and training, offered to Members as CyberAcademy, raises awareness as cyberattacks escalate worldwide. That includes simulated phishing tests.

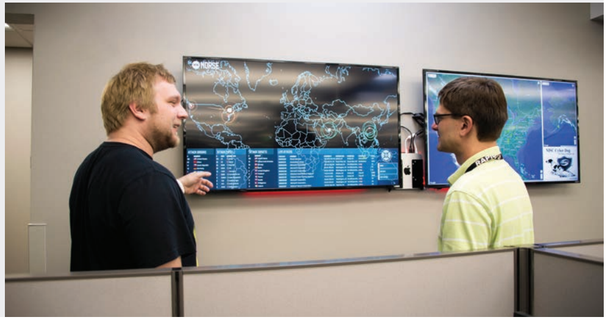
"Users are the first line of defense, but they're also the weakest link in the defense. If one user clicks on something they're not supposed to, that can compromise the system," says Jeff Nelson, NISC General Counsel and Vice President of Information Security and Risk Management.

Having a full spectrum of cybersecurity is crucial. NISC's CyberDefense provides a managed firewall – a block against intrusion. CyberProtect identifies and blocks viruses that somehow penetrate the firewall. CyberScan constantly looks for network vulnerabilities – such as software that hasn't been updated – so they can be fixed. CyberDetect looks for suspicious patterns of activity. For example, if someone logs onto a computer in Mandan, but at the same time is logged in from Phoenix, Arizona, that would create an alert of suspicious activity.

Each element is important to preventing cyberattacks, says Bill Heinzen, Lead Information Security Consultant. "We have to make our proactive defenses as good as possible, but our reactive defense has to be just as good," he says. "If we're compromised, we need to know about it."

NISC provides other protections as well. The Cooperative Cloud stores data on servers controlled by NISC – not a third-party vendor – and encrypts sensitive information. "It was important to secure the data and be in control of where the data resides," says Andrew Cooper, Technical Systems Engineer.

The result: Comprehensive prevention against the ever-growing threat of cyberattack.



Andrew Dubiel (left) and Jared Martin, members of the NISC cybersecurity team, review a map of cyber threats occurring around the world. NISC utilizes and provides a wide array of cybersecurity tools to its Members.

> "We're integrating all their systems. [Members] have systems for video, they have systems for internet, they have systems for phone. It's our job to tie that all back to the customer."
>
> **– ED WOLFF**
> **NATIONAL INFORMATION SOLUTIONS COOPERATIVE**

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access to broadband at a download speed of at least 25 Mbps, while 96 percent of urban areas have access to broadband at least that fast, according to a 2016 Federal Communications Commission report.

Rural telecoms have worked to extend fiber, sometimes collaboratively with electric utilities, while large telecommunications companies, locked in their own competitive battles, avoid rural terrain as high-cost and low-yield.

"In 1952, we were formed because the large Bell company wouldn't come to the rural areas to provide telephone service," says Johnson. "That's exactly what's happening today. We're trying to serve where the big guys and other folks won't. Now it's all about broadband and internet access rather than voice."

NISC adapts to each new service, providing billing and accounting software and tools to manage the network and compiling reports to comply with government regulations. SwitchTalk[2], which allows customer service representatives to connect or disconnect specific services, and SmartHub, which allows customers to track their broadband usage, make payments and perform other tasks, improve the broadband experience. But many of the efficiencies occur behind the scenes.

"We're integrating all their systems," says Ed Wolff, Vice President for Professional Services. "[Members] have systems for video, they have systems for internet, they have systems for phone. It's our job to tie that all back to the customer."

NISC's Broadband Measured Service allows customers to track usage on an hourly, daily and monthly basis. That enabled Emery Telecom in Orangeville, Utah, to switch from pricing based on internet speed to pricing for data usage. Everyone has 100 Mbps; the unlimited plan provides gigabit speed.

"They naturally fall into the package that meets their needs," says Chief Operating Officer Jared Anderson. "Customers have a higher speed and a better experience."

Data analytics, with tools such as iVUE Mosaic, will help telecom Members understand how and when their customers are using broadband. For example, if Netflix streaming strains the network during prime time, the telecom may choose to collect usage data to convince Netflix to provide a local caching server for faster access to the content.

"If you don't know how your network is being used, you can't maximize it," says Shirley Bloomfield, CEO of NTCA – The Rural Broadband Association. "The industry is just beginning to realize how incredibly powerful data can be."

Elon Musk, famed inventor and entrepreneur, plans to beam high-speed internet from space via satellites. Musk's company, Tesla, is already installing solar roof tiles that resemble regular shingles, along with batteries for storage of the energy. Technology is changing ever faster, and only the most nimble can keep up.

To Vern Dosch, constant change is part of the excitement of being a tech company. The challenge – the vulnerability – lies in recruiting new talent who will move boldly into that future. IT consulting is a global marketplace, but Dosch chooses not to outsource. NISC prefers to develop talent in-house.

Jason Bartsch, a Manager of Professional Services, hired 14 people in a year, mostly through referrals from other employees. The Midwest may not have the allure of Silicon Valley, but it doesn't have the high cost of living, either. And most of Bartsch's team members are "virtual" or remote employees who travel for their work and live wherever they like.

NISC recruits from colleges and universities in the Midwest and offers internships that become a kind of tryout on both sides. Erik Verduin, a 2016 IT graduate, went to a career fair at Southern Illinois University and met Matt Moorman from NISC. He was impressed with how straightforward Moorman was. The interview process focused on technical challenges and peer interviews and emphasized the NISC values and culture.

When he received an offer from NISC, Verduin broke off the interview process he had under way with OneSpace, a Swansea, Illinois-based company that connects businesses with freelancers for project management and other services. OneSpace has an open bar in the office, an office soccer team and a massage therapist on site twice a week.

NISC offers its own camaraderie and team-building events, and Verduin has a mentor and a supportive environment with an emphasis on teamwork. "It feels like a place I can come and code with people and learn from them," he says.

At an annual weekend LAN party, NISC staff play and challenge each other in a variety of video games.

Dosch wants programmers who are smart, creative and motivated, but they also need to embrace the greater purpose – the commitment to serving Members. In the "onboarding" process, new hires learn about the shared values. And if they imagine that shared values are a marketing gimmick, those thoughts are quickly dispelled. Performance measures related to the shared values count for half of the annual appraisal system. "The skills and abilities you bring are important, but the way you honor the shared values is equally important," says Dosch.

In the end, culture wins out over glitz. The average tenure of NISC's employees is 11.5 years. By comparison, the average national job tenure for IT professionals is about four years according to the Bureau of Labor Statistics – and just one year at Google and Amazon, according to the online compensation information company PayScale.

What does it take to be a great company, and when will NISC be one? Many feel NISC already is there, but Dosch views it differently. It's in our sights, he says, just over the horizon. And that's where it will remain. As the 50th anniversary approached, Dosch felt compelled to address the question in a podcast on the company's social media platform, the NISC Community.

"At NISC, our goal has been a passionate, determined and urgent drive to improve our products, our service to our Members and the environment we create for our employees," he said.

NISC has done better than its competitors at achieving that goal, and that's why it continues to grow and build market share, he explained. "We cannot stop this relentless pursuit of perfection. We cannot settle for good enough, because if we do, we'll become complacent, and in my opinion, complacency will kill an organization."

As NISC moves closer to its goals, the bar moves higher. The next 50 years will bring new innovations and relationships. It will require just as much dedication, focus and devotion to service.

"The sense of excellence and doing more than is expected – and doing the right thing, always – is top of mind for us and is rooted in our culture. It is who we are," he reminded employees. "Let's never let up. Let's never be satisfied and never stop our journey to great.

"Thanks for listening. I appreciate you. –Vern."

HERE COMES THE SUN – AND A CREDIT FOR CUSTOMERS

Blue reflective panels tilt toward the sky – 4,080 of them on metal frames, soaking up the sun and turning the rays into power. On a plateau in the Ozark Mountains in northwest Arkansas, this solar farm gives homeowners, businesses and even municipalities a way to invest in renewable energy. Two local towns bought 100 shares, representing a long-term lease on 100 panels and producing enough utility credits to offset the maintenance costs of their public parks. Some homeowners have been able to zero out their monthly utility bills.

Ozarks Natural Energy, the first cooperative-owned community solar farm in Arkansas, makes it look easy to be green. But to create that facility, Ozarks Electric Cooperative Corporation in Fayetteville first had to overcome regulatory and technical challenges. To provide credits rather than just charges, the co-op relied on expertise from NISC.

"We had no idea how to approach the billing side of it," says Teresa Lackey, IT Project Management Lead at Ozarks Electric. "With our first call to NISC, they said, 'No problem, we've done this before.' You couldn't ask for a better partner than NISC."

Like other co-ops around the country, Ozarks Electric is responding to demand from its members. About 100 Ozarks customers installed solar panels on their homes, taking advantage of net metering to sell the power back to the electric grid. A solar farm provides an option that is easier to manage, says Lackey. Each month, the total output of the solar farm is divided by the number of panels, and each member receives credit for their portion.

Solar energy's popularity has been growing. "We receive requests and inquiries on a weekly basis," says Lackey. The solar farm produces one megawatt of electricity – enough to power up to 200 homes – and Ozarks Electric is considering building another solar project over the state line in Oklahoma.

Nationally, solar is the fastest-growing segment of the renewable energy market, as demand grows and costs drop. Most of NISC's electric utility Members offer net metering for customer-installed solar panels, and about 80 have community solar projects. NISC's building in Cedar Rapids, Iowa, has a solar-panel roof that enables it to be "net-zero," selling back as much energy to the grid as it uses.

Kauai Island Utility Cooperative in Hawaii, an NISC Member, is a national leader in the generation of renewable energy. It has a goal of providing 70 percent of the island's energy needs through solar, wind, biomass and hydropower by 2030. Pedernales Electric Cooperative in Johnson City, Texas, NISC's largest Member, is building solar sites that will produce up to 15 megawatts of power. About 11 percent of the power Pedernales distributed in 2016 came from renewable sources.

NISC's technology enables those new ventures – and not just through the billing software. With NISC technology, co-ops can analyze their data to determine how to integrate renewable energy sources into their grid. "We become an enabler of technology," says Vern Dosch.

A solar farm in Clinton County Electric's service territory, near Breese, Illinois, assists with energy needs for its nearly 6,000 members. In 2017, over 70 NISC Utility Members provided for community solar projects.

THE POWER OF AUTOMATION: HELPING A COOP MANAGE AN OIL BOOM

When Williston, North Dakota, was just a sleepy town on the prairie, the workflow at Mountrail-Williams Electric Cooperative was slow and steady. Then a new method of drilling transformed the nearby Bakken oil field, and a modern-day gold rush ensued. Along with new drilling rigs came new businesses, new residents — and massive new demand for electricity.

In 2006, Mountrail-Williams serviced 7,300 meters. The growth gained steam in 2010, and by 2017, they had almost 20,000 meters. In a decade, the population of Williston boomed from 12,000 to about 28,000 (plus thousands more temporary workers), and the energy sold by Mountrail-Williams rose from 238 to 2,600 megawatt hours.

How did the co-op handle the challenge of almost tripling in size? For General Manager Dale Haugen, there's only one answer: NISC and the power of automation.

"The integration of software brought our departments in sync and enabled Mountrail-Williams to be successful in making it on top of this Bakken oil boom," he says. "Without it, I don't know where we would have been."

Employees at Mountrail-Williams were overwhelmed by the demands of filling new service orders, setting up new accounts, updating billing, installing new meters, staking poles and mapping locations.

A consultant analyzed the co-op's workflow, and Mountrail-Williams used the integrated NISC software to move through each task seamlessly, with products such as AppSuite, Mobile WorkForce and SmartHub. At certain designated steps, the software triggered an alert that someone needed to sign off on the completion of the task. NISC provided training to employees to help them use the software to add efficiency.

"We grabbed hold of all of the technology they pushed to us," says Haugen. "That was the only way we were going to make it."

In 2017, with an international oil glut, the intense demand has subsided, and Mountrail-Williams has a chance to catch its breath. The co-op is building a new office, after years of working in temporary modular buildings.

Vern Dosch spoke at the co-op's Annual Meeting and lauded the co-op's members for their role in supporting the success of Mountrail-Williams. He received a standing ovation. "He made the members proud," says Haugen.

But Haugen also returns the compliment: "It's because of him — and NISC — that we were successful. Otherwise, we could not have managed all the things we did in six years."

With the production and processing needs from grasshopper oil pumps, the number of meters serviced by Mountrail-Williams Electric Cooperative in Williston, North Dakota, nearly tripled between 2006 and 2018. Photo courtesy of Basin Electric Cooperative.

Randy Horner (left) of NISC, Craig Benhoff (center) of Clinton County Electric Cooperative and Jeremy Lang of NISC pilot a drone owned by Clinton County Electric in Illinois.

NISC Employee Service

While many technology companies may struggle to keep staff, NISC works to maintain a culture that enables employees to continue to find fulfillment in choosing a career with NISC. Sincere appreciation is extended to the following 64 individuals who will have achieved 30 years or more of service to NISC by the end of 2018.


Kevin Anderson


Alan Augustin


Linda Bass


John Baucom


Julie Bennett


Troy Bernhardt


Chris Beste


Char Bono


Larry Corder


Gary Derby


Brian Derrington


Dennis Dolan


Vern Dosch


Debbie Eggering


Steve Engel


Char Feigitsch


Lori Finnerty


Ronda Fox


Mike Haldaman


Bonnie Haupt


Chris Henrich


Keith Horntvedt


Susan Hutchason


Lois Ihle


Suzanne Isbell


Jack Johnson


Lenora Kenner


Corey Kurtz


John Lewis


Terry Lyon


Tom Materi


Margo Miller


Randy Miller


Mark Momerak


Mel Monroe


Rex Moorman


Gary Neigum


Ken Olheiser


Ron Patton


Kristi Rader

Jim Rapp

John Reede

Eric Reid

Mark Rigoni

Jackie Rocha

Iris Rodenkirck

Ron Sams

Tom Schaberg

Connie Schaner

Gary Schechterly

Randy Schroder

Dave Sickels

Sandra Stoltz

Dick Swann

Karen Theis

Brenda Vaughn

Joe Vonarx

Louie Weigel

Herb Wetzel

Dan Wilbanks

Twila Willis

Rick Willmann

Michelle Wilmes

David Wilson

Thank you to the following 46 individuals who retired after serving NISC or one of its predecessor organizations for at least 30 years. Your commitment helped NISC reach this milestone anniversary.

Mary Adair
Ronald Alfred
Gail Anderson
Dennis Baier
Leora Bauer
Bruce Bennett
Paulette Bentz
Kathy Braun
Aaron Crow
Diane Durkee
Larry Estal
Gerard Fisher
Candace Fleck
Larry Giesinger
Dennis Goetges
Gary Graf
Kathy Grouzos
Leon Heick
Donald Hilgert
Franklin Hinds
Lynn Holloway
Michael Jankowski
Kenneth Jones
Ronald Jordan
Susan Kamerzell
Lou Ann Klump
Dean Lindquist
Greg Machart
Todd Mayfield
Mary Phipps
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Kathy Schaner
Carol Schlueter
Michael Schwartz
David Smith
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Duaine Ternes
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Robert Truetken
Terry Tuttle
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Kim Walth
Donna Wetzel

THE POWER
OF POSSIBILITY

AFTERWORD

50 years of Innovation and Member Service

A Future Built on Trust

Many tech companies yearn to become a unicorn. That's the term for a startup that rises to brilliance, reaching valuations of $1 billion or more. Think of Uber and Airbnb, Pinterest and Snapchat. One day, they are quirky newcomers. Overnight, they create a new reality.

Meanwhile, the tech landscape is littered with the ghosts of promising companies that flamed out. Information technology is a volatile industry, one that soared in the late 1990s and then crashed and lost a trillion dollars of stock value in a matter of a few weeks in 2000. In 2017, tech stocks were booming again, while market watchers predicted another correction.

So where does NISC fit into this context — a tech cooperative that has served electric and telecommunications Members for the past 50 years? It is a creature rarer than a unicorn, a company that answers to its Members and not shareholders, fueled by shared values of integrity and teamwork, not pursuit of profit.

NISC's story of success is a story of the cooperative model and its focus on relationships.

It's a story of how a mission to serve Members produces steady growth and builds trust. It's a story of how innovation and collaboration can create solutions that enable NISC Members to adapt to changing market demands and deliver high-quality, competitive services to their customers.

What will the next 50 years bring? Will some undeveloped wireless solution completely replace the need for a wired fiber connection? Possibly. Will consumers purchase a "utility-in-a-box" — a small solar panel and battery that's easy to install and can power an entire home? Potentially.

As technology continues to evolve rapidly and transforms the industries NISC serves, the cornerstones of innovation and service that NISC has fostered over its first 50 years and instills in employees today will be foundational for its future success. NISC will need to continue to anticipate the challenges and problems of the future — even before they occur — to ensure each of its Members thrives.

At its cooperative core, every Member is a stakeholder. An owner. And NISC treats them as such, knowing it exists for the sole purpose to serve them. As CEO Vern Dosch expressed in appreciation to employees for their service and support to Members, "I hope each of you understand the importance and far-reaching positive effect of your work," he said. "You are truly servant leaders in a high-tech world."

Certainly, a rarity.

Drone view of a portion of the service territory of SEMO Electric Cooperative in southeast Missouri. The photo serves as a reminder of the geographical challenges faced by rural cooperatives across the country where Member customers are thinly spread yet they demand — and receive — the same level of service as more urban end users.

1960s

1966
Electronic Data Processing (EDP), a division of the North Dakota Association of Rural Electric Cooperatives, is established by the North Dakota statewide associations serving electric and telephone cooperatives.

1967
Central Area Data Processing Corporation (CADP) incorporates on August 23.

1968
North Central Data Cooperative (NCDC) incorporates on April 26, purchasing Electronic Data Processing division assets from North Dakota Rural Electric and Rural Telephone Association. Serving 35 organizations.

KEM Electric Cooperative Inc., Verendrye Electric Cooperative and Consolidated Telephone, all of North Dakota, recognized as pilot co-ops for NCDC. All three continue as NISC Members today.

1970s

Jim Lockley, former EDP employee, hired as first CADP General Manager. CADP's first programmer, Terry Tuttle, moves to Washington, D.C., to work on systems design and development with staff at the National Rural Electric Cooperative Association (NRECA), including John Mathews. Mathews would later work for CADP, including serving as General Manager in the late 1970s.

1969
Nolin Rural Electric Cooperative, Kentucky, and Pioneer Electric Cooperative, Ohio, are two of the first sites to process customer billings using CADP software. They continue as NISC Members today.

NCDC introduces trouble ticket reporting for Telecom Members.

1970
CADP and NCDC staff work with NRECA staff on initial program analysis and design and provide Payroll/Labor Distribution, Service Interruption, Engineering Load Studies and Material Inventory to rural electric Members.

Common reference used for NCDC and CADP is regional data centers.

1973
Interest grows in regional data centers: 200,000 consumer accounts served by NCDC; 360,000 consumer accounts served by CADP.

1974
Eight rural electrics served by United Data Processing, a regional center in Pennsylvania, elect to join CADP.

1975
Forerunner to today's Member Information Conference, Fall Seminars held in St. Louis for CADP Members. First week's unexpected attendance of 95 individuals causes new location to be selected for Week 2 of seminar.

All regional data center managers meet in North Dakota.

1976
CADP staff relocates from University City, Missouri, office to new facility in St. Peters, Missouri. Houses Missouri staff until May 2005.

1977
CADP hits milestone of serving Members representing in total 1 million consumer accounts.

1978
NCDC staff visits CADP office to exchange ideas on production operations.

Member-loan program initiated to assist with NCDC development expenses.

1979
On-line system launches at first CADP Member site, allowing inquiring and data transmissions throughout the day.

Ray Clouse, NCDC Services Representative, is hired by Board of Directors as NCDC General Manager.

CADP distributes first capital credit checks, totaling $37,000.

1980s

1980
All regional data center managers meet in St. Louis to discuss progress and territories.

Gary Hobson, a Field Service Representative with the National Rural Utilities Cooperative Finance Corporation, is hired by the CADP Board of Directors as General Manager.

1982
Member Advisory Committees discuss CADP developing a system that will reside at Member sites.

U.S. Federal Court mandates breakup of the AT&T Bell System, resulting in AT&T continuing to provide long-distance service, but independent regional Bell operating companies would provide local service. This change would have a major impact on NCDC Telecom Members.

CADP seeks Member loans to help finance system development.

1983
CADP releases the first version of the in-house system, Cooperative Attached Processing System (CAPS). CAPS enables Members to handle all functions on-site in place of using a mainframe-based batch or on-line processing system. CAPS would be enhanced over time, eventually moving to a relational database and fourth-generation language, and retired almost 30 years later.

1984
NCDC installs Carrier Access Billing system (CABs) at first site to facilitate one of several needs resulting from the AT&T Bell System breakup.

CADP completes 15,000-square-foot addition.

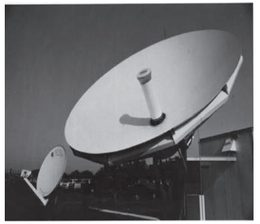
NCDC staff moves into new headquarters facility adjacent to the offices of the North Dakota Association of Rural Electrics.

1985
NCDC releases in-house system for Utility Members.

NCDC initiates a PC Users Group among its Membership.

1986
Through the efforts of the Missouri Association of Electric Cooperatives, state legislation allows CADP to replace Corporation with Cooperative in its name becoming Central Area Data Processing Cooperative.

CADP installs master satellite hub and dish as first step in a bidirectional satellite communications network. By 1989, 108 Members will use the network for on-line communications between their offices and the CADP mainframe.



1987
Texas Electric Cooperatives (TEC) Data Center approves merging with CADP. TEC began offering CADP CAPS to its members in 1983; 23 Texas cooperatives would now receive support and services directly from CADP.

NCDC and CADP discuss feasibility of NCDC using satellite communications network.

1989
CADP completes 20,000-square-foot addition to facility.

NCDC kicks off development of Horizon, a fourth-generation-language-based system for full in-house system capabilities. Horizon will be enhanced through several generations and will serve both Utility and Telecom Members until its retirement in 2010.

1990s

1992
Board of Directors names Vern Dosch, NCDC Office Manager, as General Manager, effective January 1, 1993.

1996
Both organizations launch their first websites: www.cadp.org and www.ncdc.com.

Over a five-day period, 79 CADP Member satellite dishes are repointed to a new satellite.

NCDC provides printing and inserting services of ballots for the U.S. presidential election in North Dakota.

NCDC completes 37,000-square-foot addition to facility.

1998
CADP purchases a second building, 1.5 miles from main office, to support staff needs.

NCDC and Southeast Data Cooperative (SEDC) Boards of Directors discuss collaborating on development projects and a possible consolidation.

General Managers Gary Hobson, CADP, and Vern Dosch, NCDC, discuss similar need to redevelop software offerings to support utility diversification and deliver solutions more quickly.

1999
Strategic alliance between NCDC and CADP agreed upon, and steps begin toward a full consolidation.

2000

CADP and NCDC merge July 1, following overwhelming approval by Memberships in March. National Information Solutions Cooperative (NISC) is selected as the new organization's name, and it incorporates in the state of Colorado. NISC will initially serve Members in 46 states, representing five million customer accounts. Gary Hobson named CEO; Vern Dosch named COO.

Y2K occurs without issues.

Member Information Conference held in Missouri and North Dakota and would continue to be handled at both locations until 2003, when the conference consolidated.

2001

Board of Directors adopt NISC Vision Statement: *To enhance the success of our Member-Owners by providing world-class information technology solutions while building lasting business relationships.*

Employee committee develops Shared Values that are then adopted NISC-wide.

First week of Member Information Conference in Missouri is cancelled due to 9/11 and rescheduled for December.

Project Discovery, a $13 million software reengineering development largely financed through Member loans, launches.

2002

Computerworld identifies NISC as one of the Top 100 Best Places to Work in IT.

Gary Hobson retires as CEO; Board names Vern Dosch to the position.

Outage Management System 1.0, as first product from Project Discovery, launches using Java and Oracle with no legacy code and a new data structure to confirm viability of Java development environment as platform.

Facility expansion of 24,000 square feet completed at Mandan, North Dakota, campus.

2003

iVUE Customer Care & Billing – Utility launches from the Project Discovery initiative. Followed by the first iVUE version of Accounting and Business Solutions (ABS).

2004

iVUE Customer Care & Billing – Telecom released.

Project Management methodologies and best practices adopted to facilitate software implementations at Member sites.

Walmart signs with Capturis – then C&I Processing – to transition over 25,000 utility accounts for bill payment and processing.

2005

Research and development budget exceeds $20 million for the first time and includes a redesign of all Accounting and Business Solutions.

Construction completed on a new 135,000-square-foot NISC facility in Lake Saint Louis, Missouri. All Missouri employees move over a weekend.

2006

Board of Directors passes resolution to add the protection of indemnification and defense to all present and future NISC licenses with its Members as a result of a patent infringement lawsuit filed by Emergis against NISC Member Flathead Electric Cooperative.

Revenue reaches $100 million.

2007

Nearly 100 employees hired during the year.

2008

Redesigned Accounting and Business Solutions released, moving NISC ABS to Java/Oracle, a new data structure and no legacy code. Along with other product releases this year, iVUE achieves a complete enterprise solution on a single technical platform.

Over 1,500 individuals attend the Member Information Conference.

Automated Mailroom Services exceeds 10 million printed images.

Over 500 organizations using NISC solutions.

2009

Facility on Mandan, North Dakota, campus specifically for Utility Bill Pay (later named Capturis) opens.

First international Member joins: Co-operative Synergies Inc. in Canada.

NISC Community released for collaboration, support and information.

Pathways, NISC's Learning Management System, begins providing access to and tracking of online training resources.

Revenue growth rate of 7 percent realized, bringing revenue to $115 million. NISC equity position at 33 percent.

2000s

2010s

2010

Computer Systems LLC in Shawano, Wisconsin, acquired.

2011

Cooperative Cloud deploys to support Meter Data Management System (MDMS) readings.

Member test sites receive SmartHub, NISC's first end consumer facing application and first mobile application.

Quintrex Data Systems in Cedar Rapids, Iowa, acquired.

2012

iVUE AppSuite for Engineering and Operations launches. In 2014, AppSuite would expand to meet enterprise needs and launch on iOS and Android mobile devices.

Palau National Telecommunications Corporation joins NISC, expanding the international Membership list.

2014

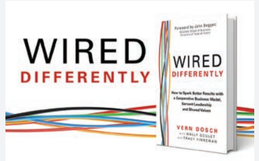
NISC staff comprises over 1,000 individuals for the first time.

Help Desk International (HDI) recognizes NISC as an HDI Elite Top 50 company for customer satisfaction rankings for service and support.

2015

iVUE Connect: Service deploys to development partner sites, providing a role-based, intuitive design for customer service representative tasks and processes.

Wired Differently, written by Vern Dosch, Wally Goulet and Tracy Finneman, highlights NISC's culture based on the cooperative model, servant leadership and shared values.



2016

iVUE AppSuite Annual Meeting enables cooperative Members to easily register and track attendance at their annual meetings via iPads.

Facility expansion of 44,000 square feet is completed at Lake Saint Louis, Missouri, campus.

Facility expansion of 33,000 square feet is completed at Mandan, North Dakota, campus.

Member growth sets new record with 1 million consumer accounts added.

Automated Mailroom Services sets new record of processing over 20 million images per month.

2017

NISC Payment Gateway processes over 97,000 payments daily.

Member Information Conference moves to a one-week format, attended by over 2,300 individuals.

With the addition of Borough of Butler in Butler, New Jersey, as a Member, NISC serves Members in all 50 states.

Research and development budget surpasses $37 million.

Numbers in *italics* indicate images

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Magnolia Electric Power Association **Mahaska Communication Group** Margaretville Telephone Company **Marias River Electric Cooperative, Inc.** Marquette-Adams Telephone Cooperative **Mason County PUD No. 3** Mason County PUD No. 1 **Matanuska Electric Association, Inc.** McClure Telephone Company **McCone Electric Cooperative** McKenzie Electric Cooperative **McLean Electric Cooperative** McLeod Cooperative Power Association **McMinnville Water & Light** McPherson Board of Public Utilities **Mecklenburg Electric Co-op** Medina Electric Co-op, Inc. **Meeker Co-op Light & Power Association** Menard Electric Co-op **Mescalero Apache Telecom Inc.** Miami-Cass REMC **Mid Century Telephone Cooperative** Mid-Carolina Electric Cooperative, Inc. **Mid-Dakota Rural Water System, Inc.** Middle Tennessee EMC **Midland Power Cooperative** Mid-Plains Rural Telephone Cooperative Inc. **Mid-Rivers Telephone Cooperative** Midstate Communications, Inc. **Midstate Electric Cooperative, Inc.** Midwest Electric, Inc. **Midwest Energy & Communications** Midwest Telecom of America Inc. **Mid-Yellowstone Electric Co-op** MiEnergy Cooperative **Mille Lacs Energy Cooperative** Minburn Telecommunications, Inc. **Minnesota Valley Co-op Light & Power Association** Minnesota Valley Electric Cooperative **Mission Valley Power** Mississippi County Electric Co-op **Missoula Electric Co-op, Inc.** Missouri REC **MJM Electric Cooperative, Inc.** Mohave Electric Co-op, Inc. **Moncre Telephone Cooperative Inc.** Monroe County Electric Cooperative **Montana Opticom LLC** Moreau-Grand Electric Cooperative, Inc. **Morgan County Rural Electric Association** Mor-Gran-Sou Electric **Mountain Rural Telephone Cooperative** Mountain View Electric Association, Inc. **Mountrail-Williams Electric Cooperative** Mt. Carmel Public Utility Co. **Mud Lake Telephone Cooperative** Mulberry Cooperative Telephone Company **Murfreesboro Electric Department** Navarro County Electric Co-op, Inc. **Navopache Electric Cooperative, Inc.** Nemaha-Marshall Electric Cooperative Association, Inc. **Nemont Telephone Cooperative Inc.** New Enterprise REC, Inc. **New Hampshire Electric Co-op, Inc.** New Hope Telephone Cooperative **New Paris Telephone, Inc.** New-Mac Electric Cooperative, Inc. **Newport Utilities** Newton County REMC **Niagara Telephone Company** Nicholville Telephone Company **NineStar Connect** Ninnescah RECA, Inc. **Niobrara Electric Association** Niobrara Valley Electric Membership Corporation **Nishnabotna Valley REC** Noble REMC **Nodak Electric Cooperative** Nolin Rural Electric Cooperative Corporation **Norris Public Power District** North Central Electric Cooperative, Inc. **North Central Missouri Electric Co-op, Inc.** North Collin Special Utility District **North Dakota Association of RECs** North Dakota RTC **North Dakota Telephone Company** North Itasca Electric Co-op **North Plains Electric Co-op, Inc.** North Star Electric Co-op, Inc. **North West Rural Electric Co-op** North Western Electric Co-op, Inc. **Northeast Iowa Telephone Company** Northeast Louisiana Power Cooperative, Inc. **Northeast Louisiana Telephone Company** Northeast Oklahoma Electric Co-op **Northeastern REMC** Northern Arkansas Telephone Company **Northern Electric Co-op, Inc.** Northern Lights, Inc. **Northern Plains Electric Cooperative** Northfork Electric Cooperative **Northwest Communications Cooperative** Northwest Iowa Power Cooperative **Northwest Rural Public Power** Northwestern RECA, Inc. **Norvado** NorVal Electric Cooperative, Inc. **Nsight Telservices** Nueces Electric Cooperative, Inc. **Nushagak Electric & Telephone Cooperative** Oahe Electric Cooperative **Oakdale Electric Co-op** Oconto Electric Cooperative **OHOP Mutual Light Company** Okanogan County PUD **Oklahoma Electric Cooperative** OmniTel Communications **One Ring Networks** Oneida-Madison Electric Cooperative, Inc. **OneSource Communications** Ontonagon County REA **Opelika Power Services** Orcas Power & Light Co-op **Osage Municipal Utilities** Osage Valley Electric Co-op Association **Otero County Electric Co-op, Inc.** Otsego Electric Co-op, Inc. **OTT Communications** Ottoville Mutual Telephone **Owatonna Public Utilities** Ozark Border Electric **Ozarks Electric Co-op (MO)** Ozarks Electric Cooperative Corporation (AR) **P.K.M. Electric Co-op, Inc.** Pacific County PUD 2 **Palau National Communications Corp.** Panhandle Rural Electric Membership Association **Panhandle Telephone Cooperative Inc.** Paris Board of Public Utilities **Pascoag Utility District** Paul Bunyan Communications **Paulding-Putnam Electric Co-op, Inc.** Peace River Electric Co-op, Inc. **Pedernales Electric Cooperative, Inc.** Pee Dee Electric Co-op, Inc. **Pella Cooperative Electric Association** Penasco Valley Telephone Cooperative, Inc. **Pend Oreille County PUD #1** People's Electric Cooperative, Inc. (OK) **People's Energy Cooperative (MN)** Perennial Public Power District **Perry-Spencer RTC** Petit Jean Electric Cooperative Corporation **Piedmont EMC** Piedmont Rural Telephone Cooperative **Pierce-Pepin Co-op Services** Pine Belt Telephone Company **Pioneer Electric Cooperative (AL)** Pioneer Electric Cooperative (KS) **Pioneer Electric Cooperative, Inc. (OH)** Pittsburg Power Company **Plains Cooperative Telephone Association** Plant Telephone Company **Planters Rural Telephone Cooperative** Plumas-Sierra Rural Electric Cooperative **Pointe Coupee Electric Membership Corporation** Poka Lambro Telephone Cooperative **Polk County RPPD** Polk-Burnett Electric Co-op **Ponderosa Telephone Company** Poudre Valley REA, Inc. **Powder River Energy Corporation** Prairie Energy Cooperative **Prairie Grove Telephone Company** Prairie Land Electric Cooperative, Inc. **Presque Isle Electric & Gas Co-op** Preston Telephone Company **Price County Telephone Company** Price Electric Co-op, Inc. **Prince George Electric Cooperative** Progressive Rural Telephone Co-Op, Inc. **Project Telephone Company** Public Service Telephone Company **Pulaski Electric System** Raccoon Valley Electric Cooperative **Radiant Electric Co-op, Inc.** Raft River REC, Inc. **Rainier Connect** Ralls County Electric Co-op **Randolph Telephone Membership Corporation** Rappahannock Electric Co-op **Ravalli County Electric Co-op, Inc.** RCN Metro Optical Networks **Red River Rural Telephone** Red River Valley Rural Electric Cooperative **Redwood Electric Co-op** Reedsburg Utility Commission **Reliance Connects** Relyant Communications **Renville-Sibley Co-op Power Association** Reservation Telephone Cooperative **Reserve Telecommunications** Rich Mountain Electric Cooperative **Richland Electric Cooperative** Richland-Grant Telephone Cooperative **Ridgeville Telephone Company** Rio Grande Electric Co-op, Inc. **Rita Blanca Electric Co-op, Inc.** Rock Energy Cooperative **Rolling Hills Electric Cooperative, Inc.** Ronan Telephone Company Inc. **Roseau Electric Co-op, Inc.** Roughrider Electric Cooperative **Runestone Electric Association** Rural Electric Convenience Cooperative **Rural Electric Cooperative, Inc.** Rushmore Electric Power Co-op Inc. **RushShelby Energy Rural Electric Corporation** Rusk County Electric Co-op, Inc. **Sac Osage Electric Co-op, Inc.** Salem Electric **Sam Houston Electric Co-op, Inc.** San Bernard Electric Co-op, Inc. **San Isabel Electric Association** San Luis Valley REC, Inc. **San Miguel Power Association, Inc.** San Patricio Electric Co-op, Inc. **Sandhill Telephone Cooperative, Inc.** Sandwich Isles Communications **Sangre de Cristo Electric Association** Santee Electric Co-op, Inc. **Sawnee EMC** Scatter Creek LTD **Scenic Rivers Energy Cooperative** Scio Mutual Telephone **SECO Energy** Sedgwick County Electric Cooperative Association **SEI Communications** Se-Ma-No Electric Cooperative **SEMO Electric Cooperative** Sharon Telephone Company **Sheffield Utilities** Shelby Electric Cooperative **Sheridan Electric Cooperative** Sherwood Mutual Telephone Association **Sierra Electric Cooperative** Sigecom LLC **Singing River Electric Power Association** Sioux Valley Energy **Siren Telephone Company Inc.** Siskiyou Telephone Company **Slope Electric Cooperative Inc.** Smithville Fiber **Snapping Shoals Electric Membership Corporation** Somerset REC, Inc. **South Arkansas Telephone Company** South Central Arkansas Electric Cooperative, Inc. **South Central Electric Association (MN)** South Central Power Company (OH) **South Central PPD (NE)** South Central Rural Telephone Coop Corp. **South Central Telecom** South Central Utah Telephone Association **South Plains Telephone Cooperative** South Slope Cooperative Telephone Co. **Southeast Colorado Power Association** Southeast Electric Cooperative, Inc. **Southeastern Electric Co-op** SouthEastern Illinois Electric Co-op **Southeastern Indiana REMC** Southern Illinois Electric Co-op **Southern Indiana Power** Southern Montana Telephone **Southern Power District** Southside Electric Co-op **Southwest Arkansas Electric Cooperative Corp.** Southwest Arkansas Telephone Cooperative **Southwest Iowa Rural Electric** Southwest Louisiana Electric Membership Corp. **Southwest Mississippi Electric Power Association** Southwest MN Broadband Services **Spring Grove Communications** Spring Valley Telephone Company **SRT Communications Inc.** Stanton County Public Power District **Stearns Electric Association** Steuben County REMC **Steuben Rural Electric Cooperative, Inc.** Strata Networks **Sulphur Springs Valley Electric Co-op** Sumner-Cowley Electric Co-op, Inc. **Sun River Electric Co-op, Inc.** Surry-Yadkin Electric Membership Corporation **Suwannee Valley Electric Cooperative** Swisher Electric Co-op Inc. **T.I.P. Rural Electric Cooperative** Tanner Electric Cooperative **Taylor Electric Cooperative** Tele-Media Solutions **Telephone Associates Inc.** Thacker-Grigsby Telephone Company Inc. **The Champaign Telephone Company** The Energy Cooperative **Three Rivers Electric Co-op** Thumb Electric Co-op, Inc. **Tillamook P.U.D.** Tipmont REMC **Todd-Wadena Electric Co-op** Tohono O'odham Utility **Tongue River Electric Co-op, Inc.** Totelcom Communications LLC **Triangle Telephone Cooperative Association, Inc.** Trico Electric Co-op, Inc. **Tri-County Communications Cooperative** Tri-County Electric Co-op, Inc. (IL) **Tri-County Electric Cooperative, Inc. (OK)** Tricounty REC, Inc. (OH) **Tri-County Rural Electric Cooperative, Inc. (PA)** Tri-County Telephone Membership Co. **Trinity PUD** Truckee Donner Public Utility District **TruVista Communications** Turtle Mountain Communications **Twin Lakes Telephone Cooperative Corp.** Twin Valley Electric Cooperative **Twin Valleys Public Power District** Umatilla Electric Co-op **Union Rural Electric Cooperative, Inc.** Union Telephone Company **United Electric Co-op (ID)** United Electric Cooperative (MO) **United Electric Cooperative, Inc. (PA)** United Power, Inc. **United Telephone Mutual Aid Corporation** United Utilities **UniTel, Inc.** Upshur RECC **Valley Electric Association** Valley Energy Inc. **Valley REC, Inc.** Valley Telecommunications Coop Association **Verdigris Valley Electric Cooperative** Verendrye Electric Cooperative **Vermont Electric Co-op, Inc.** Vermont National Telephone Company **Vernon Communications Cooperative Inc.** Vernon Electric Co-op **Victory Electric Co-op Association, Inc.** Vigilante Electric Co-op, Inc. **Volunteer Energy Co-op** Wabash Communications **Wabash Telephone Cooperative** Wake EMC **Warren County REMC** Warren RECC **Washington Electric Cooperative (VT)** Washington Electric Cooperative, Inc. (OH) **Washington-St. Tammany Electric Cooperative, Inc.** Watch Communications **Wayne-White Counties Electric Cooperative** Wells Rural Electric Company **Wellsboro Electric Company** West Carolina Rural Telephone Coop Inc. **West Central Electric Co-op, Inc. (MO)** West Central Electric Co-op, Inc. (SD) **West Central Telephone** West Kentucky Rural Telephone **West Oregon Electric Co-op Inc.** West River Cooperative Telephone Company (SD) **West River Electric Association, Inc.** West River Telecommunications (ND) **West Texas Rural Telephone Cooperative** West Wisconsin Telcom **Wes-Tex Telephone** Wharton County Electric Co-op, Inc. **Wheatland Electric Co-op, Inc.** Whetstone Valley Electric Cooperative, Inc. **White River Electric Association, Inc.** White River Valley Electric Co-op **Whitewater Valley REMC** Wightman Telecom **Willmar Municipal Utilities** WIN Energy REMC **Windwave Communications** Wisconsin Rapids Water Works & Lighting Commission **Withlacoochee River Electric Co-op** Wittenberg Telephone Company **Woodbury County REC** Yampa Valley Electric Association, Inc. **Yellowstone Valley Electric Cooperative** Yucca Telecom **Y-W Electric Association, Inc.**


iVUE mosaic
NISC
AppSuite
NORTH
ON-PROFIT
CENTRAL
DATA
COOPERATIVE
cooperativecloud
iVUE connect
CADD
PATHWAYS
NineStar


Our Power is YOU
Automated Mailroom Services
CyberSecurity Services
LeadAgent
HORIZON
the NISC COMMUNITY
ActivTrace
smart hub