

The background of the cover is a photograph of three people—two men and one woman—standing in a field at sunset. They are silhouetted against the bright orange and yellow light of the setting sun. The man on the left is wearing a plaid shirt and a cap, looking towards the center. The woman in the middle is wearing a plaid shirt and a cap, holding a tablet. The man on the right is wearing a plaid shirt and a cap, looking towards the center. A large orange semi-circle is positioned behind the title text.

RURAL TELECOM

FALL 2019

THE MAGAZINE OF
RURAL TELCO MANAGEMENT

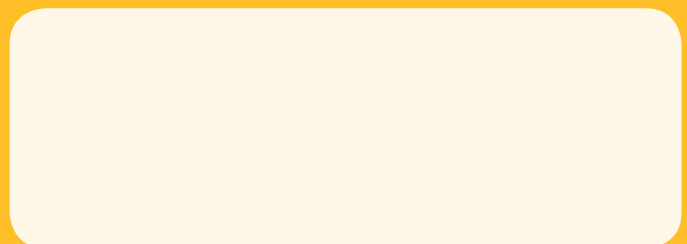
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FEATURES

Little Innovation Engines That Could

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BY TARA YOUNG

An economic development paradigm shift from a recruitment-centric strategy to more labor-intensive, community-involved development is one that resonates deeply in rural areas. This is especially true with telcos, many of which were originally developed as cooperatives built by engaged community members.

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BY ASHLEY SPINKS

Local information-gathering and sharing can achieve lofty ends, like protecting our democratic institutions, bolstering community engagement and connecting people with needed resources. But according to several NTCA member companies that produce newsletters for their members, these publications can also serve an important purpose by telling the rural story, in a rural community's own words.

28 Future-Proofing the Rural Broadband Workforce

BY BRYCE OATES

Three crucial prerequisites to rural broadband deployment are reliable technology, working capital and a skilled workforce. Many rural telcos are working to address the looming problem of a deficit in that third resource.



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Email: publications@ntca.org
www.ntca.org

Publisher: NTCA—The Rural Broadband Association

Chief Executive Officer: Shirley Bloomfield,
sbloomfield@ntca.org

Vice President of Strategic Communications:
Laura Withers, lwithers@ntca.org

Editor: Christian Hamaker, chamaker@ntca.org

Advertising: sales@ntca.org

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NTCA represents more than 800 small, rural, locally owned and operated broadband companies in the United States and abroad, as well as state and regional telephone associations and

companies that are the suppliers of products and services to the small and rural broadband industry. Our readers are the managers, directors, attorneys and key employees of these telephone companies, as well as consultants, government officials and telecommunications experts.

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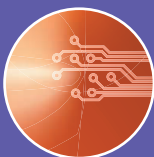
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Digital Device Overload and Local News Loss

By Noble Sprayberry

THE MYTH OF SHRINKING RURAL COMMUNITIES

The appeal of rural life increases for urban dwellers who are between the ages of 25 and 30, and it's a trend running counter to the common assumption that small towns are drying up.

In fact, the rural population has increased since the 1970s. Ben Winchester, a rural sociologist at the University of Minnesota Extension, describes the trend as a rural "brain gain" of people in their 30s and 40s.

Typically, they don't seek the agricultural jobs often assumed to be the backbone of small-town employment. Actually, only about 5% of rural residents work in that industry. Those who relocate

usually have both an education and children, and they most often work in education or health services, with about 15% in manufacturing.

For most of those moving to rural areas, it's not a return home. Instead, they are often first-time residents of the communities where they settle.

While rural areas may look different demographically than they did two decades ago, the new residents are bringing vitality to those regions. "Just because things have changed doesn't mean these towns are dying out," Winchester said.

Source: Rewire.org



SAME OLD TV, JUST MORE EXPENSIVE

How could an industry lose 5% of its customers, see overall usage drop by 20% and still increase sales by 30% during a 10-year span? It's a feat accomplished by pay-TV, and it was done simply—by raising prices 50%.

Signs of strain, however, are appearing. During the first quarter of 2019, American satellite, cable and telecommunications companies lost 1.4 million customers.

Fundamentally, television usage is shifting. While about 96 million households still have not cut the cable cord, that is 5 million fewer subscribers than in 2011. And the drop comes

during a decade that's seen the total number of American households increase by 10 million.

The news, though, is not bad for everyone.

While cable networks or services focusing on dramas, comedies, children's shows and similar programming are at risk, services offering live news and sports fare better. Disney-owned ESPN gets higher prices from distributors than any other channel. There is also potential for news and sports providers to leave pay-TV, opting instead to sell directly to consumers.

Source: The Economist



SCREEN WARS

Mobile devices and the addictive allure of services such as YouTube provide major challenges for mothers and fathers, and in the 2018 American Family Survey, overuse of digital devices was cited as the top parenting concern.

Wired contributor Joi Ito wrote that his most liberal and tech-savvy friends exercise the most control over their children's technology, even to the point of being technophobic. He, however, has a different perspective. He engages with his young daughter, Kio, through technology. They watch YouTube together. She shares new videos and favorite characters. FaceTime helps build a connection to her grandmother in Japan.

There is data to back up his approach. The American Association of Pediatrics dropped its longstanding "2x2 rule" of no screens for the first two years of a child's life and no more than two hours a day until a child hits 18. While some parents adopt an antiscreen narrative, others find a balance. Some child psychologists and data analysts believe interactivity and exploration through technology provide a counterweight to the many mindless screen activities.

Source: Wired



How Far Can a Dollar Stretch?

While establishing one minimum wage for everyone may seem straightforward, it offers surprisingly complex challenges. Efforts to nearly double the existing minimum wage have supporters, but a gross weekly pay of \$600 does not go as far in urban areas as it does in rural communities.

A \$15-per-hour job in a rural community might be enough to buy a small home. In a city, though, that same income likely could not prove sufficient for an efficiency apartment. Also, for those already earning \$15, seeing a national benchmark at that level could be upsetting.

This year, New Jersey, Illinois and Maryland lawmakers passed legislation to move the minimum hourly wage to \$15,

following cities like New York, Seattle and San Francisco. Even corporations such as Amazon and Disney have matched that minimum wage.

Employers must consider how these changes will affect the expectations of the workforce. In some communities, particularly in rural areas where incomes tend to be lower, a \$15 base wage could see employees of fast food restaurants make nearly the same as, for example, nursing assistants.

As a result, workers in rural areas who have jobs that typically demand higher wages may also push for increased pay.

Source: Axios



SAVE LOCAL NEWS

Some national newspapers such as the New York Times and the Wall Street Journal are succeeding in their conversion to digital publications, adding subscribers and staffers. One segment of news providers, however, is not faring so well — local newspapers and broadcasters.

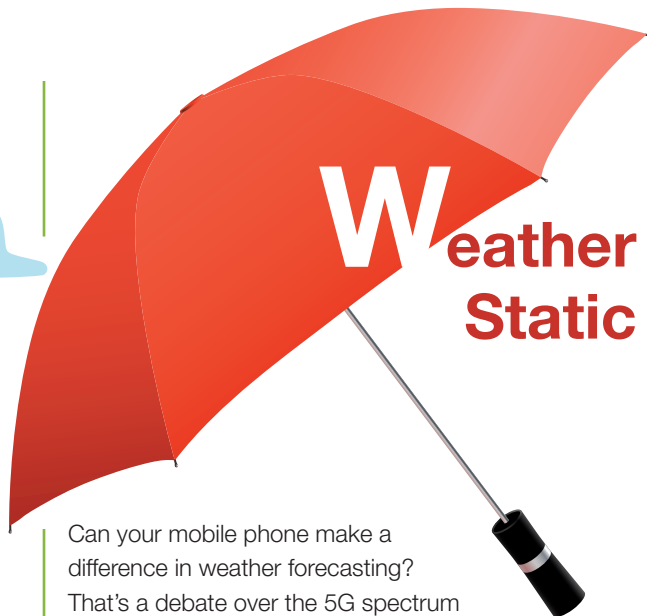
The past 10 years has brought a dramatic decline in local news resources. In 2006, American newspaper ad sales totaled more than \$49 billion. The publications employed more than 74,000 people and circulation was 52 million. By 2017, ad revenues had dropped 66% to \$16.5 billion, the number of staffers was down by 47% to just over 39,000 and weekday circulation tallied only 31 million.

As a result, Americans show less interest in local political issues, and voters receive less of the information needed to hold politicians accountable. Instead, there is greater attention on national news, which often emphasizes partisan conflict.

After a newspaper closed in their community, voters were 1.9% more likely to support the same party for president and senator. They were less likely to “split their ticket,” voting for someone of both parties.

The study concluded that “if Americans can tear themselves away from the spectacle in Washington and support local news with their dollars and attention, it could help to push back against the partisan polarization that has taken over American politics today.”

Source: Nieman Lab



Can your mobile phone make a difference in weather forecasting? That's a debate over the 5G spectrum swirling between the nation's weather and climate agencies and the wireless industry.

As the number of wireless technologies grows, available radio spectrum will become increasingly coveted.

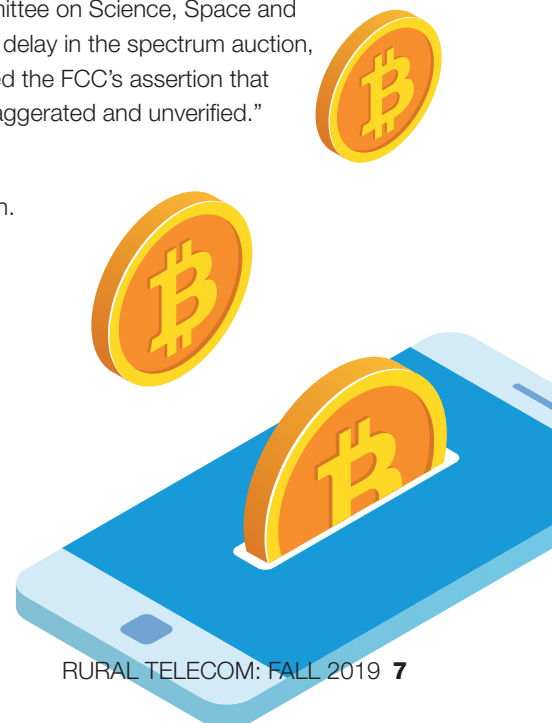
The FCC started in March to auction spectrum in the 24 GHz band of radio frequencies, which are the high-frequency microwave licenses used to deliver 5G services. National mobile carriers want these licenses to serve densely populated areas with high demand for mobile broadband.

However, these airwaves are near those used by the National Oceanic and Atmospheric Administration (NOAA) for equipment such as the sensors designed to see through clouds to better understand weather systems. Both NOAA and NASA cautioned that using the 24 GHz airwaves for 5G could harm weather forecasting.

While the House Committee on Science, Space and Technology called for a delay in the spectrum auction, the White House backed the FCC's assertion that the concerns were “exaggerated and unverified.”

Bids for the spectrum grossed nearly \$2 billion.

Source: Axios



LIVING THE GOOD—RURAL—LIFE

Respondents to a survey by National Public Radio, the Robert Wood Johnson Foundation and Harvard's Chan School of Public Health held positive views of rural life, despite its challenges.

Overall, the 1,405 adult respondents felt optimistic about their communities, felt safe at home and were satisfied by their quality of life. And those upbeat feelings came despite higher levels of rural poverty, including one of four rural children living in poverty, lower incomes and a higher number of illnesses.

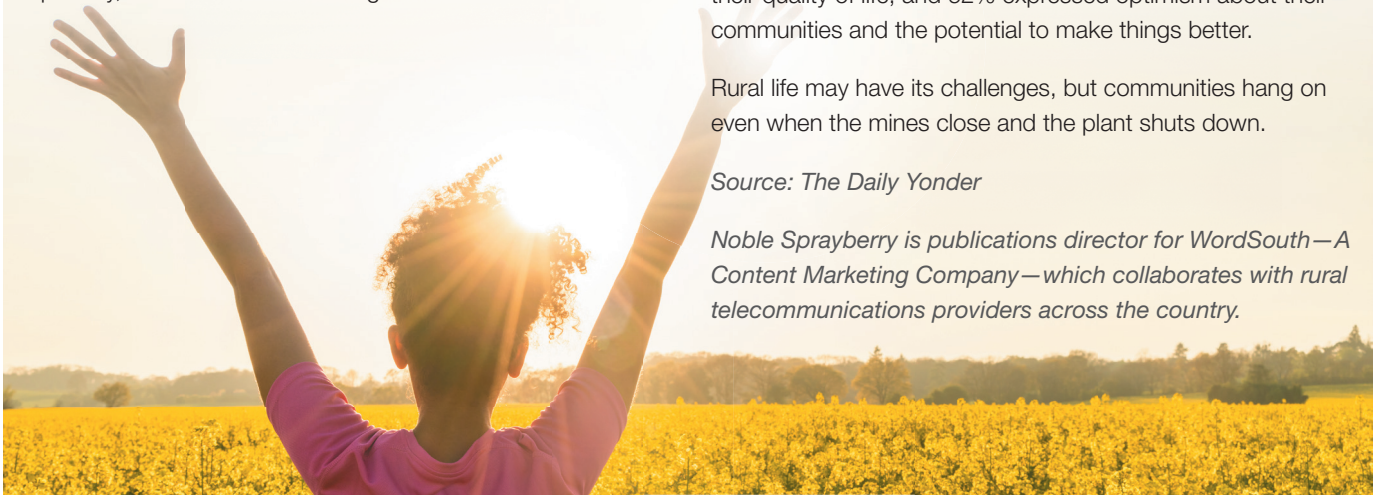
For 40% of those surveyed, families experienced difficulties paying off medical, housing or food bills. Half reported they could not immediately cope with an unexpected expense of \$1,000. A third worried about homelessness in their area. And the rural communities of color reported these concerns were even more troublesome.

Yet, 92% of respondents felt they had people nearby who could provide support, and 90% said they felt safe from crime. In fact, despite the challenges, nearly 75% were satisfied with their quality of life, and 62% expressed optimism about their communities and the potential to make things better.

Rural life may have its challenges, but communities hang on even when the mines close and the plant shuts down.

Source: The Daily Yonder

Noble Sprayberry is publications director for WordSouth—A Content Marketing Company—which collaborates with rural telecommunications providers across the country.



COMINGS AND GOINGS



Curtis Taylor, chief executive officer (CEO) of Surry Communications (Dobson, N.C.), announced his retirement after 38 years. Richard “Richie” C. Parker is the new CEO of Surry.



John Van Ooyen is the new GM at Mount Horeb Telephone (Mount Horeb, Wis.).

Daniel Martin is the new general manager at New Hope Telephone (New Hope, Ala.) following Jim Cook's retirement at the end of June.

Doran Fluckiger is the new GM at Southern Montana Telephone Co. (Wisdom, Mont.). He had previously served Southern Montana as its chief financial officer/controller.



Kevin Ancell is the new GM at Steelville Telephone (Steelville, Mo.).

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When the organizers for the Iowa Holstein Association's Dist. 1 Holstein Show needed high-speed internet and WiFi at their event, they turned to Alpine for a local, reliable connection.

RYAN BOONE



@premiercoo

Thank you @SenJoniErnst for taking the time to meet with @AllianceCEO, @NTCAconnect and I to talk about ways to make the USDA's ReConnect dollars bring broadband to more Iowans! #BuildBroadbandWithUs

WI
STATETELECOMASSOC



@BillEsbeck

Full house today for our #broadband discussion between Wisconsin's electric cooperatives and WSTA members. Working together, we will identify opportunities, promote partnerships and deploy additional #ruralbroadband. #buildbroadbandwithus



TINAPELKEYFCC



@TinaPelkeyFCC

A full house at the @FCC's SHAKEN/STIR Robocall Summit!



ALEXGANGITANO



@AlexGangitano

Male-dominated Silicon Valley has long faced criticism over gender diversity issues, but in Washington the tech industry's most prominent groups are increasingly led by women.

CAITLIN STOECKER



@ArvigCaitlin

I made my television debut this evening. I was asked to speak with @WDAYnews about @ArvigHQ's recent Gig service rollouts in more than 17 communities in our service area so far this year. Next up in August are Audubon, Callaway, Detroit Lakes and Waubun areas. #MN #ArvigConnected

LISA YOUNGERS



@YoungersLisa

All Americans deserve access to high-speed internet. That's why we're on the Hill today with @NTCAconnect to draw attention to the digital divide and advocate for solutions for rural #fiber deployment. #FiberFAST

SHIRLEY BLOOMFIELD



@SBloomfield15

@NTCAconnect executives talking with @SenatorBaldwin about the importance of broadband mapping to ensure the best use of targeted resources. RLECs shared their fiber to the home builds and efforts to bring "fiber to the cow" with smart ag. #smartruralcommunities





A Case Study on Bridging the Gaps Between Engineering and Customer Service

In serving the rural community, providers are consistently asked to deliver reliable broadband connections to those who need them, to provide high-quality customer service, and to create teams that can deliver on these initiatives. As companies work toward achieving their goals, they must arm themselves with the necessary equipment and software in their toolboxes to serve the rural community and to serve them well.

STRATA Networks was founded in 1948 to deliver telephone service to the rural communities in the Uintah Basin in northeastern Utah. They have made it their mission to provide top-level customer service to the roughly 25,000 customers they serve in a tri-state region that includes parts of Wyoming and Colorado. They work to serve their community by providing telecommunication solutions, wireless coverage, and broadband internet.

To accommodate the needs of their growing customer base, STRATA Networks needed an OSS solution that



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would streamline processes and advance operational efficiency across the company. Since 2012, STRATA

Networks has chosen Mapcom's M4 Solutions to do just that, leveraging over 17 modules and integrations with M4 to plan, build, manage and report on their growing service areas in one complete view. Their companywide adoption of M4 Solutions and its services has helped STRATA to grow efficiencies by reducing backlogs of ticket assignments, which has allowed them to invest more time in providing services and upselling opportunities, and to adjust tickets out in the field.

ARMING CSRS WITH VALUABLE CUSTOMER INFORMATION

The first step to providing top-notch customer service is to arm your customer service representatives with the data they need to accurately relay information to the customer base about their current and potential services. STRATA employs M4 Services Manager to allow CSRs to visualize their service areas and quickly determine which areas are eligible for upsells and qualified for other services.

M4 pulls billing and service availability data into one view so CSRs can provide quick and accurate information on customer calls. Before M4, STRATA's CSRs relied on consulting with Engineering for all service requests. With the implementation of M4 Services Manager, their CSRs are now able to communicate and schedule changes in just minutes, which allows them to be more responsive to customers in a timely manner.

REAL-TIME CHANGES IN THE FIELD

While CSRs are working hard to drive efficiencies in the office, the techs and engineers must mirror those efficiencies out in the field. To enhance productivity, STRATA utilizes M4 Workforce and M4 Mobile Tech to assist their techs in the field. Together, these modules eliminate the need to call back into the office from the field for every ticket.

Today, technicians can make notes, adjust charges, and assign changes from the field reducing the amount of time



at the ticket site and preventing disruptions back at the office. Workforce and Mobile Tech allow technicians to view their tickets, adjust assignments, and update statuses from a

mobile device in order to stay in touch with shifting priorities throughout the day.

UNLOCKING DATA TO DRIVE ACTION

With the combination of M4 Services Manager, M4 Workforce, and M4 Mobile Tech, STRATA was able to create data relationships and automate processes that weren't available to them in previous systems. Processes relied on a single administrator to execute and reports were run on a case-by-case basis by the database administrator.

Now, the database administrator sets up and runs automated reports that combine all the necessary data for business leaders to track companywide performance and efficiency. These reports also provide additional data to assist STRATA in strategic planning and applications for funding that will help continue to expand their community outreach and service offerings for years to come.

OPERATIONAL EFFICIENCIES IN THE FUTURE

With the correct tools in place, companies can help drive operational efficiencies both in and outside of the office, like STRATA Networks has done. Their companywide adoption of modules that drive efficiency will allow for future growth in their organization and improved customer service.



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Why Better Mapping Matters

By Shirley Bloomfield,
Chief Executive Officer, NTCA

Many in the industry (including NTCA!) continue to discuss the need for a better mapping process as the accuracy of broadband availability maps remains in question. Unique challenges to providing high-speed broadband in rural territories include the role broadband mapping plays in the distribution of resources needed to build and sustain broadband in rural America. Maps show services as available where consumers cannot get them at all, and in other places they show speeds available at levels that cannot consistently be delivered. Respectively, these “false positives” can result in a denial of funding, while “false negatives” can result in a waste of funding on duplicative networks. NTCA proposes that any effort to address these mapping challenges includes at minimum three essential components: 1. A move to shapefiles with the long-term goal of even more granular service availability data; 2. Standardization of how providers can determine and report on asserted coverage; and 3. Adoption of validation and challenge processes. Many proposals are being presented to the FCC, but these principles are critical in any solution to ensure better broadband availability data and, ultimately, a better map. Because when push comes to shove, the greatest reason to ensure better broadband maps is so that every American is afforded access to the opportunities high-speed internet provides!

THE NEXT GENERATION OF AMERICAN JOBS

The opportunities created by access to broadband service are almost too many to count. However, some are certainly more essential than others, and those include job opportunities. This topic prompts me to recommend a valuable white paper from our vice president of policy, Josh Seidemann, on rural broadband and the next generation of American jobs. We often hear about the fourth industrial revolution, one brought about by technological advancements like automation and artificial intelligence. There is concern as to how we will meet the challenge of training a workforce capable of navigating and leveraging these technological advancements. Rural America has perhaps the most to gain by meeting this challenge, and



rural broadband providers will have a large part in accomplishing this feat. For instance, broadband-enabled distance education and training programs can play a vital role in helping to prepare our students for careers that demand both computer skills and critical thinking, no matter where they live. Broadband opens the door to the future for rural students and helps economic growth reach all corners of this country equally.

FUTURE LEADERS OF AMERICA

Educating our young people for the next generation of jobs is essential for American prosperity. This is critical for our country, but especially in rural America. As I recently wrote in a blog post, I addressed a group of young trainees with Lead for America, a program similar to Teach for America, but with an emphasis on public service in local communities. The organization believes that transformation is local, and engagement begins at home. The program itself sends bright, young college graduates back to their communities to help their hometowns take the next leap into the future. Having spent a few hours with 60 of these young leaders as we talked about broadband deployment in their communities, how to tap technology for “the good,” and what it takes to be a rural entrepreneur, I am excited to see what these young leaders will be able to do when they return home. We asked the group how many would be returning to a small, rural community and more than half of those hands were raised. At least four of the young folks in the room indicated that they would be working on broadband access issues for their rural communities. Some of our NTCA members may even encounter them along the way! Lead for America has a saying: “Start where you live,” and nowhere do I find that rings as true as within NTCA member organizations and in the many communities that you serve. ●

● A FEW QUESTIONS ●

HR Pro Wears Multiple Hats

By Christian Hamaker

[Tell us how you made a career in HR, and how long you've been with GRM Networks.](#)

When I started college, I thought I wanted to be an accountant. Honors accounting classes and some great management/HR professors changed my direction, and I finished with dual degrees in business management and agricultural economics. Since then I've always worked in HR, from running a temporary staffing office, to HR Manager for a 500-employee manufacturing plant, to training specialist and then HR manager for a 1,200-plus employee hog farm. In 2002 I was so blessed to receive the job offer from GRM Networks when they decided to hire their first HR person. Over the last 17 years the position has evolved to also include regulatory and business development. Now I probably spend more time wearing the other hats, but my roots have always been in HR.

[GRM Networks received a Smart Rural Communities grant last year to support a business incubator facility designed to train area high school students in business development. How's that project going?](#)

We partnered with the Decatur County Development Corp. and other community groups to establish a new business incubator and co-working space called the N.E.S.T. (Nurturing Entrepreneurial Students for Tomorrow). This project originated with students in the Future Business Leaders of America (FBLA) club at the Central Decatur High School. In looking for new fundraising ideas, the club developed the idea to provide "value added" services to businesses throughout Decatur County in exchange for donations.

The students started by offering social media marketing to small and medium businesses. They are working to also offer other marketing assistance such as print, photography, videography, market research and analysis, and more. The incubator space is available to host meetings, make presentations to business owners and potential clients,



JENNI NEFF
Director of Human Resources and Regulatory, GRM Networks



RSVP and Rotary volunteers, students and GRM employees at the Grand Opening of the N.E.S.T. at the Leon Community Center.

and collaborate. Volunteers from the Senior Corps Retired Senior Volunteer Program (RSVP) and the Rotary Club of Decatur County help staff the facility during business hours while school is in session. Business owners, volunteers and students all benefit from sharing their skills and building these relationships.

What changes have you seen in the HR field during your time in the rural-broadband business?

Mostly technology driven changes—for example, recruiting now is more social-media-based and not just running ads in the newspaper. It's also more challenging now to find candidates with the tech skills that we need. Then there's the continuous addition of more and more government regulations—guess I should consider that job security!

FAST AND FURIOUS

True or False: If you're coming to Missouri, you should sightsee in St. Louis. I guess you can, but don't stop there. Missouri has so much more to offer!

What one word best describes fall in the Midwest?
Football. Definitely football.

By the end of 2019, I hope to: Finish the closet cleaning project I started in June.

All I want for Christmas is: I haven't made my list yet, but jewelry is always appropriate. ●



GRM District Manager Michael Jordison, Marketing Supervisor Cindy Roy and CEO Ron Hinds with two FBLA students from Central Decatur High School.

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Little Innovation Engines That Could: Expanding Beyond Traditional Economic Development

BY TARA YOUNG



C2Mbeta in Missoula takes a mentored approach to building businesses, including holding all-hands meetings in their incubator space

"I don't want to use my creative energy on someone else's user interface."—Jeff Bezos, Founder of Amazon

Google and Amazon both used a garage filled with friends from Stanford, Facebook needed a Harvard dorm room, and writer Virginia Woolf opted for a private room in her house within the artistic enclave of Bloomsbury. The locations change, but the bottom line is still the same—creativity and innovation require space and a supportive culture to thrive, and so do business-building entrepreneurs. Increasingly, telcos are expanding beyond the traditional economic development model, working directly with entrepreneurs to foster small business growth on their own terms, and using their voices to influence the ways their communities grow and change.

SHIFTING THE PARADIGM

The concept of building an economy based on investing time, expertise and resources in entrepreneurship and startups is a departure from traditional rural economic development

methods. The more common historical approach utilizes a county, regional or super-regional office of economic development to recruit larger, established businesses to a community hoping they'll be an anchor as a keystone employer. But this tactic falls short in a multitude of ways.

As Patrick Woodie, executive director of the North Carolina Rural Center explained, "Study after study tells us 95% of new job creation comes from retaining or growing existing businesses or by helping new budding entrepreneurs start their own businesses. Yet we still tend to overinvest in our quest to recruit the big new company, often at the expense of investing in the businesses already in a community or the entrepreneurs looking to start a new business. Successful rural communities are building diverse local economic development programming that positions the community to attract jobs through all three strategies."

This paradigm shift from a recruitment-centric strategy to more labor-intensive, community-involved development is

“Savvy and effective local leadership will recognize the community is strongest when everyone participates in—and feels they have a stake in—the community’s future. This means leadership has to engage the community in conversations and decisions about the future.”

“Maker spaces in rural America have evolved quickly over the past decade. They are more than just a modern-day ‘Little Incubator on the Prairie.’”

one that resonates deeply in rural areas. This is especially true with telcos, many of which were originally developed as cooperatives built by engaged community members. That history of engagement proves itself to be immensely valuable to the long-term quality and cohesion of the community’s economic development initiatives.

“Savvy and effective local leadership will recognize the community is strongest when everyone participates in—and feels they have a stake in—the community’s future. This means leadership has to engage the community in conversations and decisions about the future. They have to adopt an approach that says everyone in the community has a seat at the table, and they have to work intentionally toward building consensus around a common vision for the future,” Woodie said.

INNOVATION ENGINES

At the intersection of this paradigm shift and the resources needed to make it happen is the rural telco, filling the role of the innovation engine, the connection

point, and in many cases, the provider of the space and technology needed for 21st century innovation. But maker spaces in rural America have evolved quickly over the past decade. They are more than just a modern-day “Little Incubator on the Prairie.” They have tapped into the power of their communities, moving beyond the box of their walls and ceilings and opening themselves up to their neighbors, with some exceptional results.

Jill Snyder, executive director of NineStar Connect’s Idea Co-op, has seen those results firsthand. The Co-op features 15,000 square feet of creative space, as well as 26 acres of tillable land for agricultural technology research and experimentation. The facility itself boasts a fabrication lab for IoT, 3D printing and virtual reality-based applications, as well as the various meeting, conference and general office rooms needed for daily business operations. As the co-op opened itself up to partner organizations, educational institutions, and potential startup businesses, it experienced growth in both its reach and impact within its service area and in the business startups housed at the co-op.

“We find many of our users, both co-work space users and startup tenants, are bringing with them not only their expertise, but their networks. It’s been interesting to watch, because we’re seeing the Idea Co-op and the people here developing, engaging and fulfilling the holistic needs of the entrepreneur,” said Snyder.

Snyder cited the engagement of some local senior citizens as an example. When the seniors heard of a need for volunteers at the Idea Co-op, they jumped in to lend their time and expertise. The co-op and its users benefit by having these “senior interns” providing training on plasma cutters and other pieces of equipment in their fabrication lab or by having them act as docents during their youth Coding Dojo classes. It’s a multigenerational exchange of ideas, information, mentorship and support, all stemming from an engaged community with a vested interest in developing its economic base.

The Idea Co-op as a community-building enterprise extends beyond multigenerational engagement, however. Snyder has also seen several co-op users find housing in a local housing development geared toward entrepreneurs and artists. Hancock County has accepted the economic boost brought by the Idea Co-op by both supporting the businesses and embracing the entrepreneurs as an important part of the fabric of the community itself.

“Our primary goal has always been to position the co-op as a midwestern showcase of entrepreneurship. We removed the barrier to entry for entrepreneurs and we identified the need for low-cost, no-contract office and co-work space, but building a sense of community has come naturally as a byproduct of how we’ve implemented that vision,” Snyder said.

► BUILDING UP TO GIVE BACK

For some telcos, building up their community is another form of giving back. Blackfoot Communications (Missoula, Mont.) used this concept as a guiding principle and development touchpoint when launching C2Mbeta, a space it bills as a startup studio, corporate accelerator, and hub for corporate transformation and startup innovation.

"We built C2Mbeta because it was true to our company's roots," said Joe Fanguy, vice president of strategic development at Blackfoot and founder of C2M. "The goal was to identify early stage startups and help them operationalize through mentorship, investment and Agile-style development." The result was C2M, a telco-led, community-centric incubator and economic development engine steeped in the tenets of cooperative thinking, community contribution, and shared vision and voice.



Joe Fanguy, Vice President of Strategic Development at Blackfoot Communications



Patrick Woodie, President and CEO of the North Carolina Rural Center

C2M structures its incubator into a cohort model, giving startups a shared creative space, but also working with them on their journey to success. Their first cohort included three startups in digital mapping, digital health care and video production. Each company met weekly in an all-hands meeting, either individually or communally with the other companies in the cohort. The topics of the meetings were driven by the needs of the participants and used the Agile project management method to move the companies through challenges and closer to operationality, viability and self-sustainability.

Throughout the process, Blackfoot tapped its considerable resources, both internally and externally, to support the C2Mbeta participants.

"We offered internal expertise through mentorship arrangements with Blackfoot personnel in our technology, sales and marketing, finance and human resources departments. We gravitated toward people in our organization who had an interest in



Woodie speaks at the North Carolina Rural Center's Rural Day event.

being mentors, but who also had an entrepreneurial background. It provided them a little novelty and variety in their workday, but also gave incredible value to our C2M companies," Fanguy said. "We also made connections externally to our network of venture capitalists and corporate investors, making introductions and setting up meetings to help find the C2M participants the capital they needed to move to the next stage of development."

The next C2M cohort has been selected, with another digital health care company in the group along with a blockchain startup and a computing/engineering company. After the success of the initial cohort, Fanguy and C2M found many of the participants through a flurry of referrals from external sources. That's gratifying for the incubator, but it also gives Blackfoot its own pathway for growth.

"Being involved in these early stage businesses is a great way for us to learn about new technologies and industries outside of telecom. It opens the door for us to converse and work with other tech fields, and it might one day lead us to a new avenue for diversification at Blackfoot," Fanguy said. "It provides expanded possibilities to everyone involved."

BROADBAND PROVIDER TO ECONOMIC DEVELOPMENT ADVOCATE

Broadband is essential in today's business economy. As the supplier of this resource, telcos are in a unique position as both economic development engines and community builders for the next generation of rural communities.

Woodie underscored the incredible value of this role: "Telecommunications providers, and NTCA members specifically, are the key anchor institutions in the rural communities they serve. Their full-throated participation in the

civic life of their communities is as important as the broadband service they provide. They particularly have a role and should have a voice in setting local and regional economic development policy and strategy."

Even if a full-fledged incubator isn't an immediate option, Woodie advocates for deep, meaningful interactions by telcos on the behalf of their communities in matters of economic development. "I would encourage telecommunications providers to collaborate with multiple public and private partners in engaging the community in a conversation about their collective economic future, perhaps by hosting or sponsoring that public conversation. I would also encourage their management teams and governing boards to actively participate in local civic and business organizations as well." ●

Tara Young is a freelance writer. Contact her at tara.young@gyremarketing.com.

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No News Is Bad News

How rural communities—and their broadband providers—are filling the gap for local coverage.

BY ASHLEY SPINKS



Open up the latest edition of New Hope Telephone Cooperative's (NHTC; New Hope, Ala.) "Connections" newsletter and you'll find:

- A nearly full-page article about the street-cleaning efforts of the local Lions Club, including a list of several dozen businesses that sponsored the project.
- A full schedule of performances for the town's Summer Concert Series.
- A feature story about a resident entrepreneur and her new donut shop, stocked with inventive and delicious creations.
- And so much more, across 16 pages of local and regional content

While much of the content does tout NHTC's broadband service, the newsletter is more reminiscent of a town newspaper than of marketing material.

Perhaps the articles would be more at home under the byline of a resident journalist, but New Hope, like an increasing number of rural small towns across America, has no local paper. According to NHTC Marketing Manager Christy Nelson, town residents used to have the Huntsville Times as a source for some local coverage, but that outlet now publishes entirely online at AL.com (in fact, a majority of Alabama's media market has consolidated and migrated to AL.com). According to a study from the University of North Carolina, "The Expanding News Desert," "about 20% of all metro and community newspapers in the United States—nearly 1,800 publications—have gone out of business or merged since 2004." And while the majority of the newspapers that have died since 2004 were in suburban areas, "counties with no coverage at all tend to be rural."

This proliferation of rural news deserts is a problem because small town newspapers are (or have historically been) the primary mechanism for local information-sharing

and community-building. As local newspapers have folded, Emily VanDerWerff explained recently in Vox, the news business has nationalized—which has been “good for news junkies but not as good for those who want and need news about their local communities.” More and more often, people throughout the country are reading news content that is primarily produced by people living in urban areas, and that bias in perspective leads to coverage that is not relatable or useful to its audience. “Even if you believe what you read in the national media is true in a rural community, it’s easy to believe it’s not true for you. In the past, this meant turning to the local paper or TV station to reflect your local experiences,” VanDerWerff continued. Now, it may mean relying on your local telco.

Local information-gathering and sharing can achieve lofty ends, like protecting our democratic institutions, bolstering community engagement and connecting people with needed resources. But according to several NTCA member companies that produce newsletters for their members, these publications can also serve an important purpose by telling the rural story, in a rural community’s own words. And often, that rural story involves leveraging a fiber broadband network in order to find success.

TELLING THE RURAL STORY

Caldwell, Kan., has a community newspaper—the Caldwell Messenger—but KanOkla Networks still sends out a monthly newsletter (“Chatter”) to its 2,100 subscribers in the Caldwell area, in addition to an outside list of nearly 500, which includes former residents of Caldwell, other regional telecommunications companies and more. According to KanOkla Marketing Manager Eric Eaton, the company has been producing the newsletter since at least the early 1960s—before




either he or colleague Kim Reilly became employees. A recent edition includes a feature story about the benefits of broadband, a promotion for the company’s router sale, and introductions of new employees, with headshots and short biographies.

The feature on the front page is the latest in a “Chatter” series, “Rural by Choice,” and it details the lives of two Caldwell natives, Daniel and Jennifer Kern, who chose to return to rural Kansas. Importantly, the story notes that broadband availability was a key factor in the decision to return home. According to Jennifer, an education administrator, “I need internet for almost everything that I do.” She called KanOkla’s service, “better than what I had access to in Maize and Wichita, Kan.” and said, “not only am I able to buzz through my online courses at home, but we can stream Netflix, tell Alexa to play our music and run security cameras without any delays. I love living in Caldwell!”

Maybe it goes without saying, but this sort of content serves a dual purpose for KanOkla: It helps customers feel

connected to and represented by their broadband company, and it advertises the benefits of a robust fiber connection. Reilly, who is KanOkla’s public relations coordinator, sources and writes these “Rural by Choice” articles. She explained, “We’re trying to get more of [these] stories out there. Why have young adults moved back into a rural area? Not so many people really know ... what we offer here and that everyone has fiber to the home.”

Eaton said the company is “focused on how we help our rural customers and [asks], ‘How has our fiber optic service in rural America helped you stay in rural America?’” The newsletter is one way to achieve this goal, Eaton said, and it represents “a direct connection to the customer.” KanOkla has an in-house design team that takes each month’s newsletter from concept to printed product, and Eaton said the team is also a valuable alternative revenue stream for the telco. “They do all our advertising of KanOkla services, but we also treat them as a separate line of business. We market anything that needs design to local businesses.”

A man with short dark hair, wearing a blue denim shirt, is looking down at a magazine he is holding open. The magazine has colorful pages. In the background, there is a white shelf with some items on it. A white mug is on the table next to the magazine.

► MAKING THE BROADBAND CONNECTION

At Mountain Telephone (West Liberty, Ky.), the team outsources some production of its bimonthly magazine to WordSouth, a content marketing company based in Rainsville, Ala. But the magazines—which contain eight pages of “regional” content that are shared among many rural telcos—still maintain 50% “local” content, and their ability to speak authentically about rural communities. In fact, Director of Marketing and Public Relations Lisa Fannin said Mountain Telephone chose WordSouth because, “[They’re] from

Alabama, so they have our similar lingo [and] way of speaking. Their stories are so easy to read for our customers.”

In the May/June edition of Mountain Telephone’s “Connection,” readers found updates on robocall regulations and the TRACED Act that is making its way through Congress, but also a story about a local student who collected donations for the food bank and a list of donation centers in Morgan County, Ky. One feature also told the story of a local couple who adopted their daughter, Madison, from China. As Fannin pointed out, “Without having good, dependable internet service ... such an adoption would have been near-impossible.”

“In fact, Director of Marketing and Public Relations Lisa Fannin said Mountain Telephone chose WordSouth because, “[They’re] from Alabama, so they have our similar lingo [and] way of speaking. Their stories are so easy to read for our customers.”

”

West Liberty bucks the trend of rural news deserts as well. “I couldn’t ask for a better relationship with the small town paper,” Fannin said. But due to limited staff in the news office, garnering coverage for Mountain Telephone often means Fannin writing up the article herself. And in the telco’s newsletter, Mountain Telephone employees can control the narrative—and more clearly draw the connection between feel-good community stories and the impact of rural broadband availability.

Fannin said the magazine is largely a service to Mountain Telephone’s customers. They send it out to each and every one, which adds up to more than 11,500 copies. “Believe it or not,” Fannin said, “in our area, quite a few people still subscribe to these little local newspapers, [and] in order for our information to reach all hands, we send it to everyone.” Fannin said that feedback to the magazine is overwhelmingly positive, and that the stories about local residents can entice people to open it up. The industry updates and telecommunications information scattered among the local coverage help customers understand “why they need our services and why we’re important,” Fannin said. “Education is key to sell your product; they have to know why they want it.”

Back in New Hope, there is no shortage of future stories to tell. “We actually have customers who call us, and there is never a shortage of stories for us,” Nelson said. The newsletter “gives [NHTC] the opportunity to be that avenue to speak to the community and let them know what’s going on,” Nelson said, adding, “I’ve been amazed at some of the stories that have come through.”

People love their hometowns and continue to value the local news even after they’ve moved away, Nelson said. One former NHTC customer, age 93, called Nelson after he moved to Kentucky. “He had lived here for the majority of his life. ... He called me to make sure I kept his [new] mailing address on our mailing list.”

Nelson updated the mailing list, and New Hope will continue to provide that customer with a community connection—if not a broadband connection—for years to come. ●

Ashley Spinks is communications coordinator for NTCA–The Rural Broadband Association.



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REPORT METHODOLOGY

- 56 Reporting Locations
- 60k Set-Top Boxes Reporting
- Rural Locations From Alaska to New York
- Thirty Day Reporting Periods
- Average Views Per Hour
- Innovative Systems Video Channel Stats Software



EXECUTIVE SUMMARY FOR THE SPRING QUARTER 2019

- All the broadcast networks were rated in the top 20.
- Stormy spring blows the Weather Channel into top 25.
- "Game of Thrones" was unable to push HBO or HBO HD in the top 160.
- Fox News is the leading news channel scoring in the top 10.
- INSP maintains top 20 status in four consecutive quarters.
- Crown Media, the Hallmark Channels, are the most viewed, non-network programs.
- HD Broadcast Network viewership grows closer to SD viewership.

Top 30 Rated Rural Channels March 2019–May 2019

Based on Average Number of Set-Top Boxes Tuned-In per Hour

1. CBS SD 26.5	9. ME TV SD 8.3	17. History SD 4.2	24. RSN (Sports) HD 3.6
2. NBC SD 20.5	10. INSP 8.1	18. ESPN HD 4.1	25. Weather Channel SD 3.5
3. CBS HD 18.6	11. Fox SD 7.0	19. Discovery SD 4.0	26. History HD 3.4
4. NBC HD 17.7	12. TV Land 5.4	20. MSNBC SD 4.0	27. Discovery HD 4.0
5. ABC SD 14.3	13. Fox HD 5.4	21. HGTV SD 4	28. TV Land HD 3.3
6. ABC HD 13.2	14. Hallmark SD 5.1	22. Hallmark HD 3.9	29. USA SD 3.3
7. Fox News SD 10.0	15. HGTV HD 4.4	23. MSNBC HD 3.8	30. Hallmark M&M SD 3.3
8. Fox News HD 9.9	16. Game Show SD 4.4		

CHANNEL STATS EMPOWER VIDEO SERVICE PROVIDERS

Multi-Generation TV providers are using system embedded tools from Innovative Systems like Channels Stats to generate reports that give them the confidence to remove channels. One provider had this to say: “We chose to discontinue one of the independent news channels because the Innovative Channel Stats reports proved that no one was watching it. Moving forward we will continue to use these reports to drop unwatched channels that we aren’t obligated to carry.”

MG-TV SERVICE PROVIDER REPORT OF SET-TOP BOX VIEWS FROM 8 AM–11 AM ON APRIL 15, 2019

CHANNEL	AVG VIEWS	MIN VIEWS	MAX VIEWS	8 AM 4–15	9 AM 4–15	10 AM 4–15	11 AM 4–15
CBS	84.40	0.00	379.70	47.15	12.25	187.70	255.00
NBC	53.20	0.00	226.95	54.30	44.10	67.65	47.30
ABC	42.90	0.00	181.50	38.80	41.25	16.75	21.00
FOX	33.40	0.00	235.40	22.00	15.85	26.15	31.85

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Future-Proofing the Rural Broadband Workforce

BY BRYCE OATES

Rural telcos have identified numerous opportunities and challenges for the next-generation rural workforce. Can these small-town entrepreneurs and their partners in the public sector effectively collaborate to meet future telecommunications employment needs in rural America?

"When it comes to broadband deployment, you need three things," explained Bill Esbeck, executive director of the Wisconsin State Telecommunications Association (WSTA). "You have to have fiber and reliable technology. You have to have plenty of working capital to get the job done. And you also need a skilled workforce to get that fiber in the ground and get the system up and running."

Like many rural telecommunications companies planning for profitability and long-term viability, Esbeck said WSTA

members knew they had a looming problem related to that third critical factor: finding workers with the training and skills to meet the labor needs of the future.

"A few years back, we were having a rather organic series of conversations about how to develop the next generation of CEOs and general managers for our industry," Esbeck said, when the discussion turned toward the broader issue of staff retirement. "Looking five to seven years down the road, almost everyone in the room

identified a bubble of current employees that are looking to retire."

According to Joshua Seidemann, vice president of policy for NTCA—The Rural Broadband Association, many rural telcos are working to address the same issue: how to best recruit and train the rural workforce of the future.

Seidemann's research report, "Rural Broadband and the Next Generation of American Jobs," explores both the challenges and opportunities faced by rural enterprises and workers while identifying some important data

pertaining to technology-sector job trends. Datapoints include:

- “Middle skill” and STEM- (science, technology, engineering and mathematics) sector employment opportunities are rising, including in rural America. One-third of current U.S. jobs, and one-third of the 30 fastest growing jobs, require some college or technical training and certification.
- Researchers have documented 2.4 million STEM-related jobs that are currently vacant, and that STEM-related job growth was approximately 17% from 2016–2018.
- Many communities are working to close the “rural education gap” by focusing on technology sector curricula and classroom offerings. Some innovative rural training programs include hands-on apprenticeships that can provide valuable credentials and certifications for employees.

Seidemann, said that despite the clear opportunities and growth available through technology jobs, some rural people have understandable worries about the changing economy. “NTCA held a panel discussion a few years ago on rural education and training issues, and one of the panelists described how he had urged his local school to start teaching the students coding,” Seidemann said.

“The feedback he got from his community was, well, if we teach them coding they’ll all get good jobs somewhere else and move away,” Seidemann recounted. The NTCA panelist in favor of coding education responded, “Yeah, but if we teach them coding and a few years later one of those 20 students comes back home, starts a business and hires 12 people, it would be like we won the lottery.”

Seidemann’s lesson from that situation, as well as his research, is that the rural economic developers, decision-makers and practitioners “can’t artificially keep kids down. We’ve got to give them the tools. Let them build something here instead of moving away.”

“Work-training programs, apprenticeships and focused classroom instruction can help develop students’ skills and lay the groundwork for economic opportunities in rural areas,” Seidemann’s paper concludes.

That lesson appears to be gaining traction, as many rural businesses, cooperatives and community advocates are coalescing around a similar strategy.

Many rural Wisconsin telcos are rising to the challenge, according to Esbeck. The statewide trade association has forged a formal broadband technician skills and training partnership with the Wisconsin Indianhead Technical College (WITC) and Wisconsin Department of Workforce Development (DWD). The collaborative effort has launched an online curriculum

and training program designed to improve workforce development for rural broadband employees.

“Our Broadband Academy offers a flexible online broadband training curriculum,” Esbeck said. “The program provides three tiers of training to help everything from entry-level broadband workers to seasoned and senior personnel.”

The Broadband Academy courses, officially conducted online by WITC, have experienced significant demand, with interest and participation from broadband workers as far away geographically as Alaska.

In addition to the online education program, WSTA has established an on-the-job training and broadband-focused registered apprenticeship program. The first graduate of the apprenticeship program was celebrated by WITC, along with delegates from the Wisconsin Development Commission and Division of Workforce Development, in July.





we'll be hiring more network technicians as we build out the network. Those workers are going to need additional training and certification as the technology progresses," Phillips said.

GRM Networks (Princeton, Mo.), a rural telco that employs 96 workers in its rural northern Missouri and southern Iowa service area, has a similar approach to hiring workers from their service area, though the company doesn't have access to local technical training.

"The hardest thing for us, when making a decision about hiring new employees is finding people with the technical skills we need," said Jenni Neff, director of human resources and regulatory affairs at GRM Networks. "It used to be that you could hire people in the area that could work with farm machinery, for instance, and you'd have the skills you need. But nowadays, our employees need to be able to put up a whole network between computer systems, video games, multiple devices. It's just more complicated and much more technical."

Neff said that her company has a good mix of newly hired workers and some getting ready for retirement. "We almost always end up hiring people that live within our service area. We feel like it is part of our obligation to provide good jobs, along with good phone and internet service, for our local community," Neff said.

GRM Networks conducts local on-site training sessions for employees in need of technical skills development and training. While some rural telcos have access to nearby education services from public or private institutions, the closest professional training to GRM workers is in Des Moines, Iowa, more than two hours away.

"For a week-long class, if we have enough employees that need to participate, it's much more cost-effective to bring the educators and trainers to us," Neff said.

To keep up with technology, GRM is on the way to meeting its goal of serving almost all customers with high-speed fiber. Fiber installation has required additional training and education for employees. "That skillset is very different, and much different than working with copper. But, once the system is up and running the maintenance requirements are fewer," Neff explained.

"We don't always find people that have the exact technical skills we're looking for, but we have worked hard to find a way to evaluate the abilities of the person. If they have an interest in some kind of technical area, be it computers or some other technology, we've figured out whether employees have the interest and ability and skillset to learn," Neff said. This "invest in people" approach is helping provide stability and quality for GRM.

▶ Twin Lakes Telephone Cooperative (Gainesboro, Tenn.), a member-owned telco serving rural residents of north-central Tennessee, has also identified an aging workforce as a key issue. Of the cooperative's 134 employees, around 25 are expecting to retire in the next decade, according to Twin Lakes Human Resources Manager Melissa Phillips.

"We're certainly going to be seeing some new faces around here in the coming years," Phillips said. "Generally, most of our workers and our new hires come from right here in our service area."

Phillips said that many Twin Lakes employees require training and certifications. "Our linemen, our service technicians and our more technical network technicians all get certified and trained. We partner with our local Applied Technology Center for these services," Phillips said.

The Tennessee College of Applied Technology—Livingston (Livingston, Tenn.) provides post-secondary workforce training to students in the rural region, offering degrees and certifications to a broad array of industries from the automotive sector to health care. Twin Lakes employees take courses in information technology and the Power Line Construction and Maintenance Technology clusters.

"Usually, when we make a hire, there's a balance between finding a candidate that is a good fit and having the necessary qualifications. If the fit is right, we can get the worker the right training," Phillips said.

The human resources manager said that she expects Twin Lakes to deepen this partnership with local workforce training efforts in the future. "We are working very hard right now to install high speed fiber throughout our service area. I believe

"It's that ability to learn that's the important part. We have found that we can teach someone what they need to know if they have the right attitude and aptitude for learning," Neff said.

Rural telco workforce development efforts are also gaining attention from federal agencies. This spring, FCC Commissioner Brendan Carr highlighted the work of Aiken Technical College in Graniteville, S.C. Aiken College's Tower Installation Program trains students to install and maintain broadband towers.

"A key pathway to getting more certified tower technicians is in community college programs, such as Aiken Technical School," Carr said at an April local event. "You can come in with zero skills and within 12 weeks, through a combination of classroom training and practical exercises, you come out able to find a job as a tower climber."

The National Wireless Safety Alliance is working to replicate Aiken's success by extending the educational opportunities and lessons-learned from operating the program to other community colleges and technical schools. Nearly all Aiken program graduates have been successfully hired by telcos in the Carolinas or Georgia.

"The community college model makes sense because it gives you access to Pell grants and other military funding. They are embedded in the community and are able to pull in people that are interested in this line of work," Carr said.

In addition, FCC Chair Ajit Pai recently appointed WSTA to the commission's Broadband Deployment Advisory Committee Working Group on Job Skills and Training Opportunities. WSTA's Esbeck said that he is excited to highlight his organization's Online Broadband Academy and Broadband Technician Apprenticeship workforce development efforts through the FCC.

Regardless of how rural telcos find the workers they need, the opportunities are clear for employees throughout the growing industry. The telecommunications sector currently employs 727,000 people nationwide, according to the U. S. Department of Labor's Bureau of Labor Statistics (BLS). The nation's nearly 35,000 telecommunications firms pay an average wage of \$37 per hour for all employees, \$31 per hour for nonsupervisory workers. Approximately 15% of the industry is unionized. These wage and job trends signify strong economic performance in rural communities that can sometimes face few employment options or lower-than-average salaries and benefits.

While workforce development issues are likely to remain both a challenge and opportunity for rural telcos, it is clear that NTCA members are well positioned to meet the needs of their customers and rural communities. Through collaboration and sharing best practices, the industry is embracing technological advancement, pursuing partnerships with local institutions and innovating to develop the workforce of the future.

In the words of Jenni Neff, "I think we're very fortunate to have a reputation as a premier employer in the area. People want to work with us. We get good strong applicants every time we have an opening. We have great employees, and that's really what's helps us to maintain our reputation and service." GRM, and other NTCA members, are investing in local people as employees while providing training and technical skills to develop the workforce of the future.

Rural telcos have successfully navigated changing times and market conditions before. From the initial buildout of the telephone network generations ago to the high-speed fiber being installed today, the industry provides essential services throughout rural America. Part of their commitment involves fair wages and high-quality jobs in their local communities. That dual legacy, of job creation and providing high-quality communications services, makes NTCA telcos a critical component of a positive future for rural people and places all across the country. ●

Bryce Oates is a freelance writer who covers rural policy issues. He can be reached at bryce@rocketship.com.

It's that ability to learn that's the important part. We have found that we can teach someone what they need to know if they have the right attitude and aptitude for learning.



Three Key Questions for Cybersecurity Leaders

By Dan Lohrmann

For this issue, NTCA's Training and Development team invited Dan Lohrmann, closing keynote speaker for the 2019 NTCA Cybersecurity Summit, to share his thoughts on cybersecurity leadership. Dan has advised senior leaders at the White House, National Governors Association, U.S. Department of Homeland Security, Fortune 500 companies, small businesses and nonprofit institutions. He currently serves as chief security officer (CSO) and chief strategist for Security Mentor, and previously served as CSO, chief technology officer (CTO) and chief information security officer (CISO) for the state of Michigan.

A version of this article originally appeared in the April/May 2019 issue of Government Technology magazine (www.govtech.com).



All leaders face hard decisions, and whether you are a team lead, first-time supervisor or junior department director, those decisions follow you for years and will eventually define your legacy. As a leader's scope of duties, number of staff and overall authority grow, the impact of those decisions becomes even greater.

A CISO's success rides on how they address a few crucial issues. The list of potential questions is long: Which technology or vendor is the best fit? What can motivate that specific staff member? Is it time to try something different? Do you keep pushing your team harder or give them a break?

However, there are three especially important questions for security chiefs to consider. While other technology and business leaders may face similar challenges, the security leader's approach to these three questions often determines whether they ultimately succeed or fail.

1. SHOULD YOU REALLY STOP THAT INFORMATION TECHNOLOGY PROJECT?

Back in 2004 I almost got fired when I insisted that we could not put Wi-Fi in our government conference rooms. I said, "We just can't do it. Not secure. Bad idea. I'm vetoing the project!"

My boss was then-state Chief Information Officer Teri Takai, who later went on to become CIO of California and of the Department of Defense. She said, "Dan, if that's your answer, you can't be the CISO in Michigan."

Teri went on: "I've been to Dow, Ford, Chrysler and GM, and they all have Wi-Fi in their conference rooms. So, you need to figure out what they know that you don't know, and then

come back and tell me how we're going to implement Wi-Fi securely. I'm giving you one week."

That meeting started a transformation in my security career. I began to rethink my role, my team's mission and how we were being perceived. I refocused my tactical and strategic initiatives to become an enabler of innovation—with the "right" level of security. We went on to win awards for secure Wi-Fi deployments in government a few years later.

And there was a larger lesson. I now constantly ask myself: Am I bringing the organization problems or workable solutions?

Remember to be careful with security veto power and think innovatively about offering alternative cyber-answers.

2. IS THE ROOT CAUSE OF A SECURITY INCIDENT THE PEOPLE, THE PROCESS OR THE TECHNOLOGY?

In 2012, Utah state government made national headlines when a data breach exposed the Social Security numbers of about 280,000 Medicaid recipients. Top government leaders were fired, but the root cause was not poor technology—it was the negligent use of a default password by a network contractor.

Remember that processes and people are the cause of more cyber problems than poor technology. Getting to the root cause after an incident and mitigating ongoing risk is an imperative.

3. IS YOUR TEAM ABOVE REPROACH REGARDING SECURITY MATTERS?

Do customers trust and respect both you and your cyber team? More specifically, do you verify staff trustworthiness?

The insider threat remains a nebulous issue for cyber leaders. While most insider threats are unintended errors, like staff clicking on a malicious email link, most CISOs at least occasionally stay awake at night worrying that a deeper problem lies within the team.

I began to rethink my role, my team's mission and how we were being perceived. I refocused my tactical and strategic initiatives to become an enabler of innovation—with the 'right' level of security.

Beyond background checks, suspicions of unethical behavior by staff, peers or executive leadership will undermine future effectiveness and the ability to accomplish security goals. Cyber professionals are the protectors of the crown jewels, including data and much more. Personal integrity is paramount.

Remember to build trust and integrity into every security team relationship and process. I'd rather hire a good security professional who has a great attitude, is trustworthy and is accountable than a great cybersecurity expert I don't trust.

Dan Lohrmann is an internationally recognized cybersecurity leader, technologist, keynote speaker and author. Follow him on Twitter @govsco.

NTCA Expands Federal Advocacy to the U.S. Copyright Office

By Tamber Ray

NTCA members are well aware of NTCA's federal advocacy efforts before the FCC and Congress. However, NTCA recently had an opportunity to advocate on behalf of members at the U.S. Copyright Office. On April 8, 2019, NTCA participated in a roundtable discussion at the U.S. Copyright Office regarding the effect recent court opinions interpreting the Digital Millennium Copyright Act (DMCA) have had on internet service providers (ISPs). The DMCA protects ISPs from being held liable for copyright infringement if a subscriber uses the ISP's network to engage in copyright infringement, such as by uploading a copy of the "Spiderman" movie to a website or "sharing" the copied movie with others through the subscriber's internet connection.

However, in order for ISPs to receive the protection granted by the DMCA, ISPs must "expeditiously ... remove or disable" the infringing material upon receipt of notice that its network has been used to infringe a copyrighted work. This typically means the internet provider will receive an email from a copyright owner or its representative that identifies the copyrighted work alleged to have been infringed, the date and time of the alleged infringement and the internet protocol (IP) address used to carry out the infringement. The ISP must then send a written notice (often by email) to the subscriber whose account corresponds to the IP address notifying the subscriber of the alleged infringement.

Courts have routinely interpreted the DMCA language as requiring ISPs to disconnect subscribers who repeatedly use their internet connection to download, upload or otherwise share copyrighted material without permission from the copyright owner. However, recent court opinions have left NTCA members with a lot of uncertainty regarding their obligation to act on notices of infringement and to disconnect subscribers who allegedly engaged in repeated copyright infringement.

For instance, many providers are asking whether they are required to forward the actual notices of infringement they receive to subscribers (as directed by some senders). This is a concern because some of these notices instruct the subscriber to pay a fee to the copyright owner's representative to "settle" the case. Other providers have asked how many notices a single subscriber must receive before the ISP is required to disconnect their internet service, and whether the provider should count every notice received when copyright owners' representatives often send multiple notices to the ISP for the same IP address and the same song or movie, only seconds or minutes later in the song or movie.

Furthermore, IP addresses are often "dynamic"—meaning that the address is not assigned to a specific subscriber but rather can rotate among many different subscribers. Therefore, if the time stamp used by the sender of the notice is not "in sync" with the ISP's, the IP address could refer to a different subscriber than the one who allegedly engaged in the infringing activity. Adding to the uncertainty, cases like *Warner Bros. v. Charter* and *UMG v. Grande* seem to require ISPs to disconnect subscribers who are the subject of multiple infringement notices, while the U.S. Supreme Court decided in *Packingham v. NC* that a state government could not block someone from being able to access social networking websites. Thus, ISPs could reasonably conclude that if *Packingham* prohibits blocking an individual's access to part of the internet, blocking access to the entire internet would also be prohibited. Yet, the courts in *Warner Bros.* and *UMG* seemed to require the internet providers in those cases to do just that. NTCA pointed out this uncertainty during the roundtable discussion while also describing ISP members' experiences with the DMCA.



Several NTCA members have compared their experience with DMCA notices to "whack a mole" because after they help one subscriber secure their Wi-Fi connection to prevent others from using the connection to download or distribute copyrighted material without permission, the notices of infringement will stop for that IP address but soon appear at another IP address. "Customer education to secure the router usually fixes the issue with that customer, then it pops up elsewhere," explained Jake Baldwin, general counsel for MBO/Cross Family of Companies (Mannford, Okla.). NTCA members have also expressed dismay over responding to numerous DMCA notices, only to see no reduction in the number of notices received year after year. "The volume of notices remains high and the hours long," declared Ron Hinds, chief executive officer of GRM Networks (Princeton,

Mo.). This leads members to wonder whether the DMCA, and providers' attempts to follow courts' interpretation of the DMCA, are having any impact on copyright infringement—and to ask whether there might be a more effective way for Congress and the U.S. Copyright Office to address online copyright infringement.

NTCA used the Copyright Office roundtable as an opportunity to relay members' feedback and to encourage the Copyright Office to clarify or modify, as needed, the rules governing ISPs' responsibility to act on notices of copyright infringement. Specifically, NTCA asked the Copyright Office to clarify that if an ISP receives more than one notice of infringement for the same subscriber for the same copyrighted work on the same day, the ISP should treat the multiple notices as one. NTCA also asked the Copyright Office to specify that ISPs do not have to act on notices of infringement that are sent to an email address other than their registered DMCA email address.

More information about the roundtable, along with a transcript of the April 8 session, is available at www.copyright.gov. ●

Tamber Ray is regulatory counsel for NTCA—The Rural Broadband Association. She can be reached at tray@ntca.org.



● CYBERSECURITY ●

The Business Case for Cyber-Threat Information Sharing

By Jesse Ward



The cyber arms race is evolving quickly. Bad actors are moving with speed, agility and innovation to breach your defenses. How can you best apply your limited resources to protect and defend your networks against the most probable and damaging threats? A critical input into your organization's risk management plan is access to timely and actionable threat intelligence—intel that is gained through active, voluntary participation in robust information sharing forums.

Threat actors often use similar techniques to attack multiple companies across various industries. Information sharing forums provide access to reliable, high-quality threat intelligence—indicators of compromise, threat analysis and incident reports, to name a few categories—that can help protect your customers and businesses alike.

By collaborating, small network operators can better understand threats to their organizations and best practices to address them. Participating in cyber-threat information sharing forums increases your awareness of the threat environment, which enables you to target your limited resources to mitigate future attacks and, therefore, more effectively manage cyber-based risks.

Despite the strategic advantages that such forums offer, small network service providers are hamstrung by resource limitations; often they do not have the time or resources to participate in a variety of forums, and then analyze and assimilate a large amount of information to their unique operating environments. In addition, existing cyber info-



“NTCA is proud to have initiated this new program to assist small network providers with understanding the threat environment and thereby improving their cybersecurity postures.”

sharing venues were not right-sized to meet the unique needs and capabilities of small telecommunications operators. Indeed, NTCA members confirmed that information derived from existing venues can be overwhelming, stale and/or may not be relevant to their specific business/network.

To address these needs, NTCA launched a pilot program earlier this spring to explore the creation of a new Cyber-Threat Information Sharing Forum for Small Network Operators, in partnership with the Department of Homeland Security (DHS) and the National Institute for Hometown Security (NIHS).

A group of 44 small network operators volunteered to participate in the pilot. Participants assisted NTCA with developing policies, procedures and technical tools required to facilitate the bi-directional sharing of sensitive cybersecurity information among participants. Once the foundation was in place, pilot participants exchanged cybersecurity information via a variety of online platforms; participated in weekly virtual meetings to share cyber intelligence, hear from subject matter

experts and collaborate with their peers; and received curated content from NTCA, including a daily cyber-threat report summarizing open-source news items and alerts from DHS, and a weekly technical report on exploits and vulnerabilities. The NTCA Small Network Operator Cyber-Threat Information Sharing Forum created a central, trusted environment to enable participants to share and receive information about cyber threats, vulnerabilities, best practices and/or mitigation activities, tailored for the telecom and broadband business.

Participants also provided the association with critical feedback and direction. At the conclusion of the pilot in August, NTCA conducted a survey of the participants; 88% scored the project as extremely or very useful, citing a variety of strategic advantages to their cybersecurity programs, including information about general threats, vulnerability, and malicious activity warnings; mitigation information; and contacts with industry peers. These results highlight the value of a new robust cyber information sharing forum to assist small network operators

with understanding the current cyber-threat environment. If anything, those volunteering to participate in the pilot may be among the more aware and active in attempting to mitigate cyber risk, and the findings above, therefore, further underscore the need for a forum tailored to the needs of smaller operators.

NTCA is proud to have initiated this new program to assist small network providers with understanding the threat environment and thereby improving their cybersecurity postures. As we look to 2020, the association is evaluating lessons learned from the project, including how to continue to enrich members' cybersecurity programs. In an era of interconnected networks with increased focus by policymakers and regulators on cybersecurity, active, voluntary engagement in cyber information sharing forums demonstrates the rural telecom industry's commitment to the security of your customers, business enterprises and the larger global community. ●

Jesse Ward is the director of industry and policy analysis for NTCA. Contact her at jward@ntca.org.

Planning for a Post-Switch Environment

Inteliquent

A major shift has taken place in telecommunications, as RLECs have transitioned from local telephone providers into local broadband providers.

As a result, the market is going through a period of digital transformation. In particular, reducing switching costs has emerged as a top priority for RLECs, who are evaluating hosted, cloud-based networking solutions as an alternative to legacy switching hardware.

WHAT'S DRIVING SWITCH REPLACEMENT?

The telecommunications market is rapidly changing. Demand for traditional voice service is declining, even in rural markets where customers are slower to adapt to new technologies.

According to the National Center for Health Statistics, landline phone use has dropped significantly over the last 12 years, and 53.9% of all U.S. households now depend solely on cell phones for communications.

This trend is forcing RLECs to offer new IP-based services in order to remain competitive. Voice is changing from a core utility service into an over-the-top application.

On top of this, funding has changed for carriers. USF support for local switching is declining, giving carriers fewer incentives to purchase new hardware.

With the FCC's recent decision to support consumer broadband only loops, RLECs are now looking for eligible over-the-top switching solutions. The FCC has also included consumer broadband-only loops (CBOLs), as well as voice and voice-broadband loops, in corporate operations expense limitation calculations. RLECs can now qualify for CBOL support when using OTT hosted switching solutions. However, it's clear that voice switching must occur outside of the network.

As RLECs reevaluate their plans for their existing legacy switching solutions, many aren't thrilled about the idea of maintaining or upgrading hardware that's reached the end of life stage.

At this point, many providers are well aware that they need to evaluate their options for replacing their current switching hardware.

ASSESSING YOUR OPTIONS

For carriers, there is now a fork in the road.

For some RLECs, it makes economic sense to continue operating as they have been, keeping the switch in-house.

For others, it makes more sense from a cost and operational standpoint to outsource to a third-party option. In this case, the RLEC becomes a pure broadband provider, and voice becomes an enhanced application just like television service.

THE BENEFITS OF HOSTED SWITCHING

Here are some of the top reasons to leverage a hosted switching provider:

Enhanced features: Hosted switching services come with a variety of additional features, such as self-provisioning portals, messaging and mobile interfaces—all of which are in high demand. These features can serve

as valuable differentiators for an RLEC, enabling them to increase revenue and stand out in a saturated market.

One noteworthy feature is the ability to link a landline number to a mobile device. Of course, that service has been available for years. But for rural America, it's still a big add-on—as is text-enabling a home phone number.

Cost savings: By opting for a hosted service, it's possible to avoid paying for switch maintenance, repairs and upgrades.

The RLEC can then take the cost savings gained from a hosted solution and re-allocate the money into other core services like broadband deployment.

This can result in stronger service. Going the hosted route, it should be noted, will also allow RLECs to reassign teams to focus on broadband deployment and services, driving more value from technical experts.

Expanded footprint: With hosted switching, the RLEC can sell services beyond their geographical area.

Of course, not all hosted switching providers offer the same level of quality and service. Since you will ultimately be putting your brand's reputation on the line when outsourcing switching, it's important to partner with an organization that will have your best interests in mind.

Learn more about how Inteliquent can do this for you! ●



Dave Manfredo
dave.manfredo@inteliquent.com
Inteliquent
550 West Adams St., Suite 900
Chicago, IL 60661
217-698-5930

Increase Broadband Efficiency and Customer Satisfaction With NISC's User Services System

National Information Solutions Cooperative (NISC)

Broadband has become a critical component of each and every community across the nation. Broadband service is an essential tool, and not just for web access, but for a host of crucial industries from education to healthcare. Providing reliable and efficient broadband service is core to your business but having effective solutions to back up and enhance your service is just as important.

INTRODUCING THE NISC USER SERVICES SYSTEM

With the new NISC User Services System, operating your broadband service offerings at peak efficiency and providing true customer care and support of the Internet of Things (IoT) is now a reality. This Auto Configuration Server (ACS) management solution is a powerful, hardware-independent, cloud-based tool built to truly enhance your customers' internet experience and reduce your truck rolls and customer support expense.

EDUCATE AND EMPOWER CUSTOMERS

Creating a smart home is no longer a vision just for the early-adopting techies in your service area. Many households are adding technology from smart TVs to thermostats to multiple cameras to help build a connected

home. Unfortunately, as consumers continue to plug in gadgets and more frequently stream online, the service package they initially subscribed to may no longer fit their needs. Perception is reality, so now more than ever, it is key to educate your customers on their usage—and the devices they have affecting it. With NISC User Services System, you can provide customers the tools necessary to view usage, resolve connectivity issues, set alerts and manage all devices they have connected to their WiFi at any given time. An educated customer is an empowered customer, so place the power of WiFi management in their hands and increase satisfaction through offering self-care options.

TROUBLESHOOT WITHOUT TRUCK ROLLS

With the NISC User Services System, your organization can effectively resolve broadband service interruptions, or even correct them before the customers become aware of an issue, by managing the internet gateway and the devices behind it connecting to your broadband service. The critical component to this solution is the ability for your organization to offer efficient and effective customer care by remotely pushing firmware updates, administering network changes and diagnosing system issues. The NISC

User Services System works with many brands and models of modems and residential gateways, allowing you to offer your customers the latest and greatest manageable devices.

REMOVE THE PAIN OF CAF-II MONITORING AND REPORTING

Unique to the NISC User Services System are the powerful reporting tools also included in the solution that can satisfy the FCC requirements for Connect America Fund Phase II (CAF-II) or Alternative Connect America Fund monitoring and reporting. Allow NISC User Services System to handle the monitoring and reporting process, all while working with many of the internet gateways you already use that support the TR-143 speed test standard and TR-069 standards.

INTERESTED IN GETTING STARTED?

Visit www.NISC.coop to learn more about the powerful NISC User Services System available today that will help increase your revenue tomorrow! ●



Ryan Larson
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TELECOM BUSINESS

Brrr ... It's Beginning to Look at Lot Like Winter

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Brrr! It's gotten cold outside and winter conditions will cause some different safety issues than summer conditions did. Major winter storms, dangerously cold temperatures making hazardous physical conditions, and treacherous driving conditions are hazards specifically associated with winter. Preparing for cold weather conditions and responding to it properly can reduce the dangers caused by these winter conditions.

Some commonly identified winter weather terms as used by the National Weather Service (www.noaa.gov) are:

- **OUTLOOK:** is used to indicate a hazardous weather event may develop within the next few days.
- **WATCH:** means hazardous winter weather risks can happen within the next 12–48 hours.
- **WARNING/ADVISORY:** are issued when hazardous winter weather is imminent or is occurring. A warning is used for events that could cause death or significant injury or property damage. An advisory is for lesser events that may only cause an inconvenience.
- **WIND CHILL:** is a calculation of how cold it feels outside when the effects of temperature and wind speed are combined.

Exposure to cold can cause injury or serious illnesses such as frostbite or hypothermia. If you work outside, it is important to dress properly in loose-fitting lightweight layers and eat, drink water, and rest often. A hat, scarf, and gloves/mittens are also essential protection against winter weather. Frostbite usually occurs in the fingers, toes, hands, nose and feet. It happens in subfreezing temperatures or wind-chill freezing temperatures and is characterized by numb, red and slightly swollen skin. It may be limb threatening, but it isn't usually life threatening. To treat frostbite, submerge frostbitten parts into water that isn't quite hot to the touch, take aspirin to prevent blood clotting and for pain relief, and seek medical attention. What are the signs of hypothermia? Victims may seem confused or deny that they are cold while experiencing impaired motor skills, speech and decision-making abilities. It does NOT require subfreezing conditions and can be life threatening. To treat hypothermia, remove wet clothing, add insulation beneath and around the victim, cover the head, avoid caffeine and immediately seek medical attention.

Winter driving can be hazardous and scary, especially in regions that typically get a lot of snow and ice. Preparing ahead of a winter storm can help make a trip or your daily job outside easier. In your personal automobiles and in your company vehicles, make sure you prepare for the winter by checking the following items in your vehicles: battery, antifreeze, wipers and non-freeze wiper fluid, heater, brakes, defroster, thermostat, lights, and make sure the tires have good tread and are in good condition. Really, there are 3 P's of safe winter driving: Prepare for a trip or just an out-of-the-office job, Protect

yourself, and Prevent crashes on the road. Preparing includes having items such as a flashlight, jumper cables, a scraper or broom for removing snow/ice, abrasive materials (such as sand or kitty litter) for traction, shovel, warning devices like flares, water, some high-energy "munchies," blankets, maybe an extra charging bank for your phone, and a cellphone in your vehicle and keeping at least half a tank of gas. Protect yourself if your vehicle becomes stopped or stalled; stay with it and put bright markers/identifiers on the antenna or windows. As you sit, it's a good idea to keep moving your arms and legs to keep blood circulating and to stay warm. If you can run your vehicle, make sure to clear the exhaust pipe and run it just enough to stay warm—maybe 5–10 minutes each hour with the dome light on so that others can see you. From a company perspective, many of you have GPS tracking devices on your vehicles. During especially difficult weather, make sure they are being monitored closely. In your personal vehicles, make sure your route is planned and communicated to someone else in case you don't arrive at the appointed time. To help prevent accidents, it's important to practice cold weather driving. During daylight, rehearse maneuvers slowly on the ice/snow in an empty field or parking lot. ●

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Are You a Workaholic?

By Noble Sprayberry

The number of hours worked does not tell the whole story. Some people can become workaholics even when laboring fewer hours than others. And the results can be crippling, leaving no time for friends, loved ones, personal goals or hobbies.

Try this quiz to see where you fall on the Bergen Work Addiction Scale:
Rate each of the following as either Never, Rarely, Sometimes, Often or Always.

YOU ...



Think of how you can free up more time to work.



Spend much more time working than initially intended.



Work in order to reduce feelings of guilt, anxiety, helplessness and depression.



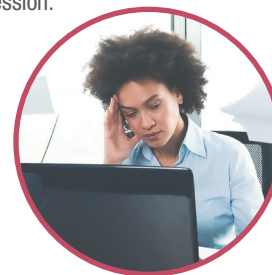
Have been told by others to cut down on work without listening to them.



Become stressed if you are prohibited from working.



Deprioritize hobbies, leisure activities and exercise because of your work.



Work so much that it has negatively influenced your health.

If you answer "Often" or "Always" on at least four of the seven criteria, you're either a workaholic or at serious risk of becoming one.

TO BOUNCE BACK



Admit you have an issue.



Look for the root cause, which may be unconscious motivators such as self-doubt, fear of failure or perfectionism.



Finally, make a plan and follow through with it. Schedule specific work hours. Focus on one thing at a time. Reprioritize when things come up. Set hard boundaries around work.

Source: Fast Company

Noble Sprayberry is publications director for WordSouth—A Content Marketing Company—which collaborates with rural telecommunications providers across the country.



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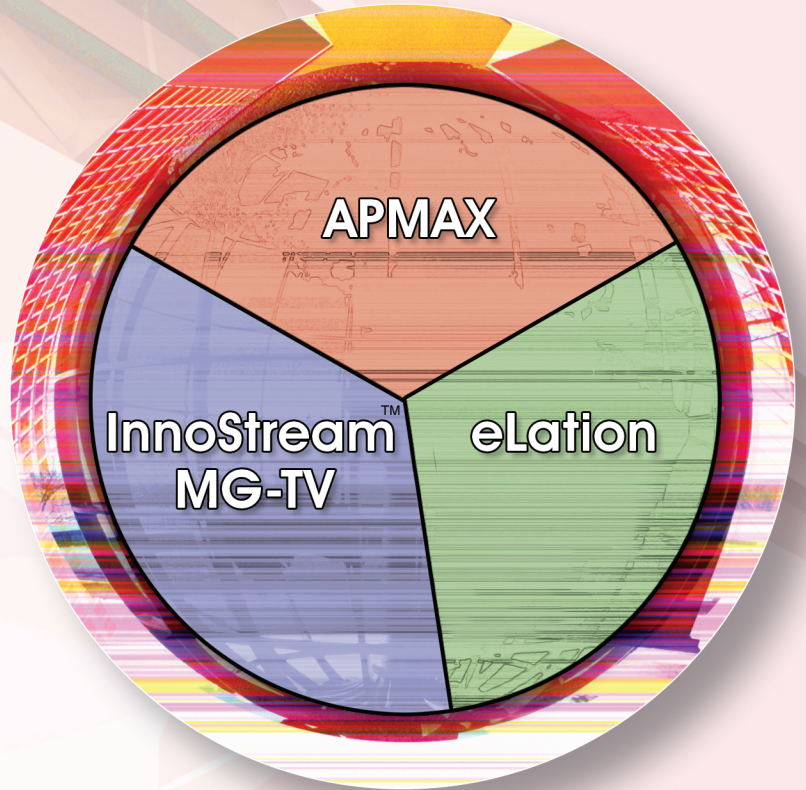
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