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Building Broadband Better with CHR

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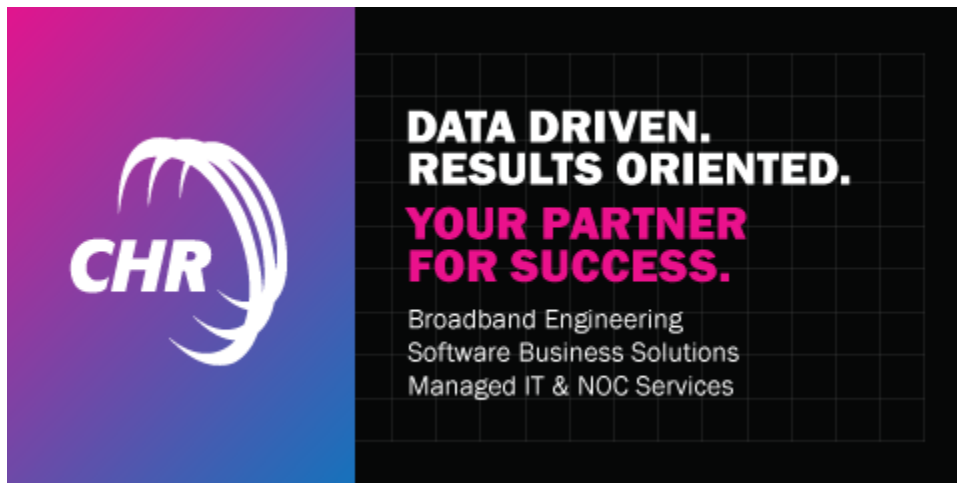
When Congress passed the Rural Electrification Act in May 1936 as part of Roosevelt’s sweeping New Deal, it took the first step toward revolutionizing daily life for millions of Americans in remote, rural areas. Public funding for infrastructure development on this scale was absolutely necessary, and arguably the only mechanism by which electrification would happen as quickly and successfully as it did. The act’s legacy transcends electrification and even has implications today. It established the precedent for funding infrastructure that increases productivity, improves our lives, and enables participation in the digital economy—including high-speed broadband infrastructure.



The pandemic era has fundamentally shifted how we think of broadband—no longer as a luxury, but as a necessity for modern life and an essential enabler for participation in the increasingly digital economy. This shift has accelerated momentum for federal funding to support broadband infrastructure, access, and usage across the United States. Hundreds of billions of dollars in federal funding alongside significant private equity investments are pouring into the sector. But with tremendous opportunity comes tremendous pressure and complexity. Even if service providers are successful in obtaining funding, they then face operational and market challenges, from network planning and design to monitoring, cybersecurity testing and training to reduce threat risk. Unlocking the opportunity and realizing the return on investment requires the right partner with broadband expertise and an innovative approach.

Pipeline recently had the opportunity to explore the rural-broadband expansion opportunity with CHR Solutions (CHR). CHR provides B/OSS software business solutions, broadband engineering services, and managed IT and NOC services to address the operational and marketplace challenges that service providers face. CHR has the unique combination of extensive experience,

an innovative approach, sophisticated software, and robust services that are helping service providers capitalize on the momentum behind rural-broadband expansion. Our discussion spanned today's infrastructure opportunity, how technology is transforming the engineering process, and the necessity of a robust approach to network security.



A tale of two markets: serving the underserved and overbuilding

There are two types of broadband funding opportunities developing in the market. The first comes largely from federal government investment to better serve unserved and underserved residential areas. Put simply, like the Rural Electrification Act, this funding is intended to close the broadband gap and provide transformational connectivity in the 21st-century digital economy. This funding is available through sources like the Federal Communication Commission's Rural Digital Opportunity Fund (RDOF), the USDA's ReConnect Loan and Grant Program, the US Department of Commerce's Broadband Equity, Access, and Deployment (BEAD) Program, the Infrastructure Investment and Jobs Act (IIJA) of 2021, the Enabling Middle Mile Broadband Infrastructure Program through the National Telecommunications and Infrastructure Administration, and the Tribal Broadband Connectivity Program. Assistance is available through federal programs such as these as well as through state-level budget allocations and incentives, provided through the NTIA's BroadbandUSA and other federal funding and legislation. Together, these programs represent hundreds of billions of dollars in available infrastructure funding.

The other infrastructure development involves Internet service providers (ISPs) overbuilding larger, more densely populated areas in an effort to deliver better service, grow market penetration, and drive higher return on investment. With private equity funding, the drivers in this market are different, but once funded, the build process is the same.

The availability of billions of dollars is, in effect, creating a land grab among providers—and navigating the application process to successfully secure funding can be complex. Providers must adhere to programs' Notice of Funding Opportunities (NOFO), which describe the requirements under which an agency will award funding grants as instructed by a specific law. The process

involves completing an application, with narrative and technical requirements, and applications are evaluated and awarded on a point system.

“There are typically multiple companies bidding to buildout a specific area,” commented Kevin Kutcher, Vice President of Marketing at CHR. “With our expertise in the funding application process, we can help clients adhere to NOFO requirements and maximize the points they receive with their applications.”

As a result, CHR is helping service providers accelerate and secure funding through these wide-ranging, complex, and cumbersome programs. CHR also provides the engineering design and capital expenditure costing required by grant applications and can satisfy specific requirements, such as providing a professional engineer to sign off on environmental. For private investment funding, CHR provides all technology support needed to secure financing, long-range system planning, and system design and cost analysis.

Transforming paper processes to real-time digital

For over 75 years, CHR has partnered with telephone and cable companies, electric co-ops, and municipalities to successfully implement a variety of communication networks. As the market has changed, and the focus has tipped toward high-speed broadband, CHR has turned to the latest in advanced technologies and tools to transform the traditional approach to network engineering. Like many processes ripe for transformation, this traditional approach is complex, painful, and paper-based. As Bob Bartz, Vice President of Engineering Services at CHR describes it, the old approach was to create a high-level design, put it into AutoCAD or similar program, and cut it into staking sheets for the field engineers to take onto the job. In the field, the engineers would redline the sheets with the route, scan them at the hotel or site, and feed them to the Computer-Aided Design (CAD) group, who would input into the CAD design. The design would be sent to a design engineer, who would use the data to initiate the design or make changes.

“It’s about eliminating the paper process and the issues that it creates: from manual scanning to legibility issues, to errors, and more,” said Bartz. “But beyond that, it’s about speed to market.” Bartz went on to add that until recently, companies like CHR would be engineering a full year out from build. Today there are new drivers, from the momentum of investment, increased competition, and supply chain considerations. An accelerated timeline is especially critical given the requirements for funding. Providers need completed designs and a bill of materials, with lead times for fiber that now are stretching to a year or more. In a quest to address these new market pressures, CHR revamped its engineering process with new tools, including ArcGIS by Esri. ArcGIS is a geographic information system (GIS) software, location intelligence, and mapping tool.

Senior systems engineer Barak Harlan at CHR explained, “ArcGIS takes publicly available information—like environmental data, census data, and urban development data on multi-dwelling units—and seamlessly adds it to engineering designs. It can also be utilized for functions beyond engineering, like marketing, for targeting specific client segments.”

Other tools are also being used to streamline the process and provide faster access to information. For example, ruggedized iPads loaded with an Esri software called Field Maps allow field engineers to talk to the design on the server from any location with connectivity. Dashboards with real-time data and updates enable clients to check in on build progress—and even provide granular financial data on when and where project funds are spent.

By using tools like ArcGIS, Field Maps, and others throughout broadband buildout engineering, project management, and construction, CHR has streamlined its process while enabling cutting-edge capabilities. As Bartz explained, “We’re doing things with GIS data that we haven’t seen anyone else in the marketplace do, like providing real-time data on permit status and real-time insight into path construction to enable deployment and selling. CHR is continuing to invest and lead the development and application of tools like ArcGIS specifically for broadband deployment and expansion.”

Eugene McCord, Senior Vice President of Sales and Business Development for CHR added, “The dashboards and tools we use further the efficiency of data collected during the engineering process, expediting the build process.” Process transformation has enabled CHR to cut engineering timelines dramatically. “From engineering start to construction-ready, our process used to be nine to 12 months,” Bartz explained. “Now we can go from concept to construction in as little as three months, depending on permits and supply.” This acceleration is only possible through the software-enabled agility and efficiency CHR has developed.

Supporting and securing rural-broadband expansion

CHR’s agility and efficiency are transforming the engineering and design process, but its innovation extends into network management and monitoring. This is critical for speed to market and return on investment, as service providers must be successful in attracting customers to the network through preliminary marketing and service introduction. To accelerate these initiatives, CHR can port the valuable data collected during construction design into its OSS/BSS software, Omnia360. An end-to-end solution, Omnia360 includes centralized customer management, a dynamic and centralized product catalog, up-to-the-minute analytics and reporting, and a fully integrated CRM on the front end. “Our product and pricing catalog is tied directly to the network, so when you enter a specific address, you know what facilities are there and what the price will be,” McCord explained.

For operators deploying across multiple states, CHR offers additional flexibility through easy software implementation that seamlessly segments data by state or region to enable specific financial reporting requirements provided in a single platform.

With persistent cybersecurity threats—and significant consequences for a breach—network security should underpin everything operators are doing. CHR’s managed services offers 24x7 Network Operations Center (NOC) monitoring, as well as mediation and troubleshooting via remote support. In addition, CHR provides cybersecurity solutions and training to protect operators’ networks from persistent threats like spam, phishing, malware, and ransomware, including employee training to recognize such threats and minimize the risk of impacting the

network. “Our mission is to apply our experience, team, and software to help clients and the industry succeed,” McCord underscored.

The infrastructure opportunity is real—but the investment and momentum of the present moment won’t last, and speed to market is critical to operator success. If you’d like to learn more, you can automatically [book a meeting with CHR Solutions](#) through *Pipeline’s* business introduction service, or visit the [CHR Solutions](#) website to learn more about how the company is helping CSPs seize the opportunities of broadband infrastructure investment through engineering talent and software tools that help them grow their businesses.