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INTRODUCTION

Chairman Thune, Senator Fischer and panelists thank you for the opportunity to provide written and oral testimony on importance of rural broadband and its impacts on the daily lives of the millions of people touched by the services it enables.

I am Mark Shlanta, Chief Executive Officer of SDN Communications (SDN) in Sioux Falls, SD. SDN is regional fiber optic network owned by most the Independent Telecommunication Companies in South Dakota. Our owner Members total seventeen and we work closely with at least another two dozen Independent Telecommunications Companies in Minnesota, Iowa, and Nebraska. We are part of Indatel which is a national network consisting of nearly thirty statewide and regional fiber optic networks like SDN.

Since we are seated in South Dakota, I am going to provide a lay of the broadband landscape in our state. Our Members are seeing broadband throughput increase. One of our Members reported a doubling of throughput from 2017 to 2019 and expects another doubling by the end of 2021. If this evolves, each month the average broadband connected household in South Dakota will consume over 500GB of data by that time. This growth is also being compounded by the advancement of fiber optically connected households. In 2017, the rural broadband providers in South Dakota touched roughly 65% of the occupied homes and living locations in their markets with fiber optic cables. As we approach the end of 2019 the industry is closing in 80% of the households and by the end of 2021, they anticipate that over 90% of the household in their markets will be serviced by fiber optic cables. This is an increase of nearly 50% in four short years.

This growth is supported on three fronts: 1) the private investments made by companies to increase their reach in fulfillment of their mission to their communities, 2) the ongoing support from various programs like the Universal Service Fund (USF), which helps offset the high-cost of deploying and maintaining networks in rural areas, 3) grant and loan programs like USDA's ReConnect and Governor's Noem's broadband plan which provide the capital necessary to enable un/underserved portions of the state that have been neglected by others to obtain powerful broadband connections.

As we see the number of households expand and the throughput from each household increases, we are seeing demands placed on the middle-mile networks of the statewide and regional carriers like SDN. SDN and its peers around the country play in important role in the delivery of broadband services to rural communities and connecting multi-location businesses across the country. We carry voice, video and data traffic from the smallest communities in our respective states to the largest peering points in the country supporting e-commerce, tele-health, e-banking and community banking, precision and value-added agriculture and online education. We also supply and connect the "wires" for many of the wireless carriers in both rural and urban markets. Many will talk about the benefits and applications of 5G wireless networks, but none of these

benefits could be attained without the robust "6G" fiber networks supplying the backhaul bandwidth.

As I was preparing my testimony, I was reminded of the opening sentence in Patrick Lencioni's book, _The Five Dysfunctions of a Team_. The sentence reads; "Not finance. Not strategy. Not technology. It is teamwork that remains the ultimate competitive advantage, both because it is so powerful and so rare." The portion of the sentence that reads, "It is teamwork that remains the ultimate competitive advantage," is the portion that strikes me for its applicability to this discussion.

SDN Communications, its rural broadband Members and partners work as team delivering the lighting fast connections that support the demands of households and businesses alike. Today's hearing and conversations examine how this teamwork enable the applications that impact lives of those who live in rural communities and to participate more fully in the global economy. My comments will center on the importance of the middle mile fiber networks and the carriers that provide those networks. I will also touch on the need to better align, network operators, with solid planning data and comprehensive forward looking policies.

STATEWIDE, REGIONAL, AND MIDDLE-MILE NETWORKS – WHAT ARE THEY AND WHY ARE THEY NEEDED

SDN is regional fiber optic network headquartered in South Dakota with network connecting Members and partners from the Minnesota/Wisconsin border west into Wyoming with extensions from there stretching into Colorado and Montana and as we extend from east to west our network extends into Nebraska, Iowa and North Dakota. Originally, SDN was assembled to support its Members by centralizing various services that were needed by the telephone companies. Services like centralized equal access for long distance services, SS7 for call features, the consolidation of cable television headends and the development of broadband and internet services are part of our mission. As we needed to extend our reach to gain access to services and other partner companies sought our services, we began to weave a regional network extending throughout the state and into the neighboring states.

Networks like SDN help bridge the distance between the independent operating companies and provide a pathway for scale to create new and innovative services and return value to the customers and companies we support. These network works are needed to deliver the services that broadband network enable to consumers, government and business leaders have come to expect as they lead their lives.

SDN, its Members and partners supply connectivity for nearly a thousand macro and small cell sites. This is an example of our 6G fiber optic based networks supporting today's 4G and tomorrow's 5G wireless services. We connect hundreds of schools and locations servicing local, county, state, tribal and federal government locations from the game, fish and parks check points to the world class data centers monitoring climate, crops and weather around the world. People

from Baltimore to Zell and from Ardmore to Walla Walla are supported by the powerful fiber optic networks of middle mile carriers. People are impacted by middle mile carriers every day in the things they do and information they need.

Speakers today, will discuss in greater detail how they rely on broadband connections to support their latest innovations in tele-health, precision agriculture and online education. Simply understand we are all part of team that is needed to deliver and grow to maintain delivery of these services now seen as essential in the daily lives of so many.

Tele-health delivery can reduce the cost of health care delivery through more complete follow up visits and reduce the stress applied to families who no longer need to support multi-hour round trip visits to see a doctor. These visits can be completed in the communities with connected clinics and hospitals.

Local commerce is supported when the community banks of a region are able to maintain branches in smaller communities with kiosk-based tellers and remote IT and cybersecurity services.

Similar support is supplied to schools and governments as applications that were once only available at large government offices are closer to the citizens using broadband connections for online applications and access to information.

Various commodities are bought, sold and processed with the support of rural broadband networks. Rural broadband services can reduce the cost to markets and increase yields and prices for local producers. Agricultural products make up the largest portion of our country's exports and rural broadband service plays a role in our global competitiveness.

Rural broadband services extend services into remote areas of our country. In South Dakota, SDN and its Members are extending urban services into some of the most remote ranches and communities in the lower forty-eight. Working as team brings these services into play more cost effectively and quickly for the benefit of businesses, consumers and citizens. Middle mile networks play a critical role in these deployments by ensuring that necessary bandwidth is made available from the content source all the way to the end point. One can think of middle networks as the offensive line of a football team. They can provide a clear path for the critical payloads to move allowing the team to succeed.

PROGRESSIVE DATA SPEEDS ARE NEEDED

The current broadband definition of 25Mbps down and 3Mbps up has been a significant move forward from the previous 10/1 and 4/1 definitions. As a nation, however, we already need to be thinking about whether the 25/3 standard is truly sufficient for the advancements in networking and applications for our broadband economy to continue to flourish with innovation.

Recently, I was at a conference where a precision ag speaker discussed speeds of 100Mbps up and 100Mbps down are needed by agricultural producers to move the data that is being acquired by today's precision ag tools and for the producers to be able to act upon the results within 24 hours of the data collection.

At SDN, we are seeing the throughputs on our networks double in two years. It is for others to make the call on how to set exact speed targets, but such growth signals that our investments in broadband infrastructure need to have a pathway forward to meet the anticipated demands of the applications.

The current 25/3 definition was first proposed in 2015, and a refresh of target speeds will be needed soon. Especially given that we are building networks intended to last for years, if not decades, I encourage both the FCC and Congress to examine and adopt new standards now, thinking about what kinds of speeds will be needed over the lives of these networks. As a veteran of the rural broadband industry, my suggested minimums for a robust broadband economy prepared for innovations are:

- 2020 50Mbps up/50Mbps down
- 2025 100 Mbps up/100Mbps down
- 2030 200 Mbps up/200Mpbs down

Households may have demands for more bandwidth than even these minimums deliver, but to support continued advancements speed targets should be set, and from those minimums the plans for forward looking policy can be advanced.

THE NEED FOR GOOD DATA TO MAKE GOOD POLICY DECISIONS

There is no question that good decisions about infrastructure policy generally and universal service policy more specifically must be driven by good data. "False positives" – claims of voice and broadband services where none actually exist – could leave rural consumers and businesses stranded without access in defiance of the national mandate for universal service. Meanwhile, "false negatives" – areas that are perceived as unserved but actually have voice and broadband services available – run the risk of wasting scarce resources from important governmental programs on redundant networks.

At this point, nearly every governmental communications program has some mechanism intended to ensure that funds are directed toward where they are needed most to build and sustain advanced networks. Problems arise, however, when the data driving these programs are incomplete or incorrect – and, unfortunately, it's not easy to discern when that is the case on the face of existing databases and maps.

The FCC, for example, gathers data on voice and broadband service availability through its Form 477. There has certainly been a lot of concern – especially from among members of this

Committee – about whether the Form 477 data accurately capture coverage in the mobile context. This is an understandable focus given the efforts to implement the Mobility Fund and the disappointment of having no cell phone coverage in an area where provider maps say one should.

But what is often lost is that these concerns are just as prevalent in the context of *fixed* voice and broadband services, too. On Form 477, a census block is reported as served simply because one location in that block *could* be served by a provider at an *advertised* speed within 10 business days. In other words, there may be no service *actually* installed in a census block, or the speeds *actually* delivered in that block may not be equal to what is advertised – and, yet, that area can show as served. Even more troubling in rural census blocks that can stretch large distances, the theoretical delivery of service to *one* customer in a census block could result in the denial of funding for voice and broadband to another customer located miles away, yet still in the same census block, who literally has no choices for such services.

At this point, the reaction is often to say that we need to get more granular in the data – and this is correct as a partial response. But getting more granular alone is not going to solve the problem or potential for "false positives" specifically. In particular, no one is vetting in advance whether data submitted on Form 477 are accurate. Providers submit the data based upon what they advertise. Thus, whether by accident or on purpose, Form 477 data can contain errors that in turn lead to support being denied in areas where it is in fact very much needed.

Fortunately, there is a way to care for the fact that broadband coverage maps are always at risk of being inaccurate even if they get more granular. For years, agencies like the FCC and the Rural Utilities Service (RUS) under the U.S. Department of Agriculture have developed and used "challenge processes" that treat service coverage information like Form 477 data as *informative* but not *dispositive*. Mapping databases are used as a "baseline" for determining where support should or should not go, but a "challenge process" is then used to confirm whether the maps are correct and to adjust them when they are not.

Certainly, the recent experiences with the Mobility Fund show the value and wisdom of a challenge process. Without such a process, the concerns that have been raised about overstated mobile coverage would never have been identified. At the same time then, it was disappointing and somewhat shocking to see the FCC now considering moving away from challenge processes in the fixed voice and broadband context. Specifically, the FCC has proposed to eliminate the prior existing challenge process to validate Form 477 data in the context of fixed USF support, and instead to default to the Form 477 data effectively as gospel.

If the Mobility Fund experience provides any lessons, however, it is that a meaningful challenge process is a necessity in determining where funding should go or be denied. We therefore are hopeful that the FCC will reverse course on its suggestion to eliminate a challenge process in the context of distributing USF to support fixed networks, and that it will return to a data-driven process that ensure rural consumers are not left on the wrong side of a digital divide due to inaccurate information. This is more work, to be sure, for all involved – but the stakes of getting it wrong are too great to leave to chance.

COORDINATION AMONG AGENCIES IS CRITICAL TO ACHIEVE A SHARED VISION OF SUSTAINED UNIVERSAL ACCESS

One very successful formula for the deployment and ongoing operation of communications networks in rural America comes in the combination of: (1) RUS loans that finance upfront network construction (with payback) in rural areas where there are often few financing options; and (2) the USF programs that help, as noted above, to support ongoing operations and ensure the affordability of rates on networks once built.

RUS has long played an important role in financing rural broadband construction. Since the 1950's, locally based rural telecommunications providers have obtained financing from RUS or its predecessor agency under the U.S. Department of Agriculture. RUS telecommunications lending has helped enable and unleash billions of dollars in private capital investment in rural communications infrastructure.

It is important that the complementary roles of RUS upfront financing and USF ongoing support continue for last mile rural broadband carriers. In particular, we can make smart and effective use of federal resources by reaffirming and codifying the complementary nature of coordinated RUS and FCC programs, rather than allowing these programs and the resulting networks to be pitted against one another in a manner that undermines the sustainability of the networks and the integrity of the programs themselves.

Indeed, with the 2018 Farm Bill and the newly minted ReConnect Program, RUS will take on a larger financing role for rural broadband deployment through grants and loan/grant combination packages. These new and updated programs are much-welcomed and important tools in the federal government's toolkit to eliminate the digital divide. But it will be critical to promote the efficient and effective use of limited federal resources by ensuring that a new network built by one provider leveraging federal programs will not compete with and undermine the sustainability of an existing network operated by another provider that leveraged other federal resources and is already meeting federal broadband standards. Both the FCC and the RUS should therefore coordinate closely in administering their programs, and it is essential to avoid the prospect for two dueling federally supported networks built in a rural area that cannot sustain either one without the assistance of federal programs.

IMPROVING THE BUSINESS CASE FOR RURAL BORADBAND THROUGH STREAMLINED PERMITTING AND REMOVAL OF OTHER BARRIERS TO DEPLOYMENT

Given the deeply rural, sparsely populated nature of the area served by rural broadband providers, SDN, its Members, partners and peers operate across large sections of federal land, including land owned or managed by the Bureau of Indian Affairs, Bureau of Land Management, USDA's National Forests, Department of Interior's National Parks, and Army Corps of Engineers. Barriers to broadband deployment such as disparate applications, fees, and reviews across federal and state landowning agencies can slow down or stymie deployment of networks within and across such areas, and such barriers must be addressed as part of any holistic plan to promote and sustain infrastructure investment.

Efforts to standardize federal permitting processes and implement "shot clocks" for securing prompt approvals are important tools in promoting broadband investment – while they may not make the business case in and of themselves, efforts to eliminate regulatory barriers and streamline permitting can help to improve the business case and expedite the construction of networks, which is an important consideration in particular in places like South Dakota where the "build season" is relatively short due to environmental factors, namely winter. Streamlining permitting and other steps to remove barriers to deployment will also be critical in making sure USF dollars go further – that such resources are spent on building and operating networks rather than paying outrageous fees for mere feet of railroad crossings or spending hours and days to secure permits from a government agency.

Our industry appreciates this Committee's bipartisan efforts to reduce barriers to deployment of communications networks. Important measures like the MOBILE NOW Act have laid out a roadmap for important steps forward like the development of common form applications (which are particularly useful for carriers like SDN, its Members, partners and peers that work with multiple landowning agencies) and deadlines for agency action. Building upon such provisions through additional efforts here in Congress and recommendations and model provisions such as those developed by the FCC's Broadband Deployment Advisory Committee can help in realizing the benefits of broadband in rural areas.

CONCLUSION

The quickest path to having a country fully built out with broadband networks that are scalable into the future is to align the various elements needed for success. In my opinion, these are:

- Last mile networks – ensure policy that encourages robust, "future-proof" broadband buildout in rural and urban markets and incents investment when incumbents abandon markets.

- Middle mile networks – development and coordination are needed to provide clear paths for the data and applications that can be enabled with last mile investments. It would be a shame to see last mile networks slowed by poor middle mile policy and management.
- Progressive data speed targets – advances in networking are continuing and we are seeing the monthly throughput of networks increasing. We will need to focus on what the broadband of 2020, 2025 and beyond looks like as we make investments and policy decisions for the future.
- Good data – understanding where adequate broadband exists and does not exist will be a key to developing the quickest path to a built out broadband economy.
- Coordination among agencies – programs, grants and loans that complement the common goal of a fully built out broadband economy will generate the results sought by policy makers and expected by citizens.
- Removal of other barriers – I was thrilled and a little disappointed when the President issued an Executive Order in January of 2018 that called for the streamlining and expediting of requests to locate broadband facilities in rural America. Thrilled that the lack of coordination that can slow progress was recognized and disappointed that it had not been addressed earlier.

Again, Lencioni describes teamwork as the ultimate competitive advantage and as powerful and rare. The innovation we seek in our broadband economy transforming tele-health, precision agriculture, commerce and education will be achieved. I want to think how much faster these innovations could develop with the proper alignment (teamwork) of carriers, policy, data and forward-looking broadband speed goals.

NETWORK MAPS OF SDN COMMUNICATIONS

Regional network extending from the Minnesota/Wisconsin border west to Wyoming.
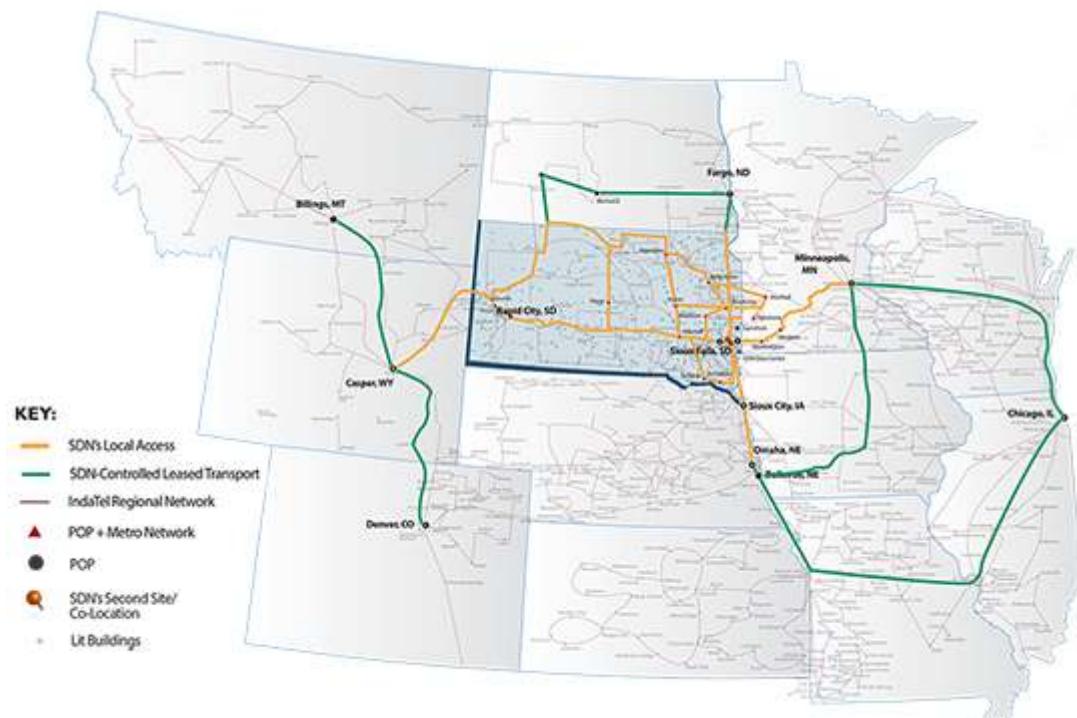
A broader regional view of SDN Communications network demonstrating its reach into other regional and national networks.

INDATEL NETWORK MAP
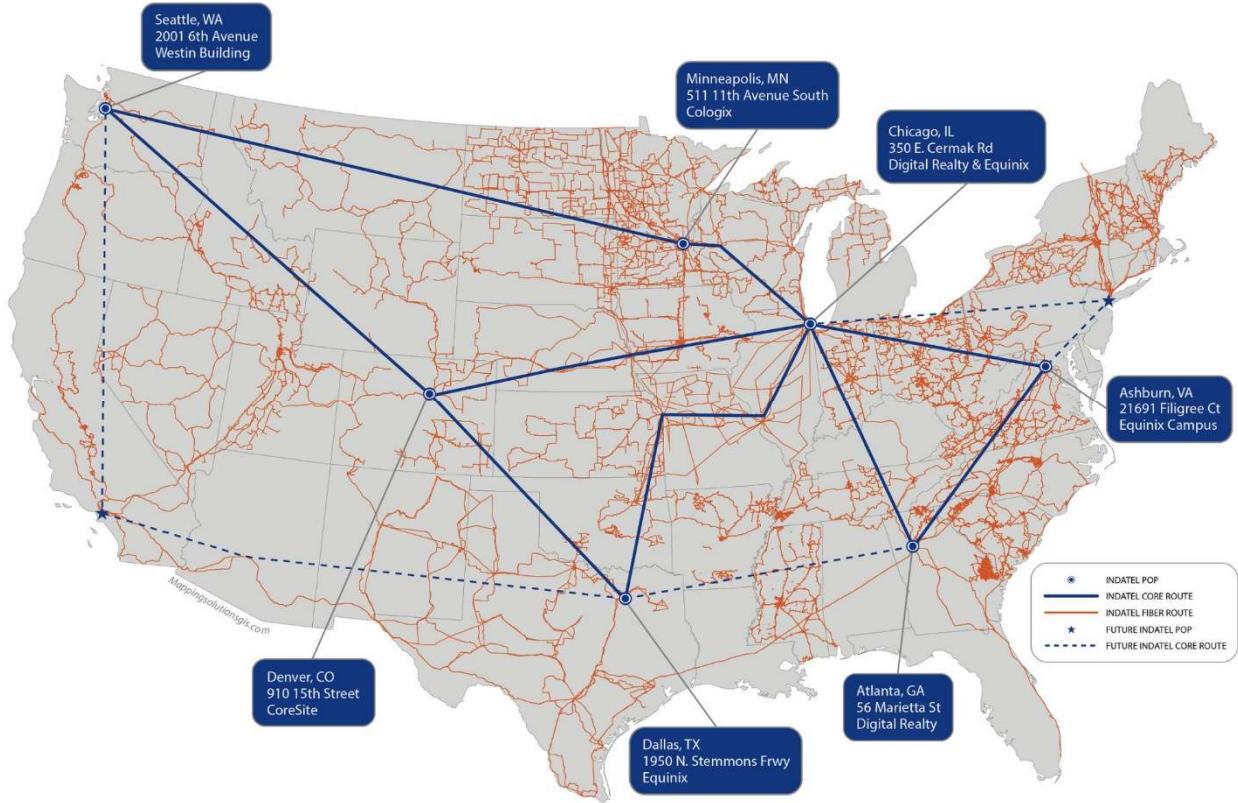
Indatel is a national network assembled through the interconnection, partnership and teamwork of the regional and statewide fiber optics owned by Independent Telecommunication Providers.