

Diller Telephone Relies Exclusively on HVDL 3.1 to Bring Nebraska Residents High-Speed Internet Access

Demand for high-speed internet service reaches even the most remote rural areas. Just ask network technicians Brett Landenberger and Jeremiah Duerksen of Diller Telephone in Diller, Nebraska. Tucked away in the southeast corner of Nebraska, Diller and the 310 residents that call the town home may appear isolated from the world. Yet residents remain in touch with world news, correspond with distant friends, and shop at stores in far away states thanks to Diller Telephone and the High-Speed Voice and Data Link (HVDL) 3.1 System from Charles Industries.

When Diller Telephone first contemplated bringing DSL to its 1,250 access lines, it faced many of the same challenges as other rural telcos. Scattered subscribers meant that any DSL solution needed to work over long loops. Low density areas with few subscribers prohibited costly DSLAM installations. And with few employees, deploying a system that was both easy to install, provision and maintain was a critical element.

Diller Telephone found a solution that met all its criteria in the HVDL 3.1 System. **With the ability to transport 1 Mbps of data over existing copper loops of up to 56,000 feet, HVDL allowed Diller Telephone to offer DSL to more of its subscriber base.** HVDL could be installed one customer at a time, requiring the installation of only a shelf and COT line card at the central office, and a remote terminal at the subscriber presence. This pay-as-you-grow scalability meant Diller Telephone could avoid large, upfront equipment costs and offer DSL to residents even in low-density areas.

HVDL's ethernet platform also made the system attractive to Diller technicians, including Landenberger and Duerksen. Landenberger relates **"HVDL is a user-friendly solution. We were able to deploy it over the existing copper pairs already servicing our customers."** He notes that Diller Telephone's technicians took to the system and after a few initial trials, were comfortable with installing and provisioning the system. "We were all happy we didn't have to learn complicated router provisioning or software programs in order to deploy DSL on our network."

With word-of-mouth and a little bit of local advertising, Diller Telephone has already installed HVDL on 100 of its 1,250 access lines. Both residential and small business customers have taken advantage of the high-speed data and three clear channel POTS lines that HVDL is capable of delivering. Diller Telephone deploys HVDL out of its central office and all four of its remotes. **Currently, HVDL has been used to reach subscribers up to 6.5 miles from one of its five deployment points, although spans of up to 9 miles are being targeted for service availability in the near future.**

Subscribers are charged on a tiered-services plan, made possible by HVDL's ability to be provisioned rate selectively in 128 Kbps increments. Subscribers can choose from 128 Kbps service at \$39.95 a month up to full 1.0 Mbps service at \$79.95. Customers have found the tiered services to their liking, as the ability to choose between low-cost basic service and high-performance premium service is in their own hands.

Reliability has not been an issue for the HVDL system. As Duerksen puts it simply, "HVDL has been real good to us." Diller Telephone has not had any significant interruptions of service on HVDL lines, which partly can be attributed to the advanced lightning protection that is a standard feature of the HVDL system. Landenberger attributes another factor. "Charles' support team helps us head off downtime by addressing service issues before they became problems."

For Diller Telephone, HVDL 3.1 has been the ideal solution for bringing high-speed internet access to its corner of the world. "It has been our 100% DSL solution," says Landenberger. "We would definitely recommend HVDL to other independent telcos in need of a reliable, user-friendly DSL platform."



Diller Telephone has deployed HVDL to over 8% of its subscriber base in the first year of availability.



For more information on the High-Speed Voice and Data Link 3.1 System from Charles Industries, please visit our website at www.charlesindustries.com.

HVDL 3.1 Proves to Be Picture-Perfect DSL Solution for Hart Telephone's Scenic Georgia Countryside

Mark Stone admires the beauty created by Lake Hartwell's meandering coves and the surrounding foothills of the Blue Ridge Mountains near his home in northeast Georgia. But as the Switch Operations Supervisor of local telco Hart Telephone, Stone can't help but look at the landscape with a more critical eye. "Sure, it's a beautiful place to live," Stone asserts, "But imagine the challenges this landscape presents to our DSL deployment efforts."

Lake Hartwell's sprawling 962 miles of shoreline and the rolling mountain landscape combine to disperse area residents over a large geographical area. Much of Hart Telephone's coverage map shows low-density populations that present a challenge to cost-effective DSL deployment, yet the residents of these lakefront properties are often affluent customers that demonstrate a high take-rate for DSL services when they are available.

What Hart Telephone needed was a system capable of delivering high-speed internet connections over long spans, yet was affordable to deploy in areas with only a handful of customers. After exploring several DSL systems, Hart Telephone decided to give the High-Speed Voice and Data Link (HVDL) 3.1 System from Charles Industries a try.

"HVDL was attractive to us because it featured extended reach and a system architecture that allows it to be installed one customer at a time over existing copper pairs," relates Stone. "It didn't require a whole new set of skills to install or a network planner to diagnose its implementation, so training was minimal and our technicians took to it easily."

HVDL proved to be the DSL solution best suited to Hart Telephone's unique coverage map. Because of the low-density nature of the telco's coverage area, DSL solutions that required DSLAM investments or other costly hardware were not an option. HVDL's architecture of a COT shelf and line cards that can be installed in Hart Telephone's central office and seven remote locations fit nicely into the company's existing network. At the customer premise, all that is required is the installation of a remote terminal on the outside of the building structure. "Installation is a piece of cake," according to Stone.

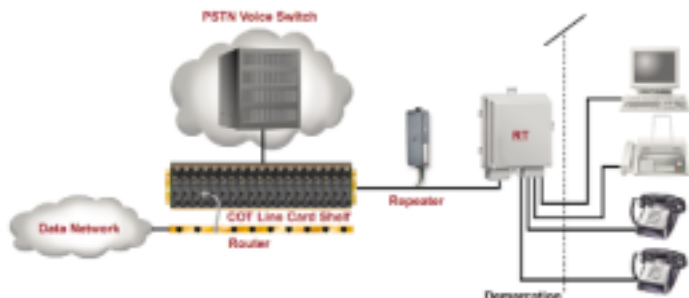


Lake Hartwell and the surrounding mountain landscape presented Hart Telephone with a challenging coverage area in deploying DSL.

Hart Telephone has installed over 150 HVDL lines to date with virtually no reliability concerns. Reliability was put to the test in August, 2001 when a severe thunderstorm rolled through the area. Lightning storms had often caused interruptions in Hart's DSL service before HVDL was installed. HVDL's lightning protection features all but eliminated service interruptions caused by lightning. In what were some of the most violent electrical storms in recent memory, only one HVDL system was affected, and that system went into bypass mode (Fail-to-POTS), allowing the subscriber to maintain voice services until the DSL connection was reset.

With a subscriber base that is spread across a wide area, Hart Telephone utilizes Digital Loop Carriers (DLC) to provide POTS service to many of its customers. Before investing in expensive DLC upgrades to support DSL, the company will co-locate an HVDL shelf at the DLC as a means to cost effectively deploy service to a small number of subscribers. This strategy gives Hart Telephone the advantage of being able to deploy service rapidly and cost-effectively, while leaving the door open for DLC upgrade should the number of subscribers grow.

"I couldn't ask for a more flexible DSL solution," says Stone. "HVDL has proven to be the perfect solution for our challenging coverage area. It has shown me that it is possible to deploy DSL even to the most remote subscribers and sparsely populated areas at an affordable rate."



For more information on the High-Speed Voice and Data Link 3.1 System from Charles Industries, please visit our website at www.charlesindustries.com.