

Broadband for rural utilities

limited because it is difficult for legacy providers to justify a business case for broadband in sparsely populated areas. Consequently, the lack of adequate bandwidth for broadband challenges rural residents—from unreliable work, retail, and

advanced education services. Recent customer behavior and the proliferation of new and performance-hungry applications have only accelerated these trends, cementing high-speed,

for granted, like electricity, gas, or water.

Rural utilities are uniquely positioned to have physical infrastructure for electric power and customer relationships that can be used to bridge the digital divide. However, their core business remains the supply of electrical power. In addition, the need for broadband is increasing as utilities invest in modernizing their power grid and automating their operations and services. The growth in smart devices in homes, and the expanding electric-vehicle ecosystem create further challenges that strain communications solutions for utilities.

As a result, rural utilities are increasingly turning to broadband to support their operations and services. This report explores the challenges rural utilities face in obtaining broadband and provides recommendations for how to address these challenges.

Broadband is becoming an essential service

In recent years, society has been experiencing a major shift in how we work, play, and access YbHfHJba YbH"H\Y'a cj Y t c k cf_]b['Zfca \ca Y‡ Vc`Y[Ygžcf'i b]j Yfg]hYg‡ \UgXfUa UhjWj`m]bWYUgYX` the use of collaboration applications such as Zoom UbX`A]WcgcZhHYUa gžWli g]b[`Ub`YI dcbYbh]U`[fck h`]b]bhYfbYhHfU W`K \]Y'gca Y'gVXcc`g`UbX`c` W`g`Uj Y`



H\Y i C@H\Wb\Y\Yd`cmYX`Ubrk \YfY]b h\Y`UWVYgg` network, whether in an outdoor cabinet, pole, or controlled environment, with port-level granularity. H\]g` YI]V]]hmU`ck g`cdYfUhc fg`hc i gY YI]gh]b[`]bZfUghfi W\i fY`UbX`XYd`cm%\$; `DCB`Vc`ghY`YVW]j`Y`nž k \Yh\Yf`cb`U`ga`U`cf`Uf[Y`gWU`Yž]b [fYYb`Y`Xž Vfck b`Y`Xžcf`a]l YX!j`YbXcf`bYhk cf_g`K]h`7]YbUg` VfcUXVUbX`gc`i`h]cbžbc`XYX]WUHYX`C@H`VX`Ugg]g` required, and converged router/switch ports can be i`gYX`Zcf`U`gYfj`]W`gž]bW\i`X]b[`9h\YfbYhž`DžH8A`žC`@`ž UbX`a`cfY`H\]g`dfch`VWg`h\Y`cdYfUhc`f`g`]bj`Yg`ra`Ybh and introduces several revenue opportunities. It also Y`ja`]bUHY`g`h\Y`b`YYX`hc`ei`U`]Zma`i`h]d`Y`C@H`Vcl`Yg`Zcf` PON deployment.

Ciena's broadband solution allows for granular scaling, ghUfh]b[]b]bVWYa`Ybhg`Ug`ga`U`Ug`cbY`dcf`h`c`bY`i`C`@` UbX`gWU]b[`i`d`VUgYX`cb`hfU`WXYa`UbX`H\]g`YbUV`Yg` a pay-as-you-grow economic model. Ciena's virtual Broadband Network Gateway (vBNG) subscriber management function can be positioned anywhere in the bYhk`cf`_`UbX`gWU`YX`hc` \`UbX`Y`Yj`c`j`]b[`hfU`VdU`hY`fbg`

H\Y`_`Ymhc`h\Y`i`C`@`H`UbX`\`][` \`Yf!`gd`YYX`DCB`]g`5G`7` development. Ciena owns, develops, and controls the ASIC technology, which is an industry-leading]bbcj`Uh]cb`h`Uh`YbUV`Yg`U`Z` ``mž`bW]cbU`C`@`H`hc`VY` di`hcb`UW\]d`H\Y`d`i` [[UV`Y`i`C`@`H`a`cXY`U`ck`g`U`

