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Smart Networks for Smart Devices.

ACUSA Project Overview

Bandwidth Logic designed, financed and built the Adventure Crossing USA (ACUSA) network to fully enable telecommunications services for the ACUSA smart campus at 567 Monmouth Road, Jackson, New Jersey. The network is highly efficient as to operating expense and return on capital. This $800 million mixed-use campus's network is scalable, reliable and can rapidly provision services. The reliability includes equipment redundancy as well as high performing and diverse telecom transport routes supported by dual virtual NOCs, electric power resiliency, and alternate transmission technologies (fiber, microwave, satellite, etc.).

In this work Bandwidth Logic similarly turnkeyed a backhaul network with full redundancy to support an advanced medical center being built on the property. Surgeries will be live-streamed to doctors and researchers around the world. Given its importance, the network could never falter or fail. To accomplish this, Bandwidth Logic developed a carrier-grade network and became an ISP at ACUSA to support this research center as well as all entertainment, sports, retail and residential tenants on campus.

There are two (2) telecom shelters at ACUSA that house two (2) Nexus 93180 core routers (with switching fabric capable of 3.6 terabits of throughput with less than a microsecond for processing) that link to the individual buildings on campus, switch traffic between them, and move Wide Area Network (WAN) traffic between the campus and two (2) data centers on the East Coast. The providers never reside on the same pole to ensure no single point of failure. There is a natural-gas powered generator which switches over if street electric power fails.

The fiber plant consists of some five (5) miles of Corning 2021 Rocket Ribbon 864 SM fiber arranged in a ring fashion to allow for dual building connections as needed. Another mile of 144 strand fiber connects the campus buildings to the fiber backbone, including CPE equipment in each building that is connected to this fiber ring and allows for future growth. Further, the 300 light poles on campus are connected to this ring with 12 fibers to enable future smart pole functionality as needed. We plan to install wireless services such as outdoor WiFi and access to buildings without any landline connectivity as the project progresses. The equipment includes a controller unit to provide remote administration and control of the system and access points which are fundamentally end-user broadcasting units. The WiFi system will provide encryption, intrusion detection, security policies, and can segment traffic into QOS traffic streams for maximum efficiency to all planned locations.

28 Valley Road, Suite 149 Montclair, NJ 07042 jjust@bwlogic.com 1-833-BWLOGIC bwlogic.com