

OPEN NETWORKING FOR RURAL MAINE BRIDGING THE DIGITAL DIVIDE WITH IP INFUSION OcNOS

Executive Brief: Igniting Rural Maine's Digital Future

Premium Choice Broadband, a leader in connecting rural Maine, faced a key challenge of accelerating and expanding fiber internet while managing costs. They made a forward thinking move, shifting from traditional, all-in-one network gear (like their Cisco core and Ubiquiti edge equipment) to an open, disaggregated infrastructure. This new setup uses IP Infusion OcNOS software and UfiSpace hardware. This case study shows their journey, explaining how smart planning, open standards, and advanced technology came together to build a future-ready network.

Since 2007, Premium Choice Broadband, part of the Varney family of companies, has been a key player in bringing internet connectivity to Maine's rural areas. Based in Brewer, starting with five locations near Bangor, their network has grown to over 67 sites, covering 7,000 square miles from Rockwood to Surry. With over \$2 million in private investment, they are dedicated to delivering fiber-to-the-home, DSL, cable, and wireless services up to 1 Gbps to over 5,000 Maine families and many businesses. This strong commitment, backed by skilled local technicians, makes Premium Choice Broadband a true innovator in rural internet service.

Challenges

As Premium Choice Broadband experienced rapid growth, their leadership proactively identified strategic opportunities to optimize and evolve their network infrastructure. Their vision: stay ahead of escalating demand and technological shifts.

- **Optimizing Core Capacity:** The existing **Cisco Core Router** faced increasing strain from exponential data traffic. Premium Choice sought a solution for seamless scalability, ensuring robust support for next-generation services.
- **Optimizing Edge Bandwidth:** A visionary statewide fiber ring required edge infrastructure capable of supporting advanced 400G interfaces. The existing **Ubiquiti EdgeRouter Infinity**, though functional, was not designed for this scale of expansion, prompting the search for a higher-capacity, future-ready upgrade.
- **Cost Efficiency:** Committed to affordable, high-quality service, Premium Choice aimed to move beyond costly, traditional proprietary upgrade cycles. They sought a path to network evolution aligned with **responsible CapEx** and long-term economic sustainability.
- **Achieving Architectural Autonomy:** Reliance on vertically integrated, closed systems limited their ability to rapidly innovate, integrate best-of-breed components, and exert granular control over their network's evolution. This strategic pivot aimed for architectural independence and agile adaptation to market shifts, **without vendor-lock-ins** and **eliminating "rip-and-replace"**.

A Disaggregated Architecture for Resilient Performance

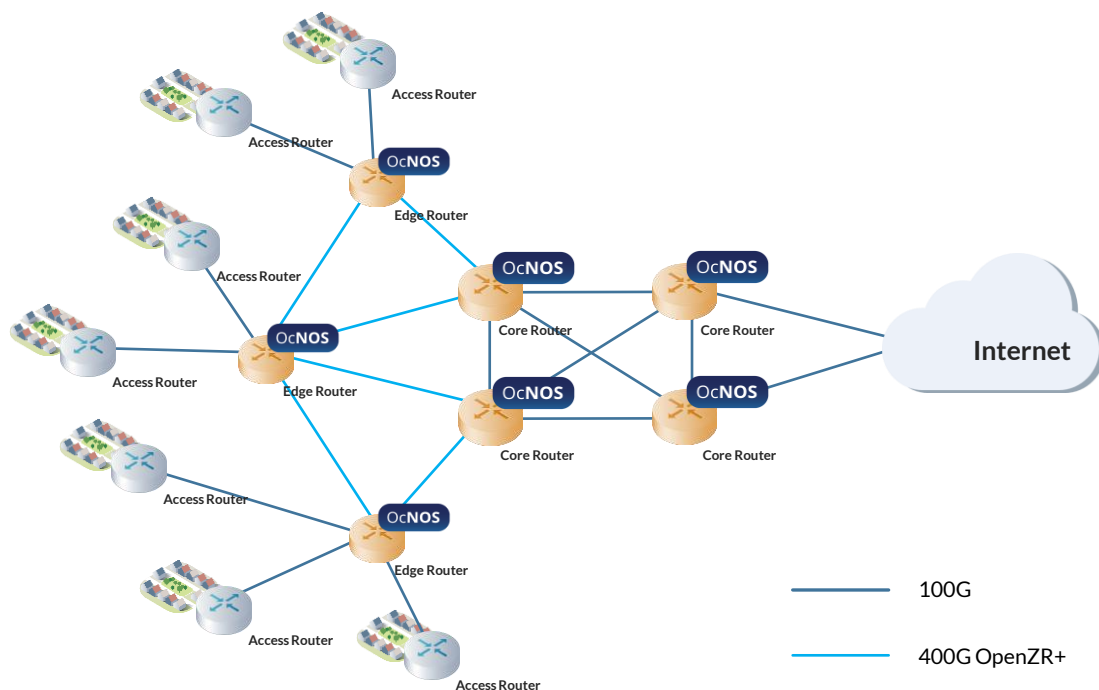
Premium Choice Broadband collaborated closely with IP Infusion to implement network upgrades in two phases. This initiative resulted in a disaggregated network design that significantly enhances performance, scalability, and cost-efficiency, providing them with precise control from the core to the very edge.

Phase 1: Core Network Upgrade. The existing **Cisco Core Router** was retired. IP Infusion's **OCNOS-SP-IPBASE-2400**, hosted on **UfiSpace S9600-72XC**, was deployed as an upgrade, which elevated core network performance, accommodating exponential bandwidth growth, and offered advanced routing abilities.

Solution Highlights

- **Better Service:** Premium Choice separated network software from hardware, allowing them to select top-tier components (OcNOS software, UfiSpace hardware, and E.C.I. Network Optics) for faster internet service with future expansion potential.
- **Faster Operations:** OcNOS's easy-to-use, standard command-line interface (CLI) meant their engineers could quickly learn and deploy the new system. For customers, this means a more dependable internet experience, seamless setup of new services, and quicker fixes for any network problems.
- **Future-Proofing with ZR+:** OcNOS and UfiSpace work together seamlessly, allowing quick upgrades to powerful 400G connections and modern ZR+ optics. This boost in network capacity means customers get Gigabit speeds today, and a network ready for even faster multi-gigabit services tomorrow.
- **Cost Efficiency:** Open networking benefits combined with **OcNOS's perpetual licensing** changed the financial game. Premium Choice got top-tier network performance for much less than traditional systems. These savings allow them to invest more in expanding their network bringing high-quality, affordable internet to even more rural communities.

Phase 2: Statewide Fiber Backbone: Building the 400G Highway. To realize the vision of a high-capacity statewide fiber ring, Premium Choice replaced the **Ubiquiti EdgeRouter Infinity** with **OCNOS-SP-IPBASE-800** and **OCNOS-SP-PLUS-800**, hosted on **UfiSpace S9510-28DC**, which form the distributed points of this new backbone, providing consistent, carrier-grade routing and switching at the local and regional network levels. This ensures seamless integration with the core and robust performance for demanding regional traffic.



Premium Choice Broadband Reference Topology

Deployed Solutions

Core Routers:

- NOS: IP Infusion **OCNOS-SP-IPBASE-2400**
- Whitebox: **UfiSpace S9600-72XC** | 8 x 40/100GE QSFP28, 64x 10/25GE SFP28 | Open Router

Edge Routers:

- NOS: IP Infusion **OCNOS-SP-IPBASE-800** and **OCNOS-SP-PLUS-800**
- Whitebox: **UfiSpace S9510-28DC** | 2x 100/400G QSFP-DD, 2x 40/100G QSFP28, 24x 10/25G SFP28 | Open Router
- E.C.I Network Optics

Summary

Premium Choice Broadband's shift to open networking has brought substantial benefits. Their upgraded network delivers exceptional speed and capacity, easily supporting 1 Gbps fiber and ready for significant future growth. This disaggregated model provided game-changing price-performance, enabling a premium network within budget, optimizing spending, and expanding reach. Free from vendor lock-in, Premium Choice gains flexibility and control, accelerating feature rollouts and market adaptation. The new statewide 400G fiber ring significantly bridges the digital divide, extending high-speed internet to more rural Maine communities. Finally, robust hardware and the familiar OcnOS CLI instilled immediate operational confidence in their teams, ensuring smoother setup and efficient management.

“At Premium Choice Broadband, we're driven by one goal: delivering unparalleled reliability and exceptional value to our customers. This network transformation was a strategic leap, chosen for its immediate impact, robust software, and game-changing cost. The disaggregated approach future-proofs our service with seamless software updates, eliminating disruptive 'rip-and-replace' cycles.” - Andy Breda, Network Manager of Premium Choice Broadband

Contact for More Information:

For more information on the OcnOS software, please contact sales@ipinfusion.com

ABOUT IP INFUSION

IP Infusion is a leading provider of open network software and solutions for carriers, service providers and data center operators. Our solutions enable network operators to disaggregate their networks to accelerate innovation, streamline operations, and reduce Total Cost of Ownership (TCO). Network OEMs may also disaggregate network devices to expedite time to market, offer comprehensive services, and achieve carrier grade robustness. IP Infusion network software platforms have a proven track record in carrier-grade open networking with over 500 customers and over 10,000 deployments. IP Infusion is headquartered in Santa Clara, Calif., and is a wholly owned and independently operated subsidiary of ACCESS CO., LTD. Additional information can be found at <http://www.ipinfusion.com>

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