ribbon

Case Study: Vibrant Broadband
provided by Meeker Energy

Vertical: Utility Co-op
Region: North America
**Solution:** Service Aware 100G Middle Mile using Neptune 2100

Background

Founded in 1935, Meeker Energy is a trusted, member-owned cooperative dedicated to delivering reliable electricity and internet service that surpasses expectations to homes and businesses in Central Minnesota.

Meeker Energy has 8,000+ members over 1900 miles of power lines. **Vibrant Broadband** began operations in **2018** with their first subscriber being connected in **2019** and currently has 7,000+ subscribers with 1,200+ miles of fiber line.

Challenge

Vibrant Broadband's existing network consisted of 10G rings which proved inadequate in meeting the growing demands for bandwidth as data consumption continues to surge across their various residential and business customer segments. Their legacy network, operating solely on Layer 2 protocols, inherently lacked the capability to extend Layer 3 services to end users. This limitation is particularly significant for applications requiring advanced functionalities such as Layer 3 Virtual Private Networks (L3VPN), which are essential for secure and efficient data transfer between remote sites. As organizations increasingly rely on sophisticated networking solutions that require routing and switching at a higher operational layer, the inability of 10G-only rings

VIBRANT Broadband® *provided by* **Meeker ENERGY**

🔷 NPT 2100
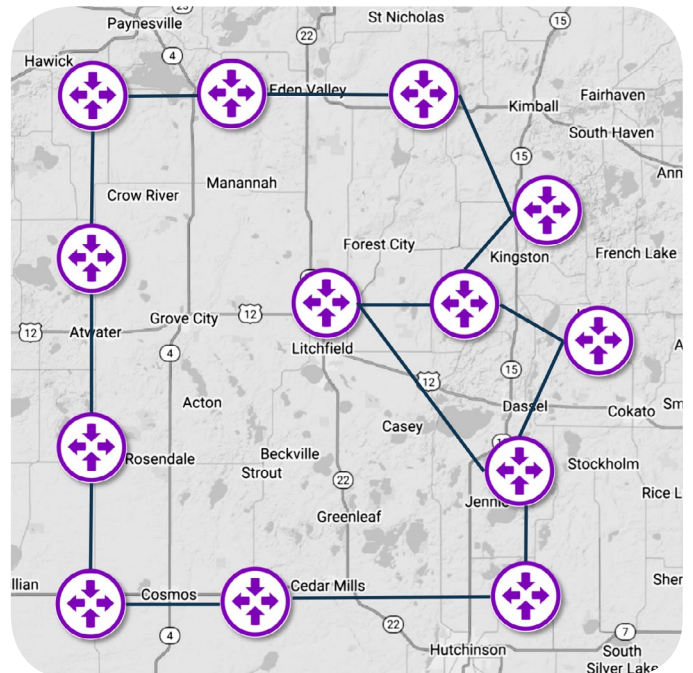
to facilitate these services underscores a critical gap in network infrastructure. Consequently, there is an urgent need for upgrading or replacing these systems with more robust architectures capable of delivering comprehensive Layer 3 capabilities alongside sufficient bandwidth to support future growth trajectories in network demands.

Solution

Vibrant Broadband worked with Ribbon to transition their 10G ERPS ring-based network to a 400G-ready IP-MPLS network using NPT 2100 to support their broadband traffic which marks a significant evolution in network architecture and efficiency. Currently operating at 100G, the infrastructure is designed to accommodate an upgrade to 400G with merely a straightforward optical change, demonstrating foresight in technological scalability. This enhanced design has facilitated a simplified network topology, enabling the implementation of meshed nodes instead of relying on the traditional method of creating multiple rings and sub-rings. By leveraging Layer 3 capabilities at the edge of the network, it empowers service providers to deliver additional offerings and functionalities that were previously unattainable, broadening their service portfolio and improving overall performance in meeting diverse customer demands.

Benefits to Vibrant Broadband of Ribbon's Neptune (NPT) 2100 for Intelligent Middle-Mile:

- 800 Gbps switching capacity with 100G interfaces in 1 RU, make it optimized for high-capacity broadband aggregation applications. IP Optical integration and multi-layer operation with automation delivers lowest TCO

- Powerful Multistack-MPLS engine provides future-proof evolution with converged support for MPLS-TP, IPMPLS/TP, Segment Routing, Ethernet (MEF CE2.0 certified),and TDM over CES/CEP

- NPT is optimized for service aware aggregation providing utilities like Meeker the ability to collapse all their services onto a single converged IP network, and agility to evolve the network as services and customer needs evolve

- Service-aware, middle mile communication networks can deliver mission critical traffic performance (e.g Utility SCADA traffic) using EVPNs

- Network can be managed as a multi-layer entity with full visibility on how changes in one network layer affects the other

- Ease of Moves, Adds, Changes, and Disconnects (MACD) of services via the Muse Multi-layer Automation Platform

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