

# Case Study: HEMC Broadband



## HEMC Broadband

### Challenge

Provide high-performance, high availability routing and firewalling solution for Internet access

### Solution

Vyatta Open Networking Software  
Vyatta Virtual Machines

### Benefits

Scalable Routing  
Cost effective  
High Availability  
Simplified management  
Future Proof

*"As a coop, our priority is to our members. To be able to offer a better service at a better price is what we are all about... Vyatta routers provide a gateway to the world for our coop and our fiber customers"*

## Vyatta provides core routing and firewalling for broadband network

Habersham Electric Membership Cooperative, known as Habersham EMC, is a non-profit, member-owned cooperative formed in 1938 to bring electricity to the rural areas of Habersham, Hall, White, Stephens, Rabun, and Lumpkin counties in northeastern Georgia. Today, the Coop serves 34,000 members through more than 3,600 miles of line with a staff of 105 full- and part-time employees.

In 1999, Habersham EMC formed its ISP subsidiary HEMC Broadband, which today is one of the largest ISPs in Northeastern Georgia. It provides dial-up and high-speed Internet connections for Habersham EMC members and others, plus fiber access to the Internet for business customers. HEMC Broadband also supports Habersham EMC's Internet access.

### Challenge

Daniel Stickel, System Administrator for Habersham EMC, became increasingly concerned about an aging Cisco 7500 router that served as the core router. Deployed in 1998, the router, already past end of life, presented a single point of failure that could disrupt service to HEMC Broadband customers as well as Habersham EMC. One HEMC Broadband customer was particularly vulnerable. PathFinder TV re-broadcasts international television stations via IP based technology on HEMC's fiber system. "Downtime is not an option for them," says Stickel.

As the HEMC Broadband customer base and requirements grew, Stickel recognized the need to redesign the network beyond a single core router with just one node of connection (NoC) to the Internet. To provide higher availability, a second NoC was needed in a different city. Deploying a primary and backup router in two different locations, however, would cost nearly \$100,000 if purchased from Cisco. Stickel even considered deploying used Cisco equipment, but the cost and support requirements were still higher than Vyatta.

### Solution

In early summer 2009, Stickel came across Vyatta. Its solutions combine enterprise-class routing and security with the performance and economics of open systems, giving network administrators the ability to innovate, scale, and grow in ways that were previously unavailable. Encouraged by his research, Stickel set up a virtual test environment mirroring his production network using Vyatta's Community Edition software. "I was able to test everything imaginable," says Stickel, who was impressed with Vyatta's cost, flexibility, and ease of use. "All the protocols I could possibly need were right there, whether I needed clustering, VRRP, OSPF, or BGP."

Convinced that Vyatta was the right solution, Stickel deployed the routing software on two Dell PowerEdge R300 servers running dual quad-core processors with 8 Gigabits of RAM at a Habersham EMC location in Cleveland,



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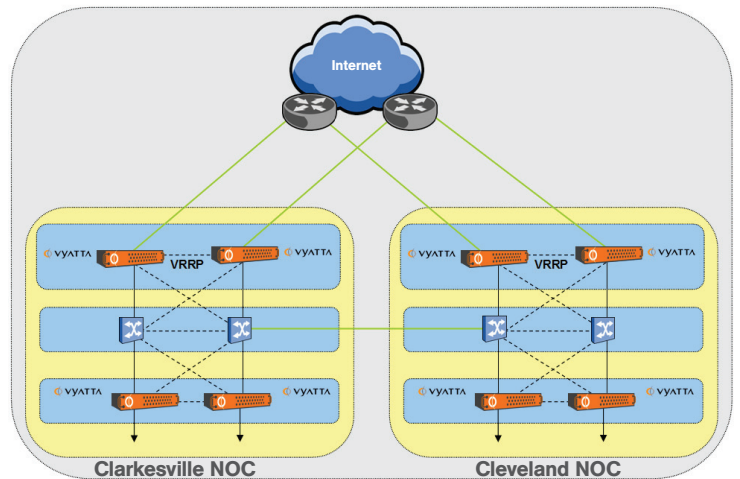
Georgia. A month later, he set up a similar configuration at the second NOC, Habersham EMC’s main location in Clarkesville, Georgia. Stickel originally planned to use clustering in each of the two sets of servers for high availability. However, the Clarkesville site supported too many IP addresses. Working closely with Vyatta support staff, Stickels was able to successfully substitute VRRP at both sites and design an architecture where the two devices are connected via OSPF.

As Habersham EMC was planning to deploy Vyatta, the coop was attempting to resolve an issue with an existing firewall from WatchGuard. Reaching an impasse, Stickel recalled that Vyatta also included firewall functionality. “Because Vyatta worked so well for routing, we decided to use it for a firewall,” recalls Stickel. Because Vyatta was software based, Habersham EMC was able to deploy it on a virtual machine with two additional layers of security.

### Benefits

Vyatta has enabled Stickel to meet a key requirement. “As a coop, our priority is to our members. To be able to offer a better service at a better price is what we are all about,” says Stickel. “Vyatta has helped us to keep our prices down.”

The high-availability configuration provided by Vyatta gives Stickel the peace of mind that was lacking with the old router. “Vyatta routers provide a gateway to the world for our coop and our fiber customers such as PathFinder TV, the City of Cornelia, WCON radio, and White County School System. A lot of folks rely on that connection.”



Vyatta has proven reliable and easy to manage. “Since we turned it up, it just runs,” says Stickel. “Unless there are network changes, I don’t have to touch it.”

### Vyatta Network OS

The Vyatta network operating system is a scalable, integrated, enterprise-class networking solution that delivers advanced routing and network security functionality for physical, virtual and cloud networking environments. The Vyatta network OS includes dynamic routing, stateful firewall, VPN support, threat protection, traffic management and more in a package that is optimized to take advantage of multicore x86 processing power, common hypervisor platforms and emerging cloud architectures. All features are configured through Vyatta’s familiar, networking-centric CLI, web-based GUI or third party management systems using the Vyatta Remote Access API.

### About Vyatta

Vyatta is disrupting the networking industry by delivering a software-based, open-source, network operating system that is portable to standard x86 hardware as well as common virtualization and cloud computing platforms. Vyatta software provides a complete enterprise-class routing and security feature set capable of scaling from DSL to 20Gbps performance at a fraction of the cost of proprietary solutions. Thousands of physical and virtual infrastructures around the world, from small enterprise to Fortune 500 customers, are connected and protected by Vyatta. For more information, please visit <http://www.vyatta.com>.