



BUCKS COUNTY PENNSYLVANIA SCHOOLS

Vyatta Delivers Cost Effective BGP Routing Solution for Distributed School District

Challenge

Find a cost-effective BGP routing solution that offers increased scalability over existing Cisco infrastructure

Solution

Vyatta 2502 appliance

Benefits

- BGP scalability
- Cost effective
- Rich feature set
- Increased route capacity
- Additional security applications
- Flexibility to meet current and future requirements

“Vyatta is providing us with a way to cost-effectively connect 100,000 students, 10,000 teachers, and 18 independent educational agencies across the County.”

— Mark Hoffman

Director of Instructional Materials and Technology
Bucks County Intermediate Unit #22

The Bucks County Intermediate Unit #22 is a regional educational service agency; one of 29 in Pennsylvania established in 1970. Working with the State Department of Education and the local school districts, the Bucks County IU provides programs and services to 13 school districts and 3 technical high schools located within Bucks County, Pennsylvania.

Challenge

To provide all of the local districts access to the Public Internet, Internet2, and new, advanced educational technologies, the schools of Bucks County implemented a countywide WAN several years ago. The WAN consisted of 18 Cisco Catalyst 3560 layer 3 switches: one at each of the 13 districts, each of the three vocational technical high schools, the Community College, and at the IU itself, which employs 1,400 people.

The routing capacity in each of their Cisco Catalysts was limited to a system-defined number of routes around 12,000, a fraction of the size of the current BGP routing table that currently exceeds 300,000 routes. As the schools' requirements grew, each system was also tasked with serving three connections (public Internet, Internet2, and the countywide WAN) and the network required far more than the current 12,000 route capacity to maintain acceptable performance.

Solution

With demands on the WAN only increasing in the future, the IU chose to proactively address the problem before it got worse. The original Cisco equipment would have to be replaced, but with what? The Technology Directors from each of the 18 organizations formed a task force to research and select a solution.

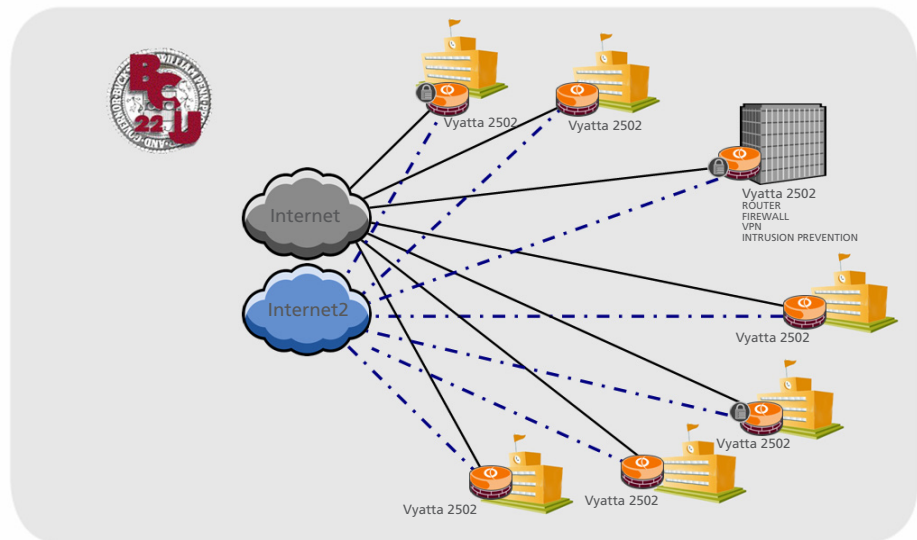
The Task Force considered two Cisco-based solutions. The first would position a single, carrier-class router at the center of the WAN. While this would resolve the route limitation issue, it would centralize control of the WAN. Individual districts were adamant about retaining their autonomy. A centralized device would also create a single point of failure and the cost was prohibitive.

The second Cisco alternative was to replace each legacy router with a larger model. Architecturally, this was appealing, but once again, the cost was significant. “No one on the Task Force was happy with either solution,” says Mark Hoffman, Director of IMT at Bucks County IU#22. “So we started looking around for other alternatives.”

Ray Kase, Director of IT at Central Bucks School District and a member of the WAN Task Force, had been researching Vyatta, a networking solution he found that offered a flexible, affordable alternative to Cisco. Vyatta's open routing and security software and appliances offer network administrators the unique ability to leverage the standards of both open software and open hardware to gain

Vyatta Case Study: Bucks County Schools

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price, performance, and scalability advantages over proprietary solutions.

Following discussions with an engineer from the company, Kase set up an on-site demo of the Vyatta solution to test it out first hand. “Vyatta shipped out an appliance,” says Kase. “Installation took 30 minutes, half of which I spent racking the device.”

At the end of a 30-day demo period, Kase was pleased with the appliance. “The solution was right. The price was right. My interaction with the company was positive.” Based on Kase’s thumbs-up recommendation, the members of the Task Force moved forward with recommending the Vyatta solution to the rest of the county

Bucks County IU chose the Vyatta Series 2502 appliances, which integrate Vyatta’s open network operating system with a high-performance x86-based, dual-core system. Installation could not have been easier. Vyatta’s professional services team preconfigured the appliances at the factory. “When they arrived, each was labeled with the district and it was plug and play,” says Hoffman, who adds, “Throughout the entire process, the people we’ve worked with at Vyatta have been responsive, proactive, and knowledgeable.”

Benefits

Vyatta offers Bucks County Schools the scalability to meet its routing needs well into the future. Vyatta’s 2500 series appliances support in excess of 2.5 million routes—more than 200 times the capacity of the original Cisco equipment.

Vyatta has delivered exceptional value. “For what we paid, I’m amazed at the amount of features we got,” says Hoffman. “Vyatta has provided us with considerable savings over the alternative solutions.”

The individual districts are autonomous, with no mandate from the Bucks County IU to use the routers in any particular way. Hoffman expects districts, however, to implement capabilities of the Vyatta appliances, such as firewalls, VPNs and intrusion prevention as needed.

With higher performance assured, the Bucks County IU can now move forward with regionalizing some of the services that have been managed locally at the district level in the past, including disaster recovery, email hosting, and database support. “Vyatta is a very big part of making that happen,” says Hoffman. “Vyatta is providing us with a way to cost-effectively connect 100,000 students, 10,000 teachers, and 18 independent educational agencies across the County.”



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