



**VyOS**

The universal networking platform

**OHIO**  
UNIVERSITY

**/** VYOS SUCCESS STORY

# Networking Education Transformed: Ohio University's Journey from Physical to Virtual with VyOS

School of Emerging Communication Technologies

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## The Challenge

The J. Warren McClure School of Emerging Communication Technologies (ECT) at Ohio University faced significant limitations with its former Cisco infrastructure. The physical hardware not only incurred high expenses and occupied considerable space but also restricted the number of students that could be taught simultaneously. Additionally, the purchased hardware often included unnecessary features for the school's curriculum, which emphasizes a broad capacity over a depth of specialized options. These constraints necessitated the exploration of new, more adaptable solutions to meet their growing educational needs.

## Exploring Options

In search of a solution that could provide both scalability and a comprehensive educational experience without the limitations of their previous infrastructure, the ECT school considered various options. A colleague's recommendation led them to discover VyOS, a network operating system that promised to deliver the flexibility and scalability they required.



### Why VyOS?

**VyOS was chosen for its ability to integrate seamlessly into the school's VMware environment and for its compatibility with other common systems used in the industry, such as Ubuntu, Debian, and Juniper. This compatibility is crucial for educating students in environments they are likely to encounter in their future careers. Furthermore, VyOS allowed for the emulation of complex network architectures through tools like GNS3, enhancing the practical learning experience for students.**

## Solution and Benefits

Since implementing VyOS in early 2014, the school has experienced a substantial improvement in its ability to educate a larger number of students across a wider range of topics. The virtualized environment enabled by VyOS has allowed for the setup of eight physical stations, each with a combination of Windows, Mac, Linux, and VyOS PCs, along with additional virtual VyOS instances. This configuration supports the construction of small to mid-size core networks and allows students to engage in advanced networking practices, such as using OSPF.

The use of VyOS in conjunction with GNS3 has provided each student with a customizable and resourceful learning environment. An example of the efficacy of this setup is evident in a 4000-level course project where students are tasked with creating a full-fledged company network using multiple VyOS routers.



Students have found VyOS easy to learn and appreciate the opportunity to explore network architectures that were previously inaccessible. The scalability and industry-relevant command-line interface of VyOS have been instrumental in achieving the school's educational goals.

## Conclusion

The adoption of VyOS at the J. Warren McClure School of Emerging Communication Technologies has been a resounding success. It has not only overcome the physical and financial constraints of traditional networking labs but also provided a rich, real-world learning experience for students. While there is a desire for improvements, such as a hardware-neutral "show system | commands" feature for more efficient configuration across varied hardware setups, the overall impact of VyOS has been extremely positive. The school's experience with VyOS has been shared with the broader community through their ECT Tech Nuggets on YouTube, further advocating for the system's educational value. VyOS has proven to be a versatile and valuable teaching tool, and the school hopes to see its educational applications continue to expand.

**For a more in-depth exploration of the school's journey with VyOS, visit their Tech Nuggets page.**

<https://sites.google.com/view/douglas-bowie/tech-nuggets>

