VyOS
The universal networking platform

VYOS SUCCESS STORY

Interview with David Fernández, Associate Professor of Computer Networking at the “Universidad Politécnica de Madrid”

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What challenges do universities face when teaching computer networks to students?

Universities encounter multiple challenges in teaching complex networks in a practical and engaging manner. The most significant challenge is often the limitation of resources and budget.

The high costs of top-tier networking equipment and their licenses prevent universities from instructing on multidisciplinary corporate networks using realistic, intricate scenarios.

Such challenges can result in insufficient academic preparation, which may hinder students from realizing their full potential and being adequately prepared for the workforce.

Furthermore, crafting intricate network scenarios often requires the use of several different tools, which can delay the students' learning process in practical environments.

How did VyOS help you overcome these challenges?

In our case, while we had some physical routers, it was challenging to establish networks of particular complexity due to resource constraints. Therefore, we decided to explore virtualization-based solutions to overcome these limitations and provide more intricate, realistic network scenarios.

In our practical settings, we have been using VyOS for several years now, and with the VyOS for Good program, we'll have access to additional benefits. VyOS is a free enterprise solution that offers us multiple options when it comes to configuring network topologies, allowing us to train students in a much more realistic manner. It enables us to create labs focused on dynamic routing with OSPF or BGP, Firewall configurations, VPNs, etc., deploying equipment using virtual machines or containers.

What aspects of VyOS did you find most appealing as an educational tool?

One of the main advantages VyOS offers is the integration of all functionalities within a single configuration interface. This saves our students from having to learn multiple tools or use different platforms to execute certain functions. Its syntax, similar to manufacturers like Cisco or Juniper and other conventional routers, greatly reduces the learning curve.

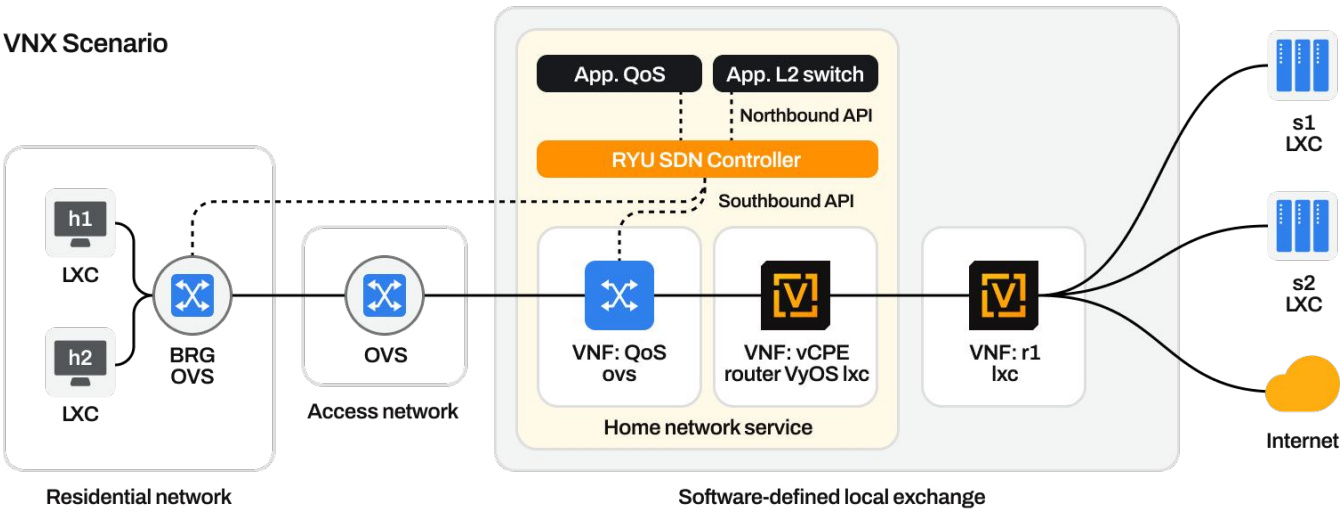
Being able to configure all functionalities directly through a single command interface (CLI) without the need to operate multiple applications is a significant advantage for students.

We also highly value the ability to automate deployments and configurations through scripting. This eases the preparation of our practical environments and allows students to work on the automation of deployments and configurations, which is crucial in today's networks.

How have your students responded to the use of VyOS in your classes?

The students have responded positively; they like the idea of managing equipment used in corporate networks, which they might encounter in their professional lives.

The various use cases and its natively integrated modules allow them to create diverse and complex scenarios, greatly aiding their learning.



Which features of VyOS would you highlight as the most beneficial for your students' learning?

The integration of all functions under a single configuration interface is one of the main advantages, as it allows for consistent management. Furthermore, I'd highlight the many advanced functions it includes that enable the development of complex networks.

For instance, VyOS has enabled us to create a complex practice emulating a deployment scenario of virtualized residential networks using the NFV Open Source MANO (OSM) platform.

In that practice, students automate the deployment and configuration of virtual residential routers using OSM with scripts. The complexity of the scenario is very high, and the use of VyOS and its function integration helps simplify its understanding.

Additionally, I would emphasize VyOS's extensive IPv6 support, which allows us to introduce students to the creation of dual IPv4/IPv6 network scenarios. Also, the IP multicast support, which we've used in other practices and research projects.

How do you see the future of education in network technology? Do you believe tools like VyOS play a significant role in that future?

I see a promising future for education in network technologies, and I believe tools like VyOS are an integral part of that future, given their ability to integrate into environments for creating virtual network scenarios, which are widely used today.

As networks continue to evolve and face increasingly complex challenges, it's crucial to have tools that allow students to acquire relevant skills and stay up-to-date with the latest trends and technologies.

Networks are undergoing a significant transformation, with a notable increase in complexity due to the extensive use of virtualization. Therefore, it's essential to have tools that allow them to explore and understand these advanced network scenarios and deploy network environments efficiently and scalably.

Furthermore, open-source software, like VyOS, promotes collaboration and interoperability between companies. This is especially crucial in a constantly evolving environment, where the ability to work collaboratively and leverage open-source solutions allows for more agile and efficient network development.

Would you recommend other teachers to use VyOS in their classes?

Yes, I would recommend other teachers to use VyOS in their classes. I believe the **free VyOS for Good program is a good initiative and provides great value to the educational community**. Not all companies have the commitment and consideration for the educational sector that VyOS has, so this collaboration is beneficial for everyone. It's a win-win agreement that enriches the learning experience of the students.