



**VyOS**  
Networks



**Universidad  
Camilo José Cela**  
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# **UCJC Brings Real-World Networking Labs to IT and Telecommunications Education with VyOS**

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## Customer Overview

Universidad Camilo José Cela (UCJC) is a private university in Spain offering degree programs in IT and Telecommunications. As UCJC continues to strengthen its technical curriculum, the university has been focused on providing students with hands-on experience in real networking environments.

To modernize its networking labs and move beyond the limitations of traditional academic simulators, UCJC adopted VyOS as the foundation for practical routing and cybersecurity training.

UCJC is also part of the VyOS for Good program, which supports educational institutions with free access to VyOS software.

## The Challenge

Networking education often begins with simulation tools, but these environments can become restrictive as students progress toward professional-level scenarios.

UCJC needed a platform that would allow students to:

- **Work with realistic routing and network configurations**
- **Practice using operational commands and protocols found in enterprise networks**
- **Build larger lab topologies without licensing barriers**
- **Gain experience closer to what they will encounter in real-world network operations**

As José Manuel, full-time professor at UCJC, explains:

*"Packet Tracer is useful, but you quickly hit limitations. Commands don't work, features aren't fully implemented, and it doesn't reflect real operational environments."*

## Why VyOS

VyOS stood out as an ideal solution for academic networking because it provides a real network operating system that is both accessible and flexible for teaching environments.

Key reasons UCJC selected VyOS included:

- **Real-world learning:** Students can work with an enterprise-grade routing platform, not a simplified simulator
- **Virtualization-friendly deployment:** VyOS runs efficiently in virtual machines, making it practical for classroom labs
- **Freedom and flexibility:** Institutions can avoid vendor lock-in and licensing constraints
- **Strong educational fit:** VyOS enables students to build professional network scenarios from the beginning

José Manuel highlights the difference:

*"With VyOS, you can actually face a real router. That's the key for someone who wants to truly learn how networks work."*

## Implementation

UCJC introduced VyOS into practical lab exercises across its IT and Telecommunications curriculum.

Initial lab work included:

- **Deploying multi-router network topologies in virtual environments**
- **Configuring routing protocols such as RIP**
- **Building client-server edge scenarios to simulate enterprise networks**
- **Capturing and validating network behavior using tools like Wireshark**

VyOS also enabled UCJC to provide students with a more realistic operational experience, including direct interaction with a Linux-based network OS.

## Results

By adopting VyOS, UCJC achieved immediate improvements in both teaching quality and lab realism.

Key outcomes included:

- **More realistic networking education:** Students practiced on real configurations and protocol behavior
- **Higher engagement:** Labs were described as significantly more interesting than simulator-based exercises
- **Greater scalability:** Faculty can build larger topologies without vendor licensing limits
- **Accessible infrastructure:** VyOS allows credible network labs to be deployed on standard academic hardware

## Educational Impact

VyOS enabled UCJC to shift networking education from theoretical instruction to operational practice.

The university can now demonstrate concepts such as:

- **Routing convergence and protocol behavior**
- **Infrastructure-level cybersecurity foundations**
- **Multi-vendor thinking and modern network design principles**



José Manuel also emphasized the broader value of infrastructure-focused learning:

*“Most cybersecurity training focuses only on endpoints. But real attacks involve network infrastructure, and that layer is rarely taught.”*

## Looking Ahead

UCJC and VyOS are exploring continued collaboration in several areas:

- **Entry-level certification pathways aligned with academic programs**
- **Guided lab content designed for structured learning outcomes**
- **Expanded networking and cybersecurity infrastructure scenarios for future courses**

VyOS will continue to play a key role in helping UCJC provide students with real-world networking skills and modern infrastructure training.



*Packet Tracer has limitations. With VyOS, students can face a real router, and that makes all the difference for learning how networks actually work.*

– José Manuel, Professor, UCJC - Computer Technology, Computer Networks, and Network & Application Cybersecurity