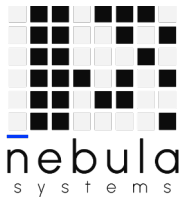




**VyOS**  
Networks



**/** VYOS SUCCESS STORY

# **Powering Agile Cloud Networks: How Nebula Systems Builds Redundant Infrastructure with VyOS**

JULY 2025

## Customer Overview

**Nebula Systems Sdn Bhd** is a Malaysian cloud infrastructure and managed services provider. With a presence across Malaysia and regional ambitions, Nebula offers a comprehensive portfolio of cloud solutions, including Infrastructure-as-a-Service (IaaS), S3-compatible storage, backups, disaster recovery, and internet connectivity. Their customers range from enterprise clients to telecom operators and service providers.

The team behind Nebula has always believed in building around open standards and tools that offer both flexibility and control—principles that led them to VyOS.

## Challenge

As Nebula expanded its offerings, the complexity and expectations placed on their networking stack also grew. They needed a solution that would:

- Support both **edge and core routing roles**, with seamless BGP-based peering
- Enable **resilient and redundant gateway designs** using VRRP and other HA mechanisms
- Maintain **operational control and visibility**, even during upgrades and transitions
- Integrate well with **automation and monitoring systems**
- Provide a **low-overhead CLI-based workflow** to suit a lean engineering team

Their existing dual-router design encountered limitations during growth, prompting a full network redesign and upgrade.



## Why VyOS?

VyOS was already embedded in their workflow when Hanis Irfan joined as Cloud Infrastructure Engineer. But as Nebula evolved, the platform continued to prove its value—technically and operationally.

- **Intuitive CLI:** Similar to Juniper and Cisco, VyOS's configuration syntax made onboarding easier while offering clear rollback and change comparison via its commit-confirm model.
- **Community & Support:** Whether through forums or direct support, the responsiveness of the VyOS community helped Hanis's team rapidly resolve questions during deployment.
- **Protocol Support:** From BGP and VRF to advanced security practices like RPKI (currently under evaluation), VyOS offered the flexibility they needed.
- **Transparent and Open:** Being open source aligned with Nebula's commitment to avoiding vendor lock-in and enabling more tailored implementations.



## Implementation

VyOS is currently deployed in both **edge and core environments** across Nebula's infrastructure. It provides:

- **Stable BGP peering** to upstream ISPs and customer networks
- **Redundant routing** using protocols like VRRP
- **Custom monitoring and performance visibility** using integrated tools
- **Lab and staging support** for continuous testing of changes before production rollouts

Hanis and his team use VyOS as part of their network redesign, ensuring future scalability and easier rollout of automated processes.

## Real-World Reliability

Hanis cited the **commit-confirm model** as a standout feature, allowing their engineers to avoid accidental misconfiguration and giving them time to validate changes before finalizing.

Beyond infrastructure, Hanis also used VyOS to support a **networking workshop** at a Malaysian government technical college—introducing students to BGP and OSPF using VyOS virtual routers. This reflects Nebula's commitment to both operational excellence and community engagement.

## Results

- **Redundant and scalable routing infrastructure** with VyOS at both edge and core
- **High operational confidence** thanks to a powerful commit-check workflow
- **Effective knowledge transfer** in training and community programs
- **Open design and roadmap flexibility**, free from vendor lock-in

## Looking Ahead

Nebula continues to refine its VyOS-based infrastructure as it moves toward full-scale automation and tighter integration with Terraform, Ansible, and real-time monitoring systems.

Their network engineers are also exploring VyOS container use cases and deeper routing policy controls to support multi-tenant services more efficiently.



## Conclusion

For Nebula Systems, VyOS is more than a router—it's a trusted foundation for building and evolving a modern, flexible cloud network. Its open design, strong community support, and consistent performance make it a powerful choice for teams seeking control without complexity.



*VyOS gives us both flexibility and predictability. It keeps us agile while letting us scale—without locking us into one way of doing things.*

— Hanis Irfan, Cloud Infrastructure Engineer, Nebula Systems Sdn Bhd

