



VyOS
Networks

IONOS

/ VYOS SUCCESS STORY

IONOS Builds a distributed and scalable High-Performance networks with VyOS

MAY 2025

Customer Overview

IONOS, one of Europe's leading hosting and cloud infrastructure providers, transformed its Bare Metal platform with VyOS to support a highly distributed, scalable, and efficient network architecture. With a large number of VyOS instances in production, the IONOS network team achieved high throughput, reduced risk domain, and a cost effective path to future growth.

The Challenge

IONOS required a scalable infrastructure with a limited and controlled risk and impact domain. The conventionally used centralised network architecture presented several inherent drawbacks. The concentration of critical functions at central nodes created considerable risk of service interruption in the event of hardware or software failure. Furthermore, scalability was costly and complex and not without inherent risk.

As demand for services increased, it became apparent that the only way to meet this demand was to scale up. This scaling up entailed significant investments in hardware and raised capital expenditure.

To address these challenges, the team sought a more distributed and resilient solution.

Exploring Alternatives

IONOS thoroughly evaluated a range of options, including traditional network appliances and open-source platforms. Open source solutions offered certain features, but lacked the required networking capabilities, scalability and flexibility for high-speed, complex networking.

In addition, the cost of proprietary solutions proved to be prohibitive, which had a negative effect on future scalability.

Following comprehensive research and testing, IONOS determined that VyOS was the optimal choice. This decision was made on the basis of its robust networking capabilities, flexible architecture, scalability options and elimination of licensing overhead.

Why VyOS?

- **Distributed Architecture Support:** Supports vertical scaling to increase throughput per cluster and horizontal scaling to enhance overall aggregate throughput. This approach minimizes the impact domain and associated risks —while maintaining a cost-efficient balance in both CAPEX and OPEX.
- **Cost Saving:** Proprietary licensing models can make operating a large number of instances financially unsustainable. VyOS offers the flexibility to scale out without the burden of per-instance licensing.



- **Advanced Network Services:** VyOS provides robust network capabilities, including dynamic routing, secure traffic handling, IPv6 stack, NAT...and provides access to an underlying Linux distribution for custom scripts and automation.
- **Scalability and Flexibility:** Its flexible architecture, decoupling software and hardware, ensures efficient performance and scalability across diverse physical and virtual environments without being tied to specific HW.

Results

- **Scalable Infrastructure:**
Implemented a large amount of VyOS instances across distributed architecture, ensuring a highly resilient and redundant infrastructure **capable of dynamically** scaling to meet growing demands.
- **Performance Gains:**
VyOS achieved speeds of **hundreds of Gbps on an aggregated basis**, achieving a peak throughput **per cluster of 20 Gbps and 1.5 million packets** per second (PPS), demonstrating the ability of VyOS to handle high-performance workloads.
- **Reduced Operational Risk:**
Transitioned from a traditional centralized architecture to a **fault-tolerant, distributed model**, significantly enhancing **system reliability** and minimizing the risk of service disruption. This shift ensures that the infrastructure is resilient to failures and can maintain high availability in complex environments.
- **Cost Savings:**
By adopting VyOS, the organization successfully **eliminated the licensing overhead** associated with traditional vendors, driving **significant cost savings**.



"VyOS gave us the freedom to build a resilient, distributed network without sacrificing performance or control. We can scale to hundreds of nodes efficiently and securely."

– Tomás Montero, Head of Hosting Network Services at IONOS

Future Plans with VyOS

IONOS will continue investing in VyOS as a foundational network element, with plans to adopt VPP (Vector Packet Processing) in version 1.5 for greater throughput and efficiency. The team is also exploring deeper integration with orchestration frameworks and additional load balancing technologies.



About IONOS

IONOS is a global leader in web hosting, cloud infrastructure, and digital services for businesses of all sizes. With a strong presence across international markets, IONOS supports millions of customers worldwide by providing reliable, scalable, and secure platforms designed to meet the diverse demands of developers, enterprises, and service providers.

From cloud servers and managed hosting to domain services and productivity tools, IONOS combines cutting-edge technology with personalized customer support to empower digital success. Their commitment to performance, data sovereignty, and sustainability makes them a trusted partner for businesses navigating digital transformation

