



VyOS
Networks



cloud-init



/ SOLUTION BRIEF

VYOS AUTOMATION WITH CLOUD-INIT

Overview

Modern IT and network environments **demand speed, consistency, and automation**. Deploying routers, firewalls, or VPN gateways manually no longer scales in multi-cloud or hybrid infrastructures.

Cloud-Init, the industry standard for cloud instance initialization, paired with VyOS, an open-source and automation-friendly network operating system, delivers a powerful framework for **automated Day-0 and Day-1 network provisioning**.

Together, they enable enterprises to deploy fully configured network devices in minutes, consistently, securely, and at scale.

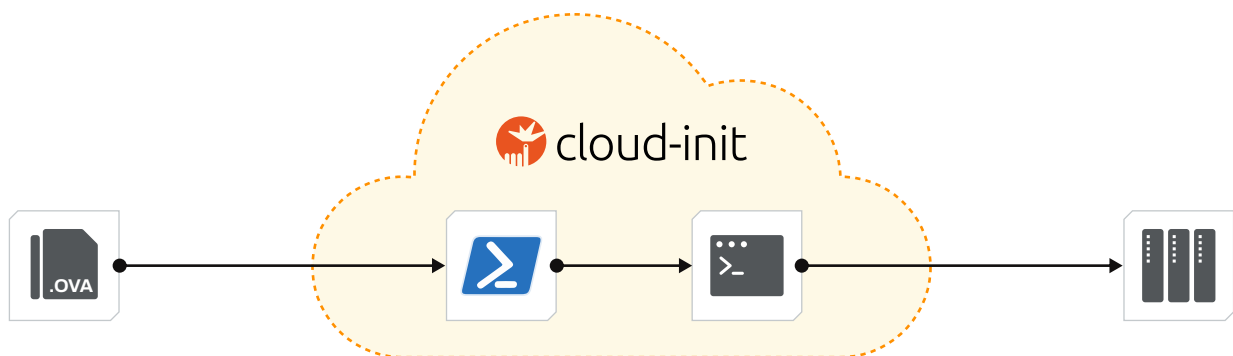
Cloud-Init for Network Automation with VyOS

Cloud-Init is a widely adopted, open-source tool that automates the configuration of cloud instances at first boot.

It allows administrators and DevOps teams to define **networking, users, SSH keys, and services** using simple YAML-based configuration files. When a new VM or instance launches, Cloud-Init automatically applies these parameters, eliminating the need for manual setup.

Key Capabilities:

- **Automated initialization:** Configure network interfaces, routing, VPNs, and firewalls during instance boot.
- **Multi-cloud compatibility:** Works seamlessly across **AWS, Azure, GCP, and private clouds**.
- **Consistency at scale:** Ensures identical configurations across hundreds of instances.
- **Integration ready:** Natively integrates with Terraform, Ansible, and Kubernetes for full lifecycle automation.

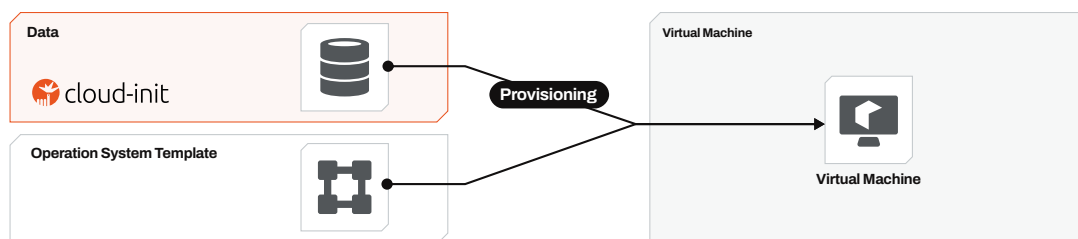


How Cloud-Init Works

Cloud-Init operates through a simple, declarative workflow:

1. **Define:** Create a YAML configuration file specifying users, SSH keys, networking, and services.
2. **Boot:** When a VyOS instance starts, Cloud-Init retrieves and applies the configuration automatically.
3. **Ready to Use:** Within minutes, the instance becomes a fully functional router, firewall, or VPN gateway, ready for production.

This model ensures that every deployment starts from a known, validated baseline, improving reliability and reducing human error.



Advantages of Using Cloud-Init with VyOS

Combining **Cloud-Init** with **VyOS** creates a flexible, cloud-native automation environment where infrastructure teams can deploy and scale network services quickly and predictably.

Key Capabilities:



Faster provisioning

Spin up fully configured VyOS routers in minutes across any cloud or virtual platform.



Consistent deployments

Guarantee uniform configurations across all environments.



Scalability

Launch and configure hundreds of VyOS instances simultaneously.



Configuration as code

Store initialization files in version control for repeatable, auditable automation.



Future-proof automation

Integrate seamlessly with Terraform, Ansible, and CI/CD pipelines for continuous network delivery.

Use Cases

- **Rapid deployment** of branch or edge routers across multi-cloud environments.
- **Auto-provisioning** of VPN gateways or firewalls during disaster recovery or scaling events.
- **Standardized testing** environments for network automation and validation pipelines.
- **Hybrid cloud orchestration** where VyOS runs consistently across on-prem and public clouds.

Conclusion

The combination of **VyOS** and **Cloud-Init** provides a unified, open, and automation-driven approach to network deployment and management.

By leveraging Cloud-Init's simplicity and VyOS's rich networking capabilities, enterprises can achieve **agile, repeatable, and scalable** network operations, accelerating service delivery while maintaining security and consistency across any environment.