

Network Automation on GNS3: Terraform-Driven Topologies with Ansible

From Manual Drag-and-Drop to
Declarative Infrastructure as Code

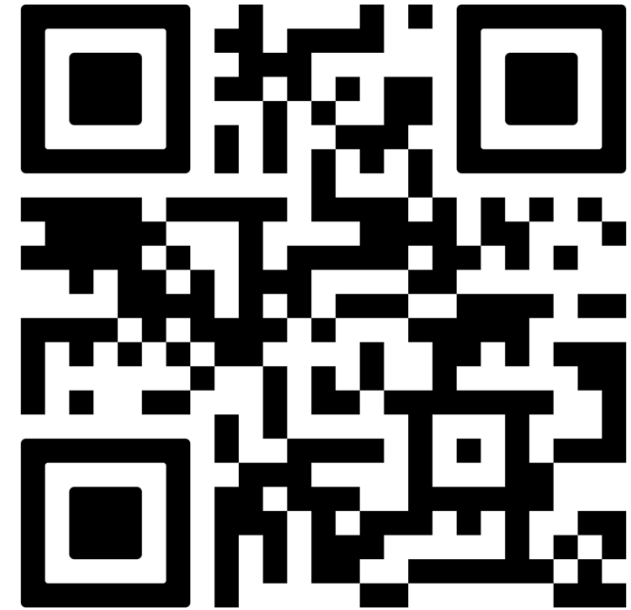
Presented by: Uzma Saman Chanderki,
NetDevOps Engineer.



ABOUT ME

Uzma Saman Chanderki

- NetDevOps Engineer | Logicalis Connected GmbH
- Experience: 6 Years at the intersection of Networking & Automation.
- **CCNA, CCNP SCOR, AWS**, and Certified Kubernetes Administrator (CKA).
- The Toolkit: * Orchestration: Terraform & Ansible.
- Cloud Native: Kubernetes, Cilium, and Microservices.
- Multi-Vendor: Cisco, Juniper, and Open Source.
- Community: Active contributor to the NetDevOps ecosystem and Infrastructure as Code initiatives.



<https://github.com/NetOpsChic/>

- ▶ **Introduction to the tool chain**
- ▶ **Terraform Provider for GNS3**
- ▶ **Demo**
- ▶ **Conclusion**

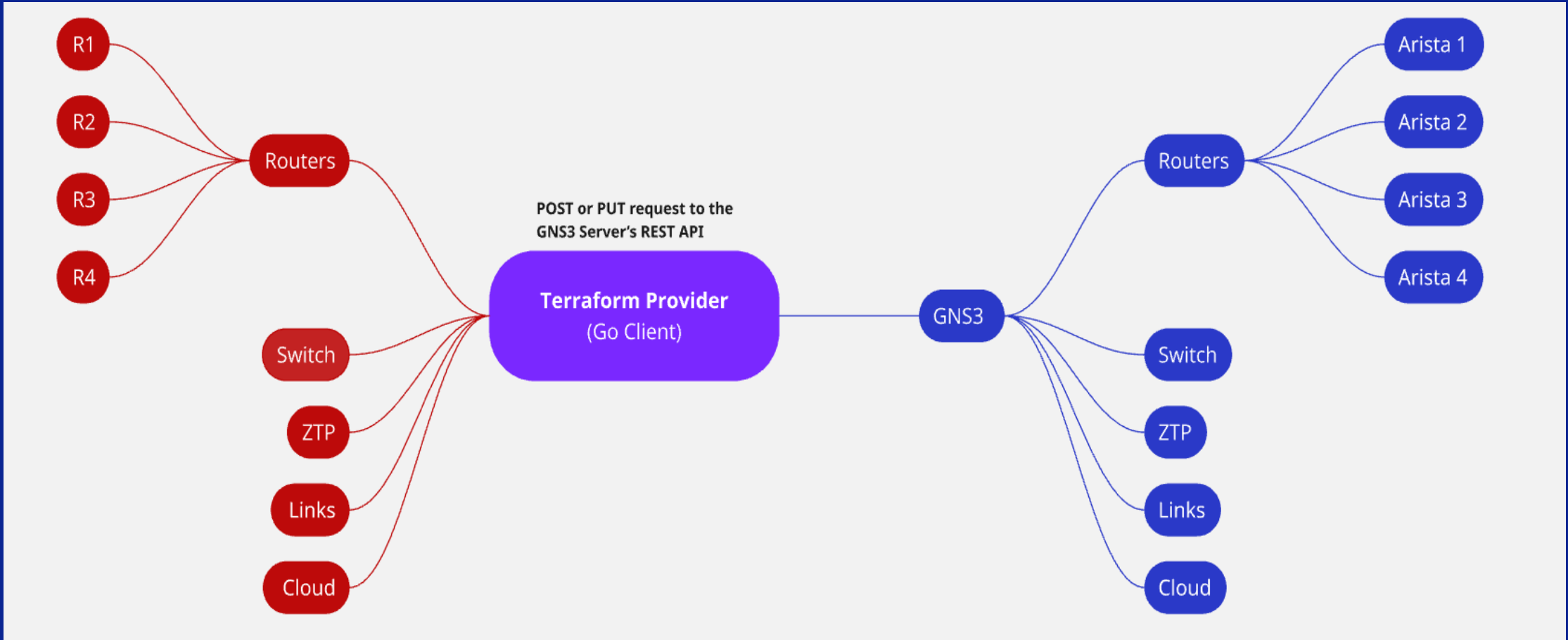
Introduction & The "Manual" Pain

- Drag-and-drop GNS3 is great for learning, but painful for scaling.
- **The Problem:** Recreating complex topologies for testing is slow, inconsistent, and "un-versionable."
- **The Goal:** A "Push-Button" lab that builds the network *and* configures the devices.

The Modern Toolchain: Why These Three?

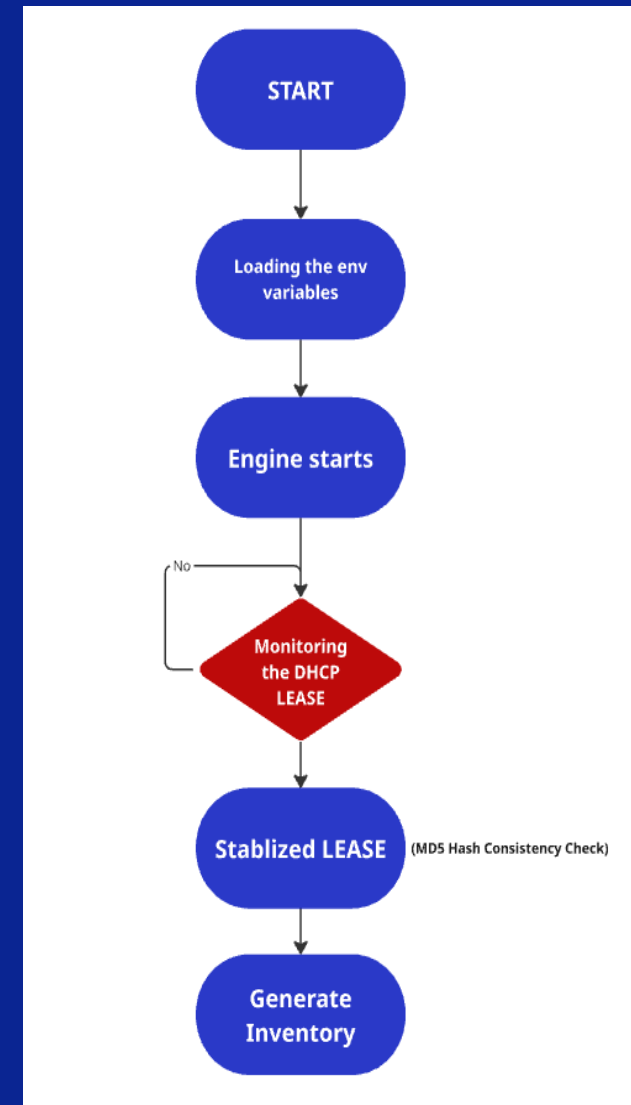
- **GNS3:** The reliable execution environment (Virtualization).
- **Terraform:** The architect. It handles the **Lifecycle** (Nodes and Links).
- **ZTP:** For day 0 configuration
- **Ansible:** The operator. It handles the **Day-1 Config** (IPs, BGP, SNMP).

Under the Hood: The GNS3 Terraform Provider



Bridging the Gap: Terraform -> Ansible

- **The Handover:** How does Ansible find the nodes?
- **Solution:** Zero Touch Provisioner



Ansible: Bringing the "Metal" to Life

```
---
- name: "Day-1 Configuration for GNS3 Lab"
  hosts: all
  gather_facts: no
  connection: network_cli

  tasks:
    - name: "Set Hostname and Basic Interface"
      cisco.ios.ios_config:
        lines:
          - hostname {{ inventory_hostname }}
          - interface GigabitEthernet0/0
          - description Management Link
          - ip address {{ mgmt_ip }} 255.255.255.0
          - no shutdown

    - name: "Enable OSPF for Fabric Reachability"
      cisco.ios.ios_ospf_interfaces:
        config:
          - name: GigabitEthernet0/1
            address_family:
              - af: ipv4
            process:
              - id: 1
                area: 0
```



Demo: 0 to OSPF

Conclusion

- Still needs some improvement to add support for terraform refresh to tackle drift
- A good start for Network Automation beginner
- Contribution are welcomed!



<https://github.com/NetOpsChic/terraform-provider-gns3>

NetAuto Group Meetup: Episode 6, 9 April 2026.



- **Registration form on the website!**
- **Location: Logicalis GmbH, Neu Isenberg.**

Thank You and Have a Great Day!

Let's stay connected!



de.logicalis.com



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