

The Network Automation Map

Navigate Your Journey with the
NAF Automation Framework

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About Us

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Introduction



Modern networks demand automation that teams can trust, understand, and safely evolve.



Yet, it's still overly complicated for most organizations

Building it is hard, maintaining it is almost impossible



The pattern we keep seeing

Rebuild from scratch

Teams keep recreating the same building blocks—data models, pipelines, integrations


Learn the hard way

Most “best practices” are discovered through outages, drift, and painful rewrites instead of repeatable patterns.

No shared blueprint for what ‘good’ looks like

Without a common map, it’s hard to assess maturity, compare architectures, or even agree on what problem to solve first.






Multiple people from the NAF community got together to find a solution

It quickly turned into a working group with weekly meetings





This doesn't
make any sense!

माइ क्वला हैं!

On ne peut
pas faire ça!

هذا لا يعمل

နိ s 75 နိတံါ!

No es correcto!

خطن امام بصر

It was hard at first
Everyone was biased by their own tools and habits
Ironically, we were missing a shared lexicon





Collector

Orchestration

Intent

Executor

Presentation

The solution was to stop focusing on tools and focus on functional building blocks

Quickly, everyone started talking the same language





NAF

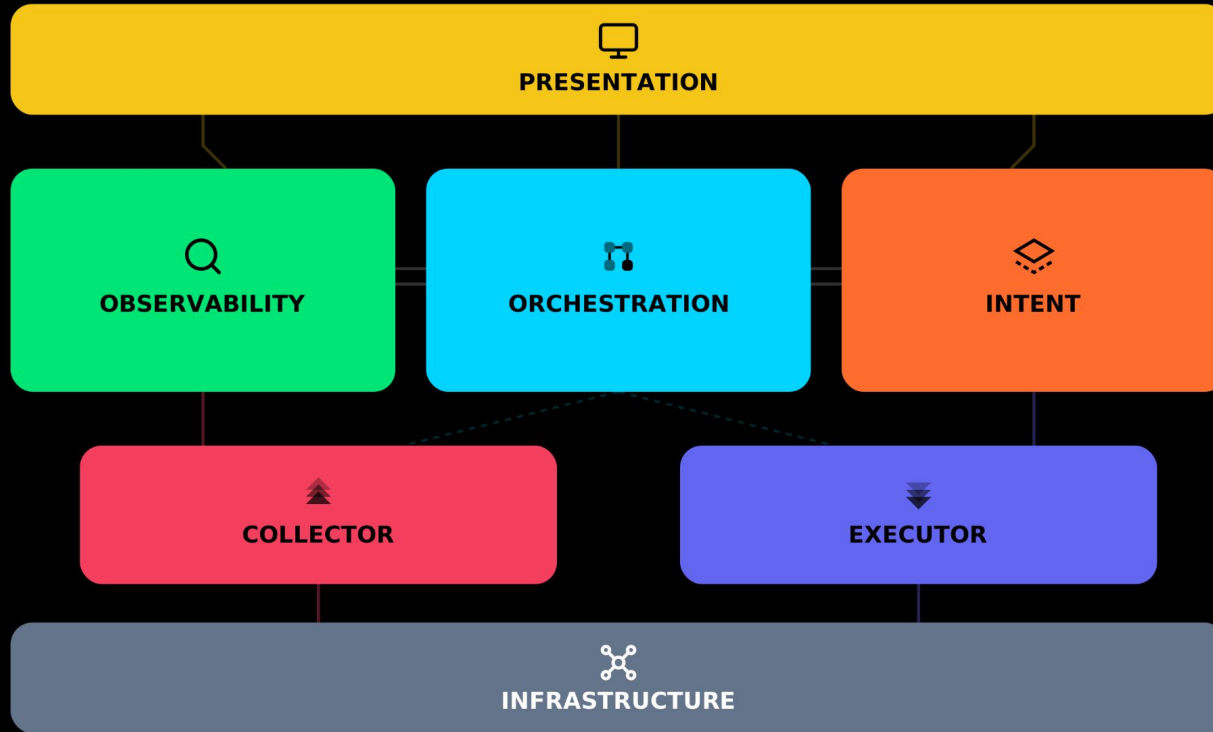
Automation

Framework

Simple building blocks that underpin any network automation framework

Not a reference architecture
— it's a shared vocabulary + responsibilities.

NAF Automation Framework



NAF Automation Framework Fundamentals

Functional Building Blocks

The NAF automation framework is meant to be tool agnostic to avoid comparing apple and orange.

Each functional building block can be mapped to one or more tools and each tool can map to multiple functional blocks.

Living Document Not a Protocol

The NAF automation framework is meant to evolve over time.

It's not a strict implementation that imposes a specific way of doing things and in many cases, not all components are required to get started.

Both for Beginners and Experts

The NAF automation framework initiative is focusing initially on laying out the main building blocks to lay the foundation.

In the future the goal is to go deeper into each block.



A map to help navigate the terminology and understand how things are related to each other



Presentation



Observability



Orchestration



Intent



Collector



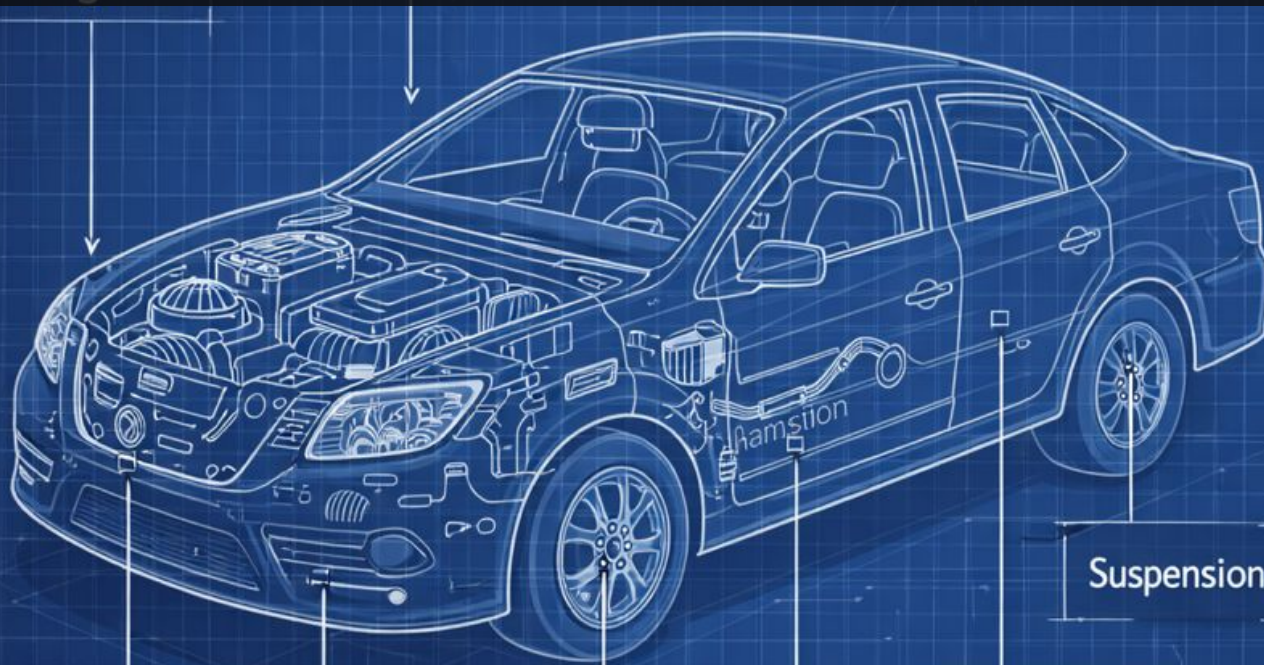
Executor



Infrastructure



A functional blueprint to help everyone understand and build Network Automation Stack (system thinking)



Battery

Chassis

Brakes

Suspension

Engine and transmission
that power the vehicle

Electrical System

Battery, wiring, and electronics

Safety

Airbags, seat belts, and crumple zones



Target Audience

Builders

Network Automation Engineer

Automation Architect

Software Engineer

Network Reliability Engineer

Users

Network Engineer

Network Ops

Network Architect

Engineering Manager

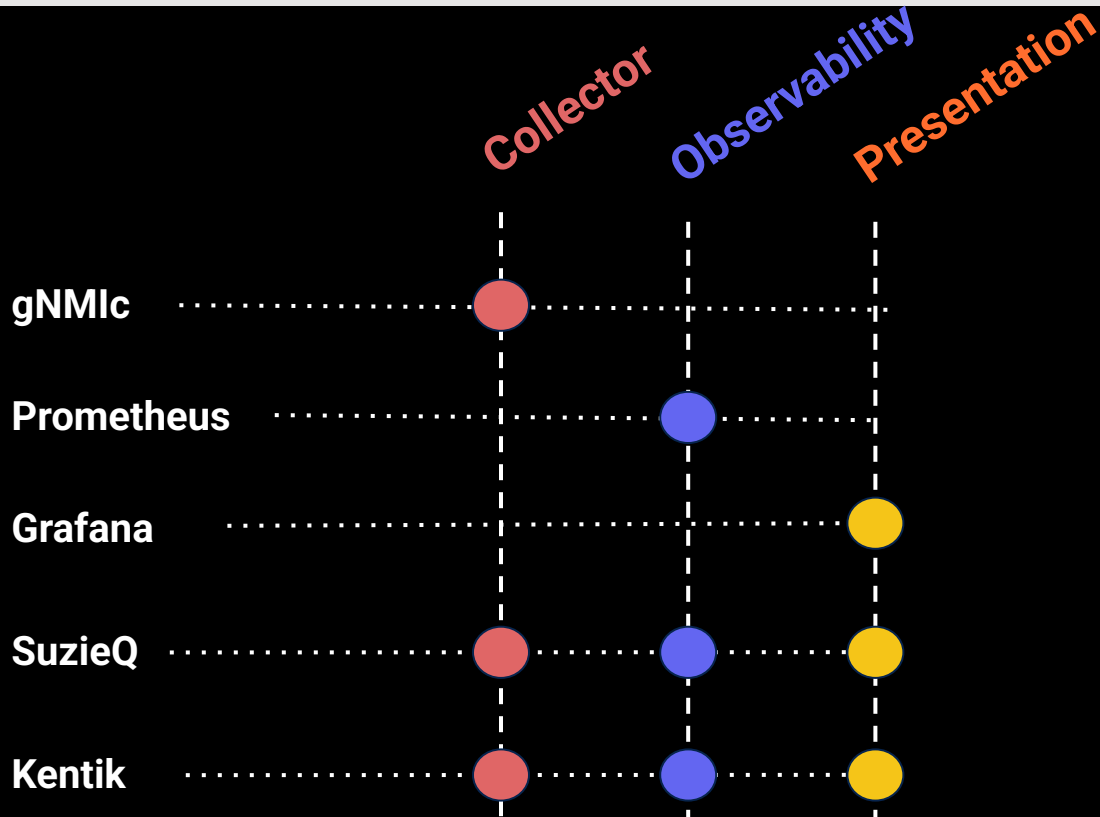




Wait, what about my tools ? Are they gone ?



Mapping between functional blocks and tools



Each tool / product / project
can map
Completely or **Partially**
to
One or **Multiple** blocks



Where do I start?

Do I need to implement all blocks to get started?

No, you should only implement what is required for your use case(s)

Is there a specific order to get started?

No, it really depends on your use case(s).



Ryan Shaw



Dinesh Dutt



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Claudia de Luna



Srividya Iyer



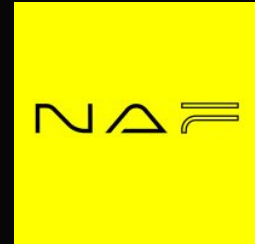
Wim Henderickx



Damien Garros



**The NAF
Community**



The Team behind the Working Group

Practical Example



Example

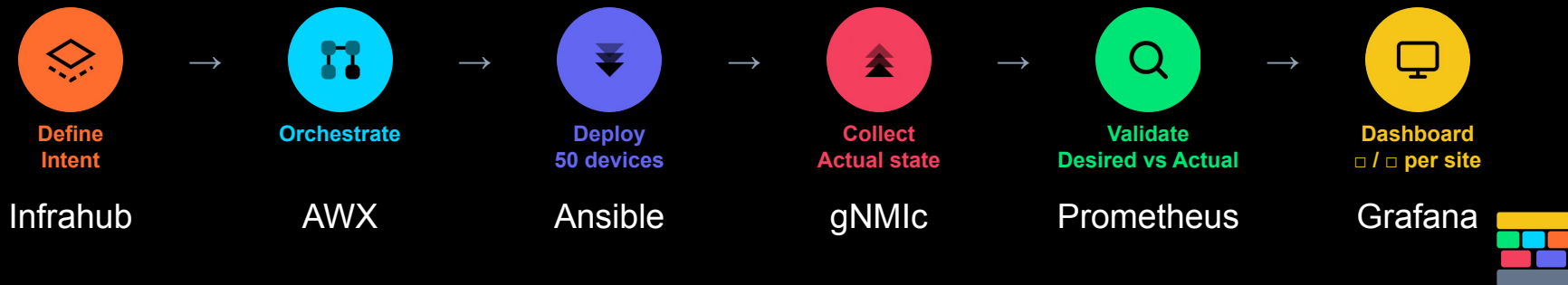
Roll Out a New Subnet Across 50 Sites

A practical example showing how the NAF building blocks work together to deploy, validate, and remediate a network change at scale.

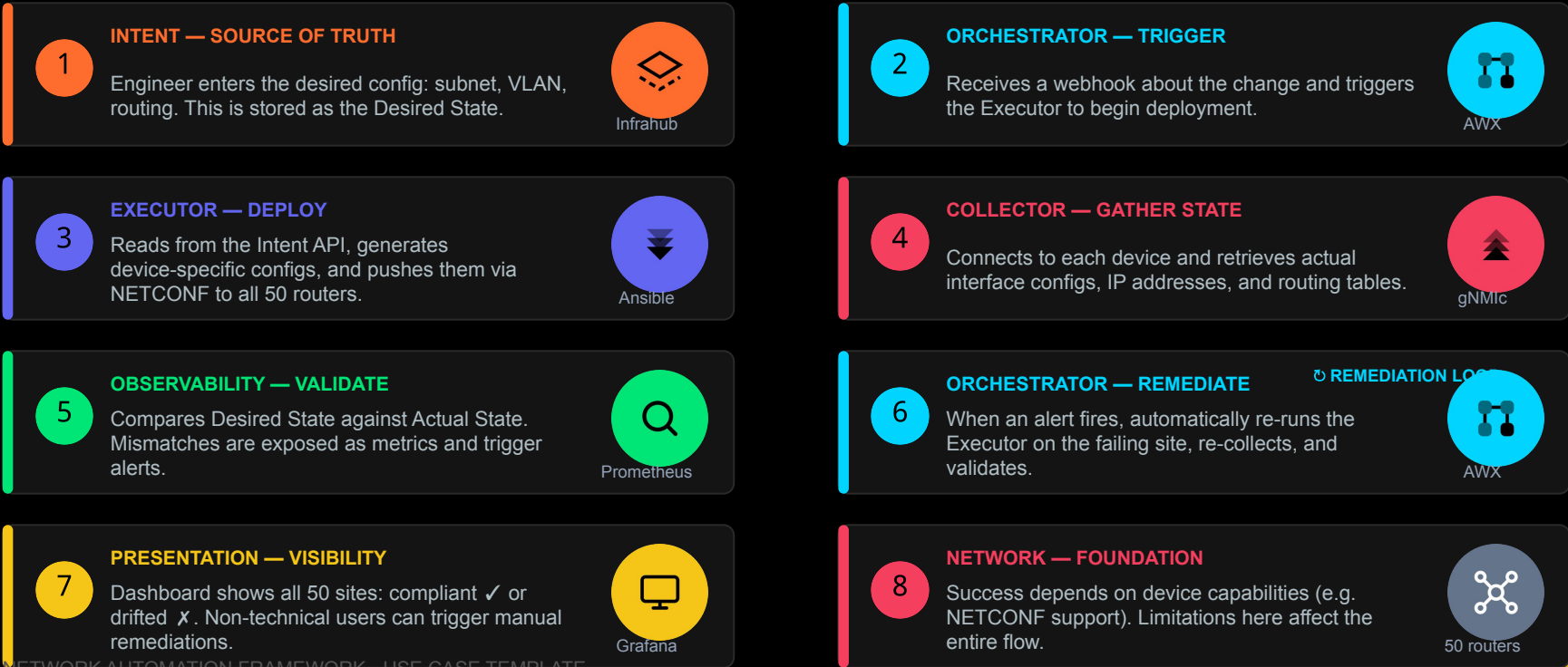
THE PROBLEM

Deploy a new subnet (**10.100.0.0/24**) across 50 branch sites, validate that it's working on every device, and automatically alert and remediate if any site falls out of compliance.

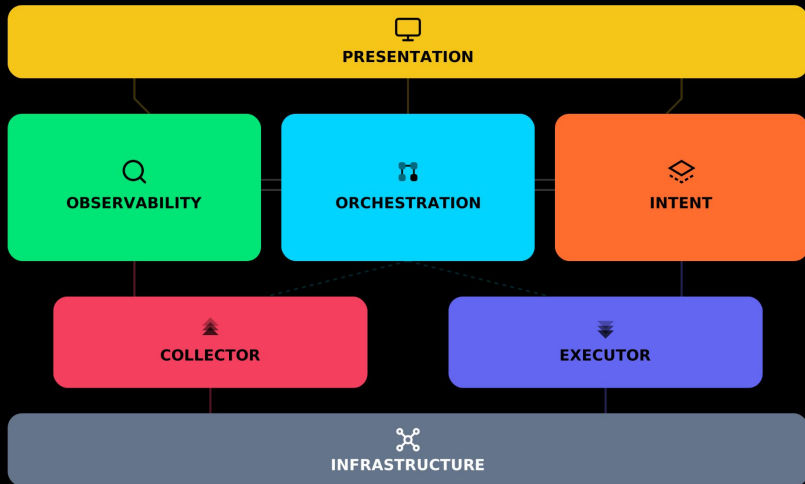
HIGH-LEVEL WORKFLOW



Example - Step-by-Step Workflow



Example - Mapping to the Framework



NFV Reference Architecture — Hittima



STEP 1 → INTENT · INFRAHUB

Engineer defines desired config — the single source of truth for what the network should look like.



STEPS 2, 6 → ORCHESTRATION · AWX

Coordinates the workflow: triggers deployment, handles alerts, and runs remediation loops.



STEP 3 → EXECUTOR · ANSIBLE

Generates and pushes device configs via NETCONF to all 50 sites.



STEP 4 → COLLECTOR · GNMIC

Reads the actual state from each device after deployment.



STEP 5 → OBSERVABILITY · PROMETHEUS

Compares desired vs. actual, exposes drift as metrics, triggers alerts.



STEP 7 → PRESENTATION · GRAFANA

Dashboard shows compliance status per site with drill-down.



Additional Resources



Additional Resources

Designing Network Automation at Scale

A comprehensive guide to designing scalable, reliable, and maintainable network automation systems

<https://designingnetworkautomation.com/>
By Christian Adell

NAF Network Automation Solution Wizard

This application helps you apply the Network Automation Forum's NAF to your automation projects.

<https://naf-naf-wizard.streamlit.app/>
By Claudia de Luna



Summary

- Not a standard, it's a guide
- You don't need everything to get started
- Think Automation as a system
- Focus on functional first, tools later
- Each tool can map to multiple building blocks
- Don't reinvent the wheel
- Map your existing workflow toward the framework
- Give us some honest feedback good and bad



How can you help

Use case document Github:

<https://github.com/Network-Automation-Forum/reference/blob/main/docs/Framework/Framework.md>

Tool mapping

Expand details per building block

NAF Slack channel:

<https://networkautomationfrm.slack.com/archives/C082G6VGZHP>



Questions ?



Thank You

