



# RELIABILITY

At the base of the NRE's hierarchy of needs is reliability. Reliability isn't the absence of errors, but rather putting them on a budget, using automation. The NRE understands separation of concerns, managing and measuring service-level reliability with data for dependents up and down the IT stack.

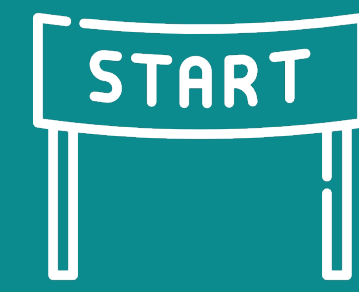
# ENGINEERING

Engaging in automation as engineering goes beyond APIs, code and tools. Network operations as engineering is continuously built, refined and automated on a pipeline of test-driven integrations that flow to staging and production deployment. Telemetry is analyzed into service indicators, while toil and errors are managed with automated workflows and continuous response.

# PRINCIPLES

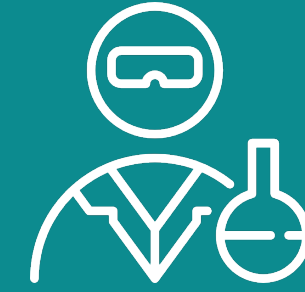


## GET GOING



Automating netops has a large barrier to entry if you don't have a lab. There are no downloads, hypervisors or cobbling together here. Get automating right away, all in your web browser.

## EXPERIMENT



Remove that protective eyewear used when trying something in production. NRE Labs is a safe place to experiment by trying various approaches to a solution, while still having guardrails and a learning path.

## LEARN FAST



Lessons break down into quick, short and simple labs that only take a few minutes or less. Progressive improvement is more fun and beats delayed perfection.

## REAL WORK



Learn by doing real work curated by fellow networkers. Lessons are based on real-life NetOps workflows and often include tools in the backend that you can take with you.

## ALL LEVELS



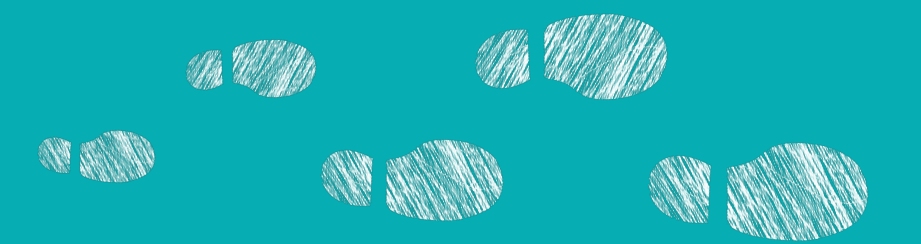
NRE Labs is built for all domains and all levels of network engineers. Regardless of experience level automating, you'll have a place to begin.

## OPEN



The platform and lessons powering NRE Labs are based on the Antidote open source project. Improvements and new lesson contributions are welcome.

# PATH



## MANUAL OPS

- NetOps at the device or system UI
- People are more technicians than technologists
- Caffeine-powered triage and midnight maintenance windows

## AUTOMATED WORKFLOWS

- Document tribal knowledge and automate NetOps processes / workflows
- Focus on frequent troubleshooting or read-only tasks before configuration management
- Lab learning by doing

## NETWORK AS CODE

- Connect actions to triggers and think test-driven
- Rethink troubleshooting as testing
- All code, configuration, artifacts are codified and can be tested

## CONTINUOUS PROCESSES

- CI-CD-CR
- Continuous pipeline automates accuracy and agility
- Fast feedback/fail, small changes, safe/canary deployments
- Automate analytics response for auto-regulation and remediation

## ENGINEERING OUTCOMES

- Use SRE/NRE outcomes with service-level objectives, indicators and agreements (SLO/SLI/SLA)
- Use error budgets and toil budgets
- Measure higher-order metrics to manage, but not necessarily maximize, reliability

# TECH

Caution: It's not what you use, it's how you use it

(examples found on the path above)

