

(container)labs gone nuts!

>>> **what is a digital twin?**

- a virtual representation of a physical object or system
- simulate, analyze, optimize the physical counterpart
- test new designs and configurations

>>> **what is test-driven development?**

- process "borrowed" from software development
- write tests before writing code/configuration
- tests are used to validate configs before deploying

>>> (short) introduction to containerlab

```
# grnog18.clab.yml

---
name: GRNOG18
topology:
  kinds:
    arista_ceos:
      image: ceos:4.32.1F

  nodes:
    rtr01:
      kind: arista_ceos
      startup-config: "configs/rtr01.cfg"
    rtr02:
      kind: arista_ceos
      startup-config: "configs/rtr02.cfg"

  links:
    - endpoints: ["rtr01:eth1", "rtr02:eth1"]
```

>>> deploy the topology

```
clab deploy -t grnog18.clab.yml
```

>>> destroy the topology

```
clab destroy -t grnog18.clab.yml
```

>>> (short) introduction to NUTS

>>> NUTS

- Network Unit Testing System
- express tests as YAML files
- execute tests using pytest
- uses Nornir inventory

```
---
clab-grnog18-ceos01:
  hostname: clab-grnog18-ceos01
  groups:
    - eos
clab-grnog18-ceos02:
  hostname: clab-grnog18-ceos02
  groups:
    - eos
```

```
# tests/test_lldp.yaml
---
- test_class: TestNapalmLldpNeighborsCount
  test_data:
    - groups: eos
      neighbor_count: 2
```

```
# tests/test_ping.yaml
---
- test_class: TestNapalmPing
  test_data:
    - host: clab-grnog18-ceos01
      destination: 10.10.10.2
      expected: SUCCESS
      max_drop: 1
    - host: clab-grnog18-ceos02
      destination: 10.10.10.1
      expected: SUCCESS
      max_drop: 1
```

>>> execute tests using pytest

```
pytest tests/*
```

>>> (short) demo time