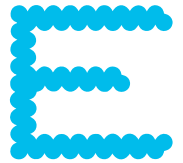
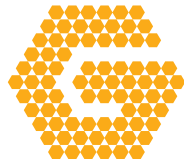
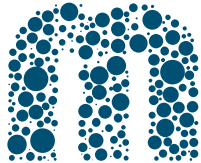


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# Automate Your Network with Nornir – Python Automation Framework

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Systems Engineer – Programmability



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# About me

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# Agenda

- What is Nornir
- Nornir vs other network automation tools
- Advantages and features
- Demo
- Wrap-up

# Nornir

Flexible and  
scalable network  
automation  
framework where all  
tasks are written in  
Python

*”I am not sure why they are reinventing  
Ansible”*

Me in 2018

*”I would like to help you maintain Nornir”*

Also me 9 months later

# Why not Ansible

- Tasks written in domain-specific language (DSL)
  - Programming in YAML?
- Troubleshooting and debugging playbooks is hard
- Poor architecture for local execution leading to scalability problems
- Poor developer experience
- CLI as the primary entrypoint, API was an afterthought



# Nornir advantages

- Provides an abstraction for **inventory** (hosts and groups) and concurrent **task execution**
- Everything in Python
  - Just another Python library to import
- Great flexibility and extensibility
- Very **fast** due to use of threads

## Nornir advantages (cont.)

- Re-uses existing libraries for the connections: netmiko, napalm
- Caches, re-uses and automatically closes opened connections
- Use any troubleshooting, debugging or testing tool from Python ecosystem
- Easy hosts filtering based on any attribute or combination of attributes
- Easy integration with other Python frameworks (Flask, Django, pytest)

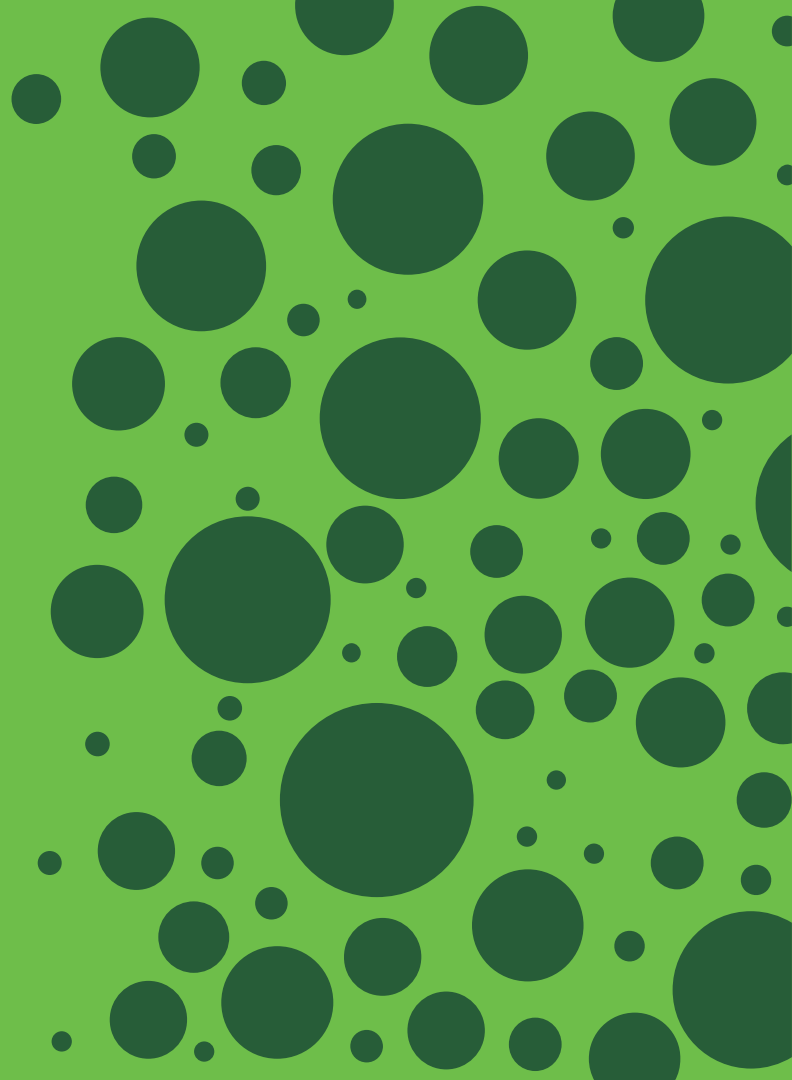
# Development focus

- Backwards compatibility
  - Semantic versioning is strictly followed
- Small codebase (4k lines of code) which is easy to maintain
- Modern tooling used with CI to improve code quality: linting, code style, static type checking, unit testing
- Detailed documentation
  - Even examples in tutorials are being automatically tested as part of CI

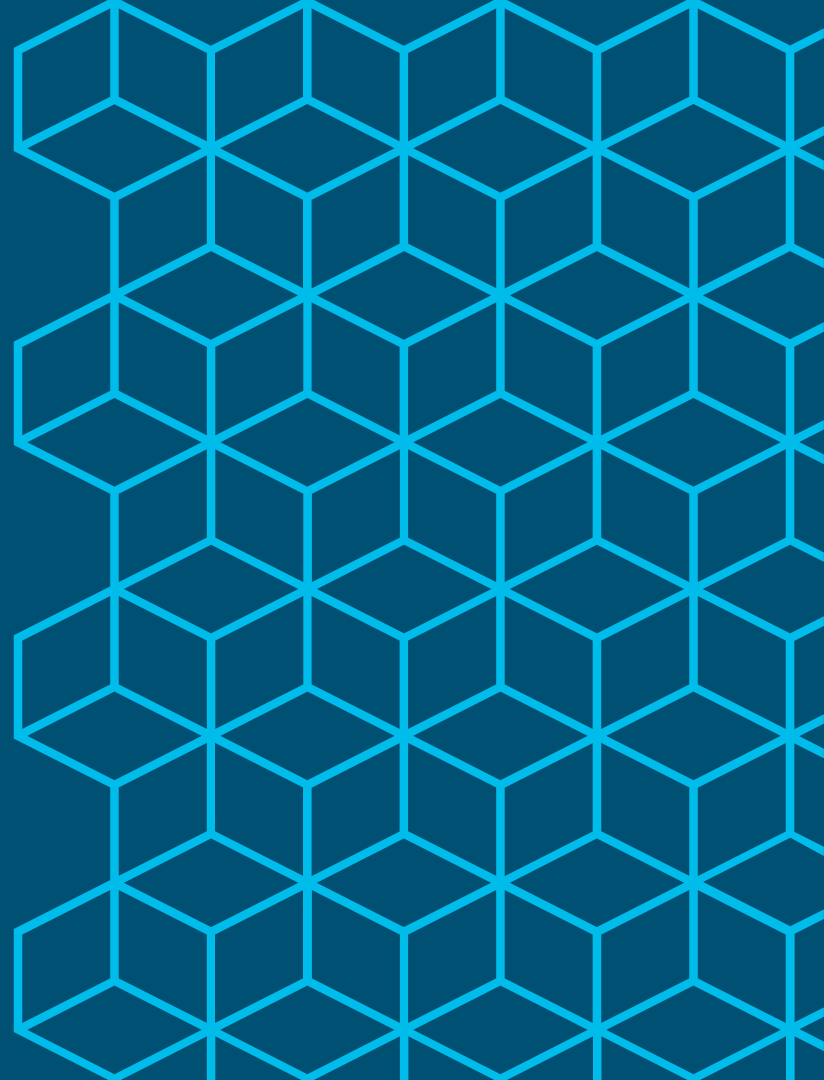
# Use-cases

- Run as a standalone script and print results to the console
- Integrate with a web framework
- Integrate with [pytest](#) for network testing

Demo



# Wrap-up



# Summary

- Nornir is a flexible multi-threaded Python network automation framework which abstracts inventory and task execution
- Everything is in Python so it's very easy to integrate with any other Python code

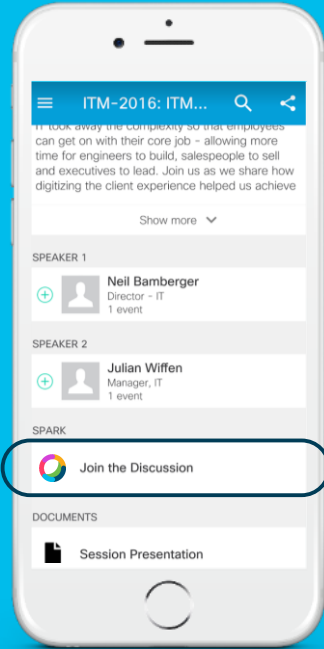
# Where to go next

- Nornir documentation: <https://nornir.readthedocs.io>
- Blog articles:
  - [Exploring Nornir](#) by Patrick Ogenstad
  - [Using Nornir for OS Upgrades](#) by Kirk Byers



# Where to get help

- Talk to the developer team at [Network To Code Slack](#), #nornir channel
- Open an issue on GitHub: <https://github.com/nornir-automation/nornir>



[cs.co/ciscolivebot#DEVWKS-2192](https://cs.co/ciscolivebot#DEVWKS-2192)

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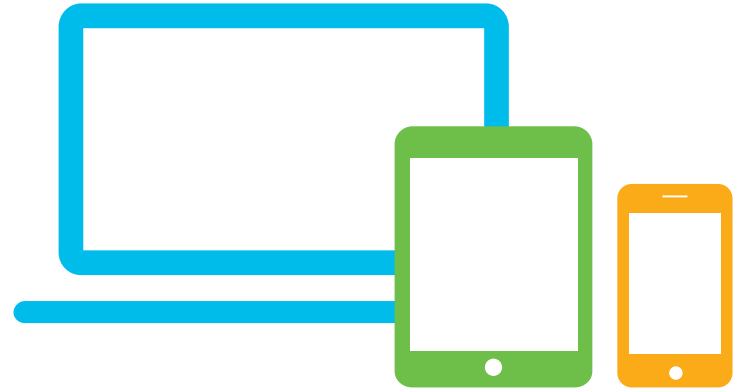
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