



You make **possible**



Automate your network with Nornir

Python automation framework

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DEVNET-2192

Cisco *live!*

June 9-13, 2019 • San Diego, CA

#CLUS



Cisco Webex Teams

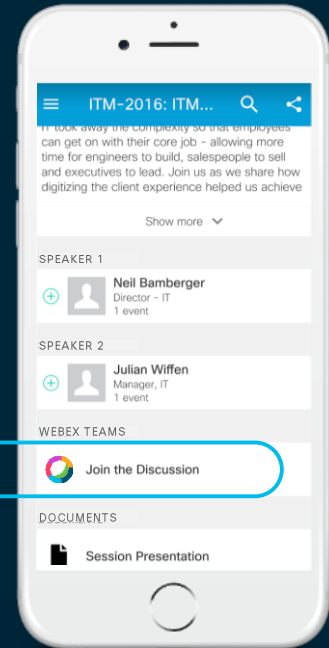
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Agenda

- What is Nornir
- Nornir vs Ansible
- Demo
- Summary

About me

-  @dmfigol
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*”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

Nornir

Flexible and
scalable network
automation
framework where
everything is done in
Python

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 entry point

Nornir advantages

- Provides an abstraction for [inventory](#) (hosts and groups) and concurrent [task execution](#)
- Everything in Python (or Golang, check out [Gornir](#))
 - 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)

”The more I work with Nornir; the more I like it.

The more I work with Ansible; the more I like Nornir”

Kirk Byers

Twin Bridges Technology

Development focus

- Small codebase (4k lines of code) which is easy to maintain
- Backwards compatibility
 - Semantic versioning is strictly followed
- 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 (print results, save to a file, etc.)
- Integrate with a web framework
- Integrate with [pytest](#) for network testing



Demo

<https://github.com/dmfigol/nornir-workshop>

Wrap-up



You make the power of data **possible**

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>
- [Using Nornir for OS Upgrades](#) by Kirk Byers
- Talk to the developer team on:
 - Our forum: <https://nornir.discourse.group/>
 - [Network To Code Slack](#), #nornir channel
- Open an issue on GitHub: <https://github.com/nornir-automation/nornir>

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