

NORNIR



FOR AD HOC CONFIGURATION & VERIFICATION

AGENDA

- ▶ What the heck is a Nornir?
- ▶ Nornir crash course in one whole slide
- ▶ What are we going to do? (hint: ad hoc configs and verification)
- ▶ Demo (please prepare demo sacrifices for me)
- ▶ Recap and some soapbox musing
- ▶ Resources - how can you try all of this out
- ▶ Questions? (anyone still awake?)

WHAT THE HECK IS A NORNIR?

- ▶ In Norse mythology, the Norns (pronounced like “norms” with an “n” instead of the “m”; [Old Norse Nornir](#)) are female beings who create and control [fate](#). This makes them the most terribly powerful entities in the [cosmos](#) – more so than even the gods, since the gods are subject to fate just like any and all other beings.
- ▶ Erm.... what?



WHAT THE HECK IS A NORNIR?



- ▶ Pure Python Automation Framework
 - ▶ No DSL (domain specific language) because it's just Python
 - ▶ Which means no "programming in YAML" (rejoice!)
 - ▶ Automagically handles concurrency for you
- ▶ Pluggable in nature
 - ▶ Plugins for different inventory types and tasks
- ▶ *cough* Ansible (for network stuff at least) but not Ansible... *cough*

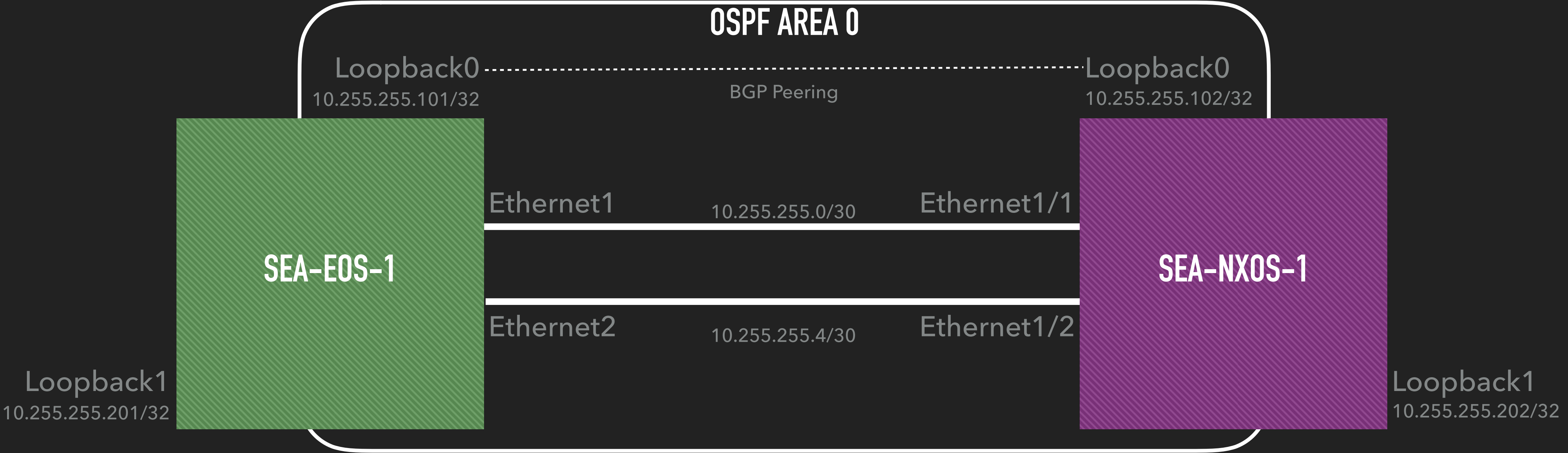
NORNIR CRASH COURSE

- ▶ Inventory: contains host(s), group(s), and data about your environment
- ▶ Task: something that runs against some subset of inventory
 - ▶ Ex: netmiko_send_command, napalm_configure, template_file
- ▶ Spawns a "worker" (Python thread) per host per task
- ▶ Net/net: run tasks against hosts you've selected, sounds familiar I think...?
 - ▶ ... *cough* Ansible (for network stuff at least) but not Ansible... *cough*

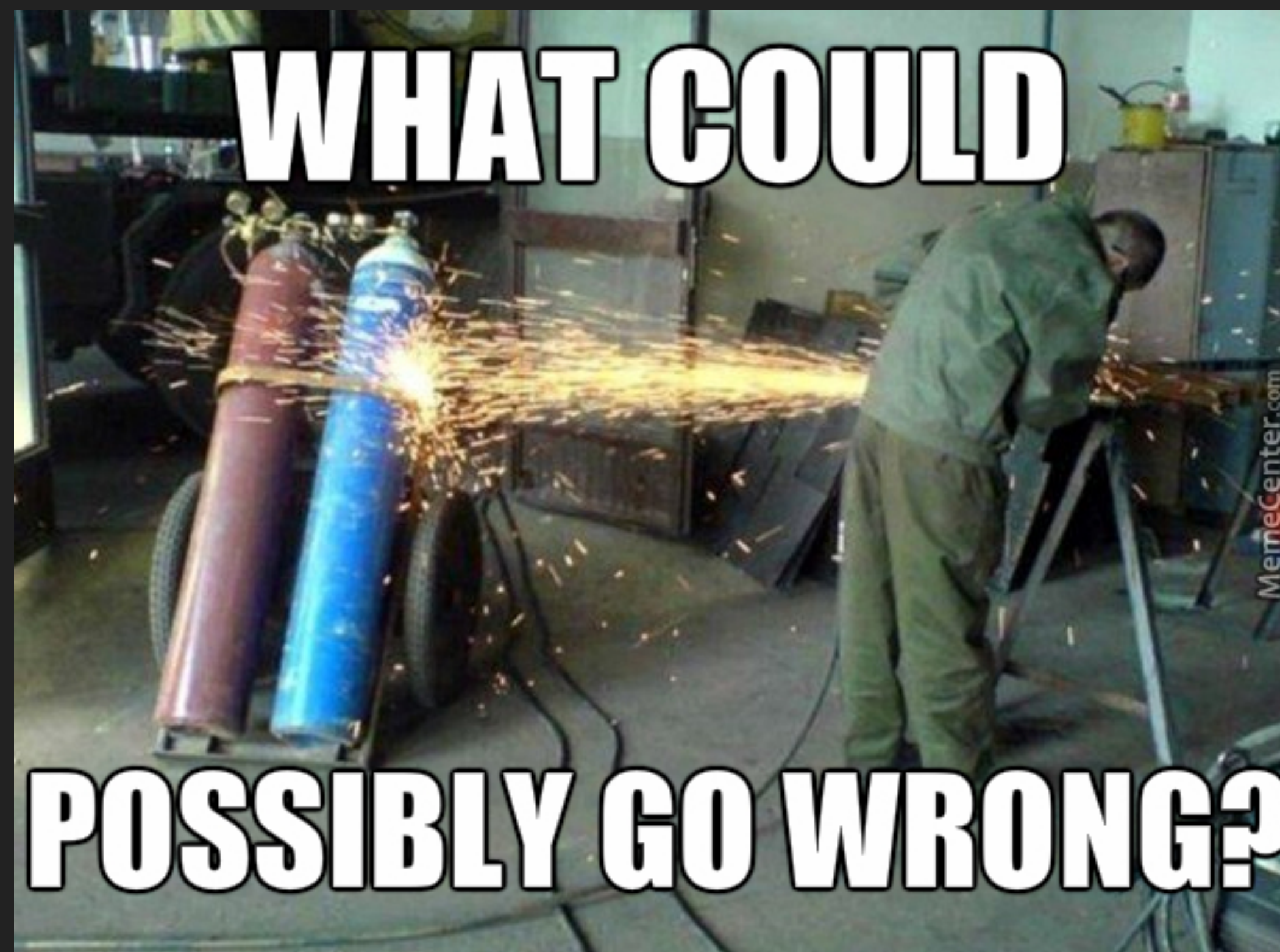
WHAT ARE WE GOING TO DO / WHAT ARE WE SOLVING?

- ▶ Implement Nornir in a fashion more conducive to ad-hoc tasks
- ▶ “Normal” Nornir operations involves filtering host(s)/group(s) in your Python script
- ▶ “Normal” Nornir operations involves running the entire script or having many smaller scripts
- ▶ Nornir+Nornsible provides ability to use cli args to manipulate inventory/task execution
 - ▶ Configure script to handle config and config related tasks (render config, push config, backup config, etc.)
 - ▶ Validation script to handle validation tasks (check reachability, OSPF/BGP peers, routes)
 - ▶ Both can be filtered to host(s)/group(s) or specific task(s) via cli args

DEMO TOPOLOGY



DEMO TIME



WHAT COULD

POSSIBLY GO WRONG?

RECAP/THOUGHTS

- ▶ Nornir is really flippin' cool, Nonrir+Nornsible provides a more familiar Ansible-y experience
- ▶ Network Automation is very much **not** just config management!
 - ▶ Automate top five tickets/tasks – or even just verification/validation for those
- ▶ Treat network devices like a “black box”
 - ▶ Don't manage things line-by-line! Replace configurations in place
- ▶ If you are the “network developer” try to make tools approachable and flexible for your team(s)

RESOURCES

- ▶ me!: @carlrmontanari
- ▶ demo/slides: https://github.com/carlrmontanari/sea_nwautomation_meetup_oct_2019
- ▶ nornir: <https://github.com/nornir-automation/nornir>
- ▶ nornsible: <https://github.com/carlrmontanari/nornsible>
- ▶ vrnetlab: <https://github.com/plajjan/vrnetlab>
- ▶ Pynet Slack: <https://bit.ly/2IlghN4>
- ▶ Pynet Website/Mailing List: <https://bit.ly/1Be95aQ>
- ▶ NetworktoCode Slack: <https://bit.ly/2kTelTh>



P Y T H O N
FOR NETWORK ENGINEERS

QUESTIONS?

