Case study: using Ansible to automate Network Operations

(by Yuri Kretov, Sr. Network Engineer)

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Ansible Project as...

- as Network Operations tool

- as s/w development project

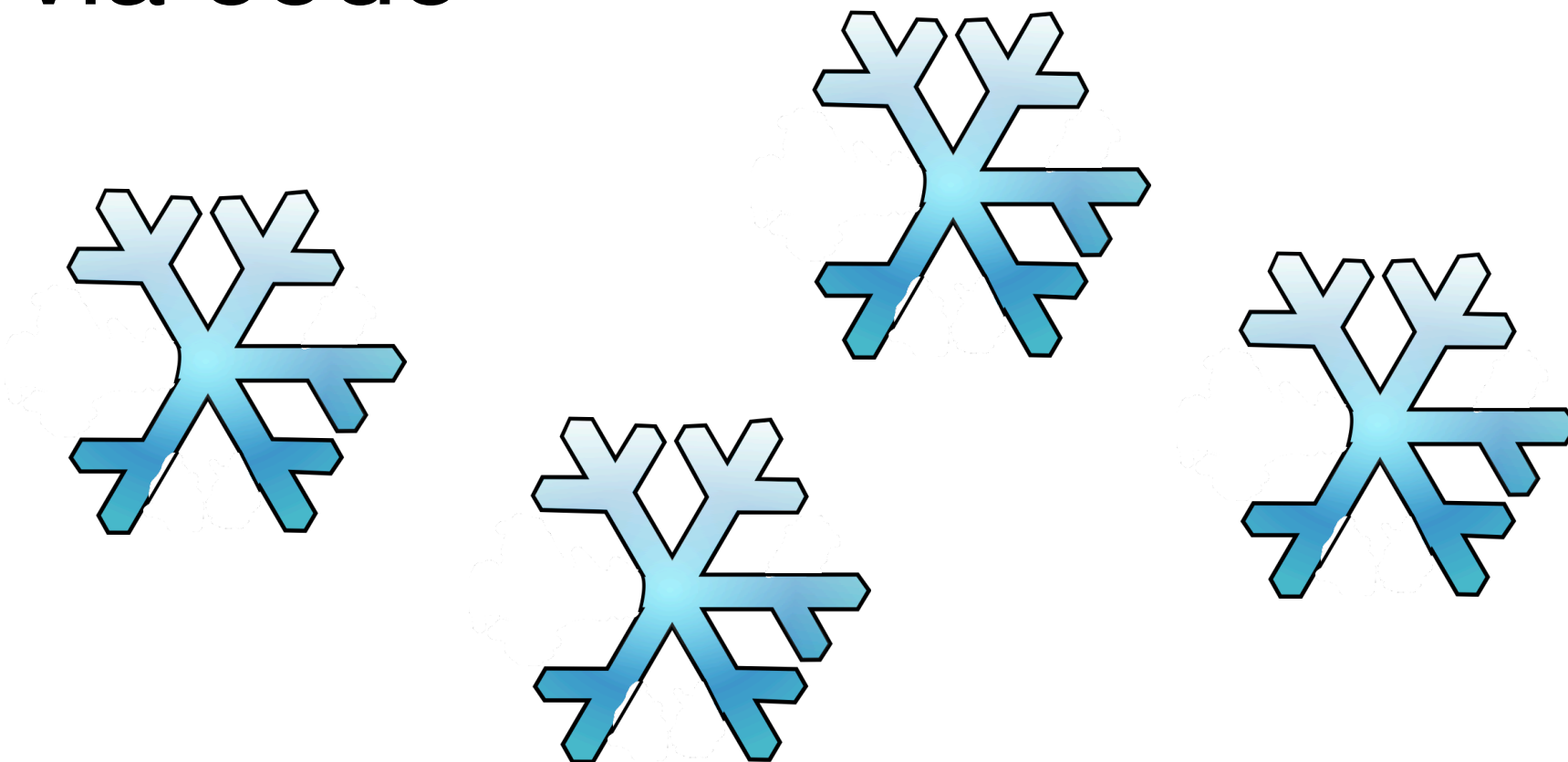- as a part of IT infrastructure

What makes a project successful?

Saving money:

- ~ 1h for new device to be fully provisioned

Quality & Consistency:

- reduces snow-flakiness

- predictability: same concept applied via code

Better security:

- all local passwords are under control

- critical updates pushed to a family of devices

- passwords encrypted in Ansible vault
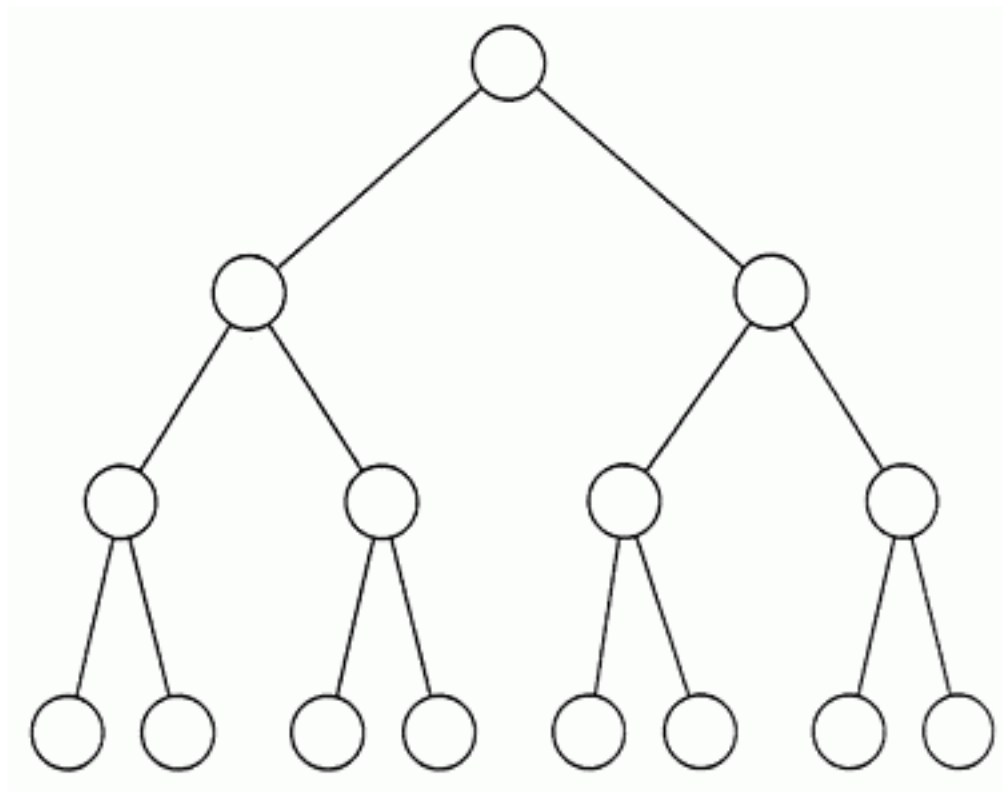
Better culture:

- changes history/versions (git)

- easier to review and approve

- promotes collaboration (other teams own parts of network configs)
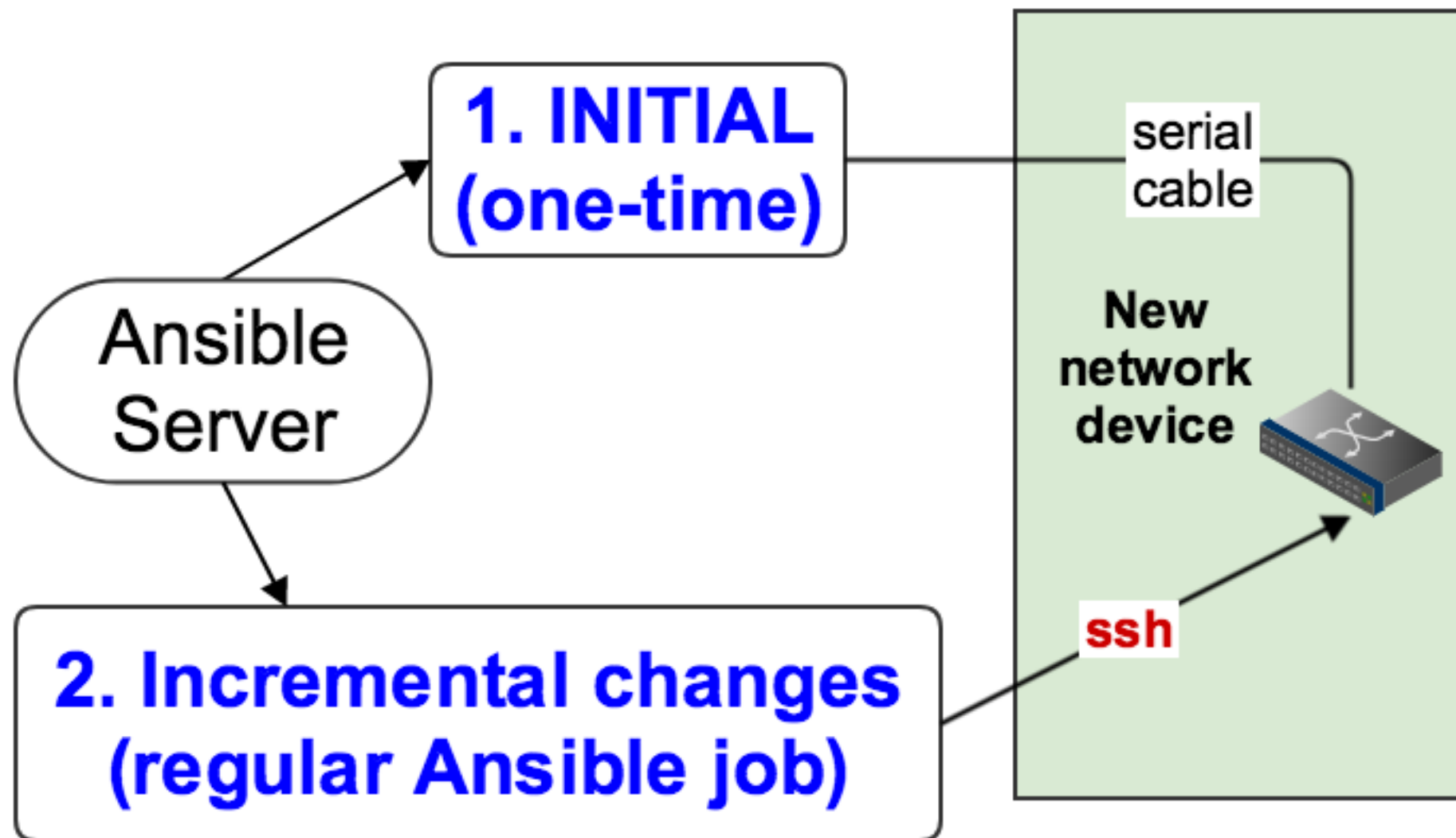
Ansible as Network Operations Tool

Scalability:

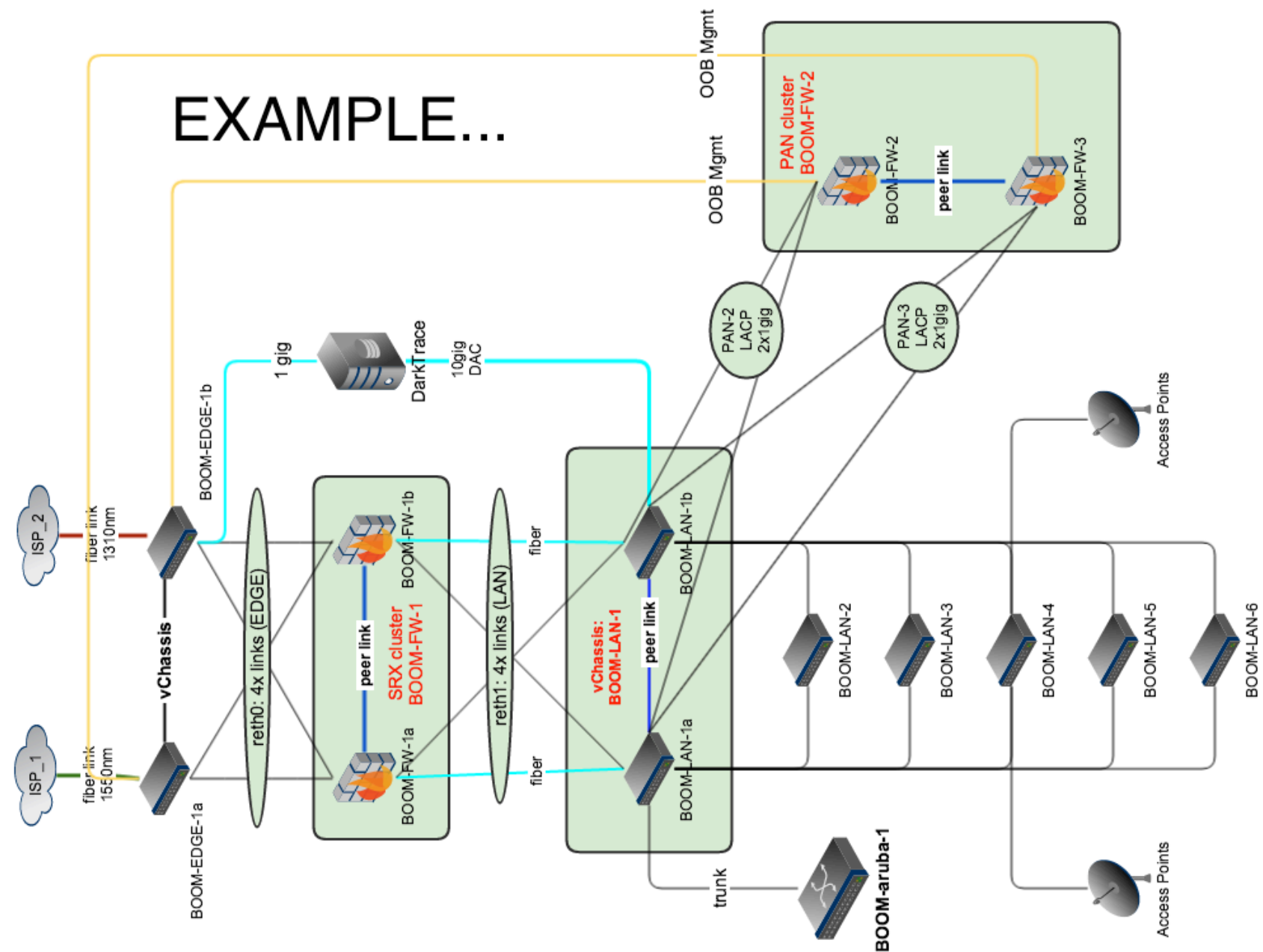- ability to deploy changes simultaneously

Provisioning new devices:

• consistent & fast provisioning
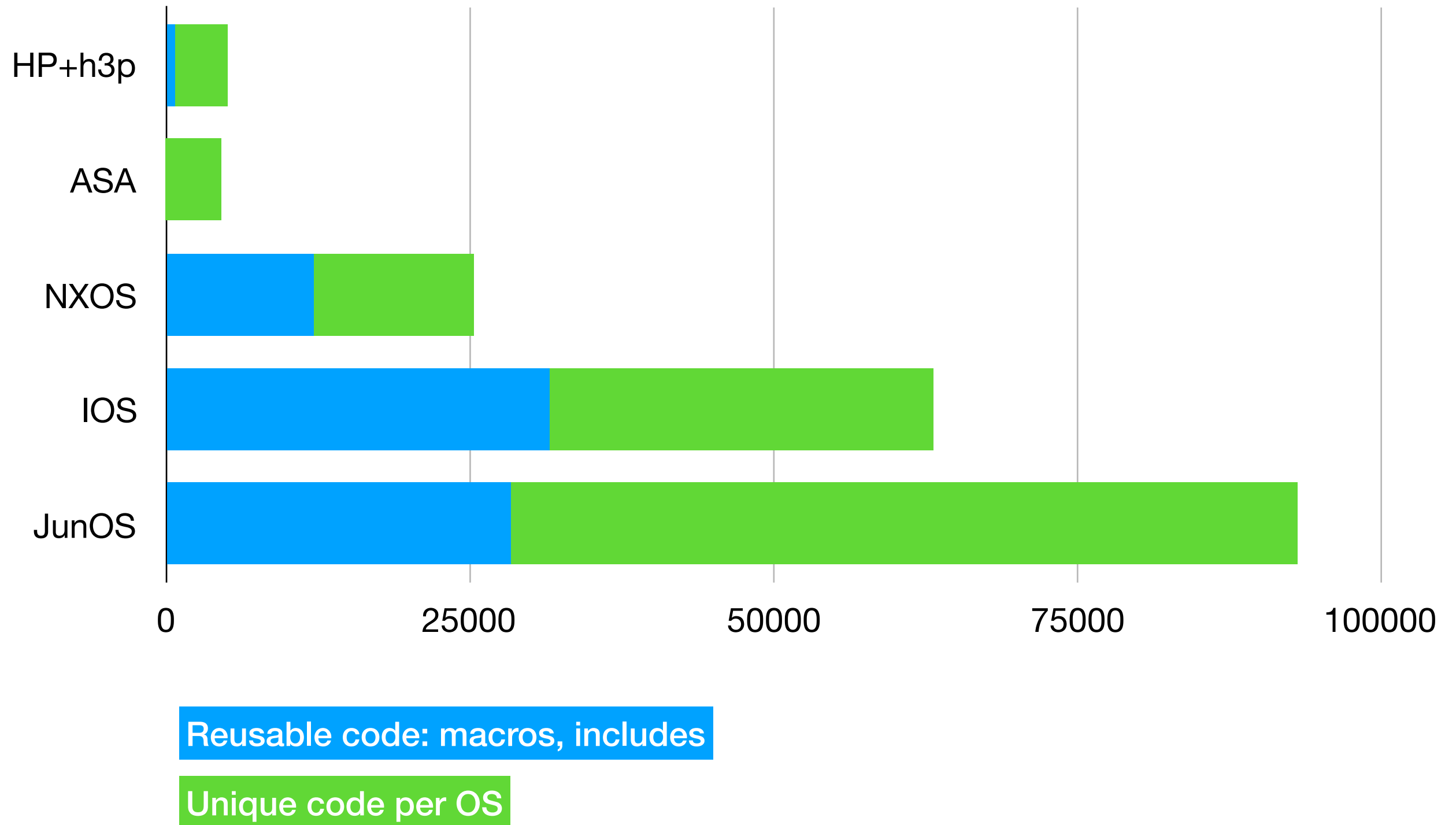
Handles complexity (for you):

- able to build entire new office in advance
  (plug-n-play: **true story!**)

Operational challenges:

- in-place config changes (replace)

- checkpoint/rollback

Jinja2 code (bytes), 1 year

Reusable code: macros, includes

Unique code per OS

Ansible as Software development project

Python-based

- libraries, versions

- python virtual environment

Combination skills

- as Network Engineer: ability to identify patterns (subject area)

- as Software Developer: ability to code them well enough

Network   gradually   Software
Engineer   becomes…   Engineer

Basic Understanding WEB

- dynamic inventory is a WEB server

- understanding REST, JSON, etc

- one **does not** have to be professional web developer

Follow s/w best practices

- keep code separate from data

- solve particular problem (move fast)

- refactor later (generalization)

- create reusable code (DRY)

- separate concerns

Integration with other IT infrastructure
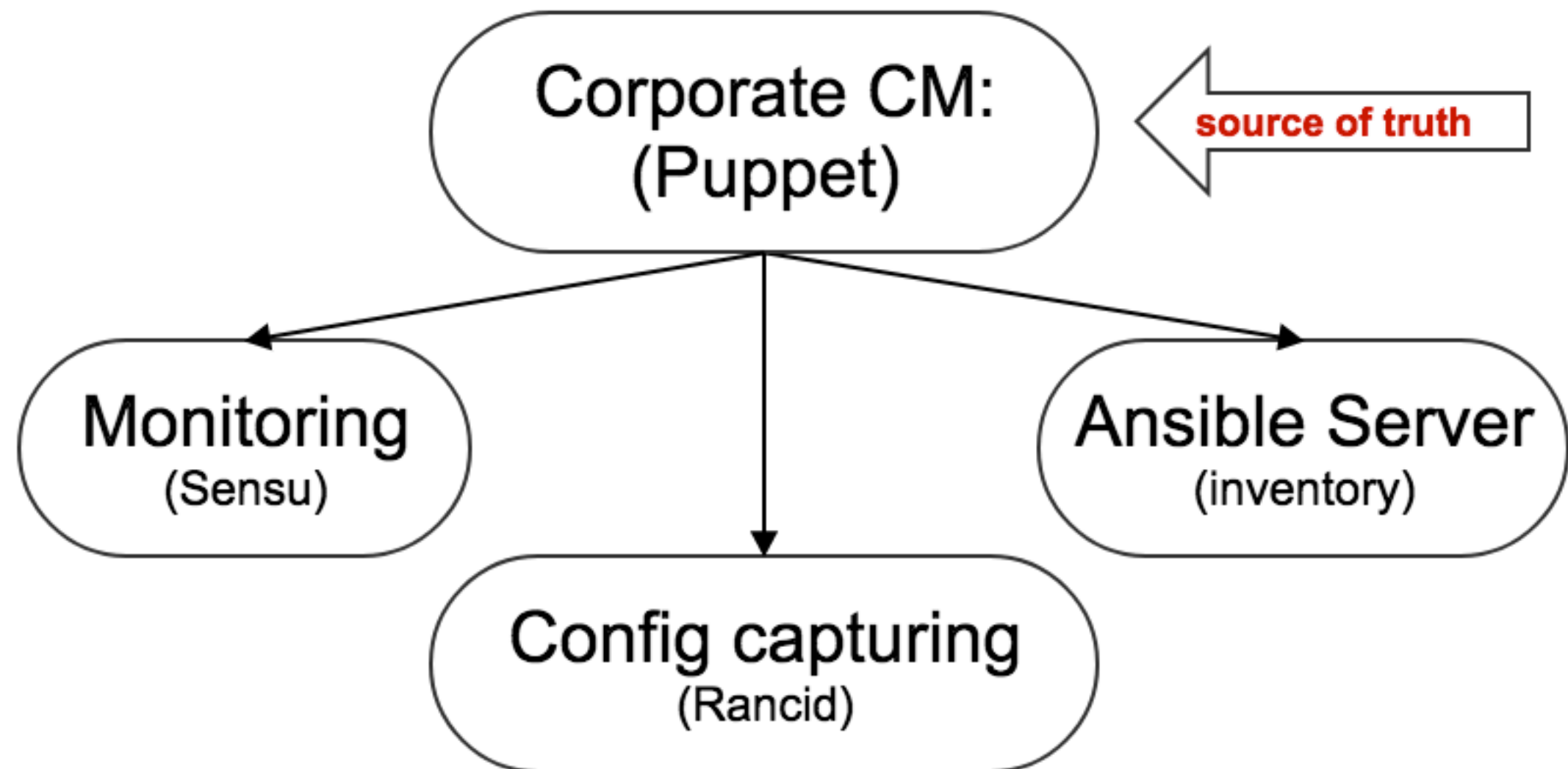
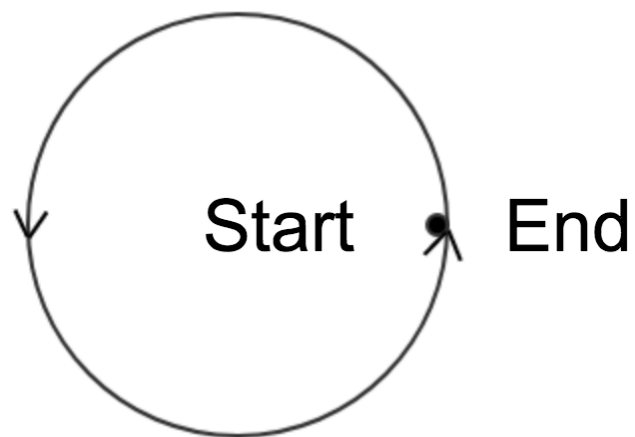# Manual process

ANSIBLE automation

WHAT

unstructured
config - plain text
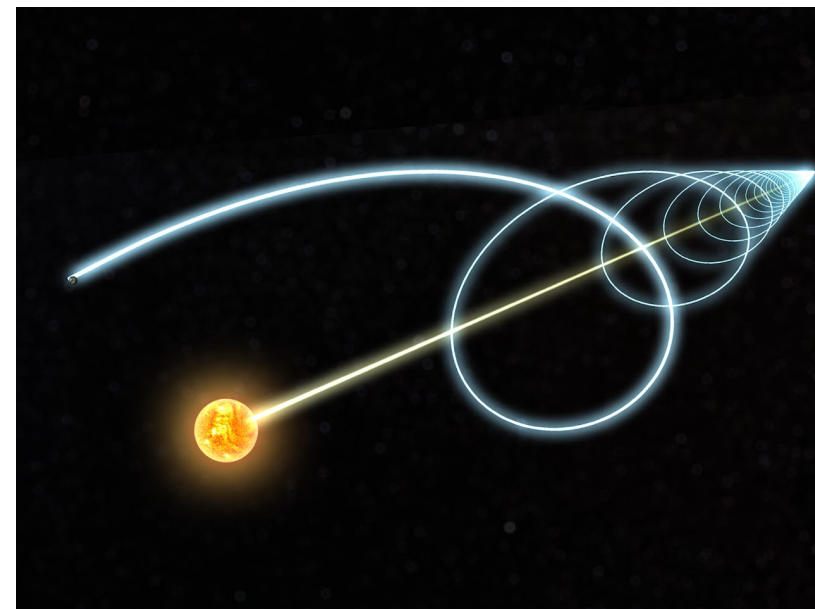
CODE + **structured DATA** =>
plain text based on attributes

HOW

copy/paste
manually

Deploys new config via SSH
with ability to see the DIFF

Start End

Find the direction!

Thanks for watching!

https://github.com/opentable/ansible-examples

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