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Where does your Ansible code come from?

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Red Hat

April 2024
Session 8H

TOC

- The automation supply chain
- Securing the automation supply chain
- Conclusions

About me

- Working in IT since 2004, mostly in consulting roles
- Ansible user since 2013
- Author of 5 books, 4 of which on Ansible
- EMEA Associate Principal Specialist Solution Architect @ Red Hat

Some disclaimers

- This presentation wants to be a primer, not a full security course
- Everything discussed today is **open source**
- Everything discussed today is **architecture independent**
- There will be many links in the slides
- The slides will be uploaded to the GSE.UK website

Supply chain attack

A software supply chain attack refers to a malicious activity that targets the sourcing, development, distribution, or deployment of the code.

Why care about supply chain attack?

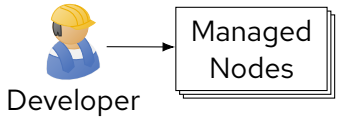
- Can have a devastating impact on organizations
- Can be very difficult to detect
- Are difficult to defend against
- Can affect non-intended targets
- Are becoming increasingly common!

Why should WE care about supply chain attack?

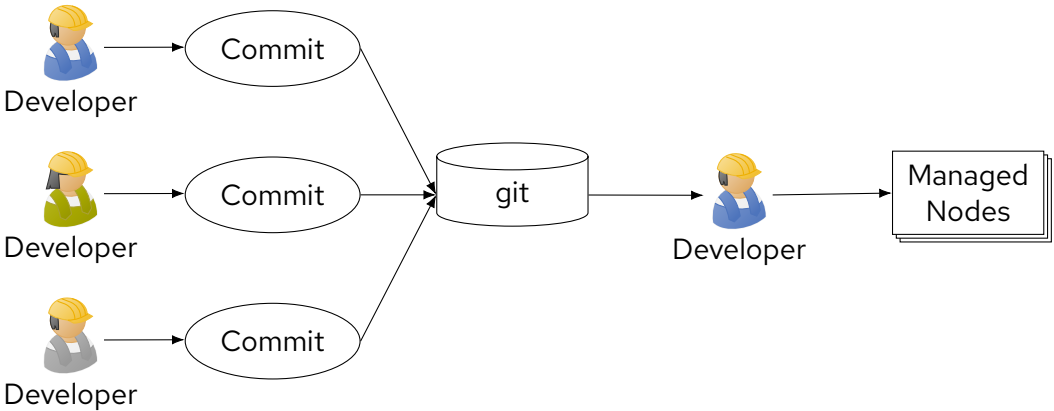
- Ansible code often runs with elevated privileges
- A lot of Ansible code supply chains are *not very secure*

The automation supply chain

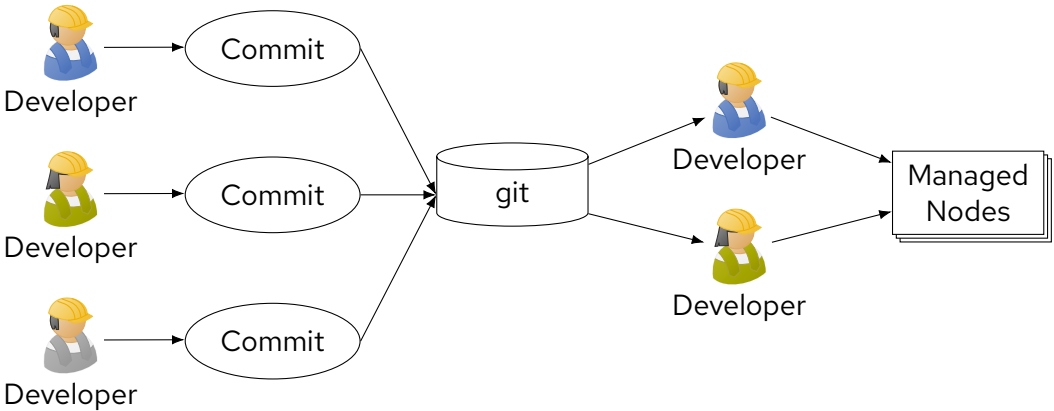
The initial automation workflow



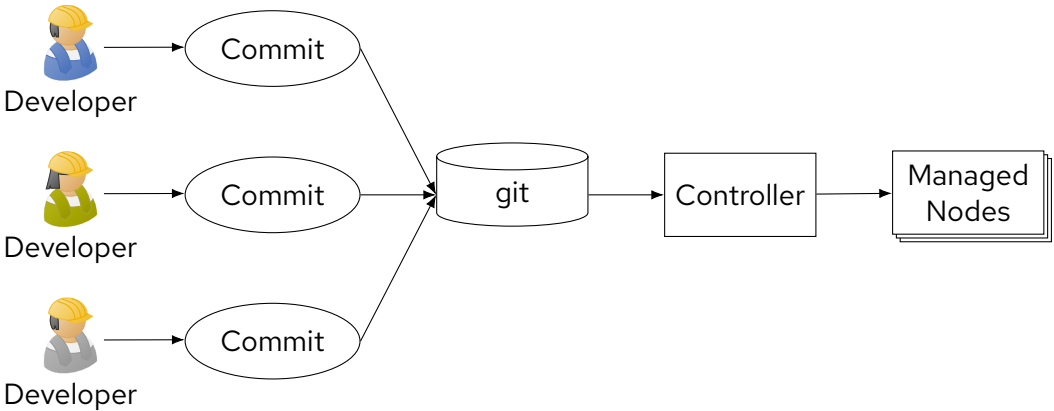
A more scalable automation workflow



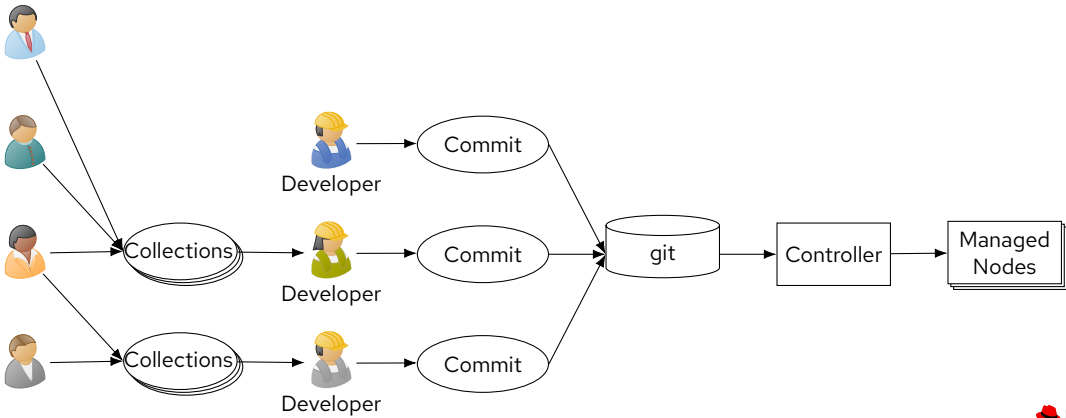
A more scalable automation workflow



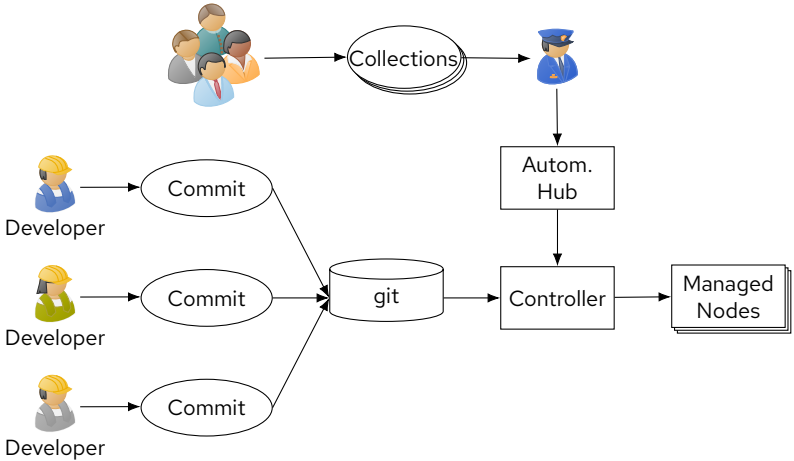
A more scalable automation workflow



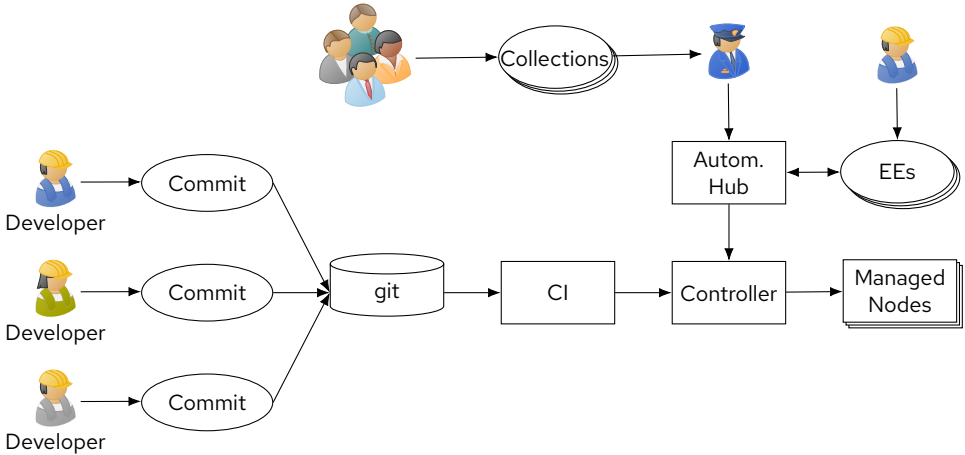
A more scalable automation workflow



A better structured workflow

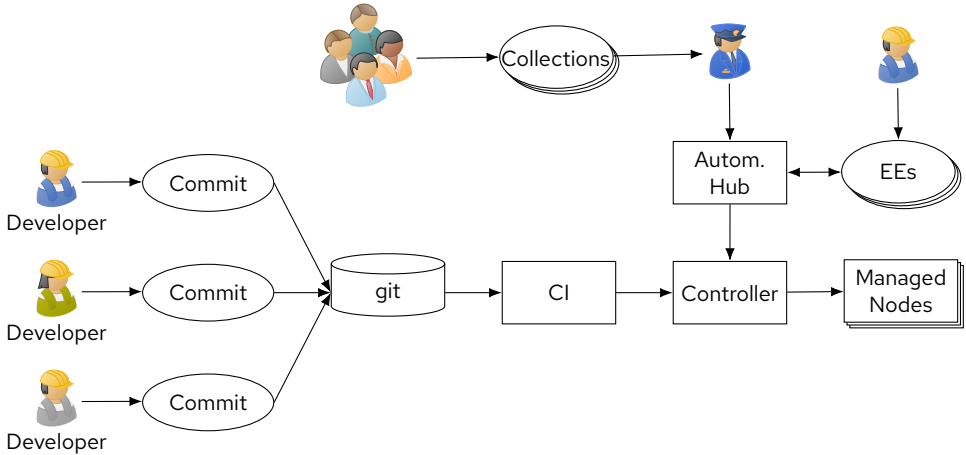


A better structured workflow



Securing the automation supply chain

Our automation workflow



Sign `git` commits

- `git commit -S -m "YOUR COMMIT MESSAGE"`

More details at:

- `https://git-scm.com/book/en/v2/Git-Tools-Signing-Your-Work`

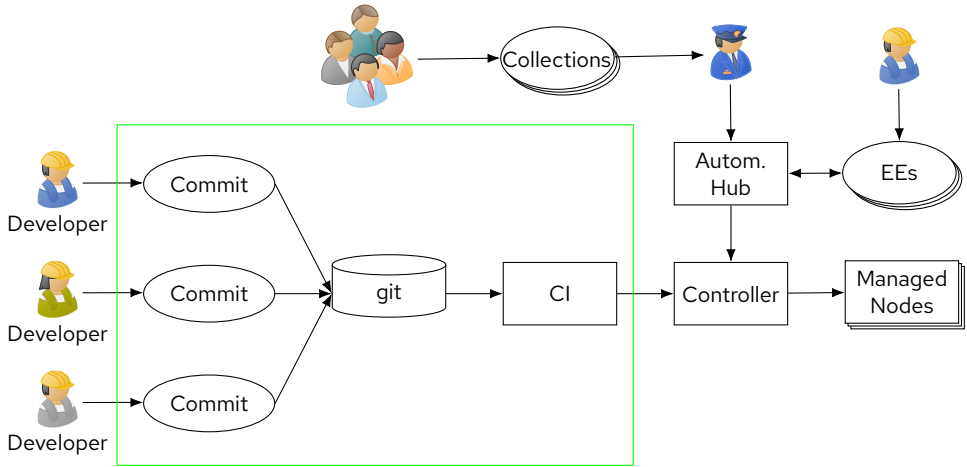
Validate signed `git` commits

- `git verify-commit <commit>`

More details at:

- `https://git-scm.com/docs/git-verify-commit`

Our automation workflow



Ansible project signature

- `ansible-sign project gpg-sign .`

More details at:

- `https://docs.ansible.com/automation-controller/latest/html/userguide/project-sign.html`

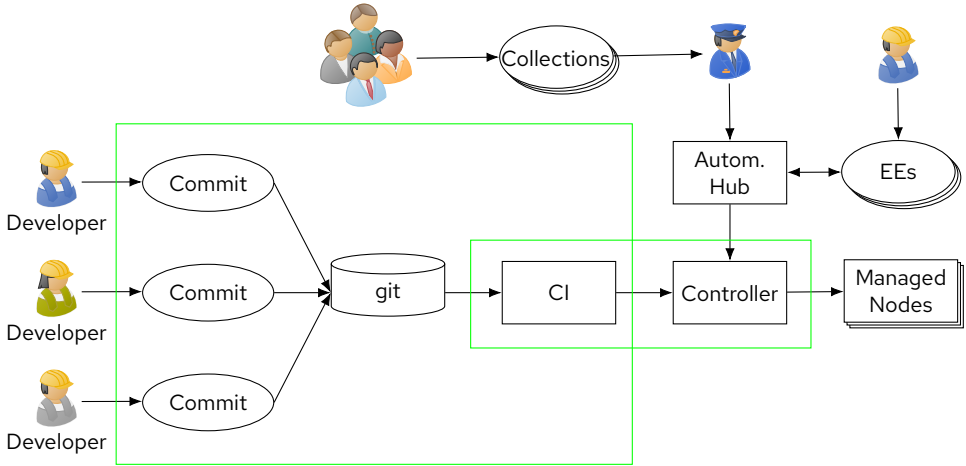
Ansible project validation

- Manually
  - `ansible-sign project gpg-verify .`
- Via AWX/AAC UI

More details at:

- `https://docs.ansible.com/automation-controller/latest/html/userguide/project-sign.html`

Our automation workflow



Ansible collections signature

- Manually
  - `gpg --quiet --batch --pinentry-mode loopback --yes --detach-sign --default-key KEY_ID --armor --output MANIFEST.json.asc MANIFEST.json`
- (Manually) via GalaxyNG/PAH UI
- (Automatically) via GalaxyNG/PAH at collection approval stage
- Import previous signature via GalaxyNG/PAH

More details at:

- `https://ansible.readthedocs.io/projects/galaxy-ng/en/latest/config/collection_signing/`

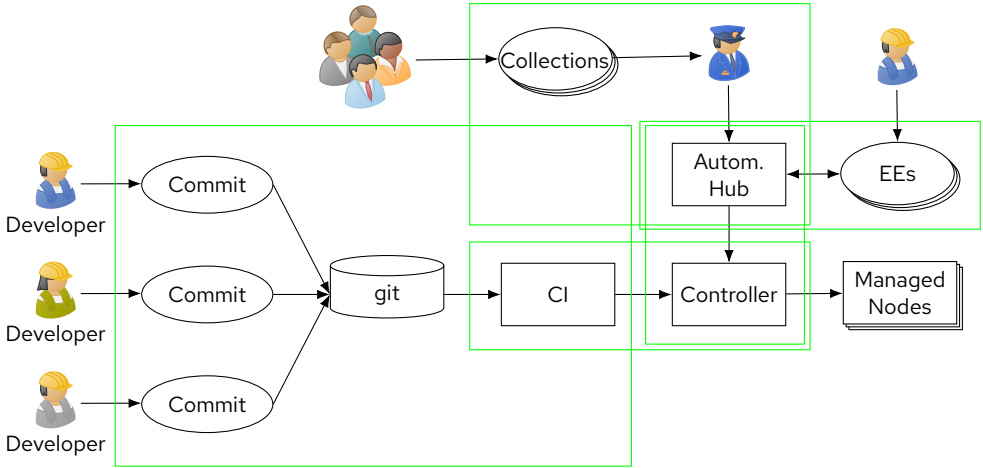
Ansible collections validation

- Via `ansible-galaxy`
  - `ansible-galaxy collection verify <name>`
- Via `ansible-build`
  - `ansible-builder create --galaxy-keyring=<path to pubring>`
- (Automatically) via AWX/AAC

More details at:

- `https://docs.ansible.com/ansible/devel/collections_guide/collections_verifying.html`
- `https://www.ansible.com/blog/crank-up-your-automation-with-ansible-validated-content`

Our automation workflow



Ansible EE signature

- Manually via Skopeo
  - `skopeo standalone-sign <manifest-file> <image name> <fingerprint> --output <path>`
- Manually via Podman
  - `podman push --sign-by <email> <galaxy-ng host>`
- (Manually) via GalaxyNG/PAH UI
- (Automatically) via GalaxyNG/PAH when images are pushed

More details at:

- `https://ansible.readthedocs.io/projects/galaxy-ng/en/latest/config/container_signing/`
- `https://github.com/containers/skopeo/blob/main/docs/skopeo-standalone-sign.1.md`
- `https://github.com/containers/podman/blob/main/docs/tutorials/image_signing.md`
- `https://docs.pulpproject.org/pulp_container/workflows/sign-images.html`

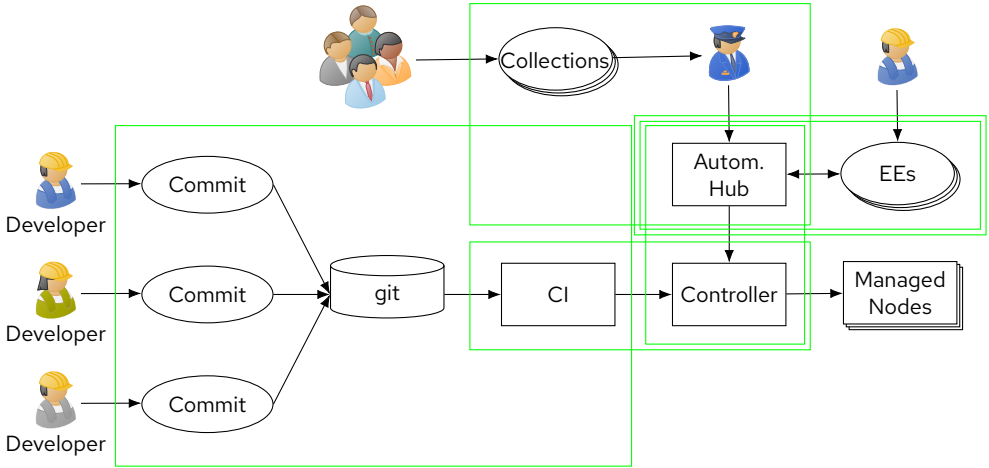
Ansible EE validation

- Podman/Docker container policy

More details at:

- `https://github.com/containers/image/blob/main/docs/containers-policy.json.5.md`

Our automation workflow



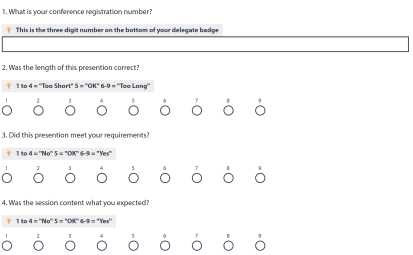
Conclusions

Wrapping up

- Automation can be a very interesting target for supply chain attacks
- Automation supply chains tend to be long and complex
- It is critical to map your automation supply chain
- There are many tools that can help you securing your supply chain!

Session feedback

- Submit your feedback at `https://conferences.gse.org.uk/2024V/feedback/8H`
- Make sure you are signed into MyGSE
- This session is 8H


1. What is your conference registration number?

This is the three digit number on the bottom of your delegate badge

2. Was the length of this presention correct?

1 to 4 = "Too Short" 5 = "OK" 6-9 = "Too Lang"

1 2 3 4 5 6 7 8 9

3. Did this presention meet your requirements?

1 to 4 = "No" 5 = "OK" 6-9 = "Yes"

1 2 3 4 5 6 7 8 9

4. Was the session content what you expected?

1 to 4 = "No" 5 = "OK" 6-9 = "Yes"

1 2 3 4 5 6 7 8 9

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