Seminar 2025 - Quick presentation

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About me

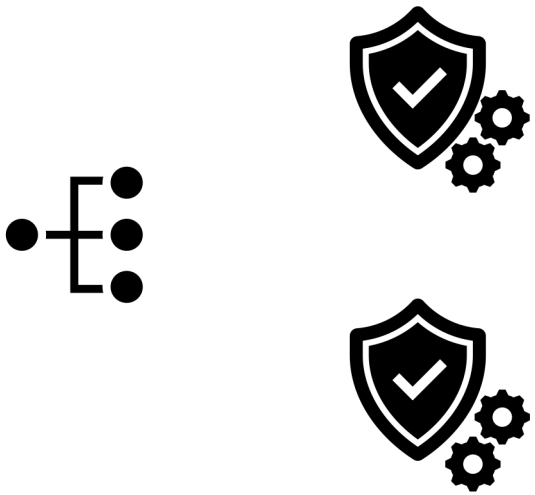
- Bachelor's degree – University of Orléans
  - Research internship
    - O. Proust and F. Loulergue. « Verified Scalable Parallel Computing with Why3 », 2023

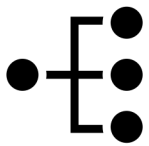
- Master's degree – University of Rennes
  - Industry internship : Covéa – MMA

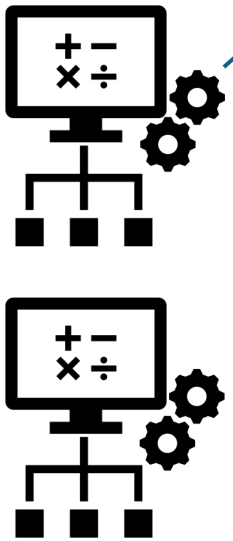
What is that...

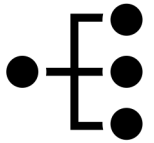
PHD THESIS

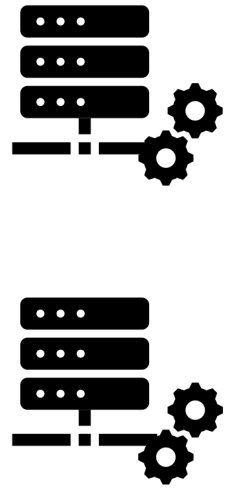
Infrastructure-as-code

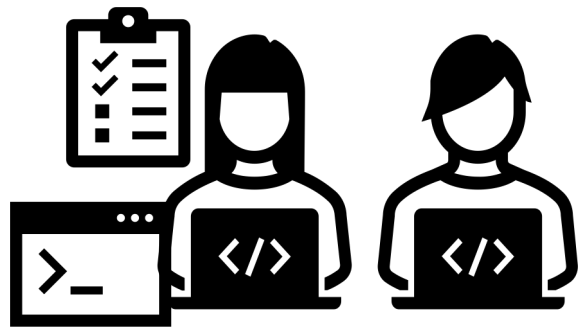




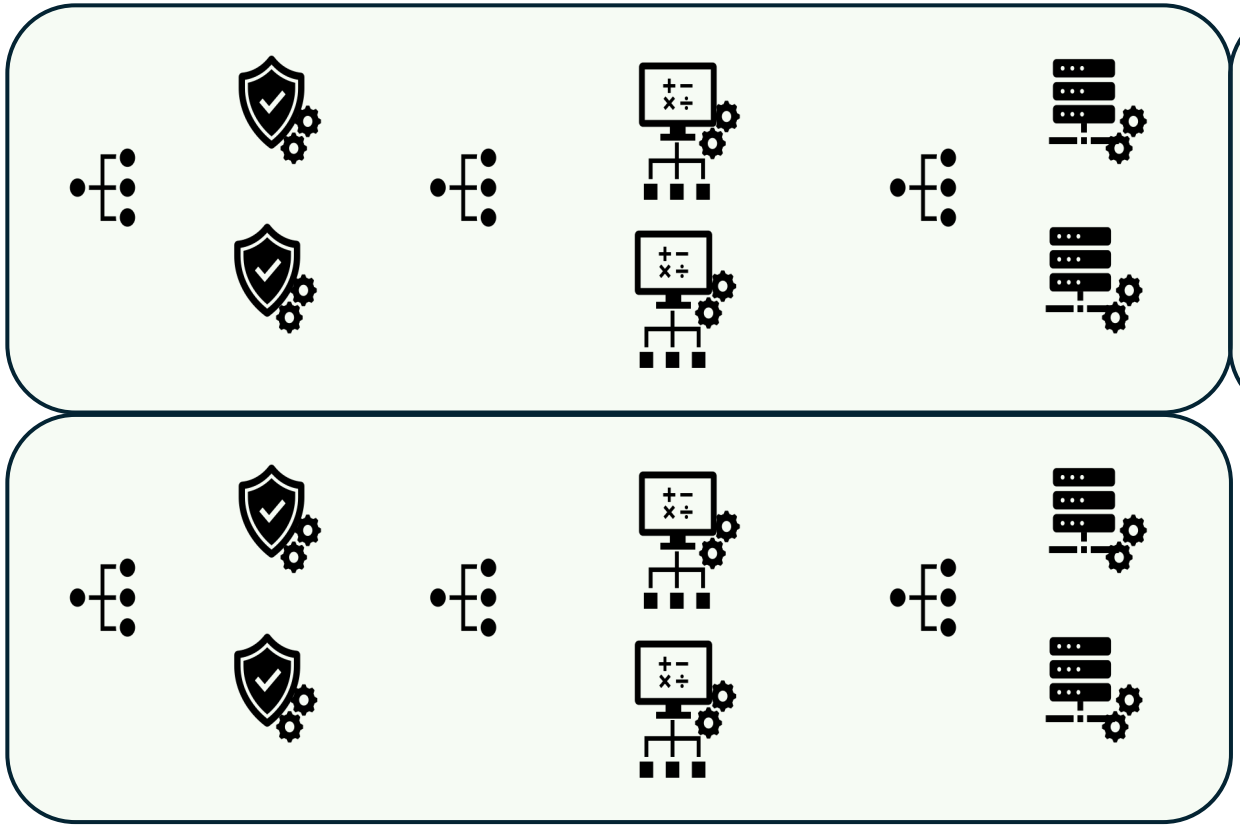


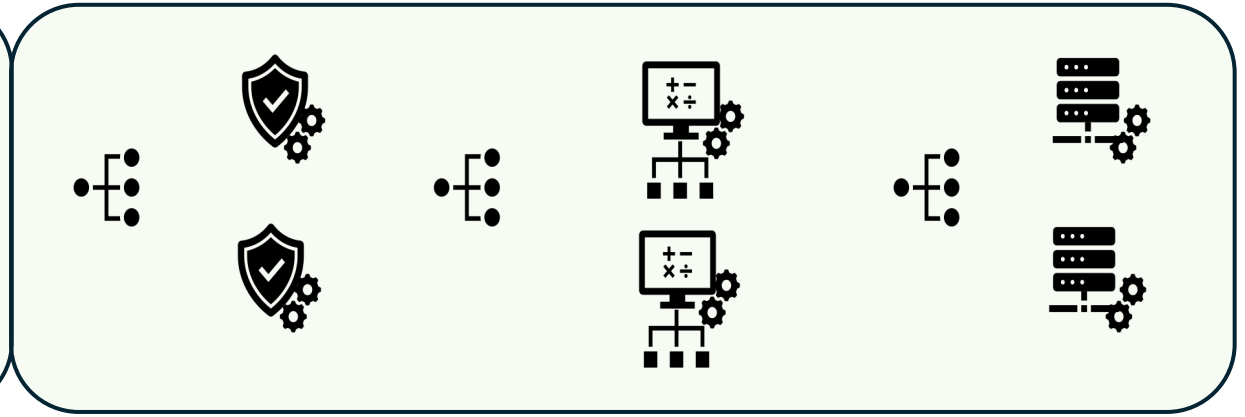




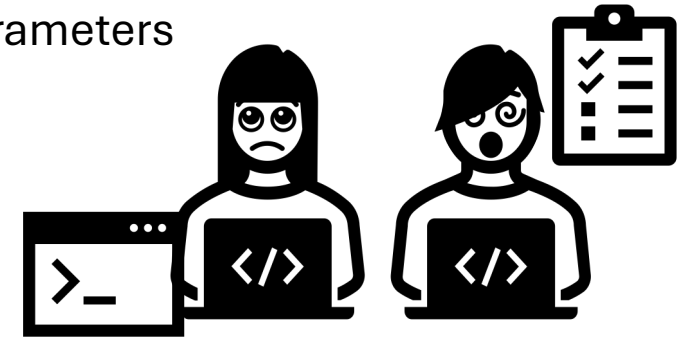


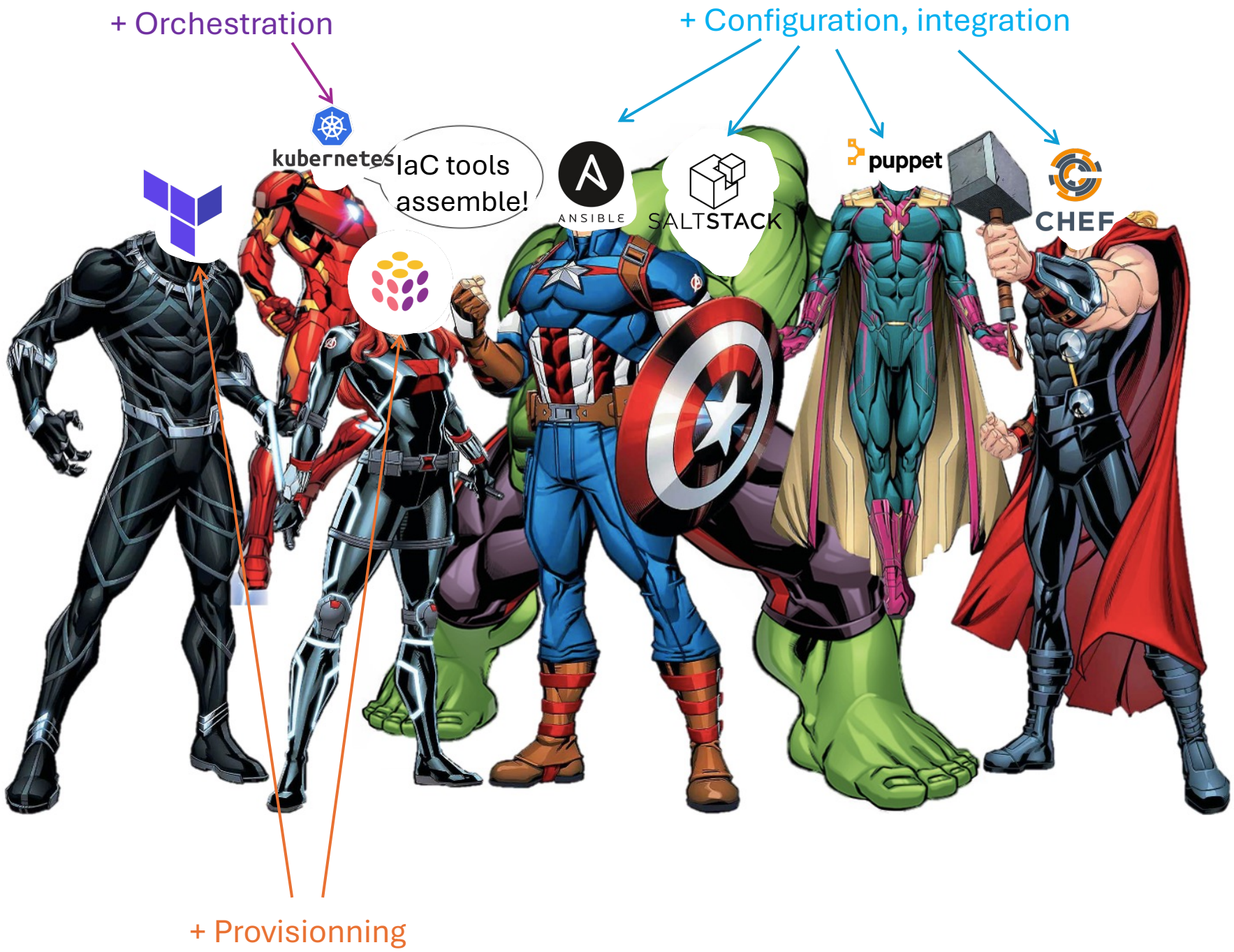
Infrastructure-as-code



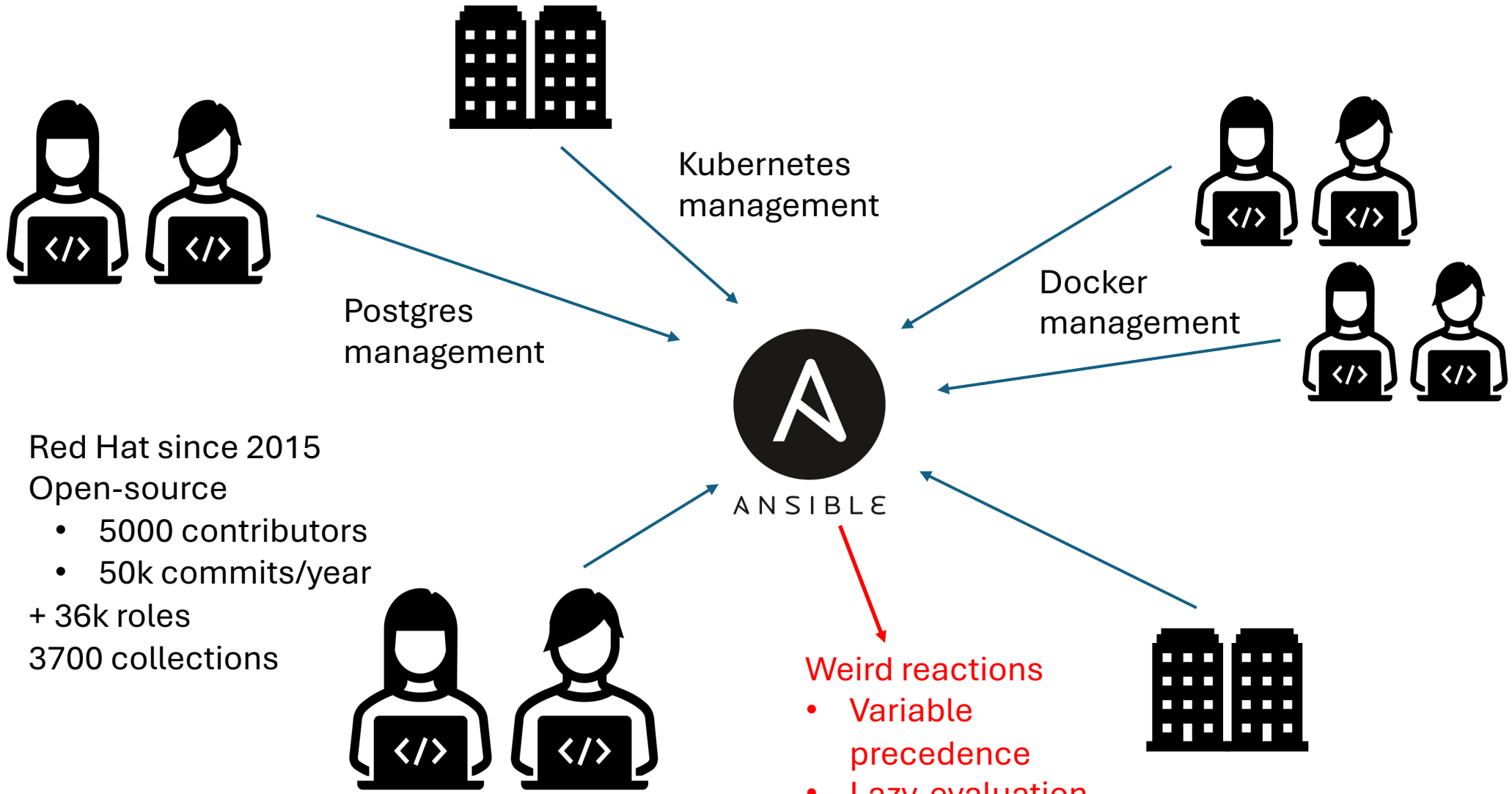


- Increased complexity
- Harder maintenance
- Changes may lead to faults
  - Adding/removing services
  - Changing some parameters
  - Update

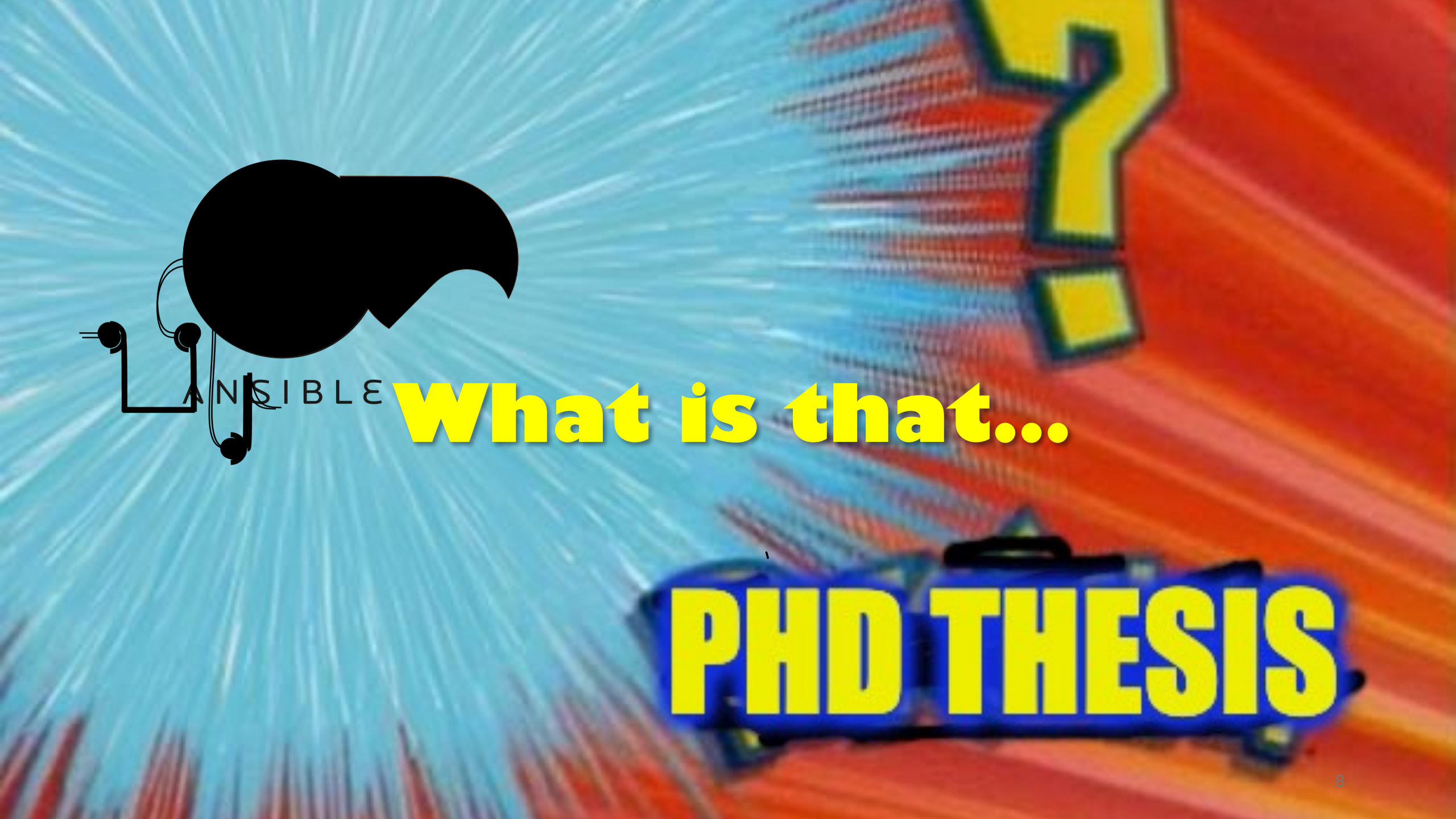


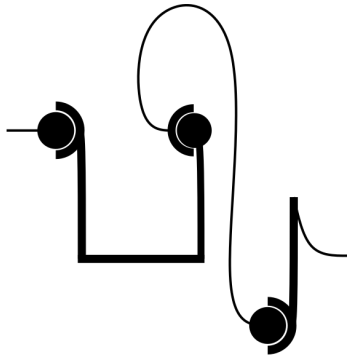


- Use code to manipulate infrastructure
- Comes with a lot of pratics
  - Versionning
  - CI/CD
  - Component based
- Reusability, Scalability



- Red Hat since 2015
- Open-source
  - 5000 contributors
  - 50k commits/year
- + 36k roles
- 3700 collections


ANSIBLE
What is that...
PHD THESIS



- ANR For-CoaLa
  - Improve understanding of Ansible language
  - Produce open source formally certified configuration language
  - Generation of certified code

- Co-directed by
  - Helene Coullon
  - Frederic Loulergue (LIFO – LMV - University of Orléans)
- Co-supervised by
  - Jolan Philippe (LIFO – LMV - University of Orléans)

- Formalize a subset of Ansible (µAnsible)
  - Ansible core
  - No module

- Verify it on Rocq
  - Generation of certified code.

- Leveraging Concerto within Ansible
  - CoAnsible

Thank you for your attention.