

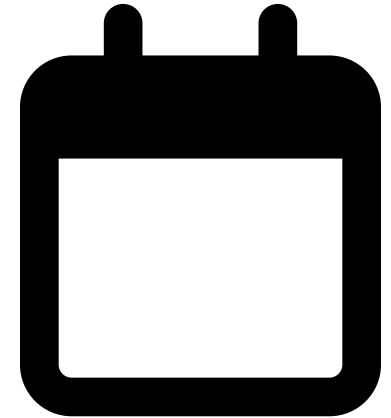
Automating Development Environments with Ansible & Chezmoi

Kevin Howell

Red Hat

Agenda

- Background & Framing
- Ansible
- Chezmoi
- Inspiration

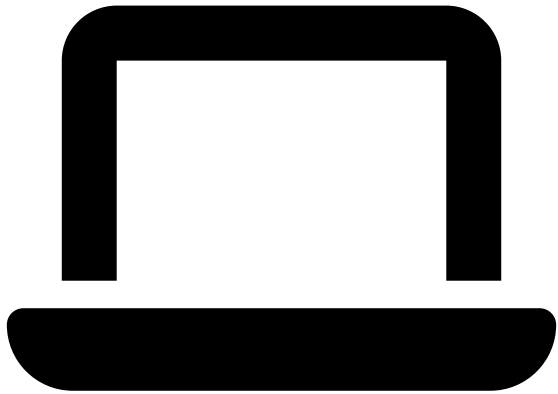


About Me

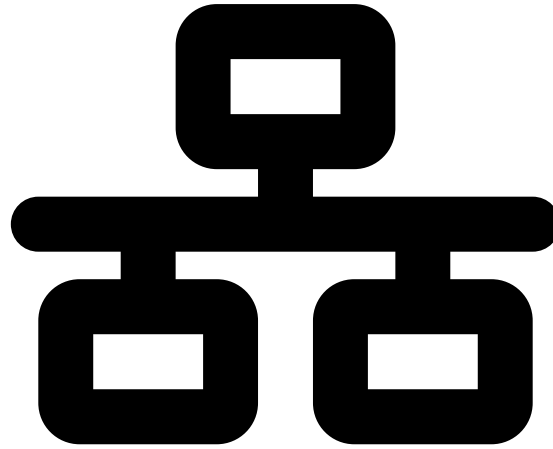
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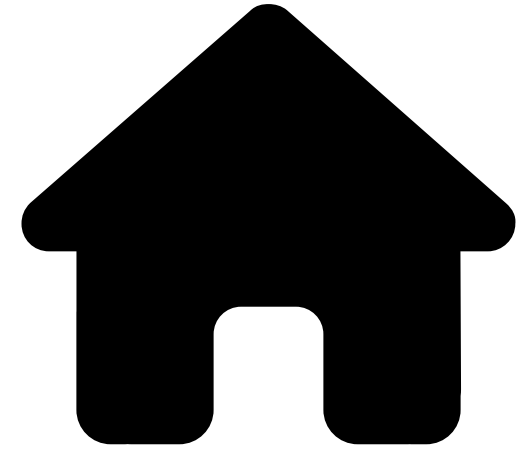
Why



System
replacement



Multiple
machines



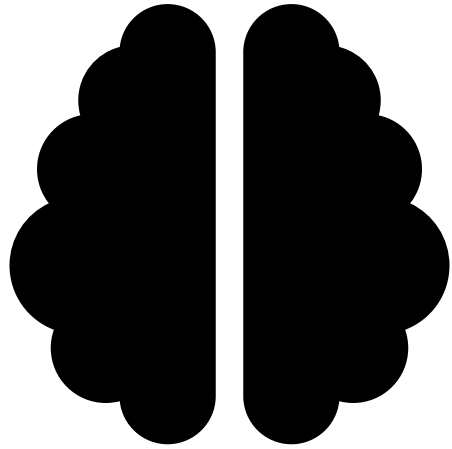
Share between
Work & Home

Pets vs. Cattle

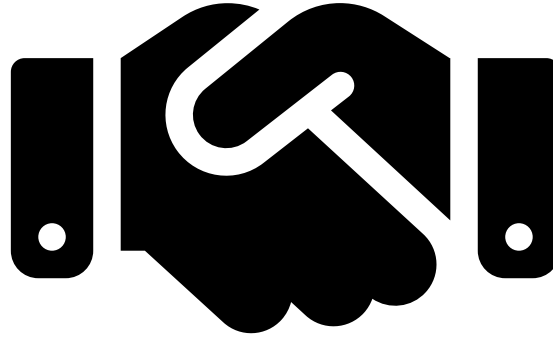


What about pet cows?

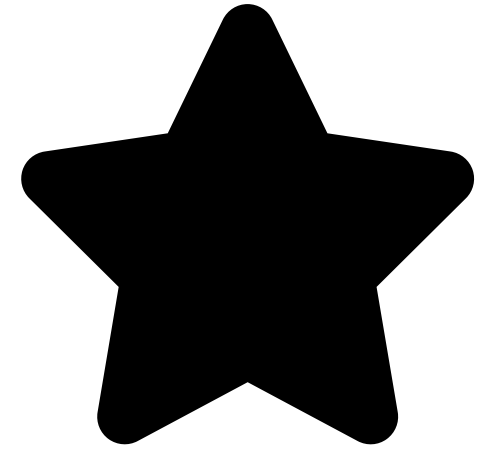
Other Motivations



Learn a new skill



Share



Cool Factor

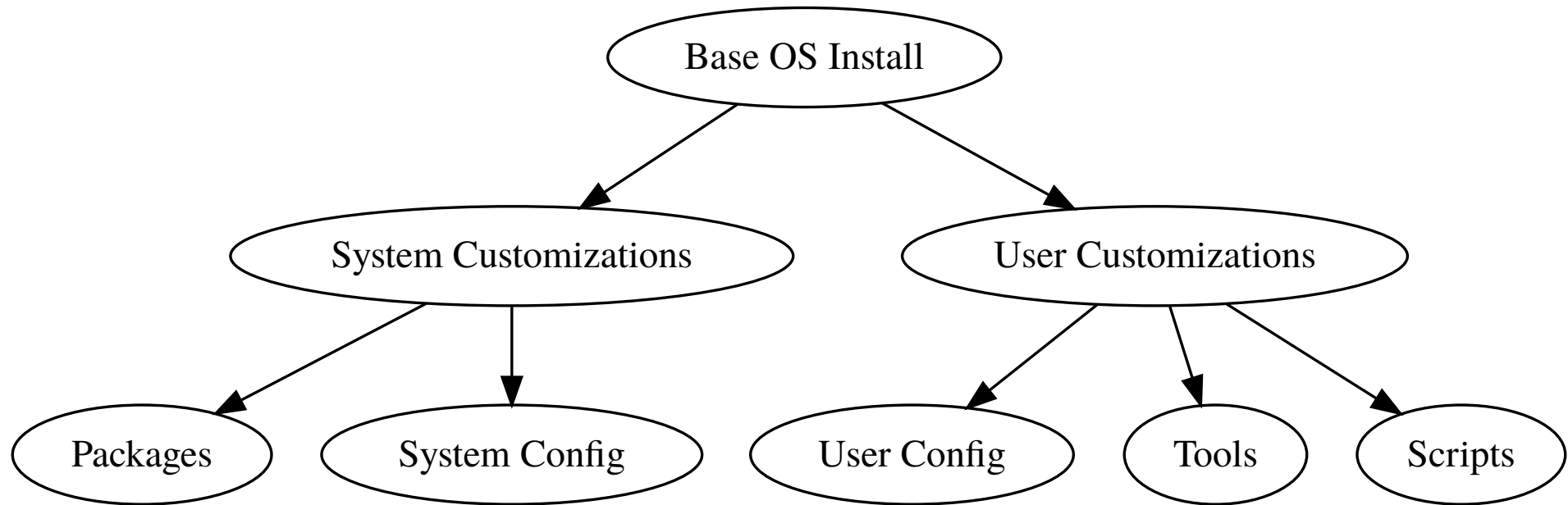
HOW LONG CAN YOU WORK ON MAKING A ROUTINE TASK MORE EFFICIENT BEFORE YOU'RE SPENDING MORE TIME THAN YOU SAVE?
(ACROSS FIVE YEARS)

		HOW OFTEN YOU DO THE TASK					
		50/DAY	5/DAY	DAILY	WEEKLY	MONTHLY	YEARLY
HOW MUCH TIME YOU SHAVE OFF	1 SECOND	1 DAY	2 HOURS	30 MINUTES	4 MINUTES	1 MINUTE	5 SECONDS
	5 SECONDS	5 DAYS	12 HOURS	2 HOURS	21 MINUTES	5 MINUTES	25 SECONDS
	30 SECONDS	4 WEEKS	3 DAYS	12 HOURS	2 HOURS	30 MINUTES	2 MINUTES
	1 MINUTE	8 WEEKS	6 DAYS	1 DAY	4 HOURS	1 HOUR	5 MINUTES
	5 MINUTES	9 MONTHS	4 WEEKS	6 DAYS	21 HOURS	5 HOURS	25 MINUTES
	30 MINUTES		6 MONTHS	5 WEEKS	5 DAYS	1 DAY	2 HOURS
	1 HOUR		10 MONTHS	2 MONTHS	10 DAYS	2 DAYS	5 HOURS
	6 HOURS				2 MONTHS	2 WEEKS	1 DAY
	1 DAY					8 WEEKS	5 DAYS

<https://xkcd.com/1205/>

Framming

Layers



Base OS Install

Just install and accept defaults.

- ... vs Kickstart/unattended install
- ... vs Custom Install Image

ANSIBLE

Ansible - Why

- automate lots of things
- python

Ansible Installation

```
dnf install -y ansible
```

for Ubuntu

```
apt install -y ansible
```

Basic Ansible Setup

```
# go to a standard role directory
mkdir -p ~/.ansible/roles; cd ~/.ansible/roles
# create a role
ansible-galaxy role init $USER-environment
```

Ansible Role Contents

```
1 |— defaults
2 |   └─ main.yml
3 |— files
4 |— handlers
5 |   └─ main.yml
6 |— meta
7 |   └─ main.yml
8 |— README.md
9 |— tasks
10|   └─ main.yml
11|— templates
12|— tests
13|   └─ inventory
14|   └─ test.yml
15|— vars
16|   └─ main.yml
```


Ansible - Basic Workflow

```
# update it to do some stuff
$EDITOR tasks/main.yml
# run it - lazy shortcut
ansible -K localhost -c local \
  -m include_role -a name=$USER-environment
```

(and commit/push to a repo for sharing)

Packages

Package types:

- rpm/deb
- flatpak
- snap
- homebrew (linuxbrew)

```
- name: Install RPMs
  ansible.builtin.dnf:
    name:
      - '@Development Tools'
      - ansible-lint
```

Package Origin Preferences

- Distro packages
- Flatpak
- Homebrew
- Snap

System Config - Files

files/no-passwords.conf

```
PasswordAuthentication no
```

Ansible:

```
- name: Disable ssh password authentication
  become: true
  ansible.builtin.copy:
    src: no-passwords.conf
    dest: /etc/ssh/sshd_config.d/no-passwords.conf
    mode: '0600'
```

System Config - Templates

templates/sudoers-custom.j2

```
{{ ansible_user_id }} ALL=(ALL) NOPASSWD: ALL
```

Ansible:

```
- name: Land sudoers template
  ansible.builtin.template:
    src: sudoers-custom.j2
    dest: /etc/sudoers.d/sudoers-custom
    validate: /usr/sbin/visudo -cf %s
```

Using Ansible Elsewhere

```
ansible-galaxy role install \  
  --force \  
  git+https://github.com/$USER/$USER-environment  
ansible -K localhost -c local \  
  -m include_role -a name=$USER-environment
```

Note

You can apply remotely as well, see docs.

Ansible - Other Capabilities

- Manage users/groups
- Manage services/jobs (systemd & cron)
- Execute commands/scripts

Chezmoi

Chezmoi - Why

- lighter weight
- better than files in a git repo
- ergonomics



Chezmoi Installation

```
# also pulls dotfiles if you already use chezmoi
sh -c "$(curl -fsLS get.chezmoi.io)" \
  -- init \
  --apply \
  $GITHUB_USERNAME
```



User Config

- vim vs. emacs
- vs. vscode
- vs. vsodium

- .bashrc
- .zshrc
- .gitconfig

```
chezmoi add ~/.bashrc  
chezmoi git commit  
chezmoi git push
```



Templates

dot_gitconfig.tpl

```
[user]
  name = Kevin Howell
  email = {{ .email }}
[core]
  editor = vim
[diff]
  tool = meld
[init]
  defaultBranch = main
```

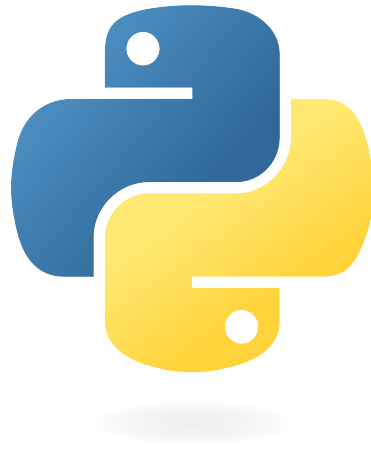


Tools

Useful code that isn't distro packaged (yet)



GitHub Releases



Python Packages



Node Packages



Managing GitHub Releases

```
~/ .local/share/chezmoi/  
.chezmoiexternal.toml.tmpl
```

```
{{ $versions := (fromYaml (include "versions.yaml")) -}}  
["bin/ollama"]  
  type = "file"  
  executable = true  
  url = "https://github.com/ollama/ollama/releases/download/{{ $vers
```

Tip

You can use this with renovate to get automated updates.



Managing Python Packages

```
~/local/share/chezmoi/  
run_after_poetryinstall.sh
```

```
#!/bin/bash  
cd ~/tools/python # make sure include this in $PATH  
poetry install --no-root --sync
```

Note

Can follow a similar pattern for npm packages.

Tip

You can use this with renovate/dependabot to get automated updates.



Scripts

1. scripts git repo (can add to `$PATH`)
2. directly in dotfiles repo



Using Chezmoi Elsewhere

```
chezmoi init $username --apply
```



Inspiration

- Browse Ansible Galaxy for roles (<https://galaxy.ansible.com>)
- Browse Ansible collections docs (<https://docs.ansible.com>)
- Search GitHub for topic: chezmoi (<https://github.com/topics/chezmoi>)
- Search github for dotfiles repos

My Repos

- <https://github.com/kahowell/kahowell-environment>
- <https://github.com/kahowell/dotfiles>

Red Hat Developer

- no-cost subscription for individuals
- free sandbox environments
- <https://developers.redhat.com>

Q&A

Thanks for attending!

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- <https://kahowell.net>



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