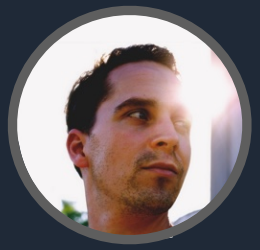
zentral

GitOps for MacAdmins
Device Management with Terraform

Zentral Pro Services GmbH



Henry Stamerjohann

November 15, 2023

Why GitOps

Save time - automation efficiency, fewer errors

Reliability - stable, predictable operations

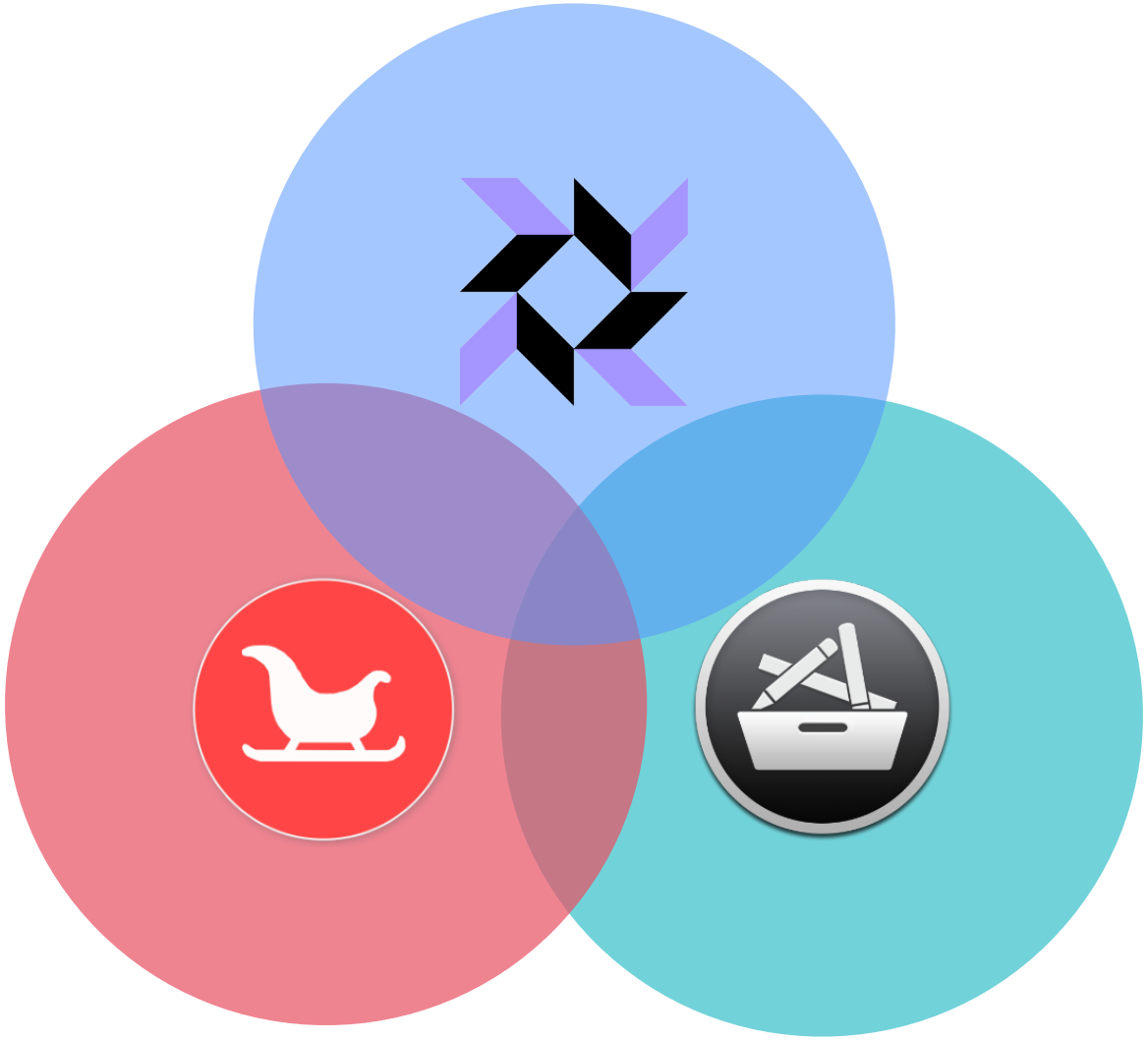
Auditability - authoritativeness in change management

Principles

Git - store config & code in repositories

CI/CD - automation pipelines

Review - merge requests as an agent of change



Device Management with Terraform

Use Case: macOS device management

Utilize the best breed of open source tools

Declarative MDM

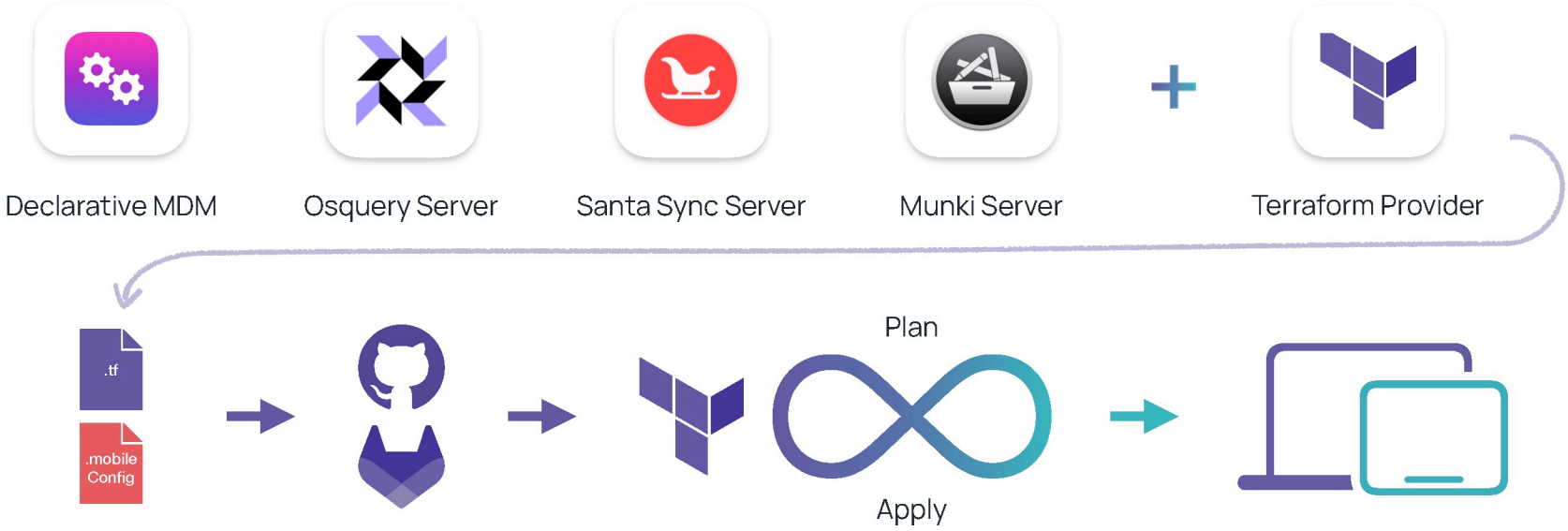
Osquery Server

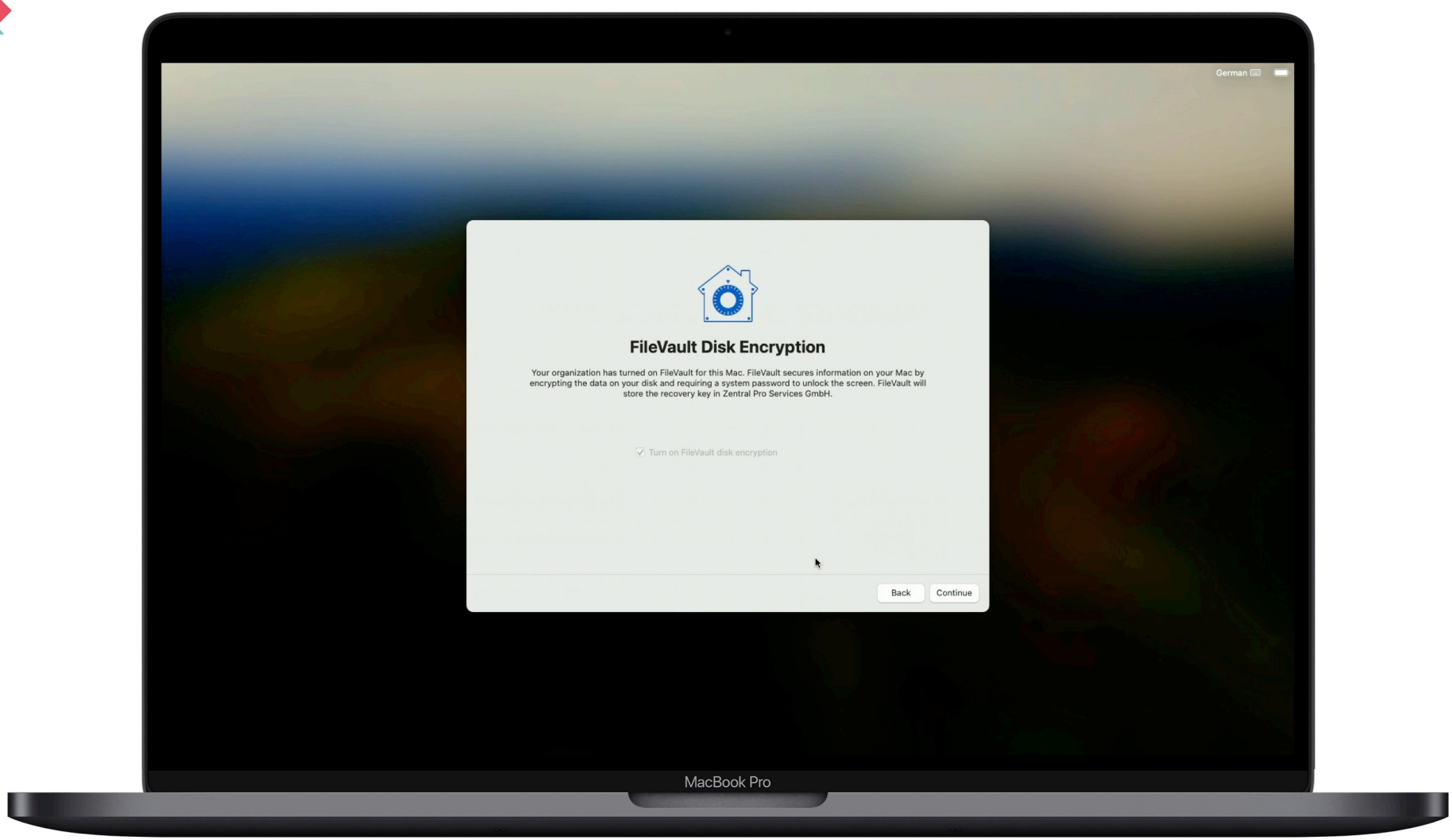
Santa Sync Server

Munki Server

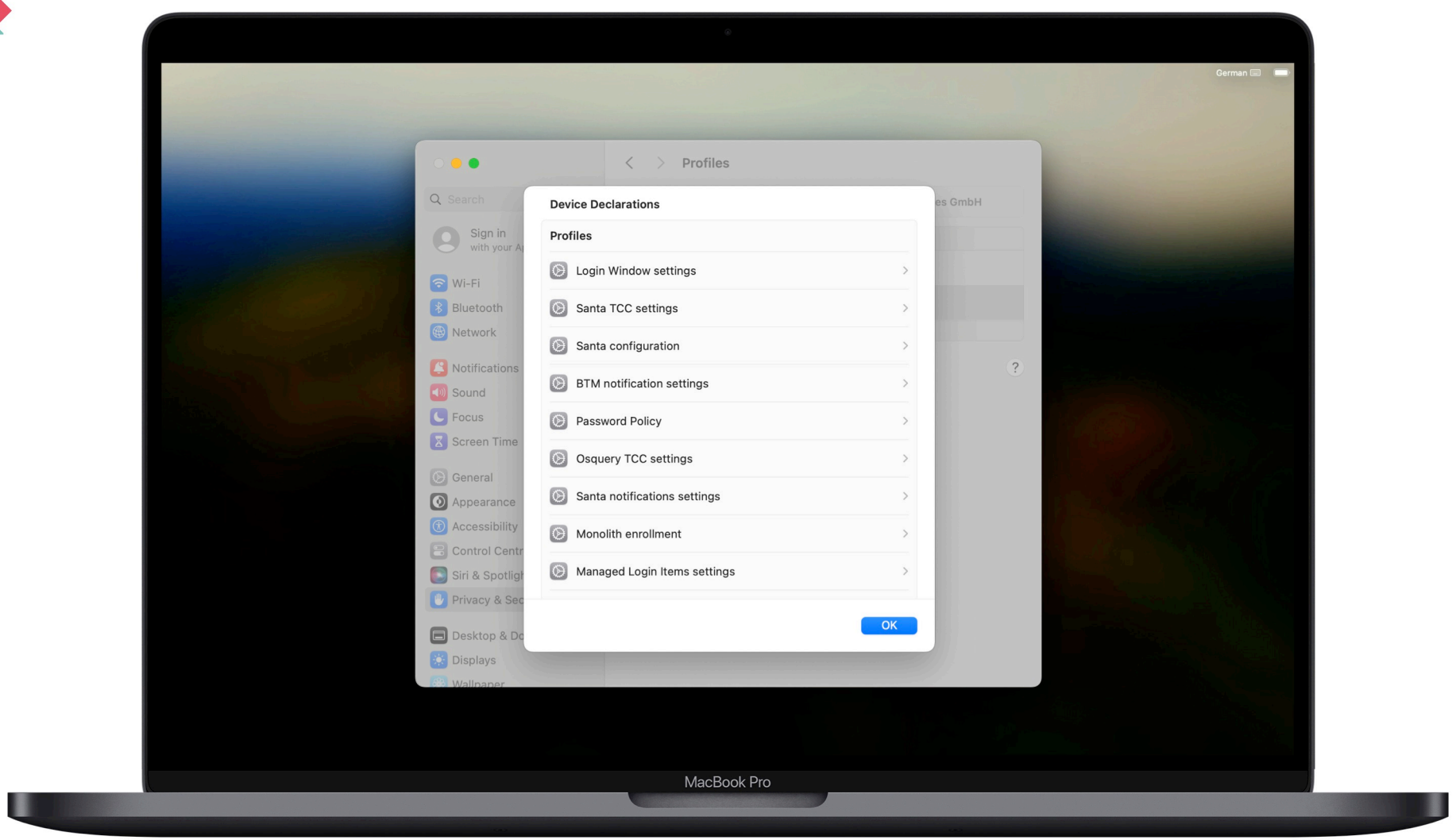
Our scope

Comprehensive Device Management





Device Management with Terraform



Device Management with Terraform

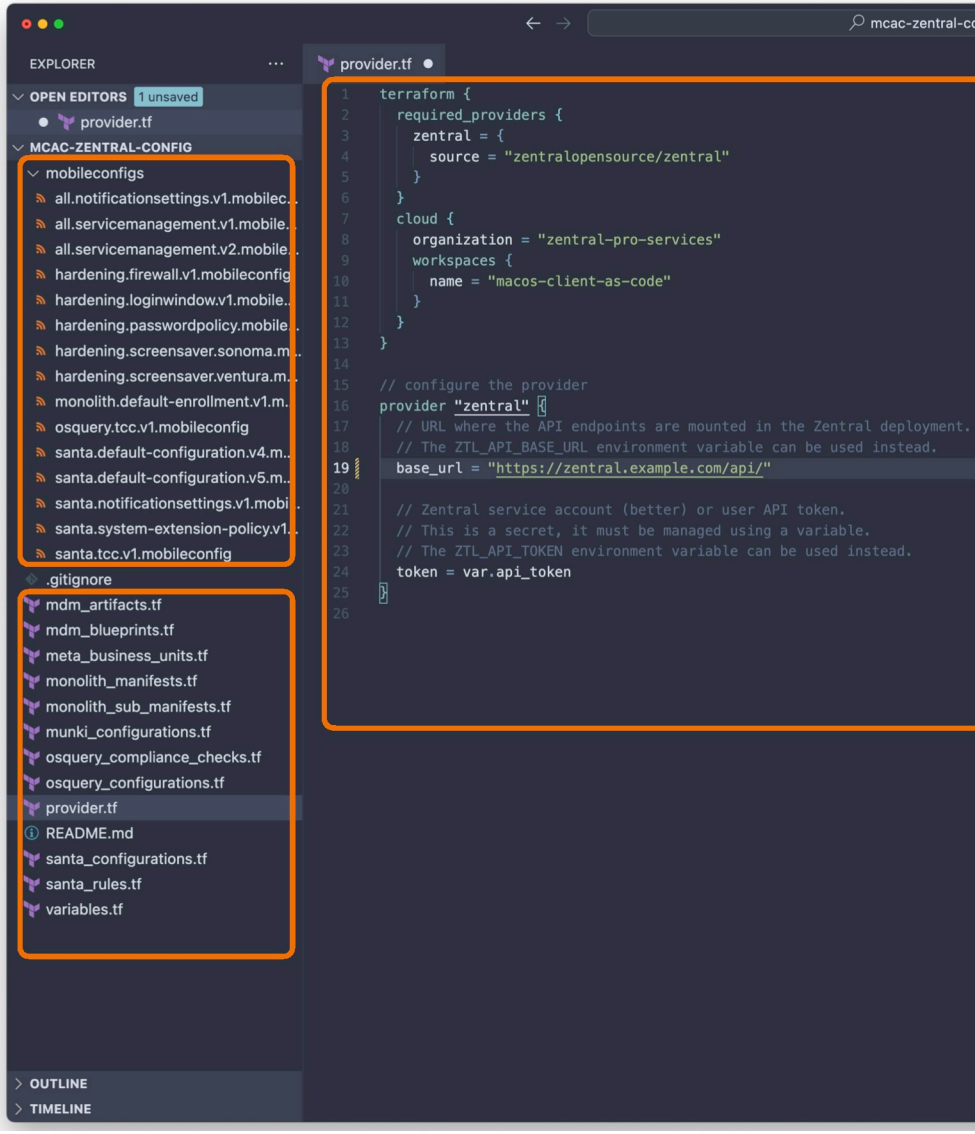
Terraform configuration

Overview

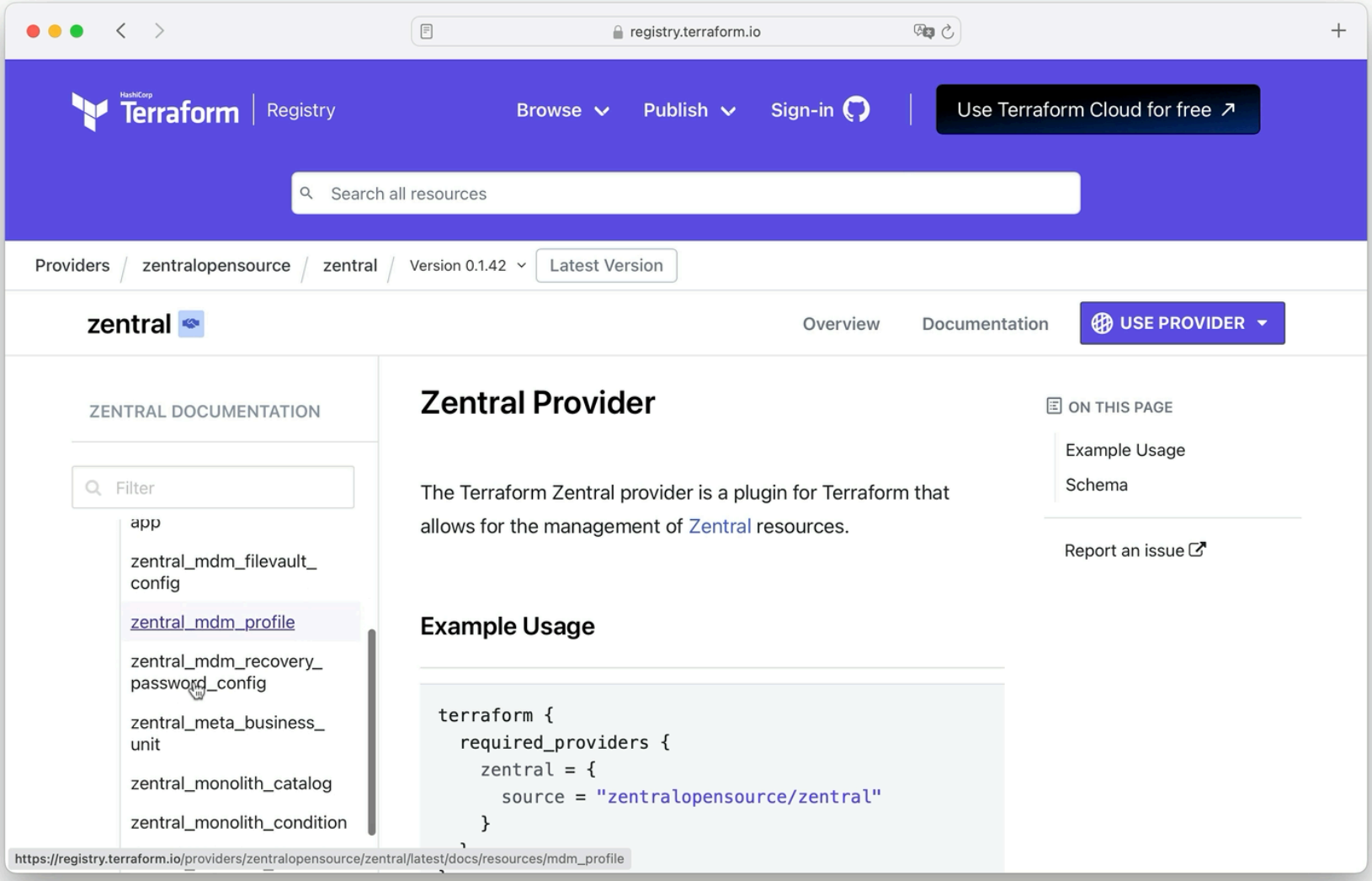
Official Zentral Terraform provider

Resources described as Terraform HCL files

Standard configuration profiles in separate sub folder



Terraform Provider



mSCP Demo

Integrating Munki Compliance Checks

1. Transform baseline.yaml into a Terraform .tf File
2. Run Terraform apply in CI/CD Pipeline
3. Employ mSCP Compliance Checks with Zentral

mSCP Demo

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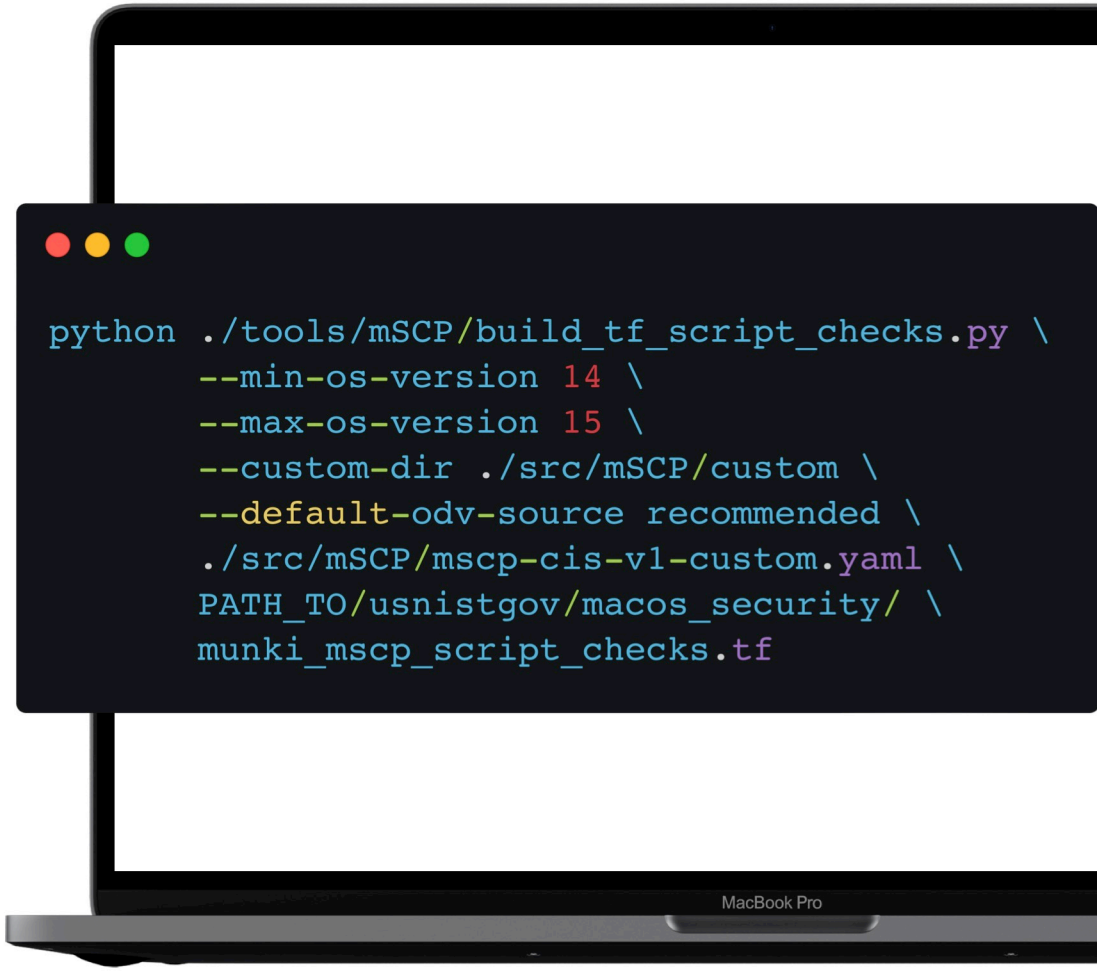
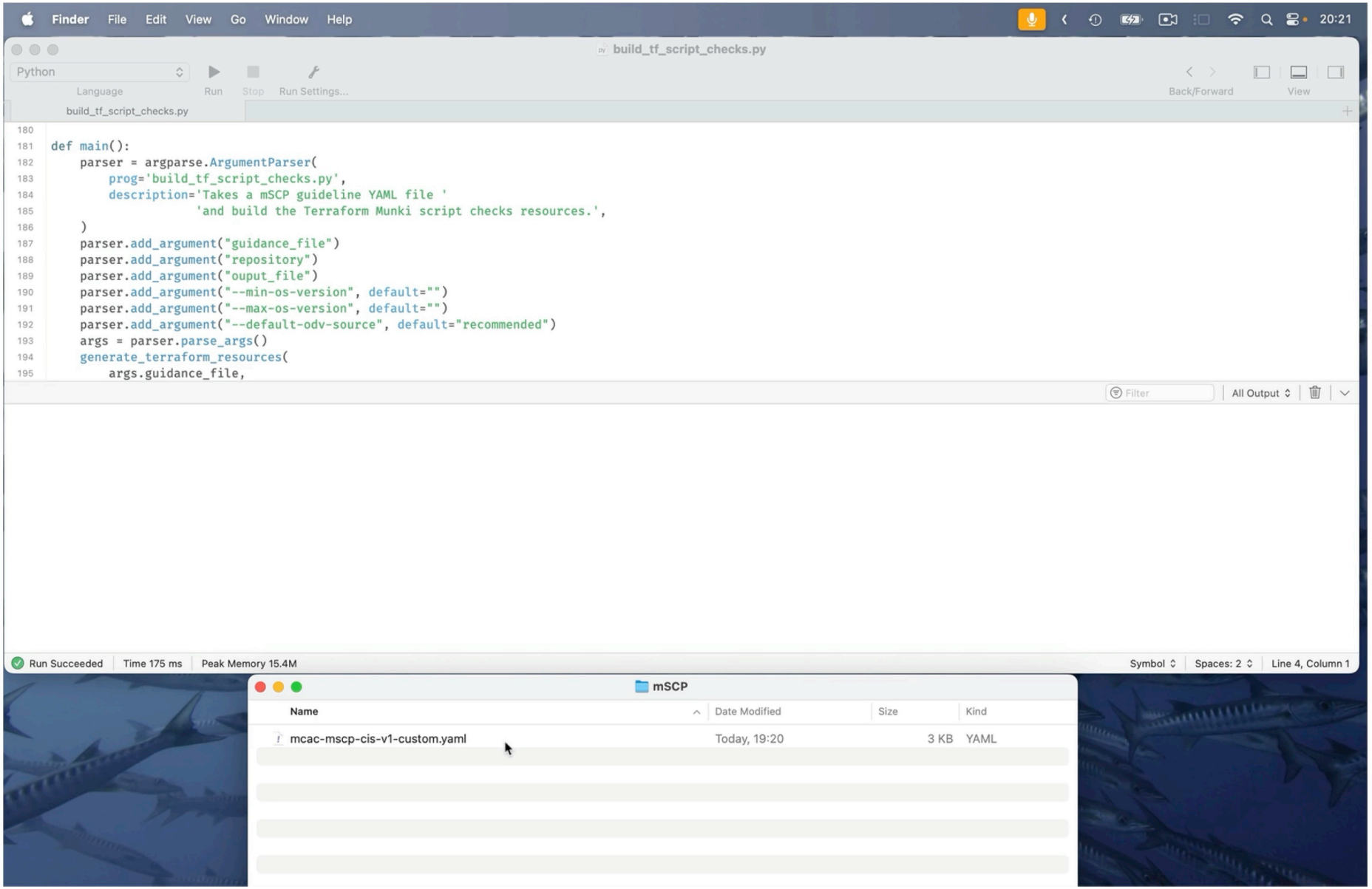
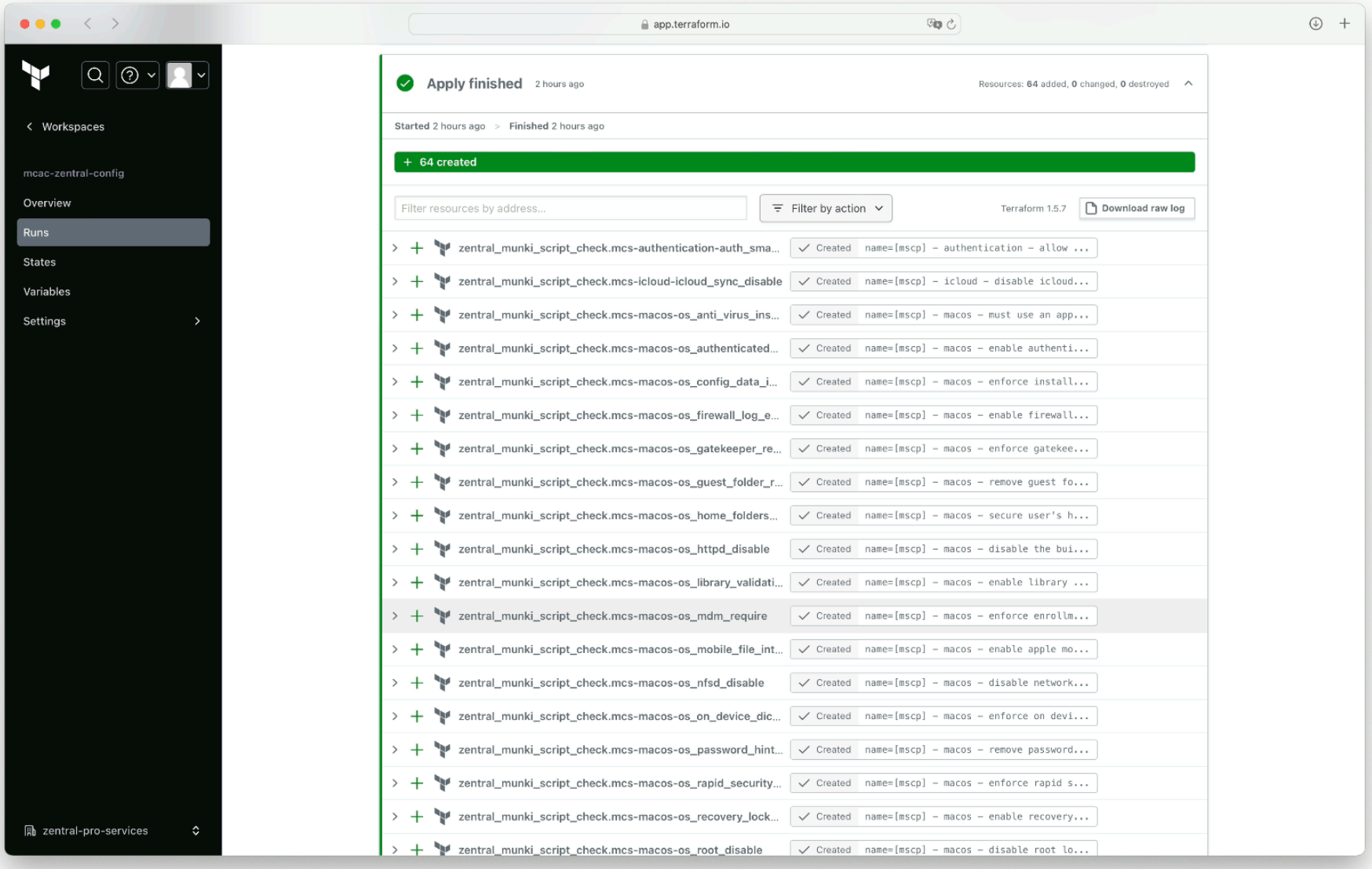



Finder File Edit View Go Window Help
20:21
build_tf_script_checks.py
Python
Language
Run
Stop
Run Settings...
Back/Forward
View
build_tf_script_checks.py
180
181 def main():
182 parser = argparse.ArgumentParser(
183 prog='build_tf_script_checks.py',
184 description='Takes a mSCP guideline YAML file '
185 'and build the Terraform Munki script checks resources.',
186)
187 parser.add_argument("guidance_file")
188 parser.add_argument("repository")
189 parser.add_argument("ouput_file")
190 parser.add_argument("--min-os-version", default="")
191 parser.add_argument("--max-os-version", default="")
192 parser.add_argument("--default-odv-source", default="recommended")
193 args = parser.parse_args()
194 generate_terraform_resources(
195 args.guidance_file,
Filter
All Output
Run Succeeded
Time 175 ms
Peak Memory 15.4M
Symbol
Spaces: 2
Line 4, Column 1
mSCP
Name
Date Modified
Size
Kind
mcac-mscp-cis-v1-custom.yaml
Today, 19:20
3 KB
YAML


app.terraform.io
Workspaces
mcac-zentral-config
Overview
Runs
States
Variables
Settings
zentral-pro-services
Apply finished 2 hours ago
Resources: 64 added, 0 changed, 0 destroyed
Started 2 hours ago > Finished 2 hours ago
+ 64 created
Filter resources by address...
Filter by action
Terraform 1.5.7
Download raw log
zentral_munki_script_check.mcs-authentication-auth_sma... Created name=[mscp] – authentication – allow ...
zentral_munki_script_check.mcs-icloud-icloud_sync_disable Created name=[mscp] – icloud – disable icloud...
zentral_munki_script_check.mcs-macos-os_anti_virus_ins... Created name=[mscp] – macos – must use an app...
zentral_munki_script_check.mcs-macos-os_authenticated... Created name=[mscp] – macos – enable authenti...
zentral_munki_script_check.mcs-macos-os_config_data_i... Created name=[mscp] – macos – enforce install...
zentral_munki_script_check.mcs-macos-os_firewall_log_e... Created name=[mscp] – macos – enable firewall...
zentral_munki_script_check.mcs-macos-os_gatekeeper_re... Created name=[mscp] – macos – enforce gatekee...
zentral_munki_script_check.mcs-macos-os_guest_folder_r... Created name=[mscp] – macos – remove guest fo...
zentral_munki_script_check.mcs-macos-os_home_folders... Created name=[mscp] – macos – secure user's h...
zentral_munki_script_check.mcs-macos-os_httpd_disable Created name=[mscp] – macos – disable the bui...
zentral_munki_script_check.mcs-macos-os_library_validati... Created name=[mscp] – macos – enable library ...
zentral_munki_script_check.mcs-macos-os_mdm_require Created name=[mscp] – macos – enforce enrollm...
zentral_munki_script_check.mcs-macos-os_mobile_file_int... Created name=[mscp] – macos – enable apple mo...
zentral_munki_script_check.mcs-macos-os_nfsd_disable Created name=[mscp] – macos – disable network...
zentral_munki_script_check.mcs-macos-os_on_device_dic... Created name=[mscp] – macos – enforce on devi...
zentral_munki_script_check.mcs-macos-os_password_hint... Created name=[mscp] – macos – remove password...
zentral_munki_script_check.mcs-macos-os_rapid_security... Created name=[mscp] – macos – enforce rapid s...
zentral_munki_script_check.mcs-macos-os_recovery_lock... Created name=[mscp] – macos – enable recovery...
zentral_munki_script_check.mcs-macos-os_root_disable Created name=[mscp] – macos – disable root lo...

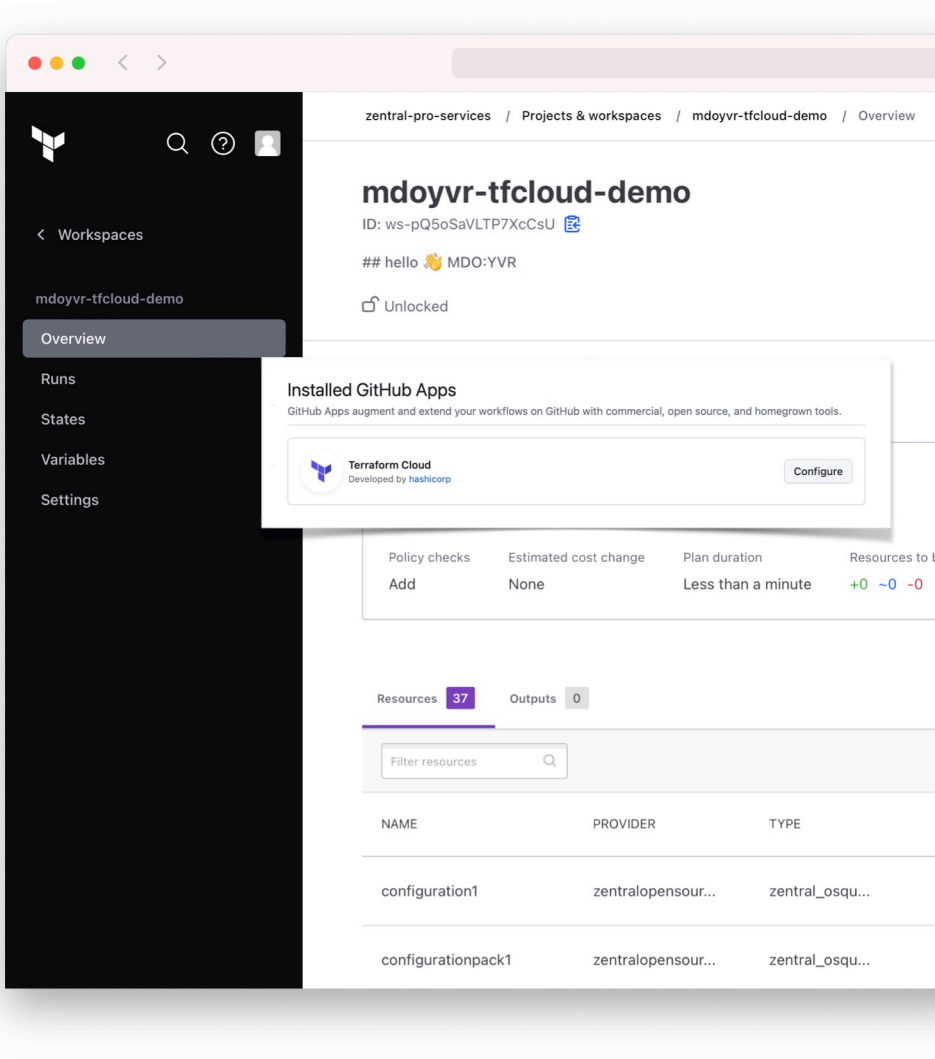
GitOps with CI/CD

Utilize a Build Pipeline in Terraform Cloud

Add New Resources for Osquery

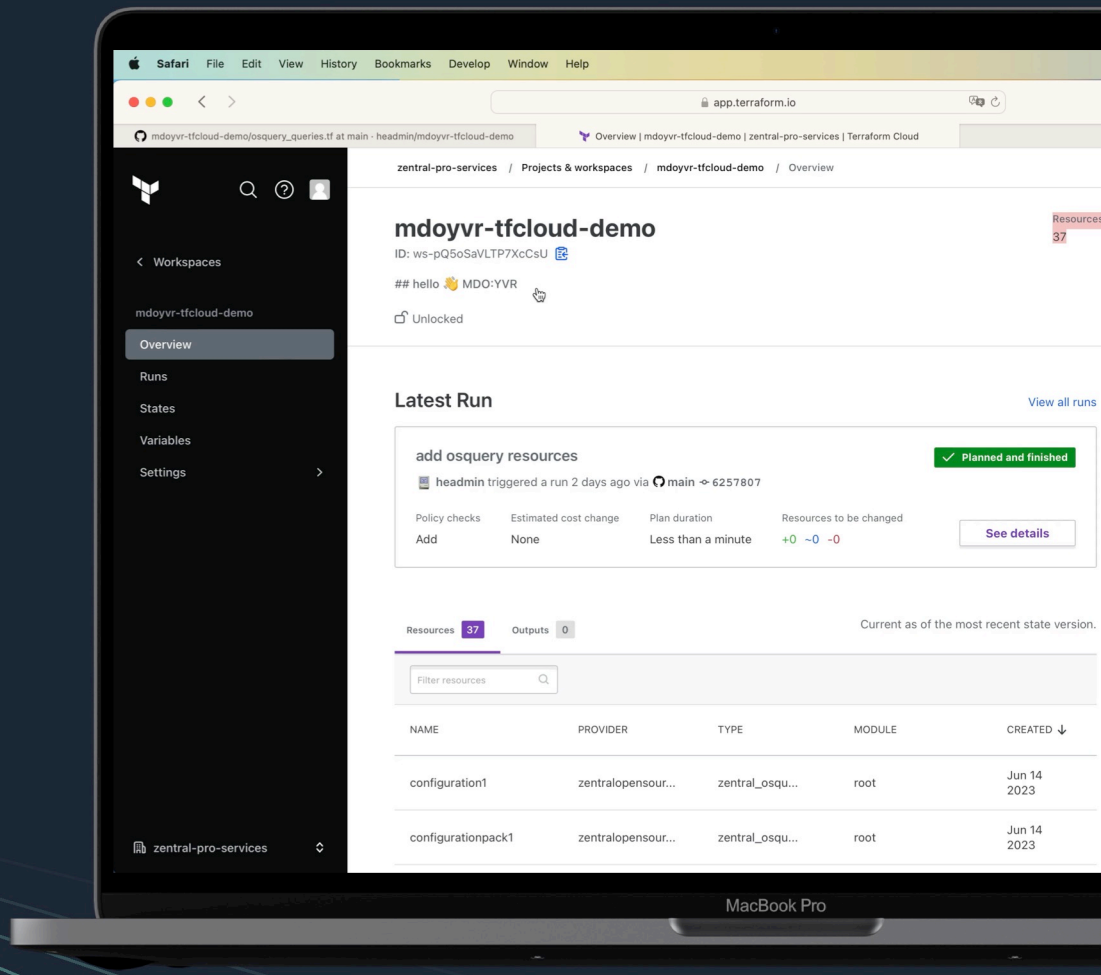
Automate Configuration Changes with Git Commits

Observe Applied Changes in Zentral



Device Management with Terraform

Terraform Cloud Gitops



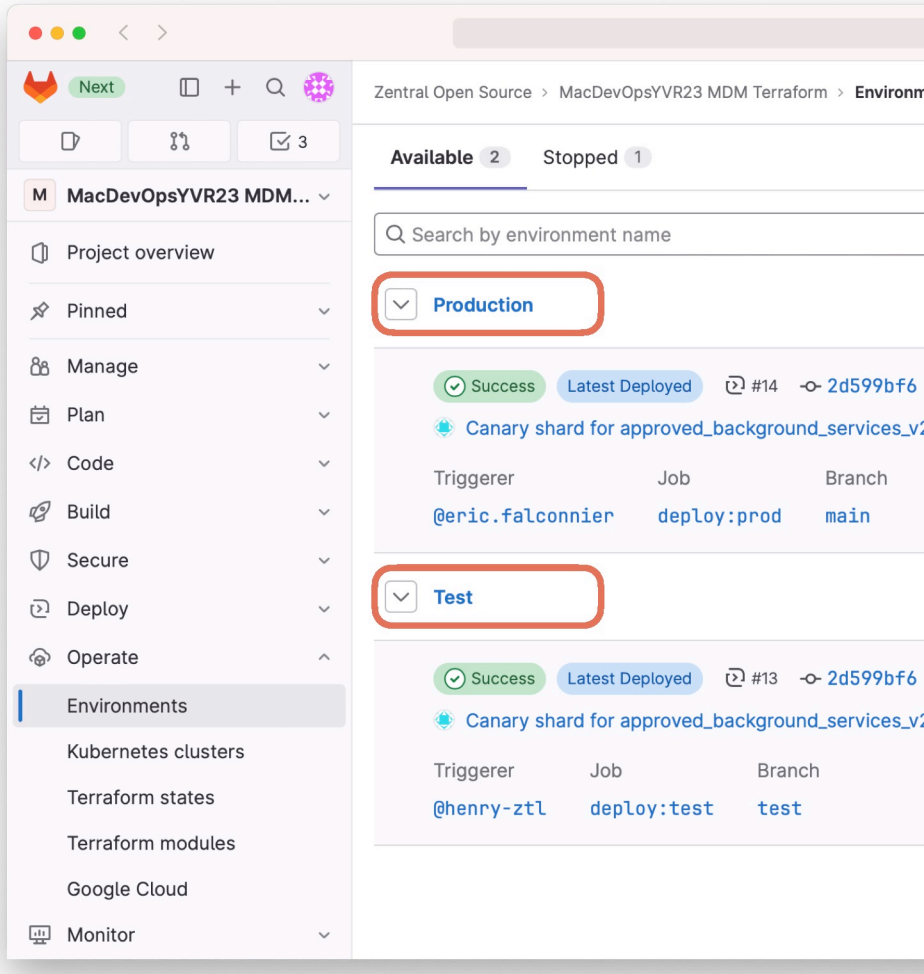
Device Management with Terraform

Dual Pipeline Strategy

GitLab-Based Pipelines (2 protected branches)

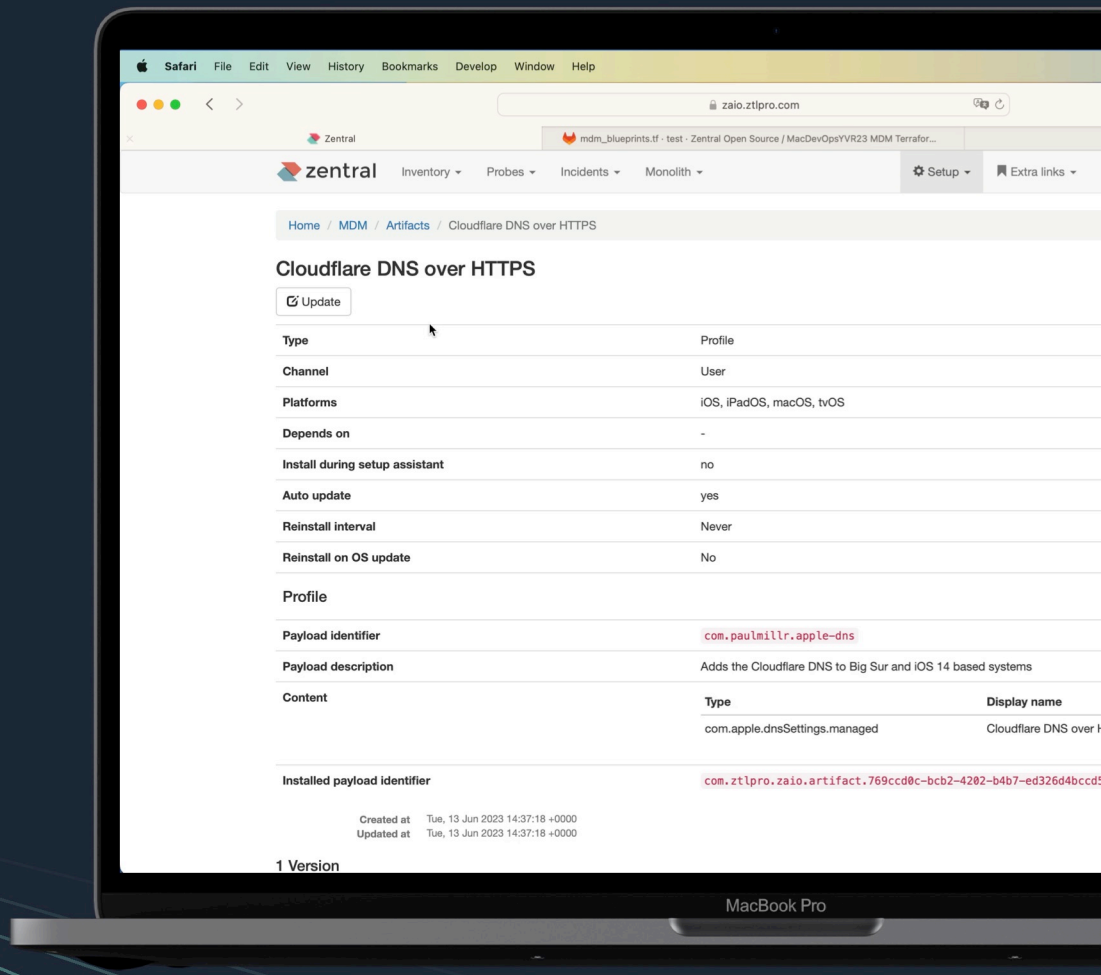
Utilizing 2 Zentral Environments (Production & Test)

Approval Process Setup (dual control)



Gitlab pipeline test/prod

with protected branch & approval merge request



Device Management with Terraform

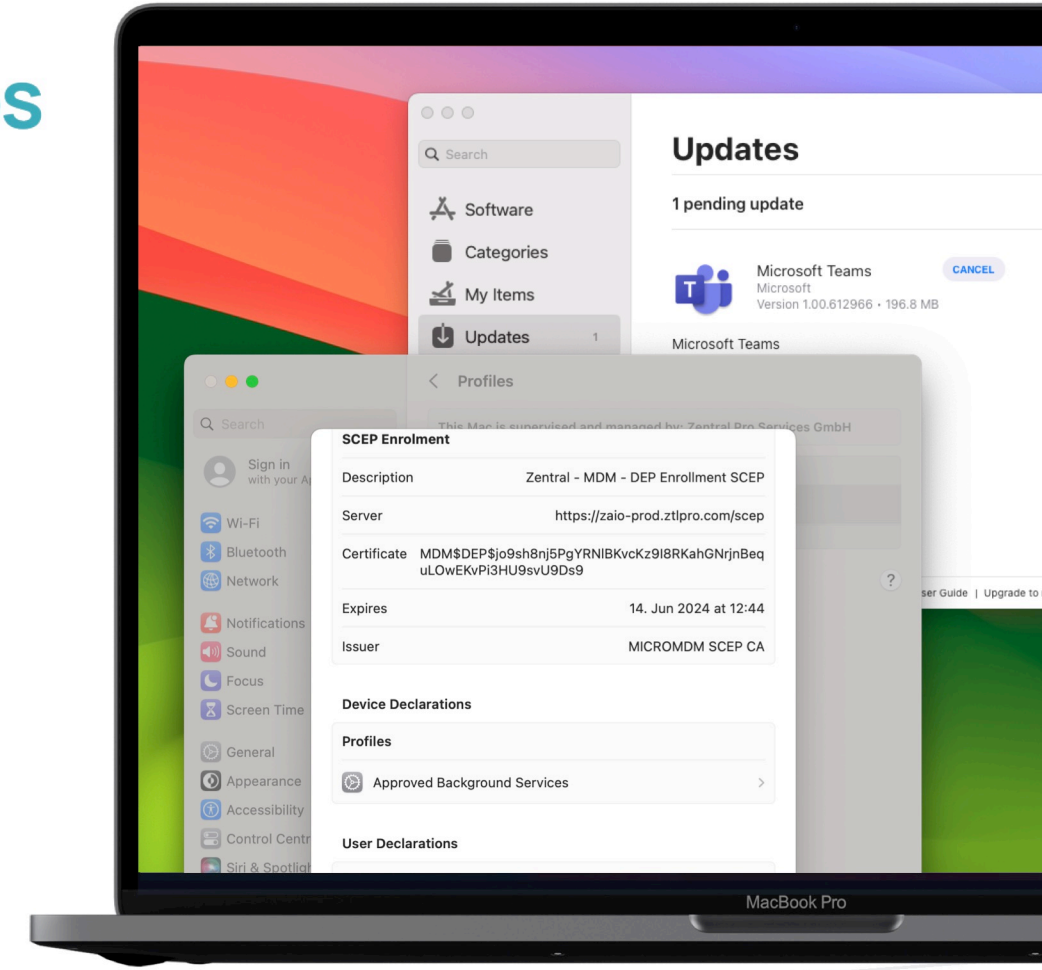
Unlock the Rewards of GitOps

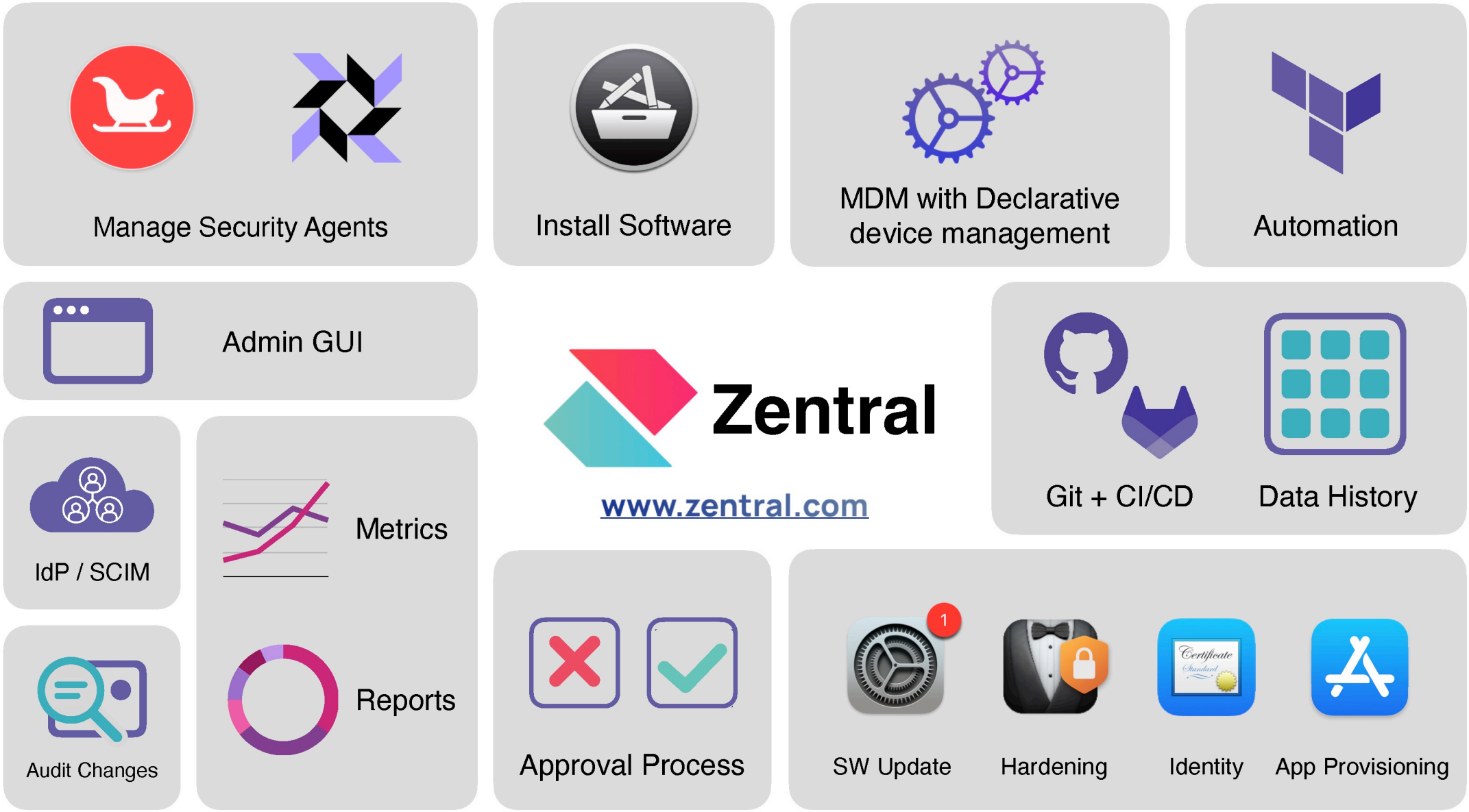
Are toggle switches a thing of the past?

Leaving GUI behind is no walk in the park!

Safety nets are hard work

But we get plenty of rewards




Manage Security Agents
Install Software
MDM with Declarative device management
Automation
Admin GUI
Zentral
www.zentral.com
Git + CI/CD
Data History
IdP / SCIM
Metrics
Reports
Audit Changes
Approval Process
SW Update
Hardening
Identity
App Provisioning

Open codebase

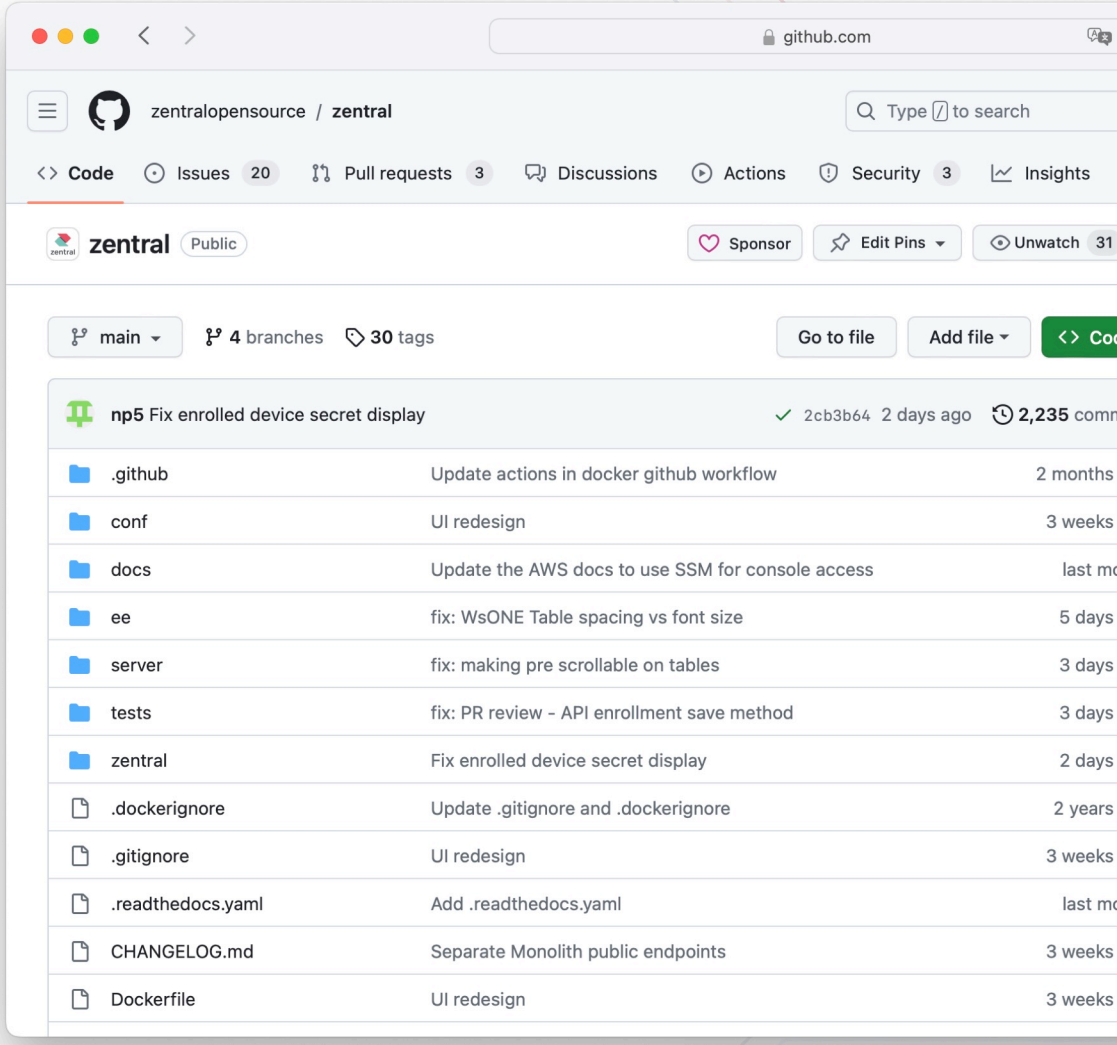
https://github.com/zentralopensource/zentral

https://docs.zentral.io

https://registry.terraform.io

Starred 702

Device Management with Terraform



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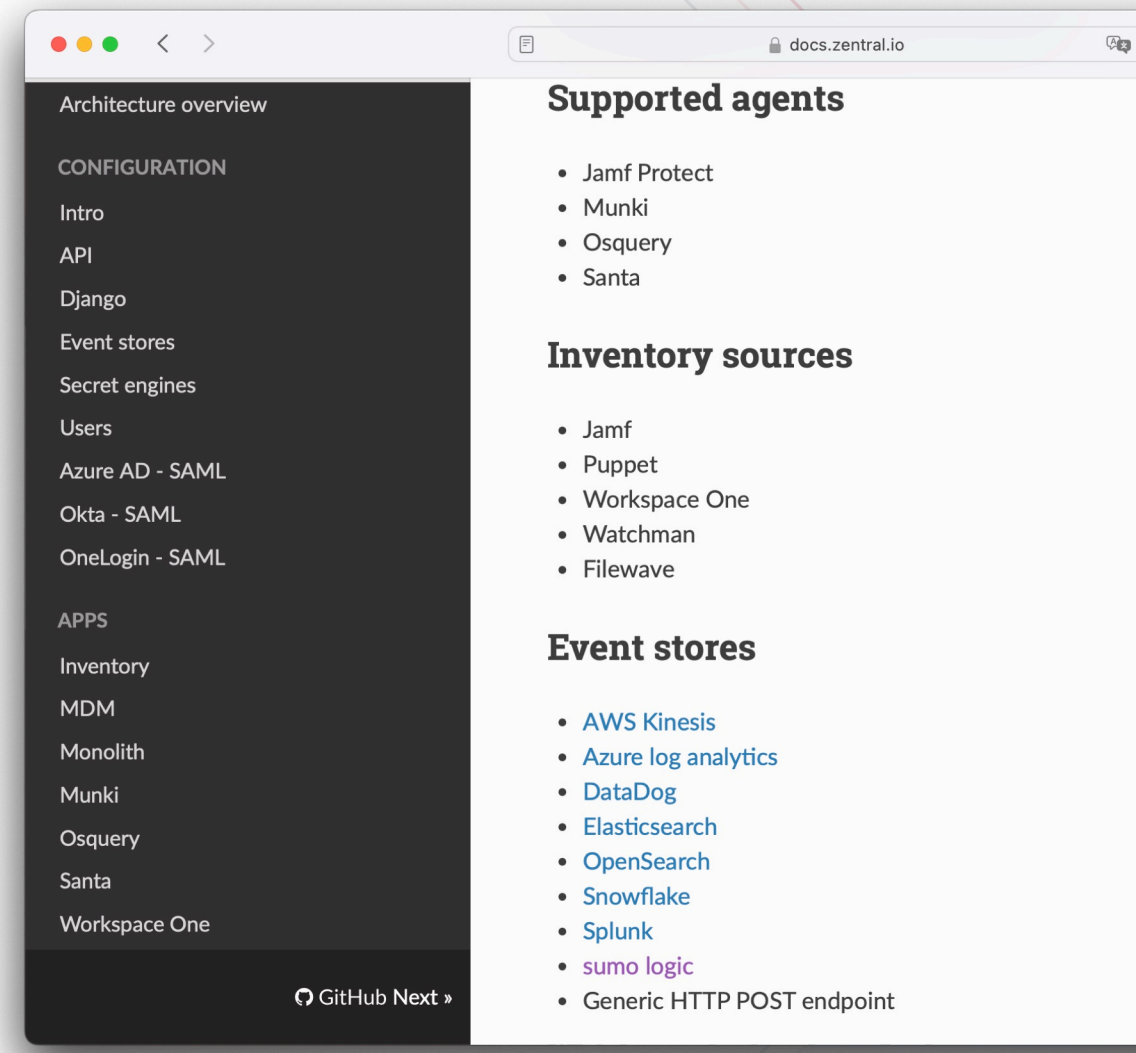

Vendor Support with SLA

Leverage Best-In-Class Open Source Agents

Terraform-Powered Device Management

Pioneering GitOps Declarative MDM

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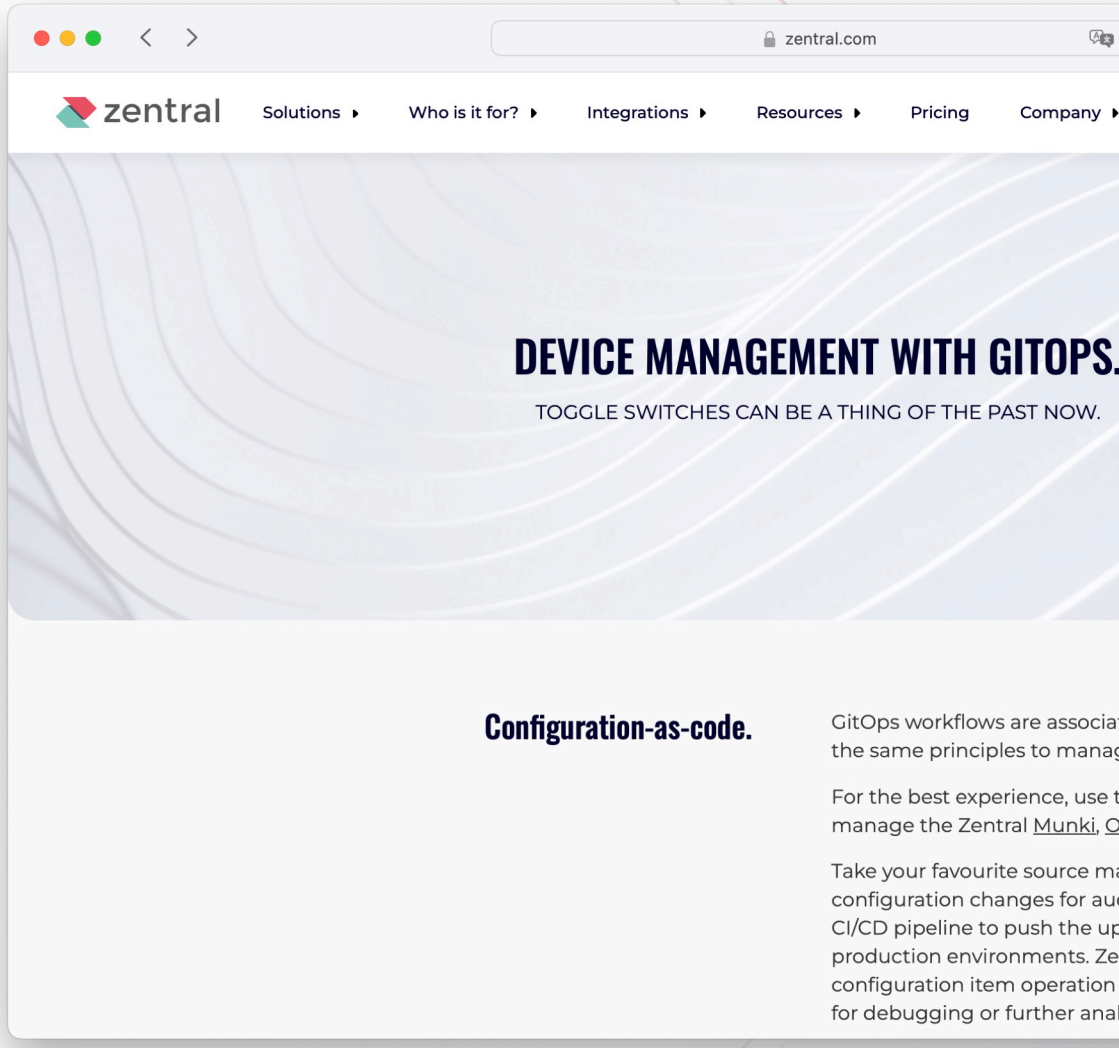

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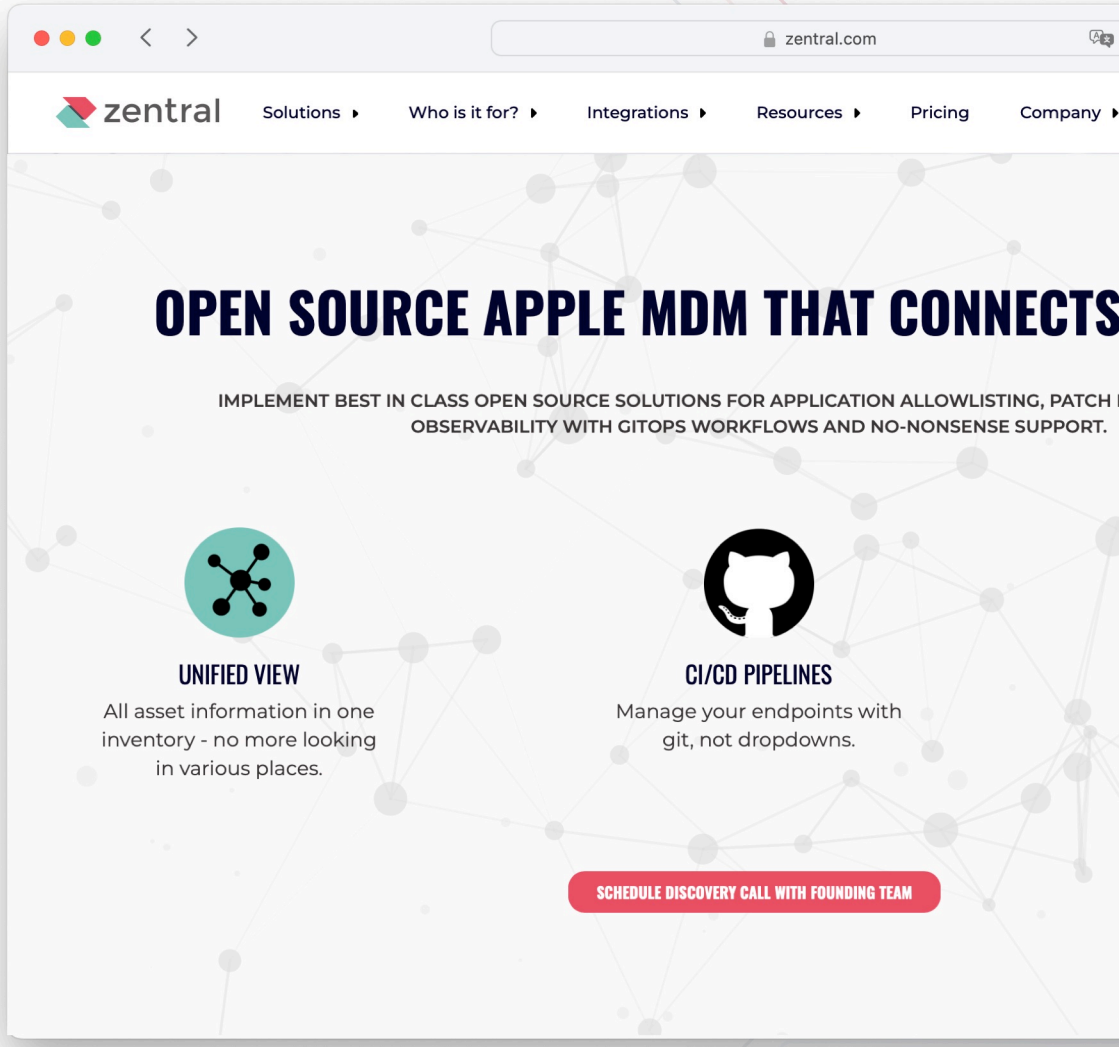

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Thank you!

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