

Infrastructure as...Claude?







MSA 2026 Presentation



David Starr

To: MacSysAdmin

Reply To: David Starr

Oct 16, 2025 at 16:23



Patrik,

Still reflecting off of a really great MSA 2025. Thanks again.

I feel the urge to contribute back to the community and actually present something. I've been waiting to sort of have the inspiration to talk about something meaningful and relevant vs find something to just get me on stage. Here's a bit of an idea I'm working on. Hear me out, it's a little bit long.

After MacSysAdmin (and [MacAD.UK](#)) it's becoming obvious that many MacSysAdmins are embarking on a necessary evolution from "Apple IT expert" to "IT devops engineer". You had some great sessions covering this from [Brock and Viktor](#) as well as [Justin Pitts](#). [Fleet](#), [Workbrew](#), and now [Jamf Terraform providers](#) are all trends highlighting the need to get deeper in to the devops world. At the same time, Apple (since 2023) has been pushing on ACME device attestation as a secure, modern replacement for SCEP services. [Joel covered ACME](#) in depth last year. I've been interviewing for some client platform engineering roles here in The Netherlands and pushing myself to smash these two trends together a bit. I managed to get Fleet running in my AWS instance built completely *via Terraform*. I also sat in on a Fleet training in the Netherlands and made the acquaintance of a Dutch engineer [REDACTED] working at [REDACTED] I'm keen to show off a live ACME server implementation that's replicable by attendees and highlight some of the journey to do the transplant manually or via infrastructure as code. It feels timely to revisit it and perhaps it fits with your broader content plans. [REDACTED]

In case you're looking for credentials around presentation skills: I haven't spoken externally in the MacAdmin community, but I did speak publicly and privately at Apple for many years as a Consulting Engineer, including presentations at PSU MacAdmins, COSN, regional conferences, and internal SE Camps.

Let me know your thoughts when you have time.

D★

David Starr

Building great **partner** product and program experiences at Workbrew.







“Focus on one thing in the story,
find the thing you care passionately
about and write about that.”









400

NCL NO
CRU

SCRIPTIN

MACADMI

HOME

LCARS

MENU

COMMS

03-111968

04-041969

05-17010

06-071984

MANAGING FIRST

ARMIN BRIEGEL

Mac Admin, Consultant and Author

Scripting OS X · MacAdmins.news · Jamf



GÖTEBORG·



FRIDAY THE 10TH

JSON LIVES

Slashing APIs with jq

Ulrik Aabye-Hansen

Interim camp counselor & trainer

Macysadmin 2025



JOAQUIN PHOENIX AMY ADAMS ROONEY MARA
OLIVIA WILDE AND SCARLETT JOHANSSON

her

A SPIKE JONZE LOVE STORY

WARNER BROS. PICTURES PRESENTS
AN ANNAPURNA PICTURES PRODUCTION "HER" JOAQUIN PHOENIX AMY ADAMS ROONEY MARA OLIVIA WILDE AND SCARLETT JOHANSSON
CASTING BY ELLEN LEWIS CASSANDRA KULUNDIS SOUND DESIGN & REN KLYCE MUSIC BY ARCADE FIRE PERFORMED BY CASEY STORM EDITED BY ERIC ZUMBRUNNEN A.C.E. JEFF BUCHANAN PRODUCTION DESIGNER KK BARRETT
DIRECTOR OF PHOTOGRAPHY HOYTE VAN HOYTEMA, F.S.C., M.S.C. EXECUTIVE PRODUCERS DANIEL LUPI NATALIE FARRER CHLOE BARNARD PRODUCED BY MEGAN ELLISON SPIKE JONZE VINCENT LANDAY WRITTEN AND DIRECTED BY SPIKE JONZE
COMING SOON herthemovie.com



ACADEMY AWARD® WINNER!
BEST SUPPORTING ACTOR - CHRIS COOPER

Nicolas Cage
Meryl Streep
Chris Cooper

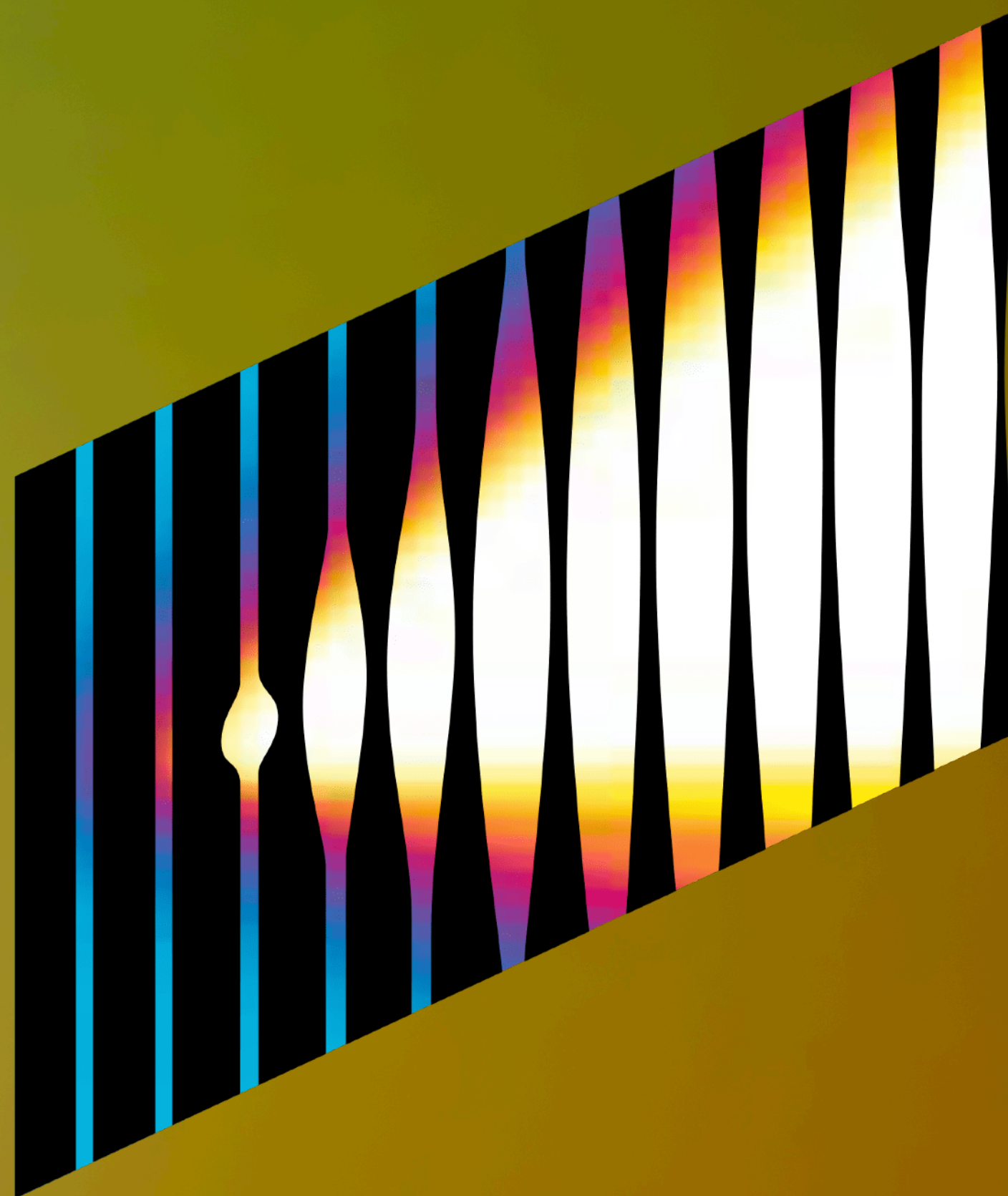
Adaptation.



Directed by Spike Jonze
Screenplay by Charlie Kaufman and Donald Kaufman

SUPERBIT





SONY
PICTURES





"Stylishly written, whimsical yet sophisticated, quirkily detailed and full of empathy . . . *The Orchid Thief* shows [Orlean's] gifts in full bloom."

—*The New York Times Book Review*

S U S A N
O R L E A N

A True Story
of Beauty
and Obsession



THE
O R C H I D
T H I E F



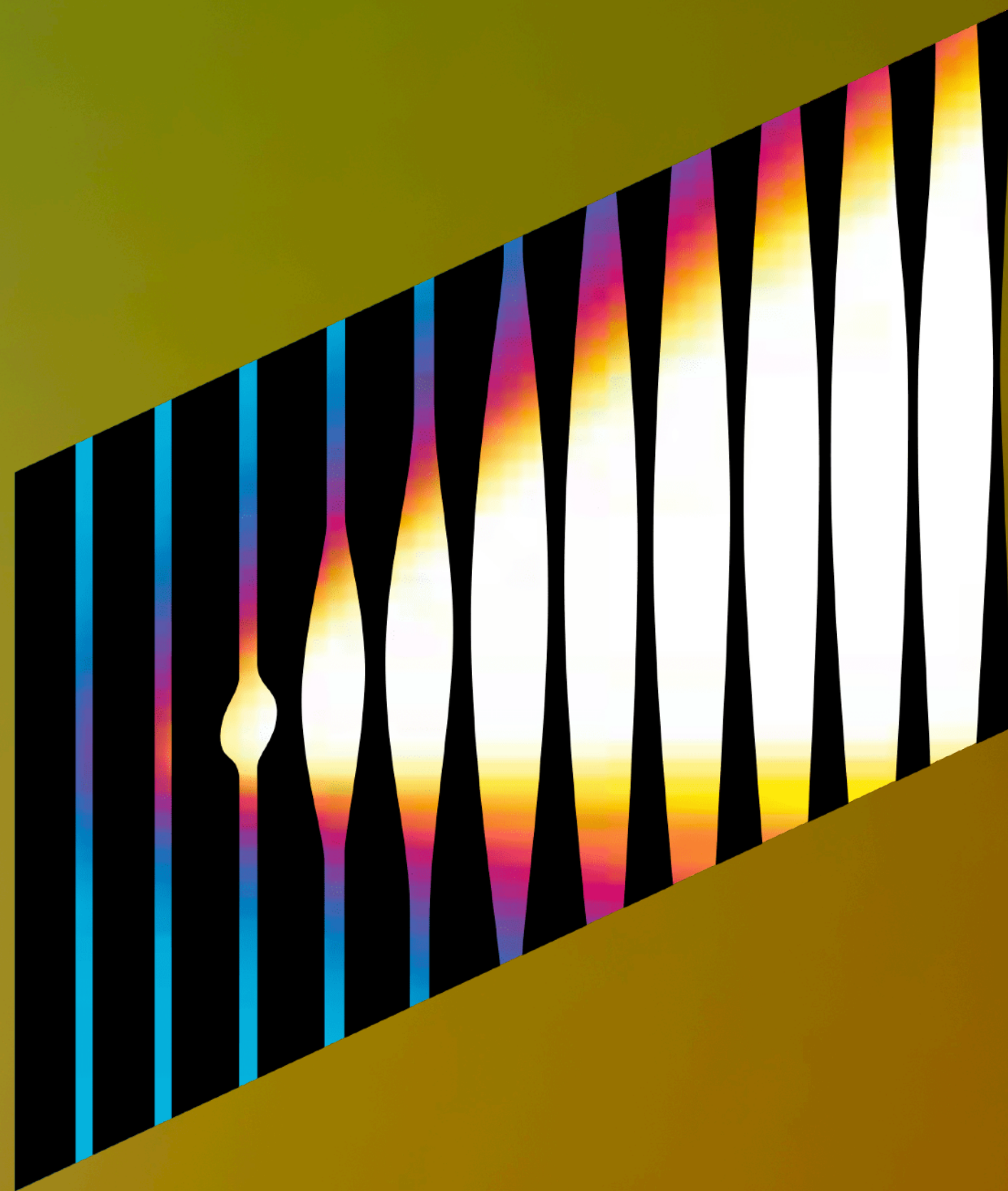
THE ORCHID THIEF

by
Charlie Kaufman

adapted from the book

THE ORCHID THIEF
by

Susan Orlean



SONY
PICTURES









“A landscape of transition
and mutation.”

nordic-msp-infra main / describe-customers-yaml-and-team-yaml-as... Sign In

nordic-msp-infra

.claude

{ } settings.local.json

.github

scripts

addigy.py

open-pr-as-bot.sh

.gitignore

{ } addigy-policies.json

CLAUDE.md

customers.yaml

main.tf

README.md

team.yaml

team.yaml

customers.yaml

main.tf

main.tf > data "workbrew_partner" "msp"

58 resource "workbrew_customer_workspace" "customer" {
59 for_each = local.customers
60
61 partner = data.workbrew_partner.msp.name
62 name = each.key
63 owner_email = each.value.owner_email
64 allowed_domain = try(each.value.domain, null)
65 device_cap = try(each.value.device_cap, null)
66 plan = try(each.value.plan, null)
67 }
68
69 resource "workbrew_mdm_integration" "customer" {
70 for_each = local.customers
71
72 partner = data.workbrew_partner.msp.name
73 workspace = workbrew_customer_workspace.customer[each.key].name
74 type = "addigy"
75 client_id = try(local.addigy[each.key].policy_id, "pending: created by the Addigy step on merge")
76 api_token_wo = var.addigy_api_key
77 }
78
79 resource "workbrew_workspace_access" "team" {
80 for_each = { for id, grant in local.grants : id => grant if contains(keys(local.customers), grant.customer)
81
82 partner = data.workbrew_partner.msp.name
83 workspace = workbrew_customer_workspace.customer[each.value.customer].name
84 user_id = workbrew_partner_membership.team[each.value.email].user_id
85 role = each.value.role
86 }
87 }

Failed to run ruff. Click to show error.

48:2 Terraform

nordic-msp-infra main / describe-customers-yaml-and-team-yaml-as... Sign In

nordic-msp-infra

.claude

{ } settings.local.json

.github

scripts

addigy.py

open-pr-as-bot.sh

.gitignore

{ } addigy-policies.json

CLAUDE.md

customers.yaml

main.tf

README.md

team.yaml

< >

team.yaml

customers.yaml

main.tf

+ [] ↗

team.yaml > elin.strand@nordic-msp.example > customers 🔍 ⚙️ I ⚙️

8 astrid.berg@nordic-msp.example:

9 | role: admin # head of service delivery

10

11 lars.nyman@nordic-msp.example:

12 | role: member # clinics and pharmacies

13 | customers:

14 | acme-dental: admin

15 | lyra-dental: admin

16 | tallberg-clinic: admin

17 | ask-veterinary: admin

18 | dal-pharmacy: write

19

20 maja.holm@nordic-msp.example:

21 | role: member # studios and schools

22 | customers:

23 | kvarn-media: admin

24 | mossa-games: admin

25 | klippan-films: admin

26 | lingon-design-studio: admin

27 | tidvatten-audio: write

28 | solsken-schools: write

29 | uggla-it-school: write

30

31 nils.ek@nordic-msp.example:

32 | role: member # logistics and food

33 | customers:

34 | gran-logistics: admin

35 | isberg-cold-chain: admin

36 | vag-transport: admin

37 | polar-bakery: write

48:1 YAMLL2⌕⚙️

Failed to run ruff. Click to show error.

 nordic-msp-infra

 .claude

```
{ } settings.local.json
```

📁 .github

scripts

addigy.py

```
> open-pr-as-bot.sh
```

 .gitignore

```
{ } addigy-policies.json
```

≡ Brewfile

 CLAUDE.md

YAML customers.yaml

 main.tf

 README.md

YAML team.yaml

← → team.yaml

Brewfile

customers.yaml

main.tf

Brewfile

```
1 # A developer Mac at one of Nordic MSP's customers, described once.
2 # 'brew bundle' makes the Mac match; 'brew bundle check' says whether it does.
3
4 tap "workbrew/tap", trusted: true
5 tap "hashicorp/tap", trusted: { formulae: ["terraform"] }
6
7 cask_args appdir: "/Applications", require_sha: true
8
9 # Command-line tools
10 brew "git"
11 brew "gh"
12 brew "jq"
13 brew "awscli"
14 brew "hashicorp/tap/terraform"
15 brew "python@3.13"
16 brew "node", link: true
17
18 # Services that run in the background and restart when they're upgraded
19 brew "postgresql@16", restart_service: :changed
20 brew "redis", restart_service: :changed
21
22 # Apple Silicon only
23 brew "colima" if Hardware::CPU.arm?
24
25 # Apps
26 cask "google-chrome"
27 cask "slack"
28 cask "zoom", greedy: true
29 cask "visual-studio-code"
30 cask "1password"
```




Summary

All jobs

validate

plan

Run details

Usage

Workflow file

plan

succeeded 11 minutes ago in 21s

Search logs

Terraform init

1s

31

32

33

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41

- workbrew.com/msp/workbrew

The current .terraform.lock.hcl file only includes checksums for darwin_arm64, so Terraform running on another platform will fail to install these providers.

To calculate additional checksums for another platform, run:
terraform providers lock -platform=linux_amd64
(where linux_amd64 is the platform to generate)

Terraform has been successfully initialized!

Terraform plan

0s

1

2

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► Run terraform plan -input=false -no-color -out=tfplan | tee plan.txt

data.workbrew_partner.msp: Reading...

data.workbrew_partner.msp: Read complete after 0s [name=nordic-msp]

workbrew_partner_membership.team["elin.strand@nordic-msp.example"]: Refreshing state... [id=37c88539-2a7d-449d-8c67-d7f04c984f88]

workbrew_partner_membership.team["nils.ek@nordic-msp.example"]: Refreshing state... [id=add37a74-e1e1-40db-b69a-318cb2f94fe2]

workbrew_partner_membership.team["lars.nyman@nordic-msp.example"]: Refreshing state... [id=63f2fe03-d9f5-4ae7-820b-f013d0cd6e17]

workbrew_partner_membership.team["astrid.berg@nordic-msp.example"]: Refreshing state... [id=73380b97-cd97-44dc-8b16-89e7778b17c3]

workbrew_partner_membership.team["maja.holm@nordic-msp.example"]: Refreshing state... [id=4ea450a8-b092-46d9-a11a-bbfed733d915]

No changes. Your infrastructure matches the configuration.

Terraform has compared your real infrastructure against your configuration and found no differences, so no changes are needed.

Post the plan on the pull request

2s

Detaching customers needs the allow-detach label

0s

Post Run actions/checkout@v4

1s

Complete job

0s

1

Developer Workflow

WRITE > REVIEW > COLLABORATE



Write
Configuration
Code



Version
Control (Git)



Pull
Request



Code
Review

2

CI/CD Pipeline

AUTOMATE > VALIDATE > READY



Build & Test



Static
Analysis



Validate
Configuration



Process
Options

3

IaC Execution Tool

PLAN > PREVIEW > DEPLOY



Load State



Plan Changes



Apply
Infrastructure

4

Cloud Infrastructure

PROVISIONED BY CODE



Virtual
Machines



Networking



Databases



Load
Balancers



Storage



Security
Groups



Container
Orchestration



Traditional "ClickOps"	Infrastructure as Code
Changes made directly in UI	Changes defined in code files
Some auditing who and what changed	Git history with author and timestamp
Difficult to replicate environments	Identical deployments every time
Manual disaster recovery	Rebuild from code in minutes
Changes go live immediately	Pull request review before deployment
"It worked yesterday" debugging	Compare any two points in time
Tribal knowledge	Self-documenting configurations
One environment at a time	Manage multiple instances consistently

Inspiration source: Jamf, "Resources: Terraform, GitHub, and Jamf Configurations"

The **standard** for
device management is
declarative management.

~/Developer/nordic-msp-infra

~/Developer/nordic-msp-infra⌘1+

djs

~/nordic-msp-infra

add-a-brewfile-for-a-developer-mac

14:37:57

ls

inode	Permissions	Size	User	Group	Date Modified	Git	Name
72300640	drwxr-xr-x@	-	djs	staff	2 days	--	📁 .claude
68829318	drwxr-xr-x@	-	djs	staff	1 hour	-I	📁 .git
68829316	drwxr-xr-x@	-	djs	staff	2 days	--	📁 .github
72300648	drwxr-xr-x@	-	djs	staff	2 days	--	📁 scripts
72290503	.rw-r--r--@	124	djs	staff	2 days	--	📄 .gitignore
72501285	.rw-r--r--@	9.6k	djs	staff	2 days	-I	{ } addigy-policies.json
72846695	.rw-r--r--@	1.1k	djs	staff	2 hours	--	📄 <u>Brewfile</u>
72334448	.rw-r--r--@	1.5k	djs	staff	2 days	--	📄 CLAUDE.md
72502557	.rw-r--r--@	924	djs	staff	2 days	--	📄 customers.yaml
72852826	.rw-r--r--@	2.5k	djs	staff	1 hour	--	📄 main.tf
72343274	.rw-r--r--@	3.3k	djs	staff	2 days	--	📄 <u>README.md</u>
72502558	.rw-r--r--@	1.4k	djs	staff	2 days	--	📄 team.yaml

djs

~/nordic-msp-infra

add-a-brewfile-for-a-developer-mac

14:38:00

git status

On branch add-a-brewfile-for-a-developer-mac
nothing to commit, working tree clean

djs

~/nordic-msp-infra

add-a-brewfile-for-a-developer-mac

14:45:11

“How did this relationship develop?
This odd connection? Does it matter?
Can we fight it? Should we?”

youtube.com

YouTube^{NL}

Search

Sign in



Is AI going to take overyour job?



MacSysAdmin Conference

896 subscribers

Subscribe

2

Share

Save

104 views 11 months ago

We keep hearing about the ability to create software with AI, how non-coders can create applications which are ready to be shipped to customers. Is this reality or just a SciFi dream? This talk will investigate the current state of using AI for code generation and how it will affect the software industry in the future. ...more

Comments are turned off. [Learn more](#)



MASTERING
APPLE'S ENDPOINT
SECURITY

Patrick Wardle

54:28



UPDATE

Steve Hayman

51:11

Got it, message hidden

New



MACHINE LEARNING
FULL COURSE
FOR BEGINNERS

3:02:45

The One Skill You
Can't Ignore in the
Age of AI

Khushboo Ma'am

196

4d ago



✱
Uncle Bob

on Software
Fundamentals and AI

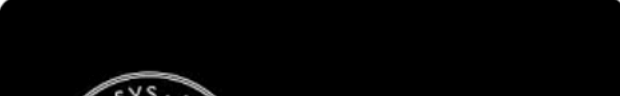
56:40

LIVE: Uncle Bob on
Software
Fundamentals in t...

Matt Pocock

255K

Streamed 1...



22 Short Films
About Macs



Allen Houchins

4:58 PM

I need to remove Okta Verify from being available to Windows workstations

✓

1





1 reply

1 day ago



Allen Houchins

5:08 PM

Let's add Okta Verify for Windows workstations by using the secret DOGFOOD_OKTA_VERIFY_WINDOWS_URL. The app should be available during setup experience and self-service and scoped to just x86 Windows devices.

✓

1





1 reply

1 day ago



Allen Houchins

6:13 PM

Let's restore the Google Calendar Integration that used to exist.

✓

1







3 replies

Last reply 1 day ago



Allen Houchins

6:57 PM

Turn off webhooks for macOS - 1Password up to date and macOS - Enrollment profile up to date

✓

1





1 reply

1 day ago



Allen Houchins

7:24 PM

Disable bypass for conditional access

✓

1





1 reply

1 day ago



Allen Houchins

7:37 PM

Create a policy that fails for all workstation that have 10% or less available disk space

✓

1







3 replies

Last reply 1 day ago



Allen Houchins

9:59 PM

I want to enforce DNS over HTTPS with fallback enabled in Firefox for both Windows and macOS workstations. I want to enforce these via configuration profiles.

✓

1







3 replies

Last reply 11 hours ago

Today ▾



Allen Houchins

9:52 AM

I want to remove Company Portal and the extensible single sign-on from my Workstations and any related labels or policies used for scoping.

✓

1





1 reply

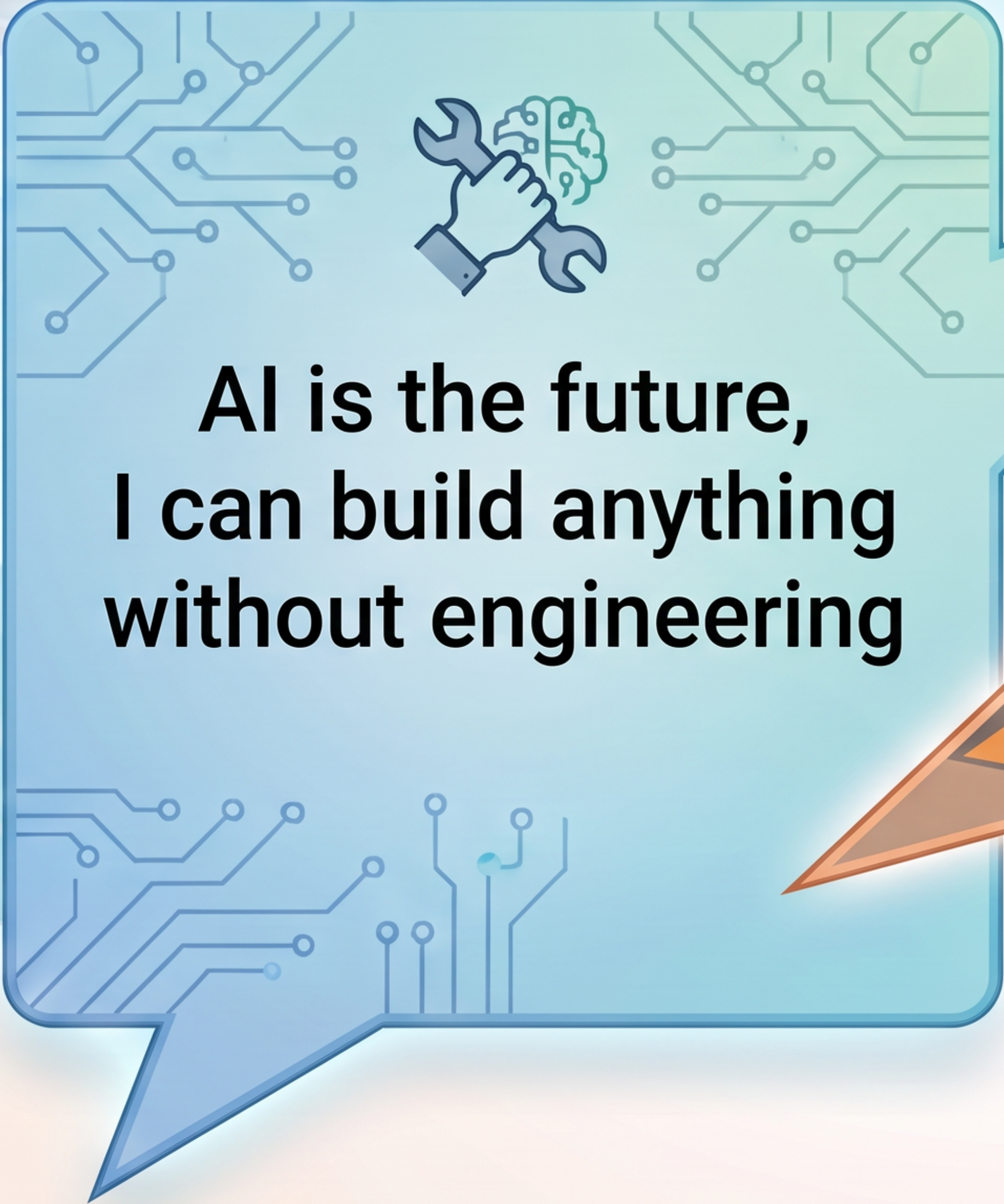
Today at 9:56 AM











**AI is the future,
I can build anything
without engineering**



**everything AI does
is useless slop and is
an illegal enterprise**

academy.claude.com

Claude Academy

Explore

All resources

Search

K

Sign in

AI Fluency: Framework and foundations

Learn to collaborate with AI effectively, efficiently, ethically, and safely using the 4D framework: Delegation, Description, Discernment, and Diligence.

14 lessons

4 hr

1 quiz

Completion badge

Start course

Sign in to save progress

Introduction to AI Fluency

Introduction to AI Fluency

The AI Fluency Framework

Why do we need AI Fluency?

The 4D Framework

Deep Dive 1: What is Generative AI? (Part 1)

Generative AI fundamentals

Capabilities & limitations

Delegation

A closer look at Delegation

Project planning and Delegation

Description



“Adapting someone else's work
is certainly an opportunity to
think differently.”

Settings

127.0.0.1:3000/workspaces/msp/settings/users

Workbrew

msp

Dashboard

Vulnerabilities

Devices

Packages

Default Packages

Policies

Brew Commands

Brew Configurations

Settings

Contact

Documentation

Changelog

workbrew.com

@djstarr

Workspace

Users

GitHub Installations

Updated user role in msp.

Search for users

Add New User

AVATAR	USERNAME OR EMAIL	ROLE	ACTION
	djstarr djstarr@local.dev		Leave Workspace
	shainamac@local.dev Workspace Owner	Read Write ✓ Administrator	Remove User
	liam@local.dev	Administrator	Remove User
	vivi@local.dev	Administrator	Remove User

Showing page 1 of 1 (4 total results)

180.4 ms x2

Workbrew MSP

workbrew.com/msp

All Customers

11

Open Vulnerabilities

[Review 3 affected customer workspaces →](#)

267

Vulnerabilities resolved

Remediated by Ironwood MSP

My Customers

Package Requests

10

Policy Violations

21

Outdated Packages

1

Outdated Devices

4

All customers



PACKAGE

DEVICE

CUSTOMER

REQUESTED

ACTION

notion

Cask · homebrew/homebrew-cask

Florentino Gibson (ZPIT5WLSZ4)

meridian-labs

about 3 hours ago

Review

raycast

Cask · homebrew/homebrew-cask

The Hon. Candy Swift (RN9ENTQQRB)

redwood-analytics

about 5 hours ago

Review

ripgrep

Formula · homebrew/homebrew-core

Reid Yundt (GB2KITD8FJVS)

meridian-labs

about 8 hours ago

Review

slack

Cask · homebrew/homebrew-cask

Magdalen Schaden (7WFCV4HZSC)

northwind-robotics

about 20 hours ago

Review

raycast

Cask · homebrew/homebrew-cask

Lydia O'Keefe III (XWQ0NMP4FOP)

bluepeak-financial

1 day ago

Review

wireshark

Cask · homebrew/homebrew-cask

Nga Kohler (QCC5094DDAYN)

orchard-health

2 days ago

Review

jq

Formula · homebrew/homebrew-core

Raymundo Gleason DO (IHUYSNP0ZC3)

gatewick-partners

2 days ago

Review

Customer Workspaces

WORKSPACE	PLAN	DEVICES	VULNERABILITIES	OUTDATED PACKAGES	OUTDATED AGENTS	PENDING REQUESTS	ACTION
this-is-a-test	Workbrew Enterprise	0	0	0	0	0	
test-workspace-for-jnuc	Workbrew Pro	0	0	0	0	0	
my-first-workspace	Workbrew Free	0	0	0	0	0	
stonebridge-logistics	Workbrew Enterprise	27	4	1	0	1	
beacon-hill-legal	Workbrew Enterprise	22	3	1	1	0	
gatewick-partners	Workbrew Pro	38	4	1	0	1	
redwood-analytics	Workbrew Enterprise	130	0	1	1	1	
fernwood-legal	Workbrew Pro	19	0	1	0	0	
summit-creative	Workbrew Pro	16	0	1	0	1	
orchard-health	Workbrew Enterprise	210	0	1	0	1	
bluepeak-financial	Workbrew Enterprise	240	0	1	1	2	
cascade-dental	Workbrew Pro	44	0	1	0	0	
northwind-robotics	Workbrew Pro	34	0	1	0	1	

Partner Members

Add Partner Member

USERNAME OR EMAIL

PARTNER ROLE

ACTION

dana-reyes Owner
dana.reyes@ironwoodmsp.com

Admin

priya-nair
priya.nair@ironwoodmsp.com

Member

Remove

marcus-bell
marcus.bell@ironwoodmsp.com

Admin

Remove

sofia-marchetti
sofia.marchetti@ironwoodmsp.com

Member

Remove

trevor-okafor
trevor.okafor@ironwoodmsp.com

Member

Remove

hannah-whitlock
hannah.whitlock@ironwoodmsp.com

Member

Remove

Showing page 1 of 1 (6 total results)

\$8,365.59
Billing
month to date

908
Devices
billed this month

12
Workspaces
billed this month

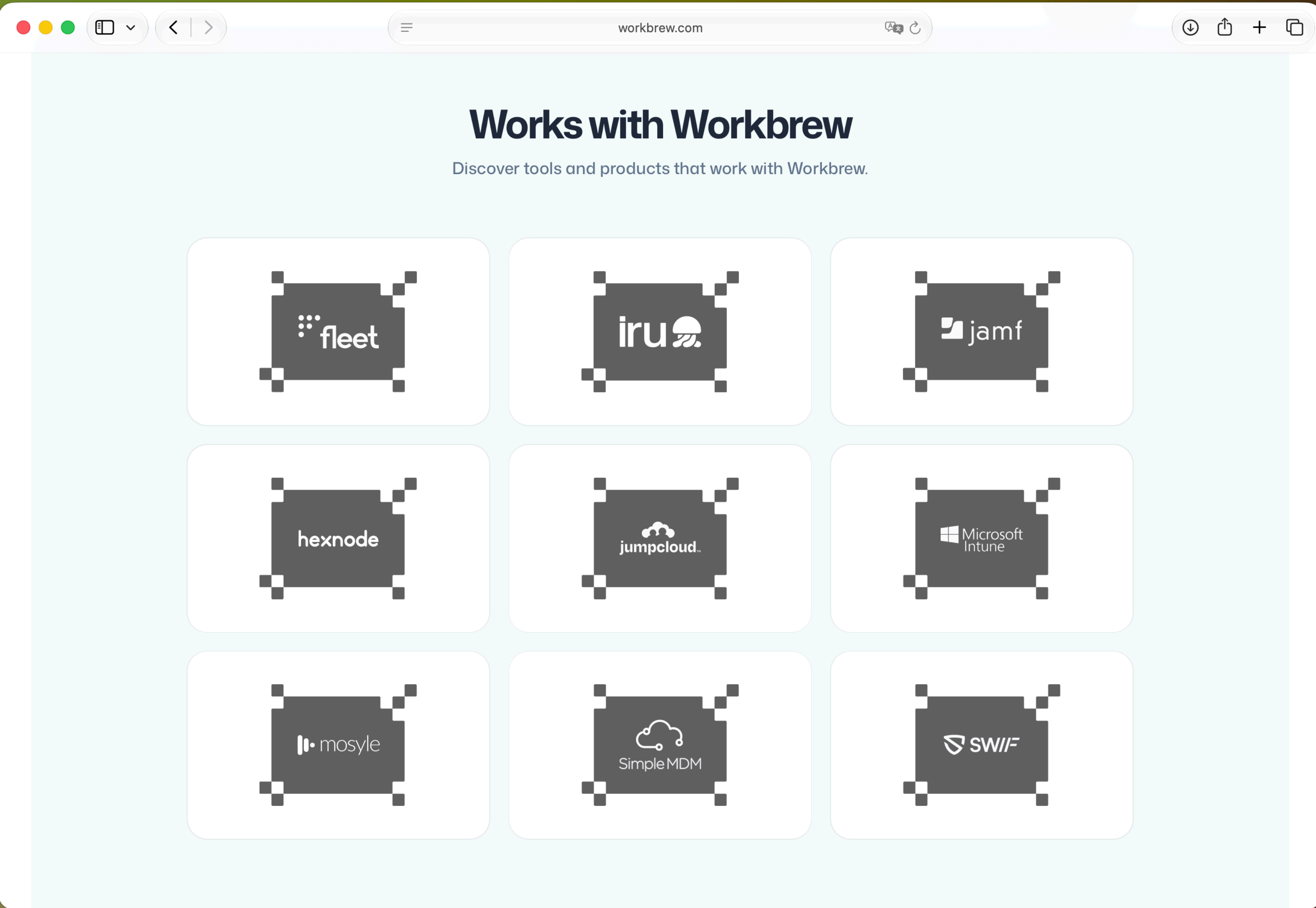
Manage billing
Visa ending in 4242
Expires 04/2042

Consolidated Billing Report

REPORTING PERIOD	CUSTOMERS	START	ADDED	REMOVED	HIGH WATER	END	AMOUNT	STATUS	EXPORT	INVOICE
Sep 01 - Sep 30, 2026	12	908	0	0	908	—	\$8,365.59	In progress	CSV	—
Aug 01 - Aug 31, 2026	10	236	726	54	908	908	\$3,022.91	Paid	CSV	View ↗
Jul 01 - Jul 31, 2026	10	177	59	0	236	236	\$2,122.30	Paid	CSV	View ↗
Jun 01 - Jun 30, 2026	9	136	41	0	177	177	\$1,597.90	Paid	CSV	View ↗
May 01 - May 31, 2026	8	90	46	0	136	136	\$1,202.16	Paid	CSV	View ↗
Apr 01 - Apr 30, 2026	7	56	34	0	90	90	\$798.30	Paid	CSV	View ↗
Mar 01 - Mar 31, 2026	6	28	28	0	56	56	\$481.68	Paid	CSV	View ↗
Feb 01 - Feb 28, 2026	4	12	16	0	28	28	\$248.00	Paid	CSV	View ↗
Jan 01 - Jan 31, 2026	2	0	12	0	12	12	\$94.27	Paid	CSV	View ↗









Addigy™

Demo

“Find an ending. But don't cheat!
Your characters must change and the
change must come from them. Do that
and you'll be fine.”



“And it sounds exciting, to immerse
yourself in a real subject and learn
everything about it.”

Resources



Tack!

