

# Hosting Static Websites

Central Iowa Linux Users Group  
November Meeting 2022  
Andrew Denner

# About Me

- Senior Scientific Software developer by day, Linux slinging superhero by night
- Social
  - Twitter: @adenner
  - Mastadon: @adenner@hachyderm.io
- Slides will be posted to <https://denner.co> after



# Assumptions

- You have a static website to host (we will quickly make a simple one)
  - August 2021 "Teaching an old blog new tricks" (see notes for link)
    - Ported a WordPress blog to a static Jekyll generated site
- Containerization
  - We will be using podman, but feel free to use docker or any other OCI containerization of your choice
- You already have an account at the hosting option of your choice
  - We won't go through how to sign up for AWS

# Stack for today's demo

Podman Desktop



## Mac mini

M1, 2020

|               |                |
|---------------|----------------|
| Chip          | Apple M1       |
| Memory        | 8 GB           |
| Startup disk  | mac            |
| Serial number | H2WFQAWNQ6NV   |
| macOS         | Ventura 13.0.1 |



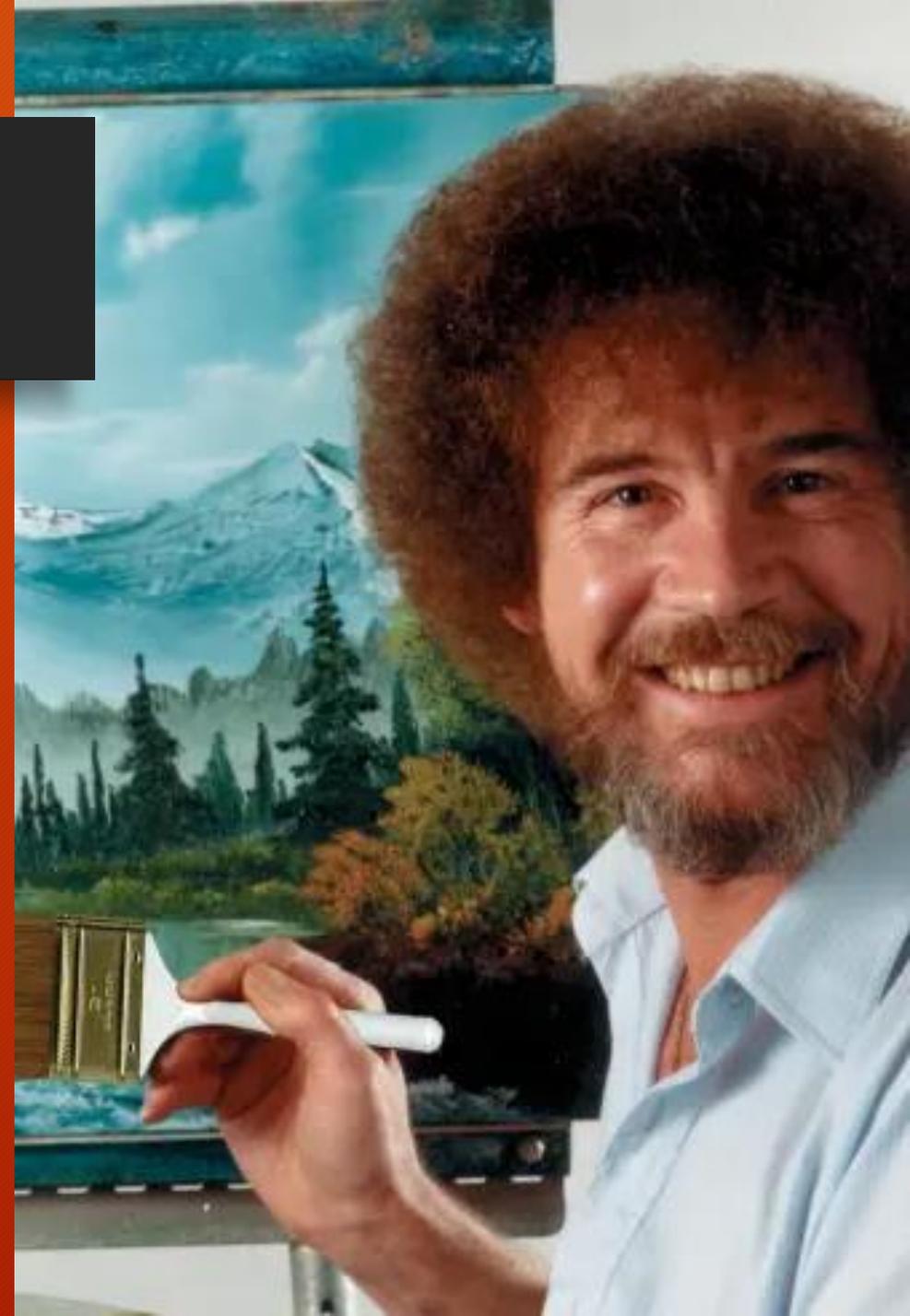
If you wish to make an apple pie from  
scratch, you must first invent the universe

—Carl Sagan



# Lets make a quick happy little site

- Mkdir demo
- Chmod a+rw demo
- `podman run --rm -it -v $PWD:/web -p 4000:4000 jekyll/jekyll:4.2.0 bash`
- `Cd /web`
- `jekyll new myblog`
- `Jekyll build`
- `jekyll serve`



<https://youtu.be/7h1lI9jbF28>

< > myblog



YAML

\_config.yml



\_posts



\_site



HTML

404.html



MD

about.markdown



Gemfile



Gemfile.lock



MD

index.markdown

< > \_posts



MD

2022-11-13-  
welcom...arkdown

< > \_site



HTML

404.html



about



assets



XML

feed.xml



HTML

index.html



jeekyll

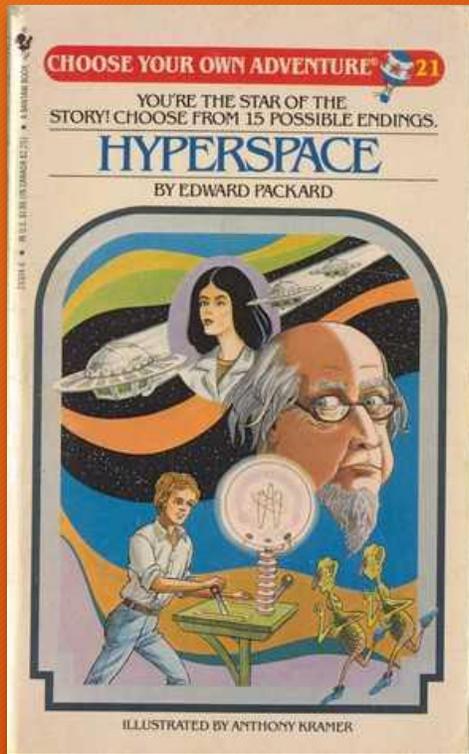


Option 1 Self hosting (vps or at home)

# Pros / Cons

- Most flexible... you have the most options, choose your own tech stack
- Takes the most maintenance, keep stuff up to date, patching security etc.
- Potential for higher cost at low scale (if vps)
- Possible violation of TOS if hosting from home

# Choose your own adventure



- Apache
  - Process driven architecture (new thread for each request)
- Nginx
  - Event driven (multiple requests per thread)
  - Also great reverse proxy (one option is it in front of other servers)
- Caddy
  - Written in go with no dependencies (not even runc)
  - Handles tls certificates
  - File server and reverse proxy
  - Native support for http 2 and http3
  - And so much more

# Install apache

- <https://youtu.be/ttjkLRRy8iU>

# Install nginx

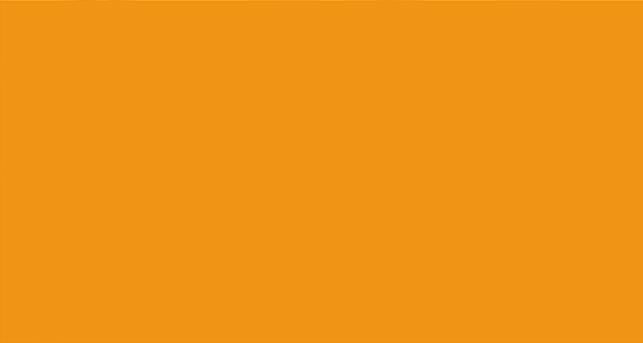
- <https://youtu.be/Pa01Op9Echo>

# Install caddy

- <https://youtu.be/UkCH8-OcfRg>

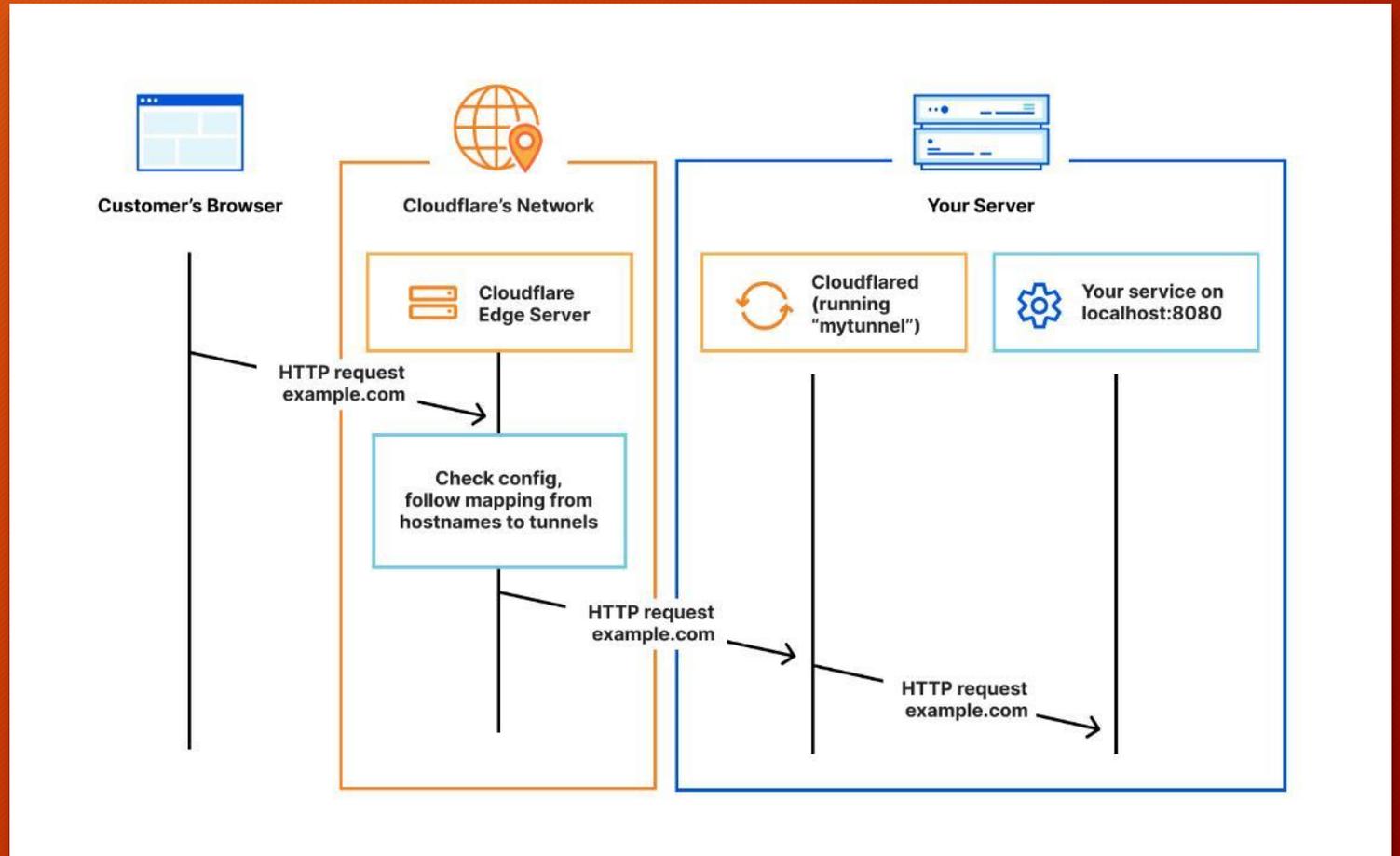


# Option 2 Cloudflare Tunnel



# The middle road

- Host from home (or vps) but don't need a public ip address
- Not Fully FOSS
- Serves as another layer of protection from bad traffic
- Free access for our use case
- But it is using Cloudflare (see notes for Kiwi farms incident)



Home | Denner@gmail.com's Account | Cloudflare

**CLOUDFLARE**

Denner@gmail.com...

**NEW**  
large

- Websites
- Domain Registration
- Analytics
- Pages
- Workers
- R2
- Stream
- Images New
- Security Center
- Turnstile Beta
- Zero Trust** ↗
- Bulk Redirects Beta
- Notifications

**Cloudflare Zero Trust**

- Home
- Analytics
- Gateway
- Access**
- Applications
- Access Groups
- Service Auth
- Tunnels**
- My Team

# Access Tunnels

Create a tunnel

|               | Uptime | Created        |  |
|---------------|--------|----------------|--|
| day.denner.co | 8 days | August 8, 2022 | <a href="#">Configure</a>   <a href="#">Delete</a> |
| ...           |        |                |  |

Access

# Tunnels

Create a tunnel

| Name ▾                  | Status ▾               | Routes                   | Uptime ▾        | Created ▾         |  |
|-------------------------|------------------------|--------------------------|-----------------|-------------------|--|
| home<br>▼ [redacted] 15 | <span>ACTIVE</span>    | bandday.denner.co<br>... | 8 days          | August 8,<br>2022 | <a href="#">Configure</a>   <a href="#">Delete</a> |
| Connector ID            | Status                 | Data centers             | Origin IP       | Version           |  |
| [redacted] a0-          | <span>Connected</span> | ORD, DEN                 | 167. [redacted] | 2022.10.3         |  |

[← Back to tunnels](#)

# home

Overview

**Public Hostname**

Private Network

Add a public hostname

|   | Public hostname     | Path | Service               | Origin configurations    |   |
|---|---------------------|------|-----------------------|--------------------------|---|
| 1 | [REDACTED]er.co     | *    | http://localhost:81   | <input type="checkbox"/> | <a href="#">Edit</a>   <a href="#">Delete</a>    |
| 2 | [REDACTED]denner.co | *    | http://localhost:5000 | <input type="checkbox"/> | <a href="#">Edit</a>   <a href="#">Delete</a>    |
| 3 | [REDACTED]denner.co | *    | http://localhost:8090 | <input type="checkbox"/> | <a href="#">Edit</a>   <a href="#">Delete</a>  |
| 4 | [REDACTED]nner.co   | *    | http://localhost:8095 | <input type="checkbox"/> | <a href="#">Edit</a>   <a href="#">Delete</a>  |

Catch-all rule: `http_status:404` [Edit](#)

# Making a cloudflare tunnel

- <https://youtu.be/A5Zn3YuECyM>



Option 3 shared hosting

# Pros and cons

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“The easy button” for low traffic sites

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Someone else is responsible for updates and keeping the lights on

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Shared infrastructure with shared risk

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Has a lower monthly cost vs a full VPS but still nice to have like PHP, email hosting, and Database servers

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”Unlimited Plans”

## DNS management for **denner.co**

Search DNS Records

Search

Advanced

+ Add record

**lugtest.denner.co** is an alias of **denner.co** and has its traffic proxied through Cloudflare.

| Type    | Name (required)                          | Target (required) | Proxy status  | TTL  |
|---------|--|-------------------|---|------|
| CN... ▼ | lugtest<br><small>Use @ for root</small> | denner.co         | <input checked="" type="checkbox"/>  Proxied | Auto |

Cancel

Save

[Home](#) / [Client Area](#) / Welcome

# Welcome, Andrew

### Order Services

-  Order Web Hosting
-  Register Domains
-  Transfer Domain Names
-  Order Email Quota Upgrade
-  Order VPS

### Manage Services

-  Hosting

### Package S

phpMyAdmin



Redirects

MySQL Databases



Sitemap Generator

Remote MySQL Access



Custom Errors

Change PHP Version



Auto Diagnostics

PHP Configuration



Maintenance Mode

Scheduled Tasks

## Domain Names



Domains



Subdomains



Manage DNS

## Security



SSH Access



Hotlink Protection



SSL/TLS



Password Protection



Directory Indexing



Malware Scan

# Subdomains

Add and modify subdomains.

## Add New Subdomains

The document root is the directory where your website files are to be served from, relative from the account root.

Subdomain

Domain

Document Root

Create Subdomain

## Modify Subdomains (2)



Subdomain

Document Root

blog.denner.co

Update

Remove

Domain will point to: /home/sites/20a/e/ef2762448f/blog.denner.co

# Static hosting

- <https://youtu.be/0SkaqYshhuE>

## Response

**:status:** 200

**Content-Type:** text/html; charset=utf-8

**Content-Encoding:** br

**Report-To:** {"endpoints":[{"url":"https://a.nel.cloudflare.com/report/v3?s=JxncSmafr9s07zo8Oi38iyM0pqOwot5fhzQmcZwUtwo9EXKx2kx4QG50PI%2FgxXhXLJMtkk07n%2BFceFrHLzBT1sminaKLMq6nN9PA%2B2dYmnY5lhw%3D%3D"}],"group":"cf-nel","max\_age":604800}

**Date:** Wed, 16 Nov 2022 07:57:57 GMT

**X-Content-Type-Options:** nosniff

**Vary:** Accept-Encoding

**x-cdn-cache-status:** MISS

**x-via:** ORD1

**nel:** {"success\_fraction":0,"report\_to":"cf-nel","max\_age":604800}

**Server:** cloudflare

**Alt-Svc:** h3=":443"; ma=86400, h3-29=":443"; ma=86400

**cf-cache-status:** DYNAMIC

**x-origin-cache-status:** MISS

**x-provided-by:** StackCDN

**Strict-Transport-Security:** max-age=2592000; preload

**cf-ray:** 76aeadb1cfd8704-ORD

A person with long hair in a ponytail, wearing a white lab coat, is seen from behind in a laboratory. They are pointing their right hand towards the left. The background is filled with laboratory equipment and shelves. A dark banner is overlaid at the bottom of the image, containing the text 'Gitlab/Github pages'.

**Gitlab/Github pages**

- One site per account, can use Jekyll, and by default has domain like <https://username.github.io> but can set your own cname
- Limits in it's TOS
  - Not for free business/ecommerce/or SaaS hosting
  - No bigger than 1gb disk quota
  - 100 gb traffic
  - 10 builds per hour
- Static only (but can provide SSL)
- <https://github.com/adenner/adenner.github.io>

A person is holding a cardboard box. The box has several labels: a white shipping label on the top left, a black Amazon Prime label with the Prime logo and 'Fast, free delivery' text, and a white Whole Foods Market label. The box is stained with brown liquid. The background is dark. A black horizontal bar is overlaid on the bottom half of the image, containing the text 'Amazon S3 Static Hosting' in white. To the right of this bar is a solid yellow rectangle.

# Amazon S3 Static Hosting



Why choose the lesser evil?

# Amazon Static S3 hosting

- No such thing as the Slashdot hug of death
- Scalable beyond wildest dreams
- For our size, costs will be at or almost zero
- Not the easiest to work with
- No flexibility beyond static

# lugtestaws.denner.co [Info](#)

[Objects](#)[Properties](#)[Permissions](#)[Metrics](#)[Management](#)[Access Points](#)

## Objects (6)

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

[Copy S3 URI](#)[Copy URL](#)[Download](#)[Open](#)[Delete](#)[Actions](#)[Create folder](#)[Upload](#)[<](#) **1** [>](#)

| <input type="checkbox"/> | Name ▲                     | Type ▼ | Last modified ▼                         | Size ▼ | Storage class ▼ |
|--------------------------|----------------------------|--------|---|--------|-----------------|
| <input type="checkbox"/> | <a href="#">404.html</a>   | html   | November 16, 2022, 02:28:00 (UTC-06:00) | 4.6 KB | Standard        |
| <input type="checkbox"/> | <a href="#">about/</a>     | Folder | -                                       | -      | -               |
| <input type="checkbox"/> | <a href="#">assets/</a>    | Folder | -                                       | -      | -               |
| <input type="checkbox"/> | <a href="#">feed.xml</a>   | xml    | November 16, 2022, 02:28:01 (UTC-06:00) | 4.3 KB | Standard        |
| <input type="checkbox"/> | <a href="#">index.html</a> | html   | November 16, 2022, 02:28:01 (UTC-06:00) | 4.6 KB | Standard        |

# Set your dns

| Type         | Name (required)  | Target (required)   | Proxy status  | TTL  |
|--------------|--|---|---|------|
| <b>CNAME</b> | <input type="text" value="lugtestaws"/><br><small>Use @ for root</small> | <input type="text" value="s3-website-us-east-1.amazonaws.com"/> | <input checked="" type="checkbox"/>  Proxied | Auto |

Delete

Cancel

Save

## STORAGE

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Free Tier

12 MONTHS FREE

Amazon S3

# 5 GB

of standard storage

Secure, durable, and scalable object storage infrastructure.

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5 GB of Standard Storage

---

20,000 Get Requests

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2,000 Put Requests



<https://calculator.aws/#/addService/S3>