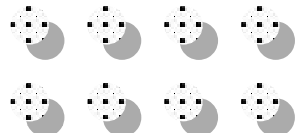# Making Connections

An Introduction to DDNS

Chris Trimble, LILUG
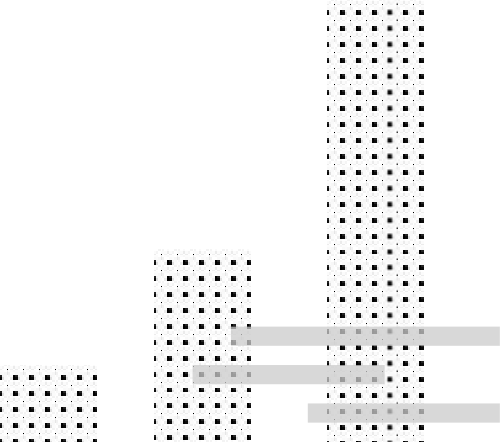
12 November 2024

Discussion Points

- What is DDNS?
- Use cases for DDNS
- Choosing a provider
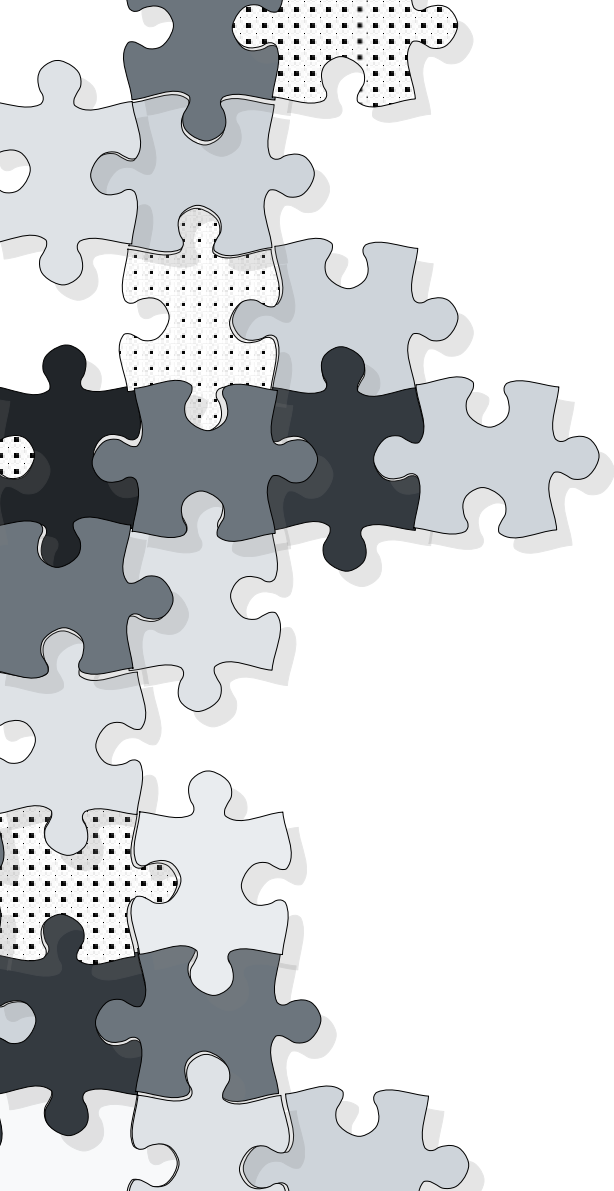- Practical demonstration / lab
- Questions / Key Takeaways & Conclusions

I have a packet for you…

What's your address again?

- The modern internet is a fabric of addresses, routes, packets, and packages; just like regular (snail) mail.
- IP Addresses are like house numbers. However, they often change as a static public IP is expensive and hard to acquire, especially for hobbyists.

" How can we stay connected if the addresses keep changing?

An answer is Dynamic Domain Name Services. "

Remote Access

- Connect to home or work devices without worry of IP address changes.

Self-Host Services

- Use your DDNS name to connect to public domains.
- Your website domain will always redirect to your server.

VPN

- Make private connections to a server or network without internet exposure.

Certificates

- A DNS challenge certificate can be generated from a service like Let's Encrypt for free.
- Provides HTTPS without having to own a domain name.

Fail-Over Connection

- Even if your router or gateway address changes your connection the DDNS name will have its IP updated by the server.

Ease of Use

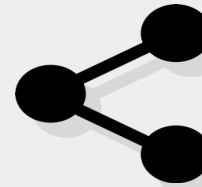A domain name is usually easier to remember than an IP address.

01 Pick a Name

Setup an account with a provider and pick a DDNS name. This is usually a subdomain of their website.

02 Share your Address

A script runs on your server, PC, or router automatically notifies the DDNS server of your current public IP.

03 Configure services

With your DDNS name working, you can immediately direct traffic towards the address.

Making the magic happen:

./ddns-script.sh

```
1) #!/bin/bash
2) DOMAIN="EXAMPLE"
3) TOKEN="TOKEN"
4) echo url="https://www.duckdns.org/update?
   domains=$DOMAIN&token=$TOKEN&ip=" | curl -k -o ~/duckdns/duck.log -K -
```

Cloudflare

- Provides DDNS as part of Domain or hosting packages

- Enterprise grade but still has free options

NoIP

- Multiple domains to choose from: (.hopto.org, .zapto.org, sytes.net, .ddns.net)

- 100 DNS servers

Dynu

- One of the oldest options available

- Supported by many routers (even some ISP ones like Verizon)

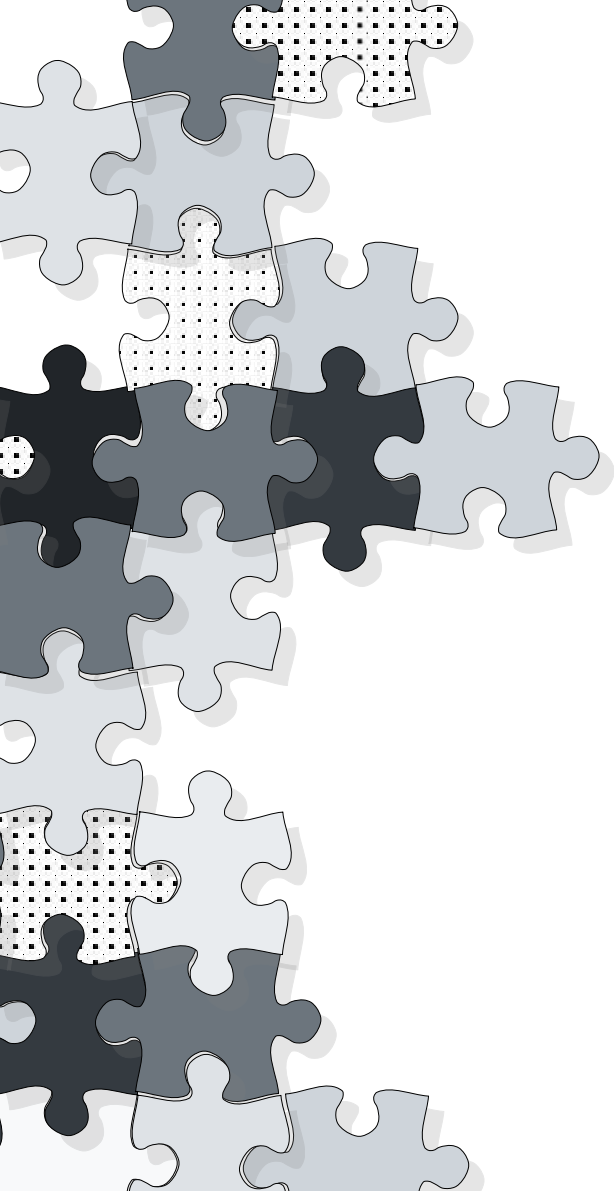- Free for under 4 subdomains

DuckDNS

- Run non-profit by two engineers on an AWS virtual server

- 5 free subdomains, only one name (.duckdns.org)

- Supports lots of hardware and software

ClouDNS

- Features similar to Cloudflare at lower prices.

- Free tier includes 24/7 live chat support.

Hyper Encabulator

- It's stack-able, DIM rack-able, and un-hackable.

"

Talk is cheap. Show me the code.

Linus Torvalds

"