

Data Broker Project

Netbox Day 2020



Presented by Sajan Parikh



Moving Data

Yet another ambitious, open source project!

When we “Netbox” (someone make a note to call Merriam-Webster), there are two fundamental drivers.



Documentation

What's in my network, where it is it, and does Netbox match up with reality.



Automation

Leverage Netbox as a datastore to...do things.

Automation Is Hard Though

Geeks love tools, businesses need solutions.

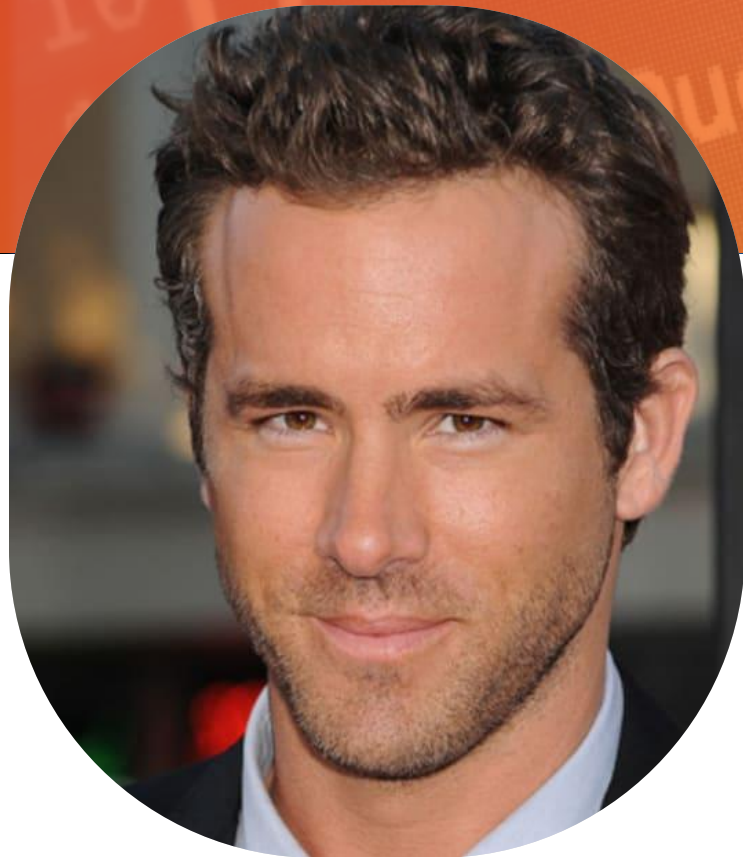
Plenty of tools in the toolbox, but not all organizations have the personnel or resources to make good use of them.

Can we help make it easier for targeted organizations with more or less defined needs?



Sajan Parikh

Software Engineer, DevOps



*Above image may or may not
actually be of Sajan Parikh
depending on state of "pandemic
hair".*



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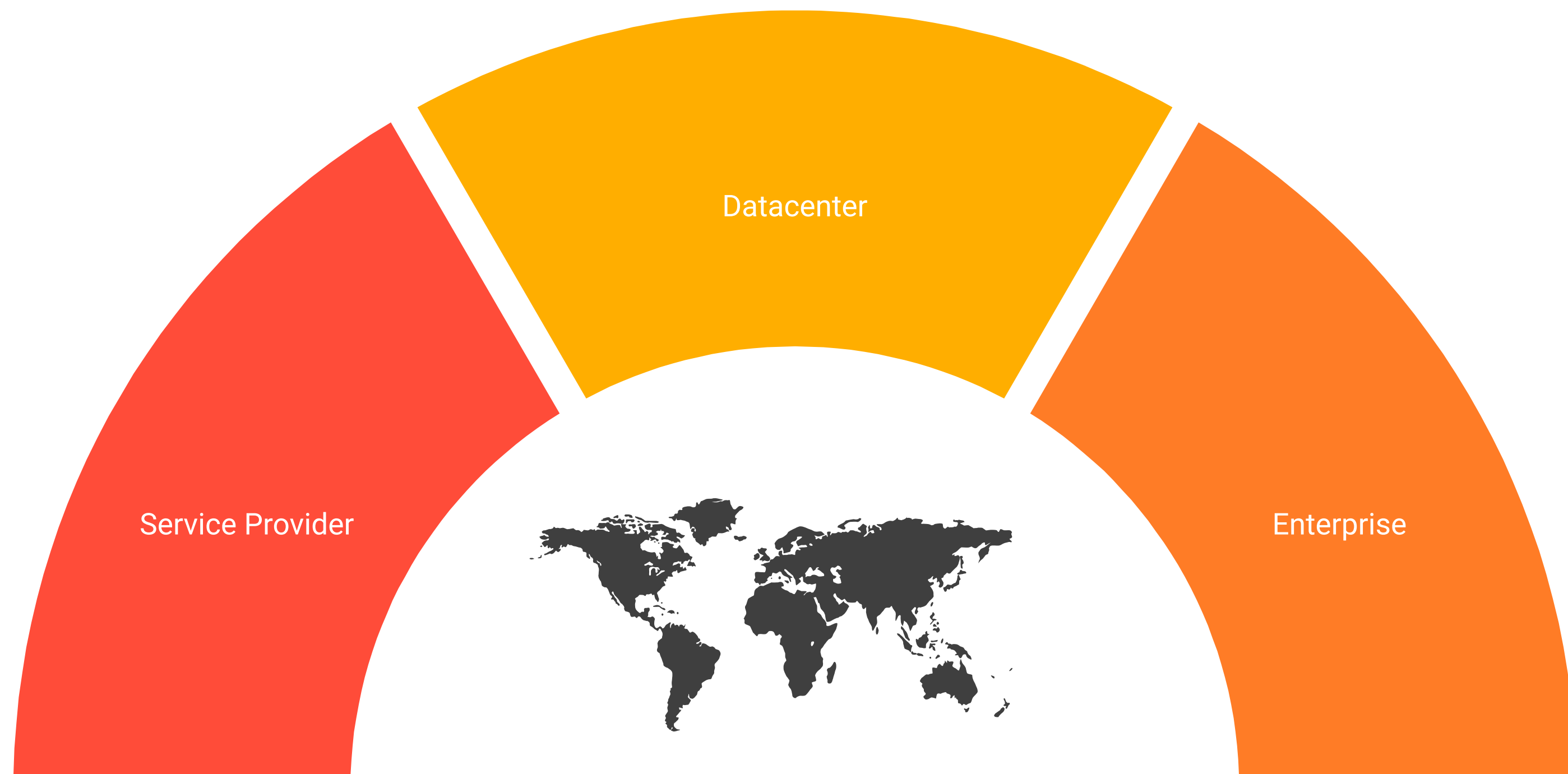
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- Systems/Infrastructure consulting and management.
- Software architecture and development.
- Internet service provider operations and automation, primarily WISPS.



Global route/switch network design and architecture firm.

We are a global firm with presence in North America, South America, and Europe. Our team consists of multi-disciplinary experts that work with service providers, data centers, and enterprises around the world.



Different Sectors...Different Tools

Big guy tools for the little guy, bootstrap operational tempo for the big guy.

Service Provider

Datacenter

Enterprise

Infoblox
NEXT LEVEL NETWORKING

solarwinds

CUMULUS

OBSERVIVUM
network management and monitoring

RANCID/Oxidized

POWERCODE
THE COMPLETE ISP SOLUTION

LibreNMS

OPMANTEK
POWERDNS



ManageEngine

ubersmith

bmc

Different Tools...Same Data Origin

I'm sure this is going to be a completely new and original concept for everyone attending today.

Service Provider

Datacenter

Enterprise



netbox



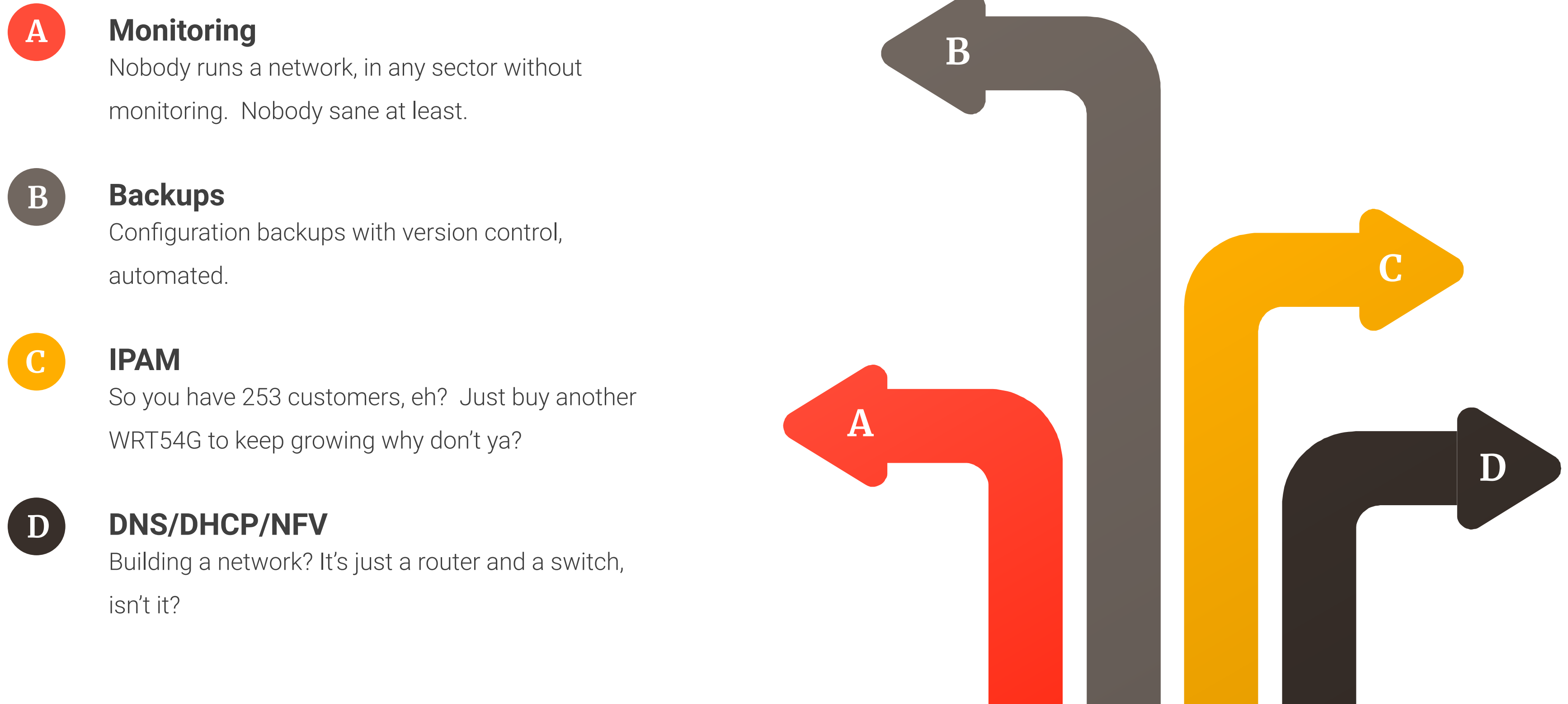
WISPs

The most interesting type of organization in the networking world.

- ★ **Often Driven By Tech, Not Business**
Long term planning, and starting networking knowledge are lacking often times. Operational processes not considered. Husband does installs/service calls, wife handles phones and books.
- ★ **Resource Limited**
Often times, WISPs are limited in resources. If not in capital, most definitely on time.
- ★ **Explosive Growth**
As internet becomes more valuable than running water, WISPs are growing at an accelerated rate. Too fast in many cases to keep up with operational processes.

WISPs Have Needs Too

They just can't always meet them. You know, busy making money and all.



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A

Monitoring

Nobody runs a network, in any sector without monitoring. Nobody sane at least.

B

Backups

Configuration backups with version control, automated.

C

IPAM

So you have 253 customers, eh? Just buy another WRT54G to keep growing why don't ya?

D

DNS/DHCP/NFV

Building a network? It's just a router and a switch, isn't it?

All of this is difficult for smaller operators to manage and execute correctly.

Let's Tackle IPAM At Least

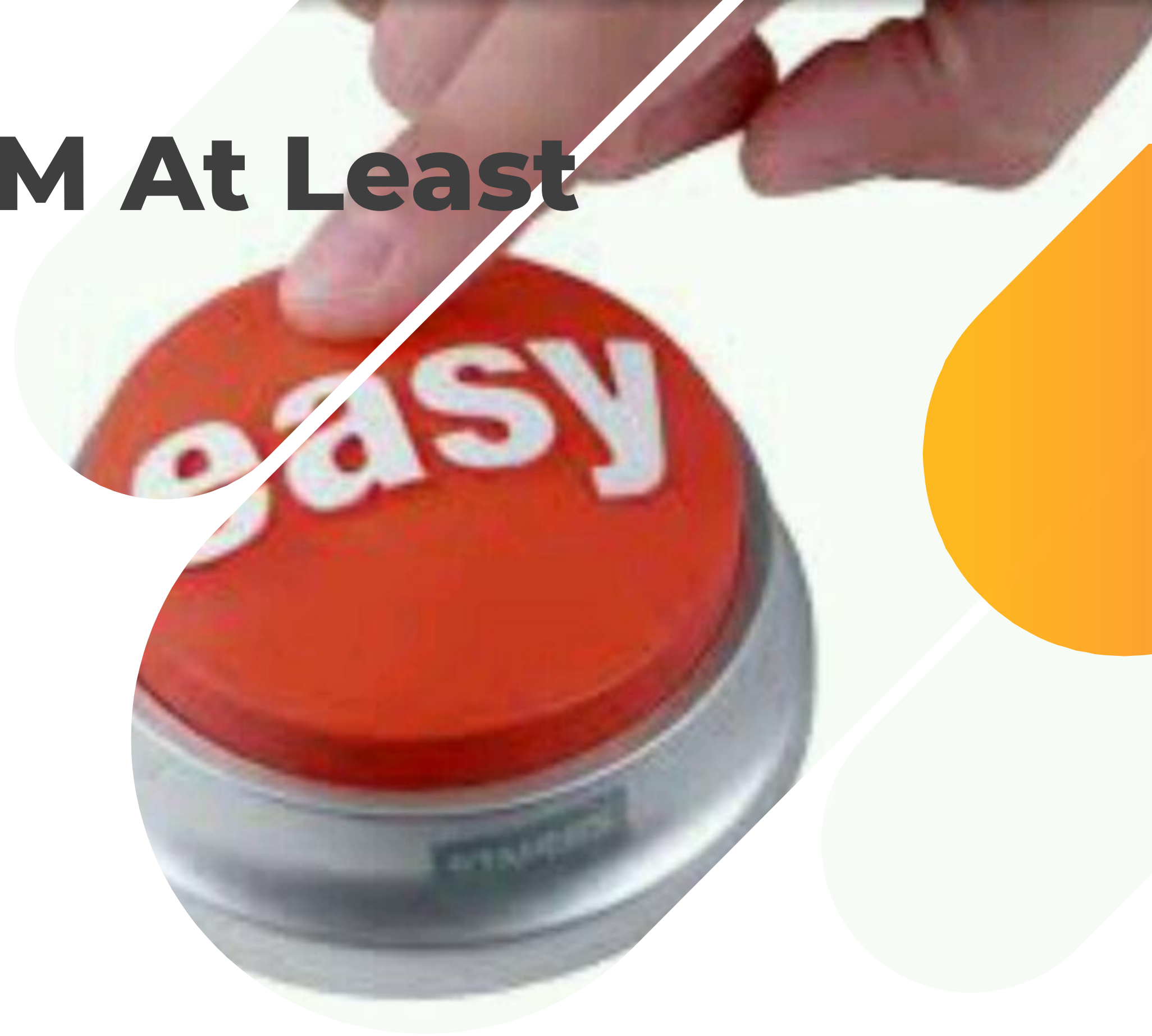
IPAM is a no brainer, and requires the least effort to document and maintain.

★ **Netbox Is a DCIM**

Netbox doesn't bill itself as a specialized IPAM. Ignoring all of the other data structures, Netbox is indeed one of the best IPAM tools out there.

★ **Getting Feet Wet**

If a WISP is only able to truly tackle one of their needs, IPAM, may as well be in Netbox.



Yay! We're Done, right?

Nope...one more thing.

It starts off with a simple request....

“

Can you sync my sites?

If I build a site in Netbox, can we have it automatically show up in the front office system so the sales guys know a tower is being built?



...a script is born.



Is this how memes work? Did I get that right?

Now We're Done, right?

Nope...one more thing.

...then it turns into another request...



Can you monitor things?

If I add a router or switch, I feel like it should automatically start monitoring. Otherwise, I forget to add it to the NMS.



...another script is born.



Is this how memes work? Did I get that right?

Now We're Done, right?

Nope....one more thing.

...now someone starts to understand the power of leveraging “a single source of truth”.

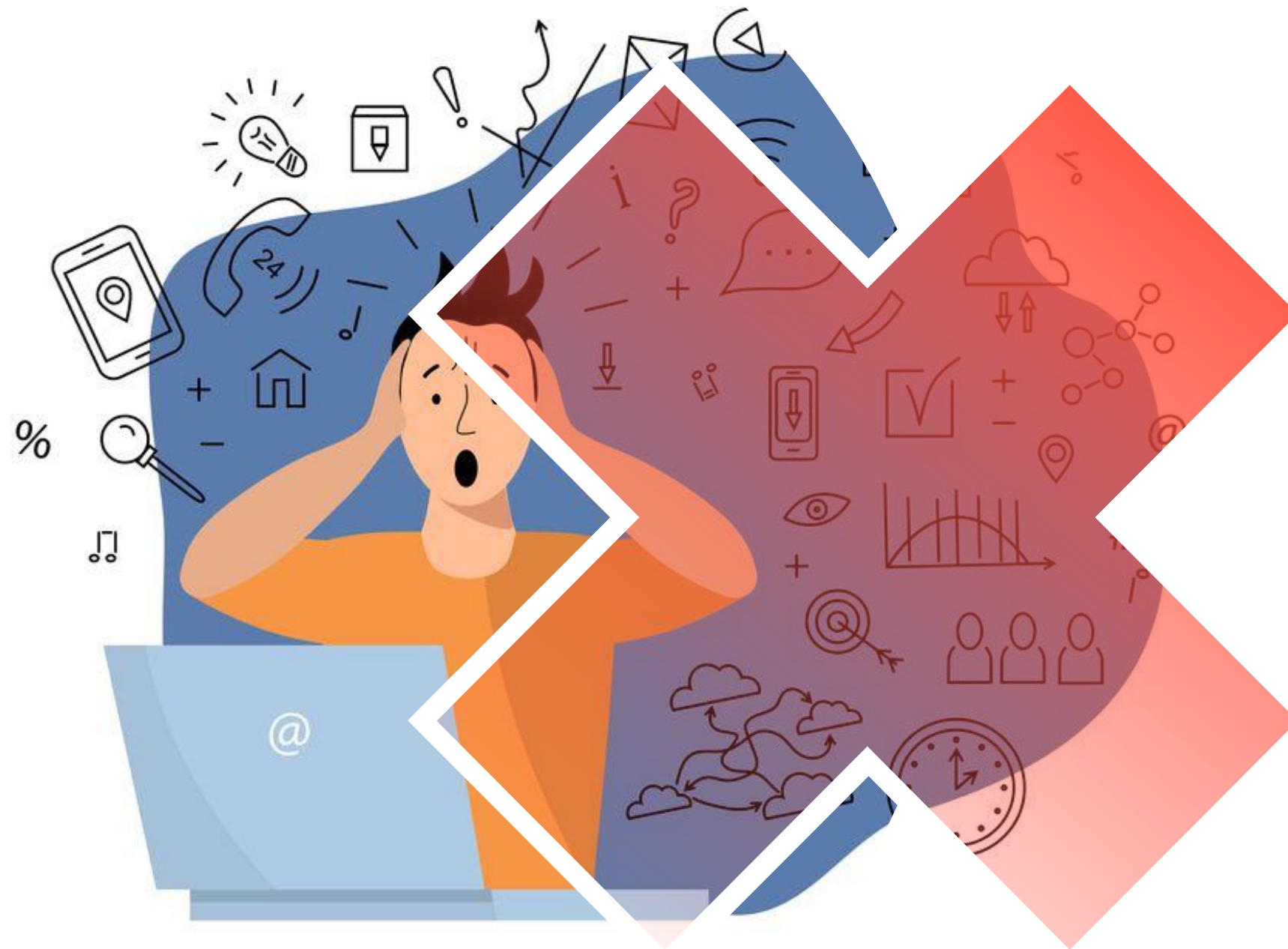
“

I hate Netplan on Ubuntu

I don't want to configure static IP addresses...in YAML of all things. Can I build the VM, give Netbox the MAC addresses and have it do static reservations over DHCP for the server farm?



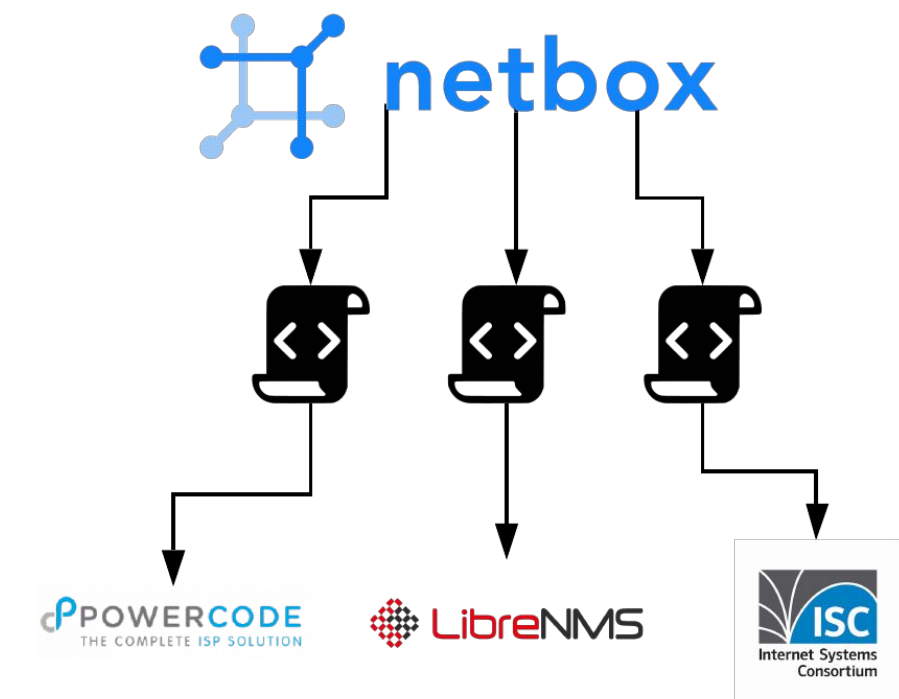
...another script is born.



Hold Up

It's a trap!

- ★ **Several scripts, different things.**
This is becoming unmanageable and there's a fair bit of duplicated code.
- ★ **Others Want This Solution Too**
We need to make these "connectors" more portable and organized for others to use easily.



We Need Something Better

Netbox should stay being a static data authority in my opinion.



Easy To Deploy

“Scripts” and “Crons” are not for everyone. Out of the box, it needs to be simple to connect Netbox with other systems.



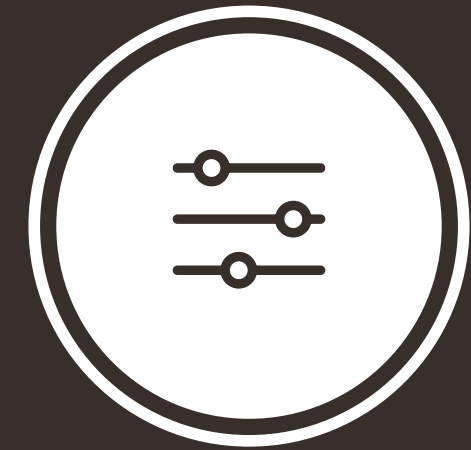
Maintainable

Many scripts and snippets are single-purpose and organization specific. Hard to maintain for others or as needs change.



Expandable

A clean interface to write new connectors that work in a predictable way.

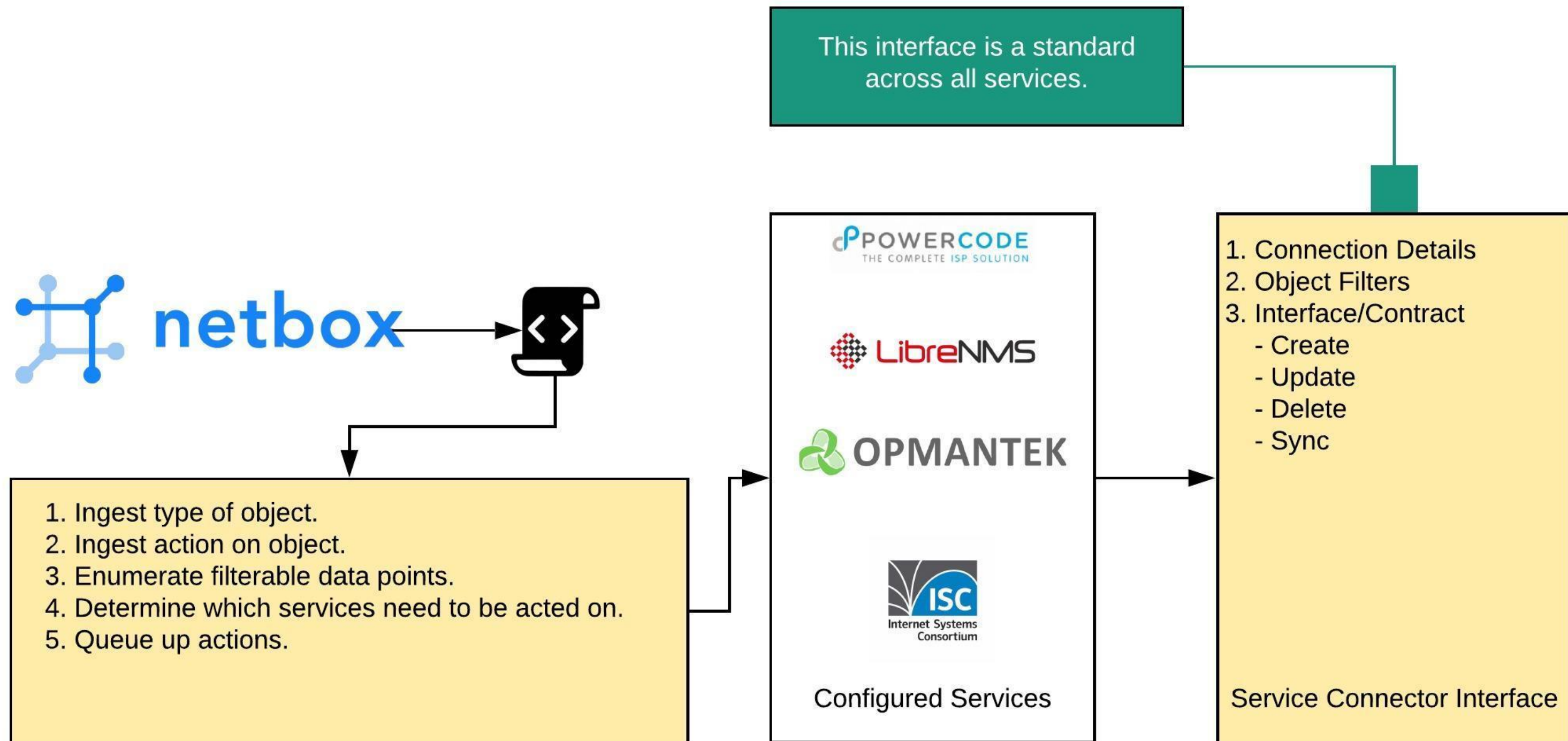


Utilize Roles/Tags

A single place to direct CRUD changes in Netbox to different services based on roles, tags, device models, manufacturers, etc.

One App To Rule Them All

...and in the queue manager, bind them.



Simple Stack

Yes, it's PHP...not Python. I'll fight you for it.



Easy Drivers For Queues

Laravel provides native, supported drivers for many of the items that would be needed. Included queues and queue job management.



Using Composer To Enable New Services

Each service connector is being moved to it's own repository and package. So third party connectors can more easily be developed independently and loaded in for use.

Progress

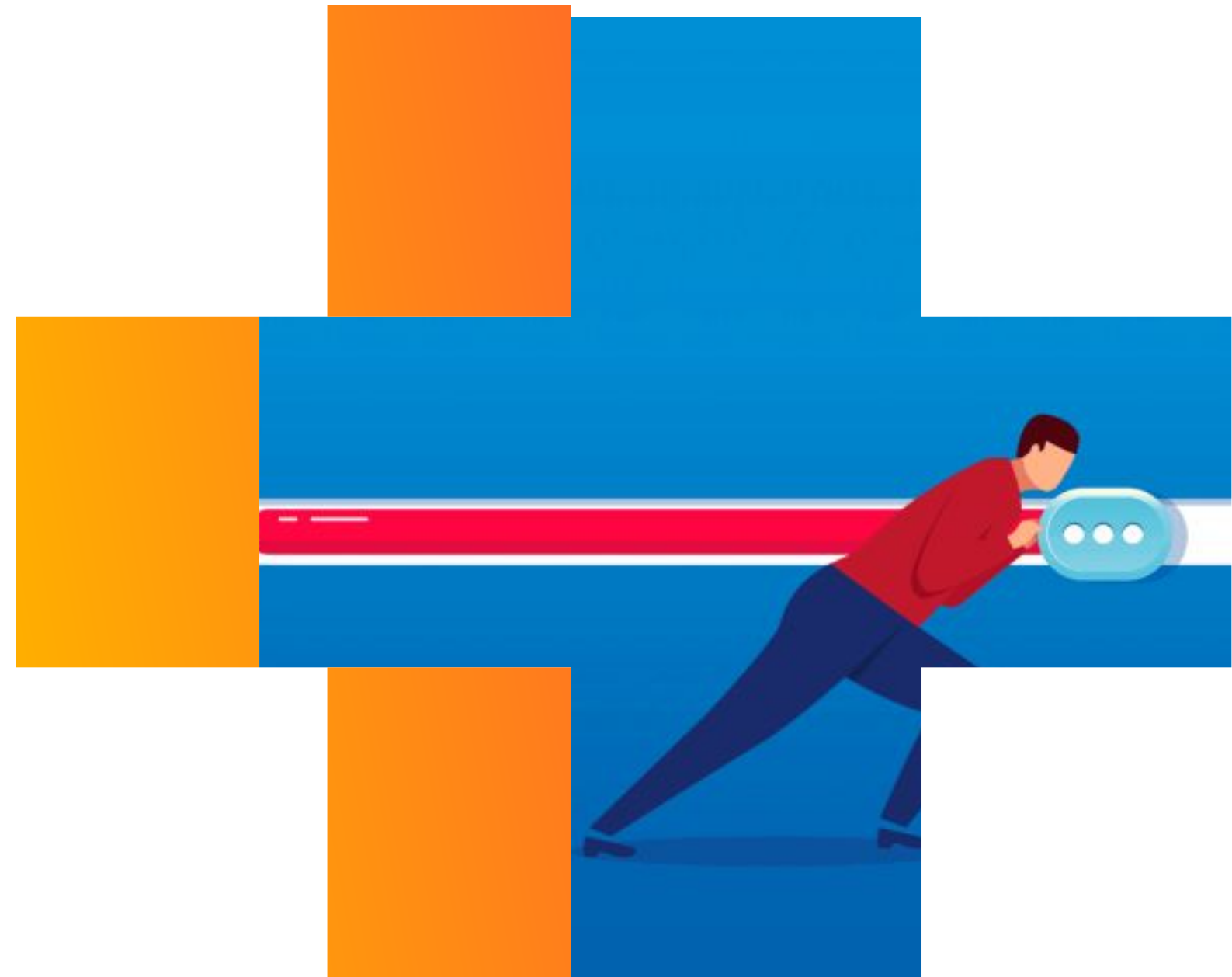
I won't attempt live during a presentation. Things always go wrong.

- Framework, request lifecycle work is done.
- PowerDNS, Kea, Powercode, and LibreNMS all of some forms of implementation against the “Interface/Contract”.

Next Steps

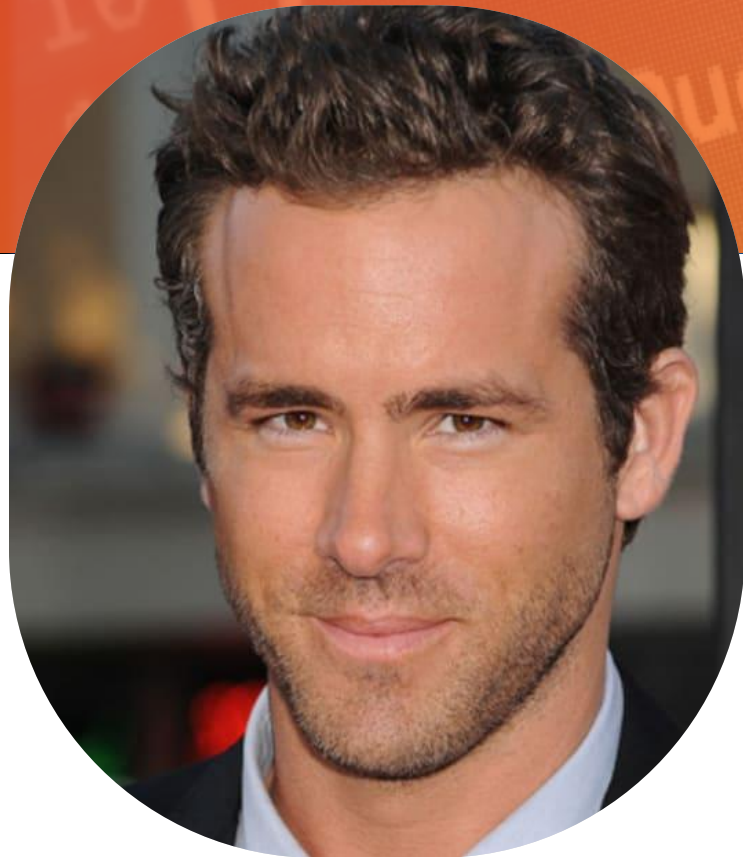
Hoping to find time over the next couple of weeks...

- Documentation for adding new connectors, installation, and setup..
- UI for connector and filter management.
- Clean Git history (I curse a lot when things are broken) before publishing on Github.



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