

Presenting how works eXO.cat organization
what worked and what we need

guifipetro
@infracon 2019-3-27

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eXO is a nonprofit cost-oriented Internet Service Provider that offers some services for free for guifi.net community. Its juridic form is an association. It contributes to the guifi.net ecosystem. It energizes guifi.net local community in Barcelona. It works in a volunteer basis and sometimes in time-limited paid jobs. In the past we complained about poor infrastructure, now we complain about the scarcity of human resources and time; that forces us to develop useful stuff that frees workload.

Some data

~90 subscribers and 60 active tunnels now

We co-build a wireless network

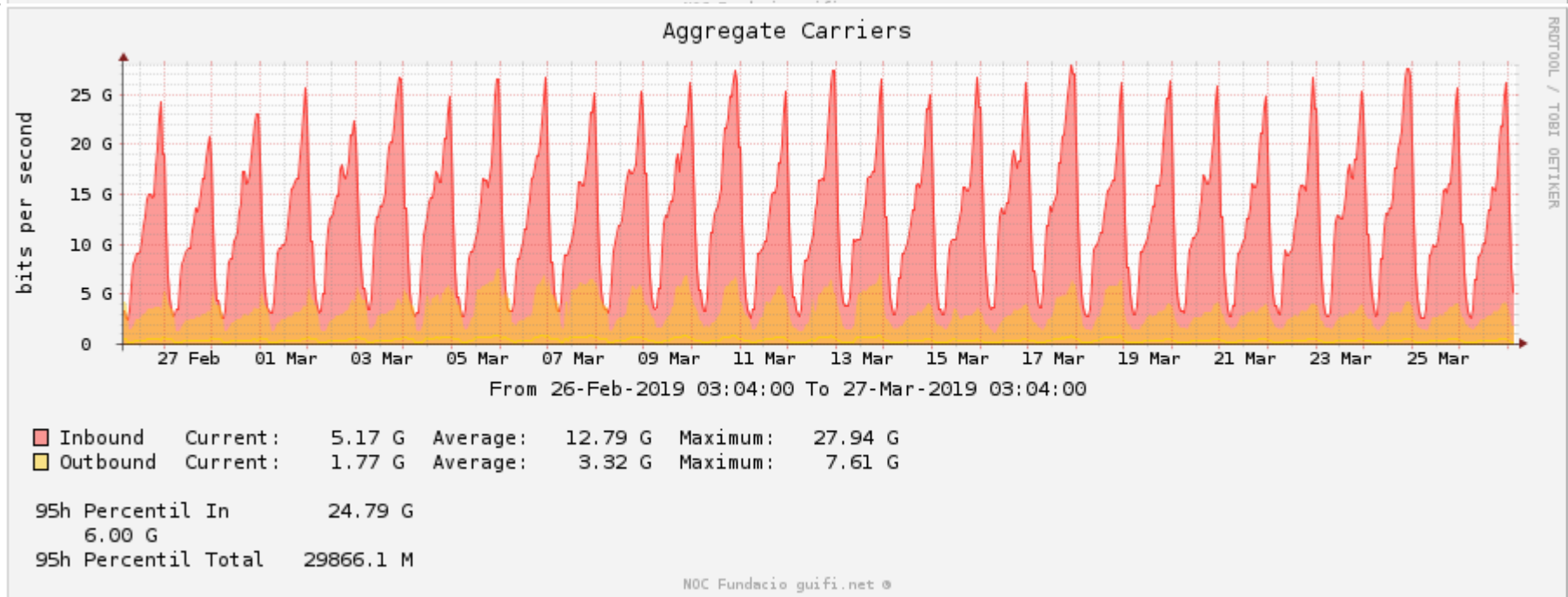
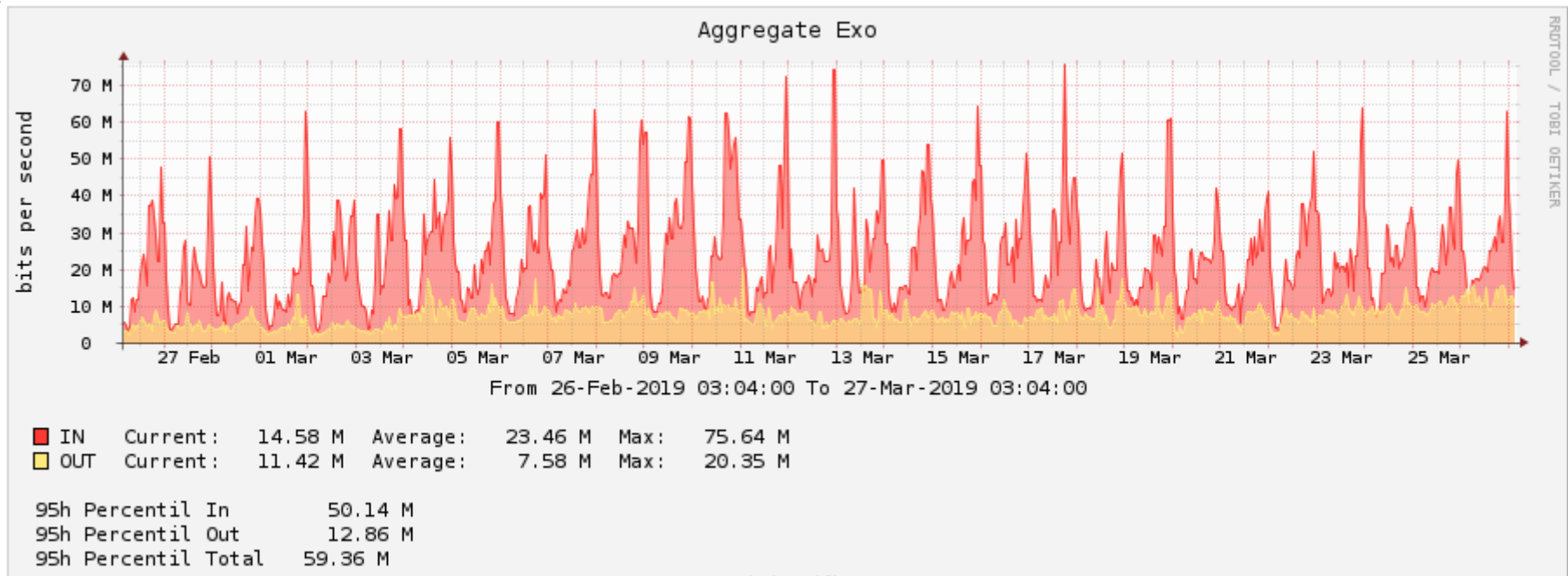
In certain places we connect different wireless network subzones with FETH from traditional telcos

Cost oriented best effort service with no contract:

10€ no internet tunnel (indirect access)

12€ internet tunnel

Above eXO, below guifi foundation



Guifi.net today

Volunteer population is decreasing. Check website: <https://guifi.net> (HELP)

Guifi.net professional ecosystem is composed in 90% by for-profit ISPs and 10% by associative and cooperative ISPs. (!!)

Y U NO ISP?

https://media.ccc.de/v/30C3_-_5391_-_en_-_saa_l_6_-_201312291130_-_y_u_no_isp_taking_back_the_net_-_taziden

Free software

Quagga, bird, l2tpns, freeradius

Openwrt

Nothing difficult

Sharing is the key

Decentralization as *lots of centralized identities*

<https://db.ffdn.org/>



Community services

<https://matrix.guifi.net>

chat that does not identify you

<https://meet.guifi.net>

easy way to do remote conferences and sharing screens

<https://retroshare.guifi.net:8080>

How to do stuff after #Article13

TODO terms of service

Community services documentation

git clone <https://gitlab.com/guifi-exo/wiki/>
and enjoy it offline

/howto/

matrix-riot.md
jitsi-meet.md

retroshare work in progress!

<https://gitlab.com/pedrolab/retroshare-relay-guide/>

Internal services

<https://noc.exo.cat/cacti/>
Inspect bandwidth usage

<https://noc.exo.cat/smokeping/smokeping.cgi>
Track connectivity issues

<https://noc.exo.cat/rt> (request-tracker)
Helpdesk support

<https://oficina.exo.cat> (nextcloud)
Handle administrative docs

Internal services documentation

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/howto/

cacti.md

request-tracker.md

nextcloud.md

LDAP work in progress

Same user and password in different places

<https://gitlab.com/guifi-exo/wiki/tree/master/howto/ldap-server>

<https://gitlab.com/ldap-utils/passwd-webui>

Interesting services to explore

Pass (technicians) / qtpass (users) – Share secrets with gpg and git

Radius – Use it to auth in *some services*

Prometheus – Monitor data and alerts

Federated identity (eduroam?)

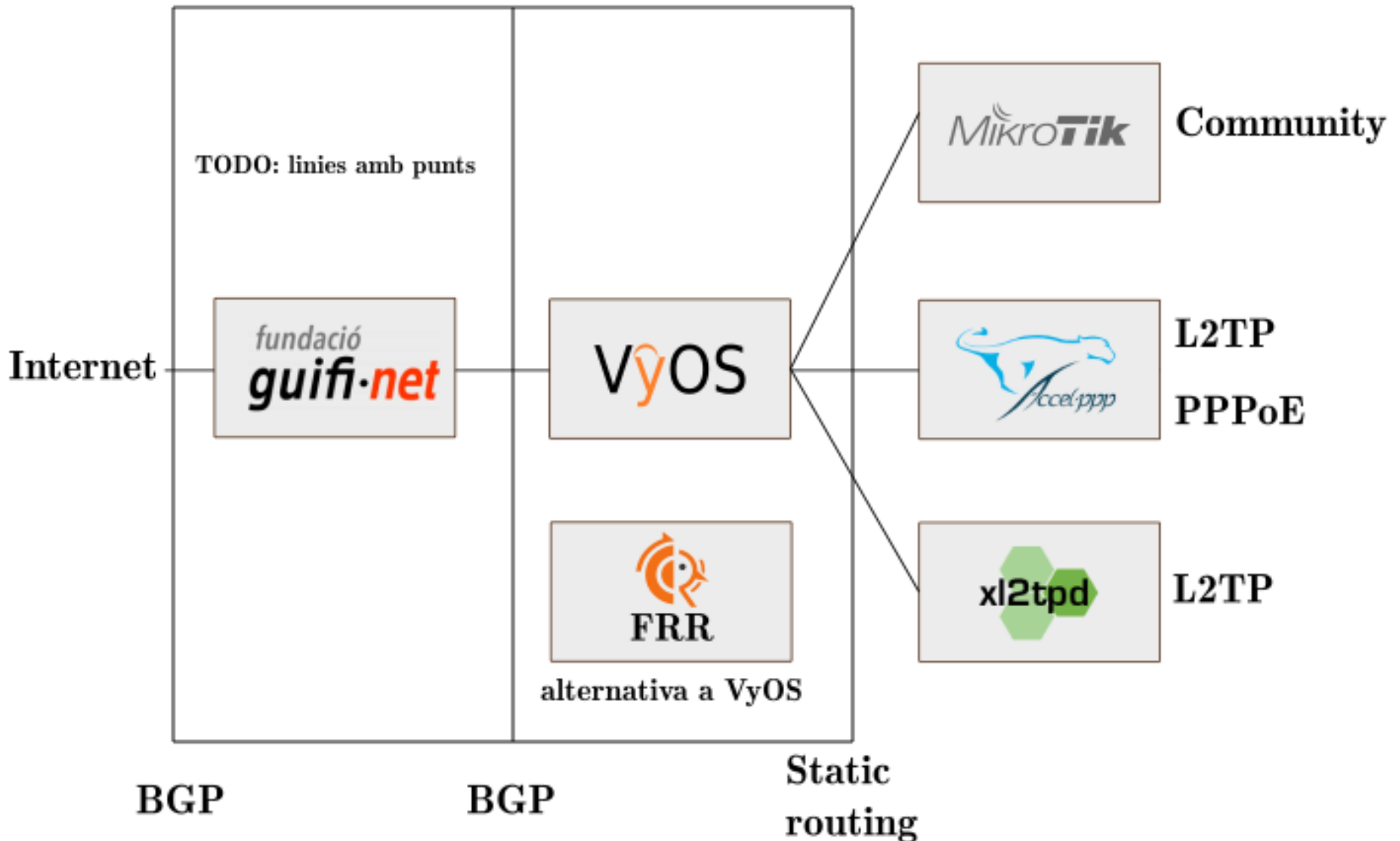
Once upon a time

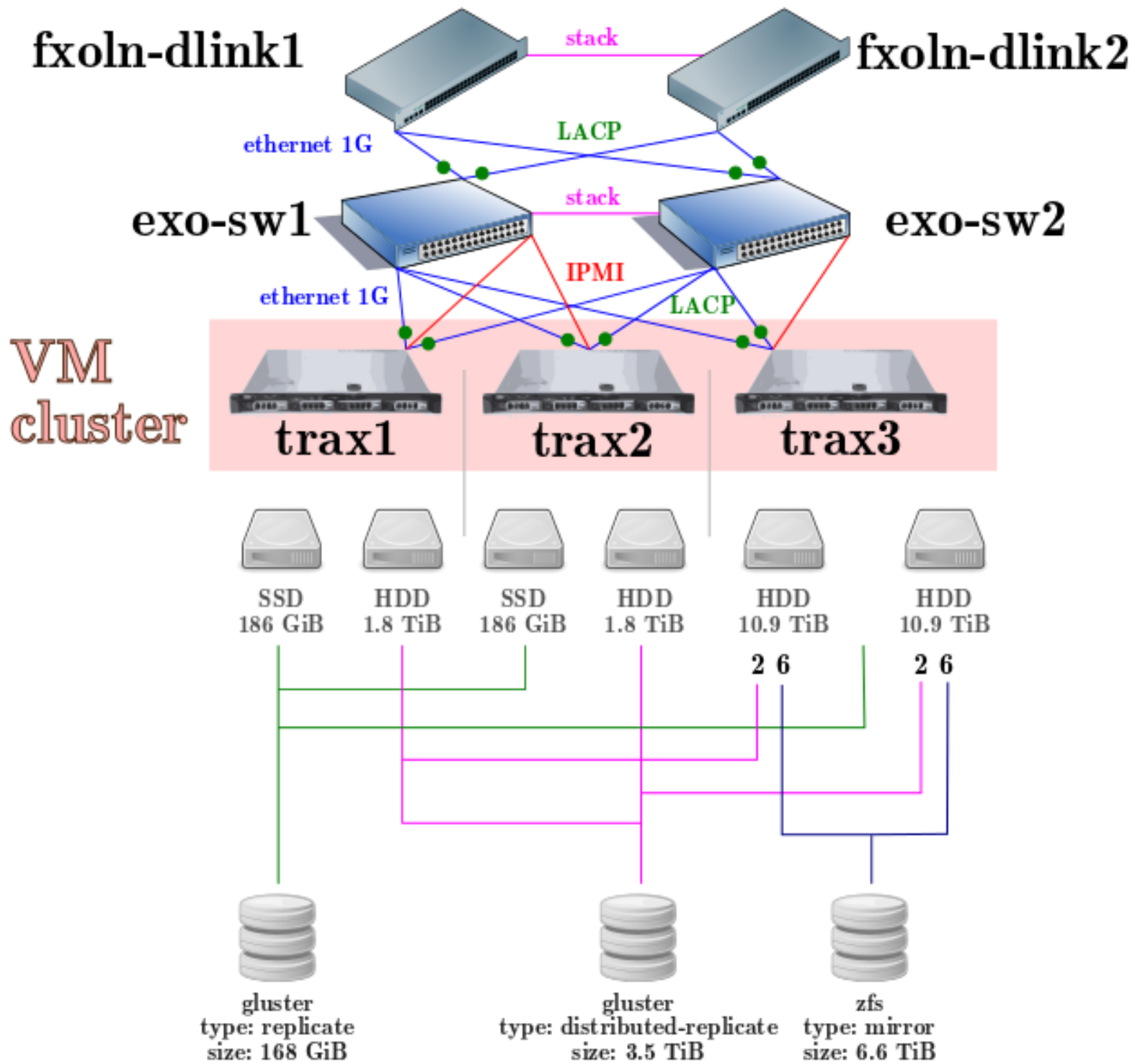
<https://gitlab.com/guifi-exo/public/blob/master/infrastructure/acer30/hardware.md#as-of-2017-02-21>

We had 1 server
Operating with it was not comfortable
No virtualization

Design for multirouter operation

Next: HCI diagram





Affordable ansible

<https://gitlab.com/guifi-exo/public/tree/master/infrastructure/acer30/ansible>

apb-install.yml
apb-root-passwd.yml
apb-upgrade-VMs.yml
apb-ssh-authorizations.yml

Unencrypted connections

Unencrypted wifi links

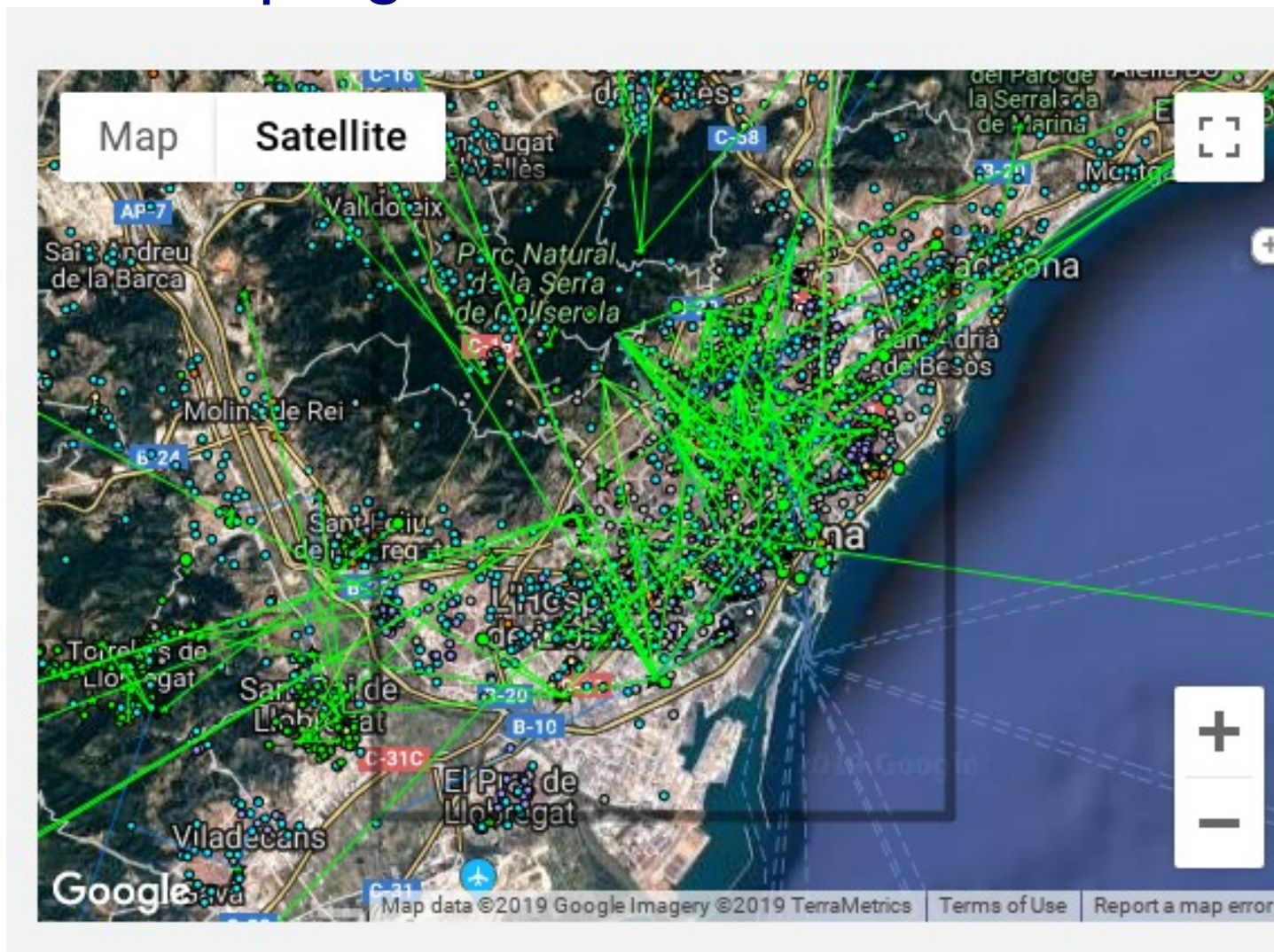
We used (unencrypted) **IPIP** and **GRE** for the tunnels

We are migrating mostly to unencrypted **L2TP**
(easier support)

*A wireguard broker would be nice to encrypt traffic
(HELP)*

Backbone network

<http://guifi.net/en/barcelona>

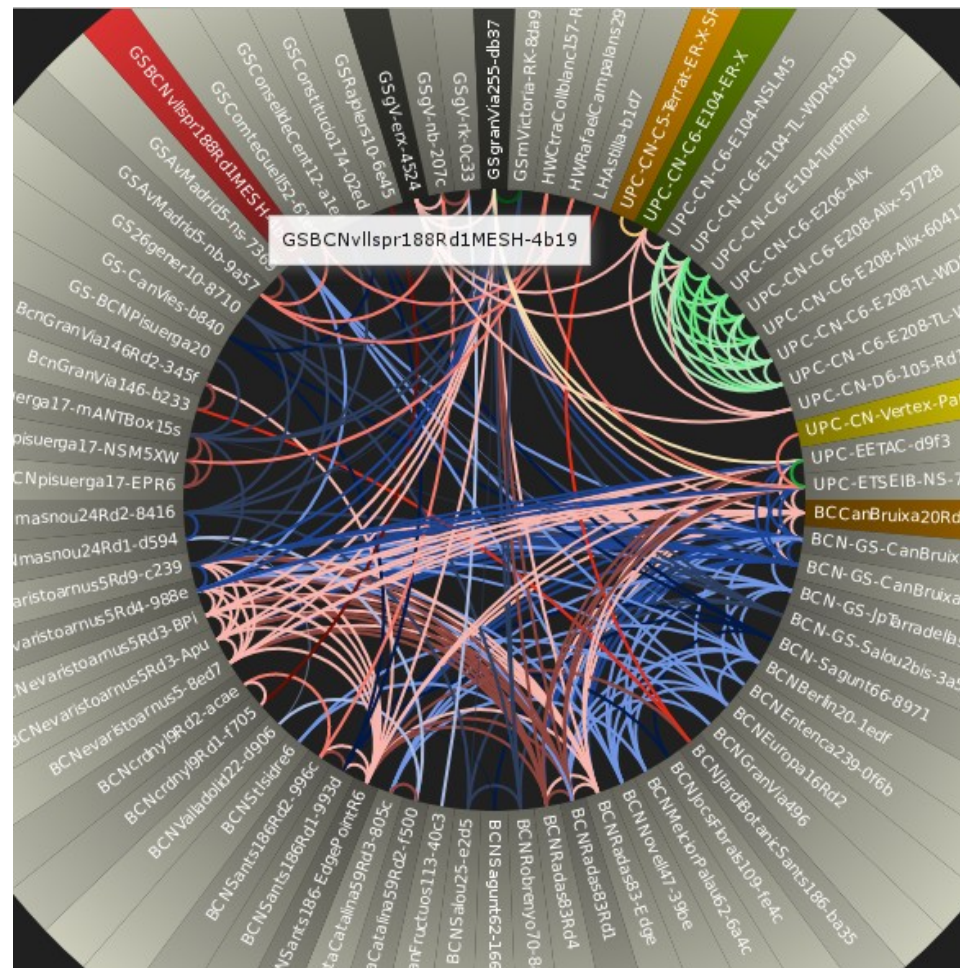


Viral access network (mesh).

Visualization with *rosco de Llorenç*

All 222 <http://dsg.ac.upc.edu/qmpmon>

Biggest 74 <http://dsg.ac.upc.edu/qmpsu/index.php>



Mesh firmwares used in the network

Firmware/software is based on openwrt (linux for embedded devices) – involves flashing the router.

Routing protocol: bmx6 (HELP migrate to bmx7)
Works on **layer 3**. Announces internet connection in the whole network easily.

qmp.cat: on top of openwrt. After flashing it starts from an initial generic config and user has to edit a simple form

temba: plain openwrt backward compatible to qmp. Moves the simple form to build time step
(disclaimer: I co-develop on this)

End of presentation

Thanks for your time

And now time to start a free discussion