

guifi.net: Open, Libre, Neutral Network Based in Commons

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expansió de la Xarxa Oberta FOSDEM 2017

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Introduction

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Main source

What is guifi.net? by Roger Pueyo:

https://guifi.net/en/what_is_guifinet

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What guifi.net is not

- ▶ An Internet access provider

exo

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- ▶ A subscription service

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What guifi.net is not

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- ▶ A subscription service
- ▶ A second-class network

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- ▶ A Wi-Fi network

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- ▶ A chaotic, lawless place

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- ▶ A chaotic, lawless place
- ▶ A new idea

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The technological project

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Historic context

Osona, 2004:

- ▶ Rural area
- ▶ **No broadband Internet**
- ▶ Wi-Fi equipment getting affordable
- ▶ Neighbours with **initiative!**

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Cooperation!

A new **common-pool infrastructure**: the network.

Fundamental conditions:

- ▶ **Free**
- ▶ **Open**
- ▶ **Neutral**

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Growth

Starting from commodity Wi-Fi equipment.

- ▶ 2010: 10.000 nodes, optical fiber links
- ▶ 2008: Autonomous System, CATNIX Internet exchange
- ▶ 2017: 32.500 nodes, estimated 50.000 people

Evolution of guifi.net:

<https://guifi.net/guifi/menu/stats/growthmap>

Map

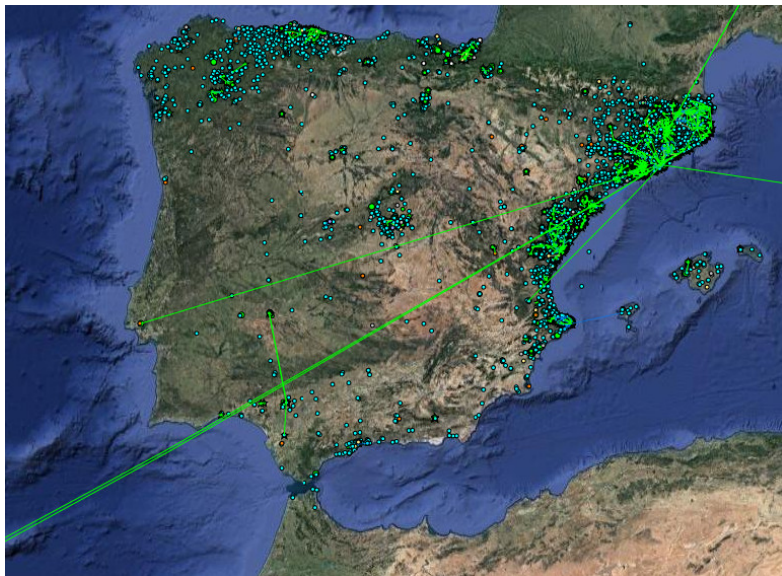


Figure 1: guifi.net in the Iberian peninsula (January 2017)

Infrastructure FLOSS

- ▶ **Drupal**: web site and central node database
- ▶ OpenLDAP: reusable authentication
- ▶ CATNIX NOC: GestióIP, GLPi, SmokePing, Weathermap
- ▶ Network: BIRD, Quagga, BMX6 (routing);
SNMP, Cacti (monitoring), BIND (DNS)
- ▶ GNU/Linux router firmware
- ▶ Supporting services: Sympa, Rocket.Chat, Etherpad,
MediaDrop. . .

FLOSS developments

- ▶ drupal-guifi: Drupal module for node db
 - ▶ dnsservices: node db to BIND configuration
 - ▶ snpservices: node db to SNMP/RRDTool traffic graphs
- ▶ Mesh router firmware (based on OpenWrt/LEDE):
 - ▶ Quick Mesh Project (qMp)
 - ▶ LibreMesh (LiMe)
- ▶ GuifiProxy: federated web proxies (Drupal/LDAP + Squid) + Firefox plugin
- ▶ Experimental research testbeds:
 - ▶ CONFINE/Community-Lab: applications and services
 - ▶ Wibed: commodity Wi-Fi routers
- ▶ Cloudy: community-provided cloud services
- ▶ Tryton ERP module for donations

Issues: **dissemination**, **long-term funding** and **maintenance**.

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The social project

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Objective

Facilitate access to telecommunications and the Internet.

- ▶ Affordable
- ▶ Non-discriminatory

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Community

Everyone who participates in the network:

- ▶ Volunteers
- ▶ Associations
- ▶ Professionals and companies
- ▶ Users of services
- ▶ Public administrations

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Rules

For everyone: the **Free, Open, Neutral Network Compact**.

Base for governance tools:

- ▶ Conflict resolution system

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The Foundation

A guardian of guifi.net's principles.

- ▶ Not-for-profit
- ▶ Volunteering entity
- ▶ NGO for development
- ▶ Telecommunications operator

Legal personality for the community.

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The economic project

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Common-pool Network Infrastructure

The network is **available to everybody in equal conditions.**

- ▶ Used concurrently
 - ▶ More efficient and affordable deployment
 - ▶ No overbuilding and duplicity
- ▶ Participants cooperate in deployment
- ▶ Operators compete to offer services

Professional services offered

- ▶ Installation of nodes
- ▶ Maintenance
- ▶ VoIP, backups, VoD, surveillance. . .
- ▶ Full Internet access

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The compensations system

Ensure the sustainability and development of the network.

- ▶ Avoid the *tragedy of the commons*
- ▶ Intensive users must contribute proportionally

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guifi.net: transforming the telecom sector

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