

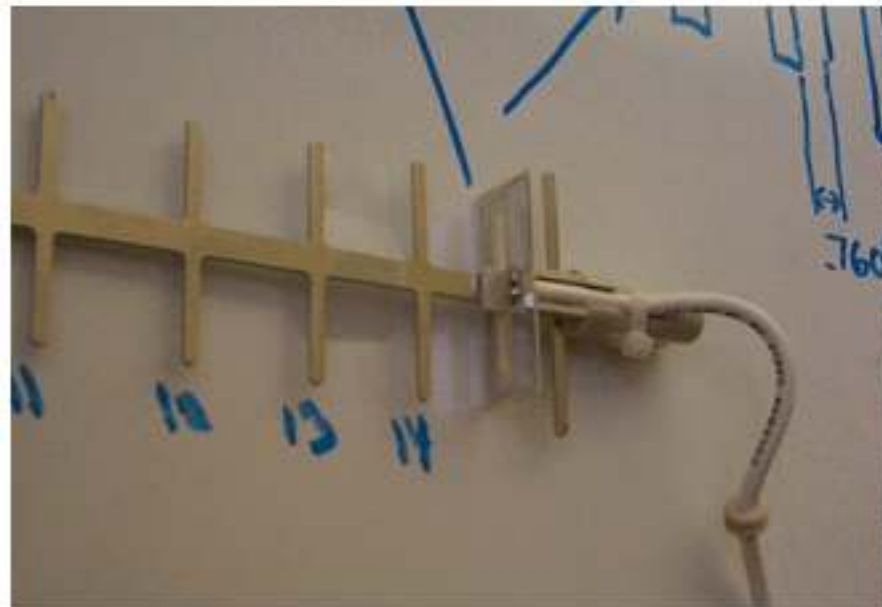
Wireless Community Networks

BattleMesh @ RomHack Camp
2022

Claudio Pisa <clauz@ninux.org>



Seattle Wireless (2000)



Network Nodes

- **Network nodes have gone through many stages:**
 - PCs on the roofs
 - Self-made antennas
 - Off-the-shelf routers with modified firmware
 - routerboards
 - router+antenna in embedded devices suitable for outdoor operation
 - Open Hardware devices (librerouter)



Network Nodes

- Need for a routing protocol:
 - Wireless links are unstable
- Open firmwares:
 - Linux distributions on embedded devices
 - packages



 **libremesh**

Build Gluon passing License BSD 2-Clause release v2022.1

Gluon


bmx6

olsrd

Babel

an adhoc wireless mesh routing daemon

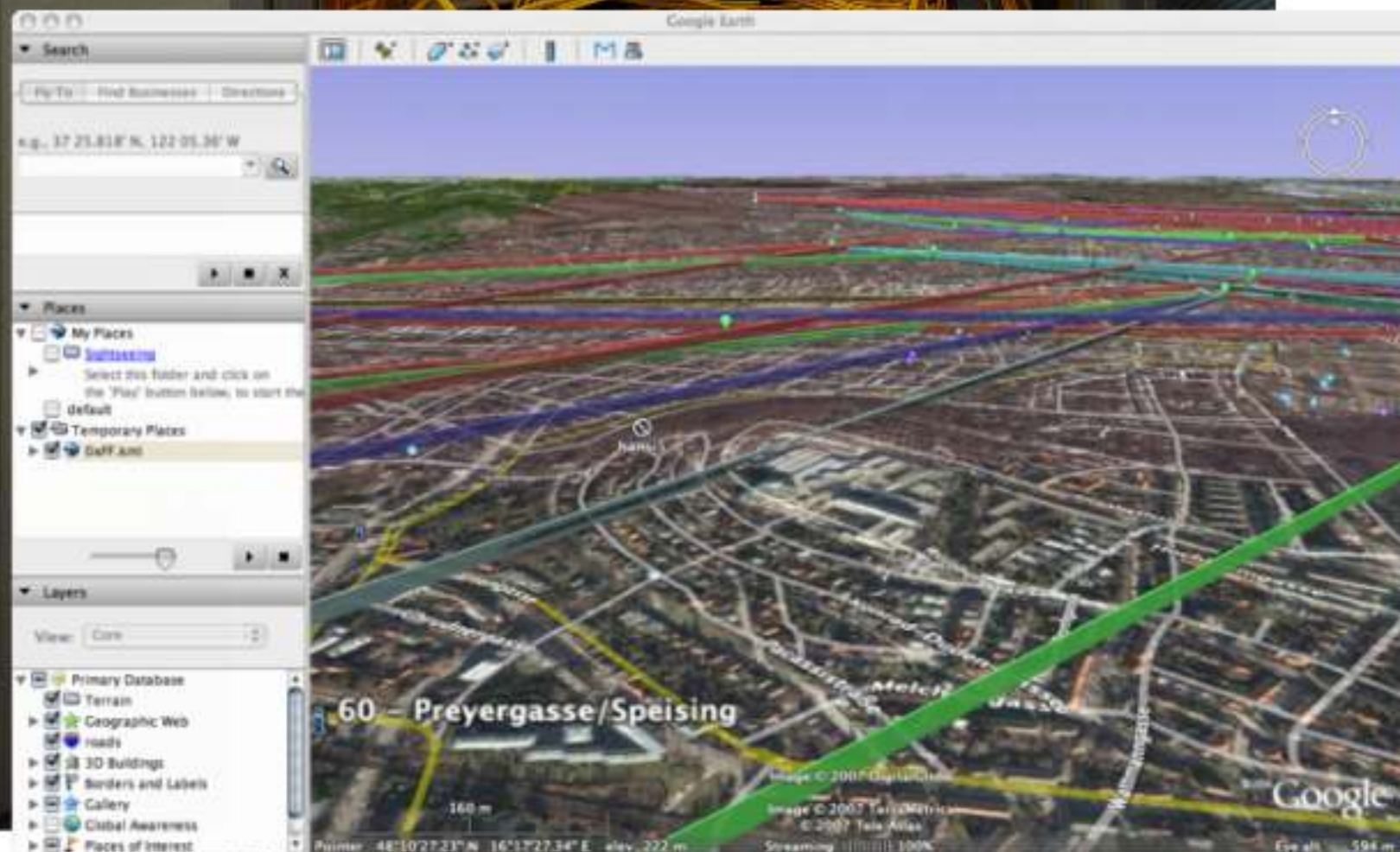
Germany – Freifunk.net



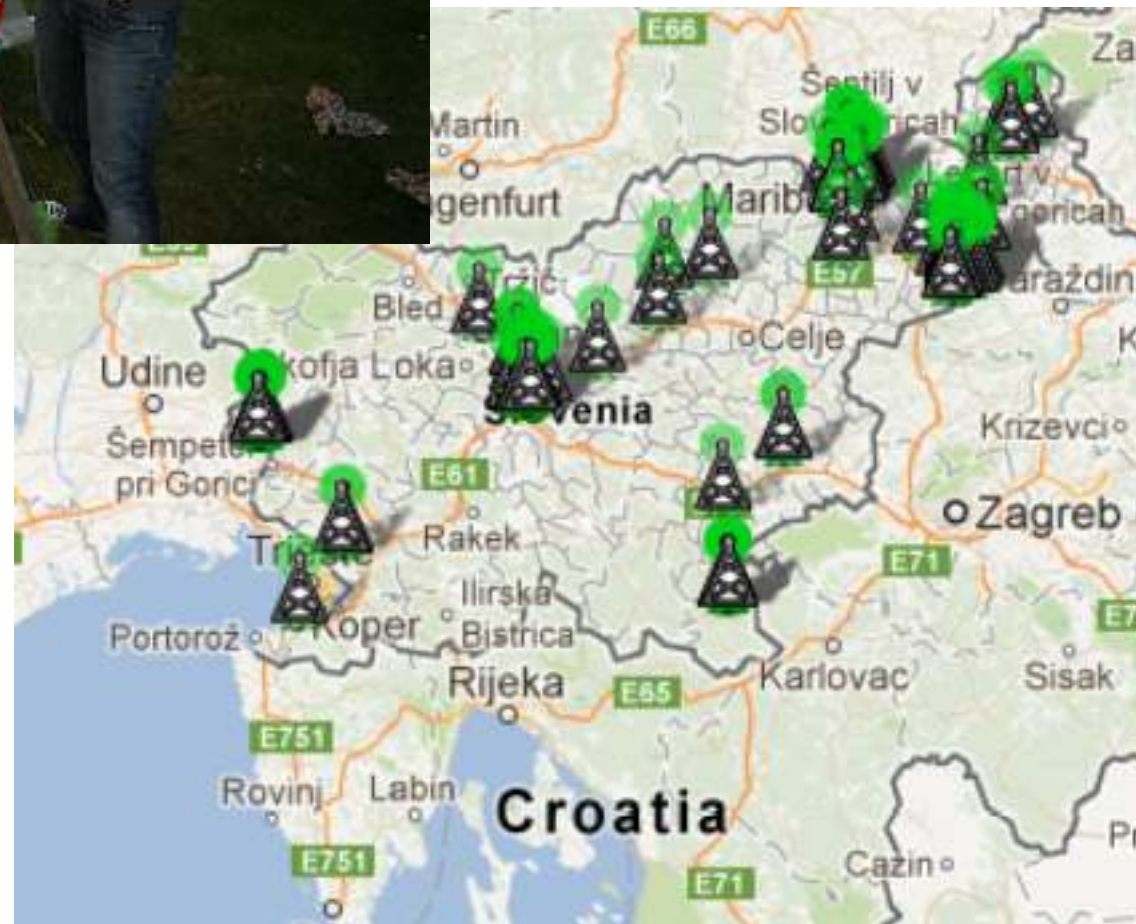
Austria – Funkfeuer.at

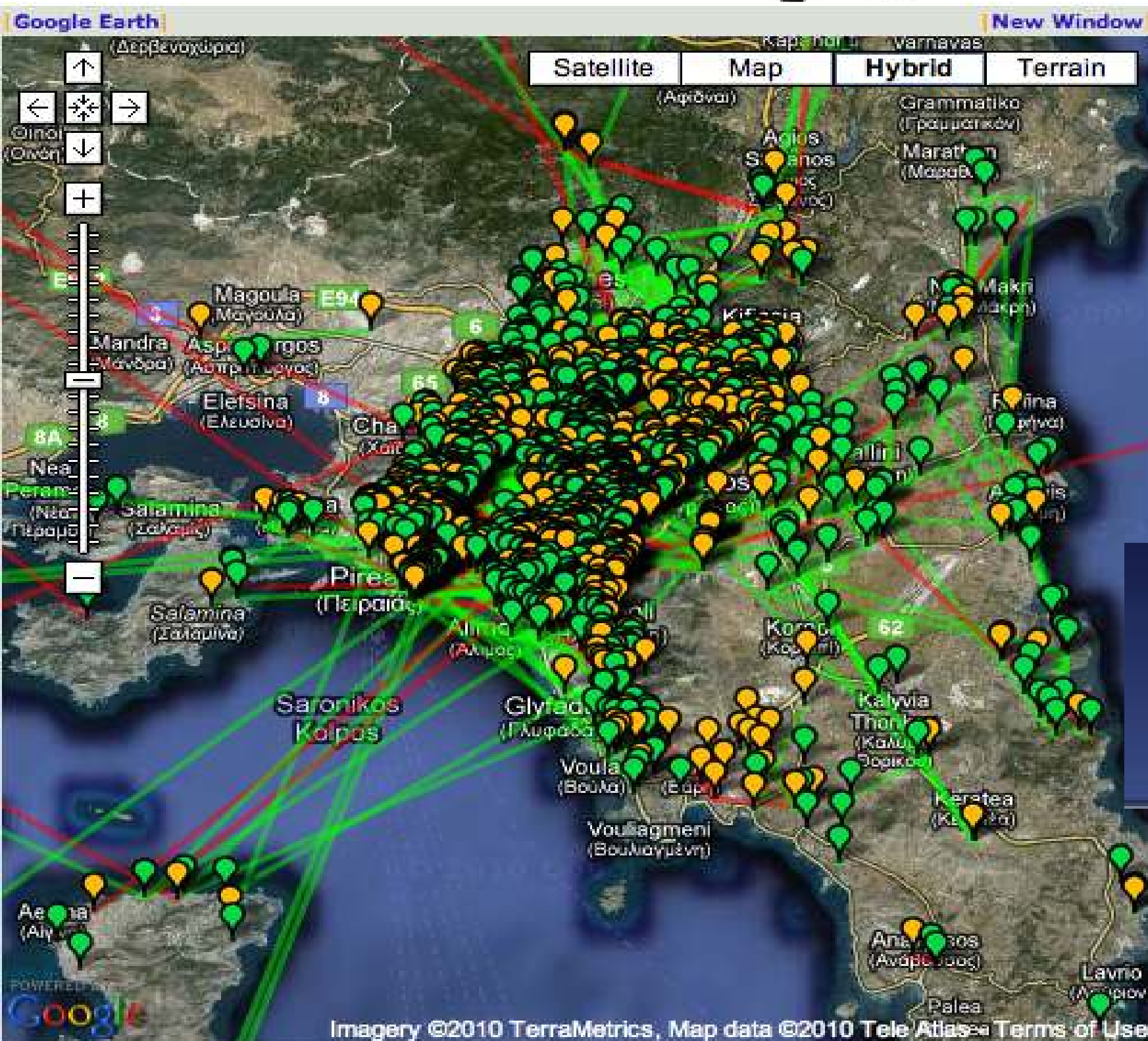
OXFF

FUNKFEUER
FREE NET



Slovenia – wlan slovenija





AWMN (Greece)

2394/11222 active nodes

1169 backbone nodes

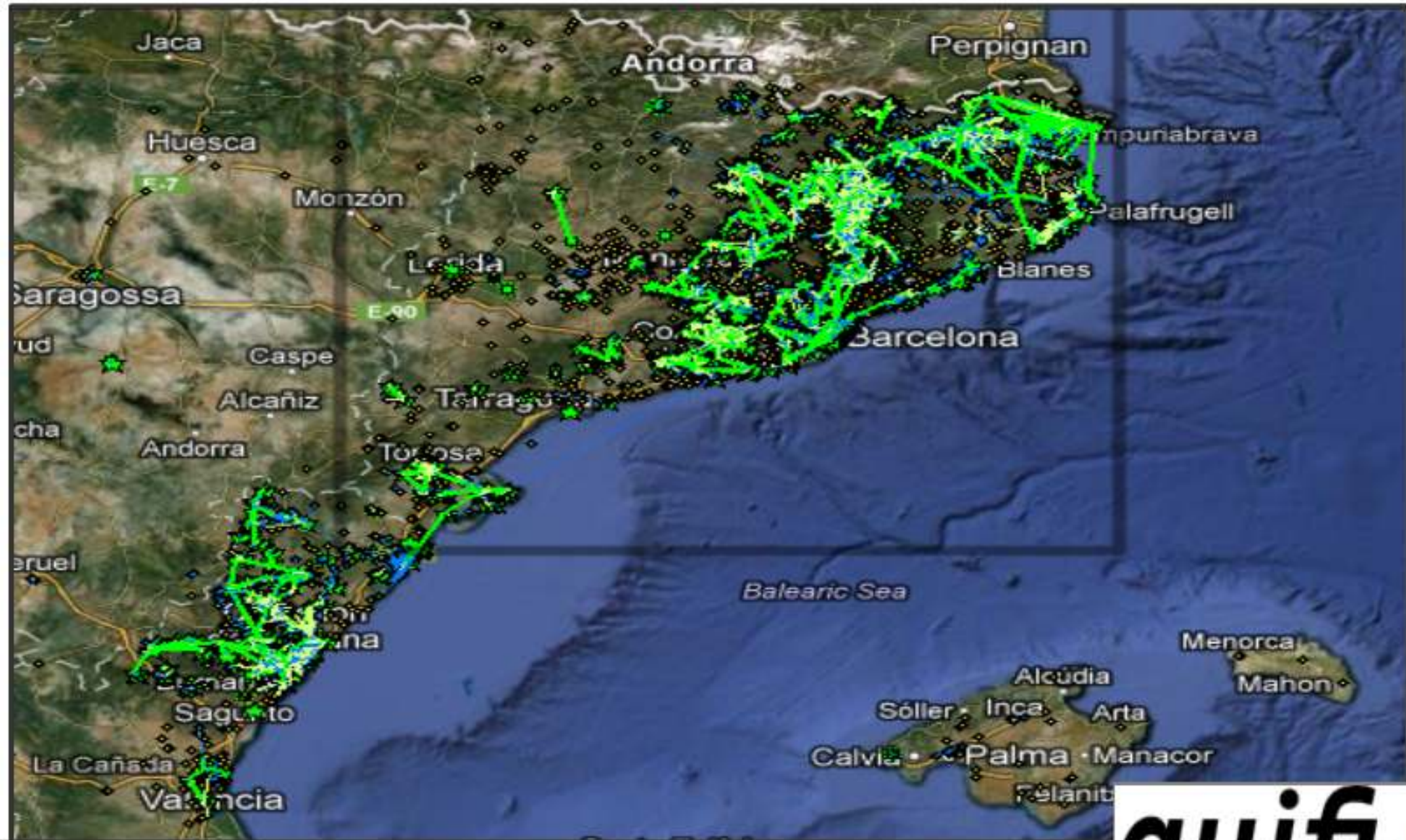
2739 links

789 access points

759/834 active services



Guifi.net (Catalunya): **37,688** active nodes

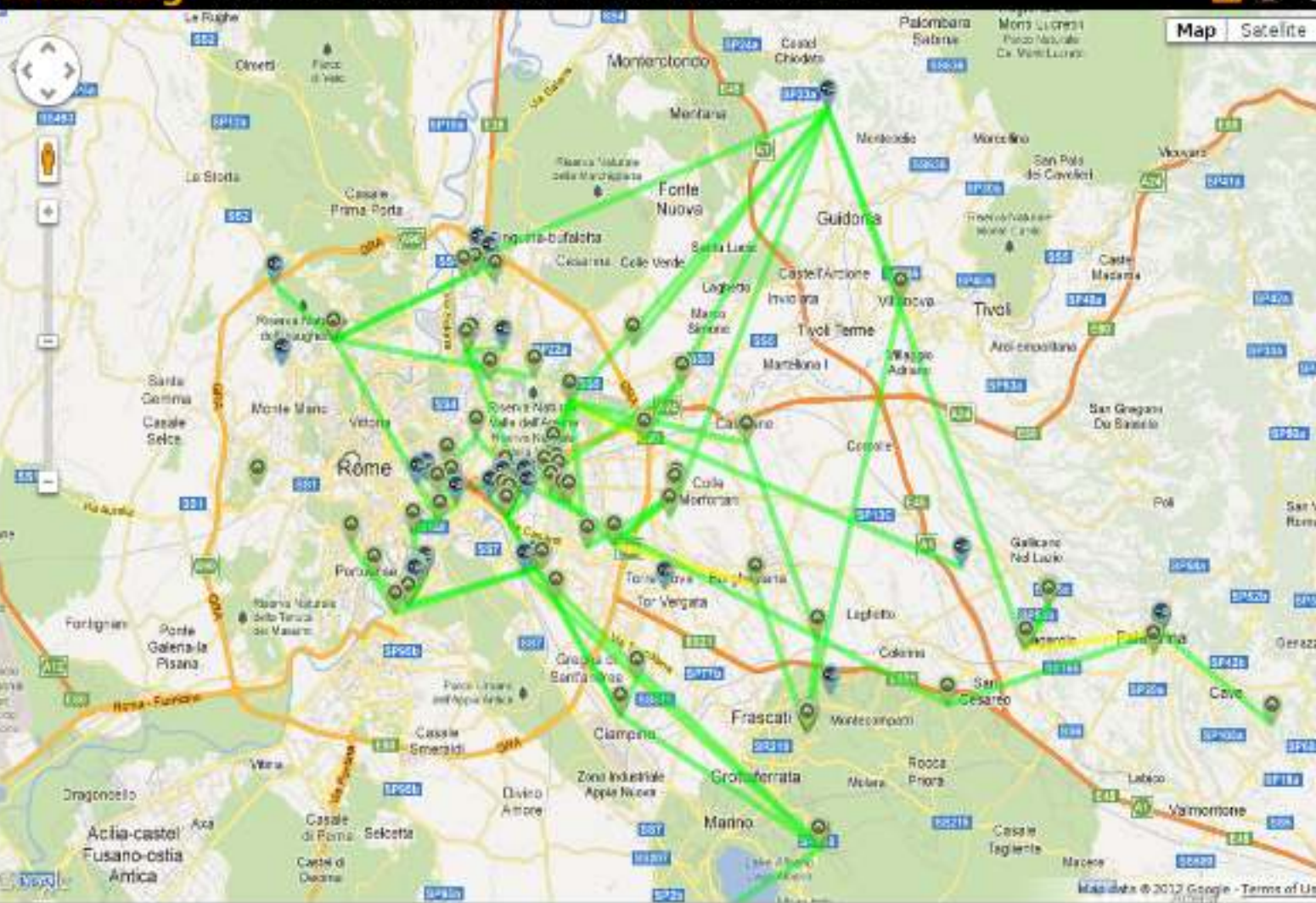


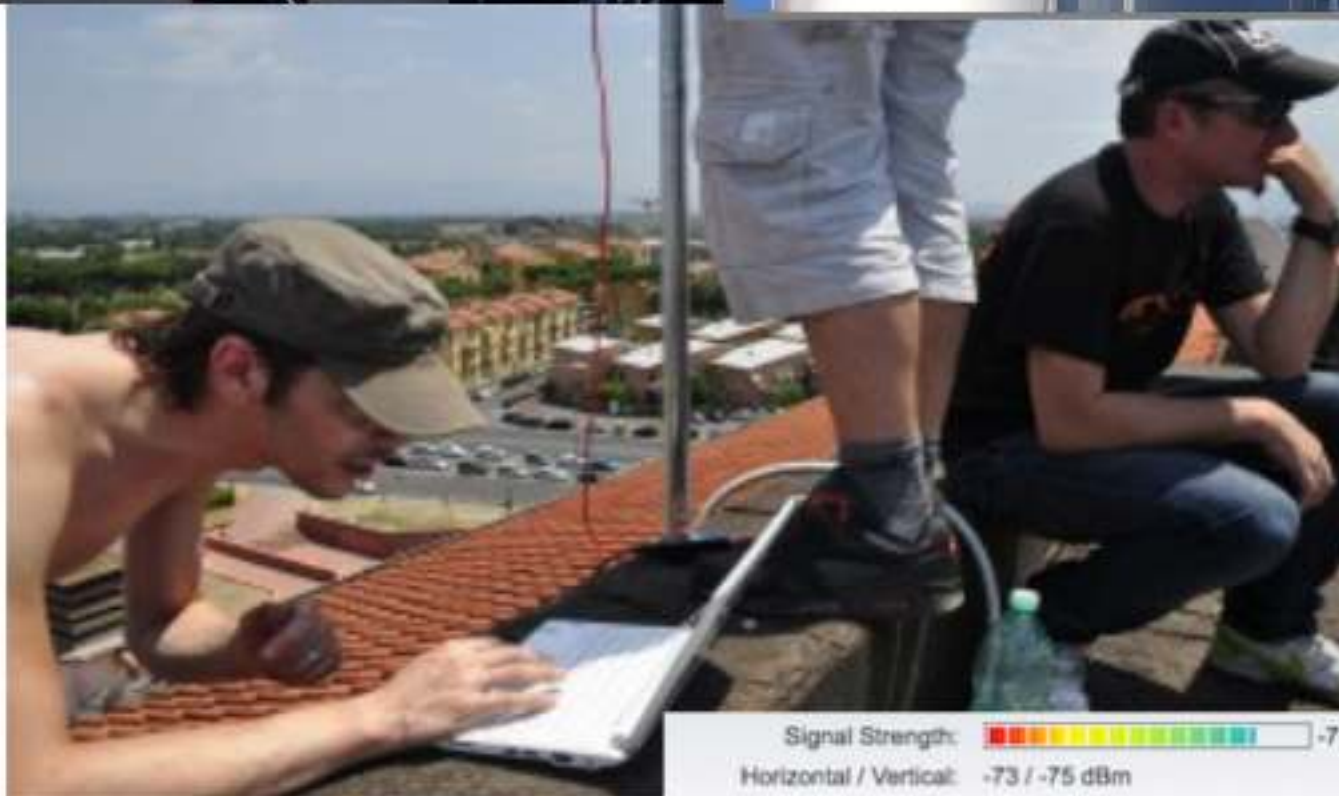



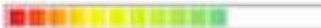
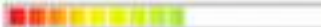
WIRELESS COMMUNITY NETWORK

map.ninux.org

Ninux.org Nodi Attivi: 141 Hotspots 39 Nodi Potenziali: 502 Link Attivi: 123 (480 km)





Signal Strength:  -71 dBm
Horizontal / Vertical: -73 / -75 dBm
Noise Floor: -92 dBm
Transmit CCQ: 100 %
TX/RX Rate: 180.0 Mbps / 180.0 Mbps
AirMax: Enabled
AirMax Quality:  68 %
AirMax Capacity:  55 %



IPv6 Autonomous System



- **Optical Fiber**
- **IPv6**
- **BGP (ASN 197835)**



Internal Services



XMPP

NINTU **XOO!**

Ricerca:

go!

Software Projects

github
SOCIAL CODING

OrazioPirataDelloSpazio Dashboard Inbox 114 Account Settings Log Out

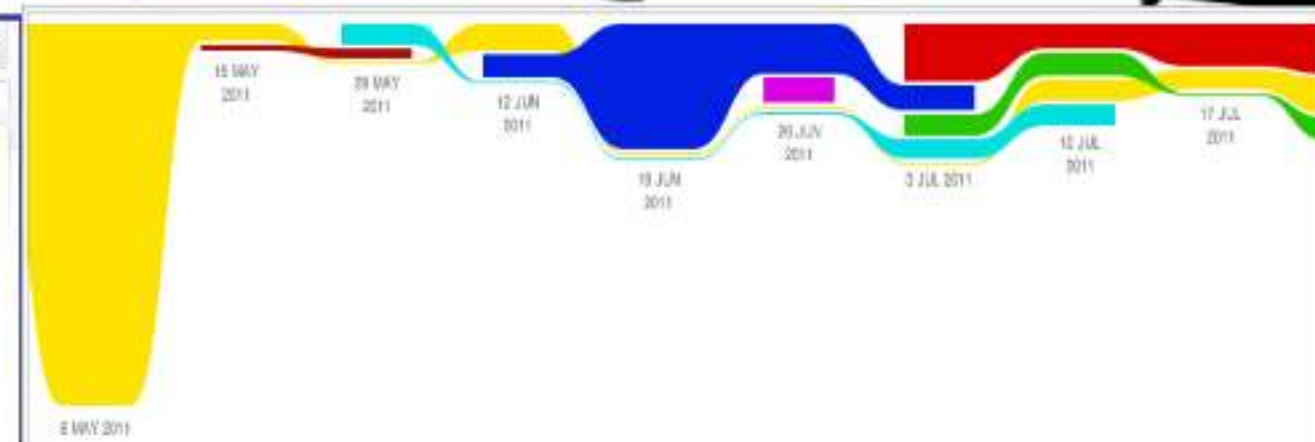
Explore GitHub Oct Blog Help Search

ninuxorg (Ninux.org - Wireless Network Community) [Edit ninuxorg's Profile](#)

You are an owner of this Organization!

Name: Ninux.org - Wireless Network Community
Email: contact@ninux.org
Website/Blog: <http://www.ninux.org>
Location: Italy
Member Since: Feb 23, 2011

7 Public Repos 0 Private Repos 11 Members



List of hosted projects

Project Name	Description
autoconf	
cafone	
facebook-bot	
freenux	Scripts to share with neighbors an ADSL connection, using packet schedulers
graphics	Misc graphic stuff of ninux
irss	A moinmoin plug-in to have an rss feed related to a page
merpa	Mesh Routing Probe Analyser
ninuxdyndns	Ninux Dynamic DNS
obamp-netkitlab	
openpursuit	A web-based nerd game using Django platform
packages/ninux-ipkg-webiftheme	Ninux.org Community Webif Theme Packag
packages/nowolfsplash	A captive portal written in LUA
packages/olrs-ninux	Olrs daemon for ninux mesh network
packages/sar	Strong Anonymous Router
packages/zzz-ninux-ipkg-<arch>	Meta package to recompile ninux firmware
pgp-pp	PGP Permanent Party
say	mDns repeater
Tracker2GMaps	Draw data sent by the TZ-GT01 on the web with Google Maps
wardriving-ng	
xtables-addons	Implementation of loose/strict source routing in kernelspace as an xtables addon

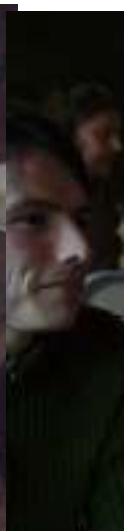
Google
SUMMER OF
CODE
2011

Events



Wireless Community Weekend

- **Wireless Community Weekend**
 - **Yearly event**
 - **C-base, Berlin, Terra**
 - **Community networks enthusiasts**
 - **Developers**
 - **Barbecue!**



Wireless Battlemesh



Wireless Battlemesh

- Event that aims at bringing together people from across the world to test the performance of different routing protocols for ad-hoc networks + unconference
- started in Paris (FR) in 2009, then
- Brussels (BE)
- Bracciano (IT)
- San Bartolomeu del Grau (CAT)
- Athens (GR)
- Aalborg (DK)
- Leipzig (DE)
- Maribor (SI)
- Porto (PT)
- Vienna (AT)
- Berlin (DE)
- Saint-Denis (FR)
- 2020 Virtual Global Edition
- Rome (IT) 2022



battlemesh.org

Wireless Battlemesh



- **www.ninux.org**
- **contatti@ninux.org**
- **map.ninux.org**
- **twitter: [@ninuxorg](https://twitter.com/ninuxorg)**
- **github.com/ninuxorg**
- **www.battlemesh.org**
- **www.freifunk.net**
- **www.funkfeuer.at**
- **www.guifi.net**
- **www.awmn.net**
- **...**

