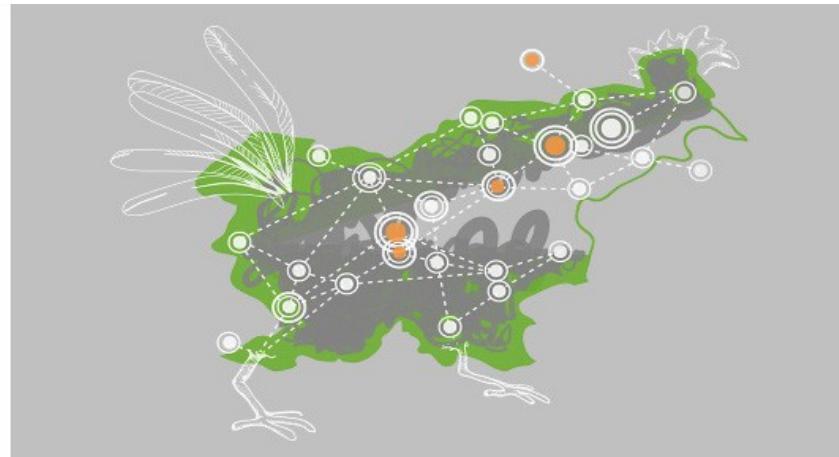




wlanslovenija  
open wireless network of Slovenia



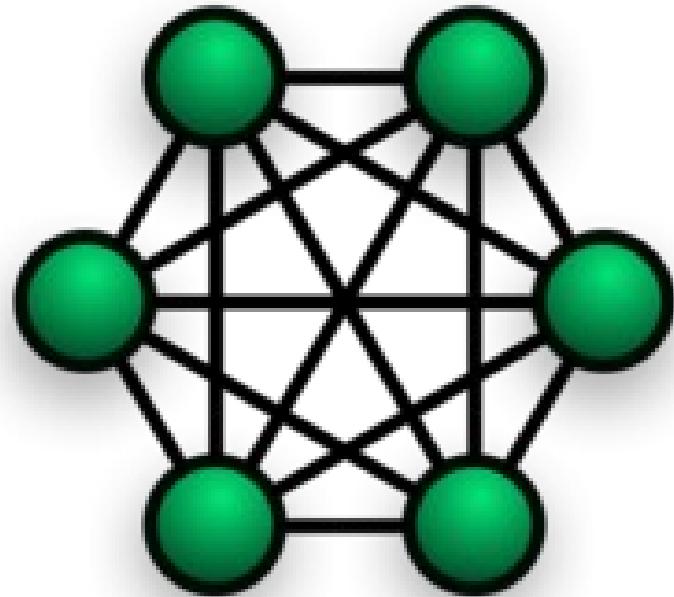
The Free Network Foundation

#NSA KILLED MY INTERNET



NOW I HAVE TO BUILD A GNU ONE

# Why mesh networks are rad:



1. Decentralized.
2. Resilient.
3. Community-owned communications rooted in the commons.

# **Use Cases!**

# Disaster Relief

Red Hook Initiative WiFi  
#SandyAid Txt Map

New Map      Browse All Maps

1 Events/Announcements    2 Repairs    3 Supplies

Drag / Click to Map

Format TEXT as Need @ Your Location  
(i.e. "Gas, Water Pump @ Van Brundt and Pioneer Brooklyn")

Filter Landmarks

- Event
- Memories
- Alert!
- Fix This
- Free WiFi
- Friend
- Group
- Food
- Coupons
- Jobs
- Other

Landmarks      Chat Feed

**Red Hook Needs**

Needs/Reports added to the map when texted.

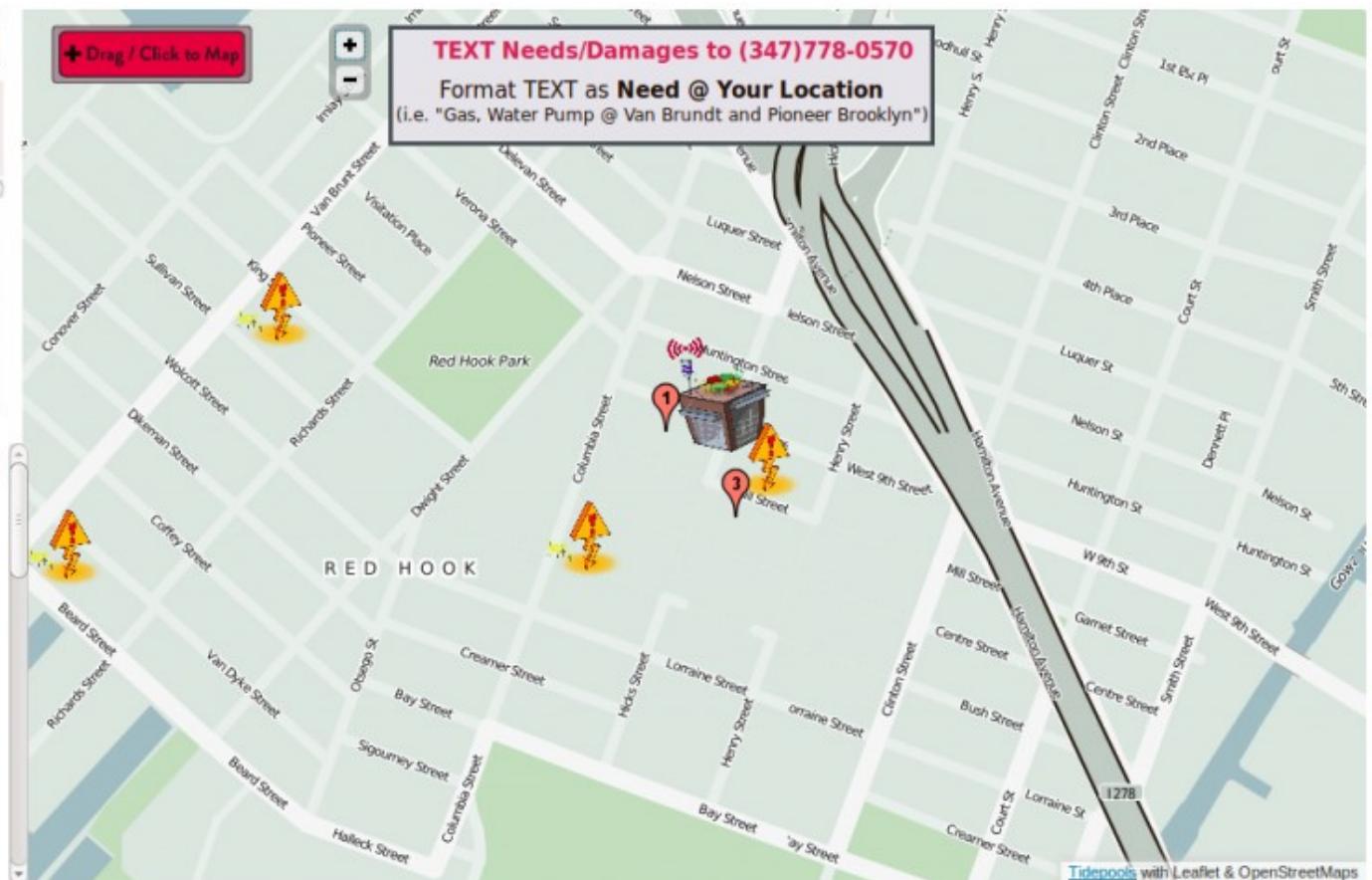
**RESPONDERS: Click on Icons to Send Reply Back via Txt Msg**

(Get JSON API here) - Part of [tidepools.co](#)

1 . Red Hook Initiative  
767 Hicks Street Brooklyn, NY 11231 Phone  
718-858-6782

11:51pm 11-11-2012

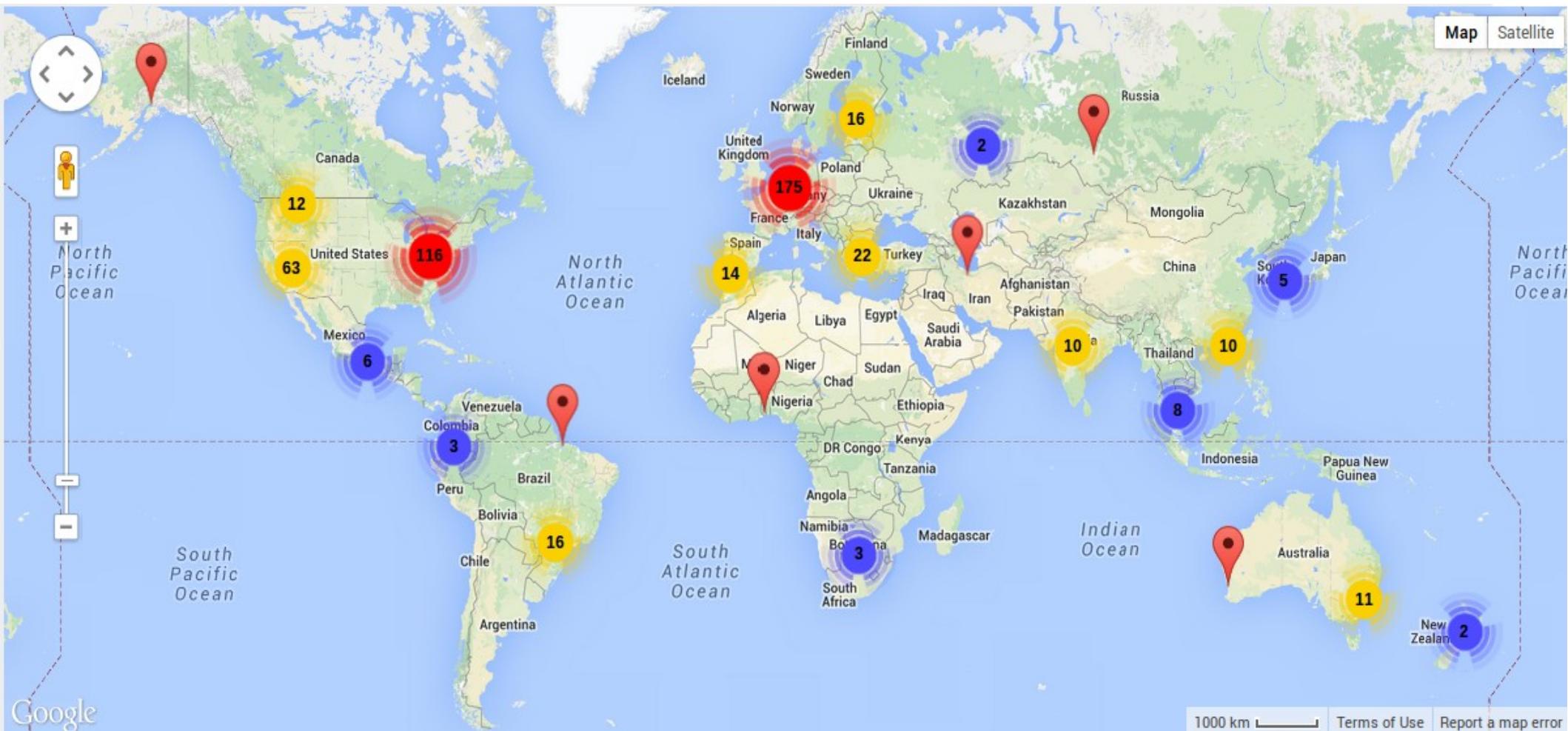
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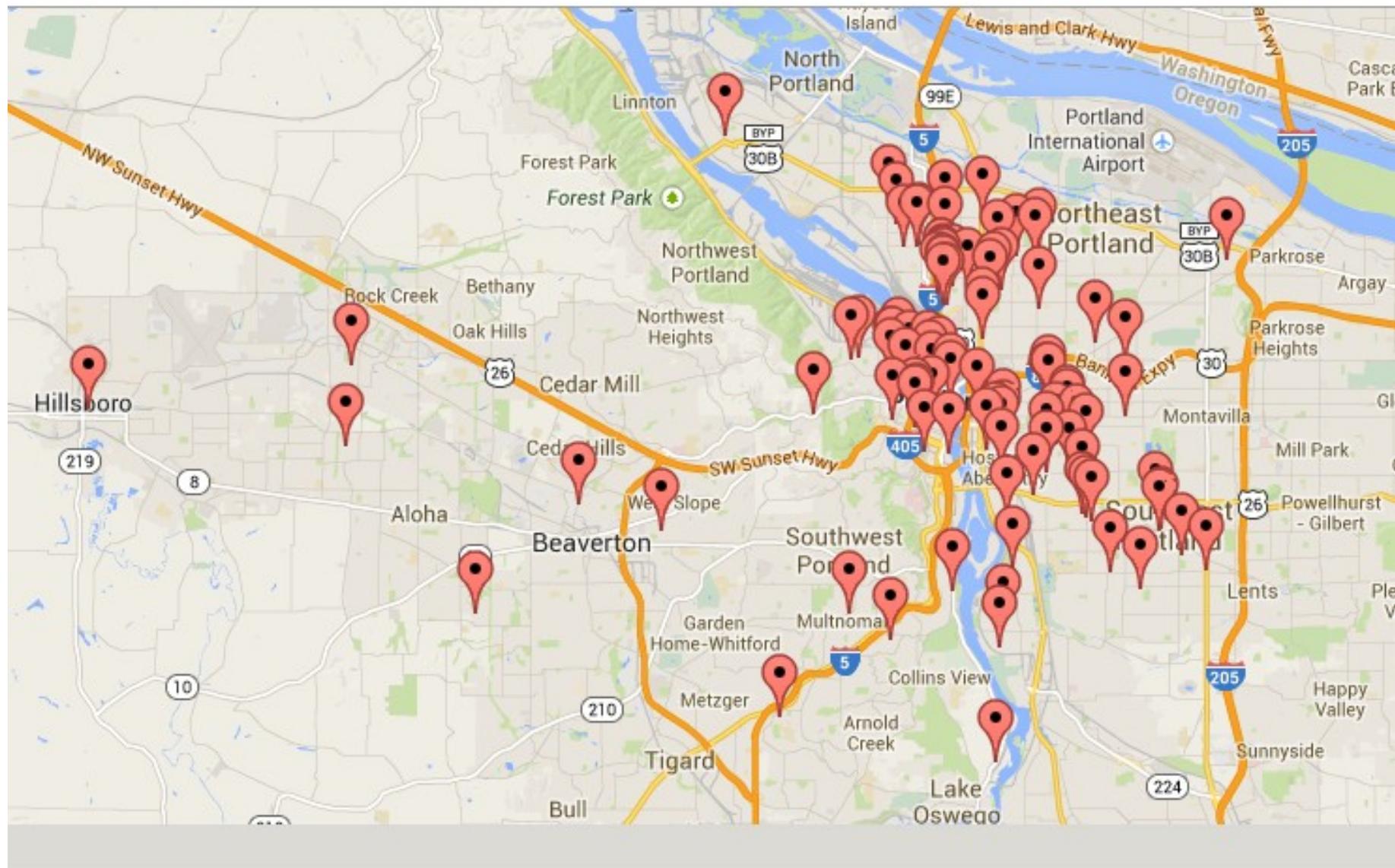
# Grassroots Community Collaboration



# Hackerspaces Worldwide



# Personal Telco node map (Portland)

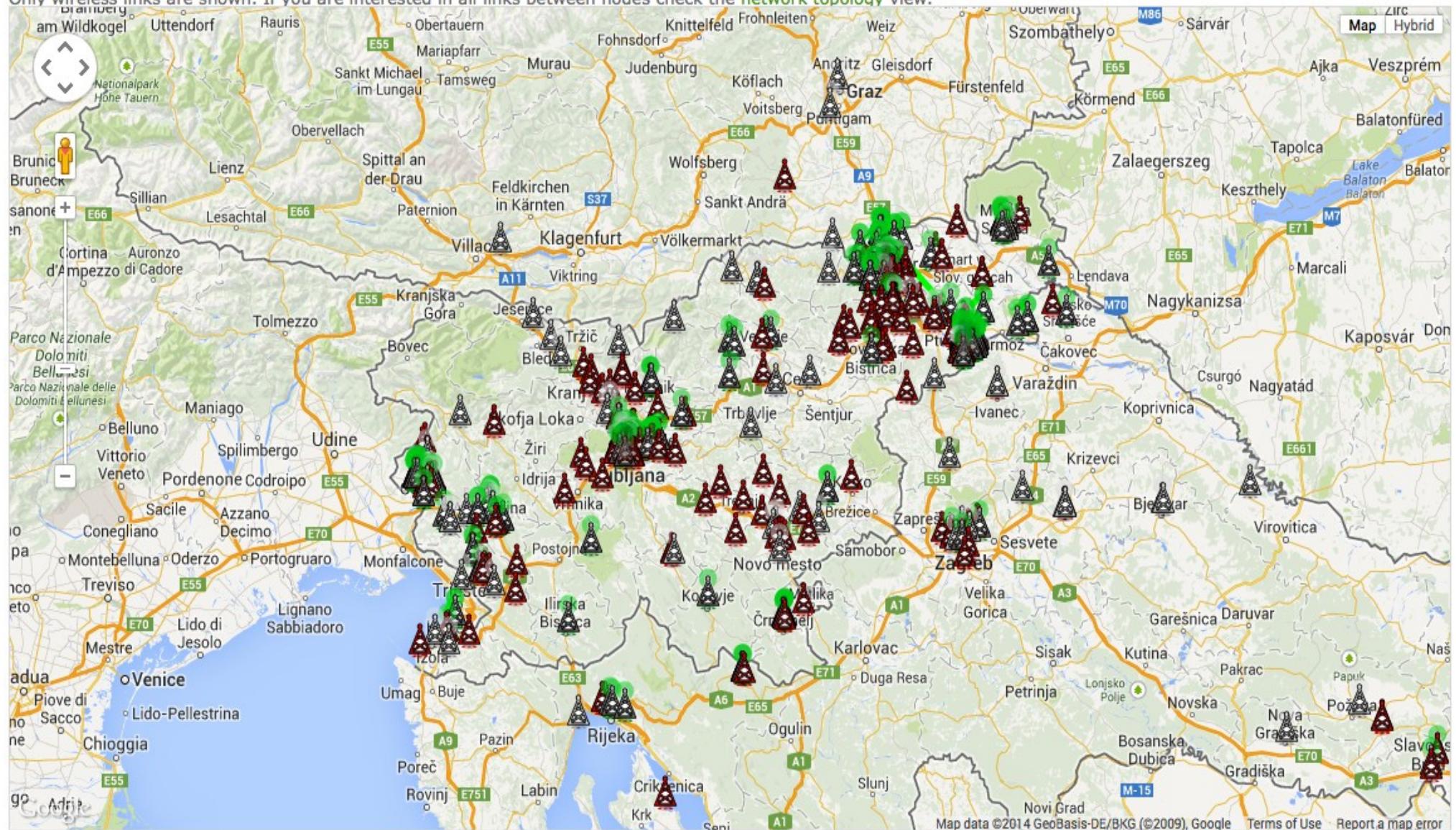


# rooftop mount in Portland



# wlan slovenija node map

Only wireless links are shown. If you are interested in all links between nodes check the [network topology view](#).



Visible 731 of 850 shown nodes

Map data ©2014 GeoBasis-DE/BKG (©2009), Google Terms of Use Report a map error

# painting antennae in Slovenia

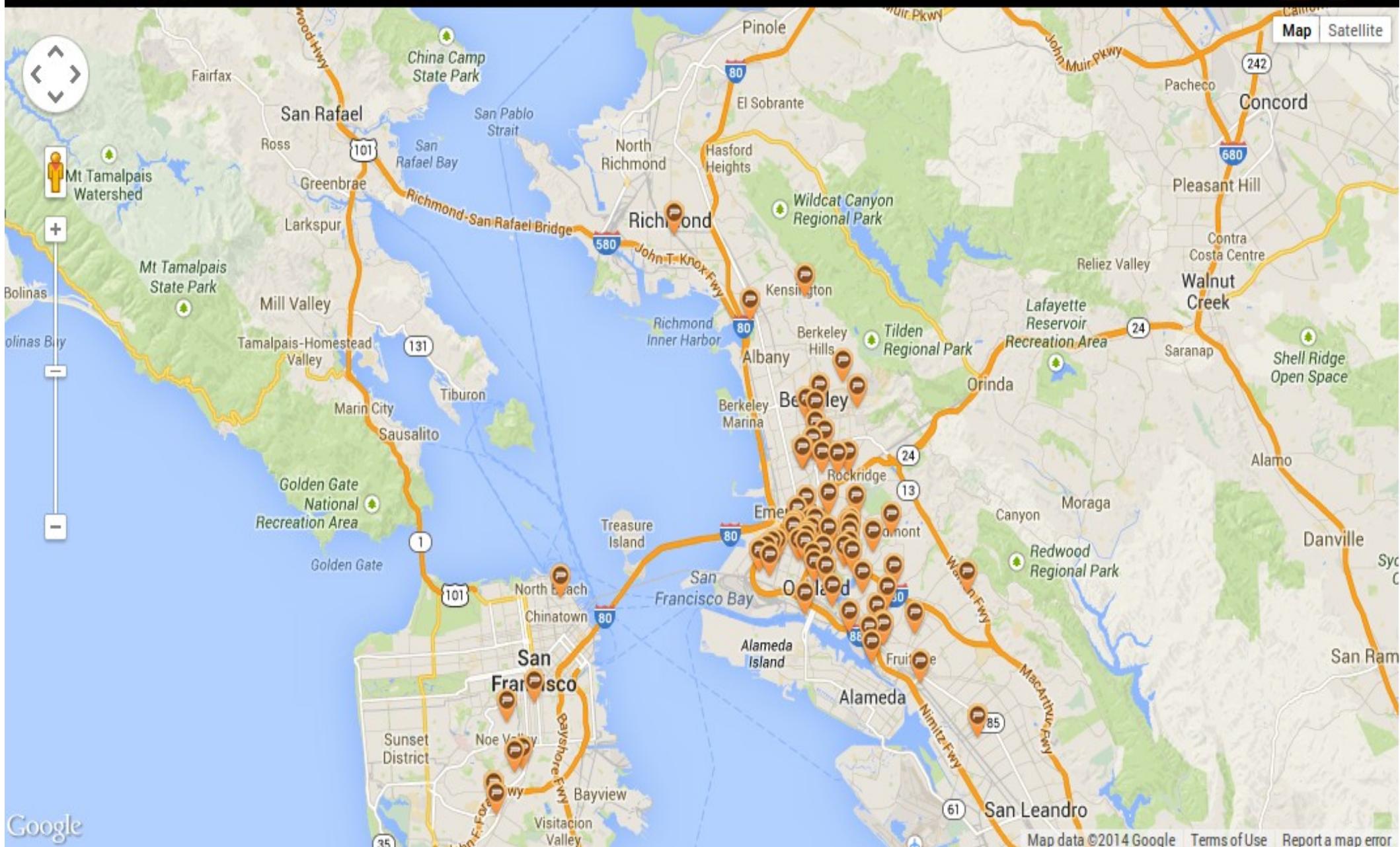


# Freedom Tower in Zuccotti Park



image courtesy of Matt Cutugno

(<http://staythirstymedia.com/201111-063/html/201111-cutugno-occupying-my-thoughts.html>)



# mounting a rooftop node in Oakland



# hackathon + mate in Argentina



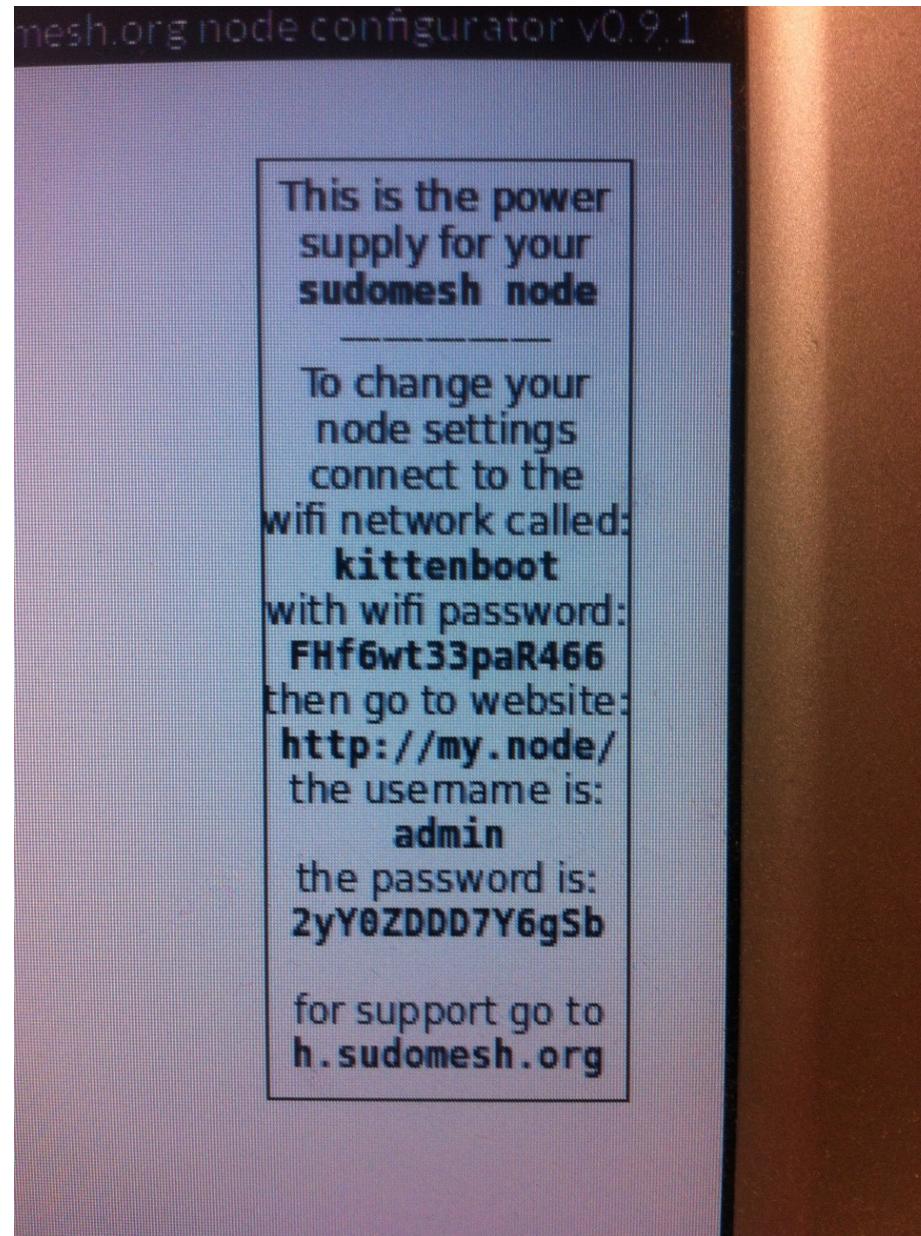
# mounting Commotion routers in India



# Three types of mesh nodes

- Rooftop / mast nodes.
  - These form the high-speed backbone of the mesh
  - High power. High speed. 5 Ghz.
- Outdoor routers
  - Street-level connection points for phones / laptops
  - Medium range. Medium speed. 2.4 Ghz.
- Indoor routers
  - Extending the mesh into buildings.
  - Short range. High speed. 2.4 / 5 Ghz.

# automated sticker labels!



# Bootstrapping a mesh

- Problems with bootstrapping
  - Few nodes == no mesh
  - No mesh == no incentive to join
  - Roof / outdoor mounting is intimidating / expensive
- Solutions
  - Make nodes connect to mesh via internet (tunnel)
  - Nodes provide safe internet sharing
  - Provide cheap indoor routers to get people's feet wet
  - Nodes provide extra private access point for owners

# Safe internet sharing

- User-selectable bandwidth limiting
  - Incoming data limited before it reaches mesh
- All traffic from mesh is VPN'ed
  - VPN server owned by shell non-profit
  - Abuse complaints received by non-profit

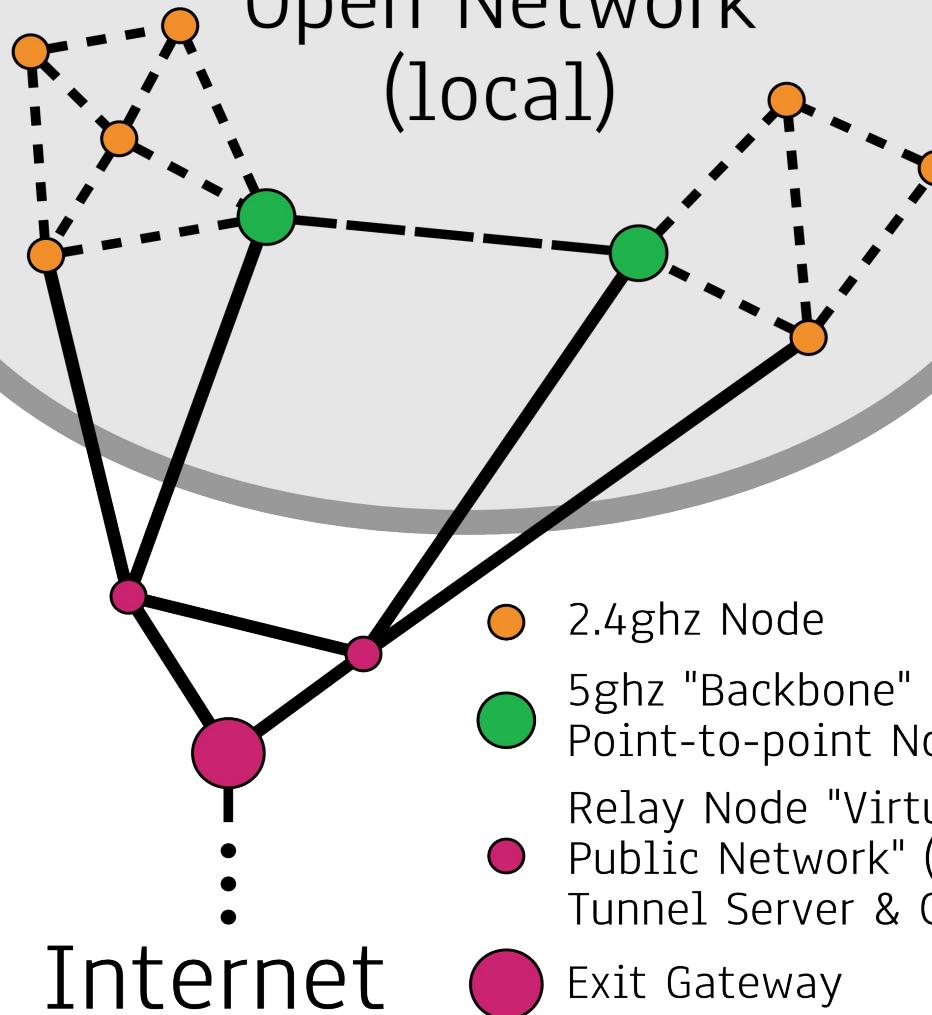
# Making it easy to become a node-owner

- Online shop for ordering nodes
  - User provides initial bandwidth limits
- Automated flashing / configuration of nodes
- Automated printing of:
  - “How to care for your node” guide
  - Sticker with password and support info
- Inventory / fulfillment infrastructure so vo

# Limiting centralization

- Network is separate from mesh organization
  - Mesh Network: peoplesopen.net
  - Mesh Organization: sudo mesh
- Joining network requires only agreeing to the Nearly Free Network License
- Make mesh organization fork()'able
  - Document EVERYTHING!
  - Open source everything.
    - Website. Wiki. Legal documents. Software. Firmware.
  - Provide script for forking / rebranding.
  - Encourage forking for geographic expansion

## The People's Open Network (local)



Internet

# adapting OpenWRT

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```

```
sudo mesh v0.1 (Snow Crash)  
based on OpenWRT 12.09 (Attitude Adjustment)
```

```
-----  
"See, the world is full of things more powerful than us.  
But if you know how to catch a ride, you can go places."  
-- Neal Stephenson, Snow Crash  
-----
```

# B.A.T.M.A.N. Advanced



# **Get involved!**

## **Open source software projects:**

- \* OpenWRT, Byzantium, Commotion
- \* batman-adv, OLSRd, BMX6, Babel
- \* tunneldigger, nodewatcher, nodeshot

## **Events:**

- \* Battlemesh
- \* Int'l Summit for Community Wireless Networks

## **DIY:**

- \* Join or start a local mesh network!

