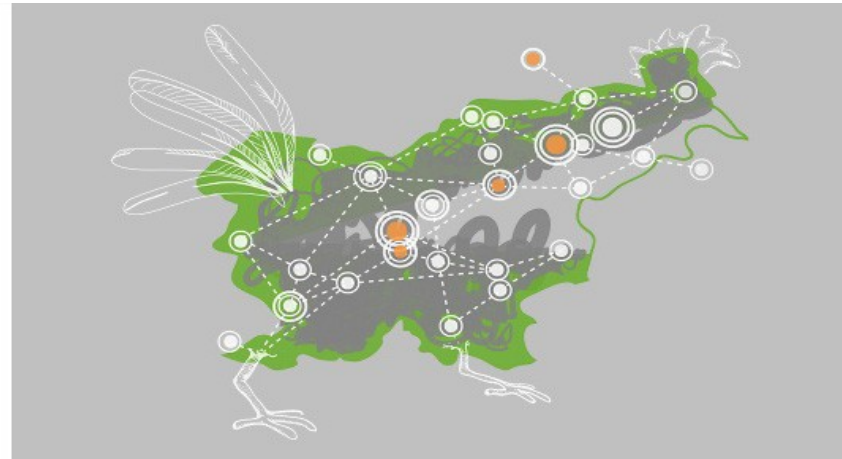


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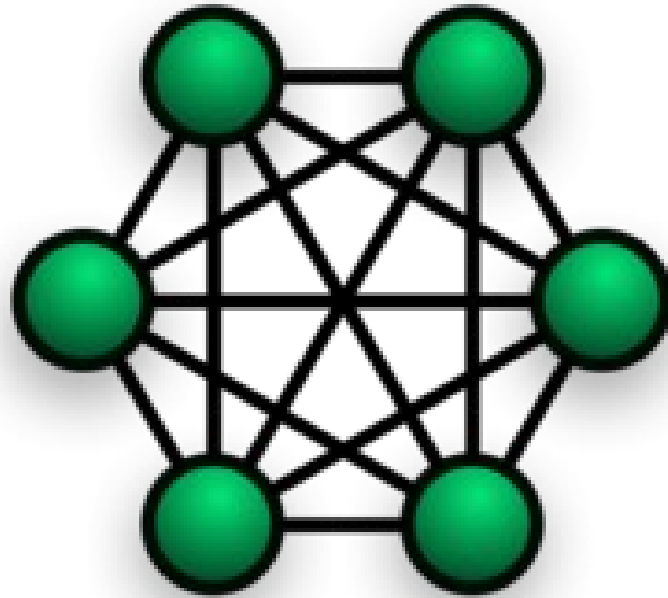
The Free Network Foundation

#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

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

TEXT Needs/Damages to (347)778-0570
Format TEXT as **Need @ Your Location**
(i.e. "Gas, Water Pump @ Van Brunt and Pioneer Brooklyn")

Drag / Click to Map

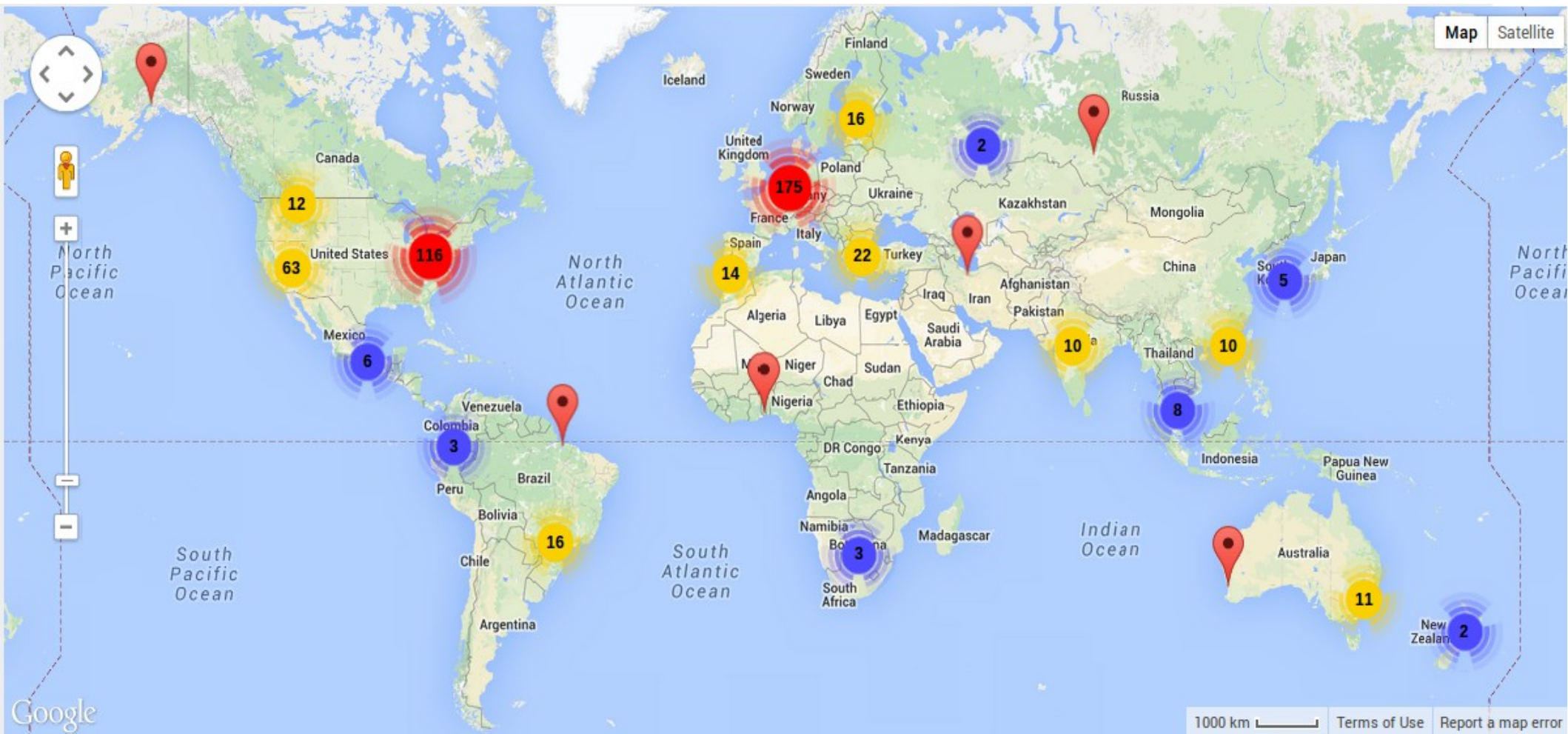
RED HOOK

Tidepools with Leaflet & OpenStreetMaps

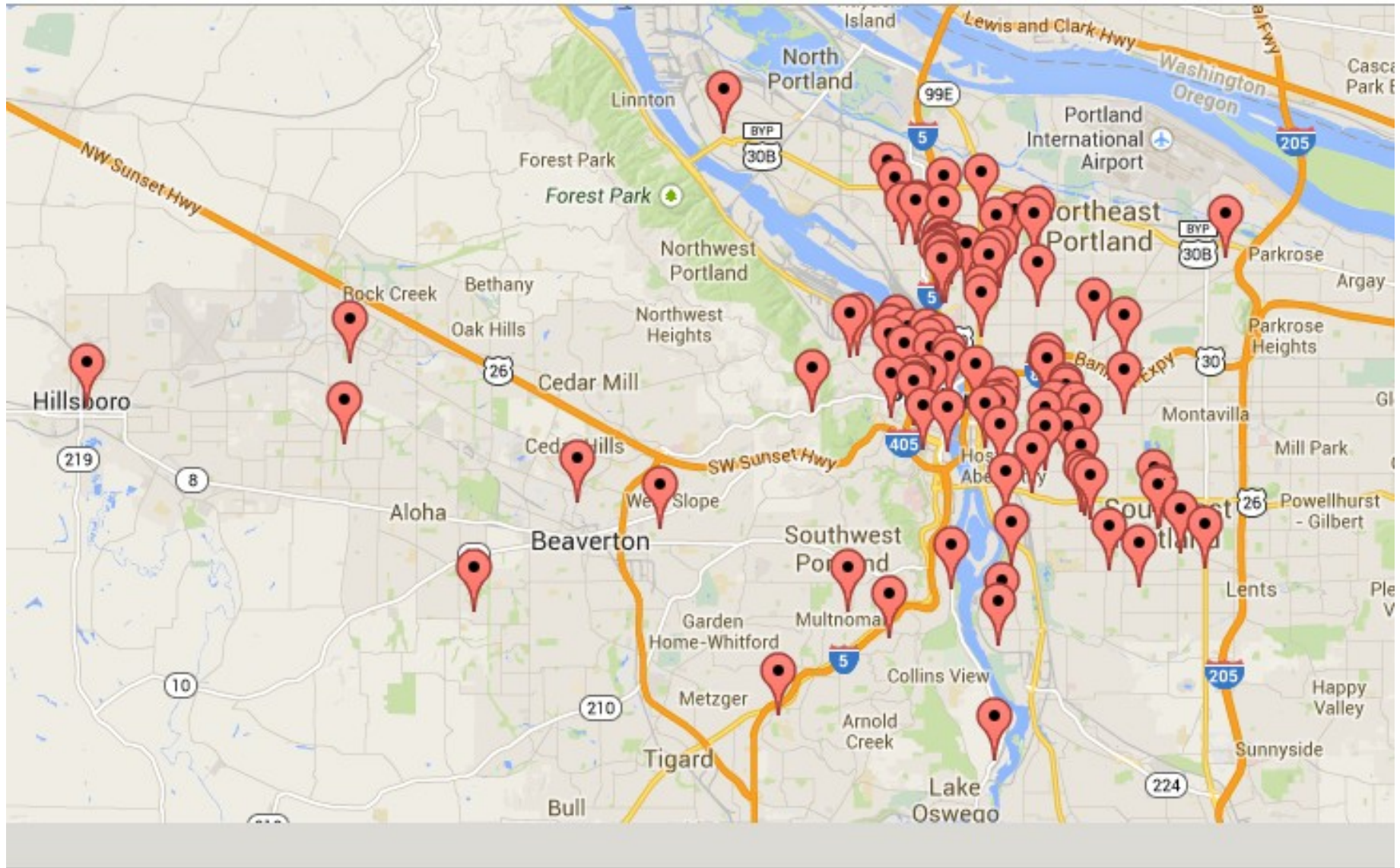
Grassroots Community Collaboration



Hackerspaces Worldwide



Personal Telco node map (Portland)

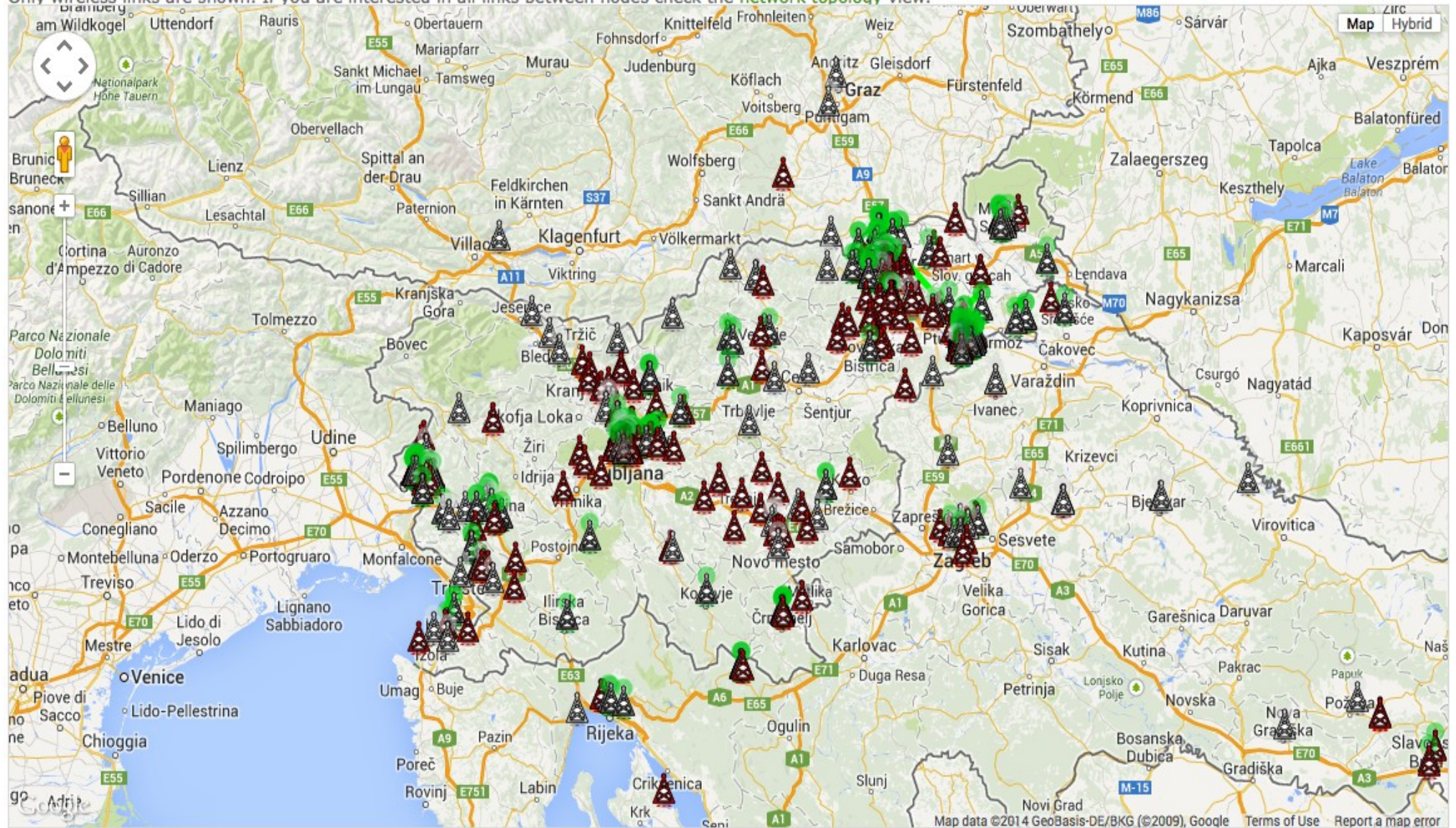


rooftop mount in Portland



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

painting antennae in Slovenia

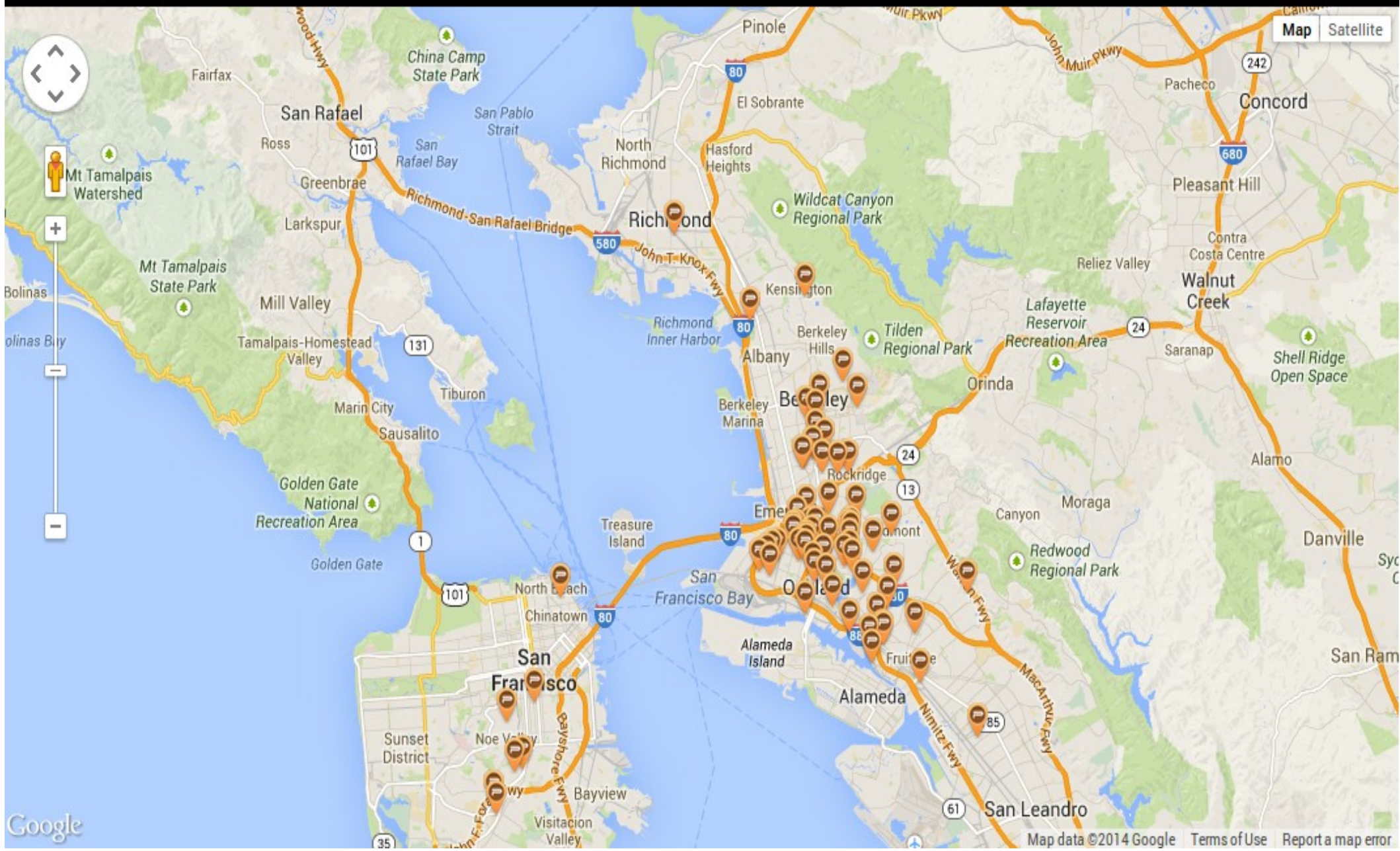


Freedom Tower in Zuccotti Park



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



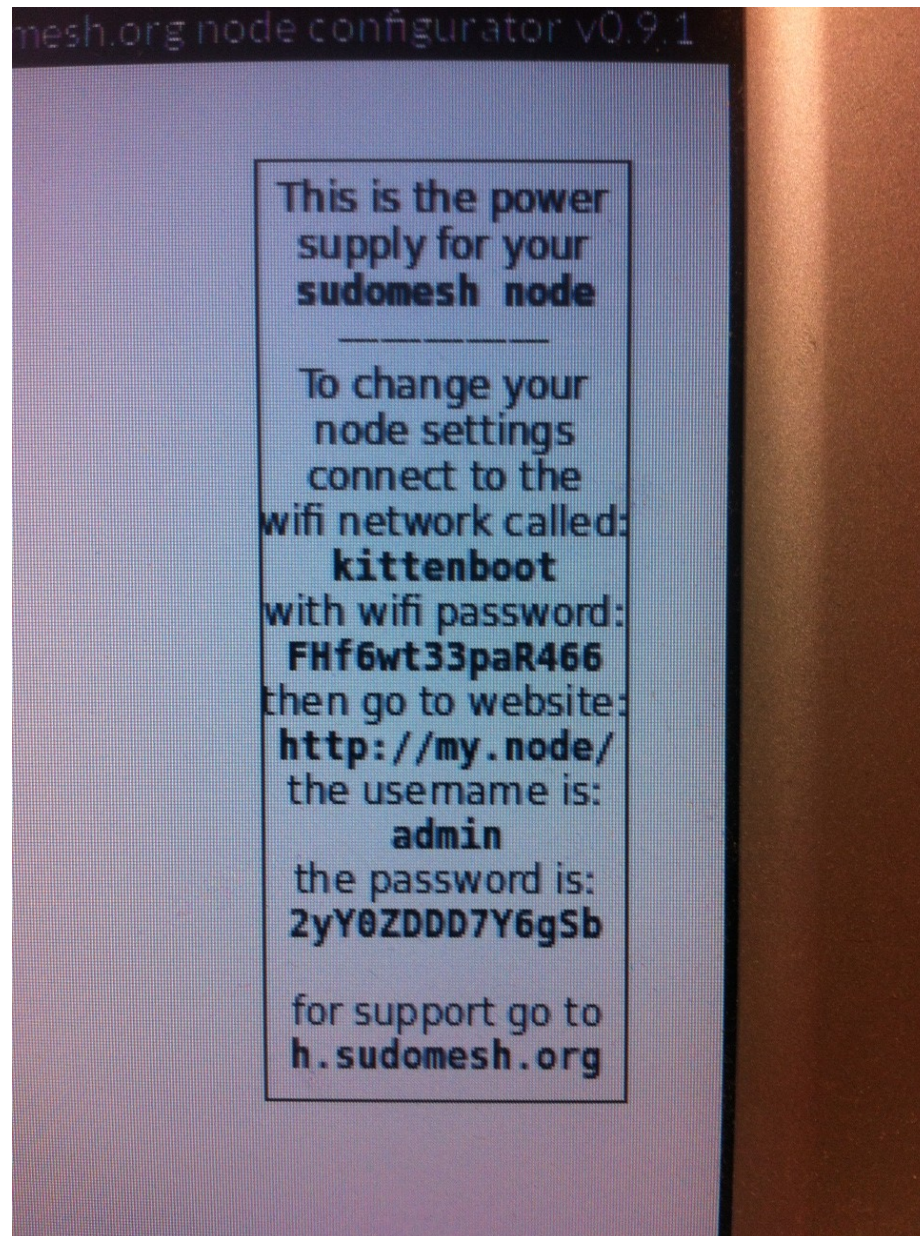
mounting Commotion routers in India



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

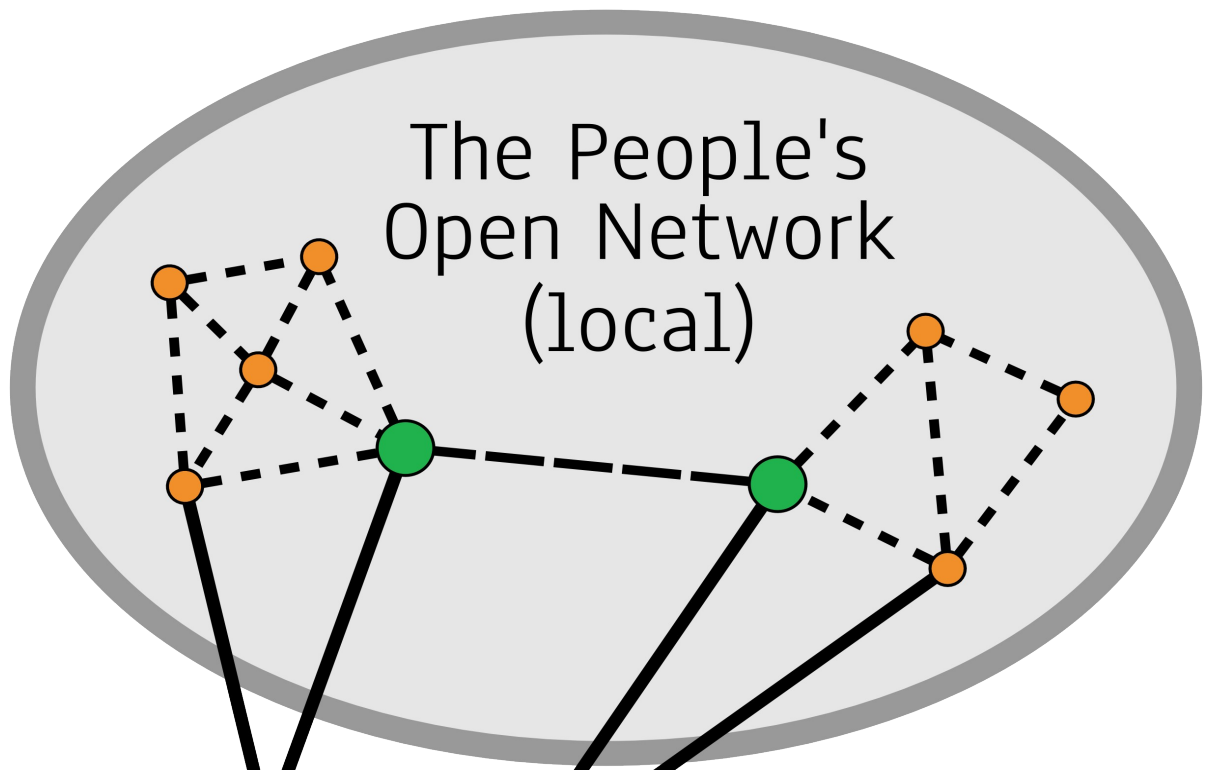
- User-selectable bandwidth limiting
 - Incoming data limited before it reaches mesh
- All traffic from mesh is VPN'ed
 - VPN server owned by shell non-profit
 - Abuse complaints received by non-profit

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)

- 2.4ghz Node
- 5ghz "Backbone" Point-to-point Node
- Relay Node "Virtual Public Network" (VPuN) Tunnel Server & Client
- Exit Gateway

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!

