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FREIFUNK

AN INTRODUCTION

NUUG

Andreas Bräu, freifunk.net, 12. September 2017

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WHO AM I?

- Andreas Bräu, Berlin, Germany
- Software Developer
- Board member of Förderverein freie Netzwerke
- Freifunker since 2006

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FREIFUNK - VISION

The vision of freifunk is distributing free networks, to democratize the communication infrastructure and promoting social structures locally.

FREIFUNK - VISION

- free and open
- without registration

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FREIFUNK - VISION

- non-commercial
- Picopeering Agreement
- no censorship

FREIFUNK - VISION

- owned by many individuals
- decentralized

FREIFUNK - GOALS

- Reduction of digital divide
- Build communication alternatives
- Transfer of knowledge
    - Networks
    - Security
    - Services

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HISTORY

- First steps 2000/2001
- freifunk.net since 2003
- First peak 2007
- strong growth from 2012

FREIFUNK - CURRENT PROBLEMS

- Dilution of our vision
- VPN solutions
- Centralization
- Focus on internet access

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FREIFUNK - POLITICS

- liability
- Radio Lockdown directive
- non-profit status
- data retention
- censorship

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FREIFUNK - COMMUNITIES

- 428 communities
- more than 45000 nodes
- community.freifunk.net
- communities are independent

FREIFUNK - DECENTRALIZED?

- use of common resources
- some entities provide services
  - VfN: bugtracker, etherpad
  - FFRL: vpn infrastructure, virtual machines for communities
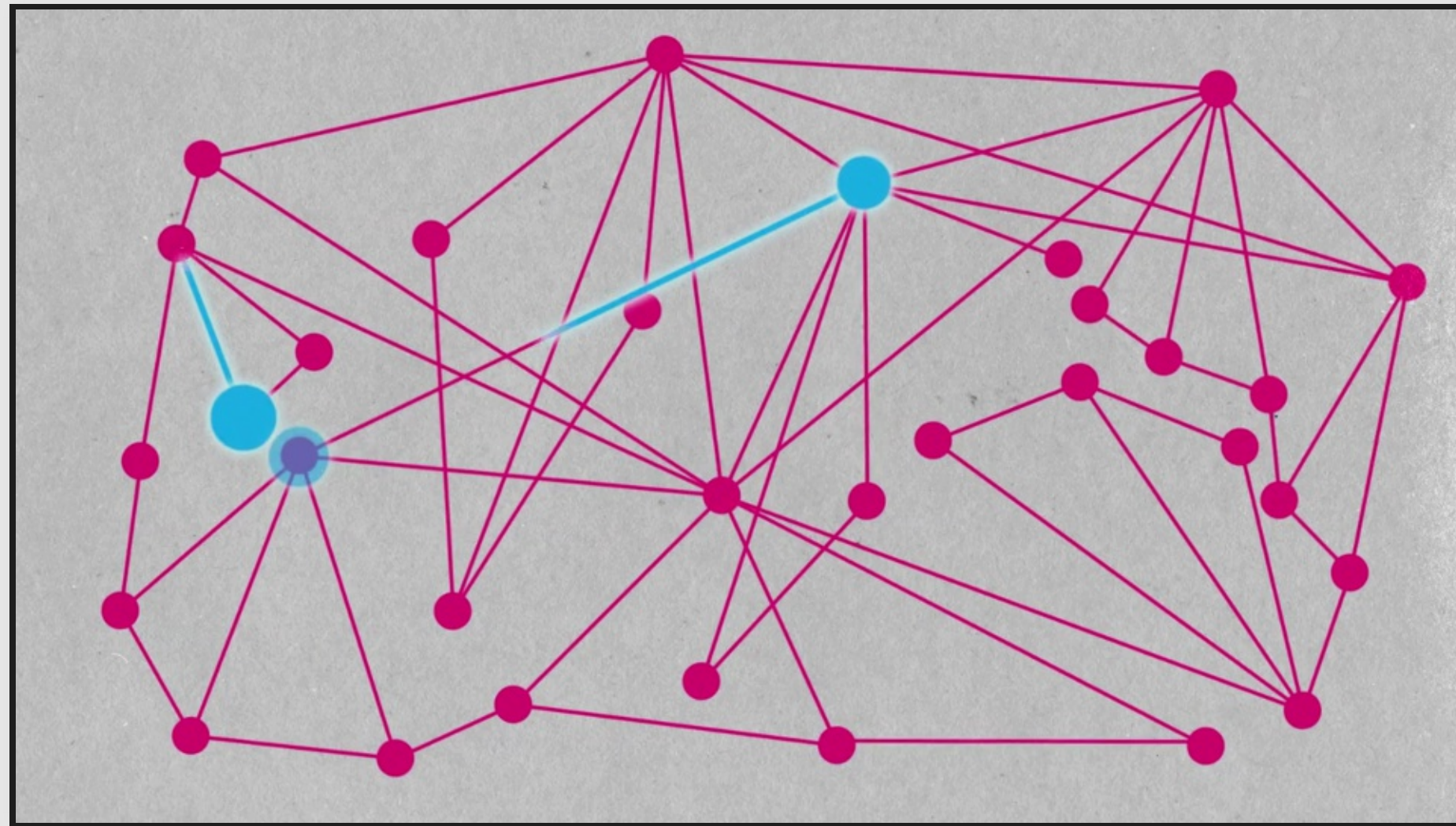 - FFN: website, wiki, build servers

FREIFUNK - DECENTRALIZED?

- regular meetings of communities
  - Wireless Community Weekend
  - Freifunk Festival
  - Freifunk Camp
  - Chaos Communication Congress/Camp
- Freifunk API

FREIFUNK - COMMUNITY API

- "interface" for community data
- aggregated feed, common calendar, several map solutions
- flons.org to get bigger communities
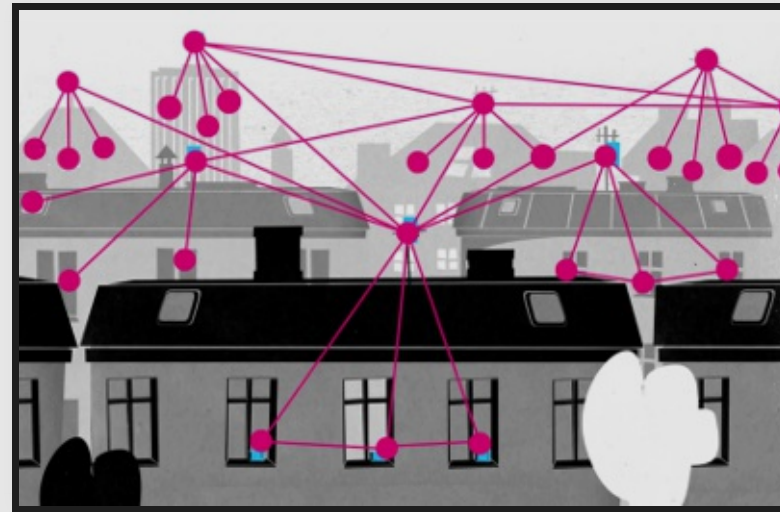
ADHOC NETWORKING

SCENARIOS

- Beginner - router in your window

SCENARIOS

- Advanced
    - higher buildings
    - balcony

SCENARIOS

- Backbone
  - steeples
  - exposed locations

TECHNICAL HISTORY

- started with PC and Wifi cards
- wired connections between houses
- without dynamic routing
- difficult configuration

HARDWARE

- depends on scenario
- indoor vs. outdoor
- directed vs. omnidirectional
- 20€ to 120€

WIFI

- AdHoc Mode
- 802.11s
- 2.4GHz vs. 5Ghz

FIRMWARE

- Based on OpenWrt/LEDE
- extended by packages
- configuration scripts

OLSR

- Layer 3
- every router knows topology
- more complex network configuration

B.A.T.M.A.N.

- Layer 2
- easy configuration
- a lot of multicast traffic
- History of both: https://youtu.be/LW_q4dIwkSE?t=1h2m7s

FIRMWARE TOOLS

- LuCI interface Link
- Meshkit Link
- New approach from Berlin Link
- Gluon - a firmware build framework

VPN

- to connect mesh clouds
- to prevent from liability problems
- IntercityVPN

MAPS

- Freifunk-Karte Link
- Openwifimap Link
- Meshviewer Link
- Line-of-sight tool Link

SERVICES

- more than internet
- provide your own services
- learn about it
- privacy and independent from providers

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GOOGLE SUMMER OF CODE

- freifunk as umbrella organisation
- first participation in 2009
- 2017: 15 student projects

HOW TO REBOOT A COMMUNITY?

- find people
- have a communication platform
- do regular meetings
- offer special events
- visit other communities
- transfer knowledge

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LINKS

- https://freifunk.net/en/vision
- https://blog.freifunk.net
- Memorandum of Understanding
- Joint statement against Radio Lockdown

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CONTACT

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THANK YOU!

Takk for deres oppmerksomhet

Q & A