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odprto brezžično omrežje Ljubljane

nodewatcher
deployment and monitoring system

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wlan ljubljana – September 27, 2010



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Summary.

nodewatcher: planning, deployment and monitoring system for
community/diverse/open/chaotic city/country-wide network.



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wlan ljubljana – open wireless network in Ljubljana, Slovenia

<http://wlan-lj.net>

wlan slovenija – open wireless network in Slovenia

<http://wlan-si.net>

Network.

Mesh network.

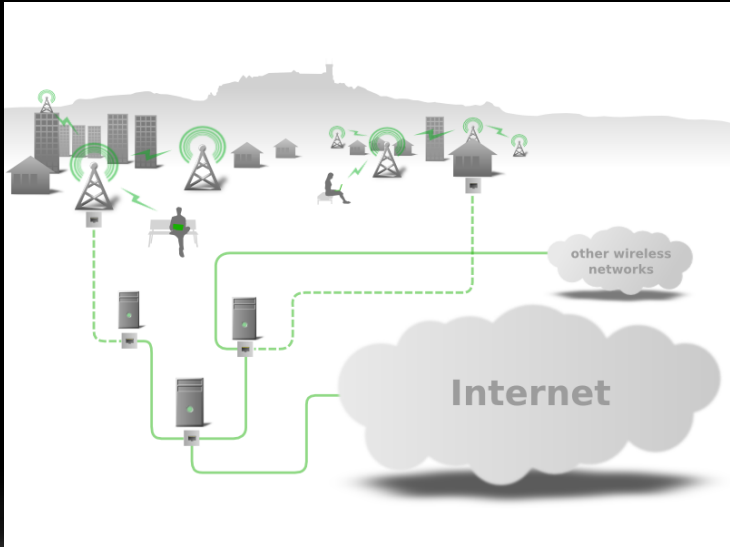
Wireless mesh network.

We use every way of connecting nodes.

WiFi, ethernet, tunnels, fiber...



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Adaptive, dynamic.

Routing protocol.

OLSR.

Community based.

Everybody can participate.



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A common network.

Content.

Services.

Users.

Wireless. Mobile.



Open source.

Linux.

OpenWrt.

<http://www.openwrt.org/>

In the beginning. . .

. . .there was chaos!



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photo by Zack Rusin



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Everything by hand.

Node status.

IP allocation.

Map.

Node configuration.



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Basic problems:

Small number of active people.
Small amount of free time
(which we are using for the network).

Especially:

Mostly routine things.
Duplication of work.
Uncoordinated. Confusion.



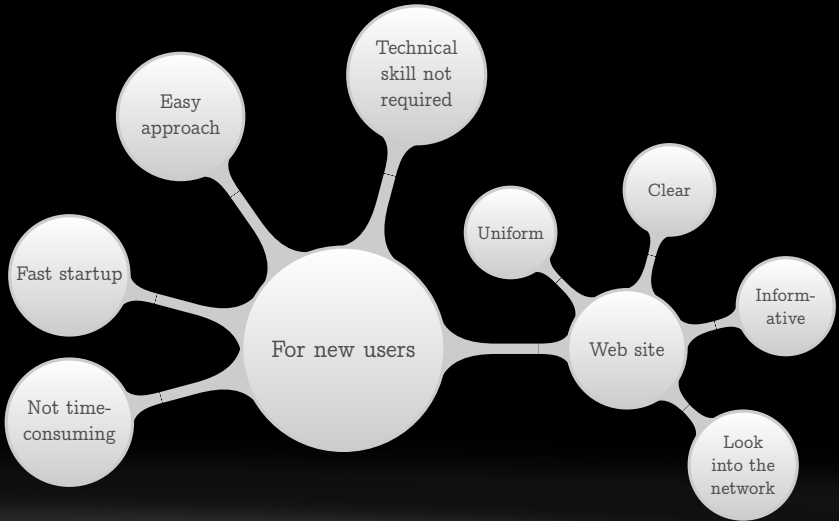
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Hardly approachable for new participants.

Limited only to technically skilled.

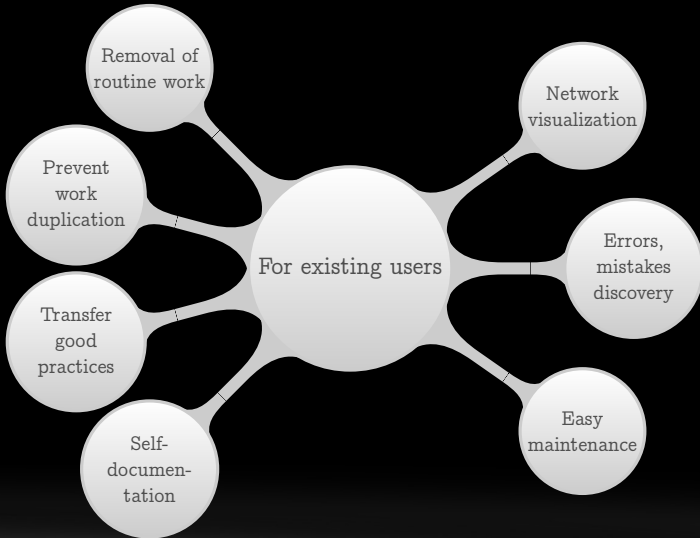
And persistent.

So at the start of 2009 we decided,
that we need a different approach.





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Along came a nodewatcher.

Automate as much as possible.

If technology knows how to do something, it should do it.

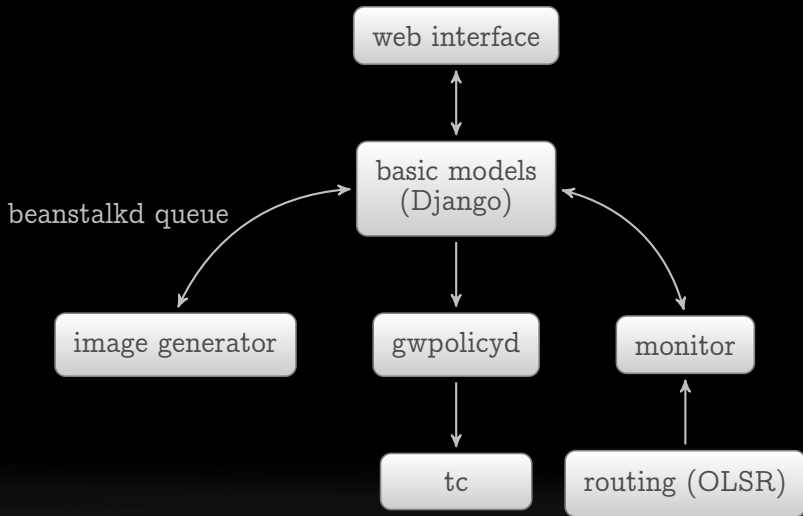


live version: <https://nodes.wlan-lj.net>

development: <http://wlan-lj.net/wiki/Podrobnosti/Nodewatcher>

Jernej Kos
Luka Čehovin
Mitar Milutinović

And others.



Planning.

Deployment.

Monitoring and maintenance.

Planning.

IP allocations.

Interfaces: subnets, DHCP, VPN.

Position on the map.

And other node properties.

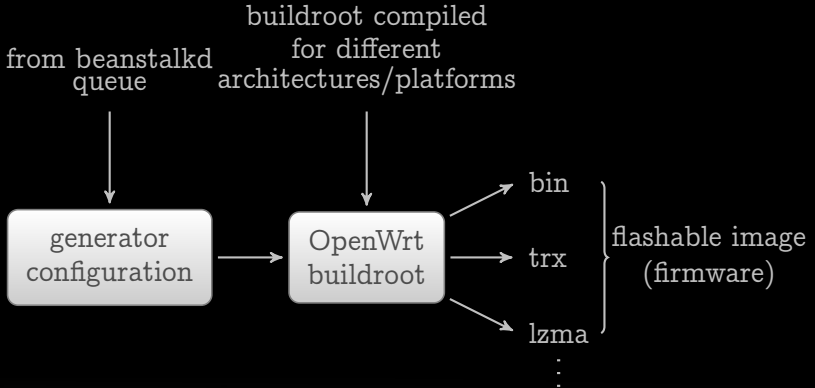
Deployment.

Image generator.

Or just reference configuration.



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Deployment.

Plug-and-mesh.

There is no web-based configuration on nodes.

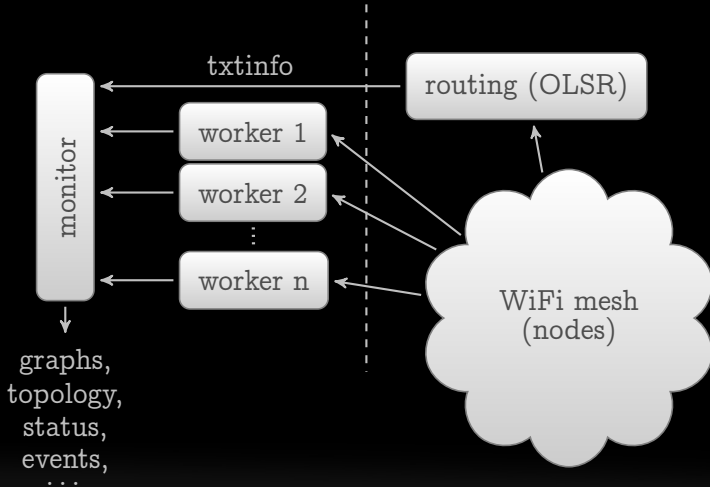


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Monitoring and maintenance.

OLSR status.

Internal node status.



Monitoring and maintenance.

HTTP, simple format.

No SNMP.



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```
general.version: 2.0b.r796
general.local_time: 1259248995
general.uptime: 1334081.18 1283631.13
general.loadavg: 0.02 0.03 0.00 1/31 7409
general.memfree: 2512
general.buffers: 0
general.cached: 2728
wifi.bssid: 02:CA:FF:EE:BA:BE
```


Extendable.

Robust.

Accessible.

Aggregation.

Analysis.

Presentation.

Monitoring and maintenance.

WAN/VPN policy.

Monitoring and maintenance.

Events.

E-mail notifications, RSS.

nodewatcher.

Not so easy to implement.

Right.



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WAN/VPN policy for every node.

Parallelization.

Robustness.



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Future.

Decentralization (VPN). Replication.

Support for other routing protocols.

Network traffic flow calculation and visualization.

A cross-platform desktop flasher application.

Extendable plugin system.

Simple AP support.

User experience.

Not more technical than really necessary.



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But open and hackable.

A platform/framework.

You can still add web-based configuration to your node. If you want.

Example.

Solar node.

How things look like?

Live presentation.



Future.

Mesh long and prosper!



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Questions?

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<http://wlan-lj.net>