wlan**ljubljana**

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

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Network.

Mesh network.

Wireless mesh network.

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We use every way of connecting nodes.

WiFi, ethernet, tunnels, fiber...

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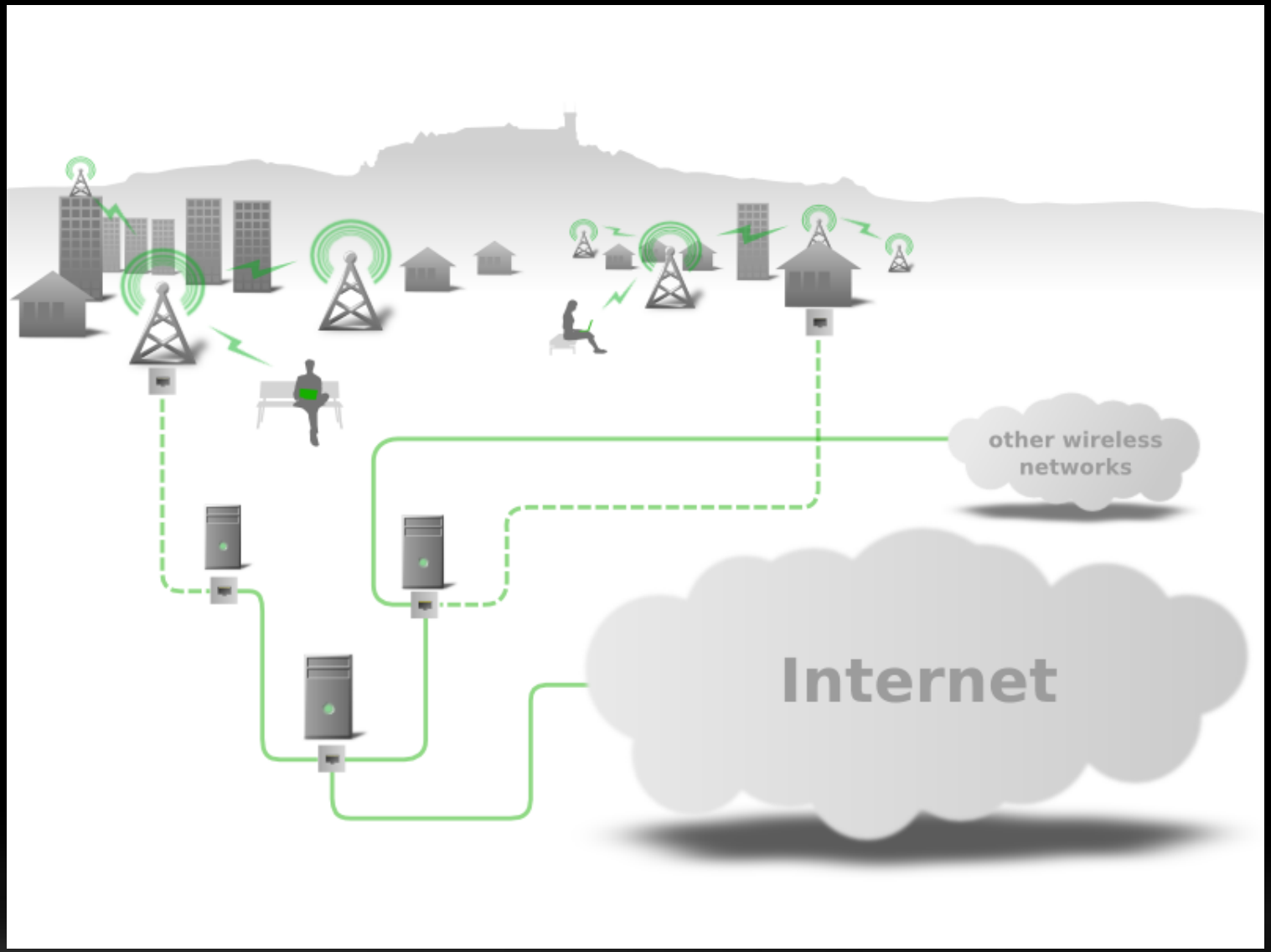

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Adaptive, dynamic.

Routing protocol.

OLSR.

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Community based.

Everybody can participate.

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A common network.

Content.
Services.
Users.

Wireless. Mobile.

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Open source.

Linux.

OpenWrt.

http://www.openwrt.org/

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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).

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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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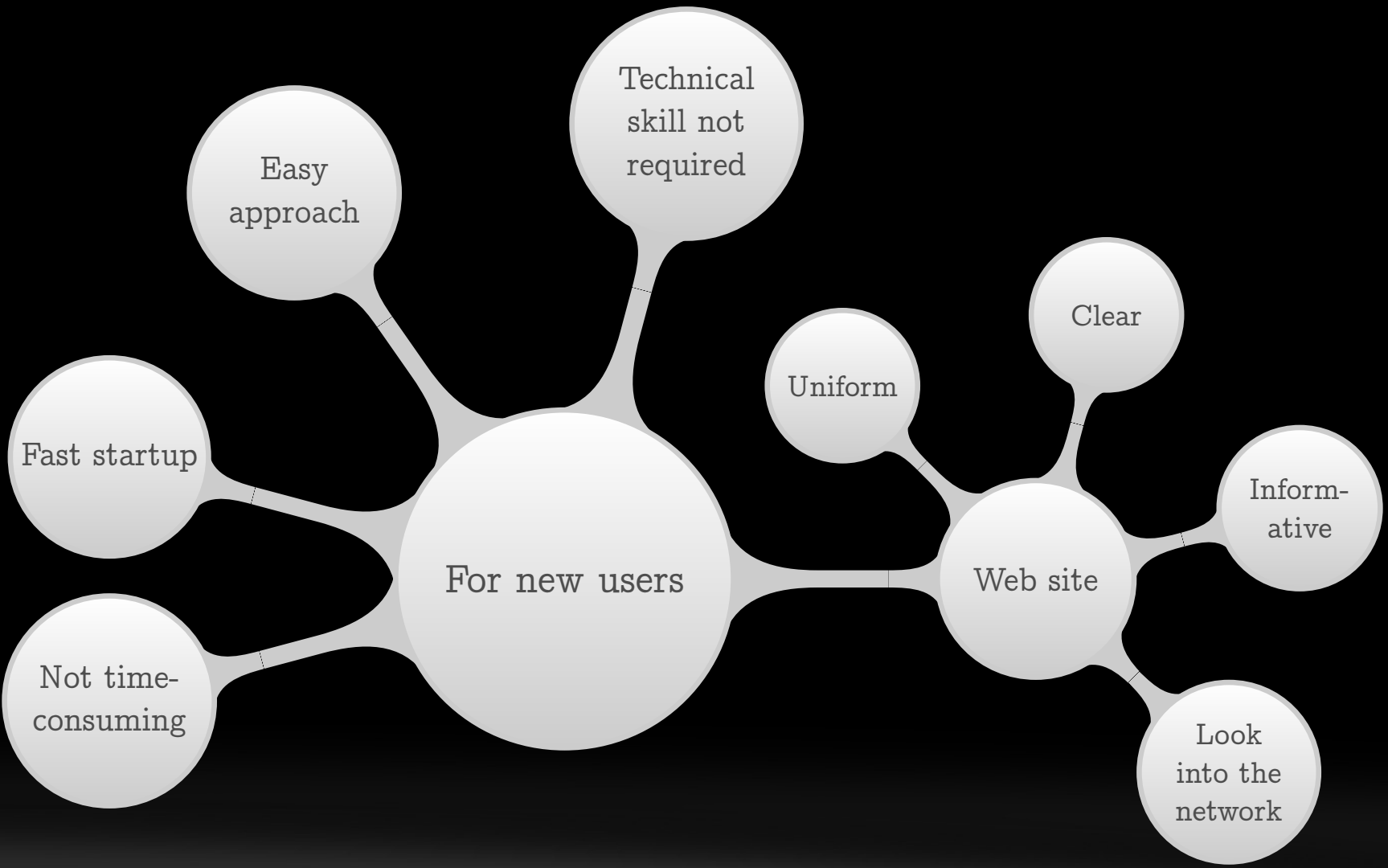

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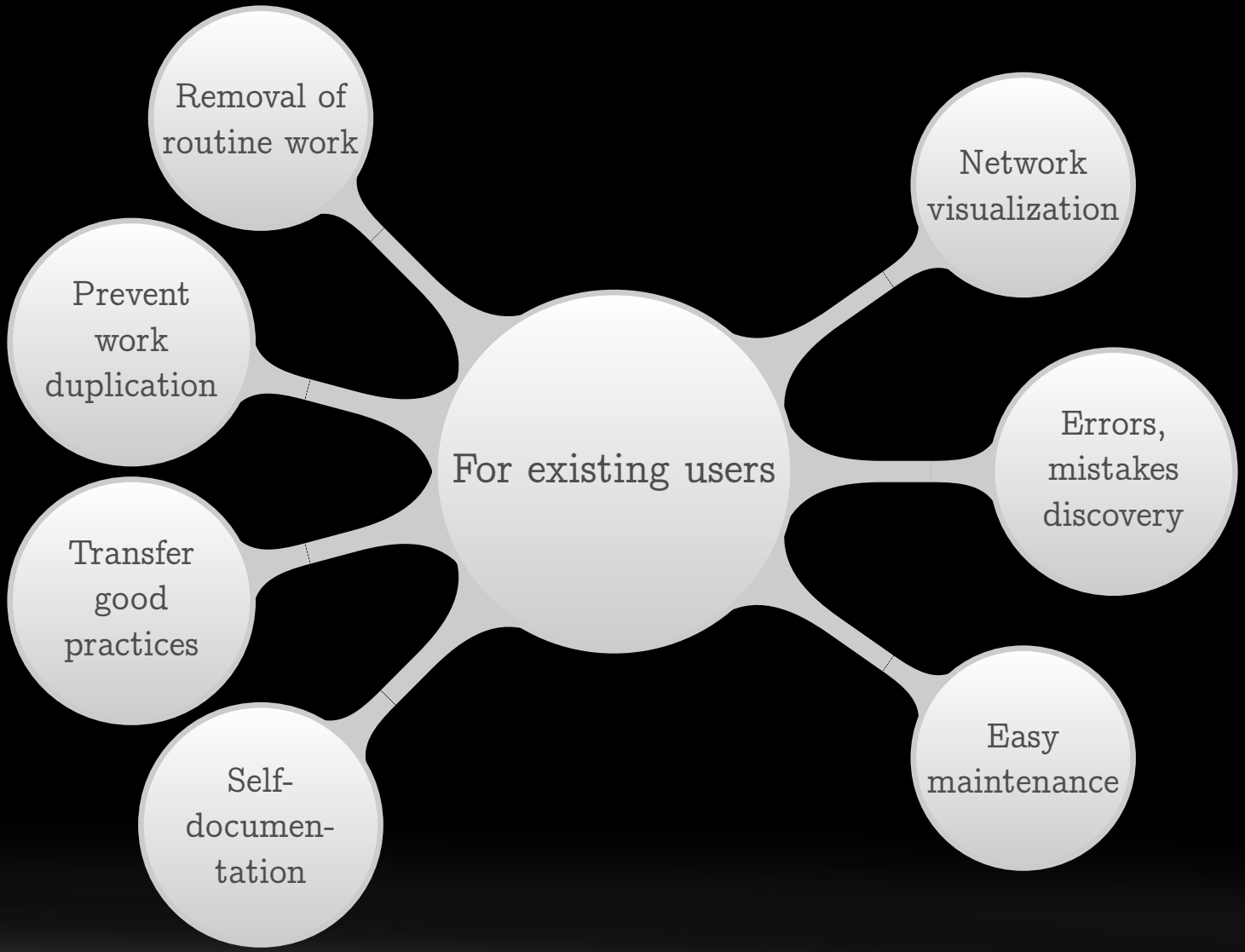

Along came a nodewatcher.

Automate as much as possible.

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

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

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

Jernej Kos

Luka Čehovin

Mitar Milutinović

And others.

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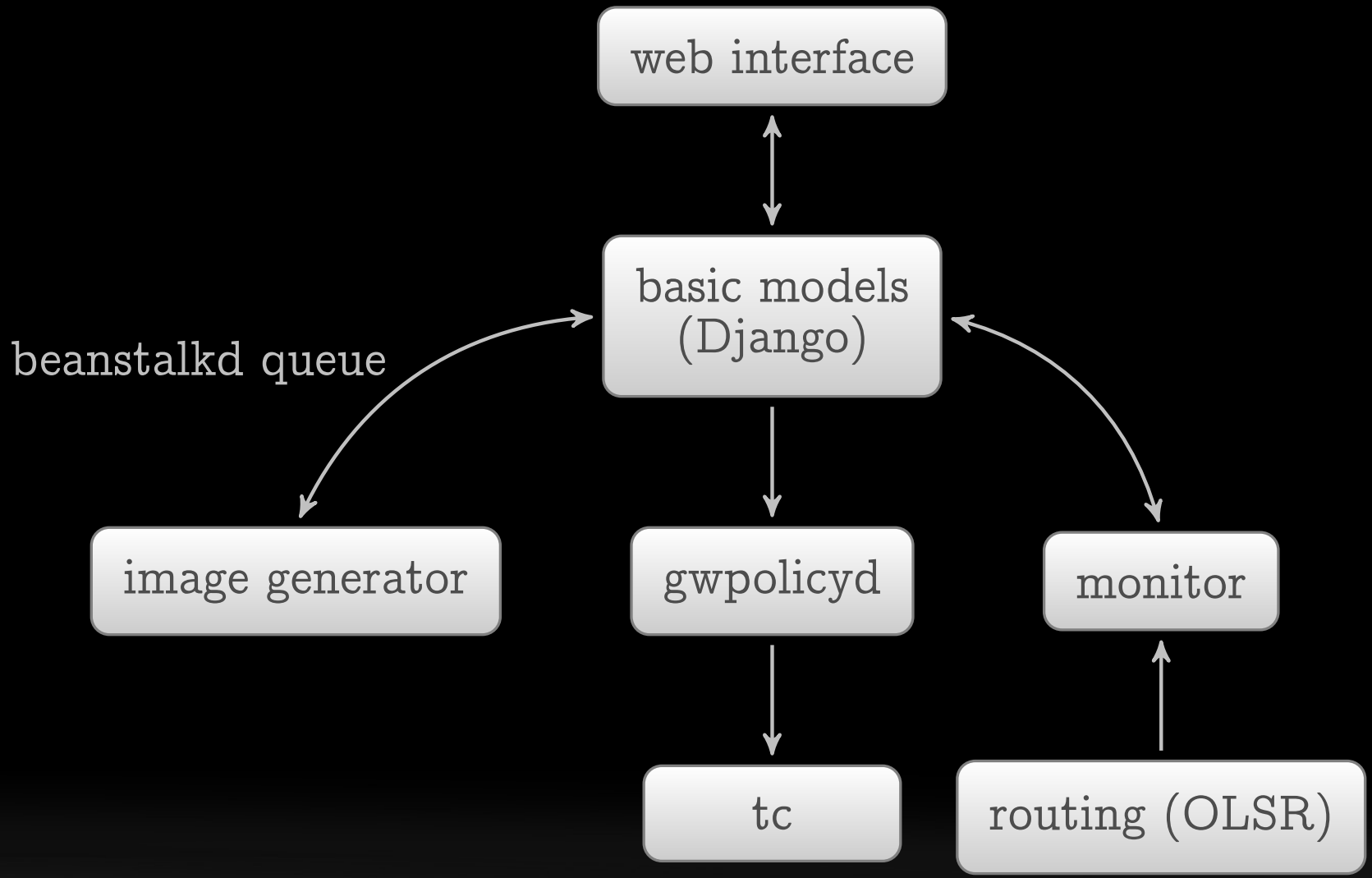

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Planning.

Deployment.

Monitoring and maintenance.

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Planning.

IP allocations.
Interfaces: subnets, DHCP, VPN.
Position on the map.
And other node properties.

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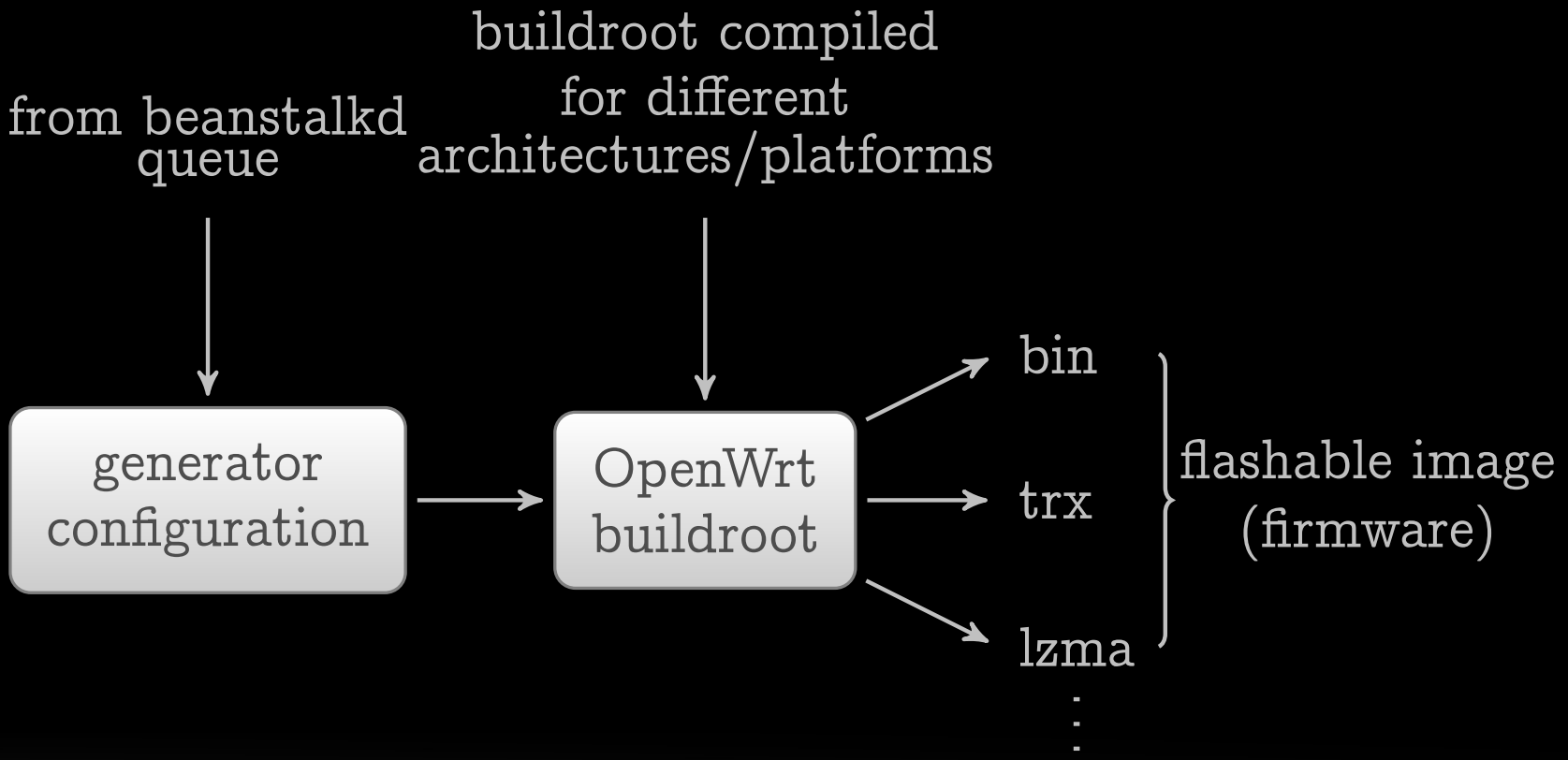
Deployment.

Image generator.

Or just reference configuration.


from beanstalkd queue
buildroot compiled for different architectures/platforms
generator configuration
OpenWrt buildroot
bin
trx
lzma
flashable image (firmware)

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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.

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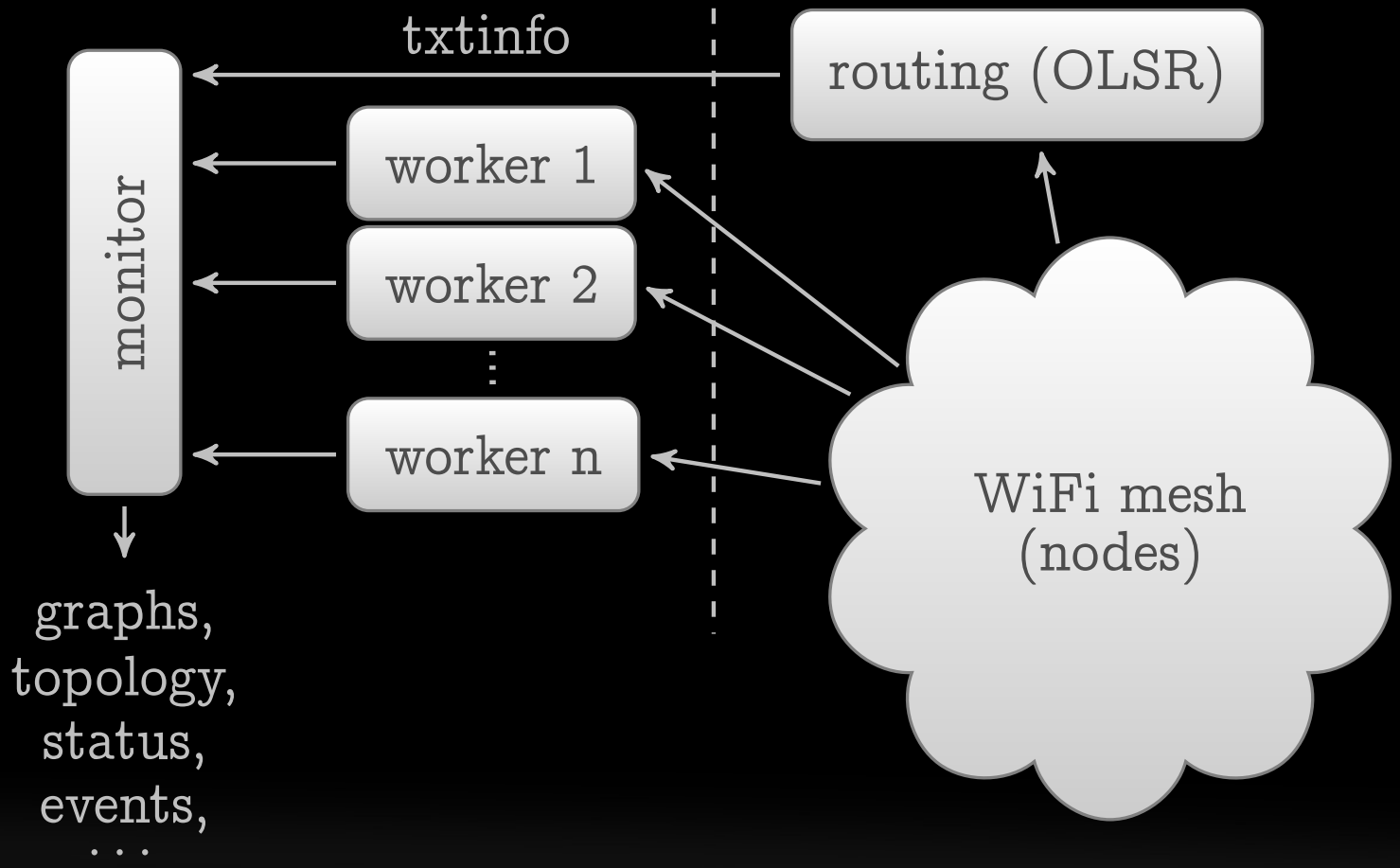

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Monitoring and maintenance.

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

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Extendable.

Robust.

Accessible.

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Aggregation.

Analysis.

Presentation.

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Monitoring and maintenance.

WAN/VPN policy.

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Monitoring and maintenance.

Events.

E-mail notifications, RSS.

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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.

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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.

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Example.

Solar node.

How things look like?

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Live presentation.

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Future.

Mesh long and prosper!

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Questions?

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http://wlan-lj.net