MINUTES – GAIA Meeting – 19 July 2017

Agenda GAIA meeting https://irtf.org/gaia
GAIA-RG Meeting @ IETF-99, Prague, Czech Republic
Wednesday, 19 July 2017 (CEST)
1520-1650 Afternoon Session II
Location Karlin III
Etherpad http://etherpad.tools.ietf.org:9000/p/notes-ietf-99-gaia?useMonospaceFont=true
Jabber xmpp:gaia@jabber.ietf.org
Video http://www.meetecho.com/ietf99/gaia/
Audio http://ietf99streaming.dnsalias.net/ietf/ietf998.m3u

Minutes takers:
Gareth Tyson
Amreesh Phokeer

Welcome, Agenda Bash, Minutes taker, Blue sheets, Status
Jane Coffin, co-chair, Introduction, progress
10 mins

> Jane gives welcome & detailing GAIA charter.

All speakers
10 mins each: 8 to present and 2 for Q&A

Cloudy, a cloud stack for community clouds
Roger Baig, guifi.net
Implementation and usage
Clouds as open commons
Slide3: What is the commons approach? A model for managing natural resources and guifi.net is managed as an open-commons project through the concept of community clouds
Slide4: The research plan consisted of the guifi.net case study, a framework for CC and a cloud architecture
Slide5: In Guifi.net the network layer is participatory and so is the IaaS and PaaS
Slide6: Describes the similarities and differences between Community Cloud and Guifi, CC is more fuzzy
Slide10: Provides IaaS based on Vms/Docker and PaaS, distributed announcement and discovery service (DADS), service orchestrator, SaaS (syncthing, peerstreamer) made available

Questions:

Amreesh (UCT): Could you tell us how the cloud services are being used, and do you have any data?

Roger: Work is in early stages, and not used yet. But, we have about 60 nodes; hope to expand, because keen to get into public use.

AlterMundi and Libremesh as a Drop-in Geek-free solution for the creation of Mesh Community Networks
Nico Pace, AlterMundi & Libremesh
Communities in network and network in communities
Slide1: Libremesh is a community project, a distribution system (OS) for community networks, it is not only distribution, it is a meta distribution system. The idea is to create a geek-free solution. The default characteristics of the Libremesh is a two-layer mesh routing (Batman-adv and bmx6), usage of DNS, multi-gateway system. It is self-healing and allows roaming. The system can be run by non-technical people
Slide2: The drawback, however, is that it is DIY. You have to upgrade the firmware yourself. It is complex to deploy on a larger scale. This solution requires manufacturers to produce open design hardware.
Slide3: LibreRouter is a router for community networks for community networks. An Issue with traditional routers is that the number of antennas are limited.
Slide4: What's remaining, polishing the Wi-Fi drivers, incorporate TVWS capabilities
Slide5: Next support FIber,Coax, 802.11AC

Questions:
Niels ten Oever/Article19: Have you tried to work with the omni router?
Nico: None of them are suited for the community network needs. We are building on top of openwrt.

A Brief Update on Internet Measurements in Africa
Gareth Tyson, Queen Mary University
Slide1: Internet in Africa is evolving fast. We have been doing some measurements in Africa.
Slide2: We are not there yet
Slide3: Understanding content delivery in Africa. How CDNs operate in Africa?
Slide4: Network delay in Africa is much larger than elsewhere, we tried to understand how countries are connected. Some countries have very bad in-country latency
Slide5: How operators in Africa deploy caches
Slide6: We lack a solid measurement infrastructure in Africa. We need proper methodologies that work in Africa.

Questions
From RIPE: What platform was used?
Gareth: We used RIPE Atlas, Speedchecker, and proxy service.
Josiah (AFRINIC): We have Atlas probes which we can give out. So does RIPE.

Zenzeleni + CN in Africa
Carlos Rey-Moreno, Zenzeleni

Slide1: Map of community networks in Africa, that map led ISOC to organise the 1st summit on CN
Problem with many router technologies is that they have high energy consumption. LibreRouter is low energy.
Slide2: Report published on CN in Africa.
Slide3: Deeper analysis. In Africa the issue is not simply the issues with the telecommunication infrastructure. Need local capacity building, training etc.
Slide 4: Zenzeleni networks provides a community network. Been exploring models to operate networks as a "commons". Formed non-profit umbrella organisation. Supporting other CNs with things like licenses, access to RIR etc.
Carlos would be interested in an RFC process that documents this.

Questions
Jane C: How did you start it?
Carlos: Approached and discussed with community, and tribal authority. Try to find people within the community who are interested.

A classification of business and organizational models for community network infrastructures Ideas for an Informational doc
Leandro Navarro, UPC (Related doc: http://netcommons.eu/?q=content/report-governance-instruments-and-their-application-cns-v1)

This is not going to be a technical presentation. We want to explore the business models for community networks. Modelled on the commons.
We also want to offer tools for governance, to allow organisations to define their idea of the commons (e.g., IXPs are a type of commons).
Governance tools are many different things. They include tools to manage the network, but also things like regulation of law. These tools can be used to make decisions.
Report available (D1.3) looking at social side of CNs. Looked for patterns that work well.
Been building "The outside model". A framework for good practice. We came up with a template as we looked across different factors, including key partners, activities, propositions, customer relationships, revenue streams.
Tried applying the models to multiple CNs, including in France and Mexico (and Guifi).
The outcome of this process has been that communities learn, and adapt.

Questions
Do you think that your model is applicable to any sort of community, e.g. both urban and rural?
Leandro: Yes, we already have a number of CNs in different regions.

Gareth: Are these different CNs interoperable?

Leandro: Use same protocols (e.g., IP), but different management structures etc.
Gareth: It would be good to identify aspects of CNs that haven't been covered in other standards, and think about how they might be standardised

Gram Marg A rural broadband project
Sarbani Belur, Indian Institute of Technology, Bombay, India
Remote

Gram Marg means "road to the village".
The current scenario is that many areas are disconnected, without Internet access.
An access tower is 5-10km away from the village, but it does not connect to the village. We are looking at how to connect the villages.
Fibre backhaul is unavailable in many areas - this is a big challenge. Indian govt is trying to expand this, but this is a long process. Another problem is that revenue per user is low - low ROI for village connectivity. Many power outages make it harder.
Gram Marg started in 2012 with assessment of TVWS. In 2016 they deployed in 25 villages. We currently are trying to commercialise the devices [devices they built to reduce the cost of purchase/importation].
In cases where a village is 20km away from another village, we are now using TVWS to connect them. TVWS has better range than microwave and doesn't require LoS.
Building middle mile net architectures. Based on SDN controller.
Built 4P model, which is a public-private partnership.

Questions:
Jane: Are people paying to use the system?
Sarbani: For first prototype we did not charge. But, for new villages, we are rolling out a business model. Charging $2 per month per user.
Nico: Is the innovation with TVWS being made open source?
Sarbani: Yes, we are but waiting for a test license from the govt. After that we wish to test it, and after that we will make it open source.

Community GSM platform + apps
Lakshmi Subramanian
Remote

We have deployed solar power cell tower with radius of around 2 miles. Runs OpenBTS, and built platform called GreenApps that can be deployed off-grid. This is in Ghana, and can run a localised cell ecosystem.
We have 2-3Mbps backhaul to a nearby cell tower.
And. are building virtual cellular networks -> Can I just set myself up as a ISP? How can you then interoperate with other cell networks?
We deployed these apps over bare-bones infrastructure. And control them remotely.

A lot of people deploy cell towers using diesel engines. We reviewed this, and found that solar power is much more efficient. And, Can run for 24h.
We have been developing signal boosting backhaul. And, found that this is technically feasible, and got significant increases in TCP throughput.
Observed in their regions that a lot of channels are not used. And, can use these without interfering with existing providers.
Building "Distributed Network Service" model. Traditional assumptions don't hold - SDN doesn't work well in frequently disconnected areas.
Building simple app API that works on file primitives - post, get, search. Built a range of applications like this, e.g., buying/selling across cell towers, voicemail. People are using the platform to sell fish in Nicaragua.

Open discussion of next steps for GAIARG
Chairs, 10 mins

Jane: Would people want to be involved in an informational RFC about some of the work on CN?
Leandro: When GAIA workgroup started, discussion about what will outcome be? Need to discuss what documents should we produce?
Alison Mankin (IETF chair): Shouldn't feel you have to do RFC. If RFC benefits, you should do it. But don't have to.
Roger: As community member and practioner, we feel it is valuable
Sarbani: Would be interested in participating.
Carlos: Thinks it is valuable. Writing guidelines would be best, help future networks startup. Would it be possible to do these things in video format?
Jane: Thinks video idea is good idea. ISOC has resources that might help.

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Agenda: Attached

========== Agenda ==========

- Jane Coffin, Introduction, progress

- (remote) Sarbani Belur from Gram Marg, Rural Broadband project,
Indian Institute of Technology, Bombay, India.

- (remote) Lakshmi Subramanian (NYU) - community gsm platform +
apps.

- Roger Baig, "Cloudy, a cloud stack for community clouds.
Implementation and usage”

- Nico Pace - AlterMundi and Libremesh as a Drop-in Geek-free solution for the creation of Mesh Community Networks.

- Gareth Tyson. "A Brief Update on Internet Measurements in Africa".

- Carlos Rey-Moreno. Zenzeleni + CN in Africa.

- Leandro Navarro - "A classification of business and organizational models for community network infrastructures”. Ideas for an Informational doc.

- DISCUSSION, TODOs