The Global Free Network Movement

The Right to Telecommunications Self-Determination with Examples from Spain, USA, Argentina and France

"I worry that people do not want to imagine alternative possibilities, alternative worlds. They want to let the monoliths of this world do their imagining for them. And for me that is very sad and very very challenging." - Isaac Wilder, Free Network Foundation

Contents

Part Two

How Guifi.net Runs at Scale

Executive Summary

This November-December **COOK Report** explores the free network movement literally across continents and hemispheres – from agrarian villages nestled among the foothills of the Pyrenees to urban inner-city neighborhoods in America's Heartland. As a follow on to the March April 2013 exploration of guifi.net and Isaac Wilder's Kansas City work, it looks at these networks as part of a global movement - one where the builders are collaborating on a national and international level. These builders work together and share their tools and code. Nothing proprietary here. They don't seek wealth. They do seek to do for the communities in which they live what, "free market" based capitalism has failed to do. They are a bright hope for a future that, if one is not a part of the ruling elite, looks increasingly dim.

These networks of course are not free of cost – nothing is. But they stand for the freedom of users to create and build their own telecommunications infrastructure and to say "no" to the extractive model of shareholder-owned, restrictive and predatory telecommunications firms that have no interest in their customers other than extracting money and sending it to far off financial centers. Furthermore, they display no interest in innovation because when backed by regulatory capture on behalf of their extractive business model they have no need to care about innovation. Because, with monopoly models, they have no need to compete.

By way of contrast, the Free Networks emerging in the shadows of the granddaddy of them guifi.net in Catalonia Spain are models, not only of technology and economic innovation, but also of full scale collaboration among the members of the communities in which they grow. As the West marches blithely on towards the next economic collapse, the communities that survive outside of a centralized neo-feudal surveillance state will do so because they take matters like telecommunications into their own hands. It is the intent of this issue to show how this very basic, boot strap development is being done in North America, South America, and Europe. The goal here is large and very basic. It is the right of every community to define and then build the infrastructure on which its economic political and social self-determination depends. It is no longer just "internet" - it is far more basic. Does every community have the right to self-determination? The right to determine its own economic future? They have had it in past - but the question now becomes whether the corporate state will allow them to have it in the future?

It is now possible for a community to build broadband from the bottom up and dispense with the costly bureaucratic layers of the former national incumbent telecom carriers. A community does this by interconnecting wireless nodes into what is known as a mesh network. When we look at what this means, there is considerable confusion between the first-generation model of more than ten years ago where a group of geeks put up some radios and connected them on an ad hoc basis. Now with more advanced radios operating in different parts of the

unlicensed spectrum, a new generation of geeks is doing two things never done before. One they are building networks to serve their communities - geek and non-geek alike. Two they have designed routing protocol's for their meshes that enable an amazingly resilient fabric of broadband throughput to be established and maintained. Because everything is open source and they share all their code and like Linux progress is rapid and significant.

What guifi.net pioneered almost ten years ago is a means of community ownership of the infrastructure. Radios are installed and linked in such a way as to form a fabric that like the air people breathe or the pastureland they use is treated as a commons something that belongs not to individuals but to the entire community. If you are skilled geek, you can use your Commons connection to do things like send email to anyone else with a Commons connection and do so entirely for free,

But the secret that guifi.ret has discovered is how to preserve, protect, and sustain the commons. It does this by action that is similar to structural separation in the commercial world. Namely it establishes an environment for installers who, for a fee can, enable any non-technical person to become a part of the mesh infrastructure. But once this is done, the installers have created an infrastructure platform that it is in their interest to maintain because it gives them a means of offering content for a small charge. The content is carried by the infrastructure platform that belongs to the community.

The disaster that was visited upon commercial Internet service in the United States and Europe when companies were allowed to both own infrastructure and use that infrastructure to provide content is avoided by the Commons license that is established to prohibit a successful content provider from ever being able to enter the infrastructure business. The infrastructure is vested in the community and is purposefully designed in such a way never will be allowed to fall into the hands of a single person or a single corporate entity.

In the United States this way of doing things can take us back to the original days of early ISPs in the mid-90s who were able to know their customers and establish innovative ways of meeting their needs. They could do this because access to infrastructure, that is to say, to the copper lines of the incumbent phone company was guaranteed by a regulator that, as yet uncaptured, worked for the public good rather than private profit.

As we shall see in our examination of the Kansas City Freedom Network, this approach can produce impressive results. Built in the shadow of Google's gigabit fiber by a determined group of less than a dozen young people whose key leaders had their trial by fire two years ago in Zucotti Park with Occupy Wall Street, the KCFN has come together in less than two years. In Kansas City, the Free Network foundation group, aided by fewer than a dozen other members of four community NGOs, has for somewhere around $50,000 been able to build an infrastructure that covers the three square mile historic black urban core and bring Internet service to a couple of thousand people living therein. Since these organizers have no 90 day tyranny imposed to extract more money on behalf of their shareholders they, to the contrary,

are able to think about and plan for the building of an urban community. The possibility of such community was gradually destroyed by Ronald Reagan's demonization of government and glorification of the resilient individual three decades ago.

Rather than individual enrichment, the goal is the development of the local economy and the self-reliance of people therein -- all of which is supported by the idealism of a few visionary young people who wish to serve their fellow humans by doing what is right. In Kansas City, the goal of this small group is to maintain the central infrastructure they have built and, by means of already instituted weekly workshops, show members of the community how they can gain the necessary skills to extend the core network into the hands of more individual users. By doing this, during the next year of service they can turn their new recruits into installers and network content operators - a la guifi.net. By selling Internet access for other means of community owned and generated content for not a hundred dollars a month but for five or six dollars a month, they can generate the small cash flow necessary to maintain what the have built.

This is a true bottom up broadband where the goal is to serve and make livable the community in which one finds oneself rather than to engage in what Fred Goldstein aptly names vulture capitalism. Investment; take the idea public after two or three years of frenzied quarterly profit statements; suck shareholder money in and then sell out. Rinse, lather and repeat. A predatory extractive economy.

In what follows, we recount in considerable detail the efforts of core groups that have come together around guifi.net and that in the last two years and at a level between the groups are working on methodologies to improve the firmware necessary to make the networks run in such a way that they can give a positive user experience to more people for less cost and extend a business that, while it will not give its creators palaces to live in, will ensure that something far more positive than the dominant world of state-backed financial capitalism will otherwise impose.

The Importance of Self-Determination for Lafayette Louisiana

In the United States community owned municipal networks have faced an uphill battle. ***One of the worst problems continues to be the corporations who buy off state legislatures to pass laws that prohibit local communities from competing with the private sector.*** However, one in Lafayette Louisiana has been in operation for more than five years. One of its major citizen backers explains below what this has meant to his home town.

John St Julien is a retired teacher of teachers who lives in Lafayette, Louisiana and who in around 2005 -- as his community had to fight the corporate owned state politicians for permission to do something for itself -- set up a blog called Lafayette Profiber that led a citizen revolt against Bell South and Cox Cable. On August 29, 2013 John posted the following essay

on what winning the battle has meant for his home town. He wrote: "I am weary, very weary, on both the national and my own local level of folks who are certain that those that look for a pragmatic way forward are somehow abandoning the ideals "that made us great." On the local level that manifests in the tea party minority who are sure that any governmental attempts to move the ball forward are, ipso facto, bad things —and that includes most emphatically our local municipal telecomms utility. On the national level it shows up as a dismissal of municipally owned telecommunications utilities as nothing more than yet another monopolist, just like all the "other" rent-seeking corporations.

The structuralist argument both ends of the spectrum use is that the ***structure*** of municipal own-ership is destiny. —The right wing hold that it is a self-evident truth a "gubberment" agency is bound to be a sink hole of corruption and inefficiency while the left-leaning anti-corporatists see only another vertically integrated services-providing corporation whose adoption of a proven busi-ness model demonstrates the local yokels lack of loyalty to the ideals of open networks or struc-tural separation. The particular structure, governmental bureau or corporate telecommunications that the sides object to are different but the basic objection is to the *structure* that they suppose municipal utilities represent. Structure is destiny; a bad, evil destiny; there is no need to look be-yond the bad form.

The problem is that structuralism is an argument now several theoretical turns of the screw out of date. Where it was once accepted that institutional structures determined the role of the player and the functions of the institution in society, workers in the social science end of the universe are much more attuned these days to the dynamics of situations and the paths that are opened up by differing models. ***It turns out that meaning and intention and the associated constraint systems actually count.*** The same institutional structure can generate very different outcomes outcomes when differently constrained and peopled by differently motivated actors. The Serbian army, the UN peacekeepers, the US military, and the Salvation Army are all military model institu-tions. But no reasonable person any longer argues that the similarity in structure leads to similar-ity in outcome. Purpose and ownership matter. The expectation that municipal telecommunications will resemble either governmental regulatory bureaus or monopoly-seeking corporations is my-opic; municipal utilities fundamentally differently constrained and motivated.

Structuralist arguments ignore dynamics, ownership, and purpose. As they ignore the immediate practical advantages of municipal ownership. Local competition is merely local, granted, but, to the community that benefits, it is substantial. Competition in Lafayette has brought lower prices— it is now accepted wisdom here that you never have to accept any price increase you see on your Cox bill; and Cox has revved up its investment in the local network to the extent that it launched its _very first_ 50/5 package in the US way down in our obscure corner of the country.

It may have passed from the memory of the megapoli but the residents of large towns and small cities have vivid institutional memories of just how important factors like the railroad and municipal electricity were to the rise and fall of regional centers. It is part of the story Lafayette tells itself that early electricity and various bold moves to get a university and transportation hubs

sited here were keys to future growth—and their lack have lead to the desolate downtowns of regional competitors. This isn't some sort of chauvinistic fantasy—the opinions of development specialists aside it is hard to deny the amounts of money that *do not* flow out of the local economy when gas, electricity, water, and now telecomms are locally owned and any "profit" that is structurally accrued flows back into local projects rather than the pockets of distant owners. (Add up your utility bills and then multiply by the households in your community; a small retention yields a big number even before it recirculates in the local economy.) The savings attendant to competition are a nice extra.

But the real kicker is local control and the constraints that muni ownership place on the organization. What this looks like in practice are differences in motivation: ***private firms and especially those that are publicly traded have a visibly shortened time line and exist primarily to return investment at a high rate in a short period of time. That's simply foreign to the municipal utility mindset***. **Munis think they've done a good job if they provide a standard product, extremely reliably at a cheap price.** That has its pitfalls and I'd be the first to point them out but the point is that they _are_ different. LUS Fiber has pursued all sorts of me-too policies that I don't care for. But I do recognize the situation they have been forced into (by incumbent-sponsored law that makes showing a paper profit an early necessity) and am willing to take that into account on a case by case basis. And it is easy enough to see the things they do not do such as no contract, a very high cap, unconstrained intranet access, and lower rates. Private companies see no reason to do such things. A muni sees no reason not to.

Public ownership means much, much less constraint on future action. We've always had our advocates of the idea of open networks (and I'd count myself among them) and one of the more effective arguments during the local fiber referendum was that the _only_ path to open networks with any practical chance to be realized was to fight for community control. LUS has no desire to be anything other than a utility; the provision of content is viewed as a necessary irritant. If, as advocates imagine, the larger US context changes to make open networks a practical possibility fiscally with demonstrable benefits to the citizen-owners there'd be very little effective resistance to making the switch. It is, folks were willing to concede, impossible to imagine Cox or AT&T going there willingly.

Citizens have already made at least one real difference: the unlimited intranet speed (effectively 100 megs) is due entirely to a few citizens demanding that it be explored. There was, yes, real resistance due to an unwarranted reliance on a consultant who didn't have a real clue. But the community was able to force consideration. (I did my part. [**Editor** - the blog.] And it happened. When the utility is stable enough to take a little risk there is already a quiet coalition in place to push on some digital divide and wifi-related issues. I'm not at all happy to wait. But I am very grateful that I know and can talk to the head of my telecomm utility and that I know several members of the "board of directors" (aka city-parish council) that sympathize with the larger aspirations. With Cox: NEVER. With LUS: Maybe.

It is well worth it to support muni telecomms.

Introduction

"Do it Ourselves" Enables Free and Open Networks as a Commons Infrastructure under Local Control

Ten months ago we took our first major look at the growing community of free networks focusing primarily on guifi.net in Spain and Isaac Wilder in Kansas City. This issue updates and expands that first look. Although guifi.net began about in 2002 it started to take off in 2004.   In 2011 the Arab Spring sprouted on the southern shores of the Mediterranean and then leapt to Barcelona and next to Zucotti Park in Manhattan. The original Wall Street Occupiers were aided by activists from Barcelona helped to transplant and spread the original ideas of a network owned and built by the local people and one under their own control rather than that of the distant corporate controlled government or worse the control of the National Security Agency.

Occupy has come and gone but it gave Isaac Wilder his start and I have been proud to have become a kind of unsolicited partner with Isaac in the early stages of his journey. From Occupy Wall Street in New York City the Free Network Foundation has spread across the United States to Austin Texas and Kansas City Missouri. With an assist from on of the founders of WLAN Slovenia, an allied organization is taking root in Oakland, California. These new networks are sometimes called "Wi-Fi for people" as opposed to the first generation of "Wi-Fi for geeks." It was also was enlightening to find out that in California, in Oakland across the Bay from San Francisco, the Oakland Free Net is getting its input from Slovenia rather than from first-generation participants of 15 years ago Tim Pozar and Dewyane Hendricks.

In view of the latest NSA revelations, it seems quite appropriate that Slovenia is helping out the people in Silicon Valley and the top two technical people Roger Baig Viñas and Pau Esrich came to Kansas City on loan from guifi.net for two weeks at the end of August to convert what is now called the Kansas City Freedom Network into a fully routed mesh as well as to take the beginning steps for adding the local science magnet high school Lincoln Prep to the network.

In the hollowed out nation state still called the United States, far too often when the goal is community controlled innovation or public good, one must turn towards foreign shores. From my very personal and very biased point of view, I think we all can hope that globalization has peaked and is on the way out. With every new revelation in every passing week, it begins to look more and more likely that the actions of a courageous young American named Edward Snowden may have changed face of the global power structure in the early 21st century. Snowden's actions came as the National Security Agency totally overstepped its legal bounds to subvert the Internet and all telecommunications in general for the purposes of maintaining a Panopticon that goes well beyond George Orwell's

dreams in being able to track every global moment of more than 100,000 anonymously secretively chosen suspects using big data techniques on steroids so to speak. Want to know what your target did last week? Bring up X-KeyScore and type in the identifying information. But the adversaries, it turns out, are everyone. Every domestic communication in the US is captured and stored in the Utah Desert.

We are told that the targets are foreigners and are terrorist suspects and that it's all perfectly legal. But one after another, what we are told is revealed to be lie after lie after lie on the part of the President of the US and his Director of National Intelligence. This man who perjured himself before Congress, in a lawful society would have been facing the legal consequences. But not in the America of Barack Obama. Far from having been asked to resign, James Clapper continues to work at the right hand of the President.

It also seems we are ruled by exception. Eric Schmidt and his co-author from Google are curious to interview Julian Assange. Consequently, with the cooperation of the proper authorities in Washington, a visit takes place at the Ecuadorian Embassy in London. Like Cardinal Mindstzenti who fleeing the Soviet empire, took refuge in the American Embassy in Budapest in the late 1950s, Assange – fleeing the Anglo American the security state, has lived for more than a year in the Ecuadorian Embassy. Nevertheless, if you are in the right position in our society, the CEO of Google, for example, ask and your wish is granted.

"What has this got to do with free networks?" you are no doubt asking. Well I suspect what it has to do is that the recent revelations show how the NSA has colluded with Apple, Google, Yahoo, Facebook, Microsoft, Skype, PayPal, Verizon, ATT – to subvert encryption protocols not to mention assist the "spooks" in destroying their customer's privacy. NSA has managed to have the American Institute of Standards and Technology knowingly weaken a security standard. Look at this ars technica article for full details. NSA has also colluded with industry to violate the privacy that the very same industry promised its customers by building backdoors into the shiny baubles that they build and sell by the millions to the masses – the revelations are fresh but already we see some impacts.

Google announced on Saturday the seventh of September that it was rushing to encrypt its own private backup network that connects each 20 or so data centers around the world to each other in order to try to win back some of the lost face. And more directly what all this has to do with the Economics and Architecture of IP Networks is that it will likely help speed the fragmentation of the Internet. Thank you General Alexander. Service providers in Canada already are discussing ways to avoid sending data through the United States and as the owner of Lavabits publicly warned: anyone cares about the privacy of their customer data better not to do business within the United States. Of course the NSA's reach -- helped by our subservient client state, the United Kingdom -- is so global that it is difficult to avoid the tentacles of the Agency. But doing everything possible to avoid them may now become a business imperative that is likely to leave the United States increas-

ingly isolated as a nation that in the minds of some has turned rougue. One has to wonder what the cloud computing advocate Salesforce is telling its customers?

This sanctimonious talk of June about protecting Americans from terrorism has increasingly retreated before the reality of subverting the networks and privacy of our allies in the European Union; our supposed allies in Germany; reading and profiting from the private email of the presidents of Brazil and Mexico. On September 8 the Brazilian TV program Fantastico presented a document showing how NSA trains people like Edward Snowden to break into private computer Networks: specifically those of Google, Petrobas the Brazilian oil company, and Swiftwire the global banking network -- something we accuse the Chinese of doing to us but sanctimoniously deny doing to others. Our moralistic exceptionalism is fast morphing into hypocracy. As the attack on encryption by the Washington DC-spy-industrial complex puts back doors into financial networks that anyone could exploit and of course it's also time to parenthetically ask **what all of this does to the fundamental trust between citizens and their government?**

"Do It Ourselves Networks" as an Antidote to the Tyranny of the Corporate State?

A surveillance "Leviathan" has been imposed and the gross arrogance and stupidity of the Lords and Masters of the Leviathan is, it is to be hoped, creating an antidote. Citizens who feel violated will begin to think how to do it "local".

A major part of doing it local has become the creation of small-scale, grassroots networks built and owned and operated by those who use them. As the top heavy timbers of the
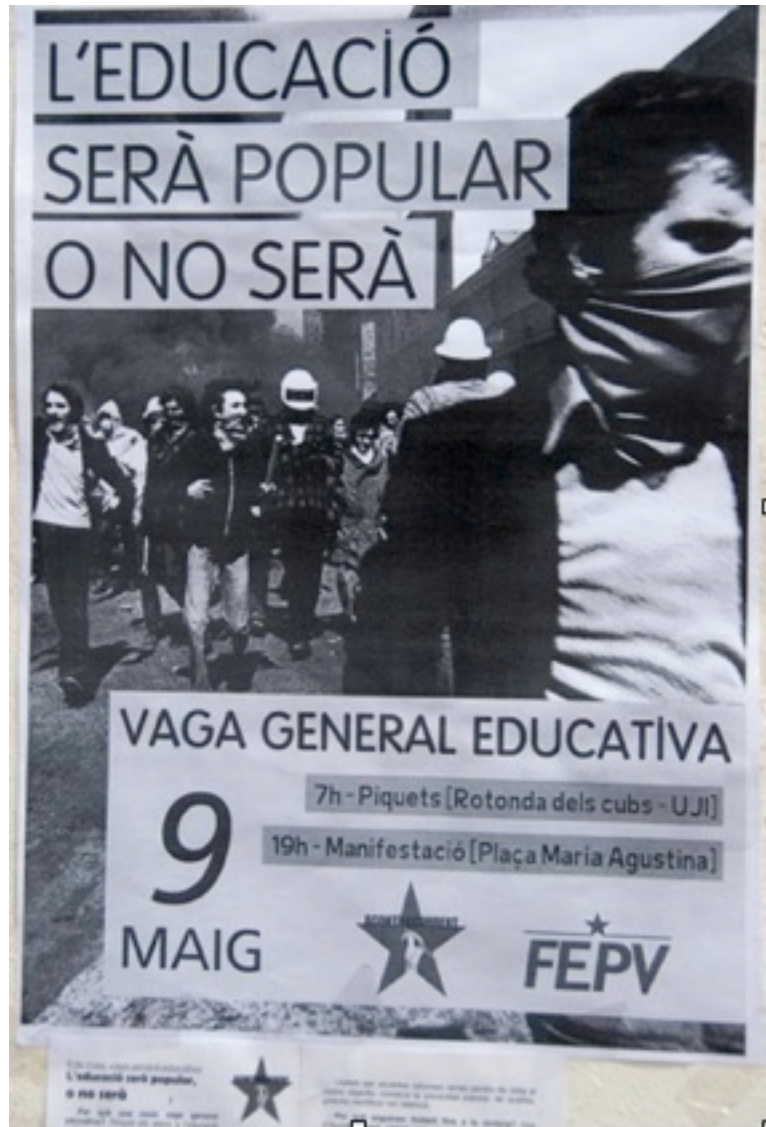
At James I University in Castellón I took this shot of a protest poster announcing a strike on behalf of public education on May 9. It says: "Without public education there will be no future." The Spanish housing bubble was worse than the US. But in Spain as in the rest of the world it was very convenient for the financial elites who were bailed out by their politicians but also announced that national budgets were broke and therefore money for education was slashed and what was once public would now be private. Naomi Klein's Shock Doctrine writ large.

American want-to-be Empire creak and begin to fall, the networks that we shall now go on to describe can be available to those in almost any community who recognize their importance sufficiently early on and start moving to build and support them. Everywhere one turns these days it seems more and more obvious that the only stable and sustainable society and economy is one where the pendulum swings in the local direction and away from destructive globalization that is centered on a corporate controlled security state that is trying to impose these changes.

There have been wireless community networks of one sort or another since the late 1990s. But they've never scaled and, if they are to make a difference now that we so desperately need them, we must learn how to make them scale. That is why we shall begin this issue with guifi.net which in Catalonia and surrounding areas of Spain appears to have solved the scaling problem. An achievement that, in itself, is quite fascinating.

In what follows we focus on a three day visit made by Isaac and myself to Castellón – 150 miles southwest from Barcelona along the Mediterranean coast. We visited the founder of guifi.net in Castellón, Pablo Boronat Perez. Pablo explains to Isaac and me how in 2008 he and a colleague asked for help and received an initial guifi.net visit; how he began an implementation plan and developed a strategic political approach to villages and village councils. Through the application of a rigorously neutral strategy, Pablo has created a social movement that has gained local approval and has implemented a widespread locally owned citizen involvement of designing, building, and linking an ever-expanding mesh network that has now reached 4000 nodes in four years time covering a population of only 250,000 people.

Next we return to Catalonia and time spent with Ramon Roca the founder of guifi.net as we examine the critical history of the last three or four years. As a result, we can now understood why, as it expanded from a few thousand nodes to more than 22,000 nodes, a more formal governing structure was necessary. The guifi.net Foundation was designed to create a legal framework of protection for the network infrastructure as a commons while a vibrant economic community of installers made continued growth of the network feasible.

Ramon also recounts how he reacted to and analyzed the situation of LocalRet between roughly 2006 and 2010 as it invested upwards of €60 million of local town Council money in Catalonian villages building a network of fiber optics connecting villages. Once it was built, sadly it was subverted by a lack of knowledge at the village level of the regulatory environment that villages would have to cope with in trying to build infrastructure benefit their local population. Even though Telefonica built nothing, regulatory law meant that Telefonica would set the price so high that it was out of reach of its intended users.

Ramon gives us a tour of the Foundation: how it is structured and how it operates. He explains its somewhat non-democratic point of view that was adopted in no small part to make certain that the investment in an infrastructure, built by and operated in trust for

the people who used it, could never be sold out to a private company.   This emphasis on the critical role of the Commons and the duty of the Foundation to maintain that role is vital. Pablo Perez in Castellón in early May described for Isaac and myself why he adhered to this point of view. Four months later, at the end of the summer, Pablo has gone on to fill a vacancy on the five person board, in part because this philosophy is of overriding importance.

The material with Ramon also explains how this ever growing network, serving now upwards of 100,000 people in an area roughly the size of the state of New Jersey, runs with three full-time employees, a five person volunteer board and a network administration of 35 volunteers all of whom rely on a well-crafted suite of collaboration software -- that we also describe -- to get their jobs done.

It is certain that as the other smaller networks begin to scale they will have to take lessons in how to successfully handle -- on a collaborative and cooperative basis -- this kind of expansion. Guifi.net doing the kind of peer-to-peer collaboration that the Peer-to-Peer Foundation has been advocating over the past five to seven years. It is taking the first steps into a new way of operating that offers an alternative to global command and control hierarchies.

It is an organization that acts as a provider of distributed telecommunications resources and does so on a horizontal bare-bones collaborative simplified approach that as society moves forward is confronted by a stark choice. On the one hand of a vertically organized and increasingly dangerous both economically and environmentally -- global capitalism undergirded by a pervasive spying and security apparatus. On the other hand, this top down security state will be in competition with horizontally organized local businesses. The local network business ecology will be composed of groups offering their own handcrafted open source tools. For example see the prism-break site that offers advice on how to migrate from proprietary tools to open source. These local groups will be developing a new way of living that is far more sustainable and, one would hope, maintains the humanity of the people it supports to a far greater degree than the top down vertically integrated corporate state.

Then our next section covers AlterMundi in Argentina, a small-scale village network near Córdoba Argentina second-largest city with another network of nodes about 400 miles away on the Delta at Buenos Aires. AlterMundi has abandoned the idea of bringing meaningful change in urban areas and is heavily focused on "hacking" to bring hardware prices down and strengthen free software.

We also cover Isaac's achievements in Kansas City which during the first ten months of 2013 have themselves been quite remarkable. He appears to be walking in the footsteps of guifi.net while obviously converting his approach to the cultural differences in the more small-scale urban beginnings of the Kansas City Freedom Network (KCFN). For a compara-

tive shoestring of money the KCFN has plans that, if properly implemented, can bring extraordinary benefit to the local population in a way such that the network becomes far more than a portal to 500 channels of Internet shopping. For the first time ever in the US, the KCFN has the potential to become a portal for ***horizontal communication within the community. The goal is self-determination for the local community.*** This objective is being pursued by the five partners in the network that are bringing together disparate groups of people who have a shared interest in making the network succeed.

Above is Vilafranca - a village of 2500 people whereare 400 guifi.net nodes

If these pioneers can succeed, the devolution of network ownership from the huge Internet service provider to small local groups who hold their fate in their own hands will be a critical driving force over the course of the coming months and years.

Public or Private; Craft or Science; and Other Issues of Funding

We shall finish this survey on December 1 with the January February 2014 *COOK Report* That issue will provide some updates of topics covered herein. One person mentioned here in but not yet treated separately is Artur Serra. Artur is a native Catalan who did a PhD in anthropology at Carnegie Mellon. Artur's heart seems to be in the right place. However his project is funded by the large global corporations where, through government

run science funding agencies, his project is centered at I2 Cat and subject to constraints by funders like MicroSoft and Orange that make it apparently impossible for him to work jointly with guifinet to bring his living labs concept into the countryside.

Nevertheless, Artur's premise is very worthy. Namely that education and research networks must be made available to the ordinary citizen. Cities are now getting Chief Information Officers. One of his PhD's is now CIO of the City of Barcelona. Dublin and New York City have CIOs and Artur says he knows them all. In Barcelona, if a citizen wants to participate, there is I2Cat infrastructure that he or she may use. But outside the northeastern edge of the city - nothing. It all belongs either to Telefonica or to guifi.net.

Unfortunately there are constraints. The corporate sponsors will not open the "pipes" to non university people because their whole investment over the last 20 years is shrewdly aimed at making sure they derive commercial rights to any discoveries. It is the world of master craftsmen decried by John Day where those on the funding treadmill spend a large part of their time writing their next funding applications.

A number of years ago there was a brief collaboration which involved guifi.net with the requirement to pay a membership fee it could not afford and a rental fee on a server. The attempt was very short lived. Guifi.net found itself present with bills that it had no means of paying. What appears to be the problem? Research is controlled by corporate money to provide new income streams and make the next quarter's bottom line larger. It is available only through universities and brilliance apart, an unholy collaboration between finance and a government tuition loan industry means that the price of a university education is now beyond reach of all but the 1%.

The education research network establishment and its proclivity for public private partnerships was a good idea that has been subverted by corporate insistence on next quarter's results. It has been applied more effectively in Europe as our work on Surfnet has shown. At the beginning of the Obama Administration there seemed to be an opportunity for a productive turn around on the part of Internet2. Regrettably that opportunity has been lost. The appointment of a new president did nothing to change the insularity need to appease DC politics and keep the corporate spigot running through the National Science Foundation.

In 2009 this incestuous group of Washington DC funded insiders (Internet2) took more than a billion in stimulus money for a national Community Anchor Institution Network and save for a new fiber backbone for internet2 has nothing to show for it, Of course now that the relevant NSA revelations have hit home, it is clear that the "convenience" here -- assuming it ever gets completed -- is federal control of the telecom of communities - their libraries, their schools, and so-called public safety agencies that will enable General Keith Alexander and his ilk to monitor all communications at the most intimate social and local level. So far the most outstanding abuse has been in Colorado where a shadow consor-

tium was given 100 million stimulus dollars to build Eaglenet. They built very little and overbuilt small rural providers and then hired the CEO of a beltway bandit consulting firm - who just happened to be a US UCAID Board member as well - to generate a study that said they weren't over building because the fiber was not in the same trench!!

This corporate control run amok represents the most advanced form of global capitalism - a scourage which, it must be hoped, will soon collapse. Exactly what is happing? Where is the money going and for what purpose?   The politicians like to extol "innovation."   But consider -- as Lee Bryant wrote the following about a recent talk by Clayton Christensen. The three types of innovation he talked about are:

1. "**Empowering innovation**. This turns expensive products and services into cheaper, more accessible items, thereby making innovations available to more people. A good example is the innovation that saw mainframe computers supplanted by personal computers, and later by smartphones. Most jobs in the economy are created by empowering innovation. This process consumes capital but creates jobs.
2. **Sustaining innovation**. This makes good products better. It creates few jobs and needs only limited capital. In a sense, it is part of a zero sum game since people will buy the new improved product, but not the old one, which is replaced. This process requires limited capital and creates a few jobs.
3. **Efficiency innovation**. This allows you to make the same product at lower prices to sell to the same people. It is largely about optimization and cost reduction. Walmart and the insurance industry are two examples that people are familiar with. These innovations tend to eliminate jobs and free up capital."

"At the end of this loop, in an ideal world, the capital freed up by efficiency innovation fuels a new cycle of empowering innovation. But the problem is that business is now so in thrall to finance, that capital accumulation is their primary goal, rather than value creation through innovation, which is by its very nature risky. The cycle is broken, with serious implications for future productivity gains and employment."

To which on arch-econ Fred Goldstein had a well-aimed affirmation - "Innovation is indeed dying. Vulture capital is now formulaic finance capital. It is all about meeting a schedule, where the goal of any venture is to "exit" in five years or so. Thus innovation has to be small and incremental, create revenues by year two, profits by year three, and then find a buyer to close down the company in year five. Sometimes the exit is an IPO, at which point the company might continue to operate, but it has to then live for quarterly profits, and the CFO (raise profits by cutting, not innovating) mentality takes over."

"So what gets built? Always the fad of the year. Lately, iPhone apps. Previously, social, e-commerce, location-aware, and other buzzword du jour lookalikes.   Largely software, since that is what the job-hoppers of the Valley do. Productive? Rarely. But VCs are em-

ployees of their wealthy clients, and "investing" (speculating) in the fad du jour is the modern equivalent of not getting fired for buying IBM."

"Incentives to fund longer-term innovation are needed, but it might involve a cultural shift as well. I'm not optimistic, at least in the US."

We live in the midst of many risky propositions. We must hope for outcomes that will allow the more ordinary citizens like those whom I write about herein to retake control of their own lives and their own economies. Regionalization - ready or not - is on its way. This is good because the localization of our economies is the only way that we have to fight back. The efforts described herein will be key. As will be those of Michel Bauwens who has survived a mysterious insider effort to break up his Peer-to-Peer Foundation. Michele is now in Ecuador where he is working with The FLOK Society Project: Ecuador commits itself to a open commons-based knowledge society. (For more detail see p.179 below.)

During my final week in Barcelona and on into the time Isaac and I spent in London, I worked as an emissary among all parties trying to nudge Artur into answering the Bottom up Broadband call for new demonstration projects that would lead to a guifi.net collaboration. Things seemed to be well alligned. A key player who was a founder of I2Cat and of guifi.net was behind the idea and assured me that Artur would have no problem getting the eager assistance of a Ph.D candidate. I spent the last hours of the last evening in Barcelona talking to one candidate for the position. Yet nothing happened. There is one pilot

project that looks vaguely related to the idea. I will certainly discuss Living Labs in the next and concluding part of this study. Whether or I will get to the bottom of this question, I don't yet know.

As Isaac said in the [Verge video](#) done this summer "I **worry that people do not want to imagine alternative possibilities, alternative worlds. They want to let the monoliths of this world do their imagining for them. And for me that is very sad and very very challenging. And when I think about it, well I just don't want to think about it.**"

Gaudi used his art to argue for self-determination. He accepted no standard practice. His world was not the one in which he found himself. His art incorporated nature rather than than dominating it and destroying it.

Pablo, Ramon, Roger, Pau, Isaac, Nicco, Guido, Julien and others described in the following chapters refuse to submit to oppressive odds. Like this lutanist above they focus on what can be.

Isaac and the editor at the fort on Mount Juif, Barcelona on May 17 2013

A guifi.net Open House in Barcelona Saturday May 4

User participation is the life blood of guifi.net and of Freenets in general. Isaac and I arrived on May 2 and saw Carlos Bock at I2Cat on the third. Then on Saturday we headed out to an area in northeastern Barcelona where I2Cat has a fiber ring and where, with the resulting good bandwidth, a lot of IT companies and small startups are located. Guifinet invited all Barcelona activists to the gathering in an old warehouse used by some arts and cultural groups as a kind of analogue fablab.

Roger Baig Viñas left and Isaac Wilder right.

As Isaac commented: "Had a bomb-ass communal pallela for lunch."

Don't break bread without installing a new radio or at the very least antenna.

Here is Isaac's description to the FNF list. Went this morning to an art/hack/make space near UPF, the other big tech school in Barcelona. There were maybe two dozen of us, and maybe two dozen routers.

Played with QMP, Commotion, video over ip, and other fun stuff. Talked cooperative mac, and cooperative phy.

COOK Report: Meanwhile I sat next to an employee of a Spanish multinational who explained to me that he had purchased a connection from a guifi.net installer and when he realized how the network worked he had joined as an activist and regularly attended meetings like this.

His laptop below shows how the rooftop node at the extreme left in the building where we met and shown on the preceding page feeds nodes in high rise buildings on the right.
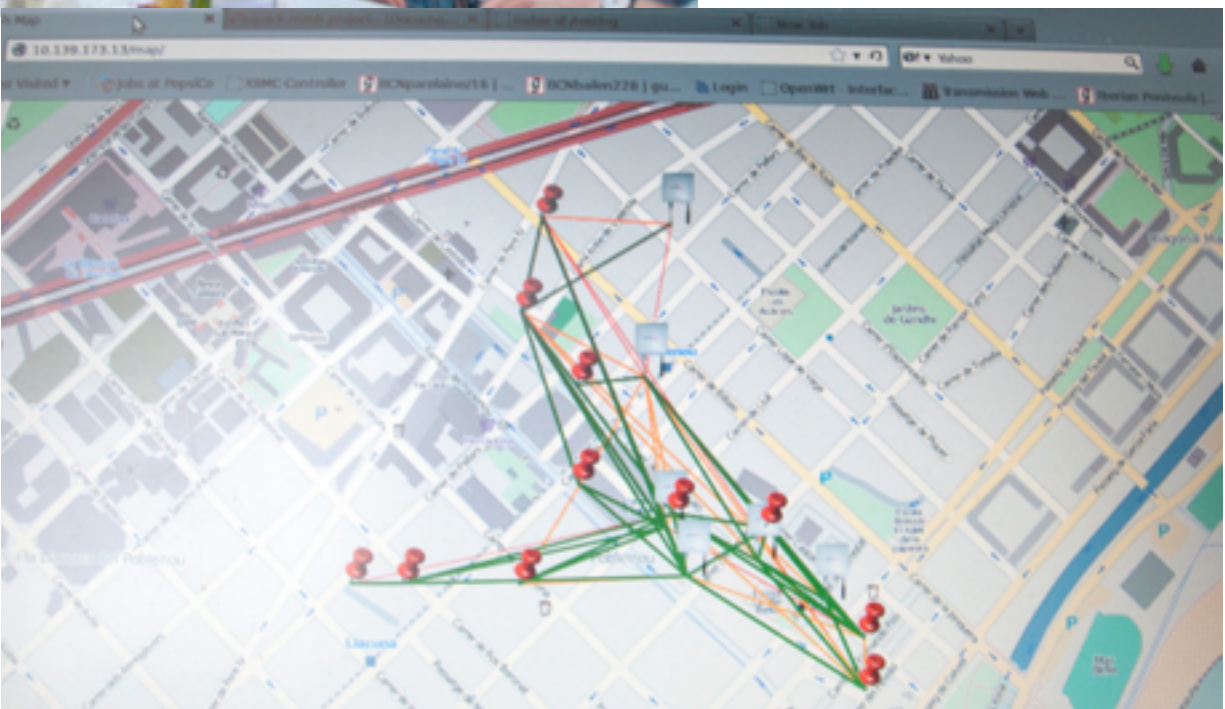
Above:Guido, Nico, Pau and isaac.

Isaac continued "Met Nico and Guido from Altermundi in Argentina, and they, like Roger and Pau and the other guifi folks, are just the best people. Talked about all kinds of stuff.

Also talked about idea of starting an umbrella org/clearing house for best practices between the three orgs, because we are under different registrars.

COOK Report: Hardware hacking into a tiny portable web cam shown in the picture to the right.
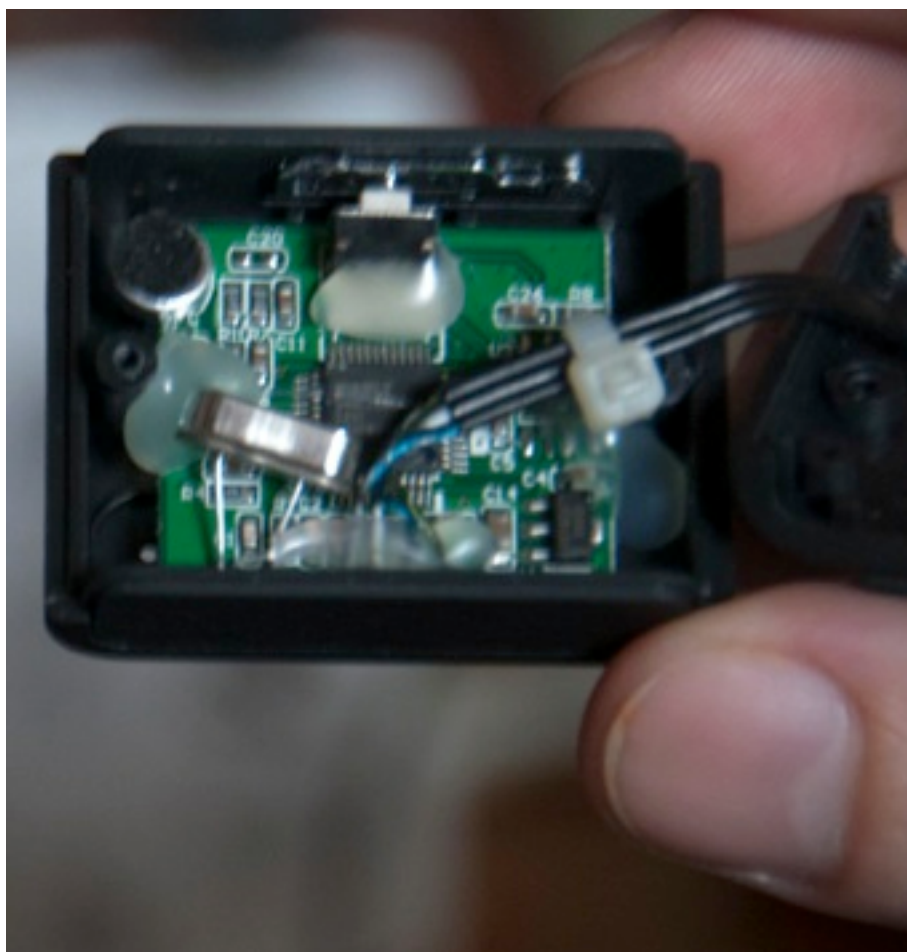
Part One

Building guifi.net from the Ground Up in Castellón

Expanding guifi.net Outside of Catalonia

How a University Professor and His Colleague Have Grown 4,000 Nodes in Five Years

Editor's note: Pablo Boronat Perez is Associate Professor in the Computer Systems and Languages at the University of Jaume I in Castellón Spain. From his work group in the University he started guifi.net network in Castellón province. Since 2009 he has been a tireless advocate for the network, making installations and forming groups of installers and volunteers in order to build a social-economic environment around the free network.

During the summer of 2013 he became one of the five directors of the guifi.net Foundation.

Pablo: Five or six years ago I became interested in the expansion of broadband to the countryside and with a colleague here at the University, Miguel Perez. I began to look around to understand how a free net might be built. And when I stumbled upon guifi.net I quickly realized that almost all that I had in mind doing, they had already incorporated and done. We contacted Ramon and Lluis Dalmau and asked for help and they gave generously. Lluis came to the University, made in the end excellent speech and presentation and we constructed the first supernode. This was in the spring of 2009 and the appearance of Lluis was attended by very well motivated students by faculty and very significantly by IT people from the computing services part of the University,

Given the attitude of Telefonica, **the realization that citizens could take their telecommunications needs into their own hands was infectious**. We grew rapidly. I will explain a few things about the pattern of that growth. In villages of more than 3000 population we have gotten no collaboration; while villages of less than 3000 we often got help from the Town Council in funding the initial installations and provid-

Pablo, red coat on right, picks Isaac and myself up at train station in Castellón on May 7.

ing services. In these villages we have found that most often the individuals there will talk to their neighbors and come up with some means on their own. We have made since 2009 presentations in probably about 150 different villages and gotten something started in almost all of them.

What happens seems to depend more on the enthusiasm of specific individuals than on any specific kind of demographics. One thing that we experience is that, in a few situations, there are some entrepreneurs who see the possibility of setting up an Internet service in their village. These entrepreneurs will come up with the financing for a supernode to connect their town to the nearest already connected village and hence to the network. Often they do crowd funding to come up with the money for supernodes.

We have three different sources of money or funding for our efforts. The most important and most frequent, is money that the Town Council comes up with in a given village. When the Town Council comes up with some money for the initial installation then a supernode is erected. Once this happens, very often there are other people in the village come up with their own money to connect their home or place of business to the central installation paid for by the town Council.

The second way happens in a small city with shall we say about 50,000 inhabitants or where the town Council supports a movement for crowd funding. Iin order to kick off such an effort we go to the small city and, in a public forum explain to everyone how it works show the technology and equipment needed and answer questions.   But in these cases the town counsel seldom gives any help. And in the third situation, a would-be Internet service provider comes up with the money to fund the initial node which would be a supernode to the nearest possible other network connection.

I**saac**: Can these people make a living from doing this?

Pablo: With great difficulty. They are very small – two or thee people and might have a computer shop or been doing computer or electronics repair. These people can begin to work on building out local guifi.net infrastructure with little training.

Isaac: Do you have training classes for installers? Talking with guifi.net people in Barcelona, it seems that there is a lot of stock software – [AirOS](#) that is shipped on ubiquity radios and [RouterOS that is shipped on Microtik](#) -- compared to open firmware for doing meshes with these radios that is a lot more complicated and intimidating to many people.

Both companies to make boards that are compatible with [Open-**Mesh**](#) which is an open source mesh routing distribution.

Pablo: You are asking important questions because we get a whole lot of interest from people who want to understand what is necessary to make successful installations and ac-

tually become involved in building their own networks. So we have developed a course for installers. You will have an opportunity to attend a session tomorrow afternoon. The material that we have prepared is available as a wiki licensed by creative Commons and is up on the web for people who want to try to teach themselves. We tell them to study the material on the wiki and what they do not understand they should ask us questions about and we promise to provide them with answers,

When we started doing this it was not long before other activists began to develop their own material. The body of knowledge that is available to motivated people is growing and we find it interesting that even though in one sense these actual or would-be installers are competing with each other, very often when they ask questions other installers will provide answers.

However, I think there is no good answer about free software. For the time being proprietary software - for example Microtik's RouterOS is widely used. We are working to change this. Our Goal is a free network working on free software. This will give freedom and equal opportunity for everyone.

Isaac: Does this education of installers learning how to install progress to a more theoretical knowledge of how networks operate how they route and so on? Or does it just stopped with the installation?

Pablo: I think both. When they have a network problem, they will find a solution. But they also want to know why the problem arose? And that leads them in the direction of a more advanced more theoretical understanding.

How to Avoid Proprietary Software

Now there is another question that Miguel and I wrestled with in the beginning and that is that we did not and do not want to use proprietary software. But we tried open-W-R-T (pronounced "open wert.") This is a Linux distribution designed for wireless routing. We found that the free tools were not mature enough. If were insisted on completely free software everywhere, we risked loosing the opportunity to expand rapidly.

Isaac: Linksys, in its first generation, produced a router called the WRT 54. This was a classic "icon," a black and blue box sold in the past in commercial quantities. Before long some hackers developed a Linux kernel and operating system that could run on this router. And then, because what they did became popular and took off, Linksys and other manufacturers had an incentive to develop their new commercial products and the way that they did this was to maintain compatibility with this OpenWrt package. As a result of a positive feedback loop that router and architecture is used in many many places.

Pablo: They saw reasonably quickly that it would be in their own commercial interests to accept what the open source community had done to the firmware running on their hardware rather than insist on any proprietary modifications. They had not intended to wind up with a product where people could reinstall the firmware, but eventually, they reached a settlement with the Open Software Foundation that embraced this reality. However, our other early problem was with the Microtik operating system that we really did not want to use, but we realized that, if we boycotted it, we would have problems with our expansion. Because we decided during our initial stages that growth was very important in order to become large enough where the politicians would pay attention to us, we went ahead with the use of Microtik. But now we are beginning to emphasize, as much as we possibly can, open source and non-proprietary solutions.

A short geography lesson -- there are three provinces: Castellón, Valencia, and Alicante. Most of the nodes are in Castellón and in the north of Alicante. This is a list of villages with guifinet installations   In this list of villages more than 50 have installations paid for by the Town Council that is another words with public money. The money appropriated by the Town Council to get the initial server with a web proxy that permits internet access for residents for free and one or two supernodes in the town is usually about €4000. Now, in early may there are 3700 nodes in Castellón [**Editor** this was May 7th. Four months later on September 6 there are 4,027 nodes. And on September 30th - 4,080.]

Pablo and Isaac talking during our tour of the supernode at James I University

Castellón Versus Valencia

Here the network is growing very fast. But in Valencia it is very difficult because of politics. There with public money the government put out for bid and built a network to connect all the towns with both fiber-optic and wireless and all that infrastructure was given to a private company to make into a business.

Fgris › Forcall › FLaR › FAdar › Jrc › alcora › La Llosa › LMta › lpt › LSE › LTdB › LTD › ValldUixo › Vilavella › icov › Use › Lluc › › Motnejos › Mor › Nul › Olo › Onda › Ortils › PNS › PDeM › PDM › RDeC › ROS › Sdlla › SJDI › SJM › SMat › strafriu › SMdP › Serratella ›

Castelló
Tirig › Tdll › Toras › Trrbinc › TRGR › ValldAlba › VDeA › Vllbn › VR › Vlfms › Vilafamés › Vlafranca › VDAl › VDC › VDeV › villores › VNR › Vistb › Viv › Xert › Xiva › Xod › ZFllC)

availability   data   expenses   map   networks   nodes   pending/review

services   suppliers   users queue

created: Tue, 16/12/2008 - 23:00 — mperezfra - updated: 10/12/2010 - 10:53am

zone information

|	
zone name	Cas - **Castelló**
homepage	http://castello.guifi.net/
default proxy	Take from parents
default graph server	21314-Castelló de la Plana, CSUJIGraphServer
network global information:	
DNS Servers	10.228.130.162
NTP Servers	10.228.130.162
OSPF zone	
Time zone	(GMT+01:00) Gurb, France, Germany, Italy

contact information

created by: lluis.dalmau at 16/12/2008 - 11:00pm · managed by: mperezfra · updated by: maus at Fri, 10/12/2010 - 10:53

▷ zone statistics

Nodes listed at Castelló

Zone name	Online	Planned	Building	Testing	Total
Ain	0	1	0	0	1
Albocàsser	80	26	0	2	108
Algimia de Almonacid	0	0	0	0	0
Almassora	62	31	2	7	103
Almedijar	0	3	0	0	3
Almenara	0	2	0	0	2
Arañuel	3	13	0	1	17
Ares del Maestre	25	18	0	0	44
Argelita	16	4	0	1	21
...eta del Maestrat	184	38	1	0	224
...d'anroig	0	0	0	0	0
...figos	25	3	0	0	28
...ssal	0	3	0	0	3
...carló	176	65	1	2	246
Benicàssim	157	86	5	5	253
beniNol isar	0	0	0	0	0
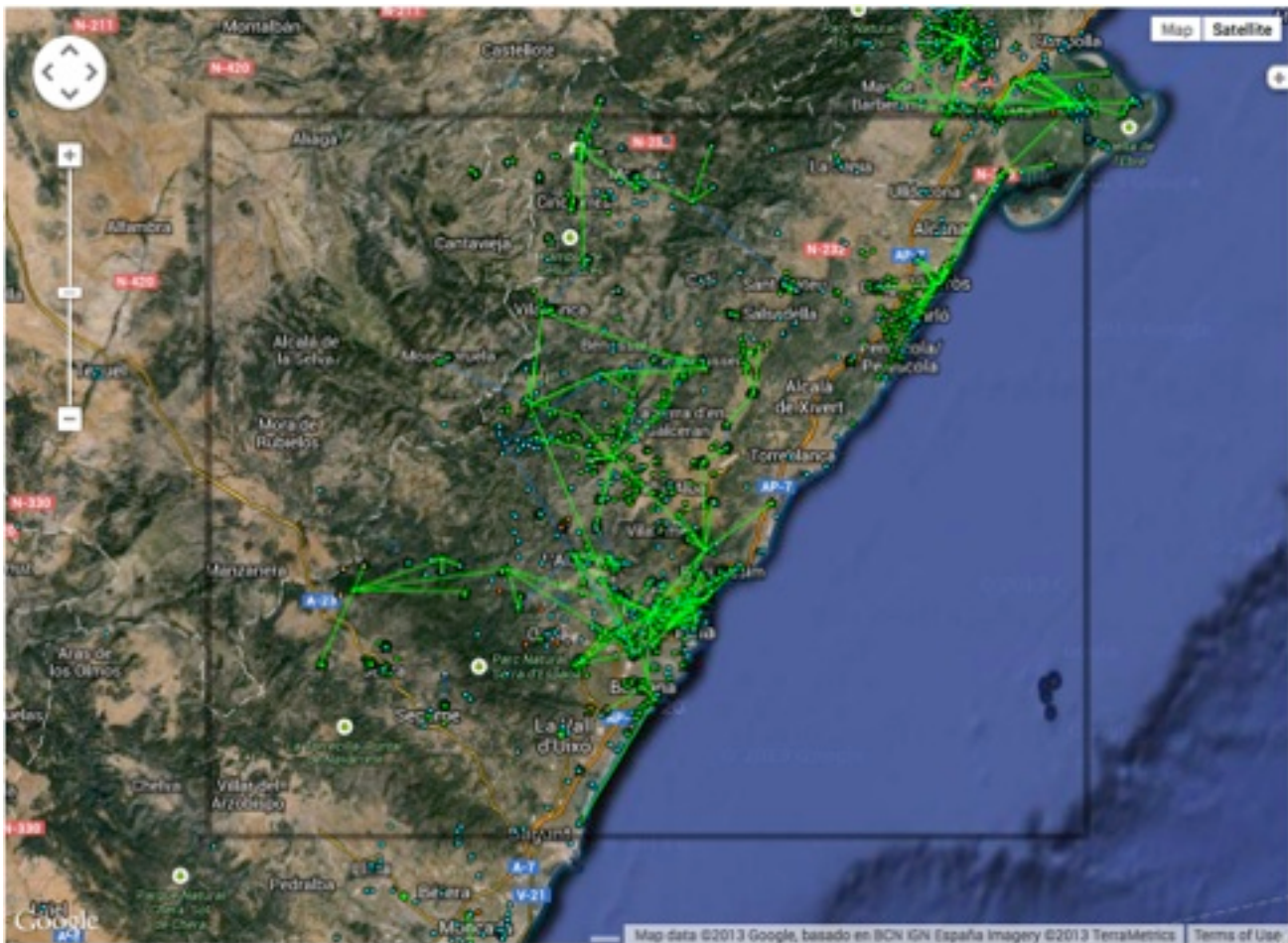
I think that economically it will be catastrophic. They are asking for more public money now and now it is exceedingly difficult to invest any more public money. They invested 14 million euros in this infrastructure and have not much to show for it. And this is certainly works against any efforts that we make because if any of our activists go to the Town Council and ask for backing to participate in guifi.net since the Council does not under-stand what a free network is, it says we already have this so-called free network.

Meanwhile we have grown very rapidly and this growth was very important because we are thinking to do the same thing all over Castellón. We realized that they would be com-ing here from Valencia to do their public-private build next and we decided that if we could grow rapidly, by the time they got here, they would have problems in ignoring us. They would have to take us into account. They have not yet tried to come here but they still talk about it and they make a lot of criticism of us when any part of our network does not work properly and of course these criticisms don't take into account that we are a dis-tributed low-budget network run mainly by volunteers but meanwhile we deliver service to many many people. And suddenly four months later in September 2013 there appears a budget of 500,000 euros of public money to do the same thing as guifi.net for the mo-ment without our cooperation.

This project is from la Diputación de Castellón. (The Diputaciones are a representation of the state power in each Spanish province; they are especially supposed to help small villages). It was predictable but arrives too late to lead telecommunications in the countryside.

They argue that they want to improve telecommunications services in villages which do not have enough providers. But in Castellón the villages have solved this thanks to the collaboration between town councils citizens and guifi.net. The Diputación should collaborate, maintain and improve the existing network (which already connects all the province, even if backbone links are still insufficient). As the network is an open infrastructure, operators could then offer their services using the network and there could be a real competence of prices.

Further in this report, Ramon explains how and why these kind of initiatives have been a way to waste public money. If the Diputación does not collaborate with guifi.net, we will see again the same scenario and we will be reminded of the lack of intelligence (in the better case) of our politicians.

Nevertheless if we stumble in any way, you may count on the fact that people involved with the private build in Valencia will be going to the public officials and blaming us. They then ask the public officials to give them more money for their own business which has not delivered affordable services.. It is all politics and it is primarily corrupt politics. The fight against Jack London's Iron Heel continues.

We are not adequately interconnected yet. We have a new connection with the north part of Valencia. And we have a connection with Taragon.

On Thursday we will visit Villafranca, this is a town of 2500 people and it has more than 400 client nodes within - the conductivity map there is extremely dense.

Isaac: For the people who live there what are their telecommunications alternatives if any?

Pablo: Telefonica does offer service there but I think you will find solid agreement among the local citizens that our service is far superior.

Isaac: Are there significant problems with latency? And where is the network backhaul to the Internet?

Pablo: It comes from the library of Villafanca where there are two 10 Mb per second ADSL uplinks. As long as people are only doing web browsing we find that those links can satisfactorily serve more than 100 people at a time. But this kind of shared Internet access cannot support P2P services. As a result we are forced in little suburban towns to install squid web proxies.

James I University supernode is on the roof of the student center building.

COOK Report: Squid?

Isaac: Squid is a caching proxy and when there are requests for content, to the extent possible the content is cached that is to say stored locally so that each new request does not demand a separate and fresh download from the Internet.

Pablo: But it turns out now that that's where smart phones and iPads that are popular with the youth these devices use ports and protocols that do not interface well at all with web proxies.

Consequently we are looking for different ways to share web based Internet connections with people. Many cultural associations and cooperatives of various kinds maintain their own web proxies that we often are able to use on an as needed basis. But sometimes these proxies are difficult because, reaching them, takes several hops on the network from where we connect.

Editor's Note: Pablo demonstrates the technical aspect of the issue by using MTR which is a relatively recent tool that combines ping with trace route. He determines that his house, which is about 10 miles outside the University, is seven hops away from the server at the University that functions as the Internet gateway.

However, the most important aspect is not technical (at the hop level of detail) but rather that guifi.net is set up to provide a layer three mesh platform on top of which all internet and web related services may be provided by small commercial providers which are usually also installers. Vertical integration by a large provider is not possible because the infrastructure out of which the layer three mesh is established is owned as a commons. It belongs to the guifi.net Foundation, the key purpose of which is, as will be seen below, to maintain the commons nature of the infrastructure in perpetuity. Installers provide the means of physically installing the radios for those who lack the technical expertise to do it

for themselves. They may also provide content for a fee to the users by means of installing a server at their place of business. There are enough installers to en-sure that prices for content will be kept low and the public good is maintained by the village coun-cils that maintain free proxies for their citizens.

The University super node has a line of sight to the fourth and fifth "bump" in the serrated ridgetop on the mountain to the right center of the picture above.

The discussion continued the next day in Pa-blo's office.

Network Serves its Users as Politically Neutral Infrastruc-ture

Pablo: Because the network is an initiative on the part of the

A telephoto picture of the radio towers on the distant ridge

citizens; on the part of the people, and on the part of **all** of the people it must be politically neutral. You cannot directly use the net-work as a means of political argumentation.

COOK Report: But surely a group of users could start a mail list to discuss their ideas with other like-minded users?

Isaac: The use of the network is not binary. It is a complex idea. Gordon is asking at what level would you use the network to advocate?

Pablo: Of course your point is valid. The point I was trying to make was that the tack it is necessary to take in presenting the idea of the Freenet, a neutral Freenet to the general public, you cannot use political arguments.

What a Neutral Network Means

In the Catalonian part of guifinet, there are many many users of the network who view it primarily as a means of advocating independence for Catalonia. I do not agree with this point of view because framing it as an advocate for a political purpose will automatically exclude those who do not agree with their politics. ***I believe that by being a neutral platform, the network will attract the largest number of people.***

One day I heard that there were some people who wanted to use the network for the propagation of legal pornography - in other words for a sex channel. We tried to dissuade them because it would lead to bad publicity amongst the politicians. We suggested that the network would probably want to avoid that because it would rather the politicians be friends. On the other hand, you also have to realize that, if this small group was absolutely determined to go ahead with the sex channel, since we are a neural enterprise and that our network infrastructure was content agnostic, we could not prevent them from doing so.

Isaac: But does not the network inherently have a political ideology? It is based on the concept of the Commons and its infrastructure is an infrastructure held in trust for all by means of a shared commons. And that these issues in fact form own political ideology.

Pablo: Well you can call it commons as political economy but I think you can also call it an architecture. But to my mind this is just an explanation of how it works nothing more nothing less. When you talk, you should do so in a way that, if at all possible, does not exclude people.

Isaac: Here's a question for you. When you were talking to a group of people, do you think it better to explain to them that here is a network that is a commons or to explain it by saying here is a distributed network? To me the first approach is economic and the second is technical. Is it better to use the first one or is it better to use a second? Or should one try to do both

Pablo: I think one should try to do both.

Isaac: Okay. But to me the idea of the network as Commons is a highly political idea.

Pablo: That is true. But if you start off by saying that our guifi.net or your freenet is really a an entirely new way in which to conceive of building a network as a commons, people will think you're advocating communism. I think you have to tell them everything: that it is a distributed network. That it is a network built as a commons. And that this means that it is a network that cannot be controlled by anyone

COOK Report: What I am hearing you say is that presenting it in this way makes it easier for people to accept and therefore to join in and to encourage the further growth of the network?

Pablo: I will explain both what the network is and how it works.

You all very likely to have your own objectives which may be somewhat similar or maybe different but that, in the context of a neutral network, these otherwise disparate approaches can coexist.   Now I have my own idea's about many things but ***what I must get across is that my ideas exist apart from and independently of the network.***

While we want the network to grow, it is important also to understand that we will never want to change the basic neutral philosophy of the network just may get us more users.

Now if you get a lot of users and the growing size of the network makes the politicians nervous and they decide they would like to shut it down one would imagine that the users would protest and of course then network absolutely comes political.

Isaac: I absolutely agree with you. This fits the position that I took in writing a long fictional story about the development and growth of a future Internet. It was one where the network was built from a neutral point of view and where it became so successful and so widely used that the politicians perceived that this threat to their interests and cited that it had to be shut down. Even though things did not develop on a day-to-day basis with a particular end goal in mind, when the network became successful and profitable in the politicians moved against it, things became came political very fast

I think that maybe there is a difference between talking about the network itself and explaining to the people and trying to convince them to join it.   There is a difference between this kind of conversation were having right now and the one we had this morning in front of the students which in my mind was a kind of meta-conversation inviting them to reflect on the position in which they find themselves by using large services like Google that collect their personal information and, as an inducement, offer them network tools to use, by means of which, when they accept them, they wind up giving up their autonomy.

But the more I think about it the more I begin to believe that in the future it may be better stick to the idea of the network and the network alone as opposed to trying to articulate any kind of formulation of the political consequences that may be engendered by people's use of the network.

COOK Report: But I think it's also important to have a platform for use by network activists with a political agenda.

Isaac: That may be the case. However, but I think that if you had succeeded in recording what I said this morning which was critical of all the information gathered by Google about its users and you wrote it up and put it as introduction of what you write about this trip, and sent it to people like Vint Cerf and Milo Medin at Google, it would be detrimental to the cause because now the FNF is not just a telecom provider but rather an entity whom they could only identify as an enemy.

I think the idea is that you take a position which is radical, you will exclude many people are participating in what you are trying to do. But if you take an idea like this – what I am building is Internet for everybody – you have with such an idea something which is fundamental and basic. It is very appealing. It is an idea that virtually everyone can get behind. But if you do this, and then after five or 10 years, someone comes along and says no. There will be no Internet for everybody, you then have the high ground.

Pablo: We think we can present this idea even better. We would say that the network is even more than just Internet access. Why? With guifi.net you cannot guarantee you free Internet access but guifi.net certainly makes it easier. And most fundamental guifi.net will allow you to connect wherever you want and whenever you are. For example, in Spain, it is very common for people to have a second house in a village outside the cities or somewhere up in the mountains.

We used to tell them that if you have two houses and in one of them you have a telephone and an Internet connection, then you can use the telephone and that interconnect connection from the other house. Why is this possible? Because you can from the first house use the guifinet network without any additional telecommunications costs in order to telecommunication wherever you wish from your second house. Or, for example, a very small company with an office in Castellón may connect that office to a subsidiary office in a village somewhere else at no extra charge. You can explain these advantages without going into politics.

COOK Report: This is all very good and very pragmatic and utilitarian. I think it is something that I would be crazy to object to. But what happens in the next year or two if there's another global economic crisis and things go south and things get really confrontational? What happens then?

Pablo: Well I think one thing that happens is that at least we have built a network over which ordinary people will be able to communicate.

COOK Report: All right. But when does the network start to be used for communicating these more urgent matters?

Pablo: It will happen but you must understand that it will happen as a **service** over a free network operated as a neutral platform that anyone can use to communicate to other people however they may choose. Furthermore, they may do so without a centralized operator interfering with our censoring what they say.

Isaac: And what everyone must understand is that if you are a board member of the guifi.net foundation; if you are a director of guifi.net; if you are the director of the Free Network Foundation, you must perform in **the role of the Steward and that role is the protection of the platform and its availability to be used by anyone in a free and open manner** and that the only way this can really be done is to establish a firm context and foundation of neutrality for the use of the network. Even if you wish that you could join the political action, you must leave that to others, because your primary role is to function as a steward of the network.

Even if you wish you could raise the flag of rebellion with them, it is your duty and responsibility first and foremost to protect the stability and the neutrality of the platform. If you want to participate in the politics of the moment, you must put on a different hat and do so very clearly – otherwise you compromise the neutrality of the network. If you engage in political action, while at the same time you have control of the network, you compromise the neutrality of the network - something that you do not want to do.

COOK Report: Are there two possibilities then? One as the steward and protector of the neutral network but when it comes to the economic view and the ideals that most of us share - what then?

Pablo: Okay let's take the argument then, as you are nudging it, in a social, political and economic direction and ask what you gain or have attained by operating this neutral network?   You are **showing that it is possible to grow and maintain a high-quality telecommunications network that operates under a different system than the profit-making monopoly oriented large centralized networks of the so-called capitalist free market.** You are able to show more traditional companies that there is a different way to run a business and secondly you show them that you can operate as a new kind of entity within the system that hereto for nurtured only size and many restrictive practices and control exerted by far away people. You show them that a change in the ownership of a telecommunications company from a distant faraway Corporation – to one that is much more local and built controlled and run by the people in the immediate areas in which it is used -- that such a change is possible.

Is Guifinet to Be Run as a Democracy?

And what I want to say next is a philosophical point that is complex and very controversial within guifinet. Ramon runs the Guifinet Foundation – the role of which is to preserve the philosophical basis on which guifi.net is founded. But ***the board is not elected democratically.*** The activists of the network have no vote for who the members of the foundation board are or for whom the President of the Foundation is for them. It seems that Ramon is always right. His word determines what happens. And as I have worked with him over the past five years I've had no problem in moving with him in the direction that he defines. Ramon has, over a period of years without any doubt, displayed a total dedication to the principles of the network and has developed strategies and predictions of where things are headed that are uncannily accurate.

Now what may happen in a situation like this when there is a democratic election for network leadership is that one part of the network may wind up controlling the other part – the majority will oppress the minority. And under those conditions, is very likely that the majority will begin to act in ways that affect its role over foundation. Looking at its decisions and hence control over the network and how it is run, there is a real concern that concern for staying in power will lead to decisions that are not in the best interests of the users.

So it is not an optimal direction in which to go for the future of guifi.net to implement a system of democratic election of the foundation board. The only value that the creation of foundation's board offers is one derived from whether or not we continue to agree with what they are doing. And even though there is no democracy in the way the foundation is run, for the moment at least, users of the network certainly agree with the kinds of decisions and decision-making process in which Ramon and his fellow board members are running the network. If things would happen that would upset the fundamental balance of trust the users with Ramon and the foundation board member the only conceivable resolution would be the establishment of a different foundation. It is quite complicated to explain.

The fundamental point that I am trying to make is that to run the guifi.net foundation by the principal's of majority rule would be a mistake because there would be too many reasons for the majority to act in ways that represented its narrow interests as opposed to the more broad interests of users. What is clear to me at this point is that we should not choose the president of the foundation or the board members of the foundation by voting. Democratic institutions are usually undermined by competing interests. We need an independent and transparent institution that continuously justifies that its actions fit its goals.

Isaac: Here is a question although it may be more in the form of the comment. Our Constitution says that when FNF needs to make decisions they are reached by a process of consensus... Because of the way American laws written it was pointed out was that there must be a clear mathematical definition, we decided that the mathematical definition was

80% . It sounds to me that this is very similar to the de facto way in which guifi.net, operates.

Pablo: I am not sure that I could articulate, whether there is a close analogy or not, but in the case of the foundation with regard to disputes about network interconnection, there is a process place by which both sides state their case to the board and the board comes up with a resolution, by legal arbitration if necessary, although most often this seems not to be necessary.

The foundation is really a term loosely applied to several groups of volunteers who work together to maintain the technical, legal, operational, and budgetary aspects of guifi.net operations. The board is a group of five people that has legal responsibility to guide and coordinate the ongoing functioning volunteer groups. I think that you become rather informally a member of the Foundation by virtue of the recognition of volunteer work that you given to the network. In talking about the foundation it must be understood that in fact it has no real power over the physical network. It just has a institutional representation to verify the   revisions and application of the interconnection agreement. The network itself does not belong to the foundation.

User Mail Lists

There are seven mail lists. One is a general discussion mail list. A second is a discussion of problems with webpages. A list for network technical problems. And a list for people who want to discuss improvements in the web platform. There is a list for translations of the web platform and a list or discussion of new development projects. And there is a list for professionals that is the installers.

COOK Report: And the closed lists?

Pablo: I believe there is one for the foundation and a second for judicial or legal questions.

And after this we have local lists. What is going on in the province of Castellón for example. The local lists are in every region. And, for example, if it seems there where an interest in starting up a new supernode there would be a regional list for discussion and input on how to go about doing that.

If I wanted to start a list for some kind of political or social discussion, I could ask on one of the local technical people and, if they have some space on the server, they would probably be happy to delegate me some space. But it would be my list to control and moderate for my own purposes and it would not be considered a guifinet list.

Notes on the Installers Training Session

Editor's Note: Later in the day we went to the roof at the university to look at its supernode and then to a training class for installers.

Pablo: A supernode, by definition, has a set up of at least two radios and it has to connect to at least one other supernodes or maybe to others. The point of the omnitik radios is that they are omnidirectional, covering a full 360° and can be used to beam connections to many client radios.

The client radios can often use an ethernet cable to connect to the omni-Tek radios that cost €50-€60. Such a cable (power over eternet) can connect a client radio in the building or apartment where the tower for the supernode is located. The omnitek on the tower itself can wirelessly connet up to 29 other client radios. They can be used to connect as many as 29 client radios. Omnitik radios are used for low cost supernodes. The major benefit is that with just one ethernet cable to the roof, you can connect multiple wireless routers, Ubiquiti ones for exmle that you can use to build backbone connections to other supernodes.

Three Kinds of Students

The class here that we are observing is divided among three kinds of students. The first kind are students who may have their own small professional wireless network installation businesses. They also know how to configure an omnitek at a supernode and not only that but also how to build a supernode itself. And for these folks this class is designed to enable them to expand their installation business into new directions.

Then about a third are activists and in this sense and activist means a serious user of the network. That is someone who is building nodes and connecting them to the network and who will do it for free for friends clients Associates and so on. Someone who does not need to make this the source of income that puts food on his table so to speak.

And finally you have a group from high schools including high school teachers who as a part of studying computers and networks are learning how to build supernodes to be used in connecting their high school network.
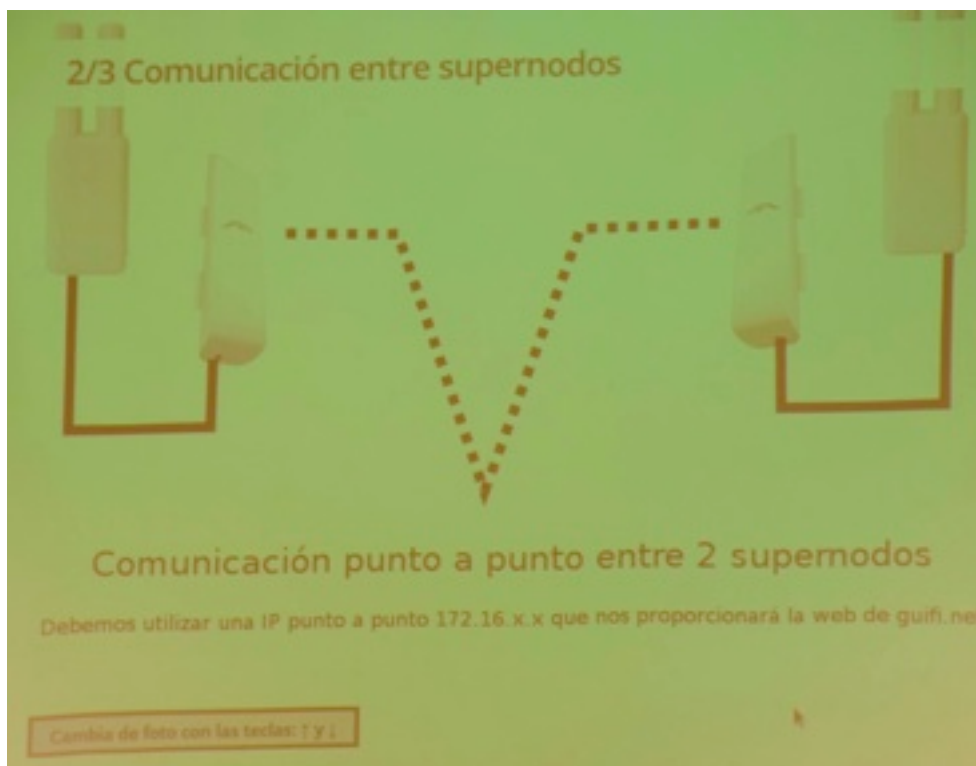
Of the people here taking the class I think only for our from the City of Castellón itself and the others come from villages many of which are quite far from the city – one or two to a distance of 90 km away. They are here to learn how to expand the network in their villages.

COOK Report: Due to the poor economic conditions here, do you see any significant
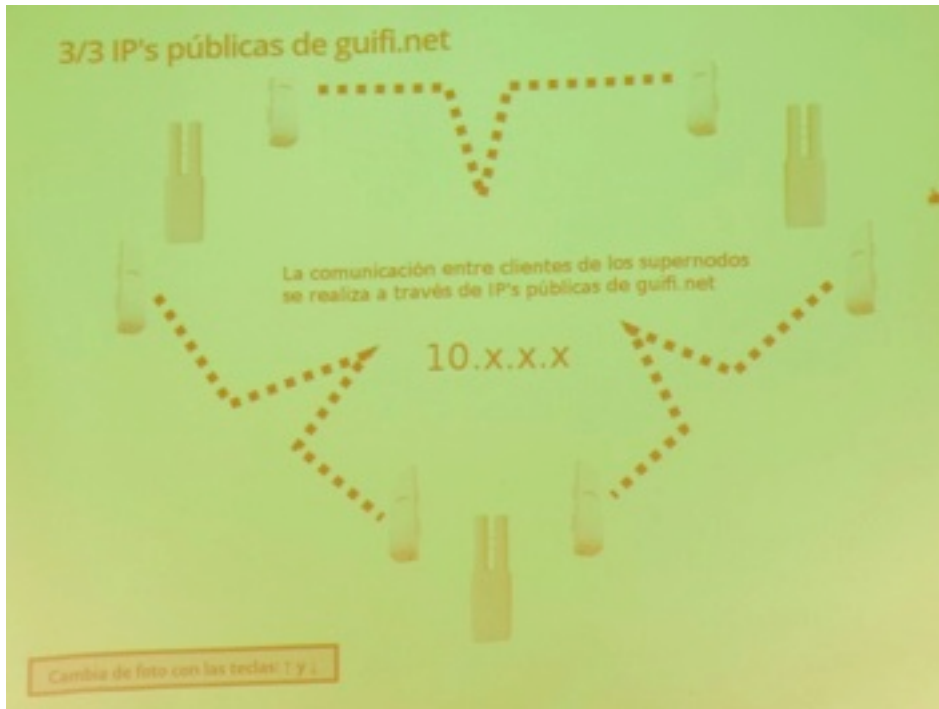
numbers of people who cannot find any other kind of pain work who are in training to become an installer in order to be able to derive an income stream from doing that kind of work?

Pablo: It would be difficult to estimate something like that. However, in talking to politicians and trying to get their support for our network, we use the argument, which is quite true, that nowadays if people without money cannot get access to communications your actions could be seen as socially excluding them from having any meaningful role in society, we see that many low income people especially those with children are connecting to guifi.net and are looking for ways to use such connections to supplement their schooling. People also need access to guifinet to connect to the Internet to look for jobs.

COOK Report: Are there people who have been employed in the IT industry who have lost their jobs and who now are here looking to become installers?

Pablo: Yes i think so but i do not know how many. But there are two recent university graduates here in this class with degrees in IT who have not yet been able to find jobs. It is possible that they will go in this direction.

The application here is just a means of exchanging information and our role in the free networks is to prepare things so that these applcations work.

Isaac. I understand.   Let me clarify. I am not suggesting that we should focus on applications. I am only suggesting that the network should be architected in such a way as to allow for these applications.   I am suggesting that mobile applications will be super important. And I do believe that the killer applications likely will be those for propelling a diverse local economy.

Now I don't know exactly how this translates to the network infrastructure but to me the idea that someone can have their mobile phone and a little small router and can engage in trade and exchange and commerce with these devices – this is the ultimate act of political sovereignty as well as a very important potential application for the network. So to design with this in mind I think is a very good idea.

Student: I agree but right now we will build the foundation on which these applications will be done by other people by students and by users.

Isaac I think we agree but I also think that to make this possible public addresses are very important.

Pablo What is very good with Ramon is that he always finds a hole in their wall. They put all the systems under the Iron Heel but Ramon always finds an opening despite all their prohibitions. To say it with the proper English metaphor: He will always find a "loophole.'

A view of the central Campus Of James 1 University from the roof of the main building where the guifi.net supernode is located.

Trip to a Ridge Top to Explore Moving a Supernode

On Thursday, 9 May we drove out to the Desert of the Palms Nature Park where Bartolo Peak of 729 meters is the highest point on the coastal mountain range to the north of Castellón. The drawing was dictated by an economic situation, to guifi.net operation namely keeping costs as low as possible.

Pablo had built a supernode shown in the network map above within the confines of a commercial telecommunications radio relay station. He was having to pay about €350 a month in rent - something to be avoided if at all possible in a bare-bones business where the basic aspect of connectivity is layer 3 TCP/IP services but does not include real global Internet services. In Catalonia guifi.net is connected in Barcelona at the CatNix Interna-

tional exchange point gateway. In Castellón itself Pablo goes global through his universities Gateway.   In other villages users must rely on Internet proxies normally paid for by local government to connect outside their immediate area. While in Catalonia and probably in parts of Castellón some on the guifi.net installers have, in effect, become ISPs and provide, for a small fee, Internet access and other local services over the basic web of conductivity established by the guiifi.net radios.

After climbing up the mountain roads we arrived at the ridge top shown above with the commercial complex on the extreme left and on the extreme right a forest service fire lookout station with its own radio antenna tower. Our objective was to take the appropriate RF readings that would enable Pablo and Miguel to decide whether a small tower could be erected at the forest service lookout and in fact enable the supernode to be shifted about 500 m along the ridge top and operated without a monthly rental.

We found out that indeed it was possible. (However in late September Pable was still awaiting permission from the Park authorities.) We then proceeded to drive down to the flatlands observing on the way some of the highlights of the Desert of the Palms Park.

The name of the park is due to the presence of an [order mendicant Carmelites](#), order thus called to the spaces dedicated to the spiritual retreat (the "Santos Deserts"). The second part of the name comes from the abundance of [palm](#) [Chamaerops humilis](#)), the only [palm](#) endemic to [Europe](#).

The presence of the Order Carmelite park has endowed two important monuments such as the ancient Monastery (in ruins) (s. XVII-XVIII) and the new monastery (XVIII century), also scattered throughout the landscape are several chapels (ss. XVIII-XX). Also in the park are a number of important ruins such as the Castle and Miravet Montornés and the Chapel of Les Santes.

Our "road crew"

Left to right: **Isaac Wilder, Pablo Sanchez**, his co guifi founder in Castellón, **Miguel Perez** and **Jorge Castellet**. The installer company that Jorge works for does the maintenance of Villafranca's guifinet.

[Guifi.net](#) in Vilafranca del Cid, Castellón

Many villages as Vilafranca del Cid (2.500 inhabitants) have been connected to the free network [guifi.net](#) through an initial installation promoted by the town council.

These installations usually include wifi antennas to allow the connection of "client nodes"

(i.e. final nodes which people install on their roofs), antennas which connect with [guifi.net](#) in other villages (backbone links), hotspots and a proxy web offering a free and basic Internet access to [guifi.net](#) users. In most cases the Internet accesses shared with citizens already existed in the public library, but now it can be used from

homes.

From this installation, which can grow with the participation of people or private enterprises, the network (as a big and open private network) can be used freely by anyone. For instance, people can share their own Internet accesses or different premises

Above: The Villafranca node is at the apex of the green line triangle to the upper left of the guifinet map screenshot. Below we have completely zoomed in on the Villafranca supernode shown on the next page. The yellow lines represent the transmission paths.
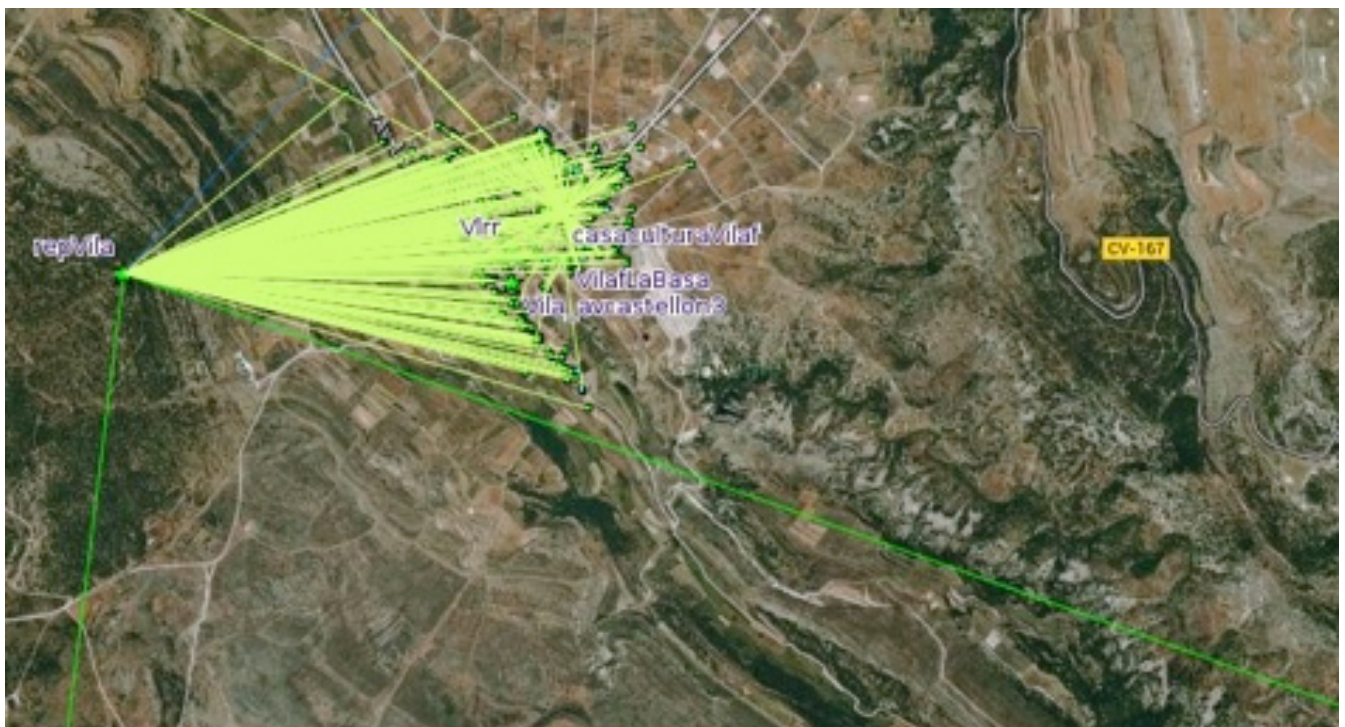
of a little company can be interconnected. Local installers can help people to connect to the network and new communication operators can offer services over guifi.net reducing the cost because they do not need to deploy their own infrastructure.

In Vilafranca the network had great success in part due to the personal implication of some members of the town council and more than 300 homes are connected to guifi.net. Would you describe the antenna for the Vila Franca supernode from the top down?

The link from the Villafrance supernode to Vistabella is 15 kilometers What we see at the very top is mainly the antenna for the microtek? We are looking at it edgewise and it curves slightly with the central collector appearing like a rod that sticks out from the left-hand side of the topmost of three rectangular boxes.

The square node is the link to Vistabella. And then below we have two antennas connecting to other devices and the round dish that faces us connects to another supernode

The square box some depth to it that goes off to the left is not an antenna. It contains a mikrotik router and its connections. Below to the right is the switch for the radions mounted to the wall of the small shed on which the tower is built.
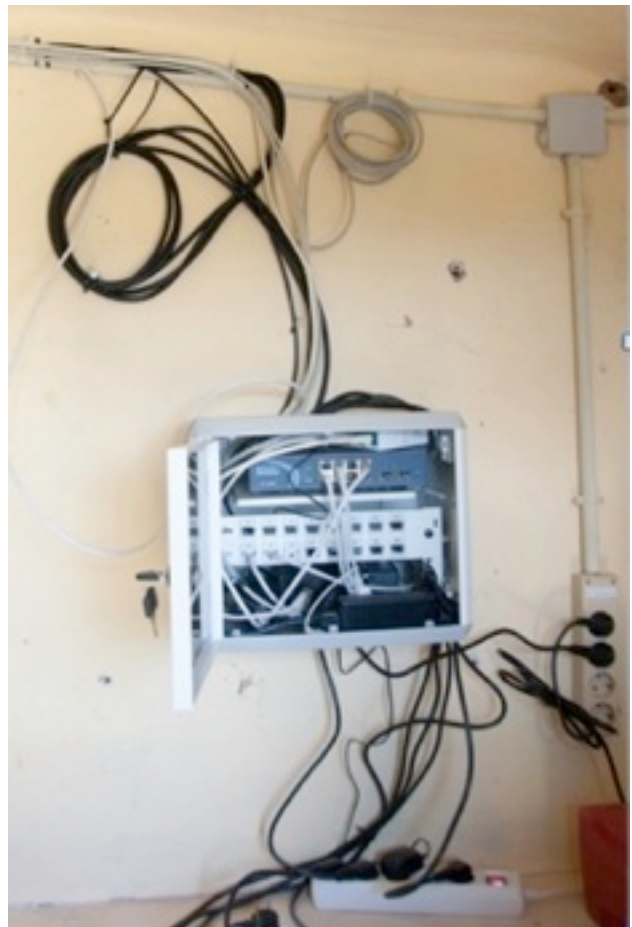
On the way home we drove over a pass located only a few kilometers from Villafranca. (Shown on page 25 above.) The stone wall in the foreground is an excavated village from about the time of Christ. The windmills were operating. They are of a new quiet design. I asked Pablo for more information and he sent me he following:

The windmill park belongs to a company named Renomar. This company is privately held. The fabrication and maintenance is from Acciona which is a public company. I believe that Renomar and Acciona are strongly related and there are large amounts of public money and large energy companies involved. The owner of the land is paid around 2500€/year of rent and they can continue to use the ground for agriculture. For cows. Each windmill is turning an average or 2500 hours/year with a production of 1,5 MegaWatts/hour.

Part Two

How Guifi.net Runs at Scale

Gaudi's Heirs Challenge Secular Power

A courtyard in old Barcelona where, to the right, you can see pockmarks in the wall from the Spanish Civil War.

Introduction to the LocalRet Problem

LocalRet is an oganization of 800 municipalities in Catalonia that was formed in 1997. According to its website "LocalRet also has a mission to serve and provide advice to local authorities in the preparation and implementation of local policies for the development of the knowledge society and the deployment of ICT in the country and all citizens. The uses and benefits of new technologies should be accessible throughout and all citizens, avoiding the "digital divide." It claims that it advocates local needs by means of "collaboration and synergies from other government agencies and the private sector to achieve common goals." In the heady bubble days of 2004- 2007 it was spending large sums of money to connect Catalonian town with fiber with the idea that it would be run as cheap and hence affordable municipal infrastructure.

Jordi Benasat Lopez its general manager was a *COOK Report* subscriber during this time and in our September - October 2005 issue on pages 100-108 in an interview we described the project.
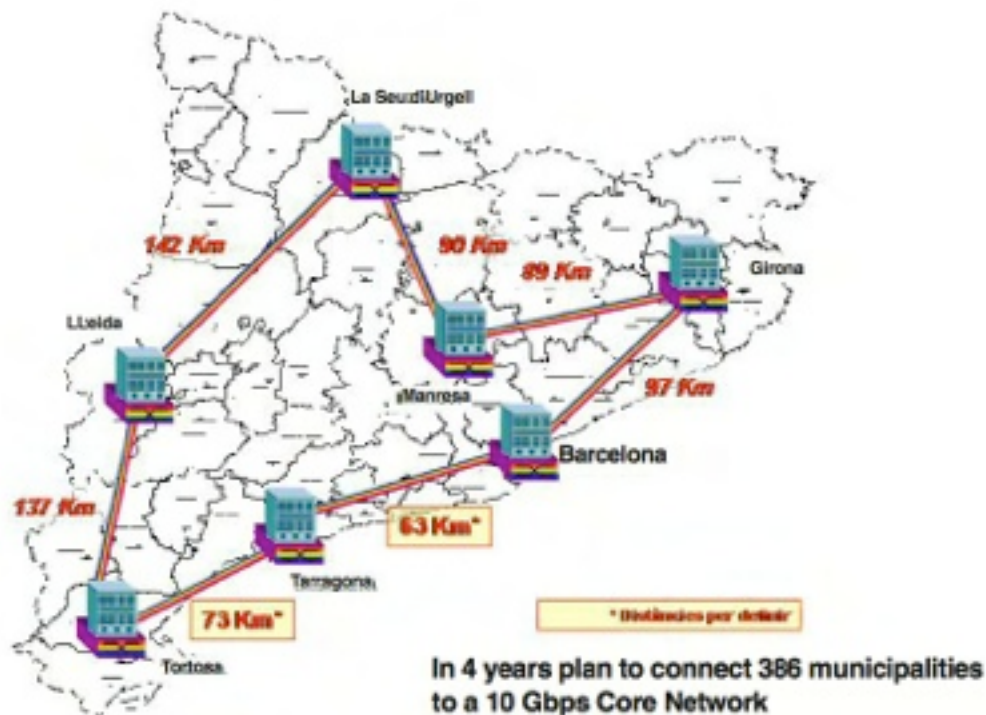
Figure One: "Core" Network Topology

Figures provided by Jordi Benasat from the June 30 Light Reading presentations and modified with help of Sergi Figuerola

Our headline "Building Regional Open Access Fiber Infrastructure in Catalonia (Northeastern Spain) In Interviews with Key Participants We Describe the Origins and Rationale for one of the Most Important Regional Infrastructures in Europe"; sadly prooved to be a far too optimistic take on where things were going.

In the following interview Ramon explains how the good intentions of the local administrations were subverted in part by their not realizing the role that would be played by the CMT -the Spanish Telecommunications Regulator .

LocalRet Was a Learning Experience

Roca: [**Editor's note**: Interview on May 12th] To understand what happened with Local-Ret, we must understand the economic and political and regulatory environment that existed in approximately 2000 as the new century began.

First, you must understand that with the liberalization of telecom in the late 90s it was no longer the duty or responsibility of public administrations to provide broadband services for the people they served. It is important to understand that in effect this meant that public administrations were blocked from doing serious activity in this area. With the introduction of liberalization, the official ideology maintained that everything would be accomplished by the "free market." It is important to understand this because, in effect, it meant that LocalRet's attempt to build broadband infrastructure for the people rested on a very shaky foundation.

Now public administration soon realized that the free market would invest where it understood that money was to be made -- that is in the cities are in wealthy areas where people have sufficient money to buy new and possibly expensive services. Public administrations in the rural areas saw that there would be no motivation for companies like Telefonica to invest there.

Public administrations were charged with managing local assets on behalf of the people who lived in the areas for which they were responsible. They managed roads as shared infrastructure.

Jordi Lopez to the left and Ramon Roca right at lunchin Barvelona May 10 2013

Working from this analogy, they thought why not build a neutral fiber-optic infrastructure connecting their communities over which they would let the so-called free market provide services. In theory this idea made complete sense. In reality what happened is that when a public administration decided to do this they found that they were faced with a different situation than the management of roads and highways.

Because this was telecommunications they had to go to different agencies to get permission. At the time LocalRet did not know it, but the journey was impossible. Why was the journey impossible? It meant, for example, that the CMT, which is the Spanish Telecoms Regulator had to give its guidance. And that guidance said that they must follow the market rules and those rules included prices set by the incumbents.

These rules meant that public infrastructure created by LocalRet would not be available at the true cost of what the public administration had to pay. Instead it would have to be made available at the much higher cost specified by the operator tariffs. LocalRet could build this infrastructure, but it would never be allowed to use such infrastructure to provide services according to what it cost to produce them because the telecom liberalization rules of the private market required that a public administration not be allowed to under-sell the pre-existing service providers. Because they come from the public sector, they

The Dragon gate at Finca Guell in the Courts area of Barcelona invites visitors to overcome and tame the impossible.

will never be allowed to compete with prices that make sense for rural areas.

So the public administrations were naively lured into a game that they could not win. They made a huge investment in infrastructure that was preordained to fail because they were forced to price it so no one could afford it. And then in the end the private players went in and gobbled up what the rural governments had invested. I think the biggest mistake was trying to do a top-down, led by public administrations, in an environment and under laws that really block them from carrying out to the public purpose of what they had traditionally invested in and built.

Casa Mila - the stormtroopers guard the monolith against those who dare to imagine a different future.

The **incumbent** has an absolute conflict of interest here and is motivated to do everything it can to keep control. As a public administration, if you ask me, you have two choices. One change the laws. Make it clear that in this new a free market there would be certain areas would be able to be different. Under new laws make it clear that In places that you the incumbent do not go we shall be free to sell control to someone else which very likely will not happen because the European Union there is no ruling in support of this kind of outcome.   Legal changes should be made to allow public administrations to work efficiently in building networks for a public purpose. Or you must allow the public administrations to try another way which is the bottom-up approach. That is to say work with local citizens to build what they want and will pay for. And it is only in this way that they will not face these kinds of limitations.

COOK Report: But wasn't LocalRet the company formed to take over and operate the infrastructure built by the public administrations on a neutral basis? That is to say wholesale access could be purchased by different services providers with different business models. But what then do we know about what actually happened

Roca: LocalRet was much more about building a network over an infrastructure than building the infrastructure itself.

COOK Report: But the infrastructure had to come from somewhere?

Roca: By Infrastructure I mean the rights-of-way and they were already there. The LocalRet idea was to build a network using those already existing public infrastructures.

But here is what happened, a lot of investment in building occurred but there was no real new competition because CMT allowed the pricing for the new network to be set at the very high rates that the incumbents desired. Secondly they demanded that some of the new infrastructure be put out to bid and, when this happened, the incumbents made their bids and very easily gained control of the new network infrastructure.

This permission was given to Telefonica in 2012, while two years earlier Xarxa Oberta had

been formed in 2010 to take over a total investment of €60 million.   Instead of realizing

As seen from the Park Guell with the Mediterranean Sea in the background, the Sagrada Familia summons the aspirations of the citizens to dream of alternative worlds. The inverted funnel allows natural light to shine on the altar as seen on the next two pages.

that pathway they were following was leading nowhere, they kept on following it. The legal framework in which they were playing resulted in Telefonica being invited into the room and setting a tariff so high that no local organization could afford to pay it and use the fiber for any kind of a sustainable local business.

Gaudi's architecture borrowed from and strives to harmonize with nature. Above is a view of the ceiling of the transept with the columns that begin tree like with massive trunk and sprout branches as they grow upwards like a forest. At right above the altar a whole is punched through the forest canopy 200 feet above.

Another complicating factor was that while the public administrations have the ability and experience of running local educational systems, they had no experience in building fiber-optic networks and were forced to go out to bid to telecommunications companies, that so to speak, let the regulatory foxes into the public administration chicken coops.

Theoretically you have built yourself a network but, to actually manage and operate it, you are forced to go out to bid in such a way that the only people with the technical ability to operate the network will be the telecommunications incumbents. Under such conditions, they immediately will go to the regulator and ask for the high prices to which they are accustomed and will result in the process that ensures the new network is priced so expensively that it is unable to find any business opportunity in the rural area that it was designed to help.

In other words, even though the public administrations could provide these services inex-

pensively, the fact that they were forced to go to the CMT and to operate inside the liberalized telecommunications markets controlled by the incumbents ensured that the incumbents would prevent them from offering the services that they had built for their rural constituents at competitive prices that the constituents could afford.

Telefonica in effect filed a complaint to the European Union that public monies were being used to undercut the ability of a private corporation to offer services.

COOK Report: This was a situation similar to the one faced by the City of Amsterdam when, in approximately 2007, it won a lawsuit allowing it to proceed with the building of it it's own city network. Here the problem was that LocalRet did not frame its strategy in a way that would allow it to overcome the opposition of Telefonica and the regulator.

Roca: Yes and another problem for Spain occurred that when the telecommunications market was liberalized, in most countries there were at least one or more competitors ready to take on the incumbent. But in Spain after liberalization there was still only Telefonica and Telefonica was absolutely not ready to compete with itself.

However, the old regulated infrastructure became useless for the next generation networks because it applied to the use of copper. For the kind of real applications needed after the year 2000, copper was useless. Regulating something like copper that is basically useless was a complete waste of time. Everything was very very slow and by 2006-2007. LocalRet ran out of money because the regulatory process was taking too long.

There were more demands on them than they had resources to fill. Raising local taxes was impossible. Where are politicians began to tell will raise the question of being careful not to do harm to the interests of Telefonica because the financial strength of this company in places like Latin America was important do the economy Spain.   As the polticians ex-

plained privately to Jordi, Telefonica was expected to be an economic force outside of Spanish borders and to expand successfully in areas like Latin America. If it wanted to take over LocalRet Jordi better not stand in the way

Companies like Telefonica up are very powerful and allowing them to have too much influence is not a good idea and hence we need a regulator to balance that. But we quickly found issues of regulatory capture because of the size and political and monetary influence of Telefonica

COOK Report: So what you were saying is that we found out today at lunch with Jordi in Barcelona, that some time around the explosion of the financial crisis in 2008 the lobbyists from Telefonica a came into the picture and said to Jordi the game is over. You won't be getting additional money needed to complete

Sagarda Familia at sunset on May 2 2013. There will be a nearly 200 meter tall central tower.

the project and it is time to put the infrastructure that has been built the network itself in effect out for public bid. The private sector must be allowed to finish the job.

And Xarxa oberta was awarded the infrastructure that had been built up to that point in time?

Roca: Not just infrastructure but also money. The problem here as Montesquieu warned against 250 years ago was the absence of a real separation of powers between the executive the lawmakers and an independent judicial system that would see that the laws work carried out in a fair and equal way,. In telecommunications competing entities were created but there was no one in control of how much influence and political pressure the stronger and better positioned entities could exert over the weaker ones which in this case were the entities of the public administrations designed to serve the interests of rural populations.

COOK Report: And so LocalRet allowed the successful respondent to take over the infrastructure but also it permitted them to take over the remaining financial support of that infrastructure. Another words in allow them to take over the public funds that had been designated to be spent foreign infrastructure to be used for public purposes? How could that be?

Roca: Political power. In fact in the most recent bid there were terms for Telefonica to connect every building every administrative building of the municipality to the fiber network but not to connect to any of the homes or apartments of the citizens in those municipalities.

COOK Report: That is really bad. The average citizen will likely have no idea what is really at stake.

In Park Gell art, and music serve a public space that do it ourselves telecom is determined to reclaim.

Roca: Not only the average citizen, even the elected politician will find it difficult to comprehend. *Public goods like education and health care are easier to understand for everyone than is the infrastructure that is the means of modern communication*. What they did not realize was that the fundamental basis of telecommunications infrastructure at the level of Brussels have been already privatized in such a way that the addition of

public resources to this privatized area really would be unable to produce any change in the legal situation. No one really understood that they were using public money to add to and build on a foundation of resources completely controlled by private interests.

It Was Necessary to Change the Basic Law

No one really understood that if they wanted to do something on behalf of a public interest, they could not do so unless they changed the basic public law. They tried to build a new public oriented infrastructure but they essentially were doomed to failure because the fundamental law telecommunications of the country and the European Union gave control over any Infrastructure, no matter how it was built, to the incumbent.

COOK Report: Even if you were a Canadian company named Axia.

Roca: And what was in interests of the executives of this Canadian company? They believed that they had the opportunity to become the incumbent telecom provider in Catalonia. But after a year they realized that, as long as Telefonica was in the room so to speak, they would get nowhere. And so now they are trying to figure out an exit strategy. Axia wanted to come here not to create competition but to become the incumbent. And, other than wishing, there is no one doing anything to build new infrastructure.

In Park Guell, the concept of the commons still survives. Gaudi built his passageways to harmonize with nature rather than conquer it.

Now Xarxa oberta does offer bandwidth over its fiber at a much cheaper price than Telefonica. However from our own experience we can lay our own fiber, light it and provide bandwidth at a tiny fraction of the cost

charged by the foreign owners of Xarxa Oberta. We build from our users outward to the internet when we have proven demand. There are empty conduits over the whole route of Xarxa Oberta that we would like to be able to use. We would also be happy to connect local schools that Telefonica had been paid to connect and then never did.

There are no publicly available map's of exactly where the conduits and the fiber are. But it is possible for example to drive up C-17 and if you know what to look for it is very easy pick out the location of the fiber and the conduits. I have done and pointed it out to the local administration after they told me they were sure that nothing was there and then when I showed them they said: "oh now we see. Don't worry. Don't do anything. We will find out who would belongs to and when they do they will come back and tell you."

When the infrastructure was being built of course the Municipalities knew where it was. But after it was built, the charts and maps were filed away and there was no one left in charge of answering questions from the ordinary public because there were no legal requirements that this be done.

To satisfy our current fiber requirements we have actually had to become a customer of Xarxa oberta. We were forced to deal with them on a nondisclosure basis and there is no kind of public website where you can find out anything about who their customers are or what kind of business they are conducting. They are doing their best to hide as much in-formation about what they are do-ing from the general public as they possi-bly can.

The good thing is that since this process we are developing is bottom-up, it means that it is possible to get our local neighbors to-gether and to make and im-plement a plan of action for ourselves.

In Park Guell art, and music beckon the citizen to the goal of self-determination as more than a century later guifi.net and other networks described here in carry on the ideal.

Now if you go top-down as I explained, the legal framework of telecommunication regulation was not in favor of what we wanted to do. But if you go bottom up, it looks to me like the law becomes in favor. *If we can enforce current local laws that are on the books, laws that require municipalities to use physical infrastructure under their control in the most cost-effective manner possible for their local population then we have a solid foundation for action.* Now from the point of view of bottom up, the difficult thing becomes the need to coordinate all the would-be users and participants and get them to contribute resources and money and agree on a unified plan of action. Coordinating our users in a unified plan of action is the real challenge. If we fail we will fail, it will be because we have been unable to do that.

In our bottom up broadband initiative we absolutely want to be able to describe all the problems we encounter and for our description to include a recipe or a handbook of how to go about solving such problems.

Sarcred and Secular: Gaudi's Sagrada Familia

A cathedral unlike any other in the world.
The Barcelona of Gaudi is a city of dreams, of demons, and giants. And of humans daring to be great.

Sacred and Secular in the 21st Century

Ramon's Supernode

The supernode tower is in a separate shed in Ramon's back yard. Guifi.net "headquarters" is Ramon's office in one wing of his house.
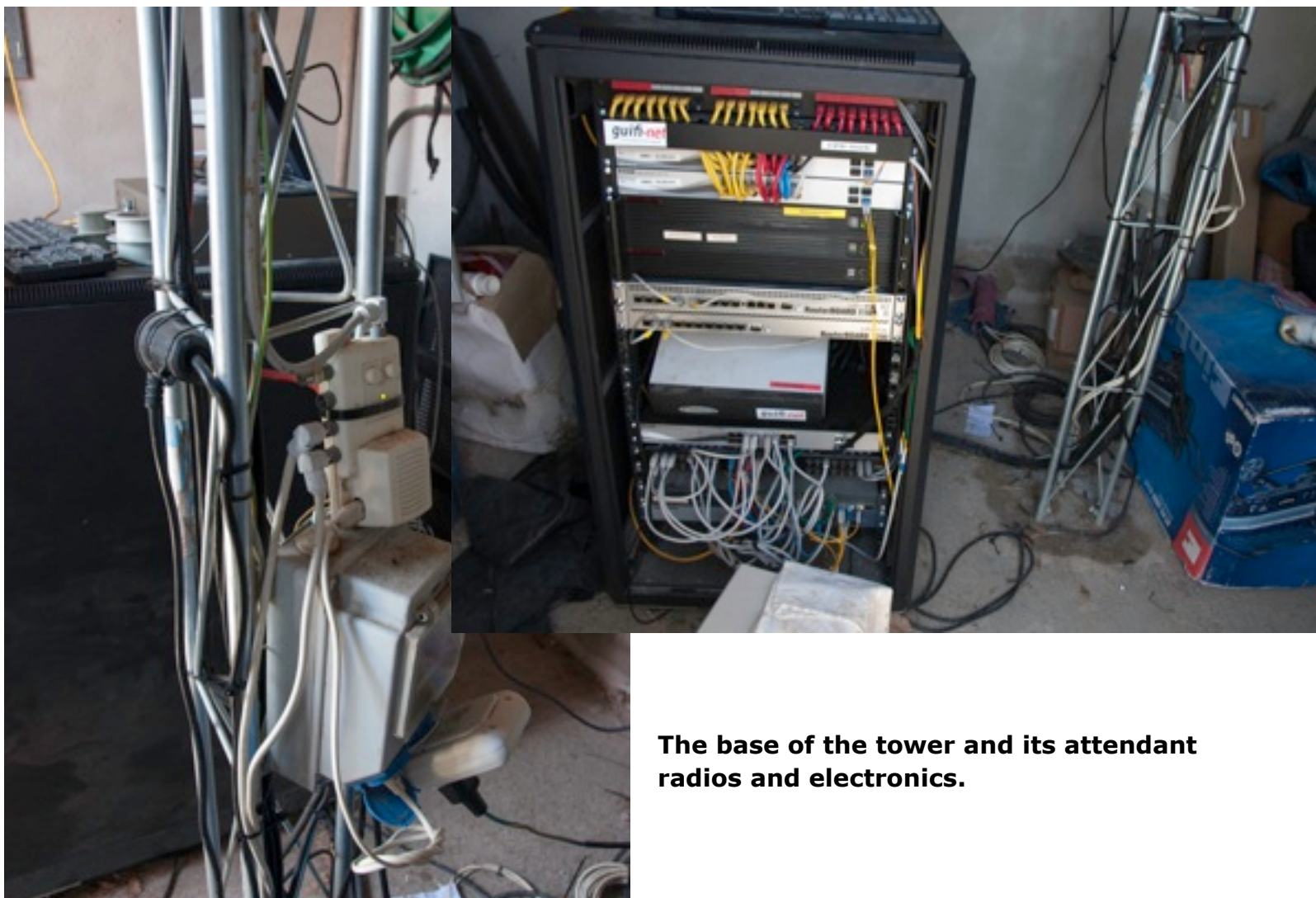
The base of the tower and its attendant radios and electronics.

Isaac contemplates not a golden idol from the temple but its 21st century equivalent - the source of information abundance - a multi strand fiber cable.

What's going on here? The Business Model

Two cabinets for fiber optics. One in Ramon's office the other in his garage.

Guifi.net's radios establish a layer 3 network. Rather than ad hoc, they use their own protocols to establish a fully routed layer 3 mesh.   Any extremely knowledgeable user of a node can send data over that mesh essentially for free. To join the mesh users must buy, and install, and connect their ra-

dios to the mesh.

For most users the routed layer 3 mesh serves as a platform - one that enables close to 100 installers to have businesses installing radios for those not so technically savvy. Installers can also use the mesh platform to offer their own Internet access and services and to become in effect Internet service providers for which they provide logins, email, web service, and global Internet conductivity for a fee.

Guifi.net is an open access platform held as a commons - no one Owns it -   but

the community builds it -- like towns of some centuries ago who build their own churches, and derives sustenance from it that circulates within the local community rather than pumping money into London and Wall Street on behalf of anonymous "shareholders." Radios provide abundance but fiber provides several orders of magnitude more and Ramon and his colleagues are hard work at rolling out a strategy that will enable the local population to install their own fiber to their homes and businesses in the manner of old-time barn raisings.

Ramon shows a spool of inexpensive fiber that the local cooperative ordered from China.

The Ecology of Guifi.net

Understanding the Network as a Complex Business

Roca: *Now as guifinet continues to grow, I have come to realize that what is necessary to nurture it is beyond my abilities as a single individual*.

To make Guifinet flourish, lots of different things must be done. We need many different kinds of people. We need, of course, users. We need technologists to interact with users. We need people with economics backgrounds to look at our sustainability–we need far too many things for me to do it on my own anymore.

Now you correctly identified many different kinds of tasks that have to be done and mention Artur Serra as an anthropologist who can understand this complexity and these needs in a way that purely technical people probably cannot. I myself do not have all these necessary skills. But I realize that, now and in Guifi.net, we are looking for people who can make such contributions.

COOK Report: Why couldn't Serra take some of the resources under his control and combine them with your efforts to make Guifinet even stronger? To unify the various elements about which we are talking in order to make a strategic vision for Guifi.net happen?

Roca: Guifinet is bottom-up and no one can do everything to make everything happen but individually we can all contribute. But what is really foolish is to think that one person can do everything. Speaking for myself, all I can do is do my very best in the areas in which I have skills but I'm sure there will not be enough time for me to do everything that needs to be done. Right now I am, responsible for too many things. I become a bottleneck and when that happens, we are no longer bottom up.

It is true that I2Cat has infrastructure that could be very valuable for us but in the past we've had some discussion about cooperation and never could manage to come to a rea-

sonable agreement.   Any agreement with them was always going to cost us a significant amount of money.

Now in this context of figuring out strategy and long-term planning, let me show you some things that we have begun to do in the last few weeks.   Let me explain about bottom-up broadband. It is not just technical. It will also be legal and economic.   There are lots of points of view from which to look at it. And this is what I mean when I say that I cannot do everything. As a result of this realization, we've been having discussions with economists who help people build business models and are not particularly technical. We are entrepreneurs in need of coaching. And we were getting this coaching from economists.

Xarxa means network in Catalan. So the title of the slide below is the Eco-systeme of the Network of the Commons. So what is the eco system of guifinet?   There is an access network and a backbone network.   When we are describing our network for people, our access network for example, we depend on installers and maintainers, and we depend on content providers and service providers to do their jobs. Therefore, when in this case everything is provided to a network held in common, you must deal with the intersection of the common backbone and other regional transport networks that are in the public domain. The boxes in the diagram below represent his intersection.
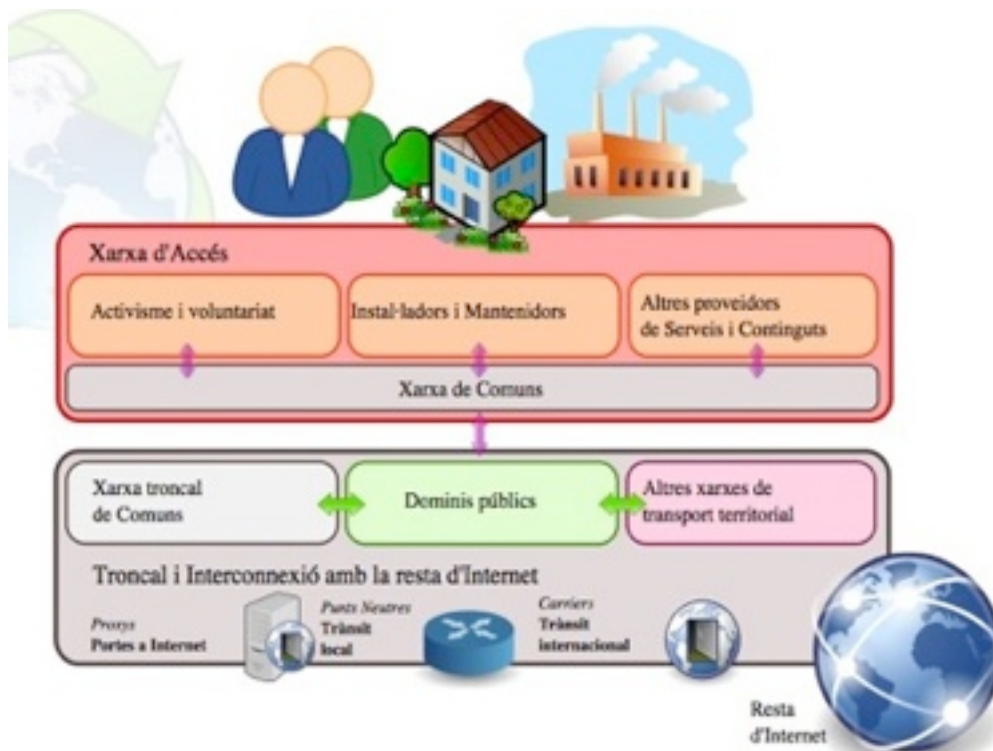
Now if I want more information on everything that makes this complex ecosystem work, I can click in each of the boxes. For example when I click on installers I get this: Proxim telecom, a Guifinet partner that is a Telecommunications operator. An operator that deploys a common network, maintains it supports its users and offers services like telephone and TV, over the network.
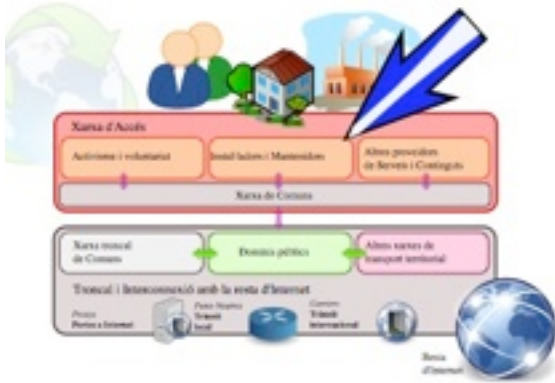
Now there can be many providers of telecommunications (IP – over the network) as there also can providers of services over IP.   Therefore a click on the third light brown box "other providers of service and content" and you get an example of such an "other Provider" in this case Easy Cloud.

Click in the are of the access network, the backbone [troncal] or the access to the rest of the internet and you get the Guifi.net Foundation, a non profit organization that holds everything together.   It's main functions are to promote the Network as a Commons; to assure that it is a free, open, and neutral and to resolve conflicts of interests and to ensure that everything works well together.   Guifinet is there to address the network as a commons and backbone as a commons. the points that are touched by each arrow below.

These are examples of the participants in the eco-system. Now you will see that for some of them there is this ICON that says in catalan "strategic orientation." This is because every single actor or role that is played out in the eco system may have a different business model. to which is applied the following process of strategic orientation
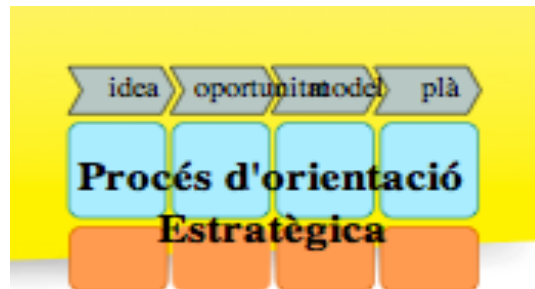
Now lets look at the one for the Foundation. If you click on the bottom left [shown enlarged above], you get a process. Now what is a process? You need an idea – top left - and in this case you must look for user needs, ascertain user dissatisfaction, and summarize what you will do within this situation in order to have an outcome that can be seen as an opportunity. The opportunity is the second stage in your plan.

The Strategic Process
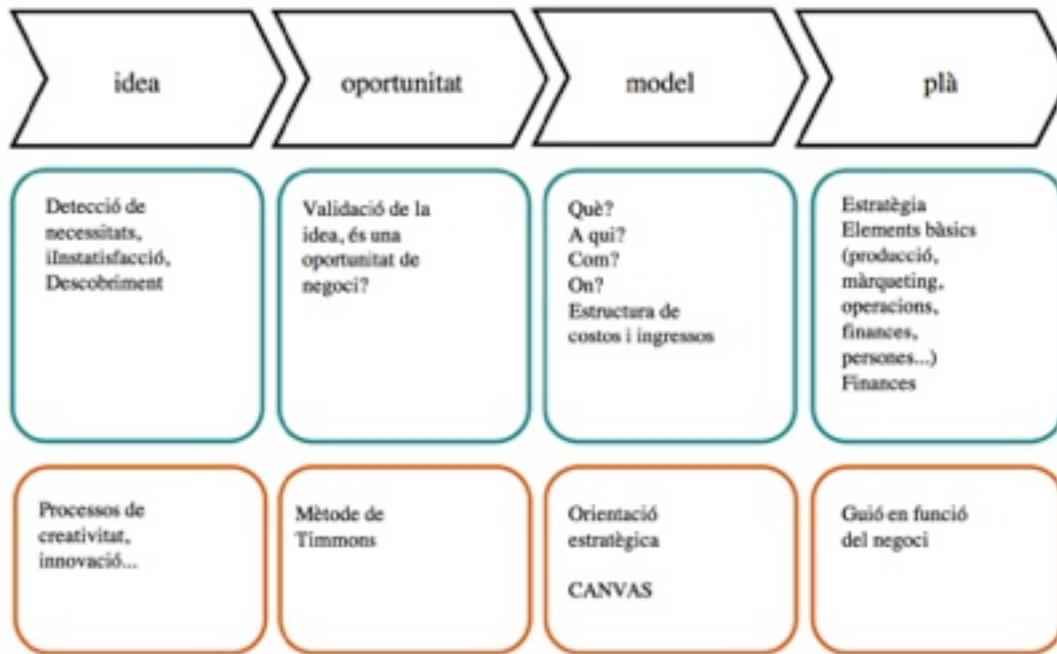
In looking at an opportunity, You must then validate your idea, that is to say answer the question of whether or not it is a real business opportunity

The purpose of this strategic orientation icon is that every activity must represent an idea that must make sense and has to be sustainable and philanthropic. The idea must be portrayible as an opportunity and with that opportunity we can describe a business model and then a plan as you proceed from left to right in the diagram above.

And what follows now shows the more general high-level approach.

You click here to see an analysis of this opportunity via the Timmons method.

Looking at it this way, then you are forced to analyze whether it is really important, whether there is a market and at what price.? Can we attain a competitive advantage by charging for it?   Then having asked the Timmons questions about the business model idea, you click again to see the suggestions from applying another model known as Canvas.
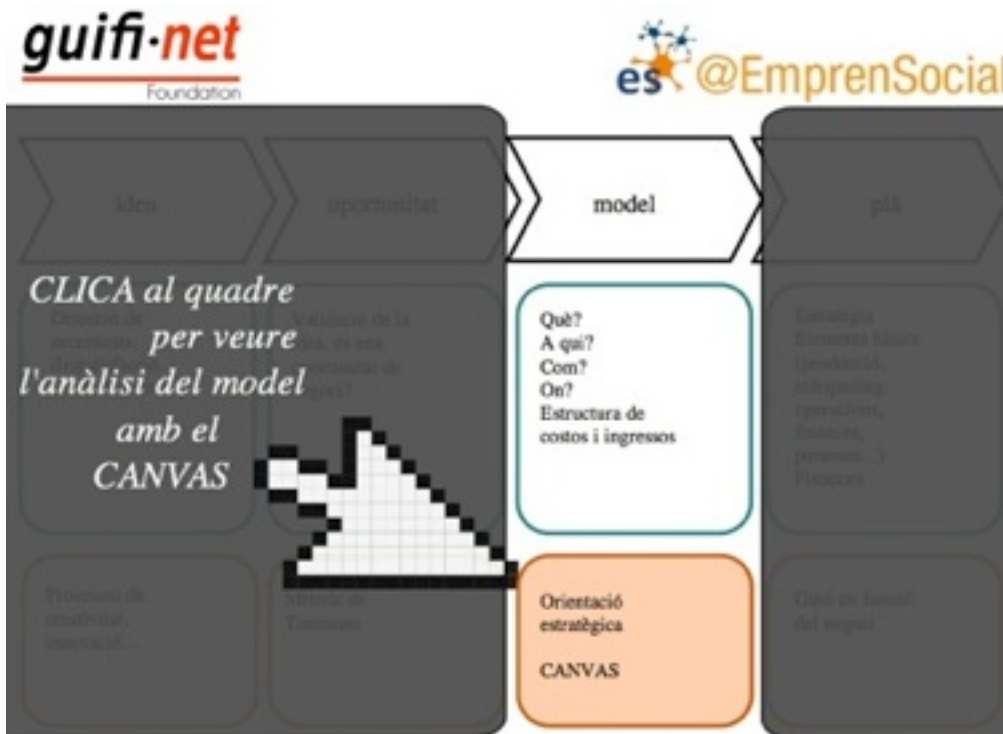
With Canvas you look at an actual plan to move forward.

A Way of Thinking

This is not magic but merely guidelines for logical thinking. For example consider LocalRet. If they had done this analysis, they would have seen that there was an opportunity but also that there was no way to get a competitive advantage. A look at the conditions in place would show the near certainty that attempts would be blocked by those in a position to deny this change. They would have seen that regulations in place would prevent their economic strategy from moving forward.

Once you answer these three questions, then you must look at what you need to understand about the team you have to work on the project. Are they adequate for the task at hand? Do they have the knowledge and the capabilities to translate the opportunity into reality?

Is an idea good? Well you have to try it and there is a method known as the Timmons method that, when you apply it to an idea will tell you whether it is an opportunity. CANVAS is a methodology used to describe and evaluate a business model. The plan is how to

carry out the business model. Let's then apply all this to the Guifi.net foundation. Click on the box that says Timmons method and below is what you will see.
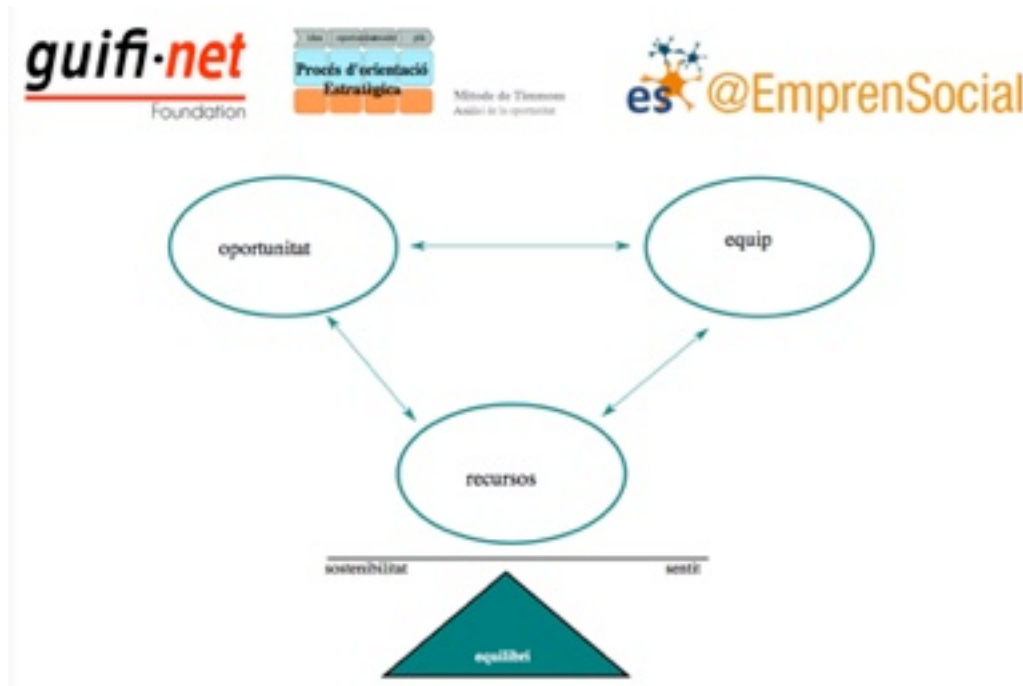
Now the Timmons methodology says that for an activity to work, it must make sense and be balanced and sustainable. To the top left is the opportunity. To the top right you have the team and to the bottom center you have the resources. The three must be balanced. If you have an opportunity but an insufficient team or resources, the effort will fail.

So when you click on opportunity for a Network founded on a commons infrastructure, you get this

You take the idea - is there a market to connect to the internet a network that we build that is free for everyone?   Do you have a team with enough people and enough knowledge and different capabilities to make the opportunity become real?

We will say that as long as we can facilitate cooperation among many different people, we can succeed.   But this shows us both that we cannot do everything alone. Thinking that way is a very common mistake made among community networks. Very often they want to build a wireless network in a city but they have only two or three people.   In other words not a large enough team.

Finally resources. What resources do we need to carry out what we want to do?

What then are the resources we have at guifi.net? Ten years of assets already created by our activists. We have already a network. And we have already some critical mass. By

aggregating all this, then maybe we will have what we need. This forces us to think in a logical way about what we are doing. We have the necessary participants to engage in crowd funding and work on behalf of "bottom –up broad band." And the strategy conclusion is that we must strive towards enabling all the participants in the ecosystem to aggregate their efforts in crowd funding and bottom up broadband. This is the way we are addressing the opportunity now.

Unfortunately in LocalRet eight to ten years ago it was decided to spend municipal money on fiber ducts between towns without an analysis or planning as to what would be done with the fiber and the conduits in the ground.

This then is the Timmons method applied to our situation and we have used it only to analyze the opportunity.   We know the opportunity – our weaknesses and strengths. Therefore, the next step is to create the business model. and now we are going to look at Canvas. That is another methodology

Canvas

You need then a balance sheet.   On the left hand side you have activities that produce things.   These are things that are given to your clients; your participants.   You have to reach your users.   In the middle is Oferta – what you do must provide value to someone. On the right is the sale of what you produce.
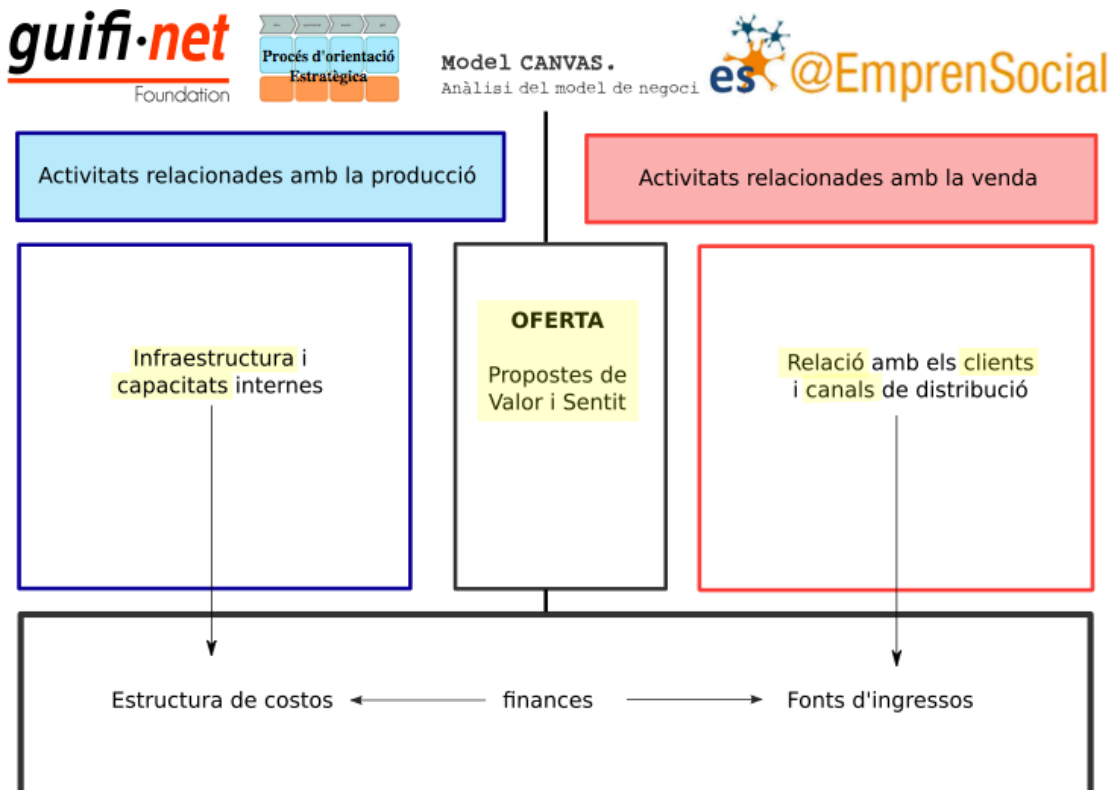
And then on the bottom you have financing. To produce will cost and you have to get income from your users. The cost of your production has to be covered by the people who are deriving the benefit of what you are doing. You may have a very good product, but if it has no value for the users no one will buy it.   You will have expense but no offsetting income.

Next is the value proposition – does your objective make sense and what does it produce?

Here then are our key resources that are necessary to our ability to function and be successful.

They are – a next generation network with supernodes and network backbones of radio and fiber; and regional exchange points; self-service communication tools for users.   Finally R and D by means of open innovation development groups and key partners such as living labs. Investor, professional services public administrations and users. The writing in red says it is key to produce something with the partners that are appropriate to make your effort happen or look at your situation and understand the capabilities and resources necessary to make it happen and without which you will fail.

So what do we provide by way of customer relationships?   With the network as a commons we provide freedom to our users that no competitor does – looking at the issue of digital divide we also provide better quality for less cost. Consequently we definitely provide value.

Now let's look next at relationships with your clients and channel of distribution. We are providing internet to everyone. For example a content provider working with us may be interested only in providing a specialized form of content to a very specific group. but in our business as a foundation we are trying to provide internet to everyone.

Now lets look at the channels we want to reach.

We use direct channels through internet with web forums, mail lists, social networks; and with in person work by volunteers, making speeches at gatherings of people both users and non uses. Indirect channels means using our partners to reach the users. Also we have no money to advertise so we rely on word of mouth with happy users recommending us to their friends.

At the very bottom right we find revenue streams

Where does your revenue come from? From the people who invest in building the commons and with funding that comes from the European Union. Our general funding comes from people investing in infrastructure. To join the network you have to pay for a radio and either install it yourself or pay a professional installer to do it for you. To get a fiber connection you must pay 1000 euros. Next is infrastructure and capabilities.

But then at the end you must also examine your cost structure.

We need to understand how we will produce income and spend what we make. recurring expenses include fees for RIPE and CATnix, for international and regional transit bandwidth and rental of space for equipment and people. Salaries for management, for R and D and administration. Capex is investment in the deployment of the commons network and additions of new equipment.

No one in LocalRet had this kind of a business model. All to often when someone says "I have a business model" all it means is a drafts of a few ideas and some numbers in excel. Yesterday in talking with the guy from the public administration in VIC I asked how many houses they had. He said 10,000. He suggested that Vic could do it very fast. I reminded him that the total cost would be ten million euros. That gave him pause. Now if we go forward directly, we would not try to build all at once, but I know that, if I go house-by-house, I can raise the amount over time..

I know precisely how I can do this because I have a business model that is proven over time. You are a public administration that has never done this before. How can you tell me you will be faster when you have never done his before? It is true that we go slowly. But tell me: do you have ten million euros to announce a grand new project? As for myself while I don't have ten million to put on the table I know that citizens will buy and if they don't have the thousand euros they will find a way to finance it.. But I know that I can do this because I have done it. I have a business model that is competitive but you have nothing other than political promises. But you do not have the money. How therefore can you tell me you will be faster?

COOK Report: But you want to serve them. On the other hand if they took the leadership role there would be risks that you would be dragged into decisions that would be made by the regulator that would create other dominos that would fall. Why do they think they should take the lead? Because we can do it faster and as you re showing me you had a counter argument to give him.

Roca: yes.

COOK Report: What do you think will happen?

Roca I don't know.

COOK Report: But if he doesn't go along with you, you will focus your efforts elsewhere.

Roca. YES! I was very clear about this. It is like Jordi with Xarxa oberta. He was saying you will all be users and everyone will be very happy. And VIC now seems to be replicating the same story. I also pointed out that unless there is a change in many Spanish laws whatever money we invest as a municipality will not work out because we would find ourselves forced to charge higher prices. The reality is that very likely another private company would wind up deploying for its benefit the fiber that public funds had paid for.

This is one reason to use these planning tools very carefully because it looks as though no matter what we do we will not be able to be competitive because prices will be fixed by someone else. What you are doing is putting together money and resources that will end up benefiting a private operator and not the public.

Below- a supernode at the municiple building in Vic.

COOK Report: It seems clear that any global organization that we form must offer this kind of services

to its embers.

Roca: Well this was done just in April of this year by Lluis and Empren Social.

When you click on Empren Social you get this:

guifi·net Foundation — Procés d'orientació Estratègica — Model CANVAS. Anàlisi del model de negoci — @EmprenSocial

We have done the idea, the opportunity, and the business model but not yet the plan.

The Operation and Governance of Guifinet

COOK Report: By 2006-2007 guifi.net was growing enough so that you decided you need more organization – which organization involved a Foundation and a Board of Directors. Would you explain how that happened?

Roca: We had some encouragement to do this sort of thing from local enterprises in the area. Businesses that wanted to use our services but needed to be assured that we were more than just a hobby organization and would continue to be around for as long as they needed us in the future.

Reason for Having a Foundation Board & Qualifications for Members

They helped us get some legal advice from lawyers in the area and make a decision about the legal structure that we would use.   Our major criteria for deciding on structure was the necessity to preserve the organization of guifi.net's commons and do it in such a way that no outside entity could ever take control of the basic infrastructure.   We wanted to be certain that all assets under our management could not be put up for sale where someone else could purchase it. To achieve this, we realized that our basic structure had to be legally operated as a **commons** where it belongs to the members of the organization who are free to use it as long as they are blinded by the terms of our license or the use.

We found that the only way to establish a legal structure for the control of guifi.net was by means of a foundation. To establish a foundation we had to write bylaws for it and had to stay course that it was non-for profit and had to clearly state the purpose which was to be building networks as a commons. And as a board we nominated just five people.   We chose an odd number of people to ensure there would be no possibility of a tied vote.

Qualifications for becoming a member included a thorough knowledge of what operating a network as a commons meant. Also that there also must be a minimum difference in age between the oldest and youngest board member of some 15 years.   At least one member must reside out of Spain. There is also no time limit to board tenure. We were not trying to set up a democracy.   We were concerned that at some point the majorities would be more concerned about their own interests and not about the interest of any minorities. We wanted to avoid if at all possible situations of the majority versus the minority.   In other words a situation where a large number of users in cities could now vote the concerns of users in the countryside where we began after all. This is what we mean by being careful not to become too Democratic.

The structure we choose was really the byproduct of our legal advice.   The lawyers told us that if we have a clear objective, what we needed to do was write down well-defined by-laws and forget about changing board members every four years. We had to decide whether it was important to be democratic and neutral or to have a clear objective of the purpose of the existence of the organization and to **create a structure that would make it maximally possible to maintain that organizational objective no matter what happened in the mean time**. If you had a board made up of the mayors of various cities and towns, these people would change every four years and it would be difficult if not impossible to maintain any kind of political and economic continuity and stability.

We decided we wanted something that would be forever rather than subject to the political stress of the moment and this was one reason for example why we required the difference in age of members of the board.   A board member can be removed by majority vote of the members.   Our structure does not force people to buy a membership or pay a fee and our thinking is that if we became completely out of touch with the interests of our members that is our user community they would get together and replace us with a different structure.

COOK Report: Who then were the original members of the board?

Lluis Dalmau and Ramon Rocha at brunch on May 11 in Santa Cecilia de Voltrega

Roca: Lluis Dalmau, Ramon Emblas, and Gil Forcada.

Lluis Dalmau works in a secondary school. One of the written conditions in the bylaws specifies that at least one board member has to be a professional within the educational community.

Did you meet Leondro Navarro in Barcelona? He is the head of computer collaboration at the UPC technical university in Barcelona. His support was critical to our being able to receive grant funding from the European Union.

But going back to Lluis.   He is skilled in organizing and he takes care of our accounting. In the beginning we depended solely on volunteers. Now we still do but also have some workers.

Ramon Emblas is another board member. He is elderly and has suffered from cancer and at the moment is not extremely active.   Ramon's career has been in the IT industry but he has never been an installer. It is another part of our by laws that you cannot be a board member if what you do professionally would place you in a conflict of interest.

Another is **Gil Forcada**. Gil is in Berlin. Gil is young. He joined us as a teenager period he was with us from the very, very beginning.   He is Catalan, working in technology and found himself a job in Berlin. He participates in meetings remotely and electronically.

I am a member and there is currently a fifth person whom I do not want to mention and who because he is in a conflict of interest position now will probably not be with the board much longer. In effect we have a vacancy and I hope we will fill in for the summer. One of the candidates is Pablo but I'm not sure we can convince him to serve.   The other candidate is Landrieu, whom I already mentioned.

COOK Report: how would you describe the function of the board members?

Roca: We try to have our board members do as little as possible.   And to be intrusive as little as possible.   That is why we don't force people to pay fees or buy memberships in the foundation. But as we grew, we found we could not avoid conflicts of interest. We ran into some situations where people claimed to be working for us and acting in accordance with our principles but instead of building networks as Commons they were actually installing proprietary networks

COOK Report: For example if there is a dispute amongst installers the board will have to step in and arbitrate such a dispute?

Roca: We will only jump into a conflict between installers if they are not able to resolve things on their own.   If they want to keep this from being involved, it's very easy, all they have to do is reach an agreement.

If they cannot reach an agreement that protects the commons of the network, we open a procedure: first to be sure that there is a conflict.   You know it's very curious as part of our conflict resolution procedure, the first thing we ask each party in writing is to state why they think there is a conflict to begin with and very often when there paperwork comes in it seems the conflict is disappeared.

But when the conflict has not disappeared, very often on the part of one party it is a statement that says in effect my opponent is doing this this and this and what he is doing is contravening the commons.

COOK Report: but in reality you can come back and ask them who are you to make such a judgment and why do you believe you are correct?

Roca: Yes and we force them to put the full story in a report to us. We ourselves do not decide.   We get the informa-

Page above is the band for the folk dance competition in Vic. The dancers compete by rythmic foot tapping in time with the music and in synchronization with each other.

tion and then send it to a professional arbitrator who is a lawyer. Someone whom all parties trust and whose decision will be accepted.   We have a group of these on whom we have been able to rely.

COOK Report: So your guifi.net professionals are your installers and their associated operational people who keep the network running and growing.   When you have issues with distribution of IP numbers or issues involving routing of traffic.   How does that work? Who takes responsibility for solving that? In a sense I used to wonder where is the network operations center?   Well it's right down there in your garage.

Roca: Yes. That is true but we also have other places of connection and installers who can assist there and we have a group called GLIR that keeps critical information in accord with European privacy laws.   Now, in terms of some of the private contracts in which we are forced to enter, having these European rules is helpful.

For example we have had to become a customer of Xarxa Oberta which forced us to keep the terms of our business with them secret (non disclosure.) Now in the case of Xarxa Oberta, they are managing public infrastructures and I don't think in such a situation this kind of behavior can be justified.   I know they are charging me their published prices.

But with their ability to not disclose how do I know they are doing this with their other customers?   I would like to be able to check a public resource and be sure that the price they are charging their customers iis a nondiscriminatory one.   Their prices are regulated by the CMT and, because they are, the details of those prices and contracts with their customers should not be able to be hidden.   But nevertheless they do hide them.

If I want information about whether they can give service from point A to point B, and if it is one of their published routes, I may get it easily but, if it is not, they will force me to sign a nondisclosure agreement before they will answer my question.

Now I have here a tool on the website which you have seen.

COOK Report: Is this your technical management group?

Guifi Share Technical Collaboration Groups

Roca: Yes. we have several such.   This is a private suite of collaboration tools that we can use to share information**.** We can have private electronic dispute resolution conferences. We also have document library with all the folders necessary to support the dispute resolution process.

At the bottom of the screen shot above is a list of the available collaboration web sites of which I will show you a few. Editor - the names amnd links reproduced immediately below.

CONFINE   Projecte CONFINE

Commons4EU   Projecte Comons4EU

[Fundació guifi.net](#) Espai de treball de la Fundació per la Xarxa Oberta i Neutral guifi.net

[GLIR - Privat](#)   Espai de treball del GLIR - NOC

[Instal·ladors](#)   Espai col·laboratiu i repositori per a la redacció de projectes per a Instal·ladors i Professionals

[Jurídic](#)   Repositori de documents Jurídics de guifi.net

[Projecte guifi.net](#) Espai de treball per al projecte guifi.net

Then we have work spaces for various guifi.net projects The menu in the screenshot on the page below says welcome to the work-spaces of guifi.net.
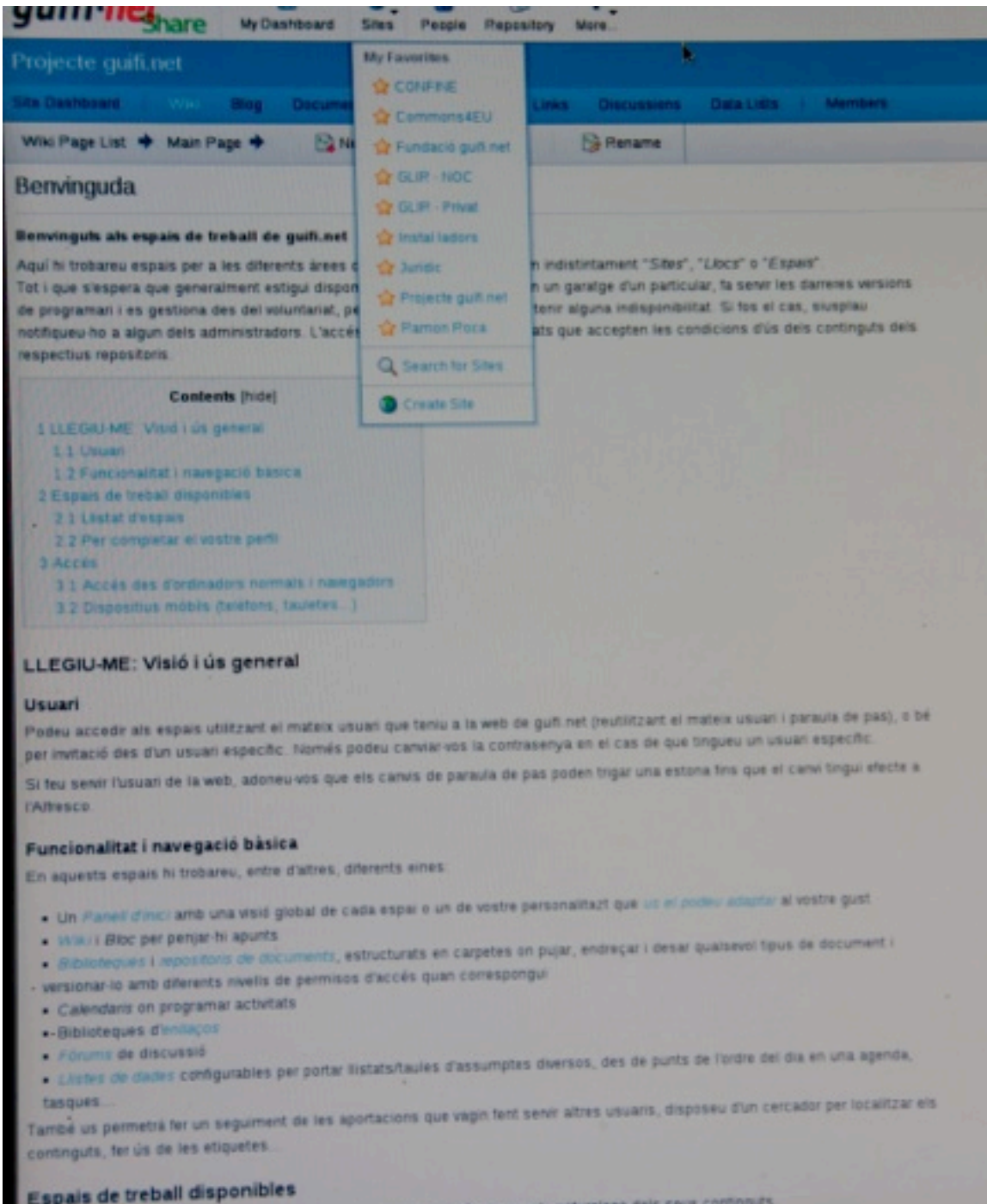
The Document Library

We store all the documentation here. For example if I go to the conflicts folder, I will find all material relating to conflict resolution. We send a formal letter asking the aggrieved person to explain what happened. Although at the end, the decision is made public, the process itself remains private. So here for example is a letter sent by myself as the President of the Foundation and asking three questions. I pointed out that I had sent an earlier response asking four questions but that I had not seen a response to any of them. I had to tell them that response were needed to these four points and explain that shifting the discussion to political issues was not acceptable nor was the offering of opinion useful. I know that we all have opinions. What are needed are the facts and only the facts. I have to remind them that what they do must respect the network as a commons and leave personal advantage out of the picture. Finally, the
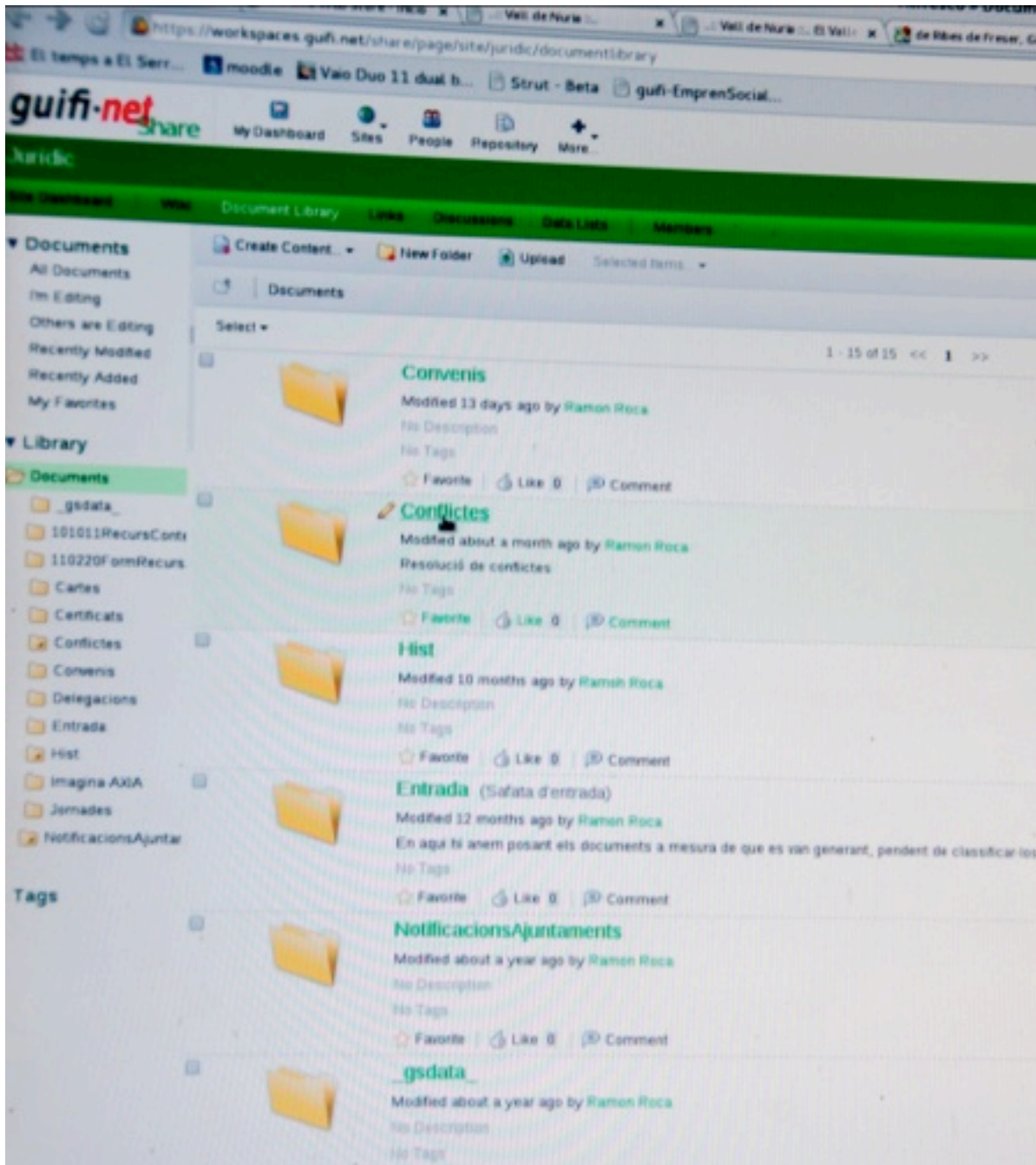
resolution framework will be based on respect for the commons and the decision of the arbitrator.

The GLIR and the NOC

There are other groups here. For example for managing the "gilliar". That is the Group of the Local internet Registries: GLIR and network operation centers NOC. Now the guys with the title collaborator in the site member box at the upper left are those who help us manage routes and IP numbers. These are technical people and not lawyers. Consequently we create several groups of interest that are composed of people who are willing to work on that and contribute to where they have expertise.

When I log in in the box at the lower left in the picture above, I can see the traffic at our inter exchange with Cogent. We have different tools to be use in monitoring our links.

We have 35 people who use these tools to monitor what is gong on and who serve as a distributed network operations center to keep our 22,000 nodes running well.
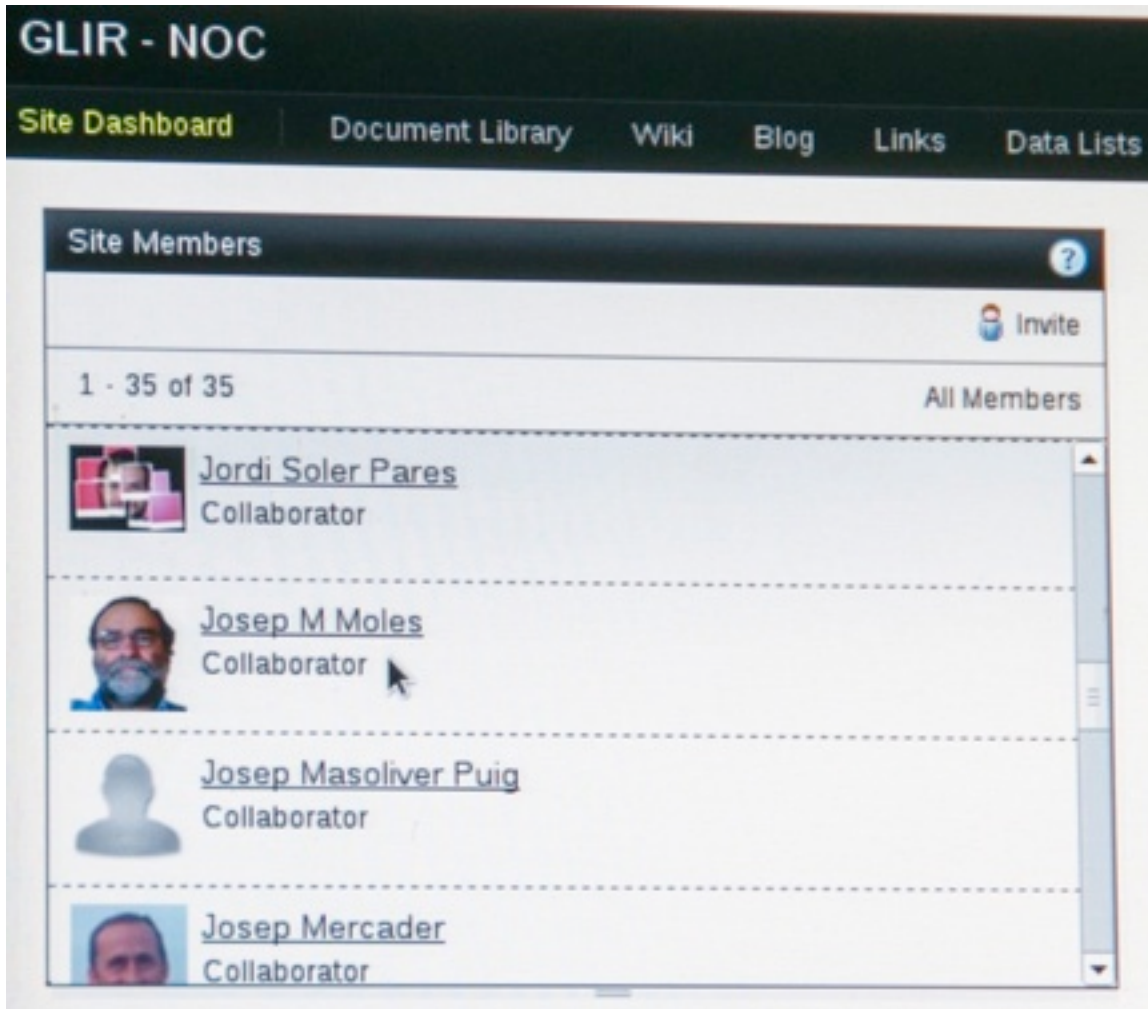
These are people from all across our service area in the Iberian Peninsula. Guido from Alter Mundi is also here.   He is a part of the group since for many years he is a trusted friend and user, even though he lives in Argentina.

COOK Report: The equipment being managed is where?   Mainly at your house and on the towers of your supernodes?

Roca: Yes but there is no single point of failure.   There is equipment downstairs in my garage and ten meters over there in the small building in the backyard of my house that serves as the base for my supernode.   But we also have equipment in Barcelona in the data center where we exchange traffic with Cogent. We also have equipment at CatNIX in Barcelona,

These are charts of our fiber. At one point we increased our traffic trough CATnix in Madrid. Within the last year we have tripled our traffic.
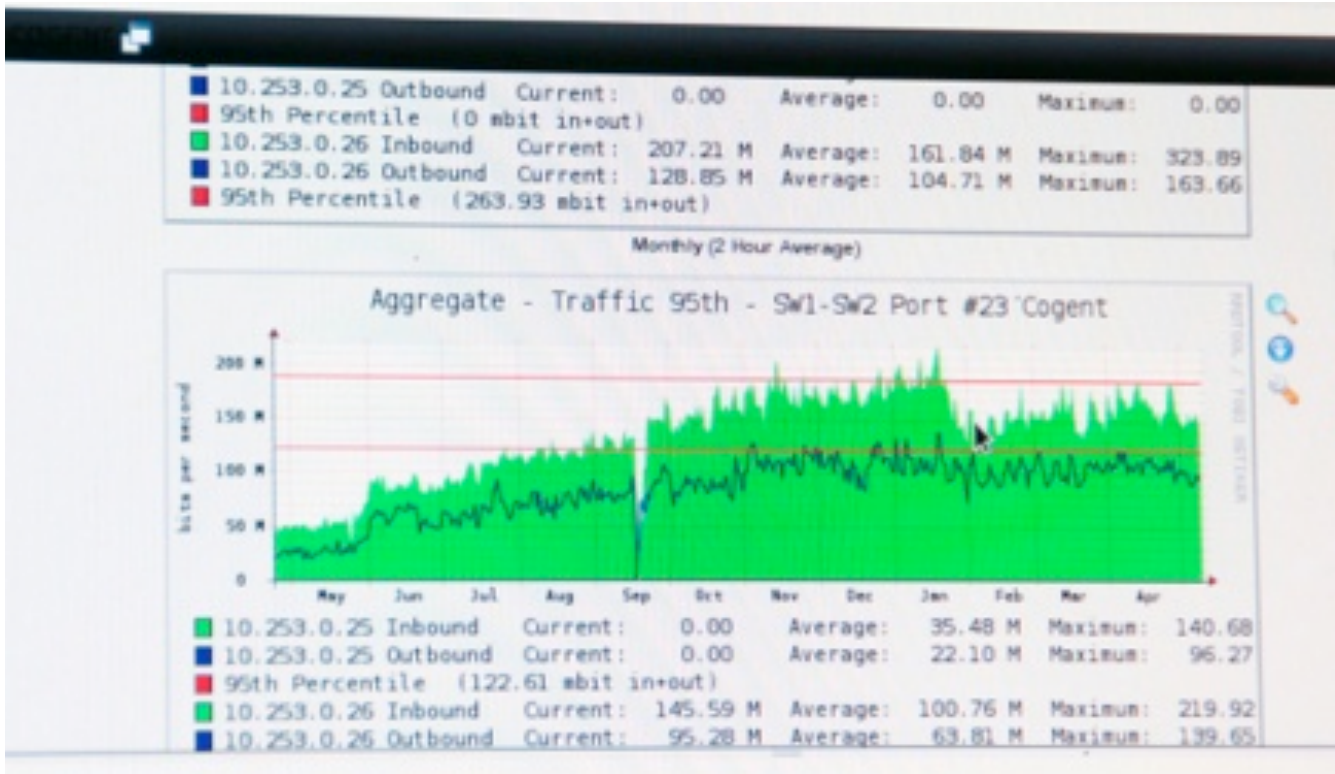
You see a plunge in September of 2012 when we started sending some traffic to Catnix in Madrid. It recovered rapidly and we are still growing.

The chart below is today's traffic.
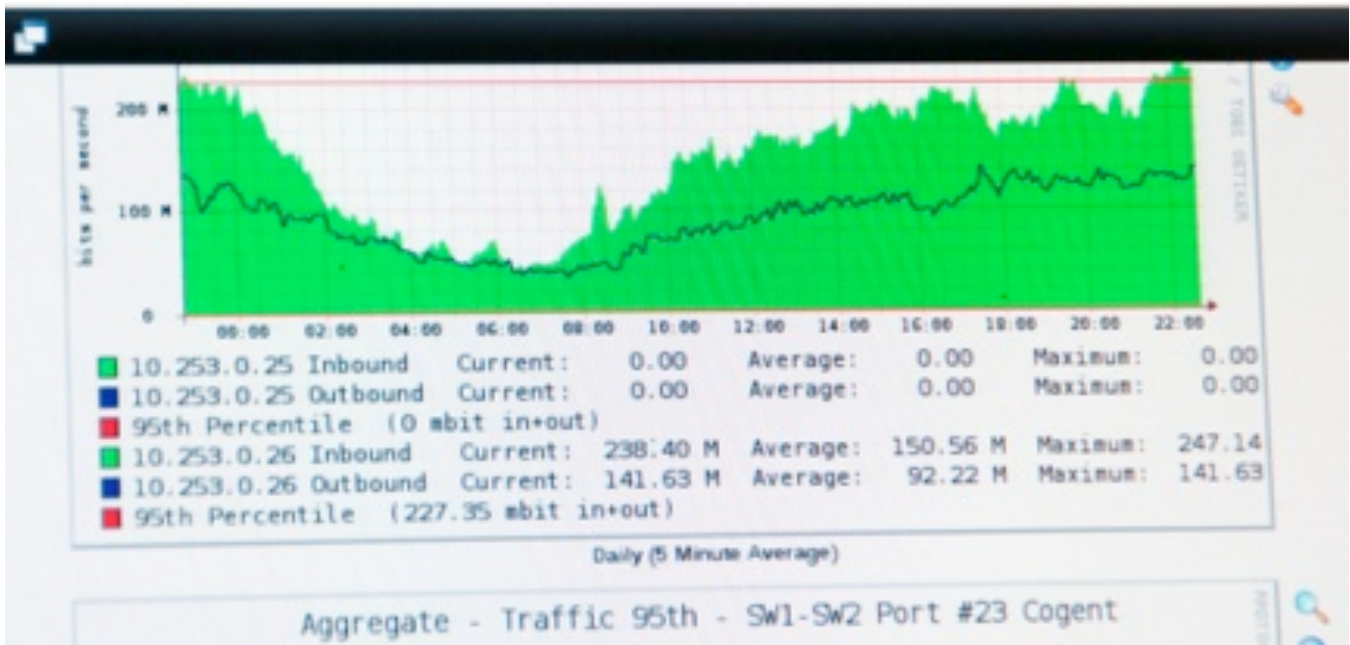
We do our capacity planning in the traditional way by always adding more bandwidth and never consuming more than 50 percent of what is available so the network is never saturated.

We would certainly look at Predictable Network Systems' tools at an appropriate time. The real consideration would be not whether it was freeware or not but whether it could be set up and shown to us to work inside a production network without having to take everything down. We would try a proof of concept on a portion of the network and if the results are good, we would of course happily extend it to other portions.

Installers

Now we have other groups -   Installers for example. This is the introductory page that lists the rules and regulations so to speak
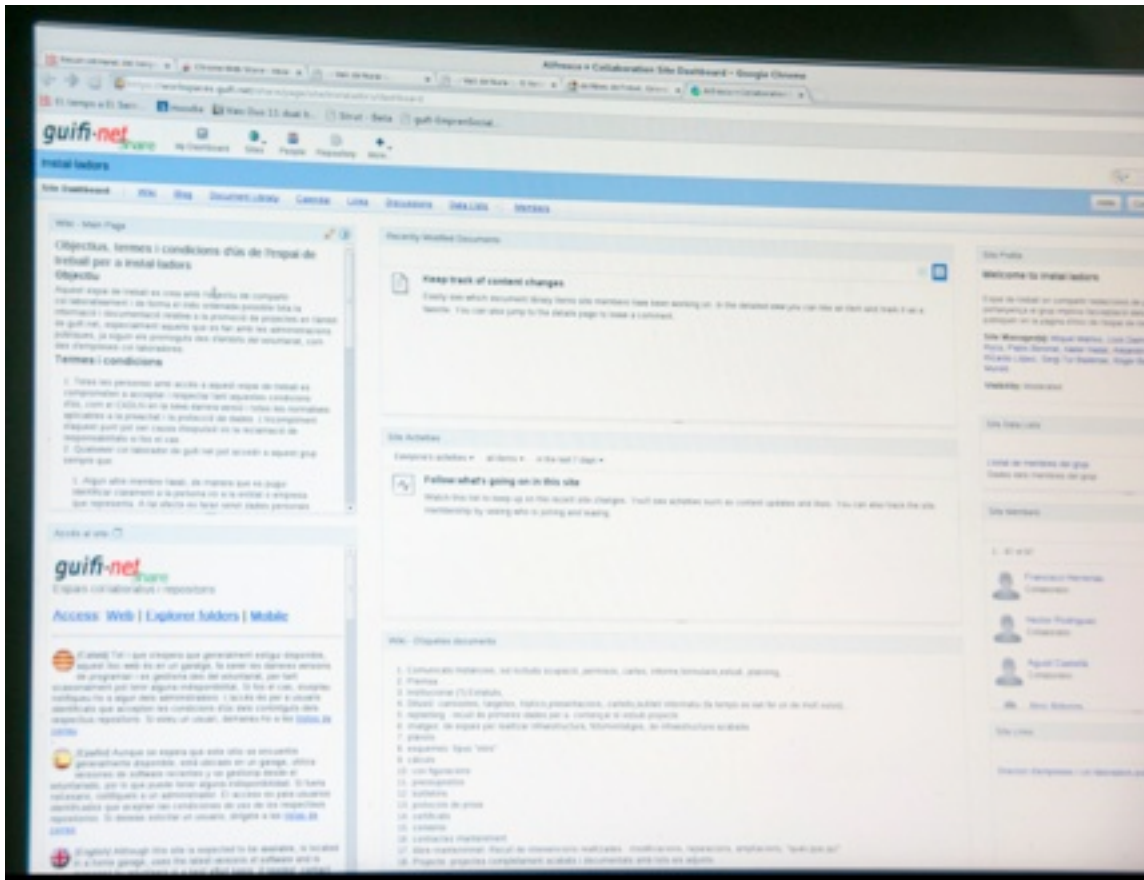
And here is a page that lists who the installers are. Name, addresses contact information and so on,
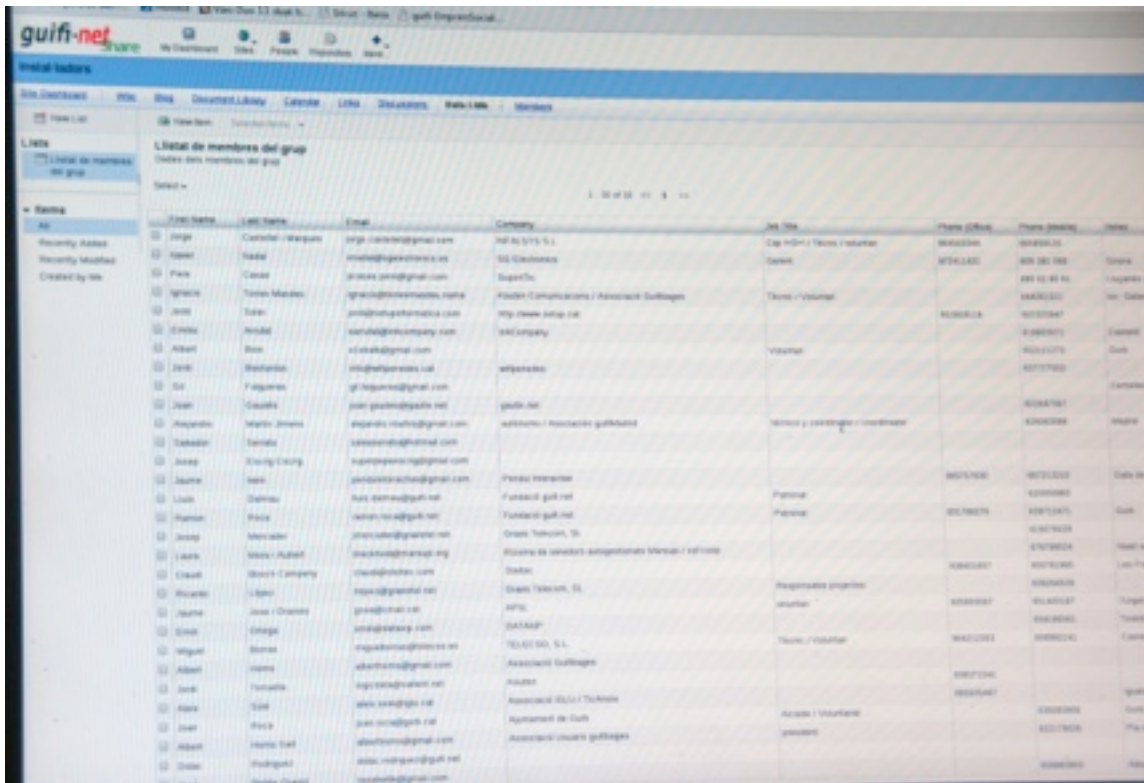
COOK Report: Now if there are routing issues that came up. Who handles that?

Roca: The gilliar. [GLIR] And also in the discussion lists of research. The gilliar is a group of local internet registries responsible for technical issues.

To join the installer group we have to know your name and fill out a profile. The profile is necessary because you will have access to information about users and if you used this information anonymously, it could be harmful to all concerned.

COOK Report: From a technical point of view I think what you are explaining is that this is self management or call it peer-to peer-management – which is to say sharp technical people acting responsibly and looking overreach other's shoulders to build something for the greater good…. for themselves and for their neighbors.

Roca: Yes. If you want to create a technical collaboration group for a task of contributing to the network and its performance, tell us your charter and we will set up a collaboration site for you within our over all system and away you go. This is almost a Wikipedia approach to running and building and IMPROVING the network. Most groups are public but they can have their own private space if they want it. It is an operation of trust.

COOK Report: Do I understand how internet access is given? Is it given by the in-stallers who have their own companies so that they are responsible for their own band-width that runs over the raw transport bandwidth created by each radio as it talks to every other radio? And this is why you talk in terms of proxies. And in the sense of gain-ing access to the internet a proxy is an http command you give from your browser that asks the network to connect your machine to a website somewhere on the global internet?

Roca: You have asked several questions. For one point, installer professionals -- some but not all are for providing services to the users. To be sure that the network works and so on but they are not allowed to control n anyway what a user can do with his or her connection. Their natural inclination is to want to become the owner of what they deploy. But the value comes from the professional managing the network in a way that is distinct from controlling the network. The Foundation's rules for installers require that they man-age the network but cannot control in the sense of favoring certain kinds of traffic over other kinds. This is in the same sense of what in the commercial internet is often spoken of as network neutrality that is favoring certain type of action or content over other kinds.
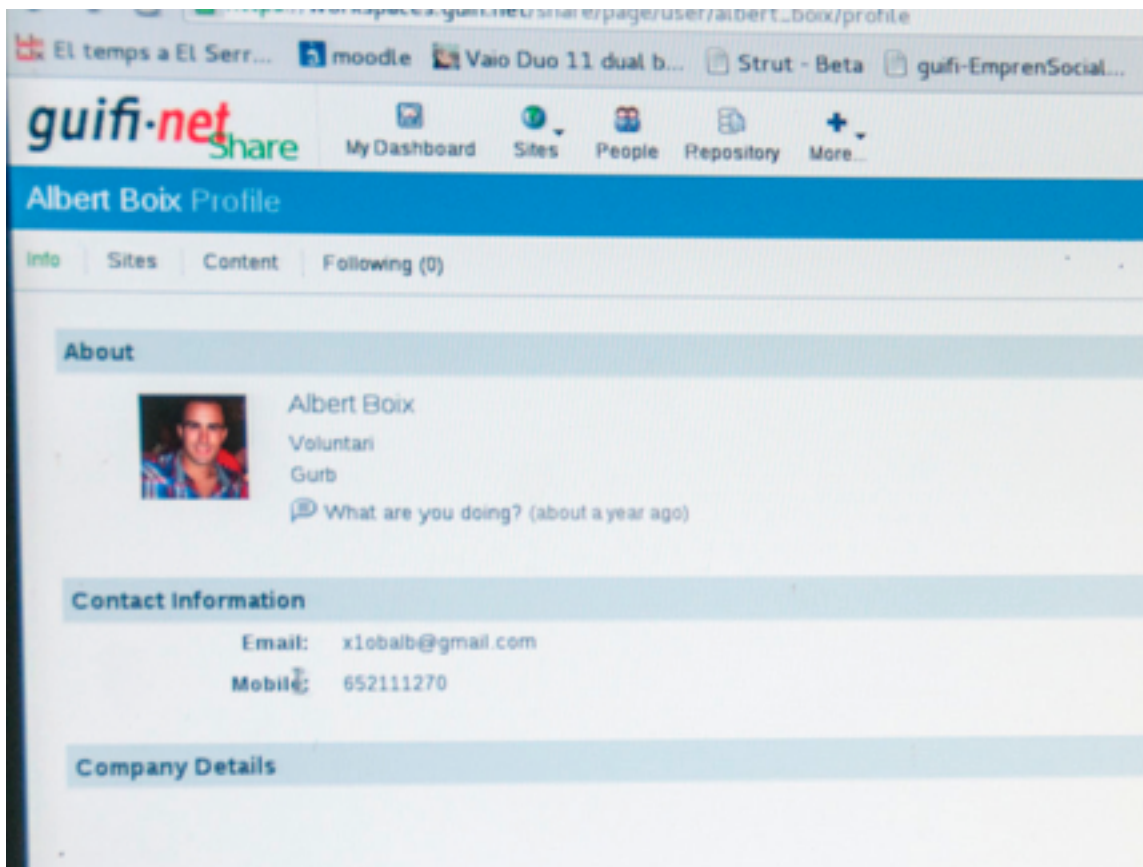
The value that guifi.net professionals offer comes from their services to network users as long as they do not control the physical aspects of the network itself. We, as a foundation must manage the network.   This is something that is very distinct from controlling the network. We set the high level rules in terms of the commons and that sort of thing. But

we are more than happy for the professionals to manage the network on a day-to-day basis.

Now to answer your question about proxies. In many cases the proxies are not managed by the professionals. In more remote places where we have no fiber, the critical question of course becomes how do we reach the Internet?. Well we need gateways. In some places by NATing IP numbers we can create a gateway to internet.
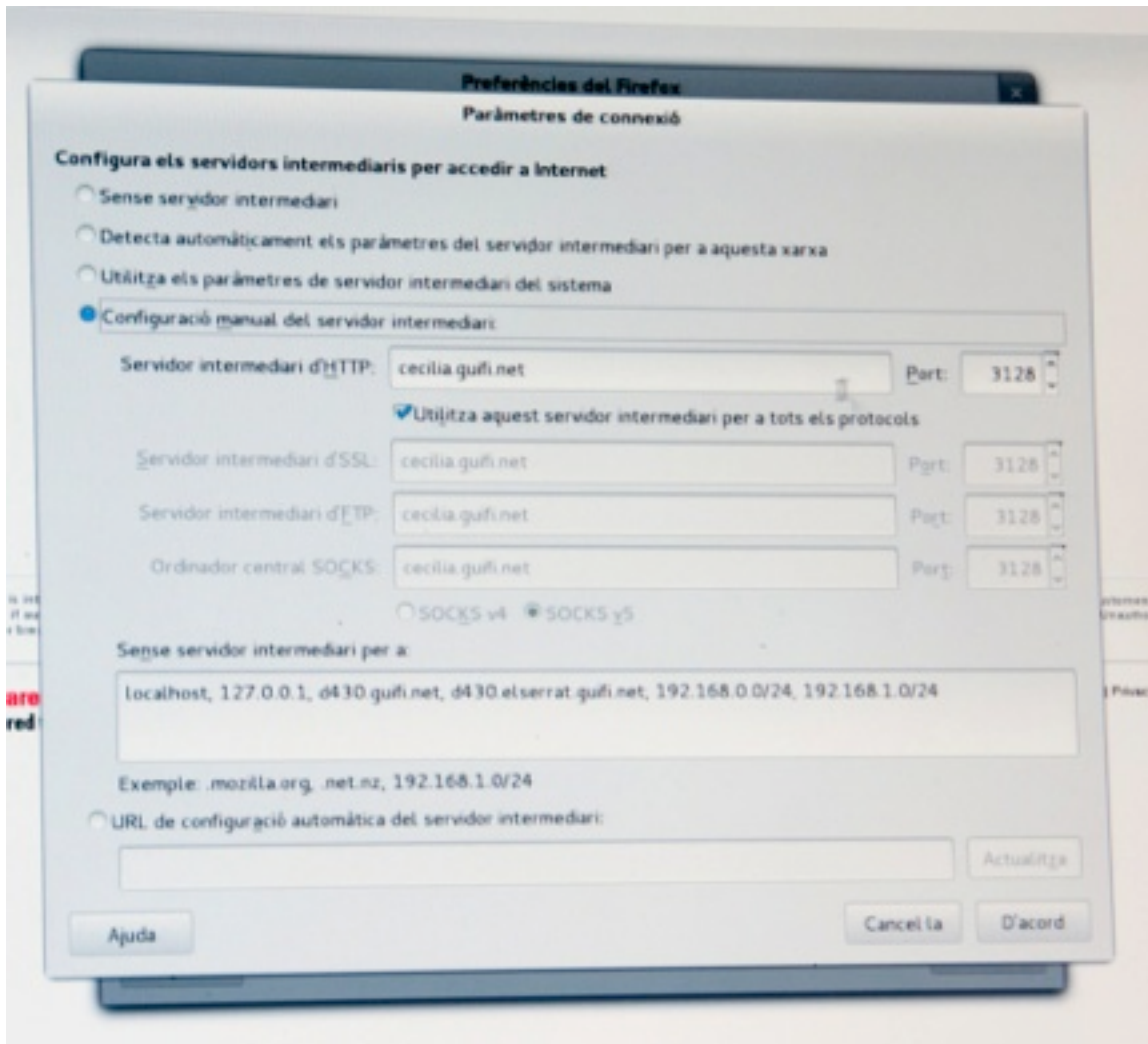
Many of the proxies are given or created by the municipalities in places like their public libraries and so on. Those kinds of proxies are free.   People who want better quality can work with the professionals who, depending on ability and location, will for a fee provide a local proxy gateway to the Internet.

COOK Report: One of the reasons we are talking proxy is that Web servers is just a service that drives over the basic TCP/IP infrastructure and at the most basic level weav-

ing that provides a TCP/IP carrier signal over which users are able to send their own traffic?

Roca: Yes. And one of the reasons that there are gateways is that a gateway connecting network that is part of the guifi.net commons to another network that may not be part of the guifi.net commons. For example Cogent or Telefonica. This kind of gateway is not considered a part of the commons. In the case of an HTTPS request to Google for a Google service, since my house is connected by fiber, the request goes straight to our gateway with Cogent in Barcelona. If we were somewhere else and connected by Wi-Fi, a Google request would be answered by a proxy and I could tell my browser use a particular proxy and a public library for example.

Now the first thing it is going to ask me for is user name password. This is one of the things we have put up with because of a less than wise rule of CMT our regulator. The rule says that a municipality cannot give Internet access to just anyone. That is to say you must give it only to people who are citizens of that municipality. But the workaround is that I can give it pretty much any name I like and it will let me in.
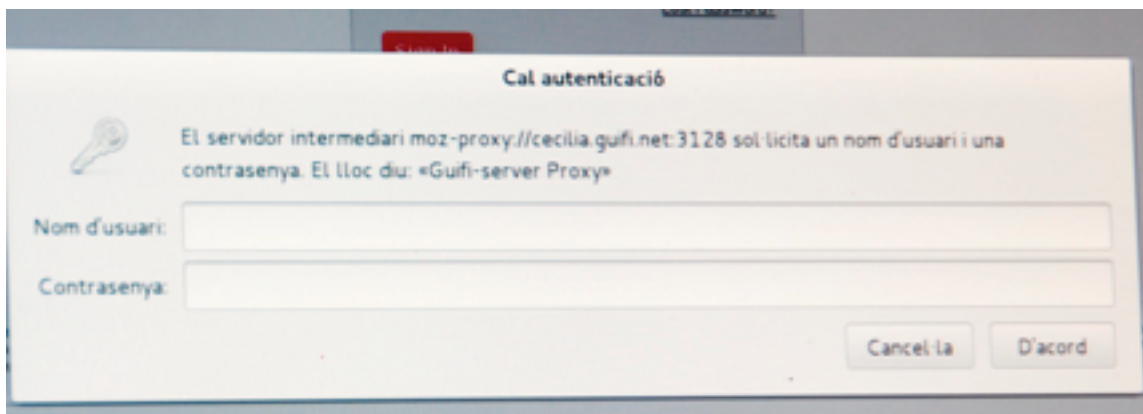
But while the proxies do request a login, the proxy services are given absolutely for free. I have never seen these proxies charge for anything. This is a valuable service that municipalities offer their citizens because, if they cannot even afford the €20 a month for commercial DSL service, they can still use a proxy that is a gateway to Internet access for free. The municipality must pay a monthly fee its DSL service, but uses it much more efficiently in this way.

In addition to Pau and Roger as paid employees, we have Miquel Marcos who lives in Vic and is one of the most technically skilled people we have. Within about two years we hope to be able to pay all of them from our own resources.

Partners and Publicly Visible Accounting and Expenses

Now let me show you something that is very important. If I go back here to the GLIR NOC
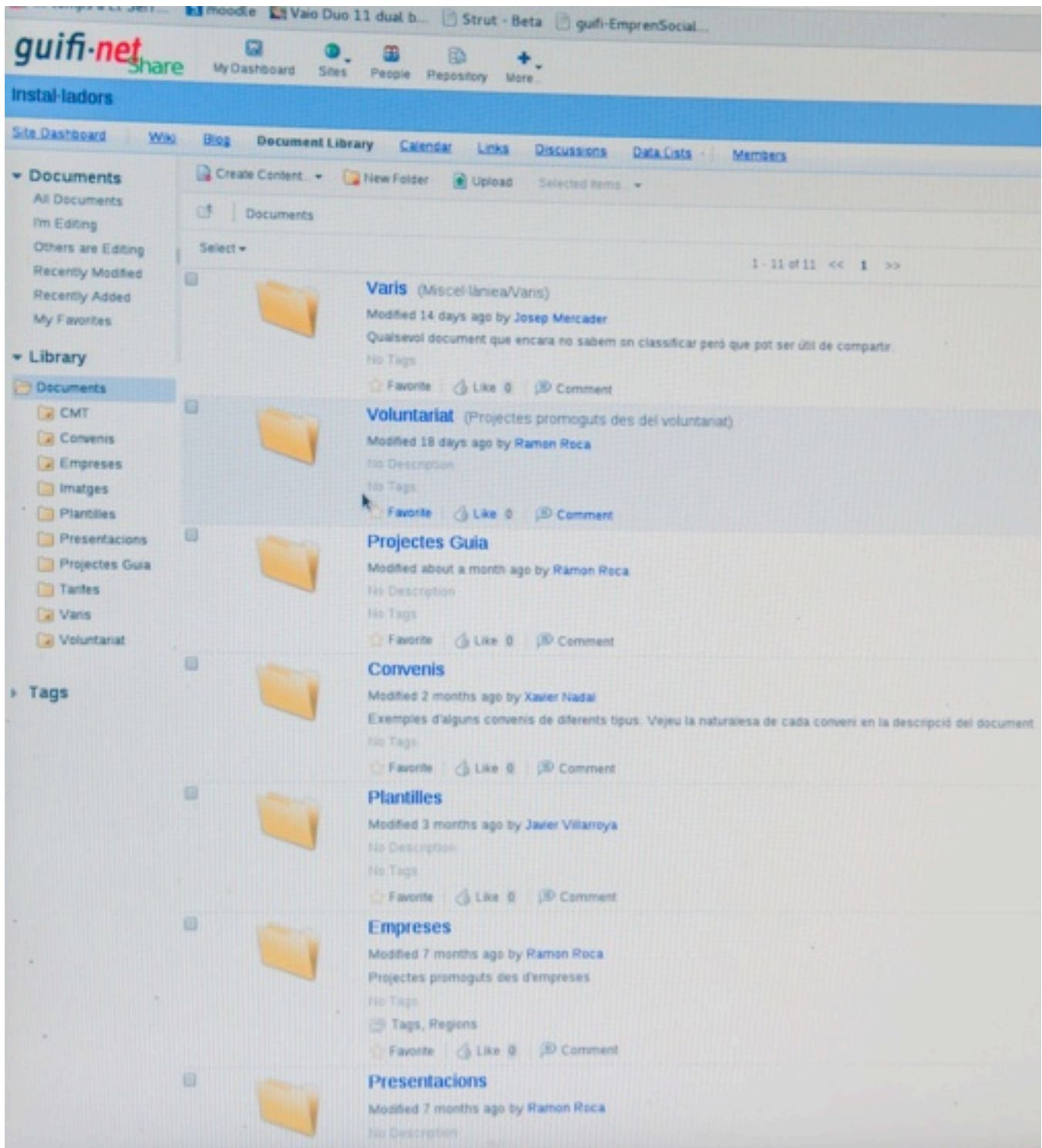
Another page from the document library.

I can go here and open up something that looks like a spreadsheet.

This is a list of professional organizations that are using the net resources at exchange points. For example Codigo Sur is the organization to which Guido and Nico from Argentina belong. It is a conglomerate of NGOs from Latin America that are using our band-

width. They use assets at the exchange points for websites that use tunneling to do IPv6. They are one of our partners.
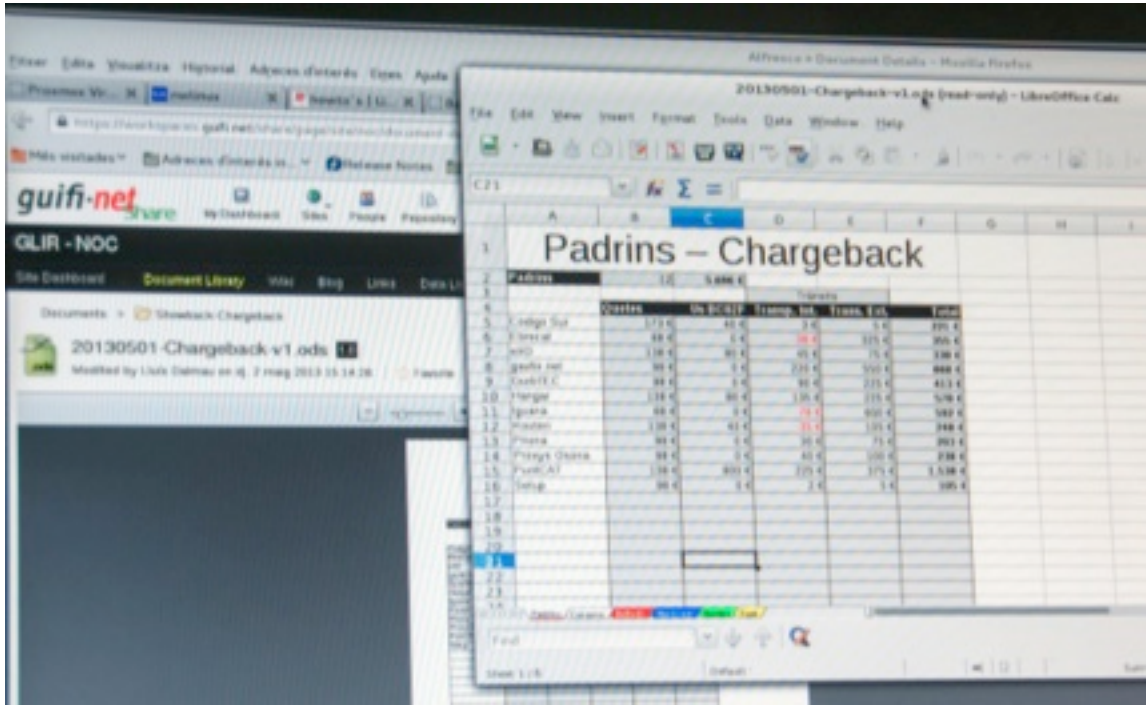
Ebrecat operates in the south of Catalonia. ExO is in Barcelona as is gaufix.net and so on. The euros figures in each column represent what they pay us on a monthly basis.

COOK Report: What is PuntCAT with 800 euros a month?

Roca: You know we – Catalonia - have a domain as we are not yet a country PunCAT is the organization that adminis-ters the Catalonian domain. They charge everyone for the registry and use of a CAT do-main and as this spreadsheet shows, they are our biggest cus-tomer.   But note that this it is publicly available to anyone with absolute transparency.   Our Books are open. This is why we call it "shauva sharsuha."

Padrins – Chargeback

Padrins	12	5.696 €			
				Trànsits	
	Quotes	Us BCNZF	Transp. Int.	Trans. Ext.	Total
Codigo Sur	173 €	40 €	3 €	5 €	221 €
Ebrecat	68 €	0 €	-38 €	325 €	355 €
eXO	138 €	80 €	45 €	75 €	338 €
gaufix.net	98 €	0 €	220 €	550 €	868 €
GurbTEC	98 €	0 €	90 €	225 €	413 €
Hangar	138 €	80 €	135 €	225 €	578 €
Iguana	68 €	0 €	-76 €	600 €	592 €
Kouten	138 €	40 €	-35 €	105 €	248 €
Priona	98 €	0 €	30 €	75 €	203 €
Proxys Osona	98 €	0 €	40 €	100 €	238 €
PuntCAT	138 €	800 €	225 €	375 €	1.538 €
Setup	98 €	0 €	2 €	5 €	105 €

The second column above -- US BCNZF -- shows how much space the partner is using in Barcelona – depending on how many locations you are using in the network.   The internal transport column reflects charges from Xarxa Oberta.   The ones paying three euros are operating only in Barcelona. Some are even negative… n the red because we try to subsidize those who are starting up.

And here is the rest of

Guifi.net "world" headquarters in the north wing of his house over his garage inb Gurb.

the information including how much bandwidth are you using the exchange and by just filling out these cells and by complex formulas we use – the formulas are publicly available.

Now here is expense for hardware.

and here below it shows how much bandwidth they are using at the exchange.

In some cases in the cell of the spreadsheet contains a zero not because they have no cost but because for that activity they pay nothing to the foundation because they provide it with their own resources.

And here other costs are listed such as insurance and administration, maintenance and repair; and Cogent's monthly fee.

Our policy is to grow without our partners having to pay anything more. Since we are not-for-profit we have to justify every expense that we have and how we do that is through this series of spreadsheets which may be publicly observed by anyone. Every

partner can see what are the total global costs and what is the percentage of his or her use of that total cost and what resources are available in terms of money

If I get or do something that causes my expenses to go up by €1000 a month, then I would have to divide that increase in cost between our partners and I also know that they cannot afford to pay anything more than what they are presently paying. Therefore an overriding goal is not to increase expenses without also gaining offsetting income.

While in the past we have crowd sourced funding for necessary repairs to things like wireless supernodes, **we are beginning to think that if the professionals want to have a service to sell to people that perhaps we should try to negotiate with them so they build maintenance and repairs into their pricing structure.** They do get a monthly fee from users and they should be willing to invest a part of that into maintaining their parts of the Commons infrastructure. The setup works, but it is not problem free. For example, one problem was that while we have more than one professional working on solutions in the same area when something went wrong in that area the one professional expected the other guy to make the repair.

As a Foundation when some of these disagreements were we become involved if necessary in some fact-finding but it is beginning to look as though perhaps we should develop some similar spreadsheets for use by the professionals at the professional level that will show who is bearing what responsibility for maintenance and repair and one possible question would be whether or not to institute, as part of the overall pricing mechanisms,a separate fund that would be used for maintenance and repair on an ongoing basis.

What we must try to figure out how to avoid is where the small companies behave like Telefonica and take as much profit as they can from what they are doing while investing the absolute minimal amount in maintaining their part of the network.

The professionals will probably say "oh no there is no problem" but if the five foundation directors hear from users that there is a problem, then we, as a foundation, will need to get involved professionals in searching for a fair and equitable solution that can ensure that investment is made in maintaining the network and its full functionality.

COOK Report: I see that it looks like you have a few dozen active nodes around Madrid. How do you keep up with that sort of situation?

Roca: If I want to see what is happening around Madrid I type in guifi.net/Madrid . Now I can see that many of them are in blue. That is a bad sign because all it means is that people have gone to the website and have done like we did six months ago at your house establish the node on our mapping system and are saying they want to get connected but it seems that there is no appreciable local organization. Blue means the node is desired yellow means it is under construction and green means that it is working.

Promoting Fiber Optics in Calidentes

Ramon is a nonstop dynamo. Isaac and I left Castilion on the morning of May 10. Isaac went straight to the airport to fly to Berlin. I left my bags in the train station locker and set off for Las Ramblas. Two hours later Ramon picked me up in his company station wagon and took me to lunch with Jordi Bennisat Lopez of LocalRet. After lunch Jordi showed us the sights of the old city including the Cathedral and the square pockmarked with mortar shots from the Spanish Civil War.

From Barcelona Ramon and I then drove straight to the small town of Calidentes where he had an 8 PM appointment to sign an agreement between guifi.net and the Mayor for "do-it-yourself fiber" in the small village near Gurb and north of Vic. We were a little late but the agreement was signed and I became unofficial photographer.

The point is this is part of guifi.net's ongoing plan to village by village lay fiber in the Gurb suburbs and use the Catalonian law that instructs public officials to use all resources at their command to bring the best and least costly telecommunications to their residence.

The following text is the explanation on the Guifi.net website of the Friday evening signing ceremony.

Mayor Calldetenes Marc Verdaguer and President of the Foundation Guifi.net Ramon Roca, signed an agreement to expand a network of fiber optic guifi.net commons in Calldetenes.

Guifi.net Foundation is a non-profit organization that promotes the construction of a telecommunications network joint free, open and neutral in which any participant is free to use it and spread its operation. Currently neighbors Calldetenes force users are already using Guifi.net radio network.

ADSL service currently received by residents Calldetenes by operators is quite poor, as is evident in the study that was done a few months ago from the council, through a survey of residents.

The project is intended to be developed in Calldetenes deploy a fiber optic ring that covers the entire municipality and must be linked to this open network taking care of each resident costs of installation.

It is expected to develop the project into five phases, as each one progresses, the neighbors will be contacted to explain the details of the project and offer the possibility of connecting, thinking both in private and in business.

COOK Report: Ramon is looking to gain access to empty LocalRet fiber ducts. On the Sunday after the visit to Santa Cecilia de Voltegra, he had a visit from a local installer who was developing a multi-

year do it yourself fiber installation business plan to bring guifinet fiber to the home in about adozen communities like Calidentes to the north of Vic. While local law is in Ramon's favor, Telefonica will be whining to Madrid hat it is in the interest of the national government to keep Telefonica strong in the projection of Spanish economic power into Latin America. However in Catalonia this is likely to add fuel to the simmering independence movement.

Saturday morning May 11 Ramon and I and Lluis Dalmau drove to another small town within five miles of Ramon's house. In this case it was Santa Cecilia de Voltegra where he and Lluis explained the fiber strategy to a staffer of the mayor of Vic, a very old city of 50,000 ten miles to the south of Ramon and 30 miles north of Barcelona. On Saturday afternoon Ramon and I went sightseeing to Vic and in the evening did one of the interviews above. Sunday morning was a trip to the Pyrenees. Sunday afternoon a strategy session with a local resident using detailed maps to plan the installation of fiber over the next 2 to 3 years in dozen communities spreading northward with a several million-euro-per-year locally funded locally operated business at stake.

On the preceding page the signing ceremony and the guifi.net antennas of Calidentes in the sunsets golden glow on May 10. An this page Lluis,the representative from Vic and Ramon in Santa Cecilia de Voltegra. The church below is couple hundred meters away.

Part Three

AlterMundi in Argentina

The interview setting was on the rooftop of a building "settled" by a programmers coop on the shore of the Mediterranean to the north of Barcelona. Above- looking north. Below looking south from the sundeck.

Previous page: Nico of the Quintana Network, Guido of Delta Libre, and Ramon.

AlterMundi Interview – May 6th

Editor's note: Nicolás Echániz: is 38 years old and has been involved with computers since he started building then as a boy 25 years ago. Having been alerted to his importance by Isaac (he is co founder of AlterMundi – the most important free network movement in Latin America), Isaac and I met him on Saturday May 4th at the public Guifi.net get together in Barcelona. On Tuesday afternoon May 6, we took a train to a building on the Mediterranean that had been owned by a banker indicted for real estate fraud and occupied by a programming cooperative.

COOK Report: Please tell me more about yourself.

Nico: My first"real job" was focused on using computers in TV animation for almost ten years. Then, in about 2002 I started working with free networks. I started with Buenos aires libre. This was the free network project in the city of Buenos Aires. It still exists. I devoted a lot of time to that project and built one of the first working nodes of the network.

The problem in Buenos Aires was that it was too much of a geek network.

COOK Report: Do you mean: by techies and only for techies?

Nico: Yes exactly. We call them "ping" networks – that is to say networks where geeks "ping" each other. But also networks where nothing else happens. Nothing social and no interesting content or services. I worked on their behalf for quite some time and then I got involved in the free culture movement.   This included work with people who were fighting against intellectual property laws. We worked together trying to reduce restrictions and focused on a modification of Argentine intellectual property laws that were really old and out of date.

COOK Report: When was the big Argentinean debt crisis?

Nico: it was 2000 and 2001 and everyone was out in the street.

COOK Report: did this influence you to move away from the "ping" and more to network as social media?

Nico: I was already "there." I had been involved for a long while with things that had more to do with the social stuff – for example –I have been involved for a long time with

the eco-village movement. I had lived in an eco village for a while and then founded a new one where I lived for five years and worked a lot with appropriate technology and re-newable energy sources. Natural building and architecture. Sustainable living. I began to want to merge all these things.

The Goal of a Society Based on the Freedom of Peer-to-Peer Collaboration

I started thinking about what does everything that I do have in common? Free software, free networks, perma-culture; eco-villages, people who fight to protect local seeds.   I came up with a system to measure these things.

The system we live in is on designed for concentration in the hands of a few while all these other alternatives are in the direction of collaboration among peers and the freedom that comes from that.   The goal seems to be freedom built on peer-to-peer collaboration. I found that this concept was central to what was going on within local exchanges, eco-villages and so on.

Consequently I started an NGO called Altermundi in 2004 as an idea to focus on building a peer-to-peer, local and sustainable economy where people could act locally and think globally. We need to act locally but do so everywhere and consequently, we must main-tain and control our own local communications. With the emphasis on local action it be-comes the inverse of globalization. I started working with idea at least eight years ago but the actual Alter Mundi NGO organization was founded only two years ago oriented very much along the lines of the other free networks projects. The charter for the NGO clearly states that the main objective is to facilitate this new paradigm based on peer-to-peer collaboration as opposed to concentration and control.

COOK Report: Then the common theme between Guifinet and AlterMundi is that every-one should have access to internet. It builds a fabric of communication to assist everyone who understands the commons principal. So guifi.net is a communications infrastructure with a common inclusive ideology but to a large extent it stops there. But it stops there at the moment. Yes? Do you cast your net more broadly?

Nico: Well I think this happens a lot with many different things. People identify these peer-to-peer collaboration possibilities in one area like networking and then in that area they go really crazy. But it is just communication and it is difficult to connect people working on the land with all the other possibilities.

COOK Report: I went out to i2 Cat this morning and met with Artur Serra. He is an re-search and education academic, anthropologist who has a grant program called living labs. He envisions Barcelona as a big living lab and he says he wants to bring the R and E

infrastructure down to the level of the people and make it available to every citizen. Now to satisfy the corporations and the phone companies it still must have n innovation aspect to it. Serra made it clear to me that he wants to extend what he is doing in Barcelona beyond Barcelona itself.   Meanwhile the city has a position called Chief Innovation Officer and this is held in Barcelona by one of Serra's students. This woman who did her PhD under Serra has been there for about five years and they have younger people there through whom they hope to exert more influence.

He says this woman understands the Living Labs concept and he sees her job as figuring out how to increase citizen involvement. But now it is mainly in district 22 with the fiber ring where we were on Saturday. Serra told me today that he wants to reach Ramon for collaboration because he wants to create a situation where every user of guifi.net can use Living Labs infrastructure.

Nico; This sounds good but guifinet has quite a complex structure that has been built up over the years and it is not easy to make changes within that structure after it has been working successfully for several years ..   Every day brings one or more new working nodes. This is something that happens only within guifinet and nowhere else in the free network movement.

In Latin America we have known Guifinet for a very long time and Buenos Aires Libre started out just like Guifiunet except that it never reached any critical mass.

Altermesh – an Objective to Build a "Geek Free" Free Network

It was in 2010 that we invited Ramon to the first regional meeting of free networks in latin America. We have had regular contact with Ramon since then and have worked together on different things. But from the very beginning our network design was done on behalf of small places, small villages. I called it a geek free net. It is a design goal for us to have networks that do not depend on geeks to deploy them.

It was also interesting to find that here in guifi.net there is a group that is QMP – the Quick Mesh Project that has similar objectives. We have implemented things that are very complimentary with them. We have then decided to merge this project. Our firmware and our network design into something we call Altermesh. It means "Another mesh." We have decided to work together with the group here in Catalonia who are making the QMP. we are merging both projects with some people from Italy, from Pisa. It is called the eigen lab. They are building a free network in Pisa and they are a part of the Ninux project that is the national free network project in Italy.

The idea is to create a model that works for all of us and hopefully for people in other projects as well. It will be called libre mesh. **[Editor**: as of mid-August there is a partially

done web site at http://libre-mesh.org/ It shows locations in Catalonia, Denmark, Bogota Columbia and Argentina. A libre-mesh.org git hub was set up in mid May of 2013.]

In our case libre-mesh is not only software but what we call a hardware reference. In Latin America we have very little money for this sort of thing consequently   we are focused n networks that are high performance but also very cheap to build. Consequently a network node for us is $100 for the radio router antenna installation and so on and that is still not so cheap. However it is the minimum cost for what you must use to build a network that performs satisfactorily. We would like to get it down to $50.

We do for ourselves a lot of what, in North America or Europe, you would just purchase as commercial solutions. For example we use home routers that are usually not enabled for Power over Ethernet. We modify them internally by soldering a couple of cables to make them power over Ethernet. For no additional money, we do mounting of antennas and the nodes. The advantage of power over ethernet is that you need only a single cable from you computer to where ever the radio and its antenna is located. That cable carries both your data and power. Otherwise you use four wires for data and four for power. You can buy routers made for this kind of outdoor operation, but they are much more expensive than the home routers we upgrade.

Here is more background:

AlterMundi is an organization that aims for the emergence of a new paradigm based on freedom gained through collaboration among peers. We explore different manifestations of these peer-to-peer alternatives and in particular we do a great deal of work in relation to Wireless Community Networks.

We have developed a Wireless Community Network model that we call MiniMaxi. **Editor**: Click on mini maxi for access to the detailed altermundii handbook and planning and installation guide. According to the guide: "The guiding principle of mni maxi is to achieve maximum results with minimal resources. This model focuses on a low economic cost and low complexity of installation and operation, enabling their high versatility and ease of deployment." MiniMaxi is based on very low-cost, multi-radio mesh nodes running the AlterMesh firmware, which automatically configures the mesh network. The firmware can be customized using a web tool we call the Chef[3] [Can u provide working url?]. We also provide tunnel broker service for community networks that don't have native IPv6 connection. Several network projects in South America have already adopted the tools we have developed[5]. [5] https://colectivo.altermundi.net/projects URL DOES NOT WORK

The Village of Quintana

We teach people how to do this. In the very small village where I live called Quintana near the city of Cordoba. It is 800 kilometers from Buenos Aires and 60 kilometers from Cordoba with a population of 2

million Cordoba is to the east of us and a little to the North,.
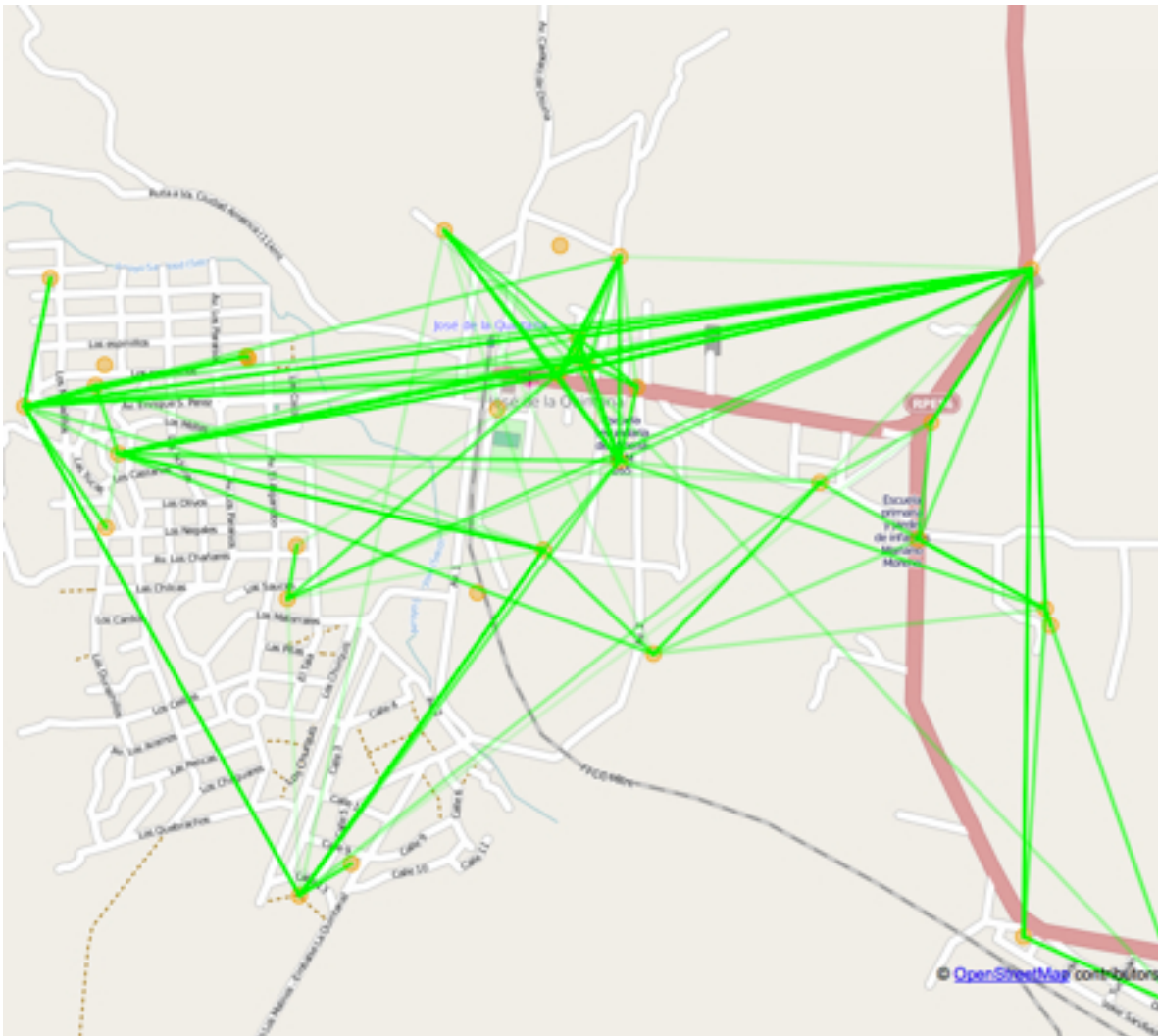
In Quintana we invite our neighbors to come to the place where we build our routers and antennas. When someone wants to connect to the network we invite them to come a spend a few days where we teach them what they need to know. Starting for example with soldering a home router to convert it to power over Ethernet, how to build the boxes for the nodes how to wrap the antennas and so on. Finally we try to do the installation work with the family so that everyone will be involved in the process. We usually ask them to invite us for food. That is the exchange. This way we get to know everyone in town.

We make a human network that works underneath and acts as a foundation for the digital network. This gives psychological support to the digital network because the captive por- tal, that is the web page you see when you want to browse the internet, is like a home page that you cannot avoid.
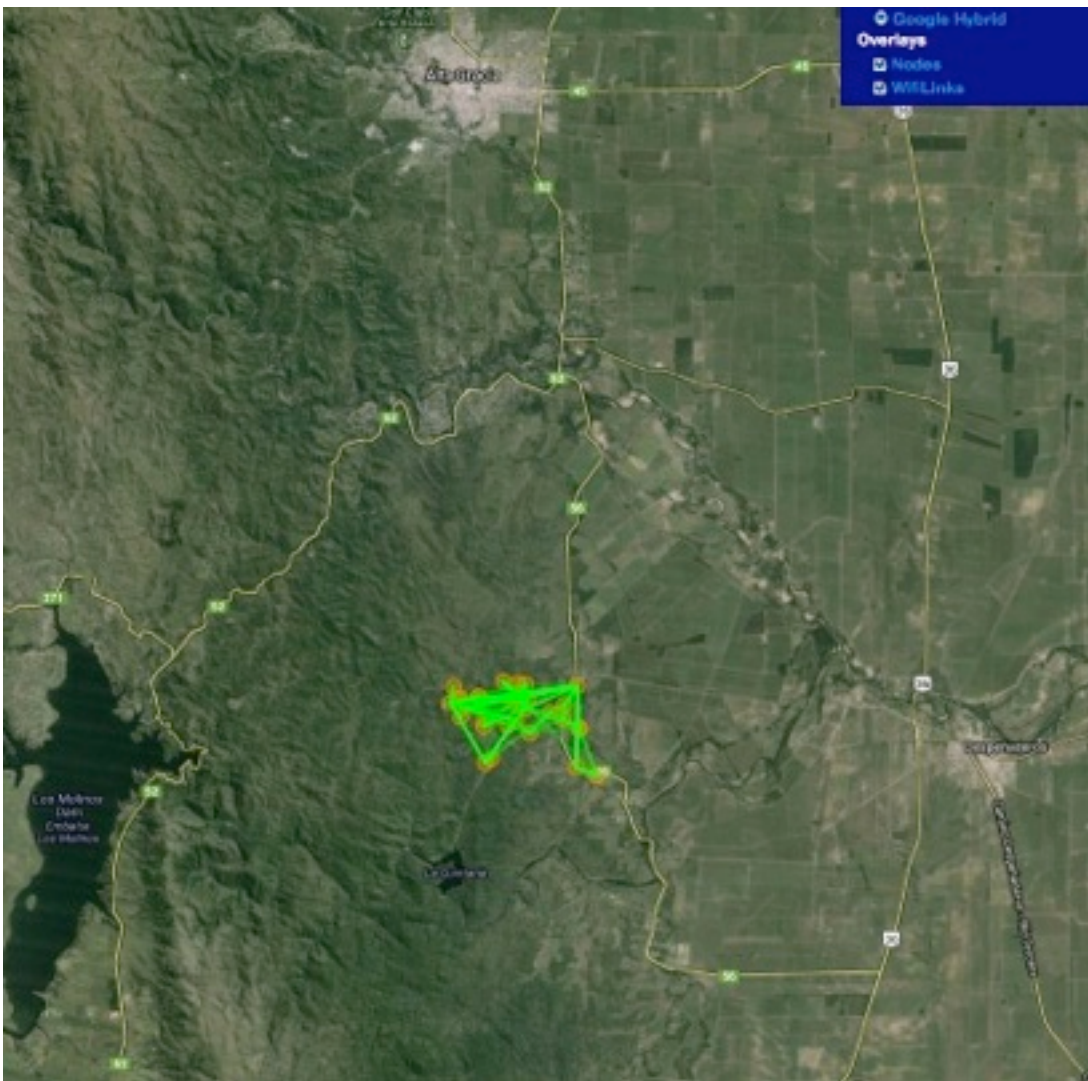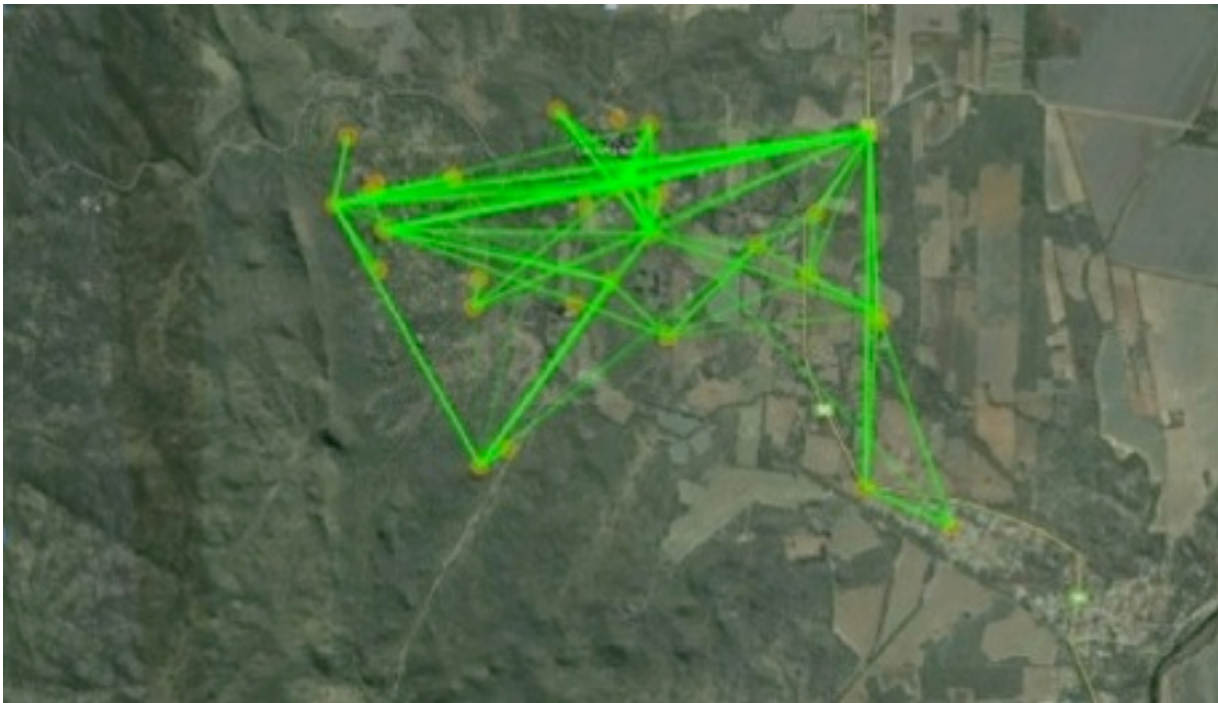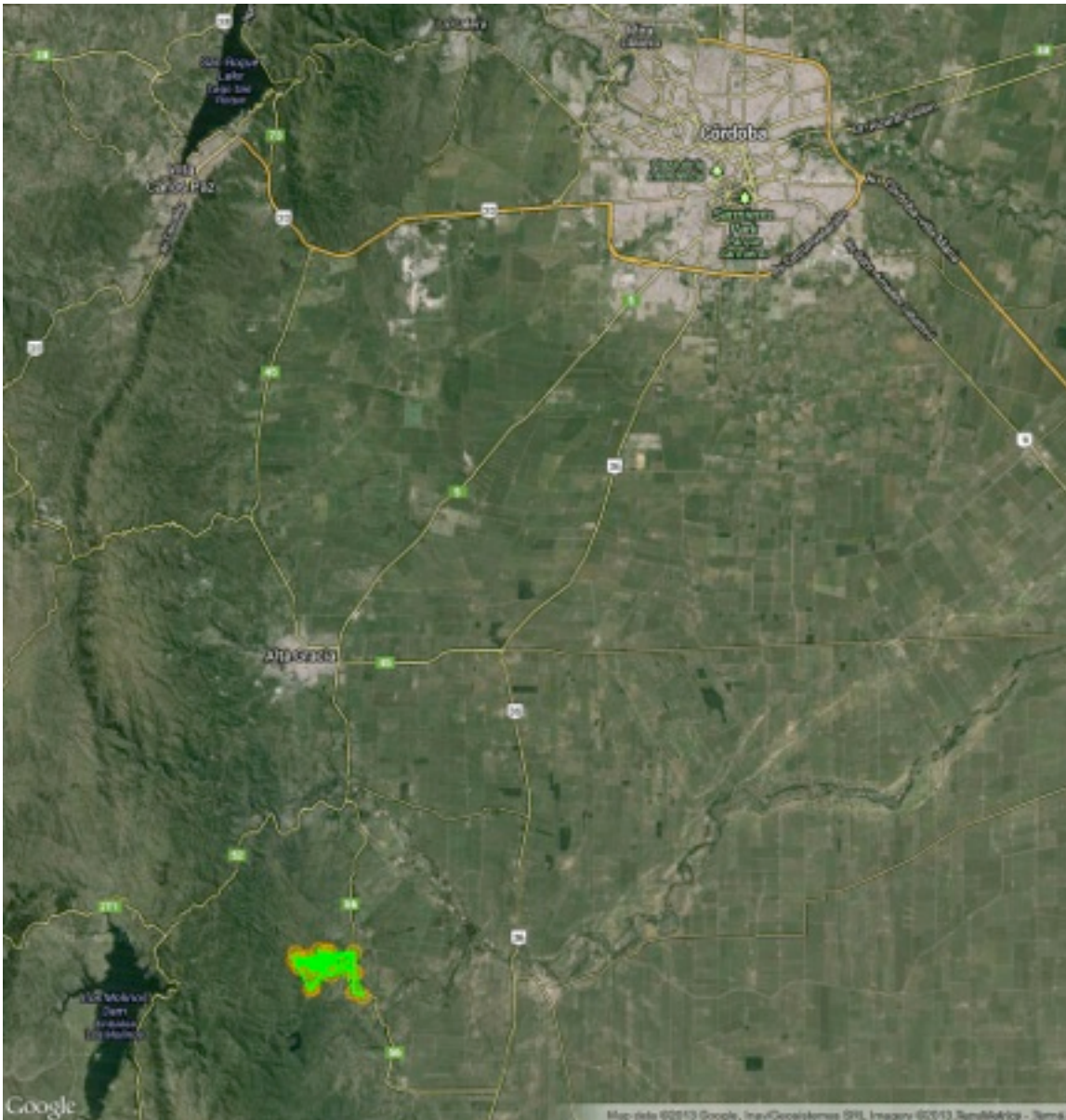
The three Google earth shots above zoom out from Quntana showing land to the north to give the reader an idea of its relationship to Cordoba,

Our Captive Portal

Our captive portal serves as the village information website. You have the village map and the extension numbers for the VoIP network, you have he streaming for the local community audio, the information about the NGOs and related institutions, the schedule for workshops and cultural events. It is your gateway for local information. Everyone sees this portal at least once a day when they log into the internet at large

QuintanaLibre
Community Digital Network

Understanding the network | Contact | Extensions | Chat

Map of the town
Organizations and institutions
The Serranita Schedules
LaVecindaria FM 88.1MHz
Health Corner
  Dangerous animals in the area
Local Projects
  Ecological Reserve
  Free Quintana Community Network
Native Plants

Classifieds!

Why am I seeing this page if I wanted to go to another?

Print

The Community Network has what is known as a captive portal. This site captures the first attempt to surf to any website and we redirected to another page.

In QuintanaLibre, this site is a forum for communication and community information that is displayed for each user once per day.

Once the portal is open, further attempts to navigate to other sites will function normally.

To regain access to this website at any time, the address is: http://quintanalibre.org.ar . Some services, such as chat from the web, only work within the community network.

LAST MODIFICATION DATE: JUNE 25, 2013, 9:11 PM

  • Understanding the Network

There are 0 comments

comment on this content

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It is a place where you find needed local information. Everyone sees this portal at least once a day when they log into to the internet. We also have an XMPP chat similar to what Google talk uses. We have a local server and every citizen when they sign on can see who is on the local server. Communication in small argentine towns is very poor. The phone network really does not work. Half of Quintana doesn't have a phone network. The cell phone network doesn't work either

When I had a cell phone – I don't anymore, ***I would type in the message, hit send and throw it as high in the air as I could in hope that the message would get through. I might have to do so more than once in the hope that it would catch a signal and transmit.*** The community network really makes a difference in these places. In Quintana we have a network now that ties together the entire village.

COOK Report: How did you actually choose Quintana as a place to implement your vision?

Nico: I had founded an eco village involved with permaculture called [Learning and Living.](#) The idea was if you want to learn how to build a house and grow your own food and so on, then you should come and live with us.   We are building and farming and working with appropriate technology.   We have no formal coursework.   You just come and live with us and learn by doing.

COOK Report: Where can one learn more?

Nico: There is a [global ecovillage network](#).   The site has a map listing all the ecovillages n the world.   In Argentina there are a few.   The one I started and one called Gaiia where the [Argentine Institute of Permaculture](#) is located.   I proposed Quintana as a place to live and learn not only about things in the land but also about technology because we had a software coop in the place so that we developed software while we lived in the country side..

So this was the first big thing I did related to these ideas of AlterMundi.   But then I outgrew this idea because I thought ecovillages were too closed.   They are built be like minded people, are full of likeminded people and as such were too similar to the old idea of a geeks for geeks network.   The question became one of taking what we knew and felt about how the world is evolving and to transmit these ideas and concerns to a wider range of people.

As a result, instead of an artificially created ecovillage of like minded people, I decided to look for an existing village. I would look for small town, a small village of regular people with different ideas.

The first ecovillage was 80 kilometers from Buenos Aries.   It was in the middle of nowhere.   But, at this point I decided to try to take these early ideas and look for a real town in a real place to put them into practice.   I looked around Buenos Aries and lived briefly in a couple of towns but finally through another friend I found Quintana in Cordova province.   I have been in Quintana now for two and one half years.   I like it because its population is small but it has a lot of land,

Way back in 1940 a real estate developer tried to make a planned community out of it and failed.   Because the population was small it was good.   Results became possible much more quickly than would have been the case in a real city or eve a sizable town.   In a week everyone knows you are living here and in two weeks everyone knows what you are doing.   We built the only FM radio station in the town and gained a village wide audience almost instantaneously.

Community Radio

COOK Report: and the cost of the needed equipment has plummeted.

Nico: Yes and we built the transmitter was built in a week in a workshop with 200 people.. We built seventy transmitters for seventy stations all over the country.   We do this once a year in Argentina.

It is organized by a group called [the RNMA Radio national de medios alternatives](). Alternative media national network. They organize these very focused workshops. Two hundred people come together for a week and do nothing but build transmitters. I loved the experience sitting here all day soldering pieces, making the casings and so on.

COOK Report: How do they plan and organize them? There is a more technical group that is a part of the RMA?

Nico: They published the design model and other people collaborated when the design was approved by the collective. We started building the transmitters. All this design was available on the RNMA web site. Last year they did the same workshop but for TV transmitters instead of for FM radios. They have been doing this I think for four years now because, in Argentina, there is a big community media movement.

It was this movement that pushed forward the new legislation that governs media in Argentina. It is not exactly what the community movement wanted but nevertheless it has some very interesting points. For example 33 percent of the available spectrum must be dedicated to non profit media.

There is community radio everywhere in Argentina.   The transmitter that we built for Quintana only transmits for four hours every week. On Saturday afternoons the transmission is for four hours and the people come to the station to participate. The woman called "Gabby" who is in charge of the music programming runs the local butcher shop.   We stream the radio program onto the local community network and to the internet at large as well.

We have occupied and bought up abandoned parcels of land. The idea is to work on those parcels of land the same ideas that we applied to the eco-villages but to do so as projects more connected to people In town itself. We are building a house there of earth and rocks and are trying to converge the ideas of interest into an overall eco system. There are a lot of otherwise seemingly unrelated possibilities and we have been looking at how to make them into a more unified whole. We see a major question. How do you build a local economy where the sum, the whole is much greater than the parts?

Connecting to the Rest of the World

COOK Report: How do you connect your local internet with the rest of the internet in Agentina and then with the world?

Nico: What we have is 16 kilometer link to the first big town of 20,000. It is a 40 mega-bit stabile link to Itagrassia. There we connect to at the home of a friend who lives in his mothers house where they have a smoke house for curing meat and we can use the chimney.as a radio tower and on the other side is a building that we use to connect to a DSL service.

For a number of months we have been in contact with one fiber optic carrier – Silica Networks- whose nearest POP is 20 kilometers away. They are a middle size carrier with fiber that connects all ten internet exchange points within Argentina. We have been evaluating a link to that point finding it very doable. We are waiting to reach what will be for us a critical mass of fifty connected houses. We are at thirty houses now and need fifty to pay for the monthly fee to pay for ten megabits.   In a major market like Buenos aires one megabit will cost you an absolute minimum of fifty dollars per month.

If you are in a rural area and want to buy a connection just for yourself, they may charge you like $200 a megabit. We are getting the best prices available and the idea is to get a 10 megabit dedicated symmetric link for the town. This will happen in 2013 for sure.

COOK Report: To the incumbent carrier?

Nico: No. It is a smaller newer carrier that has fiber all over the country. In fact there is a national state network under development since 2011 that has the objective of connecting the while country into a 15,000 kilometer network. This project is called Argenitna connectada– Connected Argentina.   It will be a new network.   They have already laid 8,000 kilometers. Completion is planned in 2014. It is really coming together. The have built a big data center in Buenos Aires that will function as the operational center for the project. The really interesting thing is that the objective of the network is to connect the small providers so that they can compete on a so called level playing field with the big ones.

We are trying to do things together with them because the Argentina Connected project still does not have a strategy for very small towns. When you get to towns of less than 500 people in Argentina you are in a very difficult situation because there are no providers in these villages. Towns of a 1000 or less don't have providers. There are many such town. In my province of Cordoba there are 380 such towns of less than 1000 population. And Cordoba is one of 20 Argentine provinces.

This self-directed, easy-to-build community network node that we are working on is very interesting for the Argentina Connected project because it would mean that there would be local networks to connect to in the smaller towns. Argentina Connected is a government project. There are a number of related smaller projects that are connected to some ministries. One such has distributed 3.5 million computers running both linux and windows for school children. After 2015 they will only run linux. Before last year by default they booted in windows. This year by default they boot in linux. The distribution that runs on these computers is a Debian derivative that was developed by a group founded by the state. I think this is the only instance were a national government has funded a group to develop a specific distribution of linux for the nations educational system Huayra is the name of this distribution. The installed base of 3.5 million will ensure that Huayra becomes a significant distribution.

The computers have already been given out. They are owned by the kids. When they finish school it belongs to them. In the towns like Quintana where I live the majority of the computers there are theses machines. The family computer in effect is the one provided by the school system.

COOK Report: What else is going on with these kinds of networks else where in Latin America?

Nico: There were many geeks for geeks projects. I have had contact with most of them I think. There are two or there in Argentina. In Uruguay there is Montevideo libre that is very much related to Buenos Aires Libre. It is the same model. It is also the same firmware development. Then there was another project in Bogota.

The meaning of AlterMundi's motto is a technology foundation for another possible world. We are now in the second wave of free networks mounted on experiences from previous projects. For example Buenos Aires Libre still exists but many of the people who were part of it are now operating through AlterMundi. and we are working in faraway places like Quintana or other small towns in Cordoba.

Delta Libre

Far for example from the place where Nico lives but not far from Buenos Aires are the small towns of the Parana River delta. We are deploying a network there even though it is an historically problematic place for digital communications. It is problematic because the government as well as the private sector has always tried to deploy centralized networks in this setting. This is something that is impossible because of the trees. But mesh networks actually work very well here. It grew very fast. In one year there are 40 nodes connecting various spaces there.

**The map above shows Delta Libre nodes where the Parana River separating Argen-
tina and Uruguay flows into the Atlantic Ocean. Note that there are many yellow
nodes that tend to disappear when overlaid on the green background.**

Many of us have decided to take what we have learned and move away from the big cities
in order to start projects in smaller places. When someone says to me "I like your ideas,
but how do I do this in a city like Buenos Aries?" my answer is first you need to leave
Buenos Aries. There are too many entrenched interests and too many things that are al-
ready embedded and very difficult to challenge. In small places you can design your own
solution and make sure it's fully compatible with local desires.

COOK Report: In the US the carriers are being allowed to abandon their copper based
wireline service and this means that in very small American towns what has been known
as public switched telephone network service will disappear. Isaac might hold classes in
Kansas city so that folk from rural farms could learn how to replace their own phone serv-
ice.

Nico: Well, in Columbia last year we were invited for an international week of engineering organized by a cooperative university.   Guido and I were invited to talk about free networks and were specifically invited to travel through and talk in small towns.   Those towns had the same characteristics and needs for local communications as Quintana.

COOK Report: Do you think that the government realizes how the laptops are the fertilizer for local growth and change.

Villages Seeded with the Educational Laptops

Nico: I think they are beginning to realize. The laptops were given out without economic distinction.   However the children of the most wealthy citizens did not receive them because they do not go to public schools. Having all these computers will linux installed on them represents an enormous opportunity to do stuff.   It makes a huge difference because n a town like Quintana I know that if I set up an asterisk server I can run a Voice over IP network for the whole town because basically every household will have a school laptop.

With these laptops already spread it become possible to go into and organize a small town to join forces and buy the equipment together hat is necessary for basic voice service and basic internet. We look for viable links, do the links and pay for he needed equipment as a collective. This program, these procedures are perfectly applicable to every small town in all of Argentina.

I think it would work in many places because small tows are being abandoned. ***The world cannot become more and more urbanized and remain stable. I think that making small towns more interesting places to live could help to maintain a more reasonable balance.***

If the town is really connected. If it can internally solve its energy needs. If it can have a local currency and a strong local economy along with local media and communication – under such conditions, I believe that living in a small town is much much more interesting than in a big, "secure" and expensive city.

COOK Report: Well I think you probably represent the most advanced expression of wireless for the people in Latin America,

Nico: Yes I think so.

Battlemesh

COOK Report: What is happening in Europe. What is Battlemesh all about?

Nico: In April 2013 in Aalborg Denmark was the first time that Latin America was represented at the Battlemesh. It started about four years ago. This was the sixth event. The purpose of Battlemesh is to test all different dynamic routing protocols are set up in a common test bed with the goal of seeing which performs better. But really it is an excuse to meet people from other networks in person. we were for a week in Aalborg and ran tests for the last two days. Here is the website description.

The Wireless Battle of the Mesh is an event that aims at bringing together people from across Europe to test the performance of different routing protocols for ad-hoc networks, like Babel, B.A.T.M.A.N., BMX, OLSR, 802.11s and Static Routing. It is a tournament with a social character. If you are a mesh networking enthusiast, community networking activist, or have an interest in mesh networks you might want to check this out!

The goal of the WirelessBattleMesh events is to set-up a hands-on testbed for each available mesh routing protocol with a standard test procedure for the different mesh networks. During the different WBM events, similar hardware and software configuration will be used based on the OpenWRT BoardSupportPackage and packages for each protocol implementation. The WBM events are also a great opportunity to develop testing tools for PHY/MAC radio layers (drivers, scripts and PHY analyzers) .

For the previous five days we were designing tests and hacking on different stuff. The groups who attend are the representative of he best most active freenet development groups in the world. the major groups in Denmark were from Catalonia that is Guifinet, and Germany (Berlin Freifunk) where much of this got started. And the **Ninux community from Italy.**

In Rome they have 250 nodes. I found out yesterday that in France that in France in the Toulose area there is a lot of activity. The guy there is Laurent Guerby. We met him at Ramon's on Sunday. They are doing a lot of stuff but are not very much connected with the rest. For example Felix the lead developer of Open WRT that almost every free network uses was there.. This is the software that runs the operating system of the router. We sat with Felix for 15 or 20 minutes debugging a very specific problem of one of our networks. I was typing and he was looking at the matrix and finally he said there is a MAC address collision here. Now the mac addresses were not the same but they were colliding and he knew why. It was inspiring to have these experiences with people who are so talented in what they are doing bit at the same time are so humble.

COOK Report: In Berlin this coming weekend will it be a continuation.

Nico: The wireless community weekend that is held in Berlin is a German event and this year it is unusual in that it is so near in date to the Battlemesh. We will in fact continues there some of the work we started in the Battlemesh.
COOK Report: From the United Kingdom and Scandenavia?

Nico: There was no one from either area there in the Battlemesh. In fact I don't know anyone in the United Kingdom working with free networks.

COOK Report: I have a friend in Wales John Wilson who late last year took a job managing four pubs in the Cardiff area. He is trying to bring socialist oriented groups into the life of the pubs. From about 1995 to 2005 he was very much involved in early efforts and he still has a pretty good "human" network.

Thinking about connections like that, sometimes I think that I would like to become a Malcolm Gladwell type "connector" within this movement.

Nico It would be very useful to find out what is happening in Asia. I think in India there are some projects. [Air jaldi] is the only Asian project I am aware of.

Nico Nico left and **Ramon Roca** right in Ramon's backyard in Gurb Catalonia.
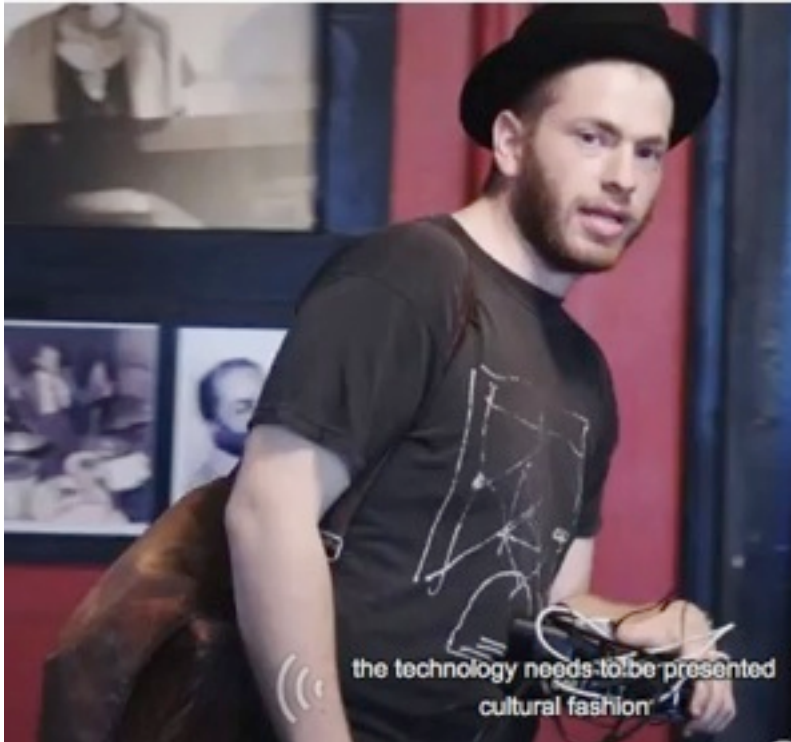
Part Four

Isaac Wilder and the KC Freedom Network

Isaac: Mutual Musicians Union is a group that we have been working with for a long time trying to realize increased connectivity - better connectivity for their neighborhood which is really the epicenter of black historic Kansas City.

COOK Report: These pictures and text from the [outstanding video produced by the Verge.](#)

Anita Dixon: The technology needs to be presented in a cultural fashion and it needs to be understood that this is something that is going to perpetuate the community, the thoughts and virtual opportunities for the community - because that is how we still think in terms of community.

Clint Wynn: For a network to survive it needs to be sustainable. So by the time that we built this first network, we would have the assets to do it again to grow the network further east further south, further north and then potentially have the job skills to be paid to do it for other communities. The biggest message is empowering the community to support itself

Isaac the network is the material network. It is what everybody co-operates to build and it is held by everyone as a commons and within that network you can go wherever you like. One of those places that you might like to go is to a gateway to the Internet.

The question is are we going to do it ourselves or are we going to let someone else do it for us and pay them for doing it?

Isaac: **I worry that people do not want to imagine alternative possibilities, alternative worlds. They want to let the monoliths of this world do their imagining for them. And for me that is very sad and very very challenging. And when I think about it, well I just don't want to think about it.**

The Verge (information about)

 Verge is an American technology news and media network operated by Vox Media with offices in Manhattan, New York. The network publishes news items, long form feature stories, product reviews, podcasts, and an entertainment show. The website uses its own proprietary publishing platform with extensive video content.[3][4] The network's content is financed through advertising and sponsorship and is managed by its editor-in-chief Joshua Topolsky and Vox Media's chief content officer Marty Moe.[5] The site launched on November 1, 2011.

Free Network Foundation in Kansas City

As I traveled with Isaac in May and had an opportunity to get to know him much better through long hours of conversation, I came to appreciate how inquisitive his mind is and how quickly he can incorporate new ideas into the worldview he is building. That world includes a vision where in each of us has some degree of responsibility for the well-being of the community we serve and that, collaboration rather than accumulation, should be a much more common societal goal. Isaac is shepherding a group of people to accomplish a task that in the early 1960s might have had much more traction but that in our current age of Ayn Randian libertarianism of "everyone for himself the devil take the hindmost," to many people may sound extremely weird. I find it not weird but inspiring and, if Isaac is going to accomplish his goals, he must inspire and lead others to commit themselve to seemingly thankless tasks.

To me a requisite for the exercise of the leadership that will be necessary to accomplish what he is setting out to do is the ability to examine what some are calling our collective insanity and describe the current situation and a course of action in such a way as to inspire others to follow him and join in the effort.

Here is a short example. It is one from his personal blog on the FNF foundation site that helps to explain the amazing progress he has made, in the less than two-year time period from when I first met him in New York City on October 20, 2011.

The Trap

July 1st, 2013 by imw

I'd say the future we can see today is rarely the future that comes about — not in the long run. The technological clock **can't** be turned back. Like time's arrow itself, it only moves in one direction. That's why it is important, as many have said before me, to invent the future. If we souls of conscience can focus our energies, learn to cooperate with one another, letting go of our fear that someone else will get the credit, then we can surely reclaim our future.

It's easy to fall into the money trap — a mode of thinking that says it is liquid capital, for lack of a better term, that moves the world. This is not the case — the world is moved also by raw ingenuity, genius, and truth. Money is just an amplifier, and at present, it is amplifying a weak and noisy signal – the result is a distorted mess. Play beautiful music, even softly, and people will listen over the noise. It is easy to think that unplugging from the amplifier will mean that you don't get heard: why resign from Harvard Law? Why take leave of the Beltway? Why stop getting paid to work on 'big data'? Why quit Google?

Because original thought rarely occurs under the hungry eyeballs of a myopic horde. Ideas that take the long view, in this age, are rare and reviled – they're too chunky to be pulverized and 'fed' to people. Yet in the end, it is these ideas — the ones that take the long arc as their frame of reference – which will win out. This is precisely because they are built to last.

We can reclaim the EM spectrum, if we have better, more efficient ways of usage. We can reclaim, or claim, the commons that is Internet (the idea), if we are ingenuitive enough to anticipate and create future technology. We can make it difficult for the surveillance state, if we stop engineering infotraps, and start engineering tools that help people: distributed social networks, Freedom box, user-friendly crypto, material peer-to-peer, cooperative autonomous systems, new currency, new machinery, new social frameworks.

At this moment, there's no real excuse to be making technology that's not politically progressive — not in my book. Too much hangs in the balance — and the linkage between what we engineer, and what our society will become is just too strong."

Over the past year Isaac has put together a remarkable coalition in Kansas City field what they named in August 2013 the Kansas City Freedom Network - not free because it costs nothing -- that is far from true, but free in the sense that it belongs to the community; is enabled by the community; and gives the community and ability to work together to determine its own Future. By the autumn of 2013 Isaac had collected four partner organizations that are described in the rest of this chapter. To set the players on the stage I will now give each a short introduction.

The Free Network Foundation

Editor's Note: What follows is Isaac's description of his own FNF in a meeting with Predictable Network Solutions in London on May 23. **Isaac**: "Our aim is not to build networks. This confuses people. Our aim is to build tools that enable communities to build networks. The work that is going on in Kansas City is under our umbrella, under our guidance but **not** under our auspices. We provide the tools for the building but it is not our network. That is true when one sense that it is nobody's network but it is also true and that we have a partner organization called Connecting for Good which is a nonprofit organization that is really the public face of the effort in Kansas City. We make an effort to make sure that the systems we use in the methodologies that we advocate are usable by anyone and for us generally that means free software but it also means not so recondite that your average engineer can't use it."

Connecting for Good

Michael Liimatta: "Our organization got our notoriety by Google saying "no" to us. See this from the history section on our web site." "They first turned down our proposal to do a community wireless co-op over a year ago using their fiber connections for the bandwidth. Sharing

Tyrone Greenfield and Isaac in the FNF office.

their connections with multiple users is in absolute violation of the user agreement. So, since they said we couldn't share it with a neighborhood, they surely they'd let us but a single connection to bring Wi-Fi to a low income housing project, a place where the average family income is less than $10,000 year. But the answer, again, was "no" because, that too, is sharing a single fiber connection with more than just one household."

"This refers to our Rosedale Ridge story where Isaac and the Free Network Foundation came to the rescue with the point-to-point wireless technology. So, the fact that Google did not allow us to use fiber for Wi-Fi is how we met Isaac Wilder. He introduced us to the wireless backhaul solution, helped us to set up the cabinet in the datacenter and has been totally engaged in every piece of the network we are building. Since the Mutual Musicians Foundation became involved, Anita's also been meeting weekly at our offices. I actually built the web site for the MMF that is a crucial element of their strategy and will be fully engaged in their efforts."

"In the midst of that first project at Rosedale Ridge, Isaac became a member of our Board of Directors. Connecting for Good is serving as the fiscal agent for the Free Network Foundation until they can finally become a 501(c)(3) nonprofit themselves. Because I have served as an education and consultant to nonprofits for 30 years, I have been advising them in regard to their relationship with the IRS and pursuit of tax exempt status."

Mutual Musicians

"Kansas City is home to a big part of Jazz history. According to Anita Dixon—who is spear-heading the Mutual Musicians Foundation's radio project—Kansas City is credited with birthing the swing era and the ensuing three decades of the original art and music. Jazz is a huge part of the city's history and yet, they still do not have a station to tell it."

"Kansas City, known for Count Basie and swing music... does NOT have a station that is dedicated to the music. It is outlandish! It's ridiculous...to turn on a radio when [you] come to Kansas City and not hear the music that you came to hear, cause it's just not there." The community that Mutual Musicians Foundations serves is comprised of many different cultures and backgrounds, even within a small radius that they plan on broad-casting in. The planned coverage area includes Vietnamese, African-American, Somalian, Laotian, and Hispanic communities, and the Foundation plans to provide programming as diverse as these neighborhoods. Once they are on the air, there are hopes for a variety of world music programs, educational talk shows for everyone, and definitely a program dedicated to local music from Kansas City." This source is from a featured write up from the Prometheus Foundation web site from text given them by Anita Dixon.

Black Economic Union

COOK Report: The BEU İs another partner that we haven't much discussed. Anita told me that she has known Chester who has runs the BEU for some 30 years and that it is, I think, the oldest black economic development organization United States. But what else?

Isaac They serve as a service umbrella for a number of black economic interest groups. They own has some significant real estate in the 18th and vine area. They run a small incubator for black economic entrepreneurs and they serve as a gathering point and a focal point to help emerging black businesses develop their organizations.

Reconciliation Services

They are located in the very large very tall building on 31st and Troost where last January we had discussions about placing an antenna on the roof. The 31st introduced building along with a photograph or two is in the February 1, 2013 about Kansas City Freenet and it is on the network map of what we had just lit up in January.

Reconciliation Services is a Greek Orthodox Mission. It is basically a magnet for people in need. They offer meals; they offer drug treatment services they help people with documentation problems such as drivers licenses, birth certificates and so on ; and help

people trying to keep a roof over their heads. They describe their general mission as one of turning Troost Avenue from a dividing line into a gathering place; to focus on bridging the dividing line that Troost Avenue symbolizes they focus on bringing people together from each side of the dividing line in an annual Troost Festival in the spring.

[**Editor**: In the late winter Connecting for Good was running into problems with renewing its lease and Reconciliation Services was in this very large building with plenty of space and Michael Liimatta through his connections within the Christian community was well aware of them and became friendly with them. He worked out the present arrangement where he moved his group into their building at 31st and Troost. Right at about this time Connecting for Good came through with the grant from One Economy that involved Meraki radios that used those to connect the Juniper Gardens housing complex. Meanwhile the equipment on the rooftop of Reconcilliation Services was paid for through a Community Development grant that the FNF secured on behalf of Reconcilliation Services.

Everything went smoothly and rapidly and it seemed as though it were all part of a long-term plan that just presented immediate opportunities which all parties took advantage of and moved forward or the benefit of everyone. [We do not have any Ubiquity air fiber radio pairs at this point. On the 27th floor of Oak Tower we have 5 GHz Rocket's.]

COOK Report: As far as the Black Economic Union is concerned, they can obviously benefit from better connectivity to the Internet, but how will this conductivity help their activities? Will it do so at one particular office or at multiple points?

Isaac: It will help in a number of ways. We have already brought connectivity to the Lincoln Building which is where the BEU headquarters are and where several of the incubators are. The Lincoln building is totally different from Lincoln Prep but it is not far away at all from the school and is a part of the general neighborhood of 18th and Vine. The building itself is best described as the economic center of black business activity in Kansas City for approximately the past century or so. At one time or another most of Kansas City's black professionals probably have their offices in that building. And what you have right now is a building where when you bring good connectivity to quit you have many offices of small companies of all sorts that can benefit from adding reliable affordable Internet connection

They also are invested in a couple of housing developments that can and will benefit from improved Internet connectivity.

March 2013 Clint Wynn Joins FNF as Education Director

Clint Wynn is set to fill an extremely important role within the Kansas City network. In his mid-30s he is s graduate of the University of Kansas. He has a lifelong involvement with

technology and was a key member of the crew that opened the first Apple Store in Kansas City. He was involved in a technology start up with the music director of the Kansas City Symphony. He has extensive experience in industrial design and the questions of how technology shapes and is shaped by the environment in which it is used and has a deep commitment to working with residents of the area around 18th and Vine and around Lincoln Prep as well as the students there in order to use both the Internet network and the human network being built to nurture ideas for growing the local economy ranging in ways from Fab labs to local art music and agriculture. He met Isaac and March of this year when Rick of Connecting for Good called Isaac in to show them how to establish a network of Ubiquity radios and Kansas City's Union Station.

Tech Dojo

In addition to our operator training, this June marked the soft launch of our Tech Dojo at the Mutual Musicians Foundation. Thanks to the tireless efforts of new FNF education director Clint Wynn, we are developing programs to educate youth about building and maintaining networks and systems, and about computer technology in general. Throughout the summer, we will be meeting with small groups of students weekly and learning together. In the fall, we will have developed formal programs that will instruct youths in the com-

munities where we operate how to build, expand, and maintain free networks

Mid Summer Connectivity Push

COOK Report: Tell me please what buildings you connected in July in the middle of the summer. and especially the picture of you & Zion Dixon on the building roof of the Kansas City skyline in the background.

Isaac: That picture was on the roof of the Mutual Musicians Union at 18th and Vine and taken by by Clint Wynn who joined us in the sprng. We were building a relay there that connects back to the Lincoln building where there is a Freedom Tower. That is the western part of the skyline and a tower is on the eastern. To get a shot to the exchange point building where we are located on the 27th floor, one has to relay in turn from the MMF to the Lincoln building and from the Lincoln building to the Posada House. We built out a Freedom Tower at the Lincoln building a week or two before connecting the relay at the MMF complex.

Zion Dixon a grandson of Anita Dixon visiting from Savannah georgia learns how the network is built and barn raising style lends a helping hand.

As soon as I get back, [Editos Note:interview done on September 9 and 11 as Isaac was on way back from dropping Pau and Roger at the LA Airport] we will do a tower at Lincoln prep. This will complete to the first core distribution ring of our network.

COOK Report: Michael told me this morning (September 9) that you are going to put a tower at Lincoln Prep and beam the output to the athletic field so that people come to football games can enjoy Wi-Fiand that this will be a relatively inexpensive way of showing the Kansas City school system that you can do.

I**saac**: Yes that will give them a first taste. And give them an idea of what they can expect later on. And the build will happen probably by the middle of September.

Then as far as how Pau and Roger ended up coming to Kansas -- City Connecting for Good got two grants for a total of $10,000, 5000 from the school district and 5000 from a group called The Upper Room which is a group of neighborhood associations.. When Connecting for Good got the school board money, they were going to bring in an expert -- someone from Lawrence Kansas who had run a free network and then took it private and proprietary which in the Free Network Movement is anathema.

When I heard this I said please reconsider for that amount of money we can bring into world-class experts from Catalonia who will do a better job for less. I know both of them and can put them both up. They were going to pay the guys from Lawrence about 2500 and for that amount of money we were pretty much able to cover the round-trip airfare for both Pau and Roger from Barcelona to Kansas City from Los Angeles back to Barcelona.

The guifi.net Geeks

COOK Report: So what happened when they arrived on 22 August?

Isaac: We spent a few days customizing QMP which is the firmware on which the network depends, it is used among other things for assigning IP numbers when people log into the network. We are doing a single NAT out to the Internet and one of the benefits of had a having a mesh routed network is that we can avoid having to do it double NATTed network. This enables us to automate addressing so that we do not have to manually give addresses to each node. Now, when the firmware boots up for the first time it is able to figure out what its address should be.

QMP is the firmware that performs the role of an operating system. The routing protocol is BMX6 or Batman experimental version 6. This is a very advanced routing protocol. It is native Pv6. It handles route announcements very well. It has quick convergence time and it has very good loop avoidance. As far as IP addressing goes node addresses are based on the Mac address of the device. We do an hash of the Mac address and that comes up with a 16-bit string that forms the second and third octet of the overall IP address. By default each node announces a/24 ipv4 network and then backbone nodes that don't have clients announce 8/32 which is basically a single address. All of the actual routing connections between the nodes happen over IPv6 while the nodes are also adjustable over IPv4.

While all the nodes on the network are reachable by way of IPV4 the network itself operates via IPV6 with an IPv4 tunnel inside.

COOK Report: if you have to climb a very large tower you might have to hire a professional climber? You said that backbone nodes serve no clients, but you've also just told me that you have a backbone node location or to where I assume you also need to be servicing clients because there are people in the vicinity of those nodes who need to be receiving network access. Help me understand.

Isaac: That is correct. Now for example the one downtown at Oak Tower is a backbone node with client connections but dole out DHCP addresses and connects to two servers that do various important network chores. Those servers get their addresses from that node. The node at the Lincoln Building also as a backbone node and handles directly no clients. Right now these backbone nodes still have /24 subnets associated with them but it is merely because we just rolled out one version of the firmware for the sake of time but ultimately those will have only /32 address.

COOK Report: But given your description of the organizations at the Lincoln Building they will need client connectivity. How will you accomplish that?

Isaac: What will happen is the Ubiquity node now at the Lincoln building functions as a backbone of but that we will add a separate client of router to talk to you when he know and do the necessary communication with the client's that is to say the machines of the end users in the building. It will give out the necessary addresses and service the first for user traffic.

As far as other protocols involved in making the network word at layer 2 you have Air Max which is a proprietary protocol from Ubiquity. We also have some nonstandard devices operating on the network - the free network community has spent a fair amount of time in keeping these devices working and it makes sense to maintain Air Max and AR OS because the support for totally free software is not quite there yet. Now the global community has put a lot of time and effort into making sure that these nonstandard devices are well forwarded while in Kansas City we have a few devices and use that are not really part of that group.

COOK Report: Like Meraki?

Isaac: I think Meraki is a whole other thing. It is well outside the scope of what we consider free software. I'm talking mainly about the ubiquity devices that technically can run on open WRT and have slightly different hardware from what is more common where these differences introduce some bugs that are better not introduced.

COOK Report: When Roger and Pau arrived on August 21st, was most of their time spent in working on the firmware to get you a fully routed network? It sounds as though most of the hardware was in place by mid-July.

Isaac: I think that's accurate, although the new firmware was overlaid not only on the Mid-summer Infrastructure but also on pretty much the entire network that we have built over the past year there. It was pretty much a full overhaul. We did add a couple of devices here and there and added a couple of routers where it seemed that we needed them. These "routers" were really only four or 500 MHz printed circuit boards that we added at some key locations to enable our network to be as sufficiently compartmentalized as we would prefer.

COOK Report: Now I have the impression that when Anita had her Charlie Parker on August 27 MMF really had very excellent connectivity for the first time. Is that accurate?

Isaac: Yes. Although Anita had pretty decent connectivity before that. One of the things to keep in mind is that portions of the network had been running QMP early on. What we did during Pau and Roger's visit was to customize QMP so that in the future we can run it without requiring much manual intervention. What we want is to create a firmware that will allow someone like you to establish network nodes without physically handling each radio.   The idea is flash it install it and it works. Before it required some customization after it was installed in order to behave nicely the rest of the network.

COOK Report: I think it is this capability of a more automated process of installation that has enabled guifi.net to really scale. **Interview continues on p. 134 below Also map below shows locations of KCFN nodes discussed.**
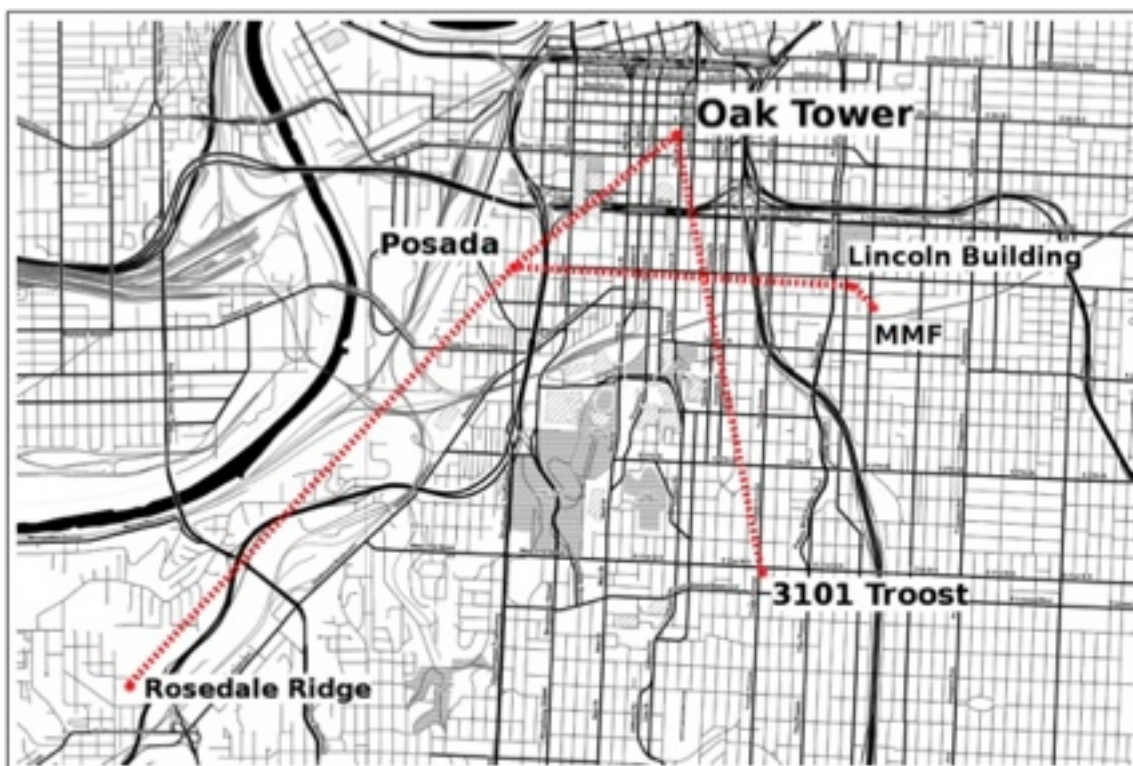
Photo Essay

The Mind Awakens

Editor: *The three installs between July 2 and 14. Counterclockwise is the Lincoln Building, Posada del Sol and the Mutual Musicians Foundation.*

Isaac: *The past few days have been some of the most exhilarating and joyful of my entire life.*
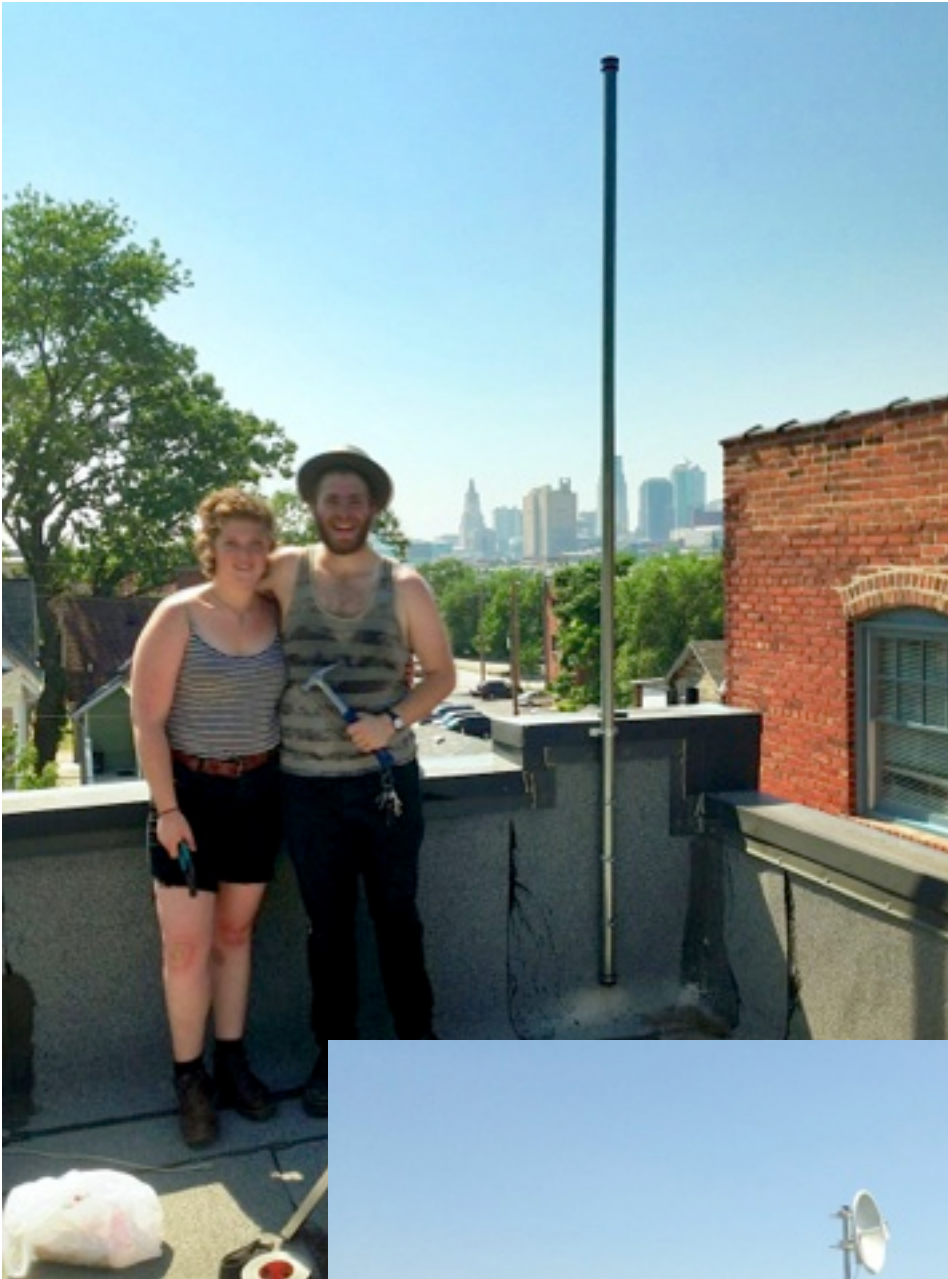
Working with Clint, James Hathaway, Jr. (son of MMF President James Hathaway, Sr.) and Zion Dixon (Grandson of Anita Dixon), we have nearly completed the anchors of the Vine Street Network.

One more day, and I'm pretty sure the network will be fully functional. (Already tested, just need to permanently install). Went with AirOS on the 3650 link, and QMP for the mesh. There will certainly be many bumps in the road as we move forward, and many improvements to be made (already quadrupled the throughput of the main Oak to Posada shot :-)).

It's truly a thing of beauty. Pics will certainly follow.

James is 22, from the east side of Kansas City, and Zion is 14 from near Savannah, GA. Neither of them has ever had the opportunity to learn about linux or networks before. Teaching them,

showing them, learning from them, letting them do it has been the primary joy.

I also just want to acknowledge Clint. He's been so steadfast, so helpful. It's a bit of a cliche, but it really, truly, wouldn't be possible without him. So glad we met, and so glad that he is on the team.

Anyways. Sorry I have been somewhat incommunicado the past few days. There's no excuse, really. I just wanted to let you know that the days have been long, and satisfying, and hugely productive ones.

The mind is coming alive. By the end of tomorrow, a full freedomstack deployment will be in production, constructed primarily by the community that will use it. Folks down on 18th and Vine are buzzing. We run into people as we work, and they ask us questions, and really want to know when the network will be done. Saying 'soon' has been fun, but saying 'it's done' is going to be even better.

End of photo essay. Previous page. Isaac and Anna on roof of MMF building. The Posada del Sol roof top installation and immediately above the downtown skyline. The above and preceding seven photos by Clint Wynn.

Isaac: Absolutely. In the field as we overhauled the network, and it took a couple of days to do it, is that links would go down and then we would bring them back up. Now ubiquity's AR OS does not allow you to install QMP remotely from the network. You have to actually go to the radio and press a button. But now that they're running linux and QMP we can do almost everything by means of the network. In another words by logging into a properly authenticated remote machine. We can even install different flavors of Linux

over the network; but just getting them running Linux and QMP in the first place required a site visit.

At this point the radios are at either ground-level or more likely rooftop level and though antennas are involved nothing that could be considered a real tower climb I is involved although at some point in the future this may well be the case and this is one reason that we decided it was necessary to get it right early on so as to be able to prevent unnecessary and expensive tower climbs.

COOK Report: I have the impression that if you had a 50 to 100 foot tower you might have to hire a professional climber.

Isaac: Not really. If you understand how to wear a harness and use ropes you can do substantial work on your own. You will be able to climb most towers although some will require you to show proof of insurance.

Engineering Studies for Lincoln Prep

COOK Report: Tell me if you would the details of what the engineering studies were all about.

Isaac: -We collected some data about the RF environment and took a look at the lay of the land so to speak in order to wrap our minds around the feasibility of building the network there. The documents that we will be producing will be mainly for the school Board. They will give the Board an understanding of what we are talking about and what kind of materials and purchases will be required to build the infrastructure fit for a specific purpose..

It is important that we give them a complete picture of what the process looks like of what an organic network is all about and **what they can expect from the investment. And perhaps more importantly what they cannot expect from it.**

One of my concerns is that some of the partners in the network are really eager. They want to see it grow and grow rapidly. The problem in this is they might have a tendency to promise the world. The engineering study is an opportunity to be perfectly open about the benefits but also to be upfront about any possible difficulties.

COOK Report: Perhaps it's a good opportunity for training Connecting for good two appreciate the realities with which all of you are dealing?

Isaac: I think it is a good opportunity. We will produce a polished document and we will hand this to Connecting for Good and they will look at it and tell us whether they wish to

make changes to it by participating in a collaborative process that will help all of us get on the same page in what we are doing. And what is possible and what is not so easily done.

COOK Report: Michael called me this morning to hear my ideas on involving Ferdi Serim with Anita's Young Jazz Musicians program and possibly with the school system and he was very enthusiastic pointing out to me that the big lesson that he learned from Pau and Roger was that you all should get all the network you can built out as quickly as possible.

Isaac: I think some of his emphasis is a little misplaced. Roger and Pau certainly did say that it's better to have one node built than 1000 nodes in planning.

I do think we are definitely going to build the tower at Lincoln Prep right away. I think there is some confusion between what will be built as a part of the project namely two or three towers and maybe some relays into the general neighborhood. That will be built as part of the base infrastructure. This is like planting a seed in that area. I think that what Connecting for Good may have overlooked is that ***once this is done three or four months from now it will take a year for the network to fully proliferates and cover the area.***

It will take a while to catch on and if you try to just build it now and then walk away, it's not a free network.

COOK Report: I have the impression from a brief talk with Michael this morning that in a matter of days you will be getting a tower that will turn on Wi-Fi for the athletic field in the football games. And will this tower be the piece of infrastructure that will serve as a means of hanging the antennas for several more radios over the next several months as you expand your infrastructure around the school?

Isaac: Yes it looks like we will start with that now and if the school district wants to expand, we can add a few more radios to that tower. In effect we will have the infrastructure in place to do more.

COOK Report: Is the second phase of the engineering study a deliverable documents that says, if you want to expand, here is a way to do it?

Isaac: I think what we will wind up suggesting is that the school district should build a fairly significant tower at Lincoln Prep. Then the one we built an couple of weeks will probably end up being a smaller version of that that will ultimately serve as an exhibit your return our to the larger infrastructure. We are likely to suggest that we find one or two more community partners who are stable partners and interested in a long-term commitment and will build smaller towers in the area and then seek out a few more people who are willing to establish relays. This is what I think we will likely suggest to the school district I think also that as a purely simple district project apart from the Kansas

City Freedom Net they may want to work on some programs to raise capital to help students acquire their own computer used to make full-time use of the new network availability..

COOK Report: So as you said when we last talked, there is fiber on 31st and Troost and it belongs to Zayo. Now they would give you hundred megabits per second symmetrical on their fiber from 31st introduced up true stamina and to the Oak Tower exchange point to connect you with Joe Morgan's data center $1200 a month which, at this point, is a budgetary expense that you regard as quite premature?

Isaac: Correct.

COOK Report: And Connecting for Good is covering the costs of the upstream connectivity via Joe's Data Center for the Kansas City Freedom net on a month-to-month basis. And his upstreams in turn are Level III, Cogent, and Hurricane Electric?

Isaac All correct.

COOK Report:: and heaven forbid but if anything ever happened to Joe's Data Center there are at least two other relatively small players at OAK Tower to whom you ought to be able to connect?

Isaac. Yes.

COOK Report: How did you decide on the Kansas City Freedom Network name for the network you are building out? Was it during discussion at your weekly meetings?

Isaac: Yes. Informally we may say "free net" but the formal name is the Kansas City freedom network.

COOK Report: Clear – how would you describe the coalition that you would built and the relationship of the free network foundation to that coalition?

Isaac: While Connecting for Good was the first partner we worked with, I would not want to find them as the sole operator of the network. My hope is that all the partners are learning how to operate it and maintain it and that this will include the ability to integrate new radios into the network and replace infrastructure when it either wears out or malfunctions.

COOK Report: Is it your goal to have at least one person among each of your partners who has really ability to network diagnosis of maintenance and installation?

Isaac: Yes.

COOK Report: Has anyone ever raised the question of whether or not the Free Network Foundation should have a vetting process for groups that it agrees to work with? In a sense when you are putting your seal of approval on that partners goals and behavior.

Isaac We have thought about that a lot. The basic idea is probably so but right now we are very resource constrained and understaffed and it seems to be the best we can do for the time being to talk to people and try to get a level of understanding of where they're coming from and where they want to go.

Going from Just an On Ramp to the internet to an Individual user Authenticated Community Network

COOK Report: As you have pretty well built out your first phase, I get the impression that having an increasing number of people using the network on a regular basis will involve decisions about authorization and authentication otherwise known as login, about email and probably mail lists and things like splash pages.

What happens at this point when anyone is in range of the network? Be it Anita Dixon, Chester from the Black Economic Union or just a person waiting for a bus in range of your signal? Is there any kind of login?

Isaac: Now when the user's machine can get a network signal, the person can just type a URL into a web browser and they are on.. We still haven't decided what we will do for authentication. It will be either something based on tunnels or on Radius. Eventually everyone will definitely have a user account that will be associated with an email address. This will allow people to run gateways and band together.

COOK Report: absolutely. You just push them straight to the Internet horizontal networking becomes almost impossible and you will likely never get a true community network that is able to facilitate people's ability to indicate their neighbors and build a real stake in what you have provided.

What is your timetable on this? Between now and the end of the year?

Isaac: That sounds about right. After we complete the immediate bill of the tower prep this becomes the next issue must be addressed because if the network gets any bigger than it is now it will be a nightmare to retrofit this very necessary system into place.

Building any more infrastructure this point -- until we have the mechanisms built in for sporting users at a local level is asking for trouble.

COOK Report: if something bizarre starts to happen that not only would create operational problems for you but create potential legal problems as well?

Isaac: Definitely.

COOK Report: Okay. As you are thinking about how to do this, one of the issues that arrises will likely be a splash page. In other words what does the user see when she or he connects to the network? If you are over at the Lincoln Building the chances are you will be connecting under the aegis of the Black Economic Union. Therefore one would expect to see a splash page saying something about the Black Economic Union? And if you login over at reconciliation services see a splash page oriented toward them. But resumable splash page with informed use of the network partners and resources available to and would give them information about the freedom network community that they can affiliate themselves with?

Isaac: Again the answer is yes and I think, at this point, only the details worked out.

Weekly Partners Meetings

COOK Report: For the past couple of months on Thursdays you have had a weekly face-to-face meeting of partners can you give me a better sense of what happens, who's involved and so on.

Isaac while at this point there are five organizations in the coalition really only four have been participating in the meetings. So far the Black Economic Union has not attended any meetings. While they have given us wholehearted cooperation in providing space for a tower at the Lincoln Building and in every other operational way, I think they may be a little bit more cautious and waiting to see how things shake out in a person to ;person organizational way. And like everyone involved they are very resource constrained and for whatever reason just about made it over to the meetings so far. I don't view their absence so far as any message other than timing right now is not great for them. And it is also quite possible that the role that they want to play is one of the supporter but perhaps not as a member of the governing body.

COOK Report: Well your meetings then are for coordination and questions such as what's on the agenda but do they also have a flavor of working out some governing mechanism?

Isaac: To some extent. From the discussions we've we are pretty much agreed that decisions should be based on consensus rather than an up or down vote. We are hesitant to put too much formality around an informal system that seems to be working quite well for the moment.

The weekly meeting is more of an opportunity to make sure that everyone is up to date. When this structure really works is that the partner have a lot of autonomy to do what they choose. Reconciliation Services and Connecting for Good work quite closely with one

another. MMF is more out there on their own, working with the BEU. Meetings give an opportunity to tell each other what we've done and what needs to be done and where we could give each other some help.

COOK Report: gufi.net and has all their budgetary figures including their income and expenses made public in detail on line. What is your thinking about how to do this?

Isaac: We are definitely in favor of the and believe it does need to be done but so far have not managed to find time to implement a system to do it

COOK Report: So between now and the end of the year the Lincoln Prep initial tower build, the mechanics of user authentication and splash pages and further work on your governing structure are the paramount items?

Isaac Yes.

COOK Report: And by January you should know whether the school board wishes to expand beyond the initial tower and if so you will be working on fallout from the and cementing early in the year the process of maturation of what you would build this year?

Isaac: That is correct and I feel very strongly that we should not add new infrastructure, unless it is on behalf of the school board, to what we have built now until and unless the network has had an opportunity to run for a reasonable amount of time with user logins email splash pages community news and so on.

The most critical issue in my mind is that we are not and must not be playing a numbers game in looking at how many physical places we have connected but rather we must absolutely finish the current infrastructure to enable the people living where we have connected to use the network on a regular basis and to work with us in figuring out better ways for a local and horizontal organization where they can band together themselves and with new horizontal channels of communication can identify commonly held goals and take steps toward achieving them.

On September 11 the [Verge published a superb article and a nine minute video](#) comparing the Kansas City Freedom Network to the Google fiber Build.

An Interlude from Isaac

Isaac arrived back in KC on September 11 and posted this vignette to his FNF List.

Out in canyonlands, nature has this nifty thing called cryptobiotic crust. Cryptobiosis is an ametabolic state of life entered by an organism in response to adverse environmental conditions such as desiccation, freezing, and oxygen deficiency. In the cryptobiotic state, all metabolic

procedures stop, preventing reproduction, development, and repair. An organism in a cryptobiotic state can essentially live indefinitely until environmental conditions return to being hospitable. When this occurs, the organism will return to its metabolic state of life as it was prior to the cryptobiosis.

"When we were out in the desert this past week, we cracked a lot of crypto jokes about the crust dirt. On the real, though, I think we've got a lot to learn from the dirt. It takes hundreds of years for cryptobiotic crust to fully develop. It bides its time in a place that seems incapable of supporting life, and then springs to action at exactly the right moment. Patience is everything. Timing iseverything. [snip]

Roger, Pau and I travelled west, driving through the endless harvest. We saw the desert, the mountains, the ocean, all the splendor of this unique and schizophrenic continent. We consumed and were consumed.

There is something about moments of elation and frustration -- they bind people together. Shared experience is the fabric of understanding. After the stressful marathon that was our time in Kansas City, spending long hours together in Tyrone's car, facing forest fires and closed passes, and climbing peaks and seeing waterfalls and finally finding the ocean, I think I've got a much better understanding of who we are, together. Real conversation doesn't happen in meetings -- that's where you do boring stuff. Real conversation happens on the plains of eastern colorado at 1am.

We face different challenges from guifi, but if we are to succeed, it will be by leaning on each other, learning from each other, and pulling in the same direction."

OAKLAND Freenet

There is a group there that has emanated out of [hackerspace called the Sudo-room.](#) They have been working on plans for a Bay Area Community Network for the past couple of months and they have partners lined up to stretch all the way from San Leandro to the Internet archive up north. They have the support of a lot of great local people

The really great hacker level folks and organizational folks working in concert with community folks who raised $4000 through a kickstarter campaign earlier in the summer.. They used that money to buy around hundred devices start building out the network with. They have a really good guy named Mitra from WLAN Slovenia. He has a lot of good field experience which he is sharing with the Oakland team. There is a program manager named Mark who is a Swedish immigrant to the United States. And Jenny Ryan who helps organize and run the hacker space. It seems like they have a really good thing brewing and I think they'll probably be operational in the next few months.

COOK Report: A few years ago it would have been unthinkable for this to be happening without Bar Area folk like Tim Pozar and Dewayne Hendricks. Were they there?

Isaac: No. I have talked with Dewayne who, for reasons I don't understand, seems to think that all the spectrum is hopelessly polluted and that this is quite impossible. David Reed seems to be of the same opinion

Meanwhile the intention that we went to Oakland with was to have a conversation about the Networks Commons License and why it was important as the fundamental organizing principle. Having Roger and Pau there as two key core representatives from guifi.net as well as Mitar was highly significant. Having many of the key core people from the global Network Commons License community sitting around the table explaining why it was urgent helped get the idea across that, if all these people in these different countries and places that come to this conclusion, maybe there was something to it that demanded their careful attention as well. I think it highly likely that they will decide to adopt the license. Consequently in terms of political economy I think it's a very good thing we went.

But in terms of technical development -- one of the hoped-for outcomes was that perhaps we could convince them not to pursue the development of their own firmware but instead to participate in the Libre-mesh project that got started in Berlin during the second weekend in May we were in Spain and when I left you with Ramon and went there myself.

On that front we were not as successful but, as far as I'm concerned, it is clear that we share the core philosophy and this is the critical thing. Libre meshe is now the focus of the development of Altermundi, of Guifi.net of Friefunk, of Italy and other groups. It makes no sense to talk about each of these as though they are monoliths - they aren't but are groups of people from each country.

Libre-mesh is firmware like QMP but it's definitely not the same. It will probably take significant chunks of its modules from QMP as it will also borrow from Altermesh, It will take the best chunks from several different systems and put it together in a single firmware that we can all use and improve and customize as needed for our own purposes. This will be another layer on top of open WRT that we can all share and add features to.

COOK Report: Is there a webpage that someone like I can look at or is it just a code repository?

Isaac: It is not yet a running system. Initially we threw it up on an AlterMundi site which had some reliability issues. And we've now decided to move it to the Free Network Infrastructure in Kansas City. But we very likely won't talk much about it until there is something usable. At this point there is not much at all in the way of working code but mostly a bunch of ideas on a wiki at libre–mesh.org.

At this point our infrastructure is massively overbuilt so we should be able to handle the bandwidth in and out without any problems. We have a lot of spare capacity that is pretty reliable.

Meanwhile the Berlin meeting is not focused on Libre Mesh but really is just an annual global summit on the wireless movement.

Mesh Protocol Issues as Background to Libre Mesh

Isaac wrote to his FNF list on May 6th: At this stage in the trip, we are just outlining and starting to explore what we'd like to get done, which ultimately is the creation of a transnational effort to collect data on what is effective, not just with community networks, but with networks in general, so that we can have more hard data to support the idea that there is utility in what we do.

Technical discussion has focused a lot on how QMP works, and where it is useful. Hopefully I'll get a chance to dive into some other firmwares this weekend. It looks like there is definitely a mega-meta firmware project brewing between three or four of the major networks. I'll definitely know more after this weekend. Preliminarily, they want to create a firmware that is capable of participating on both batman-adv powered link-local networks on one side, and BMX6 routed networks on the other. BMX6 won the Battlemesh, as you're probably aware, and looks like it's developing nicely. The BMX6 developers are tight with guifi folks, and it's starting to seem to me that QMP makes the most sense to deploy at 18th and Vine, at least until we get more hard data.

Ultimately, though, most of the value is not in 'facts' - it is in connections and relationships. I've been spending a lot of time with the Argentinians (AlterMundi) and we see eye to eye on a lot of things. I would be sad if this experience didn't lead to much better collaboration on free networking in the americas. Until such time as we have an address block, I think it might make sense to join Alter-Mundi in tunneling 6-in-4 from guifinet's block. I know we could do the same through HE, but we'll have our own AS soon enough, so I just look at it as a stopgap.

Part Five

A Mutual Musicians Foundation Renaissance for Kansas City

Anita Dixon's Vision for the Preservation of the Cultural Heritage of Kansas City Jazz

Editor's Introduction

Kansas City is a large Midwestern city situated on the boundary of the states of Kansas and Missouri. Consequently, there is a Kansas City, Kansas and a Kansas City, Missouri. In the beginning of the twentieth century it was perhaps the largest rail hub in the United States and had - along with Chicago - the largest stockyards in the country. It is notable for having a branch of the US Federal Reserve, and was the location in 2006 of the firm that set off the stock market flash crash. The Department of Economics of the University of Missouri, Kansas City is a hotbed of Modern Money Theory which is the most forward-looking economic theory in the entire United States. Its faculty includes Bill Black who, in the late 1980s as a federal regulator, actually sent thousands of "banksters" to jail. In 2011 Kansas City, Kansas won the competition to be the first city in which Google built fiber. Within a short period of time Google announced that it would build in Kansas City, Missouri as well. It is also the city where over the past eighteen months Isaac Wilder, through his Free Network Foundation, has put together a coalition of forces to build what is now being called the Kansas City Freenet.

The part of town being served by the Freenet is the three-square mile section of town sometimes referred to as the "hood." The hood is a special place very likely known only to lovers of jazz.   You will find there the Mutual Musicians Foundation, which is located in a building - now a National Historic Landmark - the "colored" musicians union once known as Local 627 of the American Federation of Musicians. Established in 1917 as Local 627, the union was the first black musicians union in the United States.   The MMU gave birth to swing, which became the dominant form of jazz in the world in the 1930s.

The Mutual Musicians Foundation was organized to preserve the heritage of Kansas City swing. From the standpoint of local culture and pride, the MMF is the crown jewel of the "hood". It is also the institution under whose leadership the new Freenet can be used to connect residents to each other, and enable them to build a more resilient, self-reliant community through their own network that they own and have built and by means of which they embrace Kansas City jazz as a beacon to the rest of world.

I've been talking to Anita Dixon on and off since the first of July. What follows is my effort to capture her inspiring story in her own words. I did this hour-long interview with her on August 21 and have changed my format of question and answer in a way such that I leave it to Anita to tell the complete story. I am happy to produce this as a special issue for Anita to use as she sees fit. Thanks also to my friend of 20 years Jeff Michka for editing and valuable advice.

A Cultural Renaissance for the Three Square Miles in which Kansas City Jazz was Born

Anita: I was born in Kansas City in 1956, in the heart of the black three square mile area of Kansas City, known by some as "the hood." My parent's place was quite near the location of the Mutual Musicians building. A Black female -- What more do I need to say about being born to challenging situation?   When I was five, my mom moved away because she explained to my father that their children would not get a good education in Kansas City.

We moved to Denver, Colorado which was very open and progressive, and seemed headed in a positive direction. This was in 1961 at the beginning of the Kennedy presidency. My mother was the first black nurse to work in a supervisory position in Kansas City. My mother left my father who worked for the railroad behind, and took me and my siblings with her to Denver.

In Denver, in junior high school from 7th through 9th grade, I had a fantastic literature teacher named Mike Surber. This experience made me the literate person that I became. We read Edgar Allen Poe, James Baldwin, W.E.B duBois, Dostovesky; he knew black authors, he knew white authors, he knew female 19th century authors. His world was incredible and he would draw you into this world in a powerful way. From the seventh to the ninth grade under his guidance, I was turned onto everything possible.

"Don't You Go to that Dad Gum Union Hall!"

When I was about 16, I came back to see my dad and that was the beginning of a series of periodic trips back to Kansas City. My dad gave me two instructions: "Do not go to this certain hotel that is on Prospect, and do not go to that dad gum musicians union hall! Don't let me catch you hanging out at Local 627." All the great musicians from Count Basie on were still visiting; then they were still hanging out at that very place. "They smoke cigarettes in there and a young girl like you has no business being there. Don't let me catch you down there," said my dad.

It was a paternalistic thing in part – a desire to keep me away from these crazy musician cats – so, of course I went there and started hanging out. It was a vibrant, lively after hours place where I could go in and socialize. I met everyone. I met Andy Kirk, Coots Dye, some of the Motown family, Eddie Baker - he was still alive back then. Big Joe Turner was still alive. What a fantastic place this was.

I began a kind of spiritual migration into the building, the union, the musicians, the physical area and neighborhood, people and what it all meant in that area into which I was brought home as a child. This was in the late 70s, and by now the civil rights era had come and gone. I thought about going to college. By 1984 I had an Associate of Arts degree from Donnelly College in Kansas City, but I wanted to go further.

I found out that I had an opportunity to study journalism at Lincoln University in Jefferson City. But to apply for the scholarship, I had to find a unique story to write about. The musicians gave me a gift that determined the course of the rest of my life. I saw Andy Kirk and Sonny Kenner and Horace Peterson and Eddie Baker. They gave me their pictures off the wall. They sat down and gave me personal interviews and all the information about Local 627. So I got the stories, did the articles, submitted them and got the scholarship.

While I was studying in Jefferson City, I started coming back every weekend to Kansas City, and spent most every weekend at the Musicians Union with the musicians. And when I would show up, they would say "there is **our schoolgirl**," and they would pass the hat and they would make sure that I got money to go back to school and money for meals and things. But they always made me promise: "Look Anita, when you get yours, don't forget about this place." I have kept the promise.

I Have Kept the Promise.

And so I started Kansas City's first full-time African-American tourism company. I called the company Passage Unlimited. The Passage was the first full-time tourism company that centered on the cultural and historical contributions of African-Americans in the states of Kansas and Missouri.   I would give them a tour of the three square miles and bring folks to where Count Basie used to live and where the Gem Theater was. I showed them where the three square miles began and where it ended; where the civil rights leaders lived and all that. I used to put where actors and actresses lived on my tour, for people who were coming in for family reunions and things like that. My other market was the African-Americans who were coming in for meetings and conventions.

Because of this Local 627 was one of my main attractions. Showing where actors and actresses lived meant that I would connect with talented musicians I knew in the community, and I would introduce my customers to them. They'd hold jam sessions with them as a part of the tour, in order to introduce them to the special jazz sound in the Kansas City area. And to be honest with you, at that time jazz had gotten so watered down. I told my customers that if you play any kind of an instrument, you'll have an opportunity to actually participate with local musicians.

That happened in 1991, and as a result, I began the process of becoming a consultant on the national level for African-American based historical heritage tours. I help to get a bill passed in Con-

gress that was designed to preserve the heritage of the Underground Railroad in the United States and Canada.

The Kansas City area was the major terminus point for the Underground Railroad, and there is a place in Kansas called Wyandotte County. This county was at the time the home of the largest Underground Railroad city called The Quindaro. They called themselves "free-soil immigrants." A better name than "former slave," I think.

With all of this going on, in my personal life, I had another child. The child was diagnosed with severe autism at an age of 18 months, and that is one reason why started this business -- so I could stay at home. But then I started getting ill, and things got bad. I got very sick, having a major operation in 2008.

At that time there was a lot of unrest going on within the Mutual Musicians Foundation. There was a group of people who had taken over the Foundation, and turned it into a drug house. When I got sick, I had to drop my business and when that happened I got a call from a guy at the foundation who said, "Look, we are trying to take back MMF from this group of charlatans that are ruining it." Readers will find the full details here.

I walked in around 2009 as part of the new Board of Directors. I started setting some things straight for the future of the Mutual Musicians Foundation. Actually, what I was doing in my mind was fulfilling my promise made so many years ago that I would come back and do what I could for the Foundation. I came into the fight, hands on, and I had no idea how big the fight was going become.

At this point in time, I think we had finally been able to corral the naysayers, and took them out the door. I was feeling better about the future. Over the past five years I do believe that we have been able to do what we promised. This was to restore the integrity of the Foundation as an institution, politically, legally, artistically. It made MMF a cultural center for the three-square mile neighborhood of Kansas City out of which it grew.

There were holes in the walls. The electric bills were not paid, and the books were a mess. When we installed the new board, and I came in, I found the necessary legal and accounting controls were not there, and the Foundation was a few thousand dollars in debt. Moreover, we found out that the building itself was "on the court house steps," ready to be sold for back taxes.

We prevented that from happening by restoring the place to viability through very hard work. We cracked down on everything. We kicked out the people who had their hands in our cookie jar. We took the board from fifteen members down to nine so that we can make more decisions without having to have a large quorum. We increased our paying membership from a mere fifteen or sixteen to over 100 as it stands today

Straightening Out the Finances

When I came in, MMF was a total cash business. The result was cash everywhere. There was no way to track expenses – either incoming or outgoing. So, we brought in credit cards in order to

create automatic records.   For example, one night where cash receipts might've been $800, the adoption of credit cards yielded $1300 on our bottom line. In other words, in addition to the $800, another $500 came in, but never made it on to the books. It seems like 30% of the cash income had just vanished.

With less cash hanging around, there was much less to walk off with. By not accepting credit cards we were missing a big part of our potential income. But a lot of the previous administration had not minded keeping things on a cash basis because credit cards involved too much reporting. Also, dealing in cash only made it very tempting to underreport liquor sales to be state tax authority.

We stopped that, and got us a real accountant, on our board. The person who had been responsible for those functions was not even a bookkeeper. It took our new CPA two years to get through our books. The liquor license is unique. The actual liquor license has been in effect since 2007. Now, we have been selling liquor - our sacred cow - since 1929. But no one from the state ever bothered us about it until 2006. They came and said, "You know you guys are illegal." And we said, "We're the Foundation. How can we be illegal?"

At that point the different factions went in to the state of Missouri, and actually convinced the state of Missouri to give us a special license based on who we are. So, after the license was straightened out and we have our books on track, we are legit. So I go to the city and I say to the city manager, "We need some help." About two years ago, the city manager funded us $20,000 dollars to get us through the Winter. I saw this as a huge opportunity to bring back education things related to what had gone on inside our building.

We began to concentrate on the process of the building itself, based on the idea that we needed to restore it to its former glory, becoming a beacon for the community. We have been given $143,000 from Congressman Emanuel Cleaver. We used the money to install educational panels downstairs that tells the story of the music AND the neighborhood that surrounded it's creation. We also completed a documentary entitled, "Still Jammin'" , that tells the history of Local 627, it's rise and demise in American culture.

Our purpose was to build the Foundation into something that could no longer be seen as a honky tonk*. "We're not a bar and we're not a museum either. We are an historic performance hall."* We are a National Historic Landmark, and we do not care to be described as a bar.

Why the Musicians Union Hall is so Special

We made the changes I just described to break with what they had done, which was to set up something that *did* recognize the unique character and history of Local 627 and the building that housed it. But now we were in a fight with them to get that money. Finally, we reached an agreement where the money would go through them, we would do the projects.

We did the projects and they were very, very well received -- except for one blog item by an author who did not grow up in this neighborhood, and not know or understand.   What he was complaining

about was our change from what could be described as honky tonk to a nationally recognized historic performance hall.

This is the attitude of an outsider who would like to remove the Count Basie's and Duke Ellington's from the environment in which they were nurtured, and in doing so, separate what they did from the environment and the people which they lived among and, which I believe, made their creativity possible. In my opinion, the blogger wanted to make it seem like they were separate from the people they lived among. This is not true. They were black, and they were treated like all of us. **This is why [Local 627 and its building](#) became popular: because it was the only place that these jazz giants could go and play and be treated like musicians**. Because, at the time, they were members of the American Federation of Musicians.   The hall became popular because it was the only place that black people could go and be treated as musicians.

The projects did get done on our terms, I'm glad to report. We have succeeded in doing what needed to be done. The money has been spent and we believe the results are extremely positive. But there is much, much more to do.   We have gotten our books straightened out and now things are back to where they need to be. Because of that, the question becomes what do we do next?

For example: education. We need to start bringing the neighbor kids and the young kids back in here. And in order to do that we [started a program called Y**oung Jazz Masters**](#). We give them a place to practice. Then there's the Kansas City Boys and Girls Choir which is a separate organization, but we are their place of residence   MMF is where they meet and practice two days a week. Instead of having the place being boarded up all week long until the weekend came, and it was time to come in and have a drink and listen to music, we have made sure that the hall is used during the week by our children.

Our Photographic and Sound Recording Heritage as a Key to Marketing and to Our Future

Next, we went on a **reclamation project to get the rights to our photographs back** from the special collections section of the Library of the University of Missouri, Kansas City where they are archived and where the library, having digitized them, had also put up a very well-done website. But in return we found that they were claiming ownership of the intellectual property rights. Now, Isaac Wilder is co-founder of the Free Network Foundation, and his dad is our lawyer.

The previous board had sent them there and the University assumed that an irrevocable donation had been made. Isaac's dad, as our attorney, helped them see the point that I was making in my conversations with them at the university. That, absent written documentation asserting all rights were given up, transfer of these historic documents did not include the transfer of intellectual property rights to the University.   This matter has been settled now, and we appreciate [the website](#) and University's recognition that we still own the rights to our heritage and that they cannot be used without our permission.

The website is beautiful. The University has done a good thing. They have been good stewards. The only problem is that we have had to let them know they don't own the documents. The origin of protecting our ownership of these images has everything to do with marketing in the future. We

might have been the Mutual Musicians Foundation; we may have the ownership of the building. But without the ownership of our historic images, what kind of commercial opportunities were available to us?

The first thing we did was our own bottle of wine with our images on the bottle. We acquired the name, " *A Bottle of Kansas City Wine"* with our images on the label. The name comes from the rather famous song "Goin' in Kansas City". I was really glad to find out, for trademark purposes,

the name was available. We can are the only entity that can use our historic images commercially and permission must be granted by the MMF to be used in any other capacity.

Connectivity to the Internet

At the end of the summer two years ago Harris Wilder, Isaac's dad and our attorney, sent me information on my Facebook page about what his son was doing in Occupy Wall Street with those radios and the Internet. I thought, "How cool."

Now, around 2009 or 2010, we had been looking at network connectivity with Wi-Fi. That brought us into contact with AT&T. They and Time Warner Cable were really unpleasant to deal with. Time Warner Cable wanted to come in and put huge holes in the walls of our building.   They wanted to deface the building. I said: "this is a national landmark. I can't let you do this." "Well then we can't serve you" was their arrogant reply.   AT&T was easier because their landline copper was already in the building. They set up very poor quality and expensive DSL.

But in October of 2011, I saw the first videos of Isaac explaining what he was doing to bring Internet connectivity to the occupy encampment in Manhattan.   Then I saw a video of how the police came in and arrested them and busted up their equipment.

[**Editor's Note**: As of September 4 2013 a thirty minute video published on March 29th 2012 featuring Isaac and Doug Rushkoff has been viewed more than 88,000 times.]

That is when I decided that we needed to get in on the ground floor, because the important thing for our future was access to this technology, especially in these poor areas in urban neighborhoods. How are we going to change our situation if we are not technology savvy?   How are we going to do it so that we do not have to pay those exorbitant fees just go on line?

Over a year and a half ago I started conversations with my Board and one of my board members said "It sounds like two tin cans and a string." I looked at him and said "you know that those two tin cans and a string actually work?" We need to get in on the ground floor and have this history available to the world in the technology age, and we need to own it.

I told them that, if we are not the innovators and creators of who we are to become, then we are doing the guys who left us this heritage a disservice. These guys were the ***innovators and creators of a whole new artistic genre of music given to mankind.***   A century from now the world needs to be able to turn back and say "Creators of jazz came out of Kansas City from the Mutual Musicians Foundation Board of Directors, because they erected the first free Internet system to serve the arts in a poor neighborhood." We need to be innovators in that vein, just like Count Basie, just like Bugs Molton, just like Andy Kirk and the Swing Era.

I realized if we do not become the innovators of our own, then jazz was going to die in a sense. We have to convey an understanding of how, when, and why the Swing Era came about. Everybody acts like it just dropped out of the sky. Swinging was Kansas City's contribution. How did it come about? It came about because we were isolated in a separate "set apart". I prefer to use the words "set apart" rather than segregation.   In this deliberate set apart there were families who lived one-on-top of each other. Families who came from the South came to live among us. They brought their blues with them. They brought their gospel with them because the church was right next to the school that was right next to Count Basie's door that was right next to the hotel that

was right next to the Foundation -- all over this three square miles. This is how we lived, and as the blues came out and turned to the church; and into the things we can believe in.

The sound that came out of Kansas City was a blues-based and a swinging-based sound.   If you go on a website that University of Missouri Kansas City created, you will hear the music of the 1920s and of the 1930s: the music the Artie Shaws and the Bennie Goodmans took from us. Swinging became the jazz definition of an entire era from the 30s to late 40s.   It was the music of World War II. It pissed off Hitler. You have a whole era of culture and music that came out of Kansas City and was transported all over the world. Swing was dominant globally. Everybody was swinging. New Orleans had its own style of swing, but Kansas City was the place to go because we were really open-ended.

The cool thing about Kansas City at the time was the political climate. No one messed around with Boss Tom Pendergast.   There were no problems in Prohibition era Kansas City because Boss Tom Pendergast had everybody drinking. That's why we were surprised when they descended on the Foundation in 2006, and said you all can't drink. We said "what do you mean? We've been doing this since 1929."

Under Pendergast, the arrangement was that we stayed in our three square miles.   We had our own downtown. It was a city within a city. Just as long as we stayed, set apart, we got along very well.   Pendergast made it palatable. We had our own downtown. We had our own waterworks. We had our own fire station.   We had everything of our own.

We Are a Neighborhood Where Internet Should be a Utility

Our three square miles, or as some people call it the "hood," still is a real neighborhood. This is what I am trying to get people to understand.   It is an urban neighborhood that people ignore, because they do not see the value of the people who lived there. In that sense, it is like any poor urban neighborhood in the United States. A neighborhood neglected by the people who don't live there, and, as far as the digital divide is concerned, a huge part of our technology neglect is **we are viewed as not being able to afford the services.**   Not that we don't need them to know that the services are not a necessity for every day life, at this point. There should be Internet in every household like there is a television and phone and electricity. The Internet is a utility.

But because we own nothing, the digital divide has been widened. We are perpetual Consumers. So, how can the creative process grow when you cannot access to what is now **essential** to its growth?   How can we give this opportunity to our children? How can we tell them how important jazz is when the only thing they are hearing is hip hop? When all they have access to is junk? How do we let them know what their heritage is? We must take into our own hands the reins of this heritage and the access to it.

And how do we present this? What is the presentation? Because the presentation will always be different, unless it comes from someone who looks like you, and is concerned about knowing you exactly as you are.   Just like I was saying about jazz earlier, they would like to point out these guys and say "Oh here's jazz. Here's Kansas City jazz. Isn't it wonderful?"   But what these outsiders serve-up is something that has nothing to do with black people who live here, and from whose suffering it came. What is important to us is that we are able to portray to the world, who we are.

This portrayal must come from our mouths and not anyone on the outside. Unless we control our own images, it is not going to happen.

We saw this as an opportunity to do this and be a part of the creation of our own heritage for the future. Then we decided that we were going to invest in this opportunity.   Now granted, we are a very limited organization. Our money is nowhere near what everyone else's is – not even close. The bulk of our money goes to our musicians. I make $400 a month for the work I do, but that is okay because the foundation's stood behind me in my own time of need. Also, I have a wonderful other who says me "Go do your work while I take care of the both of us."

So we had this opportunity. We took $1500 and went to Isaac, and to Connecting for Good and said "we want in on this because the opportunity is there on the ground floor." I have learned something about economics I think is very valuable. **There is something called positioning.** Coke will always be first no matter what Pepsi tries to do. A paper tissue will always be a Kleenex. A paper copy will always be a Xerox. **We have to be first in this**. **We cannot hesitate to bring this to our constituency for the future.**
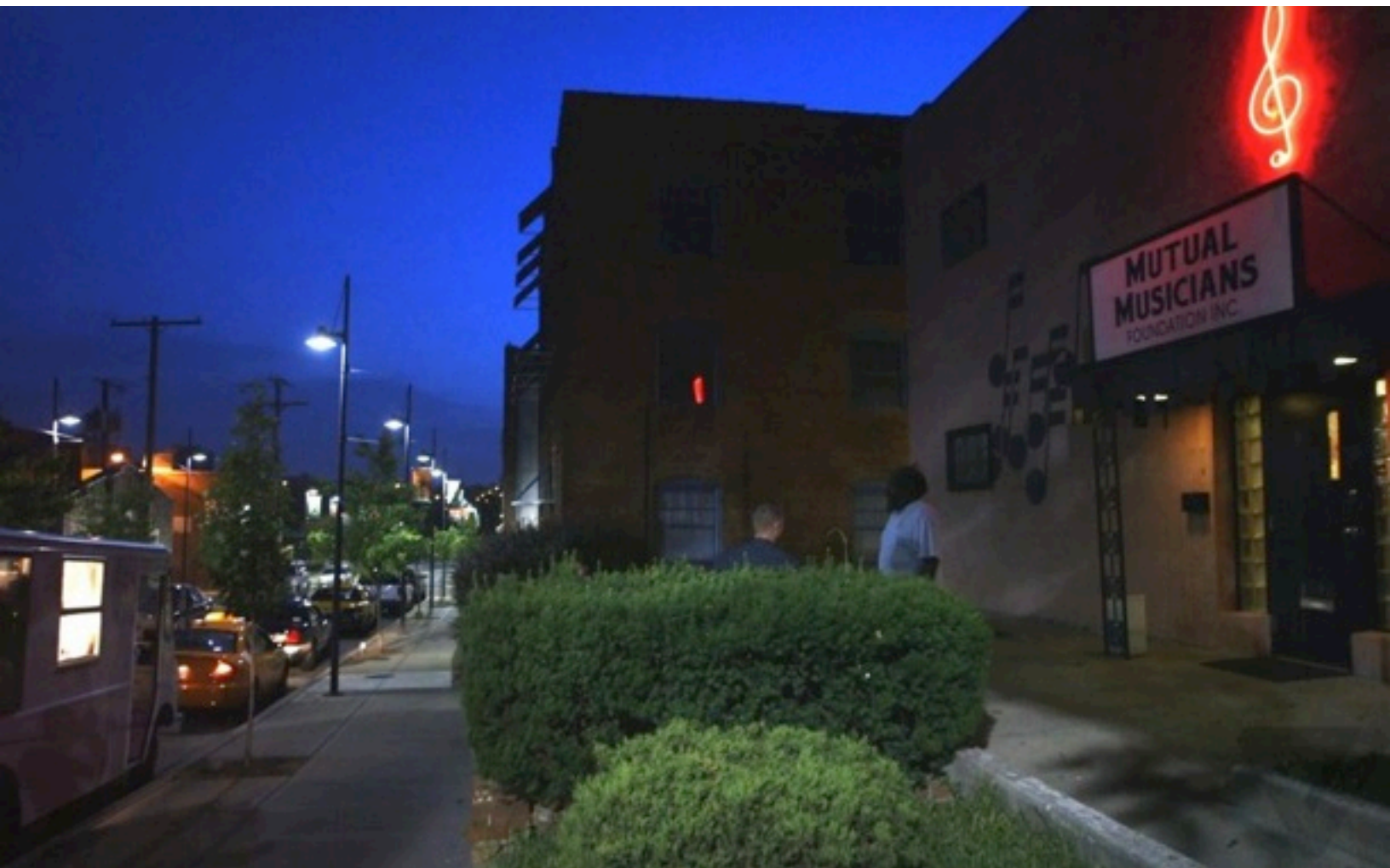
Part Five - France

Federation of
French Data Networks

The Federation of
French Data Networks (FFDN)

Julien Rabier - On September 2: I started a small local ISP in France called ilico. It stands for Internet Libre in Corrèze which is a rural area of France - East of Bordeaux - where I live. I started ILICO three years ago following the advice of Benjamin Bayart. He is the former president of the French Data Network.

Benjamin was the president of the oldest ISP in France. His French Data Network started in 1992. All of the other early ISPs of that era are now gone. They have either gone out of business or have been swallowed up by the large commercial players. But Benjamin's organization run as a non-profit was not interesting to the larger players at the time.

Benjamin became quite famous in 2007 because of a talk he gave called "the Internet in France or Minitel 2.0?" From the French wikipedia we read: "Benjamin Bayart proposed calling "Minitel 2.0" the process of centralization of the Internet in general and the Web in particular, at the Eighth World Meetings of free software, Amiens Friday, July 13, 2007. This trend towards centralization, with the issues involved in carrier network neutrality and the reduction of potential actors in this network approach, he said, will lead to the Internet model becoming a Minitel: a fully centralized system in which everyone must seek authorization for everything and where the norm is the reception of what the central authority decides."

This July 2007 conference in Benjamin's address was a very important moment for the Internet community and friends because it made them understand that free software and free networks were really one in the same. He was telling these guys that if you want to get the new Internet and not be given a centralized Minitel 2.0 you have to fight for it. You must understand the real organization of the Internet as a decentralized effort under the control of no one single authority. In very quickly made network neutrality the central policy issue in France and focused the advocacy of those who did not want to Minitel 2.0 on some means of controlling the large providers.

If You Do Not Want Minitel 2.0 You Must Oppose the Large Providers

Benjamin became look to for leadership on this issue and started an idea called to do-it-yourself ISP or help to build your own Internet access provider. He encouraged people to focus on their own locality for building Internet infrastructure because by doing this one could form the necessary human contact to create a supportive community for the effort.

A Human Structure at the Local Level.

COOK Report: Indeed I agree totally. A focus on the local economy is badly needed to counteract the ill effects of globalization.

Rabier: In 2010 Benjamin gave a talk encouraging people to copy FDN.

In 2010 he gave his speech outlining how he wanted people to copy the FDN organization not in order to make FDN a larger single entity but rather to copy it as an independent entity in their own community and then federate the resulting entities into a larger overall body.   in other words, he wanted to make FDN into a federation of free date data networks he explained what was needed then explained that FDN was willing to share its infrastructure to allow them to perform the administrative tasks involved in being an ISP. His aim was to say that when you start out you will not have all the necessary knowledge but meanwhile we can allow you to start providing access using our infrastructure. You can focus as you do this on the people in your locality than whom you will serve because the one thing that we usually miss as geeks is focusing on the strategy necessary to build a lasting organization not one that will last three months or a year, but one that will be there a decade from now.

And the time we were seven organizations mine in Corrèze, Laurent Guerby in Toulouse and five others, we decided to build a Federation without having FDN as a umbrella. FDN would be just one ISP that was a member of the Federation. We would use a new organization, the Federation FDN to convey our message. Originally the federation was the umbrella for FDN and the six other networks.

COOK Report so you would use the Federation as a means of showing newcomers how to build their own free ISP?

Rabier: Yes. The Federation is a home for sharing knowledge so that newcomers would not have to reinvent the wheel so to speak. Now at the time that this happened we did not know about guifi.net and some of the other similarly oriented wireless free networks in Europe and other parts of the world. Just as in the real Internet you connect to each other physically with the effort that we were focused on we needed to connect to each other to share ideas.

We have organized a small website and a wiki and once a year we have a general assembly when we meet in person. This is where the magic happens. So far we only had two Gen. assemblies apart from the founding one. A year ago we had only 30 people and 60 attended this summer. But this is where you can meet in person people with whom you communicate with on a regular basis only by email or telephone. And of course in person you can exchange ideas far more easily and get a lot more accomplished in a relatively short period of time.

COOK Report and these assemblies are always in France? That is to say everyone who attends is from France?

Rabier: No actually we had someone from Belgium, these are friends of mine who are trying to build an ISP in Belgium. They had worked earlier in an ISP that failed and now they are trying to relaunch it as a free net. It is called Neutrinet. Now we have grown to a total of 21 ISPs including FDN. These 21 organizations serve a total of 1400 people.

Liste des projets

NB : les projets sont classés par niveau d'avancement (étapes) puis par ordre alphabétique du lieu géographique (pas forcément super logique, mais y'en a plein qui n'ont pas de nom !)

Qui ?	Où ?	Code région	Étape
France			
Nice Data Network	Alpes-maritimes	93	7 & 8
Aquilenet	Bordeaux	72	7 & 8
Rhizome	Compiègne	22	7 & 8
Ilico	Corrèze	74	7 & 8
Franciliens.net	Île-de-France	11	7 & 8
Lorraine Data Network	Nancy	41	7 & 8
FAImaison	Nantes	52	7 & 8
Sames Wireless	Sames	72	7 & 8
tetaneutral.net	Toulouse	73	7 & 8
PC Light	Yonne	89	7 & 8
LeNetduKermeur	Monts d'Arrée	53	7
Quantic Telecom	Rouen	23	7
Netopi	Seine-et-Marne	11	6 & 8
Alsace Réseau Neutre	Alsace	42	5 & 8
Apinnet	Charente	54	5 & 8
AuverNET	Clermont-Ferrand	83	5 & 8
Rézine	Grenoble	82	5 & 8
Illyse	Lyon / Saint-Étienne	82	5 & 8
Teleragno	Marseille	93	5 & 8
Iloth	Montpellier	91	5 & 8

Sallanches Data Network	Haute-Savoie	82	5 & 8
CAFAI	Reims	21	5 & 8
Electron Network Free	Carmaux	73	6
802x	Dijon	26	6
Grenoble Wireless	Grenoble	82	6
Aix Marseille Wireless	Marseille	13	6
igwan.net	Saint-Barthélemy	-	6
Toile Libre	Paris	11	5[1]
Grifon	Rennes	53	5
Alpine Data Network	Alpes	93 ou 82 ?	2 ou 3 ?
French West Indies Internet	Guadeloupe	971	2
La Fibre à Arue	Arue & alentours (Landes)	72	1
?	Caen	25	1
?	Finistère - Brest	53	1
Semafor 77	Seine-et-Marne	11	1
?(R SABOTIER)	Val-de-Marne	11	1
?	Valence	82	1
?	Évreux	23	1

Belgique

Neutrinet	Liège - Bruxelles	-	5

La liste des chans IRC des projets est disponible ici

États d'avancement des différents projets

- 1 : projet envisagé
- 2 : porteurs du projet identifiés, potentiels futurs fondateurs du FAI
- 3 : structure en cours de préparation (statuts, discussions techniques, etc)
- 4 : structure constituée

- 5 : les outils de base sont créés (compte en banque, premiers adhérents, etc)

- 6 : FAI opérationnel, partiellement : premiers accès ouverts, peut-être en mode dégradé (derrière un NAT pour les réseaux wifi, par exemple)

- 7 : FAI opérationnel, pleinement

- 8 : membre de la Fédération FDN

Map of FDN Locations

They are not all directly connected to the Internet through their ISPs but they are Members of the Association (federation) and have a say in how the Federation runs.

For example I am the president of Ilico but I do not use the ISP service of ilico. What is mandatory is that, if you want to have Internet provided by one of these organizations which is a member of the Federation, you have to be a member of the Federation as well. You become a member by filling out a form offered by the organization of the Federation

which you use. You will join that organization and pay a small annual fee determined by the organization you are joining. The fee runs between 10 and €20 per year.

It is difficult to give you exact figures, because we do not yet have a central database, but I think that we have somewhere between five and 600 people who are connected to the Internet through their local ISP and its membership in the Federation of the FDN.

COOK Report: As opposed to direct connectivity to the Internet, how much local communication takes place with in your small localized ISPs?

Rabier: Unlike guifi.net we do not facilitate much local communication. We do have a local physical network but we really use it only to connect people to the Internet. If a whole village is connected to the Internet, they can talk to each other through the Internet and that is how their packets will travel rather than travel locally.

COOK Report: How important is a mesh network architecture to these local ISPs?

Rabier: None of us use a mesh architecture right now. We have plenty of wireless nodes but they are all point-to-point and do not run mesh between the nodes.

COOK Report: Do you have a central server that handle handles web and email for your users? That central server would have an upstream connection to the global Internet I suppose?

Rabier: Yes. Actually there are plenty of ways for us to do such things. For us what is important is to connect people to the Internet the means by which to we do this is not so important. We use point-to-point wireless networks. We use ADSL. We even use some fiber. We do not use fiber on a large scale, but do use it to share bandwidth on wireless networks.

Network Commons License

But all the physical media over which these communications protocols run are property of the Association.
.
COOK Report: So you adhere to the network Commons license? Your infrastructure is held on behalf of the users as a commons?

Rabier Yes. Precisely.   And in Corrèze we rented broadband lines. We asked our local mayor if we could install a broadband line into the municipal building and put a wireless antenna on the roof to distribute the incoming outgoing connectivity wirelessly.   He agreed and we have a number of users with small access points pointed toward the main antenna. In these access points are property of the Association.   And the network they form is the Association Network.

The wireless network is just a bridge. FDN allows us to route an IP block and dispatch it wirelessly across the bridge using routers. This means that if you plug into our three computers behind your access point, you actually get three public IP addresses.

COOK Report: Well please explain how the broadband line from Corrèze goes from your small town to the rest of the global Internet.

Rabier that is very interesting. It is an FDN line. In other words a French Data Network Association line. It goes from Corrèze to Paris and in Paris we have another nonprofit association data center and registry. This entity is called Gitoyen. The word is a combination of citoyen or citizen and GIE which in France is an administrative structure. So the French Data Network Association is a member of this operator. GIE in France refers to a common administrative structure for nonprofit organizations.   In France we even have a GIE for credit cards which means that all the banks using its service are members of this particular GIE. It is know as the carte de bleu.
Translated GIE means group of economic interests.

Gitoyen is an Economic Interest Group based in France gathering several companies and non-profits to share efforts to provide internet services to non-profits. It is effectively a telecom operator, providing tier 2 services to its members.

Members include Gandi, Alern, FDN and many others. It was founded in 2001. Until 2012 it managed the POUIX, an Internet exchange point based in Paris. It has several peering agreements with various operators. See also qui est Gitoyen?

COOK Report: Whom do you have to pay to get this service?

Rabier: At Ilico we have to pay FDN. FDN has a contract for the data line to Paris with a company called Nerim a commercial backhaul which in turn has a contract with France Telecom and SFR.

COOK Report: So where are you going with all of this on a month-to-month basis?

Rabier what we are trying to do is get more ISPs to join our free network and commons movement saying as Benjamin told us three years ago it's not that complicated and not that difficult. We are here to help you and show you how this is to be done. As the Federation FDN website says: Having one ISP growing ever and ever (FDN, for instance) would inevitably lead to a centralized and deshumanized inner working. That's why we found it was better to *decentralize* the way we work by **swarming**. Basically, it means that there are ten local ISPs, instead of a single ISP that has grown ten times larger

We also try to influence the plan very high-bandwidth deployment. Following the promises of François Hollande

Julien above Benjamin Bayart below

This program promises to run a fiber everywhere in France by 2020 or 2025.

To achieve this promise President Hollande launched a program that is called *mission very high bandwidth*. This mission is backed by a promise of €20 billion that will be given out to various regions.

And each region has to come up with a plan for fiber to the home. The regions have to launch consultations and we are trying to advocate for open networks. IN other words that networks be open to small and local ISPs like our own.

We are advocating for the providing of wholesale services as well as retail and that the networks be treated as public networks rather than private. Usually the money goes to companies who are acting on behalf of the state. And when a small ISP asks to see their price list they say in effect who are you you're too small go away.

Laurent Geurby

COOK Report: Would you tell me a little bit about what Laurent is doing in Toulouse?

Rabier: Laurent Guerby is doing many incredible things there. His organization is providing wireless access across the entire city of Toulouse. He also goes out into the countryside about 100 km away from Toulouse area which is not well connected with broadband to the Internet. By means of fiber and wireless he is providing better Internet service to these people. But he is also providing services to help finance what they are doing. And he has his own ISP with presence at major Internet exchange points including Amsterdam. And Paris. It is quite amazing what he is doing.

He was an engineer and a major French bank. He earned a lot of money there that he enables him to decide to quit and spend time doing better things.. I cannot remember his exact role but he was a software engineer. He learned everything about networking at the same time we did. It was not a network engineer for the bank. He maintains the C compiler files. He makes sure that the files Run under all sorts of compilers.

COOK Report: Is this an open source implementation of the C language?

Rabier: Yes. Our goal is to have enough organizations join us so that we will be able to interconnect to each other and eventually that I could manage to connect directly with overall as well as with Paris.

DIY Mailist

Then in September 2012 Today, the FFDN launched an international mailing list focused on Do It Yourself access to the Internet.

The members of the FFDN have been building such networks through local non-profit organizations for more than 2 years now, all across France. We want to share our experience, our difficulties and how we bypassed them, along with learning from similar experiments from all over the world. We believe this initiative will help all DIY ISPs to develop such networks and help building a better Internet infrastructure.

Internet is a network of networks, and we definitely need more independent networks to keep it strong and resilient. We're building these networks with the same methods Free Software has been built for decades, through collaboration, sharing of knowledge and love for data

We hope this mailing list will help to share ideas, tech tips, every little thing that empowers people on the Internet and gives them more control on the infrastructure they're using, making large-scale censorship harder in the end. We hope it will also help strengthening a different kind of network across the world: a network of people, sharing a vibrant love for the Internet.

Join us and subscribe to the mailing list: DIY ISP.
An IRC channel is also available: #diy-isp on irc.freenode.net
See our principles: http://www.ffdn.org/en/principles

Finally [FFDN](#)

18 July 2012 par [Benjamin Bayart](#)

WikiLeaks is a well known not-for-profit media organisation. The broader principles on which their work is based are the defence of freedom of speech and media publishing and the improvement of our common historical record. WikiLeaks' goal is to bring important news and information to the public, uncensored. [Snip]

Since 7th December 2010 a financial blockade has been imposed on WikiLeaks by large US financial institutions - Bank of America, VISA, MasterCard, PayPal and Western Union. The blockade destroyed 95% of their revenue. Although the US government found that there were no lawful grounds to add WikiLeaks to a US financial blockade, the blockade of WikiLeaks continues.

WikiLeaks requested FDNN's assistance in fighting this blockade and FDNN agreed. FDNN uses the French national banking system, Carte Bleue, to process these payments, rather than using Visa and Mastercard directly. So, for the moment, whilst we are still able to run this, we are enabling the public to use their credit cards to donate to WikiLeaks.

A Call to My Readers

Given the problems we all face, the first priority of free networks is to build. Describing what and how will be built is very much happenstance, Yet the movement wants to share. And not to reinvent the wheel. Sharing is done mainly by face-to-face conferences. As Isaac testifies herein, nothing can replace hours of direct intense conversation in building shared objectives and trust. As Ramon points out, once these networks begin to scale the complexity of tasks they require far exceeds the capabilities of any single person. In Barcelona on May 15 Catalonia, Argentina and the United States talked about establishing a Federation of Free Networks to be a global repository for collecting and disseminating information about what was going on. There was some email follow up but then the press of day-to-day business over whelmed the effort.

Still the need for information exchange is not going away. The levels of complexity as usual are great as are the differing motivations of many of the players. What works in Argentina may not work in the American midwest or in the Eurozone. How does one harness culture? as Anita Dixon asks in the Verge interview above. How does one network to bring people with the needed skills into play at the right moment? A human network helps. Anita Dixon is applying for an FCC LPFM license. I was able to help because Jeff Michka a friend of 20 years, who has been involved involved in setting up public radio stations over a 40 year stint in noncommercial broadcasting, has agreed to pitch in on her behalf, and on behalf of the MMF, and on behalf of what Issac is doing.

For my part there are still many things that I don't totally grasp. I'd like to have the ability to keep digging keep writing, and get them explained. What do people do with access to guifi.net infrastructure for example? Local access that need not involve the internet per se is one thing. As long as the infrastructure access is neutral and open to all, should local groups use it for economic development, for education for political organizing? I think that in the US they should because here there is little public life left. But in Spain? Who knows? I suspect that the leaders of guifi.net are unaware of how it s being used there and perhaps this is so much the better as it is proof that, with scale, the open infrastructure can support a vibrant ecology of many different uses.

Meanwhile I gratefully acknowledge support of travel and lodging expenses from guifi.net that by making the May 2013 visit possible has enabled this issue. In 2014 I'd like to be able to write about the nets in Berlin, Rome, and Athens and perhaps in working with Michel Bauwens' friends and allies *figure out better how to take my 22 years of writing about the internet and invest it on behalf of this cause*. I will publish a much shorter follow up issue on December 1. The focus of that will be Living Labs. Is it possible to extend corporate backed IT development in such a way as to benefit individual citizens? I

don't honestly know. What happens as a result of [the Berlin meeting](#)? What happens in Kansas City?

I trust that folk will be able to use this for their benefit and I very much hope that a few might some how find support to permit repeating this venture in 2014. In any case it is an honor and a privilege to have worked with Ramon, Isaac, Pablo and Roger so far and I look forward to extending my good fortune with them next year.

May15, Ramon leaves the Federation meeting to catch the evening train to Madrid. Nico applauding at rights has plans with the village telco to introduce cheap open source hardware design at the Berlin meeting.

The FLOK Society Project: Ecuador commits itself to a open commons-based knowledge society

Editor's Note: - compared to conditions in the United States what is happening in Ecuador is positively utopian. Yet if there is to be anything other than a neo-feudal police state for our grandchildren to inherit, this or something very close to it, Ecuador will provide the necessary answer.

Michel Bauwens wrote on 20th September 2013:

This is from the official announcement on my cooperation with this great and important project, which aims to create transition policies for the Ecuadorian people and government:

Via **Bethany Horne**, FLOK Society:

"The FLOK Society welcomes Michel Bauwens to Ecuador. Bauwens, a founder of the P2P Foundation, flew into Quito on Sept. 17 to begin collaborating towards a fundamental reimagination of Ecuador.

Bauwens will lead a research team that is proposing to unleash a participatory, global process with an immediate implementation in Ecuador. The process will remake the roots of Ecuador's economy, setting off a transition into a society of free and open knowledge.

In the first semester of 2014, Bauwens will assist in setting up a global network of transition researchers. The P2P Foundation is a global network of researchers that is documenting the shift towards open, participatory and commons-oriented practices in every domain of human activity, but especially also the shift from collaboration on open knowledge and code, towards cooperation in open design, open hardware, open science, open government, and the shift towards open agricultural and open machining practices that have great potential for increasing the productivity and sustainability of farming and industrial processes.

Ecuador is the first country in the world which is committing itself to the creation of a open commons knowledge based society. In order to achieve the transition to a 'buen saber', or 'good knowledge' society, which is an extension of the official strategy towards a 'buen vivir'-based society, the Advanced Studies Institute (IAEN by its]Spanish initials) in Quito, Ecuador, led by the rector Carlos Prieto, has initiated a strategic process, called the

FLOK Society Project, which aims to organize a major international conference in March 2013, and will produce 10 strategic documents proposing transition policies towards the good knowledge society, which will be presented to the Ecuadorian citizens through intensive participatory processes, similar to those that took place for the establishment of the new Constitution and the ambitious National Plans, which set the guidelines for government policy.

While Buen Vivir aims to replace mindless accumulative economic growth to a form of growth that directly benefits the wellbeing of the Ecuadorian people, Buen Saber aims to create the open knowledge commons which will facilitate such a transition. FLOK stands for 'Free Libre and Open Knowledge. In order to establish these transition policies and documents, IAEN has connected itself with the global hacker and free software movement, but also with its extension in the many peer to peer initiatives that directly aim to create a body of knowledge for physical production in agriculture and industry.

The P2P Foundation knowledge base has also focused on documenting new policy and legal frameworks being set up by sharing cities such as Seoul, San Francisco, and Naples; and regions such as Bordeaux, Open Commons Region Linz in Austria, South Sudan, the Cabineto Digital of Rio del Sur, and more. It's database of 22,000 global commons initiatives has been viewed nearly 25 million times and attracts 25,000 researchers, activists, users and readers on a daily basis. Michel Bauwens is also the author of a Synthetic Overview of the Collaborative Economy, an external expert for the Pontifical Academy of Social Sciences, a member of the Hangwang Forum in Chengdu that works on industrial sustainability, and engaged in a research project for Leuphana University on digital liquid democracy. As a founding member and partner of the Commons Strategies Group, he co-organized two global meetings on the commons, the last one in May 2013 in Berlin was dedicated to the emerging field of Commons-oriented Economics.

In March, the P2P Foundation organized a 'global hispanic wikisprint', with the help of Spanish-Brazilian activist Bernardo Gutierrez, in which more than registered 500 individuals and collectives, in more than 60 cities and 23 countries, mapped the open, p2p, sharing and commons initiatives in their region and areas of activities, resulting in a Latin American network of connected activists and scholars.

IAEN believes that the connection between the hacktivism communities, the FLOK Society, and the global and hispanic networks active in constructing open commons will be vital to create a synergy with the local actors of Ecuadorian society, and will help us accomplish the mayor goal we have set for ourselves as a country."

"A blog description by David Bollier is [here.](#)   He writes: "Here's a development that could have enormous global implications for the search for a new commons-based economic paradigm. Working with an academic partner, the Government of Ecuador has launched a major strategic research project to "fundamentally re-imagine Ecuador" based on the principles of open networks, peer production and commoning. " [snip]

"The research project will focus on many interrelated themes, including open education; open innovation and science; "arts and meaning-making activities"; open design commons; distributed manufacturing; and sustainable agriculture; and open machining. The research will also explore enabling legal and institutional frameworks to support open productive capacities; new sorts of open technical infrastructures and systems for privacy, security, data ownership and digital rights; and ways to mutualize the physical infrastructures of collective life and promote collaborative consumption."

"The FLOK Society project builds on a larger, preexisting national development vision that Ecuador has been pursuing. You should check out the impressive government report, National Plan for Good Living, 2009-20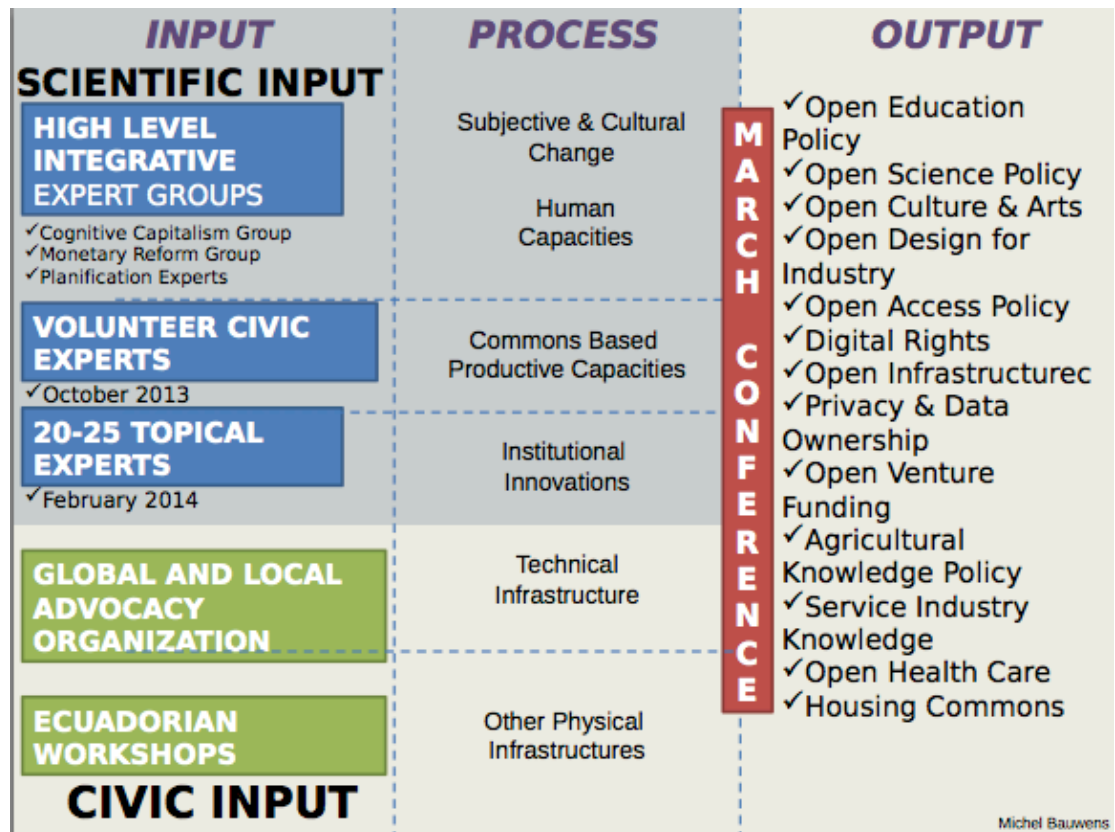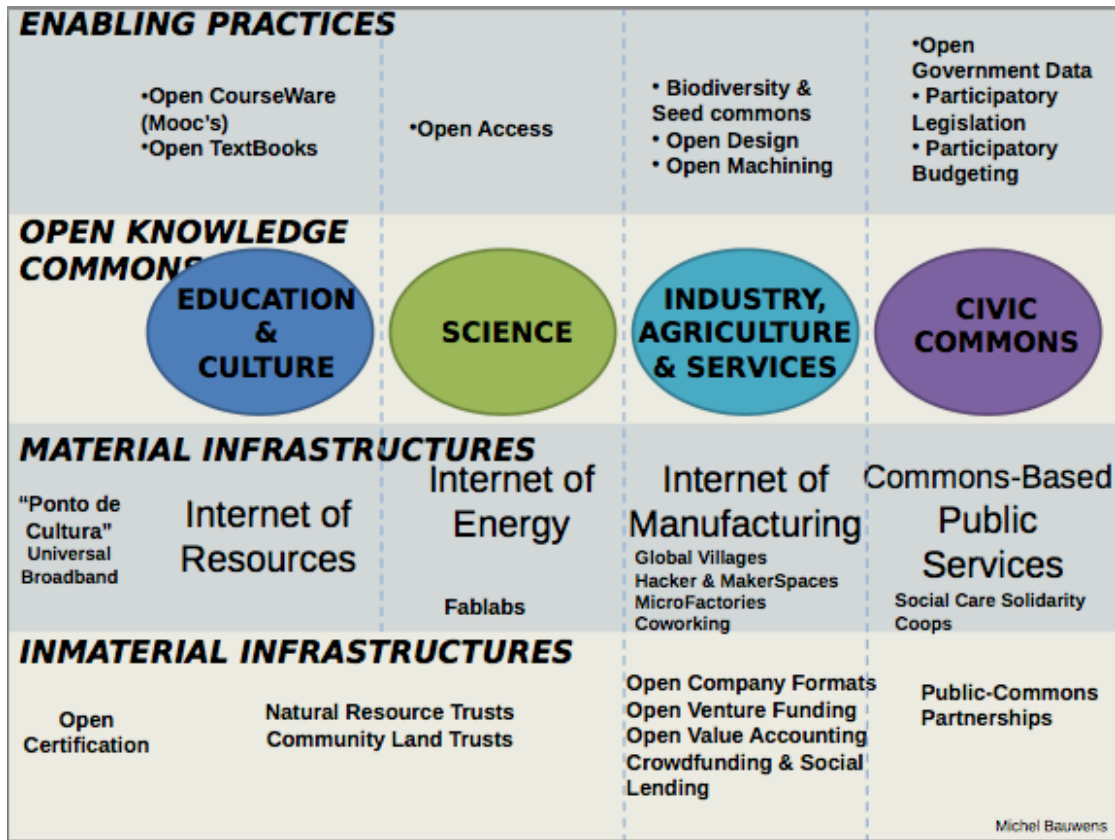13 (pdf file). (A new plan for 2014 and beyond has recently been released, but only in Spanish.) If you browse through this amazing document you will find a penetrating critique of the neoliberal trade vision and its skewed ideas about development -- a refreshing alternative to the usual prescriptions peddled by the World Bank."

COOK Report: I include here four slides from Michel's high level outline. They give an idea of the approach by the government over the next six months. It looks like Ecuador is to lead by example in showing the world what adoption of open approaches to societal organization would look like. Finally, Michel's research framing is to be found here.

ENABLING PRACTICES

- •Open CourseWare (Mooc's)
- •Open TextBooks

•Open Access

- • Biodiversity & Seed commons
- • Open Design
- • Open Machining

- •Open Government Data
- • Participatory Legislation
- • Participatory Budgeting

OPEN KNOWLEDGE COMMONS

EDUCATION & CULTURE

SCIENCE

INDUSTRY, AGRICULTURE & SERVICES

CIVIC COMMONS

MATERIAL INFRASTRUCTURES

"Ponto de Cultura" Universal Broadband

Internet of Resources

Internet of Energy

Fablabs

Internet of Manufacturing

Global Villages
Hacker & MakerSpaces
MicroFactories
Coworking

Commons-Based Public Services

Social Care Solidarity Coops

INMATERIAL INFRASTRUCTURES

Open Certification

Natural Resource Trusts
Community Land Trusts

Open Company Formats
Open Venture Funding
Open Value Accounting
Crowdfunding & Social Lending

Public-Commons Partnerships

Michel Bauwens

INPUT	PROCESS	OUTPUT

SCIENTIFIC INPUT

HIGH LEVEL INTEGRATIVE EXPERT GROUPS
✓Cognitive Capitalism Group
✓Monetary Reform Group
✓Planification Experts

Subjective & Cultural Change

Human Capacities

✓Open Education Policy
✓Open Science Policy
✓Open Culture & Arts
✓Open Design for Industry
✓Open Access Policy
✓Digital Rights
✓Open Infrastructurec
✓Privacy & Data Ownership
✓Open Venture Funding
✓Agricultural Knowledge Policy
✓Service Industry Knowledge
✓Open Health Care
✓Housing Commons

VOLUNTEER CIVIC EXPERTS
✓October 2013

Commons Based Productive Capacities

20-25 TOPICAL EXPERTS
✓February 2014

Institutional Innovations

GLOBAL AND LOCAL ADVOCACY ORGANIZATION

Technical Infrastructure

ECUADORIAN WORKSHOPS

Other Physical Infrastructures

CIVIC INPUT

MARCH CONFERENCE

Michel Bauwens

RESEARCH PLAN

I. Introductory Phase
* Defining the scope of subject area
*Summarize how the Ecuadorian national plans (2009-2013 ; 2013-2017) considers policies for these domains
* Identify key experts and practitioners in the various domains, both outside and inside Ecuador

II. Global Research Phase
* Look for principles, goals and objectives as proposed by FLOK communities
* Look for successfull implementations outside of Ecuador
* Look for the most interesting experiments outside of Ecuador
* Look for policy frameworks and implemetations outside of Ecuador

III. Ecuadorian Research Phase
* A survey of ecuadorian resources and development to build the new P2P national infrastructure
* Look for principles, goals and objectives as proposed by FLOK communities in Ecuador
* Look for successfull implementations inside Ecuador
* Look for the most interesting experiments inside Ecuador
* Look for policy frameworks and implentations inside Ecuador

IV. Policy Formulation Phase
* Provide a synthetic overview of the research results
* Provide visually effective presentation material
* Provide a synthetic overview of constructive proposals and policy formulations to be incorporated in the strategic document.

Michel Bauwens

For last February's **COOK Report** on Free Networks see:
http://www.cookreport.com/pdfs/march-april13diowireless.pdf.

The Flok Society Project is the most hopeful sign I have seen in a long long time. In seeking to institute at national level the ideas of the global community of which Michel Bauwens has made himself curator. Ecuador now becomes the global leader in an effort that has the potential to build a humane sustainable society.

A post publication addendum: I have never been able to log into the Flok Society website. Never. On October first I requested members of arch econ to try to reach it. They all could do so with no problem. People in Ecuador sent me copies of the above slide set. They arrived mangled. Not realizing how mangled they were I used them. I finally managed to get an unexpurgated version only when a friend in Texas grabbed a copy and sent it on to me. Very strange goings on. There were significant differences in all four of the above slides. Those who are curious may compare these with what I published last night.