

Fiber From The Farm (FFTF)

(C4EU 5.4.1: Report on Pilots on Fiber Deployment)

Roger Baig Viñas, Albert Boix Molas, Lluís Dalmau Junyent,
Pau Escrich Garcia, Miquel Martos Membrives, Marc Mundó Comerma,
Ramon Roca Tió

Abstract

Optical Fibre is certainly the best technology available for data transmission in terms bandwidth, latency, reliability and stability. As installation costs decrease, it is expanding beyond its original realm and major application in the carrier backbone and is moving into the local loop. Following this trend community networks are gradually adopting it. The present technical report accounts for the state of this technology progress made during the first year of optical fibre pilots in the Commons4Europe project.

Index Terms

Bottom-up-Broadband (BuB), Community Networks (CNs), Fibre From The Farm (FFTF/FFTx), Optical Fibre (OF), Points-of-Presence (POPs)

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I. INTRODUCTION

Despite the scepticism of some people about the capacity of community networks (CNs) to incorporate the optical fibre (OF) technology in guifi.net there are many on-going initiatives to do so. In the guifi.net jargon each of these initiatives is called *a project*. The fact that some of these projects are already in the stage of being fully operational proves that the aforementioned scepticism is totally unfounded. A good documentation and reporting about these

TODO cite example [1]

II. ABOUT THIS DOCUMENT

This report has been produced using open source tools such as \LaTeX [2] and *git* [3]. \LaTeX is widely used in academia to prepare print-class documents. It automatically takes care of numbering, cross-referencing, tables of contents, bibliography, etc. *Git* is a high performance distributed revision control which is used in many open source projects, such as the linux kernel. Git makes it easy and safe to collaborate as each contributor works on his or her own personal copy. Good contributions can be easily shared with others, and it is always possible to revert to a previous version.

Our git repository is publicly available in *github*:

<https://github.com/jbarcelo/C4EU-deliverables>

Anyone who is familiar with \LaTeX and *github* can contribute to this document. The first step is to make a copy (a *fork* in *github* jargon). The contributor can work in this copy and make changes to improve the document. After that, it is necessary to request that these changes are merged into the original copy of the document (a *pull request* in github jargon).

If you see anything that can be improved, feel free to contribute. This document is alive in the sense that it will keep evolving as long as contributors make changes and improve it.

The system automatically keeps track of all the contributors and their contributions. It is possible to see who is contributing more actively and which are the exact changes made by each contributor. And everything is public on the web.

III. DEPLOYMENTS

TODO Bla (see Figure 1) bla

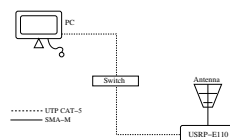


Fig. 1. TODO remove.

IV. POINTS-OF-PRESENCE (POPs)

A point of presence (PoP) is an artificial demarcation point or interface point between communicating entities. In our case we are referring to optical fibre interconnection points. From 2010 until now the guifi.net community has raised six points of presence over the Catalan territory. This POPs are following the network model of freedom and neutrality specified in the XOLN?? licence. Thus anyone is able to connect to them but always respecting the same conditions. From a general perspective guifi.net community is building a set of neutral exchange points, leaving the infrastructure available to the individuals, associations or either companies. Figure 2 shows the fibre network map of guifi.net POPs (not all of them).

The current guifi.net POPs are managed, maintained and also economically sustained for the community. To interconnect all of them it is need to use third party infrastructure. The FFTH projects are able to deploy some kilometers of optical fibre but not hundreds or even thousands.

In Catalonia there exist a set of deployed fibres which are owned by the Catalan government, available to any entity and rented for a regularized price. Most of the guifi.net POPs are connected to such network to interchange data between them. Figure 3 shows a slice of the network fibre map provided by the goberment.

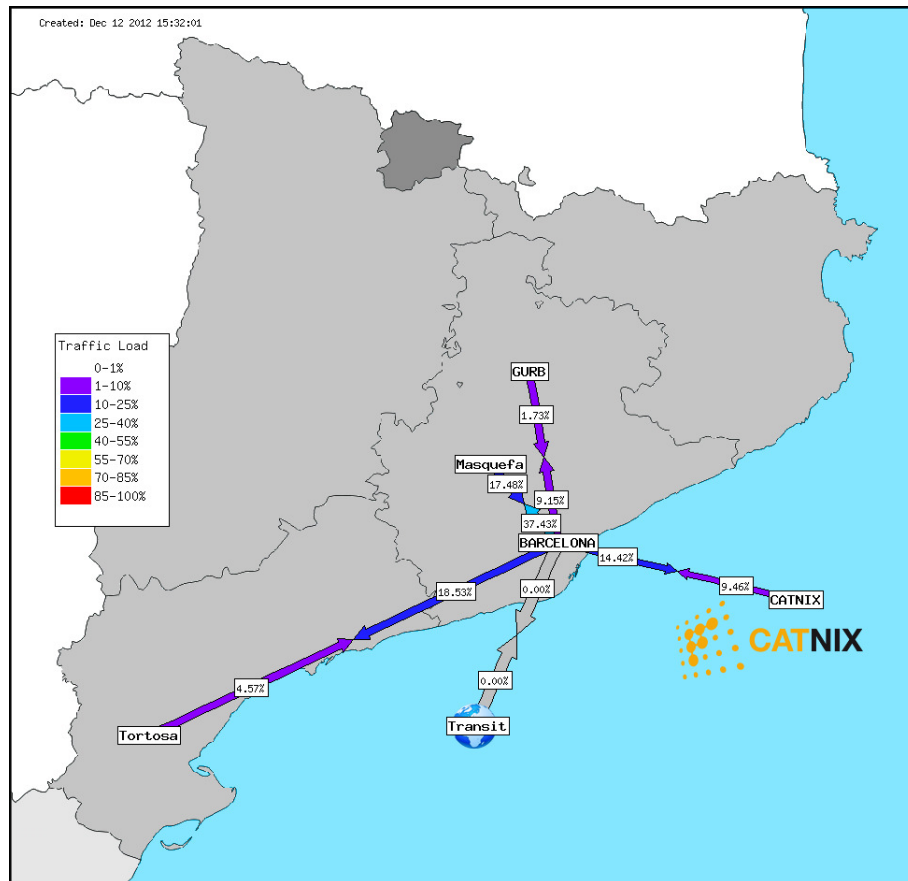


Fig. 2. Guifi.net fibre POPs network map

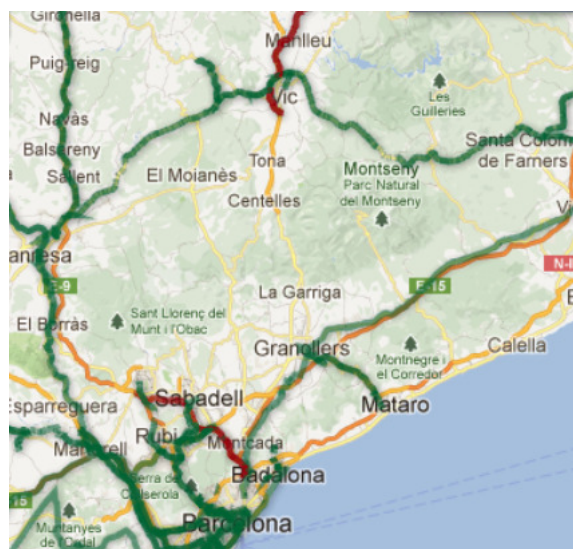


Fig. 3. Available regularized fibre

A. Pilot's POPs

1) *Gurb*: Gurb is a small village in a rural area of the geographical center of Catalonia. Back in 2004 the first guifi.net community was born here. Probably because of that Gurb is nowadays one of the places where the bottom-up broadband model has more influence. As seen in section ?? the community users deployed some optical fibre kilometers to reach the government infrastructure and connect with other POPs. It is a very important point-of-presence because it allows a small datacenter provided and maintained by the community. There are even ISP companies connected to such POP following and using the open-network model to provide Internet connectivity to end users.

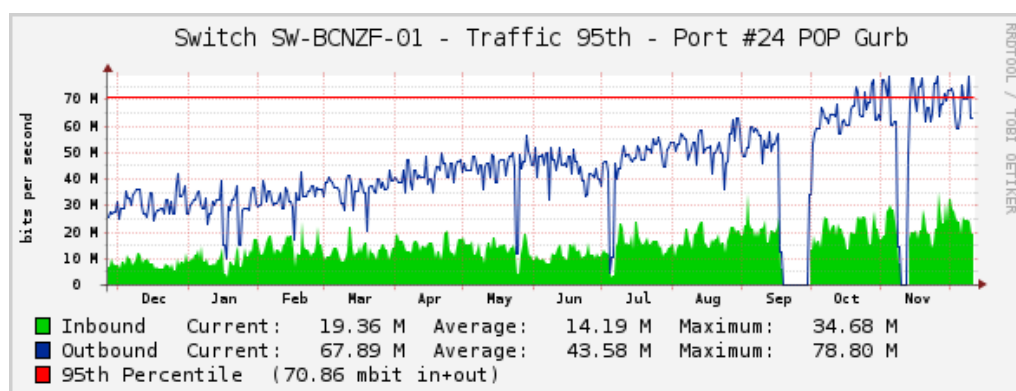


Fig. 4. Gurb's POP network load (year)

2) *Vic*: VIC HISTORY ABOUT KIDS AND FORCED WORKD

B. Other POPs

Other points-of-presence not directly related with this project are:

- Masquefa: blablaba IGLU?
- Tortosa: It is a city placed on the sud of Catalonia. The guifi.net users started a goverment's funded project named OpenFPnet¹ which tries to create an open and neutral fibre backbone around the zone and the surrounding villages. Starting from that point they opened a POP to connect with the rest of guifi.net infraestructure.

¹<http://openfpnet.guifi.net>

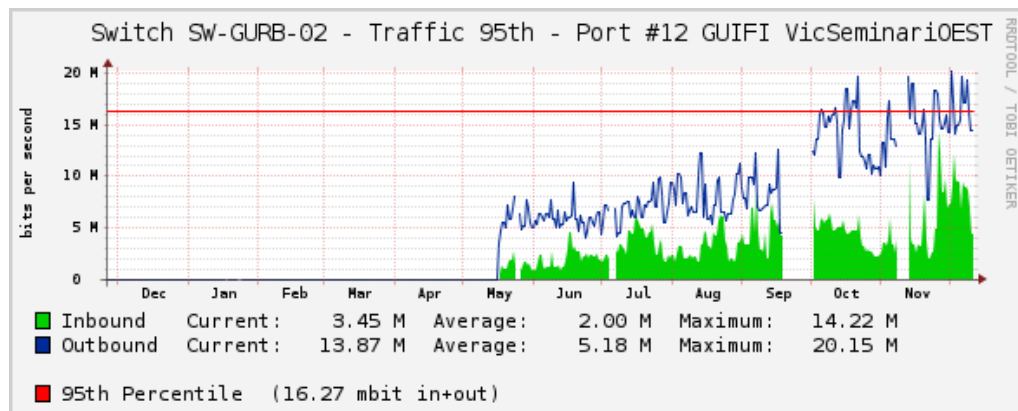


Fig. 5. Vic's POP network load (year)

Currently this point-of-presence is economically maintained by some community users grouped in associations and some company with interests of use such fibre.

- Barcelona: The Catalonia's capital POP is the one placed in the Internet exchange point CATNIX.

1) *CATNIX*: CATNIX² is the name of the internet exchange point (IX) of Catalonia. It is a physical infrastructure provided by the government to leave the network operators exchange their information and connect their networks (autonomous systems).

All guifi.net POPs terminate to such infrastructure (as can be shown in figure 2) where all of them connect together to become part of the main community network.

Guifi.net Foundation operates its own backbone infrastructure using the ASN 49835 (Autonomous System Number). An open peering policy is followed to establish peering sessions with all potential partners. The Foundation is part of the CATNIX, so it is also possible to exchange data with other ISP and rent Internet uplink directly to an international carrier. Right now there is one symmetric Internet gigabit available.

This is probably the most important POP of the current guifi.net network infrastructure.

V. RESULTS

TODO Bla

²<http://www.catnix.net>

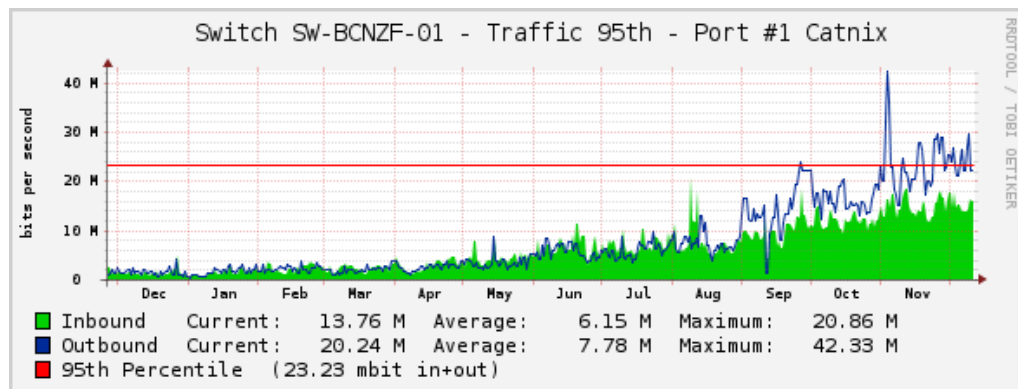


Fig. 6. CATNIX's POP network load (year)

TODO Conclusion

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