# 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 Super WiFi provides different benefits to wireless deployments when compared with the IEEE 802.11b/a/g set of standards, like better wall penetration and longer ranges. The present technical report accounts for the implementation

**Index Terms**

Bottom-up-Broadband (BuB), policy

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## I. INTRODUCTION

Super TODO cite example [1]

## II. ABOUT THIS DOCUMENT

This report has been produced using open source tools such as LATEX [**?**] and *git* [**?**]. 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 firs 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
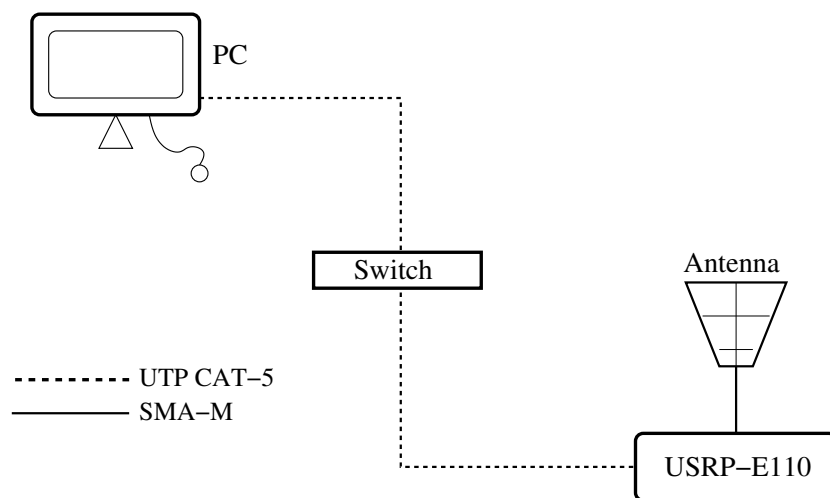
TODO Bla (see Figure 1) bla

Fig. 1.   TODO remove.

## IV.  POINTS-OF-PRESENCE (POPS)

## V.  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 refering 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 infraestructure 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 goberment, 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.
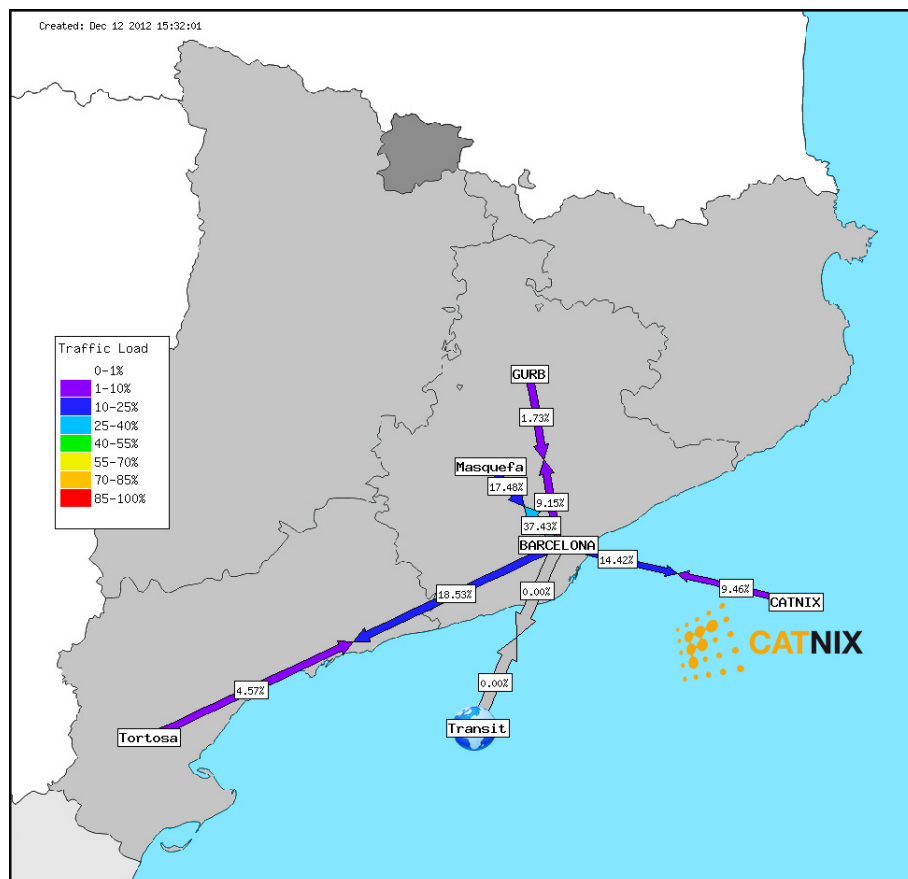


Fig. 2. Guifi.net fibre POPs network map

*A. Pilot's deployments*

   *1) Gurb:*

   *2) Vic:*

*B. Other deployments*

   *1) CATNIX-TELVENT:* CATNIX[1] is the name of the internet exchange point (IX) of Catalonia. It is a physical infrastructure provided by the goberment to leave the network

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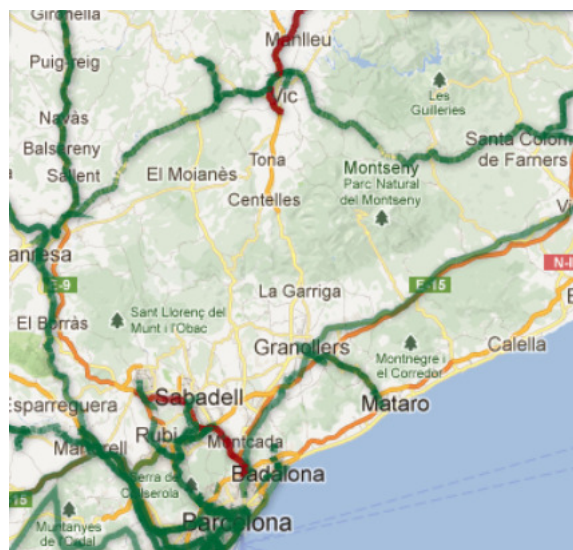[1]http://www.catnix.net

Fig. 3.    Available regularized fibre
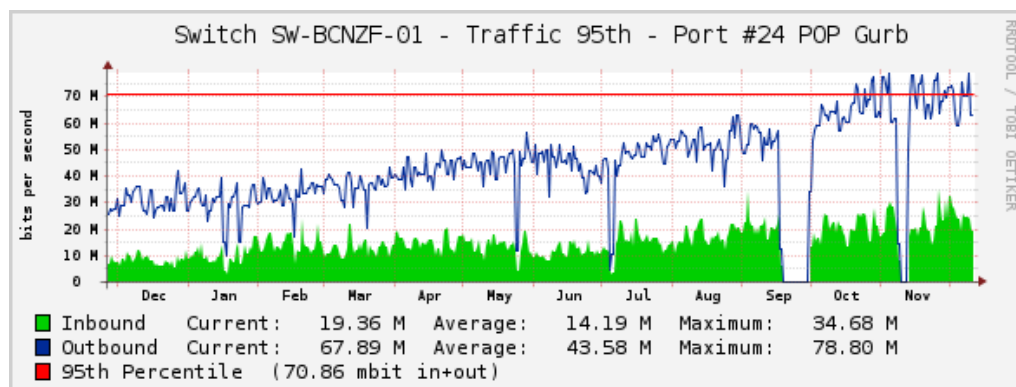


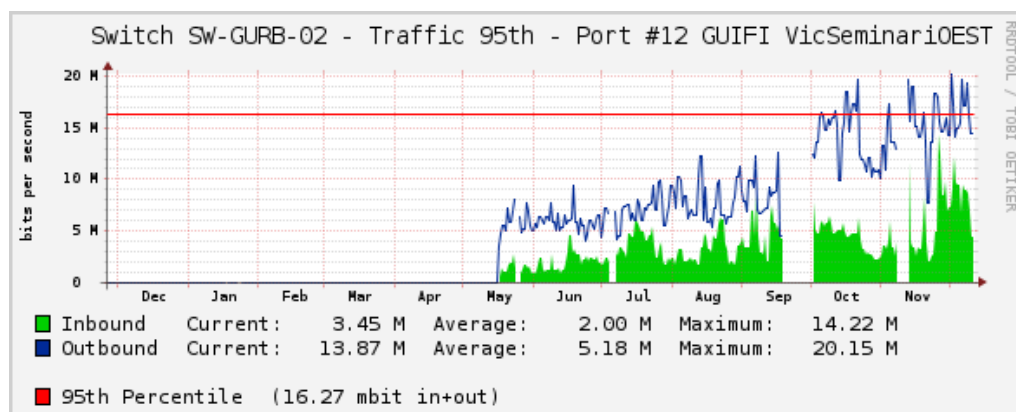Fig. 4.    Gurb's POP network load (year)



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

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 became part of the main community network.

Guifi.net Foundation operates it's 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 symetric Internet gigabit available.

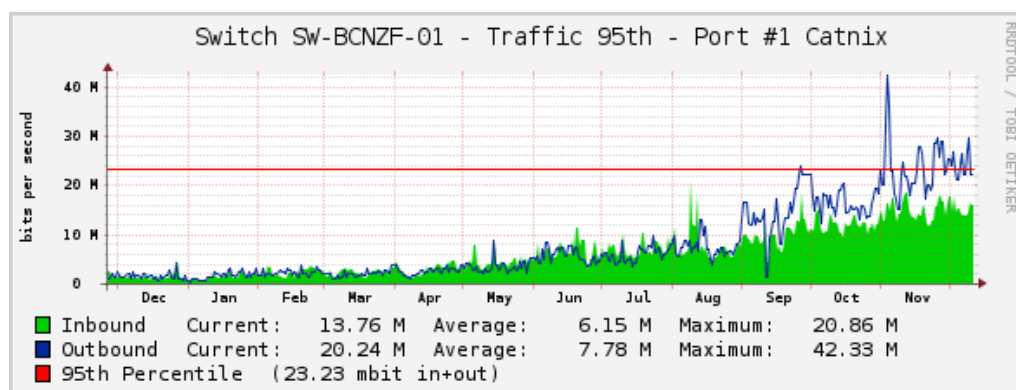This is probably the most important POP of the current guifi.net network infraestructure.



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

VI. RESULTS

TODO Bla

The proposed identification of TV White Spaces with USRP-E110 enables the execution of a spectrum sensing algorithm via SSH, allowing the USRP to be located at convenient locations.

It is possible to build a Radio Environment Maps (REM) [?] from samples gathered by geographically distributed USRPs controlled from a centralized location, increasing the efficiency and boosting the implementation of cognitive networks.

In order optimize the spectrum sensing algorithm, better signal processing techniques are expected to be implemented in the near future [**?**]. All of this in the attempt to differentiate noise from TV broadcast signals.

Currently, our research is oriented towards the effective communication of two USRP-E110 using TVWS at distances over three meters apart [**?**]. Also, we are working at combining the cognitive and transmission tasks inside a unified code running in the USRP-E110.

## ACKNOWLEDGMENT

## REFERENCES

[1] J. Barcelo, B. Bellalta, R. Baig, R. Roca, A. Domingo, L. Sanabria, C. Cano, and M. Oliver, "Bottom-up Broadband Initiatives in the Commons for Europe Project," *arXiv preprint arXiv:1207.1031*, 2012.