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Community networks, combining low-cost hardware and open source software, enable a community to enjoy access to the internet independent of commercial providers. EU-funded research has taken a 'glocal' partnership approach to providing better access to wireless internet for community stakeholders and the resulting technology is now being commercialised by a project partner.



Communication is an essential part of everyday life, whether it is talking to your neighbour over the fence (one-to-one) or broadcasting to many people through newspapers, radio and television (traditional one-to-many media). Now the internet has revolutionised the world's media, offering alternative channels and opportunities to send and receive information as well as interact with one another (many-to-many communication).

While Europe has worked hard to provide equal access to the internet – and increasingly broadband internet – digital inequalities still exist. Indeed, a small fraction of the world's population can afford expensive commercial services; and in many regions privacy and security risks, plus the prospect of mass surveillance and censorship can severely limit internet services. Community networks enable any group of people to create their own computer network to enjoy the freedom of unfettered internet communication.

Affordable, low cost and easy to deploy community networks support democracy, human rights and the free flow of information when and where it is needed. And experimentally-driven, collaborative research has helped to remove the remaining obstacles to setting up a resilient network which can adjust itself ('self-optimize') to ensure the highest quality service.

Building on the work of existing community networks, the CONFINE-FIRE project, which started in 2011, has carried out research on community networks using its Community-Lab test bed. The project

is a public-private partnership between citizens, local authorities, local SMEs and international research partners including UPC university, the Guifi.net community network and Routek, among others.

All people should have easy and affordable access to a free and open internet to improve their lives and create a more just world.

MAKING RESULTS COUNT

The research carried out over the past two years has been enabled by open spectrum, inexpensive wireless and optical fibre equipment, as well as open software and open knowledge source. Results include the design of small and efficient computer devices for the test bed which the SME partner Routek is now building and selling as home servers.

“It is satisfying to see that public academic research is making a tangible contribution to the common good,” says Leandro Navarro, researcher at UPC and coordinator of the CONFINE project. “This result ... stems from an experimentally-driven collaboration between community networks, a small innovative enterprise, and public research institutions around Europe supported by funding from the FIRE FP7 programme.”

Experiments on the test bed developed by CONFINE with new software and network technologies have contributed to more robust, easier to set up community network nodes. As well as connecting more people and enriching the digital society, these advances have helped to extend the Guifi.net community network and expand the market for Routek, which is also reaching new customers beyond community networks. These results were possible thanks to a combination of very low cost hardware and easy-to-use open software tailored to cope with the specific needs and traits of community networks, typified by unstable links, availability issues, and no or few ‘quality of service’ guarantees.

“This work is the first major contribution towards the ‘materialisation’ of the computing cloud concept in community networks, the so-called community clouds,” suggests the project team.

More info

- Routek SME: www.outek.net [1]
- Guifi.net community network: www.guifi.net [2]
- Universitat Politècnica de Catalunya: www.upc.edu [3]
- CONFINE: www.confine-project.eu [4]
- Community-Lab test bed: www.community-lab.net [5]

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Links

[1] <http://www.outek.net>

[2] <http://www.guifi.net>

[3] <http://www.upc.edu>

[4] <http://www.confine-project.eu>

[5] <http://www.community-lab.net>

[6] http://ec.europa.eu/information_society/newsroom/image/9_confine_article_5316.pdf