FON

Sandra
University of Madeira
sanduper@gmail.com

ABSTRACT
This paper is a user study about Fon, the world's largest WiFi community. I found different initiatives that wanted to provide the users with free WiFi but none of them are as successful as Fon, with 3 million hotspots worldwide.

Keywords
FON, WiFi, Free, wireless

INTRODUCTION
Nowadays wireless is the most used way for people to connect to the internet because allows users to access the internet without being physically connected to a particular place.

The growing popularity of wireless networks is mostly caused by the necessities of the changing business environment that requires greater flexibility from people and their working equipment; WLAN (wireless local area network) allows mobility, eliminates the need for cables and increased productivity in companies where is installed.

Modern families now have great dependence on the pc, with the continuous fall in prices of laptops; families now have multiples computers spread in several rooms; with WLAN people can share a single internet connection, as well as share applications, files and printers. Without a home network each computer would require its own dedicated modem.

Given the importance and the demand for wireless many places, like restaurants, parks, study centers, airports and even transition places, now offer hotspots that can be paid or free.

There are many initiatives that seek to provide the users the localization of the free hotspots available one of them is Fon.

Fon is the world largest WiFi community that offers ubiquitous WiFi connection to all of its users.

RELATED WORK
I found many websites that shows the localization of WiFi hotspots.

JiWire[1] is a company that provides applications where the users can find WiFi hotspots (545 locations in 144 countries) free or paid and in the same time the company makes profit with advertising; Jiwire is the dominant leader company that connects on the go mobile audience with advertisers.

Boingo[2] is another site that has an app to find hotspots paid or free the difference with jiwire is that boingo has a monthly plan if the user wants their service.

In the *free hotspots*[3] website we can find free WiFi using a directory in the website, the site claims that has free WiFi hotspots in popular locations such as MacDonald's, KFC, Burger King, Subway and more.

NYCwireless[4] is a non-profit organization that advocates and enables the growth of free, public wireless internet access in New York. Over the years the organization has built free, public wireless networks in over ten NYC parks and open spaces; the website of the organization also offers a hotspots map where users can find hotspots in New York City.

Another similar concept is the *Eduroam*[5] network that has for main goal to provide a mobility service for the European academic community. The e-U Campus Virtual is a Portuguese project that aims to popularize the access to on-line academic content, and the use of wireless access technologies through the development of services, contents, applications and mobile communication networks, inside and outside the university, to academic students and teachers, that stimulate and assist the production, the access and the share of knowledge. This initiative aims to join all the academic networks off all teaching academic schools, creating by that an "anytime, anywhere" academic network.

WHAT IS FON[6]?
Fon was founded by Martin Varsavsky, with the goal of free, ubiquitous WiFi for everyone.

Today, Fon is the largest WiFi community in the world, with over three million Fon WiFi spots and over five million users.

It started in 2006, in only two months it had 3000 registered users in 53 countries and after 5 years, Fon now has three

million hotspots globally becoming the world's largest WiFi network.

The idea of Fon is that every person that have a WiFi connection in their home can become a hotspot for others to use. The members of Fon agree to share their WiFi at home and get free roaming at all the Fon spots worldwide in return. A member can register as a *linus*, a member that have active hotspot and can use the others hotspot for free, as a *alien*, member that is registered in fon but do not have an active hotspot, as a *bill*, is the member that receives payment for the alien users that connect to his hotspot.

Besides the free WiFi connection all over the world that the Fon community offers, it also offers ways to make profit with the hotspot; who is registered as a bill receives 50% of revenue for each alien member that decides to buy a pass and access to his hotspot. This is a good way to attract members and small business.

Fon has partnership with telecommunications companies in multiple countries, such as BT (British Telecom), SFR (France), Zon (Portugal), e.Plus (Germany), that allows the customers to enjoy Fon's services by adding Fon's technology in the routers that are included in the services that the company sells, so the owner only has to register in the website and activate the router converting it a hotspot ; and also has partnership with mobile operators, like MTS(Russia) and SoftBank(Japan), that with the sale of every smartphone they offered a Fon router and after the registration the customers phone automatically connect to a Fon WiFi instead of using a 3G network.

Applications and Services of FON

Fon also give ideas to create hotspots without a WiFi router.

Fon and Joikusoft[7] created fonjoikuspot, a mobile software solution that transforms mobile phones to high speed broadband 3g internet modems, allowing internet access anywhere. With *fonjoikuspot*, the members of fon can connect their laptop, ipod or other wifi gadget to internet instantly and securely, and enjoy 3g speed. fonjoikuspot allows sharing of 3g internet connection with up to 5 friends.

Bzeek[8] has a similar idea that Fon the goal is to give WiFi to everyone but instead of sharing the internet connection with a WiFi router they enable the sharing through the laptop. Fon parent up with Bzeek and promote their software so these way Fon members can share their access to others that are not members.

Fon Access[9] is an application for android phones that's automatically connects to fon free WiFi spot.

METHODOLOGY

The focus of this paper is to study the Fon network, their partners, their growth as a WiFi community and the applications available to their members.

I'm going to register my Zon router in the Fon community and as a member I'm going to observe if my internet connection is affected, the performance of some hotspot available and do questionnaire to the other members of Fon so this way I can make a user review.

USER REVIEW

The first thing I did, for my user study, was to register in the fon website and then activate the router, as I am a client of zon I did not needed to buy a fon router, then I registered as a linus member, this means that I'm not going to receive any profits made by my hotspot.

The fon website provide a personal page where I can receive messages from others members, I can see all the hotspots that I use, see who had use my hotspot, and the website also provide a map where we can found all the fon hotspots.

Some problems that I encountered since I registered my hotspot (two months), I entered multiple times in another spots and it was not registered in my travel history, also when I activated my router in my personal fon page appear a google map, in order to put the localization of my hotspot, but it was extremely difficult to do this by indicating the address or even when I write the town, the map always set the localization, by default, to the north of Portugal; the only way to put the right localization was to hold the pin and dragged to the correct place (it was another user that told me this way because he has the same problem than i).

Fon guarantees the security of the home network by implementing the service in a network completely independent. Therefore, exists two different networks, one is from home and the other is the hotspots network with a different IP address and dedicated bandwidth.

The speed and performance of my home network was not affected. The only visitor on my hotspot indicated was me, so I decided to test the performance of the network having two laptops online in the home network and one in the fon; The bandwidth for both was the same 54mb, the speed and response from the web browsing was equal for both networks, so even if there is a significant amount of people connected in the hotspot the home network would not be affected.

I wanted to test others hotspots so I went from "Caniço Centro" to "Garajau" with my laptop and my smartphone. In the map was indicated that I will find 3 hotspots in Garajau (Figure 1).

In my way to Garajau I had my smartphone detecting WiFi signals and for my surprise I found 11 free fon hotspots between Caniço centro and Garajau (Figure 2). I attribute this to the difficulty that is to set the right localization for the hotspots or is also another possibility that the new Zon routers have the fon setting activated without people taking knowledge of this.
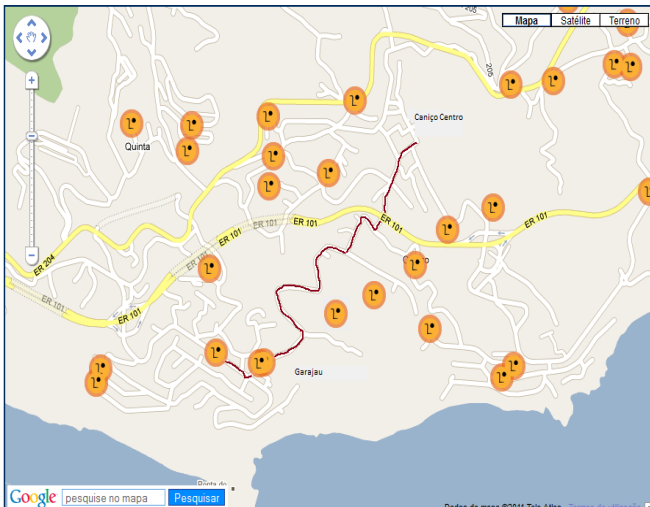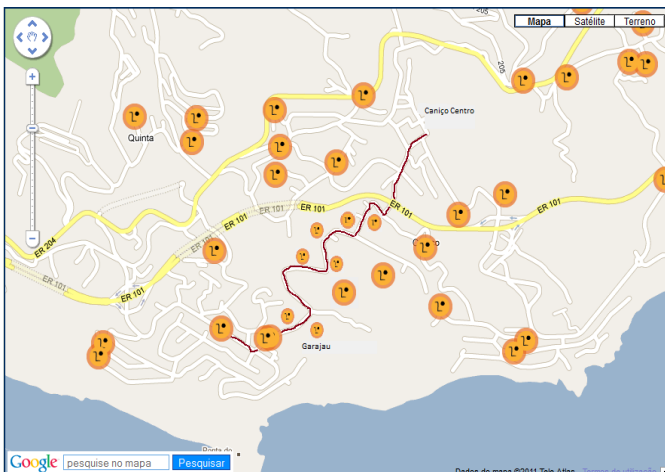
Figure 1 - Rout as shown in fon map

Figure 2 - rout with hotspots discovered

Questionnaire

I did a little questionnaire just to know the general opinion of user of fon and put it in the forum. I only had 8 responses.

All the respondents were males, 38% had between 21-25 years old, another 38% had between 31-35 and 13% had over 41 years old. 100% were members more than two years.

When asked about how they take knowledged of Fon, 3 found out in an article/news, 3 by recommendation of a friend, 1 by chance when surfing the web and 1 found a hotspot.

All of the the members joined because of the possibility of having free WiFi everywhere, some of them also joined because it was a fun idea and to share their connection.

None of the 8 respondent use the applications or services available by fon only use it to share and to connect to the internet.

When asked about their opinion about Fon they said that it's a cool community that their routers had poor development and their maps are inaccurate.

All the members that respond had a fon router.

CONCLUSION

When I take knowledge of Fon I did not knew that there were so many similar initiatives. WiFi became so popular, that with this technology, companies are trying to guarantee people connectivity everywhere making the access to the internet ubiquitous.

Mostly all the websites only offer services of localization of free WiFi or others just show the localization of their hotspots by making a monthly charge.

Fon is the only initiative that based their idea in a community, so their growth only depends of people interest. If people wanted connectivity everywhere they can buy one of the fon routers call "fonera" or if they are lucky their telecommunication company had a partnership with fon and their router already allows to become a fon hotspot.

Fon provides access to the internet without almost any cost and if members choose to receive part of the profit made with his hotspot it can make a significant amount of money (it needs to be in consideration the localization of the hotspot); that's why their service also attract coffee shops, restaurants and private parks because is a win-win situation.

With partners in multiples countries that offers and promote the fon community the other way that they have to promote is the community itself; with almost every technology device having WiFi and people dependency on the internet, they always looking for ways to stay connected for free.

I can say that Fon is the only company that is really making internet connection ubiquitous. In the big cities we can found innumerous fon hotspots and even in Madeira a small island we now find a significant amount of fon spots.

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