INTRODUCTION

Ile Sans Fil is a non-profit community group, which seeks to “promote free public wireless internet access in Montreal, Canada” (ISF website, 2004). The group also hopes to use wireless internet technology to build community. In order to accomplish these goals, the group has partnered with Montreal businesses and community groups to provide wireless internet “hot spots” – zones in public locations where radio connectivity permits computers equipped with a wireless card to access the internet. WiFi hotspots, provided by corporate networks (i.e. Bell Canada, T-Mobile), individuals and community groups (often in partnership with government and the private sector) are becoming defining elements of many urban areas. In Montreal, where commercial WiFi development has progressed more slowly than elsewhere, Ile Sans Fil is attempting to create a free, community-based option for wireless internet access early in the diffusion of the technology. As of this writing, twenty Ile Sans Fil hotspots had been deployed, with six more hotspots in the process of installation. Ile Sans Fil hotspots are available in cafés, restaurants, and parks across Montreal, as well as at StudioXX, the Atwater Library and the Fraser-Hickson library. The hotspots located in restaurants and bars are free of charge to people who want to use them, but the owner of the business may decide to require the visitor to purchase an item in order to use the connection. The hotspots in parks, at Studio XX and the Atwater and Fraser-Hickson Library are also free of charge. Currently, over 2000 people have active Ile Sans Fil accounts. Recently, a survey was conducted of these users, indicating that the greatest interest for users of the service was the fact that it was free of charge, but also its potential to connect community members and local businesses and cultural centres. Ile Sans Fils users and hotspot sites are supported by an active team of thirty volunteers (no one working as part of Ile Sans Fil receives a salary) who are involved in all aspects of the development and deployment of the hotspots, from contact with partners, to the development of affordable, portable technology and installation of that technology on site. Volunteers also plan long-term strategic research and development initiatives, liaise with the press and the local business community, and take care of all the technical support required by their hotspot hosts.
Technology
Ile Sans Fil members have developed a low-cost software application, called WiFiDog, which can be installed on a wireless router apparatus, eliminating the necessity for hotspot owners or managers to have a separate computer dedicated to running their wireless internet network. In addition, the WiFiDog makes it possible for each hotspot to create a unique “splash page” or opening page. This function permits the development and delivery of specialized content to the visitors at each hotspot. Ile Sans Fil has already created partnerships to aid in the development of art content to be diffused at some hotspots, and imagines that the splash page functionality will be used to distribute community information and local news, and will assist neighbourhood residents in getting to know one another. However, the splash page service also provides unique opportunities for the delivery of other types of information and public services, for example local or regional government services.

Background: Community Wiff in North America
Community groups dedicated to providing free WiFi connectivity have sprung up in nearly every major North American city. These groups have developed either independently or out of existing community networks, and have focused on the relatively flexible nature of commercially available WiFi technology -- that commercial wireless internet devices are designed to function interoperably and any WiFi receiver can pick up an unencrypted signal, regardless of the manufacturer of each type of equipment. Open-source software enthusiasts have also been active in the community WiFi movement, attracted by the challenge of developing new functionalities and expanding connectivity. Common to all community wireless groups is the desire to keep certain parts of the wireless spectrum unlicensed, and to provide the possibility for computers to connect with each other and with the internet. However, all community-based wireless groups are not created equally. Missions vary from providing a space for discussion of new technological developments by enthusiasts to creating a “mesh” network of WiFi nodes that would permit the development of an alternative ‘intranet’ network, not necessarily connected to the internet. Other groups dedicate themselves to opening hotspots, and still others are concerned with the social and community aspects of wireless technology. Some Canadian and US cities have extremely well-developed community wireless groups which have served in various ways as models for the development of Ile Sans Fil. NYCWireless in New York grew out of several New York City groups who were installing wireless devices in public locations (most notably in public parks; an activity that received a fair amount of media attention). NYCWireless now has standing working groups examining everything from coordination with arts groups to the social implications of publicly-provided wireless infrastructures. Austin, Texas (sometimes known as the “most unwired city in America” has a well-developed community-based WiFi initiative called Austin Wireless City that has created partnerships between a local small business, Less Networks, a volunteer-based collective, and the municipal government, which has participated by contracting Austin Wireless City to create hotspots in their building lobbies. Other cities have engaged in even more comprehensive strategies to build their wireless infrastructures. Philadelphia recently announced the Wireless Philadelphia initiative, which would have extended an open wireless grid over the entire city. This project, supported by the municipal government,
was recently cancelled due to resistance from incumbent telecom service providers. This example illustrates the power and potential of large-scale community networks. As alternatives to paid services these networks can become extremely influential.

**Who provides the backbone?**

One issue central to community wireless groups interested in providing public internet access is the question of who provides the internet connection which is then diffused to the public using wireless technology. For Austin Wireless, NYCWireless, and Ile Sans Fil, businesses, governments, and individuals who already have an internet connection can broadcast this connection using wireless technology, and regulate it using software such as WiFiDog. Yet the base internet connection must already be provided. The cities of Philadelphia and Fredricton, New Brunswick, have chosen to resolve this problem by municipally providing the internet backbone. Fredricton is the first Canadian city to provide WiFi infrastructure, and have based their coverage on a city-owned fibre-optic network created in 1999 as a municipally-owned non-profit alternative to the local duopoly. This wired fibre-optic network has formed the backbone for Fredricton’s WiFi infrastructure, where the city acts as its own ISP. Philadelphia is purportedly using the same framework. However, even without becoming its own ISP, a municipality could facilitate the development of a free WiFi infrastructure by creating a WiFi zone in partnership with businesses and community groups, as has occurred in Newport, Massachusetts.

**Benefits of community wifi**

Community groups and governments are not interested in WiFi technology merely to keep up to date. Investment in new technology by the public or community sector permits the development of unique methods of partnering with local industry, and flexibly delivering services and information. Ile Sans Fil has already begun to develop activities in these areas. Along with the development of the WiFiDog software, which makes creating hotspots easy and relatively inexpensive, Ile Sans Fil has created partnerships with arts organizations and industry alike.

**ILE SANS FIL’S APPROACH**

1. **Specific technological infrastructure developed**

   The WiFiDog software, developed by Ile Sans Fil members, is a captive portal similar to the NoCat technology developed by a California wireless co-op. WiFiDog makes it possible to manage a WiFi hotspot without dedicating an entire computer to the task. The software can be installed on a Linksys wireless modem, and the hotspot setup can be undertaken by connecting the unit to a screen and using a web interface. Once set up, a WiFiDog hotspot will ideally remain relatively stable, meaning that minimal interference from the hotspot owner or manager is imagined. Presently, WiFiDog has been installed in all of Ile Sans Fil’s hotspots, and has been relatively stable. Technical support is provided on an ad-hoc, volunteer basis and has been remarkably stable and successful. Ile Sans Fil members are alerted to weaknesses in the network through the volunteer mailing list, and most problems are fixed within a few hours – a service record that surpasses most commercial providers.
2. Possibilities for content direction and creation
In addition to making setting up a hotspot easier and less resource-dependant, WiFiDog has another unique feature – it permits each hotspot to create a unique ‘splash page’ that visitors see after logging on to the network. This page serves to identify the location that provides the wireless service, but also creates a place for content created in or about the local area, which can be directed to the people in the hotspot, who are presumably interested in seeing information about the community that they live in or are visiting. This aspect of the WiFiDog system is anticipated to be the most useful aspect, and the possibilities for the development and diffusion of content have already given rise to a partnership with the arts research project Mobile Digital Commons Network.

3. Current/existing community partnerships
The partnership with the arts research group Mobile Digital Commons Network has provided funding for twenty hotspots, as well as ongoing development of a mesh network to provide a platform for the development and diffusion of arts content produced by local artists or based on . This community partnership provides a means to develop and diffuse locally-based arts content. Content development is underway, as is hotspot deployment, and technical development of the mesh network will begin soon.

4. Existing commercial partnership potential
A partnership is also being discussed with a wireless telephony provider which will provide a small amount of financing which may cover the cost of deploying more hotspots, particularly in underserved or lower-income areas. However, Ile Sans Fil would like to find community partners in this area, in order to avoid “re-inventing” the Community Access Point wheel.

5. Need for sustainable funding sources – non-commercial
Ile Sans Fil’s members have already accomplished significant advances through the donation of volunteer labour. WiFiDog will soon be used for a project in partnership with NYCWireless. Artistic work by MCDN has already begun, and Ile Sans Fil hotspots can be found throughout the Plateau, downtown, and St-Leonard areas of Montreal. However, Ile Sans Fil continues to lack sustainable funding, particularly funding which is not linked to commercial interests. The organization is worried that over time their core volunteers will eventually be unable to take on the responsibilities of deploying and servicing a larger number of hotspots. Given the potential benefits of Ile Sans Fil’s technology and community and industry partnerships, the group is hopeful that public funding agencies and organizations will be interested in supporting them.

Learning from Evaluation Frameworks
Ile Sans Fil is a young organization, and is in the process of developing its organization structure and fine-tuning its mission. The organization has much to learn from established community informatics groups, particularly best practices for delivering community content, and for involving community members in content and technology development. Ile Sans Fil can contribute to CRACIN a fresh technological perspective,
but it also needs to gather best practices from the other community partners in order to develop as an organization.

**Research Questions:**

How does a community group that has developed an interesting and marketable technology negotiate with corporate and other interests?

How can a community-based infrastructure partner change relationships to information technology within the community context? (ie what happens when the tech guys are the “good guys”).

What can Ile Sans Fil learn from the “growing pains” of other community organizations using ICTs?

What kinds of benefits do Ile Sans Fils users and business hotspot hosts draw from using the service?

What impact, if any, does WiFi technology have on social cohesion? On the use of public urban space?