Free)(WiFi

...Is Just The Tip Of This Iceberg

The How-To Guide For Using The Hotspots, Nodes and Network Of The Personal Telco Project

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PTP In A Nutshell

We are a volunteer group of Portlanders who believe that 802.11 (wireless networking, or "Wi-Fi") technology is both cool and empowering. We started out by turning our own houses and apartments into wireless hot spots (also referred to as "nodes"), and then set about building these nodes in public locations such as parks and coffee shops. Currently we have over 100 active nodes, and we eventually would like to cover the entire city of Portland, Oregon with even more and create a city wide network.

Our Mission Statement

We are here to promote and build public wireless networks through community support and education.

The Networks

"No man is so foolish but he may sometimes give another good counsel, and no man so wise that he may not easily err if he takes no other counsel than his own. He that is taught only by himself has a fool for a master. "

Hunter S Thompson

Time changes all things. Back when the PTP first caught my eye, years before I had a roof or time enough to join in the fun, the talk was all about the cloud over Portland and the network that would be for of and by the people.

Time changes all things. By the time I joined up for active duty in November of 2002 the focus was shifting full on to the building up of hotspots. Hotspots were needed, were essential to building up the saturation of places to build from, were even fun to do for a while. Then the name started rubbing some folks wrong in the way sound of another persons breathing can rub folks the wrong way. Hotspots sounded trite, played out, not enough like a part of a network. After all the PTP was about networks, the building of, the educating about and the empowering of any who use it via the famous Network Effect.

The Network effect is best described by Metcalf's Law. Robert Metcalf invented ethernet while at Xerox Parc in 1973 so he knows a bit about networks. Metcalf's law states that the value of a network increases in proportion to the square of the number of nodes on the network.

For example, one telephone is not very usefully if there is no one to call. Now a telephone connected to a few million other telephones, thats valuable. One fax machine, your sending yourself the same goofy loop of comics, a fax machine able to reach and be reached by millions of other fax machines and you have increased that lonely fax machines value greatly.

So it is with a hotspot. It is a spot, one, it does a thing and it does it well but it is an island. "No man is an island unto himself" plays out here perfectly because in the PTP's grand plan no hotspot should be an island to itself, it should be a Node on the PTP Network.

Nodes is what we do, the PTP Network is what they are part of.

Time changes all things. In recent months the focus has shifted from the Hotspot and is now firmly set on the Network and the Nodes that make it up.

Nodes don't build themselves, and with out Nodes there is no Network, and the more Nodes we have on the Network the more powerful the Network becomes.

This is the task at hand folks, this is the goal and this is the focus. We are here to promote and build the PTPnet though community support and education. Hi Ho.

-Tom Higgins

Discovering The Network

Part of what makes a Network great are the services the nodes offer. Some nodes offer web sites, some offer local music, art or conversation. Some offer voice over IP services. Some offer storage space.

The services do a user pretty much no good unless they know they exist and how to get to them. Discovery is key.

What it boils down to now is each user hunting around for things they might like and setting up programs to connect to them. Think of finding a good podcast to listen to

or a news site to read.

Now imagine this scenario. You sit down in a location near a PTP node. You get your web browser fired up and in the sidebar a list of all the services that are being offered over the PTPnet automatically appears. Hey, there is a new podcast you have not heard...click and its playing. Hmm, someone is offering up a web site of local artists..click and you are viewing the art. Wonder what is in that iTunes server listed in the sidebar? All you need do is click to find out.

There is a type of method that mixes some old and some newer ideas to create just the type of thing we are talking about and its called ZeroConf.

The goal of ZeroConf, in part, is to make it such that any computer that connects to a network can easily find and connect to all the known services on that network without any extra configurtion...thus Zero Conf (iguration).

Each node on the network runs two or three pieces of software that allow it to do this. Once piece allows the node to say what it is offering, where to get it and even have a small description of the offering. Another piece listens for requests from other computers and in turn lets them know what is being offered. The third part browses the network for a list of whats being offered and how to get to them.

One of the misconceptions of ZeroConf is that services offered are somehow available to the entire Internet. This is not the case. When you offer a service up via ZeroConf it is available to everyone else on your local network. For PTP Nodes that will eventually mean anything offered will be available to any user on any PTP Node. For right now though it mostly means the service will be available to anyone connected to the same node you are connected to .

So if you are offering up some photos over iPhoto, music over daapd or even a web server while connected to the Pioneer Square Area node then all the users connected to that node will see them. As the PTP Network builds out the nodes will be connected to each other such that you will be able to sit at the Powell's Tech Node and see what is being offered over in the Urban Grind across town.

Once again, this is the power of a network, the more nodes that are connected the more powerful it becomes.

So how do you use ZeroConf?

Users of Apples OSX have had a leg up on everyone else. Apple has taken the Zeroconf ball and ran with it, placing an implementation of it in their operating system. Its been called different things by Apple over the last couple of years depending on what the courts have told them they can call it. For a while it was called Rendezvous, now its called Bonjour

Some ZeroConf apps for Mac OSX computers include iTunes to share music, iChat to locate other iChat users, SubEthaEdit to find documents and collaborate on them and iPhoto to share pictures and Safari to share web stuff.

For Windows and Linux users the pickings are a bit slimmer. There is a version of ZeroConf for both platforms called Howl. It is a free set of tools from Porchdog Software that you can download and install with out much hassle. The Windows version includes a plugin for IE that will show ZeroConf services right in a web browser. Windows user can also use iTunes to find and share music.

Apps like GetItTogther and OurTunes work in any Linux or Windows computer than has Java running. They both act much like iTunes but without all the legal hassles.

For Linux there is also a piece of code called DAAPd that acts as a music server that iTunes or any daap aware app, like OurTunes and GetItTogther can utilize. DAAPd acts as a music sharing server, you tell it where your sharable music is and it uses Zeroconf to publicizes that on the Network. A few PTPnet Nodes have started using daap servers to share music, so when you are at a PTPnet Node fire up your daap aware app and tell it to look around for any publicized services.

Over time and with more and more people using ZeroConf on the PTP Nodes the wealth of offerings will increase. The value of the network will increase with its use.

-Tom Higgins

ZeroConf-
http://en.wikipedia.org/wiki/Zeroconf

Howl-
http://www.porchdogsoft.com/products/howl/

Bonjour-
http://www.apple.com/macosx/features/rendezvous/

Using DAAP-
http://wiki.personaltelco.net/index.cgi/DAAP

OurTunes-
http://ourtunes.sourceforge.net/

Why The Networks?

When I tell folks about my work with the PTP the question I get the most is,,,,Why? Why bother, there are other networks you can use.? Why put all that work into giving away something for nothing?

There are as many reasons why as there are members in the PTP. There is one document that I read some years ago that summed up a lot of the reasons why I do this. The framers of this document were Adam Shand then the president of the PTP , Bruce Potter of CAWNet, Paul Holman of the Shmoo Group and Cory Doctorow of the EFF. I hope this answers some of the whys you may still have

-Tom Higgins

The Wireless Commons Manifesto

We have formed the Wireless Commons because a global wireless network is within our grasp. We will work to define and achieve a wireless commons built using open spectrum, and able to connect people everywhere. We believe there is value to an independent and global network which is open to the public. We will break down commercial, technical, social and political barriers to the commons. The wireless commons bridges one of the few remaining gaps in universal communication without interference from middlemen and meddlers.

Humanity is on the verge of a turning point because the Internet has transformed the way humans relate with one another. All communication can be traced to a human relationship, whether it's lovers exchanging instant messages or teenagers sharing music. The Internet has given us the ability to communicate faster and more cheaply than ever before in history.

The Internet's value increases exponentially with the number of people who are able to participate. In today's world, communication can take place without the use of antiquated telecommunications networks. The organizations that control these networks are limping anachronisms that are constrained by the expense and physical necessity of using wires to build their networks. Because of this, they cannot serve the great mass of people who stand to benefit from a wireless commons. Their interests diverge from ours, and their control over the network strangles our ability to communicate.

Low-cost wireless networking equipment which can operate in unlicensed bands of the spectrum has started another revolution. Suddenly, ordinary people have the means to create a network independent of any physical constraint except distance.

Wireless can travel through walls, across property boundaries and through a community. Many communities have formed worldwide to help organize these networks. They are forming the basis for the removal of the traditional telecommunication networks as an intermediary in human communication.

The challenge facing community networks is the one limiting factor of wireless communication: distance. The relationships that can be formed across a community wireless network are limited by their physical reach. Typically these networks are growing to the size of a city, and growth beyond that point requires coordination and a strategic vision for community wireless networks as a whole. Without this coordination, it is hard to see how the worldwide community of wireless networking groups will ever merge their systems and create a true alternative to existing telecommunication networks
.
There are many barriers to the creation of a global network. So far, the focus has been on identifying the technical barriers and developing methods to overcome them. But technical problems are the least of our worries, the business, political and social issues are the real challenges facing community networks. Hardware and software vendors need to understand the business rationale for implementing our technical solutions. Politicians need to understand our requirements for universal access to open spectrum. The public needs to understand that the network exists and how to get access. Unless these problems are identified and addressed, the community wireless movement will never have influence beyond a local level.

Most importantly, the network needs to be accessible to all and provisioned by everyone who can provide. By adding enough providers to the network, we can bridge the physical gaps imposed by the range of our equipment. The network is a finite resource which is owned and used by the public, and as such it needs to be nurtured by the public. This, by its very nature, is a commons.

Becoming a part of the commons means being more than a consumer. By signing your name below, you become an active participant in a network that is far more than the sum of its users. You will strive to solve the social, political and technical challenges we face. You will provide the resources your community consumes by co-operating with total strangers to build the network that we all dream of.

Community Wireless Definition
The definition of what defines a community wireless network is still in flux. Many different people and groups are trying to solve the problems in different ways. Approaches range from sharing out no-cost Internet access with stand-alone wireless hotspots to building city-wide wireless networks which are entirely separate from the Internet. Only time will tell what is the most effective approach to building a community wireless network.

Eventually we aim to create a concise definition of what the crucial characteristics of a community network are, in the mean time here is an outline of those that we feel are important to consider.

Non-Discriminatory Routing
In order for the network to remain open to all it's important to build agreements which allow traffic to pass freely over the network. Nodes in the network must pass all traffic regardless of origin, destination or content. It will be important to allow node owners to deal with abusive activity but whenever possible routing agreements should be as open as possible.

Organic Growth

The barriers to gaining access must be kept as low as possible. In order to allow the network to grow where it's needed bureaucratic and administrative requirements to join the network must be kept to a minimum. In general all that should be required to join is to find someone that is already connected and make arrangements directly with them. This is very similar to the way the Internet originally grew.

Mesh Networking
Because volunteer labor will continue to be the core of these networks it's important that require as little maintenance as possible. They should adapt to damage and restructuring as efficiently possible. Mesh networking has to potential to allow new nodes to be automatically be detected and integrated into the network, allow broken nodes to be automatically culled as well as routes through the network to be optimized on the fly.

Distributed Ownership
As the network grows and begins to provide compelling value there will be efforts to control the network for personal gain. By making sure that ownership of the network is distributed across the community as a whole we can make it as difficult as possible for the network to be commandeered.

Best Effort
It's important that we don't get bogged down in discussions of how to make the network as reliable as possible. Adopting the principle of "best effort", one of the principles that the Internet was built upon, means that the network is less encumbered and can grow more freely. It's also important that we restrict how traffic can flow across the network as little as possible so we don't fall into the trap of trying to control it ourselves.

End-to-End Connectivity
In order to maximize the potential of the network it is vital that there is true connectivity throughout the network. This means that any two hosts on the network should be able to directly contact each other without the help of a third party. This allows any device which is capable of joining the network to be capable of also acting as a server.

Fully Routable Addresses
It is true that a city-wide community network would have tremendous value without Internet connectivity, it's value can only be enhanced by adding two way connectivity to the Internet. Not only should wireless clients be able to get to the Internet, but the Internet should be able to get to the wireless clients. This opens up the new possibilities of being able to offer services world wide from a device hosted on a community network.

Fault Isolation
It is inevitable that an open network will eventually experience abuse. The network should be architected in a way that limits the amount of damage that a single attack can cause. Due to the nature of wireless networks there are some types of abuse that are impossible to protect against, but abuse in my neighborhood shouldn't affect traffic in yours.

Anonymous Access
Anonymous speech is one of the requirements of a free society. An open wireless network provides a perfect platform for us support this. It is important that we don't allow the ability to speak anonymously to become marginalized as we build the network.

Building Use and Generating Content
The more people that use the network, the more people that have a vested interest in our continued existence. The generation of content which lives on the wireless network may be the key to building usage. The more useful we make the network and the more services that are available over the network the more resources we will have at our disposal to build the network.

-Adam Shand, Bruce Potter,
Paul Holman, Cory Doctorow

How To Connect To The Network

1. Set your network connection to obtain an IP address dynamically (DHCP).
2. Set your ESSID to: www.personaltelco.net
3. Start your web browser and go to any Internet site.
4. The Terms & Conditions page will appear. You should read this page and, if you agree, click the "I Agree" button.
5. To find out more please visit us at **http://www.personaltelco.net**

Where To Connect To The Network

SouthWest

Bar 71 -
SW 2nd and Ash
Bar XV -
SW 2nd and Burnside
Coffee Plant -
SW Broadway and Washington
City Club Of Portland -
SW 9th and Washington
Daily Double -
SW 20th and Morrison
Moonlight Staffing at PGE Park -
SW 18th and Salmon
Pioneer Courthouse Square Area -
SW 6th and Morrison
Stumptown Coffee Roasters -
SW 3rd and Ash
South Park Blocks -
SW Park and Market
The Black Rooster Cafe -
SW 10th and Stark
Veganopolis -
SW 4th and Stark

Northwest

Anna Bannanas -
NW 21st and Northup
Backspace -
NW 5th and Couch

Couch Park -
NW 19th and Glisan
Ecotrust -
NW 10th and Johnson
Old Town Pizza -
226 NW Davis St
Powell's Bookstore -
NW 10th and Burnside
Powell's Tech Bookstore -
NW Park and Couch
Urban Grind In The Perl
NW 14th and Kearney
Vivace Coffee House -
NW 23rd and Pettygrove
Westover Towers -
NW 25th Place and Lovejoy
World Cup Coffee and Tea -
NW 18th and Glisan

Southeast

The Basement Public House -
SE 12th and Taylor
Crema Cafe and Bakery
SE 27th and Ankeny
Hawthorne Hosteling International -
SE 31st and Hawthorne
Nocturnal -
SE 18th and Burnside
Portland Independent Media Center
SE 34th and Belmont
Red Wing Coffee and Baking -
SE 6th and Market
Rose and Raindrop -
SE Grand and Stark
Subway Sandwich Restaurant -
SE 35th and Hawthorne
Stumptown Coffee Roasters-
SE 45th and Division
Stumptown Coffee Roasters-
SE 34th and Belmont
Ugly Mug Coffeehouse -
SE 13th and Nehalem
WSMF -
SE 29th and Alder

NorthEast

Cafe La Dolce Vita -
NE 12th andAlberta
Costello's Travel Caffe -
NE 22nd and Broadway
FoxFire Teas -
NE 46th and Freemont

Goldrush Coffee Bar -
NE M L King Blvd and Russell

Hollywood Library -
NE 41st and Tillamook

Humbolt -
NE Rodney and Skidmore
Irving Park -
NE 7th and Fremont
Rocky Butte -
NE Rocky Butte
Staccato Gelato -
NE 28th and Davis
Urban Grind Coffeehouse -
NE 22nd and Oregon

North and Beyond

Arbor Lodge Park -
N Dekum and Greeley
Cedar Hills Crossing Shopping
3205 SW Cedar Hills Blvd.
The Crow Bar -
N Mississippi and Failing
Dittos-
N Williams and Freemont
The Fresh Pot -
N Mississippi and Shaver
Muddy's Coffehouse -
N Mississippi and Fremont
Northstar Coffeehouse -
N Interstate and Lombard
Wax Cafe -
N Interstate and Webster

www.personaltelco.net