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# Public Wireless Networks.. The conventional way

*Is it possible to build a metro Wi-Fi network using conventional non-proprietary technology? The answer is clearly Yes.*

After several months of experience and many Wi-Fi sites operated by our partners it results that if you target customers are not the New York, Chicago or Paris you should seriously consider the conventional technology for building your public wireless network.

The wireless equipment idustry along with the antennas manufacturers have done significant steps to improve the performance of their devices creating a new scenery that needs attention especially when it comes to business solutions.

Without getting into the details of the metro Wi-Fi deployment, we'll enumerate some of the elements that you should consider before you decide for one or the other technology.

## Slotted Waveguide Antennas

These relatively new type of antennas for the microwave transmission provide an excellent coverage and signal strength. The slotted waveguide is a very low loss transmission line. It allows us to propagate signals to a number of smaller antennas (slots). The signal is coupled into the waveguide with a simple coaxial probe, and as it travels along the guide it traverses the slots. Each of these slots allows a little of the energy to radiate. The slots are in a linear array pattern, and the total of all the radiated signals adds up to a very significant power gain over a small range of angles close to the horizon. In other words, the waveguide antenna transmits almost all of its energy at the horizon, usually exactly where we want it to go. Its exceptional directivity in the elevation plane gives it quite high power gain. Additionally, unlike vertical colinear antennas, the slotted waveguide transmits its energy using horizontal polarization, the best type for distance transmission.

You will find these antennas in directional or omni-directional and 4,8,16 slot configuration up to approx. 21dBi signal strength with prices ranging between 100-500 USD. The construction quality of these antennas is very high and there are several manufacturers who provide a wide range of products: *http://www.marconiantennas.com http://www.securawave.com http://www.freenet-antennas.com*

These antennas connect to conventional wireless access points and can be used for point-to-multipoint and bridge connections.

**Bridging Wireless Networks**

All access point manufacturers provide ways to bridge base stations with relay stations and cover large areas of multiple square miles.

**Select The Highest Points To Cover An Area**

The higher you place your antennas the better you will cover the area even if you deal with a highly builded zones. Your goal is not to penetrate the buildings, you will never be abe to do it.. but to see the building terraces. You will need a transiever solution to get into the buildings.

**Cover The Area From Multiple Points**

Load balance your users by covering the area from multiple points either with base stations or relay stations. Do not forget that an access point will not handle practically more than 30 simultaneous users.

**Provide An Inexpensive & Reliable Transiever System**

The microwave technology will not allow you to go through walls or other obstacles. Most of your users will require a transeiver system installed on their building in order to capture your signal. Make it inexpensive and do not compromise the wireless connection.

**Standardize Your Wireless Equipment. Keep Spare Equipment in Stock.**

Your access points will be the core of your wireless network. Choose a manufacturer and a model and stay with it. Standardize the configuration and maintenance procedures and keep in mind that you will be measured by your network's uptime.

**Provide High Performance Wireless Equipment To The End Users**

All wireless cards are no the same. You should provide a choice of high performance cards that will connect the end users with your wireless network without a transiever equipment at least within a mile from your base station and relay stations.

**Monitor The Performance Of Your Network**

Survey the performance and coverage of your wireless network regulary. Do not forget that you promised an always-online broadband connection to your customers. Some free tools like: *www.netstumbler.com* will help you get a good picture of your wireless network.

**Provide Additional Services**

Make your network attractive providing services to the end users. Add-on services will keep the end user loyal and will differntiate your product. Consider immediately VoIP applications that will help your users decrease phone bills and security or home automation applications that will use the wireless infrastructure.