

Crossing the Digital Divide (v78)

“Use it”

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for the Observer

Smart homes, Internet-of-Things, security and monitoring systems, wireless networking, voice services, energy management, environmental control, power management, and more. Tech toys and tools, modern living, grid-tied, or not, there are millions of things you can do with information technology, some of which may make life easier for you.

Home networking basics: beyond the demarcation point. You've got an Internet connection, whether it's fixed wireless, DSL, satellite or coaxial cable, it's likely your single gateway to the world-wide-web. Most often, your Internet connection was terminated in an office, living room, or kitchen. In some cases, you've got an Ethernet cable connecting one computer to the modem/router (terminal equipment) your provider left you with. Not unlike a PG&E panel, or water main, what you do with your Internet “plumbing” is entirely up to you (with minor exception). Granted, extending Internet access to your out-buildings, loft, or patio may be outside your comfort zone; finding the right equipment will help you fully maximize the utility and potential almost any Internet connection can yield.

Most Internet service providers will “leave you” with a cable or simple wireless router when they activate service. In most cases, these routers/wifi devices are minimally useful – all wireless devices are not equal, some will barely manage a small number of devices (laptops, smartphones, tablets) in close proximity to the router. Wouldn't it be nice to be able to use your devices wherever you wanted?

Wireless technology has been leading a quiet revolution in Silicon Valley. RF (Radio Frequency) solutions, capitalizing on the various unlicensed (free) frequencies (900Mhz, 2.4GHz, 5GHz), built with Open Source software, combined with advanced directional and omni-directional antennas, is making waves throughout the carrier business, provider and end-user alike. There are several vendors disrupting traditional markets with aggressively low prices and self-support models. Hundreds of brand names, some big, some not. Devices that perform specific tasks configurable in software. Granted, some applications require more than basic knowledge to configure, however, the basics are generally the same; what do you need to do?

WAP (wireless access point): 802.xx wireless standards continue to develop and expand. A WAP is often contained within a router, or can be a stand-alone unit. WAP's can cover one room or several, and can often be synchronized to provide users with transparency between nodes (multiple WAP's configured to appear as one).

A WAP can be setup to distribute your Internet service between multiple users/devices. WAP's can be configured to act as the gateway for multiple devices sharing one Internet connection, or as a Station amplifier to enhance the reception of the wifi signal from another WAP, or can be setup to repeat/amplify the wifi signal from another WAP.

The same technology, when configured with appropriate antennas, can be used to span distances by creating a wireless bridge, or virtual Ethernet connection. Example: your Internet

service terminates in your living room, and the wifi router you have drops signal halfway to your shop, meaning no Internet sixty feet and two walls away. Utilizing the same technology packaged appropriately for the task, two wireless devices can be configured to span the distance (provided there's a clear line of sight) between home and shop, empowering users in the shop with full Internet access. One WAN connection, multiple LAN connections! (WAN is wide-area-network, your Internet service provider; LAN is local-area-network, your stuff).

Wireless networking yields enormous options for you, your family and your business. Tied together, with suitable security (good wifi passphrases), and the right equipment, your LAN can become whatever suits your needs and/or imagination: wifi guest access, environmental controls/monitoring, security cameras, and more. What do you want done?

Control those things you can, and keep the surprises to a minimum!