

Small Networks - should they be wireless (WLAN) or wired? Part 2

Update to Wireless Security

There is a new security protocol for WLAN, [Wi-Fi Protected Access \(WPA\)](#). This protocol is **significantly** more secure than WEP (wireless encryption protocol). WPA however, is a temporary protocol and isn't a recognized industry standard. WPA used by several wireless hardware manufacturers while a permanent protocol (802.11i) is being developed. I highly recommend using hardware that supports WPA.

The Pros and Cons at a Glance:

	Wireless	Wired
Security		Best
Cost	No clear winner	
Maintenance	Low	Low
Set-up		Best
Expansion	Best	
Troubleshooting		Best
"Noise Tolerance"		Best
Laptop use	Best	
Uptime		Best
Speed		Best

Now Back to the Chart

The clear-cut winner in ease of troubleshooting is a wired system. There are far fewer variables in a wired system (and less compatibility issues as well). With a wireless system you have all the variables in a wired system plus the additional

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variables of wireless security, outside RFI - EMI (radio frequency - Electromagnetic Interference), and wireless transmission protocols.

Noise tolerance is much higher in a wired system. If you avoid running cable near a large electromagnetic source and never run the cable over florescent lights, you should have no problems. If you must run cable over florescent lights do at 90° to the lights - not parallel. Wireless networks are much more susceptible to noise. As mentioned above there is RFI and EMI to worry about. Some sources of interference are 2.4 gig cordless phones (802.11B and 802.11g wireless devices - which are the current type in use, share this frequency - although on different channels). Microwave ovens can cause interference on both wireless systems and 2.4 gig cordless phones.

For laptop use the wireless network is king. In an office setting the laptop user can be connected to the network from their office - cubical, conference room, or another person's office without needing an open port to plug into. In a house, one can work on the internet from almost anywhere in the house. In short, one can "roam" in a wireless system but not in a wired system (without a lot of extra wired ports).

Like maintenance, troubleshooting, and noise tolerance, the wired network is the winner in uptime. There are simply less variables (things) to go wrong.

Speed - wired is the winner.

Protocol	Wireless Speed	Wired Speed
Wireless 802.11a	54	N/A
Wireless 802.11b	11	N/A
Wireless 802.11g	54	N/A
Wired 10T	N/A	10
Wired 100T	N/A	100
Wired Gigabit	N/A	1,000

All speeds are Mbps

Some wireless equipment manufacturers claim double the official speeds for some of their equipment. While tests have shown that these wireless devices are faster than the official speed; they are not double the speed. In addition, the speed of a wireless system is dependent on RF signal strength and lack of interference.

While wired gigabit is lightning fast - you will pay a lot more for the equipment. For most home or small office installations, 100T is the choice for a wired network.



In the next issue we will discuss ways to speed up your computer.



If you have questions on this topic or would like assistance in designing and installing a LAN for your business or home, please call or email us at 303-679-1440 or bob@rsblum.com for immediate assistance.

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