Wired and wireless media

Wired and Wireless Media Wired and wireless media both provide means of transporting data. Though both provide benefits in certain areas, neither is particularly better than the other. It is important for organizations to utilize both methods of media to maximize what benefits each provides while minimizing that same media types short comings. Anders (2010) uses six metrics to compare wireless and wired media: range, installation effort and flexibility, data volume, availability of information in room, reliability, and cost. Both types of media score evenly with each being ranked better than the other in three of the six categories. Gokhale (2005) states that half, and possibly more, of the installation costs of cable media are due to labor costs. This is because tasks such as digging ditches to run the cable must be completed according to specifications such as Telecommunications Industry Association (TIA) and the Electronics Industries Alliance (EIA) 568A/B that ensure the hardware will operate at optimal performance levels. Wireless networks still require labor such as in the erecting of towers and hotspots to propagate the wireless signals, but these overall costs are not as high when compared to wired media (Anders, 2010). Harder (2011) identifies three main types of wireless technology: Wi-Fi, ZigBee, and EnOcean. The main difference between the three is the amount of bandwidth that is provided. Gokhale (2005) defines bandwidth as a range of frequencies that can be transmitted minimal distortion (p. 37). Wi-Fi provides the most bandwidth, with ZigBee considered a mid-range, and EnOcean the lowest. One benefit of Wi-Fi and ZigBee is that they are designed to operate together with ZigBee ideal for field bus communication (Harder, 2011). When planning wireless networks indoors, Anders (2010) states that sub-gigahertz frequencies may be better than the 2. 4 -ghz Wi-Fi since the lower frequencies experience less

attenuation and radio interference. Gokhale (2005) defines attenuation as a loss of power that occurs as a signal travels farther from its source. For distances greater than 100 feet wired media would be the ideal method of networking, but for enclosed area wireless can aid in reducing costs of wires, and provide a less cluttered environment. An internet search of the phrase " structure wiring protocol" lead to a web site called K&W Audio and their ResiNet page. K&W Audio specializes in residential networks such as home offices, home theatres, home entertainment, home networking, home security, and home technology. The site explains the choices available to those that want a residential network while identifying the benefits of establishing such a network. The site includes images to show how cat5 cables can be neatly combined to prevent clutter. Two of the best parts of the site is its differentiation between structured wiring and electrical protocols, and discussing future needs and technology. Structured wiring protocols deals with separating the low and high frequency cables in a building (K&W Audio, 2007). Examples of high frequency cables are those that run power to electronics and lights. Low power examples are cat5 and cable TV cables. ã€€In order to plan for the future, K&W expects growth and increased demand. Such an outlook would benefit an organization due to the cost of adding new functionality to a net work. The additional costs would not simply be in adding new wires or hooking up new items to the network, but also ripping out drywall to run cables through an area. It is possible that one could capitalize on a wireless network to minimize growing pains, but these are considerations each organization would have to consider individually. Ultimately a company needs to balance cost with security and expandability while taking into consideration the actual structure of the network

environment. References Anders, A. (2010). Bridging the Wired and Wireless GAP. Heating/Piping/Air Conditioning Engineering, 82(11), 48-51. Retrieved from EBSCOhost. Gokhale, A. A. (2005). Introduction to Telecommunications. Clifton Park, NY: Thomson Delmar Learning. Harder, P. (2011). A Guide to Wireless Technologies. ASHRAE Journal, 53(2), 44-48. Retrieved from EBSCOhost.