Design, Deployment, and On-going Maintenance of In-building Wireless Infrastructure

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Abstract

As wireless networks proliferate and become ubiquitous, there will be a growing need to design, deploy, and manage the physical costs and on-going performance of such networks. Unlike cellular networks that have large towers and racks of equipments, wireless networks of the future will use fixed infrastructure that is smaller, less expensive, and more easily hidden within a building or campus environment. These hidden assets will radiate interference and will need to be managed in order to maintain sufficient grades of service in local areas. Already, Wireless LAN (WLAN) deployments are being performed in a somewhat haphazard fashion, and past experience demonstrate that it is easy to lose or forget where specific access points are located within a building, much less properly position them for optimal network performance upon installation in the first place.

This talk presents new methods that integrate the design, measurement, and maintenance aspects needed to deploy campus networks such as IEEE 802.11a or Wireless PBX systems. We also present recent work that indicates network performance metrics, such as user throughput, may be predicted through the use of site-specific propagation models. By archiving the physical network assets in the same computer aided design (CAD) environment as the propagation prediction, a single transportable design and management capability is now available. Called SitePlanner, this integrated design and management environment is currently in use by dozens of early-adopters who are tasked with the deployment or maintenance of wireless networks in and around campuses or large buildings.