

Wireless LANs - Roaming , Total Solutions

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Wireless LAN product offerings from several vendors are making good on the promises only talked about previously within the industry, bringing reliable, robust, untethered computing into the hands of customers.

Keeping the use of this technology simple, making it work reliably, and providing performance robustness are key benefits needed for market acceptance by the mainstream consumer. Too often, analysts and potential consumers of wireless LAN technology become too focused on the wireless media device eg. radio or infrared, when what they are really looking for is total performance solutions using wireless techniques to either augment their existing wired infrastructure or implement a total wireless solution.

Total Solution -

Several key considerations should be evaluated beyond the type of wireless media technique being used. Some of these include, but are not limited to, the convergence with existing the network infrastructure and roaming.

Convergence with the existing infrastructure

Wired LANs systems generally provide higher bandwidth and characteristically offer low error rate, low latency links. The cabling provides a stable media for carrying data.

Wireless systems are characterized as low bandwidth, high latency, high error-rate links. The air media for carrying data is not as stable as the contained wire. The coexistence of these two divergent links types must be considered when implementing a wireless solution into an existing wired infrastructure.

The convergence of the total wireless solution into a LAN or extended LAN must consider running distributed applications when connectivity is intermittent - what's *client/server* when you can't talk to the server?

Tracking wireless users as they move around can be difficult, especially when they *pop up* in a new location far removed from the prior location, for example, across a router boundary.

Providing adequate security when valuable data is outside physical perimeters and potentially exposed to trivial eavesdropping is also a key requirement in deploying a

wireless LAN solution. Failure to this properly may undermine the security for the rest of the existing wired infrastructure.

In most enterprise wide solutions the ability to use the existing network management software and configuration tools is essential. This means the wireless solution should provide full support for MIBs as well as full implementations of features such as SNMP, Spanning Tree, BootP and TFTP.

Roaming

Each wireless segment is viewed as a geographical area which is provided coverage by a device known as a wireless bridge, sometimes referred to as an access point. Each coverage area is known as a cell. An access point in its simplest form, provides media conversion for the data path. In the case of wireless technology this conversion is made from the air as a media to wire. The robust wireless solution will contain an wireless bridge which among other duties, must provide a soft, seamless hand-off of the client station as it moves from one cell to the other. This act of handing off from one cell to another is referred to as *roaming*. Roaming is the transparent process whereby a wireless end station recognizes the radio connection to the wireless bridge it is currently associated with is no longer of sufficient quality and establishes a connection to another wireless bridge. Session disconnects and reduce client/server throughput results if the wireless bridge cannot support the ability to properly execute a soft, seamless hand-off. Upper layers of networking protocols are not very efficient at doing data re-tries, a high performance wireless bridge has this ability to do client initiated hand-off of the wireless device and its destined data to the new wireless bridge.

Potential system users of wireless LAN technology need to consider the total wireless system within your overall network architecture. Vendors which are considered should be experienced providers of total network solutions, and committed to the successful deployment of your total wireless, roaming solution.