



## **Introduction**

Having secure and reliable Wi-Fi for the enterprise users is crucial to maintain workplace productivity and business activities. Unstable connections, dropped packets, and erratic performance are all common symptoms of an incorrect or bad Wi-Fi solution. The enterprise power users demand better coverage, capacity, reliability, and secure roaming, in a Wi-Fi solution that is affordable, easy to deploy, and manage.

The Inscape Data AirEther SB3000 meet the challenges of the enterprise users by delivering up to 600 mbps of aggregate data speed and extended coverage range penetrating office walls, warehouse divisions, and reach to outdoor meeting areas. The capability to install the products outdoor open up enterprise user smart phone connectivity to further increase productivity and lower 3G/4G mobile phone data cost. The Inscape Data SB3000 products rugged design protects the product of environmental factors like moisture, dust, pests, and extreme temperature that usually bring down a not-so-robust Wi-Fi network system. More enterprise IT departments select Inscape Data Wi-Fi solutions to leverage against our superior product design and expertise to keep the enterprise users with always reliable and available Wi-Fi connectivity.

## **Challenges**

The inception of many business wireless LAN starts with consumer-grade wireless access points (APs). These APs are placed wherever wireless access is desired – initially in conference rooms and lobbies, later throughout offices and other work areas. This type of unplanned organic growth may have been satisfactory when Wi-Fi was a novelty, but as dependence and utilization grow, limited coverage, uneven performance, and compromised security quickly starts to disappoint users and frustrate administrators.

Although inadequate planning and provisioning plays a major role, consumer-grade APs are just not up to the task of creating a comprehensive, reliable business-grade wireless LAN. These APs use inefficient omni-antennas to cover a circular area of limited diameter. As Wi-Fi transmissions are absorbed and reflected by walls and other obstacles, those circles shrink from 300 feet wide in open space to under 50 feet inside a typical office. Covering a larger office (or a hotel or school) requires multiple APs, but the outcome is often spotty. At the edge of each circle, weak signal delivers unreliable low-rate connections. Dead spots in between prevent or break user sessions, requiring repeated log-ins, application restarts – even reboots.

To address the dead spot issues, some organizations try deploying consumer APs more densely. However, with only three 2.4 GHz nonoverlapping channels to choose from, this can generate disruptive co-channel interference between adjacent APs. In the end, total capacity does not improve, problems increase, user experience degrades, and administrators struggle to manage numerous APs, each operating autonomously. Larger enterprises overcome these challenges by deploying sophisticated WLAN switching systems and RF management suites. According to Gartner, 80 percent of enterprises are now revisiting their WLAN designs to cope with growing demands



and external interference. Many are spending thousands on site survey tools, WLAN controllers, wireless intrusion prevention servers, WLAN management platforms, and location tracking appliances. Once the cost of design, installation, management, and maintenance are added, total cost of enterprise WLAN ownership is roughly double that of the infrastructure investment.

### **Enterprise Environment**

As more and more enterprise users connects onto the wireless network and footprint grows, the operational and performance problems associated with consumer-grade APs will only get worse. Meeting tomorrow's demands Wi-Fi applications are expanding rapidly beyond guest Internet, employee Intranet, and email access. These casual data applications still represent the lion's share of WLAN traffic, but more demanding multimedia applications are poised for growth.

In today's business environment, the wireless demand is dominated by smart phones, tablets, and laptops. Tomorrow, those WLANs will be required to support a far more diverse collection of business devices, including Wi-Fi-enabled HDTV, projectors, printers, smart phones, and VoIP handsets. Analysts predict that voice over Wi-Fi will be heavily-used by guests and staff in hospitality WLANs. For example, Wi-Fi communicator badges are quickly replacing those old walkie-talkies carried by maintenance and conference center staff.

To keep the power users of tomorrow content and productive, the current wireless data networks must grow into robust multimedia hot zones. This means delivering predictable, secure coverage that blankets the entire service area with sufficient capacity and density. It also means satisfying the diverse constituencies who share the same airwaves by delivering the class of service appropriate for each user, device, and application. WLAN operators that prepare to meet these escalating demands will thrive in the multimedia age. Whether you are building a small-to large business WLAN, you will need an affordable, easy-to-use platform that is still robust and scalable enough to enable footprint, capacity, and service expansion.

With limited resources in staffing and RF expertise, businesses operators need to be able to cost effectively and quickly install and configure all the requisite WLAN components such as controllers and APs. Wizard-based configuration systems that provide easy-to-understand setup are a must. Additionally, a platform that can find and activate new APs on its own, make automated post-deployment adjustments to reduce dependence on pre-deployment site surveys and expert set-up, is a sound investment. A significant portion of that cost involves supplying power and network connectivity to each AP. Look for APs that can reduce or eliminate those costs. Using Ethernet cables to deliver DC power (802.3af) is one good option.

Dealing with changes on the network is never easy and is the single-most time-consuming and frustrating aspect of WLAN administration. But, due to the dynamic nature of a wireless network, changes are anticipated: new APs are added, existing may



APs fail, obstacles and users move, and environmental conditions vary – all impacting optimal channel assignment, power output, and antenna positioning. Even if you could tweak parameters to respond to those changes, doing so would take RF expertise and full-time supervision – and adjustments still wouldn't occur fast enough. Instead, look for a platform that tunes itself, dynamically adjusting RF settings to automatically mitigate interference, fill coverage gaps, and deliver predictable performance.

### **Expansion**

Wireless access point distance and bandwidth capacity directly impact cost of ownership. Upgrading to the latest wireless technology from 802.11 b/g to 802.11n can make your wireless LAN less complicated and costly. 802.11n APs can cover larger areas at higher data rates. Almost 6x higher data rate. However, more raw bandwidth does not always result in proportionally higher throughput and doesn't guarantee higher user and session density. Start with APs that can support more than a handful of simultaneous sessions and APs that automatically loadshare. Then look for features like dual polarized antenna that allow those APs to be placed in closer proximity without interference. With twice as many radios in each AP, 802.11n will be an interference nightmare without integrated interference mitigation.

### **Conclusion**

Inscape Data continues its tradition with the next generation wireless products to meet the high demand environment of IP video security and wireless networking industries. With equipment maintenance cost high on the list of company expenses, the AirEther™ 802.11 a/b/g/n MIMO wireless systems are easy to install. When used with Inscape Data's LPS2000 or LPS series Outdoor Adjustable Voltage PoE Switch or commercial PoE injectors, PIS200, PIP100, and PES100, the AirEther 802.11 a/b/g/n MIMO products provide rugged reliable wireless interconnectivity of mission critical IP video surveillance and networking functionality.