



## *Datanamics Inc. Case Study*

# *Barnes & Noble Serves More Customers Worldwide With Reliable Wireless Network*

Customer: Barnes & Noble

Website: [www.BarnesAndNoble.com](http://www.BarnesAndNoble.com)

Location: Reno, Nevada

Industry: Retail / Warehouse

### Customer Profile:

Barnes & Noble, a Fortune 500 company, is the world's largest bookseller, operating nearly 800 stores in 50 states. As well as its retail stores, Barnes & Noble also maintains an Internet site that is a leading e-commerce destination, attracting millions of visitors each month and serving customers in more than 200 countries. Between its stores and online operations, Barnes & Noble sells more than 300 million books every year. The company maintains a warehouse in Reno, NV, to serve the stores in the surrounding region and customers placing orders through the Internet.

### Datanamics Services:

Site Survey

Design

Installation

Cat5e Cabling Installation

### Hardware:

Cisco Aironet 2.2dBi dipole antenna

Mobile Mark 9dbi Omni-directional Antenna

Hyperlink 2.4Ghz 8dbi Wireless Mini Flat Patch Antenna

Yagi 8.5 dBi Antenna

Cisco 124AG Wireless Access Points

Cisco 1131AG Wireless Access Points

Cisco Wireless LAN Controllers

16 Gauge RF Shielding Sheet Metal Plate

### For More Information Call:

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**Barnes & Noble recognized the benefits of upgrading their wireless network to increase productivity by providing the warehouse staff with improved throughput and higher reliability.**

### The Challenge

Barnes & Noble's 96,000-square-foot west coast distribution warehouse in Reno, NV, employs more than 500 staff members, with 300 working at a time to maintain a smooth flow of operations. The warehouse consists of four principal areas; Bulk, where large pallets of books are stored on open metal shelves stacked three stories high, The Mezzanine, both upper and lower, where unboxed books are stored on sheet metal shelves and picked for distribution; Flow Control, where high volume books are rapidly dispensed from open metal shelves similar to the shelves in Bulk; and Sorters 1 & 2 area, where books for distribution are boxed for shipment. The large amounts of sheet metal used in shelving units, and the various configurations of storage areas throughout the warehouse was characteristic of signal reflection issues within a wireless communication environment. While the warehouse had a wireless network infrastructure in place, employees encountered problems with the system, which disrupted their workdays and hindered their productivity. Connectivity between handheld devices and the wireless network were often poor or non-existent in certain areas. The Barnes & Noble IT Director recognized the benefits to be gained by upgrading the network to provide increased throughput and higher reliability. In addition, a more strategic approach to the building's wireless access point placement was imperative due to structural variances throughout the warehouse.

### The Solution

After performing a thorough site survey, Datanamics crafted a solution that the company felt best resolved the issues Barnes & Noble faced. Working with the warehouse's existing equipment, Datanamics

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## About Datanamics Inc.:

Datanamics, Inc. is a leading national information technology solutions and education firm. Our team of certified professionals bring specialized expertise to all phases and aspects of networks. Datanamics has built a reputation on the ability to deliver a full range of network solutions to local, national and global small business to Fortune 500 clients across a variety of industries.

- Over 30 Years IT Experience
- Certified Professionals/Solid Credentials
- Hundreds of Long Term Customers
- Headquartered in NV, Service Anywhere
- Wired/Wireless/Secure Networks
- Integrated Voice and Data Networks
- Gold Standard U.S. Based 24/7 Support
- One-Stop Training & Services Resource

To provide its clients with the latest technology in network and IP Telephony solutions, equipment and infrastructure, Datanamics partners with first-class vendors such as Avaya, Cisco and Microsoft, offering a vast range of applications for the broadest range of client needs.

Datanamics takes its relationships one step further by offering advanced technical training and certification courses for IT staff and is authorized to deliver training and certification testing for numerous companies such as Microsoft, Cisco, and many others.

- Certified Instructors
- Microsoft Certified Learning Partner
- Cisco Authorized Learning Partner
- CompTIA & Various Other IT Classes
- Traditional Instructor Led Training
- Custom On-Site IT Training
- ELearning & Remote Live Classroom
- Pearson Vue & Prometric Testing On Site

(Continued - The Solution)

recommended different placement of wireless access points and additional antennas to improve wireless connectivity.

After extensive surveying and testing using both Cisco 1242AG, Cisco 1131AG WAPs and a variety of antenna models, Datanamics devised a wireless coverage design targeting signal strength of no more than 70dBi with a target signal strength of between 50 and 70dBi. Cisco Wireless LAN Controllers (WLC) were recommended to provide centralized management of the access points to include dynamic frequency and channel management. The WLC ensures all devices have consistent firmware and code.

The WLC network is used by Barnes & Noble employees to fill customer orders and to manage inventory. Employees move throughout the facility using handheld RF scanners to pick product and to place inventory on the shelves and racks. Among the employees, the lift drivers move quickly between rows of shelves three stories high placing and pulling pallets of books. The drivers roam very often between access points sometimes moving so quickly they are handed off to several access points within a 30 second period.

The Cisco product provides dual wireless connectivity for challenging radio-frequency environments such as factories and warehouses. Extended range and coverage versatility is furnished through its connectorized antennas, metal enclosure and broad operating temperature range. Once all of the WAPs were in place, Datanamics performed after-hours service to complete the transition from the old wireless network to the new network. Datanamics also retained a qualified installation engineer on-site to ensure that all aspects of the project were operational and that Barnes & Noble employees had no issues logging onto the wireless network.

In addition, Datanamics worked with Barnes & Noble to configure their RF guns for authentication and encryption. The result was greatly improved communication between the RF guns and the AS400.

## The Benefits

Datanamics provided the most cost-effective solution for implementing wireless access services quickly, efficiently and economically. By installing the Cisco® Aironet® system in the Barnes & Noble warehouse, employees are now able to log onto the wireless system without trouble, enabling them to complete duties resourcefully. As a Fortune 500 firm servicing clients worldwide, Barnes & Noble could not afford disruptions in the workdays, including poor wireless network signals. Its new wireless network system allows the staff to accomplish more without the frustrations of frequent interruptions.