



Columbus Vegetable Oils

Manufacturer Turns to Aerohive Wi-Fi to Streamline Inventory Process Based on Security, Reliability, Manageability

Challenges

- Wanted to automate and streamline the inventory/order fulfillment process and reduce errors by using hand-held scanners and wireless technology
- The new wireless solution would need to be highly reliable to prevent costly downtime
- The wireless solution would need to be secure to prevent unauthorized intrusions
- The wireless infrastructure had to be easy to manage and flexible enough to adapt to changing business requirements

Results

- Columbus was impressed with Aerohive's cooperative control access points (HiveAPs) that required no network controllers or overlay networks
- Aerohive's mesh networking capability increased the resiliency of Columbus' wireless network
- Aerohive's cooperative control architecture and the HiveAPs provided the security Columbus needed with features such as 802.11i (WPA2), wireless intrusion detection system (IDS), 802.1X authentication, and rogue AP detection
- HiveManager was used to simplify the provision of access points, and is providing ongoing monitoring capabilities through a single, easy-to-use console management

A leader in the shortening and oils industry, Columbus Vegetable Oils chose Aerohive's Cooperative Control wireless LAN solution for its new manufacturing and warehouse facility because of its superior security, reliability, manageability, and flexibility.

Columbus Vegetable Oils, headquartered in Des Plaines, Illinois, a suburb of Chicago, processes and packages over 100 quality items with combined shipments of over one million pounds per day. Products range from highly competitive commodity vegetable oils to exotic specialty oils—and a full range of products in between. Applications include the retail and food service industry as well as a variety of chemical and manufacturing applications such as soap and printing ink.

"...the security, enhanced features, and resiliency of the Aerohive solution put it at the top... we liked the fact that the HiveAPs could function without a controller, which means there's no single point of failure for the system."

—David Hodapp
IT Director, Columbus Vegetable Oils

The company's operations revolve around manufacturing and shipping. Packaged products are taken off the manufacturing line and placed in designated holding areas. Warehouse staff "pick" items to fill orders. With such a large number of products and huge volume, maintaining an accurate inventory is critical. For decades, warehouse staff used pens to write down lot codes. "Accuracy was a constant problem, which often led to incorrect shipments, doing the same work twice," says David Hodapp, IT director at Columbus Vegetable Oils.

The Challenge

When the company decided to move to a brand new 310,000 square foot facility, Hodapp saw an opportunity to automate and streamline the inventory/order fulfillment process and reduce errors by using hand-held scanners and wireless technology.

While wireless connectivity offered many advantages, it also raised concerns. The new wireless solution would need to be highly reliable to prevent costly downtime—and a return to error-prone pen and inefficient paper recordkeeping. The wireless solution would also need to be secure to prevent unauthorized intrusions. In addition, the wireless infrastructure had to be easy to manage and flexible to

adapt to changing requirements. And equally important, the company needed a wireless supplier it could count on for mission-critical support.

Evaluating the Alternatives

Hodapp considered three wireless solutions: Symbol Access Points from Motorola, the same vendor that would provide the (MC9090) hand held scanners Columbus would use; Cisco Systems access points; and Aerohive Cooperative Control Wireless LAN distributed through Synapse Networks in Chicago. "All three products could provide wireless connectivity," says Hodapp. "But the security, enhanced features, and resiliency of the Aerohive solution put it at the top. Our initial contact with the people from Aerohive and Synapse gave them a very big edge as well."

Cooperative Control Architecture for Aerohive

Columbus liked what they saw in the Aerohive solution. "We had a lot of confidence in Aerohive and Synapse," says Hodapp. "And the warehouse consulting firm we were working with felt the same way—that this was a good solution and good team of people to work with."

One of the key differences with Aerohive was the cooperative control access points (HiveAPs) that required no network controllers or overlay networks. Instead, software in the HiveAPs enables them to self organize into groups called Hives. The result is enterprise-class network management and security without the cost, performance, and availability issues associated with controller deployments. "We liked the fact that the HiveAPs could function without a controller, which means there's no single point of failure," says Hodapp.

Mesh Networking Boosts Resiliency

Not only does Aerohive eliminate the need for a controller, the mesh networking capability also increases the resiliency of the wireless network. Aerohive's dynamic mesh failover enables network traffic to be routed around failures in the wired network by dynamically and automatically establishing a wireless mesh connection between neighboring HiveAPs using the second radio in the HiveAP, avoiding costly network downtime.

Safe and Secure

Deploying a wireless LAN was a big security concern for Hodapp. With eight and a half acres of warehouse to cover, the signal would most certainly extend to the outside, leaving the firm susceptible to "drive-by" access.

Aerohive's cooperative control architecture and the HiveAPs provide the security Columbus needed with features such as 802.11i (WPA2), wireless intrusion detection system (IDS), 802.1X authentication, and rogue AP detection. HiveAPs also integrate easily with third-party solutions, such as Network Access Control (NAC) systems that enforce endpoint compliance checking.

An integrated firewall in every HiveAP also ensures immediate response to security threats. "The fact that we had security at the access point rather than at a central management area was definitely something we liked," says Hodapp. The firewall has a multi-level response mechanism that can log, block, disassociate, or disassociate-and-ban wireless clients in response to particular attacks. In addition, Layer-2, -3, and -4 denial-of-service (DoS)

protection ensures that wireless clients do not consume too much wireless bandwidth or overload buffers, mitigating DoS attacks.

Rolling Out Wireless

Columbus began deploying the Aerohive solution in early 2008. The initial rollout included 15 HiveAPs connected via Power over Ethernet to five Adtran switches that, in turn, were connected to the Columbus network via fiber optic cables. Columbus Vegetable Oils uses Microsoft Dynamics SL, a business management solution for managing wholesale distribution businesses.

During the testing phase, communication errors with the switches brought the project to a temporary halt. "People here were pretty impressed with the level of commitment by Aerohive to solve our problem," says Hodapp. "They wrote a custom fix for the Adtran switches and sent it to me to update my APs and Hive Manager."

Eventually, two more HiveAPs were installed. In addition to 19 hand held scanners, several warehouse managers connect through the wireless network with their laptops, and the Chief Operating Officer and the company owner have Apple iPhones. "Since Apple updated their software, it works very seamlessly," says Hodapp.

Easy Management

Throughout the deployment, Aerohive's HiveManager Network Management System (NMS) was used to simplify the provisioning of the new HiveAPs. The user-friendly HiveManager graphical interface enabled Columbus Vegetable Oils to quickly and easily implement their wireless network settings and security policies without unnecessary complexities associated with most greenfield deployments. As new HiveAPs are connected to their network, the HiveManager automatically discovers them and transparently pushes configuration settings and policies to them for a seamless plug-and-play installation. On an ongoing basis, the HiveManager provides monitoring capabilities through a single, easy-to-use console management.

Value-based Choice

When evaluating the other wireless LAN vendor offerings, Columbus Vegetable Oils noticed that the controllers consumed more than 50 percent of the total solution's cost. And if high availability was required, as it was with Columbus Vegetable Oils, the controller portion skyrocketed to 75 percent of the total.

Aerohive's innovative Cooperative Control Wireless LAN eliminates the need for costly wireless controllers by distributing control functionality and data forwarding to every HiveAP. In addition, the distributed HiveAP architecture eliminates the risk of the controller as a single point of failure, which can result in costly downtime and lost productivity. Looking back, Hodapp believes he made the right choice in wireless solutions. "Cost is always an issue, but it was not the determining factor. Aerohive offered us superior security, resilience, and flexibility."

Looking to the Future

Down the road, Columbus Vegetable Oils may implement Voice over IP on the wireless network, which Aerohive already supports. And while not an immediate need, Columbus Vegetable Oils was pleased to know that Aerohive already supports the higher-bandwidth 802.11n protocol, should that become a requirement for them.



Contact us today to learn how your organization can benefit from an Aerohive wireless LAN architecture.

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