

Branch on Demand for Retail

Extending and Securing Access Across the Organization



Extending Access to Corporate Resources Across the Organization

Retailers have adopted wireless LANs (WLANs) for improving access to company information, enhancing customer service, and increasing distribution efficiency. Although many of these WLANs originally operated as standalone networks in stores, warehouses or distribution centers, today they are integral parts of company-wide networks that encompass locations from the largest headquarters to the smallest store.

Today's WLANs carry inventory and transaction system traffic, enterprise resource planning (ERP) business applications, and a wide range of task management, marketing, merchandising, customer service, and website applications. Because this traffic is mission-critical, these WLANs require the same centralized management and enterprise-level security as their wired counterparts.

Aerohive Branch on Demand: Simpli-Fi Retail Stores of the Future

Classic virtual private networks (VPNs) that connect networks in stores and warehouses to corporate networks generally add cost, complexity, and confusion to each location. The extra infrastructure needed requires support and maintenance in locations that lack IT staff and is difficult to deploy, configure, and secure consistently—even by skilled IT teams. With classic branch network architectures, branch offices or remote locations represent roughly 20 percent of IT infrastructure but typically require 80 percent of IT's maintenance resources. This is because that 20 percent of IT infrastructure represents nearly 100 percent of the customer's brand experience, and they often drive the retailer's entire business.

In retail, as the branch goes, so goes the business. Network services provided to remote locations depend less on the size of the location and more on the functions being performed at that location. This can greatly complicate operations for retailers with hundreds or thousands of stores and few people at each location.

The Solution

Aerohive provides Branch on Demand™ a cloud-enabled networking solution for remote locations that simplifies provisioning, management, security, and troubleshooting for remote deployments. The solution leverages the cloud to provide a zero-touch, auto-provisioned branch network, complete with wired and wireless connectivity. Branch on Demand includes all of the elements required to enable a secure remote/branch network, including a branch router, HiveManager Online subscription and Cloud Proxy service in a convenient yearly subscription package. This unique offering eliminates the CAPEX associated with traditional

Branch On Demand™

Aerohive's Branch on Demand™ solution redefines the economics, control, and performance of small branch and teleworker connectivity by leveraging our patent-pending Cloud Services Platform to deliver a "Headquarters-like" network to every user regardless of location.

Router—BR100/200

Branch Router with built-in 802.11n



VPN Gateway—CVG

VMWare-Compliant VPN Gateway



Cloud Services Platform

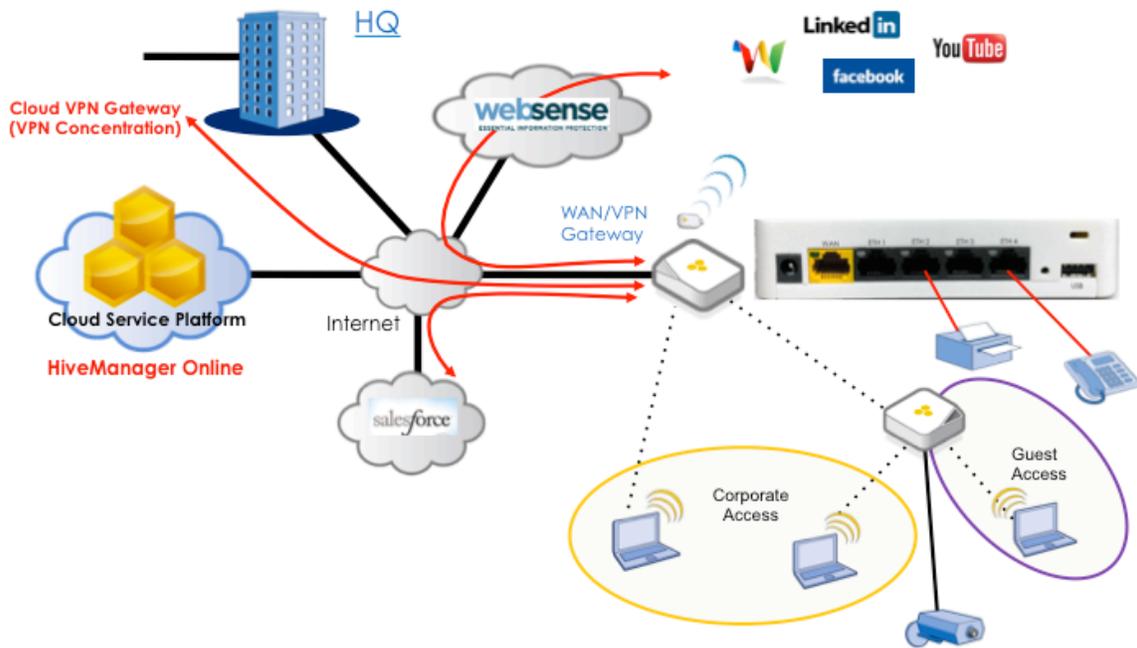
Integrated Cloud-based Services



Branch on Demand for Retail

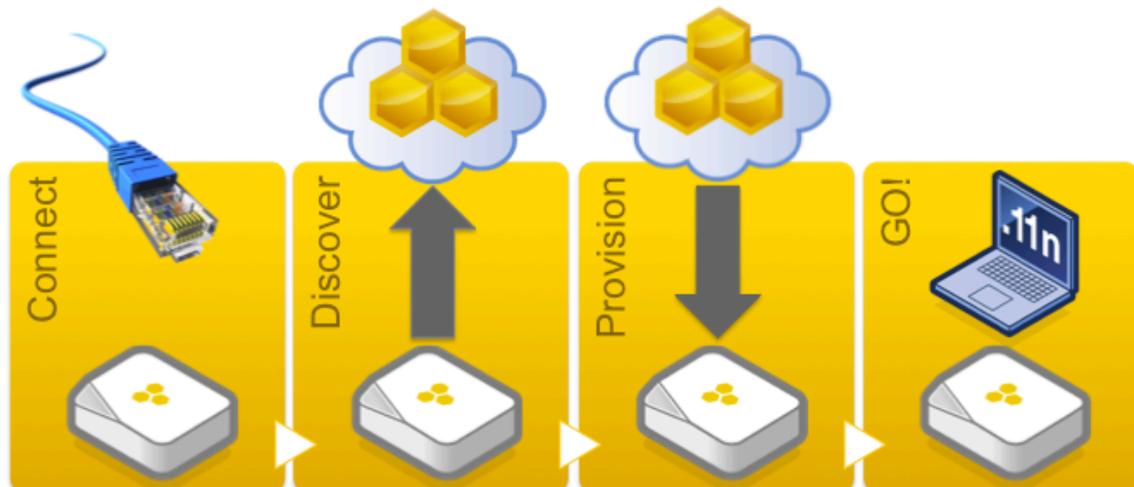
remote networks, and ensures that bringing a location online no longer requires having technical staff or resources onsite. Branch on Demand is ideal for a wide range of retail environments, such as stores, kiosks, and distribution centers. With costs as low as \$99 per branch per year, retailers can achieve significant CAPEX and OPEX savings while maintaining visibility into remote networks, meeting security objectives and compliance standards, and increasing productivity. At the end of the subscription term, Branch on Demand gear may be purchased if desired.

Figure 1: A typical Aerohive Branch on Demand remote location implementation



The zero-touch capability is the key to unlocking efficiencies never before possible with branch networking architectures.

Figure 2 – Zero Touch auto-provisioning removes any need for technicians onsite or truck rolls.



With Aerohive, branch connectivity and access is truly on demand. Once an order is placed, a branch router is delivered to the remote location. The onsite end user receives a package with fold-out instructions on how to connect the power and the Ethernet connectivity. Once connected, the branch router “phones home,” using the Aerohive Cloud Services Platform to quickly and securely discover the world-class HiveManager management platform. It does not matter if HiveManager is online or on-premise—all security policies and configurations specified by the central IT department are downloaded and a secure VPN connection is established back to the corporate data center. Within a few minutes, the branch is live and integrated with all of the functionality provided by the corporate network. The new branch network's security and management visibility is instant and virtually indistinguishable from connecting to the wired or wireless network that is located at headquarters.

Branch Routers

Aerohive BR100 and BR200 branch routers can be secured in a wiring closet while still providing wireless access to the rest of the property. Aerohive makes it easy to extend wireless access by allowing an administrator to connect Aerohive APs through wireless mesh or wired Ethernet connections to branch routers. Administrators can configure APs to support multiple virtual LANS (VLANs) and user profiles, and can deploy a single policy to the entire location. This approach allows users to connect to any available AP and receive the correct permissions, based on their identity or device type.

Because all Aerohive devices support the same HiveOS network operating system, there is no difference between services provided by the wireless capabilities built into BR100/200 routers and the wireless coverage created by extending networks with additional access points. Devices remain part of a single, continuous network of APs, also known as a “hive.” Secure access for guests can be separated from corporate traffic and subjected to different network, quality of service (QoS), time-of-day access schedules, firewall policies, and web security settings, along with many other Aerohive features.

Cloud VPN Gateway

The Aerohive Cloud VPN Gateway (CVG) is designed to integrate into virtualized environments and simplify complex VPN deployments. A lightweight, software-based solution that runs on VMware-compliant equipment, the gateway is designed to simplify VPN termination for thousands of remote branches. It can be installed in under 10 minutes, and, once operational, the CVG is the core of a branch network that terminates thousands of VPN tunnels from remote access locations. These unique characteristics, combined with HiveOS intelligence, create breakthrough ease of provisioning and management for branch offices. The gateway is also license-free, which has made Aerohive the networking partner of choice for thousands of organizations around the world.

Cloud Services Platform and a Network of Cloud Services Partners

Where the Aerohive Branch on Demand solution truly differentiates itself is in its use of cloud services. HiveManager applications, as well as cloud security partners, create efficiencies that no other branch architecture has been able to do to date. User traffic can be routed across the VPN tunnel or to trusted Internet sites and public cloud services based on classic routing and firewall permissions set by the highly optimized HiveOS routing code running on branch routers.

From there, a patent-pending Cloud Proxy capability in the Aerohive Cloud Services Platform takes over and allows an administrator to configure security services through the HiveManager interface and enforce branch security through a cloud-based web security service. If additional security services are desired for your branch and enabled through HiveManager, the Cloud Proxy functionality automatically separates general Internet traffic flows and sends them to Aerohive's web security partners for scrubbing. This allows IT administrators to enforce corporate web usage policies consistently regardless of user location, prevent advanced malware, and enable safe web application usage to every remote user.

Benefits

Fast, Easy Configuration and Deployment

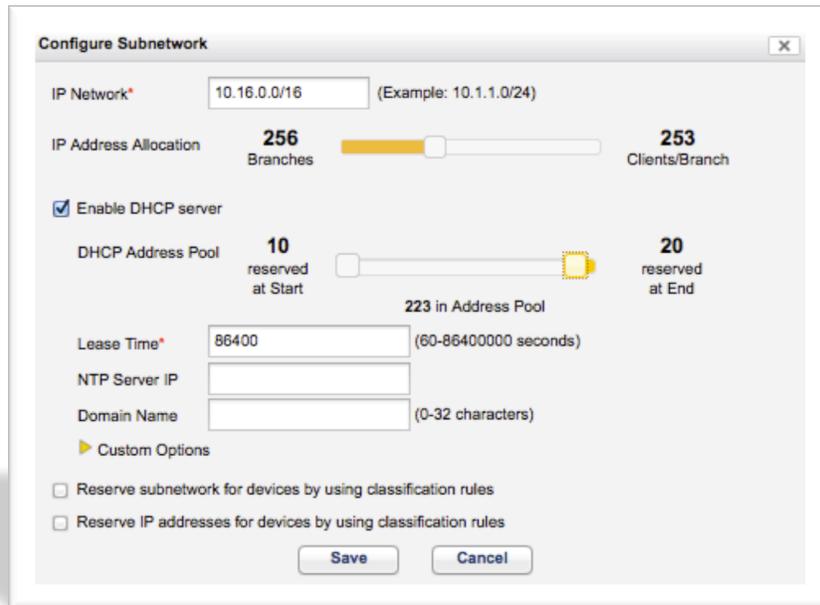
Store and warehouse employees don't need to be tech-savvy to install and configure the Aerohive Branch on Demand solution. Anyone can simply plug in an Aerohive branch router, wait a few minutes for provisioning to be completed, and immediately have secure wired or wireless access to necessary resources. Aerohive eliminates the need for console cables, technical certification, or individual truck rolls to bring a site online.

To expand wireless service in a branch, the Aerohive system uses self-organizing, mesh-capable HiveAPs that discover one another as they are added or removed, and adjust to the environment using Aerohive's Cooperative Control Architecture. Since all Aerohive devices, both routers and APs, use the same HiveOS network operating system, expanding the network is seamless, simple, and requires no additional wiring. Automatic discovery and inter-device communication can take place over the air or over a cable attached to an Ethernet switch, depending on the retailer's branch network configuration.

Classic branch office deployment requires pre-provisioning of devices for functions such as WAN IP configuration for the branch router WAN port, LAN subnet addressing, DNS and DHCP settings, and static IP addressing for printers or cash registers. With the Aerohive Branch on Demand solution, pre-configuration is unnecessary, because the Aerohive Cloud Services Platform automatically redirects every Aerohive device to HiveManager. Administrators simply:

- Create a configuration
- Provide parameters for branch routers to acquire the configuration
- Set the IP address range for the branch network (Figure 3)
- Wait for remote users to plug in devices

Figure 3 – Automatic IP Address Management for the entire network of branch offices



Configure Subnetwork

IP Network* (Example: 10.1.1.0/24)

IP Address Allocation **256** Branches **253** Clients/Branch

Enable DHCP server

DHCP Address Pool **10** reserved at Start **20** reserved at End
223 in Address Pool

Lease Time* (60-86400000 seconds)

NTP Server IP

Domain Name (0-32 characters)

▶ Custom Options

Reserve subnetwork for devices by using classification rules

Reserve IP addresses for devices by using classification rules

Once a device comes online, HiveManager automatically pushes the configuration to it—and the remote site is up and running without administrator intervention.

Centralized Management and Visibility

With hundreds or thousands of store locations, WLANs have to be easy to manage, maintain, and monitor. Typical remote solutions require multiple consoles for managing remote connectivity, security, and troubleshooting. Unlike these solutions, HiveManager provides a centralized interface for everything from integrated IP Address Management to auto-provisioning and consistent policy deployment across all Aerohive devices. An administrator can manage thousands of devices as easily as one.

Administrators also have the ultimate control over access to resources. They can define which users and devices can access a branch router, as well as provide access to specific local and remote resources for each connected user. The Aerohive BR100 branch router supports:

- Up to eight Service Set Identifiers (SSIDs) for wireless deployments
- 16 distinct VLANs shared across wired and wireless interfaces
- Authentication such as 802.1X, captive web portal, and Aerohive Private Pre-Shared Key to distinguish users

Administrators can configure customized access based on user identity to apply firewall policies, VLAN assignments, tunnel permissions, and QoS to users or devices.

Optimized Application Performance

The Aerohive architecture distributes all data forwarding and control mechanisms out to the Aerohive APs or routers at no additional cost eliminating the cost of deploying additional equipment, such as a WLAN controller, at each site, and minimizing bottlenecks that can occur when such equipment is used across a WAN link. Network security and performance-enhancement services, such as real-time packet prioritization, WLAN airtime fairness, and policy-based QoS are also distributed to individual Aerohive devices to minimize latency.

Consistent Security and Compliance

The Payment Card Industry Data Security Standard (PCI DSS) recognizes wireless LANs as public networks and assumes that they are exposed to public vulnerabilities and threats. Smart cybercriminals can configure servers, laptops, printers, and other devices to exploit weaknesses in point-of-sale (POS) terminals or other store systems, even if there is not a wireless network deployed. As a result, almost any environment is susceptible to attack.

Aerohive's patent-pending Private Pre-Shared Key (PSK) system generates and manages separate pre-shared keys for every WLAN client. This enables multiple users, each with a unique key, to access the same WLAN, providing one-to-one authentication and strong encryption. Clients cannot eavesdrop on each other in a Private PSK system, and network access can be revoked on a per-client basis.

Aerohive Branch on Demand solutions also use a patented N-Way Cloud Proxy feature to provide enterprise-class security at a low price point. With Cloud Proxy, an administrator can use a cloud-based security service, such as Websense or Barracuda Online, and route all remote web traffic through the service before sending it to its final destination.

Unified Wired and Wireless Policy

Remote locations need policy for users and all types of devices with the assurance of access, regardless of access medium. With HiveManager, an administrator can create customized access policies, based on identity and device type, which in turn can assign firewall, tunneling, network, and queuing permissions to any user/device regardless of the user's location or access medium. HiveManager also provides complete visibility for:

- Users and devices connected to any Aerohive network device
- Permissions assigned to each user/device
- Historical device reporting, even if it moves between wired and wireless access environments

For More Information

Aerohive Branch on Demand solutions now make it easier and more cost-effective for retailers to implement wireless access everywhere—from the home office to stores, distribution centers, and standalone locations, such as kiosks. For more information about the Branch on Demand solution for retail, visit <http://www.aerohive.com/solutions/verticalmarkets/retail.html>.

About Aerohive

Aerohive Networks reduces the cost and complexity of today's networks with cloud-enabled, distributed Wi-Fi and routing solutions for enterprises and medium sized companies including branch offices and teleworkers. Aerohive's award-winning cooperative control Wi-Fi architecture, public or private cloud-enabled network management, routing and VPN solutions eliminate costly controllers and single points of failure. This gives its customers mission critical reliability with granular security and policy enforcement and the ability to start small and expand without limitations. Aerohive was founded in 2006 and is headquartered in Sunnyvale, Calif. The company's investors include Kleiner Perkins Caufield & Byers, Lightspeed Venture Partners, Northern Light Venture Capital and New Enterprise Associates, Inc. (NEA).



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