HiveManager NG

Next-Generation Network Management System

Simplify Your Wi-Fi

Legacy de facto standard controller-based Wi-Fi infrastructure models are just too complicated, too expensive, and too unreliable. It's common for enterprise and mid-market network operators alike to get caught in a crossroads of compromises involving costs, complexity, features, and reliability. If they choose a consumer-class solution, there aren't enough features and reliability, but the interface is simple. If they choose an enterprise-class solution, complexity and cost are problems, but the platforms offer a richer feature set. If you've ever heard of the old adage, "good, fast, cheap: pick two" – it's somewhat fitting here. In the enterprise, when the Wi-Fi product is user-friendly and inexpensive, it's typically feature-poor, and when the product is feature-rich, it's often expensive and difficult to use. If you want serious reliability, the solution expense is often doubled. Now with HiveManager NG from Aerohive Networks you can "pick three." In fact, we'll even throw in another one to sweeten the deal. Those four are user-friendly, feature-rich, resilient, and inexpensive.

HiveManager NG is a cloud-based (Software-as-a-Service), disaster-proof wireless network management system (WNMS) designed to make a wireless network administrator's life easier. Because HiveManager NG is hosted in and across multiple data centers, it provides inherent high availability for both hardware and data. In today's über-connected world, being able to access, control, and troubleshoot your Wi-Fi infrastructure from anywhere is not only possible, but essential. HiveManager NG provides a scalable, inexpensive, and simple method to manage both mid-market and highly-distributed enterprise Wi-Fi networks. It sets a new standard for simplicity and flexibility in unified networking. HiveManager NG truly provides a platform for enabling a next-generation network focused on mobility.

It's also important to note what HiveManager NG is not. HiveManager NG is not a controller in the cloud, does not house the network control plane as controllers do, and is not required for on-going Wi-Fi network operation. HiveManager NG is a network management platform, plain and simple. That is extremely important because with an Aerohive Wi-Fi infrastructure, all control and data traffic are handled exclusively by the access points, allowing unlimited scalability and eliminating bottlenecks, expensive controllers, single points of failure, and latency. The Aerohive access points handle all aspects of authentication, association, fast/secure roaming, data forwarding, power and channel management, etc. If the Internet pipe goes down, the Wi-Fi stays up, and you can still reach mission-critical network resources such as file servers and printers.

Ease-Of-Use

HiveManager NG caters to IT Teams with limited resources without compromising form and functionality. Aerohive is confident that our next-generation network management system is the most feature-rich and easy-to-use policy-based management platform in available in today's Wi-Fi market, so we have created a self-service demo process that you can try out yourself! Please visit www.aerohive.com/cloud to sign up for an eval.

HiveManager NG has quick and easy trial account access, and IT teams can test-drive the solution with real or simulated devices to explore possibilities and plan a deployment. These evaluation accounts can also be easily transitioned to production accounts.

Simplified on-boarding contributes to ease-of-use in the planning and deployment of mobility networks. HiveManager NG has task-based choices to introduce the first time user to the product.
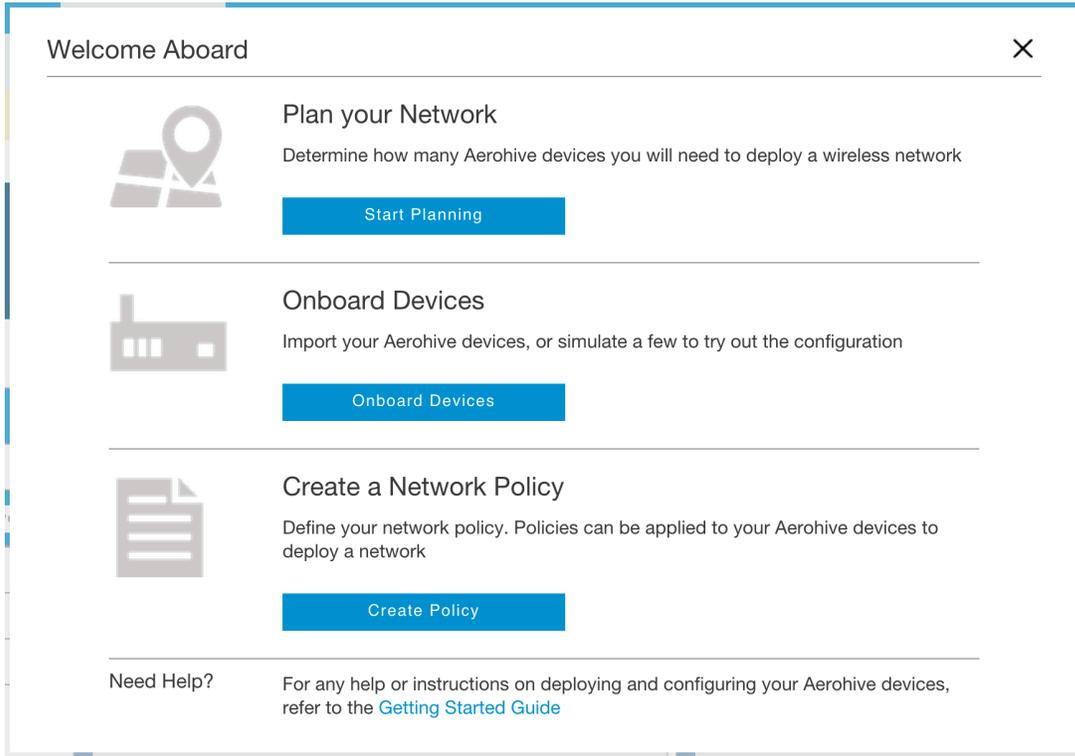
HiveManager NG focuses on gradual disclosure—relevant options are presented as users make certain choices. There is a guided workflow for first time users and you can go back and make edits or create more granular policies at any time.

HiveManager NG also provides an easy way to monitor and govern policy once the network has been deployed. This next-generation management platform provides insightful dashboards with real-time and historical insights into network health, applications, and users. The main dashboard contains the "vital signs" of your network and additional features such as a time selector, filters to drill down into more granular data, and dashboard widgets. HiveManager NG also offers search-based 360 views which give the IT user access to a complete summary of Aerohive devices, clients, and applications. Based on the information you can gather through the monitor tools, HiveManager NG has the ability to create user groups and assign policy based on location, time, and OS. Context-aware user policies with granular and flexible control enable IT to deliver an optimized end-user experience.

Most Wi-Fi networks start small and grow, and HiveManager NG can scale linearly starting at a single AP. Instead of the capital expenditure (CAPEX) associated with a datacenter-based management platform, HiveManager NG transitions management of your Wi-Fi infrastructure to an operational expense (OPEX) "pay-as-you-go" model, achieving the lowest startup cost of any Wi-Fi management platform on the market. By moving the management platform into the cloud and out of your datacenter, you have no management appliance to install or manage, no rack space to build or house, no power consumption, and no cooling to worry about.

Network Simplification

When combined with Aerohive's cooperative control protocols, HiveManager NG results in the simplest possible deployment model of enterprise Wi-Fi, making Aerohive the most efficient Wi-Fi infrastructure in the industry. We've removed all unnecessary components, such as controllers (whether core, distribution, access, redundant, remote, or otherwise), controller modules, configuration/database backups, rack space/power/cooling in your datacenter, hardware failures, network bottlenecks, and other costs associated with them.

Additionally, we've eliminated those pesky per-AP licenses and feature licenses (that go along with primary and backup/failover/clustered controllers). Having fewer components in the network means:

- o Fewer components to buy (and buy again when you upgrade)
- o Fewer components to install and configure (time savings)
- o Fewer components that will break (points of network failure)
- o Fewer components that need to be covered by support contracts
- o Fewer components that need to be stocked in sparing inventory
- o Fewer components that must be replaced after their useful lifespan
- o Deployment simplification

Since HiveManager NG lives in the public cloud, you can reach it anytime and from anywhere, and since the interface learning curve is extremely short, you'll be an expert overnight.

Streamlining Support & Upgrades

The enhanced functionalities of HiveManager NG simplify and streamline support to save you time and eliminate frustration. We recognize that IT teams need to be able to troubleshoot problems quickly and resolve issues in an efficient manner. One of the most exciting features of HiveManager NG is the Helpdesk Optimized Troubleshooting. Let's take a look at an example: Cathy is a teacher with an iPad in the classroom and she runs into a problem. HiveManager NG automatically detects this problem and files it. Cathy then calls Sam at Helpdesk and asks for help. Sam can look up Cathy's device by MAC or hostname and view both current and historical issues associated with her device and even view potential solutions recommended by HiveManager NG. These new features within HiveManager NG empower the helpdesk to resolve issues quickly and reduce escalations.

Additionally, whether you want to upgrade your corporate Wi-Fi network or any number of branch locations, the Aerohive APs are already available for configuration and updates right on the HiveManager NG platform. As with vendors' controller-based architectures, you won't have to go through the motions of logging into a support portal, finding the right code, downloading it, loading it onto a controller from a TFTP/FTP/SCP server, or any of the other previous headaches. You select the code from a drop-down, select the click-boxes beside the APs you want to upgrade, and then click a box to push the code to the APs at one or multiple locations – all over a completely-secure tunnel.

Have you ever tried to involve remote support personnel, and they couldn't access your system without you jumping through all kinds of hoops? Opening a port in the firewall, applying a port redirect, and then setting up remote access software on a PC perhaps? Maybe it was logging into the networking system via console or SSH and grabbing a 'show tech' output or setting up GoToMyPC? No matter which way you go, the whole process is just more difficult and time-consuming than it should be. Most of us have been there at one point or another. Instead, what if you could just give support a piece of identifying information and they could, with your permission, login to your system and see the problem for themselves? You wouldn't have to worry about playing middle-man, and support can both help you and show you what's going on. It's yet another advantage of cloud computing.

Distributed Dominion

Managing large enterprises, distributed enterprises, and mid-market networks is simple with HiveManager NG. As long as there's a basic Internet pipe at each branch location, you're ready to roll because management of Aerohive devices requires minimal bandwidth.

HiveManager NG lives in the cloud, and enterprise-wide VPN tunnels (and all of the hardware, software licenses, complexity, and support that often accompany them) are no longer required for secure, remote network management. This is especially important in large distributed enterprises, where there could be thousands of locations. Your Wi-Fi infrastructure can be configured and monitored by multiple administrators who are geographically dispersed, each with appropriate permissions.

Figure 4: The Distributed Enterprise with HiveManager NG

Other vendors in the Wi-Fi market have tried several approaches in the distributed enterprise, but thus far, no one has been able to match the desired functionality and simplicity that Aerohive provides. Here are a few examples of how NOT to do it:

Autonomous APs –A simple, affordable start, but just not enough if you move beyond a single AP. No fast/secure roaming support without using PSK, which is a security compromise. No dynamic RF management to set channels, adjust power, and load balance clients. And even if it's just a single AP deployment, there's still often important and useful features missing - like integrated VPN, local authentication (captive web portal, 802.1X/EAP), rogue detection, and much more.

Centralized Controllers with Remote APs – Very limited functionality, high deployment complexity, often requires local authentication infrastructure, and when the WAN pipe drops, so does even more (and sometimes ALL) functionality. Controller-based vendors realized how much of a mistake this was and quickly moved on to the next option.

Branch Controllers and Controller-Based APs – This is the most recent controller-based approach that simply breaks the bank every time. Not only is a controller per branch office cost-prohibitive, but trying to run all the functionality of a controller within a single AP will quickly hit the limits of any single device. No wonder vendors with this architecture quickly switch over to legacy controller-based options whenever scale or performancecome into play.

Serious Security

What happens in the cloud stays in the cloud. By that, we mean that you need not worry about security with HiveManager NG. HiveManager NG logins are protected by HTTPS, and Aerohive devices connect to your HiveManager NG instance via RFC4347 Datagram Transport Layer Security (DTLS). Since everything under the

sun is secured with TLS (Wi-Fi connections, browser and FTP connections, and dozens of others), you don't have to worry about anyone viewing or interrupting your Aerohive Device-to-HiveManager NG traffic. The "Datagram" part of DTLS is the clue that indicates the use of UDP for the CAPWAP connection between Aerohive devices and HiveManager NG.

Organizations often implement policies specifying that some administrators can be allowed to make changes to the system while others may only monitor. With HiveManager NG, you can assign individual system permissions to each user or group of users.

Figure 6: Group or Individual Administrative Permissions

Aerohive devices support all of today's standards-based wireless security protocols plus a role-based firewall full application visibility and control, and wireless intrusion detection – just to name a few. With Aerohive's distributed control and data planes, security is implemented at the edge, for maximum security.

Gold Lining at Silver Lining Prices

Customers often find themselves paying for resources they aren't using, and may never use. When even simple Wi-Fi requirements are needed, such as radio resource management and fast/secure roaming, some vendors insist a controller must be introduced. Let's look at the problem this causes.

Controllers introduce a stair-stepped cost model where the customer must buy not only the controller, but also "blocks" of AP and/or feature licenses, and as they expand their network, potentially move to larger controllers.
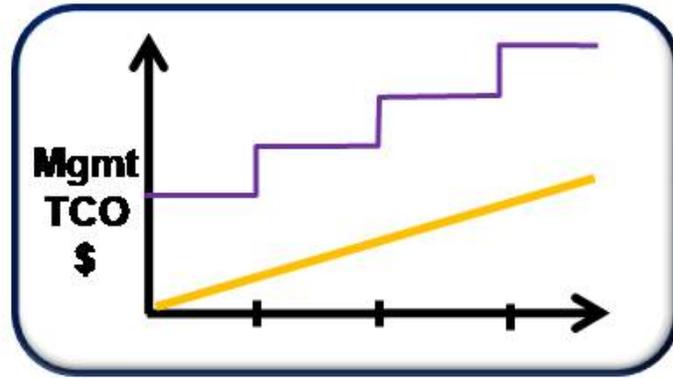
Figure 7: Controllers Cause Stair-Stepped Cost

Just for the sake of argument, suppose that a Wi-Fi infrastructure vendor sells two controllers: a smallish controller with a 6-AP license and a larger controller with license block options of 12, 25, 50, and 100.

Micro Case Studies

Case 1:
When the customer needs 3 APs, they must pay for 6 APs plus the controller hardware and feature licenses. Even though they have now over-paid for the solution, they still usually don't receive a full array of features available in the controller. For that, they must pay a per-AP feature license as well.

Case 2:
When the customer needs 7 APs, the controller vendor introduces a significant price increase in the form of the larger controller hardware, and then of course follows with a 12-AP license (5 of which aren't used) and those same feature licenses.

Keep in mind that we've used small scale numbers to illustrate a concept, but the concept applies even more to a large enterprise. Instead of paying for 5 APs they're not using, the customer could be paying licensing for hundreds of APs they're not using. With HiveManager NG, licensing is per-AP/year with no up-front costs. Sign up online for HiveManager NG, buy the Aerohive devices appropriate for your network, done. Our prime directive is to Simplify Wi-Fi.

The Elevator Pitch: Less Stuff Means Less Money
If all Wi-Fi manufacturers' APs are competitively-priced and their WNMS is competitively-priced (and they both have to be in order to sell), then how can Aerohive's solution (without all of the controller-related costs) not be significantly less expensive?

HiveManager NG's linear, pay-as-you-grow model is the perfect cost-conscience replacement for the pay-more-now, controller-based model that is so prevalent today.

WLAN Component	Aerohive Cost	Controller Vendor Cost
Controllers (Primary, Backup, & Remote)	-	$$$$
Controller modules	-	$
WNMS	$	$$
WNMS Operations (Setup, Backup, Upgrade)	-	$
Access Points	$	$
Controller Per-AP licenses	-	$$
Controller Feature licenses	-	$
Data Center Rack Space	-	$
Data Center Cooling & Power	-	$
TOTAL	$	$$$$

Figure 9: WLAN Component Comparison Chart

There's always hype around the cost of APs, but in the big scheme of many of today's enterprise Wi-Fi infrastructures, APs are only one part. When it's all said and done, you have to look at the solution cost. One simple way to do that is to take the total solution cost and divide it by the number of APs. That gives you a per-AP solution cost that allows you to compare across vendors. It takes the marketing and pricing confusion out of the equation and allows for a simple apples-to-apples comparison. Do it. Dare to compare.

A Point of Clarification
There's something we'd like to point out about AP management licensing before someone goes and muddies the water. Controller-based vendors like to confuse the issue of management costs by saying that the controller is the management platform. If that were true, then they wouldn't sell Wireless Network Management Systems (WNMS). The controller is only a management device in small networks, but for large enterprise networks, a single controller can no more effectively manage a rack of other controllers than an autonomous AP can manage other autonomous APs.

Ever since the market discovered that you can't manage hundreds or thousands of autonomous APs, there have been WNMS. Once the number of controllers got out of control, WNMS came to the rescue again, but this time managing the controllers instead of the autonomous APs. The majority of Wi-Fi vendors who sell WNMS license it by-the-AP in one way or another.

Unfortunately for the customer, controllers are also licensed in the same way: per-AP. That means that customers pay twice for enterprise management when they buy controller-based solutions. Why twice? First, you pay for the management interface in the controller which scales to a certain point, and then you pay for a WNMS to manage the controllers. Shouldn't a controller-based vendor's WNMS be free if they are going to charge the customer for the management found in controllers? They certainly don't take the controller-based management aspect out of the cost model when they sell WNMS!

Conclusion

HiveManager NG is a cloud-based, enterprise-class Wi-Fi management solution and is a breakthrough in management simplicity, flexibility, and redundancy. HiveManager NG gives financial control back to organizations by offering a linearly-scalable Wi-Fi infrastructure management platform with no up-front management costs. This next-generation cloud management experience centralizes the management, provisioning, and monitoring of mobility networks without sacrificing distributed intelligence located at the edge of the network within each Aerohive device. HiveManager NG can scale from a small, basic network to cover a larger, complex network with seamless upgradeability and simplicity. The Aerohive HiveManager NG architecture allows administrators to deploy networks and maintain constant visibility and control, all enabled by a powerful cloud platform and ecosystem that tie connectivity, insight, and applications together. In today's world, being able to access, control, and troubleshoot your mobility infrastructure from anywhere is not only possible, but required.

About Aerohive

Aerohive (NYSE: HIVE) enables our customers to simply and confidently connect to the information, applications, and insights they need to thrive. Our simple, scalable, and secure platform delivers mobility without limitations. For our tens of thousands of customers worldwide, every access point is a starting point. Aerohive was founded in 2006 and is headquartered in Sunnyvale, CA.

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