Aerohive NETWORKS

case study

Woods Hole Oceanographic Institution

Premier Global Oceanographic Institution Chooses Aerohive for Enterprise Wi-Fi Solution

Challenges

- Replace existing network with comprehensive controller-less Wi-Fi
- Enable comprehensive coverage across two campus locations and vast outdoor research areas with many physical constraints
- Allow centralized network management and enhanced security

Results

- Deployed controller-less network solution across entire campus and visiting residence housing units
- HiveManager provides centralized network management for monitoring and control
- Aerohive's SLA feature provides greater security and network efficiency

About Woods Hole Oceanographic Institution

Founded in 1930, the Woods Hole Oceanographic Institution (WHOI) is solely dedicated to education and research to advance understanding of the ocean and is the world's largest, private non-profit oceanographic research facility. Located in the village of Woods Hole, Massachusetts, the organization has over 1,000 employees, including ships' crew and officers.

In conjunction with the Massachusetts Institute of Technology, WHOI offers a Joint Program, one of the premier marine science programs in the world, hosting approximately 130 graduate and doctoral students, many of whom live in residence on the campus of WHOI.

"WHOI is a unique place. When I first came here, the analogy I was given is the institution is similar to a shopping plaza under one umbrella. There could be 30 different areas of oceanographic study going on at the same time, side-by-side and independent of each other. That made the enterprise features, centralized management and strong security from Aerohive instrumental in choosing our wireless network solution."

—Michael Bishop

Senior IT Associate, Woods Hole Oceanographic Institution

The purpose of WHOI is to better understand the ocean, as well as educating future generations of ocean science leaders, providing information to inform public policy and expanding public awareness about the importance of the global ocean.

The Challenge

The WHOI conducts its research and engineering across two campuses, one in the village of Woods Hole and the other a mile-and-a-half away in Quissett.

WHOI was experiencing issues of reliability with its existing autonomous wireless system, which made managing the network challenging. The existing access points did not work well together and the roaming features were non-functional. As the existing network reached end of life, a driving requirement was the need for a network solution to handle the future of wireless, with robust reliability and room for future expansion.

In addition, besides having two separate campus locations, WHOI is located on Cape Cod, a land mass only accessible from the mainland via two bridges that span the Cape Cod Canal. Fiber optic cabling is installed across the bridges, but if connectivity were lost, as had happened in the past, it was a major inconvenience. Every building on its campus is also made of different materials with specialized equipment making signal propagation tricky, especially in buildings with refrigeration units and freezers used for conducting experiments.

The Solution

Aerohive was selected for its controller-less solution with superior price performance. "Aside from the superior technology, Aerohive provides more enterprise features and a flexible licensing model that set it apart from the other providers we evaluated. Aerohive proved to be hands-down above the rest," states Michael Bishop, Senior IT Associate, WHOI.

Across its two campuses, WHOI deployed Aerohive AP330, AP350 and AP170 access points, and is also currently evaluating Aerohive switches. HiveManager is on site for centralized network management, allowing the six-person networking IT team to monitor and control the network from anywhere.

The organization has set up numerous wireless networks for various functions and groups of users. The guest network has no access to internal networks and has a daily rotating WAP2 key. A separate network is also in place for the Joint Program housing, comprising 12 separate units for approximately 100 visitors. Similar to the guest network, this network has key rotation, but only in two-week intervals since many students, visiting scientists and guest vendors have extended stays in the residence housing.

A separate network is also configured for meetings and conferences, to provide ease of use for the IT team and the guests alike, and to ensure optimal connectivity. There are two additional internal networks, one for internal employees and staff and another for eduroam, ensuring connection for the international research and education community that need to access the internal network at WHOI. These two networks have the same credentials and eventually the first internal network will be phased out and everyone will connect to eduroam for the WHOI network as well as to access partner organizations and institutions. This will also allow any WHOI employee to access the network from anywhere in the world.

The Results

The wireless network from Aerohive has enabled everyday operations and activities to be more easily managed across the entire institution. "WHOI is a unique place. When I first came here, the analogy I was given is the institution is similar to a shopping plaza under one umbrella. There could be 30 different areas of oceanographic study going on at the same time, side-by-side and independent of each other. That made the enterprise features, centralized management and strong security from Aerohive instrumental in choosing our wireless network solution," explains Bishop.

Scientists can now have a seamless connection from their laptops or other devices, whether walking from one building to another or working outdoors on the dock preparing for research cruises or downloading data.

Conferences and events often host up to 200 people, with guests in breakout rooms and spread across multiple buildings on campus. Now conference attendees can easily roam between buildings and the IT team can more efficiently manage Wi-Fi for large events.

There are also additional static networks in place dedicated to devices used at the Institution's Ocean Science Exhibit Center. For example, the Titanic exhibit uses monitors with videos that are connected wirelessly. Interactive kiosks in the Exhibit Center are also connected over Wi-Fi and can be easily moved as needed between exhibits, showcasing many deep-water discoveries for visitors.

Another valuable feature utilized by WHOI is Aerohive's Service Level Assurance (SLA). This provides higher levels of security at each access point, giving the IT team unprecedented levels of visibility into the wireless network. The IT team can monitor clients' capability, throughput, and airtime use or abuse. For clients not meeting its SLA, corrective actions are taken automatically. The monitoring capabilities of the network were quite limited in the past and now are very robust, enabling the IT team to see every device, night or day, on the network from one centralized location.

Smooth Sailing Ahead

"The foundation Aerohive has provided for Wi-Fi at WHOI has been exceptional. The reliability, management and security features, and ease of use have enabled our IT team to easily serve our staff, visitors and guests. We look forward to what we can continue to implement and offer in the future," states Michael Bishop.

WHOI has plans in place to leverage the Aerohive enterprise features to a greater degree in the future, including features related to band steering. One of the reasons the IT team pushed for outdoor access points is to allow staff to have seamless phone conversations as they roam from building to building and between outdoor research areas. As part of future plans, the institution hopes to soon roll out a soft phone application to use voice technology over Wi-Fi.