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Hobart and William Smith Colleges Achieve High-Performance Wireless Connectivity

Hobart and William Smith Colleges (HWS) are coordinate, private, liberal arts institutions located in Geneva, N.Y. The Colleges have one of the nation's top study abroad programs and are noted for their dedication to community service. Home to three Rhodes Scholars, Hobart and William Smith provide an interdisciplinary education where learning is reinforced through on-campus academic centers and initiatives such as the Finger Lakes Institute, the Fisher Center for the Study of Women and Men, and the President's Forum Lecture Series.

Challenge

In order to provide its students, faculty and staff with superior quality wireless Internet and e-mail access, HWS needed a wireless network that could effectively scale to support a high density of users and, at the same time, simplify deployment and management.

Solution

- Meru WLAN System including Meru Controllers and Meru Dual-mode AP, featuring Meru's WLAN Dual Speed technology for simultaneous full performance 802.11b and 802.11g operations
- Current coverage of key locations and classrooms throughout the campus with plans to deliver pervasive campus coverage by end of academic year

Benefits

- By coordinating all traffic on the network, Meru's WLAN System eliminates co-channel interference and removes complex and costly RF planning
- Meru's "cellular-like" WLAN Architecture delivers superior performance to users in high-density environments
- Simplifies network administration and support by automating key tasks such as load-balancing, RF monitoring and AP configuration

Standard Wi-Fi Solutions Fail to Meet University's Requirements

In line with its academic mission to create a student-centered learning environment, the Information Technology Services (IT Services) department at HWS launched in 2002 a plan to "unwire" key areas of the campus using 802.11b Wi-Fi technology.

Among the Colleges' biggest concerns were scalability, coverage and performance. Using stand-alone Wi-Fi access points to provide complete coverage in large locations was a cumbersome task due to interference that resulted from overlapping access point (AP) coverage areas. Similarly, in small classrooms where a single AP was deployed, the increasing number of users quickly overwhelmed the AP's ability to maintain quality connections. Not only did these stand-alone APs offer decreasing performance in the face of rising user density, they were a significant hassle to deploy and manage because each new AP deployment required manual site survey, channel configuration and policy provisioning. Due to these technical challenges, the initial deployment at HWS was postponed.

The Colleges' Search for Scalable Wi-Fi Solution

At the suggestion of a trusted local technology solutions provider, Microtech Information Systems (MIS), the IT Services team at HWS decided to evaluate the Meru WLAN system. A successful first phase deployment that covered several new residence buildings, a coffee shop and dining facilities demonstrated the advantages of the Meru WLAN system over competing solutions on the market.

The Meru WLAN System, featuring its Air Traffic Control technology, manages traffic contention with sophisticated time-based traffic controls to deliver predictable bandwidth, free of latency and jitter problems, enabling higher user density and application performance in hub locations such as lecture halls. By adequately addressing service levels for wireless users, the Meru WLAN System is enabling HWS to deploy a wireless infrastructure that not only support its current applications but also any future applications that may emerge.

With Meru's Virtual Cell feature, which enable all APs to be deployed on a single channel, HWS was able to eliminate co-channel interference and reduce the costs associated with site surveys and RF channel planning. Moreover, the combination of Meru's Virtual Cell feature and Air Traffic Control technology enabled HWS to place redundant APs in the same area for even greater scalability.

Lastly, Meru provides the only WLAN system capable of supporting full 802.11b/g performance for all users in a hybrid environment. As a result, users of 802.11g clients do not drop to 802.11b rates when working on the same WLAN as 802.11b clients. For HWS, whose user base is divided 50/50 between 802.11b and 802.11g users, the ability to effectively support both technologies simultaneously was a requirement.

"The Meru WLAN system dramatically improved our wireless LAN operations by simplifying planning, deployment and management—saving us time and money," said Mike Ruiz, network and systems engineer at HWS. "The system's ease of management will allow us to rapidly address a planned increase of requests for wireless connectivity."

Pervasive Network on the Horizon

The technological advantages of the Meru WLAN System will allow HWS to deliver state of the art wireless services to its students, faculty staff and campus visitors throughout its 170-acre campus. Wireless took on a life of its own, as students and faculty began to demand Wi-Fi connectivity throughout the entire campus. By the end of the academic year, the vast majority of academic, administrative and recreational spaces (e.g., athletic fields, dining halls, outdoor spaces such as the quad) will be wirelessly-enabled.

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As HWS continues to add new applications to the mix, they will already have the right wireless infrastructure in place. In addition to wireless Internet access, HWS is also considering other applications such as wireless mobile computing in science labs, wireless applications on athletics fields, and potentially wireless VoIP.

With support for fine-grained QoS per application, user, and flow, both upstream and downstream between the client and the access points, Meru's WLAN System is the industry's only completely standards-compliant solution capable of delivering toll-quality voice calls over an enterprise WLAN.

Wireless is clearly changing the way the institution is thinking about education. The faculty is now brainstorming new ways to deliver educational services. Students are able to access information and interact with other students anytime, anywhere. "We're a very wired campus," said Mike Ruiz. "We have nearly 6,000 wired ports for a campus of less than 2,000 students but it wasn't until we rolled out the Meru Wireless LAN system that we began to see a significant change in the rate of connectivity across the entire campus."

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