



THE WI-FI PERFORMANCE COMPANY

California University Enhances Student Experience

Improves Wi-Fi performance 10X with Wi-Fi Optimization Platform

Challenge:

Campus Wi-Fi networks experience unique challenges especially due to the high number of devices and quantity of bandwidth intensive applications. Campus networks consist of thousands of WLAN access points and associated infrastructure to handle the load and students carry 2 to 4 devices, sometimes all connecting to the WLAN network simultaneously. Campus WLAN has become an irreplaceable service for students, staff and visitors in education, research and sports events. In addition, the disruption taking place in the high-education space due to the growth in online universities makes the campus life experience more important than ever before. The student experience must be extraordinary in order to stay competitive. As a result, high performance Wi-Fi is required in order to meet and exceed the expectations of a diverse campus population. Poorly performing Wi-Fi may drive students away from certain areas on campus or may influence their decision to attend college with a campus at all. The Wi-Fi at this California university was below par and administrators knew that this put the student experience and reputation of the university at risk.



Solution:

The on-campus experience for students includes connecting to the people, portals and systems that make them most productive. Good connections will translate into good, productive experiences when it comes to online research and collaboration with the necessary people and resources required for success. 7signal was brought in to measure, analyze and optimize the Wi-Fi network. The company would then verify the changes with continual measurements. In addition, 7signal left a permanent system in place to assure that Wi-Fi continued to perform optimally in the future. 7signal's Sapphire performance management system was installed in several buildings where Wi-Fi is critical for students and faculty.

Results:

As a result of implementing an optimization program, student productivity and the Wi-Fi experience were significantly enhanced. Daily throughput values increased between 65 and 250% depending on the area. Jitter, which causes poor voice quality when using Skype or other VoIP communications systems, decreased by 90%. The worst daily observed hourly throughput values improved by 1100% or the equivalent of 10x. In addition, by optimizing instead of upgrading the WLAN, savings in network investment and better staff efficiency were realized.

“It’s been good at detecting issues, but even more useful in providing good feedback when we make changes”

– Campus Network Architect

Background:

Like many universities across the US, this California State University has a diverse and large student body, a campus covering hundreds of acres and over 100 buildings. One of the challenges facing this university and most universities is that end users roam. Because students are constantly “on-the-go” they are more likely to experience coverage issues and a poor experience.

But as it is with many campus networks there is a significant discrepancy between end-user feedback and dashboard status. Facebook and Twitter may be trending complaints about the Wi-Fi, however, network administrators lack the tools and systems to measure, identify and address Wi-Fi issues proactively. For example, this California University discovered there was poor wireless coverage in residence halls. But it had gone unreported and undiscovered for several weeks. Reason being was that the system being used to manage the network was indicating that everything was looking good and in the “green”. But after a slew of vocal complaints, network engineers were dispatched to the residence hall for a closer look, at which point, it became obvious that something was wrong.

Initial Deployment:

After the initial Sapphire deployment and collection of baseline data, 7signal helped the university network team identify the key areas of their network performance that impacted negatively on end users. While the university’s WLAN network was implemented with best practices available from the manufacturer, there was clearly room for improvement. 7signal Sapphire’s data indicated that end users had difficulties in connecting reliably to the network and during day time hours the end user throughputs dropped between 70 and 90% and network latency increased between 1,000 and 2,000%. This level of performance was insufficient to satisfy the connectivity needs of students and faculty.

Lasting Impact:

The university has reported, they no longer need to guess as to how their network is performing. 7signal makes it possible to better serve their students and staff. They also saved time by not trying to solve the user experience issues the old way - by throwing in bandwidth in the form of added and replaced network equipment when that is not the root cause.

The 7signal Difference:

Until now, wireless network tools were only able to identify failure or poor performance at the network element level, like a failing access point device or lack of resources in a switch. This was helpful in identifying many equipment failure issues, but did not provide detail as to the cause or impact to end users.

Sapphire Eyes constantly scan the “last mile” of the wireless environments from the wireless access points to the mission critical application or device. Over 600 individual Key Performance Indicators (KPIs) are available to provide network performance data that are used to pinpoint performance degradation. With this level of information, network operations can proactively address problems and restore performance.



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