



THE WI-FI PERFORMANCE COMPANY

Avans University Transforming Education

Elevates student experience with improved Wi-Fi

Challenge:

Avans University of Applied Sciences, established in 1812, located in the Netherlands. It is recognized as one of the best major universities of applied sciences in the country with a student enrollment of 28,000 and a staff of 2,000.

“Avans WLAN has always been managed with a lot of diligence,” stated Kees Pronk, Network Administrator. “Our WLAN had become a mission critical service for students and staff. Often during exams and peak hours, I was running scripts on controllers to gather information on how our wireless was coping with the load. We felt the WLAN equipment and portable tools did not offer the required information to really optimize the network performance and maintain the users’ quality of experience. We decided we needed to look at complementary solutions and came across 7signal Sapphire.”



Solution:

Avans deployed 7signal’s Sapphire Wi-Fi performance management system and initiated an optimization project for its Student Learning Center. After obtaining a baseline over a few days, 7signal created a optimization plan consisting of recommended Wireless LAN configuration changes. Avans and 7signal together implemented five rounds of changes to the wireless network over three weeks.

Results:

After each change, impact was carefully analyzed by 7signal and reported to Avans. The results from the optimization showed dramatic improvements in throughput and other user experience metrics. It was also determined that in a high density Wi-Fi environment, RF automation from the controllers does not always configure the network optimally. Kees Pronk, in commenting on the optimization experience, stated, “Our WLAN was providing reasonable performance, but with the experience and data from 7signal, we found so much opportunity for improvement. Looking at the results you might think our network was in poor shape to start with, but this was not the case. The network had been carefully planned following industry best practices. I learned during this process that you cannot manage what you cannot measure. Now with 7signal, we get this continuously. Feedback from our students has been very positive and in social media, we are seeing messages that our Wi-Fi is really fast.”

The following screenshots from the Sapphire Dashboard reflect the dramatic changes in performance Avans University realized:

Avans University of Applied Sciences

Location:

Breda, The Netherlands

Students: 28,000

Staff: 2,000

Benefits Realized from Implementing 7signal’s Wi-Fi Performance Management System

- WLAN performance increased dramatically
- Automated 24/7 assurance meant less manual work
- WLAN problems were addressed proactively before users complained
- Positive feedback from students on social media about improved Wi-Fi service

Key Performance Indicators Before

"eduroam" (NW-1)/Learning Center - 1, 5 GHz											
DAY	AV008 Beacon availability in managed AP scan	AC001 Radio attach success rate	AC002 IP address retrieval success rate	QURT007 Ping success rate	RE004 FTP test success rate	RE005 VoIP test success rate	QURT004 Ping RTT	QUAP001 FTP DL throughput	QUAP002 FTP UL throughput	QUAP005 VoIP MOS downlink (listening)	QUAP006 VoIP MOS uplink (talking)
2013-05-29	100.0%	47.8%	100.0%	89.7%	97.7%	99.7%	98.1%	82.4%	86.2%	78.5%	74.7%
2013-05-28	97.5%	41.6%	100.0%	88.6%	98.9%	100.0%	98.8%	93.5%	95.5%	83.8%	73.8%
2013-05-27	100.0%	44.4%	100.0%	85.8%	97.5%	100.0%	96.4%	92.5%	89.7%	80.0%	81.4%

Key Performance Indicators After

"eduroam" (NW-1)/Learning Center - 1, 5 GHz											
DAY	AV008 Beacon availability in managed AP scan	AC001 Radio attach success rate	AC002 IP address retrieval success rate	QURT007 Ping success rate	RE004 FTP test success rate	RE005 VoIP test success rate	QURT004 Ping RTT	QUAP001 FTP DL throughput	QUAP002 FTP UL throughput	QUAP005 VoIP MOS downlink (listening)	QUAP006 VoIP MOS uplink (talking)
2013-06-19	100.0%	88.6%	100.0%	98.7%	99.7%	100.0%	100.0%	100.0%	100.0%	97.9%	95.2%
2013-06-18	100.0%	92.7%	100.0%	99.2%	100.0%	100.0%	100.0%	100.0%	100.0%	98.8%	94.3%
2013-06-17	100.0%	79.6%	100.0%	96.5%	99.6%	100.0%	100.0%	100.0%	100.0%	93.8%	94.7%

At the end of the optimization phase, Kees Pronk offered these additional observations:

"This was the first time we were able to see trending and user experience metrics from our network. I must say from my side it's a pleasure to work with such a skilled, dedicated and enthusiastic Wi-Fi / WLAN knowledgeable partner like 7signal. Our University is ranked high in the Netherlands, and a well tuned, managed Wi-Fi network plays an important part in overall student facilities satisfaction. In a short time, 7signal has proven to be a key factor for this important Netherlands University."

Expanding the Footprint

With the experience in the Learning Center, Avans elected to expand the 7signal Sapphire coverage to additional locations in 2 other cities, Hertogenbosch and Tilburg, at similar location study centers with high-density Wi-Fi serving many students. Network device optimization is being repeated by utilizing the data and information from the Learning Center experience. The solution allowed network managers to optimize the different Wi-Fi networks using meaningful metrics reflecting the quality of service from the end-user point of view.

A Comprehensive Approach

Sapphire is an all-in-one proactive solution with over 600 Key Performance Indicators (KPIs). Performing measurements according to a pre-defined test profile, data is continuously sampled from the network and results are stored to a database. Sapphire performs automated measurements in all OSI Layers (1-7) testing the network's capabilities, as well as its ability to deliver on those capabilities. The tracking and trending of performance data contributes to the Wi-Fi analytics offered within the system. These analytics help monitor and verify the performance of the network as the environment as it changes over time.



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