



ekahau

WIRELESS DESIGN

Healthcare Provider Improves Wireless Network

Summary:

Client: NHS Lothian
Employees: 24,000
Industry: Healthcare
Location: Scotland

Challenge:

NHS Lothian had an immediate need to validate the board's single largest hospital, the Royal Infirmary of Edinburgh, either by an external company or by undertaking the project in-house:

- Unable to maintain consistent coverage and reliability.
- Clients were disconnecting and screens were 'freezing'.
- Clinicians and nurses were unable to complete the ward round in an acceptable timeframe.

Solution:

- Ekahau Site Survey and planner
- Ekahau Sidekick™

Results:

85% cost savings by bringing the wireless design in-house.

Successfully identified and rectified the wireless issues.

Conducted surveys with a higher quality, more reliable dataset.

NHS Lothian deploys Ekahau in-house to design, optimize and validate wireless networks

NHS Lothian is the second largest health board in Scotland. It consists of 21 hospitals, four major teaching hospitals, and various general practices and clinics, and 24,000 employees. NHS Lothian sites include a mix of new buildings intermingled with historic and protected ones.

Challenge:

The NHS Lothian networking team was searching for a product such as Ekahau to attempt to bring wireless design in-house, and also, for an immediate need to validate the board's single largest hospital, the Royal Infirmary of Edinburgh (RIE), a 3 floor, 800+ bed, 500 AP site. The wireless design for the RIE was conducted by an external company in 2015 and had never been validated.

NHS Lothian also recently completed a major project called Paperlite, that involved the scanning and digitizing of all current and historical clinical case notes. Traditionally, these would be at the bedside and be ferried between required locations by porters — a costly and time-consuming process. It also prevented two geographically dispersed clinicians from simultaneously reading historical notes.

To facilitate digital access to case notes within wards and clinical areas, Computers on Wheels or COWs with virtualized Windows desktops were deployed, and used to login to a web application to access patient records. As the COWs are thin clients and highly mobile, the primary goal is to maximize coverage and prioritize reliability and performance in terms of latency and jitter— rather than throughput and bandwidth. During the ward rounds, clients were disconnecting when travelling from room to room, screens were 'freezing', and this was having an impact on clinicians being able to complete ward rounds in an acceptable timeframe.

Solution

NHS Lothian explored both alternatives, getting an external company to perform the validation survey for RIE as a service, and undertaking the project in-house. They needed to consider the risks, costs and outcome for both options, including the skill of the internal team and whether time would be better spent on other projects. One challenge with using an external vendor was that access to operating rooms was often not possible during normal working hours due to back-to-back operations.



“Ekahau has enabled us to bring our wireless design in-house and save 85% in costs by not using an external company. Plus, now we have the capital investment for the future.”

Tiran Duhre
Senior Network Engineer
eHealth, NHS Lothian

“The reservations that we had were whether or not we would be able to achieve the same quality survey as an external company that would do this work as a professional service, and whether or not attempting a 1000-bed hospital with 500 access points was a good idea for our first serious validation survey with Ekahau Site Survey,” explained Tiran Duhre, Senior Network Engineer, eHealth, NHS Lothian. Addressing their reservations, the NHS team utilized the variety of Ekahau’s online training material, including webinars, YouTube videos and support documentation. They found that the quality of the training material and the way it was written – jovial, concise and informative – and the relative ease-of-use of the product, helped to alleviate any initial concerns they had about undertaking the project in-house.

“We bought the solution from Ekahau because of the all-in price,” Duhre explains. “When we factored the cost of the ESS license, Ekahau Sidekick™, a fairly high-end laptop, and associated accessories, it still only came to one-sixth of the price we were quoted by the external company.” They now have the capital investment for the future – along with an 85% cost savings.

Results

Driven primarily by the Paperlite project, NHS Lothian is in the process of deploying wireless to all of their sites using Ekahau Site survey for predictive designs. In combination with the Ekahau Sidekick as the validation tool, the networking team found it to be a very complete and simple package, even for a first-time user.

“With the Ekahau solution, we were able to successfully identify and rectify the issues with the wireless at RIE,” Duhre explains. “One of our key findings was that by not yet offering patient wireless services, a large proportion of patients were bringing in ‘MiFi’ home-hotspot type devices, which seem both to have bad 2.4 GHz channel choices coupled with channel-bonding and 40 MHz wide channels.” Because Ekahau Sidekick’s spectrum analysis and channel scanning is so fast, the NHS team was able to catch transient issues much more quickly and effectively – cutting the spectrum analysis time by half.



“On day one of the survey, Ekahau had already paid for itself six times over.”

Tiran Duhre
Senior Network Engineer
eHealth, NHS Lothian

Other issues the team discovered included, for example, mission critical thin client devices that were operating solely within the 2.4 GHz band, roaming settings that were not fully tuned to the environment. “The quality of the data gathered from Ekahau Sidekick helped us to choose these settings with confidence”, Duhre noted. Also, some existing legacy patient alarm systems had undesirable channel choices, e.g., channel 3 in 2.4 GHz. To rectify the issues the team advised that the mission critical clients should be moved to 5 GHz band only and they used the data gathered from the validation survey to fine-tune the roaming settings of the clients.

“As a first-time user of the product, tackling a 500 access point site as your first large-scale validation was probably not for the faint of heart. While it took six weeks to survey the building, I believe if I had to do the survey again as a more experienced user of the Ekahau Sidekick, I could probably cut my time down by one third,” explained Duhre.

The measurable benefits that the NHS Lothian team experienced were that they could survey for longer and collect a higher-quality, reliable dataset in a shorter time with Sidekick’s dual spectrum analyzers. Ekahau Sidekick™ quickly scanned all the available channels and helped find access points that were not visible, but nevertheless there. The team also appreciated the combination of being able to do the continuous surveys and stop and go within the same survey. In the healthcare environment, the corridors are often so busy that a continuous survey is almost impossible.

The time and cost savings enabled the NHS Lothian team to invest in improving the wireless skill set among the internal team and bring yet another service in-house. Recently, the NHS Lothian team has used the Ekahau solution to design several GP practices, with the intention of offering various corporate and public services.

“Ekahau has made us a much more effective team in this environment, because we are now better positioned to prove that the wireless design is indeed working as expected, and that other things such as unexpected interference, client choices, and the classic ‘requirements changing over time’ situation are likely more to blame,” Duhre concluded.

For More Information

To learn more about the Ekahau solutions featured in this case study, go to <https://www.ekahau.com/products>