One of eight university medical centers in the Netherlands with core tasks of patient care, education and training, and medical research, the VU University Medical Center (VUmc) was created in 2001 out of the merger of the medical faculty and hospital at the VU University in Amsterdam. When it comes to scientific medical research, VUmc is considered to be one of the top three UMCs in the Netherlands. Its main areas of research are cancer and immune defense, the brain, vital signs, movement, and extra- and transmural healthcare. VUmc has 730 beds. Approximately 50,000 people are admitted for medical treatment every year and another 320,000 patients visit the outpatient clinics. Known for its innovative use of technology and highly advanced IT infrastructure, VUmc seeks to provide its 7,000 staff with the best possible support and possesses the latest medical devices. A wireless LAN created with Juniper Networks solutions forms part of this infrastructure and enables staff members to be more flexible in the way they work, research, and study.

**Challenge**

VUmc was one of the first hospitals in the Netherlands to invest in a WLAN infrastructure. That was back at the end of the nineties. A WLAN with approximately one hundred access points was set up using the technology available at the time. This network infrastructure was nearing the end of its useful life. It was also unable to support new applications and was not sufficiently secure. So VUmc recently installed a completely new 802.11n WLAN using Juniper Networks devices. Edwin Mentink, Head of the IT Management section explains: “Juniper Networks technology has proved extremely reliable in various large hospitals. This was one of the main reasons why we chose it. It also offers other distinct advantages, such as clustering functionality so the WLAN remains fully functional if one of the controllers fails; RingMaster management software that enables central control of all of the equipment; and the multiple input and multiple output (MIMO) antenna technology used in 802.11n networks. The several built-in internal antennas of the Juniper Networks® WLA432 Wireless LAN Access Point provide outstanding coverage and range enhancements. So VUmc did not have to purchase as many access points to create a campus-wide wireless infrastructure.”

**Selection Criteria**

Juniper Networks solutions had proven themselves in several other large hospitals. And VUmc has been working with their equipment and partner for more than 10 years, so when it came to selecting a supplier and integrator, they were the obvious choices.
Solution
VUmc deliberately chose to purchase high quality equipment with proven performance. Although the initial investment costs were higher, the resulting total cost of ownership (TCO) was lower than other options. This was because fewer access points were required, reducing purchase and installation costs. And of course the fact that there are fewer devices in the hospital also makes this solution more “patient friendly.” The new WLAN now consists of more than 700 Juniper Networks® WLA432 Wireless LAN Access Point devices, each of which covers an average area of 225 m². It also includes a fully redundant wireless LAN infrastructure with four Juniper Networks® WLC2800 Wireless LAN Controller devices that can take over from one another if one fails, so there is never any interruption in any of the services. This infrastructure enables the hospital staff and students to be more flexible in the way that they work and study. It also enables patients and visitors to use the Internet and communicate via email while they are at the hospital. As one last important benefit, clustering functionality and RingMaster central management software have helped increase efficiencies and reduce operating costs. Based on this early success, VUmc is now considering deploying several other new applications on their wireless LAN infrastructure.

“Juniper Networks technology has proved extremely reliable in various large hospitals. This was one of the main reasons why we chose it.”
Edwin Mentink,
Head of the IT Management, VUmc

Results—A Future-Proof Wireless LAN infrastructure
The management of the free Internet access for patients and visitors, using the VUmc Juniper Wireless LAN infrastructure, has been outsourced to KPN HotSpots. One of the main reasons for this is that the hospital wants to be able to concentrate on its core activities, especially now that Internet service providers have to comply with an increasing number of regulations and standards such as the new Dutch Telecommunications Act. By outsourcing the provision of this free service to a specialist, the hospital can rest assured that the obligations are being met.

Next Steps and Lessons Learned
Now that the installation of all of the existing network services has been completed, VUmc is looking at other new applications such as Real-Time Location Systems (RTLS), which enable hospitals to reduce the cost of managing valuable equipment and improve patient care. VUmc is planning to manage the allocation and use of a large number of medical devices via the WLAN. This will make it possible for these devices to be used more efficiently. It is also considering installing “smart signs” that will enable people to navigate their way through the hospital, as well as using the WLAN to monitor certain (groups of) patients. The fact that Juniper Networks offers advanced RTLS solutions and is continuously developing innovative new products was also a deciding factor when choosing a supplier for VUmc’s project.

About Juniper Networks
Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at www.juniper.net.