

# Norway University Hospital ‘Mobilizes’ Patients with Cisco and MazeMap

Customer Case Study



Trondheim treatment, research, and university complex relies on mobile wayfinding app to transform hospital experience.

## EXECUTIVE SUMMARY

**Customer name:** St. Olavs Hospital, Trondheim University Hospital and The Faculty of Medicine, Norwegian University of Science and Technology (NTNU)

**Industry:** Healthcare, medical school, and medical research

**Location:** 1008-bed hospital, 7 outpatient centers in Trondheim, Norway

**Number of employees:** 9584 employees and 2500 students

### Business Challenges

- Create a supportive, engaging experience for patients and families
- Improve productivity and coordination among research, clinician, and teaching staff
- Promote hospital as healthcare innovator through the shrewd use of technology

### Network Solution

- MazeMap indoor navigation tool lets visitors search for rooms and buildings and receive graphical turn-by-turn directions on any mobile device
- Cisco Mobility Services Engine with Connected Mobile Experiences software calculates and reports location of mobile devices in real time

### Business Results

- Enhancing patient and visitor experience
- Creating a higher quality, patient-centric environment
- Improving hospital productivity

## Business Challenges

St. Olavs Hospital, Trondheim University Hospital and The Faculty of Medicine, Norwegian University of Science and Technology (NTNU) in Trondheim, Norway, is the first university hospital in the country to completely integrate patient treatment, medical research, and teaching. The medical staff at the 1008-bed hospital and 7 medical centers treats 131,547 inpatients and 554,083 outpatients every year.

With an aim to be the most advanced technological hospital in Northern Europe, St. Olavs is putting the finishing touches on a massive 10-year rebuild on its existing site. Every building was redesigned to completely upgrade aging structures, digitize systems, and integrate patient treatment, medical research, and teaching functions. The goal is to advance care and diagnostic capabilities by accelerating productive collaboration between the clinical, research, and medical school staff.

The huge campus encompasses almost 62 acres in the heart of Trondheim, with several multistory buildings integrating hospital, teaching, and research functions. Professor Stig Slørdahl, dean of the Faculty of Medicine at NTNU says, “The new university hospital is built over a large area with many centers and can be a challenge to navigate. Making it easier for students, visitors, patients, and their families to find their way around was a strong motivator for deploying MazeMap.”

St. Olavs Hospital turned to MazeMap because of its reputation as an excellent wireless service provider and for its unique indoor-outdoor mobile positioning application that makes the campus seem “smaller.”

## Network Solution

With MazeMap, mobile users can use their own smartphones, tablets, or laptops to find their way around large and potentially confusing building complexes such as hospitals and university campuses.



**“We are pleased to deliver a wayfinding service through our partnership with MazeMap and Cisco that is being used every day by our patients and visitors to make their experience here at the university hospital the best possible.”**

Professor Stig Slørdahl  
Dean of the Faculty of Medicine  
NTNU

“We worked closely with the university hospital to collect and integrate a huge amount of complex data to develop a simple, elegant search-and-find application,” says Thomas Jelle, managing director at MazeMap and Wireless Trondheim. MazeMap uses the hospital’s existing Cisco® Wi-Fi infrastructure, which makes the service very scalable and affordable. Professor Slørdahl agrees. “It was a big advantage to be able to develop the system for a hospital setting in close collaboration with Cisco and MazeMap,” he says.

In the early stages of the rebuild, St. Olavs Hospital had deployed an advanced end-to-end Cisco Medical-Grade Network, becoming one of the world’s first hospitals to run all data, TV, radio, and voice-over-IP (VoIP) infrastructure. Its solid Cisco network foundation was designed to easily support the demands of high-speed wireless service applications such as MazeMap with the simple addition of Cisco Mobility Services Engine (MSE).

Cisco MSE with Cisco Connected Mobile Experiences (CMX) software in the data center computes user location in real time from thousands of Cisco Aironet® access points (APs) located around the campus. CMX provides deeper network insight by capturing and assembling key network data such as real-time device location and inclusion and exclusion areas that MazeMap employs to deliver its indoor navigation services.



To simplify network management, all Cisco APs connect to a Cisco Wireless Services Module (WiSM) controller running on Cisco Catalyst® 6500 Series switches. The scalable controller can support up to 1000 APs and 15,000 clients, extending the same policies and security from the wired network core to the wireless edge. Cisco standard-based wireless encryption authentication security covers the entire campus.

### Business Results

In the first three months of initial deployment in 10 buildings, more than 10,000 patients, students, and employees have used MazeMap’s convenient, time-saving application supported by the Cisco CMX solution. In fact, the application is so popular with St. Olavs Hospital employees that the service is expanding into another building right away.

“We are pleased to deliver a wayfinding service through our partnership with MazeMap and Cisco that is being used every day by our patients and visitors to make their experience here at the university hospital the best possible,” says Professor Slørdahl. He notes that the service markedly improves the customer experience by making it easier to navigate the buildings, and by doing so provides tangible benefits:

- Reduces stress by providing predictability for visitors and employees
- Reduces the workload at information desks
- Increases productivity by helping ensure patients arrive on time for their appointments

The hospital has since integrated MazeMap into patient self-check-in terminals to show the way to clinic offices and hospital floors. Professor Slørdahl says, "In the future we hope that all invitations to meetings and outpatient clinics contain locating information to make it easy to find the right rooms using MazeMap."

He continues, "I think we are more aware of the possibilities today than when we installed the system. We are eager to explore more possibilities moving forward and to collaborate on further developments."

### More Information

- For more information on MazeMap products, visit [www.mazemap.com](http://www.mazemap.com).
- For more information on Cisco Wireless solutions, visit [www.cisco.com/en/US/products/hw/wireless/index.html](http://www.cisco.com/en/US/products/hw/wireless/index.html).
- For more information on how Cisco helps healthcare providers improve patient care, visit [www.cisco.com/web/strategy/healthcare/index.html](http://www.cisco.com/web/strategy/healthcare/index.html).

### Cisco Product List

- Cisco Aironet 3600 Series and 3500 Series 802.11n APs
- Cisco Mobility Services Engine and Connected Mobile Experiences software
- Cisco Wireless Services Module controller on Catalyst 6500 Series switches
- Cisco ASA 5500 Series firewalls

### MazeMap Product List

MazeMap mobile positioning application



**Americas Headquarters**  
Cisco Systems, Inc.  
San Jose, CA

**Asia Pacific Headquarters**  
Cisco Systems (USA) Pte. Ltd.  
Singapore

**Europe Headquarters**  
Cisco Systems International BV Amsterdam,  
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