



**Klinik Öschelbronn**  
Krankenhaus für Innere Medizin

## Mobile Ward Round in the Öschelbronn Clinic

IP Access

**WLAN**

ITC

VoIP / VoVPN

IT Security

## P R O J E C T - P R O F I L E

### Project requirements:

Doctors and nursing staff are to be enabled to perform their administrative tasks directly at the patient's bedside. Media discontinuity, which goes along with entering information at a later point, is to be avoided.

### Concept / solution:

A mobile ward round with client laptops which access all data in the electronic patient record stored in a central location over a WLAN.

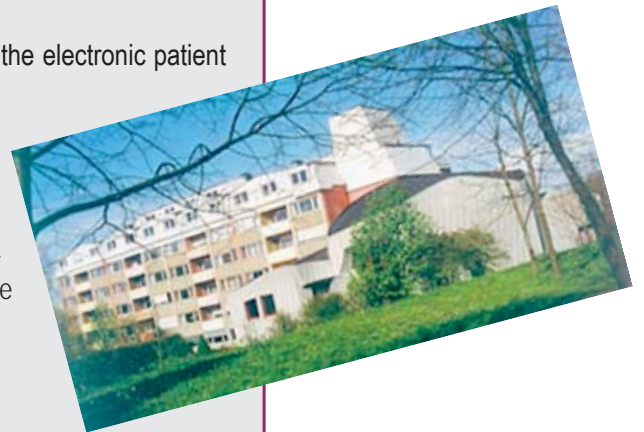
### Use:

It is not only the cost factor that plays a role in optimizing hospital processes – a mobile ward round also helps to avoid errors caused by media discontinuity or manual entries. The lower administrative effort moreover frees the nursing staff to spend more time caring for their patients.

### Products used:

bintec W1002, various antennas, WiLMA

**Customer:** Öschelbronn Clinic **Partner:** Thinking Objects GmbH



## Investment push

Hardly any other industry talks so much and so fiercely about costs as the health care industry. Regardless of their own position, many experts point to the large savings potential waiting to be leveraged concerning IT support in hospitals. Time savings, cost reductions, and quality improvements in the nursing care are the main points justifying an investment push toward an IT infrastructure. Nevertheless, less than one fifth of those questioned in the latest IDC study claim that they tap the full potential of IT.

The Öschelbronn Clinic situated at the edge of the northern Black Forest is one step ahead: The anthroposophical emergency hospital has chosen a mobile ward round: During their daily ward round, doctors and nursing staff can directly access the electronic patient records through notebooks. Access points

and the WLAN Management Application WiLMA by Funkwerk Enterprise Communications ensure access to the hospital's information system.

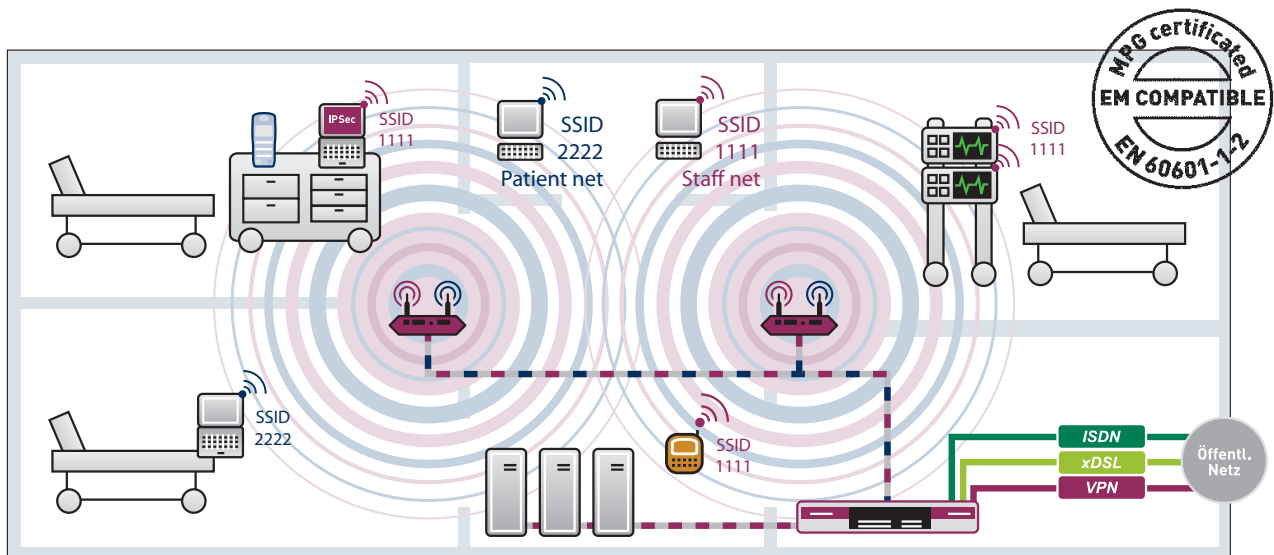
### In the beginning, there was paper

One single lab test used to require four or five different paper processes in the Öschelbronn Clinic. Starting with the doctor ordering this standard test, the data then had to be transferred to the outside laboratory's card and sent off, until finally the end result was available in the patient record. In addition, the nursing staff had to perform certain steps in the hospital information system (IS) and in the laboratory's information system for the lab technicians.

Even though the individual processes were organized in a consistent manner, doctors and nursing staff used to suffer

the consequences of any delays: Laboratory values were not always available during the ward round, preventing the attending physician from making any thera-

After a thorough research, he suggested migrating to a mobile ward round as the basic requirement for consistently electronic patient records. Doctors and nur-



*Multiple virtual WLAN with different SSIDs and different security levels allow the separation of a patients and a high secure staff net.*

peutic decisions at the patient's bedside. And even if all lab results were available, the nursing staff would have to follow up the ward round and enter all medication changes into the hospital information system, trigger diagnostic processes and hand over a variety of directives or information within the hospital.

"A flood of required documents, heavy media disruption, documents being passed around all over the house – these are typical parts of an uneconomic information management system", IT project manager Dirk Wiegand summarizes the situation. The large share of administrative tasks took up a lot of time and, furthermore, the media discontinuity – from the hospital's IS to the paper-based patient record and back to the IS – posed a higher risk of error.

All this gave Jürgen Heinz, Managing Director of the clinic, reason enough to start thinking about a different solution.

ing staff are equipped with notebooks that directly access the hospital information system. A WLAN infrastructure was the only possible solution to connect the mobile end devices. "WLAN is currently the most stable and reliable technology in this area, and it can also be integrated fairly easily into our existing infrastructure – a client / server network and the hospital information system", IT project manager Wiegand sums up his research. Access points with EN 60601-1-2 and EN 60950 certifications were indispensable, attesting that the wireless communication meets the electromagnetic compliance (EMC) regulations for medical institutions. These certificates ensure that the access points on the one hand will not influence the test results of medical diagnostic equipment and that they on the other hand offer an increased resistance against outside interferences. This is a prerequisite for a trouble-free WLAN operation.

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## Mobile ward round project experience

Dirk Wiegand asked two other companies besides Funkwerk Enterprise Communications for quotes: D-Link and 3Com also put in offers. The IT department and the management board were involved in selecting the equipment. In the end, the access points offered by Funkwerk Enterprise Communications were chosen because of existing references – mobile ward rounds in the Landshut Clinical Center and the St. Bernhard Hospital in Brake – which the Nuremberg-based company had already equipped.

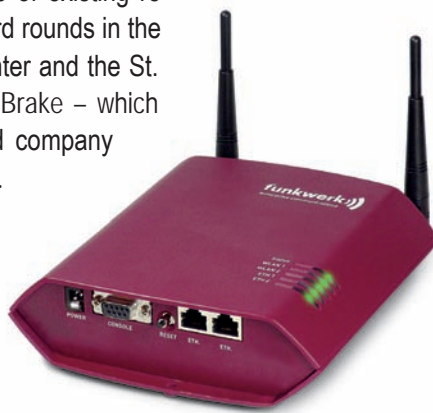
“It was very important for us to speak with a provider’s customers before making a decision. This gave us valuable information for our

own project as well as an impression of how satisfied these customers were with their providers. Our decision to go with Funkwerk has proven to be the right one, even in hindsight: The service we received during the project was very good.”

“In the first step, FEC system partner Thinking Objects based in Stuttgart-Kornthal in November 2007 started setting up the wireless LAN using bintec W1002 devices. Hemisphere antennas ensure an improved reception and an inconspicuous installation in a building that was hard to cover. The WLAN uses its own network area; classical routers connect it to the existing network.

In the second phase, the laptops were connected to the hospital IS. The laptops only serve as clients accessing a terminal server. This solution for one thing

reduces costs and maintenance for the end devices, and for another offers advantages when it comes to data protection requirements: The notebooks come equipped with only an operating system. They access the hospital and laboratory information systems through terminal servers, which means that there is no sensitive patient data on the notebooks. Even if a notebook is stolen, the data is protected from unauthorized access.



*bintec W1002: Access Point of Funkwerk*

In addition, the WLAN is encrypted according to the WPA2 safety standard. All users log in through a RADIUS server, which stores the access rights for the WLAN and the information systems.

Administration and operation of the present 22 access

points are furthermore managed through the WLAN Management Application WiLMA. This allows the IT department to manage the WLAN infrastructure quickly and efficiently. Another point in favor of Funkwerk, according to Wiegand: “Funkwerk’s WiLMA makes it a lot easier for us to administrate and maintain the new architecture. Also, we are dealing with a software tool here. Other solutions integrate a management functionality by employing a WLAN controller from the premium price segment. In case of a failure, such a hardware-based solution causes much higher follow-up costs than the software-based one we have now.”

## Done: Pilot phase was successful

The first ward has been testing the mobile ward round in live operation since early June. General acceptance was un-

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expectedly high: The benefits that were already noticeable during the test phase included real-time access to current test results and the ability to request initial services, such as laboratory tests, directly from the patient's bedside. That means that the mobile ward round already relieves the nursing staff from some administrative tasks during the ward round follow-up. To make the mobile ward round even more user-friendly and easier to handle, the hospital IS is currently being customized and expanded. By providing comprehensive information to all colleagues, Dirk Wiegand was furthermore able to calm any worries from the staff regarding radiation exposure.

From a cost aspect, the project is a real success: If all wards consistently work with the mobile ward round, the Öschelbronn Clinic estimates cost savings of 30 to 40 Euro per case, i.e. for each patient's stay.

From the beginning of 2009 onward, all three wards are to work with the new solution. Due to the good experiences made with the test ward, expectations

for the mobile ward round are high. Dirk Wiegand expects everyone involved to be satisfied with the WLAN solution after an initial familiarization phase.

The Öschelbronn Clinic already has further plans for the time after the implementation of the mobile ward round: The IT department and management board are currently considering whether to extend the WLAN to 40 to 50 access points in order to use it for Voice over WLAN – telephony over the wireless network. Internet access for patients over the WLAN is also being discussed.

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