



# Proactive Instead of Reactive: Recognizing Problems Before System Failure

Today, purchasing decisions are no longer made solely on the basis of product features. System availability and service are other important criteria that help decide the competitiveness of supplying companies. The Medical Director of the Diagnostic and Interventional Radiology Department at the University Hospital Tübingen, Professor Claus D. Claussen, MD, and his team speak about the challenges of radiology and why proactive services such as the Siemens Guardian Program support smooth workflow.

By Katja Stöcker, MA

“We are under massive pressure to deliver competent diagnoses to our colleagues in the hospital or to the referring physicians with ever faster turn-around times,” says Professor Claussen, describing an essential challenge for radiology. To realize optimized capacity utilization, appointments are scheduled tightly. A system failure would immediately disrupt the workflow in his department and would also have ramifications for the workflow of the University Hospital Tübingen (UKT

– Universitätsklinikum Tübingen), Germany, as a whole. “Therefore, in the event of a malfunction, technical service must be just as prompt and competent,” continues Claussen.

For the various Siemens computed tomography (CT), magnetic resonance (MR), and angiography systems in Professor Claussen’s department, Siemens supports the workflow with different proactive services. The hospital has recently become a reference hospital for medical-technol-

ogy service by Siemens Healthcare. Customers and interested persons from all over the world may experience a system’s virus-protection functions onsite, for example.

Virus Protection is a service that protects Siemens systems from viruses, worms, and trojan horses. System-specific usage and capacity-utilization data can be retrieved through the service Utilization Management. “It is important to recognize errors as early as possible and not

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Medical Director, Diagnostic and Interventional Radiology,  
University Hospital Tübingen, Germany





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Andrea Ganter, Technical Assistant, Diagnostic and Interventional Radiology, University Hospital Tübingen, Germany

only when the system shuts down,” says Claussen. The Siemens Guardian Program™ provides this proactive service offering. Through the Siemens Remote Service (SRS) platform, the medical device reports deviations of important system parameters to the Siemens Service Center.

### Proactive Monitoring and Prompt Remote Repair

Siemens experts are not only able to telephone the customers proactively and call their attention to the problem, but can often immediately solve it remotely. Andrea Ganter, a technical assistant in Diagnostic and Interventional Radiology, tells of one such proactive telephone call, “Due to this call, we knew that our CT would work only for another two days approximately.” This gave them enough time to shift patient appointments and find the necessary time for the repairs without an involved onsite fault search. “Before, that would have led to a system failure of one and a half days, but now thanks to Guardian, the CT scanner was available again after four hours of repair time,” reports Ganter. Another advantage of remote monitoring is that Siemens can determine, via SRS, which spare parts are required, so that the Customer Service Engineer (CSE) can immediately bring the proper replacement part with him. “Before, the CSE arrived and had to first

of all look for the source of the fault. Then he ordered the replacement part and had to come back again,” says Ganter. A few doors away, Ayser Birinci-Aydogan, a radiological assistant, is monitoring the scan of a 58-year-old man using the high-end Dual Source CT scanner SOMATOM® Definition. On the screen in the control room, the coronary vessels can be clearly recognized. The man came to UKT due to his family predisposition for coronary disease. At first glance, the experienced radiological assistant cannot see anything out of the ordinary. Throughout all clinical operations, Guardian works unobtrusively in the background: through the proactive real-time monitoring of important system components such as gantry, X-ray tubes, detector, and image computer, system failure can often be avoided. “Our nightmare would be if our SOMATOM Definition were to go down in the core time of 10 a.m. to 2 p.m.,” says Birinci-Aydogan. Around 3 p.m. at the latest, the surgeons need the images in order to plan their procedures for the following morning. “For me, proactive service means predictability,” continues Birinci-Aydogan, as she glances away from the screen for a moment to clinic technician Jürgen Bahls, who hurries by. “Here in the hospital, we have excellent technicians, and we are also very satisfied with the Siemens service technicians and the remote support from the Siemens

Service Center,” attests the radiological assistant. “So far, the Siemens service technicians have often gone the ‘extra mile’ for us – that is not something that you should take for granted,” reports Birinci-Aydogan. Often the radiological assistant already knows what to do as a result of her experience and involvement in the introduction of the SOMATOM Definition, but she also praises the knowledgeable contact at the other end of the telephone line and the possibility of remote support and repair. In the event of a difficult situation, a Siemens service technician quickly comes to UKT. “It is an advantage that the Siemens service organization is set up very well in the region. They also have a shorter distance to travel than other providers,” confirms her colleague, technical assistant Andrea Ganter.

Based on the service agreement, the hospital’s own service technicians are not only trained by Siemens, but also work together with Siemens service technicians in installing replacement parts, for example. Thus, special technical knowledge is also developed onsite, so a system can be restarted quickly in a serious situation.

### Better Planning Reliability and Improved Workflow

“Not only are we contacted quickly by the UPTIME Service Center, but we also

appreciate that the Siemens service technicians are committed and work competently," says Ganter, who has worked at UTK for 13 years. "Due to the combination of proactive service and the onsite and Siemens service technicians, planning reliability was greatly improved," she says. Predictability is not only crucial for smooth workflow in radiology, but also for all further steps in the treatment. "And that applies not only to emergencies such as a patient with a lung embolism in intensive care," says the technical assistant. "Every shift in our schedule – possibly as a result of a system failure – results in 15 people waiting at the door, and follow-up appointments in the out-



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Radiological Assistant,  
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## Proactive Services, Continuing Training, and Customer Portal

### Data and Facts

With locations in 128 countries, the global service organization of Siemens UPTIME Service takes care of around 60,000 customers with 191,000 installed systems all over the world. Around 3,900 experts work in the service field. Worldwide, 97 percent of replacement parts are delivered within 24 hours. Delivery is part of the global materials logistics and is controlled through the world distribution centers in Frankfurt, Germany; Memphis, TN, USA; and Singapore.

### Training

In the training centers, equipped with the latest systems in Erlangen, Germany, Cary, NC, and Concord, CA, USA, as well as Shanghai, China, a total of around 12,000 participants are trained in 1,400 courses each year. In addition, the service organization offers web-based trainings for service technicians and customers through an e-learning platform.

### Remote Service Platform: Siemens Remote Service

Worldwide, thousands of medical systems are connected to Siemens Remote Service through virtual private network (VPN) connections. Through this remote service platform, up to 50 percent of all system malfunctions can be solved remotely.

### Proactive Real-time Monitoring: Siemens Guardian Program

The Guardian Program offers proactive online monitoring of medical systems in real time. System faults and possible deviations from predefined values can be quickly recognized and eliminated before a malfunction occurs.

### Against Software Attacks: Siemens Virus Protection

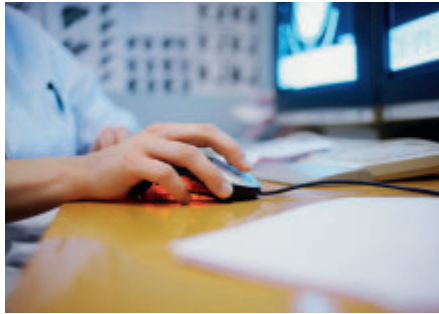
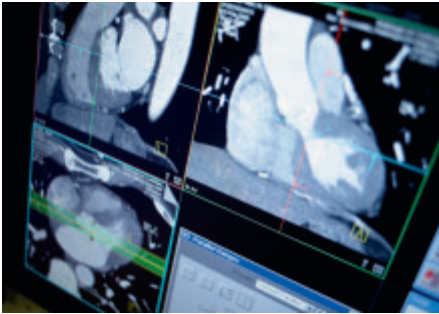
To achieve an elevated level of operating reliability and availability of the systems, this service offers protection against viruses, worms, and trojan horses. The latest virus patterns are transferred daily through remote updating.

### Improved System Capacity: Utilization Management

This service provides customers with system-specific utilization data that enables full utilization of system performance and optimization of clinical workflows. If desired, Utilization Management can also be configured to provide anonymous benchmark information about comparable systems at other facilities operating in similar environments.

### Overview with LifeNet UPTIME Services Portal

Through the personalized web portal, customers can always view the status of current service orders, their systems' performance status, the latest updates of the virus-protection utility as well as Utilization Management Reports. In addition, customers can manage their installed base. LifeNet UPTIME Services not only assists in the monitoring of the systems' productivity but also shows ways to improve its performance.



In 2007, around 200,000 diagnostic examinations and more than 2,500 interventions were carried out in the Department of Radiology at the University Hospital Tübingen, Germany.

patient clinic, for example, must be re-scheduled." Then, operations' schedules and the ordering of anesthesiologists as well as further treatments must be delayed.

"Service is critical for workflow in radiology and for workflow overall: from the admission of the patient all the way to dismissal," Ayser Birinci-Aydogan also adds. "If that service performance is proactive and competent as is the case with Siemens, that is all the better," says the radiological assistant.

### Integrated Workflow for Immense Quantities of Data

In addition to vascular and heart examinations, for example, with the SOMATOM Definition high-end CT system, and soft-tissue imaging through magnetic resonance imaging (MRI), for instance, with MAGNETOM® Espree, patients are also examined in the radiology department at UKT with modern ultrasound instruments, angiography systems as well as positron emission tomography-computed tomography (PET-CT) systems. The Siemens imaging systems support the radiologists with continuously more precise and reliable diagnostics, but in doing so, also supply large numbers of data sets with high-resolution images. Professor Claussen sees "intelligent handling" of immense quantities of data as another essential condition of a smooth workflow. During the past year, around 200,000 diagnostic examinations and more than 2,500 interventions were carried out in the department on CT and MR scanners, and angiography systems.

"On many days we generate close to 40 gigabytes of images," says Horst Bock, who is responsible for the picture archiving and communication system (PACS) of the department. "Workflow must be integrated; it does not stop with the systems themselves or the PACS or the radiology information system," says Professor Claussen. Above all, what counts today is medical know-how as well as workflow organization and optimization in order to avoid long wait times, and fast, competent diagnostics, summarizes Claussen.

The professor sees radiology as a 'service provider,' carrying out a service role. Innovative systems alone are by no means sufficient. In an increasingly intense and competitive environment, the development of a service culture is key – such as his team's interaction with patients and colleagues in the hospital and also within the department. The medical director also expects excellent service from the medical technology providers and he is not disappointed, "Here, we all appreciate the competent, preventive Siemens service."

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### Further Information

[www.siemens.com/Guardian-Program](http://www.siemens.com/Guardian-Program)

## Summary

### Challenge:

- Time pressure in the radiology department to provide competent diagnostics with increasingly faster turn-around times
- Tight appointment scheduling at the CT, MR, ultrasound, and angiography systems
- System failure impedes workflow

### Solution:

- Proactive services, for example, faster response and repair time through real-time proactive monitoring of system parameters with the Siemens Guardian Program

### Result:

- Improved appointment scheduling within and outside of the radiology department
- Reduction of system downtime
- Improved workflow in the radiology department and in the entire University Hospital

### Siemens Guardian Program reduces painful downtime dramatically.

