BLACK BOX

CASE STUDY
HEALTHCARE

Danish Hospital Implements KVM Matrix Switching Solution to Simplify Collaborative Diagnosis

- **Industry:** Healthcare
- **Client:** Danish Center for Particle Therapy
- **Region:** Denmark
- **Solution:** KVM-over-IP
- **Products:** Emerald® KVM-over-IP, Boxilla® KVM Manager

Aarhus Universitetshospital

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BACKGROUND

The new Danish Center for Particle Therapy at Aarhus University Hospital, one of the largest hospitals in Europe and named best hospital in Denmark 11 years in a row, provides highly specialized radiationtherapy for cancer patients from across the country. With its new 71-ton particle accelerator (orcyclotron), the center uses particle therapy — a gentler alternative to conventional radiation therapy —to treat children and adults with tumors in the brain or near the spine. The 9,500-square-meter Danish Center for Particle Therapy has the capacity to perform approximately 30,000 treatments annually for approximately 1,200 patients, with treatment overseen by 120 full-time employees, as well asresearchers and medical students.

THE CHALLENGE

The Aarhus University Hospital headquarters and main department, known as The New University Hospital (DNU), is the largest single hospital in Denmark and one of the largest in Europe. Thus, ameeting between two or more doctors to review a patient's brain or spine scan could require eachmedical expert to walk 20 minutes across the hospital campus to discuss that case. The Danish Center for Particle Therapy therefore needed a better way to give doctors from different departments acrossthe DNU campus shared, simultaneous access to patients' brain and spine MRI and CT scans. More specifically, the center needed a simple, secure solution for flexible video delivery that could supportcollaborative diagnosis and development of treatment plans.

"Here in Denmark we provide cancer care through a package of treatments and services that are tied to a fixed timeline," says Stefan Kalmar, IT project manager at the Danish Center for Particle Therapy. "In order to diagnose and treat patients in a more timely manner, rather than in 'batch' meetings scheduled for when several doctors can physically meet up in a room, we needed a video extension and switching solution that could give these medical experts more convenient access to high-quality images for joint review."

THE SOLUTION

The Danish Center for Particle Therapy is using three Black Box Emerald SE transmitters for KVM (keyboard, video, mouse) signal extension and switching over IP to transmit high-quality video and control signals to multiple receiver units, located within different departments across DNU. The Boxilla centralized KVM manager connects and manages the complete KVM solution from a single intuitive access point.

With Emerald receivers deployed at each of three different rooms, doctors working at all three locations can simultaneously view thebrain or spine scans of patients. Thanks to remote control over KVM switching, any one of these users can take control of the display and use illustration tools to circle or highlight particular areas of interest on a scan or other on-screen image.

Emerald simplifies extension and switching of HD (DVI) video, high-speed USB 2.0, and bidirectional analog audio so that doctors can focus on collaborating with colleagues rather than the supporting technology. Boxilla gives IT staff a straightforward solution for KVM configuration, creating and managing user profiles and access rights, adjusting bandwidth usage limitations, and evaluating system performance at any given time.

THE RESULTS

The Black Box solution deployed by the Danish Center for Particle Therapy brings greater flexibility and efficiency to the treatment of cancer patients in Denmark. Because Emerald intuitively shares video across sites, non technical users — doctors and other specialists— can readily take advantage of the system. The solution gives users at all three locations within DNU the functionality they need to take control over the video being displayed and to provide input on the images shown simultaneously on all three screens in the different locations.

Access to brain and spine scans by doctors across three different locations within DNU is beneficial primarily because it reduces thetime and cost associated with diagnosis and treatment. Specialists from different departments can quickly and easily collaborate and come up with a treatment plan. Patients can instantly get a second opinion from other doctors without having to travel to another part of the hospital. The combination of the Black Box Boxilla KVM manager with the Emerald SE extenders not only helps the hospital to comply with security requirements regarding the visibility and transmission of patient data but also makes it easy to configure and manage the complete KVM system from a single intuitive access point.

One of the reasons for implementing Emerald was the system's support of lossless transmission of HD video, whereas many common remote desktop (software) solutions today use lossy compression algorithms that could result in inaccurate visualization of critical medical imagery. As a KVM-over-IP system, Emerald ensures that video quality remains uncompromized — critical to effective diagnosis by multiple specialists — and that the overall solution is responsive, without lag that can make effective collaboration difficult.

"It is difficult to overstate the impact of this new remote video-sharing system in improving our efficiency," says Kalmar. "In addition to eliminating the considerable amount of time required to walk to and from each patient care meeting, the solution makes consulting with other doctors much more convenient. As a result, it is easier for us — and the center as a whole — to keep patient treatment on schedule and to maintain a high standard of care."