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World famous for its consumer products, what's less known about Sony is that it is a major developer of AV technology for healthcare particularly for operating theatres and outpatient wards.

In fact, Brad Hanrahan, Group Manager Business Solutions at Sony Electronics, says healthcare is a major vertical for Sony globally.

And much of the demand for new technology in hospital settings is coming from the staff themselves. "Surgeons for example want to see the absolute maximum detail, with the correct colours and contrast," Hanrahan says. "Right now, that means monitors and camera capable of processing 4K images."

But although 4K is common in home TV systems, for many hospitals it still remains a future goal. Says Hanrahan, "At this point in time, 4K is the cutting edge for healthcare and it's rare in operating theatres. Surgeons who enjoy 4K screens in their homes, understandably want to know why they can't have them in the operating theatre as well."

SOLVING THE PROBLEM OF LATENCY

But the technology needs of surgeons extend beyond just picture clarity. Hanrahan says the other critical aspect in surgical AV is image latency - the time delay as the signal travels from the camera through the system memory to the display screens. Ideally the surgeon should see the image move on screen at the exact time it is moving in reality. The problem is that there's always a certain amount of latency in the signal path, even if it's miniscule.

It was partly this technical issue that led Sony to acquire Belgian company eSATURNUS in 2008. eSATURNUS had developed a platform called NUCLeUS, a digital operating theatre control platform that assists clinicians during surgery.

Its AV over IP-based system increases ergonomics by showing visual data in front of the surgeons, while retaining all digitised information centrally. It is also a data management tool and archiving solution, and it integrates with all operating room devices.

NUCLeUS's RtoR (real to real) technology means there's no latency and the platform eliminates visual artefacts.

"Thanks to NUCLeUS's patented technology that minimises latency, you can't tell the difference between the feed from the camera and the feed that is going through the IP network" says Hanrahan.

“Ideally the surgeon should see the image move on screen at the exact time it is moving in reality.”

NUCLEUS: OPEN AND SCALABLE PLATFORM

Karine Legac is Assistant Product Manager Healthcare at Sony. She says NUCLeUS is now installed in some 400 healthcare environments globally. These are mainly in Europe, but also in North Africa and the Middle East.

"We are proud to have launched this software in Australia in March 2017," she says.

“We want to supply the best products for surgeons and staff. Especially inside the operating theatre, where we are able to provide all the digital software that’s needed.

“During an operation everything is recorded, because the surgeon wants to review what he or she has done later. Everything is connected because of the video over IP. So surgeons use it for surgical interventions and can switch between the different displays to show data. You can also involve staff at another hospital thanks to the broadcast function.”

We want to supply the best products for surgeons and staff, especially inside the operating theatre

The NUCLeUS platform is both open and scalable, Legac says. Its openness means it can integrate other brands’ equipment, not just Sony’s. It’s also scalable, because it doesn’t require dedicated cabling. Running through the IP network, upscaling is simply a matter of expanding storage or increasing processing speed.

“The future is definitely digital.” Legac says. “At the same time, we are also partnering with other technology, such as Stellar Vision, which is more of a patient-side management system.”

STELLAR VISION FOR HOSPITAL WARDS

Stellar supplied video content to airlines, but through a partnership with Sony they also now supply hospitals. While NUCLeUS handles requirements in the operating theatre, Stellar Vision is a portal for patients and staff in the ward. It offers patients on-demand entertainment, apps, cable TV and more to make their hospital stay better. Patients can even order meals through the platform. But as well, it gives hospital staff access to patient records and other data doctors and nurses might need right at the bedside.

“The reason we partnered with Stellar Vision is because they have such a great product in terms of functionality,” Hanrahan says. “The partnership with Stellar Vision and the acquisition of eSATURNUS with its NUCLeUS product are two examples of how we’re leading AV in the healthcare sector.”

INTEGRATION IS THE WAVE OF THE FUTURE

Many hospital systems and displays are isolated from each other – integration is the wave of the future, says Hanrahan.

“The way we’re approaching it is the integration of different technologies, whether that be hardware or software. NUCLeUS is an example and it continues to develop. It’s the glue that binds all those elements of the operating theatre together.

“Not only that, but with video and processing, as it advances you are developing clinical tools as well. There is a software-based video filter, for example, that you can apply to an image in real time in order to highlight capillaries. In the past you’ve not been able to do that without applying a physical filter to the camera. But now we use video processing technology.”

This upsurge of AV technology in healthcare is providing the environment essential to making critical medical decisions. With the NUCLeUS platform’s low latency, recording and broadcasting functions, operating theatres get better, clearer vision.

In hospital wards, the Stellar Vision interactive AV system not only entertains patients, but allows doctors and nurses instant access to patient records and other health data on their rounds.

With the NUCLeUS platform’s low latency, recording and broadcasting functions, operating theatres get better, clearer vision

Both these systems are a result of Sony’s emphasis on a clear vision for AV in healthcare, starting now and for the future. As Hanrahan puts it, “Clarity of image is a Sony goal.”

AV for healthcare is a major vertical for Sony, with the NUCLeUS platform for operating theatres and the Stellar Vision system for hospital wards. ■

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