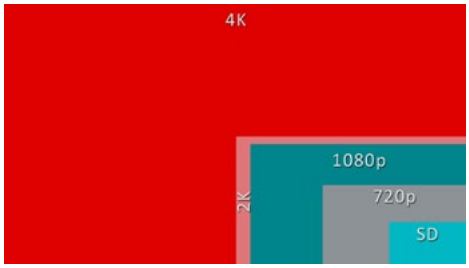
4K over CAT cabling

The author : Anton Fannes
International Product Marketing

'4K is finding its way to the medical environment. Integration platforms should be ready for the new technology, taking the existing infrastructure into account.'

4K is upcoming technology, both in endoscopy as in interventional cardiology. In the market of endoscopy, surgeons are still waiting for the first cameras to make their entrance into the operating room. For catheterization laboratories, 4K is already accepted by the early adaptors.

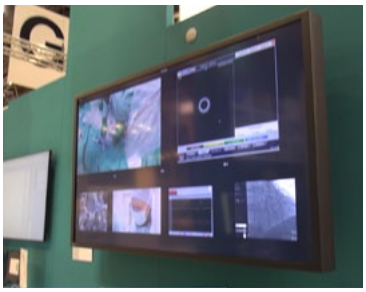
The first full-HD content was broadcasted on television in 2004. Ten years later, there is a new race for more pixels. Standard full-HD has over 2,000,000 pixels. Ultra HD or 4K has more than 8 million pixels. Having four times the resolution has clear benefits. The user can see more image information on the same surface.



Ultra high definition has two important applications in the medical sector:

- Endoscopic equipment will show even more detail than it does today. Surgeons will be able to see the same level of detail with a wide angle lens then they would in HD with a more narrow field of view. Digital zooming will also be more forgiving in comparison to HD. These functionalities are very interesting, but today there are few solutions on the market. Making a transition to uncompressed 4K requires an update of the existing cabled infrastructure. This requires careful planning for operating rooms.
- Interventional cardiologists require a lot of information in a fixed arrangement. In interventional cardiology there is a broad range of devices such as intravascular ultrasound (IVUS), lateral and frontal CT images and information showing heart and oxygen rates. These images are typically arranged so that a fixed medical device is associated with a fixed screen.

In the future, cardiologists will be able to work in a more flexible way using 4K video-over-IP. The beauty of NUCLeUS™ is that the platform uses the same cabling type (CAT 6) to transport 4K.



As seen on Medica 2014

Power of the cable

NUCLeUS™ is the digital integration platform by eSATURNUS. Unique to this product is that it makes intelligent choices related to infrastructural

About NUCLeUS™

eSATURNUS has been developing the video-over-IP solution since 2007. This technology makes it possible to transport images in medical rooms much more easily. Physicians can now watch images without loss of quality from both inside and outside the procedure room.

eSATURNUS

cabling. Fiber cabling is used where it is useful, particularly at long distances. UTP cabling is inserted into the medical rooms. This cabling is the only global standard to support both video, audio, data, control and power transmitted over a single line.
The use of UTP cabling in operating and intervention rooms only has advantages. If you are travelling to the UK, Switzerland and the US, you need to take three different power plugs with you. The only world-wide standard that exists is RJ45. You can connect your laptop to the internet in any of these countries. This is another strength of UTP.



NUCLeUS™ now supports 4K on the same type of cabling. This requires only a special 4K receiver. For everything else, NUCLeUS™ continues to use the well-known transmitters to transport video over the IP network. Using this type of cable has benefits for medical users, architects and service teams.

Medical users

- Resources are automatically displayed in the NUCLeUS™ platform upon connection and show a real-time preview
- Mobile sources can automatically be activated using reinforced RJ45 connectors
- CAT cabling is flexible and inexpensive. An accident during the procedure is repaired quickly and at low-cost

Architects

- Can plan the same cable over the entire room, independently of whether the signal is audio, (SD - HD - 4K) video or PC based systems
- Can position the central switch without taking into account the short distances that are necessary for DVI or other video standards
- eSATURNUS warrants that CAT wiring is the most future-oriented cabling standard

Service teams

- Repairs of UTP does not need an expert, as opposed to fiber optics
- Rapid upgrade of additional modalities or screens without additional cabling
- Easy to service through remote monitoring

How 4K was shown at Medica 2014