Spotlight on

Choosing between coax and fibre-connection

by Rien Baan, Vice President, SCTE

As a result of the ongoing fibre roll-out, operators offer fibre subscriptions while the existing coax connection is still in place and operational.

Why would a subscriber have to make a choice and based upon what arguments? We put our VP Rien Baan to the test.

What's the big deal with all this? A coax connection is old. It might have been in the ground 20 years or more; fibre is new!

So out with the old then? Not at all. Nothing wrong with coax if that's what you have already.

So if it ain't broke… All this talk is just marketing spin surely? Coax is fine in the short term but realistically, you need to upgrade to fibre if you're thinking long term, and the roll out is well underway now. As a result, yes you're right, there has been a lot of hype about fibre and it is certainly seen as the new, sexy replacement for coax. The reality is the speeds are pretty good for coax, given the requirements of the average user, even one working from home as we have been. Worth remembering too that the average user doesn't really know or care about the type of network he is connected to, as long as the performance is satisfactory..

Upgrades like DOCSIS 3.1 to the existing coax network are being carried out now to cover the growing need for capacity and network speed, so things are basically ok as they are and will be for at least another 5 years. There is also the new DOCSIS 4 in the wings so DOCSIS continues to be developed.

I don't even know what connection I have. What does it matter? Stickers on street cabinets should tell you what you have in your local area, and it's good to know. It might not seem important. But really, it's about speed and performance of your broadband; that does matter. That affects you in your daily life.

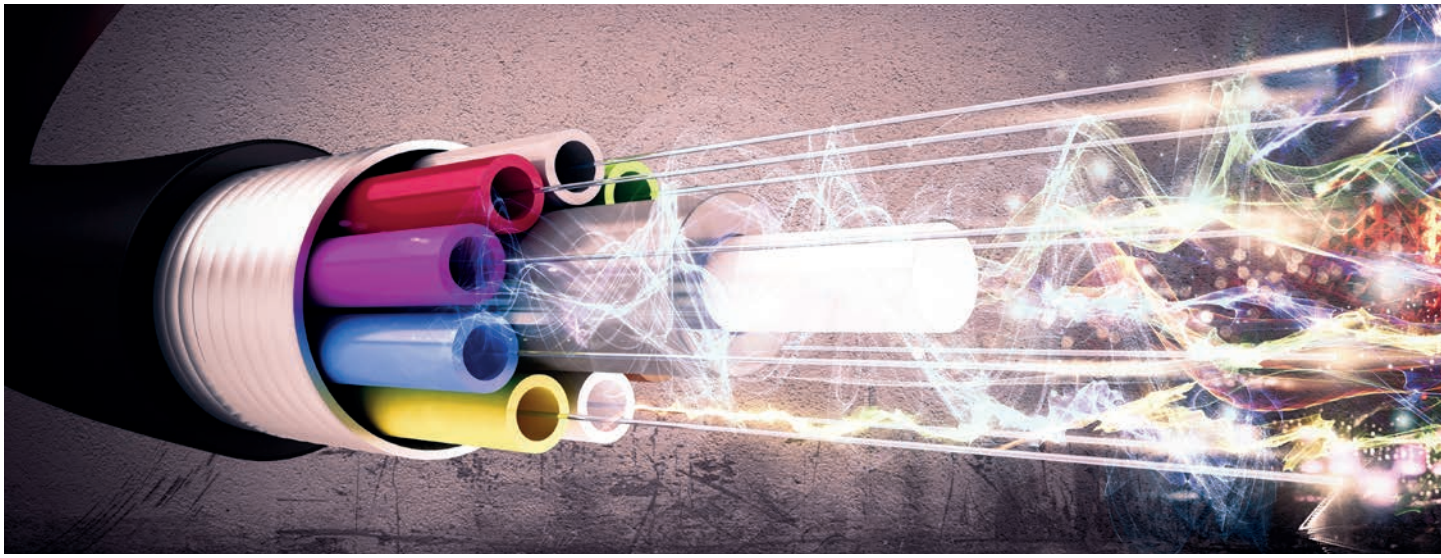
Tell me about it. Nothing more frustrating than endless buffering. Regardless of your connection, at some point in the future whether it's with a coaxial connection and bandwidth upgrades like DOCSIS 4.0 upgrades or a new fibre roll out, buffering will be a thing of the past. Waiting for your movie, pdf, email or game to download will be a long-forgotten curiosity, like Bakelite telephones or the cassette tape. "Tell us again about the buffering Grandpa," etc. You watch!

Fair enough. Is fibre really the future? Absolutely, but as long as existing coaxial networks are continuing to function well, we won't see this technology just written off for the sake of it. We're in a transitional period right now.

What does that mean in our day-to-day lives? Not that you would notice it, but there is some doubling up going on behind the scenes. Operators might be running two networks while coax is still in use.

For that you need supporting technicians for both networks, management systems for both networks. As you might imagine, manufacturers obviously support the coax-upgrades and new standards with new equipment as it saves money, time and effort all round.

So how can the SCTE help? Well, the Society has a long history in theoretical training for both systems and in the case of fibre, the Society takes the lead in providing training material in addition to practical training by the manufacturers themselves. The SCTE plays an important role in this transition to fibre for engineers, manufacturers and operators.



Tell me about the technical stuff. Modifying an existing coaxial network is not an easy job. From distribution network to high-speed communication network, no longer carrying analogue signals. These are now, mainly, coded IP streams requiring (amongst others) advanced specifications for the forward and return bandpass, another way of looking at cross modulation and interference issues. There are many implementation consequences of DOCSIS 3.1 and beyond.

Sounds pretty good. What's so great about fibre then? New developments in equipment, like coax/fibre converters, head end optics, optical amplifiers but also passive components like connectors, splice trays and wall boxes.

A fibre network, similar to coax, also faces limitations, like optical stream loss, the impact of multiple data streams on the MER (Modulation Error Rate), special care for splicing and connectors. Again the same general rule as for coax is applicable; the higher the data speeds, the more critical the specifications become.

It's all so complicated. Must be quite a supply chain. With all this going on there is an impact on the technicians on the ground as you might imagine. Network designers must work with equipment specifications, network requirements and system calculations.

Field engineers have to install various selected components. Then network technicians need to QC the overall specifications of the signals. And that's just coax. This is all very well-established though, has been for years.

And for fibre? For the fibre technology typical engineering skills are required and the parameters are a little different from coax and still being worked out as the increased capacity and requirements of the networks become established.

So what's next? There's so much going on. For coax-networks there's the upgrades of forward/return bandwidth (DOCSIS3.1 and soon DOCSIS 4) and IP traffic management (which is possible in combination with a fibre network).

In fibre networks new techniques are constantly under investigation to transport as much data as possible, requiring solid knowledge of design options and advanced splicing and installation techniques. Important developments which need to be communicated to the people involved.

All so I don't experience slow broadband. Fantastic. Where do I find out more? The SCTE offers highly acclaimed training courses on all of the above, at substantially subsidised rates and the courses lead to professional accreditation.

It's all here: **https://thescte.eu/professional-development**