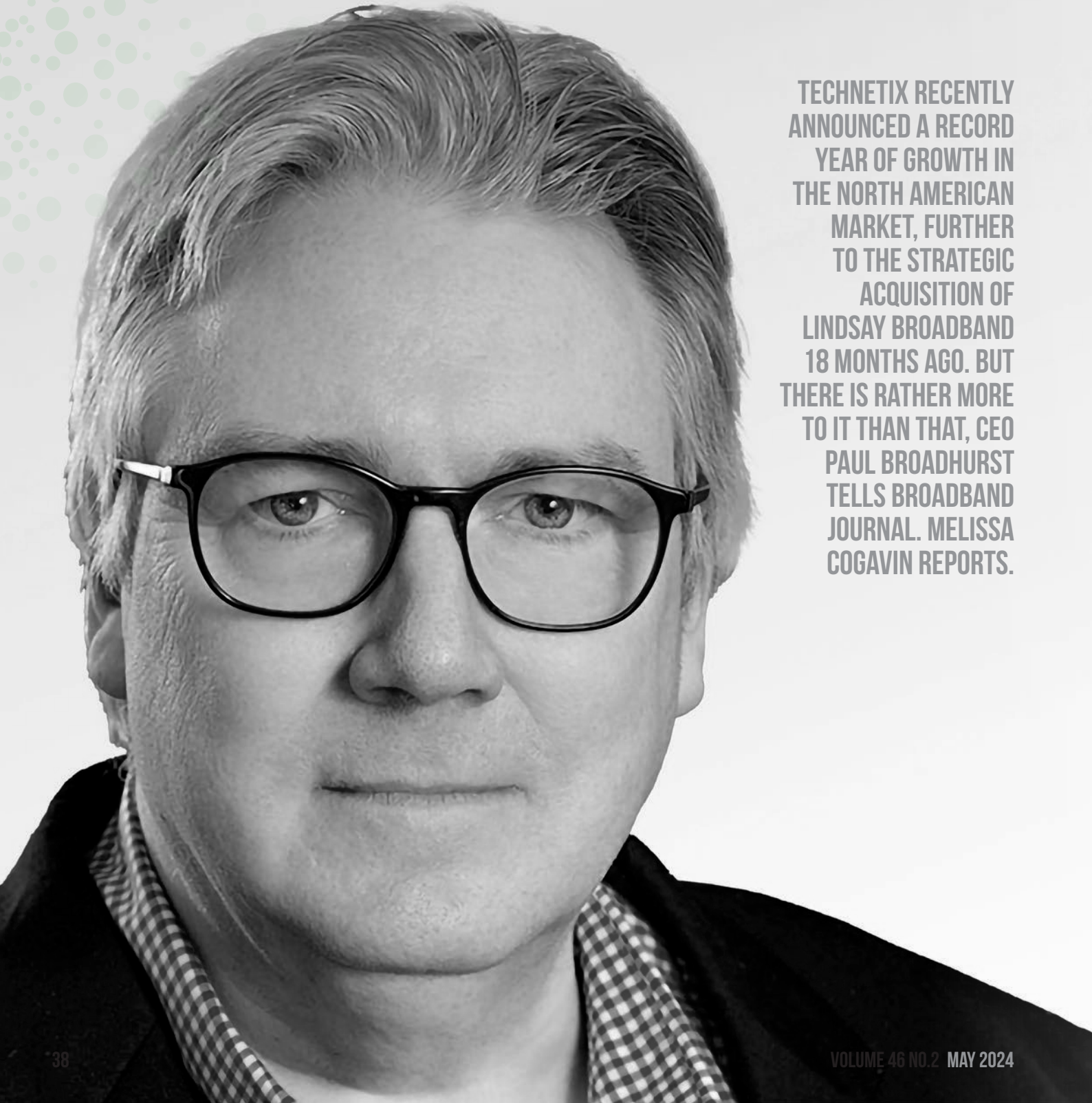
Unplugged:

INTERVIEW WITH PAUL BROADHURST, TECHNETIX

BY MELISSA COGAVIN



TECHNETIX RECENTLY ANNOUNCED A RECORD YEAR OF GROWTH IN THE NORTH AMERICAN MARKET, FURTHER TO THE STRATEGIC ACQUISITION OF LINDSAY BROADBAND 18 MONTHS AGO. BUT THERE IS RATHER MORE TO IT THAN THAT, CEO PAUL BROADHURST TELLS BROADBAND JOURNAL. MELISSA COGAVIN REPORTS.

CONGRATULATIONS ON YOUR ANNOUNCEMENT. YOU MUST BE DELIGHTED.

We are. Last year was great for Technetix; we grew 33%, and our North American sales have grown significantly, supported by the acquisition 18 months ago of Lindsay Broadband. We have had several breakthroughs with tier-one operators, and we've now got to the point where 52% of our business is in the Americas now. Within the last three years we also acquired a company in Germany, ECAD, which got us into doing fibre optic passives and expanded our fibre connectivity products, but also doing German-style cable network equipment.

TO WHAT DO YOU ATTRIBUTE THE COMPANY'S SUCCESS?

The company's been going for 34 years. I'm a founder of Technetix. I was originally the CTO; it was started by three engineers. The success factor of Technetix I think is that we've not really changed our business model in all this time. We talk to customers, listen to their problems, come up with solutions then repeat. We develop all our access equipment. All the products we sell are our own design.

That that's what has given us the breakthrough in North America, because we came along with a unique solution for cable plant. In the old days and in many quarters they still have amplifiers and nodes with lots of plug-in equalisers and attenuators, which are tricky and very skilful to install and commission. But in 2010, listening to our largest customer in Europe, we developed an electronically controlled auto-setup equipment. We had great success across Europe with it, and over the last ten years with great supporters such as Liberty and Vodafone. When we took the idea to the Americas market the sense was: "This is very different. We're not sure whether we want to go down this route, because it's all electronic, is it all that reliable?"

We conducted field trials, which worked well - things have begun to snowball over the last three or four years. Fast forward and these days smart amplifiers are the only acceptable solution and with it smart setup de-skills the commissioning and makes construction and network upgrades much easier and cheaper and ultimately, more productive.

These automatic functions have key differentiation in that set up procedures for automatic level and slope control (ALSC) systems which were difficult to set have been completely made easy.

Obviously other companies are doing it now, but we've had a lead of over 10 years of experience at it. We have got a few grey hairs doing a few things wrong and putting things right, but that experience is what's given us great success in the US and Canada. We have continued to develop the functionality and have gone from auto set up to auto diagnostics using an AI (artificial intelligence) software solution which we call NeuronX™.

HAS AUTOMATING YOUR PROCESSES BEEN A LARGE PART OF YOUR SUCCESS?

Our biggest sell is not to the engineers, it's to the field operations people, the people who actually have to install and maintain the network. In the US that's often more involved as the equipment is mostly mounted on wire strands hung from utility poles, the telegraph poles, where there's a guy in a bucket truck at 30 feet (or 10 metres) off the ground sometimes in horizontal rain or a snow storm sometimes at -40 degrees, installing and maintaining this equipment. That's where they demand it. They just want equipment that you plug in quickly and it just works.

DO YOU SEE AI PLAYING A PART IN THE FUTURE?

Absolutely. The reason why a lot of our customers were very reticent initially was because cables can get damaged, fibre cables can get kinks or get bent. Experienced engineers can recognise the characteristics of these faults with roll-offs, suck-outs or standing waves – sometimes these faults are very infrequent meaning only experienced technicians recognise these issues – this is where AI comes in.

COMPLETELY BENT?

Well it still works, but it will suffer degraded performance, so therefore the outcome is a bit unpredictable over later months. With diagnostic capability built into the equipment, we're employing AI, which effectively does the same thing as the network engineer's brain and can see standing waves if there's a bad

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connector or a roll-off because there's a cable damaged. The equipment gives a red, amber, green feedback. Green is, "Everything is good." Amber is, "The equipment is applying unusual parameters to make the network work, but there is a fault that needs investigation." The network stays up, but there's actually a flag for preventive maintenance.

SO, IT'S NOT THAT AI IS TAKING OUR JOBS....

There aren't that many people who want to do that sort of work. Network engineers in North America are an aging workforce. One of our customers tells us more than 50% are 55 to 60. There is a real concern about the base of skills vanishing. They're very clever craft skill workers who have the attention to detail to identify and fix the problem, go the distance; having equipment which effectively does the same. It steps in and helps, especially since the attention span of people now does seem shorter than with earlier generations.

Another point worth noting is that analogue transmissions were switched off, providing more capacity with digital TV and then everything went IP, which gave back another block of capacity, though those dividends are over now. The only way to get more capacity is to put more bandwidth in, which also means networks need upgrading. In many cases the first time for 15 to 20 years – but the upgrades have to have a long life so we consider the upgrades have to be only once – that what we call 'a one-touch network upgrade'. The network upgrades our customers are doing are good for the next 15 to 20 years. And with limited labour and the cost of reconfiguring a network, this is very, very important.

THAT'S SORT OF FUTURE PROOFING IT, ISN'T IT?

Yes it is. We do flex-split amplifiers, which basically carry upstream or downstream according to differing requirements. When you're building the network, you don't know where the ratio between upstream and downstream is going to be. Now it's probably 10:1 between downstream more because it's video streaming. What tends to happen with broadband networks is that there's more upstream becoming needed with very high-resolution home security cameras. It used to be the security camera put video which up into the cloud when a movement was detected when somebody walked around outside your house. Now most cameras are streaming video continuously, so that you have a record of everything. So, the amount of upstream bandwidth being used is growing, but it's unpredictable as to how far it will go.

WHERE DO YOU SEE ALL THIS GOING IN FIVE YEARS' TIME?

If I'm an operator, selling a 1Gb symmetrical broadband for X pounds per month, it's probably enough. But if somebody comes along and sells 2Gb or 5Gb for the same price, there's a chance that I might lose that customer to somebody else. It's a speed race, which is obviously very important. We're producing DOCSIS 4.0-ready equipment, which is able to do 10Gb or more. Just over a year ago we did a trial with Vodafone-Ziggo, Netherlands and did 17Gb download speed on a field trial on their actual network.

17GB! IS THAT EVER GOING TO BE NECESSARY?

When we started Technetix and we opened our first office in the days of dial-up modems, I installed a 128Kb ISDN line. I remember thinking, "What on earth are we going to do with all this bandwidth?!" 30 years later, we have 2Gb now, and I don't know what we'll need next. But I think that with telematics on mobile, and in terms of augmented reality, being able to watch sports events, there will be larger bandwidth requirements. Once you get a 12K screen, 4K to 8K being the current standards, the human eye doesn't really have any more resolution. However, if you're doing an augmented reality simulation of being in a sports stadium, you probably need a 100K, so the amount of bandwidth is considerably more.

Technetix has come a long way, and I'm very proud of what we've done as a company. We've grown our engineering; it's RF and optics with automated control but we've got some extremely good technology and extremely good people. And over the last eight years we've grown very much into FTTX products. We do a compact OLT for rural broadband and capacity overlay. And since our Canadian acquisition, we've now started doing mini mobile base stations for mobile and WiFi access gateways.

Mobile is a new area for us as is cable networks; quite a number of our

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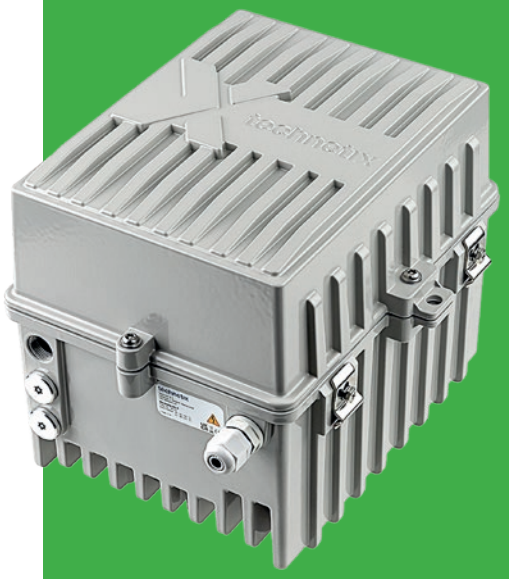
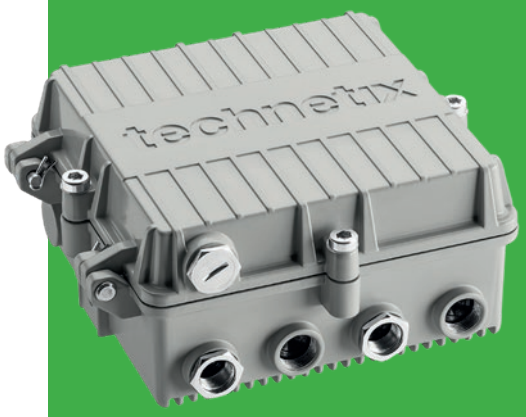




customers are integrating cable with mobile. A cable operator has a number of advantages in terms of doing mobile, because they have power everywhere and have a high-speed broadband backhaul everywhere, which nobody else has.

IT'S A COMPLETELY DIFFERENT LANDSCAPE IN NORTH AMERICA. HAS THAT INFLUENCED THE DIRECTION OF THE KIND OF PRODUCTS YOU'RE DEVELOPING?

In some ways yes, but still half of our business is in Europe; there is still a lot of significance in cable broadband. Where there's no ducting cable – Netherlands, Belgium, Germany - we are pretty sure those markets will continue for another 15, 20 years. Also in countries where there is ducting running fibre down existing ducts isn't as easy as it first seems – ducts have often collapsed or are crushed because they are under foot paths. In terms of mini-cells and WiFi hotspots, that's really where Technetix can be very innovative in coming up with solutions to help operators maximise their networks – our knowledge of RF gives us the edge as we don't have to simply buy system on a chip (SOC) solutions.

MAKING THE MOST OF WHAT WE HAVE, IN OTHER WORDS.

Correct. In the end, it's all about sweating the assets. It's all very well to say, "Oh yes, let's rip it all out and put in fibre," but it's not very green. Trenching uses a lot of energy and that involves discarding a system that works. Rebuilding broadband has become much more mature. It's just like water, electricity, gas. It's a utility. Once you have a working system, it is better to just improve what you have rather than rebuild.

AND WHEN THE ROLL OUT'S COMPLETE? YOU'LL BE MAINTAINING THE NETWORKS AS OPPOSED TO INSTALLING?

It's like maintaining the Forth Bridge; the work never ends. We have lots of options. In the US and Canada, we have solutions for creating fibre extensions; in remote areas where there's a village two miles here or five miles there, we have fibre extensions that you can add on to the HFC network. We have an overlay system in Germany and Austria, where the operator can do backhaul for mobile base stations; they can get the backhaul signals to and from the base station so they don't have to run new wires, they can actually use their existing capacity. A lot of operators now have WiFi hotspots, which is quite a good way to find your customers, because if a customer moves into a house, they want broadband, to switch on their laptop, find WiFi, and they can then find the operation and pay to get hotspot access. And then once you've created the relationship, away you can go with fitting them with a fixed broadband connection.

THIS INDUSTRY HAS WEATHERED A LOT OF STORMS. WHICH ONES STICK OUT IN YOUR MEMORY?

There have always been challenges. Our book describes in the early days of Technetix when we had the telecom meltdown. At that time, we were mainly in the UK, Netherlands and Spain, and then NTL, Telewest and UPC Netherlands, our top three customers, all went bust! However, none of them ever failed to pay a bill, because when you have an asset, you have to take it forward. Things were a little bit stickier in 2008 where the banks were in trouble; one week they were trying to get us to go out and do lots of acquisitions, and then suddenly they wanted their money back. But since then, I think, well, the company's got much much stronger. We're also much stronger at managing ourselves, managing risk.

HOW DID YOU COPE DURING THE PANDEMIC?

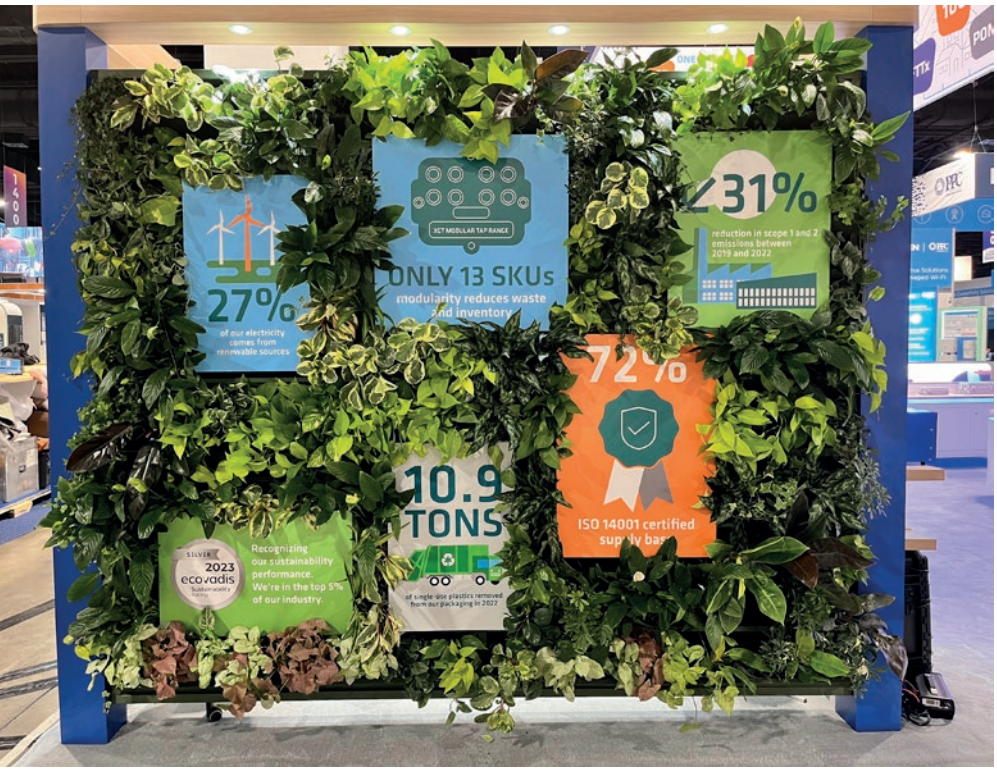
Through Covid, we were in a position where we had a standby capital facility just in case our factories were unable to operate; fortunately, we managed to keep all our operations going. We never failed to deliver. In terms of financially, the company has virtually close to zero debt. We are quite a conservative company, and in troubling times that's always good.

IN THE STATES, OR LOOKING FURTHER AFIELD?

Mainly in North America. The European market has got great growth in fibre, but in terms of cable, there's a few countries like Netherlands and Germany where there's going to be massive investments in the cable infrastructure, but there's other parts of Europe like Southern Europe, France, Spain, Portugal, Italy, where it's all FTTX.

TECHNETIX APPEARS TO BE A VERY PROACTIVE COMPANY. DO YOU HAVE A CLEAR STRATEGIC VISION OF WHERE YOU WANT TO GO?

In terms of the cable broadband market, we're clear that the total available cable access market is something in the range of $2bn. Technetix can achieve a certain percentage of it, but in order to grow we need to focus on FTTX, which is probably



ten times that globally, and into mobile, which is probably 30 to 50 times that. One of our strategic directions is to find niche areas where we can grow stronger.

TELL ME ABOUT YOUR SUSTAINABILITY INITIATIVES.

We have got much lighter on packaging, trying to cram more into a space so that you use less diesel transporting things around. We've saved quite a few tons on plastics recycling. But I think there were breakthroughs over the last three years, actually what I call real sustainability, not sham sustainability things. Because a lot of the sustainability goals are just really showy virtue signalling. Our network amplifiers and nodes, the latest DOCSIS 4.0 capable ones, which are broader bandwidth, they actually all take 30% less electrical power than the previous generation DOCSIS 3.1 compatible equipment.

HENCE, UPGRADING TO THAT WILL REDUCE DOWN THEIR NETWORK POWER CONSUMPTION?

Exactly - for a cable broadband operator, something like between 50-70% of the electricity bill is running the access network. Networks are generally driven by AC network power, which is very safe. It is easy to get off the mains network, and they use quasi-square wave, which gives you better transmission of the power over the network. We looked into ways in which we could reduce down the copper transmission losses, and we came up with a solution. A common complaint was "If only we could use DC," because DC is 20% more efficient than AC. So, we came up with a system called Access Smart Power (ASP), which again saves 30% of the electrical power. We're trialling ASP with three different operators now, as it fundamentally reduces down the electrical power consumption on that network. Even a 20-year-old network can lower the power consumption using this technique.

Then there is our one-touch equipment. Install it, set it up, and then everything is software-controlled remotely, so you only have to touch it once. The only time you would ever have to go and visit again is for break-fix maintenance, like if it's damaged by storms or floods. So again, that's saving fuel, labour and cost.

YOU HAVE A VERY PRAGMATIC APPROACH.

Everything is about getting more for less. Whether you believe in global warming or you don't, you're saving fuel and hence OpEx money. The only thing we all know for certain is that energy is getting more expensive.

DO YOU HAVE A PHILOSOPHY YOU LIVE BY IN THIS BUSINESS?

Ultimately, it's about creating disruptive solutions, to be the R&D department for our customers and help them progress their business as the market matures. That's the key. It's not remarkable to have broadband, everybody's got that now, but it's actually making it as a system that can be maintained over a long period of time.

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