

Innovation at Work - Alcatel-Lucent's WebTV Transcript for edition 1/2009

Hugh SCHOFIELD

Welcome to Dublin, Ireland, for a new edition of Innovation at Work. And in this programme we're looking at green technology.

Of course, it's a vital issue for telecoms suppliers, because nowadays, the environment is not some minor, peripheral issue. More and more, energy consumption and climate change - and how they can be reduced - these are vital factors for purchasers when they come to commission equipment, infrastructure, and consumer products.

Hugh SCHOFIELD

So what is Alcatel-Lucent doing in the field of green technology? Well, you may remember from our first edition this little device. It's a heat sink, which can cut energy consumption in telecoms equipment by a whopping 25%. Well, it was developed here at the Bell Labs facility in Blanchardstown, county Dublin.

Let's see what else is going on in the laboratory here.

Hugh SCHOFIELD

We're with Sam Samuel, who is director of Bell Labs for Ireland and the UK. Sam, we know that ICT accounts for about 2% of global carbon emissions, what is Alcatel-Lucent doing to bring that figure down?

Sam SAMUEL

We have reduced carbon emissions in our CDMA distributed base station by about 40%, we've done the same with our GSM base stations by 50%, and our DSL access lines have also been reduced by 20%.

Hugh SCHOFIELD

Looking ahead, what would you say are the main avenues of research here in Dublin?

Sam SAMUEL

There are three things that we're looking at, the first is thermal management of components, the second is power management of equipment and the third piece is topographical management of a network. Topographical management, this is a relatively new thing !future communication systems are being deployed around datacenters. Datacenters are usually where you hold information that is sent to people. These are being placed in colder climates, for reasons of reducing the amount of money we spend on cooling them. That means we have to route this information from remote places to where people need the information. That requires

us to be smart about how we manage those networks and about the way we use the energy in these networks - and that's what topographical management is.

Hugh SCHOFIELD

Sam, thanks so much.

Hugh SCHOFIELD

Now, to get down to the real "nitty-gritty" of the research, we've come down to the bowels of the Bell Laboratories, but before we go any further I want you to look in here, this is absolutely fantastic.

This is what they call an anechoic chamber; it's for testing antennas. These cone-like pieces of foam absorb the radio waves and make sure there's no reflection. And actually it's about antenna systems and how they can be made more eco-efficient that we're going to talk now to Florian Pivit.

Hugh SCHOFIELD

Florian, hi.

Florian PIVIT

Hi.

Hugh SCHOFIELD

Your project is called "Active Antenna Arrays" - what does that mean exactly?

First, I want to explain how a mobile communication infrastructure works today. Today we have about a cabinet-size infrastructure in where all the digital and analogue signal processing happens, and we need to carry that signal up to the antenna. And this transfer of the signal is today done by a coaxial cable. Half of the energy that is transported to of from the antenna is lost in these cables. So if we want to actually make our equipment way more efficient, we have to get rid of these cables by integrating the signal processing and the signal generation and the receiver directly into the antenna.

Hugh SCHOFIELD

So you're putting the "energy-creation bit" into the actual antenna?

Florian PIVIT

Exactly, I can show you this here. This is a model or a mock-up test setup for one of these active antenna elements, and as you can see, we have reduced the distance between the antenna element and the power generation from tens of meters down to a few centimetres.

Hugh SCHOFIELD

Florian, thanks a million.

Florian PIVIT

You're welcome.

Hugh SCHOFIELD

So there we have a classic example of the way Alcatel-Lucent is powering new ideas to make technology more eco-efficient. It's highly specialized stuff. And what better way to get the brainpower needed than a linkup with one of the most prestigious universities in Europe.

Trinity College, founded here in the heart of Dublin more than 400 years ago by Queen Elisabeth I, and ever since, an admired and very beautiful centre of learning in the Arts ... and the Sciences.

Hugh SCHOFIELD

This is the CTVR, the Center for Telecommunications Research, headquartered in Trinity, which works very closely with Alcatel-Lucent. You can see around me researchers, scientists from around the world, from Pakistan, from China, from Italy, and from Ireland of course. Now here is Professor Donal O'Mahoney. Now, you're head of the CTVR. To what extent would you say that modern day research in the telecommunications business is driven by the environmental agenda?

Donal O'MAHONEY

Well, there's a huge public concern about global warming and CO2 emissions and I think that combined with the whole rising cost of energy, and the fact that telecoms equipment is running 365 days a year - that really adds to the cost of ownership, and those two things combined really make environmental concerns top of the telecom research agenda right now.

CTVR spans about 7 Irish universities and third level institutes, so we can really draw on a huge range of skill sets to apply to telecom's problems. For example one of the areas we're looking into is energy consumption in all optical networks.

Now telecoms networks use an amount of energy that's based on their peak capacity, whereas most of the time - during the night for example - they are using practically none of that capacity. So we're looking into optical transceivers that can throttle down their speed of operation and enhance their energy consumption.

Hugh SCHOFIELD

So, looking ahead, ecological concerns are really at the heart of things.

Donal O'MAHONEY

Yes, we have a range of projects going on within CTVR in association with Alcatel-Lucent that's really going to put energy saving concerns right into the heart of research in telecoms in the next five, ten or fifteen years.

Hugh SCHOFIELD

Thanks very much.

Donal O'MAHONEY

Thanks for coming by!

Hugh SCHOFIELD

That's all for this green edition of Innovation at work, appropriately enough from the green island of Ireland. We'll be back next month for more insights on how the future is being created by you - right now.